

TITLE: SPECIFICATION CONTROL DRAWING

PART IDENTIFIER: HRXXXXW3S

TEST CODE: A=GROUP A; B=GROUP B; C=GROUP C
(0) = .0 DB AND (5) = .5 DB
WHOLE DB VALUE (00 THRU 20)

DESCRIPTION: CHIP ATTENUATOR WITH HIGH RELIABILITY TESTING.

NOTE: SINGLE LOT AND DATE CODE AVAILABLE UPON REQUEST.

ASSEMBLY DWG: N/A

1.0 SPECIFICATIONS:

1.1 ELECTRICAL:

- 1.1.1 IMPEDANCE: 50 OHMS NOMINAL.
- 1.1.2 FREQUENCY RANGE: DC-12.4 GHZ.
- 1.1.3 ATTENUATION VALUES AVAILABLE: 0-20DB IN 0.5DB INCREMENTS.
- 1.1.4 ATTENUATION ACCURACY: SEE TABLE.

ATTENUATION ACCURACY			
DB	DC - 4 GHZ	4 - 8 GHZ	8 - 12.4 GHZ
0	-0,+3	-0,+5	-0,+5
.5 - 3.5	±0.3	±0.5	±0.5
4 - 6.5	±0.4	±0.5	±0.5
7 - 10.5	±0.5	±0.5	±0.75
11 - 15.5	±0.75	+0.5,-3.0	+0.5,-3.5
10 - 20	±1.0	+0.5,-4.0	+1.0,-6.0

- 1.1.5 VSWR: DC - 4 GHZ - 1.25 MAX 8 - 12.4 GHZ - 1.50 MAX
4 - 8 GHZ - 1.35 MAX

- 1.1.6 INPUT POWER: 100 MILLIWATTS CW.

- 1.1.6.1 FULL RATED POWER TO 125°C, DERATED LINEARLY TO 0 WATTS AT 150°C.
- 1.1.6.2 PEAK POWER, 1 WATTS FOR 10US PULSE WIDTH @ 1% DUTY CYCLE.

1.2 MECHANICAL:

- 1.2.1 OUTLINE DWG: SEE SHEET 3.
- 1.2.2 WORKMANSHIP: PER MIL-PRF-55342.

1.3 ENVIRONMENTAL:

1.3.1 ALTITUDE:

- 1.3.1.1 NON-OPERATING: SEA LEVEL TO 50,000 FEET.
- 1.3.1.2 OPERATING: SEA LEVEL TO 50,000 FEET.

1.3.2 TEMPERATURE RANGE:

- 1.3.2.1 NON-OPERATING: -55° C TO +150° C.
- 1.3.2.2 OPERATING: -55°C TO +150°C.

1.3.3 VIBRATION: PER MIL-STD-202, METHOD 204, COND. D.

1.3.4 SHOCK: PER MIL-STD-202, METHOD 213, COND. I.

1.3.5 MOISTURE RESISTANCE: PER MIL-STD-202, METHOD 106 EXCEPT SUBCYCLE STEPS 7A AND 7B AND POLARIZATION AND LOAD ARE NOT APPLICABLE.

1.4 ELECTROSTATIC DISCHARGE CONTROL: PER MIL-STD-1686.

- 2.0 UNIT MARKING: MARKED WITH COLOR DOTS. BACKGROUND COLOR VIOLET FOR HALF DB VALUES. LEGIBILITY AND PERMANENCY PER MIL-STD-130.

3.0 QUALITY ASSURANCE:

- 3.1 VERIFY 100% VISUAL PRE-CAP INSPECTION PERFORMED PER TP-8965.

- 3.2 PERFORM GROUP A, B AND/OR C TESTING AS INDICATED BY THE PART NUMBER PER TP-8965.

3.2.1 GROUP A TESTING

- 3.2.1.1 VISUAL AND MECHANICAL INSPECTION PER SHEET 3.
- 3.2.1.2 INITIAL RF MEASUREMENTS - MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
- 3.2.1.3 THERMAL SHOCK - 10 CYCLES FROM -55°C TO +125°C.
- 3.2.1.4 AFTER THERMAL SHOCK RF MEASUREMENTS - MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
- 3.2.1.5 BURN-IN - DURATION OF 168 HRS AT INPUT POWER OF PER 1.1.6.

ENG		PUR		MFG		PLAN		SM	
CC				QA					
EMC TECHNOLOGY 8851 SW OLD KANSAS AVE. STUART, FL 34997			CAGE CODE # 24602					DWG #	1010085000
			CHANGE NOTICE		EN 04-E049			REV LVL	-
								SHEET	1 OF 3

- 3.2.2 GROUP B TESTING (7 SAMPLES APPROVED FROM GROUP A).
- 3.2.2.1 SUB-GROUP 1 (3 SAMPLES)
- 3.2.2.1.1 LOW TEMPERATURE OPERATION
- 3.2.2.1.1.1 USE FINAL ELECTRICAL MEASUREMENTS FROM GROUP A.
- 3.2.2.1.1.2 DISSIPATE LOW POWER FOR A DURATION OF 45 +5/-0 MINUTES. ALLOW TO STABILIZE AT 25°C FOR 24 HOURS.
- 3.2.2.1.2 AFTER LOW TEMPERATURE ELECTRICAL MEASUREMENTS - MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
- 3.2.2.1.3 HIGH TEMPERATURE BAKE – +125°C +/- 5°C FOR 100 HRS THEN STABILIZE AT 25°C FOR 4 HRS.
- 3.2.2.1.3.1 VISUAL EXAMINATION. INSPECT FOR EVIDENCE OF MECHANICAL DAMAGE.
- 3.2.2.1.4 AFTER HIGH TEMPERATURE BAKE ELECTRICAL TEST - MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
- 3.2.2.1.5 TERMINATION ADHESION - SOLDER A WIRE AND PULL WITH 15 GRAMS PERPENDICULAR TO AND AWAY FROM THE SURFACE AREA.
- 3.2.2.1.5.1 VISUAL INSPECTION – THERE SHALL BE NO SEPARATION OF MATERIAL.
- 3.2.2.1.6 TERMINATION SOLDERABILITY IMMERSE EACH SAMPLE 5 SECONDS IN A SOLDER POT HELD AT 220°C +/- 5°C USING 60/40 OR 63/37 TIN-LEAD COMPOSITION.
- 3.2.2.2 SUB-GROUP 2 (4 SAMPLES)
- 3.2.2.2.1 INITIAL RF MEASUREMENTS - USE FINAL ELECTRICAL MEASUREMENTS FROM GROUP A.
- 3.2.2.2.2 LIFE TEST – OPERATE SAMPLES UNITS FOR 1000 HRS AT 70°C AT INPUT POWER PER 1.1.6. ELECTRICAL MEASUREMENTS SHALL BE MADE AT 250 +48/-0 HRS, 500 +48/-0 HRS, AND 1000 +48/-0 HRS.
- 3.2.2.2.3 FINAL RF MEASUREMENTS - MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
- 3.2.3 GROUP C (QCI TESTING 4 SAMPLES APPROVED FROM GROUP A).
- 3.2.3.1 LOAD LIFE TEST – BURN-IN UNITS AT 70°C WITH INPUT POWER PER 1.1.6 FOR A DURATION OF 1000 HOURS (1½ HOURS ON, ½ HOUR OFF). MEASURE AND RECORD ELECTRICALS AT 0, 250, 500, AND 1000 HOURS.
- 3.2.3.2 AFTER LOAD LIFE RF MEASUREMENTS – MEASURE AND RECORD VSWR AND ATTENUATION AT 1 GHZ AT 25°C. TEST ACCEPTABLE LIMITS PER 4.2.1 OF TP-8965.
- 3.4 TEST DATA REQUIREMENTS:
- 3.4.1 TEST DATA REQUIRED FOR CUSTOMER - SEE PARAGRAPH 5.0 OF TP-8965.
- 3.4.2 DATA RETENTION - 24 MONTHS.
- 3.4.3 TEST SAMPLES REQUIRED FOR CUSTOMER - SEE PARAGRAPH 5.0 OF TP-8965.
- 4.0 PACKAGING: STANDARD PACK PER MC0023. (SERIALIZED WAFFLE PACK)

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			SHEET	2 OF 3

