GSFC JPSS CMO
April 01, 2016
Released

Effective Date: March 29, 2016
Revision C

Joint Polar Satellite System (JPSS) Ground Project
Code 474
474-00448-01-15

Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirement Specification (SRS) for the Surface Reflectance

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland

Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirement Specification (SRS) for the Surface Reflectance
JPSS Review/Approval Page

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Preface

This document is under JPSS Ground Project 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:

JPSS Configuration Management Office
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Greenbelt, MD 20771

Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)
Rev-	Aug. 29, 2013	This version incorporates 474-CCR-13-1186 which was approved by JPSS Ground ERB on the effective date shown.
A	Jan 23, 2014	This version incorporates 474-CCR-13-1435 and 474-CCR-13-1360 which was approved by JPSS Ground ERB on the effective date shown.
A1	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.
B	Oct 23, 2014	This version incorporates 474-CCR-14-1721, 474-CCR-14-1741, 474-CCR-14-1781 and 474-CCR-14-2077 which was approved by JPSS Ground ERB on the effective date shown.
C	Mar 29, 2016	This version incorporates 474-CCR-14-2110, 474-CCR-15-2452, 474-CCR-15-2480, 474-CCR-15-2657, and 474-CCR-16-2822 which was approved by JPSS Ground ERB on the effective date shown

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List of TBx Items

TBx	Type	ID	Text	Action
None				

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1 Introduction

The Joint Polar Satellite System (JPSS) is the National Oceanic and Atmospheric Administration's (NOAA) next-generation operational Earth observation program that acquires and distributes global environmental data primarily from multiple polar-orbiting satellites. The program plays a critical role in NOAA's mission to understand and predict changes in weather, climate, oceans and coasts, and the space environment, which support the Nation's economy and protect lives and property. The first JPSS satellite mission, the Suomi National Polar-orbiting Partnership (S-NPP) satellite, successfully launched in October 2011. S-NPP, along with the legacy NOAA Polar Operational Environmental Satellites (POES), provides continuous environmental observations. Two JPSS satellites will follow S-NPP: JPSS-1, planned for launch in fiscal year (FY) 2017, with JPSS-2 to follow in FY2022.

In addition to the JPSS Program's own satellites operating in the 1330 (±10) Local Time of the Ascending Node (LTAN) orbit, NOAA also leverages mission partner assets for complete global coverage. These partner assets include the Department of Defense (DoD) Defense Meteorological Satellite Program (DMSP) operational weather satellites (in the 1730 - 1930 LTAN orbit), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (Metop) satellites (in the 2130 LTAN orbit) and the Japanese Aerospace Exploration Agency (JAXA) Global Change Observation Mission-Water (GCOM-W) satellite (in the 1330 LTAN orbit). JPSS routes Metop data from McMurdo Station, Antarctica to the EUMETSAT facility in Darmstadt, Germany and EUMETSAT, in turn, provides Metop data to NOAA. For GCOM, JPSS routes the GCOM-W data from Svalbard, Norway through the NOAA Satellite Operations Facility (NSOF) in Suitland, MD, processes GCOM-W data and delivers GCOM-W products to the JPSS users who have JAXA permissions.

Additionally, the JPSS Program provides data acquisition and routing support to the DMSP and the WindSat Coriolis Program. JPSS routes DMSP data from McMurdo Station to the 557th Weather Wing at Offutt Air Force Base in Omaha, NE. After processing, the 557th releases the DMSP data for public consumption over the Internet via the National Geophysical Data Center in Boulder, CO. The JPSS Program provides data routing support to the National Science Foundation (NSF), as well as the National Aeronautics and Space Administration (NASA) Space Communications and Navigation (SCaN)-supported missions, which include the Earth Observing System (EOS). As part of the agreements for the use of McMurdo Station, JPSS provides communications/network services for the NSF between McMurdo Station, Antarctica and Centennial, Colorado.

As a multi-mission ground infrastructure, the JPSS Ground System supports the heterogeneous constellation of the before-mentioned polar-orbiting satellites both within and outside the JPSS Program through a comprehensive set of services as listed in Table 1-1.

Table: 1-1 JPSS Ground System Services

Service	Description
Enterprise Management and Ground Operations	Provides mission management, mission operations, ground operations, contingency management and system sustainment
Flight Operations	Provides launch support and early orbit operations, telemetry and commanding, orbital operations, mission data playback, payload support, flight software upgrade, flight vehicle simulation, and disposal at the end of mission life
Data Acquisition	Provides space/ground communications for acquiring mission data
Data Routing	Provides routing of telemetry, mission and/or operations data through JPSS' global data network
Data Product Generation	Provides the processing of mission data to generate and distribute raw, sensor, environmental, and ancillary data products
Data Product Calibration and Validation	Provides calibration and validation of the data products
Field Terminal Support	Provides development and operational support to the Field Terminal customers

1.1 Identification

This SRS provides requirements for the Surface Reflectance Intermediate Product.

1.2 Algorithm Overview

Surface reflectance is retrieved for VIIRS reflective M-band and I-bands. The algorithm applies corrections for atmospheric absorption, scattering, thin cirrus, glare, surface properties, and solar geometry.

1.3 Document Overview

Section	Description
Section 1	Introduction - Provides a brief overview of the JPSS Ground System and the relevant algorithm, as reference material only.
Section 2	Related Documentation - Lists related documents and identifies them as Parent, Applicable, or Information Documents such as, MOAs, MOUs, technical implementation agreements, as well as Data Format specifications. This section also establishes an order of precedence in the event of conflict between two or more documents.
Section 3	Algorithm Requirements - Provides a summary of the science requirements for the products covered by this volume.
Appendix A	Requirements Attributes - Provides the mapping of requirements to verification methodology and attributes.

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.

Doc. No.	Document Title
470-00067	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD)
470-00067-02	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD), Volume 2 - Science Product Specification
474-00448-01-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirements Specification (SRS) for the Common Algorithms

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.

Doc. No.	Document Title
D0001-M01-S01-026	Joint Polar Satellite System (JPSS) Operational Algorithm Description Document For VIIRS Surface Reflectance Algorithm Theoretical Basis Document (ATBD)
474-00448-02-15	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Surface Reflectance
474-00448-04-15	JPSS Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for the Surface Reflectance

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.

Doc. No.	Document Title
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
474-00448-03-15	Joint Polar Satellite System (JPSS) Algorithm Specification Volume III:

Doc. No.	Document Title
	Operational Algorithm Description (OAD) for the Surface Reflectance
429-05-02-42	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for NPP
472-00251	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for JPSS-1

3 Algorithm Requirements

3.1 States and Modes

3.1.1 Normal Mode Performance

SRS.01.15_267 The VIIRS Surface Reflectance IP algorithm shall calculate the surface reflectance with an uncertainty of 0.005 at a measured reflectance value of 0.01, and an uncertainty of 0.05 at a measured value of 1.0.

Rationale: The measurement uncertainty values support the uncertainty values of the downstream products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.1.2 Graceful Degradation Mode Performance

SRS.01.15_269 The VIIRS Surface Reflectance software shall use NCEP extended forecast data for fallback processing when the relevant NCEP current forecast input is not available.

Rationale: The IP software through its algorithm must generate products using back up data sources to meet the graceful degradation requirement. These degraded products are not required to meet the algorithm performance requirements. This software currently uses NCEP Total Column Ozone, Total Column Precipitable Water, and Adjusted Surface Pressure forecasts.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_272 The VIIRS Surface Reflectance software shall use NAAPS Total Optical Depth [750m Granulation] current forecast data for fallback processing when the VIIRS Aerosol Optical Thickness IP input is not available.

Rationale: The IP software through its algorithm must generate products using back up data sources to meet the graceful degradation requirement. These degraded products are not required to meet the algorithm performance requirements.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_282 The VIIRS Surface Reflectance software shall use NAAPS Total Optical Depth [750m Granulation] extended forecast data for fallback processing when the VIIRS Aerosol Optical Thickness IP input and NAAPS Total Optical Depth current forecast data is not available.

Rationale: The IP software through its algorithm must generate products using back up data sources to meet the graceful degradation requirement. These degraded products are not required to meet the algorithm performance requirements.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_273 The VIIRS Surface Reflectance IP software shall use GACP Aerosol climatology [750m Granulation] for fallback processing when the AOT IP and

NAAPS Total Optical Depth current and extended forecast inputs are not available.

Rationale: The IP software through its algorithm must generate products using back up data sources to meet the graceful degradation requirement. These degraded products are not required to meet the algorithm performance requirements.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.2 Algorithm Functional Requirements

3.2.1 Product Production Requirements

Not applicable.

3.2.2 Algorithm Science Requirements

SRS.01.15_274 The VIIRS Surface Reflectance IP software shall incorporate a computing algorithm provided for I-band surface reflectances for the reflective I-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><iBands>.

Rationale: The IP software through its computing algorithm must produce Surface Reflectance IP in accordance with the JPSS VIIRS Surface Reflectance ATBD (D0001-M01-S01-026).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_275 The VIIRS Surface Reflectance IP software shall incorporate a computing algorithm provided for M-band surface reflectances for the reflective M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><mBands>.

Rationale: The IP software through its computing algorithm must produce Surface Reflectance IP in accordance with the JPSS VIIRS Surface Reflectance ATBD (D0001-M01-S01-026).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.2.3 Algorithm Exception Handling

SRS.01.15_276 The VIIRS Surface Reflectance IP software shall set <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><fill>.

Rationale: The IP software through its computing algorithm must fill the surface reflectance IP values based on the established fill conditions to satisfy exclusion and fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.3 External Interfaces

3.3.1 Inputs

SRS.01.15_277 The VIIRS Surface Reflectance IP software shall incorporate inputs as specified in Table 3-1.

Rationale: The IP generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended VIIRS Surface Reflectance IP product.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_283 The VIIRS Surface Reflectance IP software shall ingest tables and coefficients formatted in accordance with Section 7 of the JPSS Algorithm Specification Vol II: Data Dictionary for Surface Reflectance (474-00448-02-15).

Rationale: This defines the formats for Lookup Tables, and Processing Coefficients for input into the algorithm module.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

Table 3-1 and Figure 3-1 are best viewed together since they describe the processes governed by this SRS in different ways. The figure diagrams the data flowing into, out of, and within the code governed by this SRS. The table lists these same data interactions as well as all downstream dependencies for outputs from this SRS.

Each row in the table describes a single software interaction - data flowing from one software item to another. The data is listed in the first column. The second and third columns include the short name and mnemonic or for the data. Blanks indicate there is no mnemonic. The fourth (Sending SRS) and fifth (Receiving SRS) columns contain the SRS that generates the data product(s) in the first column, and the SRS that receives those products. The final two columns (Sending Function and Receiving Function) contain the actual function name in Algorithm Development Library (ADL) that produces those products, and the function that inputs those products. The SRS's titled "Ingest MSD" and "Store/Retrieve" are non-existent SRS's functioning as data handling for the IDPS. The software functions "Store Products" and "Retrieve Products" are similar non-existent functions that operate as IDPS data handling.

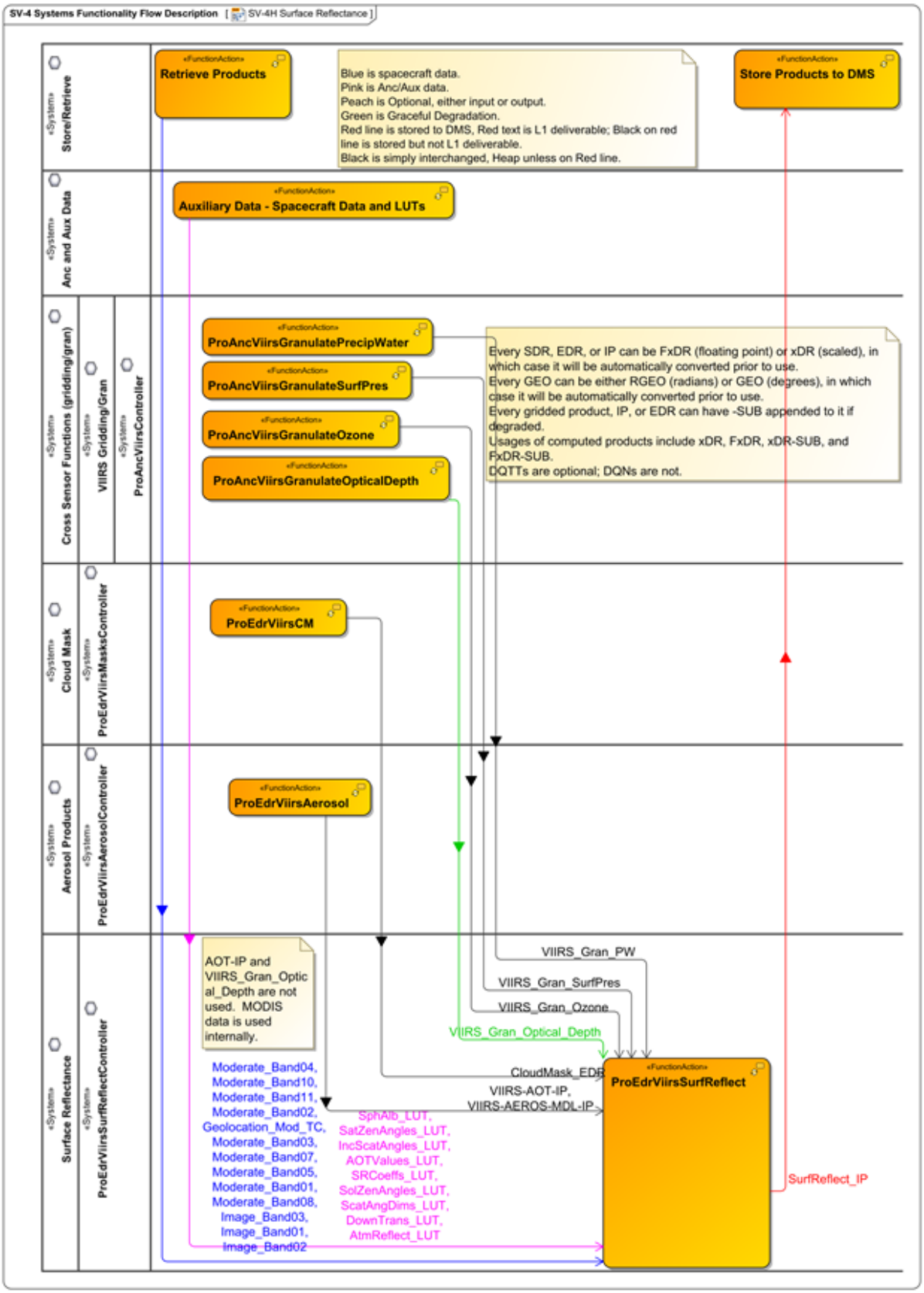

Figure: 3-1 Surface Reflectance Data Flows

Table: 3-1 Systems Resource Flow Matrix: Surface Reflectance

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
1	•Moderate_Band04 •Moderate_Band10 •Moderate_Band11 •Moderate_Band02 •Geolocation_Mod_TC •Moderate_Band03 •Moderate_Band07 •Moderate_Band05 •Moderate_Band01 •Moderate_Band08 •Image_Band03 •Image_Band01 •Image_Band02	•VIIRS-M4-SDR •VIIRS-M10-SDR •VIIRS-M11-SDR •VIIRS-M2-SDR •VIIRS-MOD-RGEO-TC •VIIRS-M3-SDR •VIIRS-M7-SDR •VIIRS-M5-SDR •VIIRS-M1-SDR •VIIRS-M8-SDR •VIIRS-I3-SDR •VIIRS-I1-SDR •VIIRS-I2-SDR	•SDRE-VM04-C0030 •SDRE-VM10-C0030 •SDRE-VM11-C0030 •SDRE-VM02-C0030 •None •SDRE-VM03-C0030 •SDRE-VM07-C0030 •SDRE-VM05-C0030 •SDRE-VM01-C0030 •SDRE-VM08-C0030 •SDRE-VI03-C0030 •SDRE-VI01-C0030 •SDRE-VI02-C0030	Store/Retrieve (VIIRS SDR)	Surface Reflectance	Retrieve Products	ProEdrViirsSurfReflect
2	•SphAlb_LUT •SatZenAngles_LUT •IncScatAngles_LUT •AOTValues_LUT •SRCoeffs_LUT •SolZenAngles_LUT •ScatAngDims_LU	•VIIRS-SR-SphAlb-LUT •VIIRS-SR-SatZenAngles-LUT •VIIRS-SR-IncScatAngles-LUT •VIIRS-SR-AOTValues-LUT	•NP_NU-LM0233-071 •NP_NU-LM0233-070 •NP_NU-LM0233-067 •NP_NU-LM0233-064 •DP_NU-LM2020-028	Anc and Aux Data	Surface Reflectance	Auxiliary Data - Spacecraft Data and LUTs	ProEdrViirsSurfReflect

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
	T •DownTrans_LUT •AtmReflect_LUT	•VIIRS-SR-IP-AC •VIIRS-SR-SolZenAngles-LUT •VIIRS-SR-ScatAngDims-LUT •VIIRS-SR-DownTrans-LUT •VIIRS-SR-AtmReflect-LUT	•NP_NU-LM0233-068 •NP_NU-LM0233-069 •NP_NU-LM0233-066 •NP_NU-LM0233-065				
3	•VIIRS_Gran_Ozone	•VIIRS-ANC-Tot-Col-Mod-Gran	•None	Grid Gran	Surface Reflectance	ProAncViirsGranulateOzone	ProEdrViirsSurfReflect
4	•VIIRS_Gran_SurfPres	•VIIRS-ANC-Press-Surf-Mod-Gran	•None	Grid Gran	Surface Reflectance	ProAncViirsGranulateSurfPres	ProEdrViirsSurfReflect
5	•VIIRS_Gran_PW	•VIIRS-ANC-Preci-Wtr-Mod-Gran	•None	Grid Gran	Surface Reflectance	ProAncViirsGranulatePrecipWater	ProEdrViirsSurfReflect
6	•CloudMask_EDR	•VIIRS-CM-EDR	•EDRE-CMIP-C0030	Cloud Mask	Surface Reflectance	ProEdrViirsCM	ProEdrViirsSurfReflect
7	•VIIRS-AOT-IP •VIIRS-AEROS-MDL-IP	•VIIRS-Aeros-Opt-Thick-IP •VIIRS- Aeros-Modl-Info-IP	•IMPI_VAOT_R0100 •IMPI_VAMI_R0100	Aerosol Properties	Surface Reflectance	ProEdrViirsAerosol	ProEdrViirsSurfReflect
8	•VIIRS_Gran_Optical_Depth	•VIIRS-ANC-Optical-Depth-Mod-Gran	•None	Grid Gran	Surface Reflectance	ProAncViirsGranulateOpticalDepth	ProEdrViirsSurfReflect
9	•SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Surface Type	ProEdrViirsSurfReflect	ProEdrViirsSurfType
10	SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Vegetation Index	ProEdrViirsSurfReflect	ProEdrViirsVI
11	SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Surface Albedo	ProEdrViirsSurfReflect	ProEdrViirsLandSurfAlbedo
12	SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Grid Gran	ProEdrViirsSurfReflect	ProGipViirsGranToGridDSR

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
13	SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Grid Gran	ProEdrViirsSurfReflect	ProGipViirsGranToGridMonthlySRBTVI
14	SurfReflect_IP	•VIIRS-Surf-Refl-IP	•IMPI_VISR_R0100	Surface Reflectance	Store/Retrieve	ProEdrViirsSurfReflect	Store Products to DMS

3.3.2 Outputs

SRS.01.15_278 The VIIRS Surface Reflectance IP software shall generate the VIIRS Surface Reflectance IP product in conformance with the XML format file in Attachment A.1 of the JPSS Algorithm Specification Vol II: Data Dictionary for Surface Reflectance (474-00448-02-15).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.15_279 The VIIRS Surface Reflectance IP software shall use the terrain-corrected geolocation for the VIIRS M-band.

Rationale: The product must be associated with the terrain-corrected geolocation to meet the geolocation accuracy requirement.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.4 Science Standards

Not applicable.

3.5 Metadata Output

Not applicable.

3.6 Quality Flag Content Requirements

SRS.01.15_280 The VIIRS Surface Reflectance IP software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.7 Data Quality Notification Requirements

Not applicable.

3.8 Adaptation

Not applicable.

3.9 Provenance Requirements

Not applicable.

3.10 Computer Software Requirements

Not applicable.

3.11 Software Quality Characteristics

Not applicable.

3.12 Design and Implementation Constraints

SRS.01.15_281 The JPSS Common Ground System shall execute the VIIRS Surface Reflectance IP algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.13 Personnel Related Requirements

Not applicable.

3.14 Training Requirements

Not applicable.

3.15 Logistics Related requirements

Not applicable.

3.16 Other Requirements

Not applicable.

3.17 Packaging Requirements

Not applicable.

3.18 Precedence and Criticality

Not applicable.

Appendix A. Requirements Attributes

The Requirements Attributes Table lists each requirement with CM-controlled attributes including requirement type, mission effectivity, requirement allocation(s), block start and end, method(s) for verifying each requirement, etc.

Req ID	Requirement Text	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM
SRS.01.15_267	The VIIRS Surface Reflectance IP algorithm shall calculate the surface reflectance with an uncertainty of 0.005 at a measured reflectance value of 0.01, and an uncertainty of 0.05 at a measured value of 1.0.	P	IP	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA
SRS.01.15_269	The VIIRS Surface Reflectance software shall use NCEP extended forecast data for fallback processing when the relevant NCEP current forecast input is not available.	G	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_272	The VIIRS Surface Reflectance software shall use NAAPS Total Optical Depth [750m Granulation] current forecast data for fallback processing when the VIIRS Aerosol Optical Thickness IP input is not available.	G	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_282	The VIIRS Surface Reflectance software shall use NAAPS Total Optical Depth [750m Granulation] extended forecast data for fallback processing when the VIIRS Aerosol Optical Thickness IP input and NAAPS Total Optical Depth current forecast data is not available.	G	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_273	The VIIRS Surface Reflectance IP software shall use GACP Aerosol climatology [750m Granulation] for fallback processing when the AOT IP	G	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA

Req ID	Requirement Text	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM
	and NAAPS Total Optical Depth current and extended forecast inputs are not available.								
SRS.01.15_274	The VIIRS Surface Reflectance IP software shall incorporate a computing algorithm provided for I-band surface reflectances for the reflective I-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><iBands>.	Ap	IP	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA
SRS.01.15_275	The VIIRS Surface Reflectance IP software shall incorporate a computing algorithm provided for M-band surface reflectances for the reflective M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><mBands>.	Ap	IP	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA
SRS.01.15_276	The VIIRS Surface Reflectance IP software shall set <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><fill>.	E	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_277	The VIIRS Surface Reflectance IP software shall incorporate inputs as specified in Table 3-1.	I	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_283	The VIIRS Surface Reflectance IP software shall ingest tables and coefficients formatted in accordance	Ft	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA

Req ID	Requirement Text	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM
	with Section 7 of the JPSS Algorithm Specification Vol II: Data Dictionary for Surface Reflectance (474-00448-02-15).								
SRS.01.15_278	The VIIRS Surface Reflectance IP software shall generate the VIIRS Surface Reflectance IP product in conformance with the XML format file in Attachment A.1 of the JPSS Algorithm Specification Vol II: Data Dictionary for Surface Reflectance (474-00448-02-15).	F	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_279	The VIIRS Surface Reflectance IP software shall use the terrain-corrected geolocation for the VIIRS M-band.	Fg	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_280	The VIIRS Surface Reflectance IP software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for the Surface Reflectance (474-00448-04-15) <SurfReflIP><QF>.	Q	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA
SRS.01.15_281	The JPSS Common Ground System shall execute the VIIRS Surface Reflectance IP algorithm.	Ai	IP	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA