



PFR-227 Title: FM1 SCM saturation at -3.3V instead of -5V

Assembly : SCM	SubAssembly : SCM Preamp	
Component : Y axis Preamp Cube	Units Affected:	Units fixed:
Originator: Michael Ludlam	<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"/> <input type="checkbox"/>
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Failure Occurred During (Check one ✓)

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

Environment when failure occurred:

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

Problem Description

During the post environment CPT of F1 SCM it was noticed by the SCM team that the Y-axis component was saturated at -3.3V. The normal saturation level is -5V.

Analyses Performed to Determine Cause

The probe was opened to allow access to the preamp and the output levels were measured. These showed the output of the Y-axis was lower than expected (-3.3V). The preamp was removed from probe 1 and replaced with the F6 preamp which was tested with the F1 sensor. A functional test was run on the SCM and behavior seen to be nominal. The F6 preamp was removed from the probe and returned to UCB for thermal vacuum, vibration and magnetics testing. It will then be installed onto the F1 probe. The F1 preamp was opened at UCB and retested. The problem with the low level of saturation was repeated so the unit was returned to the SCM team for analysis.

Corrective Action/ Resolution

The F6 SCM Preamp was thermal vacuumed for 10 cycles and then vibrated in 1 axis at workmanship levels. The preamp was functionally tested after these environmental tests and found to be working correctly. The transfer function of the preamp was also measured. The F6 preamp was installed in the F1 probe and retested. The data taken was with the preamp attached to the sensor and with the sensor installed on the end of the boom. The data taken was seen to be nominal. The F1 preamp was taken back to Velizy for testing.

Acceptance:

MAM: Ron Jackson _____ ; MSE: Ellen Taylor _____

PM: Peter Harvey _____ ; Cognizant Engineer _____

Date of Closure _____