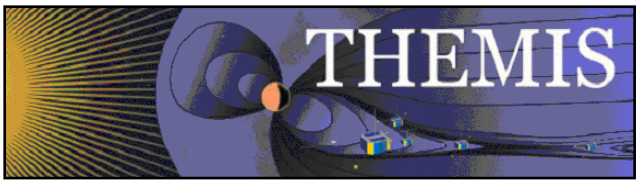

Problem/Failure Report
THM_PFR_135

PFR-135 Title: IDPU DCB 5V Supply too low on DCB during SST turn-on

Assembly : IDPU	**SubAssembly : DCB**
Component : 5VD Supply	**Units Affected:** x x x x x x **Units fixed:** x x x x x x
Originator: Michael Ludlam	
Organization: UCB	**Date: 11/DEC/06**
Phone: 510 642 7732	**Email : mludlam@ssl.berkeley.edu**

Failure Occurred During (Check one √)

x Functional test □ Qualification test □ S/C Integration □ Launch operations □ Other (Flight Assy)

Environment when failure occurred:

□ Ambient □ Vibration □ Shock □ Acoustic
□ Thermal □ Vacuum x Thermal-Vacuum □ EMI/EMC

Problem Description

During Thermal Vacuum of the IDPU and ESA instruments on FM5 the IDPU reset when SST was powered on. The problem occurred at around –25degrees C and was reproducible. The IDPU was removed from the Thermal Vacuum chamber and the LVPS was removed from the IDPU. The LVPS was placed in a thermal vacuum chamber with the rest of the IDPU outside. Using this long extension harness between the LVPS and the rest of the IDPU caused the failure to be seen at room temperature. The set up was moved to the bench for further investigation.

Analyses Performed to Determine Cause

The DCB board was removed from the IDPU on the bench and placed on an extender card. The test was repeated – powering the SST on caused the DCB to reset. The FM5 DCB was replaced with the FM6 DCB and the test repeated. The IDPU did not reset on SST power on. Using the FM5 DCB the 5VD supply on the DCB was measured during the SST turn on. This voltage dipped down to below specification levels (4.75V) to 4.1V. A test was conducted by replacing the LVPS provided 5VD line with an external power supply. By reducing this voltage to 4.3V a reset was forced on the DCB. A similar test was carried out using the ETU DCB and this did not reset until the voltage was reduced to 4.15V

Corrective Action/ Resolution

Additional capacitance on the DCB was considered but the additional load would have required recharacterizing and modifying the LVPS board. However a simpler solution was designed to power on the SST more slowly was implemented on the ETU PCB board to verify that slowing the turn on of the SST instrument would keep the DCB 5VD within regulation. The FGM 5VD switch was also modified to slow down the inrush after the FGM turn on was characterized and found to be slightly below the specification for the 5VD.

Acceptance:

MAM: Ron Jackson_____; MSE: Ellen Taylor_____

PM: Peter Harvey_____; Cognizant Engineer_____

Date of Closure_____