USA Ground Operations CIL Sheet

Critical Item: Front End Process Controller (FEPC)
Criticality Category: 1
NASA Part No: None
Total Quantity: 1
Mfg/Part No: Motorola Inc. / MVME2604
System: Checkout and Launch Control System

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
52473A23A1A3	1	HMF	L72-4900	090.10	84K09908-002 / 8

Function:

Provides for the collection of data from the DCN and RTCN, the forwarding of that data to the SDC, and the recording of that data to local storage plus reporting the health of itself and the SDC connection to the Gateway Control Processor (GCP).

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
01IT03-002.002 Corruption of Data	Internal Component or Software Failure Invalid DCN and/or RTCN data would be recorded to the SDC and locally. Making a critical decision based on invalid data could result in loss of life and/or vehicle.	None Seconds	1

ACCEPTANCE RATIONALE

Design:

- Worldwide Standards Compliance
  - International
    - American National Standards Institute/VMEbus International Trade Association ANSI/VITA 1-1994, VME64 Standard
    - Institute of Electrical and Electronics Engineers (IEEE) Std 1014-1987, Standard for a versatile backplane bus: VMEbus
    - Institute of Electrical and Electronics Engineers (IEEE) Std 1386, Standard for PCI Mezzanine Cards (PMC)
  - United States
    - Federal Communications Commission (FCC) Part 15, Class A, Electromagnetic Compatibility (EMC)
    - Underwriters Laboratory (UL) Listed UL-1950, Low Voltage Safety
  - Canada
    - Industry Canada ICES-003, Class A, EMC
  - Europe
    - European Norm EN50081-1 and EN50082-1, EMC Emissions and Immunity respectively (CE Mark)
    - European Norm EN60950, Low Voltage Safety (CE Mark)

- Designed to industry standards.

- Employs multiple levels of error checking utilizing Cyclic Redundancy Checks (CRCs) and checksums to reduce the likelihood of corruption of data during transmission between endstations.

- All input power is delivered to the hardware through CLCS Power Distribution Chassis (PDCs) which emplo Electromagnetic Interference (EMI)/Radio Frequency Interference (RFI) filtering and Transient Voltage Surge Suppression (TVSS).

Test:

- Under the provisions set forth in 84K00071 "CLCS Hardware Development Plan" the following tests were performed:

- 84K06538-002-02 "Test Specification, Receiving Inspection Test (RIT) Procedure for Single Board Computer MVME2604" - a unit test.

- 84K02901 "Hardware Specification and Design Verification Test (DVT), VME Data Processing Hardware and Operating System Software" - a unit design test.

- 84K07210-010-02 "Hypergolic Maintenance Facility (HMF) Hardware Installation Test (HIT)" - an integrated connectivity test.

- 84K07211 "Hypergolic Maintenance Facility (HMF) Hardware Validation Test (HVT)" - an integrated functionality test.

• CLCS HMF Level 5 User Acceptance Testing as outlined in 84K00190, "CLCS Certification Plan".

Inspection:

• No inspections or preventative maintenance is accomplished on this item.

Failure History:

• Current data on test failures, unexplained anomalies, and other failures experienced during ground processi activities can be found in the PRACA database. The PRACA database was researched and no data was foun on this component in the critical failure mode.

Operational Use:

Correcting Action	Timeframe
There is no action which can be taken to mitigate the failure effect.	Since no correcting action is available, timeframe does not apply.