PRINT DATE: 08/20/98

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE
NUMBER:05-2B-22112M -X

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION
REVISION: 0 10/03/96

PART DATA

	PART NAME **VENDOR NAME**	**PART NUMBER** **VENDOR NUMBER**
LRU	: PANEL O6	VO70-730389
SRU	: RESISTOR	RWR80S1211FR

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RESISTOR, CURRENT LIMITING - 5.1K, 2W

REFERENCE DESIGNATORS: 33V73A6A30R1
33V73A6A30R2

QUANTITY OF LIKE ITEMS: 2
TWO

FUNCTION:
PROVIDES CIRCUIT PROTECTION FOR MISSION STATION AND RIGHT AUDIO TERMINAL UNITS.

PRINT DATE: 08/20/98

FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE
NUMBER: 05-2B-ZZ112M-02

REVISION#: 0 10/03/96

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION
LRU: PANEL O6
ITEM NAME: RESISTOR

CRITICALITY OF THIS FAILURE MODE: 1R3

FUNCTIONAL CRITICALITY/
REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE: 1R/2/4

FAILURE MODE:
SHORT END-TO-END

MISSION PHASE:

PL PRE-LAUNCH
LO LIFT-OFF
OO ON-ORBIT
DO DE-ORBIT
LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102 COLUMBIA
103 DISCOVERY
104 ATLANTIS
105 ENDEAVOUR
AFTER SPACE COMM MODIFICATION

CAUSE:
STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

CRITICALITY 1R2 DURING INTACT ABORT ONLY (AVIONICS ONLY)? NO

REDUNDANCY SCREEN

A) FAIL
B) N/A
C) PASS

PASS/FAIL RATIONALE:

A)
SCREEN "A" FAILS BECAUSE THERE IS NO CAPABILITY TO TEST FOR THIS FAILURE MODE DURING NORMAL GROUND TURNAROUND TEST.

B)
SCREEN "B" IS N/A BECAUSE REDUNDANCY FUNCTIONAL PATHS ARE FOUR FAULT TOLERANT OF WHICH ALL SUBSEQUENT FAILURES ARE DETECTABLE.

C)

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL FAILURE MODE
NUMBER: 05-2B-22112M-02

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF CIRCUIT PROTECTION CAPABILITY

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT - FIRST FAILURE

(C) MISSION:
NO EFFECT - FIRST FAILURE

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT - FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER FIVE FAILURES (RESISTOR SHORT END-TO-END, COMPONENT DOWNSTREAM SHORT TO GROUND, LOSS OF CIRCUIT BREAKER OF REDUNDANT ATU, AND 2 S-BAND) DUE TO LOSS OF STATE VECTOR UPDATE.

-ADDITIONAL DATA-

FOR ON-ORBIT: 2R3, FNP

(A) SUBSYSTEM:
NO EFFECT FIRST FAILURE

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT FIRST FAILURE

(C) MISSION:
NO EFFECT FIRST FAILURE

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF MISSION AFTER 3 FAILURES (RESISTOR SHORT END-TO-END, COMPONENT DOWNSTREAM SHORT TO GROUND, LOSS OF REDUNDANT ATU) DUE TO LOSS OF ALL UHF AUDIO COMM CAPABILITY.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL FAILURE MODE
NUMBER: 05-2B-22112M-02

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX E, ITEM # 3 - RWR80 RESISTOR, WIRE WOUND

(B) TEST:
REFER TO APPENDIX E, ITEM # 3 - RWR80 RESISTOR, WIRE WOUND

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX E, ITEM # 3 - RWR80 RESISTOR, WIRE WOUND

(D) FAILURE HISTORY:
CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATABASE.

(E) OPERATIONAL USE:
USE REDUNDANT ATU IF AVAILABLE.

- APPROVALS -

PAE MANAGER	: POLLY STENGER-NGUYEN:	8/21/98
PRODUCT ASSURANCE ENGR	: VAN D. NGUYEN	8-20-98
DESIGN ENGINEERING	: G. J. SCHWARTZ	8-21-98
NASA SSMA	: Mike Penney	8-26-98
NASA EPD&C SSMA	: —	NA to EPDC
NASA SUBSYSTEM MANAGER	: Mark A. Chavez	8-26-98
NASA EPD&C SUBSYS MGR	: —	NA to EPDC
NASA MOD	:	8-26-98
USA/SAM	: Karen Blumenfeld	8/26/98