ENVISAT-1 Satellite Qualification Review Data Package

Volume 1k
Supporting ESQR Documents

DIL DOC 4/05

Prepared by:	ENVISAT-1 Team		Date: 03.05.1999
Checked by:			Date:
Product Assurance:			Date:
Project Management:	Dr. K.-P. Bartholomä		Date: 03.05.1999

SUPPORTING ESQR DOCUMENTS

Vol. 1c1

Instrument Verification Program Sheets:
ASAR, GOMOS, MERIS

Vol. 1c2

Instrument Verification Program Sheets:
MIPAS, RA-2, LR, MWR, SCIAMACHY,

Vol. 1c3

Instrument Verification Program Sheets:
AATSR, DORIS/MWR Package, DORIS/MWR ICU

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List of Drawings	PO-LI-DOR-SY-0131
List of DCRs and DCNs	PO-LI-DOR-SY-0094
NCR Summary List	PO-LI-DOR-SY-0088
RFW Summary List	PO-LI-DOR-SY-0079
Document Status List	PO-LI-DOR-SY-0068
CDR RID Tracking List	PO-LI-DOR-SY-0155
ENVISAT-1 Mission and Engineering Budgets Document	PO-RP-DOR-PL-0056
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Instrument Electrical Interfaces Compliance Report	PO-RP-DOR-SA-0259
Mechanical I/F Analysis Results Summary	PO-TN-DOR-SA-0217
EM PPF RFC Mission Engineering Test Report	PO-TR-DOR-SA-0166
EM PPF EMC Mission Engineering Test Report	PO-TR-DOR-SA-0102
Demonstration of Instrument Sine Qualification	PO-TN-DOR-SA-0384
Instrument StM Sine Test Loads	PO-TN-DOR-SA-0261
EM PL 1st Phase 4/5 Test Report for Env. 1	PO-RP-DOR-SY-0316
Instrument Operations for FM TB/TVTest	PO-TP-DOR-PL-0091
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Instruments Thermal Control Operations for FM PLM TB/TV Tests	PO-TP-DOR-PL-0087

PAYLOAD TO GROUND SEGMENT INTERFACE CONTROL DOCUMENT

Coordinated by:	D. Demuth	Date: 30.04.99
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Product Assurance:	M. Degenhardt	Date:
Project Management:	Dr. K.-P. Bartholomä	Date: 6.05.99
ESA/ENVISAT-1 Management:	J.Louet	Date:

Distribution: See Distribution List

Document Register of Changes

The Document Register of Changes indicates the current issue and revision that is valid for the complete PGICD and the individual volumes.

	Issue	Revision/Date				
		A	B	C	D	E
Document	5					
Volume 1	5					
Volume 2	5					
Volume 3	5					
Volume 4	5					
Volume 5	5					
Volume 6	5					
Volume 7	5					
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Dornier GmbH		Doc. No.: PO-ID-DOR-SY-0032
Project: ENVISAT-1		Issue: 5 Date: 30.04.99
		Sheet: 1-1

1 INTRODUCTION

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Product Assurance:	M. Degenhardt		Date:
Project Management:	Dr. K.-P. Bartholomä	Bartholomä	Date: 6.05.99
ESA/ENVISAT-1 Management:	J. Louet		Date:

Distribution: See Distribution List

Volume 1 Change Record

ISSUE	REV.	DATE	SHEET	DESCRIPTION OF CHANGE
Draft	0	27.05.94	All	Draft issue of the document
1	0	28.04.95	All	New issue of the document
2	0	29.03.96	All	Update to Figure 1.2.1-1, to reflect the current status of the ENVISAT-1 Payload Complement. Implementation of DCR PO-DR-DOR-SY-0250 incorporated as per DCN PO-DN-DOR-SY-0070.
3	0	14.01.97	All	New issue of the document
4	0	30.04.98	All	New issue of the document
5	0	30.04.99	All	ESQR issue

Volume 1 Register of Changes

Pages	Revision/Date						Pages	Revision/Date					
	A	B	C	D	E	F		A	B	C	D	E	F
1-1													
1-2													
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Volume 1 Table of Contents

Preface to Volume 1

As illustrated in Figure 1.2-1, this volume is the first of a 15 volume set of documents that comprises the Payload to Ground Segment Interface Control Document (PGICD).

Volume 1 provides introductory information that is needed to understand both the purpose and scope of the PGICD as well as the concept of breaking the document into individual volumes.

1.1 Purpose and Scope

Figure 1.1-1 shows the documentation package defining the Space Segment to Ground Segment Interface which consist of :

- The Payload-to-Ground Segment ICD (PGICD), together with the Payload Instrument Measurement Data Definition Data Base (PIMDD) defining the instrument source packet structure and content;
- The Polar Platform-to-Ground Segment ICD, describing the "lower levels" (e.g. packetisation, multiplexing, RF-link) of the interface;
- The Polar Platform-to-DRS ICD and the DRS-to-Ground Segment ICD describing the PPF/DRS to ground segment interface.

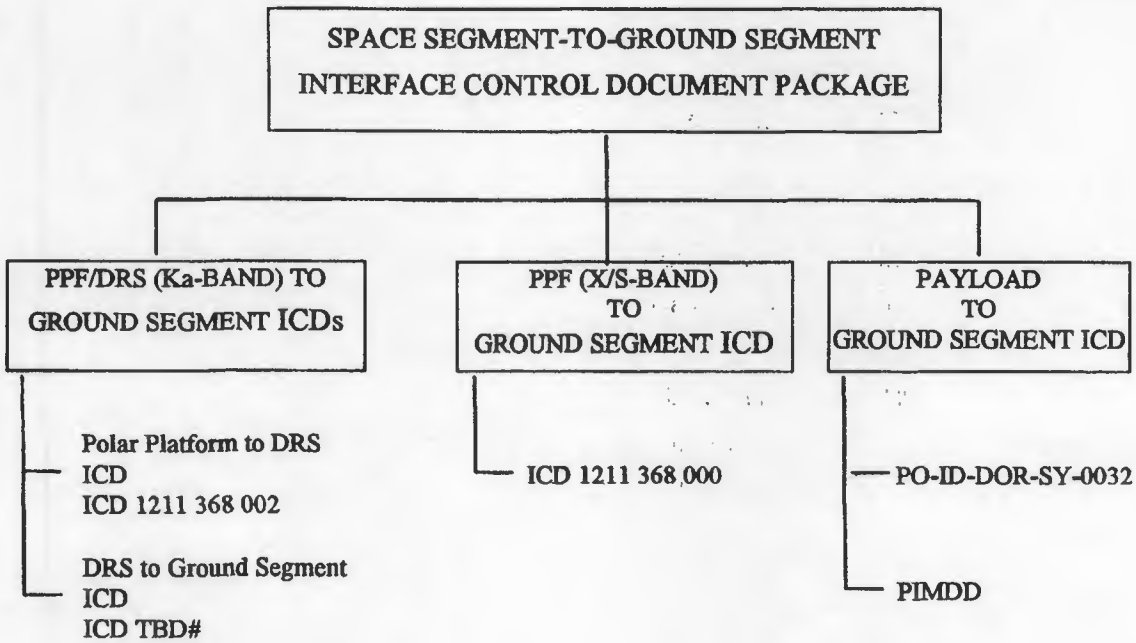

Figure 1.1-1: Space Segment-to-Ground Segment Interface Documentation Tree

The PGICD defines the measurement data interface between the ENVISAT-1 payload and the ground segment on the level of the source packets, thus omitting all "low level" formatting (e.g.

packetisation, multiplexing, RF-link) performed by the platform and reversed by the ground segment. The PGICD defines the source packet structure and contents down to the identification of each parameter contained in the source packet.

The actual mapping of these parameters to the bit pattern structure of the source packet is defined in the PIMDD. A print out of the PIMDD is provided in Appendix A of the PGICD.

Based on the experience gain with ERS-1, the PGICD contains, for each parameter in a source packet, a clear and exact definition of its meaning, avoiding references to the instrument design documents. This makes the PGICD a comprehensive and self-contained reference for the understanding, interpretation, and use of the raw instrument data.

1.2 Document Organisation

1.2.1 Document Structure

The Payload to Ground Segment Interface Control Document is comprised of 15 volumes, and two Appendices. The PGICD is organised as illustrated in Figure 1.2-1 .

Volume 1 covers the purpose and scope of the document and includes an overview of the document structure.

Volume 2 contains a list of the applicable and reference documents.

Volume 3 provides a description of the ENVISAT-1 System. The description includes a summary of the mission objectives, an overview of the complete ENVISAT-1 System and brief descriptions of the ESA Developed and Announcement of Opportunity Instruments. Additionally, descriptions of the Polar Platform Satellite(PPF), Reference Orbit, PPF Attitude and the Ground Segment are provided.

Volume 4 provides an overview of the measurement data stream and describes the measurement data format (i.e. Source Packets) specifications which are applicable to both the ESA Developed and Announcement of Opportunity Instruments. The data format specification section begins with an explanation of the bit numbering convention and nomenclature, that is used in specifying the data formats, and then defines the lay-out of the Source Packet structure, including the contents of the Source Packet Header and the description of the Source Packet Data Field.

Volumes 5 through 14 contains the measurement data generation description and the detail definition of the Source Packet Data Format for each of the ESA Developed and Announcement of Opportunity instruments. The lay-out and the data parameter definitions for the Data Field Header, Source Data and the Packet Error Control Fields are provided for each instrument and operating mode.

Volume 15 focuses on the details of the Payload related PPF/PMC Auxiliary Data Format.

Appendix A contains a print-out of the contents of the PIMDD (i.e. the bit assignment of the parameters within the measurement data format) for each ESA Developed and Announcement of Opportunity Instruments.

Appendix B contains a list of acronyms and a glossary of terms used throughout the document.

ENVISAT-1 PAYLOAD

TO

GROUND SEGMENT ICD

Volume 0:	Title Page and Document Register of changes
Volume 1:	Introduction
Volume 2:	Documentation
Volume 3:	System Description
Volume 4:	Measurement Data Format Definition
Volume 5:	Measurement Data Definition and Format Description for ASAR
Volume 6:	Measurement Data Definition and Format Description for GOMOS
Volume 7:	Measurement Data Definition and Format Description for MERIS
Volume 8:	Measurement Data Definition and Format Description for MIPAS
Volume 9:	Measurement Data Definition and Format Description for MWR
Volume 10:	Measurement Data Definition and Format Description for RA-2
Volume 11:	Measurement Data Definition and Format Description for AATSR
Volume 12:	Measurement Data Definition and Format Description for DORIS
Volume 13:	deleted
Volume 14:	Measurement Data Definition and Format Description for SCIAMACHY
Volume 15:	PPF/PMC Auxiliary Data Format Description
Appendix A:	Print-out of PIMDD Files
Appendix B:	Acronyms List

Figure 1.2-1 : PGICD Document Structure

1.2.2 Applicability, Verifiability and Distribution of Volumes

Volumes 1 through 4 and the instrument specific volume, complemented by the PIMDD of the instrument, contains the measurement data format specification which is applicable to a particular instrument as part of its ICD package. Therefore, their contents will be verified during instrument testing.

The Mission Prime will distribute the PGICD as follows:

- ESA will receive all volumes of the PGICD.
- EDI Contractors will receive Volumes 1 through 4 and their corresponding instrument volume,
- AO Instrument Suppliers will receive Volumes 1 through 4 and their corresponding instrument volume,

1.2.3 Document Approval and Configuration Control

1.2.3.1 Approval Procedure

The PGICD is generated, from inputs provided by the EDI Contractor and AO Instrument Suppliers, and controlled, on System Level, by the ENVISAT-1 Mission Prime and is submitted to ESA/ESTEC for approval.

To facilitate the approval of the instrument specific volumes, as well as the system description and format definition volumes, each of the PGICD volumes contains a cover/approval page that is used in the approval process by the Instrument Contractor or Supplier, for their specific instrument volume, the Mission Prime and the Agency.

The complete document is approved by the Mission Prime and the Agency, using a "document" cover/approval page, in Volume Zero, once volumes have been approved.

1.2.3.2 Configuration Control

The configuration control of the PGICD is done on a volume per volume basis. Each volume contains its own Change Record and Register of Changes.

A Document Register of Changes, which indicates the current issue/revision that is valid for the overall document as well as each volume, is provided in Volume Zero.