



# TEST REPORT

## FCC ID: 2ADW7-MDS

Applicant : ShenZhen SumWard Electronics Co.,LTD  
Address : 1st Factory,Hasee industrial park, Beier road, Bantian, Shenzhen

### Equipment Under Test (EUT):

|       |   |  |
|-------|---|--|
| Name  | : | Bluetooth earphone                     |
| Model | : | MDS-800X, MDS-7XXX, MDS-8XXX, MDS-9XXX |

In Accordance with: FCC PART 15, SUBPART C : 2014 (Section 15.247)

Report No : A1841094 05  
Date of Test : December 21- December 27, 2014  
Date of Issue : December 30, 2014  
Tset Result : PASS

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

A handwritten signature in black ink, appearing to read "Mark Zhu".

(Mark Zhu)  
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Alpha Product Testing Laboratory Or test done by Alpha Product Testing Laboratory Approvals in connection with, distribution or use of the product described in this report must be approved by Alpha Product Testing Laboratory Approvals in writing.

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# 1 General Information

## 1.1 Description of Device (EUT)

EUT : Bluetooth earphone

Model No. : MDS-800X, MDS-7XXX, MDS-8XXX, MDS-9XXX

DIFF : Only different in Model No, the other the same. The test model: MDS-800X.

Trade mark :  莫迪·家族  
MODY·FAMILY

Power supply : DC 3.7V from lithium battery.

Radio Technology : Bluetooth 4.0

Operation frequency : 2402-2480MHz

Channel No. : 40 Channels

Modulation : GFSK

Antenna Type : Integrated Antenna, max gain 2.8dBi.

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## 1.2 Description of Test Facility

Alpha Product Testing Laboratory  
Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,  
Bao'an, Shenzhen, China

August 11, 2014 File on Federal Communication Commission  
Registration Number: 203110

July 18, 2014 Certificated by IC  
Registration Number: 12135A

## 2 EMC Equipment List

| Equipment           | Manufacture     | Model No.    | Serial No.        | Cal. Due day | Cal Interval |
|---------------------|-----------------|--------------|-------------------|--------------|--------------|
| 3m Semi-Anechoic    | ETS-LINDGREN    | N/A          | SEL0017           | 2015.01.19   | 1 Year       |
| Spectrum analyzer   | Agilent         | E4407B       | MY49510055        | 2015.01.19   | 1 Year       |
| Receiver            | R&S             | ESCI         | 101165            | 2015.01.19   | 1 Year       |
| Bilog Antenna       | SCHWARZBECK     | VULB 9168    | 9168-438          | 2016.01.21   | 2 Year       |
| Horn Antenna        | SCHWARZBECK     | BBHA 9120 D  | BBHA 9120 D(1201) | 2016.01.21   | 2 Year       |
| Horn Antenna        | SCHWARZBECK     | BBHA 9170    | BBHA 9170 D(1432) | 2016.01.21   | 2 Year       |
| Active Loop Antenna | Beijing Daze    | ZN30900A     | SEL0097           | 2015.01.19   | 1 Year       |
| Cable               | Resenberger     | SUCOFLEX 104 | MY6562/4          | 2015.01.19   | 1 Year       |
| Cable               | Resenberger     | SUCOFLEX 104 | 309972/4          | 2015.01.19   | 1 Year       |
| Cable               | Resenberger     | SUCOFLEX 104 | 329112/4          | 2015.01.19   | 1 Year       |
| Power Meter         | Anritsu         | ML2487A      | 6K00001491        | 2015.01.19   | 1 Year       |
| Power sensor        | Anritsu         | ML2491A      | 32516             | 2015.01.19   | 1 Year       |
| Pre-amplifier       | SCHWARZBECK     | BBV9743      | 9743-019          | 2015.01.19   | 1 Year       |
| Pre-amplifier       | Quietek         | AP-180C      | CHM-0602012       | 2015.01.19   | 1 Year       |
| Test Receiver       | Rohde & Schwarz | ESCI         | 101165            | 2015.01.19   | 1 Year       |
| L.I.S.N.#1          | Schwarzbeck     | NSLK8126     | 8126466           | 2015.01.19   | 1 Year       |
| L.I.S.N.#2          | ROHDE&SCHWARZ   | ENV216       | 101043            | 2015.01.19   | 1 Year       |

### 3 Test Procedure

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50  $\mu$  H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

$$\text{Freq (MHz) METER READING} + \text{ACF} + \text{CABLE} = \text{FS}$$
$$33.20 \text{ dBuV} + 10.36 \text{ dB} + 0.9 \text{ dB} = 44.46 \text{ dBuV/m} @ 3m$$

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.

## 4 Summary of Measurement

### 4.1 Summary of test result

| Test Item   | Test Requirement | Standards Paragraph   | Result     |
|---|------------------|-----------------------|------------|
| Spurious Emission   | FCC PART 15:2014 | Section 15.247&15.209 | Compliance |
| Conduction Emission   | FCC PART 15:2014 | Section 15.207        | Compliance |
| Bandwidth Test  | FCC PART 15:2014 | Section 15.247        | Compliance |
| Peak Power  | FCC PART 15:2014 | Section 15.247        | Compliance |
| Power Density   | FCC PART 15:2014 | Section 15.247        | Compliance |
| Band Edge   | FCC PART 15:2014 | Section 15.247        | Compliance |
| Antenna Requirement   | FCC PART 15:2014 | Section 15.203        | Compliance |
| Note: N/A means this test item is not applicable for this device. |                  |                       |            |

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (Fully charged battery is used during the test)

EUT is configured to transmit continuously (Duty cycle) is 100%, average correction factor =  $20 \log 1 = 0$

### 4.2 Test connection

1, EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was be set into BT TX mode by Bluesuite software before test

**TX Mode:**



### 4.3 Assistant equipment used for test

|              |   |                   |
|--------------|---|-------------------|
| Description  | : | Test PC, Notebook |
| Manufacturer | : | Dell              |
| Model No.    | : | D430              |

### 4.4 Test mode

The test software “CSR.exe” was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

| Tested mode, channel, and data rate information |              |                 |
|---|--------------|-----------------|
| Mode  | Channel      | Frequency (MHz) |
| GFSK  | Low :CH1     | 2402            |
|   | Middle: CH20 | 2440            |
|   | High: CH40   | 2480            |

### 4.5 Test Conditions

|                   |           |
|-------------------|-----------|
| Temperature range | 21-25°C   |
| Humidity range    | 40-75%    |
| Pressure range    | 86-106kPa |

### 4.6 Measurement Uncertainty (95% confidence levels, k=2)

| Item  | MU                 | Remark      |
|---|--------------------|-------------|
| Uncertainty for Power point Conducted Emissions Test                  | 2.42dB             |             |
| Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)   | 2.13 dB            | Polarize: V |
|   | 2.57dB             | Polarize: H |
| Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz) | 3.54dB             | Polarize: V |
|   | 4.1dB              | Polarize: H |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz) | 2.08dB             | Polarize: H |
|   | 2.56dB             | Polarize: V |
| Uncertainty for radio frequency                                       | $1 \times 10^{-9}$ |             |
| Uncertainty for DC and low frequency voltages                         | 0.06%              |             |

## 5 Spurious Emission

### 5.1 Radiation Emission

#### 5.1.1 Radiation Emission Limits(15.209)

| 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                                |

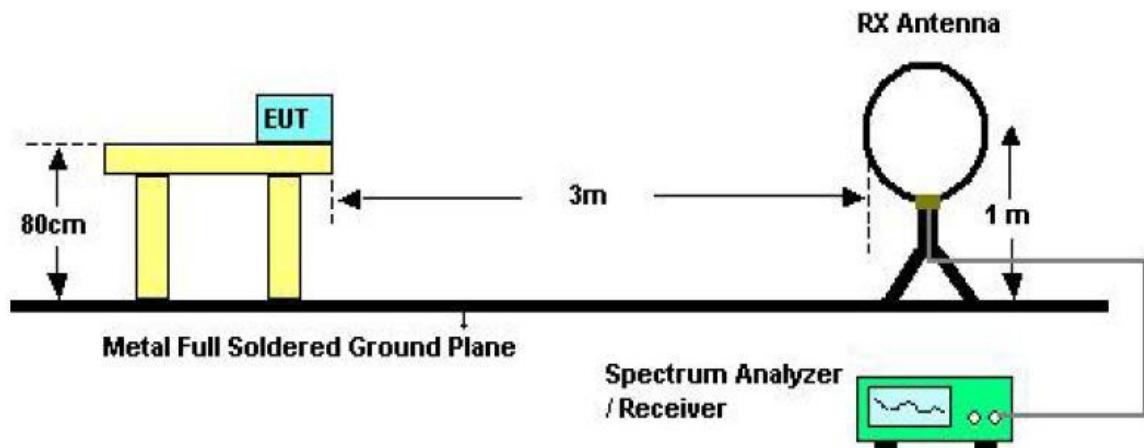
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

**NOTE:**

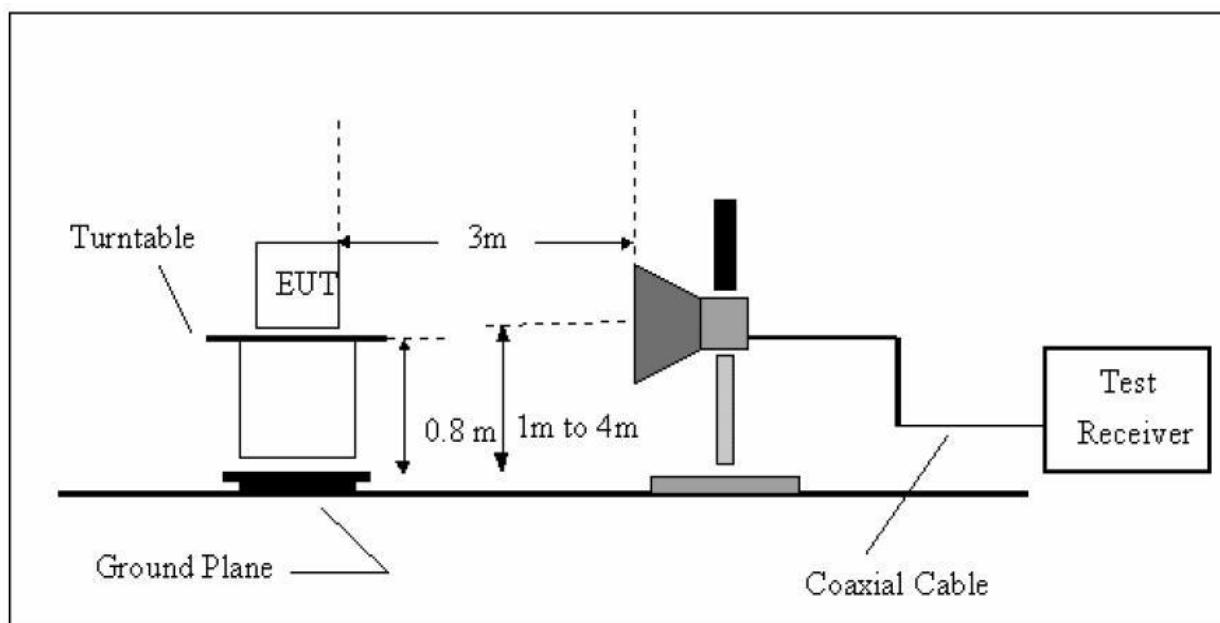
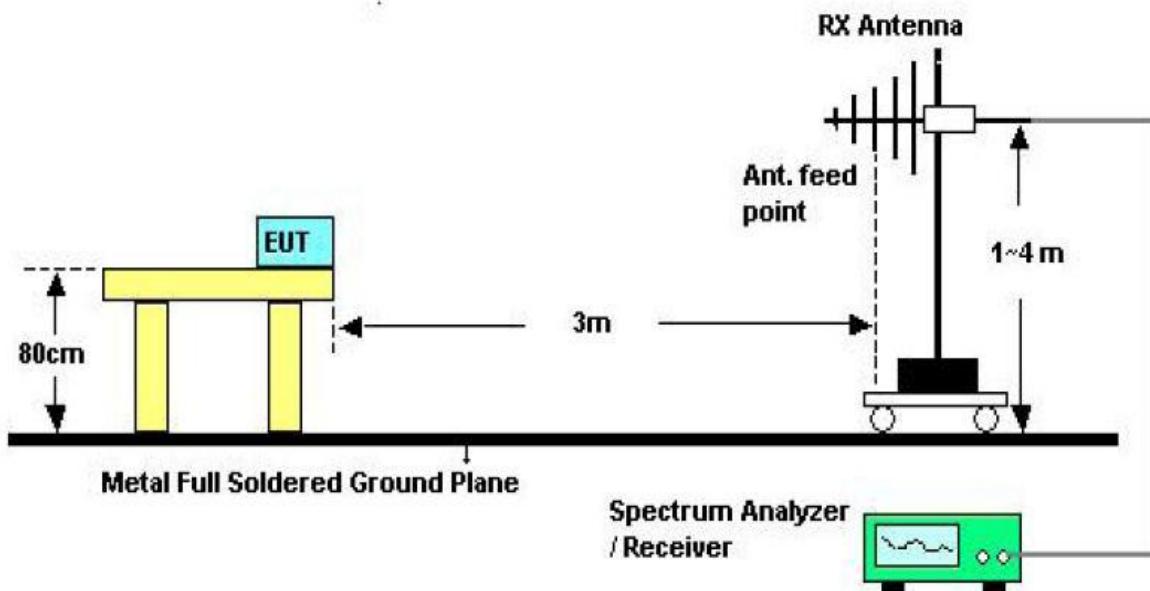
- The tighter limit applies at the band edges.
- Emission Level(dB uV/m)=20log Emission Level(Uv/m)

#### 5.1.2 Test Setup

See the next page



Below 30MHz Test Setup



### 5.1.3 Test Procedure

- a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
- b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
- c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
- d) If Peak value comply with QP limit Below 1GHz. The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
- e) For the actual test configuration, please see the test setup photo.
- f) Test for all x, y, z axes is performed and only the worst case of x axes was recorded in the test report.

### 5.1.4 Test Equipment Setting For emission test Result.

|              |            |            |
|--------------|------------|------------|
| 9KHz~150KHz  | RBW 200Hz  | VBW1KHz    |
| 150KHz~30MHz | RBW 9KHz   | VBW 30KHz  |
| 30MHz~1GHz   | RBW 120KHz | VBW 300KHz |
| Above 1GHz   | RBW 1MHz   | VBW 3MHz   |

### 5.1.5 Test Condition

Continual Transmitting in maximum power.

### 5.1.6 Test Result

We have scanned the 10th harmonic from 9KHz to the EUT.

Detailed information please see the following page.

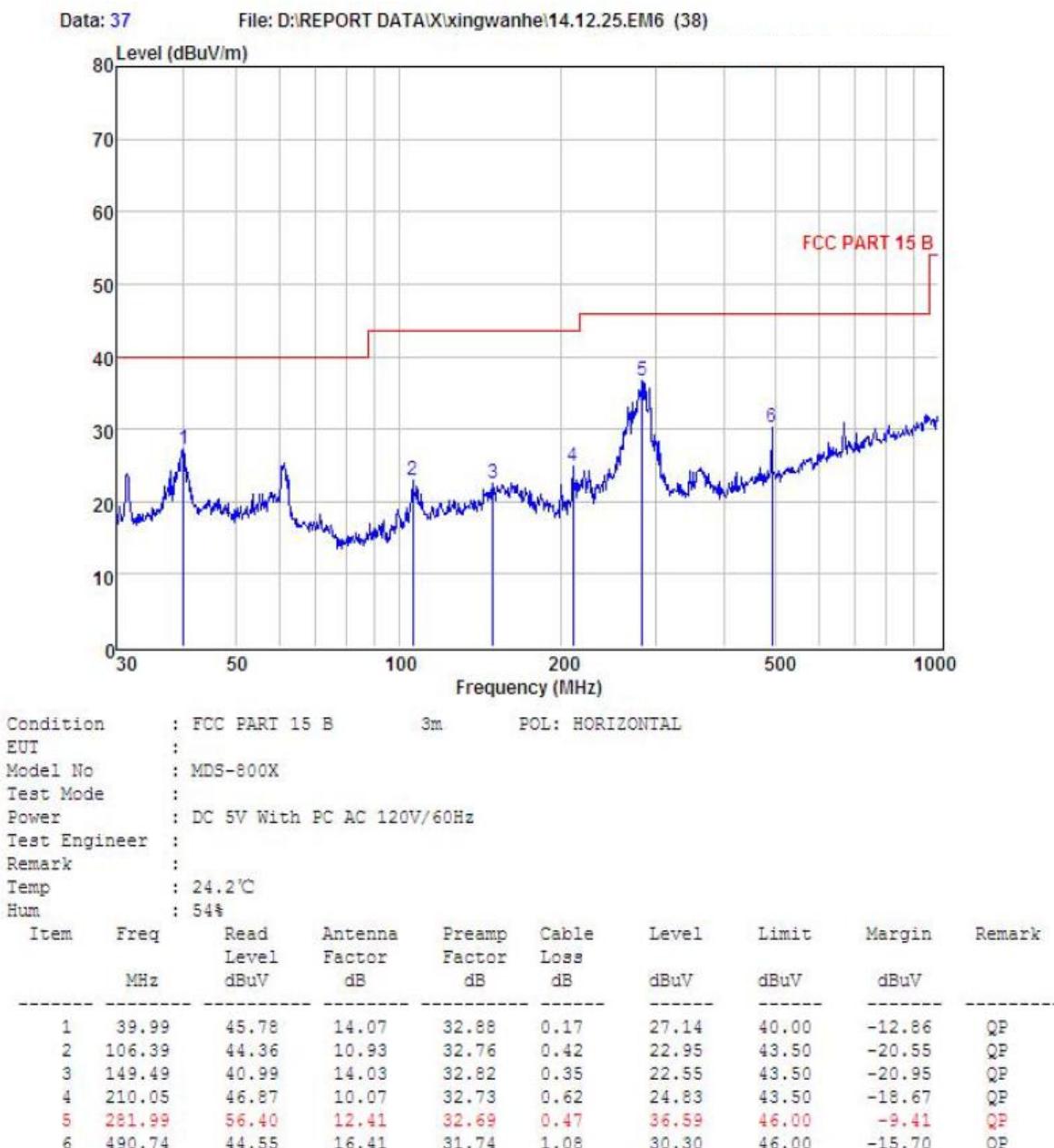
From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

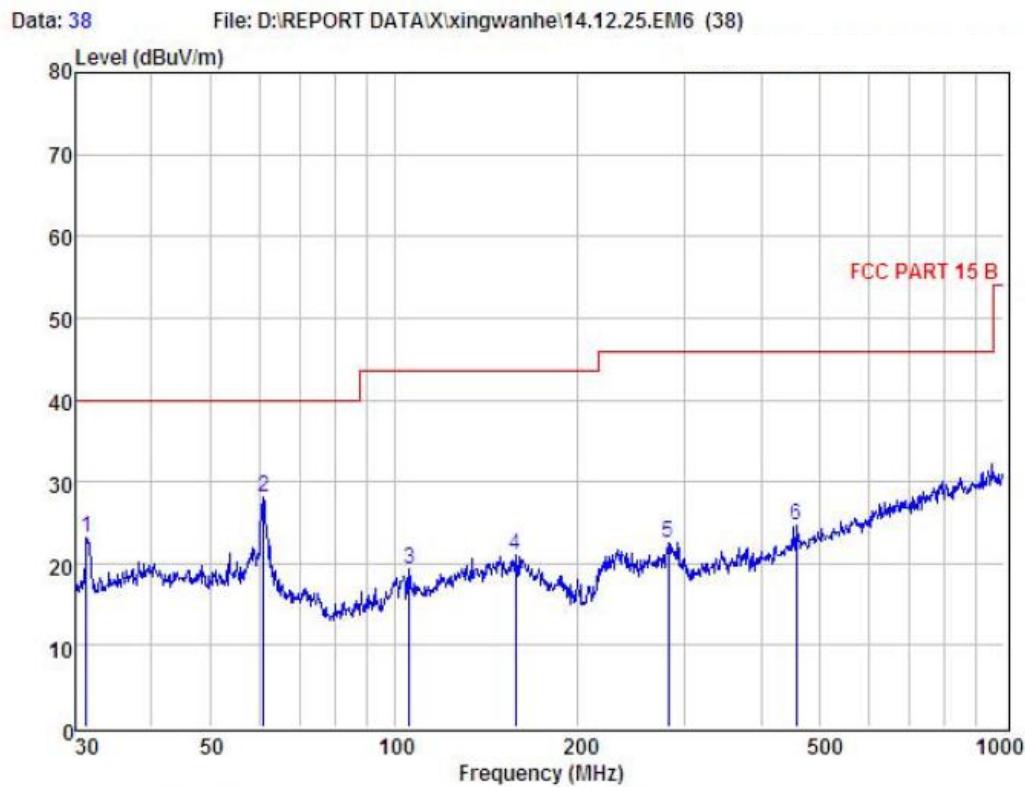
Remark: Only show the test data of the worst Channel in this report, and we found the worst modulation is GFSK (Low Channel CH0)

From 30MHz to 1000MHz: Conclusion: PASS

Horizontal:



Vertical:



Condition : FCC PART 15 B 3m POL: VERTICAL

EUT :

Model No : MDS-800X

Test Mode :

Power : DC 5V With PC AC 120V/60Hz

Test Engineer :

Remark :

Temp : 24.2°C

Hum : 54%

| Item | Freq   | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|------|--------|------------|----------------|---------------|------------|-------|-------|--------|--------|
|      | MHz    | dBuV       | dB             | dB            | dB         | dBuV  | dBuV  | dBuV   |        |
| 1    | 31.29  | 42.58      | 13.28          | 32.75         | 0.07       | 23.18 | 40.00 | -16.82 | QP     |
| 2    | 61.13  | 48.20      | 12.36          | 32.70         | 0.17       | 28.03 | 40.00 | -11.97 | QP     |
| 3    | 106.01 | 40.87      | 10.74          | 32.76         | 0.40       | 19.25 | 43.50 | -24.25 | QP     |
| 4    | 158.11 | 39.20      | 14.14          | 32.81         | 0.39       | 20.92 | 43.50 | -22.58 | QP     |
| 5    | 281.01 | 42.33      | 12.41          | 32.69         | 0.53       | 22.58 | 46.00 | -23.42 | QP     |
| 6    | 455.91 | 39.41      | 16.02          | 32.03         | 1.21       | 24.61 | 46.00 | -21.39 | QP     |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

## Above 1GHz





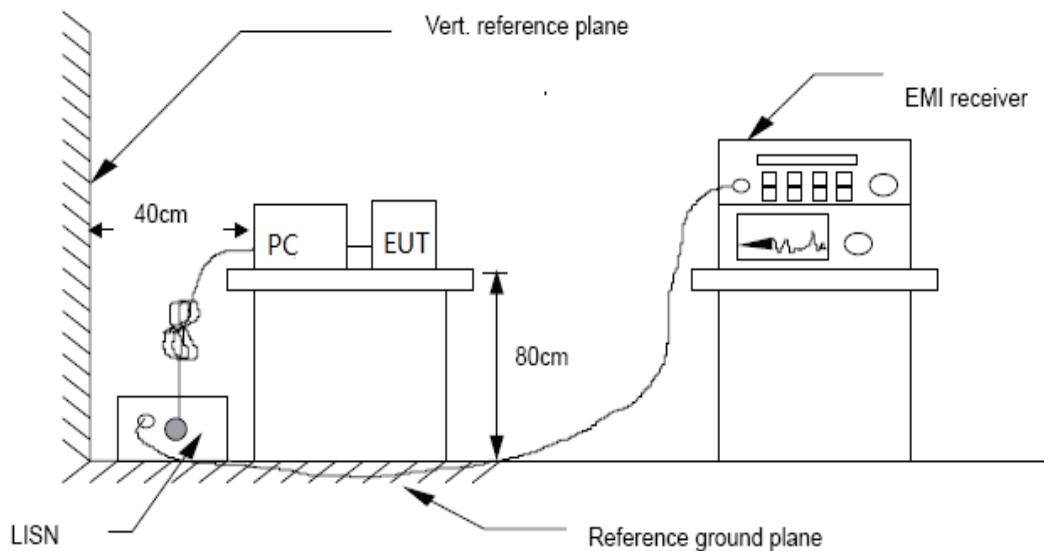
## 6 POWER LINE CONDUCTED EMISSION

### 6.1 Conducted Emission Limits(15.207)

| Frequency<br>MHz | Limits dB( $\mu$ V) |               |
|------------------|---------------------|---------------|
|                  | Quasi-peak Level    | Average Level |
| 0.15 -0.50       | 66 -56*             | 56 - 46*      |
| 0.50 -5.00       | 56                  | 46            |
| 5.00 -30.00      | 60                  | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
 2. The lower limit shall apply at the transition frequencies.  
 3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

### 6.2 Test Setup



### 6.3 Test Procedure

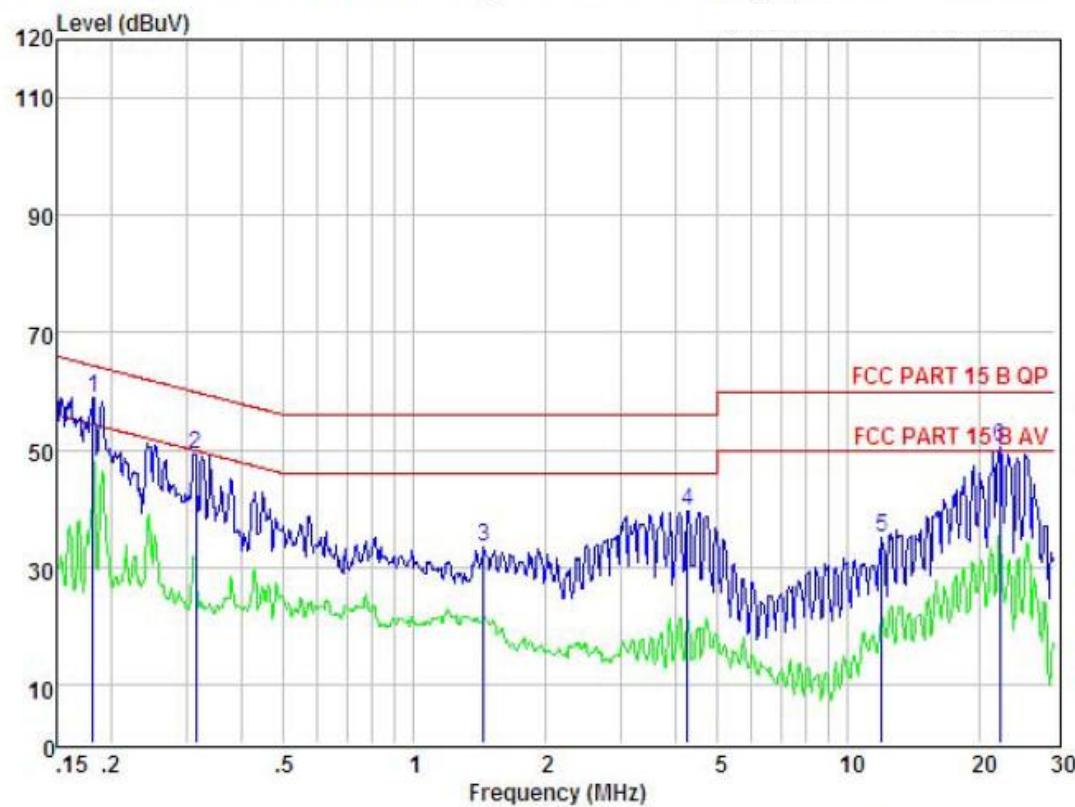
The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both 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 C63.4-2003 on Conducted Emission Measurement.

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

### 6.4 Test Results

PASS. (See below detailed test data)

Data: 13 File: E:\TEST REPORT\XX\XingWanHe\MDS-800X.EM6 (14)



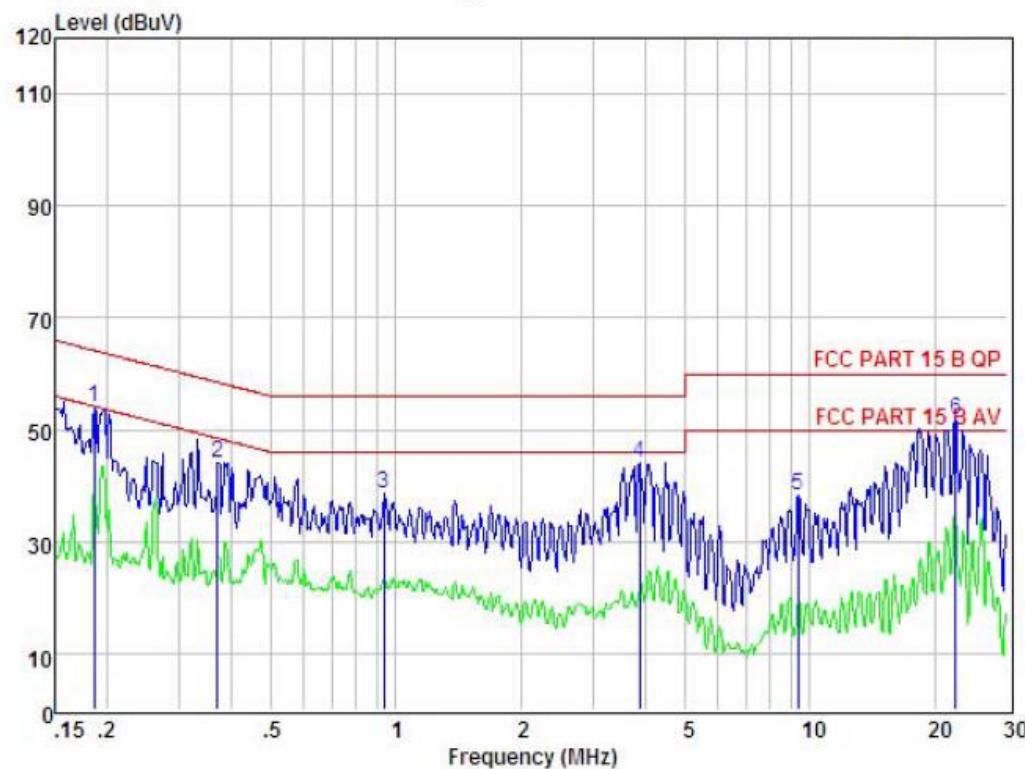
Condition : FCC PART 15 B QP      POL: LINE      Temp:20.1 °C Hum:45 %  
 EUT :  
 Model No : MDS-800X  
 Test Mode : Charging And Link Mode  
 Power : DC 5V From PC With AC 120V/60Hz  
 Test Engineer:  
 Remark :

| Item | Freq   | Read  | LISN   | Preamp | Cable | Level | Limit | Margin | Remark |
|------|--------|-------|--------|--------|-------|-------|-------|--------|--------|
|      |        |       | Factor | Factor | Loss  |       |       |        |        |
|      | MHz    | dBuV  | dB     | dB     | dB    | dBuV  | dBuV  | dBuV   |        |
| 1    | 0.182  | 49.16 | 0.03   | -9.72  | 0.10  | 59.01 | 64.42 | -5.41  | Peak   |
| 2    | 0.313  | 39.43 | 0.03   | -9.72  | 0.10  | 49.28 | 59.88 | -10.60 | Peak   |
| 3    | 1.449  | 23.49 | 0.05   | -9.71  | 0.10  | 33.35 | 56.00 | -22.65 | Peak   |
| 4    | 4.269  | 29.53 | 0.08   | -9.69  | 0.12  | 39.42 | 56.00 | -16.58 | Peak   |
| 5    | 11.996 | 25.27 | 0.26   | -9.46  | 0.22  | 35.21 | 60.00 | -24.79 | Peak   |
| 6    | 22.416 | 40.31 | 0.40   | -9.54  | 0.41  | 50.66 | 60.00 | -9.34  | Peak   |

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

Data: 11

File: E:\TEST REPORT\X\XingWanHe\MD800X.EM6 (14)



Condition : FCC PART 15 B QP      POL: NEUTRAL Temp:20.1 °C Hum:45 %  
 EUT :  
 Model No : MDS-800X  
 Test Mode : Charging And Link Mode  
 Power : DC 5V From PC With AC 120V/60Hz  
 Test Engineer:  
 Remark :

| Item | Freq   | Read  | LISN Factor | Preamp Factor | Cable Lose | Level | Limit | Margin | Remark |
|------|--------|-------|-------------|---------------|------------|-------|-------|--------|--------|
|      | MHz    | dBuV  | dB          | dB            | dB         | dBuV  | dBuV  | dBuV   |        |
| 1    | 0.186  | 44.17 | 0.03        | -9.72         | 0.10       | 54.02 | 64.20 | -10.18 | Peak   |
| 2    | 0.371  | 34.24 | 0.03        | -9.72         | 0.10       | 44.09 | 58.47 | -14.38 | Peak   |
| 3    | 0.933  | 28.68 | 0.04        | -9.71         | 0.10       | 38.53 | 56.00 | -17.47 | Peak   |
| 4    | 3.881  | 34.03 | 0.08        | -9.69         | 0.12       | 43.92 | 56.00 | -12.08 | Peak   |
| 5    | 9.352  | 28.50 | 0.17        | -9.38         | 0.19       | 38.24 | 60.00 | -21.76 | Peak   |
| 6    | 22.535 | 41.37 | 0.41        | -9.54         | 0.41       | 51.73 | 60.00 | -8.27  | Peak   |

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

## 7 Conducted Maximum Output Power

### 7.1 Test limit

Please refer section 15.247.

Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1W(30dBm)

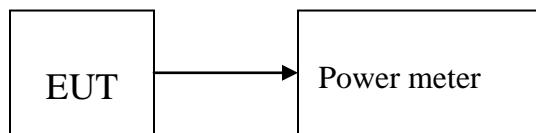
### 7.2 Test Procedure

7.2.1 Connected the EUT's antenna port to peak power meter by 20dB attenuator.

7.2.2 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.  
Details see the KDB558074 D01 DTS Meas Guidance v03r02.

### 7.3 Test Setup



### 7.4 Test Results

#### PASS

Detailed information please see the Below.

| Channel | Frequency (MHz) | PK Output Power (dBm) | PK Output Power (mW) | Limit (dBm) |
|---------|-----------------|-----------------------|----------------------|-------------|
| CH0     | 2402            | -4.68                 | 0.34                 | 30          |
| CH19    | 2440            | -4.55                 | 0.35                 | 30          |
| CH39    | 2480            | -4.39                 | 0.36                 | 30          |

## 8 PEAK POWER SPECTRAL DENSITY

### 8.1 Test limit

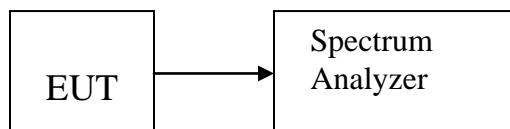
- 8.1.1 Please refer section 15.247.
- 8.1.2 For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
- 8.1.3 The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

### 8.2 Method of measurement

Details see the KDB558074 D01 DTS Meas Guidance v03r02.

- 8.2.1 Place the EUT on the table and set it in transmitting mode.
- 8.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 8.2.3 Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, span=1.5OBW, detail see the test plot.
- 8.2.4 Record the max reading.
- 8.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

### 8.3 Test Setup



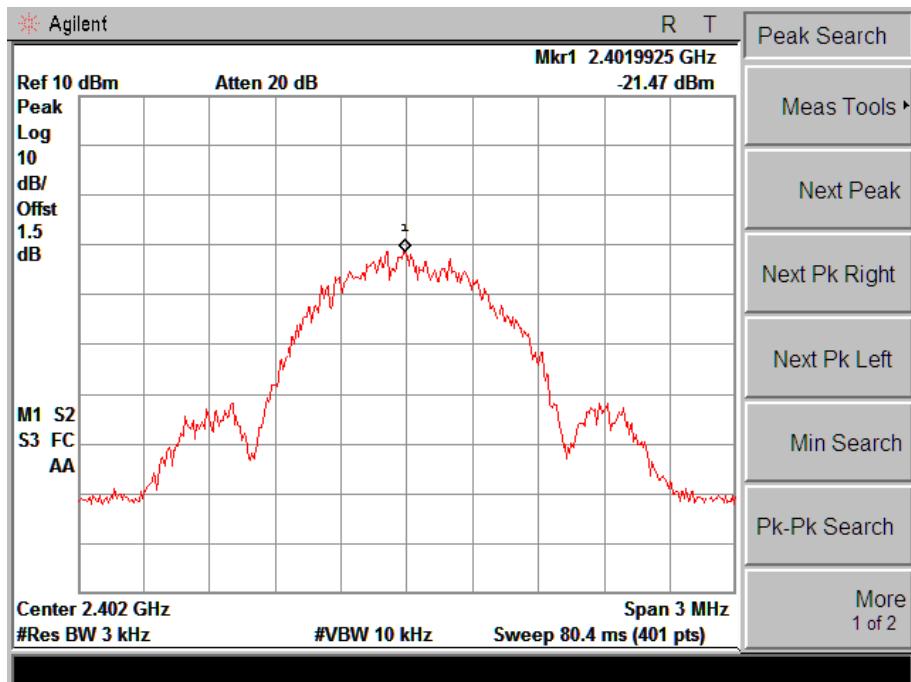
### 8.4 Test Results

PASS.

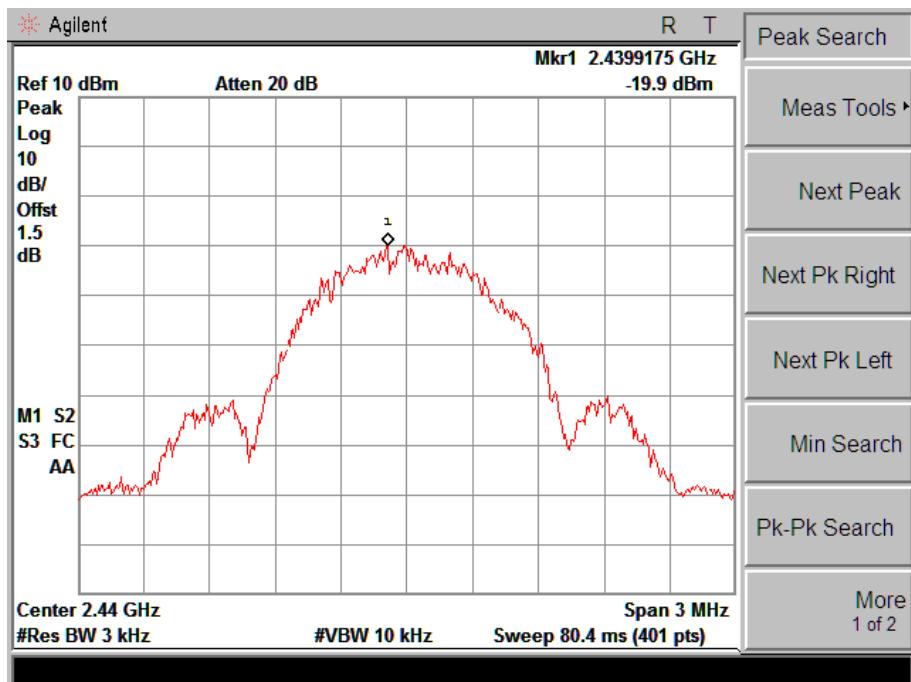
Detailed information please see the following page.

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Result |
|---------|-----------------|-----------------------------------|------------------|--------|
| CH0     | 2402            | -21.47                            | 8                | PASS   |
| CH19    | 2440            | -19.9                             | 8                | PASS   |
| CH39    | 2480            | -19.86                            | 8                | PASS   |

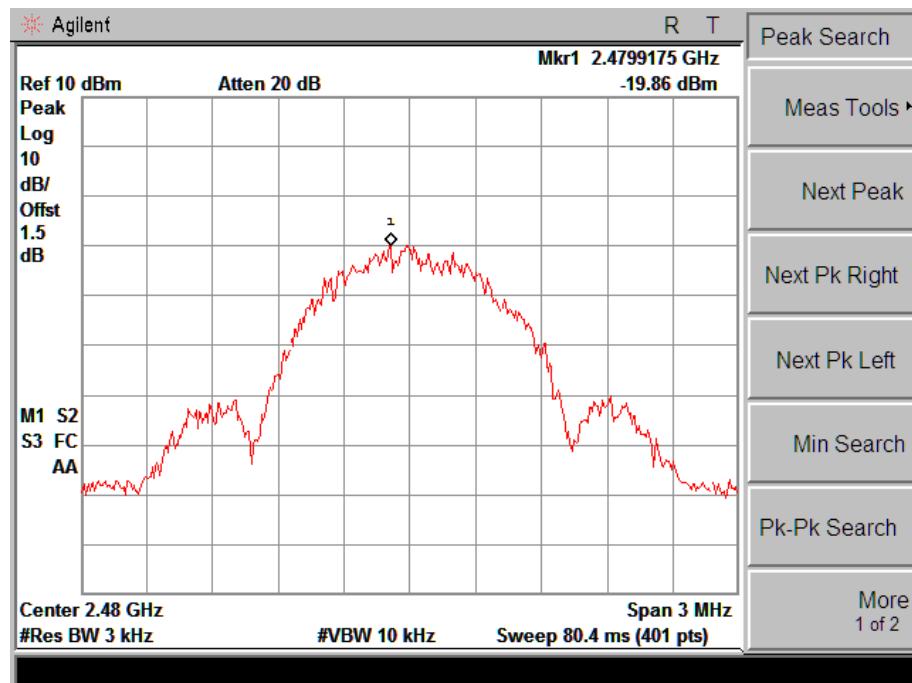
CH Low :



CH Mid :



CH High :



## 9 Bandwidth

### 9.1 Test limit

Please refer section 15.247

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

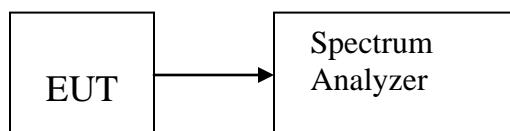
### 9.2 Method of measurement

Details see the KDB558074 D01 DTS Meas Guidance v03r02.

a) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW = 100KHz, VBW  $\geq$  3RBW, Sweep time set auto, detail see the test plot.

### 9.3 Test Setup



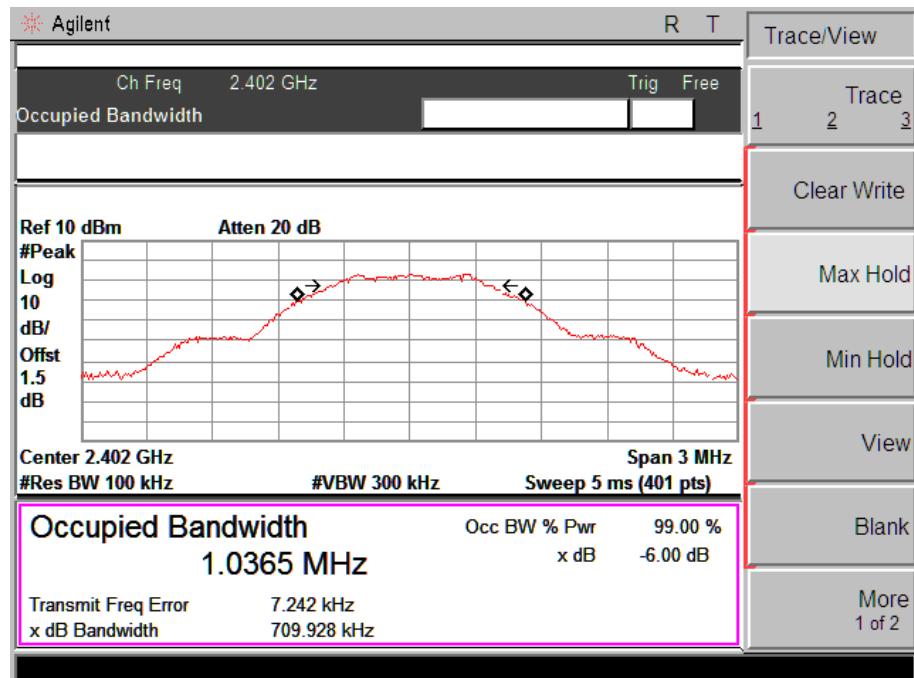
### 9.4 Test Results

PASS.

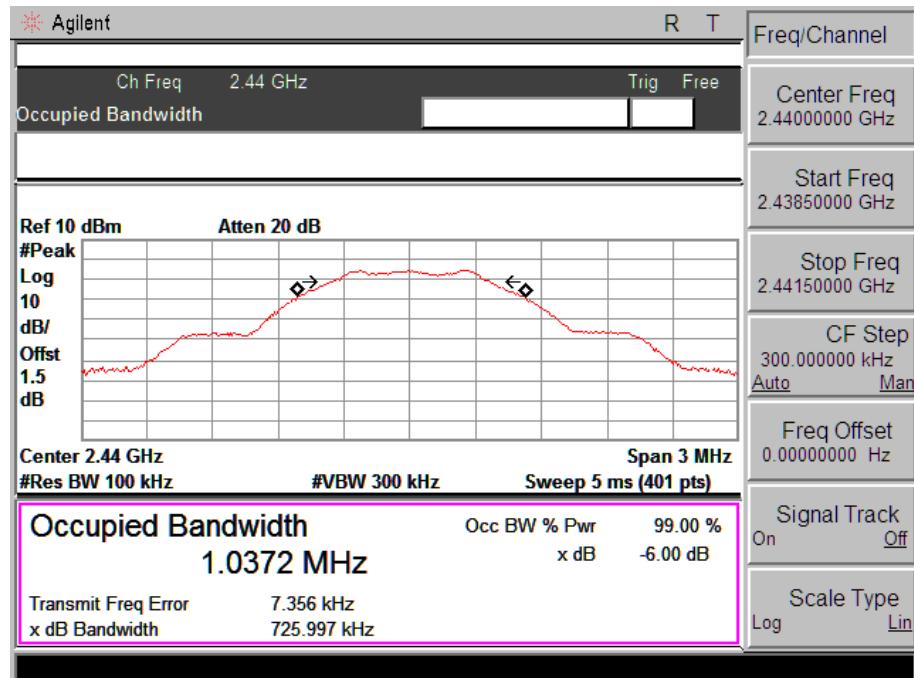
Detailed information please see the following page.

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Result |
|---------|-----------------|---------------------|-------------|--------|
| CH0     | 2402            | 0.710               | 0.5         | PASS   |
| CH19    | 2440            | 0.726               | 0.5         | PASS   |
| CH39    | 2480            | 0.739               | 0.5         | PASS   |

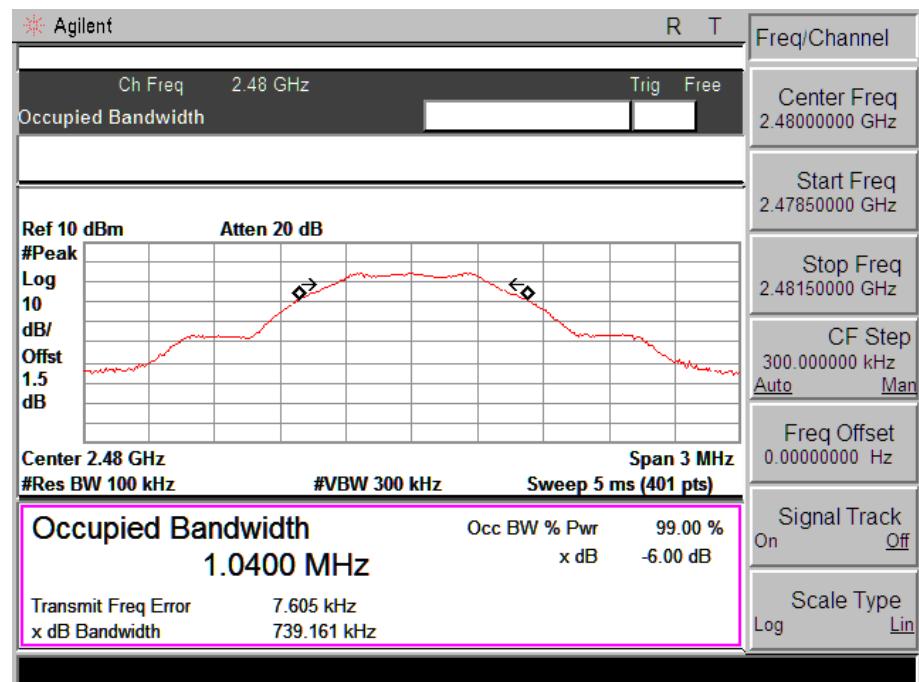
CH Low :



CH Mid :



CH High :



## 10 Band Edge Check

### 10.1 Test limit

Please refer section 15.247

All the lower and upper band-edges emissions appearing within restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

### 10.2 Test Procedure

12.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

12.2.2 Check the spurious emissions out of band.

12.2.3 RBW, VBW Setting, please see the following test plot.

### 10.3 Test Setup

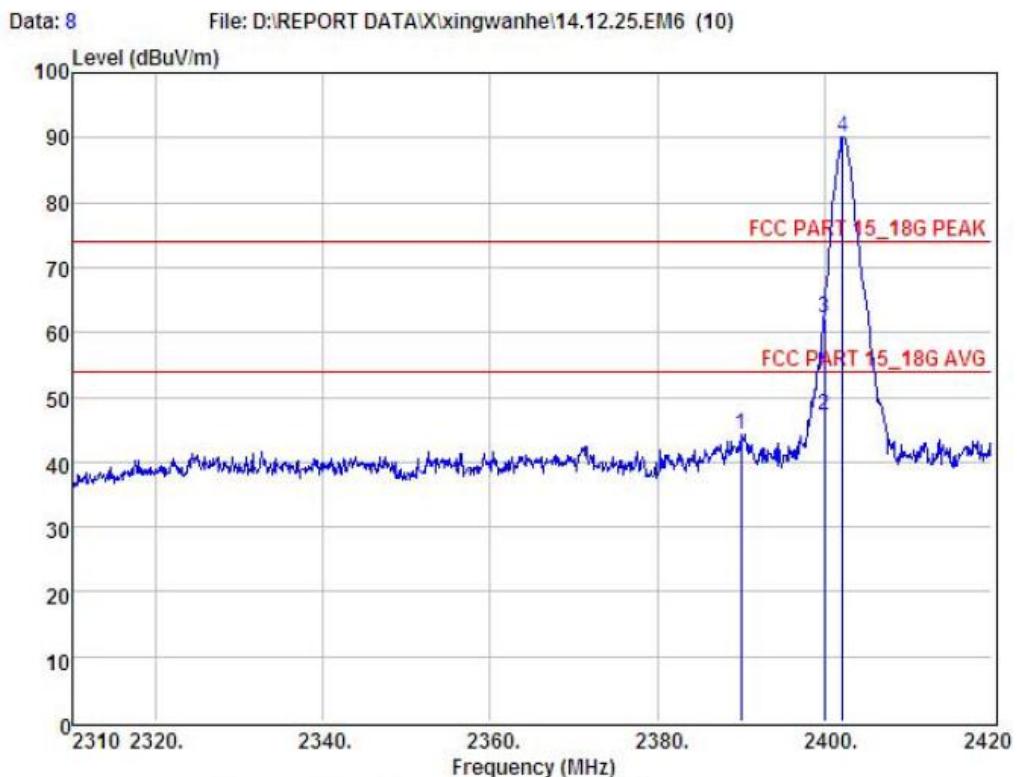
Same as 5.2.2.

### 10.4 Test Result

PASS.

Detailed information please see the following page.

## CH LOW :



Condition : FCC PART 15\_18G PEAK 3m POL: HORIZONTAL

EUT :

Model No :

Test Mode : GFSK 2402MHz

Power :

Test Engineer :

Remark :

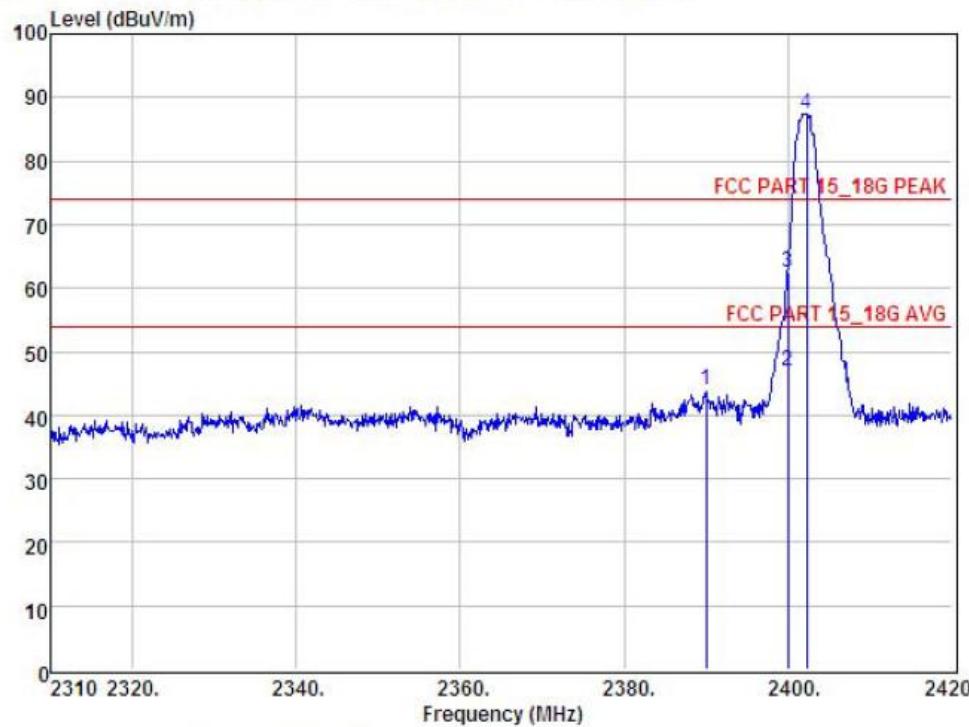
Temp :

Hum :

| Item | Freq    | Read  | Antenna | Preamp | Cable | Level | Limit | Margin | Remark  |
|------|---------|-------|---------|--------|-------|-------|-------|--------|---------|
|      |         | Level | Factor  | Factor | Loss  | dBuV  | dBuV  | dBuV   |         |
|      | MHz     | dBuV  | dB      | dB     | dB    |       |       |        |         |
| 1    | 2390.00 | 47.67 | 27.62   | 34.97  | 3.92  | 44.24 | 74.00 | -29.76 | Peak    |
| 2    | 2400.00 | 50.49 | 27.62   | 34.97  | 3.94  | 47.08 | 54.00 | -6.92  | Average |
| 3    | 2400.00 | 65.49 | 27.62   | 34.97  | 3.94  | 62.08 | 74.00 | -11.92 | Peak    |
| 4    | 2402.18 | 93.47 | 27.62   | 34.97  | 3.94  | 90.06 | 74.00 | 16.06  | Peak    |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Data: 7 File: D:\REPORT DATA\X\xingwanhe\14.12.25.EM6 (10)



Condition : FCC PART 15\_18G PEAK 3m POL: VERTICAL

EUT :

Model No :

Test Mode : GFSK 2402MHz

Power :

Test Engineer :

Remark :

Temp :

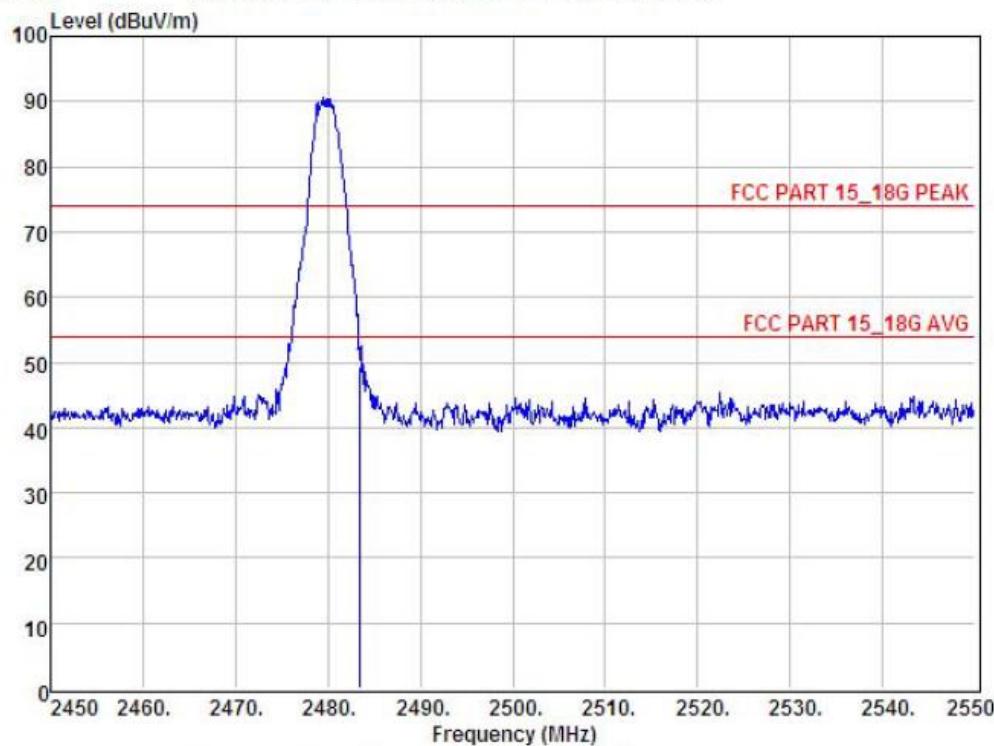
Hum :

| Item | Freq    | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark  |
|------|---------|------------|----------------|---------------|------------|-------|-------|--------|---------|
|      | MHz     | dBuV       | dB             | dB            | dB         | dBuV  | dBuV  | dBuV   |         |
| 1    | 2390.00 | 47.36      | 27.62          | 34.97         | 3.92       | 43.93 | 74.00 | -30.07 | Peak    |
| 2    | 2400.00 | 50.26      | 27.62          | 34.97         | 3.94       | 46.85 | 54.00 | -7.15  | Average |
| 3    | 2400.00 | 65.93      | 27.62          | 34.97         | 3.94       | 62.52 | 74.00 | -11.48 | Peak    |
| 4    | 2402.29 | 90.88      | 27.62          | 34.97         | 3.94       | 87.47 | 74.00 | 13.47  | Peak    |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

## CH High :

Data: 9 File: D:\REPORT DATA\X\xingwanhe\14.12.25.EM6 (10)



Condition : FCC PART 15\_18G PEAK 3m POL: HORIZONTAL

EUT :

Model No :

Test Mode : GFSK 2480MHz

Power :

Test Engineer :

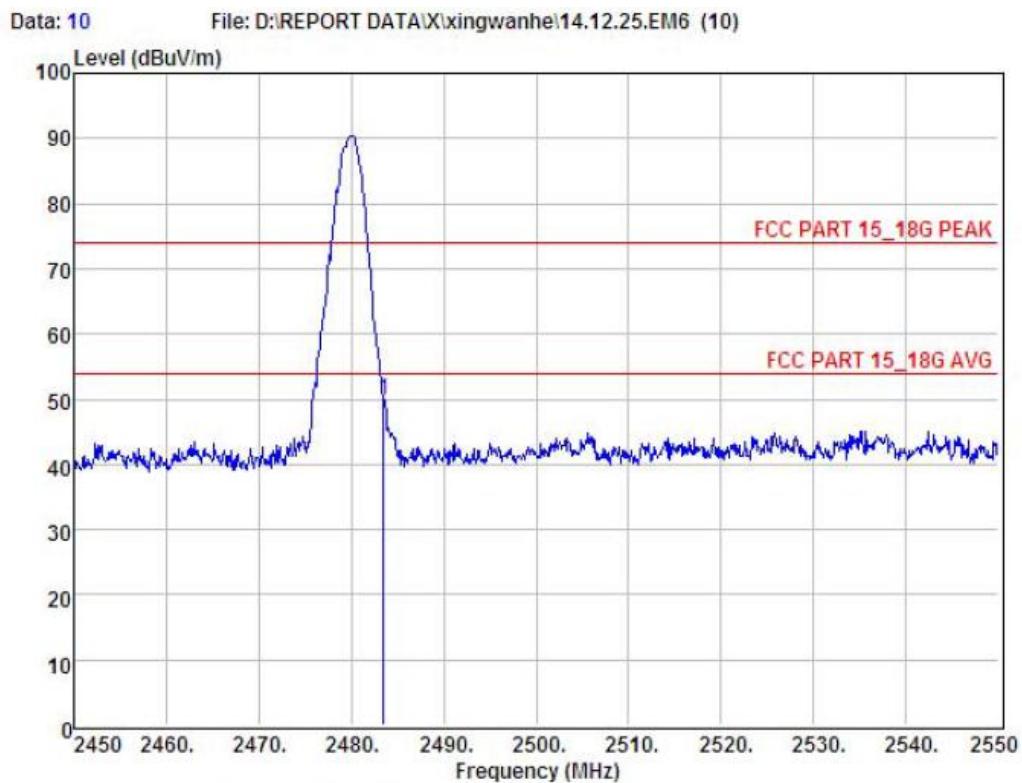
Remark :

Temp :

Hum :

| Item | Freq    | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|------|---------|------------|----------------|---------------|------------|-------|-------|--------|--------|
|      | MHz     | dBuV       | dB             | dB            | dB         | dBuV  | dBuV  | dBuV   |        |
| 1    | 2483.50 | 52.67      | 27.59          | 34.97         | 4.00       | 49.29 | 74.00 | -24.71 | Peak   |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



| Condition     | :       | FCC PART 15_18G PEAK 3m | POL: VERTICAL        |                     |                  |               |               |                |        |
|---------------|---------|-------------------------|----------------------|---------------------|------------------|---------------|---------------|----------------|--------|
| EUT           | :       |                         |                      |                     |                  |               |               |                |        |
| Model No      | :       |                         |                      |                     |                  |               |               |                |        |
| Test Mode     | :       | GFSK 2480MHz            |                      |                     |                  |               |               |                |        |
| Power         | :       |                         |                      |                     |                  |               |               |                |        |
| Test Engineer | :       |                         |                      |                     |                  |               |               |                |        |
| Remark        | :       |                         |                      |                     |                  |               |               |                |        |
| Temp          | :       |                         |                      |                     |                  |               |               |                |        |
| Hum           | :       |                         |                      |                     |                  |               |               |                |        |
| Item          | Freq    | Read Level<br>MHz       | Antenna Factor<br>dB | Preamp Factor<br>dB | Cable Loss<br>dB | Level<br>dBuV | Limit<br>dBuV | Margin<br>dBuV | Remark |
| 1             | 2483.50 | 53.37                   | 27.59                | 34.97               | 4.00             | 49.99         | 74.00         | -24.01         | Peak   |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

## 11 Antenna Requirement

### 11.1 Standard Requirement

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

### 11.2 Antenna Connected Construction

The directional gains of antenna used for transmitting is 2.8dBi, and de-signed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

### 11.3 Result

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

## 12 Photographs of Test Setup

### 4.7 Photos of Radiated emission



#### 4.8 Photos of Conducted Emission test

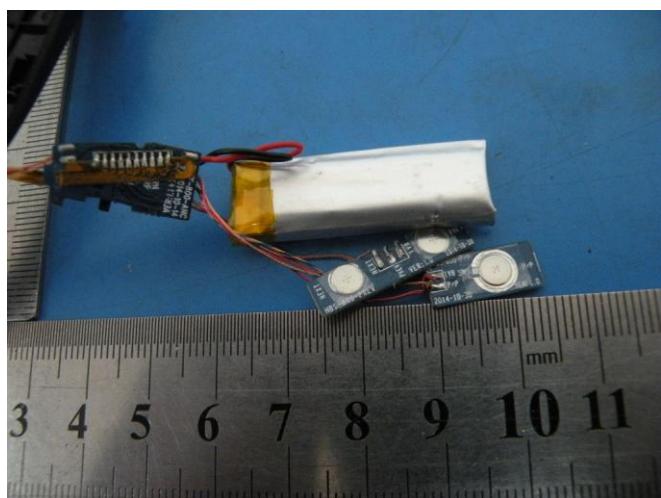


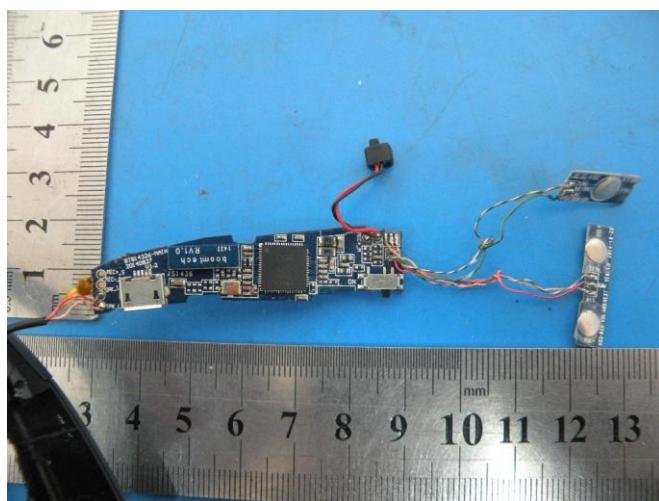
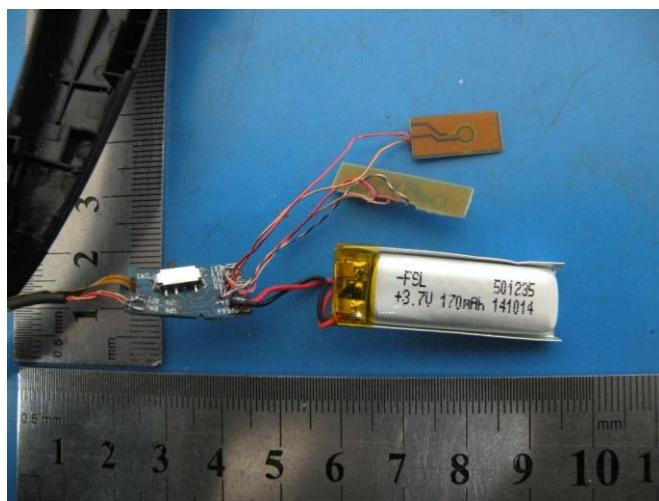
## 13 Photographs of EUT

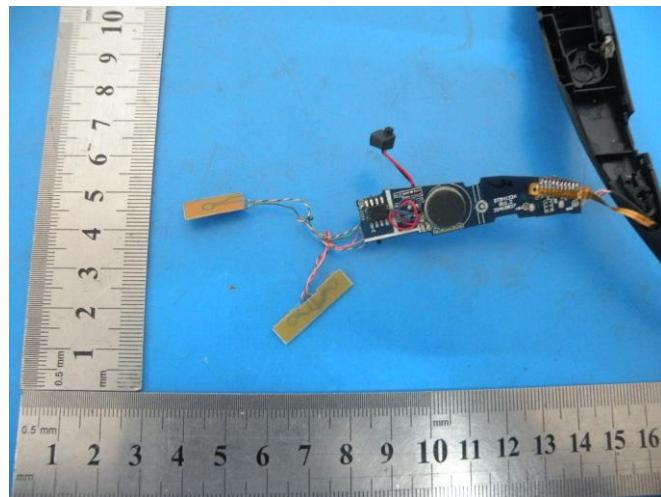












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