## REVISIONS

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<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
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<td>ORIGINAL RELEASE</td>
<td>05/05/17</td>
<td>S. PALACIO</td>
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<td>MISCELLANEOUS UPDATES</td>
<td>09/25/17</td>
<td>S. PALACIO</td>
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**Planar Monolithics Industries, Inc.**

7311-F GROVE ROAD

FREDERICK, MD 21704

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<table>
<thead>
<tr>
<th>NAME</th>
<th>DATE</th>
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<td>CONTRACT NO:</td>
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<tr>
<td>DRAWN:</td>
<td>M. Berry 09/25/17</td>
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<td>PROJ ENGR:</td>
<td>S. Palacio 09/25/17</td>
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<td>MFG ENGR:</td>
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<td>QA ENGR:</td>
<td>J. Peacher 09/25/17</td>
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<td>RELIABILITY:</td>
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**ACCEPTANCE TEST PROCEDURE**

MODEL: PMTO-8R8G9R56G-CD-1

PMI PART NO: 27331550

NAVY PART NO: 5399619
# TABLE OF REVISIONS

<table>
<thead>
<tr>
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<th>DATE</th>
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<td>05/05/17</td>
<td>M. BERRY</td>
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<td>MISCELLANEOUS UPDATES</td>
<td>09/25/17</td>
<td>M. BERRY</td>
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## MISCELLANEOUS UPDATES

- **ORIGINAL RELEASE**
  - **Date:** 05/05/17
  - **PMI:** M. BERRY

- **MISCELLANEOUS UPDATES**
  - **Date:** 09/25/17
  - **PMI:** M. BERRY
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# TABLE OF TESTS

The following tests *shall* be performed and recorded on the 27631550 Test Data Sheet in the order below.

<table>
<thead>
<tr>
<th>TEST SEQUENCE</th>
<th>PARAMETER</th>
<th>VERIFICATION METHOD</th>
<th>% INSPECTED</th>
<th>SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ALL</td>
<td>SAMPLE</td>
<td>BY DESIGN</td>
</tr>
<tr>
<td>1</td>
<td>RF Connectors</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>DC Connectors</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Dimensions &amp; Mounting</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Finish</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>Marking</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Power Supply Requirements</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Tuning Element/Mechanism Run In</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Output Characteristics</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Frequency Range</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Power Output (Any Frequency)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>Tuning Capability</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>FM Noise</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Spurious &amp; Harmonic Signals</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ANY</td>
<td>Long Term Frequency Drift</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td>AM Noise</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td>Pulling Factor</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ANY</td>
<td>Temperature Coefficient</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td>Cooling</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td>Weight</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>ANY</td>
<td>Environmental</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix A
1.0 SCOPE

This procedure defines the tests required for the acceptance of a PMI Model PMTO-8R8G9R56G-CD-1.

2.0 TEST EQUIPMENT

Test equipment **shall** be inspected for current calibration and serviceability. Test connectors **shall** be cleaned and inspected prior to test set connection. Coaxial test cables **shall** be inspected for proper impedance (i.e. 50 Ω coax for RF). **Test Equipment with equivalent or better specifications than the equipment defined in the table below may be substituted.** RF cables and adapters to be used as needed and proper calibration of test setup is required.

**TABLE OF EQUIPMENT**

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>ITEM</th>
<th>MANUFACTURER</th>
<th>MODEL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PNA NETWORK ANALYZER</td>
<td>AGILENT</td>
<td>N5230A</td>
</tr>
<tr>
<td>2</td>
<td>E-CAL MODULE</td>
<td>AGILENT</td>
<td>N4692A</td>
</tr>
<tr>
<td>3</td>
<td>DC POWER SUPPLY (TRIPLE OUTPUT)</td>
<td>AGILENT</td>
<td>E3631A</td>
</tr>
<tr>
<td>4</td>
<td>SIGNAL GENERATOR</td>
<td>KEYSIGHT</td>
<td>E8257D</td>
</tr>
<tr>
<td>5</td>
<td>POWER METER</td>
<td>GIGATRONICS</td>
<td>8541C</td>
</tr>
<tr>
<td>6</td>
<td>POWER SENSOR (CW)</td>
<td>GIGATRONICS</td>
<td>80325A</td>
</tr>
<tr>
<td>7</td>
<td>POWER SENSOR (PEAK)</td>
<td>GIGATRONICS</td>
<td>80355A</td>
</tr>
<tr>
<td>8</td>
<td>POWER SENSOR (MODULATED)</td>
<td>GIGATRONICS</td>
<td>80425A</td>
</tr>
<tr>
<td>9</td>
<td>TWT AMPLIFIER</td>
<td>CPI</td>
<td>VZM6993J5 (Base 250W Model)</td>
</tr>
<tr>
<td>10</td>
<td>CIRCULATOR</td>
<td>PMI</td>
<td>RMC1.12-18Sf</td>
</tr>
<tr>
<td>11</td>
<td>50 Ω HIGH POWER LOAD</td>
<td>PMI</td>
<td>1431-2</td>
</tr>
<tr>
<td>12</td>
<td>WAVEFORM GENERATOR</td>
<td>AGILENT</td>
<td>33522A</td>
</tr>
<tr>
<td>13</td>
<td>OSCILLOSCOPE</td>
<td>AGILENT</td>
<td>MSOX3034A</td>
</tr>
<tr>
<td>14</td>
<td>DETECTOR (CRYSTAL OR DIODE)</td>
<td>PMI</td>
<td>DD-20-218-5PF-3-P-M-OPT0518</td>
</tr>
<tr>
<td>15</td>
<td>PERSONAL COMPUTER (PC)</td>
<td>DD-20-218-5PF-3-P-M-OPT0518</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>DIGITAL MULTIMETER (DMM)</td>
<td>AGILENT</td>
<td>34401A</td>
</tr>
<tr>
<td>17</td>
<td>HIGH PASS FILTER</td>
<td>PMI</td>
<td>HP2G-1780-CD-SS</td>
</tr>
<tr>
<td>18</td>
<td>THERMAL PLATFORM (HOT/COLD PLATE)</td>
<td>ESS</td>
<td>T650</td>
</tr>
<tr>
<td>19</td>
<td>20 dB FIXED ATTN (200 W CW, 1 kW PEAK)</td>
<td>PMI</td>
<td>WA95-20-43</td>
</tr>
<tr>
<td>20</td>
<td>30 dB FIXED ATTN (200 W CW, 1 kW PEAK)</td>
<td>PMI</td>
<td>WA95-30-43</td>
</tr>
<tr>
<td>21</td>
<td>3 Hz – 50 GHz PXA SPECTRUM ANALYZER</td>
<td>KEYSIGHT</td>
<td>N9030A</td>
</tr>
</tbody>
</table>
3.0 GENERAL REQUIREMENTS

Evidence supporting successful completion of in-process testing (ESS Testing) shall be verified prior to formal acceptance testing. The Device Under Test, or DUT, shall be closed prior to formal acceptance test to provide a tamper proof seal. At any point during testing a unit does not meet the required specifications, testing shall be manually or automatically (dependent on availability of automated setup) stopped.

3.1 TEST CONDITIONS

Unless specified otherwise, testing shall be performed at an ambient temperature of 25 °C ± 3°C. The DUT shall be conductively cooled in a manner that maintains the DUT case temperature within the specified ambient temperature window. PMI will test the DUT on a thermal platform (Item #18) to ensure temperature is regulated. Initial characterization to include all Section 4.0 test parameters listed below; the measured values may vary but will meet specifications over the operating temperature range.

3.2 TEST FAILURE

If test failure is indicated, the test program for the DUT shall be stopped by the technician. The cognizant engineering and quality representatives shall be notified. The engineering and quality representatives shall assess the failure to assign cause. A written course of action shall be developed by engineering and quality to determine the root cause of the failure.

4.0 TEST PROCEDURE

In order to verify that the design of the DUT achieves the desired specification requirements the device must be tested and the results recorded. The following procedures and techniques will be followed using the various layout diagrams illustrated below. All tests to be performed over the 8.8 to 9.56 GHz frequency range unless otherwise noted.

Prior to test, the tuner element shall be exercised in a smooth, continuous manner from low band edge to upper band edge ten times as an initial “break-in”. Measurements are to be taken after 15-min warm up.

4.1 TUNING SENSITIVITY & SENSITIVITY DEVIATION

a) Clear the Spectrum Analyzer (Item #21) of all preexisting settings.
b) Set the Spectrum Analyzer from 8.8 to 9.6 GHz.
c) Connect cables to the DUT as seen in Figure 1 and display Frequency vs Power.
d) Turn the Tuning Mechanism clockwise/down until the RF Output Frequency reads 8.9 GHz. (the starting torque for the mechanical tuning element shall not exceed 25 in. oz. maximum)
e) Note the Tuning Mechanism position using the graduations on the label.
f) Rotate the Tuning Mechanism counterclockwise/up and record the RF Output Frequency at each 180° interval until reaching the upper limit of 9.46 GHz.
g) Repeat for second RF output.

Tuning Sensitivity shall be defined as the slope of the trendline of the data – the limits of which can be seen in Figure 2. The unit’s Sensitivity Deviation shall be defined as the maximum difference in MHz from the trendline – the limits of which can be seen in Figures 3 and 4.
4.2 **POWER OUTPUT**

a) Clear the Spectrum Analyzer (Item #21) of all preexisting settings.
b) Set the Spectrum Analyzer from 8.8 to 9.6 GHz.
c) Connect cables to the DUT as seen in Figure 1 and display Frequency vs Power.
d) Hold maximum point on spectrum analyzer and starting from 8.8 GHz, rotate the Tuning Mechanism to the upper limit. Record for both RF outputs.

4.3 **TUNING ELEMENT**

a) Rotate the tuning mechanism clockwise until stop.
b) Using a torque sensor or gauge, apply 100 in-oz (0.52 ft-lbs) to the tuning mechanism.
c) Rotate the tuning mechanism counterclockwise until stop, and repeat. Record pass/fail criteria.

4.4 **SPURIOUS HARMONIC SIGNALS**

a) Clear the Spectrum Analyzer (Item #21) of all preexisting settings.
b) Set the Spectrum Analyzer from 8.0 to 20.0 GHz.
c) Connect cables to the DUT as seen in Figure 1 and display Frequency vs Power.
d) Measure the Spurs & Harmonic dBC values of other peak frequencies.
e) Perform measurements at the lower limit, midband, and upper limit of both RF outputs.

4.5 **NOISE (AM/FM) – PASS BY DESIGN**

The Noise shall be less than the limits shown in on Page 12.

4.6 **TEMPERATURE COEFFICIENT & LONG TERM FREQUENCY DRIFT**

a) Clear the Spectrum Analyzer (Item #21) of all preexisting settings.
b) Set the Spectrum Analyzer from 8.8 to 9.6 GHz.
c) Connect cables to the DUT as seen in Figure 1 and display Frequency vs Power.
d) Set the DUT to midband (~9.1 GHz). After 1 hour, record Long Term Frequency Drift.
e) Repeat for second RF output.
f) Using the Thermal Platform (Item #18), cool the DUT to 0°C, then heat to 50°C.
g) Record the Temperature Coefficient at each 5°C interval. Repeat for second RF output.

4.7 **PULLING FACTOR – PASS BY DESIGN**

For load VSWR of 1.5:1 for all phases at both outputs, the Pulling Factor shall be less than 50 kHz.

4.8 **POWER SUPPLY (CURRENT DRAW)**

a) Set the Power Supply (Item #3) current limits to 1.5 Amps.
b) Connect DC cables to DUT as labeled on the unit and record Current Drawn.
4.9 MECHANICAL, MARKING, & WORKMANSHIP

4.9.1 RF CONNECTORS
RF connectors shall be type SMA female meeting the requirements of MIL-C-39012.

4.9.2 DC POWER CONNECTORS
DC power connectors shall be EMI solder terminals.

4.9.3 COOLING
The unit shall require no means of cooling other than conduction cooling by mounting on customer’s heat sink which will maintain 0°C to 65°C.

4.9.4 WEIGHT
2.4 pounds maximum.

4.9.5 DIMENSIONS AND MOUNTING
Per Figure 1 of SCD #5399619.

4.9.6 FINISH
Chemical film per MIL-C-5541 Class 1A.

4.9.7 MARKING
Each oscillator shall be marked with the manufacturer’s code identification number, name or registered trademark, and part number in accordance with MIL-STD-130.
5.0 FIGURES/TEST DIAGRAMS

FIGURE 1 – TEST CONFIGURATION FOR TESTS 4.1 – 4.9

POWER SUPPLY
- V
+24 V

POWER SUPPLY
GND
+24 V

DUT

J1
J2

SPECTRUM ANALYZER

FIGURE 2 – TEST PROCEDURE 4.1, TUNING SENSITIVITY

TUNING SENSITIVITY

OUTPUT FREQUENCY (MHz)

9460
9390
9320
9250
9180
9110
9040
8970
8900

0 1 2 3 4 5 6 7 8 9

TUNER ROTATION (FULL 360° TURNS)

MEAN TUNING SENSITIVITY

TUNING SENSITIVITY LIMITS
FIGURE 3 – TEST PROCEDURE 4.1, TUNING SENSITIVITY DEVIATION

SENSITIVITY DEVIATION:
OUTPUT FREQUENCY vs TUNER ROTATION

FIGURE 4 – TEST PROCEDURE 4.1, TUNING SENSITIVITY DEVIATION

SENSITIVITY DEVIATION:
DEVIATION LIMITS vs OUTPUT FREQUENCY
## SUMMARY TEST DATA

**On**

PMTO-8R8G9R66G-CD-1

<table>
<thead>
<tr>
<th>Customer:</th>
<th>SO No:</th>
<th>Tested By:</th>
<th>Temperature:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>+25°C</td>
<td>MM/DD/YYYY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No:</th>
<th>Serial No:</th>
<th>Drawing No:</th>
<th>Rev:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTO-8R8G9R66G-CD-1</td>
<td>PLXXXXX/YYWWW</td>
<td>27631550</td>
<td>A2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Parameters</th>
<th>Specified Value</th>
<th>Test Results</th>
<th>QA QC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequency Range</td>
<td>8.8 to 9.56 GHz (Tuning) 8.9 to 9.46 GHz (Specifications)</td>
<td>GHz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Tuning Sensitivity</td>
<td>65 MHz/360° MIN 80 MHz/360° MAX</td>
<td>MHz/360°</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Output Frequency vs Tuner Rotation</td>
<td>±10 MHz (8.90 to 8.93 GHz) ±5 MHz (8.93 to 9.43 GHz) ±10 MHz (9.43 to 9.46 GHz)</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Power Output (Any Frequency)</td>
<td>J1: +10 (+3, -0) dBm J2: 0 (+3, -0) dBm</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tuning Element</td>
<td>Starting Torque: 25 inch-oz MAX Withstanding Torque: 100 inch-oz MIN</td>
<td>inch-oz</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spurious Harmonic Signals</td>
<td>60 dBc MIN (IN BAND) 45 dBc MIN (OUT OF BAND) 30 dBc MIN (HARMONICS)</td>
<td>dBc</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Noise</td>
<td>See Plots Below</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Temperature Coefficient</td>
<td>15 kHz/°C MAX from 0°C to +50°C</td>
<td>kHz/°C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Long Term Frequency Drift</td>
<td>50 kHz/hr MAX @ any constant temperature from 0°C to +50°C</td>
<td>kHz/hr</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Pulling Factor</td>
<td>&lt;50 kHz</td>
<td>kHz</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Regulator/Oscillator Power Supply</td>
<td>+24±1 VDC @ 1.5 A MAX 2% Regulation, Ripple = 2 mVrms</td>
<td>+24±1 @ ____ A</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Heater Power Supply</td>
<td>+24±1 VDC @ 1.5 A MAX 2% Regulation, Ripple = 50 mVrms</td>
<td>+24±1 @ ____ A</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Weight</td>
<td>2.4 lbs MAX</td>
<td>lbs</td>
<td></td>
</tr>
</tbody>
</table>

---

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731

Email: sales@pmi-rf.com
SUMMARY TEST DATA
ON
PMTO-8R8G9R56G-CD-1

AM NOISE

FREQUENCY IN Hz

MODULATION FREQUENCY IN Hz

FM NOISE

MODULATION FREQUENCY IN Hz

QA/QC Approval: ___________________________ Date: ___________________________

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

DESCRIPTION

PMIC-889G/R56G-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 meet all requirements listed below after a 16 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: 8.6 to 9.96 GHz (TUNING)
  8.0 to 9.49 GHz (TO MEET SPECIFICATION)
- TUNING SENSITIVITY: 65 MHz/±5° ROTATION MIN
  60 MHz/±5° ROTATION MAX
- OUTPUT FREQUENCY VS TUNER ROTATION: ±10 MHz, ±5 MHz, ±10 MHz
  ±5 MHz, ±10 MHz, ±10 MHz
- POWER OUTPUT (ANY FREQUENCY):
  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 HARMONICS
- NOISE:
  SEE PLOTS
- TEMPERATURE COEFFICIENT:
  15 kHz/°C MAX FROM 0°C TO +50°C
- LONG TERM FREQUENCY DRIFT:
  50 kHz/hr MAX AT ANY CONSTANT TEMP FROM 0°C TO +50°C
- PULLING FACTOR:
  LESS THAN 50 kHz
- REG/OSC POWER SUPPLY:
  +24 VDC @ 1.5 A MAX, 2% REGULATION, RIPPLE = 2 mVrms
  +24 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 78.2 mm
- WEIGHT:
  2.4 lbs [1088.7] MAX
- FINISH:
  CHEMICAL FILM PER MIL-C-5541 CLASS 1A

ENVIRONMENTAL RATINGS

- TEMPERATURE:
  MIL-F-18870 (OS) CLASS 4 EQUIPMENT
  -0°C TO +50°C (OPERATING)
  -62°C TO +52°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-1887 TYPE 1

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

PLANAR MONOLITHICS INDUSTRIES, INC.
7311-F GROVE ROAD
FREDDERICK, MARYLAND 21704 USA
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WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED

PRODUCT FEATURE
PMIC-889G/R56G-CD-1
8.8 to 9.96 GHz Mechanically Tuned Oscillator

PMI CONFIDENTIAL AND PROPRIETARY

PMI
SIZE
A
CAGE CODE
05XQ0
DWG. NO.
28031550
REVISION A2
SHEET 13 OF 16
APPENDIX A

ENVIRONMENTAL STRESS SCREENING DETAILS OF PMTO-8R8G9R56G-CD-1
## SCREENING TESTS

<table>
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<tr>
<th>REQUIREMENT</th>
<th>TEST DETAILS</th>
<th>RESULTS</th>
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| Temperature Cycling | Each unit *shall* be subjected to ten (10) cycles of the temperature curve seen in Figure A below, with no voltages applied. The steps are as follows:  
(A) +25°C → 15 Minutes → +75±3°C  
(B) 90 Minutes @ +75±3°C  
(C) +75±3°C → 15 Minutes → +25°C  
(D) +25°C → 15 Minutes → -62(+0, -5)°C  
(E) 90 Minutes @ -62(+0, -5)°C  
(F) -62(+0, -5)°C → 15 Minutes → +25°C                                                                                           | Attachment A |
| Burn-In           | Each unit *shall* be operated at 50 °C ambient for 10 cycles under the following conditions:  
(A) 3.5 hours with all voltages applied.  
(B) 0.5 hours minimum with no applied voltages.                                                                                                     | Attachment B |

![Figure A – Temperature Cycling Profile](image)

**FIGURE A – TEMPERATURE CYCLING PROFILE**