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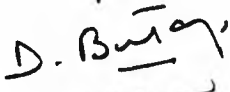
	 THOMSON-CSF <small>DIVISION ASSISTANCE ET SERVICE</small>	ENVISAT PAYLOAD DATA SEGMENT Ref. : PO-ID-CSF-GS-0120 Is. : 1 Rev. : A Date : 14/02/95 Page : 1
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TITLE : PDS to FS and NS Interface Specification

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DOCUMENT CATEGORY : Approval Review Information

ESA APPROVAL :

SUMMARY : This document defines the interfaces of FS and NS with the PDS. It details their characteristics and data structures. These latter are provided by the Data Dictionary Tool (DDT).

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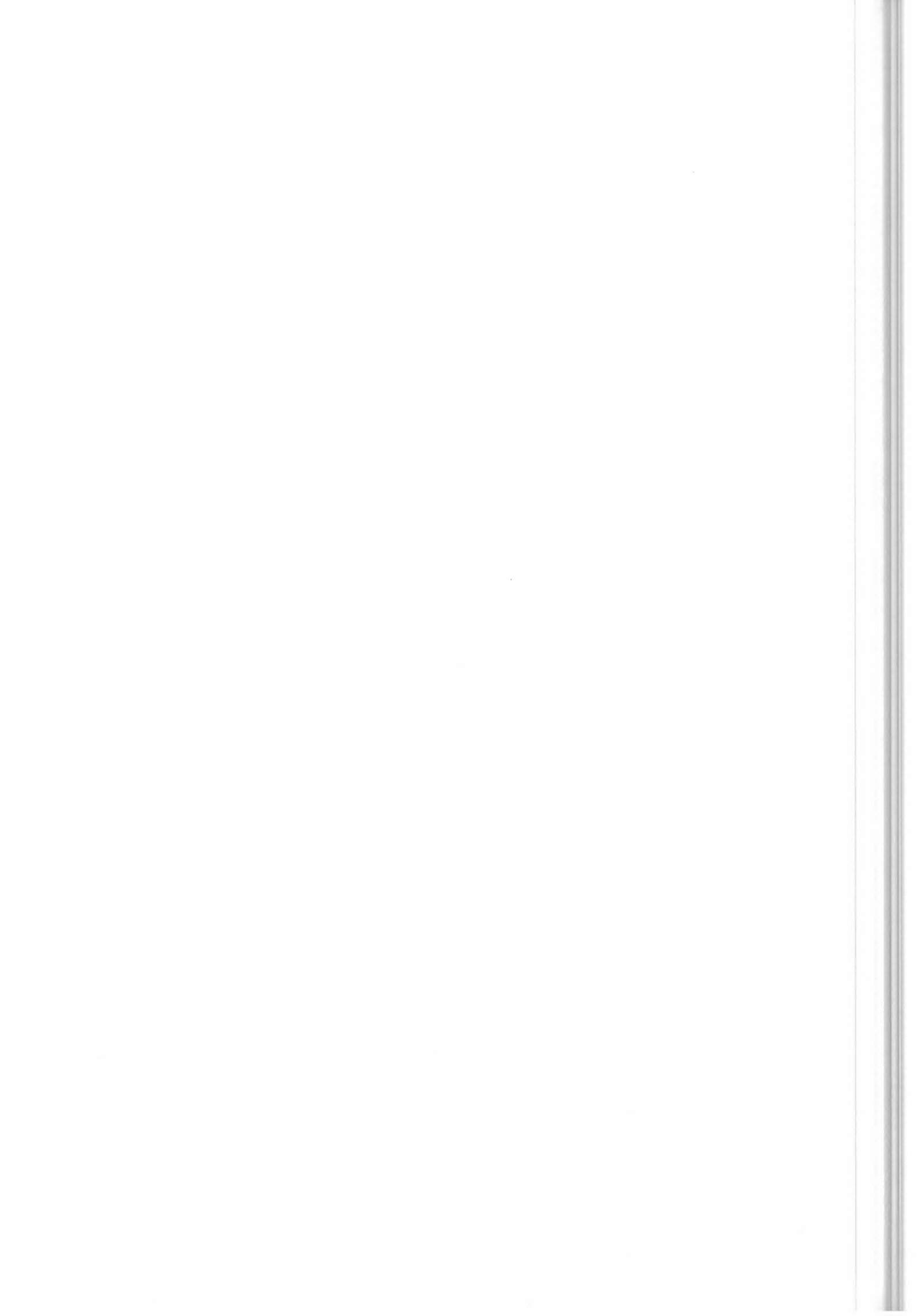
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PO 23242 Vol 4 Part 9



**ENVISAT PAYLOAD DATA SEGMENT****Ref. : PO-ID-CSF-GS-0120****Is. : 1 Rev. : A Date : 14/02/95 Page : 2**



Change Record

ISSUE	REVISION	DATE	CHANGE STATUS	ORIGIN
1	A	14/02/95	Issue 1	FR-C





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : A.2





Register of Changes

Affected pages :

N/A





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : B.2

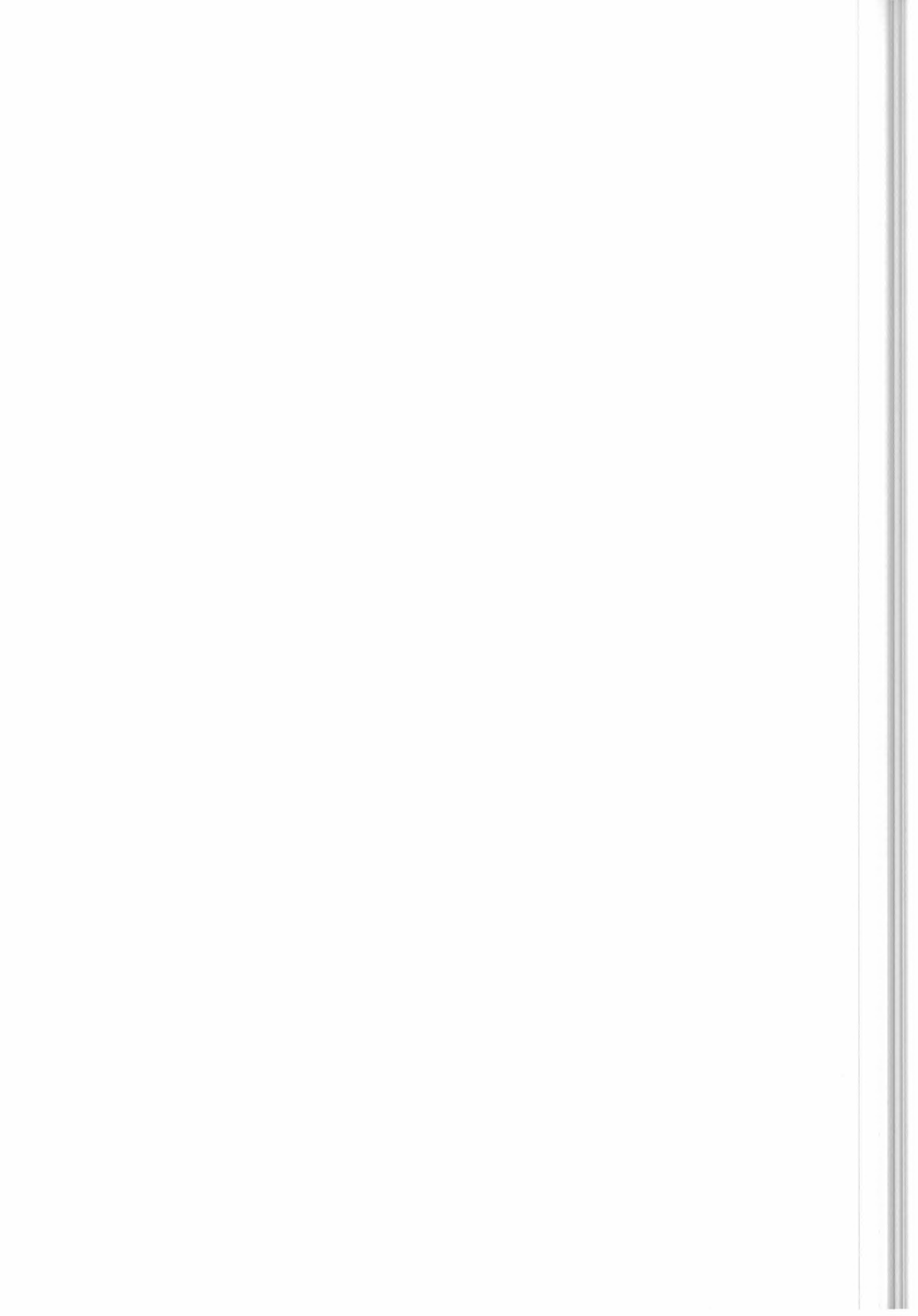




Table of Contents

1. INTRODUCTION	3
1.1 PURPOSE OF THE DOCUMENT	3
1.2 SCOPE OF THE INTERFACES	3
1.3 DEFINITION, ACRONYMS, AND ABBREVIATIONS	4
1.4 DOCUMENTS	4
1.4.1 Applicable documents	4
1.4.2 Reference documents	4
1.5 DOCUMENT OVERVIEW	4
2. OVERVIEW OF INTERFACES	5
3. INTERFACE FLOWS	7
3.1 PLANNING DATA FLOWS	7
3.2 PRODUCT FLOWS	8
4. INTERFACE DEFINITIONS	9
4.1 GENERAL INTERFACES DESCRIPTION	9
4.2 DDT INTERFACES DESCRIPTION	9





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : C.2



1. INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

This document describes the interfaces between the Foreign Stations (FS) and National Stations (NS) and the PDS. It defines the design of these interfaces.

It includes all types of interfaces, electronic and non-electronic (e.g operational) ones.

1.2 SCOPE OF THE INTERFACES

NS and FS have identical interfaces with the PDS.

The interfaces between the PDS and FS/NS can be categorized in the two following types :

- Planning,
- Acquired data,

The planning type interfaces support the exchanges of all the necessary planning and monitoring informations for NS/FS and PDS (PDCC) :

- the PDS (PDCC) can request the NS/FS, on behalf of ESA, to acquire ENVISAT-1 payload data -for example to provide high rate acquisition outside PDS stations visibility-,
- NS/FS can else be asked to provide copies of selected subsets of acquired data,
- NS/FS provide the MCF with feedback informations on PDCC plan acceptance, production and their availabilities for ENVISAT-1 acquisitions.

The acquired data type interfaces support the downlinked data the NS/FS sends to the planned PDS centre :

- Product.



1.3 DEFINITION, ACRONYMS, AND ABBREVIATIONS

The general abbreviations are given in the ENVISAT-1 Glossary and Abbreviation list [R1].

1.4 DOCUMENTS

1.4.1 Applicable documents

Document title	Identifier	Inter. Ref.
ENVISAT-1 Ground Segment PDS requirements.	PO-RS-ESA-GS-0121	[A1]

1.4.2 Reference documents

Document title	Identifier	Inter. Ref.
ENVISAT - 1 PDS Glossary and Abbreviations list	PO-LI-CSF-GS-0012	[R1]
PDS Interfaces Specifications Overview	PO-IS-CSF-GS-0049	[R2]
PDS System Design Document	PO-DD-CSF-GS-0048	[R3]

1.5 DOCUMENT OVERVIEW

The document is structured in 4 sections as described hereafter :

- Section 1 : present section,
- Section 2 introduces all the interfaces between NS/FS and PDS, based on DFD context diagram,
- Section 3 defines the mechanisms that support these interfaces, by using ETD (Event Trace Diagrams). This section is organised on an interface type basis.
- Section 4 specifies the characteristics and data structure of each interface.



2. OVERVIEW OF INTERFACES

The context diagram of the NS/FS interfaces with the PDS is depicted in the figure 2.-1. It identifies all the flows of data previously introduced in section 1.2.

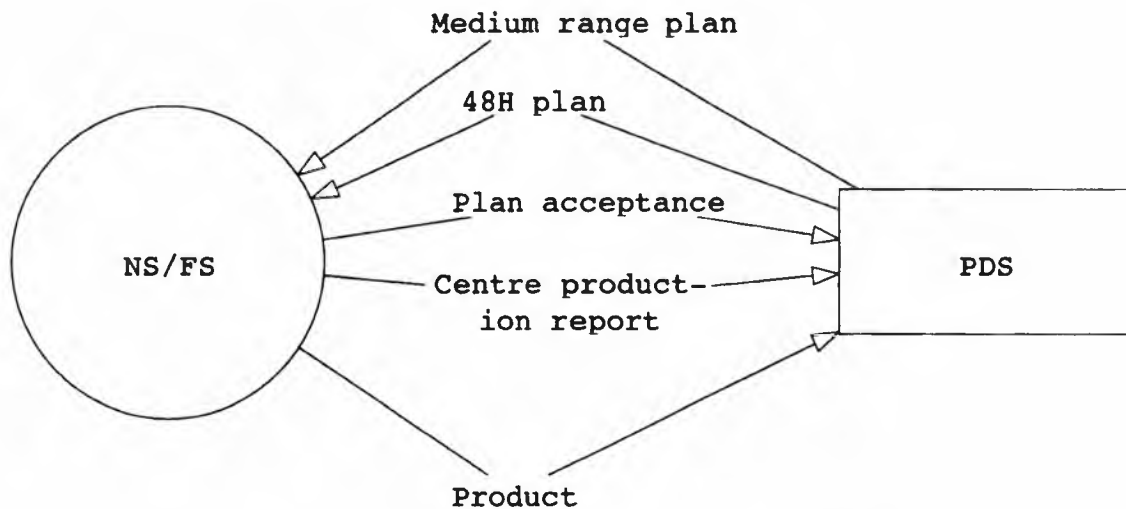


Figure 2-1 : Context diagram of the NS/FS interfaces with the PDS

NS/FS interfaces with the PDCC for ENVISAT-1 mission Monitoring and Control flows and with the PDHSs and PACs for ENVISAT-1 product exchanges.





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 6



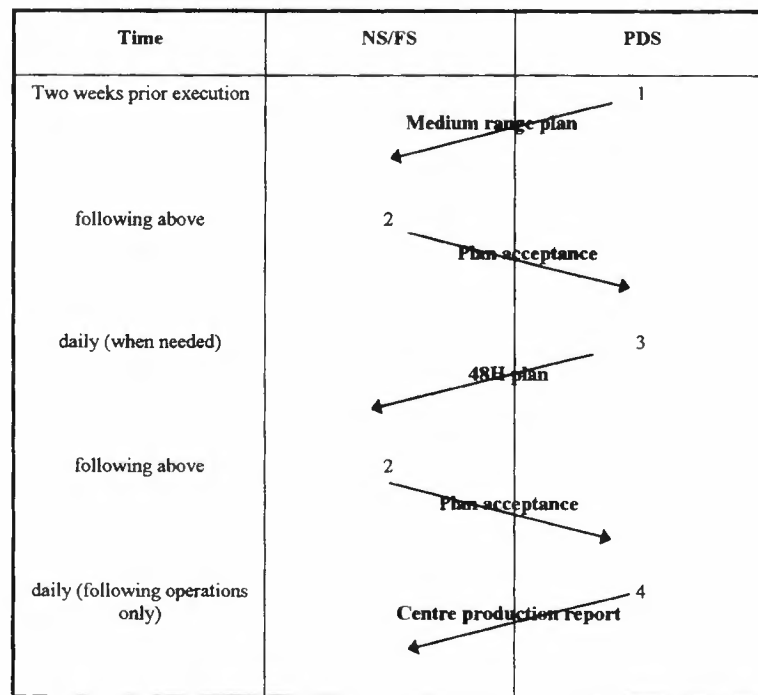
3. INTERFACE FLOWS

The PDS interfaces Specification Overview, document [R2], introduces all the following interfaces since it provides their definitions within the interface list table.

This section provides the NS/FS interfaces with the PDS mechanisms through :

- their Event Trace Diagrams (ETD),
- the description of these ETDs.

3.1 PLANNING DATA FLOWS



Description of operations

1 : When ENVISAT operation(s) is (are) to be performed by a NS/FS, a Medium Range Plan (MRP) containing the requested operation(s) is sent two weeks prior the planned operations.

2 : The NS/FS informs the PDCC that the MRP or 48H plan has been received and confirms the acceptance of the planned operations or their rejection. It also provides planned unavailabilities of the NS/FS for the ENVISAT mission.

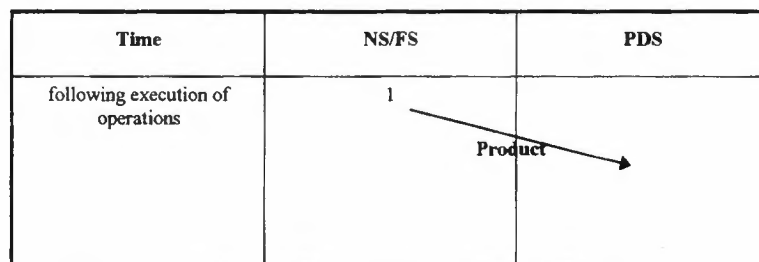
3 : The day before the execution of the operation, the PDCC/MCF provides the NS/FS with the up to date plan of the ENVISAT operations, 48H plan, to be performed during the next day. For station autonomy reasons this Plan covers the two next days.



4 : Following the execution of ENVISAT accepted operations, the NS/FS daily reports to the PDCC/MCF on the ENVISAT day production.

All Monitoring and Control flows will be exchanged using electronic links if the stations are connected to the ESA PDS network or by telefax/e-mail.

3.2 PRODUCT FLOWS



Description of operations

1 : Once the ENVISAT accepted operation(s) has (have) been performed by the NS/FS, the data (products) are sent to the PDS centre defined in the plan.

Products are Raw data, they are stored on high density tape. Used media is supposed to be compatible with the media/drive supported by the PDS centre (typically D1 media).





4. INTERFACE DEFINITIONS

4.1 GENERAL INTERFACES DESCRIPTION

This section provides the first level of the data structures of the interfaces between NS/FS and the PDS.

It has been generated from reports of the Data Dictionary Tool that maintains all interfaces data structures (definition, characteristics, structures...).

4.2 DDT INTERFACES DESCRIPTION

This section generated from DDT output, with the exception of product interface, provides for each interface its characteristics, (ICD_Report) and the Interface data structure definition.





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 10

Interface Name 48H_plan

Interface_number	418	Issue_number	1
Type			
Mean_frequency	1 day	Peak_frequency	1 day
Transfer_duration	TBD	Transfer_time	TBD
Size	TBD		

Failure_protection Redundancy TBD

Use_Description This plan is sent to all on-line centres once a day. The plan holds all the directives for the next two days of the centre's operations. The first day's directives are merged with local orders and standing directives to form the centre schedule. The second day's directives are for contingency i.e. to allow the centre some autonomy should the PDCC fail to send the next instalment of the plan. Includes all directives for : production, acquisition, updated s/w switches, config. table switches and the first example of any standing directives (new and changed).

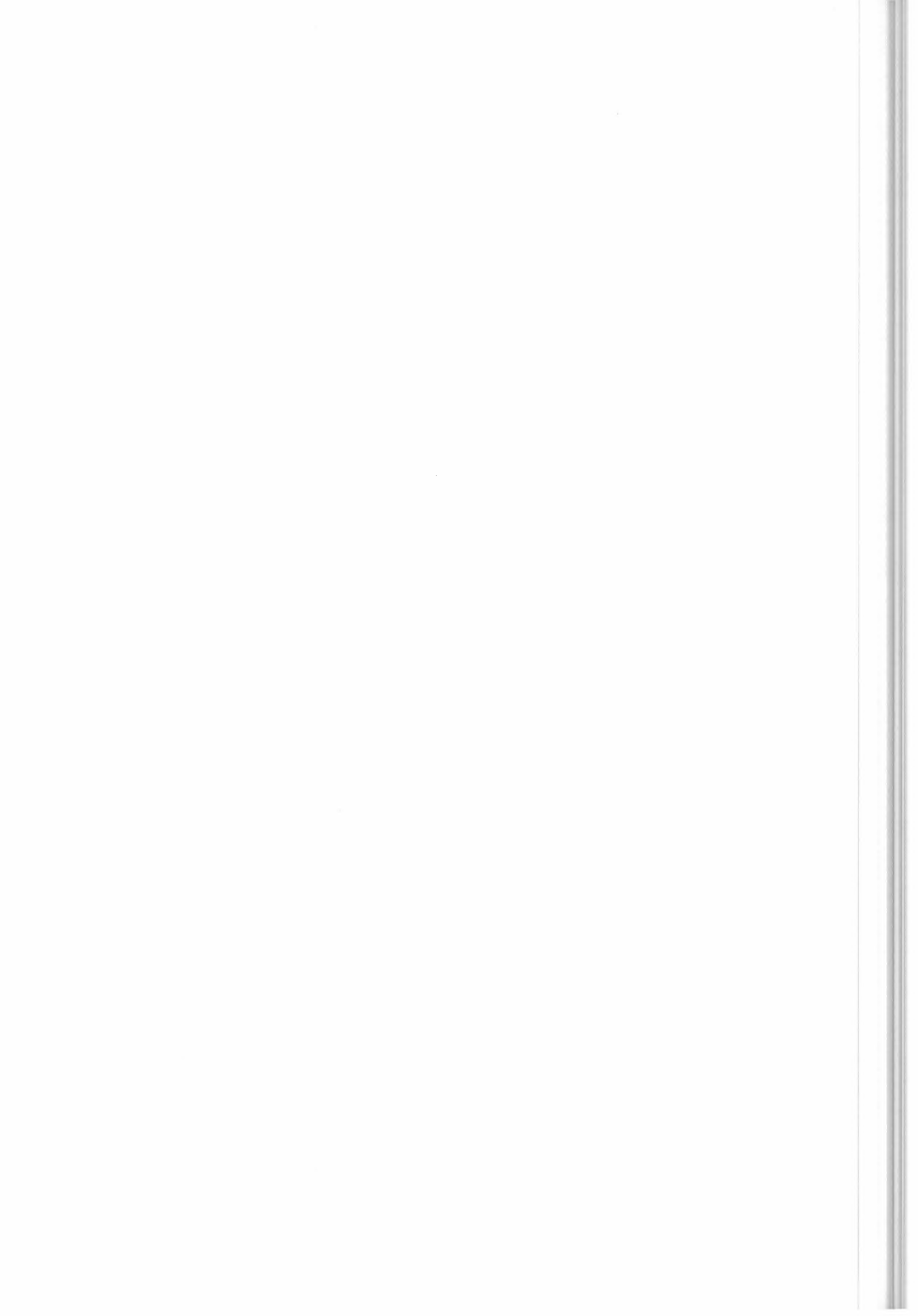
Trigger_events Trigger transmission is initiated each day by the MCF Operators

History Record

Date	Reason	Creation	Description	FR-C
14/02/95				

Data Structure description

field name	substructure name	size	substructure comment
Structure level	0		
Structure name	48H_plan		This data structure represents the file sent by the MCF which holds all the directives for the next two days of an on-line centre's operations
Plan_name	Plan_class	1	Generic plan layout which will be used for all plans sent to all centres
Structure level	1		
Structure name	Plan_class		This structure represents the file sent by the MCF. The file is divided into three sections.
Identification_section	Plan_id_blk	1	Generic plan identification block
Description_section	Plan_desc_blk	1	Generic plan description block
Directive_section	Plan_dir_blk	99	Generic plan directive block. One to many directives can be present in each plan file
Structure level	2		
Structure name	Plan_desc_blk		This structure represents the description block of a generic plan
Usage	A	11	"OPERATIONAL" or "TEST"
Structure name	Plan_dir_blk		This structure represents the directive block of a generic plan. Each directive contains two parts; a generic header part and a part which defines parameters which are specific to each type to directive.
Directive_header	Dir_hdr_type	1	The directive header contains general header information about the directive. The header has a generic format for all directives.
Directive_parameter	Dir_Param_Type	1	This structure contains parameter information which is specific to each type of directive.
Structure name	Plan_id_blk		This structure represents the identification block of a generic plan
File_ident	A	9	File name "48H. " or "MRP. " + 5 digit number which starts at 00001 and wraps around at 99999.
Structure level	3		
Structure name	Dir_hdr_type		This structure represents the directive header which contains general header information about the directive. The header has a generic format for all directives.
Directive_ident	A	25	Unique directive identifier which will be used



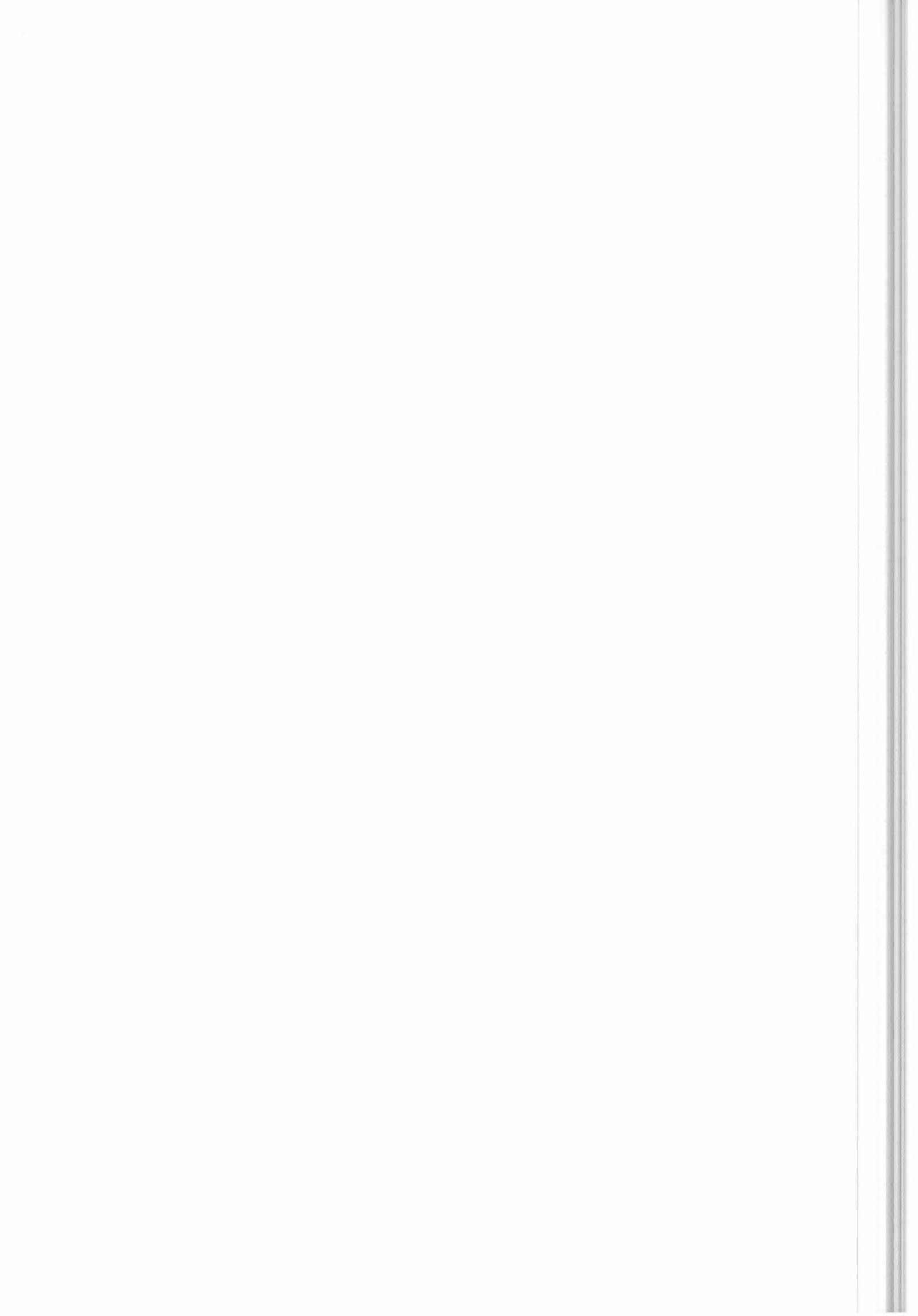


ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 11

Structure name	Dir_Param_Type			to report the execution status in the Centre Production Report. Directives may be modified by resending the directive with the same Directive ident and specifying action to MODIFY. The directive ident consists of 3 parts : Part 1 consists of the originating System Order ident (if applicable) , + ' Part 2 consists of a 3 character directive type code e.g 'ACQ' + ' Part 3 consists of a unique 10 char directive number range '0000000000' to '9999999999'
Acquisition_param	Acquisition_param_blk	1		This structure contains the parameter information which is specific to each type of directive. Block containing Acquisition directive parameters
Structure level	4			
Structure name	Acquisition_param_blk			Block containing Acquisition directive parameters which specify an acquisition slot when raw data streams are to be acquired from the SC. During each slot recorded and/or real time level 0 instrument data will be acquired which will be used to produce one or more products. The one to many relationship between acquisition slot directives and system orders for acquisition shall be maintained by the MCF.
AF_ident	A	10		Acquisition Facility ident
Structure name	CHAR			
Structure name	Configuration_param_blk			
Structure name	Consolidate_param_blk			Consolidate directive parameters
Products	Product_list_type	99		List of products to be consolidated. List contains 1 to many entries
Structure name	Delete_data_param_blk			Block containing Delete_data directive parameters which specify any level 0 data or processed products generated between a time window to be deleted from centres.
Data_type	TBDstructure	1		Data type to be deleted. This can be on an instrument mode or product level basis.
Structure name	Delete_dir_param_blk			
Structure name	Dissemination_param_blk			Block containing Dissemination directive parameters which specify a time slot and required parameters for disseminating products to end users or other centres. The directive handles dissemination by electronic or by physical media. If physical tape media is used then more than one product may be disseminated on each tape.
Products	Product_list_type	99		List of final products to be disseminated. List contains 1 to many entries
Structure name	Media_mount_param_blk			Block containing Media_mount directive parameters which specify a logical reservation, mount and dismount of a tape media for dissemination purposes. As wide a window period as possible is allowed to write all the allocated products to the tape.
Media_type	A	5		Type of media to use : ELECTRONIC"



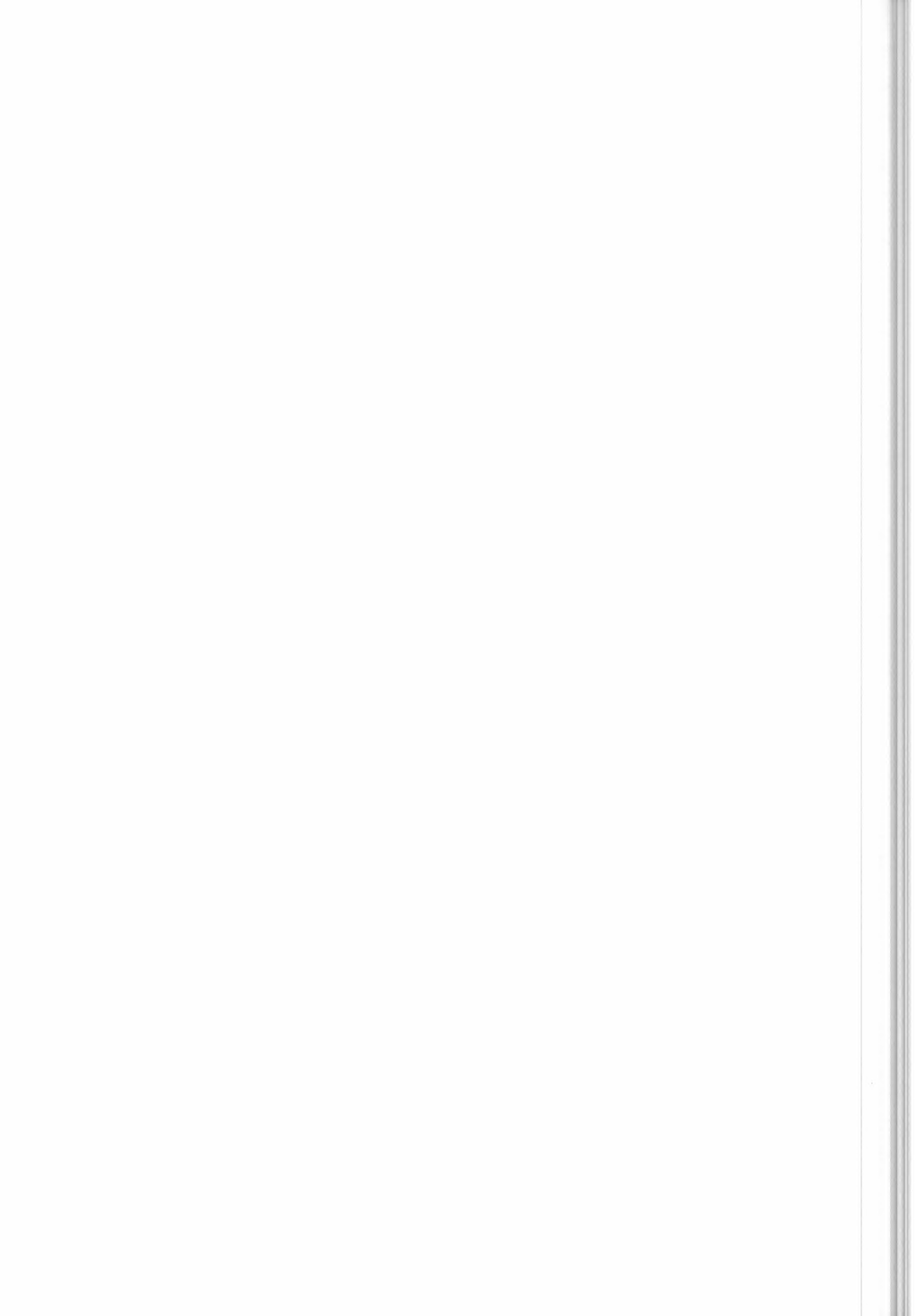


ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 12

			D2 DAT
Structure name	Mode_param_blk		
Mode	A	11	Block containing Mode directive parameters which set centres and station CMC into any of the predefined system modes
			Required mode of centre or facility : OPERATIONAL TEST
Structure name	Processing_param_blk		
			Block containing Processing directive parameters which specify a time slot and required parameters for processing level 0 data into products. The time slot is defined to be as wide as possible given the constraints of latest product delivery time to the user and the time of level 0 data acquisition. At a minimum the time slot is at least long enough to process the level 0 data into the product and any required intermediate products assuming all necessary data is available.
Sensing_start	Long_time	1	Start sensing time of the level 0 data required to produce the products.
Structure level	5		
Structure name	A		
ASCII	CHAR	1	
Structure name	Long_time		
Long_time	A	24	
Structure name	Product_list_type		Format : hh mm ss ttt*DD MMM YYYY
			Calalogue start window time of data to be consolidated.
Product_ident	TBDstructure	0	Unique ident. assigned by MCF to product to be produced
Structure level	6		
Structure name	TBDstructure		





DIVISION ASSISTANCE ET SERVICE

ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 13

Interface Name Centre_production_report

Interface_number	183	Issue_number	1
Type	Report		
Mean_frequency	1 day	Peak_frequency	As needed
Transfer_duration	TBD	Transfer_time	TBD
Size	TBD		
Failure_protection	Redundancy		TBD

Use_Description Detailed report of centre's production for the day. It includes completed and failed products for centrally planned and locally placed orders. Includes information for follow-up and for investigations. Includes accounting data. Includes all delta changes to the plans from the MCF. Includes media tracking data for both the sender and the recipient.

Trigger_events TBD

History Record

Date	14/02/95	Reason	Creation	Description	FR-C
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Data Structure description

field name	substructure name	size	substructure comment
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Structure level 0

Structure name Centre_production_report

This data structure represents the file sent by the centre which contains the detailed report of centre's production for the day

MsgHeader	IF_Header	0	Contains PDS despatch information
Message	TBDstructure	0	Contains the report

Structure level 1

Structure name	IF_Header		
Sender	TBDstructure	1	
Receiver	TBDstructure	1	
TimeofSending	TBDstructure	1	
RetransmissionFlag	TBDstructure	1	
MessageType	TBDstructure	1	

Structure level 2

Structure name TBDstructure





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 14

Interface Name Medium_range_plan

Interface_number	422	Issue_number	1
Type	File		
Mean_frequency	1 week	Peak_frequency	1 week
Transfer_duration	TBD	Transfer_time	TBD
Size	TBD		
Failure_protection	Redundancy		TBD

Use_Description This plan is sent to all centres once a week. The plan holds all the directives for the next two weeks of the centre's operations. For off-line centres the first week's directives are merged with local orders and standing directives to form the schedule. The second week's directives are for contingency i.e. to allow the centre some autonomy should the PDCC fail send the next instalment of the plan. Includes all directives for : production, archiving, s/w updates, config. table changes. All centres (including NS/FS) use this for manning needs.

Trigger_events Trigger Transmission is initiated by the MCF each week. In the case of on-line centres these are provisional directives (lacking detailed information on the acquisition down link)

History Record

Date	14/02/95	Reason	Creation	Description	FR-C
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Data Structure description

field name	substructure name	size	substructure comment
Structure level	0		
Structure name	Medium_range_plan		This data structure represents the file sent by the MCF which holds all the directives for the next two weeks of a centre's operations
Plan_name	Plan_class	1	Generic plan layout
Structure level	1		
Structure name	Plan_class		This structure represents the file sent by the MCF which hold all the directives for a generic plan
Identification	Plan_id	1	Generic plan identification
Description	Plan_desc	1	Generic plan description
Directive	Plan_dir	1	Generic plan directive
Structure level	2		
Structure name	Plan_desc		This structure represents the description of a generic plan
Description	TBDstructure	1	generic description Type
Structure name	Plan_dir		This structure represents the directive which is contained in a generic plan
Directive_id	Directive_ID_type	1	Directive_id_type Directive definition
Directive_action	Directive_action-type	1	Directive_Action_type Directive action definition
Directive class	Directive_class_type	1	Directive_class_type Directive class definition
Directive_parameter	Directive_Parameter_Type	1	
Structure name	Plan_id		This structure represents the identification of a generic plan
Identification	TBDstructure	1	Generic identification type
Structure level	3		
Structure name	Directive_action-type		This structure represents the action of a directive
Directive_action	TBDstructure	1	Directive action type
Structure name	Directive_class_type		This structure represents the class of a

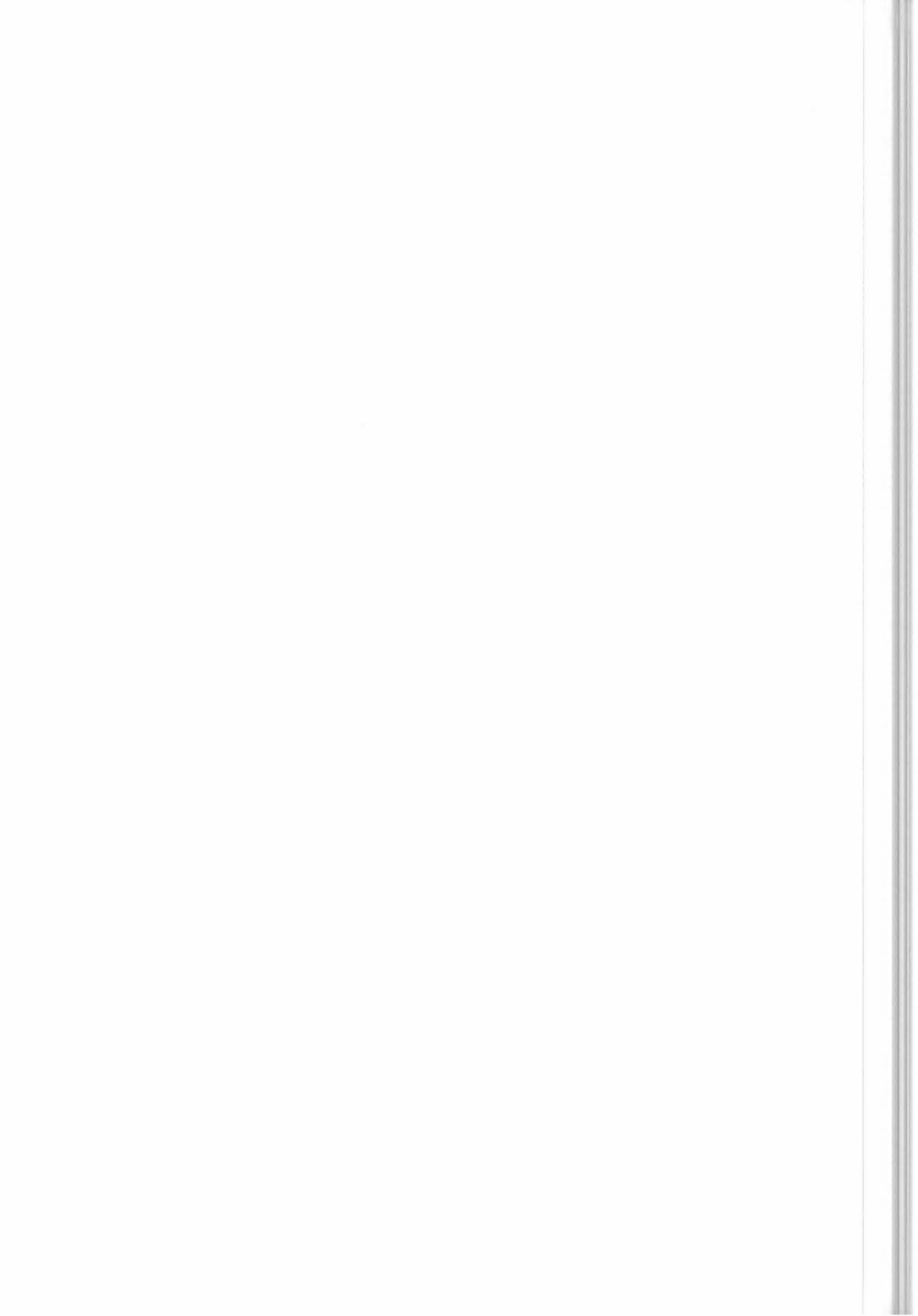


**ENVISAT PAYLOAD DATA SEGMENT**

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 15

Directive_class	TBDstructure	1	directive
Structure name	Directive_ID_type		Directive class type
			This structure represents the identification of a directive
Direction_identification	TBDstructure	1	Directive identification type
Structure name	Directive_Parameter_Type		This structure represents the parameter of a directive
Directive_parameter	TBDstructure	1	Directive parameter type
Structure level	4		
Structure name	TBDstructure		





ENVISAT PAYLOAD DATA SEGMENT

Ref : PO-ID-CSF-GS-0120

Is. : 1 Rev. : A Date : 14/02/95 Page : 16

Interface Name Plan_acceptance

Interface_number	421	Issue_number	1
Type			
Mean_frequency		Peak_frequency	
Transfer_duration	TBD	Transfer_time	TBD
Size	TBD		
Failure_protection	Redundancy		TBD

Use_Description To inform MCF that an MRP/48H plan has been received and is to be implemented. It is only required from NFS as all CSA facilities will be assumed to be accepting plans on a daily / weekly basis.

Trigger_events Trigger will be provided by the NFS following assessment of an MRP / 48H plan from the MCF.

History Record

Date	14/02/95	Reason	Creation	Description	FR-C
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Data Structure description

field name	substructure name	size	substructure comment
Structure level	0		
Structure name	Plan_acceptance		Main Comments are TBD Header comments are TBD
Substructure is TBD	TBDstructure	0	Substructure comments are TBD
Structure level	1		
Structure name	TBDstructure		

