# FCC&ISED Radio Test Report

## FCC ID: 2AFZI-AVI1010B

## IC: 20544-AVI1010B

**This report concerns:** ☒**Class II Change**

| | | |
|---|---|---|
| **Project No.** | : | 1711C205C |
| **Equipment** | : | Avi-on 1010 |
| **Test Model** | : | AVI1010-B |
| **Series Model** | : | N/A |
| **Applicant** | : | Avi-on Labs, Inc. |
| **Address** | : | 2700 Rasmussen Road Suite L-10 Park City, UT 84098-6454 |

| | | |
|---|---|---|
| **Date of Receipt** | : | May 27, 2019 |
| **Date of Test** | : | May 28, 2019 ~ Jun. 06, 2019 |
| **Issued Date** | : | Sep. 16, 2019 |
| **Tested by** | : | BTL Inc. |

**Testing Engineer** : Rose. Liu
(Rose Liu)

**Technical Manager** : Steven Lu
(Steven Lu)

**Authorized Signatory** : Ethan Ma
(Ethan Ma)


**BTL INC.**

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Certificate #5123.02

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**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

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**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

## Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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## REPORT ISSUED HISTORY

| Report Version | Description | Issued Date |
|---|---|---|
| R00 | This is a supplementary report to the original test report (BTL-FICP-1-1711C205).<br>Compared with original test report,<br>1. Changed the model name and applicant address which does not affect the test results.<br>2. The standard is updated to the RSS-Gen issue 5 from RSS-Gen issue 4 which does not affect the test results.<br>3. Implementation in new platform and changed the antenna, so all the test items had been retested and recorded in this report. | Sep. 16, 2019 |

## 1. GENERAL SUMMARY

| | | |
|---|---|---|
| Equipment | : | Avi-on 1010 |
| Brand Name | : | Avi-ON |
| Test Model | : | AVI1010-B |
| Series Model | : | N/A |
| Applicant | : | Avi-on Labs, Inc. |
| Manufacturer | : | Iton Technology Corp.,Ltd |
| Address | : | Room 1302, Block A, Building 4, Tianan Cyber Park, Huangge Road, Longgang District, Shenzhen, China |
| Factory | : | Iton Technology Corp.,Ltd |
| Address | : | Floor 3, Building E, Ainan Road, w\Weixinda Industrial Park,Longgang District, Shenzhen, China |
| Date of Test | : | May 28, 2019 ~ Jun. 06, 2019 |
| Test Sample | : | Engineering Sample No.: DG19052793-1 |
| Standard(s) | : | FCC Part15, Subpart C (15.247)<br>RSS-247 Issue 2, Feb. 2017<br>RSS-Gen Issue 5, Apr. 2018<br>ANSI C63.10-2013<br>FCC KDB 558074 D01 DTS Meas Guidance v05r02<br>FCC KDB 662911 D01 Multiple Transmitter Output v02r01 |

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FICP-1-1711C205C) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

**Test results included in this report are only for the Bluetooth LE part.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part15, Subpart C (15.247)<br>Canada RSS-247 Issue 2, Feb. 2017, RSS-Gen Issue 5, Apr. 2018 | | | | | |
|---|---|---|---|---|---|
| Standard(s) Section | | Test Item | Test Result | Judgment | Remark |
| FCC | ISED | | | | |
| 15.207 | RSS-Gen 8.8 | AC Power Line Conducted Emissions | APPENDIX A | PASS | ------ |
| 15.247(d)<br>15.205(a)<br>15.209(a) | RSS-247 5.5<br>RSS-Gen 8.9<br>RSS-Gen 8.10 | Radiated Emissions | APPENDIX B<br>APPENDIX C<br>APPENDIX D | PASS | ------ |
| 15.247(a)(2) | RSS-247 5.2 (a)<br>RSS-Gen 6.7 | Bandwidth | APPENDIX E | PASS | ------ |
| 15.247(b)(3) | RSS-247 5.4 (d) | Maximum Output Power & e.i.r.p. | APPENDIX F | PASS | ------ |
| 15.247(d) | RSS-247 5.5 | Conducted Spurious Emission | APPENDIX G | PASS | ------ |
| 15.247(e) | RSS-247 5.2 (b) | Power Spectral Density | APPENDIX H | PASS | ------ |
| 15.203 | - | Antenna Requirement | ------ | PASS | ------ |

NOTE:

(1) “N/A” denotes test is not applicable to this device.

(2) Implementation in new platform.

Model number/ Product name:

AVI-IFAC-5A / Internal Fixture Adapter (IFA) - Baseplate

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's Test Firm Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240
BTL's Test Firm Registration Number for ISED: 4428B

## 2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The BTL measurement uncertainty as below table:

A. AC power line conducted emissions Measurement:

| Test Site | Method | Measurement Frequency Range | U, (dB) |
|---|---|---|---|
| DG-C02 | CISPR | 150 kHz ~ 30 MHz | 2.32 |

B. Radiated emissions Measurement:

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U, (dB) |
|---|---|---|---|---|
| DG-CB03 | CISPR | 9 KHz~30 MHz | V | 3.79 |
| | | 9 KHz~30 MHz | H | 3.57 |
| | | 30 MHz~200 MHz | V | 3.82 |
| | | 30 MHz~200 MHz | H | 3.78 |
| | | 200 MHz~1,000 MHz | V | 4.10 |
| | | 200 MHz~1,000 MHz | H | 4.06 |
| | | 1 GHz~18 GHz | V | 3.12 |
| | | 1 GHz~18 GHz | H | 3.68 |
| | | 18 GHz~40 GHz | V | 4.15 |
| | | 18 GHz~40 GHz | H | 4.14 |

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

# 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| Equipment | Avi-on 1010 |
| Brand Name | Avi-ON |
| Test Model | AVI1010-B |
| Series Model | N/A |
| Model Difference(s) | N/A |
| Hardware Version | V1.1 |
| Software Version | V1.1 |
| Power Source | Supplied from host. |
| Power Rating | DC 3.3V |
| Operation Frequency | 2402 MHz ~ 2480 MHz |
| Modulation Technology | GFSK |
| Bit Rate of Transmitter | 1Mbps |
| Output Power (Max.) | 9.28 dBm (0.0085 W) |
| e.i.r.p. (Max.) | 14.78 dBm (0.0301 W) |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 00 | 2402 | 20 | 2442 |
| 01 | 2404 | 21 | 2444 |
| 02 | 2406 | 22 | 2446 |
| 03 | 2408 | 23 | 2448 |
| 04 | 2410 | 24 | 2450 |
| 05 | 2412 | 25 | 2452 |
| 06 | 2414 | 26 | 2454 |
| 07 | 2416 | 27 | 2456 |
| 08 | 2418 | 28 | 2458 |
| 09 | 2420 | 29 | 2460 |
| 10 | 2422 | 30 | 2462 |
| 11 | 2424 | 31 | 2464 |
| 12 | 2426 | 32 | 2466 |
| 13 | 2428 | 33 | 2468 |
| 14 | 2430 | 34 | 2470 |
| 15 | 2432 | 35 | 2472 |
| 16 | 2434 | 36 | 2474 |
| 17 | 2436 | 37 | 2476 |
| 18 | 2438 | 38 | 2478 |
| 19 | 2440 | 39 | 2480 |

3. Table for Device and Filed Antenna:

| Ant. | Brand | Device P/N | Antenna Type | Antenna P/N | Connector | Gain (dBi) |
|---|---|---|---|---|---|---|
| 1 | Avi-on | AVI-IFAC-5A | Dipole | 6210ANT | N/A | 5.5 |
| 2 | Avi-on | AVI-IFAC-5A-OA | Monopole | 6211ANT | N/A | 1.6 |

Note:
There are 2 options for the antenna of product, only one antenna is used at a time. And in this report only recorded the worst case (Ant. 1).

## 3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

| Pretest Mode | Description |
|---|---|
| Mode 1 | TX Mode **NOTE (1)** |
| Mode 2 | TX Mode Channel 19 _1Mbps |

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

| **AC power line conducted emissions test** | |
|---|---|
| Final Test Mode | Description |
| Mode 2 | TX Mode Channel 19 _1Mbps |

| **Radiated emissions test – below 1GHz** | |
|---|---|
| Final Test Mode | Description |
| Mode 2 | TX Mode Channel 19 _1Mbps |

| **Radiated emissions test – above 1GHz** | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | TX Mode **NOTE (1)** |

| **Conducted test** | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | TX Mode **NOTE (1)** |

Note:

(1) The measurements are performed at the high, middle, low available channels.

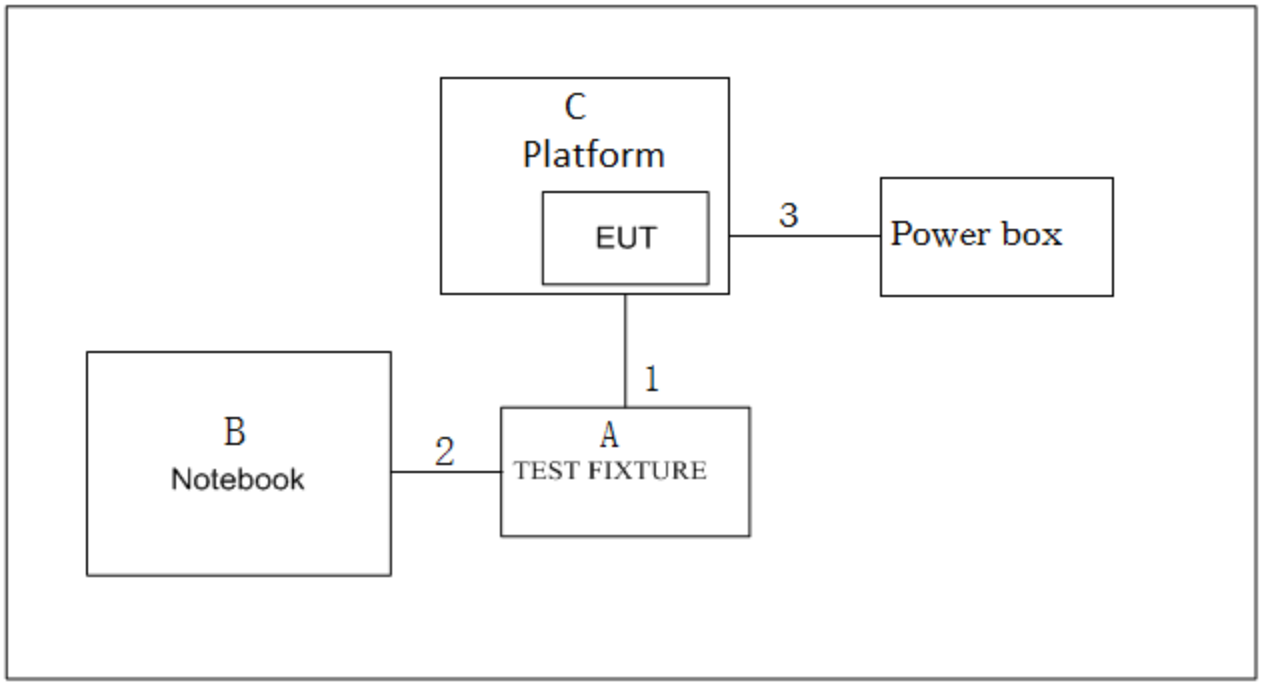
(2) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

## 3.3 PARAMETERS OF TEST SOFTWARE

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of BT LE

| Test Software | CSR µEnergy Tools 2.4.3 | | |
|---|---|---|---|
| Frequency (MHz) | 2402 | 2440 | 2480 |
| Parameters | 7 | 7 | 7 |

## 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED




## 3.5 SUPPORT UNITS

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. |
|---|---|---|---|---|
| A | TEST FIXTURE | N/A | N/A | N/A |
| B | Notebook | DELL | N/A | N/A |
| C | Platform | N/A | N/A | N/A |

| Item | Shielded Type | Ferrite Core | Length | Note |
|---|---|---|---|---|
| 1 | NO | NO | 0.3m | Data Cable |
| 2 | NO | NO | 0.6m | USB Cable |
| 3 | NO | NO | 1.2m | AC Power Cable |

## 4. AC POWER LINE CONDUCTED EMISSIONS TEST

### 4.1 LIMIT

| Frequency of Emission (MHz) | Limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 to 56* | 56 to 46* |
| 0.5 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

Note:

(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---|---|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

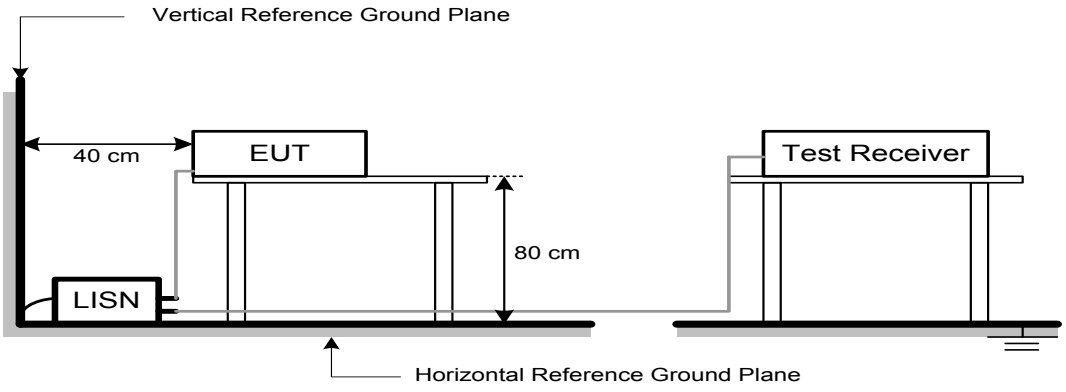
### 4.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 4.3 DEVIATION FROM TEST STANDARD

No deviation

## 4.4 TEST SETUP




## 4.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

## 4.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 53% Test Voltage: AC 120V/60Hz

## 4.7 TEST RESULTS

Please refer to the APPENDIX A.

Remark:

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform.In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150 kHz to 30 MHz.

## 5. RADIATED EMISSION TEST

### 5.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a) and RSS-Gen 8.10, then the 15.209(a) and RSS-Gen 8.9 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-30 MHz)

| Frequency (MHz) | Magnetic field strength (H-Field) (μA/m) | Measurement Distance (meters) |
|---|---|---|
| 0.009-0.490 | 6.37/F(kHz) | 300 |
| 0.490-1.705 | 6.37/F(kHz) | 30 |
| 1.705-30.0 | 0.08 | 30 |

LIMITS OF RADIATED EMISSION MEASUREMENT (30 MHz-1000 MHz)

| Frequency (MHz) | Field Strength (μV/m at 3m) |
|---|---|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

| Frequency (MHz) | (dBuV/m at 3 m) | |
|---|---|---|
| | Peak | Average |
| Above 1000 | 74 | 54 |

Note:

(1) The limit for radiated test was performed according to FCC PART 15C and RSS-247.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

| Spectrum Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RBW / VBW<br>(Emission in restricted band) | RBW 1 MHz VBW 3 MHz peak detector for Pk value<br>RMS detector for AV value |

| Receiver Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9 kHz~90 kHz for PK/AVG detector |
| Start ~ Stop Frequency | 90 kHz~110 kHz for QP detector |
| Start ~ Stop Frequency | 110 kHz~490 kHz for PK/AVG detector |
| Start ~ Stop Frequency | 490 kHz~30 MHz for QP detector |
| Start ~ Stop Frequency | 30 MHz~1000 MHz for QP detector |

## 5.2 TEST PROCEDURE

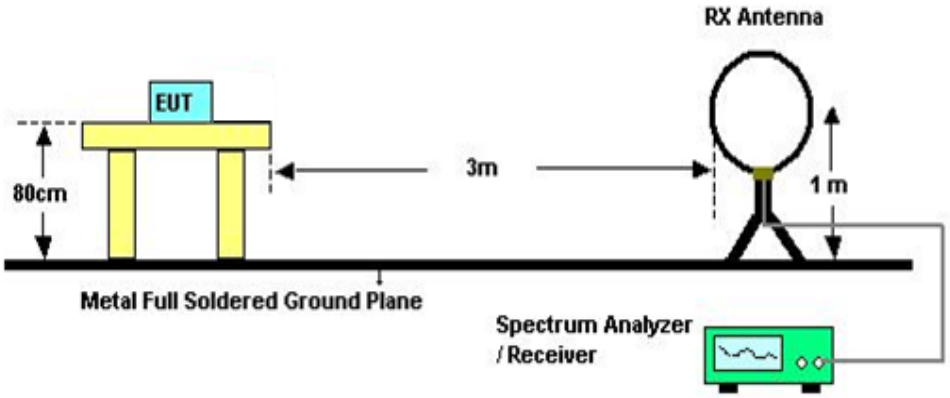
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1 GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1 GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1 GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

## 5.3 DEVIATION FROM TEST STANDARD

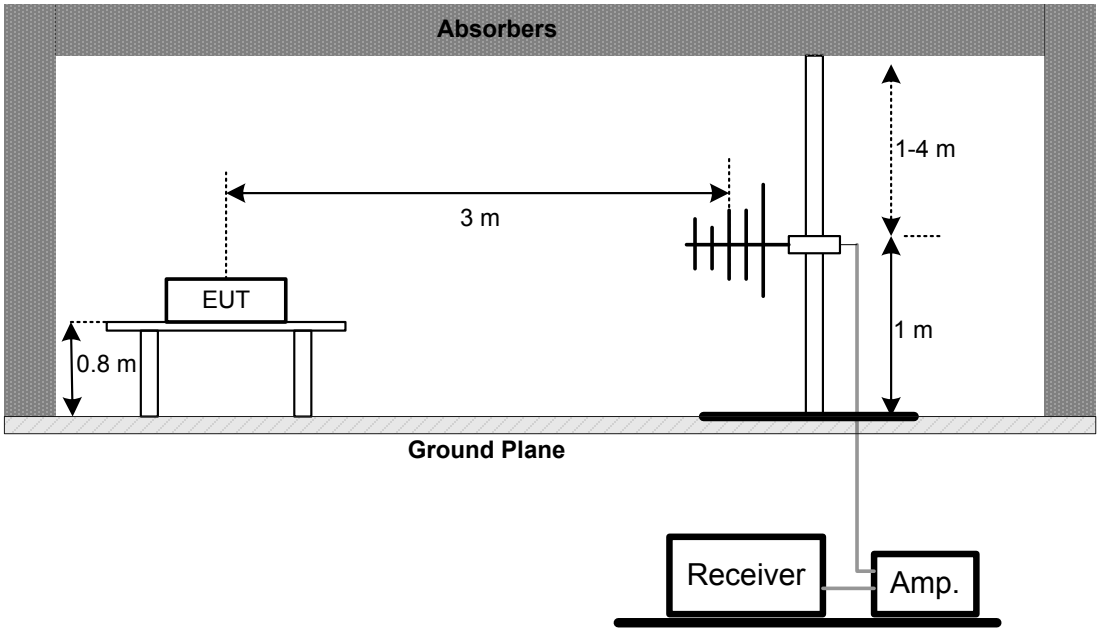
No deviation

## 5.4 TEST SETUP

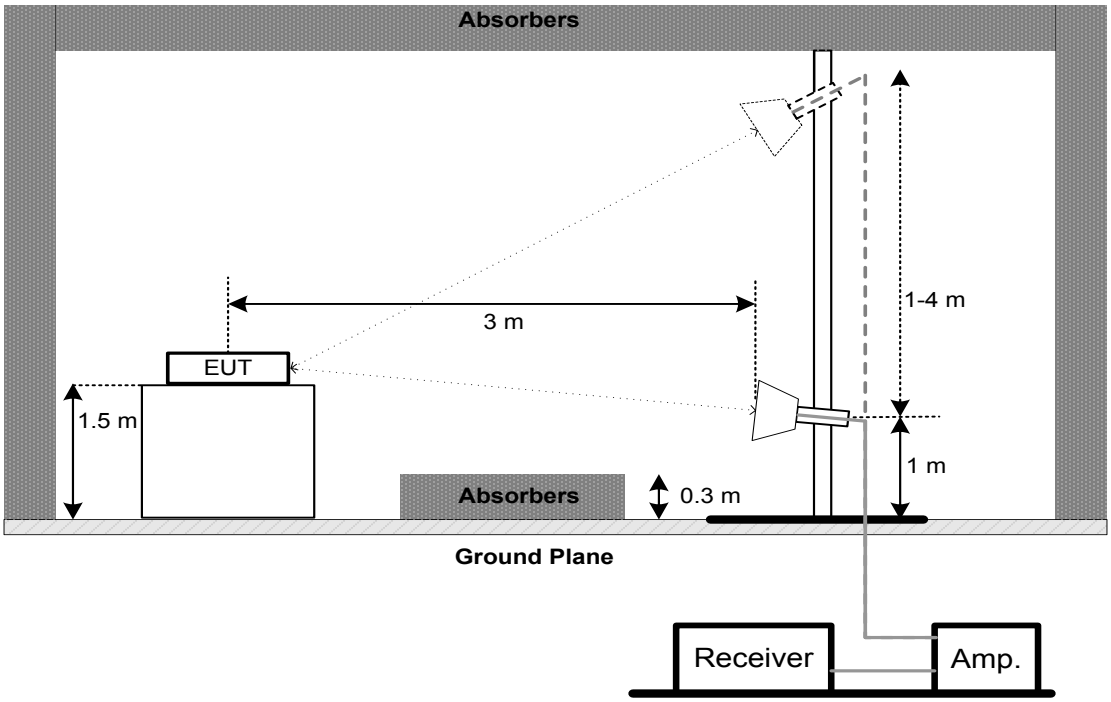
**9 kHz-30 MHz**




**30 MHz to 1 GHz**



**Above 1 GHz**




## 5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 5.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 68% Test Voltage: AC 120V/60Hz

## 5.7 TEST RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

## 5.8 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

## 5.9 TEST RESULT - ABOVE 1000 MHz

Please refer to the APPENDIX D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

## 6. BANDWIDTH TEST

### 6.1 LIMIT

| FCC Part15, Subpart C (15.247) / RSS-Gen and RSS-247 | | |
|---|---|---|
| Section | Test Item | Limit |
| 15.247(a)(2)<br>RSS-Gen 6.7<br>RSS-247 5.2 (a) | Bandwidth | >= 500 kHz<br>(6 dB bandwidth) |

### 6.2 TEST PROCEDURE

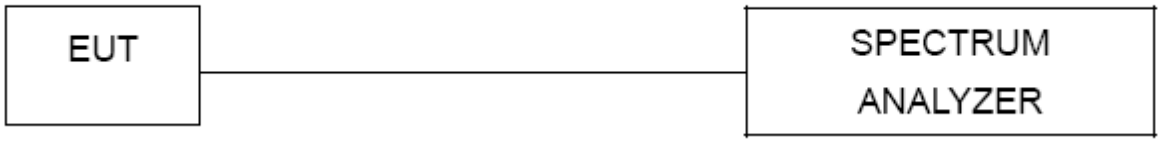
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting : RBW= 100 kHz, VBW=300 kHz, Sweep time = 2.5 ms.

### 6.3 DEVIATION FROM STANDARD

No deviation.

### 6.4 TEST SETUP




### 6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 6.6 EUT TEST CONDITIONS

Temperature: 25.3°C  Relative Humidity: 64%  Test Voltage: AC 120V/60Hz

### 6.7 TEST RESULTS

Please refer to the APPENDIX E.

## 7. MAXIMUM OUTPUT POWER & E.I.R.P. TEST

### 7.1 LIMIT

| FCC Part15, Subpart C (15.247) / RSS-247 | | |
|---|---|---|
| Section | Test Item | Limit |
| 15.247(b)(3)<br>RSS-247 5.4 (d) | Maximum Output Power | 1 watt or 30 dBm |
| | Maximum e.i.r.p. | 4 watt or 36 dBm |

### 7.2 TEST PROCEDURE

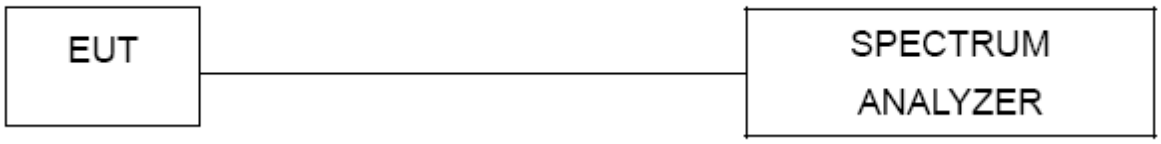
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The maximum conducted output power was performed in accordance with method 11.9.1.1 of ANSI C63.10-2013.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP




### 7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 7.6 EUT TEST CONDITIONS

Temperature: 25.3°C  Relative Humidity: 64%  Test Voltage: AC 120V/60Hz

### 7.7 TEST RESULTS

Please refer to the APPENDIX F.

## 8. CONDUCTED SPURIOUS EMISSION

### 8.1 LIMIT

For FCC

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

For ISED

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

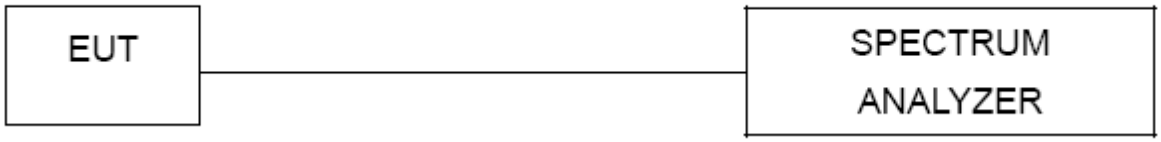
### 8.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting : RBW= 100 kHz, VBW=300 kHz, Sweep time = 10 ms.

### 8.3 DEVIATION FROM STANDARD

No deviation.

### 8.4 TEST SETUP




### 8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 8.6 EUT TEST CONDITIONS

Temperature: 25.3°C Relative Humidity: 64% Test Voltage: AC 120V/60Hz

### 8.7 TEST RESULTS

Please refer to the APPENDIX G.

## 9. POWER SPECTRAL DENSITY TEST

### 9.1 LIMIT

| FCC Part15, Subpart C (15.247) / RSS-247 | | |
|---|---|---|
| Section | Test Item | Limit |
| 15.247(e) RSS-247 5.2 (b) | Power Spectral Density | 8 dBm<br>(in any 3 kHz) |

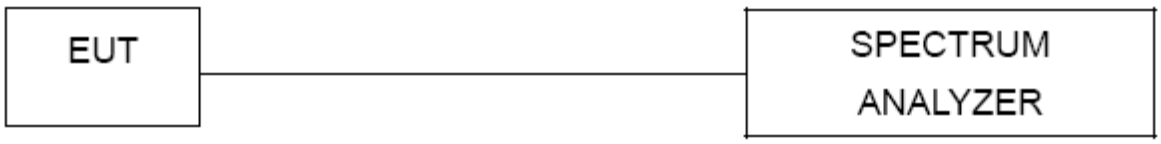
### 9.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW=3 kHz, VBW=10 kHz, Sweep time = auto.

### 9.3 DEVIATION FROM STANDARD

No deviation.

### 9.4 TEST SETUP




### 9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 9.6 EUT TEST CONDITIONS

Temperature: 25.3°C  Relative Humidity: 64%  Test Voltage: AC 120V/60Hz

### 9.7 TEST RESULTS

Please refer to the APPENDIX H.

## 10. MEASUREMENT INSTRUMENTS LIST

| AC Power Line Conducted Emissions | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | EMI Test Receiver | R&S | ESCI | 100382 | Mar. 10, 2020 |
| 2 | LISN | EMCO | 3816/2 | 52765 | Mar. 10, 2020 |
| 3 | 50ohm Terminator | SHX | TF5-3 | 15041305 | Mar. 10, 2020 |
| 4 | Artificial-Mains Network | SCHWARZBECK | NSLK 8127 | 8127685 | Mar. 10, 2020 |
| 5 | TRANSIENT LIMITER | EM | EM-7600 | 772 | Mar. 10, 2020 |
| 6 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A |
| 7 | Cable | N/A | RG223 | 12m | Mar. 12, 2020 |

| Radiated Emissions - 9 kHz to 30 MHz | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Loop Antenna | EM | EM-6876-1 | 230 | Jan. 15, 2020 |
| 2 | Cable | N/A | RG 213/U | C-102 | May 31, 2020 |
| 3 | EMI Test Receiver | R&S | ESCI | 100895 | Mar. 10, 2020 |
| 4 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A |

| Radiated Emissions - 30 MHz to 1 GHz | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Antenna | Schwarzbeck | VULB9160 | 9160-3232 | Mar. 09, 2020 |
| 2 | Amplifier | HP | 8447D | 2944A09673 | Aug. 11, 2019 |
| 3 | Receiver | Agilent | N9038A | MY52130039 | Aug. 11, 2019 |
| 4 | Cable | emci | LMR-400(30MHz-1GHz)(8m+5m) | N/A | May 24, 2020 |
| 5 | Controller | CT | SC100 | N/A | N/A |
| 6 | Controller | MF | MF-7802 | MF780208416 | N/A |
| 7 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A |

| Radiated Emissions - Above 1 GHz | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Double Ridged Guide Antenna | ETS | 3115 | 75789 | Mar. 09, 2020 |
| 2 | Broad-Band Horn Antenna | Schwarzbeck | BBHA 9170 | 9170319 | Jun. 30, 2019 |
| 3 | Amplifier | Agilent | 8449B | 3008A02333 | Mar. 10, 2020 |
| 4 | Microwave Preamplifier With Adaptor | EMC INSTRUMENT | EMC2654045 | 980039 & HA01 | Mar. 10, 2020 |
| 5 | Receiver | Agilent | N9038A | MY52130039 | Aug. 11, 2019 |
| 6 | Controller | CT | SC100 | N/A | N/A |
| 7 | Controller | MF | MF-7802 | MF780208416 | N/A |
| 8 | Cable | mitron | B10-01-01-12M | 18072744 | Jul. 30, 2019 |
| 9 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A |

| Bandwidth | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP40 | 100185 | Aug. 11, 2019 |

| Maximum Output Power | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP40 | 100185 | Aug. 11, 2019 |

| Antenna Conducted Spurious Emissions | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP40 | 100185 | Aug. 11, 2019 |

| Power Spectral Density | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP40 | 100185 | Aug. 11, 2019 |

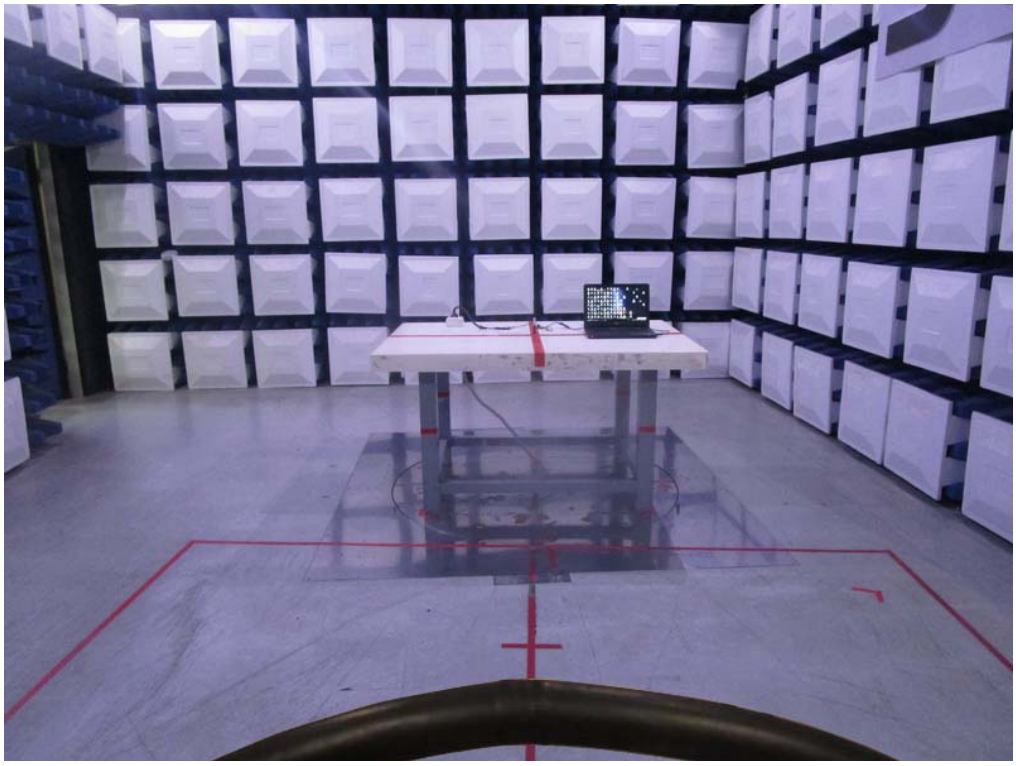
Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

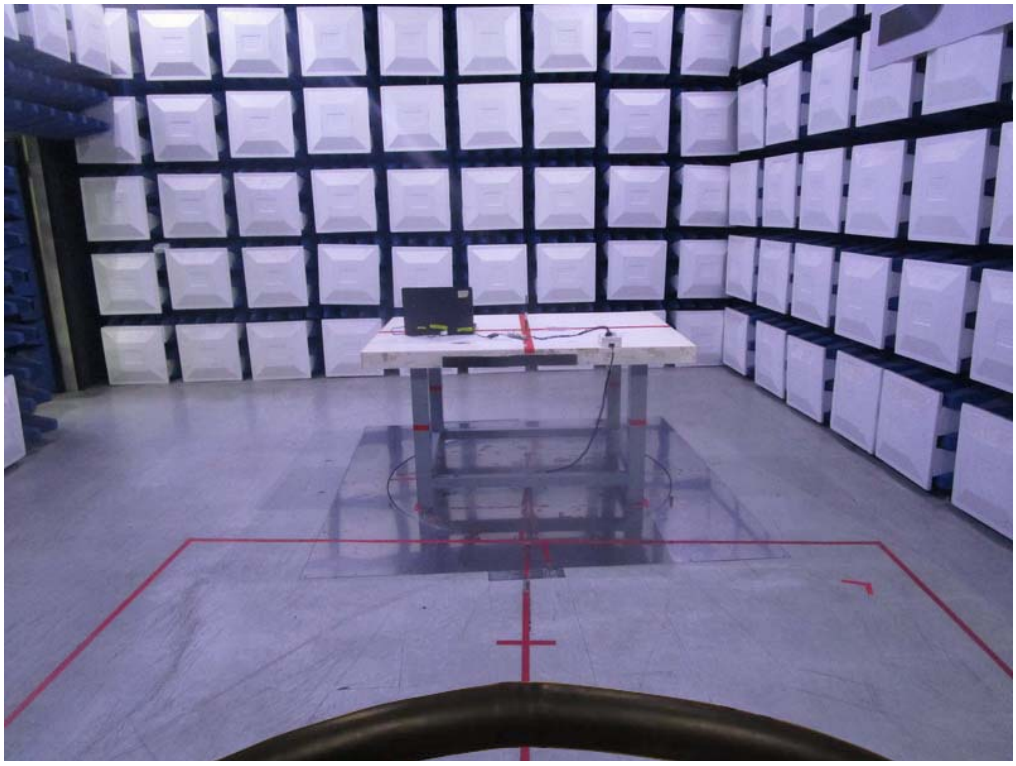
## 11. EUT TEST PHOTO

**AC Power Line Conducted Emissions Test Photos**

## Radiated Measurement Photos

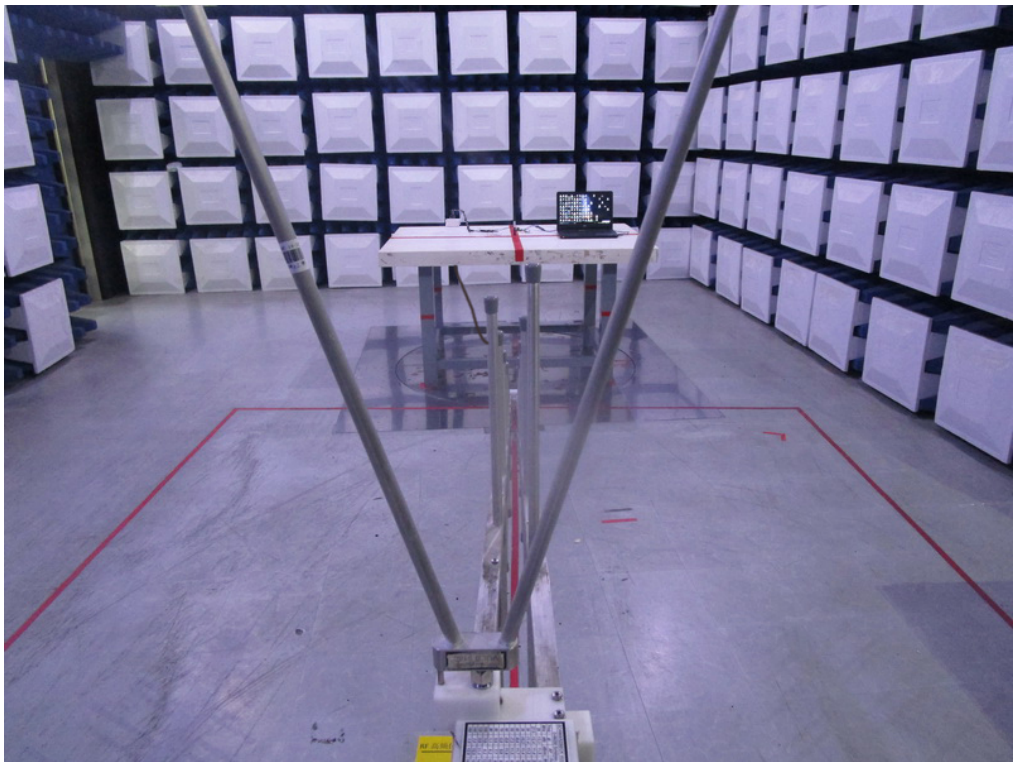
## 9 kHz to 30 MHz

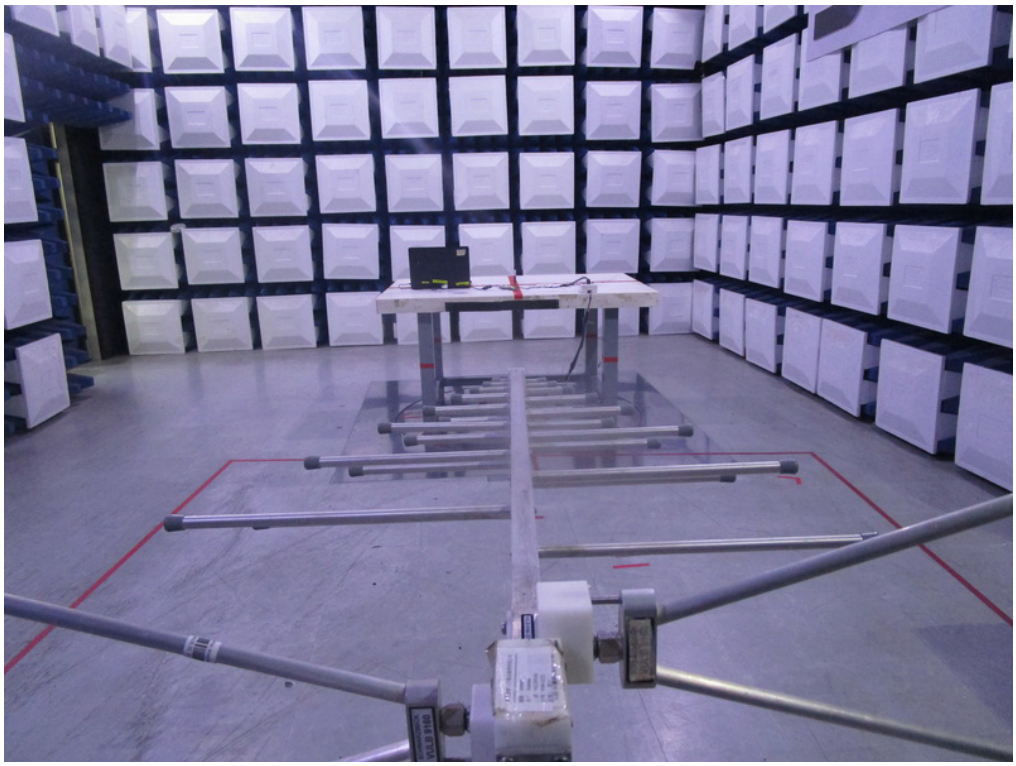




## Radiated Emissions Test Photos

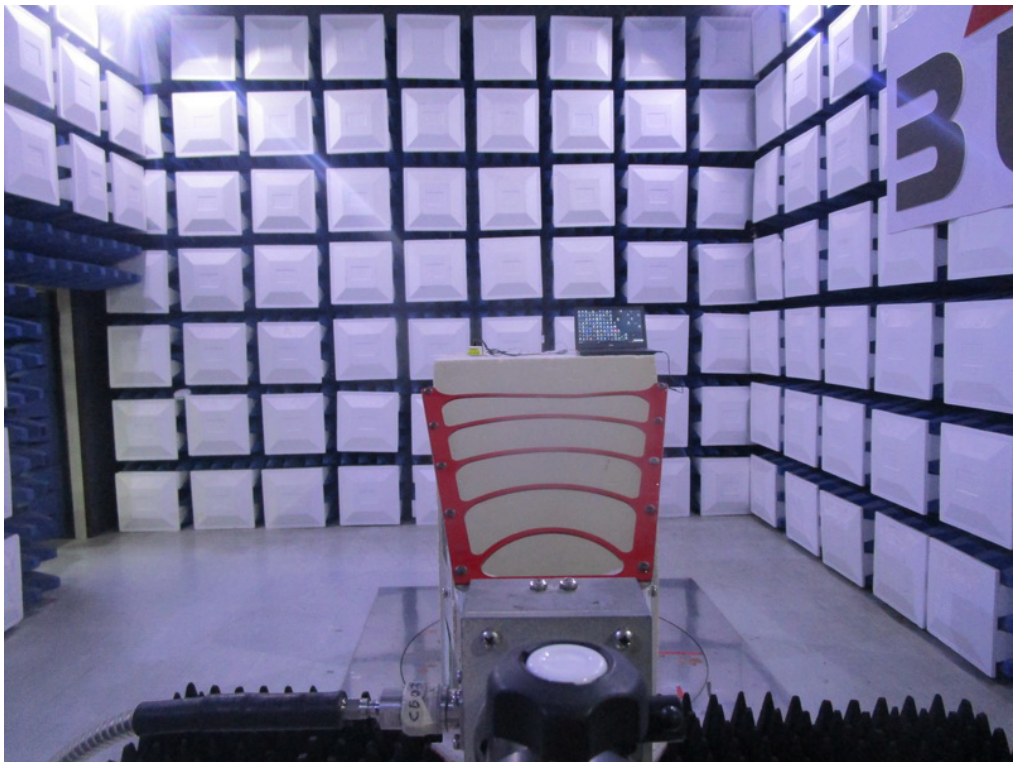
### 30 MHz to 1000 MHz

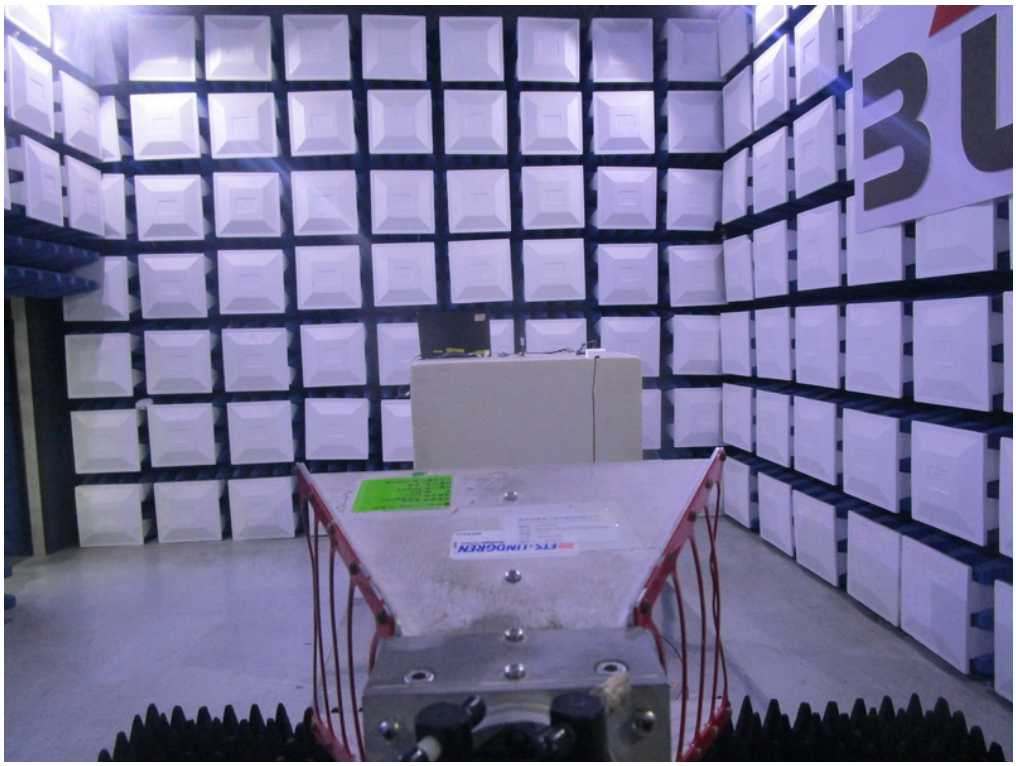


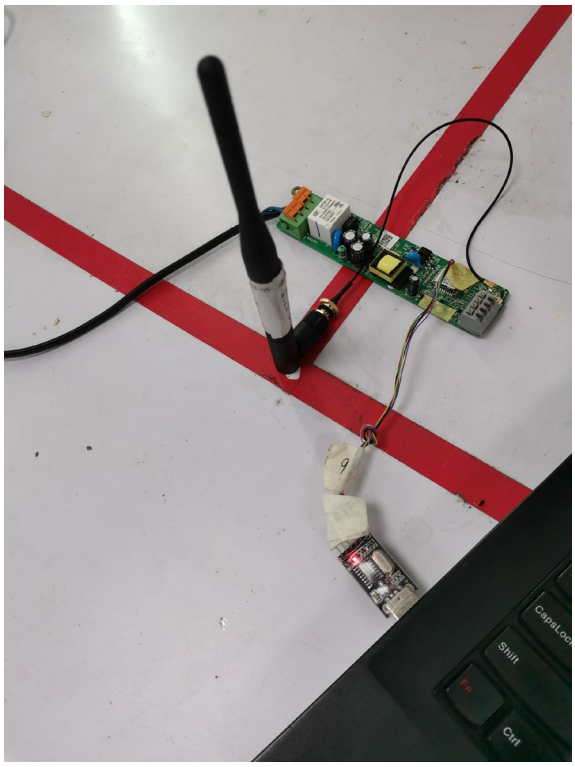


## Radiated Emissions Test Photos

### Above 1 GHz



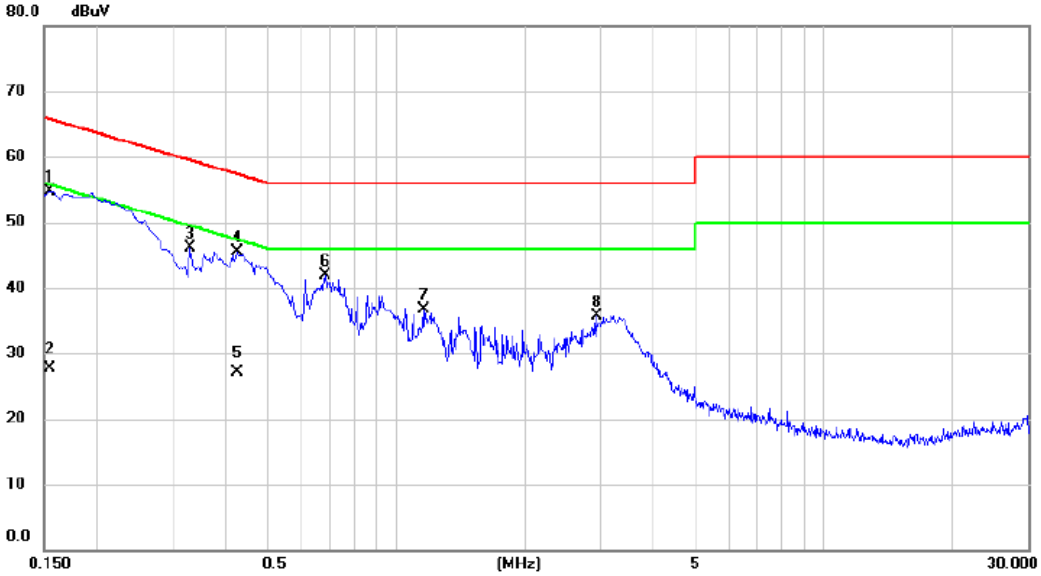



CapsLock
Shift
Fn
Ctrl

# APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Line**

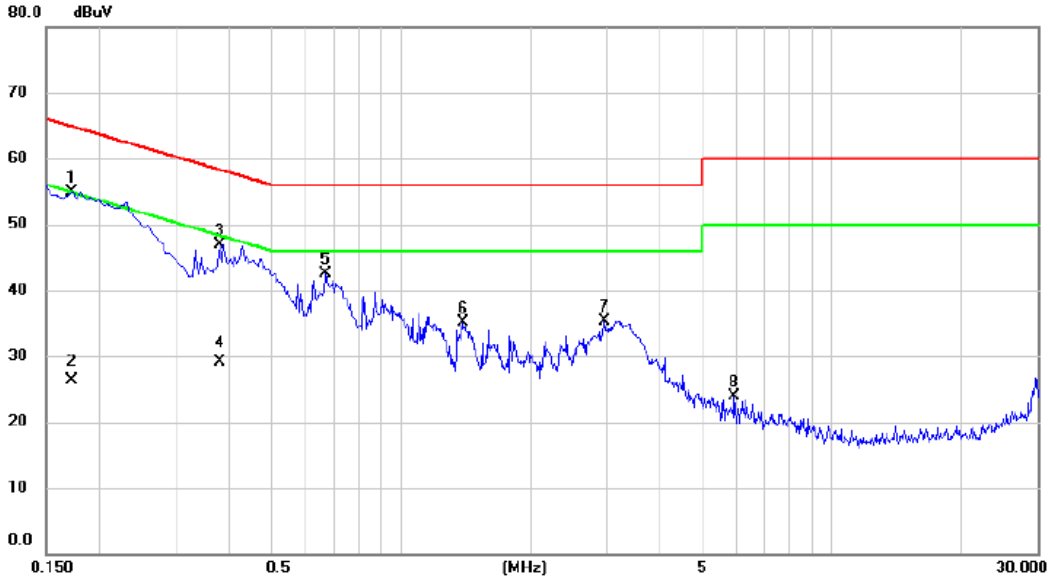



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.1545 | 44.91 | 9.82 | 54.73 | 65.75 | -11.02 | peak | |
| 2 | | 0.1545 | 17.90 | 9.82 | 27.72 | 55.75 | -28.03 | AVG | |
| 3 | | 0.3300 | 36.28 | 9.85 | 46.13 | 59.45 | -13.32 | peak | |
| 4 | | 0.4245 | 35.63 | 9.87 | 45.50 | 57.36 | -11.86 | peak | |
| 5 | | 0.4245 | 17.30 | 9.87 | 27.17 | 47.36 | -20.19 | AVG | |
| 6 | | 0.6810 | 32.10 | 9.90 | 42.00 | 56.00 | -14.00 | peak | |
| 7 | | 1.1580 | 26.77 | 9.93 | 36.70 | 56.00 | -19.30 | peak | |
| 8 | | 2.9400 | 25.60 | 10.06 | 35.66 | 56.00 | -20.34 | peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Neutral**



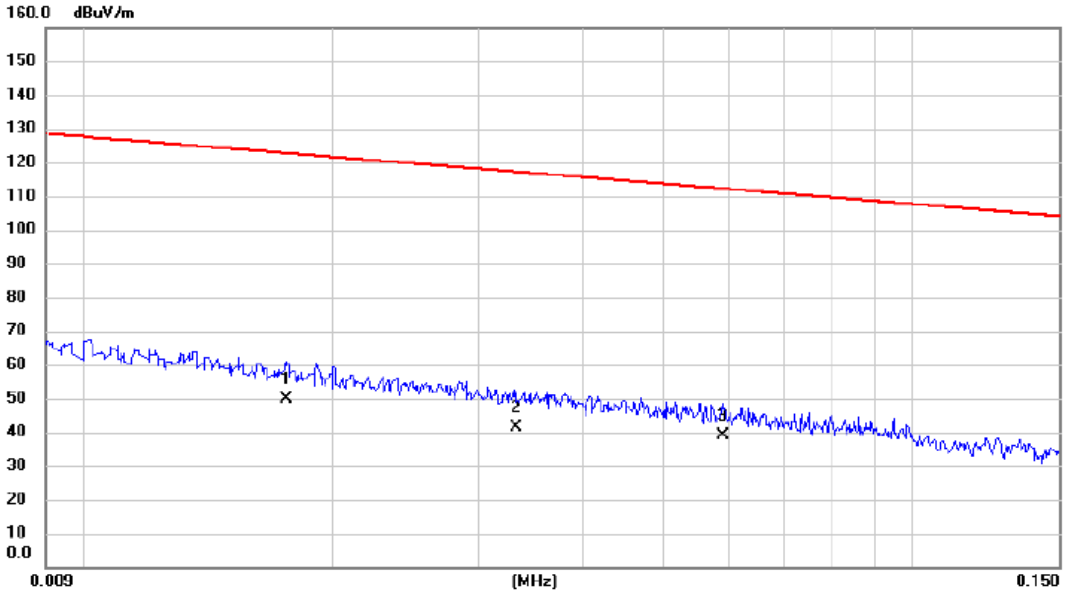

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.1725 | 45.05 | 9.91 | 54.96 | 64.84 | -9.88 | peak | |
| 2 | | 0.1725 | 16.40 | 9.91 | 26.31 | 54.84 | -28.53 | AVG | |
| 3 | | 0.3795 | 36.96 | 10.00 | 46.96 | 58.29 | -11.33 | peak | |
| 4 | | 0.3795 | 19.20 | 10.00 | 29.20 | 48.29 | -19.09 | AVG | |
| 5 | | 0.6675 | 32.48 | 10.06 | 42.54 | 56.00 | -13.46 | peak | |
| 6 | | 1.3920 | 25.04 | 10.15 | 35.19 | 56.00 | -20.81 | peak | |
| 7 | | 2.9625 | 25.15 | 10.25 | 35.40 | 56.00 | -20.60 | peak | |
| 8 | | 5.9460 | 13.37 | 10.49 | 23.86 | 60.00 | -36.14 | peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

# APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Ant 0°**

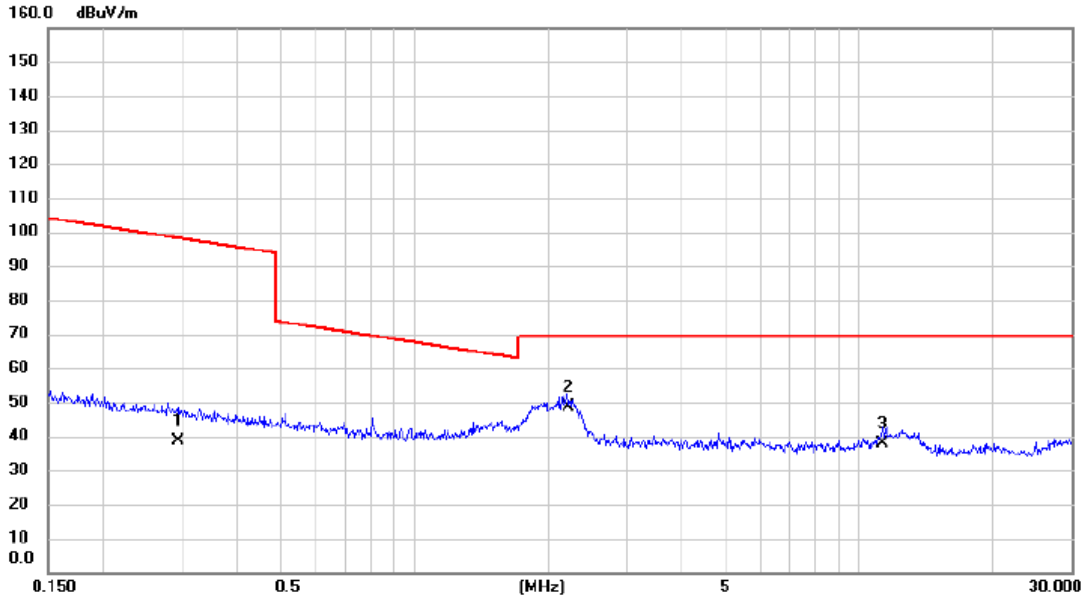



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | * | 0.0176 | 35.14 | 14.54 | 49.68 | 122.69 | -73.01 | AVG | |
| 2 | | 0.0333 | 27.46 | 13.87 | 41.33 | 117.16 | -75.83 | AVG | |
| 3 | | 0.0590 | 25.09 | 13.79 | 38.88 | 112.19 | -73.31 | AVG | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Ant 0°**

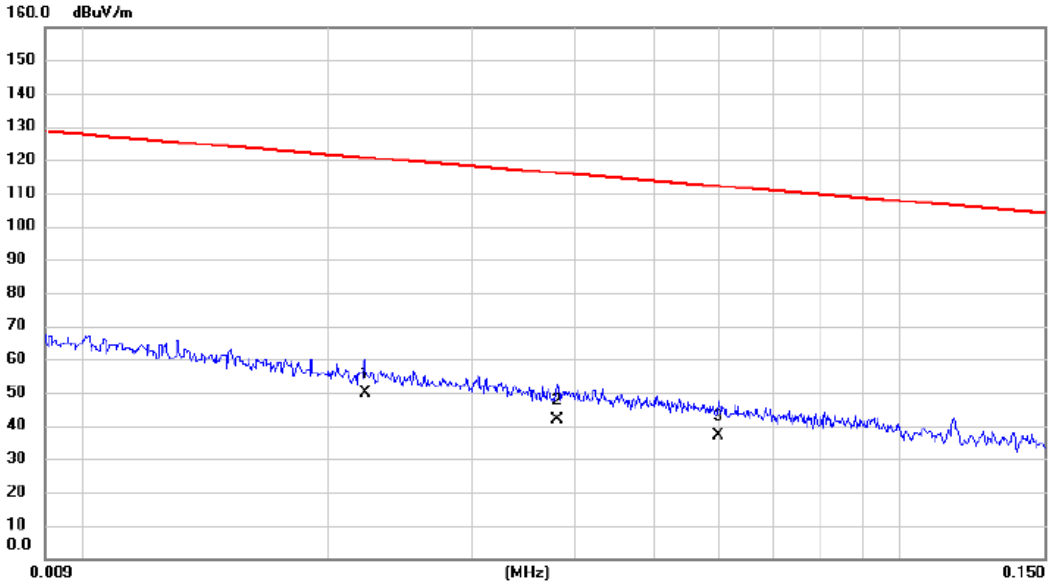



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2955 | 24.87 | 13.55 | 38.42 | 98.19 | -59.77 | AVG | |
| 2 | * | 2.2132 | 36.97 | 11.69 | 48.66 | 69.54 | -20.88 | QP | |
| 3 | | 11.3170 | 26.04 | 11.61 | 37.65 | 69.54 | -31.89 | QP | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Ant 90°**

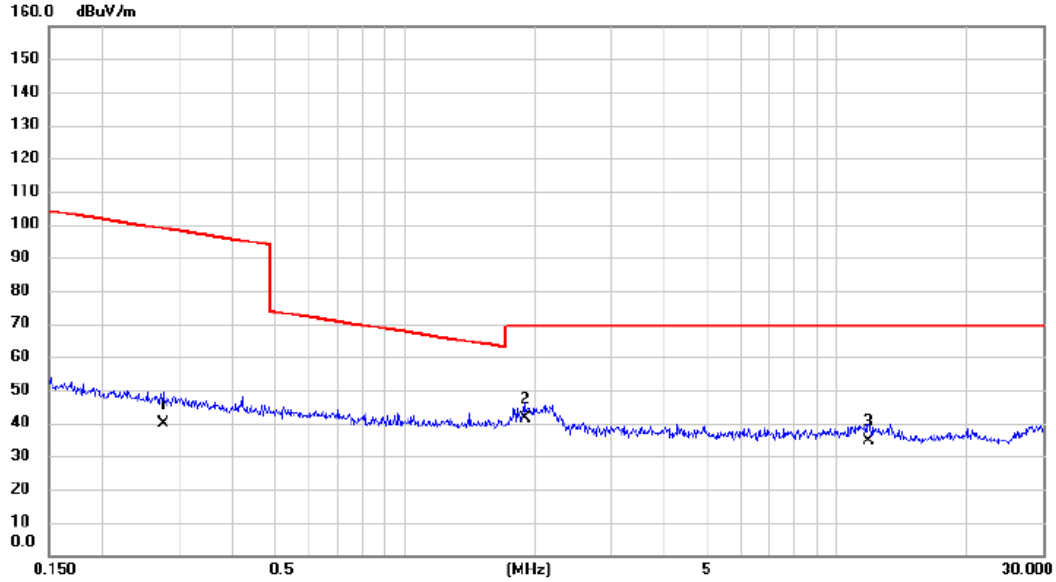



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | * | 0.0222 | 35.89 | 13.83 | 49.72 | 120.68 | -70.96 | AVG | |
| 2 | | 0.0381 | 27.87 | 13.89 | 41.76 | 115.99 | -74.23 | AVG | |
| 3 | | 0.0600 | 23.06 | 13.77 | 36.83 | 112.04 | -75.21 | AVG | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Ant 90°**



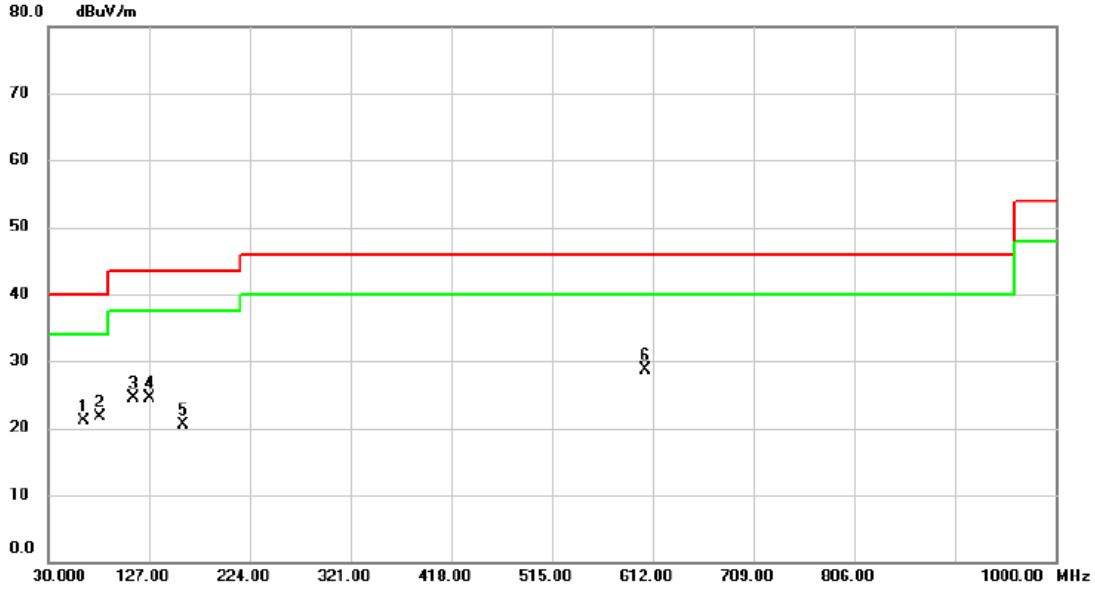

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2760 | 26.17 | 13.60 | 39.77 | 98.79 | -59.02 | AVG | |
| 2 | * | 1.8980 | 29.48 | 11.88 | 41.36 | 69.54 | -28.18 | QP | |
| 3 | | 11.8697 | 22.97 | 11.61 | 34.58 | 69.54 | -34.96 | QP | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

# APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Vertical**

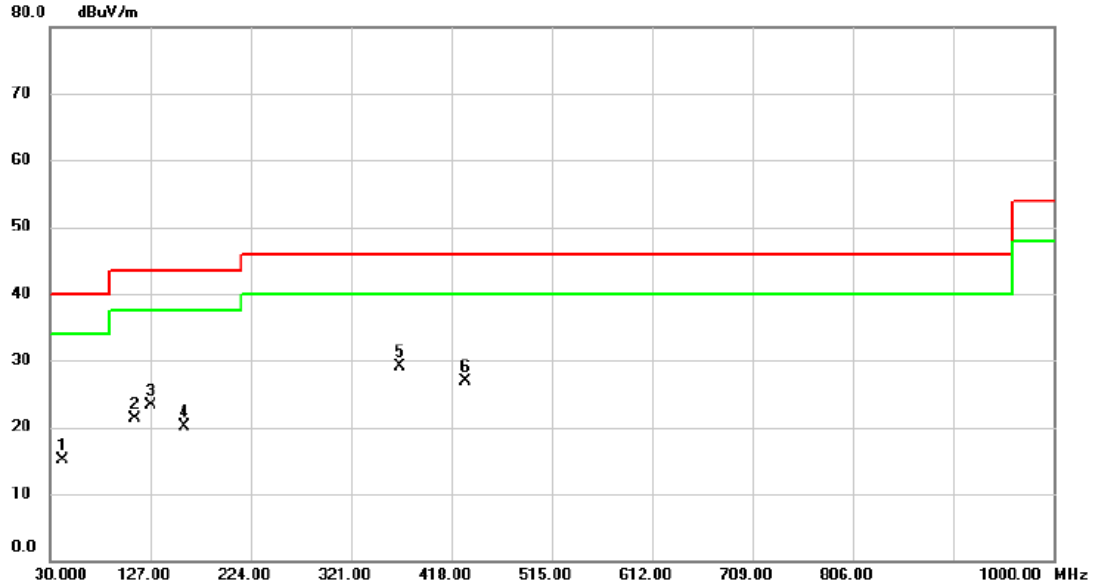



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 63.950 | 36.26 | -15.10 | 21.16 | 40.00 | -18.84 | peak | |
| 2 | | 79.955 | 39.79 | -18.01 | 21.78 | 40.00 | -18.22 | peak | |
| 3 | | 111.965 | 38.76 | -14.22 | 24.54 | 43.50 | -18.96 | peak | |
| 4 | | 127.970 | 37.48 | -13.05 | 24.43 | 43.50 | -19.07 | peak | |
| 5 | | 159.980 | 31.50 | -11.00 | 20.50 | 43.50 | -23.00 | peak | |
| 6 | * | 604.240 | 34.38 | -5.64 | 28.74 | 46.00 | -17.26 | peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode: | TX Mode Channel 19 _1Mbps |
|---|---|

**Horizontal**



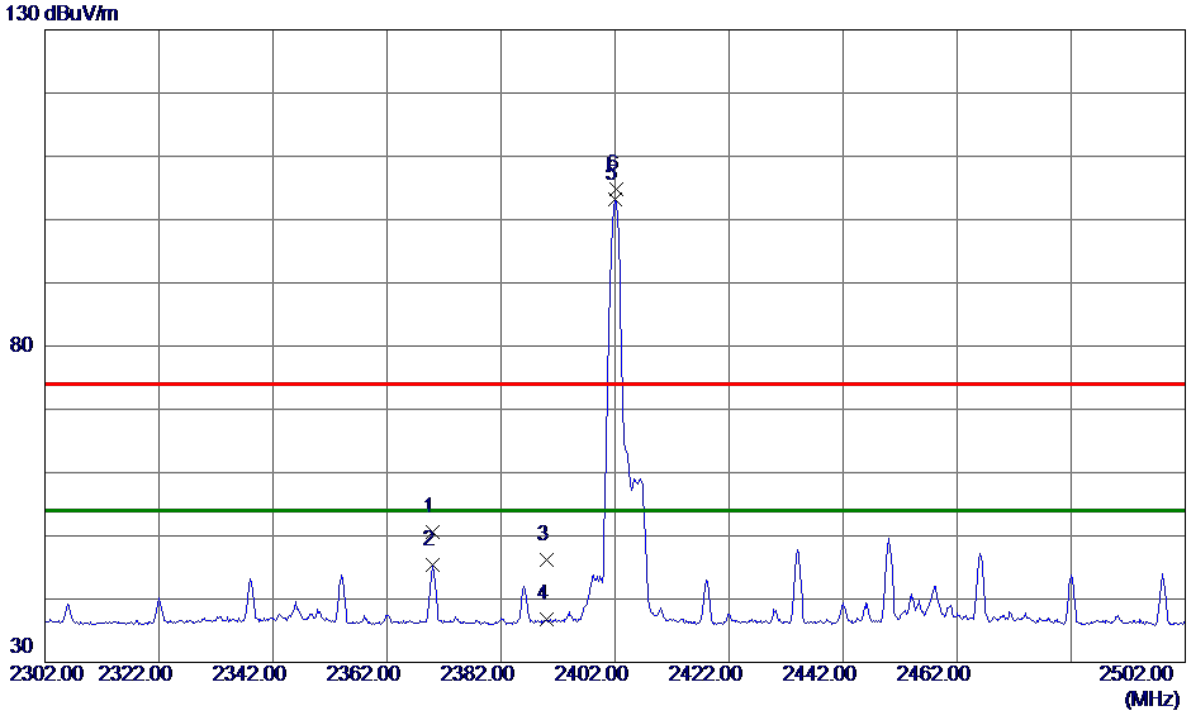

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 42.610 | 29.59 | -14.49 | 15.10 | 40.00 | -24.90 | peak | |
| 2 | | 111.965 | 35.62 | -14.22 | 21.40 | 43.50 | -22.10 | peak | |
| 3 | | 127.970 | 36.37 | -13.05 | 23.32 | 43.50 | -20.18 | peak | |
| 4 | | 159.980 | 31.12 | -11.00 | 20.12 | 43.50 | -23.38 | peak | |
| 5 | * | 368.045 | 39.26 | -10.23 | 29.03 | 46.00 | -16.97 | peak | |
| 6 | | 432.065 | 35.45 | -8.58 | 26.87 | 46.00 | -19.13 | peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

# APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

| Test Mode : | TX 2402 MHz _CH00_1Mbps |
|---|---|

**Vertical**

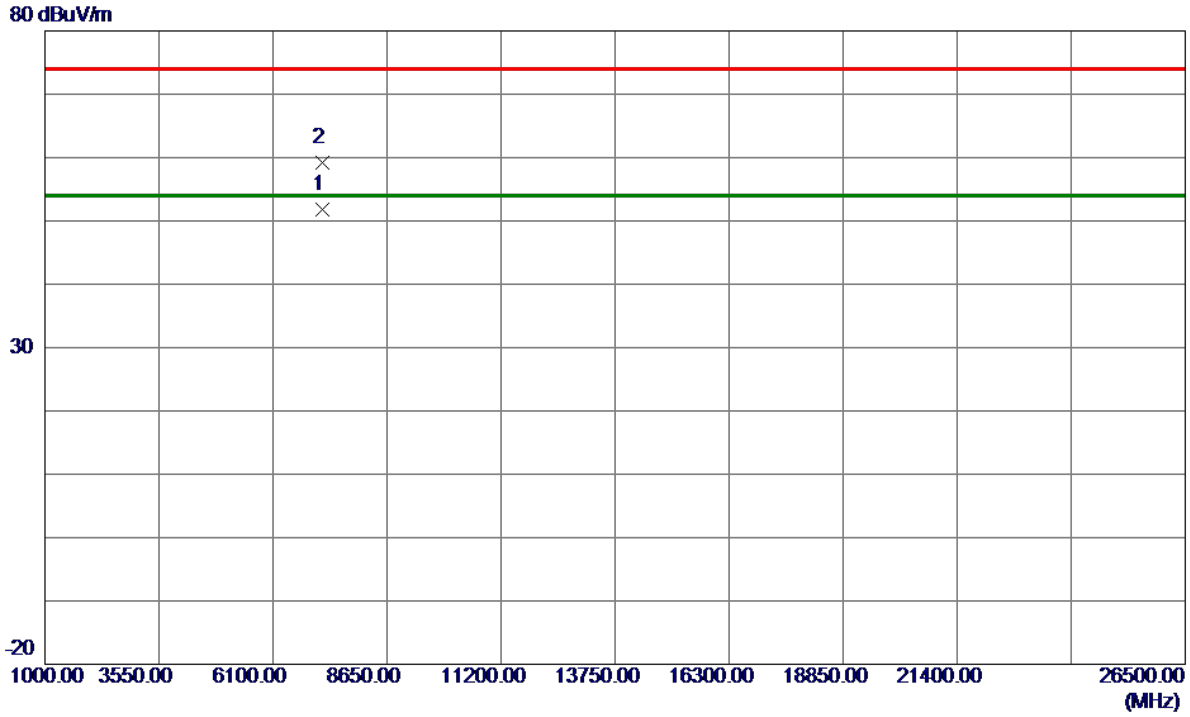



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 2370.0000 | 44.02 | 6.55 | 50.57 | 74.00 | -23.43 | Peak | |
| 2 | 2370.0000 | 38.76 | 6.55 | 45.31 | 54.00 | -8.69 | AVG | |
| 3 | 2390.0000 | 39.70 | 6.53 | 46.23 | 74.00 | -27.77 | Peak | |
| 4 | 2390.0000 | 30.29 | 6.53 | 36.82 | 54.00 | -17.18 | AVG | |
| 5 * | 2402.0000 | 96.77 | 6.52 | 103.29 | 54.00 | 49.29 | AVG | No Limit |
| 6 | 2402.3000 | 98.31 | 6.52 | 104.83 | 74.00 | 30.83 | Peak | No Limit |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2402 MHz _CH00_1Mbps |
|---|---|

**Vertical**

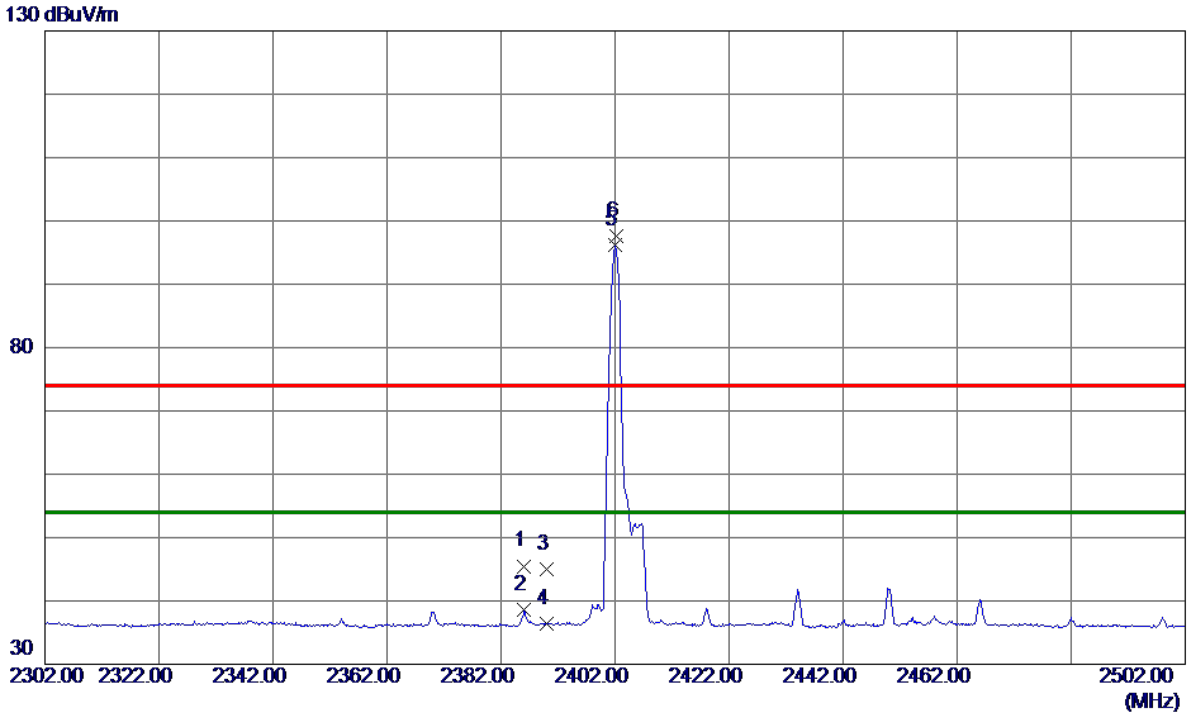



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 7206.5420 | 42.80 | 9.08 | 51.88 | 54.00 | -2.12 | AVG | |
| 2 | 7206.8820 | 50.03 | 9.08 | 59.11 | 74.00 | -14.89 | Peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2402 MHz _CH00_1Mbps |
|---|---|

**Horizontal**

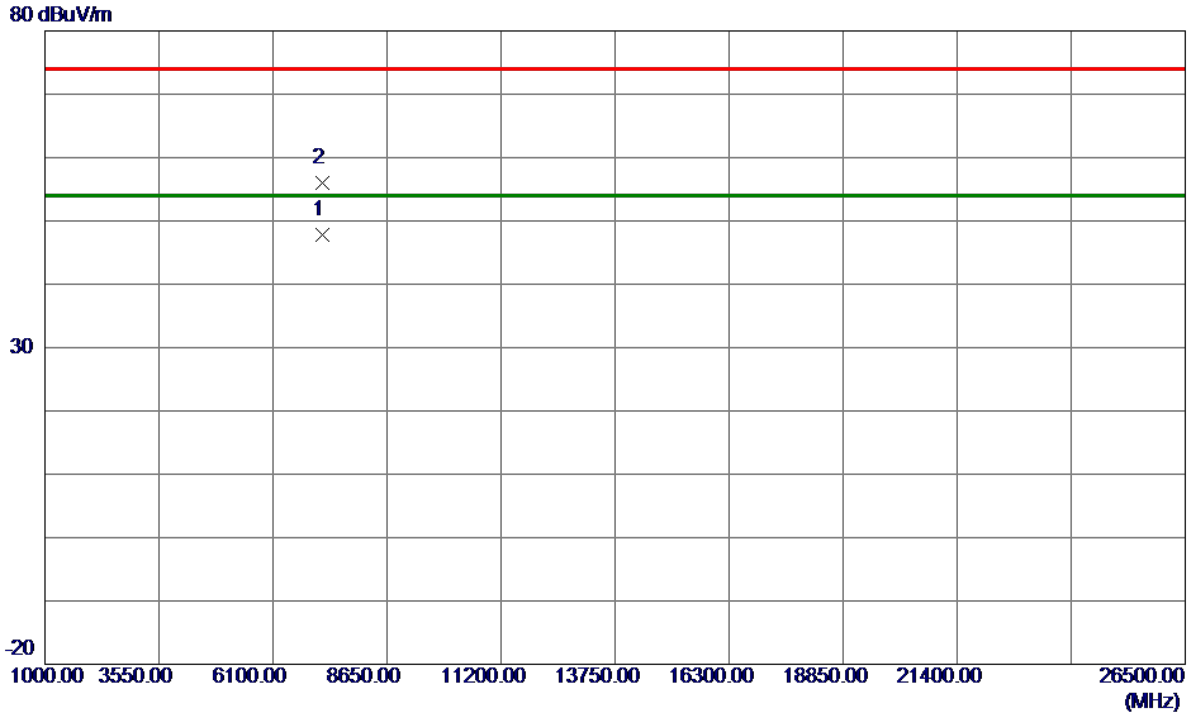



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 2386.1000 | 38.96 | 6.54 | 45.50 | 74.00 | -28.50 | Peak | |
| 2 | 2386.1000 | 32.03 | 6.54 | 38.57 | 54.00 | -15.43 | AVG | |
| 3 | 2390.0000 | 38.51 | 6.53 | 45.04 | 74.00 | -28.96 | Peak | |
| 4 | 2390.0000 | 29.82 | 6.53 | 36.35 | 54.00 | -17.65 | AVG | |
| 5 * | 2402.0000 | 89.62 | 6.52 | 96.14 | 54.00 | 42.14 | AVG | No Limit |
| 6 | 2402.3000 | 91.17 | 6.52 | 97.69 | 74.00 | 23.69 | Peak | No Limit |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2402 MHz _CH00_1Mbps |
|---|---|

**Horizontal**

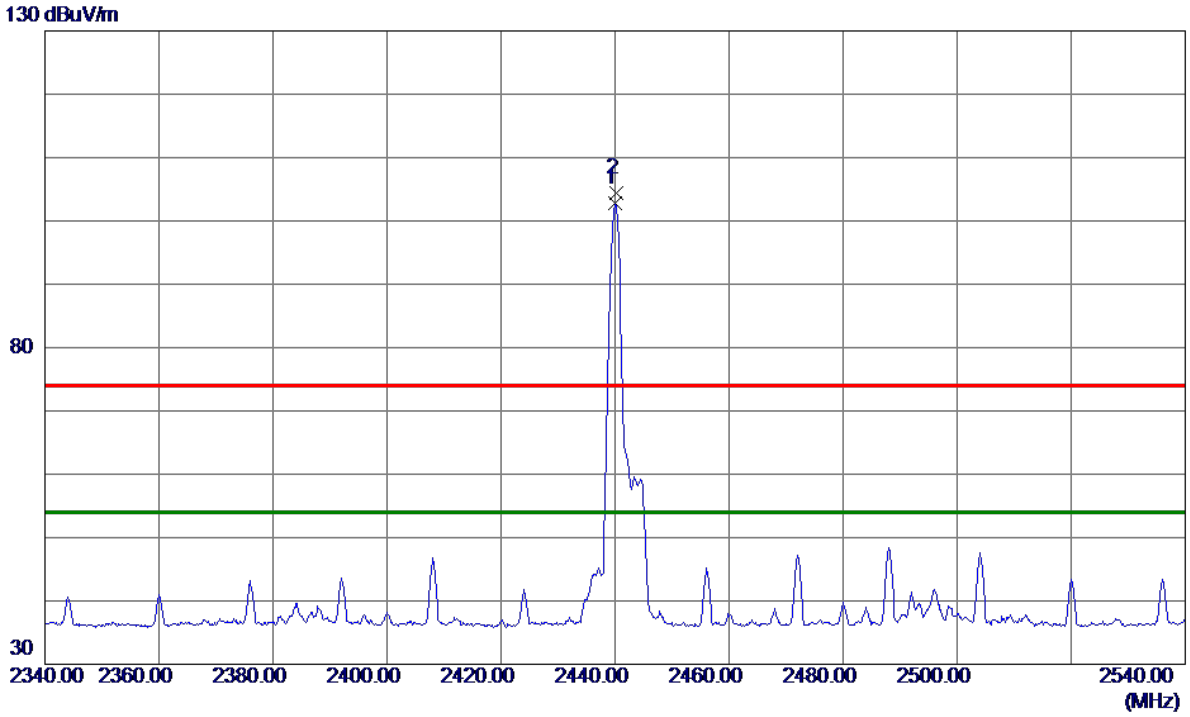



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 7206.5900 | 38.75 | 9.08 | 47.83 | 54.00 | -6.17 | AVG | |
| 2 | 7206.8150 | 47.01 | 9.08 | 56.09 | 74.00 | -17.91 | Peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2440 MHz _CH19_1Mbps |
|---|---|

**Vertical**

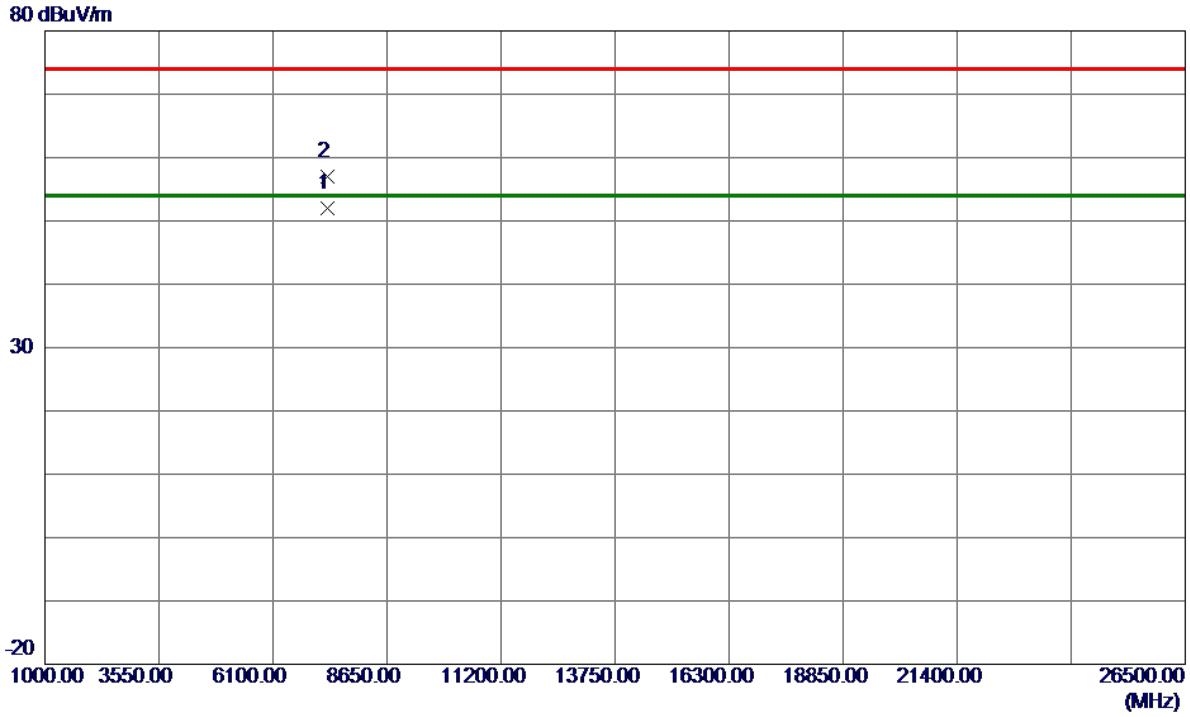



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 2440.0000 | 96.27 | 6.47 | 102.74 | 54.00 | 48.74 | AVG | No Limit |
| 2 | 2440.3000 | 97.87 | 6.47 | 104.34 | 74.00 | 30.34 | Peak | No Limit |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2440 MHz _CH19_1Mbps |
|---|---|

**Vertical**

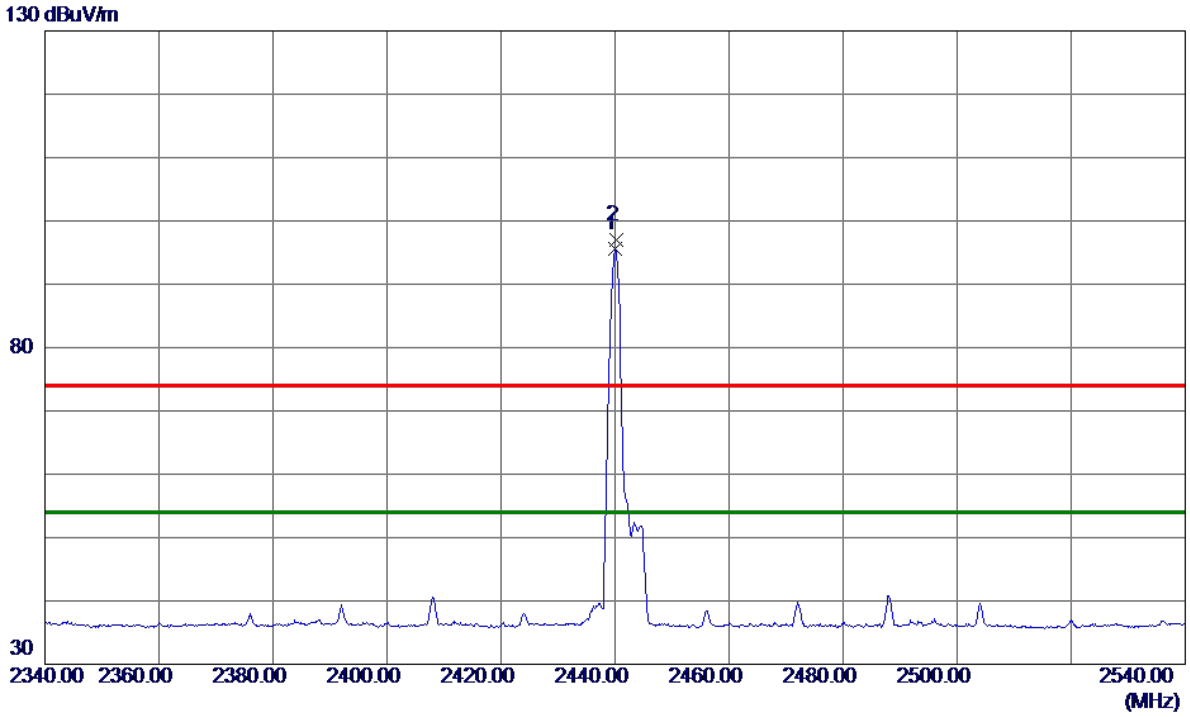



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 7320.6400 | 42.84 | 9.24 | 52.08 | 54.00 | -1.92 | AVG | |
| 2 | 7320.7050 | 47.84 | 9.24 | 57.08 | 74.00 | -16.92 | Peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2440 MHz _CH19_1Mbps |
|---|---|

**Horizontal**

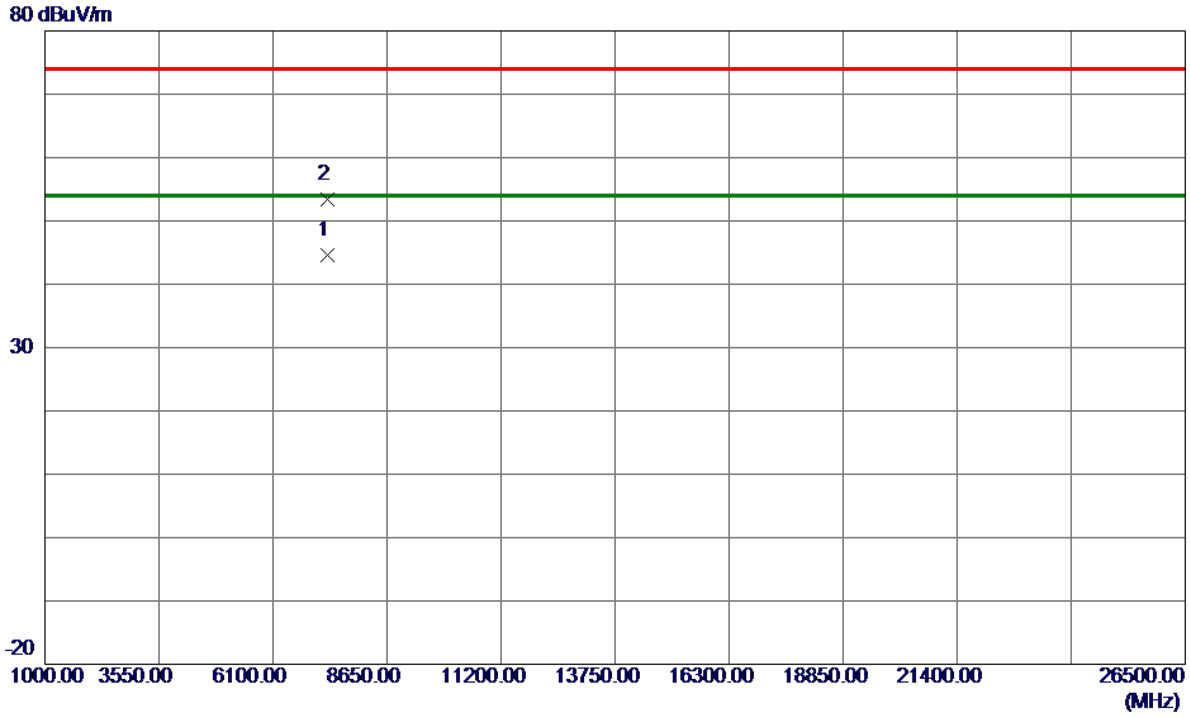



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 2440.0000 | 89.11 | 6.47 | 95.58 | 54.00 | 41.58 | AVG | No Limit |
| 2 | 2440.3000 | 90.61 | 6.47 | 97.08 | 74.00 | 23.08 | Peak | No Limit |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2440 MHz _CH19_1Mbps |
|---|---|

**Horizontal**

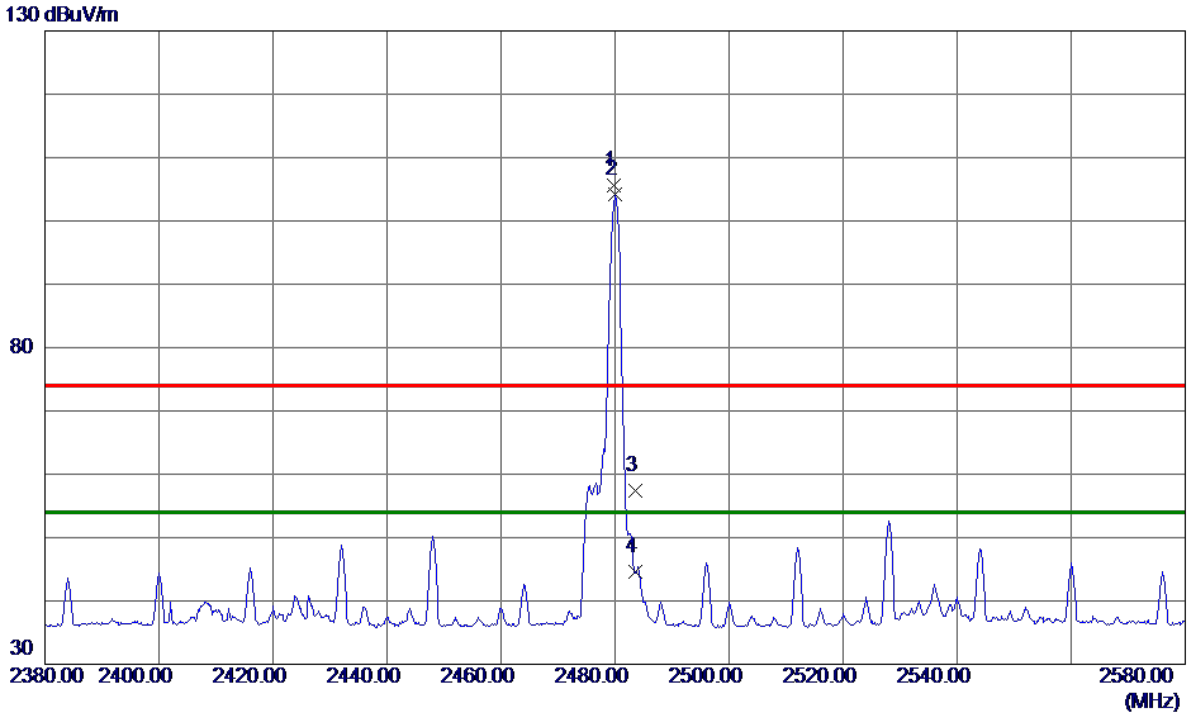



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 * | 7320.4900 | 35.29 | 9.24 | 44.53 | 54.00 | -9.47 | AVG | |
| 2 | 7320.8280 | 44.20 | 9.24 | 53.44 | 74.00 | -20.56 | Peak | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2480 MHz _CH39_1Mbps |
|---|---|

**Vertical**

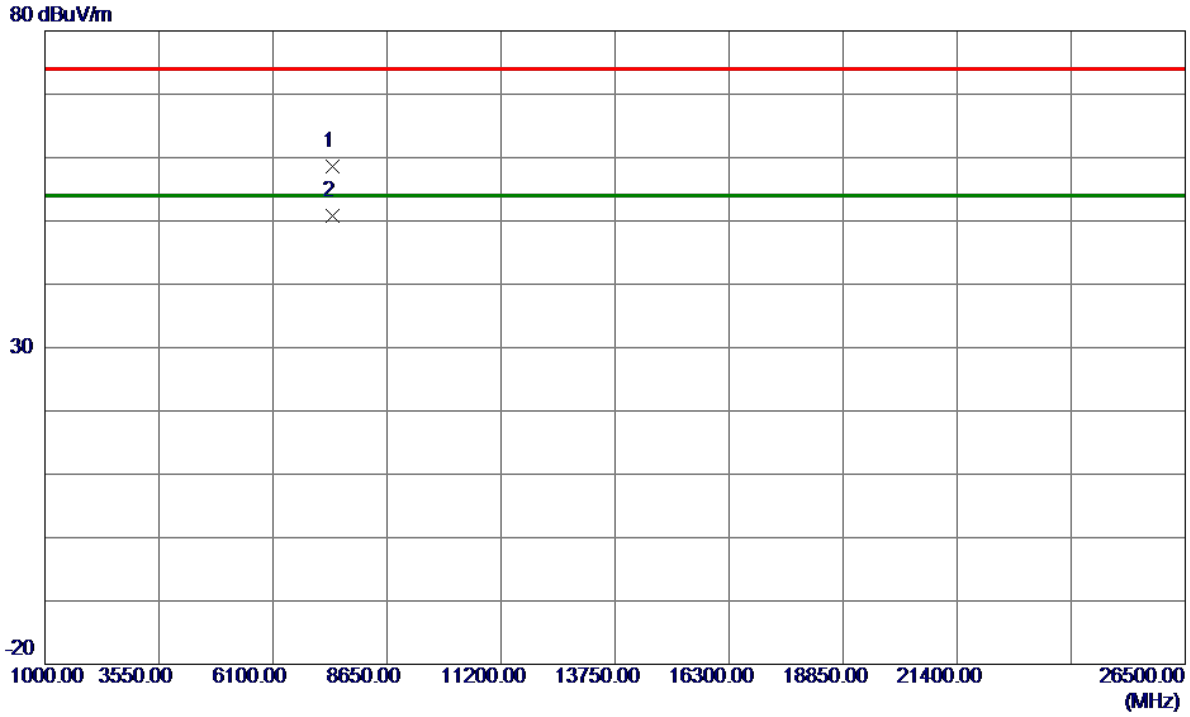



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 2479.8000 | 99.16 | 6.43 | 105.59 | 74.00 | 31.59 | Peak | No Limit |
| 2 * | 2480.0000 | 97.69 | 6.43 | 104.12 | 54.00 | 50.12 | AVG | No Limit |
| 3 | 2483.5000 | 50.99 | 6.42 | 57.41 | 74.00 | -16.59 | Peak | |
| 4 | 2483.5000 | 38.24 | 6.42 | 44.66 | 54.00 | -9.34 | AVG | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2480 MHz _CH39_1Mbps |
|---|---|

**Vertical**

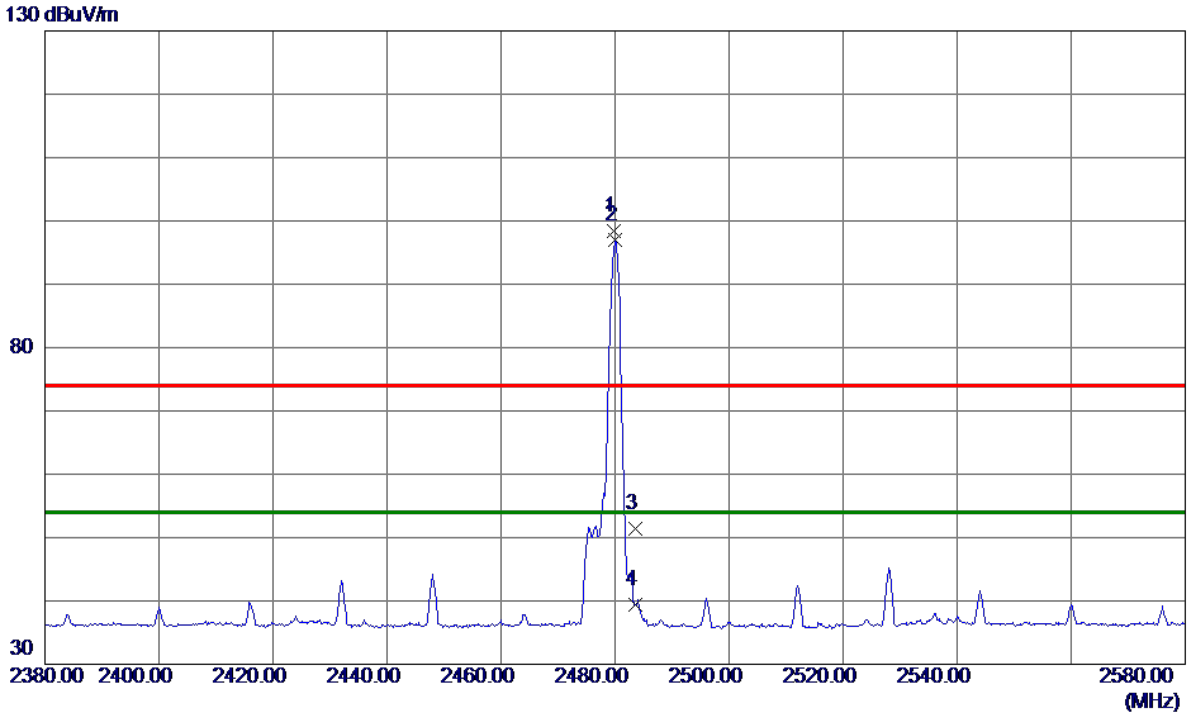



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 7439.3000 | 49.26 | 9.42 | 58.68 | 74.00 | -15.32 | Peak | |
| 2 * | 7439.4600 | 41.34 | 9.42 | 50.76 | 54.00 | -3.24 | AVG | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2480 MHz _CH39_1Mbps |
|---|---|

**Horizontal**

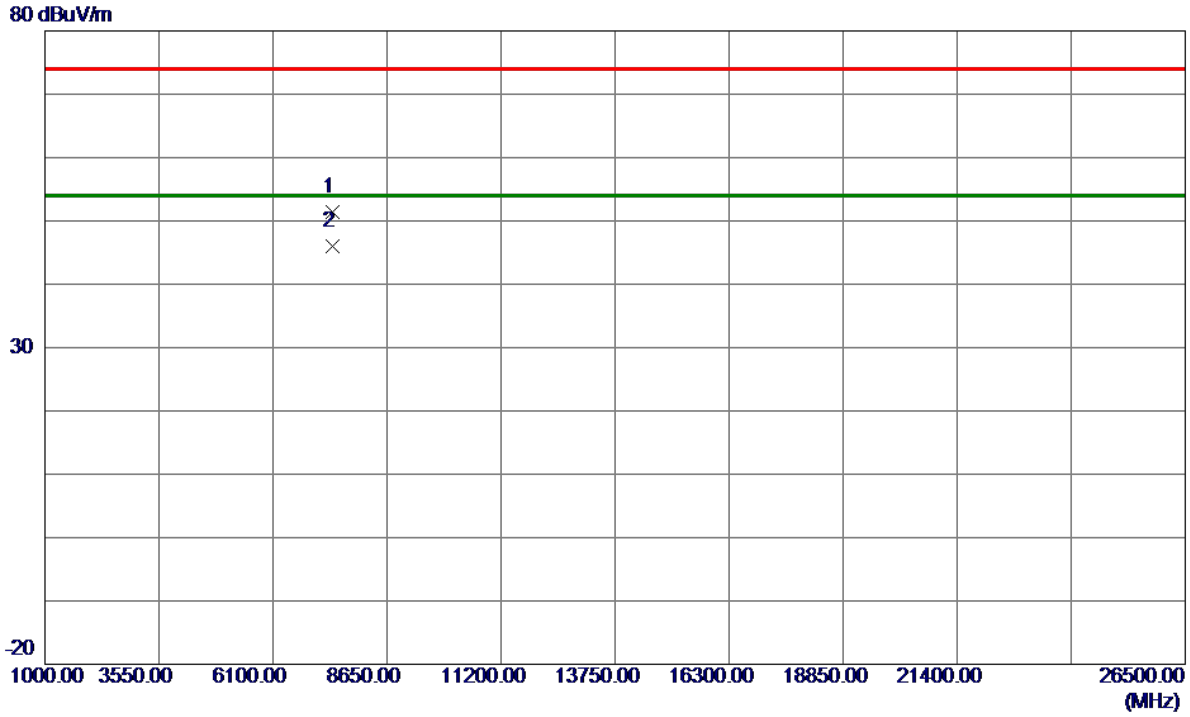



| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 2479.8000 | 91.98 | 6.43 | 98.41 | 74.00 | 24.41 | Peak | No Limit |
| 2 * | 2480.0000 | 90.55 | 6.43 | 96.98 | 54.00 | 42.98 | AVG | No Limit |
| 3 | 2483.5000 | 44.90 | 6.42 | 51.32 | 74.00 | -22.68 | Peak | |
| 4 | 2483.5000 | 33.03 | 6.42 | 39.45 | 54.00 | -14.55 | AVG | |

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

| Test Mode : | TX 2480 MHz _CH39_1Mbps |
|---|---|

**Horizontal**




| No. | Freq. | Reading Level | Correct Factor | Measure ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | 7439.1850 | 41.93 | 9.42 | 51.35 | 74.00 | -22.65 | Peak | |
| 2 * | 7439.4550 | 36.51 | 9.42 | 45.93 | 54.00 | -8.07 | AVG | |

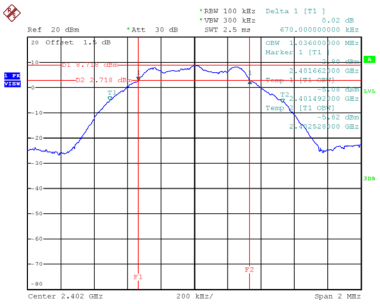
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

# APPENDIX E - BANDWIDTH

| Test Mode: | CH00, CH19 , CH39 - 1Mbps |
|---|---|

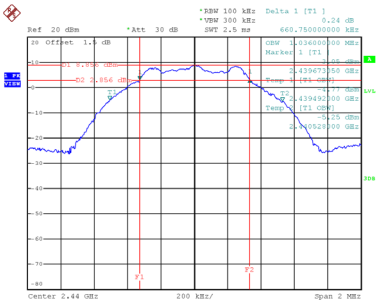
| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | 99 % Emission Bandwidth (MHz) | 6 dB Bandwidth Min. Limit (kHz) | Test Result |
|---|---|---|---|---|---|
| 00 | 2402 | 0.670 | 1.036 | 500 | Pass |
| 19 | 2440 | 0.661 | 1.036 | 500 | Pass |
| 39 | 2480 | 0.702 | 1.044 | 500 | Pass |

**CH00**



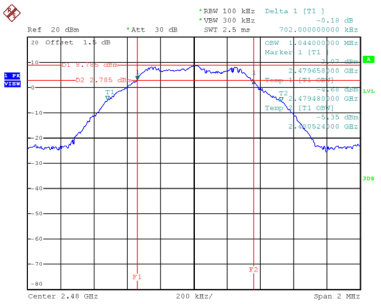
Date: 29.MAY.2019 10:06:22

**CH19**



Date: 29.MAY.2019 10:08:44

**CH39**



Date: 29.MAY.2019 10:10:16

# APPENDIX F - MAXIMUM OUTPUT POWER & E.I.R.P.

| Test Mode : | CH00, CH19 , CH39 - 1Mbps |
|---|---|

| Frequency (MHz) | Output Power (dBm) | Output Power (W) | Max. Limit (dBm) | Max. Limit (W) | Test Result |
|---|---|---|---|---|---|
| 2402 | 9.12 | 0.0082 | 30.00 | 1.00 | Pass |
| 2440 | 9.28 | 0.0085 | 30.00 | 1.00 | Pass |
| 2480 | 9.23 | 0.0084 | 30.00 | 1.00 | Pass |

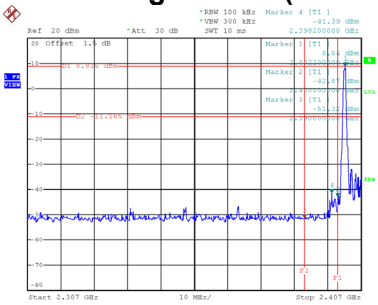
| Test Mode : | CH00, CH19 , CH39 - 1Mbps |
|---|---|

| Frequency (MHz) | e.i.r.p. (dBm) | e.i.r.p. (W) | Max. Limit (dBm) | Max. Limit (W) | Test Result |
|---|---|---|---|---|---|
| 2402 | 14.62 | 0.0290 | 36.00 | 4.00 | Pass |
| 2440 | 14.78 | 0.0301 | 36.00 | 4.00 | Pass |
| 2480 | 14.73 | 0.0297 | 36.00 | 4.00 | Pass |

# APPENDIX G - CONDUCTED SPURIOUS EMISSION

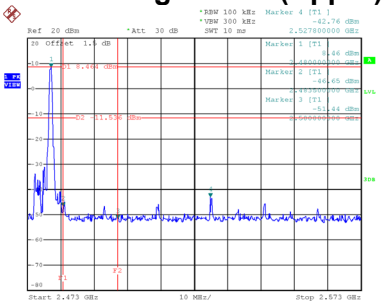
| Test Mode : | CH00, CH19 , CH39 - 1Mbps |
|---|---|

## Bandedge- CH00 (Lower)



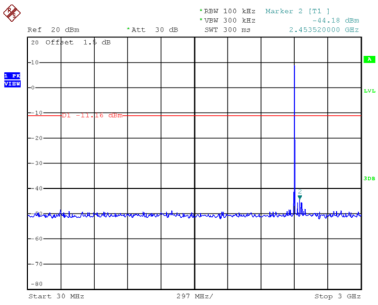
Date: 29.MAY.2019 10:07:02

## Bandedge CH39 (Upper)

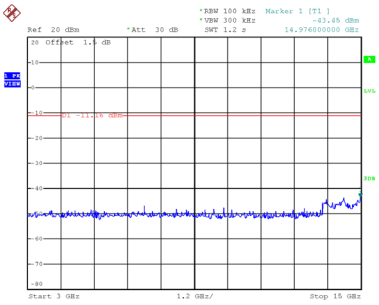


Date: 29.MAY.2019 10:10:24

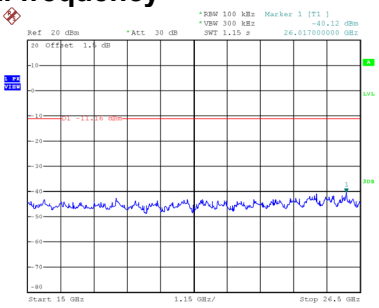
## CH00 – 10th Harmonic of the fundamental frequency



Date: 29.MAY.2019 10:07:15

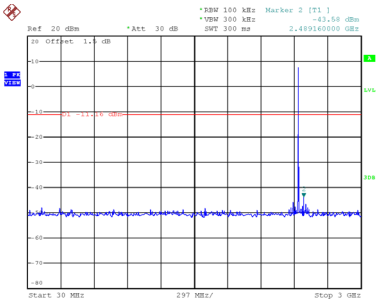


Date: 29.MAY.2019 10:07:23

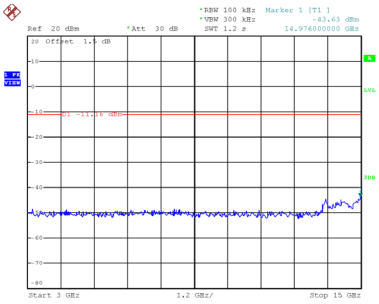


Date: 29.MAY.2019 10:07:31

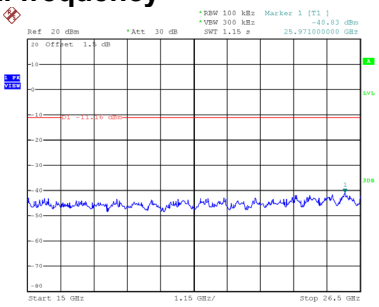
## CH19 – 10th Harmonic of the fundamental frequency



Date: 29.MAY.2019 10:09:06

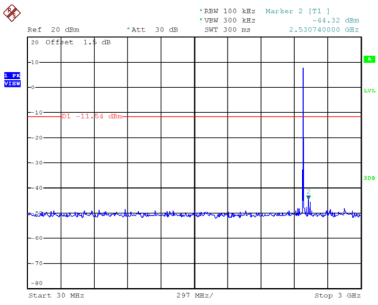


Date: 29.MAY.2019 10:09:13

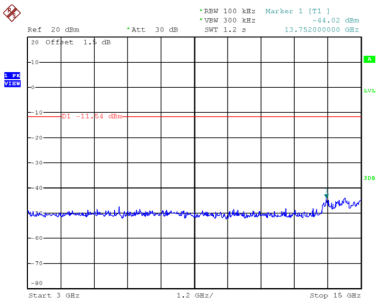


Date: 29.MAY.2019 10:09:21

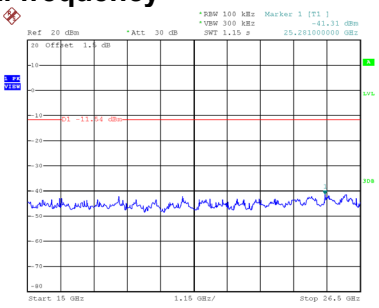
## CH39 – 10th Harmonic of the fundamental frequency



Date: 29.MAY.2019 10:10:37



Date: 29.MAY.2019 10:10:45



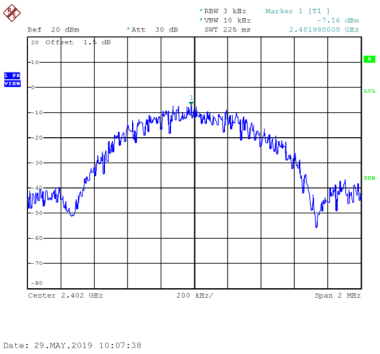
Date: 29.MAY.2019 10:10:52

# APPENDIX H - POWER SPECTRAL DENSITY

| Test Mode: | CH00, CH19 , CH39 - 1Mbps |
|---|---|

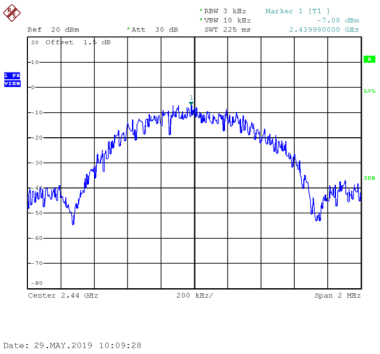
| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Max. Limit (dBm/3 kHz) | Test Result |
|---|---|---|---|---|
| 00 | 2402 | -7.160 | 8.00 | Pass |
| 19 | 2440 | -7.080 | 8.00 | Pass |
| 39 | 2480 | -6.860 | 8.00 | Pass |

**CH00**



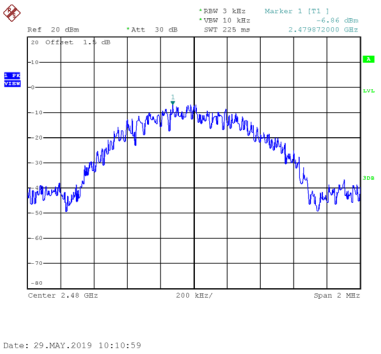
Date: 29.MAY.2019 10:07:38

**CH19**



Date: 29.MAY.2019 10:09:28

**CH39**



Date: 29.MAY.2019 10:10:59

**End of Test Report**