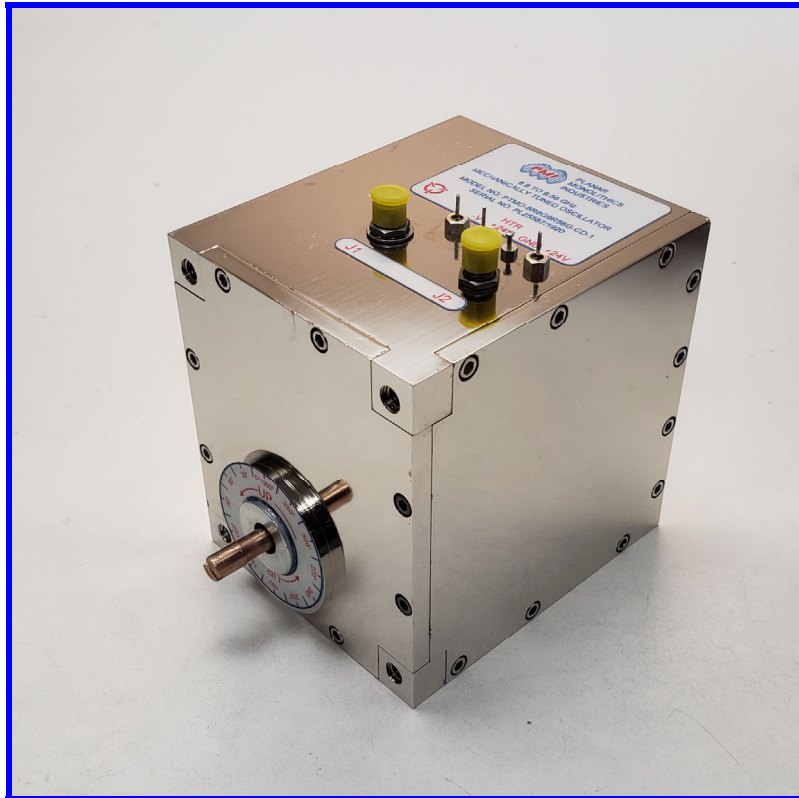




Typical Characteristics For PMTO-8R8G9R56G-CD-1

PMI MODEL: PMTO-8R8G9R56G-CD-1 IS A TEMPERATURE STABILIZED OUTPUT MEDIUM POWER X-BAND GUNN-EFFECT OSCILLATOR FOR USE AS AN RF SIMULATOR SIGNAL GENERATOR. THIS UNIT CONTAINS A PRECISION VOLTAGE REGULATOR, A LOW-NOISE GUNN-EFFECT OSCILLATOR MOUNTED ON A THERMAL PLATFORM WITH INTEGRAL LOAD ISOLATORS FOR EACH OF THE RF OUTPUTS AND A SOLID-STATE PROPORTIONAL TEMPERATURE CONTROLLER ALONG WITH ASSOCIATED HEATERS AND TEMPERATURE SENSOR. THIS UNIT SHALL ME ALL REQUIREMENTS LISTED BELOW AFTER A 15 MINUTE WARMUP WITH ALL OUTPUTS TERMINATED IN A 50 Ω LOAD WITH A VSWR OF 1.5:1 FOR ALL PHASES OVER THE OPERATING RANGE. THE UNIT SHALL BE CAPABLE OF WITHSTANDING, WITHOUT DAMAGE OR PERMANENT DEGRADATION OF PERFORMANCE, ANY TEMPORARY EXTREME LOAD CONDITION; I.E., SHORT OR OPEN CIRCUIT.



May 16, 2019
Designed by: PMI
Tested & Reported by: Garrett Radtke

7311-F Grove Road Frederick, MD 21704 USA
Phone: (301)662-5019 Fax: (301)662-1731 Email: sales@pmi-rf.com



Typical Characteristics For PMTO-8R8G9R56G-CD-1

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Typical Characteristics For PMTO-8R8G9R56G-CD-1

Product Feature

DESCRIPTION

PMI MODEL: PMTO-8R8G9R56G-CD-1 IS A TEMPERATURE STABILIZED OUTPUT MEDIUM POWER X-BAND GUNN-EFFECT OSCILLATOR FOR USE AS AN RF SIMULATOR SIGNAL GENERATOR. THIS UNIT CONTAINS A PRECISION VOLTAGE REGULATOR, A LOW-NOISE GUNN-EFFECT OSCILLATOR MOUNTED ON A THERMAL PLATFORM WITH INTEGRAL LOAD ISOLATORS FOR EACH OF THE RF OUTPUTS AND A SOLID STATE PROPORTIONAL TEMPERATURE CONTROLLER ALONG WITH ASSOCIATED HEATERS AND TEMPERATURE SENSOR. THIS UNIT SHALL ME ALL REQUIREMENTS LISTED BELOW AFTER A 15 MINUTE WARMUP WITH ALL OUTPUTS TERMINATED IN A 50 Ω LOAD WITH A VSWR OF 1.5:1 FOR ALL PHASES OVER THE OPERATING RANGE, THE UNIT SHALL BE CAPABLE OF WITHSTANDING, WITHOUT DAMAGE OR PERMANENT DEGRADATION OF PERFORMANCE, ANY TEMPORARY EXTREME LOAD CONDITION; I.E., SHORT OR OPEN CIRCUIT.

SPECIFICATIONS

- FREQUENCY RANGE: _____ 8.8 TO 9.56 GHz (TUNING)
8.9 TO 9.46 GHz (TO MEET SPECIFICATION)
- TUNING SENSITIVITY: _____ 65 MHz/360° ROTATION MIN
80 MHz/360° ROTATION MAX
- OUTPUT FREQ. VS TUNER ROTATION: — ±10 MHz, 8.90 TO 8.93 GHz
±5 MHz, 8.93 TO 9.43 GHz
±10 MHz, 9.43 TO 9.46 GHz
- POWER OUTPUT (ANY FREQUENCY): — J1: +10 (+3, -0) dBm
J2: 0 (+3, -0) dBm
- TUNING ELEMENT: _____ STARTING TORQUE: 25 INCH-OZ MAX
WITHSTANDING TORQUE: 100 INCH-OZ MIN @ STOPS
- SPURIOUS HARMONIC SIGNALS: _____ 60 dBc MINIMUM (IN BAND)
45 dBc MINIMUM (OUT OF BAND)
30 dBc MINIMUM (HARMONICS)
- NOISE: _____ SEE PLOTS
- TEMPERATURE COEFFICIENT: _____ 15 kHz/°C MAX FROM 0°C TO +50°C
- LONG TERM FREQUENCY DRIFT: _____ 50 kHz/hr MAX @ ANY CONSTANT TEMP FROM 0°C TO +50°C
- PULLING FACTOR: _____ LESS THAN 50 kHz
- REG/OSC POWER SUPPLY: _____ +24±1 VDC @ 1.5 A MAX, 2% REGULATION, RIPPLE = 2 mVrms
- HEATER POWER SUPPLY (ISOLATED): — +24±1 VDC @ 1.5 A MAX, 2% REGULATION, RIPPLE = 50 mVrms
- CONNECTORS: _____ SMA FEMALE 2 PLACES
- SIZE (EXCLUDING CONNECTORS): _____ 3.50" x 3.50" x 3.00"
88.9 mm x 88.9 mm x 76.2 mm
- WEIGHT: _____ 2.4 lbs [1088.7 g] MAX
- FINISH: _____ CHEMICAL FILM PER MIL-C-5541 CLASS 1A

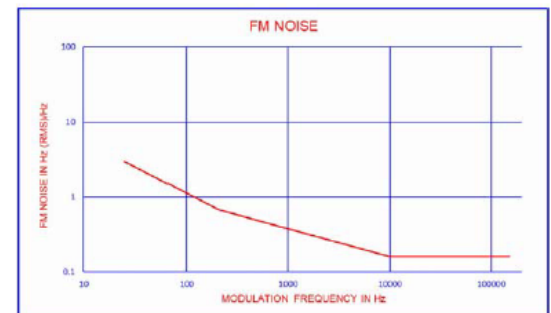
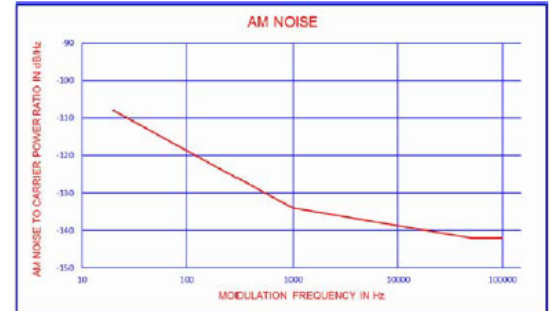
ENVIRONMENTAL RATINGS

- TEMPERATURE: _____ -0 °C TO +50 °C (OPERATING)
-62 °C TO +75 °C (NON-OPERATING)
- HUMIDITY: _____ MIL-F-18870 (OS) CLASS 4 EQUIPMENT
- SHOCK: _____ 30G, 11ms, 3 HALF-SINE SHOCKS, 3-AXIS
(±1 MHz FREQUENCY SHIFT MAXIMUM)
- VIBRATION: _____ MIL-STD-167 TYPE I

NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

PMI CONFIDENTIAL AND PROPRIETARY

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	05/09/17	
	2	MISCELLANEOUS UPDATES	09/26/17	



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TEL: (301)-662-5019, FAX: (301)-662-1731
WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE		
DRAWN	<i>M. Berry</i>	05/09/17	PRODUCT FEATURE		
CHECKED			PMTO-8R8G9R56G-CD-1		
ISSUED			8.8 to 9.56 GHz Mechanically Tuned Oscillator		
SIZE	FSCM NO.	DWG NO.	REV.		
A	05XQ0	27031550	2		
SCALE	N:S			SHEET	1 OF 2

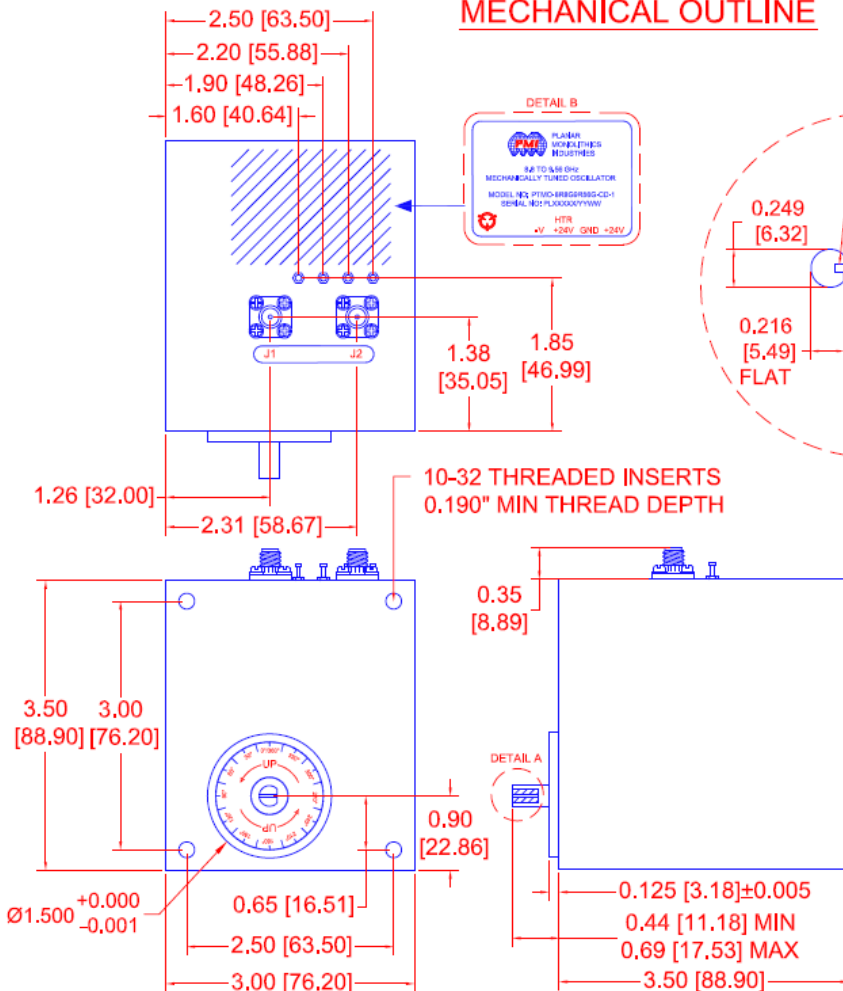
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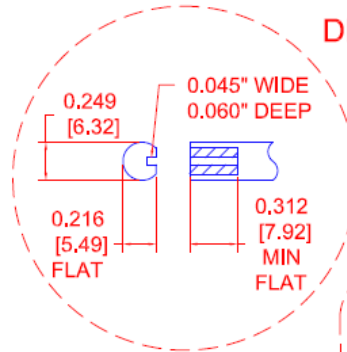
Typical Characteristics For PMTO-8R8G9R56G-CD-1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	05/09/17	
	2	MISCELLANEOUS UPDATES	09/26/17	

MECHANICAL OUTLINE



DETAIL A



DETAIL B

PLANAR MONOLITHICS INDUSTRIES

8.8 TO 9.56 GHz
MECHANICALLY TUNED OSCILLATOR

MODEL NO: PTMO-8R8G9R56G-CD-1
SERIAL NO: PLXXXXX/YYWW

HTR
-V +24V GND +24V

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APPROVALS		DATE	TITLE		
DRAWN	<i>M. Berry</i>	05/09/17	PRODUCT FEATURE PMTO-8R8G9R56G-CD-1 8.8 to 9.56 GHz Mechanically Tuned Oscillator		
CHECKED			SIZE	FIRM NO.	REV.
ISSUED			A	05XQ0	2
			DWG NO.	27031550	
			SCALE	N:S	SHEET 2 OF 2

ALL DIMENSIONS
ARE IN INCH (mm)
TOLERANCES:
X.XX ± 0.020 (0.508)
X.XXX ± 0.010 (0.254)

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Typical Characteristics For PMTO-8R8G9R56G-CD-1

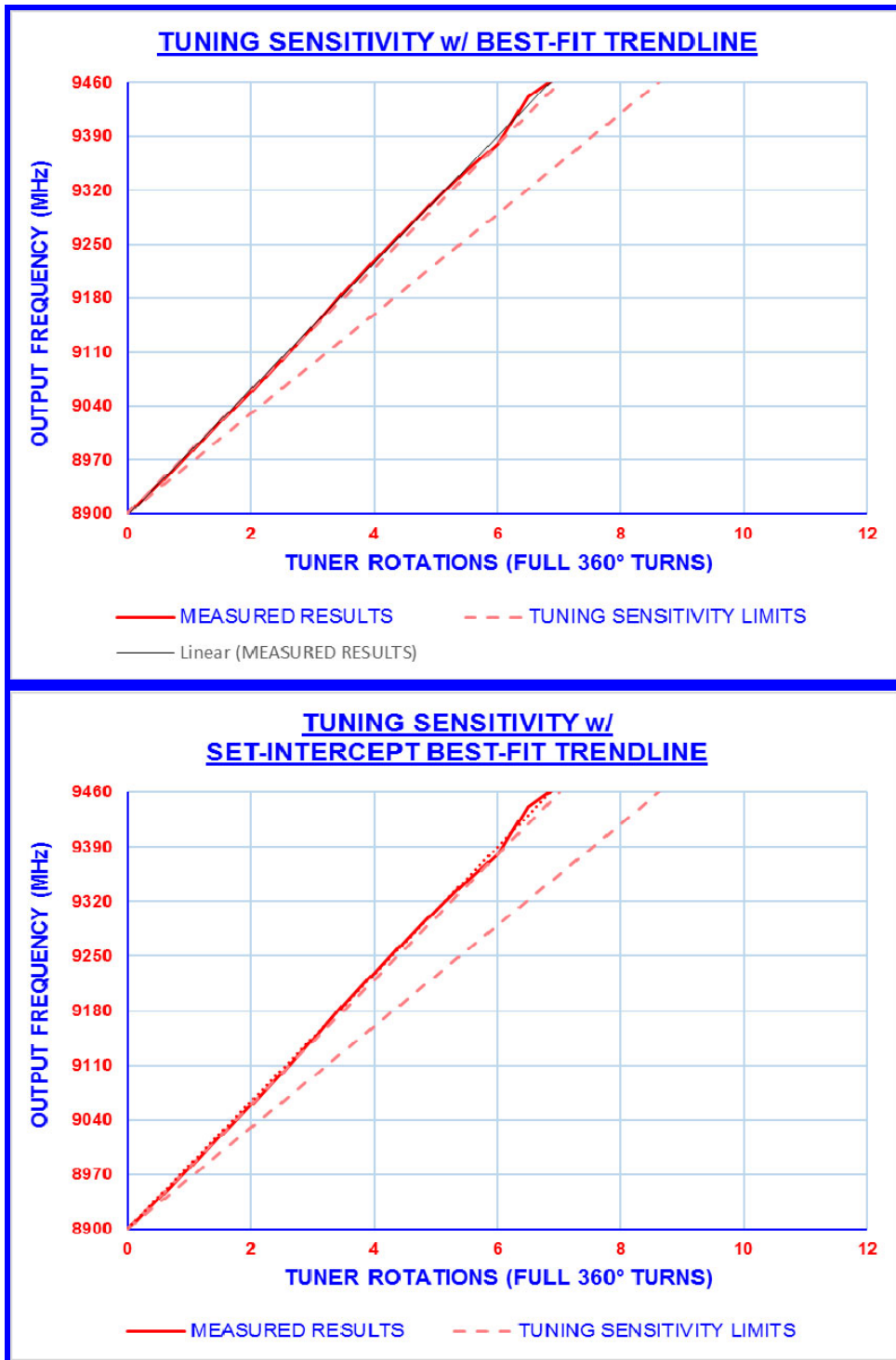
Summary Test Data

TEST ITEM	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	8.8 to 9.56 GHz (Tuning) 8.9 to 9.46 GHz (Specifications)	8.8 TO 9.50 GHz (Tuning) 8.9 TO 9.46 GHz (Specifications)	
2	Tuning Sensitivity	65 MHz/360° MIN 80 MHz/360° MAX	82.3093 MHz/360° 91.529 MHz/360° (Set Intercept) See Graphs	
3	Output Frequency vs Tuner Rotation	±10 MHz (8.90 to 8.93 GHz) ±5 MHz (8.93 to 9.43 GHz) ±10 MHz (9.43 to 9.46 GHz)	+2.7 MHz (8.90 to 8.93 GHz) -9.9 MHz (8.93 to 9.43 GHz) +11.1 MHz (9.43 to 9.46 GHz) See Graphs	
4	Power Output (Any Frequency)	J1: +10 (+3, -0) dBm J2: 0 (+3, -0) dBm	10.27 to 10.93 dBm 1.4 to 2.73 dBm See Graphs	
5	Tuning Element	Starting Torque: 25 inch-oz MAX Withstanding Torque: 100 inch-oz MIN	PASS	
6	Spurious Harmonic Signals	60 dBc MIN (IN BAND) 45 dBc MIN (OUT OF BAND) 30 dBc MIN (HARMONICS)	> 67.36 dBc > 57.20 dBc > 46.53 dBc	
7	Noise	See Plots Below	PASS	
8	Temperature Coefficient	15 kHz/°C MAX from 0°C to +50°C	1 kHz/°C FROM 0 °C TO 40 °C 1500 kHz/°C FROM 40 °C TO 50 °C	
9	Long Term Frequency Drift	50 kHz/hr MAX @ any constant temperature from 0°C to +50°C	PASS	
10	Pulling Factor	<50 kHz	PASS	
11	Regulator/Oscillator Power Supply	+24±1 VDC @ 1.5 A MAX 2% Regulation, Ripple = 2 mVrms	+24±1 @ 0.172 A	
12	Heater Power Supply	+24±1 VDC @ 1.5 A MAX 2% Regulation, Ripple = 50 mVrms	+24±1 @ 1.16 A	
13	Weight	2.4 lbs MAX	3 lbs	

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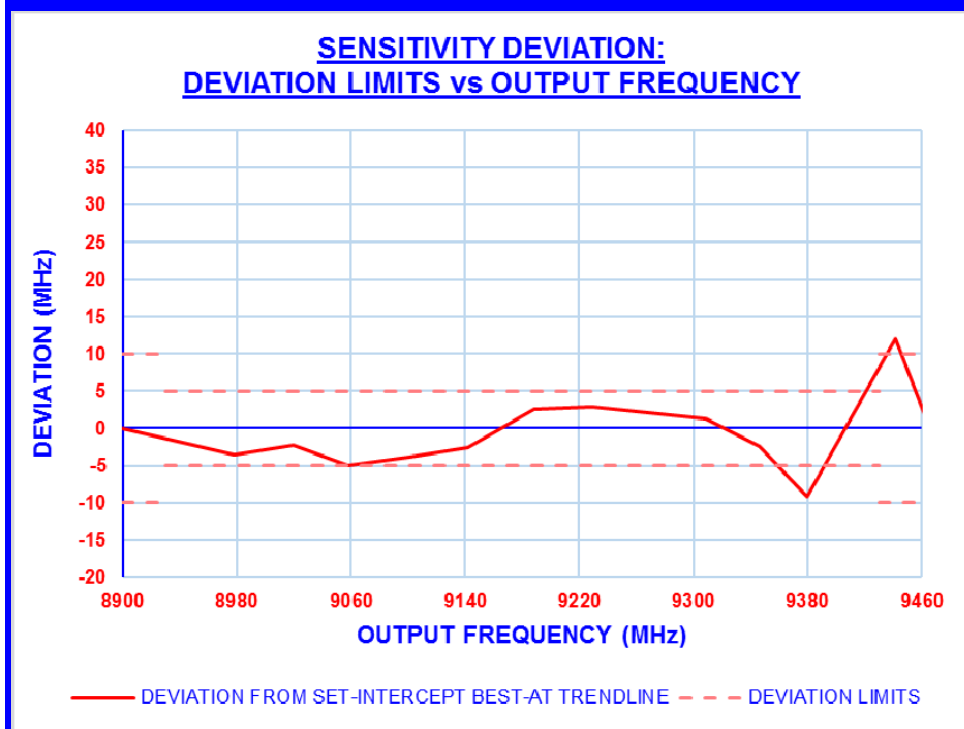
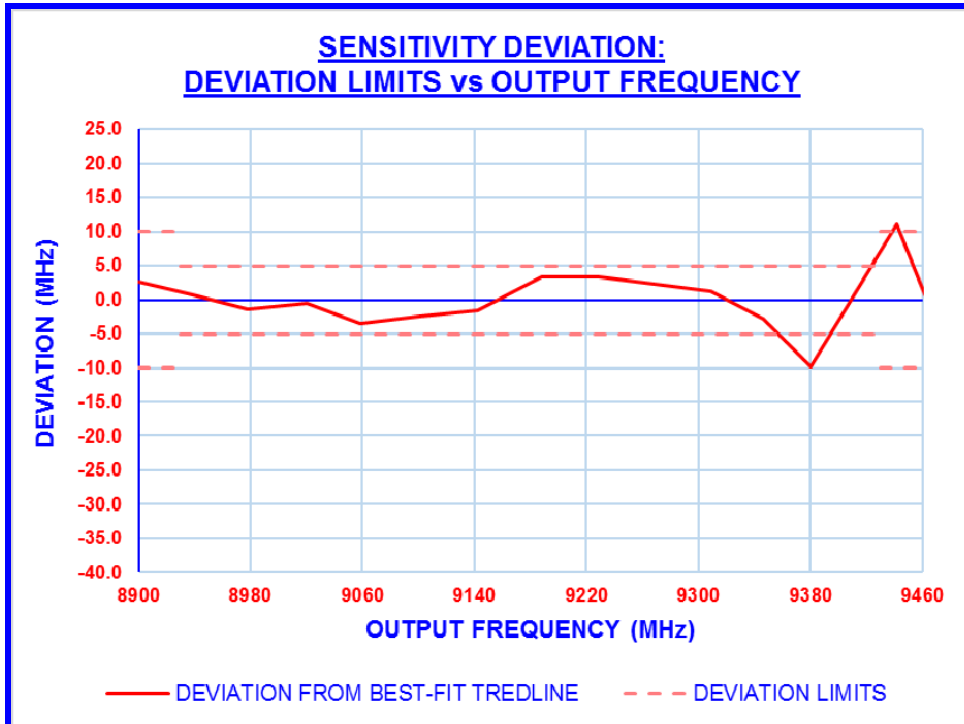
Typical Characteristics For PMTO-8R8G9R56G-CD-1



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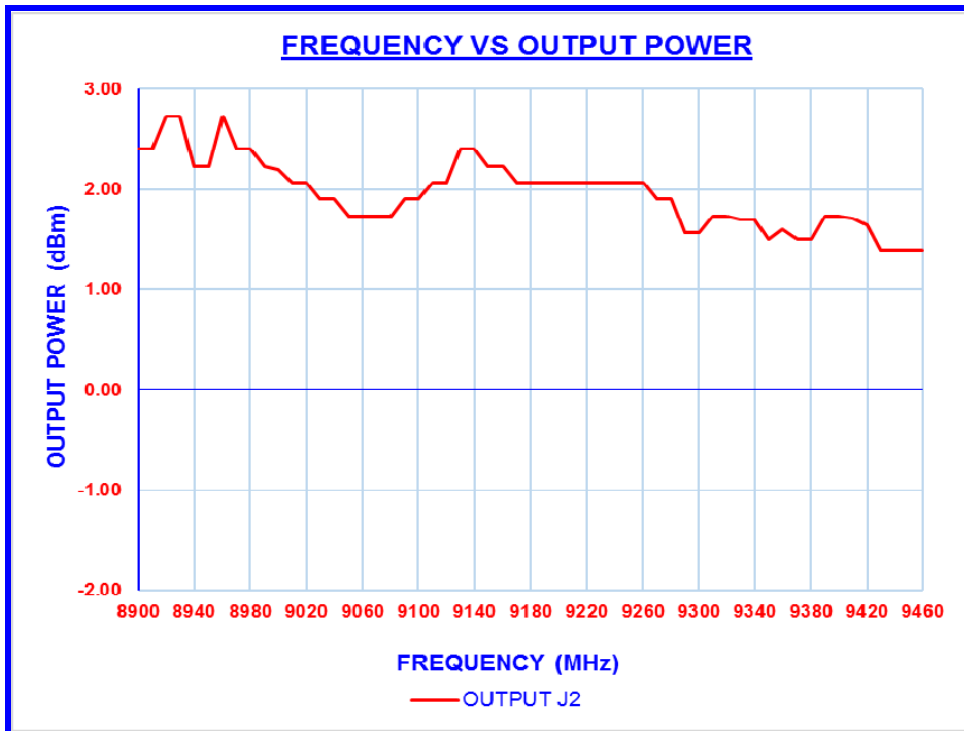
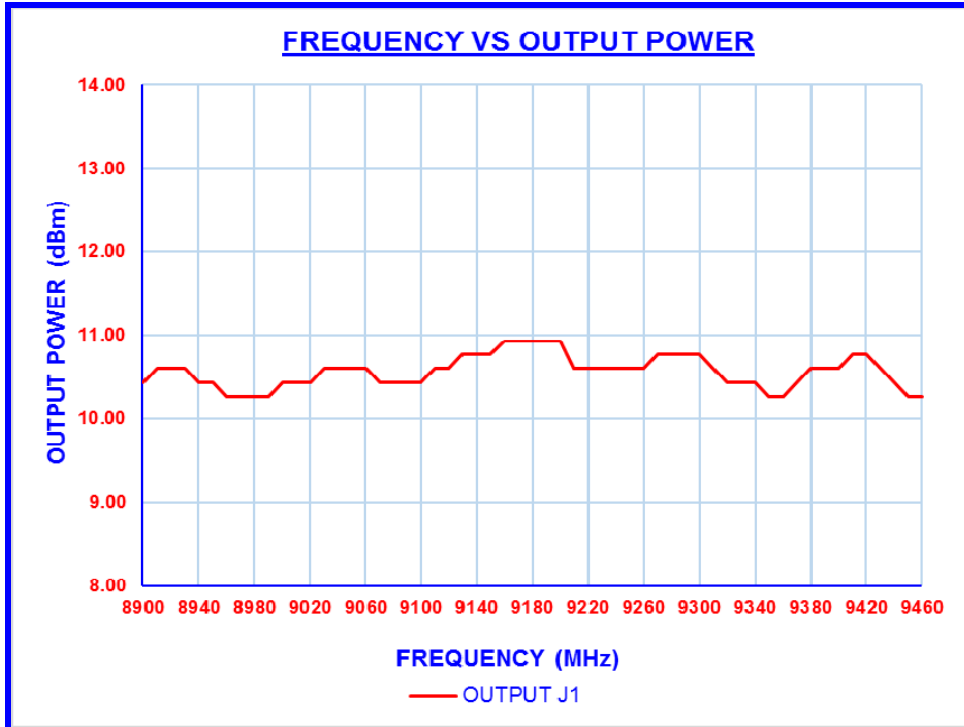
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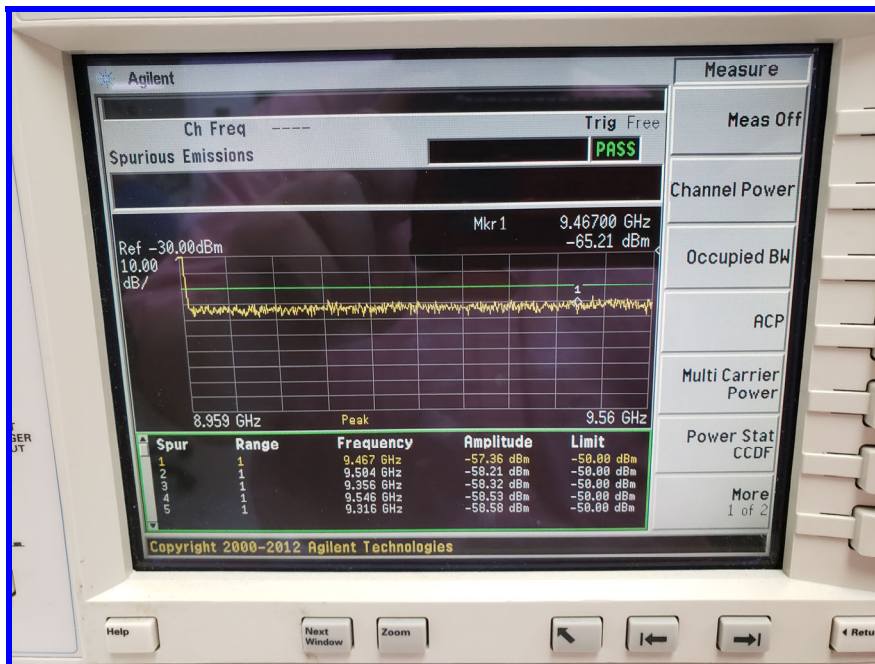


Typical Characteristics For PMTO-8R8G9R56G-CD-1

LOWER IN BAND HARMONICS AND SPURIOUS SIGNALS @ 10 dB OUTPUT



UPPER IN BAND HARMONICS AND SPURIOUS SIGNALS @ 10 dB OUTPUT

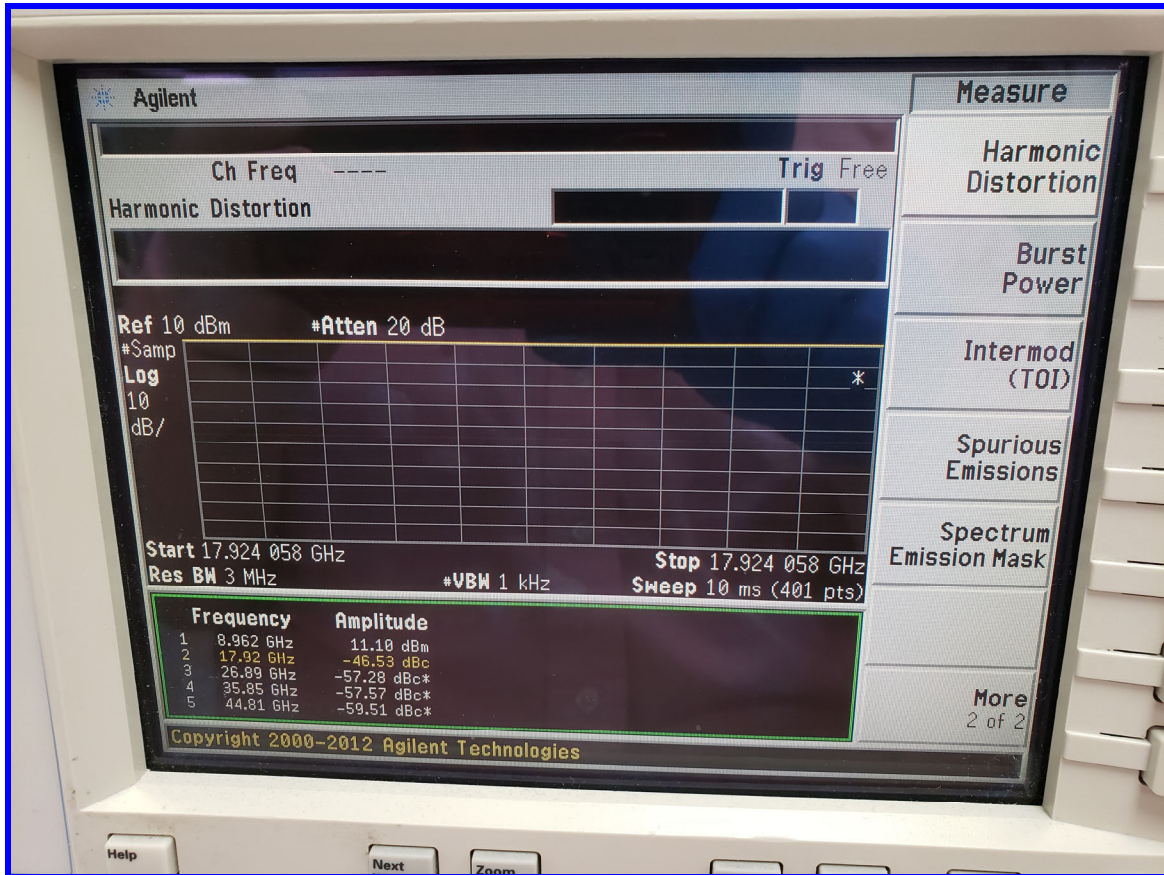


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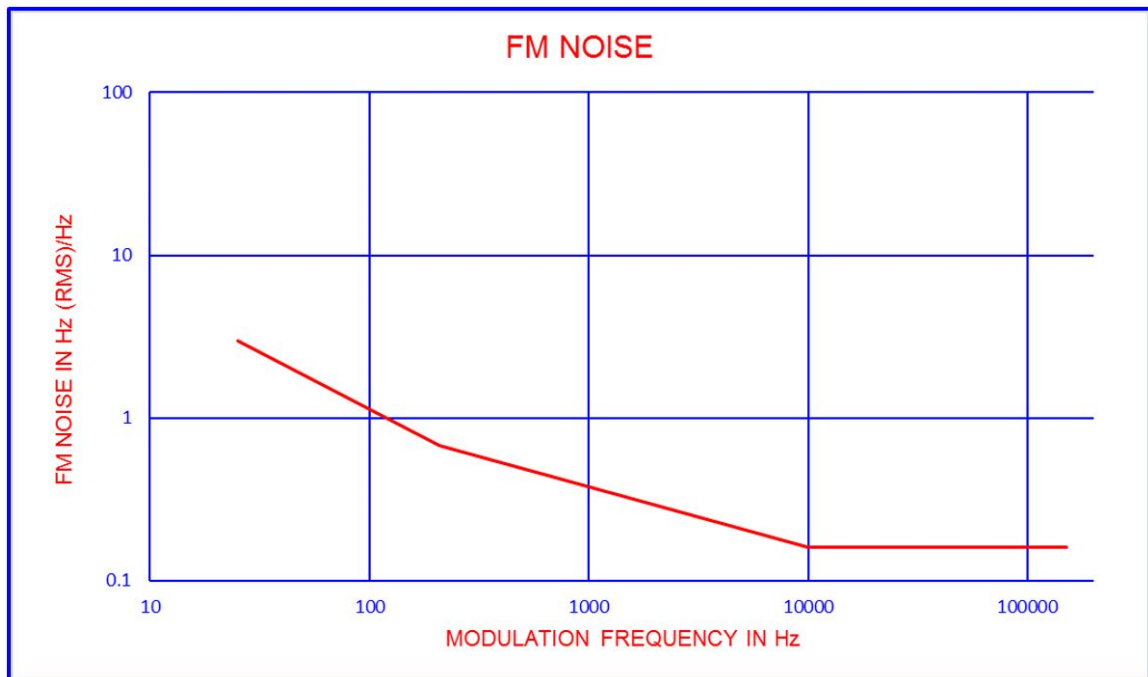
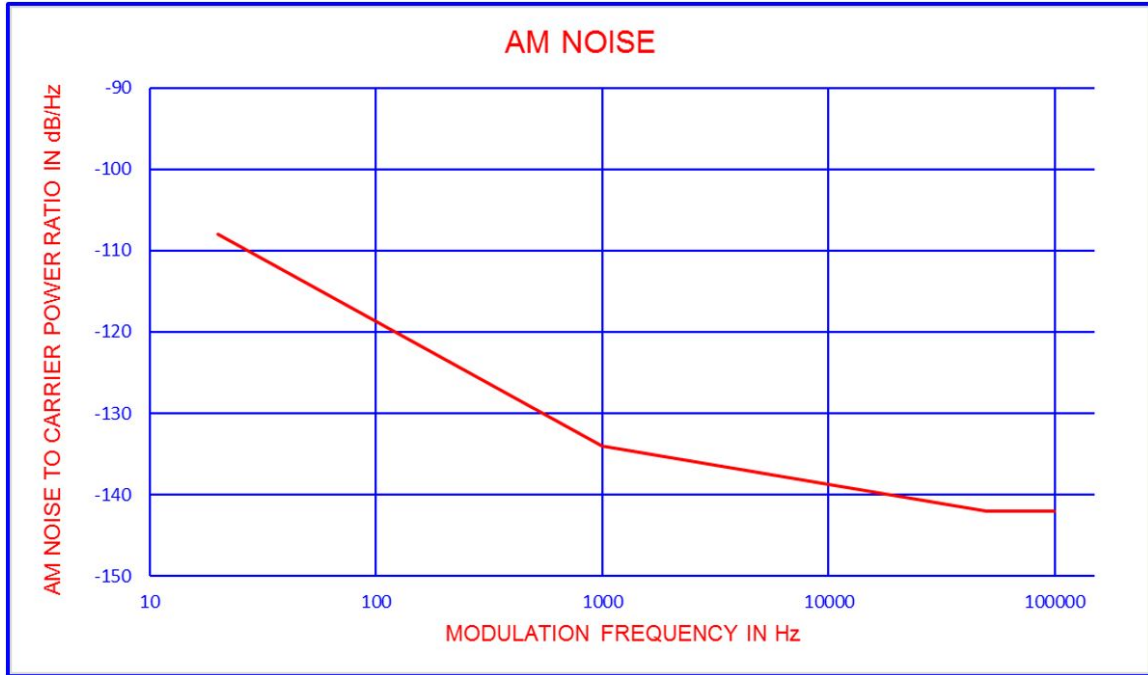
Typical Characteristics For PMTO-8R8G9R56G-CD-1

HARMONIC PERFORMANCE





Typical Characteristics For PMTO-8R8G9R56G-CD-1





Typical Characteristics For PMTO-8R8G9R56G-CD-1

