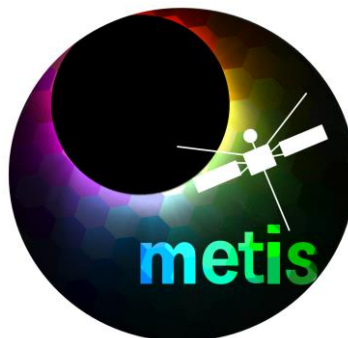




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**Metis INSTRUMENT
for the
Solar Orbiter Mission**

Specifications of the Metis Planning Implementation Center

Principal Investigator:

Marco Romoli
University of Florence, Italy

and the Metis Consortium:

Astronomical Institute – Academy of Sciences of the Czech Republic
CNR - Institute for Photonics and Nanotechnology, Padua, Italy
CNRS – IAS, France
INAF – IASF, IAPS, OAA, OACN, OACt, OAPa, OATo, OATs, Italy
Laboratoire d'Astrophysique de Marseille, France,
Max-Planck-Institut für Sonnensystemforschung, Germany
Naval Research Laboratory, USA
Politecnico of Turin, Italy
Universities of Florence, Padua, Pavia, Italy
University of Athens, Greece



Prepared by: G. Nicolini, R. Messineo

Revised by: M. Messerotti, V. Andretta

approved by M. Romoli (Metis – PI)
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Table of Contents

1	SCOPE OF THE DOCUMENT	8
1.1	Contributors	8
1.2	Definitions	8
1.3	Operational Flow	8
2	METIS PLANNING (IMPLEMENTATION) CENTER	10
2.1	The HW infrastructure	10
2.1.1	SIIS and Metis Reference Model	10
2.2	The Planning S/W	10
3	PLANNING IMPLEMENTATION CENTER DETAILED SPECIFICATION	11
3.1	General requirements	11
3.2	Interface requirements	11
3.3	Infrastructure Requirements	12
3.3.1	Principal components	12
3.3.2	I/F	12
3.4	TM/TC Procedure Builder	13
3.4.1	Functional requirements	14
3.4.2	I/F Requirements	17
3.4.3	Products description	17
3.4.4	Non-Functional requirements	19
3.4.5	Technologies	19
3.5	Timeline Editor	19
3.5.1	Functionality	19
3.5.2	I/F	24
3.5.3	Technologies	25
3.6	Planning repository	25
3.6.1	Functional Requirements	25
3.7	Operational roles and access rules	29
3.7.1	Operations Roles	29
3.7.2	Access rules	29
3.8	Data Access Policy	31
4	DOCUMENTATION	32
4.1	Procedure handbook and SW tool manuals	33
4.2	Infrastructure Design Report	33

4.3	CIDL.....	33
4.4	Verification & Validation Report	33
5	EXAMPLES	34
5.1	IOR User interface	34
6	DOCUMENT REFERENCES	39
6.1	Metis Applicable Documents.....	39
6.2	Solar Orbiter Specific Applicable Documents	39
6.3	Reference Documents.....	39
7	LIST OF ACRONYMS.....	40
	ANNEX A – SPECIFICATION FILE FOR ESA MOC ICD	43

List of Figures

Figure 1-1 – Activity flow for the TM/TC Procedure creation, test and validation.	9
Figure 1-2 – Activity flow for the observing plan creation and IOR generation.....	9
Figure 3-1 – TMTC Procedure operative data flow.	13
Figure 3-2: an example of tcl script that configures the detector and command an acquisition.....	18
Figure 5-1: Starting screen of the IOR builder GUI.	34
Figure 5-2: Once the time information is provided, a data volume estimator bar and a timeline bar appear in the GUI.....	35
Figure 5-3: In order to build the IOR, sequences may be dragged and dropped.	36
Figure 5-4: Nor the timeline neither the data volume estimator are affected by a configuration sequence call.....	37
Figure 5-5: Once the formal parameters of an observation sequence have been inserted, the export buttons at the bottom are enabled and the data volume and the timeline bars start to be filled out.....	38

List of Tables

Table 3-1: MPIC roles model	31
Table A0-1: Example of a part of the file used to exchange information concerning a sequence	43

1 Scope of the document

This document is intended to define the functionality and the organization of the Metis Planning Implementation Center.

1.1 Contributors

This document has been completed thanks to the valuable contributions of V. Andretta (INAF-OACN), E. Antonucci (INAF-OATo), G. Capobianco (INAF-OATo), M. Casti (ALTEC), F. Frassetto (CNR-IFN), Landini (INAF-OAA), M. Messerotti (INAF-OATs), A. Mulone (ALTEC), M. Pancrazzi (UniFi), M. Rabaioli (ALTEC), C. Sasso (INAF-OACN), D. Spadaro (INAF-OACt).

1.2 Definitions

- **TM/TC Procedures:** Metis is operated by executing a series of both (time-tagged) TCs and TM checks, developed and validated on the Metis RM, are called in this document TM/TC Procedures. The naming convention to be used is defined in [AD-22].
- **S/C sequence:** Each relevant TM/TC Procedure Metis deliver to ESOC, will be converted into a S/C sequence containing only timetagged TC's, to be uploaded to the S/C for its execution. Metis do not have the direct visibility of the S/C sequences. TM/TC Procedures and S/C Sequences share the same name.
- **Flight Procedures:** ESOC will combine one or more S/C Sequences to compose a Flight Procedure, comprehensive of TC's timeline and TM checks to be performed off-line.
- **Timeline Products:** Each timeline is defined by the following products:
 - **Observational Timeline:** In this document a Obs. Timeline is a combination of temporal events (Metis operations, S/C constraints etc.) that concur to the definition of an observing plan to be executed in flight.
 - **Timeline Report:** A human-readable information list which shall include a time tag, Metis state, power, telemetry, EMC cleanliness level.
 - **IOR:** TBW
 - **MDOR:** TBW
 - **PDOR:** TBW
- **Planning Repository:** the Planning Repository is the environment where IOR's, Obs Timelines and TM/TC Procedures are archived.

1.3 Operational Flow

The Operational Flow is the ensemble of activities (conceptual plan, test, validation, detailed plan) necessary to implement a scientific observation plan to an in-space executable obs. timeline.

The series of steps has to follow the ESA planning guidelines and standards (main reference is [RD-3]), and provide an exchange of information according to the mission adopted interfaces.

The overall flow can be divided into two main activities:

- 1) The **TM/TC Procedure** creation, test and validation
- 2) The construction of the **Observation Timelines** and the IOR generation

The first activity has the goal to create and archive a set of **TM/TC Procedure** performing basic actions and observations, to be used as building blocks in the definition of the **in-flight observing Timeline** or to run on-ground test/investigations.

The core tools to be used for this activity are the “TM/TC Procedure Builder” and the “Planning Repository”.

The logical flow is depicted in Figure 1-1.