USER'S GUIDE FOR JERS-1 SAR DATA FORMAT

1st Edition

NATIONAL SPACE DEVELOPMENT AGENCY OF JAPAN

Preface

National Space Development Agency of Japan (NASDA) launched Japanese Earth Resouces Satellite - 1 (JERS-1) by H-I rocket on Feb. 11, 1992. And then, Earth Observation Center (EOC) started to recive and process data of JERS-1.

This document describes the Computer Compatible Tape (CCT) format and the film format for JERS-1's Synthetic Aperture Rader (SAR) data process in EOC.

The EOC's CCT product conforms to the CEOS SAR data products format Standard .

User's Guide for JERS-1 SAR Data Format Revision Record

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User's Guide for JERS-1 SAR Data Format

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1 INTRODUCTION

This CCT format specification follows the format coding conventions defined for the family of tape formats. The processing unit during CCT preparation is for 1scene (app. 85km × 80km).

This format follows "SAR Data Products Format Standard" by CEOS. It supplies more information on the sensor and processing facility than its original format specification.

2 FORMAT CONVENTIONS

The basic unit of storage on a CCT is defined as an 8-bit byte. All other fields are built up using this basic unit. The order of each byte on theCCT conforms to the LGSOWG family of Standard CCT Formats (LGSOWG CCT Format CCB Document. CCB-CCT-0002E The Standard CCT Family of Tape Formats Ref. #1).

Alphameric fields are defined as textual strings containing either textual or alpha-numeric information to be interpreted as textual information. The fields are defined as multiples of 8-bit byte fields which contain the ASCII binary value of the alpha-numeric character. The 8-bit byte fields are stored sequentially on the CCT in that the first byte contains the first character, the second the second character, and so on. In this document, thesefields are identified with the "Aw" character similar to the Fortran format statement convention, where the "A" indicates textual data and the "w" specifies the field width in bytes. For example the definition "A32" is used to specify a text string of 32 characters.

Numeric fields are used to define numerical data in textual form. Theyare defined to be multiples of 8-bit bytes and are stored on the CCT in a fashion that is similar to the textual data above. The fields are denoted by "Iw" for Integer, "Fw.d" for Floating point decimal and "Ew.dEe" for Exponential representations. Where "w" specifies the field width, "d" specifies the digits after the decimal point and "e" specifies the exponent. Specifically, "F16.7" specifies a 16-byte field with the sign in the first byte, the non fractional component in the next 7 byte and (e.g. +1234567.1234567). Similarly, "E20.10" is a 20-byte field with a sign in the first byte, a decimal value in bytes 2-5, a decimal point in the 6-th byte, fractional part in bytes 7-16 and the last 4 bytes used for the exponent (e.g. -1234.1234567890E+04).

Binary fields are used to define binary data values. The basic elementof storage for binary values are also defined in multiples of 8-bit bytes. Forbinary data, the order of each byte on the CCT conforms to the LGSOWG family of standard CCT Formats, i.e. the most significant bytes appearing before the least significant bytes. Unlike for the alphanumeric definitions cannot be generalized and are addressed at the data file specification level. Neverthe-less, the basic element of storage on the CCT is the 8-bit byte and binary fields are designate in this document as"Bw",where the "B" specifies binary data and the "w" the field width in bytes. For the cases where the unit of binary data width is not an integral multiple of 8-bits, the field size may bespecified as an acceptable common multiple of 8-bit bytes.

For example, in one configuration of SEASAT, to define a field as 2 bytes wide in which the high order bits are used to store 3 pixels of data andthe remaining bit is zero filled.

In addition to the above format specification conventions, additional notation conventions have been adopted to further assist with the clarity in this document.

$ - denotes a requirement for the blank character.

3 FILE TYPE CONVENTIONS

Special mention should be made of the "referenced file data type" field of the file pointer records. On the CCT these are expressed as a description field, A28(field 13) and as an abbreviation field, A4(field 14) in thefile pointer record.

Only one data type, indicated below, is defined in this format specifi-cation.

"MIXED$BINARY$AND$ASCII$$$$$$" "MBAA" -binary & ASCII

SAR image data type can be detected or undetected(complex) and may be ex-pressed as either REAL numbers or INTEGER numbers independently form the data obtained from the sensor.

4 SAR DATA TYPE SPECIFICATION CONVENTIONS

Two fields have been added to the variable segment of the SAR data file descriptor record. These are the "data format type indicator"(field 61) and the "data format type code(field 62). These fields are used to specify theformat used to store the SAR data. To allow for a more unique specification of the data formats, again Fortran like conventions have been adopted. The conventions used are illustrated by the following examples.

"SIGNED$INTEGER*2$$$$$$$$$$$$" "IS2$" (2 byte wide)

- two byte signed integer with the most significant bit used to denotesign

"REAL*4$$$$$$$$$$$$$$$$$$$$" "R*4$" (4 byte wide)

- four byte two's complement floating point representation with the exponent denoted in two's complement binary.

"COMPLEX*8$$$$$$$$$$$$$$$$$$" "C*8$" (8 byte wide)

- four byte field with the first half(two bytes) containing the two's complement floating point representation value of the real component and the second half containing the imaginary component. Similarly fo the eight byte type, with each half of the field containing the real and imaginary pairs.

5 SAR CCT PHYSICAL VOLUME ORGANIZATION

SAR CCT data products are organized into logical volumes, which can span one or more physical volumes, Computer Compatible Tapes(CCTs). The simplest products will be those that occupy only one physical volume, The superstructure concepts used in the standard format family and are adhered to by this format, conveniently handle multiple physical volumes, permit the SAR logical volume data to be split across physical volumes between data files or even between data records within the files.

6 THE SAR LOGICAL VOLUME

The "SAR Logical Volume" as defined in this document, encompasses all modes of SAR data. This includes signal data obtained directly form the sensor (RAW), image data (processed into imagery) , enhanced SAR data(i.e. higher levelproducts derived from SAR image data), synchronized information from the sensor platform downstream telemetry with associated georeferencing data and downstream telemetry with associated georeferencing data and facility related parameters, such as correction tables or matrices.

This logical volume is structured using the following classes of files:

- VOLUME DIRECTORY FILE(superstructure)
- SARLEADER FILE
- IMAGERY OPTIONS FILE
- SARTRAILER FILE
- NULL VOLUME DIRECTORY FILE

Both SARLEADER FILE and SARTRAILER FILE contain auxiliary information pertaining to the data, such as platform geometry, data quality, etc.

SAR data file contains one of the SAR datas(raw data, image data) listed below.

- SAR Signal Data
  (unprocessed or partially processed)
- SAR Image Data
  (fully processed)

6.1 VOLUME DIRECTORY FILE

The volume directory file is the first file of the SAR logical volume and consists of a volume descriptor record, file pointer records(one for each of the files that follow) and text records. The purpose of this file is to identify the logical volume and to specify its structure as it relates to the physical volume. These records are written in ASCII except for the first 12 bytes which are in binary. The length of each of the records in the file is 360 bytes.

6.1.1 VOLUME DESCRIPTOR RECORD

The volume descriptor record is the first record in the volume directory file. Its purpose is to identify the logical volume and indicate its sizeby specifying the number of data files contained within it. It also contains the relationship of this particular physical volume to the logical volume.

6.1.2 FILE POINTER RECORD(S)

The file pointer records are the second record types in the volume directory file. They are the pointers to the files and contain information required to access the data files in the logical volume. There are three pointer records, on for each file in the SAR logical volume. Each pointer record indicates the file type, file size and position in the SAR logical volume.

6.1.3 TEXT RECORD(S)

The text records contain information identifying the CCT product and abrief textual summary of its contents. The information contained is constructed in plain English so that it can be readily displayed at a terminal uponreading the CCT. There is only one text record in the SAR logical volume.

6.2 SAR LEADER FILE

The SARLEADER file contains auxiliary information corresponding to theSAR data contained in the data file. The SAR leader file contains a file descriptor record followed by one or more auxiliary information packet. Each packet is organized into one or more information packet. Each packet is organized into one or more records. The SAR leader file supports the followingrecord types:

- FILE DESCRIPTOR RECORD
- DATA SET SUMMARY RECORD
- MAP PROJECTION DATA RECORD
- PLATFORM POSITION DATA RECORD
- ATTITUDE DATA RECORD
- RADIOMETRIC COMPENSATION RECORD
- DATA SET QUALITY SUMMARY RECORD
- DATA HISTOGRAMS RECORD
- RANGE SPECTRA RECORD
- DIGITAL ELEVATION MODEL DESCRIPTOR
- DETAILED PROCESSING PARAMETERS RECORD
- GROUND CONTROL POINTS RECORD
- FACILITY RELATED DATA RECORDS

Although all of the possible auxiliary record types are defined, not all of these records may appear on a particular CCT. Since the data may be both sensor and product related, all of the records may not be appropriate forsome CCT products. The exact contents of the SAR leader file are determined by the product type and sensor type combination (Table 6.2-1).

On the table, × indicates the record when the map projection data is not relevant to unprocessed SAR signal data and therefore will not appear on the signal CCT products. In the cases where the auxiliary data is inappropriateor the data is not available, the corresponding field of the descriptor recordhas a zero record count and the records are not written to the SAR leader file.

The SAR auxiliary data records are recorded as numeric or alphanumeric text strings. The length of the records varies alphanumeric text strings. Thelength of the records varies depending on the type of ancillary data containedin it. For the facility defined records, the record length is defined by the CCT generating facility. In instances where the information is less than the defined record length , the remaining part of the record is filled with blanks.

6.2.1 SAR LEADER FILE DESCRIPTOR RECORD

The SAR leader file descriptor record is subdivided into two major segments, namely, the descriptor record fixed segment and the descriptor record variable segment.

The SAR leader file descriptor record fixed segment, as the name implies, is fixed in length and its definition is common to all file descriptor records. It contains information on how to read the file.

The SAR leader file descriptor-record variable segment is SAR leader file data specific and provides information on the presence or absence of the SAR auxiliary data records, the length of each of the different types of records and the number of each type of record in the SAR leader file.

6.2.2 DATA SET SUMMARY RECORD

The data set summary record contains information about the mission, data acquisition, the sensor parameters and the processing parameters used to generate the SAR data on this logical volume.

6.2.3 MAP PROJECTION DATA RECORD

The map projection data record provided information about the geometric characteristics of the input(raw) and processed imagery data.

6.2.4 PLATFORM POSITION DATA RECORD

The platform position data record provides position/orbit information for the spacecraft.

6.2.5 ATTITUDE DATA RECORD

The attitude data record contains attitude information of the sensor platform over the time spanning the SAR data.

6.2.6 RADIOMETRIC DATA RECORD

The radiometric data record contains the look up tables that relate data numbers in the image to a geophysical parameter of the target area(e.g. backscatter coefficient, soil moisture, surface roughness, etc.).

6.2.7 DATA QUALITY SUMMARY RECORD

The data quality summary record contains information about the data set quality.

6.2.8 DATA HISTOGRAM RECORD

The data histograms records contain sampled histograms and histogram derived statistics of the data set.

6.2.9 RANGE SPECTRA RECORD

The range spectra record contains the spectra of the unprocessed raw signal data.

6.2.10 DIGITAL ELEVATION MODEL DESCRIPTOR RECORD

The digital elevation model descriptor record contains the descriptionof the characteristics of the Digital Elevation Model(DEM) used in the genera-tion of the geocoded SAR image data.

6.2.11 DETAILED PROCESSING PARAMETERS RECORD

The detailed processing parameters record contains telemetry data (RAW) information for both sensor and platform during processing performance and operation.

6.2.12 GROUND CONRTOL POINTS RECORD

The ground control points record contains the description of the Ground Control Points (GCPs) used to adjust the initial system geometry and to asses the geometric quality of geocoded SAR image data.

6.2.13 FACILITY RELATED DATA RECORD

This record contains in a free format all information which is strictly facility related. the record type codes are used to indicate the type andsource of this data. It is anticipated that each facility will use the recordtype codes to specify their own unique processing parameters record format forthis data.

6.3 SAR DATA FILE

The SAR data is classed as a class "IMAGERY OPTIONS" file, or "IMOP", under the LGSOWG file type descriptions. In all of the cases the "product type " fields (field 9 of the text record and field 83 of the data summary record) are used to indicate the type of SAR data and the "data type" fields (fields 61 & 62 of file descriptor record) are used to indicate the data format. The file contents are basically,

- one file descriptor record
- SAR data records

Descriptor record contents are indicated by ASCII code. Although SAR data record contents are indicated by binary.

6.3.1 SAR DATA FILE DESCRIPTOR RECORD

The SAR data file descriptor record variable segment is "IMOP" definition dependent and defines the format of the SAR data in the file. It givesthe number and the length of the SAR data records continued in the file. The remainder of the variable segment contains detailed information on the method used to pack the SAR data samples in the SAR data record within the data fields, each of which may consist of a group of bytes. In addition, the data dynamic range, the encoding of individual samples, the size (if any) of left, right, top and bottom borders, the size of the prefix and suffix data, byte pointers to key SAR parameters and finally the nature of the packing of multichannel lines are also supplied.

6.3.2 SIGNAL DATA RECORD

The definition of the SAR signal data record is a record containing the following groups of data(see appendix):

1. The twelve bytes of standard record introductory data(namely, record number, record type and sub-types, and record length)
2. Prefix data
3. One line of signal data
4. Suffix data

6.3.3 PROCESSED DATA RECORD

The definition of the SAR processed data record is a record containingthe following groups of data(see appendix):

1. The twelve bytes of standard record introductory data(namely, record number, record type and sub-types, and record length)
2. Prefix data
3. One line of signal data, including left fillers and right fillers, where necessary
4. Suffix data

6.4 SAR TRAILER FILE DESCRIPTOR RECORD

The SAR trailer file descriptor record is subdivided into two major segments, namely, the descriptor record fixed segment and the descriptor record variable segment.

The SAR trailer file descriptor record fixed segment, as the name implies is fixed in length and its definition is common to all file descriptorrecords. It conta insinformation on how to read the file.

The SAR trailer file descriptor record variable segment is similar to the SAR leader file descriptor record variable segment. It gives the number and length of the auxiliary data records in the SAR trailer file.

6.5 NULL VOLUME DIRECTORY FILE

The logical volume set is terminated with a null volume directory file.The null volume directory contains only one record, namely, the null volume descriptor record.

6.5.1 NULL VOLUME DESCRIPTOR RECORD

The null volume descriptor record indicates the end of the logical volume. Its definition is identical to the volume descriptor record and the data contained indicates the end of the volume.

7 MAGNETIC TAPE SPECIFICATION

Magnetic tape specification used is shown in Table7.1

Table 7.1 MAGNETIC TAPE SPECIFICATION

No.	Item	Content
1	Tape length	2,400 feet
2	Tape width	1/2 inch
3	Number of tracks	9 tracks
4	Memory density	6250 BPI/1600 BPI
5	IRG(Inter Record Gap)	0.3 inch/0.7 inch

Volume Directory File	Volume Descriptor Record
	File Pointer Record
	Text Record
SAR Leader File	File Descriptor Record (Fixed Segment)
	Data Set Summary Record
	Map Projection Data Record
	Platform Position Data Record
	Attitude Data Record
	Radiometric Compensation Data Record
	Data Quality Summary Record
	Data Histogram Record
	Range Spectra Record
	Digital Elevation Model Descriptor Record
	Detailed Processing Parameters Record
	Ground Control Points Descriptor Record
	Facility Related Data Record
SAR Data File	File Descriptor Record (Image Options File)
	Signal Data Record
	Processed Data Record
SAR Trailer File	File Descriptor Record (Fixed Segment)
NULL Volume Directory File	NULL Volume Descriptor Record

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 1
2	5	B1	1-st record subtype code = 192
3	6	B1	Record type code = 192
4	7	B1	2-nd subtype code = 18
5	8	B1	3-rd subtype code = 18
6	9-12	B4	Length of this record = 360
7	13-14	A2	ASCII/EBCDIC flag, always = "A$" for ASCII
8	15-16	A2	blanks
9	17-28	A12	Superstructure format control document ID. (the ID of the CCB document) = 'CCB-CCT-0002'
10	29-30	A2	Superstructure format control document revision level = "$A"
11	31-32	A2	Superstructure record format revision level = "$A" (for original)
12	33-44	A12	Logical volume generating facility software release and revision level 'UVW$$$$$$$$$' U : Data base version V : Media conversion sub-system version (blank, when no conversion processing) W : Image processing and destortion correction sub-system version (=0,1,2,-----9,A,B,C,----Z)
13	45-60	A16	ID of physical volume containing this volume descriptor (tape ID) 'EOC-XXXXXXXX-SIJ' XXXXXXXX : Product ID S : Sensor name (JERS-1 SAR='S') I : Number of tapes in 1 CCT volume J : Sequence number in 1 CCT volume
14	61-76	A16	Logical volume ID (scene related information uniquely identifying this logical volume) 'MNSTTYYDDD$$$$$$' (ZERO-FILL) M : Mission name (JERS= 'J') N : Mission number (JERS-1= '1') S : Sensor name (JERS-1 SAR= 'S') TT : Tape type ('00': 6250BPI,'01': 1600BPI) YY : Lower two digits of the tape creation year DDD : Tape creation data (total days in the year from Jan. 1)
15	77-92	A16	Volume set ID (16 character string assigned to uniquely identify a multiple physical volume data set.) 'MMMMMM$SSSS$$$$$' MMMMMM : Mission name ('JERS-1') SSSS : Sensor name (JERS-1 SAR= 'SAR$')

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
16	93-94	I2	Total number of physical volumes in the logical volume = '$1', '$2', '$3', etc. Process Level / 6250BPI / 1600BPI Level 0 / '$2' / '$7' Level 1.0 / '$7' / NA Level 1.1(1 look) / '$7' / NA Level 1.1(3 looks) / '$2' / NA Level 2.0 ,2.1, 3, 4 / '$1' / '$3' (eg.: 18m: 2 volumes, 25m: 1 volume)
17	95-96	I2	Physical volume sequence number of the first tape within the logical volume = '1$'
18	97-98	I2	Physical volume sequence number of the last tape within the logical volume = '$1'～'$7'
19	99-100	I2	Physical volume sequence number of the current tape within the logical volume = '$1'～'$7'
20	101-104	I4	First referenced file number in this physical volume within the logical volume, ie the first file which follows this volume directory (can be larger than one when a logical volume spans multiple physical volumes) = '$$$4'
21	105-108	I4	Logical volume within a volume set = '$$$1'
22	109-112	I4	Logical volume number within physical volume (if a logical volume spans physical volumes, the portion of the logical volume on this tape is counted as an entire logical volume) = '$$$1'
23	113-120	A8	Logical volume creation date = 'YYYYMMDD' (ZERO-FILL) YYYY : year MM : month DD : day
24	121-128	A8	Logical volume creation time = 'HHMMSSXX' (ZERO-FILL) HH : hour MM : minute SS : second XX : deci-secound
25	129-140	A12	Logical volume generation country 'JAPAN$$$$$$$'
26	141-148	A8	Logical volume generating agency 'NASDA$$$'
27	149-160	A12	Logical volume generating facility 'EOC-ERS-DPS$'
28	161-164	I4	Number of file pointer records in volume directory '$$$3'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
29	165-168	I4	Number of text records in volume directory '$$$1'
30	169-260	A92	Volume descriptor spare segment (always blank filled) blanks
31	261-360	A100	Local use segment blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record number For first SAR leader file = 2 For first SAR image file = 3 For first SAR trailer file= 4
2	5	B1	1-st record subtype code = 219
3	6	B1	Record type code = 192
4	7	B1	2-nd subtype code = 18
5	8	B1	3-rd subtype code = 18
6	9-12	B4	Length of this record = 360
7	13-14	A2	ASCII/EBCDIC flag for referenced file, "A$" for ASCII
8	15-16	A2	blanks
9	17-20	I4	Referenced file number (the position of this file in the logical volume ie: '$$$1' for first SAR leader file '$$$2' for first SAR data file, '$$$3' for first SAR trailer file, and etc.)
10	21-36	A16	Referenced file name (16 characters indicating nature of the data, ie:header, annotation, SAR product type, etc.) 'MMN$SSSTFFFF$$$$' MM :Mission name(JERS='JE') N :Mission sequence number(='1') SSS :Sensor name(SAR='S$$') T :Process level(*1) FFFF:File type SAR leader file = 'SARL' SAR image file = 'IMOP' SAR trailer file = 'SART' *1 Process Level 'A': Level 0 'B': Level 1.0 'C': Level 1.1 'D': Level 2.0 'E': Level 2.1 'F': Level 3 'G': Level 4
11	37-64	A28	Referenced file class code SAR leader file = "SARLEADER$FILE$$$$$$$$$$$$$$" SAR image file = "IMAGERY$OPTIONS$FILE$$$$$$$$" SAR trailer file = "SARTRAILER$FILE$$$$$$$$$$$$$"
12	65-68	A4	Referenced file class code (one of "SARL" -for SAR leader file, or "IMOP" -for SAR data file, or "SART" -for SAR trailer file)
13	69-96	A28	Referenced file data type (sec .#1.3) 'MIXED$BINARY$AND$ASCII$$$$$$'
14	97-100	A4	Referenced file data type code (sec.#1.3) (one of "MBAA", "BINO", "COMP" or "REAL") 'MBAA'
15	101-108	I8	Number of records in referenced file
16	109-116	I8	Referenced file 1-st record length (length of the first record in the file)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
17	117-124	I8	Referenced file maximum record length (length of largest record in the file)
18	125-136	A12	Referenced file record length type SAR leader file = 'VARIABLE$LEN' SAR image file = 'VARIABLE$LEN' SAR trailer file = 'FIXED$LENGTH'
19	137-140	A4	Referenced file record length type code SAR leader file = 'VARE' SAR image file = 'VARE' SAR trailer file = 'FIXD'
20	141-142	I2	Referenced file physical volume start number (the number of the physical volume set containing the first record of the file) '$1'～'$7' ; vary depends on process level and store density
21	143-144	I2	Referenced file physical volume end number (the number of the physical volume set containing the last record of the file) '$1'～'$7' ; vary depends on process level and store density
22	145-152	I8	Referenced file portion start, 1-st record number for this physical volume (record number of the first record appearing on this physical volume) vary depends on process level and store density
23	153-160	I8	Referenced file portion end, last record number for this physical volume (record number of the last record appearing on this physical volume) vary depends on process level and store density
24	161-260	A100	File pointer spare segment blanks
25	261-360	A100	Local use segment blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record number = 5
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 192
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 18
6	9-12	B4	Length of this record = 360
7	13-14	A2	ASCII/EBCDIC flag for this record, always = "A$" for ASCII
8	15-16	A2	Continuation flag ("C$" if information is continued on the next text record, else "$$" for no continuation)
9	17-56	A40	Product type specifier 'PRODUCT:MMMMMSSSPPPRRRYYDDDLM$$$$$$$$$' MMMMM : Mission name (JERS-1= 'JERS1') SSS : Sensor name('SAR') PPP : Pass number RRR : Raw number YYDDD : Creation year/ Creation total days from Jan. 1 (ZERO-FILL) L : Process level code M : Number of multi look (1 = '1', 3 = '3') Process Level Code 'A' : Level 0 'B' : Level 1.0 'C' : Level 1.1 'D' : Level 2.0 'E' : Level 2.1 'F' : Level 3 'G' : Level 4
10	57-116	A60	Location and date/time of product creation 'PROCESS:JAPAN-NASDA-EOC-ERS-DPS$YYYYMMDD$HHMMSS$～$$' (ZERO-FILL) YYYYMMDD : Creation date HHMMSS : Creation time(UT)
11	117-156	A40	Physical volumes identification 'TAPE$ID:EOC-XXXXXXXX-SIJ$$$$$$$$$$$$$$$$'(ZERO-FILL) XXXXXXXX : Product ID S : Sensor name(JERS-1 SAR= 'S') I : Number of tapes in 1 CCT volume set J : Sequential number in 1 CCT volume set
12	157-196	A40	Scene identification 'ORBIT$:NNNNNNN$DYYYYMMDD-THHMMSSTTT$$$$$'(ZERO-FILL) NNNNNNN : Orbit number YYYYMMDD : Scene observation date HHMMSSTTT : Scene center observation time
13	197-236	A40	Scene location 'FRAME$CENTRE:$N±nnn.nn$$E±nnn.nn$$$$$$'(ZERO-FILL) N±nnn.nn : Scene center latitude(degrees) E±nnn.nn : Scene center longitude(degrees)
14	237-256	A20	spares
15	257-360	A104	spares

FILE DESCRIPTOR RECORD (FIXED SEGMENT) DEFINITION (1/4)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 1
2	5	B1	1-st record sub-type code = 11
3	6	B1	Record type code = 192
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 18
6	9-12	B4	Length of this record = 720
7	13-14	A2	ASCII/EBCDIC flag, always = "A$" for ASCII
8	15-16	A2	blanks
9	17-28	A12	Format control document ID for this data file format (the ID of this document) = 'CEOS-SAR-CCT'
10	29-30	A2	Format control document revision level = "$A" (for original)
11	31-32	A2	File design descriptor revision letter = "$A" (for original)
12	33-44	A12	Generating software release and revision level (eg : name & version; same as fiel 12 of the volume descriptor record) 'UVW$$$$$$$$$' U : Data base version V : Media conversion sub-system version (eg : Blank when no conversion processin) W : Image processing and distortion correction sub-system version ('0', '1'～'9', 'A'～'Z')
13	45-48	I4	File number = '$$$1'
14	49-64	A16	File name = 'MMN$SSSTFFFF$$$$' same as field 10 of file pointer record in volume directory file
15	65-68	A4	Record sequence and location type flag 'FSEQ'
16	69-76	I8	Sequence number location '$$$$$$$1'
17	77-80	I4	Sequence number field length '$$$4'
18	81-84	A4	Record code and location type flag 'FTYP'
19	85-92	I8	Record code location '$$$$$$$5'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
20	93-96	I4	Record code field length '$$$4'
21	97-100	A4	Record length and location type flag 'FLGT'
22	101-108	I8	Record length location '$$$$$$$9'
23	109-112	I4	Record length field length '$$$4'
24-28	113-180	A68	blanks
29	181-186	I6	Number of data set summary records '$$$$$1'
30	187-192	I6	Data set summary record length '$$4096'
31	193-198	I6	Number of map projection data records '$$$$$1' or '$$$$$0' Level 2.1 and above. All others '$$$$$0'
32	199-204	I6	Map projection record length '$$1620' or '$$$$$0' Level 2.1 and above. All others '$$$$$0'
33	205-210	I6	Number of platform pos. data records '$$$$$1'
34	211-216	I6	Platform position record length '$$4680'
35	217-222	I6	Number of attitude data records '$$$$$1'
36	223-228	I6	Attitude data record length '$$8192'
37	229-234	I6	Number of radiometric data records '$$$$$0'
38	235-240	I6	Radiometric record length '$$$$$0'
39	241-246	I6	Number of rad. compensation records '$$$$$1' or '$$$$$0' Level 1.0, 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
40	247-252	I6	Radiometric compensation rec. length '$$8600' or '$$$$$0' Level 1.0, 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
41	253-258	I6	Number of data quality summary records '$$$$$1' or '$$$$$0' Level 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
42	259-264	I6	Data quality summary record length '$$1620' or '$$$$$0' Level 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
43	265-270	I6	Number of data histograms records '$$$$$1' or '$$$$$0' Level 1.1(3 looks) and 2.0 only. All others '$$$$$0'
44	271-276	I6	Data histogram record length '$$4680' or '$$$$$0' Level 1.1(3 looks) and 2.0 only. All others '$$$$$0'
45	277-282	I6	Number of range spectra records '$$$$$1' or '$$$$$0' Level 0, 1.0, 1.1, 2.0 All other '$$$$$0'
46	283-288	I6	Rangespectra record length '$$8600' or '$$$$$0' Level 0, 1.0, 1.1, 2.0. All other '$$$$$0'
47	289-294	I6	Number of DEM descriptor records '$$$$$1' or '$$$$$0' Process level 4 only. All others '$$$$$0'
48	295-300	I6	DEM descriptor record length '$$1024' or '$$$$$0' Level 4 only. All others '$$$$$0'
49	301-306	I6	Number of Radar par. update records '$$$$$0'
50	307-312	I6	Radarpar. update record length '$$$$$0'
51	313-318	I6	Number of Annotation data records '$$$$$0'
52	319-324	I6	Annotation data record length '$$$$$0'
53	325-330	I6	Number of Det.processing records '$$$$$0' or '$$$$$1' Level 0 only '$$$$$1'
54	331-336	I6	Det.processing record length '$$$$$0' or '$$9216' Level 0 only '$$9216'
55	337-342	I6	Number of Calibration records '$$$$$0'
56	343-348	I6	Calibration record length '$$$$$0'
57	349-354	I6	Number of GCP records '$$$$$1' or '$$$$$0' Level 3, 4 only. All others '$$$$$0'
58	355-360	I6	GCP record length '$$8192' or '$$$$$0' Level 3, 4 only. All others '$$$$$0'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
59	361-366	I6	spare
60	367-372	I6	spare
61	373-378	I6	spare
62	379-384	I6	spare
63	385-390	I6	spare
64	391-396	I6	spare
65	397-402	I6	spare
66	403-408	I6	spare
67	409-414	I6	spare
68	415-420	I6	spare
69	421-426	I6	Number of Facility data records '$$$$$1'
70	427-432	I6	Facility data record length '$$2048'
71	433-720	A2 88	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence Number = 2
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 10
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 4096
7	13-16	I4	Data set Summary Record sequence number (starts at 1) = '$$$1'
8	17-20	I4	SAR channel indicator = '$$$1'
			SCENE PARAMETERS
9	21-52	A32	Scene identifier 'NNNNNNN$DYYYYMMDD-THHMMSSTTT$$$$' NNNNNNN : Orbit number YYYYMMDD : Scene observation date (ZERO-FILL) HHMMSSTTT : Scene center observation time (ZERO-FILL)
10	53-68	A16	Scene designator (such as framing reference number if one exits) 'GRS:Pnnn,Rnnn$$$' (ZERO-SUPPRESSION) Pnnn : pass number Rnnn : row number
11	69-100	A32	Input scenecentre time <YYYYMMDDhhmmssttt$$$$$$$$$$$$$$$> (ZERO-FILL) (UT) where: YYYY = year MM = month DD = day hh = hours (00 to 23) mm = minutes (00 to 59) ss = seconds (00 to 59) ttt = milliseconds (000 to 999)
12	101-116	A16	spare = blanks
13	117-132	F16.7	Processed scene centre geodetic latitude defined as positive to the north of the equator and negative to the south (deg.)
14	133-148	F16.7	Processed scene centre geodetic longitude defined as positive to the east of the prime meridian and negative to the west. (deg.)
15	149-164	F16.7	Processed Scene Centre true heading as calculated relative to true North (deg.)
16	165-180	A16	Ellipsoid designator The world standard : 'GRS-80$$$$$$$$$$' Tokyo Bessel : 'TOKYO$BESSEL$$$$'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
17	181-196	F16.7	Ellipsoid semimajor axis (km) - (R) The world standard : set DB contents Tokyo Bessel : set DB contents
18	197-212	F16.7	Ellipsoid semiminor axis (km) The world standard : set DB contents Tokyo Bessel : set DB contents
19	213-228	F16.7	Earth's mass - (M) Set DB contents
20	229-244	F16.7	Gravitational constant - (G) Set DB contents
21	245-260	F16.7	Ellipsoid J2 parameter(Dynamical form factor) Set DB contents
22	261-276	F16.7	Ellipsoid J3 parameter(Dynamical form factor) Set DB contents
23	277-292	F16.7	Ellipsoid J4 parameter(Dynamical form factor) Set DB contents
24	293-308	A16	spare
25	309-324	F16.7	Average terrain height above Ellipsoid at scene centre (km) blanks
26	325-332	I8	Scene centre line number (the line number at the scene centre including zero fill)
27	333-340	I8	Scene centre pixel number (the pixel number at the scene centre including zero fill)
28	341-356	F16.7	Processed scene length (km) including zero fill JERS-1 = 75.0km
29	357-372	F16.7	Processed scene width (km) including zero fill JERS-1 = 75.0km
30	373-388	A16	spare
31	389-392	I4	Number of SA R channels = '$$$1'
32	393-396	A4	spare
33	397-412	A16	Sens or plat form mission identifier JERS : 'JERS-1$$$$$$$$$$'
34	413-444	A32	Sensor ID: and mode of operation for this channel: (this field specifies the sensor and its mode of operation in the form of : <AAAAAA-BB-CCDD-EF$$$$$$$$$$$$$$$$> where: AAAAAA = six characters sensor ID ('JERS-1') BB = SAR band (JERS: 'L$') CC = code for resolution mode (high:'H$') DD = code for imaging mode ($$) E = transmit polarization (JERS:'H') F = receiver polarization (JERS:'H')

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
35	445-452	I8	Orbit numer of flight line indicator
36	453-460	F8.3	Sensor Platform geodedic Latitude at nadir corresponding to Scene Center (degrees)
37	461-468	F8.3	Sensor Platform geodedic Longitude at nadir corresponding to Scene center (degrees)
38	469-476	F8.3	Sensor Platform Heading at nadir corresponding to Scene Center (degrees)
39	477-484	F8.3	Sensor clock angle as measured relative to sensor platform flight direction (degrees) (ie: -90:0 = left pointing, and +90:0 = right pointing) JERS-1 : 90.0
40	485-492	F8.3	Incidence angle at scene centre as derived from sensor platform orientation, electronic boresight and Earth's geometry JERS-1 : 35.0
41	493-500	A8	spare
42	501-516	F16.7	Radar wavelength (meters) Set DB contents
43	517-518	A2	Motion compensation indicator "00" = no compensation "01" = on board compensation "10" = in processor compensation "11" = both on board and in processor Level0 : '00' Level1.0 and above : '10'
44	519-534	A16	Range pulse code specifier "LINEARFMCHIRP$"
45	535-550	E16.7	Range pulse amplitude coefficient #1 (Chirp = range chirp constant term (offset from DC) (Hz))
46	551-566	E16.7	Range pulse amplitude coefficient #2 (Chirp = range chirp linear term (Hz/sec))
47	567-582	E16.7	Range pulse amplitude coefficient #3 (guadratic.term)
48	583-598	E16.7	Range pulse amplitude coefficient #4 (cubic term)
49	599-614	E16.7	Range pulse amplitude coefficient #5 (guartic.term)
50	615-630	E16.7	Range pulse phase coefficient #1 (offset in radians) blanks
51	631-646	E16.7	Range pulse phase coefficient #2 (linear term in rads./sec) blanks
52	647-662	E16.7	Range pulse phase coefficient #3 (guadratic term in rads./sec') blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
53	663-678	E16.7	Range pulse phase coefficient #4 (cubic term) blanks
54	679-694	E16.7	Range pulse phase coefficeint #5 (guartic term) blanks
55	695-702	I8	Down linked data chirp extraction index (in samples) blank
56	703-710	A8	spare
57	711-726	F16.7	Sampling rate (MHz) Set DB contents
58	727-742	F16.7	Range gate at early edge (in time) at the start of the image (μsec)
59	743-758	F16.7	Range pulse length (μsec) Set DB contents
60	759-762	A4	Base band conversion flag (YES$/NOT$) (YES = base band converted)
61	763-766	A4	Range compres sed flag Level 0 : 'NOT$'(no range compression) Level 1.0 and above : 'YES$'(range compressed)
62	767-782	F16.7	Receiver gain for like polarized at early edge at the start of the image (dB) Set DB contents
63	783-798	F16.7	Receiver gain for cross polarized at early edge at the start of the image (dB) Set DB contents
64	799-806	I8	Quantization in bits per channel JERS : '$$$$$$$3'
65	807-818	A12	Quantizerde scriptor "UNIFORMI,Q"
66	819-834	F16.7	DC Bias for I-component Set DB contents
67	835-850	F16.7	DC Bias for Q-component Set DB contents
68	851-866	F16.7	Gain imbalance for I & Q Set DB contents
69	867-882	F16.7	spare
70	883-898	F16.7	spare
71	899-914	F16.7	Antenna electronic boresight relative to platform vertical axis at the start of the image (degrees) Set DB contents

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
72	915-930	F16.7	Antenna mechanical boresight relative to platform vertical axis at the start of the image, positive to the right, negative to the left (degrees) Set DB contents
73	931-934	A4	Echo tracker-on/off designator ("ON$$", or "OFF$")
74	935-950	F16.7	Nominal PRF (Hz) Set H/K Data
75	951-966	F16.7	Effective two-way antenna elevation 3dB beam width at boresight (degrees)
76	967-982	F16.7	Effective two-way antenna aximuth 3dB beam width at electronic boresight (degrees)
			SENSOR SPECIFIC PARAMETERS
77	983-998	I16	ERS-1 = Satellite encoded binary time code
78	999-1030	A32	ERS-1 = Satellite clock time,<YYYYMMDDhhmmssttt$$$...$>
79	1031-1038	I8	ERS-1 = Satellite clock increment (nano-secs)
80	1039-1046	A8	spare
81	1047-1062	A16	Processing facility identifier 'EOC-ERS-DPS$'
82	1063-1070	A8	Processing system identifier 'ERS-DPS$'
83	1071-1078	A8	Processing version identifier 'UVW$$$$$' Same as software release version ID in volume descriptor record
84	1079-1094	A16	Processing facility process code TBD
85	1095-1110	A16	Product level code TBD
86	1111-1142	A32	Product type spcifier Level 0 = 'UNPROCESSED SIGNAL DATA$～$' Level 1.0 = 'PARTIALLY PROCESSED SIGNAL DATA$' Level 1.1 = 'BASIC IMAGE $～$' Level 2.0 = 'BULK IMAGE $～$' Level 2.1 = 'STANDARD GEOCODED IMAGE $～$' Level 3 = 'PRECESE CORRECTED IMAGE' Level 4 = 'GEOCODED WITH TERRAIN CORRECTION'
87	1143-1174	A32	Processing algorithm identifier 'FREQUENCY$DOMAIN$CONVOLUTIONS$'
88	1175-1190	F16.7	Nominal effective number of looks processed in Azimuth Level 0 = 'BLANK' Level 1.0 = 'BLANK' Level 1.1(1 look) = 1.0 Level 1.1(3 looks) = 3.0 Level 2.0～4 = 3.0

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
89	1191-1206	F16.7	Nominal effective number of looks processed in Range = 1.0
90	1207-1222	F16.7	Bandwidth per look in Azimuth (Hz) Set DB contents
91	1223-1238	F16.7	Bandwidth per look in Range (Hz) (3dB down width of look reference function power spectral) Set DB contents
92	1239-1254	F16.7	Total processor bandwidth in Azimuth (3dB down width of all of reference function power spectral) Set DB contents
93	1255-1270	F16.7	Total processor bandwidth in Range Set DB contents
94	1271-1302	A32	Weighting function designator in Azimuth 6 types (*)
95	1303-1334	A32	Weighting function designator in Range 6 types
96	1335-1350	A16	Datainput source (eg:HDDT identifier) HDDT = 'HDDT$$～$' OD = 'OD$$～$' CCT = 'CCT$$～$'
97	1351-1366	F16.7	Nominal resolution equal to 3dB points in ground range (meter) Set DB contents
98	1367-1382	F16.7	Nominal resolution in Azimuth (meter) Set DB contents
99	1383-1398	F16.7	Constant radiometric parameter (Bias) blanks
100	1399-1414	F16.7	linear radiometric parameter (Gain) blanks
101	1415-1430	F16.7	Along track Doppler frequency constant term at early edge of image (Hz)
102	1431-1446	F16.7	Along track Doppler frequency linear term at early edge of the image (Hz/pixel)
103	1447-1462	F16.7	Along track Doppler frequency quadratic term at early edge of the image (Hz/pixel/pixel)
104	1462-1478	A16	spare
105	1479-1494	F16.7	Cross track Doppler frequency constant term at early edge of the image (Hz)
106	1495-1510	F16.7	Cross track Doppler frequency linear term at early edge of the image (Hz/pixel)

1 : RECTANGLE
2 : TRIANGLE
3 : HAMMING
4 : HANNING
5 : DOLPH CHEBYHEV
6 : USER SET

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
107	1511-1526	F16.7	Cross track Doppler frequency quadratic term at early edge of the image (Hz/pixel/pixel) 0.0
108	1527-1534	A8	Time direction indicator along pixel direction DB contents
109	1535-1542	A8	Time direction indicator along line direction (ie:"INCREASE"-ing or "DECRESE"-ing) Ascending = 'ASCEND$$' Descending = 'DESCEND$'
110	1543-1558	F16.7	Along track Doppler frequency rate constant term at early edge of the image (Hz/sec)
111	1559-1574	F16.7	Along track Doppler frequency rate linear term at early edge of the image (Hz/sec/pixel)
112	1575-1590	F16.7	Along track Doppler frequency rate quadratic term at early edge of the image (Hz/sec/pixel/pixel) 0.0
113	1591-1606	A16	spare
114	1607-1622	F16.7	Cross track Doppler frequency rate constant term at near edge of the image (Hz/sec)
115	1623-1638	F16.7	Cross track Doppler frequency rate linear term relative to near edge of the image (Hz/sec/pixel)
116	1639-1654	F16.7	Cross track Doppler frequency rate quadratic term relative to near edge of the image (Hz/sec/pixel/pixel) 0.0
117	1655-1670	A16	spare
118	1671-1678	A8	Line content indicator Level 0, Level 1.0 = 'RANGE$$' Level 1.1, Level 2.0, Level 2.1 = 'AZIMUTH$' Level 3, Level 4 = 'OTHER$$$'
119	1679-1682	A4	Clutter lock applied flag 'YES$' or 'NOT$'
120	1683-1686	A4	Autofocussing applied flag 'YES$' or 'NOT$'
121	1687-1702	F16.7	Line spacing (meters) 12.5, 18.5, 25.0
122	1703-1718	F16.7	Pixel spacing (meters) 12.5, 18.5, 25.0
123	1719-1734	A16	Processor range compression designator ("SYNTHETIC$CHIRP$" or "EXTRACTED$CHIRP$")
124	1735-1750	A16	spare
125	1751-1766	A16	spare

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
			SENSOR SPECIFIC LOCAL USE SEGMENT
126	1767-1770	I4	Calibration mode data location flag Calibration mode data territory None = '$$$0' Observation starting side = '$$$1' Observation ending side = '$$$2' Observation starting/ending side = '$$$3' enter only level 0 all others blank
127	1771-1778	I8	Calibration mode data starting side starting line number enter only level 0 all others blank
128	1779-1786	I8	Calibration mode data starting side ending line number enter only level 0 all others blank
129	1787-1794	I8	Calibration mode data ending side starting line number enter only level 0 all others blank
130	1795-1802	I8	Calibration mode data ending side ending line number enter only level 0 all others blank
131	1803-1886	A84	blanks
			PROCESSOR SPECIFIC LOCAL USE SEGMENT
132	1887-2006	A120	spares
			IMAGE ANNOTATION FIELDS
133	2007-2014	I8	Number of Annotation Points (up to 64) '$$$$$$$0'
134	2015-2022	A8	spare
135	2023-2030	I8	Line Number of 1st Annotation start blanks
136	2031-2038	I8	Pixel Numer of 1st Annotation start blanks
137	2039-2054	A16	1st Annotation Text (eg:lat,long as "Nnn.nn,W-nnn.nn$") blanks
138	2055-2062	I8	Line Number of 2nd Annotation start blanks
139	2063-2070	I8	Pixel Numer of 2nd Annotation start blanks
140	2071-2086	A16	2nd Annotation Text blanks
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.	.	.	.

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
319	4039-4046	I8	Line Number of 64th Annotation start blanks
320	4047-4054	I8	Pixel Number of 64th Annotation start blanks
321	4055-4070	A16	64th Annotation Text blanks
322	4071-4096	A26	spares

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record seque nce number = 3
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 20
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of th is record = 1620
7	13-28	A16	spare
			MAP PROJECTION GENERAL INFORMATION
8	29-60	A32	Map projection descriptor (eg: slant range, ground range, geocoded) 'GEOCODED$$$$～$$$'
9	61-76	I16	Number of pixels per line of image JERS-1 SAR Pixel spacing 12.5m : '$$$～$6000' 18.0m : '$$$～$4200' 25.0m : '$$$～$3000'
10	77-92	I16	Number of lines Level 2.0, 2.1 (JERS-1 SAR) Pixel spacing 12.5m : '$$$～$6400' 18.0m : '$$$～$4450' 25.0m : '$$$～$3200' Level 3, 4 (JERS-1 SAR) Pixel spacing 12.5m : '$$$～$6000' 18.0m : '$$$～$4200' 25.0m : '$$$～$3000'
11	93-108	F16.7	Nominal inter-pixel distance in output scene (meters) = 12.5, 18.0, 25.0
12	109-124	F16.7	Nominal inter-line distance in output scene (meters) = 12.5, 18.0, 25.0
13	125-140	F16.7	Orientationat output scene centre, for geocoded products this is simply the convergence of the meridians, ie: the angle between geographic north and map grid north(degrees) (Angle of projection axis from true North)
14	141-156	F16.7	Actual platform orbital inclination (degrees) blanks
15	157-172	F16.7	Actual ascending node (longitude at equator) (degrees) blanks
16	173-188	F16.7	Distance of platform at input scene centre from the geocentre (meters)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
17	189-204	F16.7	Geodedic altitude of the platform relative to the ellipsoid (meters)
18	205-220	F16.7	Actual ground speed at nadir at input scene centre time (meters/sec)
19	221-236	F16.7	Platform heading (degrees): effective subplatform track direction angle relative to true north, including the effects of orbital inclination and skew due to earth rotation.
			PROJECTION ELLIPSOID PARAMETERS
20	237-268	A32	Name of reference ellipsoid The world standard = 'GRS-80$$$$$$$$$$----$$$' Tokyo Bessel = 'TOKYO$BESSEL$$$----$$$'
21	269-284	F16.7	Semimajor axis of ref.ellipsoid (meters) Set DB contents
22	285-300	F16.7	Semiminor axis of ref.ellipsoid (meters) Set DB contents
23	301-316	F16.7	Datum shift parameter referenced to Greenwich. dx (meters) Set DB contents
24	317-332	F16.7	Datum shift parameter perpendicular to Greenwich. dy (meters) Set DB contents
25	333-348	F16.7	Datum shift parameter direction of the rotation axis. dz (meters) Set DB contents
26	349-364	F16.7	Additional datum shift parameter 1st rotation angle (if not used default value: -9999.99)
27	365-380	F16.7	Additional datum shift parameter 2nd rotation angle (if not used default value: -9999.99)
28	381-396	F16.7	Additional datum shift parameter 3rd rotation angle (if not used default value: -9999.99)
29	397-412	F16.7	Scale factor of reference ellipsoid Set DB contents
			MAP PROJECTION DESIGNATOR
30	413-444	A32	Alphanumeric description of Map projection 'UTM-PROJECTION', 'UPS-PROJECTION'
			UTM-PROJECTION (1st default)
31	445-476	A32	UTM descriptor Set DB contents
32	477-480	A4	Signature of the UTM zone

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
33	481-496	F16.7	Map origin (false easting)
34	497-512	F16.7	Map origin (false northing)
35	513-528	F16.7	Centre of projection longitude (deg)
36	529-544	F16.7	Centre of projection latitude (deg)
37	545-560	F16.7	1st standard parallel (deg)
38	561-576	F16.7	2nd standard parallel (deg)
39	577-592	F16.7	Scale factor
			UPS-PROJECTION (2nd default)
40	593-624	A32	UPS descriptor
41	625-640	F16.7	Centre of projection longitude (deg)
42	641-656	F16.7	Centre of projection latitude (deg)
43	657-672	F16.7	Scale factor
			NATIONAL SYSTEMS PROJECTION (any others)
44	673-704	A32	Projection descriptor blanks
45	705-720	F16.7	Map origin (false easting) = blanks
46	721-736	F16.7	Map origin (false northing) = blanks
47	737-752	F16.7	Centre of projection longitude (deg) = blanks
48	753-768	F16.7	Centre of projection latitude (deg) = blanks
49	769-784	F16.7	Standard parallels (eg,default:-9999.99) = blanks
50	785-800	F16.7	Standard parallels (deg,default:-9999.99) = blanks
51	801-816	F16.7	Standard parallels (deg,default:-9999.99) = blanks
52	817-832	F16.7	Standard parallels (deg,default:-9999.99) = blanks
53	833-848	F16.7	Central meridian (deg,default:-9999.99) = blanks
54	849-864	F16.7	Central meridian (deg,default:-9999.99) = blanks
55	865-880	F16.7	Central meridian (deg,default:-9999.99) = blanks
56	881-896	A16	spares = blanks
57	897-912	A16	spares = blanks
58	913-928	A16	spares = blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
59	929-944	A16	spares = blanks
			COORDINATES OF FOUR CORNER POINTS
60	945-960	F16.7	Top left corner northing (meters)
61	961-976	F16.7	Top left corner easting (meters)
62	977-992	F16.7	Top right corner northing (meters)
63	993-1008	F16.7	Top right corner easting (meters)
64	1009-1024	F16.7	Bottom right corner northing (meters)
65	1025-1040	F16.7	Bottom right corner easting (meters)
66	1041-1056	F16.7	Bottom left corner northing (meters)
67	1057-1072	F16.7	Bottom left corner easting (meters)
68	1073-1088	F16.7	Top left corner latitude (deg)
69	1089-1104	F16.7	Top left corner longitude (deg)
70	1105-1120	F16.7	Top right corner latitude (deg)
71	1121-1136	F16.7	Top right corner longitude (deg)
72	1137-1152	F16.7	Bottom right corner latitude (deg)
73	1153-1168	F16.7	Bottom right corner longitude (deg)
74	1169-1184	F16.7	Bottom left corner latitude (deg)
75	1185-1200	F16.7	Bottom left corner longitude (deg)
76	1201-1216	F16.7	Top left corner terrain height relative to ellipsoid (meters) Level 4 only
77	1217-1232	F16.7	Top right corner terrain height (meters) Level 4 only
78	1233-1248	F16.7	Bottom right corner height (meters) Level 4 only
79	1249-1264	F16.7	Bottom left corner height (meters) Level 4 only
			COEFFS. FOR IMAGE TO MAP TO IMAGE CONVERSION
80-87	1265-1424	8E20 .10	Eight coefficients (A11,A12,...,A24) to convert a line (L) and pixel (P) position to the map projection frame of reference, say (E,N) where: E = A11 +A12L +A13P +A14LP N = A21 +A22L +A23P +A24LP

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
88-95	1425-1584	8E20 .10	Eight coefficients (B11,B12,...,B24) to convert from the map projection (E,N) to line (L) and pixel (P) position in the image, say (L,P) where: L = B11 +B12E +B13N +B14EN P = B21 +B22E +B23N +B24EN
96	1585-1620	A36	spares

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 30
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 4680
7	13-44	A32	Orbital elements designator (eg: "ORBITAL$XEPLERIAN$ELEMENTS$$$$$$$") = 'ECR$...$'
8	45-60	F16	1st orbital element Position vector(x) at scene centre referenced coodinate system
9	61-76	F16	2nd orbital element Position vector(y) at scene centre referenced coodinate system
10	77-92	F16	3rd orbital element Position vector(z) at scene centre referenced coordinate system
11	93-108	F16	4th orbital element Velocity vector(x') at scene centre referenced coordinate system
12	109-124	F16	5th orbital element Velocity vector(y') at scene centre referenced coordinate system
13	125-140	F16	6th orbital element Velocity vector(z') at scene centre referenced coordinate system
14	141-144	I4	Number of data points = '$$28'
15	145-148	I4	Year of data point. ('$$YY')
16	149-152	I4	Month of data point. ('$$MM')
17	153-156	I4	Day of data point. ('$$DD')
18	157-160	I4	Day in the year (GMT)
19	161-182	D22.1	Seconds of day (GMT) of data
20	183-204	D22.1	Time interval between DATA points (sec) = 60.0
21	205-268	A64	Reference coordinate system 'ECR$$～$'
22	269-290	D22.1	Greenwich mean hour angle (degrees) blank

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
23	291-306	F16.7	Along track position error (meters) Nominal value Set DB contents
24	307-322	F16.7	Across track position error (meters) Nominal value Set DB contents
25	323-338	F16.7	Radial position error (meters/sec) Nominal value Set DB contents
26	339-354	F16.7	Along trackvelocity error (meters/sec) Nominal value Set DB contents
27	355-370	F16.7	Across track velocity error (meters/sec) Nominal value Set DB contents
28	371-386	F16.7	Radial velocity error (degrees/sec) Nominal value Set DB contents
			FIRST POSITIONAL DATA POINT
29	387-452	3D22 .15	1st data point position vector as latitude, longitude and altitude for airbone sensor platform, and as (X,Y,Z) coordinates for spaceborne sensor platform in a reference system such as GSFC (meters)
30	453-518	3D22 .15	1st data point velocity vector in airborne coordinates (meters/second and degrees/second) for airborne sensor platform or (X',Y',Z') in a reference system such as GSFC for spaceborne sensor platforms
31-..	519-4082	27(6D22 .15)	2nd, 3rd, ... data point position & velocity vectors (repetition of fields 29-30 as specified by the number of points in field #14)
	4083-4680	A598	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 40
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 8192
7	13-16	I4	Number of attitude data points (up to 64) = '$$64'
			FIRST ATTITUDE DATA SET
8	17-20	I4	Day of the year (GMT)
9	21-28	I8	Millisecond of day (GMT)
10	29-32	I4	Pitch data quality flag Set result of the limit check
11	33-36	I4	Roll data quality flag Set result of the limit check
12	37-40	I4	Yaw data quality flag Set result of the limit check
13	41-54	E14.6	Pitch (degrees)
14	55-68	E14.6	Roll (degrees)
15	69-82	E14.6	Yaw (degrees)
16	83-86	I4	Pitch rate data quality flag blanks
17	87-90	I4	Roll rate data quality flag blanks
18	91-94	I4	Yaw rate data quality flag = blanks
19	95-108	E14.6	Pitch rate (degrees/sec) = blanks
20	109-122	E14.6	Roll rate (degrees/sec) = blanks
21	123-136	E14.6	Yaw rate (degrees/sec) = blanks
22-..	137-7696	...	... 2nd, 3rd, ... 64th attitude data points (repetition of fields 8-21 as
	7697-8192	A496	blanks

RADIOMETRIC COMPENSATION DATA RECORD DEFINITION (1/2)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 51
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 8600
7	13-16	I4	Radio metric compensation record Sequence number = '$$$1'
8	17-20	I4	SAR channel indicator = '$$$1'
9	21-28	I8	Number of radiometric compensation data sets in the record = '$$$$$$$1'
10	29-36	I8	Compensation data set size (bytes)
			COMPENSATION DATA SET
11	37-44	A8	Compensation data type designator 'RANGE$$$'
12	45-76	A32	Compensation data descriptor 'RANGE$ATTENUATION'
13	77-80	I4	Number of compensation records required to reconstitute the full compensation table
14	81-84	I4	Sequence number in the full compensation table of the table contained in this record = '$$$1'
15	85-92	I8	Total number of compensation pairs in the full compensation table
16	93-100	I8	Data pixel number corresponding to first correction value in compensation table
17	101-108	I8	Data pixel number corresponding to last correction value in compensation table
18	109-116	I8	Compensation pixel group size (pixels) This is the number of pixels for which each of the compensation samples is applicable.
19	117-132	F16.7	Min. table Offset value (dB)
20	133-148	F16.7	Min. table Gain value (dB)
21	149-164	F16.7	Max. table Offset value (dB)
22	165-180	F16.7	Max. table Gain value (dB)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
23	181-196	A16	spare
			RADIOMETRIC COMPENSATION TABLE VALUES
24	197-204	I8	Number of compensation table entries (up to 256 samples/record in example) JERS-1='$$$$$186'
25	205-220	F16.7	1-st compensation sample Offset (dB)
26	221-236	F16.7	1-st compensation sample Gain (dB)
27	237-252	F16.7	2-nd compensation sample Offset (dB)
28	253-268	F16.7	2-nd compensation sample Gain (dB)
			• • •
	6125-6140	F16.7	186-th compensation sample Offset (dB)
	6141-6156	F16.7	186-th compensation sample Gain (dB)
	6157-8600	A2444	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 60
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B1	Length of this record = 1620
7	13-16	I4	Data summary quality record sequence number = '$$$1'
8	17-20	A4	SAR channel indicator = '$$$1'
9	21-26	A6	Date of the last calibration update as YYMMDD, where: YY = last two digits of year MM = month of the year DD = day of the month Set DB contents
10	27-30	I4	Number of channels (up to 16) = '$$$1'
			ABSOLUTE RADIOMETRIC DATA QUALITY
11	31-46	F16.7	Nominal Integrated Side Lobe Ratio (ISLR) (dB) Set DB contents
12	47-62	F16.7	Nominal Peak Side Lobe to main lobe Ratio (PSLR) (dB) Set DB contents
13	63-78	F16.7	Nominal azimuth ambiguity Set DB contents
14	79-94	F16.7	Nominal range ambiguity Set DB contents
15	95-110	F16.7	Estimate of SNR (from range spectra) Set DB contents
16	111-126	F16.7	Actual Bit Error Rate (BER) Set DB contents
17	127-142	F16.7	Nominal slant range resolution (meters) Set DB contents
18	143-158	F16.7	Nominal azimuth resolution (meters) Set DB contents
19	159-174	F16.7	Nominal radiometric resolution (dB) Set DB contents
20	175-190	F16.7	Instantaneous dynamic range (dB) Set DB contents

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
21	191-206	F16.7	Nominal absolute radiometric calibration magnitude of uncertainty of SAR channel indicated in field 8 (dB) Set DB contents
22	207-222	F16.7	Nominal absolute radiometric calibration phase uncertainty of SAR channel indicated in field 8 (deg) Set DB contents
			RELATIVE RADIOMETRIC DATA QUALITY
23	223-238	F16.7	Nominal relative radiometric calibration magnitude uncertainty of SAR channel (field 8) versus first of the other channels on a multi-channel volume (dB) Set DB contents
24	239-254	F16.7	Nominal relative radiometric calibration phase uncertainty of SAR channel (field 8) versus first of the other channels on a multi-channel volume (deg) Set DB contents
25-52	255-734	15*2* F16.7	Repetition .of fields 23-24 for the remaining channels (up to 16 channels) Set DB contents
			ABSOLUTE GEOMETRIC DATA QUALITY
53	735-750	F16.7	Nominal absolute location error along track (meters) Set DB contents
54	751-766	F16.7	Absolute location error cross track (meters) Set DB contents
55	767-782	F16.7	Nominal geometric distortion scale in line direction Set DB contents
56	783-798	F16.7	Nominal geometric distortion scale in pixel direction Set DB contents
57	799-814	F16.7	Nominal geometric distortion skew Set DB contents
58	815-830	F16.7	Scene orientation error Set DB contents
			RELATIVE GEOMETRIC DATA QUALITY
59	831-846	F16.7	Along track relative misregistration error of SAR channel (field 8) versus first of the other channels (meters) Set DB contents
60	847-862	F16.7	Cross track relative misregistration error of channel (field 8) versus first of the other channels (meters) Set DB contents
61-75	863-1342	15*2* F16.7	Repetition of fields 59-60 for the other channels (up to 16 channels) blanks
76	1343-1620	A278	spares

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 70
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 4680
7	13-16	I4	Data histograms record sequence number = '$$$1'
8	17-20	I4	SAR channel indicator = '$$$1'
9	21-28	I8	Number of histogram table data sets in this record = '$$$$$$$1'
10	29-36	I8	Histogram table data set size (bytes) = '$$$$2048'
			HISTOGRAM TABLE DATA SET DESCRPTION
11	37-68	A32	Histogram descriptor (eg: "DETECTED$DATA$...$")
12	69-72	I4	Number of histogram records needed to reconstitute the full histogram table = '$$$1'
13	73-76	I4	Sequence number in the full histogram table of the table contained in this record = '$$$1'
14	77-84	I8	Total number of table bins in the full histogram table = '$$$$$256'
15	85-92	I8	Total number of data samples in pixel direction (P)
16	93-100	I8	Total number of data samples lines (L)
17	101-108	I8	Data samples group size in pixel direction (M)
18	109-116	I8	Data samples group size lines (N)
19	117-124	I8	Number of samples used per group in line direction (k)
20	125-132	I8	Number of samples used per group across lines (l)
			DATA STATISTICS
21	133-148	F16.7	Minimum sample value corresponding to first histogram table bin = 0
22	149-164	F16.7	Maximum sample value corresponding to last histogram table bin Level 1.1 = TBD Level 2.0 = 32767

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
23	165-180	F16.7	Mean sample value
24	181-196	F16.7	Standard deviation of sample value
25	197-212	F16.7	Sample value increment
			DATA HISTOGRAM STATISTICS
26	213-228	F16.7	Minimum histogram table value (in samples)
27	229-244	F16.7	Maximum histogram table value
28	245-260	F16.7	Mean histogram table value
29	261-276	F16.7	Standard deviation of histogram table
30	277-284	I8	Histogram table size (maximum of 1024) = '$$$$$256'
31	285-292	I8	1-st histogram table value
32	293-300	I8	2nd histogram table value
.	.	.	.
.	.	.	.
	2331-2332	I8	256th histogram table value
	2333-4680	A2348	spares

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 80
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 8600
7	13-16	I4	Range spectra record sequence number = '$$$1'
8	17-20	I4	SAR channel indicator = '$$$1'
9	21-28	I8	Number of spectra table data sets in this record = '$$$$$$$1'
10	29-36	I8	Spectra table data set size (bytes) = '$$$$8192'
			RANGE SPECTRA DATA
11	37-40	I4	Number of range spectra data records required to reconstitute the full spectra table = '$$$1'
12	41-44	I4	Sequence number in the full spectra table of the table contained in this record = '$$$1'
13	45-52	I8	Total number of samples in range direction = '$$$$$512'
14	53-60	I8	Number of samples offset from first sample in range line = '$$$$$$$1'
15	61-68	I8	Number of range lines integrated for spectra = '$$$$$$$2'
16	69-84	F16.7	Centre frequency of first spectra bin (Hz)
17	85-100	F16.7	Centre frequency of last spectra bin (Hz)
18	101-116	F16.7	Minimum spectral power (dB) Set DB contents
19	117-132	F16.7	Maximum spectral power (dB) Set DB contents
20	133-148	A16	spare
21	149-164	A16	spare
			SPECTRAL DATA TABLE VALUES
22	165-172	I8	Number of frequency bins in table = '$$$$$512'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
23	173-188	F16.7	1-st spectral data value (dB)
24	189-204	F16.7	2nd spectral data value (dB)
.	.	.	.
.	.	.	.
	8349-8364	F16.7	512-th spectral data value (dB)
	8365-8600	A236	blanks

DIGITAL ELEVATION MODEL DESCRIPTOR RECORD DEFINITION (1/2)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 90
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record = 1024
7	13-16	I4	Digital elevation model descriptor record sequence number = 1
8	17-20	I4	spare
9	21-28	I8	Number of DEM data descriptor data sets in this record. (DEM coverage must be described by the corner points of a set of polygons.) = '$$$$$$$1'
10	29-60	A32	Original source of DEM
11	61-92	A32	Height datum reference name
12	93-124	A32	DEM generation method 'MAP$PROJECTION$...$'
13	125-136	A12	Original raster spaceing unit 'METERS$$$$$$'
14	137-168	A32	Original DEM presentation projection 'UTM-PROJECTION'
15	169-184	F16.7	Original DEM raster spacing north-south in unit as per field 13. = 25.0
16	185-200	F16.7	Original DEM raster spacing east-west in unit as per field 13. = 25.0
17	201-232	A32	Applied resampling method 'BILINEAR$$$$$$$$--$'
18	233-248	F16.7	RMS height error (meters) blanks
19	249-264	F16.7	RMS location error north-south in unit as per field 13. blanks
20	265-280	F16.7	RMS location error east-west in unit as per field 13. blanks
21	281-296	F16.7	Maximum height in DEM (meters)
22	297-312	F16.7	Minimum height in DEM (meters)
23	313-328	F16.7	Mean height value in DEM (meters). (Value computed by using the number of DEM points in original presentation)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
24	329-344	F16.7	Standard deviation of heights in DEM (meters). (value computed by using the number of DEM points in original presentation)
25	345-348	I4	Number of polygons described in this record = '$$$4'
			1-ST DEM DATA DESCRIPTOR DATA SET
26	349-352	I4	Polygon sequence number = '$$$1'
27	353-356	I4	Number of corner-points for current polygon = '$$$1'
28	357-364	I8	spare
29	365-380	F16.7	1st corner point Latitude (left top)
30	381-396	F16.7	1st corner point Longitude (left top)
31	397-412	F16.7	2nd corner point Latitude (right top)
32	413-428	F16.7	2nd corner point Longitude (right top)
33	429-444	F16.7	3rd corner point Latitude (right bottom)
34	445-460	F16.7	3rd corner point Longitude (right bottom)
35	461-476	F16.7	4th corner point Latitude (left bottom)
36	477-492	F16.7	4th corner point Longitude (left bottom)
37	493-1024	A532	spares

DETAILED PROCESSING PARAMETERS RECORD DEFINITION (1/2)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 120
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 70 CEOS=20, CCRS=36, ESA=50, NASA=60, NASA-JPL=61, NASDA=70, DFVLR=80, RAE=90, TELESPAZIO=100, UNSPECIFIED=18, etc.
6	9-12	B4	Length of this record = 9216
7	13-16	I4	Detailed processing parameters record sequence number = 1
8	17	B1	Synchronous information of 1-st minor frame (at LOCK ON : 1, at LOCK OFF : 0)
9	18-24	B7	Receiving ground time of 1st minor frame (BCD code)
10	25	B1	Satellite time quality information of 1-st minor frame Byte location 1 : Synchronous information (at LOCK ON : '1', at LOCK OFF : '0') Byte location 0 (LSB) : Satellite time quality information (at GOOD : '1', at BAD : '0')
11	26-32	B7	Receiving satellite time of 1st minor frame (BCD code)
12	33	B1	ID code at 1st minor frame (data of W_5)
13	34-158	B125	TLM raw data of 1st minor frame (data of $W_3 \sim W_{127}$)
14	159	B1	Synchronous information of 2nd minor frame (at LOCK ON : 1, at LOCK OFF : 0)
15	160-166	B7	Receiving ground time at of 2nd minor frame (BCD code)
16	167	B1	Satellite time quality information of 2nd minor frame Byte location 1 : synchronous information (at LOCK ON : '1', at LOCK OFF : '0') Byte location 0 (LSB) : satellite time quality information (at GOOD : '1', at BAD : '0')
17	168-174	B7	Satellite's time received 2nd minor frame (BCD code)
18	175	B1	ID code of 2nd minor frame (data of W_5)
19	176-300	B125	TLM raw data of 2nd minor frame (data of $W_3 \sim W_{127}$)
•	•	•	•
•	•	•	•
•	•	•	•

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
	8963	B1	Synchronous information of 64th minor frame (at LOCK ON : 1, at LOCK OFF : 0)
	8964-8970	B7	Receiving satellite time of 64th minor frame (BCD code)
	8971	B1	Satellite time quality information of 64th minor frame Bit location 1 : synchronous information (at LOCK ON : '1', at LOCK OFF : '0') Bit location 0 (LSB) : satellite time quality information (at GOOD : '1', at BAD : '0')
	8972-8978	B7	Satellite's time received 64th minor frame (BCD code)
	8979	B1	ID code of 64th minor frame (data of W_5)
	8980-9104	B125	TLM raw data of 64th minor frame (data of $W_3 \sim W_{127}$)
	9105-9216	A112	blanks

GROUND CONTROL POINTS DESCRIPTOR RECORD DEFINITION (1/2)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 140
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 70
6	9-12	B4	Length of this record = 8192
7	13-16	I4	Ground control points descriptor record sequence number '$$$1'
8	17-20	I4	spare
9	21-24	I4	Number of GCPs in this record (up to 30 points)
10	25-28	I4	Number of GCPs for geometric adjustment (up to 30 points)
11	29-32	I4	Number of GCPs for quality test = 0
12	33-96	A64	spare (for comments)
			1-ST GCP DESCRIPTOR
13	97-100	I4	GCP sequence number = 1
14	101-106	A6	Adjustment or test = 'ADJUST'
15	107-138	A32	GCP generation method Level 3 : 'MAP$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$' Level 4 : 'MAPANDDEM$SIMULATED$SAR$$$$$$$'
16	139-154	A16	Matching method 'VISUAL$MATCH$$$$'
17	155-170	A16	Method applied to 'GROUND$RANGE$$$$'
18	171-186	F16.7	Geographic latitude of GCP
19	187-202	F16.7	Geographic longitude of GCP
20	203-218	F16.7	GCP height above the reference ellipsoid
21	219-234	F16.7	Pixel first coordinate in image which matches GCP. (Pixel range line, pixel northing)
22	235-250	F16.7	Pixel second coordinate in image which matches GCP. (Pixel azimuth line, pixel easting)
23	251-266	F16.7	Pixel first coordinate in image which corresponds to transformed GCP coordinate/algorithmic geolocation. (Pixel range line, pixel northing)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number
2	5	B1	1-st record sub-type code = 18
3	6	B1	Record type code = 200
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 70 CEOS=20, CCRS=36, ESA=50, NASA=60, NASA-JPL=61, NASDA=70, DLR=80, RAE=90, TELESPAZIO=100, UNSPECIFIED=18, etc.
6	9-12	B4	Length of this record = 2048
7	13-16	I4	Facility related data record sequence number
8	17-66	A50	blanks
9	67-286	11(B2, A18)	Upper chick mark data (20 bytes × 11 datas) Chick mark data effective only at level 2.1, 3, 4
10	287-506	11(B2, A18)	Left side chick mark data (20 bytes × 11 datas) Structure of chick mark data
11	507-726	11(B2, A18)	Right side chick mark data (20 bytes × 11 datas) First 2 bytes : location info. rest of 18 bytes : charactor info.
12	727-946	11(B2, A18)	Lower chick mark data (20 bytes × 11 datas) First 2 bytes : location info. rest of 18 bytes : charactor info.
13	947-1346	20* E20.1	Convert line(L) and pixel(P) to longitude(E) and latitude(N) of the map projection $N = a_0+a_1P+a_2L+a_3PL+a_4P^2+a_5L^2+a_6P^2L+a_7PL^2+a_8P^3+a_9L^3$ $E = b_0+b_1P+b_2L+b_3PL+b_4P^2+b_5L^2+b_6P^2L+b_7PL^2+b_8P^3+b_9L^3$ Location info. : pixel numbers at upper/lower part, line numbers at left/right side Charactor info. : 'EDDD-MMNDDD-MM.MMM' DDD : degrees MM : minutes MM.MMM : minute + below decimal point (ZERO-FILL) Un used tick mark Location info. : 0 Charactor info. : blanks (Level 2.1, 3, 4 valid)
14	1347-1352	A6	Name of the satellites JERS-1 : 'JERS-1'
15	1353	A1	blanks
16	1354-1356	A3	Sensor name
17	1357	A1	blanks
18	1358-1363	I6	Segment number
19	1364	A1	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
20	1365-1369	I5	Orbit number
21	1370	A1	blanks
22	1371-1373	I3	RSP
23	1374	A1	blanks
24	1375-1382	A8	Observation date (UT) YYYYMMDD : YYYY : year MM : month DD : day
25	1383	A1	blanks
26	1384-1391	A8	Receiving date (UT) YYYYMMDD : YYYY : year MM : month DD : day
27	1392	A1	blanks
28	1393-1396	A4	Codes of the terrestial stations Hatoyama : "HEOC", Syowa Station : "SYWS" Bangkok : "BNKS", Kirna : "KRNS" Fairbanks : "FAIS"
29	1397	A1	blank
30	1398-1401	A4	Receiving mode Real time mode : "REAL" MDR play back mode : "MDR$"
31	1402	A1	blank
32	1403-1410	A8	Master product ID HDDT : HYYANNN, OD : OYYNNNMM, CCT : CYYNNNNN H : HDDT media identification data ("H") O : OD media identification data ("O") C : CCT media identification data ("C") YY : Year (lower 2 digits) A : Workshop ID (HDDT only) NNNNN, NNNN, NNN : Serial number MM : Sequential number in volume (OD only)
33	1411-1418	A8	blanks
34	1419-1424	A6	Processed status code NNMMMM NN : Program ID MMMM : Return code
35	1425-1426	I2	Scene number
36	1427-1429	A3	Processing level '$$0', '1.0', '1.1', '2.0', '2.1', '$$3', '$$4'
37	1430	A1	blank

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
38	1431-1433	I3	Path number of GRS (1～659) GRS Path , Row number ZERO-SUPPRESSION
39	1434	A1	blank
40	1435-1437	I3	Row number of GRS (141～449) GRS Path , Row number ZERO-SUPPRESSION
41	1438	A1	blank
42	1439-1445	A7	Difference of assending and descending assending : "ASCEND$" descending : "DESCEND"
43	1446	A1	blank
44	1447-1449	A3	Product media ID "OD$", "CCT"
45	1450	A1	blank
46	1451-1453	A3	Map projection descriptor "PS$", "UTM"
47	1454	A1	blank
48	1455-1456	A2	Resampling Nearest-neighbore : "NN" Cubic comvolution : "CC"
49	1457	A1	blank
50	1458-1461	A4	Pixel spacing "12.5", "18.0", "25.0"
51	1462	A1	blank
52	1463-1467	A5	Earth ellipsoid model Tokyo Bessel : "TOKYO" The world standard : "WORLD"
53	1468	A1	blank
54	1469-1474	A6	Orbit data input source Mission management and operation facility : "MMO$$$" OD/CCT : "OD/CCT"
55	1475	A1	blank
56	1476-1480	A5	TLM row data input assignment S band telemetry : "S-TLM" X band telemetry : "X-TLM"
57	1481	A1	blank
58	1482-1483	I2	Scene movable ID of along track direction : "-5"～"$4"
59	1484	A1	blank

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
60	1485-1489	I5	Scene movable ID of cross track direction : "-5000"～"$5000"
61	1490	A1	blanks
62	1491-1496	A6	Volume name of Optical Disk
63	1497-1502	A6	blank
64	1503	A1	Media name stored SAR raw data HDDT:"H",OD:"O",CCT:"C"
65	1504-1506	A3	blank
66	1507-1511	A5	Number of multi look
67	1512	A1	blank
68	1513	I1	Weighting function ID at Range compression "1"～"6" (*1)
69	1514	A1	blank
70	1515	I1	Weighting function ID at Azimuth compression "1"～"6" (*1) *1 Weighting function ID 1: RECTANGLE 2: HAMMING 3: HANNING 4: DOLPH CHEBYSHEV 5: BLACKMAN 6: USERSET
71	1516	A1	blank
72	1517-1520	A4	Visual evaluation assignment of Doppler center frequency estimation results Auto evaluation : "AUTO" Visual evaluation : "MANU"
73	1521	A1	blank
74	1522-1527	A6	Histogram conversion Linear conversion : "LINEAR" Square root conversion : "SQRT$$"
75	1528	A1	blank
76	1529-1533	F5.1	DTM grid size = "$12.5", "250.0"
77	1534	A1	blank
78	1535-1537	A3	Raw data evaluation assignment = "YES", "NO$"
79	1537-1540	A3	Processed image evaluation assignment = "YES", "NO$"
80	1541-1546	A6	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
81	1547-1549	A3	Summary processed image creation assignment = "YES", "NO$"
82	1550-1553	A4	blanks
83	1554	I1	Processed image saving assignment = "0", "1", "2"
84	1555	A1	blank
85	1556-1563	A8	Product ID
86	1564-1586	A23	blanks
87	1587-1596	A10	Processing algorithm ID
88	1597-1606	A10	Configuration assignment
89	1607	A1	blank
90	1608-1610	I3	Test mode level "$$0"～"$$2"
91	1611	A1	blank
92	1612-1631	A20	Maintenance field
93	1632-1639	A8	Order control number
94	1640-1642	I3	Order control branch number
95	1643-1644	I2	Activity number
96	1645-1647	A3	Software version = "N.M" Control sub-system version : N SAR sub-system version : M
97	1648-1666	A19	blanks
98	1667	I1	HDDR device number
99	1668-1669	I2	High speed image corrected device system classification
100	1670-1673	I4	LRN of RAM-DISK data line
101	1674-1677	I4	LRN of NEDIPS control line
102	1678-1681	I4	LRN of NEDIPS data line
103	1682-1685	I4	LRN of TLM data
104	1686-1692	A7	Name of optical disk device at data output
105	1693-1746	A54	blanks
			Level 2.1 after this valid (1747-1826)
106	1747-1754	F8.3	Scene centre latitude
107	1755-1762	F8.3	Scene centre longitude

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
108	1763-1770	F8.3	Scene top left latitude
109	1771-1778	F8.3	Scene top left longitude
110	1779-1786	F8.3	Scene top right latitude
111	1787-1794	F8.3	Scene top right longitude
112	1795-1802	F8.3	Scene bottom left latitude
113	1803-1810	F8.3	Scene bottom left longitude
114	1811-1818	F8.3	Scene bottom right latitude
115	1819-1826	F8.3	Scene bottom right longitude
116	1827-1831	I5	Number of pixels
117	1832-1836	I5	Number of lines
118	1837-1842	A6	blanks
119	1843-1850	A8	Processing date = "YYYYMMDD" year : YYYY month : MM day : DD
120	1851-1854	A4	System version="XNNN" X : process facility ID (TBD) NNN : version
121	1855	A1	Gain mode A:AGC , M:MGC
122	1856-1906	A51	blanks
123	1907-1910	A4	Result of quality evaluation = "GOOD", "FAIR", "POOR", "NO$$" Level 2.1 after
124	1911	I1	'9'
125	1912	I1	'9'
126	1913	I1	'9'
127	1914	I1	'9'
128	1915-1918	I4	Number of lock off lines = "$$$0"～"9999"
129	1919-1920	A2	Orbit evaluation information = "OK", "NG"
130	1921-1922	A2	Attitude evaluation information = "OK", "NG"
131	1923-1924	A2	TLM temperture evaluation information = "OK", "NG"
132	1925-1927	I3	Saturation pixel number = "$$0"～"100" (%) Level 2.1 after
133	1928-1986	A59	blanks
134	1987-2048	A62	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 1
2	5	B1	1-st record sub-type code = 50
3	6	B1	Record type code = 192
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 18
6	9-12	B4	Length of this record = 720
7	13-14	A2	ASCII/EBCDIC flag, always="A$" for ASCII or "E$" for EBCDIC = 'A$'
8	15-16	A2	blanks
9	17-28	A12	Format control document ID for this data file format (the ID of this document) 'CEOS-SAR-CCT'
10	29-30	A2	Format control document revision level = "$A" (for original)
11	31-32	A2	File design descriptor revision letter = "$A" (for original)
12	33-44	A12	Generating software release and revision level (ie. name & version; same as field12 of the volume descriptor record)
13	45-48	I4	File number = '$$$1'
14	49-64	A16	File name (same as field 10 in file pointer record in volume dirctory file)
15	65-68	A4	Record sequence and location type flag 'FSEQ'
16	69-76	I8	Sequence number location '$$$$$$$1'
17	77-80	I4	Sequence number field length '$$$4'
18	81-84	A4	Record code and location type flag 'FTYP'
19	85-92	I8	Record code location '$$$$$$$5'
20	93-96	I4	Record code field length '$$$4'
21	97-100	A4	Record length and location type flag 'FLGT'
22	101-108	I8	Record length location '$$$$$$$9'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
23	109-112	I4	Record length field length '$$$4'
24	113	A1	Reserved blank
25	114	A1	Reserved blank
26	115	A1	Reserved blank
27	116	A1	Reserved blank
28	117-180	A64	Reserved segment blanks
29	181-186	I6	Number of SAR DATA records see up OD,CCT Recorde Structure
30	187-192	I6	SAR DATA record length (bytes) JERS-1 Level 0 12700 Level 1.0 24284 Level 1.1(1 look) 6556 Level 1.1(3 looks) 17088 Level 2.0, 2.1, 3, 4 12.5m 12192 18.0m 8592 25.0m 6192
31	193-216	A24	Reserved blanks

SAMPLE GROUP DATA

32	217-220	I4	Number of bits per sample Level 0 = '$$$8' Level 1.0, 1.1 = '$$32' Level 2.0～4 = '$$16'
33	221-224	I4	Number of samples per data group (or pixel) Level 0, 1.0, 1.1(1 look) = '$$$2' Level 1.1(3 looks), 2.0, 2.1, 3, 4 = '$$$1'
34	225-228	I4	Number of bytes per data group (or pixel) Level0 = '$$$2' Level1.1(3 looks) = '$$$4' Level1.0 = '$$$8' Level2.0～4 = '$$$2' Levle1.1(1 look) = '$$$8'
35	229-232	A4	Justification and order of samples within data group (or pixel) blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
			SAR RELATED DATA IN THE RECORD
36	233-236	I4	Number of SAR channels in this file '$$$1'
37	237-244	I8	Number of lines per data set (one channel) in.this file (excluding border lines)
38	245-248	I4	Number of left border pixels per line = '$$$0'
39	249-256	I8	Total number of data groups (or pixels) per line per SAR channel JERS-1 Level 0 6144 Level 1.0 5968 Level 1.1(1 look) 16896 Level 1.1(3 looks) 8448 Level 2～4 12.5m 6000 18.0m 4200 25.0m 3000
40	257-260	I4	Number of right border pixels per line = '$$$0'
41	261-264	I4	Number of top border lines = '$$$0'
42	265-268	I4	Number of bottom border lines = '$$$0'
43	269-272	A4	Inter leaving indicator ("BIL$", "BSQ$", "BIP$") 'BSQ$'
			RECORD DATA IN THE FILE
44	273-274	I2	Number of physical records per line JERS-1 SAR Level 0 = '$1' Level 1.0 = '$2' Level 1.1(1) = '22' Level 1.1(3) = '$2' Level 2～4 = '$1'
45	275-276	I2	Number of physical records per multi-channel line in this file JERS-1 SAR Level 0 = '$1' Level 1.0 = '$2' Level 1.1(1) = '22' Level 1.1(3) = '$2' Level 2～4 = '$1'
46	277-280	I4	Number of bytes of prefix data per record Level 0, 1.0 = '$400' Level 1.1～4 = '$180'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
47	281-288	I8	Number of bytes of SAR data (or pixel data) data per record

	JERS-1		JERS-1
Level 0	12288	Level 2～4	
Level 1.0	23872	12.5m	12000
Level 1.1(1 look)	6144	18.0m	8400
Level 1.1(3 looks)	16896	25.0m	6000

48	289-292	I4	Number of bytes of suffix data per record '$$$0'
49	293-296	A4	Prefix/suffix repeat flag '$$$$'
			PREFIX/SUFFIX DATA LOCATORS (*1)
50	297-304	A8	Sample data line number locator '$$13$4PB'
51	305-312	A8	SAR channel number locator '$$49$2PB'
52	313-320	A8	Time of SAR data line locator '$$45$4PB'
53	321-328	A8	Left-fill count locator '$$21$4PB'
54	329-336	A8	Right-fill count locator '$$29$4PB'
55	337-340	A8	Pad pixels present indicator "YES$" or "NO$$" (for SAR data, always "$$$$") '$$$$$$$$'
56	341-368	A28	blanks
57	369-376	A8	SAR data line quality code locator '$$$$$$$$'
58	377-384	A8	Calibration information field locator '$$$$$$$$'
59	385-392	A8	Gain values field locator '$$$$$$$$'
60	393-400	A8	Bias values field locator '$$$$$$$$'
			SAR DATA PIXEL DESCRIPTION
61	401-428	A28	SAR Data format type identifier Level 0 'COMPLEX$INTEGER*2$$$$$$$$$$' Level 1.0 'COMPLEX*8$$$$$$$$$$$$$$$$$$' 1.1(1 look) Level 1.1(3 looks) 'REAL*4$$$$$$$$$$$$$$$$$$$$' Level 2.0～4 'SIGNED$INTEGER*2$$$$$$$$$$$'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
62	429-432	A4	SAR Data format type code Level 0 = 'CI*2' Level 1.0 = 'C*8$' 1.1(1 look) Level 1.1(3 looks) = 'R*4$' Level 2.0～4 = 'IS2$'
63	433-436	I4	Number of left fill bits within pixel JERS-1 Level 0 '$$$5' Level 1.1～4 '$$$0'
64	437-440	I4	Number of right fill bits within pixel = '$$$0'
65	441-448	I8	Maximum data range of pixel (starting from 0) JERS-1 Level 0 7 Level 1.0 blank Level 1.1 blank Level 2.0～4 32767
66	449-720	A272	blanks

Note. (*1) The format for an 8-byte ASCII locator is as follows.
Bytes 1-4= start byte number of the field within prefix/suffix.
Bytes 5-6= length in bytes of the field to be located.
Byte 7 = letter "P" or "S" indicating the location or the field is in prefix of suffix.
Byte 8 = type of data format.
A = ASCII
B = Binary
N = Numeric ASCII

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 2, 3, ...
2	5	B1	1-st record sub-type code = 50
3	6	B1	Record type code = 10
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record JERS-1 Level 0 12700 Level 1.0 24284 Level 1.1(1) 6556
			PREFIX DATA - GENERAL INFORMATION
7	13-16	B4	SAR image data line number
8	17-20	B4	SAR image data record index (indicates the record sequence number in the image line)
9	21-24	B4	Actual count of left-fill pixels = 0
10	25-28	B4	Actual count of data pixels JERS-1 Level 0 6144 Level 1.0 2968 Level 1.1(1) 768
11	29-32	B4	Actual count of right-fill pixels = 0
			PREFIX DATA -SENSOR PARAMETERS
12	33-36	B4	Sensor parameters update flag (1=data in this section is an update 0= data is a repeat) = 0,1 update every 1024 line
13	37-40	B4	Sensor acquisition year
14	41-44	B4	Sensor acquisition day of year
15	45-48	B4	Sensor acquisition msecs of day
16	49-50	B2	Sar channel indicator (sequence number in multi-channel SAR data) = 1
17	51-52	B2	SAR channel code (0=L, 1=S, 2=C, 3=X, 4=KU and 5=KA channel) = JERS-1 0
18	53-54	B2	Transmitted polarization (0=H, 1=V) = JERS-1 0

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
19	55-56	B2	Received polarization (0=H, 1=V) = JERS-1 0
20	57-60	B4	PRF (Hz) Same through 1 whole scene
21	61-64	B4	spare
22	65-66	B2	Onboard Range compressed flag (0=no/1=yes) = 0
23	67-68	B2	Pulse (chirp) type designator (0="LINEARFMCHIRP$, 1="PHASE$MODULATORS") = 0
24	69-72	B4	Chirp length (nano-secs) Set DB contents
25	73-76	B4	Chirp constant coefficient (Hz) Set DB contents
26	77-80	B4	Chirp linear coefficient (Hz/μsec) Set DB contents
27	81-84	B4	Chirp quadratic coefficient (Hz/μsec^2) Set DB contents
28	85-88	B4	spare
29	89-92	B4	spare
30	93-96	B4	Receiver gain (dB) Set DB contents
31	97-100	B4	Nought line flag (0=no/1=yes) = 0,1 1 when it is a defective line
32	101-104	B4	Antenna electronic elevation angle from nadir (millionths of degrees) Set DB contents
33	105-108	B4	Antenna mechanical elevation angle from nadir (millionths of degrees) Set DB contents
34	109-112	B4	Electronic antenna squint angle (millionths of degrees) Set DB contents
35	113-116	B4	Mechanical antenna squint angle (millionths of degrees) Set DB contents
36	117-120	B4	Slant range to 1-st data sample (m)
37	121-124	B4	Data record window position (ie. sample delay) (nano-secs) STC starting time set
38	125-128	B4	spare

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
			PREFIX DATA - PLATFORM REFERENCE INFORMATION
39	129-132	B4	Platform pos. parameters update flag (1=data in this section is an update 0=data is a repeat) = 0
40	133-136	B4	Platform latitude (millionths deg.) blanks
41	137-140	B4	Platform longitude (millionths deg.) blanks
42	141-144	B4	Platform altitude (meters) blanks
43	145-148	B4	Platform ground speed (cm/sec) blanks
44	149-160	3B4	Platform velocity X',Y',Z'(cm/sec) blanks
45	161-172	3B4	Platform acceleration X",Y",Z",(cm/sec^2) blanks
46	173-176	B4	Platform track angle (millionths deg.) blanks
47	177-180	B4	Platform true heading (millionths deg.) blanks
48	181-184	B4	Platform Pitch angle (millionths deg.) blanks
49	185-188	B4	Platform Roll angle (millionths deg.) blanks
50	189-192	B4	Platform Yaw angle (millionths deg.) blanks
			PREFIX DATA - SENSOR/FACILITY SPECIFIC AUXILIARY DATA
			HEADER DATA
51	193-284	B92	blanks (0)
52	285	B1	SAR synchronism information at LOCK ON '01', at LOCK OFF '00'
53	286-292	B7	Time at ground (BCD code)
54	293-299	B7	Satellite time (BCD code)

BCD code

	$D^7 \leftarrow D^4$	$D^3 \leftarrow D^0$
1	0	$*10^2{}_{*1}$
2	$*10^1{}_{*1}$	$*10^0{}_{*1}$
3	$*10^1{}_{*2}$	$*10^0{}_{*2}$
4	$*10^1{}_{*3}$	$*10^0{}_{*3}$
5	$*10^1{}_{*4}$	$*10^0{}_{*4}$
6	$*10^{-1}$	$*10^{-2}$
7	$*10^{-3}$	0

*1:Day
*2:Hours
*3:Minutes
*4:seconts

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
55	300	B1	Sate llite time quality information Bit location 1 (LSB) : Minor frame of TLM data synchronism information (at LOCK ON '1', at LOCK OFF '0') Bit locktion 0 (LSB) : Saatellite time quality information (at GOOD '1', at BAD '0')
56	301-323	B23	H/K data Delimit every 3 bits of 64 bits data then insert. The structure of 1 byte packs data in 3 bits of LSB side. Upper 5 bits are '0'
57	324-331	B8	Frame number Delimit every 3 bits of 24 bits data then insert. The structure of 1 byte packs data in 3 bits of LSB side. Upper 5 bits are '0'
58	332-412	B81	NA
			SAR RAW SIGNAL DATA
59	413-(i)	jBk	SAR Signal data consisting of Noise and Echo data. Where. (i)-number of bytes of data +412 (j)-number of pixels on this record (k)-size of pixel in bytes
		tbd*B4	SUFFIX DATA

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 2, 3, ...
2	5	B1	1-st record sub-type code = 50
3	6	B1	Record type code = 11
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 20
6	9-12	B4	Length of this record JERS-1 Level 1.1(3 looks) 17088 Level 2.0～4 12.5m 12192 18.0m 8592 25.0m 6192
			PREFIX DATA - GENERAL INFORMATION
7	13-16	B4	SAR image data line number
8	17-20	B4	SAR image data record index (indicates the record sequence number in the image line)
9	21-24	B4	Actual count of left-fill pixels = 0
10	25-28	B4	Actual count of data pixels obsevation value when level 3 and 4 JERS-1 Level 1.1(3 looks) 4224 Level 2.0～4 12.5m 6000 18.0m 4200 25.0m 3000
11	29-32	B4	Actual count of right-fill pixels = 0
			PREFIX DATA -SENSOR/PROCESSING PARAMETERS
12	33-36	B4	Sensor parameters update flag (1=data in this section is an update 0= data is a repeat) = 0,1 update every 1024 line
13	37-40	B4	Sensor acquisition year
14	41-44	B4	Sensor acquisition day of year
15	45-48	B4	Sensor acquisition msecs of day = Blanks
16	49-50	B2	SAR channel indicator (sequence number in multi-channel SAR data) = 1
17	51-52	B2	SAR channel code (0=L, 1=S, 2=C, 3=X, 4=KU and 5=KA channel) = 0

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
18	53-54	B2	Transmitted polarization (0=H, 1=V) = 0
19	55-56	B2	Received polarization (0=H, 1=V) = 0
20	57-60	B4	PRF (Hz) same 1 scene
21	61-64	B4	spare
22	65-68	B4	Slant Range to 1-st pixel(m)
23	69-72	B4	Slant Range to mid-pixel(m)
24	73-76	B4	Slant Range to last pixel(m)
25	77-80	B4	Doppler centroid value at 1st px.(Hz)
26	81-84	B4	Doppler centroid value at mid-pixel
27	85-88	B4	Doppler centroid value at last pixel
28	89-92	B4	Azimuth FM rate of 1st px.(Hz)
29	93-96	B4	Azimuth FM rate of mid-pixel
30	97-100	B4	Azimuth FM rate of last pixel
31	101-104	B4	Look angle of nadir (millionths of degrees) blanks
32	105-108	B4	Azimuth squint angle (millionths of degrees) blanks
33	109-112	B4	spare
34	113-116	B4	spare
35	117-120	B4	spare
36	121-124	B4	spare
37	125-128	B4	spare
			PREFIX DATA - GEOGRAPHIC REFERENCE INFO.
38	129-132	B4	Geographic ref. parameter update flag (1 = data in this section is an update 0 = data is a repeat) = 0
39	133-136	B4	Latitude of 1-st pixel (millionths of deg) blanks
40	137-140	B4	Latitude of mid-pixel blanks
41	141-144	B4	Latitude of last pixel blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
42	145-148	B4	Longitude of 1-st pixel (millionths of degrees) blanks
43	149-152	B4	Longitude of mid-pixel blanks
44	153-156	B4	Longitude of last pixel blanks
45	157-160	B4	Northing of 1-st pixel (m) blanks
46	161-164	B4	spare
47	165-168	B4	Northing of last pixel (m) blanks
48	169-172	B4	Easting of 1-st pixel (m) blanks
49	173-176	B4	spare
50	177-180	B4	Easting of last pixel (m) blanks
51	181-184	B4	Line heading (orientation of the perpendicular to the data line centre relative to true north) (millionths of degs.) blanks
52	185-188	B4	spare
53	189-192	B4	spare
			SAR PROCESSED DATA
54	193-(i)	jBk	SAR processed data. Where... (i)-number of bytes of data +192 (j)-number of pixels on this record (k)-size of pixel in bytes
		0*B4	SUFFIX DATA

FILE DESCRIPTOR RECORD (FIXED SEGMENT) DEFINITION (1/4)

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	Record sequence number = 1
2	5	B1	1-st record sub-type code = 91
3	6	B1	Record type code = 192
4	7	B1	2-nd record sub-type code = 18
5	8	B1	3-rd record sub-type code = 18
6	9-12	B4	Length of this record = 720
7	13-14	A2	ASCII/EBCDIC flag, always = "A$" for ASCII
8	15-16	A2	blanks
9	17-28	A12	Format control document ID for this data file format (the ID of this document) = 'CEOS-SAR-CCT'
10	29-30	A2	Format control document revision level = "$A" (for original)
11	31-32	A2	File design descriptor revision letter = "$A" (for original)
12	33-44	A12	Generating software release and revision level (eg: name & version; same as field 12 of the volume descriptor record) 'UVW$$$$$$$$$' U : Data base version V : Media conversion sub-system version (eg:Blank when no conversion processing) W : Image processing and distortion correction sub-system version ('0', '1'～'9', 'A'～'Z')
13	45-48	I4	File number = '$$$1'
14	49-64	A16	File name = 'MMN$SSSTFFFF$$$$' same as field 10 of file pointer record in volume directory file
15	65-68	A4	Record sequence and location type flag 'FSEQ'
16	69-76	I8	Sequence number location '$$$$$$$1'
17	77-80	I4	Sequence number field length '$$$4'
18	81-84	A4	Record code and location type flag 'FTYP'
19	85-92	I8	Record code location '$$$$$$$5'
20	93-96	I4	Record code field length '$$$4'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
21	97-100	A4	Record length and location type flag 'FLGT'
22	101-108	I8	Record length location '$$$$$$$9'
23	109-112	I4	Record length field length '$$$4'
24-28	113-180	A68	blanks
29	181-186	I6	Number of data set summary records '$$$$$1'
30	187-192	I6	Data set summary record length '$$4096'
31	193-198	I6	Number of map projection data records '$$$$$1' or '$$$$$0' Level 2.1 and above. All others '$$$$$0'
32	199-204	I6	Map projection record length '$$1620' or '$$$$$0' Level 2.1 and above. All others '$$$$$0'
33	205-210	I6	Number of platform pos. data records '$$$$$1'
34	211-216	I6	Platform position record length '$$4680'
35	217-222	I6	Number of attitude data records '$$$$$1'
36	223-228	I6	Attitude data record length '$$8192'
37	229-234	I6	Number of radiometric data records '$$$$$0'
38	235-240	I6	Radiometric record length '$$$$$0'
39	241-246	I6	Number of rad. compensation records '$$$$$1' or '$$$$$0' Level 1.0, 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
40	247-252	I6	Radiometric compensation rec. length '$$8600' or '$$$$$0' Level 1.0, 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
41	253-258	I6	Number of data quality summary records '$$$$$1' or '$$$$$0' Level 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'
42	259-264	I6	Data quality summary record length '$$1620' or '$$$$$0' Level 1.1, 2.0, 2.1, 3, 4. All others '$$$$$0'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
43	265-270	I6	Number of data histograms records '$$$$$1' or '$$$$$0' Level 1.1(3 looks) and 2.0 only. All others '$$$$$0'
44	271-276	I6	Data histogram record length '$$4680' or '$$$$$0' Level 1.1(3 looks) and 2.0 only. All others '$$$$$0'
45	277-282	I6	Number of range spectra records '$$$$$1' or '$$$$$0' Level 0, 1.0, 1.1, 2.0. All others '$$$$$0'
46	283-288	I6	Range spectra record length '$$8600' or '$$$$$0' Level 0, 1.0, 1.1, 2.0. All others '$$$$$0'
47	289-294	I6	Number of DEM descriptor records '$$$$$1' or '$$$$$0' Process level 4 only. All others '$$$$$0'
48	295-300	I6	DEM descriptor record length '$$1024' or '$$$$$0' Level 4 only. All others '$$$$$0'
49	301-306	I6	Number of Radar par. update records '$$$$$0'
50	307-312	I6	Radar par. update record length '$$$$$0'
51	313-318	I6	Number of Annotation data records '$$$$$0'
52	319-324	I6	Annotation data record length '$$$$$0'
53	325-330	I6	Number of Det.processing records '$$$$$0' or '$$$$$1' Level 0 only '$$$$$1'
54	331-336	I6	Det.processing record length '$$$$$0' or '$$9216' Level 0 only '$$9216'
55	337-342	I6	Number of Calibration records '$$$$$0'
56	343-348	I6	Calibration record length '$$$$$0'
57	349-354	I6	Number of GCP records '$$$$$1' or '$$$$$0' Level 3, 4 only All others '$$$$$0'
58	355-360	I6	GCP record length '$$8192' or '$$$$$0' Level 3, 4 only All others '$$$$$0'

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
59	361-366	I6	spare
60	367-372	I6	spare
61	373-378	I6	spare
62	379-384	I6	spare
63	385-390	I6	spare
64	391-396	I6	spare
65	397-402	I6	spare
66	403-408	I6	spare
67	409-414	I6	spare
68	415-420	I6	spare
69	421-426	I6	Number of Facility data records '$$$$$1'
70	427-432	I6	Facility data record length '$$2048'
71	433-720	A288	blanks

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT
1	1-4	B4	1 -record sequence number
2	5	B1	192 -1-st record subtype code
3	6	B1	192 -record type code
4	7	B1	63 -2-nd record subtype code
5	8	B1	18 -3-rd record subtype code
6	9-12	B4	360 -record length
7	13-14	A2	A$ -ASCII flag
8	15-16	A2	$$ -blanks
9	17-28	A12	CEOS-SAR-CCT -format control document
10	29-30	A2	$A -format control document version
11	31-32	A2	$A -record format revision level
12	33-34	A12	<software ID> 'UVW$$$$$$$$$'
13	45-60	A16	<physical tape ID> 'EOC-XXXXXXXX-SIJ'
14	61-76	A16	$$$$$$$$$$$$$$$$ -logical set ID = blanks
15	77-92	A16	$$$$$$$$$$$$$$$$ -volume set ID = blanks
16	93-94	I2	$1 -total number of physical volumes
17	95-96	I2	$1 -1-st physical volume sequence number
18	97-98	I2	$1 -last physical volume sequence number
19	99-100	I2	$1 -this physical volume sequence number
20	101-104	I4	$$$$ -1-st refrence file in volume
21	105-108	I4	$$$2 -logical volume in set
22	109-112	I4	$$$2 -logical volume number in physical volume
23	113-120	A8	$$$$$$$$
24	121-128	A8	$$$$$$$$
25	129-140	A12	$$$$$$$$$$$$
26	141-148	A8	$$$$$$$$
27	149-160	A12	$$$$$$$$$$$$

9 FILE CONFIGURATION ON THE PHYSICAL VOLUME

The files and records contained in physical volume are shown on following pages.

(1) JERS-1 LEVEL 0 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RANGE SPECTRA	
	9216	1	DETAILED PROCESSING PARAMETERS RECORD	
	2048	1	FACILITY RELATED DATA RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12700	9952	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DESCRIPTOR
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12700	9952	SIGNAL DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(2) JERS-1 LEVEL 0 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	VILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RANGE SPECTRA	
	9216	1	DETAILED PROCESSING PARAMETERS RECORD	
	2048	1	FACILITY RELATED DATA RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12700	2500	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II – VI	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12700	3000	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
VII	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12700	2404	SIGNAL DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(3) JERS-1 LEVEL 1 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	24284	5000	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II – VI	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	24284	6000	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
VII	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	24284	4808	SIGNAL DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(4) JERS-1 LEVEL 1.1 1 LOOK 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6556	19000	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II – VI	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6556	19000	SIGNAL DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
VII	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6556	16592	SIGNAL DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(5) JERS-1 LEVEL 1.1 3 LOOKS 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	4680	1	DATA HISTOGRAM	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	17088	5936	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DISCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DISCRIPTOR	SAR IMAGE
	17088	5936	PROCESSED DATA	
	720	1	FILE DISCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(6) JERS-1 LEVEL 2.0 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
1	4680	1	DATA HISTOGRAM	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	* see table 1		PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

* TABLE 1

PIXEL SPACING	12.5m	18.0m	25.0m
RECORD LENGTH	12192	8592	6192
NUMBER/RECORD	6400	4450	3200

(7) JERS-1 LEVEL 2.0 PIXEL SPACING 12.5M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DISCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	4680	1	DATA HISTOGRAM	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
III	360	1	VOLUME DESCRIPTOR	VOLUME
	360	3	FILE POINTER	DIRECTORY
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	1400	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(8) JERS-1 LEVEL 2.0 PIXEL SPACING 18.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	4680	1	DAT HISTOGRAM	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2225	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2225	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(9) JERS-1 LEVEL 2.0 PIXEL SPACING 25.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	4680	1	DATA HISTOGRAM	
	8600	1	RANGE SPECTRA	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6192	3200	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(10) JERS-1 LEVEL 2.1 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM LOCATION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
I	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	* see table 2		PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

* TABLE 2

PIXEL SPACING	12.5m	18.0m	25.0m
RECORD LENGTH	12192	8592	6192
NUMBER/RECORD	6400	4450	3200

(11) JERS-1 LEVEL 2.1 PIXEL SPACING 12.5M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
III	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	1400	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(12) JERS-1 LEVEL 2.1 PIXEL SPACING 18.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2225	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2225	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(13) JERS-1 LEVEL 2.1 PIXEL SPACING 25.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
I	1620	1	DATA QUALITY SUMMARY	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6192	3200	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(14) JERS-1 LEVEL 3 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	* see table 3		PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

* TABLE 3

PIXEL SPACING	12.5m	18.0m	25.0m
RECORD LENGTH	12192	8592	6192
NUMBER/RECORD	6000	4200	3000

(15) JERS-1 LEVEL 3 PIXEL SPACING 12.5M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
III	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	1000	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(16) JERS-1 LEVEL 3 PIXEL SPACING 18.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DAT QUALITY SUMMARY	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2100	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2100	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(17) JERS-1 LEVEL 3 PIXEL SPACING 25.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6192	3000	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(18) JERS-1 LEVEL 4 6250 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
I	1024	1	DEM DESCRIPTOR	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	* see table 4		PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

* TABLE 4

PIXEL SPACING	12.5m	18.0m	25.0m
RECORD LENGTH	12192	8592	6192
NUMBER/RECORD	6000	4200	3000

(19) JERS-1 LEVEL 4 PIXEL SPACING 12.5M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	1024	1	DEM DESCRIPTOR	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
II	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	2500	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
III	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	12192	1000	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(20) JERS-1 LEVEL 4 PIXEL SPACING 18.0M 1600BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
I	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECITON DATA	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
	1620	1	DATA QUALITY SUMMARY	
	1024	1	DEM DESCRIPTOR	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2100	PROCESSED DATA	
	E O F			
	E O F			

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
III	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	8592	2100	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

(21) JERS-1 LEVEL 4 PIXEL SPACING 25.0M 1600 BPI

PHYSICAL VOLUME	RECORD LENGTH	NUMBER/ RECORDS	NAME OF RECORD	NAME OF FILE
	360	1	VOLUME DESCRIPTOR	VOLUME DIRECTORY
	360	3	FILE POINTER	
	360	1	TEXT RECORD	
	720	1	FILE DESCRIPTOR	SAR LEADER
	4096	1	DATA SET SUMMARY	
	1620	1	MAP PROJECTION	
	4680	1	PLATFORM POSITION DATA	
	8192	1	ATTITUDE DATA	
	8600	1	RADIOMETRIC COMPENSATION	
I	1620	1	DATA QUALITY SUMMARY	
	1024	1	DEM DESCRIPTOR	
	8192	1	GCP	
	2048	1	FACILITY RELATED DATA	
	720	1	FILE DESCRIPTOR	SAR IMAGE
	6192	3000	PROCESSED DATA	
	720	1	FILE DESCRIPTOR	TRAILER
	E O F			
	360	1	NULL VOLUME DESCRIPTOR	NULL VOLUME
	E O F			
	E O F			
	E O F			

10 THE STRUCTURE OF SAR IMAGE DATA

(1) JERS-1 LEVEL 0

Indicate Signal Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data *1	:	400 byte
(3) SAR raw signal data	:	12288 byte
(4) suffix data	:	0 byte
		12700 byte

*1 H/K data(69bit) is organized in the sensor/facility specific auxiliary data of Prefix data.

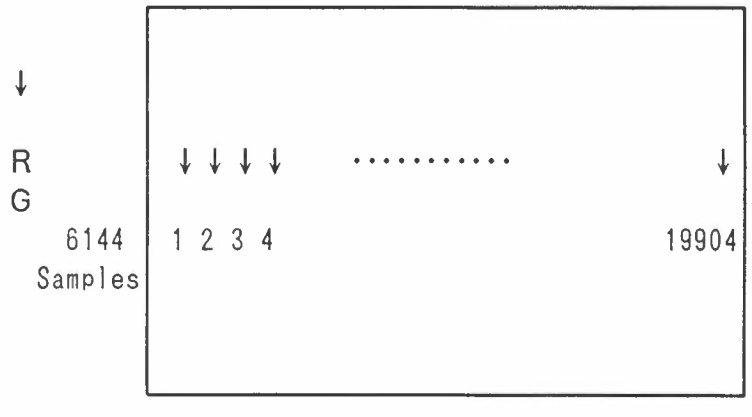
(Data Type)

complex integer*1

(Number of Records)

19904

(Arrengement)



(2) JERS-1 LEVEL 1.0

Indicate Signal Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data *1	:	400 byte
(3) SAR raw signal data	:	23872 byte
(4) suffix data	:	0 byte
		24284 byte

*1 H/K data(69bit) is organized in the sensor/facility specific auxiliary data of Prifix data.

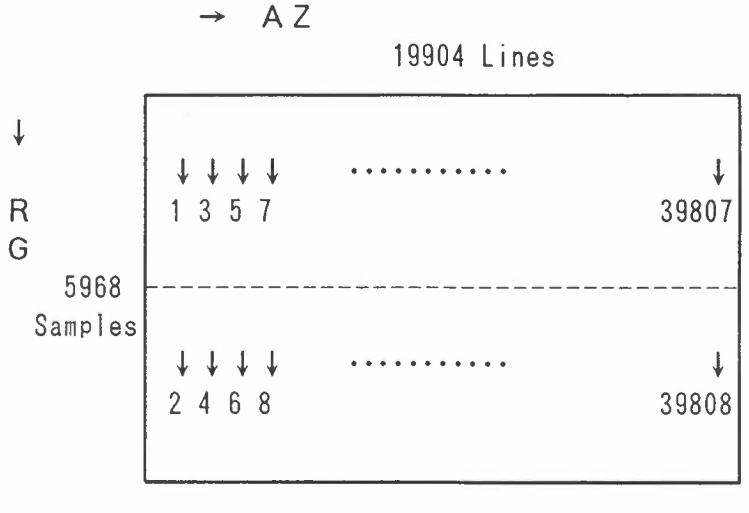
(Data Type)

complex real*4 (IEEE Floating Decimal Point)

(Number of Records)

39808

(Arrengement)



(3) JERS-1 LEVEL 1.1 1 LOOK

Indicate Signal Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data *1	:	400 byte
(3) SAR raw signal data	:	6144 byte
(4) suffix data	:	0 byte
		6556 byte

*1 H/K data(69bit) is organized in the sensor/facility specific auxiliary data of Prefix data.

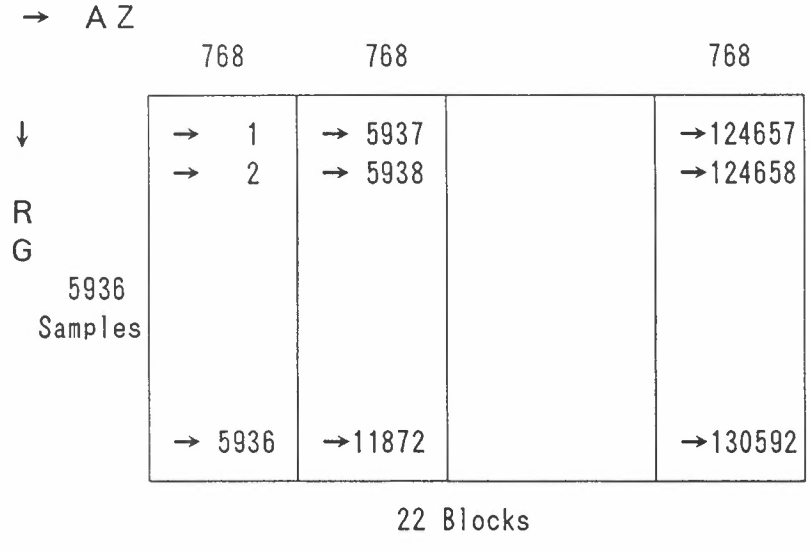
(Data Type)

complex real*4 (IEEE Floating Decimal Point)

(Number of Records)

130592

(Arrengement)



(4) JERS-1 LEVEL 1.1 3 LOOKS

Inedicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	16896 byte
(4) suffix data	:	0 byte
		17088 byte

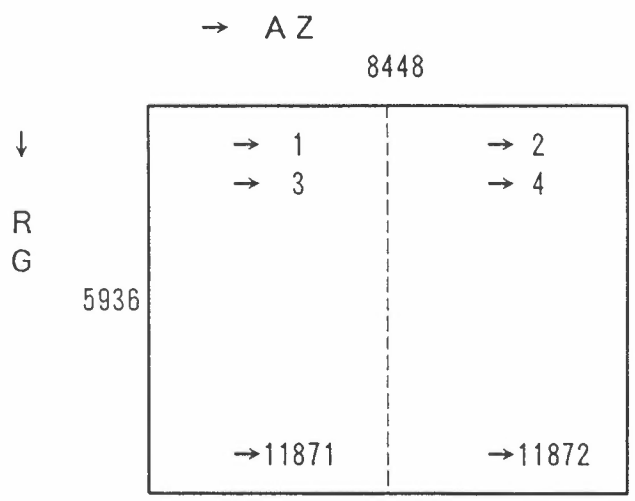
(Data Type)

real*4 (IEEE Floating Decimal Point)

(Number of Records)

11872

(Arrengement)



(5) JERS-1 LEVEL 2.0 / 2.1 PIXEL SPACING 12.5M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	12000 byte
(4) suffix data	:	0 byte
		12192 byte

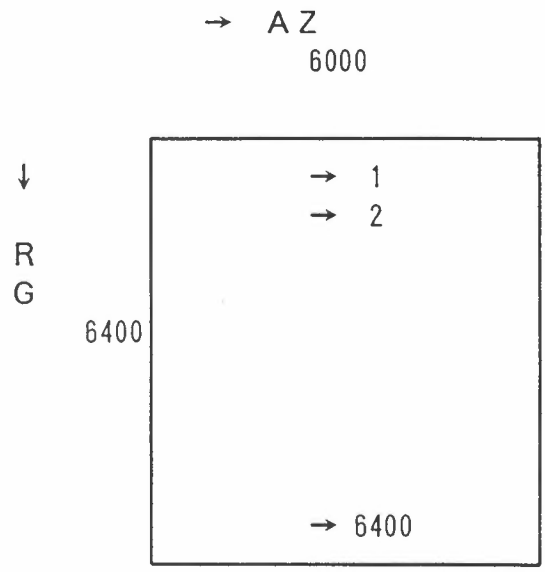
(Data Type)

signed integer*2

(Number of Records)

6400

(Arrengement)



(6) JERS-1 LEVEL 2.0 / 2.1 PIXEL SPACING 18.0M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	8400 byte
(4) suffix data	:	0 byte
		8592 byte

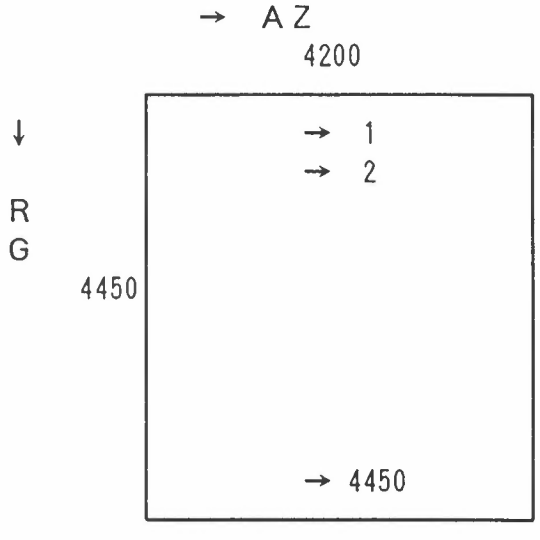
(Data Type)

signed integer*2

(Number of Records)

4450

(Arrengement)



(7) JERS-1 LEVEL 2.0 / 2.1 PIXEL SPACING 25.0M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	6000 byte
(4) suffix data	:	0 byte
		6192 byte

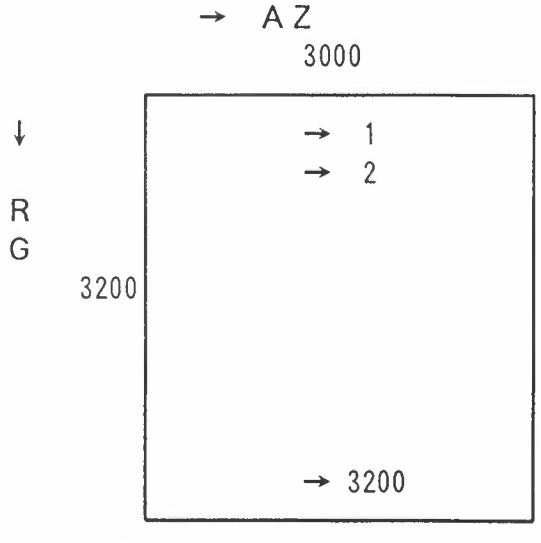
(Data Type)

signed integer*2

(Number of Records)

3200

(Arrengement)



(8) JERS-1 LEVEL 3 / 4 PIXEL SPACING 12.5M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	12000 byte
(4) suffix data	:	0 byte
		12192 byte

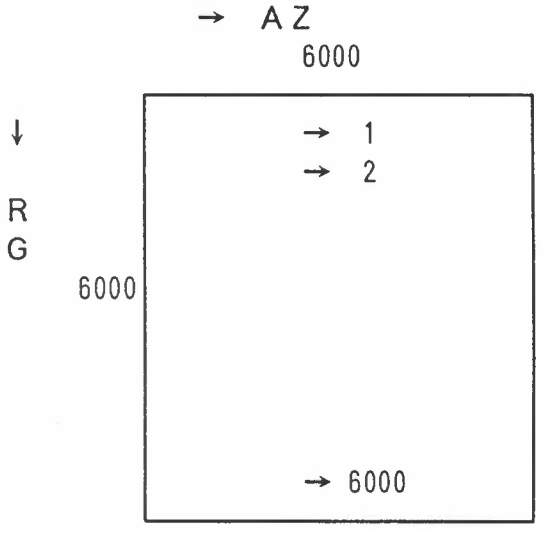
(Data Type)

signed integer*2

(Number of Records)

6000

(Arrengement)



(9) JERS-1 LEVEL 3 / 4 PIXEL SPACING 18.0M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	8400 byte
(4) suffix data	:	0 byte
		8592 byte

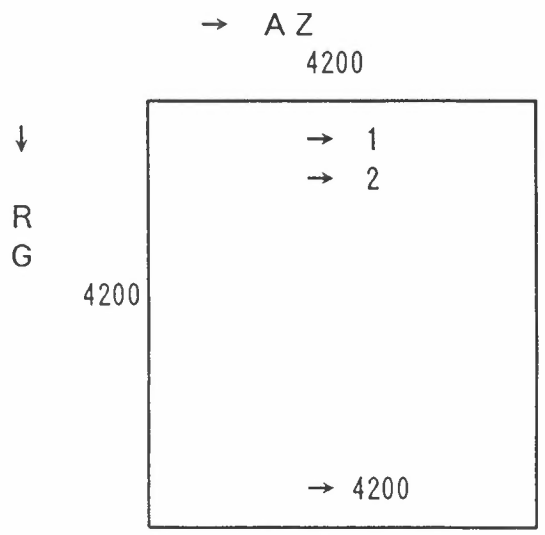
(Data Type)

signed integer*2

(Number of Records)

4200

(Arrengement)



(10) JERS-1 LEVEL 3 / 4 PIXEL SPACING 25.0M

Indicate Processed Data Record Organization.

(Record Length of 1 Record)

(1) Standard record introductory	:	12 byte
(2) Prefix data	:	180 byte
(3) SAR processed data	:	6000 byte
(4) suffix data	:	0 byte
		6192 byte

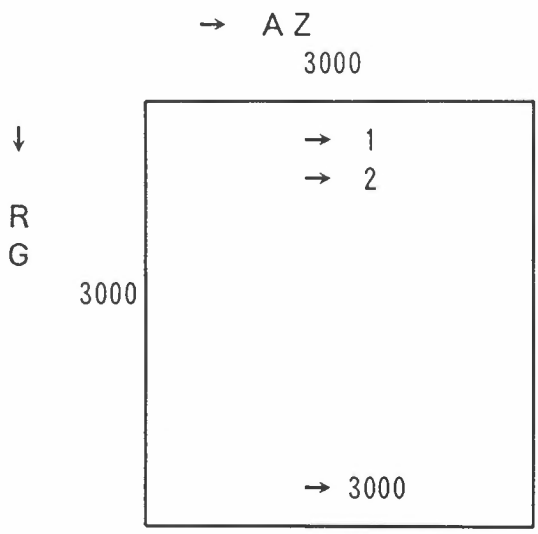
(Data Type)

signed integer*2

(Number of Records)

3000

(Arrengement)



1 1 . Film Format

1 1 . 1 Image on Film

(1) Film size	240 mm
(2) Writable range (inculding dummy areas)	220 mm (7720 Pixel × 7720 Pixel)
(3) Size of one pixel	28.5 μm
(4) Image size	Table 1 1 . 1 - 1 (1),(2)

Table 1 1 . 1 - 1 (1)

Horizon

Product Level	Pixel Spacing		
	1 2 . 5 m	1 8 m	2 5 m
2 . 0	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm
2 . 1	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm
3	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm
4	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm

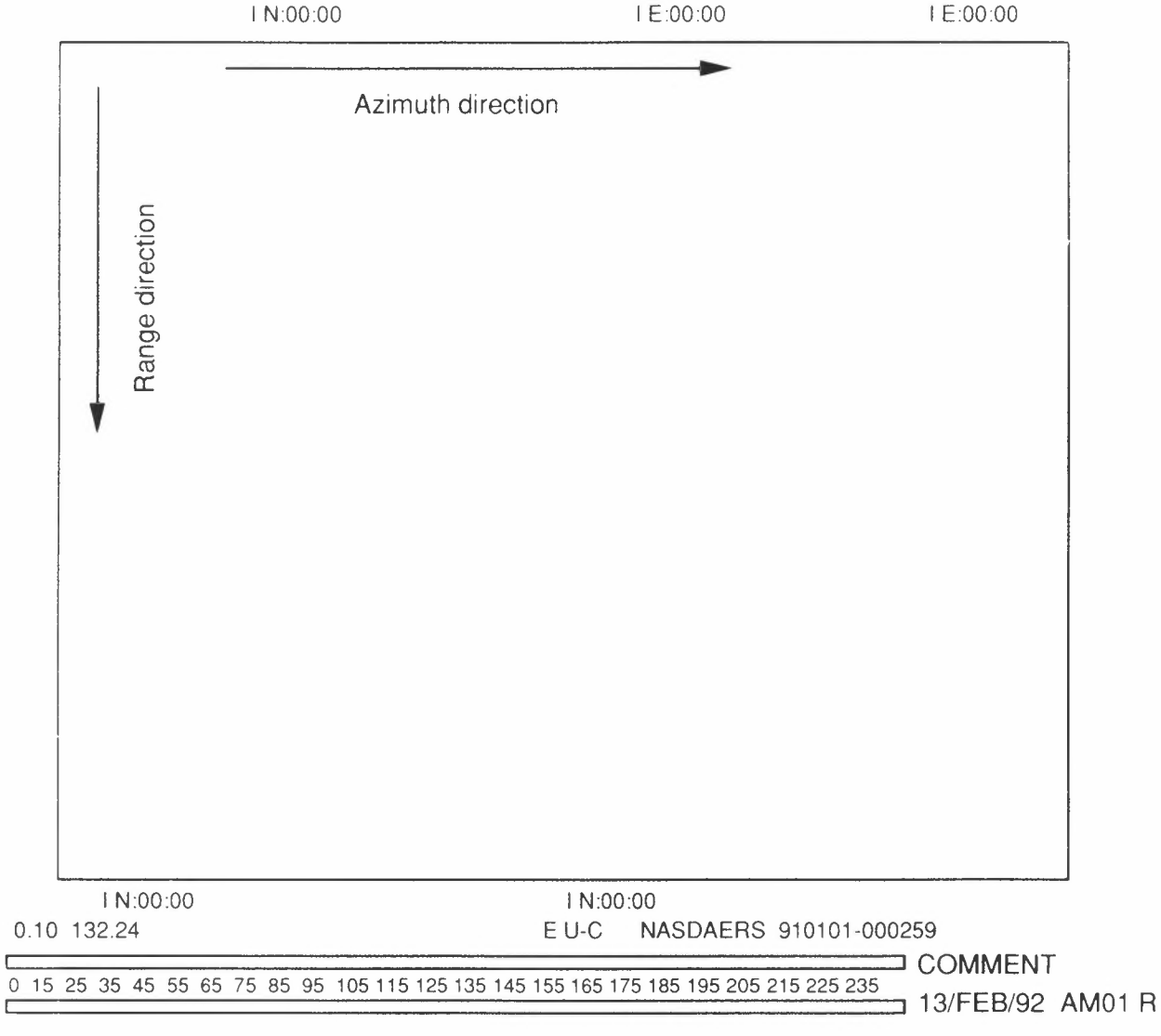
Table 1 1 . 1 - 1 (2)

Vartical

Product Level	Pixel Spacing		
	1 2 . 5 m	1 8 m	2 5 m
2 . 0	6400 Line 182.4 mm	4450 Line 126.825 mm	3200 Line 91.2 mm
2 . 1	6400 Line 182.4 mm	4450 Line 126.825 mm	3200 Line 91.2 mm
3	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm
4	6000 Pixel 171 mm	4200 Pixel 119.7 mm	3000 Pixel 85.5 mm

1 1 . 2 Film Data Items

1 1 . 2 . 1 Configuration of SAR Image Film



1 1 . 2 . 2 Top Information Area

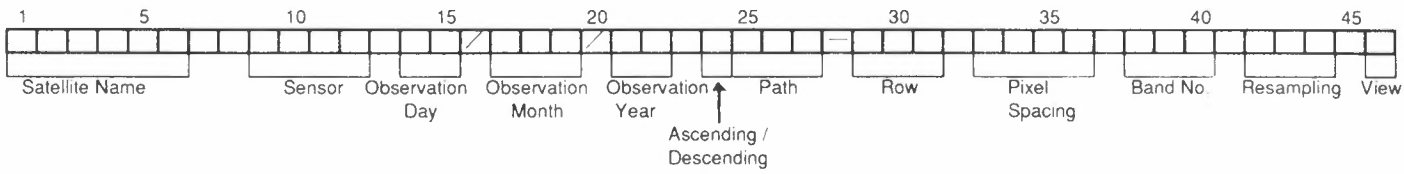


Fig. 1 1 . 2 . 2 - 1 Top Information Area

1 1 . 2 . 3 Annotation Data Area

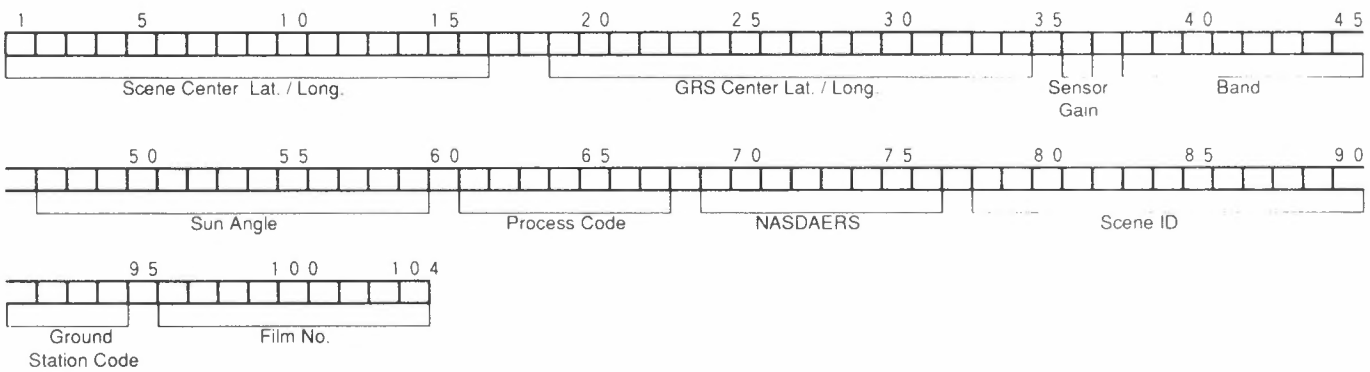


Fig. 1 1 . 2 . 3 - 1 Annotation Data Area

1 1 . 2 . 4 Bottom Information Area

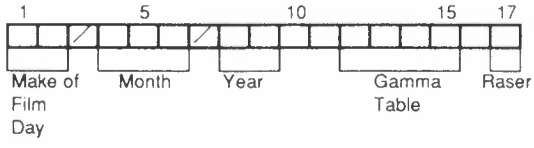


Fig. 1 1 . 2 . 4 - 1 Bottom Information Area

1 1 . 2 . 5 Comment Area

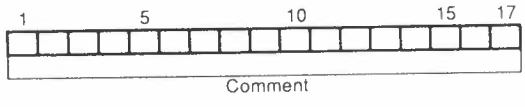


Fig. 1 1 . 2 . 5 - 1 Comment Area

1 1 . 3 Tick Mark Area

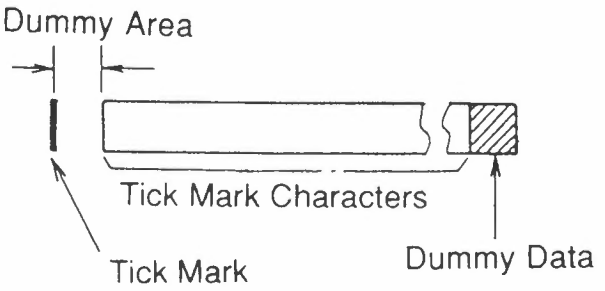


Fig. 1 1 . 3 - 1 Configuration of Tick mark

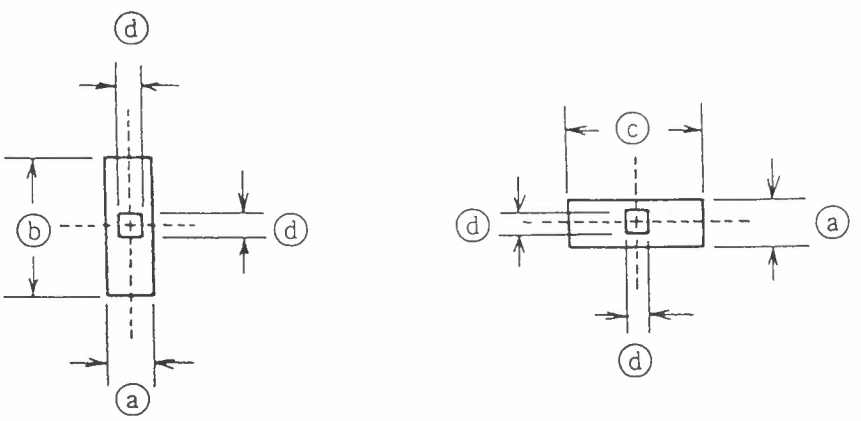


Fig. 1 1 . 3 - 2 Form of Tick Mark

Table 1 1 . 3 .- 1 Size of Tick Mark

code	Pixel or Line
a	10
b	70
c	50
d	2

USER'S GUIDE FOR JERS-1 SAR DATA FORMAT

APR. 92' 1st Edition

National Space Development Agency of Japan

Earth Observation Center
1401 Ohashi,
Hatoyama-machi, Hiki-gun Saitama-ken
350 - 03 JAPAN
TEL : 81 - 492 - 96 - 1611
FAX : 81 - 492 - 96 - 0217

NASDA

NATIONAL SPACE DEVELOPMENT AGENCY OF JAPAN