



Problem/Failure Report  
THM\_PFR\_131  
IDPU Rejects all commands

**PFR-131 Title: FM2 IDPU rejects all commands**

<b>Assembly :</b> FM2 IDPU	<b>SubAssembly :</b>	
<b>Component :</b>	<b>Units Affected:</b>	<b>Units fixed:</b>
<b>Originator:</b> Corinna Chen	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Organization:</b> UCB SSL Themis	<b>Date:</b> January 23, 2006	
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**Failure Occurred During (Check one ✓)**

☒ Functional test   ☐ Qualification test   ☐ S/C Integration   ☐ Launch operations   ☐ Other (Flight Assy)

**Environment when failure occurred:**

☒ Ambient                      ☐ Vibration                      ☐ Shock                      ☐ Acoustic  
☐ Thermal                      ☐ Vacuum                      ☐ Thermal-Vacuum                      ☐ EMI/EMC

**Problem Description**

On January 3, 2006 22:51:40 UTC, the IDPU error counter starts to increment sometime during the ESA mask function at line ~60.

At that point in time, the commands executed counter on the IDPU stopped incrementing when the ESA functional script would continue. The error counter would increment by one each time a command was sent. The error code was wrong command header.

Shortly after, all commands sent would increment the error counter. When raw commands were sent, the error counter incremented. IDPU suddenly goes to safe mode. No commands were getting through. Command and error counter did not increment. Since the IDPU would not receive any commands, the IDPU was power cycled.

**Analyses Performed to Determine Cause**

Using the RECDPROM program, FM2 unit had DMA contention issues. During these race conditions, the DMA wrote over flight software, even the command module. This caused the IDPU to ignore all commands.

**Corrective Action/ Resolution**

The solution is to solve the DMA contention problem in PFR127 and repeat the ESA tests.

Acceptance:

MAM: Ron Jackson \_\_\_\_\_; MSE: Ellen Taylor \_\_\_\_\_

PM: Peter Harvey \_\_\_\_\_; Cognizant Engineer \_\_\_\_\_

Date of Closure \_\_\_\_\_