

Update parameters for STR main
File: H_FCP_AOC_4S81.xls
Author: dsalt-hp



Procedure Summary

Objectives

The objective of this Herschel ACMS procedure is to update internal STR parameters.

The procedure involves the following activities:

- verify ACMS mode and pointing substate
- disable STR reconfiguration and declare STRM unhealthy
- command STRM to standby
- perform updates via appropriate update method:
 - change parameter
 - reset defaults
 - load Defective Pixel Table in RAM from EEPROM (calls H_FCP_AOC_4S71)
 - update Defective Pixel Table in EEPROM from RAM (calls H_FCP_AOC_4S71)
 - update CCD reference temperature
- command STRM to AAD mode
- declare STRM healthy
- enable STRM reconfiguration

Four types of parameter updates are foreseen:

1. Changing individual parameters
2. Resetting all parameters to their default values.
3. Loading the CCD defective pixel table from EEPROM.
4. Updating the EEPROM defective pixel table from RAM.

Summary of Constraints

The ACMS must be in the pointing substate if the current mode is SCM or OCM

All parameter updating commands are allowed only in the STR stand-by mode and while the updating is taking place, the unit cannot be used for control. The procedure relies on the possibility of STR-less control provided in both OCM and SCM modes using only GYR data to propagate attitude. This makes it possible to avoid a forced transition to SAM whenever an STR parameter update is needed, but it imposes some restrictions on the status of attitude control in the mode in which the procedure is executed.

Spacecraft Configuration

Start of Procedure

n/a

End of Procedure

n/a

Reference File(s)

Input Command Sequences

Output Command Sequences

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



HFA4S81A
 HFA4S81B
 HFA4S81C
 HFA4S81E
 HFA4S81D
 HFA4S81X
 HFA4S81F

Referenced Displays

ANDs	GRDs	SLDs
ZAA01999		(None)
ZAA02999		
ZAA05999		

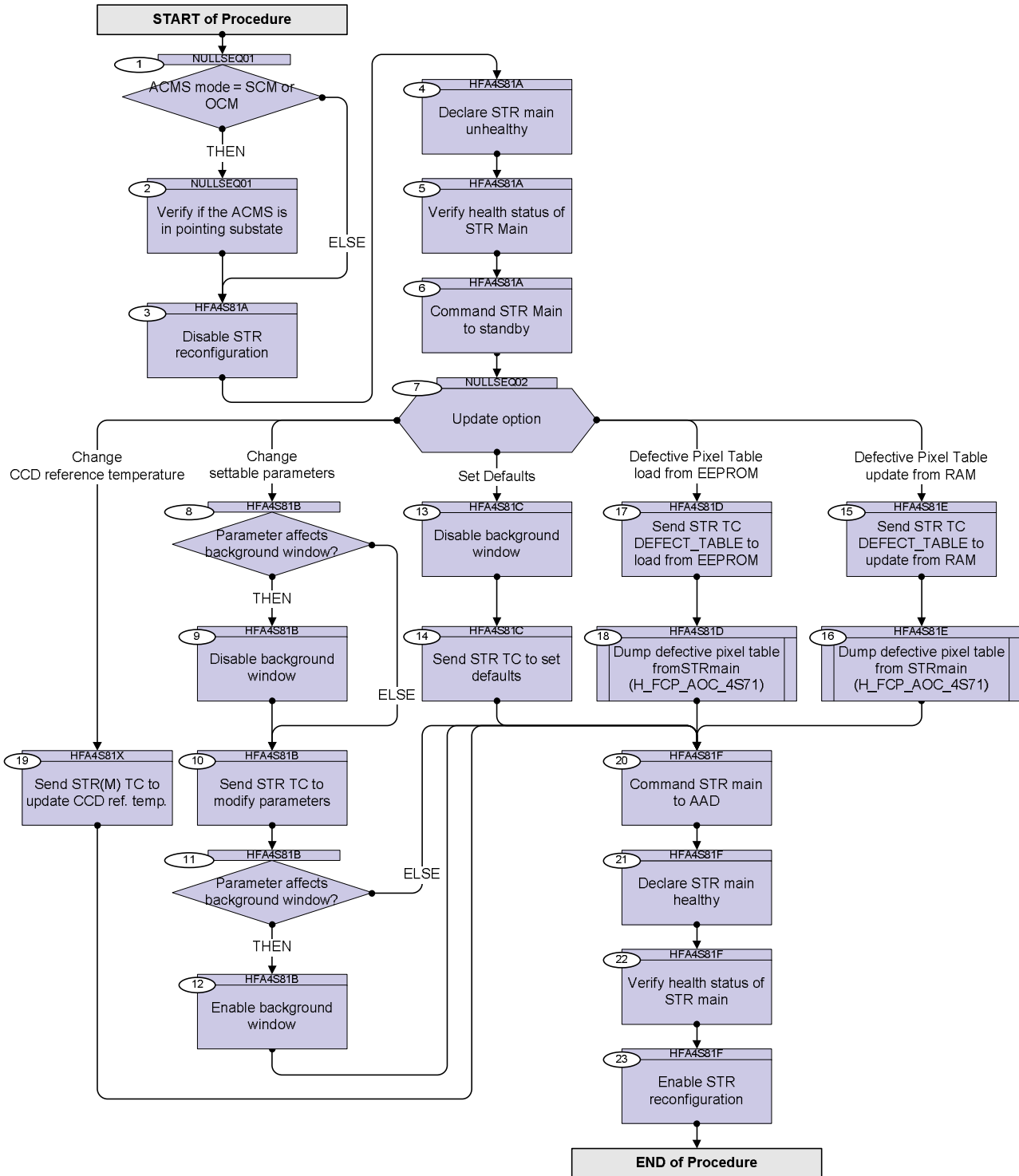
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
03/08/08	1	1	Created	dsalt-hp	
05/02/10		2	Option added (Step 19) to change CCD reference temperature via special TC instance that assigns DW3 & DW4 as a 32 bit signed integer	dsalt-hp	
05/02/10		3	Cosmetic changes to remove redundant sequence IDs	dsalt-hp	
01/04/10	3	4	TC in Step 19 now flagged as being specific for STR Main	dsalt-hp	

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Procedure Flowchart Overview



Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand Fire Disable Reconfig Command Parameter(s) : FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001 TC Control Flags : Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Disable Reconfig	ACZ8M109 Enable 86 Enable 86	
4		Declare STR main unhealthy		Next Step: 5
		Execute Telecommand mSTR unhealthy defSGM Command Parameter(s) : UnHlthDF86 Cmd AH8F1001 UnHlth DD86Cmd AH8F2001 TC Control Flags : Subsch. ID : 20 Det. descr. : TC(8,1) - mSTR unhealthy defSGM	ACYH9109 Enable 86 Disable 86	
5		Verify health status of STR Main		Next Step: 6
5.1		STR main = STR1?		<input type="checkbox"/>
		Verify Telemetry Curr STR in use AES18002 = STR 1		AND=ZAA01999
5.2		Check health status of STR1		<input type="checkbox"/>
		Verify Telemetry STR1 Health Sts AES31002 = Unhealthy		AND=ZAA01999
5.3		STR main = STR2?		<input type="checkbox"/>
		Verify Telemetry Curr STR in use AES18002 = STR 2		AND=ZAA01999
5.4		Check health status of STR2		<input type="checkbox"/>

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p>TC Seq. Name : NULLSEQ02 (Null_Sequence_02)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p style="text-align: center;">□</p>				
7		Update option		Next Step: Change settable parameters 8 Set Defaults 13 Defective Pixel Table load from EEPROM 17 Defective Pixel Table update from RAM 15 Change CCD reference temperature 19
		NOTE: Four types of parameter updates are foreseen: 1. Changing individual parameters (see sequence/steps for changing Parameters) 2. Resetting all parameters to their default values (see sequence/steps for resetting Defaults) 3. Loading the CCD defect table from EEPROM (see sequence/steps for loading from EEPROM) 4. Updating the EEPROM defective pixel table from RAM (see sequence/steps for updating from RAM)		
		NOTE: Steps 9 - 19 can be repeated as many times as necessary to achieve all intended modifications of STR parameters		
<p>TC Seq. Name : HFA4S81B (Change Parameters)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p style="text-align: center;">□</p>				
8		Parameter affects background window?		Next Step: THEN 9 ELSE 10

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		The background window cannot be enabled if parameters modified by the command affect the handling of the window by the STR software. The parameters in this category are those that define the number of background windows used in the calculating the global background (NBKG) and the number of detections needed to declare a pixel defective (NDEF)		
9		Disable background window		Next Step: 10
		Enabling of the background window is controlled by a modifiable parameter.		
		Execute Telecommand <p style="text-align: center;">STRmain Set PARAMETER</p> Command Parameter(s) : STRCfg DF86 Cmd AH8J3001 Enable 86 STRCfg DD86 Cmd AH8J4001 Enable 86 STRCfg Nrof Wrđ AHFX8001 4 <dec> (Def) STRCfg Data Wrđ AHFX9001 15 <dec> STRCfg Data Wrđ AHFX9001 0 <dec> STRCfg Data Wrđ AHFX9001 0 <dec> STRCfg Data Wrđ AHFX9001 0 <dec> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,1) Command STR config - STRmain Set PARAMETER	ACYJA109	
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> Command Parameter(s) : FireFun DF86Cmd AH8F1001 Enable 86 FireFun DD86Cmd AH8F2001 Enable 86 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109	
		Verify Telemetry STRM CCD bkg av AEXB1001	changes from a large value (e.g. 967) to 0	AND=ZAA05999
		Verify Telemetry STRM CCD bkg sd AEXB2001	= 0 <dec>	AND=ZAA05999
10		Send STR TC to modify parameters		Next Step: 11

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;">STRmain Set PARAMETER</p> Command Parameter(s) : STRCfG DF86 Cmd AH8J3001 Enable 86 STRCfG DD86 Cmd AH8J4001 Enable 86 STRCfG Nrof Wrđ AHFX8001 4 <dec> (Def) STRCfG Data Wrđ AHFX9001 0 <dec> STRCfG Data Wrđ AHFX9001 0 <dec> STRCfG Data Wrđ AHFX9001 0 <dec> STRCfG Data Wrđ AHFX9001 0 <dec> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,1) Command STR config - STRmain Set PARAMETER	ACYJA109	
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> Command Parameter(s) : FireFun DF86Cmd AH8F1001 Disable 86 FireFun DD86Cmd AH8F2001 Disable 86 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109	
		NOTE: <u>The values specified in the "Set parameter" TC above are defaults provided only in order to allow MOIS to expoert the command. The user must provide meaningful values for all command parameters when the procedure is executed.</u>		
11		Parameter affects background window?		Next Step: THEN 12 ELSE 20
		The background window cannot be enabled if parameters modified by the command affect the handling of the window by the STR software. The parameters in this category are those that define the number of background windows used in the calculating the global background (NBKG) and the number of detections needed to declare a pixel defective (NDEF)		
12		Enable background window		Next Step: 20
		Enabling of the background window is controlled by a modifiable parameter.		

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;">STRmain Set PARAMETER</p> <i>Command Parameter(s) :</i> STRCfG DF86 Cmd AH8J3001 Enable 86 STRCfG DD86 Cmd AH8J4001 Enable 86 STRCfG Nrof Wrđ AHFX8001 4 <dec> (Def) STRCfG Data Wrđ AHFX9001 15 <dec> STRCfG Data Wrđ AHFX9001 0 <dec> STRCfG Data Wrđ AHFX9001 0 <dec> STRCfG Data Wrđ AHFX9001 1 <dec>	ACYJA109	
		<i>TC Control Flags :</i> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 20</i> Det. descr. : TC(8,1) Command STR config - STRmain Set PARAMETER		
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> <i>Command Parameter(s) :</i> FireFun DF86Cmd AH8F1001 Enable 86 FireFun DD86Cmd AH8F2001 Enable 86	ACZ4M109	
		<i>TC Control Flags :</i> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 30</i> Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config		
		Verify Telemetry <p style="text-align: center;">STRM CCD bkg av AEXB1001</p>	changes from 0 to a large value (e.g. 967)	AND=ZAA05999
		Verify Telemetry <p style="text-align: center;">STRM CCD bkg sd AEXB2001</p>	= 0 <dec>	AND=ZAA05999
TC Seq. Name :HFA4S81C (Reset Defaults)				
<i>TimeTag Type:</i> <i>Sub Schedule ID:</i> <input type="checkbox"/>				
13		Disable background window		Next Step: 14

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;">STRmain Set PARAMETER</p> <i>Command Parameter(s) :</i> STRCf _g DF86 Cmd AH8J3001 Enable 86 STRCf _g DD86 Cmd AH8J4001 Enable 86 STRCf _g Nrof Wr _d AHFX8001 4 <dec> (Def) STRCf _g Data Wr _d AHFX9001 15 <dec> STRCf _g Data Wr _d AHFX9001 0 <dec> STRCf _g Data Wr _d AHFX9001 0 <dec> STRCf _g Data Wr _d AHFX9001 0 <dec> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 20</i> Det. descr. : TC(8,1) Command STR config - STRmain Set PARAMETER	ACYJA109	
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> <i>Command Parameter(s) :</i> FireFun DF86Cmd AH8F1001 Enable 86 FireFun DD86Cmd AH8F2001 Enable 86 <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 20</i> Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109	
		<i>Resetting all parameters affects also the values of thoses which control the use of the background window. The window must therefore be disabled.</i>		
14		Send STR TC to set defaults		Next Step: 20
		Execute Telecommand <p style="text-align: center;">STRmain Set DEFAULT</p> <i>Command Parameter(s) :</i> STRCf _g DF86 Cmd AH8J3001 Enable 86 STRCf _g DD86 Cmd AH8J4001 Enable 86 STRCf _g Nrof Wr _d AHFX8001 1 <dec> (Def) STRCf _g Data Wr _d AHFX9001 0 <dec> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 20</i> Det. descr. : TC(8,1) Command STR config - STRmain Set DEFAULT	ACYJC109	

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> Command Parameter(s) : FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109 Enable 86 Enable 86	
		NOTE: Not necessary to enable Background Window after TC_SET_DEFAULT, as one of the things it does is to set this flag to the default value of "enabled"		
TC Seq. Name :HFA4S81E (Load from EEPROM) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
15		Send STR TC DEFECT_TABLE to update from RAM		Next Step: 16
		Execute Telecommand <p style="text-align: center;">STRmain Set Defect Tabl</p> Command Parameter(s) : STRCfg DF86 Cmd AH8J3001 STRCfg DD86 Cmd AH8J4001 STRCfg Nrof Wrđ AHFX8001 STRCfg Data Wrđ AHFX9001 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,1) Command STR config - STRmain Set Defect Table	ACYJE109 Enable 86 Enable 86 1 <dec> (Def) 1 <dec>	
		Execute Telecommand <p style="text-align: center;">Fire Cmd STR config</p> Command Parameter(s) : FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109 Enable 86 Enable 86	

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
16		Dump defective pixel table from STRmain (H_FCP_AOC_4S71)		Next Step: 20
		Execute procedure: H_FCP_AOC_4S71 Dump defect pixel table for STR main		
		Use the option to dump the defect table from RAM		
<p>TC Seq. Name :HFA4S81D (Update from RAM)</p> <p>TimeTag Type: Sub Schedule ID: <input type="checkbox"/></p>				
17		Send STR TC DEFECT_TABLE to load from EEPROM		Next Step: 18
		Execute Telecommand STRmain Set Defect Tabl Command Parameter(s) : STRCfG DF86 Cmd AH8J3001 Enable 86 STRCfG DD86 Cmd AH8J4001 Enable 86 STRCfG Nrof WrD AHFX8001 1 <dec> (Def) STRCfG Data WrD AHFX9001 0 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC(8,1) Command STR config - STRmain Set Defect Table	ACYJE109	
		Execute Telecommand Fire Cmd STR config Command Parameter(s) : FireFun DF86Cmd AH8F1001 Enable 86 FireFun DD86Cmd AH8F2001 Enable 86 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config	ACZ4M109	
18		Dump defective pixel table fromSTRmain (H_FCP_AOC_4S71)		Next Step: 20
		Execute procedure: H_FCP_AOC_4S71 Dump defect pixel table for STR main		

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch												
		Use the option to dump the defect table from RAM														
<p>TC Seq. Name :HFA4S81X (Change CCD Ref temp)</p> <p>TimeTag Type: N Sub Schedule ID: Formal Parameter List : PrmValue_SInt32 CCDrefTC= <dec></p>																
19		Send STR(M) TC to update CCD ref. temp.		Next Step: 20												
		<p>NOTE: Enter the CCD reference temperature (CCDrefTC) as a raw signed integer, via the following calibration...</p> <p>CCD reference temperature * 10 = CCDrefTC (e.g. +13.5C = +135 <dec>)</p> <p>The min/max allowed values for CCDrefTC are... MAX. value, +30C = +300 <dec> MIN. value, -10C = -100 <dec></p>														
		<p>***** WARNING *****</p> <p>This TC instance is defined to update <u>STM Main</u></p>														
		<p>Execute Telecommand</p> <p style="text-align: right;">StrmSetPrm_SignInt32</p> <p>XC101990</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">STRCfG DF86 Cmd</td> <td style="width: 20%;">AH8J3001</td> <td style="width: 40%;">Enable 86</td> </tr> <tr> <td>STRCfG DD86 Cmd</td> <td>AH8J4001</td> <td>Enable 86</td> </tr> <tr> <td>PrmNr_UInt16</td> <td>XH374990</td> <td>23 <dec></td> </tr> <tr> <td>PrmValue_SInt32</td> <td>XH376990</td> <td>CCDrefTC</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 20 Det. descr. : See H-P-GAF-IC-0001, i7, table 10-2.</p>	STRCfG DF86 Cmd	AH8J3001	Enable 86	STRCfG DD86 Cmd	AH8J4001	Enable 86	PrmNr_UInt16	XH374990	23 <dec>	PrmValue_SInt32	XH376990	CCDrefTC		
STRCfG DF86 Cmd	AH8J3001	Enable 86														
STRCfG DD86 Cmd	AH8J4001	Enable 86														
PrmNr_UInt16	XH374990	23 <dec>														
PrmValue_SInt32	XH376990	CCDrefTC														
		<p>Execute Telecommand</p> <p style="text-align: right;">Fire Cmd STR config</p> <p>ACZ4M109</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">FireFun DF86Cmd</td> <td style="width: 20%;">AH8F1001</td> <td style="width: 40%;">Disable 86</td> </tr> <tr> <td>FireFun DD86Cmd</td> <td>AH8F2001</td> <td>Disable 86</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Cmd STR config</p>	FireFun DF86Cmd	AH8F1001	Disable 86	FireFun DD86Cmd	AH8F2001	Disable 86								
FireFun DF86Cmd	AH8F1001	Disable 86														
FireFun DD86Cmd	AH8F2001	Disable 86														

Update parameters for STR main
 File: H_FCP_AOC_4S81.xls
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry STRM Mode AEX04001	= Auto attdetect	(None)
		Verify Telemetry STRM Submode AEX03001	= STB nom ATFAD	(None)
		Verify Telemetry STRM AAD status AEX65001	= ATFAD q valid	(None)
		Verify Telemetry STRM 1 trackwin AEX61001	= More 1 trk wnd	(None)
		Verify Telemetry STRM Att qual AEXMY001		(None)
21		Declare STR main healthy		Next Step: 22
		Execute Telecommand mSTR healthy defSGM ACYPH8109 Command Parameter(s) : UnHlthDF86 Cmd AHFH1001 Enable 86 UnHlth DD86Cmd AHFH2001 Enable 86 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 20 Det. descr. : TC(8,1) - mSTR healthy defSGM		
		Wait 30 seconds to allow the new STR health status to be reflected in essential TM		
22		Verify health status of STR main		Next Step: 23
22.1		Check health status if STRmain = STR1		<input type="checkbox"/>
		Verify Telemetry Curr STR in use AES18002	= STR 1	AND=ZAA01999
		Verify Telemetry STR1 Health Sts AES31002	= Healthy	AND=ZAA01999
22.2		Check health status if STRmain = STR2		<input type="checkbox"/>
		Verify Telemetry Curr STR in use AES18002	= STR 2	AND=ZAA01999
		OR Verify Telemetry STR2 Health Sts AES32002	= Healthy	AND=ZAA02999

