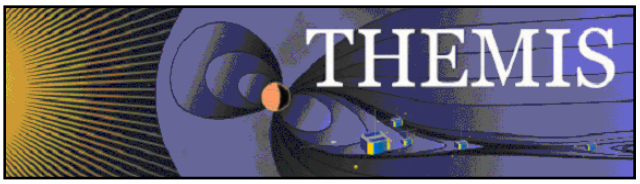

Problem/Failure Report
THM_PFR_090

PFR-090 Title: SST Sun Pulse Causes high current draw on supply voltages

Assembly : SST	**SubAssembly : DFE**	
Component : Preamps	**Units Affected:**	**Units fixed:**
Originator: Michael Ludlam	x x x x x x	x x x x x 0
Organization: UCB	**Date: 1/NOV/05**	
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:

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

Problem Description

When the SST sensors see the sun the detectors saturate and cause the preamps to draw high current. This causes the voltages supplied by the IDPU to the SST to drop as there is not enough capacity to provide the required instantaneous current. This drop was seen to affect the performance of the SCM sensor caused by the drop in the P10VA line.

Analyses Performed to Determine Cause

A fix was found to solve the current draw from the sensor but not implemented in the sensor as it meant using a part out of specification. As the depletion voltage in the sensors was higher than expected, the bias supply was also required to be higher than expected and above the range the FET was qualified for. A second solution was tested that grounded the input node of the preamp during the period of the sun pulse. This solution was tested on the FM1 instrument suite and found to remove much of the higher current draw from the SST.

Corrective Action/ Resolution

The modification to ground the preamp input for the duration of the sun pulse seen by the sensors should be implemented in all DFE/SST Sensor assemblies. The schematics have been revised to version N to show this change.

Acceptance:

MAM: Ron Jackson_____; MSE: Ellen Taylor_____

PM: Peter Harvey_____; Cognizant Engineer_____

Date of Closure_____