

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	
PREPARED BY: Nanci A. Olson		DATE: 12/19/96			
APPROVAL:					
SR&MA:				DATE:	
DESIGN:		<u>Wendy May</u> <u>Mark Oliver</u>		DATE: <u>5-2-00</u>	
SSCS PROJECT MANAGER:		<u>Math Hamden</u> <u>Mark Lander</u>		DATE: <u>3-3-00</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-23					
NAME: SSOR					
DRAWING REFERENCE: SED16102581, SID16102642, SID16102567					
QUANTITY: 1					
CIL #	REV	FUNCTION	FAILURE MODE AND CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTABILITY
SSOR-23	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: EVA mode select switch input open  CAUSE: Contamination, vibration, shock, EEE parts failure, or temperature cycle  MISSION PHASES:  Pre EVA  EVA  Post EVA  Station Rendezvous	SUBSYSTEM: Loss of all functions in the SSOR.  INTERFACING SUBSYSTEMS: None  MISSION: Terminate EVA. Terminate Rendezvous with Station  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 EDCPAP.  The EVA mode input comes to the SSOR on NB7H16-26PN connector. M22759 wire is run from this connector to the Power Distribution board (SID16102567). Cables are laced to avoid strain. The signal is input into redundant control logic (SNJ54LS14FK) for each SSOR string via MIL-STD-975 pull up resistors (22Kohm, 1/8W) and MIL-S-19500 voltage protection diodes (1N5819). The pull-up resistors & diodes are powered separately for each string of the SSOR. MN A powers String 1 & MN C powers String 2. The mode control logic which uses the on/off input (EVA mode select) as 1 of 3 selection criteria is separate for each string of the SSOR.  TEST: CERTIFICATION: One time test on Qual SSOR. RF, audio and data verified before, during, and after exposure to environments.  QUALIFICATION THERMAL TEST - 7 cycles from 25F to 135F operating and 1 cycle to -65F non-operating. Audio verified before, during, and after thermal test.

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

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

PREPARED BY: Nanci A. Olson

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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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QUANTITY: 1

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SSOR-23	BASIC	<p>(1) Provides RF duplex voice comm between Orbiter and EMU's.</p> <p>(2) Receives biomed and telemetry from EMU</p> <p>(3) Provides RF duplex voice comm between Orbiter and Station</p> <p>(4) Provides Rf command to Space Station and telemetry from Space Station</p>	<p>FAILURE MODE: EVA mode select switch input open</p> <p>CAUSE: Contamination, vibration, shock, EEE parts failure, or temperature cycle</p> <p>MISSION PHASES: Pre EVA EVA Post EVA Station Rendezvous</p>	<p>SUBSYSTEM: Loss of all functions in the SSOR.</p> <p>INTERFACING SUBSYSTEMS: None</p> <p>MISSION: Terminate EVA. Terminate Rendezvous with Station</p> <p>CREW/VEHICLE: No effect.</p> <p>SUCCESS PATHS REMAINING AFTER FIRST FAILURE: 0</p> <p>TIME TO EFFECT: minutes</p>	<p>TEST: (CONTINUED)</p> <p>PRESSURE TEST - 8 to 15.23 psia at 2psi/minute repress/depress rate. Non-operating excursion to 30 psia. Rf, Audio and data verified before, during and after pressure test.</p> <p>SHOCK - Bench handling 4 inch drop test on each corner. Landing shock and acceleration environments certified by analysis.</p> <p>VIBRATION - Test-induced (QAVT) - 5 minutes per axis. 20 to 80 Hz - increasing 3 dB/oct 80 to 350 Hz - constant 0.067 g<sup>2</sup>/Hz 350 to 2000 Hz - decreasing 3 dB/oct Flight-induced - 16 min., 40 sec. per axis 20 to 150 Hz - increasing 6 dB/oct 150 to 1000 Hz - constant 0.03 g<sup>2</sup>/Hz 1000 to 2000 Hz - decreasing 6 dB/oct Rf, Audio and data verified before and after each vibration test.</p> <p>Salt-fog, humidity, and fungus certified by analysis to requirements of JSC 26799 (SSOR Specification)</p> <p><u>ACCEPTANCE:</u></p> <p>TEMPERATURE - One and one-half cycles from 30F to 130F, with Rf, audio and data verified at temperature extremes.</p>

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DATE: 12/19/96

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INTACT ABORT MODE CRIT: N/A

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