

TEST REPORT ADDENDUM - RADIATED

FROM



Test of: Actiontec Electronics Inc T3200BV, C2300A

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: ATEC23-U10 Radiated Rev A

As a result of the 6 Mbyte FCC file size limitation potentially large test reports require to be split into smaller components. This document is the Master document controlling Addendum reports as listed below. This Master document combined with the Addendums demonstrate compliance to the standard.

| Master Document Number | Addendum Reports |
|------------------------|-------------------------------------|
| ATEC23-U10_Master | ATEC23-U10_Conducted |
| | ATEC23-U10_Radiated |
| | ATEC23-U10_DFS |
| | ATEC23-U1 (FCC Part 15B & ICES-003) |

This report supersedes: NONE

Applicant: Actiontec Electronics Inc
760 N Mary Avenue
Sunnyvale, California 94085
USA

Product Function: Bonded VDSL2/G.fast Wireless AC
Gateway Router

Issue Date: 17th April 2017

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. DOCUMENT HISTORY

| Document History | | |
|------------------|-----------------------------|------------------|
| Revision | Date | Comments |
| Draft | 13th April 2017 | |
| Rev A | 17 th April 2017 | Initial release. |
| . | | |
| . | | |
| . | | |
| . | | |

In the above table the latest report revision will replace all earlier versions.

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2. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by [MiTest](#). [MiTest](#) is an automated test system developed by MiCOM Labs. [MiTest](#) is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.

3. TEST SUMMARY

List of Measurements

| Test Header | Result | Data Link |
|--------------------------------------|----------|---------------------------|
| (b)(2) Radiated | Complies | - |
| i).. Restricted Band Emissions | Complies | - |
| Galtronics Custom PCB SMT | Complies | View Data |
| ii).. Restricted Band-Edge Emissions | Complies | - |
| Galtronics Custom PCB SMT | Complies | View Data |

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4. TEST RESULTS

4.1. Radiated

| Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions | | | |
|--|---|----------------------------|-------------|
| Standard: | FCC CFR 47:15.407 | Ambient Temp. (°C): | 20.0 - 24.5 |
| Test Heading: | Radiated Spurious and Band-Edge Emissions | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.407 (b), 15.205, 15.209 | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | See Normative References | | |

Test Procedure for Radiated Spurious and Band-Edge Emissions

Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Test configuration and setup for Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Limits for Restricted Bands (15.205, 15.209)

Peak emission: 74 dBuV/m

Average emission: 54 dBuV/m

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR - FO

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where:

FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL - AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss

Example:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength (dB μ V/m);

$$E = \frac{1000000 \times \sqrt{30P}}{3} \mu\text{V/m}$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dB μ V/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are as follows:

Level (dBmV/m) = 20 * Log (level (mV/m))

40 dBmV/m = 100 mV/m

48 dBmV/m = 250 mV/m

Restricted Bands of Operation (15.205)

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| Frequency Band | | | |
|-------------------|---------------------|---------------|-------------|
| MHz | MHz | MHz | GHz |
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |

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| | | | |
|-------------------|-----------|-----------|------------|
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | Above 38.6 |
| 13.36-13.41 | | | |

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

(1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.

(2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.

(3) Cable locating equipment operated pursuant to §15.213.

(4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.

(5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.

(6) Transmitters operating under the provisions of subparts D or F of this part.

(7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

4.1.1. TX Spurious & Restricted Band Emissions

4.1.1.1. Galtronic 5G

Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5260.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5266.01 | 76.24 | 3.68 | -11.26 | 68.66 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| #2 | 7013.22 | 52.28 | 4.18 | -7.42 | 49.04 | Peak (NRB) | Vertical | 151 | 1 | -- | -- | Pass | |
| #3 | 10521.76 | 53.71 | 5.43 | -4.20 | 54.94 | Peak (NRB) | Vertical | 151 | 1 | -- | -- | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
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Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5300.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5296.31 | 76.75 | 3.79 | -11.11 | 69.43 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| #2 | 7066.58 | 51.98 | 4.18 | -7.34 | 48.82 | Peak (NRB) | Horizontal | 101 | 103 | -- | -- | Pass | |
| #3 | 10603.47 | 58.29 | 5.56 | -3.93 | 59.92 | Max Peak | Vertical | 130 | 118 | 74.0 | -14.1 | Pass | |
| #4 | 10603.47 | 44.03 | 5.56 | -3.93 | 45.66 | Max Avg | Vertical | 130 | 118 | 54.0 | -8.3 | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5320.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5326.93 | 74.67 | 3.72 | -11.06 | 67.33 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| #2 | 10641.67 | 59.77 | 5.37 | -3.89 | 61.25 | Max Peak | Vertical | 142 | 116 | 74.0 | -12.8 | Pass | |
| #3 | 10641.67 | 45.94 | 5.37 | -3.89 | 47.42 | Max Avg | Vertical | 142 | 116 | 54.0 | -6.6 | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5500.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5507.29 | 75.67 | 3.75 | -11.18 | 68.24 | Fundamental | Vertical | 101 | 1 | -- | -- | | |
| #2 | 7333.19 | 56.79 | 4.28 | -7.24 | 53.83 | Max Peak | Horizontal | 155 | 320 | 74.0 | -20.2 | Pass | |
| #3 | 7333.19 | 52.18 | 4.28 | -7.24 | 49.22 | Max Avg | Horizontal | 155 | 320 | 54.0 | -4.8 | Pass | |
| #4 | 11001.67 | 59.73 | 5.59 | -4.24 | 61.08 | Max Peak | Vertical | 123 | 253 | 74.0 | -12.9 | Pass | |
| #5 | 11001.67 | 46.07 | 5.59 | -4.24 | 47.42 | Max Avg | Vertical | 123 | 253 | 54.0 | -6.6 | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5580.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5582.28 | 71.34 | 3.80 | -11.20 | 63.94 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| #2 | 7439.97 | 54.37 | 4.30 | -7.13 | 51.54 | Max Peak | Horizontal | 121 | 91 | 74.0 | -22.5 | Pass | |
| #3 | 7439.97 | 47.73 | 4.30 | -7.13 | 44.90 | Max Avg | Horizontal | 121 | 91 | 54.0 | -9.1 | Pass | |
| #4 | 11162.64 | 58.33 | 5.72 | -4.07 | 59.98 | Max Peak | Vertical | 113 | 273 | 74.0 | -14.0 | Pass | |
| #5 | 11162.64 | 44.31 | 5.72 | -4.07 | 45.96 | Max Avg | Vertical | 113 | 273 | 54.0 | -8.0 | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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Equipment Configuration for TX Spurious & Restricted Band Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5725.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5731.98 | 77.89 | 3.80 | -10.70 | 70.99 | Peak (NRB) | Vertical | 101 | 1 | -- | -- | Pass | |
| #2 | 6133.99 | 55.25 | 3.88 | -9.30 | 49.83 | Peak (NRB) | Horizontal | 101 | 0 | -- | -- | Pass | |
| #3 | 11452.69 | 58.49 | 5.46 | -4.91 | 59.04 | Max Peak | Vertical | 112 | 299 | 74.0 | -15.0 | Pass | |
| #4 | 11452.69 | 44.59 | 5.46 | -4.91 | 45.14 | Max Avg | Vertical | 112 | 299 | 54.0 | -8.9 | Pass | |
| #5 | 17174.95 | 46.96 | 6.25 | 0.41 | 53.62 | Peak (NRB) | Vertical | 101 | 236 | -- | -- | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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4.1.2. Restricted Edge & Band-Edge Emissions

4.1.2.2. Galtronic 5G

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5470 - 5725 MHz

| Galtronic 5G | | Restricted-Edge Freq | Limit 74.0dB μ V/m | Limit 54.0dB μ V/m | Power Setting |
|------------------|---------------------------|----------------------|------------------------|------------------------|---------------|
| Operational Mode | Operating Frequency (MHz) | MHz | dB μ V/m | dB μ V/m | |
| 802.11a | 5500.00 | 5460.00 | 66.28 | 53.59 | 22 |
| 802.11ac-80 | 5530.00 | 5460.00 | 69.04 | 52.67 | 17 |
| 802.11n HT-20 | 5500.00 | 5460.00 | 65.51 | 53.20 | 21 |
| 802.11n HT-40 | 5510.00 | 5460.00 | 67.70 | 52.99 | 20 |

| Galtronic 5G | | Band-Edge Freq | Limit 68.23dB μ V/m | Power Setting |
|------------------|---------------------------|----------------|-------------------------|---------------|
| Operational Mode | Operating Frequency (MHz) | MHz | dB μ V/m | |
| 802.11a | 5500.00 | 5470.00 | 52.13 | 22 |
| 802.11ac-80 | 5530.00 | 5470.00 | 53.00 | 17 |
| 802.11n HT-20 | 5500.00 | 5470.00 | 52.79 | 21 |
| 802.11n HT-40 | 5510.00 | 5470.00 | 57.98 | 20 |

5250 - 5350 MHz

| Galtronic 5G | | Band-Edge Freq | Limit 74.0dB μ V/m | Limit 54.0dB μ V/m | Power Setting |
|------------------|---------------------------|----------------|------------------------|------------------------|---------------|
| Operational Mode | Operating Frequency (MHz) | MHz | dB μ V/m | dB μ V/m | |
| 802.11a | 5320.00 | 5350.00 | 67.79 | 53.68 | 23 |
| 802.11ac-80 | 5290.00 | 5350.00 | 72.73 | 51.74 | 19 |
| 802.11n HT-20 | 5320.00 | 5350.00 | 68.53 | 53.68 | 23 |
| 802.11n HT-40 | 5310.00 | 5350.00 | 72.47 | 53.29 | 20 |

Click on the links to view the data.



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Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5500.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 22 | Tested By: | JMH |

Test Measurement Results

| 5325.00 - 5500.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5460.00 | 15.49 | 3.79 | 34.31 | 53.59 | Max Avg | Horizontal | 191 | 73 | 54.0 | -0.4 | Pass | |
| #2 | 5460.00 | 28.18 | 3.79 | 34.31 | 66.28 | Max Peak | Horizontal | 191 | 73 | 74.0 | -7.7 | Pass | |
| #4 | 5470.00 | 14.05 | 3.76 | 34.32 | 52.13 | Max Avg | Horizontal | 191 | 73 | 68.2 | -16.1 | Pass | |
| #3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| #5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 22 to meet band edge limit.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
Page: 17 of 39

Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|--------------|
| Antenna: | Galtronic 5G | Variant: | 802.11ac-80 |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5530.00 | Data Rate: | 29.30 MBit/s |
| Power Setting: | 17 | Tested By: | JMH |

Test Measurement Results

| 5350.00 - 5530.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5457.11 | 30.94 | 3.80 | 34.30 | 69.04 | Max Peak | Horizontal | 191 | 73 | 74.0 | -5.0 | Pass | |
| #2 | 5459.28 | 14.57 | 3.79 | 34.31 | 52.67 | Max Avg | Horizontal | 191 | 73 | 54.0 | -1.3 | Pass | |
| #4 | 5470.00 | 14.92 | 3.76 | 34.32 | 53.00 | Max Avg | Horizontal | 191 | 73 | 68.2 | -15.2 | Pass | |
| #3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| #5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 17 to meet band edge limit.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
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Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|---------------|
| Antenna: | Galtronic 5G | Variant: | 802.11n HT-20 |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5500.00 | Data Rate: | 6.50 MBit/s |
| Power Setting: | 21 | Tested By: | JMH |

Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5459.70 | 27.41 | 3.79 | 34.31 | 65.51 | Max Peak | Horizontal | 191 | 73 | 74.0 | -8.5 | Pass | |
| #2 | 5460.00 | 15.10 | 3.79 | 34.31 | 53.20 | Max Avg | Horizontal | 191 | 73 | 54.0 | -0.8 | Pass | |
| #4 | 5470.00 | 14.71 | 3.76 | 34.32 | 52.79 | Max Avg | Horizontal | 191 | 73 | 68.2 | -15.4 | Pass | |
| #3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| #5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 21 to meet band edge limit.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
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Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|---------------|
| Antenna: | Galtronic 5G | Variant: | 802.11n HT-40 |
| Antenna Gain (dBi): | 5.60 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5510.00 | Data Rate: | 13.50 MBit/s |
| Power Setting: | 20 | Tested By: | JMH |

Test Measurement Results

| 5350.00 - 5520.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5459.26 | 29.60 | 3.79 | 34.31 | 67.70 | Max Peak | Horizontal | 191 | 73 | 74.0 | -6.3 | Pass | |
| #2 | 5460.00 | 14.89 | 3.79 | 34.31 | 52.99 | Max Avg | Horizontal | 191 | 73 | 54.0 | -1.0 | Pass | |
| #4 | 5470.00 | 19.90 | 3.76 | 34.32 | 57.98 | Max Avg | Horizontal | 191 | 73 | 68.2 | -10.2 | Pass | |
| #3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| #5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 20 to meet band edge limit.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
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Equipment Configuration for Restricted Upper Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|-------------|
| Antenna: | Galtronic 5G | Variant: | 802.11a |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5320.00 | Data Rate: | 6.00 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5350.00 | 29.58 | 3.70 | 34.51 | 67.79 | Max Peak | Vertical | 159 | 177 | 74.0 | -6.2 | Pass | |
| #3 | 5352.57 | 15.47 | 3.71 | 34.50 | 53.68 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.3 | Pass | |
| #2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
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Issue Date: 17th April 2017
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Equipment Configuration for Restricted Upper Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|--------------|
| Antenna: | Galtronic 5G | Variant: | 802.11ac-80 |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5290.00 | Data Rate: | 29.30 MBit/s |
| Power Setting: | 19 | Tested By: | JMH |

Test Measurement Results

| 5280.00 - 5460.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5350.00 | 13.53 | 3.70 | 34.51 | 51.74 | Max Avg | Vertical | 159 | 177 | 54.0 | -2.3 | Pass | |
| #3 | 5356.47 | 34.52 | 3.71 | 34.50 | 72.73 | Max Peak | Vertical | 159 | 177 | 74.0 | -1.3 | Pass | |
| #2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 19 to meet band edge limit.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
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Equipment Configuration for Restricted Upper Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|---------------|
| Antenna: | Galtronic 5G | Variant: | 802.11n HT-20 |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5320.00 | Data Rate: | 6.50 MBit/s |
| Power Setting: | 23 | Tested By: | JMH |

Test Measurement Results

| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5350.00 | 30.32 | 3.70 | 34.51 | 68.53 | Max Peak | Vertical | 159 | 177 | 74.0 | -5.5 | Pass | |
| #3 | 5352.24 | 15.46 | 3.71 | 34.51 | 53.68 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.3 | Pass | |
| #2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control.

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Title: Actiontec Electronics Inc T3200BV, C2300A
To: FCC CFR 47 Part 15 Subpart E 15.407 (DFS Bands)
Serial #: ATEC23-U10 Radiated Rev A
Issue Date: 17th April 2017
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Equipment Configuration for Restricted Upper Band-Edge Emissions

| | | | |
|---------------------------------|----------------|------------------------|---------------|
| Antenna: | Galtronic 5G | Variant: | 802.11n HT-40 |
| Antenna Gain (dBi): | 5.70 | Modulation: | OFDM |
| Beam Forming Gain (Y): | Not Applicable | Duty Cycle (%): | 99 |
| Channel Frequency (MHz): | 5310.00 | Data Rate: | 13.50 MBit/s |
| Power Setting: | 20 | Tested By: | JMH |

Test Measurement Results

| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| #1 | 5350.00 | 15.08 | 3.70 | 34.51 | 53.29 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.7 | Pass | |
| #3 | 5354.49 | 34.26 | 3.71 | 34.50 | 72.47 | Max Peak | Vertical | 159 | 177 | 74.0 | -1.5 | Pass | |
| #2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 20 to meet band edge limit.

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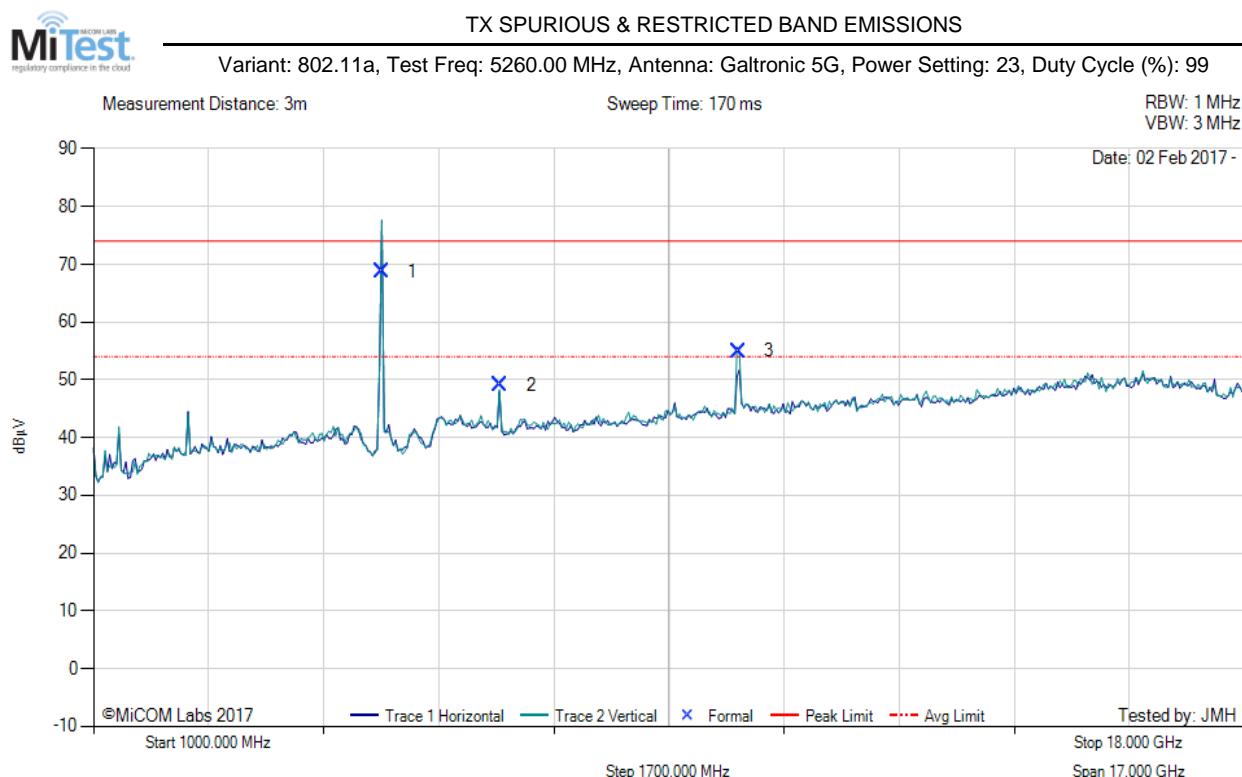
A. APPENDIX - GRAPHICAL IMAGES

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A.1. Radiated

A.1.1. TX Spurious & Restricted Band Emissions

A.1.1.1. Galtronic 5G



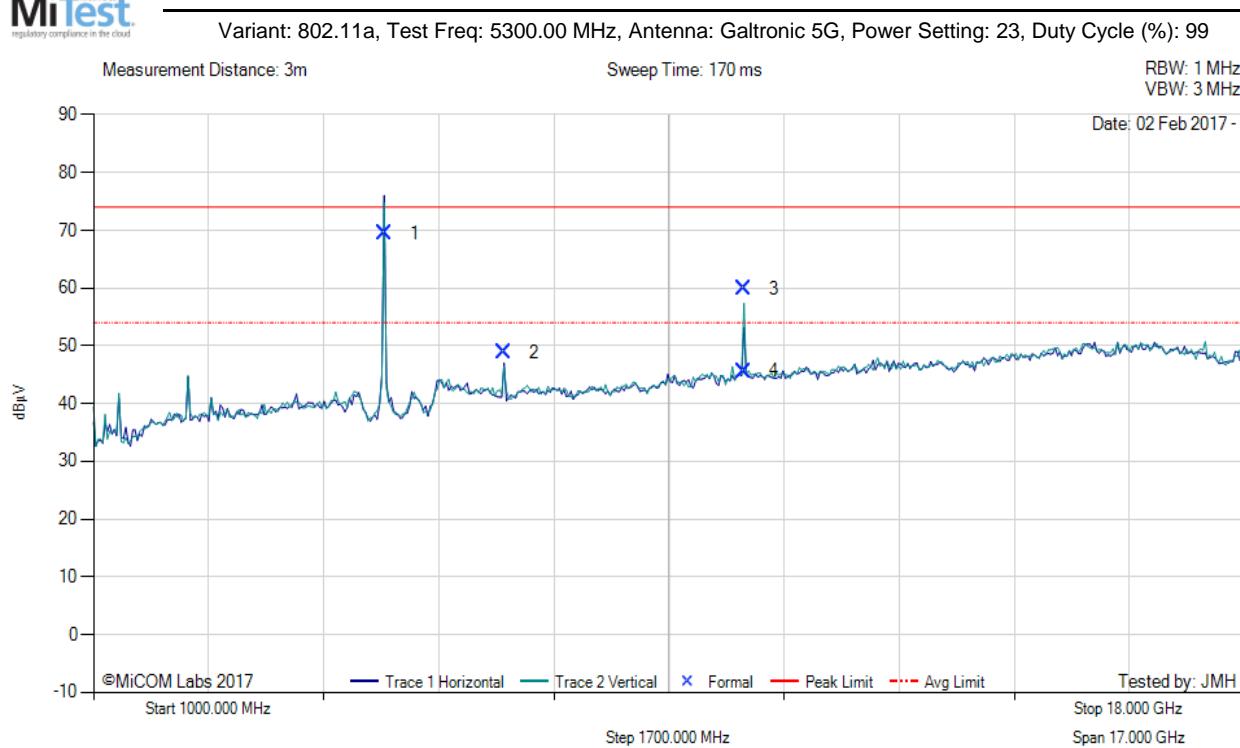
| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | | |
|------------------------|---------------|----------|---------------|--------|--------------|------------------|------------|--------|---------|--------------|-----------|------------|--|--|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail | | |
| 1 | 5266.01 | 76.24 | 3.68 | -11.26 | 68.66 | Fundamental | Horizontal | 101 | 1 | -- | -- | | | |
| 2 | 7013.22 | 52.28 | 4.18 | -7.42 | 49.04 | Peak (NRB) | Vertical | 151 | 1 | -- | -- | Pass | | |
| 3 | 10521.76 | 53.71 | 5.43 | -4.20 | 54.94 | Peak (NRB) | Vertical | 151 | 1 | -- | -- | Pass | | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5296.31 | 76.75 | 3.79 | -11.11 | 69.43 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| 2 | 7066.58 | 51.98 | 4.18 | -7.34 | 48.82 | Peak (NRB) | Horizontal | 101 | 103 | -- | -- | Pass | |
| 3 | 10603.47 | 58.29 | 5.56 | -3.93 | 59.92 | Max Peak | Vertical | 130 | 118 | 74.0 | -14.1 | Pass | |
| 4 | 10603.47 | 44.03 | 5.56 | -3.93 | 45.66 | Max Avg | Vertical | 130 | 118 | 54.0 | -8.3 | Pass | |

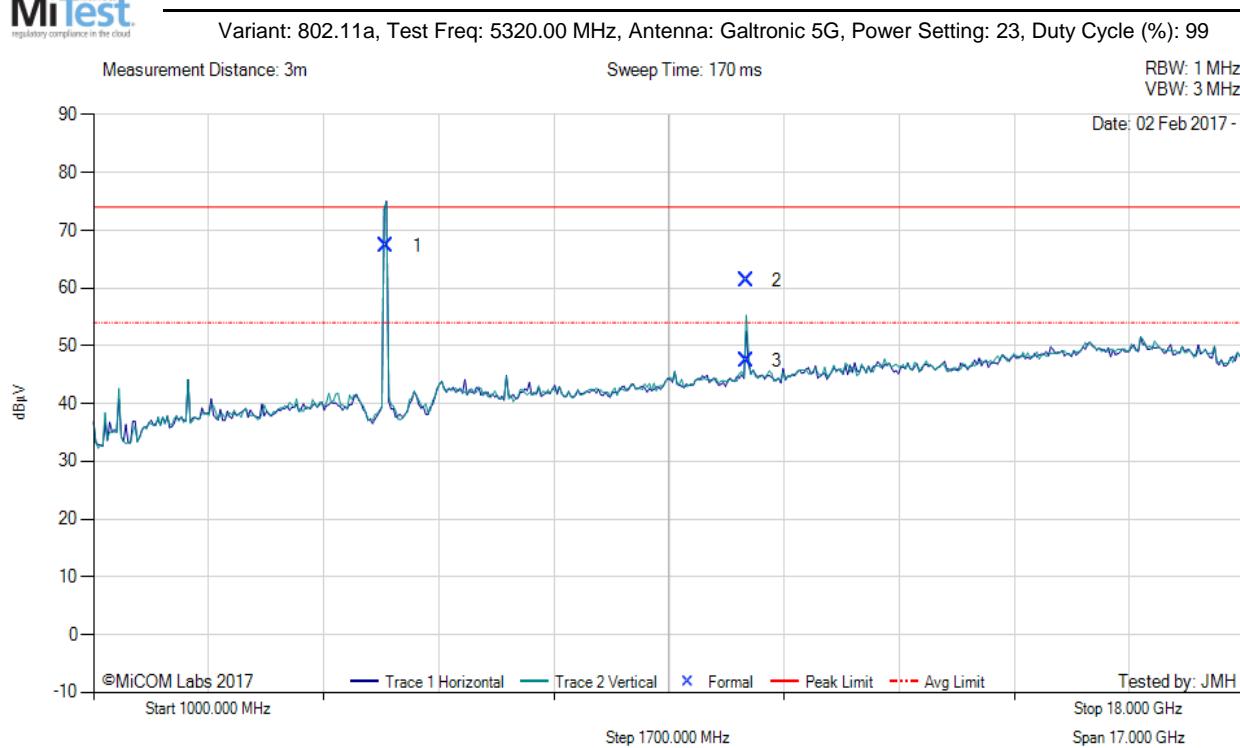
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



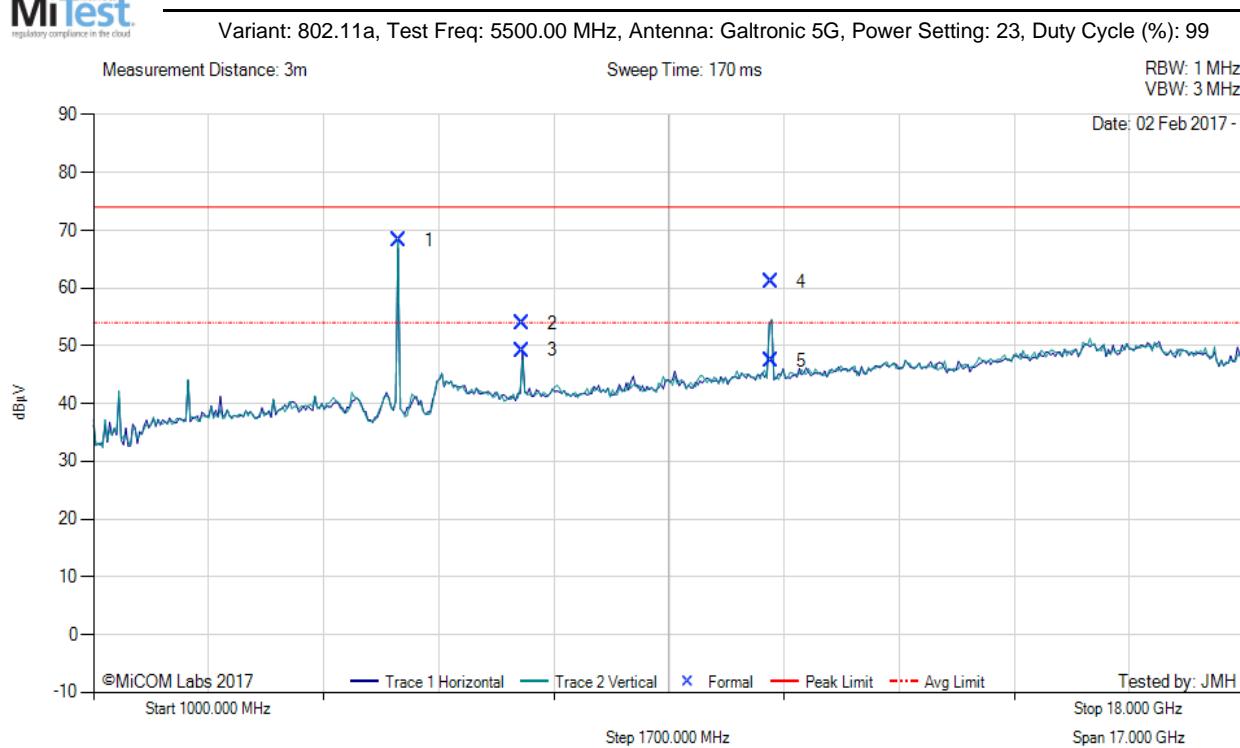
| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | | |
|------------------------|---------------|----------|---------------|--------|--------------|------------------|------------|--------|---------|--------------|-----------|------------|--|--|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail | | |
| 1 | 5326.93 | 74.67 | 3.72 | -11.06 | 67.33 | Fundamental | Horizontal | 101 | 1 | -- | -- | | | |
| 2 | 10641.67 | 59.77 | 5.37 | -3.89 | 61.25 | Max Peak | Vertical | 142 | 116 | 74.0 | -12.8 | Pass | | |
| 3 | 10641.67 | 45.94 | 5.37 | -3.89 | 47.42 | Max Avg | Vertical | 142 | 116 | 54.0 | -6.6 | Pass | | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | | |
| 1 | 5507.29 | 75.67 | 3.75 | -11.18 | 68.24 | Fundamental | Vertical | 101 | 1 | -- | -- | | | |
| 2 | 7333.19 | 56.79 | 4.28 | -7.24 | 53.83 | Max Peak | Horizontal | 155 | 320 | 74.0 | -20.2 | Pass | | |
| 3 | 7333.19 | 52.18 | 4.28 | -7.24 | 49.22 | Max Avg | Horizontal | 155 | 320 | 54.0 | -4.8 | Pass | | |
| 4 | 11001.67 | 59.73 | 5.59 | -4.24 | 61.08 | Max Peak | Vertical | 123 | 253 | 74.0 | -12.9 | Pass | | |
| 5 | 11001.67 | 46.07 | 5.59 | -4.24 | 47.42 | Max Avg | Vertical | 123 | 253 | 54.0 | -6.6 | Pass | | |

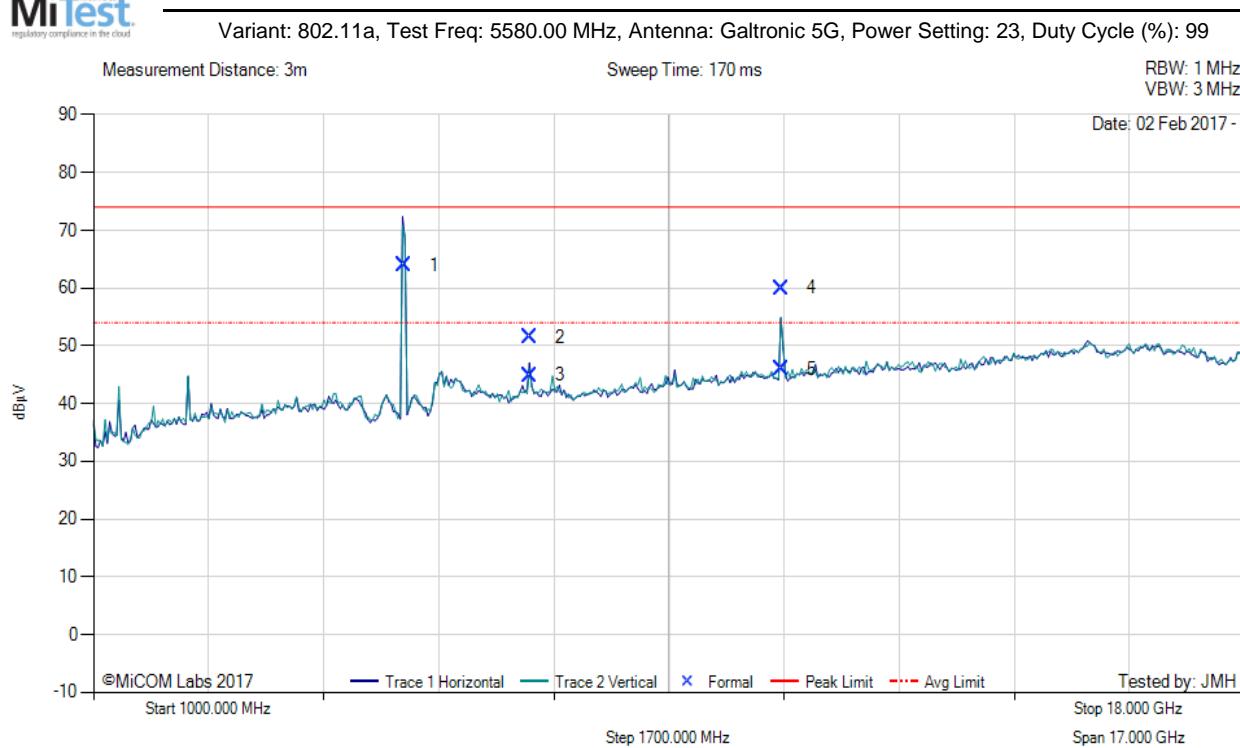
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5582.28 | 71.34 | 3.80 | -11.20 | 63.94 | Fundamental | Horizontal | 101 | 1 | -- | -- | | |
| 2 | 7439.97 | 54.37 | 4.30 | -7.13 | 51.54 | Max Peak | Horizontal | 121 | 91 | 74.0 | -22.5 | Pass | |
| 3 | 7439.97 | 47.73 | 4.30 | -7.13 | 44.90 | Max Avg | Horizontal | 121 | 91 | 54.0 | -9.1 | Pass | |
| 4 | 11162.64 | 58.33 | 5.72 | -4.07 | 59.98 | Max Peak | Vertical | 113 | 273 | 74.0 | -14.0 | Pass | |
| 5 | 11162.64 | 44.31 | 5.72 | -4.07 | 45.96 | Max Avg | Vertical | 113 | 273 | 54.0 | -8.0 | Pass | |

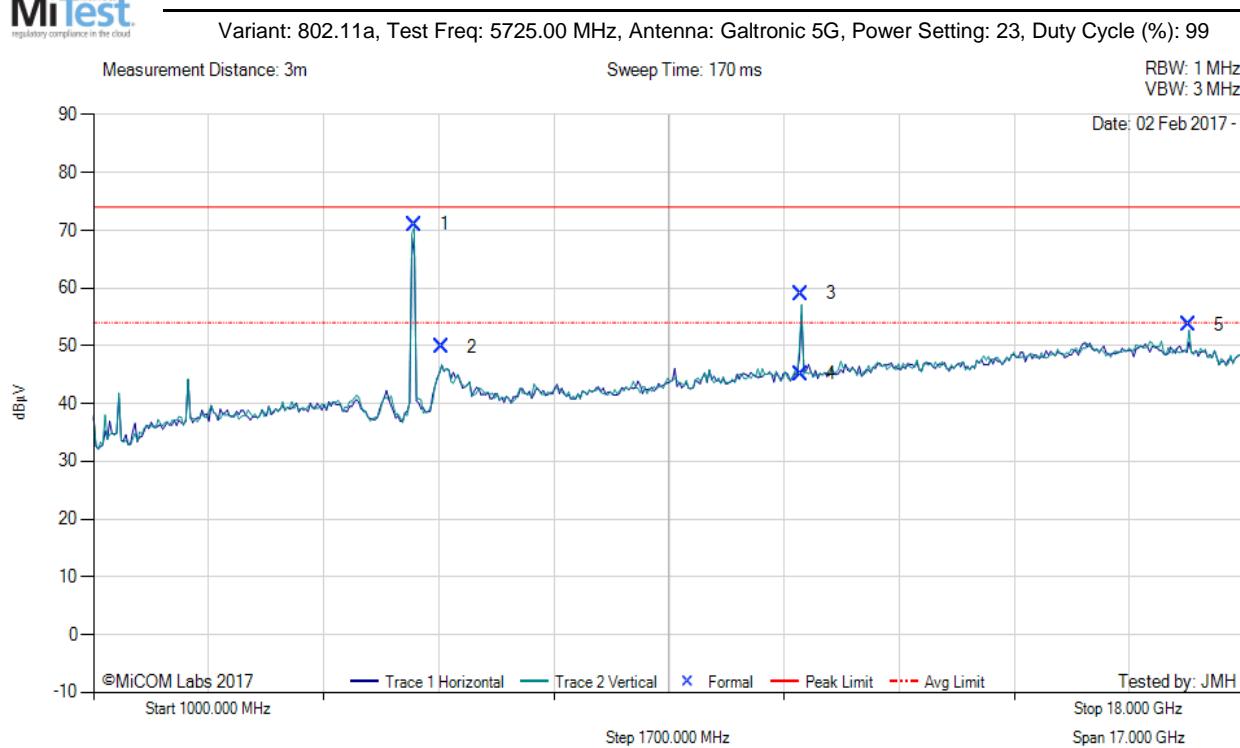
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



| 1000.00 - 18000.00 MHz | | | | | | | | | | | | | |
|------------------------|---------------|----------------|---------------|--------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5731.98 | 77.89 | 3.80 | -10.70 | 70.99 | Peak (NRB) | Vertical | 101 | 1 | -- | -- | Pass | |
| 2 | 6133.99 | 55.25 | 3.88 | -9.30 | 49.83 | Peak (NRB) | Horizontal | 101 | 0 | -- | -- | Pass | |
| 3 | 11452.69 | 58.49 | 5.46 | -4.91 | 59.04 | Max Peak | Vertical | 112 | 299 | 74.0 | -15.0 | Pass | |
| 4 | 11452.69 | 44.59 | 5.46 | -4.91 | 45.14 | Max Avg | Vertical | 112 | 299 | 54.0 | -8.9 | Pass | |
| 5 | 17174.95 | 46.96 | 6.25 | 0.41 | 53.62 | Peak (NRB) | Vertical | 101 | 236 | -- | -- | Pass | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control

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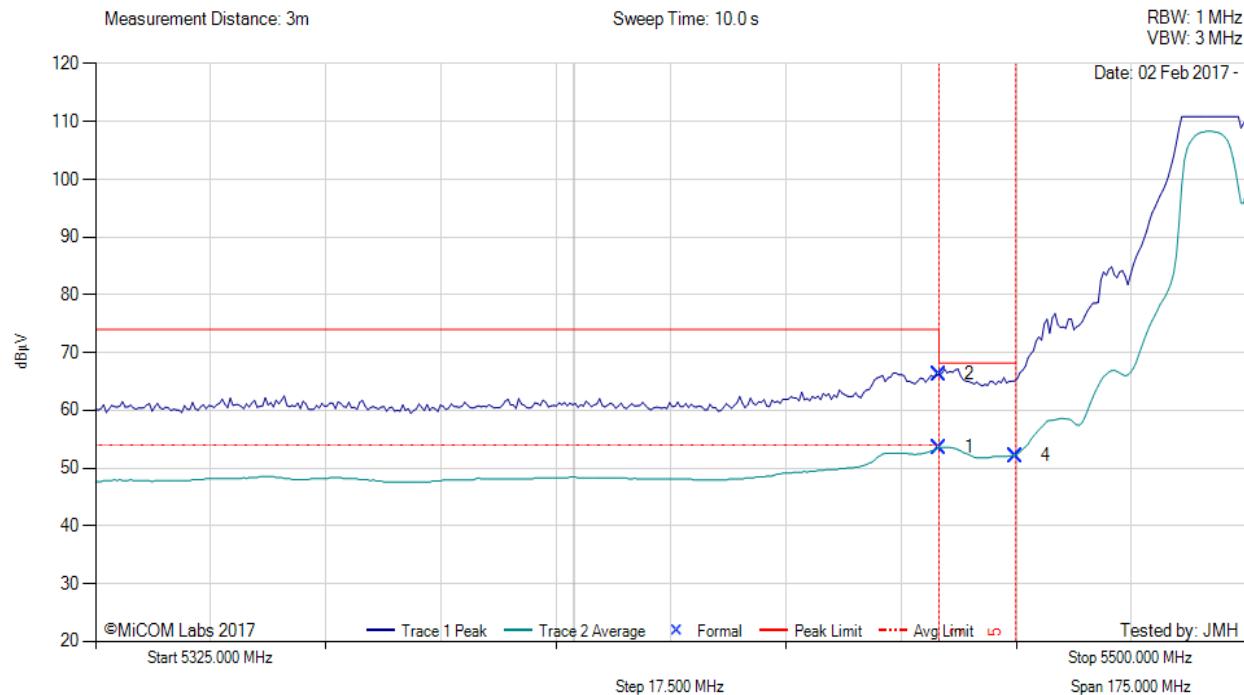
A.1.2. Restricted Edge & Band-Edge Emissions

A.1.2.2. Galtronic 5G



RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Galtronic 5G, Power Setting: 22, Duty Cycle (%): 99



| 5325.00 - 5500.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5460.00 | 15.49 | 3.79 | 34.31 | 53.59 | Max Avg | Horizontal | 191 | 73 | 54.0 | -0.4 | Pass | |
| 2 | 5460.00 | 28.18 | 3.79 | 34.31 | 66.28 | Max Peak | Horizontal | 191 | 73 | 74.0 | -7.7 | Pass | |
| 4 | 5470.00 | 14.05 | 3.76 | 34.32 | 52.13 | Max Avg | Horizontal | 191 | 73 | 68.2 | -16.1 | Pass | |
| 3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| 5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

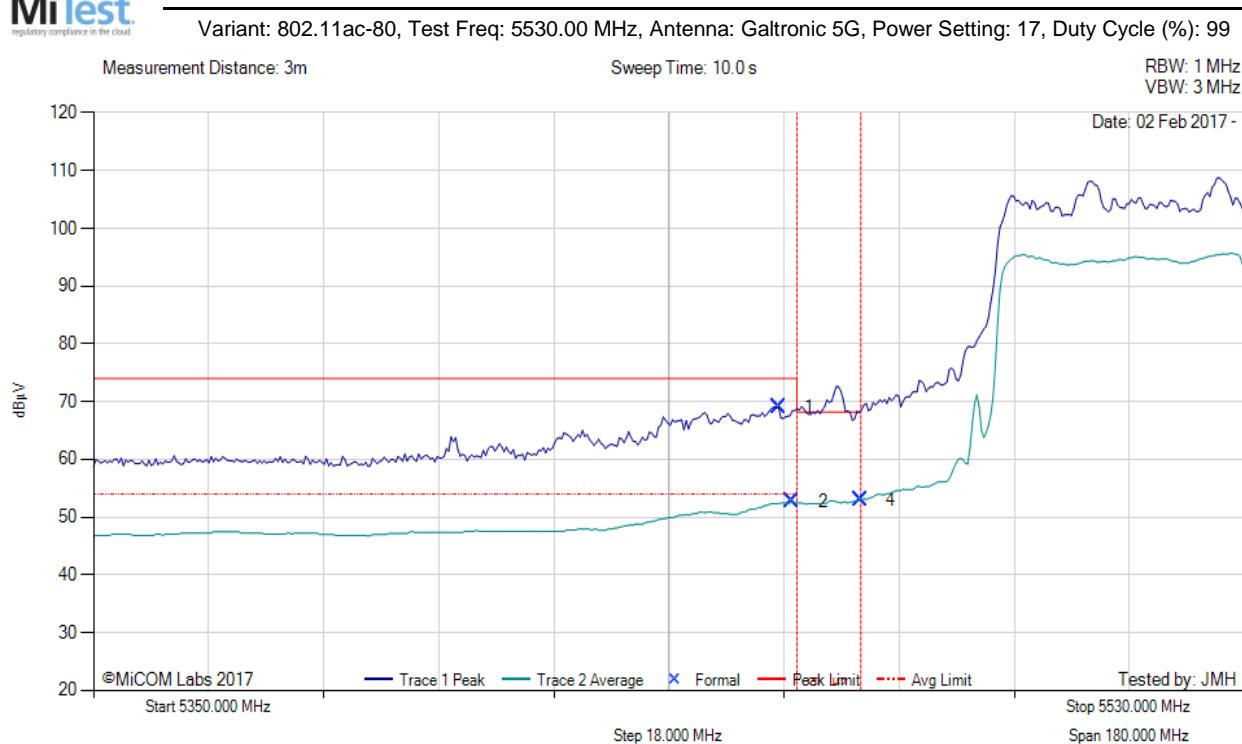
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 22 to meet band edge limit.

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RESTRICTED LOWER BAND-EDGE EMISSIONS



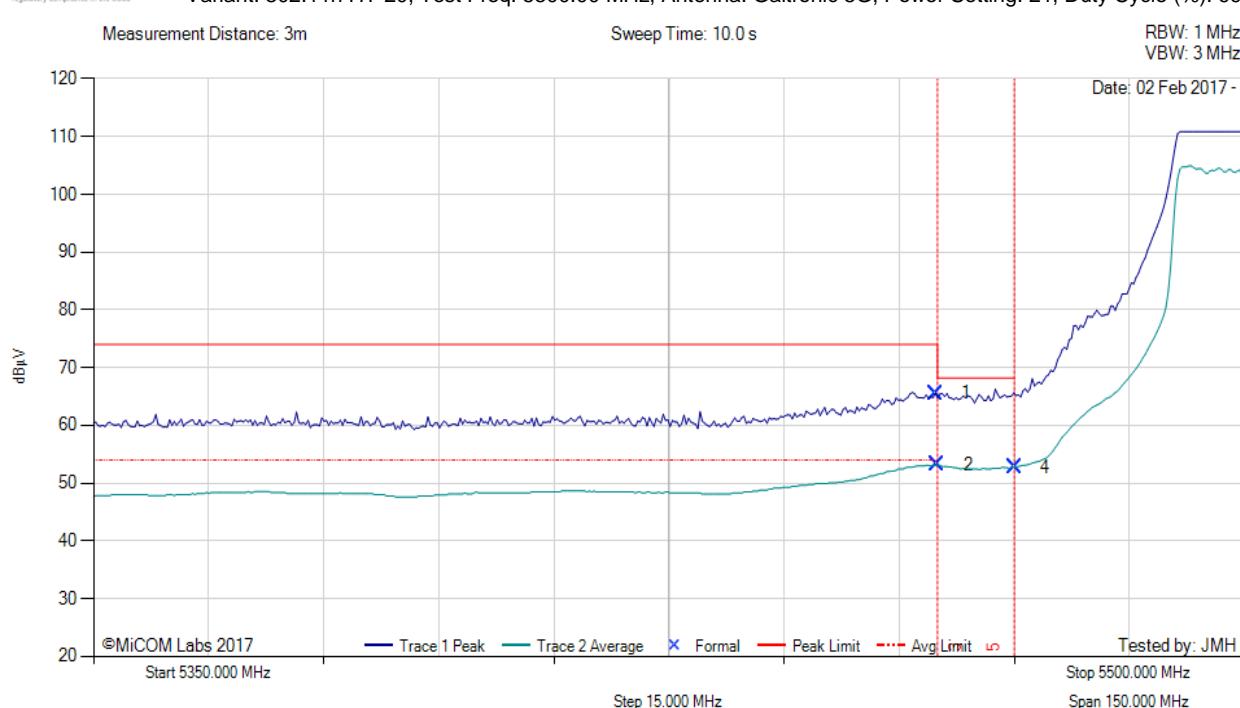
| 5350.00 - 5530.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5457.11 | 30.94 | 3.80 | 34.30 | 69.04 | Max Peak | Horizontal | 191 | 73 | 74.0 | -5.0 | Pass | |
| 2 | 5459.28 | 14.57 | 3.79 | 34.31 | 52.67 | Max Avg | Horizontal | 191 | 73 | 54.0 | -1.3 | Pass | |
| 4 | 5470.00 | 14.92 | 3.76 | 34.32 | 53.00 | Max Avg | Horizontal | 191 | 73 | 68.2 | -15.2 | Pass | |
| 3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| 5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 17 to meet band edge limit.

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RESTRICTED LOWER BAND-EDGE EMISSIONS



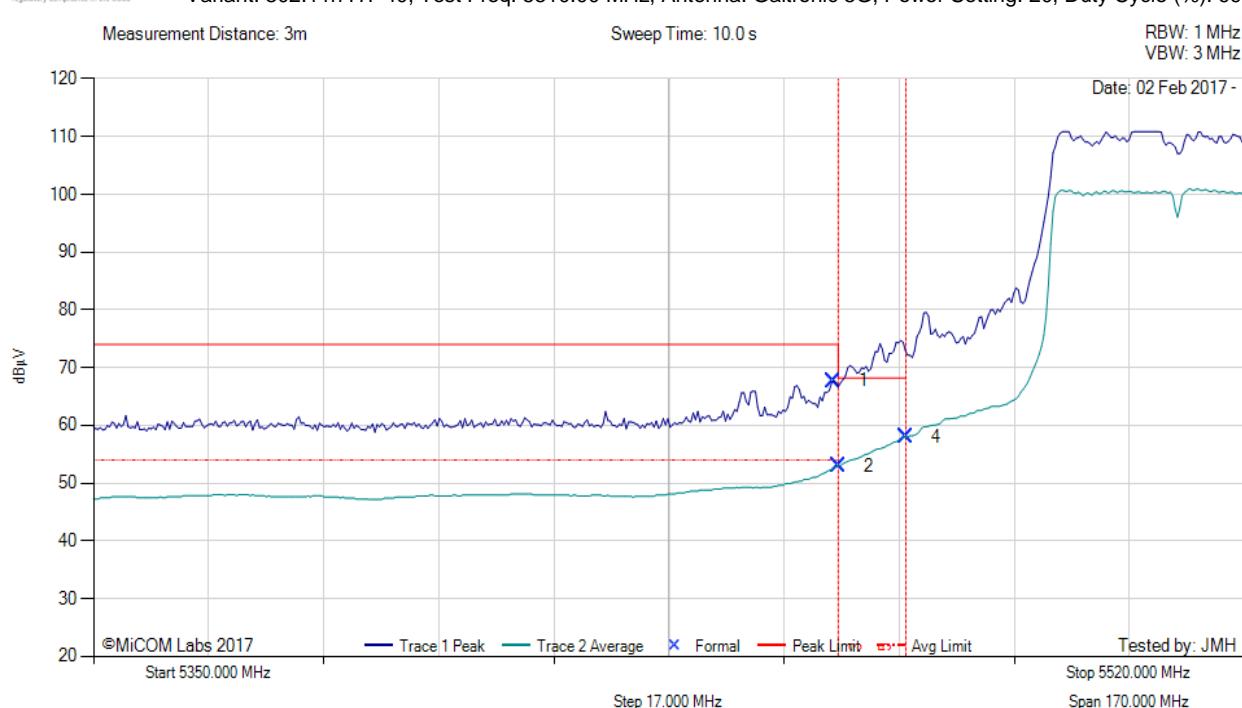
| 5350.00 - 5500.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5459.70 | 27.41 | 3.79 | 34.31 | 65.51 | Max Peak | Horizontal | 191 | 73 | 74.0 | -8.5 | Pass | |
| 2 | 5460.00 | 15.10 | 3.79 | 34.31 | 53.20 | Max Avg | Horizontal | 191 | 73 | 54.0 | -0.8 | Pass | |
| 4 | 5470.00 | 14.71 | 3.76 | 34.32 | 52.79 | Max Avg | Horizontal | 191 | 73 | 68.2 | -15.4 | Pass | |
| 3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| 5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 21 to meet band edge limit.

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RESTRICTED LOWER BAND-EDGE EMISSIONS



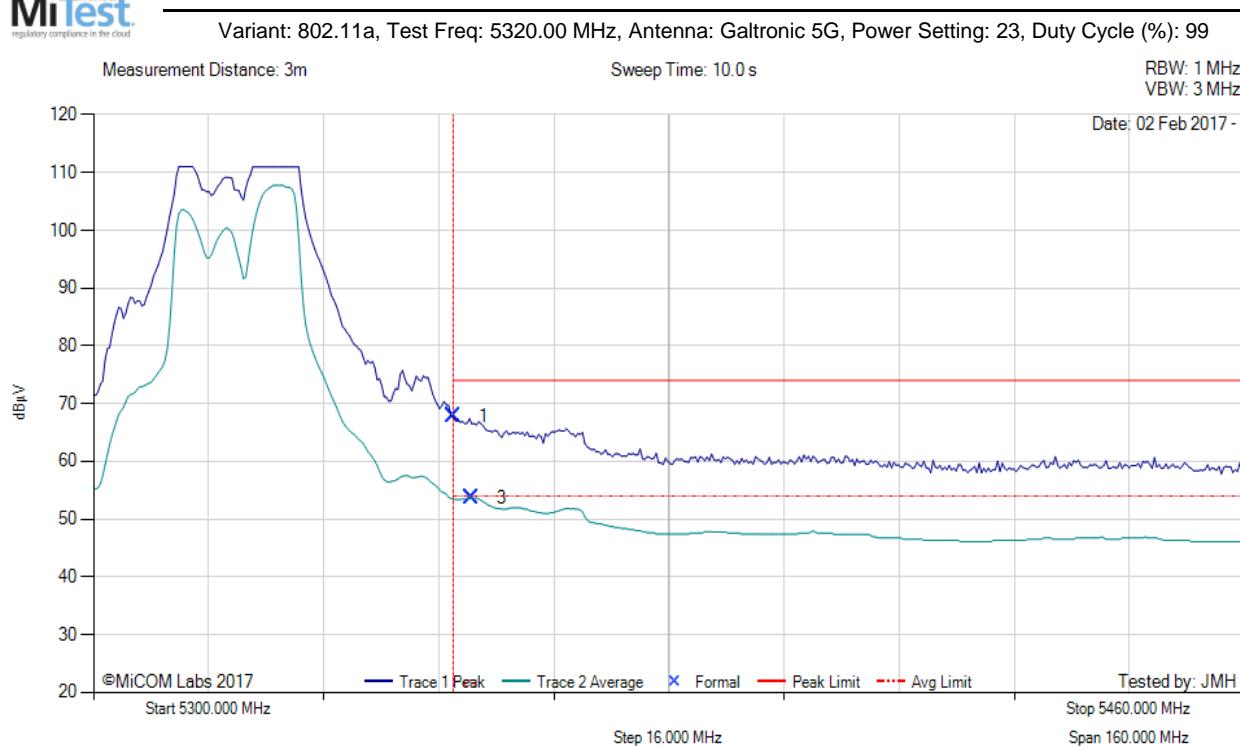
| 5350.00 - 5520.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|------------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5459.26 | 29.60 | 3.79 | 34.31 | 67.70 | Max Peak | Horizontal | 191 | 73 | 74.0 | -6.3 | Pass | |
| 2 | 5460.00 | 14.89 | 3.79 | 34.31 | 52.99 | Max Avg | Horizontal | 191 | 73 | 54.0 | -1.0 | Pass | |
| 4 | 5470.00 | 19.90 | 3.76 | 34.32 | 57.98 | Max Avg | Horizontal | 191 | 73 | 68.2 | -10.2 | Pass | |
| 3 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |
| 5 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 20 to meet band edge limit.

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RESTRICTED UPPER BAND-EDGE EMISSIONS



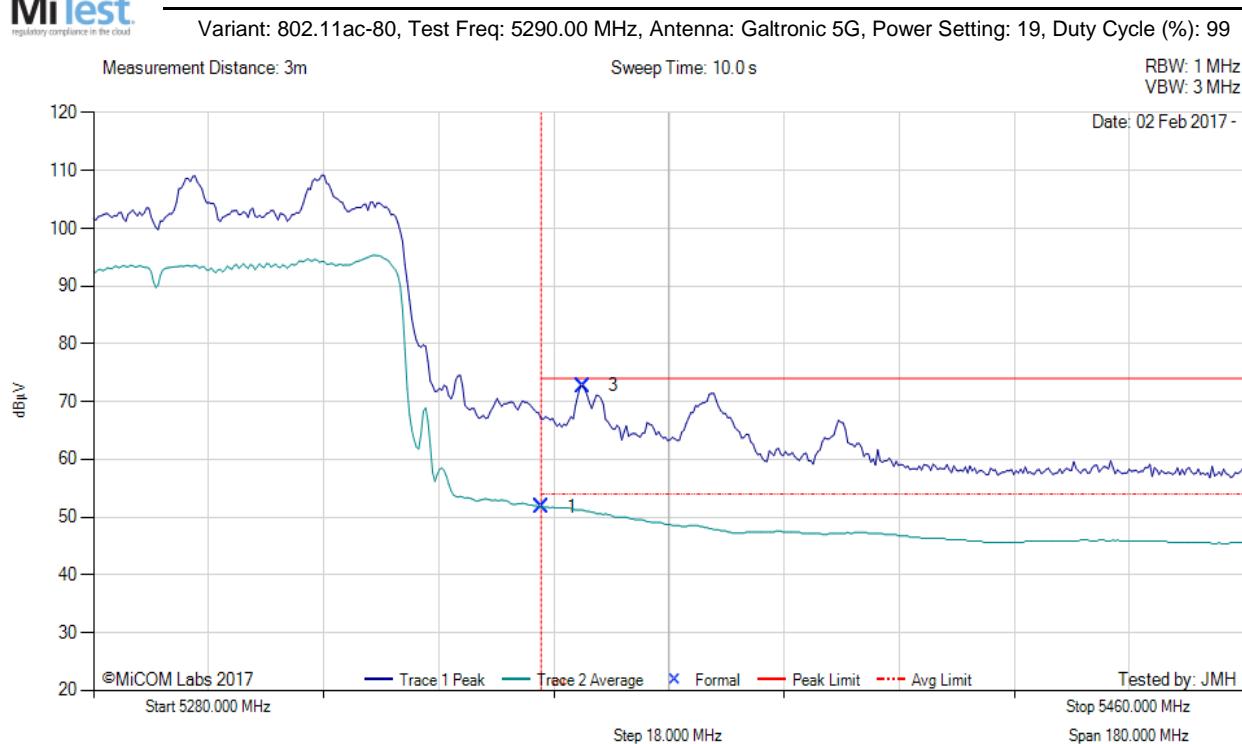
| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | | |
| 1 | 5350.00 | 29.58 | 3.70 | 34.51 | 67.79 | Max Peak | Vertical | 159 | 177 | 74.0 | -6.2 | Pass | | |
| 3 | 5352.57 | 15.47 | 3.71 | 34.50 | 53.68 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.3 | Pass | | |
| 2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control.

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RESTRICTED UPPER BAND-EDGE EMISSIONS



| 5280.00 - 5460.00 MHz | | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|----|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | | |
| 1 | 5350.00 | 13.53 | 3.70 | 34.51 | 51.74 | Max Avg | Vertical | 159 | 177 | 54.0 | -2.3 | Pass | | |
| 3 | 5356.47 | 34.52 | 3.71 | 34.50 | 72.73 | Max Peak | Vertical | 159 | 177 | 74.0 | -1.3 | Pass | | |
| 2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | | -- |

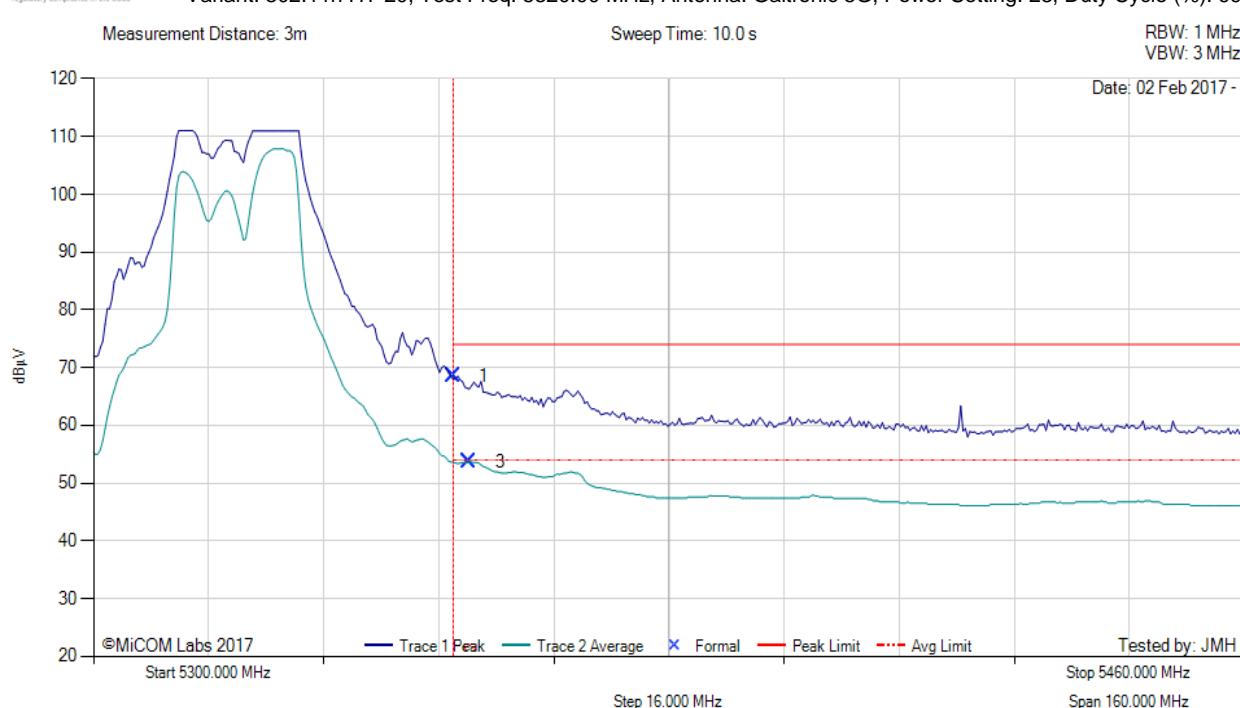
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 19 to meet band edge limit.

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RESTRICTED UPPER BAND-EDGE EMISSIONS



| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | | |
| 1 | 5350.00 | 30.32 | 3.70 | 34.51 | 68.53 | Max Peak | Vertical | 159 | 177 | 74.0 | -5.5 | Pass | | |
| 3 | 5352.24 | 15.46 | 3.71 | 34.51 | 53.68 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.3 | Pass | | |
| 2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | | |

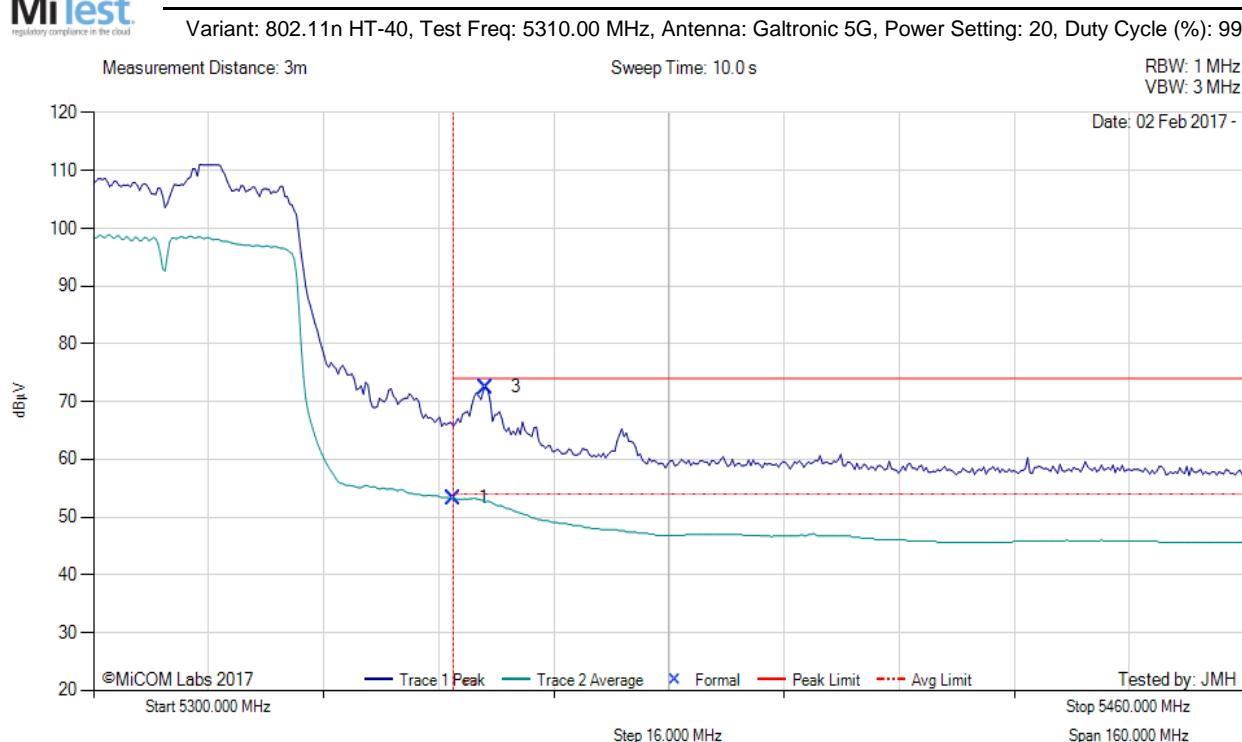
Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control.

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RESTRICTED UPPER BAND-EDGE EMISSIONS



| 5300.00 - 5460.00 MHz | | | | | | | | | | | | | |
|-----------------------|---------------|----------------|---------------|-------|--------------------|------------------|----------|--------|---------|--------------------|-----------|------------|--|
| Num | Frequency MHz | Raw dB μ V | Cable Loss dB | AF dB | Level dB μ V/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dB μ V/m | Margin dB | Pass /Fail | |
| 1 | 5350.00 | 15.08 | 3.70 | 34.51 | 53.29 | Max Avg | Vertical | 159 | 177 | 54.0 | -0.7 | Pass | |
| 3 | 5354.49 | 34.26 | 3.71 | 34.50 | 72.47 | Max Peak | Vertical | 159 | 177 | 74.0 | -1.5 | Pass | |
| 2 | 5350.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- | |

Test Notes: EUT on table powered by AC/DC adapter connected to laptop outside chamber for radio control. Power reduced to 20 to meet band edge limit.

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575 Boulder Court
Pleasanton, California 94566, USA
Tel: +1 (925) 462 0304
Fax: +1 (925) 462 0306
www.micomlabs.com