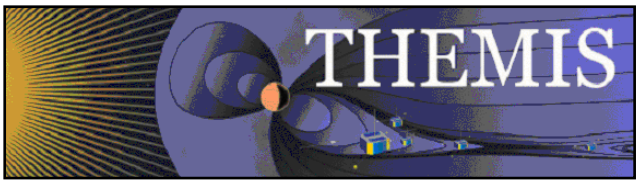

Problem/Failure Report
THM_PFR_164

PFR-164 Title: IDPU Current Oscillation during Probe 2 TV Cold Balance #1

Assembly : IDPU	**SubAssembly : LVPS**	
Component : ESA Supply	**Units Affected:**	**Units fixed:**
Originator: Michael Ludlam	- x - - - -	- x - - - -
Organization: UCB	**Date: 03/MAY/06**	
Phone: 510 642 7732	**Email : mludlam@ssl.berkeley.edu**	

Failure Occurred During (Check one √)

□ Functional test x Qualification test □ S/C Integration □ Launch operations □ Other

Environment when failure occurred:

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

Problem Description

During spacecraft thermal balance testing it was noticed that the IDPU current monitor was noisy. The IDPU ESA Imon also showed these spikes when the ESA instrument was switched off – that the supply had no load. The temperature at which this occurred was around 10 degrees.

Analyses Performed to Determine Cause

Using the FM6 LVPS supply the same conditions were reproduced first on the bench and then in a thermal vacuum chamber. The total supply current was monitored while adjusting the input voltage and changing the load on the supply to the ESA (28 V). The exact points of initialization and termination were noted, and whether onset was influenced by load. The load required to terminate the condition was tested. The circuit elements through which the potentially damaging current might flow were found to be adequately derated, i.e., the currents flowing were far below the ratings, e.g. a transistor that could handle 8.2 Amps had 75 mA flowing through it.

Corrective Action/ Resolution

The resolution for this PFR is to use as is. The oscillation causes no damage to the supply, and only happens in a narrow temperature window when the ESA instrument is off. As this would be extremely unlikely to happen during operations for the ESA instrument to be off in conjunction with that temperature range it was decided to use the supply as is. The correlation of events necessary to produce this occurance is therefore, safely remote.

Acceptance:
MAM: Ron Jackson_____; MSE: Ellen Taylor_____

PM: Peter Harvey_____; Cognizant Engineer_____

Date of Closure_____