GIADA FS MODEL

REPORT ON
THE ROSETTA EXTENSION 2 PHASE
06/04/2016 - 30/06/2016

PREPARED	APPROVED	AUTHORIZED
GIADA TEAM A. ROTUNDI, V. DELLA CORTE, R. SORDINI INAF – Istituto di Astrofisica e Planetologia Spaziali, Roma (I) Università Parthenope, Napoli (I)	GIADA PI A. ROTUNDI	GIADA PI A. ROTUNDI

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REVISIONS LOG

REV	DOCUMENT CHANGE ORDER	DATE	CHANGES DESCRIPTION	PREPARED
0	-	24-02-2017	First issue	GIADA Team

1. SCOPE AND APPLICABILITY

The Rosetta Extension 2 Phase covers the period of time from 6 April 2016 until 30 June 2016. It started after Rosetta successfully completed the Extension 1 Phase. The GIADA data collected in the present DataSet are complete and follow, without time interruption, the data of Rosetta Extension 1 Phase DataSet (RO-C-GIA-3-EXT1-EXTENSION-1-V1.0). This document reports the configurations used by GIADA FS during Rosetta Extension 2 Phase. The data were retrieved from DDS by means of the PI Workstation located at Instituto di Astrofisica e Planetologia Spaziali in Rome. We used the MaGx Converter v. 3.0 software on GIADA IWS to covert the DDS data. GIADA-in-flight software configuration is 2.3 plus three additional patches (one more patch is used to update the context file).

2. REFERENCES

2.1 APPLICABLE DOCUMENT

AD1	RO-EST-RS-3001/EID A	ROSETTA Experiment Interface Document – Part A
AD2	RO-EST-RS-3009/EIDB	ROSETTA GIADA Experiment Interface Document – Part B
AD3	RO-ESC-PL-5000 – last issue	Flight Control Procedure
AD4	GIA-GAL-MA-007 Issue 4	GIADA Flight Spare Experiment User Manual last version

2.2 REFERENCE DOCUMENT

	None.	

3. DEFINITIONS AND ABBREVIATIONS

3.1 ABBREVIATIONS

CAL	Calibration
CF	Context File
CREP	Cover REPort
CT	Configuration Table
DDS	Data Disposition System
EGSE	Electrical Ground Support Equipment
EQM	Electrical Qualification Model
ESA	European Space Agency
FCP	Flight Control Procedure
FS	Flight Spare
GDS	Grain Detection System
GES	GIADA EGSE SW
GIADA	Grain Impact Analyser and Dust Accumulator
HK	House Keeping
I/F	InterFace
INAF-OAC	INAF - Osservatorio Astronomico di Capodimonte – Napoli (I)
INAF-IAPS	INAF-Istituto di Astrofisica e Planetologia Spaziali – Roma (I)
IRQ	Interrupt ReQuest
IS	Impact Sensor
IWS	Instrument Work-Station
MBS	Micro Balance System
ME	Main Electronics
MTL	Mission TimeLine
MON	Monitor
OBCP	On-Board Control Procedure
PC	Payload Checkout
PDOP	Payload Direct Operations Proposal
PI	Principal Investigator
PS	GIADA Power Supply
PZT	(IS) Piezoelectric Sensor
RED	Redundant
REV	Revision
RMOC	Rosetta Mission Operation Centre
RSOC	Rosetta Science Operation Centre
S/C	(Rosetta) Spacecraft
S/S	(GIADA) Sub-system (e.g. IS or GDS or MBS)
SAA	Solar Aspect Angle[1]
SCI	Scientific
SSC	Source Sequence Count
SSMM	Solid State Mass Memory on-board of Rosetta Spacecraft

[1] The angle formed between the spacecraft Z-axis and the Sun direction in the XZ plane (Della Corte et. Al. 2014, present in "Document" folder).

STP	Short Term Plan (1 week of operations)
SW	Software
TC	TeleCommand
THS	Threshold
TM	Telemetry
UM	User Manual
UTC	Coordinated Universal Time
VC0	Virtual Channel 0 (Real Time TM packets)
VC1	Virtual Channel 1 (TM packets coming from Mass Memory)

4. DESCRIPTION OF ACTIVITIES

The Rosetta Extension 2 Phase (EXT2) identifies the period of time from 6 April 2016 until 30 June 2016. It started after Rosetta successfully completed the Extension 1 Phase.

In the following table there is some information about the Rosetta Extension 2 Phase:

Scenario period	Start 06-04-2016	End 30-06-2016
Scenario duration	85 days	
Sun distance	~ 2.72 AU	~ 3.32 AU
Earth distance	~1.80 AU	~3.49 AU
Propagation delay	~14 min 56s.	~29 min 03s.

The configurations of GIADA during the EXT2 Phase are described at STP level in Table 1. Here are reported a short description of the GIADA configurations and the eventual anomalies, which occurred.

STP	Date [UTC]	Conf.	Description	Notes/Anomalies
103	Start 05-04-2016 23:25:00 End 12-04-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	On 07/04 at 04:54 UTC an error, due to a memory glitch, occurred on GIADA and the instrument went in Safe Mode. To fix this issue we sent a PDOP file to RMOC: we switched off GIADA, without Cover Activation, and then we switched on the instrument. When GIADA was switched on (07/04 at 10:47 UTC), we found errors in the uploaded Context File. So we sent a second PDOP file to RMOC in order to upload the correct Context File. The PDOP was executed on 07/07 at 17:15 UTC

104	Start 12-04-2016 23:25:00 End 19-04-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
105	Start 19-04-2016 23:25:00 End 26-04-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS amplification chain always set to the higher amplification value.	
106	Start 26-04-2016 23:25:00 End 03-05-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode, the IS Autogain threshold was modified at the beginning of STP. GDS switched off taking into account SAA. IS amplification chain always set to the higher amplification value.	
107	Start 03-05-2016 23:25:00 End 10-05-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
108	Start 10-05-2016 23:25:00 End 18-05-2016 11:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
109	Start 18-05-2016 11:25:00 End 24-05-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
110	Start 24-05-2016 23:25:00 End 31-05-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	On 29/05 at 22:00 UTC Rosetta went in Safe Mode due to an issue occurred on its Start Trackers. As a consequence all the instruments, GIADA included, were switched off. The last downloaded TM for GIADA, before Rosetta Safe Mode, is the HK of 28/05 at 20.13 UTC. The GIADA emergency switch-off performed a Close Cover sequence. On 30/05 we sent a PDOP file to RMOC to: 1) switch on GIADA; 2) upload the Context File; 3) open the Cover;

				4) go in Normal Mode. The sequence was executed on 30/05 at 18.00 UTC. After the switch-on we recorded an increase of the noise in the GDS Left channel due to small contamination. In order to fix this issue we sent PDOP file to RMOC (31/05) in order to increase the GDS Left THS (6.71V). The sequence was executed on 31/05 at 15.58 UTC The present DataSet contains only the HK data of 30 and 31 May 2016.
111	Start 31-05-2016 23:25:00 End 07-06-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
112	Start 07-06-2016 23:25:00 End 14-06-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode, the IS Autogain was enabled at the beginning of STP. IS amplification chain always set to the higher amplification value.	
113	Start 14-06-2016 23:25:00 End 21-06-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
114	Start 21-06-2016 23:25:00 End 28-06-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
115	Start 28-06-2016 23:25:00 End 05-07-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	

Table 1: GIADA Operations during the Rosetta Extension 2 Phase

The data were elaborated off-line on the PI IWS at INAF-IAPS in Rome.
No malfunction of the Cover mechanism was manifested during the Rosetta Extension 2 Phase.