GIADA FS MODEL

REPORT ON
THE ROSETTA EXTENSION 3 PHASE
01/07/2016 - 30/09/2016

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REVISIONS LOG

REV	DOCUMENT CHANGE ORDER	DATE	CHANGES DESCRIPTION	PREPARED
0	-	03-03-2017	First issue	GIADA Team

1. SCOPE AND APPLICABILITY

The Rosetta Extension 3 Phase covers the period of time from 1 July until 30 September 2016, the last day of the Rosetta Mission. It started after Rosetta successfully completed the Extension 2 Phase. The GIADA data collected in the present DataSet are complete and follow, without time interruption, the data of Rosetta Extension 2 Phase DataSet (RO-C-GIA-3-EXT2-EXTENSION-2-V1.0). This document reports the configurations used by GIADA FS during Rosetta Extension 3 Phase. The data were retrieved from DDS by means of the PI Workstation located at Istituto 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 3 Phase (EXT3) identifies the period of time from 1 July until 30 September 2016. This is the last Rosetta Mission Phase, that started after Rosetta successfully completed the Extension 2 Phase. The mission was concluded on 30/09/2016 with the controlled impact of Rosetta spacecraft on the Comet 67P/Churyumov-Gerasimenko.

In the following table there is some information about the Rosetta Extension 3 Phase:

Scenario period	Start 01-07-2016	End 30-09-2016
Scenario duration	92 days	
Sun distance	~ 3.32 AU	~ 3.83 AU
Earth distance	~3.49 AU	~4.81 AU
Propagation delay	~29 min 03s.	~40 min.

The configurations of GIADA during the EXT3 Phase are described at STP level in Table 1. GIADA was switch on until the end of the mission. Here are reported a short description of the GIADA configurations and the eventual anomalies, which occurred.

STP	Date [UTC]	Conf.	Description	Notes/Anomalies
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.	
116	Start 05-07-2016 23:25:00 End 12-07-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode, MBS switched OFF for 6h at the beginning of STP IS amplification chain always set to the higher amplification value.	
117	Start 12-07-2016 23:25:00 End 19-07-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
118	Start 19-04-2016 23:25:00 End 26-04-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
119	Start 26-07-2016 23:25:00 End 02-08-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode; at the end of STP we uploaded a new context file to set the HK frequency at 40 s, in order to reduce the GIADA data volume. IS amplification chain always set to the higher amplification value.	
120	Start 02-08-2016 23:25:00 End 09-08-2016 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	

121	Start 09-08-2016 23:25:00 End 15-08-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
122	Start 15-08-2016 06:40:00 End 21-08-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
123	Start 21-08-2016 06:40:00 End 30-08-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
124	Start 30-08-2016 06:40:00 End 02-09-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
125	Start 02-09-2016 06:40:00 End 05-09-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
126	Start 05-09-2016 06:40:00 End 11-09-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. IS amplification chain always set to the higher amplification value.	
127	Start 11-09-2016 06:40:00 End 20-09-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. MBS and GDS switched off taking into account the constraints on the available power of S/C. IS amplification chain always set to the higher amplification value.	
128	Start 20-09-2016 06:40:00 End 26-09-2016 06:39:59	Normal Main I/F	GIADA in Normal Mode. MBS and GDS switched off taking into account the constraints on the available power of S/C. IS amplification chain always set to the higher amplification value.	
129	Start 26-09-2016 06:40:00 End 29-09-2016 18:29:59	Normal Main I/F	GIADA in Normal Mode. MBS and GDS switched off taking into account the constraints on the available power of S/C. IS amplification chain always set to the higher amplification value.	
130	Start 29-09-2016 18:30:00 End 30-09-2016 23:59:59	Normal Main I/F	GIADA in Normal Mode until the end of the mission. IS amplification chain always set to the higher amplification value.	We received the last GIADA HK on 30 September 2016 at 10:39 UTC.

Table 1: GIADA Operations during the Rosetta Extension 3 Phase

The data were elaborated off-line on the PI IWS at INAF-IAPS in Rome.
During the Rosetta Extension 3 Phase the GIADA Cover has never been activated.