

GIADA FS MODEL

**REPORT ON
THE COMET ESCORT 3 PHASE
01/07/2015 - 20/10/2015**

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REVISIONS LOG

REV	DOCUMENT CHANGE ORDER	DATE	CHANGES DESCRIPTION	PREPARED
0	-	02-05-2016	First issue	GIADA Team

1. SCOPE AND APPLICABILITY

The Comet Escort 3 Phase covers the period of time from 1 July 2015 until 20 October 2015. It started after Rosetta successfully completed the Comet Escort 2 Phase. The GIADA data collected in the present DataSet are complete and follow, without time interruption, the data of Comet Escort 2 DataSet (RO-C-GIA-3-ESC2-COMET-ESCORT-2-V1.0). This document reports the configurations used by GIADA FS during Comet Escort 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 convert 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 3 Phase (ESC3) identifies the period of time from 1 July 2015 until 20 October 2015. It started after Rosetta successfully completed the Comet Escort 2 Phase.

In the following table there is some information about the Comet Escort 3 Phase

Scenario period	Start 01-07-2015	End 20-10-2015
Scenario duration	112 days	
Sun distance	~ 1.36 AU	~ 1.48 AU
Earth distance	~1.94 AU	~1.81 AU
Propagation delay	~16 min 06s.	~15 min 03s.

The configurations of GIADA during the ESC3 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
063	Start 30-06-2015 23:25:00 End 07-07-2015 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.	
064	Start 07-07-2015 23:25:00 End 14-07-2015 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.	
065	Start 14-07-2015 23:25:00 End 21-07-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
066	Start 21-07-2015 23:25:00 End 28-07-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, Switch of IS Range (Low/High) performed every 6h.	
067	Start 28-07-2015 23:25:00 End 04-08-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, MBS Heating at the beginning of the STP. IS Range was set to High. GDS switched off taking into account SAA.	

068	Start 04-08-2015 23:25:00 End 11-08-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode. IS Range was set to Low, at the beginning of the STP.	
069	Start 11-08-2015 23:25:00 End 18-08-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, at the beginning of STP the GDS THS Left was increased up to 5.0 V. GDS switched off taking into account SAA. IS Range was set to Low.	
070	Start 18-08-2015 23:25:00 End 25-08-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	
071	Start 25-08-2015 23:25:00 End 01-09-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	
072	Start 01-09-2015 23:25:00 End 08-09-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off and MBS Heating taking into account SAA. IS Range was set to Low.	On 07/09 we recorded an increase of the Laser Temperatures, with values near to their soft-limits. The increment was due to the illumination conditions during this STP. In order to avoid over stress to the GDS subsystem, we sent a PDOP file RMOC to switch-off the GDS. The GDS was switched-off on 08/09 at 10:21UTC.
073	Start 08-09-2015 23:25:00 End 15-09-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	The GDS was re-switched-on at 19:40 UTC on 12/09.
074	Start 15-09-2015 23:25:00 End 22-09-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	On 15/09 occurred a SSMM issue on the Rosetta Spacecraft. To perform the recovery actions GIADA was switched off without Cover Activation on 18/09 at 22:36 UTC. The sequence to perform the GIADA switch-on was sent to RMOC (18/09), as PDOP file, and was executed on 21/09 at 13:11 UTC.

075	Start 22-09-2015 23:25:00 End 29-09-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	
076	Start 29-09-2015 23:25:00 End 06-10-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. On 5/10 the GDS Calibration was performed every 10 minutes during the spacecraft slew. IS Range was set to Low.	
077	Start 06-10-2015 23:25:00 End 13-10-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	
078	Start 13-10-2015 23:25:00 End 20-10-2015 23:24:59	Normal Main I/F	GIADA in Normal Mode, GDS switched off taking into account SAA. IS Range was set to Low.	

Table 1: GIADA Operations during the Comet Escort 3 Phase

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