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Goddard Space Flight Center
Greenbelt, Maryland

National Aeronautics and
Space Administration

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Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for VIIRS RDR/SDR

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Preface

This document is under JPSS Ground ERB configuration control. Once this document is approved, JPSS approved changes are handled in accordance with Class I and Class II change control requirements as described in the JPSS Configuration Management Procedures, and changes to this document shall be made by complete revision.

Any questions should be addressed to:

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Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)	Sections Affected
0200-	July 26, 2013	This version incorporates 474-CCR-13-1104 which was approved by JPSS Ground ERB on the effective date shown.	All
0200A	Jan 16, 2014	This version incorporates 474-CCR-13-1336 which was approved by JPSS Ground ERB on the effective date shown.	All
0200A1	Oct 23, 2014	This version incorporates 474-CCR-14-2091 which was approved by the JPSS Ground ERB for CO10 on the effective date shown.	All
0200B	Jan 21, 2015	This version incorporates 474-CCR-14-2168 and 474-CCR-14-2203 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200C	May 21, 2015	This version incorporates 474-CCR-14-2288 and 474-15-2427 which was approved by the JPSS Ground ERB on the effective date shown.	Al
0200D	July 28, 2015	This version incorporates 474-CCR-15-2434 and 474-CCR-15-2506 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200E	Feb 12, 2016	This version incorporates 474-CCR-15-2657 and 474-CCR-16-2768 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200F	Jun 07, 2016	This version incorporates 474-CCR-16-2939 which was approved by the JPSS Ground ERB on the effective date shown.	All

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Table of TBDs/TBRs

TBx	Type	ID	Text	Action
1	TBD	SRS.02.06_117	The detailed structure and contents of the APs are documented in the Mission Data Format Control Book (MDFCB) for each mission, GSFC 429-05-02-42 for S-NPP, 472-00251 for JPSS-1, and 472-TBD2 for JPSS-2. For more information on AP formatting, see the Recommendations for Advanced Orbiting Systems, Networks and Data Links, CCSDS 701.0-B-2, Section 3.3.3. Note: All multi-byte structures are in Big Endian.	Document numbers are TBD for the JPSS-2
2	TBD	SRS.02.06_637	Table 4.6.2-1, VIIRS S-NPP Telemetry RDR Application Packets, lists the S-NPP APs accumulated for the VIIRS Telemetry RDR. Table 4.6.2-2, VIIRS JPSS-1 Telemetry RDR Application Packets, lists the JPSS-1 APs accumulated for the VIIRS Telemetry RDR. In the event of a discrepancy in the APIDs listed here, see the Command and Telemetry Handbook (C&TH) BATC Drawing 568423 for S-NPP, or 472-TBD1 for JPSS-1.	Document number is TBD for the JPSS-1

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1 Introduction

1.1 Scope

The Joint Polar Satellite System (JPSS) Algorithm Specification for VIIRS RDR/SDR - Volume II: Data Dictionary contains the specifications for the format of the VIIRS Raw Data Records (RDRs) and Sensor Data Records (SDRs). This specification includes the format of the Hierarchical Data Format Release 5 (HDF5) files, as well as the product definitions. These formats are available to external users of the JPSS. For an overview of the data product formats, see 474-00001-01, JPSS CDFCB-X Vol I. For an overview of the metadata formats for data products, see 474-00448-02-01, JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms.

1.2 Organization

Section	Contents
Section 1	Provides information regarding the scope, and organization of this document, as reference material only.
Section 2	Lists parent documents and related documents that were used as sources of information for this document or that provide additional background information to aid understanding of the interface implementations.
Section 3	Provides an overview of the HDF5 UML for the data product types.
Section 4	Provides a description of the contents of each JPSS RDR.
Section 5	Provides a description of the contents of each JPSS TDR if applicable.
Section 6	Provides a description of the contents of each JPSS SDR.
Section 7	Provides a description of relevant Look-Up Tables (LUTs) and Processing Coefficient Tables (PCTs).
Section 8	Provides a description of each Intermediate Product if applicable.
Appendix A	Provides the Data Mnemonic to Interface Mapping for the data products in this volume.
Appendix B	Provides common RDR static header values in this volume.
Appendix C	Provides a mapping of the quality flags by sensor and product that are reportable to the associated data product quality flag Test ID used in the processing environment.
Appendix D	Provides reference to acronyms and glossary of terms found within the JPSS Program Lexicon (470-00041).
Attachment A	Provides the list of applicable xml files for this Data Dictionary.

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2 Related Documentation

The latest JPSS documents can be obtained from URL: https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm. JPSS Project documents have a document number starting with 470, 472 or 474 indicating the governing Configuration Control Board (CCB) (Program, Flight, or Ground) that has the control authority of the document.

2.1 Parent Documents

The following reference document(s) is (are) the Parent Document(s) from which this document has been derived. Any modification to a Parent Document will be reviewed to identify the impact upon this document. In the event of a conflict between a Parent Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Document Number	Title
474-00448-01-06	Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirements Specification (SRS) for VIIRS RDR/SDR

2.2 Applicable Documents

The following document(s) is (are) the Applicable Document(s) from which this document has been derived. Any modification to an Applicable Document will be reviewed to identify the impact upon this document. In the event of conflict between an Applicable Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Document Number	Title
NPR 7150.2A	NASA Software Engineering Requirements
474-00167	Joint Polar Satellite System (JPSS) Common Ground System (CGS) Requirements Document
474-00005	Joint Polar Satellite System (JPSS) Government Resource for Algorithm Verification, Independent Testing, and Evaluation (GRAVITE) Requirements Document
	Hierarchical Data Format, Version 5 (HDF5), http://www.hdfgroup.org/HDF5/
474-00448-04-06	Joint Polar Satellite System (JPSS) Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for the VIIRS RDR/SDR

2.3 Information Documents

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of this document.

Document Number	Title
D0001-M01-S01-003	JPSS VIIRS RDR/SDR Radiometric Calibration Algorithm Theoretical Basis Document (ATBD)
474-00448-03-06	Joint Polar Satellite System (JPSS) Algorithm Specification Volume III: Operational Algorithm Description (OAD) for the VIIRS RDR/SDR

Document Number	Title
472-00251	Mission Data Format Control Book (MDFCB) Joint Polar Satellite Systems-1 (JPSS-1)
474-00333	Joint Polar Satellite System (JPSS) Ground System (GS) Architecture Description Document (ADD)
474-00054	Joint Polar Satellite System (JPSS) Ground System (GS) Concept of Operations (ConOps)
470-00041	Joint Polar Satellite System (JPSS) Program Lexicon
474-00001-01	Joint Polar Satellite System (JPSS) Common Data Format Control Book, Vol I - Overview
474-00448-02-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Common Algorithms
472-00335	Joint Polar Satellite System-1 (JPSS-1) Visible Infrared Imaging Radiometer Suite (VIIRS) Mission Data Packet Structures

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

3 UML for HDF5 Products

3.1 RDR HDF5 Details

Figure 3.1-1, Science and Diagnostic RDR Generalized UML Diagram, depicts the HDF5 RDR file organization as a Unified Modeling Language (UML) class diagram for Science and Diagnostic RDRs. This also describes the science calibration RDRs generated by OMPS. Figure 3.1-2, Dwell, Dump, and Telemetry RDR Generalized UML Diagram, depicts the HDF5 RDR file organization as a UML Class Diagram for Dwell, Dump and Telemetry RDRs.

Each HDF5 RDR file contains an HDF5 Root Group, '/', a Data_Products Group, one or more Product Groups (CollectionShortName), and an All_Data Group containing one or more (CollectionShortName)_All groups. The latter group contains the Dataset_Array which holds the common RDR structures of Consultative Committee for Space Data Systems (CCSDS) structured APs. For Science and Diagnostic RDRs a Spacecraft Diary Group is also included in the Data_Products group. The Product Groups and Spacecraft Diary Group both contain datasets - an Aggregation Dataset (CollectionShortName_Aggr) and Granule Datasets (CollectionShortName_Gran_n - where n indicates the nth granule in a temporal aggregation of granules (0 .. n-1)). A granule is a general term used to describe the minimum quanta of data collected per processing period, generally on the order of tens of seconds. For the definition and organization of the metadata attributes contained in the HDF5 files, see 474-00448-02-01, JPSS Algorithm Specification Vol II: Data Dictionary for the Common Algorithms. Attributes that are specific to a particular RDR are listed with the specific RDR's data format definition. Note: In the UML diagrams, an '*' following the name of an attribute indicates an element with exceptions; see JPSS Algorithm Specification Vol II: Data Dictionary for the Common Algorithms, for the details of the exception.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

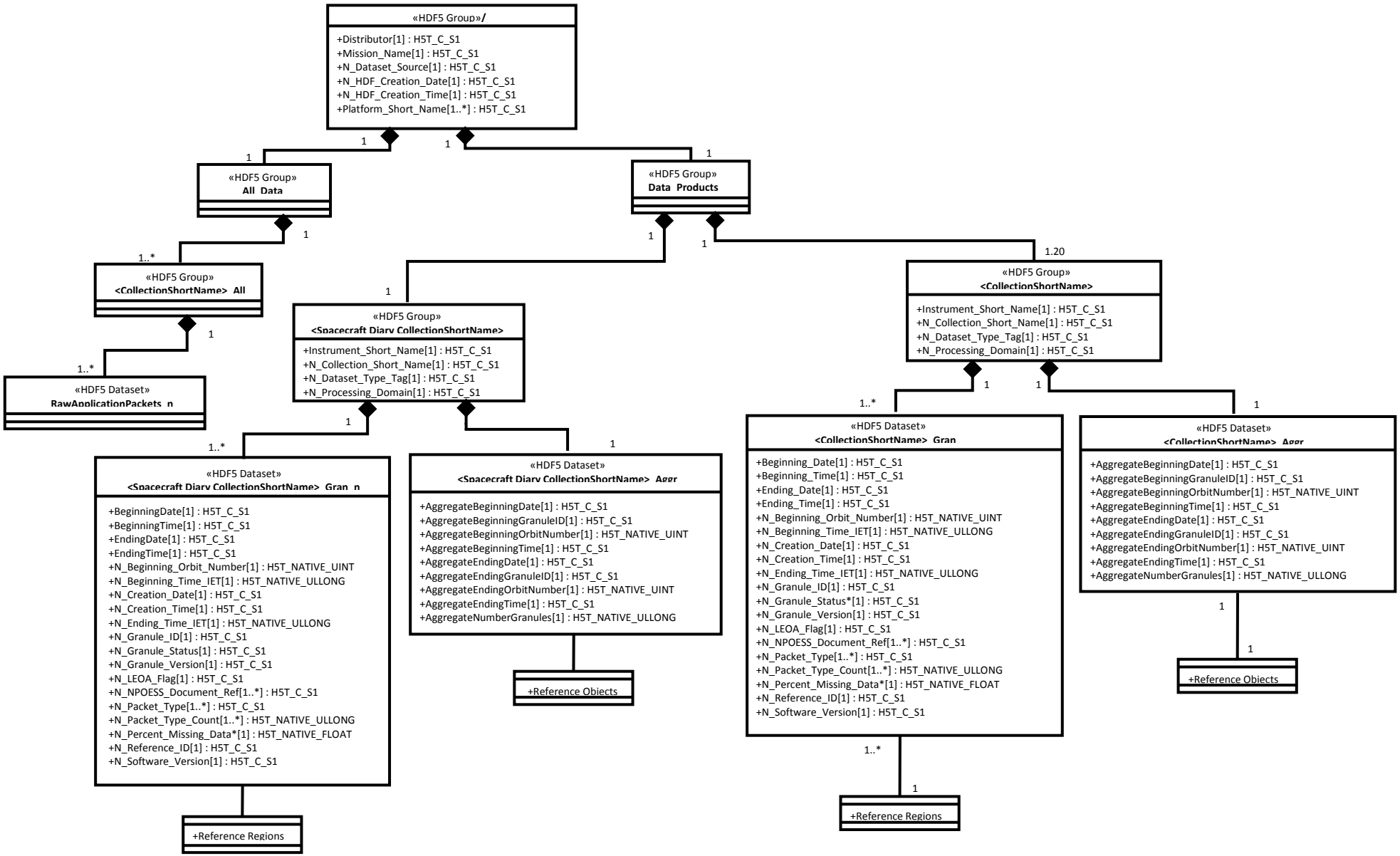

Figure: 3.1-1 Science and Diagnostic RDR Generalized UML Diagram

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

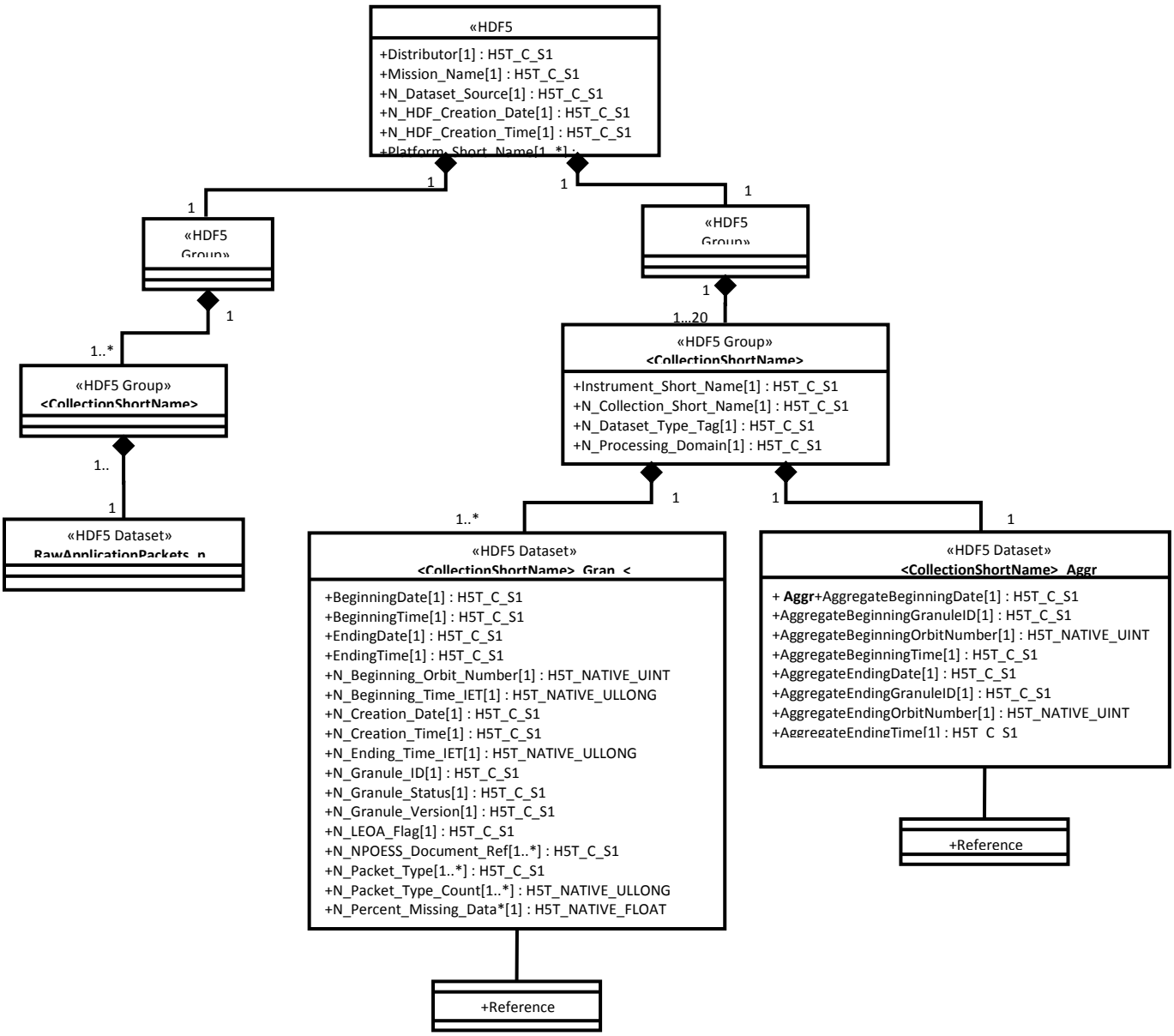

Figure: 3.1-2 Dwell, Dump, Telemetry, and Spacecraft Diary (when requested separately) RDR Generalized UML Diagram

3.2 TDR/SDR HDF5 Details

Figure 3.2-1, Generalized UML Diagram for HDF5 SDR/TDR Files, depicts the HDF5 SDR/TDR organization as a Unified Modeling Language (UML) class diagram. Each HDF5 SDR/TDR file contains an HDF5 Root Group, '/', a Data Products Group, Product Groups (Collection Short Name), an optional Geolocation Group (depending upon packaging option, see the JPSS CDFCB-X Vol. I for a description of the geolocation packaging), and an All Data Group (dataset arrays). The Product Groups and Geolocation Group both contain datasets - an Aggregation Dataset (Collection Short Name_Aggr) and Granule Datasets (Collection Short

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Name_Gran_n) - where n indicates the nth granule in a temporal aggregation of granules (0 .. n-1). A granule is a general term used to describe the minimum quanta of data collected per processing period, generally on the order of tens of seconds. For the definition and organization of the metadata attributes contained in the HDF5 files, see 474-00448-02-01, JPSS Algorithm Specification Vol II: Data Dictionary for the Common Algorithms. Attributes that are specific to a particular SDR/TDR are listed with the specific SDR/TDR's data format definition. For the generalized formats and packaging options for the Geolocation data, see the JPSS CDFCB-X Vol. I.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

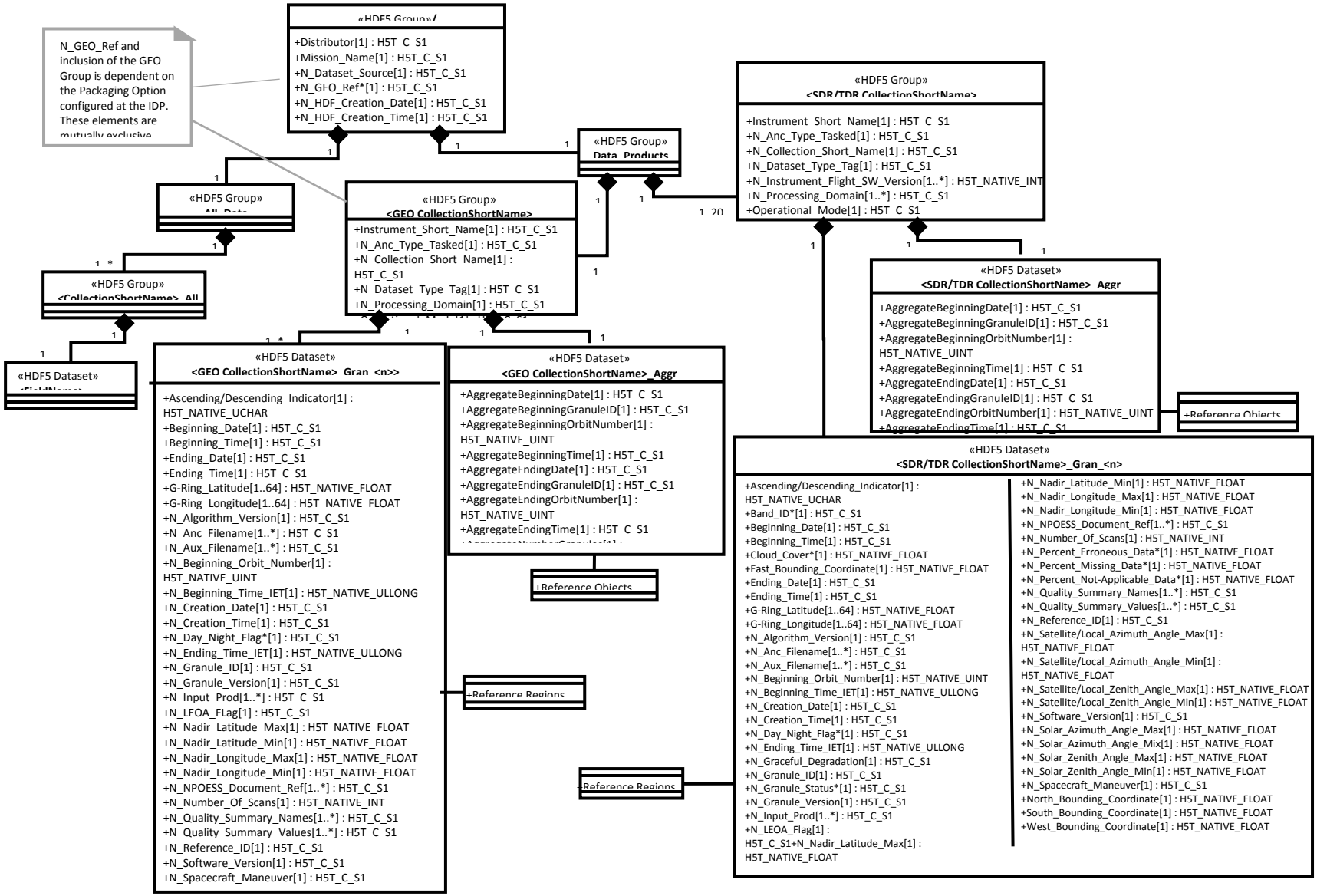

Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4 JPSS Raw Data Records (RDRs)

The following paragraphs describe the structure and contents of the RDR granules formed by the JPSS ground processing software. The ground processing software generates several RDRs for each sensor by accumulating one or more specific APs into a single collection. The accumulated APs are not byte-aligned or otherwise altered. They are merely collected and placed into storage in the order that they are received. The following paragraphs describe the binary packaging structure for these accumulated APs. Table 4-1, Common RDR Structure, shows the common JPSS RDR Structure. All JPSS RDRs are based on the same generic granule storage framework and is illustrated conceptually in Figure 4-1 Common RDR Layout.

The detailed structure and contents of the APs are documented in the Mission Data Format Control Book (MDFCB) for each mission, GSFC 429-05-02-42 for S-NPP, 472-00251 for JPSS-1, and 472-TBD2 for JPSS-2. For more information on AP formatting, see the Recommendations for Advanced Orbiting Systems, Networks and Data Links, CCSDS 701.0-B-2, Section 3.3.3.

Table: 4-1 Common RDR Structure

Field Name	Description
Static Header	Static header describing the RDR
APID List	Array of structures that contains information about each APID that is collected in the RDR
Packet Tracker	Array of structures that contains information about each AP that is in the RDR
AP Storage area	General buffer where the APs are stored back-to-back in the order that they are received

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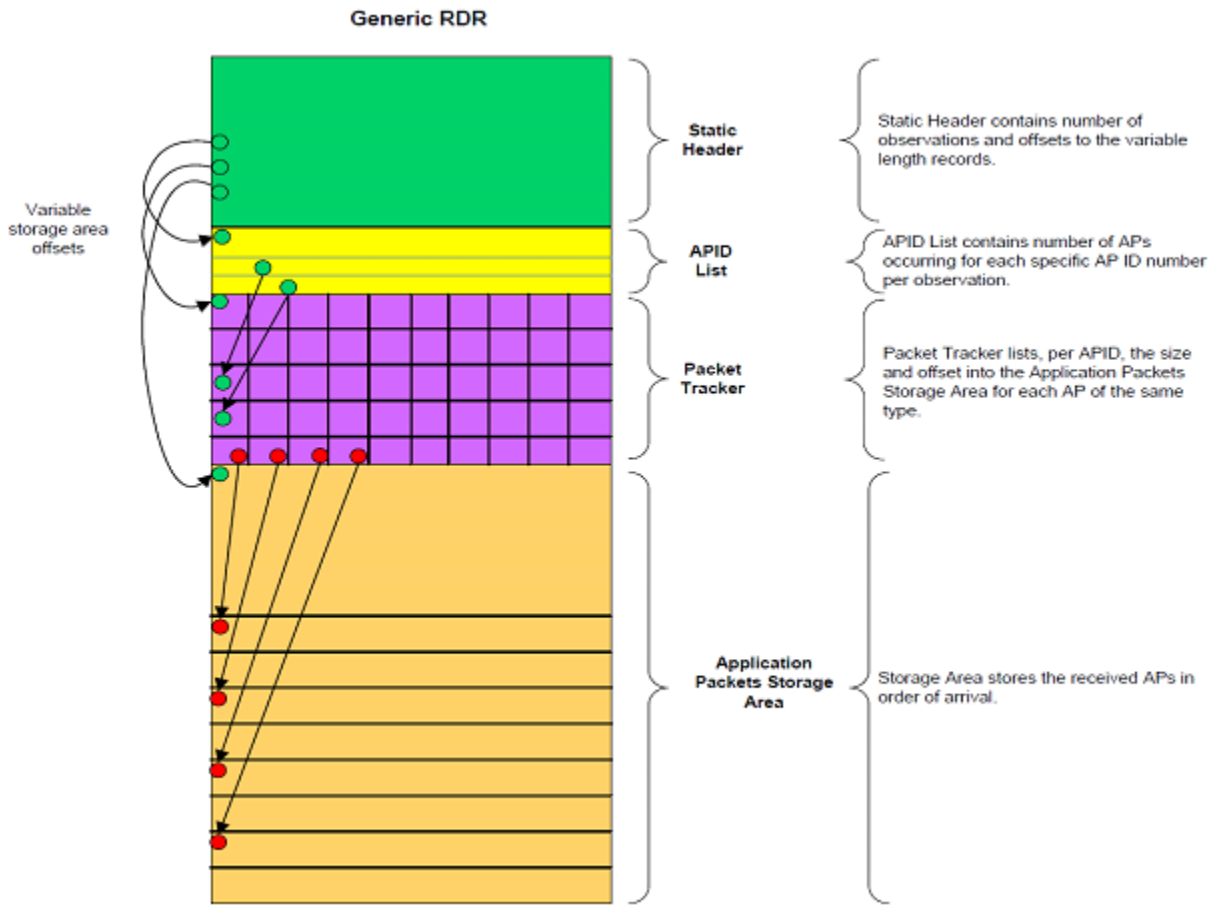

Figure: 4-1 Common RDR Layout

4.1 Common RDR Structures

The following section defines these structures and provides methods for determining the variable length RDR components.

Description/ Purpose	The following tables describe the four structures found in the common RDR Structure. The common RDR Structure granules are referenced by the HDF5 Object and Reference Region pointers in the CollectionShortName_Aggr and CollectionShortName_Gran_# datasets, respectively.
File-Naming Construct	See the JPSS CDFCB-X Vol. I-Overview, Section 3.0 for details.
File Size	Nominally specified per RDR
File Format Type	Big Endian Binary (structure stored within HDF5)
Production Frequency	Common structure created for each RDR granule Granule durations specified per RDR
Data Content and Data Format	Each RDR has a single RDR Static Header and a dynamic Application Packet content area with three major entries: 1) APID List, 2) Packet Tracker List, and 3) Application Packet Storage Area. Table 4.1-1, RDR Static Header, details the spacecraft and sensor that the RDR data originated from, the type of data the RDR contains, and the start

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Description/ Purpose	The following tables describe the four structures found in the common RDR Structure. The common RDR Structure granules are referenced by the HDF5 Object and Reference Region pointers in the CollectionShortName_Aggr and CollectionShortName_Gran_# datasets, respectively.
	and end boundary times of the RDR granule. It also provides byte offset information needed to access individual APs and the number of AP types that are contained in the RDR. Tables 4.1-2, 4.1-3, and 4.1-4 define the Dynamic Application Packet content area. Table 4.1-2, RDR APID List, defines the structure used to identify the AP data type and it provides information necessary for accessing the RDR Packet Tracker. The APID List has details for each APID including number expected and received. Table 4.1-3, RDR Packet Tracker provides information about individual APs. Table 4.1-4, Application Packet Storage Area, describes the storage area containing the APs.

Table 4.1-1, RDR Static Header, details the spacecraft and sensor that the data originated from, the type of the data the RDR contains, and the start and end boundary times of the RDR granule. The RDR contains APs that have observation times which are greater than or equal to the start boundary and less than the end boundary time. The total size of the RDR Static Header is 72 bytes.

Table: 4.1-1 RDR Static Header

Field Name	DataType	Description
satellite	char[4]	Source satellite name as found in JPSS CDFCB-X Vol. I, Table 3.4.1-1, Spacecraft ID.
Sensor	char[16]	The RDR sensor name in a case-sensitive string (Example: “VIIRS”, “ATMS”, “CrIS”, etc. See Appendix B, Common Static Header Values, for specific values.)
typeID	char[16]	The RDR type in an upper case string (Example: “SCIENCE”, “DIAGNOSTIC”, “TELEMETRY”, “MEMORY DUMP”, “DWELL”. See Appendix B, Common Static Header Values, for specific values.)
numAPIDs	Uint32	The number of different types of expected APIDs that make the RDR. (numAPIDs is specific for each type of RDR, see Appendix B, Common Static Header Values, for specific values.)
apidListOffset	Uint32	Byte offset of the APID List (this is equivalent to the size of the static header: 72). The APID List starts immediately after the Generic RDR Static Header. Note: Always use this value to find the APID address.
pktTrackerOffset	Uint32	Byte offset from the beginning of the Common RDR to the Packet Tracker list

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Field Name	DataType	Description
		Note: Always use this value to find the Packet Tracker list.
apStorageOffset	Uint32	Byte offset from the beginning of the Common RDR to the AP Storage Note: Always use this value to find the AP Storage.
nextPktPos	Uint32	Byte offset from the beginning of the Application Packet Storage Area (apStorageOffset) to the end of valid data within the Application Packet Storage Area
startBoundary	int64	All APs occur at or after this time in IDPS Epoch Time (IET) format. Note IET begins January 1, 1958 and is measured in microseconds. For more information on IET see JPSS CDFCB-X Vol. I, Section 3.3.1.
endBoundary	int64	The RDR non-inclusive boundary time in IET format. All APs occur before this time.

Table 4.1-2, RDR APID List, details the APIDs that are in the RDR. The number of elements in the list is equal to the numAPIDs field in the RDR Static Header. The size of a single RDR APID list element is 32 bytes.

Table: 4.1-2 RDR APID List

Field Name	DataType	Description
name	char[16]	Shortname describing the data type (Example: M01 for VIIRS. See individual RDR sections for specific values.)
value	Uint32	This field stores an APID that is in the RDR.
pktTrackerStartIndex	Uint32	The first index in the pktTracker array that will contain an AP of this APID. This index is zero based.
pktsReserved	Uint32	This field stores the number of APs reserved for this APID in this RDR. This value accounts for the worst case expected for the temporal granule period. Due to variability in scan rates, the actual number of packets received can be less than the "reserved" and still be 100% complete as shown in the metadata.
pktsReceived	Uint32	The number of APs of this APID that have been received for this RDR

Each RDR contains an array of Packet Trackers. Table 4.1-3, RDR Packet Tracker, details information about the AP and its location in the storage buffer. The number of elements in this array is equal to the total number of packets that are expected for all expected APIDs. The size of a single RDR Packet Tracker is 24 bytes.

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Table: 4.1-3 RDR Packet Tracker

Field Name	DataType	Description
obsTime	int64	The IET observation time of the AP as derived from the CCSDS Secondary Header of the AP or associated with the segmented group of the APID.
sequenceNumber	int32	The 14 bit sequence number extracted from the Primary Header's Packet Sequence Control word of the AP. This is used to track segmented packets and their location.
size	int32	The AP size in bytes as received
offset	int32	The AP begins at this offset from the beginning of the AP Storage Area. From the beginning of the RDR, the AP is at "offset" + apStorageOffset. (offset = -1 for packets not received).
fillPercent	int32	Percentage of fill data included in the AP. Based on received and expected bytes per AP with valid values being 0-100% reported to the nearest %. Any AP with fill data (even one byte) will be reported with at least 1% fill data. Under normal conditions the value is 0. If the primary AP header indicates a secondary AP header is present, and the time code of the secondary AP header is fill, the AP is not made available. In the event that an AP is repaired, resulting in less fillPercent, a repaired RDR granule may be produced. See JPSS CDFCB-X, Vol. I, Section 3.5.7 for more information on Repair Granules.

Table 4.1-4 Application Packet Storage Area, describes the AP storage area.

Table: 4.1-4 Application Packet Storage Area

Field Name	Data Type	Description
apStorage	Array of unsigned int8	Storage area where application packets are stored as they arrive in consecutive order

Table 4.1-5, Application Packet Tables, provides explanations of the fields given for each RDR described in the following sections. APIDs are listed in the JPSS Alg. Spec. for VIIRS Volume IV: SRSPF (474-00448-04-06).

Table: 4.1-5 Application Packet Tables

APID Short Name	Description	Value $APID_{10}$
Short name of this Application Packet as an upper-case string	Brief description of this application packet	Unique Application packet ID value

Note: Grouped or segmented packets contain mission data exceeding the size of a single CCSDS packet.

Accessing APs can be achieved in two fashions; Random Access or Sequential Access.

To access APs in random order by AP type:

- Get the range for a specific type of data from the APID List
    - Find desired AP type using name field

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  - Get pktTrackerStartIndex
  - Get pktsReserved
- Loop over the elements in Packet Tracker array starting at pktTrackerStartIndex
  - Get offset (if -1 stop processing no packet received)
  - Get size
  - Access the AP by adding the offset to the apStorageOffset value found in the Static Header
  - Extract size (the AP size in bytes) from the AP Storage Area
  - Repeat above for pktsReserved

To access APs in sequential order:

- Get the apStorageOffset from the Static Header to determine memory location for start of APs in AP Storage Area
- Get the nextPktPos from the Static Header (The nextPktPos value indicates the end of valid RDR data within the AP Storage Area)
- Parse AP's manually by reading the primary header, accessing the size of the packet, and accessing the user data section in the CCSDS packet

Repeat until nextPktPos equals current position.

4.2 VIIRS RDR Overview

Data Mnemonic	Science: RDRE-VIRS-C0030 Diagnostic: RDRE-VIRS-C0032 Telemetry-Diagnostic: RDRE-VIRS-C0036 Telemetry: RDRE-VIRS-C0031 Memory Dump: RDRE-VIRS-C0035
Description/ Purpose	The VIIRS sensor provides for the retrieval of imagery, aerosol, cloud, land, ocean, and earth radiation budget EDRs using visible and IR channels. VIIRS has 22 spectral bands over the 0.4 to 12.5 micron range. There are 15 "reflective" (8 Visible [VIS], 2 Near Infra-red [NIR], and 5 Short Wave Infrared[SWIR]) bands from 0.4 to 2.3 microns, three "mixed" Mid-Wave Infrared (MWIR) bands from 3.5 to 4.1 microns, and four "emissive" Long Wave Infrared (LWIR) bands from 8.4 to 12.5 microns.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, Section 3.0 for details
File Size	Science: See Table: 4.3.2-2 VIIRS Science RDR Structure for Size. Diagnostic: See Table: 4.4.2-2 VIIRS Diagnostic RDR Structure for size. Telemetry: See Table: 4.6.2-2 VIIRS Telemetry RDR Structure for size. Telemetry-Diagnostic: See Table: 4.5.2-1 VIIRS Telemetry-Diagnostic RDR Application Packets for size. Memory dump: See Table: 4.7.2-2 VIIRS Memory Dump RDR Structure for size.
File Format Type	HDF5

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	Science: RDRE-VIRS-C0030 Diagnostic: RDRE-VIRS-C0032 Telemetry-Diagnostic: RDRE-VIRS-C0036 Telemetry: RDRE-VIRS-C0031 Memory Dump: RDRE-VIRS-C0035
Data Content and Data Format	Section 4.3 describes the VIIRS Science RDR Section 4.4 describes the VIIRS Diagnostic RDR Section 4.5 describes the VIIRS Telemetry-Diagnostic RDR Section 4.6 describes the VIIRS Telemetry RDR Section 4.7 describes the VIIRS Memory Dump RDR

4.3 VIIRS Science RDR

4.3.1 VIIRS Science RDR HDF5 Files

The VIIRS Science RDR HDF5 files are described in Section 3.0, Raw Data Records HDF5 Details.

4.3.2 VIIRS Science RDR Data Content Summary

Table 4.3.2-1, S-NPP VIIRS Science RDR Application Packets, lists the S-NPP APs accumulated for the VIIRS Science RDR. Table 4.3.2-2, JPSS-1 VIIRS Science RDR Application Packets, lists the JPSS-1 APs accumulated for the VIIRS Science RDR. Not all APIDs in can be collected at all times due to LRD and HRD/SMD configuration differences. APIDs exclusive to LRD are identified with an “LRD” in the description, but may not be indicative of all available LRD APIDs. See Section 4.1, Common RDR Structures, for detailed information on how APIDs are stored within the RDR. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

Table: 4.3.2-1 VIIRS S-NPP Science RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
M04	Moderate Resolution Band 4 (Output during day mode only)	800
M05	Moderate Resolution Band 5 (Output during day mode only)	801
M03	Moderate Resolution Band 3 (Output during day mode only)	802
M02	Moderate Resolution Band 2 (Output during day mode only)	803
M01	Moderate Resolution Band 1 (Output during day mode only)	804
M06	Moderate Resolution Band 6 (Output during day mode only)	805
M07	Moderate Resolution Band 7	806
M09	Moderate Resolution Band 9 (Output during day mode only)	807
M10	Moderate Resolution Band 10	808
M08	Moderate Resolution Band 8	809
M11	Moderate Resolution Band 11	810

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

APID Short Name	Description	Value $APID_{10}$
M13	Moderate Resolution Band 13	811
M12	Moderate Resolution Band 12	812
I04	Imagery Resolution Band 4	813
M16	Moderate Resolution Band 16	814
M15	Moderate Resolution Band 15	815
M14	Moderate Resolution Band 14	816
I05	Imagery Resolution Band 5	817
I01	Imagery Resolution Band 1 (Output during day mode only)	818
I02	Imagery Resolution Band 2 (Output during day mode only)	819
I03	Imagery Resolution Band 3 (Output during day mode only)	820
DNB	Day Night Band	821
DNB_MGS	Day Night Band - Middle Gain Stage (Only output when commanded at night)	822
DNB_LGS	Day Night Band - Low Gain Stage (Only output when commanded at night)	823
CAL	Calibration	825
ENG	Engineering	826

Table: 4.3.2-2 VIIRS JPSS-1 Science RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
M04	Moderate Resolution Band 4 (Output during day mode only)	800
M05	Moderate Resolution Band 5 (Output during day mode only)	801
M03	Moderate Resolution Band 3 (Output during day mode only)	802
M02	Moderate Resolution Band 2 (Output during day mode only)	803
M01	Moderate Resolution Band 1 (Output during day mode only)	804
M06	Moderate Resolution Band 6 (Output during day mode only)	805
M07	Moderate Resolution Band 7	806
M09	Moderate Resolution Band 9 (Output during day mode only)	807
M10	Moderate Resolution Band 10	808
M08	Moderate Resolution Band 8	809
M11	Moderate Resolution Band 11	810
M13	Moderate Resolution Band 13	811
M12	Moderate Resolution Band 12	812
I04	Imagery Resolution Band 4	813
M16	Moderate Resolution Band 16	814
M15	Moderate Resolution Band 15	815

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

APID Short Name	Description	Value $APID_{10}$
M14	Moderate Resolution Band 14	816
I05	Imagery Resolution Band 5	817
I01	Imagery Resolution Band 1 (Output during day mode only)	818
I02	Imagery Resolution Band 2 (Output during day mode only)	819
I03	Imagery Resolution Band 3 (Output during day mode only)	820
DNB	Day Night Band	821
DNB_MGS	Day Night Band - Middle Gain Stage (Only output when commanded at night)	822
DNB_LGS	Day Night Band - Low Gain Stage (Only output when commanded at night)	823
CAL	Calibration	825
ENG	Engineering	826
DNB_HGA	Day Night Band - High Gain Stage “A” (Only output when commanded at night)	827
DNB_HGB	Day Night Band - High Gain Stage “B” (Only output when commanded at night)	828

Table 4.3.2-3, VIIRS S-NPP Science RDR Structure, shows the layout and static contents of the VIIRS Science RDR. Table 4.3.2-4, VIIRS JPSS-1 Science RDR Structure, shows the layout and static contents of the VIIRS Science RDR.

Table: 4.3.2-3 VIIRS S-NPP Science RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	NPP
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	SCIENCE
	36	numAPIDs	Uint32	26
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	904
	48	apStorageOffset	Uint32	591880
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[26]	Varies
	904	Pkt Tracker List	IngSmdCommon_PktTrackerType[24624]	Varies
	591880	AP storage area	Uint8[241965600]	Varies
File Size	**242,557,480 Bytes**			

Table: 4.3.2-4 VIIRS JPSS-1 Science RDR Structure

	Byte	Field	Type	Value
Static Header	0	Satellite	char[4]	J01
	4	Sensor	char[16]	VIIRS

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

	Byte	Field	Type	Value
	20	typeID	char[16]	SCIENCE
	36	numAPIDs	Uint32	28
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	968
	48	apStorageOffset	Uint32	631112
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[28]	Varies
	968	Pkt Tracker List	IngSmdCommon_PktTrackerType[26256]	Varies
	631112	AP storage area	Uint8[254672352]	Varies
File Size	**255,303,464 Bytes**			

4.4 VIIRS Diagnostic RDR

4.4.1 VIIRS Diagnostic RDR HDF5 Files

The VIIRS Diagnostic RDR HDF5 files are described in Section 3.1, Raw Data Records HDF5 Details.

4.4.2 VIIRS Diagnostic RDR Data Content Summary

Table 4.4.2-1, VIIRS S-NPP Diagnostic RDR Application Packets, lists the APs accumulated for the VIIRS Diagnostic RDR for S-NPP. Table 4.4.2-2, VIIRS JPSS-1 Diagnostic RDR Application Packets, lists the APs accumulated for the VIIRS Diagnostic RDR for JPSS-1. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

Table: 4.4.2-1 VIIRS S-NPP Diagnostic RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
DIA_M04	Diagnostic Moderate Resolution Band 4	830
DIA_M05	Diagnostic Moderate Resolution Band 5	831
DIA_M03	Diagnostic Moderate Resolution Band 3	832
DIA_M02	Diagnostic Moderate Resolution Band 2	833
DIA_M01	Diagnostic Moderate Resolution Band 1	834
DIA_M06	Diagnostic Moderate Resolution Band 6	835
DIA_M07	Diagnostic Moderate Resolution Band 7	836
DIA_M09	Diagnostic Moderate Resolution Band 9	837
DIA_M10	Diagnostic Moderate Resolution Band 10	838
DIA_M08	Diagnostic Moderate Resolution Band 8	839
DIA_M11	Diagnostic Moderate Resolution Band 11	840
DIA_M13	Diagnostic Moderate Resolution Band 13	841
DIA_M12	Diagnostic Moderate Resolution Band 12	842

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

APID Short Name	Description	Value $APID_{10}$
DIA_I04	Diagnostic Imagery Resolution Band 4	843
DIA_M16	Diagnostic Moderate Resolution Band 16	844
DIA_M15	Diagnostic Moderate Resolution Band 15	845
DIA_M14	Diagnostic Moderate Resolution Band 14	846
DIA_I05	Diagnostic Imagery Resolution Band 5	847
DIA_I01	Diagnostic Imagery Resolution Band 1	848
DIA_I02	Diagnostic Imagery Resolution Band 2	849
DIA_I03	Diagnostic Imagery Resolution Band 3	850
DIA_DNB	Diagnostic Day Night Band	851
DIA_DNB_MGS	Diagnostic Day Night Band - Middle Gain Stage-	852
DIA_DNB_LGS	Diagnostic Day Night Band - Low Gain Stage-	853
DIA_CAL	Diagnostic Calibration	855
DIA_ENG	Diagnostic Engineering	856

Table: 4.4.2-2 VIIRS JPSS-1 Diagnostic RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
DIA_M04	Diagnostic Moderate Resolution Band 4	830
DIA_M05	Diagnostic Moderate Resolution Band 5	831
DIA_M03	Diagnostic Moderate Resolution Band 3	832
DIA_M02	Diagnostic Moderate Resolution Band 2	833
DIA_M01	Diagnostic Moderate Resolution Band 1	834
DIA_M06	Diagnostic Moderate Resolution Band 6	835
DIA_M07	Diagnostic Moderate Resolution Band 7	836
DIA_M09	Diagnostic Moderate Resolution Band 9	837
DIA_M10	Diagnostic Moderate Resolution Band 10	838
DIA_M08	Diagnostic Moderate Resolution Band 8	839
DIA_M11	Diagnostic Moderate Resolution Band 11	840
DIA_M13	Diagnostic Moderate Resolution Band 13	841
DIA_M12	Diagnostic Moderate Resolution Band 12	842
DIA_I04	Diagnostic Imagery Resolution Band 4	843
DIA_M16	Diagnostic Moderate Resolution Band 16	844
DIA_M15	Diagnostic Moderate Resolution Band 15	845
DIA_M14	Diagnostic Moderate Resolution Band 14	846
DIA_I05	Diagnostic Imagery Resolution Band 5	847
DIA_I01	Diagnostic Imagery Resolution Band 1	848
DIA_I02	Diagnostic Imagery Resolution Band 2	849
DIA_I03	Diagnostic Imagery Resolution Band 3	850
DIA_DNB	Diagnostic Day Night Band	851
DIA_DNB_MGS	Diagnostic Day Night Band - Middle Gain Stage	852
DIA_DNB_LGS	Diagnostic Day Night Band - Low Gain Stage	853
DIA_CAL	Diagnostic Calibration	855
DIA_ENG	Diagnostic Engineering	856

Table 4.4.2-3, VIIRS S-NPP Diagnostic RDR Structure, shows the layout and static contents of the VIIRS Diagnostic RDR. Table 4.4.2-4, VIIRS JPSS-1 Diagnostic RDR Structure, shows the layout and static contents of the VIIRS Diagnostic RDR.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.4.2-3 VIIRS S-NPP Diagnostic RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	NPP
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	DIAGNOSTIC
	36	numAPIDs	Uint32	26
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	904
	48	apStorageOffset	Uint32	591880
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[26]	Varies
	904	Pkt Tracker List	IngSmdCommon_PktTrackerType[24624]	Varies
	591880	AP storage area	Uint8[144637728]	Varies
File Size	**145,229,608 Bytes**			

Table: 4.4.2-4 VIIRS JPSS-1 Diagnostic RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	J01
-	4	sensor	char[16]	VIIRS
-	20	typeID	char[16]	DIAGNOSTIC
-	36	numAPIDs	Uint32	26
-	40	apidListOffset	Uint32	72
-	44	pktTrackerOffset	Uint32	904
-	48	apStorageOffset	Uint32	591880
-	52	nextPktPos	Uint32	Varies
-	56	startBoundary	int64	Varies
-	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[26]	Varies
-	904	Pkt Tracker List	IngSmdCommon_PktTrackerType[24624]	Varies
-	591880	AP storage area	Uint8[144637728]	Varies
File Size	**145,229,608 Bytes**			

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.5 VIIRS Telemetry-Diagnostic RDR

4.5.1 VIIRS Telemetry-Diagnostic RDR HDF5 Files

The VIIRS Telemetry-Diagnostic RDR HDF5 files are described in Section 3.0, Raw Data Records HDF5 Details.

4.5.2 VIIRS Telemetry-Diagnostic RDR Data Content Summary

Table 4.5.2-1, VIIRS S-NPP Telemetry-Diagnostic RDR Application Packets, lists the S-NPP APs accumulated for the VIIRS Telemetry-Diagnostic RDR. Table 4.5.2-2, VIIRS JPSS-1 Telemetry-Diagnostic RDR Application Packets, lists the JPSS-1 APs accumulated for the VIIRS Telemetry-Diagnostic RDR. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

Table: 4.5.2-1 VIIRS S-NPP Telemetry-Diagnostic RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
HK_DIA	Diagnostic Telemetry (This packet is mutually exclusive with application packet APID 768)	773

Table: 4.5.2-2 VIIRS JPSS-1 Telemetry-Diagnostic RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
HK_DIA	Diagnostic Telemetry (This packet is mutually exclusive with application packet APID 768)	773

Table 4.5.2-3, VIIRS S-NPP Telemetry-Diagnostic RDR Structure, shows the layout and static contents of the VIIRS Telemetry-Diagnostic RDR. Table 4.5.2-4, VIIRS JPSS-1 Telemetry-Diagnostic RDR Structure, shows the layout and static contents of the VIIRS Telemetry-Diagnostic RDR.

Table: 4.5.2-3 VIIRS S-NPP Telemetry-Diagnostic RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	NPP
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	DIAGTELEMETRY
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	8216
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[338]	Varies

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

	Byte	Field	Type	Value
	8216	AP storage area	Uint8[150748]	Varies
File Size	**158,964 Bytes**			

Table: 4.5.2-4 VIIRS JPSS-1 Telemetry-Diagnostic RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	J01
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	DIAGTELEMETRY
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	8216
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[338]	Varies
	8216	AP storage area	Uint8[150748]	Varies
File Size	**158,964 Bytes**			

4.6 VIIRS Telemetry RDR

4.6.1 VIIRS Telemetry RDR HDF5 Files

The VIIRS Telemetry RDR HDF5 files are described in Section 3.0, Raw Data Records HDF5 Details.

4.6.2 VIIRS Telemetry RDR Data Content Summary

Table 4.6.2-1, VIIRS S-NPP Telemetry RDR Application Packets, lists the S-NPP APs accumulated for the VIIRS Telemetry RDR. Table 4.6.2-2, VIIRS JPSS-1 Telemetry RDR Application Packets, lists the JPSS-1 APs accumulated for the VIIRS Telemetry RDR. In the event of a discrepancy in the APIDs listed here, see the Command and Telemetry Handbook (C&TH) BATC Drawing 568423 for S-NPP, or 472-TBD1 for JPSS-1.

Table: 4.6.2-1 VIIRS S-NPP Telemetry RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
HK	Housekeeping Telemetry (This packet is mutually exclusive with application packet APID 773.)	768

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.6.2-2 VIIRS JPSS-1 Telemetry RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
HK	Housekeeping Telemetry (This packet is mutually exclusive with application packet APID 773.)	768

Table 4.6.2-3, VIIRS S-NPP Telemetry RDR Structure, shows the layout and static contents of the VIIRS Telemetry RDR. Table 4.6.2-4, VIIRS JPSS-1 Telemetry RDR Structure, shows the layout and static contents of the VIIRS Telemetry RDR.

Table: 4.6.2-3 VIIRS S-NPP Telemetry RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	NPP
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	TELEMETRY
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	8216
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[338]	Varies
	8216	AP storage area	Uint8[150748]	Varies
File Size	**158,964 Bytes**			

Table: 4.6.2-4 VIIRS JPSS-1 Telemetry RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	J01
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	TELEMETRY
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	8216
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[338]	Varies
	8216	AP storage area	Uint8[150748]	Varies

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

	Byte	Field	Type	Value
File Size	**158,964 Bytes**			

4.7 VIIRS Memory Dump RDR

4.7.1 VIIRS Memory Dump RDR HDF5 Files

The VIIRS Memory Dump RDR HDF5 files are described in Section 3.0, Raw Data Records HDF5 Details.

4.7.2 VIIRS Memory Dump RDR Data Content Summary

Table 4.7.2-1, VIIRS S-NPP Memory Dump RDR Application Packets, lists the S-NPP APs accumulated for the VIIRS Memory Dump RDR. Table 4.7.2-2, VIIRS JPSS-1 Memory Dump RDR Application Packets, lists the JPSS-1 APs accumulated for the VIIRS Memory Dump RDR. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

Table: 4.7.2-1 VIIRS S-NPP Memory Dump RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
DUMP	Memory Dump	780

Table: 4.7.2-2 VIIRS JPSS-1 Memory Dump RDR Application Packets

APID Short Name	Description	Value $APID_{10}$
DUMP	Memory Dump	780

Table 4.7.2-3, VIIRS S-NPP Memory Dump RDR Structure, shows the layout and static contents of the VIIRS Memory Dump RDR. Table 4.7.2-4, VIIRS JPSS-1 Memory Dump RDR Structure, shows the layout and static contents of the VIIRS Memory Dump RDR.

Table: 4.7.2-3 VIIRS S-NPP Memory Dump RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	NPP
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	DUMP
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	1664
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[65]	Varies
	1664	AP storage area	Uint8[4257890]	Varies

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

	Byte	Field	Type	Value
File Size	**4,259,554 Bytes**			

Table: 4.7.2-4 VIIRS S-NPP Memory Dump RDR Structure

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	J01
	4	sensor	char[16]	VIIRS
	20	typeID	char[16]	DUMP
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffset	Uint32	104
	48	apStorageOffset	Uint32	1664
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[65]	Varies
	1664	AP storage area	Uint8[4257890]	Varies
File Size	**4,259,554 Bytes**			

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

5 Temperature Data Records (TDRs)

Not Applicable

6 Sensor Data Records (SDRs)

SDR processing is instrument-specific and is an event-driven process. All instrument data required to create an SDR granule is contained within relevant Raw Data Record (RDR) granule(s). Processing an RDR into an SDR involves unpacking and de-commutating the Application Packet (AP) data, as necessary, applying calibration (radiometric, geometric, engineering), and finally geo-locating, as needed, using ephemeris and attitude information and earth model information.

An SDR contains the following:

- Calibrated sensor data
- Geolocation data (where applicable)
- Quality flags
- Metadata at the granule and aggregation level

6.1 SDR Granule Size

The granule sizes for SDRs given below are not absolute over the life of the sensor. Application software will need to determine the SDR array size by using the HDF5 software API.

The SDR granule is the smallest component of an HDF5 aggregation. Each HDF5 file will be composed of an aggregation of contiguous granules covering the time period specified in a request (the range being from one granule to the total number of granules in one orbit). To correctly use the HDF5 SDR files, operational software will need to determine the SDR array size by examining the appropriate HDF5 API's returned values per granule, or aggregation, as desired. The estimated size for each SDR granule is given in the SDR Data Unit Format.

6.2 Visible/Infrared Imager Radiometer Suite Moderate Resolution SDR

VIIRS Moderate Resolution Band (M-Band) summarizes the M-Band channels and their respective data mnemonics. The SDRs are available separately, but they are presented in this section grouped together in order to minimize the repeated information.

Table: 6.2-1 VIIRS M-Band SDRs

Data Mnemonic	Description/Purpose
SDRE-VM01-C0030	Band M1 - radiance & reflectance at nominal center wavelength 412 nm.
SDRE-VM02-C0030	Band M2 - radiance & reflectance at nominal center wavelength 445 nm.
SDRE-VM03-C0030	Band M3 - radiance & reflectance at nominal center wavelength 488 nm.
SDRE-VM04-C0030	Band M4 - radiance & reflectance at nominal center wavelength 555 nm.
SDRE-VM05-C0030	Band M5 - radiance & reflectance at nominal center wavelength 672 nm.
SDRE-VM06-C0030	Band M6 - radiance & reflectance at nominal center wavelength 746 nm.
SDRE-VM07-C0030	Band M7 - radiance & reflectance at nominal center wavelength 865 nm.
SDRE-VM08-C0030	Band M8 - radiance & reflectance at nominal center wavelength 1240 nm.
SDRE-VM09-C0030	Band M9 - radiance & reflectance at nominal center wavelength 1378 nm.
SDRE-VM10-C0030	Band M10 - radiance & reflectance at nominal center wavelength 1610 nm.
SDRE-VM11-C0030	Band M11 - radiance & reflectance at nominal center wavelength 2250 nm.
SDRE-VM12-C0030	Band M12 - radiance & emittance at nominal center wavelength 3700 nm.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	Description/Purpose
SDRE-VM13-C0030	Band M13 - radiance & emittance at nominal center wavelength 4050 nm.
SDRE-VM14-C0030	Band M14 - radiance & emittance at nominal center wavelength 8550 nm.
SDRE-VM15-C0030	Band M15 - radiance & emittance at nominal center wavelength 10763 nm.
SDRE-VM16-C0030	Band M16 - radiance & emittance at nominal center wavelength 12013 nm.

Data Mnemonic	See Table 6.2-1, VIIRS M-Band SDRs
Description/ Purpose	See Table 6.2-1, VIIRS M-Band SDRs The Visible/Infrared Imaging/Radiometer Suite (VIIRS) collects visible/infrared imagery and radiometric data. There are 16 detectors along-track in the M-Bands and 32 detectors along-track in the Imagery Resolution Bands (I-Band). *General Information on VIIRS SDRs* As the VIIRS telescope rotates across-track, every 1.7872 seconds, arrays of pixels are captured, creating a ~3000 km x ~12 km (across-track x along-track) image of the earth. Since VIIRS does not capture an entire earth image instantaneously, there is an inherent time delay in collecting a full set of pixels for each scan, and from scan to scan. From scan to scan, the delay is set such that the next scan is exactly one full field-of-regard, the detectors' horizontal along-track coverage, away from the previous scan. For instance the first row of detectors will be adjacent to the last row of detectors on the next scan. Although the output seen in the SDR is an array of data, for a number of reasons described below, the actual measurements from VIIRS are not perfectly contiguous within the array. Each geolocation data point should be used to accurately georeference the data, especially when viewing data from multiple scans. Since the rotation period is a specification which has a tolerance of +/- .45%, the actual rotation rate can vary. The actual value should be calculated from the scan times provided in the geolocation. The processing system of S-NPP and JPSS-1 is designed to allow for this specification tolerance. The processing software uses time rather than data size to define granules, and in order to never “overflow” the processing buffer size of one granule, the size of the internal granule is slightly smaller than the expected 85.7856 seconds (1.7872 seconds * 48 scans/second). This has the advantage of never allowing more scans than can fit in a granule, but has the disadvantage of generating scenarios where fewer than the nominal number of scans per granule can occur. Although this can happen for a number of other reasons, for a nominal granule containing 48 scans, on occasion there can be 47 scans due to the design to allow for tolerance in scan rates. The number of actual scans in the granule is stored in the granule metadata item N_Number_Of_Scans. Since granule array dimensions are fixed in size, the last scan in this 47 of 48 scan case will be filled with a “does not exist” type of fill value. The corresponding geolocation will also be filled since the values in the array are simply artifacts of the processing system. More information on fill values can be found in JPSS CDFCB-X Vol. I, Section 3.5.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	See Table 6.2-1, VIIRS M-Band SDRs
	For all nominal S-NPP and JPSS-1 orbits (afternoon Local Time of Ascending Node) the first detector produces the 16th scan line (or pixel row). When referring to the "bad detector" flag array, the first array element represents detector 1 (which for the M-Band is pixel row 16). Note: VIIRS auxiliary data, such as relative spectral response curves, reference the detector number and not scan line. While the geolocation angles included with VIIRS SDRs are with respect to the Geoid, the calibrated TOA reflectance is calculated using the terrain corrected solar zenith angle. Note that radiances are not corrected for out of band contributions.
	Moderate and Imagery Resolution Aggregation and Bow-tie Deletion VIIRS fundamental spatial measurement unit is a sample, however pixels are reported in the SDR product. The projected size on the ground of samples gets larger at larger scan angles off nadir due to the increased distance from the sensor and the observed angle of incidence. Samples are created from pixels by averaging (aggregating) across-track which creates more horizontally uniform pixels. The samples with a scan angle within 32 degrees of nadir, have a smaller size when projected on the ground, and so are aggregated 3:1 in the scan (across-track) dimension. Those occurring at scan angles between ~32 degrees and ~45 degrees off nadir are aggregated 2:1 in the scan dimension. The samples at scan angles greater than ~45 degrees off nadir are not aggregated. The aggregation of samples across the scan reduces the total number of samples; however, there is still a factor of two increase in the projected ground size of each pixel from nadir to maximum scan angle. This is referred to as the bow-tie effect (See Figure 6.2-1, VIIRS Bow-Tie Effect), as the projected scan track for all the pixels in one scan generally resembles a bow-tie. The additional pixel rows, in the two outside aggregation zones mentioned above, duplicate coverage from scan to scan, and are deleted. The deletion process impact for M-Band pixels is shown in Figure 6.2-2, VIIRS Bow-tie Deletion. This results in about half of the bow-tie overlapping pixels not being transmitted to ground. The values in the resulting product arrays are filled with the on-board pixel trim fill values during ground processing.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
File Size	M1: See Table: 6.2.1-1 VIIRS M1 SDR Data Content Summary for size. M2: See Table: 6.2.5-1 VIIRS M2 SDR Data Content Summary for size. M3: See Table: 6.2.9-1 VIIRS M3 SDR Data Content Summary for size. M4: See Table: 6.2.13-1 VIIRS M4 SDR Data Content Summary for size. M5: See Table: 6.2.17-1 VIIRS M5 SDR Data Content Summary for size. M6: See Table: 6.2.21-1 VIIRS M6 SDR Data Content Summary for size. M7: See Table: 6.2.25-1 VIIRS M7 SDR Data Content Summary for size. M8: See Table: 6.2.29-1 VIIRS M8 SDR Data Content Summary for size. M9: See Table: 6.2.33-1 VIIRS M9 SDR Data Content Summary for size. M10: See Table: 6.2.37-1 VIIRS M10 SDR Data Content Summary for size.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	See Table 6.2-1, VIIRS M-Band SDRs
	M11: See Table: 6.2.41-1 VIIRS M11 SDR Data Content Summary for size. M12: See Table: 6.2.45-1 VIIRS M12 SDR Data Content Summary for size. M13: See Table: 6.2.49-1 VIIRS M13 SDR Data Content Summary for size. M14: See Table: 6.2.53-1 VIIRS M14 SDR Data Content Summary for size. M15: See Table: 6.2.57-1 VIIRS M15 SDR Data Content Summary for size. M16: See Table: 6.2.61-1 VIIRS M16 SDR Data Content Summary for size. Geolocation: See Table: 6.2.65-1 VIIRS M-Band SDR Geolocation Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	See Section 6.2.1 VIIRS M1 SDR Data Content Summary. See Section 6.2.5 VIIRS M2 SDR Data Content Summary. See Section 6.2.9 VIIRS M3 SDR Data Content Summary. See Section 6.2.13 VIIRS M4 SDR Data Content Summary. See Section 6.2.17 VIIRS M5 SDR Data Content Summary. See Section 6.2.21 VIIRS M6 SDR Data Content Summary. See Section 6.2.25 VIIRS M7 SDR Data Content Summary. See Section 6.2.29 VIIRS M8 SDR Data Content Summary. See Section 6.2.33 VIIRS M9 SDR Data Content Summary. See Section 6.2.37 VIIRS M10 SDR Data Content Summary. See Section 6.2.41 VIIRS M11 SDR Data Content Summary. See Section 6.2.45 VIIRS M12 SDR Data Content Summary. See Section 6.2.49 VIIRS M13 SDR Data Content Summary. See Section 6.2.53 VIIRS M14 SDR Data Content Summary. See Section 6.2.57 VIIRS M15 SDR Data Content Summary. See Section 6.2.61 VIIRS M16 SDR Data Content Summary. See Section 6.2.65 VIIRS M-Band SDR Geolocation Content Summary.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

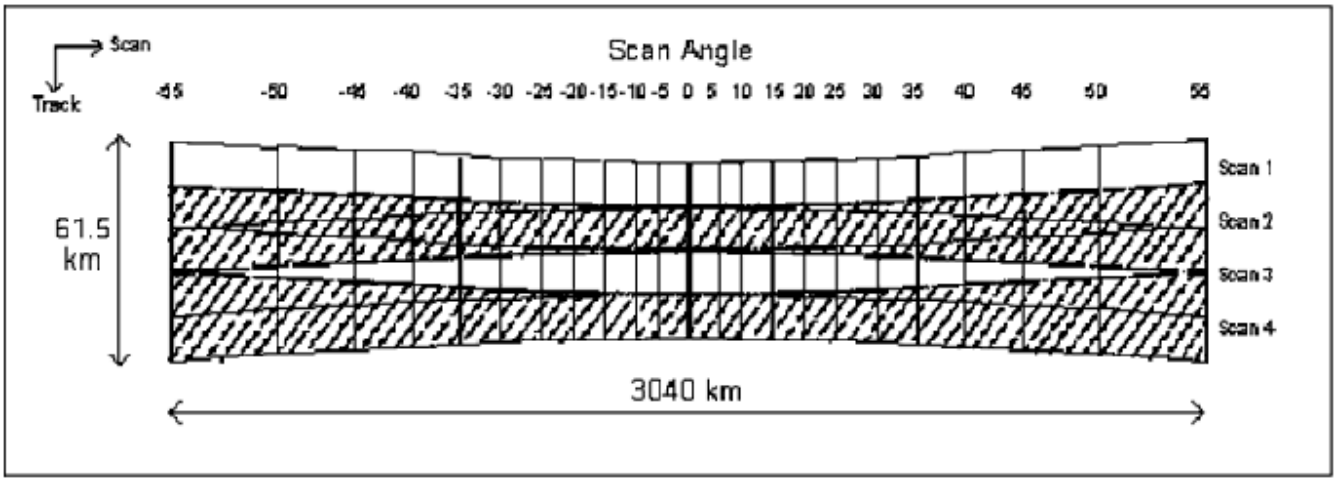

Figure: 6.2-1 VIIRS Panoramic Bow-tie Effect (Afternoon Local Time of Ascending Node).

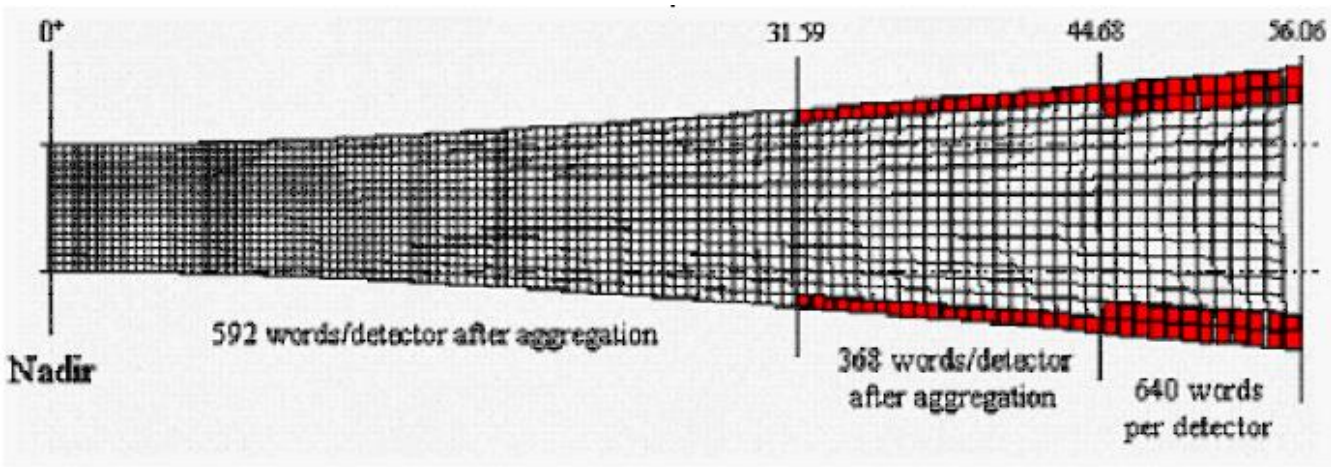

Figure: 6.2-2 VIIRS Bow-tie Deletion.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.1 VIIRS M1 SDR Data Content Summary

The VIIRS M1 SDR data arrays structures are summarized below in Table 6.2.1-1, VIIRS M1 SDR Data Content Summary.

Table: 6.2.1-1 VIIRS M1 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.2 VIIRS M1 SDR Product Profile

Table: 6.2.2-1 VIIRS M1 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.21	738	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Name	Value

Reflectance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Name	Value

ModeScan	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
										MISS_UINT8_FILL	254	Night	0
										ERR_UINT8_FILL	251	Day	1
										VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfBadChecksums — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Fields

AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value Good 0 Poor 1 No Calibration 2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value None Saturated 0 Some Saturated 1 All Saturated 2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value All data present 0 EV RDR data missing 1 Cal data (SV, CV, SD, etc.) missing 2 Thermistor data missing 3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value All data within range 0 Radiance out of range 1 Reflectance or EBBT out of range 2 Both Radiance and Reflectance or EBBT out of range 3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

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Fields

												False 0 True 1
		Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value** False 0 True 1
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**		**Name** **Value**

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	**Name** **Value**	**Name** **Value** False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name** **Value**	**Name** **Value** False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name** **Value**	**Name** **Value**

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	**Name** **Value**	**Name** **Value**

ReflectanceFactors — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

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Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.3 VIIRS M1 SDR HDF5 Details

Figure 6.2.3-1, VIIRS M1 SDR UML Diagram, provides the details on the content and data types of the VIIRS M1 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M1-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.3-1 VIIRS M1 SDR UML Diagram

6.2.4 VIIRS M1 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.4-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.4-1 VIIRS M1 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

N_Quality_Summary			
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.5 VIIRS M2 SDR Data Content Summary

The VIIRS M2-SDR data arrays structures are summarized below in Table 6.2.5-1, VIIRS M2 SDR Data Content Summary.

Table: 6.2.5-1 VIIRS M2 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.6 VIIRS M2 SDR Product Profile

Table: 6.2.6-1 VIIRS M2 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
Reflectance	2byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.20	824.40	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Reflectance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

PadByte1 — Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfScans	4byte(s)					
NumberOfMissingPkts	4byte(s)	Scan	Yes	No	48	48
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Name	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
NumberOfScans	Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
NumberOfMissingPkts	Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		
NumberOfBadChecksums	Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		
NumberOfDiscardedPkts	Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Name	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
QF1_VIIRSMBANDSDR	Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											Good	0
											Poor	1
											No Calibration	2
	Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											None Saturated	0
											Some Saturated	1
											All Saturated	2
	Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											All data present	0
											EV RDR data missing	1
											Cal data (SV, CV, SD, etc.) missing	2
											Thermistor data missing	3

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value
											All data within range	0
											Radiance out of range	1
											Reflectance or EBBT out of range	2
											Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State 1
Spare	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
QF4_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		AlongTrack	Yes	No	768	768							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value		
											False	0	
											True	>=1	
QF5_GRAN_BADDETECTOR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Detector	Yes	No	16	16							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
											False	0	
											True	1	
		Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value		

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	**Data Size**	**Dimensions**											
RadianceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Factors	Yes	No	2	2							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value		
ReflectanceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Factors	Yes	No	2	2							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name Value	Name Value		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.7 VIIRS M2 SDR HDF5 Details

Figure 6.2.7-1, VIIRS M2 SDR UML Diagram, provides the details on the content and data types of the VIIRS M2 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M2-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.7-1 VIIRS M2 SDR UML Diagram

6.2.8 VIIRS M2 SDR Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.8-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.8-1 VIIRS M2 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

N_Quality_Summary			
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.9 VIIRS M3 SDR Data Content Summary

The VIIRS M3-SDR data arrays structures are summarized below in Table 6.2.9-1, VIIRS M3 SDR Data Content Summary.

Table: 6.2.9-1 VIIRS M3 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		32-bit floating point	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**17,204,720 Bytes**				

6.2.10 VIIRS M3 SDR Product Profile

Table: 6.2.10-1 VIIRS M3 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	MIN_VAL	MAX_VAL	W/(m^2 micro-m sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										VDNE_FLOAT32_FILL	-999.3				

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
										Name	**Value**	**Name**	**Value**
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum												
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**				
QF1_VIIRSMBANDSDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields																
QF5_GRAN_BADDETECTOR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		Detector	Yes	No	16	16										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
												False	0
												True	1
		Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name**	**Value**	**Name**	**Value**

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields																
Name	**Data Size**	**Dimensions**														
ReflectanceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		Factors	Yes	No	2	2										
		Datum														
		Description		**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Scale = first array element; offset = second array element		0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.11 VIIRS M3 SDR HDF5 Details

Figure 6.2.11-1, VIIRS M3 SDR UML Diagram, provides the details on the content and data types of the VIIRS M3 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M3-SDR
+Radiance : H5T_NATIVE_FLOAT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.11-1 VIIRS M3 SDR UML Diagram

6.2.12 VIIRS M3 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.12-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.12-1 VIIRS M3 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	Comments
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.13 VIIRS M4 SDR Data Content Summary

The VIIRS M4-SDR data arrays structures are summarized below in Table 6.2.13-1, VIIRS M4 SDR Data Content Summary.

Table: 6.2.13-1 VIIRS M4 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		32-bit floating point	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**17,204,720 Bytes**				

6.2.14 VIIRS M4 SDR Product Profile

Table: 6.2.14-1 VIIRS M4 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	MIN_VAL	MAX_VAL	W/(m^2 micro-m sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										VDNE_FLOAT32_FILL	-999.3				

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
										Name	**Value**	**Name**	**Value**
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum												
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**				
QF1_VIIRSMBANDSDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields																
QF5_GRAN_BADDETECTOR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		Detector	Yes	No	16	16										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
												False	0
												True	1
		Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name**	**Value**	**Name**	**Value**

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields																
Name	**Data Size**	**Dimensions**														
ReflectanceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		Factors	Yes	No	2	2										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.15 VIIRS M4 SDR HDF5 Details

Figure 6.2.15-1, VIIRS M4 SDR UML Diagram, provides the details on the content and data types of the VIIRS M4 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M4-SDR
+Radiance : H5T_NATIVE_FLOAT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.15-1 VIIRS M4 SDR UML Diagram

6.2.16 VIIRS M4 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.16-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.16-1 VIIRS M4 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.17 VIIRS M5 SDR Data Content Summary

The VIIRS M5-SDR data arrays structures are summarized below in Table 6.2.17-1, VIIRS M5 SDR Data Content Summary.

Table: 6.2.17-1 VIIRS M5 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		32-bit floating point	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**17,204,720 Bytes**				

6.2.18 VIIRS M5 SDR Product Profile

Table: 6.2.18-1 VIIRS M5 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	MIN_VAL	MAX_VAL	W/(m^2 micro-m sr)	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_FLOAT32_FILL	-999.8
											ONBOARD_PT_FLOAT32_FILL	-999.7
											ONGROUND_PT_FLOAT32_FILL	-999.6
											ERR_FLOAT32_FILL	-999.5
											VDNE_FLOAT32_FILL	-999.3

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value			
										MISS_INT32_FILL	-998					
										VDNE_INT32_FILL	-993					
NumberOfBadChecksums	4byte(s)															

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions
QF1_VIIRSMBANDSDR	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
ReflectanceFactors	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name Value	Name Value

6.2.19 VIIRS M5 SDR HDF5 Details

Figure 6.2.19-1, VIIRS M5 SDR UML Diagram, provides the details on the content and data types of the VIIRS M5 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M5-SDR
+Radiance : H5T_NATIVE_FLOAT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.19-1 VIIRS M5 SDR UML Diagram

6.2.20 VIIRS M5 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.20-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.20-1 VIIRS M5 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.21 VIIRS M6 SDR Data Content Summary

The VIIRS M6-SDR data arrays structures are summarized below in Table 6.2.21-1, VIIRS M6 SDR Data Content Summary.

Table: 6.2.21-1 VIIRS M6 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.22 VIIRS M6 SDR Product Profile

Table: 6.2.22-1 VIIRS M6 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.09	60.00	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
QF2_SCAN_SDR	1byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

ReflectanceFactors

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name Value	Name Value

6.2.23 VIIRS M6 SDR HDF5 Details

Figure 6.2.23-1, VIIRS M6 SDR UML Diagram, provides the details on the content and data types of the VIIRS M6 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M6-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.23-1 VIIRS M6 SDR UML Diagram

6.2.24 VIIRS M6 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.24-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.24-1 VIIRS M6 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

N_Quality_Summary			
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.25 VIIRS M7 SDR Data Content Summary

The VIIRS M7-SDR data arrays structures are summarized below in Table 6.2.25-1, VIIRS M7 SDR Data Content Summary.

Table: 6.2.25-1 VIIRS M7 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		32-bit floating point	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**17,204,720 Bytes**				

6.2.26 VIIRS M7 SDR Product Profile

Table: 6.2.26-1 VIIRS M7 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	MIN_VAL	MAX_VAL	W/(m^2 micro-m sr)	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_FLOAT32_FILL	-999.8
											ONBOARD_PT_FLOAT32_FILL	-999.7
											ONGROUND_PT_FLOAT32_FILL	-999.6
											ERR_FLOAT32_FILL	-999.5
											VDNE_FLOAT32_FILL	-999.3

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value		
										MISS_INT32_FILL	-998				
										VDNE_INT32_FILL	-993				
NumberOfBadChecksums	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		Scan	Yes	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value		
										MISS_INT32_FILL	-998				
										VDNE_INT32_FILL	-993				
NumberOfDiscardedPkts	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		Scan	Yes	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value		
										MISS_INT32_FILL	-998				
										VDNE_INT32_FILL	-993				

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions														
QF1_VIIRSMBANDSDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	768	768										
		CrossTrack	No	No	3200	3200										
		Datum														
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value		
												Good	0		
												Poor	1		
												No Calibration	2		
		Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value		
												None Saturated	0		
												Some Saturated	1		
												All Saturated	2		
		Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value		
												All data present	0		
												EV RDR data missing	1		
												Cal data (SV, CV, SD, etc.) missing	2		
												Thermistor data missing	3		
		Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value		
												All data within range	0		
												Radiance out of range	1		
												Reflectance or EBBT out of range	2		
												Both Radiance and Reflectance or EBBT out of range	3		
QF2_SCAN_SDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		Scan	Yes	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value		
												A-Side	0		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			False	0
										True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name	Value	Name	Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
ReflectanceFactors	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.27 VIIRS M7 SDR HDF5 Details

Figure 6.2.27-1, VIIRS M7 SDR UML Diagram, provides the details on the content and data types of the VIIRS M7 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M7-SDR
+Radiance : H5T_NATIVE_FLOAT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.27-1 VIIRS M7 SDR UML Diagram

6.2.28 VIIRS M7 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.28-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.28-1 VIIRS M7 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.29 VIIRS M8 SDR Data Content Summary

The VIIRS M8-SDR data arrays structures are summarized below in Table 6.2.29-1, VIIRS M8 SDR Data Content Summary.

Table: 6.2.29-1 VIIRS M8 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.30 VIIRS M8 SDR Product Profile

Table: 6.2.30-1 VIIRS M8 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.14	197.88	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
QF2_SCAN_SDR	1byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

ReflectanceFactors

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name Value	Name Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.31 VIIRS M8 SDR HDF5 Details

Figure 6.2.31-1, VIIRS M8 SDR UML Diagram, provides the details on the content and data types of the VIIRS M8 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M8-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.31-1 VIIRS M8 SDR UML Diagram

6.2.32 VIIRS M8 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.32-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the “Band_ID” and is set to “M1”, “M2”, “M3”, …”M16”.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.32-1 VIIRS M8 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.33 VIIRS M9 SDR Data Content Summary

The VIIRS M9-SDR data arrays structures are summarized below in Table 6.2.33-1, VIIRS M9 SDR Data Content Summary.

Table: 6.2.33-1 VIIRS M9 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.34 VIIRS M9 SDR Product Profile

Table: 6.2.34-1 VIIRS M9 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

CrossTrack	No	No	3200	3200	

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.09	92.52	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Datum												
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
										Name	**Value**	**Name**	**Value**
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum												
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**				
QF1_VIIRSMBANDSDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum												
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
								Name	**Value**	**Name**	**Value**
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum									
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			False	0
										True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name	Value	Name	Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions				
RadianceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name	Value	Name	Value

Name	Data Size	Dimensions				
ReflectanceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name	Value	Name	Value

6.2.35 VIIRS M9 SDR HDF5 Details

Figure 6.2.35-1, VIIRS M9 SDR UML Diagram, provides the details on the content and data types of the VIIRS M9 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M9-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.35-1 VIIRS M9 SDR UML Diagram

6.2.36 VIIRS M9 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.36-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.36-1 VIIRS M9 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.37 VIIRS M10 SDR Data Content Summary

The VIIRS M10-SDR data arrays structures are summarized below in Table 6.2.37-1, VIIRS M10 SDR Data Content Summary.

Table: 6.2.37-1 VIIRS M10 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.38 VIIRS M0 SDR Product Profile

Table: 6.2.38-1 VIIRS M10 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.04	85.44	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance (2byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan (1byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran (1byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 (1byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans (4byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts (4byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
QF2_SCAN_SDR	1byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value		Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value		Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value		Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value		Name Value No Sector Rotation 0 Sector Rotation 1
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value		Name Value

QF3_SCAN_RDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name**	**Value**	**Name**	**Value**

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

RadianceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

ReflectanceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

ReflectanceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.39 VIIRS M10 SDR HDF5 Details

Figure 6.2.39-1, VIIRS M9 SDR UML Diagram, provides the details on the content and data types of the VIIRS M9 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M10-SDR
+Radiance : H5T_NATIVE_USHORT
+Reflectance : H5T_NATIVE_USHORT
+ModeScan : H5T_NATIVE_UCHAR
+ModeGran : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+NumberOfScans : H5T_NATIVE_INT
+NumberOfMissingPkts : H5T_NATIVE_INT
+NumberOfBadChecksums : H5T_NATIVE_INT
+NumberOfDiscardedPkts : H5T_NATIVE_INT
+QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR
+QF2_SCAN_SDR : H5T_NATIVE_UCHAR
+QF3_SCAN_RDR : H5T_NATIVE_UCHAR
+QF4_SCAN_SDR : H5T_NATIVE_UCHAR
+QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.39-1 VIIRS M10 SDR UML Diagram

6.2.40 VIIRS M10 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.40-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.40-1 VIIRS M10 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.41 VIIRS M11 SDR Data Content Summary

The VIIRS M11-SDR data arrays structures are summarized below in Table 6.2.41-1, VIIRS M11 SDR Data Content Summary.

Table: 6.2.41-1 VIIRS M11 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
Reflectance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**12,289,528 Bytes**				

6.2.42 VIIRS M11 SDR Product Profile

Table: 6.2.42-1 VIIRS M11 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.02	38.16	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums, 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts, 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions
QF1_VIIRSMBANDSDR	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR, 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			False	0
										True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name	Value	Name	Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

RadianceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point				

ReflectanceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

ReflectanceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.43 VIIRS M11 SDR HDF5 Details

Figure 6.2.43-1, VIIRS M11 SDR UML Diagram, provides the details on the content and data types of the VIIRS M11 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M11-SDR
+Radiance : H5T_NATIVE_USHORT
+Reflectance : H5T_NATIVE_USHORT
+ModeScan : H5T_NATIVE_UCHAR
+ModeGran : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+NumberOfScans : H5T_NATIVE_INT
+NumberOfMissingPkts : H5T_NATIVE_INT
+NumberOfBadChecksums : H5T_NATIVE_INT
+NumberOfDiscardedPkts : H5T_NATIVE_INT
+QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR
+QF2_SCAN_SDR : H5T_NATIVE_UCHAR
+QF3_SCAN_RDR : H5T_NATIVE_UCHAR
+QF4_SCAN_SDR : H5T_NATIVE_UCHAR
+QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.2.43-1 VIIRS M11 SDR UML Diagram

6.2.44 VIIRS M11 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.44-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.44-1 VIIRS M11 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.45 VIIRS M12 SDR Data Content Summary

The VIIRS M12-SDR data arrays structures are summarized below in Table 6.2.45-1, VIIRS M12 SDR Data Content Summary.

Table: 6.2.45-1 VIIRS M12 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
BrightnessTemperature		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**12,289,528 Bytes**				

6.2.46 VIIRS M12 SDR Product Profile

Table: 6.2.46-1 VIIRS M12 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	0.00	4.41163	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

BrightnessTemperature — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	203.00	368.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums, 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts, 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
		AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR, 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State
		Spare	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Detector	Yes	No	16	16	

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
BrightnessTemperatureFactors	4byte(s)	

RadianceFactors — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

BrightnessTemperatureFactors — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.47 VIIRS M12 SDR HDF5 Details

Figure 6.2.47-1, VIIRS M12 SDR UML Diagram, provides the details on the content and data types of the VIIRS M12 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M12-SDR
+Radiance : H5T_NATIVE_USHORT
+BrightnessTemperature : H5T_NATIVE_USHORT
+ModeScan : H5T_NATIVE_UCHAR
+ModeGran : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+NumberOfScans : H5T_NATIVE_INT
+NumberOfMissingPkts : H5T_NATIVE_INT
+NumberOfBadChecksums : H5T_NATIVE_INT
+NumberOfDiscardedPkts : H5T_NATIVE_INT
+QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR
+QF2_SCAN_SDR : H5T_NATIVE_UCHAR
+QF3_SCAN_RDR : H5T_NATIVE_UCHAR
+QF4_SCAN_SDR : H5T_NATIVE_UCHAR
+QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.2.47-1 VIIRS M12 SDR UML Diagram

6.2.48 VIIRS M12 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.48-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.48-1 VIIRS M12 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.49 VIIRS M13 SDR Data Content Summary

The VIIRS M13-SDR data arrays structures are summarized below in Table 6.2.49-1, VIIRS M13 SDR Data Content Summary.

Table: 6.2.49-1 VIIRS M13 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		32-bit floating point	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
BrightnessTemperature		32-bit floating point	[N*768, 3200]	[768, 3200]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
File Size	**22,119,912 Bytes**				

6.2.50 VIIRS M13 SDR Product Profile

Table: 6.2.50-1 VIIRS M13 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.01	605.76	W/(m^2 micro-m sr)	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										ONGROUND_PT_FLOAT32_FILL	-999.6	
										ERR_FLOAT32_FILL	-999.5	
										VDNE_FLOAT32_FILL	-999.3	

BrightnessTemperature — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	192.00	683.00	Kelvin	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char				

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer				

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_INT32_FILL	-998	
											VDNE_INT32_FILL	-993	

NumberOfBadChecksums 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions
QF1_VIIRSMBANDSDR	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, Dual Gain Anomaly or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			A-Side	0

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State 1
		Spare	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.51 VIIRS M13 SDR HDF5 Details

Figure 6.2.51-1, VIIRS M13 SDR UML Diagram, provides the details on the content and data types of the VIIRS M13 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M13-SDR
+Radiance : H5T_NATIVE_FLOAT +BrightnessTemperature : H5T_NATIVE_FLOAT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR

Figure: 6.2.51-1 VIIRS M13 SDR UML Diagram

6.2.52 VIIRS M13 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.52-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Table: 6.2.52-1 VIIRS M13 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.53 VIIRS M14 SDR Data Content Summary

The VIIRS M14-SDR data arrays structures are summarized below in Table 6.2.53-1, VIIRS M14 SDR Data Content Summary.

Table: 6.2.53-1 VIIRS M14 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
BrightnessTemperature		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**12,289,528 Bytes**				

6.2.54 VIIRS M14 SDR Product Profile

Table: 6.2.54-1 VIIRS M14 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.03	26.1514	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

BrightnessTemperature — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	120.00	365.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
QF2_SCAN_SDR	1byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State 1
		LWIR FPA Temperature	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value LWIR FPA Temp OK 0 LWIR FPA Temp Not Nominal 1
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1
QF5_GRAN_BADDETECTOR	1byte(s)										

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
BrightnessTemperatureFactors	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name Value

6.2.55 VIIRS M14 SDR HDF5 Details

Figure 6.2.55-1, VIIRS M14 SDR UML Diagram, provides the details on the content and data types of the VIIRS M14 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M14-SDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.2.55-1 VIIRS M14 SDR UML Diagram

6.2.56 VIIRS M14 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.56-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.56-1 VIIRS M14 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.57 VIIRS M15 SDR Data Content Summary

The VIIRS M15-SDR data arrays structures are summarized below in Table 6.2.57-1, VIIRS M15 SDR Data Content Summary.

Table: 6.2.57-1 VIIRS M15 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
BrightnessTemperature		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**12,289,528 Bytes**				

6.2.58 VIIRS M15 SDR Product Profile

Table: 6.2.58-1 VIIRS M15 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

CrossTrack	No	No	3200	3200	

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.02	25.5411	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

BrightnessTemperature — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	111.00	381.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSMBANDSDR	1byte(s)	AlongTrack	Yes	No	768	768
		CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
QF2_SCAN_SDR	1byte(s)	Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State 1
		LWIR FPA Temperature	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value LWIR FPA Temp OK 0 LWIR FPA Temp Not Nominal 1
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1
QF5_GRAN_BADDETECTOR	1byte(s)										

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
BrightnessTemperatureFactors	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name Value

6.2.59 VIIRS M15 SDR HDF5 Details

Figure 6.2.59-1, VIIRS M15 SDR UML Diagram, provides the details on the content and data types of the VIIRS M15 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M15-SDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.2.59-1 VIIRS M15 SDR UML Diagram

6.2.60 VIIRS M15 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.60-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the "Band_ID" and is set to "M1", "M2", "M3", …"M16".

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.60-1 VIIRS M15 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	Value	Description	Comments
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.61 VIIRS M16 SDR Data Content Summary

The VIIRS M16-SDR data arrays structures are summarized below in Table 6.2.61-1, VIIRS M16 SDR Data Content Summary.

Table: 6.2.61-1 VIIRS M16 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	W/(m^2 micro-m sr)
BrightnessTemperature		unsigned 16-bit integer	[N*768, 3200]	[768, 3200]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSMBANDSDR		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*768]	[768]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*16]	[16]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2 sr micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**12,289,528 Bytes**				

6.2.62 VIIRS M16 SDR Product Profile

Table: 6.2.62-1 VIIRS M16 SDR Product Profile

VIIRS M-Band SDR Data Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
BrightnessTemperature	2byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.02	22.171	W/(m^2 micro-m sr)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
SOUB_UINT16_FILL	65528
VDNE_UINT16_FILL	65529

Legend Entries Name	Value

BrightnessTemperature — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

BrightnessTemperature — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	103.00	382.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

PadByte1 — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value										
NumberOfScans	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Actual number of VIIRS scans that were used to create this granule					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
NumberOfMissingPkts	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of missing packets in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								
NumberOfBadChecksums	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of packets with bad checksums in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								
NumberOfDiscardedPkts	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of discarded packets in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								

VIIRS M-Band SDR Data Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions																					
QF1_VIIRSMBANDSDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		AlongTrack	Yes	No	768	768																	
		CrossTrack	No	No	3200	3200																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view					0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																Good	0						
																Poor	1						
																No Calibration	2						
		Saturated Pixel - Indicates the level of pixel saturation					2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																None Saturated	0						
																Some Saturated	1						
																All Saturated	2						
		Missing Data - Data required for calibration processing is not available for processing					4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																All data present	0						
																EV RDR data missing	1						
																Cal data (SV, CV, SD, etc.) missing	2						
																Thermistor data missing	3						
		Out of Range - Calibrated pixel value outside of LUT threshold limits					6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																All data within range	0						

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

													Radiance out of range	1
													Reflectance or EBBT out of range	2
													Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: A-Side 0; B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: No Sync Loss 0; HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: No Sector Rotation 0; Sector Rotation 1
OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: OBC BB Normal 0; OBC BB WU/CD State 1
LWIR FPA Temperature	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: LWIR FPA Temp OK 0; LWIR FPA Temp Not Nominal 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value: False 0; True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name, Value	Name, Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										False	0
										True	1
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data.	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector - M-Band	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS M-Band SDR Data Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions

RadianceFactors 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2 sr micro-m)	No		32-bit floating point	Name Value	Name Value

BrightnessTemperatureFactors 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name Value

6.2.63 VIIRS M16 SDR HDF5 Details

Figure 6.2.63-1, VIIRS M16 SDR UML Diagram, provides the details on the content and data types of the VIIRS M16 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-M16-SDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSMBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.2.63-1 VIIRS M16 SDR UML Diagram

6.2.64 VIIRS M16 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR are listed in the JPSS Algorithm Specification, Vol II Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR, the items listed in Table 6.2.64-1, VIIRS Moderate Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDRs.

Note that there is a standard granule level metadata item that identifies the M-Band. This metadata item is the “Band_ID” and is set to “M1”, “M2”, “M3”, …”M16”.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.2.64-1 VIIRS M16 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.65 VIIRS M-Band SDR Geolocation Content Summary

The VIIRS M-Band SDR geolocation data arrays structures are summarized below in Table 6.2.65-1, VIIRS M-Band SDR Geolocation Content Summary.

Table: 6.2.65-1 VIIRS M-Band SDR Geolocation Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
StartTime	Starting Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
MidTime	Mid-Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*768, 3200]	[768, 3200]	degree
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*768, 3200]	[768, 3200]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*768, 3200]	[768, 3200]	meter
SCPosition	Spacecraft position in ECR Coordinates (X,	32-bit floating point	[N*48, 3]	[48, 3]	meter

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	Y, Z) at the mid-time of scan				
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid- time of scan	32-bit floating point	[N*48, 3]	[48, 3]	m/s
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the midtime of scan	32-bit floating point	[N*48, 3]	[48, 3]	arcsecond
SCSolarZenithAngle	The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	32-bit floating point	[N*48]	[48]	degree
SCSolarAzimuthAngle	The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	32-bit floating point	[N*48]	[48]	degree
ModeScan	The VIIRS operational mode, reported at the scan level.	unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran	The VIIRS operational mode, reported at the granule level.	unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
NumberOfScans	Actual number of VIIRS scans that were used to create this granule.	32-bit integer	[N*1]	[1]	unitless
QF1_SCAN_VIIRSSDRGEO	Scan-level quality flag	unsigned 8-bit char	[N*48]	[48]	unitless
QF2_SCAN_VIIRSSDRGEO	Scan-level quality flag	Unsigned 8-bit char	[N*48]	[48]	unitless
QF2_VIIRSSDRGEO	Pixel-level quality flag	unsigned 8-bit char	[N*768, 3200]	[768,3200]	unitless
File Size	**81,103,832 Bytes**				

6.2.66 VIIRS M-Band SDR Geolocation Product Profile

Table: 6.2.66-1 VIIRS M-Band SDR Geolocation Product Profile

VIIRS M-Band SDR Geolocation Product Profile

Fields

Name	Data Size	Dimensions
StartTime	8byte(s)	
MidTime	8byte(s)	
Latitude	4byte(s)	

StartTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

StartTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Starting Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

MidTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

MidTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Mid-Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

Latitude — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Latitude — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Latitude of each pixel (positive North)	0	-90	90	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		

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Fields

												ERR_FLOAT32_FILL	-999.5		
												ELLIPSOID_FLOAT32_FILL	-999.4		
												VDNE_FLOAT32_FILL	-999.3		

Longitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Longitude of each pixel (positive East)	0	-180	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle of sun at each pixel position	0	0	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Azimuth angle of sun (measured clockwise positive from North) at each pixel position	0	-180	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle to Satellite at each pixel position	0	0	Approx. 70	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768

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Fields

CrossTrack	No	No	3200	3200	

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

Height — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Ellipsoid-Geoid separation	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteRange — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SCPosition — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

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Fields

SCVelocity — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	0	MIN_VAL	MAX_VAL	m/s	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCAttitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
GRFCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the mid-time of scan	0	MIN_VAL	MAX_VAL	arcsecond	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

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Fields

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value

VIIRS M-Band SDR Geolocation Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions

QF1_SCAN_VIIRSSDRGEO — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Attitude and Ephemeris availability status	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Nominal - E&A data available	0
										Missing Data <= Small Gap	1
										Small Gap < Missing Data < Granule Boundary	2
										Missing Data >= Granule Boundary	3
HAM/RTA Encoder Flag - Indicates the quality of the HAM and RTA encoder timestamps	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good Data	0
										Bad Data - either HAM, RTA, or both are bad for the entire scan	1
										Degraded Data - either HAM, RTA, or both are corrupted within the scan.	2
										Missing Data - Missing encoder data for the scan	3
Within South Atlantic Anomaly	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value
										False	0
										True	1
Solar Eclipse during Earth view scan	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value
										False	0
										True	1

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Fields

		Spare	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
		Half Angle Mirror side	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value	Mirror Side A	0
												Mirror Side B	1

QF2_SCAN_VIIRSSDRGEO 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Scan Controller Electronics (SCE) Side	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value
									Side A on	0
									Side B on	1
									Invalid State	2
Geo Scan Start State Flag	2	MIN_VAL	MAX_VAL	Unitless	No		3 bit(s)	Name Value	Name	Value
									Nominal	0
									Non-Nominal HAM start	1
									HAM/RTA Sync Loss	2
									Sector Rotation	3
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value	

QF2_VIIRSSDRGEO 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Invalid Input Data (Indicates that any of the Spacecraft Ephemeris or Attitude Data is Invalid or the encoder data is invalid)	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Bad Pointing (Indicates that the sensor LOS does not intersect the geoid or is near the limb based upon sensor zenith angle.)	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Bad Terrain (Indicates that the algorithm could not obtain a valid terrain value)	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Invalid Solar Angles	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Spare	4	MIN_VAL	MAX_VAL	unitless	No		4 bit(s)	Name Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.2.67 VIIRS M-Band SDR Geolocation HDF5 Details

VIIRS-MOD-GEO
+StartTime : H5T_NATIVE_LLONG +MidTime : H5T_NATIVE_LLONG +Latitude : H5T_NATIVE_FLOAT +Longitude : H5T_NATIVE_FLOAT +SolarZenithAngle : H5T_NATIVE_FLOAT +SolarAzimuthAngle : H5T_NATIVE_FLOAT +SatelliteZenithAngle : H5T_NATIVE_FLOAT +SatelliteAzimuthAngle : H5T_NATIVE_FLOAT +Height : H5T_NATIVE_FLOAT +SatelliteRange : H5T_NATIVE_FLOAT +SCPosition : H5T_NATIVE_FLOAT +SCVelocity : H5T_NATIVE_FLOAT +SCAttitude : H5T_NATIVE_FLOAT +SCSolarZenithAngle : H5T_NATIVE_FLOAT +SCSolarAzimuthAngle : H5T_NATIVE_FLOAT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +QF1_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_VIIRSSDRGEO : H5T_NATIVE_UCHAR

Figure: 6.2.67-1 VIIRS M-Band SDR Geolocation UML Diagram

6.2.68 VIIRS M-Band SDR Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the M-Band SDR Geolocation are listed in the JPSS Algorithm Specification Vol. II:- Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band SDR geolocation metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Moderate Resolution SDR Geolocation, the items listed in Table 6.2.4-1, VIIRS Moderate Resolution SDR Geolocation Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS M-Band SDR Geolocation.

Table: 6.2.68-1 VIIRS M-Band SDR Geolocation Quality Summary Metadata

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Percent Missing Data	0-100%	Percentage of missing pixels (e.g., insufficient data for geolocation)	
Percent Out of Bounds	0 - 100%	Percentage of out of bound pixels. For example, pixels could not be geolocated	
Automatic Quality Flag	0 - 1	Indicates if processing error has occurred.	0 = Passed 1 = Failed

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6.3 VIIRS Imagery Resolution Band SDR

Table 6.3-1, VIIRS Imagery Resolution Band SDRs summarizes the image band channels and their respective data mnemonics. The SDRs are available separately, but they are presented in this section grouped together in order to minimize the repeated information.

Table: 6.3-1 VIIRS Imagery Resolution Band SDRs

Data Mnemonic	Description/Purpose
SDRE-VI01-C0030	Band I1 - radiance & reflectance at nominal center wavelength 640 nm.
SDRE-VI02-C0030	Band I2 - radiance & reflectance at nominal center wavelength 865 nm.
SDRE-VI03-C0030	Band I3 - radiance & reflectance at nominal center wavelength 1610 nm.
SDRE-VI04-C0030	Band I4 - radiance & reflectance at nominal center wavelength 3740 nm.
SDRE-VI05-C0030	Band I5 - radiance & reflectance at nominal center wavelength 11450 nm.

Data Mnemonic	See Table 6.3-1, VIIRS Imagery Resolution Band SDRs
Description/ Purpose	See Table 6.3-1, VIIRS Imagery Resolution Band SDRs The Visible/Infrared Imager/Radiometer Suite (VIIRS) collects visible/infrared imagery and radiometric data. The five image bands are described in this section. The Imagery Resolution Bands (I-Band) are composed of five separate bands with 32 along-track detectors per band. See Section 6.2, VIIRS M-Band SDRs for general information about VIIRS Moderate and Imagery Resolution Band SDRs.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
File Size	I1: See Table: 6.3.1-1 VIIRS I1 SDR Data Content Summary for size. I2: See Table: 6.3.5-1 VIIRS I2 SDR Data Content Summary for size. I3: See Table: 6.3.9-1 VIIRS I3 SDR Data Content Summary for size. I4: See Table: 6.3.13-1 VIIRS I4 SDR Data Content Summary for size. I5: See Table: 6.3.17-1 VIIRS I5 SDR Data Content Summary for size. Geolocation: See Table: 6.3.21-1 VIIRS I-Band SDR Geolocation Content Summary for size Approximately 316,800 KiB per geolocation granule. Sizes do not include HDF5 overhead or metadata.
File Format Type	HDF5
Data Content and Data Format	See Section 6.3.1, VIIRS I-Band SDR Data See Section 6.3.1, VIIRS I1 SDR Data Content Summary. See Section 6.3.5, VIIRS I2 SDR Data Content Summary. See Section 6.3.9, VIIRS I3 SDR Data Content Summary. See Section 6.3.13, VIIRS I4 SDR Data Content Summary. See Section 6.3.17, VIIRS I5 SDR Data Content Summary. See Section 6.3.21, VIIRS I-Band SDR Geolocation.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.1 VIIRS I1 SDR Data Content Summary

The VIIRS I1-SDR data arrays structures are summarized below in Table 6.3.1-1, VIIRS I1 SDR Data Content Summary.

Table: 6.3.1-1 VIIRS I1 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	W/(m^2 sr micro-m)
Reflectance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSIBANDSDR		unsigned 8-bit char	[N*1536, 6400]	[1536, 6400]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*1536]	[1536]	unitless

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Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*32]	[32]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2*sr*micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**49,154,312 Bytes**				

6.3.2 VIIRS I1 SDR Product Profile

Table: 6.3.2-1 VIIRS I1 SDR Product Profile

VIIRS I-Band SDR Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
Reflectance	2byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.41	861.60	W/(m^2 sr micro-m)	Yes	RadianceFactors	unsigned 16-bit integer	NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

Reflectance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Reflectance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		

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Fields

												VDNE_UINT16_FILL	65529
												SOUB_UINT16_FILL	65528

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char				

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer				

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfBadChecksums — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

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Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS I-Band SDR Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions
QF1_VIIRSIBANDSDR	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

Name	Data Size	Dimensions
QF2_SCAN_SDR	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			A-Side	0
										B-Side	1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			False	0
										True	1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)				
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			No Sync Loss	0
										HAM/RTA Sync Loss	1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)			No Sector Rotation	0

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Fields

												Sector Rotation	1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value		Name Value	

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS I-Band SDR Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	Name: Factors; Granule Boundary: Yes; Dynamic: No; Min Array Size: 2; Max Array Size: 2

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Fields

		Datum
		Description / **Datum Offset** / **Unscaled Valid Range Min** / **Unscaled Valid Range Max** / **Measurement Units** / **Scaled** / **Scale Factor Name** / **Data Type** / **Fill Values** (**Name** / **Value**) / **Legend Entries** (**Name** / **Value**)
		Scale = first array element; offset = second array element / 0 / MIN_VAL / MAX_VAL / Scale = unitless; Offset = W/(m^2*sr*micro-m) / No / / 32-bit floating point / / / / /
ReflectanceFactors	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values (Name / Value)	Legend Entries (Name / Value)
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	/ /	/ /

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.3 VIIRS I1 SDR HDF5 Details

Figure 6.3.3-1, VIIRS I1 SDR UML Diagram, provides the details on the content and data types of the VIIRS I1 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-I1-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSIBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.3.3-1 VIIRS I1 SDR UML Diagram

6.3.4 VIIRS I1 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDRs are listed in the JPSS Algorithm Specification, Vol. II - Data Dictionary for the Common Algorithms, 474-00448-02-01. The I-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR, the items listed in Table 6.3.4-1, VIIRS Imagery Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the “Band_ID” and is set to “I1”, “I2”, “I3”, …”I5”.

Table: 6.3.4-1 VIIRS I1 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

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6.3.5 VIIRS I2 SDR Data Content Summary

The VIIRS I2-SDR data arrays structures are summarized below in Table 6.3.5-1, VIIRS I2 SDR Data Content Summary.

Table: 6.3.5-1 VIIRS I2 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	W/(m^2 sr micro-m)
Reflectance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSIBANDSDR		unsigned 8-bit char	[N*1536, 6400]	[1536, 6400]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*1536]	[1536]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*32]	[32]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2*sr*micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**49,154,312 Bytes**				

6.3.6 VIIRS I2 SDR Product Profile

Table: 6.3.6-1 VIIRS I2 SDR Product Profile

VIIRS I-Band SDR Product Profile

Fields		
Name	**Data Size**	**Dimensions**
Radiance	2byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536

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Fields

CrossTrack	No	No	6400	6400	

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.24	418.80	W/(m^2 sr micro-m)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

Reflectance — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer		

Fill Values Name	Value

Legend Entries Name	Value

NumberOfMissingPkts — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
										MISS_INT32_FILL	-998		
										VDNE_INT32_FILL	-993		

NumberOfBadChecksums	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum												
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

NumberOfDiscardedPkts	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

VIIRS I-Band SDR Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**				
QF1_VIIRSIBANDSDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		AlongTrack	Yes	No	1536	1536
		CrossTrack	No	No	6400	6400

Datum											
Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**
										Good	0
										Poor	1
										No Calibration	2
Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**
										None Saturated	0
										Some Saturated	1
										All Saturated	2
Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**
										All data present	0
										EV RDR data missing	1
										Cal data (SV, CV, SD, etc.) missing	2
										Thermistor data missing	3
Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**
										All data within range	0
										Radiance out of range	1
										Reflectance or EBBT out of range	2
										Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		Scan	Yes	No	48	48

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
		Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
		The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value
QF3_SCAN_RDR	1byte(s)										

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1

QF5_GRAN_BADDETECTOR 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	32	32

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad Detector	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value

VIIRS I-Band SDR Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions
RadianceFactors	4byte(s)	
ReflectanceFactors	4byte(s)	

RadianceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

RadianceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2*sr*micro-m)	No		32-bit floating point	Name Value	Name Value

ReflectanceFactors — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

ReflectanceFactors — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	Name Value	Name Value

6.3.7 VIIRS I2 SDR HDF5 Details

Figure 6.3.7-1, VIIRS I2 SDR UML Diagram, provides the details on the content and data types of the VIIRS I2 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-I2-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSIBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.3.7-1 VIIRS I2 SDR UML Diagram

6.3.8 VIIRS I2 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDRs are listed in the JPSS Algorithm Specification, Vol. II - Data Dictionary for the Common Algorithms, 474-00448-02-01. The I-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR, the items listed in Table 6.3.8-1, VIIRS Imagery Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the “Band_ID” and is set to “I1”, “I2”, “I3”, …”I5”.

Table: 6.3.8-1 VIIRS I2 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.9 VIIRS I3 SDR Data Content Summary

The VIIRS I3-SDR data arrays structures are summarized below in Table 6.3.9-1, VIIRS I3 SDR Data Content Summary.

Table: 6.3.9-1 VIIRS I3 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	W/(m^2 sr micro-m)
Reflectance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	unitless
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSIBANDSDR		unsigned 8-bit char	[N*1536, 6400]	[1536, 6400]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*1536]	[1536]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*32]	[32]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2*sr*micro-m)
ReflectanceFactors		32-bit floating point	[N*2]	[2]	unitless
File Size	**49,154,312 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.10 VIIRS I3 SDR Product Profile

Table: 6.3.10-1 VIIRS I3 SDR Product Profile

VIIRS I-Band SDR Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
Reflectance	2byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.21	87.00	W/(m^2 sr micro-m)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

Reflectance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Reflectance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Reflectance for each VIIRS pixel	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

PadByte1 — Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NumberOfScans	4byte(s)					
NumberOfMissingPkts	4byte(s)	Scan	Yes	No	48	48
NumberOfBadChecksums	4byte(s)	Scan	Yes	No	48	48
NumberOfDiscardedPkts	4byte(s)	Scan	Yes	No	48	48

Datum

Name	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
NumberOfScans	Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value
NumberOfMissingPkts	Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		
NumberOfBadChecksums	Number of packets with bad checksums in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		
NumberOfDiscardedPkts	Number of discarded packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
									VDNE_INT32_FILL	-993		

VIIRS I-Band SDR Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions				
QF1_VIIRSIBANDSDR	1byte(s)	AlongTrack	Yes	No	1536	1536
		CrossTrack	No	No	6400	6400

Datum

Name	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
QF1_VIIRSIBANDSDR	SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											Good	0
											Poor	1
											No Calibration	2
	Saturated Pixel - Indicates the level of pixel saturation	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											None Saturated	0
											Some Saturated	1
											All Saturated	2
	Missing Data - Data required for calibration processing is not available for processing	4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
											All data present	0
											EV RDR data missing	1
											Cal data (SV, CV, SD, etc.) missing	2
											Thermistor data missing	3

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value
											All data within range	0
											Radiance out of range	1
											Reflectance or EBBT out of range	2
											Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		AlongTrack	Yes	No	1536	1536											
		Datum															
		Description					**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data					0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	**Name**	**Value**	**Name**	**Value**
																False	0
																True	>=1
QF5_GRAN_BADDETECTOR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**											
		Detector	Yes	No	32	32											
		Datum															
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**					
		Bad Detector	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**				
												False	0				
												True	1				
		Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	**Name**	**Value**	**Name**	**Value**				

VIIRS I-Band SDR Product Profile - Scale Factors

Fields

Name	**Data Size**	**Dimensions**															
RadianceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**											
		Factors	Yes	No	2	2											
		Datum															
		Description					**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Scale = first array element; offset = second array element					0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2*sr*micro-m)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
ReflectanceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**											
		Factors	Yes	No	2	2											
		Datum															
		Description					**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		Scale = first array element; offset = second array element					0	MIN_VAL	MAX_VAL	unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

6.3.11 VIIRS I3 SDR HDF5 Details

Figure 6.3.11-1, VIIRS I3 SDR UML Diagram, provides the details on the content and data types of the VIIRS I3 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-I3-SDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSIBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 6.3.11-1 VIIRS I3 SDR UML Diagram

6.3.12 VIIRS I3 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDRs are listed in the JPSS Algorithm Specification, Vol. II - Data Dictionary for the Common Algorithms, 474-00448-02-01. The I-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR, the items listed in Table 6.3.12-1, VIIRS Imagery Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the "Band_ID" and is set to "I1", "I2", "I3", …"I5".

Table: 6.3.12-1 VIIRS I3 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.13 VIIRS I4 SDR Data Content Summary

The VIIRS I4-SDR data arrays structures are summarized below in Table 6.3.13-1, VIIRS I4 SDR Data Content Summary.

Table: 6.3.13-1 VIIRS I4 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	W/(m^2 sr micro-m)
BrightnessTemperature		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSIBANDSDR		unsigned 8-bit char	[N*1536, 6400]	[1536, 6400]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*1536]	[1536]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*32]	[32]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2*sr*micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**49,154,312 Bytes**				

6.3.14 VIIRS I4 SDR Product Profile

Table: 6.3.14-1 VIIRS I4 SDR Product Profile

VIIRS I-Band SDR Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
BrightnessTemperature	2byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.01	4.651	W/(m^2 sr micro-m)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

BrightnessTemperature — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

BrightnessTemperature — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	208.00	367.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

PadByte1 — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

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Fields

		Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value										
NumberOfScans	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Actual number of VIIRS scans that were used to create this granule					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
NumberOfMissingPkts	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of missing packets in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								
NumberOfBadChecksums	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of packets with bad checksums in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								
NumberOfDiscardedPkts	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		Scan	Yes	No	48	48																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Number of discarded packets in scan					0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value						
														MISS_INT32_FILL	-998								
														VDNE_INT32_FILL	-993								

VIIRS I-Band SDR Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions																					
QF1_VIIRSIBANDSDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		AlongTrack	Yes	No	1536	1536																	
		CrossTrack	No	No	6400	6400																	
		Datum																					
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view					0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																Good	0						
																Poor	1						
																No Calibration	2						
		Saturated Pixel - Indicates the level of pixel saturation					2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																None Saturated	0						
																Some Saturated	1						
																All Saturated	2						
		Missing Data - Data required for calibration processing is not available for processing					4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						
																All data present	0						
																EV RDR data missing	1						
																Cal data (SV, CV, SD, etc.) missing	2						
																Thermistor data missing	3						
		Out of Range - Calibrated pixel value outside of LUT threshold limits					6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value						

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												All data within range	0
												Radiance out of range	1
												Reflectance or EBBT out of range	2
												Both Radiance and Reflectance or EBBT out of range	3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value A-Side 0 B-Side 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sync Loss 0 HAM/RTA Sync Loss 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value No Sector Rotation 0 Sector Rotation 1
OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value OBC BB Normal 0 OBC BB WU/CD State 1
Spare	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
QF4_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		AlongTrack	Yes	No	1536	1536							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name Value False 0 True >=1		
QF5_GRAN_BADDETECTOR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Detector	Yes	No	32	32							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Bad Detector	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1		
		Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value		

VIIRS I-Band SDR Product Profile - Scale Factors

Fields

Name	**Data Size**	**Dimensions**											
RadianceFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Factors	Yes	No	2	2							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2*sr*micro-m)	No		32-bit floating point	Name Value	Name Value		
BrightnessTemperatureFactors	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Factors	Yes	No	2	2							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**		
		Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name Value		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.15 VIIRS I4 SDR HDF5 Details

Figure 6.3.15-1, VIIRS I4 SDR UML Diagram, provides the details on the content and data types of the VIIRS I4 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-I4-SDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSIBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.3.15-1 VIIRS I4 SDR UML Diagram

6.3.16 VIIRS I4 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDRs are listed in the JPSS Algorithm Specification, Vol. II - Data Dictionary for the Common Algorithms, 474-00448-02-01. The I-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR, the items listed in Table 6.3.16-1, VIIRS Imagery Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the "Band_ID" and is set to "I1", "I2", "I3", …"I5".

Table: 6.3.16-1 VIIRS I4 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.17 VIIRS I5 SDR Data Content Summary

The VIIRS I5-SDR data arrays structures are summarized below in Table 6.3.17-1, VIIRS I5 SDR Data Content Summary.

Table: 6.3.17-1 VIIRS I5 SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	W/(m^2 sr micro-m)
BrightnessTemperature		unsigned 16-bit integer	[N*1536, 6400]	[1536, 6400]	Kelvin
ModeScan		unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran		unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1		unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans		32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts		32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums		32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts		32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSIBANDSDR		unsigned 8-bit char	[N*1536, 6400]	[1536, 6400]	unitless
QF2_SCAN_SDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR		unsigned 8-bit char	[N*48]	[48]	unitless
QF4_SCAN_SDR		unsigned 8-bit char	[N*1536]	[1536]	unitless
QF5_GRAN_BADDETECTOR		unsigned 8-bit char	[N*32]	[32]	unitless
RadianceFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m^2*sr*micro-m)
BrightnessTemperatureFactors		32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	**49,154,312 Bytes**				

6.3.18 VIIRS I5 SDR Product Profile

Table: 6.3.18-1 VIIRS I5 SDR Product Profile

VIIRS I-Band SDR Product Profile

Fields

Name	Data Size	Dimensions
Radiance	2byte(s)	
BrightnessTemperature	2byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS pixel	0	-0.08	22.8967	W/(m^2 sr micro-m)	Yes	RadianceFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

BrightnessTemperature — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

BrightnessTemperature — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Calibrated Top of Atmosphere (TOA) Brightness Temperature for each VIIRS pixel	0	150.00	380.00	Kelvin	Yes	BrightnessTemperatureFactors	unsigned 16-bit integer		

Fill Values Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries Name	Value

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char		

Fill Values Name	Value
MISS_UINT8_FILL	254
ERR_UINT8_FILL	251
VDNE_UINT8_FILL	249

Legend Entries Name	Value
Night	0
Day	1
Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

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Fields

		Datum **Description**: Pad byte; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: unsigned 8-bit char; **Fill Values**: (Name, Value); **Legend Entries**: (Name, Value)
NumberOfScans	4byte(s)	**Name**: NumberOfScans; **Granule Boundary**: Yes; **Dynamic**: No; **Min Array Size**: 48; **Max Array Size**: 48 **Datum** **Description**: Actual number of VIIRS scans that were used to create this granule; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 32-bit integer; **Fill Values**: (Name, Value); **Legend Entries**: (Name, Value)
NumberOfMissingPkts	4byte(s)	**Name**: Scan; **Granule Boundary**: Yes; **Dynamic**: No; **Min Array Size**: 48; **Max Array Size**: 48 **Datum** **Description**: Number of missing packets in scan; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 32-bit integer; **Fill Values**: (MISS_INT32_FILL, -998); (VDNE_INT32_FILL, -993); **Legend Entries**: (Name, Value)
NumberOfBadChecksums	4byte(s)	**Name**: Scan; **Granule Boundary**: Yes; **Dynamic**: No; **Min Array Size**: 48; **Max Array Size**: 48 **Datum** **Description**: Number of packets with bad checksums in scan; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 32-bit integer; **Fill Values**: (MISS_INT32_FILL, -998); (VDNE_INT32_FILL, -993); **Legend Entries**: (Name, Value)
NumberOfDiscardedPkts	4byte(s)	**Name**: Scan; **Granule Boundary**: Yes; **Dynamic**: No; **Min Array Size**: 48; **Max Array Size**: 48 **Datum** **Description**: Number of discarded packets in scan; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 32-bit integer; **Fill Values**: (MISS_INT32_FILL, -998); (VDNE_INT32_FILL, -993); **Legend Entries**: (Name, Value)

VIIRS I-Band SDR Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions
QF1_VIIRSIBANDSDR	1byte(s)	**Name**: AlongTrack; **Granule Boundary**: Yes; **Dynamic**: No; **Min Array Size**: 1536; **Max Array Size**: 1536 **Name**: CrossTrack; **Granule Boundary**: No; **Dynamic**: No; **Min Array Size**: 6400; **Max Array Size**: 6400 **Datum** **Description**: SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view; **Datum Offset**: 0; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 2 bit(s); **Fill Values**: (Name, Value); **Legend Entries**: (Good, 0); (Poor, 1); (No Calibration, 2) **Description**: Saturated Pixel - Indicates the level of pixel saturation; **Datum Offset**: 2; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 2 bit(s); **Fill Values**: (Name, Value); **Legend Entries**: (None Saturated, 0); (Some Saturated, 1); (All Saturated, 2) **Description**: Missing Data - Data required for calibration processing is not available for processing; **Datum Offset**: 4; **Unscaled Valid Range Min**: MIN_VAL; **Unscaled Valid Range Max**: MAX_VAL; **Measurement Units**: unitless; **Scaled**: No; **Scale Factor Name**: ; **Data Type**: 2 bit(s); **Fill Values**: (Name, Value); **Legend Entries**: (All data present, 0); (EV RDR data missing, 1); (Cal data (SV, CV, SD, etc.) missing, 2)

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												Thermistor data missing: 3
		Out of Range - Calibrated pixel value outside of LUT threshold limits	6	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name / Value		Name / Value: All data within range: 0; Radiance out of range: 1; Reflectance or EBBT out of range: 2; Both Radiance and Reflectance or EBBT out of range: 3

QF2_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Half Angle Mirror Side	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: A-Side: 0; B-Side: 1
The Moon has corrupted the space view	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value
HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: No Sync Loss: 0; HAM/RTA Sync Loss: 1
Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: No Sector Rotation: 0; Sector Rotation: 1
OBC Blackbody WU/CD State	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: OBC BB Normal: 0; OBC BB WU/CD State: 1
LWIR FPA Temperature	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: LWIR FPA Temp OK: 0; LWIR FPA Temp Not Nominal: 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value

QF3_SCAN_RDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value: False: 0; True: 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value	Name / Value

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Fields

											False	0
											True	1
		Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
											False	0
											True	1
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value

QF4_SCAN_SDR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Quality for this scan-line is reduced. The value is determined by the combined number of steps required to find a replacement for thermistor or calibration source data	0	MIN_VAL	MAX_VAL	unitless	No		8 bit(s)	Name Value	Name	Value
									False	0
									True	>=1

QF5_GRAN_BADDETECTOR — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Detector	Yes	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Bad Detector	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Spare	1	MIN_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name	Value

VIIRS I-Band SDR Product Profile - Scale Factors

Fields

Name	Data Size	Dimensions

RadianceFactors — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = W/(m^2*sr*micro-m)	No		32-bit floating point	Name Value	Name	Value

BrightnessTemperatureFactors — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Factors	Yes	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Scale = first array element; offset = second array element	0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin	No		32-bit floating point	Name Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.19 VIIRS I5 SDR HDF5 Details

Figure 6.3.19-1, VIIRS I5 SDR UML Diagram, provides the details on the content and data types of the VIIRS I5 SDR. This UML diagram provides details at the granule level only. In addition to this UML diagram, refer to Section 3.2 TDR/SDR HDF5 Details, Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

VIIRS-I5-SDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +NumberOfMissingPkts : H5T_NATIVE_INT +NumberOfBadChecksums : H5T_NATIVE_INT +NumberOfDiscardedPkts : H5T_NATIVE_INT +QF1_VIIRSIBANDSDR : H5T_NATIVE_UCHAR +QF2_SCAN_SDR : H5T_NATIVE_UCHAR +QF3_SCAN_RDR : H5T_NATIVE_UCHAR +QF4_SCAN_SDR : H5T_NATIVE_UCHAR +QF5_GRAN_BADDETECTOR : H5T_NATIVE_UCHAR +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessTemperatureFactors : H5T_NATIVE_FLOAT

Figure: 6.3.19-1 VIIRS I5 SDR UML Diagram

6.3.20 VIIRS I5 SDR HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDRs are listed in the JPSS Algorithm Specification, Vol. II - Data Dictionary for the Common Algorithms, 474-00448-02-01. The I-Band SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR, the items listed in Table 6.3.20-1, VIIRS Imagery Resolution SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the "Band_ID" and is set to "I1", "I2", "I3", …"I5".

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Table: 6.3.20-1 VIIRS I5 SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.21 VIIRS I-Band SDR Geolocation Content Summary

Table: 6.3.21-1 VIIRS I-Band SDR Geolocation Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
StartTime	Starting Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
MidTime	Mid-Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*1536, 6400]	[1536, 6400]	degree
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*1536, 6400]	[1536, 6400]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*1536, 6400]	[1536, 6400]	meter
SCPosition	Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	meter

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	m/s
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	arcsecond
SCSolarZenithAngle	The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	32-bit floating point	[N*48]	[48]	degree
SCSolarAzimuthAngle	The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	32-bit floating point	[N*48]	[48]	degree
ModeScan	The VIIRS operational mode, reported at the scan level	unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran	The VIIRS operational mode, reported at the granule level	unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans	Actual number of VIIRS scans that were	32-bit integer	[N*1]	[1]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	used to create this granule				
QF1_SCAN_VIIRSSDRGEO	Scan-level quality flag	unsigned 8-bit char	[N*48]	[48]	unitless
QF2_SCAN_VIIRSSDRGEO	Scan-level quality flag	unsigned 8-bit char	[N*48]	[48]	unitless
QF2_VIIRSSDRGEO	Pixel-level quality flag	unsigned 8-bit char	[N*1536, 6400]	[1536,6400]	unitless
File Size	**324,406,232 Bytes**				

6.3.22 VIIRS I-Band SDR Geolocation Product Profile

Table: 6.3.22-1 VIIRS I-Band SDR Geolocation Product Profile

VIIRS I-Band SDR Geolocation Product Profile

Fields

Name	Data Size	Dimensions
StartTime	8byte(s)	
MidTime	8byte(s)	
Latitude	4byte(s)	

StartTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

StartTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Starting Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

MidTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

MidTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Mid-Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

Latitude — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Latitude — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Latitude of each pixel (positive North)	0	-90	90	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		

Fields

												ELLIPSOID_FLOAT32_FILL	-999.4		
												VDNE_FLOAT32_FILL	-999.3		

Longitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Longitude of each pixel (positive East)	0	-180	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle of sun at each pixel position	0	0	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Azimuth angle of sun (measured clockwise positive from North) at each pixel position	0	-180	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle to Satellite at each pixel position	0	0	Approx. 70	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

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Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

Height — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Ellipsoid-Geoid separation	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteRange — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SCPosition — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

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Fields

SCVelocity — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	0	MIN_VAL	MAX_VAL	m/s	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCAttitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
GRFCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the mid-time of scan	0	MIN_VAL	MAX_VAL	arcsecond	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

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Fields

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	Name	Value	Name	Value

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	Name	Value	Name	Value

VIIRS I-Band SDR Geolocation Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions

QF1_SCAN_VIIRSSDRGEO — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Attitude and Ephemeris availability status	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Nominal - E&A data available	0
										Missing Data <= Small Gap	1
										Small Gap < Missing Data <= Granule Boundary	2
										Missing Data > Granule Boundary	3
HAM/RTA Encoder Flag - Indicates the quality of the HAM and RTA encoder timestamps	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name	Value	Name	Value
										Good Data	0
										Bad Data - either HAM, RTA, or both are bad for the entire scan.	1
										Degraded Data - either HAM, RTA, or both are corrupted within the scan.	2
										Missing Data - Missing encoder data for the scan	3
Within South Atlantic Anomaly	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value
										False	0
										True	1
Solar Eclipse during Earth view scan	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value	Name	Value
										False	0
										True	1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Spare	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
		Half Angle Mirror side	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value	
											Mirror Side A	0	
											Mirror Side B	1	

QF2_SCAN_VIIRSSDRGEO 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Scan Controller Electronics (SCE) Side	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value
									Side A on	0
									Side B on	1
									Invalid State	2
Geo Scan Start State Flag	2	MIN_VAL	MAX_VAL	Unitless	No		3 bit(s)	Name Value	Name	Value
									Nominal	0
									Non-Nominal HAM start	1
									HAM/RTA Sync Loss	2
									Sector Rotation	3
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name Value	Name Value	

QF2_VIIRSSDRGEO 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	1536	1536
CrossTrack	No	No	6400	6400

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
Invalid Input Data (Indicates that any of the Spacecraft Ephemeris or Attitude Data is Invalid or the encoder data is invalid)	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Bad Pointing (Indicates that the sensor LOS does not intersect the geoid or is near the limb based upon sensor zenith angle.)	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Bad Terrain (Indicates that the algorithm could not obtain a valid terrain value)	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Invalid Solar Angles	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value
									False	0
									True	1
Spare	4	MIN_VAL	MAX_VAL	unitless	No		4 bit(s)	Name Value	Name Value	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.3.23 VIIRS I-Band SDR Geolocation HDF5 Details

VIIRS-IMG-GEO
+StartTime : H5T_NATIVE_LLONG +MidTime : H5T_NATIVE_LLONG +Latitude : H5T_NATIVE_FLOAT +Longitude : H5T_NATIVE_FLOAT +SolarZenithAngle : H5T_NATIVE_FLOAT +SolarAzimuthAngle : H5T_NATIVE_FLOAT +SatelliteZenithAngle : H5T_NATIVE_FLOAT +SatelliteAzimuthAngle : H5T_NATIVE_FLOAT +Height : H5T_NATIVE_FLOAT +SatelliteRange : H5T_NATIVE_FLOAT +SCPosition : H5T_NATIVE_FLOAT +SCVelocity : H5T_NATIVE_FLOAT +SCAttitude : H5T_NATIVE_FLOAT +SCSolarZenithAngle : H5T_NATIVE_FLOAT +SCSolarAzimuthAngle : H5T_NATIVE_FLOAT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +QF1_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_VIIRSSDRGEO : H5T_NATIVE_UCHAR

Figure: 6.3.23-1 VIIRS I-Band SDR Geolocation UML Diagram

6.3.24 VIIRS I-Band SDR Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band SDR Geolocation are listed in the JPSS Algorithm Specification Vol. II: - Data Dictionary for the Common Algorithms. The I-Band SDR geolocation metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Imagery Resolution SDR Geolocation, the items listed in Table 6.3.8-1, VIIRS Imagery Resolution SDR Geolocation Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS I-Band SDR Geolocation.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.3.24-1 VIIRS Imagery Resolution SDR Geolocation Quality Summary Metadata

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Percent Missing Data	0 - 100 %	Percentage of missing pixels (e.g., insufficient data for geolocation).	
Percent Out of Bounds	0 - 100 %	Percentage of out of bounds pixels. For example, pixels could not be geolocated.	
Automatic Quality Flag	0 - 1	Indicates if processing error has occurred.	0 = Passed; 1 = Failed

6.4 VIIRS Day/Night Band (DNB) SDR

Data Mnemonic	SDRE-VDNB-C0030
Description/Purpose	The Visible/Infrared Imaging/Radiometer Suite (VIIRS) collects visible/infrared imagery and radiometric data. The Day/Night Band (DNB) is described in this section. VIIRS DNB measures radiance over a panchromatic band at wavelengths between 500 nm and 900 nm. For more information on the VIIRS SDR data see Section 6.2, VIIRS M-Band SDRs, sub-section Description/Purpose, *General Information on VIIRS SDRs*. Day/Night Band (DNB) sub-pixels are aggregated on-board and are not subject to pixel trim effects. The DNB pixels maintain a near constant projected spatial size with scan angle.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
File Size	See Table: 6.4.1-1 VIIRS DNB SDR Data Content Summary for size. See Table: 6.4.5-1 VIIRS DNB SDR Geolocation Content Summary for geolocation size.
File Format Type	HDF5
Data Content and Data Format	See Section 6.4.1, VIIRS DNB SDR Data See Section 6.4.5, VIIRS DNB SDR Geolocation

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.4.1 VIIRS DNB SDR Data Content Summary

The VIIRS DNB SDR data arrays structures are summarized below in Table 6.4.1-1, VIIRS DNB SDR Data Content Summary.

Table: 6.4.1-1 VIIRS DNB SDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS DNB pixel	32-bit floating point	[N*768,4064]	[768, 4064]	W/(cm^2*sr)
ModeScan	The VIIRS operational mode, reported at the scan level	unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran	The VIIRS operational mode, reported at the granule level	unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans	Actual number of VIIRS scans in granule.	32-bit integer	[N*1]	[1]	unitless
NumberOfMissingPkts	Number of missing packets in scan	32-bit integer	[N*48]	[48]	unitless
NumberOfBadChecksums	Number of packets with bad checksum in scan	32-bit integer	[N*48]	[48]	unitless
NumberOfDiscardedPkts	Number of discarded packets in scan	32-bit integer	[N*48]	[48]	unitless
QF1_VIIRSDNBSDR	Pixel-level Quality Flag	unsigned 8-bit char	[N*768,4064]	[768, 4064]	unitless
QF2_SCAN_SDR	Quality Flag for each Scan (indicates general SDR information)	unsigned 8-bit char	[N*48]	[48]	unitless
QF3_SCAN_RDR	Quality Flag for each Scan (indicates general RDR information)	unsigned 8-bit char	[N*48]	[48]	unitless
File Size	**15,606,488 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.4.2 VIIRS DNB SDR Data Product Profile

Table: 6.4.2-1 VIIRS DNB Band SDR Product Profile

VIIRS DNB Band SDR Product Profile

Fields

Name	Data Size	Dimensions
Radiance	4byte(s)	
ModeScan	1byte(s)	
ModeGran	1byte(s)	
PadByte1	1byte(s)	
NumberOfScans	4byte(s)	
NumberOfMissingPkts	4byte(s)	

Radiance — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Radiance — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Calibrated Top of Atmosphere (TOA) Radiance for each VIIRS DNB pixel	0	MIN_VAL	MAX_VAL	W/(cm^2*sr)	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

ModeScan — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

ModeScan — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

ModeGran — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

PadByte1 — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char				

NumberOfScans — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

NumberOfScans — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer				

NumberOfMissingPkts — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

NumberOfMissingPkts — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Number of missing packets in scan	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	MISS_INT32_FILL	-998		
								VDNE_INT32_FILL	-993		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

NumberOfBadChecksums	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**											
		Scan	Yes	No	48	48											
		Datum															
		Description			**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Number of packets with bad checksums in scan			0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**		
												MISS_INT32_FILL	-998				
												VDNE_INT32_FILL	-993				
NumberOfDiscardedPkts	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**											
		Scan	Yes	No	48	48											
		Datum															
		Description			**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Number of discarded packets in scan			0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer	**Name**	**Value**	**Name**	**Value**		
												MISS_INT32_FILL	-998				
												VDNE_INT32_FILL	-993				

VIIRS DNB Band SDR Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**																
QF1_VIIRSDNBSDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**												
		AlongTrack	Yes	No	768	768												
		CrossTrack	No	No	4064	4064												
		Datum																
		Description			**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		SDR Quality - Indicates calibration quality due to bad space view offsets, OBC view offsets, etc or use of a previous calibration view			0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**			
														Good	0			
														Poor	1			
														No Calibration	2			
		Saturated Pixel - Indicates the level of pixel saturation			2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**			
														None Saturated	0			
														Some Saturated	1			
														All Saturated	2			
		Missing Data - Data required for calibration processing is not available for processing			4	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	**Name**	**Value**	**Name**	**Value**			
														All data present	0			
														EV RDR data missing	1			
														Cal data (SV, CV, SD, etc.) missing	2			
														Thermistor data missing	3			
		Out of Range - Calibrated pixel value outside of LUT threshold limits			6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**			
														All data within range	0			
														Radiance out of range	1			
		Spare			7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**			
QF2_SCAN_SDR	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**												
		Scan	Yes	No	48	48												
		Datum																
		Description			**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		Half Angle Mirror Side			0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**			
														A-Side	0			
														B-Side	1			
		The Moon has corrupted the space view			1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**			
														False	0			
														True	1			

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Spare1	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value					
		HAM/RTA Sync Loss	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value				
											No Sync Loss	0				
											HAM/RTA Sync Loss	1				
		Sector Rotation	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value				
											No Sector Rotation	0				
											Sector Rotation	1				
		Spare	5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Value					
		DNB Stray Light Collection Flag	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value				
											No stray light correction	**0**				
											Stray light correction	**1**				
QF3_SCAN_RDR	1byte(s)															

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Checksum failed for zone 1	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 2	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 3	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 4	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 5	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Checksum failed for zone 6	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Scan data is not Present (No valid data)	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.4.3 VIIRS DNB SDR Data HDF5 Details

VIIRS-DNB-SDR
+Radiance : H5T_NATIVE_FLOAT
+ModeScan : H5T_NATIVE_UCHAR
+ModeGran : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+NumberOfScans : H5T_NATIVE_INT
+NumberOfMissingPkts : H5T_NATIVE_INT
+NumberOfBadChecksums : H5T_NATIVE_INT
+NumberOfDiscardedPkts : H5T_NATIVE_INT
+QF1_VIIRSDNBSDR : H5T_NATIVE_UCHAR
+QF2_SCAN_SDR : H5T_NATIVE_UCHAR
+QF3_SCAN_RDR : H5T_NATIVE_UCHAR

Figure: 6.4.3-1 VIIRS DNB SDR UML Diagram

6.4.4 VIIRS DNB SDR Data HDF5 Metadata Details

The HDF5 metadata elements associated with the VIIRS DNB SDRs are listed in the JPSS Algorithm Specification Vol. II: -Data Dictionary for the Common Algorithms. The DNB SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS DNB SDR, the items listed in Table 6.4.4-1, VIIRS DNB SDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS DNB SDRs.

Note that there is a standard granule level metadata item that identifies the Imagery Band. This metadata item is the “Band_ID” and is set to “DNB”.

Table: 6.4.4-1 VIIRS DNB SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Summary VIIRS SDR Quality	0 - 100 %	Percentage of good quality pixels in granule	
Scan Quality Exclusion	0 - 48	Number of scans in granule excluded from processing (including partial scans)	

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.4.5 VIIRS DNB SDR Geolocation Content Summary

The VIIRS DNB SDR geolocation arrays structures are summarized below in Table 6.4.5-1, VIIRS DNB SDR Geolocation Content Summary.

Table: 6.4.5-1 VIIRS DNB SDR Geolocation Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
StartTime	Starting Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
MidTime	Nadir time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
Latitude_TC	Latitude of each pixel (positive North)	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
Longitude_TC	Longitude of each pixel (positive East)	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
SolarZenithAngle	Zenith angle of sun at each	32-bit floating point	[N*768, 4064]	[768, 4064]	degree

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	pixel position				
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*768,4064]	[768, 4064]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
LunarZenithAngle	Zenith angle of moon at each pixel position	32-bit floating point	[N*768, 4064]	[768, 4064]	degree
LunarAzimuthAngle	Azimuth angle of moon (measured clockwise	32-bit floating point	[N*768, 4064]	[768, 4064]	degree

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	positive from North) at each pixel position				
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*768, 4064]	[768, 4064]	meter
Height_TC	Ellipsoid-geoid separation for non-Terrain corrected Geo, and the height is the terrain height above the MSL for terrain corrected Geo	32-bit floating point	[N*768, 4064]	[768, 4064]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*768, 4064]	[768, 4064]	meter
SCPosition	Spacecraft position in ECR Coordinates (X, Y,Z) at	32-bit floating point	[N*48,3]	[48, 3]	meter

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	the mid-time of scan				
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt,dy/dt, dz/dt) at the mid-time of scan	32-bit floating point	[N*48,3]	[48, 3]	m/s
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw)	32-bit floating point	[N*48, 3]	[48, 3]	arcsecond
SCSolarZenithAngle	The angle in the spacecraft reference frame from zenith vector(negative z-axis) to the solar vector	32-bit floating point	[N*48]	[48]	degree
SCSolarAzimuthAngle	The angle in the spacecraft reference frame from x-axis to the solar vector	32-bit floating point	[N*48]	[48]	degree

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	projected onto the spacecraft x-y plane, measured counter clockwise (observer looking toward zenith (negative z-axis)				
MoonPhaseAngle	Angle between ray vector to moon from earth and ray vector of satellite to earth	32-bit floating point	[N*1]	[1]	degree
MoonIllumFraction	Fraction of the moon illuminated (expressed as percent)	32-bit floating point	[N*1]	[1]	percent
ModeScan	The VIIRS operational mode, reported at the scan level	unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran	The VIIRS operational mode, reported at	unsigned 8-bit char	[N*1]	[1]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	the granule level				
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
NumberOfScans	Actual number of VIIRS scans that were used to create this granule	32-bit integer	[N*1]	[1]	unitless
QF1_SCAN_VIIRSSDRGEO	Scan-level quality flag	Unsigned 8-bit char	[N*48]	[48]	unitless
QF2_SCAN_VIIRSSDRGEO	Scan-level quality flag	Unsigned 8-bit char	[N*48]	[48]	unitless
QF2_VIIRSSDRGEO	Pixel-level quality flag	Unsigned 8-bit char	[N*768, 4064]	[768,4064]	unitless
QF2_VIIRSSDRGEO_TC	Pixel-level quality flag	unsigned 8-bit char	[N*768, 4064]	[768,4064]	unitless
File Size	**168,545,248 Bytes**				

6.4.6 VIIRS DNB SDR Geolocation Product Profile

Table: 6.4.6-1 VIIRS DNB SDR Geolocation Product Profile

VIIRS DNB SDR Geolocation Product Profile

Fields

Name	Data Size	Dimensions
StartTime	8byte(s)	
MidTime	8byte(s)	
Latitude	4byte(s)	
Latitude_TC	4byte(s)	
Longitude	4byte(s)	

StartTime

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Starting Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

MidTime

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Mid-Time of each scan in IET (1/1/1958)	0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ERR_INT64_FILL	-995		
								VDNE_INT64_FILL	-993		

Latitude

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Latitude of each pixel (positive North)	0	-90	90	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

Latitude_TC

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Latitude of each pixel (positive North)	0	-90	90	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

Longitude

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Longitude of each pixel (positive East)	0	-180	180	degree	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
Longitude_TC	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		AlongTrack	Yes	No	768	768									
		CrossTrack	No	No	4064	4064									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Longitude of each pixel (positive East)	0	-180	180	degree	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
SolarZenithAngle	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		AlongTrack	Yes	No	768	768									
		CrossTrack	No	No	4064	4064									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Zenith angle of sun at each pixel position	0	0	180	degree	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
SolarAzimuthAngle	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		AlongTrack	Yes	No	768	768									
		CrossTrack	No	No	4064	4064									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Azimuth angle of sun (measured clockwise positive from North) at each pixel position	0	-180	180	degree	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
SatelliteZenithAngle	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		AlongTrack	Yes	No	768	768									
		CrossTrack	No	No	4064	4064									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Zenith angle to Satellite at each pixel position	0	0	Approx. 70	degree	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												VDNE_FLOAT32_FILL	-999.3	

SatelliteAzimuthAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

LunarZenithAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Zenith angle of moon at each pixel position	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

LunarAzimuthAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Azimuth angle of moon (measured clockwise positive from North) at each pixel position	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

Height 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Ellipsoid-Geoid separation	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												VDNE_FLOAT32_FILL	-999.3	

Height_TC — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Ellipsoid-geoid separation for non-Terrain corrected Geo, and the height is the terrain height above the MSL for terrain corrected Geo	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SatelliteRange — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		

SCPosition — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCVelocity — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
ECRCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	0	MIN_VAL	MAX_VAL	m/s	No		32-bit floating point				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												NA_FLOAT32_FILL	-999.9	
												MISS_FLOAT32_FILL	-999.8	
												ERR_FLOAT32_FILL	-999.5	
												VDNE_FLOAT32_FILL	-999.3	

SCAttitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48
GRFCoordinate	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw)	0	MIN_VAL	MAX_VAL	arcsecond	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

SCSolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

MoonPhaseAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Angle between ray vector to moon from earth and ray vector of satellite to earth	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_FLOAT32_FILL	-999.8
											ERR_FLOAT32_FILL	-999.5
											ELLIPSOID_FLOAT32_FILL	-999.4
											VDNE_FLOAT32_FILL	-999.3

MoonIllumFraction — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Fraction of the moon illuminated (expressed as percent)	0	0	100	percent	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ERR_FLOAT32_FILL	-999.5		
								VDNE_FLOAT32_FILL	-999.3		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the scan level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249		

ModeGran — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The VIIRS operational mode, reported at the granule level	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	MISS_UINT8_FILL	254	Night	0
								ERR_UINT8_FILL	251	Day	1
								VDNE_UINT8_FILL	249	Mixed	2

PadByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Granule	Yes	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char				

NumberOfScans — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Actual number of VIIRS scans that were used to create this granule	0	MIN_VAL	MAX_VAL	unitless	No		32-bit integer				

VIIRS DNB SDR Geolocation Product Profile - Quality Flags

Fields

Name	Data Size	Dimensions

QF1_SCAN_VIIRSSDRGEO — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Attitude and Ephemeris availability status	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)			Nominal - E&A data available	0

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											Missing Data <= Small Gap: 1 Small Gap < Missing Data < Granule Boundary: 2 Missing Data >= Granule Boundary: 3
		HAM/RTA Encoder Flag - Indicates the quality of the HAM and RTA encoder timestamps	2	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)		Name / Value: Good Data: 0 Bad Data - either HAM, RTA, or both are bad for the entire scan: 1 Degraded Data - either HAM, RTA, or both are corrupted within the scan.: 2 Missing Data - Missing encoder data for the scan: 3
		Within South Atlantic Anomaly	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)		Name / Value: False: 0 True: 1
		Solar Eclipse during Earth view scan	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)		Name / Value: False: 0 True: 1
		Lunar Eclipse during Earth view scan	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)		Name / Value: False: 0 True: 1
		Half Angle Mirror side	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)		Name / Value: Mirror Side A: 0 Mirror Side B: 1

QF2_SCAN_VIIRSSDRGEO — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
Scan	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scan Controller Electronics (SCE) Side	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name / Value:	Name / Value: Side A on: 0 Side B on: 1 Invalid State: 2
Geo Scan Start State Flag	2	MIN_VAL	MAX_VAL	Unitless	No		3 bit(s)	Name / Value:	Name / Value: Nominal: 0 Non-Nominal HAM start: 1 HAM/RTA Sync Loss: 2 Sector Rotation: 3
Spare	5	MIN_VAL	MAX_VAL	unitless	No		3 bit(s)	Name / Value:	Name / Value:

QF2_VIIRSSDRGEO — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Invalid Input Data (Indicates that any of the Spacecraft Ephemeris or Attitude Data is Invalid or the encoder data is invalid)	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value:	Name / Value: False: 0 True: 1
Bad Pointing (Indicates that the sensor LOS does not intersect the geoid, is near the limb based upon sensor zenith angle, or has invalid sun/moon angles.)	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value:	Name / Value: False: 0 True: 1
Bad Terrain (Indicates that the algorithm could not obtain a valid terrain value)	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value:	Name / Value: False: 0 True: 1
Invalid Solar Angles	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name / Value:	Name / Value:

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												False	0
												True	1
		Spare	4	MIN_VAL	MAX_VAL	unitless	No		4 bit(s)	**Name** **Value**		**Name**	**Value**
QF2_VIIRSSDRGEO_TC	1byte(s)												

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
AlongTrack	Yes	No	768	768
CrossTrack	No	No	4064	4064

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Invalid Input Data (Indicates that any of the Spacecraft Ephemeris or Attitude Data is Invalid or the encoder data is invalid)	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Bad Pointing (Indicates that the sensor LOS does not intersect the geoid, is near the limb based upon sensor zenith angle, or has invalid sun/moon angles.)	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Bad Terrain (Indicates that the algorithm could not obtain a valid terrain value)	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Invalid Solar Angles	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										False	0
										True	1
Spare	4	MIN_VAL	MAX_VAL	unitless	No		4 bit(s)	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.4.7 VIIRS DNB SDR Geolocation HDF5 Details

VIIRS-DNB-GEO
+StartTime : H5T_NATIVE_LLONG
+MidTime : H5T_NATIVE_LLONG
+Latitude : H5T_NATIVE_FLOAT
+Latitude_TC : H5T_NATIVE_FLOAT
+Longitude : H5T_NATIVE_FLOAT
+Longitude_TC : H5T_NATIVE_FLOAT
+SolarZenithAngle : H5T_NATIVE_FLOAT
+SolarAzimuthAngle : H5T_NATIVE_FLOAT
+SatelliteZenithAngle : H5T_NATIVE_FLOAT
+SatelliteAzimuthAngle : H5T_NATIVE_FLOAT
+LunarZenithAngle : H5T_NATIVE_FLOAT
+LunarAzimuthAngle : H5T_NATIVE_FLOAT
+Height : H5T_NATIVE_FLOAT
+Height_TC : H5T_NATIVE_FLOAT
+SatelliteRange : H5T_NATIVE_FLOAT
+SCPosition : H5T_NATIVE_FLOAT
+SCVelocity : H5T_NATIVE_FLOAT
+SCAttitude : H5T_NATIVE_FLOAT
+SCSolarZenithAngle : H5T_NATIVE_FLOAT
+SCSolarAzimuthAngle : H5T_NATIVE_FLOAT
+MoonPhaseAngle : H5T_NATIVE_FLOAT
+MoonIllumFraction : H5T_NATIVE_FLOAT
+ModeScan : H5T_NATIVE_UCHAR
+ModeGran : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+NumberOfScans : H5T_NATIVE_INT
+QF1_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR
+QF2_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR
+QF2_VIIRSSDRGEO : H5T_NATIVE_UCHAR
+QF2_VIIRSSDRGEO_TC : H5T_NATIVE_UCHAR

Figure: 6.4.7-1 VIIRS DNB SDR Geolocation UML Diagram

6.4.8 VIIRS DNB SDR Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the DNB SDR Geolocation are listed in the JPSS Algorithm Specification Vol. II: - Data Dictionary for the Common Algorithms, 474-00448-02-01. The DNB SDR geolocation metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS DNB SDR Geolocation, the items listed in Table 6.4.8-1, VIIRS DNB SDR Geolocation Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute “N_Quality_Summary”. The listed name/value pair items in the table are the granule level quality summary flags for the VIIRS DNB SDR Geolocation.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.4.8-1 VIIRS DNB SDR Geolocation Quality Summary Metadata

N_Quality_Summary			
Name	**Value**	**Description**	**Comments**
Percent Missing Data	0- 100%	Percentage of missing pixels (e.g., insufficient data for geolocation)	
Percent Out of Bounds	0 - 100%	Percentage of out of bound pixels. For example, pixels could not be geolocated	
Automatic Quality Flag	0 - 1	Indicates if processing error has occurred.	0 = Passed 1 = Failed

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7 Look-up Tables and Processing Coefficient Tables

The template used for these formats in this document is described below.

Data Mnemonic: This is a unique identifier. JPSS CDFCB-X Vol. I, 474-00001-01 describes the data mnemonic definition methodology.

Description/Purpose: A brief description of the data format and its purpose.

Instrument: Identification of the Instrument associated with the table.

File-Naming Construct: A description of the file-naming constructs for those data units that apply. JPSS CDFCB-X Vol. I, 474-00001-01 defines file-naming conventions.

File Size: The size of the data file.

File Format Type: The format type of the data file.

Production Frequency: Production frequency is the interval of time for data generation. A production frequency equal to dynamic implies that it is only as requested or as needed.

Data Format/Structure: This defines the actual data format. The definitions provide information for every data element in the data unit.

The following rules apply to all tables:

1. All field names mandatory, unless specified otherwise.
2. Fill data is specified, where applicable.
3. Strings are left-aligned and integers are right-aligned, unless specified otherwise.
4. For information regarding Coordinated Universal Time (UTC) and IDPS Epoch Time (IET) conventions, see the JPSS CDFCB-X Vol. I, 474-00001-01.
5. For all references of the ASCII Standard, the corresponding International Standards Organization (ISO) standard is ISO/IEC 10646. The specific Unicode is UTF8, unless stated otherwise.
6. The fields are presented in order (either top - down or most significant first), unless stated otherwise.

7.1 Look-Up Tables

Algorithm Look-up Table (LUT) files contain tables of pre-computed values used in lieu of real-time algorithm computations to reduce processing resource demands. Table values are typically the result of RTM executions and other environmental model simulations. These data generally cover broad, multi-dimensional parameter spaces which are unique to each algorithm.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.1 VIIRS Bright Pixel PSF MOD LUT

Data Mnemonic	NP_NU-LM0235-000
Description/ Purpose	The VIIRS Bright Pixel PSF MOD LUT file contains the Point Spread Function (PSF) parameters for use in determining Bright Pixels. This file is used in the VIIRS Bright Pixel algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names. Version Number Field provides Provenance Version Identifier.
File Size	See Table: 7.1.1-1 VIIRS Bright Pixel PSF MOD LUT for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.1-1, VIIRS Bright Pixel PSF MOD LUT Data Format.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.1-1 VIIRS Bright Pixel PSF MOD LUT

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Psf	409728	64-bit floating point	-0.446723 - 0.144059	unitless	Point Spread Function (PSF) values 3 Dimensional Array NUM_750M_BANDS x NUM_MOD_PSF_ROW x NUM_MOD_PSF_COL Size of Dimension(s): 16 x 33 x 97
File Size	**409,728 Bytes**				

7.1.2 VIIRS Bright Pixel Sub Radiance LUT

Data Mnemonic	NP_NU-LM0235-001
Description/ Purpose	The VIIRS Bright Pixel Sub Radiance LUT file contains substitute radiance values used for saturated pixels. Note: The dimension of the radianceValues field includes the Imagery Bands in addition to the Moderate Bands (16 + 5 = 21 total). The Imagery bands are not currently used in the algorithm, but retained in this table for possible future inclusion. This file is used in the VIIRS Bright Pixel algorithm
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names. Version Number Field provides Provenance Version Identifier
File Size	See Table 7.1.2-1 VIIRS Bright Pixel Sub Radiance LUT for size
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.2-1, VIIRS Bright Pixel Sub Radiance LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.2-1 VIIRS Bright Pixel Sub Radiance LUT

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
radianceValues	336	32-bit floating point	Approx 0 - 4300	W/(m^2 um sr)	(For TOTAL_M_I_BANDS = 21, Bands 1-16 are Moderate Bands M1-M16, 17-21 are Imagery Bands I1 - I5) 2 Dimensional Array: TOTAL_M_I_BANDS (MOD + IMG) x NUM_BP_RAD_COLUMNS Size of Dimension(s): 21 x 4
File Size	**336 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.3 VIIRS SDR BB Thermistor LUT

Data Mnemonic	NP_NU-LM0233-021
Description/ Purpose	The VIIRS Blackbody (BB) Thermistor LUT file contains an array of coefficient values for each BB thermistor. These values include voltages, currents, and resistances of the BB circuitry as required for the BB temperature calculation. This file is used in the VIIRS Sensor Data Record (SDR) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.3-1 VIIRS BB Thermistor LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.3-1, VIIRS BB Thermistor LUT Data Format * Unlike the default row-major ordering for all binary tables documented in this volume, values in this table are written to the binary file in column major order rather than row major order. Specifically, the entries are ordered I0[0], V0[0], Rp[0], G[0], Const1[0], I0[1], V0[1], Rp[1], G[1], Const1[1], etc., so that all 5 coefficients may be read at once for each of the 6 blackbody thermistors.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.3-1 VIIRS BB Thermistor LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
coeff	240	64-bit floating point	MIN_VAL - MAX_VAL	Varies. See comments	This field contains 6 arrays of 5 elements each: I0 Excitation Current applied to thermistor Units = milliAmps V0 Offset voltage (to be added to Vtot) Units = Volts Rp Parallel Resistance Units = ohms G Gain value (to be multiplied to I0). Units = unitless Const1 Constant value (to be multiplied to DN value) Units = Volts/Counts 2 Dimensional Array: DIM_NUM5 x NUM_BB_THERMISTORS Size of Dimension(s): 5 x 6
File Size	**240 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.4 VIIRS SDR Detector Response (Coefficient A) LUT

Data Mnemonic	NP_NU-LM0233-022
Description/ Purpose	The VIIRS SDR Detector Response LUT file contains the temperature dependent coefficients of the detector response functions, which are specific to HAM side and gain state. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.4-1 VIIRS SDR Detector Response (Coefficient A) LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.4-1, VIIRS SDR Detector Response (Coefficient A) LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.4-1 VIIRS SDR Detector Response (Coefficient A) LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Data	901120	64-bit floating point	-7.2647e+06 - 4.88472e+08	Photoelectrons/Vi	Dimension Details: - NUM_ELECTRONICS_SIDE: Indices 0/1 corresponds to values for A/B sides (Index 0 = A / Index 1 = B) - NUM_VIIRS_BANDS: Order of Bands is: I1 - I5 Bands (indices 0 - 4), M1 - M16 (indices 5 - 20). Index 21 is not used. Bands I4, I5, M12 - M16 are not reflective and therefore no A coefficients data is stored in these indices. - MAX_NUM_DETECTOR: All bands are sized to the max detector size of 32. Indices 0 - 31 correspond to detectors 1 - 32: o I-Bands use all 32 indices. o M-Bands use indices 0 - 15, while indices 16 - 31 are filled. *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. - NUM_GAINS: low gain or single gain = index 0, high gain = index 1, index 2 is not used (fill values) - NUM_MIRROR_SIDES: HAM Side A = index 0, HAM Side B = index 1 - NUM_TDET_LEVEL: Sized to 5 for each of the detector temperatures: - '4': This dimension combines the temperature of the detectors with the three A coeffs: o temperature of detector = index 0, a0 = index1, a2 = index 1, a3 = index2 7 Dimensional Array: NUM_ELECTRONICS_SIDE x NUM_VIIRS_BANDS x MAX_NUM_DETECTOR x NUM_GAINS x NUM_MIRROR_SIDES x NUM_TDET_LEVEL x 4 Size of Dimension(s): 2 x 22 x 32 x 2 x 2 x 5 x 4
File Size	**901,120 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.5 VIIRS SDR Electronic Response (Coefficient B) LUT

Data Mnemonic	NP_NU-LM0233-023
Description/ Purpose	The VIIRS SDR Electronic Response LUT file contains the temperature dependent coefficients of the electronics response functions, which are specific to HAM side. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table 7.1.5-1 VIIRS SDR Electronic Response (Coefficient B) LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.5-1, VIIRS SDR Electronic Response (Coefficient B) LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.5-1 VIIRS SDR Electronic Response (Coefficient B) LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
data	450560	64-bit floating point	-999.9 - 300	V/countin	Dimension Details: - NUM_ELECTRONICS_SIDE: Indices 0/1 corresponds to values for A/B sides (Index 0 = A / Index 1 = B) - NUM_VIIRS_BANDS: Order of Bands is: I1 - I5 Bands (indices 0 - 4), M1 - M16 (indices 5 - 20). Index 21 is not used. Bands I4, I5, M12 - M16 are not reflective and therefore no B coefficients data is stored in these indices. - MAX_NUM_DETECTOR: All bands are sized to the max detector size of 32. Indices 0 - 31 correspond to detectors 1 - 32: o I-Bands use all 32 indices. o M-Bands use indices 0 - 15, while indices 16 - 31 are filled. *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. - NUM_MIRROR_SIDES: HAM Side A = index 0, HAM Side B = index 1 - NUM_TELE_LEVEL: Sized to 5 for each of the electronics temperatures - '4': This dimension combines the temperature of the electronics with the three B coeffs: o temperature of detector = index 0, a0 = index1, a2 = index 1, a3 = index2 6 Dimensional Array: NUM_ELECTRONICS_SIDE x NUM_VIIRS_BANDS x MAX_NUM_DETECTOR x NUM_MIRROR_SIDES x NUM_TELE_LEVEL x 4 Size of Dimension(s): 2 x 22 x 32 x 2 x 5 x 4
File Size	**450,560 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.6 VIIRS SDR Delta C Temperature LUT

Data Mnemonic	NP_NU-LM0233-024
Description/ Purpose	The VIIRS SDR Delta C Temperature LUT file contains the detector specific and temperature dependent (electronics and detector temperature) adjustments to the coefficients of the radiance response functions. This file is used in the VIIRS SDR and Solar Diffuser algorithms.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.6-1 VIIRS SDR Delta C Temperature LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.6-1, VIIRS SDR Delta C Temperature LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.6-1 VIIRS SDR Delta C Temperature LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DeltaC	4505600	64-bit floating point	-0.000902409 - 3.86727	W/(m2(mu)m sr cntsi)	Delta C coefficients - 0th, 1st, 2nd, and 3rd order delta C coefficients used to obtain the c coefficient values. Dimension Details: - electronicsSideNum: 0/1 corresponds to A/B sides (0 = A / 1 = B) - viirsBandNum: Order of Bands is: I1 - I5 Bands (indices 0 - 4), M1 - M16 (indices 5 - 20). Index 21 is not used. - detectorNum: All bands are sized to the max detector size of 32: o I-Bands use all 32 entries. o M-Bands use indices 0 - 15, while indices 16 - 31 are filled. *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. - gainNum: Low/Single = index 0, High = index 1 (index 1 is zero filled for single gain bands) - mirrorNum: HAM Side A = index 0, HAM Side B = index 1 - coeffNum: delta c0 = index 0, delta c1 = index1, delta c2 = index 2, delta c3 = index 3 - telecThermistorNum: The Tdet and Telec values are combined into this dimension (5 x 5). The faster moving dimension is the Telec, the slower moving dimension is the Tdet. 7 Dimensional Array: electronicsSideNum x viirsBandNum x detectorNum x gainNum x mirrorNum x coeffNum x telecThermistorNum Size of Dimension(s): 2 x 22 x 32 x 2 x 2 x 4 x 25
Tele	80	64-bit floating point	240 - 310	K	Electronics Temperatures used in conjunction with the values stored in the DeltaC field. Dimension Details: electronicsSideNum: Side A = index 0, Side B = index 1 teleLevelNum: Number of electronics Temperatures used in DeltaC field. 2 Dimensional Array: electronicsSideNum x teleLevelNum Size of Dimension(s): 2 x 5
	240	64-bit floating point	0 - 300	K	Detector Temperatures used in conjunction with the values stored in the DeltaC field. The Dimension Details:

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Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					electronicsSideNum: Side A = index 0, Side B = index 1 focalPlaneNum: fpa1 (Vis/NIR) = index 0, fpa2 (S/MWIR) = index 1, fpa3 (LWIR) = index 2 tdetLevelNum: Number of electronics Temperatures used in DeltaC field. 3 Dimensional Array: electronicsSideNum x focalPlaneNum x tdetLevelNum Size of Dimension(s): 2 x 3 x 5
File Size	**4,505,920 Bytes**				

7.1.7 VIIRS SDR DNB Digital Count 0 LUT

Data Mnemonic	NP_NU-LM0233-026
Description/ Purpose	The VIIRS SDR DNB Digital Count 0 (DN0) LUT file contains DN sv0 values for DNB calibration. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.7-1 VIIRS SDR DNB Count 0 LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.7-1, VIIRS SDR DNB Digital Count LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.7-1 VIIRS SDR DNB Count 0 PC Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
data	1560576	32-bit floating point	50.0 - 500.0	unitless	*Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. 4 Dimensional Array: evDnbFrame x detectorDnbNum x dnbGainState x mirrorSideNum Size of Dimension(s): 4064 x 16 x 3 x 2
File Size	**1,560,576 Bytes**				

7.1.8 VIIRS SDR DNB Frame to Zone LUT

Data Mnemonic	NP_NU-LM0233-027
Description/ Purpose	The VIIRS SDR DNB Frame to Zone LUT file contains the DNB Frame to Zone values. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.8-1 VIIRS SDR DNB Frame to Zone LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.8-1, VIIRS SDR DNB Frame to Zone LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.8-1 VIIRS SDR DNB Frame to Zone LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
FrameToZone	16256	32-bit integer	MIN_VAL - MAX_VAL	unitless	DayNight Band Frame to Zone 1 Dimensional Array: evDnbFrame Size of Dimension(s): 4064
File Size	**16,256 Bytes**				

7.1.9 VIIRS SDR DNB Response Versus Frame LUT

Data Mnemonic	NP_NU-LM0233-028
Description/ Purpose	The VIIRS SDR DNB Response Versus Frame LUT file contains the DNB response versus scan angle values given at the DNB frame angles. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.9-1 VIIRS SDR DNB Response Versus Frame LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.9-1, VIIRS SDR DNB Response Versus Frame LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.9-1 VIIRS SDR DNB Response Versus Frame LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
dnbrvf		32-bit floating point	1.002 - 1.006	unitless	Response vs Frame values for DNB *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. 3 Dimensional Array: evDnbFrame x detectorDnbNum x mirrorSideNum Size of Dimension(s): 4064 x 16 x 2
File Size	**520,192 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.10 VIIRS SDR Equivalent BB Temperature LUT

Data Mnemonic	NP_NU-LM0233-029
Description/ Purpose	The VIIRS SDR Equivalent BB Temperature (EBBT) LUT file contains the values for converting radiances to brightness temperatures. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.10-1 VIIRS SDR Equivalent BB Temperature LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.10-1, VIIRS SDR Equivalent BB Temperature LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.10-1 VIIRS SDR Equivalent BB Temperature LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
EBBT_indices	56	32-bit integer	0 - MAX_VAL	unitless	Dimension Details: Overview: This field provides a roadmap of for the temperature/radiance fields in the table. Values for L_to_EBBT_tp and L_to_EBBT_rad are stored for each emissive band. The number of entries for each band, however, is not identical. This field provides information regarding the number of entries for each band. In addition, a buffer (fill value = -900) is present immediately following the temperature/radiance entries. First dimension (file) corresponds to Bands in order (I4, I5, M12 - M16). The number of L_to_EBBT_tp/ L_to_EBBT_rad entries is provided in this dimension for each band. Second Dimension (bufferIndexNum) corresponds to the index (starting with zero) in the L_to_EBBT_tp/ L_to_EBBT_rad arrays that mark the beginning of the data for each band. Example: EBBT_indices [0][0] = 2549 Means that the I4 Band has 2549 the L_to_EBBT_tp/ L_to_EBBT entries EBBT_indices [0][1] = 0 Means that the I4 Band's data begins at index number 0 (out of the 1,049,999 total indices) 2 Dimensional Array: hamerFileNum x bufferIndexNum Size of Dimension(s): 7 x 2
L_to_EBBT_tp	8400000	64-bit floating point	Approx 95 - 700 (dependent upon band)	Kelvin	Temperatures to be used in the interpolation of BB Temperatures to emitted radiances (corresponds to L_to_EBBT_rad entries) 1 Dimensional Array: MAX_EBBT_INDEX Size of Dimension(s): 1050000
L_to_EBBT_rad	8400000	64-bit floating point	Approx. 1.56e-07 - 687.5 (Dependent upon Band)	W/(m^2um sr)	Array of Radiances corresponding to the Temperatures in L_to_EBBT_tp (corresponds to values in HAM_ER_tp field) 1 Dimensional Array: ebbtIndex Size of Dimension(s): 1050000
File Size	**16,800,056 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.11 VIIRS SDR Emissivity LUT

Data Mnemonic	NP_NU-LM0233-030
Description/ Purpose	The VIIRS SDR Emissivity LUT file contains the values for emissive band calibration. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.11-1 VIIRS SDR Emissivity LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.11-1, VIIRS SDR Emissivity LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.11-1 VIIRS SDR Emissivity LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
wordBoundaryPad	2	16-bit integer	MIN_VAL - MAX_VAL	unitless	Padbyte
SV_DN_first_frame_to_use	2	16-bit integer	0 - 47	unitless	First frame to be used in the Space View if first frame is incremented number of frames should be decremented as not to exceed 47. (used in routine to calculate mean/Std Dev of Space View DNs)
SV_DN_number_of_frames_to_use	2	16-bit integer	48	unitless	Number of frames to be used in the Space View (used in routine to calculate mean/Std Dev of Space View DNs)
SV_DN_moon_include_frames	2	16-bit integer	25	unitless	Threshold for maximum number of frames allowed with moon (Reserved parameter - Not currently used) Max number of frames in granule that may include moon view
BB_DN_first_frame_to_use	2	16-bit integer	0 - 47	unitless	First frame to be used in the BlackBody View if first frame is incremented number of frames should be decremented as not to exceed 47. (used in routine to calculate mean/Std Dev of Space View DNs)
BB_DN_number_of_frames_to_use	2	16-bit integer	48	unitless	Number of frames to be used (used in routine to calculate mean/Std Dev of Space View DNs)
T_mir_function_flag	8	32-bit integer	1	unitless	1 Dimensional Array: NUM_T_MIR_THERMISTORS Size of Dimension(s): 2
T_mir_default	4	32-bit floating point	256	Kelvin	(Reserved parameter - Not implemented in code)
BB_Weight	24	32-bit floating point	1	unitless	Weighting factors used in the BlackBody calibration corresponding to each of the six active thermistors OBCBB. 1 Dimensional Array: bbThermistorNum Size of Dimension(s): 6
File Size	**48 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.12 VIIRS SDR Gain Table LUT

Data Mnemonic	NP_NU-LM0233-032
Description/ Purpose	The VIIRS SDR Gain Table LUT file contains the gain values for each of the VIIRS bands. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.12-1 VIIRS SDR Gain Table LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.12-1, VIIRS SDR Gain Table LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.12-1 VIIRS SDR Gain Table LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
data	176	64-bit floating point	Approx: 8.5e-07 to 2.5e-04 Fill value = -999.9	W/(m^2 um sr) /photoelectron	Gain values to convert detector electron counts to radiance Dimension Details: The 22 entries correspond to I1 - I5, M1 - M16, DNB 1 Dimensional Array: viirsBandNum Size of Dimension(s): 22
File Size	**176 Bytes**				

7.1.13 VIIRS DG Anomaly DN Limits LUT

Data Mnemonic	NP_NU-LM0233-033
Description/ Purpose	The VIIRS DG Anomaly DN Limits LUT contains the digital number (DN) limits for which the dual gain quality flag will be set. Minimum and maximum values are listed for the six reflective dual gain bands and for 16 detectors/band. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.13-1 VIIRS DG Anomaly DN Limits LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Seasonally
Data Content and Data Format	For details see Table 7.1.13-1, VIIRS DG Anomaly DN Limits LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.13-1 VIIRS DG Anomaly DN Limits LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DN values	768	32-bit floating point	0 - MAX_VAL>0	unitless	3 Dimensional Array: Number of Reflective DG Bands x Number of Detectors x PRO_VIIRS_MIN_MAX_DIM Size of Dimension(s): 6 x 16 x 2
File Size	**768 Bytes**				

7.1.14 VIIRS SDR Ham ER LUT

Data Mnemonic	NP_NU-LM0233-036
Description/ Purpose	The VIIRS SDR Half Angle Mirror (HAM) LUT file contains the values for calculating the emitted radiance of the HAM based on its temperature. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.14-1 VIIRS SDR HAM ER LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.14-1, VIIRS SDR HAM LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.14-1 VIIRS SDR HAM ER LUT Data Format

Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
HAM_ER_indices	56	32-bit integer	0 - MAX_VAL	unitless	HAM Emitted Radiance Indices Dimension Details: Overview: This field provides a roadmap of for the temperature/radiance fields in the table. Values for HAM_ER_tp and HAM_ER_rad are stored for each emissive band. The number of entries for each band, however, is not identical. This field provides information regarding the number of entries for each band. In addition, a buffer (fill value = -900) is present immediately following the temperature/radiance entries. First dimension (file) corresponds to Bands in order (I4, I5, M12 - M16). The number of HAM_ER_tp/HAM_ER_rad entries is provided in this dimension for each band. Second Dimension (bufferIndexNum) corresponds to the index (starting with zero) in the HAM_ER_tp/HAM_ER_rad arrays that mark the beginning of the data for each band. Example: HAM_ER_indices[0][0] = 637 Means that the I4 Band has 637 HAM_ER_tp/rad entries HAM_ER_indices[0][1] = 0 Means that the I4 Band's data begins at index number 0 (out of the 7497 total indices) 2 Dimensional Array: Band x bufferIndexNum Size of Dimension(s): 7 x 2
HAM_ER_tp	59984	64-bit floating point	Approx 110 - 685 (Dependent upon Band)	Kelvin	Temperatures to be used in the interpolation of HAM Temperatures to emitted radiances (corresponds to HAM_ER_rad entries) 1 Dimensional Array: hamErIndex Size of Dimension(s): 7498
HAM_ER_rad	59984	64-bit floating point	Approx 9e-04 - 632 (Dependent upon Band)	W/(m^2 um sr)	HAM Emitted Radiances (corresponds to values in HAM_ER_tp field) 1 Dimensional Array: hamErIndex Size of Dimension(s): 7498
File Size	**120,024 Bytes**				

7.1.15 VIIRS SDR OBC Emitted Radiance LUT

Data Mnemonic	NP_NU-LM0233-037
Description/ Purpose	The VIIRS SDR OBC Emitted Radiance LUT file contains the values for calculating the emitted radiance of the BB based on the temperature. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.15-1 VIIRS SDR OBC Emitted Radiance LUT Data Format for size
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.15-1, VIIRS SDR OBC Emitted Radiance LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.15-1 VIIRS SDR OBC Emitted Radiance LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
OBC_ER_indices	56	32-bit integer	0 - MAX_VAL	unitless	OBC Emitted Radiance Indices Dimension Details: Overview: This field provides a roadmap of for the temperature/radiance fields in the table. Values for OBC_ER_tp and OBC_ER_rad are stored for each emissive band. The number of entries for each band, however, is not identical. This field provides information regarding the number of entries for each band. In addition, a buffer (fill value = -900) is present immediately following the temperature/radiance entries. First dimension (file) corresponds to Bands in order (I4, I5, M12 - M16). The number of OBC _ER_tp/ OBC _ER_rad entries is provided in this dimension for each band. Second Dimension (bufferIndexNum) corresponds to the index (starting with zero) in the OBC _ER_tp/ OBC _ER_rad arrays that mark the beginning of the data for each band. Example: OBC _ER_indices[0][0] = 637 Means that the I4 Band has 637 HAM_ER_tp/rad entries OBC_ER_indices[0][1] = 0 Means that the I4 Band's data begins at index number 0 (out of the 7497 total indices) 2 Dimensional Array: Band x bufferIndexNum Size of Dimension(s): 7 x 2
OBC_ER_tp	59984	64-bit floating point	MIN_VAL - MAX_VAL	Kelvin	Temperatures to be used in the interpolation of OBC Temperatures to emitted radiances (corresponds to OBC_ER_rad entries) 1 Dimensional Array: obcErIndex Size of Dimension(s): 7498
OBC_ER_rad	59984	64-bit floating point	MIN_VAL - MAX_VAL	W/(m^2 um sr)	OBC Emitted Radiances (corresponds to values in OBC_ER_tp field) 1 Dimensional Array: obcErIndex Size of Dimension(s): 7498
File Size	**120,024 Bytes**				

7.1.16 VIIRS SDR OBC Black Body Reflected Radiance LUT

Data Mnemonic	NP_NU-LM0233-038
Description/ Purpose	The VIIRS SDR OBC Black Body Reflected Radiance LUT file contains the values for calculating the reflected radiance of the Black Body based on the temperature. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.16-1 VIIRS SDR OBC Black Body Reflected Radiance LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.16-1, VIIRS SDR OBC Black Body Reflected Radiance LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.16-1 VIIRS SDR OBC Black Body Reflected Radiance LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
OBC_RR_indices	56	32-bit integer	0 - MAX_VAL	unitless	OBC Black Body Reflected Radiance Indices Dimension Details: Overview: This field provides a roadmap of for the temperature/radiance fields in the table. Values for OBC_RR_tp and OBC_RR_rad are stored for each emissive band. The number of entries for each band, however, is not identical. This field provides information regarding the number of entries for each band. In addition, a buffer (fill value = -900) is present immediately following the temperature/radiance entries. First dimension (file) corresponds to Bands in order (I4, I5, M12 - M16). The number of OBC _RR_tp/ OBC _RR_rad entries is provided in this dimension for each band. Second Dimension (bufferIndexNum) corresponds to the index (starting with zero) in the OBC _RR_tp/ OBC _RR_rad arrays that mark the beginning of the data for each band. Example: OBC _RR_indices[0][0] = 637 Means that the I4 Band has 637 HAM_RR_tp/rad entries OBC_RR_indices[0][1] = 0 Means that the I4 Band's data begins at index number 0 (out of the 7497 total indices) 2 Dimensional Array: Band x bufferIndexNum Size of Dimension(s): 7 x 2
OBC_RR_tp	59984	64-bit floating point	MIN_VAL - MAX_VAL	Kelvin	Temperatures to be used in the interpolation of OBC BB Temperatures to reflected radiances (corresponds to OBC_RR_rad entries) 1 Dimensional Array: obcRrIndex Size of Dimension(s): 7498
OBC_RR_rad	59984	64-bit floating point	MIN_VAL - MAX_VAL	W/(m^2 um sr)	OBC BB Reflected Radiances (corresponds to values in OBC_RR_tp field) 1 Dimensional Array: obcRrIndex Size of Dimension(s): 7498
File Size	**120,024 Bytes**				

7.1.17 VIIRS SDR OBS to Pixel LUT

Data Mnemonic	NP_NU-LM0233-039
Description/ Purpose	The VIIRS SDR OBS to Pixel LUT file contains the dual gain band along-scan samples to aggregated pixel frame number mapping table. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.17-1 VIIRS SDR OBS to Pixel LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.17-1, VIIRS SDR OBS to Pixel LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.17-1 VIIRS SDR OBS to Pixel LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
pixels	25216	32-bit integer	0 - 3199	unitless	Contains the dual gain band along-scan samples to aggregated pixel frame number mapping table 1 Dimensional Array: EV_FRAMES_750m_DG Size of Dimension(s): 6304
File Size	**25,216 Bytes**				

7.1.18 VIIRS SDR Quality Assurance LUT

Data Mnemonic	NP_NU-LM0233-040
Description/ Purpose	The VIIRS SDR Quality Assurance LUT file contains detectors, quality flags, and moon offset limits science data sets. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.18-1 VIIRS SDR Quality Assurance LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.18-1, VIIRS SDR Quality Assurance LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.18-1 VIIRS SDR Quality Assurance LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Detector_Quality_Flag_Values	3456	unsigned 8-bit char	0 - 245	unitless	Dimension Details: detectorNum: 432 represents all detectors for the following band resolutions: Reflective 375M = 32 detectors for each of the 3 bands. Bands follow numerical order I1 - I3. This is the first 96 (= 32 x 3) entries of the 432. Reflective 750M = 16 detectors for each of the 11 bands. Bands follow the order of M6, M8, M9, M10, M11, M1-M5, M7 (SG bands followed by DG bands). This is the next 176 (= 16 x 11) entries of the 432. Emissive 375M = 32 detectors for each of the 2 bands. Bands follow the order of I4 - I5. This is the next 64 (= 32 x 2) entries of the 432. Emissive 750M = 16 detectors for each of the 5 bands. Bands follow the order of M12, M14 - M16, M13 (SG bands followed by DG bands). This is the next 80 (= 16 x 5) entries of the 432.DNB = 16 detectors. This is the last 16 entries of the 432. *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. 2 Dimensional Array: detectorNum x bitNum Size of Dimension(s): 432 x 8
moon_offset_limits	352	32-bit floating point	-55 - 55	degrees	Limits used to determine whether the moon is inside or outside the keep-out box. Dimension Details: bandNum: Order of bands is I1 - I5, M1 - M16, DNB 4: Moon offset limit dimensions: Track Upper Limit = index 0 Track Lower Limit = index 1 Scan Upper Limit = index 3 Scan Lower Limit = index 4 2 Dimensional Array: bandNum x moonOffsetLimitNum Size of Dimension(s): 22 x 4
saa_threshold	4	32-bit floating point	0 - 100	Percent	South Atlantic Anomoly Threshold - minimum percent to trigger flag.
File Size	**3,812 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.19 VIIRS SDR Radiometric Parameters Version 3 LUT

Data Mnemonic	NP_NU-LM0233-041
Description/ Purpose	The VIIRS SDR Radiometric Parameters LUT file contains various weighting parameters and limits used to compute temperatures used during radiometric calibration. This file is used in the VIIRS SDR and Solar Diffuser algorithms.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.19-1 VIIRS SDR Radiometric Parameters Version 3 LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.19-1, VIIRS SDR Radiometric Parameters Version 3 LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.19-1 VIIRS SDR Radiometric Parameters Version 3 LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Telec_Therm_Indexes	16	32-bit integer	11 - 14	unitless	Contains the indices of the thermistors to be used for each component of the Telec Temperature. 1 Dimensional Array: telecThermistorNum Size of Dimension(s): 4
Telec_Therm_Weights	16	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the Electronics Temperatures 1 Dimensional Array: telecThermistorNum Size of Dimension(s): 4
Tsh_Indexes	8	32-bit integer	7 - 10	unitless	Contains the indices of the thermistors to be used for each component of Shield Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tsh_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the Shield Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Ttele_Indexes	8	32-bit integer	7 - 10	unitless	Contains the indices of the thermistors to be used for each component of telescope Temperatures 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Ttele_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the Telescope Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Ttele_Offset	4	32-bit floating point	-10 - 10.0	Kelvin	Offset used in telescope temperature calculation
Trta_Indexes	8	32-bit integer	7 - 10	unitless	Contains the indices of the thermistors to be used for each component of Rotating Telescope Assembly 1 Dimensional Array:

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					thermistorRank Size of Dimension(s): 2
Trta_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the rotating telescope assembly Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Trta_Offset	4	32-bit floating point	-10.0 - 10.0	Kelvin	Offset used in rotating telescope assembly temperature calculation
Tcav_Indexes	8	32-bit integer	7 - 10	unitless	Contains the indices of the thermistors to be used for each component of Cavity 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tcav_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Offset used in cavity temperature calculation 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tmir_Indexes	8	32-bit integer	25 - 26	unitless	Contains the indices of the thermistors to be used for each component of HAM 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tmir_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the HAM Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tfpsm_Indexes	8	32-bit integer	22 - 23	unitless	Contains the indices of the thermistors to be used for each component of SW and MW Focal Plane Arrays 1 Dimensional Array: thermistorRank Size of Dimension(s): 2

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Tfpsm_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the SW and MW Focal Plane Array Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tfplw_Indexes	8	32-bit integer	20 - 21	unitless	Contains the indices of the thermistors to be used for each component of LW Focal Plane Array 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tfplw_Weights	8	32-bit floating point	0.0 - 1.0	unitless	Weights used in to obtain the weighted average temperature of the LW Focal Plane Array Thermistors 1 Dimensional Array: thermistorRank Size of Dimension(s): 2
Tomm_Thermistor_Indexs	20	32-bit integer	15 - 19	unitless	Indices of the thermistors used for the Opto-Mechanical Module Temperature 1 Dimensional Array: telecThermistorRank Size of Dimension(s): 5
Tomm_Thermistor_Weights	20	32-bit floating point	0.0 - 1.0	unitless	Weights of the thermistors used for the Opto-Mechanical Module Temperature 1 Dimensional Array: telecThermistorRank Size of Dimension(s): 5
Ttel_Tsh_Tcav_Weights	12	32-bit floating point	0.0 - 1.0	unitless	Weights used to obtain the OBC reflected band averaged radiance: Index 0 = Telescope Index 1 = Cavity Index 2 = Shield 1 Dimensional Array: numWeights Size of Dimension(s): 3
Tmax	4	32-bit floating point	330	Kelvin	Max Temperature for Blackbody Thermistor allowed before flagging a warning
Tmin	4	32-bit floating point	270	Kelvin	Min Temperature for Blackbody Thermistor allowed before flagging a warning

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Tomm_for_Tfpsm_Switch	4	32-bit integer	0 - 1	unitless	Switch used to substitute Tomm temperature for Tfpsm Temperature
Tomm_for_Tfplw_Switch	4	32-bit integer	0 - 1	unitless	Switch used to substitute Tomm temperature for Tfplm Temperature
bbNominalTemp_Tolerances	12	32-bit floating point	0 - 350.0	Kelvin	1 Dimensional Array: OneTempTwoTolerances Size of Dimension(s): 3
LWIR FPA Temp Tolerance	4	32-bit floating point	0 - 5.0	Kelvin	Tolerance of LWIR FPA measured temp from setpoint temp
File Size	**236 Bytes**				

7.1.20 VIIRS SDR Reflective Values LUT

Data Mnemonic	NP_NU-LM0233-042
Description/ Purpose	The VIIRS SDR Reflective Values LUT file contains the values for calibrating reflective bands. The values include first frame to use for OBC average, number of frames to use for OBC average, and RSB moon include. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.20-1 VIIRS SDR Reflective Values LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.20-1, VIIRS SDR Reflective Values LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.20-1 VIIRS SDR Reflective Values LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DN_obc_avg_first_frame	2	16-bit integer	0-47	unitless	First frame to use for OBC average if first frame is incremented number of frames should be decremented as not to exceed 47.
DN_obc_avg_num_frames	2	16-bit integer	0 - MAX_VAL >0	unitless	Number of frames to use for OBC average
RSB_SV_DN_moon_include_frames	2	16-bit integer	0 - MAX_VAL >0	unitless	RSB moon include
WordBoundaryPad	2	16-bit integer	MIN_VAL - MAX_VAL	unitless	Pad
File Size	**8 Bytes**				

7.1.21 VIIRS SDR RTA LUT

Data Mnemonic	NP_NU-LM0233-044
Description/ Purpose	The VIIRS SDR Rotating Telescope Assembly (RTA) LUT file contains the VIIRS RTA emissive radiance tables for each VIIRS emissive band (I4-I5), (M12-M16). This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.21-1 VIIRS SDR RTA LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.21-1, VIIRS SDR RTA LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.21-1 VIIRS SDR RTA LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
RTA_ER_indices	56	32-bit integer	0 - 7497	unitless	Index information for the band of interest and where that band's data is located in the RTA_ER_tp & RTA_ER_rad arrays. Dimension Details: rtaerFileNum: The 7 emissive bands in order: I4, I5, M12 - M16 bufferIndexNum: index 0 = The number of values in the band index 1 = The index number that tells where in the two input arrays (RTA_ER_tp & RTA_ER_rad) the data for the band of interest starts. 2 Dimensional Array: rtaerFileNum x bufferIndexNum Size of Dimension(s): 7 x 2
RTA_ER_tp	59984	64-bit floating point	0 - MAX_VAL >0	Kelvin	Array of Temperatures corresponding to RTA_ER_rad Radiances 1 Dimensional Array: rtaErIndex Size of Dimension(s): 7498
RTA_ER_rad	59984	64-bit floating point	MIN_VAL - MAX_VAL	W/(m^2 um sr)	Array of Radiances corresponding to RTA_ER_tp Temperatures 1 Dimensional Array: rtaErIndex Size of Dimension(s): 7498
File Size	**120,024 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.22 VIIRS SDR Response Versus Frame LUT

Data Mnemonic	NP_NU-LM0233-045
Description/ Purpose	The VIIRS Response Versus Frame LUT file contains the response versus scan (RVS) angle for moderate and imagery bands given at the moderate and imagery frame angles. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.22-1 VIIRS SDR Response Versus Frame LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.22-1, VIIRS SDR Response Versus Frame LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.22-1 VIIRS SDR Response Versus Frame LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
RVF_375m	8192000	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Imagery Bands. Dimension Details: 375mBandNum: Indices 0 - 4 corresponds (in order) to Bands I1 - I5 mirrorNum: Index 0 = HAM Side A, index 1 = HAM Side B *Note on detector ordering for all detector related fields in this table: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details. 4 Dimensional Array: 375mBandNum x 375mDetectorNum* x ev375mFrame x mirrorNum Size of Dimension(s): 5 x 32 x 6400 x 2
RVF_750m_SG	3686400	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Single Gain Moderate Resolution Bands Dimension Details: 750mSgBandNum: Order of Bands is M6, M8 - M12, M14 - M16 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 4 Dimensional Array: 750mSgBandNum x 750mDetectorNum x ev750mSgFrame x mirrorSideNum Size of Dimension(s): 9 x 16 x 3200 x 2
RVF_750m_DG	5648384	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Dual Gain Moderate Resolution Bands Dimension Details: 750mDgBandNum: Order of Bands is M1 - M5, M7, M13 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 4 Dimensional Array: 750mSgBandDgBandNum x 750mDetectorNum x ev750mDgFrame x mirrorSideNum Size of Dimension(s): 7 x 16 x 6304 x 2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
RVF_375m_SV	1280	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Imagery Bands - Space View Dimension Details: 375mBandNum: Indices 0 - 4 corresponds (in order) to Bands I1 - I5 375mDetectorNum: See note above on Detector ordering mirrorNum: Index 0 = HAM Side A, index 1 = HAM Side B 3 Dimensional Array: 375mbandNum x 375mDetectorNum x mirrorSideNum Size of Dimension(s): 5 x 32 x 2
RVF_750m_SV_SG	1152	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Single Gain Moderate Resolution Bands - Space View Dimension Details: 750mSgBandNum: Order of Bands is M6, M8 - M12, M14 - M16 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 3 Dimensional Array: 750mSgBandNum x 750mDetectorNum x mirrorSideNum Size of Dimension(s): 9 x 16 x 2
RVF_750m_SV_DG	896	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Dual Gain Moderate Resolution Bands - Space View Dimension Details: 750mDgBandNum: Order of Bands is M1 - M5, M7, M13 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 3 Dimensional Array: 750mDgBandNum x 750mDetectorNum x mirrorSideNum Size of Dimension(s): 7 x 16 x 2
RVF_375m_BB	1280	32-bit floating point	Values depend on specific response of HAM, but generally are between: ~ 0.90 - 1.15	unitless	Response Versus Frame for the Imagery Bands - Blackbody View Dimension Details: 375mBandNum: Indices 0 - 4 corresponds (in order) to Bands I1 - I5 375mDetectorNum: See note above on Detector ordering mirrorNum: Index 0 = HAM Side A, index 1 = HAM Side B 3 Dimensional Array: 375mBandNum x 375mDetectorNum x mirrorSideNum Size of Dimension(s): 5 x 32 x 2
RVF_750m_BB_SG	1152	32-bit floating point	Values depend on specific response of	unitless	Response Versus Frame for the Single Gain Moderate Resolution Bands - Blackbody View Dimension Details: 750mSgBandNum: Order of Bands is M6, M8 - M12, M14 -

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
			HAM, but generally are between: ~ 0.90 - 1.15		M16 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 3 Dimensional Array: 750mSgBandNum x 750mDetectorNum x mirrorSideNum Size of Dimension(s): 9 x 16 x 2
RVF_750m_BB_DG	896	32-bit floating point	Values depend on specific response of HAM, but generally are between: 0 - 2	unitless	Response Versus Frame for the Dual Gain Moderate Resolution Bands - Blackbody View Dimension Details: 750mDgBandNum: Order of Bands is M1 - M5, M7, M13 750mDetectorNum: See note above on Detector ordering mirrorSideNum: Index 0 = HAM Side A, Index 1 = HAM Side B 3 Dimensional Array: 750mDgBandNum x 750mDetectorNum x mirrorSideNum Size of Dimension(s): 7 x 16 x 2
File Size	**17,533,440 Bytes**				

7.1.23 VIIRS SDR Solar Irradiances LUT

Data Mnemonic	NP_NU-LM0233-047
Description/ Purpose	The VIIRS SDR Solar Irradiances LUT file contains the solar power table needed for calculation of D coefficients, which are used in the reflectance algorithm. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.23-1 VIIRS SDR Solar Irradiances LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.23-1, VIIRS SDR Solar Irradiances LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.23-1 VIIRS SDR Solar Irradiances LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
x	399608	64-bit floating point	-1 - 200000	nanometers	Wavelength 1 Dimensional Array: x Size of Dimension(s): 49951
y	399608	64-bit floating point	-1 - 6.07e+26	W / Micrometers (W / um)	Solar Irradiance 1 Dimensional Array: y Size of Dimension(s): 49951
File Size	**799,216 Bytes**				

7.1.24 VIIRS SDR Telemetry LUT

Data Mnemonic	NP_NU-LM0233-048
Description/ Purpose	The VIIRS SDR Telemetry LUT file contains Calibration coefficients for VIIRS thermistors as provided by Raytheon SBRS This file is used in the VIIRS SDR and Solar Diffuser algorithms.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.24-1 VIIRS SDR Telemetry LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.24-1, VIIRS SDR Telemetry LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.24-1 VIIRS SDR Telemetry LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
teleCoeffs	624	32-bit floating point	-2.0e-06 - 1.5e+04	K/countsn	Calibration Coefficients Dimension Details: NUM_MAX_THERMISTORS: Corresponds to each thermistor in order Indices 1-6 black body thermistors Indices 7&8 cavity thermistors (Tcav) Indices 9&10 shield thermistors (Tsh) Indices 11-14 elecronics mod (Telec) Indices 15-19 opto-mech mod (Tomm) Indices 20&21 LWIR focal plane (Tfpa2) Indices 22&23 S/MWIR focal plane (Tfpa1) Index 24 = VisNIR focal plane (Tfpa0) Indices 25&26 Ham thermistors (Tham) NUM_TEMP_COEFFS: 6 coefficients needed for each temperature calculation. Index 0 is lowest order (the constant in the polynomial), index 5 holds the highest order coefficient. 2 Dimensional Array: NUM_MAX_THERMISTORS x NUM_TEMP_COEFFS Size of Dimension(s): 26 x 6
bbTemGainDef	4	32-bit floating point	-2.0e06 - 1.5e+04	unitless	Black body temperature gain default Precision reference thermistor offest and offset/gain in expression for total resistance...Rtot = (DN = offset\/gain, where DN are reference resistor counts from the telemetry and Rtot is used in calculating the OBC BB thermistor temperature.
bbTempOffsetDef	4	32-bit floating point	-2.0e06 - 1.5e+04	unitless	Black body temperature offset default
bbTempAdditive	4	32-bit floating point	-2.0e06 - 1.5e+04	unitless	Black body temperature additive
bbTempSpare	12	32-bit floating point	-2.0e06 - 1.5e+04	unitless	Black body temperature spare 1 Dimensional Array: DIM_3 Size of Dimension(s): 3
Spare 1	48	32-bit floating point	-2.0e06 - 1.5e+04	unitless	Spare 1 Dimensional Array: DIM_12 Size of Dimension(s): 12
filterThreshold	104	32-bit floating point	0 - 1	unitless	1 Dimensional Array: NUM_MAX_THERMISTORS Size of Dimension(s): 26

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Spare 2	12	32-bit floating point	0 - 1	unitless	Spare 1 Dimensional Array: DIM_3 Size of Dimension(s): 3
defaultValue	104	32-bit floating point	80 - 295	Kelvin	Default Temperature used if the thermistor is flagged as bad. Dimension Details: The 26 values correspond to the thermistors listed above for the coefficients. 1 Dimensional Array: NUM_MAX_THERMISTORS Size of Dimension(s): 26
evCtPrecTrefMux1CA	12	32-bit floating point	0 - 10e+03	ohm	Used to determine Rtot by linear fitting of counts from reference thermistors in the telemetry. 1 Dimensional Array: NUM_MAX_EV_CT_PREC_TREF_MUX1CA Size of Dimension(s): 3
File Size	**928 Bytes**				

7.1.25 VIIRS SDR Dynamic F Table LUT

Data Mnemonic	NP_NUM-LM0233-086
Description/ Purpose	The VIIRS SDR Dynamic F Table LUT file contains the values derived from offline processing of solar calibration data in the OBC IP needed to calculate calibration scale factors for each scan of Earth View data. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Volume I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the CDFCB-X Volume I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.25-1 VIIRS SDR Dynamic F Table LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.25-1, VIIRS SDR Dynamic F Table LUT Data Format *Note on detector ordering: The numbering of detectors on the FPA, referred to as the Instrument Engineering Order (IEO) is numbered with 1 being the leading edge of the FPA in the in-track direction. However, the order of the detectors in all LUT/PC tables, SDRs, and EDRs, is the reverse, called the Product Order (PO). Refer to the VIIRS SDR Algorithm Documents for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.25-1 VIIRS SDR Dynamic F Table LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Fit_type	22	8-bit char	0 - 1	unitless	Enumerated type of fit specified by equations: - If Fit_type for a given band is 0, then the F parameters specify an exponential: F = F_ref + F_param_1*(1 - exp(F_param_2*(T_this_scan - T_reference))) - If Fit_type for a given band is 1, then the F parameters specify a quadratic fit: F = F_ref + F_param_1*(T_this_scan - T_reference) + F_param_2*(T_this_scan - T_reference)2 1 Dimensional Array: viirsBandNum Size of Dimension(s): 22
implicit _pad0	2	unsigned 8-bit char	N/A	unitless	1 Dimensional Array: PAD_BYTES_2 Size of Dimension(s): 2
T_ref	8	64-bit integer	1483228832000000 - 2272147232000000	microsecond	64-bit IET reference time in microseconds
F_ref	33792	64-bit floating point	0 - 10	unitless	F reference value. Range of Values accommodates throughput degradation down to 10% level. 4 Dimensional Array: viirsBandNum x detectorNum x gainNum x mirrorSideNum Size of Dimension(s): 22 x 32 x 3 x 2
F_param_1	33792	64-bit floating point	-9.0e-18 - 9.0e+18	unitless	F first order parameter. 4 Dimensional Array: viirsBandNum x detectorNum x gainNum x mirrorSideNum Size of Dimension(s): 22 x 32 x 3 x 2
F_param_2	33792	64-bit floating point	-9.0e-18 - 9.0e+18	unitless	F second order parameter. 4 Dimensional Array: viirsBandNum x detectorNum x gainNum x mirrorSideNum Size of Dimension(s): 22 x 32 x 3 x 2
File Size	**101,408 Bytes**				

7.1.26 VIIRS Bright Pixel Flag Threshold LUT

Data Mnemonic	NP_NU-LM0235-002
Description/ Purpose	The VIIRS Bright Pixel Flag Threshold LUT file contains bit patterns that match corresponding percents of scattered light. These thresholds are used to determine the output 4-bit state flag that is the output of the Bright Pixel Algorithm. This file is used in the VIIRS Bright Pixel and ACO/OCC algorithms
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.26-1 VIIRS Bright Pixel Flag Threshold LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.26-1, VIIRS Bright Pixel Flag Threshold LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.26-1 VIIRS Bright Pixel Flag Threshold LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
pattern	210	unsigned 8-bit char	0 - 15 Current values are documented in the PCT file which can be obtained as part of an IDPS release package.	unitless	Values that match the % scattered light thresholds (table entries represent fractional scattered light, not percents) - entries correspond to the thresholds field in this table. (For NUM_IMG_MOD_BANDS = 21, Bands 1-16 are Moderate Bands M1-M16, 17-21 are Imagery Bands I1 - I5) 2 Dimensional Array: NUM_IMG_MOD_BAND x NUM_BP_THRESHOLDS Size of Dimension(s): 21 x 10
spare	2	unsigned 8-bit char	MIN_VAL - MAX_VAL	Unitless	1 Dimensional Array: Size of Dimension(s): 2
thresholds	840	32-bit floating point	-1E-6 - 0.1	percent (of scattered light)	Thresholds for percent of scattered light - entries correspond to the patterns field. (For NUM_IMG_MOD_BANDS = 21, Bands 1-16 are Moderate Bands M1-M16, 17-21 are Imagery Bands I1 - I5) 2 Dimensional Array: NUM_IMG_MOD_BAND x NUM_BP_THRESHOLDS Size of Dimension(s): 21 x 10
File Size	**1,052 Bytes**				

7.1.27 VIIRS SDR GEO PARAM LUT

Data Mnemonic	NP_NU-LM0233-211: I-Band Geolocation LUT NP_NU-LM0233-212: M-Band Geolocation LUT NP_NU-LM0233-213: DNB Geolocation LUT
Description/ Purpose	The VIIRS SDR GEO PARAM LUT contains coefficients used in the geolocation algorithm. This file is used in the VIIRS SDR Geolocation algorithm. This is a common format for I-Band, M-Band Aggregated and DNB Look Up Tables.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.27-1 VIIRS SDR GEO PARAM LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.27-1, VIIRS SDR GEO PARAM LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.27-1 VIIRS SDR GEO PARAM LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
revision	10	unsigned 8-bit char	0 - MAX_VAL	unitless	Revision number for the parameter file. 1 Dimensional Array: Size of Dimension(s): 10
pad1	6	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 6
band_number	4	32-bit integer	0 - 22	unitless	Band number to geolocate (0 is the ideal band). This parameter is used to index other band dependent parameters.
pad2	4	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 4
latch_to_center	8	64-bit floating point	0 - 1.0	unitless	Used to calculate sample time from frame time. This specifies the fraction of the frame time that is used to compute the sample time, e.g., latch_to_center = 0.5 means that the sample time is computed at the center of the frame time.
t_reset	8	64-bit floating point	0 <= 2.3e-5	second	Time to reset the sample, otherwise called the readout time. This is computed by subtracting the integration time from the frame time.
N_samp	74	unsigned 16-bit integer	1 - 2	unitless	Factor used to determine the number of samples per frame for each band (0 is the ideal band). 1 Dimensional Array: Size of Dimension(s): 37
pad3	6	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 6
focal_length	296	64-bit floating point	0.270 - 1.15	meters	Instrument focal length for each band. This parameter is tied to the Mag parameter. If the system Mag is used, then the system focal length should be used. Likewise, if the Mag of the Aft Optics is used, then the Aft Optics focal length should be used. 1 Dimensional Array: Size of Dimension(s): 37
det_space_track	296	64-bit floating point	Range for IMG: 0.000508	meters	Detector center spacing in the track direction (0 is the ideal band).

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
			- 0.000511 Range for MOD: 0.001016 - 0.001022		1 Dimensional Array: Size of Dimension(s): 37
det_space_scan	296		0 - MAX_VAL	meters	Detector center spacing in the scan direction (0 is the ideal band). This parameter currently set to zero for all bands since the scan offset is accounted for by a timing offset. 1 Dimensional Array: Size of Dimension(s): 37
DNB_space_track	256	64-bit floating point	0.000484 - 0.001016	meters	DNB detector center spacing in the track direction. Aggregation zone dependent, listed in order from Zone 0 to 31, where aggregation Zone 0 is nadir. 1 Dimensional Array: Size of Dimension(s): 32
DNB_space_scan	256	64-bit floating point	0 - MAX_VAL	meters	DNB detector center spacing in the scan direction. Aggregation zone dependent, listed in order of zone 0 to 31, where aggregation zone 0 is nadir. This parameter currently set to zero for all zones since the scan offset is accounted for by a timing offset. 1 Dimensional Array: Size of Dimension(s): 32
det_position	592	64-bit floating point	Range Dim 1 (scan): Range IMG: 0 - 0.000177 Range MOD: 0 - 0.000354 Range DNB: 0 - 0.000015] Range Dim 2 (track): Range IMG: 0 - 0.000508 Range MOD: 0 - 0.001016	meters	Band center x and y offset pairs with respect to the optical center (0 is the ideal band). This value is the average shift of all detector locations within the band from the nominal location (overall bias per band). Col 1: x-component (scan) shift Col 2: y-component (track) shift 2 Dimensional Array: MAX_BAND_NUMBER_PLUS_ONE x DIM2 Size of Dimension(s): 37 x 2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
			Range DNB: 0 - 0.000024		
band_position	296	64-bit floating point	-22 - 22	MOD Res IFOV	Scan IFOV offset of band trailing edges with respect to the Optical Center (0 is the ideal band). 1 Dimensional Array: Size of Dimension(s): 37
earth_view_delay	8	64-bit floating point	MIN_VAL - MAX_VAL	second	The delay following the start of scan (referenced to the encoder clock reset) to the start of the first Earth View (EV) sample. This parameter specifies the dropped samples to allow for electronic settling before EV sampling.
detector_sampling_rate	8	64-bit floating point	0.00003 - 0.0009	second	Sampling rate for MOD, IMG and DNB resolution detectors
scan_length	8	64-bit floating point	1.77 - 1.80	second	Scan period (Length of VIIRS scan).
agg_zone_bounds	20	32-bit integer	Constants	unitless	Upper bounds for the MOD and IMG resolution along-scan aggregation zones. For the MOD resolution case, specification of a Negative value for the first zone forces the software to geolocate unaggregated MOD pixels. Capability required for Cal/Val. Note that N_frame should be consistent with RES choice made here. 1 Dimensional Array: Size of Dimension(s): 5
DNB_aggregation	256	32-bit integer	Constant	unitless	The first column is obsolete, and the second column is the number of along-scan photosites per pixel for that zone. Values are listed from aggregation zone 0 to 31, where Zone 0 is nadir. 2 Dimensional Array: DIM32 x DIM2 Size of Dimension(s): 32 x 2
DNB_ag_zone_bounds	768	32-bit integer	Range for Col 0 &1: 0 - 4063 Range for Col 2: 0 - 31	Col 0 and 1: Frame Num Col 2: Agg Zone Index	Frame number limits for the 32 DNB aggregation zones from start of scan through nadir to end of scan, and the associated DNB aggregation zone indices. Columns 0 & 1 are the lower and upper frame numbers per zone, respectively. Column 2 contains the associated aggregation zone index,

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					where Index 0 corresponds to aggregation zone 0 (nadir) and index 31 aggregation zone 31. 2 Dimensional Array: DIM64 x DIM3 Size of Dimension(s): 64 x 3
pad4	4	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 4
scan_ang_coef_tel	8	64-bit floating point	MIN_VAL - MAX_VAL	unitless	Scan angle coefficient for telescope.
scan_ang_coef_mirr	8	64-bit floating point	MIN_VAL - MAX_VAL	unitless	Scan angle coefficient for HAM
scan_ang_offsets	16	64-bit floating point	0 - 2(pi)	radians	Scan angle offsets for computing the sample scan angle for mirror side 1 (element 0) and side 2 (element 1). 1 Dimensional Array: Size of Dimension(s): 2
enc_scale	8	64-bit floating point	Constant	unitless	Scale factor for converting 14-bit encoders to 16-bit representation.
mirr_abs_limit	16	64-bit floating point	875 - 885	Scan-time counter ticks	Mirror encoder time stamp absolute limits in units of Scan-Time counter ticks. This parameter determines the valid range for the mirror encoder delta time stamp readings (specifies the acceptable stable scan rate range by limiting the delta timestamp readings). 1 Dimensional Array: Size of Dimension(s): 2
mirr_del_limit	8	64-bit floating point	MIN_VAL - 10	Scan-time counter ticks	Mirror encoder time stamp delta limits in units of Scan-Time counter ticks. This parameter specifies the maximum allowable difference between adjacent mirror encoder delta time stamp readings (limits the instantaneous changes in scan rate).
tel_abs_limit	16	64-bit floating point	875 - 885	Scan-time counter ticks	Telescope encoder time stamp absolute limits in units of Scan-Time counter ticks. This parameter determines the valid range for the telescope encoder delta time stamp readings (specifies the acceptable

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					stable scan rate range by limiting the delta timestamp readings). 1 Dimensional Array: Size of Dimension(s): 2
tel_del_limit	8	64-bit floating point	MIN_VAL - 10	Scan-time counter ticks	Telescope encoder time stamp delta limits in units of Scan-Time counter ticks. This parameter specifies the maximum allowable difference between adjacent telescope encoder delta time stamp readings (limits the instantaneous changes in scan rate).
sample_impulse_mirr	4	32-bit integer	Constant	Encoder pulses	Mirror encoder pulses between each encoder sample (= 2)
sample_impulse_tel	4	32-bit integer	Constant	Encoder pulses	Telescope encoder pulses between each encoder sample (= 4)
A_bit_adj	8	32-bit integer	0 - 1	16-bit encoder ticks	Offset to convert from pseudo 15-bit to 16-bit encoders, depending on if the Start-of-Scan15-bit encoder is even or odd [even adjust / odd adjust] 1 Dimensional Array: Size of Dimension(s): 2
B_HAM_adj	8	32-bit integer	0 - 216	16-bit encoder ticks	Offset for converting HAM encoders to absolute encoders depending on the HAM side [HAM A adjust / HAM B adjust] 1 Dimensional Array: Size of Dimension(s): 2
t_encoder	8	64-bit floating point	0.495624 - 0.495688	Microseconds per scan time counter tick	Encoder data scale factor to convert from scan time counter ticks to time.
mirr_side1_range	16	64-bit floating point	-(pi) - (pi)	radians	Mirror side 1 angle range 1 Dimensional Array: Size of Dimension(s): 2
alpha	8	64-bit floating point	MIN_VAL - 9.7e-5 < 9.7e-5	radians	Mirror wedge angle alpha is the non-parallelism of the HAM in the along-scan axis, and creates an along-scan offset between scans from mirror sides 1 and 2.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
beta	8	64-bit floating point	MIN_VAL - 9.7e-5 < 9.7e-5	radians	Mirror wedge angle beta is the non-parallelism of the HAM in the along-track axis, and creates an along-track offset.
gammaa	8	64-bit floating point	-4.85e-5 - 4.85e-5	radians	Misalignment of the mirror plane-of-symmetry (defined as the plane midway between the two mirror surfaces) to the rotation axis (HAM motor axis)
T_inst2sc	72	64-bit floating point	MIN_VAL - MAX_VAL	unitless	3x3 Instrument to Spacecraft frame transformation matrix 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
T_mirr2inst	72	64-bit floating point	MIN_VAL - MAX_VAL	unitless	3x3 Mirror to Instrument frame transformation matrix 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
T_aft2inst	72	64-bit floating point	-1 - 1	unitless	3x3 AFT to Instrument frame transformation matrix (this matrix includes Focal plane to AFT frame transformation, which is a 3x3 rotation matrix with the scan velocity lag angle) 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
T_inst2SD	72	64-bit floating point	-2 - 2	unitless	3x3 Instrument to Solar Diffuser frame transformation matrix 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
T_tel2inst	72	64-bit floating point	MIN_VAL - MAX_VAL	unitless	3x3 Telescope to Instrument frame transformation matrix 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
num_thermistor	4	32-bit integer	0 - 26	unitless	Number of thermistors used for thermal correction.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
thermistor_id	1040	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	ID of thermistors used for temperature corrections. Each ID or name corresponds to a set of thermistor coefficients listed in the thermistor_coeffs parameter. The number of items listed here should equal num_thermistor. 2 Dimensional Array: MAX_THERMISTOR_ID_LEN x NUM_THERMISTORS Size of Dimension(s): 40 x 26
pad5	4	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 4
thermistor_coeffs	1248	64-bit floating point	MIN_VAL - MAX_VAL	unitless	Set of coefficients used in a conversion polynomial to derive a temperature from thermistor readings. Each set corresponds to a thermistor name (see thermistor_id). The number of items entered here should equal num_thermistor. 2 Dimensional Array: NUM_THERMISTORS x DIM6 Size of Dimension(s): 26 x 6
Mag	72	64-bit floating point	0 - 1	unitless	3x3 telescope magnification matrix, where the matrix contains the term 1/m. This parameter is coupled with the focal_length parameter (see focal_length comments). 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
basis_in	72	64-bit floating point	-1 - 1	unitless	3x3 telescope entrance basis matrix. 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
basis_out	72	64-bit floating point	-1 - 1	unitless	3x3 telescope exit basis matrix. 2 Dimensional Array: DIM3 x DIM3 Size of Dimension(s): 3 x 3
poly_coef_mirr	40	64-bit floating point	MIN_VAL - MAX_VAL	Element 0: Radians Element 1:	Polynomial coefficients for mirror encoder-to-angle conversion. Assumes linear relationship, so only first two coefficients are populated.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
				radians/16-bit encoder ticks	1 Dimensional Array: Size of Dimension(s): 5
poly_coef_tel	80	64-bit floating point	MIN_VAL - MAX_VAL	Element 0: Radians Element 1: radians/16-bit encoder ticks	Polynomial coefficients for telescope encoder-to-angle conversion for electronic sides a and b. Assumes linear relationship, so only first two coefficients are populated. 2 Dimensional Array: NUM_ELECTRONICS_SIDE x MAX_POLY_DEGREE_PLUS_ONE Size of Dimension(s): 2 x 5
tel_ref	8	64-bit floating point	-(pi) - (pi)	radians	Telescope reference angle
MIN_COS_VIEW		64-bit floating point	0 - (pi)	radians	This parameter specifies the sensor zenith angle limit used for flagging pixels as being near the limb. If the sensor zenith angle is greater than MIN_COS_VIEW, the pixels are flagged as being 'Near Limb'
band_type	4	32-bit integer	0 - 2	unitless	Identifies band type: moderate (0), imagery (1), or DNB (2)
num_detectors	4	32-bit integer	16 - 32	unitless	Number of detectors per band (depends on band type).
poly_degree	4	32-bit integer	1 - 4	unitless	Degree of the polynomial for mirror encoder-to-angle conversion
N_frame	2	unsigned 16-bit integer	3200 - 6400	unitless	Number of frames per scan (depends on band_type).
Pad6	2	unsigned 8-bit char	MIN_VAL - MAX_VAL	unitless	1 Dimensional Array: Size of Dimension(s): 2
File Size	**6,664 Bytes**				

7.1.28 VIIRS RSBAUTOCAL Rotation Matrix LUT

Data Mnemonic	NP_NU-LM0233-080
Description/ Purpose	The VIIRS RSBAUTOCAL Rotation Matrix LUT contains the Solar Diffuser rotation matrix and the SDSM screen rotation matrix. These matrices are used to determine the orientation of the Solar Diffuser with respect to the spacecraft. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.28-1 VIIRS RSBAUTOCAL Rotation Matrix LUT for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.28-1, VIIRS RSBAUTOCAL Rotation Matrix LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.28-1 VIIRS RSBAUTOCAL Rotation Matrix LUT

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
SD	36	32-bit floating point	0 - 1	unitless	Solar Diffuser rotation matrix values used to convert Spacecraft Coordinates to Solar Diffuser Coordinates 2 Dimensional Array SD_MATRIX_ROW x SD_MATRIX_COL Size of Dimension(s): 3 x 3
SDSM	36	32-bit floating point	0 - 1	unitless	Solar Diffuser rotation matrix values used to convert Spacecraft Coordinates to SDSM Coordinates 2 Dimensional Array SD_MATRIX_ROW x SD_MATRIX_COL Size of Dimension(s): 3 x 3
File Size	**72 Bytes**				

7.1.29 VIIRS RSBAUTOCAL SDSM Time LUT

Data Mnemonic	NP_NU-LM0233-082
Description/ Purpose	The VIIRS RSBAUTOCAL SDSM Time LUT contains scan fractions of SDSM sample times. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.29-1 VIIRS RSBAUTOCAL SDSM Time LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.29-1, VIIRS RSBAUTOCAL SDSM Time LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.29-1 VIIRS RSBAUTOCAL SDSM Time LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Fraction	20	32-bit floating point	0 - 1	unitless (fraction of scan)	Collection of offsets by time fraction. These are the scan fraction locations of the SDSM sample time. 1 Dimensional Array Size of Dimension(s): 5
File Size	**20 Bytes**				

7.1.30 VIIRS RSBAUTOCAL Voltage LUT

Data Mnemonic	NP_NU-LM0233-084
Description/ Purpose	The VIIRS RSBAUTOCAL Voltage LUT contains scaling factors for converting scaled integer data to engineering units (volts). This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.30-1 VIIRS RSBAUTOCAL Voltage LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.30-1, VIIRS RSBAUTOCAL Voltage LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.30-1 VIIRS RSBAUTOCAL Voltage LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
voltCoef	960	32-bit floating point	MIN_VAL - MAX_VAL	unitless	Conversion factors for polynomial conversions of SDSM data 3 Dimensional Array nsamples x ndetectors x ncoefficients Size of Dimension(s): 5 x 8 x 6
voltLowerLimit	160	32-bit integer	-8192 - 8191	unitless	Lower limit of unscaled data 2 Dimensional Array nsamples x ndetectors Size of Dimension(s): 5 x 8
voltUpperLimit	160	32-bit integer	-8192 - 8191	unitless	voltUpperLimit 2 Dimensional Array nsamples x ndetectors Size of Dimension(s): 5 x 8
File Size	**1,280 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.31 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (RTA View) LUT

Data Mnemonic	NP_NU-LM0233-092
Description/ Purpose	The VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (RTA View) LUT contains the product of the RSBAUTOCAL Bidirectional Reflectance Distribution Function (BRDF) and Solar Attenuation Screen Transmittance values as observed by VIIRS. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.31-1 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (RTA View) LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.31-1, VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Product (RTA View) LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.31-1 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (RTA View) LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
azimuth	640	64-bit floating point	13.5 - 31	degrees	Solar Azimuth Angle 1 Dimensional Array: BRDF_TAU_RTA_AZ Size of Dimension(s): 80
declination	480	64-bit floating point	12 - 18.4	degrees	Solar Declination Angle 1 Dimensional Array: BRDF_TAU_RTA_DEC Size of Dimension(s): 60
wavelength	112	64-bit floating point	0.35 - 2.35	micrometers	Wavelength 1 Dimensional Array: NUM_WAVELENGTH_SAMPLES Size of Dimension(s): 14
brdf_tau_RTA	537600	64-bit floating point	0 - 1	inverse steradians	Product of SD BRDF and Solar Attenuation Screen Transmittance (RTA view) 3 Dimensional Array: BRDF_TAU_RTA_AZ x BRDF_TAU_RTA_DEC x NUM_WAVELENGTH_SAMPLES Size of Dimension(s): 80 x 60 x 14
File Size	**538,832 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.32 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (SDSM View) LUT

Data Mnemonic	NP_NU-LM0233-093
Description/ Purpose	The VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (SDSM View) LUT contains the product of the RSBAUTOCAL Bidirectional Reflectance Distribution Function (BRDF) and Solar Attenuation Screen Transmittance values as observed by the SDSM. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.32-1 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (SDSM View) LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.32-1, VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (SDSM View) LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.32-1 VIIRS RSBAUTOCAL BRDF - Solar Attenuation Screen Transmittance Product (SDSM View) LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
azimuth	2560	32-bit floating point	13.5 - 31	degrees	Solar Azimuth Angle 2 Dimensional Array: SDSM_DETECTOR x BRDF_TAU_SDSM_AZ Size of Dimension(s): 8 x 80
declination	1920	32-bit floating point	12 - 18.4	degrees	Solar Declination Angle 2 Dimensional Array: SDSM_DETECTOR x BRDF_TAU_SDSM_DEC Size of Dimension(s): 8 x 60
brdf_tau_SDSM	153600	32-bit floating point	0 - 1	inverse steradians	Product of SD BRDF and Solar Attenuation Screen Transmittance (SDSM view) 3 Dimensional Array: SDSM_DETECTOR x BRDF_TAU_SDSM_AZ x BRDF_TAU_SDSM_DEC Size of Dimension(s): 8 x 80 x 60
File Size	**158,080 Bytes**				

7.1.33 VIIRS RSBAUTOCAL RVF LUT

Data Mnemonic	NP_NU-LM0233-094
Description/ Purpose	The VIIRS RSBAUTOCAL RVF LUT contains the response versus frame (or scan angle) values at the angle of the Solar Diffuser for the reflective solar bands including the DNB. These values are used in calculation of the RSB F factors and the DNB LGS gain. This file is used in the RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.33-1 VIIRS RSBAUTOCAL RVF LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.33-1, VIIRS RSBAUTOCAL RVF LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.33-1 VIIRS RSBAUTOCAL RVF LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
data	7680	64-bit floating point	0 - 1.5	unitless	Response versus Frame values at the Solar Diffuser angle. 3 Dimensional Array NUM_REFL_PLUS DNB_BANDS x NDETMAX x NUM_MIRROR_SIDES Size of Dimension(s): 15 x 32 x 2
File Size	**7,680 Bytes**				

7.1.34 VIIRS SDR Automated Calibration LUT

Data Mnemonic	NP_NU-LM0233-095
Description/ Purpose	The VIIRS SDR Automated Calibration LUT contains flags for enabling use of outputs from the RSB Automated Calibration algorithm (RSBAUTOCAL) and several other parameters. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.34-1 VIIRS SDR Automated Calibration LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.34-1, VIIRS SDR Automated Calibration LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.34-1 VIIRS SDR Automated Calibration LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
RSB_automate	1792	8-bit char	0 - 1	unitless	Flags enabling use of RSB F factors calculated by RSBAUTOCAL code 4 Dimensional Array NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
H_automate	14	8-bit char	0 - 1	unitless	Flags enabling use of H factors calculated by RSBAUTOCAL code 1 Dimensional Array NUM_REFL_BANDS Size of Dimension(s): 14
pad_0	2	8-bit char	N/A	unitless	Pad bytes for natural alignment 1 Dimensional Array: PAD_BYTES_2 Size of Dimension(s): 2
DNB_LGS_gain_automate	1152	8-bit char	0 - 1	unitless	Flags enabling use of DNB LGS gains calculated by RSBAUTOCAL code 3 Dimensional Array NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_automate	1152	8-bit char	0 - 1	unitless	Flags enabling use of DNB gain ratios calculated by RSBAUTOCAL code 3 Dimensional Array NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_dark_signal_automate	3456	8-bit char	0 - 1	unitless	Flags enabling use of DNB dark signals calculated by RSBAUTOCAL code 4 Dimensional Array NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					Size of Dimension(s): 36 x 16 x 2 x 3
DNB_dark_signal_reference	13824	32-bit floating point	0 - MAX_VAL > 0	unitless	Calibration sector dark signal reference calculated by RSBAUTOCAL code 4 Dimensional Array NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 3
orbit_to_IET_trend_-conversion_factor	8	64-bit floating point	5.0e09 - 7.0e09	microseconds	Number of IET microseconds in orbit
MoonAngleThreshold	8	64-bit floating point	0 - MAX_VAL > 0	degrees	Threshold used to determine if moon is in SV
File Size	**21,408 Bytes**				

7.1.35 VIIRS SDR DNB Gain Ratios LUT

Data Mnemonic	NP_NU-LM0233-096
Description/ Purpose	The VIIRS SDR DNB Gain Ratios LUT file contains the gain ratios used when the SDR algorithm is configured not to use automatically calculated gain ratios calculated by the RSB Automated Calibration (RSBAUTOCAL) algorithm. This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.35-1 VIIRS SDR DNB Gain Ratios LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.35-1, VIIRS SDR DNB Gain Ratios LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.35-1 VIIRS SDR DNB Gain Ratios LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DnbGainRatios	27648	64-bit floating point	0 - MAX_VAL > 0	unitless	DNB gain ratios used in non-automated RSB calibration mode. The three coefficients correspond to the zero'th, first and second order coefficients in quadratic function of offset corrected DNB counts. The zero'th and second order coefficients are normalized with respect to the first order coefficient for each gain state. The first order coefficient is normalized to the LGS gain. Gain ratio index 0 corresponds to HGS/LGS; gain ratio index 1 corresponds to MGS/LGS. 4 Dimensional Array NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS x NUM_GAIN_RATIO_COEFFS Size of Dimension(s): 36 x 16 x 2 x 3
File Size	**27,648 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.36 VIIRS SDR DNB LGS Gains LUT

Data Mnemonic	NP_NU-LM0233-097
Description/ Purpose	The VIIRS SDR DNB LGS Gains LUT contains DNB LGS gains used by the SDR algorithm when configured not to use the DNB LGS gains calculated by the RSB Automated Calibration algorithm (RSBAUTOCAL). This file is used in the VIIRS SDR algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.36-1 VIIRS SDR DNB LGS Gains LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.36-1, VIIRS SDR DNB LGS Gains LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.36-1 VIIRS SDR DNB LGS Gains LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Fit_type	1	8-bit char	0 - 1	unitless	Enumerated type of fit specified by equations: If Fit_type is 0, then the F parameters specify an exponential: F = F_ref + F_param_1*(1 - exp(F_param_2*(T_this_scan - T_reference))) If Fit_type is 1, then the F parameters specify a quadratic fit: F = F_ref + F_param_1*(T_this_scan - T_reference) + F_param_2*(T_this_scan - T_reference)2
Implicit_pad0	7	unsigned 8-bit char	N/A	unitless	Pad bytes for natural alignment 1 Dimensional Array: PAD_BYTES_7 Size of Dimension(s): 7
T_ref	8	64-bit integer	0 - MAX_VAL	microsecond	Reference time in IET used in functional form for DNB LGS gain as a function of time
F_ref	9216	64-bit floating point	0 - 10	unitless	Value of DNB LGS gain at reference time T_ref 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_MIRROR_SIDES Size of Dimension(s): 36 x 16 x 2
F_param_1	9216	64-bit floating point	-9.0e-18 - 9.0e+18	W/cm2-sr/count for Fit_type=0, W/cm2-sr/count-microsecond for Fit_type=1	Parameter in functional form for DNB LGS gain. 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_MIRROR_SIDES Size of Dimension(s): 36 x 16 x 2
F_param_2	9216	64-bit floating point	-9.0e-18 - 9.0e+18	Microsecond-1 for Fit_type=0, W/cm2-sr/count-microsecond2 for Fit_type=1	Parameter in functional form for DNB LGS gain. 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_MIRROR_SIDES Size of Dimension(s): 36 x 16 x 2
File Size	**27,664 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.37 VIIRS RSBAUTOCAL RSB F Automate LUT

Data Mnemonic	NP_NU-LM0233-098
Description/ Purpose	The VIIRS RSBAUTOCAL RSB F Automate LUT contains the smoothing weights and other parameters used in Robust Holt Winters (RHW) filtering of the per-orbit RSB F factors. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.37-1 VIIRS RSBAUTOCAL RSB F Automate LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.37-1, VIIRS RSBAUTOCAL RSB F Automate LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.37-1 VIIRS RSBAUTOCAL RSB F Automate LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
RSB_F_level_smoothing_weight	7168	32-bit floating point	0 - 1	unitless	RHW smoothing weights for F level 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_trend_smoothing_weight	7168	32-bit floating point	0 - 1	unitless	RHW smoothing weights for F trend 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_sigma_smoothing_weight	7168	32-bit floating point	0 - 1	unitless	RHW smoothing weights for F sigma 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_k_value	7168	32-bit floating point	0 - 1	unitless	Multiple of sigma used for outlier rejection in RHW filtering 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_ck_value	7168	32-bit floating point	0 - 1	unitless	Parameter used to ensure consistency of RHW sigma factor with standard deviation for normal distribution 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_scale_factor	7168	32-bit floating point	0 - MAX_VAL	unitless	Multiplicative scale factor used for tuning of RHW smoothed F factors

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
			> 0		4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_offset_factor	7168	32-bit floating point	-10 - 10	unitless	Additive offset used for tuning of RHW smoothed F factors 4 Dimensional Array: NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 14 x 32 x 2 x 2
RSB_F_RHW_min_sigma	4	32-bit floating point	0 - MAX_VAL > 0	unitless	Minimum allowed value of sigma in RHW filter
File Size	**50,180 Bytes**				

7.1.38 VIIRS RSBAUTOCAL H Automate LUT

Data Mnemonic	NP_NU-LM0233-099
Description/ Purpose	The VIIRS RSBAUTOCAL H Automate LUT contains the smoothing weights and other parameters used in Robust Holt Winters (RHW) filtering of the per-orbit H factors. H factors are used to correct the Solar Diffuser BRDF for on-orbit degradation effects. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.38-1 VIIRS RSBAUTOCAL H Automate LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.38-1, VIIRS RSBAUTOCAL H Automate LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.38-1 VIIRS RSBAUTOCAL H Automate LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
H_level_smoothing_weight	56	32-bit floating point	0 - 1	unitless	RHW smoothing weights for H level 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_trend_smoothing_weight	56	32-bit floating point	0 - 1	unitless	RHW smoothing weights for H trend 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_sigma_smoothing_weight	56	32-bit floating point	0 - 1	unitless	RHW smoothing weights for H sigma 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_k_value	56	32-bit floating point	0 - 1	unitless	Multiple of sigma used for outlier rejection in RHW filtering 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_ck_value	56	32-bit floating point	0 - 1	unitless	Parameter used to ensure consistency of RHW sigma factor with standard deviation for normal distribution 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_scale_factor	56	32-bit floating point	0 - 1	unitless	Multiplicative scale factor used for tuning of RHW smoothed H factors 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_offset_factor	56	32-bit floating point	0 - 1	unitless	Additive offset used for tuning of RHW smoothed H factors 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_orbit_zero_scale_factor	56	32-bit floating point	0 - 1	unitless	Multiplicative scale factor used for tuning of RHW smoothed H factors

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_orbit_zero_offset_factor	56	32-bit floating point	0 - 1	unitless	Additive offset used for tuning of RHW smoothed H factors 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_RHW_min_sigma	4	32-bit floating point	0 - MAX_VAL > 0	unitless	Minimum allowed value of sigma in RHW filter
File Size	**508 Bytes**				

7.1.39 VIIRS RSBAUTOCAL DNB LGS Gain Automate LUT

Data Mnemonic	NP_NU-LM0233-100
Description/ Purpose	The VIIRS RSBAUTOCAL DNB LGS Gain Automate LUT contains the smoothing weights and other parameters used in Robust Holt Winters (RHW) filtering of the per-orbit DNB LGS gains. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.39-1 VIIRS RSBAUTOCAL DNB LGS Gain Automate LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.39-1, VIIRS RSBAUTOCAL DNB LGS Gain Automate LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.39-1 VIIRS RSBAUTOCAL DNB LGS Gain Automate LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DNB_LGS_gain_-level_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB LGS gain level 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_LGS_gain_-trend_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB LGS gain trend 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_LGS_gain_-sigma_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB LGS gain sigma 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_LGS_gain_k_value	4608	32-bit floating point	0 - 1	unitless	Multiple of sigma used for outlier rejection in RHW filtering 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_LGS_gain_-ck_value	4608	32-bit floating point	0 - 1	unitless	Parameter used to ensure consistency of RHW sigma factor with standard deviation for normal distribution 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_LGS_gain_-scale_factor	4608	32-bit floating point	0 - MAX_VAL > 0	unitless	Multiplicative scale factor used for tuning of RHW smoothed DNB LGS gains 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DNB_LGS_gain_-offset_factor	4608	32-bit floating point	-10 - 10	W/m2-sr	Additive offset used for tuning of RHW smoothed DNB LGS gains 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 36 x 16 x 2
DNB_min_sample	2	16-bit integer	0 - 16383	unitless	Minimum value of DNB LGS counts used in calculation
DNB_max_sample	2	16-bit integer	0 - 16383	unitless	Maximum value of DNB LGS counts used in calculation
DNB_LGS_gain_-RHW_min_sigma	4	32-bit floating point	0 - MAX_VAL > 0	W/m2-sr	Minimum allowed value of sigma in RHW filter
File Size	**32,264 Bytes**				

7.1.40 VIIRS RSBAUTOCAL DNB Dark Signal Automate LUT

Data Mnemonic	NP_NU-LM0233-101
Description/ Purpose	The VIIRS RSBAUTOCAL DNB Dark Signal Automate LUT contains the smoothing weights and other parameters used in Robust Holt Winters (RHW) filtering of the per-orbit DNB dark signals. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.40-1 VIIRS RSBAUTOCAL DNB Dark Signal Automate LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.40-1, VIIRS RSBAUTOCAL DNB Dark Signal Automate LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.40-1 VIIRS RSBAUTOCAL DNB Dark Signal Automate LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DNB_dark_signal-level_smoothing_weight	18432	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB dark signal level 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_-trend_smoothing_weight	18432	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB dark signal trend 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_-sigma_smoothing_weight	18432	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB dark signal sigma 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_k_value	18432	32-bit floating point	0 - 1	unitless	Multiple of sigma used for outlier rejection in RHW filtering 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_-ck_value	18432	32-bit floating point	0 - 1	unitless	Parameter used to ensure consistency of RHW sigma factor with standard deviation for normal distribution 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					Size of Dimension(s): 36 x 16 x 2 x 4
Min_num_valid_DN	2	16-bit integer	0 - MAX_VAL	unitless	Minimum number of valid DNs required for dark signal determination
Max_moon_percentage	2	16-bit integer	0 - 100	percentage	Maximum allowed brightness of moon as percentage of its peak brightness for collection of dark signals
Min_SZA	4	32-bit floating point	0 - 180	degrees	Minimum Solar Zenith Angle at spacecraft to ensure eclipse of sun for collection of dark signals
DNB_dark_signal_-scale_factor	18432	32-bit floating point	0 - MAX_VAL > 0	unitless	Multiplicative scale factor used for tuning of RHW smoothed DNB dark signal 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_-offset_factor	18432	32-bit floating point	-10 - 10	unitless	Additive offset used for tuning of RHW smoothed DNB dark signals 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
DNB_dark_signal_percentile	18432	32-bit floating point	0 - 100	percentage	Percentage of values smaller than value chosen as representative dark signal from rank ordered list of dark signals, minimum to maximum 4 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 36 x 16 x 2 x 4
dark_signal_selection_flag	1	8-bit char	0 - 1	unitless	Flag used to select calibration sectors for dark signal determination. Byte 1 = 0/1: SD sector not used/used Byte 2 = 0/1: BB sector

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					not used/used Byte 3 = 0/1: SV sector not used/used
implicit_pad0	3	unsigned 8-bit char	N/A	unitless	Pad bytes for natural alignment 1 Dimensional Array: PAD_BYTES_3 Size of Dimension(s): 3
DNB_dark_signal_-RHW_min_sigma	4	32-bit floating point	0 - MAX_VAL > 0	unitless	Minimum allowed value of sigma in RHW filter
File Size	**147,472 Bytes**				

7.1.41 VIIRS RSBAUTOCAL DNB Gain Ratios Automate LUT

Data Mnemonic	NP_NU-LM0233-102
Description/ Purpose	The VIIRS RSBAUTOCAL Gain Ratios Automate LUT contains the smoothing weights and other parameters used in Robust Holt Winters (RHW) filtering of the per-orbit DNB gain ratios, as well as other parameters used to create the gain ratios from the calibration sector data. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.41-1 VIIRS RSBAUTOCAL DNB Gain Ratios Automate LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.41-1, VIIRS RSBAUTOCAL DNB Gain Ratios Automate LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.41-1 VIIRS RSBAUTOCAL DNB Gain Ratios Automate LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
DNB_gain_ratios-level_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB gain ratios level 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_-trend_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB gain ratios trend 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_-sigma_smoothing_weight	4608	32-bit floating point	0 - 1	unitless	RHW smoothing weights for DNB gain ratios sigma 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_k_value	4608	32-bit floating point	0 - 1	unitless	Multiple of sigma used for outlier rejection in RHW filtering 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_-ck_value	4608	32-bit floating point	0 - 1	unitless	Parameter used to ensure consistency of RHW sigma factor with standard deviation for normal distribution 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Max_DN_threshold	2304	16-bit integer	0 - 16,383	unitless	Maximum allowed value of raw counts DN for higher gain stage data used in gain ratio determination 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
Min_dn_threshold	2304	16-bit integer	0 - 16,383	unitless	Minimum allowed value of offset corrected counts dn for lower gain stage data used in gain ratio determination 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_-scale_factor	4608	32-bit floating point	0 - MAX_VAL > 0	unitless	Multiplicative scale factor used for tuning of RHW smoothed DNB gain ratios 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_-offset_factor	4608	32-bit floating point	MIN_VAL - MAX_VAL	unitless	Additive offset used for tuning of RHW smoothed DNB gain ratios 3 Dimensional Array: NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 36 x 16 x 2
DNB_gain_ratios_percentile	4608	32-bit floating point	0 - 100	percentage	Percentage of values smaller than value chosen as representative gain ratio from rank ordered list of gain ratios, minimum to maximum 3 Dimensional Array:

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIO_PAIRS Size of Dimension(s): 36 x 16 x 2
Min_num_valid_ratios	2	16-bit integer	0 - 1000	unitless	Minimum allowed number of per-scan gain ratios used in gain ratio determination
DNB_gain_ratios_cal_sector_selection_flag	1	8-bit char	0 - 1	unitless	Flag used to select calibration sectors for gain ratio determination. Byte 1 = 0/1: SD sector not used/used Byte 2 = 0/1: BB sector not used/used Byte 3 = 0/1: SV sector not used/used
implicit_pad0	1	unsigned 8-bit char	N/A	unitless	Pad bytes for natural alignment 1 Dimensional Array: PAD_BYTES_1 Size of Dimension(s): 1
DNB_gain_ratios_-RHW_min_sigma	4	32-bit floating point	0 - MAX_VAL > 0	unitless	Minimum allowed value of sigma in RHW filter
File Size	**41,480 Bytes**				

7.1.42 VIIRS RSBAUTOCAL DNB Moon Illumination LUT

Data Mnemonic	NP_NU-LM0233-103
Description/ Purpose	The VIIRS RSBAUTOCAL DNB Moon Illumination LUT contains the lunar brightness as a fraction of peak lunar brightness at specified times. The duration of the time period covered by this PC table is 01-Oct-2011 00:00:00 to 31-Oct-2021 00:00:00, with illumination percentages spaced every 6 hours. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.42-1 VIIRS RSBAUTOCAL DNB Moon Illumination LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.42-1, VIIRS RSBAUTOCAL DNB Moon Illumination LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.42-1 VIIRS RSBAUTOCAL DNB Moon Illumination LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
IET_time	116800	64-bit integer	0 - MAX_VAL	unitless	IET's at which moon illumination percentages are specified 1 Dimensional Array: IET_time_DIM Size of Dimension(s): 14600
Moon_illumination_percentage	58400	32-bit floating point	0 - 100	unitless	Moon illumination as a fraction of its peak illumination 1 Dimensional Array: IET_time_DIM Size of Dimension(s): 14600
File Size	**175,200 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.43 VIIRS RSBAUTOCAL H LUT

Data Mnemonic	NP_NU-LM0233-104
Description/ Purpose	The VIIRS RSBAUTOCAL H LUT contains values for parameters in a functional form for H as a function of time used when the SDR code is configured not to use the H values calculated by the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm. This LUT also contains geometric and other parameter values used in the RSBAUTOCAL algorithm for calculating H in automated mode. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.43-1 VIIRS RSBAUTOCAL H LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.43-1, VIIRS RSBAUTOCAL H LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.43-1 VIIRS RSBAUTOCAL H LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
H_ref	112	64-bit floating point	0 - 1	unitless	Reference value of H at reference time T_ref in functional form used to calculate H as a function of time: H(t) = H_ref + H_param_1 * (1.0 - exp(-1.0 * H_param_2 * (t - T_ref))) 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_param_1	112	64-bit floating point	MIN_VAL - 0 < 0	unitless	Parameter value used in functional form for H(t). 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
H_param_2	112	64-bit floating point	0 - MAX_VAL > 0	Inverse microsecond	Parameter value used in functional form for H(t). 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
T_ref	8	64-bit integer	0 - MAX_VAL	microsecond	Reference time in functional form for H(t
spaceViewVector	24	64-bit floating point	0 - 1	unitless	Unit vector in direction of the Space View field of view center 1 Dimensional Array: SD_NUM_COEFFS_SIZE Size of Dimension(s): 3
limitsPhiV	16	64-bit floating point	12 - 18.4	degrees	Minimum and maximum declination of sun in spacecraft coordinates for data used in H determination. 1 Dimensional Array: SD_LUT_NUM_DIMENSION Size of Dimension(s): 2
limitsPhiH	16	64-bit floating point	13.5 - 31	degrees	Minimum and maximum azimuth of sun in spacecraft coordinates for data used in H determination. 1 Dimensional Array: SD_LUT_NUM_DIMENSION Size of Dimension(s): 2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
limitsElev	16	64-bit floating point	-2 - 1.9	degrees	Minimum and maximum elevation of sun in SDSM screen coordinates for data used in H determination. 1 Dimensional Array: SD_LUT_NUM_DIMENSION Size of Dimension(s): 2
limitsAz	16	64-bit floating point	-15 - 1.8	degrees	Minimum and maximum azimuth of sun in SDSM screen coordinates for data used in H determination. 1 Dimensional Array: SD_LUT_NUM_DIMENSION Size of Dimension(s): 2
VIIRS_center_wavelengths	112	64-bit floating point	400 - 2300	nanometers	VIIRS RSB band center wavelengths. 1 Dimensional Array: NUM_REFL_BANDS Size of Dimension(s): 14
SDSM_detector_center_wavelengths	64	64-bit floating point	400 - 950	nanometers	SDSM detector band center wavelengths. 1 Dimensional Array: SDSM_DETECTOR Size of Dimension(s): 8
Max_SDSM_screen_transmittance	8	64-bit floating point	0 - 0.002	unitless	Maximum transmittance of SDSM solar attenuation screen.
SDSM_solid_cone_half_angle	8	64-bit floating point	7 - 8	degrees	Half angle of SDSM conical field of view.
File Size	**624 Bytes**				

7.1.44 VIIRS DNB Stray Light Correction LUT

Data Mnemonic	NP_NU-LM0233-035
Description/ Purpose	The VIIRS DNB Stray Light Correction LUT contains the radiance levels below which the DNB Stray Light Correction Quality Flag may be set. The values are indexed by solar zenith angles in the terminator region (assumed to be 85 - 105 degrees).
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.44-1 VIIRS DNB Stray Light Correction LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.44-1, VIIRS DNB Stray Light Correction LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.44-1 VIIRS DNB Stray Light Correction LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
numRadianceLevels	4	32-bit floating point	0 - 21	Unitless	Number of radiance values
implicit_pad0	3752	32-bit floating point	N/A	Unitless	2 Dimensional Array: NUM_HEMISPHERES x NUM_SZA_BINS Size of Dimension(s): 2 x 469
Radiance levels	487940096	32-bit floating point	0 - MAX_VAL > 0	W/(cm^2 sr)	5 Dimensional Array: NUM_HEMISPHERES x NUM_SZA_BINS x EV_DNB_FRAMES x NUM_DETECTORS_DNB x NUM_MIRROR_SIDES Size of Dimension(s): 2 x 469 x 4064 x 16 x 2
File Size	**487,943,852 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.45 VIIRS SDR Relative Spectral Response LUT

Data Mnemonic	NP_NU-LM0233-090
Description/ Purpose	The VIIRS SDR Relative Spectral Response (RSR) LUT file contains response as a function of wavelength for reflective solar bands, including the DNB RSR, which is used in calculating the D coefficients LUT and for the solar diffuser processing. This file is used in the VIIRS SDR algorithm and in the RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.45-1 VIIRS SDR Relative Spectral Response LUT Data Format for size
File Format Type	Little Endian Binary
Production Frequency	Rarely
Data Content and Data Format	For details see Table 7.1.45-1, VIIRS SDR Relative Spectral Response LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.45-1 VIIRS SDR Relative Spectral Response LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
wavelength	120000	64-bit floating point	1 - 4600	nanometers	RSR Wavelengths Each of the 15 reflective bands wavelengths for the RSR are stored in blocks of 1000 each. However, only the number stored in the first numRsr locations are non-filled in each set of 1000. Fill values are represented as -1. Note that the reflective bands are listed in order (I1, I2, I3, M1-11, DNB). 2 Dimensional Array: NUM_REFL_PLUS_DNB_BANDS x MAX_RSR_VALUES Size of Dimension(s): 15 x 1000
rsr	120000	64-bit floating point	-1 - 1	unitless	RSR values for each reflective band. Corresponding wavelengths are in the x2 field for the response function. Fill values are represented as -1. 2 Dimensional Array: NUM_REFL_PLUS_DNB_BANDS x MAX_RSR_VALUES Size of Dimension(s): 15 x 1000
numRsr	60	32-bit integer	400 - 1000	unitless	Number of RSR wavelengths used for each Reflective Band. 1 Dimensional Array: NUM_REFL_PLUS_DNB_BANDS Size of Dimension(s): 15
Implicit_pad0	4	unsigned 8-bit char	N/A	unitless	Pad bytes for natural alignment 1 Dimensional Array: PAD_BYTES_4 Size of Dimension(s): 4
File Size	**240,064 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.1.46 VIIRS SDSM Screen Transmittance LUT

Data Mnemonic	NP_NU-LM0233-091
Description/ Purpose	The VIIRS SDSM Screen Transmittance LUT contains the transmittance screen coefficients for the Solar Diffuser Stability Monitor. This file is used in the VIIRS RSB Automated Calibration (RSBAUTOCAL) algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.1.46-1 VIIRS SDSM Screen Transmittance LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.46-1, VIIRS SDSM Screen Transmittance LUT Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.1.46-1 VIIRS SDSM Screen Transmittance LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
elevation	1280	32-bit floating point	-2.0 - 1.9	degrees	Solar Elevation Angle 2 Dimensional Array SDSM_DETECTOR x NUM_SDSM_EL Size of Dimension(s): 8 x 40
azimuth	2560	32-bit floating point	-15 - 1.8	degrees	Solar Azimuth Angle 2 Dimensional Array SDSM_DETECTOR x NUM_SDSM_AZ Size of Dimension(s): 8 x 80
factors	102400	32-bit floating point	0 - 1	unitless	Factors based on Elevation and Azimuth 3 Dimensional Array SDSM_DETECTOR x NUM_SDSM_AZ x NUM_SDSM_EL Size of Dimension(s): 8 x 80 x 40
File Size	**106,240 Bytes**				

7.2 Processing Coefficient Tables

The S-NPP/JPSS-1 ground system data product generation subsystem uses Processing Coefficient Table (PCT) file parameters. PCT files can be either Automated or Manual coefficient tables. Within the Manual table type are two coefficient classes: Initial and Ephemeral. Sections below describe all three and any tables of that type for the product.

7.2.1 Automated Processing Coefficients

Automated Processing Coefficient (PC) files contain parameters updated and/or created during the processing of the S-NPP/JPSS Data Products by the processing algorithms. The processing environment subsequently uses these files without human review of their contents. Files can be used immediately after creation or in future processing such as the next granule in the production data stream processing.

7.2.1.1 VIIRS RDR/SDR Automated PCs

VIIRS RDR and SDR data production currently use no Automated PCs.

7.2.2 Manual Processing Coefficients

Manual Processing Coefficient (PC) files contain parameters used for S-NPP/JPSS Data Product generation which require human review prior to operational processing environment insertion. Manual Processing Coefficients have two classes:

- Initialization PCTs contain infrequently updated initial parameters sets S-NPP/JPSS uses for data product generation.
- Ephemeral PCTs contain frequently updated parameters sets S-NPP/JPSS uses for data product generation.

7.2.2.1 VIIRS RDR/SDR initialization PCs

VIIRS RDR and SDR data production currently use no Initialization PCs

7.2.2.2 VIIRS RDR/SDR Ephemeral PCT

7.2.2.2.1 VIIRS SDR Bright Pixel Ephemeral PC

Data Mnemonic	DP_NU-LM2020-011
Description/ Purpose	The VIIRS SDR Bright Pixel Ephemeral PC provides tunable processing coefficients for use by the algorithm during execution. The coefficients can be modified (tuned) through a configuration control process in response to algorithm, performance, inputs, sensitivity, etc. changes.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, Table B-1 for the applicable Collection Short Names.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	DP_NU-LM2020-011
File Size	See Table: 7.2.2.2.1-1 VIIRS SDR Bright Pixel Ephemeral PC for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.2.2.2.1-1, VIIRS SDR Bright Pixel Ephemeral PC Data Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.2.2.2.1-1 VIIRS SDR Bright Pixel Ephemeral PC

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
mode	21	unsigned 8-bit char	0 - 255	unitless	Mode 1 Dimensional Array: MODES Size of Dimension(s): 21
File Size	**21 Bytes**				

7.3 Auxiliary Products

7.3.1 VIIRS RSB AutoCal History AUX

Data Mnemonic	IMPI_VSDH_R0100
Description/ Purpose	The VIIRS Reflective Solar Band (RSB) Automatic Calibration (AutoCal) History contains the last 20 updates of the RSB, F, H, DNB LGS gain, DNB dark Signal, DNB gain ratios, and solar processing data. This data is formatted as Auxiliary data. The Solar Diffuser history is updated every orbit by adding the Solar Diffuser data taken during that orbit. The period over which the Solar Diffuser data is collected is limited to approximately one minute per orbit. Effectivity: S-NPP and JPSS
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details of the file naming convention for Auxiliary Data Formats.
File Size	See Table: 7.3.2-1 VIIRS RSB AutoCal History Format for size. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
File Format Type	HDF5
Production Frequency	As requested
Data Content and Data Format	See Section 7.3.2, VIIRS RSB AutoCal History Format

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.3.2 VIIRS RSB AutoCal History AUX Format

Table: 7.3.2-1 VIIRS RSB AutoCal History AUX Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Orbit	80	unsigned 32-bit integer	0 - 4294967297	Unitless	1 Dimensional Array: MAX_NUM_HISTORY_ORBITS Size of Dimension(s): 20
solar_event_ref_IET_time	160	64-bit integer	-9223372036854775808 - 9223372036854775807	Unitless	1 Dimensional Array: MAX_NUM_HISTORY_ORBITS Size of Dimension(s): 20
RSB_F	143360	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 20 x 14 x 32 x 2 x 2
RSB_F_trend	143360	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 20 x 14 x 32 x 2 x 2
RSB_F_sigma	143360	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES Size of Dimension(s): 20 x 14 x 32 x 2 x 2
RSB_F_replaced	35840	8-bit char	0 - 1	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS x MAX_NUM_DETECTOR x NUM_HAM x NUM_M_I_GAIN_STATES

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					Size of Dimension(s): 20 x 14 x 32 x 2 x 2
H	1120	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	2 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS Size of Dimension(s): 20 x 14
H_trend	1120	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	2 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS Size of Dimension(s): 20 x 14
H_sigma	1120	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	2 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS Size of Dimension(s): 20 x 14
H_replaced	280	8-bit char	0 - 1	unitless	2 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_REFL_BANDS Size of Dimension(s): 20 x 14
DNB_LGS_gain	92160	32-bit floating point	1.4E-45 - 3.4028235E38	W/m^2-sr	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 20 x 36 x 16 x 2
DNB_LGS_gain_trend	92160	32-bit floating point	1.4E-45 - 3.4028235E38	W/m^2-sr-orbit	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 20 x 36 x 16 x 2
DNB_LGS_gain_sigma	92160	32-bit floating point	1.4E-45 - 3.4028235E38	W/m^2-sr	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 20 x 36 x 16 x 2
DNB_LGS_gain_replaced	23040	8-bit char	0 - 1	unitless	4 Dimensional Array:

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM Size of Dimension(s): 20 x 36 x 16 x 2
DNB_dark_signal	368640	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 20 x 36 x 16 x 2 x 4
DNB_dark_signal_trend	368640	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 20 x 36 x 16 x 2 x 4
DNB_dark_signal_sigma	368640	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 20 x 36 x 16 x 2 x 4
DNB_dark_signal_replaced	92160	8-bit char	0 - 1	unitless	5 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_HAM x N_DNB_BANDS Size of Dimension(s): 20 x 36 x 16 x 2 x 4
DNB_gain_ratios	92160	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 20 x 36 x 16 x 2
DNB_gain_ratios_trend	92160	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	4 Dimensional Array:

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 20 x 36 x 16 x 2
DNB_gain_ratios_sigma	92160	32-bit floating point	1.4E-45 - 3.4028235E38	unitless	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 20 x 36 x 16 x 2
DNB_gain_ratios_replaced	23040	8-bit char	0 - 1	unitless	4 Dimensional Array: MAX_NUM_HISTORY_ORBITS x NUM_AGG_SEQ x NUM_DETECTORS_DNB x NUM_GAIN_RATIOS Size of Dimension(s): 20 x 36 x 16 x 2
solar_event_data_valid	20	8-bit char	-128 - 127	Unitless	1 Dimensional Array: MAX_NUM_HISTORY_ORBITS Size of Dimension(s): 20
full_orbit_dnb_data_valid	20	8-bit char	-128 - 127	Unitless	1 Dimensional Array: MAX_NUM_HISTORY_ORBITS Size of Dimension(s): 20
File Size	**2,266,960 Bytes**				

7.3.3 VIIRS RSB AutoCal History AUX Product Profile

Table: 7.3.3-1 VIIRS RSB AutoCal History AUX Product Profile

VIIRS_RSBAUTOCAL_HISTORY_AUX Product Profile

Fields

Name	Data Size	Dimensions
Orbit	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Orbit	0	0	4294967297	Unitless	No		unsigned 32-bit integer	SOUB_UINT32_FILL	4294967288	Orbit	0
								VDNE_UINT32_FILL	4294967289		
								ERR_UINT32_FILL	4294967291		
								ELLIPSOID_UINT32_FILL	4294967290		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_UINT32_FILL	4294967294	
											NA_UINT32_FILL	4294967295	
											ONGROUND_PT_UINT32_FILL	4294967292	
											ONBOARD_PT_UINT32_FILL	4294967293	

solar_event_ref_IET_time — 8byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
solar_event_ref_IET_time	0	-9223372036854775808	9223372036854775807	Unitless	No		64-bit integer	Name	Value	Name	Value
								ERR_INT64_FILL	-995		
								SOUB_INT64_FILL	-992		
								ONGROUND_PT_INT64_FILL	-996		
								ELLIPSOID_INT64_FILL	-994		
								ONBOARD_PT_INT64_FILL	-997		
								MISS_INT64_FILL	-998		
								NA_INT64_FILL	-999		
								VDNE_INT64_FILL	-993		

RSB_F — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14
MAX_NUM_DETECTOR	No	No	32	32
NUM_HAM	No	No	2	2
NUM_M_I_GAIN_STATES	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
RSB_F	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

RSB_F_trend — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14
MAX_NUM_DETECTOR	No	No	32	32
NUM_HAM	No	No	2	2
NUM_M_I_GAIN_STATES	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
RSB_F_trend	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

RSB_F_sigma — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14
MAX_NUM_DETECTOR	No	No	32	32
NUM_HAM	No	No	2	2
NUM_M_I_GAIN_STATES	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
RSB_F_sigma	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

RSB_F_replaced — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14
MAX_NUM_DETECTOR	No	No	32	32
NUM_HAM	No	No	2	2
NUM_M_I_GAIN_STATES	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
RSB_F_replaced	0	0	1	unitless	No		8-bit char	Name	Value	Name	Value

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Fields

H	4byte(s)	
H_trend	4byte(s)	
H_sigma	4byte(s)	
H_replaced	1byte(s)	
DNB_LGS_gain	4byte(s)	
DNB_LGS_gain_trend	4byte(s)	
DNB_LGS_gain_sigma	4byte(s)	
DNB_LGS_gain_replaced	1byte(s)	

H

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
H	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

H_trend

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
H_trend	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

H_sigma

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
H_sigma	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

H_replaced

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_REFL_BANDS	No	No	14	14

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
H_replaced	0	0	1	unitless	No		8-bit char	Name	Value	Name	Value

DNB_LGS_gain

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_AGG_SEQ	No	No	36	36
NUM_DETECTORS_DNB	No	No	16	16
NUM_HAM	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_LGS_gain	0	1.4E-45	3.4028235E38	W/m^2-sr	No		32-bit floating point	Name	Value	Name	Value

DNB_LGS_gain_trend

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_AGG_SEQ	No	No	36	36
NUM_DETECTORS_DNB	No	No	16	16
NUM_HAM	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_LGS_gain_trend	0	1.4E-45	3.4028235E38	W/m^2-sr-orbit	No		32-bit floating point	Name	Value	Name	Value

DNB_LGS_gain_sigma

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_AGG_SEQ	No	No	36	36
NUM_DETECTORS_DNB	No	No	16	16
NUM_HAM	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_LGS_gain_sigma	0	1.4E-45	3.4028235E38	W/m^2-sr	No		32-bit floating point	Name	Value	Name	Value

DNB_LGS_gain_replaced

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_HISTORY_ORBITS	No	No	20	20
NUM_AGG_SEQ	No	No	36	36
NUM_DETECTORS_DNB	No	No	16	16

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Fields

		NUM_HAM	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_LGS_gain_replaced	0	0	1	unitless	No		8-bit char	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_dark_signal	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_HAM	No	No	2	2
		N_DNB_BANDS	No	No	4	4

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_dark_signal	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_dark_signal_trend	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_HAM	No	No	2	2
		N_DNB_BANDS	No	No	4	4

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_dark_signal_trend	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_dark_signal_sigma	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_HAM	No	No	2	2
		N_DNB_BANDS	No	No	4	4

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_dark_signal_sigma	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_dark_signal_replaced	1byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_HAM	No	No	2	2
		N_DNB_BANDS	No	No	4	4

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_dark_signal_replaced	0	0	1	unitless	No		8-bit char	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_gain_ratios	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_GAIN_RATIOS	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_gain_ratios	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point	Name	Value	Name	Value

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_gain_ratios_trend	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		NUM_GAIN_RATIOS	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
DNB_gain_ratios_trend	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point				

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_gain_ratios_sigma	4byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_GAIN_RATIOS	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
DNB_gain_ratios_sigma	0	1.4E-45	3.4028235E38	unitless	No		32-bit floating point				

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_gain_ratios_replaced	1byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20
		NUM_AGG_SEQ	No	No	36	36
		NUM_DETECTORS_DNB	No	No	16	16
		NUM_GAIN_RATIOS	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
DNB_gain_ratios_replaced	0	0	1	unitless	No		8-bit char				

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
solar_event_data_valid	1byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
solar_event_data_valid	0	-128	127	Unitless	No		8-bit char				

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
full_orbit_dnb_data_valid	1byte(s)	MAX_NUM_HISTORY_ORBITS	No	No	20	20

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
full_orbit_dnb_data_valid	0	-128	127	Unitless	No		8-bit char				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.3.4 VIIRS RSB AutoCal History AUX HDF5 Details

Not Applicable

7.3.5 VIIRS RSB AutoCal History AUX Metadata Details

There is no granule level Quality Flags defined as metadata elements in the VIIRS RSB AutoCal History. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

7.3.6 VIIRS RSB AutoCal History Geolocation Details

The VIIRS RSB AutoCal History has no geolocation associated with it.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8 Intermediate Products (IPs)

IPs are defined as a data subset or retrieval by-product that is required within another primary data product's generation sequence or is used as an input to secondary processing or analysis. The IPs defined here can be packaged and delivered to the end-user. Other IPs are generated during the creation of EDRs but are not deliverable and are thus not documented here.

8.1 VIIRS Bright Pixel IP

Data Mnemonic	IMPI_VBPX_R0100
Description/ Purpose	Flag containing the Bright Pixel exclusion condition for the OCC and Albedo EDRs. The output for the IP is a value for each pixel in each band that characterizes the level of contamination of signal by scattered light. The percentage of scattered light is defined to be: $\% \text{ scattered light} = \left\lvert \frac{S_{dcal}}{S_{mdas}} \right\rvert * 100$ Effectivity: S-NPP and JPSS-1
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details.
File Size	See Table: 8.1.1-1 VIIRS Bright Pixel Data Content Summary for size
File Format Type	HDF5
Production Frequency	As requested
Data Content and Data Format	See Section 8.1.1 VIIRS Bright Pixel Data Content Summary See Section 8.1.2 VIIRS Bright Pixel IP Product Profile See Section 8.1.4 VIIRS Bright Pixel IP Metadata Details See Section 8.1.5 VIIRS Bright Pixel IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.1.1 VIIRS Bright Pixel IP Data Content Summary

Table: 8.1.1-1 VIIRS Bright Pixel IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
bp		unsigned 8-bit char	[N*16, 768, 3200]	[16, 768, 3200]	unitless
File Size	**39,321,600 Bytes**				

8.1.2 VIIRS Bright Pixel IP Product Profile

Table: 8.1.2-1 VIIRS Bright Pixel IP Product Profile

VIIRS BRIGHT PIXEL MOD IP Product Profile

Fields

Name	Data Size	Dimensions
bp	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NUM_375M_BANDS	No	No	16	16
M_VIIRS_SDR_ROWS	No	No	768	768
M_VIIRS_SDR_COLS	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
bp	0	0	15	unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

8.1.3 VIIRS Bright Pixel IP HDF5 Details

VIIRS-Bright-Pixel-Mod-IP
+bp : H5T_NATIVE_UCHAR

Figure: 8.1.3-1 VIIRS Bright Pixel IP UML Diagram

8.1.4 VIIRS Bright Pixel IP HDF5 Metadata Details

The HDF5 metadata elements associated with the VIIRS Bright Pixel IP are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms (474-00448-02-01). The VIIRS Bright Pixel IP metadata includes all common metadata at the root, product, aggregation, and granule levels.

There are no granule level Quality Flags defined as metadata elements in the VIIRS Bright Pixel IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

8.1.5 VIIRS Bright Pixel IP Geolocation Details

The Geolocation for the VIIRS Bright Pixel IP uses the VIIRS Moderate Resolution Geolocation for its Geolocation.

8.2 VIIRS On-board Calibrator IP

Data Mnemonic	IMPI_VOBC_R0100
Description/ Purpose	The VIIRS Onboard Calibrator IP contains subsets of the Verified VIIRS RDR and is the primary input to offline VIIRS Cal/Val performance analysis. Included are all raw Digital Numbers (DNs) from the space view (SV), on-board calibrator blackbody (OBCBB) view, and solar diffuser (SD) view converted to truncated 12 bits. Also included are all engineering and housekeeping data including raw data from the Solar Diffuser Stability Monitor (SDSM). These data have been unpacked from VIIRS RDR application packets and assembled into convenient scan cube structures during processing by the VIIRS Build-RDR Module. As with the SDRs, metadata are included that uniquely identifies the IP and its content and coverage. Also included in the product metadata are calibrator view inventory statistics. Effectivity: S-NPP and JPSS-1
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details.
File Size	See Table: 8.2.1-1 VIIRS On-board Calibrator Data Content Summary for size. This granule size includes output related fields and quality flags only. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
File Format Type	HDF5
Production Frequency	As requested
Data Content and Data Format	See Section 8.2.1 VIIRS On-board Calibrator Data Content Summary See Section 8.2.2 VIIRS On-board Calibrator IP Product Profile See Section 8.2.4 VIIRS On-board Calibrator IP Metadata Details See Section 8.2.5 VIIRS On-board Calibrator IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.2.1 VIIRS On-board Calibrator IP Data Content Summary

Table: 8.2.1-1 VIIRS On-board Calibrator IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
numScans	Number of scans	32-bit integer	[N*1]	[1]	Unitless
SD_375m	Solar Diffuser View Image Resolution Array	32-bit floating point	[N*5, 1536, 96]	[5, 1536, 96]	Counts
SD_750m_SG	Solar Diffuser View Moderate Resolution Single Gain Bands Array	32-bit floating point	[N*11, 768, 48]	[11, 768, 48]	Counts
SD_750m_DG	Solar Diffuser View Moderate Resolution Dual-Gain Bands Array	32-bit floating point	[N*7, 768, 48]	[7, 768, 48]	Counts
SD_DNB	Solar Diffuser View Day-Night Band	32-bit floating point	[N*768, 64]	[768, 64]	Counts
BB_375m	Black Body View Image Resolution	32-bit floating point	[N*1536, 5, 96]	[1536, 5, 96]	Counts
BB_750m_SG	Black Body View Moderate Resolution Single Gain Bands	32-bit floating point	[N*768, 11, 48]	[768, 11, 48]	Counts
BB_750m_DG	Black Body View Moderate Resolution Dual-Gain Bands	32-bit floating point	[N*768, 7, 48]	[768, 7, 48]	Counts
BB_DNB	Black Body View Day-Night Band	32-bit floating point	[N*768, 64]	[768, 64]	Counts
SV_375m	Space View, Image Resolution	32-bit floating point	[N*1536, 5, 96]	[1536, 5, 96]	Counts
SV_750m_SG	Space View, Moderate Resolution Single-Gain Bands	32-bit floating point	[N*768, 11, 48]	[768, 11, 48]	Counts
SV_750m_DG	Space View, Moderate Resolution Dual-gain Bands	32-bit floating point	[N*768, 7, 48]	[768, 7, 48]	Counts
SV_DNB	Space View Day-Night Band	32-bit floating point	[N*768, 64]	[768, 64]	Counts

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
DN_obc_375M_avg	Image Resolution Average Space View Digital Number	32-bit floating point	[N*1536, 5, 2]	[1536, 5, 2]	Counts
DN_obc_750M_SG_avg	Moderate Resolution Single Gain Band Average Space View Digital Number	32-bit floating point	[N*768, 9]	[768, 9]	Counts
DN_obc_750M_DG_avg	Moderate Resolution Dual Gain Bands Average Space View Digital Number	32-bit floating point	[N*768, 7]	[768, 7]	Counts
implicit_pad_0	Implicit_pad_0	unsigned 8-bit char	[N*4]	[4]	Unitless
DN_obc_375M_outlier_mask	Image Resolution Outlier Mask Bit Map	unsigned 64-bit integer	[N*1536, 5, 2]	[1536, 5, 2]	Counts
DN_obc_750M_SG_outlier_mask	Moderate Resolution Outlier Mask Bit Map	unsigned 64-bit integer	[N*768, 9, 2]	[768, 9, 2]	Counts
DN_obc_750M_DG_outlier_mask	Moderate Resolution Outlier Mask Dual-Gain Bands	unsigned 64-bit integer	[N*768, 7, 2]	[768, 7, 2]	Counts
DN_obc_avg_first_frame_to_use	Average First Frame to Use Digital Number	32-bit integer	[N*1]	[1]	Unitless
DN_obc_avg_number_of_frames_to_use	Number of Frames to use	32-bit integer	[N*1]	[1]	Unitless
OBC_GAIN_STATES	On-board Calibrator Gain States	unsigned 16-bit integer	[N*7, 16, 48]	[7, 16, 48]	Unitless
moon_in_SV_KOB	Moon In Space View Keep-out-box flag	8-bit char	[N*48, 22]	[48, 22]	Unitless
tel_start_not_nominal	Flag that indicates sector rotation	8-bit char	[N*48]	[48]	Unitless
scan_sync_failure	Flag that indicates if a major RTA/HAM sync loss had occurred	8-bit char	[N*48]	[48]	Unitless
dp_reg_tbl_rev	DP Register, Table Rev. No	unsigned 8-bit char	[N*48]	[48]	Counts

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
dp_state_tran_tbl_rev	DPP State Transition	unsigned 8-bit char	[N*48]	[48]	Counts
dp_band_proc_tbl_rev	dp_band_proc_tbl_rev	unsigned 8-bit char	[N*48]	[48]	Counts
dp_heat_ctrl_tbl_rev	DPP Heater Cntrl. Table Rev No	unsigned 8-bit char	[N*48]	[48]	Counts
dp_macro_cmd_tbl_rev	DPP Macro Cmd Table Rev No	unsigned 8-bit char	[N*48]	[48]	Counts
dp_crit_tele_tbl_rev	DPP Critical telemetry Table Rev No	unsigned 8-bit char	[N*48]	[48]	Counts
dp_stor_cmd_tbl_rev	DPP Stored Command Table Rev No	unsigned 16-bit integer	[N*48]	[48]	Counts
dp_dn_m_l_gain_pkt	dp_dn_m_l_gain_pkt	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_hrd_pkt_norm_test	dp_hrd_pkt_norm_test	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_nonrdt_fpie_pwr	DPP Nonredundant FPIE Pwr Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_servo_in_use	DPP Servo-in-use Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
ps_sec_b_apfp_on	ps_sec_b_apfp_on	unsigned 8-bit char	[N*48]	[48]	Unitless
ps_sec_c_se_on	ps_sec_c_se_on	unsigned 8-bit char	[N*48]	[48]	Unitless
ps_sec_d_csog_on	ps_sec_d_csog_on	unsigned 8-bit char	[N*48]	[48]	Unitless
ps_sec_e_isog_on	ps_sec_e_isog_on	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_anlg_pwr_on	Servo A Analog Power On Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_mtr_coil_driver	Servo A Motor Coil driver flags	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_mtrs_stopped	Servo A motor stopped flags	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_tele_pos_known	Servo A Telescope Position Known Flags	unsigned 8-bit char	[N*48]	[48]	Unitless
se_b_anlg_pwr_on	Servo B Analog Power On Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
se_b_mtr_coil_driver	Servo B Motor Coil Driver Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
se_b_mtrs_stopped	Servo B Motor Stopped Flag	unsigned 8-bit char	[N*48]	[48]	Unitless

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
se_b_tele_pos_known	Servo B Telescope Position Known Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
	DPP DNB Aggregation Mode	unsigned 8-bit char	[N*48]		Unitless
cp_blk_pwr_sel	cp_blk_pwr_sel	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_ap_m16_tdi_on	dp_ap_m16_tdi_on	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_scan_encdr_delta	DPP Scan Encoder Delta	unsigned 16-bit integer	[N*48]	[48]	Unitless
dp_ap_self_test	DPP ASP Self Test Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
se_servo_pwr_sel	Servo Xstrap Select Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_dnb_1a_1b_stage	DPP DNB HGS 1a/1b Flag	unsigned 8-bit char	N* [48]	[48]	Unitless
dp_dnb_tmg_mode	DPP DNB Test Mode	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_dnb_dark_sub_cal	DPP DNB Dark Subtract Cal Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_dnb_dark_sub_eth	DPP DNB Dark Subtract Earth View Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
ap_dc_fast_restor	DC Fast Restore Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_ham_mir_side	Servo Side A HAM Mirror Side	unsigned 8-bit char	[N*48]	[48]	Unitless
se_b_ham_mir_side	Servo Side B HAM Mirror	unsigned 8-bit char	[N*48]	[48]	Unitless
se_a_ham_mtr_curr	Servo Side A HAM Mirror Current	16-bit integer	[N*48]	[48]	Unitless
se_a_tele_mtr_curr	Servo Side A Telescope Motor Current	16-bit integer	[N*48]	[48]	Unitless
se_b_ham_mtr_curr	Servo Side B HAM Motor Current	16-bit integer	[N*48]	[48]	Unitless
se_b_tele_mtr_curr	Servo Side B Telescope Motor Current	16-bit integer	[N*48]	[48]	Unitless
ft_adc_ref	ft_adc_ref	16-bit integer	[N*48]	[48]	Unitless
ft_adc_ref_lw_stpt	LWIR ADC Set Point Reference	16-bit integer	[N*48]	[48]	Unitless
ft_ckt_gnd	ft_ckt_gnd	16-bit integer	[N*48]	[48]	Unitless

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
ft_lw_cfpa_htr_pwr	LWIR FPA Heater Power	16-bit integer	[N*48]	[48]	Unitless
ft_lw_setpt_ref	LWIR Set Point Reference	16-bit integer	[N*48]	[48]	Unitless
ft_sm_cfpa_htr_pwr	FPA Heater Power	16-bit integer	[N*48]	[48]	Unitless
ft_sm_setpt_ref	SWMWIR Set Point reference	16-bit integer	[N*48]	[48]	Unitless
se_a_ham_rate_error	se_a_ham_rate_error	16-bit integer	[N*48]	[48]	Unitless
se_a_tele_rate_error	se_a_tele_rate_error	16-bit integer	[N*48]	[48]	Unitless
se_b_ham_rate_error	se_b_ham_rate_error	16-bit integer	[N*48]	[48]	Unitless
se_b_tele_rate_error	se_b_tele_rate_error	16-bit integer	[N*48]	[48]	Unitless
EV_START_TIME	Earth View Start of Scan Trigger Start Time	64-bit integer	[N*48]	[48]	Seconds
HAM_SIDE	Half Angle Mirror Side	16-bit integer	[N*48]	[48]	Unitless
sdsmPosition	Solar Diffuser Stability Monitor Position 0=home, 1=SD view and 2=sun view	unsigned 8-bit char	[N*48]	[48]	Unitless
sdsmSample	Solar Diffuser Stability Monitor Sample	32-bit floating point	[N*48, 8, 5]	[48, 8, 5]	Counts
bb_tmps	Black Body Temperatures	16-bit integer	[N*48, 6]	[48, 6]	Counts
ap_lw_cca	ASP LWIR Circuit Card Assembly	16-bit integer	[N*48]	[48]	Counts
ap_sm_cca	ASP SW/MWIR Circuit Card Assemply	16-bit integer	[N*48]	[48]	Counts
ap_vn_cca	ASP Vis/NIR Circuit Card Assembly	16-bit integer	[N*48]	[48]	Counts
mf_scan_cavity_nxp	Mainframe Scan Cavity NX PZ Thermistor 46	16-bit integer	[N*48]	[48]	Counts
mf_scan_cavity_baf_nz	Mainframe Scan Cavity Baffle NZ Precision Thermistor 10	16-bit integer	[N*48]	[48]	Counts
mf_scan_cavity_baf_pz	Mainframe Scan Cavity Baffle PZ Precision Thermistor 9	16-bit integer	[N*48]	[48]	Counts

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
dp_dnb_cca	Digital Preprocessor DNB Circuit Card Assembly Thermistor 60	16-bit integer	[N*48]	[48]	Counts
ft_lw_cfpa_hi_rsl	ft_lw_cfpa_hi_rsl	16-bit integer	[N*48]	[48]	Counts
ft_lw_cfpa_lo_rsl	ft_lw_cfpa_lo_rsl	16-bit integer	[N*48]	[48]	Counts
ft_sm_cfpa_hi_rsl	Focal Plane Array Temperature Controller Long Wave IR High Resolution Temperature	16-bit integer	[N*48]	[48]	Counts
ft_sm_cfpa_lo_rsl	Focal Plane Array Long Wave Wide Range Temperature	16-bit integer	[N*48]	[48]	Counts
ft_vis_nir_fpa	Focal Plane Temperature Controller Visual/Near IR FPA Temperature	16-bit integer	[N*48]	[48]	Counts
ham_tmp1	Half Angle Mirror T1 Precision Thermistor 07, Radiatively Coupled Temperature	16-bit integer	[N*48]	[48]	Counts
ham_tmp2	Half Angle Mirror T2 Precision Thermistor 08, Radiatively Coupled Temperature	16-bit integer	[N*48]	[48]	Counts
mf_tel_blkhd_py	Mainframe Telescope Bulkhead Therm 33, RT16 (Node 1022 in Radiometry Model)	16-bit integer	[N*48]	[48]	Counts
mf_ao_blkhd_px_nz	MF_AO_BLKHD_PX_NZ Therm 44	16-bit integer	[N*48]	[48]	Counts
mf_ao_blkhd_nx_pz	MF_AO_BLKHD_NX_PZ Therm 45	16-bit integer	[N*48]	[48]	Counts
mf_stopassy_baff_nz	On Baffle NZ of Apert Stop Assy between HAM and FM2 Therm 14	16-bit integer	[N*48]	[48]	Counts

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
mf_fold_mir_bkhd_ct	MF_FOLD MIRROR BLKHD Center Therm 6	16-bit integer	[N*48]	[48]	Counts
mf_ham_blkhd	MF HAM Bulkhead Therm 43	16-bit integer	[N*48]	[48]	Counts
ct_prec_tref_mux1ca1	Precision Thermistor Cal Ref Resistor 1	16-bit integer	[N*48]	[48]	Counts
ct_prec_tref_mux1ca2	Precision Thermistor Cal Ref Resistor 2	16-bit integer	[N*48]	[48]	Counts
ct_prec_tref_mux1ca3	Precision Thermistor Cal Ref Resistor 3	16-bit integer	[N*48]	[48]	Counts
DNB_sequence	DNB_sequence	unsigned 8-bit char	[N*48]	[48]	Unitless
dp_dnb_ccd	Dp_dnb_ccd	16-bit integer	[N*48]	[48]	Counts
mf_tel_blkhd_nypz	Mf_tel_blkhd_nypz	16-bit integer	[N*48]	[48]	Counts
sdsm_preamp	sdsm_preamp	16-bit integer	[N*48]	[48]	Counts
southAtlanticAnomalyFlag	South Atlantic Anomaly Flag	unsigned 8-bit char	[N*48]	[48]	Unitless
m1_detector_offset	Moderate Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m2_detector_offset	Moderate Resolution Band 2 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m3_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m4_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m5_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m6_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m7_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m8_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m9_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
m10_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m11_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m12_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m13_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m14_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m15_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
m16_detector_offset	Moderate Resolution Band 3 Detector Offset	32-bit integer	[N*48, 2, 16]	[48, 2, 16]	Counts
i1_detector_offset	Imagery Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 32]	[48, 2, 32]	Counts
i2_detector_offset	Imagery Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 32]	[48, 2, 32]	Counts
i3_detector_offset	Imagery Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 32]	[48, 2, 32]	Counts
i4_detector_offset	Imagery Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 32]	[48, 2, 32]	Counts
i5_detector_offset	Imagery Resolution Band 1 Detector Offset	32-bit integer	[N*48, 2, 32]	[48, 2, 32]	Counts
solar	The solar vector in instrument coordinates, computed at the center time of the Solar Diffuser View sector.	32-bit floating point	[N*48, 3]	[48, 3]	Counts
lunar	Moon unit vector in instrument centered coordinates at center of space view sector.	32-bit floating point	[N*48, 3]	[48, 3]	Counts
sunZenith	The S/C sun zenith angle with respect to the Solar	32-bit floating point	[N*48]	[48]	Radians

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	Diffuser (SD) Reference Frame z-axis, where the positive SD z-axis is defined as the normal to the SD surface.				
earthSunDistance	Earth sun distance calculated from the Solar Vector at center of Space View scan.	32-bit floating point	[N*48]	[48]	Meters
File Size	**18,017,728 Bytes**				

8.2.2 VIIRS On-board Calibrator IP Product Profile

Table: 8.2.2-1 VIIRS On-board Calibrator IP Product Profile

VIIRS OBC IP Product Profile

Fields

Name	Data Size	Dimensions
numScans	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
numScans	0	0	48	Unitless	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

SD_375m — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NUM_375M_BANDS	Yes	No	5	5
I_VIIRS_RDR_ROWS	No	No	1536	1536
SV_375m_FRAMES	No	No	96	96

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
SD_375m	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

SD_750m_SG — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NUM_750M_SG_BANDS_IP	Yes	No	11	11
M_VIIRS_SDR_ROWS	No	No	768	768
SV_750m_FRAMES	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
SD_750m_SG	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SD_750m_DG — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
NUM_750M_DG_BANDS	Yes	No	7	7
M_VIIRS_SDR_ROWS	No	No	768	768
SV_750m_FRAMES	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
SD_750m_DG	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SD_DNB — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_VIIRS_RDR_ROWS	No	No	768	768
SV_DNB_FRAMES	No	No	64	64

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
SD_DNB	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

BB_375m — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
I_VIIRS_RDR_ROWS	Yes	No	1536	1536
NUM_375M_BANDS	No	No	5	5
SV_375m_FRAMES	No	No	96	96

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
BB_375m	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											ERR_FLOAT32_FILL	-999.5	
											ELLIPSOID_FLOAT32_FILL	-999.4	
											VDNE_FLOAT32_FILL	-999.3	
											SOUB_FLOAT32_FILL	-999.2	

BB_750m_SG — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
NUM_750M_SG_BANDS_IP	No	No	11	11
SV_750m_FRAMES	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
BB_750m_SG	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

BB_750m_DG — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
NUM_750M_DG_BANDS	No	No	7	7
SV_750m_FRAMES	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
BB_750m_DG	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

BB_DNB — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
DNB_VIIRS_RDR_ROWS	No	No	768	768
SV_DNB_FRAMES	No	No	64	64

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
BB_DNB	0	0	4095	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SV_375m — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
I_VIIRS_RDR_ROWS	Yes	No	1536	1536
NUM_375M_BANDS	No	No	5	5
SV_375m_FRAMES	No	No	96	96

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		SV_375m	0	0	4095	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				

SV_750m_SG	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		M_VIIRS_SDR_ROWS	Yes	No	768	768									
		NUM_750M_SG_BANDS_IP	No	No	11	11									
		SV_750m_FRAMES	No	No	48	48									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		SV_750m_SG	0	0	4095	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
SV_750m_DG	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		M_VIIRS_SDR_ROWS	Yes	No	768	768									
		NUM_750M_DG_BANDS	No	No	7	7									
		SV_750m_FRAMES	No	No	48	48									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		SV_750m_DG	0	0	4095	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
SV_DNB	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		DNB_VIIRS_RDR_ROWS	No	No	768	768									
		SV_DNB_FRAMES	No	No	64	64									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		SV_DNB	0	0	4095	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
DN_obc_375M_avg	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									

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Fields

		MAX_375M_TRACK_DIM	No	No	1536	1536										
		NUM_375M_BANDS	No	No	5	5										
		NUM_DIM2	No	No	2	2										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		DN_obc_375M_avg	0	1.4E-45	3.4028235E38	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**			
										NA_FLOAT32_FILL	-999.9					
										MISS_FLOAT32_FILL	-999.8					
										ONBOARD_PT_FLOAT32_FILL	-999.7					
										ONGROUND_PT_FLOAT32_FILL	-999.6					
										ERR_FLOAT32_FILL	-999.5					
										ELLIPSOID_FLOAT32_FILL	-999.4					
										VDNE_FLOAT32_FILL	-999.3					
										SOUB_FLOAT32_FILL	-999.2					
DN_obc_750M_SG_avg	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_750M_TRACK_DIM	No	No	768	768										
		NUM_750M_SG_BANDS	No	No	9	9										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		DN_obc_750M_SG_avg	0	1.4E-45	3.4028235E38	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**			
										NA_FLOAT32_FILL	-999.9					
										MISS_FLOAT32_FILL	-999.8					
										ONBOARD_PT_FLOAT32_FILL	-999.7					
										ONGROUND_PT_FLOAT32_FILL	-999.6					
										ERR_FLOAT32_FILL	-999.5					
										ELLIPSOID_FLOAT32_FILL	-999.4					
										VDNE_FLOAT32_FILL	-999.3					
										SOUB_FLOAT32_FILL	-999.2					
DN_obc_750M_DG_avg	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_750M_TRACK_DIM	No	No	768	768										
		NUM_750M_DG_BANDS	No	No	7	7										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		DN_obc_750M_DG_avg	0	1.4E-45	3.4028235E38	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**			
										NA_FLOAT32_FILL	-999.9					
										MISS_FLOAT32_FILL	-999.8					
										ONBOARD_PT_FLOAT32_FILL	-999.7					
										ONGROUND_PT_FLOAT32_FILL	-999.6					
										ERR_FLOAT32_FILL	-999.5					
										ELLIPSOID_FLOAT32_FILL	-999.4					
										VDNE_FLOAT32_FILL	-999.3					
										SOUB_FLOAT32_FILL	-999.2					
implicit_pad_0	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		pad_0	No	No	4	4										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		implicit_pad_0	0	0	0	Unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**			
DN_obc_375M_outlier_mask	8byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_375M_TRACK_DIM	No	No	1536	1536										
		NUM_375M_BANDS	No	No	5	5										
		NUM_DIM2	No	No	2	2										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**						**Legend Entries**

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Fields

		DN_obc_375M_outlier_mask	0	-9223372036854775808	9223372036854775807	Counts	No		unsigned 64-bit integer	**Name** / **Value**: NA_UINT64_FILL 18446744073709551615; MISS_UINT64_FILL 18446744073709551614; ONBOARD_PT_UINT64_FILL 18446744073709551613; ONGROUND_PT_UINT64_FILL 18446744073709551612; ERR_UINT64_FILL 18446744073709551611; ELLIPSOID_UINT64_FILL 18446744073709551610; VDNE_UINT64_FILL 18446744073709551609; SOUB_UINT64_FILL 18446744073709551608	**Name** / **Value**	

DN_obc_750M_SG_outlier_mask — 8byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_750M_TRACK_DIM	No	No	768	768
NUM_750M_SG_BANDS	No	No	9	9
NUM_DIM2	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
DN_obc_750M_SG_outlier_mask	0	-9223372036854775808	9223372036854775807	Counts	No		unsigned 64-bit integer	**Name** / **Value**: NA_UINT64_FILL 18446744073709551615; MISS_UINT64_FILL 18446744073709551614; ONBOARD_PT_UINT64_FILL 18446744073709551613; ONGROUND_PT_UINT64_FILL 18446744073709551612; ERR_UINT64_FILL 18446744073709551611; ELLIPSOID_UINT64_FILL 18446744073709551610; VDNE_UINT64_FILL 18446744073709551609; SOUB_UINT64_FILL 18446744073709551608	**Name** / **Value**

DN_obc_750M_DG_outlier_mask — 8byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_750M_TRACK_DIM	No	No	768	768
NUM_750M_DG_BANDS	No	No	7	7
NUM_DIM2	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
DN_obc_750M_DG_outlier_mask	0	-9223372036854775808	9223372036854775807	Counts	No		unsigned 64-bit integer	**Name** / **Value**: NA_UINT64_FILL 18446744073709551615; MISS_UINT64_FILL 18446744073709551614; ONBOARD_PT_UINT64_FILL 18446744073709551613; ONGROUND_PT_UINT64_FILL 18446744073709551612; ERR_UINT64_FILL 18446744073709551611; ELLIPSOID_UINT64_FILL 18446744073709551610; VDNE_UINT64_FILL 18446744073709551609; SOUB_UINT64_FILL 18446744073709551608	**Name** / **Value**

DN_obc_avg_first_frame_to_use — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
DN_obc_avg_first_frame_to_use	0	-2147483648	2147483647	Unitless	No		32-bit integer	**Name** / **Value**: NA_INT32_FILL -999; MISS_INT32_FILL -998; ONBOARD_PT_INT32_FILL -997; ONGROUND_PT_INT32_FILL -996; ERR_INT32_FILL -995; ELLIPSOID_INT32_FILL -994; VDNE_INT32_FILL -993; SOUB_INT32_FILL -992	**Name** / **Value**

DN_obc_avg_number_of_frames_to_use — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

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Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		DN_obc_avg_number_of_frames_to_use	0	-2147483648	2147483647	Unitless	No		32-bit integer	Name	Value	Name	Value
										NA_INT32_FILL	-999		
										MISS_INT32_FILL	-998		
										ONBOARD_PT_INT32_FILL	-997		
										ONGROUND_PT_INT32_FILL	-996		
										ERR_INT32_FILL	-995		
										ELLIPSOID_INT32_FILL	-994		
										VDNE_INT32_FILL	-993		
										SOUB_INT32_FILL	-992		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
OBC_GAIN_STATES	2byte(s)	NUM_750M_DG_BANDS	No	No	7	7
		NUM_DETECTORS_750M	No	No	16	16
		MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
OBC_GAIN_STATES	0	0	1	Unitless	No		unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535	High	0
								MISS_UINT16_FILL	65534	Low	1
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
moon_in_SV_KOB	1byte(s)	MAX_NUM_VIIRS_SCANS	No	No	48	48
		NUM_BANDS	No	No	22	22

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
moon_in_SV_KOB	0	0	1	Unitless	No		8-bit char	Name	Value	Name	Value
								NA_INT8_FILL	127		
								MISS_INT8_FILL	126		
								ONBOARD_PT_INT8_FILL	125		
								ONGROUND_PT_INT8_FILL	124		
								ERR_INT8_FILL	123		
								ELLIPSOID_INT8_FILL	122		
								VDNE_INT8_FILL	121		
								SOUB_INT8_FILL	120		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
tel_start_not_nominal	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Flag that indicates sector rotation. If nominal, then no sector rotation. If not-nominal, then the scan is sector rotated.l	0	0	1	Unitless	No		8-bit char	Name	Value	Name	Value
										nominal	0
										Not nominal	1
										Undetermined	-1

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Fields

scan_sync_failure — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Flag that indicates if a major RTA/HAM sync loss has occurred.	0	0	1	Unitless	No		8-bit char			normal	0
										Scan sync failure	1
										Undetermined	-1

dp_reg_tbl_rev — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
dp_reg_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

dp_state_tran_tbl_rev — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
dp_state_tran_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

dp_band_proc_tbl_rev — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
dp_band_proc_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

dp_heat_ctrl_tbl_rev — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

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Fields

		VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_heat_ctrl_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_macro_cmd_tbl_rev	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_macro_cmd_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_crit_tele_tbl_rev	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_crit_tele_tbl_rev	0	0	255	Counts	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_stor_cmd_tbl_rev	2byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_stor_cmd_tbl_rev	0	0	65535	Counts	No		unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_dn_m_l_gain_pkt	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

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Fields

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		dp_dn_m_l_gain_pkt	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
										NA_UINT8_FILL	255	NOT_SEND	0
										MISS_UINT8_FILL	254	SEND	1
										ONBOARD_PT_UINT8_FILL	253		
										ONGROUND_PT_UINT8_FILL	252		
										ERR_UINT8_FILL	251		
										ELLIPSOID_UINT8_FILL	250		
										VDNE_UINT8_FILL	249		
										SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_hrd_pkt_norm_test	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_hrd_pkt_norm_test	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	NORMAL	0
								MISS_UINT8_FILL	254	TEST	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_nonrdt_fpie_pwr	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_nonrdt_fpie_pwr	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	PS1	0
								MISS_UINT8_FILL	254	PS2	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
dp_servo_in_use	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_servo_in_use	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	SERVO_A	0
								MISS_UINT8_FILL	254	SERVO_B	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
ps_sec_b_apfp_on	1byte(s)	VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ps_sec_b_apfp_on	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											NA_UINT8_FILL	255	OFF	0
											MISS_UINT8_FILL	254	ON	1
											ONBOARD_PT_UINT8_FILL	253		
											ONGROUND_PT_UINT8_FILL	252		
											ERR_UINT8_FILL	251		
											ELLIPSOID_UINT8_FILL	250		
											VDNE_UINT8_FILL	249		
											SOUB_UINT8_FILL	248		

ps_sec_c_se_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ps_sec_c_se_on	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	OFF	0
								MISS_UINT8_FILL	254	ON	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

ps_sec_d_csog_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ps_sec_d_csog_on	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	OFF	0
								MISS_UINT8_FILL	254	ON	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

ps_sec_e_isog_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ps_sec_e_isog_on	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	OFF	0
								MISS_UINT8_FILL	254	ON	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

se_a_anlg_pwr_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
se_a_anlg_pwr_on	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	NO_PWR	0
								MISS_UINT8_FILL	254	PWR	1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

(continued)

Name	Value
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

se_a_mtr_coil_driver — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_a_mtr_coil_driver	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
SC_SAFEHOLD	0
SE_A_CCA	1

se_a_mtrs_stopped — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_a_mtrs_stopped	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
NOT_STOPPED	0
STOPPED	1

se_a_tele_pos_known — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_a_tele_pos_known	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
UNKNOWN	0
KNOWN	1

se_b_anlg_pwr_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_b_anlg_pwr_on	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252

Legend Entries

Name	Value
NO_PWR	0
PWR	1

Fields

												ERR_UINT8_FILL	251		
												ELLIPSOID_UINT8_FILL	250		
												VDNE_UINT8_FILL	249		
												SOUB_UINT8_FILL	248		

se_b_mtr_coil_driver — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
se_b_mtr_coil_driver	0	0	1	Unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255	SC_SAFEHOLD	0
								MISS_UINT8_FILL	254	SE_B_CCA	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

se_b_mtrs_stopped — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
se_b_mtrs_stopped	0	0	1	Unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255	NOT_STOPPED	0
								MISS_UINT8_FILL	254	STOPPED	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

se_b_tele_pos_known — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
se_b_tele_pos_known	0	0	1	Unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255	UNKNOWN	0
								MISS_UINT8_FILL	254	KNOWN	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

dp_dn_aggreg_mod — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
dp_dn_aggreg_mod	0	0	36	Unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												VDNE_UINT8_FILL	249		
												SOUB_UINT8_FILL	248		

cp_blk_pwr_sel — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
cp_blk_pwr_sel	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
NORMAL	0
XSTRAP	1

dp_ap_m16_tdi_on — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_ap_m16_tdi_on	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
OFF	0
ON	1

dp_scan_encdr_delta — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_scan_encdr_delta	0	0	32767	Unitless	No		unsigned 16-bit integer

Fill Values

Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

Legend Entries

Name	Value

dp_ap_self_test — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_ap_self_test	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
DISABLED	0
ENABLED	1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

se_servo_pwr_sel — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_servo_pwr_sel	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
NORMAL	0
XSTRAP	1

dp_dnb_1a_1b_stage — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_dnb_1a_1b_stage	0	0	2	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
AB_STAGE	0
A_STAGE	1
B_STAGE	2

dp_dnb_tmg_mode — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_dnb_tmg_mode	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
NORMAL	0
TEST	1

dp_dnb_dark_sub_cal — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_dnb_dark_sub_cal	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
DISABLED	0
ENABLED	1

dp_dnb_dark_sub_eth — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
dp_dnb_dark_sub_eth	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
DISABLED	0
ENABLED	1

ap_dc_fast_restor — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
ap_dc_fast_restor	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
Slow_High_Resolution	0
Fast_Low_Resolution	1

se_a_ham_mir_side — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_a_ham_mir_side	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
SIDE_A	0
SIDE_B	1

se_b_ham_mir_side — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type
se_b_ham_mir_side	0	0	1	Unitless	No		unsigned 8-bit char

Fill Values

Name	Value
NA_UINT8_FILL	255
MISS_UINT8_FILL	254
ONBOARD_PT_UINT8_FILL	253
ONGROUND_PT_UINT8_FILL	252
ERR_UINT8_FILL	251
ELLIPSOID_UINT8_FILL	250
VDNE_UINT8_FILL	249
SOUB_UINT8_FILL	248

Legend Entries

Name	Value
SIDE_A	0
SIDE_B	1

se_a_ham_mtr_curr — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		se_a_ham_mtr_curr	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value		
										NA_INT16_FILL	-999				
										MISS_INT16_FILL	-998				
										ONBOARD_PT_INT16_FILL	-997				
										ONGROUND_PT_INT16_FILL	-996				
										ERR_INT16_FILL	-995				
										ELLIPSOID_INT16_FILL	-994				
										VDNE_INT16_FILL	-993				
										SOUB_INT16_FILL	-992				
se_a_tele_mtr_curr	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		VIIRS_RDR_SCANS	No	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		se_a_tele_mtr_curr	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value		
										NA_INT16_FILL	-999				
										MISS_INT16_FILL	-998				
										ONBOARD_PT_INT16_FILL	-997				
										ONGROUND_PT_INT16_FILL	-996				
										ERR_INT16_FILL	-995				
										ELLIPSOID_INT16_FILL	-994				
										VDNE_INT16_FILL	-993				
										SOUB_INT16_FILL	-992				
se_b_ham_mtr_curr	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		VIIRS_RDR_SCANS	No	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		se_b_ham_mtr_curr	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value		
										NA_INT16_FILL	-999				
										MISS_INT16_FILL	-998				
										ONBOARD_PT_INT16_FILL	-997				
										ONGROUND_PT_INT16_FILL	-996				
										ERR_INT16_FILL	-995				
										ELLIPSOID_INT16_FILL	-994				
										VDNE_INT16_FILL	-993				
										SOUB_INT16_FILL	-992				
se_b_tele_mtr_curr	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		VIIRS_RDR_SCANS	No	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		se_b_tele_mtr_curr	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value		
										NA_INT16_FILL	-999				
										MISS_INT16_FILL	-998				
										ONBOARD_PT_INT16_FILL	-997				
										ONGROUND_PT_INT16_FILL	-996				
										ERR_INT16_FILL	-995				
										ELLIPSOID_INT16_FILL	-994				
										VDNE_INT16_FILL	-993				
										SOUB_INT16_FILL	-992				
ft_adc_ref	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		VIIRS_RDR_SCANS	No	No	48	48									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
		ft_adc_ref	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value		
										NA_INT16_FILL	-999				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										MISS_INT16_FILL	-998	
										ONBOARD_PT_INT16_FILL	-997	
										ONGROUND_PT_INT16_FILL	-996	
										ERR_INT16_FILL	-995	
										ELLIPSOID_INT16_FILL	-994	
										VDNE_INT16_FILL	-993	
										SOUB_INT16_FILL	-992	

ft_adc_ref_lw_stpt — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_adc_ref_lw_stpt	0	-8192	8191	Unitless	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_ckt_gnd — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_ckt_gnd	0	-8192	8191	Unitless	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_lw_cfpa_htr_pwr — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_lw_cfpa_htr_pwr	0	-8192	8191	Unitless	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_lw_setpt_ref — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_lw_setpt_ref	0	-8192	8191	Unitless	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												ONGROUND_PT_INT16_FILL	-996	
												ERR_INT16_FILL	-995	
												ELLIPSOID_INT16_FILL	-994	
												VDNE_INT16_FILL	-993	
												SOUB_INT16_FILL	-992	

ft_sm_cfpa_htr_pwr — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_sm_cfpa_htr_pwr	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_sm_setpt_ref — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_sm_setpt_ref	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

se_a_ham_rate_error — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
se_a_ham_rate_error	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

se_a_tele_rate_error — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
se_a_tele_rate_error	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										ELLIPSOID_INT16_FILL	-994	
										VDNE_INT16_FILL	-993	
										SOUB_INT16_FILL	-992	

se_b_ham_rate_error — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
se_b_ham_rate_error	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

se_b_tele_rate_error — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
se_b_tele_rate_error	0	-8192	8191	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

EV_START_TIME — 8byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
EV_START_TIME	0	-9223372036854775808	9223372036854775807	Seconds	No		64-bit integer	Name	Value	Name	Value
								NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ONBOARD_PT_INT64_FILL	-997		
								ONGROUND_PT_INT64_FILL	-996		
								ERR_INT64_FILL	-995		
								ELLIPSOID_INT64_FILL	-994		
								VDNE_INT64_FILL	-993		
								SOUB_INT64_FILL	-992		

HAM_SIDE — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
HAM_SIDE	0	0	1	Unitless	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										SOUB_INT16_FILL	-992	

sdsmPosition — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
sdsmPosition	0	0	2	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

sdsmSample — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
SDSM_DETECTOR	No	No	8	8
SDSM_SAMPLE	No	No	5	5

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
sdsmSample	0	1.4E-45	3.4028235E38	Counts	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

bb_tmps — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
BB_TEMPS	No	No	6	6

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
bb_tmps	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ap_lw_cca — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ap_lw_cca	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											VDNE_INT16_FILL	-993	
											SOUB_INT16_FILL	-992	

ap_sm_cca — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ap_sm_cca	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ap_vn_cca — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ap_vn_cca	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

mf_scan_cavity_nxp — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
mf_scan_cavity_nxp	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

mf_scan_cavity_baf_nz — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
mf_scan_cavity_baf_nz	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

mf_scan_cavity_baf_pz	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		mf_scan_cavity_baf_pz	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
dp_dnb_cca	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		dp_dnb_cca	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
ft_lw_cfpa_hi_rsl	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		ft_lw_cfpa_hi_rsl	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
ft_lw_cfpa_lo_rsl	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**				
		ft_lw_cfpa_lo_rsl	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
ft_sm_cfpa_hi_rsl	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_sm_cfpa_hi_rsl	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_sm_cfpa_lo_rsl — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_sm_cfpa_lo_rsl	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ft_vis_nir_fpa — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ft_vis_nir_fpa	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ham_tmp1 — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ham_tmp1	0	-8192	8191	Counts	No		16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ham_tmp2 — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		ham_tmp2	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
mf_tel_blkhd_py	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries				
		mf_tel_blkhd_py	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
mf_ao_blkhd_px_nz	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries				
		se_b_cca	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
mf_ao_blkhd_nx_pz	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries				
		mf_ao_blkhd_nx_pz	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value			
										NA_INT16_FILL	-999					
										MISS_INT16_FILL	-998					
										ONBOARD_PT_INT16_FILL	-997					
										ONGROUND_PT_INT16_FILL	-996					
										ERR_INT16_FILL	-995					
										ELLIPSOID_INT16_FILL	-994					
										VDNE_INT16_FILL	-993					
										SOUB_INT16_FILL	-992					
mf_stopassy_baff_nz	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		MAX_NUM_VIIRS_SCANS	No	No	48	48										
		Datum														
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries				
		mf_stopassy_baff_nz	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value			
										NA_INT16_FILL	-999					

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										MISS_INT16_FILL	-998	
										ONBOARD_PT_INT16_FILL	-997	
										ONGROUND_PT_INT16_FILL	-996	
										ERR_INT16_FILL	-995	
										ELLIPSOID_INT16_FILL	-994	
										VDNE_INT16_FILL	-993	
										SOUB_INT16_FILL	-992	

mf_fold_mir_bkhd_ct — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
mf_fold_mir_bkhd_ct	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

mf_ham_blkhd — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
mf_ham_blkhd	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ct_prec_tref_mux1ca1 — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ct_prec_tref_mux1ca1	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

ct_prec_tref_mux1ca2 — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ct_prec_tref_mux1ca2	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										ONGROUND_PT_INT16_FILL	-996	
										ERR_INT16_FILL	-995	
										ELLIPSOID_INT16_FILL	-994	
										VDNE_INT16_FILL	-993	
										SOUB_INT16_FILL	-992	

ct_prec_tref_mux1ca3 — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ct_prec_tref_mux1ca3	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

DNB_sequence — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
DNB_sequence	0	0	36	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

dp_dnb_ccd — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
dp_dnb_ccd	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

mf_tel_blkhd_nypz — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
mf_tel_blkhd_nypz	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

													ELLIPSOID_INT16_FILL	-994	
													VDNE_INT16_FILL	-993	
													SOUB_INT16_FILL	-992	

sdsm_preamp — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
sdsm_preamp	0	-8192	8191	Counts	No		16-bit integer	Name	Value	Name	Value
								NA_INT16_FILL	-999		
								MISS_INT16_FILL	-998		
								ONBOARD_PT_INT16_FILL	-997		
								ONGROUND_PT_INT16_FILL	-996		
								ERR_INT16_FILL	-995		
								ELLIPSOID_INT16_FILL	-994		
								VDNE_INT16_FILL	-993		
								SOUB_INT16_FILL	-992		

southAtlanticAnomalyFlag — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
southAtlanticAnomalyFlag	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
										Not over SAA	0
										Over SAA	1

m1_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m1_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m2_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m2_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

m3_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m3_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m4_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m4_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m5_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m5_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m6_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m6_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										ONGROUND_PT_INT32_FILL	-996	
										ERR_INT32_FILL	-995	
										ELLIPSOID_INT32_FILL	-994	
										VDNE_INT32_FILL	-993	
										SOUB_INT32_FILL	-992	

m7_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m7_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m8_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m8_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m9_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m9_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m10_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m10_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m11_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m11_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m12_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m12_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m13_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m13_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										SOUB_INT32_FILL	-992	

m14_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m14_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m15_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m15_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

m16_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_750M	No	No	16	16

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
m16_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

i1_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_375M	No	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
i1_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	Name	Value	Name	Value
								NA_INT32_FILL	-999		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										MISS_INT32_FILL	-998	
										ONBOARD_PT_INT32_FILL	-997	
										ONGROUND_PT_INT32_FILL	-996	
										ERR_INT32_FILL	-995	
										ELLIPSOID_INT32_FILL	-994	
										VDNE_INT32_FILL	-993	
										SOUB_INT32_FILL	-992	

i2_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_375M	No	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
i2_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

i3_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_375M	No	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
i3_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

i4_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48
NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_375M	No	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
i4_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

i5_detector_offset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
MAX_NUM_VIIRS_SCANS	No	No	48	48

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

NUM_MIRROR_SIDES	No	No	2	2
NUM_DETECTORS_375M	No	No	32	32

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
i5_detector_offset	0	-2147483648	2147483647	Counts	No		32-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_INT32_FILL	-999		
								MISS_INT32_FILL	-998		
								ONBOARD_PT_INT32_FILL	-997		
								ONGROUND_PT_INT32_FILL	-996		
								ERR_INT32_FILL	-995		
								ELLIPSOID_INT32_FILL	-994		
								VDNE_INT32_FILL	-993		
								SOUB_INT32_FILL	-992		

solar — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48
NUM_DIM3	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
solar	0	1.4E-45	3.4028235E38	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

lunar — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48
NUM_DIM3	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
lunar	0	-1	1	Counts	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

sunZenith — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
VIIRS_RDR_SCANS	No	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
sunZenith	0	0	PI	Radians	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

earthSunDistance	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		VIIRS_RDR_SCANS	No	No	48	48									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		earthSunDistance	0	1.4E-45	3.4028235E38	Meters	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				

8.2.3 VIIRS On-board Calibrator IP HDF5 Details

VIIRS-OBC-IP
+numScans : H5T_NATIVE_INT
+SD_375m : H5T_NATIVE_FLOAT
+SD_750m_SG : H5T_NATIVE_FLOAT
+SD_750m_DG : H5T_NATIVE_FLOAT
+SD_DNB : H5T_NATIVE_FLOAT
+BB_375m : H5T_NATIVE_FLOAT
+BB_750m_SG : H5T_NATIVE_FLOAT
+BB_750m_DG : H5T_NATIVE_FLOAT
+BB_DNB : H5T_NATIVE_FLOAT
+SV_375m : H5T_NATIVE_FLOAT
+SV_750m_SG : H5T_NATIVE_FLOAT
+SV_750m_DG : H5T_NATIVE_FLOAT
+SV_DNB : H5T_NATIVE_FLOAT
+DN_obc_375M_avg : H5T_NATIVE_FLOAT
+DN_obc_750M_SG_avg : H5T_NATIVE_FLOAT
+DN_obc_750M_DG_avg : H5T_NATIVE_FLOAT
+implicit_pad_0 : H5T_NATIVE_UCHAR
+DN_obc_375M_outlier_mask : H5T_NATIVE_ULLONG
+DN_obc_750M_SG_outlier_mask : H5T_NATIVE_ULLONG
+DN_obc_750M_DG_outlier_mask : H5T_NATIVE_ULLONG
+DN_obc_avg_first_frame_to_use : H5T_NATIVE_INT
+DN_obc_avg_number_of_frames_to_use : H5T_NATIVE_INT
+OBC_GAIN_STATES : H5T_NATIVE_USHORT
+moon_in_SV_KOB : H5T_NATIVE_CHAR
+tel_start_not_nominal : H5T_NATIVE_CHAR
+scan_sync_failure : H5T_NATIVE_CHAR
+dp_reg_tbl_rev : H5T_NATIVE_UCHAR
+dp_state_tran_tbl_rev : H5T_NATIVE_UCHAR
+dp_band_proc_tbl_rev : H5T_NATIVE_UCHAR
+dp_heat_ctrl_tbl_rev : H5T_NATIVE_UCHAR
+dp_macro_cmd_tbl_rev : H5T_NATIVE_UCHAR
+dp_crit_tele_tbl_rev : H5T_NATIVE_UCHAR
+dp_stor_cmd_tbl_rev : H5T_NATIVE_USHORT
+dp_dn_m_l_gain_pkt : H5T_NATIVE_UCHAR
+dp_hrd_pkt_norm_test : H5T_NATIVE_UCHAR
+dp_nonrdt_fpie_pwr : H5T_NATIVE_UCHAR
+dp_servo_in_use : H5T_NATIVE_UCHAR
+ps_sec_b_apfp_on : H5T_NATIVE_UCHAR
+ps_sec_c_se_on : H5T_NATIVE_UCHAR
+ps_sec_d_csog_on : H5T_NATIVE_UCHAR
+ps_sec_e_isog_on : H5T_NATIVE_UCHAR
+se_a_anlg_pwr_on : H5T_NATIVE_UCHAR
+se_a_mtr_coil_driver : H5T_NATIVE_UCHAR
+se_a_mtrs_stopped : H5T_NATIVE_UCHAR
+se_a_tele_pos_known : H5T_NATIVE_UCHAR
+se_b_anlg_pwr_on : H5T_NATIVE_UCHAR
+se_b_mtr_coil_driver : H5T_NATIVE_UCHAR

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

VIIRS-OBC-IP
+se_b_mtrs_stopped : H5T_NATIVE_UCHAR
+se_b_tele_pos_known : H5T_NATIVE_UCHAR
+dp_dn_aggreg_mod : H5T_NATIVE_UCHAR
+cp_blk_pwr_sel : H5T_NATIVE_UCHAR
+dp_ap_m16_tdi_on : H5T_NATIVE_UCHAR
+dp_scan_encdr_delta : H5T_NATIVE_USHORT
+dp_ap_self_test : H5T_NATIVE_UCHAR
+se_servo_pwr_sel : H5T_NATIVE_UCHAR
+dp_dnb_1a_1b_stage : H5T_NATIVE_UCHAR
+dp_dnb_tmg_mode : H5T_NATIVE_UCHAR
+dp_dnb_dark_sub_cal : H5T_NATIVE_UCHAR
+dp_dnb_dark_sub_eth : H5T_NATIVE_UCHAR
+ap_dc_fast_restor : H5T_NATIVE_UCHAR
+se_a_ham_mir_side : H5T_NATIVE_UCHAR
+se_b_ham_mir_side : H5T_NATIVE_UCHAR
+se_a_ham_mtr_curr : H5T_NATIVE_SHORT
+se_a_tele_mtr_curr : H5T_NATIVE_SHORT
+se_b_ham_mtr_curr : H5T_NATIVE_SHORT
+se_b_tele_mtr_curr : H5T_NATIVE_SHORT
+ft_adc_ref : H5T_NATIVE_SHORT
+ft_adc_ref_lw_stpt : H5T_NATIVE_SHORT
+ft_ckt_gnd : H5T_NATIVE_SHORT
+ft_lw_cfpa_htr_pwr : H5T_NATIVE_SHORT
+ft_lw_setpt_ref : H5T_NATIVE_SHORT
+ft_sm_cfpa_htr_pwr : H5T_NATIVE_SHORT
+ft_sm_setpt_ref : H5T_NATIVE_SHORT
+se_a_ham_rate_error : H5T_NATIVE_SHORT
+se_a_tele_rate_error : H5T_NATIVE_SHORT
+se_b_ham_rate_error : H5T_NATIVE_SHORT
+se_b_tele_rate_error : H5T_NATIVE_SHORT
+EV_START_TIME : H5T_NATIVE_LLONG
+HAM_SIDE : H5T_NATIVE_SHORT
+sdsmPosition : H5T_NATIVE_UCHAR
+sdsmSample : H5T_NATIVE_FLOAT
+bb_tmps : H5T_NATIVE_SHORT
+ap_lw_cca : H5T_NATIVE_SHORT
+ap_sm_cca : H5T_NATIVE_SHORT
+ap_vn_cca : H5T_NATIVE_SHORT
+mf_scan_cavity_nxp : H5T_NATIVE_SHORT
+mf_scan_cavity_baf_nz : H5T_NATIVE_SHORT
+mf_scan_cavity_baf_pz : H5T_NATIVE_SHORT
+dp_dnb_cca : H5T_NATIVE_SHORT
+ft_lw_cfpa_hi_rsl : H5T_NATIVE_SHORT
+ft_lw_cfpa_lo_rsl : H5T_NATIVE_SHORT
+ft_sm_cfpa_hi_rsl : H5T_NATIVE_SHORT
+ft_sm_cfpa_lo_rsl : H5T_NATIVE_SHORT
+ft_vis_nir_fpa : H5T_NATIVE_SHORT
+ham_tmp1 : H5T_NATIVE_SHORT
+ham_tmp2 : H5T_NATIVE_SHORT

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

VIIRS-OBC-IP
+mf_tel_blkhd_py : H5T_NATIVE_SHORT +mf_ao_blkhd_px_nz : H5T_NATIVE_SHORT +mf_ao_blkhd_nx_pz : H5T_NATIVE_SHORT +mf_stopassy_baff_nz : H5T_NATIVE_SHORT +mf_fold_mir_bkhd_ct : H5T_NATIVE_SHORT +mf_ham_blkhd : H5T_NATIVE_SHORT +ct_prec_tref_mux1ca1 : H5T_NATIVE_SHORT +ct_prec_tref_mux1ca2 : H5T_NATIVE_SHORT +ct_prec_tref_mux1ca3 : H5T_NATIVE_SHORT +DNB_sequence : H5T_NATIVE_UCHAR +dp_dnb_ccd : H5T_NATIVE_SHORT +mf_tel_blkhd_nypz : H5T_NATIVE_SHORT +sdsm_preamp : H5T_NATIVE_SHORT +southAtlanticAnomalyFlag : H5T_NATIVE_UCHAR +m1_detector_offset : H5T_NATIVE_INT +m2_detector_offset : H5T_NATIVE_INT +m3_detector_offset : H5T_NATIVE_INT +m4_detector_offset : H5T_NATIVE_INT +m5_detector_offset : H5T_NATIVE_INT +m6_detector_offset : H5T_NATIVE_INT +m7_detector_offset : H5T_NATIVE_INT +m8_detector_offset : H5T_NATIVE_INT +m9_detector_offset : H5T_NATIVE_INT +m10_detector_offset : H5T_NATIVE_INT +m11_detector_offset : H5T_NATIVE_INT +m12_detector_offset : H5T_NATIVE_INT +m13_detector_offset : H5T_NATIVE_INT +m14_detector_offset : H5T_NATIVE_INT +m15_detector_offset : H5T_NATIVE_INT +m16_detector_offset : H5T_NATIVE_INT +i1_detector_offset : H5T_NATIVE_INT +i2_detector_offset : H5T_NATIVE_INT +i3_detector_offset : H5T_NATIVE_INT +i4_detector_offset : H5T_NATIVE_INT +i5_detector_offset : H5T_NATIVE_INT +solar : H5T_NATIVE_FLOAT +lunar : H5T_NATIVE_FLOAT +sunZenith : H5T_NATIVE_FLOAT +earthSunDistance : H5T_NATIVE_FLOAT

Figure: 8.2.3-1 VIIRS On-board Calibartor IP UML Diagram

8.2.4 VIIRS On-board Calibrator IP HDF5 Metadata Details

The HDF5 metadata elements associated with the VIIRS On-board Calibrator IP are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms (474-00448-02-01). The VIIRS On-board Calibrator IP metadata includes all common metadata at the root, product, aggregation, and granule levels. There are no granule level Quality Flags defined

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as metadata elements in the VIIRS On-board Calibrator IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

8.2.5 VIIRS On-board Calibrator IP Geolocation Details

The VIIRS On-board Calibrator IP has no geolocation associated with it.

8.3 VIIRS Calibrated Dual-gain Band IP

Data Mnemonic	IMPI_VCDB_R0100
Description/ Purpose	The VIIRS calibrated dual-gain band IP includes unaggregated top-of-atmosphere radiance values for the dual-gain spectral bands in their nadir (3:1) and near-nadir (2:1) aggregation zones. The included radiance values from the moderate resolution dual-gain bands are identified as: M1, M2, M3, M4, M5, M7, and M13. Effectivity: S-NPP and JPSS-1
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details.
File Size	See Table: 8.3.1-1 VIIRS Calibrated Dual-gain Band Data Content Summary for size. This granule size includes output related fields and quality flags only. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
File Format Type	HDF5
Production Frequency	As requested
Data Content and Data Format	This product includes radiance arrays for each of the 7 spectral bands mentioned above and additionally contains an array of 32-bit floats called btRefl. See Section 8.3.1 VIIRS Calibrated Dual-gain Band Data Content Summary See Section 8.3.2 VIIRS Calibrated Dual-gain Band IP Product Profile See Section 8.3.4 VIIRS Calibrated Dual-gain Band IP Metadata Details See Section 8.3.5 VIIRS Calibrated Dual-gain Band IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.3.1 VIIRS Calibrated Dual-gain Band Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
radiance_0	Moderate Resolution Band M1 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_1	Moderate Resolution Band M2 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_2	Moderate Resolution Band M3 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_3	Moderate Resolution Band M4 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_4	Moderate Resolution Band M5 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_5	Moderate Resolution Band M7 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
radiance_6	Moderate Resolution Band M13 Radiance	32-bit floating point	[N*768, 5024]	[768, 5024]	Watts/(m^2 micrometer sr)
btRefl	btRefl	32-bit floating point	[N*768, 5024]	[768, 5024]	Unitless
File Size	**123,469,824 Bytes**				

8.3.2 VIIRS Calibrated Dual-gain Band IP Product Profile

Table: 8.3.2-1 VIIRS Calibrated Dual-gain Band IP Product Profile

VIIRS DualGain Cal IP Product Profile

Fields

Name	Data Size	Dimensions
radiance_0	4byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
EV_750M_UNAGGR_FRAMES	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Moderate Resolution Band M1 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

radiance_1	4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768

Fields

		EV_750M_UNAGGR_FRAMES	No	No	5024	5024									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Moderate Resolution Band M2 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
radiance_2	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		M_VIIRS_SDR_ROWS	Yes	No	768	768									
		EV_750M_UNAGGR_FRAMES	No	No	5024	5024									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Moderate Resolution Band M3 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
radiance_3	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		M_VIIRS_SDR_ROWS	Yes	No	768	768									
		EV_750M_UNAGGR_FRAMES	No	No	5024	5024									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Moderate Resolution Band M4 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				
radiance_4	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**									
		M_VIIRS_SDR_ROWS	Yes	No	768	768									
		EV_750M_UNAGGR_FRAMES	No	No	5024	5024									
		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**			
		Moderate Resolution Band M5 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ONBOARD_PT_FLOAT32_FILL	-999.7				
										ONGROUND_PT_FLOAT32_FILL	-999.6				
										ERR_FLOAT32_FILL	-999.5				
										ELLIPSOID_FLOAT32_FILL	-999.4				
										VDNE_FLOAT32_FILL	-999.3				
										SOUB_FLOAT32_FILL	-999.2				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

radiance_5 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
EV_750M_UNAGGR_FRAMES	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Moderate Resolution Band M7 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

radiance_6 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
EV_750M_UNAGGR_FRAMES	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Moderate Resolution Band M13 Radiance	0	0	1800	Watts/(m^2 micrometer sr)	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

btRefl 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
EV_750M_UNAGGR_FRAMES	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
btRefl	0	0	1	Unitless	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.3.3 VIIRS Calibrated Dual-gain Band IP HDF5 Details

VIIRS-DualGain-Cal-IP
+radiance_0 : H5T_NATIVE_FLOAT +radiance_1 : H5T_NATIVE_FLOAT +radiance_2 : H5T_NATIVE_FLOAT +radiance_3 : H5T_NATIVE_FLOAT +radiance_4 : H5T_NATIVE_FLOAT +radiance_5 : H5T_NATIVE_FLOAT +radiance_6 : H5T_NATIVE_FLOAT +btRefl : H5T_NATIVE_FLOAT

Figure: 8.3.3-1 VIIRS On-board Calibartor IP UML Diagram

8.3.4 VIIRS Calibrated Dual-gain Band IP HDF5 Metadata Details

The HDF5 metadata elements associated with the VIIRS Calibrated Dual-gain Band IP are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms (474-00448-02-01). The VIIRS Calibrated Dual-gain Band IP metadata includes all common metadata at the root, product, aggregation, and granule levels. There are no granule level Quality Flags defined as metadata elements in the VIIRS Calibrated Dual-gain Band IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

8.3.5 VIIRS Calibrated Dual-gain Band IP Geolocation Details

The VIIRS Calibrated Dual-gain Band IP uses the VIIRS Un-aggregated 750m Dual-Gain Band Geo.

8.3.5.1 VIIRS Un-aggregated 750m Dual-Gain Band Geo IP

Data Mnemonic	None
Description/ Purpose	Un-aggregated geolocation for each dual gain M band from the central (nadir) 3:1 along-scan aggregation zone and near off-nadir 2:1 along scan aggregation zone.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details.
File Size	See Table 8.3.5.2 1, VIIRS Un-aggregated 750m Dual-Gain Band Geo Data Content Summary for size. This granule size includes output related fields and quality flags only. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
File Format Type	HDF5
Production Frequency	As requested
Data Content and Data Format	See Section 8.3.5.2, VIIRS Un-aggregated 750m Dual-Gain Band Geo Data Content Summary See Section 8.3.5.3 VIIRS Un-aggregated 750m Dual-Gain Band Geo Product Profile See Section 8.3.5.3 VIIRS Un-aggregated 750m Dual-Gain Band Geo HDF5 Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	None
	See Section 8.3.5.4, VIIRS Un-aggregated 750m Dual-Gain Band Geo Metadata Details See Section 8.3.5.5 VIIRS Un-aggregated 750m Dual-Gain Band Geo Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.3.5.2 VIIRS Un-aggregated 750m Dual-Gain Band Geo Data Content Summary

Table: 8.3.5.2-1 VIIRS Un-aggregated 750m Dual-Gain Band Geo Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
StartTime	Starting Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
MidTime	Mid-Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*768, 5024]	[768, 5024]	degree
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*768, 5024]	[768, 5024]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*768, 5024]	[768, 5024]	meter
SCPosition	Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	meter
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt,	32-bit floating point	[N*48, 3]	[48, 3]	m/s

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	dz/dt) at the mid- time of scan				
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the midtime of scan	32-bit floating point	[N*48, 3]	[48, 3]	arcsecond
SCSolarZenithAngle	The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	32-bit floating point	[N*48]	[48]	degree
SCSolarAzimuthAngle	The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	32-bit floating point	[N*48]	[48]	degree
ModeScan	The VIIRS operational mode, reported at the scan level.	unsigned 8-bit char	[N*48]	[48]	unitless
ModeGran	The VIIRS operational mode, reported at the granule level.	unsigned 8-bit char	[N*1]	[1]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[3]	[3]	unitless
NumberOfScans	Actual number of VIIRS scans that were used to create this granule.	32-bit integer	[N*1]	[1]	unitless
QF1_SCAN_VIIRSSDRGEO	Scan-level quality flag	unsigned 8-bit char	[N*48]	[48]	Unitless
QF2_SCAN_VIIRSSDRGEO	Scan-level quality flag	unsigned 8-bit char	[N*48]	[48]	Unitless
QF2_VIIRSSDRGEO	Pixel-level quality flag	unsigned 8-bit char	[768, 5024]	[768, 5024]	Unitless
File Size	**127,331,288 Bytes**				

8.3.5.3 VIIRS Un-aggregated 750m Dual-Gain Band Geolocation Product Profile

Table: 8.3.5.3-1 VIIRS Un-aggregated 750m Dual-Gain Band Geolocation Product Profile

VIIRS-MOD-UNAGG-GEO: VIIRS SDR GEO (Deg) Unaggregated Moderate Resolution Product Profile

Fields

Name	Data Size	Dimensions
StartTime	8byte(s)	
MidTime	8byte(s)	
Latitude	4byte(s)	
Longitude	4byte(s)	

StartTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48

StartTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Starting Time of each scan in IET (1/1/1958)	0	0	1.00E+38	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ONBOARD_PT_INT64_FILL	-997		
								ONGROUND_PT_INT64_FILL	-996		
								ERR_INT64_FILL	-995		
								ELLIPSOID_INT64_FILL	-994		
								VDNE_INT64_FILL	-993		
								SOUB_INT64_FILL	-992		

MidTime — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48

MidTime — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Mid-Time of each scan in IET (1/1/1958)	0	0	1.00E+38	microsecond	No		64-bit integer	NA_INT64_FILL	-999		
								MISS_INT64_FILL	-998		
								ONBOARD_PT_INT64_FILL	-997		
								ONGROUND_PT_INT64_FILL	-996		
								ERR_INT64_FILL	-995		
								ELLIPSOID_INT64_FILL	-994		
								VDNE_INT64_FILL	-993		
								SOUB_INT64_FILL	-992		

Latitude — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Latitude — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Latitude of each pixel (positive North)	0	-90	90	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

Longitude — Dimensions

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Longitude — Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Longitude of each pixel (positive East)	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

MISS_FLOAT32_FILL	-999.8
ONBOARD_PT_FLOAT32_FILL	-999.7
ONGROUND_PT_FLOAT32_FILL	-999.6
ERR_FLOAT32_FILL	-999.5
ELLIPSOID_FLOAT32_FILL	-999.4
VDNE_FLOAT32_FILL	-999.3
SOUB_FLOAT32_FILL	-999.2

SolarZenithAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle of sun at each pixel position	0	0	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SolarAzimuthAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Azimuth angle of sun (measured clockwise positive from North) at each pixel position	0	-180	180	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SatelliteZenithAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
Zenith angle to Satellite at each pixel position	0	0	70	degree	No		32-bit floating point	Name	Value	Name	Value
								NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		

Fields

											VDNE_FLOAT32_FILL	-999.3	
											SOUB_FLOAT32_FILL	-999.2	

SatelliteAzimuthAngle 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

Height 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Ellipsoid-Geoid separation	0	-400	10000	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SatelliteRange 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Line of sight distance from the ellipsoid intersection to the satellite	0	800000	2000000	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											VDNE_FLOAT32_FILL	-999.3
											SOUB_FLOAT32_FILL	-999.2

SCPosition — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48
VEC_SIZE	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	0	-7.46E+06	7.40E+06	meter	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SCVelocity — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48
VEC_SIZE	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid- time of scan	0	-6600	6600	m/s	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SCAttitude — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48
VEC_RPY_SIZE	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the midtime of scan	0	-450	450	arcsecond	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

											MISS_FLOAT32_FILL	-999.8
											ONBOARD_PT_FLOAT32_FILL	-999.7
											ONGROUND_PT_FLOAT32_FILL	-999.6
											ERR_FLOAT32_FILL	-999.5
											ELLIPSOID_FLOAT32_FILL	-999.4
											VDNE_FLOAT32_FILL	-999.3
											SOUB_FLOAT32_FILL	-999.2

SCSolarZenithAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	0	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

SCSolarAzimuthAngle — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis)	0	-180	180	degree	No		32-bit floating point	NA_FLOAT32_FILL	-999.9		
								MISS_FLOAT32_FILL	-999.8		
								ONBOARD_PT_FLOAT32_FILL	-999.7		
								ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5		
								ELLIPSOID_FLOAT32_FILL	-999.4		
								VDNE_FLOAT32_FILL	-999.3		
								SOUB_FLOAT32_FILL	-999.2		

ModeScan — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		scanNumber	Yes	No	48	48																	
		Datum																					
		Description			**Datum Offset**	**Unscaled Valid Range Min**		**Unscaled Valid Range Max**		**Measurement Units**		**Scaled**	**Scale Factor Name**		**Data Type**	**Fill Values**		**Legend Entries**	
		The VIIRS operational mode, reported at the scan level.			0	0		1		unitless		No			unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
																NA_UINT8_FILL	255	Night	0
																MISS_UINT8_FILL	254	Day	1
																ONBOARD_PT_UINT8_FILL	253		
																ONGROUND_PT_UINT8_FILL	252		
																ERR_UINT8_FILL	251		
																ELLIPSOID_UINT8_FILL	250		
																VDNE_UINT8_FILL	249		
																SOUB_UINT8_FILL	248		
ModeGran	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**													
		Datum																	
		Description			**Datum Offset**	**Unscaled Valid Range Min**		**Unscaled Valid Range Max**		**Measurement Units**		**Scaled**	**Scale Factor Name**		**Data Type**	**Fill Values**		**Legend Entries**	
		The VIIRS operational mode, reported at the granule level.			0	0		2		unitless		No			unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
																NA_UINT8_FILL	255	Night	0
																MISS_UINT8_FILL	254	Day	1
																ONBOARD_PT_UINT8_FILL	253	Mixed	2
																ONGROUND_PT_UINT8_FILL	252		
																ERR_UINT8_FILL	251		
																ELLIPSOID_UINT8_FILL	250		
																VDNE_UINT8_FILL	249		
																SOUB_UINT8_FILL	248		
PadByte1	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**													
		PAD_BYTES_3	No	No	3	3													
		Datum																	
		Description	**Datum Offset**	**Unscaled Valid Range Min**		**Unscaled Valid Range Max**		**Measurement Units**	**Scaled**	**Scale Factor Name**		**Data Type**		**Fill Values**		**Legend Entries**			
		Pad byte	0	0		0		unitless	No			unsigned 8-bit char		**Name**	**Value**	**Name**	**Value**		
NumberOfScans	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**													
		Datum																	
		Description			**Datum Offset**	**Unscaled Valid Range Min**		**Unscaled Valid Range Max**		**Measurement Units**		**Scaled**	**Scale Factor Name**		**Data Type**	**Fill Values**		**Legend Entries**	
		Actual number of VIIRS scans that were used to create this granule.			0	0		Max_scans		unitless		No			32-bit integer	**Name**	**Value**	**Name**	**Value**

VIIRS-MOD-UNAGG-GEO: VIIRS SDR GEO (Deg) Unaggregated Moderate Resolution Product Profile - Quality Flags

Fields

Name	**Data Size**	**Dimensions**																					
QF1_SCAN_VIIRSSDRGEO	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**																	
		scanNumber	Yes	No	48	48																	
		Datum																					
		Description			**Datum Offset**	**Unscaled Valid Range Min**		**Unscaled Valid Range Max**		**Measurement Units**		**Scaled**	**Scale Factor Name**		**Data Type**	**Fill Values**		**Legend Entries**	
		Interpolation Stage			0	0		3		Unitless		No			2 bit(s)	**Name**	**Value**	**Name**	**Value**
																		Nominal - E&A data available	0
																		Missing Data <= Small Gap	1
																		Small Gap < Missing Data < Granule Boundary	2
																		Missing Data >= Granule Boundary	3
		HAM/RTA Encoder flag			2	0		3		Unitless		No			2 bit(s)	**Name**	**Value**	**Name**	**Value**
																		Good Data	0
																		Bad Data	1
																		Degraded Data	2
																		Missing Data	3

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Above South Atlantic Anomaly	4	0	1	Unitless	No		1 bit(s)	Name Value	Name	Value				
											False	0				
											True	1				
		Solar Eclipse	5	0	1	Unitless	No		1 bit(s)	Name Value	Name	Value				
											False	0				
											True	1				
		Spare	6	0	0	Unitless	No		1 bit(s)	Name Value	Name	Value				
		Half Angle Mirror Side	7	0	1	Unitless	No		1 bit(s)	Name Value	Name	Value				
											A-Side	0				
											B-Side	1				
QF2_SCAN_VIIRSSDRGEO	1byte(s)															

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
scanNumber	Yes	No	48	48

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Scan Controller Electronics (SCE) side	0	0	3	Unitless	No		2 bit(s)	Name Value	Name Value Side A on 0 Side B on 1 Invalid State 2
Geo Scan Start State Flag	2	0	7	Unitless	No		3 bit(s)	Name Value	Name Value Nominal 0 Non-Nominal HAM start 1 HAM/RTA Sync Loss 2 Sector Rotation 4
Spare	5	0	0	Unitless	No		3 bit(s)	Name Value	Name Value

QF2_VIIRSSDRGEO	1byte(s)															

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	No	No	768	768
M_VIIRS_UNAGG_COLS	No	No	5024	5024

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Invalid Input Data	0	0	1	Unitless	No		1 bit(s)	Name Value	Name Value Valid 0 Invalid 1
Bad Pointing	1	0	1	Unitless	No		1 bit(s)	Name Value	Name Value Good Pointing 0 Bad Pointing 1
Bad Terrain	2	0	1	Unitless	No		1 bit(s)	Name Value	Name Value Good Terrain 0 Bad Terrain 1
Invalid Solar Angles	3	0	1	Unitless	No		1 bit(s)	Name Value	Name Value Valid angles 0 Invalid angles 1
Spare	4	0	0	Unitless	No		4 bit(s)	Name Value	Name Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

8.3.5.4 VIIRS Un-aggregated 750m Dual-Gain Band Geo HDF5 Details

VIIRS-MOD-UNAGG-GEO
+StartTime : H5T_NATIVE_LLONG +MidTime : H5T_NATIVE_LLONG +Latitude : H5T_NATIVE_FLOAT +Longitude : H5T_NATIVE_FLOAT +SolarZenithAngle : H5T_NATIVE_FLOAT +SolarAzimuthAngle : H5T_NATIVE_FLOAT +SatelliteZenithAngle : H5T_NATIVE_FLOAT +SatelliteAzimuthAngle : H5T_NATIVE_FLOAT +Height : H5T_NATIVE_FLOAT +SatelliteRange : H5T_NATIVE_FLOAT +SCPosition : H5T_NATIVE_FLOAT +SCVelocity : H5T_NATIVE_FLOAT +SCAttitude : H5T_NATIVE_FLOAT +SCSolarZenithAngle : H5T_NATIVE_FLOAT +SCSolarAzimuthAngle : H5T_NATIVE_FLOAT +ModeScan : H5T_NATIVE_UCHAR +ModeGran : H5T_NATIVE_UCHAR +PadByte1 : H5T_NATIVE_UCHAR +NumberOfScans : H5T_NATIVE_INT +QF1_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_SCAN_VIIRSSDRGEO : H5T_NATIVE_UCHAR +QF2_VIIRSSDRGEO : H5T_NATIVE_UCHAR

Figure: 8.3.5.4-1 VIIRS Un-aggregated 750m Dual-Gain Band Geo UML Diagram

8.3.5.5 VIIRS Un-aggregated 750m Dual-Gain Band Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the VIIRS Un-aggregated 750m Dual-Gain Band Geolocation Metadata Details are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms (474-00448-02-01). The VIIRS Un-aggregated 750m Dual-Gain Band Geolocation Metadata Details metadata includes all common metadata at the root, product, aggregation, and granule levels.

There are no granule level Quality Flags defined as metadata elements in the VIIRS Un-aggregated 750m Dual-Gain Band Geolocation. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product. The product metadata.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Appendix A. Data Mnemonic to Interface Mapping

For a complete list of Data Mnemonic to Interface Mapping, see 474-00001-01, JPSS CDFCB-X Vol I. The CDFCB contains Data Mnemonics, Identifiers, Collection Short Names, Interface Documents, and Collection Long Names for each JPSS Data Product and Geolocation data.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Appendix B. Common RDR Static Header Values

The Common RDR Static Header Values lists pre-defined unique values for the fields from the static header for each of the RDRs defined.

RDR Name	Sensor	TypeID	numAPIDs
VIIRS Science	VIIRS	SCIENCE	26
VIIRS Diagnostic	VIIRS	DIAGNOSTIC	26
VIIRS Telemetry	VIIRS	TELEMETRY	1
VIIRS Diagnostic Telemetry	VIIRS	DIAGTELEMETRY	1
VIIRS Memory Dump	VIIRS	DUMP	1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Appendix C. DQTT Quality Flag Mapping

The following table maps the quality flags by sensor and product that are reportable to the associated data product quality flag Test ID used in the processing environment.

Algorithm	Product	Test ID	Quality Flag
VIIRS SDR	VIIRS-I1-SDR	1900	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-I1-SDR	1901	Scan Quality Exclusion
VIIRS SDR	VIIRS-I2-SDR	2000	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-I2-SDR	2001	Scan Quality Exclusion
VIIRS SDR	VIIRS-I3-SDR	2100	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-I3-SDR	2101	Scan Quality Exclusion
VIIRS SDR	VIIRS-I4-SDR	2200	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-I4-SDR	2201	Scan Quality Exclusion
VIIRS SDR	VIIRS-I5-SDR	2300	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-I5-SDR	2301	Scan Quality Exclusion
VIIRS SDR	VIIRS-DNB-SDR	2400	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-DNB-SDR	2401	Scan Quality Exclusion
VIIRS SDR	VIIRS-M1-SDR	2500	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M1-SDR	2501	Scan Quality Exclusion
VIIRS SDR	VIIRS-M2-SDR	2600	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M2-SDR	2601	Scan Quality Exclusion
VIIRS SDR	VIIRS-M3-SDR	2700	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M3-SDR	2701	Scan Quality Exclusion
VIIRS SDR	VIIRS-M4-SDR	2800	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M4-SDR	2801	Scan Quality Exclusion
VIIRS SDR	VIIRS-M5-SDR	2900	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M5-SDR	2901	Scan Quality Exclusion
VIIRS SDR	VIIRS-M6-SDR	3000	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M6-SDR	3001	Scan Quality Exclusion
VIIRS SDR	VIIRS-M7-SDR	3100	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M7-SDR	3101	Scan Quality Exclusion
VIIRS SDR	VIIRS-M8-SDR	3200	Summary VIIRS SDR Quality

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Algorithm	Product	Test ID	Quality Flag
VIIRS SDR	VIIRS-M8-SDR	3201	Scan Quality Exclusion
VIIRS SDR	VIIRS-M9-SDR	3300	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M9-SDR	3301	Scan Quality Exclusion
VIIRS SDR	VIIRS-M10-SDR	3400	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M10-SDR	3401	Scan Quality Exclusion
VIIRS SDR	VIIRS-M11-SDR	3500	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M11-SDR	3501	Scan Quality Exclusion
VIIRS SDR	VIIRS-M12-SDR	3600	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M12-SDR	3601	Scan Quality Exclusion
VIIRS SDR	VIIRS-M13-SDR	3700	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M13-SDR	3701	Scan Quality Exclusion
VIIRS SDR	VIIRS-M14-SDR	3800	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M14-SDR	3801	Scan Quality Exclusion
VIIRS SDR	VIIRS-M15-SDR	3900	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M15-SDR	3901	Scan Quality Exclusion
VIIRS SDR	VIIRS-M16-SDR	4000	Summary VIIRS SDR Quality
VIIRS SDR	VIIRS-M16-SDR	4001	Scan Quality Exclusion

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Appendix D. Abbreviations and Acronyms

See 470-00041 JPSS Program Lexicon for abbreviations and acronyms.

Attachment A XML Formats for Related Products

Table: ATT-1 XML Formats for Related Products

File Number	XML Filename
1	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-DNB-GEO-PP.xml
2	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-DNB-SDR-PP.xml
3	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-I1-SDR-PP.xml
4	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-I2-SDR-PP.xml
5	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-I3-SDR-PP.xml
6	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-I4-SDR-PP.xml
7	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-I5-SDR-PP.xml
8	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-IMG-GEO-PP.xml
9	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M1-SDR-PP.xml
10	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M2-SDR-PP.xml
11	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M3-SDR-PP.xml
12	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M4-SDR-PP.xml
13	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M5-SDR-PP.xml
14	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M6-SDR-PP.xml
15	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M7-SDR-PP.xml
16	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M8-SDR-PP.xml
17	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M9-SDR-PP.xml
18	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M10-SDR-PP.xml
19	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M11-SDR-PP.xml
20	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M12-SDR-PP.xml
21	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M13-SDR-PP.xml
22	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M14-SDR-PP.xml
23	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M15-SDR-PP.xml
24	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-M16-SDR-PP.xml
25	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-MOD-GEO-PP.xml
26	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-IMG-GEO-TC-PP.xml
27	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-MOD-GEO-TC-PP.xml
28	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-Bright-Pixel-Mod-IP-PP.xml
29	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-OBC-IP-PP.xml
30	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-VIIRS-RSB-AUTOCAL-HISTORY-AUX-PP.xml
31	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-DualGain-Cal-IP-PP.xml
32	474-00448-02-06_JPSS-VIIRS-SDR-DD-Part-6_0200F_VIIRS-MOD-UNAGG-GEO-PP.xml

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.