

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 7**

30/11/2010

Doc. Title : INTEGRAL FOP – Vol. 9
 Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
 Date : 30/11/10

Issue : 2
 Rev. : 7
 Page : 9-0- i

INTEGRAL FOP Vol. 9 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of procedures	
21/02/03	2 / 0		General clean-up post Launch	SOM <i>M. Schmidt</i>
02/12/03	2/1	Book 2 Book 3	SPI procedures IBIS procedures	SOM <i>M. Schmidt</i>
30/05/05	2/3	Book 2 Book 3	SPI procedures IBIS procedures	SOM <i>M. Schmidt</i>
18/09/06	2/4	Book 3	IBIS procedures	SOM <i>M. Schmidt</i>
11/04/08	2/5	Book 2 Book 3	SPI procedures IBIS procedures	SOM <i>M. Schmidt</i>
02/11/09	2/6	Book 2	SPI procedures	SOM <i>R. Southworth</i>
30/11/10	2/7	Book 2 Book 3	SPI procedures IBIS procedures	SOM <i>R. Southworth</i>

**INTEGRAL FOP Vol. 9
APPROVAL Sheet
Issue 2 Rev 0**

PREPARED BY	ORGANISATION	SIGNATURE	DATE
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APPROVED BY	ORGANISATION	SIGNATURE	DATE

AUTHORISED BY	ORGANISATION	SIGNATURE	DATE

Doc. Title : INTEGRAL FOP – Vol. 9
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 30/11/10

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Book 2	Spectrometer (SPI)
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Book 6	Instrument On-Board S/W

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 1
Payload System**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 0**

21 February 03

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 1
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 21/02/03

Issue : 2
Rev. : 0
Page : 9.1-i

INTEGRAL FOP Vol. 9 / Book 1 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch	SOM <i>M. Schmidt</i>

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 1
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 21/02/03

Issue : 2
Rev. : 0
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9 Vol. 9: Instrument Flight Control Procedures

9.1 Book 1: Payload System

Dedicated Payload System procedures are currently not defined.

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 2
Spectrometer (SPI)**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 7**

30 November 10

INTEGRAL FOP Vol. 9 / Book 2 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch All blank pages at the end of a procedure are intentional.	SOM <i>M. Schmidt</i>
02/12/03	2/1	Procedure updated Procedure added	CRP_SPI1_0061 CRP_SPI1_3010, 3030, 3050, 3070	SOM <i>M. Schmidt</i>
30/05/05	2/3	Procedure updated Procedure added	CRP_SPI1_3010, CRP_SPI1_3030, CRP_SPI1_3050, CRP_SPI1_3070 CRP_SPI1_0030, CRP_SPI1_0031, CRP_SPI1_3011, CRP_SPI1_3012, CRP_SPI1_3031, CRP_SPI1_3051, CRP_SPI1_3071, CRP_SPI1_3090	SOM <i>M. Schmidt</i>
11/04/08	2/5	Introduction Procedures	Front Page and Change Record Sheet replaced. Updated: CRP_SPI1_5140, CRP_SPI2_5100, CRP_SPI2_5130, CRP_SPI2_5140	SOM <i>M. Schmidt</i>
02/11/09	2/6	Introduction Procedures	Front Page, Change Record Sheet and Table of Contents replaced. Updated: CRP_SPI1_5140, CRP_SPI2_5140	SOM <i>R. Southworth</i>
30/11/10	2/7	Introduction Procedures	Front Page, Change Record Sheet and Table of Contents replaced. Updated: CRP_SPI1_3090 Added: CRP_SP1_0061_A, CRP_SP1_0061_B, CRP_SP1_5140_A, CRP_SP1_5140_B Deleted: CRP_SP1_0061, CRP_SP1_5140, CRP_SP2_0061, CRP_SP1_5140	SOM <i>R. Southworth</i>

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 2
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Date : 30/11/10

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Date : 30/11/10

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9 Vol. 9: Instrument Flight Control Procedures

9.2 Book 2: Spectrometer (SPI)



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CRP_SPI1_0031	STOP SPI HEAT PIPES THAWING (THAOUT)	Issue: 1.0	Thu 07 Apr 2005	Author: F.Cordero
CRP_SPI_0061_A	UNCONDITIONED Subassemblies Switch Off (PPDU M)	Issue: 1.0	Thu 02 Dec 2010	Author: F.Cordero
CRP_SPI_0061_B	UNCONDITIONED Subassemblies Switch Off (PPDU R)	Issue: 1.0	Thu 02 Dec 2010	Author: F.Cordero
CRP_SPI1_3010	SPI AFEE RESET	Issue: 1.1	Fri 29 Apr 2005	Author: F.Cordero
CRP_SPI1_3011	SPI AFEE SWITCH OFF	Issue: 1.0	Thu 28 Apr 2005	Author: F.Cordero
CRP_SPI1_3012	SPI AFEE ANALOG CHAINS SWITCH OFF	Issue: 1.0	Thu 28 Apr 2005	Author: F.Cordero
CRP_SPI1_3030	SPI PSD RESET	Issue: 1.1	Thu 29 Oct 2009	Author: F.Cordero
CRP_SPI1_3031	SPI PSD SWITCH OFF	Issue: 1.0	Thu 28 Apr 2005	Author: F.Cordero
CRP_SPI1_3050	SPI DFEE RESET	Issue: 1.1	Fri 29 Apr 2005	Author: F.Cordero
CRP_SPI1_3051	SPI DFEE SWITCH OFF	Issue: 1.0	Thu 28 Apr 2005	Author: F.Cordero
CRP_SPI1_3070	SPI ACS RESET	Issue: 1.1	Fri 29 Apr 2005	Author: F.Cordero
CRP_SPI1_3071	SPI ACS SWITCH OFF	Issue: 1.0	Fri 29 Apr 2005	Author: F.Cordero
CRP_SPI1_3090	SPI DPE1 RESET	Issue: 1.1	Thu 02 Dec 2010	Author: F.Cordero
CRP_SPI1_5100	SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"	Issue: 1.0	Thu 30 Jan 2003	Author: F.Cordero
CRP_SPI1_5110	SPI RECOVERY FROM BCP "ESAM"	Issue: 1.1	Thu 30 Jan 2003	Author: F.Cordero
CRP_SPI1_5120	SPI RECOVERY FROM HIGH RADIATION BY IREM	Issue: 1.0	Thu 30 Jan 2003	Author: F.Cordero
CRP_SPI1_5130	SPI RECOVERY FROM DNEL	Issue: 1.0	Thu 30 Jan 2003	Author: F.Cordero
CRP_SPI_5140_A	CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC)	Issue: 1.0	Thu 02 Dec 2010	Author: F.Cordero/S.Fahmy
CRP_SPI_5140_B	CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC)	Issue: 1.0	Thu 02 Dec 2010	Author: F.Cordero/S.Fahmy
CRP_SPI1_9531	SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET	Issue: 1.0	Thu 30 Jan 2003	Author: F.Cordero



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CRP_SPI2_5100	SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"	Issue: 1.1	Thu 10 Apr 2008	Author: F.Cordero
CRP_SPI2_5110	SPI RECOVERY FROM BCP "ESAM"	Issue: 1.1	Wed 19 Feb 2003	Author: F.Cordero
CRP_SPI2_5120	SPI RECOVERY FROM HIGH RADIATION BY IREM	Issue: 1.0	Wed 19 Feb 2003	Author: F.Cordero
CRP_SPI2_5130	SPI RECOVERY FROM DNEL	Issue: 1.1	Thu 10 Apr 2008	Author: F.Cordero
CRP_SPI2_9531	SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET	Issue: 1.0	Wed 19 Feb 2003	Author: F.Cordero



START SPI HEAT PIPES THAWING (THAWIN)

Author : F.Cordero
 Filename : CRP_SPI1_0030.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_0030
 Issue Number : 1.0
 Page Number : 2 of 4

Step	Time	Event Description	TC	TM	Comments
		TM: T PC HEATPP R2 OR TM: PASS RAD SEN L1 OR TM: PASS RAD SEN L2 THEN proceed with next step to start thawing ELSE continue monitoring the above temperatures. END IF.		F3996 < -82.0653 degC OR T5104 < -80.0 degC OR T5111 < -80.0 degC	A-E0003
3		Prepare the commands			
3		On the Manual Stack load the sequence : EC0030 The following commands should appear in brief mode :			
3.1		TC: TSW ANTFRZ1-A OF	T5020		
3.2		TC: TSW ANTFRZ2-A OF	T5025		
3.3		TC: TSW HEATPIP-A ON	T5011		
3.4		Follow the next step and sub-steps to uplink the commands			
4		START SPI HEAT PIPES THAWING			
4		Switch Antifreeze Heater 1 Main OFF TC: TSW ANTFRZ1-A OF CEV: TSW STA ANTFZ 1A	T5020	T8504 = OPEN [0]	[Red. TC: = T6020]
4.1		Switch Antifreeze Heater 2 Main OFF TC: TSW ANTFRZ2-A OF CEV: TSW STA ANTFZ 2A	T5025	T8505 = OPEN [0]	[Red. TC: = T6025]
4.2		Switch Heat Pipe Heater Main ON TC: TSW HEATPIP-A ON CEV: TSW STA PIP TW-A	T5011	T8502 = CLOSE [1]	[Red. TC: = T6011]
4.3		Check Heat Pipe Heater Redundant is OFF TM: TSW STA PIP TW-B		T8602 = OPEN [0]	



START SPI HEAT PIPES THAWING (THAWIN)

Author : F.Cordero
Filename : CRP_SPI1_0030.PRC
Date Last Modified : Thu 28 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
5		END OF PROCEDURE			



START SPI HEAT PIPES THAWING (THAWIN)

Author : F.Cordero
Filename : CRP_SPI1_0030.PRC
Date Last Modified : Thu 28 Apr 2005

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CRP_SPI1_0030

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STOP SPI HEAT PIPES THAWING (THAOUT)

Author : F.Cordero
Filename : CRP_SPI1_0031.PRC
Date Last Modified : Thu 07 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_0031

Issue Number : 1.0
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CRP_SPI1_0031

STOP SPI HEAT PIPES THAWING (THAOUT)

Issue: 1.0

Thu 07 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE STOP SPI HEAT PIPES THAWING NOTE: This procedure can be executed either with SDPE1 or SDPE2 chain.			
1.1		REQUIRED S/C CONFIGURATION None			
1.2		SPECIAL OPERATIONAL CONSTRAINTS The procedure shall be executed after the procedure CRP_SPI1_0030 START HEAT PIPE THAWING and only if the temperatures of the SPI adiabatic area are in the correct range.			
1.3		REQUIRED INPUT/INTERFACES None			
2		Prepare the commands			
2		On Manual Stack load the sequence : EC0031 The following commands should appear in brief mode :			
2.1		TC: TSW HEATPIP-A OF	T5010		
2.2		TC: TSW HEATPIP-B OF	T5110		
2.3		TC: TSW ANTFRZ1-A ON	T5021		
2.4		TC: TSW ANTFRZ2-A ON	T5026		
2.5		Follow the next step and sub-steps to uplink the commands.			
3		STOP SPI HEAT PIPES THAWING			
3		Check the SPI Heat Pipes temperatures		A-E0003	



STOP SPI HEAT PIPES THAWING (THAOUT)

Author : F.Cordero
 Filename : CRP_SPI1_0031.PRC
 Date Last Modified : Thu 07 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_0031
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Step	Time	Event Description	TC	TM	Comments
		IF TM: HT PIP AD SEN K1 AND TM: HT PIP AD SEN K2 AND TM: HT PIP EV SEN K3 AND TM: HT PIP EV SEN K4 AND TM: PASS RAD SEN L1 AND TM: PASS RAD SEN L2 THEN proceed with next step to stop thawing ELSE continue monitoring the above temperatures. END IF.		T5102 > -47.6923 degC T5109 > -47.6923 degC T5103 > -47.6923 degC T5110 > -47.6923 degC T5104 > -47.6923 degC T5111 > -47.6923 degC	
3.1		Switch Heat Pipe Heater Main OFF TC: TSW HEATPIP-A OF CEV: TSW STA PIP TW-A	T5010	T8502 = OPEN [0]	[Red. TC: = T6010]
3.2		Switch Heat Pipe Heater Redundant OFF TC: TSW HEATPIP-B OF CEV: TSW STA PIP TW-B	T5110	T8602 = OPEN [0]	[Red. TC: = T6110]
3.3		Switch Antifreeze Heater 1 Main ON TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
3.4		Switch Antifreeze Heater 2 Main ON TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A	T5026	T8505 = CLOSE [1]	[Red. TC: = T6026]
		END OF PROCEDURE			



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU M TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI_0061_A.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_A
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CRP_SPI_0061_A

UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU M TC) Issue: 1.0 Thu 02 Dec 2010

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To switch off the SPI Sub-Assemblies without any check and switch on the antifreeze heaters 1&2 main. The nominal PPDU command chain will be used.			
1.1		REQUIRED CONFIGURATION PPDU main command chain working. This procedure can be used with either SPI1 or SPI2 chain.			
1.2		SPECIAL OPERATIONAL CONSTRAINTS - To be used only in emergency situations, in case the Sub-Assembly must be switched-off as soon as possible: for instance in case of DPE crash while the nominal flight configuration was applied on the S/A.			
2		Load on the Manual Stack the sequence : EC0061 containing the commands of this procedure.			
3		Switch-off SPI Sub-Assemblies			
3		Uplink the following commands (main PPDU command path), one after the other, even if they fail the the CEV.			
3.1		Switch AFEE Detection Chains OFF - Main power line TC: LCL AF2DET A OFF CEV: LCL STA AF2 DT A	P4060	P2121 = OPEN [0]	[Red. TC: = P4560]
3.2		Switch AFEE Detection Chains OFF - Redundant power line TC: LCL AF2DET B OFF CEV: LCL STA AF2 DT B	P4310	P2171 = OPEN [0]	[Red. TC: = P4810]



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU M TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI_0061_A.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_A
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Step	Time	Event Description	TC	TM	Comments
3.3		Switch AFEE TM/TC I/F OFF - Main power line TC: LCL AF2TMTC-A OF CEV: LCL STA TM/TC A	P4040	P2115 = OPEN [0]	[Red. TC: = P4540]
3.4		Switch AFEE TM/TC I/F OFF - Redundant power line TC: LCL AF2TMTC-B OF CEV: LCL STA TM/TC B	P4290	P2165 = OPEN [0]	[Red. TC: = P4790]
3.5		Switch ACS OFF - Main chain TC: LCL SPI ACS-A OF CEV: LCL STA ACS-A	P4048	P2117 = OPEN [0]	[Red. TC: = P4548]
3.6		Switch ACS OFF - Redundant chain TC: LCL SPI ACS-B OF CEV: LCL STA ACS-B	P4298	P2167 = OPEN [0]	[Red. TC: = P4798]
3.7		Power PSD OFF - Main power line TC: LCL PSD A OFF CEV: LCL STA PSD A	P4056	P2120 = OPEN [0]	[Red. TC: = P4556]
3.8		Power PSD OFF - Redundant power line TC: LCL PSD B OFF CEV: LCL STA PSD B	P4306	P2170 = OPEN [0]	[Red. TC: = P4806]
3.9		Switch DFEE OFF - Main chain TC: LCL DFEE-A OFF CEV: LCL STA DFEE-A	P4052	P2119 = OPEN [0]	[Red. TC: = P4552]
3.10		Switch DFEE OFF - Redundant chain TC: LCL DFEE-B OFF CEV: LCL STA DFEE-B	P4302	P2169 = OPEN [0]	[Red. TC: = P4802]
3.11		Enable Antifreeze Heater 1 Main TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
3.12		Enable Antifreeze Heater 2 Main TC: TSW ANTFRZ2-A ON	T5026		[Red. TC: = T6026]



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU M TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI_0061_A.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_A
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Step	Time	Event Description	TC	TM	Comments
		CEV: TSW STA ANTFZ 2A		T8505 = CLOSE [1]	
4		The following LCL currents should confirm that the S/As are off: TM: LCL CUR AF2 DT A TM: LCL CUR AF2 DT B TM: LCL CUR TM/TC A TM: LCL CUR TM/TC B TM: LCL CUR ACS-A TM: LCL CUR ACS-B TM: LCL CUR PSD A TM: LCL CUR PSD B TM: LCL CUR DFEE-A TM: LCL CUR DFEE-B		P2017 = 0.0 A [0] P2067 = 0.0 A [0] P2012 = 0.0 A [0] P2062 = 0.0 A [0] P2014 = 0.0 A [0] P2064 = 0.0 A [0] P2016 = 0.0 A [0] P2066 = 0.0 A [0] P2015 = 0.0 A [0] P2065 = 0.0 A [0]	
5		Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B Check ACS and Mask heaters are enabled TM: TSW STA ACS-A TM: TSW STA ACS-B Check SPI I/F heaters are enabled TM: TSW STA SPI IF A TM: TSW STA SPI IF B NOTE: Main heaters (heaters A) are nominally: - switched on in sunlight conditions - switched off in eclipse by PPDU SUN->ECL sequence and immediately post eclipse by ED EECLEX02 (except SPI IF heaters) - switched on post eclipse by PPDU ECL->SUN sequence and 20hr after eclipse by ED TENPE_00.		T8501 = CLOSE [1] T8601 = CLOSE [1] T8507 = CLOSE [1] T8607 = CLOSE [1] T8004 = CLOSE [1] T8104 = CLOSE [1]	If the S/C is not in eclipse If the S/C is not in eclipse If the S/C is not in eclipse



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU M TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
Filename : CRP_SPI_0061_A.PRC
Date Last Modified : Thu 02 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
6		END OF PROCEDURE			



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU R TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F Cordero
 Filename : CRP_SPI_0061_B.PRC
 Date Last Modified : Thu 02 Dec 2010

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CRP_SPI_0061_B

UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU R TC) Issue: 1.0 Thu 02 Dec 2010

Author: F Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To switch off the SPI Sub-Assemblies without any check and switch on the antifreeze heaters 1&2 main. The redundant PPDU command chain will be used.			
1.1		REQUIRED CONFIGURATION PPDU-B commanding interface in operation This procedure can be used with either SPI1 or SPI2 chain.			
1.2		SPECIAL OPERATIONAL CONSTRAINTS - To be used only in emergency situations, in case the Sub-Assembly must be switched-off as soon as possible: for instance in case of DPE crash while the nominal flight configuration was applied on the S/A.			
2		Load on the Manual Stack the sequence : FC0061 containing the commands of this procedure.			
3		Switch-off SPI Sub-Assemblies			
3		Uplink the following commands (redundant PPDU command path), one after the other, even if they fail the the CEV.			
3.1		Switch AFEE Detection Chains OFF - Main power line TC: LCL AF2DET A OFF CEV: LCL STA AF2 DT A	P4560		[Red. TC: = P4060]
3.2		Switch AFEE Detection Chains OFF - Redundant power line TC: LCL AF2DET B OFF	P4810	P2121 = OPEN [0]	[Red. TC: = P4310]



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU R TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F Cordero
 Filename : CRP_SPI_0061_B.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_B
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		CEV: LCL STA AF2 DT B		P2171 = OPEN [0]	
3.3		Switch AFEE TM/TC I/F OFF - Main power line TC: LCL AF2TMTC-A OF CEV: LCL STA TM/TC A	P4540	P2115 = OPEN [0]	[Red. TC: = P4040]
3.4		Switch AFEE TM/TC I/F OFF - Redundant power line TC: LCL AF2TMTC-B OF CEV: LCL STA TM/TC B	P4790	P2165 = OPEN [0]	[Red. TC: = P4290]
3.5		Switch ACS OFF - Main chain TC: LCL SPI ACS-A OF CEV: LCL STA ACS-A	P4548	P2117 = OPEN [0]	[Red. TC: = P4048]
3.6		Switch ACS OFF - Redundant chain TC: LCL SPI ACS-B OF CEV: LCL STA ACS-B	P4798	P2167 = OPEN [0]	[Red. TC: = P4298]
3.7		Power PSD OFF - Main power line TC: LCL PSD A OFF CEV: LCL STA PSD A	P4556	P2120 = OPEN [0]	[Red. TC: = P4056]
3.8		Power PSD OFF - Redundant power line TC: LCL PSD B OFF CEV: LCL STA PSD B	P4806	P2170 = OPEN [0]	[Red. TC: = P4306]
3.9		Switch DFEE OFF - Main chain TC: LCL DFEE-A OFF CEV: LCL STA DFEE-A	P4552	P2119 = OPEN [0]	[Red. TC: = P4052]
3.10		Switch DFEE OFF - Redundant chain TC: LCL DFEE-B OFF CEV: LCL STA DFEE-B	P4802	P2169 = OPEN [0]	[Red. TC: = P4302]
3.11		Enable Antifreeze Heater 1 Main TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T6021	T8504 = CLOSE [1]	[Red. TC: = T5021]
3.12		Enable Antifreeze Heater 2 Main			



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU R TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F Cordero
 Filename : CRP_SPI_0061_B.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_B
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		TC: TSW ANFRZ2-A ON CEV: TSW STA ANTFZ 2A	T6026	T8505 = CLOSE [1]	[Red. TC: = T5026]
4		The following LCL currents should confirm that the S/As are off: TM: LCL CUR AF2 DT A TM: LCL CUR AF2 DT B TM: LCL CUR TM/TC A TM: LCL CUR TM/TC B TM: LCL CUR ACS-A TM: LCL CUR ACS-B TM: LCL CUR PSD A TM: LCL CUR PSD B TM: LCL CUR DFEE-A TM: LCL CUR DFEE-B		P2017 = 0.0 A [0] P2067 = 0.0 A [0] P2012 = 0.0 A [0] P2062 = 0.0 A [0] P2014 = 0.0 A [0] P2064 = 0.0 A [0] P2016 = 0.0 A [0] P2066 = 0.0 A [0] P2015 = 0.0 A [0] P2065 = 0.0 A [0]	
5		Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B Check ACS and Mask heaters are enabled TM: TSW STA ACS-A TM: TSW STA ACS-B Check SPI I/F heaters are enabled TM: TSW STA SPI IF A TM: TSW STA SPI IF B		T8501 = CLOSE [1] T8601 = CLOSE [1] T8507 = CLOSE [1] T8607 = CLOSE [1] T8004 = CLOSE [1] T8104 = CLOSE [1]	If the S/C is not in eclipse If the S/C is not in eclipse If the S/C is not in eclipse



UNCONDITIONED SUBASSEMBLIES SWITCH OFF (PPDU R TC) INTEGRAL FLIGHT OPERATIONS PLAN

Author : F Cordero
Filename : CRP_SPI_0061_B.PRC
Date Last Modified : Thu 02 Dec 2010

CRP_SPI_0061_B
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Step	Time	Event Description	TC	TM	Comments
		NOTE: Main heaters (heaters A) are nominally: - switched on in sunlight conditions - switched off in eclipse by PPDU SUN->ECL sequence and immediately post eclipse by ED EECLEX02 (except SPI IF heaters) - switched on post eclipse by PPDU ECL->SUN sequence and 20hr after eclipse by ED TENPE_00.			
6		END OF PROCEDURE			



SPI AFEE RESET

Author : F.Cordero
 Filename : CRP_SPI1_3010.PRC
 Date Last Modified : Fri 29 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

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CRP_SPI1_3010

SPI AFEE RESET

Issue: 1.1

Fri 29 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-AFEE Reset (SDPE1 chain)			
1		PURPOSE To perform the Reset of the AFEE subassembly by cycling off/on the power supply			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		AFEE Reset			
2		On the manual stack, load the sequence: EC3010 containing all the commands of this procedure. Follow the next steps to uplink the commands.			NOTE: If additional Out-Of-Limits appear during the execution of this procedure, this is normal until the TM parameters are refreshed by the sequence EEORTM01.
3		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 <> INIT A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI AFEE RESET

Author : F.Cordero
 Filename : CRP_SPI1_3010.PRC
 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set AFEE configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = OFF E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = OFF E3901 = ON E3902 = ON E3903 = ON	
6		Switch AFEE Detection Chains OFF - Main power line TC: LCL AF2DET A OFF CEV: LCL STA AF2 DT A TM: LCL CUR AF2 DT A	P4060	P2121 = OPEN [0] P2017 = 0.0 A [0]	[Red. TC: = P4560]
7		Switch AFEE Detection Chains OFF - Redundant power line TC: LCL AF2DET B OFF CEV: LCL STA AF2 DT B TM: LCL CUR AF2 DT B	P4310	P2171 = OPEN [0] P2067 = 0.0 A [0]	[Red. TC: = P4810]
8		Switch AFEE TM/TC I/F OFF - Main power line TC: LCL AF2TMTC-A OF CEV: LCL STA TM/TC A TM: LCL CUR TM/TC A	P4040	P2115 = OPEN [0] P2012 = 0.0 A [0]	[Red. TC: = P4540]
9		Switch AFEE TM/TC I/F OFF - Redundant power line			



SPI AFEE RESET

Author : F.Cordero
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 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		TC: LCL AF2TMTC-B OF CEV: LCL STA TM/TC B TM: LCL CUR TM/TC B	P4290	P2165 = OPEN [0] P2062 = 0.0 A [0]	[Red. TC: = P4790]
10		Wait 3 minutes before uplinking the next TC			
11		Power AFEE TM/TC I/F ON - Main power line TC: LCL AF2TMTC-A ON CEV: LCL STA TM/TC A TM: LCL CUR TM/TC A TM: U AF TMTC R	P4041	A-E0100 P2115 = CLOSE [1] 0.1228 A < P2012 < 0.176 A 3.92 V < E3985 < 4.0 V	[Red. TC: = P4541]
12		Power AFEE Detection Chains ON - Main power line TC: LCL AF2DET A ON CEV: LCL STA AF2 DT A TM: LCL CUR AF2 DT A	P4061	P2121 = CLOSE [1] P2017 < 0.1543 A	[Red. TC: = P4561] It can be 0
13		Set AFEE configuration ON			
13.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
13.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = ON	
13.3		The reception of the following OEM is expected: - LSL error : NACK received. The error is expected from the S/A, after switch on.			



SPI AFEE RESET

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Filename : CRP_SPI1_3010.PRC
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CRP_SPI1_3010

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Step	Time	Event Description	TC	TM	Comments
		1024 (APID) OEM Number: 145 OEM CLASS: 1 SPI1 LSL ERROR			
14		Transition to Configuration Mode TC: TC MODE CHG X CEV: P IASW MODE	E0502		E0049 = CONF [3]
15		Load all patches for S/A TC: TC SEND PATCH Wait 2 minutes before uplinking the next TC	E0557		
16		Load all previous S/A configuration TC: TC SEND CONF Wait 3 minutes before uplinking the next TC	E0556		
17		At this point the remaining commands on the manual stack, except the last one, i.e. starting from E0280 to E0524, are on-request TM commands to refresh all sub-assembly telemetry. This represents the sequence: TC_SEQ: :SPIALLTMREP send all these commands in automatic. When the uplink is terminated check the expected status of AFEE LVPS, HVPS using the display: A-E0307	EEORTM01		
18		Transition to Photon Mode (if required) TC: TC MODE CHG S CEV: P IASW MODE	E0501		E0049 = PHOTON [4]
19		END OF PROCEDURE			



SPI AFEE SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3011.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3011

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CRP_SPI1_3011

SPI AFEE SWITCH OFF

Issue: 1.0

Thu 28 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-AFEE Switch off (SDPE1 chain)			
1		PURPOSE To perform the transition to STAND-BY mode, switch off the AFEE subassembly and configure the DPE IASW accordingly.			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		AFEE Switch off			
2		On the manual stack, load the sequence: EC3011 containing all the commands of this procedure. Follow the next steps to uplink the commands.			
3		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 <> INIT A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI AFEE SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3011.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3011
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set AFEE configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = OFF E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = OFF E3901 = ON E3902 = ON E3903 = ON	
6		Switch AFEE Detection Chains OFF - Main power line TC: LCL AF2DET A OFF CEV: LCL STA AF2 DT A TM: LCL CUR AF2 DT A	P4060	P2121 = OPEN [0] P2017 = 0.0 A [0]	[Red. TC: = P4560]
7		Switch AFEE Detection Chains OFF - Redundant power line TC: LCL AF2DET B OFF CEV: LCL STA AF2 DT B TM: LCL CUR AF2 DT B	P4310	P2171 = OPEN [0] P2067 = 0.0 A [0]	[Red. TC: = P4810]
8		Switch AFEE TM/TC I/F OFF - Main power line TC: LCL AF2TMTC-A OF CEV: LCL STA TM/TC A TM: LCL CUR TM/TC A	P4040	P2115 = OPEN [0] P2012 = 0.0 A [0]	[Red. TC: = P4540]
9		Switch AFEE TM/TC I/F OFF - Redundant power line			



SPI AFEE SWITCH OFF

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Filename : CRP_SPI1_3011.PRC
Date Last Modified : Thu 28 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		TC: LCL AF2TMTC-B OF CEV: LCL STA TM/TC B TM: LCL CUR TM/TC B	P4290	P2165 = OPEN [0] P2062 = 0.0 A [0]	[Red. TC: = P4790]
10		Switch Antifreeze 2 Main Heater ON TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A	T5026	A-E1050 T8505 = CLOSE [1]	[Red. TC: = T6026]
11		Switch Antifreeze 1 Main Heater ON TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
12		END OF PROCEDURE			



SPI AFEE SWITCH OFF

Author : F.Cordero
Filename : CRP_SPI1_3011.PRC
Date Last Modified : Thu 28 Apr 2005

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SPI AFEE ANALOG CHAINS SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3012.PRC
 Date Last Modified : Thu 28 Apr 2005

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CRP_SPI1_3012

SPI AFEE ANALOG CHAINS SWITCH OFF

Issue: 1.0

Thu 28 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-AFEE Analog Chains Switch off (SDPE1 chain)			
1		PURPOSE To perform the transition to STAND-BY mode, switch off the AFEE analog chains.			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		AFEE Analog Chains Switch off			
2		On the manual stack, load the sequence: EC3012 containing all the commands of this procedure. Follow the next steps to uplink the commands.			
3		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 <> INIT A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y CEV: P IASW MODE	E0505		E0049 = STAND BY 2 [2]



SPI AFEE ANALOG CHAINS SWITCH OFF

Author : F.Cordero
Filename : CRP_SPI1_3012.PRC
Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3012
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Step	Time	Event Description	TC	TM	Comments
5		Switch AFEE Detection Chains OFF - Main power line TC: LCL AF2DET A OFF CEV: LCL STA AF2 DT A TM: LCL CUR AF2 DT A	P4060	P2121 = OPEN [0] P2017 = 0.0 A [0]	[Red. TC: = P4560]
6		Switch AFEE Detection Chains OFF - Redundant power line TC: LCL AF2DET B OFF CEV: LCL STA AF2 DT B TM: LCL CUR AF2 DT B	P4310	P2171 = OPEN [0] P2067 = 0.0 A [0]	[Red. TC: = P4810]
7		Switch Antifreeze 2 Main Heater ON TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A	T5026	A-E1050 T8505 = CLOSE [1]	[Red. TC: = T6026]
8		Switch Antifreeze 1 Main Heater ON TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
9		END OF PROCEDURE			



SPI PSD RESET

Author : F.Cordero
 Filename : CRP_SPI1_3030.PRC
 Date Last Modified : Thu 29 Oct 2009

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3030
 Issue Number : 1.1
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CRP_SPI1_3030

SPI PSD RESET

Issue: 1.1

Thu 29 Oct 2009

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-PSD Reset (SDPE1 chain)			
1		PURPOSE To perform the Reset of the PSD subassembly by cycling off/on the power supply			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		PSD Reset			
2		On the manual stack, load the sequence: EC3030 containing all the commands of this procedure. Follow the next steps to uplink the commands.			NOTE: If additional Out-Of-Limits appear during the execution of this procedure, this is normal until the TM parameters are refreshed by the sequence EEORTM01.
3		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 <> INIT A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI PSD RESET

Author : F.Cordero
 Filename : CRP_SPI1_3030.PRC
 Date Last Modified : Thu 29 Oct 2009

INTEGRAL FLIGHT OPERATIONS PLAN

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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set PSD configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = OFF E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = OFF	
6		Power PSD OFF - Main power line TC: LCL PSD A OFF CEV: LCL STA PSD A TM: LCL CUR PSD A	P4056	P2120 = OPEN [0] P2016 = 0.0 A [0]	[Red. TC: = P4556]
7		Power PSD OFF - Redundant power line TC: LCL PSD B OFF CEV: LCL STA PSD B TM: LCL CUR PSD B	P4306	P2170 = OPEN [0] P2066 = 0.0 A [0]	[Red. TC: = P4806]
8		Wait 3 minutes before uplinking the next TC			
9		Power PSD ON TC: LCL PSD A ON CEV: LCL STA PSD A TM: LCL CUR PSD A TM: U PD LVPS R	P4057	P2120 = CLOSE [1] 0.31 A < P2016 < 0.5 A 4.06 V < E3989 < 4.25 V	[Red. TC: = P4557]
10		Set PSD configuration ON			



SPI PSD RESET

Author : F.Cordero
 Filename : CRP_SPI1_3030.PRC
 Date Last Modified : Thu 29 Oct 2009

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CRP_SPI1_3030
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Step	Time	Event Description	TC	TM	Comments
10.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
10.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = ON	
10.3		The reception of the following OEM is expected: - LSL error : NACK received. The error is expected from the S/A, after switch on. 1024 (APID) OEM Number: 145 OEM CLASS: 1 SPI1 LSL ERROR			
11		Transition to Configuration Mode TC: TC MODE CHG X CEV: P IASW MODE	E0502	E0049 = CONF [3]	
12		Load all patches for S/A TC: TC SEND PATCH Wait 2 minutes before uplinking the next TC	E0557		
13		Load all previous S/A configuration TC: TC SEND CONF Wait 3 minutes before uplinking the next TC	E0556		
14		At this point the remaining commands on the manual stack, except the last one, i.e. starting from E0280 to E0524, are on-request TM commands to refresh all sub-assembly telemetry. This represents the sequence:			



SPI PSD RESET

Author : F.Cordero
Filename : CRP_SPI1_3030.PRC
Date Last Modified : Thu 29 Oct 2009

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3030

Issue Number : 1.1
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Step	Time	Event Description	TC	TM	Comments
		TC_SEQ: :SPIALLTMREP send all these commands in automatic.	EEORTM01		
15		Transition to Photon Mode (if required) TC: TC MODE CHG S CEV: P IASW MODE	E0501	E0049 = PHOTON [4]	
16		END OF PROCEDURE			



SPI PSD SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3031.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3031
 Issue Number : 1.0
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CRP_SPI1_3031

SPI PSD SWITCH OFF

Issue: 1.0

Thu 28 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-PSD Switch off (SDPE1 chain)			
1		PURPOSE To perform the transition to STAND-BY mode, switch off the PSD subassembly and configure the DPE IASW accordingly.			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		PSD Switch off			
2		On the manual stack, load the sequence: EC3031 containing all the commands of this procedure. Follow the next steps to uplink the commands.			
3		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 <> INIT A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI PSD SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3031.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3031
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set PSD configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = OFF E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = OFF	
6		Power PSD OFF - Main power line TC: LCL PSD A OFF CEV: LCL STA PSD A TM: LCL CUR PSD A	P4056	P2120 = OPEN [0] P2016 = 0.0 A [0]	[Red. TC: = P4556]
7		Power PSD OFF - Redundant power line TC: LCL PSD B OFF CEV: LCL STA PSD B TM: LCL CUR PSD B	P4306	P2170 = OPEN [0] P2066 = 0.0 A [0]	[Red. TC: = P4806]
8		END OF PROCEDURE			



SPI DFEE RESET

Author : F.Cordero
 Filename : CRP_SPI1_3050.PRC
 Date Last Modified : Fri 29 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

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 Issue Number : 1.1
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CRP_SPI1_3050

SPI DFEE RESET

Issue: 1.1

Fri 29 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-DFEE Reset (SDPE1 chain)			
1		PURPOSE To perform the Reset of the DFEE subassembly by cycling off/on the power supply			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		DFEE Reset			
2		On the manual stack, load the sequence: EC3050 containing all the commands of this procedure. Follow the next steps to uplink the commands.			NOTE: If additional Out-Of-Limits appear during the execution of this procedure, this is normal until the TM parameters are refreshed by the sequence EEORTM01.
3		Check DPE is in Running state and that IASW is in any mode greater/equal than STAND-BY 1 TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 >= STAND BY 1 A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI DFEE RESET

Author : F.Cordero
 Filename : CRP_SPI1_3050.PRC
 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set DFEE configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = OFF E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = OFF E3902 = ON E3903 = ON	
6		Switch DFEE OFF - Main chain TC: LCL DFEE-A OFF CEV: LCL STA DFEE-A TM: LCL CUR DFEE-A	P4052	P2119 = OPEN [0] P2015 = 0.0 A [0]	[Red. TC: = P4552]
7		Wait 3 minutes before uplinking the next TC			
8		Switch DFEE power ON TC: LCL DFEE-A ON CEV: LCL STA DFEE-A TM: LCL CUR DFEE-A TM: U DF LVPS R	P4053	P2119 = CLOSE [1] 0.1816 A < P2015 < 0.27 A 4.04 V < E3987 < 4.25 V	[Red. TC: = P4553]
9		Set DFEE configuration ON			



SPI DFEE RESET

Author : F.Cordero
 Filename : CRP_SPI1_3050.PRC
 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
9.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
9.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = ON	
9.3		The reception of the following OEM is expected: - LSL error : NACK received. The error is expected from the S/A, after switch on. 1024 (APID) OEM Number: 145 OEM CLASS: 1 SPI1 LSL ERROR			
10		Transition to Configuration Mode TC: TC MODE CHG X CEV: P IASW MODE	E0502	E0049 = CONF [3]	
11		Load all patches for S/A TC: TC SEND PATCH Wait 2 minutes before uplinking the next TC	E0557		
12		Load all previous S/A configuration TC: TC SEND CONF Wait 3 minutes before uplinking the next TC	E0556		
13		At this point the remaining commands on the manual stack, except the last one, i.e. starting from E0280 to E0524, are on-request TM commands to refresh all sub-assembly telemetry. This represents the sequence:			



SPI DFEE RESET

Author : F.Cordero
Filename : CRP_SPI1_3050.PRC
Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		TC_SEQ: :SPIALLTMREP send all these commands in automatic.	EEORTM01		
14		Transition to Photon Mode (if required) TC: TC MODE CHG S CEV: P IASW MODE	E0501	E0049 = PHOTON [4]	
15		END OF PROCEDURE			



SPI DFEE SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3051.PRC
 Date Last Modified : Thu 28 Apr 2005

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CRP_SPI1_3051

SPI DFEE SWITCH OFF

Issue: 1.0

Thu 28 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-DFEE Switch off (SDPE1 chain)			
1		PURPOSE To perform the transition to STAND-BY mode, switch off the DFEE subassembly and configure the DPE IASW accordingly.			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		DFEE Switch off			
2		On the manual stack, load the sequence: EC3051 containing all the commands of this procedure. Follow the next steps to uplink the commands.			
3		Check DPE is in Running state and that IASW is in any mode greater/equal than STAND-BY 1 TM: SDPE1 RUNNING TM: P IASW MODE Check AFEE, DFEE and PSD heaters are enabled (Camera heaters). TM: LCL STA CAM HT-A TM: LCL STA CAM HT-B		A-E0100 E9243 = RUNNING [1] E0049 >= STAND BY 1 A-E0001 T8501 = CLOSE [1] T8601 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI DFEE SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3051.PRC
 Date Last Modified : Thu 28 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
5		Set DFEE configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = OFF E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = OFF E3902 = ON E3903 = ON	
6		Switch DFEE OFF - Main chain TC: LCL DFEE-A OFF CEV: LCL STA DFEE-A TM: LCL CUR DFEE-A	P4052	P2119 = OPEN [0] P2015 = 0.0 A [0]	[Red. TC: = P4552]
7		END OF PROCEDURE			



SPI ACS RESET

Author : F.Cordero
 Filename : CRP_SPI1_3070.PRC
 Date Last Modified : Fri 29 Apr 2005

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 Issue Number : 1.1
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CRP_SPI1_3070

SPI ACS RESET

Issue: 1.1

Fri 29 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-ACS Reset (SDPE1 chain)			
1		PURPOSE To perform the Reset of the ACS subassembly by cycling off/on the power supply			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		ACS Reset			
2		On the manual stack, load the sequence: EC3070 containing all the commands of this procedure. Follow the next steps to uplink the commands.			NOTE: If additional Out-Of-Limits appear during the execution of this procedure, this is normal until the TM parameters are refreshed by the sequence EEORTM01.
3		Check DPE is in Running state and that IASW is in any mode greater/equal than STAND-BY 1 TM: SDPE1 RUNNING TM: P IASW MODE Check ACS and Mask heaters TM: TSW STA ACS-A TM: TSW STA ACS-B		A-E0100 E9243 = RUNNING [1] E0049 >= STAND BY 1 A-E0002 T8507 = CLOSE [1] T8607 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y CEV: P IASW MODE	E0505		E0049 = STAND BY 2 [2]



SPI ACS RESET

Author : F.Cordero
 Filename : CRP_SPI1_3070.PRC
 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
5		Set ACS configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = OFF E8903 = ON E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = OFF E3903 = ON	
6		Switch OFF ACS TC: LCL SPI ACS-A OF CEV: LCL STA ACS-A TM: LCL CUR ACS-A	P4048	A-E0100 P2117 = OPEN [0] P2014 = 0.0 A	[Red. TC: = P4548]
7		Wait 3 minutes before uplinking the next TC			
8		Power ACS ON TC: LCL SPI ACS-A ON CEV: LCL STA ACS-A TM: LCL CUR ACS-A TM: U AS VCU R	P4049	P2117 = CLOSE [1] 1.1037 A < P2014 < 1.5 A 25.8633 V < E3990 < 30.9 V	[Red. TC: = P4549]
9		Set ACS configuration ON			



SPI ACS RESET

Author : F.Cordero
 Filename : CRP_SPI1_3070.PRC
 Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
9.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = ON E8903 = ON E8901 = ON E9990 = 0	A-E0100	
9.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = ON E3903 = ON	
9.3		The reception of the following OEM is expected: - LSL error : NACK received. The error is expected from the S/A, after switch on. 1024 (APID) OEM Number: 145 OEM CLASS: 1 SPI1 LSL ERROR			
10		Transition to Configuration Mode TC: TC MODE CHG X CEV: P IASW MODE	E0502	E0049 = CONF [3]	
11		Load all patches for S/A TC: TC SEND PATCH Wait 2 minutes before uplinking the next TC	E0557		
12		Load all previous S/A configuration TC: TC SEND CONF Wait 3 minutes before uplinking the next TC	E0556		
13		At this point the remaining commands on the manual stack, except the last one, i.e. starting from E0280 to E0524, are on-request TM commands to refresh all sub-assembly telemetry. This represents the sequence:			



SPI ACS RESET

Author : F.Cordero
Filename : CRP_SPI1_3070.PRC
Date Last Modified : Fri 29 Apr 2005

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Step	Time	Event Description	TC	TM	Comments
		TC_SEQ: :SPIALLTMREP send all these commands in automatic. When the uplink is terminated check the expected status of ACS HVPS using the display: A-E0435 A-E0436	EEORTM01		
14		Transition to Photon Mode (if required) TC: TC MODE CHG S CEV: P IASW MODE	E0501	E0049 = PHOTON [4]	
15		END OF PROCEDURE			



SPI ACS SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3071.PRC
 Date Last Modified : Fri 29 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

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 Issue Number : 1.0
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CRP_SPI1_3071

SPI ACS SWITCH OFF

Issue: 1.0

Fri 29 Apr 2005

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI-ACS Switch off (SDPE1 chain)			
1		PURPOSE To perform the transition to STAND-BY mode, switch off the DFEE subassembly and configure the DPE IASW accordingly.			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		ACS Switch off			
2		On the manual stack, load the sequence: EC3071 containing all the commands of this procedure. Follow the next steps to uplink the commands.			
3		Check DPE is in Running state and that IASW is in any mode greater/equal than STAND-BY 1 TM: SDPE1 RUNNING TM: P IASW MODE Check ACS and Mask heaters TM: TSW STA ACS-A TM: TSW STA ACS-B		A-E0100 E9243 = RUNNING [1] E0049 >= STAND BY 1 A-E0002 T8507 = CLOSE [1] T8607 = CLOSE [1]	
4		Transition to Stand-By TC: TC MODE CHG Y CEV: P IASW MODE	E0505		E0049 = STAND BY 2 [2]



SPI ACS SWITCH OFF

Author : F.Cordero
 Filename : CRP_SPI1_3071.PRC
 Date Last Modified : Fri 29 Apr 2005

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3071
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
5		Set ACS configuration OFF			
5.1		TC: TC ON OFF CONF TC_Par: . : S SW AF-OO L TC_Par: . : S SW AS-OO L TC_Par: . : S SW PD-OO L TC_Par: . : S SW DF-OO L TC_Par: . : SPI1 CHKSUM	E0500 E8900 = ON E8902 = OFF E8903 = ON E8901 = ON E9990 = 0	A-E0100	
5.2		TC: TC-R ON OFF CONF TM: R SW AF-OO L TM: R SW DF-OO L TM: R RW AS-OO L TM: R SW PD-OO L	E0525	E3900 = ON E3901 = ON E3902 = OFF E3903 = ON	
6		Switch OFF ACS TC: LCL SPI ACS-A OF CEV: LCL STA ACS-A TM: LCL CUR ACS-A	P4048	A-E0100 P2117 = OPEN [0] P2014 = 0.0 A	[Red. TC: = P4548]
7		END OF PROCEDURE			



SPI DPE1 RESET

Author : F.Cordero
 Filename : CRP_SPI1_3090.PRC
 Date Last Modified : Thu 02 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

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 Issue Number : 1.1
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CRP_SPI1_3090

SPI DPE1 RESET

Issue: 1.1

Thu 02 Dec 2010

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		SPI DPE1 chain reset			
1		PURPOSE To perform the reset of the complete SPI DPE1 chain by cycling off/on the power supply to the DPE1 and all the subassemblies			
1.1		REQUIRED S/C CONFIGURATION Any SPI mode except INIT			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Execution to be authorised by SOM/SOE on-call/SPI SOE			
1.3		REQUIRED INPUT/INTERFACES None			
2		SDPE1 Reset			
2		NOTE: It is normal to have several Out-Of-Limits during the execution of this procedure, until the TM parameters are refreshed and nominal box temperatures are reached.			
3		In case that this procedure is being executed in reponse to a an LCL trip-off of the DPE or a DPE crash, first execute CRP_SPI_0061_A in order to power off the subassemblies and then continue from step 6 below. Otherwise continue from step 4 below.			
4		Check DPE is in Running state and that IASW is in any mode except INIT TM: SDPE1 RUNNING TM: P IASW MODE		A-E0100 E9243 = RUNNING [1] E0049 <> INIT	
5		Transition to Stand-By TC: TC MODE CHG Y	E0505		



SPI DPE1 RESET

Author : F.Cordero
 Filename : CRP_SPI1_3090.PRC
 Date Last Modified : Thu 02 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

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 Issue Number : 1.1
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Step	Time	Event Description	TC	TM	Comments
		CEV: P IASW MODE		E0049 = STAND BY 2 [2]	
6		Switch Antifreeze 2 Main Heater ON TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A	T5026	A-E1050 T8505 = CLOSE [1]	[Red. TC: = T6026]
7		Switch Antifreeze 1 Main Heater ON TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
8		Switch off the subassemblies by executing procedure: FCP_SPI1_0061 : : SPI SUB- ASSEMBLIES SWITCH OFF N.B. In case of an LCL trip of the DPE or DPE crash the procedure CRP_SPI_0061_A should have been executed above and this step can be ommitted.			
9		Execute procedures : FCP_SPI1_0064 : : SPI DPE1 DISABLE BCP DISTRIBUTION FCP_SPI1_0065 : : SPI DPE1 SWITCH OFF			
10		WAIT 3 min			
11		Execute procedure : FCP_SPI1_0044 : : SPI DPE1 DPE AND CSSW ACTIVATION			
12		Execute procedure : FCP_SPI1_9810 : : SPI DPE1 Load New S/W Version to load the latest version of SPI IASW.			The procedure should be executed by the OBSM engineer. The latest SPI IASW version is 431 at the issue time of this procedure.
13		Execute procedure : FCP_SPI1_0041 : : SPI IASW ACTIVATION			
14		Execute procedure :			



SPI DPE1 RESET

Author : F.Cordero
 Filename : CRP_SPI1_3090.PRC
 Date Last Modified : Thu 02 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI1_0042 : : SPI DPE1 ENABLE BCP DISTRIBUTION			
15		Execute procedure : FCP_SPI1_0043 : : SPI SUB- ASSEMBLIES SWITCH ON			
16		If requested, execute the following procedure to perform a thorough TM check: FCP_SPI1_0045 : : SPI SUBASSEMBLY EXTENDED TM CHECK			this is just an intermediate check before full activation
17		IF SPI is in COMMANDED state THEN continue ELSE wait until COMMANDED state is achieved. TM: P IASW OPE-STUS		A-E0100 E0069 = COMMANDE [0]	if not in COMMANDED state, SPI could be for instance inside the belts
18		Transition to Configuration Mode TC: TC MODE CHG X CEV: P IASW MODE	E0502	E0049 = CONF [3]	
18.1		Verify that the Mode is Configuration for S/As TM: S AF STATUS1 TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1		E3881 = CONF [1] E3884 = CONF [1] E3887 = CONF [1] E3890 = CONF [1]	
19		If required, execute the applicable procedure for Sub-Assembly SW maintenance: FCP_SPI1_9835 : : SPI DFEE Main Record Patch/Dump via OBSM FCP_SPI1_9855 : : SPI PSD Main Record Patch/Dump via OBSM FCP_SPI1_9875 : : SPI ACS Main Record Patch/Dump via OBSM Check that the S/A software maintenance activity is over: TM: R-SW MAINT		E4339 = NO/MAINT [0]	Not required at the issue time of this procedure. The procedures should be executed by the OBSM engineer.



SPI DPE1 RESET

Author : F.Cordero
 Filename : CRP_SPI1_3090.PRC
 Date Last Modified : Thu 02 Dec 2010

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CRP_SPI1_3090
 Issue Number : 1.1
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Step	Time	Event Description	TC	TM	Comments
20		Execute procedure : FCP_SPI1_0171 : : SPI LOAD PSD NOMINAL FLIGHT CONFIGURATION			
21		Execute procedure : FCP_SPI1_0174 : : SPI LOAD DFEE NOMINAL FLIGHT CONFIGURATION			
22		IF outside the radiation belts and there is no high radiation condition (e.g. solar flare) THEN execute procedure : FCP_SPI1_0177 : : SPI LOAD ACS NOMINAL FLIGHT CONFIGURATION ELSE postpone the execution of this procedure when conditions are met			
23		IF cold plate temperature < 117K TM: T CR COLDPLT L2 THEN execute the procedure : FCP_SPI1_0173 : : SPI LOAD AFEE HV ON CONFIGURATION ELSE execute procedure : FCP_SPI1_0172 : : SPI LOAD AFEE HV OFF CONFIGURATION ENDIF		A-E1050 E0392 <= 116.99 degK	
24		Uplink the following sequence in automatic: TC_SEQ: :SPIALLTMREP	EEORTM01		
25		If required, transition to Photon Mode (nominal science mode) TC: TC MODE CHG S CEV: P IASW MODE	E0501	A-E0100 E0049 = PHOTON [4]	
25.1		Verify that the Mode is Operational for S/As TM: S AF STATUS1		E3881 = OPER [2]	



SPI DPE1 RESET

Author : F.Cordero
Filename : CRP_SPI1_3090.PRC
Date Last Modified : Thu 02 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3090

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Step	Time	Event Description	TC	TM	Comments
		TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1		E3884 = OPER [2] E3887 = OPER [2] E3890 = OPER [2]	
26		END OF PROCEDURE			



SPI DPE1 RESET

Author : F.Cordero
Filename : CRP_SPI1_3090.PRC
Date Last Modified : Thu 02 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_3090

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SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_5100

Author : F.Cordero
Filename : CRP_SPI1_5100.PRC
Date Last Modified : Thu 30 Jan 2003

Issue Number : 1.0
Page Number : 1 of 4

CRP_SPI1_5100

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF" Issue: 1.0

Thu 30 Jan 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover from the SPI automatic reactions to imminent switch off BCP flag. If the reactions are enabled, SPI enters stand-by and hangs up until the DPE and S/As are re-initialised. This procedure provide the flow to follow for the re-initialisation up to the nominal flight configuration			
1.1		REQUIRED S/C CONFIGURATION S/C in sunlight			
1.2		SPECIAL OPERATIONAL CONSTRAINTS See called procedures			
1.3		REQUIRED INPUT/INTERFACES See called procedures			
2		ENTRY CONDITIONS			
2		DPE does not responds to commands and the following OEM was generated just before hanging up: 1024 (APID) OEM Number: 129 OEM CLASS: 0 SPI1 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE AND/OR 1024 (APID) OEM Number: 130 OEM CLASS: 0 SPI1 STATE CHANGE TM: NEW STATE		E9753 = BEGIN E9754 = SWITCH OFF E9756 = OFF IMMINENT	TBC OEM parameter OEM parameter TBC OEM parameter
3		FIRST ACTIONS			



SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
 Filename : CRP_SPI1_5100.PRC
 Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_5100
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Step	Time	Event Description	TC	TM	Comments
3		On the TM Desktop, in playback, check that the reactions to "imminent switch-off" flag were actually enabled prior to the "imminent-off" TM: R SW IM-SW L		A-E0110 E3960 = ENABLE	
3.1		Wait that the flag is set non-imminent: TM: IMM INSTRU OFF		D5212 = OFF IMMINENT	
3.2		Inform SOM/SOE on-call and wait.			
4		RECOVERY			
4		Execute procedure : CRP_SPI1_0061 UNCONDITIONED SUB-ASSEMBLIES SWITCH OFF (PPDU main TC chain)			
4.1		Execute procedure : FCP_SPI1_0064 SPI DPE1 BCP DISTRIBUTION DISABLE			
4.2		Execute procedure : FCP_SPI1_0065 SPI DPE1 SWITCH OFF			
4.3		Execute procedure : FCP_SPI1_0044 SPI DPE1 AND CSSW ACTIVATION			
4.4		Execute procedure : FCP_SPI1_0041 SPI IASW ACTIVATION			
4.5		Execute procedure : FCP_SPI1_0042 SPI DPE1 BCP DISTRIBUTION ENABLE			
4.6		Execute procedure : FCP_SPI1_0043 SPI SUB_ASSEMBLIES SWITCH-ON			
4.7		Execute procedure : FCP_SPI1_0080 SPI TRANSITION FROM STANDBY2 TO CONFIGURATION			
4.8		Execute procedure :			



SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
Filename : CRP_SPI1_5100.PRC
Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_5100
Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI1_0178 SPI LOAD IASW NOMINAL FLIGHT CONFIGURATION			
4.9		Execute procedure : FCP_SPI1_0177 SPI LOAD ACS NOMINAL FLIGHT CONFIGURATION			
4.10		Execute procedure : FCP_SPI1_0174 SPI LOAD DFEE NOMINAL FLIGHT CONFIGURATION			
4.11		Execute procedure : FCP_SPI1_0173 SPI LOAD AFEE HV ON CONFIGURATION			
4.12		Execute procedure : FCP_SPI1_0171 SPI LOAD PSD NOMINAL FLIGHT CONFIGURATION			
5		END OF PROCEDURE			



SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
Filename : CRP_SPI1_5100.PRC
Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_5100

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SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
 Filename : CRP_SPI1_5110.PRC
 Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

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SPI RECOVERY FROM BCP "ESAM"

Issue: 1.1

Thu 30 Jan 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE</p> <p>To recover from the SPI automatic reactions to ESAM BCP flag.</p> <p>If the reactions are enabled, SPI enters configuration mode if the mode was PHOTON, EMGY, DIAG, CAL, otherwise stays in the current mode.</p> <p>ACS, PSAC and GeD HVs are maintained on.</p>			
1.1		<p>REQUIRED S/C CONFIGURATION</p> <p>S/C not in ESAM to start recovery</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>See called procedures</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>See called procedures</p>			
2		<p>ENTRY CONDITIONS</p>			
2		<p>The following OEM indicates that SPI has reacted to ESAM BCP flag:</p> <p>1024 (APID) OEM Number: 129 OEM CLASS: 0 SPI1 ONBOARD EVENTS</p> <p>TM: EVENT BEGIN END</p> <p>TM: EVENT TYPE</p>		<p>E9753 = BEGIN</p> <p>E9754 = ESAM</p>	<p>OEM parameter</p> <p>OEM parameter</p>
2.1		<p>The following TM parameters also indicates that SPI has reacted to ESAM flag:</p> <p>TM: P IASW ESAM</p>		<p>A-E0110</p> <p>E0169 = YES</p>	
3		<p>FIRST ACTIONS</p>			
3		<p>Check that the reactions to "ESAM" flag are actually enabled.</p> <p>TM: R SW ESAM L</p>		<p>E3961 = ENABLE</p>	



SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
 Filename : CRP_SPI1_5110.PRC
 Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
3.1		Take note what was the mode before the reactions (in playback on the TM Desktop): TM: P IASW MODE		E0049 =	
3.2		Set the TM Desktop in real time. Wait that the flag indicates that ESAM is not active any longer (after AOCS recovery from ESAM): TM: ESAM FLAG TM: P IASW ESAM and the appearance of the following OEM 1024 (APID) OEM Number: 129 OEM CLASS: 0 SPI1 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		D5219 = NOTACTIVATED E0169 = NO E9753 = END E9754 = ESAM	OEM parameter OEM parameter
4		RECOVERY			
4		IF during the active period of SPI reactions to ESAM an eclipse occurred THEN at eclipse exit and rad belts exit: - inform SOM/SOE on-call and wait before continuing - check TM: P IASW MODE - execute FCP_SPI1_0176 : : SPI RESTORE ALL SUBASSEMBLY SW PATCHES FCP_SPI1_0175 : : SPI RESTORE ALL CONFIGURATION SETTINGS END IF		A-E0110 E0049 = CONF	
4.1		If the mode was: TM: P IASW MODE OR TM: P IASW MODE OR		E0049 = INIT E0049 = STAND BY 1	



SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
 Filename : CRP_SPI1_5110.PRC
 Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
		TM: P IASW MODE OR TM: P IASW MODE THEN - Do NOT do anything - GOTO END ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI1_0130 : : SPI TRANSITION TO PHOTON MODE FCP_SPI1_0131 : : FORCE START OF SPECTRA BUILDING ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI1_0140 : : SPI TRANSITION TO (PSD) CALIBRATION MODE ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI1_0135 : : SPI TRANSITION TO TM EMERGENCY MODE ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required:		E0049 = STAND BY 2 E0049 = CONF E0049 = PHOTON E0049 = CAL E0049 = EMCY E0049 = DIAG	



SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
Filename : CRP_SPI1_5110.PRC
Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI1_0150 : : SPI TRANSITION TO DIAGNOSTIC MODE ENDIF			
4.2		Inform SOM/SOE on-call			
5		END OF PROCEDURE			



SPI RECOVERY FROM HIGH RADIATION BY IREM

Author : F.Cordero
Filename : CRP_SPI1_5120.PRC
Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

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CRP_SPI1_5120

SPI RECOVERY FROM HIGH RADIATION BY IREM Issue: 1.0

Thu 30 Jan 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE</p> <p>To monitor the SPI automatic recovery from the reactions to high radiation conditions by IREM.</p> <p>OR</p> <p>To give instructions, in case the automatic recovery is disabled (TM E3944)</p> <p>NOTE: The following is a description of SPI reactions to IREM :</p> <p>If the reactions are enabled (TM E3937), SPI enters CONF or STAND-BY2 mode, according to the configuration parameter (TM E3936).</p> <p>When the count rate (i.e.TM D5214 RMC#1, other counters are ignored) > threshold (TM E3938):</p> <p>If CONF is selected: ACS and PSAC HV are switched off. GeD HV stays on.</p> <p>If STAND-BY is selected: All HVs are switched off.</p> <p>When the count rate (TM D5214) < threshold (TM E3940) : Automatic return to the initial configuration settings if the autorecovery is enabled (TM E3944).</p> <p>The parameters TM E3939/E3941 define a n-count filter for entering/exiting the high radiation condition.</p>			
1.1		<p>REQUIRED S/C CONFIGURATION</p> <p>S/C not in high radiation condition</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>See called procedures</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>See called procedures</p>			



SPI RECOVERY FROM HIGH RADIATION BY IREM

Author : F.Cordero
 Filename : CRP_SPI1_5120.PRC
 Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
2		ENTRY CONDITIONS			
2		The following OEM indicates that SPI has entered High Radiation conditions by IREM: 1024 (APID) OEM Number: 129 OEM CLASS: 0 SPI1 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		E9753 = BEGIN E9754 = FLARE	
3		FIRST ACTIONS			
3		Check that the reactions to IREM are actually enabled. TM: R SW BGD-CAP L		A-E0110 E3937 = ENABLE	
3.1		Take note what was the mode before the reactions (in playback on the TM Desktop): TM: P IASW MODE TM: S AF STATUS1 TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1		A-E0100 E0049 = E3881 = E3884 = E3887 = E3890 =	
3.2		On the Manual Stack load the sequence: EEORTM01 and uplink it in automatic			
3.3		IF TM: R SW RAD-MOD L THEN - Check that TM: P IASW MODE - Check that the all HVs are OFF: from TM: R AF HVPS-OO L0 to TM: R AF HVPS-OO L18		A-E0110 E3936 = STBY E0049 = CONF A-E0307 E0190 = OFF [0] E0208 = OFF [0]	



SPI RECOVERY FROM HIGH RADIATION BY IREM

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Step	Time	Event Description	TC	TM	Comments
		and from TM: R AS HV-OO L0 to TM: R AS HV-OO L90 must indicate OFF ELSE IF TM: R SW RAD-MOD L THEN - Check that TM: P IASW MODE - Check that the ACS and PSAC HVs are OFF: from TM: R AS HV-OO L0 to TM: R AS HV-OO L90 must indicate OFF		A-E0435 A-E0436 E0500 = OFF [0] E0590 = OFF [0] E3936 = CONF E0049 = CONF A-E0435 A-E0436 E0500 = OFF [0] E0590 = OFF [0]	
3.4		Inform SOM/SOE on-call			
3.5		Wait for the following OEM, indicating that SPI has exited from High Radiation conditions by IREM: 1024 (APID) OEM Number: 129 OEM CLASS: 0 SPI1 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		E9753 = END E9754 = FLARE	
4		RECOVERY			
4		IF the SPI automatic reconfiguration is enabled TM: R SW RCONF-CAP L		A-E0110 E3944 = ENABLE	Nominal condition



SPI RECOVERY FROM HIGH RADIATION BY IREM

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Step	Time	Event Description	TC	TM	Comments
		THEN - do NOT do anything - wait that the configuration is recovered and check that the mode is recovered : TM: P IASW MODE TM: S AF STATUS1 TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1 - SOM/SOE on-call to evaluate further checks ELSE IF the SPI automatic reconfiguration is disabled TM: R SW RCONF-CAP L THEN - do NOT do anything - wait for SOM/SOE on-call to decide ENDIF		A-E0100 E0049 = <mode before high rad> E3881 = <mode before high rad> E3884 = <mode before high rad> E3887 = <mode before high rad> E3890 = <mode before high rad> A-E0110 E3944 = DISABLE	Nominal condition
5		END OF PROCEDURE			



SPI RECOVERY FROM DNEL

Author : F.Cordero
 Filename : CRP_SPI1_5130.PRC
 Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

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SPI RECOVERY FROM DNEL

Issue: 1.0

Thu 30 Jan 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover the configuration of the SPI main chain (SPI DPE1) after a S/C DNEL. This procedure provide the flow to follow for the re-initialisation up to the nominal flight configuration			
1.1		REQUIRED S/C CONFIGURATION - S/C in sunlight - SPI TCS heaters already configured after DNEL			
1.2		SPECIAL OPERATIONAL CONSTRAINTS - The procedure shall be executed under the supervision of teh SOM/SOE on-call - See called procedures			
1.3		REQUIRED INPUT/INTERFACES See called procedures			
2		ENTRY CONDITIONS			
2		When this procedure is executed, DNEL is over and the SPI TCS heaters should have been already configured properly. Check the following configuration is established:			
2.1		THERMAL CONTROL CONFIGURATION CHECK: MAIN CHAIN TM: P BD2A GSW1 STA TM: LCL STA CMP HTRA		A-E0001 P2108 = CLOSE [1] T8500 = CLOSE [1]	
2.1.1		TM: P BD2A GSW2 STA TM: LCL STA CAM HT-A		P2111 = CLOSE [1] T8501 = CLOSE [1]	PSD, DFEE, AFEE heaters
2.1.2				A-E0002	



SPI RECOVERY FROM DNEL

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 Filename : CRP_SPI1_5130.PRC
 Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 4A2 STA TM: TSW STA ACS-A		P2122 = CLOSE [1] T8507 = CLOSE [1]	Mask+ACS heaters
2.1.3		TM: P HLCL 6A1 STA TM: TSW STA SPI IF A TM: TSW STA SPIRAD M		P2127 = CLOSE [1] T8004 = CLOSE [1] P2222 = OPEN [0]	
2.1.4		TM: P HLCL 7A1 STA TM: TSW STA CDE HTRA TM: TSW STA SDPE2 HA		P2129 = CLOSE [1] T8015 = CLOSE [1] T8014 = CLOSE [1]	
2.2		THERMAL CONTROL CONFIGURATION CHECK: REDUNDANT CHAIN TM: LCL STA CMP HTRB		A-E0001 T8600 = OPEN [0]	
2.2.1		TM: P BD2B GSW2 STA TM: LCL STA CAM HT-B		P2161 = CLOSE [1] T8601 = CLOSE [1]	PSD, DFEE, AFEE heaters
2.2.2		TM: P HLCL 4B2 STA TM: TSW STA PIP TW-B TM: TSW STA ANNEAL-B TM: TSW STA ANTFZ 1B TM: TSW STA ANTFZ 2B TM: TSW STA ACS-B		A-E0002 P2172 = CLOSE [1] T8602 = OPEN [0] T8603 = OPEN [0] T8604 = OPEN [0] T8605 = OPEN [0] T8607 = CLOSE [1]	Mask+ACS heaters
2.2.3		TM: P HLCL 6B1 STA TM: TSW STA SPI IF B TM: TSW STA SPIRAD R		P2177 = CLOSE [1] T8104 = CLOSE [1] P2272 = OPEN [0]	
2.2.4		TM: P HLCL 7B1 STA TM: TSW STA CDE HTRB TM: TSW STA SDPE2 HB		P2179 = CLOSE [1] T8115 = CLOSE [1] T8114 = CLOSE [1]	
2.3		ELCTRONIC BOXES POWER SUPPLY CONFIGU- RATION CHECK: MAIN CHAIN TM: LCL STA SDPE1 TM: LCL CUR SDPE1		A-E0001 P2116 = OPEN [0] P2013 = 0.0 A [0]	



SPI RECOVERY FROM DNEL

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Step	Time	Event Description	TC	TM	Comments
		TM: SDPE1 RELAY0 STA TM: SDPE1 RELAY1 STA TM: SDPE1 5V RAM TLM TM: LCL STA TM/TC A TM: LCL CUR TM/TC A TM: LCL STA ACS-A TM: LCL CUR ACS-A		E9801 = OFF [1] E9802 = OFF [1] E9800 = 0.0 V [0] P2115 = OPEN [0] P2012 = 0.0 A [0] P2117 = OPEN [0] P2014 = 0.0 A [0]	
2.3.1		TM: LCL STA DFEE-A TM: LCL CUR DFEE-A TM: LCL STA PSD A TM: LCL CUR PSD A TM: LCL STA AF2 DT A TM: LCL CUR AF2 DT A		P2119 = OPEN [0] P2015 = 0.0 A [0] P2120 = OPEN [0] P2016 = 0.0 A [0] P2121 = OPEN [0] P2017 = 0.0 A [0]	
2.4		ELCTRONIC BOXES POWER SUPPLY CONFIGURATION CHECK: MAIN CHAIN TM: LCL STA SDPE2 TM: LCL CUR SDPE2 TM: SDPE2 RELAY0 STA TM: SDPE2 RELAY1 STA TM: SDPE2 5V RAM TLM TM: LCL STA TM/TC B TM: LCL CUR TM/TC B TM: LCL STA ACS-B TM: LCL CUR ACS-B		A-E0001 P2166 = OPEN [0] P2063 = 0.0 A [0] F9801 = OFF [1] F9802 = OFF [1] F9800 = 0.0 V [0] P2165 = OPEN [0] P2062 = 0.0 A [0] P2167 = OPEN [0] P2064 = 0.0 A [0]	
2.4.1		TM: LCL STA DFEE-B TM: LCL CUR DFEE-B TM: LCL STA PSD B TM: LCL CUR PSD B TM: LCL STA AF2 DT B TM: LCL CUR AF2 DT B		P2169 = OPEN [0] P2065 = 0.0 A [0] P2170 = OPEN [0] P2066 = 0.0 A [0] P2171 = OPEN [0] P2067 = 0.0 A [0]	



SPI RECOVERY FROM DNEL

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Step	Time	Event Description	TC	TM	Comments
2.5		Verify that Cryocoolers are off TM: CDE1 LCL2 STA TM: CDE1 LCL2 CUR TM: CDE1 LCL1 STA TM: CDE1 LCL1 CUR TM: CDE2 LCL2 STA TM: CDE2 LCL2 CUR TM: CDE2 LCL1 STA TM: CDE2 LCL1 CUR		A-F9900 P1160 = OPEN [0] P1060 = 0.0 A P1161 = OPEN [0] P1061 = 0.0 A P1162 = OPEN [0] P1062 = 0.0 A P1163 = OPEN [0] P1063 = 0.0 A	
3		RECOVERY			
3		Execute procedure : FCP_SPI1_1000 SPI FROM OFF TO INACTIVE			
3.1		Execute procedures for heat pipe thawing, if needed (see procedures for conditions): - FCP_SPI1_0030 START SPI HEAT PIPE THAWING - FCP_SPI1_0050 STOP SPI HEAT PIPE THAWING			
3.2		Execute procedure : FCP_SPI1_0064 SPI DPE1 BCP DISTRIBUTION DISABLE			
3.3		Execute procedure : FCP_SPI1_0044 SPI DPE1 AND CSSW ACTIVATION			
3.4		Execute procedure : FCP_SPI1_0041 SPI IASW ACTIVATION			
3.5		Execute procedure : FCP_SPI1_0042 SPI DPE1 BCP DISTRIBUTION ENABLE			
3.6		Execute procedure : FCP_SPI1_0043 SPI SUB_ASSEMBLIES SWITCH-ON			



SPI RECOVERY FROM DNEL

Author : F.Cordero
Filename : CRP_SPI1_5130.PRC
Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
3.7		Execute procedure : FCP_SPI1_0080 SPI TRANSITION FROM STAND-BY2 TO CONFIGURATION			
3.8		Execute procedure : FCP_SPI1_0070 START SPI ACTIVE COOLING			
3.9		Execute procedure : FCP_SPI1_0178 SPI LOAD IASW NOMINAL FLIGHT CONFIGURATION			
3.10		Execute procedure : FCP_SPI1_0177 SPI LOAD ACS NOMINAL FLIGHT CONFIGURATION			
3.11		Execute procedure : FCP_SPI1_0174 SPI LOAD DFEE NOMINAL FLIGHT CONFIGURATION			
3.12		Execute procedure : FCP_SPI1_0173 SPI LOAD AFEE HV ON CONFIGURATION			
3.13		Execute procedure : FCP_SPI1_0171 SPI LOAD PSD NOMINAL FLIGHT CONFIGURATION			
4		END OF PROCEDURE			



SPI RECOVERY FROM DNEL

Author : F.Cordero
Filename : CRP_SPI1_5130.PRC
Date Last Modified : Thu 30 Jan 2003

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CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC)

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_A.PRC
 Date Last Modified : Thu 02 Dec 2010

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CRP_SPI_5140_A

CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC) Issue: 1.0

Thu 02 Dec 2010

Author: F.Cordero/S.Fahmy

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To establish the SPI heater configuration foreseen in sunlight.			
1.1		REQUIRED CONFIGURATION PPDU main command chain working. This procedure can be used with either SPI1 or SPI2 chain.			
1.2		SPECIAL OPERATIONAL CONSTRAINTS - To be used only in contingency situations, in case the heater configuration has to be re-established. - This procedure assumes that no SPI heater loop has failed. In case one of the SPI heater loops is faulty, the procedure has to be updated to enable the redundant loops (where applicable) and disable the failed ones. - After an eclipse, nominal heaters shall be enabled only after 20hrs the SPI S/As are switched on.			
2		Load on the Manual Stack the sequence : EC5140 containing the commands of this procedure.			
3		Configure heaters for sunlight			
3		Uplink the following commands (main PPDU command path) following the next steps:			
3.1		Enable SDPE2 heater A TC: TSW SDPE2 HTA ON CEV: TSW STA SDPE2 HA	T5571	T8014 = CLOSE [1]	[Red. TC: = T6571]
3.2		Enable SDPE2 heater B TC: TSW SDPE2 HTB ON	T5671		[Red. TC: = T6671]



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC)

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_A.PRC
 Date Last Modified : Thu 02 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
		CEV: TSW STA SDPE2 HB		T8114 = CLOSE [1]	
3.3		Enable Camera Heaters A TC: LCL CAMER H-A ON CEV: LCL STA CAM HT-A	T5006	T8501 = CLOSE [1]	[Red. TC: = T6006]
3.4		Enable Camera Heaters B TC: LCL CAMER H-B ON CEV: LCL STA CAM HT-B	T5106	T8601 = CLOSE [1]	[Red. TC: = T6106]
3.5		Enable ACS+Mask Heaters A TC: TSW ACS MSK-A ON CEV: TSW STA ACS-A	T5036	T8507 = CLOSE [1]	[Red. TC: = T6036]
3.6		Enable ACS+Mask Heaters B TC: TSW ACS MSK-B ON CEV: TSW STA ACS-B	T5136	T8607 = CLOSE [1]	[Red. TC: = T6136]
3.7		Enable SPI IF Heaters A TC: TSW SPI IF HA ON CEV: TSW STA SPI IF A	T5521	T8004 = CLOSE [1]	[Red. TC: = T6521]
3.8		Enable SPI IF Heaters B TC: TSW SPI IF HB ON CEV: TSW STA SPI IF B	T5621	T8104 = CLOSE [1]	[Red. TC: = T6621]
3.9		Enable CDE Heaters A TC: TSW CDE HTRA ON CEV: TSW STA CDE HTRA	T5576	T8015 = CLOSE [1]	[Red. TC: = T6576]
3.10		Enable CDE Heaters B TC: TSW CDE HTRB ON CEV: TSW STA CDE HTRB	T5676	T8115 = CLOSE [1]	[Red. TC: = T6676]
3.11		Enable Compressor Heater A TC: LCL COMP H A ON CEV: LCL STA CMP HTRA	T5001	T8500 = CLOSE [1]	[Red. TC: = T6001]
3.12		Switch Compressor Heater B OFF			



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC)

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_A.PRC
 Date Last Modified : Thu 02 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
		TC: LCL COMP H B OFF CEV: LCL STA CMP HTRB	T5100	T8600 = OPEN [0]	[Red. TC: = T6100]
3.13		IF Heat Pipe Thawing is not in progress THEN Switch Heat Pipe Heater A OFF TC: TSW HEATPIP-A OF CEV: TSW STA PIP TW-A END IF	T5010	T8502 = OPEN [0]	[Red. TC: = T6010]
3.14		IF Heat Pipe Thawing is not in progress THEN Switch Heat Pipe Heater B OFF TC: TSW HEATPIP-B OF CEV: TSW STA PIP TW-B END IF	T5110	T8602 = OPEN [0]	[Red. TC: = T6110]
3.15		IF Annealing is not in progress THEN Switch Annealing Heater A OFF TC: TSW ANNEAL-A OFF CEV: TSW STA ANNEAL-A END IF	T5015	T8503 = OPEN [0]	[Red. TC: = T6015]
3.16		IF Annealing is not in progress THEN Switch Annealing Heater B OFF TC: TSW ANNEAL-B OFF CEV: TSW STA ANNEAL-B END IF	T5115	T8603 = OPEN [0]	[Red. TC: = T6115]
3.17		ENABLE Antifreeze heater 1A TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFRZ 1A	T5021	T8504 = CLOSE [1]	[Red. TC: = T6021]
3.18		Switch Antifreeze Heater 1B OFF TC: TSW ANTFRZ1-B OF CEV: TSW STA ANTFRZ 1B	T5120	T8604 = OPEN [0]	[Red. TC: = T6120]



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU M TC)

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_A.PRC
 Date Last Modified : Thu 02 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI_5140_A
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Step	Time	Event Description	TC	TM	Comments
3.19		IF SPI is in Configuration mode or a higher mode (i.e. PHOTON, DIAG, CAL, EMGY) THEN Switch Antifreeze heater 2A OFF {delete the next command from the ManualStack and uplink T5025} TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A ELSE, ENABLE Antifreeze heater 2A (uplink the previous command (T5026) and delete the next command) TC: TSW ANTFRZ2-A OF CEV: TSW STA ANTFZ 2A ENDIF	T5026 T5025	T8505 = CLOSE [1] T8505 = OPEN [0]	[Red. TC: = T6026] [Red. TC: = T6025]
3.20		Switch Antifreeze Heater 2B OFF TC: TSW ANTFRZ2-B OF CEV: TSW STA ANTFZ 2B	T5125	T8605 = OPEN [0]	[Red. TC: = T6125]
3.21		IF the Cryocoolers are working THEN Enable Radiator Compensation Heater A TC: TSW SPIRAD M ON CEV: TSW STA SPIRAD M END IF	P4209	P2222 = CLOSE [1]	[Red. TC: = P4709]
3.22		Switch Radiator Compensation Heater B OFF TC: TSW SPIRAD R OFF CEV: TSW STA SPIRAD R	P4458	P2272 = OPEN [0]	[Red. TC: = P4958]
4		END OF PROCEDURE			



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC)

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_B.PRC
 Date Last Modified : Thu 02 Dec 2010

CRP_SPI_5140_B
 Issue Number : 1.0
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CRP_SPI_5140_B

CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC) Issue: 1.0

Thu 02 Dec 2010

Author: F.Cordero/S.Fahmy

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To establish the SPI heater configuration foreseen in sunlight.			
1.1		REQUIRED CONFIGURATION PPDU redundant command chain working. This procedure can be used with either SPI1 or SPI2 chain			
1.2		SPECIAL OPERATIONAL CONSTRAINTS - To be used only in contingency situations, in case the heater configuration has to re-established. - This procedure assumes that no SPI heater loop has failed. In case one of the SPI heater loops is faulty, the procedure has to be updated to enable the redundant loops (where applicable) and disable the failed ones. - After an eclipse, nominal heaters shall be enabled only after 20hrs the SPI S/As are switched on.			
2		Load on the Manual Stack the sequence : FC5140 containing the commands of this procedure.			
3		Configure heaters for sunlight			
3		Uplink the following commands (redundant PPDU command path) following the next steps:			
3.1		Enable SDPE2 heater A TC: TSW SDPE2 HTA ON CEV: TSW STA SDPE2 HA	T6571	T8014 = CLOSE [1]	[Red. TC: = T5571]
3.2		Enable SDPE2 heater B TC: TSW SDPE2 HTB ON	T6671		[Red. TC: = T5671]



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC)

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI_5140_B

Author : F.Cordero/S.Fahmy
Filename : CRP_SPI_5140_B.PRC
Date Last Modified : Thu 02 Dec 2010

Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		CEV: TSW STA SDPE2 HB		T8114 = CLOSE [1]	
3.3		Enable Camera Heaters A TC: LCL CAMER H-A ON CEV: LCL STA CAM HT-A	T6006	T8501 = CLOSE [1]	[Red. TC: = T5006]
3.4		Enable Camera Heaters B TC: LCL CAMER H-B ON CEV: LCL STA CAM HT-B	T6106	T8601 = CLOSE [1]	[Red. TC: = T5106]
3.5		Enable ACS+Mask Heaters A TC: TSW ACS MSK-A ON CEV: TSW STA ACS-A	T6036	T8507 = CLOSE [1]	[Red. TC: = T5036]
3.6		Enable ACS+Mask Heaters B TC: TSW ACS MSK-B ON CEV: TSW STA ACS-B	T6136	T8607 = CLOSE [1]	[Red. TC: = T5136]
3.7		Enable SPI IF Heaters A TC: TSW SPI IF HA ON CEV: TSW STA SPI IF A	T6521	T8004 = CLOSE [1]	[Red. TC: = T5521]
3.8		Enable SPI IF Heaters B TC: TSW SPI IF HB ON CEV: TSW STA SPI IF B	T6621	T8104 = CLOSE [1]	[Red. TC: = T5621]
3.9		Enable CDE Heaters A TC: TSW CDE HTRA ON CEV: TSW STA CDE HTRA	T6576	T8015 = CLOSE [1]	[Red. TC: = T5576]
3.10		Enable CDE Heaters B TC: TSW CDE HTRB ON CEV: TSW STA CDE HTRB	T6676	T8115 = CLOSE [1]	[Red. TC: = T5676]
3.11		Enable Compressor Heater A TC: LCL COMP H A ON CEV: LCL STA CMP HTRA	T6001	T8500 = CLOSE [1]	[Red. TC: = T5001]
3.12		Switch Compressor Heater B OFF			



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC)

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_B.PRC
 Date Last Modified : Thu 02 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
		TC: LCL COMP H B OFF CEV: LCL STA CMP HTRB	T6100	T8600 = OPEN [0]	[Red. TC: = T5100]
3.13		IF Heat Pipe Thawing is not in progress THEN Switch Heat Pipe Heater A OFF TC: TSW HEATPIP-A OF CEV: TSW STA PIP TW-A END IF	T6010	T8502 = OPEN [0]	[Red. TC: = T5010]
3.14		IF Heat Pipe Thawing is not in progress THEN Switch Heat Pipe Heater B OFF TC: TSW HEATPIP-B OF CEV: TSW STA PIP TW-B END IF	T6110	T8602 = OPEN [0]	[Red. TC: = T5110]
3.15		IF Annealing is not in progress THEN Switch Annealing Heater A OFF TC: TSW ANNEAL-A OFF CEV: TSW STA ANNEAL-A END IF	T6015	T8503 = OPEN [0]	[Red. TC: = T5015]
3.16		IF Annealing is not in progress THEN Switch Annealing Heater B OFF TC: TSW ANNEAL-B OFF CEV: TSW STA ANNEAL-B END IF	T6115	T8603 = OPEN [0]	[Red. TC: = T5115]
3.17		ENABLE Antifreeze heater 1A TC: TSW ANTFRZ1-A ON CEV: TSW STA ANTFZ 1A	T6021	T8504 = CLOSE [1]	[Red. TC: = T5021]
3.18		Switch Antifreeze Heater 1B OFF TC: TSW ANTFRZ1-B OF CEV: TSW STA ANTFZ 1B	T6120	T8604 = OPEN [0]	[Red. TC: = T5120]



CONFIGURE SPI HEATERS FOR SUNLIGHT (PPDU R TC)

INTEGRAL FLIGHT OPERATIONS PLAN CRP_SPI_5140_B

Author : F.Cordero/S.Fahmy
 Filename : CRP_SPI_5140_B.PRC
 Date Last Modified : Thu 02 Dec 2010

Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
3.19		IF SPI is in Configuration mode or a higher mode (i.e. PHOTON, DIAG, CAL, EMGY) THEN Switch Antifreeze heater 2A OFF {delete the next command from the ManualStack and uplink T6025} TC: TSW ANTFRZ2-A ON CEV: TSW STA ANTFZ 2A ELSE, ENABLE Antifreeze heater 2A (uplink the previous command (T6026) and delete the next command) TC: TSW ANTFRZ2-A OF CEV: TSW STA ANTFZ 2A ENDIF	T6026 T6025	T8505 = CLOSE [1] T8505 = OPEN [0]	[Red. TC: = T5026] [Red. TC: = T5025]
3.20		Switch Antifreeze Heater 2B OFF TC: TSW ANTFRZ2-B OF CEV: TSW STA ANTFZ 2B	T6125	T8605 = OPEN [0]	[Red. TC: = T5125]
3.21		IF the Cryocoolers are working THEN Enable Radiator Compensation Heater A TC: TSW SPIRAD M ON CEV: TSW STA SPIRAD M END IF	P4709	P2222 = CLOSE [1]	[Red. TC: = P4209]
3.22		Switch Radiator Compensation Heater B OFF TC: TSW SPIRAD R OFF CEV: TSW STA SPIRAD R	P4958	P2272 = OPEN [0]	[Red. TC: = P4458]
4		END OF PROCEDURE			



SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI1_9531.PRC
 Date Last Modified : Thu 30 Jan 2003

CRP_SPI1_9531
 Issue Number : 1.0
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CRP_SPI1_9531

SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET Issue: 1.0

Thu 30 Jan 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover from a DPE reset following a Watchdog (WD) timeout or EDAC DEF (Double Event Failure)			
1.1		REQUIRED CONFIGURATION SPI DPE1 powered on			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		ENTRY CONDITIONS			
2		Following a WD or EDAC DEF reset, the DPE performs a full boot and goes into an NOT-RUNNING, NOT-WAIT, NOT-RESET state, which can be acknowledged by the following TM: TM: SPI1 RUNNING TM: SPI1 WAIT TM: SPI1 RESET		A-E0020 D6503 = NOT RUNNING [0] D6501 = NOT WAIT [0] D6500 = NOT RESET [0]	
3		FIRST ACTIONS			
3		Execute procedure : CRP_SPI1_0061 UNCONDITIONED SUBASSEMBLIES SWITCH OFF			
3.1		Inform SOM/SOE on-call and wait further instructions			
4		RECOVERY TO RUNNING STATE			
4		On TMS PACON, select the On-Event folder and clear IMCS OEM Storage Counter for APID 1024 TM: SPI1 GROUND OEM		A-E0010 EU9041 = 0	
4.1		Send DPE Suspend TC			



SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET

Author : F.Cordero
 Filename : CRP_SPI1_9531.PRC
 Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_9531
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Step	Time	Event Description	TC	TM	Comments
		TC: SPI1 SUSPEND CEV: SPI1 WAIT TM: SPI1 RESET	D7203		
4.2		Send DPE GO TC to recover RUNNING state CEV: SPI1 RUNNING TM: SPI1 WAIT	D7204	D6501 = WAIT [1] D6500 = NOT RESET [0]	
4.3		WAIT for DPE power-up initialisation completion marked by the OEM 1024 (APID) OEM Number: 0 OEM CLASS: 0 SPI1 CAUSE OF CPU RESET			
4.4		Check that Boot BIT has passed TM: SPI1 SELFTST ER TM: SPI1 CHKSUM MIS TM: SPI1 BULTIN ER TM: SPI1 ANOMALY TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG		A-E0020 D6513 = NO ERROR [0] D6514 = NO ERROR [0] D6515 = NO ERROR [0] D6508 = NO ANOMALY [0] E9033 = PASSED [1] E9034 = PASSED [1] E9035 = PASSED [1]	
4.5		On VPD display retrieve OEM 0 and check the reason for the reset : IF TM: CAUSE CPU RESET THEN GOTO step 5 ENDIF IF TM: CAUSE CPU RESET THEN GOTO step 6 ENDIF		E9072 = WD RESET [3] E9072 = EDAC DEF [4]	OEM Parameter OEM Parameter



SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI1_9531.PRC
 Date Last Modified : Thu 30 Jan 2003

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Step	Time	Event Description	TC	TM	Comments
5		WD RESET RE-ENABLE			
5		Check WD Reset Enable/Disable status on PCC Control Register NOTE: After WD reset, the WD reset status is expected to be disabled TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		A-E0020 E9223 = DISABLED [0] E9268 = 1 [1]	
5.1		Configure WatchDog using TC(13,2) to re-enable the WD reset capability TC: SPI1 WD CONFIG TC_Par: . : SPI1 ENA DISA WD TC_Par: . : SPI1 RESET WD TO TC_Par: . : SPI1 WD TIMEOUT	E9044 E9000 = ENABLED E9001 = ENABLED E9012 = 0.19 sec		
5.2		Check WD Reset Enable/Disable status on PCC Control Register TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		E9223 = ENABLED [1] E9268 = 1 [1]	
6		DPE TIME SYNCHRONISATION			
6		Synchronize LOBT with COBT TC: SYNC SPI1 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3702	A-E0010	
6.1		Request Time Synchronisation reports TC: VER TIME SPI1 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT	D3712	230000	



SPI DPE1 RECOVERY FROM WD OR EDAC DEF RESET

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Filename : CRP_SPI1_9531.PRC
Date Last Modified : Thu 30 Jan 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI1_9531

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Step	Time	Event Description	TC	TM	Comments
		TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB TM: VERIF TIME CDMU TM: TIME VERIF SPI		69103 DU8415 = [] EU9011 = []	NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison COBT LOBT
7		END OF PROCEDURE			

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
 Filename : CRP_SPI2_5100.PRC
 Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5100
 Issue Number : 1.1
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CRP_SPI2_5100

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF" Issue: 1.1

Thu 10 Apr 2008

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE SDPE2 chain: To recover from the SPI automatic reactions to imminent switch off BCP flag. If the reactions are enabled, SPI enters stand-by and hangs up until the DPE and S/As are re-initialised. This procedure provide the flow to follow for the re-initialisation up to the nominal flight configuration</p>			
1.1		<p>REQUIRED S/C CONFIGURATION S/C in sunlight</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS See called procedures</p>			
1.3		<p>REQUIRED INPUT/INTERFACES See called procedures</p>			
2		ENTRY CONDITIONS			
2		<p>DPE does not responds to commands and the following OEM was generated just before hanging up: 1152 (APID) OEM Number: 129 OEM CLASS: 0 SPI2 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE AND/OR 1152 (APID) OEM Number: 130 OEM CLASS: 0 SPI2 STATE CHANGE TM: NEW STATE</p>		<p>F9753 = BEGIN F9754 = SWITCH OFF F9756 = OFF IMMINENT</p>	<p>TBC OEM parameter OEM parameter TBC OEM parameter</p>
3		FIRST ACTIONS			

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
 Filename : CRP_SPI2_5100.PRC
 Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5100
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Step	Time	Event Description	TC	TM	Comments
3		On the TM Desktop, in playback, check that the reactions to "imminent switch-off" flag were actually enabled prior to the "imminent-off" TM: R SW IM-SW L		A-F0110 F3960 = ENABLE	
3.1		Wait that the flag is set non-imminent: TM: IMM INSTRU OFF		D5212 = OFF IMMINENT	
3.2		Inform SOM/SOE on-call and wait.			
4		RECOVERY			
4		Execute procedure : CRP_SPI2_0061 UNCONDITIONED SUB-ASSEMBLIES SWITCH OFF (PPDU R TC chain)			
4.1		Execute procedure : FCP_SPI2_0064 SPI DPE2 BCP DISTRIBUTION DISABLE			
4.2		Execute procedure : FCP_SPI2_0065 SPI DPE2 SWITCH OFF			
4.3		Execute procedure : FCP_SPI2_0044 SPI DPE2 AND CSSW ACTIVATION			
4.4		Execute procedure : FCP_SPI2_0041 SPI IASW ACTIVATION			
4.5		Execute procedure : FCP_SPI2_0042 SPI DPE2 BCP DISTRIBUTION ENABLE			
4.6		Execute procedure : FCP_SPI2_0043 SPI SUB_ASSEMBLIES SWITCH-ON			
4.7		Execute procedure : FCP_SPI2_0080 SPI TRANSITION FROM STANDBY2 TO CONFIGURATION			
4.8		Execute procedure :			

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
Filename : CRP_SPI2_5100.PRC
Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5100
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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI2_0178 SPI LOAD IASW NOMINAL FLIGHT CONFIGURATION			
4.9		Execute procedure : FCP_SPI2_0177 SPI LOAD ACS NOMINAL FLIGHT CONFIGURATION			
4.10		Execute procedure : FCP_SPI2_0174 SPI LOAD DFEE NOMINAL FLIGHT CONFIGURATION			
4.11		Execute procedure : FCP_SPI2_0173 SPI LOAD AFEE HV ON CONFIGURATION			
4.12		Execute procedure : FCP_SPI2_0171 SPI LOAD PSD NOMINAL FLIGHT CONFIGURATION			
5		END OF PROCEDURE			

SPI RECOVERY FROM BCP "IMMINENT SWITCH-OFF"

Author : F.Cordero
Filename : CRP_SPI2_5100.PRC
Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5100

Issue Number : 1.1
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SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
 Filename : CRP_SPI2_5110.PRC
 Date Last Modified : Wed 19 Feb 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5110
 Issue Number : 1.1
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CRP_SPI2_5110

SPI RECOVERY FROM BCP "ESAM"

Issue: 1.1

Wed 19 Feb 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE</p> <p>SDPE2 chain: To recover from the SPI automatic reactions to ESAM BCP flag.</p> <p>If the reactions are enabled, SPI enters configuration mode if the mode was PHOTON, EMGY, DIAG, CAL, otherwise stays in the current mode.</p> <p>ACS, PSAC and GeD HVs are maintained on.</p>			
1.1		<p>REQUIRED S/C CONFIGURATION</p> <p>S/C not in ESAM</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>See called procedures</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>See called procedures</p>			
2		<p>ENTRY CONDITIONS</p>			
2		<p>The following OEM indicates that SPI has reacted to ESAM BCP flag:</p> <p>1152 (APID) OEM Number: 129 OEM CLASS: 0 SPI2 ONBOARD EVENTS</p> <p>TM: EVENT BEGIN END</p> <p>TM: EVENT TYPE</p>		<p>F9753 = BEGIN</p> <p>F9754 = ESAM</p>	<p>OEM parameter</p> <p>OEM parameter</p>
2.1		<p>The following TM parameters also indicates that SPI has reacted to ESAM flag:</p> <p>TM: P IASW ESAM</p>		<p>A-F0110</p> <p>F0169 = YES</p>	
3		<p>FIRST ACTIONS</p>			
3		<p>Check that the reactions to "ESAM" flag are actually enabled.</p> <p>TM: R SW ESAM L</p>		<p>F3961 = ENABLE</p>	



SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
 Filename : CRP_SPI2_5110.PRC
 Date Last Modified : Wed 19 Feb 2003

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Step	Time	Event Description	TC	TM	Comments
3.1		Take note what was the mode before the reactions (in playback on the TM Desktop): TM: P IASW MODE		F0049 =	
3.2		Set the TM Desktop in real time. Wait that the flag indicates that ESAM is not active: TM: ESAM FLAG TM: P IASW ESAM and the appearance of the following OEM 1152 (APID) OEM Number: 129 OEM CLASS: 0 SPI2 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		D5219 = NOTACTIVATED F0169 = NO F9753 = END F9754 = ESAM	OEM parameter OEM parameter
4		RECOVERY			
4		IF during the active period of SPI reactions to ESAM an eclipse occurred THEN at eclipse exit and rad belts exit: - inform SOM/SOE on-call and wait before continuing - check TM: P IASW MODE - execute FCP_SPI2_0176 : : SPI RESTORE ALL SUBASSEMBLY SW PATCHES FCP_SPI2_0175 : : SPI RESTORE ALL CONFIGURATION SETTINGS END IF		A-E0110 F0049 = CONF	
4.1		If the mode was: TM: P IASW MODE OR TM: P IASW MODE OR		F0049 = INIT F0049 = STAND BY 1	



SPI RECOVERY FROM BCP "ESAM"

Author : F.Cordero
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INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5110
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Step	Time	Event Description	TC	TM	Comments
		TM: P IASW MODE OR TM: P IASW MODE THEN - Do NOT do anything - GOTO END ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI2_0130 : : SPI TRANSITION TO PHOTON MODE FCP_SPI2_0131 : : FORCE START OF SPECTRA BUILDING ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI2_0140 : : SPI TRANSITION TO (PSD) CALIBRATION MODE ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required: FCP_SPI2_0135 : : SPI TRANSITION TO TM EMERGENCY MODE ELSE IF the mode was: TM: P IASW MODE THEN Execute the procedure to recover the mode, if required:		F0049 = STAND BY 2 F0049 = CONF F0049 = PHOTON F0049 = CAL F0049 = EMCY F0049 = DIAG	



SPI RECOVERY FROM BCP "ESAM"

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CRP_SPI2_5110

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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI2_0150 : : SPI TRANSITION TO DIAGNOSTIC MODE ENDIF			
4.2		Inform SOM/SOE on-call			
5		END OF PROCEDURE			



SPI RECOVERY FROM HIGH RADIATION BY IREM

Author : F.Cordero
Filename : CRP_SPI2_5120.PRC
Date Last Modified : Wed 19 Feb 2003

INTEGRAL FLIGHT OPERATIONS PLAN

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Issue Number : 1.0
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CRP_SPI2_5120

SPI RECOVERY FROM HIGH RADIATION BY IREM Issue: 1.0

Wed 19 Feb 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE</p> <p>SDPE2 chain: To monitor the SPI automatic recovery from the reactions to high radiation conditions by IREM.</p> <p>OR</p> <p>To give instructions, in case the automatic recovery is disabled (TM F3944)</p> <p>NOTE: The following is a description of SPI reactions to IREM :</p> <p>If the reactions are enabled (TM F3937), SPI enters CONF or STAND-BY2 mode, according to the configuration parameter (TM F3936).</p> <p>When the count rate (i.e.TM D5214 RMC#1, other counters are ignored) > threshold (TM F3938):</p> <p>If CONF is selected: ACS and PSAC HV are switched off. GeD HV stays on.</p> <p>If STAND-BY is selected: All HVs are switched off.</p> <p>When the count rate (TM D5214) < threshold (TM F3940) : Automatic return to the initial configuration settings if the autorecovery is enabled (TM F3944).</p> <p>The parameters TM F3939/F3941 define a n-count filter for entering/exiting the high radiation condition.</p>			
1.1		<p>REQUIRED S/C CONFIGURATION</p> <p>S/C not in high radiation condition</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>See called procedures</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p>			



SPI RECOVERY FROM HIGH RADIATION BY IREM

Author : F.Cordero
 Filename : CRP_SPI2_5120.PRC
 Date Last Modified : Wed 19 Feb 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5120
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		See called procedures			
2		ENTRY CONDITIONS			
2		The following OEM indicates that SPI has entered High Radiation conditions by IREM: 1152 (APID) OEM Number: 129 OEM CLASS: 0 SPI2 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		F9753 = BEGIN F9754 = FLARE	
3		FIRST ACTIONS			
3		Check that the reactions to IREM are actually enabled. TM: R SW BGD-CAP L		A-F0110 F3937 = ENABLE	
3.1		Take note what was the mode before the reactions (in playback on the TM Desktop): TM: P IASW MODE TM: S AF STATUS1 TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1		A-F0100 F0049 = F3881 = F3884 = F3887 = F3890 =	
3.2		On the Manual Stack load the sequence: FS1810 followed by th esequene FS1830 and uplink the commands in automatic			
3.3		IF TM: R SW RAD-MOD L THEN - Check that TM: P IASW MODE - Check that the all HVs are OFF: from		A-F0110 F3936 = STBY F0049 = CONF A-F0307	



SPI RECOVERY FROM HIGH RADIATION BY IREM

INTEGRAL FLIGHT OPERATIONS PLAN

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 Date Last Modified : Wed 19 Feb 2003

CRP_SPI2_5120
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		TM: R AF HVPS-OO L0 to TM: R AF HVPS-OO L18 and from TM: R AS HV-OO L0 to TM: R AS HV-OO L90 must indicate OFF ELSE IF TM: R SW RAD-MOD L THEN - Check that TM: P IASW MODE - Check that the ACS and PSAC HVs are OFF: from TM: R AS HV-OO L0 to TM: R AS HV-OO L90 must indicate OFF		E0190 = OFF [0] E0208 = OFF [0] A-F0435 A-F0436 E0500 = OFF [0] E0590 = OFF [0] F3936 = CONF F0049 = CONF A-F0435 A-F0436 E0500 = OFF [0] E0590 = OFF [0]	
3.4		Inform SOM/SOE on-call			
3.5		Wait for the following OEM, indicating that SPI has exited from High Radiation conditions by IREM: 1152 (APID) OEM Number: 129 OEM CLASS: 0 SPI2 ONBOARD EVENTS TM: EVENT BEGIN END TM: EVENT TYPE		F9753 = END F9754 = FLARE	
4		RECOVERY			
4		IF the SPI automatic reconfiguration is enabled TM: R SW RCONF-CAP L		A-F0110 F3944 = ENABLE	Nominal condition



SPI RECOVERY FROM HIGH RADIATION BY IREM

Author : F.Cordero
 Filename : CRP_SPI2_5120.PRC
 Date Last Modified : Wed 19 Feb 2003

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5120
 Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		THEN - do NOT do anything - wait that the configuration is recovered and check that the mode is recovered : TM: P IASW MODE TM: S AF STATUS1 TM: S DF STUS1 L TM: S AS STATUS1 TM: S PD STATUS1 - SOM/SOE on-call to evaluate further checks ELSE IF the SPI automatic reconfiguration is disabled TM: R SW RCONF-CAP L THEN - do NOT do anything - wait for SOM/SOE on-call to decide ENDIF		A-F0100 F0049 = <mode before high rad> F3881 = <mode before high rad> F3884 = <mode before high rad> F3887 = <mode before high rad> F3890 = <mode before high rad> A-F0110 F3944 = DISABLE	Nominal condition
5		END OF PROCEDURE			

SPI RECOVERY FROM DNEL

Author : F.Cordero
 Filename : CRP_SPI2_5130.PRC
 Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5130
 Issue Number : 1.1
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CRP_SPI2_5130

SPI RECOVERY FROM DNEL

Issue: 1.1

Thu 10 Apr 2008

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		<p>PURPOSE</p> <p>SDPE2 chain: To recover the configuration of the SPI redundant chain (SPI DPE2) after a S/C DNEL.</p> <p>This procedure provide the flow to follow for the re-initialisation up to the nominal flight configuration</p>			
1.1		<p>REQUIRED S/C CONFIGURATION</p> <ul style="list-style-type: none"> - S/C in sunlight - SPI TCS heaters already configured after DNEL 			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <ul style="list-style-type: none"> - The procedure shall be executed under the supervision of teh SOM/SOE on-call - See called procedures 			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>See called procedures</p>			
2		<p>ENTRY CONDITIONS</p>			
2		<p>When this procedure is executed, DNEL is over and the SPI TCS heaters should have been already configured properly.</p> <p>Check the following configuration is established:</p>			
2.1		<p>THERMAL CONTROL CONFIGURATION CHECK: MAIN CHAIN</p> <p>TM: P BD2A GSW1 STA</p> <p>TM: LCL STA CMP HTRA</p>		<p>A-E0001</p> <p>P2108 = CLOSE [1]</p> <p>T8500 = CLOSE [1]</p>	
2.1.1		<p>TM: P BD2A GSW2 STA</p> <p>TM: LCL STA CAM HT-A</p>		<p>P2111 = CLOSE [1]</p> <p>T8501 = CLOSE [1]</p>	PSD, DFEE, AFEE heaters
2.1.2				A-E0002	

SPI RECOVERY FROM DNEL

Author : F.Cordero
 Filename : CRP_SPI2_5130.PRC
 Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

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 Issue Number : 1.1
 Page Number : 2 of 6

Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 4A2 STA TM: TSW STA ACS-A		P2122 = CLOSE [1] T8507 = CLOSE [1]	Mask+ACS heaters
2.1.3		TM: P HLCL 6A1 STA TM: TSW STA SPI IF A TM: TSW STA SPIRAD M		P2127 = CLOSE [1] T8004 = CLOSE [1] P2222 = OPEN [0]	
2.1.4		TM: P HLCL 7A1 STA TM: TSW STA CDE HTRA TM: TSW STA SDPE2 HA		P2129 = CLOSE [1] T8015 = CLOSE [1] T8014 = CLOSE [1]	
2.2		THERMAL CONTROL CONFIGURATION CHECK: REDUNDANT CHAIN TM: LCL STA CMP HTRB		A-E0001 T8600 = OPEN [0]	
2.2.1		TM: P BD2B GSW2 STA TM: LCL STA CAM HT-B		P2161 = CLOSE [1] T8601 = CLOSE [1]	PSD, DFEE, AFEE heaters
2.2.2		TM: P HLCL 4B2 STA TM: TSW STA PIP TW-B TM: TSW STA ANNEAL-B TM: TSW STA ANTFZ 1B TM: TSW STA ANTFZ 2B TM: TSW STA ACS-B		A-E0002 P2172 = CLOSE [1] T8602 = OPEN [0] T8603 = OPEN [0] T8604 = OPEN [0] T8605 = OPEN [0] T8607 = CLOSE [1]	Mask+ACS heaters
2.2.3		TM: P HLCL 6B1 STA TM: TSW STA SPI IF B TM: TSW STA SPIRAD R		P2177 = CLOSE [1] T8104 = CLOSE [1] P2272 = OPEN [0]	
2.2.4		TM: P HLCL 7B1 STA TM: TSW STA CDE HTRB TM: TSW STA SDPE2 HB		P2179 = CLOSE [1] T8115 = CLOSE [1] T8114 = CLOSE [1]	
2.3		ELCTRONIC BOXES POWER SUPPLY CONFIGU- RATION CHECK: MAIN CHAIN TM: LCL STA SDPE1 TM: LCL CUR SDPE1		A-E0001 P2116 = OPEN [0] P2013 = 0.0 A [0]	

SPI RECOVERY FROM DNEL

Author : F.Cordero
 Filename : CRP_SPI2_5130.PRC
 Date Last Modified : Thu 10 Apr 2008

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_SPI2_5130
 Issue Number : 1.1
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Step	Time	Event Description	TC	TM	Comments
		TM: SDPE1 RELAY0 STA TM: SDPE1 RELAY1 STA TM: SDPE1 5V RAM TLM TM: LCL STA TM/TC A TM: LCL CUR TM/TC A TM: LCL STA ACS-A TM: LCL CUR ACS-A		E9801 = OFF [1] E9802 = OFF [1] E9800 = 0.0 V [0] P2115 = OPEN [0] P2012 = 0.0 A [0] P2117 = OPEN [0] P2014 = 0.0 A [0]	
2.3.1		TM: LCL STA DFEE-A TM: LCL CUR DFEE-A TM: LCL STA PSD A TM: LCL CUR PSD A TM: LCL STA AF2 DT A TM: LCL CUR AF2 DT A		P2119 = OPEN [0] P2015 = 0.0 A [0] P2120 = OPEN [0] P2016 = 0.0 A [0] P2121 = OPEN [0] P2017 = 0.0 A [0]	
2.4		ELCTRONIC BOXES POWER SUPPLY CONFIGURATION CHECK: MAIN CHAIN TM: LCL STA SDPE2 TM: LCL CUR SDPE2 TM: SDPE2 RELAY0 STA TM: SDPE2 RELAY1 STA TM: SDPE2 5V RAM TLM TM: LCL STA TM/TC B TM: LCL CUR TM/TC B TM: LCL STA ACS-B TM: LCL CUR ACS-B		A-E0001 P2166 = OPEN [0] P2063 = 0.0 A [0] F9801 = OFF [1] F9802 = OFF [1] F9800 = 0.0 V [0] P2165 = OPEN [0] P2062 = 0.0 A [0] P2167 = OPEN [0] P2064 = 0.0 A [0]	
2.4.1		TM: LCL STA DFEE-B TM: LCL CUR DFEE-B TM: LCL STA PSD B TM: LCL CUR PSD B TM: LCL STA AF2 DT B TM: LCL CUR AF2 DT B		P2169 = OPEN [0] P2065 = 0.0 A [0] P2170 = OPEN [0] P2066 = 0.0 A [0] P2171 = OPEN [0] P2067 = 0.0 A [0]	

SPI RECOVERY FROM DNEL

Author : F.Cordero
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CRP_SPI2_5130
 Issue Number : 1.1
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Step	Time	Event Description	TC	TM	Comments
2.5		Verify that Cryocoolers are off TM: CDE1 LCL2 STA TM: CDE1 LCL2 CUR TM: CDE1 LCL1 STA TM: CDE1 LCL1 CUR TM: CDE2 LCL2 STA TM: CDE2 LCL2 CUR TM: CDE2 LCL1 STA TM: CDE2 LCL1 CUR		A-F9900 P1160 = OPEN [0] P1060 = 0.0 A P1161 = OPEN [0] P1061 = 0.0 A P1162 = OPEN [0] P1062 = 0.0 A P1163 = OPEN [0] P1063 = 0.0 A	
3		RECOVERY			
3		Execute procedure : FCP_SPI1_1000 SPI FROM OFF TO INACTIVE			The procedure is executable also for SDPE2 chain
3.1		Execute procedures for heat pipe thawing, if needed (see procedures for conditions): - FCP_SPI1_0030 START SPI HEAT PIPE THAWING - FCP_SPI1_0050 STOP SPI HEAT PIPE THAWING			The procedure is executable also for SDPE2 chain ”
3.2		Execute procedure : FCP_SPI2_0064 SPI DPE2 BCP DISTRIBUTION DISABLE			
3.3		Execute procedure : FCP_SPI2_0044 SPI DPE2 AND CSSW ACTIVATION			
3.4		Execute procedure : FCP_SPI2_0041 SPI IASW ACTIVATION			
3.5		Execute procedure : FCP_SPI2_0042 SPI DPE2 BCP DISTRIBUTION ENABLE			
3.6		Execute procedure :			

SPI RECOVERY FROM DNEL

Author : F.Cordero
Filename : CRP_SPI2_5130.PRC
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Step	Time	Event Description	TC	TM	Comments
		FCP_SPI2_0043 SPI SUB_ASSEMBLIES SWITCH-ON			
3.7		Execute procedure : FCP_SPI2_0080 SPI TRANSITION FROM STANDBY2 TO CONFIGURATION			
3.8		Execute procedure : FCP_SPI2_0070 START SPI ACTIVE COOLING			
3.9		Execute procedure : FCP_SPI2_0178 SPI LOAD IASW NOMINAL FLIGHT CONFIGURATION			
3.10		Execute procedure : FCP_SPI2_0177 SPI LOAD ACS NOMINAL FLIGHT CONFIGURATION			
3.11		Execute procedure : FCP_SPI2_0174 SPI LOAD DFEE NOMINAL FLIGHT CONFIGURATION			
3.12		Execute procedure : FCP_SPI2_0173 SPI LOAD AFEE HV ON CONFIGURATION			
3.13		Execute procedure : FCP_SPI2_0171 SPI LOAD PSD NOMINAL FLIGHT CONFIGURATION			
4		END OF PROCEDURE			

SPI RECOVERY FROM DNEL

Author : F.Cordero
Filename : CRP_SPI2_5130.PRC
Date Last Modified : Thu 10 Apr 2008

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SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI2_9531.PRC
 Date Last Modified : Wed 19 Feb 2003

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 Issue Number : 1.0
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CRP_SPI2_9531

SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET Issue: 1.0

Wed 19 Feb 2003

Author: F.Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE SDPE2 chain: To recover from a DPE reset following a Watchdog (WD) timeout or EDAC DEF (Double Event Failure)			
1.1		REQUIRED CONFIGURATION SPI DPE1 powered on			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		ENTRY CONDITIONS			
2		Following a WD or EDAC DEF reset, the DPE performs a full boot and goes into an NOT-RUNNING, NOT-WAIT, NOT-RESET state, which can be acknowledged by the following TM: TM: SPI2 RUNNING TM: SPI2 WAIT TM: SPI2 RESET		A-F0020 D6603 = NOT RUNNING [0] D6601 = NOT WAIT [0] D6600 = NOT RESET [0]	
3		FIRST ACTIONS			
3		Execute procedure : CRP_SPI2_0061 UNCONDITIONED SUBASSEMBLIES SWITCH OFF			
3.1		Inform SOM/SOE on-call and wait further instructions			
4		RECOVERY TO RUNNING STATE			
4		On TMSPACON, select the On-Event folder and clear IMCS OEM Storage Counter for APID 1152 TM: SPI2 GROUND OEM		A-F0010 FU9041 = 0	
4.1		Send DPE Suspend TC			



SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
 Filename : CRP_SPI2_9531.PRC
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Step	Time	Event Description	TC	TM	Comments
		TC: SPI2 SUSPEND CEV: SPI2 WAIT TM: SPI2 RESET	D7303	D6601 = WAIT [1] D6600 = NOT RESET [0]	
4.2		Send DPE GO TC to recover RUNNING state CEV: SPI2 RUNNING TM: SPI2 WAIT	D7304	D6603 = RUNNING [1] D6601 = NOT WAIT [0]	
4.3		WAIT for DPE power-up initialisation completion marked by the OEM 1152 (APID) OEM Number: 0 OEM CLASS: 0 SPI2 CAUSE OF CPU RESET			
4.4		Check that Boot BIT has passed TM: SPI2 SELFTST ER TM: SPI2 CHKSUM MIS TM: SPI2 BUILTIN ER TM: SPI2 ANOMALY TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG		A-F0020 D6613 = NO ERROR [0] D6614 = NO ERROR [0] D6615 = NO ERROR [0] D6608 = NO ANOMALY [0] F9033 = PASSED [1] F9034 = PASSED [1] F9035 = PASSED [1]	
4.5		On VPD display retrieve OEM 0 and check the reason for the reset : IF TM: CAUSE CPU RESET THEN GOTO step 5 ENDIF IF TM: CAUSE CPU RESET THEN GOTO step 6 ENDIF		F9072 = WD RESET [3] F9072 = EDAC DEF [4]	OEM Parameter OEM Parameter



SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F.Cordero
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Step	Time	Event Description	TC	TM	Comments
5		WD RESET RE-ENABLE			
5		Check WD Reset Enable/Disable status on PCC Control Register NOTE: After WD reset, the WD reset status is expected to be disabled TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		A-F0020 F9223 = DISABLED [0] F9268 = 1 [1]	
5.1		Configure WatchDog using TC(13,2) to re-enable the WD reset capability TC: SPI2 WD CONFIG TC_Par: . : SPI2 ENA DISA WD TC_Par: . : SPI2 RESET WD TO TC_Par: . : SPI2 WD TIMEOUT	F9044 F9000 = ENABLED F9001 = ENABLED F9012 = 0.19 sec		
5.2		Check WD Reset Enable/Disable status on PCC Control Register TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		F9223 = ENABLED [1] F9268 = 1 [1]	
6		DPE TIME SYNCHRONISATION			
6		Synchronize LOBT with COBT TC: SYNC SPI2 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3703	A-F0010	
6.1		Request Time Synchronisation reports TC: VER TIME SPI2 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT	D3713	230000	



SPI DPE2 RECOVERY FROM WD OR EDAC DEF RESET

Author : F.Cordero
Filename : CRP_SPI2_9531.PRC
Date Last Modified : Wed 19 Feb 2003

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Step	Time	Event Description	TC	TM	Comments
		TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB TM: VERIF TIME CDMU TM: TIME VERIF SPI2		69603 DU8415 = [] FU9011 = []	NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison COBT LOBT
7		END OF PROCEDURE			

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 3
Imager (IBIS)**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 7**

30/11/2010

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 3
 Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
 Date : 30/11/10

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INTEGRAL FOP Vol. 9 / Book 3 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch Procedures Updated: All Procedures Added: CRP_IBIS1_0120, 0121, 0196, 0201 and 0213. All blank pages at the end of a procedure are intentional.	SOM <i>M. Schmidt</i>
02/12/03	2/1	Procedures Updated Procedures Added:	CRP_IBIS1_0120, 0213 CRP_IBIS1_0010	SOM <i>M. Schmidt</i>
30/05/05	2/3	Procedure Changes	Updated: CRP_IBIS1_0061, CRP_IBIS1_5140	SOM <i>M. Schmid</i>
18/09/06	2/4	Introduction Procedures	Front page, change record sheet and table of contents replaced Updated CRP_IBIS1_0121, CRP_IBIS1_5100, CRP_IBIS1_5110	SOM <i>M. Schmid</i>
11/04/08	2/5	Introduction Procedures	Front Page, Change Record Sheet and Table of Contents replaced. Updated: CRP_IBIS1_0061, CRP_IBIS1_5110	SOM <i>M. Schmid</i>
30/11/10	2/7	Introduction Procedures	Front Page, Change Record Sheet and Table of Contents replaced. Updated: CRP_IBIS1_0061, CRP_IBIS1_0196, CRP_IBIS1_0201, CRP_IBIS1_5000, CRP_IBIS1_5100	SOM <i>R. Southworth</i>

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9 Vol. 9: Instrument Contingency Recovery Procedures

9.3 Book 3: Imager (IBIS)



INTEGRAL FLIGHT OPERATIONS PLAN

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CRP_IBIS1_0061	IBIS UNCONDITIONED SWITCH OFF(DPE Prime)	Issue: 1.3	Tue 27 Jul 2010	Author: F. Di Marco
CRP_IBIS1_0120	IBIS PICsIT PDMs forced to Safe	Issue: 1.1	Fri 30 Jun 2006	Author: F. Di Marco
CRP_IBIS1_0121	PICsIT PDMs SWITCH ON AT BELT EXIT	Issue: 1.1	Fri 30 Jun 2006	Author: F. Di Marco/ O. Bergogne
CRP_IBIS1_0196	ISGRI MDUs High Count Rate Recovery	Issue: 1.1	Sun 05 Dec 2010	Author: F. Di Marco
CRP_IBIS1_0201	ISGRI MDUs Noisy Pixel Recovery	Issue: 1.1	Sun 05 Dec 2010	Author: F. Di Marco
CRP_IBIS1_0213	PICsIT Noisy Pixel Recovery	Issue: 1.1	Fri 30 Jun 2006	Author: F. Di Marco
CRP_IBIS1_5000	IBIS DPE SWITCHOVER TO IDPE2	Issue: 1.2	Fri 03 Dec 2010	Author: F. Di Marco
CRP_IBIS1_5100	IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION	Issue: 1.2	Tue 27 Jul 2010	Author: F. Di Marco/ O. Bergogne
CRP_IBIS1_5110	IBIS RECOVERY FROM ESAM CONDITION	Issue: 1.2	Thu 12 Jul 2007	Author: F. Di Marco/ O. Bergogne
CRP_IBIS1_5120	IBIS RECOVERY AFTER HIGH RADIATION CONDITION	Issue: 1	Fri 30 Jun 2006	Author: F. Di Marco
CRP_IBIS1_5130	IBIS RECOVERY FROM DNEL CONDITION	Issue: 1	Fri 30 Jun 2006	Author: F. Di Marco
CRP_IBIS1_5140	IBIS1 RECOVERY AFTER IDPE FAILURE	Issue: 1.1	Fri 30 Jun 2006	Author: F. Di Marco



IBIS SAFE CONFIG (FAST)

Author : F. Di Marco
Filename : CRP_IBIS1_0010.PRC
Date Last Modified : Fri 30 Jun 2006

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CRP_IBIS1_0010

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CRP_IBIS1_0010

IBIS SAFE CONFIG (FAST)

Issue: 1.2

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		IBIS Force Safe Configuration (FAST)			
1		PURPOSE This procedure/sequence force the IBIS configuration in a SAFE status, in less than 1 minute, under the following conditions: <ul style="list-style-type: none">- Radiation Belts entry time elapsed and on-board automatism malfunctioning- High Radiation Condition and on-board automatism malfunctioning- ESAM active and on-board automatism malfunctioning- Imminent Switch OFF active and on-board automatism malfunctioning- imminent ground station outage All PDMs are left ON because there is no problem for the safety of the scintillators and due to a PIs request to maintain a good thermal environment for the PICsIT modules			
1.1		REQUIRED CONFIGURATION IDPE1 must be ON CSSW must be running IASW in any Scientific Mode ISGRI in Nominal VETO in Nominal PICsIT in Nominal			
1.2		SPECIAL OPERATIONAL CONSTRAINTS			



IBIS SAFE CONFIG (FAST)

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Step	Time	Event Description	TC	TM	Comments
		S/C not in DNEL			
1.3		REQUIRED INPUT/INTERFACES none			
3		PRELIMINARY CHECKS			
3		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
3.1		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
3.2		Check IASW current mode TM: S1E-IASW MODE		AND G0045; G8016 = SCIEN. STAND [4]	WARNING FOR THE OPERATOR: any raw value in the interval between (0-5) is valid for this verification
3.3		Verify that MCEs are in Nominal mode TM: I0E-OPM-MCE0 TM: I0E-OPM-MCE1 TM: I0E-OPM-MCE2 TM: I0E-OPM-MCE3 TM: I0E-OPM-MCE4 TM: I0E-OPM-MCE5 TM: I0E-OPM-MCE6 TM: I0E-OPM-MCE7		G2003 = NOM +NP /LTH G2017 = NOM +NP /LTH G2031 = NOM +NP /LTH G2045 = NOM +NP /LTH G2059 = NOM +NP /LTH G2073 = NOM +NP /LTH G2087 = NOM +NP /LTH G2101 = NOM +NP /LTH	WARNING FOR THE OPERATOR: any raw value in the interval between (0-4) is valid for this verification
3.4		Check PICsIT current mode			



IBIS SAFE CONFIG (FAST)

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CRP_IBIS1_0010
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Step	Time	Event Description	TC	TM	Comments
		TM: P0E OPMODE		G5054 = NOMINAL [2]	WARNING FOR THE OPERATOR: any raw value in the interval between (2-3) is valid for this verification
3.5		Check VETO current mode TM: V1S-NOMBIT		G6008 = NOMINAL [1]	WARNING FOR THE OPERATOR: any raw value in the interval between (1-3) is valid for this verification
4		Load TC_sequence GC0010			
4		Command IASW into Stand-By Mode TC: TC-Y-550 CEV: S1E-IASW MODE	G0125	AND G0045; G8016 = STANDBY [0]	
4.1		Command VETO into Stand-By Mode TC: TC-V-STANDBY CEV: V1S-NOMBIT	G0601	G6008 = STAND/BY [0]	
4.2		Command MCE 0 into Stand-By Mode TC: TC-I-M-SBY-0 CEV: I0E-OPM-MCE0	G0220	G2003 = STAND BY [0]	
4.3		Command MCE 1 into Stand-By Mode TC: TC-I-M-SBY-1 CEV: I0E-OPM-MCE1	G0255	G2017 = STAND BY [0]	
4.4		Command MCE 2 into Stand-By Mode TC: TC-I-M-SBY-2 CEV: I0E-OPM-MCE2	G0290	G2031 = STAND BY [0]	
4.5		Command MCE 3 into Stand-By Mode TC: TC-I-M-SBY-3 CEV: I0E-OPM-MCE3	G0325	G2045 = STAND BY [0]	
4.6		Command MCE 4 into Stand-By Mode TC: TC-I-M-SBY-4 CEV: I0E-OPM-MCE4	G0360	G2059 = STAND BY [0]	



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Step	Time	Event Description	TC	TM	Comments
4.7		Command MCE 5 into Stand-By Mode TC: TC-I-M-SBY-5 CEV: I0E-OPM-MCE5	G0395		G2073 = STAND BY [0]
4.8		Command MCE 6 into Stand-By Mode TC: TC-I-M-SBY-6 CEV: I0E-OPM-MCE6	G0430		G2087 = STAND BY [0]
4.9		Command MCE 7 into Stand-By Mode TC: TC-I-M-SBY-7 CEV: I0E-OPM-MCE7	G0465		G2101 = STAND BY [0]
5		Set MCEs Biases to zero			
5		Set MCE 0 BIAS OFF TC: TC-I-M-BIAS-0-0 TM: I0E-CDTE-BIAS0	G0234		AND G0050; G2011 = 0 +/-1 V
5.1		Set MCE 1 BIAS OFF TC: TC-I-M-BIAS-0-1 TM: I0E-CDTE-BIAS1	G0269		G2025 = 0 +/-1 V
5.2		Set MCE 2 BIAS OFF TC: TC-I-M-BIAS-0-2 TM: I0E-CDTE-BIAS2	G0304		G2039 = 0 +/-1 V
5.3		Set MCE 3 BIAS OFF TC: TC-I-M-BIAS-0-3 TM: I0E-CDTE-BIAS3	G0339		G2053 = 0 +/-1 V
5.4		Set MCE 4 BIAS OFF TC: TC-I-M-BIAS-0-4 TM: I0E-CDTE-BIAS4	G0374		G2067 = 0 +/-1 V
5.5		Set MCE 5 BIAS OFF TC: TC-I-M-BIAS-0-5 TM: I0E-CDTE-BIAS5	G0409		G2081 = 0 +/-1 V
5.6		Set MCE 6 BIAS OFF			



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-0-6 TM: I0E-CDTE-BIAS6	G0444	G2095 = 0 +/-1 V	
5.7		Set MCE 7 BIAS OFF TC: TC-I-M-BIAS-0-7 TM: I0E-CDTE-BIAS7	G0479	G2109 = 0 +/-1 V	
		Final status: IASW in Stand-By ISGRI MCEs in Stand-By with biases OFF PICsIT in Nominal\Maintenance VETO in Stand-By			
		END OF PROCEDURE			



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IBIS UNCONDITIONED SWITCH OFF(DPE Prime)Issue: 1.3

Tue 27 Jul 2010

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
		IBIS1 Unconditioned Deactivation			
1		PURPOSE To perform an unconditioned (forced power OFF) deactivation of IBIS1 starting from any IASW Mode when the unit is not reacting to ground S/W commanding			
1.1		REQUIRED CONFIGURATION IDPE1 ON CSSW running IASW in any Mode ISGRI ON in any Mode PICsIT ON in any mode VETO ON in any mode IBIS s/s disabled from the Timeline In the sequence of the peripherals switch off, the sequence followed is: 1) ISGRI 2) VETO 3) PICsIT VETO is switched OFF after ISGRI and before PICsIT against the original sequence in the IBIS UM. PICsIT is the less sensitive peripheral so there is no reason to switch OFF VETO as the last.			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in DNEL			
1.3		REQUIRED INPUT/INTERFACES			



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Step	Time	Event Description	TC	TM	Comments
		none			
		PRELIMINARY CHECKS			
2		Check if PPDU Board 1A GSW 2 is closed TM: P BD1A GSW2 STA		TM_PKT 200500; AND G0010; P2104 = CLOSE [1]	
2.1		Check DPE Power Supply TM: LCL STA IDPE1 TM: LCL CUR IDPE1		P2107 = CLOSE 0.2 A < P2005 < 0.27 A	
		IBIS DEACTIVATION			
3		Load TC_seq GC0061			
		ISGRI deactivation			
3.1		Set MCEs Transistor switches OPEN		TM_PKT 200500; AND G0050;	
		TC: TSW MCE0 A OFF	P4128		[Red. TC: = P4628]
		CEV: TSW STA MCE0 A		P2201 = OPEN [0]	
		TC: TSW MCE1 A OFF	P4132		[Red. TC: = P4632]
		CEV: TSW STA MCE1 A		P2202 = OPEN [0]	
		TC: TSW MCE2 A OFF	P4136		[Red. TC: = P4636]
		CEV: TSW STA MCE2 A		P2203 = OPEN [0]	
		TC: TSW MCE3 A OFF	P4140		[Red. TC: = P4640]
		CEV: TSW STA MCE3 A		P2204 = OPEN [0]	
		TC: TSW MCE4 A OFF	P4148		[Red. TC: = P4648]
		CEV: TSW STA MCE4 A		P2206 = OPEN [0]	



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Step	Time	Event Description	TC	TM	Comments
		TC: TSW MCE5 A OFF	P4152		[Red. TC: = P4652]
		CEV: TSW STA MCE5 A		P2207 = OPEN [0]	
		TC: TSW MCE6 A OFF	P4156		[Red. TC: = P4656]
		CEV: TSW STA MCE6 A		P2208 = OPEN [0]	
		TC: TSW MCE7 A OFF	P4160		[Red. TC: = P4660]
		CEV: TSW STA MCE7 A		P2209 = OPEN [0]	
3.2		Set IFDM transistor switch OPEN			
		TC: TSW IFDM1 OFF	P4144		[Red. TC: = P4644]
		CEV: TSW STA IFDM1		P2205 = OPEN [0]	
3.3		<p>WARNING FOR THE OPERATOR: in contingency just affecting the IBIS s/s is not allowed to switch OFF the boards (4A1 & 5A2) feeding (also) the MDUs because also others S/C sub-systems (JEM-X, ...) are connected at the same time.</p> <p>IF REALLY REQUESTED AND AUTHORIZED BY THE SOM to switch OFF the boards (4A1 & 5A2), perform this action by using</p> <p>TC P4092 P HLCL 4A1 OF(A)</p> <p>TC P4096 P HLCL 5A2 OF(A)</p> <p>ELSE DO NOT TAKE ANY PERSONAL INITIATIVE AND continue with the next step</p>			
3.4		Check the ISGRI Nominal (A) Substitution Heaters statuses		AND P4012; AND P4014;	Substitution Heaters CLOSED in sunlight OPEN in Eclipses passages, DNEL and PPDUInitialisation.



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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 5A1 STA TM: P HLCL 5A1 CUR TM: TSW STA CDTE H1A If the status is different from that expected activate the CDTE H1A by using TC T5511 (TSW CDTE HR1A ON) TM: P HLCL 4A1 STA TM: P HLCL 4A1 CUR TM: TSW STA IEB2 HA If the status is different from that expected activate the IEB2 HA by using TC T5501 (TSW IEB2 HTRA ON) TM: P HLCL 6A2 STA TM: P HLCL 6A2 CUR TM: TSW STA CDTE H2A If the status is different from that expected activate the CDTE H2A by using TC T5516 (TSW CDTE HR2A ON)		P2125 = CLOSE P2021 = inside limits A T8001 = CLOSE P2130 = CLOSE P2019 = inside limits A T8002 = CLOSE P2126 = CLOSE P2022 = inside limits A T8003 = CLOSE	HLCL CLOSED in sunlight and PDU Initialisation OPEN in Eclipse and DNEL HLCL current The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 HLCL CLOSED in sunlight and PDU Initialisation OPEN in Eclipse and DNEL HLCL current The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 HLCL CLOSED in sunlight and PDU Initialisation OPEN in Eclipse and DNEL HLCL current The status of all the IBIS Heaters is reported in ANDs G0001 and G0002



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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 7A2 STA TM: P HLCL 7A2 CUR TM: TSW STA IEB1 HA If the status is different from that expected activate the IEB1 HA by using TC T5551 (TSW IEB1 HTRA ON)		P2128 = CLOSE P2024 = inside limits A T8010 = CLOSE	HLCL CLOSED in sunlight and PDU Initialisation OPEN in Eclipse and DNEL HLCL current The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
3.5		ISGRI is OFF			
		VETO deactivation			
3.6		VETO LCL OFF TC: LCL IBIS VEBA OF CEV: LCL STA VEB A TM: LCL CUR VEB A	P4008	TM_PKT 200500; AND G0070; P2109 = OPEN [0] P2002 = 0.0 A	[Red. TC: = P4508]
3.7		WARNING FOR THE OPERATOR: in contingency just affecting the IBIS s/s is not allowed to switch OFF the board (B1A GSW1) feeding (also) the VEB-A because also others S/C sub-systems (JEM-X, ...) are connected at the same time. IF REALLY NEEDED AND AUTHORIZED BY THE SOM to switch OFF the board (B1A), perform this action by using TC P4064 B1A GSW1 OF ELSE DO NOT TAKE ANY PERSONAL INITIATIVE AND skip this step			



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Step	Time	Event Description	TC	TM	Comments
3.8		Check the VETO Nominal (A) Substitution Heater status TM: P HLCL 6A1 STA TM: P HLCL 6A1 CUR TM: TSW STA VEB HTRA If the status is different from that expected activate the VEB HTRA by using TC T5536 (TSW VEB HTRA ON)		AND P4014; P2127 = CLOSE P2026 = inside limits A T8007 = CLOSE	Substitution Heaters CLOSED in sunlight OPEN in Eclipses passages, DNEL and PPDU Initialisation. HLCL CLOSED in sunlight and PPDU Initialisation OPEN in Eclipse and DNEL HLCL current The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
3.9		VETO is OFF			
		PICsIT Deactivation			
3.10		Set OPEN the MPE transistor switches TC: TSW PEB1-1 A OFF CEV: TSW STA PEB1-1 A TC: TSW PEB1-2 A OFF CEV: TSW STA PEB1-2 A TC: TSW PEB1-3 A OFF CEV: TSW STA PEB1-3 A	P4168 P4172 P4176	TM_PKT 200500; AND G0060; P2210 = OPEN [0] P2211 = OPEN [0] P2212 = OPEN [0]	[Red. TC: = P4668] [Red. TC: = P4672] [Red. TC: = P4676]



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Step	Time	Event Description	TC	TM	Comments
		TC: TSW PEB1-4 A OFF	P4180		[Red. TC: = P4680]
		CEV: TSW STA PEB1-4 A		P2213 = OPEN [0]	
		TC: TSW PEB2-5 A OFF	P4188		[Red. TC: = P4688]
		CEV: TSW STA PEB2-5 A		P2215 = OPEN [0]	
		TC: TSW PEB2-6 A OFF	P4192		[Red. TC: = P4692]
		CEV: TSW STA PEB2-6 A		P2216 = OPEN [0]	
		TC: TSW PEB2-7 A OFF	P4196		[Red. TC: = P4696]
		CEV: TSW STA PEB2-7 A		P2217 = OPEN [0]	
		TC: TSW PEB2-8 A OFF	P4200		[Red. TC: = P4700]
		CEV: TSW STA PEB2-8 A		P2218 = OPEN [0]	
3.11		Set OPEN the PFDM transistor switch			
		TC: TSW PFDM-A OFF	P4184		[Red. TC: = P4684]
		CEV: TSW STA PFDM-A		P2214 = OPEN [0]	
3.12		Set CSI HTRA ON and CSI HTRB OFF		AND G0001	NOTE: the nominal configuration is PICsIT detectors ON and HTR CSI B CLOSE. When PICsIT detectors are OFF, HTR CSI A is to be CLOSE. HTR CSI A and B must never be used together.
		TC: TSW CSI HTRB OFF	T5605		[Red. TC: = T6605]
		CEV: TSW STA CSI HTRB		T8100 = OPEN [0]	



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Step	Time	Event Description	TC	TM	Comments
		TC: TSW CSI HTRA ON CEV: TSW STA CSI HTRA	T5506	T8000 = CLOSE [1]	[Red. TC: = T6506]
4		Set IBISDET Heater ON TC: TSW IBISDET A ON CEV: TSW STA IBISDETA	P4205	AND G0002 P2221 = CLOSE [1]	! It is possible to observe the automatic activation also of the IBISDET Heater B by SECL SW due to very low thermal condition. No action is requested. The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 [Red. TC: = P4705]
4.1		WARNING FOR THE OPERATOR: in contingency just affecting the IBIS s/s is not allowed to switch OFF the boards (5A1 & 6A2) feeding (also) PICSIT because also others S/C sub-systems (JEM-X, ...) are connected at the same time. IF REALLY NEEDED AND AUTHORIZED BY THE SOM to switch OFF the boards (5A1 & 6A2), perform this action by using TC P4100 P HLCL 5A1 OFF TC P4104 P HLCL 6A2 OFF ELSE DO NOT TAKE PERSONAL INITIATIVE AND skip this step			
4.2		Check the PICsIT Nominal (A) Substitution Heaters statuses		AND P4012; AND P4014;	Substitution Heaters CLOSED in sunlight OPEN in Eclipses passages, DNEL and PPDUInitialisation.



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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 5A2 STA TM: P HLCL 5A2 CUR If the status is different from that expected inform the Thermal SOE and the SOM TM: P HLCL 7A2 STA TM: P HLCL 7A2 CUR TM: TSW STA PEB1 HA If the status is different from that expected activate the PEB1 HTRA by using TC T5541 (TSW PEB1 HTRA ON) TM: TSW STA PEB2 HA If the status is different from that expected activate the PEB2 HTRA by using TC T5546 (TSW PEB2 HTRA ON) TM: P HLCL 6A1 STA TM: P HLCL 6A1 CUR TM: TSW STA IBISCU A If the status is different from that expected activate the IBISCU HTRA by using TC T5528 (TSW IBISCUH AONA)		P2124 = CLOSE P2020 = inside limits A P2128 = CLOSE P2024 = inside limits A T8008 = CLOSE T8009 = CLOSE P2127 = CLOSE P2026 = inside limits A T8017 = CLOSE	HLCL CLOSED in sunlight and PDU Initialisation OPEN in Eclipse and DNEL The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
4.3		PICsIT is OFF			



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Step	Time	Event Description	TC	TM	Comments
5		Check the IBIS Redundant (B) Heaters statuses		AND P4013; AND P4015;	Substitution Heaters CLOSED during sunlight and Eclipses passages under the assumption that Heater loop"switch-on" temperature is not exceeded in an Eclipse passage lasting up to 1.8 hours. OPEN in PPDU Initialisation and DNEL.
		TM: P HLCL 5B2 STA		P2174 = CLOSE	HLCL CLOSED in sunlight, Eclipses passages and DNEL OPEN in PPDU Initialisation
		TM: P HLCL 5B2 CUR		P2070 = inside limits A	
		TM: TSW STA CSI HTRB		T8100 = OPEN	The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
		TM: P HLCL 5B1 STA		P2175 = CLOSE	
		TM: P HLCL 5B1 CUR		P2071 = inside limits A	
		TM: TSW STA CDTE H1B		T8101 = CLOSE	The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
		TM: P HLCL 4B1 STA		P2173 = CLOSE	
		TM: P HLCL 4B1 CUR		P2069 = inside limits A	
		TM: TSW STA IEB2 HB		T8102 = CLOSE	The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
		TM: P HLCL 6B2 STA		P2176 = CLOSE	
		TM: P HLCL 6B2 CUR		P2072 = inside limits A	
		TM: TSW STA CDTE H2B		T8103 = CLOSE	The status of all the IBIS Heaters is reported in ANDs G0001 and G0002



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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 6B1 STA TM: P HLCL 6B1 CUR TM: TSW STA VEB HTRB TM: TSW STA IBISCU B TM: P HLCL 7B2 STA TM: P HLCL 7B2 CUR TM: TSW STA PEB1 HB TM: TSW STA PEB2 HB TM: TSW STA IEB1 HB TM: P HLCL 7B1 STA TM: P HLCL 7B1 CUR TM: TSW STA IDPE1 HB If the status of any IBIS Heater is different from that expected re-enable it by using the specific Power s/s procedure.		P2177 = CLOSE P2073 = inside limits A T8107 = CLOSE T8117 = CLOSE P2178 = CLOSE P2074 = inside limits A T8108 = CLOSE T8109 = CLOSE T8110 = CLOSE P2179 = CLOSE P2075 = inside limits A T8113 = CLOSE	The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002 The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
5.1		Check the IBIS Antifreeze Heaters statuses		AND P4014; AND P4015;	Not provided of redundancy.



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Step	Time	Event Description	TC	TM	Comments
		TM: TSW STA IRAD -Y		T8156 = OPEN	OPEN nominally except in thermal recovery operations
		TM: TSW STA IRAD +Y		T8116 = OPEN	The power dissipation on heaters is not controlled by any thermostat. CLOSED during the Eclipses, DNEL and PPDU initialisation The status of all the IBIS Heaters is reported in ANDs G0001 and G0002
5.2		Verification of the IBIS/ISGRI Temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2 TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2		AND G0750; T5043 = inside limits degC T5050 = inside limits degC T5030 = inside limits degC T5040 = degC T5060 = inside limits degC T5063 = degC T5072 = inside limits degC T5075 = inside limits degC	NA If IDPE1 is running NA If IDPE1 is running
5.3		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750 T5056 = inside limits degC T5069 = inside limits degC T5073 = inside limits degC T5081 = inside limits degC T5082 = inside limits degC T5070 = inside limits degC T5083 = inside limits degC T5054 = inside limits degC	
5.4		Check the PEB temperatures TM: TCS TH IBIS PEB1		AND G0750; T5044 = inside limits degC	



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Step	Time	Event Description	TC	TM	Comments
		TM: TCS TH IBIS PEB2		T5051 = inside limits degC	
		Disable BCPKT distribution to IBIS1			
6		<p>WARNING FOR THE OPERATOR: the load APID table TC is using TC_paras with dynamic default: i.e. the current configuration of the other peripherals is automatically updated with the TM except the requested values for IBIS1.</p> <p>TC: DYN REP APID TAB TM_PKT: REP BP APID TAB TM: : SSC APID 130 TM: : TM 5 4 TID TM: : TM 5 4 FID TM: : APID TAB ENTRY1R TM: : APID ENTRY 1ST R TM: : APID TAB ENTRY2R TM: : APID ENTRY 2ST R TM: : APID TAB ENTRY3R TM: : APID ENTRY 3ST R TM: : APID TAB ENTRY4R TM: : APID ENTRY 4ST R TM: : APID TAB ENTRY5R TM: : APID ENTRY 5ST R</p>	DU4011	<p>AND D4230</p> <p>250003 DUSSC2 D8410 = 4 (Dec) D8411 = 1 (Dec) D8350 D8351 D8352 D8353 D8354 D8355 D8356 D8357 D8358 D8359</p>	2nd APID entry is assumed always dedicated to IBIS
6.1		<p>Disable BCP distribution to IBIS1.</p> <p>Double-Check the current status for the others instruments by comparing with AND D4230 and edit the entry for IBIS1 to DISABLED</p>			



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Step	Time	Event Description	TC	TM	Comments
		TC: DYN LD APID TAB TC_Par: . : APID TAB ENTRY 1 TC_Par: . : APID ENTRY 1 ST TC_Par: . : APID TAB ENTRY 2 TC_Par: . : APID ENTRY 2 ST TC_Par: . : APID TAB ENTRY 3 TC_Par: . : APID ENTRY 3 ST TC_Par: . : APID TAB ENTRY 4 TC_Par: . : APID ENTRY 4 ST TC_Par: . : APID TAB ENTRY 5 TC_Par: . : APID ENTRY 5 ST	DU4010 D3320 = D3321 = D3322 = IBIS1 D3323 = DISABLED D3324 = D3325 = D3326 = D3327 = D3328 = D3329 =		APID TAB ENTRY 2 = 1280 (IBIS) APID ENTRY 2 ST= DISABLED
6.2		Report and check TC: DYN REP APID TAB TM_PKT: REP BP APID TAB	DU4011	AND D4230 250003	



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Step	Time	Event Description	TC	TM	Comments
		TM: : SSC APID 130 TM: : TM 5 4 TID TM: : TM 5 4 FID TM: : APID TAB ENTRY1R TM: : APID ENTRY 1ST R TM: : APID TAB ENTRY2R TM: : APID ENTRY 2ST R TM: : APID TAB ENTRY3R TM: : APID ENTRY 3ST R TM: : APID TAB ENTRY4R TM: : APID ENTRY 4ST R TM: : APID TAB ENTRY5R TM: : APID ENTRY 5ST R		DUSSC2 D8410 = 4 (Dec) D8411 = 1 (Dec) D8350 D8351 D8352 = IBIS1 IASW D8353 = DISABLED D8354 D8355 D8356 D8357 D8358 D8359	
6.3		Enable the BCPKT with the new APID configuration TC: START BCPKT TM: APID TAB ENTRY 2 TM: APID ENTRY 2 ST TM: AC ONBO TCPCOUNT	D4001	AND G0110 D5223 = IBIS1 [1281] D5224 = DISABLED [0] G9044 = not incrementing	
		IDPE1 Deactivation			
7		WARNING: the IDPE deactivation MUST be performed only in exceptional case and ONLY after specific request of the IBIS s/s SOE or the SOM IF THE IBIS SOE/SOM CONFIRMS THAT IS NEEDED ALSO THE DPE DEACTIVATION THEN PROCEED WITH THE PROCEDURE ELSE PROCEDURE IS END TC: IDPE1 RELAY0 OFF	G9801	TM_PKT 200500; AND G0010	



IBIS UNCONDITIONED SWITCH OFF(DPE Prime)

Author : F. Di Marco
 Filename : CRP_IBIS1_0061.PRC
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Step	Time	Event Description	TC	TM	Comments
		CEV: IDPE1 RELAY0 STA Verify DPE Dc/Dc Converter is still working If not successful inform SOM at the end of the procedure TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM The following OEM is expected from the CDMU 129 (APID) OEM Number: 81 OEM CLASS: 1 EXCE OBIH TM 1 9 INVALID OR NOT RECEIVED RBI RESPONSE		G9801 = OFF [1] P2005 <= 0.1 A 4.95 V < G9800 < 5.15 V	
7.1		Open IDPE1 LCL TC: LCL IDPE1 OFF CEV: LCL STA IDPE1 TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM	P4020	P2107 = OPEN [0] P2005 = 0.0 A G9800 = 0.0 V	[Red. TC: = P4520]
7.2		Verify DPE Nominal (A) Substitution heaters are enabled TM: P HLCL 7A1 STA TM: P HLCL 7A1 CUR TM: TSW STA IDPE1 HA If the status is different from that expected activate the IDPE1 HTRA by using TC T5566 (TSW IDPE1 HTA ON)		P2129 = CLOSE [1] P2025 = inside limits A [inside limits] T8013 = CLOSE [1]	HLCL CLOSED in sunlight and PPDU Initialisation OPEN in Eclipses passages and DNEL CLOSED in sunlight OPEN in Eclipses passages, DNEL and PPDUInitialisation. The status of all the IBIS Heat- ers is reported in ANDs G0001 and G0002



IBIS UNCONDITIONED SWITCH OFF(DPE Prime)

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Filename : CRP_IBIS1_0061.PRC
Date Last Modified : Tue 27 Jul 2010

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Step	Time	Event Description	TC	TM	Comments
7.3		Verification of the IBIS/IDPE Temperatures TM: IDPE1 TEMP MON TM: TCS TH IDPE1 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2		AND G0750; T5030 = inside limits degC T5060 = inside limits degC T5072 = inside limits degC T5075 = inside limits degC	
7.4		IDPE1 is OFF			
		Final Status: IBIS OFF			
		End of procedure			



IBIS UNCONDITIONED SWITCH OFF(DPE Prime)

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Filename : CRP_IBIS1_0061.PRC
Date Last Modified : Tue 27 Jul 2010

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IBIS PICsIT PDMs forced to Safe

Author : F. Di Marco
 Filename : CRP_IBIS1_0120.PRC
 Date Last Modified : Fri 30 Jun 2006

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IBIS PICsIT PDMs forced to Safe

Issue: 1.1

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		PICsIT PDMs Switch OFF at Belts Entry			
1		<p>PURPOSE</p> <p>This procedure force the PICsIT PDMs in a SAFE status under the following conditions:</p> <ul style="list-style-type: none"> - Radiation Belts entry - High Radiation Condition - ESAM - Imminent Switch OFF. <p>This procedure will be mainly used only during the LEOP/Commisioning phase as backup safety whenever requested by the IBIS Pis Precondition to this activity is:</p> <ul style="list-style-type: none"> -BCPKT Belts entry time elapsed 			
1.1		<p>REQUIRED CONFIGURATION</p> <p>IDPE1 must be ON CSSW must be running IASW in any Mode PICsIT in Nominal</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>S/C not in DNEL</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>none</p>			
3		PRELIMINARY CHECKS			
3		Check IDPE1 ON		AND G0010	



IBIS PICsIT PDMs forced to Safe

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Step	Time	Event Description	TC	TM	Comments
		TM: IDPE1 ON		X7900 = TRUE [1]	
3.1		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
3.2		Check IASW current mode TM: S1E-IASW MODE		AND G0045; G8016 = any	WARNING FOR THE OPERATOR: any raw value in the interval between (0-5) is valid for this verification
3.3		Check PICsIT current mode TM: POE OPMODE		G5054 >= NOMINAL	WARNING FOR THE OPERATOR: any raw value in the interval between (2-3) is valid for this verification
4		Command IASW in Stand-By Load TC_seq GC0120			
4		Command IASW into Stand-By Mode TC: TC-Y-550 CEV: S1E-IASW MODE	G0125	G8016 = STANDBY [0]	
4.1		Set PDMs OFF			
4.1		Set OFF the MPE transistor switches		TM_PKT 200500; AND G0060;	



IBIS PICsIT PDMs forced to Safe

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Step	Time	Event Description	TC	TM	Comments
		TC: TC-P-ALLPDMST-LD	G0512		
		TC_Par: . : P0E-CPDM8STB	G5631 = OFF		
		TC_Par: . : P0E-CPDM7STB	G5632 = OFF		
		TC_Par: . : P0E-CPDM6STB	G5633 = OFF		
		TC_Par: . : P0E-CPDM5STB	G5634 = OFF		
		TC_Par: . : P0E-CPDM4STB	G5635 = OFF		
		TC_Par: . : P0E-CPDM3STB	G5636 = OFF		
		TC_Par: . : P0E-CPDM2STB	G5637 = OFF		
		TC_Par: . : P0E-CPDM1STB	G5638 = OFF		
		CEV: P0E-PDM8STB		G5040 = G5631 []	
		CEV: P0E-PDM4STB		G5044 = G5635 []	
		CEV: P0E-PDM1STB		G5047 = G5638 []	
		CEV: P0E-PDM2STB		G5046 = G5637 []	
		CEV: P0E-PDM5STB		G5043 = G5634 []	
		CEV: P0E-PDM6STB		G5042 = G5633 []	
		CEV: P0E-PDM7STB		G5041 = G5632 []	
		CEV: P0E-PDM3STB		G5045 = G5636 []	
		TC: TSW PEB1-1 A OFF	P4168		[Red. TC: = P4668]
		CEV: TSW STA PEB1-1 A		P2210 = OPEN [0]	
		TC: TSW PEB1-2 A OFF	P4172		[Red. TC: = P4672]
		CEV: TSW STA PEB1-2 A		P2211 = OPEN [0]	
		TC: TSW PEB1-3 A OFF	P4176		[Red. TC: = P4676]
		CEV: TSW STA PEB1-3 A		P2212 = OPEN [0]	



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Step	Time	Event Description	TC	TM	Comments
		TC: TSW PEB1-4 A OFF	P4180		[Red. TC: = P4680]
		CEV: TSW STA PEB1-4 A		P2213 = OPEN [0]	
		TC: TSW PEB2-5 A OFF	P4188		[Red. TC: = P4688]
		CEV: TSW STA PEB2-5 A		P2215 = OPEN [0]	
		TC: TSW PEB2-6 A OFF	P4192		[Red. TC: = P4692]
		CEV: TSW STA PEB2-6 A		P2216 = OPEN [0]	
		TC: TSW PEB2-7 A OFF	P4196		[Red. TC: = P4696]
		CEV: TSW STA PEB2-7 A		P2217 = OPEN [0]	
		TC: TSW PEB2-8 A OFF	P4200		[Red. TC: = P4700]
		CEV: TSW STA PEB2-8 A		P2218 = OPEN [0]	
		TC: TSW CSI HTRB OFF	T5605		[Red. TC: = T6605]
		CEV: TSW STA CSI HTRB		T8100 = OPEN [0]	
		TC: TSW CSI HTRA ON	T5506		[Red. TC: = T6506]
		CEV: TSW STA CSI HTRA		T8000 = CLOSE [1]	
		Final status: IASW in Stand-By ISGRI MCEs in Stand-By with biases OFF PICsIT in Nominal\Maintenance VETO in Stand-By			
		END OF PROCEDURE			



PICsIT PDMs SWITCH ON AT BELT EXIT

Author : F. Di Marco/ O. Bergogne
 Filename : CRP_IBIS1_0121.PRC
 Date Last Modified : Fri 30 Jun 2006

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PICsIT PDMs SWITCH ON AT BELT EXIT

Issue: 1.1

Fri 30 Jun 2006

Author: F. Di Marco/ O. Bergogne

Step	Time	Event Description	TC	TM	Comments
1		PICsIT PDMs Switch ON after Belts Exit			
1		<p>PURPOSE</p> <p>This procedure trigger the PICsIT PDMs reconfiguration after radiation belts exit, if the CRP_IBIS1_0120 has been executed at Belt Entry (to be requested by IBIS PIs).</p> <p>To this purpose, IASW must be in Stand-By Mode and PICsIT in Nominal</p> <p>Preconditions to this activity are:</p> <p>-BCPKT Belts exit time elapsed</p>			
1.1		<p>REQUIRED CONFIGURATION</p> <p>IDPE1 must be ON</p> <p>CSSW must be running</p> <p>IASW in Stand-By</p> <p>PICsIT in Nominal</p>			
1.2		<p>SPECIAL OPERATIONAL CONSTRAINTS</p> <p>S/C not in DNEL</p>			
1.3		<p>REQUIRED INPUT/INTERFACES</p> <p>none</p>			
2		PRELIMINARY CHECKS			
2		<p>Check IDPE1 ON</p> <p>TM: IDPE1 ON</p>		<p>AND G0010</p> <p>X7900 = TRUE [1]</p>	
2.1		<p>Check CSSW current mode</p> <p>TM: IBIS1 RUNNING</p>		D6703 = RUNNING [1]	



PICsIT PDMs SWITCH ON AT BELT EXIT

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Step	Time	Event Description	TC	TM	Comments
2.2		Check IASW current mode TM: S1E-IASW MODE		G8016 = STANDBY [0]	IF the IASW mode is different from Stand-By, force the transition to Stand-By by using the TC G0125
2.3		Check PICsIT current mode TM: POE OPMODE		G5054 = NOMINAL [2]	
3		PICsIT PDM switch ON			
3		Load TC_seq GC0121			
3.1		Command VETO into Nominal Mode			
		TC: TSW CSI HTRA OFF	T5505		[Red. TC: = T6505]
		CEV: TSW STA CSI HTRA		T8000 = OPEN [0]	
		TC: TSW PEB1-1 A ON	P4169		[Red. TC: = P4669]
		CEV: TSW STA PEB1-1 A		P2210 = CLOSE [1]	
		TC: TSW PEB1-2 A ON	P4173		[Red. TC: = P4673]
		CEV: TSW STA PEB1-2 A		P2211 = CLOSE [1]	
		TC: TSW PEB1-3 A ON	P4177		[Red. TC: = P4677]
		CEV: TSW STA PEB1-3 A		P2212 = CLOSE [1]	
		TC: TSW PEB1-4 A ON	P4181		[Red. TC: = P4681]
		CEV: TSW STA PEB1-4 A		P2213 = CLOSE [1]	
		TC: TSW PEB2-5 A ON	P4189		[Red. TC: = P4689]
		CEV: TSW STA PEB2-5 A		P2215 = CLOSE [1]	
		TC: TSW PEB2-6 A ON	P4193		[Red. TC: = P4693]
		CEV: TSW STA PEB2-6 A		P2216 = CLOSE [1]	
		TC: TSW PEB2-7 A ON	P4197		[Red. TC: = P4697]
		CEV: TSW STA PEB2-7 A		P2217 = CLOSE [1]	
		TC: TSW PEB2-8 A ON	P4201		[Red. TC: = P4701]
		CEV: TSW STA PEB2-8 A		P2218 = CLOSE [1]	
		TC: TC-P-MNT-MODE	G0502		
		CEV: POE OPMODE		G5054 = MAINTENANCE [3]	



PICsIT PDMs SWITCH ON AT BELT EXIT

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Step	Time	Event Description	TC	TM	Comments
		TC: TC-Y-539040	G0101		
		CEV: S1E-RS CTX P		G8041 = PASSED [1]	
		TC: TC-P-CTX-APP	G0506		
		TC: TC-P-NOM-MODE	G0503		
		TC: TC-P-ALLPDMST-LD	G0512		
		TC_Par: . : P0E-CPDM8STB	G5631 = ON		
		TC_Par: . : P0E-CPDM7STB	G5632 = ON		
		TC_Par: . : P0E-CPDM6STB	G5633 = ON		
		TC_Par: . : P0E-CPDM5STB	G5634 = ON		
		TC_Par: . : P0E-CPDM4STB	G5635 = ON		
		TC_Par: . : P0E-CPDM3STB	G5636 = ON		
		TC_Par: . : P0E-CPDM2STB	G5637 = ON		
		TC_Par: . : P0E-CPDM1STB	G5638 = ON		
		CEV: P0E-PDM8STB		G5040 = G5631 []	
		CEV: P0E-PDM4STB		G5044 = G5635 []	
		CEV: P0E-PDM1STB		G5047 = G5638 []	
		CEV: P0E-PDM2STB		G5046 = G5637 []	
		CEV: P0E-PDM5STB		G5043 = G5634 []	
		CEV: P0E-PDM6STB		G5042 = G5633 []	
		CEV: P0E-PDM7STB		G5041 = G5632 []	
		CEV: P0E-PDM3STB		G5045 = G5636 []	
		TC: TSW CSI HTRB ON	T5606		[Red. TC: = T6606]
		CEV: TSW STA CSI HTRB		T8100 = CLOSE [1]	
4		Monitor PICsIT PDMs temperatures in AND G0710. Check they remain within limits.		AND G0710	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0213_A1		AND G0061	



PICsIT PDMs SWITCH ON AT BELT EXIT

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Step	Time	Event Description	TC	TM	Comments
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0215_A1		AND G0062	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0217_A1		AND G0063	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0219_A1		AND G0064	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0221_A1		AND G0065	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0223_A1		AND G0066	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0225_A1		AND G0067	
		Monitor PDM 1 configuration by executing procedure FCP_IBIS1_0227_A1		AND G0068	
		Final status: IASW in Stand-By PICsIT in Nominal with all PDMs ON			
		END OF PROCEDURE			



ISGRI MDUs High Count Rate Recovery

Author : F. Di Marco
Filename : CRP_IBIS1_0196.PRC
Date Last Modified : Sun 05 Dec 2010

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ISGRI MDUs High Count Rate Recovery

Issue: 1.1

Sun 05 Dec 2010

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		ISGRI MCEs High Count Rate Recovery			
1		PURPOSE This operation is needed to recover the ISGRI MCEs during an unexpected high count rate (over 8000 counts/sec) lasting more than 20 minutes. The recovery procedure is thought for each ISGRI MCE independently. Each recovery procedure is composed by two main steps: 1) ISGRI biases set to -70 V for 30 minutes; 2) ISGRI biases set back to the Nominal values of -120 V.			
1.1		REQUIRED CONFIGURATION IDPE must be ON CSSW must be RUNNING IASW in STAND-BY or in any Science Mode MCEs ON in STAND-BY or Nominal mode			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in DNEL The bias voltage, even if at minimum value, can not be applied if the detectors temperatures are outside the operating ranges. Apply the -120 only if the MCEs temperatures are <10 degC. If MCEs Temperatures (Temp2) are greater than 10 degC, set just the bias to -70 V and than call the s/s engineer			
1.3		REQUIRED INPUT/INTERFACES			



ISGRI MDUs High Count Rate Recovery

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Step	Time	Event Description	TC	TM	Comments
		Y=current IASW mode X=current IASW sub-mode			
2		PRELIMINARY CHECKS			
2		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
2.1		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
2.2		Take note of the IASW current mode = Y TM: S1E-IASW MODE		AND G0045 G8016 = Y	
2.3		Take note of the IASW current sub-mode = X TM: S1E-IASW-PS		AND G0045 G8520 = X	
3		ISGRI MCEs High Count rate recovery			
3		Temperatures Verification			
3.1		Verification of the IBIS/ISGRI Temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2 TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC	Not Applicable Not Applicable
3.2		Check the ISGRI MCEs temperatures 1 from HK3.* TM: I0E-TEMP1-MDU0 TM: I0E-TEMP1-MDU1 TM: I0E-TEMP1-MDU2		TM_PKT 70031-2-3-4-5-6-7-8 AND G0700; -21.96 degC < G2322 < 17.0 degC -21.96 degC < G2472 < 17.0 degC -21.96 degC < G2622 < 17.0 degC	The bias voltage at Nominal value -120 V cannot be applied if the detectors temperatures are greater than 10 degC.



ISGRI MDUs High Count Rate Recovery

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Step	Time	Event Description	TC	TM	Comments
		TM: I0E-TEMP1-MDU3 TM: I0E-TEMP1-MDU4 TM: I0E-TEMP1-MDU5 TM: I0E-TEMP1-MDU7 Check the ISGRI MCEs temperatures 2 from HK1 TM: I0E-TEMP2-MDU0 TM: I0E-TEMP2-MDU1 TM: I0E-TEMP2-MDU2 TM: I0E-TEMP2-MDU3 TM: I0E-TEMP2-MDU4 TM: I0E-TEMP2-MDU5 TM: I0E-TEMP2-MDU6 TM: I0E-TEMP2-MDU7		-21.96 degC < G2772 < 17.0 degC -21.96 degC < G2922 < 17.0 degC -21.96 degC < G3072 < 17.0 degC -21.96 degC < G3372 < 17.0 degC TM_PKT 79102 -21.96 degC < G2009 < 17.0 degC -21.96 degC < G2023 < 17.0 degC -21.96 degC < G2037 < 17.0 degC -21.96 degC < G2051 < 17.0 degC -21.96 degC < G2065 < 17.0 degC -21.96 degC < G2079 < 17.0 degC G2093 = Thermistor not reliable degC -21.96 degC < G2107 < 17.0 degC	Thermistor not used as considered not reliable after TVC test
3.3		Read the the MCE counters TM: I0S-EVTCNT-MCE0 if G2013 is OOL for more than 20 minutes than goto step 4 and execute the recovery for MCE0 TM: I0S-EVTCNT-MCE1 if G2027 is OOL for more than 20 minutes than goto step 5 and execute the recovery for MCE1 TM: I0S-EVTCNT-MCE2 if G2041 is OOL for more than 20 minutes than goto step 6 and execute the recovery for MCE2 TM: I0S-EVTCNT-MCE3 if G2055 is OOL for more than 20 minutes than goto step 7 and execute the recovery for MCE3 TM: I0S-EVTCNT-MCE4 if G2069 is OOL for more than 20 minutes than goto step 8 and execute the recovery for MCE4		AND G0300; G2013 = 1/s G2027 = 1/s G2041 = 1/s G2055 = 1/s G2069 = 1/s	



ISGRI MDUs High Count Rate Recovery

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Step	Time	Event Description	TC	TM	Comments
		TM: I0S-EVTCNT-MCE5 if G2083 is OOL for more than 20 minutes than goto step 9 and execute the recovery for MCE5 TM: I0S-EVTCNT-MCE6 if G2097 is OOL for more than 20 minutes than goto step 10 and execute the recovery for MCE6 TM: I0S-EVTCNT-MCE7 if G2111 is OOL for more than 20 minutes than goto step 11 and execute the recovery for MCE7		G2083 = 1/s G2097 = 1/s G2111 = 1/s	
4		Recovery for MCE 0 High count Rate. Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 0 in Stand-By TC: TC-I-M-SBY-0 CEV: I0E-OPM-MCE0 Set MCE 0 bias to -70 V TC: TC-I-M-BIAS-X-0 TC_Par: . : I0S-BIAS MBIA M0 Verify the MCE 0 bias -70 +/-1 V TM: I0E-CDTE-BIAS0 Set MCE 0 in Nominal mode TC: TC-I-M-NOM-0 CEV: I0E-OPM-MCE0	G0125 G1004 = NO CHANGE G0220 G0214 G3846 = -70.0 V G0219	AND G0050; G8016 = STANDBY [0] G2003 = STAND BY [0] -71.32 V < G2011 < -69.0 V G2003 = NOM +NP /LTH [4]	



ISGRI MDUs High Count Rate Recovery

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Step	Time	Event Description	TC	TM	Comments
		<p>Depending by IASW previous mode=Y and sub-mode=X</p> <p>IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)</p> <p>IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)</p> <p>IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)</p> <p>IF Y was = Stand-By do not send any TC</p> <p>Monitor the MCE counter G2013 for 30 minutes and repeat the entire step 4 setting the bias to -120 V.</p> <p>Monitor (with bias -120 V) the counter G2013 for five minute, the value should be around 800 counts/sec.</p> <p>if G2013 is still in OOL execute a second iteration of step 4 (with bias -70 and -120).</p> <p>If after the second iteration the problem is not cured call the s/s engineer.</p>			
5		<p>Recovery for MCE 1 High count Rate.</p> <p>Set IASW in Stand-By</p> <p>TC: TC-Y-550</p> <p>TC_Par: : S1E-IASW PS-SB</p> <p>CEV: S1E-IASW MODE</p> <p>Set MCE 1 in Stand-By</p> <p>TC: TC-I-M-SBY-1</p> <p>CEV: I0E-OPM-MCE1</p> <p>Set MCE 1 bias to -70 V</p>	<p>G0125</p> <p>G1004 = NO CHANGE</p> <p>G0255</p>	<p>AND G0300;</p> <p>AND G0050;</p> <p>G8016 = STANDBY [0]</p> <p>G2017 = STAND BY [0]</p>	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-X-1 TC_Par: . : I0S-BIAS MBIA M1 Verify the MCE 1 bias -70 +/-1 V TM: I0E-CDTE-BIAS1 Set MCE 1 in Nominal mode TC: TC-I-M-NOM-1 CEV: I0E-OPM-MCE1 Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC Monitor the MCE counter G2027 for 30 minutes and repeat the entire step 5 setting the bias to -120 V Monitor (with bias -120 V) the counter G2027 for five minute, the value should be around 800 counts/sec. if G2027 is still in OOL execute a second iteration of step 5 (with bias -70 and -120). If after the second iteration the problem is not cured call the s/s engineer.	G0249 G3946 = -70.0 V G0254	-71.32 V < G2025 < -69.0 V G2017 = NOM +NP /LTH [4] AND G0300;	
6		Recovery for MCE 2 High count Rate. Set IASW in Stand-By		AND G0050;	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB	G0125 G1004 = NO CHANGE		
		CEV: S1E-IASW MODE Set MCE 2 in Stand-By		G8016 = STANDBY [0]	
		TC: TC-I-M-SBY-2 CEV: I0E-OPM-MCE2 Set MCE 2 bias to -70 V	G0290	G2031 = STAND BY [0]	
		TC: TC-I-M-BIAS-X-2 TC_Par: . : I0S-BIAS MBIA M2	G0284 G4046 = -120.0 V		
		Verify the MCE 2 bias -70 +/-1 V			
		TM: I0E-CDTE-BIAS2 Set MCE 2 in Nominal mode		-71.32 V < G2039 < -69.0 V	
		TC: TC-I-M-NOM-2 CEV: I0E-OPM-MCE2 Depending by IASW previous mode=Y and sub-mode=X	G0289	G2031 = NOM +NP /LTH [4]	
		IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)			
		IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)			
		IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)			
		IF Y was = Stand-By do not send any TC			
		Monitor the MCE counter G2041 for 30 minutes and repeat the entire step 6 setting the bias to -120 V		AND G0300;	



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Step	Time	Event Description	TC	TM	Comments
		Monitor (with bias -120 V) the counter G2041 for five minute, the value should be around 800 counts/sec. if G2041 is still in OOL execute a second iteration of step 6 (with bias -70 and -120). If after the second iteration the problem is not cured call the s/s engineer.			
7		Recovery for MCE 3 High count Rate. Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 3 in Stand-By TC: TC-I-M-SBY-3 CEV: I0E-OPM-MCE3 Set MCE 3 bias to -70 V TC: TC-I-M-BIAS-X-3 TC_Par: . : I0S-BIAS MBIA M3 Verify the MCE 3 bias -70 +/-1 V TM: I0E-CDTE-BIAS3 Set MCE 3 in Nominal mode TC: TC-I-M-NOM-3 CEV: I0E-OPM-MCE3	G0125 G1004 = NO CHANGE G0325 G0319 G4146 = -70.0 V G0324	AND G0050; G8016 = STANDBY [0] G2045 = STAND BY [0] -71.32 V < G2053 < -69.0 V G2045 = NOM +NP /LTH [4]	



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Step	Time	Event Description	TC	TM	Comments
		<p>Depending by IASW previous mode=Y and sub-mode=X</p> <p>IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)</p> <p>IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)</p> <p>IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)</p> <p>IF Y was = Stand-By do not send any TC</p> <p>Monitor the MCE counter G2055 for 30 minutes and repeat the entire step 7 setting the bias to -120 V</p> <p>Monitor (with bias -120 V) the counter G2055 for five minute, the value should be around 800 counts/sec.</p> <p>if G2055 is still in OOL execute a second iteration of step 7 (with bias -70 and -120).</p> <p>If after the second iteration the problem is not cured call the s/s engineer.</p>			
8		<p>Recovery for MCE 4 High count Rate.</p> <p>Set IASW in Stand-By</p> <p>TC: TC-Y-550</p> <p>TC_Par: : S1E-IASW PS-SB</p> <p>CEV: S1E-IASW MODE</p> <p>Set MCE 4 in Stand-By</p> <p>TC: TC-I-M-SBY-4</p> <p>CEV: I0E-OPM-MCE4</p> <p>Set MCE 4 bias to -70 V</p>	<p>G0125</p> <p>G1004 = NO CHANGE</p> <p>G0360</p>	<p>AND G0300;</p> <p>AND G0050;</p> <p>G8016 = STANDBY [0]</p> <p>G2059 = STAND BY [0]</p>	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-X-4 TC_Par: . : I0S-BIAS MBIA M4 Verify the MCE 4 bias -70 +/-1 V TM: I0E-CDTE-BIAS4 Set MCE 4 in Nominal mode TC: TC-I-M-NOM-4 CEV: I0E-OPM-MCE4 Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC Monitor the MCE counter G2069 for 30 minutes and repeat the entire step 8 setting the bias to -120 V Monitor (with bias -120 V) the counter G2069 for five minute, the value should be around 800 counts/sec. if G2069 is still in OOL execute a second iteration of step 8 (with bias -70 and -120). If after the second iteration the problem is not cured call the s/s engineer.	G0354 G4246 = -70.0 V G0359	-71.32 V < G2067 < -69.0 V G2059 = NOM +NP /LTH [4] AND G0300;	
9		Recovery for MCE 5 High count Rate. Set IASW in Stand-By		AND G0050;	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB	G0125 G1004 = NO CHANGE		
		CEV: S1E-IASW MODE Set MCE 5 in Stand-By		G8016 = STANDBY [0]	
		TC: TC-I-M-SBY-5 CEV: I0E-OPM-MCE5 Set MCE 5 bias to -70 V	G0395	G2073 = STAND BY [0]	
		TC: TC-I-M-BIAS-X-5 TC_Par: . : I0S-BIAS MBIA M5	G0389 G4346 = -70.0 V		
		Verify the MCE 5 bias -70 +/-1 V			
		TM: I0E-CDTE-BIAS5 Set MCE 5 in Nominal mode		-71.32 V < G2081 < -69.0 V	
		TC: TC-I-M-NOM-5 CEV: I0E-OPM-MCE5 Depending by IASW previous mode=Y and sub-mode=X	G0394	G2073 = NOM +NP /LTH [4]	
		IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)			
		IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)			
		IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)			
		IF Y was = Stand-By do not send any TC			
		Monitor the MCE counter G2083 for 30 minutes and repeat the entire step 9 setting the bias to -120 V		AND G0300;	



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Step	Time	Event Description	TC	TM	Comments
		Monitor (with bias -120 V) the counter G2083 for five minute, the value should be around 800 counts/sec. if G2083 is still in OOL execute a second iteration of step 9 (with bias -70 and -120). If after the second iteration the problem is not cured call the s/s engineer.			
10		Recovery for MCE 6 High count Rate. Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 6 in Stand-By TC: TC-I-M-SBY-6 CEV: I0E-OPM-MCE6 Set MCE 6 bias to -70 V TC: TC-I-M-BIAS-X-6 TC_Par: . : I0S-BIAS MBIA M6 Verify the MCE 6 bias -70 +/-1 V TM: I0E-CDTE-BIAS6 Set MCE 6 in Nominal mode TC: TC-I-M-NOM-6 CEV: I0E-OPM-MCE6	G0125 G1004 = NO CHANGE G0430 G0424 G4446 = -70.0 V G0429	AND G0050; G8016 = STANDBY [0] G2087 = STAND BY [0] -71.32 V < G2095 < -69.0 V G2087 = NOM +NP /LTH [4]	



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Step	Time	Event Description	TC	TM	Comments
		<p>Depending by IASW previous mode=Y and sub-mode=X</p> <p>IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)</p> <p>IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)</p> <p>IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)</p> <p>IF Y was = Stand-By do not send any TC</p> <p>Monitor the MCE counter G2097 for 30 minutes and repeat the entire step 10 setting the bias to -120 V</p> <p>Monitor (with bias -120 V) the counter G2097 for five minute, the value should be around 800 counts/sec.</p> <p>if G2097 is still in OOL execute a second iteration of step 10 (with bias -70 and -120).</p> <p>If after the second iteration the problem is not cured call the s/s engineer.</p>			
11		<p>Recovery for MCE 7 High count Rate.</p> <p>Set IASW in Stand-By</p> <p>TC: TC-Y-550</p> <p>TC_Par: . : S1E-IASW PS-SB</p> <p>CEV: S1E-IASW MODE</p> <p>Set MCE 7 in Stand-By</p> <p>TC: TC-I-M-SBY-7</p> <p>CEV: I0E-OPM-MCE7</p> <p>Set MCE 7 bias to -70 V</p>	<p>G0125</p> <p>G1004 = NO CHANGE</p> <p>G0465</p>	<p>AND G0300;</p> <p>AND G0050;</p> <p>G8016 = STANDBY [0]</p> <p>G2101 = STAND BY [0]</p>	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-X-7 TC_Par: : I0S-BIAS MBIA M7 Verify the MCE 7 bias -70 +/-1 V TM: I0E-CDTE-BIAS7 Set MCE 7 in Nominal mode TC: TC-I-M-NOM-7 CEV: I0E-OPM-MCE7 Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC Monitor the MCE counter G2111 for 30 minutes and repeat the entire step 11 setting the bias to -120 V Monitor (with bias -120 V) the counter G2111 for five minute, the value should be around 800 counts/sec. if G2111 is still in OOL execute a second iteration of step 11 (with bias -70 and -120). If after the second iteration the problem is not cured call the s/s engineer.	G0459 G4546 = -70.0 V G0464	-71.32 V < G2109 < -69.0 V G2101 = NOM +NP /LTH [4] AND G0300;	
		Final status: IASW in SCI Mode or Stand-By ISGRI MCEs in Nominal+NP/LTH			
		END OF PROCEDURE			



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Issue: 1.1

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Step	Time	Event Description	TC	TM	Comments
1		ISGRI MCEs Kill Pixel procedure			
1		PURPOSE This procedure is needed to recover the ISGRI MCEs when a noisy pixel has been identified by the ISDC tools for IBIS data analysis. The recovery procedure is thought for each ISGRI MCE independently. Each recovery procedure is composed by two steps: 1) MCE kill noisy pixel for the ADDRESS(es) specified by IBIS PI; 2) MCE back in Nominal Mode.			
1.1		REQUIRED CONFIGURATION IDPE must be ON CSSW must be RUNNING IASW in STAND-BY or in any Science Mode MCEs ON in STAND-BY or Nominal mode			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in DNEL			
1.3		REQUIRED INPUT/INTERFACES Y = IASW current mode (read by TM) X = IASW current sub-mode (read by TM) ADDRESS(n) = Electronic coordinate of current noisy pixel in ISGRI module n (TO BE PROVIDED BY ISDC/IBIS TEAM) (n) = ISGRI module affected by the noisy pixel (0-7) (TO BE PROVIDED BY ISDC/IBIS TEAM)			
2		PRELIMINARY CHECKS			



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Step	Time	Event Description	TC	TM	Comments
2		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
2.1		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
2.2		Take note of the IASW current mode = Y TM: S1E-IASW MODE		AND G0045 G8016 = Y	any raw value in the range [0-5] is allowed
2.3		Take note of the IASW current sub-mode = X TM: S1E-IASW-PS		AND G0045 G8520 = X	
3		ISGRI MCEs High Count rate recovery			
3		Temperatures Verification			
3.1		Verification of the IBIS/ISGRI Temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2 TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC	Not Applicable Not Applicable
3.2		Check the ISGRI MCEs temperatures 1 from HK3.* TM: I0E-TEMP1-MDU0 TM: I0E-TEMP1-MDU1 TM: I0E-TEMP1-MDU2 TM: I0E-TEMP1-MDU3 TM: I0E-TEMP1-MDU4		TM_PKT 70031-2-3-4-5-6-7-8 AND G0700; -21.96 degC < G2322 < 17.0 degC -21.96 degC < G2472 < 17.0 degC -21.96 degC < G2622 < 17.0 degC -21.96 degC < G2772 < 17.0 degC -21.96 degC < G2922 < 17.0 degC	The bias voltage at Nominal value -120 V cannot be applied if the detectors temperatures are greater than 10 degC.



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Step	Time	Event Description	TC	TM	Comments
		TM: I0E-TEMP1-MDU5 TM: I0E-TEMP1-MDU7 Check the ISGRI MCEs temperatures 2 from HK1 TM: I0E-TEMP2-MDU0 TM: I0E-TEMP2-MDU1 TM: I0E-TEMP2-MDU2 TM: I0E-TEMP2-MDU3 TM: I0E-TEMP2-MDU4 TM: I0E-TEMP2-MDU5 TM: I0E-TEMP2-MDU6 TM: I0E-TEMP2-MDU7		-21.96 degC < G3072 < 17.0 degC -21.96 degC < G3372 < 17.0 degC TM_PKT 79102 -21.96 degC < G2009 < 17.0 degC -21.96 degC < G2023 < 17.0 degC -21.96 degC < G2037 < 17.0 degC -21.96 degC < G2051 < 17.0 degC -21.96 degC < G2065 < 17.0 degC -21.96 degC < G2079 < 17.0 degC G2093 = Thermistor not reliable degC -21.96 degC < G2107 < 17.0 degC	Thermistor not used as considered not reliable after TVC test
3.3		Identification of the ISGRI noisy detector module. if n= 0 (MCE0) than goto step 4 and execute the recovery for MCE0 if n= 1 (MCE1) than goto step 5 and execute the recovery for MCE1 if n= 2 (MCE2) than goto step 6 and execute the recovery for MCE2 if n= 3 (MCE3) than goto step 7 and execute the recovery for MCE3 if n= 0 (MCE4) than goto step 8 and execute the recovery for MCE4 if n= 0 (MCE5) than goto step 9 and execute the recovery for MCE5 if n= 0 (MCE6) than goto step 10 and execute the recovery for MCE6 if n= 0 (MCE7) than goto step 11 and execute the recovery for MCE7		AND G0300;	



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Step	Time	Event Description	TC	TM	Comments
4		Recovery for MCE 0 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 0 in Stand-By TC: TC-I-M-SBY-0 CEV: I0E-OPM-MCE0 Kill pixel with ADDRESS TC: TC-I-P-J-OFF-0 TC_Par: . : I0S-PIX OFF M0 Set MCE 0 in Nominal mode TC: TC-I-M-NOM-0 CEV: I0E-OPM-MCE0 Monitor the counter G2013 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 0 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team.	G0125 G1004 = NO CHANGE G0220 G0201 G3831 = ADDRESS G0219	AND G0050; G8016 = STANDBY [0] G2003 = STAND BY [0] G2003 = NOM +NP /LTH [4] AND G0300;	



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Step	Time	Event Description	TC	TM	Comments
		ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC			
5		Recovery for MCE 1 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 1 in Stand-By TC: TC-I-M-SBY-1 CEV: I0E-OPM-MCE1 Kill noisy pixel TC: TC-I-P-J-OFF-1 TC_Par: . : I0S-PIX OFF M1 Set MCE 1 in Nominal mode TC: TC-I-M-NOM-1 CEV: I0E-OPM-MCE1	G0125 G1004 = NO CHANGE G0255 G0236 G3931 = ADDRESS G0254	AND G0050; G8016 = STANDBY [0] G2017 = STAND BY [0] G2017 = NOM +NP /LTH [4]	



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Step	Time	Event Description	TC	TM	Comments
		<p>Monitor the counter G2027 for five minute, the value should be around 800 counts/sec.</p> <p>IF the addresses of noisy pixels in MCE 1 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team.</p> <p>ELSE</p> <p>Depending by IASW previous mode=Y and sub-mode=X</p> <p>IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X)</p> <p>IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X)</p> <p>IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X)</p> <p>IF Y was = Stand-By do not send any TC</p>		AND G0300;	
6		<p>Recovery for MCE 2 Noisy Pixel(s)</p> <p>Set IASW in Stand-By</p> <p>TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB</p> <p>CEV: S1E-IASW MODE Set MCE 2 in Stand-By</p> <p>TC: TC-I-M-SBY-2 CEV: I0E-OPM-MCE2</p> <p>Kill Noisy Pixel</p> <p>TC: TC-I-P-J-OFF-2 TC_Par: . : I0S-PIX OFF M2</p>	<p>G0125 G1004 = NO CHANGE</p> <p>G0290</p> <p>G0271 G4031 = ADDRESS</p>	<p>AND G0050;</p> <p>G8016 = STANDBY [0]</p> <p>G2031 = STAND BY [0]</p>	



ISGRI MDUs Noisy Pixel Recovery

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 Filename : CRP_IBIS1_0201.PRC
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Step	Time	Event Description	TC	TM	Comments
		Set MCE 2 in Nominal mode TC: TC-I-M-NOM-2 CEV: I0E-OPM-MCE2 Monitor the counter G2041 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 2 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team. ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC	G0289	G2031 = NOM +NP /LTH [4] AND G0300;	
7		Recovery for MCE 3 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 3 in Stand-By TC: TC-I-M-SBY-3 CEV: I0E-OPM-MCE3 Kill Noisy Pixel	G0125 G1004 = NO CHANGE G0325	AND G0050; G8016 = STANDBY [0] G2045 = STAND BY [0]	



ISGRI MDUs Noisy Pixel Recovery

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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-P-J-OFF-3 TC_Par: . : I0S-PIX OFF M3 Set MCE 3 in Nominal mode TC: TC-I-M-NOM-3 CEV: I0E-OPM-MCE3 Monitor the counter G2055 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 3 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team. ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC	G0306 G4131 = ADDRESS G0324	G2045 = NOM +NP /LTH [4] AND G0300;	
8		Recovery for MCE 4 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 4 in Stand-By	G0125 G1004 = NO CHANGE	AND G0050; G8016 = STANDBY [0]	



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-SBY-4 CEV: I0E-OPM-MCE4 Kill Noisy Pixel TC: TC-I-P-J-OFF-4 TC_Par: . : I0S-PIX OFF M4 Set MCE 4 in Nominal mode TC: TC-I-M-NOM-4 CEV: I0E-OPM-MCE4 Monitor the counter G2069 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 4 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team. ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC	G0360 G0341 G4231 = ADDRESS G0359	G2059 = STAND BY [0] G2059 = NOM +NP /LTH [4] AND G0300;	
9		Recovery for MCE 5 Noisy Pixel(s) Set IASW in Stand-By		AND G0050;	



ISGRI MDUs Noisy Pixel Recovery

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Step	Time	Event Description	TC	TM	Comments
		TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 5 in Stand-By TC: TC-I-M-SBY-5 CEV: I0E-OPM-MCE5 Kill Noisy Pixel TC: TC-I-P-J-OFF-5 TC_Par: . : I0S-PIX OFF M5 Set MCE 5 in Nominal mode TC: TC-I-M-NOM-5 CEV: I0E-OPM-MCE5 Monitor the counter G2083 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 5 are more than 1, repeat the kill action the for each of the addresses provided by ISDC/IBIS Team. ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC	G0125 G1004 = NO CHANGE G0395 G0376 G4331 = ADDRESS G0394	 G8016 = STANDBY [0] G2073 = STAND BY [0] G2073 = NOM +NP /LTH [4] AND G0300;	



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Step	Time	Event Description	TC	TM	Comments
10		Recovery for MCE 6 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 6 in Stand-By TC: TC-I-M-SBY-6 CEV: I0E-OPM-MCE6 Kill Noisy Pixel TC: TC-I-P-J-OFF-6 TC_Par: . : I0S-PIX OFF M6 Set MCE 6 in Nominal mode TC: TC-I-M-NOM-6 CEV: I0E-OPM-MCE6 Monitor the counter G2097 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 6 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team	G0125 G1004 = NO CHANGE G0430 G0411 G4431 = ADDRESS G0429	AND G0050; G8016 = STANDBY [0] G2087 = STAND BY [0] G2087 = NOM +NP /LTH [4] AND G0300;	



ISGRI MDUs Noisy Pixel Recovery

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Step	Time	Event Description	TC	TM	Comments
		ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC			
11		Recovery for MCE 7 Noisy Pixel(s) Set IASW in Stand-By TC: TC-Y-550 TC_Par: . : S1E-IASW PS-SB CEV: S1E-IASW MODE Set MCE 7 in Stand-By TC: TC-I-M-SBY-7 CEV: I0E-OPM-MCE7 Kill Noisy Pixel TC: TC-I-P-J-OFF-7 TC_Par: . : I0S-PIX OFF M7 Set MCE 7 in Nominal mode TC: TC-I-M-NOM-7 CEV: I0E-OPM-MCE7	G0125 G1004 = NO CHANGE G0465 G0446 G4531 = ADDRESS G0464	AND G0050; G8016 = STANDBY [0] G2101 = STAND BY [0] G2101 = NOM +NP /LTH [4]	



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Step	Time	Event Description	TC	TM	Comments
		Monitor the counter G2111 for five minute, the value should be around 800 counts/sec. IF the addresses of noisy pixels in MCE 7 are more than 1, repeat the kill action for each of the addresses provided by ISDC/IBIS Team ELSE Depending by IASW previous mode=Y and sub-mode=X IF Y was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=X) IF Y was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=X) IF Y was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=X) IF Y was = Stand-By do not send any TC		AND G0300;	
		Final status: IASW in SCI Mode or Stand-By ISGRI MCEs in Nominal+NP/LTH			
		END OF PROCEDURE			



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Author : F. Di Marco
Filename : CRP_IBIS1_0201.PRC
Date Last Modified : Sun 05 Dec 2010

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PICsIT Noisy Pixel Recovery

Author : F. Di Marco
Filename : CRP_IBIS1_0213.PRC
Date Last Modified : Fri 30 Jun 2006

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PICsIT Noisy Pixel Recovery

Issue: 1.1

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		PICsIT: Noisy Pixel Recovery			
1		PURPOSE Kill the requested Noisy Pixel			
1.1		REQUIRED CONFIGURATION IDPE1 must be ON CSSW must be running IASW must be in Stand-By PEB 1 ON PEB 2 ON PFDM (A) ON PDMs switched ON PDMs statuses enabled PICsIT in Nominal			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in DNEL			
1.3		REQUIRED INPUT/INTERFACES Coordinate of the noisy pixel to be supplied by IBIS Team/ ISDC A= IASW current mode B= IASW current submode Yposition= y position of the noisy pixel (in the range 0-63) Zposition= z position of the noisy pixel (in the range 0-63)			



PICsIT Noisy Pixel Recovery

Author : F. Di Marco
 Filename : CRP_IBIS1_0213.PRC
 Date Last Modified : Fri 30 Jun 2006

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Step	Time	Event Description	TC	TM	Comments
2		PRELIMINARY CHECKS			
2		Take note of the IASW current mode = A TM: S1E-IASW MODE		AND G0045 G8016 = A	
2.1		Take note of the IASW current sub-mode = B TM: S1E-IASW-PS		AND G0045 G8520 = B	
2.2		Check the status of IASW IF: G8016 != STAND-BY [0] THEN SEND TC G0125 (IASW IN STAND-BY)		TM_PKT 79102; AND G0060;	=! means different from
2.3		Check the status of ECR for PICsIT TM: S1E-ECR P		TM_PKT 79102; AND G0060; G8008 = ON [1]	
2.4		Check the operating mode of the PICsIT TM: P0E OPMODE		G5054 = NOMINAL [2]	
2.5		Verification of the PEBs Temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		-5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
3		PICsIT all PDMs ON			
3		Load TC_seq GC0213 Kill Noisy Pixel (Y,Z) Set the formal parameters in the sequence to the values provided by IBIS Team/ISDC		TM_PKT 79102; AND G0060;	



PICsIT Noisy Pixel Recovery

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Step	Time	Event Description	TC	TM	Comments
		TC: TC-P-PIX-ONOFF TC_Par: . : POS-PIX-Y TC_Par: . : POS-PIX-Z TC_Par: . : POS-PIXONOFF Wait for the generation of the OEM APID 1280 ID 175 CLASS 0 << PICsIT KILL PIX NOTIFICATION >>	G0505 G5616 = Ypositio G5617 = Zpositio G5618 = OFF		Y position Z position Status
3.1		Go Back in Science Mode Depending by IASW previous mode=A and sub-mode=B IF A was = SCI Standard send the TC G0129 (IASW Standard Mode with TC_par G1002=B) IF A was = SCI PPM send the TC G0128(IASW PPM Mode with TC_par G1001=B) IF A was = SCI Polarimetry send the TC G0130 (IASW POL Mode with TC_para G1003=B) IF A was = Stand-By do not send any TC		TM_PKT 79102; AND G0060;	
		Final status: IASW in Stand-By PEB 1 ON PEB 2 ON PDMs ON PICsIT in Nominal Mode			
		End of procedure			



PICsIT Noisy Pixel Recovery

Author : F. Di Marco
Filename : CRP_IBIS1_0213.PRC
Date Last Modified : Fri 30 Jun 2006

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IBIS DPE SWITCHOVER TO IDPE2

Author : F. Di Marco
Filename : CRP_IBIS1_5000.PRC
Date Last Modified : Fri 03 Dec 2010

INTEGRAL FLIGHT OPERATIONS PLAN

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IBIS DPE SWITCHOVER TO IDPE2

Issue: 1.2

Fri 03 Dec 2010

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		IBIS IDPE1 switchover to IDPE2			
1		PURPOSE To perform the switchover from IDPE1 to IDPE2 and set-up of the redundant chain			
1.1		REQUIRED CONFIGURATION IDPE1 must be OFF IDPE2 must be OFF CSSW IDPE1 must be NOT running CSSW IDPE2 must be NOT running Peripherals OFF BCPKT entry for IBIS2 disabled BCPKT entry for IBIS1 disabled			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in ESAM S/C not in DNEL S/C not in ECL S/C not in IMM OFF S/C not in Radiation Belt or High Radiation Environment			
1.3		REQUIRED INPUT/INTERFACES none			
2		PRELIMINARY CHECKS			



IBIS DPE SWITCHOVER TO IDPE2

Author : F. Di Marco
 Filename : CRP_IBIS1_5000.PRC
 Date Last Modified : Fri 03 Dec 2010

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Step	Time	Event Description	TC	TM	Comments
2		Verify IDPE 1 & 2 OFF TM: IDPE1 ON TM: IDPE2 ON		AND G0010 AND H0010 X7900 = FALSE [0] X7950 = FALSE [0]	
2.1		Verify CSSW is not running TM: IBIS1 RUNNING TM: IBIS2 RUNNING		D6703 = NOT RUNNING [0] D6803 = NOT RUNNING [0]	
2.2		Check TSWs status for ISGRI TM: P HLCL 4A1 STA TM: P HLCL 5A2 STA TM: TSW STA IFDM1 TM: TSW STA MCE0 A TM: TSW STA MCE1 A TM: TSW STA MCE2 A TM: TSW STA MCE3 A TM: TSW STA MCE4 A TM: TSW STA MCE5 A TM: TSW STA MCE6 A TM: TSW STA MCE7 A		TM_PKT 200500; AND G0045; AND G0050; P2130 = CLOSE [1] P2124 = CLOSE [1] P2205 = OPEN [0] P2201 = OPEN [0] P2202 = OPEN [0] P2203 = OPEN [0] P2204 = OPEN [0] P2206 = OPEN [0] P2207 = OPEN [0] P2208 = OPEN [0] P2209 = OPEN [0]	
2.3		Check TSWs status for PICsIT TM: P HLCL 5A1 STA TM: P HLCL 6A2 STA TM: TSW STA PFDM-A TM: TSW STA PEB1-1 A		TM_PKT 200500; AND G0060; P2125 = CLOSE [1] P2126 = CLOSE [1] P2214 = OPEN [0] P2210 = OPEN [0]	



IBIS DPE SWITCHOVER TO IDPE2

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Step	Time	Event Description	TC	TM	Comments
		TM: TSW STA PEB1-2 A TM: TSW STA PEB1-3 A TM: TSW STA PEB1-4 A TM: TSW STA PEB2-5 A TM: TSW STA PEB2-6 A TM: TSW STA PEB2-7 A TM: TSW STA PEB2-8 A		P2211 = OPEN [0] P2212 = OPEN [0] P2213 = OPEN [0] P2215 = OPEN [0] P2216 = OPEN [0] P2217 = OPEN [0] P2218 = OPEN [0]	
2.4		Check LCL status for VETO TM: P BD1A GSW1 STA TM: LCL STA VEB A TM: LCL CUR VEB A		TM_PKT 200500; AND G0070; P2100 = CLOSE [1] P2109 = OPEN [0] P2002 = 0.0 A	
2.5		Verification of the IBIS Temperatures TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2		AND G0750; -20.0 degC < T5030 < 40.0 degC -20.0 degC < T5040 < 40.0 degC -15.0 degC < T5060 < 35.0 degC -15.0 degC < T5063 < 35.0 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC	
2.6		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	
2.7		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		AND G0750; -5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	
2.8		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.09 degC < T5069 < 21.0 degC -34.09 degC < T5073 < 21.0 degC	



IBIS DPE SWITCHOVER TO IDPE2

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Step	Time	Event Description	TC	TM	Comments
		TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		-34.09 degC < T5081 < 21.0 degC -34.09 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	
3		IBIS IDPE2 configuration			
3		Start the reconfiguration of the IBIS Redundant Chain. Execute procedure FCP_IBIS2_0005 IBIS2 Nominal Activation			
3.1		Verification of the IBIS2 Temperatures after switch over TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		AND G0750; -20.0 degC < T5030 < 40.0 degC -20.0 degC < T5040 < 40.0 degC -15.0 degC < T5060 < 35.0 degC -15.0 degC < T5063 < 35.0 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC degC T1049 degC	NA NA
3.2		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	
3.3		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		-5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	
3.4		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.09 degC < T5069 < 21.0 degC -34.09 degC < T5073 < 21.0 degC -34.09 degC < T5081 < 21.0 degC -34.09 degC < T5082 < 21.0 degC	



IBIS DPE SWITCHOVER TO IDPE2

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Filename : CRP_IBIS1_5000.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		-35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	
		Final status: IDPE2 ON CSSW IDPE2 Running IASW in Stand-By ISGRI in Nominal with biases ON PICsIT in Nominal VETO in Nominal			
		END OF PROCEDURE			



IBIS DPE SWITCHOVER TO IDPE2

Author : F. Di Marco
Filename : CRP_IBIS1_5000.PRC
Date Last Modified : Fri 03 Dec 2010

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IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

INTEGRAL FLIGHT OPERATIONS PLAN

CRP_IBIS1_5100

Author : F. Di Marco/ O. Bergogne
 Filename : CRP_IBIS1_5100.PRC
 Date Last Modified : Tue 27 Jul 2010

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CRP_IBIS1_5100

IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION Issue: 1.2 Tue 27 Jul 2010

Author: F. Di Marco/ O. Bergogne

Step	Time	Event Description	TC	TM	Comments
1		IBIS Recovery after Imminent Switch OFF Condition			
1		PURPOSE To perform the Recovery and Reconfiguration of the IBIS peripherals after Imminent Switch OFF Condition.			
1.1		REQUIRED CONFIGURATION Imminent Switch OFF flag in BCPKT reset IDPE1 must be ON CSSW must be running IASW in Stand-By ISGRI in Stand-By with MDUs Biases OFF and CTX saved VETO in Stand-By and CTX saved PICsIT in Maintenance and CTX saved			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in ESAM S/C not in DNEL S/C not in ECL S/C not in IMM OFF S/C not in Radiation Belt or High Radiation Environment			
1.3		REQUIRED INPUT/INTERFACES none			
2		PRELIMINARY CHECKS			



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

INTEGRAL FLIGHT OPERATIONS PLAN

Author : F. Di Marco/ O. Bergogne
 Filename : CRP_IBIS1_5100.PRC
 Date Last Modified : Tue 27 Jul 2010

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Step	Time	Event Description	TC	TM	Comments
2		Check the current value of the IMM OFF flag in the BCPKT TM: IMM INSTRU OFF		AND D4210 D5212 = OFF NOT IMMI [0]	
2.1		Check the current value of the ESAM flag in the BCPKT TM: ESAM FLAG		AND D4240 D5219 = NOTACTIVATED [0]	
2.2		Verification of the current values of IREM radiation counters TM: BLOCK COUNT LSW TM: SR OPERAT MODE TM: SR INTEGR COUNT TM: SR INT GND LINK TM: INT PROT COUNT TM: INT DOSE COUNT TM: INT ELECTR COUNT		U0001 U9900 = [] U9907 = INTEGRAL [1] U9906 = ON [1] U9903 = ON [1] U9919 = [] U9920 = [] U9921 = []	incrementing (IREM in Integral Mode) values should be <<40000 values should be <<40000 values should be <<40000
2.3		Check radiation monitors rates in BCPKT TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #3		AND D4240 D5214 = [] D5215 = [] D5216 = []	values should be <<40000 values should be <<40000 values should be <<40000
2.4		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
2.5		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
2.6		Check IASW current mode		AND G0045	



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
		TM: S1E-IASW MODE		G8016 = STANDBY [0]	
2.7		Verification of the IBIS Temperatures TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC degC T1049 degC	NA NA TBC after Thermo-vacuum test
2.8		Verify that MCEs are in Stand-By TM: I0E-OPM-MCE0 TM: I0E-OPM-MCE1 TM: I0E-OPM-MCE2 TM: I0E-OPM-MCE3 TM: I0E-OPM-MCE4 TM: I0E-OPM-MCE5 TM: I0E-OPM-MCE6 TM: I0E-OPM-MCE7		AND G0050 G2003 = STAND BY G2017 = STAND BY G2031 = STAND BY G2045 = STAND BY G2059 = STAND BY G2073 = STAND BY G2087 = STAND BY G2101 = STAND BY	
2.9		Verify the MCEs biases are set to 0 +/-1 V TM: I0E-CDTE-BIAS0 TM: I0E-CDTE-BIAS1 TM: I0E-CDTE-BIAS2 TM: I0E-CDTE-BIAS3 TM: I0E-CDTE-BIAS4 TM: I0E-CDTE-BIAS5 TM: I0E-CDTE-BIAS6 TM: I0E-CDTE-BIAS7		G2011 = 0 +/-1 V G2025 = 0 +/-1 V G2039 = 0 +/-1 V G2053 = 0 +/-1 V G2067 = 0 +/-1 V G2081 = 0 +/-1 V G2095 = 0 +/-1 V G2109 = 0 +/-1 V	



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
2.10		Verify that MCEs CTX have been saved TM: S1E-SV CTX I0 TM: S1E-SV CTX I1 TM: S1E-SV CTX I2 TM: S1E-SV CTX I3 TM: S1E-SV CTX I4 TM: S1E-SV CTX I5 TM: S1E-SV CTX I6 TM: S1E-SV CTX I7		AND G0050 G8032 = PASSED G8033 = PASSED G8034 = PASSED G8035 = PASSED G8036 = PASSED G8037 = PASSED G8038 = PASSED G8039 = PASSED	
2.11		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
2.12		Verification Detectors statuses ISGRI detectors start-up temperatures (MCE +28V ON and Biases OFF) Min(degC)=-25 Max(degC)=+25 Check that temperatures in AND G0700 remain within limits.		AND G0700;	
2.13		Check PICsIT current mode TM: POE OPMODE TM: S1E-SV CTX P		AND G0060; G5054 = MAINTENANCE [3] G8030 = PASSED [1]	
2.14		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		AND G0750; -5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
2.15		Verification Detectors statuses			



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
		PICsIT start up Min(degC)=-30 Max(degC)=+30 Check that temperatures in AND G0710 remain within limits.		AND G0710;	
2.16		Check VETO current mode TM: V1S-NOMBIT TM: S1E-SV CTX V		AND G0070; G6008 = STAND/BY [0] G8031 = PASSED [1]	
2.17		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.09 degC < T5069 < 21.0 degC -34.09 degC < T5073 < 21.0 degC -34.09 degC < T5081 < 21.0 degC -34.09 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	TBC after Thermo-vacuum test
3		IBIS post IMM OFF Reconfig			
3		Start the reconfiguration of the peripherals. No new CTX upload is requested for PICsIT and VETO because the CTX tables contained in the DPE are EDAC protected so it is needed only a restoring of the CTX from DPE memory to peripherals memory before starting the re-activation of the detectors modules. CTX restoring is requested for ISGRI in order to perform a new calibration prior going in observation			



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
3.1		<p>Perform the reconfiguration of IBIS</p> <p>Upload new CTX processed by ISDC via TPF</p> <p>Execute procedure FCP_IBIS1_0401 (if no new TPF processed by ISDC is available uplink that one from the last revolution)</p> <p>The ISGRI CTX uplink is performed in order to re-establish a valid context for the calibration of the peripherals after the IMM OFF condition</p>			
3.2		<p>Perform the reconfiguration of ISGRI</p> <p>ISGRI calibration and reconfigurationn to Nominal.</p> <p>Execute the procedure GEISCL03</p> <p>The ISGRI CTX restore is performed in order to re-establish a valid context for the instrument after the IMM OFF condition</p>			
3.3		<p>Perform the reconfiguration of PICsIT.</p> <p>Restoring CTX table in Maintenance Mode</p> <p>Execute procedure FCP_IBIS1_0228</p> <p>The PICsIT CTX restore is performed in order to re-establish a valid context for the instrument after the IMM OFF condition</p>			
3.4		<p>PICsIT PDMs enabling</p> <p>Execute procedure FCP_IBIS1_0212</p> <p>The PICsIT PDMs statuses should not change during the IMM OFF condition. It is expected that all the PDMs are ON at reconfiguration.</p>			



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
3.5		Perform the reconfiguration of VETO. Restoring the CTX from DPE Execute procedure FCP_IBIS1_0199 The VETO CTX restore is performed in order to re-establish a valid context for the instrument after the IMM OFF condition			
3.6		Veto transition to Nominal Mode Execute procedure FCP_IBIS1_0201			
3.7		Verification of the IBIS Temperatures after Reconfiguration TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.88 degC < T5072 < 27.0 degC -21.88 degC < T5075 < 27.0 degC degC T1049 degC	NA NA TBC after Thermo-vacuum test
3.8		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
3.9		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		-5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
3.10		Check the VEB temperatures TM: TCS TH IBIS VEB		AND G0750; -5.0 degC < T5056 < 35.0 degC	TBC after Thermo-vacuum test



IBIS RECOVERY FROM IMMINENT SWITCH OFF CONDITION

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Step	Time	Event Description	TC	TM	Comments
		TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		-34.09 degC < T5069 < 21.0 degC -34.09 degC < T5073 < 21.0 degC -34.09 degC < T5081 < 21.0 degC -34.09 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	
		Final status: IASW in Stand-By ISGRI in Nominal with biases ON PICsIT in Nominal VETO in Nominal			
		END OF PROCEDURE			



IBIS RECOVERY FROM ESAM CONDITION

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IBIS RECOVERY FROM ESAM CONDITION

Issue: 1.2

Thu 12 Jul 2007

Author: F. Di Marco/ O. Bergogne

Step	Time	Event Description	TC	TM	Comments
1		IBIS Recovery after ESAM Condition			
1		PURPOSE To perform the Recovery and Reconfiguration of the IBIS peripherals after Integral ESAM Condition.			
1.1		REQUIRED CONFIGURATION ESAM flag in BCPKT reset IDPE1 must be ON CSSW must be running IASW in Stand-By ISGRI in Stand-By with MDUs Biases OFF VETO in Stand-By PICsIT in Nominal			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in ESAM S/C not in DNEL S/C not in ECL S/C not in IMM OFF S/C not in Radiation Belt or High Radiation Environment			
1.3		REQUIRED INPUT/INTERFACES none			
2		PRELIMINARY CHECKS			
2		Check the current value of the ESAM flag in the BCPKT		AND D4240	



IBIS RECOVERY FROM ESAM CONDITION

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Step	Time	Event Description	TC	TM	Comments
		TM: ESAM FLAG		D5219 = NOTACTIVATED [0.0]	
2.1		Verification of the current values of IREM radiation counters TM: BLOCK COUNT LSW TM: SR OPERAT MODE TM: SR INTEGR COUNT TM: SR INT GND LINK TM: INT PROT COUNT TM: INT DOSE COUNT TM: INT ELECTR COUNT		AND U0001 U9900 = [] U9907 = INTEGRAL [1.0] U9906 = ON [1.0] U9903 = ON [1.0] U9919 = [] U9920 = [] U9921 = []	incrementing (IREM in Integral Mode) values should be <40 values should be <30 values should be <50
2.2		Check radiation monitors rates in BCPKT TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #3		AND D4240 D5214 = [] D5215 = [] D5216 = []	values should be <40 values should be <30 values should be <50
2.3		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
2.4		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1.0]	
2.5		Check IASW current mode TM: S1E-IASW MODE		AND G0045 G8016 = STANDBY [0.0]	
2.6		Verification of the IBIS Temperatures TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC	NA NA



IBIS RECOVERY FROM ESAM CONDITION

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Step	Time	Event Description	TC	TM	Comments
		TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		-21.875 degC < T5072 < 27.0 degC -21.875 degC < T5075 < 27.0 degC degC T1049 degC	TBC after Thermo-vacuum test
2.7		Verify that MCEs are in Stand-By TM: I0E-OPM-MCE0 TM: I0E-OPM-MCE1 TM: I0E-OPM-MCE2 TM: I0E-OPM-MCE3 TM: I0E-OPM-MCE4 TM: I0E-OPM-MCE5 TM: I0E-OPM-MCE6 TM: I0E-OPM-MCE7		AND G0050 G2003 = STAND BY G2017 = STAND BY G2031 = STAND BY G2045 = STAND BY G2059 = STAND BY G2073 = STAND BY G2087 = STAND BY G2101 = STAND BY	
2.8		Verify the MCEs biases are set to 0 +/-1 V TM: I0E-CDTE-BIAS0 TM: I0E-CDTE-BIAS1 TM: I0E-CDTE-BIAS2 TM: I0E-CDTE-BIAS3 TM: I0E-CDTE-BIAS4 TM: I0E-CDTE-BIAS5 TM: I0E-CDTE-BIAS6 TM: I0E-CDTE-BIAS7		G2011 = 0 +/-1 V G2025 = 0 +/-1 V G2039 = 0 +/-1 V G2053 = 0 +/-1 V G2067 = 0 +/-1 V G2081 = 0 +/-1 V G2095 = 0 +/-1 V G2109 = 0 +/-1 V	
2.9		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
2.10		Verification Detectors statuses			



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Step	Time	Event Description	TC	TM	Comments
		ISGRI detectors start-up temperatures (MCE +28V ON and Biases OFF) Min(degC)=-25 Max(degC)=+25 Check that temperatures in AND G0700 remain within limits.		AND G0700;	
2.11		Check PICsIT current mode TM: POE OPMODE		AND G0060; G5054 = NOMINAL [2.0]	
2.12		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		AND G0750; -5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
2.13		Verification Detectors statuses PICsIT start up Min(degC)=-30 Max(degC)=+30 Check that temperatures in AND G0710 remain within limits.		AND G0710;	
2.14		Check VETO current mode TM: V1S-NOMBIT		AND G0070; G6008 = STAND/BY [0.0]	
2.15		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.0909 degC < T5069 < 21.0 degC -34.0909 degC < T5073 < 21.0 degC -34.0909 degC < T5081 < 21.0 degC -34.0909 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC	TBC after Thermo-vacuum test



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Step	Time	Event Description	TC	TM	Comments
		TM: TH IBIS CDM2 TM: TCS TH IBIS CU		-35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	
3		IBIS post-ESAM Reconfig			
3		Start the reconfiguration of the peripherals. No new CTX upload is requested because the CTX tables contained in the DPE are EDAC protected so it is needed only a restoring of the CTX from DPE memory to peripherals memory before starting the re-activation of the detectors modules.			
3.1		Perform the reconfiguration of ISGRI. ISGRI calibration and reconfigurationn to Nominal: Execute procedure ED GEISCL03 The ISGRI CTX restore is performed in order to re-establish a valid context for the instrument after the emergency safe mode.			
3.2		Perform the reconfiguration of PICsIT. Restoration of CTX table in Maintenance Mode: Execute procedure FCP_IBIS1_0228 The PICsIT CTX restore is performed in order to re-establish a valid context for the instrument after the emergency safe mode.			
3.3		PICsIT PDMs enabling The PICsIT PDMs statuses should not change during the ESAM condition. It is expected that all the PDMs are ON at reconfiguration. If not, then: Execute procedure FCP_IBIS1_0212			



IBIS RECOVERY FROM ESAM CONDITION

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Step	Time	Event Description	TC	TM	Comments
3.4		Perform the reconfiguration of VETO. Restoration of the CTX from DPE: Execute procedure FCP_IBIS1_0199 The VETO CTX restore is performed in order to re-establish a valid context for the instrument after the emergency safe mode.			
3.5		Veto transition to Nominal Mode: Execute procedure FCP_IBIS1_0201			
3.6		Verification of the IBIS Temperatures after Reconfiguration TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.875 degC < T5072 < 27.0 degC -21.875 degC < T5075 < 27.0 degC degC T1049 degC	NA NA TBC after Thermo-vacuum test
3.7		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
3.8		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		-5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
3.9		Check the VEB temperatures TM: TCS TH IBIS VEB		AND G0750; -5.0 degC < T5056 < 35.0 degC	TBC after Thermo-vacuum test



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Step	Time	Event Description	TC	TM	Comments
		TM: TH IBISVDM16		-34.0909 degC < T5069 < 21.0 degC	
		TM: TH IBIS VDM9		-34.0909 degC < T5073 < 21.0 degC	
		TM: TH IBISVDM12		-34.0909 degC < T5081 < 21.0 degC	
		TM: TH IBISVDM13		-34.0909 degC < T5082 < 21.0 degC	
		TM: TH IBIS CDM1		-35.0 degC < T5070 < 21.0 degC	
		TM: TH IBIS CDM2		-35.0 degC < T5083 < 21.0 degC	
		TM: TCS TH IBIS CU		-35.0 degC < T5054 < 25.0 degC	
		Final status: IASW in Stand-By ISGRI in Nominal with biases ON PICsIT in Nominal VETO in Nominal			Note: IBIS is now in Stand-By mode, ready to be configured in Scientific Standard via: ED GESTAN02, and rejoin the timeline.
		END OF PROCEDURE			



IBIS RECOVERY FROM ESAM CONDITION

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IBIS RECOVERY AFTER HIGH RADIATION CONDITION

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 Filename : CRP_IBIS1_5120.PRC
 Date Last Modified : Fri 30 Jun 2006

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IBIS RECOVERY AFTER HIGH RADIATION CONDITION Issue: 1

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		IBIS Reconfiguration after High Radiation Flux			
1		PURPOSE To perform the Recovery and Reconfiguration of the IBIS peripherals after High Radiation Dose Condition.			
1.1		REQUIRED CONFIGURATION IREM Radiation Counters reset to safe values (<<384 electron, <<60 dose, << 200 proton) IREM radiation monitors (1,2,3) in BCPKT reset to safe value (see above) IDPE1 must be ON CSSW must be running IASW in Stand-By ISGRI in Stand-By with MDUs Biases OFF VETO in Stand-By PICsIT in Nominal			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in ESAM S/C not in DNEL S/C not in ECL S/C not in IMM OFF S/C not in Radiation Belt or High Radiation Environment			
1.3		REQUIRED INPUT/INTERFACES none			



IBIS RECOVERY AFTER HIGH RADIATION CONDITION

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Step	Time	Event Description	TC	TM	Comments
2		PRELIMINARY CHECKS			
2		Verification of the current values of IREM radiation counters TM: BLOCK COUNT LSW TM: SR OPERAT MODE TM: SR INTEGR COUNT TM: SR INT GND LINK TM: INT PROT COUNT TM: INT DOSE COUNT TM: INT ELECTR COUNT		U0001 U9900 = [] U9907 = INTEGRAL [1] U9906 = ON [1] U9903 = ON [1] U9919 = <<200 [<<200] U9920 = <<60 [<<60] U9921 = <<384 [<<384]	incrementing (IREM in Integral Mode) values shall be <<200 in the last 2 hours values shall be <<60 in the last 2 hours values shall be <<384 in the last 2 hours
2.1		Check radiation monitors rates in BCPKT TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #3		AND D4240 D5214 = [] D5215 = [] D5216 = []	values shall be <<60 values shall be <<384 values shall be <<200
2.2		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = TRUE [1]	
2.3		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = RUNNING [1]	
2.4		Check IASW current mode TM: S1E-IASW MODE		AND G0045 G8016 = STANDBY [0]	
2.5		Verification of the IBIS Temperatures		AND G0750;	



IBIS RECOVERY AFTER HIGH RADIATION CONDITION

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Step	Time	Event Description	TC	TM	Comments
		TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		-20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.875 degC < T5072 < 27.0 degC -21.875 degC < T5075 < 27.0 degC degC T1049 degC	inside the current temperatures limits NA NA TBC after Thermo-vacuum test
2.6		Verify that MCEs are in Stand-By TM: I0E-OPM-MCE0 TM: I0E-OPM-MCE1 TM: I0E-OPM-MCE2 TM: I0E-OPM-MCE3 TM: I0E-OPM-MCE4 TM: I0E-OPM-MCE5 TM: I0E-OPM-MCE6 TM: I0E-OPM-MCE7		AND G0050 G2003 = STAND BY G2017 = STAND BY G2031 = STAND BY G2045 = STAND BY G2059 = STAND BY G2073 = STAND BY G2087 = STAND BY G2101 = STAND BY	
2.7		Verify the MCEs biases are set to 0 +/-1 V TM: I0E-CDTE-BIAS0 TM: I0E-CDTE-BIAS1 TM: I0E-CDTE-BIAS2 TM: I0E-CDTE-BIAS3 TM: I0E-CDTE-BIAS4 TM: I0E-CDTE-BIAS5 TM: I0E-CDTE-BIAS6 TM: I0E-CDTE-BIAS7		G2011 = 0 +/-1 V G2025 = 0 +/-1 V G2039 = 0 +/-1 V G2053 = 0 +/-1 V G2067 = 0 +/-1 V G2081 = 0 +/-1 V G2095 = 0 +/-1 V G2109 = 0 +/-1 V	
2.8		Check the IEB temperatures		AND G0750;	



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Step	Time	Event Description	TC	TM	Comments	
		TM: TCS TH IBIS IEB1		-5.0 degC < T5043 < 35.0 degC	inside the current temperatures limits	
		TM: TCS TH IBIS IEB2		-5.0 degC < T5050 < 35.0 degC		
2.9		Check the ISGRI MDUs temperatures 1 from HK3.*		TM_PKT 70031-2-3-4-5-6-7-8 AND G0700;	The bias voltage , even if at minimum value, cannot be applied if the detectors temperatures are outside the operating range. It is reported in the IBIS UM that for the CdTe detectors the operating range is from -15 to +20 degC	
		TM: I0E-TEMP1-MDU0		-21.9576 degC < G2322 < 17.0 degC		inside the current temperatures limits
		TM: I0E-TEMP1-MDU1		-21.9576 degC < G2472 < 17.0 degC		
		TM: I0E-TEMP1-MDU2		-21.9576 degC < G2622 < 17.0 degC		
		TM: I0E-TEMP1-MDU3		-21.9576 degC < G2772 < 17.0 degC		
		TM: I0E-TEMP1-MDU4		-21.9576 degC < G2922 < 17.0 degC		
		TM: I0E-TEMP1-MDU5		-21.9576 degC < G3072 < 17.0 degC		
		TM: I0E-TEMP1-MDU7		-21.9576 degC < G3372 < 17.0 degC		
		Check the ISGRI MDUs temperatures 2 from HK1		TM_PKT 79102		
		TM: I0E-TEMP2-MDU0		-21.9576 degC < G2009 < 17.0 degC		inside the current temperatures limits
		TM: I0E-TEMP2-MDU1		-21.9576 degC < G2023 < 17.0 degC		
		TM: I0E-TEMP2-MDU2		-21.9576 degC < G2037 < 17.0 degC		
		TM: I0E-TEMP2-MDU3		-21.9576 degC < G2051 < 17.0 degC		
		TM: I0E-TEMP2-MDU4		-21.9576 degC < G2065 < 17.0 degC		
		TM: I0E-TEMP2-MDU5		-21.9576 degC < G2079 < 17.0 degC		
		TM: I0E-TEMP2-MDU6		G2093 = Thermistor not reliable degC	Thermistor not used as considered not reliable after TVC test	
		TM: I0E-TEMP2-MDU7		-21.9576 degC < G2107 < 17.0 degC		



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Step	Time	Event Description	TC	TM	Comments
2.10		Check PICsIT current mode TM: P0E OPMODE		AND G0060; G5054 = NOMINAL [2]	
2.11		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		AND G0750; -5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	inside the current temperatures limits
2.12		Verification PICsIT temperatures and statuses Execute the FCP_IBIS1_0710		AND G0710;	
2.13		Check VETO current mode TM: V1S-NOMBIT		AND G0070; G6008 = STAND/BY [0]	
2.14		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.0909 degC < T5069 < 21.0 degC -34.0909 degC < T5073 < 21.0 degC -34.0909 degC < T5081 < 21.0 degC -34.0909 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	inside the current temperatures limits
3		IBIS High Radiation Reconfig			
3		Start the reconfiguration of the peripherals. No new CTX upload is requested because the CTX tables contained in the DPE are EDAC protected so it is needed only a restoring of the CTX from DPE memory to peripherals memory before starting the re-activation of the detectors modules.			
3.1		ISGRI calibration and reconfigurationn to Nominal.			



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Step	Time	Event Description	TC	TM	Comments
		The ISGRI reconfiguration is composed by 2 main steps: 1) ISGRI detectors warming up at 70 V; 2) ISGRI back to Nominal with biases at 120 V.			
3.2		Warming Up at 70 V - Command the MCEs for a short period (5 minutes) with reduced Biases -70 V: - Set MCEs in Stand- By Mode;			
3.3		Set MCEs bias voltage to -70 V TC: TC-I-M-BIAS-X-0 TC_Par: . : I0S-BIAS MBIA M0 TC: TC-I-M-BIAS-X-1 TC_Par: . : I0S-BIAS MBIA M1 TC: TC-I-M-BIAS-X-2 TC_Par: . : I0S-BIAS MBIA M2 TC: TC-I-M-BIAS-X-3 TC_Par: . : I0S-BIAS MBIA M3 TC: TC-I-M-BIAS-X-4 TC_Par: . : I0S-BIAS MBIA M4 TC: TC-I-M-BIAS-X-5 TC_Par: . : I0S-BIAS MBIA M5	G0214 G3846 = -70.0 V G0249 G3946 = -70.0 V G0284 G4046 = -70.0 V G0319 G4146 = -70.0 V G0354 G4246 = -70.0 V G0389 G4346 = -70.0 V		



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-X-6 TC_Par: . : I0S-BIAS MBIA M6	G0424 G4446 = -70.0 V		
		TC: TC-I-M-BIAS-X-7 TC_Par: . : I0S-BIAS MBIA M7	G0459 G4546 = -70.0 V		
3.4		Verify the MCEs biases to -70+/-1 V TM: I0E-CDTE-BIAS0 TM: I0E-CDTE-BIAS1 TM: I0E-CDTE-BIAS2 TM: I0E-CDTE-BIAS3 TM: I0E-CDTE-BIAS4 TM: I0E-CDTE-BIAS5 TM: I0E-CDTE-BIAS6 TM: I0E-CDTE-BIAS7		-71.32 V < G2011 < -69.0 V -71.32 V < G2025 < -69.0 V -71.32 V < G2039 < -69.0 V -71.32 V < G2053 < -69.0 V -71.32 V < G2067 < -69.0 V -71.32 V < G2081 < -69.0 V -71.32 V < G2095 < -69.0 V -71.32 V < G2109 < -69.0 V	
3.5		Set MCEs in NOM TC: TC-I-M-NOM-0 CEV: I0E-OPM-MCE0 TM: I0E-REJCDCONT-M0 TM: I0S-EVTCNT-MCE0 TC: TC-I-M-NOM-1 CEV: I0E-OPM-MCE1 TM: I0E-REJCDCONT-M1 TM: I0S-EVTCNT-MCE1 TC: TC-I-M-NOM-2 CEV: I0E-OPM-MCE2 TM: I0E-REJCDCONT-M2 TM: I0S-EVTCNT-MCE2 TC: TC-I-M-NOM-3	G0219 G0254 G0289 G0324	G2003 = NOM +NP /LTH [4] G2008 = 0 G2013 = >0 1/s G2017 = NOM +NP /LTH [4] G2022 = 0 G2027 = >0 1/s G2031 = NOM +NP /LTH [4] G2036 = 0 G2041 = >0 1/s	



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Step	Time	Event Description	TC	TM	Comments
		CEV: I0E-OPM-MCE1 TC: TC-I-M-SBY-2 CEV: I0E-OPM-MCE2 TC: TC-I-M-SBY-3 CEV: I0E-OPM-MCE3 TC: TC-I-M-SBY-4 CEV: I0E-OPM-MCE4 TC: TC-I-M-SBY-5 CEV: I0E-OPM-MCE5 TC: TC-I-M-SBY-6 CEV: I0E-OPM-MCE6 TC: TC-I-M-SBY-7 CEV: I0E-OPM-MCE7	G0290 G0325 G0360 G0395 G0430 G0465	G2017 = STAND BY [0] G2031 = STAND BY [0] G2045 = STAND BY [0] G2059 = STAND BY [0] G2073 = STAND BY [0] G2087 = STAND BY [0] G2101 = STAND BY [0]	
3.9		Check the ISGRI MDUs temperatures 1 from HK3.* before applying -120 V TM: I0E-TEMP1-MDU0 TM: I0E-TEMP1-MDU1 TM: I0E-TEMP1-MDU2 TM: I0E-TEMP1-MDU3 TM: I0E-TEMP1-MDU4 TM: I0E-TEMP1-MDU5 TM: I0E-TEMP1-MDU7 Check the ISGRI MDUs temperatures 2 from HK1 before applying -120 V		TM_PKT 70031-2-3-4-5-6-7-8 AND G0700; -21.9576 degC < G2322 < 17.0 degC -21.9576 degC < G2472 < 17.0 degC -21.9576 degC < G2622 < 17.0 degC -21.9576 degC < G2772 < 17.0 degC -21.9576 degC < G2922 < 17.0 degC -21.9576 degC < G3072 < 17.0 degC -21.9576 degC < G3372 < 17.0 degC TM_PKT 79102	The bias voltage , even if at minimum value, cannot be applied if the detectors temperatures are outside the operating range. It is reported in the IBIS UM that for the CdTe detectors the operating range is from -15 to +20 degC inside the current limits



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Step	Time	Event Description	TC	TM	Comments
		TM: I0E-TEMP2-MDU0		-21.9576 degC < G2009 < 17.0 degC	inside the current limits
		TM: I0E-TEMP2-MDU1		-21.9576 degC < G2023 < 17.0 degC	
		TM: I0E-TEMP2-MDU2		-21.9576 degC < G2037 < 17.0 degC	
		TM: I0E-TEMP2-MDU3		-21.9576 degC < G2051 < 17.0 degC	
		TM: I0E-TEMP2-MDU4		-21.9576 degC < G2065 < 17.0 degC	
		TM: I0E-TEMP2-MDU5		-21.9576 degC < G2079 < 17.0 degC	
		TM: I0E-TEMP2-MDU6		G2093 = Thermistor not reliable degC	
		TM: I0E-TEMP2-MDU7		-21.9576 degC < G2107 < 17.0 degC	
3.10		Set MCEs bias voltage to -120 V			
		TC: TC-I-M-BIAS-X-0	G0214		
		TC_Par: . : I0S-BIAS MBIA M0	G3846 = -120.0 V		
		TC: TC-I-M-BIAS-X-1	G0249		
		TC_Par: . : I0S-BIAS MBIA M1	G3946 = -120.0 V		
		TC: TC-I-M-BIAS-X-2	G0284		
		TC_Par: . : I0S-BIAS MBIA M2	G4046 = -120.0 V		
		TC: TC-I-M-BIAS-X-3	G0319		
		TC_Par: . : I0S-BIAS MBIA M3	G4146 = -120.0 V		
		TC: TC-I-M-BIAS-X-4	G0354		
		TC_Par: . : I0S-BIAS MBIA M4	G4246 = -120.0 V		
		TC: TC-I-M-BIAS-X-5	G0389		
		TC_Par: . : I0S-BIAS MBIA M5	G4346 = -120.0 V		



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Step	Time	Event Description	TC	TM	Comments
		TC: TC-I-M-BIAS-X-6 TC_Par: . : I0S-BIAS MBIA M6	G0424 G4446 = -120.0 V		
		TC: TC-I-M-BIAS-X-7 TC_Par: . : I0S-BIAS MBIA M7	G0459 G4546 = -120.0 V		
3.11		Verify the MCEs biases -120 +/-1 V TM: I0E-CDTE-BIAS0 TM: I0E-CDTE-BIAS1 TM: I0E-CDTE-BIAS2 TM: I0E-CDTE-BIAS3 TM: I0E-CDTE-BIAS4 TM: I0E-CDTE-BIAS5 TM: I0E-CDTE-BIAS6 TM: I0E-CDTE-BIAS7		AND G0050; -121.34 V < G2011 < -119.0 V -121.34 V < G2025 < -119.0 V -121.34 V < G2039 < -119.0 V -121.34 V < G2053 < -119.0 V -121.34 V < G2067 < -119.0 V -121.34 V < G2081 < -119.0 V -121.34 V < G2095 < -119.0 V -121.34 V < G2109 < -119.0 V	
3.12		Set MCEs in NOM TC: TC-I-M-NOM-0 CEV: I0E-OPM-MCE0 TM: I0E-REJCDCONT-M0 TM: I0S-EVTCNT-MCE0 TC: TC-I-M-NOM-1 CEV: I0E-OPM-MCE1 TM: I0E-REJCDCONT-M1 TM: I0S-EVTCNT-MCE1 TC: TC-I-M-NOM-2 CEV: I0E-OPM-MCE2 TM: I0E-REJCDCONT-M2 TM: I0S-EVTCNT-MCE2 TC: TC-I-M-NOM-3	G0219 G0254 G0289 G0324	AND G0051-2-3-4-5-6-7-8; G2003 = NOM +NP /LTH [4] G2008 = 0 G2013 = >0 1/s G2017 = NOM +NP /LTH [4] G2022 = 0 G2027 = >0 1/s G2031 = NOM +NP /LTH [4] G2036 = 0 G2041 = >0 1/s	



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Step	Time	Event Description	TC	TM	Comments
		TM: I0E-TEMP2-MDU0 TM: I0E-TEMP2-MDU1 TM: I0E-TEMP2-MDU2 TM: I0E-TEMP2-MDU3 TM: I0E-TEMP2-MDU4 TM: I0E-TEMP2-MDU5 TM: I0E-TEMP2-MDU6 TM: I0E-TEMP2-MDU7		-21.9576 degC < G2009 < 17.0 degC -21.9576 degC < G2023 < 17.0 degC -21.9576 degC < G2037 < 17.0 degC -21.9576 degC < G2051 < 17.0 degC -21.9576 degC < G2065 < 17.0 degC -21.9576 degC < G2079 < 17.0 degC G2093 = Thermistor not reliable degC -21.9576 degC < G2107 < 17.0 degC	inside the current limits Thermistor not used as considered not reliable after TVC test
3.14		No PICsIT reconfiguration is requested because the unit is left ON during the high radiation condition.			
3.15		Perform the reconfiguration of VETO.			
3.16		Set VETO to Nominal and HVs switch ON TC: TC-V-NOMINAL CEV: V1S-NOMBIT TM: V1S-VDM01HV TM: V1S-VDM02HV TM: V1S-VDM03HV TM: V1S-VDM04HV TM: V1S-VDM05HV TM: V1S-VDM06HV TM: V1S-VDM07HV TM: V1S-VDM08HV TM: V1S-VDM09HV TM: V1S-VDM10HV TM: V1S-VDM11HV TM: V1S-VDM12HV	G0600	AND G0070 G6008 = NOMINAL [1] G6035 = 990.1 V G6036 = 1010.12 V G6037 = 1025.06 V G6038 = 983.04 V G6039 = 991.74 V G6040 = 1005.76 V G6041 = 1083.25 V G6042 = 1001.34 V G6043 = 998.67 V G6044 = 1028.0 V G6045 = 1053.5 V G6046 = 992.3 V	inside the current limits



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Step	Time	Event Description	TC	TM	Comments
		TM: V1S-VDM13HV TM: V1S-VDM14HV TM: V1S-VDM15HV TM: V1S-VDM16HV TM: V1S-CDM01HV		G6047 = 992.96 V G6048 = 1000.66 V G6049 = 990.72 V G6050 = 994.14 V G6051 = 1052.26 V	
3.17		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.0909 degC < T5069 < 21.0 degC -34.0909 degC < T5073 < 21.0 degC -34.0909 degC < T5081 < 21.0 degC -34.0909 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	inside the current limits
3.18		Perform the monitoring of VETO temperature after 5 minutes the transition to Nominal Execute the FCP_IBIS1_0720		AND G0720;	
		Final status: IASW in Stand-By ISGRI in Nominal with biases ON PICsIT in Nominal VETO in Nominal			
		END OF PROCEDURE			



IBIS RECOVERY FROM DNEL CONDITION

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Filename : CRP_IBIS1_5130.PRC
Date Last Modified : Fri 30 Jun 2006

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IBIS RECOVERY FROM DNEL CONDITION

Issue: 1

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		IBIS Recovery after DNEL			
1		PURPOSE To perform the Recovery and Reconfiguration of the IBIS peripherals after DNEL Condition.			
1.1		REQUIRED CONFIGURATION IDPE1 must be OFF CSSW must be not running Peripherals OFF			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in ESAM S/C not in DNEL S/C not in ECL S/C not in IMM OFF S/C not in Radiation Belt or High Radiation Environment			
1.3		REQUIRED INPUT/INTERFACES none			
2		PRELIMINARY CHECKS			
2		During the DNEL the BCPKT status is supposed to be DISABLED so in the following steps the verification is intended on the last values accumulated before DNEL			
2.1		Check the last value of the IMM OFF flag in the BCPKT TM: IMM INSTRU OFF		AND D4210 D5212 = OFF NOT IMMI [0]	



IBIS RECOVERY FROM DNEL CONDITION

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Step	Time	Event Description	TC	TM	Comments
2.2		Check the last value of the ESAM flag in the BCPKT TM: ESAM FLAG		AND D4240 D5219 = NOTACTIVATED [0]	
2.3		Verification of the current values of IREM radiation counters (IF IREM IS ALREADY ON) TM: BLOCK COUNT LSW TM: SR OPERAT MODE TM: SR INTEGR COUNT TM: SR INT GND LINK TM: INT PROT COUNT TM: INT DOSE COUNT TM: INT ELECTR COUNT		U0001 U9900 = [] U9907 = INTEGRAL [1] U9906 = ON [1] U9903 = ON [1] U9919 = [] U9920 = [] U9921 = []	incrementing (IREM in Integral Mode) values should be <<40000 values should be <<40000 values should be <<40000
2.4		Check last radiation monitors rates in BCPKT TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #3		AND D4240 D5214 = [] D5215 = [] D5216 = []	values should be <<40000 values should be <<40000 values should be <<40000
2.5		Check IDPE1 ON TM: IDPE1 ON		AND G0010 X7900 = FALSE [0]	
2.6		Check CSSW current mode TM: IBIS1 RUNNING		D6703 = NOT RUNNING [0]	
2.7		Verification of the IBIS Temperatures TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC -15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.875 degC < T5072 < 27.0 degC	NA NA



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Step	Time	Event Description	TC	TM	Comments
		TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		-21.875 degC < T5075 < 27.0 degC degC T1049 degC	TBC after Thermo-vacuum test
2.8		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
2.9		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		AND G0750; -5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
2.10		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.0909 degC < T5069 < 21.0 degC -34.0909 degC < T5073 < 21.0 degC -34.0909 degC < T5081 < 21.0 degC -34.0909 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	TBC after Thermo-vacuum test
3		IBIS post DNEL Reconfig			
3		Perform the reconfiguration of IBIS IBIS Nominal Activation. Execute procedure FCP_IBIS1_0005			
3.1		Verification of the IBIS Temperatures after Reconfiguration TM: IDPE1 TEMP MON TM: IDPE2 TEMP MON		AND G0750; -20.0 degC < T5030 < 40.0 degC degC T5040 degC	NA



IBIS RECOVERY FROM DNEL CONDITION

Author : F. Di Marco
 Filename : CRP_IBIS1_5130.PRC
 Date Last Modified : Fri 30 Jun 2006

INTEGRAL FLIGHT OPERATIONS PLAN CRP_IBIS1_5130

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Step	Time	Event Description	TC	TM	Comments
		TM: TCS TH IDPE1 TM: TCS TH IDPE2 TM: IBIS MAINFRA TH1 TM: IBIS MAINFRA TH2 TM: TCS TH IBIS DET		-15.0 degC < T5060 < 35.0 degC degC T5063 degC -21.875 degC < T5072 < 27.0 degC -21.875 degC < T5075 < 27.0 degC degC T1049 degC	NA TBC after Thermo-vacuum test
3.2		Check the IEB temperatures TM: TCS TH IBIS IEB1 TM: TCS TH IBIS IEB2		AND G0750; -5.0 degC < T5043 < 35.0 degC -5.0 degC < T5050 < 35.0 degC	TBC after Thermo-vacuum test
3.3		Check the PEB temperatures TM: TCS TH IBIS PEB1 TM: TCS TH IBIS PEB2		-5.0 degC < T5044 < 35.0 degC -5.0 degC < T5051 < 35.0 degC	TBC after Thermo-vacuum test
3.4		Check the VEB temperatures TM: TCS TH IBIS VEB TM: TH IBISVDM16 TM: TH IBIS VDM9 TM: TH IBISVDM12 TM: TH IBISVDM13 TM: TH IBIS CDM1 TM: TH IBIS CDM2 TM: TCS TH IBIS CU		AND G0750; -5.0 degC < T5056 < 35.0 degC -34.0909 degC < T5069 < 21.0 degC -34.0909 degC < T5073 < 21.0 degC -34.0909 degC < T5081 < 21.0 degC -34.0909 degC < T5082 < 21.0 degC -35.0 degC < T5070 < 21.0 degC -35.0 degC < T5083 < 21.0 degC -35.0 degC < T5054 < 25.0 degC	TBC after Thermo-vacuum test
		Final status: IASW in Stand-By ISGRI in Nominal with biases ON PICsIT in Nominal VETO in Nominal			
		END OF PROCEDURE			



IBIS1 RECOVERY AFTER IDPE FAILURE

Author : F. Di Marco
 Filename : CRP_IBIS1_5140.PRC
 Date Last Modified : Fri 30 Jun 2006

INTEGRAL FLIGHT OPERATIONS PLAN

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IBIS1 RECOVERY AFTER IDPE FAILURE

Issue: 1.1

Fri 30 Jun 2006

Author: F. Di Marco

Step	Time	Event Description	TC	TM	Comments
1		IBIS Recovery after failure of IDPE1			
1		PURPOSE To perform the Recovery of IBIS1 (DPE1 + peripherals) after IDPE1 failure			
1.1		REQUIRED CONFIGURATION IDPE ON CSSW running IASW in any Mode Peripherals ON in any mode BCPKT Enabled			
1.2		SPECIAL OPERATIONAL CONSTRAINTS none			
1.3		REQUIRED INPUT/INTERFACES none			
2		PRELIMINARY CHECKS			
2		Check if PPDU Board 1A GSW 2 is closed TM: P BD1A GSW2 STA		TM_PKT 200500; AND G0010; P2104 = CLOSE [1]	
2.1		Check DPE Power Supply TM: LCL STA IDPE1 TM: LCL CUR IDPE1		P2107 = CLOSE 0.1966 A < P2005 < 0.2652 A	
2.2		Verify that the following OEMs are received from the OBDH s/s, flagging an anomaly condition inside the DPE (no answer from the IDPE1) 129 (APID) OEM Number: 82 OEM CLASS: 1 EX OBIH TM ST11 WRONG RBI STATUS		AND G0045; IMCS OBEH task	



IBIS1 RECOVERY AFTER IDPE FAILURE

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 Filename : CRP_IBIS1_5140.PRC
 Date Last Modified : Fri 30 Jun 2006

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Step	Time	Event Description	TC	TM	Comments
		129 (APID) OEM Number: 91 OEM CLASS: 1 EX OBIH TC ST9 WRONG RBI STATUS 2			
2.3		Take note of the IASW (IDPE1) Mode just before the anomaly TM: S1E-IASW MODE		G8016 = []	
2.4		Verify the pkts SSC is not incrementing TM: IDPE1 HK PKT SSC		AND G0010 GUSSC1 = not incrementing	
2.5		Verify that the following TM packets are not received (updated) on ground: SPID 79102 (IBIS HK1, 8sec period) SPID 70031->70038 (IBIS HK3, 256 sec period) SPID 70040 (IBIS HK4, 300 sec period)		IMCS TMPH task	
2.6		Verify the status of CSSW (IDPE1) TM: IBIS1 RUNNING IF the CSSW (IDPE1) is NOT RUNNING and an OOL is reported on-ground due to the unexpected change of status of the CSSW (from RUNNING -> NOT RUNNING) a Watch Dog reset or EDAC double event failure could have occurred.		D6703 = []	
2.7		Check for CPU possible reset TM: CAUSE CPU RESET IF the CSSW IS RUNNING and CAUSE OF CPU RESET is POWER SAVING an 'empty boot' triggered unexpectedly in the DPE could have occurred.		G9072 = []	
2.8		Proceed with a CSSW TC verification TC: TEST COMMAND TM: NUM TCPS GND	G9043	AND D1000 D5024 = incremented by one	



IBIS1 RECOVERY AFTER IDPE FAILURE

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Step	Time	Event Description	TC	TM	Comments
2.9		<p>Proceed with a IASW TC verification by trying a transition to STAND-BY</p> <p>TC: TC-Y-550 CEV: S1E-IASW MODE</p> <p>TM: NUM TCPS GND</p> <p>IF the IASW command has been received on board and executed (Mode Change)</p> <p>THEN execute precautionally the procedure FCP_IBIS1_0801 (IBIS SAFE MODE) to set IBIS in a SAFE condition and call the IBIS PI and SOM for investigation. END OF PROCEDURE CRP_5140.</p> <p>ELSE a serious anomaly occurred on the unit therefore proceed IMMEDIATELY to a forced deactivation of IBIS (see step 3) and inform the SOM and IBIS PIs.</p>	G0125	<p>AND G0045 G8016 = STANDBY [0]</p> <p>AND D1000 D5024 = incremented by one</p>	<p>If the IASW before the anomaly was already in STANDBY then perform the TC verification alternatively by using the TC G0601 VETO to STANDBY (in AND G0070 the TM para G6008 should go to Stand-By[0])</p> <p>REMARK: if the anomaly occurs in proximity of the Radiation Belts, be sure that at the time of the entry in any case, the unit enters the Radiation Belts with the peripherals (ISGRI + VETO) biases & high voltages OFF. The permance of the peripherals ON inside the Belts can determine serious damages to the detectors.</p>
3		IBIS Peripherals Forced Deactivation following a IDPE failure.			
3		Execute procedure CRP_IBIS1_0061 (IBIS unconditioned deactivation) until step 6.3 (DO NOT EXECUTE THE DPE DEACTIVATION UNLESS REQUESTED BY IBIS SOE\SOM)			



IBIS1 RECOVERY AFTER IDPE FAILURE

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Step	Time	Event Description	TC	TM	Comments
		Verify DPE Dc/Dc Converter is still working If not successful inform SOM at the end of the procedure TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM The following OEM is expected from the CDMU 129 (APID) OEM Number: 81 OEM CLASS: 1 EXCE OBIH TM 1 9 INVALID OR NOT RECEIVED RBI RESPONSE Open IDPE1 LCL TC: LCL IDPE1 OFF CEV: LCL STA IDPE1 TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM Execute procedure FCP_IBIS1_0010 to switch IDPE1 ON again one time. Execute procedure FCP_IBIS1_9500 CSSW verification. IF THE IDPE1 AND CSSW STATUSES ARE NOW NOMINAL, after informing the SOM and IBIS PIs, proceed with IBIS1 Nominal Activation following the high level procedure FCP_IBIS1_0005. END OF PROCEDURE CRP_5140	P4020	P2005 <= 0.0986 A 4.9511 V < G9800 < 5.15 V P2107 = OPEN [0] P2005 = 0.0 A G9800 = 0.0 V	[Red. TC: = P4520]



IBIS1 RECOVERY AFTER IDPE FAILURE

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Step	Time	Event Description	TC	TM	Comments
		<p>ELSE, REPORT TO THE SOM, IBIS PI, POWER SOE, OBDH SOE AND OBSM SOE THE SITUATION AND EVALUATE WITH THEM THE POSSIBILITY AND IMPACTS TO PERMANENTLY DEACTIVATE IBIS1 AND PROCEED WITH THE ACTIVATION OF IBIS2.</p> <p>END OF PROCEDURE CRP_5140</p>			
5		<p>2) CASE OF CPU RESET</p> <p>IF the IDPE1 is ON, CSSW RUNNING and the CPU reported a reset with CAUSE OF CPU RESET = POWER SAVING ('empty boot' case) THEN execute</p> <p>procedure FCP_IBIS1_0010 from step 5 to step 5.2 (IBIS synchronisation and verification). No IASW patch is requested, because the patch is already loaded on the RAM and it remained powered (empty boot).</p> <p>Verification CSSW status Execute procedure FCP_IBIS1_9500</p> <p>IF CSSW status is now nominal THEN continue the IBIS re-activation following the high level procedure FCP_IBIS1_0005. END OF PROCEDURE (CRP_5140).</p> <p>ELSE (i.e. CSSW status is NOT nominal) continue with the next steps Open DPE Dc/Dc Power Supply Relay 0 TC: IDPE1 RELAY0 OFF CEV: IDPE1 RELAY0 STA</p>	G9801	<p>TM_PKT 200500; AND G0010</p> <p>G9801 = OFF [1]</p>	



IBIS1 RECOVERY AFTER IDPE FAILURE

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Step	Time	Event Description	TC	TM	Comments
		Verify DPE Dc/Dc Converter is still working If not successful inform SOM at the end of the procedure TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM The following OEM is expected from the CDMU 129 (APID) OEM Number: 81 OEM CLASS: 1 EXCE OBIH TM 1 9 INVALID OR NOT RECEIVED RBI RESPONSE Open IDPE1 LCL TC: LCL IDPE1 OFF CEV: LCL STA IDPE1 TM: LCL CUR IDPE1 TM: IDPE1 5V RAM TLM Execute procedure FCP_IBIS1_0010 to switch IDPE1 ON again one time. Execute procedure FCP_IBIS1_9500 CSSW verification. IF THE IDPE1 AND CSSW STATUSES ARE NOMINAL, after informing the SOM and IBIS PIs, proceed with IBIS1 Nominal Activation following the high level procedure FCP_IBIS1_0005. END OF PROCEDURE CRP_5140.	P4020	P2005 <= 0.0986 A 4.9511 V < G9800 < 5.15 V P2107 = OPEN [0] P2005 = 0.0 A G9800 = 0.0 V	[Red. TC: = P4520]



IBIS1 RECOVERY AFTER IDPE FAILURE

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Step	Time	Event Description	TC	TM	Comments
		ELSE, REPORT TO THE SOM, IBIS PI, POWER SOE, OBDH SOE AND OBSM SOE THE SITUATION AND EVALUATE WITH THEM THE POSSIBILITY AND IMPACTS TO PERMANENTLY DEACTIVATE IBIS1 AND PROCEED WITH THE ACTIVATION OF IBIS2. END OF PROCEDURE CRP_5140			
		Final status: IBIS1 ON			
		END OF PROCEDURE			

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 4
X-Ray Monitor (JEM-X)**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 0**

21 February 03

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 4
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 21/02/03

Issue : 2
Rev. : 0
Page : 9.4-i

INTEGRAL FOP Vol. 9 / Book 4 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch All blank pages at the end of a procedure are intentional.	SOM <i>M. Schmidt</i>

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 4
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9 Vol. 9: Instrument Contingency Recovery Procedures

9.4 Book 4: X-Ray Monitor (JEM-X)



INTEGRAL FLIGHT OPERATIONS PLAN

JEMX1 CONTINGENCY RECOVERY PROCEDURES

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CRP_JEM1_0021	JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5010	JEMX1 DFEE POWER CYCLE	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5020	JEMX1 DPE AND DFEE POWER CYCLE	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5030	JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM1_5040	JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM1_5050	JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5060	JEMX1 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5100	JEMX1 RECOVERY FROM ESAM	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5110	JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5120	JEMX1 RECOVERVRY FROM HIGH RADIATION SAFE STATE BY IREM	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_5130	JEMX1 RECOVERY AFTER DNEL	Issue: 1.0	Mon 02 Sep 2002	Author: M.Rezazad
CRP_JEM1_9010	JEMX1 UNCONDITIONED DFEE SWITCH OFF	Issue: 1.0	Wed 02 Oct 2002	Author: M.Rezazad
CRP_JEM1_9531	JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET	Issue: 1.0	Mon 02 Sep 2002	Author: F Cordero



INTEGRAL FLIGHT OPERATIONS PLAN
JEMX1 CONTINGENCY RECOVERY PROCEDURES

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JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM1_0010.PRC
 Date Last Modified : Mon 02 Sep 2002

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 Issue Number : 1.0
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CRP_JEM1_0010 JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY Issue: 1.0 Mon 02 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate the JEMX1 DPE and CSSW with the redundant power line and relay. DPE LOBT synchronisation with CDMU COBT is included in this procedure.			
1.1		Required S/C Configuration - CDMU must be in OPERATIONAL Mode with minimum 3 PST windows allocated to JEMX1 - BRAT must be 2b with 184 p/8s programmed for JEMX1 - DPE substitution heaters enabled			
1.2		Special Operational Constraints S/C not in DNEL			
1.3		Required Input and Interfaces None			
2		Preliminary Checks			
2		Check TM bandwidth credit in the BRAT table TM: BW CREDIT JEM X1 Check DPE Dc/Dc converter relays are open TM: JDPE1 RELAY0 STA TM: JDPE1 RELAY1 STA Check DPE substitution heaters status TM: P HLCL 7B2 STA TM: TSW STA JDPE1 HB		A-K0010 D5005 >= 3 p/8s K9801 = OFF [1] K9802 = OFF [1] P2178 = CLOSE [1] T8111 = CLOSE [1]	The relays are supposed to be always open if DPE is off. Opened by PPDU init Opened by PPDU init or DNEL



JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 7A2 STA TM: TSW STA JDPE1 HA ECLIPSE passages: The Heater A TSW is opened at Eclipse entry by PPDU SUN->ECL sequence and closed at Eclipse exit by PPDU ECL->SUN sequence. It is opened again by ED KECLEX01 and closed after a predefined wait time by ED TENPE_00. In all other circumstances, it must be always closed. Check DPE start-up temperature TM: JDPE1 TEMP MON TM: TCS TH JDPE1		P2128 = CLOSE [1] T8011 = CLOSE [1] -20.0 degC < T5029 < 40.0 degC -20.0 degC < T5059 < 50.0 degC	Closed at PPDU init. Opened by SUN->ECL sequence. Closed by ECL->SUN sequence. Opened by PPDU init
3		On TM Spacon, click on Correlator tab and select System time			
4		On Manual Stack, load the sequence KC0010 containing the commands of this procedure			
5		DPE and CSSW Activation With Redundant Power Line			
5		On TM Spacon, click on the On-Event tab and set at 0 the OEM Storage Counter for APID=1536 (if different than 0) TM: JEMX1 GROUND OEM		A-K0010 KU9041 = 0	
5.1		Check PPDU Board 1B GSW 2 is closed TM: P BD1B GSW2 STA Close LCL JDPE1 B TC: LCL JDPE1 B ON	P4263	P2154 = CLOSE [1]	The GSW is supposed to be always closed after P/L commissioning. It can be opened by PPDU init. [Red. TC: = P4763]



JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
		CEV: LCL STA JDPE1 B TM: LCL CUR JDPE1 B TM: JDPE1 5V RAM TLM		P2155 = CLOSE [1] P2053 <= 0.1 A 4.77 V < K9800 < 5.16 V	
5.2		Close DPE Dc/Dc Power Supply Relay 1 TC: JDPE1 RELAY1 ON CEV: JDPE1 RELAY1 STA TM: LCL CUR JDPE1 B The following OEM is expected: 129 (APID) OEM Number: 82 OEM CLASS: 1 EX OBIH TM ST11 WRONG RBI STATUS	K9805	K9802 = ON [0] 0.2 A < P2053 < 0.27 A	
5.3		WAIT for DPE power-up initialisation completion marked by the OEM 1536 (APID) OEM Number: 0 OEM CLASS: 0 JEM-X1 CAUSE OF CPU RESET TM: CAUSE CPU RESET		K9072 = POWER UP [0]	OEM Parameter
6		Post Activation Checks			
6		Check DPE is in Running State and that TM is received TM: JEMX1 RUNNING TM: JDPE1 HK PKT SSC		D6303 = RUNNING [1] KUSSC1 = <incrementing>	A-K0010
6.1		Check DPE Power Supply and Thermal TM TM: 5VDC SEC V TM: 5VDCRAM SEC V TM: 15VDCRELAY SEC V TM: 15VDC SEC V TM: -15VDC SEC V TM: DPE HOTPOINT TEM		4.9 V < K9027 < 5.1 V 4.95 V < K9028 < 5.15 V 16.0 V < K9029 < 16.5 V 14.7 V < K9030 < 15.4 V -15.45 V < K9031 < -14.7 V -6.86 degC < K9032 < 50.0 degC	
6.2		Check results of Built In Tests TM: JEMX1 SELFTST ER TM: JEMX1 CHKSUM MIS		D6313 = NO ERROR [0] D6314 = NO ERROR [0]	A-K0020



JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
		TM: JEMX1 BUILTIN ER TM: JEMX1 ANOMALY TM: SELF TEST ERROR TM: CHKSUM MISMATCH TM: BUILT IN TEST ER TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG		D6315 = NO ERROR [0] D6308 = NO ANOMALY [0] K9253 = NO ERROR [0] K9254 = NO ERROR [0] K9255 = NO ERROR [0] K9033 = PASSED [1] K9034 = PASSED [1] K9035 = PASSED [1]	A-K0010
6.3		Check CPU configuration and control registers TM: UP CONF REG TM: PCC CONTROL REG		K9036 = A1E0 (Hex) K9037 = F155 (Hex)	A-K0030 According to INT-MA-AI-0001 sect.5.8.3
7		TC Link Test And LOBT Synchronization			
7		Send Test TC(13,1) to check if TC path up to CSSW is working TC: TEST COMMAND TM: AC ONGR TCPCOUNT	K9043	K9043 = 1 [1]	A-K0010 The counter increases from 0 to 1
7.1		Synchronize LOBT with COBT TC: SYNC JEMX1 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3706		
7.2		Request Time Synchronisation reports TC: VER TIME JEMX1 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB	D3716	230000 84503	



JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
		NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison TM: VERIF TIME CDMU TM: TIME VERIF JEMX1		DU8415 = [] KU9011 = []	COBT LOBT
8		On TM Spacon, click on Correlator tab and select Correlator time			
9		The DPE is now active with CSSW only running (IASW has not started yet) with LOBT synchronised with COBT			
10		End			
10		End of procedure			



JEMX1 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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JEMX1 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH-ON INTEGRAL FOP

Author : M.Rezazad
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 Date Last Modified : Mon 02 Sep 2002

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CRP_JEM1_0020

JEMX1 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH-ON Issue: 1.0 Mon 02 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate JEMX1 DFEE with the redundant power line for the 1st time after DPE switch on and uplink DFEE SW patches. After activation, the DFEE will be in Setup mode with HV off.			
1.1		Required S/C Configuration JEMX1 IASW started (FCP_JEM1_0015 executed)			
1.2		Special Operational Constraints S/C in Sunlight This procedure shall be executed only if it is the 1st time the DFEE is to be switched on after DPE and IASW activation. For subsequent activations, the procedure CRP_JEM1_0021 shall be used.			
1.3		Required Input and Interfaces None			
2		Preliminary Checks			A-K0100
2		Check DFEE start-up temperature TM: JDFEE1 THERM A TM: JDFEE1 THERM B TM: JDFEE1 THERM C		T5108 > -35.0 degC T5033 > -35.0 degC T5034 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board
2.1		Check IASW is started TM: JEM1 IASW STATUS		K5349 = STARTED [4369]	
3		On Manual Stack, load the sequence KC0020 containing the commands of this procedure			



JEMX1 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH-ON INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
4		DFEE Activation			A-K0100
4		Check PPDU BOARD 1B GSW 2 is closed			It can be opened by PPDU re-Initialisation
		TM: P BD1B GSW2 STA		P2154 = CLOSE [1]	
4.1		Close PPDU JDFFEE1 B LCL			
		TC: LCL JEM-X1 B ON	P4267		[Red. TC: = P4767]
		CEV: LCL STA JEM-X1 B		P2156 = CLOSE [1]	
		TM: LCL CUR JEM-X1 B		0.94 A < P2054 < 1.2 A	
4.2		TC: STATE SAFE	K0008		
		CEV: DFEE STATUS		K5022 = SAFE [1]	
4.3		TC: STATE SETUP	K0009		
		CEV: DFEE STATUS		K5022 = SETUP [5]	
		TM: DFEE STATE IASW		K5462 = SETUP	
		TM: WAN SHUTDOWN LEV		K5382 = NORMAL	
		TM: ACT SHUTDOWN LEV		K5381 = NORMAL	
4.4		Set CPU speed and Wait states			
		TC: SET CPU STATUS	K0059		
		TC_Par: . : CPU STATE	K0178 = 16 MHZ		At start-up the processor clock is 8 MHz / 1 Wait state
		TM: CPU MODE GOAL		K5582 = 16 MHZ	
		TM: CPU MODE		K5583 = 16 MHZ	
4.5		Execute procedure FCP_JEM1_0025 "JEMX1 DFEE SW Rel.4.1 Patch Sequence"			
		The procedure implements a number of correction patches to the DFEE SW. These patches will automatically be stored in the DPE memory and should not be uplinked again unless the DPE memory is switched off.			



JEMX1 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH-ON INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM1_0020.PRC
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Step	Time	Event Description	TC	TM	Comments
5		Post-Activation Checks			A-K0100
5		Check TM generation from DFEE TM: HK CYCLE COUNTER		K5374 = <incrementing every 8s>	
5.1		Check DFEE Power Supply and Thermal TM TM: VOLTAGE +5V DIG TM: CURRENT +5V DIG TM: VOLTAGE +5V ANA TM: VOLTAGE -5V ANA TM: VOLTAGE +12V TM: CURRENT +12V TM: VOLTAGE -12V TM: CURRENT -12V TM: TEMP BOX2 TM: TEMP CPU TM: TEMP LVPS BRIDGE TM: TEMP DDHK TM: TEMP ANODE TM: TEMP ANALOG 4		4.75 V < K5105 < 5.25 V 0.4 A < K5106 < 0.8 A 4.75 V < K5107 < 5.25 V -5.25 V < K5108 < -4.75 V 11.53 V < K5109 < 12.5 V 0.5 A < K5110 < 0.9 A -12.47 V < K5111 < -11.5 V 0.5 A < K5112 < 0.9 A -30.0 degC < K5113 < 50.0 degC -30.0 degC < K5114 < 40 degC -30.0 degC < K5115 < 40 degC -30.0 degC < K5116 < 65.0 degC -30.0 degC < K5117 < 65.0 degC -30.0 degC < K5118 < 55.0 degC	DFEE box - connector J01 inside DFEE - CPU board inside DFEE - LVPS cooling bridge inside DFEE - DDHK board DFEE box - Mother Board at ANOD DFEE box - Mother Board at ANA2
5.2		Check Detector HV and Thermal TM TM: HV DELTA 12 bits TM: SET DELTA TM: HVCATHODE 12 bit TM: SET CATHODE TM: DET PRESSURE 1 TM: DET PRESSURE 2 TM: DET TEMP 1		K5001 = 0.0 V K5376 = 0.0 V K5002 = 0.0 V KD5580D = 0.0 V K5101 > 137000.0 Pa K5102 > 137000 Pa -40.05 degC < K5103 < 35.0 degC	Detector Electronics



JEMX1 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH-ON INTEGRAL FOP

Author : M.Rezazad
Filename : CRP_JEM1_0020.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: DET TEMP 2 TM: HV POW S TEMP#1 TM: HV POW S TEMP#2 Check default discriminator and anodes setting TM: LOW DICRIM TM: ANODE SETTING 1 TM: ANODE SETTING 2 TM: ANODE SETTING 3 TM: ANODE SETTING 4		-40.05 degC < K5104 < 35.0 degC K5379 < 75.88 degC K5380 < 75.88 degC K5007 = 15 K5003 = ENABLED K5004 = ENABLED K5005 = ENABLED K5006 = ENABLED	Detector Electronics inside DFEE - HVPS board inside DFEE - HVPS board
		JEMX1 is now activated in SETUP Mode. In this mode the configuration settings necessary for Data Taking/Diagnostic mode can be performed.			
6		End			
6		End of procedure			



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

Author : M.Rezazad
 Filename : CRP_JEM1_0021.PRC
 Date Last Modified : Mon 02 Sep 2002

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JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE Issue: 1.0 Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate JEMX1 DFEE with the redundant power line and restore the Context, including the SW patches, saved in the DPE. After activation the DFEE will be in Setup mode with HV off.			
1.1		Required S/C Configuration JEMX1 IASW started (FCP_JEM1_0015 executed)			
1.2		Special Operational Constraints S/C in Sunlight JEMX DFEE 1st activation procedure FCP_JEM1_0020 (or CRP_JEM1_0020) already executed and DPE not switched off/reinitialised since its execution.			
1.3		Required Inputs And Interfaces None			
2		Preliminary Checks			A-K0100
2		Check DFEE start-up temperature TM: JDFEE1 THERM A TM: JDFEE1 THERM B TM: JDFEE1 THERM C		T5108 > -35.0 degC T5033 > -35.0 degC T5034 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board
2.1		Check IASW is started TM: JEM1 IASW STATUS		K5349 = STARTED [4369]	
3		On Manual Stack, load the sequence KC0021 containing the commands of this procedure			
4		DFEE Activation			A-K0100



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
4		Check PPDU BOARD 1B GSW 2 is closed TM: P BD1B GSW2 STA		P2154 = CLOSE [1]	It can be opened by PPDU re-Initialisation
4.1		Close PPDU JDFFEE1 B LCL TC: LCL JEM-X1 B ON CEV: LCL STA JEM-X1 B TM: LCL CUR JEM-X1 B	P4267	P2156 = CLOSE [1] 0.94 A < P2054 < 1.2 A	[Red. TC: = P4767]
4.2		TC: STATE SAFE CEV: DFEE STATUS	K0008	K5022 = SAFE [1]	
4.3		Restore DFEE Context (Memory Patches and configuration settings) TC: LOAD DPE TO DFEE	K0030		
4.4		Verify that the number of restored patches is as expected. NOTE: The number of restored patches should be the same as the number of the patches that were sent during the latest DFEE SW patch sequence. TM: MEMORY PATCHES Refer to procedure: FCP_JEM1_0025 : : JEMX1 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)		K5372 = [expected value]	A-K0100
4.5		TC: STATE SETUP CEV: DFEE STATUS TM: DFEE STATE IASW TM: WAN SHUTDOWN LEV TM: ACT SHUTDOWN LEV	K0009	K5022 = SETUP [5] K5462 = SETUP K5382 = NORMAL K5381 = NORMAL	
4.6		Set CPU speed and Wait states			



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
		TC: SET CPU STATUS TC_Par: . : CPU STATE TM: CPU MODE GOAL TM: CPU MODE	K0059 K0178 = 16 MHZ	 K5582 = 16 MHZ K5583 = 16 MHZ	At start-up the processor clock is 8 MHz / 1 Wait state
4.7		Set Autorecovery level TC: SET AUTO CONTROL TC_Par: . : AUTORECOVERY LEV TC_Par: . : CPU MODE TM: AUTO RECOV INFO TM: CPU MODE GOAL	K0062 K0182 = DFEE CONTEXT K0183 = 16 MHZ	 K5458 = DFEE CONTEXT [3] K5582 = 16 MHZ [3]	
4.8		Report and verify the loaded DFEE Integer and Float parameters. Refer to the following procedure for the expected values of the loaded DFEE Integer and Float parameters: FCP_JEM1_0025 : : JEMX1 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)			
4.8.1		Report the SW integer parameters table and check TC: SW READ INT	K0021	A-K0220, A-K0221	
4.8.2		Report the SW Float parameters table and check TC: SW READ FLOAT	K0022	A-K0222, A-K0223	
5		Post-Activation Checks			A-K0100
5		Check TM generation from DFEE TM: HK CYCLE COUNTER		K5374 = <incrementing every 8s>	
5.1		Check DFEE Power Supply and Thermal TM TM: VOLTAGE +5V DIG		4.75 V < K5105 < 5.25 V	



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
		TM: CURRENT +5V DIG TM: VOLTAGE +5V ANA TM: VOLTAGE -5V ANA TM: VOLTAGE +12V TM: CURRENT +12V TM: VOLTAGE -12V TM: CURRENT -12V TM: TEMP BOX2 TM: TEMP CPU TM: TEMP LVPS BRIDGE TM: TEMP DDHK TM: TEMP ANODE TM: TEMP ANALOG 4		0.4 A < K5106 < 0.8 A 4.75 V < K5107 < 5.25 V -5.25 V < K5108 < -4.75 V 11.53 V < K5109 < 12.5 V 0.5 A < K5110 < 0.9 A -12.47 V < K5111 < -11.5 V 0.5 A < K5112 < 0.9 A -30.0 degC < K5113 < 50.0 degC -30.0 degC < K5114 < 40 degC -30.0 degC < K5115 < 40 degC -30.0 degC < K5116 < 65.0 degC -30.0 degC < K5117 < 65.0 degC -30.0 degC < K5118 < 55.0 degC	DFEE box - connector J01 inside DFEE - CPU board inside DFEE - LVPS cooling bridge inside DFEE - DDHK board DFEE box - Mother Board at ANOD DFEE box - Mother Board at ANA2
5.2		Check Detector HV and Thermal TM TM: HV DELTA 12 bits TM: SET DELTA TM: HVCATHODE 12 bit TM: SET CATHODE TM: DET PRESSURE 1 TM: DET PRESSURE 2 TM: DET TEMP 1 TM: DET TEMP 2 TM: HV POW S TEMP#1 TM: HV POW S TEMP#2 Check default discriminator and anodes setting TM: LOW DICRIM		K5001 = 0.0 V K5376 = 0.0 V K5002 = 0.0 V KD5580D = 0.0 V K5101 > 137000.0 Pa K5102 > 137000.0 Pa -40.05 degC < K5103 < 35.0 degC -40.05 degC < K5104 < 35.0 degC K5379 < 75.88 degC K5380 < 75.88 degC K5007 = 15	Detector Electronics Detector Electronics inside DFEE - HVPS board inside DFEE - HVPS board



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
		TM: ANODE SETTING 1 TM: ANODE SETTING 2 TM: ANODE SETTING 3 TM: ANODE SETTING 4		K5003 = ENABLED K5004 = ENABLED K5005 = ENABLED K5006 = ENABLED	
		JEMX1 is now activated in SETUP Mode. In this mode the configuration settings necessary for Data Taking/Diagnostic mode can be performed.			
6		End			
6		End of procedure.			



JEMX1 DFEE ACTIVATION WITH REDUNDANT POWER LINE

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JEMX1 DFEE POWER CYCLE

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Filename : CRP_JEM1_5010.PRC
Date Last Modified : Mon 02 Sep 2002

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JEMX1 DFEE POWER CYCLE

Issue: 1.0

Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform a power cycle on JEM-X1 DFEE.			
1.1		REQUIRED CONFIGURATION JEMX1 DPE powered ON (FCP_JEM1_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		Save DFEE context in DPE and switch OFF DFEE. Execute procedure: FCP_JEM1_9010 : : JEMX1 DFEE SWITCH OFF			
3		Activate DFEE and restore DFEE context. Execute procedure: FCP_JEM1_0021 : : JEMX1 DFEE ACTIVATION			
4		If it is decided to resume nominal JEMX science operations, execute procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
5		END			
5		END OF PROCEDURE			



JEMX1 DFEE POWER CYCLE

Author : M.Rezazad
Filename : CRP_JEM1_5010.PRC
Date Last Modified : Mon 02 Sep 2002

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JEMX1 DPE AND DFEE POWER CYCLE

Author : M.Rezazad
Filename : CRP_JEM1_5020.PRC
Date Last Modified : Mon 02 Sep 2002

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JEMX1 DPE AND DFEE POWER CYCLE

Issue: 1.0

Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform a power cycle on JEM-X1 DPE and DFEE. NOTE: All memory patches to both DPE and DFEE and all post-launch updates to the software parameters need to be reloaded from the ground.			
1.1		REQUIRED CONFIGURATION JEMX1 DPE powered ON (FCP_JEM1_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		Switch OFF JEMX1 DFEE. Execute procedure: FCP_JEM1_9010 : : JEMX1 DFEE SWITCH OFF			
3		Disable BCP distribution to JEMX1. Execute procedure: FCP_JEM1_9001 : : JEMX1 DISABLE BCP DISTRIBUTION			
4		Switch OFF JEMX1 DPE. Execute procedure: FCP_JEM1_9000 : : JEMX1 DPE SWITCH OFF			
5		Re-activate JEMX1 DPE and CSSW. Execute procedure: FCP_JEM1_0010 : : JEMX1 DPE AND CSSW ACTIVATION			



JEMX1 DPE AND DFEE POWER CYCLE

Author : M.Rezazad
Filename : CRP_JEM1_5020.PRC
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Step	Time	Event Description	TC	TM	Comments
6		Perform the IASW DPE patch for BCP Pointing Number interpretation correction. Execute procedure: FCP_JEM1_0011 : : JEMX1 IASW DPE PATCH FOR BCP PID INTERPRETATION			
7		Activate JEMX1 IASW. Execute procedure: FCP_JEM1_0015 : : JEMX1 IASW ACTIVATION			
8		Enable BCP distribution to JEMX1. Execute procedure: FCP_JEM1_0016 : : JEMX1 ENABLE BCP DISTRIBUTION			
9		Perform TM check on JEMX1 IASW. Execute procedure: FCP_JEM1_0017 : : JEMX1 IASW EXTENDED TM CHECK			
10		Activate JEMX1 DFEE for the first time after DPE switch ON. Execute procedure: FCP_JEM1_0020 : : JEMX1 DFEE 1st ACTIVATION AFTER DPE SWITCH-ON			
11		If required, execute the following procedure to configure JEMX-1 for nominal science operations: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
12		END			
12		END OF PROCEDURE			



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
Filename : CRP_JEM1_5030.PRC
Date Last Modified : Wed 04 Sep 2002

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CRP_JEM1_5030 JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To manually recover from a shutdown in case of auto-recovery failure.			
1.1		Required Configuration JEMX1 Detector High Voltages OFF and the DFEE in SAFE state.			
1.2		Special Operational Constraints All conditions which had caused the initiation of the auto-shutdown should have disappeared.			
2		Troubleshooting			
2		The JEMX DPE IASW will automatically set the DFEE state to SAFE (shut-down) in the following cases: 1- When the Broadcast Packet indicates shutdown necessary: Radiation Belt Entry, Eclips Entry, Radiation Monitor count rates out of range and ESAM. 2- Out of range on the mini-RTU readouts, if the check on the corresponding condition is enabled. The Detector HV OFF and DFEE SAFE State conditions can be monitored through the following telemetry: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE		A-K0100 K5022 = SAFE [1] K5001 = 0.0 V [0] K5002 = 0.0 V [0] K5376 = 0.0 V [0] KD5580D = 0.0 V [0]	



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5030.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		<p>The following two parameters indicate the "Actual Shutdown Level" which represents the current depth of shutdown, and the "Wanted Shutdown Level" which is a function of the information coming from the BCP and the mini_RTU readouts.</p> <p>TM: ACT SHUTDOWN LEV TM: WAN SHUTDOWN LEV</p> <p>The IASW always tries to keep the Actual shutdown level equal to the Wanted shutdown level which are both zero under normal operational conditions.</p> <p>As the wanted shutdown depth increases from 0 to higher values, the autoshutdown process performs its functions accordingly to bring the Actual Shutdown Level to the Wanted Shutdown Level.</p> <p>When the conditions which had caused the shutdown disappear, the Wanted Shutdown Level decreases and the action of the IASW in this case is also to bring the Actual Shutdown Level to that of the Wanted Shutdown Level through the Autorecovery process.</p> <p>NOTE: Autorecovery will be attempted only for Shutdown depths 50[Hex] up to 0[Hex]. For Shutdown depths below 50[Hex] (60, 70 and 80 [Hex]) automatic recovery will not be attempted.</p> <p>In case the automatic recovery mechanism fails, the Wanted shutdown level will have a lower value than the Actual shutdown level, leaving the unit in the SAFE mode.</p>		<p>A-K0100</p> <p>K5381 = K5382 =</p>	<p>For more explanation, refer to JEMX User Manual, sect. 3.7.5.2.9 "Shutdown and Recovery Scheme".</p>
3		Recovery To SETUP State.			
3		Inform JEMX PI/Representative as soon as possible and start manual recovery.			
4		<p>Determine at transition between which shutdown levels the recovery has failed.</p> <p>IF</p>		A-K0100	A-K0010



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5030.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		TM: ACT SHUTDOWN LEV AND TM: WAN SHUTDOWN LEV THEN GOTO step 5 ELSE IF TM: ACT SHUTDOWN LEV AND TM: WAN SHUTDOWN LEV THEN GOTO step 6 END IF		K5381 = 50 or 40 [Hex] K5382 <= 30 [Hex] K5381 = 30 [Hex] K5382 <= 10 [Hex]	
5		In this case, which is the Eclipse exit case, the auto-recovery has failed to restore the Context from the DPE into the DFEE and the following OEM should have been issued: 1536 (APID) OEM Number: 234 OEM CLASS: 0 JEM-X1 AUTO EVENT 4 OEM Description: "Autonomous Event: Recovery Failed" Field#2 => Actual Level Filed#3 => Target Level Perform a DFEE power cycle with manual Context recovery:			
5.1		Save DFEE context in DPE and switch OFF DFEE. Execute procedure: FCP_JEM1_9010 : : JEMX1 DFEE SWITCH OFF			
5.2		Activate DFEE and restore DFEE context. Execute procedure: FCP_JEM1_0021 : : JEMX1 DFEE ACTIVATION			
5.3		GOTO step 7			
6		In this case the auto-recovery has failed to bring the DFEE back to SETUP state from SAFE.			



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5030.PRC
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Step	Time	Event Description	TC	TM	Comments
6.1		Send SAFE command. TC: STATE SAFE TM: DFEE STATUS	K0008	A-K0100 K5022 = SAFE [1]	
6.2		Switch to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	K0009	 K5022 = SETUP [5]	
6.3		Verify that the Context has been correctly restored in DFEE.		A-K0100	
6.3.1		TM: MEMORY PATCHES NOTE: The number of restored patches should be the same as the number of the patches that were sent during the latest DFEE S/W patch sequence. Refer to procedure: FCP_JEM1_0025 : : JEMX1 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)		K5372 = [expected value]	
6.3.2		The following OEM should NOT have been issued: 1536 (APID) OEM Number: 191 OEM CLASS: 0 JEM-X1 PROB DFEE 11 OEM Description: "Problems with communication with DFEE: Load DFEE context unsuccessful - check for CRCs failed"			
6.3.3		Report and verify the loaded DFEE Integer and Float parameters. Refer to the following procedure for the expected values of the loaded DFEE Integer and Float parameters: FCP_JEM1_0025 : : JEMX1 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)			
6.3.3.1		Report the SW integer parameters table and check		A-K0220, A-K0221	



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
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Step	Time	Event Description	TC	TM	Comments
		TC: SW READ INT	K0021		
6.3.3.2		Report the SW Float parameters table and check TC: SW READ FLOAT	K0022	A-K0222, A-K0223	
6.4		IF the above checks fail and the Context is not correctly restored into DFEE THEN GOTO step 5.1 END IF			
7		After the conditions which caused the initiation of shutdown are known and disappeared and only with the confirmation of the JEMX PI, the following procedure can be used to bring JEMX1 back to operational conditions: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		END OF PROCEDURE			



JEMX1 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

Author : M.Rezazad
Filename : CRP_JEM1_5030.PRC
Date Last Modified : Wed 04 Sep 2002

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JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5040.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM1_5040 JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To manually switch OFF the JEMX1 DFEE in case of auto-shutdown failure.			
1.1		Required Configuration JEMX1 DFEE not in SAFE state.			
1.2		Special Operational Constraints None			
2		Troubleshooting			
2		<p>The JEMX DPE IASW will automatically set the DFEE state to SAFE (shut-down) in the following cases:</p> <p>1- When the Broadcast Packet indicates shutdown necessary: Radiation Belt Entry, Eclips Entry, Radiation Monitor count rates out of range and ESAM.</p> <p>2- Out of range on the mini-RTU readouts, if the check on the corresponding condition is enabled.</p> <p>The following TM can be used to monitor the state of the DFEE and the detector HV settings:</p> <p>TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE</p> <p>The following two parameters indicate the "Actual Shutdown Level" which represents the current depth of shutdown, and the "Wanted Shutdown Level" which is a function of the information coming from the BCP and the mini_RTU readouts.</p>		<p>A-K0100</p> <p>K5022 = K5001 = V K5002 = V K5376 = V KD5580D = V A-K0100</p>	



JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5040.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		TM: ACT SHUTDOWN LEV TM: WAN SHUTDOWN LEV The IASW always tries to keep the Actual shutdown level equal to the Wanted shutdown level which are both zero under normal operational conditions. As the wanted shutdown depth increases from 0 to higher values, the autoshutdown process performs its functions accordingly to bring the Actual Shutdown Level to the Wanted Shutdown Level. In case the automatic shutdown mechanism fails, the Wanted shutdown level will have a higher value than the Actual shutdown level, leaving the unit in an unsafe state. The following OEM will be issued in case of the auto-shutdown failure: 1536 (APID) OEM Number: 232 OEM CLASS: 0 JEM-X1 AUTO EVENT 2 OEM Description: "Autonomous Event: Shutdown Failed"		K5381 = K5382 =	For more explanation, refer to JEMX User Manual, sect. 3.7.5.2.9 "Shutdown and Recovery Scheme".
3		Recovery Action			
3		The recovery action would be to save DFEE Context in DPE and switch OFF the JEMX1 DFEE. On Manual Stack, load the sequence KS9010 containing the required commands (based on FCP_JEM1_9010).			
3.1		Switch to SAFE mode TC: STATE SAFE CEV: DFEE STATUS	K0008	A-K0100 K5022 = SAFE [1]	Safe command can be sent from any Mode
3.2		Switch to SETUP mode TC: STATE SETUP	K0009		This step has a minimum duration of 8 seconds



JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

Author : M.Rezazad
 Filename : CRP_JEM1_5040.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		CEV: DFEE STATUS		K5022 = SETUP [5]	
3.3		Disable Autorecovery			Needed in order to make context restore working at manual reactivation
		TC: SET AUTO CONTROL	K0062 K0182 = NO RECOVERY K0183 = 16 MHZ		
3.4		Save DFEE Context into DPE			Must be the last command before switch off NOTE: This TC changes the DFEE mode to SAFE and switches OFF the Detector HV
		TC: SAVE DFEE IN DPE	K0031		
		CEV: DFEE STATUS		K5022 = SAFE [1]	
3.5		Open DFEE LCL A			
		TC: LCL JEM-X1 A OFF	P4016		[Red. TC: = P4516]
		CEV: LCL STA JEM-X1 A		P2106 = OPEN [0]	
		TM: LCL CUR JEM-X1 A		P2004 = 0.0 A	
		Open DFEE LCL B (redundant power line)			LCL B is nominally always open. It is closed only in case of LCL A/main power line failure.
		TC: LCL JEM-X1 B OFF	P4766		[Red. TC: = P4266]
		CEV: LCL STA JEM-X1 B		P2156 = OPEN [0]	
		TM: LCL CUR JEM-X1 B		P2054 = 0.0 A	
		The following OEM is expected from the DPE 1536 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X1 AUTO EVENT 1			



JEMX1 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

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Step	Time	Event Description	TC	TM	Comments
		OEM Description: "Autonomous Event: Shutdown Initiated"			
4		Inform JEMX PI/Representative as soon as possible. NOTE: The operational state of the JEMX unit can be restored after the cause of the shutdown initiation is understood and disappeared, only with the confirmation of the JEMX PI.			
5		END			
5		END OF PROCEDURE			



JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM1_5050.PRC
 Date Last Modified : Mon 02 Sep 2002

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JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF Issue: 1.0 Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX1 DFEE from a spurious switch OFF which has occurred without saving the DFEE Context in the DPE.			
1.1		Required Configuration JEMX1 DFEE switched OFF and the IASW started.			
1.2		Special Operational Constraints Spacecraft recovered from the condition which had caused the spurious switch OFF of the DFEE. JEMX1 DFEE first activation procedure (FCP_JEM1_0020) already executed and the DPE not switched OFF or reinitialised since its execution.			
2		Troubleshooting			
2		This procedure should be executed if for any unexpected reason the JEMX1 DFEE is switched OFF without saving the Context in DPE before switch OFF. For example in case the Sun to Eclipse sequence is triggered without the eclipse entry time being reflected in the Broadcast Packet.			
3		Recovery Action			
3		Perform preliminary checks for DFEE activation.			
3.1		Check DFEE start-up temperature TM: JDFEE1 THERM A TM: JDFEE1 THERM B TM: JDFEE1 THERM C		A-K0100 T5108 > -35.0 degC T5033 > -35.0 degC T5034 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board



JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

Author : M.Rezazad
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Step	Time	Event Description	TC	TM	Comments
3.2		Check IASW is started TM: JEM1 IASW STATUS		K5349 = STARTED [4369]	
4		Activate the DFEE.		A-K0100	
4.1		Check PPDU BOARD 1A GSW 2 is closed TM: P BD1A GSW2 STA		P2104 = CLOSE [1]	It can be opened by PPDU re-Initialisation
4.2		Close PPDU JDFFEE1 LCL TC: LCL JEM-X1 A ON CEV: LCL STA JEM-X1 A TM: LCL CUR JEM-X1 A	P4017	P2106 = CLOSE [1] 0.94 A < P2004 < 1.2 A	[Red. TC: = P4517]
4.3		Switch to SAFE state. TC: STATE SAFE CEV: DFEE STATUS	K0008	K5022 = SAFE [1]	
4.4		Restore DFEE Context (Memory Patches and configuration settings) TC: LOAD DPE TO DFEE The Context Recovery will probably fail and the following OEM will be generated: 1536 (APID) OEM Number: 191 OEM CLASS: 0 JEM-X1 PROB DFEE 11 OEM Description: "Operation 'Load DFEE Context' unsuccessful - check for CRCs failed." NOTE: The Context recovery will fail because the correct CRCs were not prepared before the emergency switch OFF of the DFEE. However, the Context recovery procedure only fails after it has infact transferred all the DFEE code patches and parameters from the DPE to the DFEE.	K0030		



JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

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Step	Time	Event Description	TC	TM	Comments
5		Save DFEE context in DPE and switch OFF DFEE. Execute procedure: FCP_JEM1_9010 : : JEMX1 DFEE SWITCH OFF			
6		Reactivate the DFEE with manual Context recovery. Execute procedure: FCP_JEM1_0021 : : JEMX1 DFEE ACTIVATION This time the Context recovery should be successful because it was correctly prepared.			
7		If required, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		End of procedure.			



JEMX1 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

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Filename : CRP_JEM1_5050.PRC
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JEMX1 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM1_5060.PRC
 Date Last Modified : Mon 02 Sep 2002

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JEMX1 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS Issue: 1.0 Mon 02 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX1 from high radiation HV OFF by the Hard-Wired or Software Internal Ratemeters.			
1.1		Required Configuration JEMX1 Detector HV OFF by Internal Rate Meters.			
1.2		Special Operational Constraints None.			
2		Troubleshooting			
2		JEMX is equipped with a Hard Wired ratemeter as well as a Software Ratemeter which will switch OFF the detector high voltage in case of high trigger counts.			For more explanation refer to JEMX User Manual, sect. 3.7.10.1.2 "JEMX High Voltage Switch OFF by Internal Ratemeter".
2.1		The Hard Wired Ratemeter will switch OFF the detector HV if the trigger counts exceed 65535 over an 8 second period. The DFEE will report the detector HV OFF to the DPE and the DPE will in turn put the DFEE in SAFE mode: TM: DFEE STATUS		A-K0100 K5022 = SAFE	
2.2		The Software Ratemeter, which is part of the DFEE software, will switch OFF the detector HV if the processed trigger count exceeds a predefined limit (default is 25000) over an 8 second period. NOTE: The Software Ratemeter is only active when the DFEE is in Normal Data Taking or in Diagnostic states.			



JEMX1 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS INTEGRAL FOP

Author : M.Rezazad
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Step	Time	Event Description	TC	TM	Comments
2.3		The detector HV switch OFF action of both the Hard Wired and Software Internal Ratemeters is reported in the following TM: TM: EXT HV OFF TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE NOTE: Autonomous recovery will not be invoked following a Hard Wired as well as a Software Internal Ratemeter induced HV switch OFF.		A-K0100 K5584 = ACTIVE [1] K5001 = 0.0 V [0] K5002 = 0.0 V [0] K5376 = 0.0 V [0] KD5580D = 0.0 V [0]	
3		Recovery Action			
3		Immediately send the SAFE command to make sure that the JEMX1 DFEE is in SAFE Mode. TC: STATE SAFE CEV: DFEE STATUS	K0008	A-K0100 K5022 = SAFE [1]	Safe command can be sent from any Mode
4		Inform the JEMX PI/Representative in the earliest opportunity.			
5		When the cause of HV switch OFF by Internal Ratemeters are known and disappeared and only with the confirmation of the JEMX PI, the JEMX1 DFEE can be switched to SETUP Mode: TC: STATE SETUP CEV: DFEE STATUS	K0009	A-K0100 K5022 = SETUP [5]	
6		If required, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
7		END			
7		End of procedure.			



JEMX1 RECOVERY FROM ESAM

Author : M.Rezazad
 Filename : CRP_JEM1_5100.PRC
 Date Last Modified : Mon 02 Sep 2002

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JEMX1 RECOVERY FROM ESAM

Issue: 1.0

Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX1 DFEE from SAFE state invoked by the Emergency Sun Acquisition Mode (ESAM).			
1.1		Required Configuration JEMX1 Detector HV OFF and DFEE in SAFE state by ESAM trigger.			
1.2		Special Operational Constraints Spacecraft recovered from ESAM and the ACC in IPS Mode.			
2		Troubleshooting			
2		When the S/C is in Emergency Sun Acquisition Mode, the "FCE ESA Mode Active" and the "BCP ESAM" flags are activated: TM: ESA MODE ACTIVE TM: ESAM FLAG TM: ESAM The presence of the ESAM Active flags in the BCP causes the JEMX DPE to bring the DFEE in SAFE state and the Detector High Voltages switched OFF. TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE The following OEM is generated when auto-shut-down starts:		A-A0013, A-K0110 A9134 = ACTIVE [1] D5219 = ACTIVATED [1] K5320 = ACTIVATED [1] A-K0100 K5022 = SAFE [1] K5001 = 0.0 V [0] K5002 = 0.0 V [0] K5376 = 0.0 V [0] KD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 3.7.5.2.8.7 and 4.3.1.



JEMX1 RECOVERY FROM ESAM

Author : M.Rezazad
 Filename : CRP_JEM1_5100.PRC
 Date Last Modified : Mon 02 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		1536 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X1 AUTO EVENT 1 OEM Description: "Autonomous Event: Shutdown initiated" Field#2 => Actual Level Filed#3 => Target Level NOTE: Autonomous recovery from ESAM shut-down is not implemented for JEMX and the DFEE should be brought back to operational state by ground, after the S/C is safely recovered from ESAM.			
3		Recovery Action			
3		WAIT for the spacecraft to be fully recovered from ESAM to IPS Mode and nominal operation to be resumed: TM: ACC MODE ACTIVE TM: ESA MODE ACTIVE TM: ESAM FLAG TM: ESAM		A-A0013, A-K0110 A5004 = IPS [5] A9134 = INACTIVE [0] D5219 = NOTACTIVATED [0] K5320 = NOTACTIVATED [0]	
4		Command the JEMX1 DFEE to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	K0009	A-K0100 K5022 = SETUP [5]	
5		If required, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
6		END			
6		End of procedure.			



JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM1_5110.PRC
 Date Last Modified : Mon 02 Sep 2002

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CRP_JEM1_5110 JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF Issue: 1.0 Mon 02 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX1 DFEE from SAFE state invoked by the "Instruments Imminent Off" flag of the BCP.			
1.1		Required Configuration JEMX1 Detector HV OFF and DFEE in SAFE state or DFEE deactivated.			
1.2		Special Operational Constraints Spacecraft recovered from the condition which had caused the Instruments Imminent Off command to be sent.			
2		Troubleshooting			
2		When the Instruments Imminent Off TC is sent from ground, the BCP Instruments Imminent Off flag is triggered: TM: IMM INSTRU OFF TM: SWITCH OFF IMM The presence of the Instruments Imminent Off flag in the BCP causes the JEMX DFEE Context to be saved in the DPE and the DFEE will be set to SAFE state with the Detector High Voltages switched OFF: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE The following OEM is generated when auto-shut-down starts:		A-K0110 D5212 = OFF IMMINENT [1] K5314 = OFF IMMINENT [1] A-K0100 K5022 = SAFE [1] K5001 = 0.0 V [0] K5002 = 0.0 V [0] K5376 = 0.0 V [0] KD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 3.7.5.2.8.8 and 4.3.1.



JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM1_5110.PRC
 Date Last Modified : Mon 02 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		1536 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X1 AUTO EVENT 1 OEM Description: "Autonomous Event: Shutdown initiated" Field#2 => Actual Level Filed#3 => Target Level NOTE: Autonomous recovery from Instruments Imminent Off is not implemented for JEMX and the DFEE should be brought back to operational state by ground.			
3		Recovery Action			
3		WAIT for the spacecraft to be fully recovered from the emergency condition and nominal operation to be resumed: TM: IMM INSTRU OFF TM: SWITCH OFF IMM		A-K0110 D5212 = OFF NOT IMMI [0] K5314 = OFF NOT IMM [0]	
4		IF the JEMX1 DFEE is switched OFF: TM: LCL STA JEM-X1 A TM: LCL CUR JEM-X1 A TM: LCL STA JEM-X1 B TM: LCL CUR JEM-X1 B THEN GOTO step 5 ELSE GOTO step 6 END IF		A-K0100 P2106 = OPEN [0] P2004 = 0.0 A P2156 = OPEN [0] P2054 = 0.0 A	
5		Execute the following procedure to activate the JEMX1 DFEE and restore the Context to DFEE: FCP_JEM1_0021 : : JEMX1 DFEE ACTIVATION			
5.1		GOTO step 7			
6		Command the JEMX1 DFEE to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	K0009	A-K0100 K5022 = SETUP [5]	



JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

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Step	Time	Event Description	TC	TM	Comments
7		If required, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		End of procedure.			



JEMX1 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

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JEMX1 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM

Author : M.Rezazad
 Filename : CRP_JEM1_5120.PRC
 Date Last Modified : Mon 02 Sep 2002

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JEMX1 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM Issue: 1.0 Mon 02 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX1 from high radiation DFEE SAFE state invoked by IREM (Broadcast Packet Radiation Monitor Count Rates).			
1.1		Required Configuration JEMX1 Detector HV OFF and DFEE in SAFE state by IREM.			
1.2		Special Operational Constraints BCP Radiation Monitor Count Rates back below the safe limits.			
2		Troubleshooting			
2		The Broadcast Packet Radiation Monitor Count Rates from IREM are used as indicators of an enhanced radiation environment. When any of the BCP RMC Rates exceeds the predefined corresponding higher radiation threshold of JEMX, the Detector High Voltages will be switched OFF and the DFEE will be placed in SAFE state: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE		A-K0100 K5022 = SAFE [1] K5001 = 0.0 V [0] K5002 = 0.0 V [0] K5376 = 0.0 V [0] KD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 4.3.4 and 4.3.5.



JEMX1 RECOVERY FROM HIGH RADIATION SAFE STATE BY IREM

Author : M.Rezazad
 Filename : CRP_JEM1_5120.PRC
 Date Last Modified : Mon 02 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		NOTE: Autonomous recovery will be initiated when the RMC Rates have fallen below the lower radiation thresholds of JEMX1 and remain low continuously for 75 BCP cycles (10 minutes). The auto-recovery will bring the JEMX1 DFEE in SETUP state.			
3		Recovery Action			
3		<p>WAIT for the BCP RMC Rates to fall below the lower radiation thresholds of JEMX1 and remain low continuously for 75 BCP cycles (10 min) and the initiation of the recovery action.</p> <p>The following OEM is generated when auto-recovery starts:</p> <p>1536 (APID) OEM Number: 233 OEM CLASS: 0 JEM-X1 AUTO EVENT 3</p> <p>OEM Description: "Autonomous Event: Recovery initiated"</p> <p>Field#2 => Actual Level Filed#3 => Target Level</p> <p>The auto-recovery action should place the JEMX1 DFEE into SETUP state.</p> <p>TM: DFEE STATUS</p>		<p>A-K0100</p> <p>K5022 = SETUP [5]</p>	
4		The following two steps can be performed to make sure that the BCP RMC Rates are below the lower RMC thresholds of JEMX1.			
4.1		<p>Report the JEMX1 RMC thresholds.</p> <p>TC: REP THRESH RMC TM_PKT: REP THRESH RMCR</p>	K0047	<p>A-K0200</p> <p>80025</p>	



JEMX1 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM

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Step	Time	Event Description	TC	TM	Comments
		TM: : TID TM: : FID TM: : RMC#1 ENTER TM: : RMC#1 EXIT TM: : RMC#2 ENTER TM: : RMC#2 EXIT TM: : RMC#3 ENTER TM: : RMC#3 EXIT		K5500 = K5600 = K5423 = K5424 = K5425 = K5426 = K5427 = K5428 =	
4.2		Verify that the BCP RMC Rates are below the lower JEMX1 RMC thresholds. TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #1		A-K0110 D5214 < K5424 D5215 < K5426 D5214 < K5428	
5		When the radiation count rates from IREM are back within the nominal operational limits and the JEMX1 DFEE state is recovered to SETUP, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
6		END			
6		End of procedure.			



JEMX1 RECOVERVRY FROM HIGH RADIATION SAFE STATE BY IREM

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JEMX1 RECOVERY AFTER DNEL

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 Date Last Modified : Mon 02 Sep 2002

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JEMX1 RECOVERY AFTER DNEL

Issue: 1.0

Mon 02 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		UHeader			
1		Purpose To recover JEMX1 from DPE switch OFF invoked by 'DNEL'.			
1.1		Required Configuration JEMX1 DFEE and DPE switched OFF and the S/C fully recovered from DNEL emergency.			
1.2		Special Operational Constraints The recovery should be performed after the full recovery from DNEL and only by request from SOM or the responsible SOE.			
2		Troubleshooting			
2		The DNEL condition causes the deactivation of JEMX DPE and switch OFF of the DPE heaters. NOTE: The main DPE heater is switched ON by the Eclipse-To-Sun sequence and the redundant heater should be switched ON as part of the S/C DNEL recovery procedure.			
3		Recovery			
3		WAIT for full recovery of the S/C from DNEL emergency and GO-AHEAD of the SOM or the responsible SOE before bringing JEMX1 back to operational status. The following TM indicate the recovery from DNEL and re-activation of the DPE redundant heater: TM: DNEL BAT1 STAT 1 TM: DNEL BAT1 STAT 2 TM: DNEL BAT2 STAT 1 TM: DNEL BAT2 STAT 2		A-P2021 P3053 = NORM POW MOD [0] P3054 = NORM POW MOD [0] P3055 = NORM POW MOD [0] P3056 = NORM POW MOD [0]	



JEMX1 RECOVERY AFTER DNEI

Author : M.Rezazad
 Filename : CRP_JEM1_5130.PRC
 Date Last Modified : Mon 02 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		TM: TSW STA JDPE1 HB		A-K0010 T8111 = CLOSE [1]	
4		Reactivate JEMX1 to nominal operational status.			
4.1		Re-activate JEMX1 DPE and CSSW. Execute procedure: FCP_JEM1_0010 : : JEMX1 DPE AND CSSW ACTIVATION			
4.2		Perform the IASW DPE patch for BCP Pointing Number interpretation correction. Execute procedure: FCP_JEM1_0011 : : JEMX1 IASW DPE PATCH FOR BCP PID INTERPRETATION			
4.3		Activate JEMX1 IASW. Execute procedure: FCP_JEM1_0015 : : JEMX1 IASW ACTIVATION			
4.4		Enable BCP distribution to JEMX1. Execute procedure: FCP_JEM1_0016 : : JEMX1 ENABLE BCP DISTRIBUTION			
4.5		Perform TM check on JEMX1 IASW. Execute procedure: FCP_JEM1_0017 : : JEMX1 IASW EXTENDED TM CHECK			
4.6		Activate JEMX1 DFEE for the first time after DPE switch ON. Execute procedure: FCP_JEM1_0020 : : JEMX1 DFEE 1st ACTIVATION AFTER DPE SWITCH-ON			
4.7		If required, configure JEM-X1 for nominal science operations. Execute procedure:			



JEMX1 RECOVERY AFTER DNEL

Author : M.Rezazad
Filename : CRP_JEM1_5130.PRC
Date Last Modified : Mon 02 Sep 2002

INTEGRAL FOP
CRP_JEM1_5130
Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		FCP_JEM1_1010 : : JEMX1 CONFIGURATION SETTING FOR SCIENCE OPS			
5		End			
5		End of procedure.			



JEMX1 RECOVERY AFTER DNEL

Author : M.Rezazad
Filename : CRP_JEM1_5130.PRC
Date Last Modified : Mon 02 Sep 2002

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JEM-X1 UNCONDITIONED DFEE SWITCH OFF

Author : M.Rezazad
Filename : CRP_JEM1_9010.PRC
Date Last Modified : Wed 02 Oct 2002

INTEGRAL FOP
CRP_JEM1_9010
Issue Number : 1.0
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Step	Time	Event Description	TC	TM	Comments
		The following OEM is expected from the DPE 1536 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X1 AUTO EVENT 1			= Shutdown initiated
4		Inform the JEMX PI at the earliest opportunity.			
5		END			
5		END OF PROCEDURE			



JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_JEM1_9531.PRC
 Date Last Modified : Mon 02 Sep 2002

INTEGRAL FOP
CRP_JEM1_9531
 Issue Number : 1.0
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CRP_JEM1_9531

JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET Issue: 1.0

Mon 02 Sep 2002

Author: F Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover from a DPE reset following a Watchdog (WD) timeout or EDAC DEF (Double Event Failure)			
1.1		REQUIRED CONFIGURATION JEMX1 DPE powered on (FCP_JEM1_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		TROUBLESHOOTING			
2		Following a WD or EDAC DEF reset, the DPE performs a full boot and goes into an NOT-RUNNING, NOT-WAIT, NOT-RESET state, which can be acknowledged by the following TM: TM: JEMX1 RUNNING TM: JEMX1 WAIT TM: JEMX1 RESET		D6303 = NOT RUNNING [0] D6301 = NOT WAIT [0] D6300 = NOT RESET [0]	A-K0020
3		RECOVERY TO RUNNING STATE			
3		On TMSPAON, select the On-Event folder and clear IMCS OEM Storage Counter for APID 1536 TM: JEMX1 GROUND OEM		KU9041 = 0	A-K0010
3.1		Send DPE Suspend TC TC: JEMX1 SUSPEND CEV: JEMX1 WAIT TM: JEMX1 RESET	D7503	D6301 = WAIT [1] D6300 = NOT RESET [0]	



JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_JEM1_9531.PRC
 Date Last Modified : Mon 02 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
3.2		Send DPE GO TC to recover RUNNING state CEV: JEMX1 RUNNING TM: JEMX1 WAIT	D7504		
				D6303 = RUNNING [1] D6301 = NOT WAIT [0]	
3.3		WAIT for DPE power-up initialisation completion marked by the OEM 1536 (APID) OEM Number: 0 OEM CLASS: 0 JEM-X1 CAUSE OF CPU RESET			
3.4		Check that Boot BIT has passed TM: JEMX1 SELFTST ER TM: JEMX1 CHKSUM MIS TM: JEMX1 BUILTIN ER TM: JEMX1 ANOMALY TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG			A-K0020
				D6313 = NO ERROR [0] D6314 = NO ERROR [0] D6315 = NO ERROR [0] D6308 = NO ANOMALY [0] K9033 = PASSED [1] K9034 = PASSED [1] K9035 = PASSED [1]	
3.5		On VPD display retrieve OEM 0 and check the reason for the reset : IF TM: CAUSE CPU RESET THEN GOTO step 4 ENDIF IF TM: CAUSE CPU RESET THEN GOTO step 5 ENDIF			
				K9072 = WD RESET [3] K9072 = EDAC DEF [4]	OEM Parameter OEM Parameter
4		WD RESET RE-ENABLE			
4		Check WD Reset Enable/Disable status on PCC Control Register NOTE: After WD reset, the WD reset status is expected to be disabled			A-K0020



JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_JEM1_9531.PRC
 Date Last Modified : Mon 02 Sep 2002

INTEGRAL FOP
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Step	Time	Event Description	TC	TM	Comments
		TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		K9223 = DISABLED [0] K9268 = 1 [1]	
4.1		Configure WatchDog using TC(13,2) to re-enable the WD reset capability TC: JEMX1 WD CONFIG TC_Par: . : JEMX1 ENADISA WD TC_Par: . : JEMX1 RESETWD TO TC_Par: . : JEMX1 WD TIMEOUT	K9044 K9000 = ENABLED K9001 = ENABLED K9012 = 0.19 sec		
4.2		Check WD Reset Enable/Disable status on PCC Control Register TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		K9223 = ENABLED [1] K9268 = 1 [1]	
5		DPE TIME SYNCHRONISATION			
5		Synchronize LOBT with COBT TC: SYNC JEMX1 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3706		A-K0010
5.1		Request Time Synchronisation reports TC: VER TIME JEMX1 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB	D3716	230000 84503	NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison



JEMX1 DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
Filename : CRP_JEM1_9531.PRC
Date Last Modified : Mon 02 Sep 2002

INTEGRAL FOP
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Step	Time	Event Description	TC	TM	Comments
		TM: VERIF TIME CDMU TM: TIME VERIF JEMX1		DU8415 = [] KU9011 = []	COBT LOBT
6		END			
6		END OF PROCEDURE			



INTEGRAL FLIGHT OPERATIONS PLAN

JEMX2 CONTINGENCY RECOVERY PROCEDURES

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CRP_JEM2_0021	JEMX2 DFEE ACTIVATION WITH THE REDUNDANT POWER LINE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5010	JEMX2 DFEE POWER CYCLE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5020	JEMX2 DPE AND DFEE POWER CYCLE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5030	JEMX2 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5040	JEMX2 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5050	JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5060	JEMX2 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5100	JEMX2 RECOVERY FROM ESAM	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5110	JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5120	JEMX2 RECOVERVRY FROM HIGH RADIATION SAFE STATE BY IREM	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_5130	JEMX2 RECOVERY AFTER DNEL	Issue: 1.0	Wed 04 Sep 2002	Author: M.Rezazad
CRP_JEM2_9010	JEMX2 UNCONDITIONED DFEE SWITCH OFF	Issue: 1.0	Thu 03 Oct 2002	Author: M.Rezazad
CRP_JEM2_9531	JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET	Issue: 1.0	Wed 04 Sep 2002	Author: F Cordero



INTEGRAL FLIGHT OPERATIONS PLAN

JEMX2 CONTINGENCY RECOVERY PROCEDURES

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JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

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 Filename : CRP_JEM2_0010.PRC
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CRP_JEM2_0010 JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate the JEMX2 DPE and CSSW with the redundant power line and relay. DPE LOBT synchronisation with CDMU COBT is included in this procedure.			
1.1		Required S/C Configuration - CDMU must be in OPERATIONAL Mode with minimum 3 PST windows allocated to JEMX2 - BRAT must be 2b with 184 p/8s programmed for JEMX2 - DPE substitution heaters enabled			
1.2		Special Operational Constraints S/C not in DNEL			
1.3		Required Input And Interfaces None			
2		Preliminary Checks			
2		Check TM bandwidth credit in the BRAT table TM: BW CREDIT JEM X2 Check DPE Dc/Dc converter relays are open TM: JDPE2 RELAY0 STA TM: JDPE2 RELAY1 STA Check DPE substitution heaters status TM: P HLCL 6B1 STA TM: TSW STA JDPE2 HB		D5006 >= 3 p/8s L9801 = OFF [1] L9802 = OFF [1] P2177 = CLOSE [1] T8106 = CLOSE [1]	A-L0010 The relays are supposed to be always open if DPE is off. Opened by PPDU init Opened by PPDU init or DNEL



JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0010.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: P HLCL 6A1 STA TM: TSW STA JDPE2 HA Check DPE start-up temperature TM: JDPE2 TEMP MON TM: TCS TH JDPE2		P2127 = CLOSE [1] T8006 = CLOSE [1] -20.0 degC < T5036 < 40.0 degC -20.0 degC < T5062 < 50.0 degC	Closed at PPDU init. Opened by SUN->ECL sequence. Closed by ECL->SUN sequence. Opened at PPDU init. Opened by SUN->ECL sequence. Closed by ECL->SUN sequence.
3		On TM Spacon, click on Correlator tab and select System time			
4		On Manual Stack, load the sequence LC0010 containing the commands of this procedure			
5		DPE and CSSW Activation			
5		On TM Spacon, click on the On-Event tab and set at 0 the OEM Storage Counter for APID=1664 (if different than 0) TM: JEMX2 GROUND OEM		LU9041 = 0	A-L0010
5.1		Check PPDU Board 1B GSW 1 is closed TM: P BD1B GSW1 STA Close LCL B DPE TC: LCL JDPE2 B ON CEV: LCL STA JDPE2 B TM: LCL CUR JDPE2 B TM: JDPE2 5V RAM TLM	P4251	P2150 = CLOSE [1] P2151 = CLOSE [1] P2050 <= 0.1 A 4.77 V < L9800 < 5.16 V	The GSW is supposed to be always closed after P/L commissioning. It can be opened by PPDU init. [Red. TC: = P4751]
5.2		Close DPE Dc/Dc Power Supply Relay 1			



JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0010.PRC
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Step	Time	Event Description	TC	TM	Comments
		TC: JDPE2 RELAY1 ON CEV: JDPE2 RELAY1 STA TM: LCL CUR JDPE2 B The following OEM is expected: 129 (APID) OEM Number: 82 OEM CLASS: 1 EX OBIH TM ST11 WRONG RBI STATUS	L9805	L9802 = ON [0] 0.2 A < P2050 < 0.27 A	
5.3		WAIT for DPE power-up initialisation completion marked by the OEM 1664 (APID) OEM Number: 0 OEM CLASS: 0 JEM-X2 CAUSE OF CPU RESET TM: CAUSE CPU RESET		L9072 = POWER UP [0]	OEM Parameter
6		Post Activation Checks			
6		Check DPE is in Running State and that TM is received TM: JEMX2 RUNNING TM: JDPE2 HK PKT SSC		D6403 = RUNNING [1] LUSSC1 = <incrementing>	A-L0010
6.1		Check DPE Power Supply and Thermal TM TM: 5VDC SEC V TM: 5VDCRAM SEC V TM: 15VDCRELAY SEC V TM: 15VDC SEC V TM: -15VDC SEC V TM: DPE HOTPOINT TEM		4.9 V < L9027 < 5.1 V 4.95 V < L9028 < 5.15 V 16.0 V < L9029 < 16.5 V 14.7 V < L9030 < 15.4 V -15.45 V < L9031 < -14.7 V -6.86 degC < L9032 < 50.0 degC	
6.2		Check results of Built In Tests TM: JEMX2 SELFTST ER TM: JEMX2 CHKSUM MIS TM: JEMX2 BUILTIN ER TM: JEMX2 ANOMALY TM: SELF TEST ERROR TM: CHKSUM MISMATCH		D6413 = NO ERROR [0] D6414 = NO ERROR [0] D6415 = NO ERROR [0] D6408 = NO ANOMALY [0] L9253 = NO ERROR [0] L9254 = NO ERROR [0]	A-L0020



JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0010.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: BUILT IN TEST ER TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG		L9255 = NO ERROR [0] L9033 = PASSED [1] L9034 = PASSED [1] L9035 = PASSED [1]	A-L0010
6.3		Check CPU configuration and control registers TM: UP CONF REG TM: PCC CONTROL REG		L9036 = A1E0 (Hex) L9037 = F155 (Hex)	A-L0030 According to INT-MA-AI-0001 sect.5.8.3
7		TC Link Test And LOBT Synchronization			
7		Send Test TC(13,1) to check if TC path up to CSSW is working TC: TEST COMMAND TM: AC ONGR TCPCOUNT	L9043	L9043 = 1 [1]	A-L0010 The counter increases from 0 to 1
7.1		Synchronize LOBT with COBT TC: SYNC JEMX2 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3707		
7.2		Request Time Synchronisation reports TC: VER TIME JEMX2 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison TM: VERIF TIME CDMU TM: TIME VERIF JEMX2	D3717	230000 89503 DU8415 = [] LU9011 = []	COBT LOBT



JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
Filename : CRP_JEM2_0010.PRC
Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
8		On TM Spacon, click on Correlator tab and select Correlator time			
9		The DPE is now active with CSSW only running (IASW has not started yet) with LOBT synchronised with COBT			
10		End			
10		End of procedure.			



JEMX2 DPE AND CSSW ACTIVATION WITH THE REDUNDANT POWER-LINE/RELAY INTEGRAL FOP

Author : M.Rezazad
Filename : CRP_JEM2_0010.PRC
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JEMX2 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH ON INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0020.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_0020

JEMX2 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH ON Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate JEMX2 DFEE with the redundant power line for the 1st time after DPE switch on and uplink DFEE SW patches. After activation, the DFEE will be in Setup mode with HV off.			
1.1		Required S/C Configuration JEMX2 IASW started (FCP_JEM2_0015 executed)			
1.2		Special Operational Constraints S/C in Sunlight This procedure shall be executed only if it is the 1st time the DFEE is to be switched on after DPE and IASW activation. For subsequent activations, the procedure CRP_JEM2_0021 shall be used.			
1.3		Required Inputs And Interfaces None			
2		Preliminary Checks			A-L0100
2		Check DFEE start-up temperature TM: JDFEE2 THERM A TM: JDFEE2 THERM B TM: JDFEE2 THERM C		T5115 > -35.0 degC T5037 > -35.0 degC T5038 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board
2.1		Check IASW is started TM: JEM2 IASW STATUS		L5349 = STARTED [4369]	



JEMX2 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH ON INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0020.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
3		On Manual Stack, load the sequence LC0020 containing the commands of this procedure			
4		DFEE Activation			A-L0100
4		Check PPDU BOARD 1B GSW 1 is closed			It can be opened by PPDU re-Initialisation
		TM: P BD1B GSW1 STA		P2150 = CLOSE [1]	
4.1		Close PPDU JDFEE2 LCL			
		TC: LCL JEM-X2 B ON	P4255		[Red. TC: = P4755]
		CEV: LCL STA JEM-X2 B		P2152 = CLOSE [1]	
		TM: LCL CUR JEM-X2 B		0.94 A < P2051 < 1.2 A	
4.2		TC: STATE SAFE	L0008		
		CEV: DFEE STATUS		L5022 = SAFE [1]	
4.3		TC: STATE SETUP	L0009		
		CEV: DFEE STATUS		L5022 = SETUP [5]	
		TM: DFEE STATE IASW		L5462 = SETUP	
		TM: WAN SHUTDOWN LEV		L5382 = NORMAL	
		TM: ACT SHUTDOWN LEV		L5381 = NORMAL	
4.4		Set CPU speed and Wait states			
		TC: SET CPU STATUS	L0059		
		TC_Par: . : CPU STATE	L0178 = 16 MHZ		At start-up the processor clock is 8 MHz / 1 Wait state
		TM: CPU MODE GOAL		L5582 = 16 MHZ	
		TM: CPU MODE		L5583 = 16 MHZ	
4.5		Execute procedure FCP_JEM2_0025 "JEMX2 DFEE SW Rel.4.1 Patch Sequence"			



JEMX2 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH ON INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_JEM2_0020.PRC
 Date Last Modified : Wed 04 Sep 2002

CRP_JEM2_0020
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Step	Time	Event Description	TC	TM	Comments
		The procedure implements a number of correction patches to the DFEE SW. These patches will automatically be stored in the DPE memory and should not be uplinked again unless the DPE memory is switched off.			
5		Post Activation Checks			A-L0100
5		Check TM generation from DFEE TM: HK CYCLE COUNTER		L5374 = <incrementing every 8s>	
5.1		Check DFEE Power Supply and Thermal TM TM: VOLTAGE +5V DIG TM: CURRENT +5V DIG TM: VOLTAGE +5V ANA TM: VOLTAGE -5V ANA TM: VOLTAGE +12V TM: CURRENT +12V TM: VOLTAGE -12V TM: CURRENT -12V TM: TEMP BOX2 TM: TEMP CPU TM: TEMP LVPS BRIDGE TM: TEMP DDHK TM: TEMP ANODE TM: TEMP ANALOG 4		4.75 V < L5105 < 5.25 V 0.4 A < L5106 < 0.8 A 4.75 V < L5107 < 5.25 V -5.25 V < L5108 < -4.75 V 11.53 V < L5109 < 12.5 V 0.5 A < L5110 < 0.9 A -12.47 V < L5111 < -11.5 V 0.5 A < L5112 < 0.9 A -30.0 degC < L5113 < 50.0 degC -30.0 degC < L5114 < 40 degC -30.0 degC < L5115 < 40 degC -30.0 degC < L5116 < 65.0 degC -30.0 degC < L5117 < 65.0 degC -30.0 degC < L5118 < 55.0 degC	DFEE box - connector J01 inside DFEE - CPU board inside DFEE - LVPS cooling bridge inside DFEE - DDHK board DFEE box - Mother Board at ANOD DFEE box - Mother Board at ANA2
5.2		Check Detector HV and Thermal TM TM: HV DELTA 12 bits TM: SET DELTA TM: HVCATHODE 12 bit		L5001 = 0.0 V L5376 = 0.0 V L5002 = 0.0 V	



JEMX2 DFEE 1st ACTIVATION WITH THE RED POWER LINE AFTER DPE SWITCH ON INTEGRAL FOP

Author : M.Rezazad
Filename : CRP_JEM2_0020.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: SET CATHODE TM: DET PRESSURE 1 TM: DET PRESSURE 2 TM: DET TEMP 1 TM: DET TEMP 2 TM: HV POW S TEMP#1 TM: HV POW S TEMP#2 Check default discriminator and anodes setting TM: LOW DICRIM TM: ANODE SETTING 1 TM: ANODE SETTING 2 TM: ANODE SETTING 3 TM: ANODE SETTING 4		LD5580D = 0.0 V L5101 > 137000.0 Pa L5102 > 137000.0 Pa -40.05 degC < L5103 < 35.0 degC -40.05 degC < L5104 < 35.0 degC L5379 < 75.88 degC L5380 < 75.88 degC L5007 = 15 L5003 = ENABLED L5004 = ENABLED L5005 = ENABLED L5006 = ENABLED	Detector Electronics Detector Electronics inside DFEE - HVPS board inside DFEE - HVPS board
5.3		JEMX2 is now activated in SETUP Mode. In this mode the configuration settings necessary for Data Taking/Diagnostic mode can be performed.			
6		End			
6		End of procedure.			



JEMX2 DFEE ACTIVATION WITH THE REDUNDANT POWER LINE

Author : M.Rezazad
 Filename : CRP_JEM2_0021.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_0021

JEMX2 DFEE ACTIVATION WITH THE REDUNDANT POWER LINE Issue: 1.0 Wed 04 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To activate JEMX2 DFEE with the redundant power line and restore the Context, including the SW patches, saved in the DPE. After activation the DFEE will be in Setup mode with HV off.			
1.1		Required S/C Configuration JEMX2 IASW started (FCP_JEM2_0015 executed)			
1.2		Special Operational Constraints S/C in Sunlight JEMX DFEE 1st activation procedure FCP_JEM2_0020 (or CRP_JEM2_0020) already executed and DPE not switched off/reinitialised since its execution.			
1.3		Required Inputs And Interfaces None			
2		Preliminary Checks			A-L0100
2		Check DFEE start-up temperature TM: JDFEE2 THERM A TM: JDFEE2 THERM B TM: JDFEE2 THERM C		T5115 > -35.0 degC T5037 > -35.0 degC T5038 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board
2.1		Check IASW is started TM: JEM2 IASW STATUS		L5349 = STARTED [4369]	
3		On Manual Stack, load the sequence LC0021 containing the commands of this procedure			
4		DFEE Activation			A-L0100



JEMX2 DFEE ACTIVATION WITH THE REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
4		Check PPDU BOARD 1B GSW 1 is closed TM: P BD1B GSW1 STA		P2150 = CLOSE [1]	It can be opened by PPDU re-Initialisation
4.1		Close PPDU JDFFEE2 B LCL TC: LCL JEM-X2 B ON CEV: LCL STA JEM-X2 B TM: LCL CUR JEM-X2 B	P4255	P2152 = CLOSE [1] 0.94 A < P2051 < 1.2 A	[Red. TC: = P4755]
4.2		TC: STATE SAFE CEV: DFEE STATUS	L0008	L5022 = SAFE [1]	
4.3		Restore DFEE Context (Memory Patches and configuration settings) TC: LOAD DPE TO DFEE	L0030		
4.4		Verify that the number of restored patches is as expected. NOTE: The number of restored patches should be the same as the number of the patches that were sent during the latest DFEE SW patch sequence. TM: MEMORY PATCHES Refer to procedure: FCP_JEM2_0025 : : JEMX2 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)		L5372 = [expected value]	A-L0100
4.5		TC: STATE SETUP CEV: DFEE STATUS TM: DFEE STATE IASW TM: WAN SHUTDOWN LEV TM: ACT SHUTDOWN LEV	L0009	L5022 = SETUP [5] L5462 = SETUP L5382 = NORMAL L5381 = NORMAL	
4.6		Set CPU speed and Wait states			



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Step	Time	Event Description	TC	TM	Comments
		TC: SET CPU STATUS TC_Par: . : CPU STATE TM: CPU MODE GOAL TM: CPU MODE	L0059 L0178 = 16 MHZ	L5582 = 16 MHZ L5583 = 16 MHZ	At start-up the processor clock is 8 MHz / 1 Wait state
4.7		Set Autorecovery level TC: SET AUTO CONTROL TC_Par: . : AUTORECOVERY LEV TC_Par: . : CPU MODE TM: AUTO RECOV INFO TM: CPU MODE GOAL	L0062 L0182 = DFEE CONTEXT L0183 = 16 MHZ	L5458 = DFEE CONTEXT [3] L5582 = 16 MHZ [3]	
4.8		Report and verify the loaded DFEE Integer and Float parameters. Refer to the following procedure for the expected values of the loaded DFEE Integer and Float parameters: FCP_JEM1_0025 : : JEMX1 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)			
4.8.1		Report the SW integer parameters table and check TC: SW READ INT	L0021	A-L0220, A-L0221	
4.8.2		Report the SW Float parameters table and check TC: SW READ FLOAT	L0022	A-L0222, A-L0223	
5		Post Activation Checks			A-L0100
5		Check TM generation from DFEE TM: HK CYCLE COUNTER		L5374 = <incrementing every 8s>	
5.1		Check DFEE Power Supply and Thermal TM TM: VOLTAGE +5V DIG		4.75 V < L5105 < 5.25 V	



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Step	Time	Event Description	TC	TM	Comments
		TM: CURRENT +5V DIG TM: VOLTAGE +5V ANA TM: VOLTAGE -5V ANA TM: VOLTAGE +12V TM: CURRENT +12V TM: VOLTAGE -12V TM: CURRENT -12V TM: TEMP BOX2 TM: TEMP CPU TM: TEMP LVPS BRIDGE TM: TEMP DDHK TM: TEMP ANODE TM: TEMP ANALOG 4		0.4 A < L5106 < 0.8 A 4.75 V < L5107 < 5.25 V -5.25 V < L5108 < -4.75 V 11.53 V < L5109 < 12.5 V 0.5 A < L5110 < 0.9 A -12.47 V < L5111 < -11.5 V 0.5 A < L5112 < 0.9 A -30.0 degC < L5113 < 50.0 degC -30.0 degC < L5114 < 40 degC -30.0 degC < L5115 < 40 degC -30.0 degC < L5116 < 65.0 degC -30.0 degC < L5117 < 65.0 degC -30.0 degC < L5118 < 55.0 degC	DFEE box - connector J01 inside DFEE - CPU board inside DFEE - LVPS cooling bridge inside DFEE - DDHK board DFEE box - Mother Board at ANOD DFEE box - Mother Board at ANA2
5.2		Check Detector HV and Thermal TM TM: HV DELTA 12 bits TM: SET DELTA TM: HVCATHODE 12 bit TM: SET CATHODE TM: DET PRESSURE 1 TM: DET PRESSURE 2 TM: DET TEMP 1 TM: DET TEMP 2 TM: HV POW S TEMP#1 TM: HV POW S TEMP#2 Check anodes setting TM: ANODE SETTING 1		L5001 = 0.0 V L5376 = 0.0 V L5002 = 0.0 V LD5580D = 0.0 V L5101 > 137000.0 Pa L5102 > 137000.0 Pa -40.05 degC < L5103 < 35.0 degC -40.05 degC < L5104 < 35.0 degC L5379 < 75.88 degC L5380 < 75.88 degC L5003 = ENABLED	Detector Electronics Detector Electronics inside DFEE - HVPS board inside DFEE - HVPS board



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Step	Time	Event Description	TC	TM	Comments
		TM: ANODE SETTING 2 TM: ANODE SETTING 3 TM: ANODE SETTING 4		L5004 = ENABLED L5005 = ENABLED L5006 = ENABLED	
		JEMX2 is now activated in SETUP Mode. In this mode the configuration settings necessary for Data Taking/Diagnostic mode can be performed.			
6		End			
6		End of procedure.			



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JEMX2 DFEE POWER CYCLE

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JEMX2 DFEE POWER CYCLE

Issue: 1.0

Wed 04 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform a power cycle on JEM-X2 DFEE.			
1.1		REQUIRED CONFIGURATION JEMX2 DPE powered ON (FCP_JEM2_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		Save DFEE context in DPE and switch OFF DFEE. Execute procedure: FCP_JEM2_9010 : : JEMX2 DFEE SWITCH OFF			
3		Activate DFEE and restore DFEE context. Execute procedure: FCP_JEM2_0021 : : JEMX2 DFEE ACTIVATION			
4		If required, Configure JEM-X2 for nominal science operations. Execute procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
5		END			
5		END OF PROCEDURE			



JEMX2 DFEE POWER CYCLE

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JEMX2 DPE AND DFEE POWER CYCLE

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Date Last Modified : Wed 04 Sep 2002

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JEMX2 DPE AND DFEE POWER CYCLE

Issue: 1.0

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Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform a power cycle on JEM-X2 DPE and DFEE. NOTE: All memory patches to both DPE and DFEE and all post-launch updates to the software parameters need to be reloaded from the ground.			
1.1		REQUIRED CONFIGURATION JEMX2 DPE powered ON (FCP_JEM2_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		Switch OFF JEMX2 DFEE. Execute procedure: FCP_JEM2_9010 : : JEMX2 DFEE SWITCH OFF			
3		Disable BCP distribution to JEMX2. Execute procedure: FCP_JEM2_9001 : : JEMX2 DISABLE BCP DISTRIBUTION			
4		Switch OFF JEMX2 DPE. Execute procedure: FCP_JEM2_9000 : : JEMX2 DPE SWITCH OFF			
5		Re-activate JEMX2 DPE and CSSW. Execute procedure: FCP_JEM2_0010 : : JEMX2 DPE AND CSSW ACTIVATION			



JEMX2 DPE AND DFEE POWER CYCLE

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Step	Time	Event Description	TC	TM	Comments
6		Perform the IASW DPE patch for BCP Pointing Number interpretation correction. Execute procedure: FCP_JEM2_0011 : : JEMX2 IASW DPE PATCH FOR BCP PID INTERPRETATION			
7		Activate JEMX2 IASW. Execute procedure: FCP_JEM2_0015 : : JEMX2 IASW ACTIVATION			
8		Enable BCP distribution to JEMX2. Execute procedure: FCP_JEM2_0016 : : JEMX2 ENABLE BCP DISTRIBUTION			
9		Perform TM check on JEMX2 IASW. Execute procedure: FCP_JEM2_0017 : : JEMX2 IASW EXTENDED TM CHECK			
10		Activate JEMX2 DFEE for the first time after DPE switch ON. Execute procedure: FCP_JEM2_0020 : : JEMX2 DFEE 1st ACTIVATION AFTER DPE SWITCH-ON			
11		If required, configure JEM-X2 for nominal science operations. Execute procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
12		END			
12		END OF PROCEDURE			



JEMX2 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

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Step	Time	Event Description	TC	TM	Comments
		<p>The following two parameters indicate the "Actual Shutdown Level" which represents the current depth of shutdown, and the "Wanted Shutdown Level" which is a function of the information coming from the BCP and the mini_RTU readouts.</p> <p>TM: ACT SHUTDOWN LEV TM: WAN SHUTDOWN LEV</p> <p>The IASW always tries to keep the Actual shutdown level equal to the Wanted shutdown level which are both zero under normal operational conditions.</p> <p>As the wanted shutdown depth increases from 0 to higher values, the autoshutdown process performs its functions accordingly to bring the Actual Shutdown Level to the Wanted Shutdown Level.</p> <p>When the conditions which had caused the shutdown disappear, the Wanted Shutdown Level decreases and the action of the IASW in this case is also to bring the Actual Shutdown Level to that of the Wanted Shutdown Level through the Autorecovery process.</p> <p>NOTE: Autorecovery will be attempted only for Shutdown depths 50[Hex] up to 0[Hex]. For Shutdown depths below 50[Hex] (60, 70 and 80 [Hex]) automatic recovery will not be attempted.</p> <p>In case the automatic recovery mechanism fails, the Wanted shutdown level will have a lower value than the Actual shutdown level, leaving the unit in the SAFE mode.</p>		<p>A-L0100</p> <p>L5381 = L5382 =</p>	<p>For more explanation, refer to JEMX User Manual, sect. 3.7.5.2.9 "Shutdown and Recovery Scheme".</p>
3		Recovery To SETUP State.			
3		Inform JEMX PI/Representative as soon as possible and start manual recovery.			



JEMX2 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

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Step	Time	Event Description	TC	TM	Comments
5.2		Activate DFEE and restore DFEE context. Execute procedure: FCP_JEM2_0021 : : JEMX2 DFEE ACTIVATION			
5.3		GOTO step 7			
6		In this case the auto-recovery has failed to bring the DFEE back to SETUP state from SAFE.			
6.1		Send SAFE command. TC: STATE SAFE TM: DFEE STATUS	L0008	A-L0100 L5022 = SAFE [1]	
6.2		Switch to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	L0009	 L5022 = SETUP [5]	
6.3		Verify that the Context has been correctly restored in DFEE.		A-L0100	
6.3.1		TM: MEMORY PATCHES NOTE: The number of restored patches should be the same as the number of the patches that were sent during the latest DFEE S/W patch sequence. Refer to procedure: FCP_JEM2_0025 : : JEMX2 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)		L5372 = [expected value]	
6.3.2		The following OEM should NOT have been issued: 1664 (APID) OEM Number: 191 OEM CLASS: 0 JEM-X2 PROB DFEE 11 OEM Description: "Problems with communication with DFEE: Load DFEE context unsuccessful - check for CRCs failed"			



JEMX2 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

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Step	Time	Event Description	TC	TM	Comments
6.3.3		Report and verify the loaded DFEE Integer and Float parameters. Refer to the following procedure for the expected values of the loaded DFEE Integer and Float parameters: FCP_JEM2_0025 : : JEMX2 DFEE SW PATCH SEQUENCE (ver. 4.0 to 4.1)			
6.3.3.1		Report the SW integer parameters table and check TC: SW READ INT	L0021	A-L0220, A-L0221	
6.3.3.2		Report the SW Float parameters table and check TC: SW READ FLOAT	L0022	A-L0222, A-L0223	
6.4		IF the above checks fail and the Context is not correctly restored into DFEE THEN GOTO step 5.1 END IF			
7		After the conditions which caused the initiation of shutdown are known and disappeared and only with the confirmation of the JEMX PI, the following procedure can be used to bring JEMX2 back to operational conditions: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		END OF PROCEDURE			



JEMX2 MANUAL RECOVERY IN CASE OF AUTO-RECOVERY FAILURE

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JEMX2 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

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Step	Time	Event Description	TC	TM	Comments
		TM: ACT SHUTDOWN LEV TM: WAN SHUTDOWN LEV The IASW always tries to keep the Actual shutdown level equal to the Wanted shutdown level which are both zero under normal operational conditions. As the wanted shutdown depth increases from 0 to higher values, the autoshutdown process performs its functions accordingly to bring the Actual Shutdown Level to the Wanted Shutdown Level. In case the automatic shutdown mechanism fails, the Wanted shutdown level will have a higher value than the Actual shutdown level, leaving the unit in an unsafe state. The following OEM will be issued in case of the auto-shutdown failure: 1664 (APID) OEM Number: 232 OEM CLASS: 0 JEM-X2 AUTO EVENT 2 OEM Description: "Autonomous Event: Shutdown Failed"		L5381 = L5382 =	For more explanation, refer to JEMX User Manual, sect. 3.7.5.2.9 "Shutdown and Recovery Scheme".
3		Recovery Action			
3		The recovery action would be to save DFEE Context in DPE and switch OFF the JEMX2 DFEE. On Manual Stack, load the sequence LS9010 containing the required commands (based on FCP_JEM2_9010).			
3.1		Switch to SAFE mode TC: STATE SAFE CEV: DFEE STATUS	L0008	A-L0100 L5022 = SAFE [1]	Safe command can be sent from any Mode
3.2		Switch to SETUP mode TC: STATE SETUP	L0009		This step has a minimum duration of 8 seconds



JEMX2 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

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Step	Time	Event Description	TC	TM	Comments
		CEV: DFEE STATUS		L5022 = SETUP [5]	
3.3		Disable Autorecovery			Needed in order to make context restore working at manual reactivation
		TC: SET AUTO CONTROL	L0062 L0182 = NO RECOVERY L0183 = 16 MHZ		
3.4		Save DFEE Context into DPE			Must be the last command before switch off NOTE: This TC changes the DFEE mode to SAFE and switches OFF the Detector HV
		TC: SAVE DFEE IN DPE	L0031		
		CEV: DFEE STATUS		L5022 = SAFE [1]	
3.5		Open DFEE LCL A			
		TC: LCL JEM-X2 A OFF	P4004		[Red. TC: = P4504]
		CEV: LCL STA JEM-X2 A		P2102 = OPEN [0]	
		TM: LCL CUR JEM-X2 A		P2001 = 0.0 A	
		Open DFEE LCL B (redundant power line)			LCL B is nominally always open. It is closed only in case of LCL A/main power line failure.
		TC: LCL JEM-X2 B OFF	P4754		[Red. TC: = P4254]
		CEV: LCL STA JEM-X2 B		P2152 = OPEN [0]	
		TM: LCL CUR JEM-X2 B		P2051 = 0.0 A	
		The following OEM is expected from the DPE 1664 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X2 AUTO EVENT 1			



JEMX2 MANUAL SHUTDOWN IN CASE OF AUTO-SHUTDOWN FAILURE

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Step	Time	Event Description	TC	TM	Comments
		OEM Description: "Autonomous Event: Shutdown Initiated"			
4		Inform JEMX PI/Representative as soon as possible. NOTE: The operational state of the JEMX unit can be restored after the cause of the shutdown initiation is understood and disappeared, only with the confirmation of the JEMX PI.			
5		END			
5		END OF PROCEDURE			



JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM2_5050.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_5050 JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 DFEE from a spurious switch OFF which has occurred without saving the DFEE Context in the DPE.			
1.1		Required Configuration JEMX2 DFEE switched OFF and the IASW started.			
1.2		Special Operational Constraints Spacecraft recovered from the condition which had caused the spurious switch OFF of the DFEE. JEMX2 DFEE first activation procedure (FCP_JEM2_0020) already executed and the DPE not switched OFF or reinitialised since its execution.			
2		Troubleshooting			
2		This procedure should be executed if for any unexpected reason the JEMX2 DFEE is switched OFF without saving the Context in DPE before switch OFF. For example in case the Sun to Eclipse sequence is triggered without the eclipse entry time being reflected in the Broadcast Packet.			
3		Recovery Action			
3		Perform preliminary checks for DFEE activation.			
3.1		Check DFEE start-up temperature TM: JDFEE2 THERM A TM: JDFEE2 THERM B TM: JDFEE2 THERM C		A-L0100 T5115 > -35.0 degC T5037 > -35.0 degC T5038 > -35.0 degC	inside DFEE - LVPS PCB DFEE box - connector J06 DFEE box - connector board



JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

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Step	Time	Event Description	TC	TM	Comments
3.2		Check IASW is started TM: JEM2 IASW STATUS		L5349 = STARTED [4369]	
4		Activate the DFEE.		A-L0100	
4.1		Check PPDU BOARD 1A GSW 1 is closed TM: P BD1A GSW1 STA		P2100 = CLOSE [1]	It can be opened by PPDU re-Initialisation
4.2		Close PPDU JDFFEE2 LCL TC: LCL JEM-X2 A ON CEV: LCL STA JEM-X2 A TM: LCL CUR JEM-X2 A	P4005	P2102 = CLOSE [1] 0.94 A < P2001 < 1.2 A	[Red. TC: = P4505]
4.3		Switch to SAFE state. TC: STATE SAFE CEV: DFEE STATUS	L0008 L0008	L5022 = SAFE [1]	
4.4		Restore DFEE Context (Memory Patches and configuration settings) TC: LOAD DPE TO DFEE The Context Recovery will probably fail and the following OEM will be generated: 1664 (APID) OEM Number: 191 OEM CLASS: 0 JEM-X2 PROB DFEE 11 OEM Description: "Operation 'Load DFEE Context' unsuccessful - check for CRCs failed." NOTE: The Context recovery will fail because the correct CRCs were not prepared before the emergency switch OFF of the DFEE. However, the Context recovery procedure only fails after it has infact transferred all the DFEE code patches and parameters from the DPE to the DFEE.	L0030		



JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

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Step	Time	Event Description	TC	TM	Comments
5		Save DFEE context in DPE and switch OFF DFEE. Execute procedure: FCP_JEM2_9010 : : JEMX2 DFEE SWITCH OFF			
6		Reactivate the DFEE with manual Context recovery. Execute procedure: FCP_JEM2_0021 : : JEMX2 DFEE ACTIVATION This time the Context recovery should be successful because it was correctly prepared.			
7		If required, restore the normal operational state of JEMX2 by executing the following procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		End of procedure.			



JEMX2 RECOVERY FROM A SPURIOUS DFEE SWITCH OFF

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JEMX2 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS INTEGRAL FOP

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 Date Last Modified : Wed 04 Sep 2002

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JEMX2 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 from high radiation HV OFF by the Hard-Wired or Software Internal Ratemeters.			
1.1		Required Configuration JEMX2 Detector HV OFF by Internal Rate Meters.			
1.2		Special Operational Constraints None.			
2		Troubleshooting			
2		JEMX is equipped with a Hard Wired ratemeter as well as a Software Ratemeter which will switch OFF the detector high voltage in case of high trigger counts.			For more explanation refer to JEMX User Manual, sect. 3.7.10.1.2 "JEMX High Voltage Switch OFF by Internal Ratemeter".
2.1		The Hard Wired Ratemeter will switch OFF the detector HV if the trigger counts exceed 65535 over an 8 second period. The DFEE will report the detector HV OFF to the DPE and the DPE will in turn put the DFEE in SAFE mode: TM: DFEE STATUS		A-L0100 L5022 = SAFE	
2.2		The Software Ratemeter, which is part of the DFEE software, will switch OFF the detector HV if the processed trigger counts exceeds a predefined limit (default is 25000) over an 8 second period. NOTE: The Software Ratemeter is only active when the DFEE is in Normal Data Taking or in Diagnostic states.			



JEMX2 RECOVERY FROM HIGH RADIATION HV OFF BY INTERNAL RATE METERS INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
2.3		The detector HV switch OFF action of both the Hard Wired and Software Internal Ratemeters is reported in the following TM: TM: EXT HV OFF TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE NOTE: Autonomous recovery will not be invoked following a Hard Wired as well as a Software Internal Ratemeter induced HV switch OFF.		A-L0100 L5584 = ACTIVE [1] L5001 = 0.0 V [0] L5002 = 0.0 V [0] L5376 = 0.0 V [0] LD5580D = 0.0 V [0]	
3		Recovery Action			
3		Immediately send the SAFE command to make sure that the JEMX2 DFEE is in SAFE Mode. TC: STATE SAFE CEV: DFEE STATUS	L0008	A-L0100 L5022 = SAFE [1]	Safe command can be sent from any Mode
4		Inform the JEMX PI/Representative in the earliest opportunity.			
5		When the cause of HV switch OFF by Internal Ratemeters are known and disappeared and only with the confirmation of the JEMX PI, the JEMX2 DFEE can be switched to SETUP Mode: TC: STATE SETUP CEV: DFEE STATUS	L0009	A-L0100 L5022 = SETUP [5]	
6		If required, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
7		END			
7		End of procedure.			



JEMX2 RECOVERY FROM ESAM

Author : M.Rezazad
 Filename : CRP_JEM2_5100.PRC
 Date Last Modified : Wed 04 Sep 2002

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JEMX2 RECOVERY FROM ESAM

Issue: 1.0

Wed 04 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 DFEE from SAFE state invoked by the Emergency Sun Acquisition Mode (ESAM).			
1.1		Required Configuration JEMX2 Detector HV OFF and DFEE in SAFE state by ESAM trigger.			
1.2		Special Operational Constraints Spacecraft recovered from ESAM and the ACC in IPS Mode.			
2		Troubleshooting			
2		When the S/C is in Emergency Sun Acquisition Mode, the "FCE ESA Mode Active" and the "BCP ESAM" flags are activated: TM: ESA MODE ACTIVE TM: ESAM FLAG TM: ESAM The presence of the ESAM Active flags in the BCP causes the JEMX DPE to bring the DFEE in SAFE state and the Detector High Voltages switched OFF: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE The following OEM is generated when auto-shut-down starts:		A-A0013, A-L0110 A9134 = ACTIVE [1] D5219 = ACTIVATED [1] L5320 = ACTIVATED [1] A-L0100 L5022 = SAFE [1] L5001 = 0.0 V [0] L5002 = 0.0 V [0] L5376 = 0.0 V [0] LD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 3.7.5.2.8.7 and 4.3.1.



JEMX2 RECOVERY FROM ESAM

Author : M.Rezazad
 Filename : CRP_JEM2_5100.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		1664 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X2 AUTO EVENT 1 OEM Description: "Autonomous Event: Shutdown initiated" Field#2 => Actual Level Filed#3 => Target Level NOTE: Autonomous recovery from ESAM shut-down is not implemented for JEMX and the DFEE should be brought back to operational state by ground, after the S/C is safely recovered from ESAM.			
3		Recovery Action			
3		WAIT for the spacecraft to be fully recovered from ESAM to IPS Mode and nominal operation to be resumed: TM: ACC MODE ACTIVE TM: ESA MODE ACTIVE TM: ESAM FLAG TM: ESAM		A-A0013, A-L0110 A5004 = IPS [5] A9134 = INACTIVE [0] D5219 = NOTACTIVATED [0] L5320 = NOTACTIVATED [0]	
4		Command the JEMX2 DFEE to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	L0009	A-L0100 L5022 = SETUP [5]	
5		If required, restore the normal operational state of JEMX2 by executing the following procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
6		END			
6		End of procedure.			



JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM2_5110.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_5110
 Issue Number : 1.0
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CRP_JEM2_5110 JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 DFEE from SAFE state invoked by the "Instruments Imminent Off" flag of the BCP.			
1.1		Required Configuration JEMX2 Detector HV OFF and DFEE in SAFE state or DFEE deactivated.			
1.2		Special Operational Constraints Spacecraft recovered from the condition which had caused the Instruments Imminent Off command to be sent.			
2		Troubleshooting			
2		When the Instruments Imminent Off TC is sent from ground, the BCP Instruments Imminent Off flag is triggered: TM: IMM INSTRU OFF TM: SWITCH OFF IMM The presence of the Instruments Imminent Off flag in the BCP causes the JEMX DFEE Context to be saved in the DPE and the DFEE will be set to SAFE state with the Detector High Voltages switched OFF: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE The following OEM is generated when auto-shut-down starts:		A-L0110 D5212 = OFF IMMINENT [1] L5314 = OFF IMMINENT [1] A-L0100 L5022 = SAFE [1] L5001 = 0.0 V [0] L5002 = 0.0 V [0] L5376 = 0.0 V [0] LD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 3.7.5.2.8.8 and 4.3.1.



JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM2_5110.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		1664 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X2 AUTO EVENT 1 OEM Description: "Autonomous Event: Shutdown initiated" Field#2 => Actual Level Filed#3 => Target Level NOTE: Autonomous recovery from Instruments Imminent Off is not implemented for JEMX and the DFEE should be brought back to operational state by ground.			
3		Recovery Action			
3		WAIT for the spacecraft to be fully recovered from the emergency condition and nominal operation to be resumed: TM: IMM INSTRU OFF TM: SWITCH OFF IMM		A-L0110 D5212 = OFF NOT IMMI [0] L5314 = OFF NOT IMM [0]	
4		IF the JEMX2 DFEE is switched OFF: TM: LCL STA JEM-X2 A TM: LCL CUR JEM-X2 A TM: LCL STA JEM-X2 B TM: LCL CUR JEM-X2 B THEN GOTO step 5 ELSE GOTO step 6 END IF		A-L0100 P2102 = OPEN [0] P2001 = 0.0 A P2152 = OPEN [0] P2051 = 0.0 A	
5		Execute the following procedure to activate the JEMX2 DFEE and restore the Context to DFEE: FCP_JEM2_0021 : : JEMX2 DFEE ACTIVATION			
5.1		GOTO step 7			
6		Command the JEMX2 DFEE to SETUP Mode. TC: STATE SETUP TM: DFEE STATUS	L0009	A-L0100 L5022 = SETUP [5]	



JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

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Step	Time	Event Description	TC	TM	Comments
7		If required, restore the normal operational state of JEMX2 by executing the following procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
8		END			
8		End of procedure.			



JEMX2 RECOVERY FROM INSTRUMENTS IMMINENT SWITCH OFF

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JEMX2 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM

Author : M.Rezazad
 Filename : CRP_JEM2_5120.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_5120 JEMX2 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM Issue: 1.0 Wed 04 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 from high radiation DFEE SAFE state invoked by IREM (Broadcast Packet Radiation Monitor Count Rates).			
1.1		Required Configuration JEMX2 Detector HV OFF and DFEE in SAFE state by IREM.			
1.2		Special Operational Constraints BCP Radiation Monitor Count Rates back below the safe limits.			
2		Troubleshooting			
2		The Broadcast Packet Radiation Monitor Count Rates from IREM are used as indicators of an enhanced radiation environment. When any of the BCP RMC Rates exceeds the predefined corresponding higher radiation threshold of JEMX, the Detector High Voltages will be switched OFF and the DFEE will be placed in SAFE state: TM: DFEE STATUS TM: HV DELTA 12 bits TM: HVCATHODE 12 bit TM: SET DELTA TM: SET CATHODE		A-L0100 L5022 = SAFE [1] L5001 = 0.0 V [0] L5002 = 0.0 V [0] L5376 = 0.0 V [0] LD5580D = 0.0 V [0]	For more explanation refer to JEMX User Manual, sect. 4.3.4 and 4.3.5.



JEMX2 RECOVERVRY FROM HIGH RADIATION SAFE STATE BY IREM

Author : M.Rezazad
 Filename : CRP_JEM2_5120.PRC
 Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		NOTE: Autonomous recovery will be initiated when the RMC Rates have fallen below the lower radiation thresholds of JEMX2 and remain low continuously for 75 BCP cycles (10 minutes). The auto-recovery will bring the JEMX2 DFEE in SETUP state.			
3		Recovery Action			
3		<p>WAIT for the BCP RMC Rates to fall below the lower radiation thresholds of JEMX2 and remain low continuously for 75 BCP cycles (10 min) and the initiation of the recovery action.</p> <p>The following OEM is generated when auto-recovery starts:</p> <p>1664 (APID) OEM Number: 233 OEM CLASS: 0 JEM-X2 AUTO EVENT 3</p> <p>OEM Description: "Autonomous Event: Recovery initiated"</p> <p>Field#2 => Actual Level Filed#3 => Target Level</p> <p>The auto-recovery action should place the JEMX2 DFEE into SETUP state.</p> <p>TM: DFEE STATUS</p>		<p>A-L0100</p> <p>L5022 = SETUP [5]</p>	
4		The following two steps can be performed to make sure that the BCP RMC Rates are below the lower RMC thresholds of JEMX2.			
4.1		<p>Report the JEMX2 RMC thresholds.</p> <p>TC: REP THRESH RMC TM_PKT: REP THRESH RMCR</p>	L0047	<p>A-L0200</p> <p>85025</p>	



JEMX2 RECOVERVY FROM HIGH RADIATION SAFE STATE BY IREM

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Step	Time	Event Description	TC	TM	Comments
		TM: : TID TM: : FID TM: : RMC#1 ENTER TM: : RMC#1 EXIT TM: : RMC#2 ENTER TM: : RMC#2 EXIT TM: : RMC#3 ENTER TM: : RMC#3 EXIT		L5500 = L5600 = L5423 = L5424 = L5425 = L5426 = L5427 = L5428 =	
4.2		Verify that the BCP RMC Rates are below the lower JEMX2 RMC thresholds. TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #1		A-L0110 D5214 < L5424 D5215 < L5426 D5214 < L5428	
5		When the radiation count rates from IREM are back within the nominal operational limits and the JEMX2 DFEE state is recovered to SETUP, restore the normal operational state of JEMX1 by executing the following procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			
6		END			
6		End of procedure.			u



JEMX2 RECOVERVRY FROM HIGH RADIATION SAFE STATE BY IREM

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Date Last Modified : Wed 04 Sep 2002

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JEMX2 RECOVERY AFTER DNEL

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 Date Last Modified : Wed 04 Sep 2002

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JEMX2 RECOVERY AFTER DNEL

Issue: 1.0

Wed 04 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover JEMX2 from DPE switch OFF invoked by 'DNEL'.			
1.1		Required Configuration JEMX2 DFEE and DPE switched OFF and the S/C fully recovered from DNEL emergency.			
1.2		Special Operational Constraints The recovery should be performed after the full recovery from DNEL and only by request from SOM or the responsible SOE.			
2		Troubleshooting			
2		The DNEL condition causes the deactivation of JEMX DPE and switch OFF of the DPE heaters. NOTE: The main DPE heater is switched ON by the Eclipse-To-Sun sequence and the redundant heater should be switched ON as part of the S/C DNEL recovery procedure.			
3		Recovery			
3		WAIT for full recovery of the S/C from DNEL emergency and for GO-AHEAD of the SOM or the responsible SOE before bringing JEMX2 back to operational status. The following TM indicate the recovery from DNEL and re-activation of the DPE redundant heater: TM: DNEL BAT1 STAT 1 TM: DNEL BAT1 STAT 2 TM: DNEL BAT2 STAT 1 TM: DNEL BAT2 STAT 2		A-P2021 P3053 = NORM POW MOD [0] P3054 = NORM POW MOD [0] P3055 = NORM POW MOD [0] P3056 = NORM POW MOD [0]	



JEMX2 RECOVERY AFTER DNEI

Author : M.Rezazad
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Date Last Modified : Wed 04 Sep 2002

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Step	Time	Event Description	TC	TM	Comments
		TM: TSW STA JDPE2 HB		A-L0010 T8106 = CLOSE [1]	
4		Reactivate JEMX2 to nominal operational status.			
4.1		Re-activate JEMX2 DPE and CSSW. Execute procedure: FCP_JEM2_0010 : : JEMX2 DPE AND CSSW ACTIVATION			
4.2		Perform the IASW DPE patch for BCP Pointing Number interpretation correction. Execute procedure: FCP_JEM2_0011 : : JEMX2 IASW DPE PATCH FOR BCP PID INTERPRETATION			
4.3		Activate JEMX2 IASW. Execute procedure: FCP_JEM2_0015 : : JEMX2 IASW ACTIVATION			
4.4		Enable BCP distribution to JEMX2. Execute procedure: FCP_JEM2_0016 : : JEMX2 ENABLE BCP DIS- TRIBUTION			
4.5		Perform TM check on JEMX2 IASW. Execute procedure: FCP_JEM2_0017 : : JEMX2 IASW EXTENDED TM CHECK			
4.6		Activate JEMX2 DFEE for the first time after DPE switch ON. Execute procedure: FCP_JEM2_0020 : : JEMX2 DFEE 1st ACTIVA- TION AFTER DPE SWITCH-ON			
4.7		Configure JEM-X2 for nominal science operations. Execute procedure: FCP_JEM2_1010 : : JEMX2 CONFIGURATION SETTING FOR SCIENCE OPS			



JEMX2 RECOVERY AFTER DNEL

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Step	Time	Event Description	TC	TM	Comments
5		End			
5		End of procedure.			



JEMX2 RECOVERY AFTER DNEL

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JEMX2 UNCONDITIONED DFEE SWITCH OFF

Author : M.Rezazad
 Filename : CRP_JEM2_9010.PRC
 Date Last Modified : Wed 02 Oct 2002

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JEMX2 UNCONDITIONED DFEE SWITCH OFF Issue: 1.0

Wed 02 Oct 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To immediately switch OFF JEMX2 DFEE without saving the Context and from any mode.			
1.1		REQUIRED S/C CONFIGURATION Any JEMX2 DFEE State			
1.2		SPECIAL OPERATIONAL CONSTRAINTS To be used only in emergency cases when the JEMX2 DFEE must be immediately switched OFF without saving the Context and from any JEMX mode.			
1.3		REQUIRED INPUT/INTERFACES None			
2		On Manual Stack, load the sequence LC9010 containing the commands of this procedure			
3		Switch OFF JEMX2 DFEE			
3		Open DFEE LCL A TC: LCL JEM-X2 A OFF CEV: LCL STA JEM-X2 A TM: LCL CUR JEM-X2 A Open DFEE LCL B (redundant power line) TC: LCL JEM-X2 B OFF CEV: LCL STA JEM-X2 B	P4004 P4754	 P2102 = OPEN [0] P2001 = 0.0 A P2152 = OPEN [0]	[Red. TC: = P4504] LCL B is nominally always open. It is closed only in case of LCL A/main power line failure. [Red. TC: = P4254]



JEMX2 UNCONDITIONED DFEE SWITCH OFF

Author : M.Rezazad
Filename : CRP_JEM2_9010.PRC
Date Last Modified : Wed 02 Oct 2002

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Step	Time	Event Description	TC	TM	Comments
		TM: LCL CUR JEM-X2 B The following OEM is expected from the DPE 1664 (APID) OEM Number: 231 OEM CLASS: 0 JEM-X2 AUTO EVENT 1		P2051 = 0.0 A	= Shutdown initiated
4		Inform the JEMX PI at the earliest opportunity.			
5		END			
5		END OF PROCEDURE			



JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_JEM2_9531.PRC
 Date Last Modified : Wed 04 Sep 2002

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CRP_JEM2_9531
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CRP_JEM2_9531 JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET Issue: 1.0 Wed 04 Sep 2002 Author: F Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover from a DPE reset following a Watchdog (WD) timeout or EDAC DEF (Double Event Failure)			
1.1		REQUIRED CONFIGURATION JEMX2 DPE powered on (FCP_JEM1_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		TROUBLESHOOTING			
2		Following a WD or EDAC DEF reset, the DPE performs a full boot and goes into an NOT-RUNNING, NOT-WAIT, NOT-RESET state, which can be acknowledged by the following TM: TM: JEMX2 RUNNING TM: JEMX2 WAIT TM: JEMX2 RESET		D6403 = NOT RUNNING [0] D6401 = NOT WAIT [0] D6400 = NOT RESET [0]	A-L0020
3		RECOVERY TO RUNNING STATE			
3		On TMSPAON, select the On-Event folder and clear IMCS OEM Storage Counter for APID 1664 TM: JEMX2 GROUND OEM		LU9041 = 0	A-L0010
3.1		Send DPE Suspend TC TC: JEMX2 SUSPEND CEV: JEMX2 WAIT TM: JEMX2 RESET	D7603	D6401 = WAIT [1] D6400 = NOT RESET [0]	



JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET

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Step	Time	Event Description	TC	TM	Comments
3.2		Send DPE GO TC to recover RUNNING state CEV: JEMX2 RUNNING TM: JEMX2 WAIT	D7604		
				D6403 = RUNNING [1] D6401 = NOT WAIT [0]	
3.3		WAIT for DPE power-up initialisation completion marked by the OEM 1664 (APID) OEM Number: 0 OEM CLASS: 0 JEM-X2 CAUSE OF CPU RESET			
3.4		Check that Boot BIT has passed TM: JEMX2 SELFTST ER TM: JEMX2 CHKSUM MIS TM: JEMX2 BUILTIN ER TM: JEMX2 ANOMALY TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG			A-L0020
				D6413 = NO ERROR [0] D6414 = NO ERROR [0] D6415 = NO ERROR [0] D6408 = NO ANOMALY [0] L9033 = PASSED [1] L9034 = PASSED [1] L9035 = PASSED [1]	
3.5		On VPD display retrieve OEM 0 and check the reason for the reset : IF TM: CAUSE CPU RESET THEN GOTO step 4 ENDIF IF TM: CAUSE CPU RESET THEN GOTO step 5 ENDIF			
				L9072 = WD RESET [3] L9072 = EDAC DEF [4]	OEM Parameter OEM Parameter
4		WD RESET RE-ENABLE			
4		Check WD Reset Enable/Disable status on PCC Control Register NOTE: After WD reset, the WD reset status is expected to be disabled			A-L0020



JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET

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Step	Time	Event Description	TC	TM	Comments
		TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		L9223 = DISABLED [0] L9268 = 1 [1]	
4.1		Configure WatchDog using TC(13,2) to re-enable the WD reset capability TC: JEMX2 WD CONFIG TC_Par: . : JEMX2 ENADISA WD TC_Par: . : JEMX2 RESETPWD TO TC_Par: . : JEMX2 WD TIMEOUT	L9044 L9000 = ENABLED L9001 = ENABLED L9012 = 0.19 sec		
4.2		Check WD Reset Enable/Disable status on PCC Control Register TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		L9223 = ENABLED [1] L9268 = 1 [1]	
5		DPE TIME SYNCHRONISATION			
5		Synchronize LOBT with COBT TC: SYNC JEMX2 WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3707		A-L0010
5.1		Request Time Synchronisation reports TC: VER TIME JEMX2 Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB	D3717	230000 89503	NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison



JEMX2 DPE RECOVERY FROM WD OR EDAC DEF RESET

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Step	Time	Event Description	TC	TM	Comments
		TM: VERIF TIME CDMU TM: TIME VERIF JEMX2		DU8415 = [] LU9011 = []	COBT LOBT
6		END			
6		END OF PROCEDURE			

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 5
Optical Monitor (OMC)**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 0**

21 February 03

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 5
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 21/02/03

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INTEGRAL FOP Vol. 9 / Book 5 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch All blank pages at the end of a procedure are intentional.	SOM <i>M. Schmidt</i>

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 5
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9 Vol. 9: Instrument Contingency Recovery Procedures

9.5 Book 5: Optical Monitor (OMC)



INTEGRAL FLIGHT OPERATIONS PLAN

OMC CONTINGENCY RECOVERY PROCEDURES

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INTEGRAL FLIGHT OPERATIONS PLAN

OMC CONTINGENCY RECOVERY PROCEDURES

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OMC COVER RELEASE WITH REDUNDANT ACTUATOR Issue: 1.1

Sun 01 Sep 2002

Author: F.Cordero/M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To release (open) the OMC Cover using the Redundant Actuator. To be used in case the nominal procedure FCP_OMC_005 fails.			
1.1		REQUIRED S/C CONFIGURATION OMC in SAFE Mode OMC Baking Heaters A and B disabled OMC Lens Barrel Heaters A&B enabled PPDU Board 2B GSW 1 closed			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C in Sunlight and outside of Radiation Belts OMC not in Thermal Cold Case : S/C SAA-/=0 is OK			
1.3		REQUIRED INPUT/INTERFACES None			
2		PRELIMINARY CHECKS			A-M0100
2		Check OMC is in SAFE Mode TM: MODE		M5010 = SAFE [2]	
		Check TSW Lens Barrel Heaters are closed TM: TSW STA OMC LNSB TM: TSW STA OMC LNSA		T1047 = CLOSE [1] T1023 = CLOSE [1]	
2.2		Check Lens Barrel Temperatures TM: OMC LENS TEMP1 TM: OMC LENS TEMP2		-10.0 degC < T5016 < 10.0 degC -30.0 degC < T5017 < 10.0 degC	
2.3		Check TSW Baking Heater A&B are open			



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Step	Time	Event Description	TC	TM	Comments
		TM: TSW STA OMC DECA TM: TSW STA OMC DECB		T8506 = OPEN [0] T8606 = OPEN [0]	
3		TROUBLESHOOTING			
3		IF TM: COVER TM 1 TM: COVER TM 2 THEN - TM M9804 failure (stuck unlock) - GOTO END OF PROCEDURE ELSE CONTINUE ENDIF		M9803 = COVER OPEN [0] M9804 = COVER UNLOCKED [1]	
3.1		IF TM: COVER TM 1 TM: COVER TM 2 THEN - TM M9803 failure (stuck closed) - GOTO END OF PROCEDURE ELSE CONTINUE ENDIF		M9803 = COVER CLOSED [1] M9804 = COVER LOCKED [0]	
4		COVER RELEASE USING REDUNDANT ACTUATOR			A-M0100
4		On Manual Stack, load the sequence MC0005. Enable Automatic uplink of the first 2 TCs NOTE : In this way TC P4278 is automatically sent 6m after P4279 as requested by the procedure			
4.1		Monitor the cover microswitches status TM. The expected initial status is: TM: COVER TM 1 TM: COVER TM 2 Check PPDU BOARD 2B GSW 1 is closed		M9803 = COVER CLOSED [1] M9804 = COVER UNLOCKED [1]	It is closed by PPDU Initialisation



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Step	Time	Event Description	TC	TM	Comments
		TM: P BD2B GSW1 STA		P2158 = CLOSE [1]	
4.2	T0	Close PPDU LCL OMC SHUTTER B : The command switches on the power to the Cover Release redundant actuator TC: LCL OMC SH B ON CEV: LCL STA OMC SH B TM: LCL CUR OMC SH B	P4279	P2057 > 0.0 A	[Red. TC: = P4779]
4.3		WAIT max 6min for OMC Cover release (open and locked status = cover released) TM: COVER TM 1 TM: COVER TM 2 NOTE: The Cover release time depends on the initial actuator temperature. This time can be from ~40s (at +70degC) up to ~5 min (at -60 degC). WARNING: After max 6min from T0, proceed with the next step anyway		M9803 = COVER OPEN [0] M9804 = COVER LOCKED [0]	
4.4	T0+6 min	Open PPDU LCL OMC SHUTTER B : The command switches off the power to the Cover Release redundant actuator TC: LCL OMC SH B OFF CEV: LCL STA OMC SH B TM: LCL CUR OMC SH B	P4278	P2057 = 0.0 A	[Red. TC: = P4778]
4.5		Exit Safe TC: SAFE OFF CEV: MODE The following OEMs are expected 1792 (APID) OEM Number: 150 OEM CLASS: 0 MODE TRANS	M1511		



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Step	Time	Event Description	TC	TM	Comments
		1792 (APID) OEM Number: 222 OEM CLASS: 0 CCD STATUS			twice
		1792 (APID) OEM Number: 221 OEM CLASS: 0 LED STATUS			twice
5		END			
5		END OF PROCEDURE			



OMC DPE ACTIVATION WITH REDUNDANT POWER LINE / RELAY

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OMC DPE ACTIVATION WITH REDUNDANT POWER LINE / RELAY Issue: 1.0 Sun 01 Sep 2002

Author: F Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To activate the OMC DPE using the redundant LCL power line or the DPE Dc/Dc Power Supply Relay 1. To be used in case either the main LCL power line or the DPE Relay 0 fails NOTICE that this procedure replaces specific steps of the nominal procedure FCP_OMC_0010			
1.1		REQUIRED S/C CONFIGURATION same as FCP_OMC_0010 (except for GSW) OMC EU switched off (execute FCP_OMC_9010 if necessary)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C not in DNEL			
1.3		REQUIRED INPUT/INTERFACES None			
2		Use of redundant DPE LCL power line / Relay 0			
2		To activate the DPE using the redundant DPE LCL power supply line and DPE Relay 0: Execute FCP_OMC_0010 replacing step 4.1 and 4.2 (in issue 1.0) with the following steps:			
2.1		Open main LCL TC: LCL ODPE A OFF CEV: LCL STA ODPE A	P4036	P2113 = OPEN [0]	A-M0010 [Red. TC: = P4536]
2.2		Close Board 2B GSW2			



OMC DPE ACTIVATION WITH REDUNDANT POWER LINE / RELAY

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Step	Time	Event Description	TC	TM	Comments
		TC: P BD2B GSW2 ON A	P4327		[Red. TC: = P4827]
		CEV: P BD2B GSW2 STA		P2161 = CLOSE [1]	
2.3		Close redundant LCL			
		TC: LCL ODPE B ON	P4287		[Red. TC: = P4787]
		CEV: LCL STA ODPE B		P2163 = CLOSE [1]	
		TM: LCL CUR ODPE B		P2060 <= 0.1 A	
		TM: ODPE 5V RAM TLM		4.77 V < M9800 < 5.16 V	
2.4		Open Relay 1			
		TC: ODPE RELAY1 OFF	M9806		
		CEV: ODPE RELAY1 STA		M9802 = OFF [1]	
2.5		Close Relay 0			
		TC: ODPE RELAY0 ON	M9800		
		CEV: ODPE RELAY0 STA		M9801 = ON [0]	
		TM: LCL CUR ODPE B		0.2 A < P2060 < 0.27 A	
2.6		CONTINUE with step 4.3 of FCP_OMC_0010			
2.7		GOTO END			
3		Use of main DPE LCL power line / Relay 1			
3		To activate the DPE using the main DPE LCL power supply line and DPE Relay 1: Execute FCP_OMC_0010 replacing step 4.1 and 4.2 (in issue 1.0) with the following steps:			
3.1		Open redundant LCL			A-M0010
		TC: LCL ODPE B OFF	P4286		[Red. TC: = P4786]
		CEV: LCL STA ODPE B		P2163 = OPEN [0]	
3.2		Check PPDU Board 2A GSW 2 is closed			
		TM: P BD2A GSW2 STA		P2111 = CLOSE [1]	This GSW is closed by PPDU Initialisation.



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Step	Time	Event Description	TC	TM	Comments
		Close main LCL TC: LCL ODPE A ON CEV: LCL STA ODPE A TM: LCL CUR ODPE A TM: ODPE 5V RAM TLM	P4037	P2113 = CLOSE [1] P2010 <= 0.1 A 4.77 V < M9800 < 5.16 V	[Red. TC: = P4537]
3.3		Open Relay 0 TC: ODPE RELAY0 OFF CEV: ODPE RELAY0 STA	M9801	M9801 = OFF [1]	
3.4		Close Relay 1 TC: ODPE RELAY1 ON CEV: ODPE RELAY1 STA TM: LCL CUR ODPE A	M9805	M9802 = ON [0] 0.2 A < P2010 < 0.27 A	
3.5		CONTINUE with step 4.3 of FCP_OMC_0010			
3.6		GOTO END			
4		Use of redundant DPE LCL power line / Relay 1			
4		To activate the DPE using the redundant DPE LCL power supply line and DPE Relay 1: Execute FCP_OMC_0010 replacing step 4.1 and 4.2 (in issue 1.0) with the following steps:			
4.1		Open main LCL TC: LCL ODPE A OFF CEV: LCL STA ODPE A	P4036	P2113 = OPEN [0]	A-M0010 [Red. TC: = P4536]
4.2		Close Board 2B GSW2 TC: P BD2B GSW2 ON A CEV: P BD2B GSW2 STA	P4327	P2161 = CLOSE [1]	[Red. TC: = P4827]
4.3		Close redundant LCL			



OMC DPE ACTIVATION WITH REDUNDANT POWER LINE / RELAY

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Step	Time	Event Description	TC	TM	Comments
		TC: LCL ODPE B ON CEV: LCL STA ODPE B TM: LCL CUR ODPE B TM: ODPE 5V RAM TLM	P4287		[Red. TC: = P4787]
4.4		Open Relay 0 TC: ODPE RELAY0 OFF CEV: ODPE RELAY0 STA	M9801		
4.5		Close Relay 1 TC: ODPE RELAY1 ON CEV: ODPE RELAY1 STA TM: LCL CUR ODPE B	M9805		M9802 = ON [0] 0.2 A < P2060 < 0.27 A
4.6		CONTINUE with step 4.3 of FCP_OMC_0010			
5		END			
5		END OF PROCEDURE			



OMC EU ACTIVATION WITH REDUNDANT POWER LINE

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OMC EU ACTIVATION WITH REDUNDANT POWER LINE Issue: 1.2

Sun 01 Sep 2002

Author: F.Cordero/M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To activate OMC Electronic Unit (EU) in Stand-by Mode using the redundant LCL power line. This procedure replaces FCP_OMC_0020 in case the main LCL power line fails.			
1.1		REQUIRED S/C CONFIGURATION Same as FCP_OMC_9010 (except GSW)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS Same as FCP_OMC_9010			
1.3		REQUIRED INPUT/INTERFACES None			
2		PRELIMINARY CHECKS			
2		Check SPDU BOARD 6B HLCL 2 is closed TM: SUR CBH B STA Check TSW Lens Barrel Heater B is closed TM: TSW STA OMC LNSB Check SPDU BOARD 6A HLCL 2 is closed TM: SUR CBH A STA Check TSW Lens Barrel Heater A is closed TM: TSW STA OMC LNSA		P1184 = CLOSE [1] T1047 = CLOSE [1] P1176 = CLOSE [1] T1023 = CLOSE [1]	A-M0100
2.1		Check OMC EU start-up temperature TM: OMC E UNIT TEMP1 TM: OMC E UNIT TEMP2 TM: TCS TH OMC ELECT		-35.0 degC < T5014 < 45.0 degC -35.0 degC < T5015 < 45.0 degC -45.0 degC < T5080 < 15.0 degC	Start-up temperature Start-up temperature Start-up temperature



OMC EU ACTIVATION WITH REDUNDANT POWER LINE

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Step	Time	Event Description	TC	TM	Comments
		TM: TCS TH OMC TRP		-50.0 degC < T5047 < 20.0 degC	OOL missing on database. Values taken from EID Part A, Table 4.3.3.5
2.2		Check OMCAS mode TM: MODE		M5010 = STAND BY [1]	
3		OMC EU ACTIVATION WITH REDUNDANT LCL			
3		Open main LCL TC: LCL OMC EU A OFF CEV: LCL STA OMC EU A	P4032	P2112 = OPEN [0]	A-M0010 [Red. TC: = P4532]
3.1		Close Board 2B GSW2 TC: P BD2B GSW2 ON A CEV: P BD2B GSW2 STA	P4327	P2161 = CLOSE [1]	[Red. TC: = P4827]
3.2		Close PPDU redundant LCL line to EU TC: LCL OMC EU B ON CEV: LCL STA OMC EU B TM: LCL CUR OMC EU B	P4283	P2162 = CLOSE [1] 0.35 A < P2059 < 0.43 A	[Red. TC: = P4783]
3.3		Reset ROE TC: RESET ROE CEV: CCD TIE 1792 (APID) OEM Number: 178 OEM CLASS: 0 RESET ROE	M1131	M5025 = 0 [0]	
4		POST-ACTIVATION CHECKS			
4		TM: PCURR 1 TM: PCURR 2 TM: SVOLT +5 TM: SVOLT -5		M5110 <= 0.01 A 0.35 A < M5115 < 0.43 A 5.11 V < M5120 < 5.34 V -5.43 V < M5130 < -5.11 V	A-M0100



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Step	Time	Event Description	TC	TM	Comments
		TM: SVOLT +12 TM: SVOLT -12 TM: SVOLT +36		11.58 V < M5140 < 12.2 V -12.52 V < M5150 < -11.88 V 35.44 V < M5160 < 37.31 V	
4.1		Check the CCD and LED expected status TM: CCD OFF TM: LED STATUS		M5024 = POWER ON [0] M5030 = LED 1 2 OFF [0]	
4.2		Check OMC operating temperatures TM: OMC E UNIT TEMP1 TM: OMC E UNIT TEMP2 TM: TCS TH OMC ELECT		-30.0 degC < T5014 < 60.0 degC -30.0 degC < T5015 < 60.0 degC -35.0 degC < T5080 < 15.0 degC	
5		END			
5		END OF PROCEDURE			



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OMC CCD BAKING OPERATIONS WITH REDUNDANT HEATER

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OMC CCD BAKING OPERATIONS WITH REDUNDANT HEATER Issue: 1.2 Sun 01 Sep 2002

Author: F.Cordero/M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform the OMC CCD Baking using redundant heaters. To be executed in case FCP_OMC_0030 fails			
1.1		REQUIRED S/C CONFIGURATION OMC Lens Barrel Heaters A&B enabled OMC in SAFE Mode and ROE switched off			
1.2		SPECIAL OPERATIONAL CONSTRAINTS S/C in Sunlight OMC commanding by automatic timeline (Auto-stack) must be disabled			
1.3		REQUIRED INPUT/INTERFACES None			
2		PRELIMINARY CHECKS			A-M0100
		Check OMC configuration TM: MODE TM: CCD OFF TM: LED STATUS TM: LCL STA OMC EU A TM: LCL STA OMC EU B		M5010 = SAFE [2] M5024 = POWER OFF [1] M5030 = LED 1 2 OFF [0] P2112 = OPEN [0] P2162 = OPEN [0]	
2.1		Check SPDU BOARD 6B HLCL 2 is closed TM: SUR CBH B STA Check TSW Lens Barrel Heater B is closed TM: TSW STA OMC LNSB		P1184 = CLOSE [1] T1047 = CLOSE [1]	
2.2		Check SPDU BOARD 6A HLCL 2 is closed TM: SUR CBH A STA		P1176 = CLOSE [1]	



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Step	Time	Event Description	TC	TM	Comments
		Check TSW Lens Barrel Heater A is closed TM: TSW STA OMC LNSA		T1023 = CLOSE [1]	
2.3		Check TSW Baking Heater B is open TM: TSW STA OMC DECB		T8606 = OPEN [0]	
3		BAKING OPERATIONS WITH REDUNDANT HEATER			A-M0100
3		Open PDU TSW to power off OMC Baking heater A TC: TSW OMCDEC HA OF CEV: TSW STA OMC DECA	T5030	T8506 = OPEN [0]	[Red. TC: = T6030]
3.1		NOTE the status of PDU BOARD 6B HLCL 1 TM: P HLCL 6B1 STA		P2177 = []	This HLCL is used to enable power to OMC Baking heater B. It is opened by the PDU initialisation sequence.
3.2		Close PDU BOARD 6B HLCL 1 TC: P HLCL 6B1 ON(A) CEV: P HLCL 6B1 STA	P4359	P2177 = CLOSE [1]	[Red. TC: = P4859]
3.3	T0	Close PDU TSW to power on OMC Baking heater B TC: TSW OMCDEC HB ON CEV: TSW STA OMC DECB	T5131	T8606 = CLOSE [1]	[Red. TC: = T6131]
3.4		WAIT for 6 hours and monitor the CCD temperature TM. When Baking heater is on the expected temperature increase is up to ~0 degC TM: OMC CCD TEMP 1 TM: OMC CCD TEMP 2		T5100 < 10.77 degC T5118 < 10.0 degC	



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Step	Time	Event Description	TC	TM	Comments
3.5	T1=T0+6 hours	Open PDU TSW to power off OMC Baking heater B TC: TSW OMCDEC HB OF CEV: TSW STA OMC DECB NOTE: OOL on temperature TM T5100 and T5118 is expected due to thermal inertia	T5130	T8606 = OPEN [0]	[Red. TC: = T6130]
3.6		IF the status of PDU BOARD 6B HLCL 1 noted at step 3.1 was CLOSED THEN send TC TC: P HLCL 6B1 OF(A) CEV: P HLCL 6B1 STA ELSE CONTINUE ENDIF	P4358	P2177 = OPEN [0]	[Red. TC: = P4858]
4		RE-ACTIVATE OMC EU			A-M0100
4		Check OMC EU start-up temperature TM: OMC E UNIT TEMP1 TM: OMC E UNIT TEMP2 TM: TCS TH OMC ELECT		-35.0 degC < T5014 < 60.0 degC -35.0 degC < T5015 < 60.0 degC -45.0 degC < T5080 < 15.0 degC	
4.1		Close PDU LCL line to EU TC: LCL OMC EU A ON CEV: LCL STA OMC EU A TM: LCL CUR OMC EU A	P4033	P2112 = CLOSE [1] 0.1 A < P2009 < 0.41 A	[Red. TC: = P4533]
4.2		Post activation checks TM: PCURR 1 TM: PCURR 2 TM: SVOLT +5 TM: SVOLT -5		0.35 A < M5110 < 0.43 A M5115 <= 0.01 A 5.11 V < M5120 < 5.34 V -5.43 V < M5130 < -5.11 V	



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Step	Time	Event Description	TC	TM	Comments
		TM: SVOLT +12 TM: SVOLT -12 TM: SVOLT +36 Check the CCD and LED expected status TM: CCD OFF TM: LED STATUS		11.58 V < M5140 < 12.2 V -12.52 V < M5150 < -11.88 V 35.44 V < M5160 < 37.31 V M5024 = POWER OFF [1] M5030 = LED 1 2 OFF [0]	
5		BACK TO STAND-BY			A-M0100
5		WAIT for about 6 hours from T1 and monitor the CCD temperature TM When Baking heater is off, the CCD temperature should decrease down to the following range and the OOL condition disappear TM: OMC CCD TEMP 1 TM: OMC CCD TEMP 2		-100.0 degC < T5100 < -65.0 degC -100.0 degC < T5118 < -65.0 degC	
5.1	T1+6 hours	Exit Safe TC: SAFE OFF CEV: MODE The following OEMs are expected 1792 (APID) OEM Number: 150 OEM CLASS: 0 MODE TRANS 1792 (APID) OEM Number: 222 OEM CLASS: 0 CCD STATUS 1792 (APID) OEM Number: 221 OEM CLASS: 0 LED STATUS Check the CCD status TM: CCD OFF	M1511	M5010 = STAND BY [1] M5024 = POWER ON [0]	twice twice
5.2		Reset ROE TC: RESET ROE	M1131		



OMC CCD BAKING OPERATIONS WITH REDUNDANT HEATER

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Step	Time	Event Description	TC	TM	Comments
		CEV: CCD TIE 1792 (APID) OEM Number: 178 OEM CLASS: 0 RESET ROE		M5025 = 0 [0]	
6		END OF OMC CCD BAKING			
6.1		OMC CCD baking operations are over OMC commanding by automatic timeline (Auto- stack) can be enabled if required			
7		END			
7		END OF PROCEDURE			



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OMC UNCONSTRAINED CCD BAKING OPERATIONS WITH REDUNDANT HEATER INTEGRAL FOP

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CRP_OMC_0031 OMC UNCONSTRAINED CCD BAKING OPERATIONS WITH REDUNDANT HEATER Issue: 1.1 Sun 01 Sep 2002 Author: F.Cordero/M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To perform the post-launch OMC CCD Baking using redundant heaters in order to prevent CCD contamination from Satellite outgassing. To be executed in case FCP_OMC_0031 fails			
1.1		REQUIRED S/C CONFIGURATION OMC Lens Barrel Heaters A&B enabled			
1.2		SPECIAL OPERATIONAL CONSTRAINTS see FCP_OMC_0031			
1.3		REQUIRED INPUT/INTERFACES None			
2		PRELIMINARY CHECKS			A-M0100
2		Check SPDU BOARD 6B HLCL 2 is closed TM: SUR CBH B STA Check TSW Lens Barrel Heater B is closed TM: TSW STA OMC LNSB		P1184 = CLOSE [1] T1047 = CLOSE [1]	
2.1		Check SPDU BOARD 6A HLCL 2 is closed TM: SUR CBH A STA Check TSW Lens Barrel Heater A is closed TM: TSW STA OMC LNSA		P1176 = CLOSE [1] T1023 = CLOSE [1]	
2.2		Check TSW Baking Heater B is open TM: TSW STA OMC DECB		T8606 = OPEN [0]	
3		BAKING OPERATIONS WITH REDUNDANT HEATER			A-M0100
3		Open PDU TSW to power off OMC Baking heater A			



OMC UNCONSTRAINED CCD BAKING OPERATIONS WITH REDUNDANT HEATER INTEGRAL FOP

Author : F.Cordero/M.Rezazad
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Step	Time	Event Description	TC	TM	Comments
		TC: TSW OMCDEC HA OF	T5030		[Red. TC: = T6030]
		CEV: TSW STA OMC DECA		T8506 = OPEN [0]	
3.1		NOTE the status of PDU BOARD 6B HLCL 1			This HLCL is used to enable power to OMC Baking heater B. It is opened by the PDU initialisation sequence.
		TM: P HLCL 6B1 STA		P2177 = []	
3.2		Close PDU BOARD 6B HLCL 1			
		TC: P HLCL 6B1 ON(A)	P4359		[Red. TC: = P4859]
		CEV: P HLCL 6B1 STA		P2177 = CLOSE [1]	
3.3	T0	Close PDU TSW to power on OMC Baking heater B			
		TC: TSW HEATPIP-B ON	T5111		[Red. TC: = T6111]
		CEV: TSW STA PIP TW-B		T8602 = CLOSE [1]	
3.4		MONITOR the CCD temperature TM. When Baking heater is on the expected temperature increase is up to ~0 degC			
		TM: OMC CCD TEMP 1		T5100 < 10.77 degC	
		TM: OMC CCD TEMP 2		T5118 < 10.0 degC	
3.5		WAIT for at least 2 days before executing next step			
3.6	T1=T0+3 days	Open PDU TSW to power off OMC Baking heater B			
		TC: TSW OMCDEC HB OF	T5130		[Red. TC: = T6130]
		CEV: TSW STA OMC DECB		T8606 = OPEN [0]	
3.7		IF the status of PDU BOARD 6B HLCL 1 noted at step 3.1			



OMC UNCONSTRAINED CCD BAKING OPERATIONS WITH REDUNDANT HEATER INTEGRAL FOP

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Step	Time	Event Description	TC	TM	Comments
		was CLOSED THEN send TC TC: P HLCL 6B1 OF(A) CEV: P HLCL 6B1 STA ELSE CONTINUE ENDIF	P4358	P2177 = OPEN [0]	[Red. TC: = P4858]
3.8		WAIT for about 6 hours from T1 and monitor the CCD temperature TM When Baking heater is off, the CCD temperature should decrease down to the following range and the OOL condition disappear TM: OMC CCD TEMP 1 TM: OMC CCD TEMP 2		-100.0 degC < T5100 < -65.0 degC -100.0 degC < T5118 < -65.0 degC	
4		END			
4		END OF PROCEDURE			



OMC UNCONSTRAINED CCD BAKING OPERATIONS WITH REDUNDANT HEATER INTEGRAL FOP

Author : F.Cordero/M.Rezazad
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OMC RECOVERVY FROM HIGH RADIATION SAFE STATE INVOKED BY IREM

INTEGRAL FOP

Author : M.Rezazad
 Filename : CRP_OMC_5120.PRC
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OMC RECOVERVY FROM HIGH RADIATION SAFE STATE INVOKED BY IREM Issue: 1.0 Sun 01 Sep 2002 Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover OMC from high radiation SAFE MODE invoked by IREM (Broadcast Packet Radiation Monitor Count Rates).			
1.1		Required Configuration OMC in SAFE Mode.			
1.2		Special Operational Constraints BCP Radiation Monitor Count Rates back below the safe limits.			
2		Troubleshooting			
2		The Broadcast Packet Radiation Monitor Count Rates from IREM are used as indicators of an enhanced radiation environment. When any of the BCP RMC Rates exceeds the predefined corresponding OMC radiation threshold, the OMC is put to SAFE Mode with the CCD and LEDs switched OFF: TM: MODE TM: CCD OFF TM: LED STATUS		A-M0100 M5010 = SAFE [2] M5024 = POWER OFF [1] M5030 = LED 1 2 OFF [0]	
3		Recovery Action			
3		WAIT for the BCP RMC Rates to fall below the radiation thresholds of OMC and stabilize in a safe level: TM: RMC RATE #1 TM: RMC RATE #2 TM: RMC RATE #3		A-M0110 M5821 < M5331 M5822 < M5332 M5823 < M5333	



OMC RECOVERY FROM HIGH RADIATION SAFE STATE INVOKED BY IREM

INTEGRAL FOP

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Filename : CRP_OMC_5120.PRC
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Step	Time	Event Description	TC	TM	Comments
4		Switch OMC from SAFE to STANDBY Mode with the CCD and LEDs powered ON. Execute procedure: FCP_OMC_0041 : : OMC EXIT FROM SAFE MODE			
5		END			
5		End of procedure.			



OMC RECOVERY AFTER DNEL

Author : M.Rezazad
 Filename : CRP_OMC_5130.PRC
 Date Last Modified : Sun 01 Sep 2002

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OMC RECOVERY AFTER DNEL

Issue: 1.0

Sun 01 Sep 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		Purpose To recover OMC from EU and DPE switch OFF invoked by 'DNEL'.			
1.1		Required Configuration OMC EU and DPE switched OFF and the S/C fully recovered from DNEL emergency.			
1.2		Special Operational Constraints The recovery should be performed after the full recovery from DNEL and only by request from SOM or the responsible SOE.			
2		Troubleshooting			
2		The DNEL condition causes the deactivation of OMC DPE and switch OFF of the DPE and Lens Barrel heaters. NOTE: The DPE and Lens Barrel main heaters are switched ON by the Eclipse-To-Sun sequence, but the redundant heaters are switched ON as part of the S/C DNEL recovery procedure.			
3		Recovery			
3		WAIT for full recovery of the S/C from DNEL emergency and for the GO-AHEAD of the SOM or the responsible SOE before bringing OMC back to operational status. The following TM indicate the recovery from DNEL and re-activation of the DPE and Lens Barrel redundant heaters: TM: DNEL BAT1 STAT 1 TM: DNEL BAT1 STAT 2		A-P2021 P3053 = NORM POW MOD [0] P3054 = NORM POW MOD [0]	



OMC RECOVERY AFTER DNEL

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Step	Time	Event Description	TC	TM	Comments
		TM: DNEL BAT2 STAT 1 TM: DNEL BAT2 STAT 2 TM: TSW STA ODPE HB TM: TSW STA OMC LNSB		P3055 = NORM POW MOD [0] P3056 = NORM POW MOD [0] A-M0010 T8112 = CLOSE [1] T1047 = CLOSE [1]	
4		Reactivate OMC to nominal operational status.			
4.1		Re-activate OMC DPE and CSSW. Execute procedure: FCP_OMC_0010 : : OMC DPE AND CSSW ACTIVATION			
4.2		Activate OMC IASW. Execute procedure: FCP_OMC_0015 : : OMC IASW (OMCAS) ACTI- VATION			
4.3		Enable BCP distribution to OMC. Execute procedure: FCP_OMC_0016 : : OMC ENABLE BCP DIS- TRIBUTION			
4.4		Activate OMC Electric Unit. Execute procedure: FCP_OMC_0020 : : OMC EU ACTIVATION			
5		End			
5		End of procedure.			



OMC UNCONDITIONED EU SWITCH-OFF

Author : M.Rezazad
 Filename : CRP_OMC_9010.PRC
 Date Last Modified : Wed 02 Oct 2002

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OMC UNCONDITIONED EU SWITCH-OFF

Issue: 1.0

Wed 02 Oct 2002

Author: M.Rezazad

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To switch off OMC EU without any preliminary check and from any OMC mode.			
1.1		REQUIRED S/C CONFIGURATION Any OMC mode			
1.2		SPECIAL OPERATIONAL CONSTRAINTS To be used only in emergency cases when the OMC EU must be switched OFF immediately without any preliminary checks and without prior commanding to SAFE or STANDBY mode.			
1.3		REQUIRED INPUT/INTERFACES None			
2		ON the Manual Stack load the sequence: MC9010 containing the commands for this procedure.			
		Switch OFF OMC EU			
3		Open PPDU LCL A to EU (main power line) TC: LCL OMC EU A OFF CEV: LCL STA OMC EU A TM: LCL CUR OMC EU A	P4032	A-M0100 P2112 = OPEN [0] P2009 = 0.0 A	[Red. TC: = P4532]
4		Open PPDU LCL B to EU (redundant power line) TC: LCL OMC EU B OFF	P4282		LCL B is nominally always open. It is closed only in case of LCL A/main power supply failure. [Red. TC: = P4782]



OMC UNCONDITIONED EU SWITCH-OFF

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Step	Time	Event Description	TC	TM	Comments
		CEV: LCL STA OMC EU B TM: LCL CUR OMC EU B		P2162 = OPEN [0] P2059 = 0.0 A	
5		Command OMCAS to SAFE Mode TC: SAFE CEV: MODE	M1510	M5010 = SAFE [2]	
6		The following OEMs will be generated after the switch OFF of the EU and before transition to SAFE mode. These OEMs should be disregarded. TBD			
7		The following OEMs are expected upon transition to SAFE Mode: 1792 (APID) OEM Number: 150 OEM CLASS: 0 MODE TRANS 1792 (APID) OEM Number: 222 OEM CLASS: 0 CCD STATUS 1792 (APID) OEM Number: 221 OEM CLASS: 0 LED STATUS			twice twice
8		Verify that the Lens Barrel Heaters A and B are enabled:			
8.1		Check SPDU BOARD 6B HLCL 2 is closed TM: SUR CBH B STA Check TSW Lens Barrel Heater B is closed TM: TSW STA OMC LNSB Check SPDU BOARD 6A HLCL 2 is closed TM: SUR CBH A STA Check TSW Lens Barrel Heater A is closed TM: TSW STA OMC LNSA		P1184 = CLOSE [1] T1047 = CLOSE [1] P1176 = CLOSE [1] T1023 = CLOSE [1]	
9		Inform the responsible SOE and the OMC PI at the earliest opportunity.			
10		End			



OMC UNCONDITIONED EU SWITCH-OFF

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Step	Time	Event Description	TC	TM	Comments
10		End of Procedure			



OMC UNCONDITIONED EU SWITCH-OFF

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OMC DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_OMC_9531.PRC
 Date Last Modified : Sun 01 Sep 2002

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OMC DPE RECOVERY FROM WD OR EDAC DEF RESET Issue: 1.1

Sun 01 Sep 2002

Author: F Cordero

Step	Time	Event Description	TC	TM	Comments
1		Header			
1		PURPOSE To recover from a DPE reset following a Watchdog (WD) timeout or EDAC DEF (Double Event Failure)			
1.1		REQUIRED CONFIGURATION OMC DPE powered on (FCP_OMC_0010 executed)			
1.2		SPECIAL OPERATIONAL CONSTRAINTS None			
2		TROUBLESHOOTING			
2		Following a WD or EDAC DEF reset, the DPE performs a full boot and goes into an NOT-RUNNING, NOT-WAIT, NOT-RESET state, which can be acknowledged by the following TM: TM: OMC RUNNING TM: OMC WAIT TM: OMC RESET		D6203 = NOT RUNNING [0] D6201 = NOT WAIT [0] D6200 = NOT RESET [0]	A-M0020
3		RECOVERY TO RUNNING STATE			
3		On TMSPAON, select the On-Event folder and clear IMCS OEM Storage Counter for APID 1792 TM: OMC GROUND OEM		MU9041 = 0	A-M0010
3.1		Send DPE Suspend TC TC: OMC SUSPEND CEV: OMC WAIT TM: OMC RESET	D7703	D6201 = WAIT [1] D6200 = NOT RESET [0]	



OMC DPE RECOVERY FROM WD OR EDAC DEF RESET

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Step	Time	Event Description	TC	TM	Comments
3.2		Send DPE GO TC to recover RUNNING state CEV: OMC RUNNING TM: OMC WAIT	D7704		
				D6203 = RUNNING [1] D6201 = NOT WAIT [0]	
3.3		WAIT for DPE power-up initialisation completion marked by the OEM 1792 (APID) OEM Number: 0 OEM CLASS: 0 OMC CAUSE OF CPU			
3.4		Check that Boot BIT has passed TM: OMC SELFTST ER TM: OMC CHKSUM MIS TM: OMC BUILTIN ER TM: OMC ANOMALY TM: BIT ANALOG CH TM: BIT MMU REG TM: BIT CPU REG			A-M0020
				D6213 = NO ERROR [0] D6214 = NO ERROR [0] D6215 = NO ERROR [0] D6208 = NO ANOMALY [0] M9033 = PASSED [1] M9034 = PASSED [1] M9035 = PASSED [1]	
3.5		On VPD display retrieve OEM 0 and check the reason for the reset : IF TM: CAUSE CPU RESET THEN GOTO step 4 ENDIF IF TM: CAUSE CPU RESET THEN GOTO step 5 ENDIF			
				M9072 = WD RESET [3]	OEM Parameter
				M9072 = EDAC DEF [4]	OEM Parameter
4		WD RESET RE-ENABLE			
4		Check WD Reset Enable/Disable status on PCC Control Register NOTE: After WD reset, the WD reset status is expected to be disabled			A-M0020



OMC DPE RECOVERY FROM WD OR EDAC DEF RESET

Author : F Cordero
 Filename : CRP_OMC_9531.PRC
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Step	Time	Event Description	TC	TM	Comments
		TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		M9223 = DISABLED [0] M9268 = 1 [1]	
4.1		Configure WatchDog using TC(13,2) to re-enable the WD reset capability TC: OMC WD CONFIG TC_Par: . : OMC ENADISA WD TC_Par: . : OMC RESETWD TO TC_Par: . : OMC WD TIMEOUT	M9044 M9000 = ENABLED M9001 = ENABLED M9012 = 0.19 sec		
4.2		Check WD Reset Enable/Disable status on PCC Control Register TM: ENA WD RESET Check WD Function Enable/Disable status on RBI Configuration Register TM: WD ENA STATE		M9223 = ENABLED [1] M9268 = 1 [1]	
5		DPE TIME SYNCHRONISATION			
5		Synchronize LOBT with COBT TC: SYNC OMC WAIT 33s for the completion of the DPE time synchronisation procedure executed by CDMU	D3708		A-M0010
5.1		Request Time Synchronisation reports TC: VER TIME OMC Verify that 2 TM(10,x) report packets are received TM_PKT: REP CDMU OBT TM_PKT: E VERIFIC REPORT The following 2 parameters shall have the same content +/- 1 LSB	D3718	230000 99103	NOTE: The 8 most significant bits of DU8415 (first 2 hex digits) must not be considered in the comparison



OMC DPE RECOVERY FROM WD OR EDAC DEF RESET

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Step	Time	Event Description	TC	TM	Comments
		TM: VERIF TIME CDMU TM: TIME VERIF OMC		DU8415 = [] MU9011 = []	COBT LOBT
6		END			
6		END OF PROCEDURE			

**INTEGRAL
FLIGHT OPERATIONS PLAN**

**Volume 9
Instrument Contingency Recovery Procedures**

**Book 6
Instrument On-Board S/W**

INT-MOC-FOP-FOP-1001-TOS-OGI

**ISSUE: 2
REV.: 0**

21 February 03

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 6
Doc. Ref. : INT-MOC-FOP-FOP-1001-TOS-OGI
Date : 21/02/03

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INTEGRAL FOP Vol. 9 / Book 6 CHANGE RECORD SHEET

DATE	ISSUE / REV. NO.	PAGE / PARA AFFECTED	DESCRIPTION	APPROVAL AUTHORITY
27/11/98	Draft / 0	All		
30/11/00	Draft / 1	All		
21/12/01	1 / 0	All	Version for Review & Approval	
11/06/02	1 / 1	All	Update of flight procedures for FAR considering inputs from FOP review	
11/09/02	1 / 2		Update of flight procedures	
21/02/03	2 / 0		General clean-up post Launch	SOM <i>M. Schmidt</i>

Doc. Title : INTEGRAL FOP – Vol. 9 / Book 6
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9 Vol. 9: Instrument Contingency Recovery Procedures

9.6 Book 6: Instrument On-Board S/W

OBSM related contingency procedures are not required.