

Herschel ACMS : Set ACMS FDIR Mode
File: H_FCP_AOC_DAFO.xls
Author: dsalt-hp



Procedure Summary

Objectives

This procedure provides the sequences for switching between ACMS FDIR modes AFS and AFO.

BACKGROUND:

The autonomous reaction to a detected failure depends on the ACMS FDIR mode:

1. Autonomous Fail Safe (AFS): Detected anomalies of units will be reported as events and shown in telemetry, but the ACMS will not invoke any reconfiguration of a unit. Serious problems will lead to a trigger of the ARAD and transition to Survival Mode
2. Autonomous Fail Operational (AFO): The ACMS will autonomously reconfigure to the redundant STR if it detects a failure in one of these units. The purpose of this reconfiguration is to minimize the impact of failure on the mission timeline. RCS, CRS and SAS are monitored but not reconfigured autonomously even if in AFO.

Summary of Constraints

It is assumed that all redundant units are healthy thus all autonomous reconfigurations are possible.

Note: Automatic reconfigurations are driven by an on board table that specifies which actions are enabled and disabled. When setting the FDIR mode to AFO all reconfiguration entries are set to enabled. Though it is possible subsequently to disable reconfiguration entries individually using the TC_DISABLE_RECONFIGURATION command. At which point even though the FDIR mode will show AFO not all reconfigurations will take place.

Spacecraft Configuration

Start of Procedure

N/A

End of Procedure

N/A

Reference File(s)

Input Command Sequences

Output Command Sequences

HFADAF01
HFADAF02

Referenced Displays

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ANDs GRDs SLDs
ZAA01999

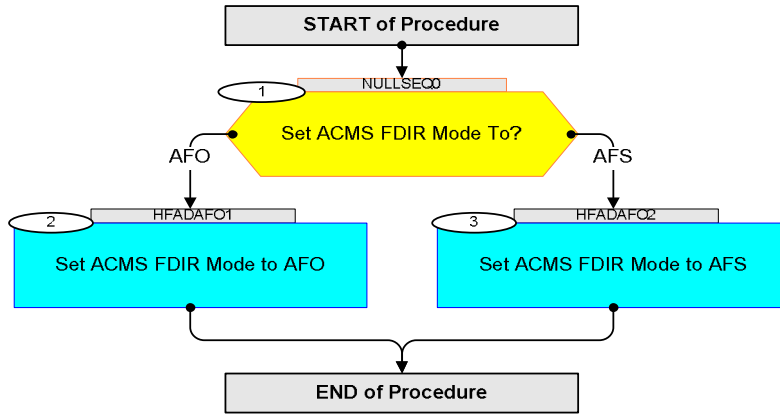
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
03/03/09	2.1	1	Created	dsalt-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
TC Seq. Name : NULLSEQ0 () TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
1		Set ACMS FDIR Mode To?		Next Step: AFO 2 AFS 3
		The autonomous reaction to a detected failure depends on the ACMS FDIR mode: 1. Autonomous Fail Safe (AFS): Detected anomalies of units will be reported as events and shown in telemetry, but the ACMS will not invoke any reconfiguration of a unit. Serious problems will lead to a trigger of the ARAD and transition to Survival Mode 2. Autonomous Fail Operational (AFO): The ACMS will autonomously reconfigure to the redundant RWL, GYR or STR if it detects a failure in one of these units. The purpose of this reconfiguration is to minimize the impact of failure on the mission time line.		
		Check current FDIR mode and select the appropriate switch branch: Switch to AFO -> GO TO STEP 2 Switch to AFS -> GO TO STEP 3		
		Verify Telemetry <div style="display: flex; justify-content: space-around;"> FdirMode AESMJ002 </div>	<to be read>	AND=ZAA01999
TC Seq. Name : HFADAF01 (SetFdirModeToAfo) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
2		Set ACMS FDIR Mode to AFO		Next Step: END
2.1		Uplink Sequence PFADAF01		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <div style="text-align: right;">Set FDIR mode</div> Command Parameter(s) : ASW Function ID AHFUN001 FdirSwtcDF86Cmd AH8Z1001 FdirSwtcDD86Cmd AH8Z2001 FdirSwitch Mode AHFF6001 TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 20 Det. descr. : TC_SET_FDIR_MODE	ACFM1001 FDIRSwitch (Def) Enable 86 Enable 86 AFO rcfg ena	
		Execute Telecommand <div style="text-align: right;">Fire Set FDIR mode</div> Command Parameter(s) : FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001 TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- --</div> Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Set FDIR mode	ACZ6M109 Enable 86 Enable 86	
2.2		Verify Update		<input type="checkbox"/>
		Verify Telemetry <div style="text-align: right;">FdirMode AESMJ002</div>	= AFO rcfg ena	AND=ZAA01999
TC Seq. Name : HFADAFO2 (SetFdirModeToAfs) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
3		Set ACMS FDIR Mode to AFS		Next Step: END
3.1		Uplink Sequence PFADAFO2		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">Set FDIR mode</p> <i>Command Parameter(s) :</i> ASW Function ID AHFUN001 FdirSwtcDF86Cmd AH8Z1001 FdirSwtcDD86Cmd AH8Z2001 FdirSwitch Mode AHFF6001	ACFM1001	
		<i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- --</p> <i>Subsch. ID : 20</i> Det. descr. : TC_SET_FDIR_MODE	FDIRSwitch (Def) Enable 86 Enable 86 AFS rfg dis	
		Execute Telecommand <p style="text-align: right;">Fire Set FDIR mode</p> <i>Command Parameter(s) :</i> FireFun DF86Cmd AH8F1001 FireFun DD86Cmd AH8F2001	ACZ6M109	
		<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 Set FDIR mode	Enable 86 Enable 86	
3.2		Verify Update		☐
		Verify Telemetry <p style="text-align: right;">FdirMode AESMJ002</p>	= AFS rfg dis	AND=ZAA01999
End of Procedure				