GIADA FS MODEL

REPORT ON
THE COMET ESCORT 2 PHASE
11/03/2015 - 30/06/2015

PREPARED	APPROVED	AUTHORIZED
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REVISIONS LOG

REV	DOCUMENT CHANGE ORDER	DATE	CHANGES DESCRIPTION	PREPARED
0	-	19-02-2016	First issue	GIADA Team

1. SCOPE AND APPLICABILITY

The Comet Escort 2 Phase covers the period of time from 11 March 2015 until 30 June 2015. It started after Rosetta successfully completed the Comet Escort 1 Phase. The GIADA data collected in the present DataSet are complete and follow, without time interruption, the data of Comet Escort 1 DataSet (RO-C-GIA-3-ESC1-COMET-ESCORT-1-V1.0). This document reports the configurations used by GIADA FS during Comet Escort 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 Comet Escort 2 Phase (ESC2) identifies the period of time from 11 March 2015 until 30 June 2015. It started after Rosetta successfully completed the Comet Escort 1 Phase.

In the following table there is some information about the Comet Escort 2 Phase

Scenario period	Start 11-03-2015	End 30-06-2015
Scenario duration	112 days	
Sun distance	~ 2.10 AU	~ 1.36 AU
Earth distance	~3.03AU	~1.94 AU
Propagation delay	~25 min 13s.	~16 min 06s.

The configurations of GIADA during the ESC2 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
047	Start 10-03-2015 23:25:00 End 17-03-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
048	Start 17-03-2015 23:25:00 End 24-03-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
049	Start 24-03-2015 23:25:00 End 31-03-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h. GDS switched off taking into account Sun Aspect Angle. During the Fly-by: IS Range was set to Low.	On 29-03-2015 during the close Fly-by, serious issues occurred on Rosetta Start Tracker. As a consequence the spacecraft went in Safe Mode and all the instruments were switched off. GIADA switch-off occurred at 12:15 UTC. The GIADA emergency switch-off performed a Close Cover sequence.
050	Start 31-03-2015 23:25:00 End 08-04-2015 11:24:59	OFF	GIADA was OFF during this STP.	

051	Start 08-04-2015 11:25:00 End 14-04-2015 23:24:59	Normal Main I/F	On 8-04-2015 GIADA was switched on at 12.00 UTC and went in Normal Mode for 15 min. Then GIADA was switched off.	This sequence was performed to verify that GIADA Cover had closed nominally, during the emergency switch-off procedure performed on 29/03. The sequence was sent to RMOC (05/04) as PDOP file and was executed on 8 April 2015. The GIADA Cover resulted closed.
052	Start 14-04-2015 23:25:00 End 21-04-2015 23:24:59	Normal Main I/F	GIADA was switched on and its Cover was opened. A Context File with a new GDS Left THS (Left: 4.2V, Right: 1.3V) was uploaded. GIADA went in Normal Mode. The IS Autogain was enabled.	After the switch-on we recorded an increase of noise in the GDS Left channel due to small contamination. In order to fix this issue a PDOP file was sent to RMOC (16/04) to increase the GDS Left THS (4.45V).
053	Start 21-04-2015 23:25:00 End 28-04-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h, MBS Heating at the beginning of the STP.	
054	Start 28-04-2015 23:25:00 End 05-05-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
055	Start 05-05-2015 23:25:00 End 12-05-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
056	Start 12-05-2015 23:25:00 End 19-05-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
057	Start 19-05-2015 23:25:00 End 27-05-2015 11:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
058	Start 27-05-2015 11:25:00 End 02-06-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
059	Start 02-06-2015 23:25:00 End 09-06-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
060	Start 09-06-2015 23:25:00 End 16-06-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, IS Range was set to Low.	
061	Start 16-06-2015 23:25:00 End 23-06-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	

062	Start 23-06-2015 23:25:00 End 30-06-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h. GDS switched off taking into account SAA.	

Table 1: GIADA Operations during the Comet Escort 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 Comet Escort 2 Phase.