

GSFC JPSS CMO
November 27, 2023
Released

474-00448-02-26, Revision J
Joint Polar Satellite System (JPSS) Code 474

Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the VIIRS Imagery



NOAA / NASA

**Goddard Space Flight
Center Greenbelt, Maryland**

Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the VIIRS Imagery

Review/Signature/Approval Page

Prepared By:

LEO Ground Services Systems Engineering

Approved By:

Kellyann F. Jeletic
LEO Ground Services Project SEIT Lead

Nicolaie Todirita
LEO Ground Services Project Manager

Electronic Approval available on-line at: https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm

Preface

This document is under JPSS Ground 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)	Sections Affected
0200-	Aug. 29, 2013	This version incorporates 474-CCR-13-1178 which was approved by JPSS Ground ERB on the effective date shown.	All
0200A	Jan. 23, 2014	This version incorporates 474-CCR-13-1457 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	Nov 20, 2014	This version incorporates 474-CCR-14-2120 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200C	Jul 28, 2015	This version incorporates 474-CCR-15-2288 and 474-CCR-15-2506 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200D	Feb 12, 2016	This version incorporates 474-CCR-15-2657, and 474-CCR-16-2776 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200E	Jun 07, 2016	This version incorporates 474-CCR-16-2939 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200F	Aug 03, 2017	This version incorporates 474-CCR-17-3459 which was approved by the JPSS Ground ERB on the effective date shown.	All
0200G	May 01, 2018	This version incorporates 474-CCR-17-3684 which was approved by the JPSS Ground ERB on the effective date shown.	All
H	Jul 30, 2020	This version incorporates 474-CCR-19-4631 which was approved by the JPSS Ground ERB on Jul 21, 2020 and by the JPSS Ground Segment CCB on the effective date shown.	All
I	Sept 30, 2021	This version incorporates 474-CCR-21-5516 which was approved by the JPSS Ground ERB on Jun 09, 2021 and by the JPSS Ground Segment CCB on Jun 25, 2021; 474-CCR-21-5445 which was approved by the JPSS Ground ERB on May 07, 2021 and by the JPSS Ground Segment CCB on Aug 26, 2021; 474-CCR-21-5656 which was approved by the	

		JPSS Ground ERB on Sep 30, 2021 and by the JPSS Ground Segment CCB on the effective date shown.	
J	Aug 30, 2023	This version incorporates 474-CCR-23-6541 which was approved by the JPSS Ground ERB on Aug 21, 2023 and by the JPSS Ground Segment CCB on the effective date shown.	

Table of Contents

1	INTRODUCTION	1
1.1	Scope.....	1
1.2	Organization.....	1
2	RELATED DOCUMENTATION	2
2.1	Parent Documents	2
2.2	Applicable Documents.....	2
3	UML FOR HDF5 PRODUCTS	3
3.1	Intermediate Products and Environmental Data Records HDF5 Details - Statically Sized.....	3
3.2	Intermediate Products, Application Related Products and Environmental Data Records HDF5 Details - Dynamically Sized	5
4	INTERMEDIATE PRODUCTS (IPS)	7
5	VIIRS ENVIRONMENTAL DATA RECORDS (EDRS).....	8
5.1	VIIRS I-Band Imagery.....	10
5.1.1	VIIRS I1-Band Imagery EDR.....	10
5.1.1.1	VIIRS I1-Band Imagery EDR Data Content Summary	10
5.1.1.2	VIIRS I1-Band Imagery EDR Product Profile	12
5.1.1.3	VIIRS I1 Imagery EDR HDF5 Details	15
5.1.2	VIIRS I2 Imagery EDR	16
5.1.2.1	VIIRS I2 Imagery EDR Data Content Summary.....	16
5.1.2.2	VIIRS I2 Imagery EDR Product Profile	16
5.1.3	VIIRS I3 Imagery EDR	20
5.1.3.1	VIIRS I3 Imagery EDR Data Content Summary.....	20
5.1.3.2	VIIRS I3 Imagery EDR Product Profile	20
5.1.4	VIIRS I4 Imagery EDR	24
5.1.4.1	VIIRS I4 Imagery EDR Data Content Summary.....	24
5.1.4.2	VIIRS I4 Imagery EDR Product Profile	24
5.1.4.3	VIIRS I4 Imagery EDR HDF5 Details	27
5.1.5	VIIRS I5 Imagery EDR	28
5.1.5.1	VIIRS I5 Imagery EDR Data Content Summary.....	28
5.1.5.2	VIIRS I5 Imagery EDR Product Profile	28
5.1.5.3	VIIRS I5 Imagery EDR HDF5 Details	31
5.1.6	VIIRS I-Band Imagery GTM Geolocation	32
5.1.6.1	VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary	33

5.1.6.2	VIIRS I-Band Imagery GTM Geolocation Product Profile EDR Product Profile	34
5.1.6.3	VIIRS I-Band Imagery EDR GTM Geolocation HDF5 Details	39
5.2	VIIRS M-Band Imagery	39
5.2.1	VIIRS M1-Band Imagery EDR	41
5.2.1.1	VIIRS M1-Band Imagery EDR Data Content Summary	41
5.2.1.2	VIIRS M1-Band Imagery Product Profile	41
5.2.1.3	VIIRS M1 Band Imagery EDR HDF5 Details	43
5.2.2	VIIRS M2 Imagery EDR	44
5.2.2.1	VIIRS M2 Imagery EDR Data Content Summary	44
5.2.2.2	VIIRS M2 Imagery EDR Product Profile	44
5.2.2.3	VIIRS M2 Imagery EDR HDF5 Details	46
5.2.3	VIIRS M3 Imagery EDR	47
5.2.3.1	VIIRS M3 Imagery EDR Data Content Summary	47
5.2.3.2	VIIRS M3 Imagery EDR Product Profile	47
5.2.3.3	VIIRS M3 Imagery EDR HDF5 Details	49
5.2.4	VIIRS M4 Imagery EDR	50
5.2.4.1	VIIRS M4 Imagery EDR Data Content Summary	50
5.2.4.2	VIIRS M4 Imagery EDR Product Profile	50
5.2.4.3	VIIRS M4 Imagery EDR HDF5 Details	52
5.2.5	VIIRS M5 Imagery EDR	53
5.2.5.1	VIIRS M5 Imagery EDR Data Content Summary	53
5.2.5.2	VIIRS M5 Imagery EDR Product Profile	53
5.2.5.3	VIIRS M5 Imagery EDR HDF5 Details	55
5.2.6	VIIRS M6 Imagery EDR	56
5.2.6.1	VIIRS M6 Imagery EDR Data Content Summary	56
5.2.6.2	VIIRS M6 Imagery EDR Product Profile	56
5.2.6.3	VIIRS M6 Imagery EDR HDF5 Details	58
5.2.7	VIIRS M7 Imagery EDR	59
5.2.7.1	VIIRS M7 Imagery EDR Data Content Summary	59
5.2.7.2	VIIRS M7 Imagery EDR Product Profile	59
5.2.7.3	VIIRS M7 Imagery EDR HDF5 Details	61
5.2.8	VIIRS M8 Imagery EDR	62
5.2.8.1	VIIRS M8 Imagery EDR Data Content Summary	62
5.2.8.2	VIIRS M8 Imagery EDR Product Profile	62
5.2.8.3	VIIRS M8 Imagery EDR HDF5 Details	64
5.2.9	VIIRS M9 Imagery EDR	65

5.2.9.1	VIIRS M9 Imagery EDR Data Content Summary	65
5.2.9.2	VIIRS M9 Imagery EDR Product Profile.....	65
5.2.9.3	VIIRS M9 Imagery EDR HDF5 Details.....	67
5.2.10	VIIRS M10 Imagery EDR	68
5.2.10.1	VIIRS M10 Imagery EDR Data Content Summary	68
5.2.10.2	VIIRS M10 Imagery EDR Product Profile.....	68
5.2.10.3	VIIRS M10 Imagery EDR HDF5 Details.....	70
5.2.11	VIIRS M11 Imagery EDR	71
5.2.11.1	VIIRS M11 Imagery EDR Data Content Summary	71
5.2.11.2	VIIRS M11 Imagery EDR Product Profile.....	71
5.2.11.3	VIIRS M11 Imagery EDR HDF5 Details.....	73
5.2.12	VIIRS M12 Imagery EDR	74
5.2.12.1	VIIRS M12 Imagery EDR Data Content Summary	74
5.2.12.2	VIIRS M12 Imagery EDR Product Profile.....	74
5.2.12.3	VIIRS M12 Imagery EDR HDF5 Details.....	76
5.2.13	VIIRS M13 Imagery EDR	77
5.2.13.1	VIIRS M13 Imagery EDR Data Content Summary	77
5.2.13.2	VIIRS M13 Imagery EDR Product Profile.....	77
5.2.13.3	VIIRS M13 Imagery EDR HDF5 Details.....	79
5.2.14	VIIRS M14 Imagery EDR	80
5.2.14.1	VIIRS M14 Imagery EDR Data Content Summary	80
5.2.14.2	VIIRS M14 Imagery EDR Product Profile.....	80
5.2.14.3	VIIRS M14 Imagery EDR HDF5 Details.....	82
5.2.15	VIIRS M15 Imagery EDR	83
5.2.15.1	VIIRS M15 Imagery EDR Data Content Summary	83
5.2.15.2	VIIRS M15 Imagery EDR Product Profile.....	83
5.2.15.3	VIIRS M15 Imagery EDR HDF5 Details.....	85
5.2.16	VIIRS M16 Imagery EDR	86
5.2.16.1	VIIRS M16 Imagery EDR Data Content Summary	86
5.2.16.2	VIIRS M16 Imagery EDR Product Profile.....	86
5.2.16.3	VIIRS M16 Imagery EDR HDF5 Details.....	88
5.2.16.4	VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary	90
5.2.16.5	VIIRS M-Band Imagery EDR GTM Geolocation Product Profile..	91
5.2.16.6	VIIRS M-Band Imagery EDR GTM Geolocation HDF5 Details....	96
5.3	VIIRS Near Constant Contrast (NCC) Imagery	96
5.3.1	VIIRS NCC Imagery EDR.....	98

5.3.1.1	VIIRS NCC Imagery Data Content Summary	98
5.3.1.2	VIIRS NCC Imagery EDR Product Profile	98
5.3.1.3	VIIRS NCC Imagery EDR HDF5 Details	100
5.3.2	VIIRS NCC Imagery GTM Geolocation	100
5.3.2.1	VIIRS NCC Imagery EDR GTM Geolocation Data Content Summary	102
5.3.2.2	VIIRS NCC Imagery EDR GTM Geolocation Product Profiles ...	103
5.3.2.3	VIIRS NCC Imagery EDR GTM Geolocation HDF5 Details	109
6	ANCILLARY AND AUXILIARY DATA INPUTS	110
7	LOOK-UP TABLES AND PROCESSING COEFFICIENT TABLES	111
7.1	Look Up Tables	111
7.1.1	VIIRS Imagery LUTs	111
7.1.1.1	VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT	111
7.1.1.2	VIIRS NCC Gain Value Versus Scene Solar Elevation LUT	114
7.1.1.3	VIIRS NCC Lunar BRDF LUT	116
7.1.1.4	VIIRS NCC Lunar Phase LUT	118
7.1.1.5	VIIRS NCC Solar BRDF LUT	120
7.2	Processing Coefficient Tables	122
7.2.1	Automated Processing Coefficients	122
7.2.1.1	VIIRS Imagery Automated PCs	122
7.2.2	Manual Processing Coefficients	122
7.2.2.1	VIIRS Imagery Initialization PCs	122
7.2.2.2	VIIRS NCC Imagery Ephemeral PCTs	122
APPENDIX A.	DATA MNEMONIC TO INTERFACE MAPPING	125
APPENDIX B.	DQTT QUALITY FLAG MAPPING	126
APPENDIX C.	ABBREVIATIONS AND ACRONYMS	127
ATTACHMENT A.	XML FORMATS FOR RELATED DATA PRODUCTS	128

List of Figures

Figure: 3.1-1	Generalized UML Diagram for statically sized HDF5 IP/EDR Files	4
Figure: 3.2-1	Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files	6
Figure: 5.1.1.3-1	VIIRS I1 Imagery EDR UML Diagram	15
Figure: 5.1.2.2-1	VIIRS I2 Imagery EDR UML Diagram	19
Figure: 5.1.3.2-1	VIIRS I3 Imagery EDR UML Diagram	23
Figure: 5.1.4.3-1	VIIRS I4 Imagery EDR UML Diagram	27
Figure: 5.1.5.3-1	VIIRS I5 Imagery EDR UML Diagram	31
Figure: 5.1.6.3-1	VIIRS I-Band Imagery GTM EDR Geolocation UML Diagram	39

Figure: 5.2.1.3-1	VIIRS M1 Imagery EDR UML Diagram	43
Figure: 5.2.2.3-1	VIIRS M2 Imagery EDR UML Diagram	46
Figure: 5.2.3.3-1	VIIRS M3 Imagery EDR UML Diagram	49
Figure: 5.2.4.3-1	VIIRS M4 Imagery EDR UML Diagram	52
Figure: 5.2.5.3-1	VIIRS M5 Imagery EDR UML Diagram	55
Figure: 5.2.6.3-1	VIIRS M6 Imagery EDR UML Diagram	58
Figure: 5.2.7.3-1	VIIRS M7 Imagery EDR UML Diagram	61
Figure: 5.2.8.3-1	VIIRS M8 Imagery EDR UML Diagram	64
Figure: 5.1.6.3.1-1	VIIRS M9 Imagery EDR UML Diagram	67
Figure: 5.2.10.3-1	VIIRS M10 Imagery EDR UML Diagram	70
Figure: 5.2.11.3-1	VIIRS M11 Imagery EDR UML Diagram	73
Figure: 5.2.12.3-1	VIIRS M12 Imagery EDR UML Diagram	76
Figure: 5.2.13.3-1	VIIRS M13 Imagery EDR UML Diagram	79
Figure: 5.2.14.3-1	VIIRS M14 Imagery EDR UML Diagram	82
Figure: 5.2.15.3-1	VIIRS M15 Imagery EDR UML Diagram	85
Figure: 5.2.16.3-1	VIIRS M16 Imagery EDR UML Diagram	88
Figure: 5.2.16.6-1	VIIRS M-Band Imagery EDR GTM Geolocation UML Diagram	96
Figure: 5.3.1.3-1	VIIRS NCC Imagery UML Diagram	100
Figure: 5.3.2.3-1	VIIRS NCC Imagery GTM Geolocation UML Diagram	109

List of Tables

Table: 5-1	VIIRS Imagery EDRs	9
Table: 5.1.1.1-1	VIIRS I1 Imagery EDR Data Content Summary	12
Table: 5.1.1-2	VIIRS I1 Imagery EDR Product Profile	12
Table: 5.1.2.2.1-1	VIIRS I1 Imagery EDR Quality Summary Metadata Values	15
Table: 5.1.2.1-1	VIIRS I2 Imagery EDR Data Content Summary	16
Table: 5.1.2.2-1	VIIRS I2 Imagery EDR Product Profile	16
Table: 5.1.2.2.1-1	VIIRS I2 Imagery EDR Quality Summary Metadata Values	19
Table: 5.1.3.1-1	VIIRS I3 Imagery EDR Data Content Summary	20
Table: 5.1.3.2-1	VIIRS I3 Imagery EDR Product Profile	21
Table: 5.1.3.2.1-1	VIIRS I3 Imagery EDR Quality Summary Metadata Values	23
Table: 5.1.4.1-1	VIIRS I4 Imagery EDR Data Content Summary	24
Table: 5.1.4.2-1	VIIRS I4 Imagery EDR Product Profile	25
Table: 5.1.4.3.1-1	VIIRS I4 Imagery EDR Quality Summary Metadata Values	27
Table: 5.1.5.1-1	VIIRS I5 Imagery EDR Data Content Summary	28
Table: 5.1.5.2-1	VIIRS I5 Imagery EDR Product Profile	29
Table: 5.1.5.3.1-1	VIIRS I5 Imagery Quality Summary Metadata Values	31
Table: 5.1.6.1-1	VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary	33
Table: 5.1.6.2-1	VIIRS I-Band Imagery GTM Geolocation Product Profile	34
Table: 5.2.1.1-1	VIIRS M1-Band Imagery EDR Data Content Summary	41
Table: 5.2.1.2-1	VIIRS M1-Band Imagery EDR Product Profile	41
Table: 5.2.2.1-1	VIIRS M2 Imagery EDR Data Content Summary	44
Table: 5.2.2.2-1	VIIRS M2 Imagery EDR Product Profile	44

Table: 5.2.3.1-1	VIIRS M3 Imagery EDR Data Content Summary	47
Table: 5.2.3.2-1	VIIRS M3 Imagery EDR Product Profile	47
Table: 5.2.4.1-1	VIIRS M4 Imagery EDR Data Content Summary	50
Table: 5.2.4.2-1	VIIRS M4 Imagery EDR Product Profile	50
Table: 5.2.5.1-1	VIIRS M5 Imagery EDR Data Content Summary	53
Table: 5.2.5.2-1	VIIRS M5 Imagery EDR Product Profile	53
Table: 5.2.6.1-1	VIIRS M6 Imagery EDR Data Content Summary	56
Table: 5.2.6.2-1	VIIRS M6 Imagery EDR Product Profile	56
Table: 5.2.7.1-1	VIIRS M7 Imagery EDR Data Content Summary	59
Table: 5.2.7.2-1	VIIRS M7 Imagery EDR Product Profile	59
Table: 5.2.8.1-1	VIIRS M8 Imagery EDR Data Content Summary	62
Table: 5.2.8.2-1	VIIRS M8 Imagery EDR Product Profile	62
Table: 5.2.9.1-1	VIIRS M9 Imagery EDR Data Content Summary	65
Table: 5.2.9.2-1	VIIRS M9 Imagery EDR Product Profile	65
Table: 5.2.10.1-1	VIIRS M10 Imagery EDR Data Content Summary	68
Table: 5.2.10.2-1	VIIRS M10 Imagery EDR Product Profile	68
Table: 5.2.11.1-1	VIIRS M11 Imagery EDR Data Content Summary	71
Table: 5.2.11.2-1	VIIRS M11 Imagery EDR Product Profile	71
Table: 5.2.12.1-1	VIIRS M12 Imagery EDR Data Content Summary	74
Table: 5.2.12.2-1	VIIRS M12 Imagery EDR Product Profile	74
Table: 5.2.13.1-1	VIIRS M13 Imagery EDR Data Content Summary	77
Table: 5.2.13.2-1	VIIRS M13 Imagery EDR Product Profile	77
Table: 5.2.14.1-1	VIIRS M14 Imagery EDR Data Content Summary	80
Table: 5.2.14.2-1	VIIRS M14 Imagery EDR Product Profile	80
Table: 5.2.15.1-1	VIIRS M15 Imagery EDR Data Content Summary	83
Table: 5.2.15.2-1	VIIRS M15 Imagery EDR Product Profile	83
Table: 5.2.16.1-1	VIIRS M16 Imagery EDR Data Content Summary	86
Table: 5.2.16.2-1	VIIRS M16 Imagery EDR Product Profile	86
Table: 5.2.16-2	VIIRS M-Band Imagery EDR GTM Geolocation Details	88
Table: 5.2.16.4-1	VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary..	90
Table: 5.2.16.5-1	VIIRS M-Band Imagery EDR GTM Geolocation Product Profile	91
Table: 5.3.1.1-1	VIIRS NCC Imagery Data Content Summary	98
Table: 5.3.1.2-1	VIIRS NCC Imagery EDR Product Profile	98
Table: 5.3.2-1	VIIRS NCC Imagery EDR GTM Geolocation Data Content Summary	102
Table: 5.3.2.2-1	VIIRS NCC Imagery EDR GTM Geolocation Product Profile	103
Table: 7.1.1.1-1	VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT Data Format	113
Table: 7.1.1.2-1	VIIRS NCC Gain Value Versus Scene Solar elevation LUT Data Format ..	115
Table: 7.1.1.3-1	VIIRS NCC Lunar BRDF PC Data Format	117
Table: 7.1.1.4-1	VIIRS NCC Lunar Phase LUT Data Format	119
Table: 7.1.1.5-1	VIIRS NCC Solar BRDF LUT Data Format	121
Table: 7.2-1	VIIRS NCC Imagery EDR Ephemeral PCT	124
Table: B-1	DQTT Quality Flag Mapping	126
Table: ATT-1	XML Formats for Related Products	128

1 INTRODUCTION

1.1 Scope

The Joint Polar Satellite System (JPSS) Algorithm Specification for VIIRS Imagery - Volume II: Data Dictionary contains the specifications for the format of the VIIRS Imagery Intermediate Products (IPs) and Environmental Data Records (EDRs). 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 Vol 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 Intermediate Product associated with this algorithm grouping.
Section 5	Provides a description of the contents of each JPSS EDR associated with this algorithm grouping.
Section 6	Provides a description of the Ancillary and Auxiliary Data Inputs if applicable.
Section 7	Provides a description of relevant Look-Up Tables (LUTs) and Processing Coefficient Tables (PCTs) associated with this algorithm grouping.
Appendix A	Provides the Data Mnemonic to Interface Mapping for the data products in this volume.
Appendix B	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 C	Reference 470-00041, JPSS Program Lexicon.
Attachment A	Provides the list of applicable xml files for this Data Dictionary.

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
474-00448-01-26	JPSS Algorithm Specification Volume I: Software Requirements Specification (SRS) for the VIIRS Imagery

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
None	

3 UML FOR HDF5 PRODUCTS

The following paragraphs describe the structure and contents of the IP and EDR granules formed by the JPSS ground processing software.

3.1 Intermediate Products and Environmental Data Records HDF5 Details - Statically Sized

Figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, depicts the HDF5 IP/EDR organization as a Unified Modeling Language (UML) class diagram. Each HDF5 IP/EDR 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_Agg) and Granule Datasets (Collection Short Name_Gran_n) - where n indicates the nth granule in a temporal aggregation of granules (1 .. n). A granule is a general term used to describe the minimum quanta of data collected per processing period, generally on the order of seconds. For the definition and organization of the metadata attributes contained in the HDF5 files, see the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms. Attributes that are specific to a particular IP/EDR are listed with the specific IP/EDR's data format definition. For the generalized formats and packaging options for the Geolocation data, see the JPSS CDFCB-X Vol. I - Overview.



3.2 Intermediate Products, Application Related Products and Environmental Data Records HDF5 Details - Dynamically Sized

Figure 3.2-1, Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files, depicts the HDF5 IP/EDR organization as a Unified Modeling Language (UML) class diagram for products that contain dynamically sized fields. Dynamically sized means that a field's length will vary from granule to granule. The organization of the HDF5 file is identical to the statically sized HDF5 file with the exception of the aggregation and corresponding All_Data group. For statically sized products, the object ID stored in the aggregation array points to a Dataset_Array under the All_Data group. This Dataset_Array is a single HDF5 dataset for each field. This single HDF5 dataset contains all the data for all granules in the file for a given field. However, for dynamically sized products, the object ID stored in the aggregation array points to an HDF5 group instead. This HDF5 group contains one or more datasets - a separate dataset for each granule for a given field. The dataset is named "Dataset_Array_Gran_n".

4 INTERMEDIATE PRODUCTS (IPS)

Not Applicable

5 VIIRS ENVIRONMENTAL DATA RECORDS (EDRS)

Environmental Data Records (EDRs) are data records that contain the environmental parameters or imagery generated by the JPSS system as products deliverable to the user. The JPSS and S-NPP required set of EDRs are defined in 474-01541, Joint Polar Satellite System (JPSS) Ground Segment Requirements Document (GSRD). An EDR is either an official EDR, which means that it is part of the set of official JPSS Data Products, or it is a substitute EDR. A substitute EDR is produced by substitute ancillary data, data defined by the IDP operator in order to create a data product using different input (specifically, different ancillary data) than that which is prescribed by JPSS. EDRs provide stable measurements useful for long-term trends. An EDR contains the following:

- EDR specific data (as described in each section)
- Appropriate geolocation values
- Quality Flags
- Metadata represented as Attributes in the HDF5 file that are provided at the granule and aggregation level
- The EDRs are separated by category and are presented alphabetically within each category. All S-NPP EDRs are also delivered during JPSS, thus only those EDRs which are JPSS-only are annotated as such within their respective Description/Purpose section of their interface definition.

Imagery products contain two primary data fields:

- A two-dimensional array of locally averaged absolute in-band radiances at the Top of the Atmosphere (TOA) measured in the direction of the viewing sensor
- The corresponding array of Brightness Temperatures (also referred to as Equivalent Black Body Temperatures - EBBTs) if the band is primarily emissive or the corresponding array TOA reflectance if the band is primarily reflective during the daytime

Notes:

All Imagery EDRs are produced in a Ground Track Mercator (GTM) projection.

There are multiple EDRs produced for Imagery products, depending on sensor data availability:

- VIIRS Imagery EDRs
 - I-Band Imagery EDRs
 - I1-Band Imagery EDR
 - I2-Band Imagery EDR
 - I3-Band Imagery EDR
 - I4-Band Imagery EDR
 - I5-Band Imagery EDR

o M-Band Imagery EDRs

- M1-Band Imagery EDR
- M2-Band Imagery EDR
- M3-Band Imagery EDR
- M4-Band Imagery EDR
- M5-Band Imagery EDR
- M6-Band Imagery EDR
- M7-Band Imagery EDR
- M8-Band Imagery EDR
- M9-Band Imagery EDR
- M10-Band Imagery EDR
- M11-Band Imagery EDR
- M12-Band Imagery EDR
- M13-Band Imagery EDR
- M14-Band Imagery EDR
- M15-Band Imagery EDR
- M16-Band Imagery EDR

o Near Constant Contrast Imagery EDR

Table: 5-1 VIIRS Imagery EDRs

Sensors	VIIRS
Effectivity	S-NPP and JPSS
EDR Contents	For each pixel, the I-Band Imagery EDRs (I1 - I5) contain: • Calibrated TOA radiances and reflectances (Reflective Bands: I1-I3) • Calibrated TOA reflectance's and EBBTs (Emissive Bands: I4-I5) • Quality flags For each pixel, the M-Band Imagery EDRs, (M1-M16) contain: • Calibrated TOA radiances and reflectance's (Reflective Bands: M1-M11) • Calibrated TOA radiances and EBBTs (Emissive Bands: M12-M16) For each pixel, the NCC Imagery EDR contains: • NCC Imagery Data - Albedo (Normalized TOA Reflectance ... no atmospheric correction applied) • Quality flags

5.1 VIIRS I-Band Imagery

Data Mnemonic	EDRE-IMAG-C0030 (Official)
Description/ Purpose	The VIIRS I-Band Imagery radiances, reflectances, and brightness temperatures are characterized by a 375m Horizontal Reporting Interval (HRI). These products are mapped from the 375m VIIRS SDR Imagery Resolution Geolocation to a GTM projection. The “PixelRowSDR” and “PixelColSDR” geolocation fields provide the SDR row and column coordinate for each GTM pixel mapping. The pixel level geolocation quality flag “QF1_VIIRSGTMGEO” provides a flag that indicates whether a pixel has crossed a granule boundary during the SDR to GTM mapping process. If a granule boundary was crossed, the original SDR pixel may be located using effectivity time or the N_Input_Prod standard metadata item may be used to obtain the N_Reference_ID for each SDR granule. The calibrated radiances at TOA for bands I1 - I3 are under daytime conditions. The calibrated radiances at TOA for bands I4 - I5 are under daytime and nighttime conditions. This data is reported in W/(m² sr um). The calibrated reflectances at TOA for bands I1 - I3 are under daytime conditions and are unitless. The calibrated EBBT for bands I4 - I5 are under daytime and nighttime conditions. This data is reported in Kelvin.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Estimated Granule Size: See VIIRS I-Band Imagery EDR Data Content Summary - Bands I1-I3 and see VIIRS I-Band Data Content Summary – Bands I4-I5 for size. Geolocation Estimated Granule Size: See VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	See VIIRS I-Band Imagery EDR Data Content Summaries, VIIRS I-Band Imagery EDR Product Profiles and VIIRS I-Band Imagery EDR HDF5 Details See VIIRS I-Band Imagery EDR GTM Geolocation Details See VIIRS I-Band Imagery EDR GTM Geolocation Data Summary See VIIRS I-Band Imagery EDR GTM Geolocation Product Profile See VIIRS I-Band Imagery EDR GTM Geolocation HDF5 Details See VIIRS I-Band Imagery EDR GTM Geolocation HDF5 Metadata Details

5.1.1 VIIRS I1-Band Imagery EDR**5.1.1.1 VIIRS I1-Band Imagery EDR Data Content Summary**

VIIRS I1 - I3 Bands (daytime only) are reflective bands and contain calibrated TOA radiances and reflectances. Bands I4 and I5 (daytime and nighttime) are emissive bands and contain

calibrated TOA radiances and EBBTs. See each band's product profile for full product details. VIIRS I-Band Data Content Summary lists the content of the I-Band granule. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.1.1-1 VIIRS I1 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	W/(m2 sr um)
Reflectance	TOA reflectances (daytime only)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	unitless
QF1_VIIRSIMGED R	Pixel Level Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m2 sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	unitless
File Size	63,496,924 Bytes				

5.1.1.2 VIIRS I1-Band Imagery EDR Product Profile

VIIRS I1 Band Imagery EDR Product Profile lists product profile details. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.1-2 VIIRS I1 Imagery EDR Product Profile**VIIRS I1-Band Imagery Product Profile**

Fields																						
Name	Data Size	Dimensions																				
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																
		AlongTrack	Yes	No	1541	1541																
		CrossTrack	No	No	8241	8241																
		Datum																				
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries								
		Top of Atmosphere radiances for the I1-Band				0	-0.41	861.60	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value
		Name	Value																			
NA_UINT16_FILL	65535																					
MISS_UINT16_FILL	65534																					
Name	Value																					

										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																									
Reflectance	2byte(s)																																			
		Name		Granule Boundary	Dynamic	Min Array Size	Max Array Size																													
		AlongTrack	Yes	No	1541	1541																														
		CrossTrack	No	No	8241	8241																														
		Datum																																		
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																						
		Top of Atmosphere Reflectances (Daytime only) for the I1-Band				0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr><tr><td>ONGROUND_PT_UINT16_FILL</td><td>65532</td></tr><tr><td>ERR_UINT16_FILL</td><td>65531</td></tr><tr><td>ELLIPSOID_UINT16_FILL</td><td>65530</td></tr><tr><td>VDNE_UINT16_FILL</td><td>65529</td></tr><tr><td>SOUB_UINT16_FILL</td><td>65528</td></tr></table>	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	<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	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	Value																																			

VIIRS I1-Band Imagery Product Profile - Quality Flags

		Fields																							
Name	Data Size	Dimensions																							
QF1_VIIRSIMGEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																			
		AlongTrack	Yes	No	1541	1541																			
		CrossTrack	No	No	8241	8241																			
		Datum																							
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries										
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality. Dead Pixel Replacement: Individual bad pixels caused by a bad detector are filled as an average of the two adjacent detector pixels. Bad edge-of-scan pixels use the adjacent pixel value. If two adjacent pixels are dead, a fill value is used for each pixel.)					0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	<table><tr><td>Name</td><td>Value</td></tr><tr><td>Good</td><td>0</td></tr><tr><td>Poor</td><td>1</td></tr><tr><td>No Calibration</td><td>2</td></tr><tr><td>Dead Pixel Replacement</td><td>3</td></tr></table>	Name	Value	Good	0	Poor	1	No Calibration	2	Dead Pixel Replacement	3
		Name	Value																						
		Good	0																						
		Poor	1																						
		No Calibration	2																						
Dead Pixel Replacement	3																								
Pixel is Saturated					2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	<table><tr><td>Name</td><td>Value</td></tr><tr><td>False</td><td>0</td></tr><tr><td>True</td><td>1</td></tr></table>	Name	Value	False	0	True	1						
Name	Value																								
False	0																								
True	1																								
Missing Data (Data required for calibration processing is not available for processing)					3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data present</td><td>0</td></tr><tr><td>Earth View RDR data missing</td><td>1</td></tr><tr><td>Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing</td><td>2</td></tr><tr><td>Thermistor Data Missing</td><td>3</td></tr></table>	Name	Value	All data present	0	Earth View RDR data missing	1	Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2	Thermistor Data Missing	3		
Name	Value																								
All data present	0																								
Earth View RDR data missing	1																								
Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2																								
Thermistor Data Missing	3																								
Out of Range					5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data within range</td><td>0</td></tr><tr><td>Radiance out of range</td><td>1</td></tr></table>	Name	Value	All data within range	0	Radiance out of range	1						
Name	Value																								
All data within range	0																								
Radiance out of range	1																								

VIIRS I1-Band Imagery Product Profile - Scale Factors

14
Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

5.1.1.3 VIIRS I1 Imagery EDR HDF5 Details

Figure below provides the details on the content and data types of the I1 Imagery products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to Figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The I-Band Imagery products within the HDF5 files can be found within the Data_Products group with the group names of VIIRS-I1-EDR, VIIRS-I2-EDR, VIIRS-I3-EDR, VIIRS-I4-EDR, and VIIRS-I5-EDR, depending on the specific data product contained in the file. The aggregation and granule(s) contain the data fields listed in the UML diagrams. The corresponding HDF5 data type for each field is also provided.

VIIRS-I1-IMG-EDR
+Radiance : H5T_NATIVE_USHORT
+Reflectance : H5T_NATIVE_USHORT
+QF1_VIIRSIMGEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.1.1.3-1 VIIRS I1 Imagery EDR UML Diagram

VIIRS I1 Imagery EDR HDF5 Metadata Details

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

In addition to the common metadata items for this product, VIIRS I1 Imagery EDR Quality Summary Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS I-Band Imagery EDRs.

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”, “I4” or “I5”.

Table: 5.1.2.2.1-1 VIIRS I1 Imagery EDR Quality Summary Metadata Values

N Quality Summary			
Name	Value	Description	Comments
Summary Imagery Quality	0 – 100	Percent of good quality pixels in granule	
Summary Range Check	0 – 100	Percent of measured radiances in granule outside of required range	
Summary Saturated Pixel	0 – 100	Percent of saturated pixels in granule	

5.1.2 VIIRS I2 Imagery EDR

5.1.2.1 VIIRS I2 Imagery EDR Data Content Summary

VIIRS I1 - I3 Bands (daytime only) are reflective bands and contain calibrated TOA radiances and reflectances. VIIRS I2 Imagery EDR Data Content Summary lists the contents of the I2 Band.

Table: 5.1.2.1-1 VIIRS I2 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	W/(m ² sr um)
Reflectance	TOA reflectances (daytime only)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	unitless
QF1_VIIRSIMGED R	Pixel Level Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	unitless
File Size	63,496,924 Bytes				

5.1.2.2 VIIRS I2 Imagery EDR Product Profile

VIIRS I2 Imagery EDR Product Profile lists product profile details. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.2.2-1 VIIRS I2 Imagery EDR Product Profile

VIIRS I2-Band Imagery Product Profile

Fields

Name	Data Size	Dimensions																																
Radiance	2byte(s)	Name		Granule Boundary	Dynamic	Min Array Size	Max Array Size																											
		AlongTrack	Yes	No	1541	1541																												
		CrossTrack	No	No	8241	8241																												
		Datum																																
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																				
		Top of Atmosphere radiances for the I2-Band				0	-0.24	418.80	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr><tr><td>ONGROUND_PT_UINT16_FILL</td><td>65532</td></tr><tr><td>ERR_UINT16_FILL</td><td>65531</td></tr><tr><td>ELLIPSOID_UINT16_FILL</td><td>65530</td></tr><tr><td>VDNE_UINT16_FILL</td><td>65529</td></tr><tr><td>SOUB_UINT16_FILL</td><td>65528</td></tr></table>	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	<table><tr><td>Name</td><td>Value</td></tr></table>	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	Value																																	
Reflectance	2byte(s)	Name		Granule Boundary	Dynamic	Min Array Size	Max Array Size																											
		AlongTrack	Yes	No	1541	1541																												
		CrossTrack	No	No	8241	8241																												
		Datum																																
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																				
		Top of Atmosphere Reflectances (Daytime only) for the I2-Band				0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr><tr><td>ONGROUND_PT_UINT16_FILL</td><td>65532</td></tr><tr><td>ERR_UINT16_FILL</td><td>65531</td></tr><tr><td>ELLIPSOID_UINT16_FILL</td><td>65530</td></tr><tr><td>VDNE_UINT16_FILL</td><td>65529</td></tr><tr><td>SOUB_UINT16_FILL</td><td>65528</td></tr></table>	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	<table><tr><td>Name</td><td>Value</td></tr></table>	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	Value																																	

VIIRS I2-Band Imagery Product Profile - Quality Flags

Fields																							
Name	Data Size	Dimensions																					
QF1_VIIRSIMGEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		AlongTrack	Yes	No	1541	1541																	
		CrossTrack	No	No	8241	8241																	
		Datum																					
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries												
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality. Dead Pixel Replacement: Individual bad pixels caused by a bad detector are filled as an average of the two adjacent detector pixels. Bad edge-of-scan pixels use the adjacent pixel value. If two adjacent pixels are dead, a fill value is used for each pixel.)	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>Good</td><td>0</td></tr><tr><td>Poor</td><td>1</td></tr><tr><td>No Calibration</td><td>2</td></tr><tr><td>Dead Pixel Replacement</td><td>3</td></tr></table>	Name	Value	Good	0	Poor	1	No Calibration	2	Dead Pixel Replacement	3	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value
		Name	Value																				
		Good	0																				
		Poor	1																				
		No Calibration	2																				
Dead Pixel Replacement	3																						
Name	Value																						
Pixel is Saturated	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>False</td><td>0</td></tr><tr><td>True</td><td>1</td></tr></table>	Name	Value	False	0	True	1	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value						
Name	Value																						
False	0																						
True	1																						
Name	Value																						

		Missing Data (Data required for calibration processing is not available for processing)	3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name/Value	Name/Value	Name	Value
												All data present	0
												Earth View RDR data missing	1
												Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2
												Thermistor Data Missing	3
		Out of Range	5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name/Value	Name/Value	Name	Value
												All data within range	0
												Radiance out of range	1
												Reflectance out of range	2
												Both Radiance and Reflectance out of range	3
		Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name/Value	Name/Value		
		PadByte1	1byte(s)										
NameGranule BoundaryDynamicMin Array SizeMax Array Size													
GranuleYesNo33													
Datum													
DescriptionDatum OffsetUnscaled Valid Range MinUnscaled Valid Range MaxMeasurement UnitsScaledScale Factor NameData TypeFill ValuesLegend Entries													
Pad byte0MIN_VALMAX_VALunitlessNounsigned 8-bit charName/ValueName/Value													

VIIRS I2-Band Imagery Product Profile - Scale Factors

Fields													
Name	Data Size	Dimensions											
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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/(m2 sr um)	No		32-bit floating point	Name/Value	Name/Value
ReflectanceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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

VIIRS I2 Imagery EDR HDF5 Details

Figure below details on the content and data types of the I2 Imagery products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The I-Band Imagery products within the HDF5 files can be found within the Data_Products group with the group names of VIIRS-I1-EDR, VIIRS-I2-EDR, VIIRS-I3-EDR, VIIRS-I4-EDR, and VIIRS-I5-EDR, depending on the specific data product contained in the file. The aggregation and granule(s) contain the data fields listed in the UML diagrams. The corresponding HDF5 data type for each field is also provided.

VIIRS-I2-IMG-EDR
+Radiance : H5T_NATIVE_USHORT
+Reflectance : H5T_NATIVE_USHORT
+QF1_VIIRSIMGEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.1.2.2-1 VIIRS I2 Imagery EDR UML Diagram

5.1.2.2.1 VIIRS I2 Imagery EDR HDF5 Metadata Details

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

In addition to the common metadata items for this product, VIIRS I2 Imagery EDR Quality Summary Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS I-Band Imagery EDRs.

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”, “I4” or “I5”.

Table: 5.1.2.2.1-1 VIIRS I2 Imagery EDR Quality Summary Metadata Values

N Quality Summary			
Name	Value	Description	Comments
Summary Imagery Quality	0 - 100	Percent of good quality pixels in granule	
Summary Range Check	0 - 100	Percent of measured radiances in granule outside of required range	
Summary Saturated Pixel	0 - 100	Percent of saturated pixels in granule	

5.1.3 VIIRS I3 Imagery EDR

5.1.3.1 VIIRS I3 Imagery EDR Data Content Summary

VIIRS I1 - I3 Bands (daytime only) are reflective bands and contain calibrated TOA radiances and reflectances. VIIRS I3 Data Content Summary lists the contents of the I3 Band.

Table: 5.1.3.1-1 VIIRS I3 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	W/(m ² *sr*micro-m)
Reflectance	TOA reflectances (daytime only)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	unitless
QF1_VIIRSIMGED R	Pixel Level Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² *sr*micro-m)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	unitless
File Size	63,496,924 Bytes				

5.1.3.2 VIIRS I3 Imagery EDR Product Profile

VIIRS I3 Imagery EDR Product Profile lists product profile details. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.3.2-1 VIIRS I3 Imagery EDR Product Profile**VIIRS I3-Band Imagery Product Profile**

Fields																
Name	Data Size	Dimensions														
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	1541	1541										
		CrossTrack	No	No	8241	8241										
		Datum														
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Top of Atmosphere radiances for the I3-Band				0	-0.21	87.00	W/(m^2*sr*micro-m)	Yes	RadianceFactors	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		
Reflectance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	1541	1541										
		CrossTrack	No	No	8241	8241										
		Datum														
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Top of Atmosphere Reflectances (Daytime only) for the I3-Band				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	

VIIRS I3-Band Imagery Product Profile - Quality Flags

Fields																
Name	Data Size	Dimensions														
QF1_VIIRSIMGEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	1541	1541										
		CrossTrack	No	No	8241	8241										
		Datum														
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality. Dead Pixel Replacement: Individual bad pixels caused by a bad detector are filled as an average of the two					0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name Good	Value 0

		adjacent detector pixels. Bad edge-of-scan pixels use the adjacent pixel value. If two adjacent pixels are dead, a fill value is used for each pixel.)										Poor		1																			
												No Calibration		2																			
												Dead Pixel Replacement		3																			
		Pixel is Saturated										2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>False</td><td>0</td></tr><tr><td>True</td><td>1</td></tr></table>	Name	Value	False	0	True	1								
		Name	Value																														
		False	0																														
		True	1																														
		Missing Data (Data required for calibration processing is not available for processing)										3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td colspan="2">All data present</td><td>0</td></tr><tr><td colspan="2">Earth View RDR data missing</td><td>1</td></tr><tr><td colspan="2">Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing</td><td>2</td></tr><tr><td colspan="2">Thermistor Data Missing</td><td>3</td></tr></table>	Name	Value	All data present		0	Earth View RDR data missing		1	Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing		2	Thermistor Data Missing		3
		Name	Value																														
		All data present		0																													
Earth View RDR data missing		1																															
Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing		2																															
Thermistor Data Missing		3																															
Out of Range										5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td colspan="2">All data within range</td><td>0</td></tr><tr><td colspan="2">Radiance out of range</td><td>1</td></tr><tr><td colspan="2">Reflectance out of range</td><td>2</td></tr><tr><td colspan="2">Both Radiance and Reflectance out of range</td><td>3</td></tr></table>	Name	Value	All data within range		0	Radiance out of range		1	Reflectance out of range		2	Both Radiance and Reflectance out of range		3		
Name	Value																																
All data within range		0																															
Radiance out of range		1																															
Reflectance out of range		2																															
Both Radiance and Reflectance out of range		3																															
Spare										7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>Name</td><td>Value</td></tr></table>	Name	Value	Name	Value												
Name	Value																																
Name	Value																																
PadByte1	1 byte(s)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>3</td><td>3</td></tr></table>												Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	Yes	No	3	3										
		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	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value																				
Name	Value																																
Name	Value																																

VIIRS I3-Band Imagery Product Profile - Scale Factors

Fields														
Name	Data Size	Dimensions												
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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								
		Granule	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	

VIIRS I3 Imagery EDR HDF5 Details

Figure below provides the details on the content and data types of the I3 Imagery products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The I-Band Imagery products within the HDF5 files can be found within the Data_Products group with the group names of VIIRS-I1-EDR, VIIRS-I2-EDR, VIIRS-I3-EDR, VIIRS-I4-EDR, and VIIRS-I5-EDR, depending on the specific data product contained in the file. The aggregation and granule(s) contain the data fields listed in the UML diagrams. The corresponding HDF5 data type for each field is also provided.

VIIRS-I3-IMG-EDR
+Radiance : H5T_NATIVE_USHORT
+Reflectance : H5T_NATIVE_USHORT
+QF1_VIIRSIMGEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.1.3.2-1 VIIRS I3 Imagery EDR UML Diagram

5.1.3.2.1 VIIRS I3 Imagery EDR HDF5 Metadata Details

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

In addition to the common metadata items for this product, VIIRS I3 Imagery EDR Quality Summary Level Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS I-Band Imagery EDRs.

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”, “I4” or “I5”.

Table: 5.1.3.2.1-1 VIIRS I3 Imagery EDR Quality Summary Metadata Values

N Quality Summary			
Name	Value	Description	Comments
Summary Imagery Quality	0 - 100	Percent of good quality pixels in granule	
Summary Range Check	0 - 100	Percent of measured radiances in granule outside of required range	
Summary Saturated Pixel	0 - 100	Percent of saturated pixels in granule	

5.1.4 VIIRS I4 Imagery EDR

5.1.4.1 VIIRS I4 Imagery EDR Data Content Summary

VIIRS Bands I4 and I5 (daytime and nighttime) are emissive bands and contain calibrated TOA radiances and EBBTs. VIIRS I4 Imagery EDR Data Content Summary lists the contents of the I4 Band.

Table: 5.1.4.1-1 VIIRS I4 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	W/(m ² *sr*micro-m)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures (daytime and nighttime)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	Kelvin
QF1_VIIRSIMGEDR	Pixel Level Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² *sr*micro-m)
BrightnessFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	63,496,924 Bytes				

5.1.4.2 VIIRS I4 Imagery EDR Product Profile

VIIRS I4 Imagery EDR Product Profile lists product profile details. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.4.2-1 VIIRS I4 Imagery EDR Product Profile**VIIRS I4-Band Imagery Product Profile**

Fields														
Name	Data Size	Dimensions												
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries			
		Top of Atmosphere radiances for the I4-Band	0	-0.01	4.651	W/(m^2*sr*micro-m)	Yes	RadianceFactors	unsigned 16-bit integer	NameValue	NameValue			
										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					
BrightnessTemperature	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries			
		Top of Atmosphere Equivalent Blackbody Brightness Temperatures for the I4-Band	0	208.00	367.00	Kelvin	Yes	BrightnessFactors	unsigned 16-bit integer	NameValue	NameValue			
										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					

VIIRS I4-Band Imagery Product Profile - Quality Flags

Fields																					
Name	Data Size	Dimensions																			
QF1_VIIRSIMGEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size															
		AlongTrack	Yes	No	1541	1541															
		CrossTrack	No	No	8241	8241															
		Datum																			
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries						
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality. Dead Pixel Replacement: Individual bad pixels caused by a bad detector are filled as an average of the two adjacent detector pixels. Bad edge-of-scan pixels use the adjacent pixel value. If two adjacent pixels are dead, a fill value is used for each pixel.)					0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>Good</td><td>0</td></tr><tr><td>Poor</td><td>1</td></tr><tr><td>No Calibration</td><td>2</td></tr></table>	Name	Value	Good	0	Poor	1	No Calibration
Name	Value																				
Good	0																				
Poor	1																				
No Calibration	2																				

		Dead Pixel Replacement										3																																					
		Pixel is Saturated				2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>False</td><td>0</td></tr><tr><td>True</td><td>1</td></tr></table>	Name	Value	False	0	True	1	<table><tr><td>Name</td><td>Value</td></tr><tr><td>False</td><td>0</td></tr><tr><td>True</td><td>1</td></tr></table>	Name	Value	False	0	True	1																							
		Name	Value																																														
		False	0																																														
		True	1																																														
Name	Value																																																
False	0																																																
True	1																																																
Missing Data (Data required for calibration processing is not available for processing)				3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data present</td><td>0</td></tr><tr><td>Earth View RDR data missing</td><td>1</td></tr><tr><td>Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing</td><td>2</td></tr><tr><td>Thermistor Data Missing</td><td>3</td></tr></table>	Name	Value	All data present	0	Earth View RDR data missing	1	Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2	Thermistor Data Missing	3	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data present</td><td>0</td></tr><tr><td>Earth View RDR data missing</td><td>1</td></tr><tr><td>Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing</td><td>2</td></tr><tr><td>Thermistor Data Missing</td><td>3</td></tr></table>	Name	Value	All data present	0	Earth View RDR data missing	1	Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2	Thermistor Data Missing	3																	
Name	Value																																																
All data present	0																																																
Earth View RDR data missing	1																																																
Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2																																																
Thermistor Data Missing	3																																																
Name	Value																																																
All data present	0																																																
Earth View RDR data missing	1																																																
Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2																																																
Thermistor Data Missing	3																																																
Out of Range				5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data within range</td><td>0</td></tr><tr><td>Radiance out of range</td><td>1</td></tr><tr><td>EBBT out of range</td><td>2</td></tr><tr><td>Both Radiance and EBBT out of range</td><td>3</td></tr></table>	Name	Value	All data within range	0	Radiance out of range	1	EBBT out of range	2	Both Radiance and EBBT out of range	3	<table><tr><td>Name</td><td>Value</td></tr><tr><td>All data within range</td><td>0</td></tr><tr><td>Radiance out of range</td><td>1</td></tr><tr><td>EBBT out of range</td><td>2</td></tr><tr><td>Both Radiance and EBBT out of range</td><td>3</td></tr></table>	Name	Value	All data within range	0	Radiance out of range	1	EBBT out of range	2	Both Radiance and EBBT out of range	3																	
Name	Value																																																
All data within range	0																																																
Radiance out of range	1																																																
EBBT out of range	2																																																
Both Radiance and EBBT out of range	3																																																
Name	Value																																																
All data within range	0																																																
Radiance out of range	1																																																
EBBT out of range	2																																																
Both Radiance and EBBT out of range	3																																																
Spare				7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value			<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value																															
Name	Value																																																
Name	Value																																																
PadByte1	1 byte(s)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>3</td><td>3</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	Yes	No	3	3																																					
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																													
Granule	Yes	No	3	3																																													
<table><tr><td colspan="10">Datum</td></tr><tr><td>Description</td><td>Datum Offset</td><td>Unscaled Valid Range Min</td><td>Unscaled Valid Range Max</td><td>Measurement Units</td><td>Scaled</td><td>Scale Factor Name</td><td>Data Type</td><td>Fill Values</td><td>Legend Entries</td></tr><tr><td>Pad byte</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>unitless</td><td>No</td><td></td><td>unsigned 8-bit char</td><td><table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table></td><td><table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table></td></tr></table>												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	<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value			<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value		
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	<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value			<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value																																		
Name	Value																																																
Name	Value																																																

VIIRS I4-Band Imagery Product Profile - Scale Factors

Fields													
Name	Data Size	Dimensions											
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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		
BrightnessFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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		

5.1.4.3 VIIRS I4 Imagery EDR HDF5 Details

The Figure below provides the details on the content and data types of the I4 Imagery products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The I-Band Imagery products within the HDF5 files can be found within the Data_Products group with the group names of VIIRS-I1-EDR, VIIRS-I2-EDR, VIIRS-I3-EDR, VIIRS-I4-EDR, and VIIRS-I5-EDR, depending on the specific data product contained in the file. The aggregation and granule(s) contain the data fields listed in the UML diagrams. The corresponding HDF5 data type for each field is also provided.

VIIRS-I4-IMG-EDR
+Radiance : H5T_NATIVE_USHORT
+BrightnessTemperature : H5T_NATIVE_USHORT
+QF1_VIIRSIMGEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+BrightnessFactors : H5T_NATIVE_FLOAT

Figure: 5.1.4.3-1 VIIRS I4 Imagery EDR UML Diagram

5.1.4.3.1 VIIRS I4 Imagery EDR HDF5 Metadata Details

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

In addition to the common metadata items for this product, VIIRS I4 Imagery EDR Quality Summary Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS I-Band Imagery EDRs.

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”, “I4” or “I5”.

Table: 5.1.4.3.1-1 VIIRS I4 Imagery EDR Quality Summary Metadata Values

N Quality Summary			
Name	Value	Description	Comments
Summary Imagery Quality	0 - 100	Percent of good quality pixels in granule	
Summary Range Check	0 - 100	Percent of measured radiances in granule outside of required range	
Summary Saturated Pixel	0 - 100	Percent of saturated pixels in granule	

5.1.5 VIIRS I5 Imagery EDR

5.1.5.1 VIIRS I5 Imagery EDR Data Content Summary

VIIRS Bands I4 and I5 (daytime and nighttime) are emissive bands and contain calibrated TOA radiances and EBBTs. VIIRS I5 Data Content Summary lists the contents of the I5 Band.

Table: 5.1.5.1-1 VIIRS I5 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	W/(m ² *sr*micr o-m)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures (daytime and nighttime)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	Kelvin
QF1_VIIRSIMGEDR	Pixel Level Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
BrightnessFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	63,496,924 Bytes				

5.1.5.2 VIIRS I5 Imagery EDR Product Profile

VIIRS I5 Imagery EDR Product Profile lists product profile details. Note that only one of the five bands will appear in any single data product's granule.

Table: 5.1.5.2-1 VIIRS I5 Imagery EDR Product Profile**VIIRS I5-Band Imagery Product Profile**

Fields														
Name	Data Size	Dimensions												
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries		
		Top of Atmosphere radiances for the I5-Band	0	-0.08	22.8967	W/(m^2*sr*micro-m)	Yes	RadianceFactors	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					
BrightnessTemperature	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries		
		Top of Atmosphere Equivalent Blackbody Brightness Temperatures for the I5-Band	0	150.00	380.00	Kelvin	Yes	BrightnessFactors	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					

VIIRS I5-Band Imagery Product Profile - Quality Flags

Fields														
Name	Data Size	Dimensions												
QF1_VIIRSIMGEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description		Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality. Dead Pixel Replacement: Individual bad pixels caused by a bad detector are filled as an average of the two	0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	NameValue	Name	Value		
										Good	0			

		adjacent detector pixels. Bad edge-of-scan pixels use the adjacent pixel value. If two adjacent pixels are dead, a fill value is used for each pixel.)															Poor	1
																No Calibration	2	
															Dead Pixel Replacement	3		
		Pixel is Saturated	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value							
											False	0						
											True	1						
		Missing Data (Data required for calibration processing is not available for processing)	3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value						
											All data present	0						
											Earth View RDR data missing	1						
											Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2						
											Thermistor Data Missing	3						
		Out of Range	5	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value						
											All data within range	0						
											Radiance out of range	1						
											EBBT out of range	2						
									Both Radiance and EBBT out of range	3								
Spare	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value									
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									

VIIRS I5-Band Imagery Product Profile - Scale Factors

Fields												
Name	Data Size	Dimensions										
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size						
		Granule	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/(m2 sr um)	No		32-bit floating point	Name Value	Name Value	
BrightnessFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size						
		Granule	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	

5.1.5.3 VIIRS I5 Imagery EDR HDF5 Details

The Figure below provides the details on the content and data types of the I5 Imagery products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The I-Band Imagery products within the HDF5 files can be found within the Data_Products group with the group names of VIIRS-I1-EDR, VIIRS-I2-EDR, VIIRS-I3-EDR, VIIRS-I4-EDR, and VIIRS-I5-EDR, depending on the specific data product contained in the file. The aggregation and granule(s) contain the data fields listed in the UML diagrams. The corresponding HDF5 data type for each field is also provided.

VIIRS-I5-IMG-EDR
+Radiance : H5T_NATIVE_USHORT
+BrightnessTemperature : H5T_NATIVE_USHORT
+QF1_VIIRSIMGEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+RadianceFactors : H5T_NATIVE_FLOAT
+BrightnessFactors : H5T_NATIVE_FLOAT

Figure: 5.1.5.3-1 VIIRS I5 Imagery EDR UML Diagram

5.1.5.3.1 VIIRS I5 Imagery EDR HDF5 Metadata Details

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

In addition to the common metadata items for this product, VIIRS I5 Imagery EDR Quality Summary Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS I-Band Imagery EDRs.

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”, “I4” or “I5”.

Table: 5.1.5.3.1-1 VIIRS I5 Imagery Quality Summary Metadata Values

N Quality Summary			
Name	Value	Description	Comments
Summary Imagery Quality	0 - 100	Percent of good quality pixels in granule	
Summary Range Check	0 - 100	Percent of measured radiances in granule outside of required range	
Summary Saturated Pixel	0 - 100	Percent of saturated pixels in granule	

5.1.6 VIIRS I-Band Imagery GTM Geolocation

Data Mnemonic	None
Description/ Purpose	The VIIRS I-Band Imagery GTM Geolocation is mapped to a GTM grid from the Imagery Resolution SDR Geolocation. The original SDR pixel row and column (i,j)th value is provided in the fields “PixelRowSDR” and “PixelColSDR”. Details for each field of the geolocation are provided below, see VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	See VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	The VIIRS I-Band Imagery GTM Geolocation contains: - Time Field - Geolocation Angular Fields - Height and Satellite Range - Geolocation Quality Flags - SDR pixel mapping field (for SDR row and column) - Pad bytes See VIIRS I-Band Imagery GTM Geolocation Data Summary See VIIRS I-Band Imagery GTM Geolocation Product Profiles See VIIRS I-Band Imagery GTM Geolocation HDF5 Details See VIIRS I-Band Imagery GTM Geolocation HDF5 Metadata Details

*5.1.6.1 VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary***Table: 5.1.6.1-1 VIIRS I-Band Imagery GTM EDR Geolocation Data Content Summary**

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Time	Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row	64-bit integer	[N*1541]	[1541]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*1541, 8241]	[1541, 8241]	degree
Height	Ellipsoid-Geoid separation	16-bit integer	[N*1541, 8241]	[1541, 8241]	meter
PadByte1	Pad byte	unsigned 8-bit char	[N*2]	[2]	unitless
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*1541, 8241]	[1541, 8241]	meter
QF1_VIIRSGTMGeo	Pixel Level Geolocation Quality Flags	unsigned 8-bit char	[N*1541, 8241]	[1541, 8241]	unitless
QF2_VIIRSGTMGeo	Scan Level Geolocation Quality Flags	unsigned 8-bit char	[N*48]	[48]	unitless
PadByte2	Pad byte	unsigned 8-bit char	[N*1]	[1]	unitless
PixelRowSDR	Imagery SDR pixel row index number that was remapped to this GTM pixel (row numbering begins with zero)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
PixelColSDR	Imagery SDR pixel column index number that was remapped to this GTM pixel (column numbering begins with zero)	unsigned 16-bit integer	[N*1541, 8241]	[1541, 8241]	unitless
PadByte3	Pad byte	unsigned 8-bit char	[N*6]	[6]	unitless
File Size	444,490,720 Bytes				

5.1.6.2 VIIRS I-Band Imagery GTM Geolocation Product Profile EDR Product Profile

Table: 5.1.6.2-1 VIIRS I-Band Imagery GTM Geolocation Product Profile

I-Band Imagery GTM Geolocation Product Profile

Fields																																			
Name	Data Size	Dimensions																																	
Time	8byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																													
		AlongTrack	Yes	No	1541	1541																													
		Datum																																	
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																					
		Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row				0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	<table><tr><td>Name</td><td>Value</td><td>Name</td><td>Value</td></tr><tr><td>NA_INT64_FILL</td><td>-999</td><td></td><td></td></tr><tr><td>MISS_INT64_FILL</td><td>-998</td><td></td><td></td></tr><tr><td>ERR_INT64_FILL</td><td>-995</td><td></td><td></td></tr><tr><td>ELLIPSOID_INT64_FILL</td><td>-994</td><td></td><td></td></tr><tr><td>VDNE_INT64_FILL</td><td>-993</td><td></td><td></td></tr></table>	Name	Value	Name	Value	NA_INT64_FILL	-999			MISS_INT64_FILL	-998			ERR_INT64_FILL	-995			ELLIPSOID_INT64_FILL	-994			VDNE_INT64_FILL	-993
Name	Value	Name	Value																																
NA_INT64_FILL	-999																																		
MISS_INT64_FILL	-998																																		
ERR_INT64_FILL	-995																																		
ELLIPSOID_INT64_FILL	-994																																		
VDNE_INT64_FILL	-993																																		
Latitude	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																													
		AlongTrack	Yes	No	1541	1541																													
		CrossTrack	No	No	8241	8241																													
		Datum																																	
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																					
		Latitude of each pixel (positive North)				0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><td>Name</td><td>Value</td><td>Name</td><td>Value</td></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td><td></td><td></td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td><td></td><td></td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td><td></td><td></td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td><td></td><td></td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td><td></td><td></td></tr></table>	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
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	4byte(s)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size											
		AlongTrack	Yes	No	1541	1541											
		CrossTrack	No	No	8241	8241											
		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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size											
		AlongTrack	Yes	No	1541	1541											
		CrossTrack	No	No	8241	8241											
		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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size											
		AlongTrack	Yes	No	1541	1541											
		CrossTrack	No	No	8241	8241											
		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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size											
		AlongTrack	Yes	No	1541	1541											
		CrossTrack	No	No	8241	8241											
		Datum															

		<table><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Zenith angle to Satellite at each pixel position</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>degree</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	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	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																
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	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	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																																																			
Name	Value																																																			
SatelliteAzimuthAngle	4byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table> <table><tr><th>Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>degree</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241	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 (measured clockwise positive from North) to Satellite at each pixel position	0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																
AlongTrack	Yes	No	1541	1541																																																
CrossTrack	No	No	8241	8241																																																
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 (measured clockwise positive from North) to Satellite at each pixel position	0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	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																																																			
Name	Value																																																			
Height	2byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table> <table><tr><th>Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Ellipsoid-Geoid separation</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>meter</td><td>No</td><td></td><td>16-bit integer</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241	Datum	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	Ellipsoid-Geoid separation	0	MIN_VAL	MAX_VAL	meter	No		16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table>	Name	Value	NA_INT16_FILL	-999	MISS_INT16_FILL	-998	ERR_INT16_FILL	-995	ELLIPSOID_INT16_FILL	-994	VDNE_INT16_FILL	-993	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																
AlongTrack	Yes	No	1541	1541																																																
CrossTrack	No	No	8241	8241																																																
Datum																																																				
Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																																											
Ellipsoid-Geoid separation	0	MIN_VAL	MAX_VAL	meter	No		16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table>	Name	Value	NA_INT16_FILL	-999	MISS_INT16_FILL	-998	ERR_INT16_FILL	-995	ELLIPSOID_INT16_FILL	-994	VDNE_INT16_FILL	-993	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																													
Name	Value																																																			
NA_INT16_FILL	-999																																																			
MISS_INT16_FILL	-998																																																			
ERR_INT16_FILL	-995																																																			
ELLIPSOID_INT16_FILL	-994																																																			
VDNE_INT16_FILL	-993																																																			
Name	Value																																																			
PadByte1	1byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>2</td><td>2</td></tr></table> <table><tr><th>Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Pad byte</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>unitless</td><td>No</td><td></td><td>unsigned 8-bit char</td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	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	Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value															
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																
Granule	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																																											
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																							
Name	Value																																																			
Name	Value																																																			
SatelliteRange	4byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>1541</td><td>1541</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>8241</td><td>8241</td></tr></table> <table><tr><th>Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Line of sight distance from the ellipsoid intersection to the satellite</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>meter</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	1541	1541	CrossTrack	No	No	8241	8241	Datum	Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value										
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																
AlongTrack	Yes	No	1541	1541																																																
CrossTrack	No	No	8241	8241																																																
Datum																																																				
Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																																											
Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																							
Name	Value																																																			
Name	Value																																																			

37

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

		AlongTrack	Yes	No	1541	1541								
		CrossTrack	No	No	8241	8241								
		Datum												
		Description	Datum Offset			Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries
		Imagery SDR pixel column index number that was remapped to this GTM pixel (column numbering begins with zero)	0			MIN_VAL	MAX_VAL	unitless	No		unsigned 16-bit integer	Name	Value	NameValue
												NA_UINT16_FILL	65535	
												MISS_UINT16_FILL	65534	
												ERR_UINT16_FILL	65531	
												ELLIPSOID_UINT16_FILL	65530	
		VDNE_UINT16_FILL	65529											
PadByte3	lbyte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	Yes	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			
		Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	NameValue	NameValue			

5.1.6.3 VIIRS I-Band Imagery EDR GTM Geolocation HDF5 Details

The VIIRS I-Band Imagery GTM Geolocation is mapped to a GTM grid from the Imagery Resolution SDR Geolocation. The original SDR pixel row and column (i, j) value is provided in the fields “PixelRowSDR” and “PixelColSDR”. VIIRS I-Band Imagery GTM Geolocation UML Diagram provides details on the contents and data types of the I-Band Imagery geolocation.

VIIRS-IMG-GTM-EDR-GEO
+Time : 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_SHORT +PadByte1 : H5T_NATIVE_UCHAR +SatelliteRange : H5T_NATIVE_FLOAT +QF1_VIIRSGTMGEO : H5T_NATIVE_UCHAR +QF2_VIIRSGTMGEO : H5T_NATIVE_UCHAR +PadByte2 : H5T_NATIVE_UCHAR +PixelRowSDR : H5T_NATIVE_USHORT +PixelColSDR : H5T_NATIVE_USHORT +PadByte3 : H5T_NATIVE_UCHAR

Figure: 5.1.6.3-1 VIIRS I-Band Imagery GTM EDR Geolocation UML Diagram

5.1.6.3.1 VIIRS I-Band Imagery EDR GTM Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the I-Band Imagery GTM Geolocation are listed in the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms. The I-Band Imagery GTM Geolocation metadata includes all common metadata at the root, product, aggregation, and granule level. There are no additional metadata elements or granule level quality flags for this geolocation.

5.2 VIIRS M-Band Imagery

Data Mnemonic	EDRE-VMOD-C0030 (Official)
Description/ Purpose	The VIIRS Moderate Band Imagery EDRs are characterized by a 750m Horizontal Reporting Interval (HRI). All M-Band imagery products are re-sampled from the VIIRS moderate resolution SDR geolocation to a GTM projection. The “PixelRowSDR” and “PixelColSDR” geolocation fields provide the SDR row and column coordinate for each GTM pixel mapping. The pixel level geolocation quality flag “QF1_VIIRSGTMGEO” provides a flag that indicates whether a pixel has crossed a granule boundary during the SDR to GTM mapping process. If a granule boundary was crossed, the original SDR pixel may be located using effectivity time or the N_Input_Prod standard metadata item may be used to obtain the N_Reference_ID for each SDR granule.

	All 16 VIIRS M-Band EDRs are created and made available for delivery.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Estimated Granule Size: See VIIRS M-Band Imagery EDR Data Content Summary tables below. Geolocation Granule Size: VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary tables below.
File Format Type	HDF5
Data Content and Data Format	See VIIRS M-Band Imagery EDR Data Content Summaries, VIIRS M-Band Imagery EDR Product Profiles and VIIRS M-Band Imagery EDR HDF5 Details See VIIRS M-Band Imagery EDR HDF5 Metadata Details See VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary See VIIRS M-Band Imagery EDR GTM Geolocation Product Profile See VIIRS M-Band Imagery EDR GTM Geolocation HDF5 Details See VIIRS M-Band Imagery EDR GTM Geolocation

5.2.1 VIIRS M1-Band Imagery EDR

5.2.1.1 VIIRS M1-Band Imagery EDR Data Content Summary

Table: 5.2.1.1-1 VIIRS M1-Band Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA Reflectance	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectance	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.1.2 VIIRS M1-Band Imagery Product Profile

The following table represents the Product Profiles representative of the M1 EDR.

Table: 5.2.1.2-1 VIIRS M1-Band Imagery EDR Product Profile**VIIRS M1-Band Imagery Product Profile**

Fields														
Name	Data Size	Dimensions												
Radiance	2byte(s)													
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	771	771								
		CrossTrack	No	No	4121	4121								
		Datum												
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries			
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	Name NA_UINT16_FILL	Value 65535	Name Value		

VIIRS M1-Band Imagery Product Profile - Scale 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.

5.2.1.3 VIIRS M1 Band Imagery EDR HDF5 Details

M1 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to Figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M1-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.1.3-1 VIIRS M1 Imagery EDR UML Diagram

5.2.2 VIIRS M2 Imagery EDR

5.2.2.1 VIIRS M2 Imagery EDR Data Content Summary

Table: 5.2.2.1-1 VIIRS M2 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.2.2 VIIRS M2 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M2 EDR.

Table: 5.2.2.2-1 VIIRS M2 Imagery EDR Product Profile**VIIRS M2-Band Imagery Product Profile**

Fields																			
Name	Data Size	Dimensions																	
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size													
		AlongTrack	Yes	No	771	771													
		CrossTrack	No	No	4121	4121													
		Datum																	
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries							
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value
		Name	Value																
NA_UINT16_FILL	65535																		
MISS_UINT16_FILL	65534																		
Name	Value																		

VIIRS M2-Band Imagery Product Profile - Scale 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.

5.2.2.3 VIIRS M2 Imagery EDR HDF5 Details

M2 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M2-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.2.3-1 VIIRS M2 Imagery EDR UML Diagram

5.2.3 VIIRS M3 Imagery EDR

5.2.3.1 VIIRS M3 Imagery EDR Data Content Summary

Table: 5.2.3.1-1 VIIRS M3 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.3.2 VIIRS M3 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M3 EDR.

Table: 5.2.3.2-1 VIIRS M3 Imagery EDR Product Profile

VIIRS M3-Band Imagery Product Profile

Fields																							
Name	Data Size	Dimensions																					
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																	
		AlongTrack	Yes	No	771	771																	
		CrossTrack	No	No	4121	4121																	
		Datum																					
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries												
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr><tr><td>ONGROUND_PT_UINT16_FILL</td><td>65532</td></tr><tr><td>ERR_UINT16_FILL</td><td>65531</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	ONBOARD_PT_UINT16_FILL	65533	ONGROUND_PT_UINT16_FILL	65532	ERR_UINT16_FILL	65531	<table><tr><td>Name</td><td>Value</td></tr></table>
Name	Value																						
NA_UINT16_FILL	65535																						
MISS_UINT16_FILL	65534																						
ONBOARD_PT_UINT16_FILL	65533																						
ONGROUND_PT_UINT16_FILL	65532																						
ERR_UINT16_FILL	65531																						
Name	Value																						

											ELLIPSOID_UINT16_FILL	65530			
											VDNE_UINT16_FILL	65529			
											SOUB_UINT16_FILL	65528			
Reflectance	2byte(s)														
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		AlongTrack	Yes	No	771	771									
		CrossTrack	No	No	4121	4121									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries				
		Top of Atmosphere Reflectances (for a reflective M-Band) for the selected M-Band	0	0.00	1.60	unitless	Yes	ReflectanceFactors	unsigned 16-bit integer	NameValue	NameValue				
										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						

VIIRS M3-Band Imagery Product Profile - Scale Factors

Fields														
Name	Data Size	Dimensions												
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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/(m2 sr um)	No		32-bit floating point	Name Value	Name Value			
ReflectanceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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; unites	No		32-bit floating point	Name Value	Name Value			

5.2.3.3 VIIRS M3 Imagery EDR HDF5 Details

M3 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M3-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.3.3-1 VIIRS M3 Imagery EDR UML Diagram

5.2.4 VIIRS M4 Imagery EDR

5.2.4.1 VIIRS M4 Imagery EDR Data Content Summary

Table: 5.2.4.1-1 VIIRS M4 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.4.2 VIIRS M4 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M4 EDRs.

Table: 5.2.4.2-1 VIIRS M4 Imagery EDR Product Profile**VIIRS M4-Band Imagery Product Profile**

Fields																			
Name	Data Size	Dimensions																	
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size													
		AlongTrack	Yes	No	771	771													
		CrossTrack	No	No	4121	4121													
		Datum																	
		Description			Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries					
		Top of Atmosphere radiances for the M-Band selected			0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	<table><tr><td>Name</td><td>Value</td></tr></table>
Name	Value																		
NA_UINT16_FILL	65535																		
MISS_UINT16_FILL	65534																		
Name	Value																		

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

VIIRS M4-Band Imagery Product Profile - Scale Factors

Fields												
Name	Data Size	Dimensions										
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size						
		Granule	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/(m2 sr um)	No		32-bit floating point	Name Value	Name Value	
BrightnessTemperatureOrReflectanceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size						
		Granule	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 (for BrightnessTemp) or unitless (for Reflectance)	No		32-bit floating point	Name Value	Name Value	

5.2.4.3 VIIRS M4 Imagery EDR HDF5 Details

M4 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M4-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.4.3-1 VIIRS M4 Imagery EDR UML Diagram

5.2.5 VIIRS M5 Imagery EDR

5.2.5.1 VIIRS M5 Imagery EDR Data Content Summary

Table: 5.2.5.1-1 VIIRS M5 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.5.2 VIIRS M5 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M5 EDRs.

Table: 5.2.5.2-1 VIIRS M5 Imagery EDR Product Profile

VIIRS M5-Band Imagery Product Profile

Fields															
Name	Data Size	Dimensions													
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									
		AlongTrack	Yes	No	771	771									
		CrossTrack	No	No	4121	4121									
		Datum													
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries			
Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	<table><tr><td>Name</td><td>Value</td></tr></table>	Name	Value
Name	Value														
NA_UINT16_FILL	65535														
Name	Value														

VIIRS M5-Band Imagery Product Profile - Scale 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.

5.2.5.3 VIIRS M5 Imagery EDR HDF5 Details

M5 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M5-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.5.3-1 VIIRS M5 Imagery EDR UML Diagram

5.2.6 VIIRS M6 Imagery EDR

5.2.6.1 VIIRS M6 Imagery EDR Data Content Summary

Table: 5.2.6.1-1 VIIRS M6 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.6.2 VIIRS M6 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M6 EDRs.

Table: 5.2.6.2-1 VIIRS M6 Imagery EDR Product Profile**VIIRS M6-Band Imagery Product Profile**

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	Name NA_UINT16_FILL	Value 65535	Name/Value	

VIIRS M6-Band Imagery Product Profile - Scale 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.

5.2.6.3 VIIRS M6 Imagery EDR HDF5 Details

M6 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M6-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.6.3-1 VIIRS M6 Imagery EDR UML Diagram

5.2.7 VIIRS M7 Imagery EDR

5.2.7.1 VIIRS M7 Imagery EDR Data Content Summary

Table: 5.2.7.1-1 VIIRS M7 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.7.2 VIIRS M7 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M7 EDRs.

Table: 5.2.7.2-1 VIIRS M7 Imagery EDR Product Profile

VIIRS M7-Band Imagery Product Profile

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	NameValue			
										NA_UINT16_FILL	65535		
										MISS_UINT16_FILL	65534		
										ONBOARD_PT_UINT16_FILL	65533		
										ONGROUND_PT_UINT16_FILL	65532		

VIIRS M7-Band Imagery Product Profile - Scale 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.

5.2.7.3 VIIRS M7 Imagery EDR HDF5 Details

M7 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M7-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.7.3-1 VIIRS M7 Imagery EDR UML Diagram

5.2.8 VIIRS M8 Imagery EDR

5.2.8.1 VIIRS M8 Imagery EDR Data Content Summary

Table: 5.2.8.1-1 VIIRS M8 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.8.2 VIIRS M8 Imagery EDR Product Profile

Table: 5.2.8.2-1 VIIRS M8 Imagery EDR Product Profile

VIIRS M8-Band Imagery Product Profile

Fields												
Name	Data Size	Dimensions										
Radiance	2byte(s)											

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

VIIRS M8-Band Imagery Product Profile - Scale Factors

Fields														
Name	Data Size	Dimensions												
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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/(m2 sr um)	No		32-bit floating point	Name	Value	Name	Value	
BrightnessTemperatureOrReflectanceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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 (for BrightnessTemp) or unitless (for Reflectance)	No		32-bit floating point	Name	Value	Name	Value	

5.2.8.3 VIIRS M8 Imagery EDR HDF5 Details

M8 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M8-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.8.3-1 VIIRS M8 Imagery EDR UML Diagram

5.2.9 VIIRS M9 Imagery EDR

5.2.9.1 VIIRS M9 Imagery EDR Data Content Summary

Table: 5.2.9.1-1 VIIRS M9 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.9.2 VIIRS M9 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M9 EDRs.

Table: 5.2.9.2-1 VIIRS M9 Imagery EDR Product Profile

VIIRS M9-Band Imagery Product Profile

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	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		

VIIRS M9-Band Imagery Product Profile - Scale 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.

5.2.9.3 VIIRS M9 Imagery EDR HDF5 Details

M9 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M9-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.1.6.3.1-1 VIIRS M9 Imagery EDR UML Diagram

5.2.10 VIIRS M10 Imagery EDR

5.2.10.1 VIIRS M10 Imagery EDR Data Content Summary

Table: 5.2.10.1-1 VIIRS M10 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless (for Reflectance)
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.10.2 VIIRS M10 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M10 EDRs.

Table: 5.2.10.2-1 VIIRS M10 Imagery EDR Product Profile**VIIRS M10-Band Imagery Product Profile**

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
Top of Atmosphere radiances for the M-Band selected			0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	Name	Value		
										NA_UINT16_FILL	65535	NameValue	

VIIRS M10-Band Imagery Product Profile - Scale 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.

5.2.10.3 VIIRS M10 Imagery EDR HDF5 Details

M10 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M10-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.10.3-1 VIIRS M10 Imagery EDR UML Diagram

5.2.11 VIIRS M11 Imagery EDR

5.2.11.1 VIIRS M11 Imagery EDR Data Content Summary

Table: 5.2.11.1-1 VIIRS M11 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
Reflectance	TOA reflectances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
ReflectanceFactors	Scale = 1st array element; Offset = 2nd array element for the Band reflectances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = unitless
File Size	12,709,180 Bytes				

5.2.11.2 VIIRS M11 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M11 EDRs.

Table: 5.2.11.2-1 VIIRS M11 Imagery EDR Product Profile**VIIRS M11-Band Imagery Product Profile**

Fields														
Name	Data Size	Dimensions												
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	771	771								
		CrossTrack	No	No	4121	4121								
		Datum												
		Description			Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries
		Top of Atmosphere radiances for the M-Band selected			0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	Name	Value	Name Value
												NA_UINT16_FILL	65535	
											MISS_UINT16_FILL	65534		

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

VIIRS M11-Band Imagery Product Profile - Scale Factors

Fields													
Name	Data Size	Dimensions											
RadianceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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/(m2 sr um)	No		32-bit floating point	Name Value	Name Value		
BrightnessTemperatureOrReflectanceFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		Granule	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 (for BrightnessTemp) or unitless (for Reflectance)	No		32-bit floating point	Name Value	Name Value		

5.2.11.3 VIIRS M11 Imagery EDR HDF5 Details

M11 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M11-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +Reflectance : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +ReflectanceFactors : H5T_NATIVE_FLOAT

Figure: 5.2.11.3-1 VIIRS M11 Imagery EDR UML Diagram

5.2.12 VIIRS M12 Imagery EDR

5.2.12.1 VIIRS M12 Imagery EDR Data Content Summary

Table: 5.2.12.1-1 VIIRS M12 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	Kelvin
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
BrightnessTemperatureFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	12,709,180 Bytes				

5.2.12.2 VIIRS M12 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M12 EDRs.

Table: 5.2.12.2-1 VIIRS M12 Imagery EDR Product Profile**VIIRS M12-Band Imagery Product Profile**

Fields																													
Name	Data Size	Dimensions																											
Radiance	2byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>					Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121								
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																							
		AlongTrack	Yes	No	771	771																							
		CrossTrack	No	No	4121	4121																							
		Datum																											
		Description		Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																	
		Top of Atmosphere radiances for the M-Band selected		0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	ONBOARD_PT_UINT16_FILL	65533	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value							
Name	Value																												
NA_UINT16_FILL	65535																												
MISS_UINT16_FILL	65534																												
ONBOARD_PT_UINT16_FILL	65533																												
Name	Value																												

VIIRS M12-Band Imagery Product Profile - Scale 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.

5.2.12.3 VIIRS M12 Imagery EDR HDF5 Details

M12 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M12-MOD-EDR
+Radiance : H5T_NATIVE_USHORT
+BrightnessTemperature : H5T_NATIVE_USHORT
+RadianceFactors : H5T_NATIVE_FLOAT
+BrightnessTemperature : H5T_NATIVE_FLOAT

Figure: 5.2.12.3-1 VIIRS M12 Imagery EDR UML Diagram

5.2.13 VIIRS M13 Imagery EDR

5.2.13.1 VIIRS M13 Imagery EDR Data Content Summary

Table: 5.2.13.1-1 VIIRS M13 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	32-bit floating point	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures	32-bit floating point	[N*771, 4121]	[771, 4121]	Kelvin
File Size	25,418,328 BYTES				

5.2.13.2 VIIRS M13 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M13 EDRs.

Table: 5.2.13.2-1 VIIRS M13 Imagery EDR Product Profile

VIIRS M13-Band Imagery Product Profile

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	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		
BrightnessTemperatureOrReflectance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		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
		Brightness Temperatures (for an emissive M-Band) or Top of Atmosphere Reflectances (for a reflective M-Band) for the selected M-Band	0	Varies (for BrightnessTemp) or 0.00 (for Reflectance)	Varies (for BrightnessTemp) or 1.60 (for Reflectance)	Kelvin (for BrightnessTemp) or unitless (for Reflectance)	Yes	BrightnessTemperatureOrReflectanceFactors	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	
										VDNE_UINT16_FILL	65529	
										SOUB_UINT16_FILL	65528	

5.2.13.3 VIIRS M13 Imagery EDR HDF5 Details

M13 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M13-MOD-EDR
+Radiance : H5T_NATIVE_FLOAT
+BrightnessTemperature : H5T_NATIVE_FLOAT

Figure: 5.2.13.3-1 VIIRS M13 Imagery EDR UML Diagram

5.2.14 VIIRS M14 Imagery EDR

5.2.14.1 VIIRS M14 Imagery EDR Data Content Summary

Table: 5.2.14.1-1 VIIRS M14 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	Kelvin
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
BrightnessFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	12,709,180 Bytes				

5.2.14.2 VIIRS M14 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M14 EDRs.

Table: 5.2.14.2-1 VIIRS M14 Imagery EDR Product Profile**VIIRS M14-Band Imagery Product Profile**

Fields																													
Name	Data Size	Dimensions																											
Radiance	2byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>					Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121								
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																							
		AlongTrack	Yes	No	771	771																							
		CrossTrack	No	No	4121	4121																							
		Datum																											
		Description		Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries																
Top of Atmosphere radiances for the M-Band selected		0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_UINT16_FILL</td><td>65535</td></tr><tr><td>MISS_UINT16_FILL</td><td>65534</td></tr><tr><td>ONBOARD_PT_UINT16_FILL</td><td>65533</td></tr></table>	Name	Value	NA_UINT16_FILL	65535	MISS_UINT16_FILL	65534	ONBOARD_PT_UINT16_FILL	65533	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value									
Name	Value																												
NA_UINT16_FILL	65535																												
MISS_UINT16_FILL	65534																												
ONBOARD_PT_UINT16_FILL	65533																												
Name	Value																												

VIIRS M14-Band Imagery Product Profile - Scale 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.

5.2.14.3 VIIRS M14 Imagery EDR HDF5 Details

Figure below provides M14 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M14-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessFactors : H5T_NATIVE_FLOAT

Figure: 5.2.14.3-1 VIIRS M14 Imagery EDR UML Diagram

5.2.15 VIIRS M15 Imagery EDR

5.2.15.1 VIIRS M15 Imagery EDR Data Content Summary

Table: 5.2.15.1-1 VIIRS M15 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	Kelvin
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
BrightnessFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	12,709,180 Bytes				

5.2.15.2 VIIRS M15 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M15 EDRs.

Table: 5.2.15.2-1 VIIRS M15 Imagery EDR Product Profile**VIIRS M15-Band Imagery Product Profile**

Fields													
Name	Data Size	Dimensions											
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Top of Atmosphere radiances for the M-Band selected	0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	unsigned 16-bit integer	NameValue			
									NA_UINT16_FILL	65535			
									MISS_UINT16_FILL	65534			
									ONBOARD_PT_UINT16_FILL	65533			
									ONGROUND_PT_UINT16_FILL	65532			

VIIRS M15-Band Imagery Product Profile - Scale 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.

5.2.15.3 VIIRS M15 Imagery EDR HDF5 Details

Figure below provides M15 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M15-MOD-EDR
+Radiance : H5T_NATIVE_USHORT +BrightnessTemperature : H5T_NATIVE_USHORT +RadianceFactors : H5T_NATIVE_FLOAT +BrightnessFactors : H5T_NATIVE_FLOAT

Figure: 5.2.15.3-1 VIIRS M15 Imagery EDR UML Diagram

5.2.16 VIIRS M16 Imagery EDR

5.2.16.1 VIIRS M16 Imagery EDR Data Content Summary

Table: 5.2.16.1-1 VIIRS M16 Imagery EDR Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Radiance	TOA radiances	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	W/(m ² sr um)
BrightnessTemperature	Top of Atmosphere Equivalent Blackbody Brightness Temperatures	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	Kelvin
RadianceFactors	Scale = 1st array element; Offset = 2nd array element for the Band radiances	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = W/(m ² sr um)
BrightnessFactors	Scale = 1st array element; Offset = 2nd array element for the Band brightness temperatures	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin
File Size	12,709,180 Bytes				

5.2.16.2 VIIRS M16 Imagery EDR Product Profile

The following table represents the Product Profiles representative of the M16 EDRs.

Table: 5.2.16.2-1 VIIRS M16 Imagery EDR Product Profile**VIIRS M16-Band Imagery Product Profile**

Fields														
Name	Data Size	Dimensions												
Radiance	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		AlongTrack	Yes	No	771	771								
		CrossTrack	No	No	4121	4121								
		Datum												
		Description			Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries
		Top of Atmosphere radiances for the M-Band selected			0	Varies	Varies	W/(m2 sr um)	Yes	RadianceFactors	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	

VIIRS M16-Band Imagery Product Profile - Scale 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.

5.2.16.3 VIIRS M16 Imagery EDR HDF5 Details

M16 Imagery EDR UML Diagram provides details on the content and data types of the M-Band Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The M-Band Imagery product within the HDF5 file can be found within the Data_Products group. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-M16-MOD-EDR
+Radiance : H5T_NATIVE_USHORT
+BrightnessTemperature : H5T_NATIVE_USHORT
+RadianceFactors : H5T_NATIVE_FLOAT
+BrightnessFactors : H5T_NATIVE_FLOAT

Figure: 5.2.16.3-1 VIIRS M16 Imagery EDR UML Diagram

VIIRS M-Band Imagery EDR GTM Geolocation

The HDF5 metadata elements associated with the M-Band Imagery EDR are listed in the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band Imagery metadata includes all common metadata at the root, product, aggregation, and granule level. Note that one standard Imagery Metadata item at the granule level, Band_ID, is used to indicate the M-Band name (M1, M2, etc.) for the M-Band EDR. There are no additional granule level metadata elements for the M-Band Imagery.

Table: 5.2.16-2 VIIRS M-Band Imagery EDR GTM Geolocation Details

Data Mnemonic	None
Description/ Purpose	The M-Band GTM Geolocation is mapped to a GTM grid from the M-Band Resolution SDR Geolocation. The M-Band Imagery GTM Geolocation Data Content Summary provides geolocation details.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Estimated Granule Size: See VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	The VIIRS M-Band Imagery GTM Geolocation contains: - Time Field - Geolocation Angular Fields - Height and Satellite Range - Geolocation Quality Flags - SDR pixel mapping field (for SDR row and column) - Pad bytes See VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary

	See VIIRS M-Band Imagery EDR GTM Geolocation Product Profiles See VIIRS M-Band Imagery EDR GTM Geolocation HDF5 Details See VIIRS M-Band Imagery EDR GTM Geolocation HDF5 Metadata Details
--	--

5.2.16.4 VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary

Table: 5.2.16.4-1 VIIRS M-Band Imagery EDR GTM Geolocation Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Time	Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row	64-bit integer	[N*771]	[771]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
Height	Ellipsoid-Geoid separation	16-bit integer	[N*771, 4121]	[771, 4121]	meter
PadByte1	Pad byte	unsigned 8-bit char	[N*2]	[2]	unitless
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*771, 4121]	[771, 4121]	meter
QF1_VIIRSGTMGeo	Pixel Level Geolocation Quality Flags	unsigned 8-bit char	[N*771, 4121]	[771, 4121]	unitless
QF2_VIIRSGTMGeo	Granule Level Geolocation Quality Flags	unsigned 8-bit char	[N*1]	[1]	unitless
PixelRowSDR	Moderate SDR pixel row index number that was remapped to this	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	GTM pixel (row numbering begins with zero)				
PixelColSDR	Moderate SDR pixel column index number that was remapped to this GTM pixel (column numbering begins with zero)	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
PadByte2	Pad byte	unsigned 8-bit char	[N*4]	[4]	unitless
File Size	111,211,360 Bytes				

5.2.16.5 VIIRS M-Band Imagery EDR GTM Geolocation Product Profile

Table: 5.2.16.5-1 VIIRS M-Band Imagery EDR GTM Geolocation Product Profile**VIIRS M-Band Imagery GTM Geolocation Product Profile**

Fields																
Name	Data Size	Dimensions														
Time	8byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		Datum														
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row				0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	Name	Value	Name Value	
											NA_INT64_FILL	-999				
											MISS_INT64_FILL	-998				
											ERR_INT64_FILL	-995				
											VDNE_INT64_FILL	-993				
Latitude	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		CrossTrack	No	No	4121	4121										
		Datum														
		Description			Datum Offset	Unscaled Valid Range Min		Unscaled Valid Range Max		Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries
		Latitude of each pixel (positive North)			0	MIN_VAL		MAX_VAL		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	4byte(s)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121										
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																					
		AlongTrack	Yes	No	771	771																					
		CrossTrack	No	No	4121	4121																					
		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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121										
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																							
AlongTrack	Yes	No	771	771																							
CrossTrack	No	No	4121	4121																							
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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121										
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																							
AlongTrack	Yes	No	771	771																							
CrossTrack	No	No	4121	4121																							
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	MIN_VAL	MAX_VAL	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)	<table><tr><td>Name</td><td>Granule Boundary</td><td>Dynamic</td><td>Min Array Size</td><td>Max Array Size</td></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121										
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																							
AlongTrack	Yes	No	771	771																							
CrossTrack	No	No	4121	4121																							
Datum																											

		<table><tr><th colspan="2">Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th colspan="2">Fill Values</th><th>Legend Entries</th></tr><tr><td>Zenith angle to Satellite at each pixel position</td><td></td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>degree</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	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	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																															
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	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	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																																																																					
Name	Value																																																																					
SatelliteAzimuthAngle	4byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table> <table><tr><th colspan="12">Datum</th></tr><tr><th colspan="4">Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th colspan="2">Fill Values</th><th>Legend Entries</th></tr><tr><td colspan="4">Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>degree</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121	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 (measured clockwise positive from North) to Satellite at each pixel position				0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																																		
AlongTrack	Yes	No	771	771																																																																		
CrossTrack	No	No	4121	4121																																																																		
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 (measured clockwise positive from North) to Satellite at each pixel position				0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	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																																																																					
Name	Value																																																																					
Height	2byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table> <table><tr><th colspan="12">Datum</th></tr><tr><th colspan="2">Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th colspan="2">Fill Values</th><th>Legend Entries</th></tr><tr><td colspan="2">Ellipsoid-Geoid separation</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>meter</td><td>No</td><td></td><td>16-bit integer</td><td><table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121	Datum												Description		Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	Ellipsoid-Geoid separation		0	MIN_VAL	MAX_VAL	meter	No		16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table>	Name	Value	NA_INT16_FILL	-999	MISS_INT16_FILL	-998	ERR_INT16_FILL	-995	ELLIPSOID_INT16_FILL	-994	VDNE_INT16_FILL	-993	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value				
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																																		
AlongTrack	Yes	No	771	771																																																																		
CrossTrack	No	No	4121	4121																																																																		
Datum																																																																						
Description		Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries																																																											
Ellipsoid-Geoid separation		0	MIN_VAL	MAX_VAL	meter	No		16-bit integer	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_INT16_FILL</td><td>-999</td></tr><tr><td>MISS_INT16_FILL</td><td>-998</td></tr><tr><td>ERR_INT16_FILL</td><td>-995</td></tr><tr><td>ELLIPSOID_INT16_FILL</td><td>-994</td></tr><tr><td>VDNE_INT16_FILL</td><td>-993</td></tr></table>	Name	Value	NA_INT16_FILL	-999	MISS_INT16_FILL	-998	ERR_INT16_FILL	-995	ELLIPSOID_INT16_FILL	-994	VDNE_INT16_FILL	-993	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																														
Name	Value																																																																					
NA_INT16_FILL	-999																																																																					
MISS_INT16_FILL	-998																																																																					
ERR_INT16_FILL	-995																																																																					
ELLIPSOID_INT16_FILL	-994																																																																					
VDNE_INT16_FILL	-993																																																																					
Name	Value																																																																					
PadByte1	1byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>2</td><td>2</td></tr></table> <table><tr><th colspan="10">Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Pad byte</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>unitless</td><td>No</td><td></td><td>unsigned 8-bit char</td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	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	Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																								
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																																		
Granule	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																																																													
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																																									
Name	Value																																																																					
Name	Value																																																																					
SatelliteRange	4byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>AlongTrack</td><td>Yes</td><td>No</td><td>771</td><td>771</td></tr><tr><td>CrossTrack</td><td>No</td><td>No</td><td>4121</td><td>4121</td></tr></table> <table><tr><th colspan="12">Datum</th></tr><tr><th colspan="4">Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor Name</th><th>Data Type</th><th colspan="2">Fill Values</th><th>Legend Entries</th></tr><tr><td colspan="4">Line of sight distance from the ellipsoid intersection to the satellite</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>meter</td><td>No</td><td></td><td>32-bit floating point</td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	AlongTrack	Yes	No	771	771	CrossTrack	No	No	4121	4121	Datum												Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	Line of sight distance from the ellipsoid intersection to the satellite				0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value										
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																																		
AlongTrack	Yes	No	771	771																																																																		
CrossTrack	No	No	4121	4121																																																																		
Datum																																																																						
Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries																																																									
Line of sight distance from the ellipsoid intersection to the satellite				0	MIN_VAL	MAX_VAL	meter	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																																						
Name	Value																																																																					
Name	Value																																																																					

94
Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

PadByte2	1byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>4</td><td>4</td></tr></table>											Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	Yes	No	4	4
		Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																
		Granule	Yes	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											
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value									
Name	Value																					
Name	Value																					

5.2.16.6 VIIRS M-Band Imagery EDR GTM Geolocation HDF5 Details

The M-Band Imagery GTM Geolocation is mapped to a GTM grid from the VIIRS M-Band Resolution SDR Geolocation. Figure below provides M-Band Imagery GTM Geolocation UML Diagram provides details on the contents and data types of the M-Band Imagery geolocation.

VIIRS-MOD-GTM-EDR-GEO
+Time : 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_SHORT +PadByte1 : H5T_NATIVE_UCHAR +SatelliteRange : H5T_NATIVE_FLOAT +QF1_VIIRSGTMGEO : H5T_NATIVE_UCHAR +QF2_VIIRSGTMGEO : H5T_NATIVE_UCHAR +PixelRowSDR : H5T_NATIVE_USHORT +PixelColSDR : H5T_NATIVE_USHORT +PadByte2 : H5T_NATIVE_UCHAR

Figure: 5.2.16.6-1 VIIRS M-Band Imagery EDR GTM Geolocation UML Diagram

5.2.16.6.1 VIIRS M-Band Imagery EDR GTM Geolocation

The HDF5 metadata elements associated with the M-Band Imagery GTM Geolocation EDR are listed in the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms, 474-00448-02-01. The M-Band Imagery GTM Geolocation metadata includes all common metadata at the root, product, aggregation, and granule level. Note that M-Band Imagery is delivered with no quality flags. Therefore, there are no granule level summary quality flags in the M-Band's N_Quality_Summary_Name/Value metadata attributes.

5.3 VIIRS Near Constant Contrast (NCC) Imagery

Data Mnemonic	EDRE-IMAG-C1030 (Official)
Description/ Purpose	The VIIRS Near Constant Contrast (NCC) imagery EDR includes a daytime/nighttime visible imagery product that maintains apparent contrast under daytime, nighttime, and terminator region illumination conditions. This product is derived from the daytime/nighttime visible band (DNB) and mapped onto the same GTM Grid as the VIIRS M-Band Resolution Imagery. The "PixelRowSDR" and "PixelColSDR" geolocation fields provide the SDR row and column coordinate for each GTM pixel mapping. The pixel level geolocation quality flag "QF1_VIIRSGTMGEO" provides a flag that indicates whether a pixel has crossed a granule boundary during the SDR to GTM mapping process. If a granule boundary was crossed, the original SDR pixel may be located using effectivity time or the N_Input_Prod standard metadata item may be used to obtain the N_Reference_ID for each SDR granule.

	The NCC visible imagery minimizes the apparent transition across the terminator when it is viewed on a graphical display system so that apparent image contrast is maintained across the imagery. NCC Visible Imagery is derived from the broad DNB measured in regions with solar illumination in daytime, with lunar illumination at night, and near the terminator (twilight) region.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Estimated Granule Size: See VIIRS NCC Imagery Data Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	See NCC Imagery Data Content Summary See NCC Imagery Product Profile See NCC Imagery HDF5 Details See NCC Imagery HDF5 Metadata Details See NCC Imagery GTM Geolocation Details See NCC Imagery GTM Geolocation Product Profile See NCC Imagery GTM Geolocation HDF5 Details See NCC Imagery GTM Geolocation HDF5 Metadata Details

5.3.1 VIIRS NCC Imagery EDR

5.3.1.1 VIIRS NCC Imagery Data Content Summary

Table: 5.3.1.1-1 VIIRS NCC Imagery Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Albedo	Normalized Top of Atmosphere Reflectance (no atmospheric correction applied)	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
QF1_VIIRSNCCEDR	Pixel Level Quality Flags	unsigned 8-bit char	[N*771, 4121]	[771, 4121]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*3]	[3]	unitless
AlbedoFactors	Scale = 1 st array element; Offset = 2 nd array element for the NCC Albedo	32-bit floating point	[N*2]	[2]	unitless
File Size	9,531,884 Bytes				

5.3.1.2 VIIRS NCC Imagery EDR Product Profile

Table: 5.3.1.2-1 VIIRS NCC Imagery EDR Product Profile

VIIRS NCC Imagery Product Profile

Fields													
Name	Data Size	Dimensions											
Albedo	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size							
		AlongTrack	Yes	No	771	771							
		CrossTrack	No	No	4121	4121							
		Datum											
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
		Normalized Top of Atmosphere Reflectance (no atmospheric correction applied)	0	-10	1000	unitless	Yes	AlbedoFactors	unsigned 16-bit integer	Name	Value	NameValue	
										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		

VIIRS NCC Imagery Product Profile - Quality Flags

Fields																
Name	Data Size	Dimensions														
QF1_VIIRSNCCEDR	1byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		CrossTrack	No	No	4121	4121										
		Datum														
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		
		Imagery Quality (Pixel Quality as determined by the SDR Calibration Quality.)				0	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value	
														Good	0	
														Poor	1	
														No Calibration	2	
		Pixel is Saturated				2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value		
														False	0	
														True	1	
		Missing Data (Data required for calibration processing is not available for processing)				3	MIN_VAL	MAX_VAL	unitless	No		2 bit(s)	Name Value	Name	Value	
														All data present	0	
												Earth View RDR data missing	1			
												Cal data (Space View, Earth View, Cal View, Solar Diffuser) missing	2			
												Thermistor Data Missing	3			
Out of Range - Calibrated pixel value outside of LUT threshold limits				5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name	Value			
												All Data Within Range	0			
												DNB Radiance Out of Range	1			
Spare				6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value				
NCC Error (Processing error occurred while trying to produce NCC pixel)				7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value				
													False	0		
													True	1		
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					

VIIRS NCC Imagery Product Profile - Scale Factors

Fields														
Name	Data Size	Dimensions												
AlbedoFactors	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size								
		Granule	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

5.3.1.3 VIIRS NCC Imagery EDR HDF5 Details

Figure below provides the, NCC Imagery UML Diagram provides details on the content and data types of the NCC Imagery product. This UML provides details at the product level only. In addition to this UML, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product. The NCC Imagery product within the HDF5 file can be found within the Data_Products group with the group name of VIIRS-NCC-EDR. The aggregation and granule(s) contain the data fields listed in the UML. The corresponding HDF5 data type for each field is also provided.

VIIRS-NCC-EDR
+Albedo : H5T_NATIVE_USHORT
+QF1_VIIRSNCCEDR : H5T_NATIVE_UCHAR
+PadByte1 : H5T_NATIVE_UCHAR
+AlbedoFactors : H5T_NATIVE_FLOAT

Figure: 5.3.1.3-1 VIIRS NCC Imagery UML Diagram

VIIRS NCC Imagery EDR HDF5 Metadata Details

The HDF5 metadata elements associated with the NCC Imagery EDR are listed in the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms, 474-00448-02-01. The NCC Imagery metadata includes all common metadata at the root, product, aggregation, and granule level. In addition, NCC Imagery HDF5 Metadata includes granule level Quality Flags stored as metadata in the N_Quality_Summary_Name and N_Quality_Summary Value metadata attributes. The NCC content and format is identical to the I-Band. See Section 5.1.1.4, I-Band Imagery HDF5 Metadata Details for content and format. Also note that there is a standard granule level metadata item that identifies the NCC Band. This metadata item is the “Band_ID” and is set to “DNB” since the NCC Imagery is created from the Day-Night Band SDR product.

5.3.2 VIIRS NCC Imagery GTM Geolocation

Data Mnemonic	None.
Description/ Purpose	The NCC Geolocation is mapped to a GTM grid from the Day-Night Band (DNB) SDR Geolocation. VIIRS NCC Imagery GTM EDR Geolocation Data Content Summary provides geolocation details.
File-Naming Construct	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Estimated Granule Size: See VIIRS NCC Imagery EDR GTM Geolocation Data Content Summary for size.
File Format Type	HDF5
Data Content and Data Format	The VIIRS NCC Imagery GTM Geolocation contains: Time Field Geolocation Angular Fields Height and Satellite Range Geolocation Quality Flags

	SDR pixel mapping field (for SDR row and column) Pad bytes See VIIRS NCC Imagery GTM Geolocation Content Summary See VIIRS NCC Imagery GTM Geolocation Product Profiles See VIIRS NCC Imagery GTM Geolocation HDF5 Details See VIIRS NCC Imagery GTM Geolocation HDF5 Metadata Details
--	--

5.3.2.1 VIIRS NCC Imagery EDR GTM Geolocation Data Content Summary

Table: 5.3.2-1 VIIRS NCC Imagery EDR GTM Geolocation Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
Time	Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row	64-bit integer	[N*771]	[771]	microsecond
Latitude	Latitude of each pixel (positive North)	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
Longitude	Longitude of each pixel (positive East)	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SolarZenithAngle	Zenith angle of sun at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SatelliteZenithAngle	Zenith angle to Satellite at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*771, 4121]	[771, 4121]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*771, 4121]	[771, 4121]	meter
QF1_VIIRSGTMGeo	Pixel Level Geolocation Quality Flags	unsigned 8-bit char	[N*771, 4121]	[771, 4121]	unitless
QF2_VIIRSGTMGeo	Granule Level Quality Flag	unsigned 8-bit char	[N*1]	[1]	unitless
PixelRowSDR	Day-Night Band SDR pixel row index number that was remapped to	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
	this GTM pixel (row numbering begins with zero)				
PixelColSDR	Day-Night Band SDR pixel column index number that was remapped to this GTM pixel (column numbering begins with zero)	unsigned 16-bit integer	[N*771, 4121]	[771, 4121]	unitless
MoonIllumFraction	Fraction of the moon illuminated	32-bit floating point	[N*1]	[1]	percent
LunarZenithAngle	Zenith angle of moon at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
LunarAzimuthAngle	Azimuth angle of moon (measured clockwise positive from North) at each pixel position	32-bit floating point	[N*771, 4121]	[771, 4121]	degree
PadByte1	Pad byte	unsigned 8-bit char	[N*4]	[4]	unitless
File Size	142,984,272 Bytes				

5.3.2.2 VIIRS NCC Imagery EDR GTM Geolocation Product Profiles

Table: 5.3.2.2-1 VIIRS NCC Imagery EDR GTM Geolocation Product Profile

VIIRS NCC Imagery GTM Geolocation Product Profile

Fields																										
Name	Data Size	Dimensions																								
Time	8byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																				
		AlongTrack	Yes	No	771	771																				
		Datum																								
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries												
		Time of the nadir point of the GTM row in IET (1/1/1958). Represents the time of the nadir point of the GTM row				0	MIN_VAL	MAX_VAL	microsecond	No		64-bit integer	<table><tr><td>Name</td><td>Value</td></tr><tr><td>NA INT64_FILL</td><td>-999</td></tr><tr><td>MISS_INT64_FILL</td><td>-998</td></tr><tr><td>ERR_INT64_FILL</td><td>-995</td></tr><tr><td>VDNE_INT64_FILL</td><td>-993</td></tr></table>	Name	Value	NA INT64_FILL	-999	MISS_INT64_FILL	-998	ERR_INT64_FILL	-995	VDNE_INT64_FILL	-993	<table><tr><td>Name</td><td>Value</td></tr><tr><td></td><td></td></tr></table>	Name	Value
Name	Value																									
NA INT64_FILL	-999																									
MISS_INT64_FILL	-998																									
ERR_INT64_FILL	-995																									
VDNE_INT64_FILL	-993																									
Name	Value																									
Latitude	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																				
		AlongTrack	Yes	No	771	771																				
		CrossTrack	No	No	4121	4121																				
		Datum																								
		Description				Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries												

104
Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

105
Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

		AlongTrack	Yes	No	771	771
		CrossTrack	No	No	4121	4121
QF1_VIIRSGTMGEO	1byte(s)	Datum				
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units
		Line of sight distance from the ellipsoid intersection to the satellite	0	MIN_VAL	MAX_VAL	meter
QF2_VIIRSGTMGEO	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array Size				
		AlongTrack	Yes	No	771	771
		CrossTrack	No	No	4121	4121
		Datum				
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units
		DNB Pixel Mapping (GTM to SDR DNB). Indicates whether this pixel originated from the previous, current, or next granule in the SDR DNB geolocation.	0	MIN_VAL	MAX_VAL	unitless
QF2_VIIRSGTMGEO	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
		Solar Eclipse	0	MIN_VAL	MAX_VAL	unitless
		Lunar Eclipse	1	MIN_VAL	MAX_VAL	unitless
PixelRowSDR	2byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array Size				
		AlongTrack	Yes	No	771	771
		CrossTrack	No	No	4121	4121
		Datum				
		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units
		Day-Night Band SDR pixel row index number that was remapped to this GTM pixel (row numbering begins with zero)	0	MIN_VAL	MAX_VAL	unitless

												ELLIPSOID_UINT16_FILL	65530			
												VDNE_UINT16_FILL	65529			
PixelColSDR	2byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		CrossTrack	No	No	4121	4121										
		Datum														
		Description					Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries	
		Day-Night Band SDR pixel column index number that was remapped to this GTM pixel (column numbering begins with zero)					0	MIN_VAL	MAX_VAL	unitless	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			
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	
		Fraction of the moon illuminated (expressed as percent)					0	MIN_VAL	MAX_VAL	percent	No		32-bit floating point	Name	Value	Name Value
														NA_FLOAT32_FILL	-999.9	
														MISS_FLOAT32_FILL	-999.8	
														ERR_FLOAT32_FILL	-999.5	
														VDNE_FLOAT32_FILL	-999.3	
LunarZenithAngle	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		CrossTrack	No	No	4121	4121										
		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 moon at each pixel position					0	MIN_VAL	MAX_VAL	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	
LunarAzimuthAngle	4byte(s)	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size										
		AlongTrack	Yes	No	771	771										
		CrossTrack	No	No	4121	4121										
		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 moon (measured clockwise positive from North) at each pixel position	0	MIN_VAL	MAX_VAL	degree	No		32-bit floating point	<table><tr><th>Name</th><th>Value</th></tr><tr><td>NA_FLOAT32_FILL</td><td>-999.9</td></tr><tr><td>MISS_FLOAT32_FILL</td><td>-999.8</td></tr><tr><td>ERR_FLOAT32_FILL</td><td>-999.5</td></tr><tr><td>ELLIPSOID_FLOAT32_FILL</td><td>-999.4</td></tr><tr><td>VDNE_FLOAT32_FILL</td><td>-999.3</td></tr></table>	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	<table><tr><th>Name</th><th>Value</th></tr></table>	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																																																
Name	Value																																																
PadByte1	1byte(s)	<table><tr><th>Name</th><th>Granule Boundary</th><th>Dynamic</th><th>Min Array Size</th><th>Max Array Size</th></tr><tr><td>Granule</td><td>Yes</td><td>No</td><td>4</td><td>4</td></tr></table> <table><tr><th colspan="11">Datum</th></tr><tr><th>Description</th><th>Datum Offset</th><th>Unscaled Valid Range Min</th><th>Unscaled Valid Range Max</th><th>Measurement Units</th><th>Scaled</th><th>Scale Factor</th><th>Name</th><th>Data Type</th><th>Fill Values</th><th>Legend Entries</th></tr><tr><td>Pad byte</td><td>0</td><td>MIN_VAL</td><td>MAX_VAL</td><td>unitless</td><td>No</td><td></td><td>unsigned 8-bit char</td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td><table><tr><th>Name</th><th>Value</th></tr></table></td><td></td></tr></table>	Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Granule	Yes	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	Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																													
Granule	Yes	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																																							
Pad byte	0	MIN_VAL	MAX_VAL	unitless	No		unsigned 8-bit char	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value	<table><tr><th>Name</th><th>Value</th></tr></table>	Name	Value																																				
Name	Value																																																
Name	Value																																																

5.3.2.3 VIIRS NCC Imagery EDR GTM Geolocation HDF5 Details

The NCC Imagery Geolocation is mapped to a GTM grid from the Day-Night Band SDR Geolocation. Figure below provides NCC Imagery GTM Geolocation UML Diagram provides details on the contents and data types of the NCC Imagery geolocation.

VIIRS-NCC-EDR-GEO
+Time : 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 +QF1_VIIRSGTMGEO : H5T_NATIVE_UCHAR +QF2_VIIRSGTMGEO : H5T_NATIVE_UCHAR +PixelRowSDR : H5T_NATIVE_USHORT +PixelColSDR : H5T_NATIVE_USHORT +MoonIllumFraction : H5T_NATIVE_FLOAT +LunarZenithAngle : H5T_NATIVE_FLOAT +LunarAzimuthAngle : H5T_NATIVE_FLOAT +PadByte1 : H5T_NATIVE_UCHAR

Figure: 5.3.2.3-1 VIIRS NCC Imagery GTM Geolocation UML Diagram

VIIRS NCC Imagery EDR GTM Geolocation HDF5 Metadata Details

The HDF5 metadata elements associated with the NCC Imagery GTM Geolocation EDR are listed in the JPSS Algorithm Specification Vol. II: Data Dictionary for the Common Algorithms, 474-00448-02-01. The NCC Imagery GTM Geolocation metadata includes all common metadata at the root, product, aggregation, and granule level. There are no additional metadata elements or granule level quality flags for this geolocation.

6 ANCILLARY AND AUXILIARY DATA INPUTS

Not Applicable

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.

7.1.1 VIIRS Imagery LUTs

7.1.1.1 VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT

Data Mnemonic	NP_NU-LM0233-013
----------------------	------------------

Description/ Purpose	The VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT file contains the gain values for the lunar illuminated scene signal for the Day/Night Band (DNB) for various lunar zenith angles. Note: It is not a function of elevation angle, despite the word “elevation” in the name (a heritage artifact). It is, however, indirectly a function, since the elevation angle is the complement of the zenith angle. This file is used in the VIIRS Near Constant Contrast (NCC) 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 7.1.1.1-1, VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	One time per instrument during intensive Cal/Val using the Algorithm Support Function (ASF).
Data Content and Data Format	For details see Table 7.1.1.1-1, VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT Data Format

Table: 7.1.1.1-1 VIIRS NCC Gain Value Versus Scene Lunar Zenith LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
angle	4204	32-bit floating point	0 - 180	Degrees	1 Dimensional Array: ZENITH_ANGLE_GAIN_BINS Size of Dimension(s): 1051
gain	4204	32-bit floating point	1 - 1e+12	unitless	1 Dimensional Array: ZENITH_ANGLE_GAIN_BINS Size of Dimension(s): 1051
File Size	8,408 Bytes				

7.1.1.2 VIIRS NCC Gain Value Versus Scene Solar Elevation LUT

Data Mnemonic	NP_NU-LM0233-014
Description/ Purpose	The VIIRS NCC Gain Value Versus Scene Solar Elevation (GVVSSE) LUT file contains gain values for the solar illuminated scene signal from the DNB for various solar zenith angles. Note: It is not a function of elevation angle, despite the word “elevation” in the name (a heritage artifact). It is, however, indirectly a function, since the elevation angle is the complement of the zenith angle. This file is used in the VIIRS NCC 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 7.1.1.2-1, VIIRS NCC Gain Value Versus Scene Solar Elevation LUT Data Format for size
File Format Type	Little Endian Binary
Production Frequency	Once per instrument during intensive Cal/Val
Data Content and Data Format	For details see Table 7.1.1.2-1, VIIRS NCC Gain Value Versus Scene Solar Elevation LUT Data Format

Table: 7.1.1.2-1 VIIRS NCC Gain Value Versus Scene Solar elevation LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
angle	4204	32-bit floating point	0 - 180	Degrees	1 Dimensional Array: ZENITH_ANGLE_GAIN_BINS Size of Dimension(s): 1051
gain	4204	32-bit floating point	1 - 7e+7	Unitless	1 Dimensional Array: ZENITH_ANGLE_GAIN_BINS Size of Dimension(s): 1051
File Size	8,408 Bytes				

7.1.1.3 VIIRS NCC Lunar BRDF LUT

Data Mnemonic	NP_NU-LM0233-015
Description/ Purpose	The VIIRS NCC Lunar BRDF LUT file contains the anisotropic reflectance factors for the lunar scene signal from the VIIRS DNB. Note: This is not truly a Bidirectional Reflectance Distribution Function (BRDF) since it is not in units of sr^{-1}, though dividing the values in the file by pi steradians produces a true BRDF. This file is used in the VIIRS NCC 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 7.1.1.3-1, VIIRS NCC Lunar BRDF LUT Data Format for size
File Format Type	Little Endian Binary
Production Frequency	Once before launch
Data Content and Data Format	For details see Table 7.1.1.3-1, VIIRS NCC Lunar BRDF LUT Data Format

Table: 7.1.1.3-1 VIIRS NCC Lunar BRDF PC Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
zenith_angle	28	32-bit floating point	0 - 105	Degrees	1 Dimensional Array: ZENITH Size of Dimension(s): 7
view_angle	24	32-bit floating point	0 - 57	Degrees	1 Dimensional Array: VIEW Size of Dimension(s): 6
relative_azimuth	36	32-bit floating point	-180 - 180	Degrees	1 Dimensional Array: RELA Size of Dimension(s): 9
brdf	1512	32-bit floating point	0.5 - 1.5	unitless	Anisotropic reflectance factors 3 Dimensional Array: ZENITH x VIEW x RELA Size of Dimension(s): 7 x 6 x 9
File Size	1,600 Bytes				

7.1.1.4 VIIRS NCC Lunar Phase LUT

Data Mnemonic	NP_NU-LM0233-016
Description/ Purpose	The VIIRS NCC Lunar Phase LUT file contains values used in calculation of the lunar irradiance as a function of the phase angle of the moon. Note: The lunar radiance as defined here as the radiance that would be observed from a 100% albedo surface where the lunar zenith angle is zero. This file is used in the VIIRS NCC 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 7.1.1.4-1, VIIRS NCC Lunar Phase LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Once before launch
Data Content and Data Format	For details see Table 7.1.1.4-1, VIIRS NCC Lunar Phase LUT Data Format

Table: 7.1.1.4-1 VIIRS NCC Lunar Phase LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Lunar_phase_bins	20	32-bit floating point	0 - 180	degrees	1 Dimensional Array: LPHASE (lunar phase angle) Size of Dimension(s): 5
Lunar_source	20	32-bit floating point	-1e10 - 1e-07	W/(cm ² sr)	1 Dimensional Array: LSRC (Lunar Source Irradiance) Size of Dimension(s): 5
File Size	40 Bytes				

7.1.1.5 VIIRS NCC Solar BRDF LUT

Data Mnemonic	NP_NU-LM0233-017
Description/ Purpose	The VIIRS NCC Solar BRDF LUT file contains the anisotropic reflectance factors for the solar scene signal from the DNB. Note: This is not truly a Bidirectional Reflectance Distribution Function (BRDF) since it is not in units of sr^{-1}, though dividing the values in the file by pi steradians produces a true BRDF. This file is used in the VIIRS NCC and Bright Pixel 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 7.1.1.5-1, VIIRS NCC Solar BRDF LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	Once before launch
Data Content and Data Format	For details see Table 7.1.1.5-1, VIIRS NCC Solar BRDF LUT Data Format

Table: 7.1.1.5-1 VIIRS NCC Solar BRDF LUT Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
zenith_angle	28	32-bit floating point	0 - 105	Degrees	1 Dimensional Array: ZENITH Size of Dimension(s): 7
view_angle	24	32-bit floating point	0 - 57	Degrees	1 Dimensional Array: VIEW Size of Dimension(s): 6
relative_azimuth	36	32-bit floating point	-180 - 180	Degrees	1 Dimensional Array: RELA Size of Dimension(s): 9
brdf	1512	32-bit floating point	0.5 - 1.5	unitless	Anisotropic reflectance factors 3 Dimensional Array: ZENITH x VIEW x RELA Size of Dimension(s): 7 x 6 x 9
File Size	1,600 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 Imagery Automated PCs

The VIIRS Imagery EDR currently uses 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 Imagery Initialization PCs

The VIIRS Imagery EDR currently uses no Initialization PCs.

7.2.2.2 VIIRS NCC Imagery Ephemeral PCTs

Data Mnemonic	DP_NU-LM2020-023
Description/ Purpose	The VIIRS Near Constant Contrast (NCC) Imagery EDR 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
File Size	See Table 7.2.2.2-1 VIIRS NCC Imagery EDR Ephemeral PCT
File Format Type	Little Endian Binary

Data Mnemonic	DP_NU-LM2020-023
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.2.2.2-1 VIIRS NCC Imagery EDR Ephemeral PCT

Table: 7.2-1 VIIRS NCC Imagery EDR Ephemeral PCT

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
solar_irradiance	4	32-bit floating point	Initially set to 0.01695	W/(cm ² *sr)	Constant used to compute the solar radiance from the anisotropic reflectance factor and the gain
lza_threshold	4	32-bit floating point	Initially set to 180	degrees	Maximum lunar zenith angle threshold (values greater than this threshold result in a gain of 0)
sza_threshold	4	32-bit floating point	Initially set to 180	degrees	Maximum solar zenith angle threshold (values greater than this threshold result in a gain of 0)
max_lunar_arf	4	32-bit floating point	Initially set to 1.5	unitless	Maximum lunar anisotropic reflectance factor threshold (values greater than this threshold result in lunar radiance FILL)
min_lunar_arf	4	32-bit floating point	Initially set to 0.5	unitless	Minimum lunar anisotropic reflectance factor threshold (values less than this threshold result in lunar radiance FILL)
max_solar_arf	4	32-bit floating point	Initially set to 1.5	unitless	Maximum solar anisotropic reflectance factor threshold (values greater than this threshold result in solar radiance FILL)
min_solar_arf	4	32-bit floating point	Initially set to 0.5	unitless	Minimum solar anisotropic reflectance factor threshold (values less than this threshold result in solar radiance FILL)
min_ncc_radiance	4	32-bit floating point	Initially set to -1.0e-8	W/(cm ² *sr)	Minimum solar radiance threshold (values less than this threshold result in NCC albedo FILL)
File Size	32 Bytes				

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 for Geolocation data.

Appendix B. 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.

Table: B-1 DQTT Quality Flag Mapping

Algorithm	Product	Test ID	Quality Flag
VIIRS I-Band Imagery	VIIRS-I1-IMG-EDR	4100	Summary Imagery Quality
VIIRS I-Band Imagery	VIIRS-I1-IMG-EDR	4101	Summary Range check
VIIRS I-Band Imagery	VIIRS-I1-IMG-EDR	4102	Summary Saturated Pixel
VIIRS I-Band Imagery	VIIRS-I2-IMG-EDR	4200	Summary Imagery Quality
VIIRS I-Band Imagery	VIIRS-I2-IMG-EDR	4201	Summary Range check
VIIRS I-Band Imagery	VIIRS-I2-IMG-EDR	4202	Summary Saturated Pixel
VIIRS I-Band Imagery	VIIRS-I3-IMG-EDR	4300	Summary Imagery Quality
VIIRS I-Band Imagery	VIIRS-I3-IMG-EDR	4301	Summary Range check
VIIRS I-Band Imagery	VIIRS-I3-IMG-EDR	4302	Summary Saturated Pixel
VIIRS I-Band Imagery	VIIRS-I4-IMG-EDR	4400	Summary Imagery Quality
VIIRS I-Band Imagery	VIIRS-I4-IMG-EDR	4401	Summary Range check
VIIRS I-Band Imagery	VIIRS-I4-IMG-EDR	4402	Summary Saturated Pixel
VIIRS I-Band Imagery	VIIRS-I5-IMG-EDR	4500	Summary Imagery Quality
VIIRS I-Band Imagery	VIIRS-I5-IMG-EDR	4501	Summary Range check
VIIRS I-Band Imagery	VIIRS-I5-IMG-EDR	4502	Summary Saturated Pixel
VIIRS NCC Imagery	VIIRS-NCC-EDR	4600	Summary Imagery Quality
VIIRS NCC Imagery	VIIRS-NCC-EDR	4601	Summary Range check
VIIRS NCC Imagery	VIIRS-NCC-EDR	4602	Summary Saturated Pixel

Appendix C. Abbreviations and Acronyms

See 470-00041 JPSS Program Lexicon for abbreviations and acronyms.

Attachment A. XML Formats for Related Data Products**Table: ATT-1 XML Formats for Related Products**

File Number	XML Filename
1	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-I1-IMG-EDR-PP.xml
2	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-I2-IMG-EDR-PP.xml
3	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-I3-IMG-EDR-PP.xml
4	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-I4-IMG-EDR-PP.xml
5	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-I5-IMG-EDR-PP.xml
6	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-IMG-GTM-EDR-GEO-PP.xml
7	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M1-MOD-EDR-PP.xml
8	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M2-MOD-EDR-PP.xml
9	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M3-MOD-EDR-PP.xml
10	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M4-MOD-EDR-PP.xml
11	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M5-MOD-EDR-PP.xml
12	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M6-MOD-EDR-PP.xml
13	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M7-MOD-EDR-PP.xml
14	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M8-MOD-EDR-PP.xml
15	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M9-MOD-EDR-PP.xml
16	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M10-MOD-EDR-PP.xml
17	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M11-MOD-EDR-PP.xml
18	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M12-MOD-EDR-PP.xml
19	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M13-MOD-EDR-PP.xml
20	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M14-MOD-EDR-PP.xml
21	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M15-MOD-EDR-PP.xml
22	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-M16-MOD-EDR-PP.xml
23	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-MOD-GTM-EDR-GEO-PP.xml
24	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-NCC-EDR-PP.xml
25	474-00448-02-26 JPSS-VIIRS-Imagery-DD-Part-26 J VIIRS-NCC-EDR-GEO-PP.xml