

### REVISIONS

Rev	ECO No.	Description	Checked	Approved	Date
01	36-962	Initial version	<i>J.F.</i>	<i>J.F.</i>	10/10/97

<p style="text-align: center;">NAME</p> <p>Drawn: J. Francis</p>	<p style="text-align: center;">DATE</p> <p>10/07/97</p>	<p><b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</b></p> <p><b>CENTER FOR SPACE RESEARCH</b></p>			
Checked:		<p><b>ACIS Flight Software FEP Ring Buffer</b></p> <p><b>Reset Test Procedure</b></p>			
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		T	80230	36-57401.03	01
		Scale: NONE			Sheet 1 of 5

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## **LIST OF UNDETERMINED ITEMS**

1.

## 1.0 Introduction

### 1.1 Identification

FileName: ResetRing.book rev 01

### 1.2 Purpose

The purpose of this test is to verify that if back-to-back stop science commands produce an error on the FEPs, that the data in their respective ring-buffers does not appear at the beginning of the next science run.

### 1.3 Scope

This procedure assumes that the test conductor is experienced with the ACIS GSE.

### 1.4 Overview

The fix was to reset the FEP ring-buffers when starting a new science run. This fix was verified in the lab and at Ball, but not with a lot of data in the pipeline. The idea is to repeat the situation that happened at XRCF. The overall procedure is as follows:

1. Perform Timed Exposure Mode, with X-rays at 500 bps
2. Wait until telemetry starts dropping frames (*i.e.* the pipe is full)
3. Issue a Stop Run Command and wait a couple of seconds
4. Re-Issue a Stop Run Command
5. Speed up test with a switch to 24 Kbps
6. Wait until the stop makes it through telemetry
7. Check the science report for errors on the FEPS. Should see a FEP\_CMD\_ERR\_NO\_RUN
8. Re-start the run and verify that the new exposure numbers start at 2 and increment logically.

## 2.0 Test Cases

### 2.1 Setup

1. Focal plane is cold (around -19 C)
2. Door is open
3. BEP A and B are powered
4. Either DEA side A or DEA side B are powered (NOT BOTH)
5. Start in 500 bps mode, test will end in 24 Kbps mode

### 2.2 Time

About 2 hours.

### 2.3 Steps

1. Cold Boot BEP A  
Software Version = 11? \_\_\_\_\_
2. Power on FEPs 0..5 and Video Boards CCD\_I0..CCD\_I3 and CCD\_S2, CCD\_S3

**ACIS FLIGHT SOFTWARE FEP RING BUFFER RESET TEST PROCEDURE**

result = CMDRESULT\_OK? \_\_\_\_\_

3. Wait at least 1.5 minutes for the boards to come up
4. Load *resetring.te*

result = CMDRESULT\_OK? \_\_\_\_\_

5. Start a Timed Exposure Mode science run

result = CMDRESULT\_OK? \_\_\_\_\_

6. Wait until exposure numbers start skipping

record first skipped exposure number \_\_\_\_\_

7. Issue a Stop Science Run command
8. Wait 2 seconds
9. Issue a 2nd Stop Science Run command
10. Set telemetry rate to 24 Kbps
11. Wait for first Stop command acknowledgment

result = CMDRESULT\_OK? \_\_\_\_\_

12. Wait for 2nd Stop command acknowledgment

result = CMDRESULT\_OK? \_\_\_\_\_

13. Wait for and check Science Report

termination reason = SMTERM\_STOPCMD? \_\_\_\_\_  
 at least 1 FEP codes = FEP\_CMD\_ERR\_NO\_RUN? \_\_\_\_\_

14. Issue a 2nd Start Timed Exposure command

result = CMDRESULT\_OK? \_\_\_\_\_

15. Verify that exposure number progress correctly

first exposure record number = 2? \_\_\_\_\_  
 2nd exposure number = 3? \_\_\_\_\_

PASS/FAIL: Pass if all of questions = Yes \_\_\_\_\_

**3.0 Test Script(s)**

**4.0 Test Results**

1	Run Date	
2	Test Conductor	
3	Software Version	
4	Number of tests passed	
5	Number of tests failed	
6	Number of tests not run	

test-resetring/resetring.te

```
paramBlockName           = teBlock
parameterBlockId         = 0x8fffffff
fepCcdSelect              = 7 0 1 2 3 6
fepMode                   = 2
bepPackingMode           = 1
onChip2x2Summing         = 0
ignoreBadPixelMap        = 0
ignoreBadColumnMap       = 0
recomputeBias            = 1
trickleBias              = 0
subarrayStartRow         = 0
subarrayRowCount         = 1023
overclockPairsPerNode    = 8
outputRegisterMode       = 0
ccdVideoResponse         = 0 0 0 0 0 0
primaryExposure          = 33
secondaryExposure        = 0
dutyCycle                = 0
fep0EventThreshold       = 20 20 20 20
fep1EventThreshold       = 38 38 38 38
fep2EventThreshold       = 38 38 38 38
fep3EventThreshold       = 38 38 38 38
fep4EventThreshold       = 38 38 38 38
fep5EventThreshold       = 38 38 38 38
fep0SplitThreshold       = 13 13 13 13
fep1SplitThreshold       = 13 13 13 13
fep2SplitThreshold       = 13 13 13 13
fep3SplitThreshold       = 13 13 13 13
fep4SplitThreshold       = 13 13 13 13
fep5SplitThreshold       = 13 13 13 13
lowerEventAmplitude      = 0
eventAmplitudeRange      = 65535
gradeSelections          = 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff 0
xxxxx 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff 0xffff
windowSlotIndex          = 65535
histogramCount           = 0
biasCompressionSlotIndex = 3 1 1 1 1 1
rawCompressionSlotIndex = 0
ignoreInitialFrames      = 10
biasAlgorithmId          = 1 1 1 1 1 1
biasArg0                  = 5 5 5 5 5 5
biasArg1                  = 16 16 16 16 16 16
biasArg2                  = 0 0 0 0 0 0
biasArg3                  = 26 50 50 50 50 50
biasArg4                  = 20 20 20 20 20 20
fep0VideoOffset          = 79 79 79 77
fep1VideoOffset          = 87 86 76 89
fep2VideoOffset          = 83 69 79 83
fep3VideoOffset          = 86 65 82 89
fep4VideoOffset          = 76 68 79 80
fep5VideoOffset          = 90 86 79 94
deaLoadOverride          = 0
fepLoadOverride          = 0
```