KAGUYA(SELENE)

Product Format Description

- Radio science (RS) -

Version 2.2

December 22, 2009

Change Log

Ver.	Date	Change	Remarks
1.0	09/11/1	The first edition	
2.0	09/11/4	p.1-2(Table 1-2, 1-3), 3, 13 Product Name(Electron column density integrated -> Electron column density) and Description p.3 annotation change p.13(Table 2-2) annotation change p.14(Table 2-3(Example)) ProcessingLevel: N/A -> Higher level	
2.1	09/12/11	p.4, 7(Table 2-1) Byte count of the file records(RECORD_BYTES): 94->93 Byte count of data line(ROW_BYTES): 94->93 Creation time of product(PRODUCT_CREATION_TIME): location change Sampling interval(SAMPLING_INTERVAL): addition Description(NOTE): example correction	
2.2	09/12/22	p.3, 12 Change in file naming convention(addition of Recorder type) p.4-9(Table 2-1) Sampling interval (second), North latitude of observation point (degree), East longitude of observation point (degree), Solar zenith angle (degree), Local solar time (hour): rename of Items Comment(DESCRIPTION): minor change p.12-13(Chapter 2.5) Number of Archived Data: addition	

INDEX

1. Introduction

1.1 Purpose

This document describes the format*2 used for the catalog and product files for the Radio science*1(RS) that was board KAGUYA (SELENE). These files provided by Japan Aerospace Exploration Agency (JAXA).

*1 : Refer to the following "Project Homepage of KAGUYA" and "Image Gallery of KAGUYA" used for the RS mission.

- ✓ Project Homepage for KAGUYA
  http://www.kaguya.jaxa.jp/en/equipment/rs_e.htm
- ✓ Image Gallery for KAGUYA
  http://wms.selene.darts.isas.jaxa.jp/selene_viewer/en/observation_mission/rs/

*2 : The data format used for SELENE is based on the PDS (Planetary Data System) by NASA. However, the data format is not fully compliant with the PDS format.

1.2 The composition of this format description

Table 1-1 shows the composition of this format description.

Table 1-1 the composition of this format description

No.	INDEX	Title	Description content
1	Section 1.3	Table 1-2 RS Products List	The name of the product, the object form, and the composition of the product are described as a product list illustrated by this description.
		Table 1-3 Product Description	Concerning each product shown in the No1 product list, the content included in data and the description of the observation method are illustrated.
2	Chapter X	" Product Name"	Concerning the product shown in the No1 product list, rules used for file naming, label format, data object format and catalog information file format are described.
3	Section X.1	Rules used for File naming	Concerning the product shown in No2, the rules of file nomenclature is described.
4	Section X.2	Label Format	Concerning the product shown in No2, the label format is described.
5	Section X.3	Data Object Format	Concerning the product shown in No2, the data format of the data object is described. (The extension of the data file is unique in each product. Therefore, refer to the file nomenclature in No3.)
6	Section X.4	Catalog Information File Format	Concerning the product shown in No2, the format of the catalog information file (extension: .ctg) of the product is described.
7	Chapter X+1		
		Same as above	

1.3 RS Products

The list of RS products, which this document describes, is shown in Table 1-2. In addition, the description for each product is shown in Table 1-3.

Table 1-2 RS Products List

Level	Product Name	Product ID	Data Type	Product Format*1	Disclosure/ Non-disclosure
Higher	Electron column density	RS_ELECTRON_COLUMN_DENSITY	TABLE	D	Disclosure required

*1 Product Format : A - Attached, D - Detached

Table 1-3 Product Description

Product Name	Description
Electron column density	Time series of the electron density integrated along the ray path

1.4 Data Set

The Data Set refers to a set consisting of: Product, Catalog Information, and Thumbnail Image (JPEG format), which are tar-archived. This set is referred to as the "L2 Data Set". The file extension is "SL2". However, the thumbnail image may be omitted at the by composer's judgment.

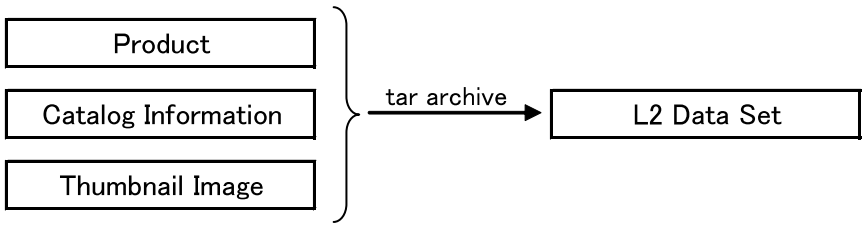

Figure 1-1 composition of the L2 Data Set

1.5 Product Format

For product composition, two possible options are available. Product Composition – Attached consists of label information and data information in a single data file. Product Composition – detached consists of separate files for the label file and data file.

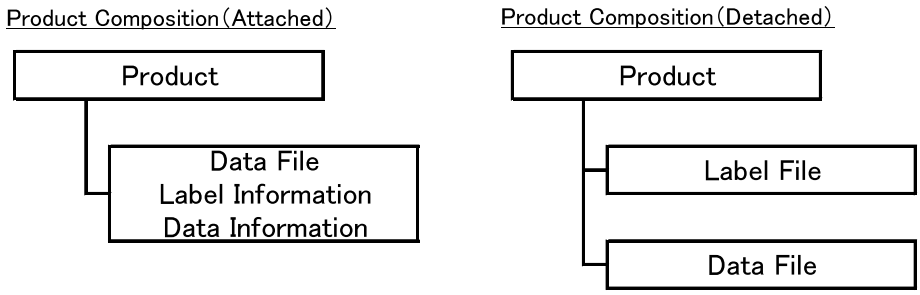

Figure 1-2 Product Composition : Attached and Detached

1.6 Data Type

The product data types are classified into the following four data types.

- IMAGE : image data
- TABLE : tabular form data
- SERIES : time series data
- TEXT : text data

2. Electron column density (Product ID : RS_ELECTRON_COLUMN_DENSITY)

2.1 Rules used for File naming

The nomenclature used for Label, Data Object and Catalog Information File the RS products are described below. In addition, the file names are case-independent.

RSyyyymmddHHMMR.XXX

- RS : RS product (STATIC)
- yyyymmddHHMM : Observation Start Date and Time
- R : Recorder type
  - ✓ A : "OCCULT"
  - ✓ B : "IPVLBI"
- XXX : File Extension
  - ✓ LBL : Label File
  - ✓ TAB : Data Object File (TABLE)
  - ✓ CTG : Catalog Information File
  - ✓ SL2 : L2 Data Set (tar archive)

<Example of Name : Electron column density >

- RS200708012345A.LBL (Label File)
- RS200708012345A.TAB (Data Object File)
- RS200708012345A.CTG (Catalog Information File)

(Data recorded from 23:45 on August 1, 2007 using "OCCULT" recorder.)

2.2 Label Format

The Label format for the TABLE object used for the RS product is shown in Table 2-1. The Label for the TABLE object includes: Standard Item, Object Format Description Part.

In Table 2-1 with the exception of the Values expressed as “STATIC”, the numerical values and the character strings corresponding to the type of the product etc., are set.

Table 2-1 TABLE Object Label for the RS products

No	Items	Elements	Types	Values
Standard Item				
1	PDS version number	PDS_VERSION_ID	char	PDS3 [STATIC]
2	Record format of the file	RECORD_TYPE	char	FIXED_LENGTH [STATIC]
3	Byte count of the file records	RECORD_BYTES	int	93 [STATIC]
4	Record number of the file	FILE_RECORDS	int	XXX (Variable length)
5	Starting position of the data object	^TABLE	char	See Section 2.1 “Rules used for File naming”.
6	Creation time of product	PRODUCT_CREATION_TIME	char	YYYY-MM-DDThh:mm:ss.sss
7	Product Name	DATA_SET_ID	char	"RS_ELECTRON_COLUMN_DENSITY" [STATIC]
8	Product ID	PRODUCT_ID	char	See Table 1-2 “Product_ID”.
9	Satellite Name	INSTRUMENT_HOST_NAME	char	"SELENE" [STATIC]
10	Name of the instrument	INSTRUMENT_NAME	char	"RS" [STATIC]
11	Target name	TARGET_NAME	char	"MOON" [STATIC]
12	Description	NOTE = %s	char	XXXXX [STATIC]
13	Recorder	RECORDER	char	"OCCULT" or "IPVLBI"
14	Start time of data	START_TIME	char	YYYY-MM-DDThh:mm:ss.sss
15	Stop time of data	STOP_TIME	char	YYYY-MM-DDThh:mm:ss.sss
16	Sampling interval (second)	SAMPLING_INTERVAL	float	X.XXXXXX
17	Occultation time	OCCULTATION_TIME	char	YYYY-MM-DDThh:mm:ss.sss
18	North latitude of observation point (degree)	LATITUDE	float	XXX.XX
19	East longitude of observation point (degree)	LONGITUDE	float	XXX.XX
20	Solar zenith angle (degree)	SOLAR_ZENITH_ANGLE	float	XXX.XX
21	Local solar time (hour)	LOCAL_SOLAR_TIME	float	XX.XXX
22	Format of data	RECORD_FORMAT	char	"(23s, 1X, E10.3, 1X, F8.2, 1X, F6.2, 1X, F6.2, 1X, F6.2, 1X, F6.3, 1X, I6, 1X, F6.2, 1X, F6.2)" [STATIC]
Data Object Format Description Part				
		OBJECT = TABLE		
23	Number of columns of data	COLUMNS	int	10 [STATIC]
24	Type of data	INTERCHANGE_FORMAT	char	ASCI I [STATIC]
25	Byte count of data line	ROW_BYTES	int	93 [STATIC]
26	Number of lines of data	ROWS	int	XXX (Variable length)
Data format of the 1 row		OBJECT = COLUMN		
27	Name	NAME	char	"TIME" [STATIC]

28	Byte count of the data	BYTES	char	23 [STATIC]
29	Type of the data	DATA_TYPE	char	ASCII [STATIC]
30	Starting byte of the data	START_BYTE	int	1 [STATIC]
31	Format of the data	FORMAT	char	"YYYY-MM-DDTHH:MM:SS.sss" [STATIC]
32	Unit of the data	UNIT	char	"N/A" [STATIC]
33	Comment	DESCRIPTION	char	" The time when the data sample was acquired."
		END_OBJECT = COLUMN		
Data format of the 2 row		OBJECT = COLUMN		
34	Name	NAME	char	"ELECTRON COLUMN DENSITY" [STATIC]
35	Byte count of the data	BYTES	int	10 [STATIC]
36	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
37	Starting byte of the data	START_BYTE	int	25 [STATIC]
38	Format of the data	FORMAT	char	"E10.3" [STATIC]
39	Unit of the data	UNIT	char	"m-2" [STATIC]
40	Comment	DESCRIPTION	char	"Electron column density integrated along the ray path with a constant offset "
		END_OBJECT = COLUMN		
Data format of the 3 row		OBJECT = COLUMN		
41	Name	NAME	char	"ALTITUDE" [STATIC]
42	Byte count of the data	BYTES	int	6 [STATIC]
43	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
44	Starting byte of the data	START_BYTE	int	36 [STATIC]
45	Format of the data	FORMAT	char	"F8.2" [STATIC]
46	Unit of the data	UNIT	char	"km" [STATIC]
47	Comment	DESCRIPTION	char	"Altitude of the point on the ray path vector closest to the lunar surface (i.e., the tangential point). If the tangential point lies behind the spacecraft, the fill value of 99999.99 is used. "
		END_OBJECT = COLUMN		
Data format of the 4 row		OBJECT = COLUMN		
48	Name	NAME	char	"LONGITUDE" [STATIC]
49	Byte count of the data	BYTES	int	6 [STATIC]
50	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
51	Starting byte of the data	START_BYTE	int	45 [STATIC]
52	Format of the data	FORMAT	char	"F6.2" [STATIC]
53	Unit of the data	UNIT	char	"degree" [STATIC]
54	Comment	DESCRIPTION	char	"East longitude of the tangential point projected onto the lunar surface. If the tangential point lies behind the spacecraft, the fill value of 999.99 is used."
		END_OBJECT = COLUMN		
Data format of the 5 row		OBJECT = COLUMN		
55	Name	NAME	char	"LATITUDE" [STATIC]
56	Byte count of the data	BYTES	int	6 [STATIC]
57	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
58	Starting byte of the data	START_BYTE	int	52 [STATIC]
59	Format of the data	FORMAT	char	"F6.2" [STATIC]
60	Unit of the data	UNIT	char	"degree" [STATIC]
61	Comment	DESCRIPTION	char	"North latitude of the tangential point

				projected onto the lunar surface. If the tangential point lies behind the spacecraft, the fill value of 999.99 is used. "
		END_OBJECT = COLUMN		
Data format of the 6 row		OBJECT = COLUMN		
62	Name	NAME	char	"SOLAR ZENITH ANGLE" [STATIC]
63	Byte count of the data	BYTES	int	6 [STATIC]
64	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
65	Starting byte of the data	START_BYTE	int	59 [STATIC]
66	Format of the data	FORMAT	char	"F6.2" [STATIC]
67	Unit of the data	UNIT	char	"degree " [STATIC]
68	Comment	DESCRIPTION	char	"Angle between the direction to the sun and local vertical direction at the tangential point projected onto the lunar surface. If the tangential point lies behind the spacecraft, the fill value of 999.99 is used."
		END_OBJECT = COLUMN		
Data format of the 7 row		OBJECT = COLUMN		
69	Name	NAME	char	"LOCAL SOLAR TIME" [STATIC]
70	Byte count of the data	BYTES	int	6 [STATIC]
71	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
72	Starting byte of the data	START_BYTE	int	66 [STATIC]
73	Format of the data	FORMAT	char	"F6.3" [STATIC]
74	Unit of the data	UNIT	char	"hour " [STATIC]
75	Comment	DESCRIPTION	char	"Local solar time (LST) at the tangential point projected onto the lunar surface. LST at the sub-solar longitude is defined as 12 solar hours. LST on other meridians changes by one solar hour for each 15 degree increment in longitude. If the tangential point lies behind the spacecraft, the fill value of 99.999 is used."
		END_OBJECT = COLUMN		
Data format of the 8 row		OBJECT = COLUMN		
76	Name	NAME	char	" SPACECRAFT-ANTENNA DISTANCE " [STATIC]
77	Byte count of the data	BYTES	int	6 [STATIC]
78	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
79	Starting byte of the data	START_BYTE	int	73 [STATIC]
80	Format of the data	FORMAT	char	"I6" [STATIC]
81	Unit of the data	UNIT	char	"km " [STATIC]
82	Comment	DESCRIPTION	char	"Distance between the spacecraft at the time of transmission and the UDSC receiving antenna at the time of reception. "
		END_OBJECT = COLUMN		
Data format of the 9 row		OBJECT = COLUMN		
83	Name	NAME	char	"ANTENNA AZIMUTH ANGLE " [STATIC]
84	Byte count of the data	BYTES	int	6 [STATIC]
85	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
86	Starting byte of the data	START_BYTE	int	80 [STATIC]
87	Format of the data	FORMAT	char	"F6.2" [STATIC]
88	Unit of the data	UNIT	char	"degree " [STATIC]

89	Comment	DESCRIPTION	char	“Azimuth angle of the direction to the spacecraft at UDSC receiving antenna, measured positive from north toward east. "
		END_OBJECT = COLUMN		
Data format of the 10 row		OBJECT = COLUMN		
90	Name	NAME	char	"ANTENNA ELEVATION ANGLE" [STATIC]
91	Byte count of the data	BYTES	int	6 [STATIC]
92	Type of the data	DATA_TYPE	char	ASCII_REAL [STATIC]
93	Starting byte of the data	START_BYTE	int	87 [STATIC]
94	Format of the data	FORMAT	char	"F6.2" [STATIC]
95	Unit of the data	UNIT	char	"degree " [STATIC]
96	Comment	DESCRIPTION	char	"Elevation angle of the direction to the spacecraft at UDSC receiving antenna. "
		END_OBJECT = COLUMN		
		END_OBJECT = TABLE		
END statement				
		END		

<Example of Label : Electron column density>

PDS_VERSION_ID = PDS3
RECORD_TYPE = FIXED_LENGTH
RECORD_BYTES = 93
FILE_RECORDS = 39424
^TABLE = "RS200711060055A.TAB"
PRODUCT_CREATION_TIME = 2009-10-09T18:10:10.234
DATA_SET_ID = "RS_ELECTRON_COLUMN_DENSITY"
PRODUCT_ID = "RS_ELECTRON_COLUMN_DENSITY"
INSTRUMENT_HOST_NAME = "SELENE"
INSTRUMENT_NAME = "RS"
TARGET_NAME = "MOON"
NOTE = " The data file gives a time series of the electron column density integrated along the ray path from the Vstar spacecraft and the receiving antenna at Usuda Deep Space Center (UDSC), which is located at 138o 21' 54" East longitude, 36o 07' 54"latitude, and 1456 m high. A constant offset is included in the column density. A periodic fluctuation due to the spacecraft spin with a period of about 5.3 s and an amplitude of about 5E14 m-2 is also included. Random fluctuations with magnitudes greater than 1E16 m-2 are observed when the radio wave was not detected due to the occultation of the spacecraft by the moon or when the radio wave was not transmitted from the spacecraft.
Geometry values are referenced to the sphere of 1737.4 km radius based on the gravity center of the Mean Earth/Polar Axis body-fixed coordinates of the Moon. Correction for one-way light time is made, yielding the position of the target at the moment it emitted photons arriving at the observer (UDSC) at the time of the sampling."

RECORDER = "OCCULT"

START_TIME = 2007-11-06T00:55:00.931
STOP_TIME = 2007-11-06T01:28:39.389
SAMPLING_INTERVAL = 0.065536
OCCULTATION_TIME = 2007-11-06T00:59:03.875
LATITUDE = -86.02
LONGITUDE = 15.69
SOLAR_ZENITH_ANGLE = 91.91
LOCAL_SOLAR_TIME = 21.878

RECORD_FORMAT = "(23s, 1X, E10.3, 1X, F8.2, 1X, F6.2, 1X, F6.2, 1X, F6.2, 1X, F6.3, 1X, I6, 1X, F6.2, 1X, F6.2)"

OBJECT = TABLE
COLUMNS = 10
INTERCHANGE_FORMAT = ASCII
ROW_BYTES = 93
ROWS = 39424

OBJECT = COLUMN
NAME = "TIME"
BYTES = 23

```
    DATA_TYPE                = ASCII
    START_BYTE               = 1
    FORMAT                   = "YYYY-MM-DDTHH:MM:SS.sss"
    UNIT                     = "N/A"
    DESCRIPTION              = "The time when the data sample was acquired"
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "ELECTRON COLUMN DENSITY"
    BYTES                    = 10
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 25
    FORMAT                   = "E10.3"
    UNIT                     = "m-2"
    DESCRIPTION              = "Electron column density integrated along the ray path with a constant
offset"
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "ALTITUDE"
    BYTES                    = 6
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 36
    FORMAT                   = "F8.2"
    UNIT                     = "km"
    DESCRIPTION              = "Altitude of the point on the ray path vector closest to the lunar surface (i.e.,
the tangential point). If the tangential point lies behind the spacecraft, the fill value of 99999.99 is used."
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "LONGITUDE"
    BYTES                    = 6
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 45
    FORMAT                   = "F6.2"
    UNIT                     = "degree"
    DESCRIPTION              = "East longitude of the tangential point projected onto the lunar surface. If
the tangential point lies behind the spacecraft, the fill value of 999.99 is used."
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "LATITUDE"
    BYTES                    = 6
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 52
    FORMAT                   = "F6.2"
    UNIT                     = "degree"
    DESCRIPTION              = "North latitude of the tangential point projected onto the lunar surface. If
the tangential point lies behind the spacecraft, the fill value of 999.99 is used."
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "SOLAR ZENITH ANGLE"
    BYTES                    = 6
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 59
    FORMAT                   = "F6.2"
    UNIT                     = "degree"
    DESCRIPTION              = "Angle between the direction to the sun and local vertical direction at the
tangential point projected onto the lunar surface. If the tangential point lies behind the spacecraft, the fill value of
999.99 is used."
  END_OBJECT                 = COLUMN

  OBJECT                     = COLUMN
    NAME                     = "LOCAL SOLAR TIME"
    BYTES                    = 6
    DATA_TYPE                = ASCII_REAL
    START_BYTE               = 66
    FORMAT                   = "F6.3"
    UNIT                     = "hour"
```

```
      DESCRIPTION                = "Local solar time (LST) at the tangential point projected onto the lunar
surface. LST at the sub-solar longitude is defined as 12 solar hours. LST on other meridians changes by one solar
hour for each 15 degree increment in longitude. If the tangential point lies behind the spacecraft, the fill value of
99.999 is used."
    END_OBJECT                   = COLUMN

    OBJECT                       = COLUMN
      NAME                       = "SPACECRAFT-ANTENNA DISTANCE"
      BYTES                      = 6
      DATA_TYPE                  = ASCII_REAL
      START_BYTE                 = 73
      FORMAT                     = "I6"
      UNIT                       = "km"
      DESCRIPTION                = "Distance between the spacecraft at the time of transmission and the UDSC
receiving antenna at the time of reception"
    END_OBJECT                   = COLUMN

    OBJECT                       = COLUMN
      NAME                       = "ANTENNA AZIMUTH ANGLE"
      BYTES                      = 6
      DATA_TYPE                  = ASCII_REAL
      START_BYTE                 = 80
      FORMAT                     = "F6.2"
      UNIT                       = "degree"
      DESCRIPTION                = "Azimuth angle of the direction to the spacecraft at UDSC receiving antenna,
measured positive from north toward east"
    END_OBJECT                   = COLUMN

    OBJECT                       = COLUMN
      NAME                       = "ANTENNA ELEVATION ANGLE"
      BYTES                      = 6
      DATA_TYPE                  = ASCII_REAL
      START_BYTE                 = 87
      FORMAT                     = "F6.2"
      UNIT                       = "degree"
      DESCRIPTION                = "Elevation angle of the direction to the spacecraft at UDSC receiving
antenna"
    END_OBJECT                   = COLUMN

  END_OBJECT                     = TABLE
  END
```

2.3 Data Object Format

The Electron column density integrated product of RS is described in a TABLE format that is comprised of a row or ten of data. The data object format for the Electron column density integrated product is shown in Table 2-2.

Table 2-2 Electron column density integrated product data object format

Columns	1	2	3	4	5	6	7	8	9	10
Value	Time	Electron Column Density	Altitude	Longitude	Latitude	Solar Zenith Angle	Local solar time	Distance	Azimuth	Elevation
Format	YYYY-MM-DDTHH:MM:SS.sss	E10.3	F8.2	F6.2	F6.2	F6.2	F6.3	I6	F6.2	F6.2
Unit	N/A	m-2	km	degree	degree	degree	hour	km	degree	degree
Description	The time when the data sample was acquired	Electron column density integrated along the ray path with a constant offset	Altitude of the point on the ray path vector closest to the lunar surface. (*1)	East longitude of the tangential point projected onto the lunar surface. (*1)	Latitude of the tangential point projected onto the lunar surface. (*1)	Angle between the direction to the sun and local vertical direction at the tangential point projected onto the lunar surface. (*1)	Local solar time (LST) at the tangential point projected onto the lunar surface. LST at the sub-solar longitude is defined as 12 solar hours. LST on other meridians changes by one solar hour for each 15 degree increment in longitude. (*1)	Distance between the spacecraft at the time of transmission and the UDSC receiving antenna at the time of reception.	Azimuth angle of the direction to spacecraft at UDSC receiving antenna, measured positive from north toward east.	Elevation angle of the direction to spacecraft at UDSC receiving antenna

< Example of data : Electron column density >

```
2007-11-06T00:55:00.931 -1.078e+00 99999.99   37.98 -85.35 999.99 99.999 397287 206.67   47.41
2007-11-06T00:55:00.982 -1.091e+00 99999.99   37.97 -85.35 999.99 99.999 397287 206.67   47.41
2007-11-06T00:55:01.034 -1.066e+00 99999.99   37.97 -85.35 999.99 99.999 397287 206.67   47.41
.....
```

(*1)

If the closest point on the ray path vector (tangential point) does not exist on the ray path, i.e. when the satellite is on the near side of the moon, the following values are set in Table 2-2, Column 3: "Altitude" ~ Column 7: "Local solar time".

Altitude = 99999.99
Longitude = 999.99
Latitude = 999.99
Solar Zenith Angle = 999.99
Local solar time = 99.999

2.4 Catalog Information File Format

The Catalog Information File Format for the RS product is shown in Table 2-3.

Table 2-3 Catalog Information File Format

Item Name	Elements	Format of Value	Range of Value	Values
Name of the data file (*1)	DataFileName	AAAA….AAAA (Up to 31 digits)	alphanumeric characters	dependent on the product (See Section 2.1 "Rules used for File naming")
Size of the data file	DataFileSize	NNNNNNNNNNNN (Up to 12 digits)	unit:<byte>	dependent on the product
File format of the data file	DataFileFormat	AAAA….AAAA (Up to 16 digits)	character strings	PDS [STATIC]
Name of the instrument	InstrumentName	AAAA….AAAA (Up to 16 digits)	character strings	RS [STATIC]
Processing level	ProcessingLevel	AAAA….AAAA (Up to 16 digits)	character strings	dependent on the product (See Table 1-2 "Level")
Product ID	ProductID	AAAA….AAAA (Up to 30 digits)	character strings	dependent on the product (See Table 1-2 "Product_ID")
Version number of the product	ProductVersion	AAAA….AAAA (Up to 16 digits)	character strings	dependent on the product
Access level	AccessLevel	N	values of 0-4	4
Start time	StartDateTime	yyyy- mmddT hh: mm: ss.ssssssZ	DATE & TIME	dependent on the product
Stop time	EndDateTime	yyyy- mmddT hh: mm: ss.ssssssZ	DATE & TIME	dependent on the product

(*1) "DataFileName" is the stored file name of the product. For the detached format, this is the stored file name.

< Example of Catalog Information : Electron column density integrated >

DataFileName = RS200711060055A.TAB
DataFileSize = 3705856
DataFileFormat = PDS
InstrumentName = RS
ProcessingLevel = Higher level
ProductID = RS_ELECTRON_COLUMN_DENSITY
ProductVersion = 1
AccessLevel = 4
StartDateTime = 2007-11-06T00:55:00.931123Z
EndDateTime = 2007-11-06T01:28:39.389456Z

2.5 Number of Archived Data

379 occultations have been successfully observed. The recorders we used are: the occultation recorder dedicated to planetary occultation measurements (OCCULT); and the other is a recorder that was developed for radio astronomy (IPVLBI). The number of data obtained by 'OCCULT' is 78, while that obtained by 'IPVLBI' is 325. 24 occultations were recorded simultaneously by these two recorders (Table 2-4).

Table 2-4 Data files obtained simultaneously by 'OCCULT' and 'IPVLBI'

No.	OCCULT	IPVLBI
1	RS200802251852A	RS200802251854B
2	RS200802271939A	RS200802271935B

3	RS200803100006A	RS200803100005B
4	RS200803191421A	RS200803191420B
5	RS200803211510A	RS200803211510B
6	RS200803221047A	RS200803221048B
7	RS200805040517A	RS200805040522B
8	RS200805050254A	RS200805050255B
9	RS200805271630A	RS200805271630B
10	RS200805281805A	RS200805281805B
11	RS200805291813A	RS200805291813B
12	RS200805311902A	RS200805311902B
13	RS200805312035A	RS200805312033B
14	RS200806020420A	RS200806020420B
15	RS200806030000A	RS200806030000B
16	RS200806120732A	RS200806120732B
17	RS200806120900A	RS200806120859B
18	RS200806131039A	RS200806131041B
19	RS200806151144A	RS200806151143B
20	RS200806161142A	RS200806161142B
21	RS200809141350A	RS200809141340B
22	RS200809151356A	RS200809151356B
23	RS200809151523A	RS200809151514B
24	RS200809191938A	RS200809191938B