# FCC PART 15 SUBPART C
# ISED RSS-247 ISSUE 2

# CERTIFICATION TEST REPORT

*For*

**Wyze Bulb White**

**MODEL NUMBER: WLPA19V2**

**FCC ID: 2AUIUWLPA19V2**
**IC: 25466-WLPA19V2**

**REPORT NUMBER: 4790005915-F1**

**ISSUE DATE: 19 July 2021**

*Prepared for*

**Wyze Labs, Inc.**
**5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States**

*Prepared by*

**UL-CCIC COMPANY LIMITED**
**No. 2, Chengwan Road, Suzhou Industrial Park, People's Republic of China**
**Tel: +86 769 22038881**
**Fax: +86 769 33244054**
**Website: www.ul.com**

## Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| -- | 19/07/2021 | Initial Issue | -- |

| Summary of Test Results | | | |
|---|---|---|---|
| Clause | Test Items | FCC/IC Rules | Test Results |
| 1 | 6 dB Bandwidth and 99% Bandwidth | FCC Part 15.247 (a) (2)<br>RSS-247 Clause 5.2 (a)<br>RSS-Gen Clause 6.7 | Pass |
| 2 | Conducted Output Power | FCC Part 15.247 (b) (3)<br>RSS-247 Clause 5.4 (d) | Pass |
| 3 | Power Spectral Density | FCC Part 15.247 (e)<br>RSS-247 Clause 5.2 (b) | Pass |
| 4 | Conducted Bandedge and Spurious Emission | FCC Part 15.247 (d)<br>RSS-247 Clause 5.5 | Pass |
| 5 | Radiated Bandedge and Spurious Emission | FCC Part 15.247 (d)<br>FCC Part 15.209<br>FCC Part 15.205<br>RSS-247 Clause 5.5<br>RSS-GEN Clause 8.9 | Pass |
| 6 | Conducted Emission Test For AC Power Port | FCC Part 15.207<br>RSS-GEN Clause 8.8 | Pass |
| 7 | Antenna Requirement | FCC Part 15.203<br>RSS-GEN Clause 6.8 | Pass |
| Remark:<br>1) The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C, when <Accuracy Method> decision rule is applied. | | | |

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# 1. ATTESTATION OF TEST RESULTS

**Applicant Information**

| | |
|---|---|
| Company Name: | Wyze Labs, Inc. |
| Address: | 5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States |

**Manufacturer Information**

| | |
|---|---|
| Company Name: | Wyze Labs, Inc. |
| Address: | 5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States |

**EUT Description**

| | |
|---|---|
| EUT Name: | Wyze Bulb White |
| Brand Name: | WYZE |
| Model: | WLPA19V2 |
| Sample Status: | Normal |
| Model: | 210630005-4 |
| Sample Received Date: | 01 July 2021 |
| Date of Tested: | 01 July 2021 ~ 19 July 2021 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| **FCC Part 15 Subpart C** | **PASS** |
| **ISED RSS-247 Issue 2** | **PASS** |
| **ISED RSS-GEN Issue 5** | **PASS** |

Prepared By:

Jeremy Wang
Senior Project Engineer

Reviewed By:

Shawn Wen
Laboratory Leader

Authorized By:

Chris Zhong
Laboratory Manager

# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

# 3. FACILITIES AND ACCREDITATION

| | |
|---|---|
| Accreditation Certificate | **A2LA (Certificate No.: 4338.01)**<br>Shenzhen STS Test Services Co., Ltd.<br>has been assessed and proved to be in compliance with A2LA**.**<br>**CNAS (Registration No.: L7649)**<br>Shenzhen STS Test Services Co., Ltd.<br>has been assessed and proved to be in compliance with CNAS.<br>**IC(Company No.: 12108A)**<br>Shenzhen STS Test Services Co., Ltd.<br>has been registered and fully described in a report filed with Industry Canada. The Company Number is 12108A. |

Note: All tests measurement facilities use to collect the measurement data are located at A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

# 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. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

| No. | Item | Uncertainty |
|---|---|---|
| 1 | RF output power, conducted | ±0.7dB |
| 2 | Unwanted Emissions, conducted | ±3.0dB |
| 3 | All emissions, radiated 9K-30MHz | ±2.7dB |
| 4 | All emissions, radiated 30M-1GHz | ±4.4dB |
| 5 | All emissions, radiated 1G-6GHz | ±5.1dB |
| 6 | All emissions, radiated>6G | ±5.5dB |
| 7 | Conducted Emission (9KHz-150KHz) | ±2.8dB |
| 8 | Conducted Emission (150KHz-30MHz) | ±2.8dB |

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

| | | |
|---|---|---|
| EUT Name | Wyze Bulb White | |
| EUT Description | The EUT is a Wyze Bulb White | |
| Model | WLPA19V2 | |
| PMN | Wyze Bulb White | |
| HVIN | WLPA19V2 | |
| FVIN | 1.3.1.1 | |
| Serial number | 7C49EB0071A8 | |
| Product Description (Bluetooth) | Operation Frequency | 2402 MHz ~ 2480 MHz |
| | Modulation Type | Data Rate |
| | GFSK | 1Mbps |
| Power Parameter | 120VAC 60Hz 9.5W 0.13A | |
| Bluetooth Version | 4.2 | |
| Bluetooth Configuration | LE | |
| Hardware Version | 0.0.0.0 | |
| Software Version | 1.3.1.1 | |

## 5.2. MAXIMUM OUTPUT POWER

| Frequency Range (MHz) | Number of Transmit Chains (NTX) | Bluetooth Mode | Frequency (MHz) | Channel Number | Max average Conducted Power (dBm) |
|---|---|---|---|---|---|
| 2400-2483.5 | 1 | BLE | 2402-2480 | 0-39[40] | 4.84 |

## 5.3. CHANNEL LIST

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

## 5.4. TEST CHANNEL CONFIGURATION

| Test Mode | Test Channel | Frequency |
|---|---|---|
| GFSK | CH 00, CH 19, CH 39 | 2402MHz, 2440MHz, 2480MHz |

## 5.5. THE WORSE CASE POWER SETTING PARAMETER

| The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band | | | | |
|---|---|---|---|---|
| Modulation Type | Transmit Antenna Number | Test Channel | | |
| | | CH 00 | CH 19 | CH 39 |
| GFSK | 1 | 6 | 6 | 6 |

## 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

| Ant. | Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | integral antenna | 0.96 (Provided by applicant) |

| Test Mode | Transmit and Receive Mode | Description |
|---|---|---|
| GFSK | ☒1TX, 1RX | Chain 1 can be used as transmitting/receiving antenna. |

## 5.7. WORST-CASE CONFIGURATIONS

| Bluetooth Mode | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---|---|---|---|
| BLE | DTS | GFSK | 1Mbit/s |

## 5.8. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Item | Equipment | Brand Name | Model Name | P/N |
|---|---|---|---|---|
| 1 | PC | DELL | VOSTRO.3800 | N/A |

**I/O CABLES**

| Cable No | Port | Connector Type | Cable Type | Cable Length(cm) | Remarks |
|---|---|---|---|---|---|
| 1 | USB Cable | NO | N/A | 100cm | N/A |

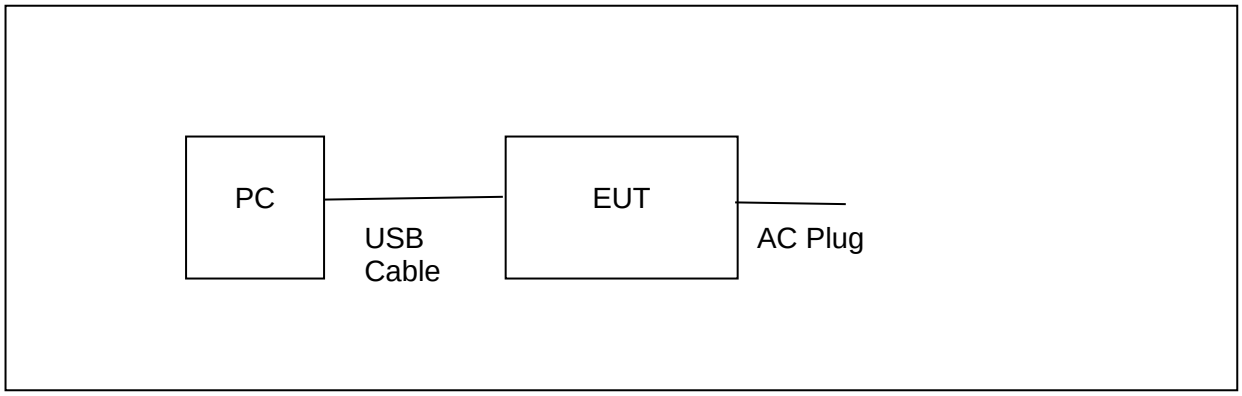
**ACCESSORY**

| Item | Accessory | Brand Name | Model Name | Description |
|---|---|---|---|---|
| 1 | N/A | N/A | N/A | N/A |

**TEST SETUP**

The EUT can work in engineering mode with software EspRFTestTool_v2.8_Manual through a Laptop.

**SETUP DIAGRAM FOR TESTS**



# 6. MEASURING INSTRUMENT AND SOFTWARE USED

Radiation Test equipment

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| Test Receiver | R&S | ESCI | 101427 | 2020.10.12 | 2021.10.11 |
| Signal Analyzer | R&S | FSV 40-N | 101823 | 2020.10.10 | 2021.10.09 |
| Active loop Antenna | ZHINAN | ZN30900C | 16035 | 2021.04.11 | 2022.04.10 |
| Bilog Antenna | TESEQ | CBL6111D | 34678 | 2020.10.12 | 2022.10.11 |
| Horn Antenna | SCHWARZBECK | BBHA 9120D | 02014 | 2019.10.15 | 2021.10.14 |
| SHF-EHF Horn Antenna (18G-40GHz) | A-INFO | LB-180400-KF | J211020657 | 2020.10.12 | 2022.10.11 |
| Pre-Amplifier (0.1M-3GHz) | EM | EM330 | 060665 | 2020.10.12 | 2021.10.11 |
| Pre-Amplifier (1G-18GHz) | SKET | LNPA-01018G-45 | SK2018080901 | 2020.10.12 | 2021.10.11 |
| Pre-Amplifier (18G-40GHz) | SKET | LNPA-1840-50 | SK2018101801 | 2020.10.10 | 2021.10.09 |
| Temperature & Humidity | HH660 | Mieo | N/A | 2020.10.12 | 2021.10.11 |
| Turn table | EM | SC100_1 | 60531 | N/A | N/A |
| Antenna mast | EM | SC100 | N/A | N/A | N/A |
| Band Reject Filter (2.4-2.5GHz) | COM-MW | ZBSF-2400-2500 | N/A | 2020.10.12 | 2021.10.11 |
| Test SW | FARAD | EZ-EMC(Ver.STSLAB-03A1 RE) | | | |

Conduction Test equipment

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| Test Receiver | R&S | ESCI | 101427 | 2020.10.12 | 2021.10.11 |
| LISN | R&S | ENV216 | 101242 | 2020.10.12 | 2021.10.11 |
| Temperature & Humidity | HH660 | Mieo | N/A | 2020.10.13 | 2021.10.12 |
| Test SW | FARAD | EZ-EMC(Ver.STSLAB-03A1 RE) | | | |

RF Connected Test

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| Power Sensor | Keysight | U2021XA | MY55520005 | 2020.10.10 | 2021.10.09 |
| | | | MY55520006 | 2020.10.10 | 2021.10.09 |
| | | | MY56120038 | 2020.10.10 | 2021.10.09 |
| | | | MY56280002 | 2020.10.10 | 2021.10.09 |
| Signal Analyzer | Agilent | N9020A | MY51110105 | 2021.03.04 | 2022.03.03 |
| Temperature & Humidity | HH660 | Mieo | N/A | 2020.10.13 | 2021.10.12 |
| MIMO Power measurement test Set | Keysight | U2021XA | MY55520005 | 2020.10.10 | 2021.10.09 |
| Test SW | FARAD | EZ-EMC(Ver.STSLAB-03A1 RE) | | | |

# 7. MEASUREMENT METHODS

| No. | Test Item | KDB Name | Section |
|---|---|---|---|
| 1 | 6 dB Bandwidth and 99% Bandwidth | 558074 D01 15.247 Meas Guidance v05r02 | 8.2 |
| 2 | Peak Output Power | 558074 D01 15.247 Meas Guidance v05r02 | 8.1.3 |
| 3 | Power Spectral Density | 558074 D01 15.247 Meas Guidance v05r02 | 8.4 |
| 4 | Out-of-band emissions in non-restricted bands | 558074 D01 15.247 Meas Guidance v05r02 | 8.5 |
| 5 | Out-of-band emissions in restricted bands | 558074 D01 15.247 Meas Guidance v05r02 | 8.6 |
| 6 | Band-edge | 558074 D01 15.247 Meas Guidance v05r02 | 8.7 |
| 7 | Conducted Emission Test For AC Power Port | ANSI C63.10-2013 | 6.2 |

# 8. ANTENNA PORT TEST RESULTS

## 8.1. ON TIME AND DUTY CYCLE

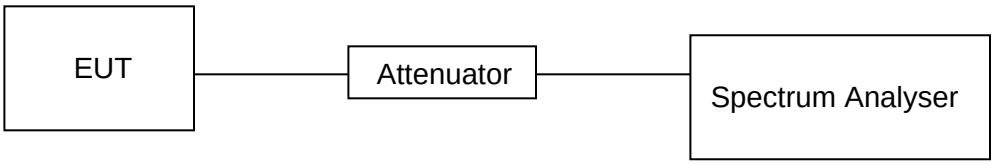
**LIMITS**

None; for reporting purposes only

**PROCEDURE**

KDB 558074 Zero-Span Spectrum Analyzer Method

**TEST SETUP**




**TEST ENVIRONMENT**

| | | | |
|---|---|---|---|
| Temperature | 27.4°C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

**RESULTS**

| Mode | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (db) | 1/B Minimum VBW (KHz) |
|---|---|---|---|---|---|---|
| GFSK | 2.106 | 3.120 | 0.675 | 67.50% | 1.707 | 0.5 |

Note: Duty Cycle Correction Factor=10log(1/x).
Where: x is Duty Cycle(Linear)
Where: B is On Time
When Duty Cycle > 98%, VBW ⩽ RBW/100; When Duty Cycle < 98%, VBW ⩾ 1/B;
Set the final test VBW = 1KHz;

ON TIME AND DUTY CYCLE MID CH

## 8.2. 6 dB BANDWIDTH & 99% BANDWIDTH

**LIMITS**

| FCC Part15 (15.247) Subpart C<br>RSS-247 ISSUE 2 | | | |
|---|---|---|---|
| Section | Test Item | Limit | Frequency Range (MHz) |
| FCC 15.247(a)(2)<br>RSS-247 5.2 (a) | 6dB Bandwidth | >= 500KHz | 2400-2483.5 |
| RSS-Gen Clause 6.7 | 99% Bandwidth | For reporting purposes only. | 2400-2483.5 |

**TEST PROCEDURE**

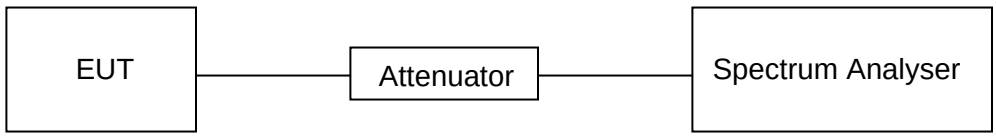
Connect the UUT to the spectrum analyser and use the following settings:

| | |
|---|---|
| Center Frequency | The centre frequency of the channel under test |
| Detector | Peak |
| RBW | For 6 dB Bandwidth :100K<br>For 99% Bandwidth :1% to 5% of the occupied bandwidth |
| VBW | For 6dB Bandwidth : ≥3 × RBW<br>For 99% Bandwidth : approximately 3×RBW |
| Trace | Max hold |
| Sweep | Auto couple |

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99% relative to the maximum level measured in the fundamental emission.

.

**TEST SETUP**



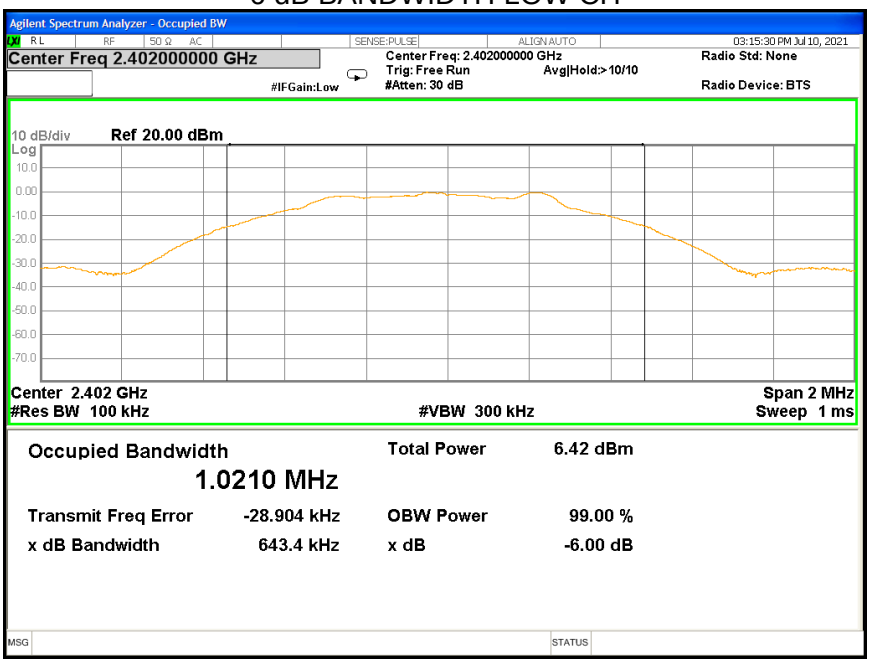
## TEST ENVIRONMENT

| | | | |
|---|---|---|---|
| Temperature | 27.4° C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

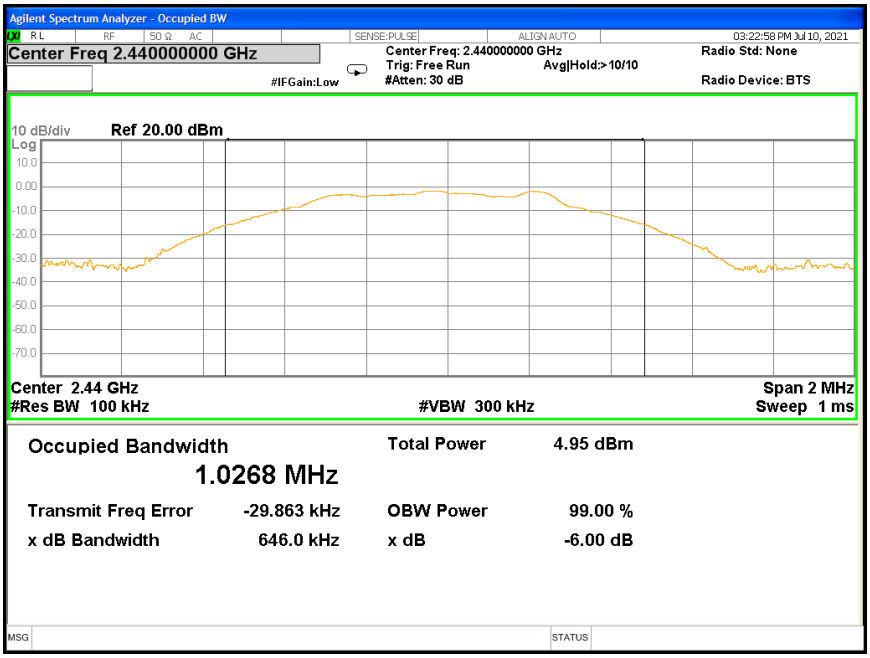
## RESULTS

| Channel | Frequency (MHz) | 6dB bandwidth (KHz) | 99% bandwidth (KHz) | Limit (kHz) | Result |
|---|---|---|---|---|---|
| Low | 2402 | 643.400 | 1013.400 | 500 | Pass |
| Middle | 2440 | 646.000 | 1020.200 | 500 | Pass |
| High | 2480 | 636.300 | 1019.500 | 500 | Pass |

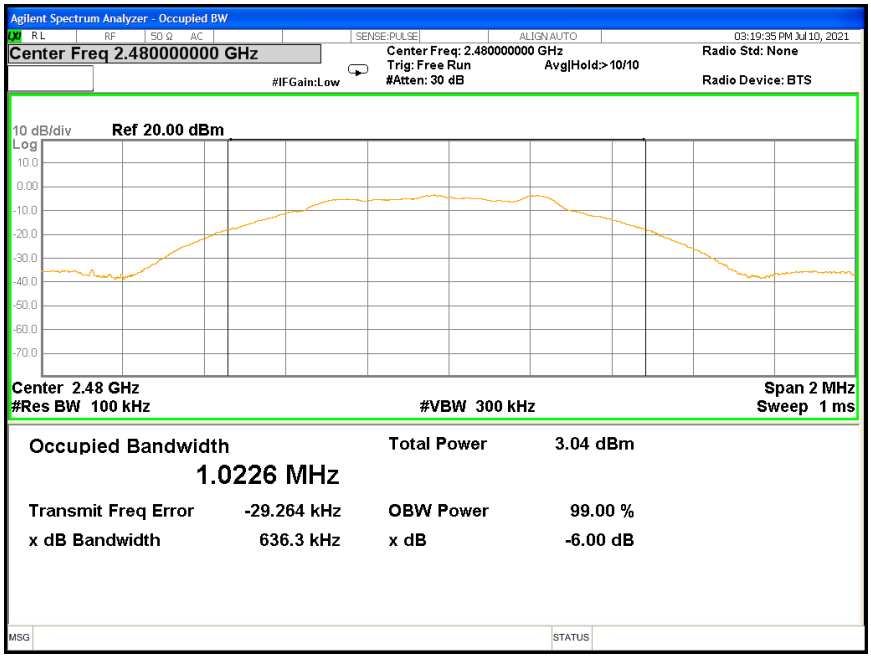
6 dB BANDWIDTH LOW CH



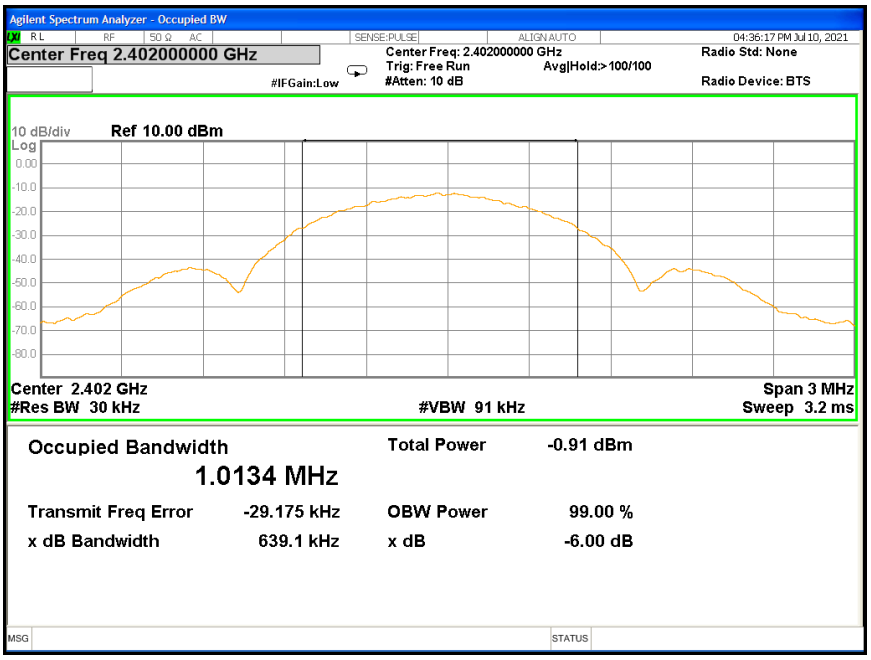
## 6 dB BANDWIDTH MID CH



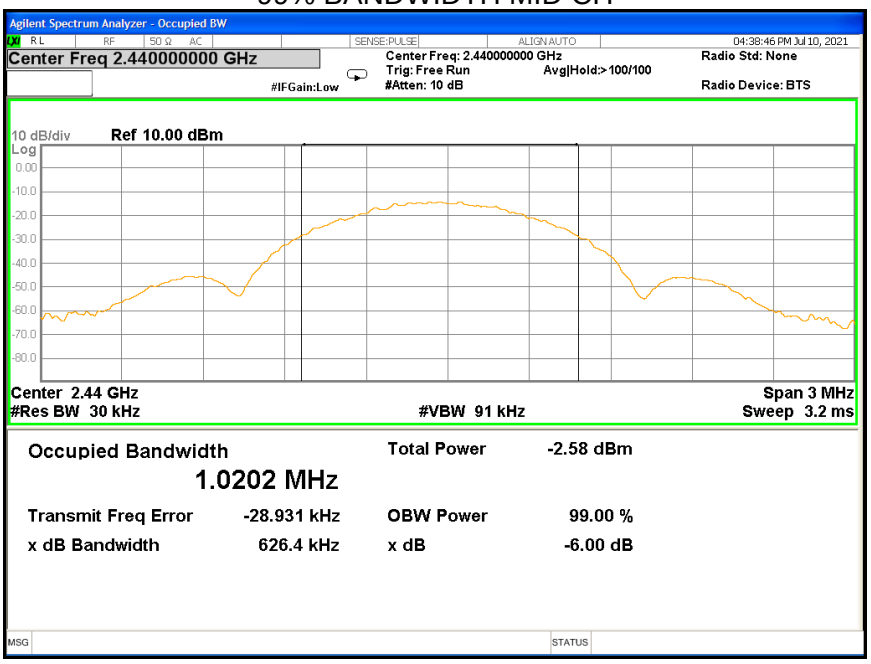

## 6 dB BANDWIDTH HIGH CH



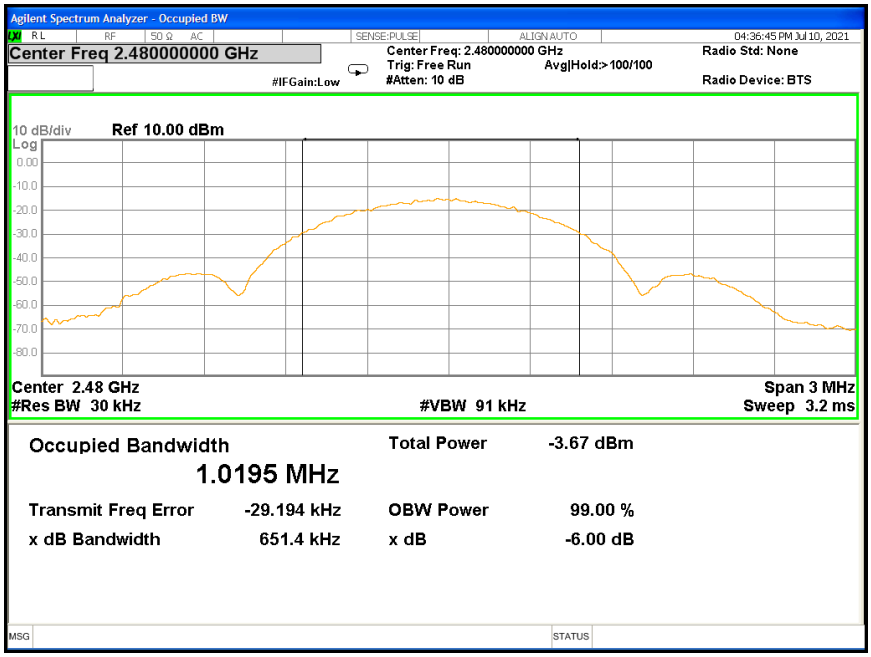
99% BANDWIDTH LOW CH




99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH



## 8.3. CONDUCTED OUTPUT POWER

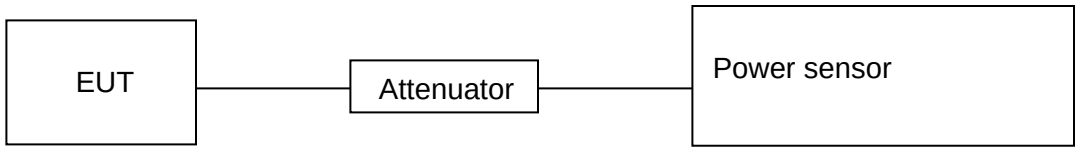
**LIMITS**

| FCC Part15 (15.247) , Subpart C<br>IC RSS-247 ISSUE 2 | | | |
|---|---|---|---|
| Section | Test Item | Limit | Frequency Range (MHz) |
| FCC 15.247(b)(3)<br>RSS-247 5.4 (d) | Conducted Output Power | 1 watt or 30dBm | 2400-2483.5 |

**TEST PROCEDURE**

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
Measure peak power each channel.

**TEST SETUP**




**TEST ENVIRONMENT**

| | | | |
|---|---|---|---|
| Temperature | 27.4°C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

**RESULTS**

| Test Channel | Frequency | Maximum Conducted Output Power(PK) | Maximum Conducted Output Power(AVG) | LIMIT |
|---|---|---|---|---|
| | (MHz) | (dBm) | (dBm) | dBm |
| Low | 2402 | 6.33 | 4.84 | 30 |
| Middle | 2440 | 6.29 | 4.22 | 30 |
| High | 2480 | 5.77 | 4.08 | 30 |

EIRP

| Test Channel | Frequency | Peak Conducted Output Power | Antenna Gain | EIRP Power | LIMIT |
|---|---|---|---|---|---|
| | (MHz) | (dBm) | (dBi) | (dBm) | dBm |
| CH0 | 2402 | 6.33 | 0.96 | 7.29 | 36.02 |
| CH19 | 2440 | 6.29 | 0.96 | 7.25 | 36.02 |
| CH39 | 2480 | 5.77 | 0.96 | 6.73 | 36.02 |

Note: The power sensor has no duty cycle display. The measured AVG power is Burst power. The software has considered the factor of the duty cycle correction factor, so it is unnecessary to add it again.

## 8.4. POWER SPECTRAL DENSITY

**LIMITS**

| FCC Part15 (15.247) , Subpart C<br>IC RSS-247 ISSUE 2 | | | |
|---|---|---|---|
| Section | Test Item | Limit | Frequency Range (MHz) |
| FCC §15.247 (e)<br>RSS-247 5.2 (b) | Power Spectral Density | 8 dBm in any 3 kHz band | 2400-2483.5 |

**TEST PROCEDURE**

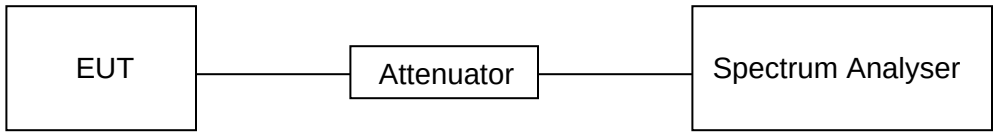
Connect the UUT to the spectrum analyser and use the following settings:

| | |
|---|---|
| Center Frequency | The centre frequency of the channel under test |
| Detector | Peak |
| RBW | 3 kHz ≤ RBW ≤ 100kHz |
| VBW | ≥3 × RBW |
| Span | 1.5 x DTS bandwidth |
| Trace | Max hold |
| Sweep time | Auto couple. |

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

**TEST SETUP**



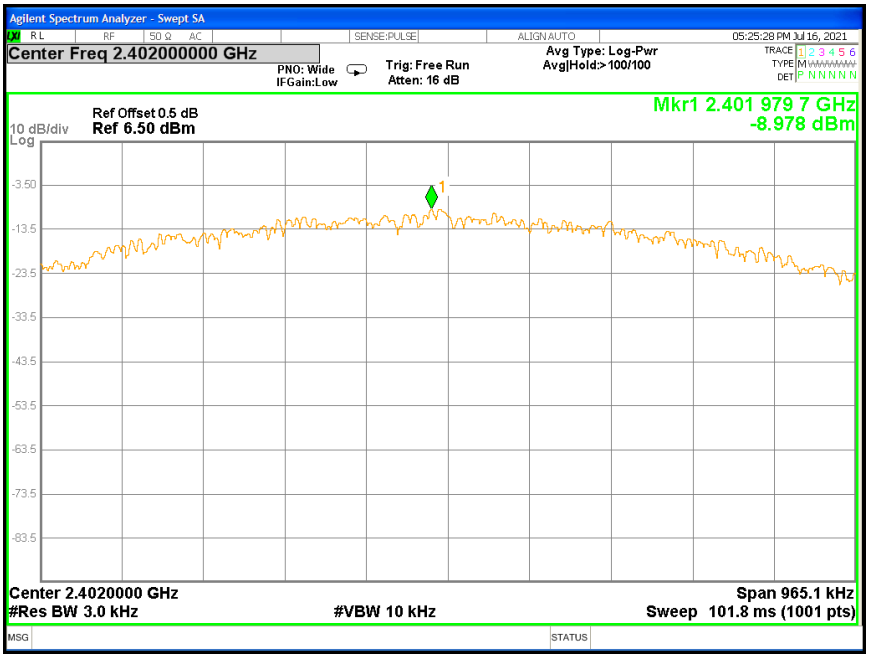
**TEST ENVIRONMENT**

| | | | |
|---|---|---|---|
| Temperature | 27.4°C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

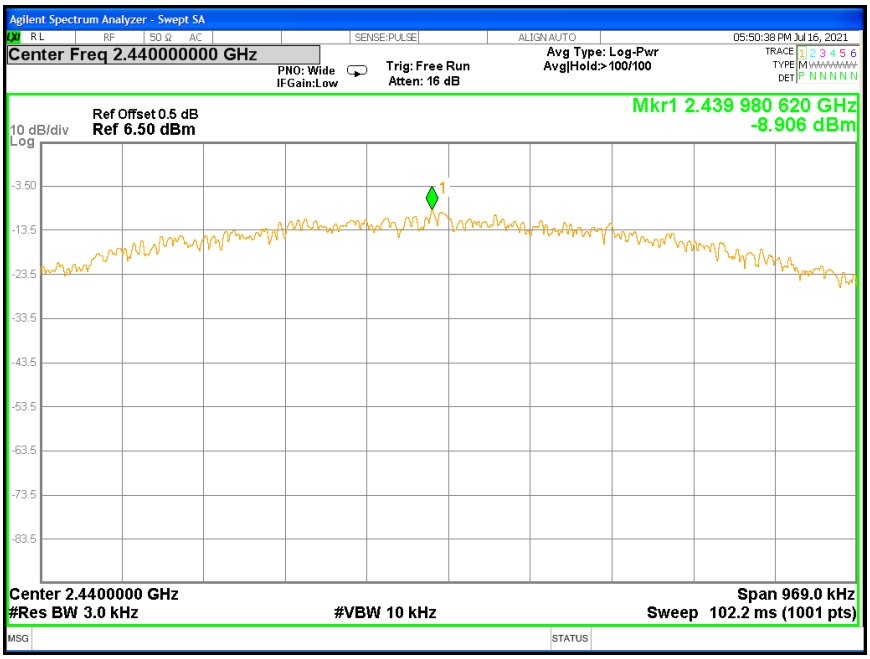
**RESULTS**

| Test Channel | Frequency | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Result |
|---|---|---|---|---|
| Low | 2402 MHz | -8.978 | 8 | PASS |
| Middle | 2440 MHz | -8.906 | 8 | PASS |
| High | 2480 MHz | -9.411 | 8 | PASS |

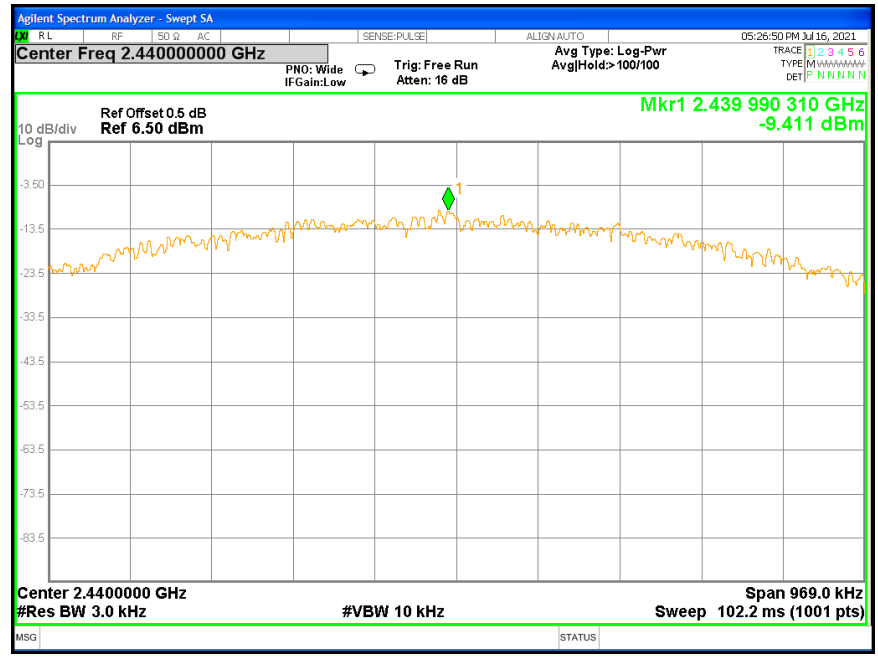
PSD LOW CH



PSD MID CH




PSD HIGH CH



## 8.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

**LIMITS**

| FCC Part15 (15.247) , Subpart C<br>IC RSS-247 ISSUE 2 | | |
|---|---|---|
| Section | Test Item | Limit |
| FCC §15.247 (d)<br>RSS-247 5.5 | Conducted Bandedge and Spurious Emissions | 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 conducted power limits. |

**TEST PROCEDURE**

Connect the UUT to the spectrum analyser and use the following settings:

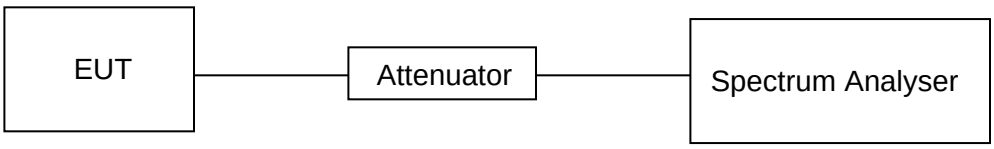
| | |
|---|---|
| Center Frequency | The centre frequency of the channel under test |
| Detector | Peak |
| RBW | 100K |
| VBW | ≥3 × RBW |
| Span | 1.5 x DTS bandwidth |
| Trace | Max hold |
| Sweep time | Auto couple. |

Use the peak marker function to determine the maximum PSD level.

| | |
|---|---|
| Span | Set the center frequency and span to encompass frequency range to be measured |
| Detector | Peak |
| RBW | 100K |
| VBW | ≥3 × RBW |
| measurement points | ≥span/RBW |
| Trace | Max hold |
| Sweep time | Auto couple. |

Use the peak marker function to determine the maximum amplitude level**.**

**TEST SETUP**

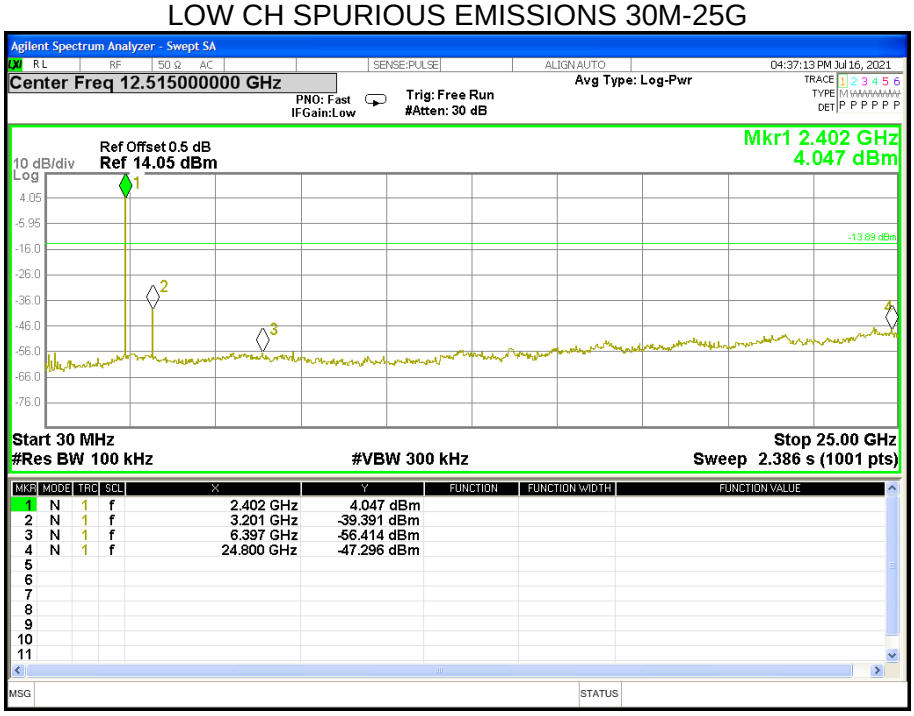


## TEST ENVIRONMENT

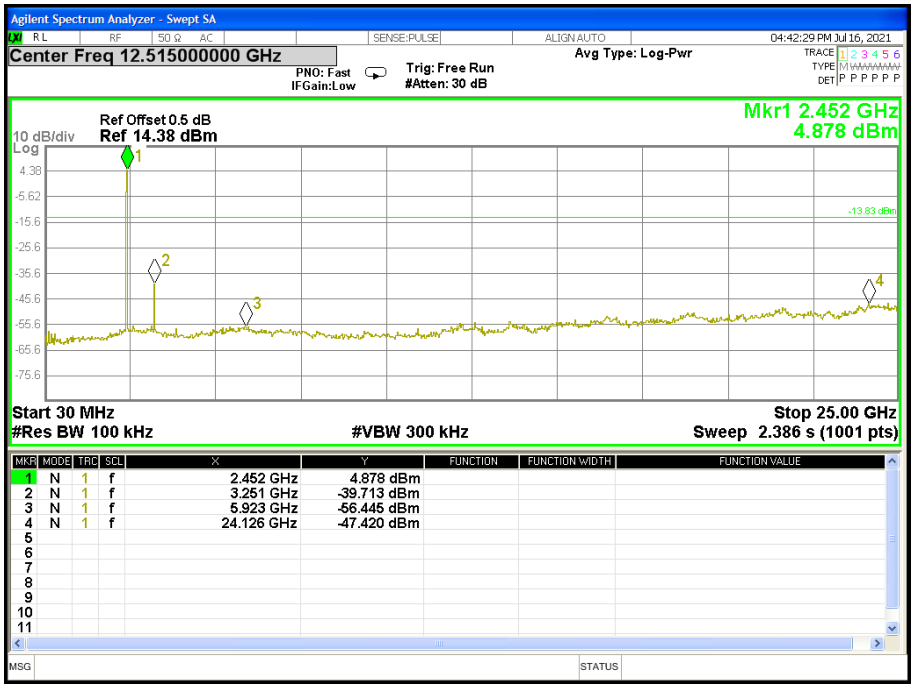
| | | | |
|---|---|---|---|
| Temperature | 27.4°C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

## RESULTS

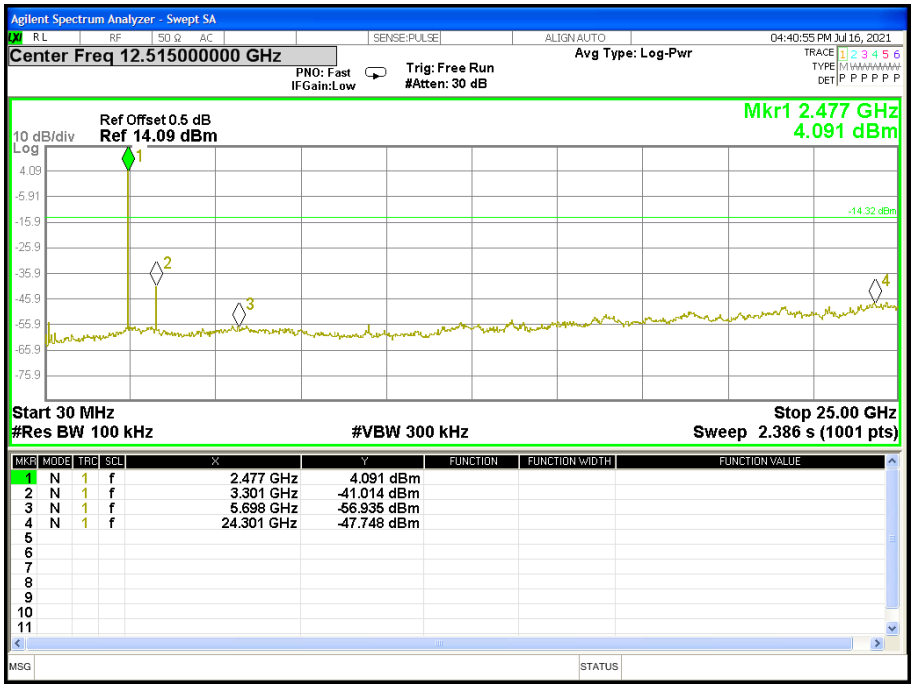
LOW CH SPURIOUS EMISSIONS 30M-25G



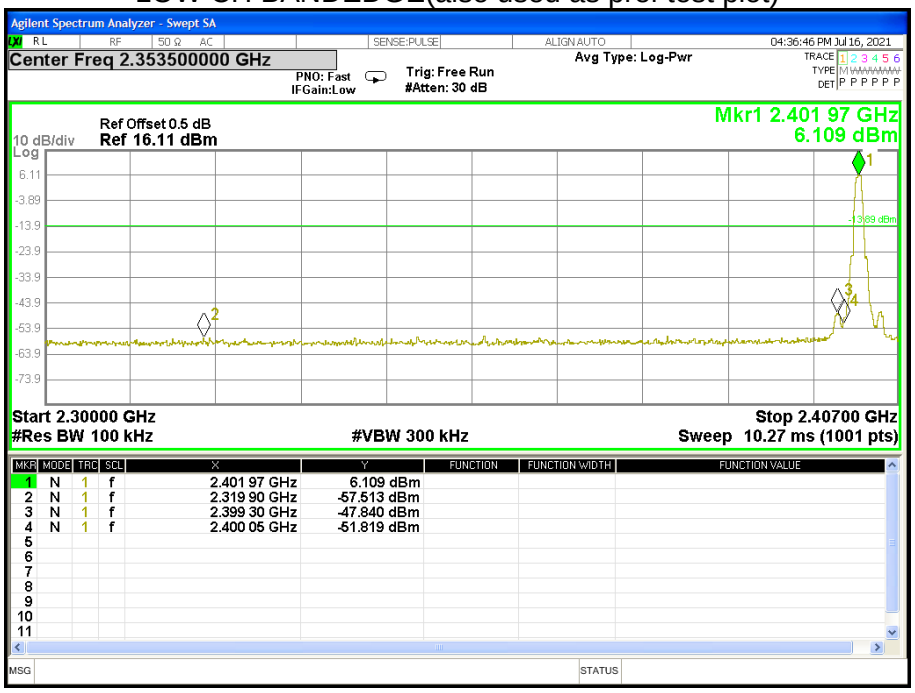
## MID CH SPURIOUS EMISSIONS 30M-25G



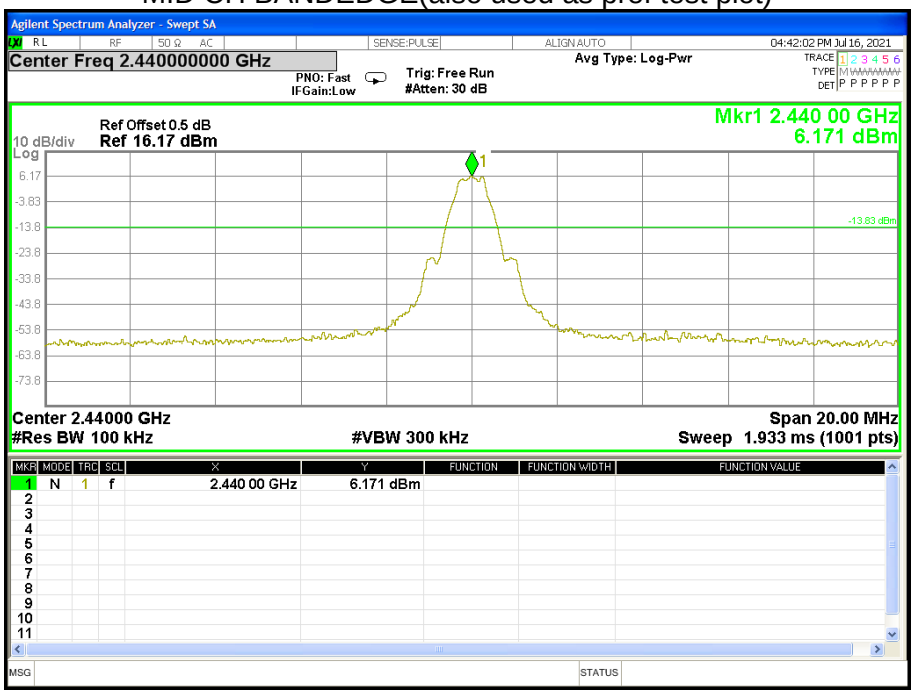

## HIGH CH SPURIOUS EMISSIONS 30M-25G



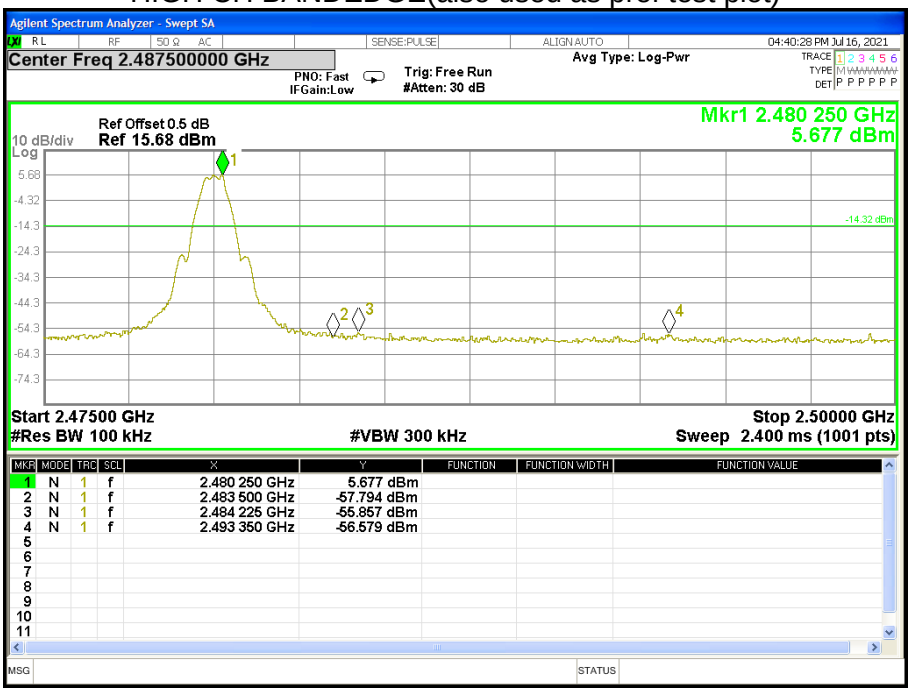
LOW CH BANDEDGE(also used as pref test plot)




MID CH BANDEDGE(also used as pref test plot)



HIGH CH BANDEDGE(also used as pref test plot)



# 9. RADIATED TEST RESULTS

**LIMITS**

Please refer to FCC §15.205 and §15.209

Please refer to RSS-GEN Clause 8.9 (Transmitter)

Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

| 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 |
| 960~1000 | 500 | 3 |

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, 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. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

Radiation Disturbance Test Limit for RSS-Gen (9KHz-1GHz)

| Frequencies (MHz) | Magnetic field strength (H-Field) (μA/m) | Measurement Distance (meters) |
|---|---|---|
| 0.009~0.490 | 6.37/F(KHz) | 300 |
| 0.490~1.705 | 63.7/F(KHz) | 30 |
| 1.705~30.0 | 0.08 | 30 |

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

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Radiation Disturbance Test Limit for FCC (Above 1G)

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

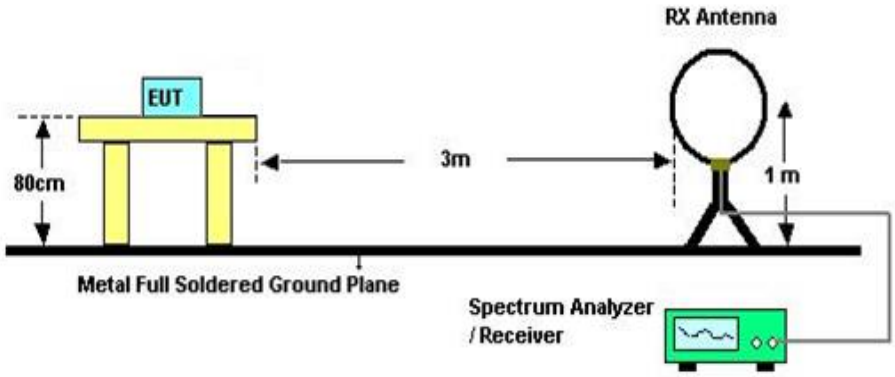
Restricted bands of operation

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| [1]0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | ([2]) |
| 13.36-13.41 | | | |

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

**TEST SETUP AND PROCEDURE**

Below 30MHz




The setting of the spectrum analyser

| | |
|---|---|
| RBW | 200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz) |
| VBW | 200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz) |
| Sweep | Auto |
| Detector | Peak/QP/ Average |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

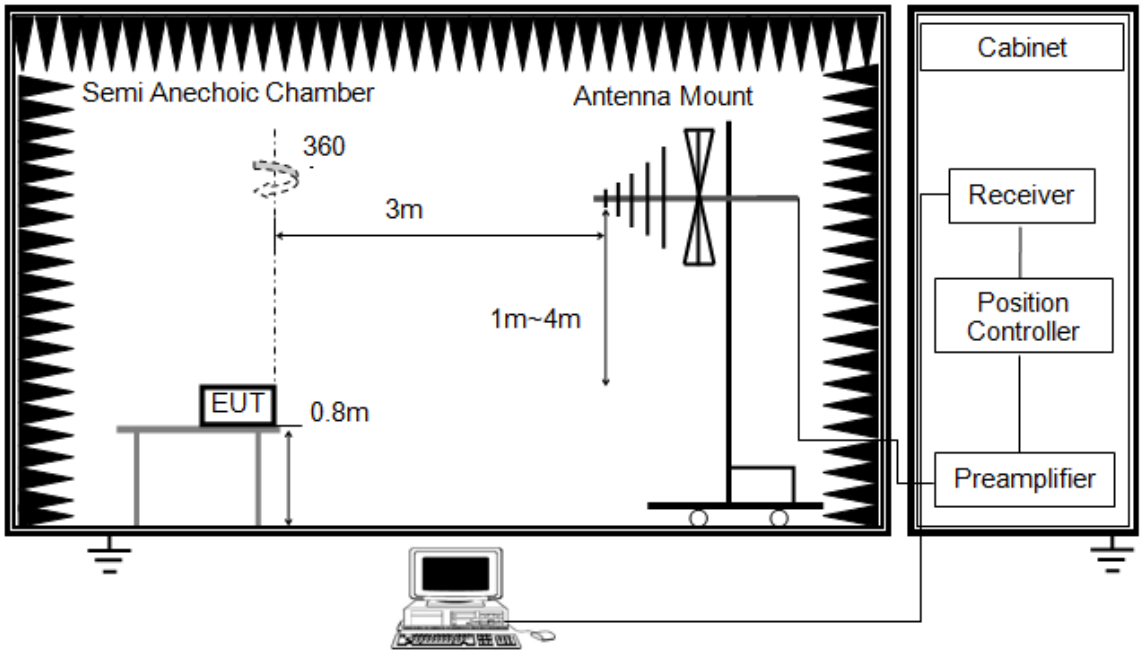
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

6. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

Note: Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Below 1G




The setting of the spectrum analyser

| | |
|---|---|
| RBW | 120K |
| VBW | 300K |
| Sweep | Auto |
| Detector | Peak/QP |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

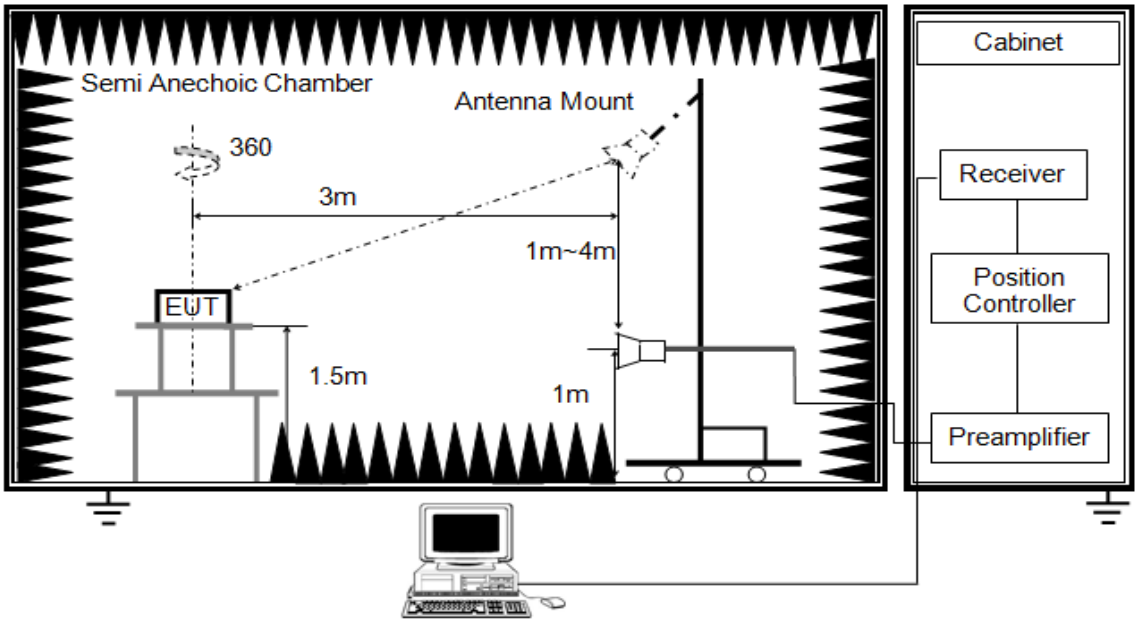
3. The EUT was placed on a turntable with 0.8 meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

6. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)

ABOVE 1G




The setting of the spectrum analyser

| | |
|---|---|
| RBW | 1M |
| VBW | PEAK: 3M<br>AVG: see note 6 |
| Sweep | Auto |
| Detector | Peak |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

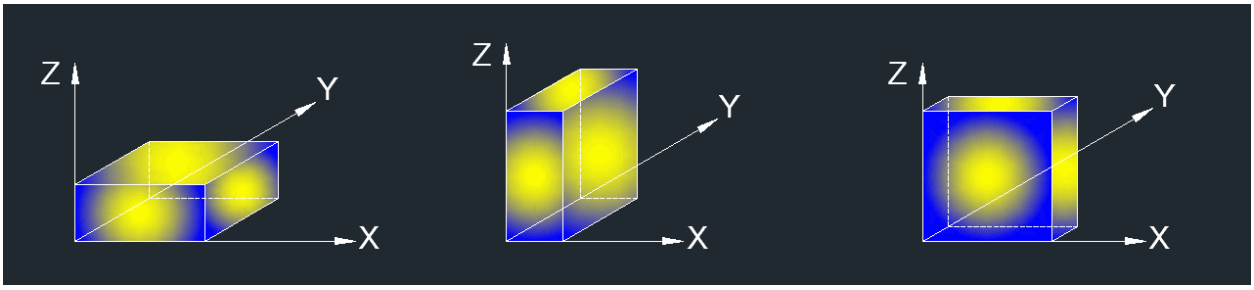
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For peak measurements, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz with peak detector; For average measurements, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1KHz with peak detector.

7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

X axis, Y axis, Z axis positions:




**TEST ENVIRONMENT**

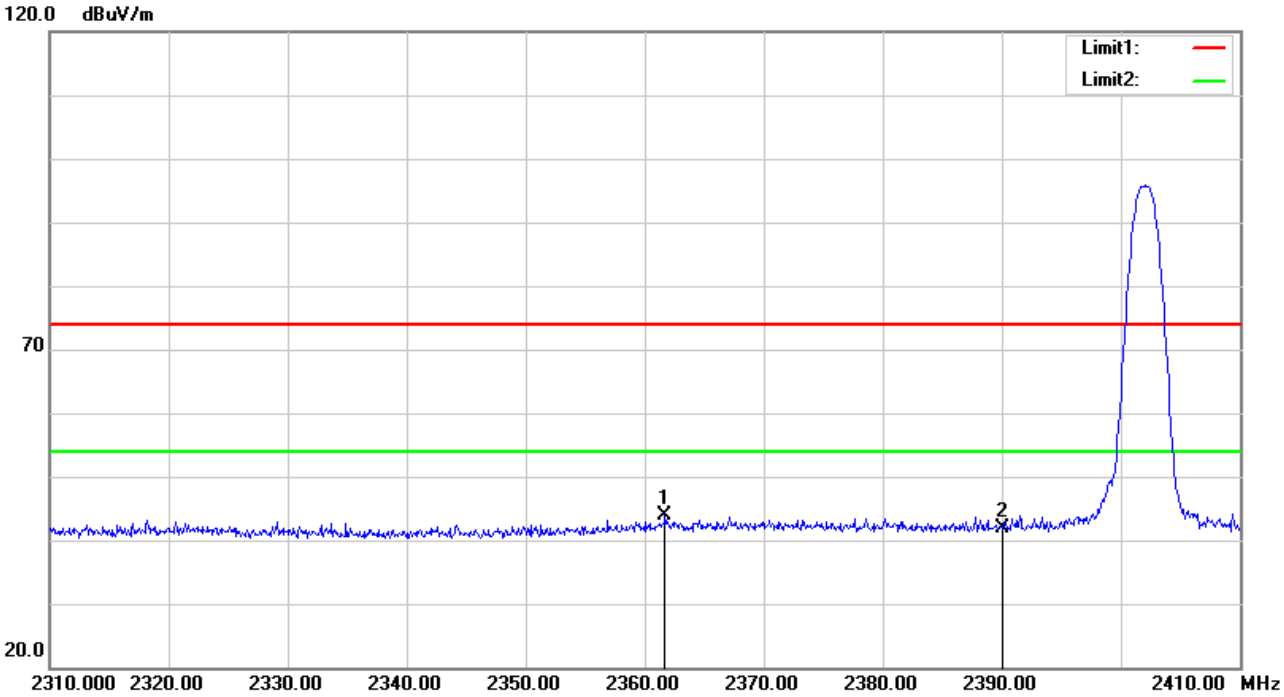
| | | | |
|---|---|---|---|
| Temperature | 25C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

Note: Pre-test X-axis, Y-axis, and Z-axis positions, find the worst case in X-axis and record it in this report.

## 9.1. RESTRICTED BANDEDGE

**GFSK**

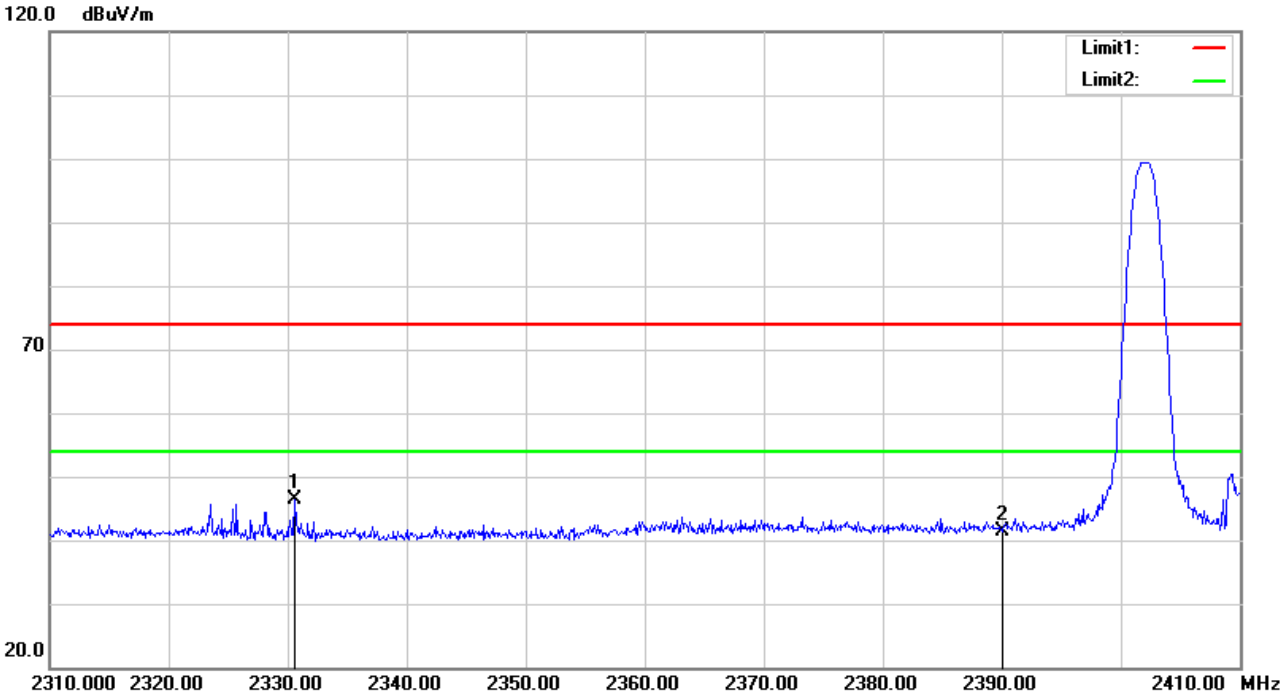
**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV/m) | Correct dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2361.700 | 40.05 | 3.92 | 43.97 | 74.00 | -30.03 | peak |
| 2 | 2390.000 | 37.63 | 4.34 | 41.97 | 74.00 | -32.03 | peak |

Note: Measurement = Reading Level + Correct Factor.

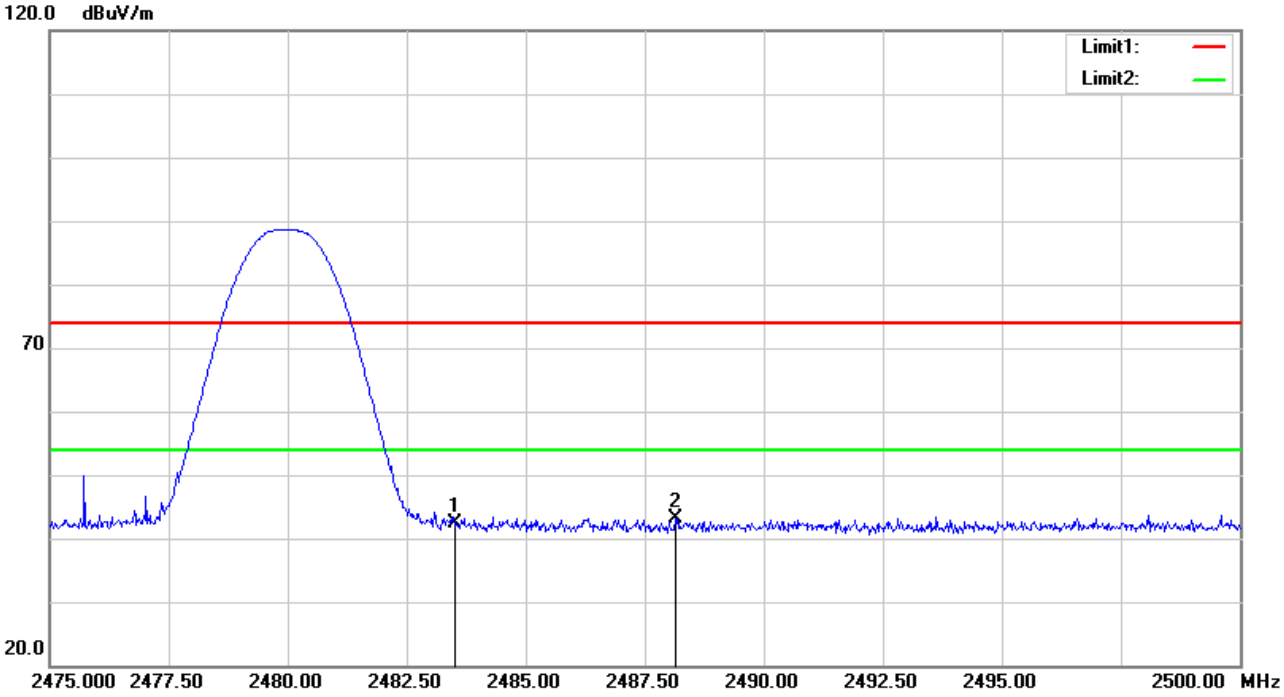
## RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)




| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2330.600 | 42.64 | 3.63 | 46.27 | 74.00 | -27.73 | peak |
| 2 | 2390.000 | 37.11 | 4.34 | 41.45 | 74.00 | -32.55 | peak |

Note: Measurement = Reading Level + Correct Factor.

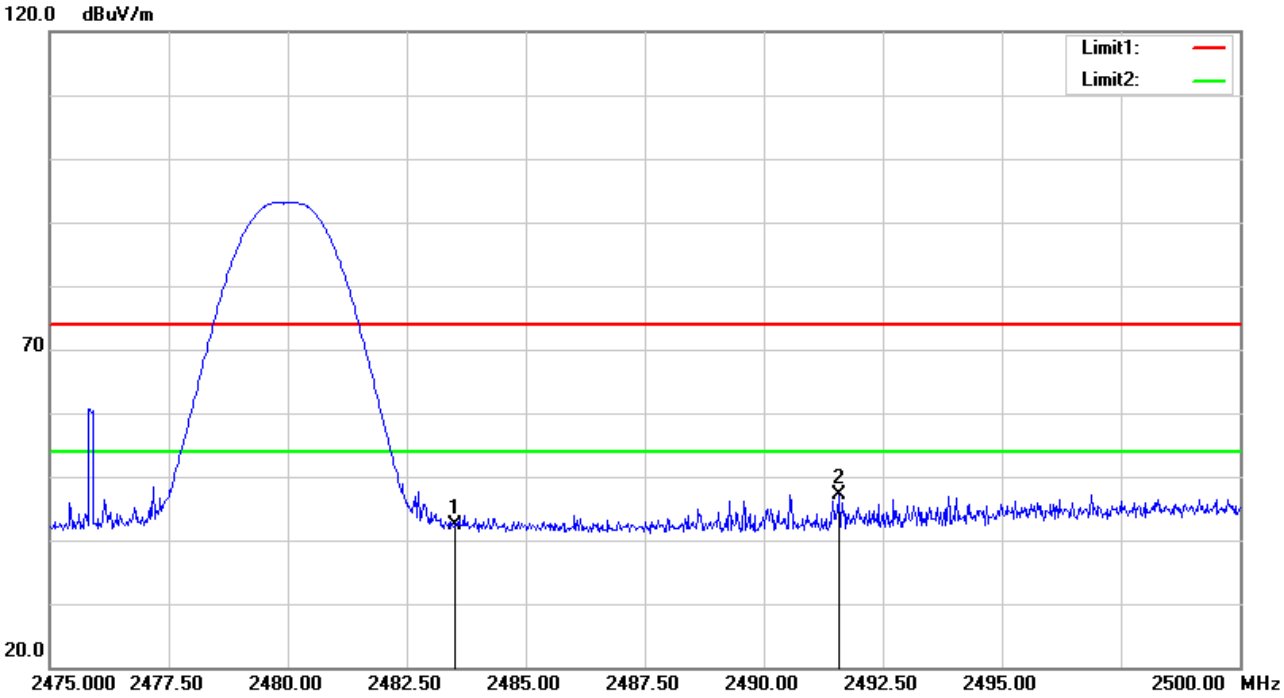
**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**




| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2483.500 | 37.88 | 4.60 | 42.48 | 74.00 | -31.52 | peak |
| 2 | 2488.150 | 38.56 | 4.62 | 43.18 | 74.00 | -30.82 | peak |

Note: Measurement = Reading Level + Correct Factor.

**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



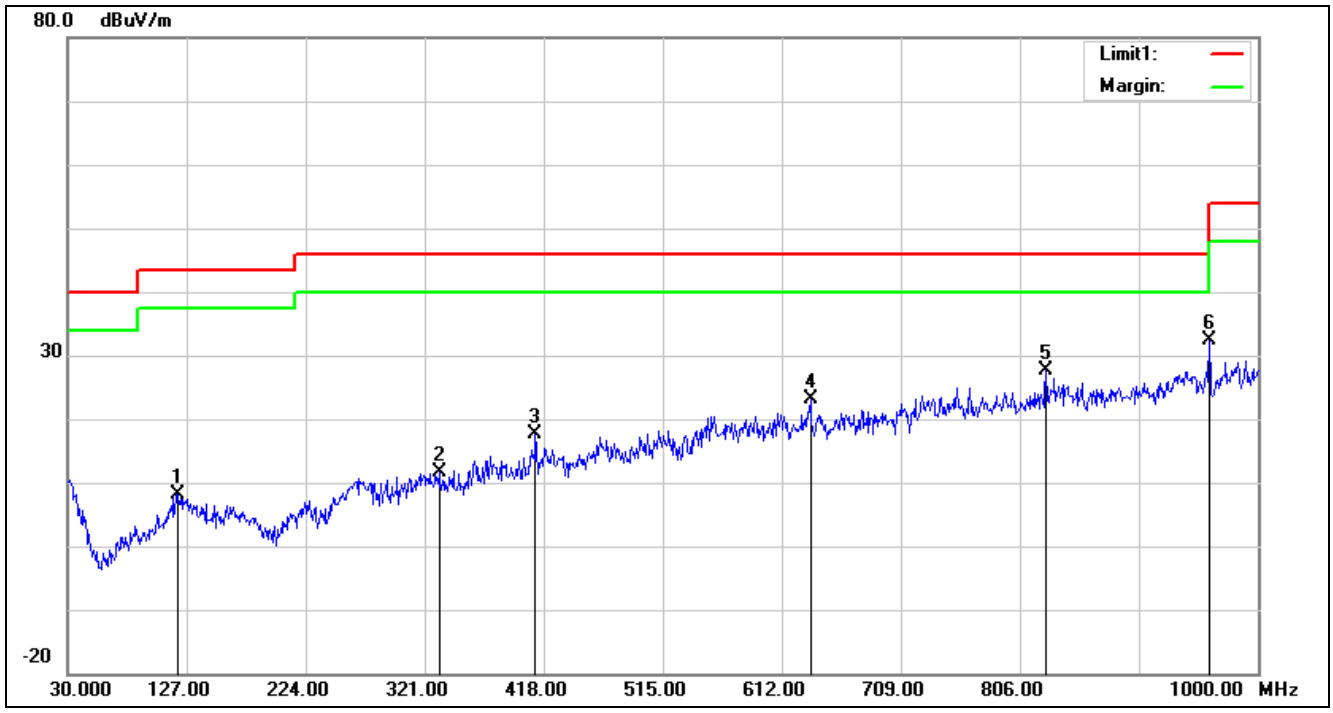

| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2483.500 | 37.73 | 4.60 | 42.33 | 74.00 | -31.67 | peak |
| 2 | 2491.575 | 42.50 | 4.63 | 47.13 | 74.00 | -26.87 | peak |

Note: Measurement = Reading Level + Correct Factor.

## 9.2. SPURIOUS EMISSIONS 30MHz-1GHz

Note: All the channels had been tested, but only the worst data recorded in the report.

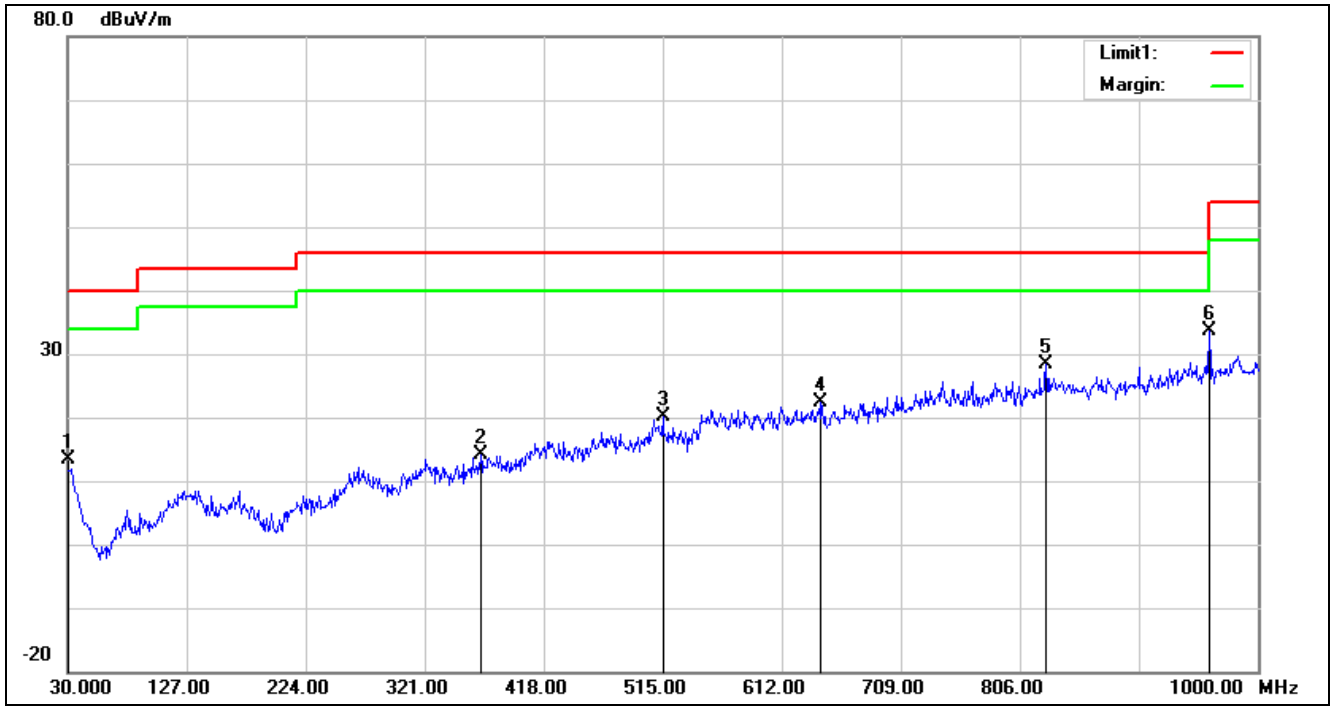
**HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV/m) | Correct dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 119.2400 | 26.48 | -18.38 | 8.10 | 43.50 | -35.40 | QP |
| 2 | 332.6400 | 25.23 | -13.62 | 11.61 | 46.00 | -34.39 | QP |
| 3 | 411.2100 | 28.09 | -10.51 | 17.58 | 46.00 | -28.42 | QP |
| 4 | 635.2800 | 28.01 | -4.93 | 23.08 | 46.00 | -22.92 | QP |
| 5 | 827.3400 | 28.81 | -1.08 | 27.73 | 46.00 | -18.27 | QP |
| 6 | 960.2300 | 30.60 | 1.76 | 32.36 | 54.00 | -21.64 | QP |

Note: Measurement = Reading Level + Correct Factor.

## HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)

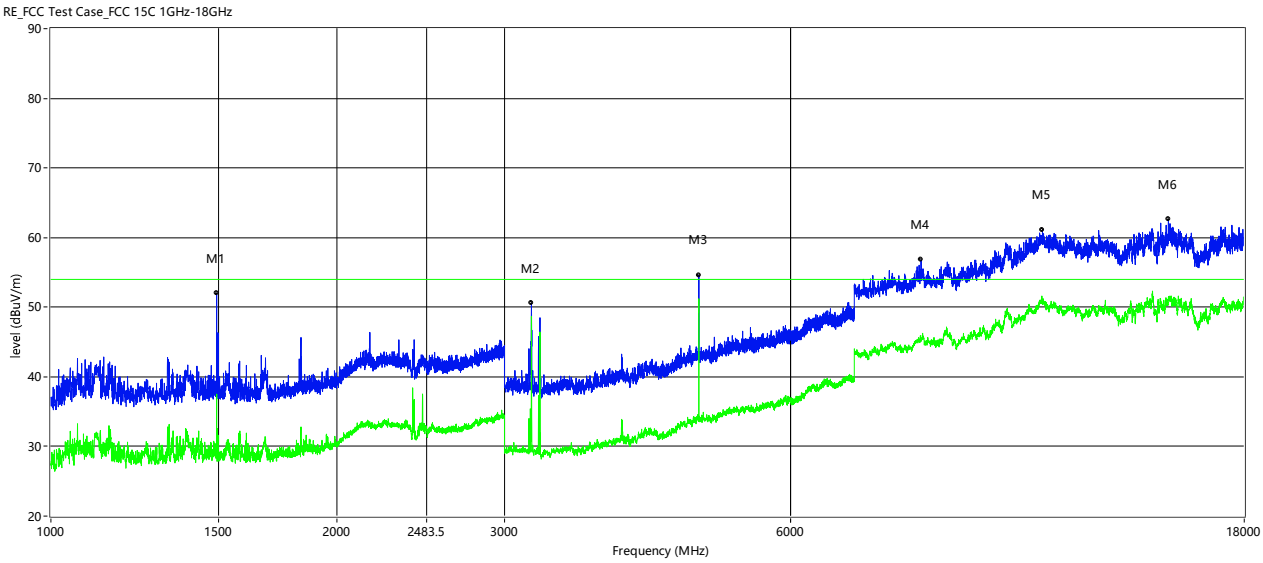



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 30.0000 | 26.19 | -12.85 | 13.34 | 40.00 | -26.66 | QP |
| 2 | 366.5900 | 26.66 | -12.62 | 14.04 | 46.00 | -31.96 | QP |
| 3 | 515.0000 | 28.04 | -7.88 | 20.16 | 46.00 | -25.84 | QP |
| 4 | 644.0100 | 27.31 | -4.87 | 22.44 | 46.00 | -23.56 | QP |
| 5 | 827.3400 | 29.54 | -1.08 | 28.46 | 46.00 | -17.54 | QP |
| 6 | 960.2300 | 31.80 | 1.76 | 33.56 | 54.00 | -20.44 | QP |

Note: Measurement = Reading Level + Correct Factor.

## 9.3. SPURIOUS EMISSIONS Above 1 GHz

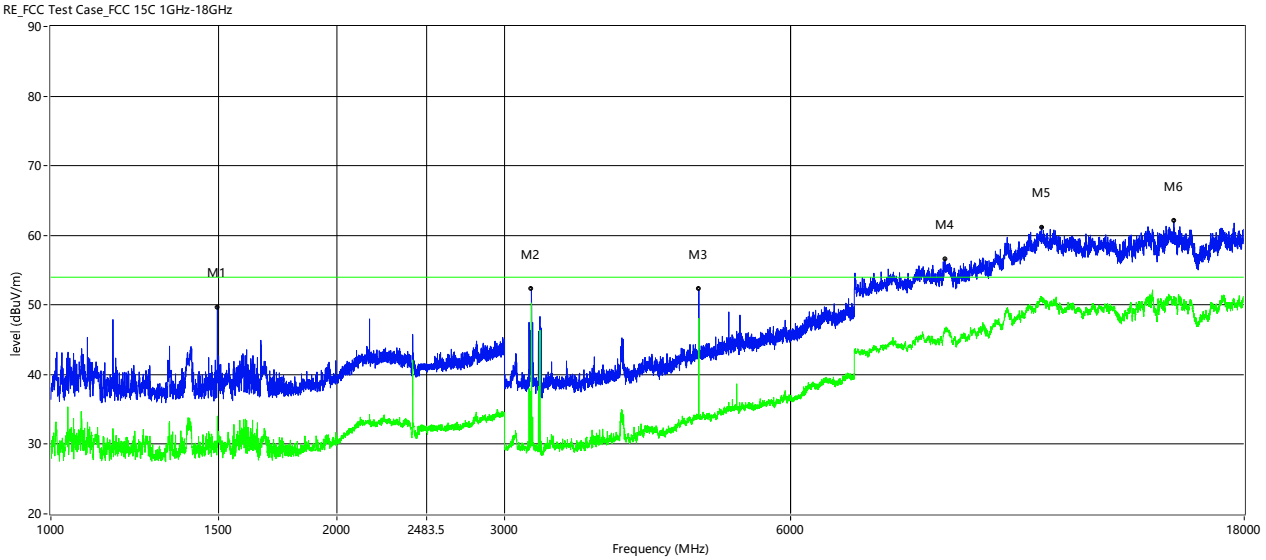
Low Channel
Horizontal




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1494.000 | 52.04 | 37.53 | -0.56 | 74.0 | 54.0 | -16.47 | Horizontal | Pass |
| 3202.000 | 50.60 | 48.67 | -12.12 | 74.0 | 54.0 | -5.33 | Horizontal | Pass |
| 4804.000 | 54.62 | 50.22 | -6.96 | 74.0 | 54.0 | -3.78 | Horizontal | Pass |
| 8229.250 | 56.78 | 45.46 | 4.21 | 74.0 | 54.0 | -8.54 | Horizontal | Pass |
| 11042.500 | 61.14 | 50.54 | 9.99 | 74.0 | 54.0 | -3.46 | Horizontal | Pass |
| 14977.750 | 62.60 | 50.20 | 10.28 | 74.0 | 54.0 | -3.80 | Horizontal | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

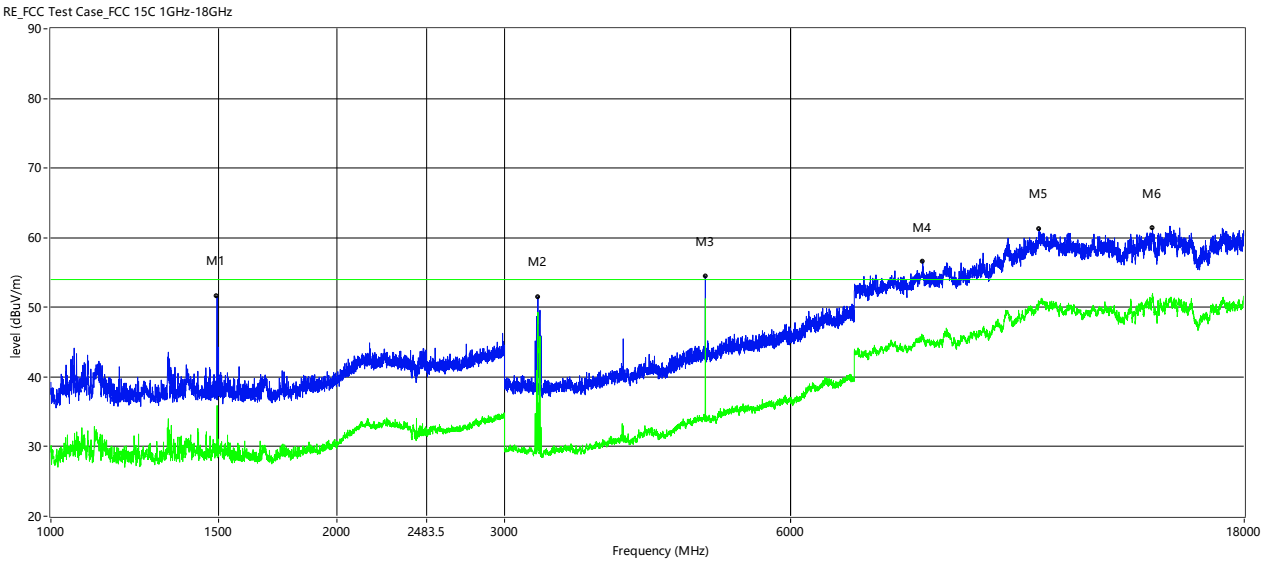
Vertical




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1496.500 | 49.67 | 34.06 | -0.56 | 74.0 | 54.0 | -19.94 | Vertical | Pass |
| 3202.000 | 52.24 | 50.29 | -12.12 | 74.0 | 54.0 | -3.71 | Vertical | Pass |
| 4804.000 | 52.24 | 48.07 | -6.96 | 74.0 | 54.0 | -5.93 | Vertical | Pass |
| 8718.750 | 56.50 | 46.36 | 5.10 | 74.0 | 54.0 | -7.64 | Vertical | Pass |
| 11020.500 | 61.16 | 50.18 | 10.11 | 74.0 | 54.0 | -3.82 | Vertical | Pass |
| 15178.500 | 62.03 | 50.91 | 10.88 | 74.0 | 54.0 | -3.09 | Vertical | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

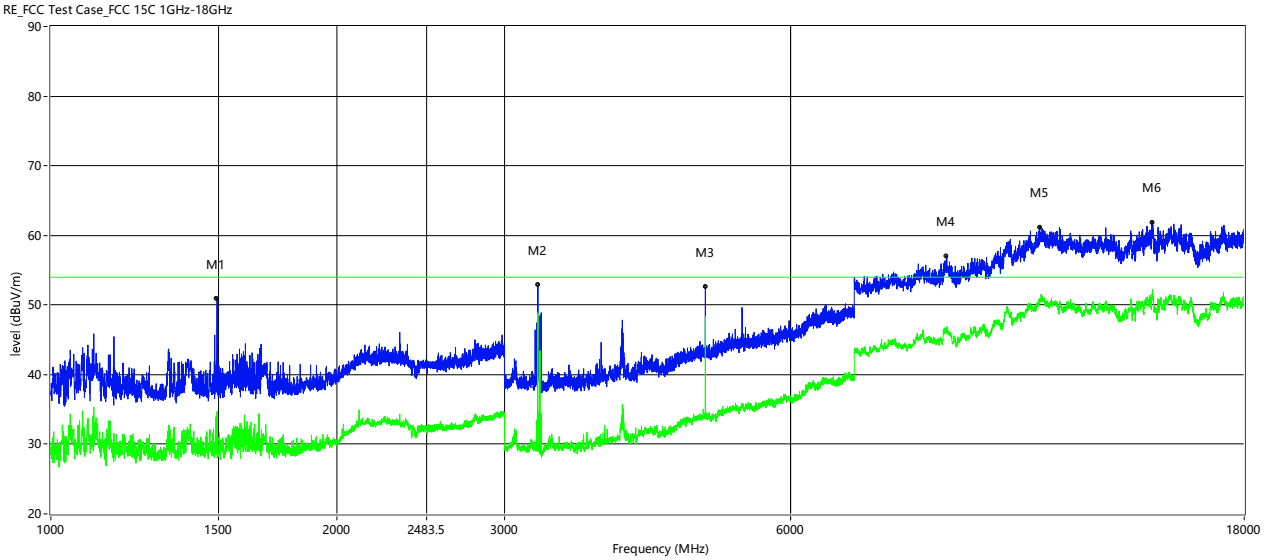
Mid Channel
Horizontal




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1495.500 | 51.57 | 35.90 | -0.56 | 74.0 | 54.0 | -18.10 | Horizontal | Pass |
| 3253.000 | 51.52 | 49.28 | -12.18 | 74.0 | 54.0 | -4.72 | Horizontal | Pass |
| 4880.000 | 54.45 | 50.22 | -6.51 | 74.0 | 54.0 | -3.78 | Horizontal | Pass |
| 8262.250 | 56.58 | 46.01 | 4.22 | 74.0 | 54.0 | -7.99 | Horizontal | Pass |
| 10954.500 | 61.27 | 50.71 | 9.87 | 74.0 | 54.0 | -3.29 | Horizontal | Pass |
| 14414.000 | 61.31 | 50.01 | 11.26 | 74.0 | 54.0 | -3.99 | Horizontal | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

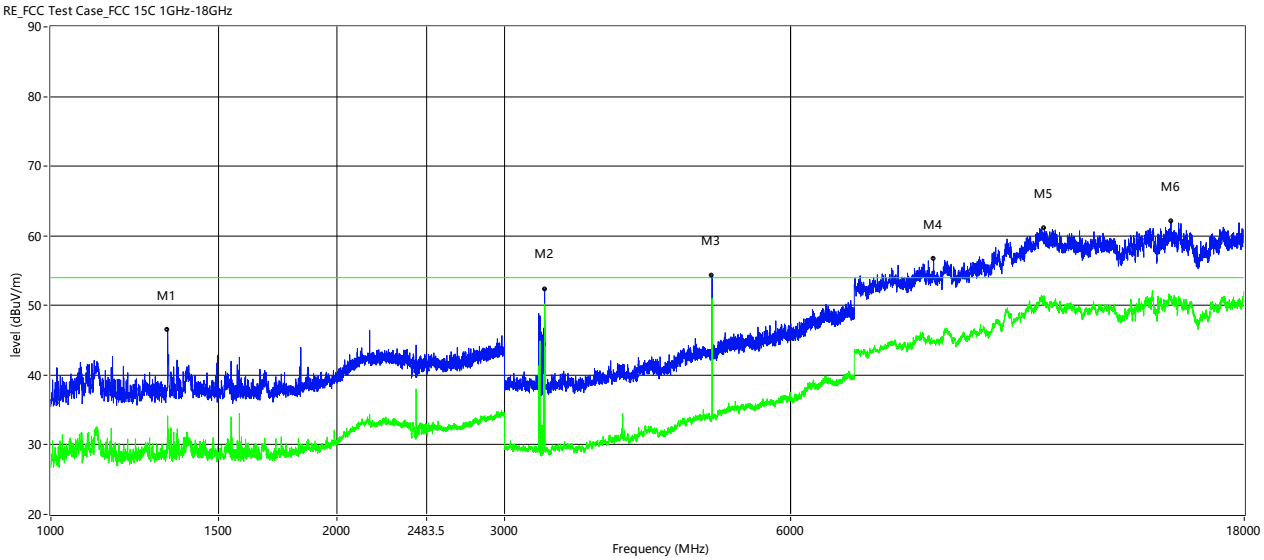
Vertical




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1495.500 | 50.95 | 34.72 | -0.56 | 74.0 | 54.0 | -19.28 | Vertical | Pass |
| 3253.000 | 52.85 | 48.89 | -12.18 | 74.0 | 54.0 | -5.11 | Vertical | Pass |
| 4880.000 | 52.60 | 48.36 | -6.51 | 74.0 | 54.0 | -5.64 | Vertical | Pass |
| 8757.250 | 57.00 | 46.59 | 4.98 | 74.0 | 54.0 | -7.41 | Vertical | Pass |
| 10968.250 | 61.16 | 50.96 | 9.98 | 74.0 | 54.0 | -3.04 | Vertical | Pass |
| 14400.250 | 61.85 | 50.63 | 11.42 | 74.0 | 54.0 | -3.37 | Vertical | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

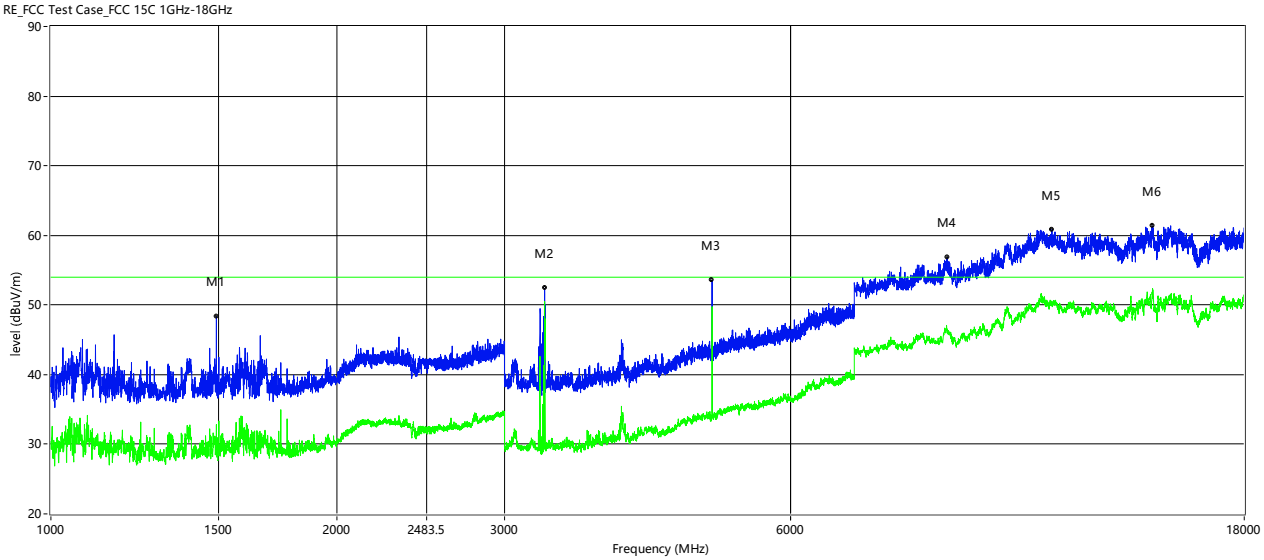
High Channel
Horizontal




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1327.000 | 46.46 | 34.14 | -0.86 | 74.0 | 54.0 | -19.86 | Horizontal | Pass |
| 3306.000 | 52.36 | 50.21 | -12.21 | 74.0 | 54.0 | -3.79 | Horizontal | Pass |
| 4960.000 | 54.28 | 50.01 | -6.38 | 74.0 | 54.0 | -3.99 | Horizontal | Pass |
| 8482.250 | 56.64 | 44.90 | 4.58 | 74.0 | 54.0 | -9.10 | Horizontal | Pass |
| 11094.750 | 61.05 | 50.79 | 9.71 | 74.0 | 54.0 | -3.21 | Horizontal | Pass |
| 15071.250 | 62.03 | 50.84 | 10.33 | 74.0 | 54.0 | -3.16 | Horizontal | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

Vertical




| Frequency (MHz) | Peak Level (dBuV/m) | Average Level (dBuV/m) | Factor (dB) | PK Limit (dBuV/m) | AV Limit (dBuV/m) | Over Limit (dB) | ANT | Verdict |
|---|---|---|---|---|---|---|---|---|
| 1493.000 | 48.33 | 32.82 | -0.56 | 74.0 | 54.0 | -21.18 | Vertical | Pass |
| 3306.000 | 52.40 | 50.50 | -12.21 | 74.0 | 54.0 | -3.50 | Vertical | Pass |
| 4960.000 | 53.58 | 49.76 | -6.38 | 74.0 | 54.0 | -4.24 | Vertical | Pass |
| 8765.500 | 56.81 | 46.32 | 4.96 | 74.0 | 54.0 | -7.68 | Vertical | Pass |
| 11298.250 | 60.84 | 50.57 | 9.53 | 74.0 | 54.0 | -3.43 | Vertical | Pass |
| 14411.250 | 61.35 | 50.11 | 11.29 | 74.0 | 54.0 | -3.89 | Vertical | Pass |

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

## 9.4. SPURIOUS EMISSIONS BELOW 30M

| Freq. | Reading | Limit | Margin | State | Test Result |
|---|---|---|---|---|---|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F | |
| -- | -- | -- | -- | -- | PASS |
| -- | -- | -- | -- | -- | PASS |

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits (dBuv) + distance extrapolation factor.

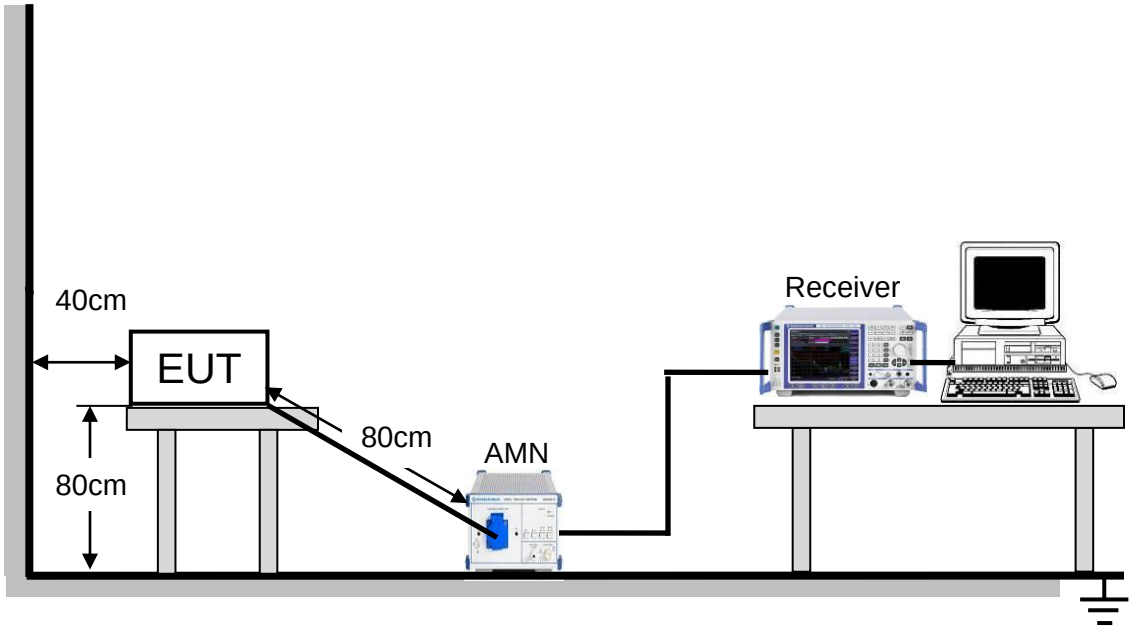
# 10. AC POWER LINE CONDUCTED EMISSIONS

**LIMITS**

Please refer to FCC §15.207 (a) and RSS-Gen Clause 8.8

| FREQUENCY (MHz) | Quasi-peak | Average |
|---|---|---|
| 0.15 -0.5 | 66 - 56 * | 56 - 46 * |
| 0.50 -5.0 | 56.00 | 46.00 |
| 5.0 -30.0 | 60.00 | 50.00 |

**TEST SETUP AND PROCEDURE**




The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

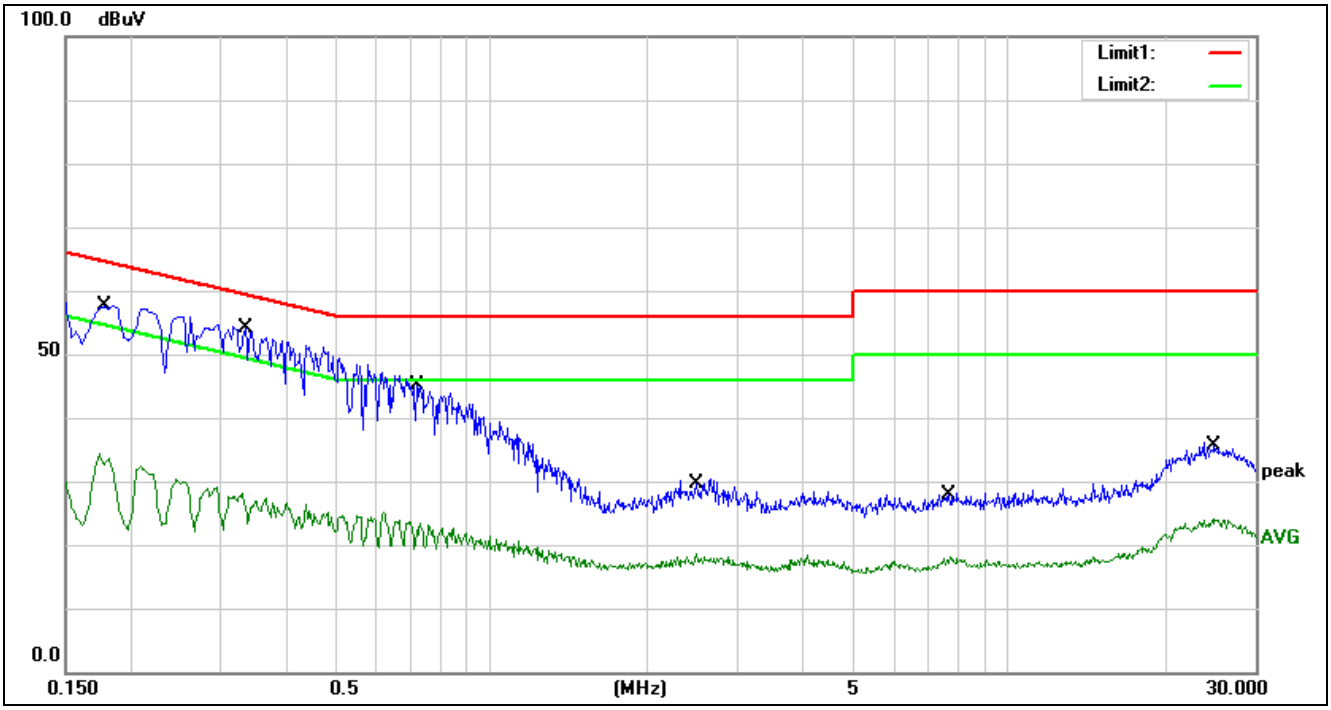
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

**TEST ENVIRONMENT**

| | | | |
|---|---|---|---|
| Temperature | 27.4°C | Relative Humidity | 41% |
| Atmosphere Pressure | 101kPa | Test Voltage | AC 120V/60Hz |

## TEST RESULTS

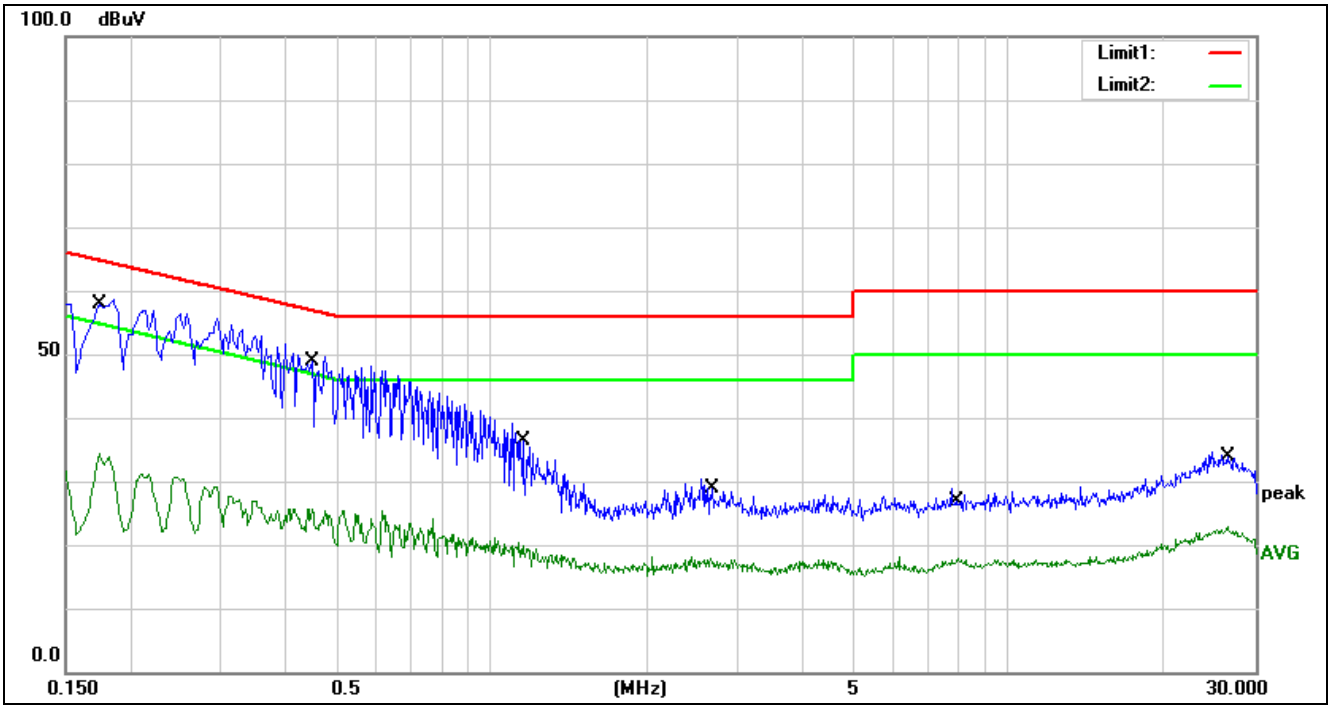
### NEUTRAL N RESULTS




| No. | Frequency (MHz) | Reading (dBuV) | Correct dB | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.1768 | 37.13 | 20.34 | 57.47 | 64.63 | -7.16 | QP |
| 2 | 0.1768 | 13.95 | 20.34 | 34.29 | 54.63 | -20.34 | AVG |
| 3 | 0.3340 | 33.38 | 20.72 | 54.10 | 59.35 | -5.25 | QP |
| 4 | 0.3340 | 7.41 | 20.72 | 28.13 | 49.35 | -21.22 | AVG |
| 5 | 0.7180 | 24.86 | 20.37 | 45.23 | 56.00 | -10.77 | QP |
| 6 | 0.7180 | 2.91 | 20.37 | 23.28 | 46.00 | -22.72 | AVG |
| 7 | 2.4980 | 9.12 | 20.41 | 29.53 | 56.00 | -26.47 | QP |
| 8 | 2.4980 | -1.87 | 20.41 | 18.54 | 46.00 | -27.46 | AVG |
| 9 | 7.6500 | 7.23 | 20.66 | 27.89 | 60.00 | -32.11 | QP |
| 10 | 7.6500 | -2.52 | 20.66 | 18.14 | 50.00 | -31.86 | AVG |
| 11 | 24.9460 | 12.85 | 22.72 | 35.57 | 60.00 | -24.43 | QP |
| 12 | 24.9460 | 1.31 | 22.72 | 24.03 | 50.00 | -25.97 | AVG |

Note: 1. Result = Reading +Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

## LINE L RESULTS




| No. | Frequency (MHz) | Reading (dBuV) | Correct dB | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.1740 | 37.49 | 20.35 | 57.84 | 64.77 | -6.93 | QP |
| 2 | 0.1740 | 14.13 | 20.35 | 34.48 | 54.77 | -20.29 | AVG |
| 3 | 0.4500 | 28.31 | 20.53 | 48.84 | 56.88 | -8.04 | QP |
| 4 | 0.4500 | 5.22 | 20.53 | 25.75 | 46.88 | -21.13 | AVG |
| 5 | 1.1500 | 15.96 | 20.31 | 36.27 | 56.00 | -19.73 | QP |
| 6 | 1.1500 | -0.34 | 20.31 | 19.97 | 46.00 | -26.03 | AVG |
| 7 | 2.6660 | 8.44 | 20.43 | 28.87 | 56.00 | -27.13 | QP |
| 8 | 2.6660 | -2.46 | 20.43 | 17.97 | 46.00 | -28.03 | AVG |
| 9 | 7.9100 | 6.15 | 20.68 | 26.83 | 60.00 | -33.17 | QP |
| 10 | 7.9100 | -2.92 | 20.68 | 17.76 | 50.00 | -32.24 | AVG |
| 11 | 26.4220 | 10.99 | 22.86 | 33.85 | 60.00 | -26.15 | QP |
| 12 | 26.4220 | -0.06 | 22.86 | 22.80 | 50.00 | -27.20 | AVG |

Note: 1. Result = Reading +Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

# 11. ANTENNA REQUIREMENTS

**APPLICABLE REQUIREMENTS**

Please refer to FCC §15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**ANTENNA CONNECTOR**

EUT has an integral antenna without antenna connector.

**ANTENNA GAIN**

The antenna gain of EUT is less than 6 dBi.

# Test photos

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

# END OF REPORT