

PFR-013 Title: ESA flight Sweep I/F Board refab'd

SubAssembly : ESA S/I board
Date: 24 Jan 05
Organization: UCB/SSL
Email :cwc@ssl.berkeley.edu

Failure Occurred During (Check one $$)						
$\sqrt{Functional}$ test	□ Qualification test	\Box S/C Integration	□ Launch operations			
v i unetional test						
Environment when failure occurred:						
√ Ambient	\Box Vibration	□ Shock				
- m 1 1						

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.)

The design of the Sweep Interface board includes a sequenced power turn-on circuit for the Actel gate array. The initial board design used a gated voltage regulator for this function. The board was fabricated to flight specification to save time in the event that there were no circuit design changes.

The first board was loaded with ETU components and tested. It was found that the power turn-on circuit produced an unacceptable voltage overshot at turn-on.

Analyses Performed to Determine Cause

(How do we know how the failure happened? Was it a bad part, bad handling, what?) Initial bench testing with a socketed commercial Actel determined that there was a problem with the start up circuit of the Sweep Interface Board. Bread boarding of a new circuit and then incorporating this onto a kluge board on the ETU board showed a resolution of the start up circuit problem.

Corrective Action/ Resolution

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

Layout corrections were made to incorporate the new circuitry. The boards were fabricated at Valley Circuits and loaded at JPL. These boards then went through bench testing, intergrated testing with the complete ESA instrument and finally system testing with the IDPU and through EMI/EMC testing. The ESA Sweep Interface board appears to be working as designed and meeting specifications of Charles W. Carlson.

Acceptance:	
MAM: Ron Jackson	; MSE: Ellen Taylor
PM: Peter Harvey	: Cognizant Engineer

Date of	Closure	