1.26_V2.1 Flight Software TE Ignore Initial Frames Patch

Last Revised: July 29, 1999
Filename: sw_teignore

BRIEF FUNCTIONAL DESCRIPTION:
This procedure loads the "TE Ignore Initial Frames" patch to the ACIS Flight Software. The patch instructs the FEPs to skip a selected number of frames at the start of a science run before processing frames for events or telemetering raw frames. Skipping frames allows time for noise in the image section to settle down after the CCDs start clocking. The number of frames to ignore is specified by setting the *ignoreInitialFrames* parameter in a TE-mode parameter block. If *ignoreInitialFrames* is less than 2, then 2 frames will be skipped; if greater than 2, then the first telemetered exposure number will have the value of *ignoreInitialFrames.* The ACIS Flight SW team recommends that optional patches be loaded together with the standard patches; therefore this procedure first removes any patches which may have been installed and then proceeds to load the standard patches followed by the optional patches.

NOTE on MIT version identifiers: Numeric revision identifiers are preliminary, and, although logged and controlled, have not been subjected to peer review and sign-off. Letter revision identifiers reflect items which have undergone peer review and sign-off. This procedure loads "standard Rev. A" and an optional patch from "optional Rev. A". Refer to the release notes for standard and optional patches (see references below).

The following procedure loads the "Standard" and the "TE Ignore Initial Frames" optional set of patches into the ACIS instrument, and dumps the load to the ground for verification.

This procedure implements the following basic operations:

1. Reset the contents of the patch list to remove any existing patches, dump the contents of the patch list to verify that the list is empty
2. Load the "standard Rev. A" patch load
3. Load the "TE Ignore Initial Frames" patch (part of "optional Rev. A")
4. Load the patch load version number
5. Dump the contents of the patch list to verify the load
6. Warm boot the DPA to activate the new load and verify proper BEP boot

Refer to the "Optional Patch Release Notes, MIT 36-58020 Rev. A", for a detailed description of the effects of this patch load.

The verifiers for the procedure will be:

1. A command echo for the reset patch list command
2. A command echo for the 1st dumpPatchlist command
3. A single bepReadReply packet for the 1st empty dump
4. A series of command echoes for the addPatch commands

5. A command echo for the dumpPatchlist command
6. A series of bepReadReply packets for the dump command
7. A bepStartupMessage packet with a modified "version == 28" field

ACIS flight software personnel will review the contents of the various dumps after the procedure has been run.

ASSUMED INSTRUMENT STATE:
Assumes at least one side of the DPA is on and the flight SW is running on one BEP.

SPECIAL INITIAL CONDITIONS:
Spacecraft telemetry must be in Format 2 when the optional patches are dumped to save time.
The sw_teignore patch is not certified to be loaded with the sw_evhcc3x3 patches at this time, so all patches must be removed at the start of this procedure (see step 1).

OPERATIONAL CONSTRAINTS/CAUTIONS:
In order to avoid truncating a dump, each dumpPatchlist command must be followed by at least a 10 second delay.

REFERENCES:

1. MIT 36-58010, Standard Patch Release, Rev. A
2. MIT 36-58020, Optional Patch Release, Rev. A

CHANGE HISTORY:

V1.0

- Initial version, copied from the procedure "Event Histogram + CC 3x3 Option Patch Load" (sw_evhcc3x3), 1.12_V2.0
- Revised the procedure title, date, and filename
- Revised the brief functional description
- Revised the list of basic operations
- Removed item 3 from the references
- Revised the value of the bepStartupMessage packet version field in the list of telemetry verifiers
- Revised step 3 completely to load the "TE Ignore Initial Frames" patch
- Deleted the old step 4 and renumbered steps 5-7 to steps 4-6
- Revised the command mnemonics, command echos, and descriptions in steps 4.1 & 5.1
- Revised the version field value in the description in step 6.4, and the telemetry EGSE field in step 6.5
- Revised the table caption

- Changed the Latex command
  input{sw_evhcc3x3.tab} to
  input{sw_teignore.tab}

V1.1

- Updated the version number and revision date
- Deleted the third paragraph in the brief functional description
- Deleted the first item in the special initial conditions
- Removed MSID WUTEIGNRA1 from step 3.1
- Revised command echos and descriptions in steps 3.1 and 4.1

V2.0

- ACIS team signed-off version

V2.1

- step 3.1, added command echo and load size in the "Description" column
- step 4.1, added command echo and load size in the "Description" column
- step 5.1, fixed typo in the "Description" column, changed "wujteignra" to "wuteignra"

Table 1: **ACIS TE Ignore Initial Frames Flight Software Patch**

Step #	Title (Revision 1.26_V2.1)	Time Req	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value	Units
1	Reset the Patchlist							
1.1	Empty the Patchlist	1	removePatches	AUALLPATCH				
1.2	Read the empty Patchlist	1	dumpPatchlist	RU_0000001				
2	Load Standard Patches							
2.1	Load "standard Rev. A" patches	1	addPatch	WUSTANDA01 WUSTANDA02 WUSTANDA03 WUSTANDA04 WUSTANDA05 WUSTANDA06 WUSTANDA07 WUSTANDA08 WUSTANDA09 WUSTANDA10 WUSTANDA11 WUSTANDA12 WUSTANDA13 WUSTANDA14 WUSTANDA15 WUSTANDA16 WUSTANDA17				
3	Load the TE Ignore Frames Patch							
3.1	Load sw_teignore patch part of "optional Rev. A"	1	addPatch	WUTEIGNRA0				
4	Patch the version number							
4.1	Load the version number patch	1	addPatch	WUFSV0001C				
5	Dump Installed Patches							
5.1	Dump Patchlist	1	dumpPatchlist	RU_0000001				

Table 2: (CONT) **ACIS TE Ignore Initial Frames Flight Software Patch**

Step #	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
1									
1.1	Check cmdResult == 1		A			Y	1or2		
	commandEcho 326								
1.2	Check cmdResult == 1		B	bepReadReply, ACIS EGSE verifies		Y	1or2		
	commandEcho 65			single packet reply					
2									
2.1	commandEcho 898		A	Expect to send 17 packets. Total load size ∼ 456 bytes.		Y	1or2		
	commandEcho 900		A						
	commandEcho 903		A						
	commandEcho 904		A						
	commandEcho 907		A						
	commandEcho 909		A						
	commandEcho 910		A						
	commandEcho 912		A						
	commandEcho 915		A						
	commandEcho 917		A						
	commandEcho 918		A						
	commandEcho 921		A						
	commandEcho 922		A						
	commandEcho 924		A						
	commandEcho 927		A						
	commandEcho 928		A						
	commandEcho 931		A						
3									
3.1	commandEcho 1217		A	Expect to send 1 packet. Total load size ∼ 20 bytes.		Y	1or2		
4									
4.1	commandEcho 1218			Expect to send 1 packet. Total load size ∼ 16 bytes.		Y	1or2		
				Sets the version number to 28.					
5									
5.1	check cmdResult = 1			bepReadReply, ACIS EGSE verifies reply		Y	2		
	commandEcho 65			against file wuteignra.dumpedPatches.txt.					

Table 1: **ACIS TE Ignore Initial Frames Flight Software Patch(Page 2)**

Step #	Title (Revision 1.26_V2.1)	Time Req	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value	Units
6	Activate Patches							
6.1	Set Boot Modifier off	0.1	DPA FS Boot Modifier	1BMODIBM(0)				
6.2	Set Warm Boot Flag on	0.1	DPA Warm Boot	1WRMBTSB(1)				
6.3	Halt BEP	0.1	Halt BEP	1RSETIRT(1)				
6.4	Restart BEP	1	Restart BEP	1RSETIRT(0)				
6.5	Check BEP Boot	2.0						
6.6	Check HW LEDs	2.0			BEP Select	1STAT4ST	0or1	
					BEP FIFO Not Full	1STAT6ST	1	
					BEP FIFO Not Empty	1STAT7ST	0	
6.7	Check SW LEDs	2.0			BEP initialization	1STAT3ST	0	
					Watchdog boot	1STAT2ST	1	
					Science run status	1STAT1ST	1	
						1STAT0ST	0or1	
	Total Time	13.3						

Table 2: (CONT) **ACIS TE Ignore Initial Frames Flight Software Patch(Page 2)**

Step #	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
6									
6.1				disables uplink boot		Y	1or2		
6.2						Y	1or2		
6.3						Y	1or2		
6.4	bepStartupMessage			ACIS EGSE verifies “version” field == 28 decimal		Y	1or2		
6.5	Check bepStartupMessage:		A			Y	1or2		
	bepTickCounter $<$ 10; version =28;		A						
	watchdogFlag = 0, patchValidFlag =1		A						
	warmbootFlag = 1		A						
	Check swHousekeeping messages:								
	startingBepTickCounter $<$ 10;		B						
	endingBepTickCounter=		B						
	=startingBepTickCounter+640								
	version =28		A						
6.6			2	0/1 indicates BEP A/B is selected		Y	1or2		
			2	1 means FIFO not full					
			2	1 means not FIFO empty					
6.7			1	0 means BEP SW is running		Y	1or2		
			2	1 means no watchdog boot					
			2	1 means science idle					
			2	this bit toggles to indicate BEP is running					