

| CRITICAL ITEMS LIST | | | | | |
|--|-------|--|--|---|--|
| SYSTEM: COMMUNICATIONS AND TRACKING | | | SUBSYSTEM: SPACE TO SPACE COMMUNICATIONS SYSTEM | | |
| ASSEMBLY: SPACE TO SPACE ORBITER RADIO (SSOR) | | | ASS'Y P/N: SED16102581 | | |
| END ITEM EFFECTIVITY: OV102, OV103, OV104, OV105 AND SUBS. | | | APPROVAL DATE: SUPERCEDES REV: N/A DATE: N/A SHEET 1 OF 4 | | |
| PREPARED BY: Nanci A. Olson | | | DATE: 12/17/96 | | |
| APPROVAL: | | | | | |
| SR&MA: | | | DATE: _____ | | |
| DESIGN: | | | DATE: <u>5-2-90</u> | | |
| SSCS PROJECT MANAGER: | | | DATE: <u>5-3-00</u> | | |
| CRITICALITY(H/F): 2/2 | | | INTACT ABORT MODE CRIT: N/A | | |
| REDUNDANCY SCREENS: A-N/A B-N/A C-N/A | | | | | |
| FMEA REFERENCE: SSOR-04 | | | | | |
| NAME: SSOR | | | | | |
| DRAWING REFERENCE: SED16102581, SID16102642 | | | | | |
| QUANTITY: 1 | | | | | |
| CIL # | REV | FUNCTION | FAILURE MODE AND CAUSE | FAILURE EFFECT | RATIONALE FOR ACCEPTABILITY |
| SSOR-04 | BASIC | (1) Provides RF duplex voice comm between Orbiter and EMU's. (2) Receives biomed and telemetry from EMU (3) Provides RF duplex voice comm between Orbiter and Station (4) Provides RF command to Space Station and telemetry from Space Station | FAILURE MODE: Loss of antenna select circuit component or wiring CAUSE: Contamination, vibration, shock, EEE parts failure, or temperature cycle MISSION PHASES: Pre EVA EVA Post EVA Station Rendezvous | SUBSYSTEM: Loss of Transmit and Receive Voice Communications between Orbiter and Station or EMUs. Loss of commands to Station. Loss of data from EMU and Station. INTERFACING SUBSYSTEMS: None MISSION: Terminate EVA. Terminate Station rendezvous. CREW/VEHICLE: No effect. SUCCESS PATHS REMAINING AFTER FIRST FAILURE: 0 TIME TO EFFECT: minutes | DESIGN: The electrical design of the SSOR is based upon JSC in-house engineering model hardware. Litton is manufacturing the hardware in accordance with the appropriate NHB 5300.4 standards. Passive EEE parts are selected from the guidelines of MIL-STD-975. Active EEE are approved by the JSC Engineering Directorate Certified Parts Approval Process. The antenna select circuits in the SSOR combine the input/output of the String 1 and String 2 duplexers. The antenna select circuits of the SSOR consist of a power divider (Anaren 1H0263 3), an RF cavity filter (K&L Microwave, 5C40-416.5/T11-T/T), and a directional coupler (Microlab, CB-39F). These are all passive components with low failure rates. The components are connected using coaxial cable (RG142). TEST: CERTIFICATION: One time test on Qual SSOR. Power output measured before, during, and after exposure to environments. QUALIFICATION THERMAL TEST - 7 cycles from 25F to 135F operating and 1 cycle to -65F non-operating. RF output measured before, during, and after thermal test. |

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 SUPERCEDES REV: N/A DATE: N/A
 SHEET 2 OF 4

END ITEM EFFECTIVITY: OV102, OV103, OV104, OV105 AND SUBS.

PREPARED BY: Nancy A. Olson

DATE: 12/17/96

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DESIGN: _____ DATE: _____

SSCS PROJECT MANAGER: _____ DATE: _____

CRITICALITY(H/F): 2/2

INTACT ABORT MODE CRIT: N/A

REDUNDANCY SCREENS: A-N/A B-N/A C-N/A

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PREPARED BY: Nanci A. Olson

DATE: 12/17/96

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