## SPECIFICATION CONTROL DRAWING TITLE:

PART IDENTIFIER: HR05XXXW3S

(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:

ELECTRICAL: 1.1

- IMPEDANCE: 50 OHMS NOMINAL. 1.1.1
- 1.1.2 FREQUENCY RANGE: DC-12.4 GHZ.
- ATTENUATION VALUES AVAILABLE: 0-20DB IN 1DB INCREMENTS. 1.1.3
- 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				
1 -3	±0.3	±0.5	±0.5				
4 - 6	±0.4	±0.5	±0.5				
7 - 10	±0.5	±0.5	±0.75				
11 - 15	±0.75	+0.5,-3.0	+0.5,-3.5				
16 - 20	±1.0	+0.5,-4.0	+1.0,-6.0				

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

INPUT POWER: 100 MILLIWATTS CW. 1.1.6

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

- 1.2
- MECHANICAL:
  - OUTLINE DWG: SEE SHEET 3. 1.2.1
  - 1.2.2 WORKMANSHIP: PER MIL-PRF-55342.
- ENVIRONMENTAL: 1.3
  - 1.3.1 ALTITUDE:
    - NON-OPERATING: SEA LEVEL TO 50,000 FEET. 1.3.1.1
    - OPERATING: SEA LEVEL TO 50,000 FEET. 1.3.1.2
    - 1.3.2 **TEMPERATURE RANGE:** 
      - 1.3.2.1 NON-OPERATING: -55° C TO +150° C.
    - OPERATING: -55°C TO +150°C 1.3.2.2
    - 1.3.3 VIBRATION: PER MIL-STD-202, METHOD 204, COND. D.
    - SHOCK: PER MIL-STD-202, METHOD 213, COND, I. 1.3.4
    - MOISTURE RESISTANCE: PER MIL-STD-202, METHOD 106 EXCEPT SUBCYCLE STEPS 7A AND 1.3.5
  - 7B AND POLARIZATION AND LOAD ARE NOT APPLICABLE.
- ELECTROSTATIC DISCHARGE CONTROL: PER MIL-STD-1686. 1.4
- 2.0 UNIT MARKING: MARKED ONLY WITH COLOR DOT.

LEGIBILITY AND PERMANENCY PER MIL-STD-130.

## 3.0 QUALITY ASSURANCE:

- VERIFY 100% VISUAL PRE-CAP INSPECTION PERFORMED PER TP-8965. 3.1
- PERFOM GROUP A, B AND/OR C TESTING AS INDICATED BY THE PART NUMBER PER TP-8965. 3.2
  - 321 GROUP A TESTING
    - VISUAL AND MECHNICAL INSPECTION PER SHEET 3. 3.2.1.1
    - INITIAL RF MEASUREMENTS MEASURE AND RECORD VSWR @ 1 GHZ AND ATTENUATION AT 3.2.1.2 DC (0 GHZ) AND 1.0 GHZ.
    - THERMAL SHOCK 10 CYCLES FROM -55°C TO +125°C. 3.2.1.3
    - AFTER THERMAL SHOCK RF MEASUREMENTS MEASURE AND RECORD VSWR @ 1 GHZ AND 3.2.1.4 ATTENUATION AT DC (0 GHZ) AND 1.0 GHZ.
    - BURN-IN DURATION OF 168 HRS AT INPUT POWER OF PER 1.1.6. 3215

ENG		PUR		MFG		PLAN		SM			
CC				QA							
EMC TECHNOLOGY 8851 SW OLD KANSAS AVE.		CAGE CODE # 24602			DWG #	<b>DWG #</b> 1010					
		CHANGE NOT	ICE	EN 03-289		<b>REV LVL</b>	EV LVL -				
STUAF	RT, FL 34997							SHEET	1	<u>OF</u>	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 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 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)

EMC TECHNOLOGY	CAGE CODE # 24602		DWG #	101	00050	000
8851 SW OLD KANSAS AVE.	CHANGE NOTICE	EN 03-289	<b>REV LVL</b>	-		
STUART, FL 34997			SHEET	2	OF	3

