

Command Action Procedure

CAP # 1407

Date: Dec 9, 2016

Participants OC

Required for CC

Execution: ACIS Ops

Originator: John ZuHone

Commands Checked By: Richard Edgar

Time of CAP execution: Approx. 17:25 EST
12/9/16

Title: DPA Side A Power Off Recovery

Description/Rationale: At the comm pass on 2016:344:13:05 it was discovered that ACIS DPA A was OFF. The ACIS team has concluded that this is due to an SEU in the ACIS PSMC. Similar events are documented in Flight Notes 394 and 417. We will turn DPA A on, reload the ACIS Flight Software patches (version STDFOPTG), and set the focal plane temperature to -121C. We will also power down the video boards on the ACIS DEA.

Restrictions/Warnings/Notes:

This CAP assumes the telemetry format 2

Yes No **CAP requires enabling of a disabled command? If yes, provide a list of Disabled Commands**

CARD Items:

SYST-R-004: Allowable commands for use in Mission SCSs above 135

Schedule Requirements/Load Interaction:

CAP execution window: 2016:344:22:25:00 to 2016:344:23:25:00

CAP duration: c. 1 hr

CAP verified against DEC0516B daily loads if applicable: N/A

Yes No Daily load commands exist during execution window of CAP

Yes No CAP requires specific DSN comm. or timing requirements

Yes No CAP will be run concurrently with another CAP

Yes No CAP requires commanding in the load to be executed to ensure success

Yes No Daily load requires the CAP to be completed to ensure success

Yes No CAP uses SCS slots. If yes, performs SCS cleanup

Comments:

The daily loads are continuing to execute. No ACIS commanding exists during the CAP execution window. This CAP must be executed in realtime comm. If this CAP does not succeed, ACIS will not take data until recovery is complete. This CAP uses SCS slots and contains cleanup steps.

If there is not enough time upload the patches in the 2225Z comm pass, we will wait until the next comm pass at 345:0355-0455Z to do that step.

Initial Conditions/Spacecraft Configuration:**CAP depends upon or changes the state of:**

<input checked="" type="checkbox"/> Telemetry Format	<input type="checkbox"/> SIM Table Position
<input type="checkbox"/> Safing Monitor En\Dis State (inc. RadMon)	<input type="checkbox"/> Grating Positions
<input type="checkbox"/> OBSID	<input checked="" type="checkbox"/> SI Mode
<input type="checkbox"/> Momentum State	<input checked="" type="checkbox"/> ACIS Parameter Blocks
<input type="checkbox"/> Attitude	<input type="checkbox"/> HRC Configuration
<input type="checkbox"/> PCAD Mode	<input checked="" type="checkbox"/> SCS States or Contents
<input type="checkbox"/> S/C Unit Configuration (H/W or S/W)	<input type="checkbox"/> Dither State
<input type="checkbox"/> Ground System Configuration/Settings	<input type="checkbox"/> FSW Element
<input type="checkbox"/> S/C Clock (VCDU)	

Comments:

This CAP will be executed in Format 2. If the telemetry format is not 2, we will change to Format 2. If successful, ACIS will be returned to standby mode, which will reset SI mode and parameter blocks. This CAP uses SCS slots and contains commanding to clear and disable them after use.

DEC0516B loads have been verified to resume after this CAP execution as-is. Next CC-mode observation must occur after an OFLS initial mode run. There are no CC-mode observations in the DEC0516B or DEC1216A loads.

Risk/Comm. Loss/Worst Case Scenario:**What happens if comm. is lost during CAP execution?**

If comm is lost, during the flight software patch, ACIS may be left unpatched. SOT/FOT should find the next reasonable comm opportunity to reload the flight software patch. If the patch is interrupted before the warm boot, the flight software will be left at version 11.

What is the worst case scenario for CAP execution? (Assuming the CAP is executed correctly)

IF the DPA fails to come on, further diagnostic activities may be indicated.

If the DPA status is not correct at the end of the 11 pm EST comm, we should consider running SCS107 to stop the DEC0516B loads.

Required Products (Scripts, Displays, SOPs, etc.):

Product Name	Version	On-Console
I_ACIS_SW_STDFOPTG.ssc	3.1	<input checked="" type="checkbox"/>
I_ACIS_SW_STDEOPTF.ssc	3.1	<input checked="" type="checkbox"/>
SOP_ACIS_SW_STDFOPTG.doc	3.1	<input checked="" type="checkbox"/>
SOP_ACIS_SW_STDEOPTF.doc	3.0	<input checked="" type="checkbox"/>
4.28_V2.0 Flight Software Patch Standard F Optional Patch G	2.2	SOT ACIS ONLY
SOP_ACIS_FSW_DUMP.doc	3.2	<input checked="" type="checkbox"/>
SOP_ACIS_DPAA_ON	3.0	<input checked="" type="checkbox"/>
I_1_DPAA_ON.ssc	3.1	<input checked="" type="checkbox"/>
SOP_SI_SET_ACIS_FP_TEMP_TO_M121C	3.1	<input checked="" type="checkbox"/>
O_SCSCTRL.SSC	3.4	<input checked="" type="checkbox"/>
O_STATUS.dec	3.4	<input checked="" type="checkbox"/>

Command Load Name	Checksum (if applicable)	In ODB
1A_WS007_164.CLD	7021872	<input checked="" type="checkbox"/>

Instructions:

1. Turn on ACIS DPA Side A, by executing SOP_ACIS_DPAA_ON.
2. SOT will verify expected ACIS operation. If ACIS is in an unexpected state, exit the CAP.
3. Uplink 1A_WS007_164.CLD
4. Enable and activate SCS 164 using O_SCSCTRL.ssc (verify on O_STATUS.dec)
5. ACIS verifies from telemetry that the video boards have been powered off.
6. Clear and disable SCS 164 using O_SCSCTRL.ssc (verify on O_STATUS.dec)
7. If ~30 minutes remain in comm, proceed. Otherwise, wait for comm pass at 2016:245:03:55 to execute the remaining steps.
8. Reload the ACIS flight software patches, by executing SOP_ACIS_SW_STDFOPTG. This SOP will also restart DEA housekeeping.
9. Set the focal plane temperature to -121C, by executing SOP_SI_SET_ACIS_FP_TEMP_TO_M121C

SOT Manager/Lead:		Mission Planning Manager:	
OC or Ops Manager:		FOM:	
Sys. Engineer:		Flight Director:	