

Chapter 8 : PROTEUS Generic Ground Segment (PGGS)

CHANGE TRACEABILITY Chapter 8

Here below are listed the changes between issue N-2 and issue N-1:

Here below are listed the changes from the previous issue N-1:

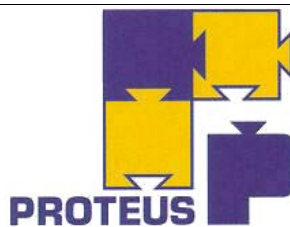


TABLE OF CONTENTS

8.	PROTEUS GENERIC GROUND SEGMENT (PGGS) – MISSION CENTRE INTERFACES	4
8.1	SUBJECT	4
8.2	INTERFACES NOMENCLATURE	5
8.3	CONVENTIONS APPLIED TO ASCII FILES	6
8.4	PGGS – MISSION CENTRE INTERFACES DESCRIPTION	7
8.5	NETWORK IF – FTP CONNECTIONS SPÉCIFICATIONS	39
8.5.1	TRANSFER SCENARIO	39
8.5.2	CONNECTION REQUIREMENTS	39

LIST OF FIGURES

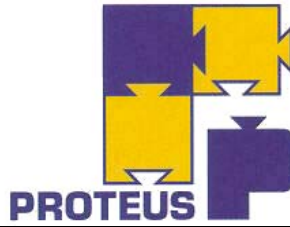
Erreur! Aucune entrée de table d'illustration n'a été trouvée.

LIST OF TABLES

Erreur! Aucune entrée de table d'illustration n'a été trouvée.

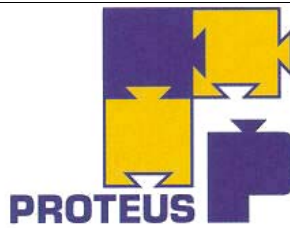
LIST OF CHANGE TRACEABILITY

CHANGE TRACEABILITY Chapter 8	1
TABLE OF CONTENTS.....	2
LIST OF FIGURES	2
LIST OF TABLES.....	2
LIST OF CHANGE TRACEABILITY	2
LIST OF TBCs	3
LIST OF TBDs	3



LIST OF TBCs

LIST OF TBDs



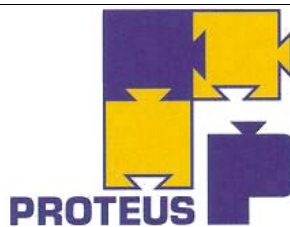
8. PROTEUS GENERIC GROUND SEGMENT (PGGS) – MISSION CENTRE INTERFACES

8.1 SUBJECT

The purpose of this chapter is to specify, for each exchanged data between the Mission Centre (MC) and PROTEUS Generic Ground Segment (PGGS), all the useful information for their understanding and treatment.

The data are described using several different forms:

- FORM1** general level of interface description.
- FORM2** File general characteristics.
- FORM3** File logical records description giving their size, number and fields.
- FORM5** File example.



8.2 INTERFACES NOMENCLATURE

Generic interface name

XXX_YYY_FREE UPPER CASE LETTER TEXT

Separated character: _ (underscore)

XXX Sender's abbreviation

YYY Receiver's abbreviation with following rules:

CCC	Command Control Centre
MC	Mission Centre
OCC	Orbit Computation Center
TTCET	Telemetry TeleCommand Earth Terminal

Example:

TTCET_CCC_HKTMP HKTM-P data provided by TTCET to CCC

File name

FREE TEXT WITH FOLLOWING RULES:

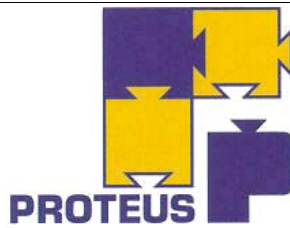
Separated character: _ (underscore)

SLID is satellite identifier (if needed)

ETID is earth terminal identifier (if needed)

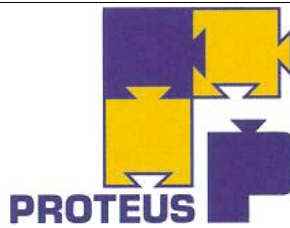
SLID is the satellite identifier defined with a character string (maximum 6 characters)
(example JASON1 or COROT)

ETID is a TTCET identifier defined with a character string (maximum 6 characters)
(example AUS to design a CNES TTCET located at Aussaguel)



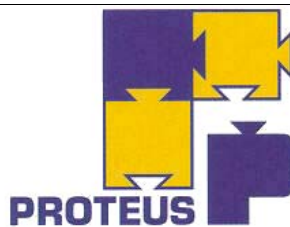
8.3 CONVENTIONS APPLIED TO ASCII FILES

- C1** The lines which begin with the character **#** are comment lines
- C2** The first file record is **#BEGIN_OF_FILE**
- C3** The last file record is **#END_OF_FILE**
- C4** The real numbers are represented in scientific notation with a **decimal point** examples: 1.2345E3 -1.2345E-3 123.456 -0.123456
- C5** The hexadecimal representation of values are terminated by the character **h** examples: A0F4h 042Ah



8.4 PGGS – MISSION CENTRE INTERFACES DESCRIPTION

GENERIC NAME	ROLE
CCC_MC_ORBIT_EVENTS	Orbit sequence of events giving in anticipation orbital events, TTCET events (fly-by times) and satellite events (programming AOCS TC times)
CCC_MC_PREDICTED_ATTITUDE	Predicted satellite attitude information elaborated by the CCC to the MC
CCC_MC_PREDICTED_ORBIT	Predicted orbit data of the satellite and time reference (Position, Velocity, Time) elaborated by the CCC after an orbit determination
CCC_MC_TC_LOGBOOK	Sending acknowledge of TCPL and TCBUS transmitted from CCC to satellite
MC_CCC_TC_PL	Payload programming commands files provided by MC to CCC
TTCET_MC_PLTM_FRAME	Files containing PLTM CCSDS standard frames stored in TTCET and transmitted to MC on MC request
TTCET_MC_PLTM_PACKET	Files containing PLTM CCSDS standard packets stored in TTCET and transmitted to MC on MC request



FORM1

INTERFACE DESCRIPTION FILE

Generic interface name: CCC_MC_ORBIT_EVENTS

Orbit sequence of events giving in anticipation orbital events, TTCET events (fly-by times) and satellite events (programming AOCS TC times)

EXCHANGE DESCRIPTION

<i>Provider</i>	CCC	<i>Consumer</i>	MC
<i>Client</i>	CCC	<i>Server</i>	MC
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	CCC

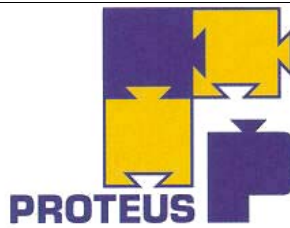
<i>Schedule</i>	Once a week and anytime if needed
<i>Comment</i>	

EXCHANGE DATA DESCRIPTION

<i>Exchange format</i>	ASCII sequential file	<i>Compressed data</i>	NO
<i>File name</i>	SLID_ORBIT_EVENTS		
<i>Size</i>	Max 1 Mbytes		

File contains x records

- Chronologically sorted file
- 1 record contains 1 event description
- The first record contains the file creation UT time
- Event description parameters
 - Event time
 - Event class (Navigation, earth terminal, satellite or mission)
 - Event number in the class
 - Event orbital position
 - Event longitude and latitude
 - TTCET ID (only for earth terminal events class)
 - Event comment
- List of events
 - Class of orbital events
 - Ascending and descending pass nodes times
 - Times of transitions (light -> half light -> shadow and reverse)
 - Times of under satellite point transitions (day -> night and reverse)
 - Time of shifting into quadrature position (satellite – sun – earth)
 - Time of shifting into subsolar position
 - Time of sun eclipse by moon
 - Class of Earth terminal events
 - TTCET AOS and LOS (0°, physical angle of elevation, any angle)
 - Maximal angle of elevation pass
 - TM/TC polarization modification
 - Times if TM/TC TTCET antenna glare by sun
 - RF AOS time and LOS time
 - Class of satellite events
 - AOCS TCs due date
 - Class of mission events (Mission dependent)



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.10

FORM2

FILE DESCRIPTION FORM

FILE NAME: SLID_ORBIT_EVENTS

FILE DESCRIPTION

Orbit sequence of events giving in anticipation orbital events, TTCET events (fly-by times) and satellite events (programming AOCS TC times)

FILE TYPE

Sequential

Number of record types: 2

Logical structure of records: {«#BEGIN_OF_FILE»,
«1»,n*{«2»}, (n = number of events descriptions in the file)
"#END_OF_FILE»}

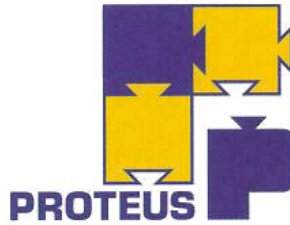
1 < UT file creation time >

2 < Event time > < Class ID > < Event number > < Orbital position >
< longitude > < latitude > < TTCET ID (optional) > < Comment >

NB: The lines which begin with the character # are comment lines

Direct

Record size:



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.11

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_ORBIT_EVENTS

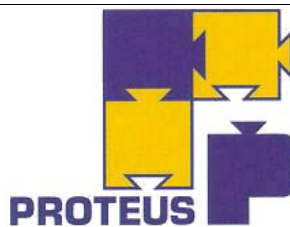
Record number: 1

Record size: 35 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_Type	15 F	ASCII	Forced to <CREATION_TIME>
File_Time	19 F	ASCII	File creation time (Format YYYY/MM/DD HH:MN:SS)

All the fields are separated by a "tabulation character"



FORM3

RECORD DESCRIPTION FORM

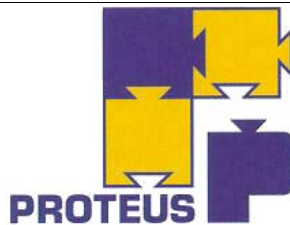
FILE NAME: SLID_ORBIT_EVENTS

Record number: 2

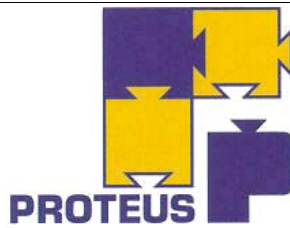
Record size: Max 313 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Event_Time	23 F	ASCII	Event time (Format YYYY/MM/DD HH:MN:SS.MMM)
Event_Class	1 F	ASCII	Class of Event O Orbital E Earth terminal S Satellite M Mission Class of NON SELECTED Event XO Non selected Orbital event XE Non selected Earth terminal event XS Non selected Satellite event XM Non selected Mission event

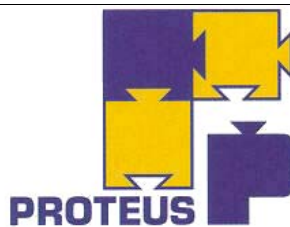


Field name	Size (bytes)	Kind	Content description
Event_Number	2 V	Int16	<p>Event number in the class</p> <ul style="list-style-type: none">• Orbital events class<ol style="list-style-type: none">1 Ascending node pass time2 Descending node pass time3 Light → penombra transition time4 Penombra → shadow transition time5 Shadow → penombra transition time6 Penombra → light transition time7 Day → night transition time8 Night → day transition time9 Time of shifting into quadrature position (satellite – sun – earth)10 Time of shifting into subsolar position11 Time of sun eclipse by moon• Earth terminal events class<ol style="list-style-type: none">1 0° TTCET AOS time2 Physical TTCET AOS time3 Another fixed TTCET AOS time (5° for example)4 Another fixed TTCET LOS time (5° for example)5 Physical TTCET LOS time6 0° TTCET AOS time7 Maximum angle of elevation pass time8 Left → right TM/TC polarization modification9 Right → left TM/TC polarization modification10 Start of TM/TC TTCET antenna glare by sun11 End of TM/TC TTCET antenna glare by sun12 RF AOS time13 RF LOS time• Satellite events class<ol style="list-style-type: none">1 Orbital position guidance TC2 Profile guidance TC3 SADM guidance TC4 Request STAM1 mode TC5 Request STAM2 mode TC6 Request OCM2 mode TC7 Beginning of thrust in OCM2 mode8 End of thrust in OCM2 mode9 Request OCM4 mode TC10 Beginning of thrust in OCM4 mode11 End of thrust in OCM4 mode12 Kinetic momentum TC13 Enable star tracker TC14 Disable star tracker TC15 Manoeuvre beginning16 Manoeuvre end• Satellite events class<p>Mission dependent</p>



Field name	Size (bytes)		Kind	Content description
Orbital_Position	6	F	Real F6.2	Orbital position of the event Angle in degree from 0 deg (Equator) to 360 deg in the orbit direction
Longitude	6	F	Real F6.2	Terrestrial longitude of the event Angle in degree from 0 deg (Greenwich meridian) to 360 deg in the East direction
Latitude	6	F	Real F6.2	Latitude of the event Angle in degree from 0 deg (Equator) to +90 deg (North pole) and from 0 deg (Equator) to -90 deg (South pole)
ETID	6	V	ASCII	Earth terminal identifier (only for the Earth terminal class, nothing otherwise)
Comment	256	V	ASCII	String of characters describing the event

All the fields are separated by a "tabulation character"



FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: CCC_MC_PREDICTED_ATTITUDE

Predicted satellite attitude information elaborated by the SOCC AOCS subsystem to the MOCC

EXCHANGE DESCRIPTION

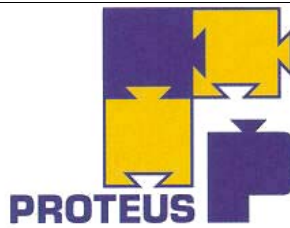
<i>Provider</i>	CCC	<i>Consumer</i>	MC
<i>Client</i>	CCC	<i>Server</i>	MC
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	CCC

<i>Schedule</i>	Depending mission requirements
<i>Comment</i>	<ul style="list-style-type: none"> Covered period : depending mission requirements The first point is dated at the end of adjustment period Fixed gap of 60 s between each point If needed, the file takes a maneuver into account

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	ASCII sequential file	<i>Compressed data</i>	NO
<i>File name</i>	SLID_PREDICTED_ATTITUDE		
<i>Size</i>	Variable		

- File contains x records
- The first record contains the file creation UT time and the type of reference frame (J2000, WGS84 or other)
- Fixed length records
- Record structure
 - UTC time of attitude event
 - Quaternion of the predicted attitude
 - Satellite attitude in ROLL, pitch and yaw (rd)
 - 3 components of the predicted satellite rate (rd/s)
 - Predicted position for the SADM



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.16

FORM2

FILE DESCRIPTION FORM

FILE NAME: SLID_PREDICTED_ATTITUDE

FILE DESCRIPTION

Predicted satellite attitude information elaborated by the CCC AOCS subsystem to Mission Center

FILE TYPE

Sequential

Number of record types: 2

Logical structure of records: {"#BEGIN_OF_FILE",
"1",n*{"2"}, (n = number of points in the file)
#END_OF_FILE"}

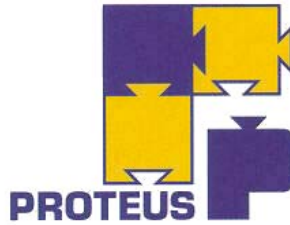
1 <UT file creation time> <Type_frame>

2 <UTC data time> <QISLPRED1> < QISLPRED2> < QISLPRED3>
<QISLPRED4> <ROLLPRED> <PITCHPRED> <YAWPRED>
<SLRATEPREDX> < SLRATEPREDY> < SLRATEPREDZ> <POSPREDL>
<POSPREDR>

NB: The lines which begins with the character # are comment lines

Direct

Record size:



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.17

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_PREDICTED_ATTITUDE

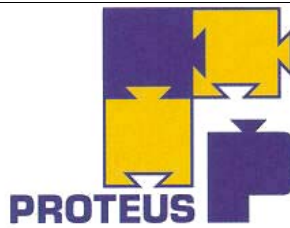
Record number: 1

Record size: 23 bytes

RECORD DESCRIPTION

Field name	Size (bytes)		Kind	Content description
Line_Type	1	F	ASCII	Forced to 1
File_Time	19	F	ASCII	File creation time (Format YYYY/MM/DD HH:MN:SS)
Type_frame	1	F	Integer	Type of reference frame in the file 1 = J2000 2 = WGS84

All the fields are separated by a "tabulation character"



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.18

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_PREDICTED_ATTITUDE

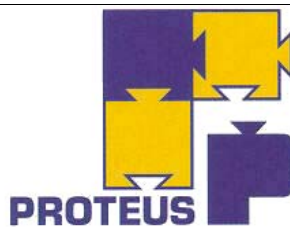
Record number: 2

Record size: Variable

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_Type	1	F ASCII	Forced to 2
UTC_time	23	F ASCII	UTC time of the attitude data (Format YYYY/MM/DD HH:MN:SS.MMM)
QISLPRED1		V Float32	Component 1 of the predicted satellite attitude
QISLPRED2		V Float32	Component 2 of the predicted satellite attitude
QISLPRED3		V Float32	Component 3 of the predicted satellite attitude
QISLPRED4		V Float32	Component 4 of the predicted satellite attitude
ROLLPRED		V Float32	Predicted roll <i>unit: rd</i>
PITCHPRED		V Float32	Predicted pitch <i>unit: rd</i>
YAWPRED		V Float32	Predicted yaw <i>unit: rd</i>
SLRATEX		V Float32	Component Xs of the predicted satellite rate <i>unit: rd/s</i>
SLRATEY		V Float32	Component Ys of the predicted satellite rate <i>unit: rd/s</i>
SLRATEZ		V Float32	Component Zs of the predicted satellite rate <i>unit: rd/s</i>
POSPREDL		V Float32	Predicted position for the left SADM <i>unit: rd</i>
POSPREDR		V Float32	Predicted position for the left SADM <i>unit: rd</i>

All the fields are separated by a "tabulation character"



FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: CCC_MC_PREDICTED_ORBIT

Predicted orbit data of the satellite and time (Position, Velocity, Time) elaborated by the CCC after an orbit determination

EXCHANGE DESCRIPTION

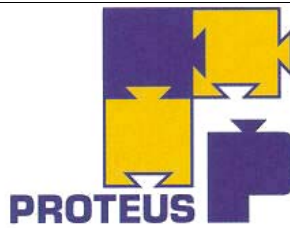
<i>Provider</i>	CCC	<i>Consumer</i>	MC
<i>Client</i>	MC	<i>Server</i>	CCC
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	CCC

<i>Schedule</i>	Depending mission requirements
<i>Comment</i>	

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	ASCII sequential file	<i>Compressed data</i>	NO
<i>Files name</i>	PREDICTED_ORBIT_SLID		
<i>Size</i>	Variable		

- File contains x records
- The first record contains the file creation UT time and the type of reference frame (J2000, WGS84 or other)
- Fixed length records
- Record structure
 - UTC time of orbit data (Position, Velocity)
 - Position (x, y, z) (m)
 - Velocity (vx, vy, vz) (m/s)



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.20

FORM2

FILE DESCRIPTION FORM

FILE NAME: PREDICTED_ORBIT_SLID

FILE DESCRIPTION

Predicted orbit data of the satellite and time (Position, Velocity, Time) elaborated by the CCC after an orbit determination

FILE TYPE

Sequential [X]

Number of record types: 2

Logical structure of records: {"#BEGIN_OF_FILE",
"1",n*{"2"}, (n = number of points in the file)
#END_OF_FILE"}

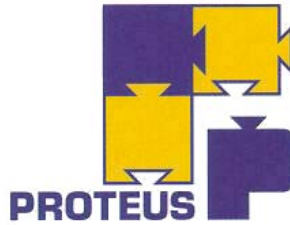
1 <UT file creation time> <Type_frame>

2 <UTC orbit data time> <X> <Y> <Z> <VX> <VY> <VZ>

NB: The lines which begins with the character # are comment lines

Direct []

Record size:



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.21

FORM3

RECORD DESCRIPTION FORM

FILE NAME: PREDICTED_ORBIT_SLID

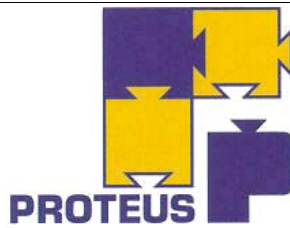
Record number: 1

Record size: 23 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_Type	1 F	ASCII	Forced to 1
File_Time	19 F	ASCII	File creation time (Format YYYY/MM/DD HH:MN:SS)
Type_frame	1 F	Integer	Type of reference frame in the file 1 = J2000 2 = WGS84

All the fields are separated by a "tabulation character"



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.22

FORM3

RECORD DESCRIPTION FORM

FILE NAME: PREDICTED_ORBIT_SLID

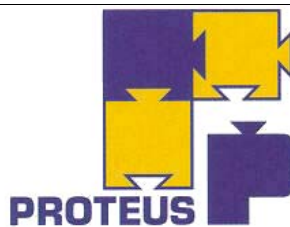
Record number: 2

Record size: 151 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_Type	1 F	ASCII	Forced to 2
UTC_time	23 F	ASCII	UTC time of the orbit data (Format YYYY/MM/DD HH:MN:SS.MMM)
X_Position	20 F	Real F20.5	X position (m)
Y_Position	20 F	Real F20.5	Y position (m)
Z_Position	20 F	Real F20.5	Z position (m)
X_Velocity	20 F	Real F20.5	X velocity position (m/s)
Y_Velocity	20 F	Real F20.5	Y velocity position (m/s)
Z_Velocity	20 F	Real F20.5	Z velocity position (m/s)

All the fields are separated by a "tabulation character"



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.23

FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: CCC_MC_TC_LOGBOOK

Sending acknowledge of TCPL and TCBUS transmitted from CCC to satellite

EXCHANGE DESCRIPTION

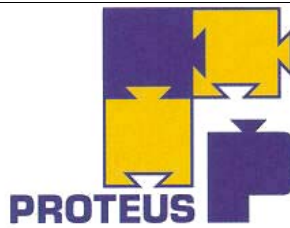
<i>Provider</i>	CCC	<i>Consumer</i>	MC
<i>Client</i>	CCC	<i>Server</i>	MC
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	CCC

<i>Schedule</i>	Depending on mission requirements
<i>Comment</i>	

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	ASCII sequential file	<i>Compressed data</i>	NO
<i>File name</i>	R_TCLOG_SLID_(YYYY_MM_DD_HH_MM_SS) _{begin} _(YYYY_MM_DD_HH_MM_SS) _{end} (extraction period UT date)		
<i>Size</i>	Depending on number of sending TC during the period		

- The first record contains the sending time of the first TC described in the file
- The second record contains the sending time of the last TC described in the file
- The following blocks describe the TCs
- Block description
 - TC description (mnemo, destination, nature, operational description, APID, family, TC ID, MAP number, VC number)
 - TC sending time
 - Due date for time-tagged TC
 - TC sending acknowledge result
 - TC binary profile



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.24

FORM2

FILE DESCRIPTION FORM

FILE NAME: R_TCLOG_SLID_YYYY_MM_DD_HH_MM_SS

FILE DESCRIPTION

Sending acknowledge of TCPL and TCBUS transmitted from CCC to satellite

FILE TYPE

Sequential [X]

Number of record types: 1

Logical structure of records: {«#BEGIN_OF_FILE»,
«1»,»2»,n*{3}, (n = number of TC logbook messages)
#END_OF_FILE»}

1 <First TC sending time>

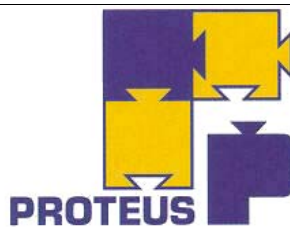
2 <Last TC sending time>

3 <TC mnemo> <TC destination> <TC nature> <TC operational description> <TC APID> <TC_Family> <TC ID> <MAP number> <VC number> <TC sending time> <Due date> <TC Acknowledge> <TC binary profile>

NB: The lines which begins with the character # are comment lines

Direct []

Record size:



FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_TC_LOGBOOK

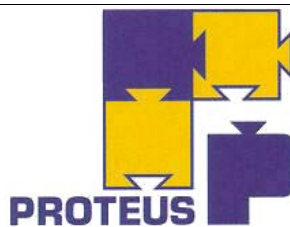
Record number: 3

Record size: Variable

RECORD DESCRIPTION

Field name	Size (bytes)		Kind	Content description
Line_Type	1	F	ASCII	Forced to 1
TC_Mnemo	8	V	ASCII	TC mnemo
TC_Dest	4	V	ASCII	TC destination
TC_Nature	2	F	ASCII	TC nature
TC_OpDesc	80	V	ASCII	TC operational description
TC_APID			Int16	TC packet APID number
TC_Family			Int16	TC family number (0 for TCD)
TC_ID			Int16	TC number (0 for TCD)
MAP			Int16	Multiplexed access point number
VC_ID			Int16	Virtual channel number
Sending_Time	19	F	ASCII	Sending time of the TC (Format YYYY/MM/DD HH:MN:SS)
Due_Date	23	F	ASCII	Due date for time tagged TC (Format YYYY/MM/DD HH:MN:SS.MMM)
TC_ACK	3	V	ASCII	TC acknowledge by satellite through the CLCW OK TC sent by CCC and acknowledged by the satellite NOK TC sent by CCC and non acknowledged by the satellite
TC_Binary			HEXA	Binary TC profile in hexadecimal

All the fields are separated by a "tabulation character"



FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: MC_CCC_TC_PL

Payload programming commands files provided by MC to CCC

EXCHANGE DESCRIPTION

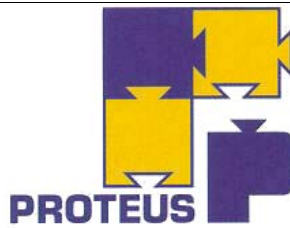
<i>Provider</i>	MC	<i>Consumer</i>	CCC
<i>Client</i>	CCC	<i>Server</i>	MC
<i>Protocol</i>	FTP authenticated mode	<i>Connection initiative</i>	CCC

<i>Schedule</i>	Depending on mission requirements
<i>Comment</i>	

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	ASCII sequential file	<i>Compressed data</i>	NO
<i>File name</i>	SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS (File creation UT time)		
<i>Size</i>	Max: 500 Kbytes		

- 1 file contains ASCII description and binary profile TC
- The first record contains the file creation UT time
- The second record contains the provider of the file
- 1 file contains one or more blocks of TC description
- Each TC is described in a block which contains
 - TC mnemo and operational description
 - Due date if TC time-tagged
 - Delay before the TC sending
 - ASCII TC parameters description
 - Binary TC packet profile
- For a time tagged TC, it shall not specify a delay before the TC sending



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.27

FORM2

FILE DESCRIPTION FORM

FILE NAME: SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS

FILE DESCRIPTION

Payload programming commands files provided by MC to CCC

FILE TYPE

Sequential

Number of record types: 7

Logical structure of records: {"#BEGIN_OF_FILE",
"1","2",n*{"3","4"},["5"],[m*{"6"}],"7"},
"#END_OF_FILE"}

(n = number of TC description in the file)

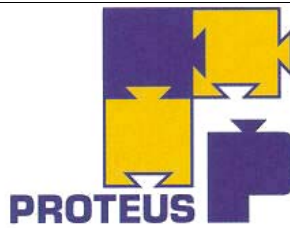
(m = number of ASCII TC description record)

- 1 <File creation time>
- 2 <Provider>
- 3 <TC Mnemo> <TC Operational description>
- 4 <Due Date for time-tagged> **(optional record)**
- 5 <Delay before TC sending> **(optional record)**
- 6 <TC data description> **(optional record)**
- 7 <Length of TC packet> <TC packet binary profile>

NB: The lines which begins with the character # are comment lines

Direct

Record size:



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.28

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS

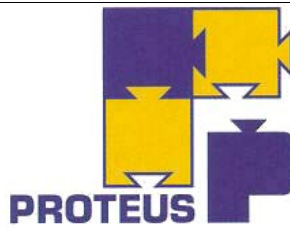
Record number: 1

Record size: 35 bytes

RECORD DESCRIPTIO

Field name	Size (bytes)		Kind	Content description
Line_type	15	F	ASCII	Forced to <CREATION_TIME>
Creation_Time	19	F	ASCII	File creation UT time (Format YYYY/MM/DD HH:MN:SS)

All the fields are separated by a "tabulation character"



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.29

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID _TC_specific-name_YYYY_MM_DD_HH_MM_SS

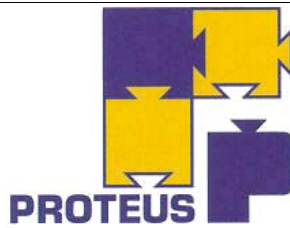
Record number: 2

Record size: 15 bytes

RECORD DESCRIPTION

Field name	Size (bytes)		Kind	Content description
Line_type	10	F	ASCII	Forced to < PROVIDER >
Provider	4	F	ASCII	TC group provider acronym

All the fields are separated by a "tabulation character"



FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS

Record number: 3

Record size: Max 101 bytes

RECORD DESCRIPTION

Field name	Size (bytes)		Kind	Content description
Line_type	10	F	ASCII	Forced to <TC_MNEMO>
TC_Mnemo	11	V	ASCII	Satellite Data Base TC mnemo
TC_OpDesc	80	V	ASCII	Satellite Data Base TC operational description

All the fields are separated by a "tabulation character"
RECORD DESCRIPTION FORM

FORM3

FILE NAME: SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS

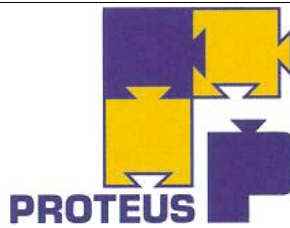
Record number: 4 **Optional record**

Record size: 34 bytes

RECORD DESCRIPTION

Field name	Size (bytes)		Kind	Content description
Line_type	10	F	ASCII	Forced to <DUE_DATE>
Due_Date	23	F	ASCII	Due time for TC time-tagged (Format YYYY/MM/DD HH:MN:SS.MMM)

All the fields are separated by a "tabulation character"



FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID _TC_specific-name_YYYY_MM_DD_HH_MM_SS

Record number: 5 **Optional record**

Record size: Variable

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_type	7	F ASCII	Forced to <DELAY>
Delay		V Int32	Delay to respect before the TC sending in milliseconds This field is authorized only if the TC is not a time_tagged command

All the fields are separated by a "tabulation character"
RECORD DESCRIPTION FORM

FORM3

FILE NAME: SLID _TC_specific-name_YYYY_MM_DD_HH_MM_SS

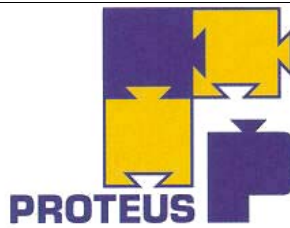
Record number: 6 **Optional record**

Record size: Max 90 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_type	9	F ASCII	Forced to <TC_DATA>
TC_Desc	80	V ASCII	Free text describing the TC data

All the fields are separated by a "tabulation character"



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.32

FORM3

RECORD DESCRIPTION FORM

FILE NAME: SLID_TC_specific-name_YYYY_MM_DD_HH_MM_SS

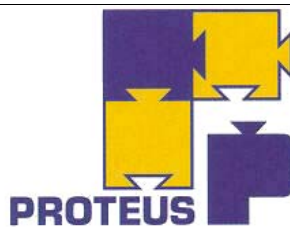
Record number: 7

Record size: Max 265 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Line_type	12	F	ASCII Forced to < TC_PROFILE >
Length		V	Int16 TC packet length in bytes (max 248 bytes)
TC_Binary		V	Hexa Binary TC packet profile in hexadecimal See packet structure in [RD2] <ul style="list-style-type: none">• Packet header (6 bytes) with APID and data length• Packet data (max 242 bytes)

All the fields are separated by a "tabulation character"



FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: TT CET_MC_PLTM_FRAME

Files containing PLTM CCSDS standard frames stored in TT CET and transmitted to MC on MC request

EXCHANGE DESCRIPTION

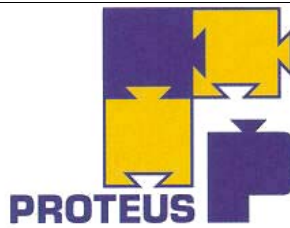
<i>Provider</i>	TT CET	<i>Consumer</i>	MC
<i>Client</i>	MC	<i>Server</i>	TT CET
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	MC

<i>Schedule</i>	Files creation after each programmed fly-by
<i>Comment</i>	<ul style="list-style-type: none"> Data are provided by TT CET to MC after fly-by LOS + 3 min Storage time at TT CET level: 72 hours 1 file contains an integer number of PLTM CCSDS frames The PLTM file can be removed in TT CET by the MC after recovery and processing

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	Binary sequential file	<i>Compressed data</i>	NO
<i>File name</i>	SLID_PLTM1_F_YYYY_MM_DD_HH_MM_SS (If VC for PLTM1) SLID_PLTM2_F_YYYY_MM_DD_HH_MM_SS (If VC for PLTM2) (File creation UT time)		
<i>Size</i>	Max 10 Mbytes		

- 1 file contains maximum 8900 frames of PLTM1 or maximum 8900 frames of PLTM2
- Fixed-length records
- 1 record contains 1 PLTM1 frames:
 - Frame synchronization marker (4 bytes)
 - CCSDS main header of the frame (6 bytes)
 - Data zone of the frame (1105 bytes) with:
 - Count of the virtual channel frame extension
 - PLTM1 or PLTM2 packet(s)
 - Operational control zone (4 bytes)



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.34

FORM2

FILE DESCRIPTION FORM

FILE NAME: SLID_PLTMi_F_YYYY_MM_DD_HH_MM_SS

FILE DESCRIPTION

Files containing PLTM CCSDS standard frames stored in TTCET and transmitted to MC on MC request

FILE TYPE

Sequential

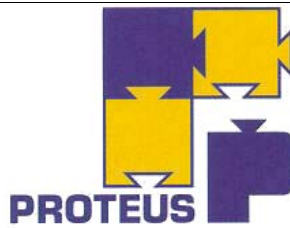
Number of record types: 1

Logical structure of records: {n*{«1»}} (n = number of PLTM frames in the file)

1 <Synchronization marker> <Frame main header> <frame data>
<Operational control zone>

Direct

Record size:



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.35

FORM3

RECORD DESCRIPTION FORM

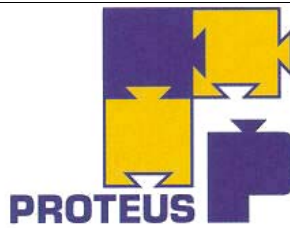
FILE NAME: SLID_PLTmi_F_YYYY_MM_DD_HH_MM_SS

Record number: 1

Record size: 1119 bytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Synchro	4 F		Frame synchronization marker Forced to value 1ACFFC1D hexa
Frame_Header	6 F		Main header of the frame See frame structure in [RD2]
Frame_Data	1105 F		Data zone of the frame See frame structure in [RD2]
Control_Zone	4 F		Operational control zone See frame structure in [RD2]



FORM1

INTERFACE DESCRIPTION FORM

Generic interface name: TT CET_MC_PLTM_PACKET

Files containing PLTM CCSDS standard packets stored in TT CET and transmitted to MC on MC request

EXCHANGE DESCRIPTION

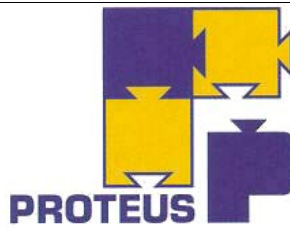
<i>Provider</i>	TT CET	<i>Consumer</i>	MC
<i>Client</i>	MC	<i>Server</i>	TT CET
<i>Protocol</i>	FTP authenticated mode	<i>Exchange initiative</i>	MC

<i>Schedule</i>	Files creation after each programmed fly-by
<i>Comment</i>	<ul style="list-style-type: none"> - Data are provided by TT CET to MC after fly-by LOS + 5 MN - Storage time are TT CET level: 72 hours - 1 file contains an integer number of PLTM CCSDS packets - The PLTM file can be removed in TT CET by the MC after recovery and processing

EXCHANGED DATA DESCRIPTION

<i>Exchange format</i>	Binary sequential file	Compressed data
<i>File name</i>	SLID_PLTM1_P_YYYY_MM_DD_HH_MM_SS (If VC for PLTM1) SLID_PLTM2_P_YYYY_MM_DD_HH_MM_SS (If VC for PLTM2) (File creation UT time)	
<i>Size</i>	Max 10 Mbytes	

- 1 file contains x MN of PLTM1 or x MN of PLTM2
- Variable-length records
- 1 record contains 1 PLTM packet:
 - CCSDS packet header with in particular:
 - TM APID number
 - Data length (fixed length for each APID)
 - PLTM packet data (max 1018 bytes) with:
 - UT time except on-board computer time during safe mode
 - APID data (see Satellite Data Base)



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.37

FORM2

FILE DESCRIPTION FORM

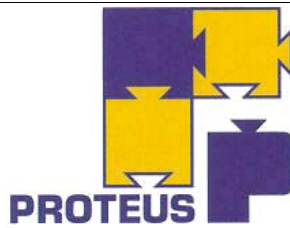
FILE NAME: SLID_PLTMi_P_YYYY_MM_DD_HH_MM_SS

FILE DESCRIPTION

Files containing PLTM CCSDS standard packets stored in TTCET and transmitted to MC on MC request

FILE TYPE

<i>Sequential</i>	[X]
<i>Number of record types:</i>	1
<i>Logical structure of records:</i>	{n*{«1»}} (n = number of PLTM packets in the file)
	1 <TM packet header> <TM packet data>
<i>Direct</i>	[]
<i>Record size:</i>	



PRO.LB.0.NT.003.ASC

Issue. 06 rev. 03

Page: 8.38

FORM3

RECORD DESCRIPTION FORM

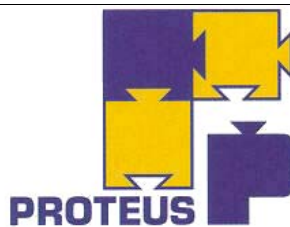
FILE NAME: SLID_PLTMi_P_YYYY_MM_DD_HH_MM_SS

Record number: 1

Record size: Max 1 kbytes

RECORD DESCRIPTION

Field name	Size (bytes)	Kind	Content description
Packet_Header	6	F	Packet header including APID number and data length See TM packet structure in [RD2]
Packet_Data		V	TM packet data with: <ul style="list-style-type: none">• Datation information (10 bytes)• PLTM TM data (max 1008 bytes) See TM packet structure in [RD2]



8.5 NETWORK IF – FTP CONNECTIONS SPÉCIFICATIONS

8.5.1 TRANSFER SCENARIO

CCC always initiates the FTP connections with TTCET, MC or OCC (i.e. CCC host is always client).
MC always initiates the FTP connections with TTCET.

8.5.2 CONNECTION REQUIREMENTS

- R1** The FTP connection must be authenticated.
- R2** Login/password are included in system file "passwd".
- R3** A password is not in plain text.
- R4** The password must be changed at least every ninety days.
- R5** Files must be stored in a dedicated data directory.
- R6** The FTP server must provide a logfile. The server administrator only manages this logfile.

END OF CHAPTER