



**esoc**

European Space Operations Centre  
Robert-Bosch-Strasse 5  
D-64293 Darmstadt  
Germany  
T +49 (0)6151 900  
F +49 (0)6151 90495  
[www.esa.int](http://www.esa.int)

# PLAN

## Solar Orbiter IGST-4-2 Detailed Test Plan

<b>Prepared by</b>	<b>Jose-Luis Pellon-Bailon</b>
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# APPROVAL

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# CHANGE LOG

Reason for change	Issue Nr.	Revision Number	Date
Added Stop SSMM S15 dumps Added CEL dump at end of test Corrected minor typos	1	1	23/03/18
Added comments from Airbus and Instruments representatives	1	2	27/04/2018
Add disposition of ADS comments and version of the instruments' software	1	3	09/05/2018

# CHANGE RECORD

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Reason for change	Date	Pages	Paragraph(s)
Added Stop SSMM S15 dumps Added CEL dump at end of test Corrected minor typos	23/08/18	-	3.1, 3.2, 3.3
Added comments from ADS and Instrument representatives	27/04/2018	All	All
Add on board software version of the instruments	09/05/2018	7	2.2

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M. Lauer	OPS-GFS		
V. Companys	OPS-GFS		
J. Schoenmaekers	OPS-GF	EILSservices@esa.int	
J.M. Sanchez Perez	OPS-GFA	A. Urwin-Phipps	SRE-PW
		I. Tanco	OPS-OPJ
G. Ravera	OPS-ONX	E. Montagnon	OPS-OPB
T. Anic	OPS-BA	P. Schmitz	OPS-OPE
		<a href="#">solar_orbiter.document ation_office@astrium.e ads.net</a>	
M.H. Ferreira	OPS-Q		
H. Sillack	OPS-OP		



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## 1 INTRODUCTION

This document contains the detailed test plan for the 2<sup>nd</sup> part of IGST-4, which is dedicated to Payload EMs testing.

### 1.1 Applicable Documents

[AD 1] SOL-ESC-PL-15010, SOL IGST Master Test Plan, Is.1 rev.1

### 1.2 Reference Documents

- [RD 1] SO-EPD-PO-MA-0002, EPD User Manual Is.3 rev.2
- [RD 2] UM-MSSL-SOEUI-11001\_User\_Manual\_Issue\_18\_A
- [RD 3] SOL-MAG-UserManual\_Issue2\_Rev2
- [RD 4] METIS-TASI-UMA-0001 issue8
- [RD 5] SOL-PHI-MPS-OP3000-MA-1\_2\_1 Instrument User Manual
- [RD 6] SOLO-RPWSY-TN-1160-CNES\_0203\_20180327
- [RD 7] SSD-DOC-SOLOHI-013 Rev. E
- [RD 8] SPICE-RAL-MAN-0001\_v9.0\_User-Manual
- [RD 9] STIX-TN-0062-FHNW\_I1R2\_STIX\_Instrument\_User\_Manual
- [RD 10] SO-SWA-MSSL-UM-002\_SWA Instrument\_User\_Manual\_Draft\_Issue\_L
- [RD 11] SOL.S.ASTR.ICD.00030 Is.11 Rev.0, Solo CSW TM/TC Interface Control Document
- [RD 12] SOL.S.ASTR.TN.00079 Solar Orbiter TM-TC and Packet Structure ICD
- [RD 13] SOL-ESC-TN-10036, i1.2 Solar Orbiter Flight Telemetry Configuration

## 2 IGST-4-2 TEST

The primary goal of the IGST-4-2 is to test for each instrument EM the set of payload procedures used to change the operational state of the instrument. Whenever possible further operational procedures and PUS services (memory dumps,

connection test, science packets generation, context saving) are tested. All 10 Solar Orbiter instruments will participate in the IGST-4-2.

The test will be run in the u-OTB bench. The scheduled test duration will be 3 days. Instrument representatives will be present in ESA/ESOC for test monitoring activities. The IGST-4-2 will be the first opportunity for the instrument teams to familiarise with the operational ground systems, as a preparation for SVT-1.

## 2.1 IGST-4-2 Objectives

The objectives of the IGST-4-2 test is to verify following commanding capabilities and check the result in telemetry:

1. Heartbeat management.
2. Payload related FDIR management.
3. Manual switch on and off activities.
4. Routing and storage of Payload related telemetry (HKTM and science TM when possible).
5. Payload Mode/state transitions.
6. Memory dump using Service 6.
7. Perform connection test with Service 17.
8. Science TM generation (Service 21).
9. Context saving/retrieval with Service 22 where applicable.

## 2.2 IGST-4-2 u-OTB Bench Configuration

The following u-OTB bench configuration is required at handover from ADS to ESA/ESOC at the beginning of each of the test days.

Unit	State
OBC PM-A	On (CSW 2.1.3_P4 initialised)
OBC MM	On (MM-A selected as Master)
RIU-A	On
SSMM	On and configured as for flight with 2 MM. Application Software version 02.04. Packet Store

	creation and allocation of APID to PS to be performed by ESA/ESOC
TME/DST bit rate	833.33333 Kbps data rate - close to earth (0-0.49AU), highest bit rate with GMSK $\frac{1}{4}$ (GMSK_4_333333)
HPTM Rate	Default frame multiplier N=1 (to be changed by ESA/ESOC at beginning of the test)
Time packet generation rate	1 every 8 frames
Payloads FDIR	Disabled. Recovery actions disabled.
Payloads Emergency OBCPs	Not loaded.
All Payloads	Switched OFF

The following OBSW and DB versions for the payloads will be used during IGST-4-2:

<b>Payload</b>	<b>DB version</b>	<b>OBSW version</b>
EPD	2.10	BootSW 1.3 / AppSW 2.0.15
EUI	03.06	BootSW Basic v0x18, AppSW Oper v0x1f
MAG	4.2	BootSW v2.4, AppSW v2.6
METIS	4.0	v2.00.07, BootSW v1.3
PHI	3.0	v1.9
RPW	V4.3.3_MEB_EM2	V4.3.3_MEB_EM2
SOLOHI	04.24	FSW 4.2.1e
SPICE	5.10	BootSW v1.0, AppSW v1.1
STIX	2.25	TBC

SWA	5.0.1	DPU SW v3.3.3 (includes (BSW 3.2.0, ASW 3.0.4, ExOS 3.1.2, FPGA 3.0.0) HIS SW v 4.4.0 (includes BSW 3.1.0, SSW 4.0.0)
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### 3 IGST-4-2 TEST CASES

The IGST-4-2 will be performed in 3 days. The different payloads will be tested sequentially (no parallel commanding of different instruments) in the presence of the instrument representative

#### 3.1 IGST-4-2 Day-1

The following payloads are scheduled on Day-1:

EPD, EUI, and RPW.

u-OTB configuration as per 2.2

It is proposed to apply the HKTM configuration (steps ESOC\_1 and ESOC\_2), the OMM configuration (steps ESOC\_3, ESOC\_4, ESOC\_5), and the SSMM configuration (steps ESOC\_6 and ESOC\_7) via TC files (TC files 1, 2, and 3 respectively).

Test Step	FOP Procedures	Description	Duration	Remarks/Result
<b>Initial Settings</b>		Perform connectivity and voice checks		
ESOC_1 Configure the TM packets	DM-SEQ-000	Define and Enable default HKTM (AIT packets). Send ADMS000A. Expect CMD ZCS2Z00K Define HK: SYS – PS Config to fail because already defined and enabled.	4 min	
ESOC_2 Set HPTM rate settings	DM-FCP-402	Send ADMF402A to set the HPTM on TTRM A. HPTM TM rate settings = 9.	1 min	HPTM expected with rate 213,12 bps, one packet every 5.48 s.



ESOC_3 Define default Platform TM real time routing (S14) and storage (S15)	CMD STACK available	Define default Platform TM real time routing (S14) and storage (S15)	10 min	Applies in-flight configuration as per SOL-ESC-TN-10036, i1.2 [Solar Orbiter Flight Telemetry Configuration]
ESOC_4 Define default Payload TM real time routing (S14) and storage (S15)	SY-SVT-005	Define default Payload TM real time routing (S14) and storage (S15)	10 min	Applies in-flight configuration as per SOL-ESC-TN-10036, i1.2 [Solar Orbiter Flight Telemetry Configuration]
ESOC_5 Enable OMM Storage for HK, Acknowledgments, Events, and Reports	CMD STACK available	Enable Storage in OMM packet Stores PS1 (HK), PS2 (Ack), PS3 (Events), PS6 (Reports).	2 min	
ESOC_6 Create SSMM Packet Stores across 2 MM	DM-SEQ-500	Send ADMS500A to define Packet Stores	2 min	
ESOC_7 Configure SSMM default routing	DM-SEQ-502	Send ADMS502 to route APIDs to SSMM packet stores and enable storage	2 min	Also enables storage in all packet Stores
ESOC_8 Perform SSMM FAT backup	DMCRP-517	Performing this back-up would speed the recovery in case of PM reboot.	5 min	
ESOC_9 Start S15 read on the SSMM PL HK PS and on SSMM PSO	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for PL HK PS XF525A01 = Read Op. ID = 204 XF525A02 = PS ID = 4 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default  Send ADMF525A SSMM unbounded downlink for PSO	1 min	PS 4 = HKTM PS 0 = Default PS (no data expected to be routed here, but will collect any packets missing from the routing table)

		XF525A01 = Read Op. ID = 200 XF525A02 = PS ID = 0 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default		
ESOC_10 Enable storage of Platform and Payload dumps in OMM	DM-FCP-140	Send ADMF140A with Packet Store ID = 5 (dec)	1 min	
<b>Settings for 1<sup>st</sup> Payload</b>				
ESOC_11 Route HK of EPD to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for EPD. (PID = 50, Type = 3, Subtype = 25 PID = 54, Type = 3 Subtype = 25)	2 min	
ESOC_12 Route Dumps and Checksum of EPD to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for EPD. (PID = 54, Type = 6, Subtype = 6 PID = 54, Type = 6, Subtype = 10)	2 min	
ESOC_13 Configure S15 for EPD dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for EPD. (PS ID = PS5 = STORE_ID_5 PID = 54, Type = 6, Subtype = 6 PID = 54, Type = 6, Subtype = 10)	2 min	
<b>EPD Test</b>				
EPD_1	ID-FCP-011	Send AIDF011A. EPD-A SWON. Switch ON ICU to OPERA with EEPROM settings: switch ON all to OPERA	10 min	
EPD_2	ID-FCP-370	Send AIDF370A to perform a Connection Test to ICU.	1 min	

EPD_3	ID-FCP-055	Perform EPD Burst Mode Management. Send AIDF055C to disable Burst Data generation.	1 min	
EPD_4	ID-FCP-055	Send AIDF055B To activate burst Mode 0 (no packets are sent to SpW link because generation disabled with previous CMD SEQ). (Burst mode input to be provided by instrument team)	5 min	
EPD_5	ID-FCP-055	Send AIDF055A to enable Burst Data Generation.	1 min	
EPD_6	ID-FCP-055	Send AIDF055B To activate burst Mode 0. (Burst mode input to be provided by instrument team).	5 min	
EPD_7	ID-FCP-055	Send AIDF055C to disable Burst Data generation.	1 min	
EPD_8	ID-FCP-040	Send AIDF040D in order to change the sensor settings in EEPROM to not switch ON at next boot	5 min	
EPD_9	ID-FCP-260	Send AIDF260B to perform an EPD PROM Dump. (Start address, length and expected checksum to be provided by instrument team).	5 min	
EPD_10	ID-FCP-261	Send AIDF261B to perform an EPD EEPROM Dump. (Start address, length and expected checksum to be provided by instrument team).	5 min	
EPD_11	ID-FCP-262	Send AIDF262B to perform an EPD RAM Dump. (Start address, length and expected checksum to be provided by instrument team).	5 min	
EPD_12	ID-FCP-002	Send AIDF002A to manually switch EPD off	5 min	
EPD_13	ID-FCP-011	Send AIDF011A. EPD-A SWON	10 min	

EPD_14	ID-FCP-031	Send AIDF031A to switch ON STEP Sensor, which will start in UNCONFIGURED mode	5 min	
EPD_15	ID-FCP-033	Send AIDF033A to switch ON SIS Sensor, which will start in STANDBY mode	5 min	
EPD_16	ID-FCP-035	Send AIDF035A to switch ON HET1 Sensor, which will start in UNCONFIGURED mode	5 min	
EPD_17	ID-FCP-037	Send AIDF037 to switch ON HET2 Sensor, which will start in UNCONFIGURED mode	5 min	
EPD_18	ID-FCP-102	Send AIDF102A to switch the ICU to CONFIGURATION. Sensors will start in StandBy and generate HK	5 min	
EPD_19	ID-FCP-040	Send AIDF040C to patch EEPROM so that Sensors are switched ON and in Standby when transitioning to OPERA	5 min	
EPD_20	ID-FCP-101	Send AIDF101A to switch ICU from CONFIG to OPERA	1 min	
EPD_21	ID-FCP-051	Send AIDF051A to switch SIS to Operational	1 min	
EPD_22	ID-FCP-371	Send AIDF371A to perform SIS connection test	1 min	
EPD_23	ID-FCP-055	Send AIDF055B to activate Burst Mode 0. (Burst mode input to be provided by instrument team)	5 min	
EPD_24	ID-FCP-051	Send AIDF051C to stop SIS Science mode	1 min	
EPD_25	ID-FCP-051	Send AIDF051B to start SIS Science mode	1 min	
EPD_26	ID-FCP-032	Send AIDF032A to switch off STEP sensor	2 min	
EPD_27	ID-FCP-034	Send AIDF034A to switch off SIS sensor	2 min	
EPD_28	ID-FCP-036	Send AIDF036A to switch off HET1 sensor	2 min	

EPD_29	ID-FCP-038	Send AIDF038A to switch off HET2 sensor	2 min	
EPD_30	ID-FCP-040	Send AIDF040A to patch EEPROM so that Sensors are switched ON when transitioning to OPERA	5 min	
EPD_31	ID-FCP-040	Send AIDF040B to patch EEPROM so that Sensors are set to Operational when transitioning to OPERA	5 min	
EPD_32	ID-CRP-001	Send AIDC001A to perform an EPD emergency switch off	5 min	
<b>Settings for next Payload</b>				
ESOC_14 Disable routing of EPD HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for EPD. (PID = 50, Type = 3, Subtype = 25 PID = 54, Type = 3 Subtype = 25)	2 min	
ESOC_15 Disable routing of EPD Dumps and Checksums to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for EPD. (PID = 54, Type = 6, Subtype = 6 PID = 54, Type = 6, Subtype = 10)	2 min	
ESOC_16 Configure S15 for EPD dumps	DM-FCP-143	Send ADMF143C to remove packets from dump PS for EPD. (PS ID = PS5 = STORE_ID_5 PID = 54, Type = 6, Subtype = 6 PID = 54, Type = 6, Subtype = 10)	2 min	
ESOC_17 Route HK of EUI to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for EUI. (PID = 57, Type = 3, Subtype = 25)	2 min	
ESOC_18 Route Dumps of EUI to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for EUI.	2 min	

		(PID = 57, Type = 6, Subtype = 6 PID = 57, Type = 6, Subtype = 10)		
ESOC_19 Configure S15 for EUI dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for EUI. (PS ID = PS5 = STORE_ID_5 PID = 57, Type = 6, Subtype = 6 PID = 57, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of EPD Science PS</b>				
ESOC_20.1 S15 unbound read of EPD science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for EPD Science PS XF525A01 = Read Op. ID = 206 XF525A02 = PS ID = 6 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default  S15 on EPD selective XF525A01 = Read Op. ID = 207 XF525A02 = PS ID = 7 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	2 min	
ESOC_20.2 Stop S15 unbound read of EPD science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read EPD Science XF517A01 = 206  Send ADMF517A SSMM Stop PS Read EPD Selective XF517A01 = 207	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>EUI Test</b>				

EUI_1	IU-FCP-011	Send AIUF011A to manually switch ON EUI, which ends in Basic mode	10 min	The parameters monitored by SMONs_EUI 1 to 17 cannot be extracted by S130 in CSW 2.1.3p4, therefore the parameter will not contain the correct information. During the manual switch on of EUI it would be desirable to keep SMON_EUI1 to SMON_EUI17 disabled.
EUI_2	IU-CRP-030	Send AIUC030A to perform an EUI emergency reboot (from Basic to Basic)	5 min	
EUI_3	IU-FCP-031	Send AIUF031A to perform a mode change from Basic to Safe	1 min	
EUI_4	IU-FCP-370	Send AIUF370A to perform a connection test	1 min	
EUI_5	IU-FCP-230	Send AIUF230A to enable HK TM for EUV Camera. CMD Parameter PIU51050 = 9 (dec).	1 min	
EUI_6	IU-FCP-040	Send AIUF040A to change EUI mode from Safe to Configuration. All three cameras remain OFF. Command Submode to "wicom".	1 min	
EUI_7	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_8	IU-FCP-005 IU-FCP-016	Send AIUF005A to switch EUV OFF Send AIUF016A to switch LYA ON	1 min	
EUI_9	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_10	IU-FCP-005 IU-FCP-006 IU-FCP-017	Send AIUF005A to switch EUV OFF Send AIUF006A to switch LYA OFF Send AIUF017A to switch FSI ON	1 min	
EUI_11	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_12	IU-FCP-005 IU-FCP-016	Send AIUF005A to switch EUV OFF Send AIUF016A to switch LYA ON	1 min	
EUI_13	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	

EUI_14	IU-FCP-035	Send AIUF035A to change mode from Configuration with all three cameras ON to Engineering. Command Submode to wicom.	5 min	Switching to Engineering will switch all three cameras OFF
EUI_15	IU-FCP-040	Send AIUF040A to change EUI mode from Engineering to Configuration. All three cameras remain OFF. Command Submode to "wicom".	1 min	
EUI_16	IU-FCP-050	Send AIUF050A to change EUI mode from Configuration to Science. Command Submode to "wicom".	1 min	
EUI_17	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_18	IU-FCP-005 IU-FCP-016	Send AIUF005A to switch EUV OFF Send AIUF016A to switch LYA ON	1 min	
EUI_19	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_20	IU-FCP-005 IU-FCP-006 IU-FCP-017	Send AIUF005A to switch EUV OFF Send AIUF006A to switch LYA OFF Send AIUF017A to switch FSI ON	1 min	
EUI_21	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_22	IU-FCP-005 IU-FCP-016	Send AIUF005A to switch EUV OFF Send AIUF016A to switch LYA ON	1 min	
EUI_23	IU-FCP-015	Send AIUF015A to switch EUV ON	1 min	
EUI_24	IU-FCP-751	Send AIUF751A to enable low level FPGA commands.	1 min	
EUI_25	IU-FCP-749	Send AIUF749A in order to load a FPGA register with following CMD Parameters: PIU51821 = 5 dec, PIU51822 = 0x12 hex, PIU51823 = 0x400 hex	1 min	
EUI_26	IU-FCP-749	Send AIUF749A in order to load a FPGA register with following CMD Parameters: PIU51821 = 5 dec, PIU51822 = 0x14 hex, PIU51823 = 0x1 hex	1 min	



EUI_27	IU-FCP-749	Send AIUF749A in order to load a FPGA register with following CMD Parameters: PIU51821 = 5 dec, PIU51822 = 0x11 hex, PIU51823 = 0x1 hex	1 min	
EUI_28	IU-FCP-751	Send AIUF751B to disable low level FPGA commands.	1 min	
EUI_29	IU-FCP-725	Send AIUF725A to perform an EUI Detector Manual Exposure with following CMD Parameters: PIU51922 = 0x140 hex, PIU51742 = 2048 dec, PIU51741 = 0 dec, PIU51921 = 0x96 hex, PIU51923 = 0 dec, PIU51924 = 0x5555 hex, PIU51925 = 0x10 hex, PIU51926 = 0 dec, PIU51928 = 4 dec, PIU51929 = 0x3fff hex, PIU51930 = 0 dec, PIU51927 = 0 dec	5 min	
EUI_30	IU-FCP-726	Command AIUF726A to abort the previous exposure	1 min	
EUI_31	IU-FCP-210	Send AIUF210A to enable the science data transfer from EUI to Spacecraft SSMM	1 min	
EUI_32	IU-FCP-734	Send AIUF734A to flush Science data to TM PIU51950 Flush_Priority = 10 PIU51951 Flush_Size = 10 PIU51952 Flush_RateDivider = 1	1 min	
EUI_33	IU-FCP-210	Send AIUF210B to disable the science data transfer from EUI to spacecraft SSMM.	1 min	
EUI_34	IU-FCP-040	Send AIUF040A in order to change from science to Configuration mode. All three Cameras remain ON. Command Submode to "wicom".	1 min	

EUI_35	IU-FCP-030	Send AIUF030A to change from Configuration mode to Safe. This change of mode will switch off all three cameras.	1 min	
EUI_36	IU-FCP-260	Send AIUF260A in order to perform a dump from the SRAM memory. CMD parameters: DumpMemMID PIU51060 = SRAM_CPU DumpMemAddr PIU51061 = 0x40000000 hex DumpMemLen PIU51062 = 0x2000 hex	1 min	
EUI_37	IU-FCP-260	Send AIUF260A to dump a memory area that can be patched afterwards. DumpMemMID PIU51060 = SDRAM_OHQ DumpMemAddr PIU51061 = 0x0 hex DumpMemLen PIU51062 = 0x1 hex	1 min	
EUI_38	IU-FCP-261	Send AIUF261A in order to patch the area dumped in EUI_37. LoadMem16MID PIU51958 = SDRAM_OHQ LoadMem16Addr PIU51959 = 0x0 LoadMem16Len PIU51960 = 0x1 LoadMem16Data PIU51961 = 0xFFFF	1 min	
EUI_39	IU-FCP-260	Send AIUF260A to dump the memory area patched in EUI_38 and check patch correctness DumpMemMID PIU51060 = SDRAM_OHQ DumpMemAddr PIU51061 = 0x0 hex DumpMemLen PIU51062 = 0x1 hex	1 min	
EUI_40	IU-FCP-261	Patch area of memory to original values LoadMem16MID PIU51958 = SDRAM_OHQ LoadMem16Addr PIU51959 = 0x0 hex LoadMem16Len PIU51960 = 0x1 hex	1 min	

		LoadMem16Data PIU51961 = Original value obtained from 1st dump of SDRAM_OHQ in step EUI_37		
EUI_41	IU-FCP-260	Send AIUF260A to dump the memory area patched in EUI_40 and check patch correctness (memory area returned to original values) DumpMemMID PIU51060 = SDRAM_OHQ DumpMemAddr PIU51061 = 0x0 DumpMemLen PIU51062 = 0x1	1 min	
EUI_42	IU-FCP-002	Send AIUF002A to switch off manually EUI.	1 min	
<b>Settings for next Payload</b>				
ESOC_21 Disable routing of EUI HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for EUI. (PID = 57, Type = 3, Subtype = 25)	2 min	
ESOC_22 Disable routing of EUI Dumps to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for EUI. (PID = 57, Type = 6, Subtype = 6 PID = 57, Type = 6, Subtype = 10)	2 min	
ESOC_23 Configure S15 for EUI dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for EUI. (PS ID = PS5 = STORE_ID_5 PID = 57, Type = 6, Subtype = 6 PID = 57, Type = 6, Subtype = 10)	2 min	
ESOC_24 Route HK of RPW to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for RPW. (PID = 81, Type = 3, Subtype = 25)	2 min	

ESOC_25 Route Dumps and Checks of RPW to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for RPW. (PID = 75, Type = 6, Subtype = 6 PID = 75, Type = 6, Subtype = 10 PID = 76, Type = 6, Subtype = 6 PID = 76, Type = 6, Subtype = 10 PID = 77, Type = 6, Subtype = 6 PID = 77, Type = 6, Subtype = 10 PID = 78, Type = 6, Subtype = 6 PID = 78, Type = 6, Subtype = 10)	2 min	
ESOC_26 Configure S15 for RPW dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS forRPW. (PS ID = PS5 = STORE_ID_5 PID = 75, Type = 6, Subtype = 6 PID = 75, Type = 6, Subtype = 10 PID = 76, Type = 6, Subtype = 6 PID = 76, Type = 6, Subtype = 10 PID = 77, Type = 6, Subtype = 6 PID = 77, Type = 6, Subtype = 10 PID = 78, Type = 6, Subtype = 6 PID = 78, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of EUI Science PS</b>				
ESOC_27.1 S15 unbound read of EUI science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for EUI Science PS XF525A01 = Read Op. ID = 212 XF525A02 = PS ID = 12 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_27.2	DM-FCP-517	Send ADMF517A SSMM Stop PS Read EUI Science	1 min	PS Reads to be stopped once data flow on VC3 stops.

Stop S15 unbound read of EUI science PS		XF517A01 = 212		
<b>RPW Test</b>				
RPW_1	IW-FCP-011	Send AIWF011A in order to switch RPW ON	5 min	Low limit in the calibration curve of RPW SMONs 12 & 13 (Mon IDS 112 & 113 respectively) is -27.5 instead of -30.0. Nothing to be done.
RPW_2	IW-FCP-370	Send AIWF370A to perform a connection test to RPW (ping)	1 min	
RPW_3	IW-FCP-030	Send AIWF030A to change mode from Safe to Standby	1 min	
RPW_4	IW-FCP-031	Send AIWF031A to change mode from Standby to Service completing in this way the standard switch on procedure.	1 min	
RPW_5	IW-FCP-032	Send AIWF032A to Configure the HK TM period	1 min	
RPW_6	IW-FCP-032	Send AIWF032B to Load DPU and DAS common parameters	1 min	
RPW_7	IW-FCP-032	Send AIWF032C to Load DPU and DAS power parameters	1 min	
RPW_8	IW-FCP-032	Send AIWF032E to Configure parameters for monitoring temperature	1 min	
RPW_9	IW-FCP-032	Send AIWF032F to Configure Waveform parameters	1 min	
RPW_10	IW-FCP-032	Send AIWF032G to Configure SBM1 parameters	1 min	
RPW_11	IW-FCP-032	Send AIWF032H to Configure SBM2 parameters	1 min	
RPW_12	IW-FCP-032	Send AIWF032I to Configure SC potential computation algorithm	1 min	
RPW_13	IW-FCP-032	Send AIWF032J to Clear HK counter	1 min	

RPW_14	IW-FCP-032	Send AIWF032 to Enable HK parameter report generation	1 min	
RPW_15	IW-FCP-037	Send AIWF037A to set Thermal Noise High-frequency Receiver (THR) for Normal mode	1 min	
RPW_16	IW-FCP-037	Send AIWF037B to set THR for Burst mode	1 min	
RPW_17	IW-FCP-037	Send AIWF037C to set THR calibration parameters	1 min	
RPW_18	IW-FCP-038	Send AIWF038A to set the Time Domain Sampler (TDS) common parameters	1 min	
RPW_19	IW-FCP-038	Send AIWF038E to set TDS for Normal mode	1 min	
RPW_20	IW-FCP-038	Send AIWF038B to set TDS for SBM1	1 min	
RPW_21	IW-FCP-038	Send AIWF038C to set TDS for SBM2	1 min	
RPW_22	IW-FCP-038	Send AIWF038D to set TDS low frequency mode parameters	1 min	
RPW_23	IW-FCP-038	Send AIWF038F to set TDS for Burst mode	1 min	
RPW_24	IW-FCP-039	Send AIWF039A to configure the Low Frequency Receiver (LFR) for SBM1	1 min	
RPW_25	IW-FCP-039	Send AIWF039B to configure the LFR for SBM2	1 min	
RPW_26	IW-FCP-039	Send AIWF039C to load the LFR common parameters	1 min	
RPW_27	IW-FCP-039	Send AIWF039D to configure the LFR for normal mode	1 min	
RPW_28	IW-FCP-039	Send AIWF039E to configure the LFR for Burst mode	1 min	
RPW_29	IW-FCP-034	Send AIWF034A to dump the TDS, LFR and THR parameters	5 min	

RPW_30	IW-FCP-260	Send AIWF260A to perform a dump of the DPU EEPROM memory	3 min	
RPW_31	IW-FCP-035	Send AIWF035A to change mode from Service to Science Normal	1 min	
RPW_32	IW-FCP-035	Send AIWF035B to change mode from Science Normal to Science Burst	1 min	
RPW_33	IW-FCP-035	Send AIWF035C to change mode from Science Burst to SBM detection	1 min	
RPW_34	IW-FCP-043	Send AIWF043A to change mode from SBM detection to Service	1 min	
RPW_35	IW-FCP-035	Send AIWF035C to change mode from Service to SBM detection	1 min	
RPW_36	IW-FCP-035	Send AIWF035B to change mode from SBM detection to Science Burst	1 min	
RPW_37	IW-FCP-035	Send AIWF035A to change mode from Science Burst to Science Normal	1 min	
RPW_38	IW-FCP-035	Send AIWF035C to change mode from Science Normal to SBM detection	1 min	
RPW_39	IW-FCP-035	Send AIWF035A to change mode from SBM detection to Science Normal	1 min	
RPW_40	IW-FCP-043	Send AIWF043A to change mode from Science Normal to Service	1 min	
RPW_41	IW-FCP-044	Send AIWF044A to change mode from Service to Science Back-up mode	1 min	
RPW_42	IW-FCP-043	Send AIWF043A to change mode from Science Back-up to Service	1 min	
RPW_43	IW-FCP-045	Send AIWF045A to change mode from Service to Standby mode	1 min	
RPW_44	IW-FCP-043	Send AIWF043A to change mode from Standby to Service	1 min	
RPW_45	IW-FCP-042	Send AIWF042A to switch-on the converter (CONV)	1 min	

RPW_46	IW-FCP-042	Send AIWF042B to boot the LFR	1 min	
RPW_47	IW-FCP-042	Send AIWF042C to boot the THR	1 min	
RPW_48	IW-FCP-042	Send AIWF042D to boot the TDS	1 min	
RPW_49	IW-FCP-042	Send AIWF042E to switch on BIAS	1 min	
RPW_50	IW-FCP-037	Send AIWF037A to set Thermal Noise High-frequency Receiver (THR) for Normal mode	1 min	
RPW_51	IW-FCP-037	Send AIWF037B to set THR for Burst mode	1 min	
RPW_52	IW-FCP-037	Send AIWF037C to set THR calibration parameters	1 min	
RPW_53	IW-FCP-038	Send AIWF038A to set the Time Domain Sampler (TDS) common parameters	1 min	
RPW_54	IW-FCP-038	Send AIWF038E to set TDS for Normal mode	1 min	
RPW_55	IW-FCP-038	Send AIWF038B to set TDS for SBM1	1 min	
RPW_56	IW-FCP-038	Send AIWF038C to set TDS for SBM2	1 min	
RPW_57	IW-FCP-038	Send AIWF038D to set TDS low frequency mode parameters	1 min	
RPW_58	IW-FCP-038	Send AIWF038F to set TDS for Burst mode	1 min	
RPW_59	IW-FCP-039	Send AIWF039A to configure the Low Frequency Receiver (LFR) for SBM1	1 min	
RPW_60	IW-FCP-039	Send AIWF039B to configure the LFR for SBM2	1 min	
RPW_61	IW-FCP-039	Send AIWF039C to load the LFR common parameters	1 min	
RPW_62	IW-FCP-039	Send AIWF039D to configure the LFR for normal mode	1 min	
RPW_63	IW-FCP-039	Send AIWF039E to configure the LFR for Burst mode	1 min	



RPW_64	IW-FCP-034	Send AIWF034A to dump the TDS, LFR and THR parameters	5 min	
RPW_65	IW-FCP-035	Send AIWF035A to change mode from Service to Science Normal	1 min	
RPW_66	IW-FCP-045	Send AIWF045A to change mode from Science Normal to Standby	1 min	
RPW_67	IW-FCP-031	Send AIWF031A to change mode from Standby to Service	1 min	
RPW_68	IW-FCP-037	Send AIWF037A to set Thermal Noise High-frequency Receiver (THR) for Normal mode	1 min	
RPW_69	IW-FCP-037	Send AIWF037B to set THR for Burst mode	1 min	
RPW_70	IW-FCP-037	Send AIWF037C to set THR calibration parameters	1 min	
RPW_71	IW-FCP-038	Send AIWF038A to set the Time Domain Sampler (TDS) common parameters	1 min	
RPW_72	IW-FCP-038	Send AIWF038E to set TDS for Normal mode	1 min	
RPW_73	IW-FCP-038	Send AIWF038B to set TDS for SBM1	1 min	
RPW_74	IW-FCP-038	Send AIWF038C to set TDS for SBM2	1 min	
RPW_75	IW-FCP-038	Send AIWF038D to set TDS low frequency mode parameters	1 min	
RPW_76	IW-FCP-038	Send AIWF038F to set TDS for Burst mode	1 min	
RPW_77	IW-FCP-039	Send AIWF039A to configure the Low Frequency Receiver (LFR) for SBM1	1 min	
RPW_78	IW-FCP-039	Send AIWF039B to configure the LFR for SBM2	1 min	
RPW_79	IW-FCP-039	Send AIWF039C to load the LFR common parameters	1 min	

RPW_80	IW-FCP-039	Send AIWF039D to configure the LFR for normal mode	1 min	
RPW_81	IW-FCP-039	Send AIWF039E to configure the LFR for Burst mode	1 min	
RPW_82	IW-FCP-034	Send AIWF034A to dump the TDS, LFR and THR parameters	5 min	
RPW_83	IW-FCP-044	Send AIWF044A to change mode from Service to Science Backup	1 min	
RPW_84	IW-FCP-045	Send AIWF045A to change mode from Science Backup to Standby	1 min	
RPW_85	IW-FCP-031	Send AIWF031A to change mode from Standby to Service	1 min	
RPW_86	IW-FCP-037	Send AIWF037A to set Thermal Noise High-frequency Receiver (THR) for Normal mode	1 min	
RPW_87	IW-FCP-037	Send AIWF037B to set THR for Burst mode	1 min	
RPW_88	IW-FCP-037	Send AIWF037C to set THR calibration parameters	1 min	
RPW_89	IW-FCP-038	Send AIWF038A to set the Time Domain Sampler (TDS) common parameters	1 min	
RPW_90	IW-FCP-038	Send AIWF038E to set TDS for Normal mode	1 min	
RPW_91	IW-FCP-038	Send AIWF038B to set TDS for SBM1	1 min	
RPW_92	IW-FCP-038	Send AIWF038C to set TDS for SBM2	1 min	
RPW_93	IW-FCP-038	Send AIWF038D to set TDS low frequency mode parameters	1 min	
RPW_94	IW-FCP-038	Send AIWF038F to set TDS for Burst mode	1 min	
RPW_95	IW-FCP-039	Send AIWF039A to configure the Low Frequency Receiver (LFR) for SBM1	1 min	

RPW_96	IW-FCP-039	Send AIWF039B to configure the LFR for SBM2	1 min	
RPW_97	IW-FCP-039	Send AIWF039C to load the LFR common parameters	1 min	
RPW_98	IW-FCP-039	Send AIWF039D to configure the LFR for normal mode	1 min	
RPW_99	IW-FCP-039	Send AIWF039E to configure the LFR for Burst mode	1 min	
RPW_100	IW-FCP-034	Send AIWF034A to dump the TDS, LFR and THR parameters	5 min	
RPW_101	IW-FCP-035	Send AIWF035C to change mode from Service to SBM Detection	1 min	
RPW_102	IW-FCP-045	Send AIWF045A to change mode from SBM Detection to Standby	1 min	
RPW_103	IW-FCP-031	Send AIWF031A to change mode from Standby to Service	1 min	
RPW_104	IW-FCP-037	Send AIWF037A to set Thermal Noise High-frequency Receiver (THR) for Normal mode	1 min	
RPW_105	IW-FCP-037	Send AIWF037B to set THR for Burst mode	1 min	
RPW_106	IW-FCP-037	Send AIWF037C to set THR calibration parameters	1 min	
RPW_107	IW-FCP-038	Send AIWF038A to set the Time Domain Sampler (TDS) common parameters	1 min	
RPW_108	IW-FCP-038	Send AIWF038E to set TDS for Normal mode	1 min	
RPW_109	IW-FCP-038	Send AIWF038B to set TDS for SBM1	1 min	
RPW_110	IW-FCP-038	Send AIWF038C to set TDS for SBM2	1 min	
RPW_111	IW-FCP-038	Send AIWF038D to set TDS low frequency mode parameters	1 min	

RPW_112	IW-FCP-038	Send AIWF038F to set TDS for Burst mode	1 min	
RPW_113	IW-FCP-039	Send AIWF039A to configure the Low Frequency Receiver (LFR) for SBM1	1 min	
RPW_114	IW-FCP-039	Send AIWF039B to configure the LFR for SBM2	1 min	
RPW_115	IW-FCP-039	Send AIWF039C to load the LFR common parameters	1 min	
RPW_116	IW-FCP-039	Send AIWF039D to configure the LFR for normal mode	1 min	
RPW_117	IW-FCP-039	Send AIWF039E to configure the LFR for Burst mode	1 min	
RPW_118	IW-FCP-034	Send AIWF034A to dump the TDS, LFR and THR parameters	5 min	
RPW_119	IW-FCP-035	Send AIWF035A to change mode from Service to Science Normal	1 min	
RPW_120	IW-FCP-035	Send AIWF035B to change mode from Science Normal to Science Burst	1 min	
RPW_121	IW-FCP-045	Send AIWF045A to change mode from Science Burst to Standby	1 min	
RPW_122	IW-FCP-043	Send AIWF043A to change mode from Standby to Service	1 min	
RPW_123	IW-FCP-261	Send AIWF261A to Patch Memory	2 min	
RPW_124	IW-FCP-260	Send AIWF260A to Dump Memory	3 min	
RPW_125	IW-FCP-046	Send AIWF046A to change mode from Standby to Safe	1 min	
RPW_126	IW-FCP-002	Send AIWF002A in order to switch off RPW (from Safe mode)	5 min	
<b>Settings for next Payload</b>				

ESOC_28 Disable routing of RPW HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for RPW. (PID = 81, Type = 3, Subtype = 25)	2 min	
ESOC_29 Disable routing of RPW Dumps to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for RPW. (PID = 75, Type = 6, Subtype = 6 PID = 75, Type = 6, Subtype = 10 PID = 76, Type = 6, Subtype = 6 PID = 76, Type = 6, Subtype = 10 PID = 77, Type = 6, Subtype = 6 PID = 77, Type = 6, Subtype = 10 PID = 78, Type = 6, Subtype = 6 PID = 78, Type = 6, Subtype = 10)	2 min	
ESOC_30 Configure S15 for RPW dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for RPW. (PS ID = PS5 = STORE_ID_5 PID = 75, Type = 6, Subtype = 6 PID = 75, Type = 6, Subtype = 10 PID = 76, Type = 6, Subtype = 6 PID = 76, Type = 6, Subtype = 10 PID = 77, Type = 6, Subtype = 6 PID = 77, Type = 6, Subtype = 10 PID = 78, Type = 6, Subtype = 6 PID = 78, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of RPW Science PS</b>				
ESOC_31.1 S15 unbound read of RPW science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for RPW Science PS XF525A01 = Read Op. ID = 209 XF525A02 = PS ID = 9 XF525A03 = VC_Flag = 0 XF525A04 = VC = default	1 min	

		XF525A05 = Priority_flag = 0 XF525A06 = Priority = default  S15 on RPW selective XF525A01 = Read Op. ID = 210 XF525A02 = PS ID = 10 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default		
ESOC_31.2 Stop S15 unbound read of RPW science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read RPW Science XF517A01 = 209  RPW Science XF517A01 = 210	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>Service 13          Downlink of          Payload          science PS</b>				
ESOC_32 Append LLFT by time for EPD science	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 6 XF535A02 Enable = true XF535A03 PS ID = PS 6 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_33 Append LLFT by time for EPD selective	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 7 XF535A02 Enable = true XF535A03 PS ID = PS 7 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_34	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters:	1 min	

Append LLFT by time for EUI		XF535A01 FT ID = 12 XF535A02 Enable = true XF535A03 PS ID = PS 12 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}		
ESOC_35 Append LLFT by time for RPW	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 9 XF535A02 Enable = true XF535A03 PS ID = PS 9 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_36 Append LLFT by time for RPW selective	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 10 XF535A02 Enable = true XF535A03 PS ID = PS 10 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_37 Start downlink File Transfer	DM-FCP-530	Send ADMF530A to start the SSMM FTS	1 min	MCS will generate LLFT confirmation TCs per S13 protocol as each transfer finishes.
<b>Dump of OMM PSs</b>				
ESOC_38 Downlink TM stored in the OMM Packet Stores	ZCD00F81	Send ZCD00F81 to start the playback of the OMM packet stores: Command parameters: Nb. of PS = 4 Packet Store Identifier = PS1 Pointer to be used = playback 1 Packet Store Identifier = PS2 Pointer to be used = playback 1 Packet Store Identifier = PS3 Pointer to be used = playback 1 Packet Store Identifier = PS6 Pointer to be used = playback 1		

ESOC_39 Downlink & Clear CEL	DM-FCP-021	Send ADMF021A Downlink CEL XF021A01 = SGM_A_OR_B  Send ADMF020 Clear CEL XF020A01 = 0		
ESOC_40 Stop SSMM S15	DM-FCP-517	Send ADMF517A SSMM Stop PS Read All reads XF517A01 = 0		

### 3.2 IGST-4-2 Day-2

The following payloads are scheduled on Day-2:  
SWA, MAG, SPICE and STIX.  
u-OTB configuration as per 2.2

It is proposed to apply the HKTM, OMM, SSMM configuration via TC files as per Day 1.

Test Step	FOP Procedures	Description	Duration	Remarks/Result
<b>Initial Settings</b>		Perform connectivity and voice checks		
ESOC_1 Configure the TM packets	DM-SEQ-000	Define and Enable default HKTM (AIT packets). Send ADMS000A. Expect CMD ZCS2Z00K Define HK: SYS – PS Config to fail because already defined and enabled.	4 min	
ESOC_2 Set HPTM rate settings	DM-FCP-402	Send ADMF402A to set the HPTM on TTRM A. HPTM TM rate settings = 9.	1 min	
ESOC_3 Define default Platform TM real	CMD STACK available	Define default Platform TM real time routing (S14) and storage (S15)	10 min	



time routing (S14) and storage (S15)				
ESOC_4 Define default Payload TM real time routing (S14) and storage (S15)	SY-SVT-005	Define default Payload TM real time routing (S14) and storage (S15)	10 min	
ESOC_5 Enable OMM Storage for HK, Acknowledgments, Events, and Reports	CMD STACK available	Enable Storage in OMM packet Stores PS1 (HK), PS2 (Ack), PS3 (Events), PS6 (Reports).	2 min	
ESOC_6 Create SSMM Packet Stores across 2 MM	DM-SEQ-000	Send ADMS500A to define Packet Stores	2 min	
ESOC_7 Configure SSMM default routing	DM-SEQ-502	Send ADMS502 to route APIDs to SSMM packet stores and enable storage	2 min	
ESOC_8 Perform SSMM FAT backup	DMCRP-517	Performing this back-up would speed the recovery in case of PM reboot.	5 min	
ESOC_9 Start S15 read on the SSMM PL HK PS and on SSMM PS0	DM-FCP-525	<p>Send ADMF525A SSMM unbounded downlink for PL HK PS            XF525A01 = Read Op. ID = 204            XF525A02 = PS ID = 4            XF525A03 = VC_Flag = 0            XF525A04 = VC = default            XF525A05 = Priority_flag = 0            XF525A06 = Priority = default</p> <p>Send ADMF525A SSMM unbounded downlink for PS0            XF525A01 = Read Op. ID = 200            XF525A02 = PS ID = 0            XF525A03 = VC_Flag = 0</p>	1 min	

		XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default		
ESOC_10 Enable storage of Platform and Payload dumps in OMM	DM-FCP-140	Send ADMF140A with Packet Store ID = 5 (dec)	1 min	
<b>Settings for 1st Payload</b>				
ESOC_11 Route HK of SWA to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for SWA. (PID =98, Type = 3, Subtype = 25 PID =99, Type = 3, Subtype = 25)	2 min	
ESOC_12 Route Dumps and Checks of SWA to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for SWA. (PID = 99, Type = 6, Subtype = 6 PID = 99, Type = 6, Subtype = 10)	2 min	
ESOC_13 Configure S15 for SWA dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for SWA. (PS ID = PS5 = STORE_ID_5 PID = 99, Type = 6, Subtype = 6 PID = 99, Type = 6, Subtype = 10)	2 min	
<b>SWA Test</b>				
SWA_1	IA-FCP-011	Send AIAF011A to switch ON SWA DPU Nominal (manual SWON procedure for SWA nominal side)	10 min	Limits for SMONs 5 to 11 (MON IDs 25 to 31 respectively) are not available for CSW 2.1.3p4 and have been set to the max. acceptable minimum and maximum values in the calibration curve.
SWA_2	IA-FCP-370	Send AIAF370A to perform a connection test to SWA	5 min	

SWA_3	IA-FCP-030	Send AIAF030A to change SWA DPU mode to OPS	5 min	
SWA_4	IA-FCP-014	Send AIAF014A to switch SWA EAS1 ON	5 min	
SWA_5	IA-FCP-015	Send AIAF015A to switch SWA EAS2 ON	5 min	
SWA_6	IA-FCP-016	Send AIAF016A to switch SWA PAS ON	15 min	
SWA_7	IA-FCP-017	Send AIAF017A to boot SWA HIS	5 min	
SWA_8	IA-FCP-265	Send AIAF265 to perform a dump of SWA Memory. Command Parameters: Memory ID = DPU_RAM Start Address = 0x40000000 hex Length = 10 dec	5 min	
SWA_9	IA-FCP-040	Send AIAF040A to configure SWA EAS1	5 min	
SWA_10	IA-FCP-050	Send AIAF050A to configure SWA EAS2	5 min	
SWA_11	IA-FCP-060	Send AIAF060A to configure SWA PAS	5 min	
SWA_12	IA-FCP-073	Send AIAF073A to command SWA HIS to Low Voltage (LV) Engineering Mode	5 min	
SWA_13	IA-FCP-041	Send AIAF041A to command SWA EAS1 to Science	5 min	
SWA_14	IA-FCP-051	Send AIAF051A to command SWA EAS2 to Science	5 min	
SWA_15	IA-FCP-061	Send AIAF061A to command SWA PAS to Nominal Science	5 min	
SWA_16	IA-FCP-062	Send AIAF062A to command SWA PAS to Burst Science	5 min	Transition to Nominal occurs automatically after 5 minutes.
SWA_17	IA-FCP-070	Send AIAF070A to command SWA HIS to High Voltage (HV) Standby	5 min	
SWA_18	IA-FCP-071	Send AIAF071A to command SWA HIS to Normal Science	5 min	
SWA_19	IA-FCP-072	Send AIAF072A to command SWA HIS to Burst Science	5 min	

SWA_20	IA-FCP-071	Send AIAF071A to command SWA HIS to Normal Science	5 min	
SWA_21	IA-FCP-070	Send AIAF070A to command SWA HIS to High Voltage (HV) Standby	5 min	
SWA_22	IA-FCP-073	Send AIAF073A to command SWA HIS to Low Voltage (LV) Engineering Mode	5 min	
SWA_23	IA-FCP-007	Send AIAF007A to switch SWA HIS OFF	5 min	
SWA_24	IA-FCP-042	Send AIAF042A to halt SWA EAS1 Science	5 min	
SWA_25	IA-FCP-052	Send AIAF052A to halt SWA EAS2 Science	5 min	
SWA_26	IA-FCP-063	Send AIAF063A to halt SWA PAS Science	5 min	
SWA_27	IA-FCP-004	Send AIAF004A to switch off SWA EAS1	5 min	
SWA_28	IA-FCP-005	Send AIAF005A to switch off SWA EAS2	5 min	
SWA_29	IA-FCP-006	Send AIAF006A to switch off SWA PAS	5 min	
SWA_30	WAIT	Wait 30 min for HIS OFF to complete.	30 min	TBD if this is required if EM has no HV
SWA_31	IA-FCP-007	Send AIAF007B to power off HIS	5 min	
SWA_32	IA-FCP-002	Send AIAF002A to switch SWA DPU OFF	5 min	
<b>Settings for next payload</b>				
ESOC_14 Disable routing of SWA HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SWA. (PID = 98, Type = 3, Subtype = 25 PID = 99, Type = 3, Subtype = 25)	2 min	
ESOC_15 Disable routing of SWA Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SWA. (PID = 99, Type = 6, Subtype = 6, PID = 99, Type = 6, Subtype = 10)	2 min	

ESOC_16 Configure S15 for SWA dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for SWA. (PS ID = PS5 = STORE_ID_5 PID = 99, Type = 6, Subtype = 6 PID = 99, Type = 6, Subtype = 10)	2 min	
ESOC_17 Route HK of MAG to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for MAG. (PID = 64, Type = 3, Subtype = 25)	2 min	
ESOC_18 Route Dumps and Checks of MAG to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for MAG. (PID = 64, Type = 6, Subtype = 6 PID = 64, Type = 6, Subtype = 10)	2 min	
ESOC_19 Configure S15 for MAG dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for MAG. (PS ID = PS5 = STORE_ID_5 PID = 64, Type = 6, Subtype = 6 PID = 64, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of SWA Science PS</b>				
ESOC_20.1 S15 unbound read of SWA science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for SWA Science PS XF525A01 = Read Op. ID = 211 XF525A02 = PS ID = 11 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_20.2 Stop S15 unbound read of SWA science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read SWA Science XF517A01 = 211	1 min	PS Reads to be stopped once data flow on VC3 stops.

<b>MAG Test</b>				
MAG_1	IM-FCP-011	Send AIMF011A to power MAG ON into Standby mode (in boot software)	5 min	It is noted that SMONs_MAG 10 to 14 are on PID13 in CSW 2.1.3p4
MAG_2	IM-FCP-032	Send AIMF032A to transition from Standby in Boot SW to Config. in Application SW. SEQ Formal parameters: XF032A01 = StartAddress = 537198592 dec XF032A02 = length = 61992 dec	5 min	
MAG_3	IM-SVT-021	Send AIMV021A in order to exercise service 6 with MAG. The sequence will read and write from a specific address in EEPROM. Command sequence prepared on purpose for testing.	2 min	
MAG_4	IM-FCP-401	Send AIMF401A in order to configure the MAG sensors. This procedure is to be used only with the Engineering model.	5 min	
MAG_5	IM-FCP-033	Send AIMF033A to change from Config. to Normal Mode.	1 min	
MAG_6	IM-FCP-034	Send AIMF034A to change from Normal to Burst Mode.	1 min	
MAG_7	IM-FCP-035	Send AIMF035A to change to Configuration Mode (from Burst)	1 min	
MAG_8	IM-FCP-002	Send AIMF002A to switch MAG OFF	2 min	
<b>Settings for next payload</b>				
ESOC_21 Disable routing of MAG HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for MAG. (PID = 64, Type = 3, Subtype = 25)	2 min	
ESOC_22 Disable routing of MAG Dumps to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for MAG.	2 min	

		(PID = 64, Type = 6, Subtype = 6 PID = 64, Type = 6, Subtype = 10)		
ESOC_23 Configure S15 for MAG dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for MAG. (PS ID = PS5 = STORE_ID_5 PID = 64, Type = 6, Subtype = 6 PID = 64, Type = 6, Subtype = 10)	2 min	
ESOC_24 Route HK of SPICE to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for SPICE. (PID = 85, Type = 3, Subtype = 25 PID = 87, Type = 3, Subtype = 25)	2 min	
ESOC_25 Route Dumps and Checks of SPICE to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for SPICE. (PID = 85, Type = 6, Subtype = 6 PID = 86, Type = 6, Subtype = 10)	2 min	
ESOC_26 Configure S15 for SPICE dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for SPICE. (PS ID = PS5 = STORE_ID_5 PID = 85, Type = 6, Subtype = 6 PID = 86, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of MAG Science PS</b>				
ESOC_27.1 S15 unbound read of MAG science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for MAG Science PS XF525A01 = Read Op. ID = 208 XF525A02 = PS ID = 8 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	

ESOC_27.2 Stop S15 unbound read of MAG science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read MAG Science XF517A01 = 208	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>SPICE Test</b>				
SPICE_1	IC-FCP- 011_redlined_v2	Send AICF011A to switch ON SPICE into Standby Mode (manual SWON procedure for SPICE via nominal power and SpW links)	10 min	
SPICE_2	IC-FCP- 400_redlined_v1	Send AICF400A to set the Observation ID. CMD Parameter PIC00120 = 0x15000 hex.	2 min	
SPICE_3	IC-FCP- 232_redlined_v3	Send AICF232E to enable the Scan Mechanism Report generation	2 min	
SPICE_4	IC-FCP- 232_redlined_v3	Send AICF232J to disable the Scan Mechanism Report generation	2 min	
SPICE_5	IC-FCP- 232_redlined_v3	Send AICF232B to enable IPF Register Report generation	2 min	
SPICE_6	IC-FCP- 232_redlined_v3	Send AICF232G to disable IPF Register Report generation	2 min	
SPICE_7	IC-FCP- 232_redlined_v3	Send AICF232C to enable CPU FPGA Register Dump generation	2 min	
SPICE_8	IC-FCP- 232_redlined_v3	Send AICF232H to disable CPU FPGA Register Dump generation	2 min	
SPICE_9	IC-FCP- 232_redlined_v3	Send AICF232D to enable Diagnostic Data Report generation	2 min	
SPICE_10	IC-FCP- 232_redlined_v3	Send AICF232I to disable Diagnostic Data Report generation	2 min	
SPICE_11	IC-FCP- 410_redlined_v1	Send AICF410B to select Low Latency science data to be generated.	2 min	
SPICE_12	IC-FCP- 410_redlined_v1	Send AICF410A to select Normal science data to be generated.	2 min	



SPICE_13	IC-FCP-260_redlined_v2	Send AICF260A to perform a dump of continuous blocks of data from the Instrument EEPROM Memory using absolute address. CMD Parameters: PICOM000 Memory ID = EEPROM PICOM005 Start Address = 0x10000 hex PICOM010 NSAUs = 8 dec	10 min	
SPICE_14	IC-FCP-261_redlined_v2	Send AICF261A to perform a checksum of continuous blocks of data from the Instrument EEPROM Memory using absolute address. CMD Parameters: PICOM000 Memory ID = EEPROM PICOM005 Start Address = 0x10000 hex PICOM010 NSAUs = 8 dec	2 min	
SPICE_15	IC-FCP-400_redlined_v1	Send AICF400B to reset the Observation ID	2 min	
SPICE_16	IC-FCP-002_redlined_v3	Send AICF002A to manually switch SPICE OFF.	10 min	
<b>Settings for next payload</b>				
ESOC_28 Disable routing of SPICE HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SPICE. (PID = 85, Type = 3, Subtype = 25 PID = 87, Type = 3, Subtype = 25)	2 min	
ESOC_29 Disable routing of SPICE Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SPICE. (PID = 85, Type = 6, Subtype = 6 PID = 86, Type = 6, Subtype = 10)	2 min	
ESOC_30 Configure S15 for SPICE dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for SPICE. (PS ID = PS5 = STORE_ID_5 PID = 85, Type = 6, Subtype = 6 PID = 86, Type = 6, Subtype = 10)	2 min	

ESOC_31 Route HK of STIX to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for STIX. (PID = 90, Type = 3, Subtype = 25)	2 min	
ESOC_32 Route Dumps and Checks of STIX to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for STIX. (PID = 90, Type = 6, Subtype = 6 PID = 90, Type = 6, Subtype = 10)	2 min	
ESOC_33 Configure S15 for STIX dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for STIX. (PS ID = PS5 = STORE_ID_5 PID = 90, Type = 6, Subtype = 6 PID = 90, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of SPICE Science PS</b>				
ESOC_34.1 S15 unbound read of SPICE science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for SPICE Science PS XF525A01 = Read Op. ID = 216 XF525A02 = PS ID = 16 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_34.2 Stop S15 unbound read of SPICE science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read SPICE Science XF517A01 = 216	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>STIX Test</b>				
STIX_1	IX-FCP-011	Send AIXF011A to switch on STIX nominal side	10 min	

STIX_2	IX-FCP-030	Send AIXF030A to change mode from Safe to Configuration	3 min	
STIX_3	IX-FCP-031	Send AIXF031A to change mode from Configuration to Safe	2 min	
STIX_4	IX-FCP-032	Send AIXF032A to change mode from Safe to Nominal via Configuration	4 min	
STIX_5	IX-FCP-400	Send AIXF400A to perform accumulation of calibration Data	1 min	
STIX_6	IX-FCP-033	Send AIXF033A to change mode from Nominal to Safe	3 min	
STIX_7	IX-FCP-034	Send AIXF034A to change mode from Safe to Maintenance	2 min	
STIX_8	IX-FCP-260	Send AIXF260A to perform a Memory dump in Maintenance Mode. Input parameters: PIX00003 = Memory ID = Main_Flash_A PIX00004 = Start Address = 0x001000FE hex PIX00005 = 2 dec	1 min	Default value for start address in CMD SEQ AIXF260A is currently wrong. Correct when loading the SEQ in the Stack.
STIX_9	IX-FCP-035	Send AIXF035A to change mode from Maintenance to Safe	2 min	
STIX_10	DM-FCP-221	Send ADMF221A in order to request the CSW to perform context saving from STIX	1 min	
STIX_11	DM-FCP-220	Send ADMF220A to request the CSW to retrieve from the OMM the STIX stored context and restore it to STIX	1 min	
STIX_12	IX-FCP-002	Send AIXF002A in order to switch STIX OFF	1 min	
<b>Settings for next payload</b>				
ESOC_35 Disable routing of STIX HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for STIX.	2 min	

		(PID = 90, Type = 3, Subtype = 25)		
ESOC_36 Disable routing of STIX Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for STIX. (PID = 90, Type = 6, Subtype = 6 PID = 90, Type = 6, Subtype = 10)	2 min	
ESOC_37 Configure S15 for STIX dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for STIX. (PS ID = PS5 = STORE_ID_5 PID = 90, Type = 6, Subtype = 6 PID = 90, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of STIX Science PS</b>				
ESOC_38 S15 unbound read of STIX science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for STIX Science PS XF525A01 = Read Op. ID = 217 XF525A02 = PS ID = 17 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_38.2 Stop S15 unbound read of STIX science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read STIX Science XF517A01 = 217	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>Service 13 Downlink of Payload science PS</b>				
ESOC_39	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 11	1 min	

Append LLFT by time for SWA science		XF535A02 Enable = true XF535A03 PS ID = PS 11 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}		
ESOC_40 Append LLFT by time for MAG selective	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 8 XF535A02 Enable = true XF535A03 PS ID = PS 8 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_41 Append LLFT by time for SPICE	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 16 XF535A02 Enable = true XF535A03 PS ID = PS 16 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_42 Append LLFT by time for STIX	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 17 XF535A02 Enable = true XF535A03 PS ID = PS 17 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_43 Start downlink File Transfer	DM-FCP-530	Send ADMF530A to start the SSMM FTS	1 min	
<b>Dump of OMM PSs</b>				
ESOC_44 Downlink TM stored in the OMM Packet Stores	ZCD00F81	Send ZCD00F81 to start the playback of the OMM packet stores: Command parameters: Nb. of PS = 4 Packet Store Identifier = PS1 Pointer to be used = playback 1		

		Packet Store Identifier = PS2 Pointer to be used = playback 1 Packet Store Identifier = PS3 Pointer to be used = playback 1 Packet Store Identifier = PS6 Pointer to be used = playback 1		
ESOC_45 Downlink & Clear CEL	DM-FCP-021	Send ADMF021A Downlink CEL XF021A01 = SGM_A_OR_B  Send ADMF020 Clear CEL XF020A01 = 0		
ESOC_46 Stop SSMM S15	DM-FCP-517	Send ADMF517A SSMM Stop PS Read All reads XF517A01 = 0		

### 3.3 IGST-4-2 Day-3

The following payloads are scheduled on Day-3:  
 PHI, METIS, and SOLOHI.  
 u-OTB configuration as per 2.2

It is proposed to apply the HKTM, OMM, SSMM configuration via TC files as per Day 1.

Test Step	FOP Procedures	Description	Duration	Remarks/Result
<b>Initial Settings</b>		Perform connectivity and voice checks		
ESOC_1 Configure the TM packets	DM-SEQ-000	Define and Enable default HKTM (AIT packets).	4 min	

		Send ADMS000A. Expect CMD ZCS2Z00K Define HK: SYS – PS Config to fail because already defined and enabled.		
ESOC_2 Set HPTM rate settings	DM-FCP-402	Send ADMF402A to set the HPTM on TTRM A. HPTM TM rate settings = 9.	1 min	
ESOC_3 Define default Platform TM real time routing (S14) and storage (S15)	CMD STACK available	Define default Platform TM real time routing (S14) and storage (S15)	10 min	
ESOC_4 Define default Payload TM real time routing (S14) and storage (S15)	SY-SVT-005	Define default Payload TM real time routing (S14) and storage (S15)	10 min	
ESOC_5 Enable OMM Storage for HK, Acknowledgments, Events, and Reports	CMD STACK available	Enable Storage in OMM packet Stores PS1 (HK), PS2 (Ack), PS3 (Events), PS6 (Reports).	2 min	
ESOC_6 Create SSMM Packet Stores across 2 MM	DM-SEQ-000	Send ADMS500A to define Packet Stores	2 min	
ESOC_7 Configure SSMM default routing	DM-SEQ-502	Send ADMS502 to route APIDs to SSMM packet stores and enable storage	2 min	
ESOC_8 Perform SSMM FAT backup	DMCRP-517	Performing this back-up would speed the recovery in case of PM reboot.	5 min	
ESOC_9 Start S15 read on the SSMM PL HK PS and on SSMM PSO	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for PL HK PS XF525A01 = Read Op. ID = 204 XF525A02 = PS ID = 4	1 min	

		XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default  Send ADMF525A SSMM unbounded downlink for PSO XF525A01 = Read Op. ID = 200 XF525A02 = PS ID = 0 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default		
ESOC_10 Enable storage of Platform and Payload dumps in OMM	DM-FCP-140	Send ADMF140A with Packet Store ID = 5 (dec)	1 min	
<b>Settings for 1st Payload</b>				
ESOC_11 Route HK of PHI to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for PHI. (PID = 72, Type = 3, Subtype = 25)	2 min	
ESOC_12 Route Dumps and Checks of PHI to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for PHI. (PID = 72, Type = 6, Subtype = 6 PID = 72, Type = 6, Subtype = 10)	2 min	
ESOC_13 Configure S15 for PHI dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for PHI. (PS ID = PS5 = STORE_ID_5 PID = 72, Type = 6, Subtype = 6 PID = 72, Type = 6, Subtype = 10)	2 min	
<b>PHI Test</b>				



PHI_1	IP-FCP-011	Send AIPF011A to switch ON PHI into Safe Mode (manual SWON procedure for PHI nominal side)	4 min	Note that PHI SMONs 2 to 11 (MON IDs 62 to 71) are not enabled in the SWON procedure.
PHI_2	IP-FCP-034	Send AIPF034A to change PHI mode to IDLE with UDP manager enabled and HK TM being forwarded to the SSMM	10 min	
PHI_3	IP-SVT-261	Send AIPV261A to check application SW image configuration and dump the contents of the configuration memory and from the RAM	12 min	
PHI_4	IP-FCP-036	Send AIPF036A to change PHI mode from idle to Observation	5 min	
PHI_5	IP-FCP-211	Send AIPF211A to enable PHI science data transfer	1 min	
PHI_6	IP-SVT-902	Send AIPV902A to perform a FPA Image Acquisition and transfer it to the SSMM	48 min	This step will be run 40 times in order to produce enough science data.
PHI_7	IP-SVT-903	Send AIPV903A to perform an image acquisition and download the image to the low latency data Packet Store in the SSMM.	2 min	
PHI_8	IP-FCP-037	Send AIPF037A to put PHI in process science mode	3 min	
PHI_9	DM-FCP-221	Send ADMF221A to request the Central SW to perform context saving from PHI.	1 min	
PHI_10	DM-FCP-220	Send ADMF220A to request the CSW to retrieve PHI stored context from the OMM and restore it to PHI.	2 min	
PHI_11	IP-FCP-034	Send AIPF034A to command PHI to idle mode	2 min	
PHI_12	IP-FCP-032	Send AIPF032A to command PHI to Safe mode	5 min	
PHI_13	IP-FCP-002	Send AIPF002A to switch off PHI	5 min	

<b>Settings for next payload</b>				
ESOC_14 Disable routing of PHI HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for PHI. (PID = 72, Type = 3, Subtype = 25)	2 min	
ESOC_15 Disable routing of PHI Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for PHI. (PID = 72, Type = 6, Subtype = 6, PID = 72, Type = 6, Subtype = 10)	2 min	
ESOC_16 Configure S15 for PHI dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for PHI. (PS ID = PS5 = STORE_ID_5 PID = 72, Type = 6, Subtype = 6 PID = 72, Type = 6, Subtype = 10)	2 min	
ESOC_17 Route HK of METIS to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for METIS. (PID = 67, Type = 3, Subtype = 25)	2 min	
ESOC_18 Route Dumps and Checks of METIS to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for METIS. (PID = 67, Type = 6, Subtype = 6 PID = 67, Type = 6, Subtype = 10)	2 min	
ESOC_19 Configure S15 for METIS dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for METIS. (PS ID = PS5 = STORE_ID_5 PID = 67, Type = 6, Subtype = 6 PID = 67, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of PHI Science PS</b>				

ESOC_20.1 S15 unbound read of PHI science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for PHI Science PS XF525A01 = Read Op. ID = 214 XF525A02 = PS ID = 14 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_20.2 Stop S15 unbound read of PHI science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read PHI Science XF517A01 = 214	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>METIS Test</b>				
METIS_1	IT-FCP-011	Send AITF011A to switch METIS On (nominal side)	10 min	
METIS_2	IT-FCP-260	Send AITF260A to perform a METIS Service 6 test. <b>Formal Parameters:</b> XF260A01 = Memory ID Dump = MRAM_B0	10 min	
METIS_3	IT-FCP-002	Send AITF002A to switch METIS off	5 min	
METIS_4	IT-FCP-011	Send AITF011A to switch METIS On (nominal side)	10 min	
METIS_5	IT-FCP-040	Send AITF040A to change METIS mode from Safe to Ops with all subsystems powered	10 min	
METIS_6	IT-FCP-700	Send AITF700A to perform a METIS nominal acquisition XF700A01 = VL_DIT = 15000 ms XF700A02 = VL_NDIT = 4 XF700A03 = VL_CADENCE = 250000 ms XF700A04 = UV_DIT = 1000 ms XF700A05 = UV_NDIT_1 = 4 XF700A06 = UV_NDIT_2 = 8 XF700A07 = UV_CADENCE = 32000 ms	10 min	

		XF700A08 = Session_ID = 0x000001 XF700A09 = Duration = 1000 s		
METIS_7	IT-FCP-701	Send AITF701A to perform a METIS nominal acquisition XF701A01 = VL_DIT = 20000 ms XF701A02 = VL_NDIT = 3 XF701A03 = VL_CADENCE = 60000 ms XF701A04 = PCU_Polling = 60000 ms XF701A05 = Session_ID = 0x000002 XF701A06 = Duration = 300 s	10 min	
METIS_8	IT-FCP-702	Send AITF702A to perform a METIS VL_FP acquisition XF702A01 = VL_DIT = 1000 ms XF702A02 = FLUCT Filter Mode = BINNING_FILT XF702A03 = VLMask_Rmin_Lin = 500 pixels XF702A04 = VLMask_Rmax_Lin = 1000 pixels XF702A05 = Masking Flag = DISABLED XF702A06 = Session_ID = 0x000003 XF702A07 = Number of images acquired = 64 dec	10 min	
METIS_9	IT-FCP-041	Send AITF041A to command METIS from Ops mode with all subsystems powered to VLDA and PMP ON, UVDA OFF and HVU to 0 V	10 min	
METIS_10	IT-FCP-051	Send AITF051A to command back all METIS subsystems to ON	10 min	
METIS_11	IT-FCP-042	Send AITF042A to command METIS from Ops with all subsystems powered to VLDA and PMP Off, UVDA ON and HVU to analog V	5 min	
METIS_12	IT-FCP-052	Send AITF052A to command METIS from VLDA PMP OFF, UVDA ON and HVU Analog V to all subsystems ON	5 min	

METIS_13	IT-FCP-050	Send AITF050A to command METIS from Ops with all subsystems powered to Safe mode	10 min	
METIS_14	IT-FCP-002	Send AITF002A to switch METIS off	5 min	
METIS_15	IT-FCP-015	Send AITF015A to switch ON METIS using the redundant LCL and the redundant data link	10 min	Procedure not available yet. Steps METIS_15 to METIS_18 to be skipped.
METIS_16	IT-FCP-044	Send AITF044A to command METIS from Safe to diagnostic mode	3 min	
METIS_17	IT-FCP-054	Send AITF054A to command METIS from diagnostic mode to Safe	3 min	
METIS_18	IT-FCP-002	Send AITF002 A to switch METIS off	5 min	
<b>Settings for next payload</b>				
ESOC_21 Disable routing of METIS HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for METIS. (PID = 67, Type = 3, Subtype = 25)	2 min	
ESOC_22 Disable routing of METIS Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for METIS. (PID = 67, Type = 6, Subtype = 6, PID = 67, Type = 6, Subtype = 10)	2 min	
ESOC_23 Configure S15 for METIS dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for METIS. (PS ID = PS5 = STORE_ID_5 PID = 67, Type = 6, Subtype = 6 PID = 67, Type = 6, Subtype = 10)	2 min	
ESOC_24 Route HK of SOLOHI to VCO	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VCO for SOLOHI. (PID = 82, Type = 3, Subtype = 25)	2 min	

ESOC_25 Route Dumps and Checks of SOLOHI to VC0	DM-FCP-120	Send ADMF120C Enable forwarding of packets by PID, type, subtype to VC0 for SOLOHI. (PID = 82, Type = 6, Subtype = 6 PID = 84, Type = 6, Subtype = 10)	2 min	
ESOC_26 Configure S15 for SOLOHI dumps	DM-FCP-142	Send ADMF142C to add packets to dump PS for SOLOHI. (PS ID = PS5 = STORE_ID_5 PID = 82, Type = 6, Subtype = 6 PID = 84, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of METIS Science PS</b>				
ESOC_27.1 S15 unbound read of METIS science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for METIS Science PS XF525A01 = Read Op. ID = 213 XF525A02 = PS ID = 13 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_27.2 Stop S15 unbound read of METIS science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read METIS Science XF517A01 = 213	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>SOLOHI Test</b>				
SOLOHI_1	IH-FCP-011	Send AIHF011A to switch SOLOHI ON Nominal side	10 min	
SOLOHI_2	IH-FCP-370	Send AIHF370A to perform a connection test to SOLOHI	1 min	
SOLOHI_3	IH-FCP-100	Send AIHF100A to start SOLOHI ANNEAL	10 min	
SOLOHI_4	IH-FCP-102	Send AIHF102A to end SOLOHI ANNEAL	2 min	

SOLOHI_5	IH-FCP-265	Send AIHF265A to perform a Memory Dump. Command Parameters: XF265A01 = Memory ID = MRAM XF265A02 = Start Address = 0x01000000 hex XF265A03 = length = 40000 dec	2 min	
SOLOHI_6	IH-FCP-401	Send AIHF401A to verify a file. Command parameters: XF401A01 = filename = 0x72616D2F6C643274726272682E62736600000000 hex	1 min	
SOLOHI_7	IH-FCP-400	Send AIHF400A to upload one 200-byte chunk of cpio file to SOLOHI. Command parameters: To be provided by SOLOHI in time for the test.	1 min	
SOLOHI_8	IH-FCP-403	Send AIHF403A to get a directory listing (TM 248) to SSMM. Command parameters: XF403A01 = Directory name = 0x72616D0000 hex	5 min	
SOLOHI_9	IH-FCP-031	Send AIHF031A to read schedule file and generate 2 images. Command parameters: XF031A01 = IS schedule filename = 0x6C643274726272682E627366 hex	6 min	
SOLOHI_10	IH-FCP-032	Send AIHF032A to acquire 4 images from the detector.	20 min	
SOLOHI_11	IH-SVT-900	Send AIHV900A to trip Autonomy Rule#27_FDIR (SPS Enclosure Temperature)	5 min	
SOLOHI_12	IH-CRP-022	Send AIHC022A in order to recover from Autonomy Rule (AR) trigger. Command Parameters: XC022A01 = Autonomy Rule ID = 27 dec	1 min	

SOLOHI_13	IH-CRP-021	Send AIHC021A to recover from Safe. Enable observing after entering safe mode.	1 min	
SOLOHI_14	IH-FCP-406	Send AIHF406A to delete a file. Command parameter: XF406A01 = Filename = 0x hex	1 min	
SOLOHI_15	IH-FCP-031	Send AIHF031A to perform an example of SOLOHI nominal science. Command parameter = XF031A01 = IS schedule filename = 0x69707761766574372E627366 hex	20 min	
SOLOHI_16	IH-FCP-031	Send AIHF031A to stop observing. Command parameter = XF031A01 = IS schedule filename = 0x63616D73746F70312E627366 hex	1 min	
SOLOHI_17	IH-CRP-003	Send AIHC003A to switch SpW link.	1 min	SSMM configuration will need to be updated to match the selected link.
SOLOHI_18	IH-FCP-002	Send AIHF002A to power down SOLOHI	5 min	
SOLOHI_19	DM-CRP-524	Send ADMC524A to configure SSMM to use SOLOHI-B SpW interface. Command parameters: XC524A01 = Payload ID = SOLOHI	5 min	
SOLOHI_20	IH-CRP-015	Send AIHF015A to power On SOLOHI B	10 min	
SOLOHI_21	IH-CRP-003	Send AIHC003A to switch SpW link back to nominal.	1 min	SSMM configuration will need to be updated to match the selected link.
SOLOHI_22	IH-FCP-002	Send AIHF002A to power down SOLOHI	5 min	
SOLOHI_23	DM-CRP-524	Send ADMC524A to configure SSMM to use SOLOHI-A SpW interface. Command parameters: XC524A01 = Payload ID = SOLOHI	5 min	
Disable routing of SOLOHI HK to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SOLOHI. (PID = 82, Type = 3, Subtype = 25)	2 min	



Disable routing of SOLOHI Dumps and Checks to VCO	DM-FCP-121	Send ADMF121C Disable forwarding of packets by PID, type, subtype to VCO for SOLOHI. (PID = 82, Type = 6, Subtype = 6, PID = 84, Type = 6, Subtype = 10)	2 min	
Configure S15 for SOLOHI dumps	DM-FCP-143	Send ADMF143C to remove packets to dump PS for SOLOHI. (PS ID = PS5 = STORE_ID_5 PID = 82, Type = 6, Subtype = 6 PID = 84, Type = 6, Subtype = 10)	2 min	
<b>Service 15 Downlink of SOLOHI Science PS</b>				
ESOC_28.1 S15 unbound read of SOLOHI science PS	DM-FCP-525	Send ADMF525A SSMM unbounded downlink for SOLOHI Science PS XF525A01 = Read Op. ID = 215 XF525A02 = PS ID = 15 XF525A03 = VC_Flag = 0 XF525A04 = VC = default XF525A05 = Priority_flag = 0 XF525A06 = Priority = default	1 min	
ESOC_28.2 Stop S15 unbound read of SOLOHI science PS	DM-FCP-517	Send ADMF517A SSMM Stop PS Read SOLOHI Science XF517A01 = 215	1 min	PS Reads to be stopped once data flow on VC3 stops.
<b>Service 13 Downlink of Payload science PS</b>				
ESOC_29 Append LLFT by time for PHI science	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 14 XF535A02 Enable = true	1 min	

		XF535A03 PS ID = PS 14 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}		
ESOC_30 Append LLFT by time for METIS selective	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 13 XF535A02 Enable = true XF535A03 PS ID = PS 13 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_31 Append LLFT by time for SOLOHI	DM-FCP-535	Send ADMF535A to append LLFT by time. Command parameters: XF535A01 FT ID = 15 XF535A02 Enable = true XF535A03 PS ID = PS 15 XF535A04 Start Time = {start of test day} XF535A05 End Time = {end of test day}	1 min	
ESOC_32 Start downlink File Transfer	DM-FCP-530	Send ADMF530A to start the SSMM FTS	1 min	
<b>Dump of OMM PSs</b>				
ESOC_33 Downlink TM stored in the OMM Packet Stores	ZCD00F81	Send ZCD00F81 to start the playback of the OMM packet stores: Command parameters: Nb. of PS = 4 Packet Store Identifier = PS1 Pointer to be used = playback 1 Packet Store Identifier = PS2 Pointer to be used = playback 1 Packet Store Identifier = PS3 Pointer to be used = playback 1 Packet Store Identifier = PS6 Pointer to be used = playback 1		

ESOC_34 Downlink & Clear CEL	DM-FCP-021	Send ADMF021A Downlink CEL XF021A01 = SGM_A_OR_B  Send ADMF020 Clear CEL XF020A01 = 0		
ESOC_35 Stop SSMM S15	DM-FCP-517	Send ADMF517A SSMM Stop PS Read All reads XF517A01 = 0		