



# TEST REPORT

For

**Applicant :** ACOUSTMAX INTERNATIONAL CO., LTD

**Address :** Unit D16/F Cheuk Nang Plaza 250 Hennessy Road  
WanchaiHongKong

**Product Name :** Monster GLO

**Model Name :** MNGLO-S, MNGLO-L, MNGLO-M, MNGLO-Mini

**Remark :** Only difference in the model name

**Brand Name :** Monster

**FCC Number :** FCC ID: 2AAIN-MNGLOS

**Report No. :** MTE/TYW/S16122601

**Date of Issue :** Dec.05, 2016

**Issued by :** Most Technology Service Co., Limited

**Address :** No.5, 2nd Langshan Road, North District, Hi-tech Industrial  
Park, Nanshan, Shenzhen, Guangdong, China

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## PRODUCT INFORMATION

**Equipment Under Test:** Monster GLO  
**Brand Name:** Monster  
**Model Number:** MNGLO-S  
**FCC Number:** FCC ID: 2AAIN-MNGLOS  
**Applicant:** ACOUSTMAX INTERNATIONAL CO., LTD  
Unit D16/F Cheuk Nang Plaza 250 Hennessy Road WanchaiHongKong  
**Manufacturer:** Shenzhen AngSi Technology Co., LTD  
902B,LingYun Buiding,Honglang North NO 2.Road ,Baoan District,  
Shenzhen  
**Technical Standards:** 47 CFR Part 15 Subpart C (Part 15.247 of the FCC Rules)  
**File Number:** MTE/TYW/S16122599  
**Date of test:** Nov.8– 29, 2016  
**Deviation:** None  
**Condition of Test Sample:** Normal  
**Test Result:** PASS

The above equipment was tested by Most Technology Service Co., Ltd. for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature):



Chloe Cai(Engineer) Nov.8– 29, 2016

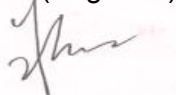
Review by (+ signature):



John Lin(Engineer) Dec.05, 2016



Approved by (+ signature):



Yvette Zhou(Manager) Dec.05, 2016

# 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

|                         |   |  |
|-------------------------|---|--|
| EUT                     | : | Monster GLO  |
| Model Number            | : | MNGLO-S, MNGLO-L, MNGLO-M,<br>MNGLO-Mini,  |
| Operation Frequency     | : | 5736MHz, 5762MHz, 5814MHz  |
| Number of Channels      | : | 3  |
| Modulation type         | : | QPSK   |
| Antenna Gain            | : | 4dBi   |
| Antenna type            | : | Internal PCB Antenna   |
| Power Supply            | : | 1. AC 120V/60Hz ; 2. DC3.7V by Battery   |
| Applicant               | : | ACOUSTMAX INTERNATIONAL CO., LTD   |
| Address                 | : | Unit D16/F Cheuk Nang Plaza 250 Hennessy Road<br>Wanchai Hong Kong               |
| Manufacturer            | : | Shenzhen AngSi Technology Co., LTD   |
| Address                 | : | 902B, Ling Yun Building, Honglang North NO 2. Road ,<br>Baoan District, Shenzhen |
| Date of sample received | : | Nov.8, 2016  |
| Date of Test            | : | Nov.8– 29, 2016  |

## 1.2.Description of Test Facility

EMC Lab : Most Technology Service Co., Limited

Location : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,  
Nanshan, Shenzhen,Guangdong, China

## 1.3.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2  
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2  
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2  
(Above 1GHz)

## 2. MEASURING DEVICE AND TEST EQUIPMENT

**Instrumentation:** The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

| No. | Equipment                      | Manufacturer     | Model No.  | S/N        | Calibration date | Calibration Interval |
|-----|--------------------------------|------------------|------------|------------|------------------|----------------------|
| 1   | Test Receiver                  | Rohde & Schwarz  | ESCI       | 100492     | 2016/03/10       | 1 Year               |
| 2   | Spectrum Analyzer              | Agilent          | E7405A     | US44210471 | 2016/03/14       | 1 Year               |
| 3   | L.I.S.N.                       | Rohde & Schwarz  | ENV216     | 100093     | 2016/03/10       | 1 Year               |
| 4   | Coaxial Switch                 | Anritsu Corp     | MP59B      | 6200283933 | 2016/03/07       | 1 Year               |
| 5   | Terminator                     | Hubersuhner      | 50Ω        | No.1       | 2016/03/07       | 1 Year               |
| 6   | RF Cable                       | SchwarzBeck      | N/A        | No.1       | 2016/03/07       | 1 Year               |
| 7   | Test Receiver                  | Rohde & Schwarz  | ESPI       | 101202     | 2016/03/10       | 1 Year               |
| 8   | Bilog Antenna                  | Sunol            | JB3        | A121206    | 2016/03/14       | 1 Year               |
| 9   | Horn Antenna                   | SCHWARZBECK      | BBHA9120D  | 756        | 2016/03/14       | 1 Year               |
| 10  | Horn Antenna                   | Penn Engineering | 9034       | 8376       | 2016/03/14       | 1 Year               |
| 11  | Cable                          | Resenberger      | N/A        | NO.1       | 2016/03/07       | 1 Year               |
| 12  | Cable                          | SchwarzBeck      | N/A        | NO.2       | 2016/03/07       | 1 Year               |
| 13  | Cable                          | SchwarzBeck      | N/A        | NO.3       | 2016/03/07       | 1 Year               |
| 14  | Single Phase Power Line Filter | DuoJi            | FNF 202B30 | N/A        | 2016/03/07       | 1 Year               |
| 15  | Test Receiver                  | Rohde & Schwarz  | ESCI       | 100492     | 2016/03/10       | 1 Year               |
| 16  | Loop antenna                   | ARA              | PLA-1030/B | 1039       | 2016/03/14       | 1 Year               |
| 17  | Power Meter                    | Anritsu          | ML2495A    | 1204008    | 2016/03/10       | 1 Year               |

**NOTE:** Equipments listed above have been calibrated and are in the period of validation.

### 3. OPERATION OF EUT DURING TES

#### 3.1. Operating Mode

The mode is used: Transmitting mode

Low Channel: 5736MHz

Middle Channel: 5762MHz

High Channel: 5814MHz

#### 3.2. Configuration and peripherals



EUT

(EUT: Monster GLO)

Note: The EUT have two antenna(A and B), They can not transmit simultaneously, The EUT select a antenna to transmit according to signal strength automatically, One Antenna of EUT does not work when Another antenna is transmitting

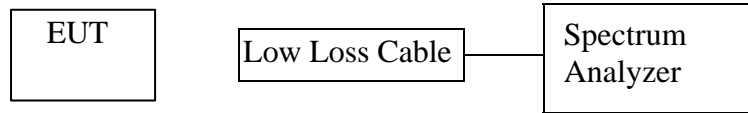


## 4. TEST PROCEDURES AND RESULTS

| FCC Rules                        | Description of Test                   | Result    |
|----------------------------------|---------------------------------------|-----------|
| Section 15.207                   | AC power Line Conducted Emission Test | Compliant |
| Section 15.247(a)(2)             | 6dB Occupied Bandwidth Test           | Compliant |
| Section 15.247(b)(3)             | Conducted Peak Output Power Test      | Compliant |
| Section 15.247(e)                | Power Spectral Density Test           | Compliant |
| Section 15.205<br>Section 15.209 | Radiated Spurious Emissions Test      | Compliant |
| Section 15.247(d)                | RF Conducted spurious emissions Test  | Compliant |
| Section 15.247(d)                | Band Edge Compliance Test             | Compliant |
| Section 15.203                   | Antenna Requirement                   | Compliant |

## 5. 6DB OCCUPIED BANDWIDTH TEST

### 5.1. Block Diagram of Test Setup



(EUT: Monster GLO)

### 5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz

### 5.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 5.4. Operating Condition of EUT

5.4.1 Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.

### 5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer through a low loss cable.

Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

## 5.6.Test Result

### Antenna A test data

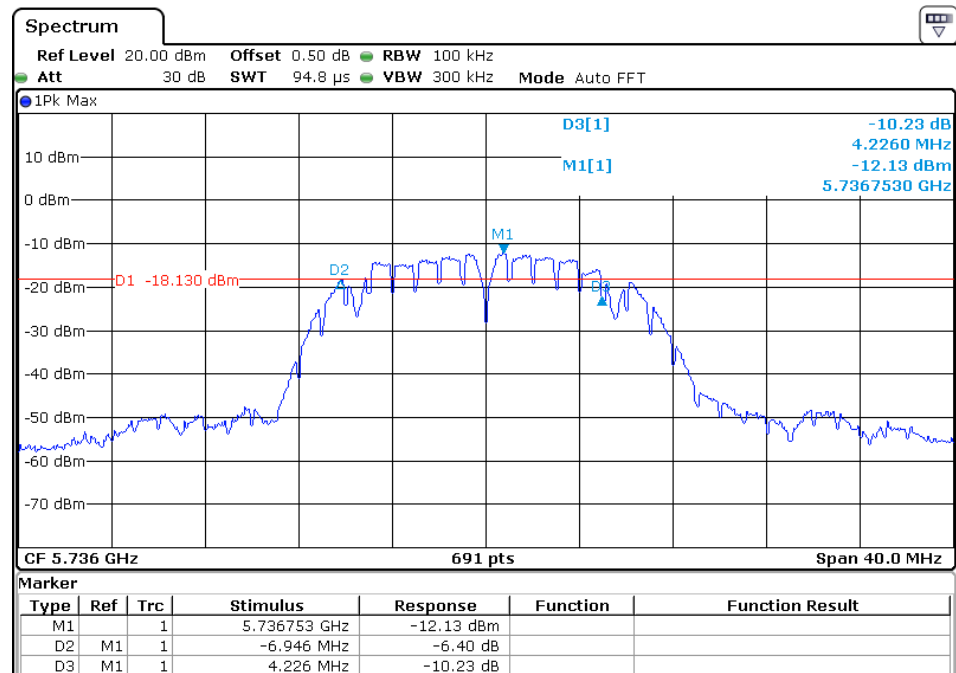
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Result |
|---------|-----------------|---------------------|--------|
| Low     | 5736            | 11.172              | Pass   |
| Middle  | 5762            | 11.057              | Pass   |
| High    | 5814            | 11.115              | Pass   |

### Antenna B test data

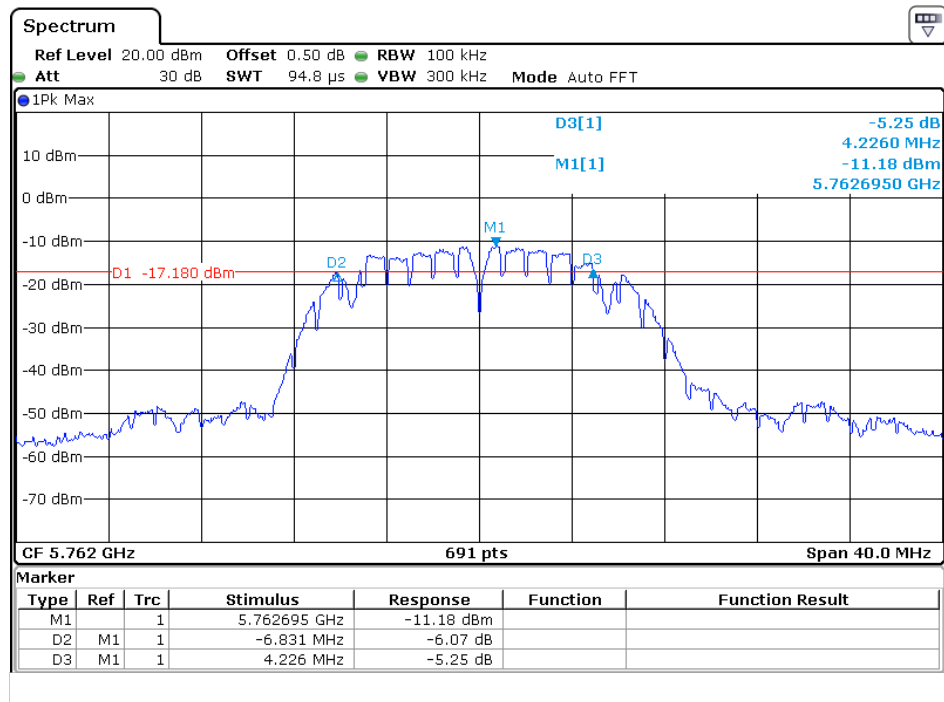
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Result |
|---------|-----------------|---------------------|--------|
| Low     | 5736            | 11.057              | Pass   |
| Middle  | 5762            | 11.057              | Pass   |
| High    | 5814            | 11.057              | Pass   |

The spectrum analyzer plots are attached as below.

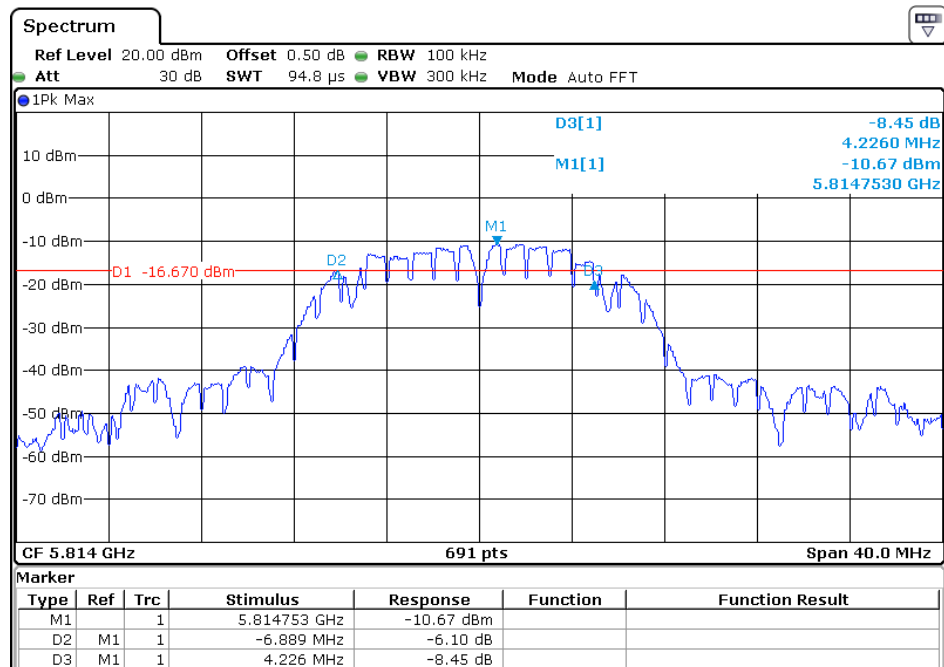
### Low channel(Antenna A)



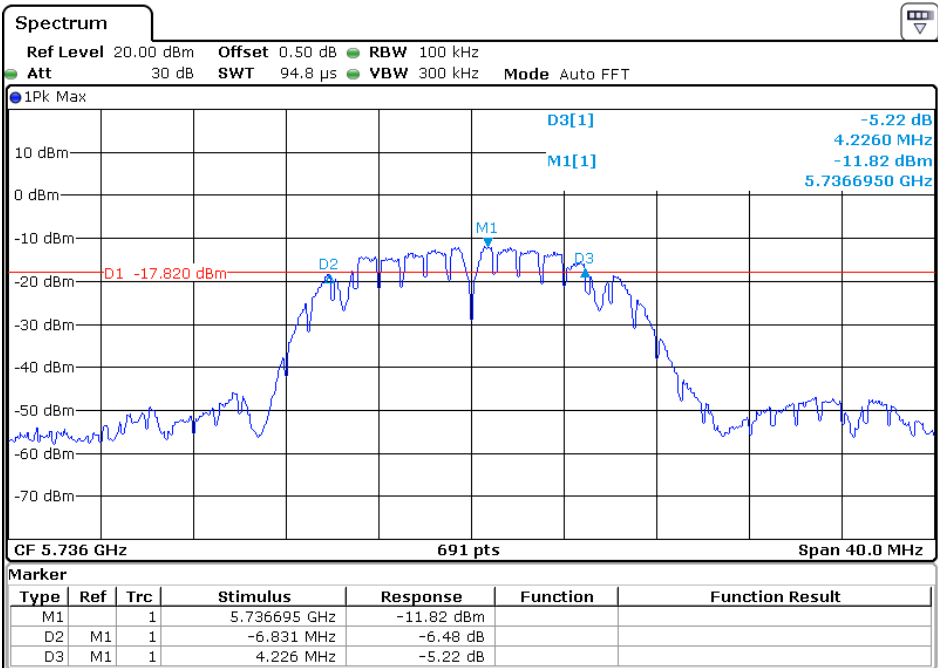
## Middle channel(Antenna A)



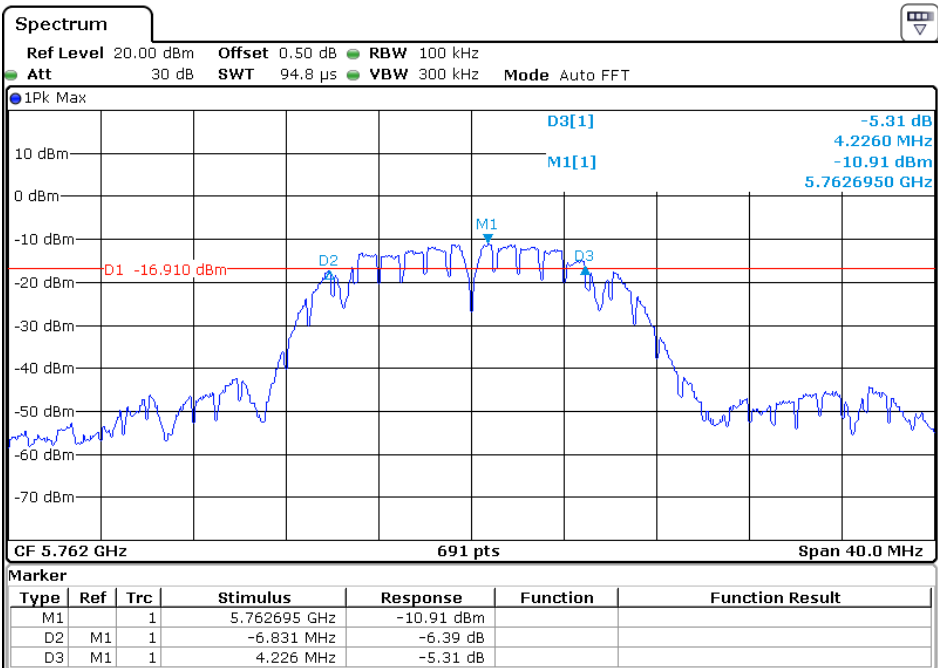
## High channel(Antenna A)



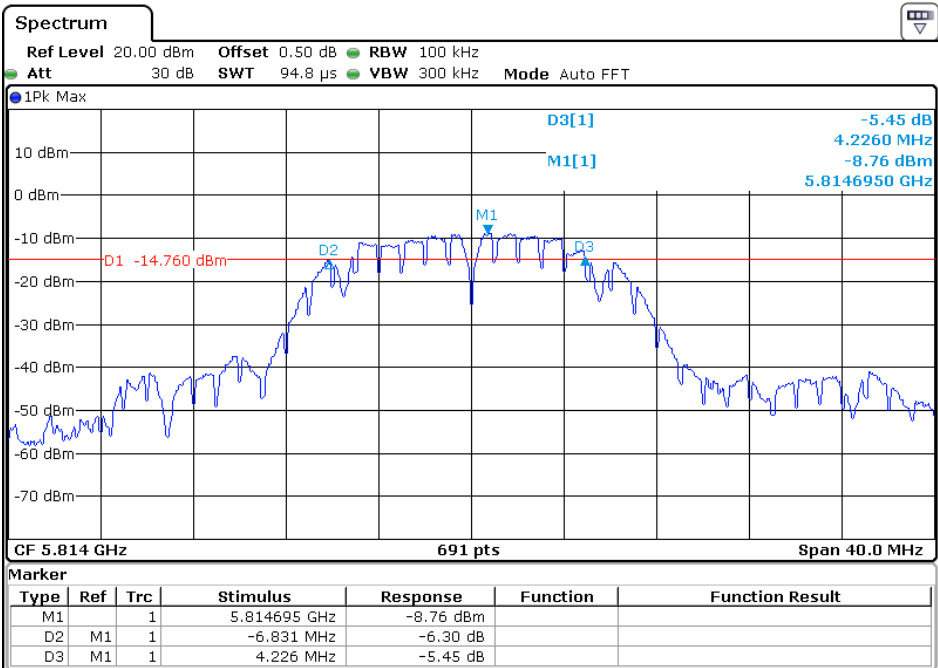
Low channel(Antenna B)



Middle channel(Antenna B)

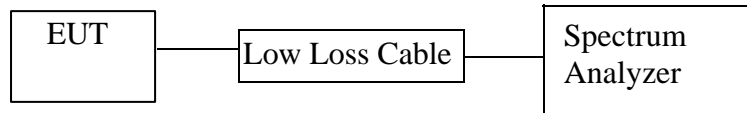


High channel(Antenna B)



## 6. POWER SPECTRAL DENSITY TEST

### 6.1. Block Diagram of Test Setup



(EUT: Monster GLO)

### 6.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 6.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 6.4. Operating Condition of EUT

6.4.1 Setup the EUT and simulator as shown as

Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.

### 6.5. Test Procedure

Refer to KDB558074 D01

## 6.6.Test Result

### Antenna B test result

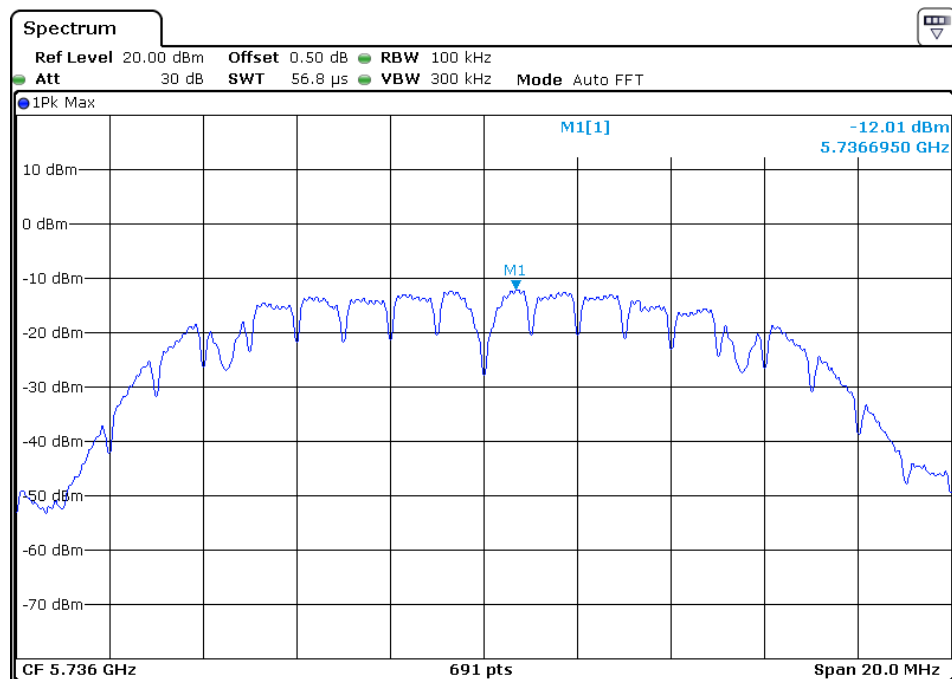
| Channel | Frequency (MHz) | Power Spectral Density (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------------------------|-------------|--------|
| Low     | 5736MHz         | -12.01                       | $\leq 8.00$ | PASS   |
| Middle  | 5762MHz         | -11.94                       | $\leq 8.00$ | PASS   |
| High    | 5814MHz         | -10.75                       | $\leq 8.00$ | PASS   |

### Antenna A test result

| Channel | Frequency (MHz) | Power Spectral Density (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------------------------|-------------|--------|
| Low     | 5736MHz         | -10.71                       | $\leq 8.00$ | PASS   |
| Middle  | 5762MHz         | -10.91                       | $\leq 8.00$ | PASS   |
| High    | 5814MHz         | -8.45                        | $\leq 8.00$ | PASS   |

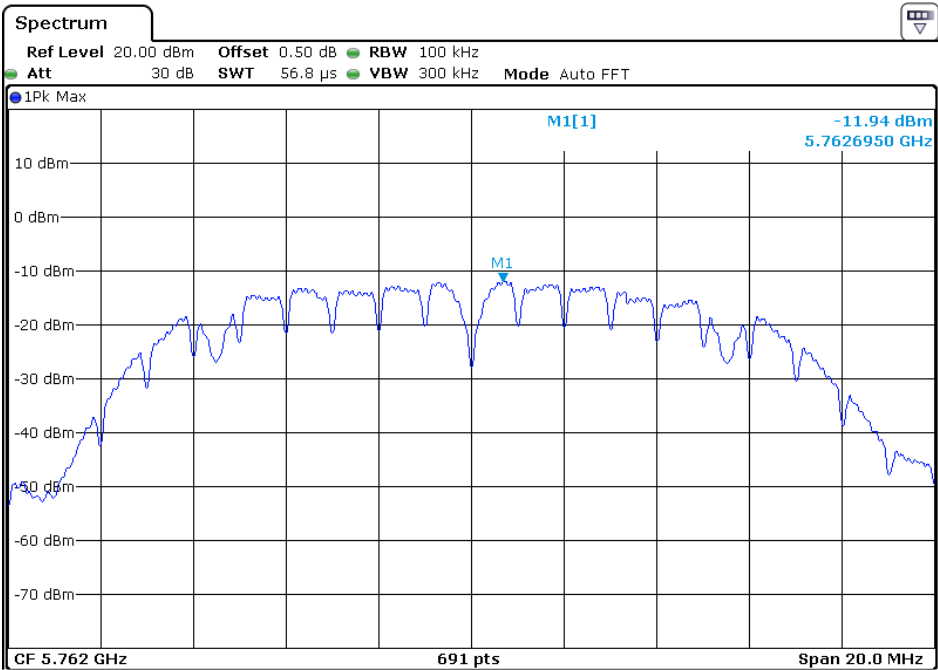
The spectrum analyzer plots are attached as below.

### Low channel(Antenna B)

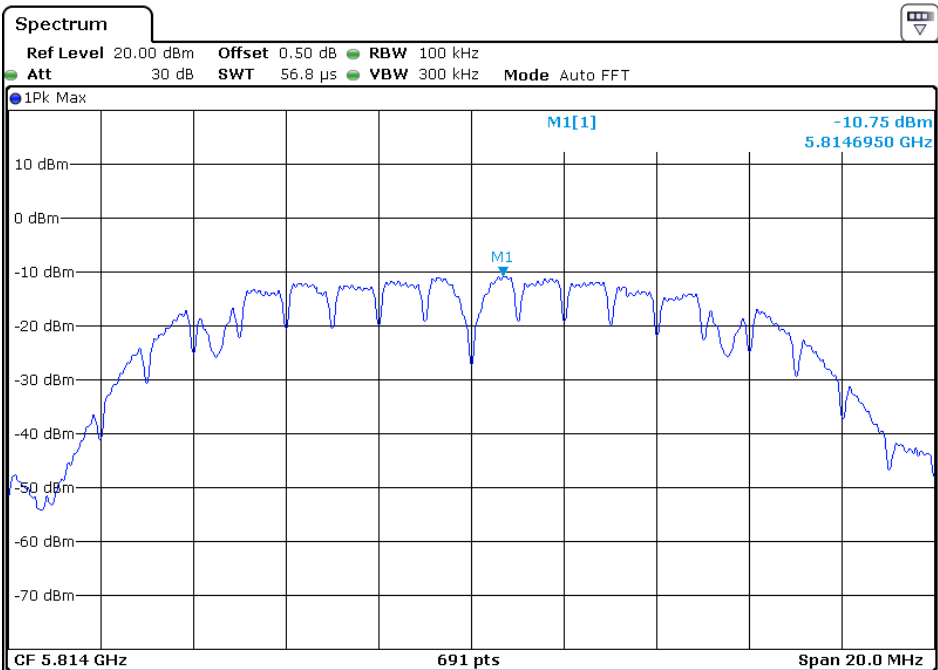




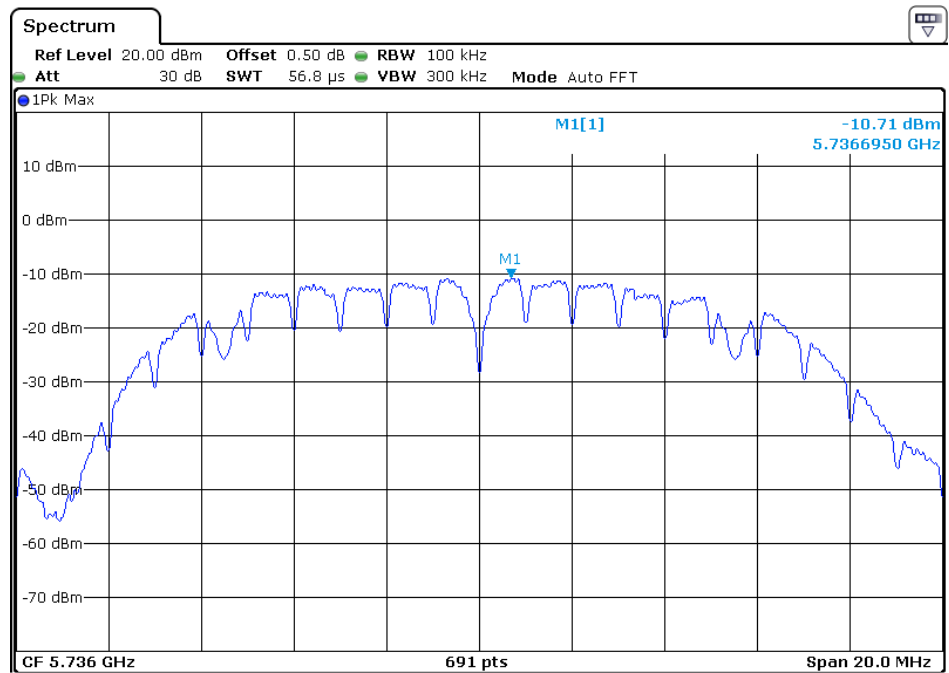
Middle channel(Antenna B)



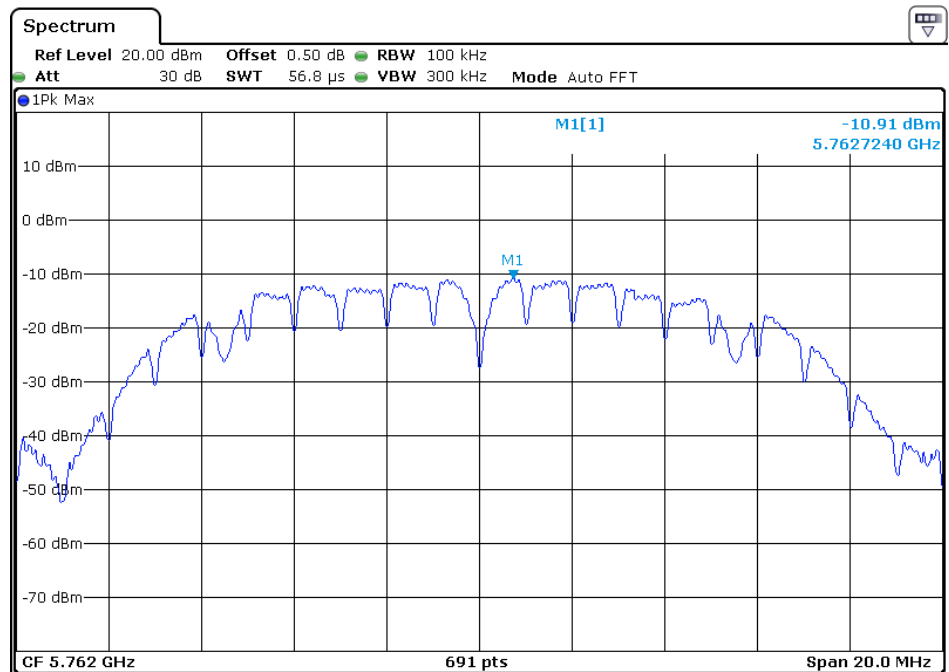
High channel(Antenna B)



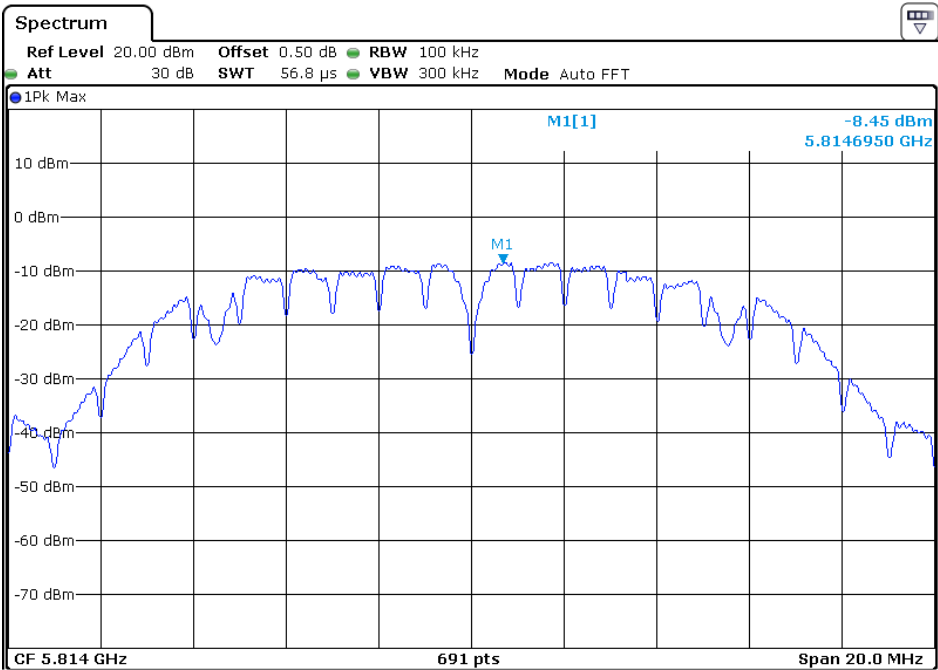
### Low channel(Antenna A)



### Middle channel(Antenna A)

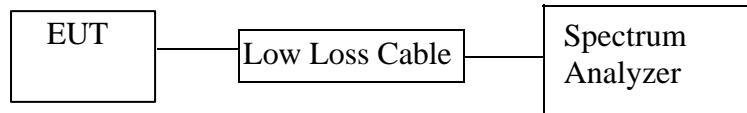


High channel(Antenna A)



## 7. RF CONDUCTED SPURIOUS EMISSIONS TEST

### 7.1. Block Diagram of Test Setup



(EUT: Monster GLO)

### 7.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### 7.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as

Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it.

### 7.5. Test Procedure

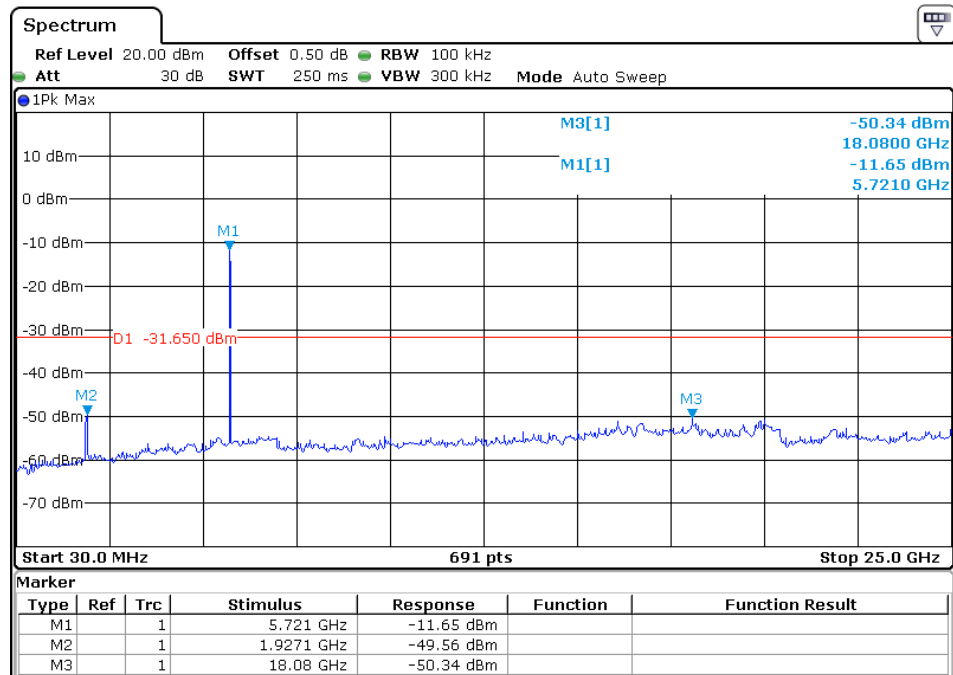
7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Set the test frequency range from 30MHz to 25GHz and set RBW=100 kHz, VBW=300 kHz.

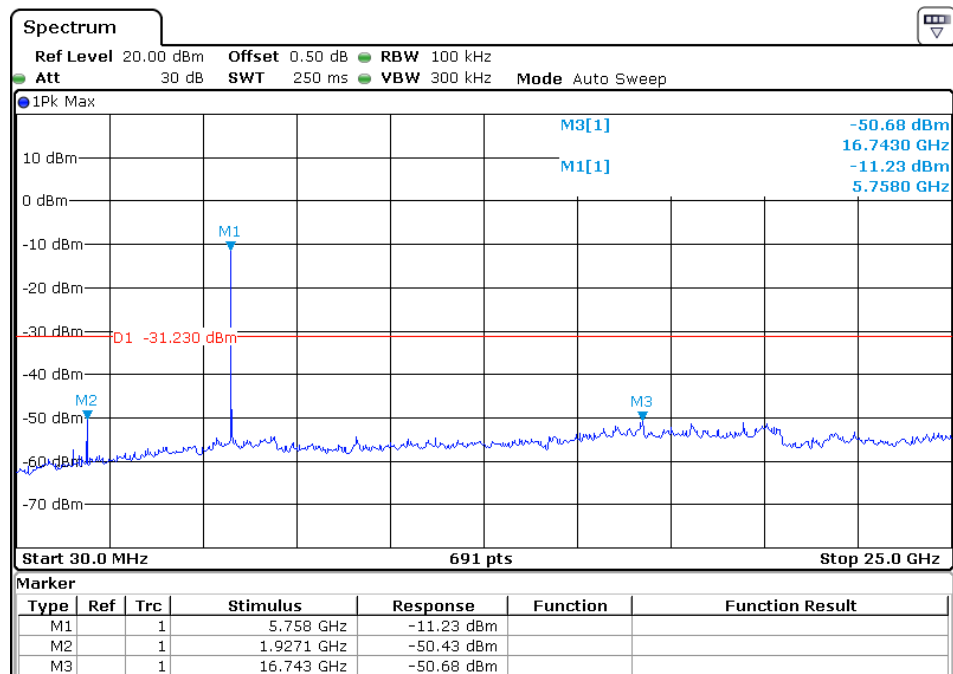
### 7.6. Test Result

The spectrum analyzer plots are attached as below.

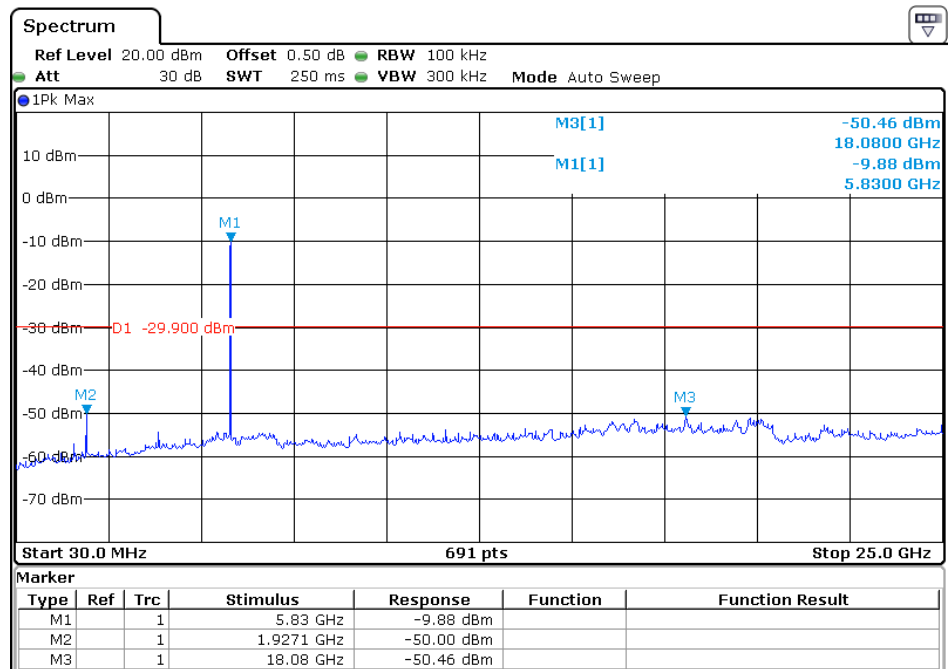
### Low channel(Antenna A)



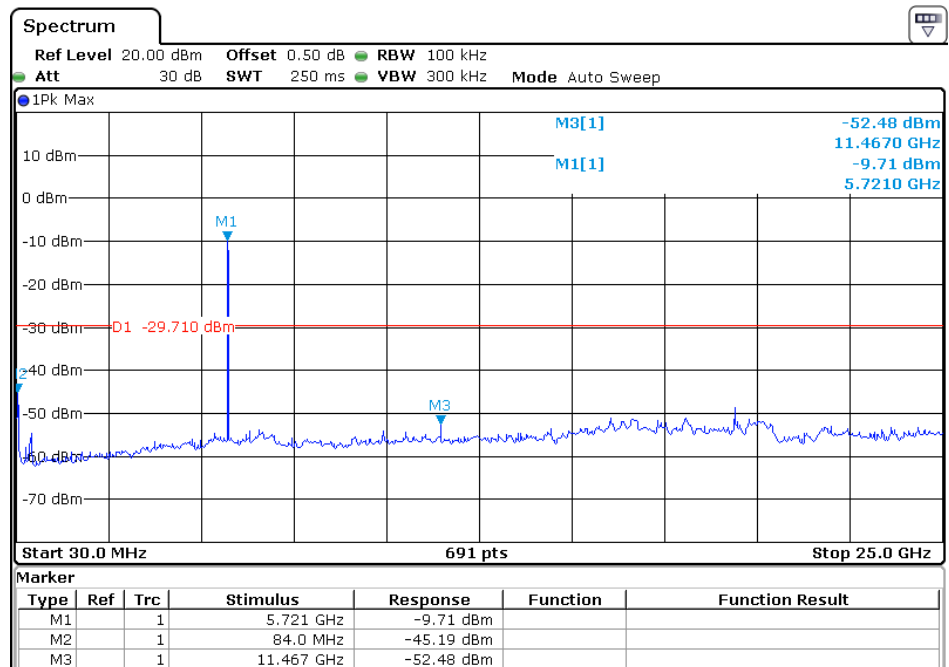
### Middle channel(Antenna A)



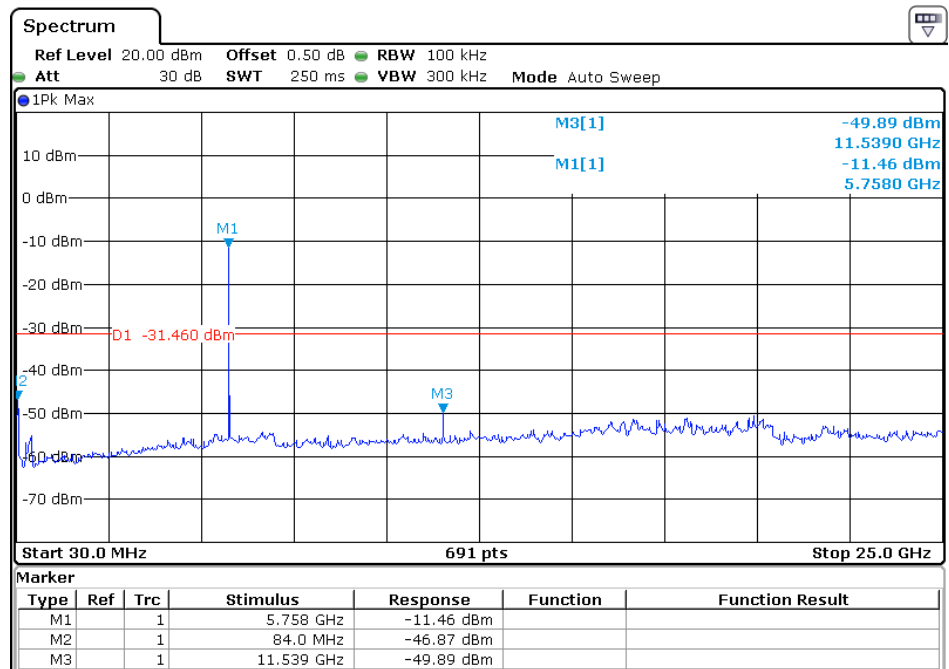
### High channel(Antenna A)



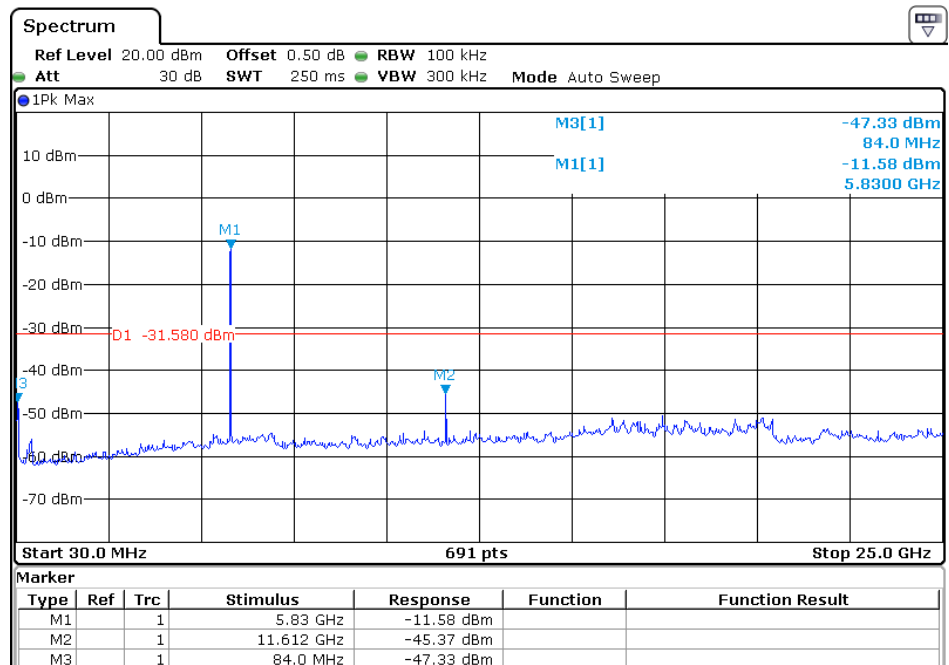
### Low channel(Antenna B)



## Middle channel(Antenna B)

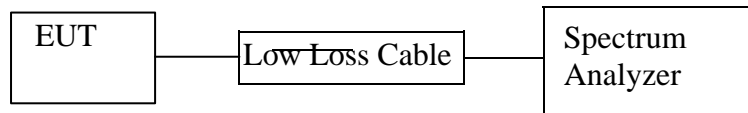


## High channel(Antenna B)



## 8. CONDUCTED PEAK OUTPUT POWER TEST

### 8.1. Block Diagram of Test Setup



(EUT: Monster GLO)

### 8.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.

### 8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 8.4. Operating Condition of EUT

8.4.1 Setup the EUT and simulator as shown as Section 9.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.

### 8.5. Test Procedure

8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.



8.5.2.Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for test

8.5.3.Measurement the maximum peak output power.

## 8.4.Test Result

Antenna A test result

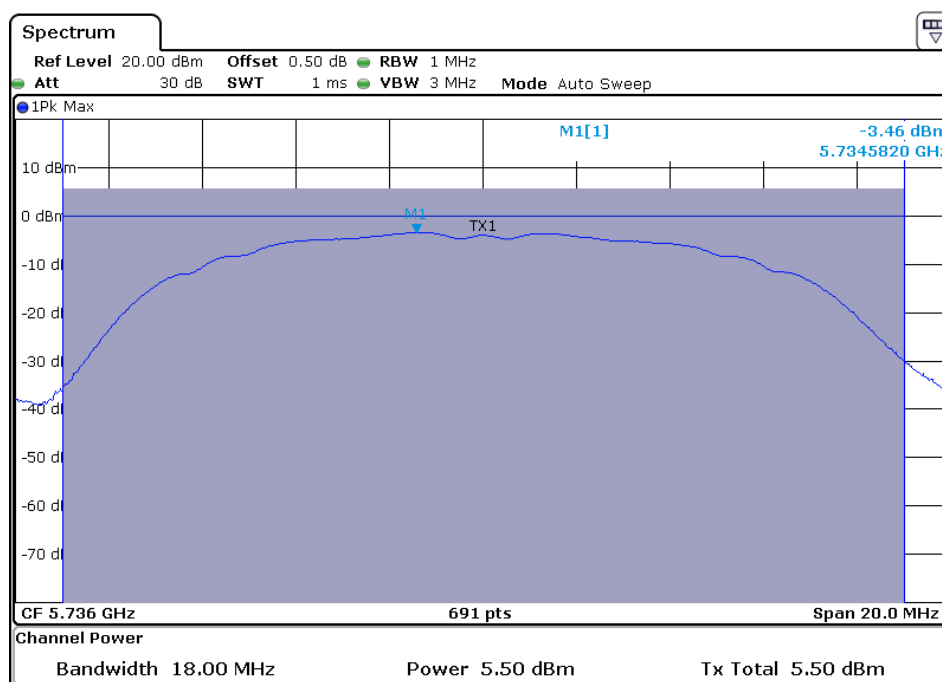
| Channel | Frequency (MHz) | Peak Output Power (dBm) | Limits dBm |
|---------|-----------------|-------------------------|------------|
| Low     | 5736            | 5.50                    | 30         |
| Middle  | 5762            | 6.90                    | 30         |
| High    | 5814            | 6.20                    | 30         |

Antenna B test result

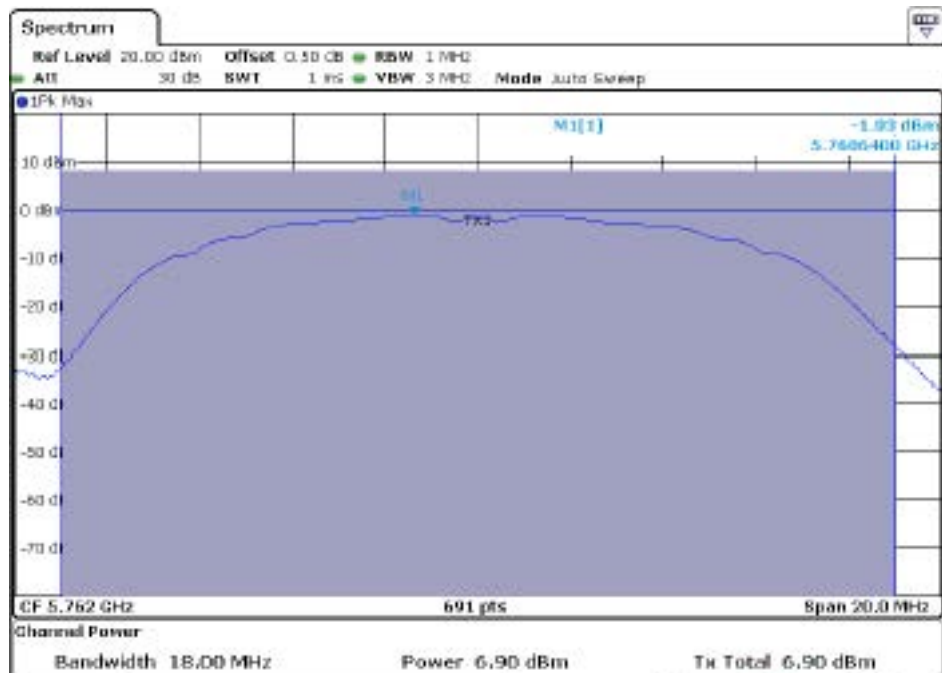
| Channel | Frequency (MHz) | Peak Output Power (dBm) | Limits dBm |
|---------|-----------------|-------------------------|------------|
| Low     | 5736            | 6.22                    | 30         |
| Middle  | 5762            | 6.82                    | 30         |
| High    | 5814            | 6.96                    | 30         |

The spectrum analyzer plots are attached as below.

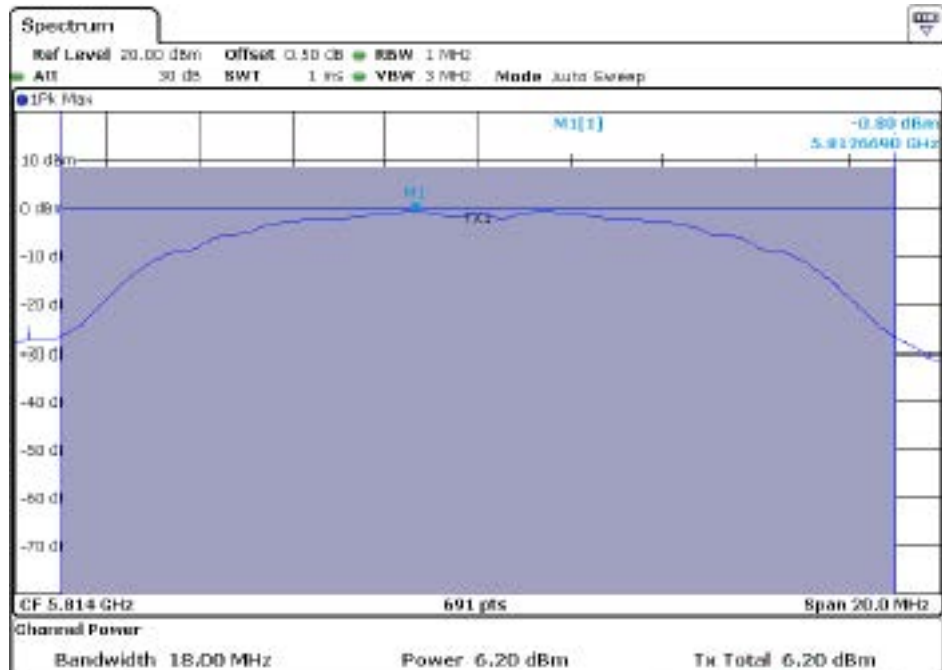
Low channel (Antenna A)



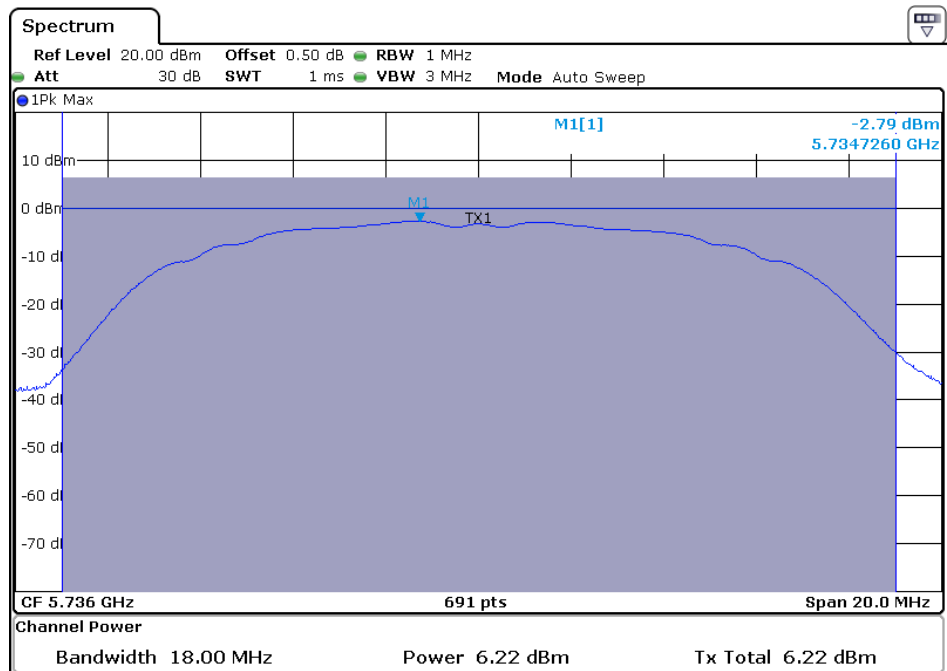
### Middle channel (Antenna A)



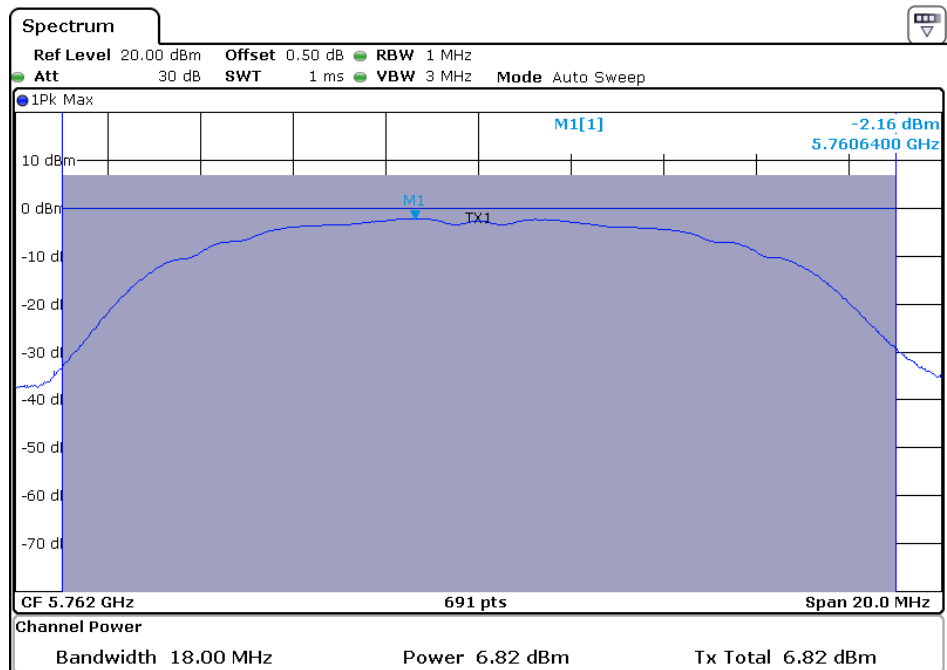
### High channel (Antenna A)



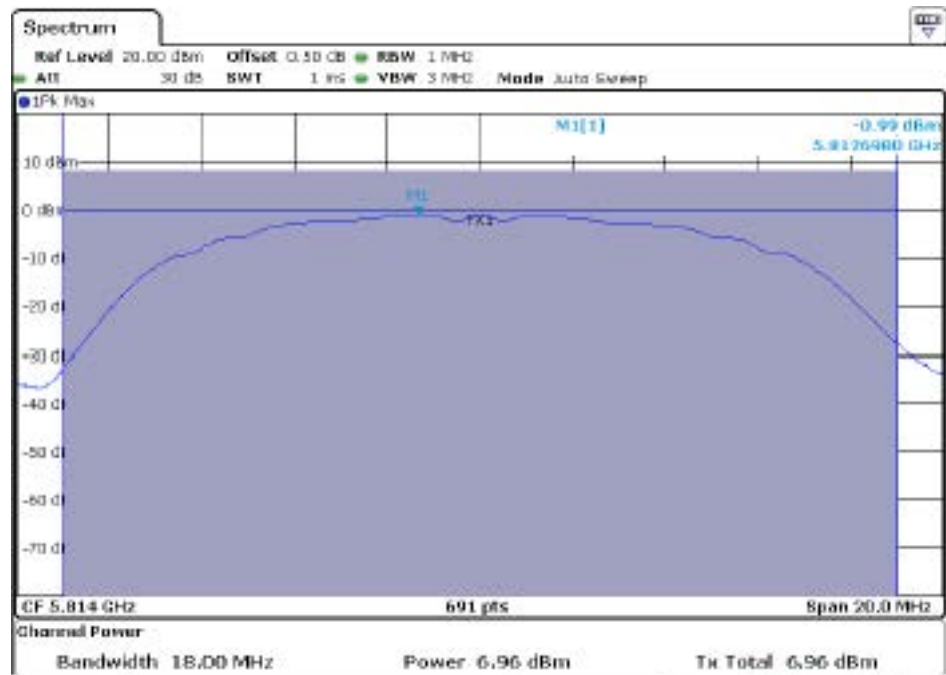
### Low channel (Antenna B)



### Middle channel (Antenna B)



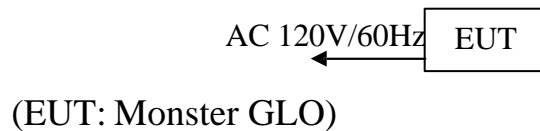
### High channel (Antenna B)



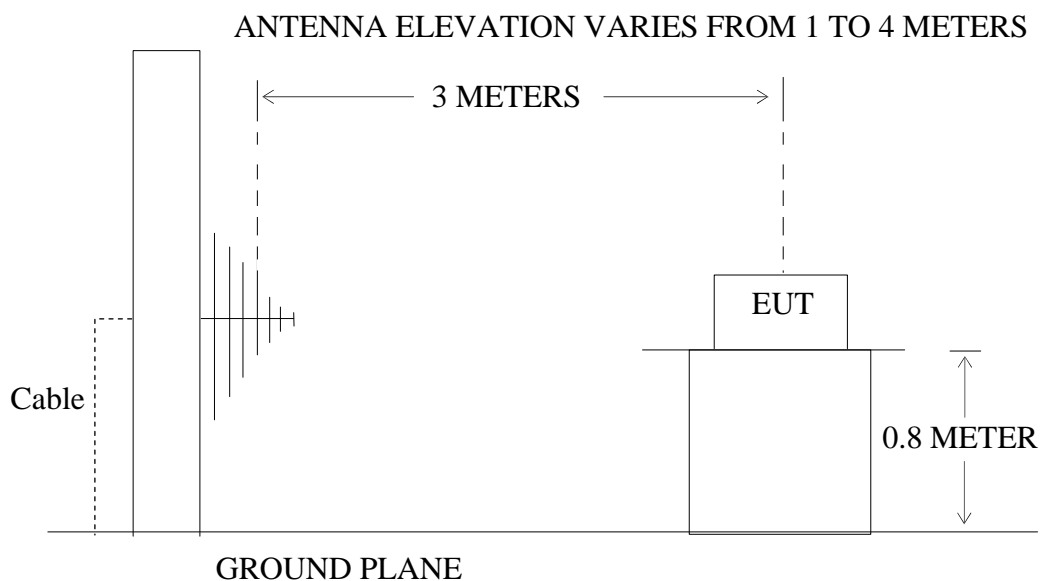
## 9. RADIATED EMISSION TEST

### 9.1. Block Diagram of Test Setup

#### 9.1.1. Block diagram of connection between the EUT and simulators



#### 9.1.2. Anechoic Chamber Test Setup Diagram



### 9.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 9.3.Restricted bands of operation

#### FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 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     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 9.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 9.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground.

The turntable can rotate 360 degrees to determine the position of

the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is

mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4

meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna)

is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are

set on measurement. In order to find the maximum emission levels, all of the interface cables

must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.

The bandwidth of test receiver (R&S ESI26) is set at 120 KHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 40000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with

Average detector. Except those frequency bands mention above, the final measurement for frequencies below

1000MHz is performed with Quasi Peak detector. The field strength is calculated by adding the antenna

factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation

calculation is as follows:

Result = Reading + Corrected Factor

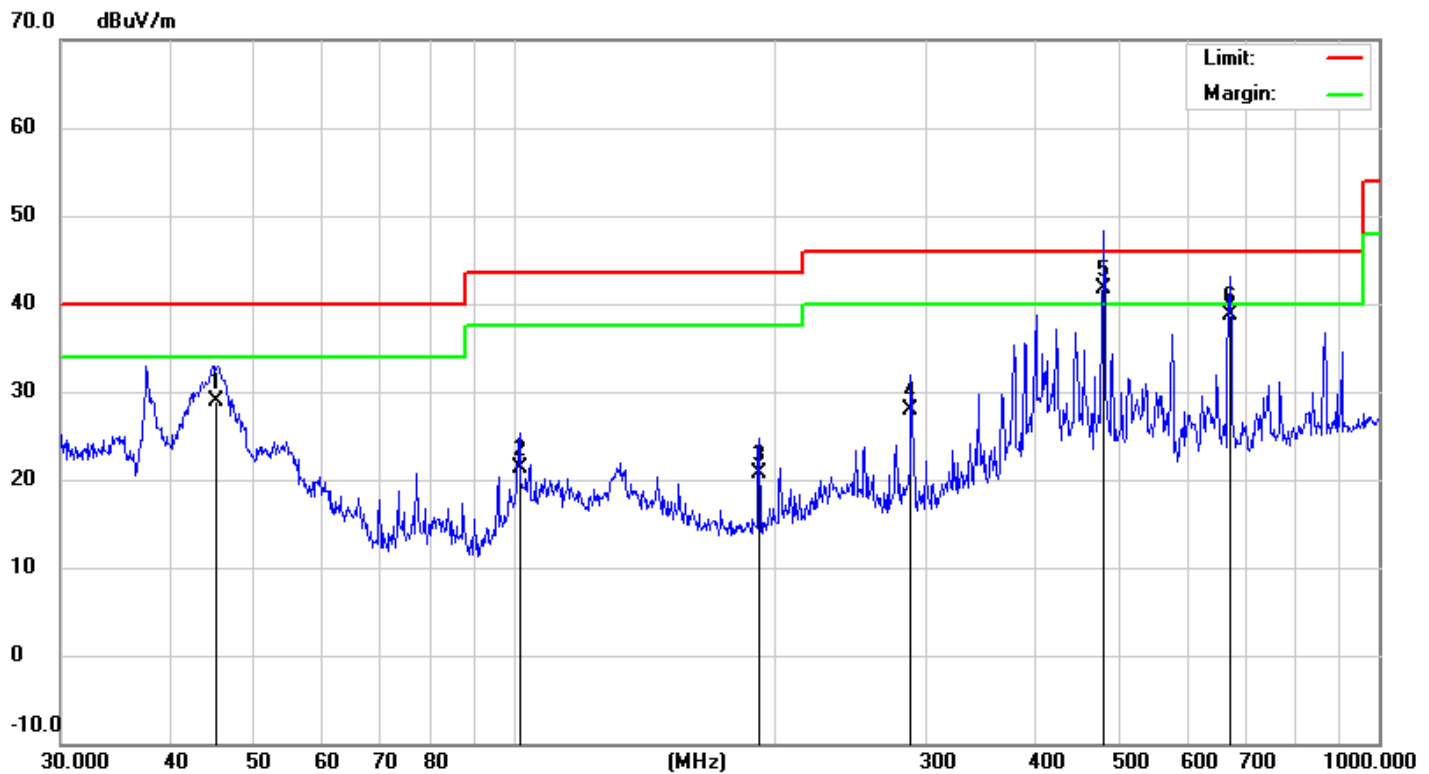
Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain



## 9.6.The Field Strength of Radiation Emission Measurement Results

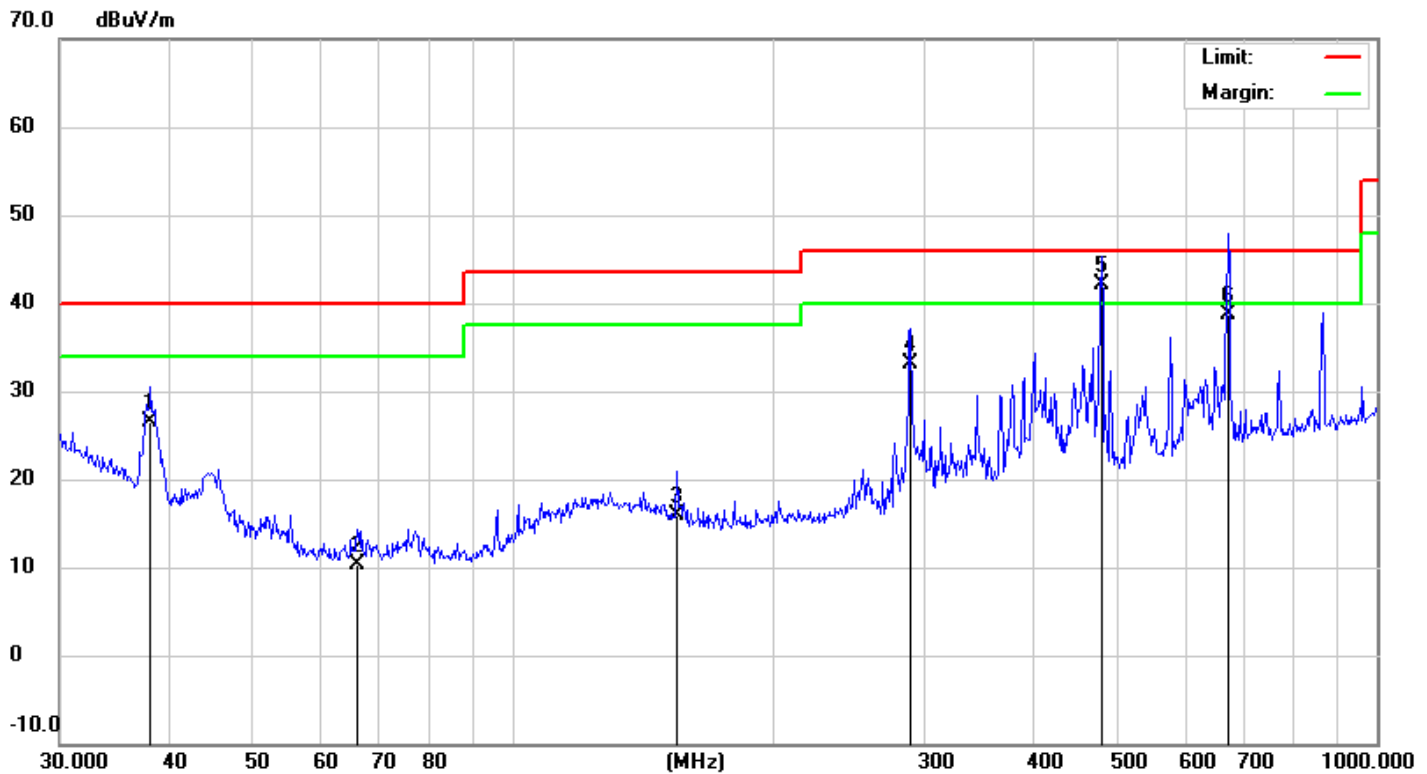
- Note: 1.We tested battery mode and AC mode and recorded the worst case data(AC mode) for all test mode.
2. The 18-40GHz emissions are not reported, because the levels are too low against the limit.
3. we tested radiation emission of Antenna A and Antenna B, The following test data is the worst case(Antenna A) data which I have recorded

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX 5762            | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|---------------------------|---------|
| 1   |     | 45.2166      | 18.59                    | 10.40                   | 28.99                      | 40.00           | -11.01     | QP                      |                           |         |
| 2   |     | 101.6443     | 11.32                    | 9.95                    | 21.27                      | 43.50           | -22.23     | QP                      |                           |         |
| 3   |     | 192.4185     | 8.70                     | 11.97                   | 20.67                      | 43.50           | -22.83     | QP                      |                           |         |
| 4   |     | 287.9904     | 14.90                    | 13.09                   | 27.99                      | 46.00           | -18.01     | QP                      |                           |         |
| 5   | *   | 480.5276     | 24.40                    | 17.25                   | 41.65                      | 46.00           | -4.35      | QP                      |                           |         |
| 6   |     | 672.8444     | 18.90                    | 19.75                   | 38.65                      | 46.00           | -7.35      | QP                      |                           |         |

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX 5762            | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C / 51.6%     | Test date: | 2016-11-25         |



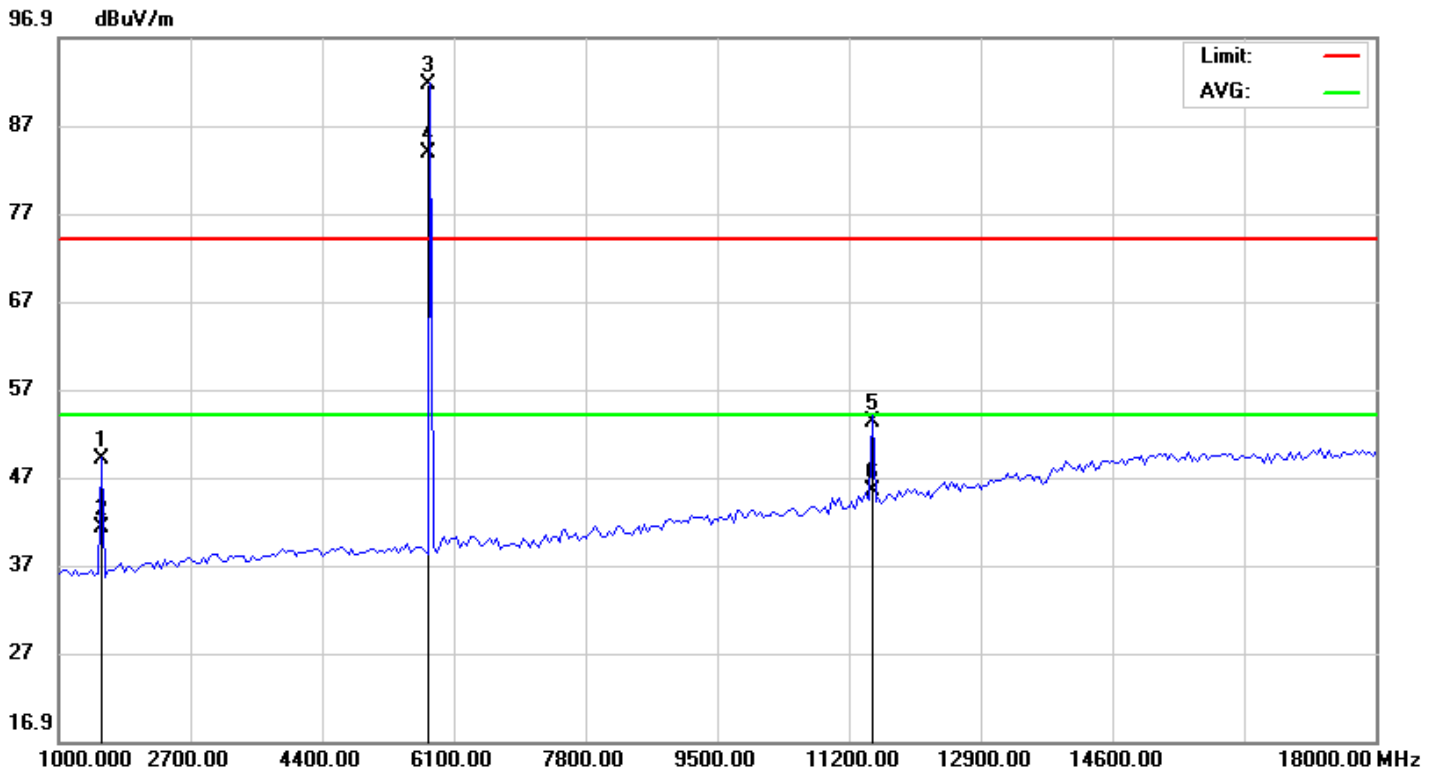
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|---------------------------|---------|
| 1   |     | 38.2120      | 11.31                    | 15.12                   | 26.43                      | 40.00           | -13.57     | QP                      |                           |         |
| 2   |     | 66.2661      | 2.26                     | 8.04                    | 10.30                      | 40.00           | -29.70     | QP                      |                           |         |
| 3   |     | 155.3643     | 3.45                     | 12.49                   | 15.94                      | 43.50           | -27.56     | QP                      |                           |         |
| 4   |     | 289.0020     | 19.92                    | 13.13                   | 33.05                      | 46.00           | -12.95     | QP                      |                           |         |
| 5   | *   | 480.5276     | 24.80                    | 17.25                   | 42.05                      | 46.00           | -3.95      | QP                      |                           |         |
| 6   |     | 672.8444     | 18.90                    | 19.75                   | 38.65                      | 46.00           | -7.35      | QP                      |                           |         |

\*:Maximum data    x:Over limit    !:over margin

Above 1G

FCC ID: 2AAIN-MNGLOS

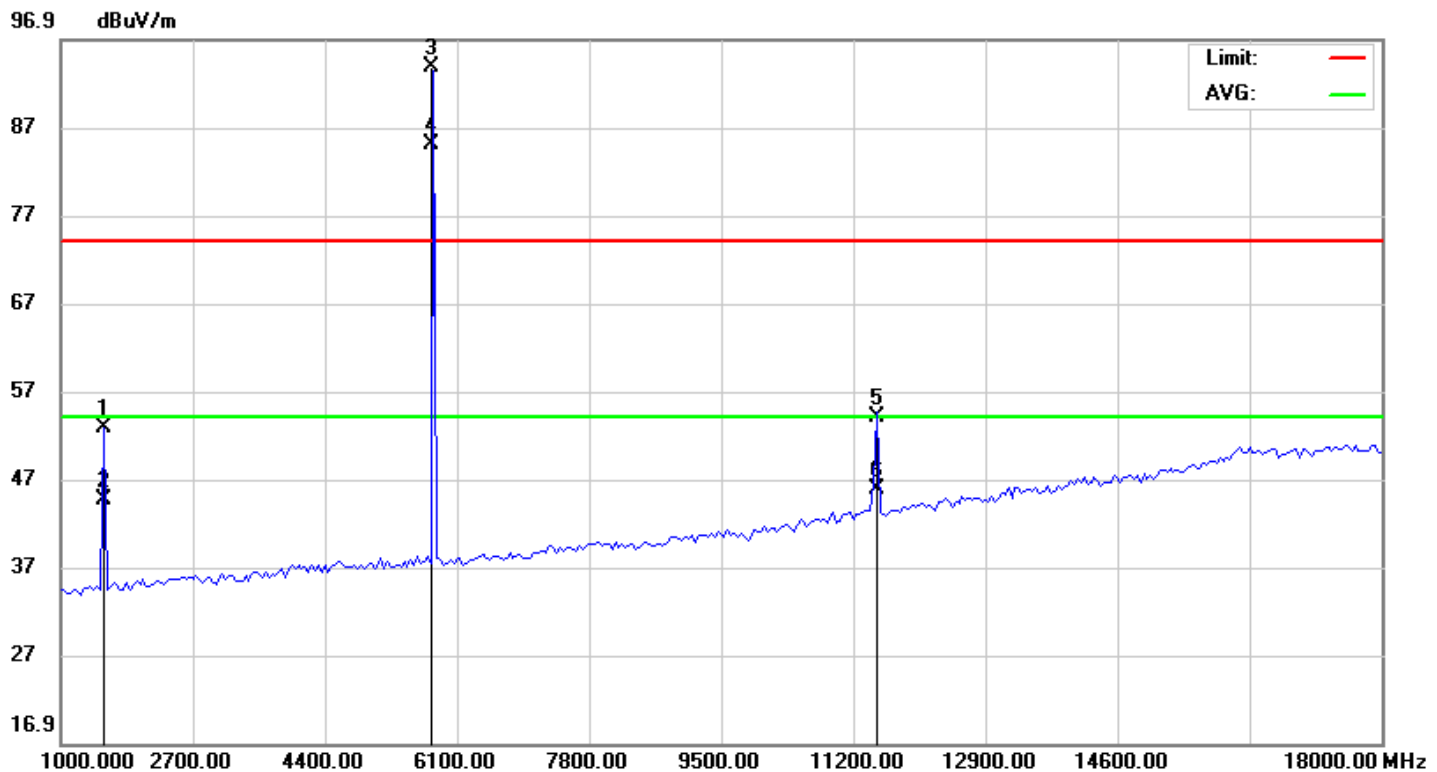
|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | 802.11n(20M)-CH1   | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|---------------------------|---------|
| 1   |     | 1529.414     | 57.30                    | -8.35                   | 48.95                      | 74.00           | -25.05     |                         |                           | peak    |
| 2   |     | 1529.414     | 49.50                    | -8.35                   | 41.15                      | 54.00           | -12.85     |                         |                           | AVG     |
| 3   | X   | 5736.095     | 95.19                    | -3.49                   | 91.70                      | 74.00           | 17.70      |                         |                           | peak    |
| 4   | *   | 5736.095     | 87.30                    | -3.49                   | 83.81                      | 54.00           | 29.81      |                         |                           | AVG     |
| 5   |     | 11467.00     | 54.20                    | -0.91                   | 53.29                      | 74.00           | -20.71     |                         |                           | peak    |
| 6   |     | 11467.00     | 46.40                    | -0.91                   | 45.49                      | 54.00           | -8.51      |                         |                           | AVG     |

\*:Maximum data    x:Over limit    !:over margin

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | 802.11n(20M)-CH1   | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C / 51.6%     | Test date: | 2016-11-25         |

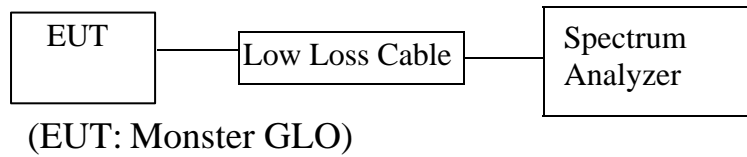


| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit  | Over   | Antenna | Table  |         |
|-----|-----|----------|---------|---------|----------|--------|--------|---------|--------|---------|
|     |     | MHz      | Level   | Factor  | ment     |        |        | Height  | Degree |         |
|     |     |          | dBuV    | dB      | dBuV/m   | dBuV/m | dB     | cm      | degree | Comment |
| 1   |     | 1529.414 | 61.20   | -8.35   | 52.85    | 74.00  | -21.15 | peak    |        |         |
| 2   |     | 1529.414 | 52.90   | -8.35   | 44.55    | 54.00  | -9.45  | AVG     |        |         |
| 3   | X   | 5736.095 | 97.20   | -3.49   | 93.71    | 74.00  | 19.71  | peak    |        |         |
| 4   | *   | 5736.095 | 88.50   | -3.49   | 85.01    | 54.00  | 31.01  | AVG     |        |         |
| 5   |     | 11467.00 | 55.00   | -0.91   | 54.09    | 74.00  | -19.91 | peak    |        |         |
| 6   |     | 11467.00 | 46.70   | -0.91   | 45.79    | 54.00  | -8.21  | AVG     |        |         |

\*:Maximum data    x:Over limit    !:over margin

## 10.D EDGE COMPLIANCE TEST

### 10.1. Block Diagram of Test Setup



### 10.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 10.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 10.4. Operating Condition of EUT

(c) 10.4.1 Setup the EUT and simulator as shown as

(d) Section 11.1.

(e) 10.4.2. Turn on the power of all equipment.

10.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736-5814MHz. We select 5736MHz, 5814MHz TX frequency to transmit.

## 10.5. Test Procedure

### Conducted Band Edge:

10.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

10.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz. Radiate Band Edge:

10.5.3. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

10.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

10.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

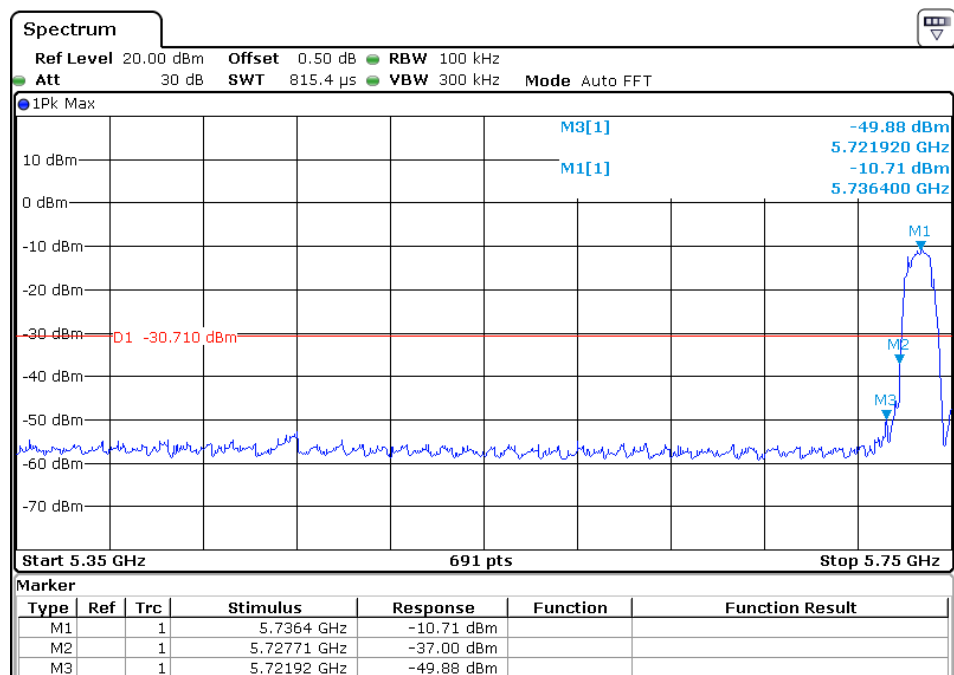
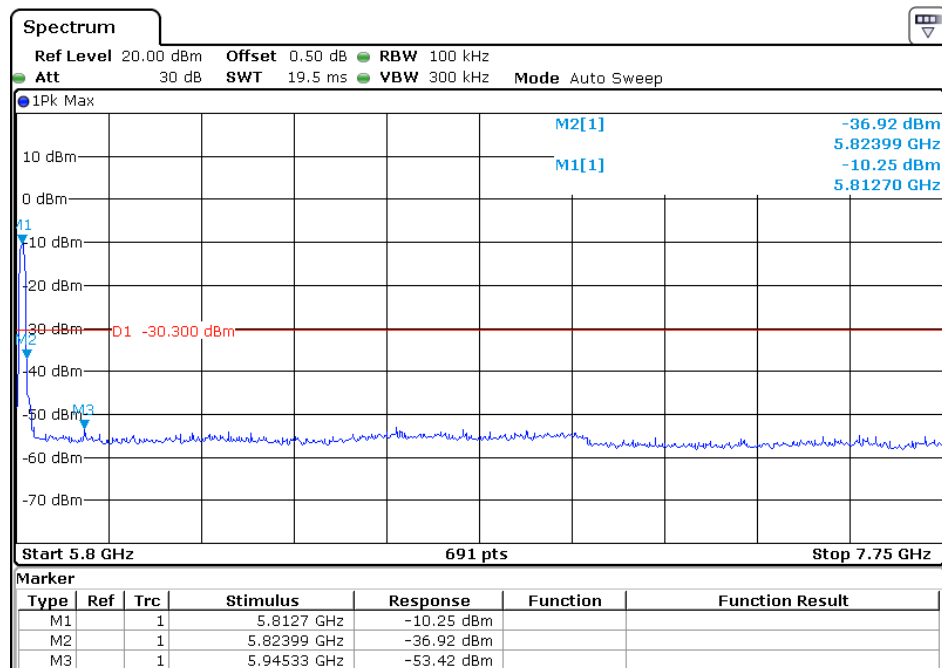
10.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

10.5.7. RBW=1MHz, VBW=1MHz

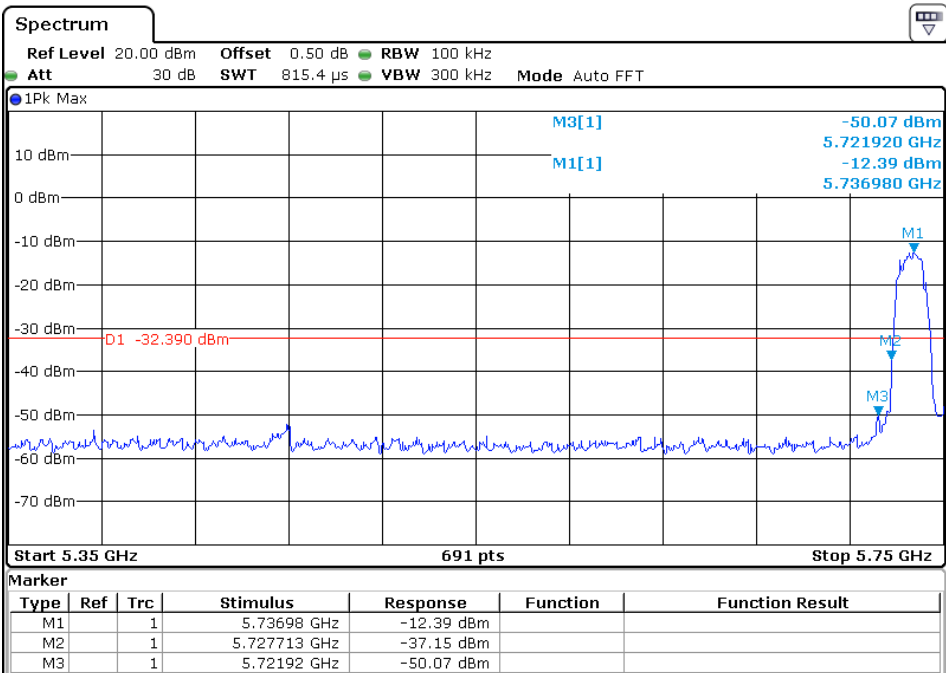
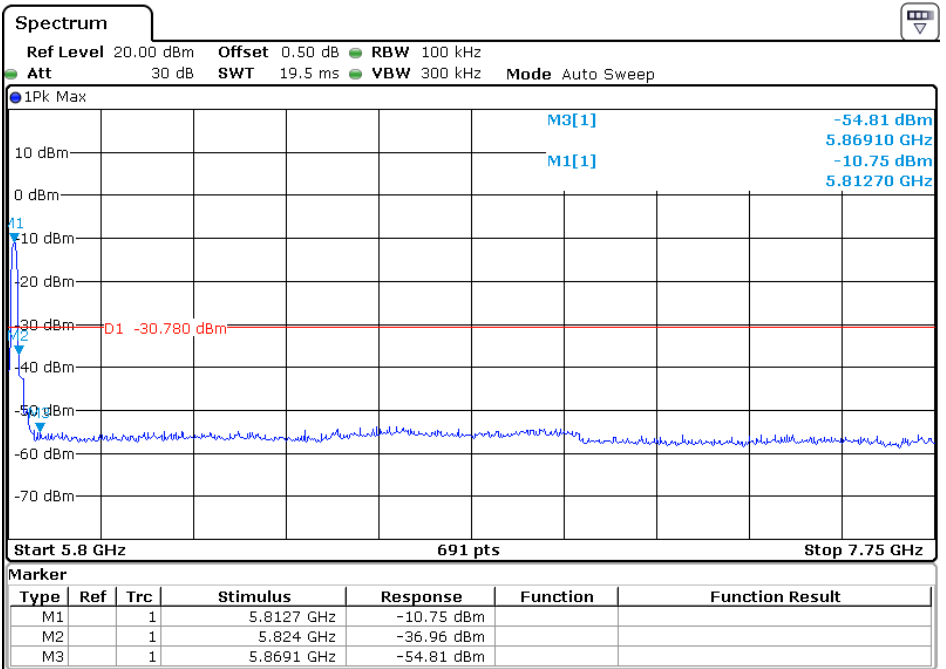
10.5.8. The band edges were measured and recorded.

10.6. Test Result: PASS.

## Antenna A test plot



Antenna B test plot





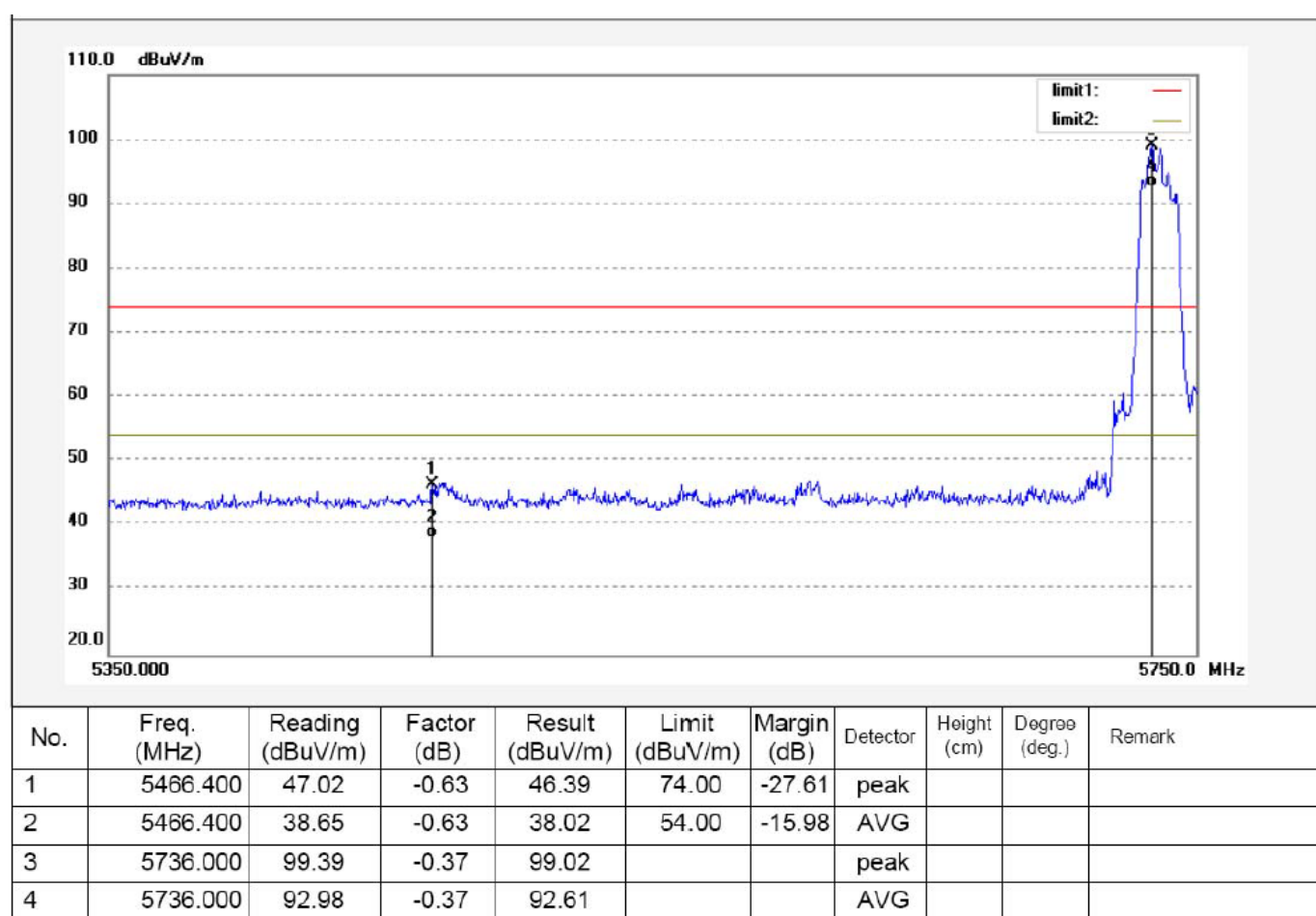
## Radiated Band Edge Result

Note:

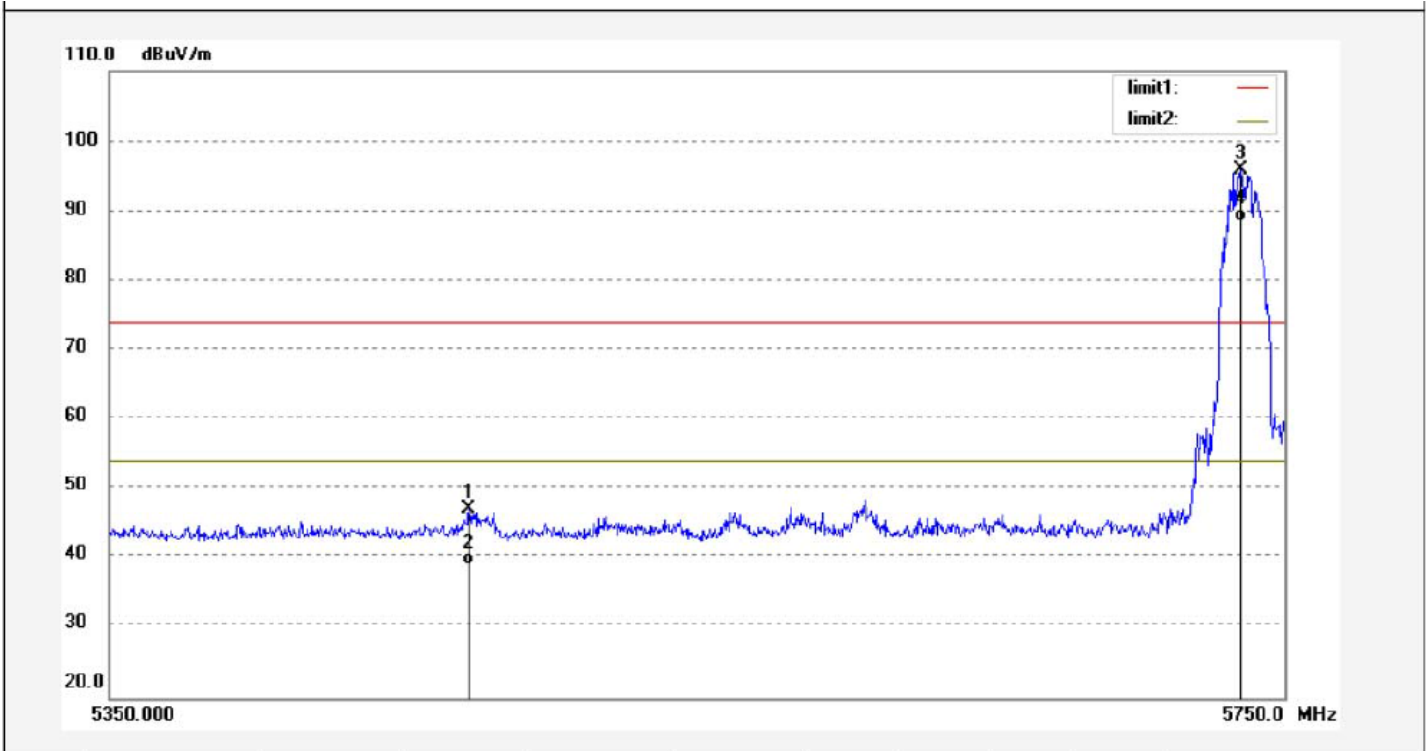
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. we tested radiated band edge of Antenna A and Antenna B, The following test data is the worst case(Antenna A) data which I have recorded
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |

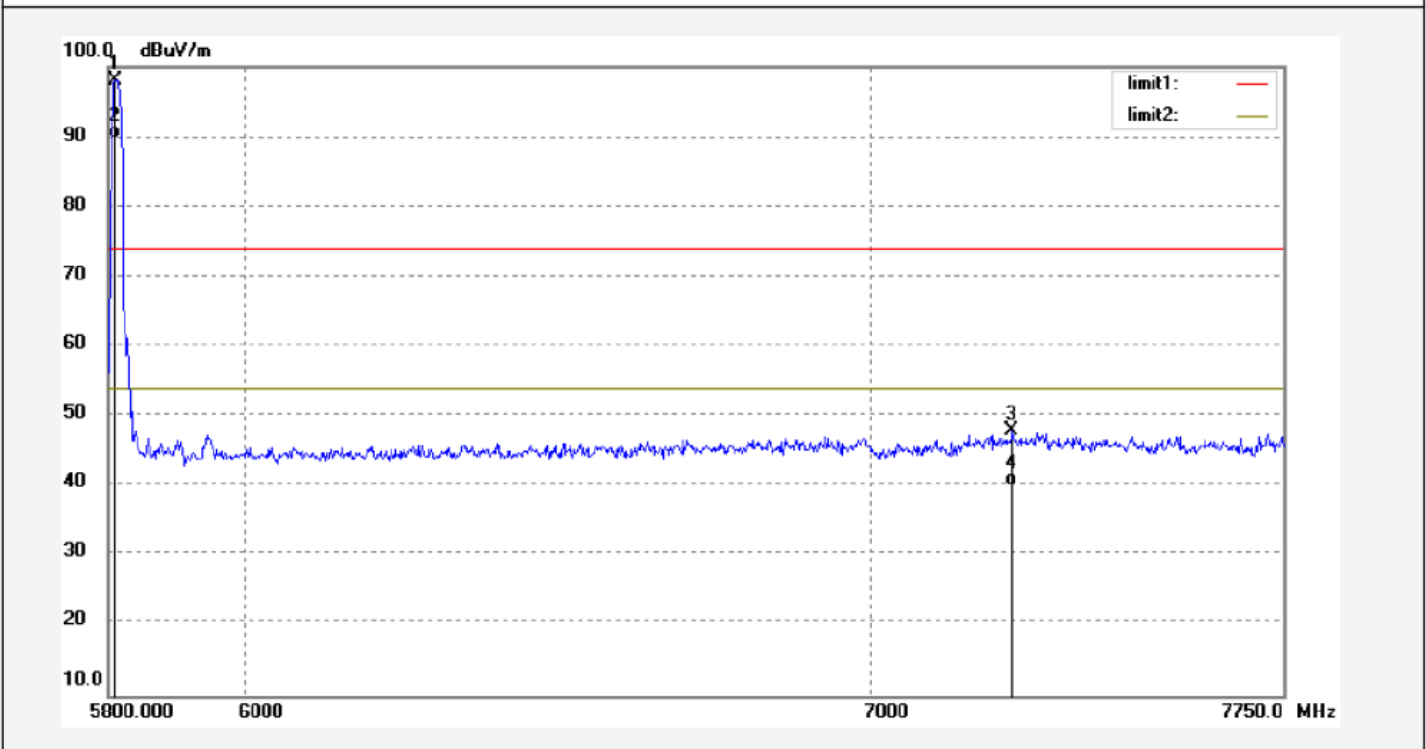


|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |



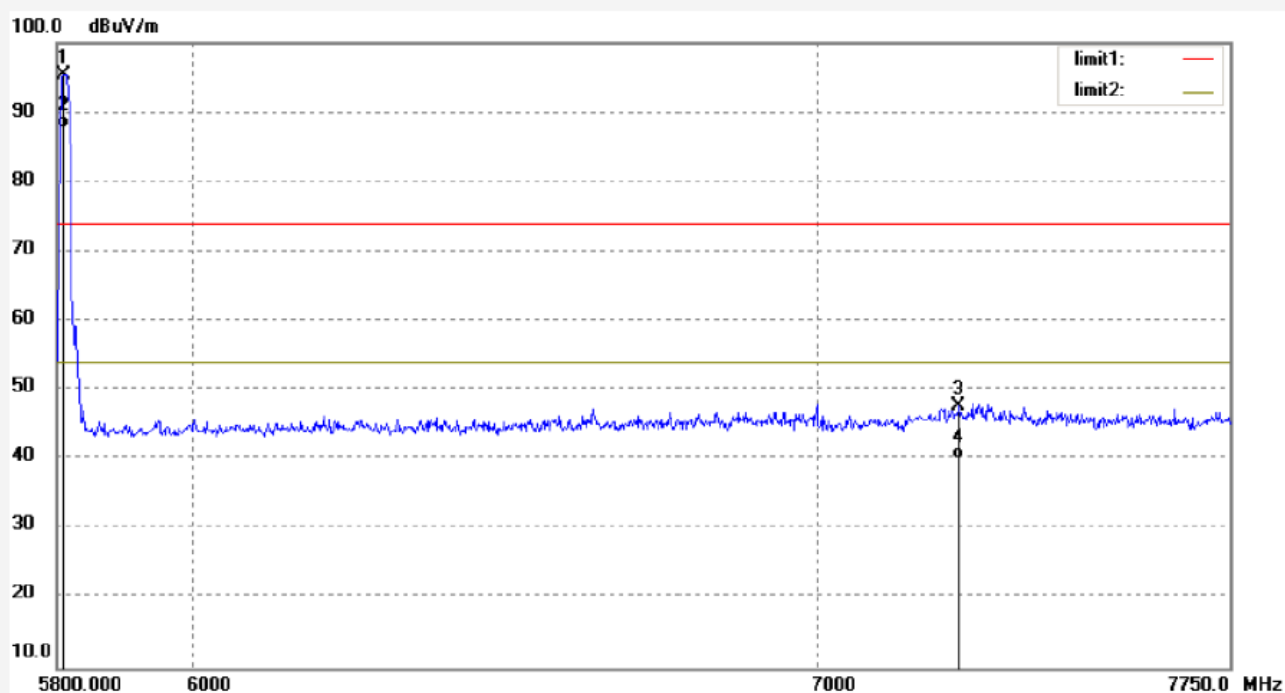
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 5469.600    | 47.71            | -0.62       | 47.09           | 74.00          | -26.91      | peak     |             |               |        |
| 2   | 5469.600    | 39.56            | -0.62       | 38.94           | 54.00          | -15.06      | AVG      |             |               |        |
| 3   | 5736.000    | 96.26            | -0.36       | 95.90           |                |             | peak     |             |               |        |
| 4   | 5736.000    | 88.78            | -0.36       | 88.42           |                |             | AVG      |             |               |        |

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 5814.000    | 98.43            | -0.29       | 98.14           |                |             | peak     |             |               |        |
| 2   | 5814.000    | 90.10            | -0.29       | 89.81           |                |             | AVG      |             |               |        |
| 3   | 7248.850    | 46.50            | 1.33        | 47.83           | 74.00          | -26.17      | peak     |             |               |        |
| 4   | 7248.850    | 38.65            | 1.33        | 39.98           | 54.00          | -14.02      | AVG      |             |               |        |

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C/ 51.6%      | Test date: | 2016-11-25         |



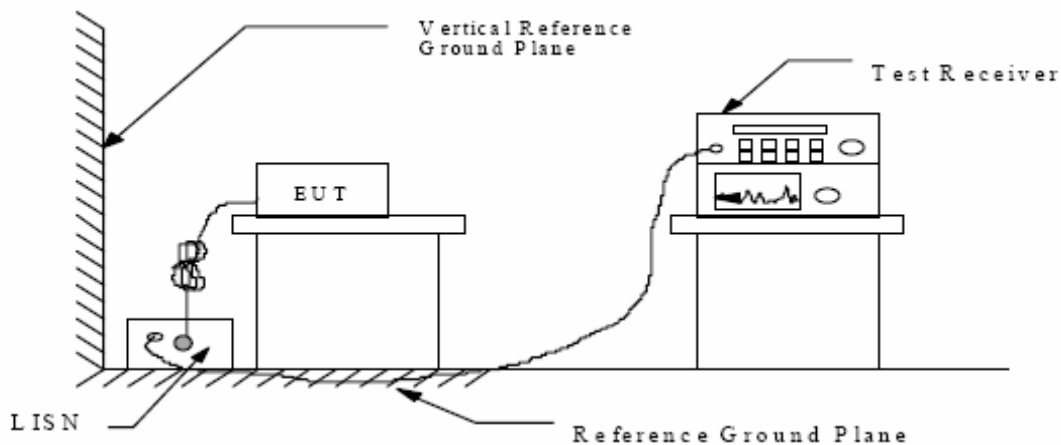
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 5814.000    | 95.73            | -0.29       | 95.44           |                |             | peak     |             |               |        |
| 2   | 5814.000    | 87.98            | -0.29       | 87.69           |                |             | AVG      |             |               |        |
| 3   | 7248.850    | 46.42            | 1.33        | 47.75           | 74.00          | -26.25      | peak     |             |               |        |
| 4   | 7248.850    | 38.69            | 1.33        | 40.02           | 54.00          | -13.98      | AVG      |             |               |        |

## AC POWER LINE CONDUCTED EMISSION FOR FCC PART

### 15 SECTION 15.207(A)

#### 11.1. Block Diagram of Test Setup

Shielding Room Test Setup Diagram



#### 11.2. The Emission Limit

Conducted Emission Measurement Limits According to Section 15.207(a)

| Frequency<br>(MHz) | Limit dB( $\mu$ V) |               |
|--------------------|--------------------|---------------|
|                    | Quasi-peak Level   | Average Level |
| 0.15 - 0.50        | 66.0 – 56.0 *      | 56.0 – 46.0 * |
| 0.50 - 5.00        | 56.0               | 46.0          |
| 5.00 - 30.00       | 60.0               | 50.0          |

\* Decreases with the logarithm of the frequency.

### 11.3.Configuration of EUT on Measurement

The equipment is installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 11.4.Operating Condition of EUT

#### 11.4.1 Setup the EUT and simulator as shown as

Section 11.1.

#### 11.4.2. Turn on the power of all equipment.

#### 11.4.3. Let the EUT work in Test mode measure it.

### 11.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.).

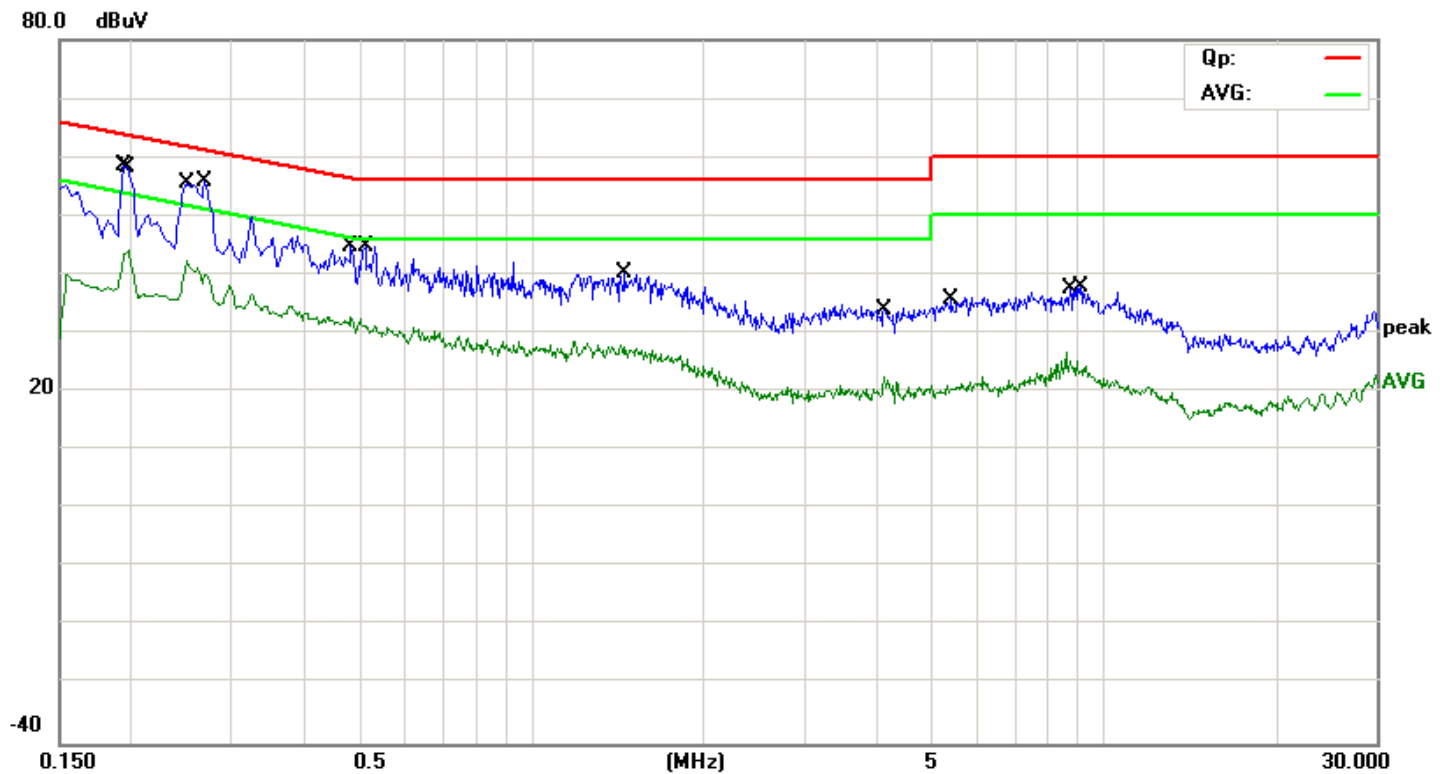
This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz. The frequency

range from 150 kHz to 30MHz is checked.

### 11.6. Power Line Conducted Emission Measurement Results : **PASS.**

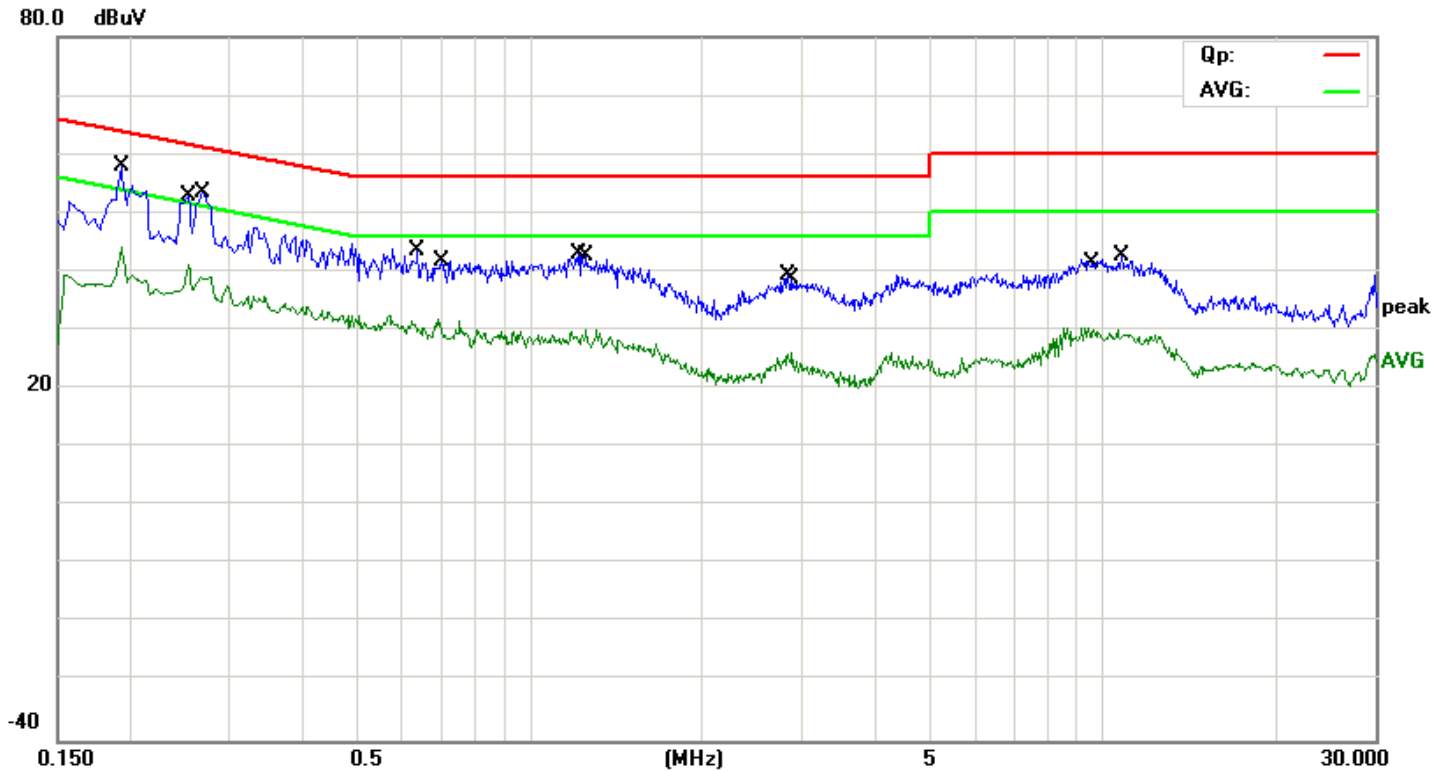
|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C / 51.6%     | Test date: | 2016-11-25         |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   | *   | 0.1940       | 48.99                    | 9.60                    | 58.59                    | 63.86         | -5.27      | QP       |         |
| 2   |     | 0.1980       | 34.64                    | 9.60                    | 44.24                    | 53.69         | -9.45      | AVG      |         |
| 3   |     | 0.2500       | 32.85                    | 9.60                    | 42.45                    | 51.76         | -9.31      | AVG      |         |
| 4   |     | 0.2700       | 46.11                    | 9.60                    | 55.71                    | 61.12         | -5.41      | QP       |         |
| 5   |     | 0.4860       | 23.04                    | 9.59                    | 32.63                    | 46.24         | -13.61     | AVG      |         |
| 6   |     | 0.5140       | 35.30                    | 9.59                    | 44.89                    | 56.00         | -11.11     | QP       |         |
| 7   |     | 1.4380       | 18.44                    | 9.60                    | 28.04                    | 46.00         | -17.96     | AVG      |         |
| 8   |     | 1.4620       | 30.60                    | 9.60                    | 40.20                    | 56.00         | -15.80     | QP       |         |
| 9   |     | 4.1460       | 12.95                    | 9.62                    | 22.57                    | 46.00         | -23.43     | AVG      |         |
| 10  |     | 5.3420       | 25.53                    | 9.63                    | 35.16                    | 60.00         | -24.84     | QP       |         |
| 11  |     | 8.6260       | 16.97                    | 9.67                    | 26.64                    | 50.00         | -23.36     | AVG      |         |
| 12  |     | 9.1380       | 28.26                    | 9.68                    | 37.94                    | 60.00         | -22.06     | QP       |         |

\*:Maximum data    x:Over limit    !:over margin

|                         |                    |            |                    |
|-------------------------|--------------------|------------|--------------------|
| EUT:                    | Monster GLO        | M/N:       | MNGLO-S            |
| Mode:                   | TX5736             | Phase:     | Horizontal         |
| Tested by:              | Windy Hu(Engineer) | Power:     | DC 3.7V by Battery |
| Temperature: / Humidity | 23.7°C / 51.6%     | Test date: | 2016-11-25         |



| No. | Mk. | Freq.   | Reading | Correct | Measure- | Limit | Over   |          |         |
|-----|-----|---------|---------|---------|----------|-------|--------|----------|---------|
|     |     | MHz     | Level   | Factor  | ment     |       |        | Detector | Comment |
|     |     |         | dBuV    | dB      | dBuV     | dBuV  | dB     |          |         |
| 1   | *   | 0.1940  | 48.21   | 9.60    | 57.81    | 63.86 | -6.05  | QP       |         |
| 2   |     | 0.1940  | 34.64   | 9.60    | 44.24    | 53.86 | -9.62  | AVG      |         |
| 3   |     | 0.2540  | 31.61   | 9.60    | 41.21    | 51.63 | -10.42 | AVG      |         |
| 4   |     | 0.2700  | 43.88   | 9.60    | 53.48    | 61.12 | -7.64  | QP       |         |
| 5   |     | 0.6380  | 33.95   | 9.59    | 43.54    | 56.00 | -12.46 | QP       |         |
| 6   |     | 0.6900  | 22.31   | 9.60    | 31.91    | 46.00 | -14.09 | AVG      |         |
| 7   |     | 1.2220  | 33.25   | 9.60    | 42.85    | 56.00 | -13.15 | QP       |         |
| 8   |     | 1.2580  | 20.50   | 9.60    | 30.10    | 46.00 | -15.90 | AVG      |         |
| 9   |     | 2.8300  | 29.70   | 9.61    | 39.31    | 56.00 | -16.69 | QP       |         |
| 10  |     | 2.8740  | 16.57   | 9.61    | 26.18    | 46.00 | -19.82 | AVG      |         |
| 11  |     | 9.4620  | 20.71   | 9.68    | 30.39    | 50.00 | -19.61 | AVG      |         |
| 12  |     | 10.8300 | 32.91   | 9.69    | 42.60    | 60.00 | -17.40 | QP       |         |

\*:Maximum data    x:Over limit    !:over margin



## 12.ANTENNA REQUIREMENT

### 12.1.The Requirement

According to Section 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.

### 12.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.

