# CERTIFICATION TEST REPORT

**Report Number. :** 12672854A Rev 1.1

| | | |
|---|---|---|
| **Applicant** | : | Vista Manufacturing Inc<br>53345 Columbia Dr<br>Elkhart, IN, 46514<br>US |
| **Model** | : | BTFT1 |
| **FCC ID** | : | MGOBTFT1 |
| **IC** | : | 24881-BTFT1 |
| **EUT Description** | : | Flexible light strip consisting of Red-Green-Blue LEDs with an integrated Bluetooth controller. |
| **Test Standard(s)** | : | FCC 47 CFR PART 15 SUBPART C<br>ISED RSS-247 ISSUE 2<br>ISED RSS-GEN ISSUE 5 |

**Date Of Issue:**
2019-06-14
Rev 1.1 Issue 2019-07-17
**Prepared by:**
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TEL: (847) 272-8800

NVLAP TESTING
ilac-MRA
NVLAP Lab code: 100414-0

# REPORT REVISION HISTORY

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| 1.1 | 2019-07-17 | Updated 6dB bandwidth data | BM |


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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Vista Manufacturing Inc
53345 Columbia Dr
Elkhart, IN, 46514, USA

**EUT DESCRIPTION:** Flexible light strip consisting of Red-Green-Blue LEDs with an integrated Bluetooth controller.

**MODEL:** BTFT1

**SERIAL NUMBER:** Sample #20 for Radiated and Line Conducted Emissions
Sample #22 for Antenna Port Measurements

**DATE TESTED:** 2019-05-29, 2019-05-30, 2019-07-17

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 15 Subpart C | Complies |
| ISED RSS-247 Issue 2 | Complies |
| ISED RSS-GEN Issue 5 | Complies |

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By: Jeff Moser

Operations Leader
Consumer Technology Division

Prepared By: Bart Mucha

Staff Engineer
Consumer Technology Division



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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, RSS-GEN Issue 5, and RSS-247 Issue 2.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 333 Pfingsten Road, Northbrook, Illinois, USA.

| 333 Pfingsten Road<br>ISED Site Code: 2180A-1 |
|---|
| ☒ Chamber 10m |

UL NBK is accredited by NVLAP, Laboratory Code 100414-0


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# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

## 4.2. SAMPLE CALCULATION

**RADIATED EMISSIONS**
Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

**MAINS CONDUCTED EMISSIONS**
Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---|---|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz | 3.84 dB |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz | 3.65 dB |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz | 2.52 dB |
| Worst Case Radiated Disturbance, 30 to 1000 MHz | 4.88 dB |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz | 4.24 dB |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.37 dB |

Uncertainty figures are valid to a confidence level of 95%.


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# 5. EQUIPMENT UNDER TEST

## 5.1. EUT DESCRIPTION

Flexible light strip consisting of Red-Green-Blue LEDs with an integrated Bluetooth controller

## 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|---|---|---|---|
| 2402 - 2480 | BLE | -1.53 | 0.70 |

## 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PCB trace antenna, with a maximum gain of 2.1dBi.

## 5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was "8266_12M_emi_test_internal_cap.bin"

The test utility software used during testing was "EMI_TEST_v1.4"

## 5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 30MHz were conducted in single axis.

Radiated Emissions above 30MHz, including Band Edge were conducted in two axis, on low middle and high channels.


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## 5.6. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Support Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| Power Supply | Cosmos | LFZVC90NS12E | 1510 | |

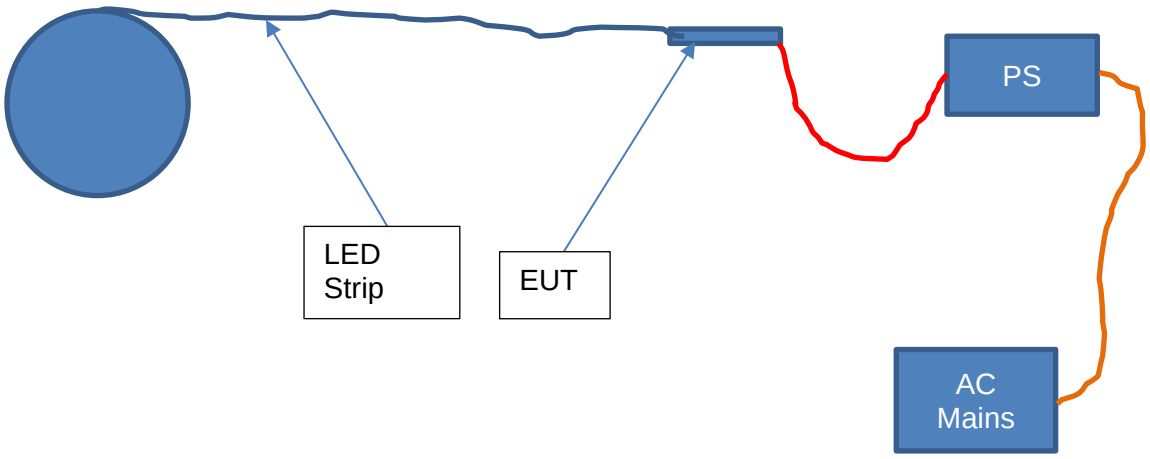
**I/O CABLES**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | Power | 1 | wire | 2-wire | 1m | DC Power |
| 2 | I/O | 1 | wire | 3-wire | 1m | Programming port, used for testing only |

**TEST SETUP**

The test software set the EUT's transceiver's mode, transmit power, modulation, and frequency as needed for each test. For radiated tests the test laptop was connected to the EUT before each test and removed during the test measurements. For antenna port test the test laptop was left connected to the EUT during the tests.

**SETUP DIAGRAMS**





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# 6. MEASUREMENT METHOD

6 dB BW: ANSI C63.10 Subclause -11.8.2 RBW ≤ DTS BW

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.1 RBW ≥ DTS bandwidth

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11 and 6.10.4

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1 and 6.10.5

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4


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# 7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Software List | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Version** |
| Radiated @ Conducted Software | UL | UL EMC | 9.5 |

| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
|---|---|---|---|---|---|
| EMI Test Receiver | Rohde & Schwarz | ESCI | EMC4328 | 2018-12-26 | 2019-12-31 |
| Bicon Antenna | Chase | VBA6106A | EMC4078 | 2019-04-05 | 2020-04-30 |
| Log-P Antenna | Chase | UPA6109 | EMC4313 | 2019-04-05 | 2020-04-30 |
| Loop Antenna | EMCO | 6502/1 | EMC4026 | 2019-01-07 | 2020-01-31 |
| Antenna Array | UL | BOMS | EMC4276 | 2018-06-19 | 2019-06-30 |
| EMI Test Receiver | Rohde & Schwarz | ESU | EMC4323 | 2018-12-13 | 2019-12-31 |
| EMI Test Receiver | Rohde & Schwarz | ESR | EMC4377 | 2018-12-26 | 2019-12-31 |
| Transient Limiter | Electro-Metrics | EM7600-2 | EMC4224 | N/A | N/A |
| High-Pass Filter | Solar Electronics | 2803-150 | EMC4327 | N/A | N/A |
| Attenuator | HP | 8494B | 2831A00838 | N/A | N/A |
| LISN - L1 | Solar Electronics | 8602-50-TS-50-N | EMC4066 | 2018-12-19 | 2019-12-31 |
| LISN - L2 | Solar Electronics | 8602-50-TS-50-N | EMC4064 | 2018-12-19 | 2019-12-31 |


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# 8. ANTENNA PORT TEST RESULTS

## 8.1. ON TIME AND DUTY CYCLE

**LIMITS**

None; for reporting purposes only.

**PROCEDURE**

KDB 558074 Zero-Span Spectrum Analyzer Method.

**ON TIME AND DUTY CYCLE RESULTS**

| Mode | ON Time B (msec) | Period (msec) | Duty Cycle x (linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/B Minimum VBW (kHz) |
|---|---|---|---|---|---|---|
| BLE | 100.000 | 100.000 | 1.000 | 100.00% | 0.00 | 0.010 |


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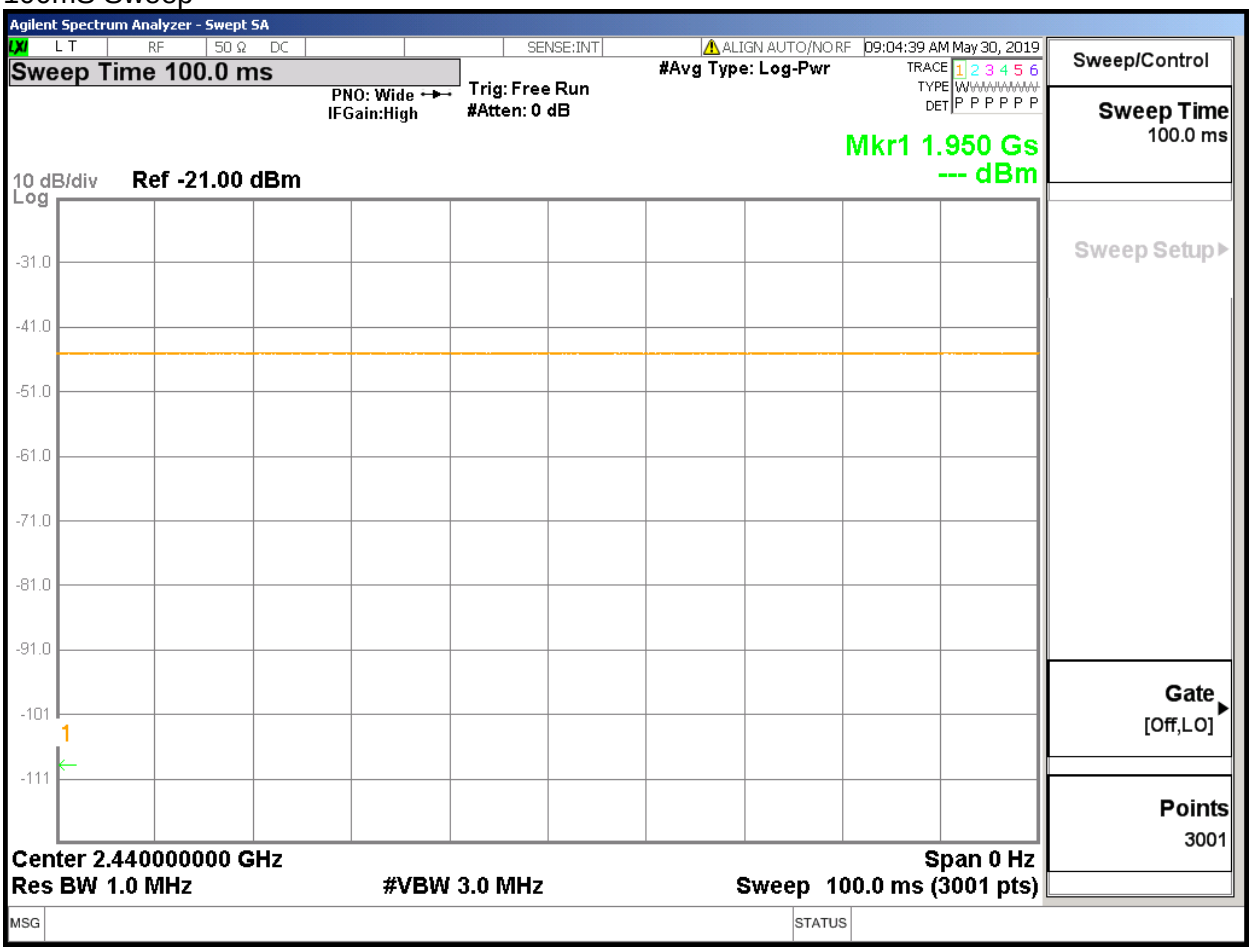
DUTY CYCLE PLOTS

100mS Sweep



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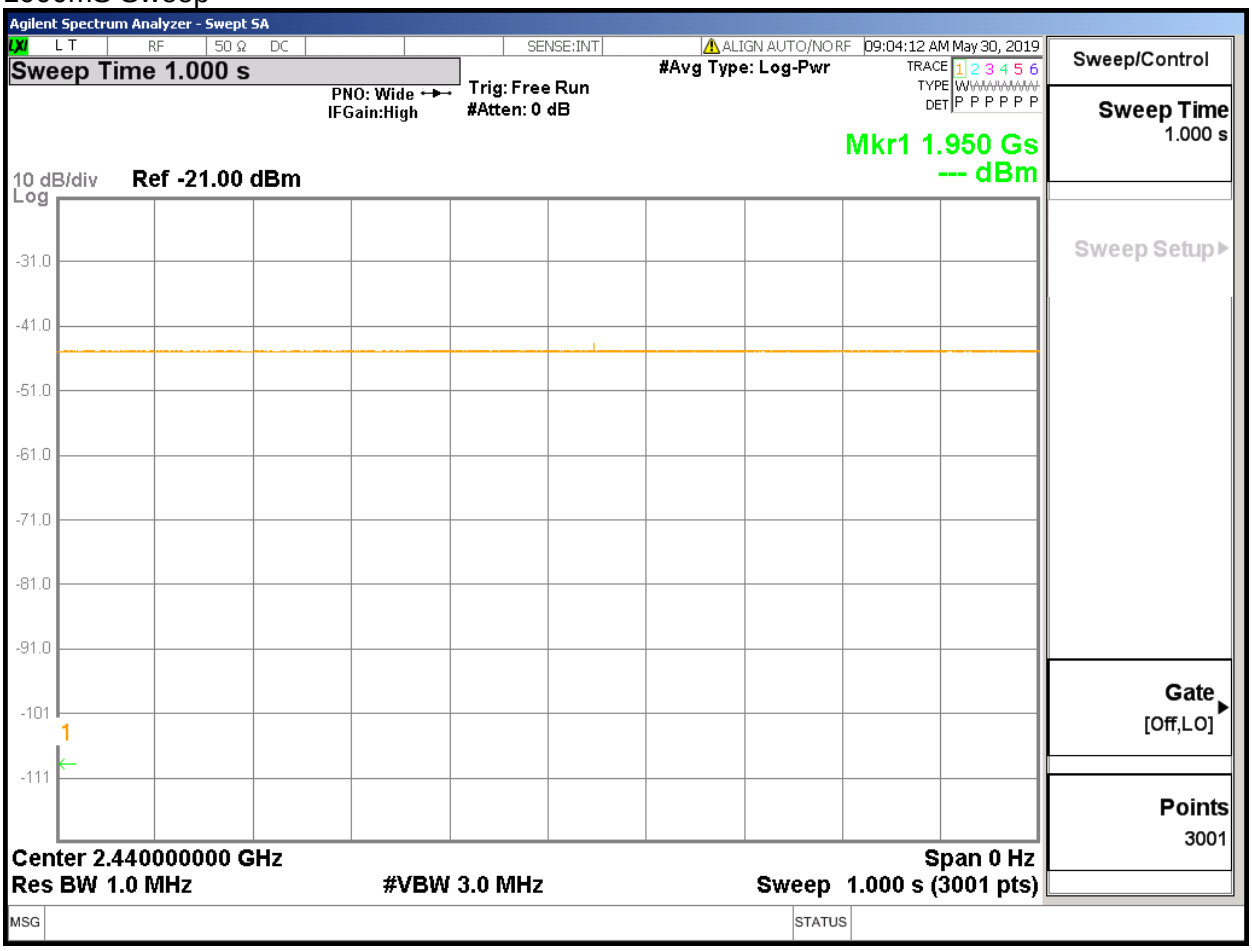
1000mS Sweep



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## 8.2. 99% BANDWIDTH

**LIMITS**

None; for reporting purposes only.

**RESULTS**


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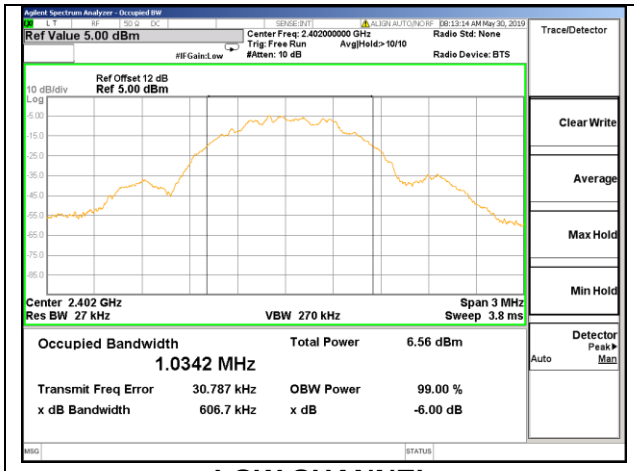
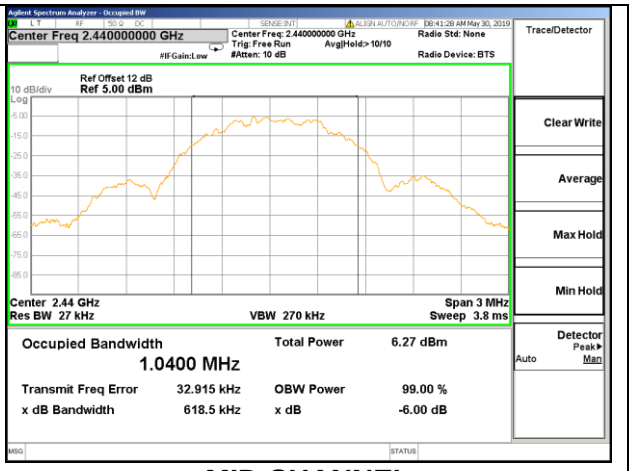
### 8.2.1. BLE (1Mbps)

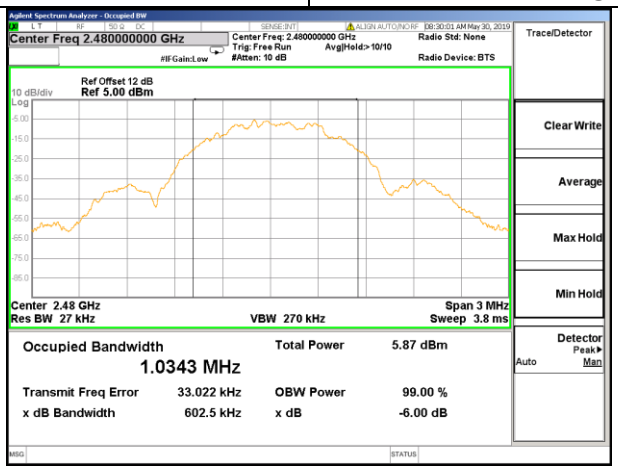
| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---|---|---|
| Low | 2402 | 1.0342 |
| Middle | 2440 | 1.0400 |
| High | 2480 | 1.0343 |




LOW CHANNEL




MID CHANNEL




HIGH CHANNEL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## 8.3. 6 dB BANDWIDTH

**LIMITS**

FCC §15.247 (a) (2)

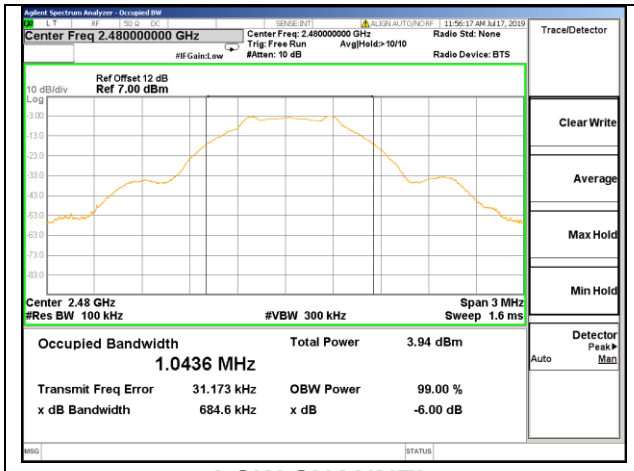
RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

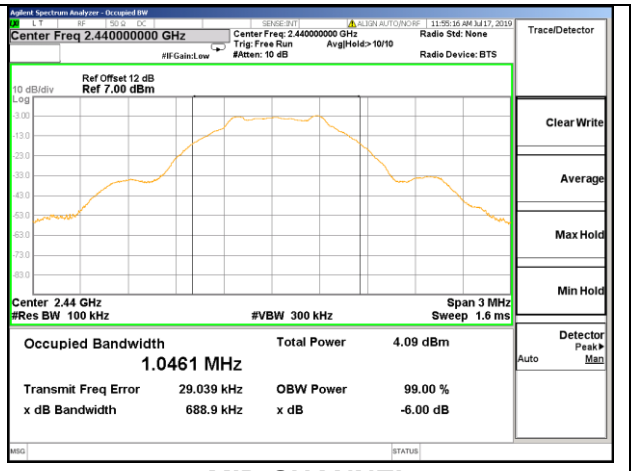
**RESULTS**

### 8.3.1. BLE (1Mbps)

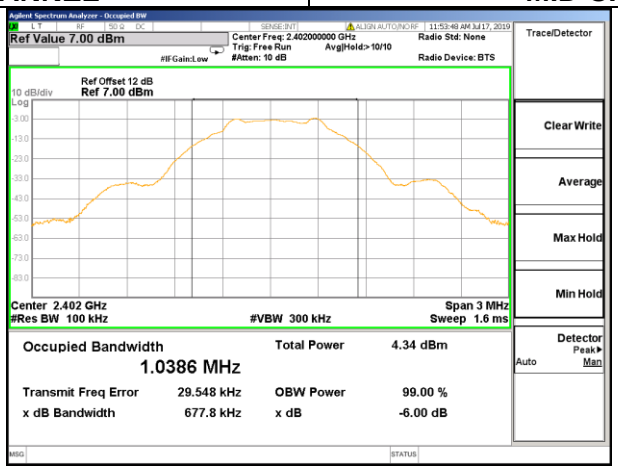
| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---|---|---|---|
| Low | 2402 | 0.6846 | 0.5 |
| Middle | 2440 | 0.6889 | 0.5 |
| High | 2480 | 0.6778 | 0.5 |




LOW CHANNEL




MID CHANNEL

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## 8.4. OUTPUT POWER

**LIMITS**

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

**TEST PROCEDURE**
The transmitter output is connected to a power meter.

The cable assembly insertion loss of 12dB (including 10.5 dB pad with cable and 1.5dB for cable attached to EUT) was entered as an offset in the power meter to allow for a gated peak reading of power.

**RESULTS**


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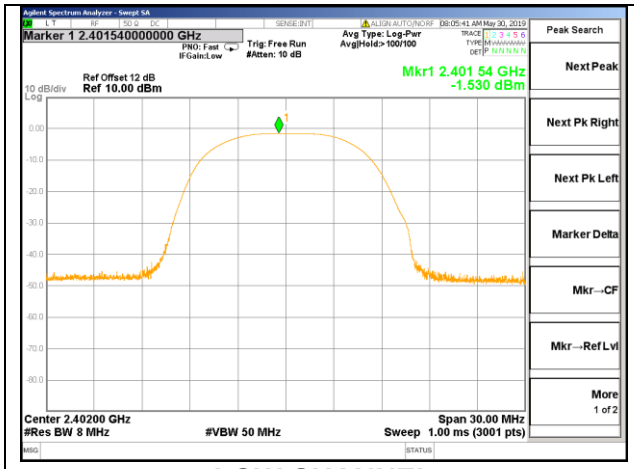
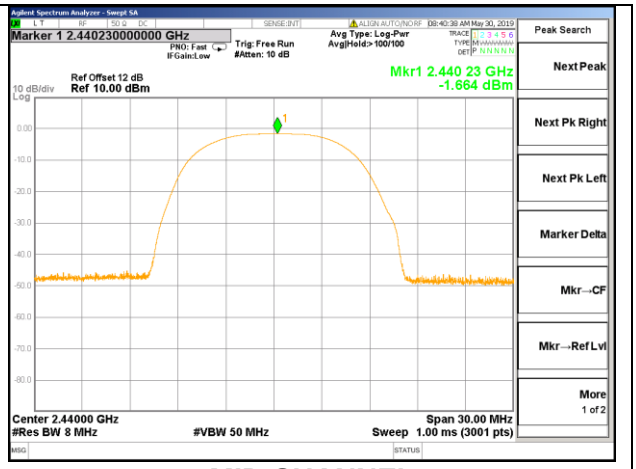
### 8.4.1. BLE (1Mbps)

| | |
|---|---|
| **Tested By:** | BM06740 |
| **Date:** | 5/30/2019 |

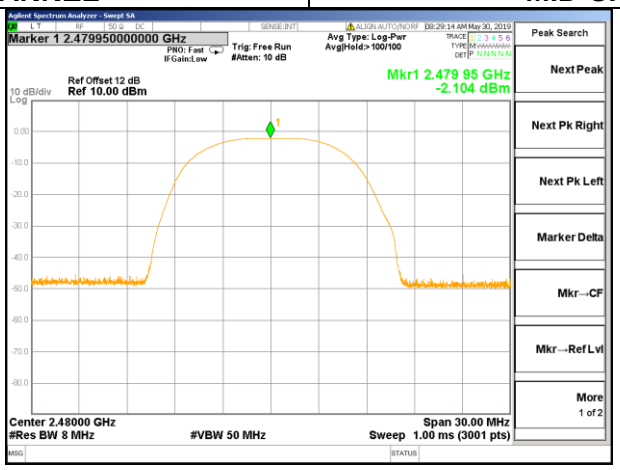
| Channel | Frequency (MHz) | Peak Power Reading (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|
| Low | 2402 | -1.530 | 30 | -31.530 |
| Middle | 2440 | -1.664 | 30 | -31.664 |
| High | 2480 | -2.104 | 30 | -32.104 |




LOW CHANNEL




MID CHANNEL

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## 8.5. POWER SPECTRAL DENSITY

**LIMITS**

FCC §15.247 (e)

RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

**RESULTS**



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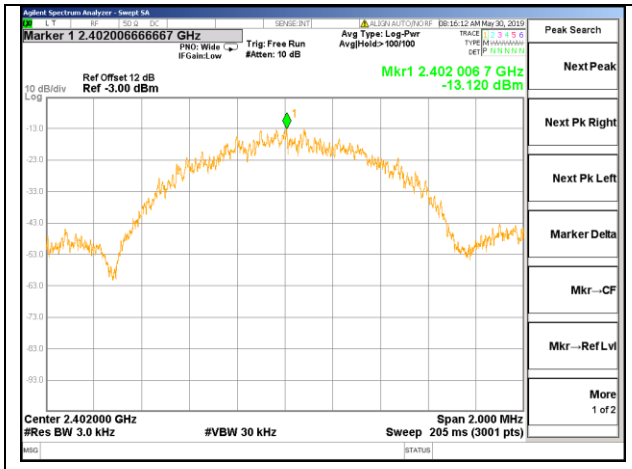
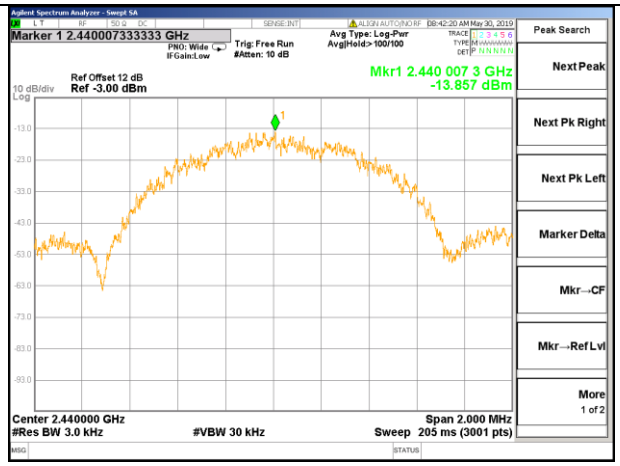
### 8.5.1. BLE (1Mbps)

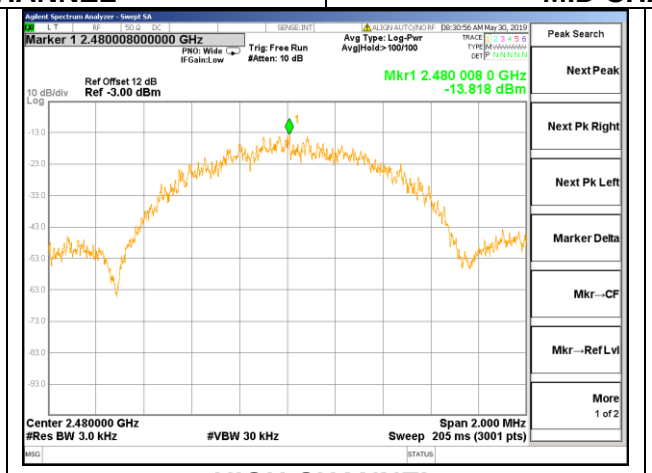
| Channel | Frequency (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Margin (dB) |
|---|---|---|---|---|
| Low | 2402 | -13.120 | 8 | -21.12 |
| Middle | 2440 | -13.857 | 8 | -21.86 |
| High | 2480 | -13.818 | 8 | -21.82 |




LOW CHANNEL




MID CHANNEL




HIGH CHANNEL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## 8.6. CONDUCTED SPURIOUS EMISSIONS

**LIMITS**

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

**RESULTS**



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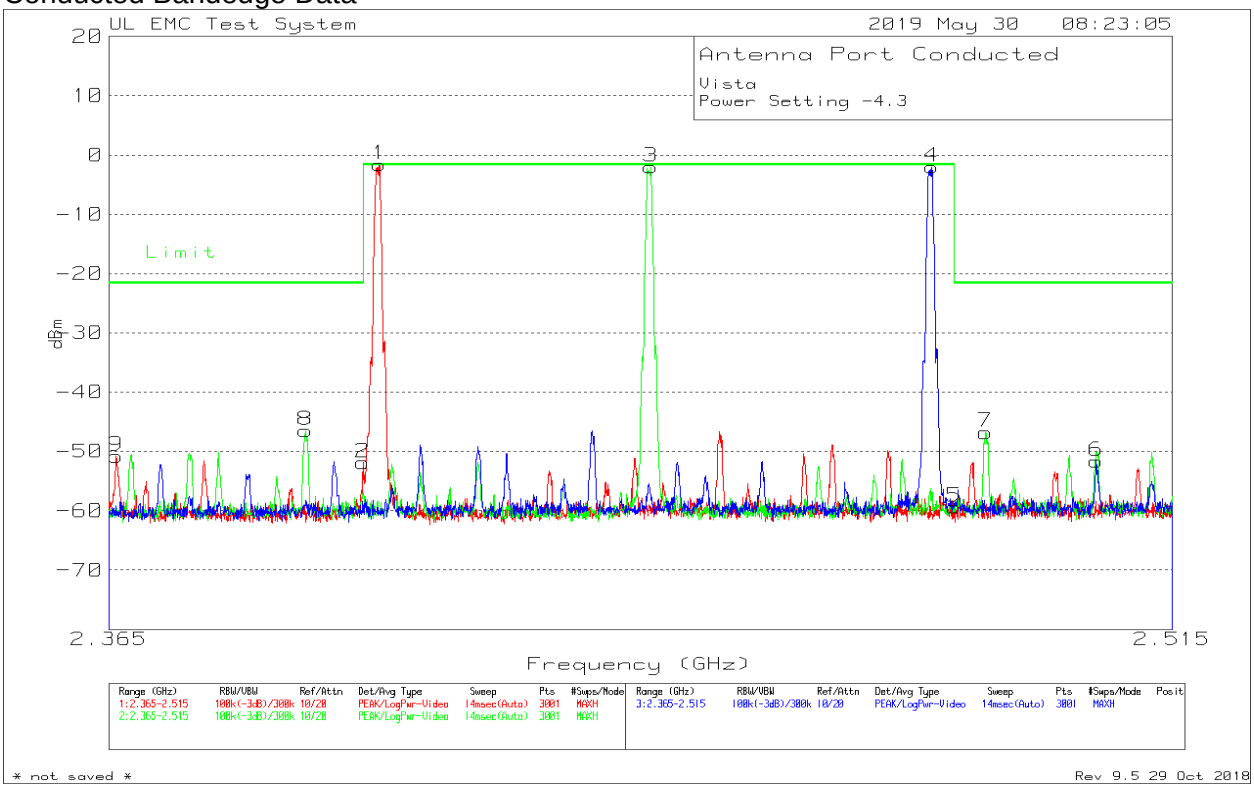
### 8.6.1. BLE (1Mbps)

Conducted Bandedge Data




| Vista | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Power Setting -4.3 | | | | | | | | |
| Trace MArkers | | | | | | | | |
| Marker No. | Test Frequency (GHz) | Meter Reading (dBm) | Detector | Path Factor dB | Patch Cable dB | Level dBm | Limit dBm | Margin (dB) |
| Low Channel | | | | | | | | |
| 1 | 2.4023 | -13.61 | Pk | 10.5 | 1.5 | -1.61 | -1.61 | 0 |
| 2 | 2.4 | -63.86 | Pk | 10.5 | 1.5 | -51.86 | -21.61 | -30.25 |
| 9 | 2.366 | -62.78 | Pk | 10.5 | 1.5 | -50.78 | -21.61 | -29.17 |
| Middle Channel | | | | | | | | |
| 3 | 2.4403 | -14 | Pk | 10.5 | 1.5 | -2 | -1.61 | -0.39 |
| 7 | 2.488 | -58.87 | Pk | 10.6 | 1.5 | -46.77 | -21.61 | -25.16 |
| 8 | 2.3921 | -58.46 | Pk | 10.5 | 1.5 | -46.46 | -21.61 | -24.85 |
| High Channel | | | | | | | | |
| 4 | 2.4803 | -14.1 | Pk | 10.6 | 1.5 | -2 | -1.61 | -0.39 |
| 5 | 2.4835 | -71.46 | Pk | 10.6 | 1.5 | -59.36 | -21.61 | -37.75 |
| 6 | 2.504 | -63.73 | Pk | 10.6 | 1.5 | -51.63 | -21.61 | -30.02 |
| Pk - Peak detector | | | | | | | | |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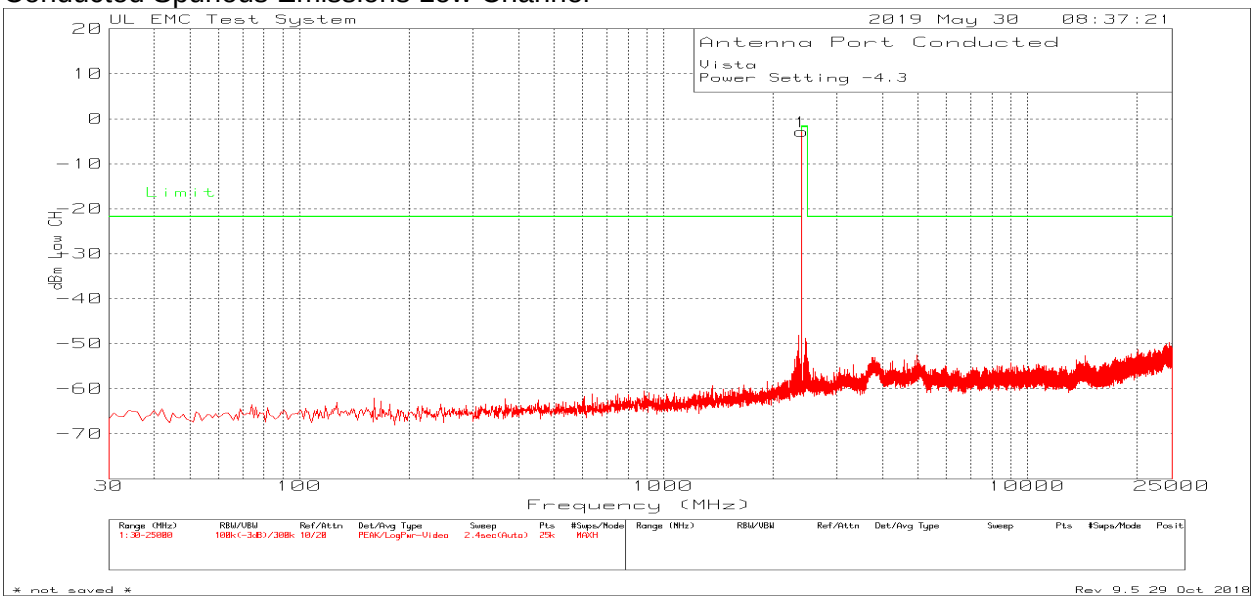
Conducted Spurious Emissions Low Channel




No spurious emissions detected



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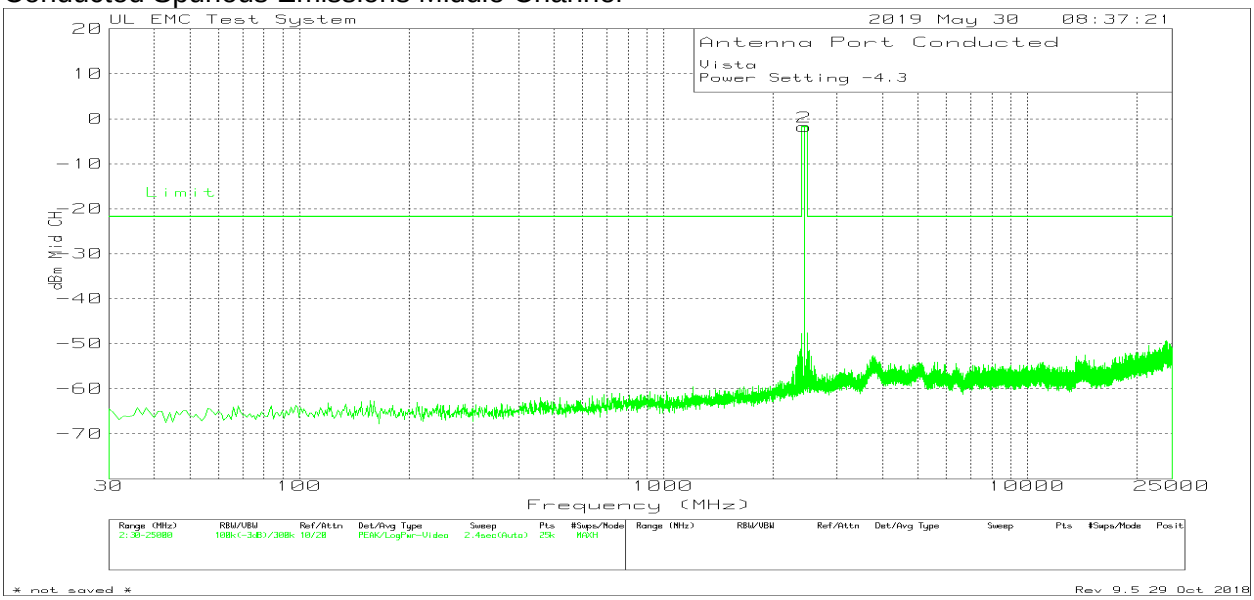
Conducted Spurious Emissions Middle Channel




No Spurious Emissions Detected



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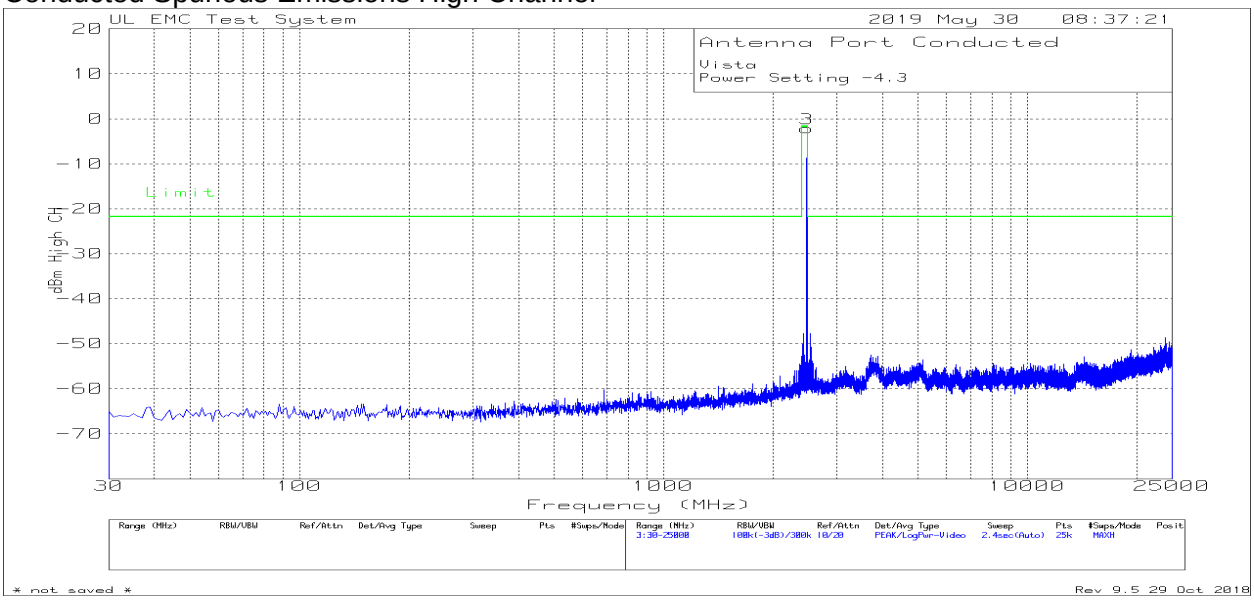
Conducted Spurious Emissions High Channel




No Spurious Emissions Detected



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# 9. RADIATED TEST RESULTS

## 9.1. LIMITS AND PROCEDURE

**LIMITS**

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) @ 300 m | - |
| 0.490-1.705 | 24000/F(kHz) @ 30 m | - |
| 1.705 - 30 | 30 @ 30m | - |
| 30 - 88 | 100 | 40 |
| 88 - 216 | 150 | 43.5 |
| 216 - 960 | 200 | 46 |
| Above 960 | 500 | 54 |

**TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. Below 30MHz and above 1GHz the antenna to EUT distance is 3 meters. Between 30MHz-1GHz the antenna to EUT distance is 10 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements and 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 30 MHz the middle channel was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).



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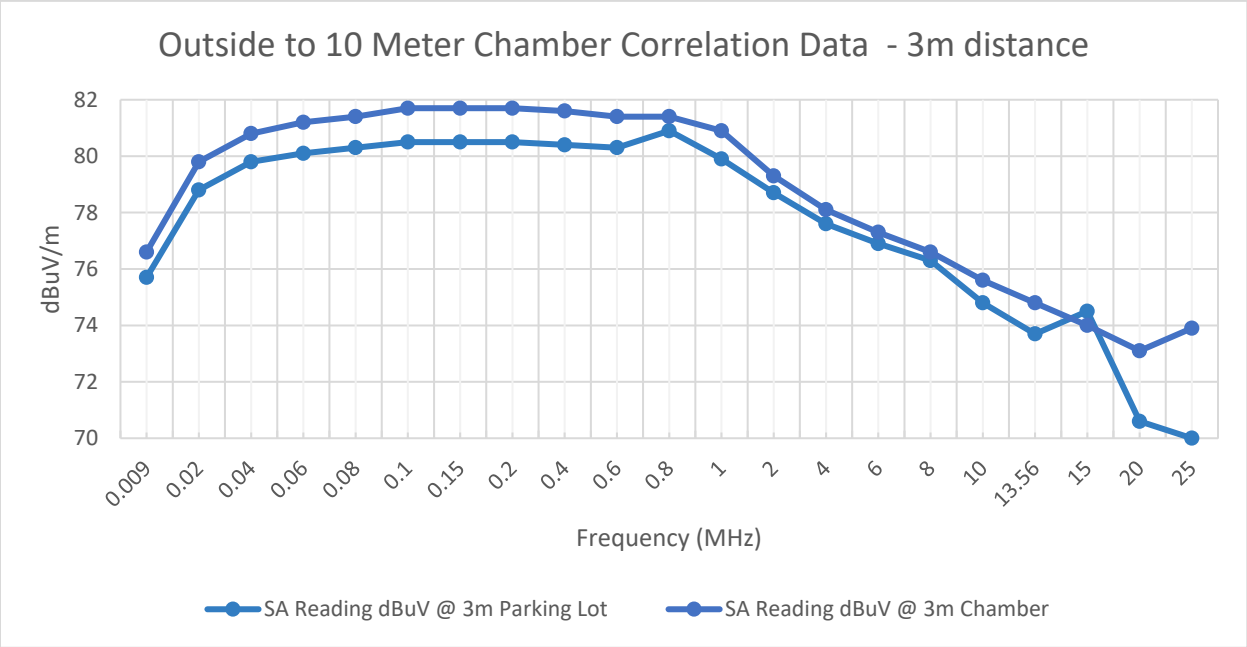
## 9.2. Outdoor to 10m SAC Correlation Data

**KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

Correlation Data for measurements 9kHz-30MHz between Outside and 10m semi-anechoic chamber at Underwriter Laboratories in Northbrook, IL.




Correlation measurements were conducted using a signal source with an antenna outside in open area (parking lot). Immediately following the measurements the same setup was moved inside the 10 meter semi-anechoic chamber and the measurements were repeated. The above plot shows the difference in levels measured between outside and the 10 meter semi anechoic chamber. Measurements are required per KDB414788.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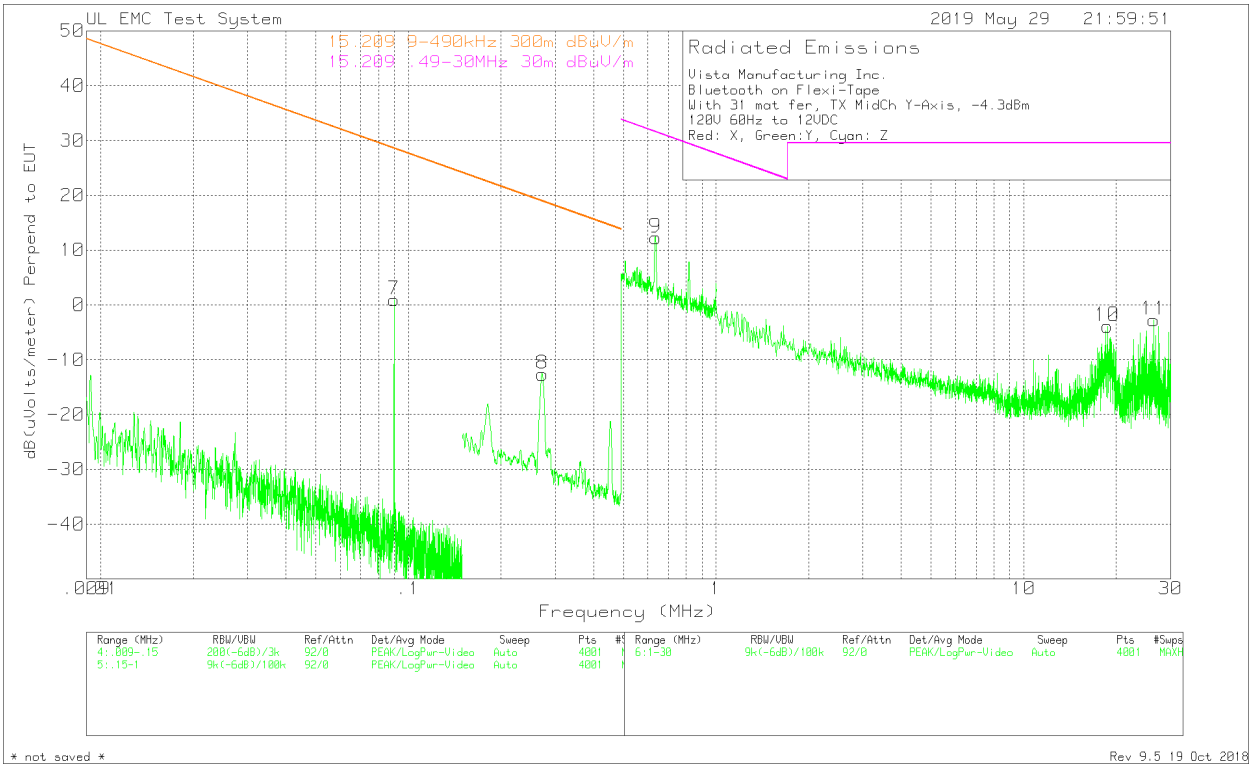
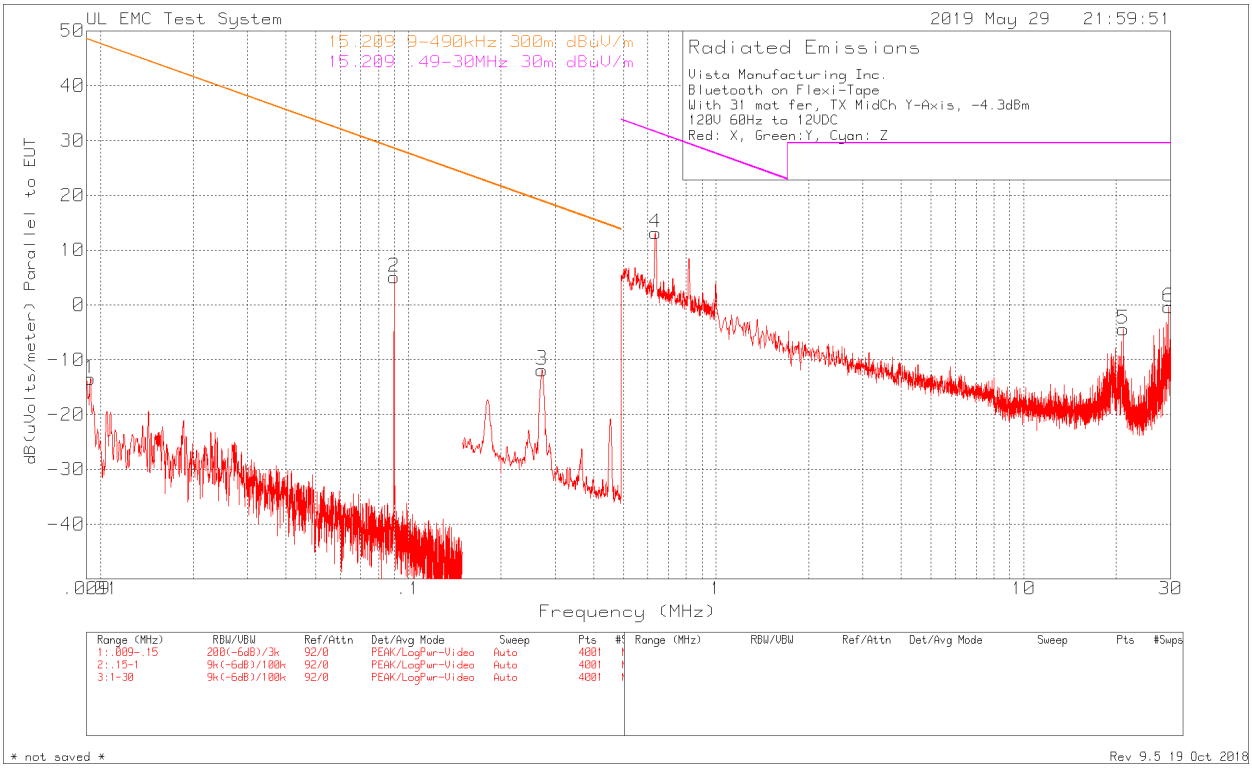
## 9.3. TRANSMITTER SPURIOUS 9kHz – 30MHz

### 9.3.1. WORST CASE EMISSIONS BELOW 30MHz



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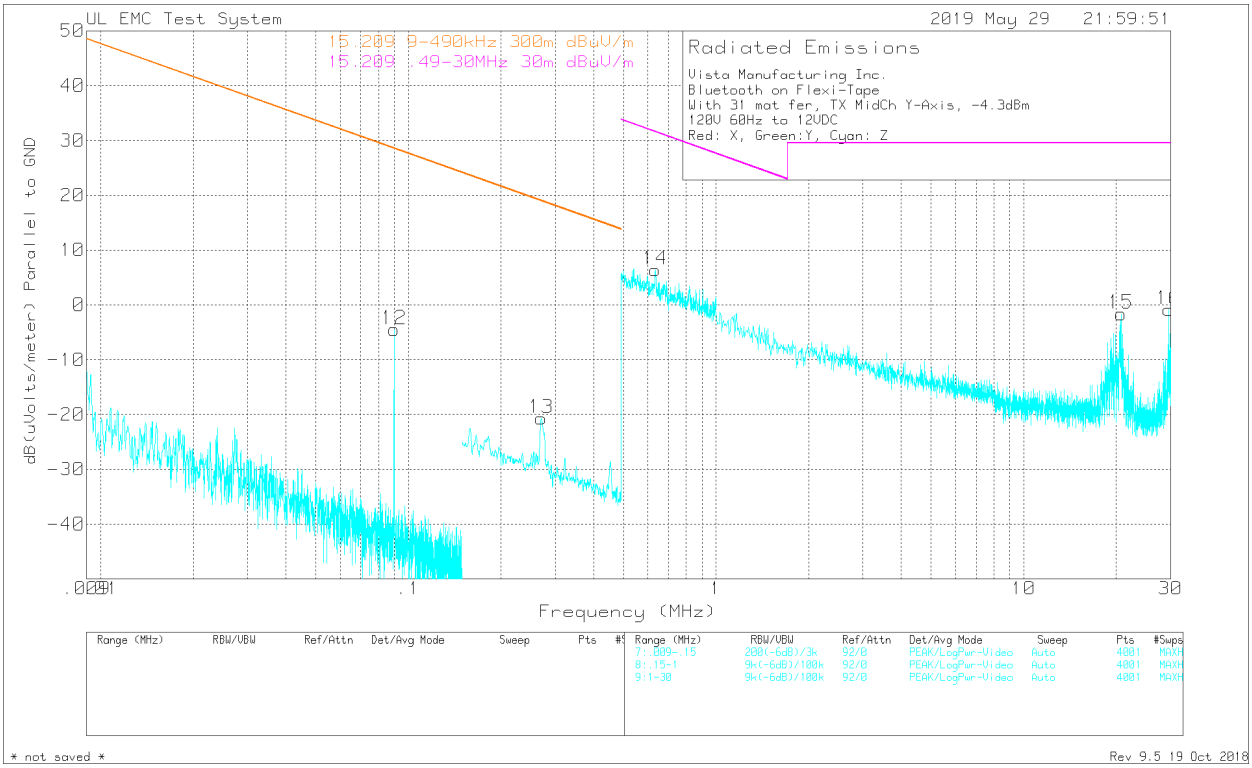


| Trace Markers | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Loop EField Antenna Factor dB/m | 3mPath Red Cable dB | 300mTo3m & 30mTo3m dB | Corrected Reading dB (uVolts/meter) | 15.209 9-490kHz 300m dBuV/m | Margin (dB) | 15.209 .49-30MHz 30m dBuV/m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
| Parallel to EUT | | | | | | | | | | | | | | |
| 1 | 0.009245 | 42.89 | Pk | 23.7 | 0 | -80 | -13.41 | 48.28 | -61.69 | - | - | 0-360 | 101 | H |
| 2 | 0.08992 | 72.27 | Pk | 12.8 | 0 | -80 | 5.07 | 28.52 | -23.45 | - | - | 0-360 | 101 | H |
| 3 | 0.27184 | 56.25 | Pk | 11.8 | 0.1 | -80 | -11.85 | 18.92 | -30.77 | - | - | 0-360 | 101 | H |
| 4 | 0.63543 | 41.08 | Pk | 12 | 0.1 | -40 | 13.18 | - | - | 31.54 | -18.36 | 0-360 | 101 | H |
| 5 | 21.06075 | 24.7 | Pk | 10.4 | 0.5 | -40 | -4.4 | - | - | 29.54 | -33.94 | 0-360 | 101 | H |
| 6 | 29.63025 | 29.69 | Pk | 9.4 | 0.5 | -40 | -0.41 | - | - | 29.54 | -29.95 | 0-360 | 101 | H |
| Perpendicular to EUT | | | | | | | | | | | | | | |
| 7 | 0.08992 | 68.12 | Pk | 12.8 | 0 | -80 | 0.92 | 28.52 | -27.6 | - | - | 0-360 | 101 | H |
| 8 | 0.27269 | 55.46 | Pk | 11.8 | 0.1 | -80 | -12.64 | 18.89 | -31.53 | - | - | 0-360 | 101 | H |
| 9 | 0.63628 | 40.18 | Pk | 12 | 0.1 | -40 | 12.28 | - | - | 31.53 | -19.25 | 0-360 | 101 | H |
| 10 | 18.69725 | 24.83 | Pk | 10.9 | 0.4 | -40 | -3.87 | - | - | 29.54 | -33.41 | 0-360 | 101 | H |
| 11 | 26.46925 | 27.07 | Pk | 9.7 | 0.5 | -40 | -2.73 | - | - | 29.54 | -32.27 | 0-360 | 101 | H |
| Parallel to Ground | | | | | | | | | | | | | | |
| 12 | 0.08992 | 62.73 | Pk | 12.8 | 0 | -80 | -4.47 | 28.52 | -32.99 | - | - | 0-360 | 101 | H |
| 13 | 0.27013 | 47.39 | Pk | 11.8 | 0.1 | -80 | -20.71 | 18.97 | -39.68 | - | - | 0-360 | 101 | H |
| 14 | 0.63479 | 34.33 | Pk | 12 | 0.1 | -40 | 6.43 | - | - | 31.55 | -25.12 | 0-360 | 101 | H |
| 15 | 20.7055 | 27.37 | Pk | 10.5 | 0.5 | -40 | -1.63 | - | - | 29.54 | -31.17 | 0-360 | 101 | H |
| 16 | 29.63025 | 29.27 | Pk | 9.4 | 0.5 | -40 | -0.83 | - | - | 29.54 | -30.37 | 0-360 | 101 | H |
| Pk - Peak detector | | | | | | | | | | | | | | |



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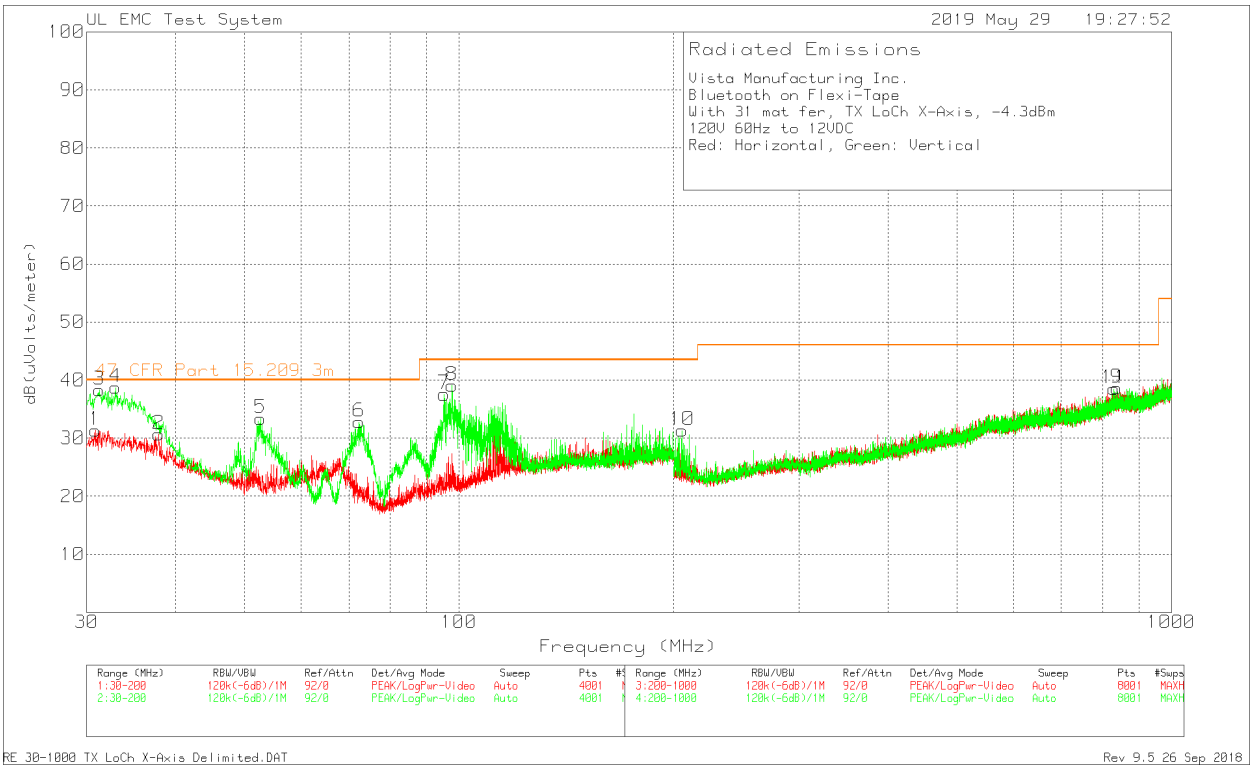
# 9.4. TRANSMITTER SPURIOUS 30MHz – 1GHz

## 9.4.1. SPURIOUS EMISSIONS

### LOW CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.

Bluetooth on Flexi-Tape

With 31 mat fer, TX LoCh X-Axis, -4.3dBm

120V 60Hz to 12VDC

Red: Horizontal, Green: Vertical

Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.85 | 33.16 | Pk | 17.8 | -30.1 | 10.5 | 31.36 | 40 | -8.64 | 0-360 | 249 | H |
| 2 | 37.8625 | 35.18 | Pk | 15 | -30 | 10.5 | 30.68 | 40 | -9.32 | 0-360 | 399 | H |
| 3 | 31.2325 | 40.32 | Pk | 17.6 | -30.1 | 10.5 | 38.32 | 40 | -1.68 | 0-360 | 101 | V |
| 4 | 32.9325 | 41.45 | Pk | 16.9 | -30.1 | 10.5 | 38.75 | 40 | -1.25 | 0-360 | 101 | V |
| 5 | 52.61 | 43.69 | Pk | 9.2 | -30 | 10.5 | 33.39 | 40 | -6.61 | 0-360 | 101 | V |
| 6 | 72.3725 | 46.08 | Pk | 6.2 | -30 | 10.5 | 32.78 | 40 | -7.22 | 0-360 | 251 | V |
| 7 | 95.28 | 46.88 | Pk | 10 | -29.8 | 10.5 | 37.58 | 43.52 | -5.94 | 0-360 | 101 | V |
| 8 | 97.745 | 48.21 | Pk | 10.3 | -29.9 | 10.5 | 39.11 | 43.52 | -4.41 | 0-360 | 101 | V |
| 9 | 837.9 | 32.21 | Pk | 23.2 | -27.3 | 10.5 | 38.61 | 46.02 | -7.41 | 0-360 | 399 | H |
| 10 | 205.6 | 38.85 | Pk | 11.3 | -29.3 | 10.5 | 31.35 | 43.52 | -12.17 | 0-360 | 102 | V |
| 11 | 830.5 | 32.42 | Pk | 23.1 | -27.5 | 10.5 | 38.52 | 46.02 | -7.5 | 0-360 | 302 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 31.2325 | 37.62 | Qp | 17.6 | -30.1 | 10.5 | 35.62 | 40 | -4.38 | 229 | 105 | V |
| | 32.9325 | 37.46 | Qp | 16.9 | -30.1 | 10.5 | 34.76 | 40 | -5.24 | 232 | 105 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector

Qp - Quasi-Peak detector



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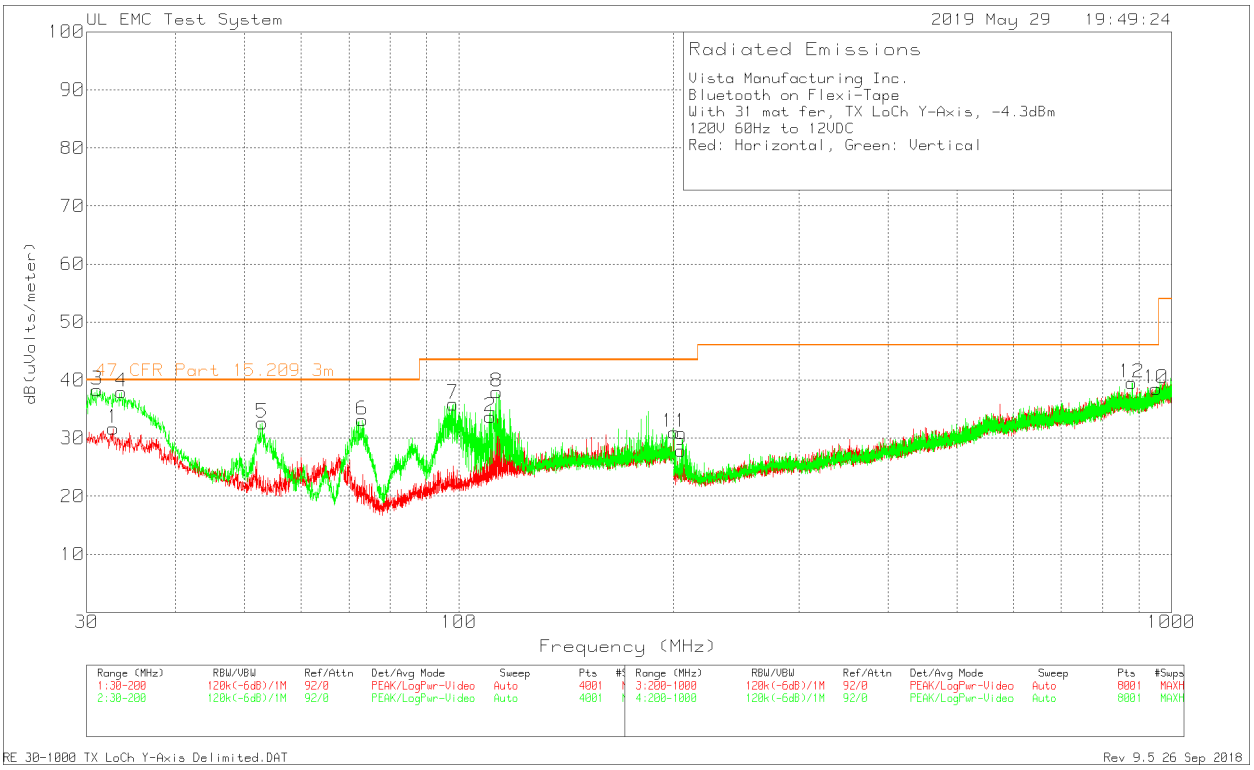
## LOW CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.

Bluetooth on Flexi-Tape

With 31 mat fer, TX LoCh Y-Axis, -4.3dBm

120V 60Hz to 12VDC

Red: Horizontal, Green: Vertical

Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.6775 | 34.27 | Pk | 17 | -30.1 | 10.5 | 31.67 | 40 | -8.33 | 0-360 | 398 | H |
| 2 | 110.6225 | 40.67 | Pk | 12.3 | -29.8 | 10.5 | 33.67 | 43.52 | -9.85 | 0-360 | 398 | H |
| 3 | 31.02 | 40.22 | Pk | 17.7 | -30.1 | 10.5 | 38.32 | 40 | -1.68 | 0-360 | 101 | V |
| 4 | 33.57 | 40.86 | Pk | 16.7 | -30.1 | 10.5 | 37.96 | 40 | -2.04 | 0-360 | 101 | V |
| 5 | 52.9075 | 43.15 | Pk | 9 | -30 | 10.5 | 32.65 | 40 | -7.35 | 0-360 | 101 | V |
| 6 | 73.095 | 46.34 | Pk | 6.3 | -30 | 10.5 | 33.14 | 40 | -6.86 | 0-360 | 398 | V |
| 7 | 98 | 44.9 | Pk | 10.4 | -29.9 | 10.5 | 35.9 | 43.52 | -7.62 | 0-360 | 101 | V |
| 8 | 112.96 | 44.74 | Pk | 12.5 | -29.8 | 10.5 | 37.94 | 43.52 | -5.58 | 0-360 | 251 | V |
| 9 | 205 | 35.4 | Pk | 11.3 | -29.3 | 10.5 | 27.9 | 43.52 | -15.62 | 0-360 | 399 | H |
| 10 | 951.8 | 30.91 | Pk | 23.9 | -26.8 | 10.5 | 38.51 | 46.02 | -7.51 | 0-360 | 399 | H |
| 11 | 200.6 | 38.39 | Pk | 11.5 | -29.4 | 10.5 | 30.99 | 43.52 | -12.53 | 0-360 | 99 | V |
| 12 | 879.7 | 33.36 | Pk | 23 | -27.3 | 10.5 | 39.56 | 46.02 | -6.46 | 0-360 | 99 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 31.6825 | 37.79 | Qp | 17.4 | -30.1 | 10.5 | 35.59 | 40 | -4.41 | 271 | 101 | V |
| | 32.9325 | 37.46 | Qp | 16.9 | -30.1 | 10.5 | 34.76 | 40 | -5.24 | 232 | 105 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector

Qp - Quasi-Peak detector



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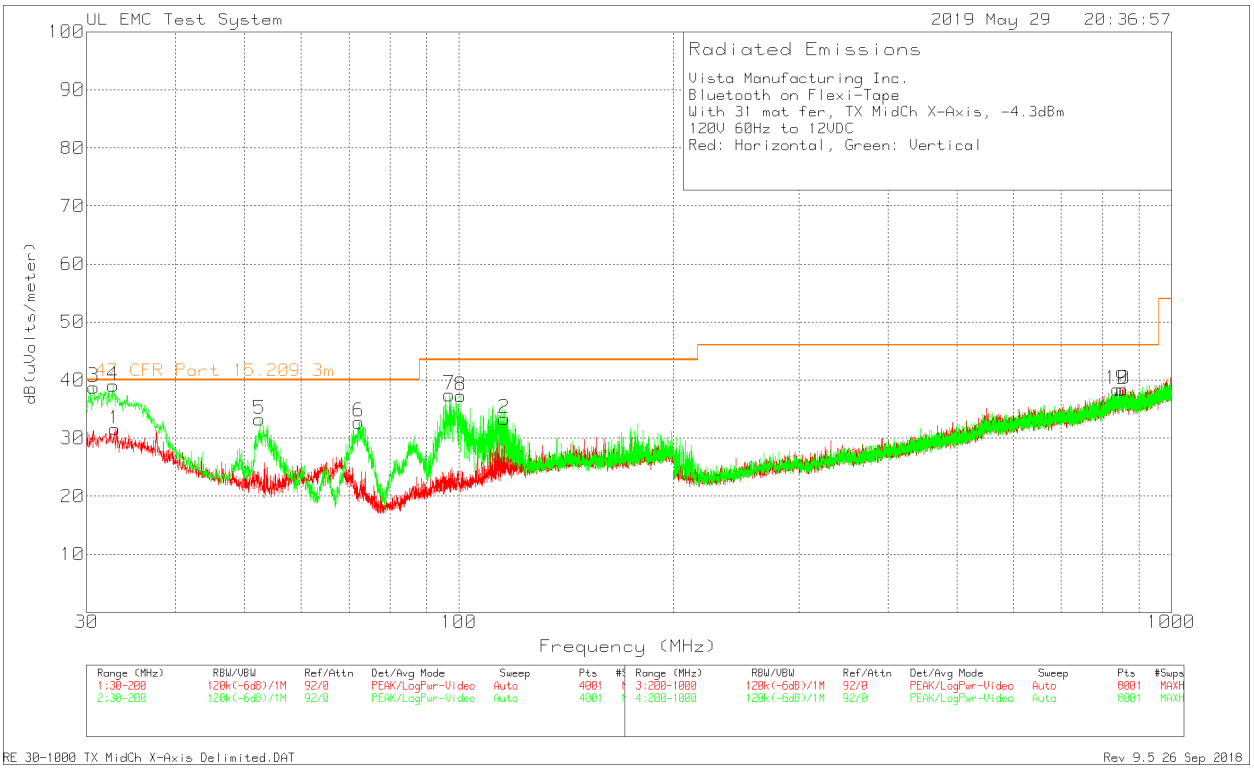
## MIDDLE CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.

Bluetooth on Flexi-Tape

With 31 mat fer, TX MidCh X-Axis, -4.3dBm

120V 60Hz to 12VDC

Red: Horizontal, Green: Vertical

Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.8475 | 34.14 | Pk | 17 | -30.1 | 10.5 | 31.54 | 40 | -8.46 | 0-360 | 399 | H |
| 2 | 115.765 | 39.78 | Pk | 12.9 | -29.8 | 10.5 | 33.38 | 43.52 | -10.14 | 0-360 | 399 | H |
| 3 | 30.68 | 40.59 | Pk | 17.8 | -30.1 | 10.5 | 38.79 | 40 | -1.21 | 0-360 | 101 | V |
| 4 | 32.6775 | 41.71 | Pk | 17 | -30.1 | 10.5 | 39.11 | 40 | -0.89 | 0-360 | 101 | V |
| 5 | 52.4825 | 43.52 | Pk | 9.2 | -30 | 10.5 | 33.22 | 40 | -6.78 | 0-360 | 251 | V |
| 6 | 72.245 | 46.07 | Pk | 6.2 | -30 | 10.5 | 32.77 | 40 | -7.23 | 0-360 | 399 | V |
| 7 | 96.8525 | 46.66 | Pk | 10.2 | -29.9 | 10.5 | 37.46 | 43.52 | -6.06 | 0-360 | 101 | V |
| 8 | 100.55 | 45.9 | Pk | 10.8 | -29.9 | 10.5 | 37.3 | 43.52 | -6.22 | 0-360 | 101 | V |
| 9 | 852.7 | 31.91 | Pk | 23.2 | -27.2 | 10.5 | 38.41 | 46.02 | -7.61 | 0-360 | 199 | H |
| 10 | 840.1 | 32.14 | Pk | 23.2 | -27.4 | 10.5 | 38.44 | 46.02 | -7.58 | 0-360 | 202 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 32.6775 | 36.96 | Qp | 17 | -30.1 | 10.5 | 34.36 | 40 | -5.64 | 251 | 101 | V |
| | 30.68 | 36.67 | Qp | 17.8 | -30.1 | 10.5 | 34.87 | 40 | -5.13 | 245 | 101 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector

Qp - Quasi-Peak detector



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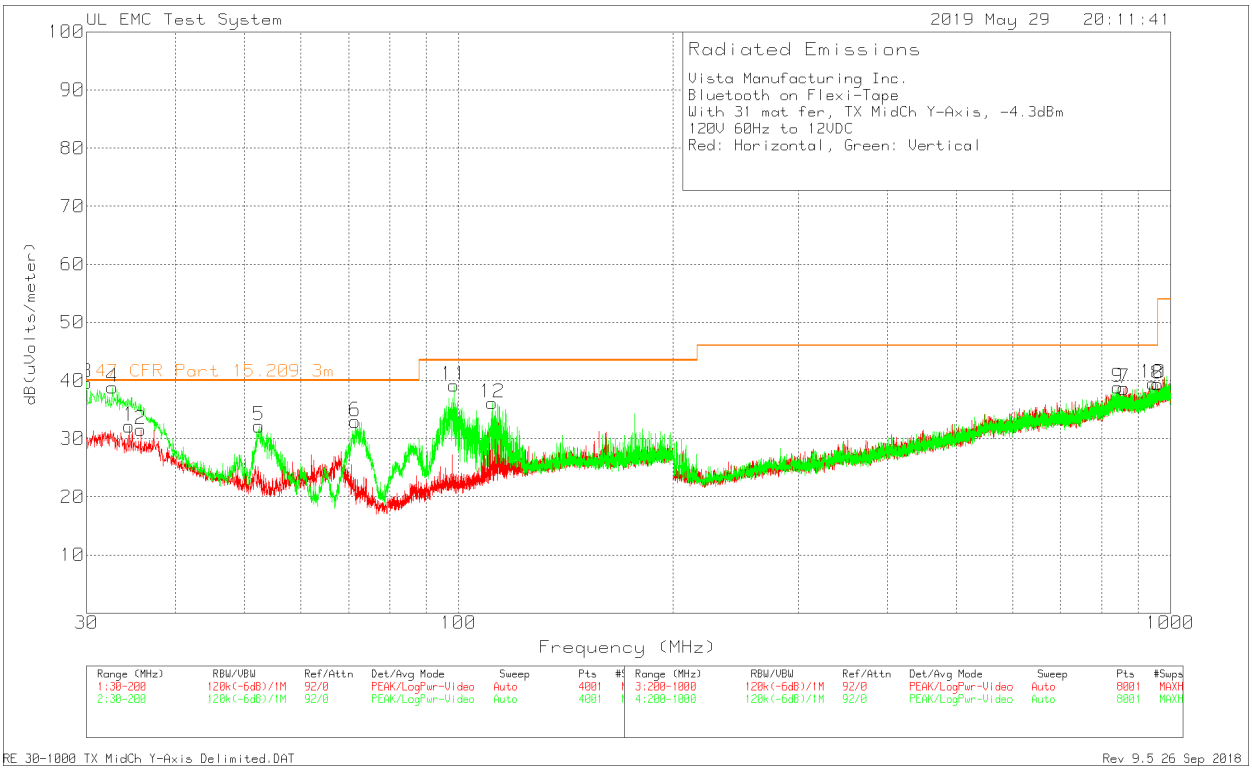
## MIDDLE CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
With 31 mat fer, TX MidCh Y-Axis, -4.3dBm
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34.42 | 35.3 | Pk | 16.4 | -30 | 10.5 | 32.2 | 40 | -7.8 | 0-360 | 398 | H |
| 2 | 35.7375 | 35.17 | Pk | 15.9 | -30 | 10.5 | 31.57 | 40 | -8.43 | 0-360 | 398 | H |
| 3 | 30 | 41.16 | Pk | 18.1 | -30.1 | 10.5 | 39.66 | 40 | -0.34 | 0-360 | 101 | V |
| 4 | 32.635 | 41.43 | Pk | 17 | -30.1 | 10.5 | 38.83 | 40 | -1.17 | 0-360 | 101 | V |
| 5 | 52.3975 | 42.51 | Pk | 9.2 | -30 | 10.5 | 32.21 | 40 | -7.79 | 0-360 | 251 | V |
| 6 | 71.5225 | 46.27 | Pk | 6.2 | -30 | 10.5 | 32.97 | 40 | -7.03 | 0-360 | 398 | V |
| 11 | 98.425 | 48.09 | Pk | 10.5 | -29.9 | 10.5 | 39.19 | 43.52 | -4.33 | 0-360 | 101 | V |
| 12 | 111.4725 | 43.2 | Pk | 12.3 | -29.8 | 10.5 | 36.2 | 43.52 | -7.32 | 0-360 | 251 | V |
| 7 | 860.3 | 32.6 | Pk | 23.1 | -27.5 | 10.5 | 38.7 | 46.02 | -7.32 | 0-360 | 399 | H |
| 8 | 959.6 | 31.8 | Pk | 24.1 | -27 | 10.5 | 39.4 | 46.02 | -6.62 | 0-360 | 199 | H |
| 9 | 843.7 | 32.54 | Pk | 23.3 | -27.5 | 10.5 | 38.84 | 46.02 | -7.18 | 0-360 | 102 | V |
| 10 | 944.9 | 32.43 | Pk | 23.8 | -27.2 | 10.5 | 39.53 | 46.02 | -6.49 | 0-360 | 299 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30.12 | 36.06 | Qp | 18.1 | -30.1 | 10.5 | 34.56 | 40 | -5.44 | 235 | 101 | V |
| | 32.635 | 36.69 | Qp | 17 | -30.1 | 10.5 | 34.09 | 40 | -5.91 | 230 | 101 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector
Qp - Quasi-Peak detector


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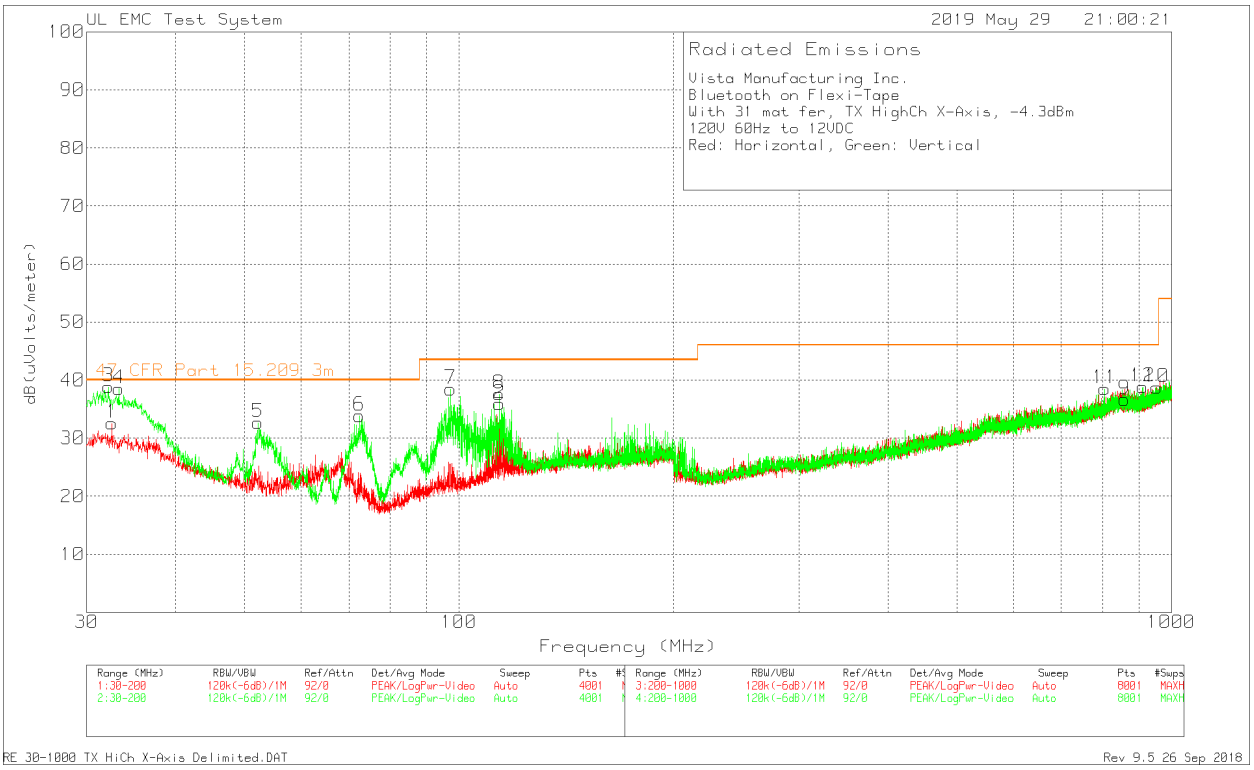
## HIGH CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
With 31 mat fer, TX HighCh X-Axis, -4.3dBm
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.55 | 35.07 | Pk | 17.1 | -30.1 | 10.5 | 32.57 | 40 | -7.43 | 0-360 | 398 | H |
| 2 | 113.8525 | 42.63 | Pk | 12.6 | -29.8 | 10.5 | 35.93 | 43.52 | -7.59 | 0-360 | 398 | H |
| 3 | 32.1675 | 41.26 | Pk | 17.2 | -30.1 | 10.5 | 38.86 | 40 | -1.14 | 0-360 | 102 | V |
| 4 | 33.2725 | 41.35 | Pk | 16.8 | -30.1 | 10.5 | 38.55 | 40 | -1.45 | 0-360 | 102 | V |
| 5 | 52.185 | 42.88 | Pk | 9.3 | -30 | 10.5 | 32.68 | 40 | -7.32 | 0-360 | 102 | V |
| 6 | 72.4575 | 47.17 | Pk | 6.2 | -30 | 10.5 | 33.87 | 40 | -6.13 | 0-360 | 398 | V |
| 7 | 97.2775 | 47.58 | Pk | 10.3 | -29.9 | 10.5 | 38.48 | 43.52 | -5.04 | 0-360 | 102 | V |
| 8 | 113.7675 | 44.31 | Pk | 12.6 | -29.8 | 10.5 | 37.61 | 43.52 | -5.91 | 0-360 | 102 | V |
| 9 | 859.6 | 30.67 | Pk | 23.1 | -27.6 | 10.5 | 36.67 | 46.02 | -9.35 | 0-360 | 399 | H |
| 10 | 954 | 31.06 | Pk | 24 | -26.8 | 10.5 | 38.76 | 46.02 | -7.26 | 0-360 | 99 | H |
| 11 | 805.9 | 33.01 | Pk | 22.2 | -27.2 | 10.5 | 38.51 | 46.02 | -7.51 | 0-360 | 299 | V |
| 12 | 911.1 | 32.34 | Pk | 23.1 | -27.1 | 10.5 | 38.84 | 46.02 | -7.18 | 0-360 | 202 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 32.6775 | 36.96 | Qp | 17 | -30.1 | 10.5 | 34.36 | 40 | -5.64 | 251 | 101 | V |
| | 30.68 | 36.67 | Qp | 17.8 | -30.1 | 10.5 | 34.87 | 40 | -5.13 | 245 | 101 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector
Qp - Quasi-Peak detector


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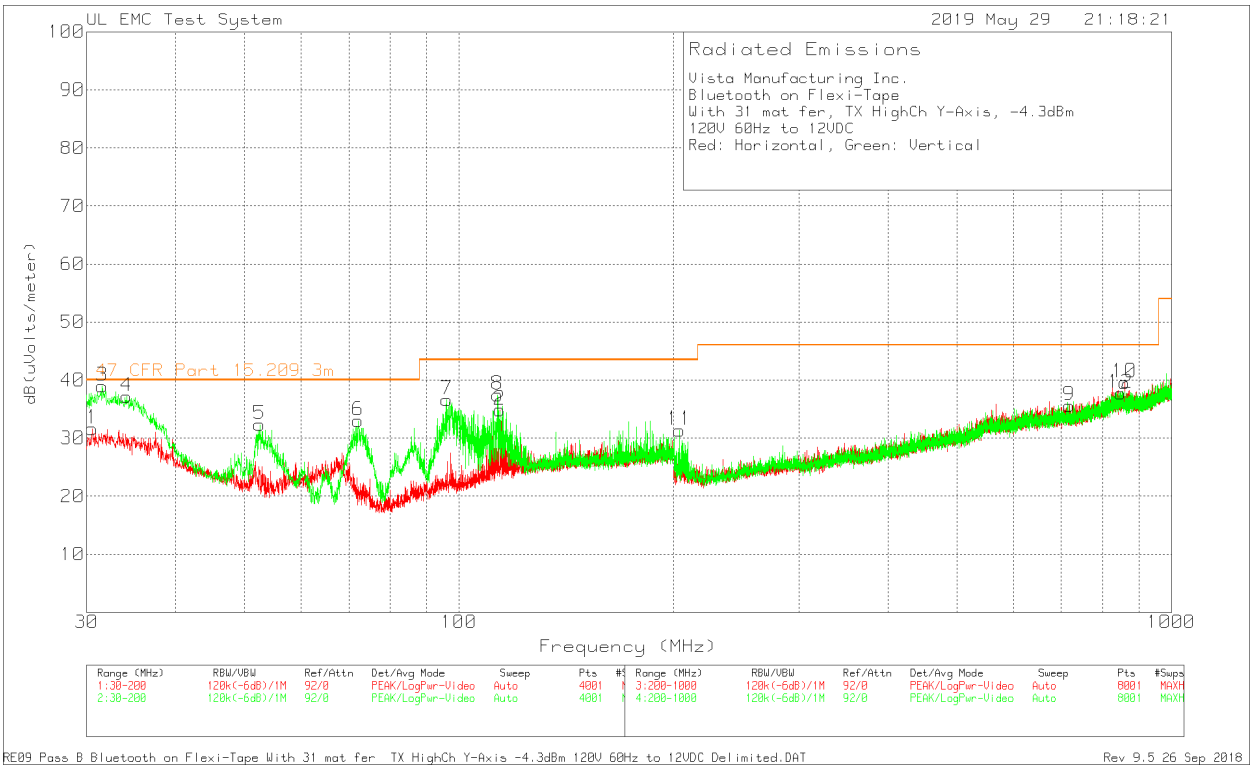
## HIGH CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.

Bluetooth on Flexi-Tape

With 31 mat fer, TX HighCh Y-Axis, -4.3dBm

120V 60Hz to 12VDC

Red: Horizontal, Green: Vertical

Trace MArkers

| Marker No. | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.5525 | 33.34 | Pk | 17.9 | -30.1 | 10.5 | 31.64 | 40 | -8.36 | 0-360 | 398 | H |
| 2 | 114.0225 | 41.59 | Pk | 12.6 | -29.8 | 10.5 | 34.89 | 43.52 | -8.63 | 0-360 | 398 | H |
| 3 | 31.53 | 41.08 | Pk | 17.5 | -30.1 | 10.5 | 38.98 | 40 | -1.02 | 0-360 | 101 | V |
| 4 | 34.1225 | 40.3 | Pk | 16.5 | -30.1 | 10.5 | 37.2 | 40 | -2.8 | 0-360 | 101 | V |
| 5 | 52.4825 | 42.65 | Pk | 9.2 | -30 | 10.5 | 32.35 | 40 | -7.65 | 0-360 | 101 | V |
| 6 | 72.1175 | 46.3 | Pk | 6.2 | -30 | 10.5 | 33 | 40 | -7 | 0-360 | 398 | V |
| 7 | 96.0875 | 45.84 | Pk | 10.1 | -29.8 | 10.5 | 36.64 | 43.52 | -6.88 | 0-360 | 101 | V |
| 8 | 113.215 | 44.27 | Pk | 12.5 | -29.8 | 10.5 | 37.47 | 43.52 | -6.05 | 0-360 | 101 | V |
| 9 | 718.9 | 31.24 | Pk | 20.9 | -27 | 10.5 | 35.64 | 46.02 | -10.38 | 0-360 | 399 | H |
| 10 | 859.1 | 33.49 | Pk | 23.2 | -27.6 | 10.5 | 39.59 | 46.02 | -6.43 | 0-360 | 299 | H |
| 11 | 203.9 | 38.79 | Pk | 11.4 | -29.3 | 10.5 | 31.39 | 43.52 | -12.13 | 0-360 | 102 | V |
| 12 | 848.5 | 31.37 | Pk | 23.2 | -27.3 | 10.5 | 37.77 | 46.02 | -8.25 | 0-360 | 399 | V |

Radiated Emission Data

| | Test Frequency (MHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | 10m to 3m Factor dB | Corrected Reading dB(uV/m) | 47 CFR Part 15.209 3m | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 32.6775 | 36.96 | Qp | 17 | -30.1 | 10.5 | 34.36 | 40 | -5.64 | 251 | 101 | V |
| | 30.68 | 36.67 | Qp | 17.8 | -30.1 | 10.5 | 34.87 | 40 | -5.13 | 245 | 101 | V |
| | 97.745 | 38.49 | Qp | 10.3 | -29.9 | 10.5 | 29.39 | 43.52 | -14.13 | 0 | 101 | V |

Pk - Peak detector

Qp - Quasi-Peak detector



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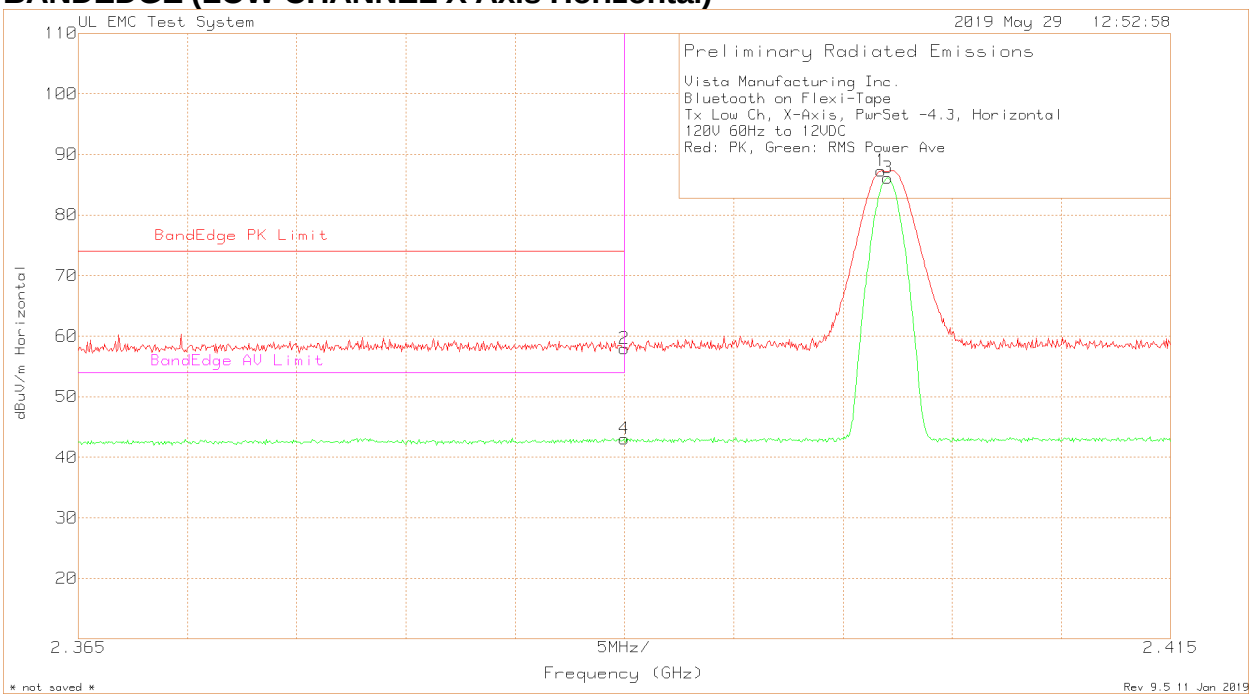
# 9.5. TRANSMITTER ABOVE 1 GHz

## 9.5.1. BANDEDGE

### BANDEDGE (LOW CHANNEL X Axis Horizontal)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx Low Ch, X-Axis, PwrSet -4.3, Horizontal
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.40175 | 60.76dBuV Pk | 21.8 | 4.75 | 87.31 | - | - |
| | | Azimuth:102 | Height:140 | Horz | Margin (dB) | - | - |
| 2 | 2.39 | 31.37dBuV Pk | 21.8 | 4.76 | 57.93 | 74 | - |
| | | Azimuth:102 | Height:140 | Horz | Margin (dB) | -16.07 | - |
| 3 | 2.40205 | 59.57dBuV Av | 21.8 | 4.75 | 86.12 | - | - |
| | | Azimuth:102 | Height:140 | Horz | Margin (dB) | - | - |
| 4 | 2.39 | 16.5dBuV Av | 21.8 | 4.76 | 43.06 | 74 | 54 |
| | | Azimuth:102 | Height:140 | Horz | Margin (dB) | -30.94 | -10.94 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Av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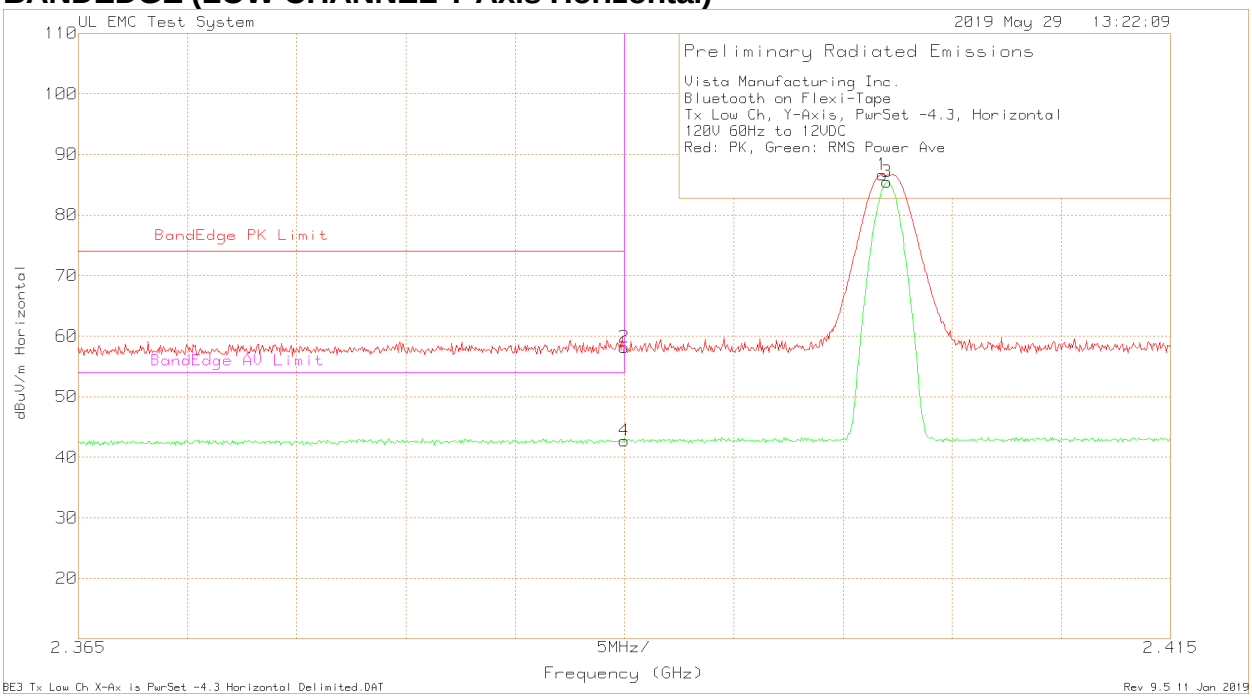
## BANDEDGE (LOW CHANNEL Y Axis Horizontal)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx Low Ch, Y-Axis, PwrSet -4.3, Horizontal
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.4018 | 60.1dBuV Pk | 21.8 | 4.75 | 86.65 | - | - |
| | | Azimuth:108 | Height:139 | Horz | Margin (dB) | - | - |
| 2 | 2.39 | 31.59dBuV Pk | 21.8 | 4.76 | 58.15 | 74 | - |
| | | Azimuth:108 | Height:139 | Horz | Margin (dB) | -15.85 | - |
| 3 | 2.402025 | 58.88dBuV Av | 21.8 | 4.75 | 85.43 | - | - |
| | | Azimuth:108 | Height:139 | Horz | Margin (dB) | - | - |
| 4 | 2.39 | 16.18dBuV Av | 21.8 | 4.76 | 42.74 | 74 | 54 |
| | | Azimuth:108 | Height:139 | Horz | Margin (dB) | -31.26 | -11.26 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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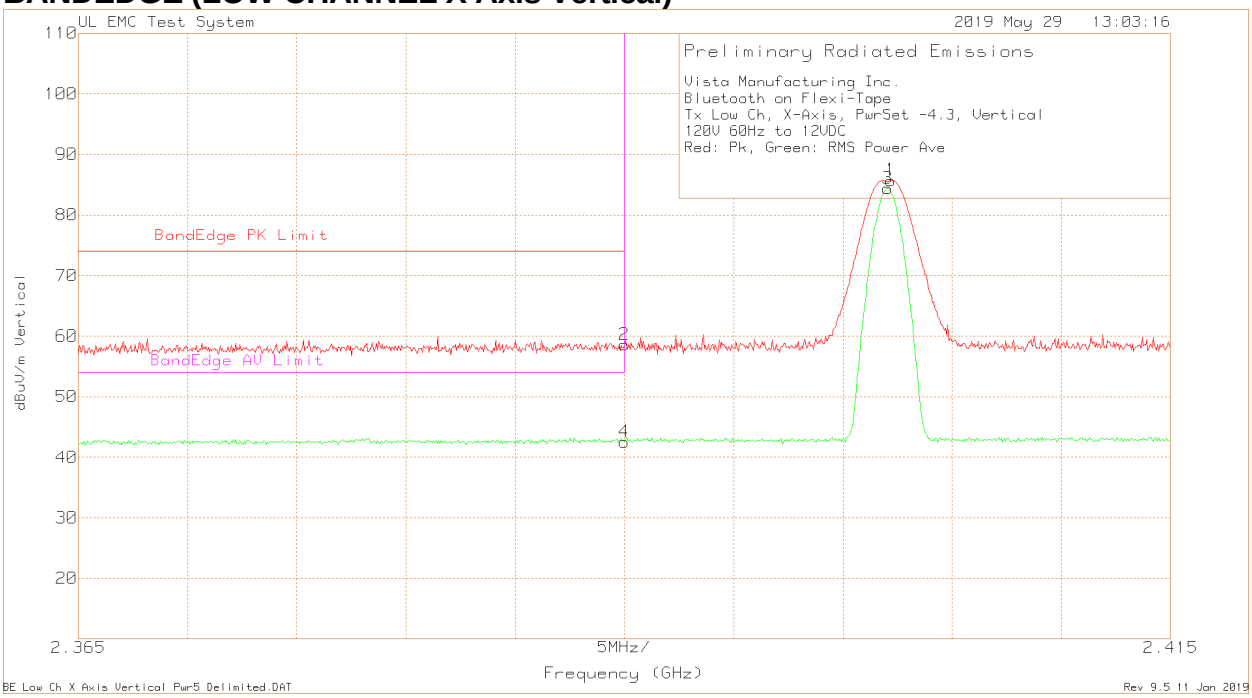
## BANDEDGE (LOW CHANNEL X Axis Vertical)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx Low Ch, X-Axis, PwrSet -4.3, Vertical
120V 60Hz to 12VDC
Red: Pk, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.4022 | 59.18dBuV Pk | 21.8 | 4.75 | 85.73 | - | - |
| | | Azimuth:211 | Height:139 | Vert | Margin (dB) | - | - |
| 2 | 2.39 | 32dBuV Pk | 21.8 | 4.76 | 58.56 | 74 | - |
| | | Azimuth:211 | Height:139 | Vert | Margin (dB) | -15.44 | - |
| 3 | 2.40205 | 57.85dBuV Av | 21.8 | 4.75 | 84.4 | - | - |
| | | Azimuth:211 | Height:139 | Vert | Margin (dB) | - | - |
| 4 | 2.39 | 15.95dBuV Av | 21.8 | 4.76 | 42.51 | 74 | 54 |
| | | Azimuth:211 | Height:139 | Vert | Margin (dB) | -31.49 | -11.49 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
AV - PWR RMS Average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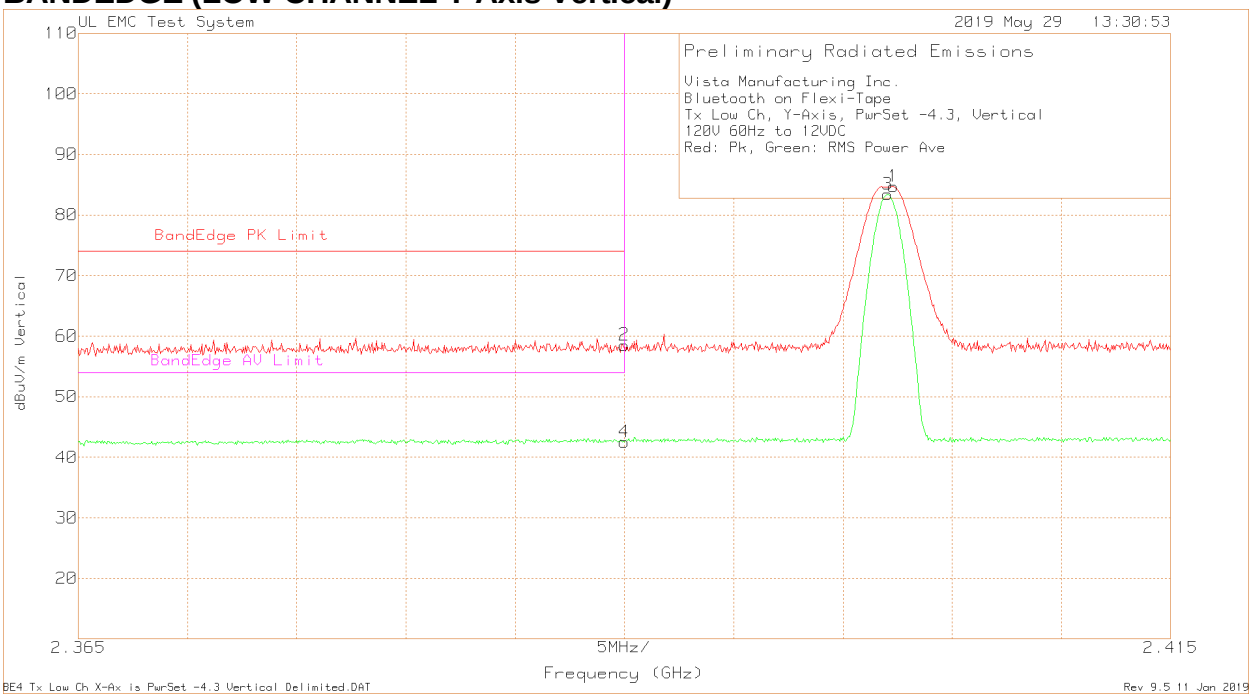
## BANDEDGE (LOW CHANNEL Y Axis Vertical)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx Low Ch, Y-Axis, PwrSet -4.3, Vertical
120V 60Hz to 12VDC
Red: Pk, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.4023 | 58.16dBuV Pk | 21.8 | 4.75 | 84.71 | - | - |
| | | Azimuth:205 | Height:140 | Vert | Margin (dB) | - | - |
| 2 | 2.39 | 31.96dBuV Pk | 21.8 | 4.76 | 58.52 | 74 | - |
| | | Azimuth:205 | Height:140 | Vert | Margin (dB) | -15.48 | - |
| 3 | 2.40205 | 56.86dBuV Av | 21.8 | 4.75 | 83.41 | - | - |
| | | Azimuth:205 | Height:140 | Vert | Margin (dB) | - | - |
| 4 | 2.39 | 15.97dBuV Av | 21.8 | 4.76 | 42.53 | 74 | 54 |
| | | Azimuth:205 | Height:140 | Vert | Margin (dB) | -31.47 | -11.47 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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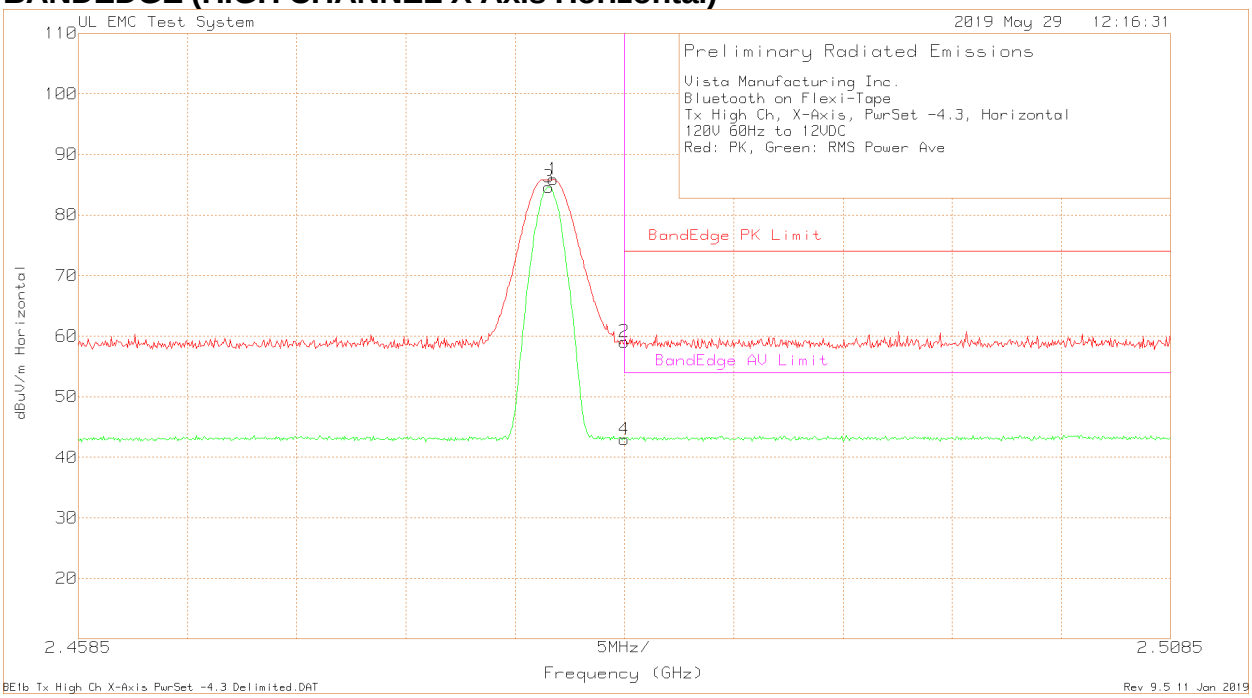
## BANDEDGE (HIGH CHANNEL X Axis Horizontal)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx High Ch, X-Axis, PwrSet -4.3, Horizontal
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.48025 | 59.34dBuV Pk | 22 | 4.52 | 85.86 | - | - |
| | | Azimuth:164 | Height:217 | Horz | Margin (dB) | - | - |
| 2 | 2.4835 | 32.42dBuV Pk | 22.1 | 4.53 | 59.05 | 74 | - |
| | | Azimuth:164 | Height:217 | Horz | Margin (dB) | -14.95 | - |
| 3 | 2.480025 | 58.11dBuV Av | 22 | 4.52 | 84.63 | - | - |
| | | Azimuth:164 | Height:217 | Horz | Margin (dB) | - | - |
| 4 | 2.4835 | 16.29dBuV Av | 22.1 | 4.53 | 42.92 | 74 | 54 |
| | | Azimuth:164 | Height:217 | Horz | Margin (dB) | -31.08 | -11.08 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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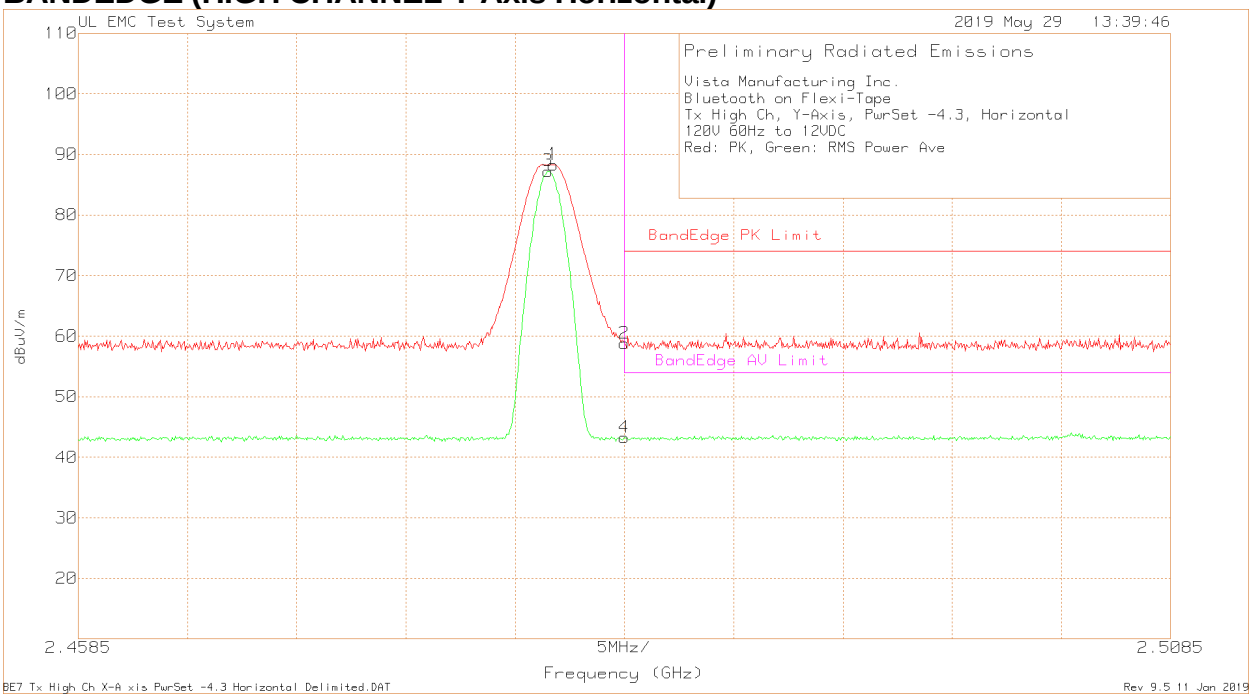
## BANDEDGE (HIGH CHANNEL Y Axis Horizontal)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx High Ch, Y-Axis, PwrSet -4.3, Horizontal
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.48025 | 61.79dBuV Pk | 22 | 4.52 | 88.31 | - | - |
| | | Azimuth:120 | Height:140 | Horz | Margin (dB) | - | - |
| 2 | 2.4835 | 32.17dBuV Pk | 22.1 | 4.53 | 58.8 | 74 | - |
| | | Azimuth:120 | Height:140 | Horz | Margin (dB) | -15.2 | - |
| 3 | 2.48 | 60.72dBuV Av | 22 | 4.52 | 87.24 | - | - |
| | | Azimuth:120 | Height:140 | Horz | Margin (dB) | - | - |
| 4 | 2.4835 | 16.61dBuV Av | 22.1 | 4.53 | 43.24 | 74 | 54 |
| | | Azimuth:120 | Height:140 | Horz | Margin (dB) | -30.76 | -10.76 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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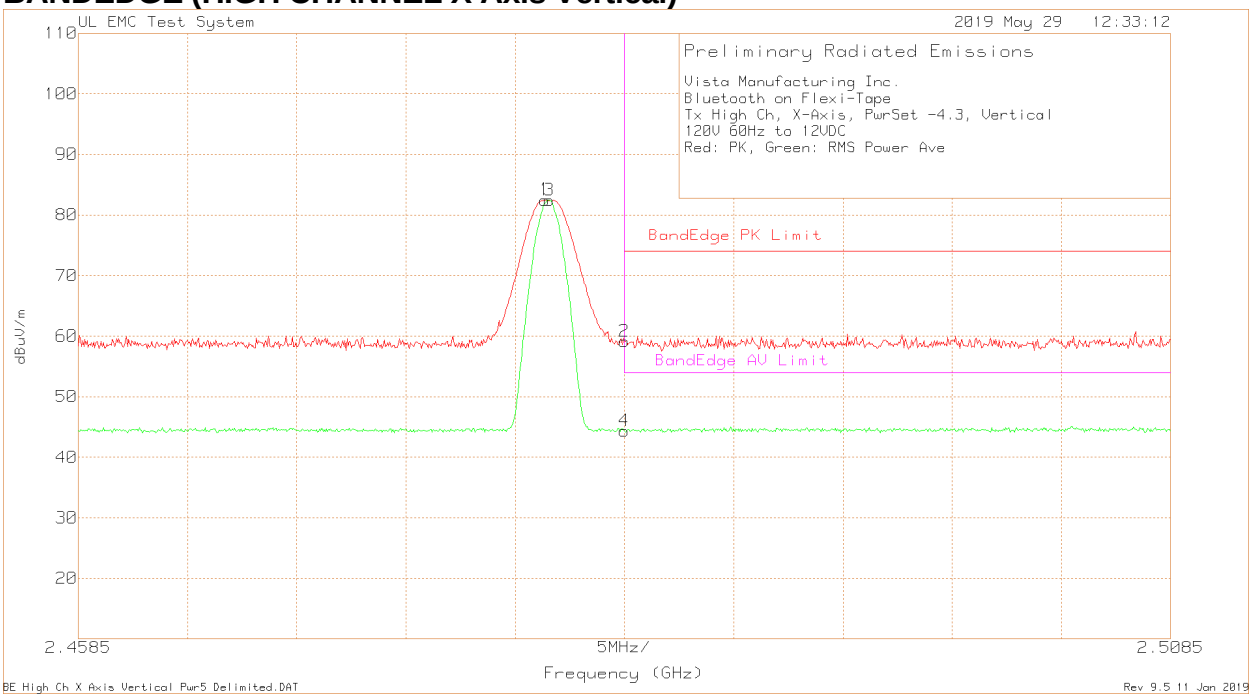
## BANDEDGE (HIGH CHANNEL X Axis Vertical)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx High Ch, X-Axis, PwrSet -4.3, Vertical
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.47985 | 55.95dBuV Pk | 22 | 4.52 | 82.47 | - | - |
| | | Azimuth:307 | Height:251 | Vert | Margin (dB) | - | - |
| 2 | 2.4835 | 32.47dBuV Pk | 22.1 | 4.53 | 59.1 | 74 | - |
| | | Azimuth:307 | Height:251 | Vert | Margin (dB) | -14.9 | - |
| 3 | 2.48005 | 54.53dBuV Av | 22 | 5.92 | 82.45 | - | - |
| | | Azimuth:307 | Height:251 | Vert | Margin (dB) | - | - |
| 4 | 2.4835 | 16.28dBuV Av | 22.1 | 5.93 | 44.31 | 74 | 54 |
| | | Azimuth:307 | Height:251 | Vert | Margin (dB) | -29.69 | -9.69 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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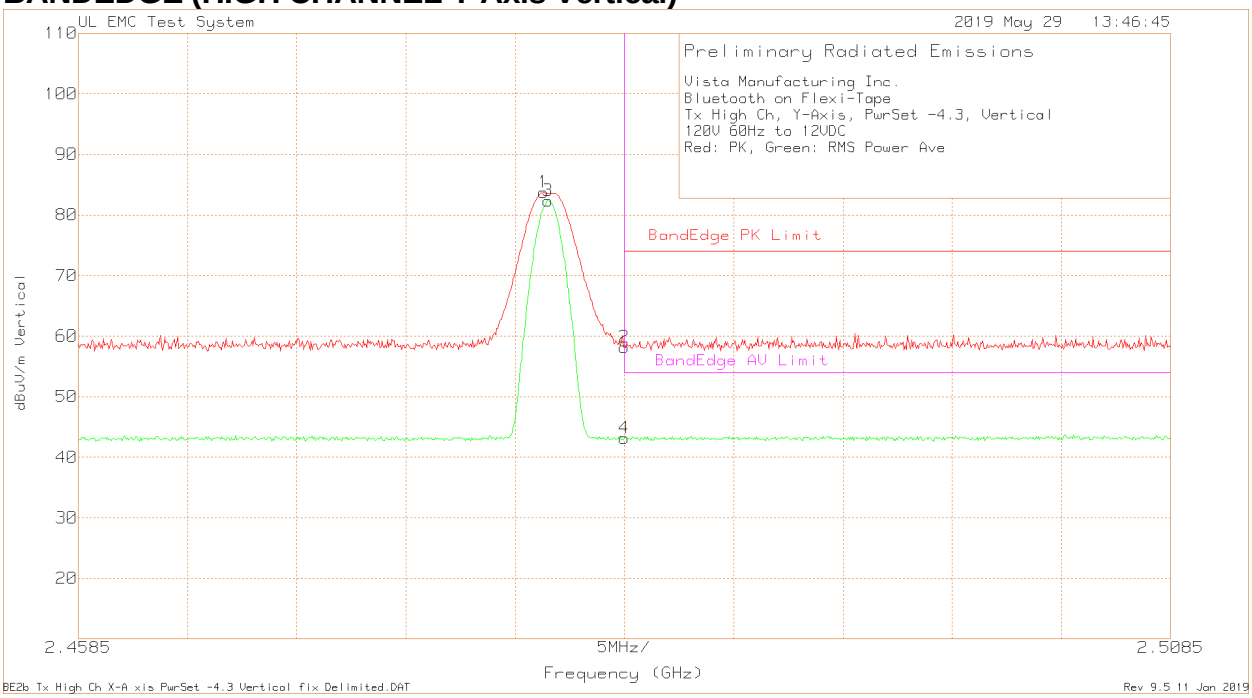
## BANDEDGE (HIGH CHANNEL Y Axis Vertical)




Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
Tx High Ch, Y-Axis, PwrSet -4.3, Vertical
120V 60Hz to 12VDC
Red: PK, Green: RMS Power Ave

Trace Markers

| No. | Test Frequency (GHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV/m | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| 1 | 2.4798 | 57.18dBuV Pk | 22 | 4.52 | 83.7 | - | - |
| | | Azimuth:220 | Height:107 | Vert | Margin (dB) | - | - |
| 2 | 2.4835 | 31.5dBuV Pk | 22.1 | 4.53 | 58.13 | 74 | - |
| | | Azimuth:220 | Height:107 | Vert | Margin (dB) | -15.87 | - |
| 3 | 2.48 | 55.82dBuV Av | 22 | 4.52 | 82.34 | - | - |
| | | Azimuth:220 | Height:107 | Vert | Margin (dB) | - | - |
| 4 | 2.4835 | 16.54dBuV Av | 22.1 | 4.53 | 43.17 | 74 | 54 |
| | | Azimuth:220 | Height:107 | Vert | Margin (dB) | -30.83 | -10.83 |

LIMIT 1: BandEdge PK Limit
LIMIT 2: BandEdge AV Limit

Pk - Peak detector
Av - PWR RMS Average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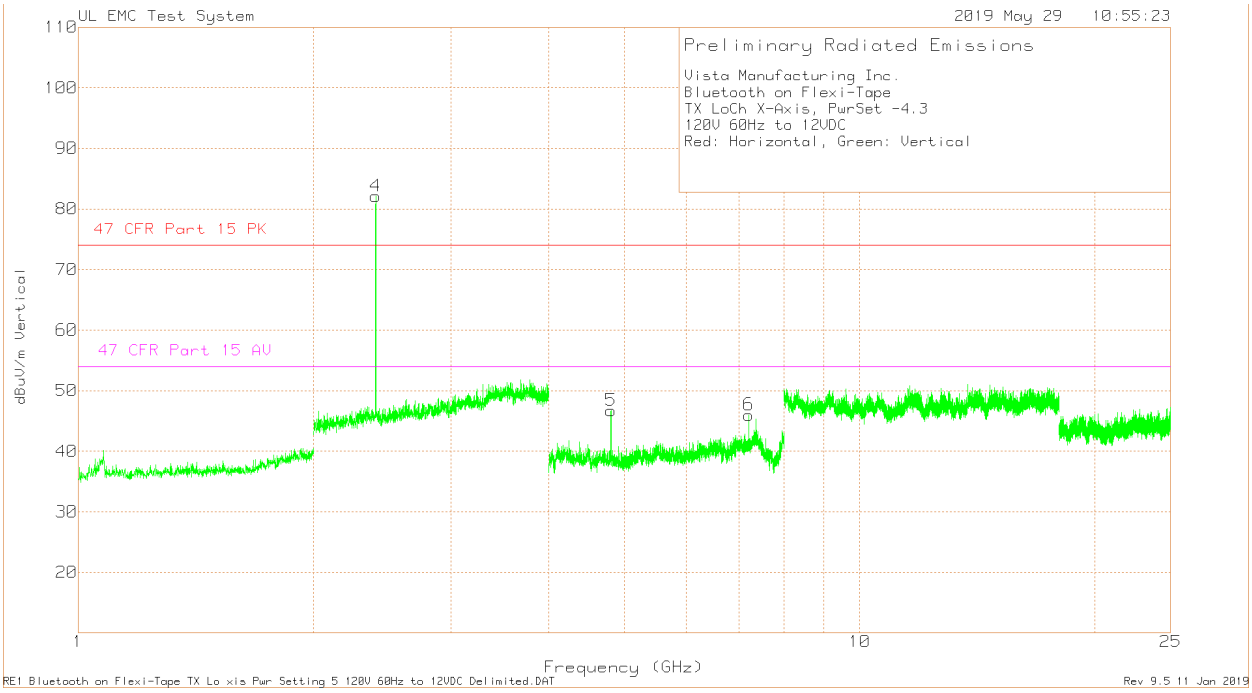
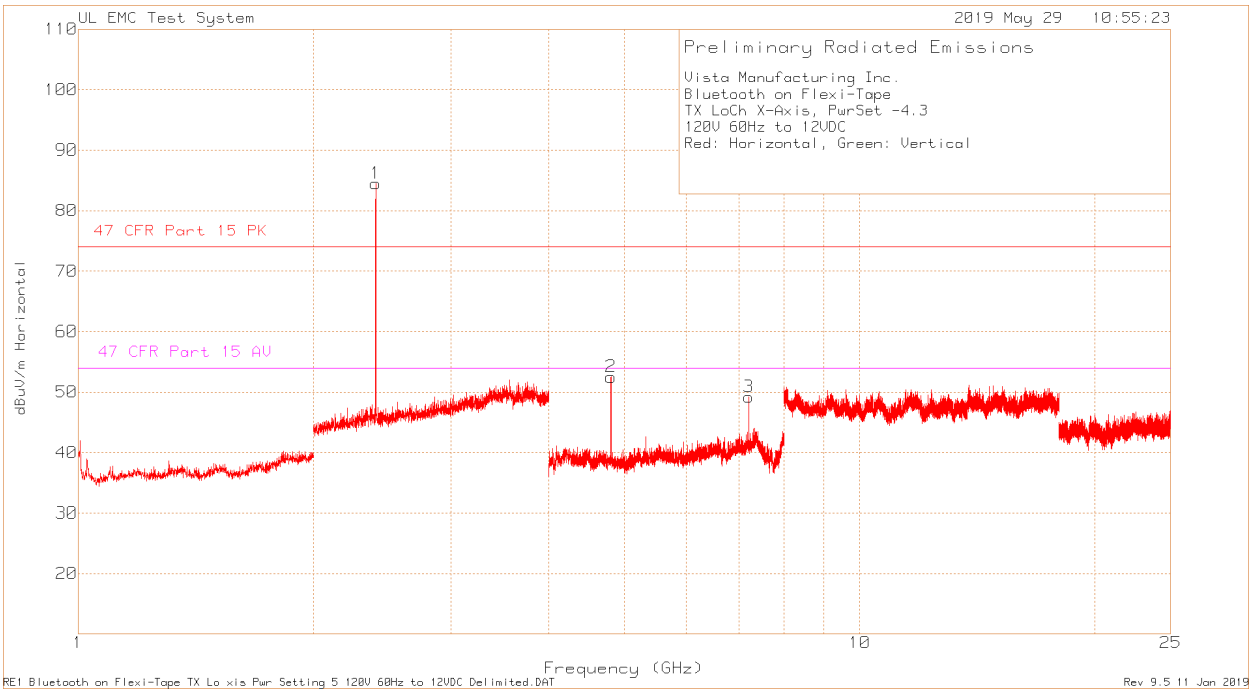
### 9.5.2. SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.

Bluetooth on Flexi-Tape

TX LoCh X-Axis, PwrSet -4.3

120V 60Hz to 12VDC

Red: Horizontal, Green: Vertical

Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.402 | 57.95 | Pk | 21.8 | 4.75 | - | - | - | - | 30.5 | 0-360 | 150 | H |
| 2 | 4.805 | 75.62 | Pk | 27.7 | -50.82 | 52.5 | 74 | -21.5 | 54 | -1.5 | 0-360 | 150 | H |
| 3 | 7.206 | 64.76 | Pk | 29.7 | -45.28 | 49.18 | 74 | -24.82 | 54 | -4.82 | 0-360 | 150 | H |
| 4 | 2.402 | 55.57 | Pk | 21.8 | 4.75 | - | - | - | - | 28.12 | 0-360 | 150 | V |
| 5 | 4.805 | 69.84 | Pk | 27.7 | -50.82 | 46.72 | 74 | -27.28 | 54 | -7.28 | 0-360 | 150 | V |
| 6 | 7.206 | 61.58 | Pk | 29.7 | -45.28 | 46 | 74 | -28 | 54 | -8 | 0-360 | 150 | V |

Pk - Peak detector

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.8037 | 73.46 | Av | 27.7 | -51.06 | 50.1 | 74 | -23.9 | 54 | -3.9 | 68 | 119 | H |

Pk - Peak detector

Av - PWR RMS Average



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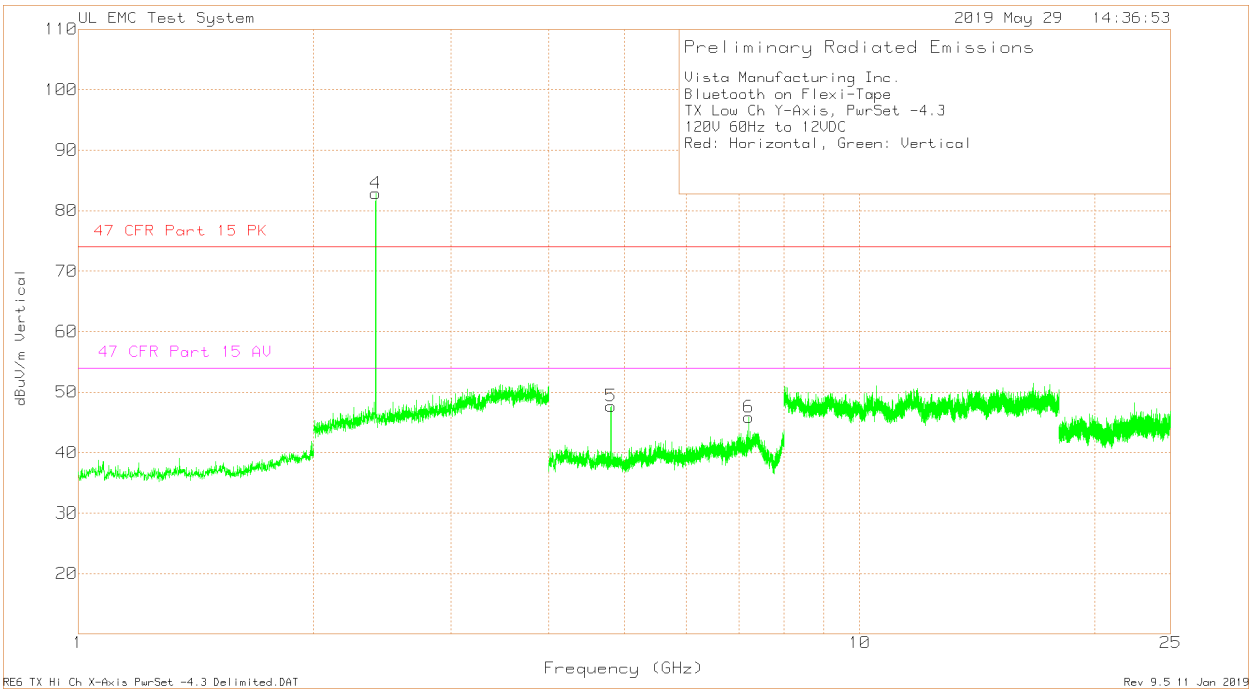
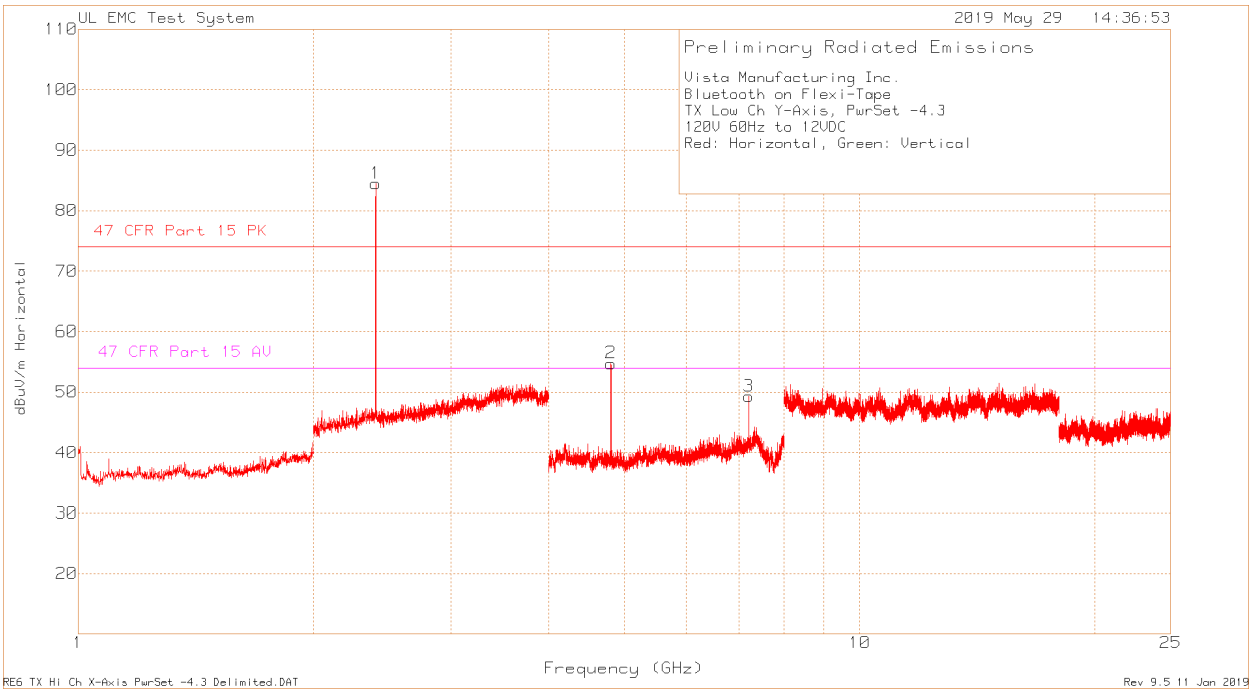
## LOW CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
TX Low Ch Y-Axis, PwrSet -4.3
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.402 | 57.95 | Pk | 21.8 | 4.75 | 84.5 | - | - | - | - | 0-360 | 150 | H |
| 2 | 4.804 | 78.14 | Pk | 27.7 | -51.09 | 54.75 | 74 | -19.25 | 54 | 0.75 | 0-360 | 150 | H |
| 3 | 7.207 | 64.97 | Pk | 29.8 | -45.46 | 49.31 | 74 | -24.69 | 54 | -4.69 | 0-360 | 150 | H |
| 4 | 2.402 | 56.3 | Pk | 21.8 | 4.75 | 82.85 | - | - | - | - | 0-360 | 150 | V |
| 5 | 4.805 | 70.77 | Pk | 27.7 | -50.82 | 47.65 | 74 | -26.35 | 54 | -6.35 | 0-360 | 150 | V |
| 6 | 7.207 | 61.49 | Pk | 29.8 | -45.46 | 45.83 | 74 | -28.17 | 54 | -8.17 | 0-360 | 150 | V |

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.8039 | 75.52 | Av | 27.7 | -51.07 | 52.15 | 74 | -21.85 | 54 | -1.85 | 139 | 101 | H |

Pk - Peak detector
Av - PWR RMS Average


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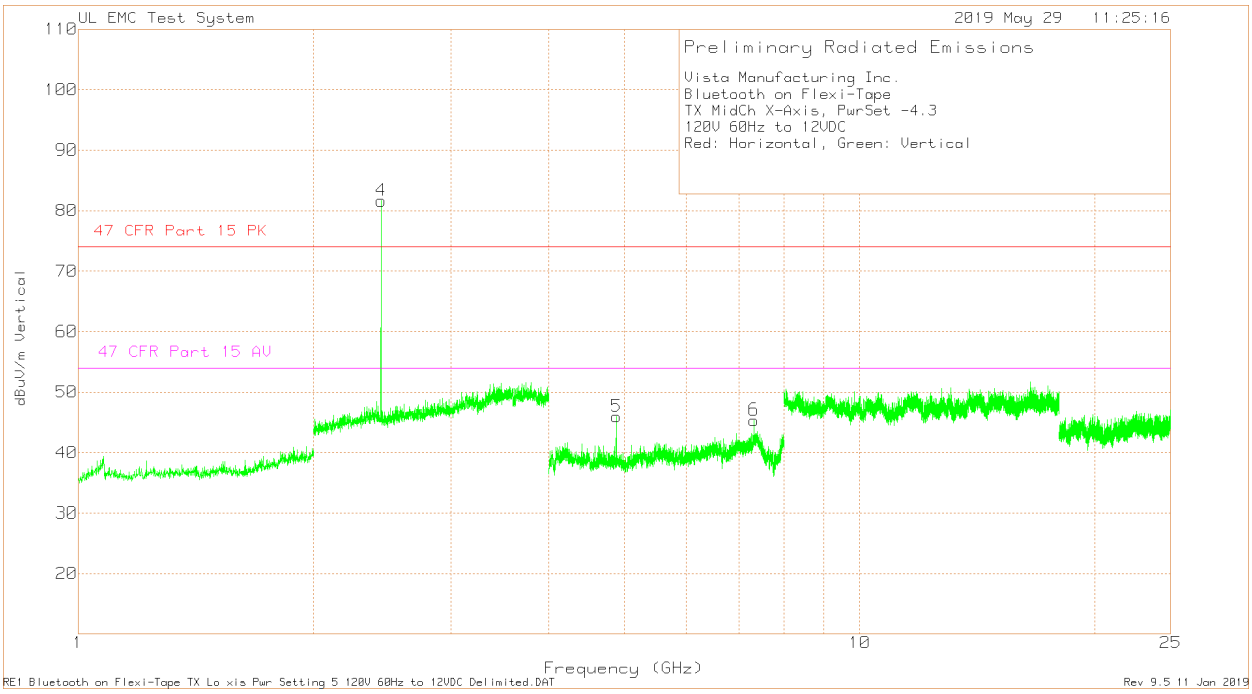
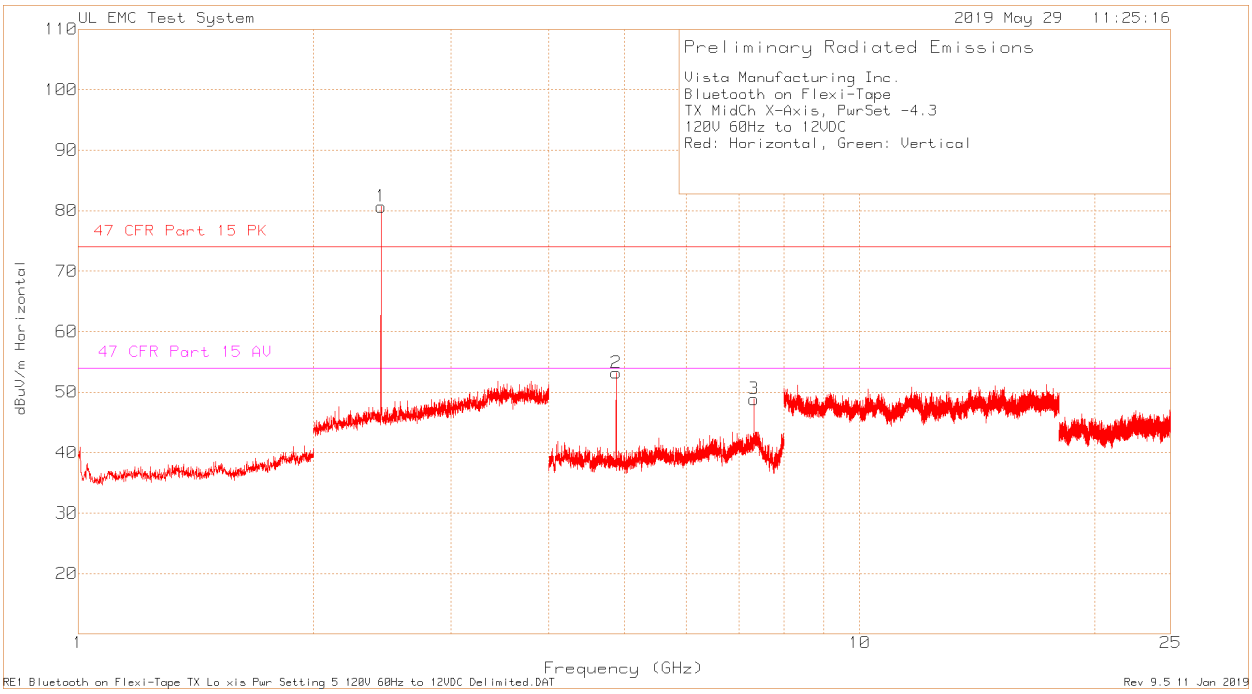
## MIDDLE CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
TX MidCh X-Axis, PwrSet -4.3
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.44 | 54.16 | Pk | 21.9 | 4.61 | 80.67 | - | - | - | - | 0-360 | 150 | H |
| 2 | 4.879 | 75.65 | Pk | 27.7 | -50.17 | 53.18 | 74 | -20.82 | 54 | -0.82 | 0-360 | 150 | H |
| 3 | 7.32 | 63.29 | Pk | 30.6 | -45.06 | 48.83 | 74 | -25.17 | 54 | -5.17 | 0-360 | 150 | H |
| 4 | 2.44 | 55.13 | Pk | 21.9 | 4.61 | 81.64 | - | - | - | - | 0-360 | 150 | V |
| 5 | 4.88 | 68.47 | Pk | 27.7 | -50.22 | 45.95 | 74 | -28.05 | 54 | -8.05 | 0-360 | 150 | V |
| 6 | 7.32 | 59.81 | Pk | 30.6 | -45.06 | 45.35 | 74 | -28.65 | 54 | -8.65 | 0-360 | 150 | V |

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.8799 | 73.24 | Av | 27.7 | -50.21 | 50.73 | 74 | -23.27 | 54 | -3.27 | 104 | 113 | H |

Pk - Peak detector
Av - PWR RMS Average


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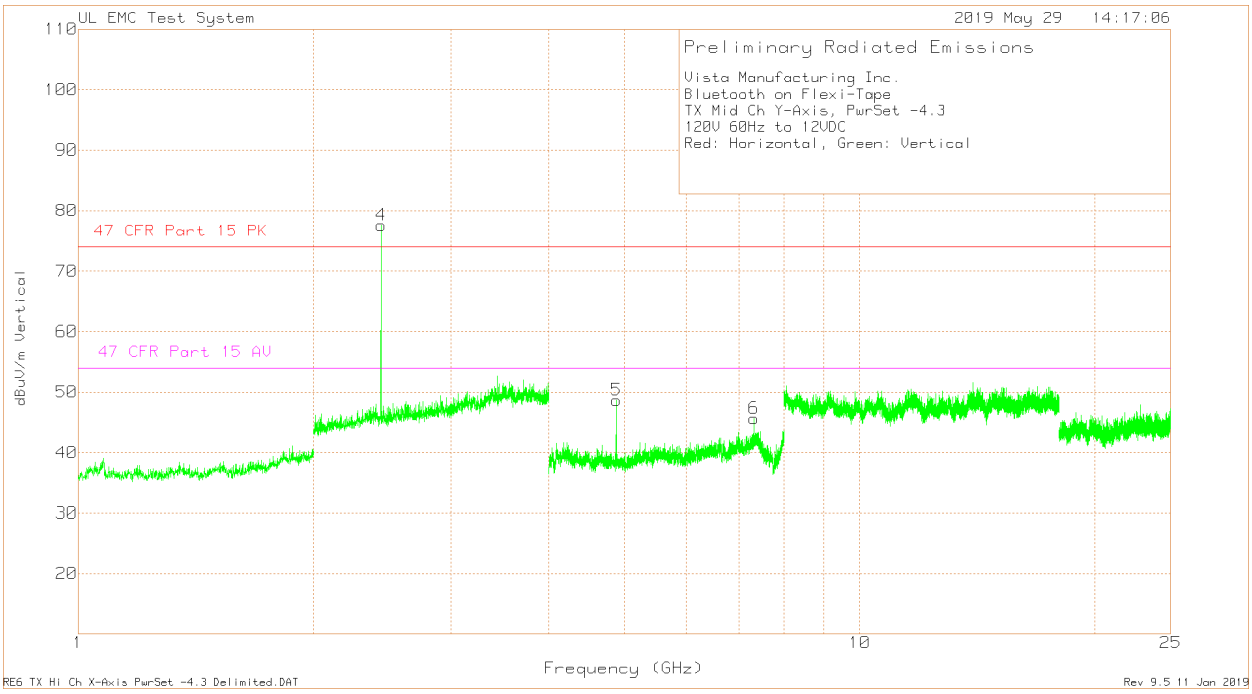
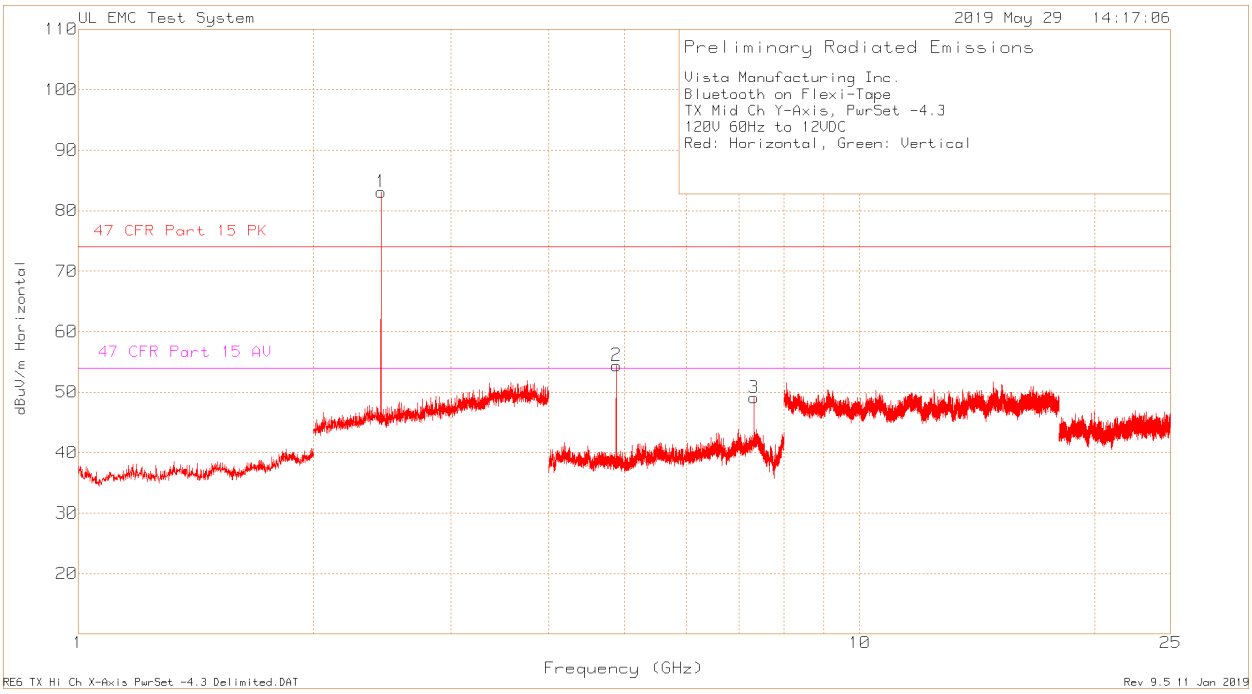
## MIDDLE CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
TX Mid Ch Y-Axis, PwrSet -4.3
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.44 | 56.6 | Pk | 21.9 | 4.61 | 83.11 | - | - | - | - | 0-360 | 150 | H |
| 2 | 4.88 | 76.94 | Pk | 27.7 | -50.22 | 54.42 | 74 | -19.58 | 54 | 0.42 | 0-360 | 150 | H |
| 3 | 7.322 | 63.53 | Pk | 30.6 | -45.03 | 49.1 | 74 | -24.9 | 54 | -4.9 | 0-360 | 150 | H |
| 4 | 2.44 | 51.07 | Pk | 21.9 | 4.61 | 77.58 | - | - | - | - | 0-360 | 150 | V |
| 5 | 4.88 | 71.16 | Pk | 27.7 | -50.22 | 48.64 | 74 | -25.36 | 54 | -5.36 | 0-360 | 150 | V |
| 6 | 7.32 | 60.09 | Pk | 30.6 | -45.06 | 45.63 | 74 | -28.37 | 54 | -8.37 | 0-360 | 150 | V |

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.8798 | 75.33 | Av | 27.7 | -50.21 | 52.82 | 74 | -21.18 | 54 | -1.18 | 138 | 118 | H |

Pk - Peak detector
Av - PWR RMS Average


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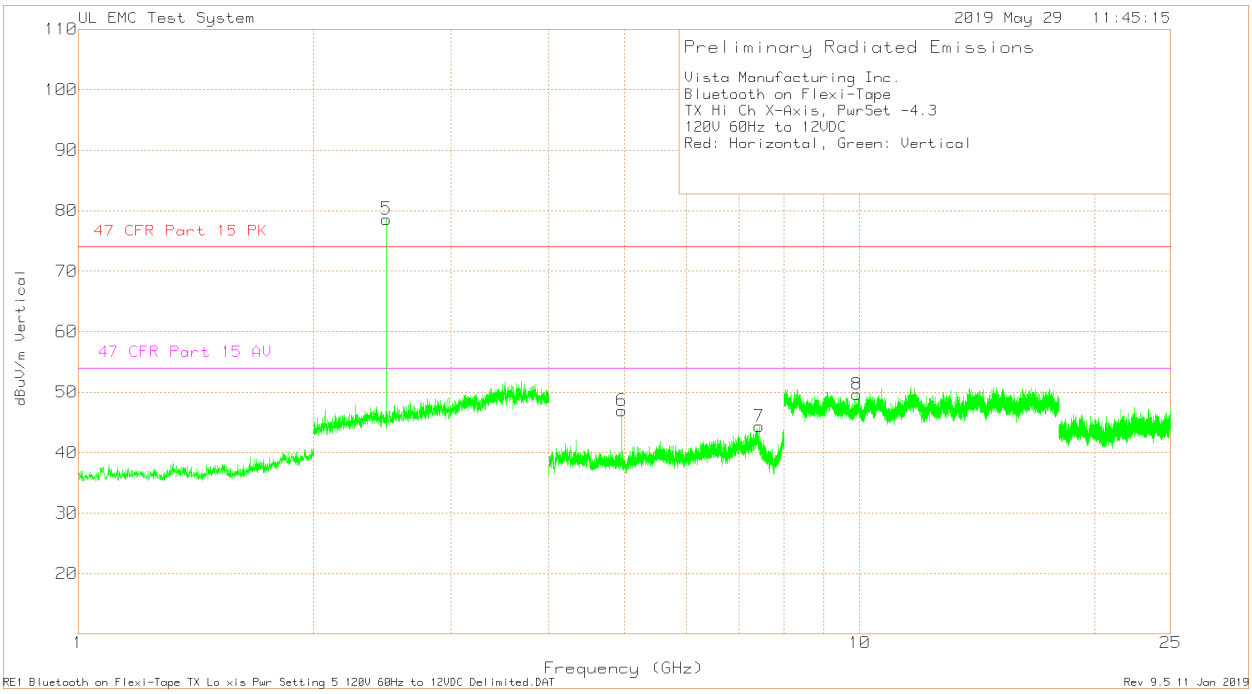
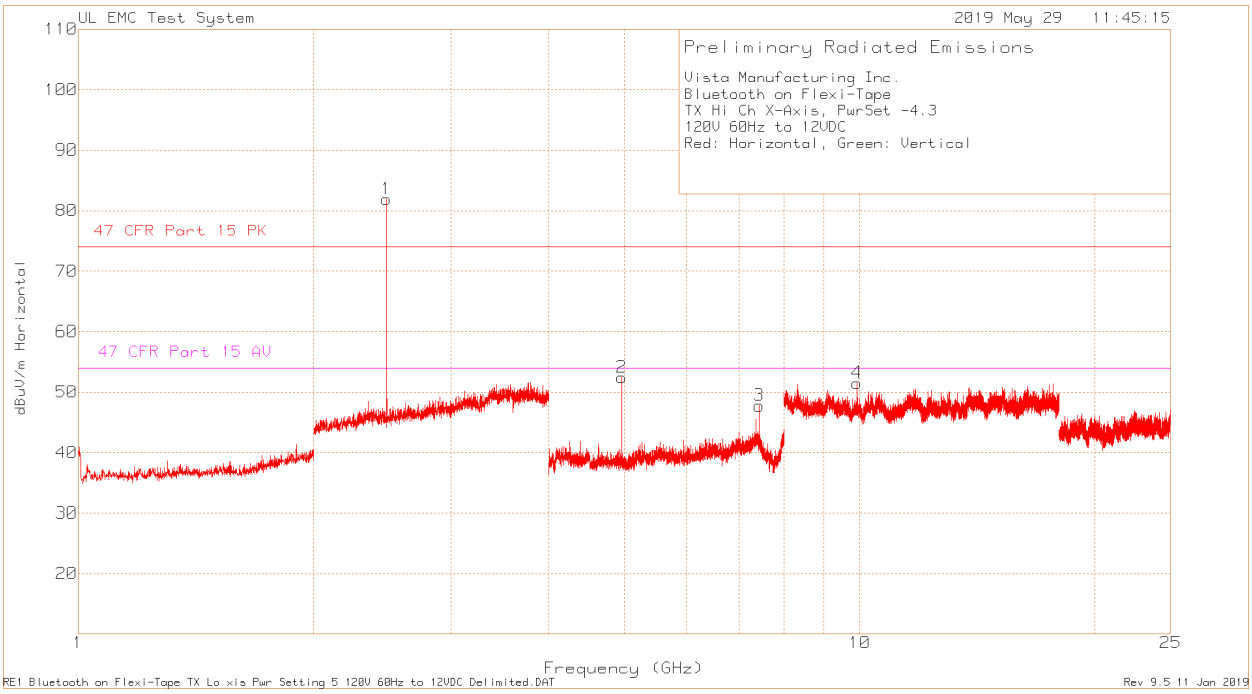
## HIGH CHANNEL RESULTS X-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
TX Hi Ch X-Axis, PwrSet -4.3
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.48 | 55.36 | Pk | 22 | 4.52 | 81.88 | - | - | - | - | 0-360 | 150 | H |
| 2 | 4.959 | 73.99 | Pk | 27.8 | -49.39 | 52.4 | 74 | -21.6 | 54 | -1.6 | 0-360 | 150 | H |
| 3 | 7.442 | 63.72 | Pk | 30.5 | -46.47 | 47.75 | 74 | -26.25 | 54 | -6.25 | 0-360 | 150 | H |
| 4 | 9.92 | 63.3 | Pk | 36.4 | -48.21 | 51.49 | 74 | -22.51 | 54 | -2.51 | 0-360 | 150 | H |
| 5 | 2.48 | 52.07 | Pk | 22 | 4.52 | 78.59 | - | - | - | - | 0-360 | 150 | V |
| 6 | 4.96 | 68.7 | Pk | 27.8 | -49.57 | 46.93 | 74 | -27.07 | 54 | -7.07 | 0-360 | 150 | V |
| 7 | 7.441 | 60.43 | Pk | 30.5 | -46.59 | 44.34 | 74 | -29.66 | 54 | -9.66 | 0-360 | 150 | V |
| 8 | 9.92 | 61.46 | Pk | 36.4 | -48.21 | 49.65 | 74 | -24.35 | 54 | -4.35 | 0-360 | 150 | V |

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.9598 | 71.79 | Av | 27.8 | -49.54 | 50.05 | 74 | -23.95 | 54 | -3.95 | 105 | 100 | H |

Pk - Peak detector
Av - PWR RMS Average


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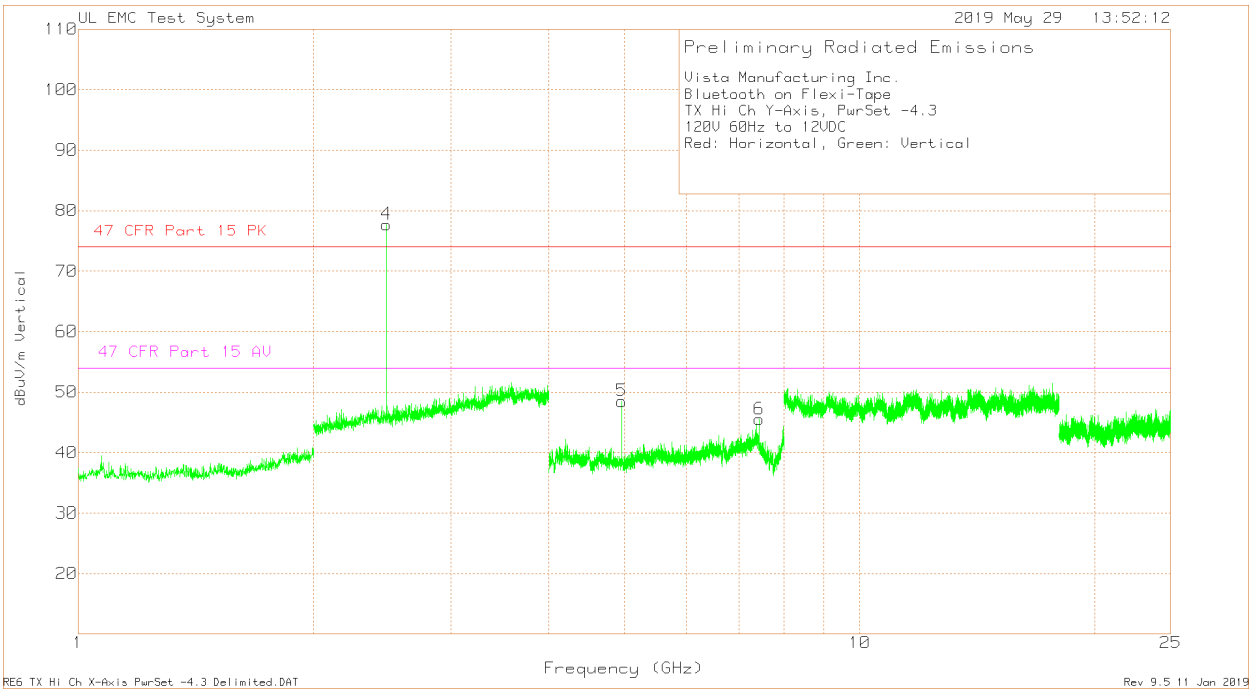
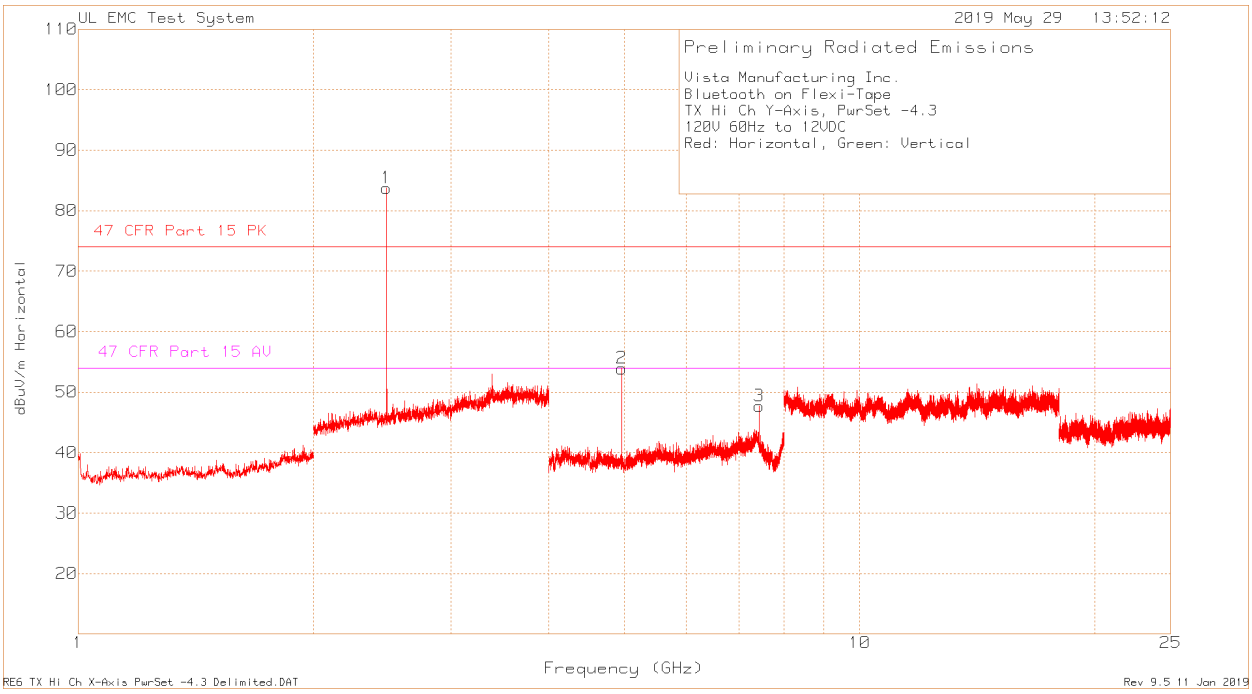
## HIGH CHANNEL RESULTS Y-Axis



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
TX Hi Ch Y-Axis, PwrSet -4.3
120V 60Hz to 12VDC
Red: Horizontal, Green: Vertical
Trace MArkers

| Marker No. | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.48 | 57.18 | Pk | 22 | 4.52 | 83.7 | - | - | - | - | 0-360 | 150 | H |
| 2 | 4.961 | 75.44 | Pk | 27.8 | -49.34 | 53.9 | 74 | -20.1 | 54 | -0.1 | 0-360 | 150 | H |
| 3 | 7.441 | 63.75 | Pk | 30.5 | -46.59 | 47.66 | 74 | -26.34 | 54 | -6.34 | 0-360 | 150 | H |
| 4 | 2.48 | 51.21 | Pk | 22 | 4.52 | 77.73 | - | - | - | - | 0-360 | 150 | V |
| 5 | 4.961 | 70.04 | Pk | 27.8 | -49.34 | 48.5 | 74 | -25.5 | 54 | -5.5 | 0-360 | 150 | V |
| 6 | 7.44 | 61.49 | Pk | 30.6 | -46.58 | 45.51 | 74 | -28.49 | 54 | -8.49 | 0-360 | 150 | V |

Radiated Emission Data

| | Test Frequency (GHz) | Meter Reading (dBuV) | Detector | Antenna Factor dB/m | Path Factor dB | Level dBuV/m | Limit 47 CFR Part 15.209 PK | Margin (dB) | Limit 47 CFR Part 15.209 AV | Margin (dB) | Azimuth [Degs] | Height [cm] | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.9597 | 74.05 | Av | 27.8 | -49.52 | 52.33 | 74 | -21.67 | 54 | -1.67 | 141 | 114 | H |

Pk - Peak detector
Av - PWR RMS Average


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# 10. AC POWER LINE CONDUCTED EMISSIONS

**LIMITS**

FCC §15.207 (a)

RSS-Gen 8.8

| Frequency of Emission (MHz) | Conducted Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 * | 56 to 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

**RESULTS**


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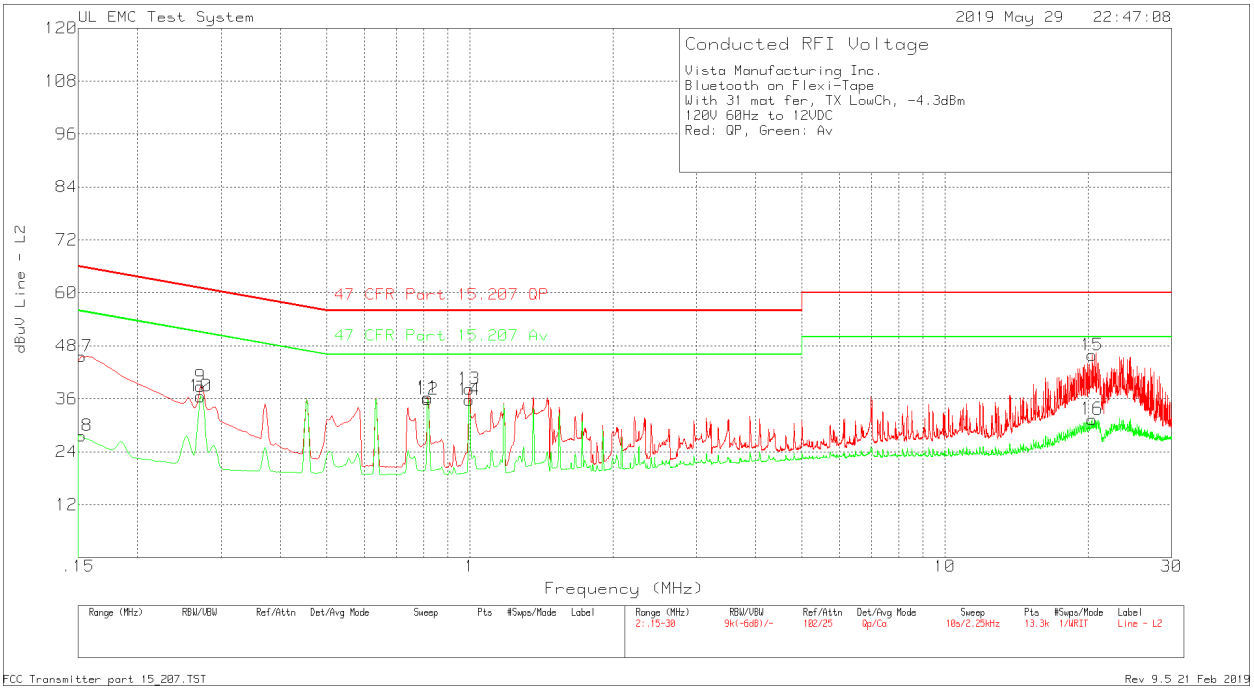
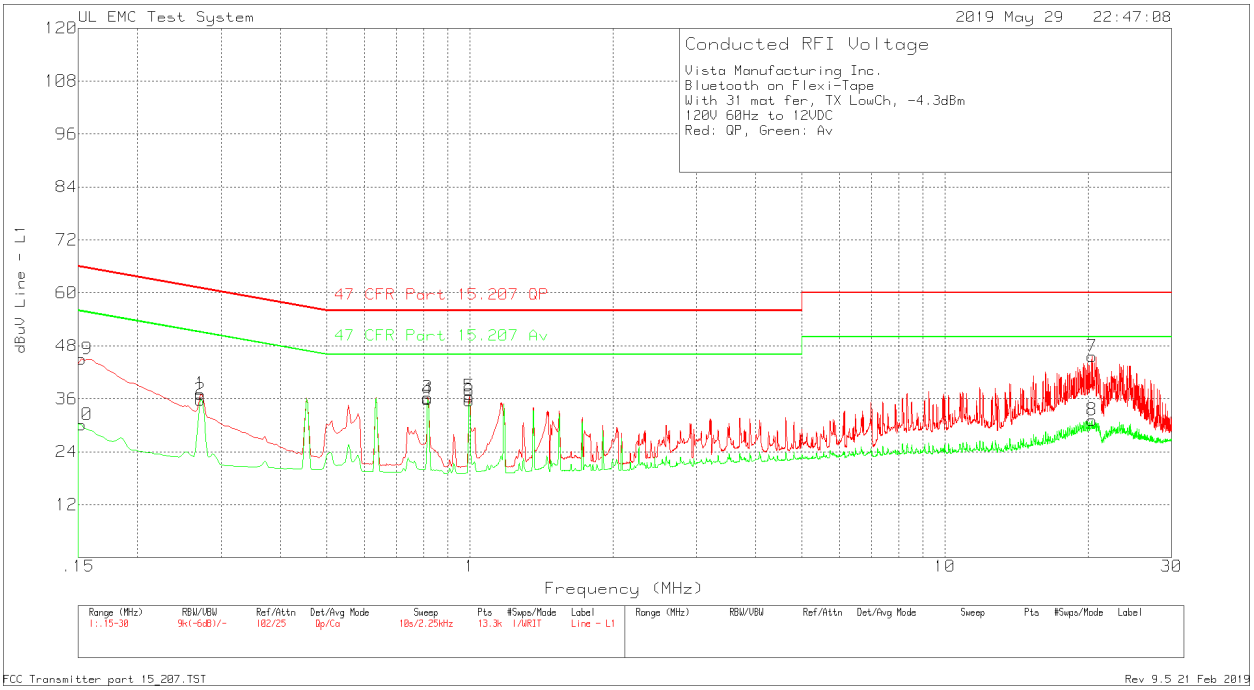
### 10.1.1. AC Power Line Host

## RESULTS LOW CHANNEL





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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
With 31 mat fer, TX LowCh, -4.3dBm
120V 60Hz to 12VDC
Red: QP, Green: Av

Trace Markers

| No. | Test Frequency (MHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| Line | | | | | | | |
| 1 | .2715 | 26.1dBuV Qp | 0 | 11 | 37.1 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -23.97 | -13.97 |
| 2 | .2715 | 24.81dBuV Ca | 0 | 11 | 35.81 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -25.26 | -15.26 |
| 3 | .816 | 25.76dBuV Qp | 0 | 10.5 | 36.26 | 56 | 46 |
| | | | | | Margin (dB) | -19.74 | -9.74 |
| 4 | .816 | 25.36dBuV Ca | 0 | 10.5 | 35.86 | 56 | 46 |
| | | | | | Margin (dB) | -20.14 | -10.14 |
| 5 | .99825 | 26.04dBuV Qp | 0 | 10.5 | 36.54 | 56 | 46 |
| | | | | | Margin (dB) | -19.46 | -9.46 |
| 6 | .99825 | 25.03dBuV Ca | 0 | 10.5 | 35.53 | 56 | 46 |
| | | | | | Margin (dB) | -20.47 | -10.47 |
| 7 | 20.38875 | 33.31dBuV Qp | .1 | 12.2 | 45.61 | 60 | 50 |
| | | | | | Margin (dB) | -14.39 | -4.39 |
| 8 | 20.3865 | 18.9dBuV Ca | .1 | 12.2 | 31.2 | 60 | 50 |
| | | | | | Margin (dB) | -28.8 | -18.8 |
| 19 | .15225 | 30.19dBuV Qp | .1 | 14.7 | 44.99 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -20.89 | -10.89 |
| 20 | .15225 | 15.33dBuV Ca | .1 | 14.7 | 30.13 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -35.75 | -25.75 |
| Neutral | | | | | | | |
| 9 | .2715 | 27.77dBuV Qp | 0 | 11 | 38.77 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -22.3 | -12.3 |
| 10 | .2715 | 25.55dBuV Ca | 0 | 11 | 36.55 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -24.52 | -14.52 |
| 11 | .816 | 25.83dBuV Qp | 0 | 10.5 | 36.33 | 56 | 46 |
| | | | | | Margin (dB) | -19.67 | -9.67 |
| 12 | .816 | 25.33dBuV Ca | 0 | 10.5 | 35.83 | 56 | 46 |
| | | | | | Margin (dB) | -20.17 | -10.17 |
| 13 | .99825 | 27.68dBuV Qp | 0 | 10.5 | 38.18 | 56 | 46 |
| | | | | | Margin (dB) | -17.82 | -7.82 |
| 14 | .99825 | 25.27dBuV Ca | 0 | 10.5 | 35.77 | 56 | 46 |
| | | | | | Margin (dB) | -20.23 | -10.23 |
| 15 | 20.3955 | 33.77dBuV Qp | 0 | 12.1 | 45.87 | 60 | 50 |
| | | | | | Margin (dB) | -14.13 | -4.13 |
| 16 | 20.39325 | 19.26dBuV Ca | 0 | 12.1 | 31.36 | 60 | 50 |
| | | | | | Margin (dB) | -28.64 | -18.64 |
| 17 | .15225 | 30.79dBuV Qp | .1 | 14.7 | 45.59 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -20.29 | -10.29 |
| 18 | .15225 | 12.84dBuV Ca | .1 | 14.7 | 27.64 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -38.24 | -28.24 |

LIMIT 1: 47 CFR Part 15.207 QP
LIMIT 2: 47 CFR Part 15.207 Av

Qp - Quasi-Peak detector
Ca - CISPR Average detection


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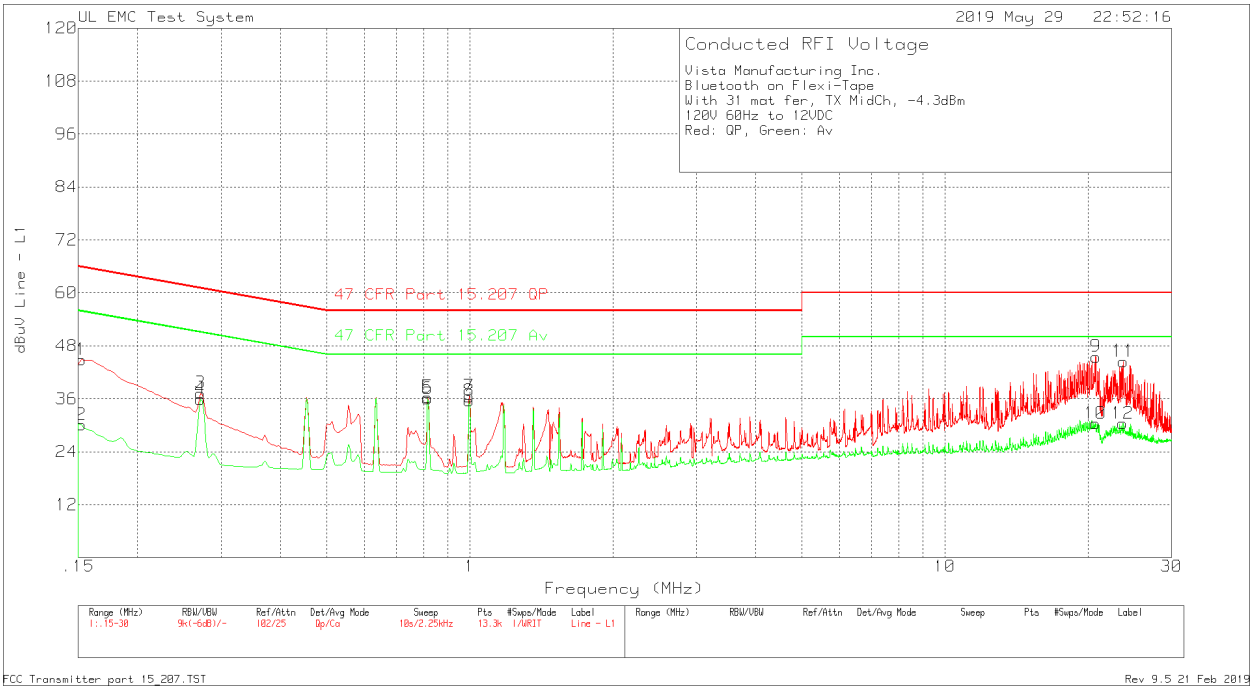
## RESULTS MIDDLE CHANNEL



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
With 31 mat fer, TX MidCh, -4.3dBm
120V 60Hz to 12VDC
Red: QP, Green: Av

Trace Markers

| No. | Test Frequency (MHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| Line | | | | | | | |
| 1 | .15225 | 30.1dBuV Qp | .1 | 14.7 | 44.9 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -20.98 | -10.98 |
| 2 | .15225 | 15.35dBuV Ca | .1 | 14.7 | 30.15 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -35.73 | -25.73 |
| 3 | .2715 | 26.27dBuV Qp | 0 | 11 | 37.27 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -23.8 | -13.8 |
| 4 | .2715 | 24.95dBuV Ca | 0 | 11 | 35.95 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -25.12 | -15.12 |
| 5 | .816 | 25.85dBuV Qp | 0 | 10.5 | 36.35 | 56 | 46 |
| | | | | | Margin (dB) | -19.65 | -9.65 |
| 6 | .816 | 25.49dBuV Ca | 0 | 10.5 | 35.99 | 56 | 46 |
| | | | | | Margin (dB) | -20.01 | -10.01 |
| 7 | .99825 | 26.05dBuV Qp | 0 | 10.5 | 36.55 | 56 | 46 |
| | | | | | Margin (dB) | -19.45 | -9.45 |
| 8 | .99825 | 25.06dBuV Ca | 0 | 10.5 | 35.56 | 56 | 46 |
| | | | | | Margin (dB) | -20.44 | -10.44 |
| 9 | 20.8095 | 33.23dBuV Qp | .1 | 12.2 | 45.53 | 60 | 50 |
| | | | | | Margin (dB) | -14.47 | -4.47 |
| 10 | 20.7285 | 18.08dBuV Ca | .1 | 12.2 | 30.38 | 60 | 50 |
| | | | | | Margin (dB) | -29.62 | -19.62 |
| 11 | 23.739 | 31.76dBuV Qp | .1 | 12.6 | 44.46 | 60 | 50 |
| | | | | | Margin (dB) | -15.54 | -5.54 |
| 12 | 23.685 | 17.71dBuV Ca | .1 | 12.6 | 30.41 | 60 | 50 |
| | | | | | Margin (dB) | -29.59 | -19.59 |
| Neutral | | | | | | | |
| 13 | .15675 | 31.11dBuV Qp | .1 | 14.3 | 45.51 | 65.63 | 55.63 |
| | | | | | Margin (dB) | -20.12 | -10.12 |
| 14 | .15225 | 12.86dBuV Ca | .1 | 14.7 | 27.66 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -38.22 | -28.22 |
| 15 | .2715 | 27.86dBuV Qp | 0 | 11 | 38.86 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -22.21 | -12.21 |
| 16 | .2715 | 25.67dBuV Ca | 0 | 11 | 36.67 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -24.4 | -14.4 |
| 17 | .816 | 25.9dBuV Qp | 0 | 10.5 | 36.4 | 56 | 46 |
| | | | | | Margin (dB) | -19.6 | -9.6 |
| 18 | .816 | 25.45dBuV Ca | 0 | 10.5 | 35.95 | 56 | 46 |
| | | | | | Margin (dB) | -20.05 | -10.05 |
| 19 | .99825 | 27.57dBuV Qp | 0 | 10.5 | 38.07 | 56 | 46 |
| | | | | | Margin (dB) | -17.93 | -7.93 |
| 20 | .99825 | 25.27dBuV Ca | 0 | 10.5 | 35.77 | 56 | 46 |
| | | | | | Margin (dB) | -20.23 | -10.23 |
| 21 | 20.8005 | 34.03dBuV Qp | 0 | 12.2 | 46.23 | 60 | 50 |
| | | | | | Margin (dB) | -13.77 | -3.77 |
| 22 | 20.7195 | 18.81dBuV Ca | 0 | 12.2 | 31.01 | 60 | 50 |
| | | | | | Margin (dB) | -28.99 | -18.99 |
| 23 | 23.68275 | 33.93dBuV Qp | 0 | 12.5 | 46.43 | 60 | 50 |
| | | | | | Margin (dB) | -13.57 | -3.57 |
| 24 | 23.676 | 19.06dBuV Ca | 0 | 12.5 | 31.56 | 60 | 50 |
| | | | | | Margin (dB) | -28.44 | -18.44 |

LIMIT 1: 47 CFR Part 15.207 QP
LIMIT 2: 47 CFR Part 15.207 Av

Qp - Quasi-Peak detector
Ca - CISPR Average detection


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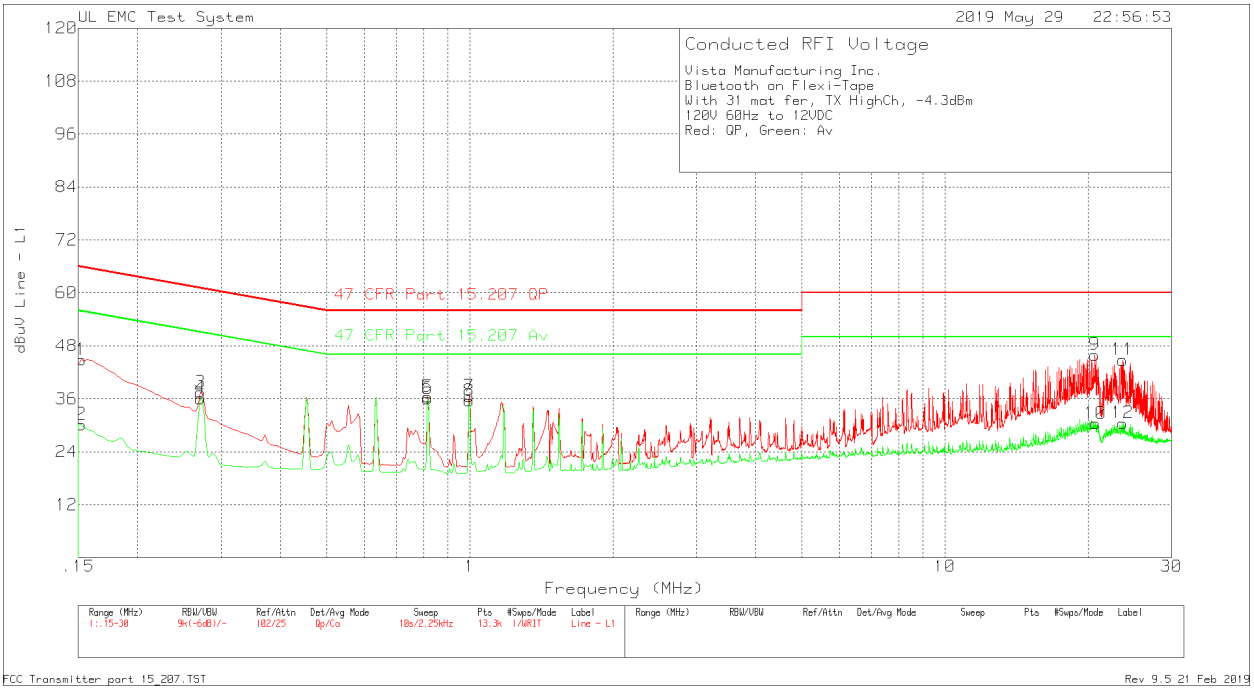
## RESULTS HIGH CHANNEL



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Vista Manufacturing Inc.
Bluetooth on Flexi-Tape
With 31 mat fer, TX HighCh, -4.3dBm
120V 60Hz to 12VDC
Red: QP, Green: Av

Trace Markers

| No. | Test Frequency (MHz) | Meter Reading | Transducer Factor (dB) | Gain/Loss Factor (dB) | Corrected Reading dBuV | Limit:1 | 2 |
|---|---|---|---|---|---|---|---|
| Line | | | | | | | |
| 1 | .15225 | 30.07dBuV Qp | .1 | 14.7 | 44.87 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -21.01 | -11.01 |
| 2 | .15225 | 15.38dBuV Ca | .1 | 14.7 | 30.18 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -35.7 | -25.7 |
| 3 | .2715 | 26.43dBuV Qp | 0 | 11 | 37.43 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -23.64 | -13.64 |
| 4 | .2715 | 25.11dBuV Ca | 0 | 11 | 36.11 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -24.96 | -14.96 |
| 5 | .816 | 25.94dBuV Qp | 0 | 10.5 | 36.44 | 56 | 46 |
| | | | | | Margin (dB) | -19.56 | -9.56 |
| 6 | .816 | 25.55dBuV Ca | 0 | 10.5 | 36.05 | 56 | 46 |
| | | | | | Margin (dB) | -19.95 | -9.95 |
| 7 | .99825 | 26.09dBuV Qp | 0 | 10.5 | 36.59 | 56 | 46 |
| | | | | | Margin (dB) | -19.41 | -9.41 |
| 8 | .99825 | 25.07dBuV Ca | 0 | 10.5 | 35.57 | 56 | 46 |
| | | | | | Margin (dB) | -20.43 | -10.43 |
| 9 | 20.69475 | 33.67dBuV Qp | .1 | 12.2 | 45.97 | 60 | 50 |
| | | | | | Margin (dB) | -14.03 | -4.03 |
| 10 | 20.71275 | 18.13dBuV Ca | .1 | 12.2 | 30.43 | 60 | 50 |
| | | | | | Margin (dB) | -29.57 | -19.57 |
| 11 | 23.6715 | 32.1dBuV Qp | .1 | 12.6 | 44.8 | 60 | 50 |
| | | | | | Margin (dB) | -15.2 | -5.2 |
| 12 | 23.6715 | 17.79dBuV Ca | .1 | 12.6 | 30.49 | 60 | 50 |
| | | | | | Margin (dB) | -29.51 | -19.51 |
| Neutral | | | | | | | |
| 13 | .15225 | 30.78dBuV Qp | .1 | 14.7 | 45.58 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -20.3 | -10.3 |
| 14 | .15225 | 12.89dBuV Ca | .1 | 14.7 | 27.69 | 65.88 | 55.88 |
| | | | | | Margin (dB) | -38.19 | -28.19 |
| 15 | .2715 | 28.09dBuV Qp | 0 | 11 | 39.09 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -21.98 | -11.98 |
| 16 | .2715 | 25.83dBuV Ca | 0 | 11 | 36.83 | 61.07 | 51.07 |
| | | | | | Margin (dB) | -24.24 | -14.24 |
| 17 | .816 | 25.97dBuV Qp | 0 | 10.5 | 36.47 | 56 | 46 |
| | | | | | Margin (dB) | -19.53 | -9.53 |
| 18 | .816 | 25.51dBuV Ca | 0 | 10.5 | 36.01 | 56 | 46 |
| | | | | | Margin (dB) | -19.99 | -9.99 |
| 19 | .99825 | 27.58dBuV Qp | 0 | 10.5 | 38.08 | 56 | 46 |
| | | | | | Margin (dB) | -17.92 | -7.92 |
| 20 | .99825 | 25.28dBuV Ca | 0 | 10.5 | 35.78 | 56 | 46 |
| | | | | | Margin (dB) | -20.22 | -10.22 |
| 21 | 20.68125 | 34.36dBuV Qp | 0 | 12.2 | 46.56 | 60 | 50 |
| | | | | | Margin (dB) | -13.44 | -3.44 |
| 22 | 20.6925 | 19.15dBuV Ca | 0 | 12.2 | 31.35 | 60 | 50 |
| | | | | | Margin (dB) | -28.65 | -18.65 |
| 23 | 23.65575 | 34.41dBuV Qp | 0 | 12.5 | 46.91 | 60 | 50 |
| | | | | | Margin (dB) | -13.09 | -3.09 |
| 24 | 23.6535 | 19.38dBuV Ca | 0 | 12.5 | 31.88 | 60 | 50 |
| | | | | | Margin (dB) | -28.12 | -18.12 |

LIMIT 1: 47 CFR Part 15.207 QP
LIMIT 2: 47 CFR Part 15.207 Av

Qp - Quasi-Peak detector
Ca - CISPR Average detection


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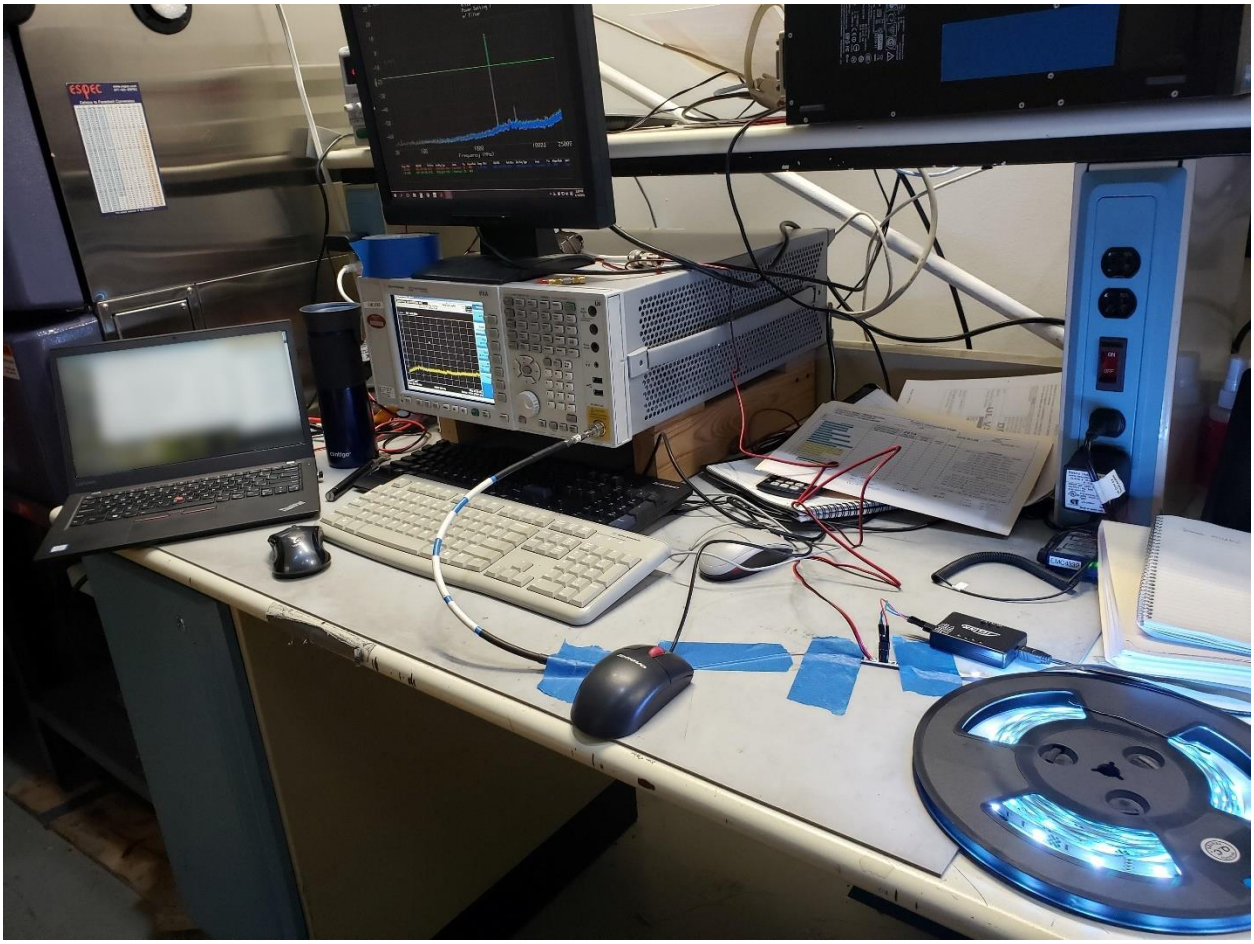
# 11. SETUP PHOTOS

Antenna Port Conducted Emissions





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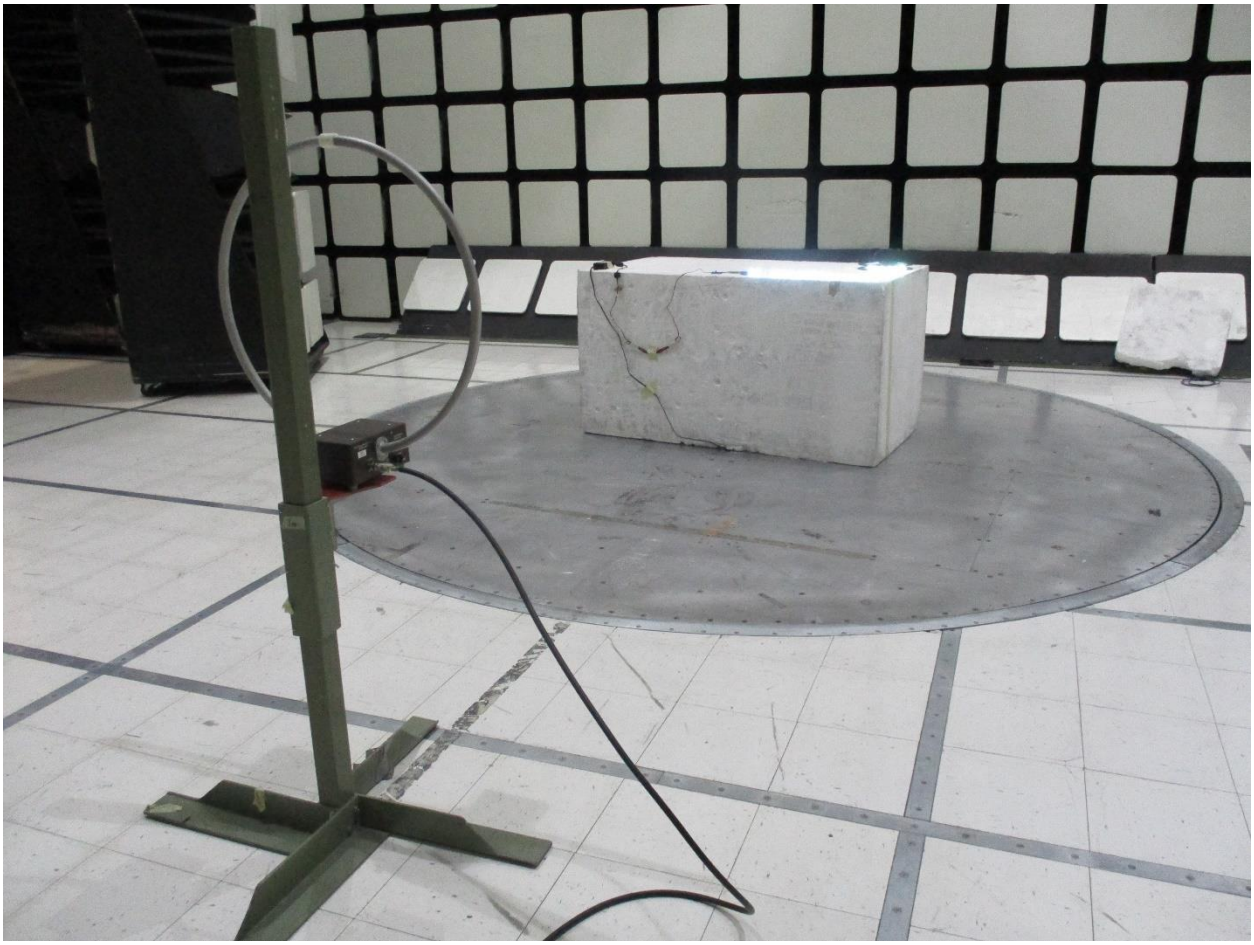
Radiated Emissions 9kHz-30MHz





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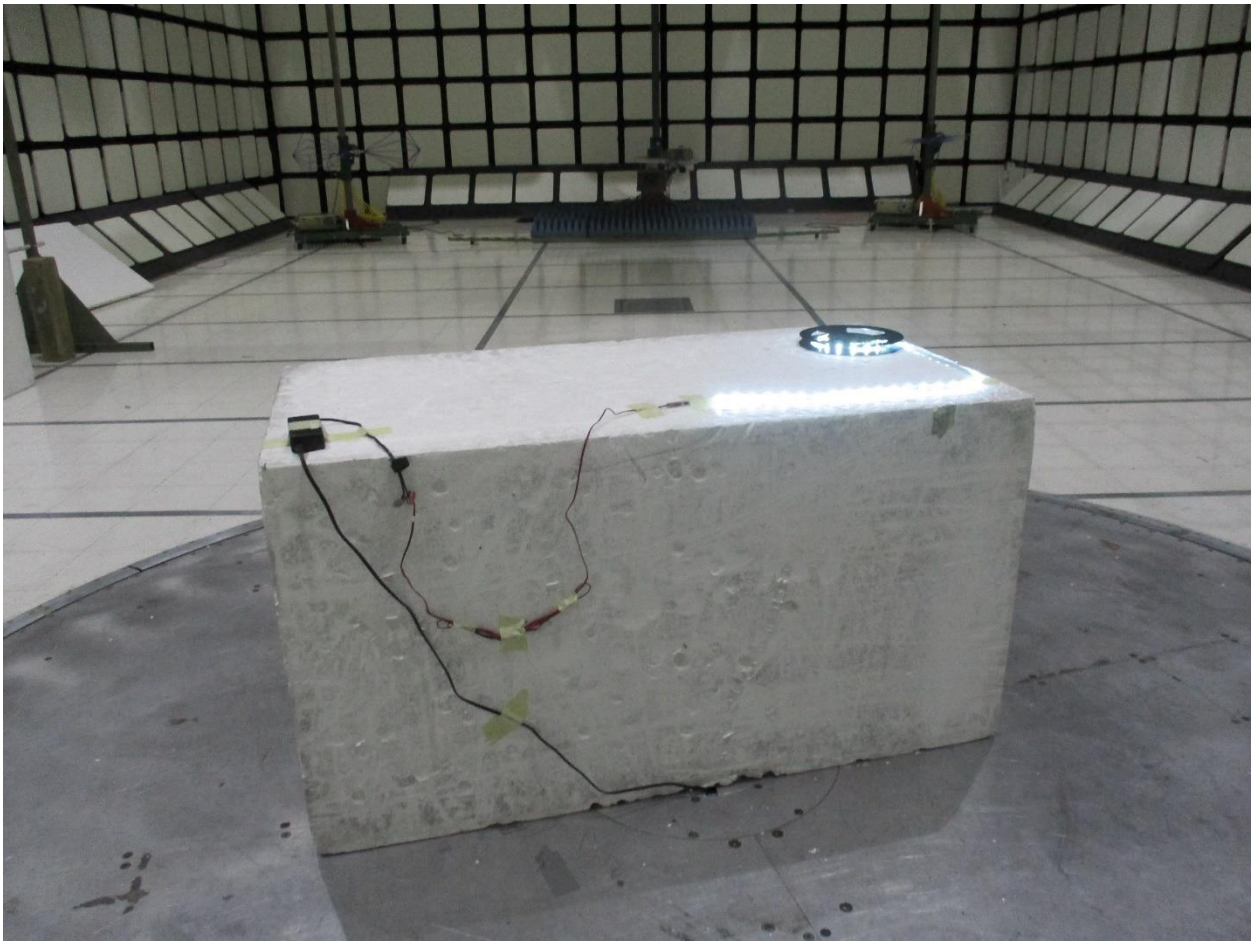
Radiated Emissions 30MHz-1GHz





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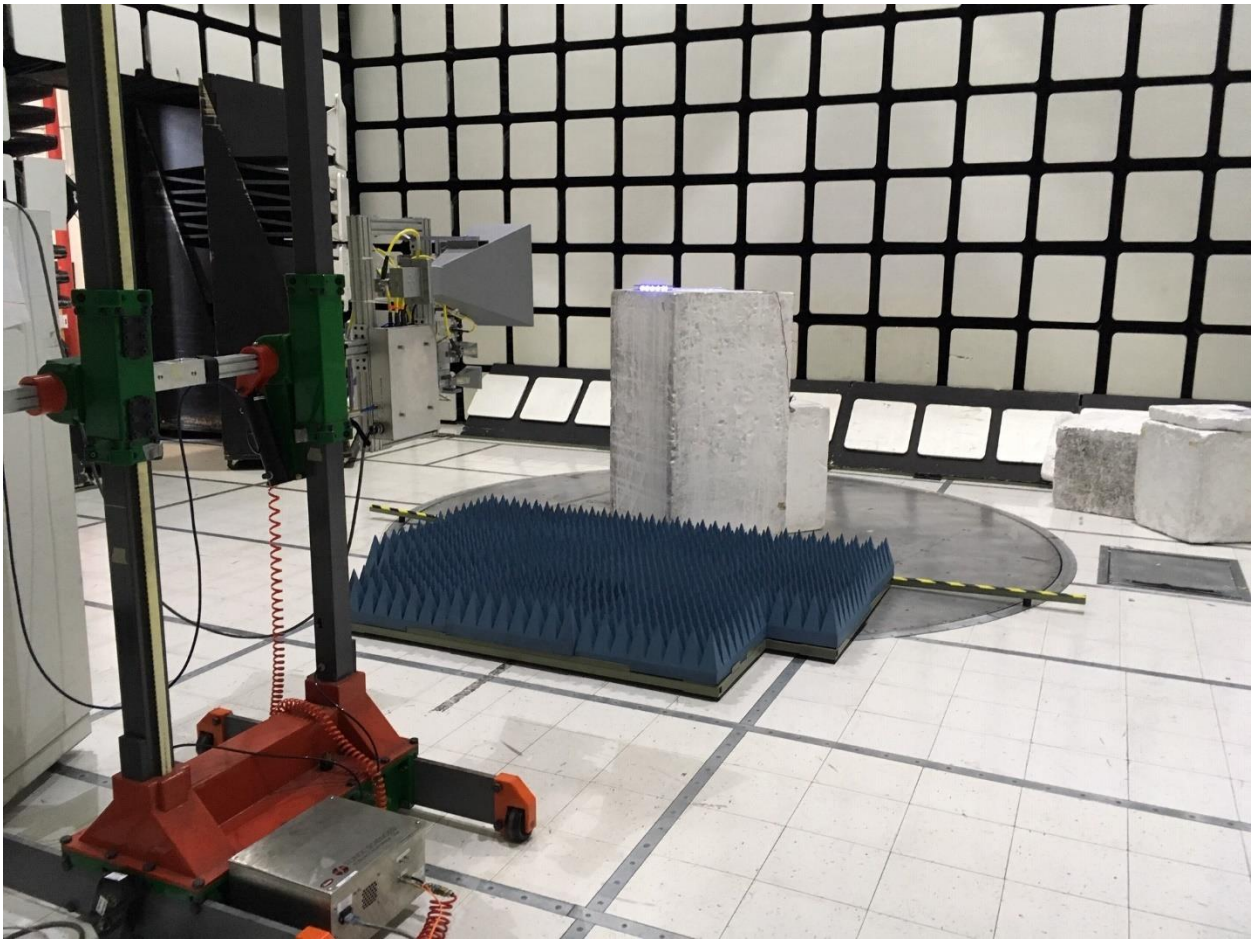
Radiated Emissions 1GHz-25GHz





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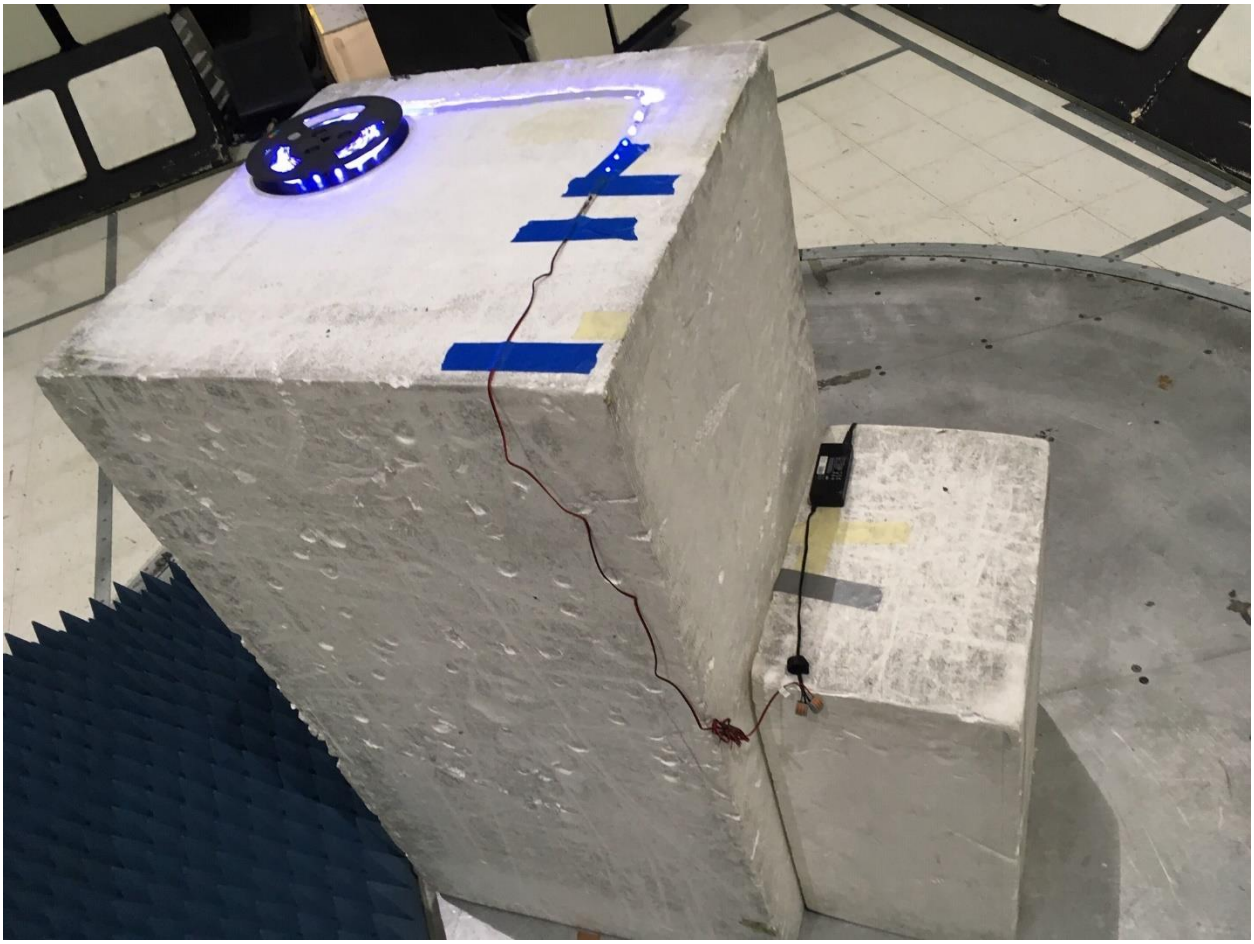


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Line Conducted Emissions

# END OF TEST REPORT



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