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

Block 2.0.0



Goddard Space Flight Center Greenbelt, Maryland

National Aeronautics and Space Administration

Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the ATMS RDR/TDR/SDR JPSS Review/Approval Page

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Preface

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

Any questions should be addressed to:

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Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)	Sections Affected
0200-	Jul 26, 2013	This version incorporates 474-CCR-13-1098	All
		which was approved by JPSS Ground ERB on the effective date shown.	
0200A	Jan 16, 2014	This version incorporates 474-CCR-13-1412 All which was approved by JPSS Ground ERB on the effective date shown.	
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	Aug 13, 2014	This version incorporates 474-CCR-14-1865 which was approved by JPSS Ground ERB on the effective date shown.	
0200C	Feb. 26, 2015	, 2015 This version incorporates 474-CCR-14-2168, 474-CCR-15-2288 and 474-CCR-15-2289, which was approved by JPSS Ground ERB on the effective date shown.	
0200D	Jul. 28, 2015	This version incorporates 474-CCR-15-2506, which was approved by JPSS Ground ERB on the effective date shown.	All

List of TBx Items

TBx	Type	ID	Text	Action
1	TBD	SRS.02.02_90	The detailed structure and	Define Document number
			contents of the APs are	
			documented in the Mission	
			Data Format Control Book	
			(MDFCB) for each mission,	
			GSFC 429-05-02-42 for S-	
			NPP, 472-00251 for JPSS-1,	
			and 472-TBD2 for JPSS-2.	
			For more information on AP	
			formatting, see the	
			Recommendations for	
			Advanced Orbiting Systems,	
			Networks and Data Links,	
			CCSDS 701.0-B-2, Section	
			3.3.3.	

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1 Introduction

1.1 Scope

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

1.2 Organization

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

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	
474-00448-01-02	Joint Polar Satellite System (JPSS) Algorithm Specification Volume I:	
	Software Requirements Specification (SRS) for the ATMS RDR/TDR/SDR	

2.2 Applicable Documents

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

Document Number	Title	
NPR 7150.2A	NASA Software Engineering Requirements	
474-00167	Joint Polar Satellite System (JPSS) Common Ground System (CGS) Requirements Document	
474-00005	Joint Polar Satellite System (JPSS) Government Resource for Algorithm Verification, Independent Testing, and Evaluation (GRAVITE) Requirements Specification	
474-00448-04-02	Joint Polar Satellite System (JPSS) Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for the ATMS RDR/TDR/SDR	
N/A	Hierarchical Data Format, Version 5 (HDF5), http://www.hdfgroup.org/HDF5/	

2.3 Information Documents

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

Document Number	Title	
474-00043	Joint Polar Satellite System (JPSS) Advanced Technology Microwave	
	Sounder (ATMS) SDR Radiometric Calibration Algorithm Theoretical Basis	
	Document (ATBD)	
474-00448-03-02	Joint Polar Satellite System (JPSS) Algorithm Specification Volume III:	
	Operational Algorithm Description (OAD) for the ATMS RDR/TDR/SDR	

Document Number	Title	
474-00333	Joint Polar Satellite System (JPSS) Ground System (GS) Architecture Description Document (ADD)	
474-00054	Joint Polar Satellite System (JPSS) Ground System (GS) Concept of Operations (ConOps)	
470-00041	Joint Polar Satellite System (JPSS) Program Lexicon	
474-00001-01	Joint Polar Satellite System (JPSS) Common Data Format Control Book, Vol I – Overview	
474-00448-02-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Common Algorithms	
429-05-02-42	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for NPP	
472-00251	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for JPSS-1	
472-00334	Joint Polar Satellite System-1 (JPSS-1) Advanced Technology Microwave Sounder (ATMS) Mission Data Packet Structures	

3 UML for HDF5 Products

3.1 RDR HDF5 Details

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

Each HDF5 RDR file contains an HDF5 Root Group, '/', a Data Products Group, one or more Product Groups (CollectionShortName), and an All Data Group containing one or more (CollectionShortName) All groups. The latter group contains the Dataset Array which holds the common RDR structures of Consultative Committee for Space Data Systems (CCSDS) structured APs. For Science and Diagnostic RDRs a Spacecraft Diary Group is also included in the Data_Products group. The Product Groups and Spacecraft Diary Group both contain datasets – an Aggregation Dataset (CollectionShortName Aggr) and Granule Datasets (CollectionShortName_Gran_n – where n indicates the nth granule in a temporal aggregation of granules (0 .. n-1)). A granule is a general term used to describe the minimum quanta of data collected per processing period, generally on the order of seconds. For the definition and organization of the metadata attributes contained in the HDF5 files, see 474-00001-05, JPSS CDFCB-X Vol. V of this data dictionary. Attributes that are specific to a particular RDR are listed with the specific RDR's data format definition. Note: In the UML diagrams, an '*' following the name of an attribute indicates an element with exceptions; see JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms, for the details of the exception.

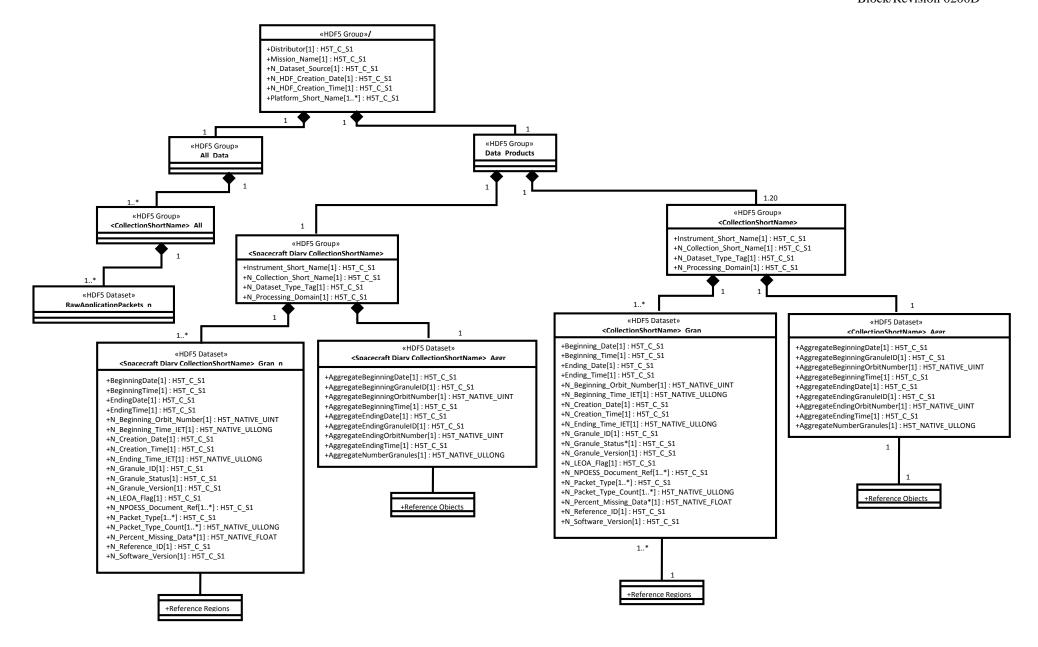


Figure: 3.1-1 Science and Diagnostic RDR Generalized UML Diagram

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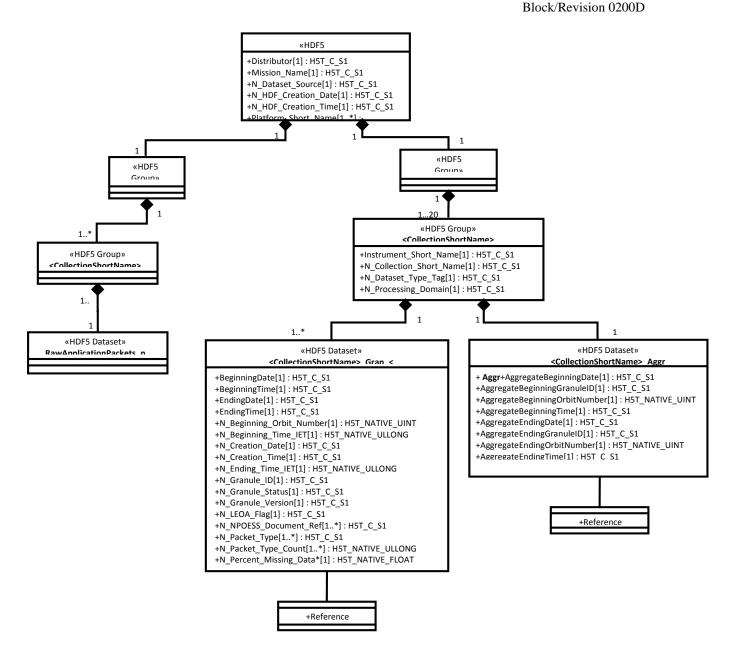


Figure: 3.1-2 Dwell, Dump, Telemetry, and Spacecraft Diary (when requested separately) RDR Generalized UML Diagram

3.2 TDR/SDR HDF5 Details

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

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

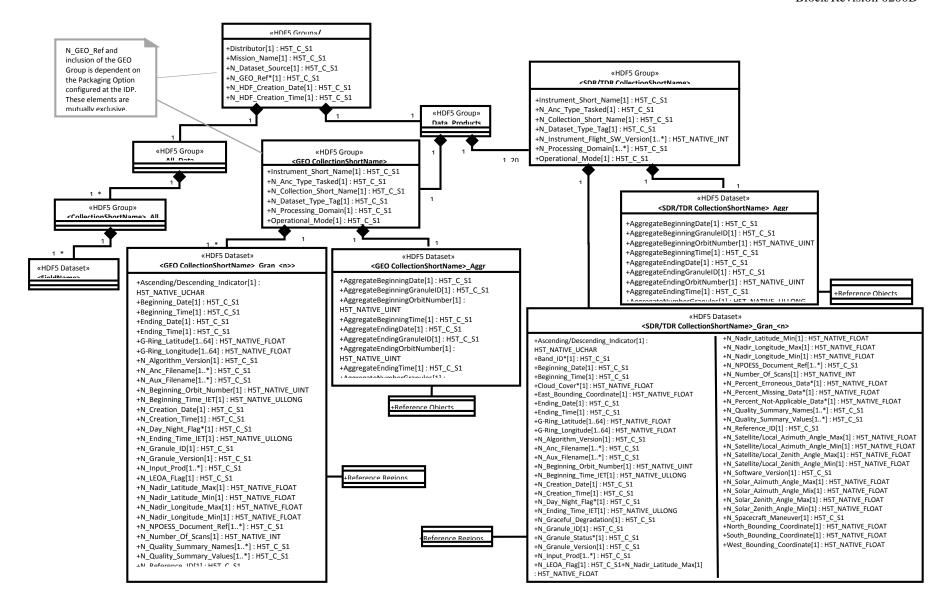


Figure: 3.2-1 Generalized UML Diagram for HDF5 SDR/TDR Files

4 JPSS Raw Data Records (RDRs)

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

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

Table: 4-1 Common RDR Structure

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

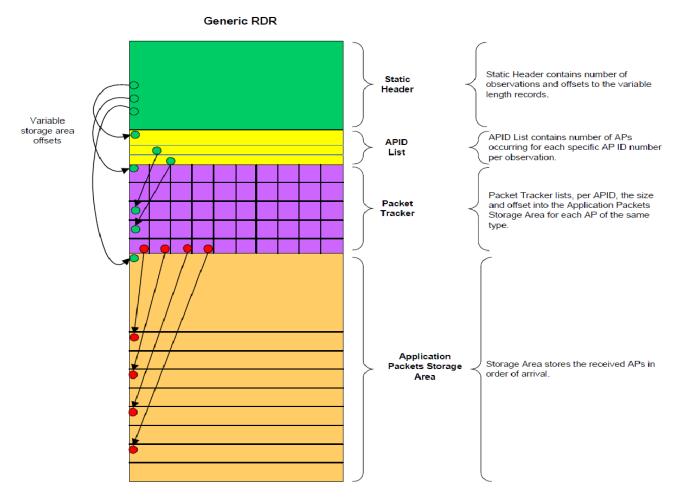


Figure: 4-1 Common RDR Layout

4.1 Common RDR Structures

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

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

Table 4.1-1, RDR Static Header, details the spacecraft and sensor that the
RDR data originated from, the type of data the RDR contains, and the start
and end boundary times of the RDR granule. It also provides byte offset
information needed to access individual APs and the number of AP types
that are contained in the RDR.
Tables 4.1-2, 4.1-3, and 4.1-4 define the Dynamic Application Packet
content area.
Table 4.1-2, RDR APID List, defines the structure used to identify the AP
data type and it provides information necessary for accessing the RDR
Packet Tracker. The APID List has details for each APID including number
expected and received.
Table 4.1-3, RDR Packet Tracker provides information about individual
APs.
Table 4.1-4, Application Packet Storage Area, describes the storage area
containing the APs.

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

Table: 4.1-1 RDR Static Header

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

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

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

Table: 4.1-2 RDR APID List

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

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

Table: 4.1-3 RDR Packet Tracker

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

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

Table: 4.1-4 Application Packet Storage Area

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

Table 4.1-5, Application Packet Tables, provides explanations of the fields given for each RDR described in the following sections. APIDs are listed in the JPSS Alg. Spec. for ATMS Volume IV: SRSPF (474-00448-04-02).

Table: 4.1-5 Application Packet Tables

APID Short Name	Description	Value APID ₁₀
Short name of this	Brief description of this application packet	Numerical
Application Packet as an		Application
upper-case string		Packet ID, in
		base 10.

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

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

To access APs in random order by AP type:

• Get the range for a specific type of data from the APID List

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

To access APs in sequential order:

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

Repeat until nextPktPos equals current position.

4.2 ATMS RDR Overview

Data Mnemonic	Science:	RDRE-ATMS-C0030	
	Diagnostic:	RDRE-ATMS-C0032	
	Dwell:	RDRE-ATMS-C0036	
	Telemetry:	RDRE-ATMS-C0031	
	Memory Dump:	RDRE-ATMS-C0035	
Description/	The ATMS instrument	is a passive microwave sounder instrument that	
Purpose	provides observations v	which, when combined with observations from an	
	infrared sounder, provi	des global atmospheric temperature and water vapor	
	profiles. NASA's new i	nstrument has 22 microwave-sounding channels that	
	measure microwave energy emitted and scattered by the atmosphere.		
File-Naming	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.		
Construct			
File Size	Science: See Table 4.3.	2-3 S-NPP ATMS Science RDR Structure	
	See Table 4.3.2-4 JPSS-1 ATMS Science RDR Structure		
	Diagnostic: See Table 4.4.2-3 S-NPP ATMS Diagnostic RDR Structure		
	See Table 4.4.2-4 JPSS1 ATMS Diagnostic RDR Structure		
	Dwell: See Table 4.5.2-3 S-NPP ATMS Dwell RDR Structure		
	See Table 4.5.2-4 JPSS-1 ATMS Dwell RDR Structure		
	Telemetry: See Table 4.6.2-3 S-NPP ATMS Telemetry RDR Structure		
	See Table 4.6.2-4 JPSS-1 ATMS Telemetry RDR Structure		

	Memory Dump: See Table 4.7.2-2 S-NPP ATMS Memory Dump RDR Structure		
	See Table 4.7.2-3 JPSS-1 ATMS Memory Dump RDR Structure		
	All sizes are nominal per granule. Sizes do not include HDF5 overhead.		
File Format Type	HDF5		
Data Content and	Section 4.3 describes the ATMS Science RDR		
Data Format	Section 4.4 describes the ATMS Diagnostic RDR		
	Section 4.5 describes the ATMS Dwell RDR		
	Section 4.6 describes the ATMS Telemetry RDR		
	Section 4.7 describes the ATMS Memory Dump RDR		

4.3 ATMS Science RDR

4.3.1 ATMS Science RDR HDF5 Files

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

4.3.2 ATMS Science RDR Data Content Summary

Table 4.3.2-1, S-NPP ATMS Science RDR Application Packets, lists the APs accumulated for the S-NPP ATMS Science RDR. Table 4.3.2-2, JPSS-1 ATMS Science RDR Application Packets, lists the APs accumulated for the JPSS-1 ATMS Science RDR. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

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

APID Short	Description	Value APID ₁₀
Name		
CAL	Calibration	515
SCI	Science - Operational Mode as well as Diagnostic Mode	528
	only if sensor is commanded to Dwell or to output	
	Diagnostic or Memory Dump packets	
ENG_TEMP	Engineering - Hot Cal Temperatures	530
ENG_HS	Engineering – Health and Status - required for science	531
	processing	

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

APID Short Name	Description	Value APID ₁₀
CAL	Calibration	515
SCI	Science - Operational Mode as well as Diagnostic Mode only if sensor is commanded to Dwell or to output Diagnostic or Memory Dump packets	528
ENG_TEMP	Engineering - Hot Cal Temperatures	530
ENG_HS	Engineering – Health and Status - required for science processing	531

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

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

	Byte	Field	Туре	Value	
Static Header	0	satellite	char[4]	'NPP'	
	4	sensor	char[16]	'ATMS'	
	20	typeID	char[16]	'SCIENCE'	
	36	numAPIDs	Uint32	4	
	40	apidListOffset	Uint32	72	
	44	pktTrackerOffse	Uint32	200	
		t			
	48	apStorageOffset	Uint32	30728	
	52	nextPktPos	Uint32	Varies	
	56	startBoundary	int64	Varies	
	64	endBoundary	int64	Varies	
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[Varies	
			4]		
	200	Pkt Tracker List	IngSmdCommon_PktTrackerType[Varies	
			1272]		
	30728	AP storage area	Uint8[81092]	Varies	
File Size	111,820	111,820 Bytes			

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

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	'J01'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'SCIENCE'
	36	numAPIDs	Uint32	4
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	200
		t		
	48	apStorageOffset	Uint32	30728
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[4]	Varies
	200	Pkt Tracker List	IngSmdCommon_PktTrackerType[1272]	Varies
	30728	AP storage area	Uint8[81092]	Varies
File Size	111,820	Bytes		

4.4 ATMS Diagnostic RDR Application Packets

4.4.1 ATMS Diagnostic RDR HDF5 Files

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

4.4.2 ATMS Diagnostic RDR Data Content Summary

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

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

APID Short Name	Description	Value APID ₁₀
DIA	Diagnostic	516
DIA_SCI	Science Packet Radiances measured while in diagnostic mode only if sensor is commanded to Continuous Sampling or Point and Stare	536

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

APID Short Name	Description	Value APID ₁₀
DIA	Diagnostic	516
DIA_SCI	Science Packet Radiances measured while in diagnostic mode only if sensor is commanded to Continuous Sampling or Point and Stare	536

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

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

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'NPP'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'DIAGNOSTIC
				,
	36	numAPIDs	Uint32	2
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	136
		t		
	48	apStorageOffset	Uint32	42856
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[Varies
			2]	

	Byte	Field	Туре	Value
	136	Pkt Tracker List	IngSmdCommon_PktTrackerType[1780]	Varies
	42856	AP storage area	Uint8[112600]	Varies
File Size	155,456	Bytes		

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

	Byte	Field	Type	Value
Static Header	0	satellite	char[4]	'J01'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'DIAGNOSTIC
				,
	36	numAPIDs	Uint32	2
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	136
		t		
	48	apStorageOffset	Uint32	42856
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[2]	Varies
	136	Pkt Tracker List	IngSmdCommon_PktTrackerType[1780]	Varies
	42856	AP storage area	Uint8[112600]	Varies
File Size	155,456	Bytes		

4.5 ATMS Dwell RDR

4.5.1 ATMS Dwell RDR HDF5 Files

The ATMS Dwell RDR HDF5 files are described in Section 3.0, Raw Data Records HDF5 Details.

4.5.2 ATMS Dwell RDR Data Content Summary

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

Table: 4.5.2-1 S-NPP ATMS Dwell RDR Application Packets

APID Short	Description	Value APID ₁₀
Name		
DWELL	Diagnostic Dwell Telemetry	517

Table: 4.5.2-2 JPSS-1 ATMS Dwell RDR Application Packets

APID Short Name	Description	Value APID ₁₀
DWELL	Diagnostic Dwell Telemetry	517

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

Table: 4.5.2-3 S-NPP ATMS Dwell RDR Structure

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'NPP'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'DWELL'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	104
		t		
	48	apStorageOffset	Uint32	5504
	52	nextPktPos	Uint32	varies
	56	startBoundary	int64	varies
	64	endBoundary	int64	varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[225]	varies
	5504	AP storage area	Uint8[70200]	varies
File Size	75,704]	Bytes		

Table: 4.5.2-4 JPSS-1 ATMS Dwell RDR Structure

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'J01'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'DWELL'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	104
		t		
	48	apStorageOffset	Uint32	5504
	52	nextPktPos	Uint32	varies
	56	startBoundary	int64	varies
	64	endBoundary	int64	varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[225]	varies
	5504	AP storage area	Uint8[70200]	varies

	Byte	Field	Туре	Value
File Size	75,704 E	Bytes		_

4.6 ATMS Telemetry RDR

4.6.1 ATMS Telemetry RDR HDF5 Files

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

4.6.2 ATMS Telemetry RDR Data Content Summary

Table 4.6.2-1, S-NPP ATMS Telemetry RDR Application Packets, lists the APs accumulated for the S-NPP ATMS Telemetry RDR. Table 4.6.2-2, JPSS-1 ATMS Telemetry RDR Application Packets, lists the APs accumulated for the JPSS-1 ATMS Telemetry RDR. In the event of a discrepancy in the APIDs listed here, see the MDFCB, GSFC 429-05-02-42 for S-NPP, or 472-00251 for JPSS-1.

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

APID Short Name	Description	Value APID ₁₀
НК	Housekeeping	518

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

APID Short Name	Description	Value APID ₁₀
HK	Housekeeping	518

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

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

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'NPP'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'TELEMETRY'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse t	Uint32	104
	48	apStorageOffset	Uint32	200
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[4]	Varies
	200	AP storage area	Uint8[648]	Varies

	Byte	Field	Туре	Value
File Size	848 Byte	es		

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

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'J01'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'TELEMETRY'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	104
		t		
	48	apStorageOffset	Uint32	200
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[4]	Varies
	200	AP storage area	Uint8[648]	Varies
File Size	848 By	tes		

4.7 ATMS Memory Dump RDR

4.7.1 ATMS Memory Dump RDR HDF5 Files

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

4.7.2 ATMS Memory Dump RDR Data Content Summary

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

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

APID Short Name	Description	Value APID ₁₀
DUMP	Memory Dump	524

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

APID Short Name	Description	Value APID ₁₀
DUMP	Memory Dump	524

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

Dump RDR Structure, shows the layout and static contents of the JPSS-1 ATMS Memory Dump RDR.

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

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'NPP'
	4	sensor	char[16]	'ATMS'
	20	typeID	char[16]	'DUMP'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse	Uint32	104
		t		
	48 apStorageOffset Uint32		6392	
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[262]	Varies
	6392	AP storage area	Uint8[268288]	Varies
File Size	274,680	Bytes		_

Table: 4.7.2-4 JPSS-1 ATMS Memory Dump RDR Structure

	Byte	Field	Туре	Value
Static Header	0	satellite	char[4]	'J01'
	4 sensor char[16]		char[16]	'ATMS'
	20	typeID	char[16]	'DUMP'
	36	numAPIDs	Uint32	1
	40	apidListOffset	Uint32	72
	44	pktTrackerOffse t	Uint32	104
	48	apStorageOffset	Uint32	6392
	52	nextPktPos	Uint32	Varies
	56	startBoundary	int64	Varies
	64	endBoundary	int64	Varies
Dynamic	72	APID List	IngSmdCommon_ApidDetailType[1]	Varies
	104	Pkt Tracker List	IngSmdCommon_PktTrackerType[262]	Varies
	6392	AP storage area	Uint8[268288]	Varies
File Size	274,680	Bytes		

5 Temperature Data Records (TDRs)

Temperature Data Records are geolocated, antenna temperatures.

5.1 ATMS TDR

Data Mnemonic	TDRE-ATMS-C0030
Description/	Advanced Technology Microwave Sounder (ATMS) uncorrected antenna
Purpose	temperatures.
	ATMS rotates counter-clockwise (w.r.t. the positive velocity direction)
	producing 104 views, with each view taking approximately 18 msecs. 96
	earth view antenna temperatures are reported in the TDR for each of the 22
	channels. ATMS rotates three times every 8 seconds resulting in three scans
	for every single scan of CrIS.
File-Naming	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
Construct	
File Size	See Table: 5.1.1-1 ATMS TDR Product Data Content Summary
	See Section 6.2.5 ATMS SDR for Geolocation data granule sizing.
	Sizes do not include HDF5 overhead or metadata.
File Format Type	HDF5
Data Content and	See Section 5.1.1, ATMS TDR Product Data Content Summary
Data Format	See Section 5.1.2, ATMS TDR Product Profile
	See Section 5.1.3, ATMS TDR HDF5 Details
	See Section 5.1.4, ATMS TDR Metadata Details
	See Section 5.1.5, ATMS TDR Geolocation Data Content Summary

5.1.1 ATMS TDR Product Data Content Summary

Table: 5.1.1-1 ATMS TDR Product Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
BeamTime	The time in IET at the end of the view period for this observation.	64-bit integer	[N*12, 96]	[12, 96]	microsecond
AntennaTemperat ure	Antenna temperature for each ATMS channel and beam position.	unsigned 16-bit integer	[N*12, 96, 22]	[12, 96, 22]	kelvin
InstrumentMode	Instrument mode word 73 in the Health & Status APID 531	unsigned 16-bit integer	[N*4]	[4]	unitless
QF1_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF2_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF3_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF4_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF5_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF6_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF7_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF8_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF9_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF10_GRAN_H EALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF11_GRAN_Q UADRATICCOR RECTION	Quadratic correction applied to the radiometric transfer function for non-linearity correction.	unsigned 8-bit char	[N*1]	[1]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF12_SCAN_K AVPRTCONVE RR	If a divide-by-zero condition exists, or if computation loop fails to converge in the temperature computations for the 8 KAV PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF13_SCAN_W GPRTCONVERR	If a divide-by-zero condition exists, or if computation loop fails to converge in the temperature computations for the 7 WG PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF14_SCAN_SH ELFPRTCONVE RR	If a divide-by-zero condition exists, or if the computation loop fails to converge in the temperature computations for the 4 Receiver Shelf (KKa, V, W and G) PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF15_SCAN_K AVPRTTEMPLI MIT	Each of the 8 KAV PRT temperatures is checked against a lower limit and an upper limit. Out of range conditions are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless
QF16_SCAN_W GPRTTEMPLIM IT	Each of the 7 WG PRT temperatures is checked against a lower limit and an upper limit. Out of range conditions are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless
QF17_SCAN_K AVPRTTEMPCO NSISTENCY	The 8 KAV PRT temperatures are checked against each other for consistency. The check failures are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless
QF18_SCAN_W GPRTTEMPCON SISTENCY	The 7 WG PRT temperatures are checked against each other for consistency. The check failures are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF19_SCAN_AT MSSDR	Scan-level Quality Flag	unsigned 8-bit char	[N*12]	[12]	unitless
QF20_ATMSSD R	Scan-level Quality Flag per channel	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless
QF21_ATMSSD R	Out of range - Space and Blackbody View Quality Flag	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless
QF22_ATMSSD R	Space and Blackbody View Quality Flag	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*7]	[7]	unitless
AntennaTemperat ureFactors	Scale = first array element; offset = second array element	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = kelvin
File Size	60,856 Bytes	_			

5.1.2 ATMS TDR Product Profile

Table: 5.1.2-1 ATMS TDR Product Profile

ATMS TDR Product Profile

						Fields				
	Data Size	Dimensions								
BeamTime	8byte(s)	Name Granule Bounda Scan Yes BeamPosition No Datum Description The time in IET at the end of the	nry Dynamic Min Arra No 12 No 96 e view period for this ob	12 96 Datum O		range Min Unscaled Valid MAX_VAL	Range Max Measur microsee	 	ne Data Type 64-bit integer	Legend Entries Name Value
AntennaTemperature	2byte(s)	Name Granule Bounda Scan Yes BeamPosition No No Channel No Datum No	No 12 No 96 No 22	12 96 22						
		Description Antenna temperature for each A' position.	TMS channel and beam	Offset M	nscaled Valid Range (in 00	Unscaled Valid Range Max 330.00	Measurement Units Kelvin	naTemperatureFactors	Data Type unsigned 16-bit integer	

	VDNE_UINT16_FILL 65529
InstrumentMode	Name Granule Boundary Dynamic Min Array Size Max Array Size Status Yes No 4 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
	Instrument mode word 73 in the Health & Status APID 531 0 MIN_VAL MAX_VAL unitless No unsigned 16-bit integer Name Value Name Value

ATMS TDR Product Profile - Quality Flags

		•		Fields							
Name	Data Size	Dimensions									
QF1_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array	Size								
		Time 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
		Spare	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		SPA_P5V_A_VMON or SPA_P5V_B_VMON health check failed	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		SPA_P15V_A_VMON or SPA_P15V_B_VMON health check failed	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0
											True 1
		SPA_N15V_A_VMON or SPA_N15V_B_VMON health check failed	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		RCV_P6V_RF_VMON health check failed	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		RCV_P12V_RF2_VMON health check failed	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0
		RCV_P15V_RF_VMON health check failed	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	True 1 Name Value False 0
		RCV_N15V_RF_VMON health check failed	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	True 1 Name Value False 0
											True 1
QF2_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array Time Yes No 4 4	Size								7
		Datum	1 1 7 7 7 7	D 36' E1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D 1/ 1/	T	T . N	D . T	F-11 X7 1	T 15.	-
			VAL	Range Min Unscaled Valid MAX VAL	unitless	No No	: Factor Na		1		8
		RCV_P13V_ANA_VMON health check failed 0	_VAL	WAX_VAL	unitiess	No		1 bit(s)	Name Value	Name Value False 0 True 1	
		RCV_N15V_ANA_VMON health check failed 1 MII	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1	
		K_RFE_PRT health check failed 2 MII	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1	

		WA DEE DOWN IN 1 1 6 7 1	12	h mr viii	N. 1.37 37.17	5.1	N.T.	1.1.5			_
		KA_RFE_PRT health check failed	3	MIN_VAL	MAX_VAL	unitless	No	1 bite	(s) Name	Value Name Value	
										False 0	
										True 1	
		V_RFE_PRT health check failed	4	MIN_VAL	MAX_VAL	unitless	No	1 bit	(c) b7		_
		V_KI E_I KI health check failed	Γ	WIII_\AL	WAZ_VAL	unitiess	10	1 010	Name	Value Name Value	
										False 0	
										True 1	
		V_PRI_PLO_PRT health check failed	5	MIN_VAL	MAX_VAL	unitless	No	1 bite	(s) Name	Value Name Value	7
									- Turic	False 0	
										True 1	
		V_RED_PLO_PRT health check failed	6	MIN_VAL	MAX_VAL	unitless	No	1 bit	(s) Name	Value Name Value	
										False 0	
										True 1	
		V IE DDT beekleeleeleeleele		MINI STAT	MAY WAT	unitless	NT.	1.1.2.	(a)		-
		V_IF_PRT health check failed	'	MIN_VAL	MAX_VAL	unitiess	No	1 bite	(S) Name	Value Name Value	
										False 0	
										True 1	
QF3_GRAN_HEALTHSTATUS	1byto(c)	N		hr 1 31	1						
QI 3_GRAN_HEALTHSTATUS	1 byte(s)	Name Granule Boundary Dynamic M									
		Time Yes No 4		4							
		Datum									
			Datum Offse	t Unscaled Valid Rang	e Min Unscaled Valid Range M	Iax Measurement Units	Scaled Scale Fac	tor Name Data Type	Fill Values	Legend Entries	
		W_RFE_PRT health check failed	0	MIN_VAL	MAX_VAL	unitless	No	1		Name Value	
			1		[[]	1 01(5)	µvame v alue		
										False 0	
		<u> </u>								True 1	
		SAW_FILT_PRT health check failed	1	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
									,	False 0	
										True 1	
										True 1	
		W_IF_PRT health check failed	2	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
										False 0	
										True 1	
		W DDI CDO DDEL 11 1 1 C 1 1	h	A COLUMN TO A COLU	N 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3.1	hr I	1127			
		W_PRI_GDO_PRT health check failed	3	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
										False 0	
										True 1	
		W_RED_GDO_PRT health check failed	И	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	N7 N7 N	h	
		W_KED_GDO_1 K1 health eneck laned	Γ	IVIII1_VAL	MAX_VAL	unitiess	10	1 bit(s)	Name Value	Name Value	
										False 0	
										True 1	
		G_PRI_CSO_PRT health check failed	5	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
									pvanie v aiue		
										False 0	
		<u> </u>								True 1	
		G_RED_CSO_PRT health check failed	6	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
										False 0	
										True 1	
			_	h m v v v v	h		L				
		G1_IF_PRT health check failed	7	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value	
										False 0	
										True 1	
OF4 CDAN HEAT WHOTATHE	11 . ()	<u> </u>			I		<u> </u>	1			
QF4_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic M									
		Time Yes No 4		4							
		Datum									
		1	Datum Offset	Unscaled Valid Range	Min Unscaled Valid Range M	ax Measurement Unite	Scaled Scale Fact	or Name Data Type I	ill Values	Legend Entries	
				MIN_VAL	MAX_VAL		No Scarce Fact	1 1			
		52_11_1 K1 Health Check laned	U	WILLY_VAL	MAA_VAL	umticss	10	1 011(8)		Name Value	
										False 0	
										True 1	
		W_SHELF_PRT health check failed	1	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Vame Value	Name Value	
										False 0	
		<u> </u>			I					raise 0	

										True 1	
		KKA_SHELF_PRT health check failed 2	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
			-						``	False 0	
										True 1	
		G_SHELF_PRT health check failed 3	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		V_SHELF_PRT health check failed 4	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		RCVPS_A_PRT health check failed 5	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		RCVPS_B_PRT health check failed 6	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		OCXO_PRI_PRT health check failed 7	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
QF5_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Arr	ray Size Max	x Array Size							
		Time Yes No 4	4								
		Datum									
								cale Factor Name		e Fill Values Legend Entries	
		OCXO_RED_PRT health check failed 0	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
		DGD4 1552 DDT1 11 1 1 5 7 1 1	h m	7 7747	N. 4. 37. 37.4.7	53	hr I		1127	True 1	
		DSPA_1553_PRT health check failed 1	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0 True 1	
		DSPB_1553_PRT health check failed 2	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)		
		DSI B_1333_I KT health effect failed 2	IVIII	- VAL	WAA_VAL	unitiess	10		1 on(s)	Name Value False 0	
										True 1	
		SPA_PS_A_PRT health check failed 3	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
							[···		(.,	False 0	
										True 1	
		SPA_PS_B_PRT health check failed 4	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
				_	_				`´	False 0	
										True 1	
		DSPA_PROC_PRT health check failed 5	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		DSPB_PROC_PRT health check failed 6	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
		SD_MECH_TEMP health check failed 7	MIN	N_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Name Value	
										False 0	
										True 1	
QF6_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Arr	ray Size Max	x Array Size							
		Time Yes No 4	4								
		Datum									
		Description							Scale Fac	tor Name Data Type Fill Values	
		SD_PS_PRT health check failed		υ	MIN_VAL	MAX_VAL	unitless	No		1 bit(s) Name Valu	Name Value

								False 0 True 1
		V_PLO_A_LOCK_VMON health check failed 1	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
								False 0 True 1
		V_PLO_B_LOCK_VMON health check failed 2	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
								False 0 True 1
		HK_2WREST1_A or HK_2WREST1_B health check failed 3	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value False 0
		HK_2WREST2_A or HK_2WREST2_B health check failed 4	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	True 1
		IIK_2WKES12_A OF IIK_2WKES12_B featur clieck failed	WIIN_VAL	WAA_VAL	unitiess	No	1 DR(S)	Name Value False 0 True 1
		4W_GND_A or 4W_GND_B health check failed 5	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
								False 0 True 1
		2W_GND_A or 2W_GND_B health check failed 6	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value False 0
								True 1
		VD_REF_A or VD_REF_B; Module 1 health check failed 7	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
								False 0 True 1
QF7_GRAN_HEALTHSTATUS	1hvsta(a)		1					<u> </u>
QF/_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array S	Size					
		Time Yes No 4						
		Datum						
		Description Datum	Offset Unscaled Valid Rai	ge Min Unscaled Valid Rans	e Max Measurement	Units Scaled Scale Fa	ctor Name Data Type	Fill Values Legend Entries
					5		ctor Name Data Type	riii vaiues Legenu Entries
		VD_REF_A or VD_REF_B; Module 2 health check failed 0	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
		VD_REF_A or VD_REF_B; Module 2 health check failed 0	MIN_VAL	* ;				
		VD_REF_A or VD_REF_B; Module 2 health check failed 0 VD_REF_A or VD_REF_B; Module 3 health check failed 1	MIN_VAL	* ;				Name Value False 0
				MAX_VAL	unitless	No	1 bit(s)	Name Value False 0 True 1
				MAX_VAL	unitless	No	1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1	MIN_VAL	MAX_VAL MAX_VAL	unitless	No No	1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2	MIN_VAL	MAX_VAL MAX_VAL	unitless	No No	1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1	MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless	No No No	1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2	MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless	No No No	1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3	MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless	No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3	MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless	No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3 VD_GND_A or VD_GND_B; Module 2 health check failed 4	MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless	No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3 VD_GND_A or VD_GND_B; Module 2 health check failed 4	MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless	No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3 VD_GND_A or VD_GND_B; Module 2 health check failed 4 VD_GND_A or VD_GND_B; Module 3 health check failed 5 VD_GND_A or VD_GND_B; Module 4 health check failed 6	MIN_VAL MIN_VAL MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless unitless unitless unitless	No No No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3 VD_GND_A or VD_GND_B; Module 2 health check failed 4 VD_GND_A or VD_GND_B; Module 3 health check failed 5	MIN_VAL MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless unitless unitless	No No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0
QF8_GRAN_HEALTHSTATUS		VD_REF_A or VD_REF_B; Module 3 health check failed 1 VD_REF_A or VD_REF_B; Module 4 health check failed 2 VD_GND_A or VD_GND_B; Module 1 health check failed 3 VD_GND_A or VD_GND_B; Module 2 health check failed 4 VD_GND_A or VD_GND_B; Module 3 health check failed 5 VD_GND_A or VD_GND_B; Module 4 health check failed 6	MIN_VAL MIN_VAL MIN_VAL MIN_VAL MIN_VAL MIN_VAL	MAX_VAL MAX_VAL MAX_VAL MAX_VAL MAX_VAL MAX_VAL	unitless unitless unitless unitless unitless unitless unitless unitless	No No No No No No	1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s) 1 bit(s)	Name Value False 0

		Time Yes No 4	4									
		Datum										
		Description	Datum Offset	Unscaled V	alid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
		SD_P12V_VMON health check failed	0	MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		SD_N12V_VMON health check failed	1	MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		MAIN_MOTOR_CUR health check failed	2	MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		COMP_MOTOR_CUR health check failed	3	MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		RESOLVER_VMON health check failed	4	MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		SD_MAIN_MOTOR_VEL health check failed		MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		SD_COMP_MOTOR_VEL health check faile		MIN_VAL		MAX_VAL	unitless	No		1 bit(s)		Name Value False 0 True 1
		SD_MAIN_LOOP_ERROR health check faile		MIN_VAL		MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
QF9_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Art Time Yes No 4	ray Size Max A	rray Size								
		Datum Description		atum Offset		Range Min Unscaled Valid		ement U		actor Nam	1	
		SD_MAIN_LOOP_INT_ERROR health check			MIN_VAL	MAX_VAL	unitless		No			Name Value Name False
		SD_MAIN_LOOP_VEL_ERROR health chec			MIN_VAL	MAX_VAL	unitless		No			Name Value Name False True
		SD_COMP_LOOP_ERROR health check fails			MIN_VAL	MAX_VAL	unitless		No			Name Value Name False True
		SD_MAIN_MOTOR_REQ_VOLTAGE healt			MIN_VAL	MAX_VAL	unitless		No			Name Value False (True
		SD_COMP_MOTOR_REQ_VOLTAGE healt			MIN_VAL	MAX_VAL	unitless		No			Name Value False (True
		SD_FEED_FORWARD_VOLTAGE health cl	heck failed 5		MIN_VAL	MAX_VAL	unitless		No			Name Value False (True
		COMP_MOTOR_POS health check failed	6		MIN_VAL	MAX_VAL	unitless		No		1 bit(s)	Name Value Name False True

		Spare		7	MIN_VAL		MAX_VA	L unitles	s No		1 bi	t(s) Na	me Value Na	me Value
QF10_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary	Dynamic Min Array Size	Max Array Size										
			No 4	4										
		Datum Description Detum Office	t Unscaled Valid Range M	in Uncooled Velid E	Panga May 1	Locurom	ont Units Cooled	Saala Faatar Nama Data	Type Fill Volues	Logond	Entries			
		Spare 0	MIN_VAL	MAX_VAL		nitless	No No	8 bit						
QF11_GRAN_QUADRATICCORRECTION	1hvte(s)	N	D	N					r tame r tame	Turre	, and			
QTT_GRAIN_QOTERATTICCORRECTION	Toyte(3)	Datum	Dynamic Min Array Size	Wax Array Size										
		Description			Datum		led Valid Range	Unscaled Valid Range	Measurement	Scaled	Scale Factor			Legend
		0 - 1 - 1 - 1 - 1 - 1 - 1		- f	Offset	Min MIN_V	7.4.1	Max MAX_VAL	Units	No	Name	Type		Entries
		linearity correction.	ed to the radiometric transfer	r function for non-	U	IVIIIN_V	VAL	MAX_VAL	unitless	NO		1 bit(s)	Name Value	False 0
														True 1
		Spare			1	MIN_V	VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value
QF12_SCAN_KAVPRTCONVERR	1byte(s)	Name Granule Boundary	Dynamic Min Array Size	Max Array Size										
		Scan Yes		12										
		Datum				Datum	Unscaled Vali	id Unscaled Valid	Measurement	e	led Scale Factor	Data	Fill Values	T
		Description				Offset	Range Min	Range Max	Units	Sca	Name	Type		Legend Entries
		Divide-by-zero condition of (KAV) Band PRT #1 temp	or computation loop failed to	converge in the K/K	Ka and V	0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		(KAV) Band I KI #I temp	crature computation.											False 0 True 1
		Divide-by-zero condition of	or computation loop failed to	converge in the K/k	Ka and V	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Nama Valua	Name Value
		(KAV) Band PRT #2 temp					-						rvanic value	False 0
														True 1
		Divide-by-zero condition of (KAV) Band PRT #3 temp	or computation loop failed to erature computation.	converge in the K/K	Ka and V	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		I I	1											False 0 True 1
			or computation loop failed to	converge in the K/K	Ka and V	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		(KAV) Band PRT #4 temp	erature computation.											False 0
		Divide by some condition of	a commutation loop failed to	a annuara in the V/V	Zo and W	14	MIN VAL	MAX VAL	unitless	No		1 his(a)		True 1
		(KAV) Band PRT #5 temp	or computation loop failed to erature computation.	converge in the K/K	ca and v	4	MIN_VAL	MAX_VAL	unitiess	No		1 bit(s)	Name Value	Name Value False 0
														True 1
			or computation loop failed to	converge in the K/K	Ka and V	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value
		(KAV) Band PRT #6 temp	erature computation.											False 0 True 1
		Divide-by-zero condition o	or computation loop failed to	converge in the K/k	Ca and V	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	N	
		(KAV) Band PRT #7 temp		, converge in the 121			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	unicos	1,0		l on(s)	Name value	Name Value False 0
														True 1
		Divide-by-zero condition of (KAV) Band PRT #8 temp	or computation loop failed to	converge in the K/K	Ka and V	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	
		(Kriv) Band i Kr #0 temp	cratare computation.											False 0 True 1
QF13_SCAN_WGPRTCONVERR	1byte(s)	Nome Cronvia Dana 3	Dynamic Min Array Size	Moy Amer Size				I					l	1140 1
Q115_BEILIT_WEITHTEENVERIN	10,10(0)			12										
		Datum												
		Description					Unscaled Valid Range Min	Unscaled Valid Ra Max	nge Measurement Units	Scal	ed Scale Factor Name	Data Type		Legend Entries
			or computation loop failed to	converge in the WC			MIN_VAL	MAX_VAL	unitless	No	ranic	1 bit(s)	1	Name Value
		PRT #1 temperature compu	utation.											False 0
		Distriction and Pro-			VD1		MINI XVAX	MAN MAY				1.1.27.5		True 1
		PRT #2 temperature compu	or computation loop failed to utation.	converge in the WC	r Band 1		MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value

														False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the WG Band	1 2	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Nome Value	Name Value
		PRT #3 temperature computation.											rame value	False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the WG Band	1 3	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Name Value	Name Value
		PRT #4 temperature computation.			-								rame value	False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the WG Band	1 4	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Name Value	Name Value
		PRT #5 temperature computation.											rvaine vaine	False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the WG Band	1 5	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Name Value	Name Value
		PRT #6 temperature computation.											r varie varie	False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the WG Band	1 6	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Name Value	Name Value
		PRT #7 temperature computation.											rvanic v ande	False 0
														True 1
		Spare		7	MIN_V	AL	MAX_VAL	unitless	1	No		1 bit(s)	Name Value	Name Value
OF14 SCAN SHELFPRTCONVERR	1bvto(c)		a. i		I		I.	I					<u> </u>	[
QF14_3CAN_SHEEFFRICONVERK	Toyle(s)	Name Granule Boundary Dynamic Min Array Size Max Array Scan Yes No 12 12	Size											
		Datum												
		Description			Datum U	nscaled Valid	Unscaled Val	id Measur	ement	Scale	d Scale Factor	Data	Fill Values	Legend
						ange Min	Range Max	Units			Name	Type		Entries
		Divide-by-zero condition or computation loop failed to converge in	n the K/Ka, V,	W, G	0 M	IN_VAL	MAX_VAL	unitless		No		1 bit(s)	Name Value	Name Value
		Band Receiver Shelf PRT K temperature computation.												False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in	n the K/Ka, V,	W, G	1 M	IN_VAL	MAX_VAL	unitless		No		1 bit(s)	Name Value	Name Value
		Band Receiver Shelf PRT V temperature computation.												False 0
														True 1
		Divide-by-zero condition or computation loop failed to converge in Band Receiver Shelf PRT W temperature computation.	n the K/Ka, V,	W, G	2 M	IN_VAL	MAX_VAL	unitless		No		1 bit(s)	Name Value	Name Value
		Band Receiver Sheri FKT w temperature computation.												False 0
													<u> </u>	True 1
		Divide-by-zero condition or computation loop failed to converge in Band Receiver Shelf PRT G temperature computation.	n the K/Ka, V,	W, G	3 M	IN_VAL	MAX_VAL	unitless		No		1 bit(s)	Name Value	Name Value
		Band Receiver Shert FRT & temperature computation.												False 0
											1			True 1
		Spare			4 M	IN_VAL	MAX_VAL	unitless		No		4 bit(s)	Name Value	Name Value
QF15_SCAN_KAVPRTTEMPLIMIT	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array	Size											
		Scan Yes No 12 12												
		Datum	,											
		Description	Datum Offset		led Valid Range			Measurement Units	Scale	d Scale Nam				Legend
		Out of range condition for the K/Ka and V Band PRT #1	Offset	Min MIN_V	JΔI	Max MAX_VA		unitless	No	Name		ype bit(s)		Entries
		temperatures.		,	· · · · ·			ameress	110			OR(3)	Name Value	False 0
														True 1
		Out of range condition for the K/Ka and V Band PRT #2	1	MIN_V	VAI.	MAX VA	L.	unitless	No	+	1	bit(s)	Name Value	Name Value
		temperatures.					_					(-)	Name v ande	False 0
													1 .	
														True 1
		Out of range condition for the K/Ka and V Band PRT #3	2	MIN V	VAL	MAX VA	L	unitless	No		1	bit(s)	Name Value	True 1
		Out of range condition for the K/Ka and V Band PRT #3 temperatures.	2	MIN_V	VAL	MAX_VA	L	unitless	No		1	bit(s)	Name Value	True 1
			2	MIN_V	VAL	MAX_VA	L	unitless	No		1	bit(s)	Name Value	True 1 Name Value
			2	MIN_V		MAX_VA		unitless	No			bit(s)	Name Value	True 1 Name Value False 0 True 1

	1								1	1
										True 1
		Out of range condition for the K/Ka and V Band PRT #5	4	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value
		temperatures.			-			``	r value v ande	False 0
										True 1
		Out of range condition for the K/Ka and V Band PRT #6		MIN_VAL	MAX_VAL	unitless	No	1 bit(a)		
		temperatures.	p	WIIN_VAL	MAA_VAL	unitiess	NO	1 bit(s)	Name Value	Name Value
										False 0
										True 1
		Out of range condition for the K/Ka and V Band PRT #7	6	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value
		temperatures.								False 0
										True 1
		Out of range condition for the K/Ka and V Band PRT #8	7	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value	Name Value
		temperatures.								False 0
										True 1
QF16_SCAN_WGPRTTEMPLIMIT	1hvte(s)	N C I. B I D i. Mi. A Ci. M. A	5:							
QF10_SCAN_WOLKTTEMIEMIT	Toyle(s)	Name Granule Boundary Dynamic Min Array Size Max Arra	ay Size							
		Datum	a on de-	1 1 1 7 1 1 1 2 1 - 1			1 10 1 2	N	10m x7 *	k 150.0
					Unscaled Valid Range Max					Legend Entries
		Out of range condition for the WG Band PRT #1 temperatures. 0	MIN	I_VAL I	MAX_VAL	unitless No)	1 bit(s)	Name Value	Name Value
										False 0
										True 1
		Out of range condition for the WG Band PRT #2 temperatures. 1	MIN	I_VAL I	MAX_VAL	unitless No)	1 bit(s)	Name Value	Name Value
										False 0
										True 1
		Out of range condition for the WG Band PRT #3 temperatures. 2	MIN	_VAL I	MAX_VAL	unitless No	,	1 bit(s)	Name Value	Name Value
				_				``	rune value	False 0
										True 1
		Out of range condition for the WG Band PRT #4 temperatures. 3	MIN	I_VAL I	MAX_VAL	unitless No	<u> </u>	1 bit(s)	N7 X7-1	Name Value
		Sala of range condition for the West Band 11(1) whitemperatures.	, ,,,,,,					l on(s)	rame value	False 0
										True 1
		O . C	h m	7 77 4 7	61X7 X71X			1127		
		Out of range condition for the WG Band PRT #5 temperatures. 4	MIIN	I_VAL	MAX_VAL	unitless No	·	1 bit(s)	Name Value	Name Value
										False 0
										True 1
		Out of range condition for the WG Band PRT #6 temperatures. 5	MIN	LVAL I	MAX_VAL	unitless No)	1 bit(s)	Name Value	Name Value
										False 0
										True 1
		Out of range condition for the WG Band PRT #7 temperatures. 6	MIN	I_VAL	MAX_VAL	unitless No)	1 bit(s)	Name Value	Name Value
									1	False 0
										True 1
		Spare 7	MIN	I VAL	MAX VAL	unitless No	<u> </u>	1 bit(s)	Name Value	Name Value
		1		<u> </u>		<u> </u>		1(-)	rame v ande	# varie v alue
QF17_SCAN_KAVPRTTEMPCONSISTENCY	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Arra	ay Size							
		Scan Yes No 12 12								
		Datum								
					Max Measurement Units	Scaled Scale Factor Na	ne Data Type Fi	ill Values Legeno	d Entries	
		KAV PRT #1 temperature inconsistency 0 MIN_VA	AL	MAX_VAL	unitless	No	1 bit(s)	lame Value Name	Value	
								False	0	
								True	1	
		KAV PRT #2 temperature inconsistency 1 MIN_VA	AL	MAX_VAL	unitless	No	1 bit(s)	lame Value Name	Value	
								False		
								True	1	
		KAV PRT #3 temperature inconsistency 2 MIN_VA	AI.	MAX_VAL	unitless	No	1 bit(s)	lame Value Name	Volue	
						.	1(5)	False	-	
								True	1	
	I			1		1	1	irue	14	

		KAV PRT #4 temperature inconsistency	3	MIN_VAL	MAX_VAL	unitle	ss	No		1 bit(s)	Name		me Val	lue	
		KAV PRT #5 temperature inconsistency	4	MIN_VAL	MAX_VAL	unitle	ss	No		1 bit(s)	Name		me Val	lue	
		KAV PRT #6 temperature inconsistency	5	MIN_VAL	MAX_VAL	unitle	ss	No		1 bit(s)	Name	Value Na		lue	
		KAV PRT #7 temperature inconsistency	6	MIN_VAL	MAX_VAL	unitle	ss	No		1 bit(s)	Name	Value Na	_	lue	
		KAV PRT #8 temperature inconsistency	7	MIN_VAL	MAX_VAL	unitle	ss	No		1 bit(s)	Name	Value Na		lue	
													_		
QF18_SCAN_WGPRTTEMPCONSISTENCY	lbyte(s)	Name Granule Boundary Dynamic Mi	n Array Size	Max Array Size											
		Scan Yes No 12		12											
		Datum													
		P													
					Range Min Unscaled Valid Range Max	Measu	rement l	Units Scaled S	cale Factor Na	me Data Type	Fill Valu	es Leg	end Ent	tries	
		WG PRT #1 temperature inconsistency 0	,	MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	Alue Nar Fals Tru	e 0	ie	
		WG PRT #2 temperature inconsistency 1		MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	Alue Nar Fals Tru	e 0	ıe	
		WG PRT #3 temperature inconsistency 2	,	MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	Alue Nar Fals Tru	e 0	ıe	
		WG PRT #4 temperature inconsistency 3		MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	alue Nar Fals	e 0	ie	
		WG PRT #5 temperature inconsistency 4		MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	alue Nar Fals	e 0	ie	
		WG PRT #6 temperature inconsistency 5		MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	alue Nar Fals	e 0	ie	
		WG PRT #7 temperature inconsistency 6		MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	alue Nar Fals	e 0	ie	
		Spare 7	1	MIN_VAL	MAX_VAL	unitless	s	No		1 bit(s)	Name V	alue Nar	ne Valu	ie	
QF19_SCAN_ATMSSDR	1byte(s)	Name Granule Boundary Dynamic Mi	n Array Size	Max Array Size	1 1										
	1	Scan Yes No 12		12											
				112											
		Datum													
		Description					Offset	Valid Range Min	Max	Measurement Units			Data Type		Legend Entries
		Time Sequence Error - The nominal scan sample 1. The scan start time of the curre difference is not within 8/3 sec +/- allow allowable_dev is a tunable parameter.	ent scan is con able_dev (initi	mpared to the scan sially 18 msec), the	start time of the previous scan. If the time	•			MAX_VAL	unitless	No		bit(s)		Name Value False 0 True 1
		Data Gap - Missing scan(s) preceding the	current scan.				1	MIN_VAL	MAX_VAL	unitless	No		l bit(s)	Name Value	Name Value False 0 True 1

		KAV PRT Sufficiency - Insufficient KAV P quality checks.	RT data are av	vailable, either beca	use of missing data or fa	iling to pass	the 2	MIN_VAL	MAX_VAL	unitless	N	О	1 bit(s)	Name Value	Name Value False 0 True 1
		WG PRT Sufficiency - Insufficient WG PRT quality checks.	data are avai	lable, either because	e of missing data or failing	ng to pass the	e 3 N	MIN_VAL	MAX_VAL	unitless	N	O	l bit(s)	Name Value	Name Value False 0 True 1
		Space View antenna position error - There at 4 groupings. The grouping selected is indicat interpreted as: 001, 010, 011, 100 = RAM pr from the scan angle counts in the Science Da (Epsilon)c, the Space View Antenna Position parameters. (Epsilon)c is set to 7 counts.	ted by the Scar ofiles 1, 2, 3, 4 ta packet) doe	n Pattern ID (Bit No 4. If any of the actu es not fall within the	o. 7-9) in InstrumentMoo al space view positions (e range of the expected c	le. Values are as determine ounts +/-	e	MIN_VAL	MAX_VAL	unitless	N	o	l bit(s)	Name Value	Name Value False 0 True 1
		Blackbody antenna position error - There are (as determined from the scan angle counts in count +/- (Epsilon)w, the Blackbody Antenn parameters. (Epsilon)w is set to 7 counts.	the Science I	Data packet) does no	ot fall within the range of	the expected	d nable		MAX_VAL	unitless	N		l bit(s)	Name Value	Name Value False 0 True 1
		Spare					6	MIN_VAL	MAX_VAL	unitless	N	0	2 bit(s)	Name Value	Name Value
QF20_ATMSSDR	1byte(s)	Name Granule Boundary Dynamic Min Scan Yes No 12		Max Array Size											
		Channel No No 22	2												
		Datum													
		Description					Inscaled Valid Range Min	Unscaled V Range Max		rement			Data Fype	Fill Values	Legend Entries
		Moon in Space View - The Moon appears in	any of the fou	ur calibration space	views.	0 N	IIN_VAL	MAX_VAL	unitles	s I	No		l bit(s)	Name Value	
															False 0 True 1
		Gain Error - The lowest blackbody count is s scan.	maller than or	r equal to the highes	st space view count in a	1 N	MIN_VAL	MAX_VAL	unitles	s I	No		l bit(s)	Name Value	
															False 0 True 1
		Calibration With Fewer Than Preferred Sam preferred number of samples and/or scans eit quality checks.				2 N	MIN_VAL	MAX_VAL	unitles	s I	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Space View Data Sufficiency Check - Insuff of missing data or failing to pass the quality		iew samples are ava	ailable, either because	3 N	MIN_VAL	MAX_VAL	unitles	s I	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Blackbody View Data Sufficiency Check - In because of missing data or failing to pass the			les are available, either	4 N	IIN_VAL	MAX_VAL	unitles	s I	No		l bit(s)	Name Value	
			1												False 0 True 1
		Spare				5 N	/IN_VAL	MAX_VAL	unitles	s I	No		3 bit(s)	Name Value	Name Value
QF21_ATMSSDR	1byte(s)	Scan Yes No 12	1	2											
		Channel No No 22	2	2											
		Datum													
		Description I	Datum Offset	Unscaled Valid Ra	ange Min Unscaled Val	id Range Ma	ax Measuremen	t Units Scale	d Scale Factor	Name Data	Туре	Fill Values	Legen	1 Entries	
		Space View #1 out of range condition)	MIN_VAL	MAX_VAL		unitless	No		1 bit	(s)	Name Value			
													False True		
		Space View #2 out of range condition		MIN_VAL	MAX_VAL		unitless	No		1 bit	(s)	Name Value			
													False True		
		Space View #3 out of range condition	2	MIN_VAL	MAX_VAL		unitless	No		1 bit	(s)	Name Value	Name False		
													True		

		Space View #4 out of range condi	ition 3	MIN_VAL	MAX_VAL	unitless	No	1 bit(s) Name Value False 0 True 1
		BlackBody View #1 out of range	condition 4	MIN_VAL	MAX_VAL	unitless	No	1 bit(s) Name Value False 0 True 1
		BlackBody View #2 out of range	condition 5	MIN_VAL	MAX_VAL	unitless	No	1 bit(s) Name Value
		BlackBody View #3 out of range	condition 6	MIN_VAL	MAX_VAL	unitless	No	1 bit(s) Name Value Name Value False 0 True 1
		BlackBody View #4 out of range	condition 7	MIN_VAL	MAX_VAL	unitless	No	1 bit(s) Name Value Name Value False 0 True 1
OF22 ATMEEDD	11-4-(-)				I			
QF22_ATMSSDR	Dyte(s)	Name Granule Boundary Dyr						
		Scan Yes No		12				
		Channel No No	22	22				
		Datum						
			D-4 Off. 127	l. 1 W. P. 1 D 3 C	II	M	I CI. Et. N. N. D T.	PH V-L
		Description					l Scale Factor Name Data Typ	
		Space view #1 inconsistency	0 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0
		Space view #2 inconsistency	1 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0 True 1
		Space view #3 inconsistency	2 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0 True 1
		Space view #4 inconsistency	3 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value Name Value False 0
		BlackBody view #1 inconsistency	7 4 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0
		BlackBody view #2 inconsistency	7 5 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0 True 1
		BlackBody view #3 inconsistency	/ 6 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0 True 1
		BlackBody view #4 inconsistency	7 M	IN_VAL	MAX_VAL	unitless No	1 bit(s)	Name Value False 0
PadByte1	1byte(s)	Nama Cuanula Baund	annia Min A	Cine Mary Aumory C!				
- unspeci		Name Granule Boundary Dyn						
		Granule Yes No	7	7				
		Datum						
		Description Datum Offset Unsc	aled Valid Range	Min Unscaled Valid Ro	nge Max Measurement Units	Scaled Scale Factor Name	Data Type Fill Values	Legend Entries
			_VAL	MAX_VAL				
		rad byte 0 MIN_	_vAL	IVIAA_VAL	unitiess	110	unsigned 8-bit char Name Val	ae Name Value

ATMS TDR Product Profile - Scale Factors

Name	Data Size	Dimensions									
AntennaTemperatureFactors	4byte(s)	Name Granule Boundary Dynamic Min Array Size	Iax Array Size								
		Factors Yes No 2 2									
		Datum									
		Description	Datum Offset	Unscaled Valid Range Mir	Unscaled Valid Range Ma	Measurement Units	Scaled So	cale 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

5.1.3 ATMS TDR HDF5 Details

Figure 5.1.3-1 provides the details on the content and data types of the ATMS TDR. This UML diagram provides details at the product level only. In addition to this UML diagram, refer to Figure 3.2-1, Generalized UML Diagram for HDF5 SDR/TDR Files, for a complete UML rendering of this product.

ATMS-TDR +BeamTime: H5T NATIVE LLONG +AntennaTemperature: H5T_NATIVE USHORT +InstrumentMode: H5T NATIVE USHORT +QF1_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF2_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +OF3 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF4_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF5_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF6 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF7_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF8 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF9 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF10_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF11_GRAN_QUADRATICCORRECTION: H5T_NATIVE_UCHAR +OF12 SCAN KAVPRTCONVERR: H5T NATIVE UCHAR +OF13 SCAN WGPRTCONVERR: H5T NATIVE UCHAR +QF14_SCAN_SHELFPRTCONVERR: H5T_NATIVE_UCHAR +QF15_SCAN_KAVPRTTEMPLIMIT: H5T_NATIVE_UCHAR +QF16 SCAN WGPRTTEMPLIMIT: H5T NATIVE UCHAR +QF17_SCAN_KAVPRTTEMPCONSISTENCY: H5T_NATIVE_UCHAR +QF18_SCAN_WGPRTTEMPCONSISTENCY: H5T_NATIVE_UCHAR +QF19_SCAN_ATMSSDR: H5T_NATIVE_UCHAR +QF20_ATMSSDR: H5T_NATIVE_UCHAR +QF21_ATMSSDR: H5T_NATIVE_UCHAR +OF22 ATMSSDR: H5T_NATIVE_UCHAR +PadByte1: H5T NATIVE UCHAR +AntennaTemperatureFactors: H5T_NATIVE_FLOAT

Figure: 5.1.3-1 ATMS TDR UML Diagram

5.1.4 ATMS TDR Metadata Details

The HDF5 metadata elements associated with the ATMS TDR are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms, Section 5.3, HDF5 (Metadata) Hierarchy. The ATMS TDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the ATMS TDR, the items listed in Table 5.1.4-1, ATMS TDR Quality Summary Metadata are included as name/value pair items under the granule level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the ATMS TDRs.

Table: 5.1.4-1 ATMS TDR Quality Summary Metadata Values

N_Quality_Summary			
Name	Value	Description	Comments
Summary ATMS TDR	0 - 100 %	Percentage of good	
Quality		quality earth view	
		observations in granule	

5.1.5 ATMS TDR Geolocation Content Summary

See Section 6.2.5 ATMS SDR Geolocation Content Summary.

5.1.6 ATMS TDR Geolocation Product Profile

See Section 6.2.6 ATMS SDR Geolocation Product Profile.

5.1.7 ATMS TDR Geolocation HDF5 Details

See Section 6.2.7 ATMS SDR Geolocation HDF5 Details.

5.1.8 ATMS TDR Geolocation Metadata Details

There are no quality summary metadata items in the ATMS TDR Geolocation.

6 Sensor Data Records (SDRs)

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

An SDR contains the following:

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

6.1 SDR Granule Size

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

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

6.2 Advanced Technology Microwave Sounder SDR

Data Mnemonic	SDRE-ATMS-C0030
Description/	Advanced Technology Microwave Sounder (ATMS) sensor data calibrated
Purpose	to support Environmental Data Record (EDR) generation.
	Data from ATMS, along with processing coefficients and spacecraft attitude
	and ephemeris, are processed by the ATMS Sensor Data Record (SDR)
	routines to produce geolocated, corrected, calibrated scene brightness
	temperatures. ATMS rotates three times every 8 seconds resulting in three
	scans for every single scan of CrIS. For optimal performance within the
	JPSS processing system, the length of each ATMS granule is set to 32
	seconds, which is equivalent to 12 scans.
	ATMS rotates counter-clockwise (w.r.t. the positive velocity direction)
	producing 104 views, with each view taking approximately 18 milliseconds.
	96 earth view brightness temperatures are reported in the SDR for each of
	the 22 channels. As part of the normal ATMS calibration process, there are
	also four "cold" space views and four "warm" target views. Noise-
	Equivalent delta Temperatures (NEdT) are reported for each of the
	calibration views.
	Quality Flags: There are two "warm" calibration targets one for K, Ka, and
	V-bands (KAV Target) and one for W and G-band (WG Target). The KAV

	target has eight Platinum Resistance Thermistors (PRT) and the WG target has seven PRTs. Also, each of the four shelf receivers has a PRT: one for each K/Ka, V, W, and G Bands. In all quality flags which reference PRTs, the least significant bit (lsb) of the 8 bit quality flag corresponds to the 1 st item (e.g. PRT #1 or K/Ka). For quality flags which reference space views, the lsb corresponds to the first space view.
File-Naming	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
Construct	
File Size	See Table: 6.2.1-1 ATMS SDR Product Data Content Summary below for data granule.
	See Table: 6.2.5-1 ATMS SDR Geolocation Data Content Summary below
	for geolocation granule.
	Sizes do not include HDF5 overhead or metadata.
File Format Type	HDF5
Data Content and	See Section 6.2.1, ATMS SDR Data Content Summary.
Data Format	See Section 6.2.5, ATMS SDR Geolocation Content Summary

6.2.1 ATMS SDR Product Data Content Summary

Table: 6.2.1-1 ATMS SDR Product Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
BeamTime	The time in IET of the end of the view period for this observation	64-bit integer	[N*12, 96]	[12, 96]	microsecond
BrightnessTempe rature	Calibrated scene brightness temperature for each ATMS channel and beam position. This output is the Rayleigh equivalent temperature.	unsigned 16-bit integer	[N*12, 96, 22]	[12, 96, 22]	kelvin
NEdTCold	Noise-equivalent delta Temperature while viewing cold space	32-bit floating point	[N*12, 22]	[12, 22]	kelvin
NEdTWarm	Noise-equivalent delta Temperature while viewing warm target	32-bit floating point	[N*12, 22]	[12, 22]	kelvin
GainCalibration	Gain factor used in calibrating earth scene brightness temperatures	32-bit floating point	[N*12, 22]	[12, 22]	kelvin
InstrumentMode	Instrument mode word 73 in the Health & Status APID 531	unsigned 16-bit integer	[N*4]	[4]	unitless
QF1_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF2_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF3_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF4_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF5_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF6_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF7_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF8_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF9_GRAN_HE ALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF10_GRAN_H EALTHSTATUS	Out of range quality flag for 8 second health and status packet	unsigned 8-bit char	[N*4]	[4]	unitless
QF11_GRAN_Q UADRATICCOR RECTION	Quadratic correction applied to the radiometric transfer function for non-linearity correction.	unsigned 8-bit char	[N*1]	[1]	unitless
QF12_SCAN_K AVPRTCONVE RR	If a divide-by-zero condition exists, or if computation loop fails to converge in the temperature computations for the 8 KAV PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF13_SCAN_W GPRTCONVERR	If a divide-by-zero condition exists, or if computation loop fails to converge in the temperature computations for the 7 WG PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF14_SCAN_SH ELFPRTCONVE RR	If a divide-by-zero condition exists, or if the computation loop fails to converge in the temperature computations for the 4 Receiver Shelf (KKa, V, W and G) PRTs, the condition is flagged by the corresponding bit in the flag to indicate which PRT has failed.	unsigned 8-bit char	[N*12]	[12]	unitless
QF15_SCAN_K AVPRTTEMPLI MIT	Each of the 8 KAV PRT temperatures is checked against a lower limit and an upper limit. Out of range conditions are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless
QF16_SCAN_W GPRTTEMPLIM IT	Each of the 7 WG PRT temperatures is checked against a lower limit and an upper limit. Out of range conditions are flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units		
QF17_SCAN_K AVPRTTEMPCO NSISTENCY	The 8 KAV PRT temperatures are checked against each other for consistency. The check failure shall be flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless		
QF18_SCAN_W GPRTTEMPCON SISTENCY	The 7 WG PRT temperatures are checked against each other for consistency. The check failure shall be flagged by the corresponding bit in the flag to indicate which PRT has failed the test.	unsigned 8-bit char	[N*12]	[12]	unitless		
QF19_SCAN_AT MSSDR	Scan-level Quality Flag	unsigned 8-bit char	[N*12]	[12]	unitless		
QF20_ATMSSD R	Scan-level Quality Flag per channel	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless		
QF21_ATMSSD R	Out of range - Space and Blackbody View Quality Flag	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless		
QF22_ATMSSD R	Space and Blackbody View Quality Flag	unsigned 8-bit char	[N*12, 22]	[12, 22]	unitless		
PadByte1	Pad byte	unsigned 8-bit char	[N*7]	[7]	unitless		
BrightnessTempe ratureFactors File Size	Scale = first array element; offset = second array element 64.024 Bytes	32-bit floating point	[N*2]	[2]	Scale = unitless; Offset = Kelvin		

6.2.2 ATMS SDR Product Profile

Table: 6.2.2-1 ATMS SDR Product Profile

ATMS SDR Product Profile

							F	elds					
Name	Data	Dimensions											
	Size												
BeamTime	8byte(s)	Name	Granule Boundary	Dynami	Min Array Size	Max Array Size							
		Scan	Yes	No	12	12							
		BeamPosition	No	No	96	96							
		Datum											
		Description				Datum Offse	t Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled Scale F	actor Name Data Type	Fill Values	Legend Entries
		The time in IE	ET of the end of the v	ew perio	d for this observat	on 0	MIN_VAL	MAX_VAL	microsecond	No	64-bit intege	Name	Value Name Value
												NA_INT64_FILL	-999
												MISS_INT64_FILL	-998
												ERR_INT64_FILL	-995

														VI	DNE_INT64_FILL -993		
BrightnessTemperature	2byte(s)	Name	Granule Bour	ndary Dynar	nic Min Array S	Size Max Array S	ize										
		Scan	Yes	No	12	12	=										
		BeamPosition	n No	No	96	96											
		Channel	No	No	22	22											
		Datum															
		Description						nscaled Valid	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Nan	ne	Data Type	Fill Values		Legend Entries
		Calibrated sco	ene brightness to	emperature fo	or each ATMS ch	nannel and beam		00	330.00	Kelvin	Yes	BrightnessTempe	ratureFactors	unsigned 16-bit	Name		Name Valu
		position. This	output is the Ra	ayleigh equiv	alent temperatur	e.								integer	NA_UINT16_FILL	65535	r talle r tale
															MISS_UINT16_FILL	65534	
													-		ERR_UINT16_FILL	65531	
															VDNE_UINT16_FIL		
													-		SOUB_UINT16_FILE	L 65528	
NEdTCold	4byte(s)	Name Gra	nula Paundam	Dynamia M	Iin Array Size M	Iov Armor Sizo											
	"," (",	Scan Yes		No 12													
		Channel No		No 22													
		Datum															
		Description				Datum	Unscaled Valid F	Range Un	scaled Valid Range	Measurement	Sc	nled Scale Factor	Data 7	Fvne F	ill Values	I	Legend
							Min	Ma		Units		Name					Entries
			lent delta Tempe	erature while	viewing cold	0	MIN_VAL	M/	AX_VAL	Kelvin	No			floating	Name	Value	Name Value
		space											point	I	NA_FLOAT32_FILL	-999.9	
														N	MISS_FLOAT32_FILL	-999.8	
														E	ERR_FLOAT32_FILL	-999.5	
														N	DNE_FLOAT32_FILL	-999.3	
NEdTWarm	4byte(s)	Name Gra	nule Roundary	Dynamic M	lin Array Size M	Iav Array Size											
	•	Scan Yes		No 12													
		Channel No		No 22													
		Datum			<u> </u>												
		Description				Datum	Unscaled Valid	Range U1	nscaled Valid Range	Measurement	Sc	aled Scale Factor	Data 7	Гуре F	ill Values	I	Legend
						Offset	Min	M		Units		Name				H	Entries
			lent delta Tempe	erature while	viewing warm	0	MIN_VAL	M.	AX_VAL	Kelvin	No	·			Name		Name Value
		target											point		NA_FLOAT32_FILL	-999.9	
												I		l la			
																-999.8	
														E	ERR_FLOAT32_FILL	-999.5	
														E		-999.5	
GainCalibration	4byte(s)	Name Gra	nule Boundary	Dynamic M	Iin Array Size M	Iax Array Size								E	ERR_FLOAT32_FILL	-999.5	
GainCalibration	4byte(s)	Name Gra Scan Yes		Dynamic M										E	ERR_FLOAT32_FILL	-999.5	
GainCalibration	4byte(s)				2 1:	2								E	ERR_FLOAT32_FILL	-999.5	
SainCalibration	4byte(s)	Scan Yes		No 12	2 1:	2								E	ERR_FLOAT32_FILL	-999.5	
GainCalibration	4byte(s)	Scan Yes Channel No		No 12	2 1:	2 2 Datum	Unscaled Valid		Jnscaled Valid Range	Measurement	Se	caled Scale Factor	r Data	N N	ERR_FLOAT32_FILL	-999.5 -999.3	Legend
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description		No	2 11 2 2:	2 2	Min	N	Max	Units		Name		Type F	BR FLOAT32_FILL VDNE_FLOAT32_FILL	-999.5 -999.3	Legend Entries
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum		N			So	Name	32-bit	Type F floating	ERR_FLOAT32_FILL //DNE_FLOAT32_FILL Till Values Name	-999.5 -999.3	Entries
SainCalibration	4byte(s)	Scan Yes Channel No Datum Description	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name		Type F floating	ERR_FLOAT32_FILL //DNE_FLOAT32_FILL ill Values	-999.5 -999.3 	Entries
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating	ERR_FLOAT32_FILL /DNE_FLOAT32_FILL Till Values Name NA_FLOAT32_FILL	-999.5 -999.3	Entries
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating	ERR_FLOAT32_FILL //DNE_FLOAT32_FILL Till Values Name	-999.5 -999.3 Value - -999.9 -	Entries
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating	ERR_FLOAT32_FILL /DNE_FLOAT32_FILL Till Values Name NA_FLOAT32_FILL	-999.5 -999.3 	
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL SERR_FLOAT32_FILL	-999.5 -999.3 Value - -999.9 -	Entries
GainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL MISS_FLOAT32_FILL	-999.5 -999.3 	Entries
sainCalibration	4byte(s)	Scan Yes Channel No Datum Description Gain factor u	sed in calibrating	No	2 11 2 2:	2 2 Datum	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL SERR_FLOAT32_FILL	-999.5 -999.3 	Entries
sainCalibration		Scan Yes Channel No Datum Description Gain factor u temperatures	sed in calibrating	No 12 No 22 g earth scene	2 11 2 2:	Datum Offset	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL SERR_FLOAT32_FILL	-999.5 -999.3 	Entries
		Scan Yes Channel No Datum Description Gain factor u temperatures	sed in calibrating	No 12 No 22 g earth scene	2 II. 2 Z	Datum Offset	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL SERR_FLOAT32_FILL	-999.5 -999.3 	Entries
		Scan Yes Channel No Datum Description Gain factor u temperatures	sed in calibrating	No 12 No 22 g earth scene	2 II. 2 2 2. brightness	Datum Offset	Min	N	Max	Units		Name	32-bit	Type F floating N	ERR_FLOAT32_FILL VDNE_FLOAT32_FILL Fill Values Name NA_FLOAT32_FILL SERR_FLOAT32_FILL	-999.5 -999.3 	Entries

True 1

Instrument mode word 73 in the Health & Status APID 531 0	MIN_VAL	MAX_VAL	unitless	No	unsigned 16-bit integer Name Value Name Value

ATMS SDR Product Profile - Quality Flags Fields Name Data Dimensions Size QF1_GRAN_HEALTHSTATUS 1byte(s) Name Granule Boundary Dynamic Min Array Size Max Array Size Time Yes No Datum Scaled Scale Factor Unscaled Valid Range Unscaled Valid Range Fill Values Description Datum Measurement Data Legend Offset Min Max Units Name Type Entries MIN_VAL MAX_VAL unitless 1 bit(s) Name Value Name Value SPA_P5V_A_VMON or SPA_P5V_B_VMON health check failed 1 MIN_VAL MAX_VAL 1 bit(s) unitless Nο Name Value Name Value False 0 True 1 SPA_P15V_A_VMON or SPA_P15V_B_VMON health check MIN_VAL MAX_VAL unitless Name Value Name Value False 0 True MIN_VAL MAX_VAL SPA_N15V_A_VMON or SPA_N15V_B_VMON health check unitless No 1 bit(s) Name Value Name Value False 0 True MAX_VAL RCV_P6V_RF_VMON health check failed MIN_VAL unitless 1 bit(s) Name Value Name Value False 0 True 1 RCV_P12V_RF2_VMON health check failed MIN VAL MAX_VAL unitless No Name Value Name Value False 0 True 1 RCV_P15V_RF_VMON health check failed MIN VAL MAX_VAL unitless No 1 bit(s) Name Value Name Value False 0 True |1 MIN VAL MAX VAL RCV_N15V_RF_VMON health check failed unitless No 1 bit(s) Name Value Name Value False 0 True 1 QF2_GRAN_HEALTHSTATUS 1byte(s) Name Granule Boundary Dynamic Min Array Size Max Array Size Time Yes Datum Description Datum Offset Unscaled Valid Range Min Unscaled Valid Range Max Measurement Units Scaled Scale Factor Name Data Type Fill Values Legend Entries RCV_P15V_ANA_VMON health check failed 0 MIN_VAL MAX_VAL Name Value Name Value 1 bit(s) False 0 RCV_N15V_ANA_VMON health check failed 1 MIN_VAL MAX_VAL unitless 1 bit(s) Name Value Name Value False 0 True 1 K RFE PRT health check failed MIN VAL MAX VAL unitless No 1 bit(s) Name Value Name Value False 0 True 1 KA_RFE_PRT health check failed MIN_VAL MAX_VAL unitless No 1 bit(s) Name Value Name Value False 0 True 1 V_RFE_PRT health check failed MIN_VAL MAX_VAL unitless 1 bit(s) Name Value Name Value False 0

		V_PRI_PLO_PRT health check failed	5	MIN_VAL	MAX_VAL	unitless	No	1	bit(s)	Name Value Name Value False 0	
										True 1	
		V_RED_PLO_PRT health check failed	6	MIN_VAL	MAX_VAL	unitless	No	1	bit(s)	Name Value Name Value	
									ľ	False 0	
		V_IF_PRT health check failed	7	MIN_VAL	MAX_VAL	unitless	No	1	bit(s)	Name Value Name Value	
										False 0	
QF3_GRAN_HEALTHSTATUS	1hrsto(o)										
QI'3_GKAN_HEALTHSTATUS	Toyle(s)	Name Granule Boundary Dynamic Min Artime Yes No 4	ray Size Max A	rray Size							
		Datum									
			m Offeet Times	alad Walid Danes	e Min Unscaled Valid Range	Mon Moonneaut Unit	ta Canlad Canla	Fastan Nama Data Tr	ma Eill Val	lues Legend Entries	
		W_RFE_PRT health check failed 0	MIN		MAX VAL	unitless	No Scaled Scale	1 bit(s)	- 1	1	
		W_KI-E_FK1 health check failed 0	WIII_	VAL	WAX_VAL	unitiess	No	1 bit(s)	Name	Value Name Value	
										False 0	
		SAW_FILT_PRT health check failed 1	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
									r turre	False 0	
										True 1	
		W_IF_PRT health check failed 2	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Nome	Value Name Value	
			-	•					Maine	False 0	
										True 1	
		W_PRI_GDO_PRT health check failed 3	MIN_	X7.A.T	MAX_VAL	unitless	No	11:44			
		w_FRI_GDO_FRT health check lailed 3	WIIN_	VAL	WIAX_VAL	unitiess	NO	1 bit(s)	Name	Value Name Value	
										False 0	
										True 1	
		W_RED_GDO_PRT health check failed 4	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
										False 0	
										True 1	
		G_PRI_CSO_PRT health check failed 5	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
										False 0	
										True 1	
		G_RED_CSO_PRT health check failed 6	MIN	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
									<u> </u>	False 0	
										True 1	
		G1_IF_PRT health check failed 7	MIN	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
									rane	False 0	
										True 1	
QF4_GRAN_HEALTHSTATUS	1buto(c)										
QI4_GRAN_HEALTHSTATUS	Toyle(s)	Name Granule Boundary Dynamic Min Ar	ray Size Max A	rray Size							
		Time Yes No 4	4								
		Datum	Om Itt		10 2 112 112		la				
					Min Unscaled Valid Range						
		G2_IF_PRT health check failed 0	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name V	Value Name Value	
										False 0	
										True 1	
		W_SHELF_PRT health check failed 1	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name V	Value Name Value	
										False 0	
										True 1	
		KKA_SHELF_PRT health check failed 2	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name V	alue Name Value	
										False 0	
										True 1	
		G_SHELF_PRT health check failed 3	MIN_	VAL	MAX_VAL	unitless	No	1 bit(s)	Name	Value Name Value	
									F	False 0	
		<u> </u>			1		11			p. 22.22.12	

										Tru	ie 1	
		V_SHELF_PRT health check failed 4	MIN	VAL	MAX_VAL	unitless	No		1 bit(s)			
		V_SITEEI_I KI neutai eneek iunea	1,111,	_ • • • • • • • • • • • • • • • • • • •	W. D. C. 7.7 E.	unitiess	110	ľ	1 011(3)	Name Value Na	se 0	
										Tru		
		RCVPS_A_PRT health check failed 5	MIN.	_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value Na		
											se 0	
										Tru	ie 1	
		RCVPS_B_PRT health check failed 6	MIN	VAL	MAX_VAL	unitless	No	İ	1 bit(s)	Name Value Na	me Value	
				= '					(.,		se 0	
											ie 1	
										110	ie ji	
		OCXO_PRI_PRT health check failed 7	MIN.	_VAL	MAX_VAL	unitless	No	-	1 bit(s)	Name Value Na		
											se 0	
										Tru	ie 1	
QF5_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Arra	v Sizo Mov	A may Size								
	1.0,11(0)	Time Yes No 4	4	Allay Size								
		Datum	O.PR. A T.I	1 177 111 15	36' 11 1 137 111	37 37	T		D 4 70	Em 27 1 2	15.41	
						ange Max Measurement		actor Name			end Entries	
		OCXO_RED_PRT health check failed 0	MIN_	_VAL	MAX_VAL	unitless	No	-	1 bit(s)	Name Value Na		
											se 0	
										Tru	e 1	
		DSPA_1553_PRT health check failed 1	MIN	_VAL	MAX_VAL	unitless	No	1	l bit(s)	Name Value Na	me Value	
											se 0	
										Tru	ie 1	
		DSPB_1553_PRT health check failed 2	MIN	VAL	MAX_VAL	unitless	No		1 bit(s)	NT NT1 NT	\$7 - L	
		BSI B_1333_1 K1 health eleck laned	,,,,,,	_ • • • • •	1417 L. T.	unitiess		ľ	i on(s)	Name Value Na	se 0	
										I		
										1 1	e 1	
		SPA_PS_A_PRT health check failed 3	MIN_	_VAL	MAX_VAL	unitless	No	[1	1 bit(s)	Name Value Na		
										Fals	se 0	
										Tru	ie 1	
		SPA_PS_B_PRT health check failed 4	MIN	_VAL	MAX_VAL	unitless	No	1	1 bit(s)	Name Value Na	me Value	
											se 0	
											ie 1	
		DSPA_PROC_PRT health check failed 5	MIN	_VAL	MAX_VAL	unitless	No		1 bit(s)			
		DSFA_FROC_FRT health check failed 5	IVIIIN_	_VAL	WAA_VAL	unitiess	NO	l'	i bit(s)	Name Value Na		
											se 0	
										Tru	e 1	
		DSPB_PROC_PRT health check failed 6	MIN	_VAL	MAX_VAL	unitless	No	1	1 bit(s)	Name Value Na	me Value	
											se 0	
											ie 1	
		SD_MECH_TEMP health check failed 7	MIN	VAL	MAX_VAL	unitless	No	1	1 bit(s)	Name Value Na		
		BB_MBen_1234 Read relief and		_ , , , , ,		amicos	1.0	ľ	1 011(5)		se 0	
										I	ie 1	
										IIru	C 1	
QF6_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Arra	y Size Max	Array Size								
		Time Yes No 4	4									
		Datum										
		Description		Datum Offset	Unscaled Valid Range M	in Unscaled Valid Range	Max Measurement	Units Scaled	Scale Fac	tor Name Data Tyr	e Fill Values	Legend
		SD_PS_PRT health check failed			MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	-
										''	, unite value	False (
												True 1
		W DIO A LOCK VIMONI III : 1 C II I			MINT TO A	N 64 37 37 47				1150		
		V_PLO_A_LOCK_VMON health check failed		1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	
												False 0
												True 1
		V_PLO_B_LOCK_VMON health check failed		2	MIN_VAL	MAX VAL	unitless	No		1 bit(s)	Name Value	Namel
				1			1	1		[(-)	vaine value	III TAILE

	_	I							
									False 0 True 1
		HK 2WREST1 A or HK 2WREST1 B health check failed 3		MIN_VAL	MAX VAL	unitless	No	1 bit(s)	Name Value Name Value
							[(-)	False 0
									True 1
		HK_2WREST2_A or HK_2WREST2_B health check failed 4		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
		4W_GND_A or 4W_GND_B health check failed 5		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
		The stability of the st			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1 011(0)	False 0
									True 1
		2W_GND_A or 2W_GND_B health check failed 6	1	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0 True 1
		VD_REF_A or VD_REF_B; Module 1 health check failed 7		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
				_				''	False 0
									True 1
QF7_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array	y Size						
		Time Yes No 4 4							
		Datum Description Datu	ım Offeet	Uncooled Velid	Range Min Unscaled Valid	I Panga May Maasura	mont Units Souled Son	la Fastar Nama Data Tuna	Fill Values Legend Entries
		VD_REF_A or VD_REF_B; Module 2 health check failed 0		MIN_VAL	MAX_VAL	unitless	No No	1 bit(s)	Name Value Name Value
		To Judy 2.1 of 15 Judy 25, modelle 2 steam theorem and	ĺ		,	antiess		T on (o)	False 0 True 1
		VD_REF_A or VD_REF_B; Module 3 health check failed 1	Ţ,	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0 True 1
		VD_REF_A or VD_REF_B; Module 4 health check failed 2	ı	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
		VD_GND_A or VD_GND_B; Module 1 health check failed 3		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
									True 1
		VD_GND_A or VD_GND_B; Module 2 health check failed 4	1	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
		VD_GND_A or VD_GND_B; Module 3 health check failed 5		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
		VD_GND_A or VD_GND_B; Module 4 health check failed 6	ľ	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value False 0
									True 1
		SD_P5V_VMON health check failed 7		MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	Name Value Name Value
									False 0
									True 1
QF8_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array	y Size						
		Time Yes No 4 4 4							
			nscaled V	alid Range Min	Unscaled Valid Range Ma	x Measurement Unite	Scaled Scale Factor No	me Data Type Fill Values	Legend Entries
			IIN_VAL		MAX_VAL		No Scale Pactor 142		ie Name Value
									False 0
									True 1
	1								

		SD_N12V_VMON health	n check failed 1		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	
														True 1	
		MAIN_MOTOR_CUR he	ealth check failed 2		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	
														True 1	
		COMP_MOTOR_CUR h	ealth check failed 3		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	
														True 1	
		RESOLVER_VMON hea	lth check failed 4		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	_
														True 1	
		SD_MAIN_MOTOR_VE	L health check failed 5		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	4
														True 1	
		SD_COMP_MOTOR_VE	EL health check failed 6		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	-
									1					True 1	
		SD_MAIN_LOOP_ERRO	OR health check failed 7		MIN_VAL		MAX_VAL		unitless	No		1 bit(s)	Name Value	e Name Valu	e
														False 0	-
	<u> </u>				<u> </u>									True 1	
QF9_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundar		Size Max A	Array Size										
		Time Yes	No 4	4											
		Datum			n	L	1 n 1 e e			h.e					
		Description SD_MAIN_LOOP_INT_	FRROR health check fai		Datum Offset	MIN_VAL	d Range Min Uns	X_VAL	i Kange Max	unitless	No No	scale Factor Nan		Name Value	
		BB_MMIN_EGGI_INT_	ERROR neutri eneek iui	ica		INITY_TALL	1412	21_ • / IL		unitiess	1.0		l on(s)	Name v aiue	False 0
															True 1
		SD_MAIN_LOOP_VEL_	ERROR health check fa	iled	1	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	
			-											rame value	False 0
															True 1
		SD_COMP_LOOP_ERRO	OR health check failed		2	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	
														,	False 0
															True 1
		SD_MAIN_MOTOR_RE	Q_VOLTAGE health ch	eck failed	3	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	Name Value
															False 0
															True 1
		SD_COMP_MOTOR_RE	EQ_VOLTAGE health ch	neck failed	4	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	Name Value
															False 0
															True 1
		SD_FEED_FORWARD_	VOLTAGE health check	failed	5	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	Name Value
															False 0
															True 1
		COMP_MOTOR_POS he	ealth check failed		6	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	
															False 0
															True 1
		Spare			/	MIN_VAL	MA	X_VAL		unitless	No		1 bit(s)	Name Value	Name Value
QF10_GRAN_HEALTHSTATUS	1byte(s)	Name Granule Boundar	y Dynamic Min Array	Size Max A	Array Size										
		Time Yes	No 4	4											
		Datum													
		Description Datum Offse							Factor Nam			egend Entries			
		Spare 0	MIN_VAL	MA	X_VAL	unit	less	No		8 bit(s)	Name Value N	lame Value			

QF11_GRAN_QUADRATICCORRECTION	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array Size										
		Datum										
		Description	Datum Offset	Unsc Min		Unscaled Valid Range Max	Measurement Units		cale Factor ame	Data Type		Legend Entries
		Quadratic correction applied to the radiometric transfer function for non- linearity correction.	0	MIN	_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Spare	1	MIN	_VAL	MAX_VAL	unitless	No		7 bit(s)	Name Value	Name Value
QF12_SCAN_KAVPRTCONVERR		Name Granule Boundary Dynamic Min Array Size Max Array Size Scan Yes No 12 12 Datum										
		Description		Datum Offset	Unscaled Vali	d Unscaled Valid Range Max	Measurement Units	Scale	d Scale Factor Name	Data Type	Fill Values	Legend Entries
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #1 temperature computation.	and V	0	MIN_VAL	MAX_VAL	unitless	No	- tume	1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #2 temperature computation.	and V	1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #3 temperature computation.	and V	2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #4 temperature computation.	and V	3	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #5 temperature computation.	and V	4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #6 temperature computation.	and V	5	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #7 temperature computation.	and V	6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the K/Ka (KAV) Band PRT #8 temperature computation.	and V	7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
QF13_SCAN_WGPRTCONVERR		Name Granule Boundary Dynamic Min Array Size Max Array Size Scan Yes No 12 12										i
		Description		atum	Unscaled Valid	Unscaled Valid Ran		Scaled	Scale Factor	Data		Legend
		Divide-by-zero condition or computation loop failed to converge in the WG I PRT #1 temperature computation.		ffset	MIN_VAL	MAX_VAL	Units unitless	No	Name	1 bit(s)	1	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the WG I PRT #2 temperature computation.	Band 1		MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the WG I PRT #3 temperature computation.	Band 2		MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1
		Divide-by-zero condition or computation loop failed to converge in the WG I PRT #4 temperature computation.	Band 3		MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name Value	Name Value False 0

				T							T	T		. 1
											<u> </u>			ue 1
		Divide-by-zero condition or computation loop failed to converge i PRT #5 temperature computation.	in the WG Band	4	M	IN_VAL	MAX_VAL	l	ınitless	No		1 bit(s)	Name Value Na	ıme Value
		FK1 #3 temperature computation.												ilse 0
													Tru	ue 1
		Divide-by-zero condition or computation loop failed to converge i	in the WG Band	5	M	IN_VAL	MAX_VAL	ι	ınitless	No		1 bit(s)	Name Value Na	ame Value
		PRT #6 temperature computation.											Fal	ilse 0
													Tru	ue 1
		Divide-by-zero condition or computation loop failed to converge i	in the WG Band	6	M	IN_VAL	MAX_VAL	l	ınitless	No		1 bit(s)	Name Value Na	ame Value
		PRT #7 temperature computation.												ilse 0
													Trı	ue 1
		Spare		7	M	IN_VAL	MAX_VAL	l	unitless	No		1 bit(s)	Name Value Na	ame Value
QF14_SCAN_SHELFPRTCONVERR	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Array	y Size											
		Scan Yes No 12 12												
		Datum												
		Description			Datum	Unscaled Vali			Measurement	Scale	ed Scale Factor			gend
					Offset	Range Min	Range Ma		Units		Name	Type		itries
		Divide-by-zero condition or computation loop failed to converge i Band Receiver Shelf PRT K temperature computation.	in the K/Ka, V, V	√, G	0	MIN_VAL	MAX_VA	AL	unitless	No		1 bit(s)	Name Value Na	
		Band Receiver Sheri FRT R temperature computation.											I	ilse 0
													Tru	rue 1
		Divide-by-zero condition or computation loop failed to converge i	in the K/Ka, V, V	V, G	1	MIN_VAL	MAX_VA	AL	unitless	No		1 bit(s)	Name Value Na	ame Value
		Band Receiver Shelf PRT V temperature computation.											I	ilse 0
													Trı	rue 1
		Divide-by-zero condition or computation loop failed to converge i	in the K/Ka, V, V	V, G	2	MIN_VAL	MAX_VA	AL	unitless	No		1 bit(s)	Name Value Na	ame Value
		Band Receiver Shelf PRT W temperature computation.											Fal	ilse 0
													Tri	rue 1
		Divide-by-zero condition or computation loop failed to converge i	in the K/Ka, V, V	V, G	3	MIN_VAL	MAX_VA	AL.	unitless	No	İ	1 bit(s)	Name Value Na	ame Value
		Band Receiver Shelf PRT G temperature computation.												ilse 0
													Tri	rue 1
		Spare			4	MIN_VAL	MAX_VA	AL	unitless	No		4 bit(s)	Name Value Na	ame Value
QF15_SCAN_KAVPRTTEMPLIMIT	1byte(s)	Name Granule Boundary Dynamic Min Array Size Max Arra	v Size											
	•	Scan Yes No 12 12	y Size											
		Datum												
		Description	Datum	Unscale	ed Valid R	Range Unscale	ed Valid Range	Measu	rement Sc	aled Scal	le Factor	Data	Fill Values Lege	end
				Min		Max		Units		Nan		Гуре	Enti	
		Out of range condition for the K/Ka and V Band PRT #1	0	MIN_V	'AL	MAX_	VAL	unitless	No)		l bit(s)	Name Value Nar	me Value
		temperatures.											Fals	lse 0
													Tru	ue 1
		Out of range condition for the K/Ka and V Band PRT #2	1	MIN_V	'AL	MAX_	VAL	unitless	No)		l bit(s)	Name Value Nar	me Value
		temperatures.											Fals	lse 0
													Tru	1e 1
		Out of range condition for the K/Ka and V Band PRT #3	2	MIN_V	'AL	MAX_	VAL	unitless	No	, i	İ	l bit(s)	Name Value Nar	me Value
		temperatures.												lse 0
													Tru	ie 1
		Out of range condition for the K/Ka and V Band PRT #4	3	MIN_V	'AL	MAX_	VAL	unitless	No	,	i	l bit(s)	Name Value Nar	me Value
		temperatures.												lse 0
													Tru	
		Out of range condition for the K/Ka and V Band PRT #5	4	MIN_V	'AL	MAX_	VAL	unitless	No	,	I	l bit(s)	Name Value Nar	
		temperatures.				[["			\"/		lse 0
													I	ue 1
		Out of range condition for the K/Ka and V Band PRT #6	5	MIN_V	AI.	MAX_	VAI.	unitless	No	,		l bit(s)		
		temperatures.		,,,,,, ,_ v		,		unitiess			[. on(s)	Name Value Nar	lse 0
													Tru	
	1	II	1							1			1 110	1

		Out of range condition for the K/Ka and V Band PRT #7 temperatures.		6	MIN_VAL	MAX_VAL	unitless	No	1	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the K/Ka and V Band PRT #8 temperatures.		7	MIN_VAL	MAX_VAL	unitless	No	1	bit(s)	Name Value	Name Value False 0 True 1
QF16_SCAN_WGPRTTEMPLIMIT	1byte(s)	Name Granule Boundary Dynamic Min Array Size Ma Scan Yes No 12 12	x Array	Size								
		Datum										
		Description	Det	um Offcot I	necoled Valid Dange	Min Unscaled Valid Range M	Any Mangurament	Unite Cooled Cool	o Footor Name De	ata Tyma	Fill Volume	Legend Entries
		Out of range condition for the WG Band PRT #1 temperatu			IIN_VAL	MAX_VAL	unitless	No No		bit(s)	1	Name Value
		out of range contained for the Med Balla First with composition								J. (5)	Name value	False 0 True 1
		Out of range condition for the WG Band PRT #2 temperate	ıres. 1	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the WG Band PRT #3 temperate	ires. 2	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the WG Band PRT #4 temperate	ires. 3	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the WG Band PRT #5 temperate	ures. 4	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the WG Band PRT #6 temperate	ires. 5	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Out of range condition for the WG Band PRT #7 temperate	ires. 6	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value False 0 True 1
		Spare	7	N	IIN_VAL	MAX_VAL	unitless	No	11	bit(s)	Name Value	Name Value
QF17_SCAN_KAVPRTTEMPCONSISTENCY	/ lbyte(s)	Name Granule Boundary Dynamic Min Array Size Ma Scan Yes No 12 12 Datum Description Datum Offset U			Min Unccalad Valid E	tange Max Measurement Ur	site Scalad Scala Fo	etor Nama Data	Type Fill Volues	Lagane	d Entries	
			IN_VAL		MAX VAL	unitless	No No	1 bit(s				
					_					False True	0	
		KAV PRT #2 temperature inconsistency M	IN_VAL	,	MAX_VAL	unitless	No	1 bit(s	Name Value	False True	0	
		.	IN_VAL		MAX_VAL	unitless	No	1 bit(s	Name Value	False True	0	
			IN_VAL		MAX_VAL	unitless	No	1 bit(s	Name Value	Name False True	0	
		KAV PRT #5 temperature inconsistency 4 M	IN_VAL	,	MAX_VAL	unitless	No	1 bit(s	Name Value	Name False True		
		KAV PRT #6 temperature inconsistency 5 M	IN_VAL	,	MAX_VAL	unitless	No	1 bit(s	Name Value	Name	Value	

	1		1	1		1			1		E 1	lo.		
												se 0	-	
		KAV PRT #7 temperature inconsisten	ev 6	MIN VAL	MAX VAL	unitless	No	1	1 bit(s)	Nama	Value Na	me Valu		
										runc	Fal	se 0		
												ie 1	<u></u>	
		KAV PRT #8 temperature inconsisten	cy 7	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name	Value		ie	
												se 0	-	
QF18_SCAN_WGPRTTEMPCONSISTENCY	1byte(s)	Name Granule Boundary Dynamic	Min Array Size	Max Array Size	1			1						
			12	12										
		Datum												
		Description	Datum Offset	Unscaled Valid 1	Range Min Unscaled Valid Range Max	Measurem	ent Units Scale	d Scale Factor Na	me Data Type	Fill Valu	es Lege	nd Entr	ies	
		WG PRT #1 temperature inconsistence	y 0	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan	ne Value		
											Fals]	
											True	1		
		WG PRT #2 temperature inconsistenc	y 1	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan			
											Fals		-	
		NIC PRE #2		hmy yyy	MAY WAY	1.1	h.r.		11565		True			
		WG PRT #3 temperature inconsistence	y 2	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan			
											False True		-	
		WG PRT #4 temperature inconsistence	y 3	MIN_VAL	MAX_VAL	unitless	No	1	1 bit(s)	NT X7			H	
		WGTRT #4 temperature meonsistene	,	WIII_VAL	WAX_VAL	uniticss	110		1 on(s)	Name V	alue Nan Fals			
											True		1	
		WG PRT #5 temperature inconsistence	v 4	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan		+	
		1		_	_				''	ranic v	Fals		1	
											True	1		
		WG PRT #6 temperature inconsistence	y 5	MIN_VAL	MAX_VAL	unitless	No	İ	1 bit(s)	Name V	alue Nan	ne Value		
											Fals			
											True	1		
		WG PRT #7 temperature inconsistence	y 6	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan			
											Fals			
				<u> </u>							True			
		Spare	[/	MIN_VAL	MAX_VAL	unitless	No		1 bit(s)	Name V	alue Nan	ne Value		
QF19_SCAN_ATMSSDR	1byte(s)	Name Granule Boundary Dynamic	Min Array Size	Max Array Size										
			12	12										
		Datum								-				
		Description				Dat Off:	tum Unscaled set Valid Ran	Unscaled ge Valid Range	Measurement Units			Data Fi Type		Legend Entries
							Min	Max			Name			
					e scan start time is defined as the start of start time of the previous scan. If the tim		MIN_VAL	MAX_VAL	unitless	No		1 bit(s)		Name Value
		difference is not within 8/3 sec +/- allo										on(s)		False 0
		allowable_dev is a tunable parameter.					h m		1	2.7		.		True 1
		Data Gap - Missing scan(s) preceding	the current scan	1.			MIN_VAL	MAX_VAL	unitless	No		l bit(s)	ame Value	Name Value
												(0)		False 0 True 1
		KAV PRT Sufficiency - Insufficient K	AV PRT data a	re available either	because of missing data or failing to pas	s the 2	MIN_VAL	MAX_VAL	unitless	No		1 5		
		quality checks.	arvini uata a	avanavie, either	occurse or missing data or raining to pas	San Z	IVIIIN_V AL	MAA_VAL	umucos	110		bit(s)	ame Value	Name Value False 0
														True 1
		WG PRT Sufficiency - Insufficient W	G PRT data are	available, either be	ecause of missing data or failing to pass t	he 3	MIN_VAL	MAX_VAL	unitless	No		1	ame Value	Name Value
		quality checks.		,								bit(s)		False 0
														True 1
L.														

		Space View antenna position error - There 4 groupings. The grouping selected is indic interpreted as: 001, 010, 011, 100 = RAM from the scan angle counts in the Science I (Epsilon)c, the Space View Antenna Positi parameters. (Epsilon)c is set to 7 counts.	cated by the Sc profiles 1, 2, 3. Data packet) do	can Pattern ID (Bit , 4. If any of the ac oes not fall within	No. 7-9) in InstrumentMo ctual space view positions the range of the expected of	de. Values a (as determination ounts +/-	are		MIN_VAL	MAX_VAL	unitless]	No	l bit(s)	Name Value	Name Value False 0 True 1
		Blackbody antenna position error - There a (as determined from the scan angle counts count +/- (Epsilon)w, the Blackbody Anter parameters. (Epsilon)w is set to 7 counts.	in the Science	Data packet) does	not fall within the range of	f the expect	ed		MIN_VAL	MAX_VAL	unitless		No	l bit(s)	Name Value	Name Value False 0 True 1
		Spare					6		MIN_VAL	MAX_VAL	unitless]	No	2 bit(s)	Name Value	Name Value
QF20_ATMSSDR	1byte(s)	Name Granule Boundary Dynamic M Scan Yes No 12 Channel No No 22 Datum		Max Array Size 12 22												
		Description				Offset	Unscaled Range Mi	in	Unscaled V Range Max	Units	rement	Scaled		Data Type	Fill Values	Legend Entries
		Moon in Space View - The Moon appears	in any of the fo	our calibration spa	ce views.	0	MIN_VAI	L	MAX_VAL	unitles	s	No		l bit(s)	Name Value	Name Value False 0 True 1
		Gain Error - The lowest blackbody count is scan.					MIN_VAI		MAX_VAL			No				Name Value False 0 True 1
		Calibration With Fewer Than Preferred Sa preferred number of samples and/or scans quality checks.	either because	of missing data or	some data failing the		MIN_VAI		MAX_VAL			No				Name Value False 0 True 1
		Space View Data Sufficiency Check - Insu of missing data or failing to pass the qualit	y checks.				MIN_VAI		MAX_VAL			No				Name Value False 0 True 1
		Blackbody View Data Sufficiency Check- because of missing data or failing to pass the			nples are available, either		MIN_VAI		MAX_VAL			No		l bit(s)	Name Value	Name Value False 0 True 1
		Spare				5	MIN_VAI	L	MAX_VAL	unitles	s	No		3 bit(s)	Name Value	Name Value
QF21_ATMSSDR	1byte(s)	Name Granule Boundary Dynamic Mi Scan Yes No 12		-												
		Channel No		12 22												
		Datum	'													
		Description	Datum Offse	et Unscaled Valid	Range Min Unscaled Va	lid Range I	Max Meası	ureme	nt Units Scale	d Scale Factor	Name Dat	а Тур	e Fill Values	Legen	d Entries	
		Space View #1 out of range condition	0	MIN_VAL	MAX_VAL		unitles	ss	No		1 bi	t(s)	Name Value	Name False True	0	
		Space View #2 out of range condition	1	MIN_VAL	MAX_VAL		unitles	ss	No		1 bi	t(s)	Name Value	Name False True	0	
		Space View #3 out of range condition	2	MIN_VAL	MAX_VAL		unitles	ss	No		1 bi	t(s)	Name Value	Name False True	0	
		Space View #4 out of range condition	3	MIN_VAL	MAX_VAL		unitles		No		1 bi		Name Value	Name False True	0	
		BlackBody View #1 out of range condition	14	MIN_VAL	MAX_VAL		unitles	ss	No		1 bi	t(s)	Name Value	Name False True		

		BlackBody View #2 out of range	condition 5	MIN_VAL	MAX_VAL	unitless	No	1 bit((s) Name Valu	ne Name Value	
										False 0	
										True 1	
		BlackBody View #3 out of range	condition 6	MIN_VAL	MAX_VAL	unitless	No	1 bit((s) Name Valu	ne Name Value	
										False 0	
										True 1	
		BlackBody View #4 out of range	condition 7	MIN_VAL	MAX_VAL	unitless	No	1 bit((s) Name Valu	ne Name Value	
										False 0	
										True 1	
QF22_ATMSSDR	1byte(s)	Name Granule Boundary Dyn	amic Min Arı	ray Size Max Array Size							
		Scan Yes No	12	12							
		Channel No No	22	22							
		Datum									
			-		Unscaled Valid Range Ma					d Entries	
		Space view #1 inconsistency	0	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name		
									False True		
		G	1	MINI WAT	MAN NAT	unitless	No	11570			
		Space view #2 inconsistency	1	MIN_VAL	MAX_VAL	unitiess	INO	1 bit(s)	ame Value Name		
									True		
		Space view #3 inconsistency	2	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)			
		Space view #3 inconsistency	_	MIN_VAL	WAX_VAL	unitiess	110	I bit(s)	ame Value Name		
									True		
		Space view #4 inconsistency	3	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name		
		Space view with inconstituting				unicioso		1 011(0)	False	<u>. </u>	
									True		
		BlackBody view #1 inconsistency	4	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name		
									False		
									True		
		BlackBody view #2 inconsistency	5	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name	Value	
									False		
									True	1	
		BlackBody view #3 inconsistency	6	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name	Value	
									False		
									True	1	
		BlackBody view #4 inconsistency	7	MIN_VAL	MAX_VAL	unitless	No	1 bit(s)	ame Value Name	Value	
									False		
									True	1	
PadByte1	1byte(s)	Name Granule Boundary Dyn	amic Min Arr	av Size Max Array Size							
		Granule Yes No	7	7							
		Datum									
		Description Datum Offset Unsca	aled Valid Rai	nge Min Unscaled Valid Ra	nge Max Measurement Unit	s Scaled Scale Factor	Name Data Type	Fill Values L	egend Entries		
		Pad byte 0 MIN_	VAL	MAX_VAL	unitless	No	unsigned 8-bit ch	ar Name Value	Name Value		
		r t		<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>					

ATMS SDR Product Profile - Scale Factors

							Fields				
Name	Data Size	Dimensions									
BrightnessTemperatureFactors	4byte(s)	Name Granule Boune	dary Dynam	ic Min Ar	ray Size Max Array Size						
		Factors Yes	No	2	2						
		Datum									
		Description			Datum Offset	Unscaled Valid Range	Min Unscaled Valid Range Max	Measurement Units	Scaled Scale Factor Name Data Type	Fill Values	Legend Entries

Scale = first array element; offset = second array element 0	MIN_VAL	MAX_VAL	Scale = unitless; Offset = Kelvin No	32-bit floating point Name Value Name Value

6.2.3 ATMS SDR HDF5 Details

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

ATMS-SDR +BeamTime: H5T NATIVE LLONG +BrightnessTemperature: H5T NATIVE USHORT +NEdTCold: H5T NATIVE FLOAT +NEdTWarm: H5T NATIVE FLOAT +GainCalibration: H5T_NATIVE_FLOAT +InstrumentMode: H5T NATIVE USHORT +QF1_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF2_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF3 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF4_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF5 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF6 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF7_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF8_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +QF9_GRAN_HEALTHSTATUS: H5T_NATIVE_UCHAR +OF10 GRAN HEALTHSTATUS: H5T NATIVE UCHAR +QF11_GRAN_QUADRATICCORRECTION: H5T_NATIVE_UCHAR +QF12 SCAN KAVPRTCONVERR: H5T NATIVE UCHAR +QF13 SCAN WGPRTCONVERR: H5T NATIVE UCHAR +QF14_SCAN_SHELFPRTCONVERR: H5T_NATIVE_UCHAR +QF15_SCAN_KAVPRTTEMPLIMIT: H5T_NATIVE_UCHAR +QF16_SCAN_WGPRTTEMPLIMIT: H5T_NATIVE_UCHAR +QF17_SCAN_KAVPRTTEMPCONSISTENCY: H5T_NATIVE_UCHAR +QF18_SCAN_WGPRTTEMPCONSISTENCY: H5T_NATIVE_UCHAR +QF19 SCAN ATMSSDR: H5T NATIVE UCHAR +QF20 ATMSSDR: H5T NATIVE UCHAR +QF21 ATMSSDR: H5T NATIVE UCHAR +QF22_ATMSSDR: H5T_NATIVE_UCHAR +PadByte1: H5T NATIVE UCHAR +BrightnessTemperatureFactors: H5T_NATIVE_FLOAT

Figure: 6.2.3-1 ATMS SDR UML Diagram

6.2.4 ATMS SDR Metadata Details

The HDF5 metadata elements associated with the ATMS SDR are listed in the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms, Section 5.3, HDF5 (Metadata) Hierarchy. The ATMS SDR metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the ATMS SDR, the items listed in Table 6.2.4-1, ATMS SDR Quality Summary Metadata are included as name/value pair items under the granule

level metadata attribute "N_Quality_Summary". The listed name/value pair items in the table are the granule level quality summary flags for the ATMS SDRs.

Table: 6.2.4-1 ATMS SDR Quality Summary Metadata Values

N_Quality_Summary			
Name	Value	Description	Comments
Summary ATMS SDR	0 - 100 %	Percentage of good	
Quality		quality earth view	
		observations in granule	

6.2.5 ATMS SDR Geolocation Content Summary

Table: 6.2.5-1 ATMS SDR Geolocation Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
StartTime	Starting Time of scan in IET(1/1/1958)	64-bit integer	[N*12]	[12]	microsecond
MidTime	Mid Time of scan in IET (1/1/1958)	64-bit integer	[N*12]	[12]	microsecond
Latitude	Latitude of channel 17 beam position center (positive North)	32-bit floating point	[N*12, 96]	[12, 96]	degree
Longitude	Longitude of channel 17 beam position center (positive East)	32-bit floating point	[N*12, 96]	[12, 96]	degree
SolarZenithAngle	Zenith angle of sun at the geolocated beam position center	32-bit floating point	[N*12, 96]	[12, 96]	degree
SolarAzimuthAng le	Azimuth angle (measured clockwise positive from North) of sun at the geolocated beam position center	32-bit floating point	[N*12, 96]	[12, 96]	degree
SatelliteZenithAn gle	Zenith angle to satellite at the geolocated beam position center	32-bit floating point	[N*12, 96]	[12, 96]	degree
SatelliteAzimuth Angle	Azimuth angle (measured clockwise positive from North) to satellite at the geolocated beam position center	32-bit floating point	[N*12, 96]	[12, 96]	degree
Height	Ellipsoid-Geoid separation	32-bit floating point	[N*12, 96]	[12, 96]	meter
SatelliteRange	Line of sight distance from the ellipsoid intersection to the satellite	32-bit floating point	[N*12, 96]	[12, 96]	meter
BeamLatitude	Latitude of individual beam position centers (channels 1, 2, 3, 16, 17)	32-bit floating point	[N*12, 96, 5]	[12, 96, 5]	degree
BeamLongitude	Longitude of individual beam position centers (channels 1, 2, 3, 16, 17)	32-bit floating point	[N*12, 96, 5]	[12, 96, 5]	degree
SCPosition	Spacecraft position in Earth Centered Rotating (ECR) Coordinates (X, Y, Z) at the mid-time of scan	32-bit floating point	[N*12, 3]	[12, 3]	meter
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	32-bit floating point	[N*12, 3]	[12, 3]	m/s
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the mid-time of scan	32-bit floating point	[N*12, 3]	[12, 3]	arcsecond

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF1_ATMSSDR GEO	Attitude and Ephemeris availability status	unsigned 8-bit char	[N*12]	[12]	unitless
PadByte1	Pad byte	unsigned 8-bit char	[N*4]	[4]	unitless
File Size	83,584 Bytes				

6.2.6 ATMS SDR Geolocation Product Profile

Table: 6.2.6-1 ATMS SDR Geolocation Product Profile

ATMS SDR Geolocation Product Profile

										Fields								
Name	Data Size	Dimensions																
StartTime	8byte(s)	Name Granul	le Boundar	y Dynan	nic Min A	rray Size M	Iax Array Siz	æ										
		Scan Yes		No	12	1	2											
		Datum																
		Description			Dat	um Offset U	Inscaled Vali	d Range	Min Unscaled Vali	d Range Max Measure	ment Units Sca	led Scale	e Factor N	ame Data Type	Fill Values	Legend Entries		
		Starting Time	of scan in I	ET (1/1/1	1958) 0	N	MIN_VAL		MAX_VAL	microsec	ond No			64-bit intege	Name	Value Name Value		
															NA_INT64_FILL	-999		
															MISS_INT64_FIL			
															ERR_INT64_FILI			
															VDNE_INT64_FI	ILL -993		
MidTime	8byte(s)	Name Granul	le Boundar	ry Dynan	nic Min A	rray Size M	Iax Array Siz	ze e										
		Scan Yes		No	12	1:	2											
		Datum																
		Description			Datum	Offset Unse	aled Valid R	ange Mir	Unscaled Valid R	ange Max Measureme	nt Units Scaled	Scale Fa	ctor Name			Legend Entries		
		Mid Time of s	can in IET	(1/1/1958	3) 0	MIN	_VAL		MAX_VAL	microsecond	No			64-bit integer N	lame	Value Name Value		
																-999		
														l N	IISS_INT64_FILL	-998		
															RR_INT64_FILL			
														V	DNE_INT64_FILL	-993		
Latitude	4byte(s)	Name	Granule B	oundary	Dynami	c Min Array	Size Max A	rray Size										
			Yes		No	12	12											
		BeamPosition	No		No	96	96											
		Datum																
		Description					Datum		led Valid Range	Unscaled Valid Ran		ement	Scaled	Scale Factor	Data Type	Fill Values	Legen	
							Offset	Min		Max	Units			Name			Entrie	
		Latitude of cha North)	annel 17 be	am positi	on center	(positive	0	-90		90	degree		No		32-bit floating point	Name	Value Name	e Value
		(North)													point	NA_FLOAT32_FILL	-999.9	
																MISS_FLOAT32_FILL	-999.8	
																ERR_FLOAT32_FILL	-999.5	
																ELLIPSOID_FLOAT32_		
																VDNE_FLOAT32_FILL	-999.3	
Longitude	4byte(s)					c Min Array	y Size Max A	rray Size										
		Scan	Yes		No	12	12											

		BeamPosition No No 96	96								
		Datum									
			Datum Offset	Unscaled Valid Range Min	Unscaled Valid Rang Max	e Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
		Longitude of channel 17 beam position center (positive East)	0	-180	180	degree	No		32-bit floating point	Name Va NA_FLOAT32_FILL 999 MISS_FLOAT32_FILL -	Name Value
										ERR_FLOAT32_FILL 999 ELLIPSOID_FLOAT32_FILL 999 VDNE_FLOAT32_FILL 999	0.5
olarZenithAngle	4byte(s)			ay Size							
		Scan Yes No 12 BeamPosition No No 96	96								
		BeamPosition No No 96 Datum	90								
		Description I		Unscaled Valid Range Min	Unscaled Valid Range	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
		Zenith angle to sun at the geolocated beam position center 0)	0	180	degree	No		32-bit floating point	NA_FLOAT32_FILL -99	
										MISS_FLOAT32_FILL -99 ERR_FLOAT32_FILL -99 ELLIPSOID_FLOAT32_FILL -99	
										VDNE_FLOAT32_FILL -99	9.3
olarAzimuthAngle	4byte(s)	Name Granule Boundary Dynamic Min Array S	Size Max Arr	ay Size							
		Scan Yes No 12	12								
		BeamPosition No No 96	96								
		Datum									
		Description		Datum Unsca Offset Range	led Valid Unscaled Min Range M		ment	Scaled Scale Factor Name	r Data Type	Fill Values	Legend Entries
		Azimuth angle (measured clockwise positive from North)	of sun at the	0 -180	180	degree		No	32-bit floating	Name Va	lue Name Valu
		geolocated beam position center							point	NA_FLOAT32_FILL -	0.0
										MISS_FLOAT32_FILL -	
										ERR_FLOAT32_FILL -	9.8
										99 ELLIPSOID_FLOAT32_FILL -	9.5
										VDNE_FLOAT32_FILL -	9.4
SatelliteZenithAngle	4byte(s)	Name Granule Boundary Dynamic Min Array S	Size Max Arr	ay Size				*			
		Scan Yes No 12	12								
		BeamPosition No No 96	96								
		Datum									
		Description	Datum Offset	Unscaled Valid Rang Min	e Unscaled Valid Ran Max	ge Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
		Zenith angle to satellite at the geolocated beam position center	0	0	Approx. 70	degree	No	Ivanie	32-bit floating point	Name Va NA_FLOAT32_FILL - 999 MISS_FLOAT32_FILL -	Name Valu
										ERR_FLOAT32_FILL - 99:	
										ELLIPSOID_FLOAT32_FILL -	

																VDNE_FLOAT32_FILL	999.3	
SatelliteAzimuthAngle	4byte(s)	Name Granule Bo	aundary Dynar	mic Min Array Siz	e May Array	Size												
	, ,	Scan Yes	No No	12	12	Size												
		BeamPosition No	No	96	96													
		Datum		P														
		Description					Unscaled Va Min		Unscaled Valid	Range	Measurement Units	t So	caled Scale		Data Type	Fill Values		Legend Entries
		Azimuth angle (measured clockwise positive from North) at the			Offset	-180		Max 180		degree	N		e	32-bit floating	la r		i -	
		geolocated beam position of		ive irom ivorui) at	tiic		-100		100		degree	1	١		point	Name NA_FLOAT32_FILL	Value	Name Value
																NA_FLOAT32_FILL	999.9	
																MISS_FLOAT32_FILL	-	
																	999.8	
																ERR_FLOAT32_FILL	-	
																ELLIBOOID ELOATES EN	999.5	
																ELLIPSOID_FLOAT32_FI	999.4	
																VDNE_FLOAT32_FILL	-	
																	999.3	
Height	4byte(s)	Name Granule Bo	oundary Dynar	mic Min Array Siz	e Max Array	Size												
		Scan Yes	No	12	12													
		BeamPosition No	No	96	96													
		Datum																
				Unscaled Valid F			- 1		ent Units Scaled	Scale F				Fill Valu	ies	Legend Entries		
		Ellipsoid-Geoid separation	10	MIN_VAL	MA	X_VAL	I	meter	No		3	32-bit flo	oating poin			Value Name Value		
															DAT32_FILL	-999.9		
															LOAT32_FILL	-999.8		
															.OAT32_FILL OID_FLOAT32_F	-999.5		
															FLOAT32_FILL	-999.4 -999.3		
C . III. D	41 . ()		<u> </u>	<u> </u>			ı							V DIVE_	LEOMI 32_TIEE	777.5		
SatelliteRange	4byte(s)			mic Min Array Siz		Size												
		Scan Yes BeamPosition No	No No	96	96	_												
		Datum	pro	170	120													
		Description Datum			Unscaled V	alid Range	Unscale	Unscaled Valid Range Me		asurement Scale		caled Scale Factor D		Data Type	Fill Values		Legend	
					Offset	Min		Max		Units			Name					Entries
		Line of sight distance from the ellipsoid intersection to the		0	MIN_VAL		MAX_VAL		meter	r	No			32-bit floating	Name	Value	Name Value	
		satellite											Į.	point	NA_FLOAT32_FILL	-		
																MISS_FLOAT32_FILL	999.9	
																WIISS_ITLOATS2_ITLL	999.8	
																ERR_FLOAT32_FILL	i- 1	
																	999.5	
																ELLIPSOID_FLOAT32_FII	L - 999.4	
																VDNE_FLOAT32_FILL	-	
																	999.3	
BeamLatitude	4byte(s)	Name Granule Bo	oundary Dynar	mic Min Array Siz	e Max Arrav	Size												
		Scan Yes	No No	12	12													
		BeamPosition No	No	96	96													
		Channel No	No	5	5													
		Datum																
		Description Datum Offset				Unscaled Min	Valid Range	Unscal Max	Unscaled Valid Range				Scaled Scale Factor Name		Data Type	Fill Values		Legend Entries
		Latitude of individual beam position centers (channels 1, 2, 3, 0			-90		90			Units degree		No Name		32-bit floating	Name		Name Value	
		16, 17)	1			1		[]				[point	NA_FLOAT32_FILL	- v ande	rame value
																	999.9	

T																			
																	MISS_FLOAT32_FILL ERR_FLOAT32_FILL ELLIPSOID_FLOAT32_FI		
																	VDNE_FLOAT32_FILL	999.4	
BeamLongitude		Scan SeamPosition	No	No No	12 1	2	ze .												
			10	110	P P														
		Datum				ln .	× 1 1	** " 1 D	T	E7 19 1 TO		.		1.5	D .	TD.	T991 X7 1		
		Description				Datum Offset	Min	Valid Range	Max	Valid Range	Measurer Units	ment S		cale Factor ame	Data	Type	Fill Values		Legend Entries
		Longitudo of in	dividual beam posit	ion contor	e (ahannale 1 2 2		-180		180		degree		No I	anic	22 hit	floating	h.,	F	
		16, 17)	urviduai beam posi	ion center:	s (channels 1, 2, 3,		-180		180		degree	ľ	NO		point	-	Name NA_FLOAT32_FILL	- 999.9	Name Value
																	MISS_FLOAT32_FILL	999.8	
																	ERR_FLOAT32_FILL	999.5	
																	ELLIPSOID_FLOAT32_FI	DL - 999.4	
																	VDNE_FLOAT32_FILL	-	
																	7 5115_1 5011132_1155	999.3	
SCPosition	4byte(s)	NT	C1- D1	_ D	: N#: A C!	M A	12												11
SCI OSITION	Hoyic(s)		Granule Boundar Yes	No No	12	12	size												
		Scan ECRCoordinate		No	3	3	_												
			грио	μνο	اع	l)													
		Datum Description					Datum	Timescaled V	alid Danas	Unscaled Vali	d Danas	Моссинови	omt	Scaled Scale F		Data Type	Fill Values		Legend
		Description					Offset	Min		Max		Units	cnt	Name	actor	Data Type	riii values		Entries
			tion in Earth Center	ed Rotatin	g (ECR) Coordina	tes (X, Y, Z)	0	MIN_VAL		MAX_VAL		meter		No		32-bit floati	ing Name	Value	Name Value
		at the mid-time	of scan													point	NA_FLOAT32_FILL	-	
																		999.9	.
																	MISS_FLOAT32_FIL	L - 999.8	
																	ERR_FLOAT32_FILI		
																	EKK_TEOAT52_TIE	999.5	
																	VDNE_FLOAT32_FI		
																		999.3	
SCVelocity	4byte(s)	Name	Granule Boundar	ry Dynam	ic Min Array Size	Max Array S	Size												
			Yes	No	12	12													
		ECRCoordinate	No	No	3	3													
		Datum																	i
		Description				Datu Offse		nscaled Valid I	Range Una	scaled Valid R		easurement nits	Sc	aled Scale Fac Name	ctor	Data Type	Fill Values		Legend Entries
			city in ECR Coordin	nates (dx/d	lt, dy/dt, dz/dt) at t	he mid- 0	M	IN_VAL	MA	X_VAL	m/	s	No)		32-bit floatin	g Name	Value	Name Value
		time of scan														point	NA_FLOAT32_FILL	Ī-	
																		999.9	
																	MISS_FLOAT32_FIL	L - 999.8	
																	ERR_FLOAT32_FILI		
																	EKK_1 ZOA13Z_FILI	999.5	
																	VDNE_FLOAT32_FI	LL -	
																	<u> </u>	999.3	
SCAttitude	4byte(s)	Name	Granule Boundar	ry Dynam	ic Min Array Size	Max Array S	Size												
			Yes	No	12	12	_												
				110		114													
		GRFCoordinate		No	3	3	-												

Datum										
Description	Datum	Unscaled Valid	Unscaled Valid Range	Measurement	Scaled	Scale Factor	Data Type	Fill Values		Legend
	Offset	Range Min	Max	Units		Name				Entries
Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll,	0	MIN_VAL	MAX_VAL	arcsecond	No		32-bit floating	Name	Value	Name Va
pitch, yaw) at the mid-time of scan							point	NA FLOAT32 FILL	Ė	<u> </u>
									999.9	
								MISS FLOAT32 FILL	-	
									999.8	
								ERR FLOAT32 FILL	-	
									999.5	
								VDNE FLOAT32 FILL	. -	
									999.3	

ATMS SDR Geolocation Product Profile - Quality Flags

			C								
					Fields						
Name	Data Size	Dimensions									
QF1_ATMSSDRGEO		Name Granule Boundary Dynamic Min Scan Yes No 12	Array Size Max Array Si	ze							
		Datum	1								
		Description	Datum Offset Unscaled V	alid Range Min Unsc	scaled Valid Range Max	Measurement Units	Scaled Scale Factor Nar	ne Data Type	Fill Values	Legend Entries	
		Attitude and Ephemeris availability status	0 MIN_VAL	MAX	X_VAL	unitless	No	2 bit(s)	Name Value	Name	Value
										Nominal - E&A data available	0
										Missing Data <= Small Gap	1
										Small Gap < Missing Data < Granule Boundar	y 2
										Missing Data >= Granule Boundary	3
		Spare	2 MIN_VAL	MAX	X_VAL	unitless	No	6 bit(s)	Name Value	Name Value	
PadByte1	1byte(s)	Name Granule Boundary Dynamic M	in Array Size Max Array	Size							
		Granule Yes No 4	4								
		Datum									
		Description Datum Offset Unscaled Val	id Range Min Unscaled V	alid Range Max Meas	asurement Units Scaled	Scale Factor Name I	Data Type Fill Va	lues Leger	nd Entries		
		Pad byte 0 MIN_VAL	MAX_VAL	unitle	tless No	u	nsigned 8-bit char Name	Value Name	e Value		

6.2.7 ATMS SDR Geolocation HDF5 Details

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

ATMS-SDR-GEO +StartTime: H5T NATIVE LLONG +MidTime: H5T NATIVE LLONG +Latitude: H5T NATIVE FLOAT +Longitude: H5T_NATIVE_FLOAT +SolarZenithAngle: H5T_NATIVE_FLOAT +SolarAzimuthAngle: H5T_NATIVE_FLOAT +SatelliteZenithAngle: H5T_NATIVE_FLOAT +SatelliteAzimuthAngle: H5T_NATIVE_FLOAT +Height: H5T NATIVE FLOAT +SatelliteRange: H5T_NATIVE_FLOAT +BeamLatitude: H5T NATIVE FLOAT +BeamLongitude: H5T NATIVE FLOAT +SCPosition: H5T_NATIVE_FLOAT +SCVelocity: H5T_NATIVE_FLOAT +SCAttitude: H5T NATIVE FLOAT +OF1 ATMSSDRGEO: H5T NATIVE UCHAR +PadByte1: H5T_NATIVE_UCHAR

Figure: 6.2.7-1 ATMS SDR Geolocation UML Diagram

6.2.8 ATMS SDR Geolocation Metadata Details

There are no quality summary metadata items in the ATMS SDR Geolocation.

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 ATMS RDR, TDR and SDR LUTs

The ATMS RDR, TDR and SDR data and products currently use no LUTs.

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 ATMS RDR, TDR and SDR Automated PCs

The ATMS RDR, TDR, and SDR data and products currently use no Automated PCs.

7.2.2 Manual Processing Coefficients

Manual Processing Coefficient (PC) files contain parameters used for S-NPP/JPSS Data Product generation which require human review prior to operational processing environment insertion. Manual Processing Coefficients have two classes:

- Initialization PCTs contain infrequently updated initial parameters sets S-NPP/JPSS uses for data product generation.
- Ephemeral PCTs contain frequently updated parameters sets S-NPP/JPSS uses for data product generation.

7.2.2.1 ATMS RDR, TDR and SDR Initialization PCs

The ATMS RDR, TDR, and SDR data and product currently use no Initialization PCs.

7.2.2.2 ATMS SDR Ephemeral PC

Data Mnemonic	DP_NU-LM2020-001
Description/	The ATMS SDR Ephemeral PCT file provides the calibrated manual
Purpose	ephemeral coefficients for production of the ATMS SDR.
	This file is used in the ATMS algorithm.
Instrument	ATMS
PC Type	Ephemeral
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS
	CDFCB-X Vol. I, 474-00001-01, Section 3.4.
	Version Number Field provides Provenance Version Identifier. 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.
	Notes:
	1 The origin Field is always GRAVITE
	2. The End Effectivity field displays all zeroes for the date, since it
	cannot be pre-determined for these files
File Size	See the Table: 7.2.2.2-1 ATMS SDR Ephemeral PC Data Format below
File Format Type	Little Endian Binary

Production Frequency	As needed
Data Content and Data	For details see Section 3.2 of JPSS CDFCB-X, Vol VI, 474-00001-06 and
Format	Table 7.2.2.2-1, ATMS SDR Ephemeral PC Data Format

Table: 7.2.2.2-1 ATMS SDR Ephemeral PC Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
scanWeightsWc	1760	64-bit floating point	0 - 1	unitless	Weighting factors applied to hot calibration target data 2 Dimensional Array: NUM_SCAN_WC x NUM_CHANNELS Size of Dimension(s): 10 x 22
scanWeightsCc	1760	64-bit floating point	0 - 1	unitless	Weighting factors applied to cold calibration target data 2 Dimensional Array: NUM_SCAN_CC x NUM_CHANNELS Size of Dimension(s): 10 x 22
scanBias	16896	64-bit floating point	-5 - 5	Kelvin	Scan-angle dependent BT biases for each channel coefficient of 0th order term in brightness temperature equation Tcorrected = AT + B 2 Dimensional Array: NUM_CHANNELS x NUM_BEAM_POSITIONS Size of Dimension(s): 22 x 96
beamEfficiencyCorrection	16896	64-bit floating point	0 - 1.2	unitless	Scan-angle dependent beam efficiency correction factor for each channel coefficient of 1st order term in brightness temperature equation corrected = AT + B 2 Dimensional Array:

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					NUM_CHANNELS x NUM_BEAM_POSITIONS Size of Dimension(s): 22 x 96
warmBiasCorrection	528	64-bit floating point	-1 - 1	a1: K a2: KC ⁻¹ a3: KC ⁻²	Warm bias corrections of the form a1 + a2TR + a3TR**2 and coefficients are a1, a2, and a3. TR is the receiver temperature in degrees C.
					2 Dimensional Array: NUM_BIAS_COEFFS x NUM_CHANNELS Size of Dimension(s): 3 x 22
instr2scMatrix	72	64-bit floating point	MIN_VAL - MAX_VAL	unitless	3x3 Instrument to Spacecraft frame transformation matrix
					2 Dimensional Array: ROTATION_MATRIX_DIM x ROTATION_MATRIX_DIM Size of Dimension(s): 3 x 3
scanWeightsPrtKav	288	32-bit floating point	0 - 1	unitless	Weighting factors applied to KAV target PRT measurements
					2 Dimensional Array: NUM_SCAN_PRT x NUM_PRT_KAV Size of Dimension(s): 9 x 8
scanWeightsPrtWg	252	32-bit floating point	0 - 1	unitless	Weighting factors applied to WG target PRT measurements
					2 Dimensional Array: NUM_SCAN_PRT x NUM_PRT_WG Size of Dimension(s): 9 x 7

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
coldSpaceTbs	88	32-bit floating point	2.76 - 4.70	Kelvin	Brightness temperature of cosmic cold space, with Planck correction applied, for each ATMS channel 1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
quadraticRc	1056	32-bit floating point	-0.85 - 0.854	Kelvin	Quadratic coefficients for 22 channels, four redundancy configurations (RC1, RC2, RC5 and RC6) and three cold plate temperatures (-10°, +5° and +20° C) 3 Dimensional Array: NUM_COLD_PLATE_TEM P x NUM_REDUNCDANCY_C ONFIGS x NUM_CHANNELS Size of Dimension(s): 3 x 4 x 22
shelfTemp	48	32-bit floating point	-10 - 50	Celsius	Four shelf temperatures (KKA, V, W, G) measured at each of the three cold plate temperatures tested (-10°, +5° and +20° C) 2 Dimensional Array: NUM_COLD_PLATE_TEM P x NUM_SHELF_TEMPS Size of Dimension(s): 3 x 4
beamAlignmentError	792	32-bit floating point	-0.665 - 0.656	Degrees	Bore-sight(beam) alignment errors at scan positions 1, 48 and 96 3 Dimensional Array:

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					NUM_CHANNELS x BEAM_POS_OFFSET x ATTITUDE Size of Dimension(s): 22 x 3 x 3
coldBiasCorrection	352	32-bit floating point	0 - 0.6	Kelvin	Cold bias correction for 22 channels and four cold space view groups 2 Dimensional Array: NUM_COLD_SAMPLES x NUM_CHANNELS Size of Dimension(s): 4 x 22
lowLimitPrt	8	32-bit floating point	245- 340	Kelvin	Lower PRT temperature limit for the KAV and WG targets 1 Dimensional Array: NUM_BAND_CATEGORIE S Size of Dimension(s): 2
uppLimitPrt	8	32-bit floating point	245- 340	Kelvin	Upper PRT temperature limit for the KAV and WG targets 1 Dimensional Array: NUM_BAND_CATEGORIE S Size of Dimension(s): 2
maxVarPrt	8	32-bit floating point	0 -10	Kelvin	Maximum temperature difference among the PRTs for the KAV and WG targets 1 Dimensional Array: NUM_BAND_CATEGORIE S Size of Dimension(s): 2
threeDBeamWidth	88	32-bit floating point	1 - 6	degrees	Channel-specific 3dB beamwidths

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
lunarContaminationThreshold	88	32-bit floating point	0 - 1	Kelvin	Channel-specific thresholds for cold space view temperature increase caused by lunar contamination 1 Dimensional Array:
					NUM_CHANNELS Size of Dimension(s): 22
prtConvergence	4	32-bit floating point	Initially set to 0.0005	Celsius	Convergence criteria for Newton-Raphson computation of temperature from PRT resistance
wtThresholdPrt	4	32-bit floating point	0 -1	unitless	Minimum normalized weight- sum required for passing the PRT data sufficiency check
wtThresholdWc	4	32-bit floating point	0 -1	unitless	Weight threshold for WC - Minimum normalized weight- sum required for passing the warm count data sufficiency check
wtThresholdCc	4	32-bit floating point	0 -1	unitless	Weight threshold for CC - Minimum normalized weight- sum required for passing the cold count data sufficiency check
dataLimits	592	32-bit floating point	MIN_VAL - MAX_VAL	unitless	The valid value range for the Health & Status telemetry 2 Dimensional Array: MIN_MAX_DIM x
					NUM_HS_VARS Size of Dimension(s): 2 x 74

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
spaceViewresolverCounts	64	32-bit integer	13746 - 15565	Expected Counts	Space view resolver counts - Expected count for 4 cold view positions and 4 cold scan profiles 2 Dimensional Array: NUM_COLD_SAMPLES x NUM_COLD_SCAN_PROFI LES
					Size of Dimension(s): 4 x 4
blackBodyResolverCounts	64	32-bit integer	35286 - 35892	Expected Counts	Black body resolver counts - Expected count for 4 warm view positions
					2 Dimensional Array: NUM_WARM_SAMPLES x NUM_WARM_SCAN_PROF ILES Size of Dimension(s): 4 x 4
lowLimitWc	88	32-bit integer	0 - 65635	Count	Lower limit WC - Channel-specific lower limit for warm count
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
uppLimitWc	88	32-bit integer	0 - 65635	Count	Upper limit WC - Channel- specific upper limit for warm count
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
maxVarWc	88	32-bit integer	0 – 65635	Count	Max variance WC - Channel- specific maximum difference among four warm samples

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
lowLimitCc	88	32-bit integer	0 - 65635	Count	Lower limit CC - Channel- specific lower limit for cold count
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
uppLimitCc	88	32-bit integer	0 - 65635	Count	Upper limit CC - Channel- specific upper limit for cold count
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
maxVarCc	88	32-bit integer	0 - 65635	Count	Max variance CC - Channel- specific maximum difference among four cold samples
					1 Dimensional Array: NUM_CHANNELS Size of Dimension(s): 22
numThresholdPrt	8	32-bit integer	1 - 8	unitless	Number of threshold PRTs - Minimum number of 'good' PRTs in a scan below which all PRTs is considered 'bad'
					1 Dimensional Array: NUM_BAND_CATEGORIE S Size of Dimension(s): 2
mapRc	32	32-bit integer	1 - 4	unitless	Map of RC - Map 8 Redundancy Configurations to 4 experimental cases RC1, RC2, RC5 RC6

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					1 Dimensional Array: NUM_MAP_RC_SIZE Size of Dimension(s): 8
resolverOffset	4	32-bit integer	-200 - 200	Count	Resolver mechanical offset specific for each instrument; for the PFM, it is 91
epsilonCold	4	32-bit integer	0 - 20	unitless	Allowable deviation from the cold view expected resolver counts
epsilonWarm	4	32-bit integer	0 - 20	unitless	Allowable deviation from the warm view expected resolver counts
allowableDev	4	32-bit integer	0 - 20	milliseconds	Allowable deviation from the nominal scan period (8/3 sec)
prtLoops	4	32-bit integer	1 - 200	unitless	Maximum allowable loops for PRT temperature calculations
useQuadraticTerm	1	8-bit char	0 - 1	unitless	Flag indicating use of quadratic 0: do not use quadratic term 1: use quadratic term
useQuadraticTele	1	8-bit char	0 - 1	unitless	Flag indicating source of quadratic coefficients: 0: quadratic coefficients from ancillary file 1: quadratic coefficients from telemetry
useBeamAlignTele	1	8-bit char	0 - 1	unitless	Flag indicating the source of beam alignment errors: 0: beam alignment errors (22 channels) from ancillary file 1: beam alignment errors (five bands) from telemetry
useWarmBiasTele	1	8-bit char	0 - 1	unitless	Flag indicating the source of warm bias: 0: warm bias (22 channels) from ancillary file

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					1: warm bias (five bands)
					from telemetry
useColdBiasTele	1	8-bit char	0 - 1	unitless	Flag indicating the source of
					cold bias:
					0: cold bias (22 channels)
					from ancillary file
					1: cold bias (five bands) from
					telemetry
chkConsistWcCc	1	8-bit char	0 - 1	unitless	Flag indicating consistency
					check for warm and cold
					counts:
					0: do not check consistency
					1: check consistency
chkConsistPrt	1	8-bit char	0 - 1	unitless	Flag indicating consistency
					check for PRTs:
					0: do not check consistency
					1: check consistency
pad	1	8-bit char	0	unitless	Padding array
					1 Dimensional Array:
					NUM_PADBYTES_COEFF
					Size of Dimension(s): 1
File Size	42,320 Bytes				

8 Intermediate Products (IPs)

Not Applicable

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. Common RDR Static Header Values

Table: B-1 Common RDR Static Header Values lists pre-defined unique values for the fields from the static header for each of the RDRs defined.

RDR Name	Sensor	TypeID	numAPIDs
ATMS Science	ATMS	SCIENCE	4
ATMS Diagnostic	ATMS	DIAGNOSTIC	2
ATMS Dwell	ATMS	DWELL	1
ATMS Telemetry	ATMS	TELEMETRY	1
ATMS Memory Dump	ATMS	DUMP	1

Appendix C. DQTT Quality Flag Mapping

The following table maps the quality flags by sensor and product that are reportable to the associated data product quality flag Test ID used in the processing environment.

Table: C-1 DQTT Quality Flag Mapping

Algorithm	Product	Test ID	Quality Flag
ATMS SDR	ATMS-SDR	1300	Summary ATMS SDR
			Quality
ATMS SDR	ATMS-SDR	1301	Health and Status
ATMS SDR	ATMS-SDR	1302	Gain Error
ATMS SDR	ATMS-TDR	8000	Summary ATMS SDR
			Quality
ATMS SDR	ATMS-TDR	8001	Health and Status
ATMS SDR	ATMS-TDR	8002	Gain Error

Appendix D. 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	Reserved
2	Reserved
3	474-00448-02-02_JPSS-DD_0200D_ATMS-SDR-GEO-PP-SRS.xml
4	474-00448-02-02_JPSS-DD_0200D_ATMS-SDR-PP-SRS.xml
5	474-00448-02-02_JPSS-DD_0200D_ATMS-TDR-PP-SRS.xml