TITLE: SPECIFICATION CONTROL DRAWING

PART IDENTIFIER: HR95XXXT3

(X)=TEST CODE: A=GROUP A; B=GROUP B; C=GROUP C

(XX)=DB VALUE (01-20DB)

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-18 GHZ.
- 1.1.3 ATTENUATION VALUES AVAILABLE: 0-20 DB IN 1 DB 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	-0,+.5				
1 -3	±0.3	±0.5	±0.5	±0.5				
4 - 6	±0.4	±0.5	±0.5	±0.75				
7 - 10	±0.5	±0.5	±0.75	±1.0				
11 - 15	±0.75	+0.5,-3.0	+0.5,-3.5					
16 - 20	±1.0	+0.5,-4.0	+1.0,-6.0					

1.1.5 VSWR: DC - 4 GHZ - 1.25

8 - 12 4 GHZ - 150

4 - 8 GHZ - 1.35

12.4 - 18 GHZ - 1.50

1.1.6 INPUT POWER (MAX @ 25°C):

1.1.6.1 AVERAGE: 100MW WATTS.

1.1.6.2 PEAK: 1 WATT FOR 10US PULSE WIDTH @ 1% DUTY CYCLE.

1.2 MECHANICAL:

- 1.2.1 OUTLINE DWG: SEE SHEET 3.
- 1.2.2 WORKMANSHIP: PER MIL-R-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.
- 2.0 UNIT MARKING: MARKED ONLY WITH COLOR DOT. LEGIBILITY AND PERMANENCY PER MIL-STD-130.

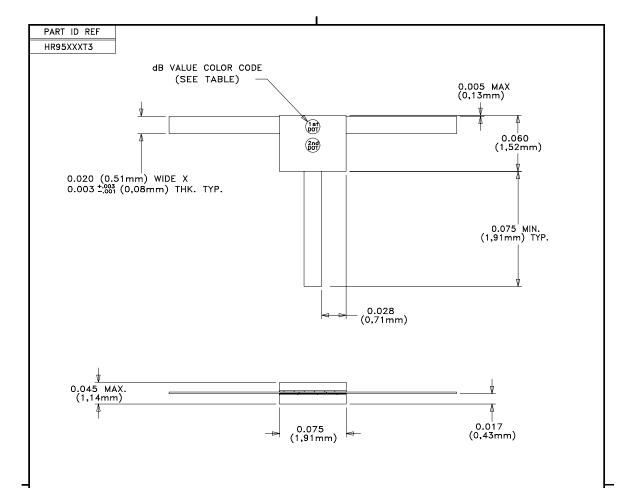
3.0 QUALITY ASSURANCE:

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

ENG		PUR		MFG		PLAN		SN	1			
CC				QA								
EMC TECHNOLOGY		CAGE CODE # 24602			DWG #	DWG # 1010025000			000			
8851 SW OLD KANSAS AVE.		CHANGE NOT	DTICE EN 03-291			REV LVL		ı				
STUART, FL 34997							SHEET		1	<u>OF</u>	3	

- 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 PER 1.1.6.
- 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 MECHANCIAL 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
 - 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)

EMC TECHNOLOGY	C/	DWG#	1010025000			
8851 SW OLD KANSAS AVE.	CHANGE NOTICE	EN 03-291	REV LVL	-		
STUART, FL 34997			SHEET	2	OF	3



MECHANICAL:

SUBSTRATE & TOP PLATE MATERIAL: ALUMINA 96%, MIL-I-10. TERMINAL MATERIAL: PLATINUM GOLD.

TERMINAL MATERIAL: PLATINUM GOLD.
RESISTIVE ELEMENT: TANTALUM NITRIDE.
LEAD MATERIAL: COPPER, ASTM B152.

FINISH: GOLD, MIL-G-45204, TYPE II, CLASS 1.

ALLOW +/-0.010 ON TOP PLATE FOR MISALIGNMENT

METRIC EQUIVA	LENTS ARE	GIVEN FOR
REFERENCE	INFORMATIO	ON ONLY



REFERENCE TABLE									
dB	DOT (COLOR	dB	DOT (COLOR				
VAL	1st 2nd		VAL	1st	2nd				
0	BLK		11	BRN	BRN				
1	BRN		12	BRN	RED				
2	RED		13	BRN	ORG				
3	ORG		14	BRN	YEL				
4	YEL		15	BRN	GRN				
5	GRN		16	BRN	BLU				
6	BLU		17	BRN	VIO				
7	VIO		18	BRN	GRY				
8	GRY		19	BRN	WHT				
9	WHT		20	RED	BLK				
10	BRN	BRN BLK							

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	TOLERANCES	CAGE CODE	SCALE	DRAWN BY	CHECKED BY	APPF	ROVED B	Y	
Technology	FRACT ANG	24602	2 1:1	JG 12/5/03					
8851 SW OLD KANSAS AVE STUART, FL 34997	XX XXX ±0.005	REV C	HANGE NOTIC	E	DRAWING NO		SHEET		
PHONE NO. (772)286-9300 FAX NO. (772)283-5286	xxxx	_	EN	03-291	101002500	00	3	OF	3