PREPARATION AND OPERATIONS OF THE MISSION PERFORMANCE CENTRE (MPC) FOR THE COPERNICUS SENTINEL-3 MISSION

Product Data Format Specification - SLSTR Level 1 Products

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AMENDMENT POLICY

This document shall be amended by releasing a new edition of the document in its entirety. The Amendment Record Sheet below records the history and issue status of this document.

Amendment Record Sheet

ISSUE	DATE	REASON
1.0	01 Oct 2012	IPF DR1 Release
1.1	18 Dec 2012	Account for IPF DR1 and IPF DR2 update
1.2	12 Feb 2013	Change of Template
1.4	04 Dec 2013	DR2 update
1.5	24 Mar 2014	RIDs and SPRs correction update
1.6	15 May 2014	Consolidation of SLSTR PFS
1.7	30 July 2014	Information package map update
1.8	13 Oct 2014	Feedback from Validation phase
1.9	23 Nov 2014	Review the product size assessment assumptions and corresponding sizes
1.10	10 Feb 2015	Reference update, GHRSST specification update, Product size completion
	23 March 2015	Account for Agencies feedback
1.11	28 May 2015	Implementation of the launch critical changes
2.0	20 May 2016	Implementation of the Minor Changes
2.1	20 June 2016	Implementation of the RIDs correction
2.2	27 June 2016	Implementation of corrections raised at IPFP V3 TRR
2.3	25 October 2016	Minimum and maximum values of the scan number before the reset of the counter when crossing the ANX included as variable attributes in SLSTR Level 1 time_*.nc files.
2.4	27 March 2017	Update of the radiometric uncertainty long_name
2.5	02 May 2017	Addition of a specific tidal flag in L2P product in replacement of volcanic one. correction of the L2P attributes
2.6	09 Oct 2017	Documentation split into: L1, L2 land and L2 marine volumes
2.7	06 Feb. 2018	Inclusion of the Bayesian and Probabilistic Cloud flag
2.8	06 July 2018	Correction of a meteo annotations
2.9	~~XX March~~20 Sept. 2019	Modification of the time annotations, removal of the TDi stripe and Impact of the dedicated F1-channel on SL 1 products

Document Change Record

No.	Change in Issue	Description	Affected Section
1	1.1	S3IPF-372: L1 Browse format is not described in details.	
2	1.1	S3IPF-390: L1 Browse format is not described in details.	
3	1.1	S3IPF-391: editorial errors corrected in the document.	
4	1.1	S3IPF-393: reference document updated.	
5	1.1	S3IPF-414: metadata description has been moved to the Metadata specification document. Document is referenced. The list of parameters has been updated according to the DPM V2.	
6	1.1	S3IPF-450: global attributes are referred to from the "product structures" volume of the PDS.	
7	1.1	S3IPF-461: manifest name renamed to xfdumanifest.xml	
8	1.1	S3IPF-470: - Long_name will be deleted everywhere. The rule will be to use the description of the variable to fill them - Scale/offset are defined via processing parameters	
9	1.1	S3IPF-474: in met_tx.nc file, suffix <g><v> replaced with tx. Note on t_forecast presence and empty when not applicable.	
10	1.1	S3IPF-475: manifest section reviewed.	
11	1.1	S3IPF-485: global attributes are referred to from the "product structures" volume of the PDS. All justification for not including all attributes are in this document.	
12	1.1	S3IPF-507: column availability to the user removed.	
13	1.1	S3IPF-512: TOC reviewed.	
14	1.1	S3IPF-513: corrupted sections corrected.	
15	1.1	S3IPF-520: add caption to tables, correct TOC errors.	
16	1.2	Change of template	Entire document
17	1.3	S3IPF-390: secondary metadata reference for browse products removed	4.3
18	1.3	S3IPF-457: improve brawse product description	4.3.3
19	1.3	S3IPF-461: manifest name renamed to xfdumanifest.safe	4.2.1, 4.3.2

No.	Change in Issue	Description	Affected Section
20	1.3	GDS/GHRSST version update (S3IPF-1381)	1.3.1
22	1.3	S3IPF-922: change manifest name in table 4-1 and link to section	4.2.1
23	1.3	S3IPF-695: AD and RD lists updated	1.3
24	1.3	S3IPF-696: include a description of the secondary metadata	4.1.2
25	1.3	S3IPF-697: Section renamed manifest file	4.2.1.2
26	1.3	S3IPF-698: Section OLQC removed	4.2.5.10
27	1.3	S3IPF-700: Reference to AD-4 removed	4.3
28	1.3	S3IPF-701: Reference to AD-4 changed to AD-3	5.2
29	1.3	S3IPF-702: Reference to AD-4 changed to AD-3	5
30	1.3	S3IPF-703: package map update	5.1.2
31	1.3	S3IPF-704: Harmonization of the L1 product sizes	7.1.1
32	1.3	S3IPF-895 and 945: description of wind_speed corrected, field source put back	4.2.3.3.1
33	1.3	S3IPF-897: description of the LST package completed	4.2.4.1
34	1.3	S3IPF-935: Reference to LS exception flag reported in product description and table moved to LST section	4.2.4.3.1
35	1.3	S3IPF-936: “Range or Value” for the biome/biome_orphan fields specified	4.2.4.3.3
36	1.3	S3IPF-937: LST_ancillary data file moved to a new section "Annotation data files"	4.2.4.3.3
37	1.3	S3IPF-946: Clarification in the description of brightness temperature : Nadir only	4.2.3.4.1
38	1.3	S3IPF-948: update description of thermal_radiation_tx variable	4.2.5.9

No.	Change in Issue	Description	Affected Section
39	1.4	SLSTR Continuity: Modification of the grid indexation and content of some L1/common annotations files: - Quality Annotation Data files are now indexed by line, detector and integrators - Cartesian and geodetic files are now indexed on the image grid. Parameters associated with orphan pixels have been added - Time annotations provides one time stamp per line, a time offset for each columns and the time interval needed to processed each line The indexation of orphan pixels is now similar to the one included in OLCI : one vector per line. The resolution of tie point grid is now equals to 1km on along-track direction and 16km on across-track one. The estimated size of each file has been modified accordingly	4.2.1 4.2.5 7.1.1
40	1.5	Information package map and data object section update	5.1, 5.2, 5.3
41	1.6	SLSTR Continuity, Update of the Level 2 files (indexation of the orphan pixel	4.2.2, 4.2.3, 4.2.4
42	1.6	Update of the product size	7
43	1.6	Review of all document and addition of missing information from prototype specifications	
44	1.6	Remove all TBC in the whole document	
45	1.6	Correction of the “range/value” of biome/biome_orphan	4.2.4.1.1
46	1.6	Update of AD reference	1.3.1
47	1.7	Information package map and data object section update	5.1, 5.2, 5.3
48	1.8	Add_offset associated with pixel indices should be removed as it is always equal to 0	4.2.5
49	1.8	A note has been added to underline the fact that product limits are provided as example (configurable through PCP)	4.2.2
50	1.9	Review the product size assumptions	7
51	1.9	Review the product size	7.1, 7.2
52	1.9	Correct typo	7.1.1
53	1.10	Reference update	1.3
54	1.10	GHRSST specification update	4.2.3
55	1.10	Product size completion	7

No.	Change in Issue	Description	Affected Section
56	1.10	Corrections due to the updated nominal configuration : A and B stripe are always processed instead of TDI	4.2.1.1.1 4.2.1.4.1 4.2.5
57	1.11	Addition of the Ozone parameter in the meteo annotations files	4.2.5.9
58	1.11	Addition of specific global attributes for SLSTR L1 and L2 files	4.1.3 4.2
59	2.0	Addition of new parameters in quality annotation files (Thermal and VIS-SWIR)	4.2.1.4.1 4.2.1.4.2
60	2.0	Addition of the Snow Albedo content in Meteo file	4.2.5.9
61	2.0	Addition of the dual minus nadir sst differences and of the associated nadir sst theoretical error in the L2P file	4.2.3.4.1
62	2.0	Replacement of spare in L2P_flags by volcanic aerosol	4.2.3.4.1
63	2.0	Modification of the L2P_flags and creation of the SST algorithm types parameter	4.2.3.4.1
64	2.1	S3IPF – 2197 : addition of a the filling rule for long_name and verification of the variables description.	4.2.3.4.1
65	2.1	S3IPF – 2195 = modification of the (nadir_)sst_theoretical_error to uncertainty	4.2.3.4.1
66	2.1	S3IPF – 2196 = addition of the time dimension on dual_nadir_sst_difference and nadir_sst_theoretical_error	4.2.3.4.1
67	2.1	S3IPF – 2193 = inversion between ni and nj	4.2.3.4.1
68	2.1	S3IPF – 2199 = addition of a description table for dual minus nadir SST difefrence	4.2.3.4.1
69	2.1	S3IPF – 2192 = clarification of the channel dimension in the description of brightness temperature and in the comment attributes	4.2.3.4.1
70	2.1	S3IPF – 2194 = addition of flag_meanings and flag_values in the attributes of sst_algorithm_types	4.2.3.4.1
71	2.1	S3IPF – 2198 = change of the attributes of dt_analysis	4.2.3.4.1
72	2.2	Correction following the IPF V3 TRR : * correction of the fillValue and type of satellite zenith angle * addition of the channel repartition in nedt comment attributes	4.2.3.4.1
73	2.3	Minimum and maximum values of the scan number before the reset of the counter when crossing the ANX included as variable attributes in SLSTR Level 1 time_*.nc files.	4.2.5.7

No.	Change in Issue	Description	Affected Section
74	2.4	Update of the radiometric uncertainty long_name (SIIIMPC-1368)	4.2.1.5
75	2.5	Addition of a specific Tidal flag in L2P_flags (SIIIMPC-1698)	
76	2.5	Correction of the L2P attributes	
77	2.6	Common and Level 1 information are gathered in a separate document	
78	2.7	Inclusion of probability_cloudy_pixel for dual and single view	4.2.1.1
79	2.7	Inclusion of the l0_scan_offset in the indices files	4.2.1.2
80	2.8	Correction of the Soil Wetness attributes	4.2.1.9
81	2.9	Inclusion of dedicated F1-channel annotation files	4.2.1
82	2.9	Correction of the time file	4.2.1.7
83	2.9	Suppression of the TDI stripe	
84	2.9	Correction of the quality annotations valid range	7.1.1.5

1. INTRODUCTION

1.1 Purpose and Scope

This document aims to identify and specify the format of the Sentinel 3 SLSTR Level 1 products, browse products included.

1.2 Structure of the Document

After this introduction, the document is divided into a number of major sections that are briefly described below:

Chapter Number	Title	Contents
1	INTRODUCTION	This section
2	OVERVIEW OF THE INSTRUMENT: SLSTR	A description of the main features and characteristics of the SLSTR instrument is provided here.
3	PRODUCT OVERVIEW	The Product Tree for SLSTR instruments and the product names convention are specified here.
4	SLSTR PRODUCT FORMAT: COMMON PART	In this section the format of each SLSTR common elements is specified. NetCDF Data Files of each product are reported in this section.
5	MANIFEST FILE: COMMON PART	In this section details for the implementation of the common part of the manifest file is provided.
6	XML SCHEMAS	In this section details of the schemas used to generate the manifest is provided.
7	SLSTR PRODUCT FORMAT SPECIFICATION	In this section the format of each SLSTR Level 1 Product is specified.
8	MANIFEST FILE DESCRIPTION	In this section details for the implementation of the manifest file is provided
9	PRODUCT SIZE	In this section the size of each file composing the SLSTR products is provided.

Table 1-1: Document Structure

1.3 Applicable and Reference Documents

1.3.1 Applicable documents

The following table lists the documents with a direct bearing on the content of this document.

ID	Document	Reference
AD- 1	Sentinel 3 PDGS File Naming Convention	EUM/LEO-SEN3/SPE/10/0070 GMES-S3GS-EOPG-TN-09-0009, 1.4, 24/06/2016
AD- 2	Drivers for the S3 PDGS Processing Function Implementation	GMES-GSEG-EOPG-TN-11-0062, i1r7, 27/06/2014
AD- 3	Product Data Format Specification - Product Structures	S3IPF.PDS.002, Issue 1.7, 09/10/2017
AD- 4	Metadata Specification, Excel document	S3IPF.PDS.008, i3r4 – 09/10/2017
AD- 5	XML Schemas.zip – Zip file containing all the schemas used to represent the metadata	S3IPF PDS 009, i3r1 – 09/10/2017
AD- 6	Auxiliary Data Format Specification – SLSTR Level 1	S3IPF.PDS.007.3, i2r10 06/02/2018
AD- 7	Sentinel SAFE Control Book volume 1 – Core Specifications	GAEL-P264-DOC-0001-01-01, i1r1, 05/06/2012
AD-8	Product Data Format Specification – SLSTR Level 2 Land	S3IPF.PDS.005.2, Issue 2.7, 23/01/2018
AD-9	Product Data Format Specification – SLSTR Level 2 Marine	S3IPF.PDS.005.3, Issue 2.7, 23/01/2018

1.3.2 Reference documents

The following reference documents contain information supporting this document.

ID	Document	Reference
RD- 1	CCSDS 661.0-B-0 XFDU structure and construction rules	Issue Sept. 2008
RD- 2	Product Data Format Specification - Level 0	S3IPF.PDS.001, I1R8, 09/10/2017
RD- 3	Sentinel 3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products. Volume 3: SLSTR Products (SY-4)	S3-RS-RAL-SY-0003, i6r2, 23/08/2013
RD- 4	Sentinel-3 Optical products and Algorithm Definition: SLSTR Level 2 Product Definition	S3-L2-SD-05-T-RAL-PD, i2r5, 12/10/2012
RD- 5	Sentinel-3 Optical products and Algorithm Definition: SLSTR Input Output Data Definition Document	S3-L2-SD-08-T-RAL-IODD, i2r8, 08/10/2012
RD- 6	GDS 2.0 Technical Specifications, http://www.ghrsst.org/documents.htm,	2.0 rev 05, 09/10/2012

1.4 Terms, Definitions and Abbreviated Terms

Terms, Definitions and Abbreviated Terms are identified in the common volume of the product format specifications in [AD- 3].

2. OVERVIEW OF THE INSTRUMENT: SLSTR

The products specified in this document refer to the processed data coming from the SLSTR instrument on-board Sentinel 3 satellite.

The Sentinel SLSTR instrument is a 11-channel radiometer configured as follows:

- 3 thermal infra-red channels at 3.7, 10.8 and 12 micron wavelengths;
- 2 fire channels at 3.7, and 10.8 micron wavelengths;
- 6 short-wave and visible channels at 2.25, 1.6, 1.375, 0.87, 0.67 and 0.55 micron wavelengths.

The instrument uses two independent scan mirrors each scanning at 200 scans per minute, but each scan measures two along-track pixels of 1 km (and eight pixels at 500 m resolution) simultaneously, thus providing 500-meter resolution in the reflectance channels.

Each scan mirror is mounted at an oblique angle to its axis of rotation and directs radiation into a telescope assembly the optical axis of which is aligned parallel to the rotation axis. As the scan mirror rotates, the line of sight traces out a cone whose intersection with the Earth traces out the measurement swath of the instrument. The scan cone will intersect the Earth view, the two calibration black bodies, and the Visible Calibration (VISCAL) Unit, so that the line of sight will encounter each of these once during a complete rotation.

Radiation incident along the line of sight enters the focal plane assembly, where it is split into frequency bands corresponding to the different channels. Radiation in each channel is focussed onto a small array of detector elements, which correspond to pixels.

SLSTR is an upgraded and advanced version of the AATSR instrument on Envisat, offering a wider swath, which completely overlaps the OLCI swath, as required to produce accurate vegetation products. The SLSTR is designed for ocean and land-surface temperature observations.

3. PRODUCT OVERVIEW

A graphical representation of the product tree for SLSTR instrument is provided in Figure 2-1

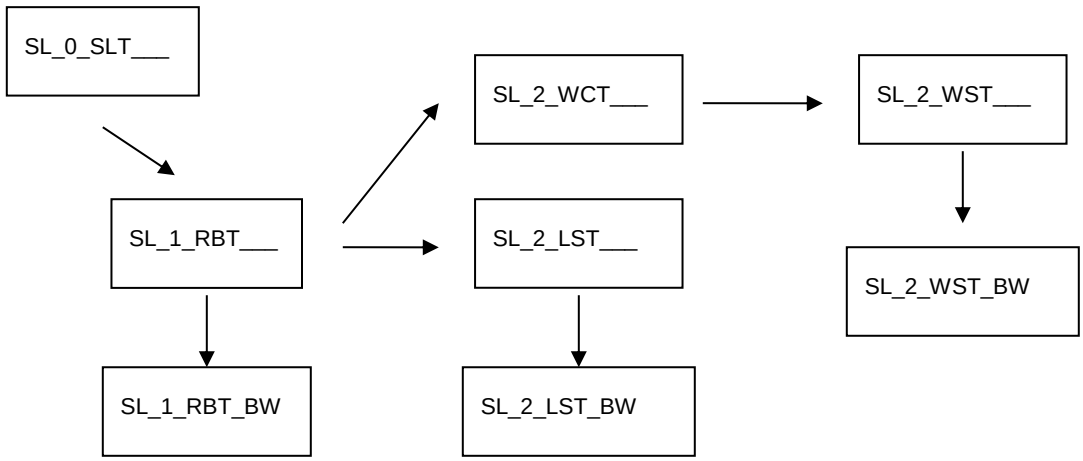

Figure 3-1: SLSTR Product Tree

SLSTR L0 products are described in [RD- 2].

The Level 1 product is detailed in [AD-8] and the Level 2 Land in [AD-9].

3.1 Product Tree

3.1.1 Science Product Tree

The S-3 SLSTR products are summarised in Table 2-1~~Table 2-1~~.

Product type	Description	Level
SL_1_RBT___	Brightness temperatures and radiances	Level 1
SL_2_WCT___	Sea Surface Temperatures (single view/ channels 2 and 3; dual view/ channels 2 and 3; aerosol-robust/ channel 3)	Level 2 Marine
SL_2_WST___	Level 2P Sea Surface Temperature (GHRSST like)	Level 2 Marine
SL_2_LST___	Land Surface Temperature geophysical parameters	Level 2 Land

Table 3-1: SLSTR Product Tree

3.1.2 Browse Product Tree

Browse Products are meant to support the analysis of quality and suitability of the optical products only. One or more browse products can be associated to each single product type.

The SLSTR Browse Product Tree is the following:

Product type	Description	Main Product	Subsampled Parameters
SL_1_RBT_BW	Quick Look of Brightness temperatures and radiances	SL_1_RBT___	• Nadir View Brightness Temperature • Nadir View Radiance
SL_2_WST_BW	Quick Look of Level 2P Sea Surface Temperature (GHRSST like)	SL_2_WST___	• Sea Surface Temperature
SL_2_LST_BW	Quick Look of Land Surface Temperature geophysical parameters	SL_2_LST___	• Land Surface Temperature

Table 3-2: SLSTR Browse Product Tree

3.2 Product Naming Convention

The names of the SLSTR products comply with the Sentinel 3 file naming convention according to [AD- 1].

4. SLSTR PRODUCT FORMAT SPECIFICATION: COMMON PART

4.1 General Product Structure

4.1.1 Package Layout

The format of every Sentinel 3 product is described in [AD- 3]. The Product Package is sketched in Figure 3-1~~Figure 3-1~~.

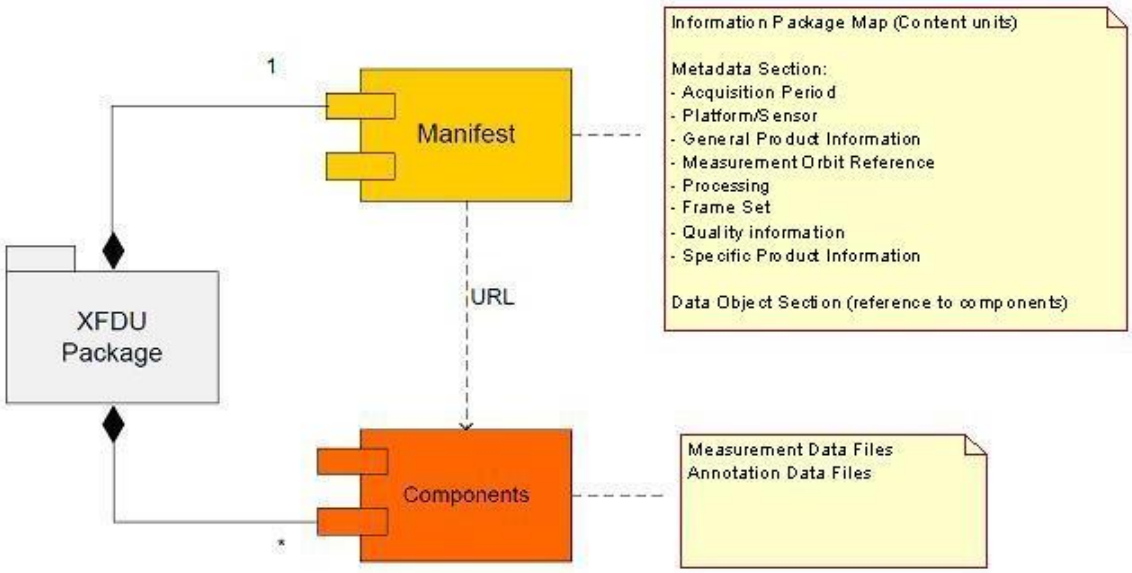

Figure 4-1: XFDU package

In the following sections, the physical composition of each package is specified for the SLSTR instrument.

According to [AD- 2], some files (measurement and annotation data files) are not generated during operations and their production can be activated by configuration of the processing chain. The column “N.O.” in the tables of the following sections indicates these “Not Operational” products.

4.1.2 Manifest file

The manifest file is a set of metadata information related to the description of the product. It includes a common structure section, called primary metadata, and a specific section called secondary metadata.

4.1.2.1 Primary Metadata

The primary metadata is contained in various wrapped metadata units within the Sentinel-SAFE manifest: “acquisitionPeriod”, “platform”, " generalProductInformation ", “orbitRerence”, “processing”, “qualityInformation”, “frameSet” and “slstrlProductInformation”.

The fields are described in [AD- 3].

4.1.2.2 Secondary Metadata

The secondary metadata section contains the information specific to the instrument, level or mode applied during the processing.

4.1.3 Measurement Data Files and Annotation Data Files

The format of the measurement and the annotation data files is NetCDF 4.

A NetCDF file contains dimensions, variables, and attributes, which all have both a name by which they are identified. These components can be used together to capture the meaning of data and relations among data fields in an array-oriented data set.

The global attributes defined for each netCDF file composing the products are fully defined in the common volume of the product data format specification documents named "Product structures" and referenced as [AD- 3].

4.1.3.1 Common additional global attributes

Additional global attributes common to all SLSTR files are specifically defined. These attributes aims to ensure the self-containment of the dataset. There are defined in the following table and their value should be adapted according to the file.

Element name	Description	T	D
absolute_orbit_number	Absolute orbit number during which data contained within the product have been acquired	i32	1
start_time	Product start date and time (yyyy-mm-ddThh:mm:ss.ssssssZ)	S	1
stop_time	Product stop date and time (yyyy-mm-ddThh:mm:ss.ssssssZ)	S	1
comment	Miscellaneous extra information (empty)	S	1
resolution	Dataset resolution (across- and along-track) in meters unit function of the associated grid and view	S	1
start_offset	along-track position relative to ANX in pixels units, function of the associated grid and view	i32	1
track_offset	across-track position relative to SSP in pixels units function of on the associated grid and view	i32	1

Table 4-1: Additional Global Attributes for SLSTR L1 and L2 files

4.2 Earth Observation Products

4.2.1 Common Annotation Data Files

In the following sections, the content of the common ADS (annotation datasets) is detailed. These files are common to several SLSTR L1 and L2 data products. Note however that only the considered grid are taken into account in SLSTR L2 products : i.e. SLSTR L2 LST and SLSTR L2 SST will only included annotations files dedicated to thermal 1 km grid and not the ones dedicated to Fire F1 channel or solar 500m channels.

4.2.1.1 Global Flags Data File

The Global Flags Annotation Data files contain the product quality flags that are applicable across all measurement datasets sharing the same view and detector geometry. There are at most ~~eight~~ ten global flag files, ~~two~~ four at 1km resolution (nadir and oblique views, global one and F1 dedicated) and ~~six~~ up to six at 500m resolution (nadir and oblique views, “A stripe” and “B stripe” ~~– nominal configuration -~~ and TDI if selected). The format of each of them is identical but the array sizes and the values of some attributes differ, rows and columns could be different for A and B stripes, along track array size is dependent on the time interval defined in the Job Order.

Concerning Cloud detection, two detection approaches have been implemented and their results are included in this file

- The probabilistic Cloud detection module dedicated to LST processing chain and computed on the 1 km image grid
- The Bayesian Cloud detection module dedicated to SST processing chain and computed on the 1 km image grid

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum Number of un-regridded (orphaned) pixels on each image line**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
Probability_cloud_single_i<v>	**Probability of cloud in pixel (single view)**	**[-100, 100]**	**i16**	**rows columns**

Element name	Description	Range or value	T	D
_FillValue	Value indicating missing data	-32768		1
scale_factor	Scaling factor used in decoding packed data	0.005		1
add_offset	Offset used to in decoding packed data	0.5		1
comment	comment	Probability of cloud in pixel as estimated by Bayesian Cloud detection on a single view		1
Probability_cloud_dual_i<v>	**Probability of cloud in pixel (dual view)**	**[-100, 100]**	**i16**	**rows columns**
_FillValue	Value indicating missing data	-32768		1
scale_factor	Scaling factor used in decoding packed data	0.005		1
add_offset	Offset used to in decoding packed data	0.5		1
comment	comment	Probability of cloud in pixel as estimated by Bayesian Cloud detection on both views		1
cloud_<g><v>	**Global cloud flags**		**u16**	**rows columns**
flag_masks	Masks for each flag bit	See Table 3-3		1
flag_meanings	Text descriptions for each flag bit	See Table 3-3		1
bayes_<g><v>	**Bayesian cloud flags**		**u8**	**rows columns**
flag_masks	Masks for each flag bit	See Table 3-4		1
flag_meanings	Text descriptions for each flag bit	See Table 3-4		1
pointing_<g><v>	**Global pointing flags**		**u8**	**rows columns**
flag_masks	Masks for each flag bit	See Table 3-5		1
flag_meanings	Text descriptions for each flag bit	See Table 3-5		1

Element name	Description	Range or value	T	D
confidence_<g><v>	**Global confidence flags**		**u16**	**rows columns**
flag_masks	Masks for each flag bit	See Table 3-6		1
flag_meanings	Text descriptions for each flag bit	See Table 3-6		1
cloud_orphan_<g><v>	**Orphan pixel global cloud flags**		**u16**	**rows orphan_pixels**
flag_masks	Masks for each flag bit	See Table 3-3		1
flag_meanings	Text descriptions for each flag bit	See Table 3-3		1
bayes_orphan_<g><v>	**Orphan pixel Bayesian cloud flags**		**u8**	**rows orphan_pixels**
flag_masks	Masks for each flag bit	See Table 3-4		1
flag_meanings	Text descriptions for each flag bit	See Table 3-4		1
pointing_orphan_<g><v>	**Orphan pixel global pointing flags**		**u8**	**rows orphan_pixels**
flag_masks	Masks for each flag bit	See Table 3-5		1
flag_meanings	Text descriptions for each flag bit	See Table 3-5		1
confidence_orphan_<g><v>	**Orphan pixel global confidence flags**		**u16**	**rows orphan_pixels**
flag_masks	Masks for each flag bit	See Table 3-6		1
flag_meanings	Text descriptions for each flag bit	See Table 3-6		1

Table 4-2: Global flags data file description

Bit	Text code	Meaning if set	Comment
0		Visible channels cloud test	Day time only
1		1.37µm threshold test	Day time only
2		1.6µm small-scale histogram test	Day time only
3		1.6µm large-scale histogram test	Day time only
4		2.25µm small-scale histogram test	Day time only
5		2.25µm large-scale histogram test	Day time only
6		11µm spatial coherence test	
7		12µm gross cloud test	
8	thin_cirrus	11µm/12µm thin cirrus test	
9		3.7µm/12µm medium/high level test	
10	fog_low_stratus	11µm/3.7µm fog/low stratus test	
11		11µm/12µm view difference test	Uses both views
12		3.7µm/11µm view difference test	Uses both views
13	thermal_histogram	11µm/12µm thermal histogram test	
14		spare	
15		spare	

Table 4-3: Cloud word definitions

Bit	Text code	Meaning if set	Comment
0		Single view low probability threshold	Climate-quality clearing
1		Single view moderate probability threshold	Operational-quality clearing
2		Dual view low probability threshold	Climate-quality clearing
3		Dual view moderate probability threshold	Operational-quality clearing
4		spare	
5		spare	
6		spare	
7		spare	

Table 4-4: Bayesian cloud word definitions

Bit	Text code	Meaning if set	Comment
0	FlipMirrorAbsoluteError	flip mirror absolute error exceeds threshold	
1	FlipMirrorIntegratedError	flip mirror integrated error exceeds threshold	
2	FlipMirrorRMSError	flip mirror RMS error exceeds threshold	
3	ScanMirrorAbsoluteError	scan mirror absolute error exceeds threshold	
4	ScanMirrorIntegratedError	scan mirror integrated error exceeds threshold	
5	ScanMirrorRMSError	scan mirror RMS error exceeds threshold	
6	ScanTimeError	Scan time is inconsistent with scan count sequence	
7	Platform_Mode	platform mode	0 if nominal, else 1

Table 4-5: Pointing word definitions

Bit	Text code	Meaning if set	Comment
0	coastline	coastline in field of view	
1	ocean	ocean in field of view	
2	tidal	tidal zone in field of view	
3	land	land in field of view	
4	inland_water	inland water in field of view	
5	unfilled	unfilled pixel (1 if this pixel is never tested or filled)	
6		(spare)	
7		(spare)	
8	cosmetic	cosmetic fill pixel	
9	duplicate	Pixel has a duplicate	
10	day	pixel in daylight	
11	twilight	pixel in twilight	
12	sun_glint	sun glint in pixel	
13	snow	snow	
14	summary_cloud	summary cloud test	
15	summary_pointing	summary pointing	

Table 4-6: Confidence word definitions

4.2.1.2 Scan, Pixel and Detector Annotation Data File

The scan, pixel and detector number description table contains arrays of indices which map both gridded and orphaned pixels to their original positions in the instrument measurement frame. There are at most ~~eight~~ ten scan, pixel and detector number datasets, ~~two~~ four at 1km resolution (nadir and oblique views, global one and F1 dedicated) and up to six at 500m resolution (nadir and oblique views, “A stripe” and “B stripe and TDI if selected). The format for each is identical but the array sizes and the values of some attributes differ, rows and columns could be different for A and B stripes, along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum number of un-regridded (orphaned) pixels on each image line**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
l0_scan_offset_<g><v>	**Offset between scan index and corresponding ISP scan count**		**int**	**1**
_FillValue	Value indicating missing data	-2147483648		1
scan_<g><v>	**Pixel scan number**		**u16**	**rows columns**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
pixel_<g><v>	**Gridded pixel number**		**u16**	**rows columns**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
detector_<g><v>	**Gridded pixel detector number**		**u8**	**rows columns**
_FillValue	Value indicating missing data	$2^{8} - 1$		1
scan_orphan_<g><v>	**Pixel scan number for un-regridded pixels**		**u16**	**rows orphan_pixels**
_FillValue	Value indicating missing data	$2^{16} - 1$		1

Element name	Description	Range or value	T	D
pixel_orphan_<g><v>	**Un-regridded pixel number**		**u16**	**rows orphan_pixels**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
detector_orphan_<g><v>	**Un-regridded pixel detector number**		**u8**	**rows orphan_pixels**
_FillValue	Value indicating missing data	$2^{8} - 1$		1

Table 4-7: Scan, Pixel and Detector Annotation data file description

4.2.1.3 Full Resolution Cartesian Coordinates Annotation Data File

The Cartesian coordinates dataset contains the ortho-geolocated quasi-Cartesian coordinates x and y of the centre of each pixel in the field of view on the earth's surface, determined from a digital elevation model, where x is the across track distance on the ellipsoid, locally perpendicular to the sub-satellite track and y is the distance along the sub-satellite track.

Important note: By construction, the y coordinate has its origin set at the ANX point. When a PDU is generated from two IPF granules (P1 and P2) each using a different ANX points, a discontinuity occurs when crossing the ANX. To overcome this issue, the discontinuity is removed by the PDU generation processor (PUG-F) by applying the following algorithm:

1. Make the average of the Y-Coordinates of the last row of the granule P1 (Yavg1)
2. Make the average of the Y-Coordinates of the first row of the granule P2 (Yavg2)
3. Compute the offset "delta=(Yavg1-Yavg2)+DX"
4. Compute the Y-coordinates of the merged product in this way:
    - For each pixel included in a row from product P1, maintain the Y-coordinates present in the input P1 product
    - whereas for each pixel from product P2, sum "delta" to the Y-Coordinates associated with this pixel.

The dataset is generated in the image frame. The dataset is encoded in NetCDF 4. There are at most ~~eight~~ ten datasets, ~~two~~ four at 1km resolution (nadir and oblique views, global one and F1 dedicated) and up to six at 500m resolution (nadir and oblique views, "A stripe" and "B stripe" – nominal configuration – ~~–~~and TDI if selected). The format of each of them is identical but the array sizes and the values of some attributes differ, along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum number of un-regridded (orphaned) pixels on each image line**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
x_<g><v>	**Geolocated x (across track) coordinate of detector FOV centre**	**[-500000, +1000000]**	**i32**	**rows columns**
standard_name	CF standard name			1
units	UDUNITS unit name	m		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-1000000		1
y_<g><v>	**Geolocated y (along track) coordinate of detector FOV centre**	**[-1000000, +50000000]**	**i32**	**rows columns**
units	UDUNITS unit name	m		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-50000000		1
x_orphan_<g><v>	**Geolocated x (across track) coordinate of detector FOV centre for un-regridded pixels**	**[-500000, +1000000]**	**i32**	**rows orphan_pixels**
standard_name	CF standard name			1
units	UDUNITS unit name	m		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-1000000		1
y_orphan_<g><v>	**Geolocated y (along track) coordinate of detector FOV centre for un-regridded pixels**	**[-1000000, +50000000]**	**i32**	**rows orphan_pixels**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	m		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-50000000		1

Table 4-8: Full Resolution Cartesian Coordinates Annotation data file description

4.2.1.4 Tie points Cartesian Coordinates Annotation Data File

The Tie Points Cartesian coordinates dataset contains the quasi-Cartesian swath coordinates of the tie-points on the ellipsoid (the resolution is 1 km in the along-track direction and 16 km in the across-track one).

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
x_<g><v>	**Geolocated x (across track) coordinate of detector FOV centre**		**f64**	**rows columns**
units	UDUNITS unit name	m		1
y_<g><v>	**Geolocated y (along track) coordinate of detector FOV centre**		**f64**	**rows columns**
units	UDUNITS unit name	m		1

Table 4-9: Tie Points Cartesian Coordinates Annotation data file description

4.2.1.5 Full Resolution Geodetic Coordinates Annotation Data File

The geodetic coordinates' dataset contains the ortho-geolocated geodetic coordinates, in latitude and longitude, and the surface elevation of the centre of each pixel in the field of view on the earth's surface, determined from a digital elevation model. The dataset is generated in the image frame. The dataset is encoded in NetCDF 4. There are at most ~~eight~~ ten datasets, four ~~two~~ at 1km resolution (nadir and oblique views, global one

and F1 dedicated) and up to six at 500m resolution (nadir and oblique views, “A stripe” and “B stripe” – nominal configuration – and TDI if selected). The format of each of them is identical but the array sizes and the values of some attributes differ, along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum number of un-regridded (orphaned) pixels on each image line**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
latitude_<g><v>	**Latitude of detector FOV centre on the earth’s surface**	**[-90; 90]**	**i32**	**rows columns**
standard_name	CF standard name	latitude		1
units	UDUNITS unit name	degrees_north		1
scale_factor	Scaling factor used in decoding packed data	1e-6		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-2147483648		1
longitude_<g><v>	**Longitude of detector FOV centre on the earth’s surface**	**[-180; 180]**	**i32**	**rows columns**
standard_name	CF standard name	longitude		1
units	UDUNITS unit name	degrees_east		1
scale_factor	Scaling factor used in decoding packed data	1e-6		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-2147483648		1
elevation_<g><v>	**Surface elevation of detector FOV centre above reference ellipsoid**	**[-450; 9000]**	**i16**	**rows columns**
standard_name	CF standard name	surface_altitude		1
units	UDUNITS unit name	m		1

Element name	Description	Range or value	T	D
scale_factor	Scaling factor used in decoding packed data	0.1		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-32768		1
latitude_orphan_<g><v>	**Latitude of detector FOV centre on the earth's surface associated with un-regridded pixels**	**[-90; 90]**	**i32**	**rows orphan_pixels**
standard_name	CF standard name	latitude		1
units	UDUNITS unit name	degrees_north		1
scale_factor	Scaling factor used in decoding packed data	1e-6		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-2147483648		1
longitude_orphan_<g><v>	**Longitude of detector FOV centre on the earth's surface associated with un-regridded pixels**	**[-180; 180]**	**i32**	**rows orphan_pixels**
standard_name	CF standard name	longitude		1
units	UDUNITS unit name	degrees_east		1
scale_factor	Scaling factor used in decoding packed data	1e-6		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-2147483648		1
elevation_orphan_<g><v>	**Surface elevation of detector FOV centre above reference ellipsoid associated with un-regridded pixels**	**[-450; 9000]**	**i16**	**rows orphan_pixels**
standard_name	CF standard name	surface_altitude		1
units	UDUNITS unit name	m		1
scale_factor	Scaling factor used in decoding packed data	0.1		1
add_offset	Offset used to in decoding packed data	0		1
_FillValue	Value indicating missing data	-32768		1

Table 4-10: Full Resolution Geodetic Coordinates Annotation data file description

4.2.1.6 Tie points Geodetic Coordinates Annotation Data Files

The Tie Points geodetic coordinates dataset contains the geodetic coordinates, in latitude and longitude, of the tie-points on the ellipsoid. The resolution of this grid is 1 km on the along-track direction and 16 km on the across-track one.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
latitude_<g><v>	**Latitude of detector FOV centre on the earth's surface**	**[-90; 90]**	**f64**	**rows columns**
standard_name	CF standard name	"latitude"		1
units	UDUNITS unit name	"degrees_north"		1
longitude_<g><v>	**Longitude of detector FOV centre on the earth's surface**	**[-180; 180]**	**f64**	**rows columns**
standard_name	CF standard name	"longitude"		1
units	UDUNITS unit name	"degrees_east"		1

Table 4-11: Tie points Geodetic Coordinates Annotation data file description

4.2.1.7 Time Annotations Data File

The time coordinate dataset contains the measurement times for each image line. The main time information is the scan acquisition time associated with the sub-satellite point included on each line. Others parameters are included to be bale to retrieve the exact acquition time of each instrument pixel. The dataset is encoded in NetCDF 4. There are at most four datasets, one at 1km resolution (common for nadir and oblique views) and up to three at 500m resolution (common for nadir and oblique views, “A stripe” and “B stripe” – Nominal configuration – and TDI if selected). The format of each of them is identical but the array sizes and the values of some attributes differ along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
time_stamp_<g>	Time at which the sub-satellite point crosses the image row~~Acquisition time of the sub-satellite point included in this line~~		**i64**	**rows**
standard_name	CF standard name	“time”		1
units	UDUNITS unit name	“microseconds since 2000-01-01T00:00:00Z”		1
_FillValue	Default value for scan_time entry	$-(2^{63})$		1
SCANSYNC	Scan period, defined as a complete rotation of the scan mirrors consisting of exactly 3670 1km (or 7340 500m) pixel acquisitions~~Scan Period defined as a complete rotation of the scan mirrors.~~		**i32**	**1**
units	UDUNITS unit name	us		1
PIXSYNC_<g>	Time sampling interval for pixels along each sca~~Frequency at which the pixels are sampled on each scan~~n		i6~~4~~32	**1**
units	UDUNITS unit name	us		1
NADIR_FIRST_PIXEL_<g>	First pixel acquisition in nadir view relative to SCANSYNC		i32	1
OBLIQUE_FIRST_PIXEL_<g>	First pixel acquisition in oblique view relative to SCANSYNC		i32	1
Nadir_First_scan_<g><v>	**Scan number of the first Nadir scan contributing to each line**	**[0; 32766]**	**u16**	**rows**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
Nadir_Last_scan_<g><v>	**Scan number of the last Nadir scan contributing to each line**	**[0; 32766]**	**u16**	**rows**

Element name	Description	Range or value	T	D
_FillValue	Value indicating missing data	$2^{16} - 1$		1
Oblique_First_scan_<g><v>	**Scan number of the first oblique scan contributing to each line**	**[0; 32766]**	**u16**	**rows**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
Oblique_Last_scan_<g><v>	**Scan number of the last Oblique scan contributing to each line**	**[0; 32766]**	**u16**	**rows**
_FillValue	Value indicating missing data	$2^{16} - 1$		1
Nadir_Minimal_ts_<g><v>	Time at SCANSYNC of the first scan contributing to each nadir image row.~~Acquisition time of the first nadir scan contributing to each line~~		**i64**	**rows**
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"microseconds since 2000-01-01T00:00:00Z"		1
_FillValue	Default value for scan_time entry	$-(2^{63})$		1
Nadir_Maximal_ts_<g><v>	Time at SCANSYNC of the last scan contributing to each nadir image row.~~Acquisition time of the last nadir scan contributing to each line~~		**i64**	**rows**
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"microseconds since 2000-01-01T00:00:00Z"		1
_FillValue	Default value for scan_time entry	$-(2^{63})$		1
Oblique_Minimal_ts_<g><v>	Time at SCANSYNC of the first scan contributing to each oblique image row.~~Acquisition time of the first oblique scan contributing to each line~~		**i64**	**rows**
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"microseconds since 2000-01-01T00:00:00Z"		1
_FillValue	Default value for scan_time entry	$-(2^{63})$		1
Oblique_Maximal_ts_<g><v>	Time at SCANSYNC of the last scan contributing to each oblique image row.~~Acquisition time of the last oblique scan contributing to each line~~		**i64**	**rows**

Element name	Description	Range or value	T	D
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"microseconds since 2000-01-01T00:00:00Z"		1
_FillValue	Default value for scan_time entry	$-(2^{63})$		1

Table 4-12: Time Annotation data file description

4.2.1.8 Solar and Satellite Geometry Annotation Data File

The Solar and Satellite Geometry Annotation Data Files contain the solar and satellite azimuth and zenith angles at earth's surface and the corresponding distances to the surface, on a tie point grid. The resolution of this grid is 1 km on along-track direction and 16 km on across-track one. There are two data sets, one for the nadir and one for the oblique viewing geometries. The format of;each of them is identical and it is reported in the following table.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
solar_zenith_<g><v>	**Solar zenith angle**		**f32**	**rows columns**
standard_name	CF standard name	"solar_zenith_ angle"		1
units	UDUNITS unit name	"degrees"		1
solar_azimuth_<g><v>	**Solar azimuth angle**		**f32**	**rows columns**
standard_name	CF standard name	"solar_azimuth_angle"		1
units	UDUNITS unit name	"degrees"		1
solar_path_<g><v>	**Distance from sun to surface**		**f32**	**rows columns**
units	UDUNITS unit name	"m"		1
sat_zenith_<g><v>	**Satellite zenith angle**		**f32**	**rows columns**
standard_name	CF standard name	"solar_zenith_ angle"		1
units	UDUNITS unit name	"degrees"		1
sat_azimuth_<g><v>	**Satellite azimuth angle**		**f32**	**rows columns**
standard_name	CF standard name	"solar_azimuth_angle"		1
units	UDUNITS unit name	"degrees"		1

Element name	Description	Range or value	T	D
sat_path_<g><v>	**Distance from satellite to surface**		**f32**	**rows columns**
units	UDUNITS unit name	"m"		1

Table 4-13: Solar and Satellite Geometry Annotation data file description

4.2.1.9 Meteorological Parameters Annotation Data File

The meteorological parameters data file contains ECMWF forecast or analysis fields, regridded onto tie points. The resolution of this grid is 1 km on along-track direction and 16 km on across-track one. The dataset contains three types of field:

- single surface or near-surface values
- surface time series
- profiles

By default, the synoptic time is the time nearest to the product centre time. For near-real time products, ECMWF forecast input fields must be updated continuously, to ensure that the data in the meteorology auxiliary dataset is valid for the L1b product. For these, the analysis time is the nearest available time preceeding the synoptic time.

Field t_forecast_tx is the time of the analysis file used to produce the forecast. It is not applicable when input product is an analysis. In this case, the field will be empty.

Element name	Description	Range or value	T	D
rows	**Tie-point grid along-track array size**			
columns	**Tie-point grid across-track array size**			
n_bound	**Start/stop bounds for integrated products**	**2**		
t_single	**Synoptic time of single time fields**	**1**		
t_series	**Synoptic times of time series fields**	**5**		
z_wind	**Wind field height coordinate**	**1**		
z_atmos	**Atmospheric field height coordinate**	**1**		
z_soil	**Soil depth coordinate**	**1**		
p_atmos	**Pressure levels of profile fields**	**25**		
<common global attributes>	Common global attributes (see [AD- 3] and 3.1.3.1)			
t_forecast_tx	**For forecast parameters, the time of the analysis from which the forecast was made**		**i16**	
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"hours since…"		1
t_single	**Synoptic time of single time fields**		**i16**	**t_single**
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"hours since…"		1
axis	Coordinate axis identifier	"T"		1
t_series	**Synoptic times of time series fields**		**i16**	**t_series**
standard_name	CF standard name	"time"		1
units	UDUNITS unit name	"hours since…"		1
axis	Coordinate axis identifier	"T"		1
bounds	Reference to "t_bound"	"t_bound"		1
t_bound	**Start and stop times for integrated products**		**i16**	**t_series n_bound**
standard_name	CF standard name	"time"		1

Element name	Description	Range or value	T	D
units	UDUNITS unit name	"hours since..."		1
axis	Coordinate axis identifier	"T"		1
z_wind	**Height of wind field above surface**		**i16**	**z_wind**
standard_name	CF standard name	"height"		1
units	UDUNITS unit name	"metre"		1
axis	Coordinate axis identifier	"Z"		1
positive	axis orientation	"up"		1
z_atmos	**Height of atmospheric field above surface**		**i16**	**z_atmos**
standard_name	CF standard name	"height"		1
units	UDUNITS unit name	"metre"		1
axis	Coordinate axis identifier	"Z"		1
positive	axis orientation	"up"		1
z_soil	**Depth of soil wetness level**		**f32**	**z_soil**
standard_name	CF standard name	"height"		1
units	UDUNITS unit name	"metre"		1
axis	Coordinate axis identifier	"Z"		1
positive	axis orientation	"down"		1
bounds	Reference to "z_bound"	"z_bound"		1
z_bound	**Soil wetness level depth bounds**		**i16**	**z_soil n_bound**
standard_name	CF standard name	"height"		1
units	UDUNITS unit name	"metre"		1
axis	Coordinate axis identifier	"Z"		1
positive	axis orientation	"down"		1
p_atmos	**Pressure level coordinates**		**i16**	**p_atmos**
standard_name	CF standard name	"air_pressure"		1

Element name	Description	Range or value	T	D
units	UDUNITS unit name	"Pa"		1
axis	Coordinate axis identifier	"Z"		1
sea_surface_temperature_tx	**Sea surface temperature**		**f32**	**t_single rows columns**
standard_name	CF standard name	"sea_surface_ temperature"		1
units	UDUNITS unit name	"K"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"34"		1
sea_ice_fraction_tx	**Sea ice fraction**		**f32**	**t_single rows columns**
standard_name	CF standard name	"sea_ice_area_ fraction"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"31"		1
u_wind_tx	**10m U wind component**		**f32**	**t_series z_wind rows columns**
standard_name	CF standard name	"eastward_ wind"		1
units	UDUNITS unit name	"m s^{-2}"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"165"		1
v_wind_tx	**10m V wind component**		**f32**	**t_series z_wind rows columns**
standard_name	CF standard name	"northward_ wind"		1
units	UDUNITS unit name	"m s^{-2}"		1

Element name	Description	Range or value	T	D
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"166"		1
sensible_heat_tx	**Integrated surface sensible heat flux**		**f32**	**t_series rows columns**
standard_name	CF standard name	"integral_of_ surface_ downward_ sensible_heat_ flux_wrt_time"		1
units	UDUNITS unit name	"W m-2 s"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"146"		1
latent_heat_tx	**Integrated surface latent heat flux**		**f32**	**t_series rows columns**
standard_name	CF standard name	"integral_of_ surface_ downward_ latent_heat_ flux_wrt_time"		1
units	UDUNITS unit name	"W m-2 s"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"147"		1
solar_radiation_tx	**Integrated surface solar radiation**		**f32**	**t_series rows columns**
standard_name	CF standard name	"integral_of_ surface_ net_downward_ shortwave_ flux_wrt_time"		1
units	UDUNITS unit name	"W m-2 s"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"176"		1

Element name	Description	Range or value	T	D
thermal_radiation_tx	**Integrated surface thermal radiation**		**f32**	**t_series rows columns**
standard_name	CF standard name	"integral_of_ surface_ net_downward_ longwave_ flux_wrt_time"		1
units	UDUNITS unit name	"W m-2 s"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"177"		1
temperature_profile_tx	**Atmospheric temperature profile**		**f32**	**t_single p_atmos rows columns**
standard_name	CF standard name	"air_temperature"		1
units	UDUNITS unit name	"K"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"130"		1
specific_humidity_tx	**Specific humidity profile (kg/kg)**		**f32**	**t_single p_atmos rows columns**
standard_name	CF standard name	"specific_ humidity"		1
units	UDUNITS unit name	"kg/kg"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"133"		1
total_column_water_vapour_tx	**Total column water vapour**		**f32**	**t_single rows columns**
standard_name	CF standard name	"atmosphere_ water_vapor_ content"		1

Element name	Description	Range or value	T	D
units	UDUNITS unit name	"kg m-2"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"137"		1
total_column_ozone_tx	**Total column Ozone**		**f32**	**t_single rows columns**
standard_name	CF standard name	"atmospheric_mass_content_of_ ozone"		1
units	UDUNITS unit name	"kg m-2"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"202"		1
snow_albedo_tx	**Snow Albedo**		**f32**	**t_single rows columns**
standard_name	CF standard name	"snow_albedo"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	TBC		1
surface_pressure_tx	**Surface pressure**		**f32**	**t_single rows columns**
standard_name	CF standard name	"surface_air_ pressure"		1
units	UDUNITS unit name	"hPa"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"134"		1
east_west_stress_tx	**East-west integrated surface wind stress**		**f32**	**t_series rows columns**

Element name	Description	Range or value	T	D
standard_name	CF standard name	"integral_of_ surface_ downward_ eastward_ stress_wrt_ time"		1
units	UDUNITS unit name	"N m-2 s"		1
model	Model identifier (e.g. interim era analysis)	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"180"		1
north_south_stress_tx	**North-south integrated surface wind stress**		**f32**	**t_series rows columns**
standard_name	CF standard name	"integral_of_ surface_ downward_ northward_ stress_wrt_ time"		1
units	UDUNITS unit name	"N m-2 s"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"181"		1
cloud_fraction_tx	**Fractional cloud cover**		**f32**	**t_single rows columns**
standard_name	CF standard name	"cloud_area_fraction"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"164"		1
soil_wetness_tx	**Volumetric Soil Water Layer 1 (SWVLlevel 1)**		**f32**	**t_single rows columns**
standard_name	CF standard name	"moisture_content_of _soil_layer"		1
units	UDUNITS unit name	"m"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"39"		1

Element name	Description	Range or value	T	D
temperature_tx	**2m air temperature**		**f32**	**t_single z_atmos rows columns**
standard_name	CF standard name	"air_temperature"		1
units	UDUNITS unit name	"K"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"167"		1
dew_point_tx	**2m dew point**		**f32**	**t_single z_atmos rows columns**
standard_name	CF standard name	"dew_point_ temperature"		1
units	UDUNITS unit name	"K"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"168"		1
skin_temperature_tx	**Skin temperature**		**f32**	**t_single rows columns**
standard_name	CF standard name	"surface_ temperature"		1
units	UDUNITS unit name	"K"		1
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"235"		1
snow_depth_tx	**Snow liquid water equivalent depth**		**f32**	**t_single rows columns**
standard_name	CF standard name	"lwe_thickness_of_su rface_ snow_amount"		1
units	UDUNITS unit name	"metre"		1

Element name	Description	Range or value	T	D
model	Model identifier	(Note 1)		1
parameter	Parameter identifier (e.g. ECMWF GRIB code)	"141"		1

Table 4-14: Meteorological Annotation data file description

Note 1: The model attribute should contain a code to identify the source (e.g. ECWMF) and type (forecast or analysis) of the met field. For ECMWF fields, it is recommended that these codes should be "ECMWF_F" or "ECMWF_A".

5. MANIFEST FILE DESCRIPTION: COMMON PART

The purpose of this section is to describe in detail all the data sets that are included with any of the Sentinel-3 SLSTR product. Most of the description are common to all products and are therefore described in [AD-3].

Only the common parts are detailed in this section.

5.1 Metadata Section

See AD-3 for the metadata general description.

5.2 Data Object Section

The data object section of the manifest includes one data object per data object pointer. Each data object pointer is identified with its dataObjectID as defined in the dedicated information package map.

5.2.1 Common annotation Data Files

Each common annotations Data File constitutes a Data Object composed as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_FLAGS_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, FN, FO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"

Name				Description	Data type	Occ.	Value
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"flags_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, fn, fo
			textInfo	Textual description of the Data Component	S	0..1	"Global Flags Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-1: Global Flags Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_INDICES_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, FN, FO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"indices_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, fn, fo
			textInfo	Textual description of the Data Component	S	0..1	"Scan, Pixel and Detector Number Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-2: Scan, Pixel and Detector Number Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_CARTESIAN_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, TX, FN, FO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"cartesian_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, tx, fn, fo
			textInfo	Textual description of the Data Component	S	0..1	"Full and TP Resolution Cartesian Coordinates Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-3: Full and Tie point Resolution Cartesian Coordinates Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_GEODETIC_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, TX, FN, FO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"geodetic_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, tx, fn, fo
			textInfo	Textual description of the Data Component	S	0..1	"Full and TP Resolution Geodetic Coordinates Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-4: Full and Tie point Resolution Geodetic Coordinates Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_TIME_xx_Data', where xx=AN, BN, CN, IN,
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"time_xx.nc",; xx = an, bn, cn, in
			textInfo	Textual description of the Data Component	S	0..1	"Time Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-5: Time Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_GEOMETRY_xx_Data', where xx=TN, TO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"geometry_xx.nc",; xx = tn, to
			textInfo	Textual description of the Data Component	S	0..1	"Solar and Satellite Geometry Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-6: Solar and Satellite Geometry Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_MET_TX_Data'
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"met_tx.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Meteorological Parameters Auxiliary Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-7: Meteorological Parameters Auxiliary Data Object

Data Object				This element references the OLQC Report associated to the L0 product.	U	1..*	
	ID			Data Component;ID	S	1	“OLQCReport”
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/octetstream”
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		TBD
			textInfo	Textual description of the Data Component	S	0..1	“On Line Quality Control Report”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 5-8: OLQC Annotation Metadata Object

6. XML SCHEMA

The xml schemas used to generate the product manifest are provided as separate files (see AD- 5).

7. SLSTR PRODUCT FORMAT SPECIFICATION

7.1 Earth Observation Products

7.1.1 Level 1 Product: SL_1_RBT___

7.1.1.1 Package Description

A “SL_1_RBT___” product is composed of 78 or 112 files, taking into account the components that today are decided not to be part of the operational production baseline and that can be activated by configuration of the processing chain: 22 (or 34) files containing the actual measurements whereas the other 54 (or 76) contains the annotations data.

See section 7.1.1.4 for the definition of the fields ‘a’, ‘n’, ‘o’, ‘b’, ‘f’, ‘c’, ‘t’, ‘i’, ‘x’.

In the following sections the content of the files is reported.

7.1.1.1.1 SL_1_RBT___ product summary

The following table is describing the SLSTR L1 product in nominal configuration (i.e. with additional F1 files and without TDI files)

Product Package Type SL_1_RBT		*Description* Brightness temperatures and Radiance			
Product Level	**Diss. Timeliness**	**Product Category**	**Application Domain**		**Spatial Resolution**
1	NRT NTC	Available to the user	LND MRT		500m/1Km
Product Dissemination Unit Stripe		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		99~~101~~[1] (120)~~93~~[2] (~~112~~)	~~28~~ (~~28~~34)~~28~~ (~~34~~)	~~71~~ (~~84~~)69~~63~~ (~~76~~)	0
Product Package Structure					
Manifest file (see sections 7.1.1.2 and 8 for more details)					
File name		**Composition**			
xfdumanifest.xml		XML fields			
Measurement Data files (see section 7.1.1.4 for more details)					
File name		**Composition**			**N.O.**
S1_radiance_an.nc		(‘a’-det) nadir S1_radiance_an, S1_exception_an, S1_radiance_orphan_an , S1_exception_Orphan_an, S1_radiance_an_er, S1_radiance_orphan_an_er			
S1_radiance_ao.nc		(‘a’-det) oblique S1_radiance_ao, S1_exception_ao, S1_radiance_orphan_ao , S1_exception_Orphan_ao, S1_radiance_ao_er, S1_radiance_orphan_ao_er			
S2_radiance_an.nc		(‘a’-det) nadir S2_radiance_an, S2_exception_an, S2_radiance_orphan_an , S2_exception_Orphan_an, S2_radiance_an_er, S2_radiance_orphan_an_er			

[1] *Number of Package components includes the manifest and the OLQC Report.*

[2] ~~*Number of Package components includes the manifest and the OLQC Report.*~~

S2_radiance_ao.nc	('a'-det) oblique S2_radiance_ao, S2_exception_ao, S2_radiance_orphan_ao , S2_exception_Orphan_ao, S2_radiance_ao_er, S2_radiance_orphan_ao_er	
S3_radiance_an.nc	('a'-det) nadir S3_radiance_an, S3_exception_an, S3_radiance_orphan_an , S3_exception_Orphan_an, S3_radiance_an_er, S3_radiance_orphan_an_er	
S3_radiance_ao.nc	('a'-det) oblique S3_radiance_ao, S3_exception_ao, S3_radiance_orphan_ao , S3_exception_Orphan_ao, S3_radiance_ao_er, S3_radiance_orphan_ao_er	
S4_radiance_an.nc	('a'-det) nadir S4_radiance_an, S4_exception_an, S4_radiance_orphan_an , S4_exception_Orphan_an, S4_radiance_an_er, S4_radiance_orphan_an_er	
S4_radiance_ao.nc	('a'-det) oblique S4_radiance_ao, S4_exception_ao, S4_radiance_orphan_ao , S4_exception_Orphan_ao, S4_radiance_ao_er, S4_radiance_orphan_ao_er	
S4_radiance_bn.nc	('b'-det) nadir S4_radiance_an, S4_exception_an, S4_radiance_orphan_an , S4_exception_Orphan_an, S4_radiance_an_er, S4_radiance_orphan_an_er	
S4_radiance_bo.nc	('b'-det) oblique S4_radiance_ao, S4_exception_ao, S4_radiance_orphan_ao , S4_exception_Orphan_ao, S4_radiance_ao_er, S4_radiance_orphan_ao_er	
~~S4_radiance_cn.nc~~	~~(TDI) nadir S4_radiance_an, S4_exception_an, S4_radiance_orphan_an , S4_exception_Orphan_an, S4_radiance_an_er, S4_radiance_orphan_an_er~~	~~x~~
~~S4_radiance_co.nc~~	~~(TDI) oblique S4_radiance_ao, S4_exception_ao, S4_radiance_orphan_ao , S4_exception_Orphan_ao, S4_radiance_ao_er, S4_radiance_orphan_ao_er~~	~~x~~
S5_radiance_an.nc	('a'-det) nadir S5_radiance_an, S5_exception_an, S5_radiance_orphan_an , S5_exception_Orphan_an, S5_radiance_an_er, S5_radiance_orphan_an_er	
S5_radiance_ao.nc	('a'-det) oblique S5_radiance_ao, S5_exception_ao, S5_radiance_orphan_ao , S5_exception_Orphan_ao, S5_radiance_ao_er, S5_radiance_orphan_ao_er	
S5_radiance_bn.nc	('b'-det) nadir S5_radiance_an, S5_exception_an, S5_radiance_orphan_an , S5_exception_Orphan_an, S5_radiance_an_er, S5_radiance_orphan_an_er	
S5_radiance_bo.nc	('b'-det) oblique S5_radiance_ao, S5_exception_ao, S5_radiance_orphan_ao , S5_exception_Orphan_ao, S5_radiance_ao_er, S5_radiance_orphan_ao_er	
~~S5_radiance_cn.nc~~	~~(TDI) nadir S5_radiance_an, S5_exception_an, S5_radiance_orphan_an , S5_exception_Orphan_an, S5_radiance_an_er, S5_radiance_orphan_an_er~~	~~x~~
~~S5_radiance_co.nc~~	~~(TDI) oblique S5_radiance_ao, S5_exception_ao, S5_radiance_orphan_ao , S5_exception_Orphan_ao, S5_radiance_ao_er, S5_radiance_orphan_ao_er~~	~~x~~
S6_radiance_an.nc	('a'-det) nadir S6_radiance_an, S6_exception_an, S6_radiance_orphan_an , S6_exception_Orphan_an, S6_radiance_an_er, S6_radiance_orphan_an_er	
S6_radiance_ao.nc	('a'-det) oblique S6_radiance_ao, S6_exception_ao, S6_radiance_orphan_ao , S6_exception_Orphan_ao, S6_radiance_ao_er, S6_radiance_orphan_ao_er	
S6_radiance_bn.nc	('b'-det) nadir S6_radiance_an, S6_exception_an, S6_radiance_orphan_an , S6_exception_Orphan_an, S6_radiance_an_er, S6_radiance_orphan_an_er	

S6_radiance_bo.nc	('b'-det) oblique S6_radiance_ao, S6_exception_ao, S6_radiance_orphan_ao , S6_exception_Orphan_ao, S6_radiance_ao_er, S6_radiance_orphan_ao_er	
~~S6_radiance_cn.nc~~	~~(TDI) nadir S6_radiance_an, S6_exception_an, S6_radiance_orphan_an , S6_exception_Orphan_an, S6_radiance_an_er, S6_radiance_orphan_an_er~~	~~x~~
~~S6_radiance_co.nc~~	~~(TDI) oblique S6_radiance_ao, S6_exception_ao, S6_radiance_orphan_ao , S6_exception_Orphan_ao, S6_radiance_ao_er, S6_radiance_orphan_ao_er~~	~~x~~
S7_BT_in.nc	1 Km nadir, S7_BT_in, S7_exception_in, S7_BT_orphan_in , S7_exception_Orphan_in, S7_BT_in_er, S7_BT_orphan_in_er	
S7_BT_io.nc	1 Km oblique, S7_BT_io, S7_exception_io, S7_BT_orphan_io , S7_exception_Orphan_io, S7_BT_io_er, S7_BT_orphan_io_er	
S8_BT_in.nc	1 Km nadir, S8_BT_in, S8_exception_in, S8_BT_orphan_in , S8_exception_Orphan_in, S8_BT_in_er, S8_BT_orphan_in_er	
S8_BT_io.nc	1 Km oblique, S8_BT_io, S8_exception_io, S8_BT_orphan_io , S8_exception_Orphan_io, S8_BT_io_er, S8_BT_orphan_io_er	
S9_BT_in.nc	1 Km nadir, S9_BT_in, S9_exception_in, S9_BT_orphan_in , S9_exception_Orphan_in, S9_BT_in_er, S9_BT_orphan_in_er	
S9_BT_io.nc	1 Km oblique, S9_BT_io, S9_exception_io, S9_BT_orphan_io , S9_exception_Orphan_io, S9_BT_io_er, S9_BT_orphan_io_er	
F1_BT_fn.nc~~F1_BT_in.nc~~	1 Km nadir, F1_BT_fn, F1_exception_fn, F1_BT_orphan_fn , F1_exception_Orphan_fn, F1_BT_er_fn; , F1_BT_orphan_er_fn~~1 Km nadir, F1_BT_in, F1_exception_in, F1_BT_orphan_in , F1_exception_Orphan_in, F1_BT_in_er, F1_BT_orphan_in_er~~	
F1_BT_fo.nc~~F1_BT_io.nc~~	1 Km oblique, F1_BT_fo, F1_exception_fo, F1_BT_orphan_fo , F1_exception_Orphan_fo, F1_BT_er_fo; , F1_BT_orphan_er_fo~~1 Km oblique, F1_BT_io, F1_exception_io, F1_BT_orphan_io , F1_exception_Orphan_io, F1_BT_io_er, F1_BT_orphan_io_er~~	
F2_BT_in.nc	1 Km nadir, F2_BT_in, F2_exception_in, F2_BT_orphan_in , F2_exception_Orphan_in, F2_BT_in_er, F2_BT_orphan_in_er	
F2_BT_io.nc	1 Km oblique, F2_BT_io, F2_exception_io, F2_BT_orphan_io , F2_exception_Orphan_io, F2_BT_io_er, F2_BT_orphan_io_er	
Annotation Data files (see section 7.1.1.5 for more details)		
File name	**Composition**	
S1_quality_an.nc	S1_dL_BB_an, S1_dL_VISCAL_an, [.....]	
S1_quality_ao.nc	S1_dL_BB_ao, S1_dL_VISCAL_ao, [.....]	
S2_quality_an.nc	S2_dL_BB_an, S2_dL_VISCAL_an, [.....]	
S2_quality_ao.nc	S2_dL_BB_ao, S2_dL_VISCAL_ao, [.....]	
S3_quality_an.nc	S3_dL_BB_an, S3_dL_VISCAL_an, [.....]	
S3_quality_ao.nc	S3_dL_BB_ao, S3_dL_VISCAL_ao, [.....]	
S4_quality_an.nc	S4_dL_BB_an, S4_dL_VISCAL_an, [.....]	
S4_quality_ao.nc	S4_dL_BB_ao, S4_dL_VISCAL_ao, [.....]	
S4_quality_bn.nc	S4_dL_BB_bn, S4_dL_VISCAL_bn, [.....]	
S4_quality_bo.nc	S4_dL_BB_bo, S4_dL_VISCAL_bo, [.....]	
~~S4_quality_cn.nc~~	~~S4_dL_BB_cn, S4_dL_VISCAL_cn, [.....]~~	~~x~~
~~S4_quality_co.nc~~	~~S4_dL_BB_co, S4_dL_VISCAL_co, [.....]~~	~~x~~
S5_quality_an.nc	S5_dL_BB_an, S5_dL_VISCAL_an, [.....]	
S5_quality_ao.nc	S5_dL_BB_ao, S5_dL_VISCAL_ao, [.....]	
S5_quality_bn.nc	S5_dL_BB_bn, S5_dL_VISCAL_bn, [.....]	
S5_quality_bo.nc	S5_dL_BB_bo, S5_dL_VISCAL_bo, [.....]	
~~S5_quality_cn.nc~~	~~S5_dL_BB_cn, S5_dL_VISCAL_cn, [.....]~~	~~x~~

~~S5_quality_co.nc~~	~~S5_dL_BB_co, S5_dL_VISCAL_co, [.....]~~	x
S6_quality_an.nc	S6_dL_BB_an, S6_dL_VISCAL_an, [.....]	
S6_quality_ao.nc	S6_dL_BB_ao, S6_dL_VISCAL_ao, [.....]	
S6_quality_bn.nc	S6_dL_BB_bn, S6_dL_VISCAL_bn, [.....]	
S6_quality_bo.nc	S6_dL_BB_bo, S6_dL_VISCAL_bo, [.....]	
~~S6_quality_cn.nc~~	~~S6_dL_BB_cn, S6_dL_VISCAL_cn, [.....]~~	x
~~S6_quality_co.nc~~	~~S6_dL_BB_co, S6_dL_VISCAL_co, [.....]~~	x
S7_quality_in.nc	S7_dT_BB_in, S7_dL_VISCAL_in, [.....]	
S7_quality_io.nc	S7_dL_BB_io, S7_dL_VISCAL_io, [.....]	
S8_quality_in.nc	S8_dL_BB_in, S8_dL_VISCAL_in, [.....]	
S8_quality_io.nc	S8_dL_BB_io, S8_dL_VISCAL_io, [.....]	
S9_quality_in.nc	S9_dL_BB_in, S9_dL_VISCAL_in, [.....]	
S9_quality_io.nc	S9_dL_BB_io, S9_dL_VISCAL_io, [.....]	
F1_quality_in.nc	F1_dT_BB1_in, F1_dT_BB2_in, [.....]	
F1_quality_io.nc	F1_dT_BB1_io, F1_dT_BB2_io, [.....]	
F2_quality_in.nc	F2_dT_BB1_in, F2_dT_BB2_in, [.....]	
F2_quality_io.nc	F2_dT_BB1_io, F2_dT_BB2_io, [.....]	
flags_an.nc	cloud_an, bayes_an, pointing_an, confidence_an, [.....]	
flags_ao.nc	cloud_ao, bayes_ao, pointing_ao, confidence_ao, [.....]	
flags_bn.nc	cloud_bn, bayes_bn, pointing_bn, confidence_bn, [.....]	
flags_bo.nc	cloud_bo, bayes_bo, pointing_bo, confidence_bo, [.....]	
~~flags_cn.nc~~	~~cloud_cn, bayes_cn, pointing_cn, confidence_cn, [.....]~~	x
~~flags_co.nc~~	~~cloud_co, bayes_co, pointing_co, confidence_co, [.....]~~	x
flags_in.nc	cloud_in, bayes_in, pointing_in, confidence_in, [.....]	
flags_io.nc	cloud_io, bayes_io, pointing_io, confidence_io, [.....]	
flags_fn.nc	cloud_fn, bayes_fn, pointing_fn, confidence_fn, [.....]	
flags_fo.nc	cloud_fo, bayes_fo, pointing_fo, confidence_fo, [.....]	
indices_an.nc	scan_an, pixel_an, detector_an, Scan_orphan_an,.[.....]	
indices_ao.nc	scan_ao, pixel_ao, detector_ao, Scan_orphan_ao,.[.....]	
indices_bn.nc	scan_bn, pixel_bn, detector_bn, Scan_orphan_bn,.[.....]	
indices_bo.nc	scan_bo, pixel_bo, detector_bo, Scan_orphan_bo,.[.....]	
~~indices_cn.nc~~	~~scan_cn, pixel_cn, detector_cn, Scan_orphan_cn,.[.....]~~	x
~~indices_co.nc~~	~~scan_co, pixel_co, detector_co, Scan_orphan_co,.[.....]~~	x
indices_in.nc	scan_in, pixel_in, detector_in, Scan_orphan_in,.[.....]	
indices_io.nc	scan_io, pixel_io, detector_io, Scan_orphan_io,.[.....]	
indices_fn.nc	scan_fn, pixel_fn, detector_fn, Scan_orphan_fn,.[.....]	
indices_fo.nc	scan_fo, pixel_fo, detector_fo, Scan_orphan_fo,.[.....]	
geodetic_an.nc	latitude_an, longitude_an, elevation_an, [.....]	
geodetic_ao.nc	latitude_ao, longitude_ao, elevation_ao, [.....]	
geodetic_bn.nc	latitude_bn, longitude_bn, elevation_bn, [.....]	
geodetic_bo.nc	latitude_bo, longitude_bo, elevation_bo, [.....]	
~~geodetic_cn.nc~~	~~latitude_cn, longitude_cn, elevation_cn, [.....]~~	x
~~geodetic_co.nc~~	~~latitude_co, longitude_co, elevation_co, [.....]~~	x
geodetic_in.nc	latitude_in, longitude_in, elevation_in, [.....]	
geodetic_io.nc	latitude_io, longitude_io, elevation_io, [.....]	

geodetic_fn.nc	latitude_fn, longitude_fn, elevation_fn, [……]	
geodetic_fo.nc	latitude_fo, longitude_fo, elevation_fo, [……]	
geodetic_tx.nc	latitude_tx, longitude_tx, elevation_tx	
cartesian_an.nc	x_an, y_an, x_orphan_an, y_orphan_an	
cartesian_ao.nc	x_ao, y_ao, x_orphan_ao, y_orphan_ao	
cartesian_bn.nc	x_bn, y_bn, x_orphan_bn, y_orphan_bn	
cartesian_bo.nc	x_bo, y_bo, x_orphan_bo, y_orphan_bo	
~~cartesian_cn.nc~~	~~x_cn, y_cn, x_orphan_cn, y_orphan_cn~~	~~x~~
~~cartesian_co.nc~~	~~x_co, y_co, x_orphan_co, y_orphan_co~~	~~x~~
cartesian_in.nc	x_in, y_in, x_orphan_in, y_orphan_in	
cartesian_io.nc	x_io, y_io, x_orphan_io, y_orphan_io	
cartesian_fn.nc	x_fn, y_fn, x_orphan_fn, y_orphan_fn	
cartesian_fo.nc	x_fo, y_fo, x_orphan_fo, y_orphan_fo	
cartesian_tx.nc	x_ix, y_ix,	
time_an.nc	time_stamp_a, first_scan_an, first_scan_ao, […]	
time_bn.nc	time_stamp_b, first_scan_bn, first_scan_bo, […]	
time_in.nc	time_stamp_i, first_scan_in, first_scan_io, […]	
~~time_cn.nc~~	~~time_stamp_c, first_scan_cn, first_scan_co, […]~~	~~x~~
geometry_tn.nc	solar_zenith_tn, solar_azimuth_tn, solar_path_tn, sat_zenith_tn, [..]	
geometry_to.nc	solar_zenith_to, solar_azimuth_to, solar_path_to, sat_zenith_to, [..]	
viscal.nc	visible calibration coefficients	
met_tx.nc	meteorological parameters auxiliary dataset file	
Representation Information Files		
File name	**Composition**	
none		

Table 7-1: SLSTR Level 1 product physical composition

7.1.1.2 Manifest File

The structure of the Manifest element is described in [AD- 3].

7.1.1.3 Wrapped Metadata

According to [AD- 3], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 3].

Secondary Metadata for the SLSTR instrument are reported in **Table 7-2**. Last columns of the table indicate the applicability of Metadata fields to the processing Level.

*< Complete secondary metadata is described in details in [*AD- 4*].*
The content of this table will be embedded in the document when it will be finalized>

Table 7-2: **Secondary Metadata for SLSTR products**

7.1.1.4 Measurement Data Files

The Level 1b SLSTR product contains at most 34 measurement datasets; for each of the "nadir" and "oblique" views:

- One radiance dataset for each of the VIS-NIR channels S1 – S3: "A stripe" only
- Three radiance datasets for each of the SWIR channels S4 – S6: "A stripe" and "B stripe" (nominal configuration) and TDI composite detectors (if these grids are selected),
- One brightness temperature dataset for each of the thermal infrared channels S7 – S9,
- One brightness temperature dataset for each of the fire channels F1 and F2.

The brightness temperature and radiance values will be mapped onto a rectangular grid of resolution appropriate to the channel; this will be 1 km for the thermal IR channels, and 0.5 km for the visible and SWIR channels.

The format of the two types of measurements datasets (radiance and brightness temperature) are described below, using place holders for the band, grid, and view names, which are to be substituted for each valid combination thereof.
As the geolocation is performed separately for F1 channels from the others thermal channels, the regridding of all parameters associated with this channel has also to be done separately. We then have to define a fifth grid dedicated to F1 channel. The definition of the annotations file will be similar to the others thermal channels. Only the suffix will be modified.

Variable	Placeholder	Possible Values
band	<b>	S1 – S9, F1, F2
grid	<g>	'i' – 1km Thermal Infra-Red grid 'f' – 1 km dedicated F1 grid 'a' – 500m visibile and SWIR "A stripe" grid 'b' – 500m visible and SWIR "B stripe" grid 'c' – 500m TDI grid 't' – Tie point grid
view	<v>	'n' – nadir view 'o' – oblique view 'x' – view agnostic

Table 7-3: band/grid/view abbreviation meaning

7.1.1.4.1 SLSTR Level 1 Visible and Short Wave Infra-Red Radiances

The visible and shortwave infrared description applies to the visible and shortwave infrared channels (S1 – S6), which are sampled at 500m resolution, and calibrated in radiance units. There are two NetCDF 4 files for each of the channels S1 – S3, i.e. one for the nadir and oblique views, and at most six NetCDF 4 files for each of the channels S4 – S6, representing the permutations of the two views and three detector groupings: ("A stripe", "B stripe" – nominal configuration – and TDI). The format of each of them is identical but the array sizes and the values of some attributes differ, rows and columns could be different for A and B stripes, along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum number of un-regridded (orphaned) pixels per image line**			
<common global attributes>	Common global attributes (see [AD- 3]			
<b>_radiance_<g><v>	**Gridded pixel radiances**	**[-32767, 32767]**	**i16**	**rows columns**
standard_name	CF standard name	toa_radiance		1
units	UDUNITS unit name	mW.m-2.sr-1.nm-1		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
<b>_radiance_err<g><v> (see note below)	**Gridded pixel radiances error estimates**		**i16**	**rows columns**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data			1

Element name	Description	Range or value	T	D
add_offset	Offset used to in decoding packed data			1
<b>_exception_<g><v>	**Pixel exception flags**		**u8**	**rows columns**
standard_name	CF standard name	toa_radiance_status_flag		1
flag_masks	Flag masks	See Table 7-6		1
flag_meanings	Flag descriptions	See Table 7-6		1
<b>_radiance_orphan_<g><v>	**Radiances for orphaned pixels**	**[-32767, 32767]**		**rows orphan_pixels**
standard_name	CF standard name	toa_radiance		1
units	UDUNITS unit name	mW.m-2.sr-1.nm-1		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	0		1
<b>_radiance_err_orphan_<g><v> (see note below)	**Radiance error estimates for orphaned pixels**			**rows orphan_pixels**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
<b>_exception_orphan_<g><v>	**Exception flags for orphaned pixels**			**rows orphan_pixels**
standard_name	CF standard name	toa_radiance_status_flag		1
flag_masks	Flag masks	See Table 7-6		1
flag_meanings	Flag descriptions	See Table 7-6		1

Table 7-4: SL_1_RBT___ Visible and Short Wave Infra-Red files

Note:

- The exception byte content is identical the thermal infrared exception byte detailed in the next section.
- The above error estimate variables don't correspond to any existing algorithm at the time of writing this specification
-

7.1.1.4.2 SLSTR Level 1 Thermal Infrared brightness Temperatures

The thermal infrared MDS description table applies to the thermal infrared channels (S7, S8 and S9), and the fire channels (F1 and F2), which are sampled at 1 km resolution and calibrated in units of brightness temperature. There are two NetCDF 4 files for each channel, i.e. one for the nadir view and one for the oblique view. The format for each is identical but the values of some attributes differ, along track array size is dependent on the time interval defined in the Job Order.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
columns	**Across track grid size**			
orphan_pixels	**Maximum number of un-regridded (orphaned) pixels per image line**			
<common global attributes>	Common global attributes (see [AD- 3]			
<b>_BT_<g><v>	**Gridded pixel brightness temperatures**	**[-32767, 32767]**	**i16**	**rows columns**
standard_name	CF standard name	toa_brightness_temperature		1
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	283.73		1
<b>_BT_err_<g><v> (see note in previous section)	**Gridded pixel brightness temperatures error estimates**		**i16**	**rows columns**
standard_name	CF standard name			1
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
<b>_exception_<g><v>	**Pixel exception flags**		**u8**	**rows columns**
standard_name	CF standard name	toa_brightness_temperature_status_flag		1
flag_masks	Flag masks	See Table 7-6		1
flag_meanings	Flag descriptions	See Table 7-6		1

Element name	Description	Range or value	T	D
<b>_BT_orphan_<g><v>	**Brightness termperatures for orphaned pixels**	**[-32767, 32767]**	**i16**	**rows orphan_pixels**
standard_name	CF standard name	toa_brightness_temperature		1
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data	0.01		1
add_offset	Offset used to in decoding packed data	283.73		1
<b>_BT_err_orphan_<g><v> (see note in previous sectio)	**Brightness temperatures error estimates for orphaned pixels**		**i16**	**rows orphan_pixels**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
<b>_exception_orphan_<g><v>	**Exception flags for orphaned pixels**		**u8**	**rows orphan_pixels**
standard_name	CF standard name	toa_brightness_temperature_status_flag		1
flag_masks	Flag masks	See Table 7-6		1
flag_meanings	Flag descriptions	See Table 7-6		1

Table 7-5: SL_1_RBT___ Thermal Infra-Red files

7.1.1.4.2.1 Thermal infrared exception byte contents and meaning

The exception byte values are defined in the following table.

Bit Number	Text Code	Description
0	ISP_absent	ISP absent

1	pixel_absent	Pixel absent
2	not_decompressed	Not decompressed
3	no_signal	No signal in channel
4	saturation	Saturation in channel
5	invalid_radiance	Derived radiance outside calibration
6	no_parameters	Calibration parameters unavailable
7	unfilled_pixel	Unfilled pixel

Table 7-6: SL_1_RBT__ exception byte value

7.1.1.5 Specific annotation data files

In this section, the specific annotations included in the Level 1 product are described.

7.1.1.5.1 SLSTR Level 1 Visible and Shortwave IR Quality Annotation

The visible and shortwave infrared quality Annotation Data files contain estimates of detector noise measured at the black bodies and VISCAL, and the ancillary information required to scale these to estimates of radiance noise for each pixel in the visible and shortwave infrared channels (S1 – S6). There are two NetCDF ~~4~~ files for each of channels S1 – S3, one for the nadir and one for the oblique views, and at most six NetCDF 4 files for each of channels S4 – S6, representing the permutations of the two views and three detector groupings: “A stripe”, “B stripe” (nominal configuration) and TDI ~~(~~if selected~~)~~. The format of each of them is identical but the across-track array size and the values of some attributes differ. Also the along track array size is dependent on the time interval defined in the Job Order.

Note that the validity range of each variable is provided by surveillance values provided in the SLSTR L1 ADF. The _FillValue is set to NaN or -999.

Element name	Description	Range or value	T	D
rows	**Along track grid size**			
detectors	**Number of detectors**			
integrators	**Number of integrators**			
Uncert_table	**Number of elements in uncertainty LUT**			
<common global attributes>	Common global attributes (see [AD- 3]			
<b>_band_centre_<g><v>	**Detector filter band centre**		**f64**	**detectors**

Element name	Description	Range or value	T	D
standard_name	CF standard name	radiation_ wavelength		1
units	UDUNITS unit name	m		1
<b>_bandwidth_<g><v>	**Detector filter bandwidth**		**f64**	**detectors**
standard_name	CF standard name	radiation_wavelengt h		1
units	UDUNITS unit name	m		1
<b>_solar_irradiance_<g><v>	**Solar irradiance at top of atmosphere**		**f64**	**detectors**
units	UDUNITS unit name	mW $m^{-2}nm^{-1}$		1
<b>_scene_temperature_<g><v>	**Scene radiance for VIS-SWIR channel Calibration Uncertainty Estimates**		**f64**	**uncert_table**
units	UDUNITS unit name	mW m^{-2} $sr^{-1}nm^{-1}$		1
<b>_radiometric_uncertainty_<g><v>	**Radiometric Calibration Uncertainty Estimate for VIS-SWIR channels**		**f64**	**detectors uncert_table**
units	UDUNITS unit name	mW $m^{-2}nm^{-1}$		1
<b>_dL_BB_<g><v>	**Radiance noise from cold black body (Type A)**	~~[0; 1]~~	**f64**	**detectors integrators rows**
units	UDUNITS unit name	"mW m^{-2} $sr^{-1}nm^{-1}$"		1
_FillValue	Value indicating missing data	-1		1
<b>_dL_VISCAL_<g><v>	**VISCAL radiance noise (Type A)**	~~[0; 15]~~	**f64**	**detectors integrators**
units	UDUNITS unit name	"mW m^{-2} $sr^{-1}nm^{-1}$"		1
_FillValue	Value indicating missing data	-1		1
<b>_L_BB_<g><v>	**Radiance from cold black body**	~~[-1; 1]~~	**f64**	**detectors rows**
units	UDUNITS unit name	"mW m^{-2} $sr^{-1}nm^{-1}$"		1
_FillValue	Value indicating missing data	-1		1
<b>_L_VISCAL_<g><v>	**VISCAL radiance**	**[0; 150]**	**f64**	**detectors**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	"mW m^{-2} $sr^{-1}nm^{-1}$"		1
_FillValue	Value indicating missing data	-1		1
<b>_T_detector_<g><v>	**Detector Temperature**	**~~[50; 400]~~**	**f64**	**rows**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	~~-999 1~~		1
<b>_cal_gain_<g><v>	**Scale factor multiplying detector count**	**~~[0; 10,000]~~**	**f64**	**detectors integrators**
_FillValue	Value indicating missing data	-1		1
<b>_cal_offset_<g><v>	**Offset added to scaled detector count**	**[-10,000; 10,000]**	**f64**	**rows detectors integrators**
_FillValue	Value indicating missing data	-32768		1
<b>_du_T_start_<g><v>	**Delay in start of integration**	**~~0~~**	**f64**	**rows**
units	UDUNITS unit name	us		1
_FillValue	Value indicating missing data	~~-999 40~~		1
<b>_du_int_Time_<g><v>	**Adjustable integration time (only for S4, S5, S6)**	**~~[30; 40]~~**	**f64**	**1**
units	UDUNITS unit name	us		1
_FillValue	Value indicating missing data	~~-999 0~~		1
<b>_FEE_voltage_reference_<g><v>	**Voltage reference added to detector signal (only for S4, S5, S6)**		**f64**	**rows**
units	UDUNITS unit name	V		1
_FillValue	Value indicating missing data	~~-999 -32768~~		1
<b>_T_det_coarse_<g><v>	**Coarse detector temperature (only for S4, S5, S6)**	**[50, 400]**	**f64**	**rows**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	~~-999 -1~~		1
<b>_FEE_gain_<g><v>	**Voltage gain added to detector signal (only for S1, S2, S3)**	**~~[1; 4]~~**	**u8**	**1**
units	UDUNITS unit name	V		1
_FillValue	Value indicating missing data	~~-999 0~~		1

Element name	Description	Range or value	T	D
<b>_FEE_Oversampling_factor_<g><v>	**Over sampling factor used in detector readings**		**u8**	**rows**
<b>_FEE_offset_<g><v>	**Voltage offset added to detector signal**	~~**[0; 4095]**~~	**i16**	**rows**
units	UDUNITS unit name	V		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1

Table 7-7: SL_1_RBT__ Visible and Shortwave IR Annotation Data Files

7.1.1.5.2 SLSTR Level 1 Thermal Infrared Quality Annotation

The Thermal Infrared Quality Data Files contain estimates of detector noise measured at the black bodies and the ancillary information required to scale this to estimates of NEΔT for each pixel sample for each thermal infrared channel (S7, S8 and S9), and fire channel (F1 and F2). There are two NetCDF 4 files for each channel, one for the nadir view and one for the oblique view. The format of each of them is identical but the across-track array size and the values of some attributes differ. Also the along track array size is dependent on the time interval defined in the Job Order.

Note that the validity range of each variable is provided by surveillance values provided in the SLSTR L1 ADF. The _FillValue is set to NaN or -999

Element name	Description	Range or value	T	D
rows	**Along-track grid size**			
detectors	**Number of detectors**			
integrators	**Number of integrators**			
uncert_table	**Number of elements in uncertainty LUT**			
<common global attributes>	Common global attributes (see [AD- 3])			
<b>_band_centre_<g><v>	**Detector filter band centre**		**f64**	**detectors**
standard_name	CF standard name	radiation_wavelength		1
units	UDUNITS unit name	m		1
<b>_bandwidth_<g><v>	**Detector filter bandwidth**		**f64**	**detectors**

Element name	Description	Range or value	T	D
standard_name	CF standard name	radiation_wavelength		1
units	UDUNITS unit name	m		1
<b>_scene_temperature_<g><v>	**Scene Temperature for IR channel Uncertainty Estimates**	**~~[0.0, 100.0]~~**	**f64**	**uncert_table**
units	UDUNITS unit name	K		1
<b>_radiometric_uncertainty_<g><v>	**IR channel radiometric uncertainty estimates at BTs in scene temperature array'**	**~~[0; 100]~~**		**detectors uncert_table**
units	UDUNITS unit name	K		1
<b>_dT_BB1_<g><v>	**Black body 1 noise equivalent brightness temperature**	**~~[0; 100]~~**		**rows detectors integrators**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	-1		1
<b>_dT_BB2_<g><v>	**Black body 2 noise equivalent brightness temperature**	**~~[0; 100]~~**		**rows detectors integrators**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	-1		1
<b>_T_BB1_<g><v>	**Black body temperature 1**	**~~[200; 400]~~**		**rows**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_T_BB2_<g><v>	**Black body temperature 2**	**~~[200; 400]~~**		**rows**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	-999~~-1~~		1
<b>_T_detector_<g><v>	**Detector temperature**	**~~[50; 400]~~**		**rows**
units	UDUNITS unit name	K		1
_FillValue	Value indicating missing data	-999~~-1~~		1

Element name	Description	Range or value	T	D
<b>_T_det_coarse[3]_<g><v>	**Coarse detector temperature**	**~~[50.0, 400.0]~~**		**rows**
units	UDUNITS unit name	K		1
_FillValue	Default value for missing T_det entry	~~-999-1~~		1
<b>_cal_gain_<g><v>	**Scale factor multiplying detector count**	**~~[1e-10; 1e4]~~**		**rows detectors integrators**
units	UDUNITS unit name	"W m-2 sr-1"		1
_FillValue	Value indicating missing data	-1		1
<b>_cal_offset_<g><v>	**Offset added to scaled detector count**	**~~[-0.1; 10.0]~~**		**rows detectors integrators**
units	UDUNITS unit name	"W m-2 sr-1"		1
_FillValue	Value indicating missing data	-1		1
<b>_du_int_Time_<g><v>	**Adjustable integration time**	**~~[70; 80]~~**		**1**
units	UDUNITS unit name	us		1
_FillValue	Value indicating missing data	~~-9990~~		1
<b>_du_t_start_<g><v>	**Delay in start of integration**	**~~0~~**		**1**
units	UDUNITS unit name	us		1
_FillValue	Value indicating missing data	~~-9990~~		1
<b>_FEE_offset_<g><v>	**Voltage offset added to detector signal**	**~~[0; 4095]~~**		**rows detectors**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	~~-999-1~~		1
<b>_BB1_Reference_1_<g><v>	**BB1 Reference resistor 1 voltage**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	~~-999-1~~		1

[3] *Note for F1 and F2, the values for T_det_coarse for S7 and S8 shall be used respectively because these are the on the same detector units.*

Element name	Description	Range or value	T	D
<b>_BB1_Reference_2_<g><v>	**BB1 Reference resistor 2 voltage**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_BB2_Reference_1_<g><v>	**BB2 Reference resistor 1 voltage**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_BB2_Reference_2_<g><v>	**BB2 Reference resistor 2 voltage**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_BBEU Ground[4]_<g><v>	**BBEU Ground Reference (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_BBEU_5VRef_<g><v>	**BBEU +5V Reference (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_BBEU_Bridge_Ref_<g><v>	**BBEU Bridge Reference (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_TAEO_5V_Scale_<g><v>	**TAEO plus 5V internal reference voltage (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_ TAEO_VPRT_Scale_<g><v>	**TAEO VPRT internal reference voltage value (should be constant)**			**rows**
units	UDUNITS unit name	volt		1

[4] Note : BBEU_Ground, BBEU_5VRef and BBEU_Bridge_Ref are needed for monitoring the stablility of the on-board blackbodies. These parameters are included in the BBEU telemetry but as of issue 5 of the IMDD these are not transmitted in the instrument HK packets. The parameters are included as a placeholder in the event of an update to the IMDD contents.

Element name	Description	Range or value	T	D
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_TAEO_PVPRTH_Scale_<g><v>	**TAEO plus VPRT internal reference voltage (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
<b>_TAEO_MVPRTH_Scale_<g><v>	**TAEO minus VPRT internal reference voltage (should be constant)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-1~~		1
S7_FEE_voltage_reference_<g><v>	**Voltage reference added to detector signal (only for channel S7)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-32768~~		1
S7_VDG_<g><v>	**VDG value for S7 detector (only for channel S7)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-32768~~		1
<b>_FEE_Oversampling_factor_<g><v>	**Over sampling factor used in detector readings (Only for channels S7 to S9)**			**rows**
<b>_V_Bias_<g><v>	**Detector Voltage Bias (Only for channels S8 and S9)**			**rows**
units	UDUNITS unit name	volt		1
_FillValue	Value indicating missing data	-999 ~~-32768~~		1

Table 7-8: SL_1_RBT__ Thermal IR Annotation Data Files

7.1.1.5.3 SLSTR Level 1 VISCAL File

This file is a copy of the one provided as input ADF. See [AD- 6] for details in the format of this file.

7.2 Browse Products

A browse product consists of a collection of metadata information gathered in the xfdumanifest files and of one or more browse images. The images can represent one or several parameters or combination of parameters stored in one or several image formats.

7.2.1 Manifest File

The structure of the Manifest element is described in [AD-3].

7.2.1.1 Wrapped Metadata

According to [AD- 3], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products.

Regarding the primary metadata: the fields are the same of the parent product, with different values for some fields (which are filled by the browse processor). There is no secondary metadata section for the browse products.

7.2.2 Level 1 Browse Package Description

7.2.2.1 Package Description

The SLSTR Level 1b Browse consists of a single True colour image.

7.2.2.1.1 SL_1_RBT_BW product summary

Product Package Type SL_1_RBT_BW		*Description* SLSTR Browse L1 Product general structure			
Product Level	**Diss. Timeliness**	**Product Category**	**Application Domain**	**Spatial Resolution**	
1	(NRT) (NTC)	Not Available to the user			
Product Dissemination Unit N/A		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files

	3[5]	1	0	0
Product Package Structure				
Manifest file (see section 7.2.1 for more details)				
File name		**Composition**		
xfdumanifest.xml		XML fields		
Measurement Data files (see section 7.2.2.2 for more details)				
File name		**Composition**		
BrowseImage.<ext>		True color image Grayscale image used for the night part		
Annotation Data files				
File name		**Composition**		
none				
Representation Information Files				
File name		**Composition**		
none				

Table 7-9: SLSTR Browse L1 Product physical composition

7.2.2.2 Measurement Data File

The SLSTR Brightness Temperatures and Radiances Browse L1 Product is a sub-sampled image at 1 km x 1 km resolution, based on the Level 1b nadir view brightness temperature and reflectance data. The product is partitioned into a day form in which different bands from the SL_1_RBT product are chosen to form a colour composite image showing the key features of the data, and a night form derived using the channel brightness temperature only.

[5] *Number of Package components includes the manifest and the OLQC Report.*

8. MANIFEST FILE DESCRIPTION

The purpose of this section is to describe in detail all the data sets that are included with any of the Sentinel-3 SLSTR product. Most of the description are common to all products and are therefore described in [AD-3].

Only the IPF specific parts are detailed in this section.

8.1 InformationPackageMap

8.1.1 'SL_1_RBT___' Level 1 Product

The Information Package Map associated to the package of the SL_1_RBT product is reported in the next table.

The following table describes the SLSTR L1 product in nominal configuration (i.e. without TDI stripe selected)

Name				Description	Data Type	Value	Occ.
contentUnit				The information package map contains one content unit that includes the product data component included in the product.	Content Unit Type		1
	ID			Identifier of the package	S	'Information Package'	0..1
	unitType			Describes the type of data referenced by this content unit	S	'Information Package'	0..1
	textInfo			Textual description of the content unit	S	'SENTINEL-3 SLSTR Level 1 package'	0..1
	pdiID			Identifier of the Preservation Description;Information applicable to this content unit	S	'processing'	1
	dmdID			Identifier of the Metadata applicable to this content unit	S	In any order : 'acquisitionPeriod' 'platform' "orbitReference" "frameSet" "qualityInformation" 'generalProductInformation' 'slstrProductInformation' "processing"	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_RAD_AN_Unit', i = 1,…6	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'TOA radiance for channel Si (A stripe grid, nadir view)', i = 1,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_an' 'flags_an' 'indices_an'' 'geodetic_an' 'geodetic_tx' 'cartesian_an' 'time_an', 'geometry_tn' 'met_tx'	0..1

Name				Description	Data Type	Value	Occ.
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_RAD_AN_Data', i = 1,…6	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_RAD_AO_Unit', i = 1,…6	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'TOA radiance for channel Si (A stripe grid, oblique view)', i = 1,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_ao' 'flags_ao' 'indices_ao'' 'geodetic_ao' 'geodetic_tx' 'cartesian_ao' 'geometry_to' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_RAD_AO_Data', i = 1,…6	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_RAD_BN_Unit', i = 4,…6	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'TOA radiance for channel Si (B stripe grid, nadir view)', i = 4,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_bn' 'flags_bn' 'indices_bn'' 'geodetic_bn' 'geodetic_tx' 'cartesian_bn' 'time_bn' 'geometry_tn' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_RAD_BN_Data', i = 4,…6	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_RAD_BO_Unit', i = 4,…6	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'TOA radiance for channel Si (B stripe grid, oblique view)', i = 4,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_bo' 'flags_bo' 'indices_bo'' 'geodetic_bo' 'geodetic_tx' 'cartesian_bo' 'geometry_to' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_RAD_BO_Data', i = 4,…6	1
	~~contentUnit~~						~~1…~~

Name				Description	Data Type	Value	Occ.
		~~ID~~		~~Content unit ID~~	~~S~~	~~'SLSTR_Si_RAD_CN_Unit', i = 4,…6~~	~~1~~
		~~unitType~~			~~S~~	~~'Measurement Data Unit'~~	~~1~~
		~~textInfo~~			~~S~~	~~'TOA radiance for channel Si (TDI stripe grid, nadir view)', i = 4,…6~~	~~0..1~~
		~~dmdID~~		~~Attribute: Description Metadata Identifier~~	~~S~~	~~In any order: 'Si_quality_cn' 'flags_cn' 'indices_cn'' 'geodetic_cn' 'geodetic_tx' 'cartesian_cn' 'time_cn' 'geometry_tn' 'met_tx'~~	~~0..1~~
		~~dataObject Pointer~~					~~1~~
			~~ID~~	~~Data Object pointer ID~~	~~S~~		~~0..1~~
			~~dataObjectID~~	~~Data Object element ID~~	~~S~~	~~'SLSTR_Si_RAD_CN_Data', i = 4,…6~~	~~1~~
	~~contentUnit~~						~~1…~~
		~~ID~~		~~Content unit ID~~	~~S~~	~~'SLSTR_Si_RAD_CO_Unit', i = 4,…9~~	~~1~~
		~~unitType~~			~~S~~	~~'Measurement Data Unit'~~	~~1~~
		~~textInfo~~			~~S~~	~~'TOA radiance for channel Si (B stripe grid, oblique view)', i = 4,…9~~	~~0..1~~
		~~dmdID~~		~~Attribute: Description Metadata Identifier~~	~~S~~	~~In any order: 'Si_quality_co' 'flags_co' 'indices_co'' 'geodetic_co' 'geodetic_tx' 'cartesian_co' 'geometry_to' 'met_tx'~~	~~0..1~~
		~~dataObject Pointer~~					~~1~~
			~~ID~~	~~Data Object pointer ID~~	~~S~~		~~0..1~~
			~~dataObjectID~~	~~Data Object element ID~~	~~S~~	~~'SLSTR_Si_RAD_CO_Data', i = 4,…9~~	~~1~~
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_BT_IN_Unit', i = 7,…9	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'Gridded pixel brightness temperature for channel Si (1km TIR grid, nadir view)', i = 7,…9	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_in' 'flags_in' 'indices_in' 'geodetic_in' 'geodetic_tx' 'cartesian_in' 'geometry_tn' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_BT_IN_Data', i = 7,…9	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Si_BT_IO_Unit', i = 7,…9	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'Gridded pixel brightness temperature for channel Si	0..1

Name				Description	Data Type	Value	Occ.
						(1km TIR grid, oblique view)', i = 7,…9	
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Si_quality_io' 'flags_io' 'indices_io' 'geodetic_io' 'geodetic_tx' 'cartesian_io' 'geometry_to' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_BT_IO_Data', i = 7,…9	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_F1_BT_FN_Unit',	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'Gridded pixel brightness temperature for channel F1 (1km TIR grid, nadir view)',	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'F1_quality_fn' 'flags_fn' 'indices_fn' 'geodetic_fn' 'geodetic_tx' 'cartesian_fn' 'geometry_tn' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_F1_BT_FN_Data',	1
	contentUnit						1..
		ID		Content unit ID	S	'SLSTR_F1_BT_FO_Unit',	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'Gridded pixel brightness temperature for channel F1 (1km TIR grid, oblique view)',	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Fi_quality_fo' 'flags_fo' 'indices_fo' 'geodetic_fo' 'geodetic_tx' 'cartesian_fo' 'geometry_to' 'met_tx'	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_F1_BT_FO_Data',	1
	contentUnit						1…
		ID		Content unit ID	S	'SLSTR_Fi_BT_IN_Unit', i = 1, 2	1
		unitType			S	'Measurement Data Unit'	1
		textInfo			S	'Gridded pixel brightness temperature for channel Fi (1km TIR grid, nadir view)', i = 1,2	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'Fi_quality_in' 'flags_in' 'indices_in' 'geodetic_in' 'geodetic_tx'	0..1

Name				Description	Data Type	Value	Occ.
						‘cartesian_in’ ‘geometry_tn’ ‘met_tx’	
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	‘SLSTR_Fi_BT_IN_Data’, i = 1, 2	1
	contentUnit						1..
		ID		Content unit ID	S	‘SLSTR_Fi_BT_IO_Unit’, i = 1, 2	1
		unitType			S	‘Measurement Data Unit’	1
		textInfo			S	‘Gridded pixel brightness temperature for channel Fi (1km TIR grid, oblique view)’, i = 1,2	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: ‘Fi_quality_io’ ‘flags_io’ ‘indices_io’ ‘geodetic_io’ ‘geodetic_tx’ ‘cartesian_io’ ‘geometry_to’ ‘met_tx’	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	‘SLSTR_Fi_BT_IO_Data’, i = 1, 2	1
	contentUnit						1
		ID		Content unit ID	S	‘SLSTR_Si_QUALITY_AN_Unit’, i=1,…6	1
		unitType			S	‘Annotation Data Unit’	1
		textInfo			S	‘Visible and Shortwave IR quality annotations for channel Si (A stripe grid, nadir view)’ i=1,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	‘SLSTR_Si_QUALITY_AN_Data’, i=1,…6	1
	contentUnit						1
		ID		Content unit ID	S	‘SLSTR_Si_QUALITY_AO_Unit’, i=1,…6	1
		unitType			S	‘Annotation Data Unit’	1
		textInfo			S	‘Quality Annotation Data Set’	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	‘SLSTR_Si_QUALITY_AO_Data’, i=1,…6	1
	contentUnit						1
		ID		Content unit ID	S	‘SLSTR_Si_QUALITY_BN_Unit’, i=4,…6	1
		unitType			S	‘Annotation Data Unit’	1
		textInfo			S	‘Visible and Shortwave IR quality annotations for channel Si (A stripe grid, oblique view)’, i=4,…6	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject					1

Name				Description	Data Type	Value	Occ.
		Pointer					
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_QUALITY_BN_Data', i=4,…6	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_Si_QUALITY_BO_Unit', i=4,…6	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Visible and Shortwave IR quality annotations for channel Si (B stripe grid, nadir view)', i=4, … 6	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_QUALITY_BO_Data', i=4,…6	1
	~~contentUnit~~						~~1~~
		~~ID~~		~~Content unit ID~~	~~S~~	~~'SLSTR_Si_QUALITY_CN_Unit', i=4,…6~~	~~1~~
		~~unitType~~			~~S~~	~~'Annotation Data Unit'~~	~~1~~
		~~textInfo~~			~~S~~	~~'Visible and Shortwave IR quality annotations for channel Si (TDI stripe grid, nadir view)', i=4, … 6~~	~~0..1~~
		~~dmdID~~		~~Attribute: Description Metadata Identifier~~	~~S~~		~~0..1~~
		~~dataObject Pointer~~					~~1~~
			~~ID~~	~~Data Object pointer ID~~	~~S~~		~~0..1~~
			~~dataObjectID~~	~~Data Object element ID~~	~~S~~	~~'SLSTR_Si_QUALITY_CN_Data', i=4,…6~~	~~1~~
	~~contentUnit~~						~~1~~
		~~ID~~		~~Content unit ID~~	~~S~~	~~'SLSTR_Si_QUALITY_CO_Unit', i=4,…6~~	~~1~~
		~~unitType~~			~~S~~	~~'Annotation Data Unit'~~	~~1~~
		~~textInfo~~			~~S~~	~~'Visible and Shortwave IR quality annotations for channel Si (TDI stripe grid, oblique view)', i=4, … 6~~	~~0..1~~
		~~dmdID~~		~~Attribute: Description Metadata Identifier~~	~~S~~		~~0..1~~
		~~dataObject Pointer~~					~~1~~
			~~ID~~	~~Data Object pointer ID~~	~~S~~		~~0..1~~
			~~dataObjectID~~	~~Data Object element ID~~	~~S~~	~~'SLSTR_Si_QUALITY_CO_Data', i=4,…6~~	~~1~~
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_Si_QUALITY_IN_Unit', i=7,...9	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Thermal Infrared quality annotations for channel Si (1km TIR grid, nadir view)', i=7,...9	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_QUALITY_IN_Data', i=7,...9	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_Si_QUALITY_IO_Unit', i=7,...9	1
		unitType			S	'Annotation Data Unit'	1

Name				Description	Data Type	Value	Occ.
		textInfo			S	'Thermal Infrared quality annotations for channel Si (1km TIR grid, oblique view)', i=7,...9	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Si_QUALITY_IO_Data', i=7,...9	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_Fi_QUALITY_IN_Unit', i=1,2	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Thermal Infrared quality annotations for channel Fi (1km TIR grid, nadir view)', i=1,2	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Fi_QUALITY_IN_Data', i=1,2	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_Fi_QUALITY_IO_Unit', i=1, 2	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Thermal Infrared quality annotations for channel Fi (1km TIR grid, oblique view)', i=1,2	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_Fi_QUALITY_IO_Data', i=1, 2	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_FLAGS_xx_Unit', where xx=AN, AO, BN, BO~~,~~ ~~CN, CO~~, IN, IO, FN, FO	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Global flags for the A, B or 1 km ~~TDI stripe grid~~, nadir or oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_FLAGS_xx_Data', where xx=AN, AO, BN, BO~~,~~ ~~CN, CO~~, IN, IO, FN, FO	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_INDICES_xx_Unit', where xx=AN, AO, BN, BO~~,~~ ~~CN, CO~~, IN, IO, FN, FO	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Scan, pixel and detector annotations for the A, B or ~~TDI~~ 1 km ~~stripe~~ grid, nadir or oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject					1

Name				Description	Data Type	Value	Occ.
		Pointer					
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_INDICES_xx_Data', where xx=AN, AO, BN, BO~~,~~ ~~CN, CO~~, IN, IO, FN, FO	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_GEODETIC_xx_Unit', where xx=AN, AO, BN, BO~~,~~ ~~CN, CO~~, IN, IO, FN, FO, TX	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Full resolution geodetic coordinates for the A, B or 1 km ~~TDI stripe~~ grid, nadir or oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_GEODETIC_xx_Data', where xx=AN, AO, BN, BO, ~~CN, CO,~~ IN, IO, TX, FN, FO	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_CARTESIAN_xx_Unit', where xx=AN, AO, BN, BO, ~~CN, CO,~~ IN, IO, TX, FN, FO	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Full resolution cartesian coordinates for the A, B or 1 km ~~TDI stripe~~ grid, nadir or oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_CARTESIAN_xx_Data', where xx=AN, AO, BN, BO, ~~CN, CO,~~ IN, IO, TX, FN, FO	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_TIME_xx_Unit', where xx=A, B, ~~C,~~ I,	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Time annotations for the A, B or 1km~~TDI~~ stripe grid, nadir and oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_TIME_xx_Data', where xx=A, B, ~~C,~~ I,	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_GEOMETRY_xx_Unit', where xx=TN, TO	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'solar and satellite geometry annotations, nadir or oblique view'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1

Name				Description	Data Type	Value	Occ.
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_GEOMETRY_xx_Data', where xx=TN, TO	1
	contentUnit						1
		ID		Content unit ID	S	'SLSTR_MET_TX_Unit'	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'Meteorological parameters regridded onto the tie points'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'SLSTR_MET_TX_Data'	1
	contentUnit						1
		ID		Content unit ID	S	'ADFUnit'	1
		unitType			S	'Annotation Data Unit'	1
		textInfo			S	'VISCAL data obtained from input VISCAL ADF'	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	'ADFData'	1

Table 8-1: Information Package Map for L1 SLSTR product

8.1.2 'SL_1_RBT_BW' Level 1 Product

The Information Package Map associated to the package of the SL_1_RBT_BW product is reported in the next table.

Name				Description	Data Type	Value	Occ.
contentUnit				The information package map contains one content unit that includes the product data component included in the product.	Content Unit Type		1
	ID			Identifier of the package	S	"packageUnit"	0..1
	unitType			Describes the type of data referenced by this content unit	S	"Information Package"	0..1
	textInfo			Textual description of the content unit	S	"SENTINEL-3 SLSTR Level 1 Browse Product"	0..1
	pdiID			Identifier of the Preservation Description;Information applicable to this content unit	S	"processing"	1
	dmdID			Identifier of the Metadata applicable to this content unit	S	In any order : "acquisitionPeriod" "platform" "orbitReference" "frameSet" "qualityInformation" 'generalProductInformation' "processing"	1
	contentUnit						1
		ID		Content unit ID	S	brwImage01Unit	0..1

Name				Description	Data Type	Value	Occ.
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Mixed True and Pseudo Colour Image"	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"brwImage01Data"	1

Table 8-2: Information Package Map for L1 SLSTR Browse Product

8.2 Metadata Section

See AD-3 for the metadata general description.

8.3 Data Object Section

8.3.1 Measurement Data Files

8.3.1.1 "SL_1_RBT" Level 1 Product

Data Objects for the SLSTR SL_1_RBT Level 1 product are listed in the next table.

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_RAD_AN_Data', i = 1,…6
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	

Name				Description	Data type	Occ.	Value
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_radiance_an.nc" i = 1, …6
			textInfo	Textual description of the Data Component	S	0..1	"Radiance Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_RAD_AO_Data', i = 1,…6
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_radiance_ao.nc" i = 1, …6
			textInfo	Textual description of the Data Component	S	0..1	"Radiance Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	

Name				Description	Data type	Occ.	Value
	ID			Data Component;ID	S	1	'SLSTR_Si_RAD_BN_Data', i = 4,…6
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_radiance_bn.nc" i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	"Radiance Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_RAD_BO_Data', i = 4,…6
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	

Name				Description	Data type	Occ.	Value
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_radiance_bo.nc" i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	"Radiance Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
~~**Data Object**~~				~~This element references the Data Component included in the L1 product.~~	~~U~~	~~1..*~~	
	~~**ID**~~			~~Data Component;ID~~	~~S~~	~~1~~	~~'SLSTR_Si_RAD_CN_Data', i = 4,…6~~
	~~**byte Stream**~~			~~Pointer to the Data Component~~	~~U~~	~~1..*~~	
		~~**ID**~~		~~Byte stream ID~~	~~S~~	~~0..1~~	
		~~**mimeType**~~		~~MIME type for the referenced Data Component~~	~~E~~	~~1~~	~~"application/x-netcdf"~~
		~~**size**~~		~~Size of the Data Object File~~	~~L~~	~~1~~	
		~~**fileLocation**~~		~~Description of the location of the data component file~~	~~U~~	~~1~~	
			~~**locator Type**~~	~~Type of the file location~~	~~URL~~	~~0..1~~	~~URL~~
			~~**href**~~	~~Relative path of the file (in the file system) containing the referenced Data Component~~	~~S~~		~~"Si_radiance_en.nc" i = 4, …6~~
			~~**textInfo**~~	~~Textual description of the Data Component~~	~~S~~	~~0..1~~	~~"Radiance Data File"~~
		~~**checksum**~~		~~Checksum for the Data Component~~	~~U~~	~~1~~	

Name				Description	Data type	Occ.	Value
			~~checksumName~~		~~E~~	~~1~~	~~MD5~~
~~Data Object~~				~~This element references the Data Component included in the L1 product.~~	~~U~~	~~1..*~~	
	~~ID~~			~~Data Component;ID~~	~~S~~	~~1~~	~~'SLSTR_Si_RAD_CO_Data', i = 4,…9~~
	~~byte Stream~~			~~Pointer to the Data Component~~	~~U~~	~~1..*~~	
		~~ID~~		~~Byte stream ID~~	~~S~~	~~0..1~~	
		~~mimeType~~		~~MIME type for the referenced Data Component~~	~~E~~	~~1~~	~~"application/x-netcdf"~~
		~~size~~		~~Size of the Data Object File~~	~~L~~	~~1~~	
		~~fileLocation~~		~~Description of the location of the data component file~~	~~U~~	~~1~~	
			~~locator Type~~	~~Type of the file location~~	~~URL~~	~~0..1~~	~~URL~~
			~~href~~	~~Relative path of the file (in the file system) containing the referenced Data Component~~	~~S~~		~~"Si_radiance_co.nc" i = 4, …6~~
			~~textInfo~~	~~Textual description of the Data Component~~	~~S~~	~~0..1~~	~~"Radiance Data File"~~
		~~checksum~~		~~Checksum for the Data Component~~	~~U~~	~~1~~	
			~~checksumName~~		~~E~~	~~1~~	~~MD5~~
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_BT_IN_Data', i = 7,…9
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	

Name				Description	Data type	Occ.	Value
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_BT_in.nc" i = 7, …9
			textInfo	Textual description of the Data Component	S	0..1	"Brightness Temperature File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_BT_IO_Data', i = 7,…9
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_BT_io.nc" i = 7, …9

Name				Description	Data type	Occ.	Value
			textInfo	Textual description of the Data Component	S	0..1	“Brightness Temperature File”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	‘SLSTR_F1_BT_FN_Data’,
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf”
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		“F1_BT_fn.nc”
			textInfo	Textual description of the Data Component	S	0..1	“Brightness Temperature File”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	‘SLSTR_F1_BT_FO_Data’,
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf”
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component	U	1	

Name				Description	Data type	Occ.	Value
				file			
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"F1_BT_fo.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Brightness Temperature File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_F2~~i~~_BT_IN_Data', ~~i = 1, 2~~
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"F2~~i~~_BT_in.nc" ~~i = 1,2~~
			textInfo	Textual description of the Data Component	S	0..1	"Brightness Temperature File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	

Name				Description	Data type	Occ.	Value
	ID			Data Component;ID	S	1	'SLSTR_F2~~i~~_BT_IO_Data', ~~i = 1, 2~~
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"F2~~i~~_BT_io.nc" ~~i = 1,2~~
			textInfo	Textual description of the Data Component	S	0..1	"Brightness Temperature File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-3: SL_1_RBT Data Objects

8.3.1.2 "SL_1_RBT_BW" L1 Browse Product

Data Object for SLSTR Level 1 browse product is shown in Table 8-4:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	

Name				Description	Data type	Occ.	Value
	ID			Data Component;ID	S	1	brwImage01Data
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	One value among: "image/jpeg" " image/tiff" " image/png" " image/jp2"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		One value among: "BrowseImage.jpeg" "BrowseImage.tiff" "BrowseImage.png" "BrowseImage.jp2"
			textInfo	Textual description of the Data Component	S	0..1	"Mixed True and Pseudo Colour Image File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-4: SLSTR Browse Level 1 Data Object

8.3.2 Specific Annotation Data Files

Each Annotations Data File constitutes a Data Object composed as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_AN_Data', i=1,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_an.nc", i = 1, …6
			textInfo	Textual description of the Data Component	S	0..1	"Visible and Shortwave Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-5: Visible and Shortwave Infrared Annotation Data Object for nadir view, channel i, A stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_AO_Data', i=1,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_ao.nc", i = 1, …6
			textInfo	Textual description of the Data Component	S	0..1	"Visible and Shortwave Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-6: Visible and Shortwave Infrared Annotation Data Object for oblique view, channel i, A stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_BN_Data', i=4,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_bn.nc", i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	"Visible and Shortwave Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-7: Visible and Shortwave Infrared Annotation Data Object for nadir view, channel i, B stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_BO_Data', i=4,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_bo.nc", i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	"Visible and Shortwave Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-8: Visible and Shortwave Infrared Annotation Data Object for oblique view, channel i, B stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	‘SLSTR_Si_QUALITY_CN_Data’, i=4,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		“Si_quality_cn.nc”, i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	“Visible and Shortwave Infrared Quality Annotation Data File”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-9: Visible and Shortwave Infrared Annotation Data Object for nadir view, channel i, C stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_CO_Data', i=4,…6
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_co.nc", i = 4, …6
			textInfo	Textual description of the Data Component	S	0..1	"Visible and Shortwave Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-10: Visible and Shortwave Infrared Annotation Data Object for oblique view, channel i, C stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_IN_Data', i=7,...9
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_in.nc", i = 7,…9
			textInfo	Textual description of the Data Component	S	0..1	"Thermal Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-9: Thermal Infrared Quality Annotation Data Object for nadir view, channel i~~, TDI stripe~~

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Si_QUALITY_IO_Data', i=7,...9
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Si_quality_io.nc", i = 7,…9
			textInfo	Textual description of the Data Component	S	0..1	"Thermal Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-10: Thermal Infrared Quality Annotation Data Object for oblique view, channel i~~, TDI stripe~~

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Fi_QUALITY_IN_Data', i=1,2
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Fi_quality_in.nc", i = 1, 2
			textInfo	Textual description of the Data Component	S	0..1	"Thermal Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-11: Thermal Infrared Quality Annotation Data Object for nadir view, fire channel i~~, TDI stripe~~

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_Fi_QUALITY_IO_Data', i=1, 2
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"Fi_quality_io.nc", i = 1, 2
			textInfo	Textual description of the Data Component	S	0..1	"Thermal Infrared Quality Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-12: Thermal Infrared Quality Annotation Data Object for oblique view, fire channel i, TDI stripe

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_FLAGS_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"flags_xx.nc", xx = an, ao, bn, bo, cn, co, in, io
			textInfo	Textual description of the Data Component	S	0..1	"Global Flags Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-15: Global Flags Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_INDICES_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"indices_xx.nc", xx = an, ao, bn, bo, cn, co, in, io
			textInfo	Textual description of the Data Component	S	0..1	"Scan, Pixel and Detector Number Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-16: Scan, Pixel and Detector Number Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_CARTESIAN_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, TX
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"cartesian_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, tx
			textInfo	Textual description of the Data Component	S	0..1	"Full and TP Resolution Cartesian Coordinates Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-17: Full and Tie point Resolution Cartesian Coordinates Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_GEODETIC_xx_Data', where xx=AN, AO, BN, BO, CN, CO, IN, IO, TX
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"geodetic_xx.nc", xx = an, ao, bn, bo, cn, co, in, io, tx
			textInfo	Textual description of the Data Component	S	0..1	"Full and TP Resolution Geodetic Coordinates Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-18: Full and Tie point Resolution Geodetic Coordinates Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_TIME_xx_Data', where xx=AN, BN, CN, IN,
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"time_xx.nc",; xx = an, bn, cn, in
			textInfo	Textual description of the Data Component	S	0..1	"Time Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-19: Time Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_GEOMETRY_xx_Data', where xx=TN, TO
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"geometry_xx.nc",; xx = tn, to
			textInfo	Textual description of the Data Component	S	0..1	"Solar and Satellite Geometry Annotation Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-20: Solar and Satellite Geometry Annotation Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'SLSTR_MET_TX_Data'
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"met_tx.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Meteorological Parameters Auxiliary Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-21: Meteorological Parameters Auxiliary Data Object

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component;ID	S	1	'LST_ANCILLARY_DS_Data'
	byte Stream			Pointer to the data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the Data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"LST_ancillary_ds.nc"
			textInfo	Textual description of the Data Component	S	0..1	"LST ancillary Data File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-22: LST ancillary Data Object

Data Object				This element references the OLQC Report associated to the L0 product.	U	1..*	
	ID			Data Component;ID	S	1	“OLQCReport”
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/octetstream”
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		TBD
			textInfo	Textual description of the Data Component	S	0..1	“On Line Quality Control Report”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 8-13: OLQC Annotation Metadata Object

9. PRODUCT SIZE

In the following table the approximate size of each SLSTR file composing the Level 1 products over one full orbit is given.

The following table enumerates the data sets based upon the description tables in section 7. The sizes computation assume 40,000 1 km records per orbit (or 80,000 0.5km records) for the purpose of size estimates. Values for the dimensions in the above tables are taken as follows.

n_k= 187 orphan pixels per row in the nadir 1 km view

n_k= 112 orphan pixels per row in the oblique 1 km view

n_k= 375 orphan pixels per row in the nadir 0.5 km view

n_k= 225 orphan pixels per row in the oblique 0.5 km view

(number of orphans is an evaluation ~12% of the number of pixels per row)

columns (1km nadir) = 1500

columns (1km oblique) = 900

columns (0.5km nadir) = 3000

columns (0.5km oblique) = 1800

rows (1km) = 40,000

rows (0.5km) = 80,000

columns (tie points nadir, oblique) = 130

rows (tie points nadir, oblique) = 40,000

n_det (1km) = 2

n_det (0.5 km) = 4

n_int = 2 parity of pixels

No file compression is applied.

9.1 SLSTR Level 1 Earth observation product (SL_1_RBT___)

The sizes provided in the next table are the sum over all files of the same category (if > 1 the number of files used is set in the column description).

Element name	Description	Size in Gbytes
xfdumanifest.xml	**Sentinel-SAFE product manifest**	
F1x_BT_fin.nc, F2_BT_in.nc,x= 1, 2 Sx_BT_in.nc, x= 7, …, 9	nadir view (1km resolution) – 5 files	0,943
F1x_BT_foio.nc, x= 1, 2 F2_BT_io.nc, Sx_BT_io.nc, x= 7, …, 9	oblique view (1km resolution) – 5 files	0,565
Sx_radiance_an.nc, x= 1, …, 3 Sx_radiance_yn.nc, x= 4, …, 6 and y=a, b,c	nadir view any stripe (0.5km resolution) – 912 files	9,0506.787
Sx_radiance_ao.nc, x= 1, …, 3 Sx_radiance_yo.nc, x= 4, …, 6 and y=a, b,c	oblique view any (0.5km resolution) – 912 files	5,4294.072
Fx_quality_iy.nc, x= 1, 2 and y=n, o Sx_quality_iy.nc, x= 7, …, 9 and y=n, o	nadir or oblique view any stripe – 10 files	0,0581
Sx_quality_ay.nc, x= 1, …, 3 and y=n, o Sx_quality_yz.nc, x= 4, …, 6 and y=a, b,c and z=n, o	nadir or oblique view any stripe – 1824 files	0,228304
flags_in.nc	global confidence flags nadir 1km	0,601
flags_io.nc	global confidence flags obl 1km	0,360
flags_fn.nc	global confidence flags nadir dedicated to F1	0,601
flags_fo.nc	global confidence flags obl dedicated to F1	0,360
flags_an.nc	global confidence flags nadir 0.5km A	2.402
flags_ao.nc	global confidence flags obl 0.5km A	1.441
flags_bn.nc	global confidence flags nadir 0.5km B	2.402
flags_bo.nc	global confidence flags obl 0.5km B	1.441
flags_cn.nc	global confidence flags nadir 0.5km TDI	2.402
flags_co.nc	global confidence flags obl 0.5km TDI	1.441
time_in.nc	1km nadir	0,001
time_xn.nc, x= a, b, c	0.5km nadir any stripe – 3 files	0,0069
indices_in.nc	nadir view image, 1km	0,314
indices_io.nc	oblique view image, 1km	0,188
indices_fn.nc	nadir view image, dedicated to F1 channel	0,314
indices_fo.nc	oblique view image, dedicated to F1 channel	0,188
indices_xn.nc, x= a, b, c	nadir view image, 0.5km, any stripe – 23 files	2.5143,771
indices_xo.nc, x= a, b, c	oblique view image, 0.5km, any stripe – 23 files	1.5082,262
cartesian_in.nc	Image pixel x, y topographically corrected 1km, nadir view	0,503
cartesian_io.nc	1km, oblique view	0,302
cartesian_fn.nc	Image pixel x, y topographically corrected dedicated to f1, nadir view	0,503
cartesian_fo.nc	dedicated to f1, oblique view	0,302
cartesian_xn.nc, x= a, b, c	0,5km , nadir, any stripe – 23 files	4.0226,033
cartesian_xo.nc, x= a, b, c	0.5km, oblique, any stripe – 23 files	2.4133,619
geodetic_in.nc	1km nadir	0,628
geodetic_io.nc	1km oblique	0,377
geodetic_fn.nc	1km nadir, dedicated to F1	0,628
geodetic_fo.nc	1km oblique, dedicatd to F1	0,377

geodetic_xn.nc, x= a, b, c	0.5km nadir any stripe – 23 files	5.0287,541
geodetic_xo.nc, x= a, b, c	0.5km oblique any stripe – 23 files	43.016,524
cartesian_tx.nc geodetic_tx.nc	x,y or Lat, lon, tie points grid – 2 files	0,155
geometry_tn.nc geometry_to.nc	Nadir or oblique view (tie points grids) – 2 files	0,465
viscal.nc	Visible Calibration Coefficients ADS	0,000
met_tx.nc	Met fields on tie points grid	1,937
Total		**61.46696 4.739 47.95**

Table 9-1: SL_1_RBT___ product size without errors and all grids output ((A, B, 1km, Fire and TDI)

It is to be noted that the above figure is computed without considering the radiance error variables (both for the image and the orphans).
The total size of one full orbit considering the errors is:

Element name	Description	Size in Gbytes
xfdumanifest.xml	**Sentinel-SAFE product manifest**	
F1_BT_fn.nc, F2_BT_in.nc,Fx_BT_in.nc, x= 1, 2 Sx_BT_in.nc, x= 7, …, 9Sx_BT_in.nc, x= 7, …, 9	nadir view (1km resolution) – 5 files	1,571
F1_BT_fo.nc, F2_BT_io.nc,Fx_BT_io.nc, x= 1, 2 F1_BT_fn.nc, F2_BT_in.nc,Sx_BT_io.nc, x= 7, …, 9	oblique view (1km resolution) – 5 files	0,942
Sx_radiance_an.nc, x= 1, …, 3 Sx_radiance_yn.nc, x= 4, …, 6 and y=a, b,c	nadir view any stripe (0.5km resolution) – 912 files	1115,312083
Sx_radiance_ao.nc, x= 1, …, 3 Sx_radiance_yo.nc, x= 4, …, 6 and y=a, b,c	oblique view any (0.5km resolution) – 912 files	9,0486.786
F1_quality_fy.nc, y=n, o F2_quality_iy.nc, y=n, oFx_quality_iy.nc, x= 1, 2 and y=n, o Sx_quality_iy.nc, x= 7, …, 9 and y=n, o	nadir or oblique view any stripe – 10 files	0,0581
Sx_quality_ay.nc, x= 1, …, 3 and y=n, o Sx_quality_yz.nc, x= 4, …, 6 and y=a, b,c and z=n, o	nadir or oblique view any stripe – 1824 files	0.2280,304
flags_in.nc	global confidence flags nadir 1km	0,601
flags_io.nc	global confidence flags obl 1km	0,360
flags_fn.nc	global confidence flags nadir dedicated to F1	0,601
flags_fo.nc	global confidence flags obl dedicated to F1	0,360
flags_an.nc	global confidence flags nadir 0.5km A	2.402
flags_ao.nc	global confidence flags obl 0.5km A	1.441
flags_bn.nc	global confidence flags nadir 0.5km B	2.402
flags_bo.nc	global confidence flags obl 0.5km B	1.441
flags_cn.nc	global confidence flags nadir 0.5km TDI	2.402
flags_co.nc	global confidence flags obl 0.5km TDI	1.441
time_in.nc	1km nadir	0,001
time_xn.nc, x= a, b, c	0.5km nadir any stripe – 3 files	0,0069
indices_in.nc	nadir view image, 1km	0,314
indices_io.nc	oblique view image, 1km	0,188
indices_fn.nc	nadir view image, dedicated to F1 channel	0,314
indices_fo.nc	oblique view image, dedicated to F1 channel	0,188
indices_xn.nc, x= a, b, c	nadir view image, 0.5km, any stripe – 23 files	2.5143,771

indices_xo.nc, x= a, b~~, c~~	oblique view image, 0.5km, any stripe – 2~~3~~ files	1.508~~2,262~~
cartesian_in.nc	Image pixel x, y topographically corrected 1km, nadir view	0,503
cartesian_io.nc	1km, oblique view	0,302
cartesian_fn.nc	Image pixel x, y topographically corrected	0,503
	dedicated to f1, nadir view	
cartesian_fo.nc	dedicated to f1, oblique view	0,302
cartesian_xn.nc, x= a, b~~, c~~	0,5km , nadir, any stripe – 2~~3~~ files	4.022~~6,033~~
cartesian_xo.nc, x= a, b~~, c~~	0.5km, oblique, any stripe – 2~~3~~ files	2.413~~3,619~~
geodetic_in.nc	1km nadir	0,628
geodetic_io.nc	1km oblique	0,377
geodetic_fn.nc	1km nadir, dedicated to F1	0,628
geodetic_fo.nc	1km oblique, dedicatd to F1	0,377
geodetic_xn.nc, x= a, b~~, c~~	0.5km nadir any stripe – 2~~3~~ files	5.028~~7,541~~
geodetic_xo.nc, x= a, b~~, c~~	0.5km oblique any stripe – 2~~3~~ files	3.016~~4,524~~
cartesian_tx.nc geodetic_tx.nc	x,y or Lat, lon, tie points grid – 2 files	0,155
geometry_tn.nc geometry_to.nc	Nadir or oblique view (tie points grids) – 2 files	0,465
viscal.nc	Visible Calibration Coefficients ADS	0,000
met_tx.nc	Met fields on tie points grid	1,937
Total		~~72,124~~**~~6~~56.19~~475.3976~~**

Table 9-2: SL_1_RBT___ product size considering the radiance errors and all grids output (A, B, 1 km and Fire F1~~ and TDI~~)

~~In case the TDI grid output is not activated, the above figure gives: **52,922956.1959 Gb**~~

9.2 Browse products

Due to the type and level of compression used in the processing, the size of the browse products cannot be easily defined. Compared to the volume of data of the measurement/annotation, this size may be considered negligible.

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