

---

---

**GSFC JPSS CMO**  
**December 29, 2021**  
**Released**

474-00448-01-05, Revision K  
Joint Polar Satellite System (JPSS) Code 474

**Joint Polar Satellite System (JPSS)  
Algorithm Specification Volume I:  
Software Requirement Specification (SRS)  
for the OMPS Nadir Profile RDR/SDR**



NOAA / NASA

---

**Goddard Space Flight  
Center Greenbelt, Maryland**

---

---

---

# **Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirement Specification (SRS) for the OMPS Nadir Profile RDR/SDR**

## **Review/Signature/Approval Page**

### **Prepared By:**

JPSS Ground Segment Systems Engineering

### **Approved By:**

Kellyann F. Jeletic  
Ground Segment Project SEIT Lead

Heather Kilcoyne  
JPSS Ground Segment Project Manager

Electronic Approval available on-line at: [https://jpssmis.gsfc.nasa.gov/frontmenu\\_dsp.cfm](https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm)

## **Preface**

This document is under JPSS Ground Segment (GS) 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  
NASA/GSFC  
Code 474  
Greenbelt, MD 20771

## Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)
Rev-	August 22, 2013	This version incorporates 474-CCR-13-1124 which was approved by JPSS Ground ERB on the effective date shown.
A	Jan 9, 2014	This version incorporates 474-CCR-13-1350 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, 474-CCR-14-2110 and 474-CCR-14-2073 which was approved by JPSS Ground ERB on the effective date shown.
C	Mar 29, 2016	This version incorporates 474-CCR-15-2452, 474-CCR-15-2480, 474-CCR-15-2657, and 474-CCR-16-2818 which was approved by JPSS Ground ERB on the effective date shown.
0200D	Sep 22, 2016	This version incorporates 474-CCR-16-2939 and 474-CCR-16-3049 which was approved by JPSS Ground ERB on the effective date shown.
0200E	Jan 11, 2017	This version incorporates 474-CCR-16-3180 which was approved by JPSS Ground ERB on the effective date shown.
0200F	Feb 09, 2018	This version incorporates 474-CCR-18-3822 which was approved by JPSS Ground ERB on the effective date shown.
G	Dec 14, 2018	This version incorporates 474-CCR-18-4203. This version incorporates 0220A of 474-00448-01-05-B0220, dated 01/11/2017 to create this baseline. This was approved by the JPSS Ground ERB on the effective date shown.
H	Oct 24, 2019	This version incorporates 474-CCR-19-4584 which was approved by the JPSS Ground ERB on Oct 17, 2019 and by the JPSS Ground Segment CCB on the effective date shown.
I	Sep 14, 2020	This version incorporates 474-CCR-19-4697 which was approved by the JPSS Ground ERB on Nov 26, 2019 and by the JPSS Ground Segment CCB on Dec 5, 2019; 474-CCR-19-4719 which was approved by the JPSS Ground ERB on Mar 11, 2020 and by the JPSS Ground Segment CCB on Mar 26, 2020; 474-CCR-20-5117 which was approved by the JPSS Ground ERB on Aug 12, 2020 and by the JPSS Ground Segment CCB on Aug 27, 2020; 474-CCR-20-5127 which was approved by the JPSS Ground ERB on Jul 24, 2020 and by the JPSS Ground Segment CCB on Jul 30, 2020; 474-CCR-20-4960 which was approved by the JPSS Ground ERB on Apr 22, 2020 and by the JPSS Ground Segment CCB on the effective date shown.

---

---

J	Mar 09, 2021	This version incorporates 474-CCR-21-5418 which was approved by the JPSS Ground ERB on Mar 09, 2021 and by the JPSS Ground Segment CCB on the effective date shown.
K	Aug 26, 2021	This version incorporates 474-CCR-21-5445 which was approved by the JPSS Ground ERB on May 07, 2021 and by the JPSS Ground Segment CCB on the effective date shown.

---



---

## Table of Contents

1	INTRODUCTION .....	1
1.1	Identification .....	1
1.2	Algorithm Overview .....	1
1.3	Document Overview .....	1
2	RELATED DOCUMENTATION .....	3
2.1	Parent Documents .....	3
2.2	Applicable Documents.....	3
3	ALGORITHM REQUIREMENTS.....	4
3.1	States and Modes .....	4
3.1.1	Normal Mode Performance.....	4
3.1.2	Graceful Degradation Mode Performance .....	5
3.2	Algorithm Functional Requirements.....	5
3.2.1	Product Production Requirements .....	5
3.2.2	Algorithm Science Requirements .....	5
3.2.3	Algorithm Exception Handling.....	6
3.3	External Interfaces .....	6
3.3.1	Inputs.....	6
3.3.2	Outputs .....	12
3.4	Science Standards .....	14
3.5	Metadata Output.....	14
3.6	Quality Flag Content Requirements.....	14
3.7	Reserved.....	15
3.8	Adaptation.....	15
3.9	Provenance Requirements.....	15
3.10	Computer Software Requirements .....	15
3.11	Software Quality Characteristics .....	15
3.12	Design and Implementation Constraints.....	15
3.13	Personnel Related Requirements .....	15
3.14	Training Requirements.....	16
3.15	Logistics Related requirements.....	16
3.16	Other Requirements .....	16
3.17	Packaging Requirements.....	16
3.18	Precedence and Criticality .....	16
APPENDIX A.	REQUIREMENTS ATTRIBUTES .....	17

---

---

## List of Figures

Figure: 3-1 OMPS NP RDR/SDR Data Flows .....	8
--	---

## List of Tables

Table: 3-1 SV-6 Systems Resource Flow Matrix: OMPS NP RDR/SDR.....	9
--	---

## 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. For information regarding the JPSS Program, missions, instruments, and partners, see the JPSS website at <https://www.jpss.noaa.gov/>.

### 1.1 Identification

This SRS provides requirements for OMPS (Ozone Mapping and Profiler Suite) Nadir Profile (NP) Raw Data Records (RDRs) and Sensor Data Records (SDRs). OMPS measures stratospheric ozone through the measurement of backscattered ultraviolet (UV) light. OMPS Nadir (OMPS-N) system consists of two instruments, a Nadir Total Column Mapper (NM) and a Nadir Profiler (NP). The Nadir Profiler sensor has a focal plane UV grating spectrometer that provides measurements between 250 to 310 nm (252-306 for S-NPP) nm, with a spectral resolution of 1 nm.

### 1.2 Algorithm Overview

The Nadir Profile (NP) ozone SDR is generated from the RDR for the nadir profile focal plane of the OMPS instrument. The SDR processing produces an earth-scene SDR from the backscatter of solar radiation. The nadir profile earth scene SDR provides raw counts, count corrections, and calibrated earth and sun radiances for subsequent EDR processing into a measurement of ozone profile. The OMPS system will produce two JPSS EDRs, Ozone Total Column (TC) and Ozone Nadir Profile (NP).

The OMPS algorithms include the following:

1. The Nadir Total Column Ozone SDR algorithm
2. The Nadir Profile Ozone SDR algorithm
3. The Nadir Total Column Ozone Algorithm
4. The Nadir Profile Ozone Algorithm

### 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.



---

---

Section	Description
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](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 documents are the Parent Documents 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
474-01541	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD)
474-01543	Joint Polar Satellite System (JPSS) Ground –Segment Data 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 documents are the Applicable Documents 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
474-00448-02-05	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for OMPS Nadir Profile RDR/SDR
474-00448-04-05	Joint Polar Satellite System (JPSS) Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for OMPS Nadir Profile RDR/SDR
474-00448-04-08	JPSS Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for the Geolocation and Spacecraft Orientation

---

## 3 ALGORITHM REQUIREMENTS

### 3.1 States and Modes

#### 3.1.1 Normal Mode Performance

SRS.01.05\_321 The OMPS Nadir Profile algorithm shall calculate the earth view radiance holding the out-of-band stray light to less than 1%.

*Rationale:* The limiting value of the out-of-band stray light was flowed down from Level 1 and Level 2 documents.

*Mission Effectivity:* JPSS-1, JPSS-2

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_322 The OMPS Nadir Profile algorithm shall calculate the earth view radiance over the wavelength range of 252 to 306 nm.

*Rationale:* The wavelength range of the earth view radiance was flowed down from the Level 1 and Level 2 documents.

*Mission Effectivity:* S-NPP

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_323 The OMPS Nadir Profile algorithm shall calculate the earth view radiance with a horizontal cell size of 250 km at nadir.

*Rationale:* The horizontal cell size at nadir was flowed down from Level 1 and Level 2 documents.

*Mission Effectivity:* S-NPP

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_328 The OMPS Nadir Profile algorithm shall calculate the earth view radiance with an albedo calibration accuracy of 2%.

*Rationale:* The accuracy values of the earth view radiance with an albedo calibration were flowed down from the Level 1 and Level 2 documents.

*Mission Effectivity:* JPSS-1, JPSS-2

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_329 The OMPS Nadir Profile algorithm shall calculate the earth view radiance with pixel-to-pixel calibration accuracy of 1% maximum.

*Rationale:* The accuracy values of the earth view radiance with pixel-to-pixel calibration were flowed down from the Level 1 and Level 2 documents.

*Mission Effectivity:* JPSS-1, JPSS-2

*Block Start:* 2.0.0      *Block End:* 2.0.0

---

SRS.01.05\_469 The OMPS Nadir Profile algorithm shall calculate the earth view radiance over the wavelength range of 250 to 310 nm.

*Rationale:* The wavelength range of the earth view radiance was flowed down from the Level 1 and Level 2 documents.

*Mission Effectivity:* JPSS-1, JPSS-2

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_470 The OMPS Nadir Profile algorithm shall calculate the earth view radiance with a horizontal cell size of 50 km at nadir.

*Rationale:* The horizontal cell size at nadir was flowed down from Level 1 and Level 2 documents.

*Mission Effectivity:* JPSS-1, JPSS-2

*Block Start:* 2.0.0      *Block End:* 2.0.0

SRS.01.05\_471 The OMPS Nadir Profile SDR Geolocation algorithm computation shall have a one-sigma mapping uncertainty of no more than 25 km.

*Rationale:* From L1RD requirements for Ozone NP EDR.

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

*Block Start:* 2.0.0      *Block End:* 2.0.0

### 3.1.2 Graceful Degradation Mode Performance

Not applicable.

## 3.2 Algorithm Functional Requirements

Not applicable.

### 3.2.1 Product Production Requirements

Not applicable.

### 3.2.2 Algorithm Science Requirements

SRS.01.05\_324 The OMPS Nadir Profile SDR software shall incorporate a computing algorithm provided for earth-view radiances.

*Rationale:* The Nadir Profile earth-view radiance data is one of OMPS NP SDR products. The SDR software through its computing algorithm must produce the NP earth view radiance data in accordance with the JPSS Algorithm Specification for OMPS Nadir Profile Ozone ATBD (D0001-M01-S01-005).

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

*Block Start:* 2.0.0      *Block End:* 2.0.0

---

### 3.2.3 Algorithm Exception Handling

SRS.01.05\_80 The OMPS Nadir Profile SDR software shall set the <FillField> values to <FillValue> for <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_Science\_SDR><fill>.

*Rationale:* The SDR software through its computing algorithm must fill the OMPS NP SDR values based on the established fill conditions to satisfy exclusion and fill conditions.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

## 3.3 External Interfaces

### 3.3.1 Inputs

SRS.01.05\_74 The OMPS Nadir Profile SDR software shall incorporate inputs specified in Table 3-1.

*Rationale:* The SDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended OMPS NP Science SDR products.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_114 The OMPS Nadir Profile SDR GEO software shall incorporate inputs specified in Table 3-1.

*Rationale:* The SDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended OMPS NP SDR Geolocation products.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_472 The OMPS Nadir Profile SDR software shall ingest tables and coefficients formatted in accordance with Section 7 of the JPSS Algorithm Specification Vol II: Data Dictionary for OMPS NP RDR/SDR (474-00448-02-05).

*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

*Block Start:* 2.0.0      *Block End:* 3.0.0

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 for the data. Blanks indicate there is no mnemonic. The fourth and fifth 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 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. See Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for OMPS Nadir Profile RDR/SDR (474-00448-02-05) to find products allocated to IDPS.



**Table: 3-1 SV-6 Systems Resource Flow Matrix: OMPS NP RDR/SDR**

	<b>Data Product Name</b>	<b>Collection Short Name</b>	<b>Mnemonic</b>	<b>Sending Function</b>	<b>Receiving Function</b>	<b>Sending SRS</b>	<b>Receiving SRS</b>
1	<ul style="list-style-type: none"> <li>•OMPS Dwell RDR</li> <li>•OMPS Telemetry RDR</li> <li>•OMPS Nadir Profile Calibration RDR</li> <li>•OMPS Nadir Profile Diagnostic Calibration RDR</li> <li>•OMPS Flight Software Bootup Status RDR</li> <li>•OMPS Memory Dump RDR</li> <li>•OMPS NP Science RDR</li> <li>•OMPS Nadir Profile Diagnostic Earth View RDR</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-DWELL-RDR</li> <li>•OMPS-TELEMETRY-RDR</li> <li>•OMPS-NPCALIBRATION-RDR</li> <li>•OMPS-NPDIAGCAL-RDR</li> <li>•OMPS-FSWBU-RDR</li> <li>•OMPS-DUMP-RDR</li> <li>•OMPS-NPSCIENCE-RDR</li> <li>•OMPS-NPDIAGNOSTIC-RDR</li> </ul>	<ul style="list-style-type: none"> <li>•RDRE-OMPS-C0036</li> <li>•RDRE-OMPS-C0034</li> <li>•RDRE-OMPS-C0037</li> <li>•RDRE-OMPS-C0053</li> <li>•RDRE-OMPS-C0057</li> <li>•RDRE-OMPS-C0035</li> <li>•RDRE-OMPS-C0030</li> <li>•RDRE-OMPS-C0052</li> </ul>	Produce Spacecraft Telemetry	Passthrough OMPS NP RDRs	Input MSD	OMPS NP RDR/SDR
2	•SPACECRAFT-DIARY-RDR	•SPACECRAFT-DIARY-RDR	<ul style="list-style-type: none"> <li>•RDRE-SCAE-C0030</li> <li>•RDRE-SCAE-C0040</li> <li>•RDRE-SCAE-C0050</li> </ul>	Produce Spacecraft Telemetry	ProSdrOmpsNp Earth	Input MSD	OMPS NP RDR/SDR
3	•OMPS NP Science RDR	•OMPS-NPSCIENCE-RDR	•RDRE-OMPS-C0030	Produce Spacecraft Telemetry	ProSdrOmpsNp Earth	Input MSD	OMPS NP RDR/SDR
4	<ul style="list-style-type: none"> <li>•OMPS_TBL_VERS_GND_PI</li> <li>•OMPS_NP_MACROTABLE_GND_PI</li> <li>•OMPS_NP_OSOL_LUT</li> <li>•OMPS_NP_DARKS_GND_PI</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-TBL-VERS-GND-PI</li> <li>•OMPS-NP-MACROTABLE-GND-PI</li> <li>•OMPS-NP-OSOL-LUT</li> <li>•OMPS-NP-DARKS-GND-PI</li> </ul>	<ul style="list-style-type: none"> <li>•NP_NU-LM0240-130</li> <li>•NP_NU-LM0240-122</li> <li>•NP_NU-LM0240-110</li> <li>•NP_NU-LM0240-134</li> </ul>	Auxiliary Data - Spacecraft Data and LUTs	ProSdrOmpsNp Earth	Anc and Aux Data	OMPS NP RDR/SDR



	Data Product Name	Collection Short Name	Mnemonic	Sending Function	Receiving Function	Sending SRS	Receiving SRS
	<ul style="list-style-type: none"> <li>•OMPS_NP_EV_SAMPLE_GND_PI</li> <li>•OMPS_NP_SDR_C C_Int</li> <li>•OMPS_NP_BIAS_GND_PI</li> <li>•OMPS_NP_TIMING_PATTERN_GND_PI</li> <li>•OMPS_NP_WAVELENGTH_GND_PI</li> <li>•OMPS_NP_SAA_DARKS_GND_PI</li> <li>•OMPS_NP_FAM_LUT</li> <li>•OMPS_NP_CALC_ONST_LUT</li> <li>•OMPS_NP_CF_EARTH_GND_PI</li> <li>•OMPS_NP_STRAYLIGHT_LUT</li> <li>•OMPS_SURFTYPE_LUT</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-NP-EV-SAMPLE-GND-PI</li> <li>•OMPS-NP-SDR-CC</li> <li>•OMPS-NP-BIAS-GND-PI</li> <li>•OMPS-NP-TIMING-PATTERN-GND-PI</li> <li>•OMPS-NP-WAVELENGTH-GND-PI</li> <li>•OMPS-NP-SAA-DARKS-GND-PI</li> <li>•OMPS-NP-FAM-LUT</li> <li>•OMPS-NP-CALCONST-LUT</li> <li>•OMPS-NP-CF-EARTH-GND-PI</li> <li>•OMPS-NP-STRAYLIGHT-LUT</li> <li>•OMPS-SURFTYPE-LUT</li> </ul>	<ul style="list-style-type: none"> <li>•NP_NU-LM0240-121</li> <li>•DP_NU-LM2020-004</li> <li>•NP_NU-LM0240-136</li> <li>•NP_NU-LM0240-119</li> <li>•NP_NU-LM0240-125</li> <li>•NP_NU-LM0240-135</li> <li>•NP_NU-LM0240-109</li> <li>•NP_NU-LM0240-108</li> <li>•NP_NU-LM0240-127</li> <li>•NP_NU-LM0240-137</li> </ul>				
6	•Common Geo Outputs	•None	•None	ProSdrCmnGeo	ProSdrOmpsNpEarth	Geolocation and S/C	OMPS NP RDR/SDR
10	•OMPS_NP_SDR	•OMPS-NP-SDR	•SDRE-OMPS-C0030	ProSdrOmpsNpEarth	Store Products to DMS	OMPS NP RDR/SDR	Store/Retrieve
11	<ul style="list-style-type: none"> <li>•OMPS Dwell RDR</li> <li>•OMPS Telemetry RDR</li> <li>•OMPS Nadir Profile Calibration RDR</li> <li>•OMPS Nadir Profile Diagnostic Calibration RDR</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-DWELL-RDR</li> <li>•OMPS-TELEMETRY-RDR</li> <li>•OMPS-NPCALIBRATION-RDR</li> <li>•OMPS-NPDIAGCAL-RDR</li> </ul>	<ul style="list-style-type: none"> <li>•RDRE-OMPS-C0036</li> <li>•RDRE-OMPS-C0034</li> <li>•RDRE-OMPS-C0037</li> <li>•RDRE-OMPS-C0053</li> <li>•RDRE-OMPS-C0057</li> </ul>	Passthrough OMPS NP RDRs	Store Products to DMS	OMPS NP RDR/SDR	Store/Retrieve

	<b>Data Product Name</b>	<b>Collection Short Name</b>	<b>Mnemonic</b>	<b>Sending Function</b>	<b>Receiving Function</b>	<b>Sending SRS</b>	<b>Receiving SRS</b>
	<ul style="list-style-type: none"> <li>•OMPS Flight Software Bootup Status RDR</li> <li>•OMPS Memory Dump RDR</li> <li>•OMPS NP Science RDR</li> <li>•OMPS Nadir Profile Diagnostic Earth View RDR</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-FSWBU-RDR</li> <li>•OMPS-DUMP-RDR</li> <li>•OMPS-NPSCIENCE-RDR</li> <li>•OMPS-NPDIAGNOSTIC-RDR</li> </ul>	<ul style="list-style-type: none"> <li>•RDRE-OMPS-C0035</li> <li>•RDRE-OMPS-C0030</li> <li>•RDRE-OMPS-C0052</li> </ul>				
12	•OMPS_NP_GEO	•OMPS-NP-GEO	•None	ProSdrOmpsNp Earth	Store Products to DMS	OMPS NP RDR/SDR	Store/Retrieve
14	<ul style="list-style-type: none"> <li>•OMPS_NP_RGEO</li> <li>•OMPS_NP_GLINT LESS_SDR</li> </ul>	<ul style="list-style-type: none"> <li>•OMPS-NP-RGEO</li> <li>•OMPS-NP-Glintless-SDR</li> </ul>	<ul style="list-style-type: none"> <li>•None</li> <li>•None</li> </ul>	ProSdrOmpsNp Earth	Store Products to DMS	OMPS NP RDR/SDR	Store/Retrieve

---

### 3.3.2 Outputs

SRS.01.05\_59 The OMPS RDR software shall generate the OMPS Nadir Profile Diagnostic Calibration RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_RDR><DiagCal>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_60 The OMPS RDR software shall generate the OMPS Nadir Profile Diagnostic Earth View RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_RDR><DiagEarthView>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_61 The OMPS RDR software shall generate the OMPS Nadir Profile Science RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_RDR><Science>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_62 The OMPS RDR software shall generate the OMPS Nadir Profile Calibration RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_RDR><Cal>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS

---

Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_63 The OMPS RDR software shall generate the OMPS Diagnostic Flight Software Bootup Status RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <General\_RDR><FSWBUSat>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_64 The OMPS RDR software shall generate the OMPS Memory Dump RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <General\_RDR><MemDump>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_65 The OMPS RDR software shall generate the OMPS Telemetry RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <General\_RDR><Telemetry>.

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_66 The OMPS RDR software shall generate the OMPS Dwell Telemetry RDR from mission data packet APIDs specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <General\_RDR><DwellTelem>.

---

*Rationale:* The RDR is one of OMPS NP RDR products and is generated from the specified mission data packet APIDs. APIDs associated with the Spacecraft Diary, as defined in the JPSS Algorithm Specification Vol IV: SRS Parameter File for Geolocation and Spacecraft Orientation (474-00448-04-08), are included in the deliverable RDR.

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_72 The OMPS Nadir Profile SDR software shall generate the OMPS NP Science SDR, conforming to the XML format file in Attachment A.1 of the JPSS Algorithm Specification Vol II: Data Dictionary for OMPS NP RDR/SDR (474-00448-02-05).

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_113 The OMPS Nadir Profile SDR software shall generate the OMPS Nadir Profile Science SDR geolocation in conformance with the XML format file in Attachment A.4 of the JPSS Algorithm Specification Vol II: Data Dictionary for OMPS NP RDR/SDR (474-00448-02-05).

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

### **3.4 Science Standards**

Not applicable.

### **3.5 Metadata Output**

Not applicable.

### **3.6 Quality Flag Content Requirements**

SRS.01.05\_89 The OMPS Nadir Profile SDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for OMPS NP RDR/SDR (474-00448-04-05) <NP\_Science\_SDR><QF>.

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

---

SRS.01.05\_326 The OMPS Nadir Profile SDR GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the SRSPF <NP\_Sci\_GEO><QF>.

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

### **3.7    Reserved**

### **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.01.05\_335 The JPSS Common Ground System shall execute the OMPS NP earth-view radiance computing algorithm.

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

SRS.01.05\_337 The JPSS Common Ground System shall execute the OMPS NP geolocation algorithm.

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

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

*Block Start:* 2.0.0      *Block End:* 3.0.0

### **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 can be found in the VCRMs at Ground > Mission System Engineering > Ground SEIT Unrestricted > VCRM

<https://jpss.gsfc.nasa.gov/sites/ground/MSE/9/Forms/AllItems.aspx?RootFolder=%2Fsites%2Fground%2FMSE%2F9%2FVCRM&FolderCTID=0x012000D0555EA1A211E64A9A7DE7CBCE72DE8B&View=%7B4267AEFE%2D7E8B%2D402D%2D919D%2D41BED55BA4E7%7D>