# CFR 47 FCC PART 15 SUBPART C

# CERTIFICATION TEST REPORT

*For*

**Mobile**

**PRODUCT MARKETING NAME: APX6500**

**MODEL NUMBER: M25URS9PW1BN**

**REPORT NUMBER: 4789278436.1-2**

**ISSUE DATE: January 07, 2020**

*Prepared for*

**Motorola Solutions (Malaysia) Sdn Bhd**
**Unit 1807-12 Two Harbourfront 22 Tak Fung St,Hunghom Kowloon Hong Kong**

*Prepared by*

**UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch**
**Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake**
**Hi-Tech Development Zone Dongguan, 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 |
|---|---|---|---|
| V0 | 01/07/2020 | Initial Issue | |

| Summary of Test Results | | | |
|---|---|---|---|
| **Clause** | **Test Items** | **FCC Rules** | **Test Results** |
| 1 | Radiated Bandedge and Spurious | FCC 15.247 (d)<br>FCC 15.209<br>FCC 15.205 | Pass |
| Note: 1. only above test item were performed according to manufacturer's requirement.<br>2.This test report is only published to and used by the applicant, and it is not for evidence purpose in China. | | | |

# TABLE OF CONTENTS

# 1. ATTESTATION OF TEST RESULTS

**Applicant Information**

| | |
|---|---|
| Company Name: | Motorola Solutions (Malaysia) Sdn Bhd |
| Address: | Unit 1807-12 Two Harbourfront 22 Tak Fung St,Hunghom Kowloon Hong Kong |

**Manufacturer Information**

| | |
|---|---|
| Company Name: | Motorola Solutions (Malaysia) Sdn Bhd |
| Address: | Unit 1807-12 Two Harbourfront 22 Tak Fung St,Hunghom Kowloon Hong Kong |

**EUT Information**

| | |
|---|---|
| Product Type: | Mobile |
| Product Marketing Name: | APX6500 |
| Model Number: | M25URS9PW1BN |
| Sample Status: | Normal |
| Sample ID: | 2738299 |
| Sample Received Date: | December 06, 2019 |
| Date of Tested: | December 09 ~ December 27, 2019 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| FCC Part 15.247 (d) | PASS |

Prepared By:

Mick Zhang
Engineer Project Associate

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager

# 2. TEST METHODOLOGY

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

# 3. FACILITIES AND ACCREDITATION

| | |
|---|---|
| Accreditation Certificate | **A2LA (Certificate No.: 4102.01)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.<br>**FCC (FCC Designation No.: CN1187)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules<br>**ISED(Company No.: 21320)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320.<br>**VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)**<br>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793.<br>Facility Name:<br>Chamber D, the VCCI registration No. is G-20019 and R-20004<br>Shielding Room B , the VCCI registration No. is C-20012 and T-20011 |

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

# 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

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

| Test Item | Uncertainty |
|---|---|
| Conduction emission | 3.62dB |
| Radiation Emission test(include Fundamental emission) (9kHz-30MHz) | 2.2dB |
| Radiation Emission test(include Fundamental emission) (30MHz-1GHz) | 4.00dB |
| Radiation Emission test (1GHz to 26GHz)( include Fundamental emission) | 5.78dB (1GHz-18Gz) |
| | 5.23dB (18GHz-26Gz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

| | | | |
|---|---|---|---|
| Equipment | Mobile | | |
| Model Name | APX6500 | | |
| Product Description (Bluetooth) | Operation Frequency | 2402 MHz ~ 2480 MHz | |
| | Modulation Type | | Data Rate |
| | GFSK | | 1Mbps |
| | ∏/4-DQPSK | | 2Mbps |
| | 8DPSK | | 3Mbps |
| Rated Input | DC 13.6V | | |

## 5.2. TEST CHANNEL CONFIGURATION

| Test Mode | Test Channel Number | Test Channel |
|---|---|---|
| GFSK | CH 00, CH 39, CH 78 | Low, Middle, High |
| 8DPSK | CH 00, CH 39, CH 78 | Low, Middle, High |

## 5.3. WORST-CASE CONFIGURATIONS

| Bluetooth Mode | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---|---|---|---|
| BR | FHSS | GFSK | 1Mbit/s |
| EDR | FHSS | 8DPSK | 3Mbit/s |

Note: 1.Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

TEST ENVIRONMENT

| Environment Parameter | Selected Values During Tests | |
|---|---|---|
| Relative Humidity | 45 ~ 70% | |
| Atmospheric Pressure: | 1025Pa | |
| Temperature | TN | 22 ~ 28°C |
| Voltage : | VL | N/A |
| | VN | DC 13.6V |
| | VH | N/A |

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

## 5.4. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Item | Equipment | Brand Name | Model Name | P/N |
|---|---|---|---|---|
| 1 | PC | HP | HP ZBook 15G4c | / |
| 2 | USB TO UART | / | / | / |

**I/O CABLES**

| Cable No | Port | Part Number | Serial No / Tag | Country Of Origin | Remarks |
|---|---|---|---|---|---|
| 1 | Radio Power Cable | HKN4191B | HKN4191B-3 | Malaysia | / |
| 2 | Cable | HKN6163C | HKN6163C-2 | Malaysia | / |
| 3 | 131ft remote cable | HKN6164B | HKN6164B-CF1 | Malaysia | / |
| 4 | Control Head Power Cable | HKN6188B | HKN6188B | Malaysia | / |

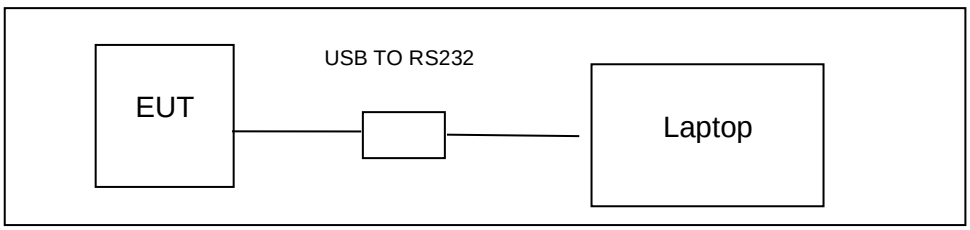
**ACCESSORY**

| Item | Accessory | Part Number | Serial No / Tag | Country Of Origin |
|---|---|---|---|---|
| 1 | Control head | PMHN4194C | PMHN4194C-CF2 | Malaysia |
| 2 | CHIB | PMUN1057B | PMUN1057B-CF1 | Malaysia |
| 3 | TIB | PMUN1083A | PMUN1083A-C3 | Malaysia |
| 4 | Antenna | AN000197A10 | AN000197A10-CF1 | Malaysia |
| 5 | Antenna | AN000163A02 | AN000163A02-C2 | Mexico |
| 6 | RSM | HMN4079G | HMN4079G-4 | Malaysia |
| 7 | Audio Accy | HSN4040A | HSN4040A-C4 | Taiwan |
| 8 | Mate plate | / | 2pcs | Malaysia |
| 9 | Antenna holder | / | 1pcs | Malaysia |

**TEST SETUP**

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

**SETUP DIAGRAM FOR TEST**



# 6. MEASURING INSTRUMENT AND SOFTWARE USED

| Radiated Emissions | | | | | | |
|---|---|---|---|---|---|---|
| Instrument | | | | | | |
| Used | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
| ☑ | MXE EMI Receiver | KESIGHT | N9038A | MY56400036 | Dec.06,2019 | Dec.06,2020 |
| ☑ | Hybrid Log Periodic Antenna | TDK | HLP-3003C | 130960 | Sep.17, 2018 | Sep.17, 2021 |
| ☑ | Preamplifier | HP | 8447D | 2944A09099 | Dec.05,2019 | Dec.05,2020 |
| ☑ | EMI Measurement Receiver | R&S | ESR26 | 101377 | Dec.05,2019 | Dec.05,2020 |
| ☑ | Horn Antenna | TDK | HRN-0118 | 130939 | Sep.17, 2018 | Sep.17, 2021 |
| ☑ | High Gain Horn Antenna | Schwarzbeck | BBHA-9170 | 691 | Aug.11, 2018 | Aug.11, 2021 |
| ☑ | Preamplifier | TDK | PA-02-0118 | TRS-305-00066 | Dec.05,2019 | Dec.05,2020 |
| ☑ | Preamplifier | TDK | PA-02-2 | TRS-307-00003 | Dec.05,2019 | Dec.05,2020 |
| ☑ | Loop antenna | Schwarzbeck | 1519B | 00008 | Jan.07, 2019 | Jan.07, 2022 |
| ☑ | Band Reject Filter | Wainwright | WRCJV8-2350-2400-2483.5-2533.5-40SS | 4 | Dec.05,2019 | Dec.05,2020 |
| ☑ | High Pass Filter | Wi | WHKX10-2700-3000-18000-40SS | 23 | Dec.05,2019 | Dec.05,2020 |
| Software | | | | | | |
| Used | Description | | Manufacturer | Name | | Version |
| ☑ | Test Software for Radiated disturbance | | Farad | EZ-EMC | | Ver. UL-3A1 |
| Other instruments | | | | | | |
| Used | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
| ☑ | Spectrum Analyzer | Keysight | N9030A | MY55410512 | Dec.06,2019 | Dec.06,2020 |
| ☑ | Power Meter | Keysight | N1911A | MY55416024 | Dec.06,2019 | Dec.06,2020 |
| ☑ | Power Sensor | Keysight | U2021XA | MY5100022 | Dec.06,2019 | Dec.06,2020 |

# 7. RADIATED TEST RESULTS

## 7.1. LIMITS AND PROCEDURE

**LIMITS**

Please refer to CFR 47 FCC §15.205 and §15.209
Please refer to ISED RSS-GEN Clause 8.9 and Clause 8.10

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).

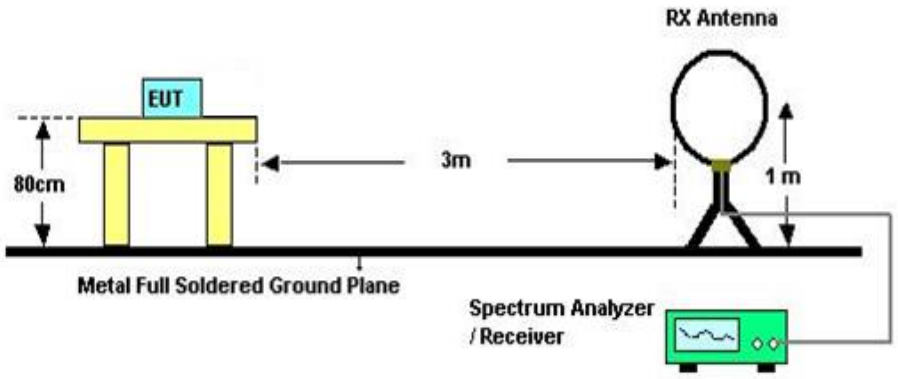
(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 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 FCC (Above 1G)

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

About Restricted bands of operation please refer to RSS-Gen section 8.10 and FCC §15.205 (a)

TEST SETUP AND PROCEDURE
Below 30MHz




The setting of the spectrum Analyzer

| | |
|---|---|
| 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 |
| 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, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80cm meter above ground.

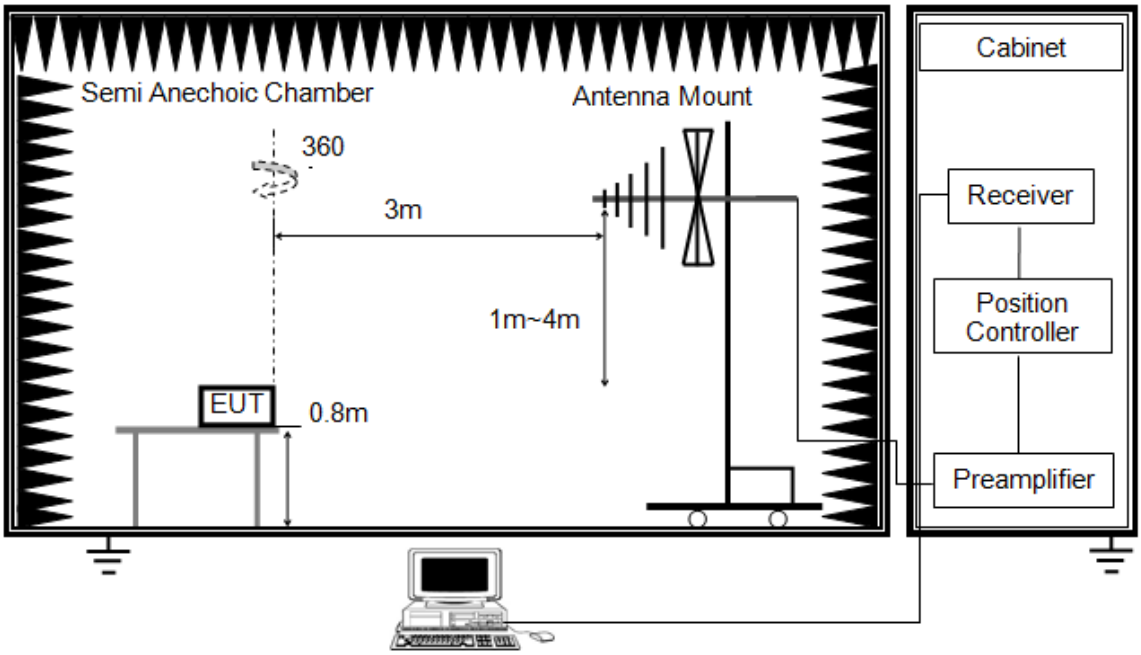
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of 1 meter height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. 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.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field 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 site based on KDB 414788.

Below 1G and above 30MHz




The setting of the spectrum Analyzer

| | |
|---|---|
| RBW | 120kHz |
| VBW | 300kHz |
| Sweep | Auto |
| Trace | Max hold |

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

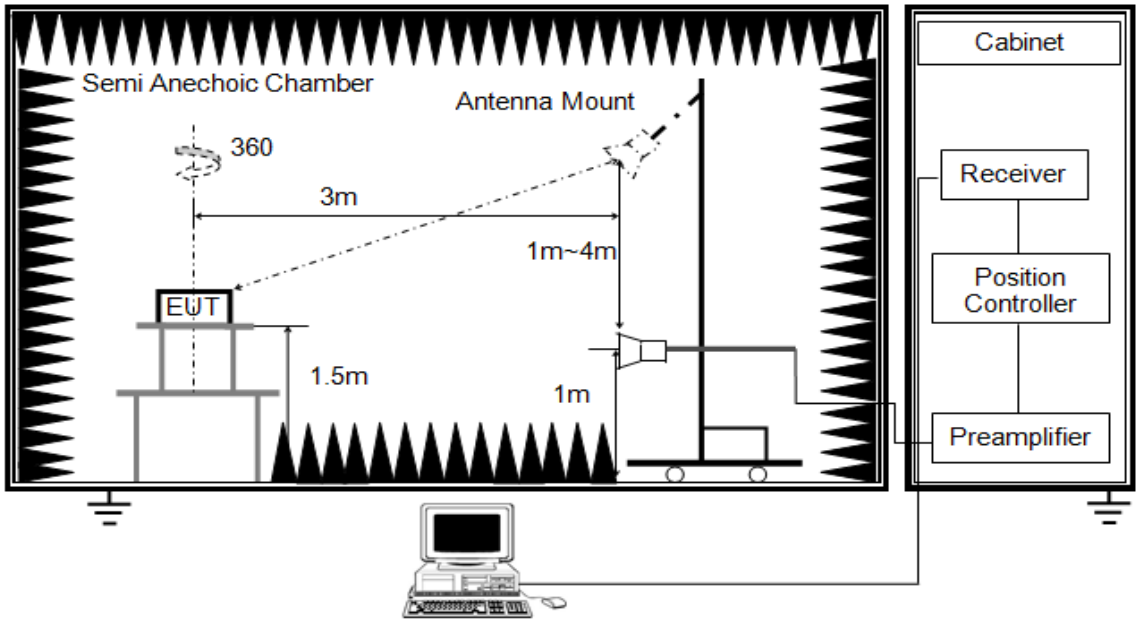
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations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

3. The EUT was placed on a turntable with 80cm 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.

Above 1G




| | |
|---|---|
| RBW | 1MHz |
| VBW | PEAK: 3MHz<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.

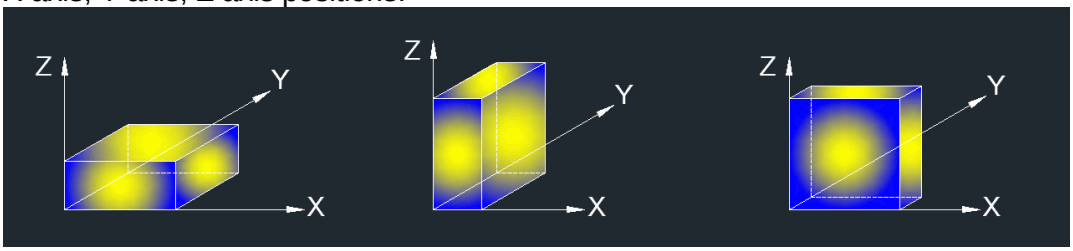
3. The EUT was placed on a turntable with 1.5m above ground.

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 measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for AVG measurements.

X axis, Y axis, Z axis positions:




Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

**TEST ENVIRONMENT**

| | | | |
|---|---|---|---|
| Temperature | 24.2°C | Relative Humidity | 61% |
| Atmosphere Pressure | 101kPa | Test Voltage | DC 13.6V |

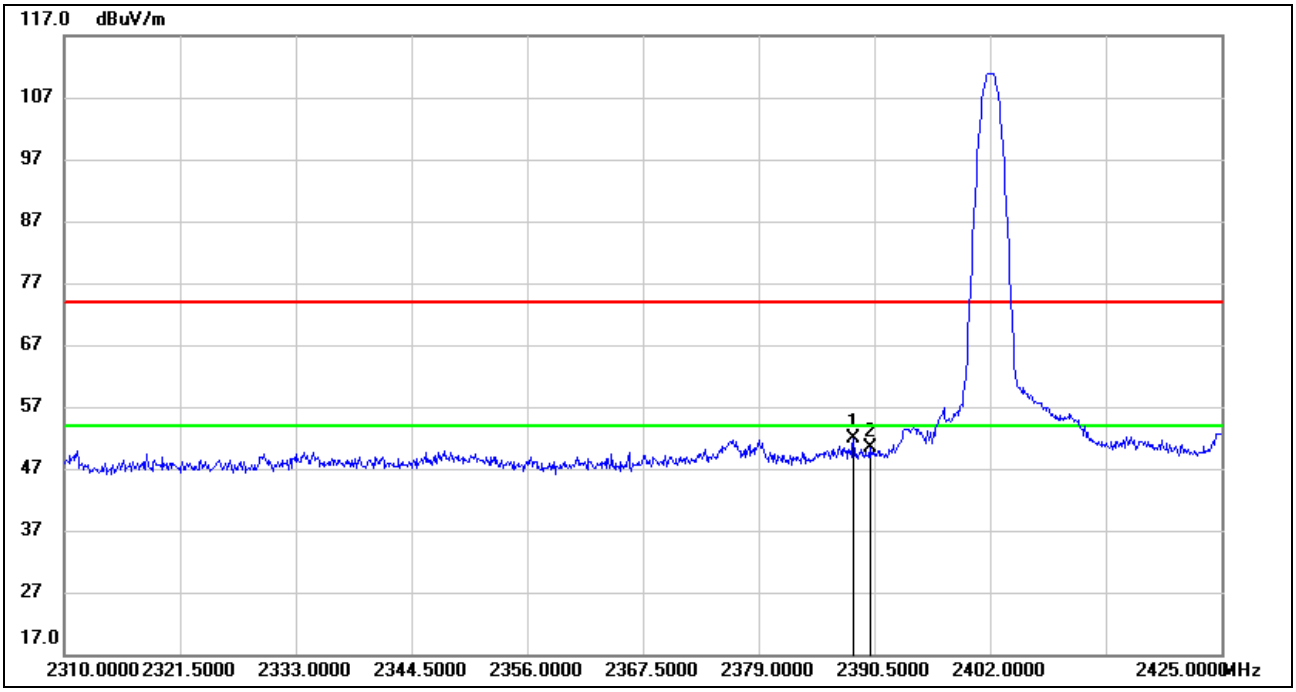
**RESULTS**

## 7.2. RESTRICTED BANDEDGE

### 7.2.1. GFSK MODE

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

**PEAK**

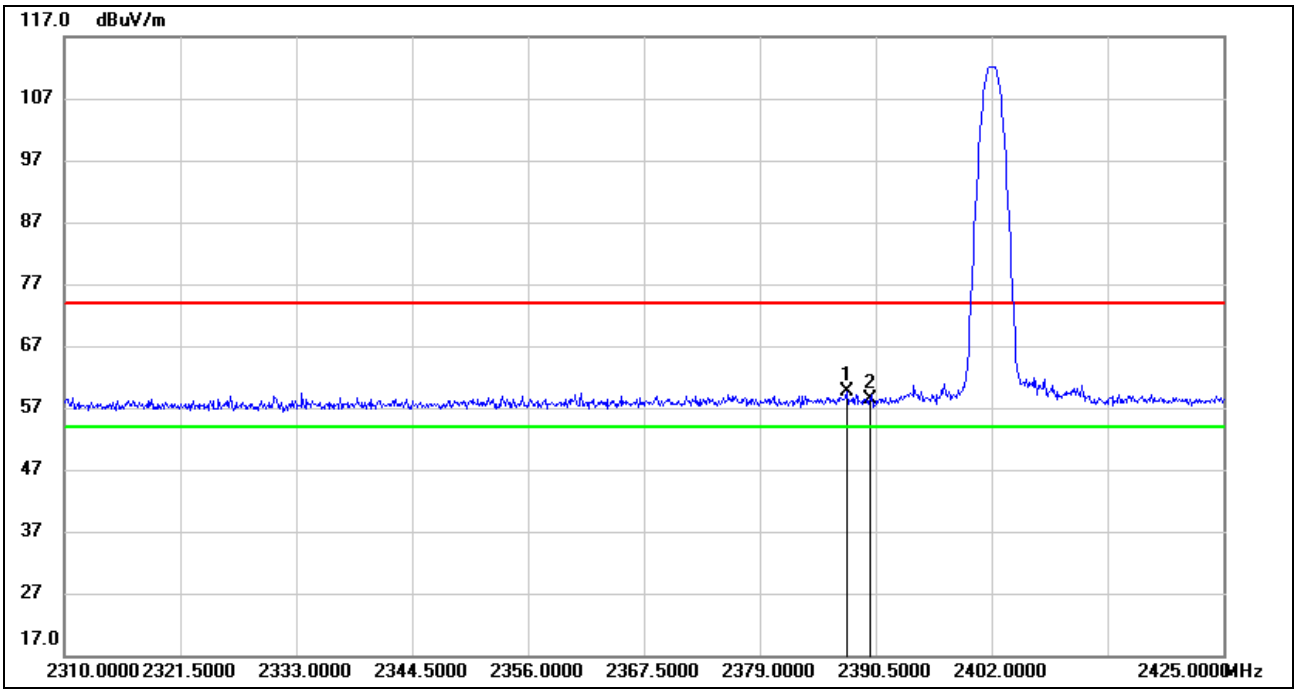



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2388.430 | 18.96 | 32.94 | 51.90 | 74.00 | -22.10 | peak |
| 2 | 2390.000 | 17.33 | 32.94 | 50.27 | 74.00 | -23.73 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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

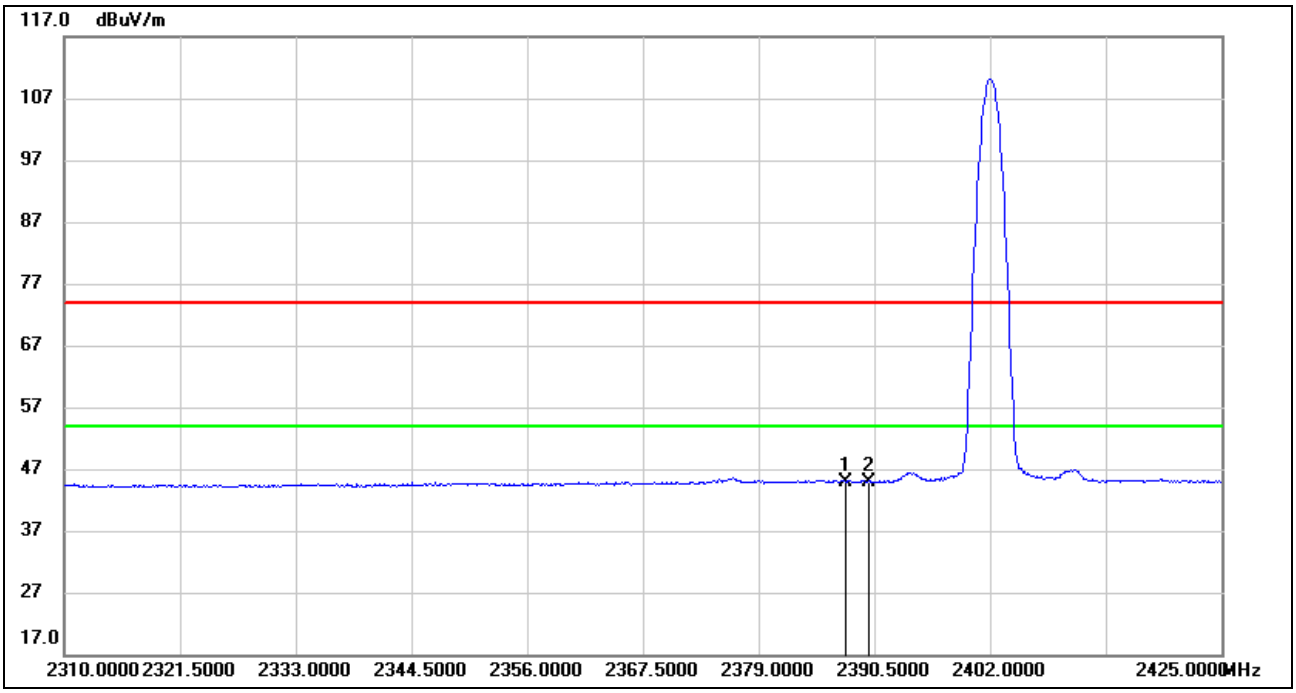
**PEAK**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2387.625 | 26.69 | 32.94 | 59.63 | 74.00 | -14.37 | peak |
| 2 | 2390.000 | 25.47 | 32.94 | 58.41 | 74.00 | -15.59 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**AVG**

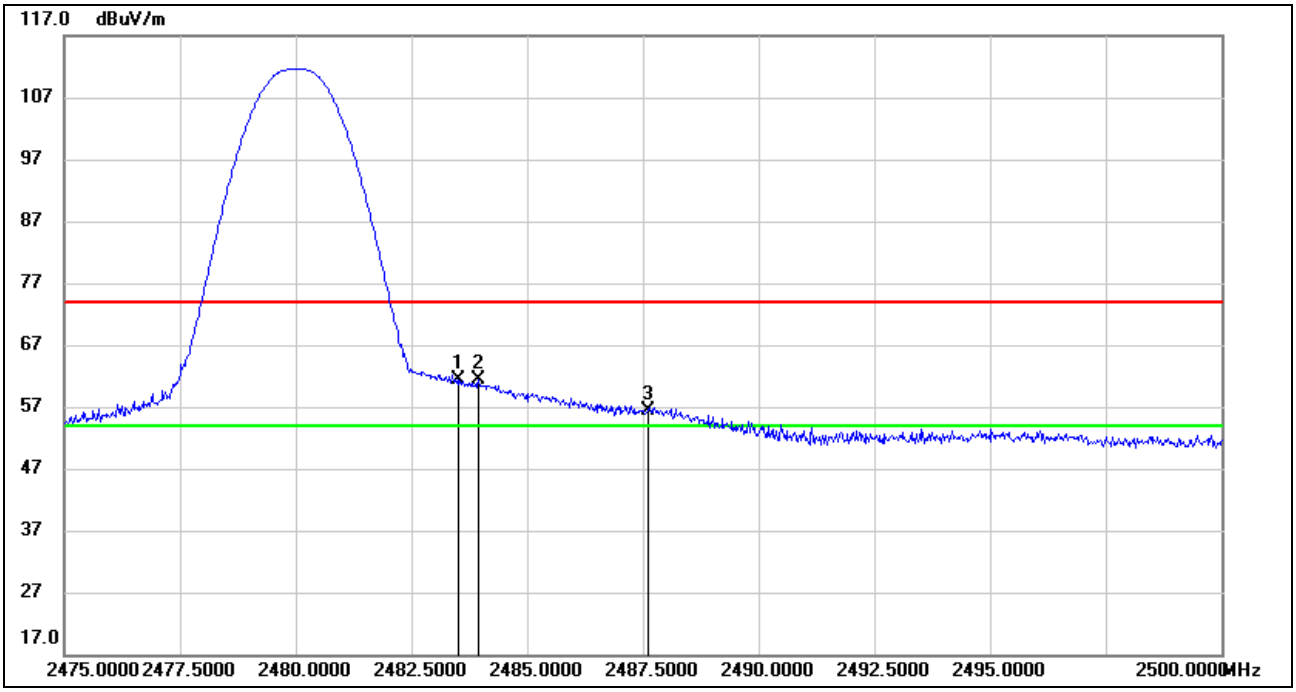



| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV) | (dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2387.625 | 11.96 | 32.94 | 44.90 | 54.00 | -9.10 | AVG |
| 2 | 2390.000 | 12.01 | 32.94 | 44.95 | 54.00 | -9.05 | AVG |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

## RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

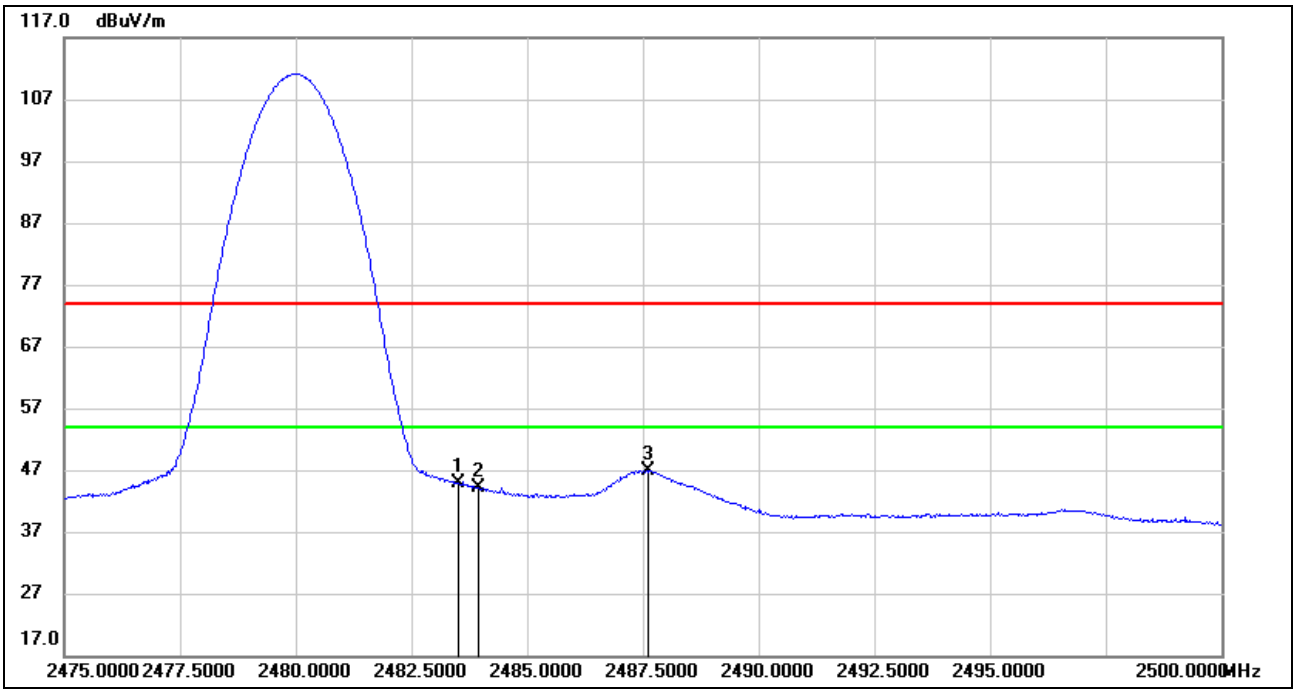
## PAKE




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 27.81 | 33.58 | 61.39 | 74.00 | -12.61 | peak |
| 2 | 2483.950 | 27.75 | 33.58 | 61.33 | 74.00 | -12.67 | peak |
| 3 | 2487.600 | 22.75 | 33.61 | 56.36 | 74.00 | -17.64 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**AVG**

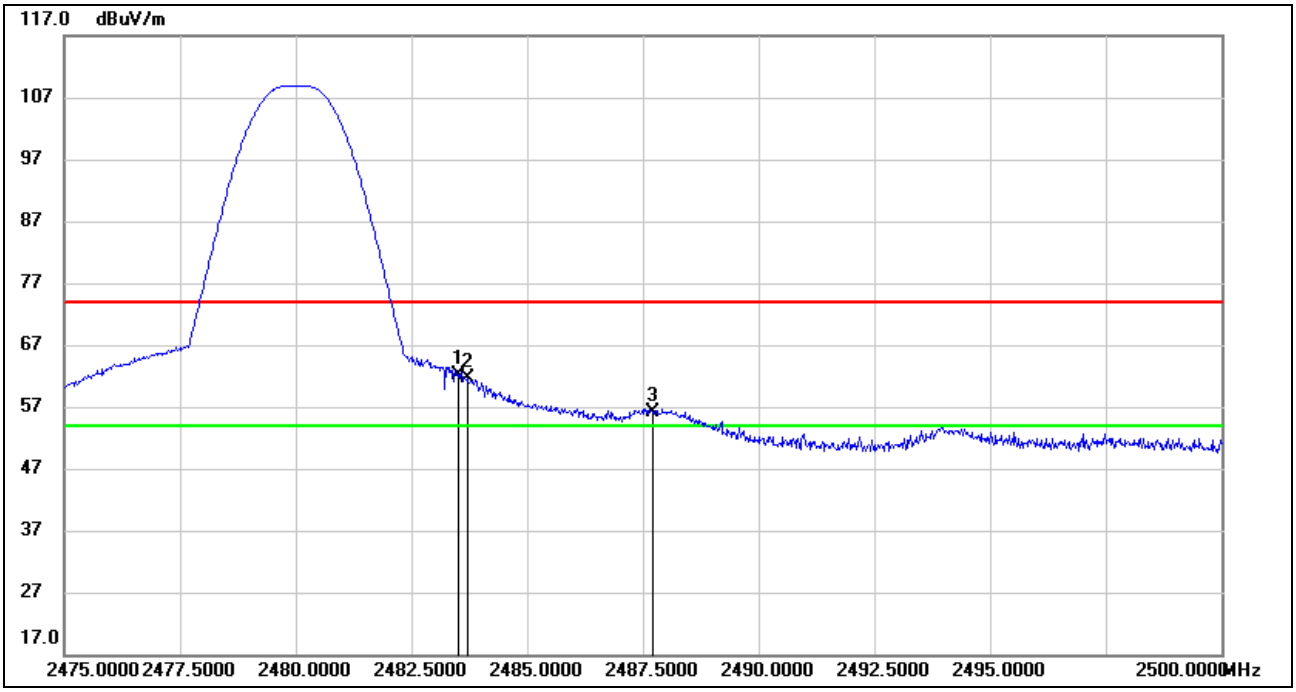



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 11.41 | 33.58 | 44.99 | 54.00 | -9.01 | AVG |
| 2 | 2483.950 | 10.54 | 33.58 | 44.12 | 54.00 | -9.88 | AVG |
| 3 | 2487.600 | 13.37 | 33.61 | 46.98 | 54.00 | -7.02 | AVG |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

## RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

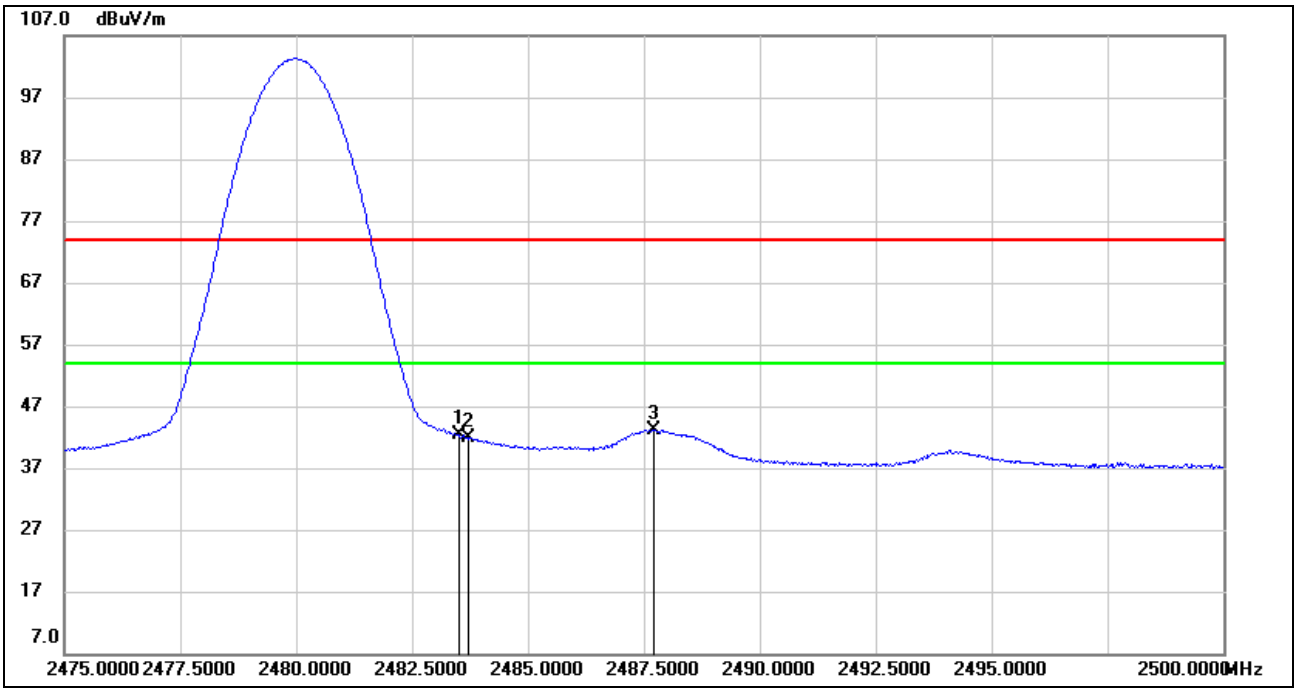
## PEAK




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 28.63 | 33.58 | 62.21 | 74.00 | -11.79 | peak |
| 2 | 2483.700 | 28.03 | 33.58 | 61.61 | 74.00 | -12.39 | peak |
| 3 | 2487.700 | 22.50 | 33.61 | 56.11 | 74.00 | -17.89 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**AVG**



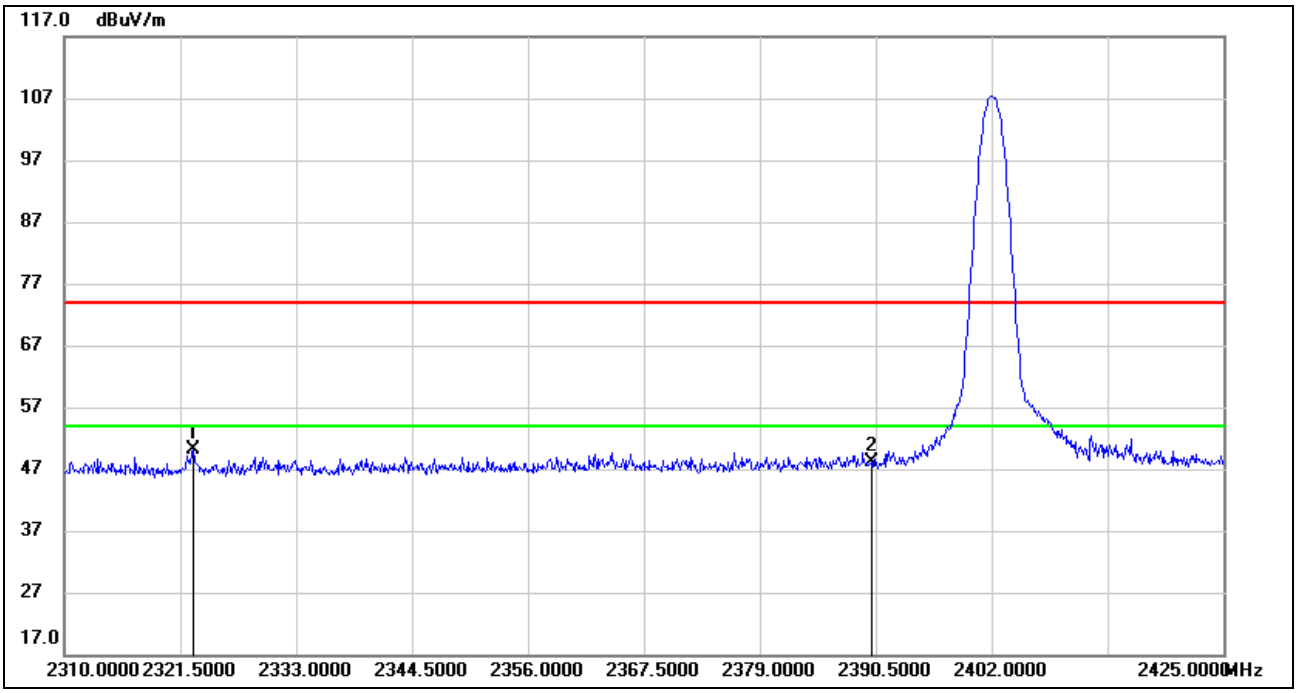

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 8.80 | 33.58 | 42.38 | 54.00 | -11.62 | AVG |
| 2 | 2483.700 | 8.27 | 33.58 | 41.85 | 54.00 | -12.15 | AVG |
| 3 | 2487.700 | 9.59 | 33.61 | 43.20 | 54.00 | -10.80 | AVG |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

### 7.2.2. 8DPSK MODE

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

**PEAK**

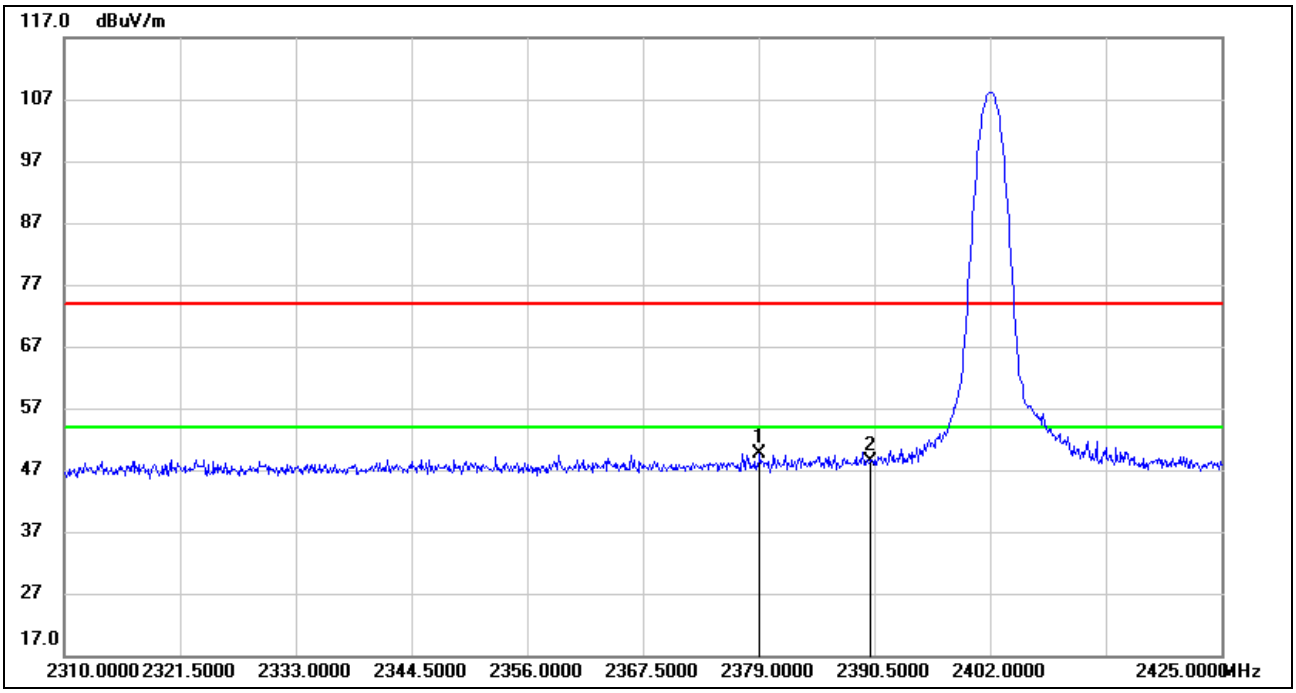



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2322.765 | 17.37 | 32.72 | 50.09 | 74.00 | -23.91 | peak |
| 2 | 2390.000 | 15.31 | 32.94 | 48.25 | 74.00 | -25.75 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

## RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

### PEAK

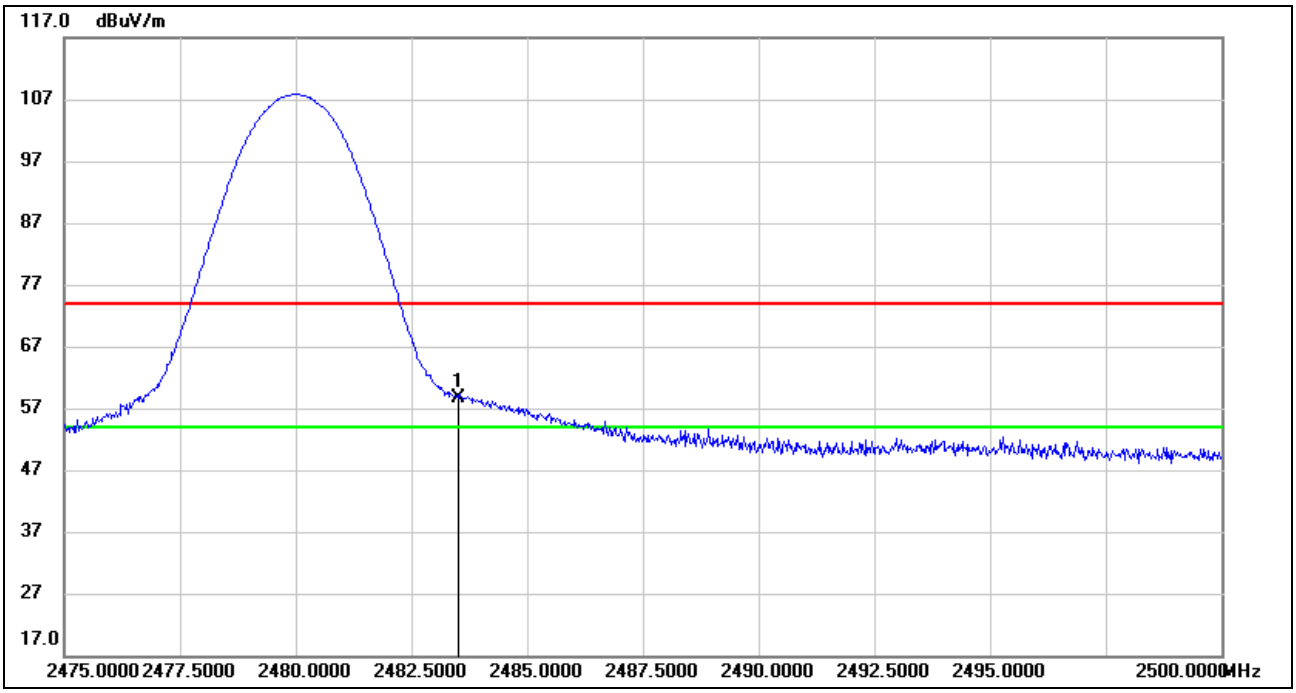



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2379.115 | 16.79 | 32.91 | 49.70 | 74.00 | -24.30 | peak |
| 2 | 2390.000 | 15.45 | 32.94 | 48.39 | 74.00 | -25.61 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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

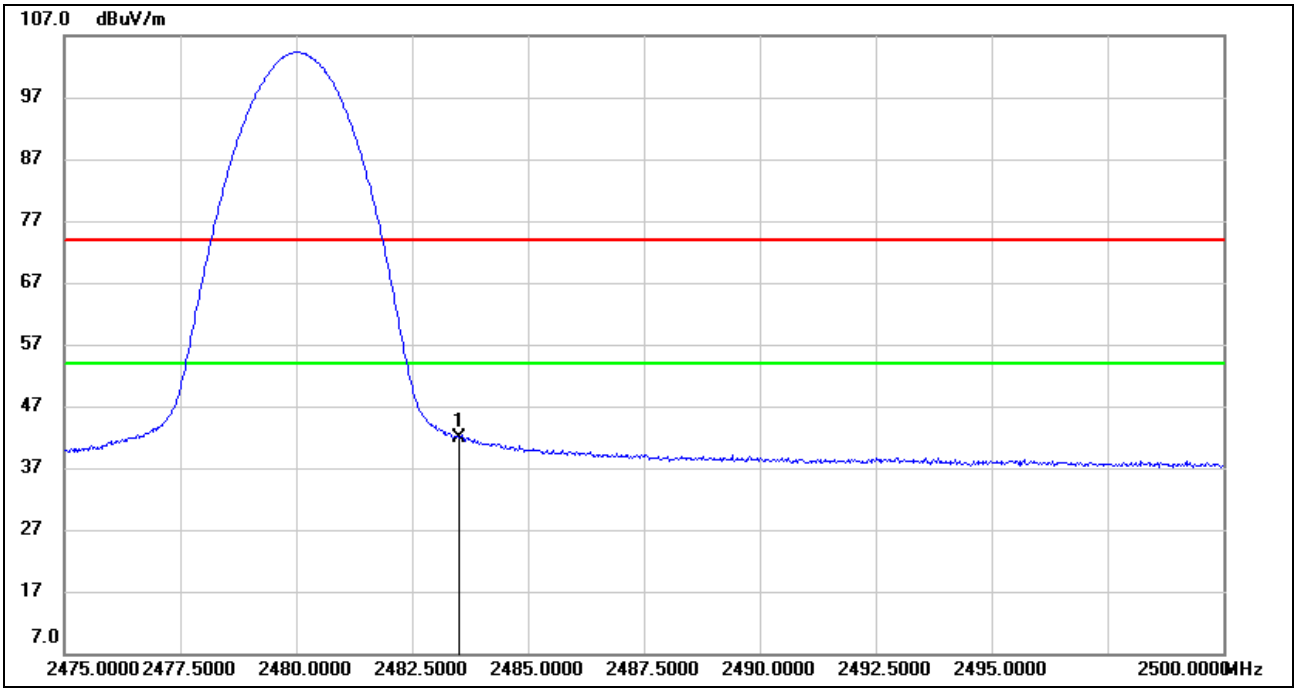
**PEAK**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 24.98 | 33.58 | 58.56 | 74.00 | -15.44 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**AVG**

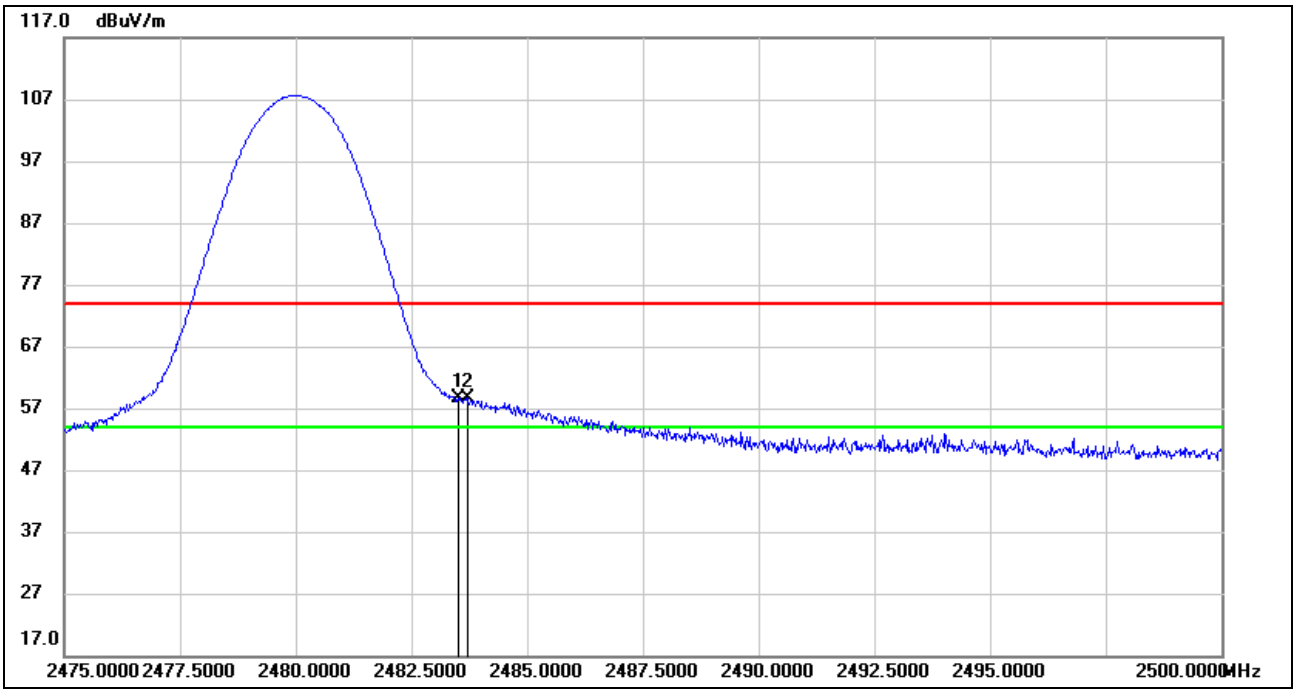



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 8.25 | 33.58 | 41.83 | 54.00 | -12.17 | AVG |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

## RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

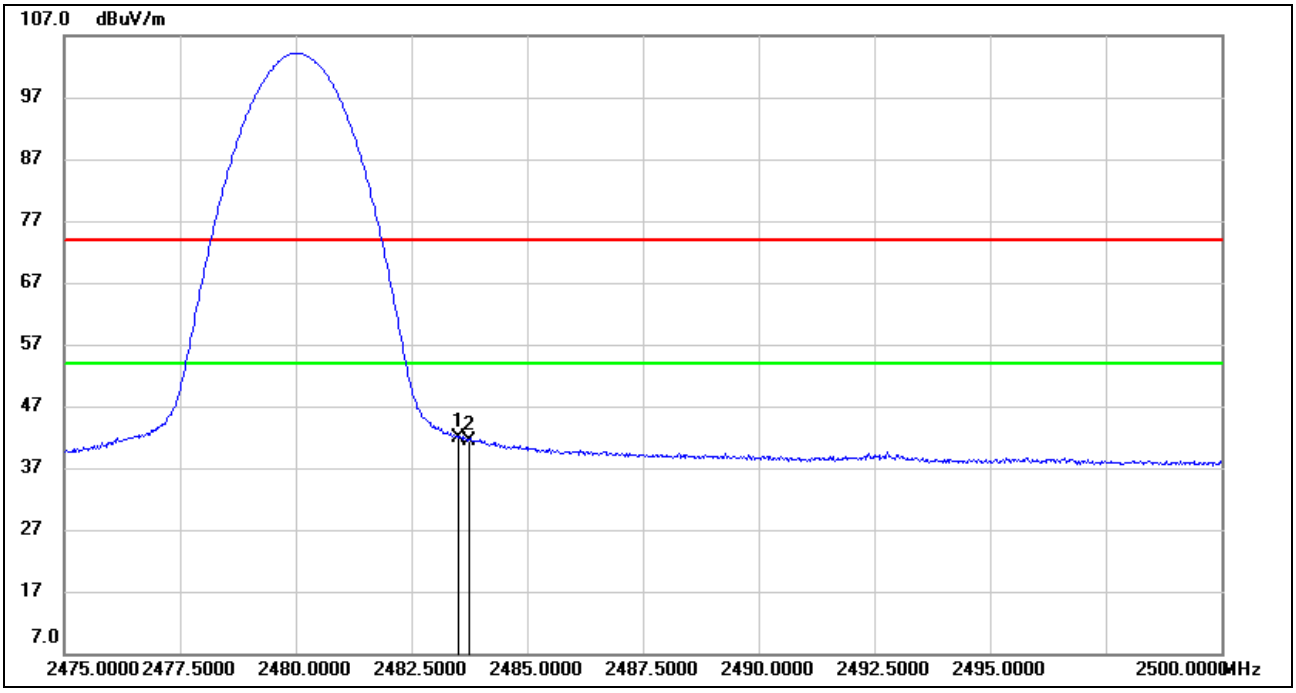
### PEAK




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 24.98 | 33.58 | 58.56 | 74.00 | -15.44 | peak |
| 2 | 2483.725 | 25.09 | 33.58 | 58.67 | 74.00 | -15.33 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**AVG**



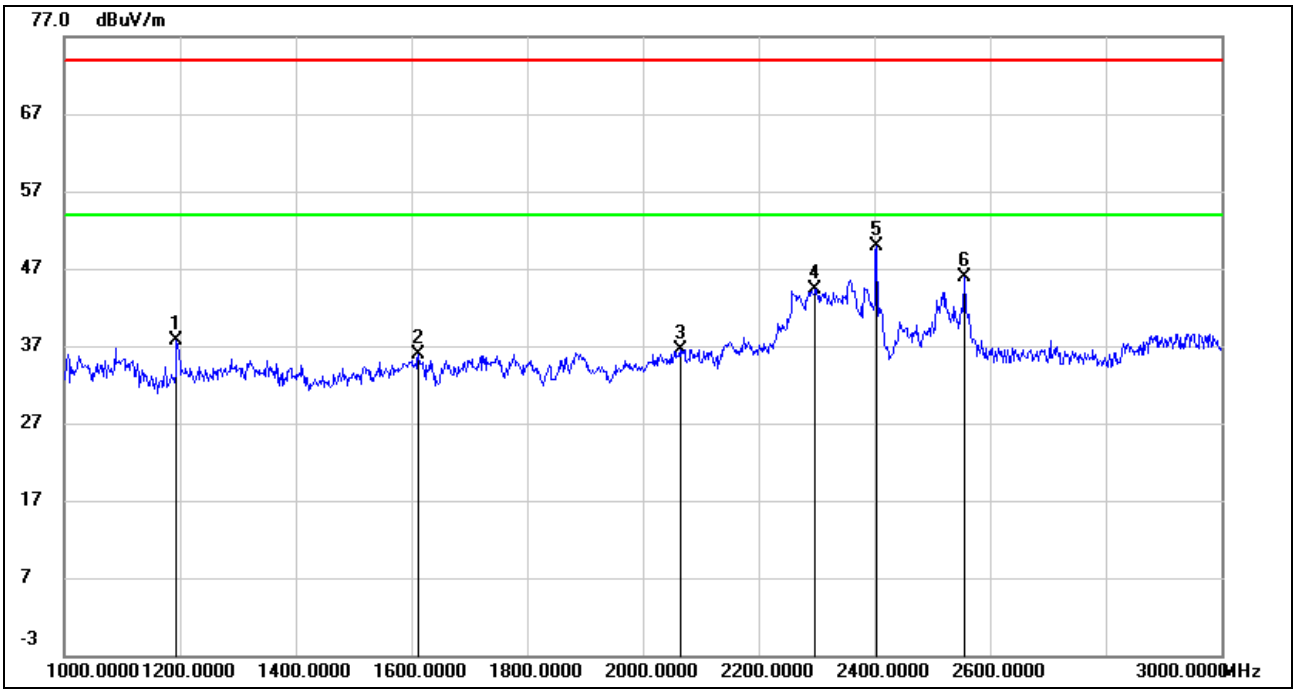

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2483.500 | 8.40 | 33.58 | 41.98 | 54.00 | -12.02 | AVG |
| 2 | 2483.725 | 7.92 | 33.58 | 41.50 | 54.00 | -12.50 | AVG |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

## 7.1. SPURIOUS EMISSIONS (1~3GHz)

### 7.1.1. GFSK MODE

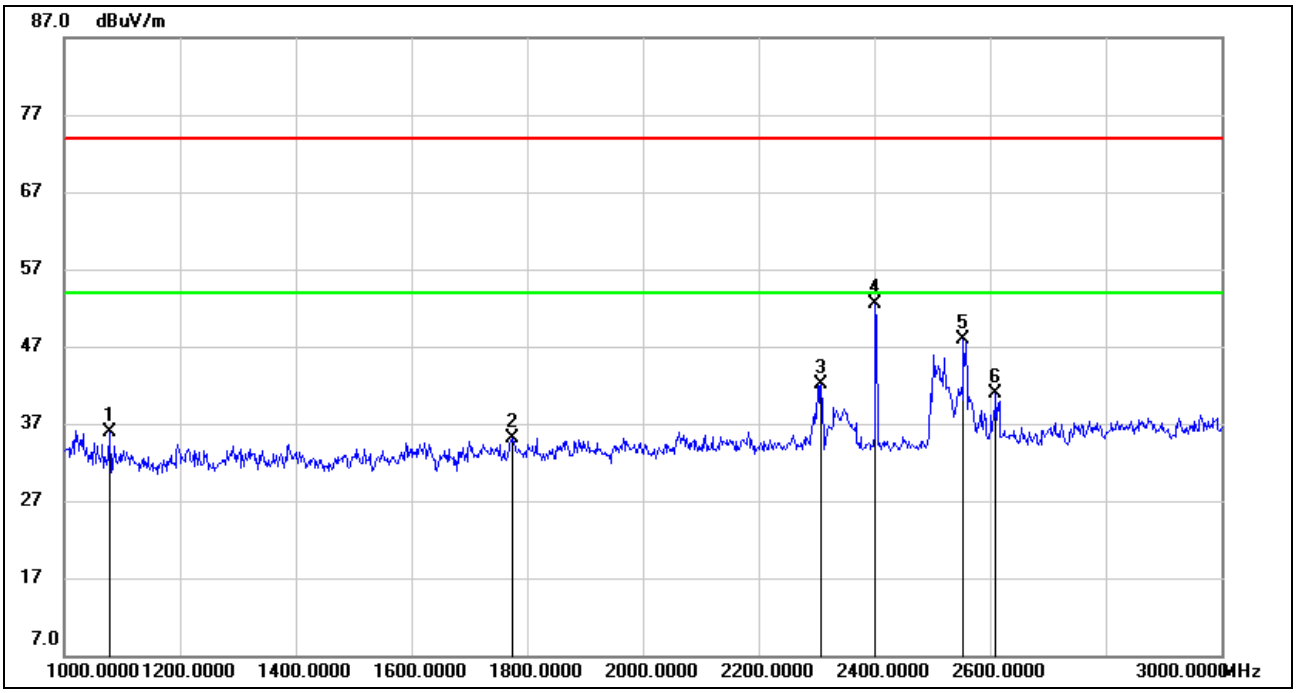
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 50.58 | -12.97 | 37.61 | 74.00 | -36.39 | peak |
| 2 | 1612.000 | 47.44 | -11.54 | 35.90 | 74.00 | -38.10 | peak |
| 3 | 2064.000 | 46.08 | -9.55 | 36.53 | 74.00 | -37.47 | peak |
| 4 | 2298.000 | 52.53 | -8.31 | 44.22 | 74.00 | -29.78 | peak |
| 5 | 2404.000 | 57.81 | -7.93 | 49.88 | 74.00 | -24.12 | peak |
| 6 | 2556.000 | 53.38 | -7.53 | 45.85 | 74.00 | -28.15 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

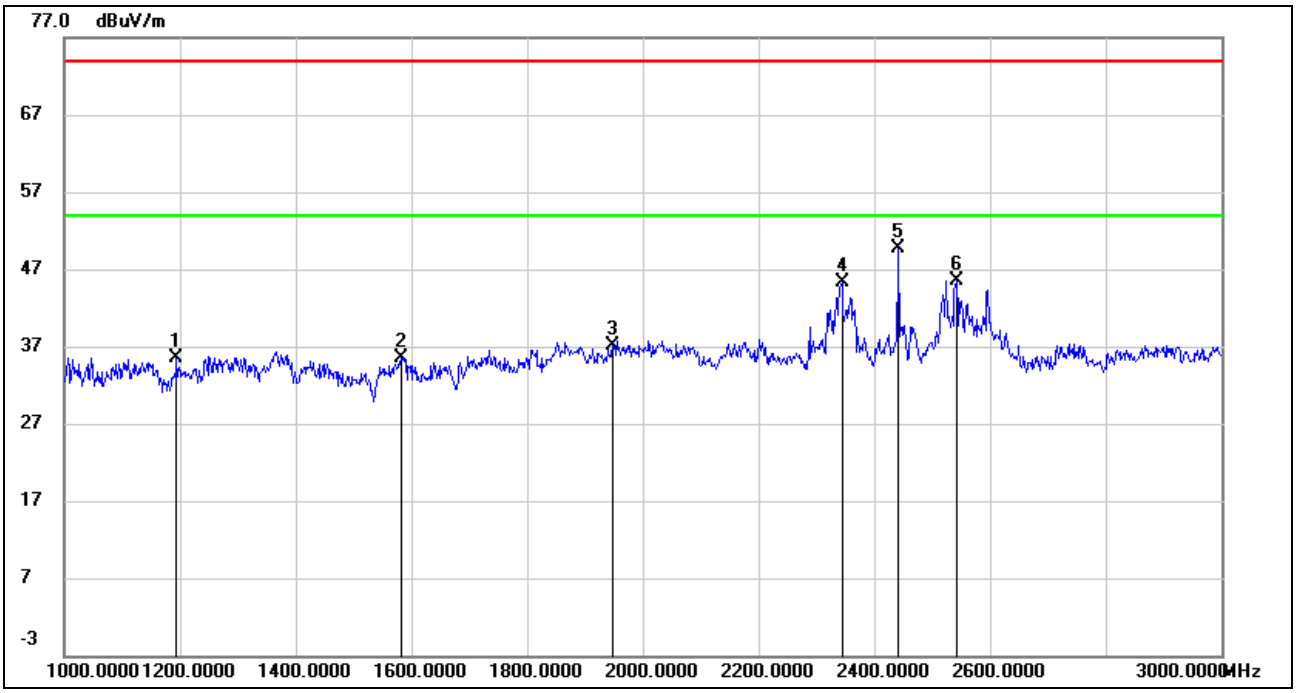
## HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1078.000 | 49.76 | -13.79 | 35.97 | 74.00 | -38.03 | peak |
| 2 | 1774.000 | 45.42 | -10.37 | 35.05 | 74.00 | -38.95 | peak |
| 3 | 2308.000 | 50.42 | -8.29 | 42.13 | 74.00 | -31.87 | peak |
| 4 | 2402.000 | 60.40 | -7.95 | 52.45 | 74.00 | -21.55 | peak |
| 5 | 2554.000 | 55.52 | -7.53 | 47.99 | 74.00 | -26.01 | peak |
| 6 | 2610.000 | 48.60 | -7.69 | 40.91 | 74.00 | -33.09 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

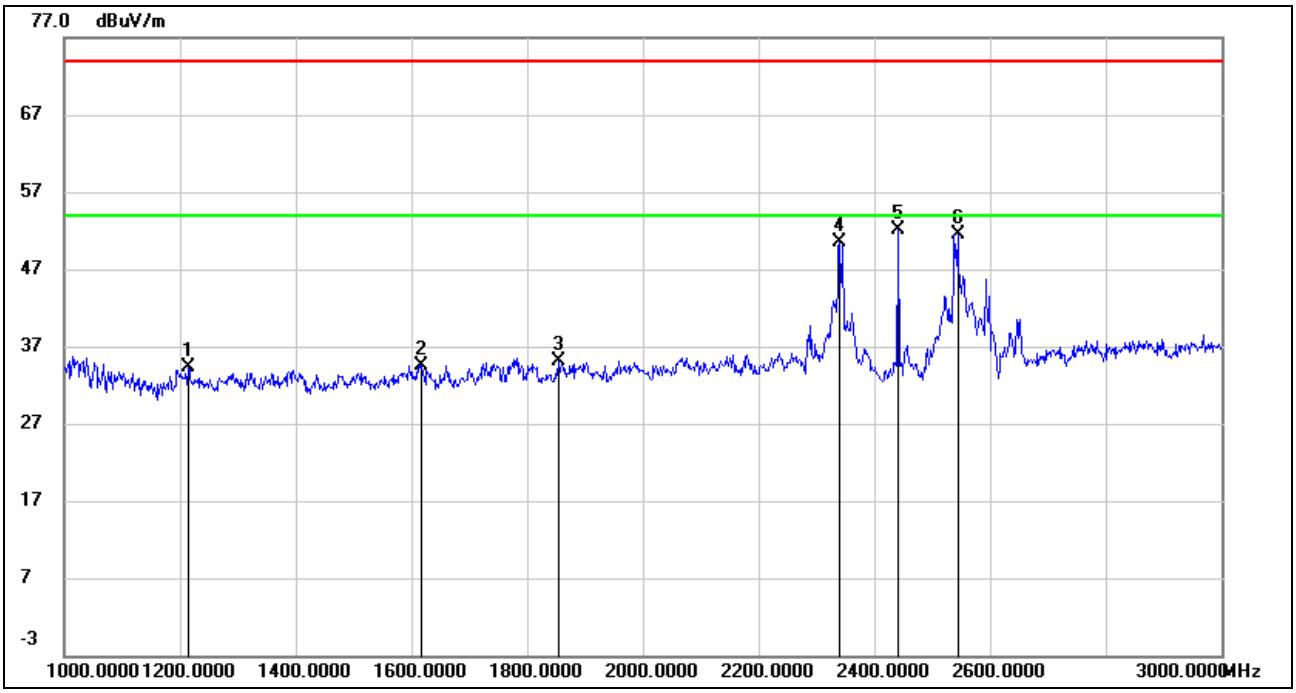
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 48.45 | -12.97 | 35.48 | 74.00 | -38.52 | peak |
| 2 | 1582.000 | 47.34 | -11.76 | 35.58 | 74.00 | -38.42 | peak |
| 3 | 1948.000 | 47.08 | -10.07 | 37.01 | 74.00 | -36.99 | peak |
| 4 | 2344.000 | 53.47 | -8.16 | 45.31 | 74.00 | -28.69 | peak |
| 5 | 2442.000 | 57.40 | -7.66 | 49.74 | 74.00 | -24.26 | peak |
| 6 | 2542.000 | 52.97 | -7.46 | 45.51 | 74.00 | -28.49 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

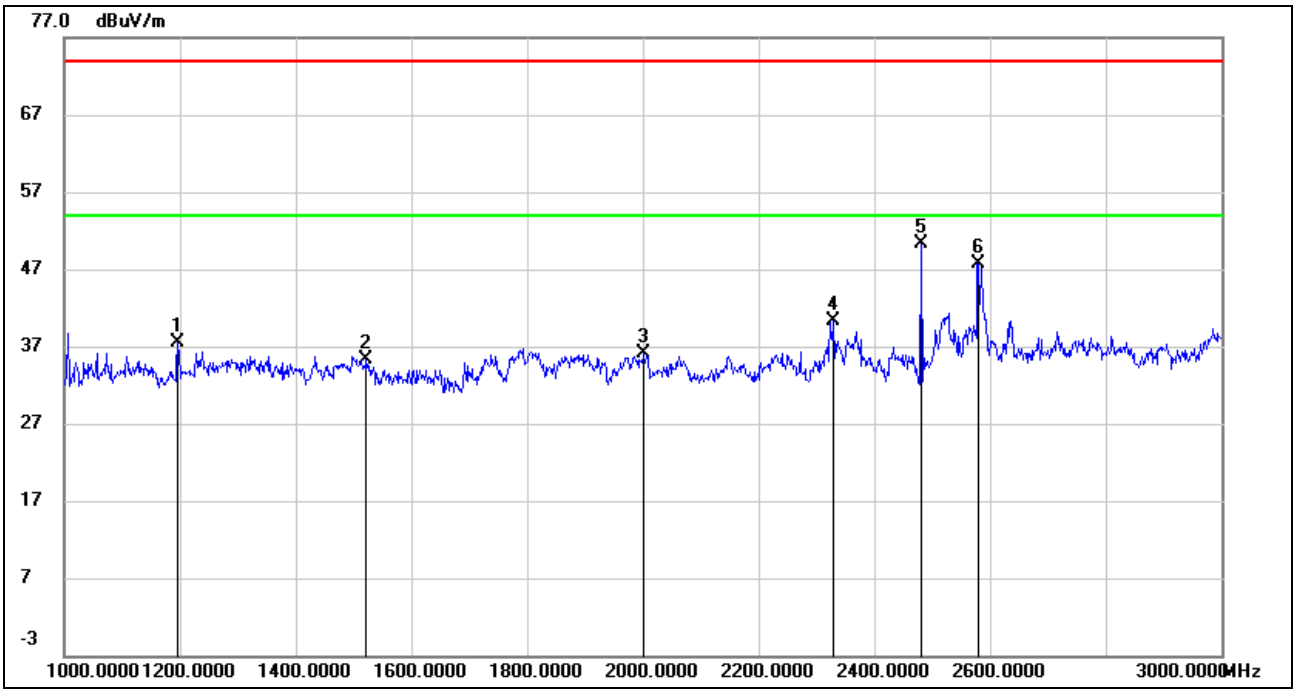
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1214.000 | 47.20 | -12.87 | 34.33 | 74.00 | -39.67 | peak |
| 2 | 1618.000 | 46.07 | -11.52 | 34.55 | 74.00 | -39.45 | peak |
| 3 | 1854.000 | 45.26 | -10.13 | 35.13 | 74.00 | -38.87 | peak |
| 4 | 2340.000 | 58.77 | -8.17 | 50.60 | 74.00 | -23.40 | peak |
| 5 | 2442.000 | 59.71 | -7.66 | 52.05 | 74.00 | -21.95 | peak |
| 6 | 2544.000 | 58.95 | -7.47 | 51.48 | 74.00 | -22.52 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

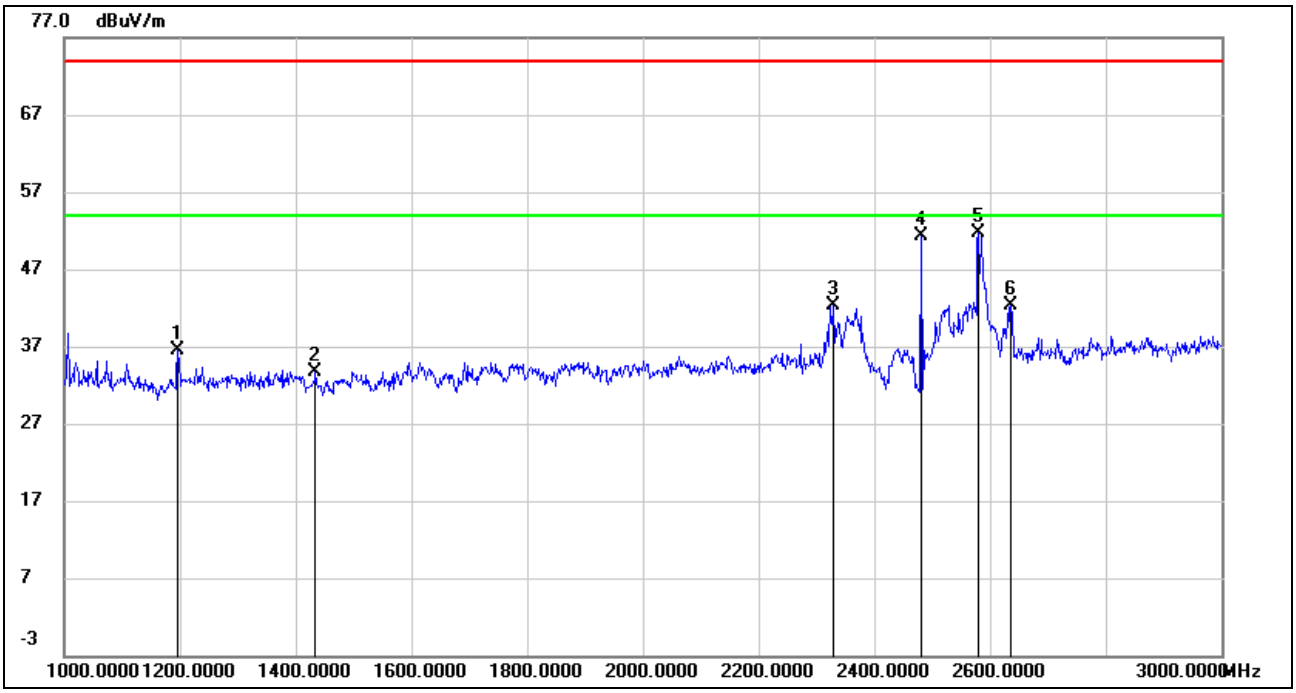
## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1196.000 | 50.42 | -12.96 | 37.46 | 74.00 | -36.54 | peak |
| 2 | 1522.000 | 47.60 | -12.25 | 35.35 | 74.00 | -38.65 | peak |
| 3 | 2002.000 | 46.04 | -9.99 | 36.05 | 74.00 | -37.95 | peak |
| 4 | 2330.000 | 48.55 | -8.21 | 40.34 | 74.00 | -33.66 | peak |
| 5 | 2480.000 | 57.69 | -7.39 | 50.30 | 74.00 | -23.70 | peak |
| 6 | 2580.000 | 55.46 | -7.66 | 47.80 | 74.00 | -26.20 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

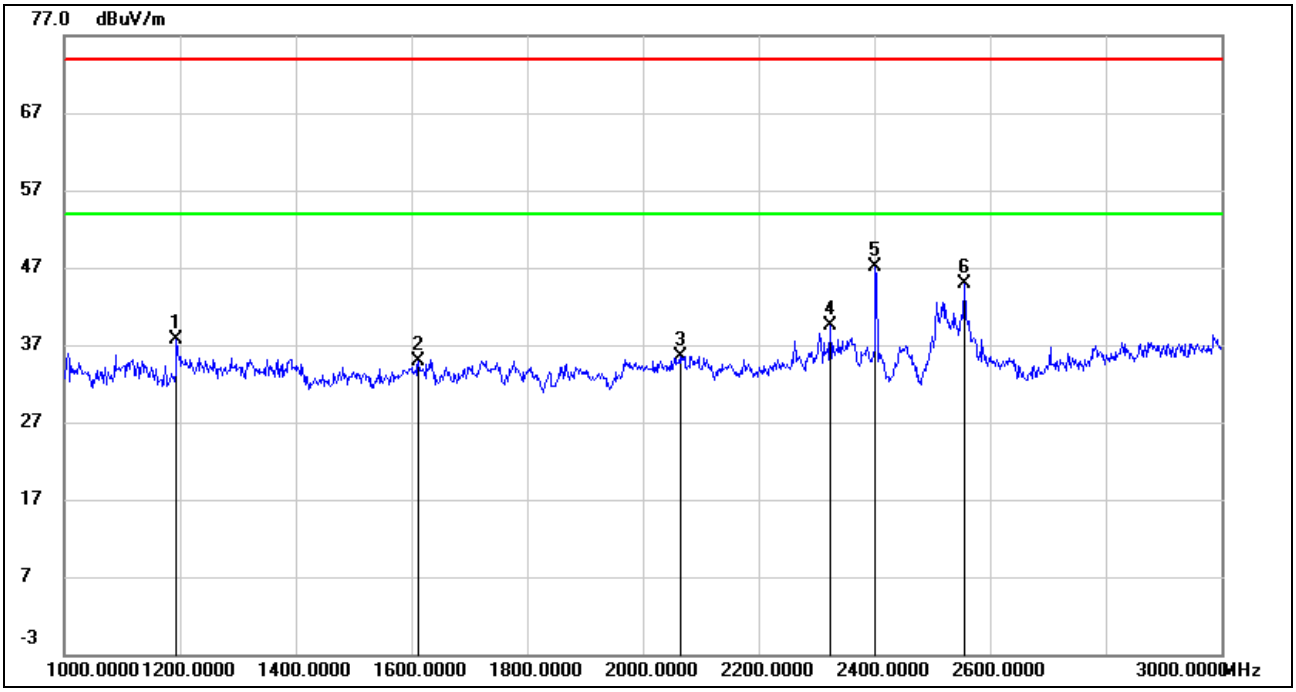



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1196.000 | 49.42 | -12.96 | 36.46 | 74.00 | -37.54 | peak |
| 2 | 1434.000 | 46.31 | -12.55 | 33.76 | 74.00 | -40.24 | peak |
| 3 | 2330.000 | 50.55 | -8.21 | 42.34 | 74.00 | -31.66 | peak |
| 4 | 2480.000 | 58.69 | -7.39 | 51.30 | 74.00 | -22.70 | peak |
| 5 | 2580.000 | 59.46 | -7.66 | 51.80 | 74.00 | -22.20 | peak |
| 6 | 2636.000 | 49.95 | -7.55 | 42.40 | 74.00 | -31.60 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

### 7.1.2. 8DPSK MODE

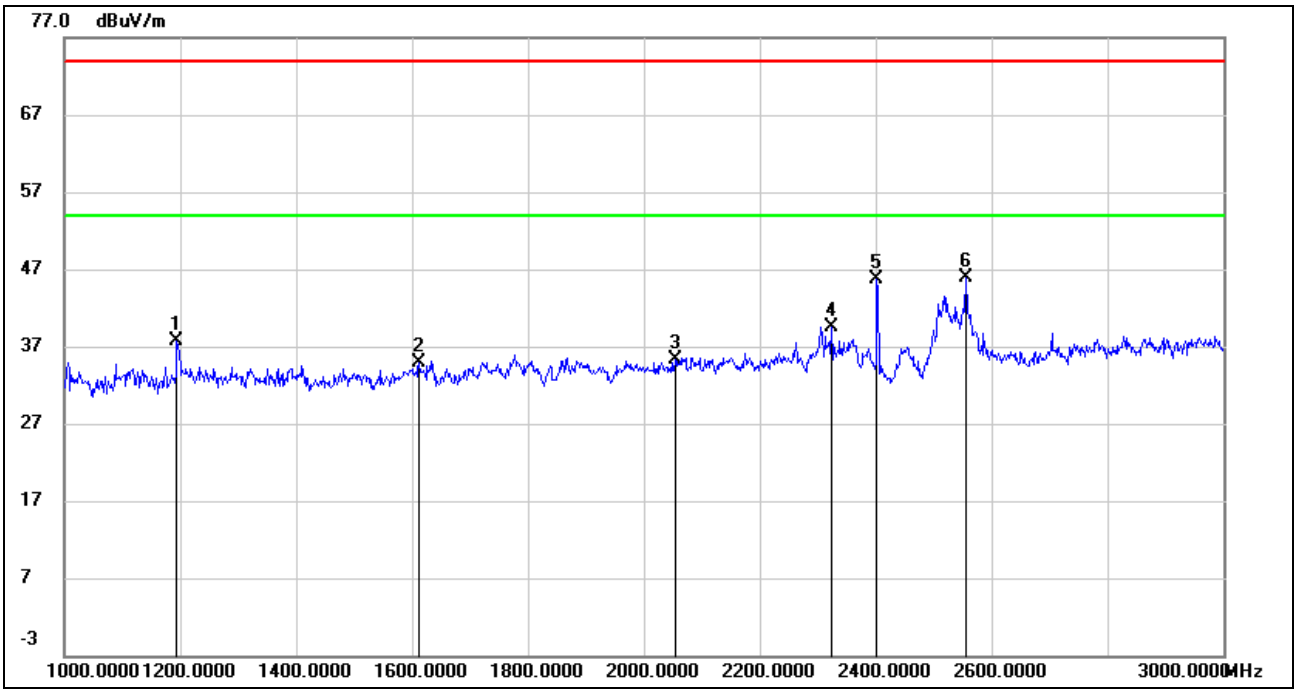
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 50.58 | -12.97 | 37.61 | 74.00 | -36.39 | peak |
| 2 | 1612.000 | 46.44 | -11.54 | 34.90 | 74.00 | -39.10 | peak |
| 3 | 2064.000 | 45.08 | -9.55 | 35.53 | 74.00 | -38.47 | peak |
| 4 | 2324.000 | 47.80 | -8.23 | 39.57 | 74.00 | -34.43 | peak |
| 5 | 2402.000 | 55.07 | -7.95 | 47.12 | 74.00 | -26.88 | peak |
| 6 | 2556.000 | 52.38 | -7.53 | 44.85 | 74.00 | -29.15 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

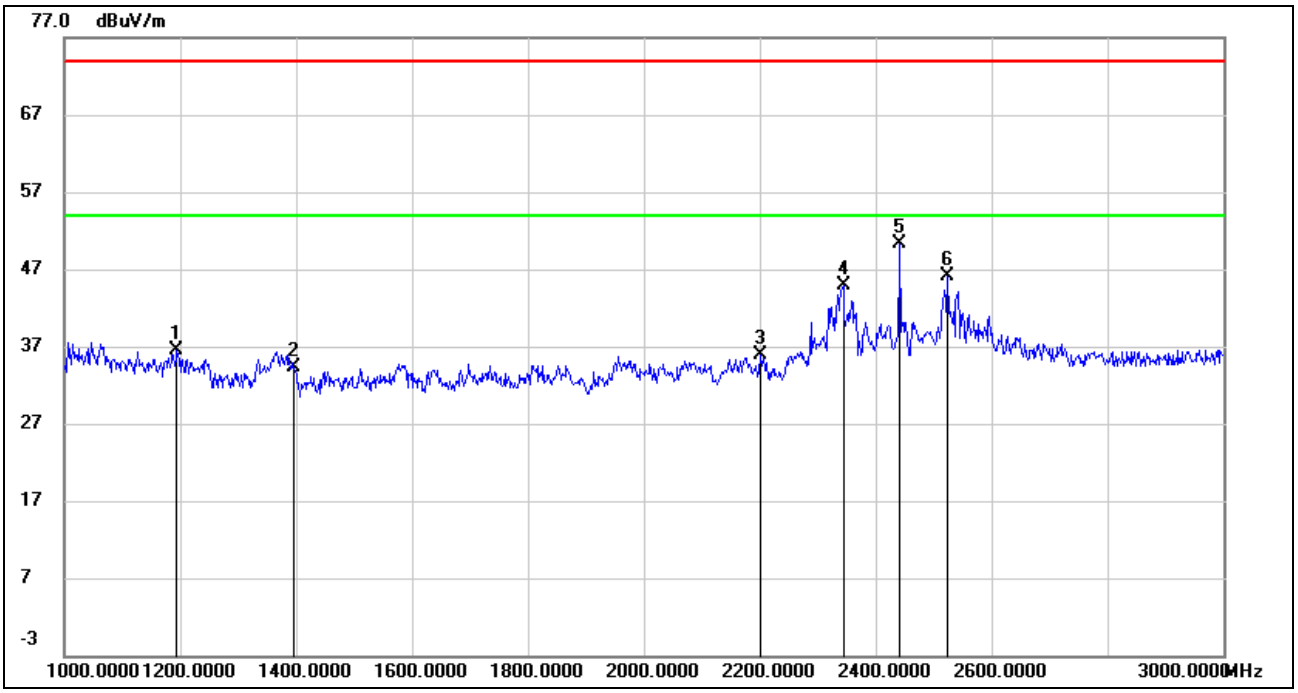
## HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 50.58 | -12.97 | 37.61 | 74.00 | -36.39 | peak |
| 2 | 1612.000 | 46.44 | -11.54 | 34.90 | 74.00 | -39.10 | peak |
| 3 | 2054.000 | 44.88 | -9.63 | 35.25 | 74.00 | -38.75 | peak |
| 4 | 2324.000 | 47.80 | -8.23 | 39.57 | 74.00 | -34.43 | peak |
| 5 | 2402.000 | 53.57 | -7.95 | 45.62 | 74.00 | -28.38 | peak |
| 6 | 2556.000 | 53.38 | -7.53 | 45.85 | 74.00 | -28.15 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

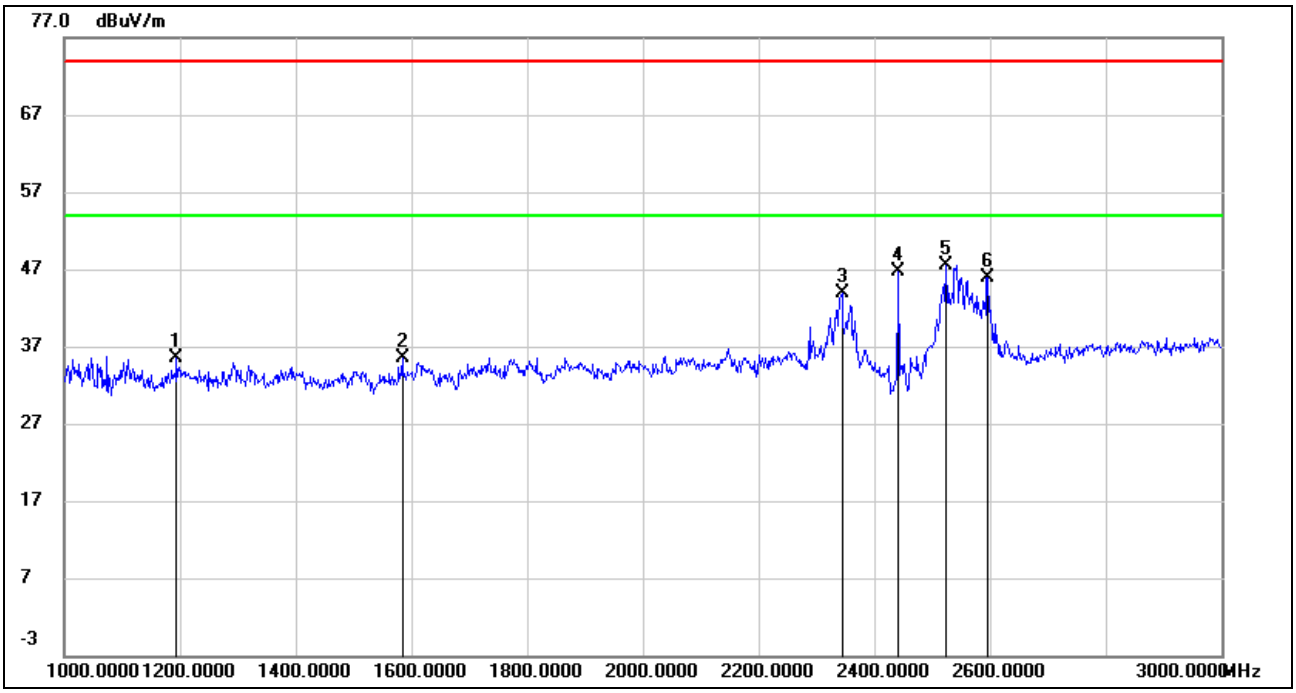
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 49.45 | -12.97 | 36.48 | 74.00 | -37.52 | peak |
| 2 | 1396.000 | 46.97 | -12.61 | 34.36 | 74.00 | -39.64 | peak |
| 3 | 2202.000 | 44.61 | -8.80 | 35.81 | 74.00 | -38.19 | peak |
| 4 | 2344.000 | 52.97 | -8.16 | 44.81 | 74.00 | -29.19 | peak |
| 5 | 2442.000 | 57.90 | -7.66 | 50.24 | 74.00 | -23.76 | peak |
| 6 | 2524.000 | 53.47 | -7.37 | 46.10 | 74.00 | -27.90 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

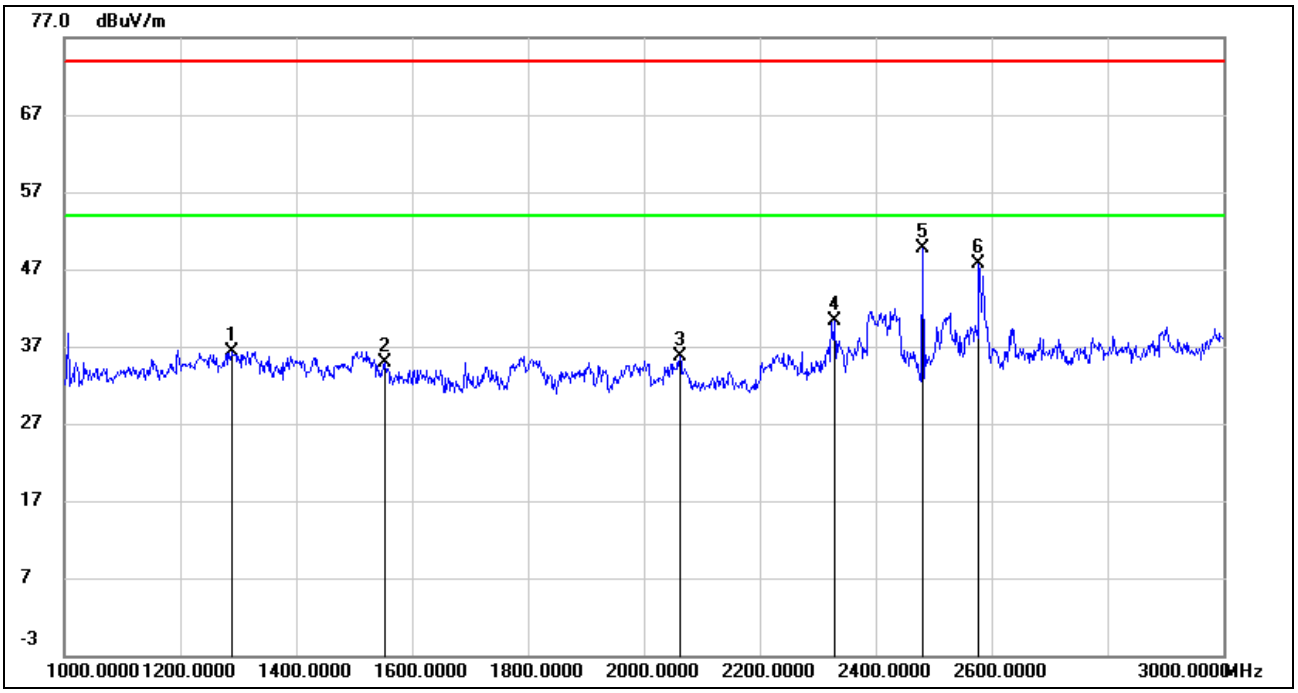
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1194.000 | 48.45 | -12.97 | 35.48 | 74.00 | -38.52 | peak |
| 2 | 1584.000 | 47.15 | -11.74 | 35.41 | 74.00 | -38.59 | peak |
| 3 | 2344.000 | 51.97 | -8.16 | 43.81 | 74.00 | -30.19 | peak |
| 4 | 2442.000 | 54.40 | -7.66 | 46.74 | 74.00 | -27.26 | peak |
| 5 | 2524.000 | 54.97 | -7.37 | 47.60 | 74.00 | -26.40 | peak |
| 6 | 2596.000 | 53.57 | -7.73 | 45.84 | 74.00 | -28.16 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

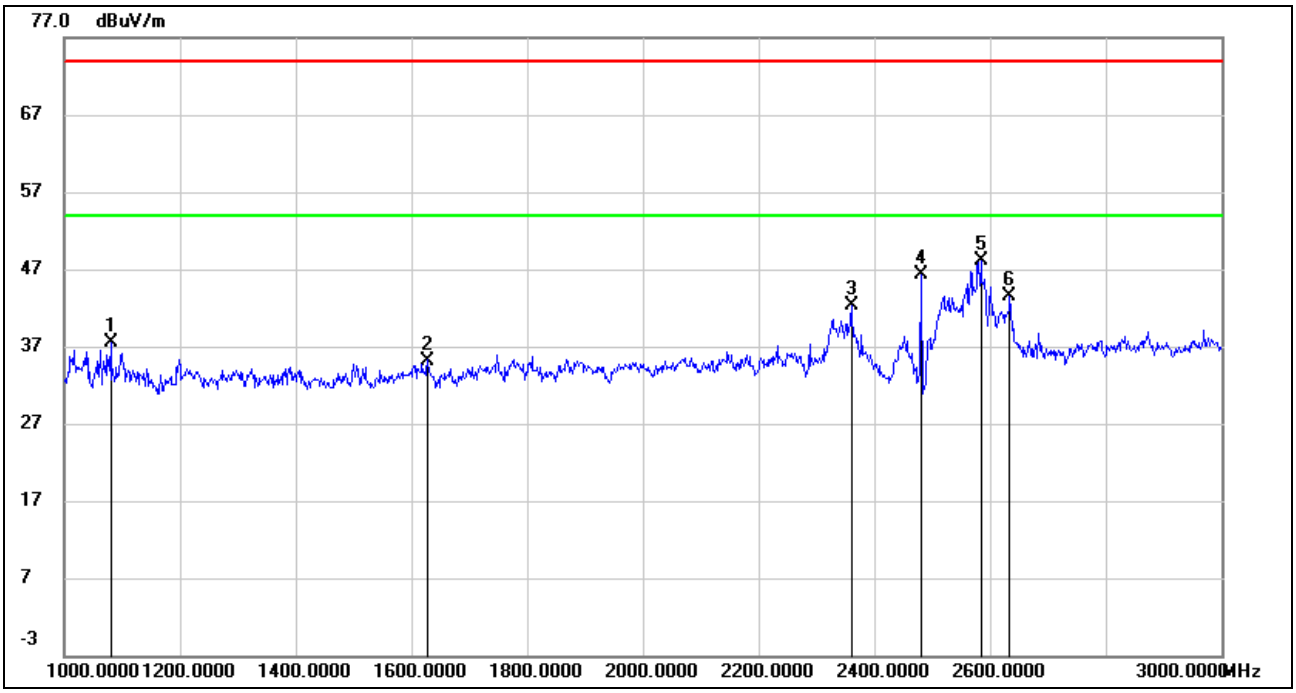
## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1288.000 | 48.99 | -12.62 | 36.37 | 74.00 | -37.63 | peak |
| 2 | 1552.000 | 47.01 | -12.01 | 35.00 | 74.00 | -39.00 | peak |
| 3 | 2062.000 | 45.28 | -9.57 | 35.71 | 74.00 | -38.29 | peak |
| 4 | 2330.000 | 48.55 | -8.21 | 40.34 | 74.00 | -33.66 | peak |
| 5 | 2480.000 | 57.19 | -7.39 | 49.80 | 74.00 | -24.20 | peak |
| 6 | 2578.000 | 55.29 | -7.65 | 47.64 | 74.00 | -26.36 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



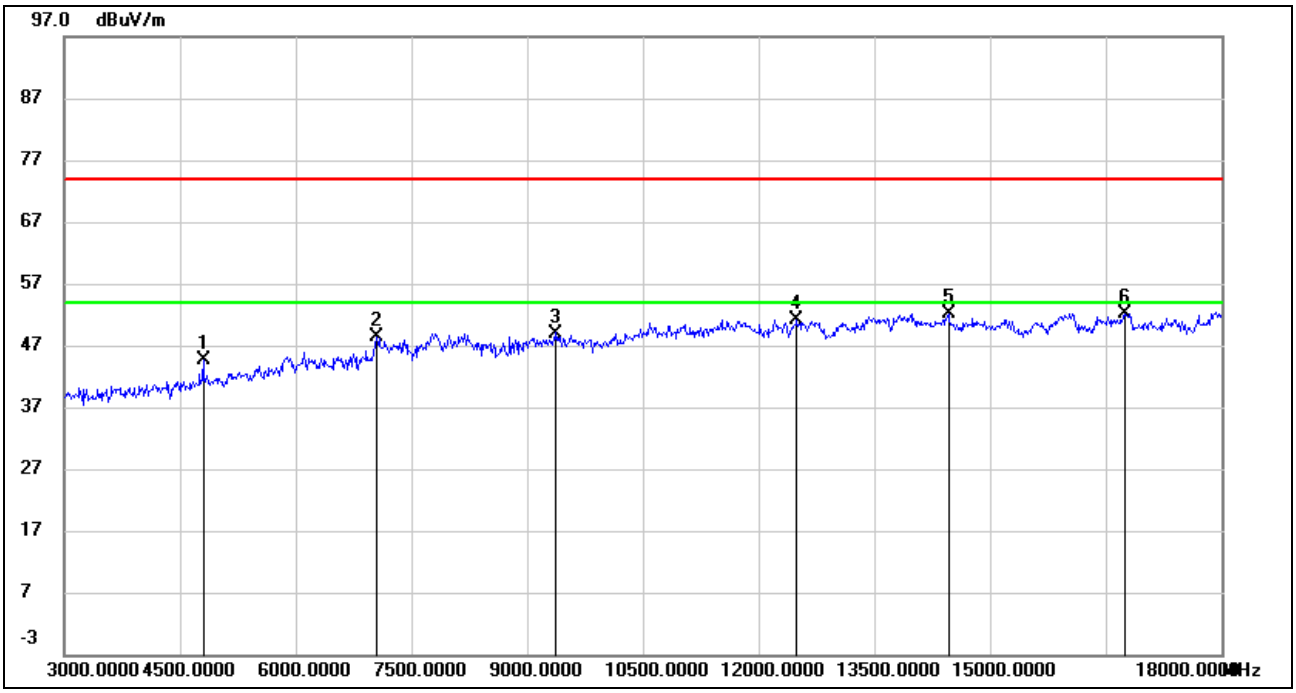

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 1080.000 | 51.38 | -13.79 | 37.59 | 74.00 | -36.41 | peak |
| 2 | 1628.000 | 46.66 | -11.46 | 35.20 | 74.00 | -38.80 | peak |
| 3 | 2360.000 | 50.48 | -8.10 | 42.38 | 74.00 | -31.62 | peak |
| 4 | 2480.000 | 53.64 | -7.39 | 46.25 | 74.00 | -27.75 | peak |
| 5 | 2584.000 | 55.77 | -7.68 | 48.09 | 74.00 | -25.91 | peak |
| 6 | 2634.000 | 51.07 | -7.57 | 43.50 | 74.00 | -30.50 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## 7.2. SPURIOUS EMISSIONS (3~18GHz)

### 7.2.1. GFSK MODE

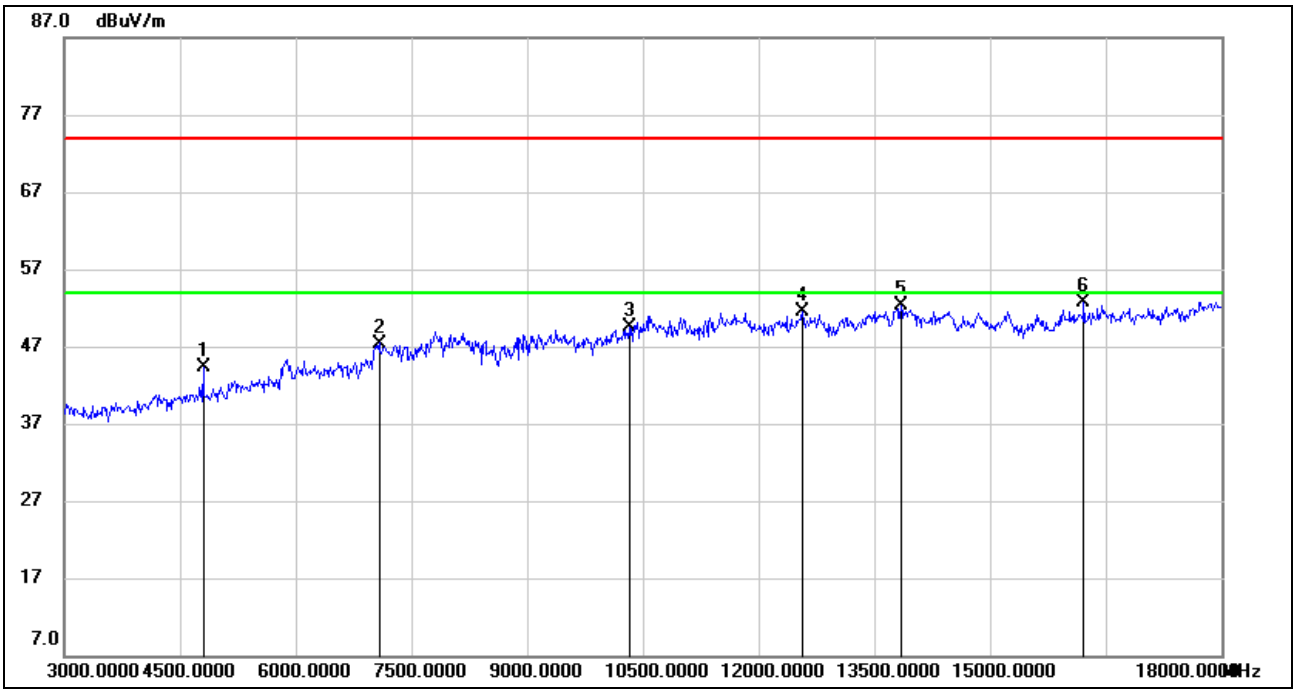
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4800.000 | 44.83 | -0.14 | 44.69 | 74.00 | -29.31 | peak |
| 2 | 7050.000 | 41.38 | 7.01 | 48.39 | 74.00 | -25.61 | peak |
| 3 | 9375.000 | 38.51 | 10.49 | 49.00 | 74.00 | -25.00 | peak |
| 4 | 12495.000 | 36.09 | 15.13 | 51.22 | 74.00 | -22.78 | peak |
| 5 | 14460.000 | 35.44 | 16.65 | 52.09 | 74.00 | -21.91 | peak |
| 6 | 16740.000 | 31.93 | 20.26 | 52.19 | 74.00 | -21.81 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

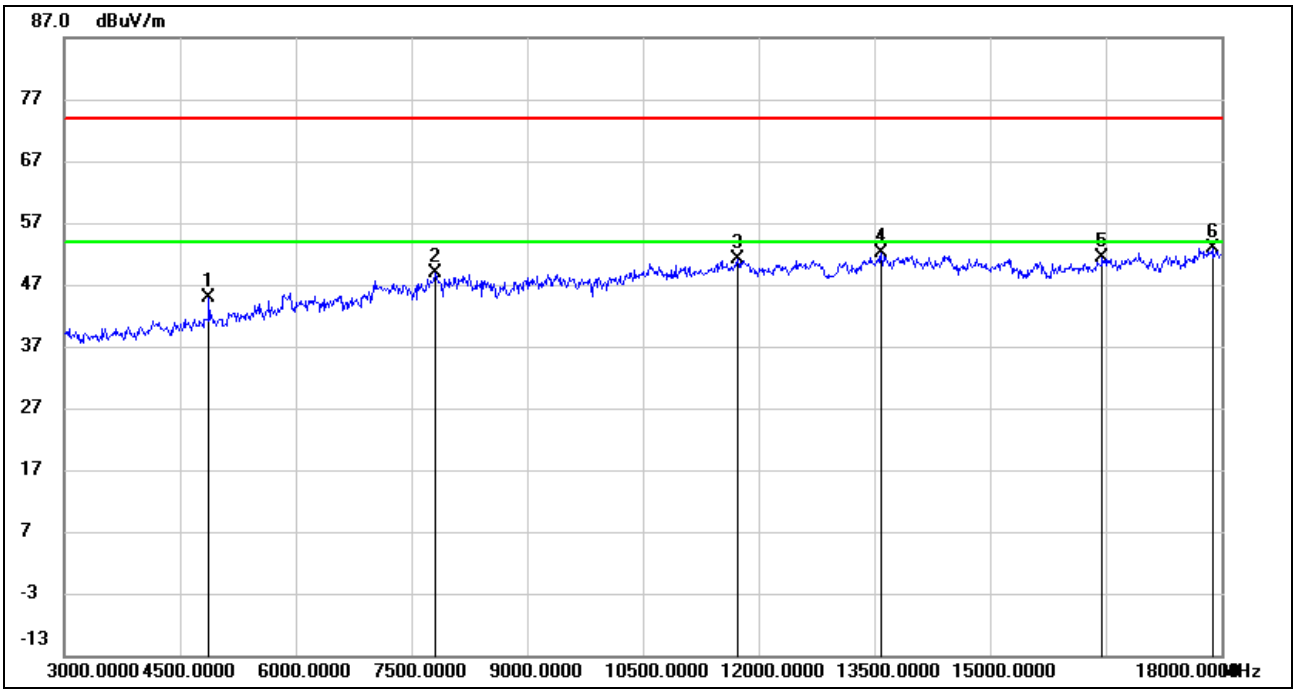
## HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4800.000 | 44.35 | -0.14 | 44.21 | 74.00 | -29.79 | peak |
| 2 | 7080.000 | 40.33 | 7.07 | 47.40 | 74.00 | -26.60 | peak |
| 3 | 10320.000 | 37.55 | 11.95 | 49.50 | 74.00 | -24.50 | peak |
| 4 | 12570.000 | 36.76 | 14.68 | 51.44 | 74.00 | -22.56 | peak |
| 5 | 13845.000 | 35.06 | 17.22 | 52.28 | 74.00 | -21.72 | peak |
| 6 | 16215.000 | 34.13 | 18.51 | 52.64 | 74.00 | -21.36 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

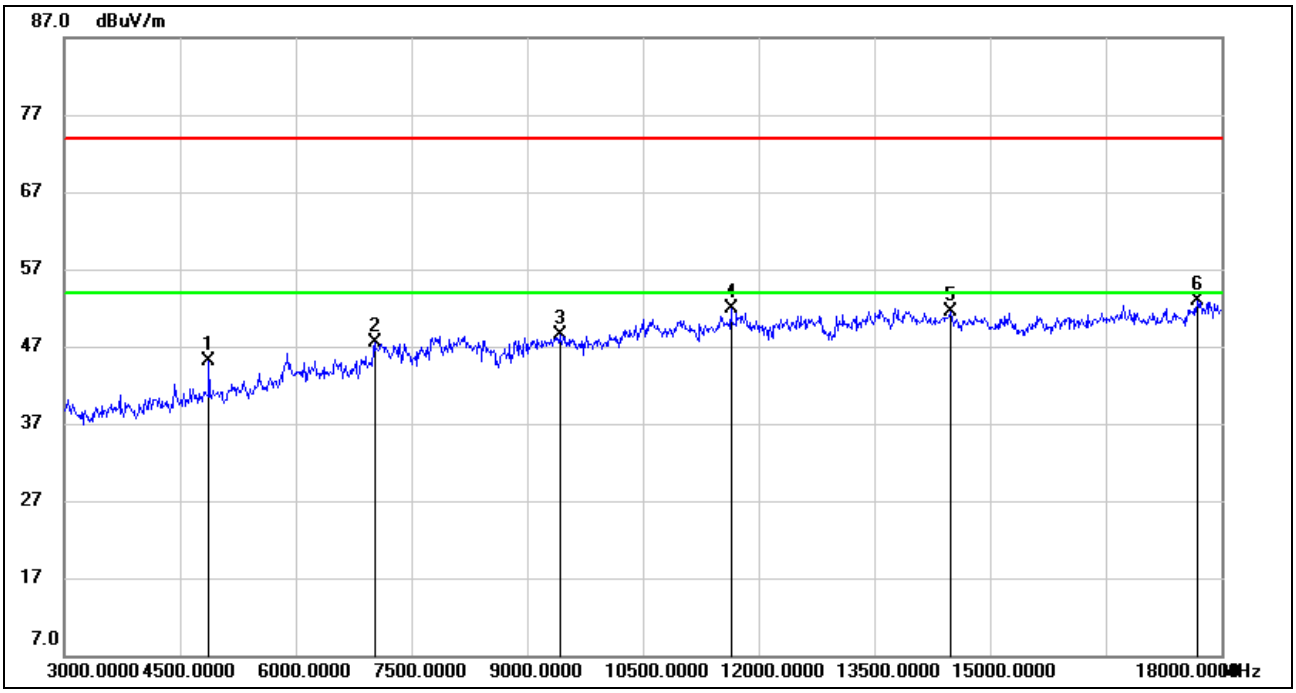
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4875.000 | 44.82 | 0.10 | 44.92 | 74.00 | -29.08 | peak |
| 2 | 7800.000 | 39.50 | 9.41 | 48.91 | 74.00 | -25.09 | peak |
| 3 | 11730.000 | 36.99 | 14.13 | 51.12 | 74.00 | -22.88 | peak |
| 4 | 13590.000 | 35.67 | 16.38 | 52.05 | 74.00 | -21.95 | peak |
| 5 | 16455.000 | 32.23 | 19.16 | 51.39 | 74.00 | -22.61 | peak |
| 6 | 17880.000 | 29.57 | 23.34 | 52.91 | 74.00 | -21.09 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

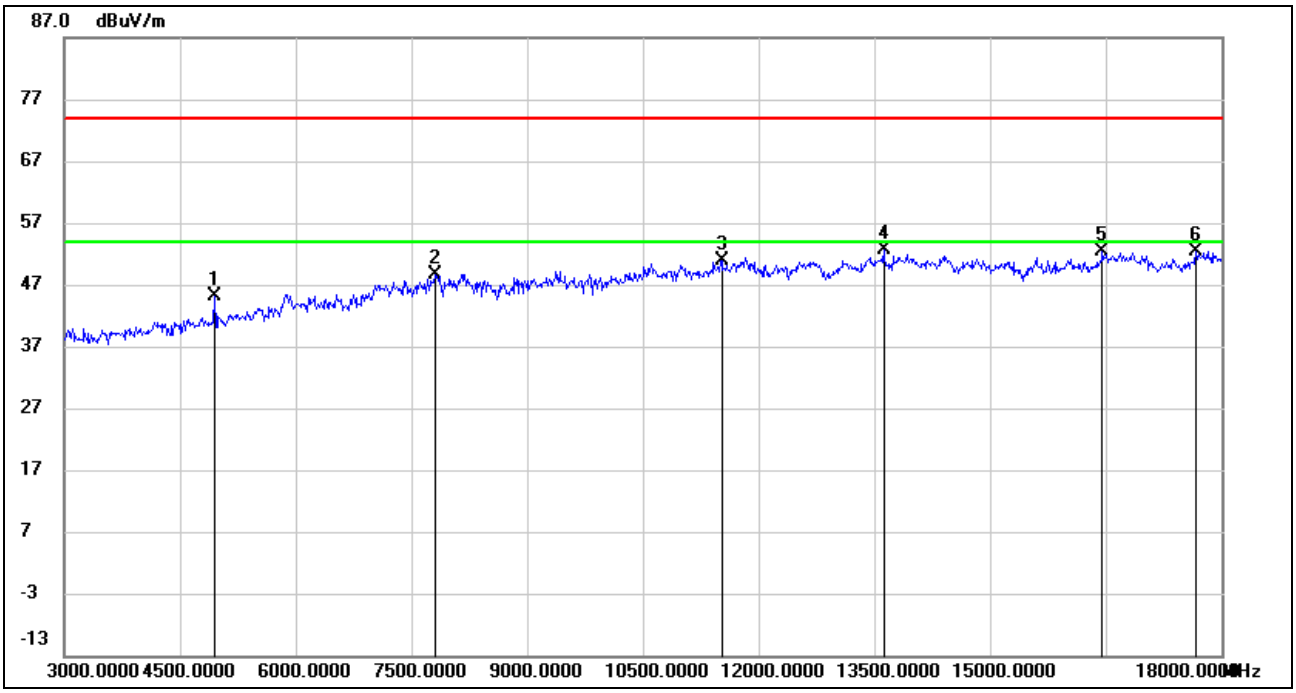
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4875.000 | 45.10 | 0.10 | 45.20 | 74.00 | -28.80 | peak |
| 2 | 7020.000 | 40.55 | 6.94 | 47.49 | 74.00 | -26.51 | peak |
| 3 | 9420.000 | 37.97 | 10.61 | 48.58 | 74.00 | -25.42 | peak |
| 4 | 11640.000 | 37.63 | 14.18 | 51.81 | 74.00 | -22.19 | peak |
| 5 | 14490.000 | 34.93 | 16.64 | 51.57 | 74.00 | -22.43 | peak |
| 6 | 17685.000 | 30.45 | 22.43 | 52.88 | 74.00 | -21.12 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

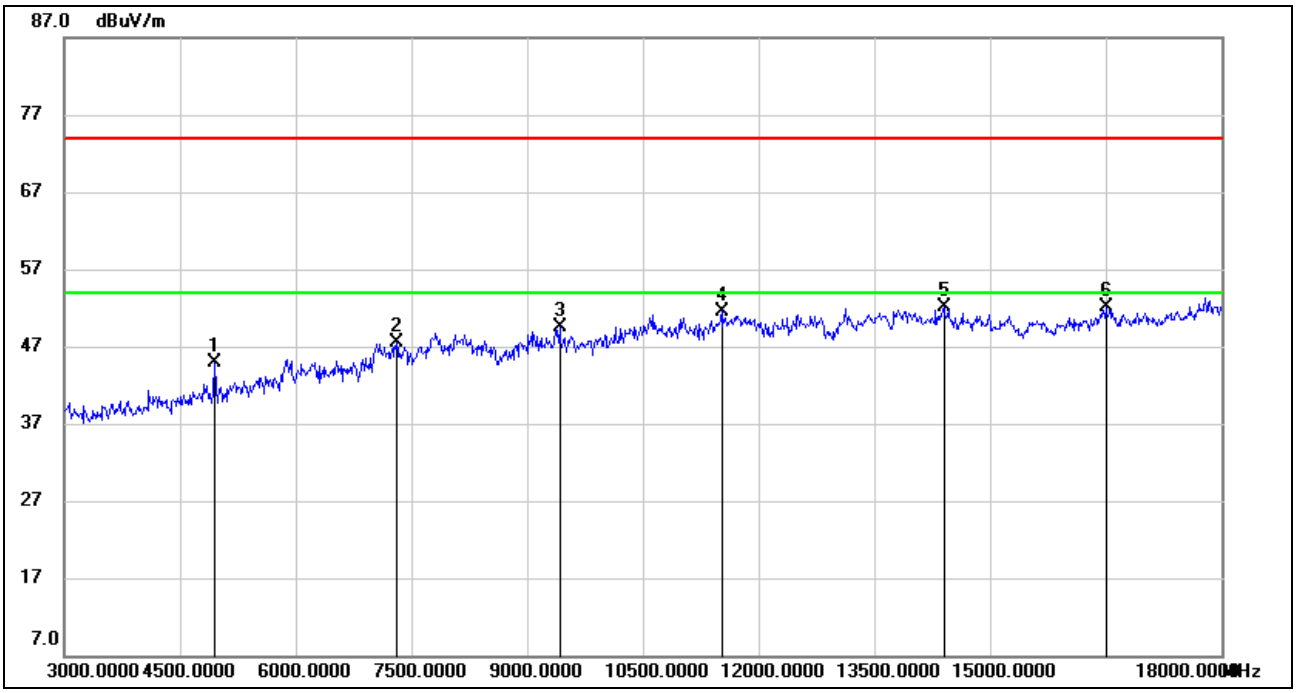
## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4950.000 | 44.72 | 0.40 | 45.12 | 74.00 | -28.88 | peak |
| 2 | 7815.000 | 39.24 | 9.31 | 48.55 | 74.00 | -25.45 | peak |
| 3 | 11520.000 | 36.52 | 14.46 | 50.98 | 74.00 | -23.02 | peak |
| 4 | 13620.000 | 36.15 | 16.39 | 52.54 | 74.00 | -21.46 | peak |
| 5 | 16455.000 | 33.15 | 19.16 | 52.31 | 74.00 | -21.69 | peak |
| 6 | 17670.000 | 30.00 | 22.34 | 52.34 | 74.00 | -21.66 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)

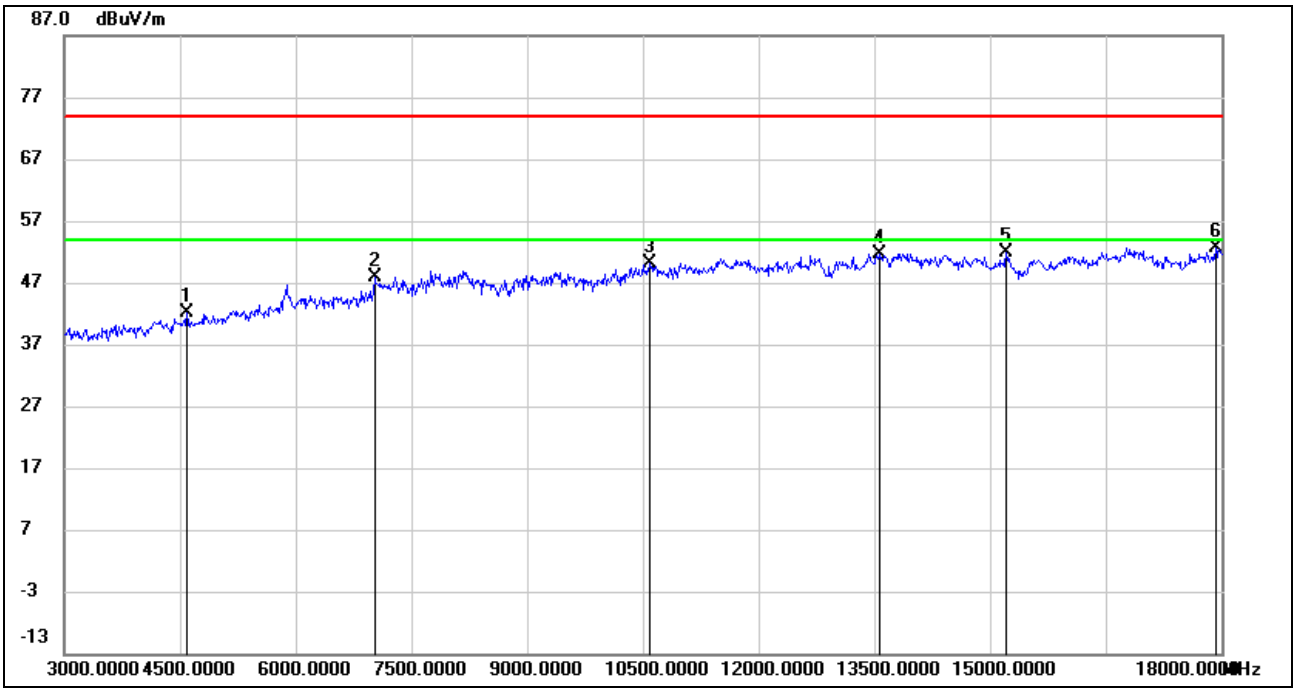



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4950.000 | 44.41 | 0.40 | 44.81 | 74.00 | -29.19 | peak |
| 2 | 7305.000 | 40.13 | 7.35 | 47.48 | 74.00 | -26.52 | peak |
| 3 | 9420.000 | 38.83 | 10.61 | 49.44 | 74.00 | -24.56 | peak |
| 4 | 11520.000 | 37.14 | 14.46 | 51.60 | 74.00 | -22.40 | peak |
| 5 | 14400.000 | 35.33 | 16.68 | 52.01 | 74.00 | -21.99 | peak |
| 6 | 16500.000 | 32.75 | 19.37 | 52.12 | 74.00 | -21.88 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

### 7.2.2. 8DPSK MODE

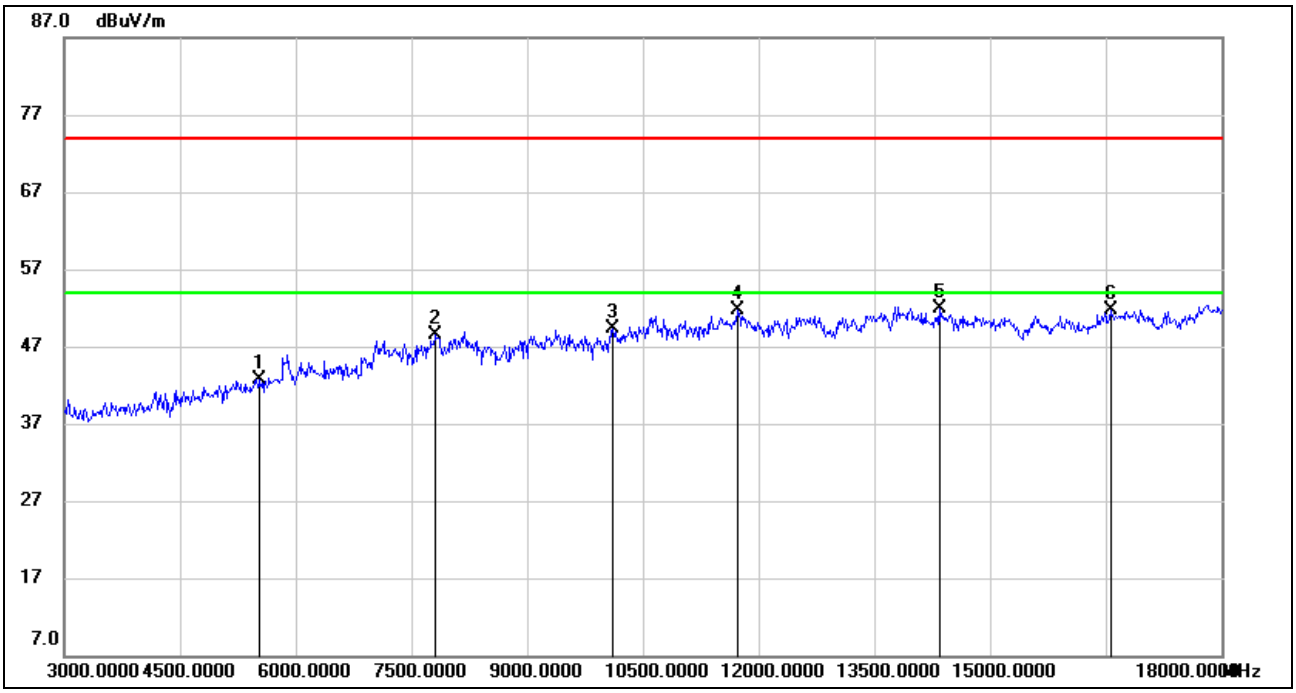
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4590.000 | 42.88 | -0.86 | 42.02 | 74.00 | -31.98 | peak |
| 2 | 7020.000 | 40.91 | 6.94 | 47.85 | 74.00 | -26.15 | peak |
| 3 | 10590.000 | 37.39 | 12.83 | 50.22 | 74.00 | -23.78 | peak |
| 4 | 13560.000 | 35.41 | 16.29 | 51.70 | 74.00 | -22.30 | peak |
| 5 | 15210.000 | 35.77 | 16.03 | 51.80 | 74.00 | -22.20 | peak |
| 6 | 17925.000 | 29.31 | 23.34 | 52.65 | 74.00 | -21.35 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

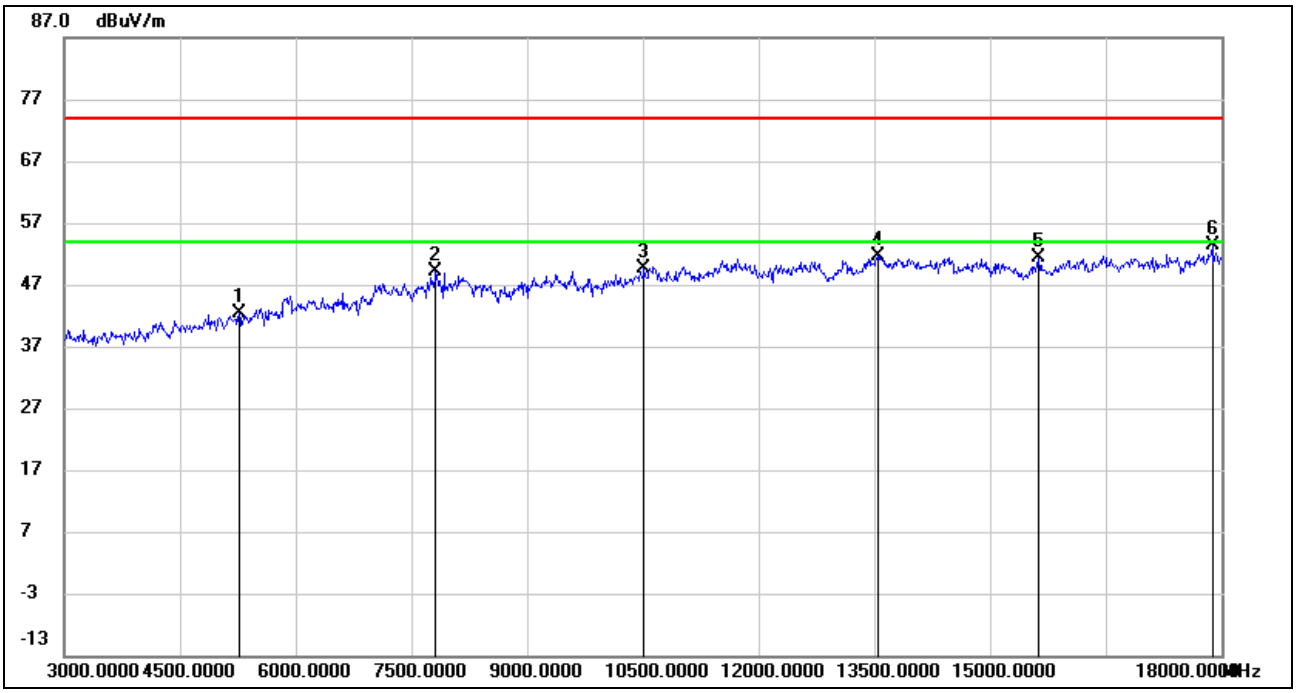
## HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 5520.000 | 39.65 | 2.97 | 42.62 | 74.00 | -31.38 | peak |
| 2 | 7815.000 | 39.11 | 9.31 | 48.42 | 74.00 | -25.58 | peak |
| 3 | 10110.000 | 37.90 | 11.39 | 49.29 | 74.00 | -24.71 | peak |
| 4 | 11730.000 | 37.48 | 14.13 | 51.61 | 74.00 | -22.39 | peak |
| 5 | 14340.000 | 35.19 | 16.65 | 51.84 | 74.00 | -22.16 | peak |
| 6 | 16560.000 | 32.19 | 19.57 | 51.76 | 74.00 | -22.24 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

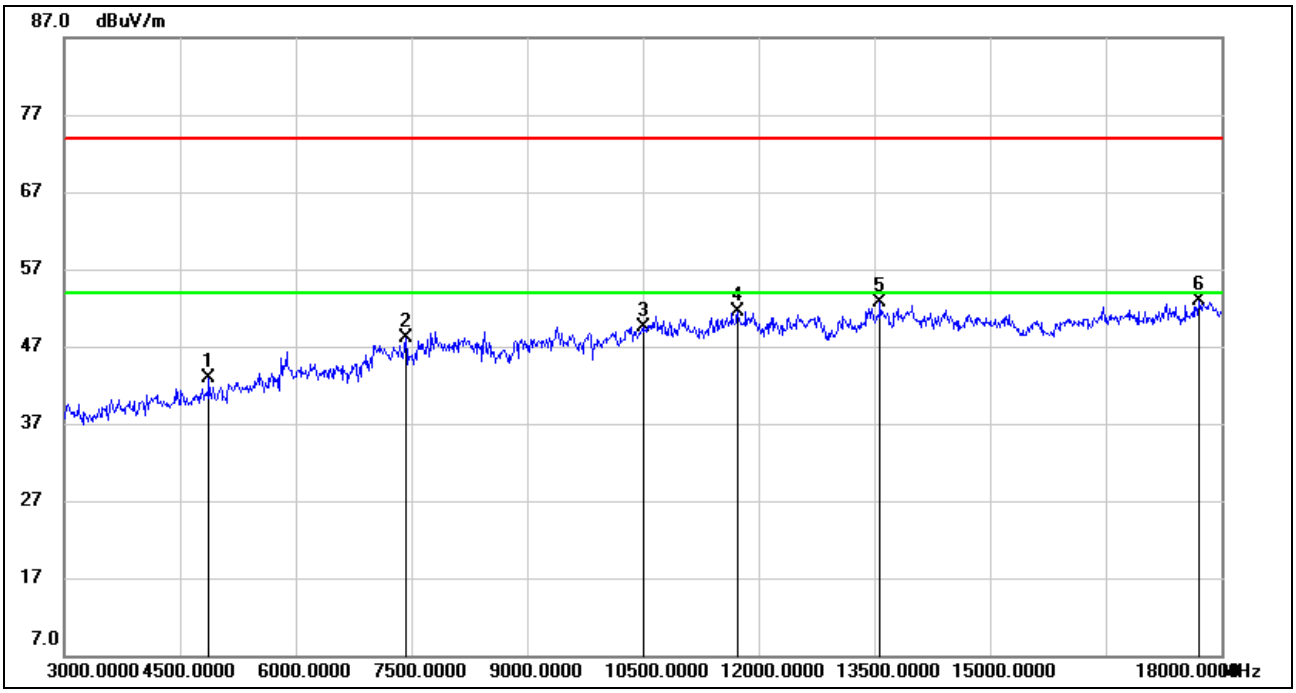
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 5265.000 | 40.69 | 1.75 | 42.44 | 74.00 | -31.56 | peak |
| 2 | 7815.000 | 39.89 | 9.31 | 49.20 | 74.00 | -24.80 | peak |
| 3 | 10515.000 | 37.21 | 12.40 | 49.61 | 74.00 | -24.39 | peak |
| 4 | 13545.000 | 35.45 | 16.24 | 51.69 | 74.00 | -22.31 | peak |
| 5 | 15630.000 | 34.62 | 16.81 | 51.43 | 74.00 | -22.57 | peak |
| 6 | 17880.000 | 30.06 | 23.34 | 53.40 | 74.00 | -20.60 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

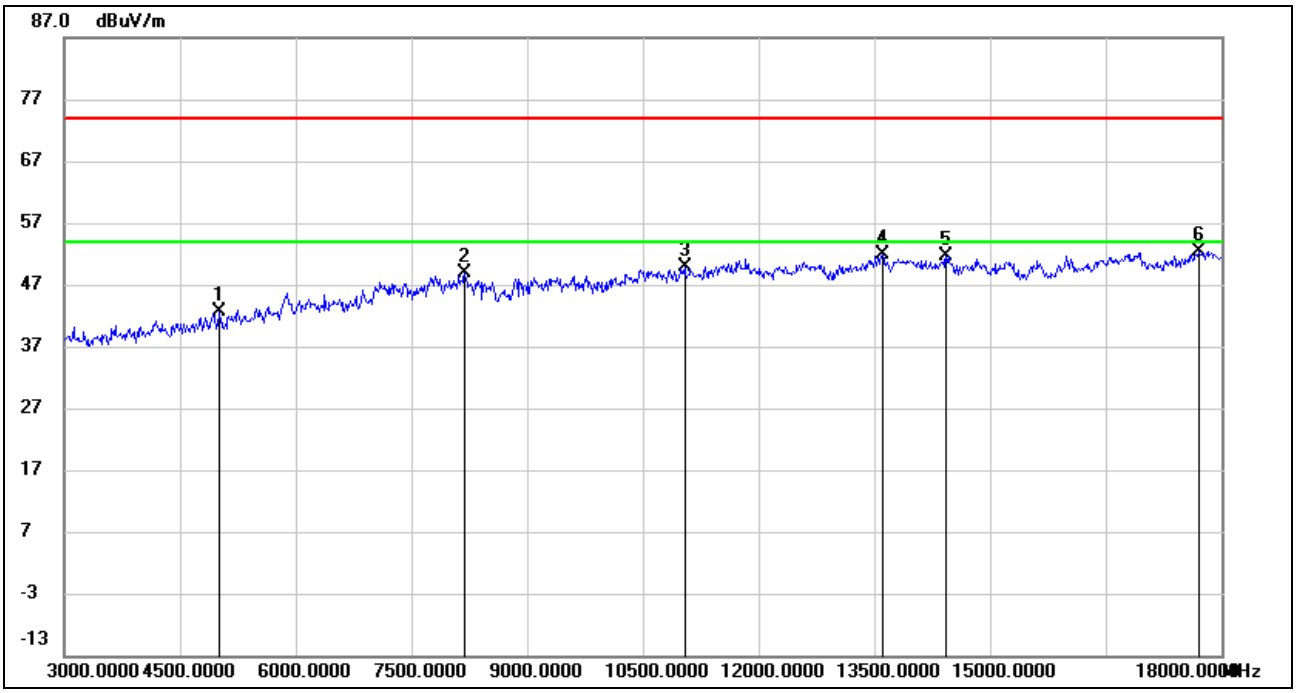
## HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 4875.000 | 42.81 | 0.10 | 42.91 | 74.00 | -31.09 | peak |
| 2 | 7425.000 | 40.36 | 7.71 | 48.07 | 74.00 | -25.93 | peak |
| 3 | 10500.000 | 37.22 | 12.31 | 49.53 | 74.00 | -24.47 | peak |
| 4 | 11730.000 | 37.34 | 14.13 | 51.47 | 74.00 | -22.53 | peak |
| 5 | 13575.000 | 36.45 | 16.33 | 52.78 | 74.00 | -21.22 | peak |
| 6 | 17715.000 | 30.23 | 22.65 | 52.88 | 74.00 | -21.12 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

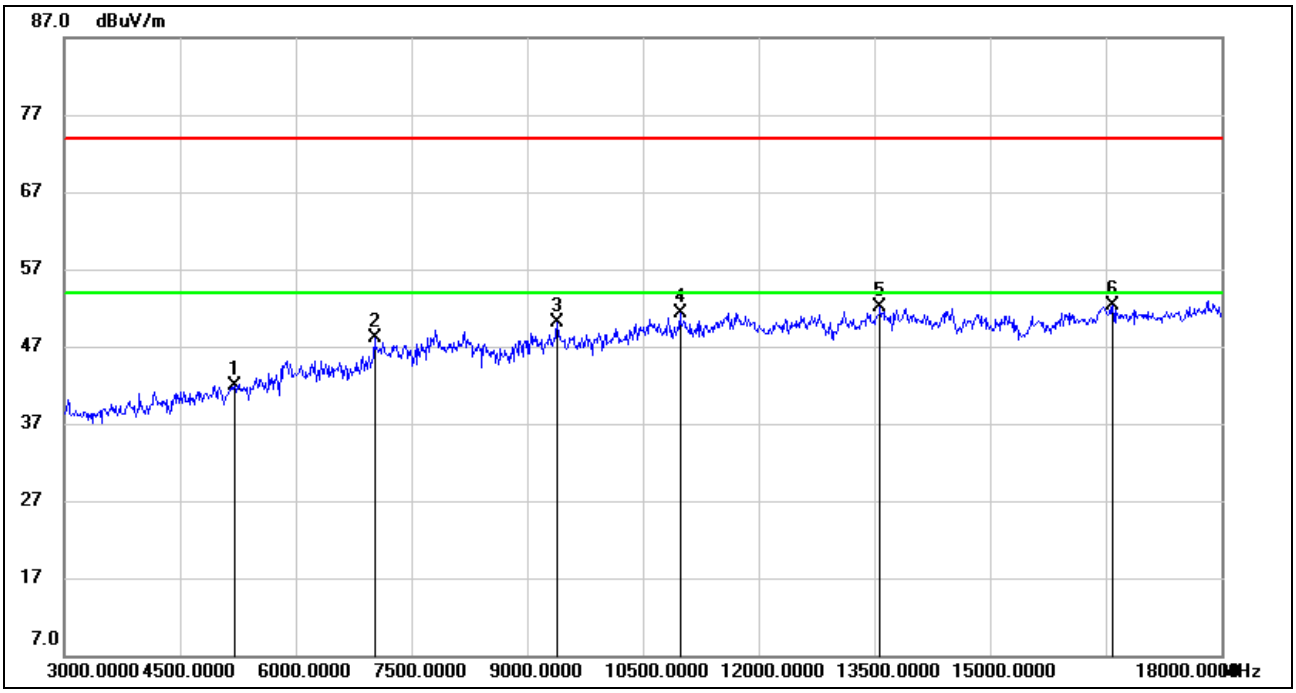
## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 5010.000 | 41.85 | 0.66 | 42.51 | 74.00 | -31.49 | peak |
| 2 | 8190.000 | 38.92 | 9.84 | 48.76 | 74.00 | -25.24 | peak |
| 3 | 11040.000 | 36.33 | 13.63 | 49.96 | 74.00 | -24.04 | peak |
| 4 | 13605.000 | 35.42 | 16.40 | 51.82 | 74.00 | -22.18 | peak |
| 5 | 14430.000 | 34.98 | 16.66 | 51.64 | 74.00 | -22.36 | peak |
| 6 | 17700.000 | 29.88 | 22.53 | 52.41 | 74.00 | -21.59 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



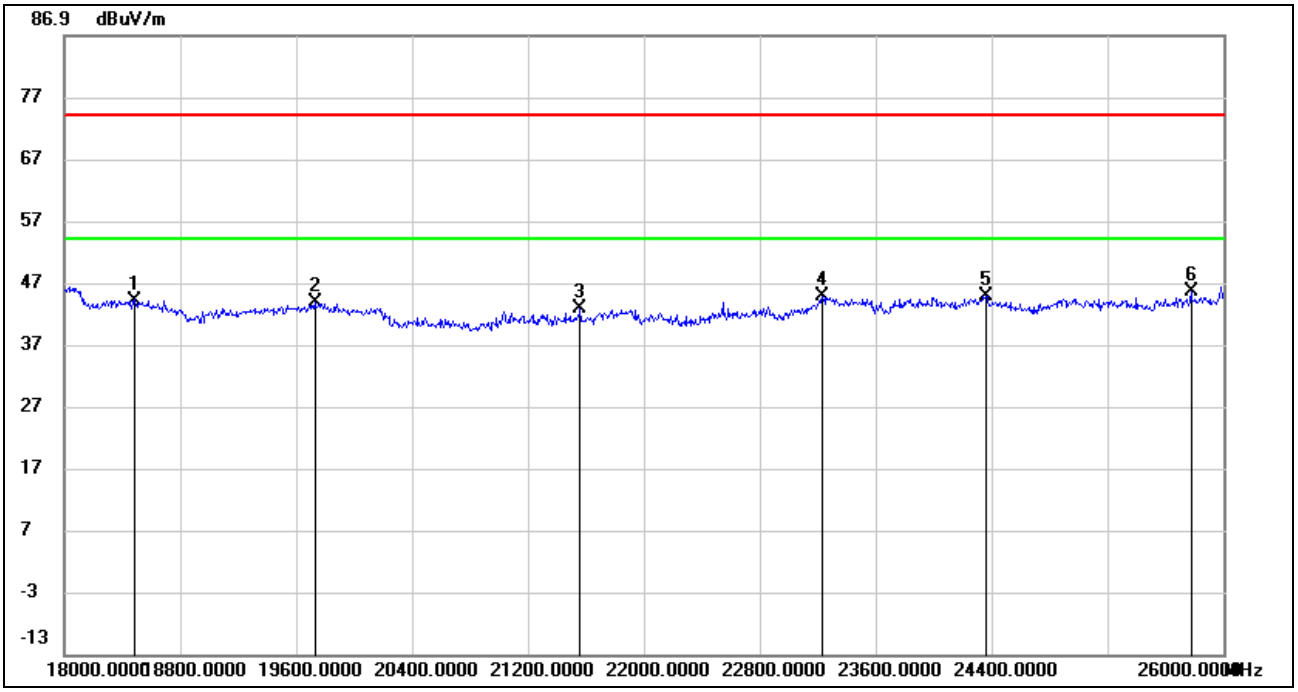

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 5205.000 | 40.06 | 1.81 | 41.87 | 74.00 | -32.13 | peak |
| 2 | 7020.000 | 41.07 | 6.94 | 48.01 | 74.00 | -25.99 | peak |
| 3 | 9390.000 | 39.44 | 10.57 | 50.01 | 74.00 | -23.99 | peak |
| 4 | 10980.000 | 37.82 | 13.47 | 51.29 | 74.00 | -22.71 | peak |
| 5 | 13575.000 | 35.86 | 16.33 | 52.19 | 74.00 | -21.81 | peak |
| 6 | 16590.000 | 32.65 | 19.67 | 52.32 | 74.00 | -21.68 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

## 7.4. SPURIOUS EMISSIONS 18G ~ 26GHz

### 7.4.1. GFSK MODE

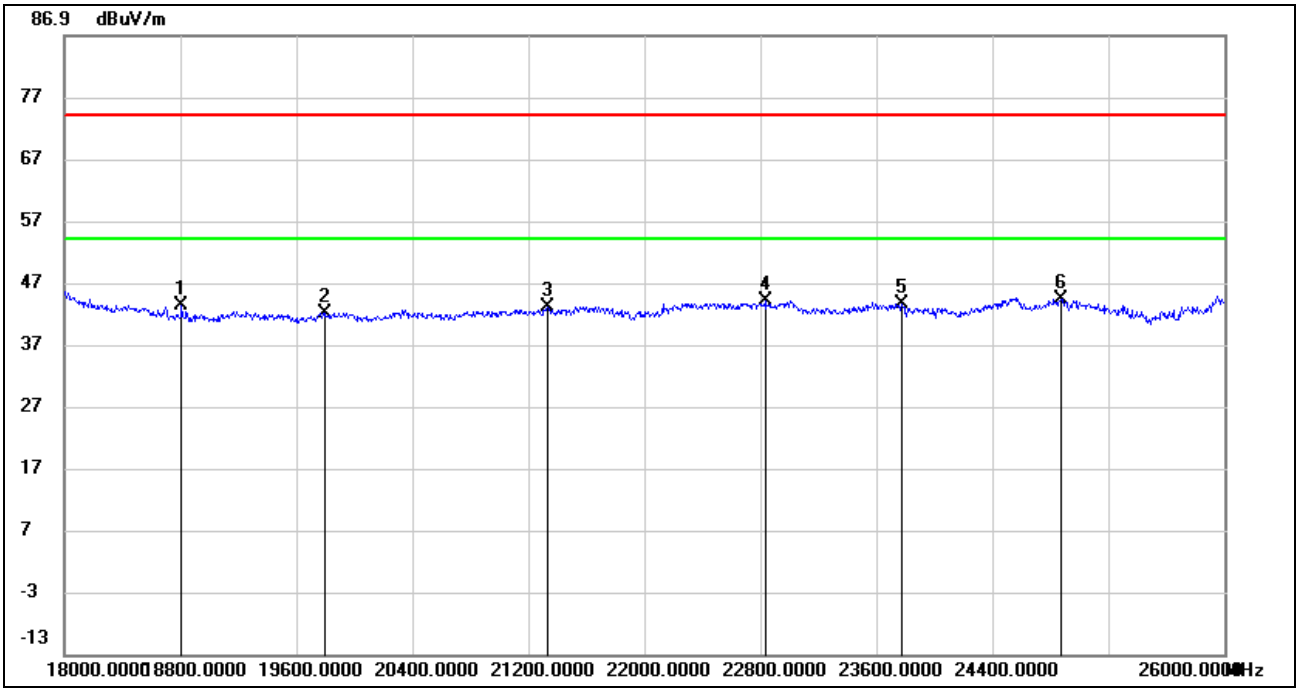
**SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 18480.000 | 48.53 | -4.38 | 44.15 | 74.00 | -29.85 | peak |
| 2 | 19728.000 | 48.15 | -4.38 | 43.77 | 74.00 | -30.23 | peak |
| 3 | 21560.000 | 48.56 | -5.77 | 42.79 | 74.00 | -31.21 | peak |
| 4 | 23232.000 | 49.95 | -5.28 | 44.67 | 74.00 | -29.33 | peak |
| 5 | 24360.000 | 48.04 | -3.16 | 44.88 | 74.00 | -29.12 | peak |
| 6 | 25776.000 | 46.92 | -1.45 | 45.47 | 74.00 | -28.53 | peak |

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

**SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, LOW CHANNEL, VERTICAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 18808.000 | 48.05 | -4.85 | 43.20 | 74.00 | -30.80 | peak |
| 2 | 19792.000 | 46.49 | -4.35 | 42.14 | 74.00 | -31.86 | peak |
| 3 | 21336.000 | 48.73 | -5.60 | 43.13 | 74.00 | -30.87 | peak |
| 4 | 22832.000 | 49.64 | -5.69 | 43.95 | 74.00 | -30.05 | peak |
| 5 | 23776.000 | 47.98 | -4.57 | 43.41 | 74.00 | -30.59 | peak |
| 6 | 24872.000 | 45.91 | -1.52 | 44.39 | 74.00 | -29.61 | peak |

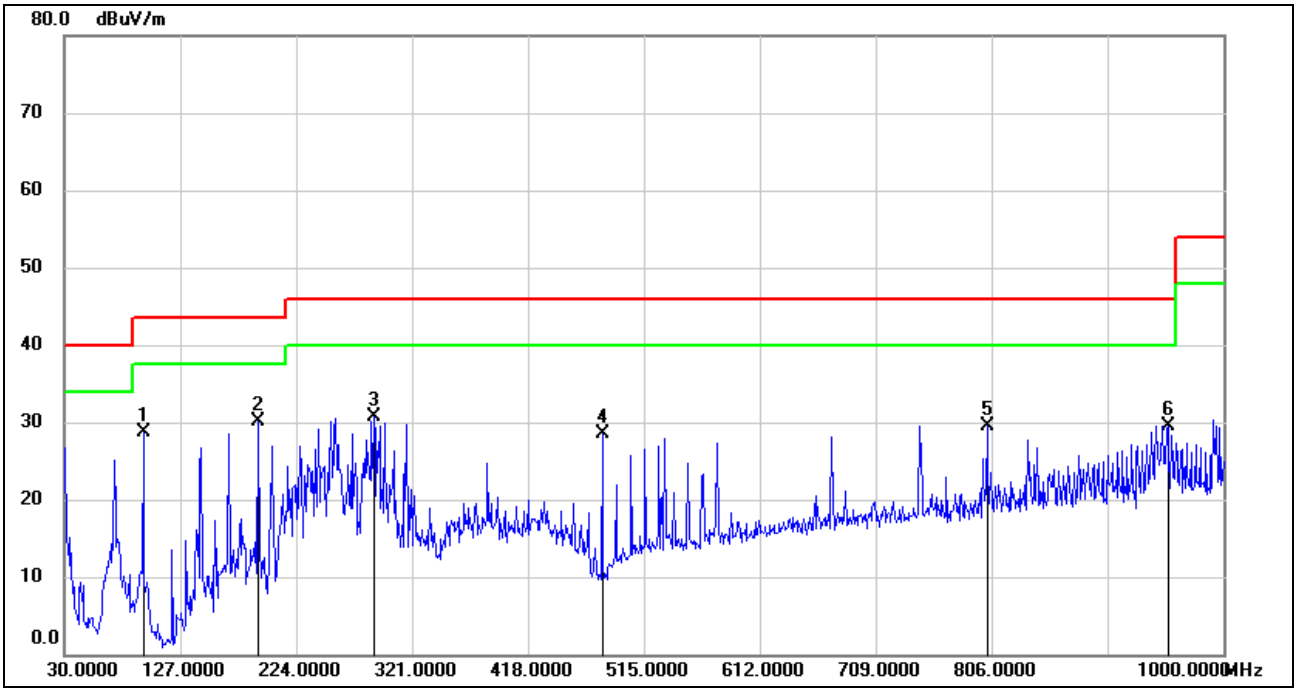
Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

Note: All the test modes have been tested, only the worst data record in the report.

## 7.4. SPURIOUS EMISSIONS 30M ~ 1 GHz

### 7.4.1. GFSK MODE

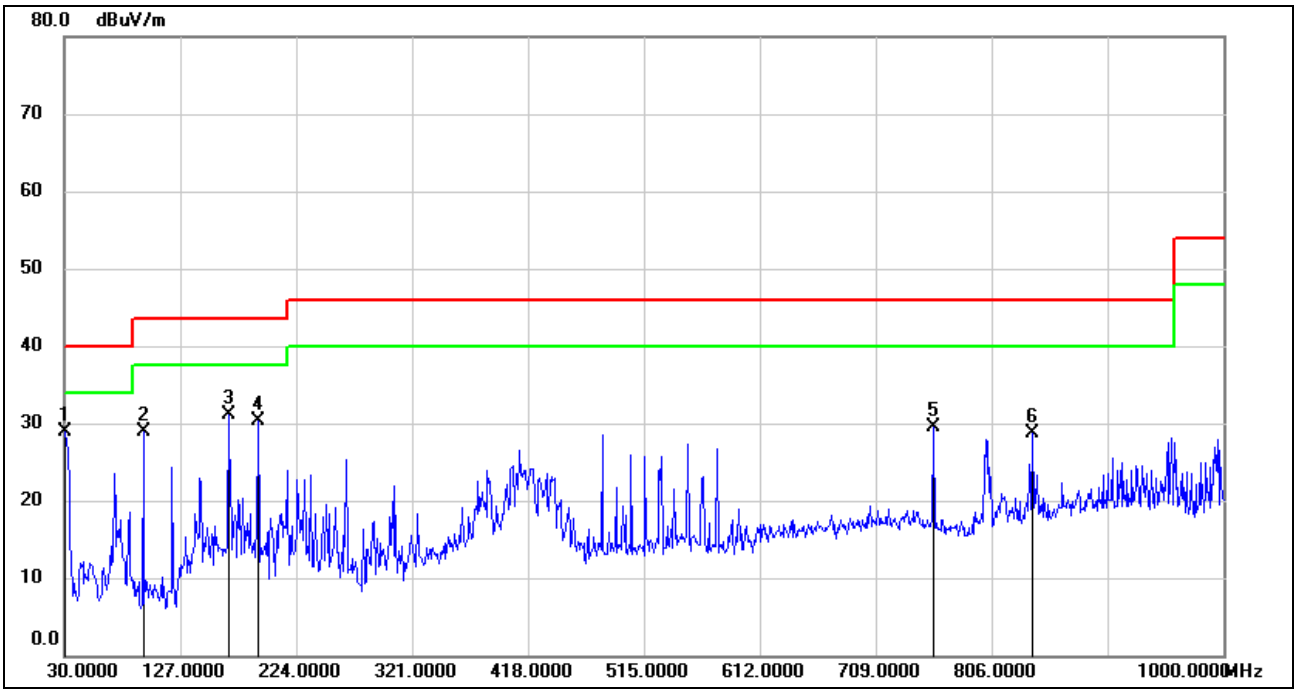
**SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, LOW CHANNEL, HORIZONTAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 95.9600 | 50.14 | -21.43 | 28.71 | 43.50 | -14.79 | QP |
| 2 | 191.9900 | 46.00 | -15.99 | 30.01 | 43.50 | -13.49 | QP |
| 3 | 288.9900 | 45.19 | -14.49 | 30.70 | 46.00 | -15.30 | QP |
| 4 | 480.0800 | 39.26 | -10.84 | 28.42 | 46.00 | -17.58 | QP |
| 5 | 802.1200 | 34.77 | -5.24 | 29.53 | 46.00 | -16.47 | QP |
| 6 | 953.4400 | 32.91 | -3.37 | 29.54 | 46.00 | -16.46 | QP |

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

**SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, LOW CHANNEL, VERTICAL)**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 30.9700 | 46.00 | -17.19 | 28.81 | 40.00 | -11.19 | QP |
| 2 | 95.9600 | 50.25 | -21.43 | 28.82 | 43.50 | -14.68 | QP |
| 3 | 167.7400 | 48.17 | -17.04 | 31.13 | 43.50 | -12.37 | QP |
| 4 | 191.9900 | 46.30 | -15.99 | 30.31 | 43.50 | -13.19 | QP |
| 5 | 757.5000 | 35.26 | -5.81 | 29.45 | 46.00 | -16.55 | QP |
| 6 | 839.9500 | 33.39 | -4.64 | 28.75 | 46.00 | -17.25 | QP |

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

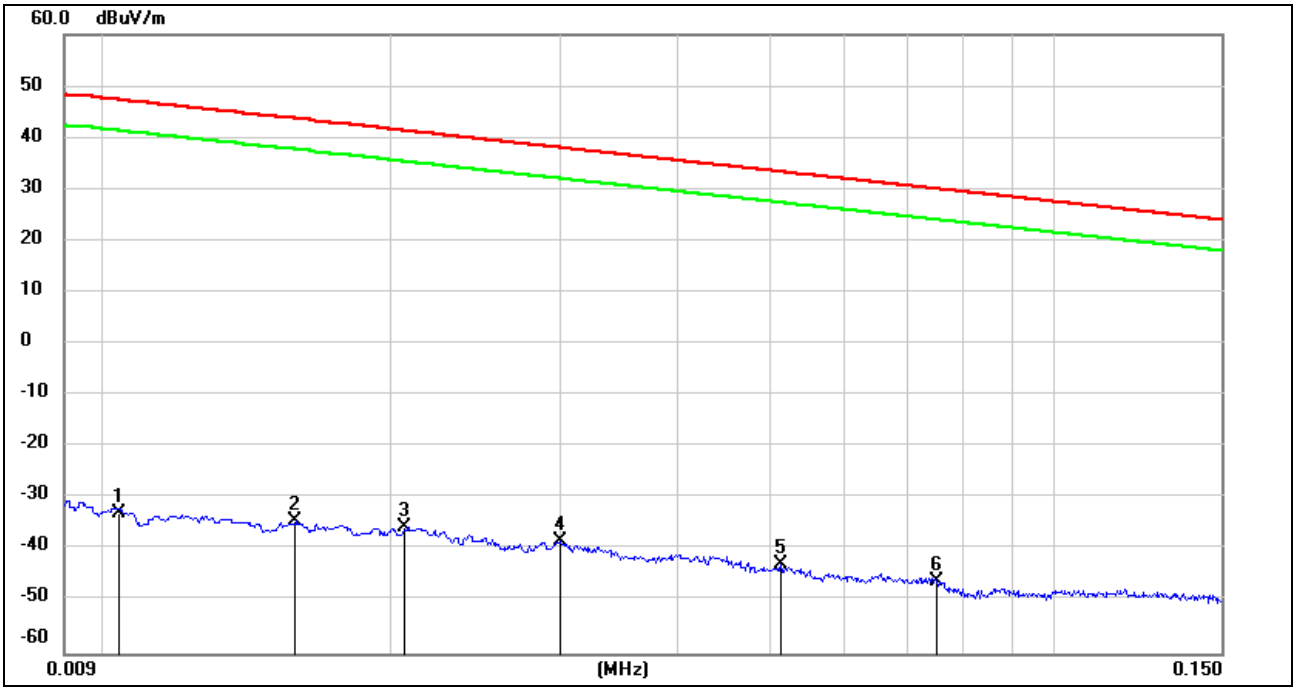
Note: All the test modes has been tested, only the worst data record in the report

## 7.5. SPURIOUS EMISSIONS BELOW 30M

### 7.5.1. GFSK MODE

**SPURIOUS EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT, LOW CHANNEL, WORST-CASE CONFIGURATION)**

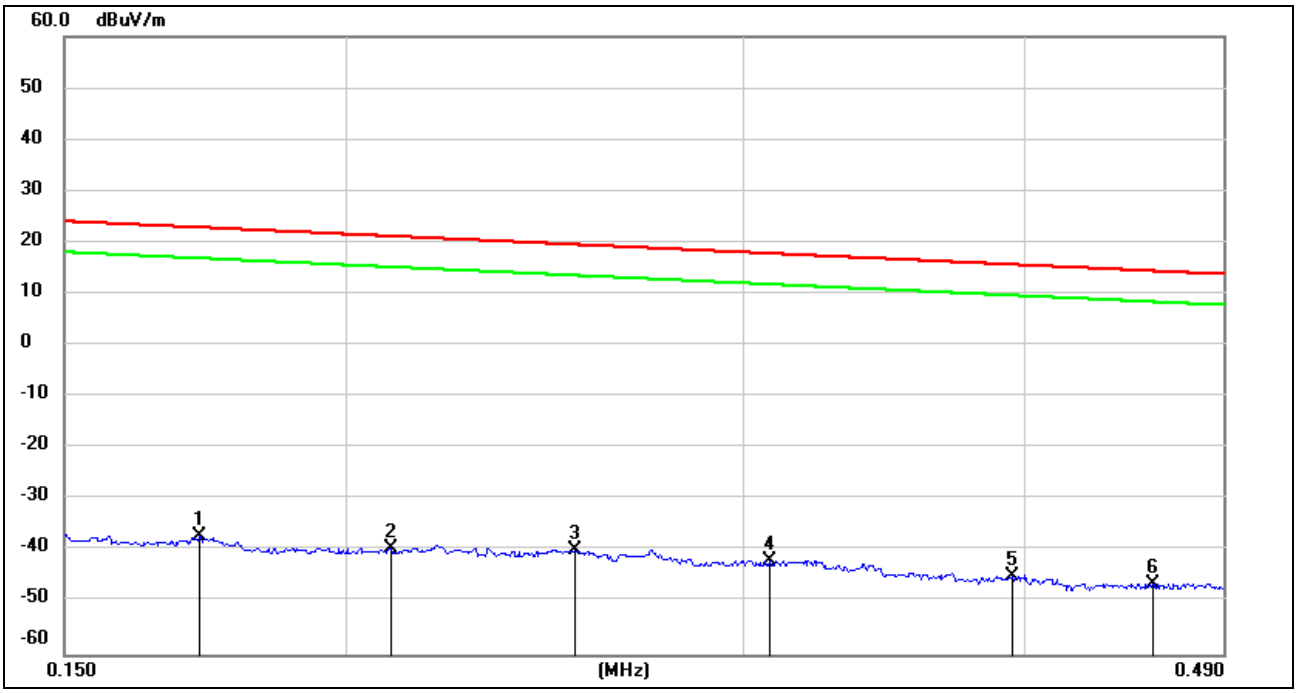
**9kHz~ 150kHz**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.0103 | 68.64 | -101.40 | -32.76 | 47.34 | -80.10 | peak |
| 2 | 0.0158 | 66.94 | -101.37 | -34.43 | 43.63 | -78.06 | peak |
| 3 | 0.0206 | 65.92 | -101.35 | -35.43 | 41.32 | -76.75 | peak |
| 4 | 0.0300 | 63.18 | -101.39 | -38.21 | 38.06 | -76.27 | peak |
| 5 | 0.0514 | 58.68 | -101.48 | -42.80 | 33.38 | -76.18 | peak |
| 6 | 0.0751 | 55.47 | -101.59 | -46.12 | 30.09 | -76.21 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

**150kHz ~ 490kHz**



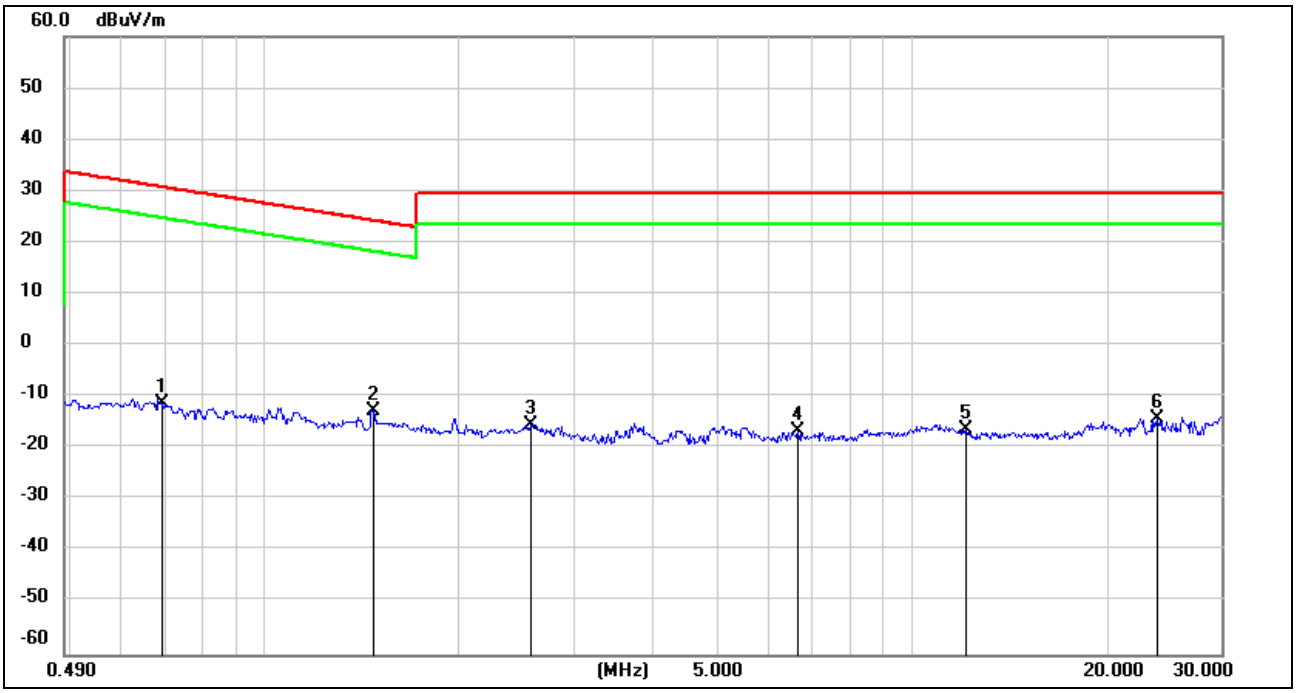

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.1720 | 64.69 | -101.67 | -36.98 | 22.90 | -59.88 | peak |
| 2 | 0.2094 | 62.32 | -101.73 | -39.41 | 21.18 | -60.59 | peak |
| 3 | 0.2530 | 62.09 | -101.80 | -39.71 | 19.54 | -59.25 | peak |
| 4 | 0.3084 | 59.95 | -101.86 | -41.91 | 17.82 | -59.73 | peak |
| 5 | 0.3951 | 56.98 | -101.96 | -44.98 | 15.67 | -60.65 | peak |
| 6 | 0.4560 | 55.69 | -102.02 | -46.33 | 14.42 | -60.75 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

**490kHz ~ 30MHz**




| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.6923 | 50.93 | -62.10 | -11.17 | 30.80 | -41.97 | peak |
| 2 | 1.4700 | 49.39 | -62.05 | -12.66 | 24.26 | -36.92 | peak |
| 3 | 2.5722 | 46.30 | -61.68 | -15.38 | 29.54 | -44.92 | peak |
| 4 | 6.6576 | 44.60 | -61.26 | -16.66 | 29.54 | -46.20 | peak |
| 5 | 12.0874 | 44.40 | -60.89 | -16.49 | 29.54 | -46.03 | peak |
| 6 | 23.8323 | 46.43 | -60.54 | -14.11 | 29.54 | -43.65 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All the test modes have been tested, only the worst data record in the report.

## END OF REPORT