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OGC® OWS-9 OWS Innovations GMLJP2 for National Imagery Transmission Format (NITF) Engineering Report

Warning

This document is not an OGC Standard. This document presents a discussion of technology issues considered in an initiative of the OGC Interoperability Program. This document does not represent an official position of the OGC. It is subject to change without notice and may not be referred to as an OGC Standard. However, the discussions in this document could very well lead to the definition of an OGC Standard.

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Abstract

This OGC® document provides mapping of the national imagery transmission format (NITF) version 2.1 format and NITF tagged record extensions (TRE) to GMLJP2 v2.0 (draft) format.

This Engineering Report was prepared as a deliverable for the OGC Web Services, Phase 9 (OWS-9) initiative.

This document further describes study results of analyses of NITF and NITF extensions (TRE) capabilities and how they can be supported by GMLJP2 2.0 (draft). This activity was a part of the OGC OWS-9 Innovations thread.

Keywords

ogcdoc, ows9, nitf, gmljp2

What is OGC Web Services 9 (OWS-9)?

OWS-9 builds on the outcomes of prior OGC interoperability initiatives and is organized around the following threads:

- **Aviation**: Develop and demonstrate the use of the Aeronautical Information Exchange Model (AIXM) and the Weather Exchange Model (WXXM) in an OGC Web Services environment, focusing on support for several Single European Sky ATM Research (SESAR) project requirements as well as FAA (US Federal Aviation Administration) Aeronautical Information Management (AIM) and Aircraft Access to SWIM (System Wide Information Management) (AAtS) requirements.

- **Cross-Community Interoperability (CCI)**: Build on the CCI work accomplished in OWS–8 by increasing interoperability within communities sharing geospatial data, focusing on semantic mediation, query results delivery, data provenance and quality and Single Point of Entry Global Gazetteer.

- **Security and Services Interoperability (SSI)**: Investigate 5 main activities: Security Management, OGC Geography Markup Language (GML) Encoding Standard Application Schema UGAS (UML to GML Application Schema) Updates, Web Services Façade, Reference Architecture Profiling, and Bulk Data Transfer.

- **OWS Innovations**: Explore topics that represent either new areas of work for the Consortium (such as GPS and Mobile Applications), a desire for new approaches to existing technologies to solve new challenges (such as the OGC Web Coverage Service (WCS) work), or some combination of the two.

- **Compliance & Interoperability Testing & Evaluation (CITE)**: Develop a suite of compliance test scripts for testing and validation of products with interfaces implementing the following OGC standards: Web Map Service (WMS) 1.3 Interface Standard, Web Feature Service (WFS) 2.0 Interface Standard, Geography Markup Language (GML) 3.2.1 Encoding Standard, OWS Context 1.0 (candidate encoding standard), Sensor Web Enablement (SWE) standards, Web Coverage Service for Earth Observation (WCS-EO) 1.0 Interface Standard, and TEAM (Test, Evaluation, And Measurement) Engine Capabilities.

The OWS-9 sponsors are: AGC (Army Geospatial Center, US Army Corps of Engineers), CREAF-GeoViQua-EC, EUROCONTROL, FAA (US Federal Aviation Administration), GeoConnections - Natural Resources Canada, Lockheed Martin Corporation, NASA (US National Aeronautics and Space Administration), NGA (US National Geospatial-Intelligence Agency), USGS (US Geological Survey), UK DSTL (UK MoD Defence Science and Technology Laboratory).

License Agreement

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1 Introduction

1.1 Scope

This OGC® document provides mapping of the national imagery transmission format (NITF) version 2.1 format and NITF tagged record extensions (TRE) to GMLJP2 v2.0 (draft) format.

The NITF TREs considered in this document are: ACFTB, AIMIDB, SENSRB, MSTGTA, SENSRA, BLOCKA, BANDSA, EXOPTA, EXPLTB, MENSRB, MPDSRA, CMETAA, CSCRNA, CSDIDA, CSEXRA, CSPROA, CSEPHA, CSSFAA, CSCCGA, STDIDC, USE00A, GEOLOB, GEOPSB, ACCPOB, PRJPSB, MAPLOB, BANDSB, HISTOA, ICHIPB, PIAIMC, STREOB, RPC00B, J2KLRA and PIAPRD.

1.2 Document contributor contact points

All questions regarding this document should be directed to the editor or the contributors:

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1.3 Revision history

Date	Release	Editor	Primary clauses modified	Description
2012-07-23	0.1	Darko Androsevic	All	First draft
2012-09-27	0.2	Darko Androsevic	All	Fixed bugs in mappings and schemas. Added a few examples. Added PIAPRD TRE mapping.
2012-11-14	0.3	Darko Androsevic	7.2.32 Rapid Positioning Capability (RPC00B)	Provided mapping for Rapid Positioning Capability (RPC00B) TRE. Fixed some schema PIAPRD TRE errors. Updated section describing potential future activities.

1.4 Forward

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium shall not be held responsible for identifying any or all such patent rights.

Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the standard set forth in this document, and to provide supporting documentation.

2 References

The following documents are referenced in this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

- OGC 06-121r3, *OGC® Web Services Common Standard*
- OGC 05-047r3, GML in JPEG 2000 for Geographic Imagery (GMLJP2) Encoding Specification
- NITFS Technical Board, NITF 2.1., National Imagery Transmission Format Version 2.1 MIL-STD-2500C
- NITFS Technical Board, Airborne Support Data Extensions (ASDE) VERSION 2.1/CN1
- NITFS Technical Board, Airborne Support Data Extensions (ASDE) VERSION 2.1
- NITFS Technical Board, General Electro-Optical (Visible, Infrared, Multi- and Hyperspectral) Sensor Parameters (SENSRB) Tagged Record Extension (TRE) VERSION 1.0
- NITFS Technical Board, Complex Synthetic Aperture Radar (SAR) Data Format Initiative (CDFI) CMETAA Support Data Extension (SDE) VERSION 1.31c
- NITFS Technical Board, Commercial Dataset Requirements Document (NCDRD), VERSION 2.1
- NITFS Technical Board, Commercial Support Data Extensions (CSDE),VERSION 1.0

- NITFS Technical Board, The Digital Geographic Information Exchange Standard (DIGEST) Part 2 - Annex D Image Interchange Format (IIF) Encapsulation Specification, Edition 2.1

- NITFS Technical Board, General Purpose Band Parameters (BANDSB) Tagged Record Extension (TRE) VERSION 1.0/CN1

- NITFS Technical Board, HISTOA Extension VERSION 1.0/CN1

- NITFS Technical Board, ICHIPB Support Data Extension (SDE) VERSION 1.0/CN1

- NITFS Technical Board, NITF Profile for Imagery Access Image Support Extensions (PIAE) VERSION 3.0/CN1

- NITFS Technical Board, BIIF Profile for JPEG 2000 Version 01.10 (BPJ2K01.10)

In addition to this document, this report includes several XML Schema Document files as specified in Annex A.

3 Terms and definitions

For the purposes of this report, the definitions specified in Clause 4 of the OWS Common Implementation Standard [OGC 06-121r3] shall apply. In addition, the following terms and definitions apply.

4 Conventions

4.1 Abbreviated terms

BCS Basic Character Set

BCS-A	Basic Character Set Alphanumeric
BCS-N	Basic Character Set Numeric
DIGEST	Digital Geographic Information Exchange Standard
ECS	Extended Character Set
ECS-A	Extended Character Set-Alphanumeric
NITF	National Imagery Transmission Format
OWS	OGC Open Web Service
OWS-9	OGC Web Services Initiative, Phase 9
TRE	Tagged Record Extension
IS	Image Segment
GS	Graphic Segment
RS	Reserved Segment
DES	Data Extension Segment
RES	Reserved Extension Segment
CGM	Computer Graphics Metafile

5 NITF format overview

The NITF file consists of the NITF file header and one or more data segments. Each segment consists of a segment subheader and data fields.

The NITF file format defines the following segments:

- Image Segments. An Image Segment supports the standard image type of data.
- Graphic Segments. A Graphic Segment supports the standard graphic type of data.
- Reserved Segments. Reserved Segments are place holders to support a future standard type of data, which has yet to be defined.

- Text Segments. A Text Segment supports the standard text type of data.
- Data Extension Segments. A Data Extension Segments allows for the addition of different data types with each type encapsulated in its own DES.
- Reserved Extension Segments. A Reserved Extension Segment (RES) is a non-standard data segment and it is user-defined.

6 Mapping overview

The NITF mapping approach:

- A relative location of various NITF segments and headers data in the NITF file will be replicated as close as possible in the GMLJP2.
- A NITF GMLJP2 schema will have its own XML namespace URI

The TRE mapping approach:

- Every TRE would be mapped as a metadata element substituable for GMLJP2 metadata. The substitution group/element would be determined based on TRE definition and its location in the NITF file (e.g. image subheader, fileheader...).
- Every TRE metadata would have its own XML namespace URI.
- Every TRE field would be mapped as a part of that metadata element complex content. This would enable a lossless mapping and potential roundtrip.
- One would also need to populate mandatory elements of GMLJP2 from NITF/TRE. We would describe which elements can be mapped to those mandatory elements. One would have to choose which TRE and its fields will be mapped to the mandatory elements since NITF can have multiple TREs with potentially overlapping fields. The creator of the GMLJP2 file would have that option. So, the creator of the GMLJP2 file will have to choose which TRE will be mapped to the GMLJP2 mandatory elements and produce valid GMLJP2 file.
- NITF TRE CRS fields are mapped to either: the CRS id string or the CRS definition (contained in the CRS dictionary). If the TRE contains multiple fields describing one CRS those fields are mapped as one property identifying CRS definitions. In the case

that such CRS definition does not exist (e.g. no EPSG/OGP code) then the CRS definition should be created. If the GML CRS definition missing some values to be valid GML instance then those values should be supplied by the creator of the GMLJP2.

The following table defines semantics of the columns used for mapping description.

Table 1 — Semantics of the column names in mapping tables

Column Name	Semantics
Field	The field column name as per NITF and TRE data dictionary documents.
Name	The name or description of the field.
Type	The NITF data type.
Size	The field byte length.
Units	The unit of measurement for the field.
Required	Three types of fields: • Required (R) • Optional <R> • Conditional (C). A required field will be present and contain value. An optional field may be present. A conditional field may or may not be present depending on the value of one or more fields.
Format	Domain values for field
XSD Type	XSD schema type
Default	XSD default value
MinOccurs	XSD min occurrence indicator

Column Name	Semantics
MaxOccurs	XSD max occurrence indicator
GMLJP2 Rectified Grid Coverage mapping	The mapping path to mandatory elements of the GMLJP2 rectified grid.
GMLJP2 property	XSD GML property name Or N/A (Not Applicable) which means that information is not captured by GML
GMLJP2 path	XSD XPATH to GML property's parent element

The "N/A" (Not Applicable) value has been used for 3 types of fields:

- NITF fields that denote length in bytes.

The byte length of the NITF binary data does not map naturally to a GML property because:

1. The data length in the XML encoding will be different.

2. Data/file size values are typically not captured in XML because such size values vary depending on the XML application due to automatic indenting/formatting of white spaces.

3. If round-tripped back to NITF from GMLJP2, the data length in NITF will likely change.

Some of these fields have fixed value in NITF while some have variable length (range values).

- NITF fields that denote number of repeated items

This value can be always determined based on GML structure and those fields are redundant in GML.

- NITF fields that are reserved for future use

7 Mapping details

This section contains detailed mapping of the NITF format and NITF TREs to GMLJP2.

The **normative** reference is the excel spreadsheet named “NITF fields map - vOWS9.xml”.

The tables in this document contain a subset of mapping fields from that spreadsheet.

7.1 NITF format mapping

The NITF **normative** schema file is named “NITF_2.1.xsd”

7.1.1 NITF file header

The NITF file header contains information about the whole NITF instance.

Fields mapping notes:

- FBKGC

The mask has been removed and used hexadecimal portion only.

Table 2 — File Header

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
FHDR	File Profile Name		fhdr	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FVER	File Version		fver	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/

CLEVEL	Complexity Level	clevel	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
STYPE	Standard Type	stype	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
OSTAID	Originating Station ID	ostaid	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FDT	File Date and Time	fdt	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FTITLE	File Title	ftitle	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSCLAS	File Security Classification	fsclas	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSCLSY	File Security Classification System	fsclsy	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSCODE	File Codewords	fscode	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSCTLH	File Control and Handling	fsctlh	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSREL	File Releasing Instructions	fsrel	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FSDCTP	File Declassification Type	fsdctp	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/

FSDCDT	File Declassification Date	fsdcdt	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSDCXM	File Declassification Exemption	fsdcxm	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSDG	File Downgrade	fsdg	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSDGDT	File Downgrade Date	fsdgdt	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCLTX	File Classification Text	fscltx	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCATP	File Classification Authority Type	fscatp	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCAUT	File Classification Authority	fscaut	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCRSN	File Classification Reason	fscrsn	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSSRDT	File Security Source Date	fssrdt	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCTLN	File Security Control Number	fsctln	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCOP	File Copy Number	fscop	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
FSCPYS	File Number of Copies	fscpys	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/

ENCRYP	Encryption	encryp	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FBKGC	File Background Color	fbkgc	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
ONAME	Originator's Name	oname	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
OPHONE	Originator's Phone Number	ophone	gmljp2:RootFeature Collection/ ntf:sourceFileMetada ta/FileHeader/
FL	File Length	N/A	
HL	NITF File Header Length	N/A	
NUMI	Number of Image Segments	N/A	
LISHn	Length nth Image Subheader	N/A	
LIn	Length of nth Image Segment	N/A	
NUMS	Number of Graphic Segments	N/A	
LSSHn	Length of nth Graphic Subheader	N/A	
LSn	Length of nth Graphic Segment	N/A	
NUMX	Reserved for Future Use	N/A	
NUMT	Number of Text Segments	N/A	
LTSHn	Length nth Text Subheader	N/A	
LTn	Length of nth Text Segment	N/A	

NUMDES	Number of Data Extension Segments	N/A	
LDSHn	Length of nth Data Extension Segment Subheader	N/A	
LDn	Length of the data portion of the nth Data Extension Segment	N/A	
NUMRES	Number of Reserved Extension Segments	N/A	
LRESHn	Length of nth Reserved Extension Segment Subheader	N/A	
LREn	Length of nth Reserved Extension Segment	N/A	
UDHDL	User Defined Header Data Length	N/A	
UDHOFL	User Defined Header Overflow	N/A	
UDHD	User-Defined Header Data	udhd	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/
XHDL	Extended Header Data Length	N/A	
XHDLOFL	Extended Header Data Overflow	N/A	
XHD	Extended Header Data	xhd	gmljp2:RootFeature Collection/ ntf:sourceFileMetadata/FileHeader/

7.1.2 NITF image subheader

The NITF image subheader contains information about the image.

Table 3 — Image Subheader

Field	Name	GMLJP2 Rectified Grid Coverage	GMLJP2 property	GMLJP2 path

mapping			
IM	File Part Type	im	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IID1	Image Identifier 1	iid1	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IDATIM	Image Date and Time	idatim	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
TGTID	Target Identifier	tgtid	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IID2	Image Identifier 2	iid2	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCLAS	Image Security Classification	isclas	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCLSY	Image Security Classification System	isclsy	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCODE	Image Codewords	iscode	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/

ISCTLH	Image Control and Handling	isctlh	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISREL	Image Releasing Instructions	isrel	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISDCTP	Image Declassification Type	isdctp	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISDCDT	Image Declassification Date	isdcdt	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISDCXM	Image Declassification Exemption	isdcxm	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISDG	Image Downgrade	isdg	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISDGDT	Image Downgrade Date.	isdgdt	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCLTX	Image Classification Text	iscltx	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCATP	Image Classification Authority Type	iscatp	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imag

				eMetadata/ImageSubheader/
ISCAUT	Image Classification Authority		iscaut	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCRSN	Image Classification Reason		iscrsn	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISSRDT	Image Security Source Date		issrot	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISCTLN	Image Security Control Number		isctln	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ENCRYP	Encryption Data		encryp	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ISORCE	Image Source		isource	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NROWS	Number of Significant Rows in Image Segment	gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high	nrows	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NCOLS	Number of Significant Columns in Image Segment	gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high	ncols	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/

PVTYPE	Pixel Value Type		pvtype	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IREP	Image Representation		irep	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ICAT	Image Category		icat	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ABPP	Actual Bits-Per-Pixel Per Band		abpp	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
PJUST	Pixel Justification		pjust	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ICORDS	Image Coordinate Representation		icords	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IGEOLO	Approximate geo-location	gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:origin and gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low and gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner	igeolo	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/

		and /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner		
NICOM	Number of Image Comments		N/A	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ICOMn	Copyright/restricted rights legend		comment	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/commentCollection/CommentElement/
IC	Image Compression		ic	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
COMRAT	Compression Rate Code		comrat	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NBANDS	Number of Bands		N/A	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
XBANDS	Number of Multispectral Bands		N/A	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IREPBANDn	nth Band Representation	ntf:RectifiedGridCoverage/ntf:rangeSet/ gml:File/gml:rangeParameters/ntf:BandRepres	band/BandRepresentation/irepband	gmljp2:RootFeatureCollection/ featureMember/CodeStreamData/ntf:imag

		entation/gml:name		eMetadata/ImageSubheader/
ISUBCATn	nth Band Subcategory	ntf:RectifiedGridCoverage/ntf:rangeSet/gml:File/gml:rangeParameters/ntf:BandRepresentation/isubcat	band/BandRepresentation/isubcat	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IFCn	nth Band Image Filter Condition		band/BandRepresentation/ifc	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IMFLTn	nth Band Standard Image Filter Code		band/BandRepresentation/imflt	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NLUTSn	Number of LUTS for the nth Image Band		N/A	
NELUTn	Number of LUT Entries for the nth Image Band		N/A	
LUTDnm	nth Image Band, mth LUT	ntf:RectifiedGridCoverage/ntf:rangeSet/gml:File/gml:rangeParameters/ntf:BandRepresentation/lut	band/BandRepresentation/lut	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/band/BandElement/
ISYNC	Image Sync code		N/A	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IMODE	Image Mode		imode	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NBPR	Number of Blocks Per Row Per Image Segment		nbpr	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imag

			eMetadata/ImageSubheader/
NBPC	Number of Blocks Per Column Per Image Segment	nbpc	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NPPBH	Number of Pixels Per Block Horizontal.	nppbh	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NPPBV	Number of Pixels Per Block Vertical	nppbv	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
NBPP	Number of Bits Per Pixel Per Band	nbpp	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IDLVL	Image Display Level	idlvl	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IALVL	Image Attachment Level	ialvl	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
ILOC	Image Location	iloc	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IMAG	Image Magnification	imag	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/

UDIDL	User Defined Image Data Length	N/A	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
UDOFL	User Defined Overflow	N/A	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
UDID	User Defined Image Data	udid	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IXSHDL	Image Extended Subheader Data Length	N/A	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IXSOFL	Image Extended Subheader Overflow	N/A	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/
IXSHD	Image Extended Subheader Data	ixshd	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageMetadata/ImageSubheader/

7.1.3 NITF image data mask

The NITF image data mask contains information about the masked image. The image data mask can be present at the beginning of the image data area.

Table 4 — Image Data Mask

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
IMDATOFF	Blocked Image Data Offset		imdatoff	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/
BMRLNTH	Block Mask Record Length		bmrlnth	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/
TMRLNTH	Pad Pixel Mask Record Length		tmrlnth	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/
TPXCDLNTH	Pad Output Pixel Code Length		tpxcdlnth	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/
TPXCD	Pad Output Pixel Code		tpxcd	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/

BMRnBNDm	Block n, Band m Offset	bmrbnd	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/
TMRnBNDm	Pad Pixel n, Band m.	tmrbnd	gmljp2:RootFeatureCollection/featureMember/CodeStreamData/ntf:imageDataMaskMetadata/ImageDataMask/

7.1.4 NITF graphic segment

The graphic segment contains two-dimensional information represented as a CGM format.

Table 5 — Graphic Subheader

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
SY	File Part Type.		sy	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SID	Graphic Identifier.		sid	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SNAME	Graphic name.		sname	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCLAS	Graphic Security Classification		ssclas	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/

			graphicMetadata/GraphicSubheader
SSCLSY	Graphic Security Classification System	ssclsy	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCODE	Graphic Codewords	sscode	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCTLH	Graphic Control and Handling	ssctlh	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSREL	Graphic Releasing Instructions	ssrel	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSDCTP	Graphic Declassification Type	ssdctp	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSDCDT	Graphic Declassification Date	ssdcdt	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSDCXM	Graphic Declassification Exemption	ssdcxm	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSDG	Graphic Downgrade	ssdg	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSDGDT	Graphic Downgrade Date.	ssdgdt	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader

SSCLTX	Graphic Classification Text	sscltx	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCATP	Graphic Classification Authority Type	sscatp	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCAUT	Graphic Classification Authority	sscaut	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCRSN	Graphic Classification Reason	sscrsn	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSSRDT	Graphic Security Source Date	sssrdt	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSCTLN	Graphic Security Control Number	ssctln	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
ENCRYP	Encryption	encryp	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SFMT	Graphic Type	sfmt	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SSTRUCT	Reserved for Future Use	N/A	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SDLVL	Graphic Display Level	sdlvl	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader

SALVL	Graphic Attachment Level	salvl	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SLOC	Graphic Location	sloc	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SBND1	First Graphic Bound Location	sbnd1	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SCOLOR	Graphic Color	scolor	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SBND2	Second Graphic Bound Location.	sbnd2	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader
SRES2	Reserved for Future Use	N/A	
SXSHDL	Graphic Extended Subheader Data Length	N/A	
SXSOFL	Graphic Extended Subheader Overflow	N/A	
SXSHD	Graphic Extended Subheader Data	sxshd	gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicMetadata/GraphicSubheader

The graphic data is stored in the "gmljp2:RootFeatureCollection/annotation/ntf:GraphicSegment/graphicData" property.

7.1.5 NITF text segment

The text segment contains textual data or unformatted text.

Table 6 — Text Subheader

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
TE	File Part Type		te	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TEXTID	Text Identifier		textId	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TXTALVL	Text Attachment Level		txtalvl	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TXTDT	Text Date and Time		txtdt	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TXTITL	Text Title		txtitl	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCLAS	Text Security Classification		tsclas	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCLSY	Text Security Classification System		tsclsy	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader

TSCODE	Text Codewords	tscode	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCTLH	Text Control and Handling	tsctlh	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSREL	Text Releasing Instructions	tsrel	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSDCTP	Text Declassification Type	tsdctp	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSDCDT	Text Declassification Date	tsdcdt	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSDCXM	Text Declassification Exemption	tsdcxm	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSDG	Text Downgrade	tsdg	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSDGDT	Text Downgrade Date.	tsdgdt	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCLTX	Image Classification Text	tsclas	gmljp2:RootFeatureCollection/ntf:textSegmentData/

			TextSegment/textSubheaderData/TextSubheader
TSCATP	Text Classification Authority Type	tscatp	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCAUT	Text Classification Authority	tscaut	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCRSN	Text Classification Reason	tscrsn	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSSRDT	Text Security Source Date	tssrdt	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TSCTLN	Text Security Control Number	tsctln	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
ENCRYP	Encryption Data	encryp	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TXTFMT	Text Format	txtfmt	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader
TXSHDL	Text Extended Subheader Data Length	N/A	

TXSOFL	Text Extended Subheader Overflow	N/A	
TXSHD	Text Extended Subheader Data	txshd	gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textSubheaderData/TextSubheader

The text data is stored in the "gmljp2:RootFeatureCollection/ntf:textSegmentData/TextSegment/textData" property.

7.1.6 NITF RES segment

The RES segment provides a NITF extension mechanism.

Table 7 — RES Subheader

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
RE	File Part Type		re	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RESID	Unique RES Type Identifier		resId	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RESVER	Version of the Data Definition		resver	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECLAS	Reserved Extension File Security Classification		resclas	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/

RECLSY	RES Security Classification System	reclsy	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECODE	RES Codewords	recode	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECTLH	RES Control and Handling	rectlh	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REREL	RES Releasing Instructions	rerel	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REDCTP	RES Declassification Type	redctp	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REDCDT	RES Declassification Date	redcdt	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REDCXM	RES Declassification Exemption	redcxm	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REDG	RES Downgrade	redg	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
REDGDT	RES Downgrade Date	redgdt	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECLTX	RES Classification Text	recltx	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/

RECATP	RES Classification Authority Type	recatp	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECAUT	RES Classification Authority	recaut	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECRSN	RES Classification Reason	recrsn	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RESRDT	RES Security Source Date	recrdt	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RECTLN	RES Security Control Number	rectln	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RESSHL	RES User-defined Subheader Length	N/A	
RESSHF	RES User-defined Subheader Fields	resshf	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resMetadata/ResSubheader/
RESDATA	RES User-Defined Data.	resdata	gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resData

The RES data is stored in the "gmljp2:RootFeatureCollection/ntf:resSegmentData/ResSegment/resData" property.

7.1.7 NITF DES Segment

The DES segment contains some of the TREs.

Table 8 — DES Subheader

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
DE	File Part Type		de	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESID	Unique DES Type Identifier		desId	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESVER	Version of the Data Definition		desver	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DECLAS	Reserved Extension File Security Classification		desclas	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCLSY	DES Security Classification System		desclsy	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCODE	DES Codewords		descode	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCTLH	DES Control and Handling		desctlh	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESREL	DES Releasing Instructions		desrel	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESDCTP	DES Declassification Type		desdctp	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/

DESDCDT	DES Declassification Date	desdcdt	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESDCXM	DES Declassification Exemption	desdcxm	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESDG	DES Downgrade	desdg	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESDGDT	DES Downgrade Date	desdgdt	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCLTX	DES Classification Text	descltx	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCATP	DES Classification Authority Type	descatp	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCAUT	DES Classification Authority	descaut	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCRSN	DES Classification Reason	descrsn	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESSRDT	DES Security Source Date	descrdt	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/
DESCTLN	DES Security Control Number	desctln	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desMetadata/DesSubheader/

DESOFLW	DES Overflowed Header Type	N/A	
DESITEM	DES Data Item Overflowed	N/A	
DESSHL		N/A	
DESSHF	DES User-defined Subheader Fields	desshf	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desMetadata /DesSubheader/
DESDATA	DES User-Defined Data	desdata	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData

The DES data is stored in the "gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData" property.

7.2 TRE mapping

Each TRE has a **normative** schema file with its name corresponding to the TRE name.

For xample, the ACFTB TRE schema is in the ACFTB-TRE.xsd file.

7.2.1 Aircraft Information (ACFTB)

The ACFTB provides information about airborne sensors. The ACFTB is placed in the image subheader.

Table 9 — ACFTB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
CEL	Length of User-Defined Data	N/A	
AC_MSN_ID	Aircraft Mission Identification.	acMsnId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
AC_TAIL_NO	Aircraft Tail Number	acTailNo	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
AC_TO	Aircraft Take-off.	acTo	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
SENSOR_ID_TYPE	Sensor ID_Type.	sensorIdType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
SENSOR_ID		sensorId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/

SCENE_SOURCE	Scene Source		sceneSource	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
SCNUM	Scene Number.		scNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
PDATE	Processing Date.		pDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
IMHOSTNO	Immediate Scene Host.		imHostNo	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
IMREQID	Immediate Scene Request ID.		imReqId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
MPLAN	Mission Plan Mode.		mPlan	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
ENTLOC	Entry Location.	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvel	entryLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/Ima

		ope/gml:origin and ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low		geSubheader/ixshd/acftb:ExtendedImageSubheader/
LOC_ACCY	Location Accuracy.		locationAccuracy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
ENTELV	Entry Elevation		entryLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
ELV_UNIT	Unit of Elevation		entryLocation/Point/@srsName	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
EXITLOC	Exit Location	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/limits/GridEnvelope/gml:high	exitLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
EXITELV	Exit Elevation		exitLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
TMAP	True Map Angle		tMap	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

				ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
ROW_SPACING	Row Spacing	lengthOf(ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/offsetVector[2])	rowSpacing	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
ROW_SPACING_UNITS	Unit of Row Spacing		rowSpacing/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
COL_SPACING	Column Spacing	lengthOf(ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/offsetVector[1])	columnSpacing	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
COL_SPACING_UNITS	Unit of Column Spacing.		columnSpacing/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
FOCAL_LENGTH	Sensor Focal Length		focalLength	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
SENSERIAL	Sensor vendor‘s serial number		senSerial	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/

ABSWVER	Airborne Software Version	abswVer	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
CAL_DATE	Calibration Date	calDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
PATCH_TOT	Patch Total	patchTot	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/
MTI_TOT	MTI Total	mtiTot	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/acftb:ExtendedImageSubheader/

7.2.2 Additional Image ID (AIMIDB)

The AIMIDB is used for storage and retrieval from standard imagery libraries. The AIMID is placed in the image subheader.

Table 10 — AIMIDB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
CEL	Length of User-Defined Data	N/A	
ACQUISITION_DATE	Acquisition Date and Time	acquisitionDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
MISSION_NO	Mission Number	missionNo	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
MISSION_IDENTIFICATION	Name of the Mission	missionIdentification	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
FLIGHT_NO	Flight Number.	flightNo	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
OP_NUM	Image Operation Number	opNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/

CURRENT_SEGMENT	Current Segment ID	currentSegment	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
REPRO_NUM	Reprocess Number	reproNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
REPLAY	Replay	replay	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
START_TILE_COLUMN	Starting Tile Column Number	startTileColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
START_TILE_ROW	Starting Tile Row Number	startTileRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
END_SEGMENT	Ending Segment	endSegment	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
END_TILE_COLUMN	Ending Tile Column Number	endTileColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
END_TILE_ROW	Ending Tile Row Number	endTileRowNumber	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
COUNTRY	Country Code	country	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/
LOCATION	Location	location	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/aimidb:ExtendedImageSubheader/

7.2.3 General Electro-Optical (Visible, Infrared, Multi- and Hyperspectral) Sensor Parameters (SENSRB)

The SENSRB TRE provides information for imaging electro-optical (EO) sensors. The SENSRB TRE is placed in the image subheader.

Table 11 — SENSRB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/Image

				Subheader/ixshd/sensrb:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
GENERAL_DATA	General Data Flag		N/A	
SENSOR	Sensor Registered Name or Model		sensor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_URI	Sensor Uniform Resource Identifier		sensorURI	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PLATFORM	Platform Common Name		platform	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PLATFORM_URI	Platform Uniform Resource Identifier		platformURI	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
OPERATION_DOMAIN	Operational Domain		operationDomain	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
CONTENT_LEVEL	Content Level		contentLevel	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
GEODETIC_SYSTEM	Geodetic Reference System	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName	geodeticSystem	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

GEODETIC_ TYPE	Geodetic Coordinate Type		geodeticType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ELEVATION_ DATUM	Specifies the reference datum from which elevations and altitudes will be reported	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName	elevationDatum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
LENGTH_U NIT	Length Unit System		lengthUnit	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ANGULAR_ UNIT	Angle Unit Type.		angularUnit	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
START_DAT E	Imaging Start Date		startDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
START_TIM E	Imaging Start Time		startTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
END_DATE	Imaging End Date		endDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
END_TIME	Imaging End Time		endTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
GENERATIO N_ COUNT	Generation Count		generationCount	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/Image

			Subheader/ixshd/sensrb:ExtendedImageSubheader/
GENERATION_DATE	Generation Date	generationDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
GENERATION_TIME	Generation Time	generationTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_ARRAY_DATA	Sensor Array Data Flag	N/A	
DETECTION	Detection Type	detection	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_DETECTORS	Number of Detectors Used in Row	rowDetectors	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_DETECTORS	Number of Detectors Used in Column	columnDetectors	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_METRIC	Row Physical Dimension	rowMetric	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_METRIC	Column Physical Dimension	columnMetric	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

FOCAL_LENGTH	Best Known Focal Length	focalLength	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_FOV	Field of View along Sensor Array Row	rowFov	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_FOV	Field of View along Sensor Array Column	columnFov	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
CALIBRATED	Focal Length Calibration Flag	calibrated	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_CALIBRATION_ DATA	Sensor Calibration Data Flag	N/A	
CALIBRATION_ UNIT	Calibration Unit System	calibrationUnit	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PRINCIPAL_POINT_OFFSET_X	Principal Point Offset in x-direction (x0).	principalPointOffsetX	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PRINCIPAL_POINT_OFFSET_Y	Principal Point Offset in and y-direction (y0).	principalPointOffsetY	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
RADIAL_DISTORT_1	Radial Distortion Coefficient	radialDistort1	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

RADIAL_ DISTORT_2	Radial Distortion Coefficient	radialDistort2	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
RADIAL_ DISTORT_3	Radial Distortion Coefficient	radialDistort3	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
RADIAL_ DISTORT_LIMIT	Limit of Radial Distortion Fit.	radialDistortLimit	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
DECENT_ DISTORT_1	First and Second Decentering Distortion Coefficient (p1, p2).	decentDistort[1]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
DECENT_ DISTORT_2	First and Second Decentering Distortion Coefficient (p1, p2).	decentDistort[2]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
AFFINITY_ DISTORT_1	First and Second Affinity Distortion Coefficient (b1, b2).	affinityDistort[1]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
AFFINITY_ DISTORT_2	First and Second Affinity Distortion Coefficient (b1, b2).	affinityDistort[2]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
CALIBRATION_ DATE	Calibration Report Date	calibrationDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

IMAGE_ FORMATIO N_ DATA	Image Formation Data Flag	N/A	
METHOD	Imaging Method.	method	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
MODE	Imaging Mode	mode	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_COU NT	Row and Column Count	rowCount	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_C OUNT	Row and Column Count	columnCount	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_SET	Row and Column Detection Set	rowSet	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_S ET	Row and Column Detection Set	columnSet	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ROW_RATE	Row and Column Detection Rate	rowRate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
COLUMN_R ATE	Row and Column Detection Rate	columnRate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

FIRST_PIXEL_ ROW	Row and Column of First Collected Pixel.	firstPixelRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
FIRST_PIXEL_ COLUMN	Row and Column of First Collected Pixel.	firstPixelColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_ PARAMS	Number of Image Transform Parameters Provided	N/A	
TRANSFORM_ PARAM_1	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[1]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_ PARAM_2	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[2]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_ PARAM_3	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[3]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_ PARAM_4	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[4]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_ PARAM_5	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[5]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

TRANSFORM_PARAM_6	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[6]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_PARAM_7	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[7]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TRANSFORM_PARAM_8	Image Transform Parameters (h1, h2, h3, h4, h5, h6, h7, h8).	transformParams[8]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
REFERENCE_TIME	Reference Time of Applicability	referenceTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
REFERENCE_ROW	Reference Pixel Row and Column of Applicability	referenceRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
REFERENCE_ COLUMN	Reference Pixel Row and Column of Applicability	referenceColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
LATITUDE_OR_X	Sensor or Platform Latitude, Longitude, and Altitude or ECEF X, Y, Z Position	sensorPosition	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
LONGITUDE_OR_Y	Sensor or Platform Latitude, Longitude, and Altitude or ECEF X, Y, Z Position	sensorPosition	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ALTITUDE_OR_Z	Sensor or Platform Latitude, Longitude, and Altitude or ECEF X, Y, Z	sensorPosition	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

	Position		ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_X_OFFSET	Sensor X, Y, and Z Position Offset Relative to Platform Coordinate System	sensorXOffset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_Y_OFFSET	Sensor X, Y, and Z Position Offset Relative to Platform Coordinate System	sensorYOffset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_Z_OFFSET	Sensor X, Y, and Z Position Offset Relative to Platform Coordinate System	sensorZOffset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ATTITUDE_EULER_ANGLES	Attitude Euler Angle Flag	N/A	
SENSOR_ANGLE_MODEL	Type of Sensor Angle Rotations	sensorAngleModel	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_ANGLE_1	First, Second, and Third Sensor Rotation Angles	sensorAngle[1]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_ANGLE_2	First, Second, and Third Sensor Rotation Angles	sensorAngle[2]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_ANGLE_3	First, Second, and Third Sensor Rotation Angles	sensorAngle[3]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

PLATFORM_RELATIVE	Sensor Angles Relative to Platform Flag	platformRelative	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PLATFORM_HEADING	Platform Heading, Pitch, and Roll Angle	platformHeading	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PLATFORM_PITCH	Platform Heading, Pitch, and Roll Angle	platformPitch	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PLATFORM_ROLL	Platform Heading, Pitch, and Roll Angle	platformRoll	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ATTITUDE_UNIT_VECTORS	Attitude Unit Vector Flag	N/A	
ICX_NORTH_OR_X	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icxNorthOrX	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICX_EAST_OR_Y	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icxEastOrY	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICX_DOWN_OR_Z	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icxDownOrZ	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICY_NORTH_OR_X	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icyNorthOrX	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

ICY_EAST_OR_Y	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icyEastOrY	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICY_DOWN_OR_Z	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	icyDownOrZ	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICZ_NORTH_OR_X	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	iczNorthOrX	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICZ_EAST_OR_Y	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	iczEastOrY	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ICZ_DOWN_OR_Z	Image Coordinate (IC) System X, Y, and Z Axes Attitude Unit Vectors Relative to NED or ECEF Coordinate Frame	iczDownOrZ	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ATTITUDE_QUATERNION	Attitude Quaternion Flag	N/A	
ATTITUDE_Q1	Attitude Quaternion Vector Components	attitudeQ[1]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ATTITUDE_Q2	Attitude Quaternion Vector Components	attitudeQ[2]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

ATTITUDE_Q3	Attitude Quaternion Vector Components	attitudeQ[3]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ATTITUDE_Q4	Attitude Quaternion Scalar Component	attitudeQ[4]	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
SENSOR_VELOCITY_DATA	Sensor Velocity Data Flag	N/A	
VELOCITY_NORTH_OR_X	Sensor North, East, and Down Velocity Vectors	velocityNorthOrX	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
VELOCITY_EAST_OR_Y	Sensor North, East, and Down Velocity Vectors	velocityEastOrY	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
VELOCITY_DOWN_OR_Z	Sensor North, East, and Down Velocity Vectors	velocityDownOrZ	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
POINT_SET_DATA	Polygon or Point Set Count Flag.	N/A	
POINT_SET_TYPE_MM	Type of Mth Point Set	point/PointElement/pointSetType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
POINT_COUNT_MM	Number of Points in Mth Set	N/A	
P_ROW_NNN	Row and Column Location for Nth Point	point/PointElement/pointElementValue/PointValue/pRowNumber	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/Image

			Subheader/ixshd/sensrb:ExtendedImageSubheader/
P_COLUMN_NNN	Row and Column Location for Nth Point	point/PointElement/pointElementValue/PointValue/pColumnNumber	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
P_LATITUDE_NNN	Latitude, Longitude, Elevation, and Range for Nth Point	point/PointElement/pointElementValue/PointValue/pLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
P_LONGITUDE_NNN	Latitude, Longitude, Elevation, and Range for Nth Point	point/PointElement/pointElementValue/PointValue/pLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
P_ELEVATION_NNN	Latitude, Longitude, Elevation, and Range for Nth Point	point/PointElement/pointElementValue/PointValue/pLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
P_RANGE_NNN	Latitude, Longitude, Elevation, and Range for Nth Point	point/PointElement/pointElementValue/PointValue/pRange	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TIME_STAMPED_DATA_SETS	Time Stamp Count Flag	N/A	
TIME_STAMP_TYPE_MM	Index of the Mth Time-Stamped Parameter	timeStamped/TimeStampElement/timeStampType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TIME_STAMP_COUNT_MM	Number of Occurrences of the Mth Parameter	N/A	

TIME_STAMP_TIME_NNNN	The Nth Instance of a Time-Stamp Time	timeStamped/TimeStampElement/timeStampElementValue/TimeStampValue/timeStampTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
TIME_STAMP_VALUE_NNNN	The Nth Instance of the Mth Time-Stamped Parameter's Value	timeStamped/TimeStampElement/timeStampElementValue/TimeStampValue/timeStampValue	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PIXEL_REFERENCED_DATA_SETS	Pixel Reference Count Flag	N/A	
PIXEL_REFERENCE_TYPE_MM	Index of the Mth Pixel-Referenced Parameter	pixelReference/PixelReferenceElement/pixelReferenceType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PIXEL_REFERENCE_COUNT_MM	Number of Occurrences of the Mth Parameter	N/A	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PIXEL_REFERENCE_ROW_NNNN	The Nth Instance of a Reference Pixel Row and Column Index	pixelReference/pixelReferenceElement/pixelReferenceElementValue/PixelReferenceValue/pixelReferenceRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PIXEL_REFERENCE_COLUMN_NNNN	The Nth Instance of a Reference Pixel Row and Column Index	pixelReference/pixelReferenceElement/pixelReferenceElementValue/PixelReferenceValue/pixelReferenceColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PIXEL_REFERENCE_VALUE_NNNN	The Nth Instance of the Mth Pixel-Referenced Parameter's Value.	pixelReference/pixelReferenceElement/pixelReferenceElementValue/PixelReferenceValue/pixelReferenceValue	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

UNCERTAINTY_ DATA	Uncertainty Data Flag	N/A	
UNCERTAINTY_ FIRST_TYPE_NNN	First Index of Parameter with Reported Uncertainty or Correlation	uncertainty/UncertaintyElement/uncertaintyFirstType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
UNCERTAINTY_ SECOND_TYPE_ NNN	Second Index of Parameter with Reported Uncertainty	uncertainty/UncertaintyElement/uncertaintySecondType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
UNCERTAINTY_ VALUE_NNN	Uncertainty or Correlation Value	uncertainty/UncertaintyElement/uncertaintyValue	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
ADDITIONAL_ PARAMETER_ DATA	Additional Parameter Flag	N/A	
PARAMETER_ NAME_MMM	Additional Parameter Name.	additionalParameter/AdditionalParameterElement/parameterName	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PARAMETER_ SIZE_MMM	Additional Parameter Field Size	additionalParameter/AdditionalParameterElement/parameterSize	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/
PARAMETER_ COUNT_MMM	Number of Occurrences of the Additional Parameter	N/A	
PARAMETER_ VALUE_NNNN	Additional Parameter Value.	additionalParameter/AdditionalParameterElement/parameterValue	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensrb:ExtendedImageSubheader/

7.2.4 Mission Target Information (MSTGTA)

The MSTGTA TRE provides information for the image collection plan and should identify specific image targets. The MSTGTA TRE is placed in the image subheader.

Table 12 — MSTGTA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_NUM	Pre-Planned Target Number		tgtNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_ID	Designator of Target		tgtId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_BE	Basic Encyclopedia ID / OSUFFIX (target designator) of target		tgtBe	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_PRI	Pre-Planned Target Priority:		tgtPri	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/

TGT_REQ	Target Requester	tgtReq	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_LTIOV	Latest Time Information of Value	tgtLtiov	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_TYPE	Pre-Planned Target Type	tgtType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_COLL	Pre-Planned Collection Technique	tgtColl	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_CAT	Target Functional Category Code from DIAM-65-3-1.	tgtCat	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_UTC	Planned Time at Target	tgtUtc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_ELEV	Target Elevation, MSL	tgtLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_ELEV_UNIT	Unit of Target Elevation	tgtLocation/Point/@srsName	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mstgta:ExtendedImageSubheader/
TGT_LOC	Target Location	tgtLocation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

				ntf:imageMetadata/Image Subheader/ixshd/mstgta:E xtendedImageSubheader/

7.2.5 Sensor Parameters (SENSRA)

The SENSRA TRE provides information about the sensor‘s geospatial position, attitude, dynamics, and other parameters needed for computing accurate and precise geolocations from the imagery. The SENSRA TRE is placed in the image subheader.

Table 13 — SENSRA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollecti on/gmljp2:featureMember/g mljp2:CodeStreamData/ ntf:imageMetadata/ImageS ubheader/ixshd/sensra:Exte ndedImageSubheader/
CEL	Length of User-Defined Data		N/A	gmljp2:RootFeatureCollecti on/gmljp2:featureMember/g mljp2:CodeStreamData/ ntf:imageMetadata/ImageS ubheader/ixshd/sensra:Exte ndedImageSubheader/
REF_ROW	Reference Row.		refRow	gmljp2:RootFeatureCollecti on/gmljp2:featureMember/g mljp2:CodeStreamData/ ntf:imageMetadata/ImageS ubheader/ixshd/sensra:Exte ndedImageSubheader/
REF_COL	Reference Column		refCol	gmljp2:RootFeatureCollecti on/gmljp2:featureMember/g mljp2:CodeStreamData/ ntf:imageMetadata/ImageS ubheader/ixshd/sensra:Exte ndedImageSubheader/
SENSOR_M ODEL	Sensor Model Name		sensorModel	gmljp2:RootFeatureCollecti on/gmljp2:featureMember/g mljp2:CodeStreamData/ ntf:imageMetadata/ImageS ubheader/ixshd/sensra:Exte

			ndedImageSubheader/
SENSOR_MOUNT	Sensor Mounting Pitch Angle	sensorMount	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_LOC	Sensor Location	sensorLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_ALT_SOURCE	Sensor Altitude Source	sensroAltSource	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_ALT	Sensor Altitude	sensorLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_ALT_UNIT	Unit of Sensor Altitude	sensroAltUnit	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_AGL	Sensor Radar Altitude	sensorAgl	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_PITCH	Sensor Pitch Angle	sensorPitch	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SENSOR_ROLL	Sensor Roll Angle	sensorRoll	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/

SENSOR_YAW	Sensor Yaw Angle	sensorYaw	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
PLATFORM_PITCH	Platform Pitch	platformPitch	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
PLATFORM_ROLL	Platform Roll	paltformRoll	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
PLATFORM_HDG	Platform Heading	paltformHgd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
GROUND_SPD _ SOURCE	Ground Speed Source	groundSpdSource	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
GROUND_SPD	Ground Speed	groundSpd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
GROUND_SPD_UNIT	Unit of Ground Speed	groundSpd/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
GROUND_TRACK	Ground Track	groundTrack	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
VERT_VEL	Vertical Velocity	vertVel	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageS

				ubheader/ixshd/sensra:ExtendedImageSubheader/
VERT_VEL_UNIT	Unit of Vertical Velocity		vertVel/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SWATH_FRAMES	Number of Frames per Swath		swathFrames	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
N_SWATHS	Number of Swaths		nSwaths	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/
SPOT_NUM	Spot Number		spotNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/sensra:ExtendedImageSubheader/

7.2.6 Image Block Information (BLOCKA)

The BLOCKA TRE provides information about image block. The BLOCKA TRE is placed in the image subheader.

Table 14 — BLOCKA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSu

				bheader/ixshd/blocka:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
BLOCK_INSTANCE			blockInstance	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
N_GRAY			nGray	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
L_LINES	Row Count		lLines	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
LAYOVER_ANGLE	Layover Angle		layoverAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
SHADOW_ANGLE	Shadow Angle		shadowAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
FRLC_LOC	First Row Last Column Location		frlcLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
		gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high		
LRLC_LOC	Last Row Last Column Location	/gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamDat	lrlcLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/

		a/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner		
LRFC_LOC	Last Row First Column Location.		lrfcLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/
		gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:origin		
		gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low		
FRFC_LOC	First Row First Column Location	/gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner	frfcLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/blocka:ExtendedImageSubheader/

7.2.7 Multispectral / Hyperspectral Band Parameters (BANDSA)

The BANDSA TRE provides supplement information in the NITF image subheader where additional parametric data is required. The BANDSA TRE is placed in the image subheader. The BANDSA is marked inactive in the latest specification.

Table 15 — BANDSA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/

CEL	Length of User-Defined Data	N/A	
ROW_SPACING	Row Spacing	rowSpacing	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
ROW_SPACING_UNITS	Unit of Row Spacing	rowSpacing/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
COL_SPACING	Column Spacing	columnSpacing	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
COL_SPACING_UNITS	Unit of Column Spacing	columnSpacing/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
FOCAL_LENGTH	Sensor Focal Length	focalLength	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDCOUNT	Number of Bands	N/A	
BANDPEAKn	Band n Peak Response Wavelength	band/BandParameter/bandPeak	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDLBOUNDn	Band n Lower Wavelength Bound	band/BandParameter/bandLBound	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/

BANDUBOUNDn	Band n Upper Wavelength Bound	band/BandParameter/bandUBound	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDWIDTHn	Band n Width	band/BandParameter/bandWidth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDCALDRKn	Band n Calibration (Dark).	band/BandParameter/bandCaldrk	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDCALINCn	Band n Calibration (Increment).	band/BandParameter/bandCalinc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDRESPn	Band n Spatial Response	band/BandParameter/bandResp	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDASDn	Band n Angular Sample Distance	band/BandParameter/bandAsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/
BANDGSDn	Band n Ground Sample Distance	band/BandParameter/bandGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsa:ExtendedImageSubheader/

7.2.8 Exploitation Usability Optical Information (EXOPTA)

The EXOPTA TRE provides information that allows a user program to determine if the image is suitable for the exploitation problem currently being performed. The EXOPTA TRE is placed in the image subheader.

Table 16 — EXOPTA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
ANGLE_TO_NORTH	Angle to True North		angleToNorth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
MEAN_GSD	Mean Ground Sample Distance		meanGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
DYNAMIC_RANGE	Dynamic Range		dynamicRange	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
OBL_ANG	Obliquity Angle		oblAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
ROLL_ANG	Roll Angle		rollAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/

PRIME_ID	Primary Target ID	primeId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
PRIME_BE	Primary Target BE	primeBe	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
N_SEC	Number Of Secondary Targets in Image	nSec	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
N_SEG	Number of Segments	nSeg	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
MAX_LP_SEG	Maximum Number of Lines Per Segment	maxLpSeg	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
SUN_EL	Sun Elevation	sunEl	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/
SUN_AZ	Sun Azimuth	sunAz	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/exopta:ExtendedImageSubheader/

7.2.9 Exploitation Related Information (EXPLTB)

The EXPLTB TRE provides information that allows a user program to determine if the image is suitable for the exploitation problem currently being performed. The EXPLTB TRE is placed in the image subheader.

Table 17 — EXPLTB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
ANGLE_TO_NORTH	Angle to True North		angleToNorth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
ANGLE_TO_NORTH_ACCY	Angle to North Accuracy		angleToNorthAccy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
SQUINT_ANGLE	Squint Angle		squintAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
SQUINT_ANGLE_ ACCY	Squint Angle Accuracy		squintAngleAccy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
MODE	Mode represents both the collection mode and the processing mode		mode	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/

GRAZE_ANG	Grazing Angle	grazeAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
GRAZE_ANG_ACCY	Accuracy of Grazing Angle.	grazeAngAccy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
SLOPE_ANG	The angle between the SAR plane and the focus plane.	slopeAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
POLAR	The first character indicates the nominal transmit polarization, and the second character indicates the nominal receive polarization.	polar	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
NSAMP	Pixels per Line (includes fill)	nSamp	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
SEQ_NUM	Sequence within Coupled Imagery Set	seqNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
PRIME_ID	Target Designator of primary target	primeId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
PRIME_BE	Basic Encyclopedia ID	primeBe	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/

N_SEC	Number of Secondary Targets	nSec	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/
IPR	Commanded impulse response	ipr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/expltb:ExtendedImageSubheader/

7.2.10 Airborne SAR Mensuration Data (MENSRB)

The MENSRB TRE provides the collection geometry parameters required by image mensuration programs. The MENSRB TRE is placed in the image subheader.

Table 18 — MENSRB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
ACFT_LOC	The aircraft position at the UTC of the Patch.		acftLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
ACFT_LOC_ACCY	Aircraft Position Accuracy		acftLocAccy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/

ACFT_ALT	The aircraft altitude	acftLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RP_LOC	Reference Point Location	rpLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RP_LOC_ACCY	Reference Point Location Accuracy	rpLocAccy	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RP_ELV	Reference Point Elevation	rpLoc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
OF_PC_R	Range Offset	ofPcR	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
OF_PC_A	Azimuth Offset	ofPcA	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
COSGRZ	Cosine of the Graze Angle	cosGrz	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RGCRP	Estimated Slant Range	rgCrp	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RLMAP		rlMap	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RP_ROW	Row containing the RP	rpRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
RP_COL	Column containing the RP	rpCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_R_NC	Range Unit Vector, North	crnc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_R_EC	Range Unit Vector, East	crec	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_R_DC	Range Unit Vector, Down	crdc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_AZ_NC	Azimuth Unit Vector, North	caznc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_AZ_EC	Azimuth Unit Vector, East	cazec	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_AZ_DC	Azimuth Unit Vector, Down	cazdc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/

C_AL_NC	Altitude: North Component	calnc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_AL_EC	Altitude: East Component	calec	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
C_AL_DC	Altitude: Down Component	caldc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
TOTAL_TILES_COLS	Total number of tiles in imaging operation in column direction.	totalTilesCols	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/
TOTAL_TILES_ROWS	Total number of tiles in imaging operation in row direction.	totalTilesRows	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mensrb:ExtendedImageSubheader/

7.2.11 Mensuration Data (MPDSRA)

The MPDSRA TRE provides additional information required by most advanced image mensuration programs. The MPDSRA TRE is placed in the image subheader. The MPDSRA is marked inactive in the latest specification.

Table 19 — MPDSRA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
CEL	Length of User-Defined Data	N/A	
BLK_NUM	BLOCK_INSTANCE	blkNum	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
IPR	Commanded impulse response	ipr	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
NBLKS_IN_ WDG	Total number of image blocks	nblksInWdg	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ROWS_IN_B LK	Number of Rows in each Image Block	rowsInBlk	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
COLS_IN_B LK	Number of Columns in each Image Block	colsInBlk	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ORP_X	X, Y, and Z components of the Output Reference Point (ORP) position vector in the Earth Centered Fixed (ECF) coordinate system.	orp	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ORP_Y	X, Y, and Z components of the Output Reference Point (ORP) position vector in the Earth	orp	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende

	Centered Fixed (ECF) coordinate system.		dImageSubheader/
ORP_Z	X, Y, and Z components of the Output Reference Point (ORP) position vector in the Earth Centered Fixed (ECF) coordinate system.	orp	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ORP_ROW	Row Containing ORP	orpRow	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ORP_COLU MN	Column Containing ORP	orpColumn	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
FOC_X	X, Y, and Z components of Focus Plane Normal (FPN) Vector in Earth Centered Fixed (ECF) coordinate system.	foc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
FOC_Y	X, Y, and Z components of Focus Plane Normal (FPN) Vector in Earth Centered Fixed (ECF) coordinate system.	foc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
FOC_Z	X, Y, and Z components of Focus Plane Normal (FPN) Vector in Earth Centered Fixed (ECF) coordinate system.	foc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/
ARP_TIME	Collection Start Time in seconds past midnight UTC	arpTime	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/mpdsra:Extende dImageSubheader/

ARP_POS_N	Antenna Reference Point Position at ARP_TIME.	arpPos	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_POS_E	Antenna Reference Point Position at ARP_TIME.	arpPos	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_POS_D	Antenna Reference Point Position at ARP_TIME.	arpPos	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_VEL_N	Antenna Reference Point Velocity at ARP_TIME.	arpVelN	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_VEL_E	Antenna Reference Point Velocity at ARP_TIME.	arpVelE	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_VEL_D	Antenna Reference Point Velocity at ARP_TIME.	arpVelD	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_ACC_N	Antenna Reference Point Acceleration at ARP_TIME.	arpAccN	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_ACC_E	Antenna Reference Point Acceleration at ARP_TIME.	arpAccE	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/mpdsra:ExtendedImageSubheader/
ARP_ACC_D	Antenna Reference Point Acceleration at ARP_TIME.	arpAccD	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSub

				header/ixshd/mpdsra:Extended ImageSubheader/

7.2.12 Complex Synthetic Aperture Radar Data Format Initiative (CMETAA)

The CMETAA TRE provides the structure for complex SAR data metadata. The CMETAA TRE is placed in the image subheader. The CMETAA is marked inactive in the latest specification.

Table 20 — CMETAA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
TRETAG	Unique Extension Type Identifier		tretag	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
TREL	Length of User-Defined Data		N/A	
RELATED_TRES	Related TREs		relatedTres	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
ADDITIONAL_TRES	Name of Additional TRE		additionalTres	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
RD_PRC_NO	Processor Version Number		rdPrcNo	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PROCESS	VPH Processing Method		ifProcess	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

RD_CEN_FREQ	Nominal Center Frequency Band	rdCenFreq	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
RD_MODE	Collection Mode	rdMode	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
RD_PATCH_NO	Data Patch Number Field	rdPatchNo	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_DOMAIN	Complex Domain	cmplxDomain	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_MAG_REMAP_TYPE		cmplxMagRemapType	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_LIN_SCALE	Complex Linear Scale Factor	cmplxLinScale	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_AVG_POWER	Average Power	cmplxAvgPower	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_LINLO_TP	Complex LinLog Transition Point	cmplxLinloTp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_PHASE_QUANT_FLAG	Phase Quantization Flag	cmplxPhaseQuantFlag	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_PHASE_QUANT_BIT_DEPTH	Phase Quantization Bit Depth:	cmplxPhaseQuantBitDepth	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_SIZE_1	Size of First Pixel Component in Bits.	cmplxSize1	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CMPLX_IC_1	Data Compression of First Pixel Component	cmplxIc1	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_SIZE_2	Size of Second Pixel Component in Bits.	cmplxSize2	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_IC_2	Data Compression, second pixel component	cmplxIc2	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_IC_BPP	Complex Imagery Compressed Bits per Pixel	cmplxIcBpp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_WEIGHT	Type of Weighting	cmplxWeight	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_AZ_SLL	Azimuth (AZ) Sidelobe Level.	cmplxAzSll	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_RNG_SLL	Range (RNG) Sidelobe Level	cmplxRngSll	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_AZ_TAY_NBAR	Azimuth Taylor nbar	cmplxAzTayNbar	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_RNG_TAY_NBAR	Range Taylor nbar	cmplxRngTayNbar	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_WEIGHT_NORM	Complex Weight Normalization	cmplxWeightNorm	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CMPLX_SIGNAL_PLANE	Plane of the complex image	cmplxSignalPlane	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_DC_SF_ROW	Filter Index	ifDcSfRow	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

IF_DC_SF_COL	Filter Index	ifDcSfCol	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_1_ROW		ifPatchRow[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_1_COL		ifPatchCol[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_2_ROW		ifPatchRow[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_2_COL		ifPatchCol[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_3_ROW		ifPatchRow[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_3_COL		ifPatchCol[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_4_ROW		ifPatchRow[4]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_PATCH_4_COL		ifPatchCol[4]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_DC_IS_ROW	Sample Location of DC (zero frequency)	ifDcIsRow	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_DC_IS_COL	Sample Location of DC (zero frequency)	ifDcIsCol	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_IMG_ROW_DC	Row Location of Patch-tile (IM)	ifImgRowDc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:Extende

			dImageSubheader/
IF_IMG_COL_DC	Column Location of Patch-tile (IM)	ifImgColDc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_1_ROW		ifTileRow[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_1_COL		ifTileCol[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_2_ROW		ifTileRow[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_2_COL		ifTileCol[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_3_ROW		ifTileRow[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_3_COL		ifTileCol[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_4_ROW		ifTileRow[4]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_TILE_4_COL		ifTileCol[4]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RD	Range Deskew	ifRd	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RGWLK	Range Walk Correction	ifRgwlk	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

IF_KEYSTN	Range Curvature and Keystone Distortion Correction	ifKeystn	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_LINSFT	Residual Linear Shift Correction	ifLinsft	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SUBPATCH	Sub-patch Phase Correction	ifSubpatch	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_GEODIST	Other Deterministic Geometric Distortion Corrections	ifGeodist	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RGFO	Range Fall-off Correction (Sensitivity Time Control)	ifRgfo	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_BEAM_COMP	Antenna Beam Pattern Compensation Applied	ifBeamComp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RGRES	Range Direction Resolution (e.g. cross track, cross scan)	ifRgres	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_AZRES	Azimuth Resolution (e.g. along track)	ifAzres	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RSS	Range Sample Spacing (e.g. cross track, cross scan)	ifRss	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

IF_AZSS	Azimuth Sample Spacing, (e.g. along track)	ifAzss	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RSR	Range Sample Rate	ifRsr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_AZSR	Azimuth Sample Rate (samples/ Commanded IPR)	ifAzsr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RFFT_SAMP	Original Range (e.g. cross scan, cross-track) FFT Non-zero Input Samples	ifRfftSampl	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_AZFFT_SAMP	Original Azimuth (e.g. along track) FFT Non-zero Input Samples	ifAzfftSampl	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RFFT_TOT	Total Range (e.g. cross scan, cross-track) FFT Length	ifRfftTot	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_AZFFT_TOT	Total Azimuth (e.g. along track) FFT Length	ifAzfftTot	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SUBP_ROW	Sub-patch Size, Row	ifSubpRow	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SUBP_COL	Sub-patch Size, Column	ifSubpCol	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SUB_RG	Subpatch Counts, Range, (e.g. cross scan, cross-track)	ifSubRg	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

IF_SUB_AZ	Subpatch Counts, Azimuth, (e.g. along track)	ifSubAz	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RFFTS	FFT Sign Convention in Range (e.g. cross scan, cross-track)	ifRffts	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_AFFTS	FFT Sign Convention in Azimuth (e.g. along track)	ifAffts	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_RANGE_DATA	Range Data Range (e.g. crossscan, cross-track)	ifRangeData	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_INCPH	Increasing phase	ifIncph	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_NAME1	Super Resolution Algorithm Name, First Iteration	ifSrName[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_AMOUNT1	Amount or Factor of Super Resolution Applied to the Image, First Iteration	ifSrAmount[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_NAME2	Super Resolution Algorithm Name, Second Iteration	ifSrName[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_AMOUNT2	Amount or Factor of Super Resolution Applied to the Image, Second Iteration	ifSrAmount[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_NAME3	Super Resolution Algorithm Name, Third Iteration	ifSrName[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
IF_SR_AMOUNT3	Amount or Factor of Super Resolution Applied to the Image, Third Iteration	ifSrAmount[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
AF_TYPE1	First Autofocus Iteration	afType[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

AF_TYPE2	Second Autofocus Iteration	afType[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
AF_TYPE3	Third Autofocus Iteration	afType[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_TR	Transmit Polarization	polTr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_RE	Receive Polarization	polRe	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_REFERENCE	Polarization Frame of Reference	polReference	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL	Polarimetric Data Set	pol	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_REG	Pixel Registered	polReg	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_ISO_1	Minimum Polarization Isolation	polIso1	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_BAL	RCS Gray Level Balancing	polBal	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_BAL_MAG	Pixel Amplitude Balance Coefficient	polBalMag	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_BAL_PHS	Pixel Phase Balance Coefficient	polBalPhs	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

POL_HCOMP	Radar Hardware Phase Balancing	polHcomp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_HCOMP_BASIS	Basis Set	polHcompBasis	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_HCOMP_COEF_1	Radar Hardware Phase Balancing	polHcompCoef[1]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_HCOMP_COEF_2	Radar Hardware Phase Balancing	polHcompCoef[2]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_HCOMP_COEF_3	Radar Hardware Phase Balancing	polHcompCoef[3]	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_AFCOMP	Radar Autofocus Phase Balancing	polAfcomp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_SPARE_A	Spare alpha field	polSpareA	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
POL_SPARE_N	Spare numeric field	polSpareN	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
T_UTC_YYYYMMMDD	YYYYMMMDD	timeUTC	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
T_HHMMSSUTC	UTCHHMMSS	timeUTC	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
T_HHMMSSLOCAL	Civil Time of Collection	timeLocal	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_SRAC	Slant Range at Sensor Reference Center	cgSrac	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SLANT_CONFIDENCE	Slant Range 95% Confidence Interval	cgSlantConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_CROSS	Cross Track Range at Sensor Reference Center	cgCross	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_CROSS_CONFIDENCE	Cross Track Range at Sensor Reference Center 95% Confidence Interval	cgCrossConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_CAAC	Cone Angle at Sensor Reference Point (e.g. aperture reference point)	cgCaac	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_CONE_CONFIDENCE	Cone Angle 95% Confidence	cgConeConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_GPSAC	Ground Plane Squint Angle	cgGpSac	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_GPSAC_CONFIDENCE	Squint Angle 95% Confidence	cgGpSacConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SQUINT	Slant Plane Squint Angle	cgSquint	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_GAAC	Grazing Angle at Sensor Reference Point Center (e.g. aperture center)	cgGaac	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_GAAC_CONFIDENCE	Grazing Angle at Sensor Reference Point Center 95% Confidence	cgGaacConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_INCIDENT	Incidence angle	cgIncident	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SLOPE	Slope angle	cgSlope	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_TILT	Tilt angle	cgTilt	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_LD	Look Direction	cgLd	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_NORTH	North Relative to the Top Image Edge	cgNorth	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_NORTH_CONFIDENCE	North Angle 95% Confidence	cgNorthConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_EAST	East Relative to the Top Image Edge	cgEast	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_RLOS	Range LOS rel the Top Image Edge	cgRlos	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_LOS_CONFIDENCE	Range LOS 95% Confidence	cgLosConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_LAYOVER	Layover Angle	cgLayover	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_SHADOW	Shadow Angle	cgShadow	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_OPM	Out of Plane Motion	cgOpm	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MODEL	Nominal Geometry Reference	cgAmptLoc/@srsName	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_AMPT_X	Aimpoint of Antenna, x (Illum. Ref Pt.)	cgAmptLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_AMPT_Y	Aimpoint of Antenna, y (Illum. Ref Pt.)	cgAmptLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_AMPT_Z	Aimpoint of Antenna, z (Illum. Ref Pt.)	cgAmptLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_AP_CONF_XY	Aimpoint 95% Confidence	cgApConfXY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_AP_CONF_Z	Aimpoint 95% Confidence	cgApConfZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_APCEN_X	Sensor Reference Point (x)	cgApcenLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_APCEN_Y	Sensor Reference Point (y)	cgApcenLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_APCEN_Z	Sensor Reference Point (z)	cgApcenLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_APER_CONF_XY	Sensor Reference Point 95% Confidence	cgAperConfXY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_APER_CONF_Z	Sensor Reference Point Center 95% Confidence	cgAperConfZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_FPNUV_X	Focus Plane Normal Unit Vector, x	cgFpnuvX	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_FPNUV_Y	Focus Plane Normal Unit Vector, y	cgFpnuvY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_FPNUV_Z	Focus Plane Normal Unit Vector, z	cgFpnuvZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_IDPNUVX	Image Display Plane Normal Unit Vector, x	cgIdpnuvX	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_IDPNUVY	Image Display Plane Normal Unit Vector, y	cgIdpnuvY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_IDPNUVZ	Image Display Plane Normal Unit Vector, z	cgIdpnuvZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SCECN_X	Scene Center (Image Output Reference Point), x in ground plane	cgScecnLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SCECN_Y	Scene Center (Image Output Reference Point), y in ground plane	cgScecnLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SCECN_Z	Scene Center (Image Output Reference Point), z	cgScecnLoc	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_SC_CONF_XY	Scene Center 95% Confidence	cgScConfXY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SC_CONF_Z	Scene Center 95% Confidence	cgScConfZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SWWD	Swath Width	cgSwwd	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNVEL_X	Sensor Nominal Velocity, x’	cgSnvelX	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNVEL_Y	Sensor Nominal Velocity, y’	cgSnvelY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNVEL_Z	Sensor Nominal Velocity, z’	cgSnvelZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNACC_X	Sensor Nominal Acceleration x”	cgSnaccX	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNACC_Y	Sensor Nominal Acceleration y”	cgSnaccY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNACC_Z	Sensor Nominal Acceleration z”	cgSnaccZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNATT_ROLL	Sensor Nominal Attitude Roll	cgSnattRoll	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNATT_PITCH	Sensor Nominal Attitude Pitch	cgSnattPitch	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_SNATT_YAW	Sensor Nominal Attitude Yaw	cgSnattYaw	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_GTP_X	Geoid Tangent Plane Normal, x	cgGtpX	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_GTP_Y	Geoid Tangent Plane Normal, y	cgGtpY	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_GTP_Z	Geoid Tangent Plane Normal, z	cgGtpZ	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MAP_TYPE	Mapping Coordinate	cgMapType	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LATCEN	Latitude of the Patch Center	cgPatchCen	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LNGCEN	Longitude of the Patch Center	cgPatchCen	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LTCORUL	Latitude of the Patch Corner, upper left	cgPatchUpperLeft	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LGCORUL	Longitude of the Patch Corner, upper left	cgPatchUpperLeft	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LTCORUR	Latitude of the Patch Corner, upper right	cgPatchUpperRight	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LGCORUR	Longitude of the Patch Corner, upper right	cgPatchUpperRight	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LTCORLR	Latitude of the Patch Corner, lower right	cgPatchLowerRight	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LGCORLR	Longitude of the Patch Corner, lower right	cgPatchLowerRight	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

CG_PATCH_LTCORLL	Latitude of the Patch Corner, lower left	cgPatchLowerLeft	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LNGCOLL	Longitude of the Patch Corner, lower left	cgPatchLowerLeft	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LAT_CONFIDENCE	Latitude 95% Confidence	cgPatchLatConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_PATCH_LONG_CONFIDENCE	Longitude 95% Confidence	cgPatchLLongConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRS_CENT	MGRS Image Center	cgMgrsCent	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRSCORUL	MGRS Image Upper Left Corner	cgMgrsCorul	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRSCORUR	MGRS Image Upper Right Corner	cgMgrsCorur	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRSCORLR	MGRS Image Lower Right Corner	cgMgrsCorlr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRCORLL	MGRS Image Lower Left Corner	cgMgrsCorll	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRS_CONFIDENCE	MGRS 95% Confidence	cgMgrsConfidence	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
CG_MGRS_PAD	MGRS Blank Padding	N/A	
CG_MAP_TYPE_BLANK		N/A	
CG_SPARE_A	Spare alpha field	N/A	

CA_CALPA	Radiometeric Calibration Parameter	caCalpa	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_SRTFR	Chirp Start Frequency	wfSrtfr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_ENDFR	Chirp End Frequency	wfEndfr	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_CHRPRT	Chirp Rate	wfChrprt	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_WIDTH	Pulsewidth	wfWidth	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_CENFRQ	Center frequency	wfCenfrq	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_BW	Chirp Bandwidth	wfBw	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_PRF	Pulse Repetition Frequency (PRF)	wfPrf	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_PRI	Pulse Repetition Interval	wfPri	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_CDP	Coherent Data Period	wfCdp	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
WF_NUMBER_OF_PULSES	Number of Pulse	wfNumberOfPulses	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/
VPH_COND		vphCond	ntf:imageMetadata/ImageSubheader/ixshd/cmetaa:ExtendedImageSubheader/

7.2.13 Corner Footprint (CSCRNA)

The CSCRNA TRE provides the geodetic latitude, longitude, and ground elevation at the four-corners of the sensor (sub-image) footprint. The CSCRNA TRE is placed in the image subheader.

Table 21 — CSCRNA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/cscrna:Extended ImageSubheader/
CEL	Length of User-Defined Data		N/A	
PREDICT_C ORNERS	Predicted Corners Flag		predictCorners	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/cscrna:Extended ImageSubheader/
ULCNR_LAT	Image Corner Latitude Upper Left Corner of Image	Mandatory: gml:RectifiedGrid/gml:li mits/gml:GridEnvelope/ gml:origin gml:RectifiedGrid/gml:li mits/gml:GridEnvelope/ gml:low Optional: /gjp2:RootFeatureColle ction/gjp2:featureMemb er/gjp2:CodeStreamDat a/gjp2:coverage/ntf:Rec tifiedGridCoverage/gml: boundedBy/gml:Envelo pe/gml:lowerCorner	ulcnr	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/cscrna:Extended ImageSubheader/

		Mandatory: gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:origin gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner		
ULCNR_LONG	Image Corner Longitude Upper Left Corner of Image		ulcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
		Mandatory: gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:origin gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner		
ULCNR_HT	Image Corner Height at Upper Left Corner of Image		ulcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
URCNR_LAT	Image Corner Latitude Upper Right Corner of Image		urcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
URCNR_LONG	Image Corner Longitude Upper Right Corner of Image		urcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
URCNR_HT	Image Corner Height at Upper Right Corner of Image		urcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LRCNR_LAT	Image Corner Latitude Lower Right Corner of Image	Mandatory: gml:RectifiedGrid/gml:limits/gml:GridEnvelope/	lrcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

		gml:high Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner		ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LRCNR_LONG	Image Corner Longitude Lower Right Corner of Image	Mandatory: gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner	lrcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LRCNR_HT	Image Corner Height at Lower Right Corner of Image	Mandatory: gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high Optional: /gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner	lrcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LLCNR_LAT	Image Corner Latitude Lower Left Corner of Image		llcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LLCNR_LONG	Image Corner Longitude Lower Left Corner of Image		llcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/
LLCNR_HT	Image Corner Height at Lower Left Corner of Image		llcnr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/cscrna:ExtendedImageSubheader/

7.2.14 Dataset Identification (CSDIDA)

The CSDIDA TRE provides basic information describing the data contained in the NITF file. The CSDIDA TRE is placed in the file header.

Table 22 — CSDIDA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
CEL	Length of User-Defined Data		N/A	
DAY	Day of Dataset Collection		dateofDatasetCollection	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
MONTH	Month of Dataset Collection		dateofDatasetCollection	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
YEAR	Year of Dataset Collection		dateofDatasetCollection	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
PLATFORM _CODE	Platform Identification		platformCode	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
VEHICLE ID	Vehicle Number		vehicleId	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
PASS	Pass Number		pass	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/

OPERATION	Operation Number	operation	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
SENSOR_ID	Sensor ID	sensorId	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
PRODUCT_ID	Product ID	productId	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
TIME	Image Start Time	time	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
PROCESS_TIME	Process Completion Time	processTime	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/
SOFTWARE_VERSION_NUMBER	Software version used	softwareVersionNumber	gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/ FileHeader/xhd/csdida:DatasetIdentificationMetadata/

7.2.15 Exploitation Reference Data (CSEXRA)

The CSEXRA TRE provides exploitation support data -- acquisition, environment, and performance parameters. The CSEXRA TRE is placed in the image subheader.

Table 23 — CSEXERA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/

CEL	Length of User-Defined Data	N/A	
SENSOR	Sensor	sensor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
TIME_FIRST_LINE_IMAGE	Time of the First Line of Image (Synthetic Array)	timeFirstLineImage	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
TIME_IMAGE_DURATION	Image Duration Time	timeImageDuration	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
MAX_GSD	Maximum Mean Ground Sample Distance	maxGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
ALONG_SCAN_GSD	Along Scan GSD	alongScanGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
CROSS_SCAN_GSD	Cross-Scan GSD	acrossScanGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
GEO_MEAN_GSD	Geometric Mean GSD	geoMeanGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
A_S_VERT_GSD	Along Scan Vertical GSD	aSVertGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/

C_S_VERT_GSD	Cross-Scan Vertical GSD	cSVertGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
GEO_MEAN_VERT_GSD	Geometric Mean Vertical GSD	geoMeanVertGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
GSD_BETA_ANGLE	GSD Beta Angle	gsdBetaAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
DYNAMIC_RANGE	Dynamic range of pixels in image	dynamicRange	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
NUM_LINES	Number of Lines	numLines	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
NUM_SAMPLES	Number of Sample	numSamples	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
ANGLE_TO_NORTH	Nominal Angle to True North	angleToNorth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
OBLIQUITY_ANGLE	Nominal Obliquity angle	obliquityAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
AZ_OF_OBLIQUITY	Azimuth of Obliquity	azOfObliquity	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
GRD_COVER	Ground Cover	grdCover	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
SNOW_DEPTH_CAT	Snow Depth Category	snowDepthCat	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
SUN_AZIMUTH	Sun Azimuth Angle	sunAzimuth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
SUN_ELEVATION	Sun Elevation Angle	sunElevation	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
PREDICTED_NIRS	Predicted NIIRS	predictedNirs	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
CIRCL_ERR	Circular Error	circlErr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/
LINEAR _ERR	Linear Error	linearErr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csexra:ExtendedImageSubheader/

7.2.16 Processing Information (CSPROA)

The CSPROA TRE identifies processing options that were applied during image formation. The CSPROA TRE is placed in the image subheader.

Table 24 — CSPROA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csproa:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
BWC	Bandwidth Compression		bwc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csproa:ExtendedImageSubheader/

7.2.17 Ephemeris Data (CSEPHA)

The CSEPHA provides detailed space vehicle ephemeris information. The CSEPHA TRE is placed in the DES segment.

Table 25 — CSEPHA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
CEL	Length of User-Defined Data		N/A	

EPHEM_FLAG	Ephemeris Flag	ephemFlag	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
DT_EPHEM	Time interval between ephemeris vectors	dtEphem	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
DATE_EPHEM	Day of First ephemeris vector	dateEphem	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
T0_EPHEM	UTC of First Ephemeris Vector	t0Ephem	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
NUM_EPHEM	Number of Ephemeris vectors	N/A	
EPHEM_X	X Coordinate of Ephemeris Vector	ephemLoc	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
EPHEM_Y	Y Coordinate of Ephemeris Vector	ephemLoc	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet
EPHEM_Z	Z Coordinate of Ephemeris Vector	ephemLoc	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/csepha:DataSet

7.2.18 Sensor Field Alignment Data (CSSFAA)

The CSSFAA TRE provides information on detectors, sensor type, and field alignment including fields for the focal length and principal point offset components. The CSSFAA TRE is placed in the DES segment.

Table 26 — CSSFAA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
CEL	Length of User-Defined Data	N/A	
NUM_BANDS	Number of Bands	numBands	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
BAND_TYPE	Category of band for which data is being supplied	band/BandElement/bandType	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
BAND_ID	Band center of wavelength	band/BandElement/bandId	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
FOC_LENGTH	Focal Length	band/BandElement/focLength	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
NUM_DAP	Number of linear arrays (pairs) for a band for a Basic product only	band/BandElement/numDap	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
NUM_FIR	First sample number	band/BandElement/numFir	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
DELTA	The number of detector elements in a linear array	band/BandElement/delta	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
OPPOFF_X	Principal point offset x	band/BandElement/oppOffX	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
OPPOFF_Y	Principal point offset y	band/BandElement/oppOffY	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
OPPOFF_Z	Principal point offset z	band/BandElement/oppOffZ	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
START_X	Detector mounting of the first pixel in the pair – x	band/BandElement/startX	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
START_Y	Detector mounting of the first pixel in the pair – y	band/BandElement/startY	gmljp2:RootFeatureCollection/ ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet

FINISH_X	Detector mounting of the last pixel in the pair – x	band/BandElement/finishX	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet
FINISH_Y	Detector mounting of the last pixel in the pair – y	band/BandElement/finishY	gmljp2:RootFeatureCollection/ntf:desSegmentData/DesSegment/desData/cssfaa:DataSet

7.2.19 Cloud Cover Grid Data (CSCCGA)

The CSCCGA TRE provides support data that identifies which image segment and sensors were used to create the cloud grid. The CSCCGA TRE is placed in the image subheader.

Table 27 — CSCCGA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
CCG_SOURCE	Source of Grid		ccgSource	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
REG_SENSOR	Image Segment Sensor to which Cloud Cover Grid is registered		regSensor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
ORIGIN_LINE	Cloud Cover Grid Origin – Line		originLine	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubhe

				ader/ixshd/csccga:ExtendedImageSubheader/
ORIGIN_SAMPLE	Cloud Cover Grid Origin – Sample		originSample	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
AS_CELL_SIZE	Along Scan Cell Size – Lines		asCellSize	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
CS_CELL_SIZE	Cross Scan Cell Size – Samples		csCellSize	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
CCG_MAX_LINE	Number of Rows in CC Grid		ccgMaxLine	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/
CCG_MAX_SAMPLE	Number of Columns in CC Grid		ccgMaxSample	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/csccga:ExtendedImageSubheader/

7.2.20 Standard ID (STDIDC)

The STDIDC TRE provides image identification data that supplements the image subheader. The STDIDC TRE is placed in the image subheader.

Table 28 — STDIDC TRE

Field	Name	GMLJP2 Rectified Grid Coverage	GMLJP2 property	GMLJP2 path

		mapping	
CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
CEL	Length of User-Defined Data	N/A	
ACQUISITION_ DATE	Acquisition Date.	acquisitionDate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
MISSION	Mission Identification	mission	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
PASS	Pass Number.	pass	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
OP_NUM	Image Operation Number	opNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
START_SEGMENT	Start Segment ID	startSegment	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
REPRO_NUM	Reprocess Number	reproNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
REPLAY_REGEN		replayRegen	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImag

			eSubheader/
START_COLUMN	Starting Column Block	startColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
START_ROW	Starting Row Block	startRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
END_SEGMENT	Ending Segment ID of this file	endSegment	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
END_COLUMN	Ending Column Block	endColumn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
END_ROW	Ending Row Block	endRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
COUNTRY	Country Code	country	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
WAC	World Aeronautical Chart	wac	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/
LOCATION	Location.	location	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/stdidc:ExtendedImageSubheader/

7.2.21 Exploitation Usability (USE00A)

The USE00A TRE provides information about usability of the image for the exploitation problem currently being performed. The USE00A TRE is placed in the image subheader.

Table 29 — USE00A TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
ANGLE_TO_NORTH	Angle to North.		angleToNorth	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
MEAN_GSD	Mean Ground Sample Distance.		meanGsd	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
DYNAMIC_RANGE	Dynamic Range		dynamicRange	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
OBL_ANG	Obliquity Angle		oblAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/

ROLL_ANG	Roll Angle	rollAng	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
N_REF	Number of Reference Lines	nRef	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
REV_NUM	Revolution Number	revNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
N_SEG	Number of Segments	nSeg	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
MAX_LP_SEG	Maximum Lines Per Segment	maxLpSeg	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
SUN_EL	Sun Elevation	sunEl	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/
SUN_AZ	Sun Azimuth	sunAz	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/use00a:ExtendedImageSubheader/

7.2.22 Local Geographic (lat/long) Coordinate System (GEOLOB)

The GEOLOB TRE provides the description of the link between the local coordinate system (rows and columns) and the absolute geographic coordinate system (longitude and latitude) defined by GEOPS. The GEOLOB TRE is placed in the image subheader.

Table 30 — GEOLOB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/geolob:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
ARV	Longitude density		arv	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/geolob:ExtendedImageSubheader/
BRV	Latitude density		brv	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/geolob:ExtendedImageSubheader/
LSO	Longitude of Reference Origin	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/origin	location	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/geolob:ExtendedImageSubheader/
PSO	Latitude of Reference Origin	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/origin	location	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/geolob:ExtendedImageSubheader/

7.2.23 Geo positioning Information (GEOPSB)

The GEOPSB defines the absolute coordinate system to which the data is geo-referenced. The GEOPSB TRE is placed in the file header.

Table 31 — GEOPSB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
CEL	Length of User-Defined Data		N/A	
TYP	Coordinate System Type	if MAP, then /gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS If GEO, then /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS if DIG, then /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS if DVR field != nul then /gml:Dictionary/gml:dictionaryEntry/gml:CompundCRS/gml:componentReferenceSystem/gml:GeodeticCRS	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
UNI	Coordinate Units	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:cartesianCS/gml:CoordinateSystemAxis/@uom or /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:ellipsoidalCS/gml:EllipsoidalCS/gml:axis/gml:CoordinateSystemAxis/@uom	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
DAG	Geodetic Datum Name	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:name	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/

DCD	Geodetic Datum Code	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:identifier	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
ELL	Ellipsoid Name	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/gml:name	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
ELC	Ellipsoid Code	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum//gml:ellipsoid/gml:Ellipsoid/gml:identifier	srsName	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
DVR	Vertical Datum Reference	gml:CompoundCRS/gml:componentReferenceSystem[2]/@xlink:href	dvr	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
VDCDVR	Code (Category) of Vertical Reference		vdcDvr	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
SDA	Sounding Datum Name	Optional: gml:CompoundCRS/gml:componentReferenceSystem[2]/@xlink:title	sda	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
VDCSDA	Code for Sounding Datum	gml:CompoundCRS/gml:componentReferenceSystem[2]/@xlink:href	vdcSda	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
ZOR	Z values False Origin		zor	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
GRD	Grid Code		grd	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/

GRN	Grid Description	grn	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/
ZNA	Grid Zone number	zna	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/geopsb:DataSetMetadata/

7.2.24 Positional Accuracy (ACCPOB)

The ACCPOB provides accuracy information. The ACCPOB TRE is placed in the image subheader.

Table 32 — ACCPOB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	
NUM_ACPO	Number of positional accuracy regions		N/A	
UNIAAHn	Unit of Measure for AAHn.		regionAccy/RegionAccuracyElement/uniaah	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/

AAHn	Absolute Horizontal Accuracy	regionAccy/RegionAccuracyElement/aah	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
UNIAAVn	Unit of Measure for AAVn	regionAccy/RegionAccuracyElement/uniaav	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
AAVn	Absolute Vertical Accuracy	regionAccy/RegionAccuracyElement/aav	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
UNIAPHn	Unit of Measure for APHn	regionAccy/RegionAccuracyElement/uniaph	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
APHn	Point-to-Point Horizontal Accuracy	regionAccy/RegionAccuracyElement/aph	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
UNIAPVn	Unit of Measure for APVn	regionAccy/RegionAccuracyElement/uniapv	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
APVn	Point-to-Point Vertical Accuracy	regionAccy/RegionAccuracyElement/apv	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/
NUM_PTSn	Number of Points in Bounding Polygon	N/A	
LONnm	Longitude/Easting	regionAccy/RegionAccuracyElement/boundaryPoint	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/

LATnm	Latitude/Northing	regionAccy/RegionAccuracyElement/boundaryPoint	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/accpob:ExtendedImageSubheader/

7.2.25 Projection Parameters (PRJPSB)

The PRJPSB contains the projection parameters of the absolute coordinate system when it's a cartographic (grid) coordinate system. The PRJPSB TRE is placed in the file header.

Table 33 — PRJPSB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/
CEL	Length of User-Defined Data		N/A	
PRN	Projection Name	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:method/gml:OperationMethod/gml:name	prn	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/
PCO	Projection Code	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:method/gml:OperationMethod/gml:identifier or /gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:method/gml:OperationMethod/@gml:id	pco	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/
NUM_PRJ	Number of Projection Parameters		N/A	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/

PRJn	Projection Parameter	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue/gml:ParameterValue/gml:value	prj	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/
XOR	Projection False X (Easting) Origin	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue/gml:ParameterValue[gml:operationParameter/gml:OperationParameter/gml:name='False easting']/gml:value	xor	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/
YOR	Projection False Y (Northing) Origin	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue/gml:ParameterValue[gml:operationParameter/gml:OperationParameter/gml:name='False northing']/gml:value	yor	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/prjpsb:DataSetMetadata/

7.2.26 Local Cartographic (x/y) Coordinate System (MAPLOB)

The MAPLOB provides the description of the link between the local coordinate system (rows and columns) and the absolute cartographic coordinate system (Easting and Northing) defined by the GEOPS and the PRJPS. The MAPLOB TRE is placed in the image subheader.

Table 34 — MAPLOB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/
CEL	Length of User-Defined Data		N/A	

UNILOA	Length units	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName or ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/offsetVector/@uomLabels	uniloa	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/
LOD	Easting interval	lengthOf(ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/offsetVector[2])	lod	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/
LAD	Northing interval	lengthOf(ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/offsetVector[1])	lad	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/
LSO	Easting of Reference Origin	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/origin	lso	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/
PSO	Northing of Reference Origin	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/origin	pso	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/maplob:ExtendedImageSubheader/

7.2.27 General Purpose Band Parameters Extension Format (BANDSB)

The BANDSB TRE provides additional parametric data. The BANDSB TRE is placed in the image subheader.

Table 35 — BANDSB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
CEL	Length of User-Defined Data	N/A	
COUNT	Number of Bands	N/A	
RADIOMET RIC QUANTITY	Data Representation	radiometricQuanti ty	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
RADIOMET RIC QUANTITY UNIT	Data Representation Unit	radiometricQuanti tyUnit	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
SCALE FACTOR	Cube Scale Factor	scaleFactor	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ADDITIVE FACTOR	Cube Additive Factor	additiveFactor	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ROW_GSD	Row Ground Sample Distance Nominal Row Spacing	rowGsd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ROW_GSD _UNIT	Units of Row Ground Sample Distance	rowGsd/@uom	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
COL_GSD	Column Ground Sample Distance	colGsd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
COL_GSD_UNITS	Column Ground Sample Distance	colGsd/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_ROW	Spatial Response Function across Rows	sptRespRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_UNIT_ROW	Units of Row Spatial Response	sptRespRow/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP COL	Spatial Response Function across Columns	sptRespCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_UNIT_COL	Units of Row Spatial Response	sptRespCol/@uom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
DATA_FLD_1		N/A	
EXISTENCE_ MASK		N/A	
RADIOMETRIC ADJUSTMENT SURFACE	Adjustment Surface	radiometricAdjustmentSurface	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
ATMOSPHERIC ADJUSTMENT	Adjustment Altitude Above WGS84 Ellipsoid.	atmosphericAdjustmentAltitude	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSub

ALTITUDE			header/ixshd/bandsb:ExtendedImageSubheader/
DIAMETER	Diameter of the lens	diameter	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
DATA_FLD_2		N/A	
WAVE_LENGTH_UNIT	Wave Length Units	N/A	
BANDIDn	Band n Identifier	band/BandElement/bandId	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
BAD_BANDn	Bad Band Flag	band/BandElement/badBand	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
NIIRSn	NIIRS Value	band/BandElement/niirs	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
FOCAL_LENn	Band n Focal length	band/BandElement/focalLen	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
CWAVEn	Band n Center Response Wavelength	band/BandElement/cwave	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
FWHMn	Band n Width	band/BandElement/fwhm	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSub

			header/ixshd/bandsb:ExtendedImageSubheader/
FWHM_UNCn	Band Width Uncertainty	band/BandElement/fwhmUcn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
NOM_WAVEn	Band n Nominal Wavelength	band/BandElement/nomWave	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
NOM_WAVE_UNCn		band/BandElement/nomWaveUcn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
LBOUNDn	Band n Lower Wavelength Bound.	band/BandElement/lbound	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
UBOUNDn	Band n Upper Wavelength Bound.	band/BandElement/ubound	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SCALE FACTORn	Individual Scale Factor	band/BandElement/scaleFactor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
ADDITIVE FACTORn	Individual Additive Factor	band/BandElement/additiveFactor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
START_TIMEn	Start Time	band/BandElement/startTime	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/

INT_ TIMEn	Integration Time	band/BandElement/intTime	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
CALDRKn	Band n Calibration (Dark).	band/BandElement/caldrk	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
CALIBRATI ON SENSITIVI TYn	Band n Calibration (Increment).	band/BandElement/calibrationSens itivity	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ROW_GSD n	Band n Spatial Response Interval by Row.	band/BandElement/rowGsd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ROW_GSD _ UNCn	Band n Spatial Response Interval Uncertainty Row.	band/BandElement/rowGsdUnc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
ROW_GSD _ UNITn	Unit of Row Spacing	N/A	
COL_GSDn	Band n Spatial Response Interval by Column.	band/BandElement/colGsd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
COL_GSD_ UNCn	Band n Spatial Response Interval Uncertainty Column.	band/BandElement/colGsdUnc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/bandsb:Extende dImageSubheader/
COL_GSD_ UNITn	Unit of Column Spacing	N/A	
BKNOISEn	Band n Background Noise.	band/BandElement/bknoise	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SCNNOISEn	Band n Scene Noise	band/BandElement/scnnoise	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_FUNCTION_ROWn	Band n Spatial Response Function across Rows.	band/BandElement/sptRespFunctionRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESPUNC_ROWn	Band n Spatial Response Function Uncertainty.	band/BandElement/sptRespUncRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_UNIT_ROW	Unit of Row Spatial Response.	N/A	
SPT_RESP_FUNCTION_COLn	Band n Spatial Response Function across Columns.	band/BandElement/sptRespFunctionCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESPUNC_COLn	Band n Spatial Response Function Uncertainty.	band/BandElement/sptRespUncCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
SPT_RESP_UNIT_COL	Unit of Column Spatial Response.	N/A	
DATA_FLD_3n		N/A	

DATA_FLD_4n		N/A	
DATA_FLD_5n		N/A	
DATA_FLD_6n		N/A	
NUM_AUX_B	Number of Auxiliary Band Level Parameters(m).	N/A	
NUM_AUX_C	Number of Auxiliary Cube Level Parameters(k).	N/A	
BAPFm	Band Auxiliary Parameter Value Format	N/A	
UBAPm	Unit of Band Auxiliary Parameter	band/BandElement/bandParameter/BandParameterElement/ubap	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
APNmn	Auxiliary Parameter Integer Value	band/BandElement/bandParameter/BandParameterElement/apn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/

APRmn	Auxiliary Parameter Real Value	band/BandElement/bandParameter/BandParameterElement/apr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
APAmn	Auxiliary Parameter Char String Value	band/BandElement/bandParameter/BandParameterElement/apa	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
CAPFk	Cube Auxiliary Parameter Value Format	N/A	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
UCAPk	Unit of Cube Auxiliary Parameter	band/BandElement/cubeParameter/CubeParameterElement/ucap	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
APNk	Auxiliary Parameter Integer Value	band/BandElement/cubeParameter/CubeParameterElement/apn	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
APRk	Auxiliary Parameter Real Value	band/BandElement/cubeParameter/CubeParameterElement/apr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/
APAk	Auxiliary Parameter Char String Value	band/BandElement/cubeParameter/CubeParameterElement/apa	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/bandsb:ExtendedImageSubheader/

7.2.28 Softcopy History version A (HISTOA)

The HISTOA TRE provides information about previous pixel processing actions and the current state of the image pixels. The HISTOA TRE is placed in the image subheader.

Table 36 — HISTOA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
CEL	Length of User-Defined Data		N/A	
SYSTYPE	System Type		systype	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
PC	Prior Compression		pc	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
PE	Prior Enhancements		pe	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
REMAP_FL AG	System Specific Remap		remapFlag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
LUTID	Data Mapping ID from the ESD		lutid	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/histoa:ExtendedI mageSubheader/
NEVENTS	Number of Processing Events		N/A	

PDATE	Processing Date and Time	event/EventElement/pdate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
PSITE	Processing Site	event/EventElement/psite	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
PAS	Softcopy Processing Application	event/EventElement/pas	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
NIPCOM	Number of Image Processing Comments	event/EventElement/nipcom	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
IPCOMn	Image Processing Comment n	event/EventElement/ipcomCollection/Ipcom/ipcomment	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
IBPP	Input Bit Depth (actual)	event/EventElement/ibpp	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
IPVTYPE	Input Pixel Value Type	event/EventElement/ipvType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
INBWC	Input Bandwidth Compression	event/EventElement/inbwc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
DISP_FLAG	Display-Ready Flag	event/EventElement/dispFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
ROT_FLAG	Image Rotation	event/EventElement/rotFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
ROT_ANGLE	Angle of Rotation	event/EventElement/rotAngle	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
ASYM_FLAG	Asymmetric Correction	event/EventElement/asymFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
ZOOMROW	Mag in Line (row) Direction	event/EventElement/zoomRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
ZOOMCOL	Mag in Element (column) Direction	event/EventElement/zoomCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
PROJ_FLAG	Image Projection	event/EventElement/projFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
SHARP_FLAG	Sharpening	event/EventElement/sharpFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
SHARPFAM	Sharpening Family Number	event/EventElement/sharpFam	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/

SHARPMEM	Sharpening Member Number	event/EventElement/sharpMem	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
MAG_FLAG	Symmetrical Magnification	event/EventElement/magFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
MAG_LEVEL	Level of Relative Magnification	event/EventElement/magLevel	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
DRA_FLAG	Dynamic Range Adjustment (DRA)	event/EventElement/draFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
DRA_MULT	DRA Multiplier	event/EventElement/draMult	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
DRA_SUB	DRA Subtractor	event/EventElement/draSub	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
TTC_FLAG	Tonal Transfer Curve (TTC)	event/EventElement/ttcFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
TTCFAM	TTC Family Number	event/EventElement/ttcFam	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
TTCMEM	TTC Member Number	event/EventElement/ttcMem	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/

			ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
DEVLUT_FLAG	Device LUT	event/EventElement/devlutFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
OBPP	Output Bit Depth (actual)	event/EventElement/obpp	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
OPVTYPE	Output Pixel Value Type	event/EventElement/opvType	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/
OUTBWC	Output Bandwidth Compression	event/EventElement/outBwc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/histoa:ExtendedImageSubheader/

7.2.29 Mensuration data (ICHIPB)

The ICHIPB TRE the data needed to mensurate and calculate geopositions of features on chips. The ICHIPB TRE is placed in the image subheader.

Table 37 — ICHIPB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/

CEL	Length of User-Defined Data	N/A	
XFRM_FLAG	Non-linear Transformation Flag	xfrmFlag	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
SCALE_FACTOR	Scale Factor Relative to R0	scaleFactor	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
ANAMRPH_CORR	Anamorphic Correction Indicator	anamrphCorr	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
SCANBLK_NUM	Scan Block Number	scanblkNum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_ROW_11	Output product row number component (1,1)	opRow11	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_COL_11	Output product column number component (1,1)	opCol11	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_ROW_12	Output product row number component (1,2)	opRow12	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_COL_12	Output product column number component (1,2)	opCol12	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/

OP_ROW_21	Output product row number component (2,1)	opRow21	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_COL_21	Output product column number component (2,1)	opCol21	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_ROW_22	Output product row number component (2,2)	opRow22	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
OP_COL_22	Output product column number component (2,2)	opCol22	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_ROW_11	Grid point (1,1), row number	fiRow11	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_COL_11	Grid point (1,1), column number	fiCol11	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_ROW_12	Grid point (1,2), row number	fiRow12	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_COL_12	Grid point (1,2), column number	fiCol12	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_ROW_21	Grid point (2,1), row number	fiRow21	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSub

			header/ixshd/ichipb:ExtendedImageSubheader/
FI_COL_21	Grid point (2,1), column number	fiCol21	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_ROW_22	Grid point (2,2), row number	fiRow22	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_COL_22	Grid point (2,2), column number	fiCol22	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_ROW	Full Image Number of Rows	fiRow	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/
FI_COL	Full Image Number of Columns	fiCol	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/ichipb:ExtendedImageSubheader/

7.2.30 Profile for Imagery Access Image - Version C (PIAIMC)

The PIAIMC TRE provides areas to place fields not currently carried in NITF but are contained in the Standards Profile for Imagery Access (SPIA). The PIAIMC TRE is placed in the image subheader.

Table 38 — PIAIMC TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
CEL	Length of User-Defined Data		N/A	
CEDATA	User-Defined Data		N/A	
CLOUDCVR	Cloud Cover		cloudCvr	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
SRP	Standard Radiometric Product		srp	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
SENSMODE	Sensor Mode		sensMode	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
SENSNAME	Sensor Name		sensName	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
SOURCE	Source		source	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
COMGEN	Compression Generation		comGen	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended

			ImageSubheader/
SUBQUAL	Subjective Quality	subQual	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
PIAMSNNU M	PIA Mission Number	piaMsnNum	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
CAMSPEC S	Camera Specs	camSpecs	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
PROJID	Project ID Code	projId	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
GENERATI ON	Generation	generation	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
ESD	Exploitation Support Data	esd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
OTHERCO ND	Other Conditions	otherCond	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended ImageSubheader/
MEAN GSD	MEANGSD	meanGsd	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/piaimc:Extended

				ImageSubheader/
IDATUM	Image Datum	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName	iDatum	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/piaimc:ExtendedImageSubheader/
IELLIP	Image Ellipsoid	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName	iEllip	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/piaimc:ExtendedImageSubheader/
PREPROC	Image Processing Level Code		preProc	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/piaimc:ExtendedImageSubheader/
IPROJ	Image Projection System	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/@srsName	iProj	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/piaimc:ExtendedImageSubheader/
SATTRACK	Satellite Track		satTrack	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/piaimc:ExtendedImageSubheader/

7.2.31 Stereo Information Extension (STREOB)

The STREOB TRE provides links between several images that form a stereo set to allow exploitation of elevation information. The STREOB TRE is placed in the image subheader.

Table 39 — STREOB TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path

CETAG	Unique Extension Type Identifier	cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
CEL	Length of User-Defined Data	N/A	
ST_ID	Stereo Mate	stdId	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
N_MATES	Number of Stereo Mates	nMates	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
MATE_INS TANCE	Mate Instance	mateInstance	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
B_CONV	Beginning Convergence Angle	bConv	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
E_CONV	Ending Convergence Angle	eConv	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
B_ASYM	Beginning Asymmetry Angle	bAsym	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
E_ASYM	Ending Asymmetry Angle	eAsym	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/

B_BIE	Beginning Bisector Intercept Elevation less Convergence Angle of Stereo Mate		bBie	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/
E_BIE	Ending Bisector Intercept Elevation less Convergence Angle of Stereo Mate.		eBie	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/streob:Extended ImageSubheader/

7.2.32 Rapid Positioning Capability (RPC00B)

The RPC00B TRE contains rational function polynomial coefficients and normalization parameters that define the physical relationship between image coordinates and ground coordinates. The RPC00B TRE is placed in the image subheader.

Table 40 — RPC00B TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/rpc00b:Extende dImageSubheader/
CEL	Length of User-Defined Data		N/A	
SUCCESS			success	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/rpc00b:Extende dImageSubheader/
ERR_BIAS	Error - Bias		errBias	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/rpc00b:Extende

				dImageSubheader/
ERR_RAND	Error - Random		errRand	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LINE_OFF	Line Offset	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low	lineOff	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
SAMP_OFF	Sample Offset	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:low	sampOff	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LAT_OFF	Geodetic Latitude Offset	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:origin Optional: gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner	offset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LONG_OFF	Geodetic Longitude Offset	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:origin Optional: gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:lowerCorner	offset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
HEIGHT_OFF	Geodetic Height Offset	ntf:RectifiedGridCoverage/gml:rectifiedGridDomain/gml:RectifiedGrid/gml:origin	offset	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/

LINE_SCALE	Line Scale	ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high (lineScale + lineOff)	lineScale	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
SAMP_SCALE	Sample Scale	ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:limits/gml:GridEnvelope/gml:high (sampScale + sampOff)	sampScale	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LAT_SCALE	Geodetic Latitude Scale	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector Optional: gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner (offset + latScale)	posScale	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LONG_SCALE	Geodetic Longitude Scale	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector Optional: gjp2:RootFeatureCollection/gjp2:featureMember/gjp2:CodeStreamData/gjp2:coverage/ntf:RectifiedGridCoverage/gml:boundedBy/gml:Envelope/gml:upperCorner (offset + latScale)	posScale	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
HEIGHT_SCALE	Geodetic Height Scale	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector	posScale	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LINE_NUM_COEFF_N	Line Numerator Coefficients	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector	lineNumCoeff	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
LINE_DEN_COEFF_N	Line Denominator Coefficients	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:R	lineDenCoeff	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/

		ectifiedGrid/gml:offsetVector		ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
SAMP_NUM_COEFF_N	Sample Numerator Coefficients	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector	sampNumCoeff	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/
SAMP_DEN_COEFF_N	Sample Denominator Coefficients	Approximate mapping to the ntf:RectifiedGridCoverage/ gml:rectifiedGridDomain/gml:RectifiedGrid/gml:offsetVector	sampDenCoeffCollection	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2:CodeStreamData/ ntf:imageMetadata/ImageSubheader/ixshd/rpc00b:ExtendedImageSubheader/

The RPC is also known as an approximation of Rigorous Projection Model. A Rigorous Projection Model expresses the mapping of the image space coordinates of rows and columns (r, c) onto the surface geodetic coordinates (lat, long, height).

The RPC defines a set of rational polynomials that describes function of normalized row and column (rn, cn) and geodetic normalized coordinates (latN, longN, heightN):

latN = (lat - LAT_OFF) / LAT_SCALE

longN = (long - LONG_OFF) / LONG_SCALE

heightN = (height - HEIGHT_OFF) / HEIGHT_SCALE

rn = (r - LINE_OFF) / LINE_SCALE

cn = (c - SAMP_OFF) / SAMP_SCALE

$$rn = rowFunctionN(latN, longN, heightN) = \left(\sum_{i=1}^{20} LINE\_NUM\_COEF_i * f_i(latN, longN, heightN) \right) / \left(\sum_{i=1}^{20} LINE\_DEN\_COEF_i * f_i(latN, longN, heightN) \right)$$

$$cn = columnFunctionN(latN, longN, heightN) = \left(\sum_{i=1}^{20} SAMP\_NUM\_COEF_i * f_i(latN, longN, heightN) \right) / \left(\sum_{i=1}^{20} SAMP\_DEN\_COEF_i * f_i(latN, longN, heightN) \right)$$

$$\sum_{i=1}^{20} C_i * f_i(latN, longN, heightN) = C_1 + C_2 * longN + C_3 * latN + C_4 * heightN + C_5 * longN * latN + C_6 * longN * heightN + C_7 * latN * heightN + C_8 * longN^2 + C_9 * latN^2 + C_{10} * heightN^2 + C_{11} * longN * latH * heightN + C_{12} * longN^{3+} C_{13} * longN * latN^2 + C_{14} * longN * heightN^2 + C_{15} * longN^2 * latN + C_{16} * latN^3 + C_{17} * latN * heightN^2 + C_{18} * longN^2 * heightN + C_{19} * latN^2 * heightN + C_{20} * heightN^3$$

Coefficients $C_{1...}$ C_{20} represent the following sets of coefficients:

LINE_NUM_COEF_n, LINE_DEN_COEF_n, SAMP_NUM_COEF_n, SAMP_DEN_COEF_n (see above table)

In order to provide the exact mapping to the GMLJP rectified grid model one would have to find the inverse transformations. They would be used to calculate offset vectors between 2 adjacent rows and columns. In addition, the height would have to be assumed to be constant (e.g. average height).

The following formulas apply:

lat = latitudeFunction(r, c) = latitudeFunctionN (rn, cn) * LAT_SCALE + LAT_OFF

long = longitudeFunction(r, c) = longitudeFunctionN (rn, cn) * LONG_SCALE + LONG_OFF

r = rn * LINE_SCALE + LINE_OFF

c = cn * SAMP_SCALE + SAMP_OFF

The offset vectors are:

offsetVector[2] = offsetVectorLat $_i$ = latitudeFunction (r_{i+1} , c_i) - latitudeFunction (r_i , c_i) = const

offsetVector[1] = offsetVectorLong $_i$ = longitudeFunction (r_i , c_{i+1}) - latitudeFunction (r_i , c_i) = const

height = const.

Depending on the value of coefficients ($C_{1...}$ C_{20}), sometimes it would be possible to find inverse transformations but in most cases that would not be possible. Even if it is possible to find inverse functions, the offset vectors might not be constant which is requirement for the RectifiedGrid model. In cases where the inverse functions exist, one can find RectifiedGrid's offset vectors only if those offset vectors are constants.

In general case, some approximation algorithm could be applied to find offset vectors. If those offset vectors are not constant then finding some kind of "average" offsetVectors alhorithm may be applied. This approximation process introduces some error margin and that might not be acceptable by all intended usages of the RectifiedGrid model.

It should be noted that potentially RPC can be mapped to other Grid models (e.g. GML3.3. provides referenceable grid model) instead of RectifiedGrid model specified in GML3.2. In the referenceable grid model, the grid curves do not have to be straight or orthogonal. Grid cells could be of different shapes and sizes but they should preserve grid topology.

Example to calculate offset vector:

This example assumes that one can find inverse transformation.

Assume:

LINE_DEN_COEFF = SAMP_DEN_COEFF = C1 = C_4 = C_5 = … = C20 = 0 then

the following equations apply:

rn = A_2 * longN + A_3 * latN

cn = B_2 * longN + B_3 * latN

r = rn * LINE_SCALE + LINE_OFF

c = cn * SAMP_SCALE + SAMP_OFF

The offsetVectors are:

offsetVector[1] = A_2/ (SAMP_SCALE * (B_3 * A_2 – B_2 * A_3))

offsetVector[2] = B_3/ (LINE_SCALE * (B_3 * A_2 – B_2 * A_3))

7.2.33 JPEG 2000 Layers (J2KLRA)

The J2KLRA TRE provides support information for JPEG 2000 compressed files. The J2KLRA TRE is placed in the image subheader.

Table 41 — J2KLRA TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/j2klra:ExtendedI mageSubheader/
CEL	Length of User-Defined Data		N/A	
ORIG	Original compressed data		orig	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/j2klra:ExtendedI mageSubheader/
NLEVELS_ O	Number of wavelet levels in original image		N/A	
NBANDS_ O	Number of bands in original image		nBandsO	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/j2klra:ExtendedI mageSubheader/
NLAYERS_ O	Number of layers in original image		nLayersO	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/j2klra:ExtendedI mageSubheader/
LAYER_ID n	Layer ID Number		layer/LayerEle ment/layerId	gmljp2:RootFeatureCollection/ gmljp2:featureMember/gmljp2 :CodeStreamData/ ntf:imageMetadata/ImageSub header/ixshd/j2klra:ExtendedI mageSubheader/

BITRATEn	Bitrate	layer/LayerElement/bitrate	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/j2klra:ExtendedImageSubheader/
NLEVELS_I	Number of wavelet levels in this image	nLevelsI	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/j2klra:ExtendedImageSubheader/
NBANDS_I	Number of bands in this image	nBandsI	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/j2klra:ExtendedImageSubheader/
NLAYERS_I	Number of layers in this image	nLayersI	gmljp2:RootFeatureCollection/gmljp2:featureMember/gmljp2:CodeStreamData/ntf:imageMetadata/ImageSubheader/ixshd/j2klra:ExtendedImageSubheader/

7.2.34 Profile for Imagery Access Product Support Extension - Version D (PIAPRD)

The PIAPRD TRE provides information regarding the products derived from source imagery. The PIAPRD TRE is placed in the file header.

Table 42 — PIAPRD TRE

Field	Name	GMLJP2 Rectified Grid Coverage mapping	GMLJP2 property	GMLJP2 path
CETAG	Unique Extension Type Identifier		cetag	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/

CEL	Length of User-Defined Data	N/A	
CEDATA		N/A	
ACCESSID	Access ID	accessId	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
FMCONTROL	FM Control Number	fmControl	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
SUBDET	Subjective Detail	subDet	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
PRODCODE	Product Code	prodCode	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
PRODUCERSE	Producer Supplement	producerSe	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
PRODIDNO	Product ID Number	prodIdNo	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata//
PRODSNME	Product Short Name	prodSnme	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
PRODUCERCD	Producer Code	producerCd	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/
PRODCRTIME	Product Create Time	prodCrTime	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/

			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
MAPID	Map ID	mapId	FileHeader/xhd/piaprd:DataSetMetadata/
SECTITLEREP	SECTITLE Repetitions	N/A	
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
SECTITLEnn	Section Title	section/SectionElement/secTitle	FileHeader/xhd/piaprd:DataSetMetadata/
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
PPNUMnn	Page/Part Number	section/SectionElement/ppNum	FileHeader/xhd/piaprd:DataSetMetadata/
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
TPPnn	Total Pages/Parts	section/SectionElement/tpp	FileHeader/xhd/piaprd:DataSetMetadata/
REQORGREP	REQORG Repetitions	N/A	
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
REQORGnn	Requesting Organization	reqOrg[nn]	FileHeader/xhd/piaprd:DataSetMetadata/
KEYWORDREP	KEYWORD Repetitions	N/A	
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
KEYWORDnn	Keyword String nn	keyword[nn]	FileHeader/xhd/piaprd:DataSetMetadata/
ASSRPTREP	ASSRPT Repetitions	N/A	
			gmljp2:RootFeatureCollection/ ntf:sourceFileMetadata/
ASSRPTnn	Associated Report nn	assRpt[nn]	FileHeader/xhd/piaprd:DataSetMetadata/

ATEXTREP	ATEXT Repetitions	N/A	
ATEXTnn	Associated Text nn	aText	gmljp2:RootFeatureCollection/ntf:sourceFileMetadata/FileHeader/xhd/piaprd:DataSetMetadata/

8 Potential future activities

- Define OGC namespace URI for all NITF and TRE schemas.
- Investigate mapping of the NITF Security Metadata to the GMLJP2 security format.
- Investigate a level of support and mapping for the NITF Graphics segments. The annotation language should be chosen and then mapped the CGM format to the selected language.
- Consider using schematron assertions or XML schema 1.1 assertions to enforce business rules (higher level validation than schema validation). E.g. some conditional constraints like values or existence of certain fields depends on other fields in the NITF can be expressed as expressions.
- Investigate potential maping of the RPC00B TRE to the GML3.3 ReferenceableGrid model instead of the RectifiedGrid model specified in GML3.2. In this model, the grid curves do not have to be straight or orthogonal. Grid cells could be of different shapes and sizes but they should preserve grid topology.

Annex B

XML Schema Documents

(NORMATIVE)

In addition to this document, this report includes several XML Schema Documents. These XML Schema Documents are bundled in a zip file with the present document.

Annex C

CRS Dictionary

(INFORMATIVE)

Example 1: *Mapping geodetic GEOPSB (DIGEST_Example2) to GML CRS Dictionary*

Table 43 — GEOPSB values

Field	Value	Comment
CETAG	GEOPSB	
CEL	00443	
TYP	GEO	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:ellipsoidalCS/gml:EllipsoidalCS/gml:axis/gml:CoordinateSystemAxis/@uom
UNI	DEG	DEG maps to uom="urn:ogc:def:uom:EPSG::9122" which denotes degree UOM.
DAG	World Geodetic System 1984	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:name /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:identifier
DCD	WGE	WGE correponds to gml:id="epsg-datum-6326" and

		gml:identifier=urn:ogc:def:datum:EPSG::6326
ELL	World Geodetic System 1984	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/gml:name /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum//gml:ellipsoid/gml:Ellipsoid/gml:identifier
ELC	WE	WE correposnd to gml:id="epsg-ellipsoid-7030" and gml:identifier=" urn:ogc:def:ellipsoid:EPSG::7030"
DVR		
VDCDVR		
SDA		
VDCSDA		
ZOR	000000000000000	
GRD		
GRN		
ZNA	0000	

Corresponding CRS Dictionary should look like:

```
<?xml version="1.0" encoding="UTF-8"?>
<gml:Dictionary gml:id="release-7.11.1" xmlns:epsg="urn:x-ogp:spec:schema-
xsd:EPSG:1.0:dataset" xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns="http://www.opengis.net/gml/3.2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/gml/3.2
./gml3.2.1/ISO_19136_Schemas/gml.xsd">
 <gml:identifier codeSpace="NITF">release-7.11.1</gml:identifier>
 <gml:dictionaryEntry>
  <GeodeticCRS gml:id="epsg-crs-4326">
   <identifier codeSpace="OGP">urn:ogc:def:crs:EPSG::4326</identifier>
   <scope>not known</scope>
   <ellipsoidalCS xlink:href="urn:ogc:def:cs:EPSG::6422"/>
   <geodeticDatum xlink:href="urn:ogc:def:datum:EPSG::6326"/>
  </GeodeticCRS>
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <EllipsoidalCS gml:id="epsg-cs-6422">
   <identifier codeSpace="OGP">urn:ogc:def:cs:EPSG::6422</identifier>
   <axis>
    <CoordinateSystemAxis gml:id="epsg-axis-106"
uom="urn:ogc:def:uom:EPSG::9122">
     <identifier codeSpace="OGP">urn:ogc:def:axis:EPSG::106</identifier>
     <axisAbbrev>Lat</axisAbbrev>
     <axisDirection codeSpace="EPSG">north</axisDirection>
    </CoordinateSystemAxis>
   </axis>
   <axis>
    <CoordinateSystemAxis gml:id="epsg-axis-107"
uom="urn:ogc:def:uom:EPSG::9122">
     <identifier codeSpace="OGP">urn:ogc:def:axis:EPSG::107</identifier>
     <axisAbbrev>Long</axisAbbrev>
     <axisDirection codeSpace="EPSG">east</axisDirection>
    </CoordinateSystemAxis>
   </axis>
  </EllipsoidalCS>
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <GeodeticDatum gml:id="epsg-datum-6326">
```

```
    <identifier codeSpace="OGP">urn:ogc:def:datum:EPSG::6326</identifier>
    <name>World Geodetic System 1984</name>
    <scope>Satellite navigation.</scope>
    <anchorDefinition>Defined through a consistent set of station coordinates. These have
changed with time: by 0.7m on 29/6/1994 [WGS 84 (G730)], a further 0.2m on
29/1/1997 [WGS 84 (G873)] and a further 0.06m on 20/1/2002 [WGS 84
(G1150)].</anchorDefinition>
    <realizationEpoch>1984-01-01</realizationEpoch>
    <primeMeridian xlink:href="urn:ogc:def:meridian:EPSG::8901"/>
    <ellipsoid xlink:href="urn:ogc:def:ellipsoid:EPSG::7030"/>
  </GeodeticDatum>
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <Ellipsoid gml:id="epsg-ellipsoid-7030">
    <identifier codeSpace="OGP">urn:ogc:def:ellipsoid:EPSG::7030</identifier>
    <name>World Geodetic System 1984</name>
    <remarks>Inverse flattening derived from four defining parameters (semi-major axis;
C20 = -484.16685*10e-6; earth's angular velocity w = 7292115e11 rad/sec; gravitational
constant GM = 3986005e8 m*m*m/s/s).</remarks>
    <semiMajorAxis uom="urn:ogc:def:uom:EPSG::9001">6378137</semiMajorAxis>
    <secondDefiningParameter>
      <SecondDefiningParameter>
        <inverseFlattening
uom="urn:ogc:def:uom:EPSG::9201">298.257223563</inverseFlattening>
      </SecondDefiningParameter>
    </secondDefiningParameter>
  </Ellipsoid>
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <PrimeMeridian gml:id="epsg-meridian-8901">
    <identifier codeSpace="OGP">urn:ogc:def:meridian:EPSG::8901</identifier>
    <name>Greenwich</name>
    <greenwichLongitude
uom="urn:ogc:def:uom:EPSG::9102">0</greenwichLongitude>
  </PrimeMeridian>
 </gml:dictionaryEntry>
</gml:Dictionary>
```

The GEOPSB metadata stored in the file header extension would be:

```
<?xml version="1.0" encoding="UTF-8"?>
<geopsb:DataSetMetadata xmlns:geopsb="http://www.example.org/nitf/tre/geopsb"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.example.org/nitf/tre/geopsbTRE.xsd">
 <geopsb:cetag>GEOPSB</geopsb:cetag>
```

```
 <geopsb:srsName>urn:ogc:def:crs:EPSG::4326</geopsb:srsName>
 <geopsb:zor>000000000000000</geopsb:zor>
 <geopsb:zna>0000</geopsb:zna>
</geopsb:DataSetMetadata>
```

There is some mismatch between structure of the GML CRS dictionary and the GEOPSB TRE values. The GML CRS dictionary is a superset of the GEOPSB TRE. If the GEOPSB describes some CRS that is well known and part of published and managed CRS definitions (e.g. OGP CRS registry) that CRS dictionary should just include those definitions or references. Otherwise, in order to construct valid CRS dictionary values one would have to rely on GMLJP2 creator to construct missing mandatory fields.

Example 2: ***Mapping GEOPSB and GEOPRJ (DIGEST_Example1) to GML CRS Dictionary***

Table 44 — GEOPSB values

Field	Value	Comment
CETAG	GEOPSB	
CEL	00443	
TYP	DIG	/gml:Dictionary/gml:dictionaryEntry/gml:CompundCRS/gml:componenetReferenceSystem/gml:GeodeticCRS /gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:cartesianCS/gml:CoordinateSystemAxis/@uom
UNI	M	M maps to uom="urn:ogc:def:uom:EPSG::9001" which denotes meter UOM.
DAG	World Geodetic System 1984	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:name

		/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:identifier
DCD	WGE	WGE correponds to gml:id="epsg-datum-6326" and gml:identifier=urn:ogc:def:datum:EPSG::6326
ELL	World Geodetic System 1984	/gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/gml:name /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum/gml:ellipsoid/gml:Ellipsoid/@gml:id and /gml:Dictionary/gml:dictionaryEntry/gml:GeodeticCRS/gml:geodeticDatum/gml:GeodeticDatum//gml:ellipsoid/gml:Ellipsoid/gml:identifier
ELC	WE	WE correposnd to gml:id="epsg-ellipsoid-7030" and gml:identifier=" urn:ogc:def:ellipsoid:EPSG::7030"
DVR	Geodetic	gml:CompoundCRS/gml:componentReferenceSystem[2]/@xlink:href
VDCDVR	GEOD	
SDA		
VDCSDA		
ZOR	000000000000000	
GRD	UT	

GRN	
ZNA	0012

Table45 — PRJPSB values

Field	Value	Comment
CETAG	PRJPSB	
CEL	00158	
PRN	Transverse Mercator	/gml:Dictionary/gml:dictionaryEntry/gml:CompundCRS/gml:componentReferenceSystem/gml:ProjectedCRS/gml:conversion /gml:Conversion/gml:method/gml:Operationmethod/gml:name /gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:method/gml:OperationMethod/gml:identifier or @gml:id
PCO	TC	TC maps to “urn:ogc:def:crs:EPSG::32610”
NUM_PRJ	3	
PRJ[0]	-0000111.000000	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue[1]/gml:ParameterValue/gml:value

PRJ[1]	00000000.999600	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue[2]/gml:ParameterValue/gml:value
PRJ[2]	00000000.000000	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue[3]/gml:ParameterValue/gml:value
XOR	000000000500000	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion /gml:Conversion/gml:parameterValue[4]/gml:ParameterValue/gml:value
YOR	000000000000000	/gml:Dictionary/gml:dictionaryEntry/gml:ProjectedCRS/gml:conversion/gml:Conversion/gml:parameterValue[5]/gml:ParameterValue/gml:value

The corresponding GML CRS Dictionary would look like:

```
<?xml version="1.0" encoding="UTF-8"?>

<gml:Dictionary gml:id="release-7.11.1" xmlns:epsg="urn:x-ogp:spec:schema-
xsd:EPSG:1.0:dataset" xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns="http://www.opengis.net/gml/3.2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/gml/3.2
./gml3.2.1/ISO_19136_Schemas/gml.xsd">
 <gml:identifier codeSpace="NITF">release-7.11.1</gml:identifier>
 <gml:dictionaryEntry>
  <CompoundCRS gml:id="custom-crs-123">
   <identifier codeSpace="ABC">urn:ogc:def:crs:CUSTOM::123</identifier>
   <scope>not known</scope>
   <componentReferenceSystem xlink:href="urn:ogc:def:crs:EPSG::32610"/>
   <componentReferenceSystem xlink:href="urn:ogc:def:crs:EPSG::5798"/>
  </CompoundCRS>
```

```
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <ProjectedCRS gml:id="epsg-crs-32610">
   <identifier codeSpace="OGP">urn:ogc:def:crs:EPSG::32610</identifier>
   <name>WGS 84 / UTM zone 10N</name>
   <scope>Large and medium scale topographic mapping and engineering
survey.</scope>
   <conversion xlink:href="urn:ogc:def:coordinateOperation:EPSG::16010"/>
   <baseGeodeticCRS xlink:href="urn:ogc:def:crs:EPSG::4326"/>
   <cartesianCS xlink:href="urn:ogc:def:cs:EPSG::4400"/>
  </ProjectedCRS>
 </gml:dictionaryEntry>
 <gml:dictionaryEntry>
  <Conversion gml:id="epsg-op-16010">
   <identifier
codeSpace="OGP">urn:ogc:def:coordinateOperation:EPSG::16010</identifier>
   <name>UTM zone 10N</name>
   <scope>Large and medium scale topographic mapping and engineering
survey.</scope>
   <coordinateOperationAccuracy>
    <gmd:DQ_RelativeInternalPositionalAccuracy>
     <gmd:result>
      <gmd:DQ_QuantitativeResult>
       <gmd:valueUnit xlink:href="urn:ogc:def:uom:EPSG::9001"/>
       <gmd:value>
        <gco:Record>
         <gco:Decimal>0</gco:Decimal>
        </gco:Record>
       </gmd:value>
      </gmd:DQ_QuantitativeResult>
     </gmd:result>
    </gmd:DQ_RelativeInternalPositionalAccuracy>
   </coordinateOperationAccuracy>
   <method xlink:href="urn:ogc:def:method:EPSG::9807"/>
   <parameterValue>
    <ParameterValue>
     <value uom="urn:ogc:def:uom:EPSG::9102">-111</value>
     <operationParameter xlink:href="urn:ogc:def:parameter:EPSG::8801"/>
    </ParameterValue>
   </parameterValue>
   <parameterValue>
    <ParameterValue>
     <value uom="urn:ogc:def:uom:EPSG::9102">0.9996</value>
     <operationParameter xlink:href="urn:ogc:def:parameter:EPSG::8802"/>
    </ParameterValue>
```

```
    </parameterValue>
    <parameterValue>
     <ParameterValue>
      <value uom="urn:ogc:def:uom:EPSG::9201">0</value>
      <operationParameter xlink:href="urn:ogc:def:parameter:EPSG::8805"/>
     </ParameterValue>
    </parameterValue>
    <parameterValue>
     <ParameterValue>
      <value uom="urn:ogc:def:uom:EPSG::9001">500000</value>
      <operationParameter>
       <OperationParameter gml:id="epsg-param-8806">
        <identifier codeSpace="OGP">urn:ogc:def:parameter:EPSG::8806</identifier>
        <name>False easting</name>
       </OperationParameter>
      </operationParameter>
     </ParameterValue>
    </parameterValue>
    <parameterValue>
     <ParameterValue>
      <value uom="urn:ogc:def:uom:EPSG::9001">0</value>
      <operationParameter>
       <OperationParameter gml:id="epsg-param-8807">
        <identifier codeSpace="OGP">urn:ogc:def:parameter:EPSG::8807</identifier>
        <name>False northing</name>
       </OperationParameter>
      </operationParameter>
     </ParameterValue>
    </parameterValue>
   </Conversion>
  </gml:dictionaryEntry>
  <gml:dictionaryEntry>
   <OperationMethod gml:id="ogp-method-9807">
    <identifier codeSpace="OGP">urn:ogc:def:method:EPSG::9807</identifier>
    <name>Transverse Mercator</name>
    <formula>Put formula here</formula>
    <generalOperationParameter xmlns:xlink="http://www.w3.org/1999/xlink"
xlink:href="urn:ogc:def:parameter:EPSG::8801"/>
    <generalOperationParameter xmlns:xlink="http://www.w3.org/1999/xlink"
xlink:href="urn:ogc:def:parameter:EPSG::8802"/>
    <generalOperationParameter xmlns:xlink="http://www.w3.org/1999/xlink"
xlink:href="urn:ogc:def:parameter:EPSG::8805"/>
    <generalOperationParameter xmlns:xlink="http://www.w3.org/1999/xlink"
xlink:href="urn:ogc:def:parameter:EPSG::8806"/>
    <generalOperationParameter xmlns:xlink="http://www.w3.org/1999/xlink"
xlink:href="urn:ogc:def:parameter:EPSG::8807"/>
```

```
  </OperationMethod>
 </gml:dictionaryEntry>
</gml:Dictionary>
```

The GEOPSB metadata stored in the file header extension would be:

```
<?xml version="1.0" encoding="UTF-8"?>
<geopsb:DataSetMetadata xmlns:geopsb="http://www.example.org/nitf/tre/geopsb"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.example.org/nitf/tre/geopsb GEOPSB-TRE.xsd">
 <geopsb:cetag>GEOPSB</geopsb:cetag>
 <geopsb:srsName>urn:ogc:def:crs:EPSG::4326</geopsb:srsName>
 <geopsb:dvr>Geodetic</geopsb:dvr>
 <geopsb:vdcDvr>GEOD</geopsb:vdcDvr>
 <geopsb:zor>000000000000000</geopsb:zor>
 <geopsb:grd>UT</geopsb:grd>
 <geopsb:zna>0012</geopsb:zna>
</geopsb:DataSetMetadata>
```

The PRJPSB metadata stored in the file header extension would be:

```
<?xml version="1.0" encoding="UTF-8"?>
<prjpsb:DataSetMetadata xmlns:prjpsb="http://www.example.org/nitf/tre/prjpsb"
xmlns:ntf="http://www.example.org/nitf" xmlns:tre="http://www.example.org/nitf/tre"
xmlns:ntft="http://www.example.org/nitf/types"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:gmljp2="http://www.opengis.net/gmljp2/2.0"
xmlns:ows="http://www.opengis.net/ows/2.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.example.org/nitf/tre/prjpsb PRJPSB-TRE.xsd">
<prjpsb:cetag>PRJPSB</prjpsb:cetag>
<prjpsb:prn>Transverse Mercator</prjpsb:prn>
<prjpsb:pco>TC</prjpsb:pco>
<prjpsb:prj>-0000111.000000</prjpsb:prj>
<prjpsb:prj>00000000.999600</prjpsb:prj>
<prjpsb:prj>00000000.000000</prjpsb:prj>
<prjpsb:xor>000000000500000</prjpsb:xor>
<prjpsb:yor>000000000000000</prjpsb:yor>
</prjpsb:DataSetMetadata>
```

Annex D

Mapping example

(INFORMATIVE)

This example provides the GMLJP2 mapping of the following NITF file "Tactical_Simple_EO" provided as a part of OWS9 sample files:

MAIN HEADER FILE
*****February 13, 2012*****
SUT-> FHDR: NITF02.10
SUT-> CLEVEL: 05
SUT-> STYPE: BF01
SUT-> OSTAID: JITC
SUT-> FDT: 20050303212848
SUT-> FTITLE: Free_Text_NITF_Tactical_EO_Example
SUT-> FSCLAS: U
SUT-> FSCLSY:
SUT-> FSCODE:
SUT-> FSCTLH:
SUT-> FSREL:
SUT-> FSDCTP:
SUT-> FSDCDT:
SUT-> FSDCXM:
SUT-> FSDG:
SUT-> FSDGDT:
SUT-> FSCLTX:
SUT-> FSCATP:
SUT-> FSCAUT:
SUT-> FSCRSN:
SUT-> FSSRDT:
SUT-> FSSRDT:
SUT-> FSCOP: 00000
SUT-> FSCPYS: 00000
SUT-> ENCRYP: 0
SUT-> FBKGC: 0 0 0
SUT-> ONAME: Free Text JITC NITFS CTE
SUT-> OPHONE: 520-538-5458 (FT)
SUT-> FL: 000001120195

SUT-> HL: 000404
SUT-> NUMI: 001
SUT-> LISH001: 001159
SUT-> LI001: 0001118632
SUT-> NUMS: 000
SUT-> NUMX: 000
SUT-> NUMT: 000
SUT-> NUMDES: 000
SUT-> NUMRES: 000
SUT-> UDHDL: 00000
SUT-> XHDL: 00000

****

Image SUBHEADER 001

SUT-> IM: IM
SUT-> IID: FT_JITC
SUT-> IDATIM: 20050303212848
SUT-> TGTID: FT Not Populated
SUT-> ITITLE: Free Text Not Populated may contain an Image ID.
SUT-> ISCLAS: U
SUT-> ISCLSY:
SUT-> ISCODE:
SUT-> ISCTLH:
SUT-> ISREL:
SUT-> ISDCTP:
SUT-> ISDCDT:
SUT-> ISDCXM:
SUT-> ISDG:
SUT-> ISDGDT:
SUT-> ISCLTX:
SUT-> ISCATP:
SUT-> ISCAUT:
SUT-> ISCRSN:
SUT-> ISSRDT:
SUT-> ISSRDT:
SUT-> ENCRYP: 0
SUT-> ISORCE: Free Text may contain source information
SUT-> NROWS: 00005040
SUT-> NCOLS: 00005040
SUT-> PVTYPE: INT
SUT-> IREP: MONO
SUT-> ICAT: EO

SUT-> ABPP: 08
SUT-> PJUST: R
SUT-> ICORDS: G
SUT-> IGEOLO:
335219N1175001W345249N1181218W345232N1180840W331912N1172041W
SUT-> NICOM: 1
SUT-> ICOM1:
SUT-> IC: C3
SUT-> COMRAT: 00.0
SUT-> NBANDS: 1
SUT-> IREPBAND1: M
SUT-> ISUBCAT1:
SUT-> IFC1: N
SUT-> IMFLT1:
SUT-> NLUTS1: 0
SUT-> ISYNC: 0
SUT-> IMODE: B
SUT-> NBPR: 0008
SUT-> NBPC: 0001
SUT-> NPPBH: 0632
SUT-> NPPBV: 5040
SUT-> NBPP: 08
SUT-> IDLVL: 001
SUT-> IALVL: 000
SUT-> ILOC: 0000000000
SUT-> IMAG: 1.0
SUT-> UDIDL: 00000
SUT-> IXSHDL: 00576
SUT-> IMOFW: 000

****

SUT-> CETAG: ACFTB
SUT-> CEL: 00207

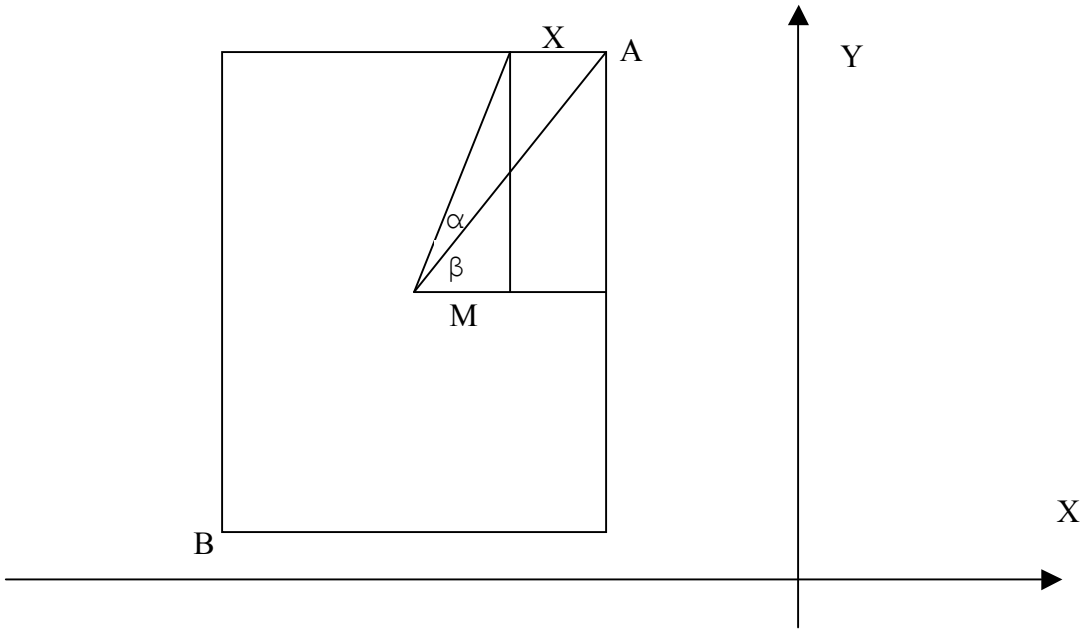
****
****
SUT-> AC_MSN_ID: NOT AVAILABLE
SUT-> AC_TAIL_NO:
SUT-> AC_TO:
SUT-> SENSOR_ID_TYPE: VMFR
SUT-> SENSOR_ID: JITC

```
SUT-> SCENE_SOURCE:
SUT-> SCNUM:            000000
SUT-> PDATE:            20050303
SUT-> IMHOSTNO:         999999
SUT-> IMREQID:          99999
SUT-> MPLAN:            006
SUT-> ENTLOC:           003657.6622N0020405.2697W
SUT-> LOC_ACCY:
SUT-> ENTELV:
SUT-> ELV_UNIT:         f
SUT-> EXITLOC:          003646.6806N0020410.1732W
SUT-> EXITELV:          +29240
SUT-> TMAP:
SUT-> ROW_SPACING:      0021.87
SUT-> ROW_SPACING_UNITS:  r
SUT-> COL_SPACING :     0021.87
SUT-> COL_SPACING_UNITSG: r
SUT-> FOCAL_LENGTH:     045.72
SUT-> SENSERIAL:        808529
SUT-> ABSWVER:
SUT-> CAL_DATE:
SUT-> PATCH_TOT:        0000
SUT-> MTI_TOT:          000


**********

SUT-> CETAG:        AIMIDB
SUT-> CEL:          00089




**********************************************************************
**********
SUT-> ACQUISITION_DATE:       20050303212848
SUT-> MISSION_NO:             UNKN
SUT-> MISSION_IDENTIFICATION:  NOT AVAIL.
SUT-> FLIGHT_NO:              00
SUT-> OP_NUM:                 002
SUT-> CURRENT_SEGMENT:        AA
SUT-> REPRO_NUM:              00
SUT-> REPLAY:                 000
SUT-> reserved-001:
SUT-> START_TILE_COLUMN:      001
```

```
SUT-> START_TILE_ROW:        00001
SUT-> END_SEGMENT:           AA
SUT-> END_TILE_COLUMN:       001
SUT-> END_TILE_ROW:          00001
SUT-> COUNTRY:
SUT-> reserved-002:
SUT-> LOCATION:              3439N11804W
SUT-> reserved-002:


*************************

SUT-> CETAG:       MSTGTA
SUT-> CEL:         00101



**********************************************************************
**********
SUT->TGT_NUM:                99999
SUT->TGT_ID:                 Manual Mode
SUT->TGT_BE:                 NA
SUT->TGT_PRI:
SUT->TGT_REQ:
SUT->TGT_LTIOV:
SUT->TGT_TYPE:               2
SUT->TGT_COLL:               4
SUT->TGT_CAT:
SUT->TGT_UTC:
SUT->TGT_ELEV:               +02894
SUT->TGT_ELEV_UNIT:          f
SUT->TGT_LOC:                350520.25N1180921.73W


**********************************************************************
**********


*************************

SUT-> CETAG:       SENSRA
SUT-> CEL:         00132
SUT-> REF_ROW:
SUT-> REF_COL:
SUT-> SENSOR_MODEL:      JITC
```

SUT-> SENSOR_MOUNT:
SUT-> SENSOR_LOC: 351520.29N1182103.52W
SUT-> SENSOR_ALT_SOURCE: B
SUT-> SENSOR_ALT: +26616
SUT-> SENSOR_ALT_UNIT: f
SUT-> SENSOR_AGL: 23722
SUT-> SENSOR_PITCH: +00.000
SUT-> SENSOR_ROLL: +010.476
SUT-> SENSOR_YAW: +090.275
SUT-> PLATFORM_PITCH: +04.362
SUT-> PLATFORM_ROLL: -004.268
SUT-> PLATFORM_HDG: 069.5
SUT-> GROUND_SPD_SOURCE: N
SUT-> GROUND_SPD: 0715.0
SUT-> GROUND_SPD_UNIT: f
SUT-> GROUND_TRACK: 069.6
SUT-> VERT_VEL: -0111
SUT-> VERT_VEL_UNIT: f
SUT-> SWATH_FRAMES: 0008
SUT-> N_SWATHS:
SUT-> SPOT_NUM: 002

Mapping the ACFTB TRE requires some calculations to obtain the rectified grid parameters:



Where: A = Entry point location (ENTLOC) = (Ax, Ay) = (-2.06813, 0.61602)

B = Exit point location (EXITLOC) = (Bx, By) = (-2.06949, 0.61297)

α = Angle between adjacent columns measured from the centre of the image (ROW_SPACING and COL_SPACING) = 21.87e-6 rad

β = Angle between BBOX between the diagonal AB and M

The column spacing (X) can be derived from the following equations:

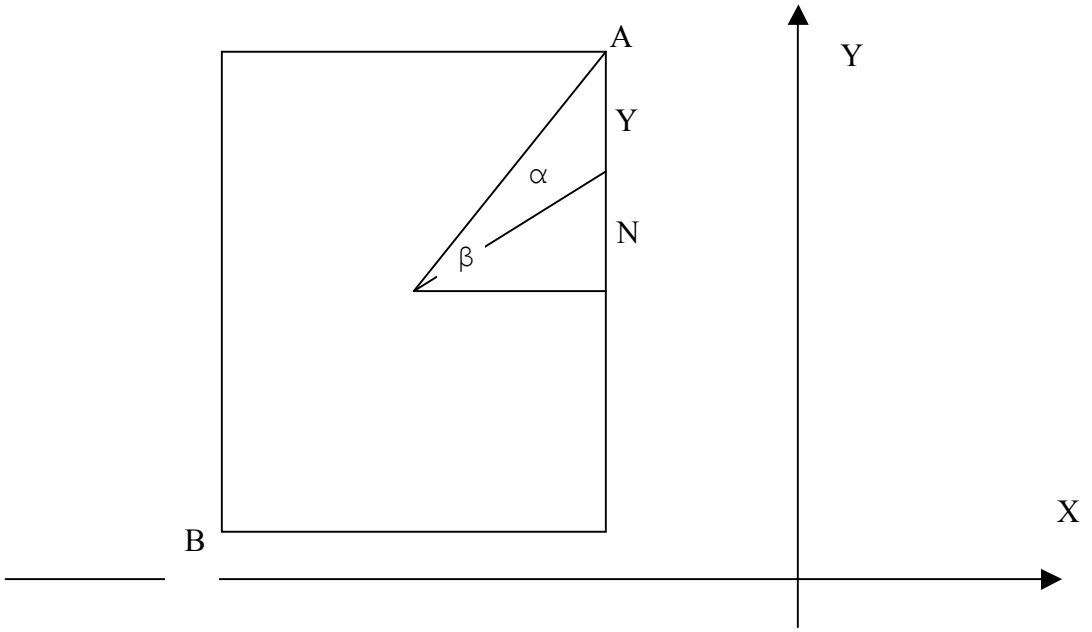
$\beta = \arctan(|(Ay - By) / 2| / |(Ax - Bx) / 2|) = \arctan(|Ay - By| / |Ax - Bx|)$

$M = |(Ay - By) / 2| * \cot(\beta + \alpha)$

Then X is determined using the following equation:

$X = |(Ax – Bx)/2| – M = |(Ax – Bx) / 2| – |(Ay - By) / 2| * \cot(\arctan(|Ay - By| / |Ax - Bx|)) + \alpha)$

A similar approach can be taken to calculate the row spacing (Y).



$\beta = \arctan(|(Ay - By) / 2| / |(Ax - Bx) / 2|) = \arctan(|Ay - By| / |Ax - Bx|)$

$N = |(Ax - Bx) / 2| * \tan(\beta - \alpha)$

Then Y is determined using the following equation:

$Y = |(Ay – By) / 2| – N = |(Ay – By) / 2| - |(Ax - Bx) / 2| * \tan(\arctan((Ay - By) / (Ax - Bx)) - \alpha)$

Note that X and Y represent the length of the offset vectors.

Therefore, the GMLJP would be:

```
<?xml version="1.0" encoding="UTF-8"?>
<gmljp2:RootFeatureCollection gml:id="FC001"
xmlns:ntf="http://www.example.org/nitf"
xmlns:gmljp2="http://www.opengis.net/gmljp2/2.0"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:ows="http://www.opengis.net/ows/1.1"
xmlns:acftb="http://www.example.org/nitf/tre/acftb"
xmlns:mstgta="http://www.example.org/nitf/tre/mstgta"
xmlns:aimidb="http://www.example.org/nitf/tre/aimidb"
xmlns:sensra="http://www.example.org/nitf/tre/sensra"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/gmljp2/2.0 GMLJP2.xsd
http://www.example.org/nitf NITF_2.1.xsd http://www.example.org/nitf/tre/acftb
ACFTB-TRE.xsd http://www.example.org/nitf/tre/aimidb AIMIDB-TRE.xsd
http://www.example.org/nitf/tre/mstgta MSTGTA-TRE.xsd
http://www.example.org/nitf/tre/sensra SENSRA-TRE.xsd">
 <ntf:sourceFileMetadata>
  <ntf:FileHeader>
   <ntf:fhdr>NITF</ntf:fhdr>
   <ntf:fver>02.10</ntf:fver>
   <ntf:clevel>05</ntf:clevel>
   <ntf:stype>BF01</ntf:stype>
   <ntf:ostaid>JITC</ntf:ostaid>
   <ntf:fdt>2005-03-03T21:28:48</ntf:fdt>
   <ntf:ftitle>Free_Text_NITF_Tactical_EO_Example</ntf:ftitle>
   <ntf:fsclas>U</ntf:fsclas>
   <ntf:fscop>00000</ntf:fscop>
   <ntf:fspys>00000</ntf:fspys>
   <ntf:encryp>0</ntf:encryp>
   <ntf:fbkgc>000000</ntf:fbkgc>
   <ntf:oname>Free Text JITC NITFS CTE</ntf:oname>
   <ntf:ophone>520-538-5458 (FT)</ntf:ophone>
  </ntf:FileHeader>
 </ntf:sourceFileMetadata>
 <gmljp2:featureMember>
  <gmljp2:CodeStreamData gml:id="CodeStream1">
   <ntf:imageMetadata>
    <ntf:ImageSubheader>
     <ntf:im>IM</ntf:im>
     <ntf:iid1>FT_JITC</ntf:iid1>
     <ntf:idatim>2005-03-03T21:28:48</ntf:idatim>
     <ntf:tgtid>FT Not Populated</ntf:tgtid>
     <ntf:isclas>U</ntf:isclas>
     <ntf:encryp>0</ntf:encryp>
     <ntf:isource>Free Text may contain source information</ntf:isource>
```

```
<ntf:nrows>00005040</ntf:nrows>
<ntf:ncols>00005040</ntf:ncols>
<ntf:pvtype>INT</ntf:pvtype>
<ntf:irep>MONO</ntf:irep>
<ntf:icat>EO</ntf:icat>
<ntf:abpp>08</ntf:abpp>
<ntf:pjust>R</ntf:pjust>
<ntf:icords>G</ntf:icords>
<ntf:igeolo>
 <gml:Envelope srsName="urn:ogc:def:crs:EPSG::4326">
  <gml:lowerCorner>-118.205 33.86</gml:lowerCorner>
  <gml:upperCorner>-117.34472 34.88</gml:upperCorner>
 </gml:Envelope>
</ntf:igeolo>
<ntf:comment/>
<ntf:ic>C3</ntf:ic>
<ntf:comrat>00.0</ntf:comrat>
<ntf:imode>B</ntf:imode>
<ntf:nbpr>0008</ntf:nbpr>
<ntf:nbpc>0001</ntf:nbpc>
<ntf:nppbh>0632</ntf:nppbh>
<ntf:nppbv>5040</ntf:nppbv>
<ntf:nbpp>08</ntf:nbpp>
<ntf:idlvlv>001</ntf:idlvlv>
<ntf:ialvl>000</ntf:ialvl>
<ntf:iloc>0000000000</ntf:iloc>
<ntf:imag>1.0</ntf:imag>
<ntf:ixshd>
 <acftb:ExtendedImageSubheader>
  <acftb:cetag>ACFTB</acftb:cetag>
  <acftb:acMsnId>NOT AVAILABLE</acftb:acMsnId>
  <acftb:sesorIdType>VMFR</acftb:sesorIdType>
  <acftb:sesorId>JITC</acftb:sesorId>
  <acftb:scNum>000000</acftb:scNum>
  <acftb:pDate>2005-03-03</acftb:pDate>
  <acftb:imHostNo>999999</acftb:imHostNo>
  <acftb:imReqId>99999</acftb:imReqId>
  <acftb:mPlan>006</acftb:mPlan>
  <acftb:entryLocation>
   <gml:Point gml:id="Entry1" srsName="urn:ogc:def:crs:CUSTOM::1234">
    <gml:pos>-2.06813 0.616017  0</gml:pos>
   </gml:Point>
  </acftb:entryLocation>
  <acftb:locationAccuracy uom="ft_us">000.00</acftb:locationAccuracy>
  <acftb:exitLocation>
```

```
            <gml:Point gml:id="Exit1" srsName="urn:ogc:def:crs:CUSTOM::1234">
              <gml:pos>-2.069493 0.612967  29240</gml:pos>
            </gml:Point>
          </acftb:exitLocation>
          <acftb:rowSpacing uom="urad">0021.87</acftb:rowSpacing>
          <acftb:columnSpacing uom="urad">0021.87</acftb:columnSpacing>
          <acftb:focalLength>045.72</acftb:focalLength>
          <acftb:senSerial>808529</acftb:senSerial>
          <acftb:patchTot>0000</acftb:patchTot>
          <acftb:mtiTot>000</acftb:mtiTot>
        </acftb:ExtendedImageSubheader>
      </ntf:ixshd>
      <ntf:ixshd>
        <aimidb:ExtendedImageSubheader>
          <aimidb:cetag>AIMIDB</aimidb:cetag>
          <aimidb:acquisitionDate>2005-03-03T21:28:48</aimidb:acquisitionDate>
          <aimidb:missionNo>UNKN</aimidb:missionNo>
          <aimidb:missionIdentification>NOT AVAIL.</aimidb:missionIdentification>
          <aimidb:flightNo>00</aimidb:flightNo>
          <aimidb:opNum>002</aimidb:opNum>
          <aimidb:currentSegment>AA</aimidb:currentSegment>
          <aimidb:reproNum>00</aimidb:reproNum>
          <aimidb:replay>000</aimidb:replay>
          <aimidb:startTileColumn>001</aimidb:startTileColumn>
          <aimidb:startTileRow>00001</aimidb:startTileRow>
          <aimidb:endSegment>AA</aimidb:endSegment>
          <aimidb:endTilleColumn>001</aimidb:endTilleColumn>
          <aimidb:endTilleRow>00001</aimidb:endTilleRow>
          <aimidb:location>
            <gml:Point gml:id="AIMIDBPoint1"
srsName="urn:ogc:def:crs:CUSTOM::123">
              <gml:pos>34.65 -118.06667</gml:pos>
            </gml:Point>
          </aimidb:location>
        </aimidb:ExtendedImageSubheader>
      </ntf:ixshd>
      <ntf:ixshd>
        <mstgta:ExtendedImageSubheader>
          <mstgta:cetag>MSTGTA</mstgta:cetag>
          <mstgta:tgtNum>99999</mstgta:tgtNum>
          <mstgta:tgtId>Manual Mode</mstgta:tgtId>
          <mstgta:tgtBe>NA</mstgta:tgtBe>
          <mstgta:tgtType>2</mstgta:tgtType>
          <mstgta:tgtColl>4</mstgta:tgtColl>
          <mstgta:tgtLocation>
```

```
            <gml:Point gml:id="MSTGTAPoint1"
srsName="urn:ogc:def:crs:CUSTOM::123">
              <gml:pos>-118.15604 35.08889 2894</gml:pos>
            </gml:Point>
          </mstgta:tgtLocation>
        </mstgta:ExtendedImageSubheader>
      </ntf:ixshd>
      <ntf:ixshd>
        <sensra:ExtendedImageSubheader>
          <sensra:cetag>SENSRA</sensra:cetag>
          <sensra:sensorModel>JITC</sensra:sensorModel>
          <sensra:sensorLoc>
            <gml:Point gml:id="SENSRAPoint1"
srsName="urn:ogc:def:crs:CUSTOM::123">
              <gml:pos>-118.35098 35.25564 26616</gml:pos>
            </gml:Point>
          </sensra:sensorLoc>
          <sensra:sensorAltSource>B</sensra:sensorAltSource>
          <sensra:sensorAltUnit>f</sensra:sensorAltUnit>
          <sensra:sensorAgl>23722</sensra:sensorAgl>
          <sensra:sensorPitch>+00.000</sensra:sensorPitch>
          <sensra:sensorRoll>+010.476</sensra:sensorRoll>
          <sensra:sensorYaw>+090.275</sensra:sensorYaw>
          <sensra:platformPitch>+04.362</sensra:platformPitch>
          <sensra:platformRoll>-004.268</sensra:platformRoll>
          <sensra:platformHdg>069.5</sensra:platformHdg>
          <sensra:groundSpdSource>N</sensra:groundSpdSource>
          <sensra:groundSpd uom="ft_us/s">0715.0</sensra:groundSpd>
          <sensra:groundTrack>069.6</sensra:groundTrack>
          <sensra:vertVel uom="ft_us/min">-0111</sensra:vertVel>
          <sensra:swathFrames>0008</sensra:swathFrames>
          <sensra:spotNum>002</sensra:spotNum>
        </sensra:ExtendedImageSubheader>
      </ntf:ixshd>
    </ntf:ImageSubheader>
  </ntf:imageMetadata>
  <gmljp2:coverage>
    <ntf:RectifiedGridCoverage gml:id="RectifiedGridCoverage1">
      <gml:rectifiedGridDomain>
        <gml:RectifiedGrid dimension="2" gml:id="RectifiedGrid1"
srsName="urn:ogc:def:crs:CUSTOM::123">
          <gml:limits>
            <gml:GridEnvelope>
              <gml:low>0 0</gml:low>
              <gml:high>34017 178362</gml:high>
```

```
            </gml:GridEnvelope>
          </gml:limits>
          <gml:axisLabels>x y</gml:axisLabels>
          <gml:origin xlink:href="#Entry1"/>
          <gml:offsetVector>-3.99e-8 0</gml:offsetVector>
          <gml:offsetVector>0 -1.71e-8</gml:offsetVector>
        </gml:RectifiedGrid>
      </gml:rectifiedGridDomain>
      <ntf:rangeSet>
        <gml:File>
          <gml:rangeParameters>
            <ntf:BandRepresentation gml:id="Band2">
              <ntf:irepband>M</ntf:irepband>
              <ntf:ifc>N</ntf:ifc>
            </ntf:BandRepresentation>
          </gml:rangeParameters>
          <gml:fileName/>
          <gml:fileStructure/>
        </gml:File>
      </ntf:rangeSet>
    </ntf:RectifiedGridCoverage>
  </gmljp2:coverage>
 </gmljp2:CodeStreamData>
</gmljp2:featureMember>
</gmljp2:RootFeatureCollection>
```

An example of the corresponding CompoundCRS would be:

```
<?xml version="1.0" encoding="UTF-8"?>
<gml:Dictionary gml:id="release-7.11.1" xmlns:epsg="urn:x-ogp:spec:schema-
xsd:EPSG:1.0:dataset" xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns="http://www.opengis.net/gml/3.2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.opengis.net/gml/3.2
./gml3.2.1/ISO_19136_Schemas/gml.xsd">
 <gml:identifier codeSpace="NITF">release-7.11.1</gml:identifier>
 <gml:dictionaryEntry>
  <CompoundCRS gml:id="custom-crs-123">
   <identifier codeSpace="ABC">urn:ogc:def:crs:CUSTOM::123</identifier>
   <scope>not known</scope>
   <componentReferenceSystem xlink:href="urn:ogc:def:crs:EPSG::4326"/>
```

```
    <componentReferenceSystem xlink:href="urn:ogc:def:crs:EPSG::5702"/>
  </CompoundCRS>
 </gml:dictionaryEntry>
</gml:Dictionary>
```

Notes:

- The IGEOLO TRE does not provide the coordinates of the BBOX. It is a polygon. The BBOX corners were calculated from the polygon coordinates.
- The ImageSubheader contains a field named “ITITLE”, which is not defined in the NITF specification. This field was ignored.
- The origin of the grid is used as “Entry” location from the ACFTB TRE.
- The ACFTB entry and exit coordinates do not match the AIMDB TRE location and IGEOLO.
- The attribute srsName contains reference to compound CRS (3D) which contains among, other things, UOM for elevation.