AXAF COMMAND ACTION PROCEDURE

CAP #:774
DATE: 22 January 2002

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Time of CAP Execution (GMT): 2002:028:1405-1615

DESCRIPTION/RATIONALE

This CAP is a test of a generic CAP to recover from a threshold crossing plane latchup on ACIS. This CAP will be run during a normal CTI measurement to verify the validity of the command sequence and the TLM verifiers.

This CAP will remedy the threshold crossing plane latchup anomaly should it occur and be identified during a given COMM pass. If the threshold plane has in fact latched up we plan to upload a series of commands to set the ACIS radiation flag high, power down the FEPs, update the OBSID, power-up the FEPs, set the ACIS radiation flag low, dump the System Configuration, and dump the Huffman tables. This recovery should work independent of the state of the instruments. Once these commands have been executed a new bias will be computed and telemetered. We will then resume the science run.

NOTE: contingency OBSIDs when the SIM is at the HRC-S or HRC-I position are selected from the file: "/data/mpcrit1/oac/obsids-for-oac.list"
And when the SIM is at ACIS-I or ACIS-S are selected from the file: "/data/mpcrit1/oac/obsids-for-contingencies.list"

RESTRICTIONS/WARNINGS/NOTES/SCHEDULE REQT:

It is required that the OBC is not processing any commands from the stored command load during this CAP execution, especially maneuver commands. Upon discovery of a threshold crossing plane latchup, the ACIS scientist must decide if it is appropriate to execute this CAP. At a minimum, there must be 30 minutes left in the COMM and the current observation to execute this CAP since it takes 30 minutes to compute and telemeter a new bias from 6 CCDs.

There are situations in which this CAP would recover a significant amount of science:
1. ACIS is in the midst of a long science run, with a large enough fraction of the time remaining such that an interruption of 30 minutes to correct the latchup would yield more good science than if the observation were left to proceed as is.
2. The subsequent observation does not re-compute bias and hence does not power-down the FEPs.
3. The subsequent observation uses an "old" SIMODE which does not have the FEP power-down and power-up commands.

There are situations in which this CAP should not be run or there is little gained by running it:
1. There are less than 30 minutes left in the current observation
2. The currently-loaded parameter block does not telemeter bias (trickleBias=0). Note: most normal science runs do telemeter bias (trickleBias=1).
3. The science of the current observation does not depend on the latched FEPs and the subsequent observation will power cycle the FEPs
4. Most of the observation has been completed and the next observation power-cycles the FEPs

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STEP	INSTRUCTIONS (Command/Script)	RESPONSE (TLM Verifier)
1	ACIS confirms that one or more FEPs has a latched T-plane by examining threshold crossing rates.	
2	Uplink Loads:	
	1A_WS003_165.CLD	8121972
	1A_WS000_203.CLD	B124307

	1A_RS000_207.CLD	4022412
	1A_RH000_151.CLD	601EE12
3	Execute Script I_1_SET_RAD_FLAG.ssc (V3.1) set radiation flag high	
	1RMONIRM(1) ENAB	DEA current drop
		SWSTAT_SCI_INHIBIT_ON in SW Hskp
		SWSTAT_DEACCD_POWEROFF in SW Hskp
4	ACIS confirms end of science run	1STAT1ST=1 (Sci Idle)
	termination code 3 in Sci-report	(SMTERM_RADMON)
5	Enable and Activate SCS 165	WSFEPALLDN (cmdID = 1542)
6	ACIS confirms FEPs powered down	1DPICACU == 0.4 A
		1DPICBCU == 0.3 A
7	Update OBSID to next available contingency: 62854.	
8	Enable and Activate SCS 203	WSFEPALLUP (cmdID = 89)
9	ACIS confirms FEPs powered up	1DPICACU == 1.4 A
	It will take approx 60s to confirm	1DPICBCU == 1.2 A
	There will be 1 of the following messages for each FEP:	SWSTAT_FEP_STARTLOAD in SW Hskp
	(a total of 6 should be seen)	SWSTAT_FEP_ENDLOAD in SW Hskp
10	Execute Script I_1_SET_RAD_FLAG.ssc (V3.1) set radiation flag low	
	1RMONIRM(0) DISA	DEA current rise
		SWSTAT_SCI_INHIBIT_OFF in SW Hskp
		SWSTAT_DEACCD_POWERON in SW Hskp
11	ACIS confirms restart of science run	1STAT1ST=0 (Sci Active)
12	Enable and Activate SCS 207	RS_0000001 (cmdID = 66)
13	Enable and Activate SCS 151	RH_0000001 (cmdID = 68)
14	Clear and Disable 165, 203, 207 and 151	
15	ACIS confirms new bias telemetered	

Approved:

Subsystem Engineer: Flight Director:
FOT Manager/Lead: Program Manager:
SOT Lead: