

USA Ground Operations CIL Sheet

Critical Item: Route Switching Module

Criticality Category: 1

NASA Part No: None

Total Quantity: 1

Mfg/Part No: Cisco Systems, Inc. / WS-X5302

System: Checkout and Launch Control System, BIN, Inter-set Network

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
51000A20A2	1	LCC	L72-5300	090.10	84K09924-002 / 5

Function:

Provides routing functions to allow multi-protocol interfaces to the backplane.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
00025.001 Corruption of Data	Electrical failure / product defect / software error Invalid data would be sent to the CLCS HMF set and/or be recorded to the SDC. Making a critical decision based on invalid data could result in loss of life/vehicle.	None Seconds	1

ACCEPTANCE RATIONALE

Design:

- Worldwide Standards Compliance
 - International
 - International Electrotechnical Commission (IEC) IEC 950, Low Voltage Safety
 - International Electrotechnical Commission (IEC) CISPR22, Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment, Class A, EMC
 - United States
 - Underwriters Laboratory (UL) Listed 1950, Low Voltage Safety
 - Federal Communications Commission (FCC) Part 15, Class A, Electromagnetic Compatibility (EMC)
 - Canada
 - Canadian Standards Association (CSA) C22.2, No. 60950, Safety of Information Technology Equipment
 - Industry Canada ICES-003, Class A, EMC
 - Europe
 - European Norm EN60950, Low Voltage Safety (CE Mark)
 - European Norm EN50081-1 and EN50082-1, EMC Emissions and Immunity respectively (CE Mark)
 - Australia
 - Australian Communications Authority and Radio Spectrum Management Agency, AS/NZS 3260, Safety of Information Technology Equipment
 - Australian Communications Authority and Radio Spectrum Management Agency, AS/NZS 3548, Class A, EMC
 - Japan
 - Voluntary Control Council for Interference (VCCI) from Information Technology Equipment compatible Class A, EMC
- Equipment is 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 employ Electromagnetic Interference (EMI)/Radio Frequency Interference (RFI) filtering and Transient Voltage Surge Suppression (TVSS).
- The ISN utilizes Virtual Private Networks (VPN) to logically isolate the CLCS control room Data Recording Processor (DRP) traffic from the rest of the aggregate traffic flowing through it.
- The ISN utilizes RMON II probes to provide performance monitoring and management information including network diagnostics, protocol turnaround times, high traffic activity sources, bottlenecks, resource sharing conflicts, and source error logs.

Test:

- Under the provisions set forth in 84K00071 "CLCS Hardware Development Plan" the following tests were performed:
 - 84K07290-008-12 "Test Specification, Receiving Inspection Test (RIT) Procedure for Cisco Catalyst 500 Series Switch" - a unit test.
 - 84K03504 "Hardware Specification and Design Verification Test (DVT), Network Switches" - a unit design test.
 - 84K07215-000-02 "Test Specification, Hardware Verification Test (HVT) and Hardware Integration Test (HIT) Procedure for the Inter-Set Network (ISN) LCC 2P10 Checkout and Launch Control System (CLCS)" - an integrated functional test.
- CLCS HMF Level 5 User Acceptance Testing as outlined in 84K00190, "CLCS Certification Plan".

Inspection:

- No inspections or preventative maintenance are accomplished on this item.

Failure History:

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and no data was found 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.