Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Procedure Summary

Objectives

The objective of this Herschel ACMS procedure is to make STR1 operational and configured in an appropriate mode (i.e. INI, STB or AAD/ATFAD). The activities enable a number of configurations to be selected using commands and telemetry related primarily to the physical unit (i.e. independent of it being declared as Main or Redundant).

The procedure involves the following activities:
- change STRmain selection, if necessary
- check LCL status and configure, if necessary
- load Diagnostic TM definitions (SA10/11/15/19)
- disable FDIR check on STR loss
- STR1 switch ON
- command to Stand-by loading memory image from EEPROM, if necessary
- verify STR1 status via DTM, as necessary
- update spacecraft velocity vector, if necessary (calls H_FCP_AOC_4S41)
- modify STRmain CCD ref. temp., if necessary (calls sequence HFA4S81X)
- command STR1 transition to AAD/ATFAD mode, if required
- verify tracking in ATFAD submode via DTM, as necessary
- enable FDIR check on STR loss
- disable FDIR check on STR Hk data
- del

Summary of Constraints

Main constraints:
- ACMS must be in SAM
- as procedure uses DTMs, the operator must make sure no more than one other DTM is enabled when this procedure is executed.

Spacecraft Configuration

Start of Procedure

Spacecraft initial conditions:
- S/C in SAM
- STR1 not switched ON

End of Procedure

Spacecraft final conditions:
- as initial but with STR1 switched ON
- SRT1 in INI, STB or AAD/ATFAD mode, as required

Reference File(s)

Input Command Sequences

Output Command Sequences

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File: H_FCP_AOC_8ON1.xls
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HFA8ON1A
HFA8ON1B
HFA8ON1C
HFA8ON1D
HFA8ON1E
HFA8ON1F
HFA8ON1G
HFA8ON1H
HFA8ON1I

Referenced Displays

ANDs	GRDs	SLDs
ZAA01999		
ZAD05999		
ZAD08999		
ZAA06999		
ZAA05999		
ZAAA3999		
ZAADA999		
ZAADK999		
ZAAAL999		

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
03/08/2008	1	1	Created	dsalt-hp	
22/03/2009	2.2	2	Steps 9 & 36 added to disable & enable STR LOS check to avoid Moon blinding, as per Section 2.1.1 of H-P-4-DS-MA-007 (Issue 2, Rev.5)	dsalt-hp	
01/04/2010	3	3	Step 29 added to ensure STRmain CCD ref. temp. update via sequence HFA4S81X	dsalt-hp	
23/07/2010		4	Comment added at Step 28 to ensure STR1 CCD ref. temp. is commended back to -10C via 3 steps in order to avoid a thermal undershoot.	dsalt-hp	
07/09/2010		5	TCs now included to set STRM CCD ref. temp. to -10C in 3 steps, with link to generic sequence (HFA4S81X) removed.	dsalt-hp	
02/03/2011		6	Step 37 added to disable STR Hk Check and steps removed to change CCD temp. (was 27, 28)	dsalt-hp	
02/03/2011		7	Editorial changes to remove redundant sequences	dsalt-hp	
02/03/2011	3.1	8	Cosmetic corrections to flow chart	dsalt-hp	

Make STR1 operational and configure mode
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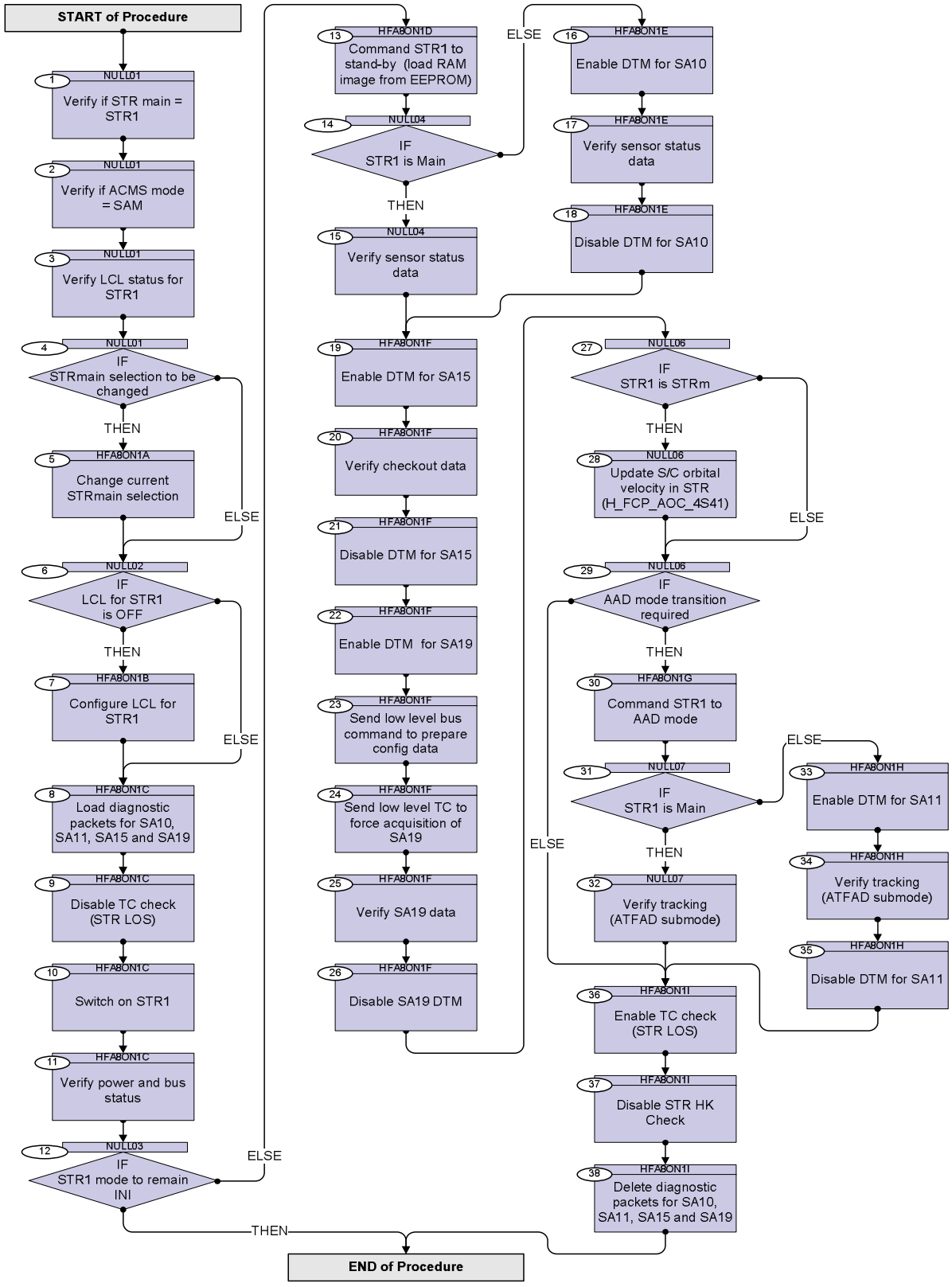
Procedure Flowchart Overview



Make STR1 operational and configure mode
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :NULL01 (Null Sequence 01) *TimeTag Type:* *Sub Schedule ID:*		
1		*Verify if STR main = STR1*		Next Step: 2
		Verify Telemetry **Curr STR in use** **AES18002**	**= STR 1**	AND=ZAA01999
2		*Verify if ACMS mode = SAM*		Next Step: 3
		Verify Telemetry **AcmsMode** **AESMG002**	**= SAM**	AND=ZAA01999
3		*Verify LCL status for STR1*		Next Step: 4
		Verify Telemetry **STR_1_L21_S** **WMA2C565**	**= ON**	AND=ZAD05999
		Verify Telemetry **STR_1_L21_I** **WMA08565**	**> 0.000 A**	AND=ZAD05999
4		*IF* *STRmain selection to be changed*		Next Step: THEN 5 ELSE 6
		TC Seq. Name :HFA8ON1A (Change STRmain selection) *TimeTag Type:* *Sub Schedule ID:*		
5		*Change current STRmain selection*		Next Step: 6
5.1		*Command STR1 to be designated STRmain*		
		NOTE: Delete the following TC from the Manual Stack if STR2 is to be designated as STRmain		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Select STR 1** *Command Parameter(s) :* **NomConf DF86Cmd AH8N1001** **NomConf DD86Cmd AH8N2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) Mod Nom Conf - Select STR 1	**ACZ00109** **Enable 86** **Enable 86**	
		Verify Telemetry **Curr STR in use AES18002**	**= STR 1**	AND=ZAA01999
5.2		*Command STR2 to be designated STRmain*		
		NOTE: Delete the following TC from the Manual Stack if STR1 is to be designated as STRmain		
		Execute Telecommand **Select STR 2** *Command Parameter(s) :* **NomConf DF86Cmd AH8N1001** **NomConf DD86Cmd AH8N2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) Mod Nom Conf - Select STR 2	**ACZ01109** **Enable 86** **Enable 86**	
		Verify Telemetry **Curr STR in use AES18002**	**= STR 2**	AND=ZAA01999
		TC Seq. Name :NULL02 (Null Sequence 02) *TimeTag Type:* *Sub Schedule ID:*		
6		*IF* *LCL for STR1* *is OFF*		Next Step: THEN 7 ELSE 8
		TC Seq. Name :HFA8ON1B (LCL switch ON for STR1) *TimeTag Type:* *Sub Schedule ID:*		

Make STR1 operational and configure mode
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
7		*Configure LCL for STR1*		Next Step: 8
7.1		*LCL21 switch ON*		
		If the LCL required is not ON then first verify that PCDU Status is "running" and, if so, then use TC DC21D170 to switch on LCL21 of STR1		
		Verify Telemetry **PcduSts** **DEH45170**	**= Running**	AND=ZAD08999
		Execute Telecommand **SwOn_Str_1_L21** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : PCDU: TC(8,4,112,5) STR 1 - switch LCL_21 on	**DC21D170**	
7.2		*Verify status LCL for STR1*		
		Verify Telemetry **STR_1_L21_S** **WMA2C565**	**= ON**	AND=ZAD05999
		Verify Telemetry **STR_1_L21_I** **WMA08565**	**> 0.000 A**	AND=ZAD05999
		TC Seq. Name :HFA8ON1C (STR1 switch ON) *TimeTag Type:* *Sub Schedule ID:*		
8		*Load diagnostic packets for SA10, SA11, SA15 and SA19*		Next Step: 9

Make STR1 operational and configure mode
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **TC32H STR SA10D1 Super** *Command Parameter(s) :* **HK Packet ID AH3PK109** **TC3x_SID AHW04109** **Interval AH3SA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** **DID number AH3PA109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,2) Define H DTM STR 1/2 SA10D1 Supersampled	**ACZYA109** **100 <dec>** (Def) **DTM Str12Sa10s** (Def) **4 <dec>** (Def) **16447 <dec>** (Def) **16447 <dec>** (Def) **16447 <dec>** (Def) **16447 <dec>** (Def) **16780 <dec>** (Def) **16780 <dec>** (Def) **16780 <dec>** (Def) **16780 <dec>** (Def)	
		Execute Telecommand **TC32H STR SA11D1 1Hz** *Command Parameter(s) :* **HK Packet ID AH3PK109** **TC3x_SID AHW04109** **Interval AH3SA109** **DID number AH3PA109** **DID number AH3PA109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,2) Define H DTM STR 1/2 SA11D1 1Hz	**ACZYV109** **118 <dec>** (Def) **DTM Str12Sa11s** (Def) **4 <dec>** (Def) **16484 <dec>** (Def) **16817 <dec>** (Def)	

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **TC32H STR SA15D** *Command Parameter(s) :* **HK Packet ID** **AH3PK109** **TC3x_SID** **AHW04109** **Interval** **AH3SA109** **DID number** **AH3PA109** **DID number** **AH3PA109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,2) Define H DTM STR 1/2 SA15D	**ACZYG109** **106 <dec>** (Def) **DTM Str12Sa15** (Def) **4 <dec>** (Def) **16744 <dec>** (Def) **17077 <dec>** (Def)	
		Execute Telecommand **TC32H STR SA19D** *Command Parameter(s) :* **HK Packet ID** **AH3PK109** **TC3x_SID** **AHW04109** **Interval** **AH3SA109** **DID number** **AH3PA109** **DID number** **AH3PA109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,2) Define H DTM STR 1/2 SA19D	**ACZYH109** **107 <dec>** (Def) **DTM Str12Sa19** (Def) **4 <dec>** (Def) **16764 <dec>** (Def) **17097 <dec>** (Def)	
		The DTM packet definitions downloaded to verify correct uplinking.		
		Execute Telecommand **Report Diag Report Def** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,11) Report Diagnostic Parameter Report Definitions	**AC311109** **1 <dec>** (Def) **100 <dec>**	
		Execute Telecommand **Report Diag Report Def** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,11) Report Diagnostic Parameter Report Definitions	**AC311109** **1 <dec>** (Def) **118 <dec>**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Report Diag Report Def** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,11) Report Diagnostic Parameter Report Definitions	**AC311109** **1 <dec>** (Def) **106 <dec>**	
		Execute Telecommand **Report Diag Report Def** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,11) Report Diagnostic Parameter Report Definitions	**AC311109** **1 <dec>** (Def) **107 <dec>**	
9		*Disable TC check (STR LOS)*		Next Step: 10
		To avoid STR being declared unhealthy due to Moon blinding or other perturbing events, disable the FDIR for STR loss		
		Execute Telecommand **DisChkSTRlossStar-initQ** *Command Parameter(s) :* **DisChk DF86Cmd** **AH8C1001** **DisChk DD86Cmd** **AH8C2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) - Disable check FDIR - DisChkSTRlossStar-initQ	**ACY6Z109** **Enable 86** **Enable 86**	

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Fire Disable Check** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Disable Check	**ACZ7M109** **Enable 86** **Enable 86**	
		Verify Telemetry **STR loss check AES4A001**	**= Disabled**	AND=ZAA06999
10		*Switch on STR1*		Next Step: 11
		Execute Telecommand **STR-1 switch ON** *Command Parameter(s) :* **UnitSw DF86 Cmd AH8P1001** **UnitSw DD86 Cmd AH8P2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) Switch ACMS unit on/off - STR-1 switch ON	**ACZ40109** **Enable 86** **Enable 86**	
		Execute Telecommand **FireSwitchACMSunitONOFF** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - FireSwitchACMSunitONOFF	**ACZ1M109** **Enable 86** **Enable 86**	
		Wait 10 seconds to allow the command to be executed		
11		*Verify power and bus status*		Next Step: 12
		Verify Telemetry **STR-1 pwr sts AMXY0074**	**= Switch ON**	AND=ZAA06999
		Verify Telemetry **Comm bus STR1 AES75002**	**<> Not comm cfg**	AND=ZAA01999

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		The check on bus configuration is intended to make sure that STR1 is being interrogated. Any bus selection (either A or B) will be accepted as valid.		
		Note on expected events. A number of events are generated during the powering and installation of the STR. These events may represent status information or warnings due to actions taken autonomously by the ASW. *The following are expected immediately after the STR has been powered:* *TM 5-1-16390 reporting successful power status check for the STR;* *TM 5-1-16449 reporting a DatGet error on the SA12 block for the STR.* *The second event is due to the fact that SA12 interrogated late in the cycle and data is not available in the first cycle in which the ASW copies STR data from the data pool.* *One other event is generated when the STR is commanded to stand-by mode:* *TM 5-1-16394 reports a HK check trigger caused by the fact that TM_SENSOR_STATUS data becomes available only in the second cycle after the transition to STB mode.* *Only a single occurrence of either event is expected.*		
		TC Seq. Name :NULL03 (Null Sequence 03) *TimeTag Type:* *Sub Schedule ID:* □		
12		*IF* *STR1 mode to remain INI*		Next Step: THEN END ELSE 13
		TC Seq. Name :HFA8ON1D (Command STR1 to STB) *TimeTag Type:* *Sub Schedule ID:* □		
13		*Command STR1 to stand-by (load RAM image from EEPROM)*		Next Step: 14

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **STR1 STAND_BY** *Command Parameter(s) :* **STRCfg DF86 Cmd AH8J3001** **STRCfg DD86 Cmd AH8J4001** **STRCfg Nrof Wrd AHFX8001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** **STRCfg Data Wrd AHFX9001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) Command STR config - STR1 STAND_BY	**ACZM3109** **Enable 86** **Enable 86** **10 <dec>** (Def) **0 <hex>** **0 <hex>** **400 <hex>** **0 <hex>** **200 <hex>** **8000 <hex>** **1 <hex>** **D000 <hex>** **2000 <hex>** **8000 <hex>**	
		Execute Telecommand **Fire Cmd STR config** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	**ACZ4M109** **Enable 86** **Enable 86**	
		After being powered on the STR must be commanded to stand-by mode with software load. This requires specification of addresses and the number of words to be transferred from the EEPROM. The values valid for the current release of the STR software have been provided as defaults in the listing of the STR stand-by command above.		
		The transition to stand-by causes a generation of event 5-1-16394 signalling a trigger of the STR HK data check. This is due to the fact that in the first cycle after transition to STB, the HC_STATUS word in the SA10 data block is not valid. *Only a single occurrence of the event is expected.*		

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :NULL04 (Null Sequence 04) *TimeTag Type:* *Sub Schedule ID:*		
14		*IF* *STR1 is Main*		Next Step: THEN 15 ELSE 16
15		*Verify sensor status data*		Next Step: 19
		Wait **10 minutes** to make sure the STR status is correctly reflected in TM after the commanded mode transition.		
		NOTE: *All checks of sensor status data rely on parameters of the main STR in the ETM packet. These parameters can be acquired independently of the selection of STR1 or STR2.*		
		Verify Telemetry **STRM Mode AEX04001**	**= Standby**	AND=ZAA05999
		Verify Telemetry **STRM Submode AEX03001**	**= STB nom ATFAD**	AND=ZAA05999
		Verify Telemetry **STRM Mode trans AEX02001**	**= Cmd mode trans**	AND=ZAA05999
		Verify Telemetry **STRM 1errEEPROM AEX06001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM PROM load AEX07001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM 2err EEPRM AEX08001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM timeout HK AEX0E001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM timeoutEOF AEX0D001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM lastTC sts AEX0G001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM TECcurfail AEX11001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM volt1 fail AEX14001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM volt2 fail AEX13001**	**= No failure**	AND=ZAA05999

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry **STRM volt3 fail AEX12001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM opticTfail AEX15001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM CCDt1fail AEX17001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM CCDt2fail AEX16001**	**= No failure**	AND=ZAA05999
		Verify Telemetry **STRM hlth summ AEX18001**	**= No failure**	AND=ZAA05999
		All analog HK parameters should be within the nominal operating limits.		
		Verify Telemetry **STRM HK volt 1 AEX0S001**		AND=ZAA05999
		Verify Telemetry **STRM HK volt 2 AEX0T001**		AND=ZAA05999
		Verify Telemetry **STRM HK volt 3 AEX0U001**		AND=ZAA05999
		Verify Telemetry **STRM CCD temp1 AEX0V001**		AND=ZAA05999
		Verify Telemetry **STRM CCD temp2 AEX0W001**		AND=ZAA05999
		Verify Telemetry **STRM optic temp AEX0X001**		AND=ZAA05999
		Verify Telemetry **STRM TEC curr AEX0Y001**		AND=ZAA05999
		Verify Telemetry **STR SEU counter AEX19001**		AND=ZAA05999
		Verify Telemetry **STRM CCD bkg av AEXB1001**		AND=ZAA05999
		Verify Telemetry **STRM CCD bkg sd AEXB2001**		AND=ZAA05999
		TC Seq. Name :HFA8ON1E (Verify STR1 sensor status) *TimeTag Type:* *Sub Schedule ID:*		
16		*Enable DTM for SA10*		Next Step: 17

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **EnableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Enable Generation of Telemetry Packets	**AC900070** **1 <dec>** (Def) **Diag Report** **100 <dec>**	
		Verify Packet Reception **H DTM STR1-2 SA10D1 Supersampled** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DHSTRSA10S** **514** **3** **26** **20000**	
17		*Verify sensor status data*		Next Step: 18
		Wait 20 seconds to make sure the STR status is correctly reflected in TM after the commanded mode transition.		
		All checks of sensor status data rely on parameters of the main STR in the ETM packet. These parameters can be acquired independently of the selection of STR1 or STR2.		
		Verify Telemetry **Operating Mode** **AMX12074**	**= Standby**	AND=ZAAA3999
		Verify Telemetry **Submode Status** **AMX11074**	**= STB nom ATFAD**	AND=ZAAA3999
		Verify Telemetry **Mode Transition** **AMX10074**	**= Cmd mode trans**	AND=ZAAA3999
		Verify Telemetry **1 Error in PROM** **AMX16074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **PROM loading** **AMX17074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **2 Errors PROM** **AMX18074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Timeout on HK** **AMX1E074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Timeout on EOF** **AMX1D074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Last TC Status** **AMX1G074**	**= No failure**	AND=ZAAA3999

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry **TEC Curr Fail AMX24074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Voltage 3 Fail AMX27074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Voltage 2 Fail AMX26074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Voltage 3 Fail AMX25074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Optic Temp Fail AMX28074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **CCD Temp 1 Fail AMX2A074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **CCD Temp 2 Fail AMX29074**	**= No failure**	AND=ZAAA3999
		Verify Telemetry **Generic Fault AMX2B074**	**= No failure**	AND=ZAAA3999
		All analog HK parameters should be within the nominal operating limits.		
		Verify Telemetry **STR1 HK Volt 1 AMX1Y074**		AND=ZAAA3999
		Verify Telemetry **STR1 HK Volt 2 AMX1Z074**		AND=ZAAA3999
		Verify Telemetry **STR1 HK Volt 3 AMX20074**		AND=ZAAA3999
		Verify Telemetry **STR1 CCD temp 1 AMX1V074**		AND=ZAAA3999
		Verify Telemetry **STR1 CCD temp 2 AMX1W074**		AND=ZAAA3999
		Verify Telemetry **STR1 Optic temp AMX1X074**		AND=ZAAA3999
		Verify Telemetry **STR1 TEC Curr AMX21074**		AND=ZAAA3999
		Verify Telemetry **SEU Count AMX2F074**		AND=ZAAA3999
		CHECK on the STR1 equivalents for the following TM		
		Verify Telemetry **STRM CCD bkg av AEXB1001**		AND=ZAA05999
		Verify Telemetry **Mean CCD LocBkg AMX2J074**		AND=ZAAA3999

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry **Mean CCDGlobBkg AMX2N074**		AND=ZAAA3999
		CHECK on the STR1 equivalents for the following TM		
		Verify Telemetry **STRM CCD bkg sd AEXB2001**		AND=ZAA05999
		Verify Telemetry **RMS CCD LocBkg AMX2K074**		AND=ZAAA3999
		Verify Telemetry **RMS CCD GlobBkg AMX2P074**		AND=ZAAA3999
18		*Disable DTM for SA10*		Next Step: 19
		STR checkout data from SA10 need to be verified only once after start-up. This makes it possible to disable the DTM packet for SA10 and use STR diagnostic packet one at a time during the installation of the unit. Obviously, the packets can also be used in contingencies when error status data may be needed for troubleshooting.		
		Execute Telecommand **DisableTmGen** *Command Parameter(s) :* **N AH017070** **Sub-Type AH019070** **Packet-ID AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Disable Generation of Telemetry Packets	**AC902070** **1 <dec>** (Def) **Diag Report** **100 <dec>**	
		TC Seq. Name :HFA8ON1F (Verify DTM data from SA15/19) *TimeTag Type:* *Sub Schedule ID:*		
19		*Enable DTM for SA15*		Next Step: 20

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **EnableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Enable Generation of Telemetry Packets	**AC900070** **1 <dec>** (Def) **Diag Report** **106 <dec>**	
		Verify Packet Reception **H DTM STR1-2 SA15D** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DHSTRSA15** **514** **3** **26** **20006**	
20		*Verify checkout data*		Next Step: 21
		A subset of STR checkout data (bits from the RST_STATUS) word is available for the main STR in ETM. Remaining data must be obtained for the specific unit through the SA15 diagnostic package.		
		Verify Telemetry **STR1 reset type** **AMXM8074**	**= HW reset**	AND=ZAADA999
		Verify Telemetry **STR1 aut SWrst** **AMXM6074**	**= SW reset**	AND=ZAADA999
		The setting used above for the STRM SW reset parameter indicates that no autonomous SW reset due to an error has taken place since the start-up of the unit.		
		Verify Telemetry **STR1 SW rev nr** **AMXM1074**		AND=ZAADA999
		Verify Telemetry **STR1 SW iss nr** **AMXM2074**		AND=ZAADA999
		Values of software issue and revision will be provided for the flight configuration of the ACMS.		
		Verify Telemetry **STR1 CPU IO cnf** **AMXMB074**	**= No failure**	AND=ZAADA999
		Verify Telemetry **STR1 CPUWaitCon** **AMXMC074**	**= No failure**	AND=ZAADA999
		Verify Telemetry **STR1 CPUMemConf** **AMXMD074**	**= No failure**	AND=ZAADA999

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry **STR1 CPUctrlreg** **AMXME074**	**= No failure**	AND=ZAADA999
		Verify Telemetry **STR1 EDAC check** **AMXMF074**	**= OK**	AND=ZAADA999
		Verify Telemetry **STR1 RAM fail** **AMXMK074**	**= No failure**	AND=ZAADA999
		Verify Telemetry **STR1 RAM errors** **AMXMJ074**	**= 0 <dec>**	AND=ZAADA999
		Verify Telemetry **STR1 cor EEPROM** **AMXMT074**	**= 0 <dec>**	AND=ZAADA999
21		*Disable DTM for SA15*		Next Step: 22
		STR checkout data from SA15 need to be verified only once after start-up. This makes it possible to disable the DTM packet for SA15 and use STR diagnostic packet one at a time during the installation of the unit. Obviously, the packets can also be used in contingencies when error status data may be needed for troubleshooting.		
		Execute Telecommand **DisableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Disable Generation of Telemetry Packets	**AC902070** **1 <dec>** (Def) **Diag Report** **106 <dec>**	
22		*Enable DTM for SA19*		Next Step: 23
		Execute Telecommand **EnableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Enable Generation of Telemetry Packets	**AC900070** **1 <dec>** (Def) **Diag Report** **107 <dec>**	

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception **H DTM STR1-2 SA19D** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DHSTRSA19** **514** **3** **26** **20007**	
23		*Send low level bus command to prepare config data*		Next Step: 24
		Execute Telecommand **STR1 CONFIG** *Command Parameter(s) :* **STRCfg DF86 Cmd** **AH8J3001** **STRCfg DD86 Cmd** **AH8J4001** **STRCfg Nrof Wrd** **AHFX8001** **STRCfg Data Wrd** **AHFX9001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) Command STR config - STR1 CONFIG	**ACZP5109** **Enable 86** **Enable 86** **1 <dec>** (Def) **0 <dec>**	
		Execute Telecommand **Fire Cmd STR config** *Command Parameter(s) :* **FireFun DF86Cmd** **AH8F1001** **FireFun DD86Cmd** **AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	**ACZ4M109** **Enable 86** **Enable 86**	
24		*Send low level TC to force acquisition of SA19*		Next Step: 25
		Execute Telecommand **Command STR config** *Command Parameter(s) :* **ASW Function ID** **AHFUN001** **STRCfg DF86 Cmd** **AH8J3001** **STRCfg DD86 Cmd** **AH8J4001** **STRConf HP_ID** **AHFX1001** **STRConf 1553 TR** **AHFX6001** **STRConf Subaddr** **AHFX4001** **STRConf Unit** **AHFX5001** **STRConf DWC MC** **AHFX7001** **STRCfg Nrof Wrd** **AHFX8001** *TC Control Flags :*	**ACXC1001** **STR config** (Def) **Enable 86** **Enable 86** **Common** **Transmit** **Read cfg data** **STR-1** **7 <dec>** **0 <dec>**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		GBM IL DSE **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC_COMMAND_STR_CONFIGURATION		
		Execute Telecommand **Fire Cmd STR config** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	**ACZ4M109** **Enable 86** **Enable 86**	
25		*Verify SA19 data*		Next Step: 26
		Verify Telemetry **STR1 ASW rev nr AMXPN074**		AND=ZAADK999
		Verify Telemetry **STR1 ASW issue AMXPP074**		AND=ZAADK999
		Verify Telemetry **STR1 Serial nr AMXPR074**		AND=ZAADK999
26		*Disable SA19 DTM*		Next Step: 27
		Execute Telecommand **DisableTmGen** *Command Parameter(s) :* **N AH017070** **Sub-Type AH019070** **Packet-ID AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Disable Generation of Telemetry Packets	**AC902070** **1 <dec>** (Def) **Diag Report** **107 <dec>**	
		TC Seq. Name :NULL06 (Null Sequence 06) *TimeTag Type:* *Sub Schedule ID:*		

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
27		*IF* *STR1 is STRm*		Next Step: THEN 28 ELSE 29
28		*Update S/C orbital velocity in STR* *(H_FCP_AOC_4S41)*		Next Step: 29
		Execute Procedure: **H_FCP_AOC_4S41** **Update S/C orbital velocity in STR**		
29		*IF* *AAD mode transition required*		Next Step: THEN 30 ELSE 36
		TC Seq. Name :HFA8ON1G (STR1 to AAD mode) *TimeTag Type:* *Sub Schedule ID:*		
30		*Command STR1 to AAD mode*		Next Step: 31
		Execute Telecommand **H STR1 AAD**	**ACZM5109**	
		Command Parameter(s) :		
		STRCfg DF86 Cmd **AH8J3001**	**Enable 86**	
		STRCfg DD86 Cmd **AH8J4001**	**Enable 86**	
		STRCfg Nrof Wrd **AHFX8001**	**18 <dec>** (Def)	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		STRCfg Data Wrd **AHFX9001**	**0 <dec>**	
		TC Control Flags : **GBM IL DSE** **--Y -- ---**		
		Subsch. ID : 20		

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Det. descr. : TC(8,1) Command STR config - H STR1 AAD		
		Execute Telecommand **Fire Cmd STR config** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	**ACZ4M109** **Enable 86** **Enable 86**	
		Wait 40 seconds to make STR tracking is reflected in TM		
		TC Seq. Name :NULL07 (Null Sequence 07) *TimeTag Type:* *Sub Schedule ID:*		
31		*IF* *STR1 is Main*		Next Step: THEN 32 ELSE 33
32		*Verify tracking (ATFAD submode)*		Next Step: 36
		NOTE: these TM checks assume that STR1 is designated as STRmain. If not, DTM (SA11) will be required		
		Verify Telemetry **STRM AAD status AEX65001**	**= ATFAD q valid**	AND=ZAA05999
		Verify Telemetry **STRM 1 trackwin AEX61001**	**= 1 track window**	AND=ZAA05999
		Verify Telemetry **STRM Att qual AEXMY001**		AND=ZAA05999
		Verification of housekeeping parameters and error status specified in detail above can be repeated periodically throughout the STR installation procedure. The sensor output can also be verified, but no specific criteria can be provided in the procedure for the attitude quaternion.		

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HFA8ON1H (Verify STR1 tracking) *TimeTag Type:* *Sub Schedule ID:*		
33		*Enable DTM for SA11*		Next Step: 34
		Execute Telecommand **EnableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Enable Generation of Telemetry Packets	**AC900070** **1 <dec>** (Def) **Diag Report** **118 <dec>**	
		Verify Packet Reception **H DTM STR1-2 SA11D1** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DHSTRSA11** **514** **3** **26** **20018**	
34		*Verify tracking (ATFAD submode)*		Next Step: 35
		NOTE: these TM checks assume DTM (SA11) is enabled		
		Verify Telemetry **STR1 AAD status** **AMX6M074**	**= ATFAD q valid**	AND=ZAAAL999
		Verify Telemetry **STR1 1 trk win** **AMX6H074**	**= More 1 trk wnd**	AND=ZAAAL999
		Verify Telemetry **STR1 qual index** **AMX6E074**		AND=ZAAAL999
		Verification of housekeeping parameters and error status specified in detail above can be repeated periodically throughout the STR installation procedure. The sensor output can also be verified, but no specific criteria can be provided in the procedure for the attitude quaternion.		
35		*Disable DTM for SA11*		Next Step: 36

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		STR checkout data from SA11 need to be verified only once after start-up. This makes it possible to disable the DTM packet for SA11 and use STR diagnostic packet one at a time during the installation of the unit. Obviously, the packets can also be used in contingencies when error status data may be needed for troubleshooting.		
		Execute Telecommand **DisableTmGen** *Command Parameter(s) :* **N** **AH017070** **Sub-Type** **AH019070** **Packet-ID** **AH020070** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : Disable Generation of Telemetry Packets	**AC902070** **1 <dec>** (Def) **Diag Report** **118 <dec>**	
		TC Seq. Name :HFA8ON1I (EnableFDIRdeleteDTM) *TimeTag Type: N* *Sub Schedule ID:*		
36		*Enable TC check (STR LOS)*		Next Step: 37
		Execute Telecommand **EnaChkSTRlossStar-initQ** *Command Parameter(s) :* **EnaChck DF86Cmd** **AH8F3001** **EnaChck DD86Cmd** **AH8F4001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) - Enable check FDIR - EnaChkSTRlossStar-initQ	**ACZBW109** **Enable 86** **Enable 86**	
		Verify Telemetry **STR loss check** **AES4A001**	**= Enabled**	AND=ZAA06999
37		*Disable STR HK Check*		Next Step: 38

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **DisChkSTR hk data** *Command Parameter(s) :* **DisChk DF86Cmd** **AH8C1001** **DisChk DD86Cmd** **AH8C2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,1) - Disable check FDIR - DisChkSTR hk data	**ACY7A109** **Enable 86** **Enable 86**	
		Execute Telecommand **Fire Disable Check** *Command Parameter(s) :* **FireFun DF86Cmd** **AH8F1001** **FireFun DD86Cmd** **AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Disable Check	**ACZ7M109** **Enable 86** **Enable 86**	
		Verify Telemetry **STR hk data chk** **AES4B001**	**= Disabled**	AND=ZAA06999
38		*Delete diagnostic packets for SA10, SA11, SA15 and SA19*		Next Step: END
		Execute Telecommand **Clear Diagnostic Report** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,4) Clear Diagnostic Parameter Report Definitions	**AC034109** **1 <dec>** (Def) **100 <dec>**	

Make STR1 operational and configure mode
File: H_FCP_AOC_8ON1.xls
Author: dsalt-hp

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Clear Diagnostic Report** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,4) Clear Diagnostic Parameter Report Definitions	**AC034109** **1 <dec>** (Def) **118 <dec>**	
		Execute Telecommand **Clear Diagnostic Report** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,4) Clear Diagnostic Parameter Report Definitions	**AC034109** **1 <dec>** (Def) **106 <dec>**	
		Execute Telecommand **Clear Diagnostic Report** *Command Parameter(s) :* **Number of pkts** **AH3NP109** **HK Packet ID** **AH3PK109** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(3,4) Clear Diagnostic Parameter Report Definitions	**AC034109** **1 <dec>** (Def) **107 <dec>**	
End of Procedure				