



PFR- 37 Title: SST Interference with EFI

Assembly : Probe 1	SubAssembly : F1 Instrument Suite
Component : IDPU	Date: 4/15/05
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Failure Occurred During (Check one ☒)

☒ Functional test ☐ Qualification test ☐ S/C Integration ☐ Launch operations

Environment when failure occurred:

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

Problem Description

(In this section it is important to document the specific symptoms which exhibited the problem. In the event we see it happen again, we would like to know as much as possible.)

Following initial power on of the IDPU and Fields Instruments (EFI, FGM and SCM), the SST_ON command was issued. Corresponding to the time of the SST_ON, data from the APID 445 (EFI) and the 461 (FGM) showed corruption.

The SST_OFF command did not result in clean data. However, re-initializing the DFB CDI 45 register controlling the APID 445 data DID correct the corrupted data.

Analyses Performed to Determine Cause

(How do we know how the failure happened? Was it a bad part, bad handling, what?)

The symptoms were repeatable so the approach was to step through the SST_ON script to determine the offending sub-step. This was found to be the /ISUPPLYON FF command. The flight code was examined and determined to perform the following logic: Before forcing on power supplies on the Power Control Board, the software **turns off** all downstream switches, in order to prevent the power supply overcurrent trips to see downstream loads. Thus the SST_ON script, by trying to ensure that all power supplies are operational using this command, actually caused a momentary shut down of the instruments. The instrument FPGAs lost their configurations and therefore were no longer sending correctly formatted data.

Corrective Action/ Resolution

(How do we fix the unit? And how do we make sure it doesn't happen again?)

The SST_ON script /ISUPPLYON FF command was replaced with /IPCBSUPPLY 01 FF which allows the direct manipulation of the power override register. The new SST_ON was retested and found to not interfere with the other instruments.

Acceptance:

MAM: Ron Jackson _____; MSE: Ellen Taylor _____

PM Peter Harvey _____; ISE: Michael Ludlam _____

Date of Closure _____