



PFR-003 Title: FGE TML Data overflow

Assembly : FGM	SubAssembly : FGE
Component : FGE FPGA	
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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

FPGA FGE6 (ver.: ThemisMagSX010RT.afm):

Overflow of the low telemetry output data in case of large external fields and telemetry rates lower than 128 Hz due to a register overflow in the FGPA. There is the following relation between data rate and field value at which the overflow occurs: 64 Hz output – 12500 nT; 32 Hz output – 6250 nT etc.

Analyses Performed to Determine Cause

Overflow of the FPGA's internal 32 bit register.

Corrective Action/ Resolution

A new firmware for the processor part in the FPGA was successfully tested with ETU1 in Berlin in CW 43. Ongoing tests as soon as FGE4 with flight FPGA arrives in Europe. The updated FPGA version is ThemisMagSX011RT.afm.

Acceptance:

MAM: Ron Jackson _____; MSE: Ellen Taylor _____

PM Peter Harvey _____; Cognizant Engineer _____

Date of Closure _____