



# Radio Test Report

Report No.: STS2411341W02

Issued for

Bugani Acoustics Co., Limited

Room 02, 21st Floor, Hip Kwan Commercial Building, 38 Pitt  
Street, Yau Ma Tei, Kowloon, Hong Kong, China

Product Name: BLUETOOTH HEADPHONE

Brand Name: BUGANi

Model Name: BH21022

Series Model(s): N/A

FCC ID: 2BGTK-BH21022

Test Standards: FCC Part15.247

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT****Applicant's Name** .....: Bugani Acoustics Co., Limited

Address.....: Room 02, 21st Floor, Hip Kwan Commercial Building, 38 Pitt Street, Yau Ma Tei, Kowloon, Hong Kong, China

**Manufacturer's Name** .....: Bugani Acoustics Co., Limited

Address.....: Room 02, 21st Floor, Hip Kwan Commercial Building, 38 Pitt Street, Yau Ma Tei, Kowloon, Hong Kong, China

**Product Description**

Product Name .....: BLUETOOTH HEADPHONE

Brand Name .....: BUGANi

Model Name .....: BH21022

Series Model(s) .....: N/A

**Test Standards**.....: FCC Part15.247

Test Procedure .....: ANSI C63.10-2020

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test**.....:

Date of receipt of test item .....: 29 Sept. 2024

Date (s) of performance of tests : 29 Sept. 2024~16 Jan. 2025

Date of Issue .....: 16 Jan. 2025

Test Result .....: Pass

Testing Engineer :

(Aaron Bu)

Technical Manager :

(Tony Liu)

Authorized Signatory :

(Bovey Yang)





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**Revision History**

| Rev. | Issue Date   | Report No.    | Effect Page | Contents                                                                   |
|------|--------------|---------------|-------------|----------------------------------------------------------------------------|
| 00   | 29 Oct. 2024 | STS2409185W02 | ALL         | Initial Issue                                                              |
| 00   | 16 Jan. 2025 | STS2411341W02 | ALL         | Update radiated emission,<br>Restricted bands of<br>operation and antenna. |



## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:  
KDB 558074 D01 15.247 Meas Guidance v05r02.

| FCC Part 15.247,Subpart C |                               |          |        |
|---------------------------|-------------------------------|----------|--------|
| Standard Section          | Test Item                     | Judgment | Remark |
| 15.209                    | Radiated Spurious Emission    | PASS     | --     |
| 15.205                    | Restricted bands of operation | PASS     | --     |
| 15.203                    | Antenna Requirement           | PASS     | --     |

### NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2020.



### 1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , 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   | Unwanted Emissions, conducted    | $\pm 2.874\text{dB}$ |
| 2   | All emissions, radiated 9K-30MHz | $\pm 3.80\text{dB}$  |
| 3   | All emissions, radiated 30M-1GHz | $\pm 4.18\text{dB}$  |
| 4   | All emissions, radiated 1G-6GHz  | $\pm 4.90\text{dB}$  |
| 5   | All emissions, radiated >6G      | $\pm 5.24\text{dB}$  |



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

|                         |                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------|
| Product Name            | BLUETOOTH HEADPHONE                                                                          |
| Brand Name              | BUGANi                                                                                       |
| Model Name              | BH21022                                                                                      |
| Series Model(s)         | N/A                                                                                          |
| Model Difference        | N/A                                                                                          |
| Channel List            | Please refer to the Note 3.                                                                  |
| Bluetooth               | Frequency:2402 – 2480 MHz<br>Modulation: GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps),<br>8DPSK(3Mbps) |
| Bluetooth Configuration | BR+EDR                                                                                       |
| Antenna Type            | FPC                                                                                          |
| Antenna Gain            | 3.19dBi                                                                                      |
| Rating                  | Input: DC 5V                                                                                 |
| Battery                 | Rated Voltage:3.7V<br>Charge Limit Voltage:4.2V<br>Capacity:65mAh                            |
| Hardware version number | N/A                                                                                          |
| Software version number | N/A                                                                                          |
| Connecting I/O Port(s)  | Please refer to the Note 1.                                                                  |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.



3.

| Channel List |                 |         |                 |         |                 |
|--------------|-----------------|---------|-----------------|---------|-----------------|
| Channel      | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 00           | 2402            | 27      | 2429            | 54      | 2456            |
| 01           | 2403            | 28      | 2430            | 55      | 2457            |
| 02           | 2404            | 29      | 2431            | 56      | 2458            |
| 03           | 2405            | 30      | 2432            | 57      | 2459            |
| 04           | 2406            | 31      | 2433            | 58      | 2460            |
| 05           | 2407            | 32      | 2434            | 59      | 2461            |
| 06           | 2408            | 33      | 2435            | 60      | 2462            |
| 07           | 2409            | 34      | 2436            | 61      | 2463            |
| 08           | 2410            | 35      | 2437            | 62      | 2464            |
| 09           | 2411            | 36      | 2438            | 63      | 2465            |
| 10           | 2412            | 37      | 2439            | 64      | 2466            |
| 11           | 2413            | 38      | 2440            | 65      | 2467            |
| 12           | 2414            | 39      | 2441            | 66      | 2468            |
| 13           | 2415            | 40      | 2442            | 67      | 2469            |
| 14           | 2416            | 41      | 2443            | 68      | 2470            |
| 15           | 2417            | 42      | 2444            | 69      | 2471            |
| 16           | 2418            | 43      | 2445            | 70      | 2472            |
| 17           | 2419            | 44      | 2446            | 71      | 2473            |
| 18           | 2420            | 45      | 2447            | 72      | 2474            |
| 19           | 2421            | 46      | 2448            | 73      | 2475            |
| 20           | 2422            | 47      | 2449            | 74      | 2476            |
| 21           | 2423            | 48      | 2450            | 75      | 2477            |
| 22           | 2424            | 49      | 2451            | 76      | 2478            |
| 23           | 2425            | 50      | 2452            | 77      | 2479            |
| 24           | 2426            | 51      | 2453            | 78      | 2480            |
| 25           | 2427            | 52      | 2454            |         |                 |
| 26           | 2428            | 53      | 2455            |         |                 |



## 2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Worst Mode | Description | Data Rate/Modulation   |
|------------|-------------|------------------------|
| Mode 1     | TX CH00     | 1Mbps/GFSK             |
| Mode 2     | TX CH39     | 1Mbps/GFSK             |
| Mode 3     | TX CH78     | 1Mbps/GFSK             |
| Mode 4     | TX CH00     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode 5     | TX CH39     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode 6     | TX CH78     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode7      | TX CH00     | 3 Mbps/8DPSK           |
| Mode 8     | TX CH39     | 3 Mbps/8DPSK           |
| Mode 9     | TX CH78     | 3 Mbps/8DPSK           |
| Mode 10    | Hopping     | GFSK                   |
| Mode 11    | Hopping     | $\pi/4$ -DQPSK         |
| Mode 12    | Hopping     | 8DPSK                  |

Note:

- (1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.
- (2) We tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/ 60Hz is shown in the report.
- (3) The battery is fully-charged during the radiated and RF conducted test.

## 2.3 FREQUENCY HOPPING SYSTEM REQUIREMENTS

### (1)Standard and Limit

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express



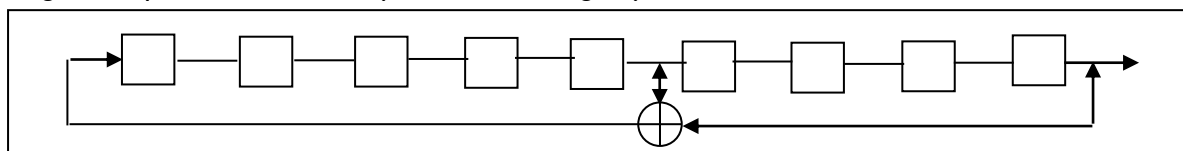
purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

(2) The Pseudorandom sequence may be generated in a nine-stage shift register whose 5<sup>th</sup> and 9<sup>th</sup> stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones: i.e. the shift register is initialized with nine ones.

Number of shift register stages: 9

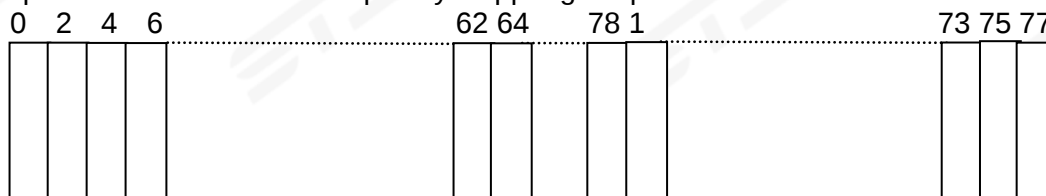
Length of pseudo-random sequence:  $2^9 - 1 = 511$  bits

Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generator of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

### (3) Frequency Hopping System

This transmitter device is a frequency hopping device, and complies with FCC part 15.247 rule.

This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5 MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

This device was tested with a Bluetooth system receiver to check that the device maintained hopping synchronization, and the device complied with these requirements FCC Part 15.247 rule.

## 2.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

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



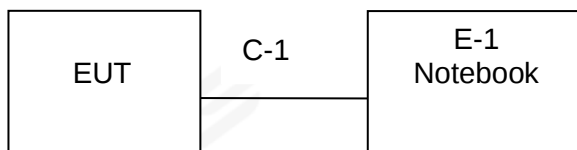
the final end product power parameters of FHSS.

| (Control software)<br>Parameters(1/2/3Mbps) | Test program: Bluetooth                              |                                                          |                                                           |
|---------------------------------------------|------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|
|                                             | Packet type:<br>DH1:4:27<br>2DH1:20:54<br>3DH1:24:83 | Packet type:<br>DH3:11:183<br>2DH3:26:367<br>3DH3:27:552 | Packet type:<br>DH5:15:339<br>2DH5:30:679<br>3DH5:31:1021 |

| RF Function    | Type   | Mode Or Modulation type | ANT Gain(dBi) | Power Class | Software For Testing |
|----------------|--------|-------------------------|---------------|-------------|----------------------|
| BT(Left,Right) | BR+EDR | GFSK                    | 3.19          | 2           | FCC_assist_1.0.2.2   |
|                |        | $\pi/4$ -DQPSK          | 3.19          | 2           |                      |
|                |        | 8DPSK                   | 3.19          | 2           |                      |

## 2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

### Radiated Spurious Emission Test





## 2.6 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

### Necessary accessories

| Item | Equipment | Mfr/Brand | Model/Type No. | Length | Note |
|------|-----------|-----------|----------------|--------|------|
| N/A  | N/A       | N/A       | N/A            | N/A    | N/A  |
|      |           |           |                |        |      |
|      |           |           |                |        |      |
|      |           |           |                |        |      |

### Support units

| Item | Equipment | Mfr/Brand | Model/Type No. | Length | Note |
|------|-----------|-----------|----------------|--------|------|
| E-1  | Notebook  | LENOVO    | Think Pad E470 | N/A    | N/A  |
| C-1  | USB Cable | HUA WEI   | N/A            | 150cm  | N/A  |
|      |           |           |                |        |      |
|      |           |           |                |        |      |

### Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (2) “YES” is means “with core”; “NO” is means “without core”.



## 2.7 EQUIPMENTS LIST

| RF Radiation Test Equipment |                  |                    |              |                  |                  |
|-----------------------------|------------------|--------------------|--------------|------------------|------------------|
| Kind of Equipment           | Manufacturer     | Type No.           | Serial No.   | Last Calibration | Calibrated Until |
| Temperature & Humidity      | SW-108           | SuWei              | N/A          | 2024.03.15       | 2025.03.14       |
| Pre-Amplifier(0.1M-3GHz)    | EM               | EM330              | 060665       | 2024.02.23       | 2025.02.22       |
| Pre-Amplifier(1G-18GHz)     | SKET             | LNPA-01018G-45     | SK2018080901 | 2024.09.23       | 2025.09.22       |
| Pre-Amplifier(18G-40GHz)    | SKET             | LNPA_1840-50       | SK2018101801 | 2024.02.23       | 2025.02.22       |
| Active loop Antenna         | ZHINAN           | ZN30900C           | 16035        | 2023.02.28       | 2025.02.27       |
| Bilog Antenna               | TESEQ            | CBL6111D           | 34678        | 2024.09.30       | 2025.09.29       |
| Horn Antenna                | SCHWARZBECK      | BBHA 9120D         | 02014        | 2023.09.24       | 2025.09.23       |
| Horn Antenna                | A-INFOMW         | LB-180400-KF       | J211020657   | 2023.10.10       | 2025.10.09       |
| Positioning Controller      | MF               | MF-7802            | MF-780208587 | N/A              | N/A              |
| Signal Analyzer             | R&S              | FSV 40-N           | 101823       | 2024.09.23       | 2025.09.22       |
| Switch Control Box          | N/A              | N/A                | N/A          | N/A              | N/A              |
| Filter Box                  | BALUN Technology | SU319E             | BL-SZ1530051 | N/A              | N/A              |
| Antenna Mast                | MF               | MFA-440H           | N/A          | N/A              | N/A              |
| Turn Table                  | MF               | SC100_1            | 60531        | N/A              | N/A              |
| AC Power Source             | APC              | KDF-11010G         | F214050035   | N/A              | N/A              |
| DC power supply             | HONGSHENGFENG    | DPS-305AF          | 17064939     | 2024.09.23       | 2025.09.22       |
| Test SW                     | EZ-EMC           | Ver.STSLAB-03A1 RE |              |                  |                  |



### 3. EMC EMISSION TEST

#### 3.1 RADIATED EMISSION MEASUREMENT

##### 3.1.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10-2020 below has to be followed.

##### LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(KHz)                          | 300                              |
| 0.490~1.705          | 24000/F(KHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

##### LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

| FREQUENCY (MHz) | (dBuV/m) (at 3M) |         |
|-----------------|------------------|---------|
|                 | PEAK             | AVERAGE |
| Above 1000      | 74               | 54      |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

##### LIMITS OF RESTRICTED FREQUENCY BANDS

| FREQUENCY (MHz)   | FREQUENCY (MHz)     | FREQUENCY (MHz) | FREQUENCY (GHz) |
|-------------------|---------------------|-----------------|-----------------|
| 0.090-0.110       | 16.42-16.423        | 399.9-410       | 4.5-5.15        |
| 0.495-0.505       | 16.69475-16.69525   | 608-614         | 5.35-5.46       |
| 2.1735-2.1905     | 16.80425-16.80475   | 960-1240        | 7.25-7.75       |
| 4.125-4.128       | 25.5-25.67          | 1300-1427       | 8.025-8.5       |
| 4.17725-4.17775   | 37.5-38.25          | 1435-1626.5     | 9.0-9.2         |
| 4.20725-4.20775   | 73-74.6             | 1645.5-1646.5   | 9.3-9.5         |
| 6.215-6.218       | 74.8-75.2           | 1660-1710       | 10.6-12.7       |
| 6.26775-6.26825   | 108-121.94          | 1718.8-1722.2   | 13.25-13.4      |
| 6.31175-6.31225   | 123-138             | 2200-2300       | 14.47-14.5      |
| 8.291-8.294       | 149.9-150.05        | 2310-2390       | 15.35-16.2      |
| 8.362-8.366       | 156.52475-156.52525 | 2483.5-2500     | 17.7-21.4       |
| 8.37625-8.38675   | 156.7-156.9         | 2690-2900       | 22.01-23.12     |
| 8.41425-8.41475   | 162.0125-167.17     | 3260-3267       | 23.6-24.0       |
| 12.29-12.293      | 167.72-173.2        | 3332-3339       | 31.2-31.8       |
| 12.51975-12.52025 | 240-285             | 3345.8-3358     | 36.43-36.5      |
| 12.57675-12.57725 | 322-335.4           | 3600-4400       | Above 38.6      |
| 13.36-13.41       |                     |                 |                 |



## For Radiated Emission

| Spectrum Parameter                    | Setting                                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Attenuation                           | Auto                                                                                                                            |
| Detector                              | Peak/QP/AV                                                                                                                      |
| Start Frequency                       | 9 KHz/150KHz(Peak/QP/AV)                                                                                                        |
| Stop Frequency                        | 150KHz/30MHz(Peak/QP/AV)                                                                                                        |
| RB / VB (emission in restricted band) | 200Hz (From 9kHz to 0.15MHz)/<br>9KHz (From 0.15MHz to 30MHz);<br>200Hz (From 9kHz to 0.15MHz)/<br>9KHz (From 0.15MHz to 30MHz) |

| Spectrum Parameter                    | Setting            |
|---------------------------------------|--------------------|
| Attenuation                           | Auto               |
| Detector                              | Peak/QP            |
| Start Frequency                       | 30 MHz(Peak/QP)    |
| Stop Frequency                        | 1000 MHz (Peak/QP) |
| RB / VB (emission in restricted band) | 120 KHz / 300 KHz  |

| Spectrum Parameter                    | Setting                                   |
|---------------------------------------|-------------------------------------------|
| Attenuation                           | Auto                                      |
| Detector                              | Peak/AV                                   |
| Start Frequency                       | 1000 MHz(Peak/AV)                         |
| Stop Frequency                        | 10th carrier hamonic(Peak/AV)             |
| RB / VB (emission in restricted band) | 1 MHz / 3 MHz(Peak)<br>1 MHz/1/T MHz(AVG) |

## For Restricted band

| Spectrum Parameter   | Setting                                                                |
|----------------------|------------------------------------------------------------------------|
| Detector             | Peak/AV                                                                |
| Start/Stop Frequency | Lower Band Edge: 2310 to 2410 MHz<br>Upper Band Edge: 2476 to 2500 MHz |
| RB / VB              | 1 MHz / 3 MHz(Peak)<br>1 MHz/1/T MHz(AVG)                              |



| Receiver Parameter     | Setting                              |
|------------------------|--------------------------------------|
| Attenuation            | Auto                                 |
| Start ~ Stop Frequency | 9kHz~90kHz / RB 200Hz for PK & AV    |
| Start ~ Stop Frequency | 90kHz~110kHz / RB 200Hz for QP       |
| Start ~ Stop Frequency | 110kHz~490kHz / RB 200Hz for PK & AV |
| Start ~ Stop Frequency | 490kHz~30MHz / RB 9kHz for QP        |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP     |

### 3.1.2 TEST PROCEDURE

- The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- 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 QuasiPeak detector mode will be re-measured.
- If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

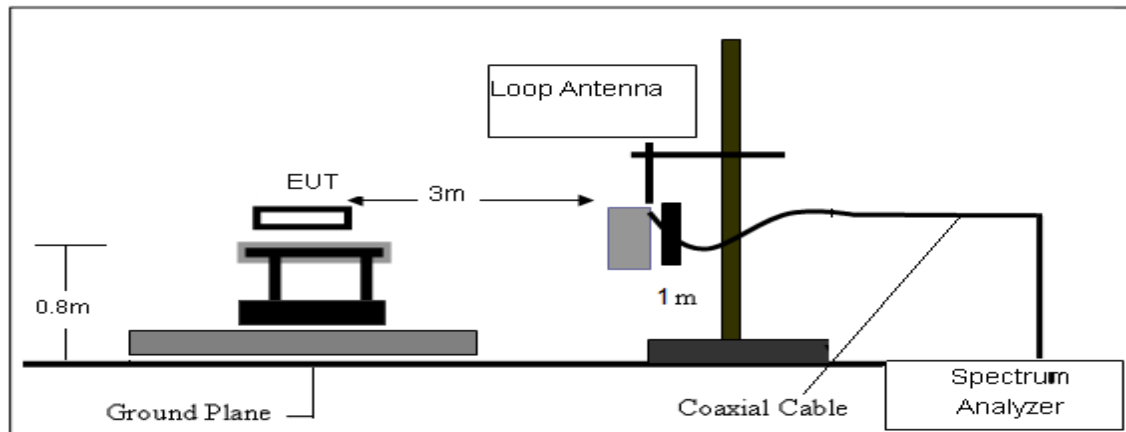
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

### 3.1.3 DEVIATION FROM TEST STANDARD

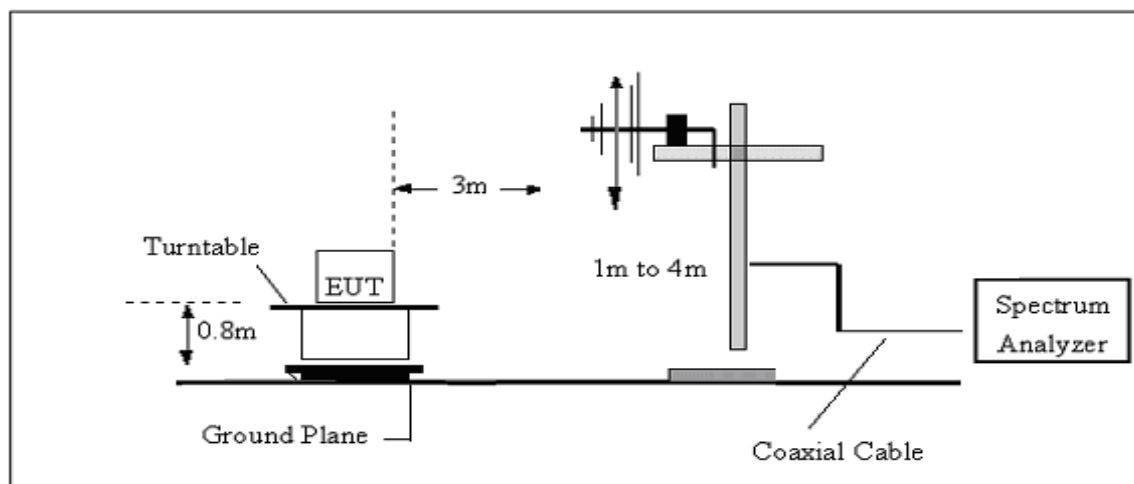
No deviation.

### 3.1.4 TESTSETUP

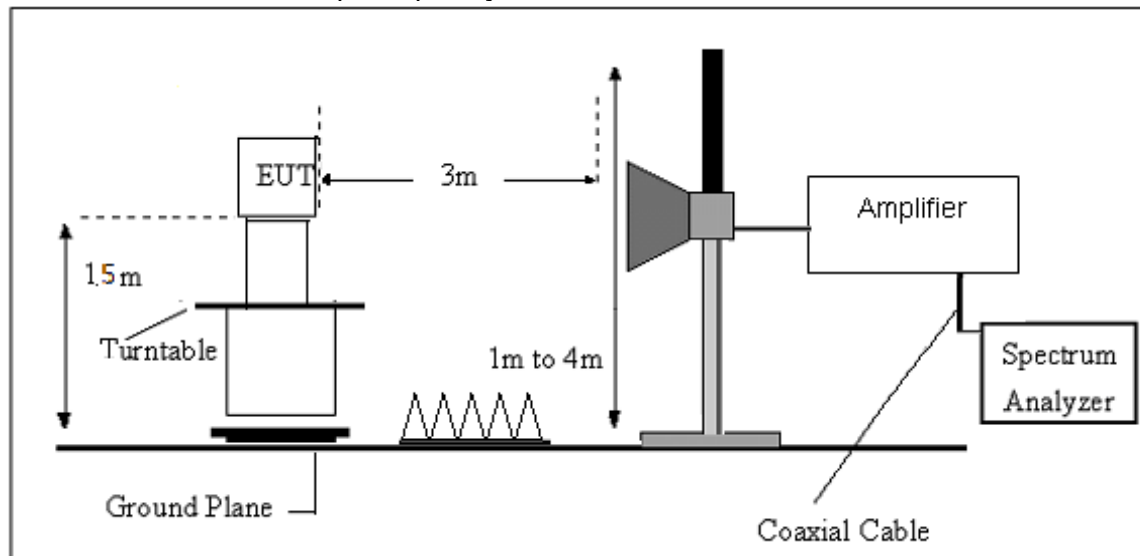
#### (A) Radiated Emission Test-Up Frequency Below 30MHz



#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



#### (C) Radiated Emission Test-Up Frequency Above 1GHz



### 3.1.5 EUT OPERATING CONDITIONS

Please refer to section 3.1.4 of this report.



### 3.1.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

| Frequency | FS       | RA       | AF   | CL   | AG   | Factor |
|-----------|----------|----------|------|------|------|--------|
| (MHz)     | (dBμV/m) | (dBμV/m) | (dB) | (dB) | (dB) | (dB)   |
| 300       | 40       | 58.1     | 12.2 | 1.6  | 31.9 | -18.1  |

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$



## 3.1.7 TEST RESULTS

(9KHz-30MHz)

|               |                      |                    |         |
|---------------|----------------------|--------------------|---------|
| Temperature:  | 23.4°C               | Relative Humidity: | 60%     |
| Test Voltage: | DC 3.7V From Battery | Test Mode:         | TX Mode |

| 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 =  $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



(30MHz-1000MHz)

## Left

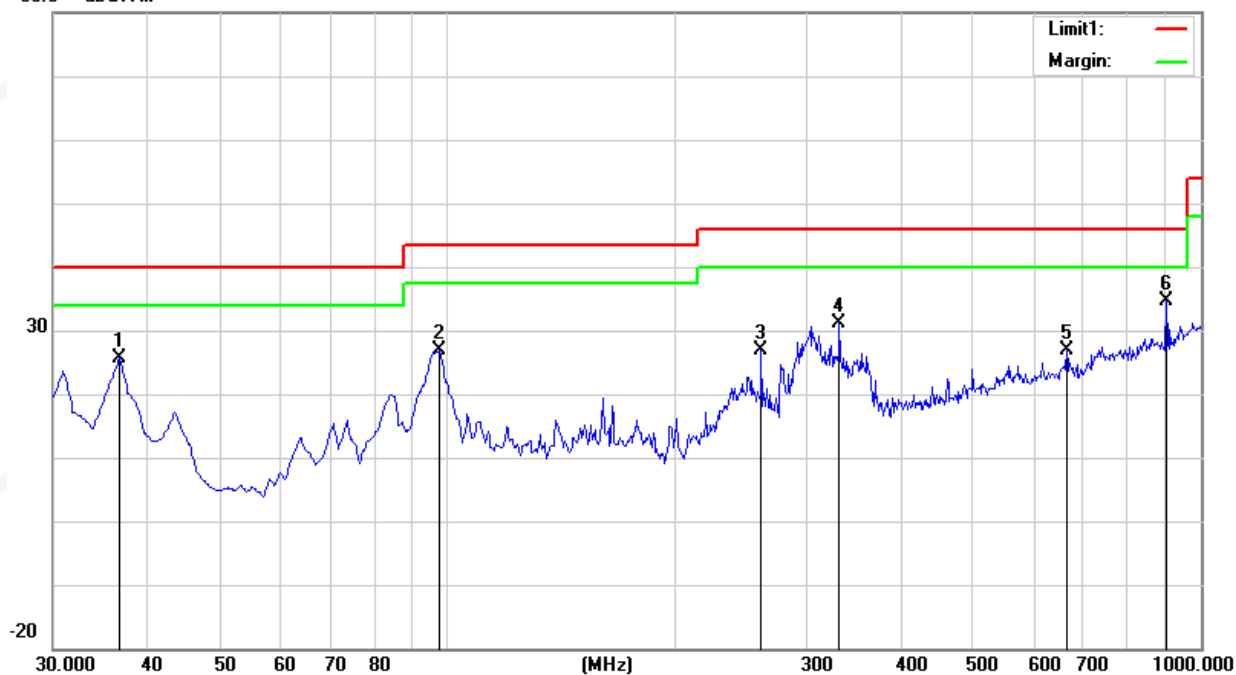
|               |                                           |                    |            |
|---------------|-------------------------------------------|--------------------|------------|
| Temperature:  | 23.4°C                                    | Relative Humidity: | 60%        |
| Test Voltage: | DC 3.7V From Battery                      | Phase:             | Horizontal |
| Test Mode:    | Mode 1/2/3/4/5/6/7/8/9(Mode 8 worst mode) |                    |            |

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 36.7900            | 41.98             | -16.39                  | 25.59              | 40.00             | -14.41         | peak   |
| 2   | 97.9000            | 47.24             | -20.46                  | 26.78              | 43.50             | -16.72         | peak   |
| 3   | 261.8300           | 41.56             | -14.77                  | 26.79              | 46.00             | -19.21         | peak   |
| 4   | 331.6700           | 44.74             | -13.65                  | 31.09              | 46.00             | -14.91         | peak   |
| 5   | 665.3500           | 31.53             | -4.69                   | 26.84              | 46.00             | -19.16         | peak   |
| 6   | 901.0600           | 34.96             | -0.43                   | 34.53              | 46.00             | -11.47         | peak   |

Remark:

1. Margin = Result (Result =Reading + Factor )-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
3. All modes have been tested,only show the worst case.

80.0 dBuV/m





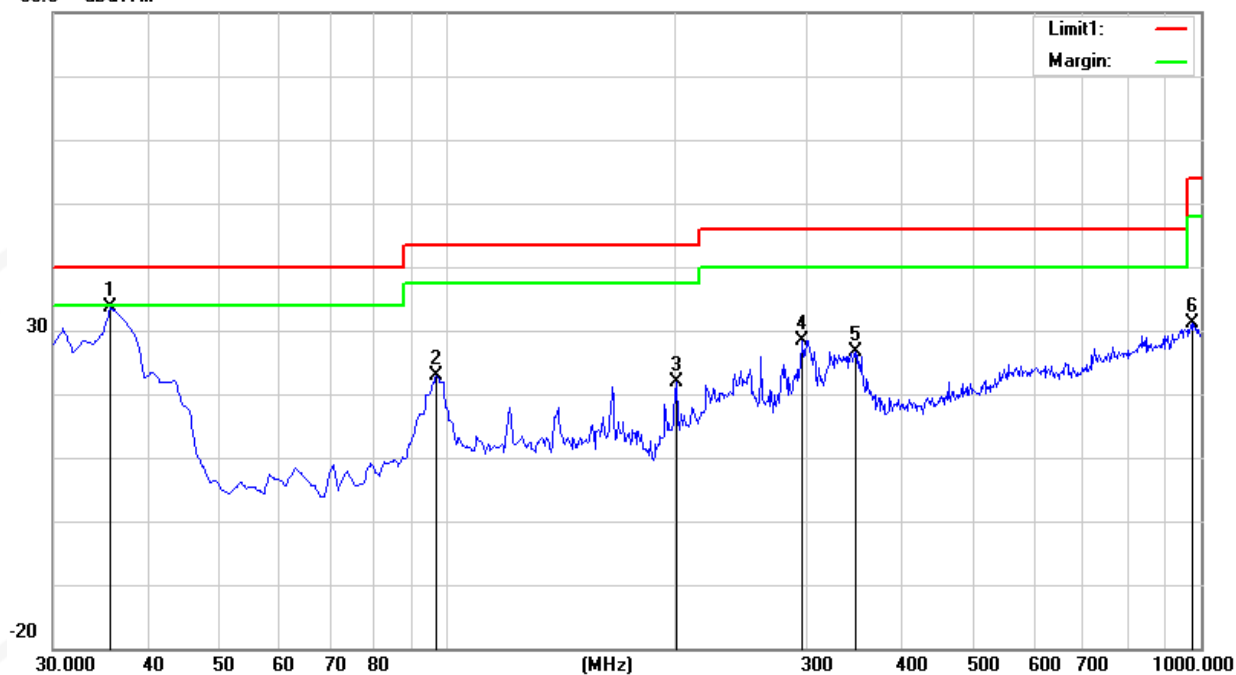
|               |                                           |                    |          |
|---------------|-------------------------------------------|--------------------|----------|
| Temperature:  | 23.4°C                                    | Relative Humidity: | 60%      |
| Test Voltage: | DC 3.7V From Battery                      | Phase:             | Vertical |
| Test Mode:    | Mode 1/2/3/4/5/6/7/8/9(Mode 8 worst mode) |                    |          |

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 35.8200            | 49.44             | -15.91                  | 33.53              | 40.00             | -6.47          | peak   |
| 2   | 96.9300            | 43.45             | -20.57                  | 22.88              | 43.50             | -20.62         | peak   |
| 3   | 201.6900           | 42.85             | -21.00                  | 21.85              | 43.50             | -21.65         | peak   |
| 4   | 296.7500           | 43.39             | -14.92                  | 28.47              | 46.00             | -17.53         | peak   |
| 5   | 349.1300           | 39.76             | -13.09                  | 26.67              | 46.00             | -19.33         | peak   |
| 6   | 975.7500           | 28.81             | 2.38                    | 31.19              | 54.00             | -22.81         | peak   |

Remark:

1.  $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$
2.  $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor}(\text{cable loss}) - \text{Amplifier gain}$

80.0 dBuV/m





## Right

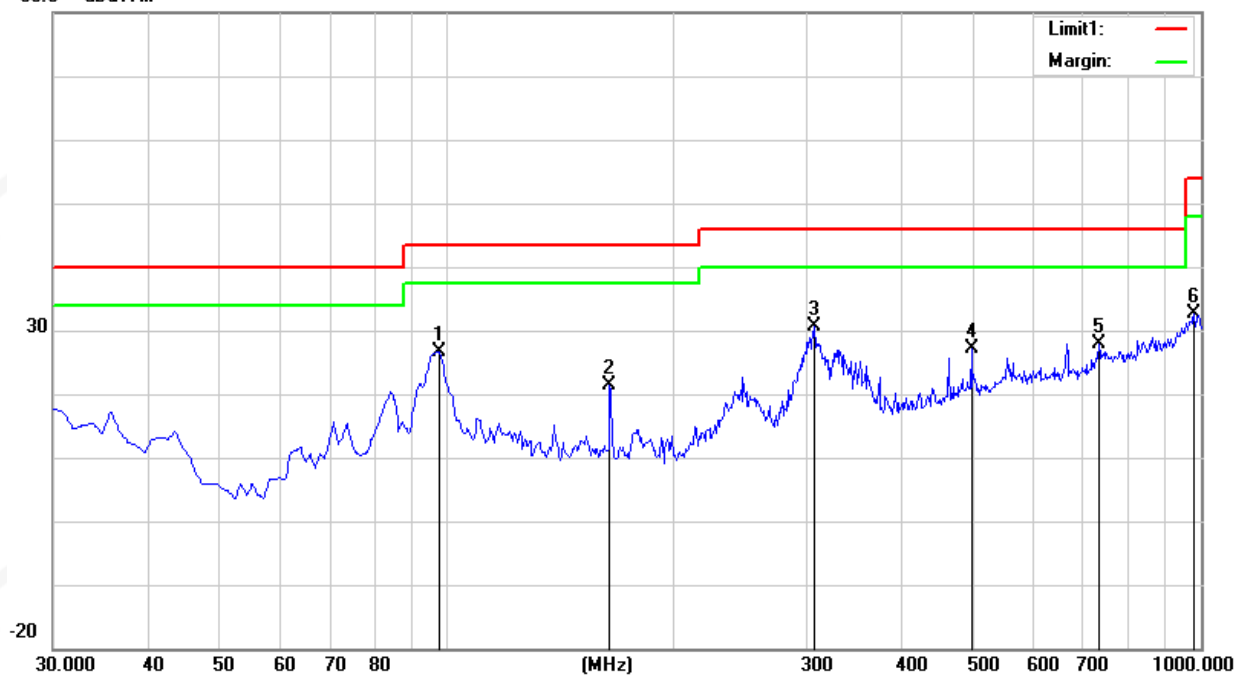
|               |                                           |                    |            |
|---------------|-------------------------------------------|--------------------|------------|
| Temperature:  | 23.4°C                                    | Relative Humidity: | 60%        |
| Test Voltage: | DC 3.7V From Battery                      | Phase:             | Horizontal |
| Test Mode:    | Mode 1/2/3/4/5/6/7/8/9(Mode 8 worst mode) |                    |            |

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 97.9000            | 47.06             | -20.46                  | 26.60              | 43.50             | -16.90         | peak   |
| 2   | 164.8300           | 40.79             | -19.31                  | 21.48              | 43.50             | -22.02         | peak   |
| 3   | 307.4200           | 45.12             | -14.55                  | 30.57              | 46.00             | -15.43         | peak   |
| 4   | 497.5400           | 35.09             | -8.06                   | 27.03              | 46.00             | -18.97         | peak   |
| 5   | 733.2500           | 30.13             | -2.35                   | 27.78              | 46.00             | -18.22         | peak   |
| 6   | 981.5700           | 29.99             | 2.57                    | 32.56              | 54.00             | -21.44         | peak   |

Remark:

- Margin = Result (Result =Reading + Factor )-Limit
- Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
- All modes have been tested,only show the worst case.

80.0 dBuV/m





|               |                                           |                    |          |
|---------------|-------------------------------------------|--------------------|----------|
| Temperature:  | 23.4°C                                    | Relative Humidity: | 60%      |
| Test Voltage: | DC 3.7V From Battery                      | Phase:             | Vertical |
| Test Mode:    | Mode 1/2/3/4/5/6/7/8/9(Mode 8 worst mode) |                    |          |

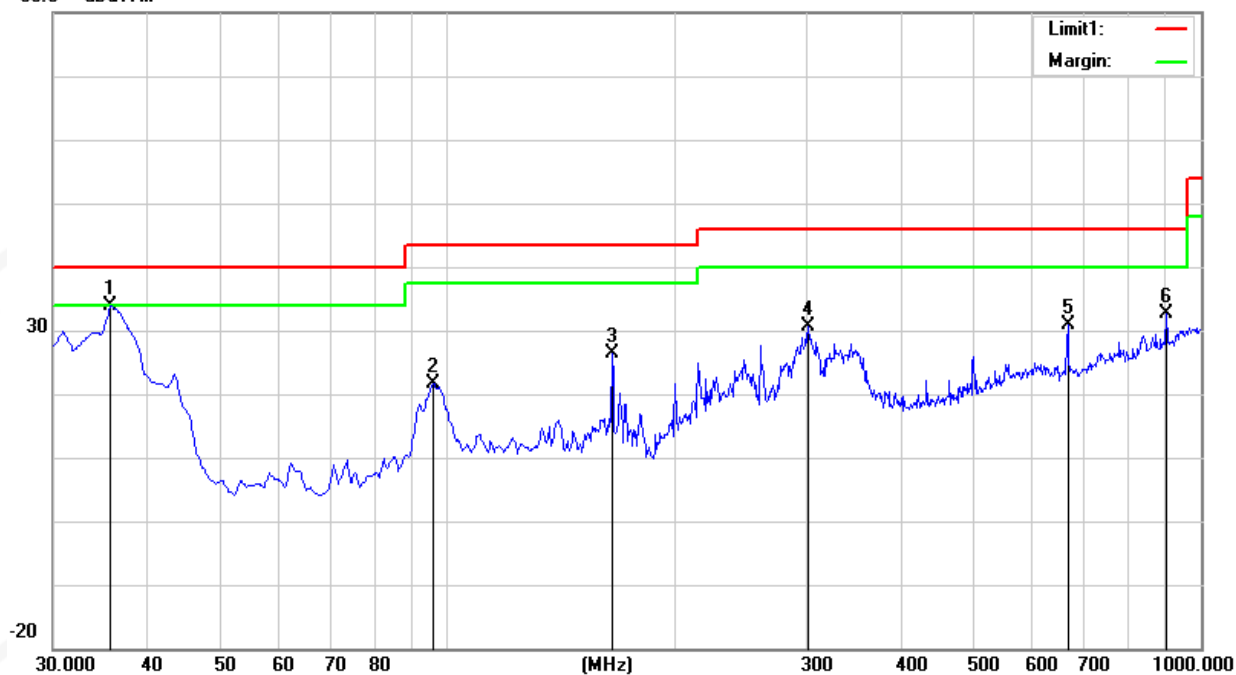
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 34.8500            | 48.46             | -15.34                  | 33.12              | 40.00             | -6.88          | peak   |
| 2   | 143.4900           | 49.63             | -18.23                  | 31.40              | 43.50             | -12.10         | peak   |
| 3   | 199.7500           | 58.34             | -21.11                  | 37.23              | 43.50             | -6.27          | peak   |
| 4   | 385.0200           | 47.82             | -11.92                  | 35.90              | 46.00             | -10.10         | peak   |
| 5   | 532.4600           | 40.25             | -7.31                   | 32.94              | 46.00             | -13.06         | peak   |
| 6   | 799.2100           | 38.37             | -2.04                   | 36.33              | 46.00             | -9.67          | peak   |

Remark:

3. Margin = Result (Result =Reading + Factor )-Limit

4. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





## (1GHz~25GHz) Spurious emission Requirements

## Left

| Frequency                       | Meter Reading | Amplifier | Loss  | Antenna Factor | Corrected Factor | Emission Level | Limits   | Margin | Detector |            |
|---------------------------------|---------------|-----------|-------|----------------|------------------|----------------|----------|--------|----------|------------|
| (MHz)                           | (dBμV)        | (dB)      | (dB)  | (dB/m)         | (dB)             | (dBμV/m)       | (dBμV/m) | (dB)   | Type     | Comment    |
| Low Channel (8DPSK/2402 MHz)    |               |           |       |                |                  |                |          |        |          |            |
| 3264.64                         | 62.29         | 44.70     | 6.70  | 28.20          | -9.80            | 52.49          | 74.00    | -21.51 | PK       | Vertical   |
| 3264.64                         | 51.33         | 44.70     | 6.70  | 28.20          | -9.80            | 41.53          | 54.00    | -12.47 | AV       | Vertical   |
| 3264.71                         | 60.78         | 44.70     | 6.70  | 28.20          | -9.80            | 50.98          | 74.00    | -23.02 | PK       | Horizontal |
| 3264.71                         | 50.13         | 44.70     | 6.70  | 28.20          | -9.80            | 40.33          | 54.00    | -13.67 | AV       | Horizontal |
| 4804.56                         | 58.99         | 44.20     | 9.04  | 31.60          | -3.56            | 55.43          | 74.00    | -18.57 | PK       | Vertical   |
| 4804.56                         | 50.17         | 44.20     | 9.04  | 31.60          | -3.56            | 46.61          | 54.00    | -7.39  | AV       | Vertical   |
| 4804.32                         | 59.52         | 44.20     | 9.04  | 31.60          | -3.56            | 55.96          | 74.00    | -18.04 | PK       | Horizontal |
| 4804.32                         | 50.16         | 44.20     | 9.04  | 31.60          | -3.56            | 46.60          | 54.00    | -7.40  | AV       | Horizontal |
| 5359.83                         | 48.41         | 44.20     | 9.86  | 32.00          | -2.34            | 46.07          | 74.00    | -27.93 | PK       | Vertical   |
| 5359.83                         | 39.69         | 44.20     | 9.86  | 32.00          | -2.34            | 37.35          | 54.00    | -16.65 | AV       | Vertical   |
| 5359.65                         | 47.11         | 44.20     | 9.86  | 32.00          | -2.34            | 44.76          | 74.00    | -29.24 | PK       | Horizontal |
| 5359.65                         | 38.67         | 44.20     | 9.86  | 32.00          | -2.34            | 36.32          | 54.00    | -17.68 | AV       | Horizontal |
| 7205.74                         | 53.68         | 43.50     | 11.40 | 35.50          | 3.40             | 57.08          | 74.00    | -16.92 | PK       | Vertical   |
| 7205.74                         | 44.69         | 43.50     | 11.40 | 35.50          | 3.40             | 48.09          | 54.00    | -5.91  | AV       | Vertical   |
| 7205.74                         | 54.72         | 43.50     | 11.40 | 35.50          | 3.40             | 58.12          | 74.00    | -15.88 | PK       | Horizontal |
| 7205.74                         | 44.38         | 43.50     | 11.40 | 35.50          | 3.40             | 47.78          | 54.00    | -6.22  | AV       | Horizontal |
| Middle Channel (8DPSK/2441 MHz) |               |           |       |                |                  |                |          |        |          |            |
| 3264.70                         | 61.43         | 44.70     | 6.70  | 28.20          | -9.80            | 51.63          | 74.00    | -22.37 | PK       | Vertical   |
| 3264.70                         | 50.72         | 44.70     | 6.70  | 28.20          | -9.80            | 40.92          | 54.00    | -13.08 | AV       | Vertical   |
| 3264.59                         | 60.82         | 44.70     | 6.70  | 28.20          | -9.80            | 51.02          | 74.00    | -22.98 | PK       | Horizontal |
| 3264.59                         | 50.53         | 44.70     | 6.70  | 28.20          | -9.80            | 40.73          | 54.00    | -13.27 | AV       | Horizontal |
| 4882.32                         | 58.96         | 44.20     | 9.04  | 31.60          | -3.56            | 55.40          | 74.00    | -18.60 | PK       | Vertical   |
| 4882.32                         | 49.55         | 44.20     | 9.04  | 31.60          | -3.56            | 45.99          | 54.00    | -8.01  | AV       | Vertical   |
| 4882.50                         | 59.24         | 44.20     | 9.04  | 31.60          | -3.56            | 55.68          | 74.00    | -18.32 | PK       | Horizontal |
| 4882.50                         | 49.23         | 44.20     | 9.04  | 31.60          | -3.56            | 45.67          | 54.00    | -8.33  | AV       | Horizontal |
| 5359.73                         | 48.07         | 44.20     | 9.86  | 32.00          | -2.34            | 45.73          | 74.00    | -28.27 | PK       | Vertical   |
| 5359.73                         | 39.66         | 44.20     | 9.86  | 32.00          | -2.34            | 37.32          | 54.00    | -16.68 | AV       | Vertical   |
| 5359.87                         | 47.38         | 44.20     | 9.86  | 32.00          | -2.34            | 45.04          | 74.00    | -28.96 | PK       | Horizontal |
| 5359.87                         | 38.48         | 44.20     | 9.86  | 32.00          | -2.34            | 36.13          | 54.00    | -17.87 | AV       | Horizontal |
| 7323.76                         | 54.18         | 43.50     | 11.40 | 35.50          | 3.40             | 57.58          | 74.00    | -16.42 | PK       | Vertical   |
| 7323.76                         | 43.84         | 43.50     | 11.40 | 35.50          | 3.40             | 47.24          | 54.00    | -6.76  | AV       | Vertical   |
| 7323.81                         | 54.17         | 43.50     | 11.40 | 35.50          | 3.40             | 57.57          | 74.00    | -16.43 | PK       | Horizontal |
| 7323.81                         | 44.80         | 43.50     | 11.40 | 35.50          | 3.40             | 48.20          | 54.00    | -5.80  | AV       | Horizontal |



| High Channel (8DPSK/2480 MHz) |       |       |       |       |       |       |       |        |    |            |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|----|------------|
| 3264.73                       | 62.04 | 44.70 | 6.70  | 28.20 | -9.80 | 52.24 | 74.00 | -21.76 | PK | Vertical   |
| 3264.73                       | 50.55 | 44.70 | 6.70  | 28.20 | -9.80 | 40.75 | 54.00 | -13.25 | AV | Vertical   |
| 3264.81                       | 61.18 | 44.70 | 6.70  | 28.20 | -9.80 | 51.38 | 74.00 | -22.62 | PK | Horizontal |
| 3264.81                       | 50.93 | 44.70 | 6.70  | 28.20 | -9.80 | 41.13 | 54.00 | -12.87 | AV | Horizontal |
| 4960.44                       | 58.67 | 44.20 | 9.04  | 31.60 | -3.56 | 55.11 | 74.00 | -18.89 | PK | Vertical   |
| 4960.44                       | 50.00 | 44.20 | 9.04  | 31.60 | -3.56 | 46.44 | 54.00 | -7.56  | AV | Vertical   |
| 4960.40                       | 58.22 | 44.20 | 9.04  | 31.60 | -3.56 | 54.66 | 74.00 | -19.34 | PK | Horizontal |
| 4960.40                       | 50.30 | 44.20 | 9.04  | 31.60 | -3.56 | 46.74 | 54.00 | -7.26  | AV | Horizontal |
| 5359.71                       | 48.39 | 44.20 | 9.86  | 32.00 | -2.34 | 46.05 | 74.00 | -27.95 | PK | Vertical   |
| 5359.71                       | 40.28 | 44.20 | 9.86  | 32.00 | -2.34 | 37.94 | 54.00 | -16.06 | AV | Vertical   |
| 5359.62                       | 47.95 | 44.20 | 9.86  | 32.00 | -2.34 | 45.61 | 74.00 | -28.39 | PK | Horizontal |
| 5359.62                       | 39.47 | 44.20 | 9.86  | 32.00 | -2.34 | 37.13 | 54.00 | -16.87 | AV | Horizontal |
| 7439.94                       | 53.61 | 43.50 | 11.40 | 35.50 | 3.40  | 57.01 | 74.00 | -16.99 | PK | Vertical   |
| 7439.94                       | 44.20 | 43.50 | 11.40 | 35.50 | 3.40  | 47.60 | 54.00 | -6.40  | AV | Vertical   |
| 7439.91                       | 54.57 | 43.50 | 11.40 | 35.50 | 3.40  | 57.97 | 74.00 | -16.03 | PK | Horizontal |
| 7439.91                       | 43.92 | 43.50 | 11.40 | 35.50 | 3.40  | 47.32 | 54.00 | -6.68  | AV | Horizontal |

## Note:

- 1) All modes have been measurement, only worst mode was reported.
- 2) Factor = Antenna Factor + Cable Loss – Pre-amplifier.  
Emission Level = Reading + Factor
- 3) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



## Right

| Frequency                      | Meter Reading | Amplifier | Loss  | Antenna Factor | Corrected Factor | Emission Level | Limits   | Margin | Detector | Comment    |
|--------------------------------|---------------|-----------|-------|----------------|------------------|----------------|----------|--------|----------|------------|
| (MHz)                          | (dBμV)        | (dB)      | (dB)  | (dB/m)         | (dB)             | (dBμV/m)       | (dBμV/m) | (dB)   | Type     |            |
| Low Channel (8DPSK/2402 MHz)   |               |           |       |                |                  |                |          |        |          |            |
| 3264.60                        | 61.65         | 44.70     | 6.70  | 28.20          | -9.80            | 51.85          | 74.00    | -22.15 | PK       | Vertical   |
| 3264.60                        | 51.30         | 44.70     | 6.70  | 28.20          | -9.80            | 41.50          | 54.00    | -12.50 | AV       | Vertical   |
| 3264.82                        | 61.73         | 44.70     | 6.70  | 28.20          | -9.80            | 51.93          | 74.00    | -22.07 | PK       | Horizontal |
| 3264.82                        | 51.24         | 44.70     | 6.70  | 28.20          | -9.80            | 41.44          | 54.00    | -12.56 | AV       | Horizontal |
| 4804.41                        | 58.14         | 44.20     | 9.04  | 31.60          | -3.56            | 54.58          | 74.00    | -19.42 | PK       | Vertical   |
| 4804.41                        | 49.16         | 44.20     | 9.04  | 31.60          | -3.56            | 45.60          | 54.00    | -8.40  | AV       | Vertical   |
| 4804.47                        | 58.62         | 44.20     | 9.04  | 31.60          | -3.56            | 55.06          | 74.00    | -18.94 | PK       | Horizontal |
| 4804.47                        | 49.94         | 44.20     | 9.04  | 31.60          | -3.56            | 46.38          | 54.00    | -7.62  | AV       | Horizontal |
| 5359.81                        | 48.83         | 44.20     | 9.86  | 32.00          | -2.34            | 46.48          | 74.00    | -27.52 | PK       | Vertical   |
| 5359.81                        | 38.94         | 44.20     | 9.86  | 32.00          | -2.34            | 36.59          | 54.00    | -17.41 | AV       | Vertical   |
| 5359.67                        | 47.90         | 44.20     | 9.86  | 32.00          | -2.34            | 45.56          | 74.00    | -28.44 | PK       | Horizontal |
| 5359.67                        | 38.16         | 44.20     | 9.86  | 32.00          | -2.34            | 35.82          | 54.00    | -18.18 | AV       | Horizontal |
| 7205.92                        | 54.50         | 43.50     | 11.40 | 35.50          | 3.40             | 57.90          | 74.00    | -16.10 | PK       | Vertical   |
| 7205.92                        | 43.85         | 43.50     | 11.40 | 35.50          | 3.40             | 47.25          | 54.00    | -6.75  | AV       | Vertical   |
| 7205.89                        | 54.76         | 43.50     | 11.40 | 35.50          | 3.40             | 58.16          | 74.00    | -15.84 | PK       | Horizontal |
| 7205.89                        | 44.95         | 43.50     | 11.40 | 35.50          | 3.40             | 48.35          | 54.00    | -5.65  | AV       | Horizontal |
| Middle Channel (8DPSK2441 MHz) |               |           |       |                |                  |                |          |        |          |            |
| 3264.68                        | 61.09         | 44.70     | 6.70  | 28.20          | -9.80            | 51.29          | 74.00    | -22.71 | PK       | Vertical   |
| 3264.68                        | 50.81         | 44.70     | 6.70  | 28.20          | -9.80            | 41.01          | 54.00    | -12.99 | AV       | Vertical   |
| 3264.62                        | 61.09         | 44.70     | 6.70  | 28.20          | -9.80            | 51.29          | 74.00    | -22.71 | PK       | Horizontal |
| 3264.62                        | 50.99         | 44.70     | 6.70  | 28.20          | -9.80            | 41.19          | 54.00    | -12.81 | AV       | Horizontal |
| 4882.33                        | 59.15         | 44.20     | 9.04  | 31.60          | -3.56            | 55.59          | 74.00    | -18.41 | PK       | Vertical   |
| 4882.33                        | 49.19         | 44.20     | 9.04  | 31.60          | -3.56            | 45.63          | 54.00    | -8.37  | AV       | Vertical   |
| 4882.58                        | 59.51         | 44.20     | 9.04  | 31.60          | -3.56            | 55.95          | 74.00    | -18.05 | PK       | Horizontal |
| 4882.58                        | 50.49         | 44.20     | 9.04  | 31.60          | -3.56            | 46.93          | 54.00    | -7.07  | AV       | Horizontal |
| 5359.69                        | 48.28         | 44.20     | 9.86  | 32.00          | -2.34            | 45.94          | 74.00    | -28.06 | PK       | Vertical   |
| 5359.69                        | 39.42         | 44.20     | 9.86  | 32.00          | -2.34            | 37.08          | 54.00    | -16.92 | AV       | Vertical   |
| 5359.73                        | 47.45         | 44.20     | 9.86  | 32.00          | -2.34            | 45.11          | 74.00    | -28.89 | PK       | Horizontal |
| 5359.73                        | 38.08         | 44.20     | 9.86  | 32.00          | -2.34            | 35.74          | 54.00    | -18.26 | AV       | Horizontal |
| 7323.97                        | 54.64         | 43.50     | 11.40 | 35.50          | 3.40             | 58.04          | 74.00    | -15.96 | PK       | Vertical   |
| 7323.97                        | 44.01         | 43.50     | 11.40 | 35.50          | 3.40             | 47.41          | 54.00    | -6.59  | AV       | Vertical   |
| 7323.74                        | 53.85         | 43.50     | 11.40 | 35.50          | 3.40             | 57.25          | 74.00    | -16.75 | PK       | Horizontal |
| 7323.74                        | 44.36         | 43.50     | 11.40 | 35.50          | 3.40             | 47.76          | 54.00    | -6.24  | AV       | Horizontal |



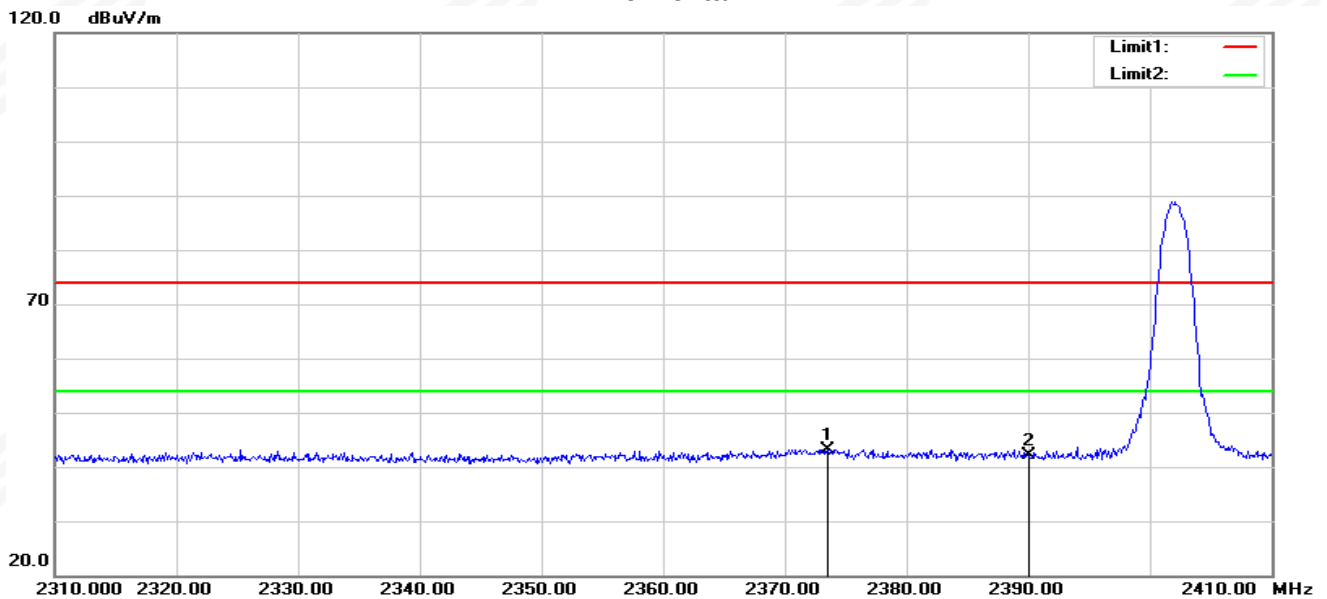
| High Channel (8DPSK/2480 MHz) |       |       |       |       |       |       |       |        |    |            |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|----|------------|
| 3264.72                       | 61.86 | 44.70 | 6.70  | 28.20 | -9.80 | 52.06 | 74.00 | -21.94 | PK | Vertical   |
| 3264.72                       | 50.37 | 44.70 | 6.70  | 28.20 | -9.80 | 40.57 | 54.00 | -13.43 | AV | Vertical   |
| 3264.73                       | 61.05 | 44.70 | 6.70  | 28.20 | -9.80 | 51.25 | 74.00 | -22.75 | PK | Horizontal |
| 3264.73                       | 49.99 | 44.70 | 6.70  | 28.20 | -9.80 | 40.19 | 54.00 | -13.81 | AV | Horizontal |
| 4960.47                       | 59.32 | 44.20 | 9.04  | 31.60 | -3.56 | 55.76 | 74.00 | -18.24 | PK | Vertical   |
| 4960.47                       | 49.46 | 44.20 | 9.04  | 31.60 | -3.56 | 45.90 | 54.00 | -8.10  | AV | Vertical   |
| 4960.52                       | 59.30 | 44.20 | 9.04  | 31.60 | -3.56 | 55.74 | 74.00 | -18.26 | PK | Horizontal |
| 4960.52                       | 49.98 | 44.20 | 9.04  | 31.60 | -3.56 | 46.42 | 54.00 | -7.58  | AV | Horizontal |
| 5359.66                       | 49.27 | 44.20 | 9.86  | 32.00 | -2.34 | 46.92 | 74.00 | -27.08 | PK | Vertical   |
| 5359.66                       | 39.05 | 44.20 | 9.86  | 32.00 | -2.34 | 36.71 | 54.00 | -17.29 | AV | Vertical   |
| 5359.63                       | 47.66 | 44.20 | 9.86  | 32.00 | -2.34 | 45.31 | 74.00 | -28.69 | PK | Horizontal |
| 5359.63                       | 38.05 | 44.20 | 9.86  | 32.00 | -2.34 | 35.71 | 54.00 | -18.29 | AV | Horizontal |
| 7439.74                       | 53.92 | 43.50 | 11.40 | 35.50 | 3.40  | 57.32 | 74.00 | -16.68 | PK | Vertical   |
| 7439.74                       | 44.23 | 43.50 | 11.40 | 35.50 | 3.40  | 47.63 | 54.00 | -6.37  | AV | Vertical   |
| 7439.83                       | 54.07 | 43.50 | 11.40 | 35.50 | 3.40  | 57.47 | 74.00 | -16.53 | PK | Horizontal |
| 7439.83                       | 44.56 | 43.50 | 11.40 | 35.50 | 3.40  | 47.96 | 54.00 | -6.04  | AV | Horizontal |

## Note:

- 1) All modes have been measurement, only worst mode was reported.
- 2) Factor = Antenna Factor + Cable Loss – Pre-amplifier.  
Emission Level = Reading + Factor
- 3) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

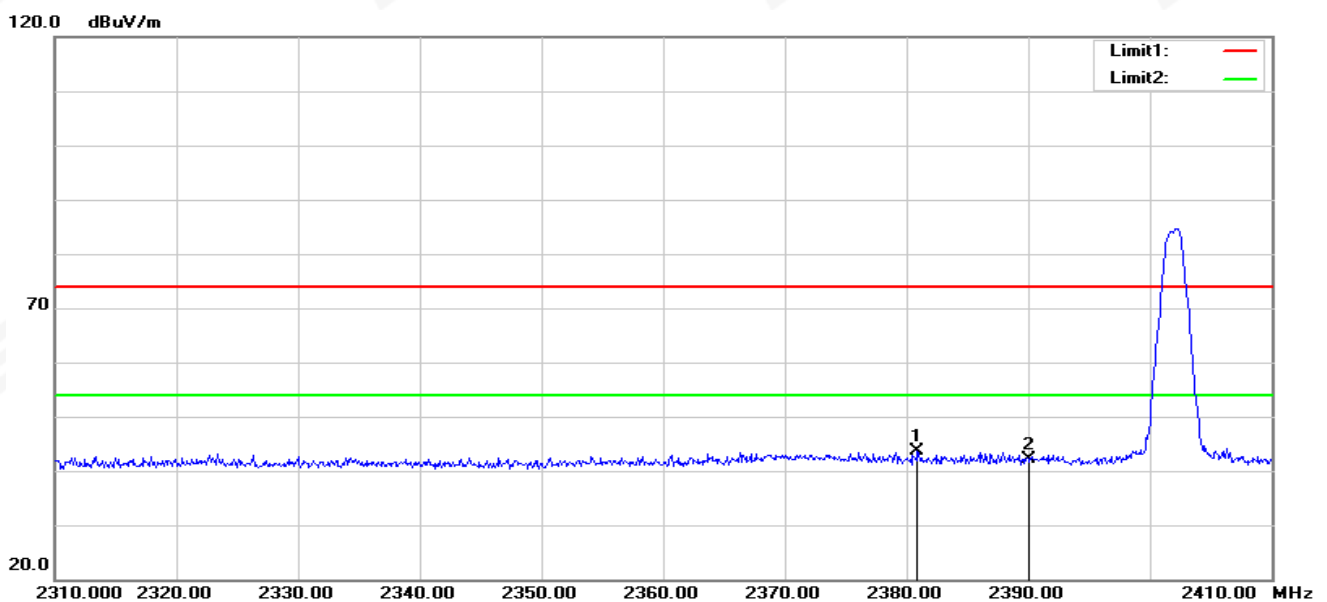


## Restricted band Requirements

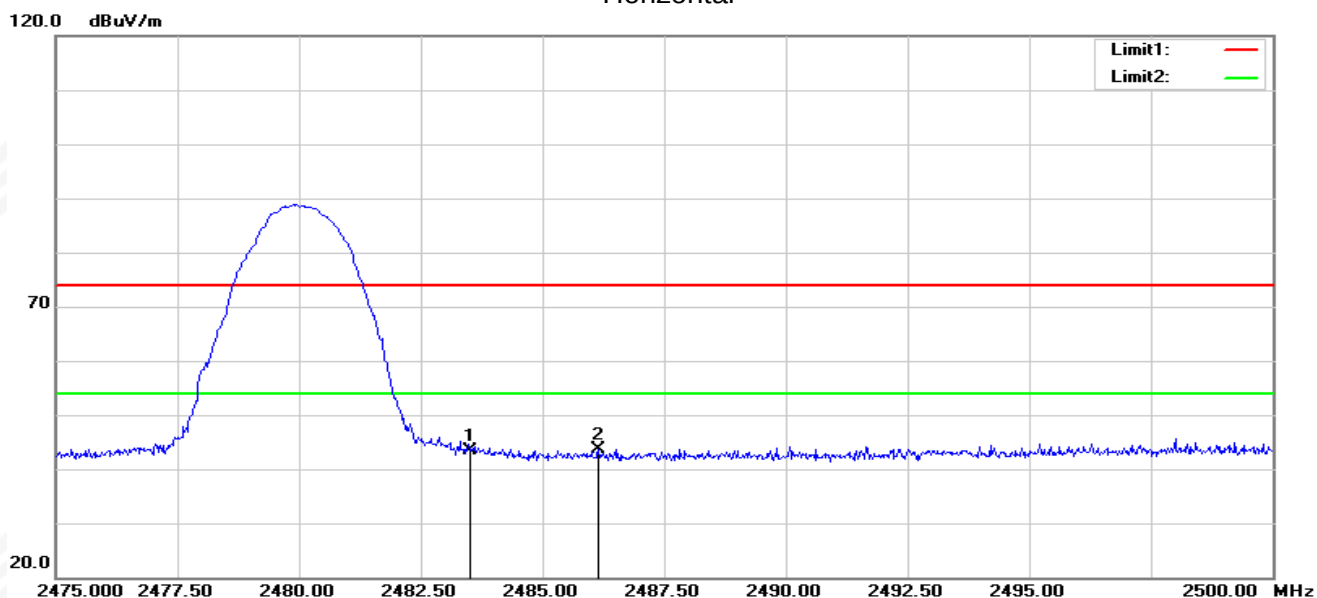
Left  
8DPSK -Low  
Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2373.500           | 39.16             | 4.09                    | 43.25              | 74.00             | -30.75         | peak   |
| 2   | 2390.000           | 37.68             | 4.34                    | 42.02              | 74.00             | -31.98         | peak   |

## Vertical

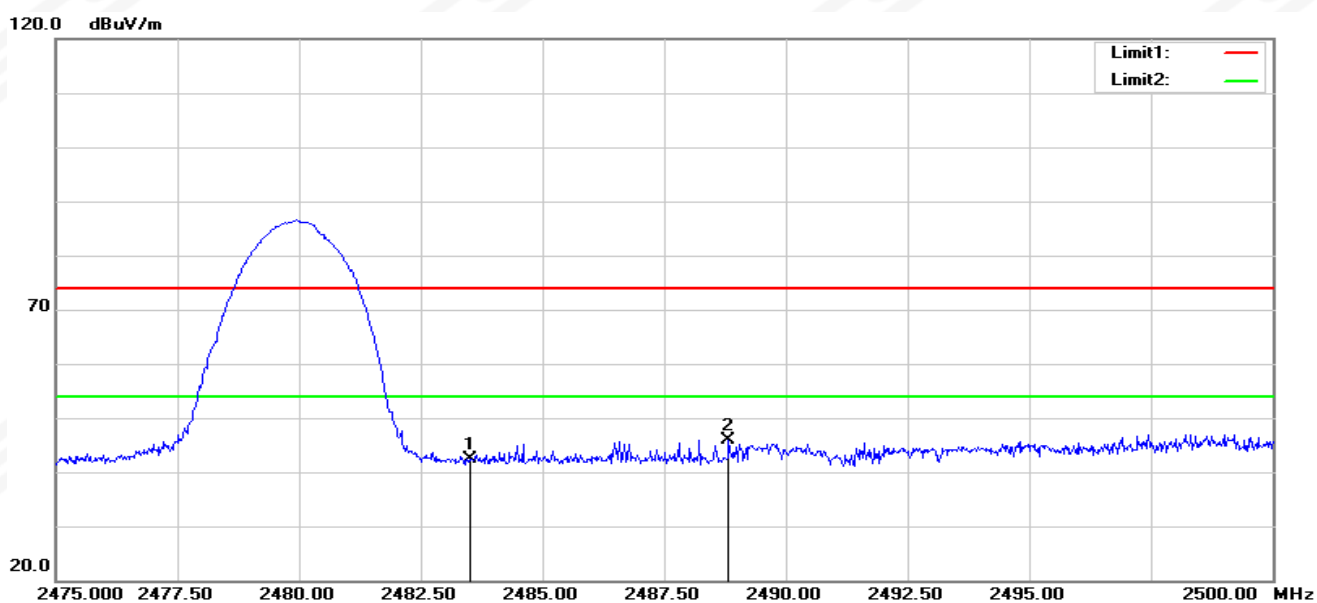


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2380.900           | 39.33             | 4.21                    | 43.54              | 74.00             | -30.46         | peak   |
| 2   | 2390.000           | 37.72             | 4.34                    | 42.06              | 74.00             | -31.94         | peak   |

**8DPSK -High**  
Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2483.500           | 38.71             | 4.60                    | 43.31              | 74.00             | -30.69         | peak   |
| 2   | 2486.150           | 39.13             | 4.61                    | 43.74              | 74.00             | -30.26         | peak   |

## Vertical

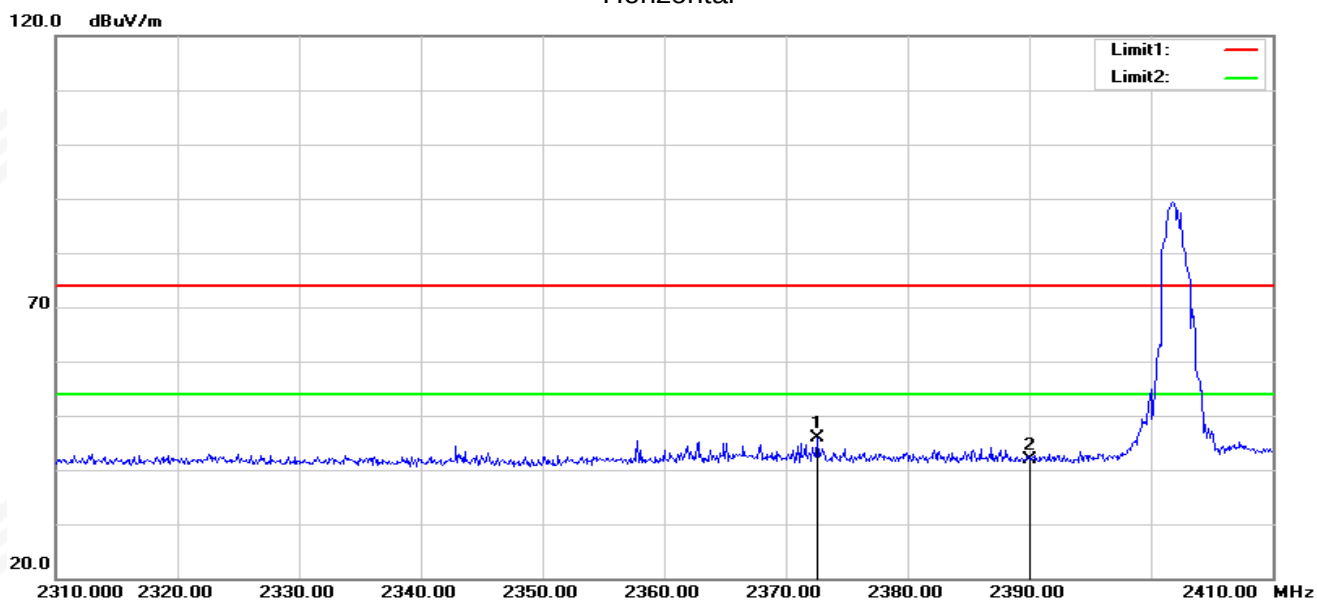


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2483.500           | 37.89             | 4.60                    | 42.49              | 74.00             | -31.51         | peak   |
| 2   | 2488.825           | 41.24             | 4.62                    | 45.86              | 74.00             | -28.14         | peak   |

Note: All modes have been measurement, only worst mode was reported.

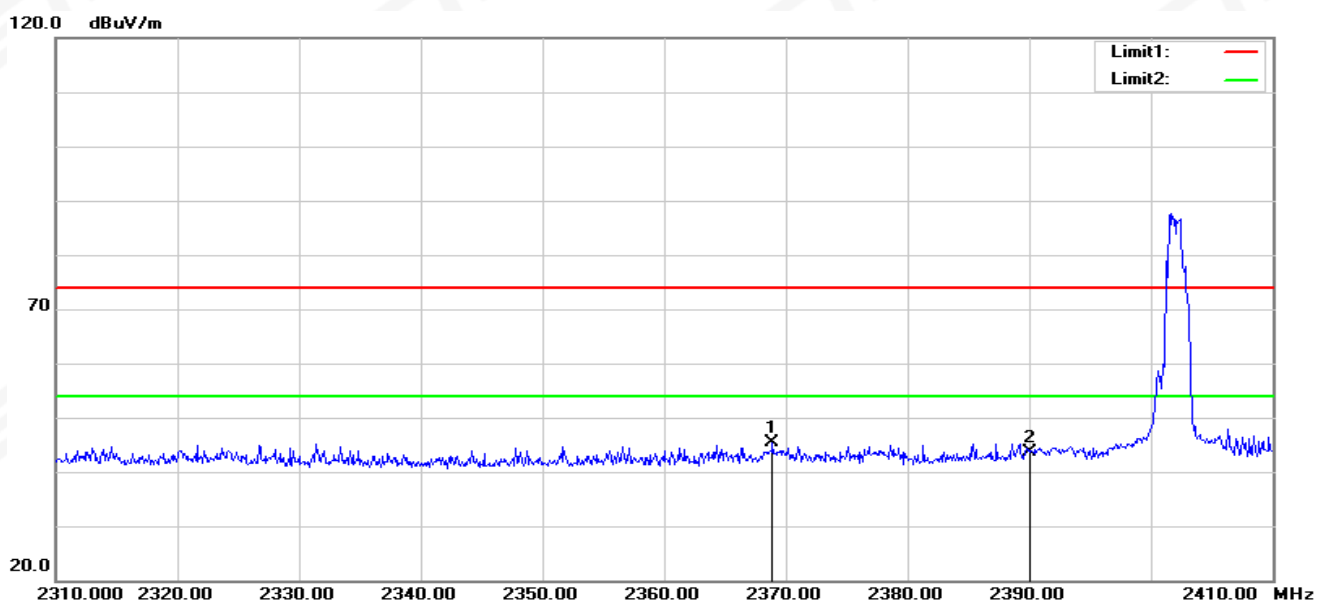


Right  
8DPSK-Low  
Horizontal

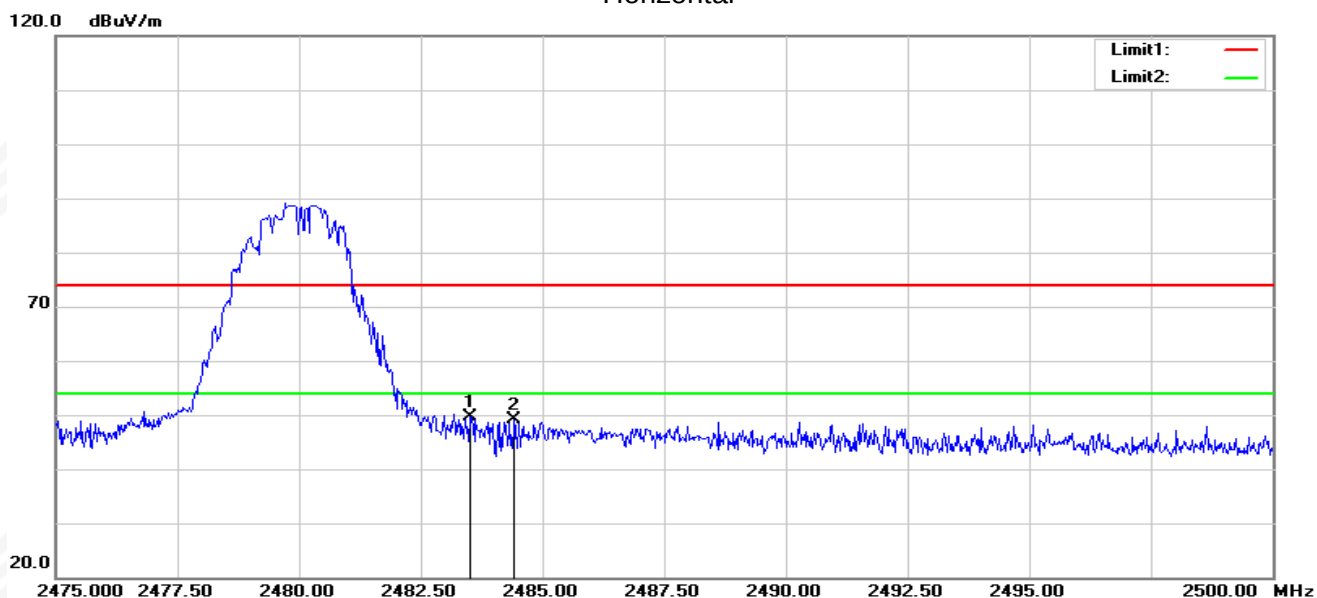


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2372.600           | 41.72             | 4.08                    | 45.80              | 74.00             | -28.20         | peak   |
| 2   | 2390.000           | 37.51             | 4.34                    | 41.85              | 74.00             | -32.15         | peak   |

Vertical

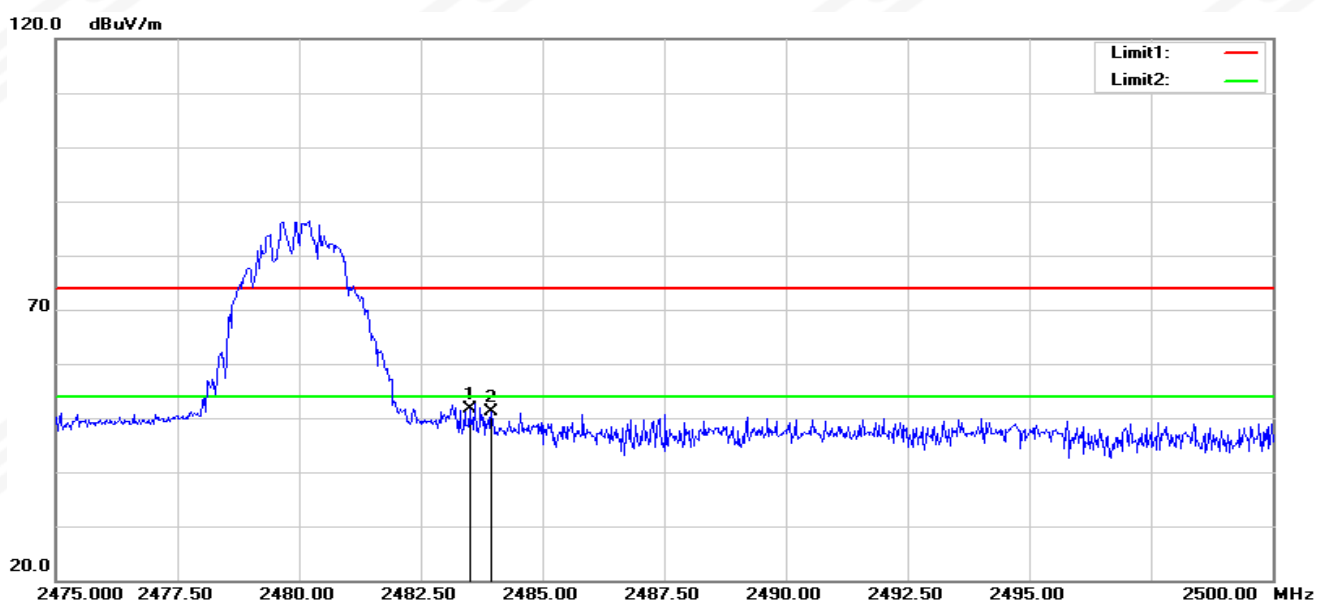


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2368.900           | 41.43             | 4.02                    | 45.45              | 74.00             | -28.55         | peak   |
| 2   | 2390.000           | 39.23             | 4.34                    | 43.57              | 74.00             | -30.43         | peak   |

**8DPSK -High**  
Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2483.500           | 44.98             | 4.60                    | 49.58              | 74.00             | -24.42         | peak   |
| 2   | 2484.425           | 44.43             | 4.61                    | 49.04              | 74.00             | -24.96         | peak   |

## Vertical



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2483.500           | 47.08             | 4.60                    | 51.68              | 74.00             | -22.32         | peak   |
| 2   | 2483.950           | 46.49             | 4.61                    | 51.10              | 74.00             | -22.90         | peak   |

Note: All modes have been measurement, only worst mode was reported.



#### 4. ANTENNA REQUIREMENT

##### 4.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

##### 4.2 EUT ANTENNA

The EUT antenna is FPC Antenna. It comply with the standard requirement.



## APPENDIX 1-PHOTOS OF TEST SETUP

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

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*