

|                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                         |                                                                                     |                      |                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------|
| <b>Prüfbericht-Nr.:</b><br>Test Report No.:                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>15076665 001</b>                                                                                                                                                                                                     | <b>Auftrags-Nr.:</b><br>Order No.:                                                  | <b>154068107</b>     | Seite 1 von 59<br>Page 1 of 59            |
| <b>Kunden-Referenz-Nr.:</b><br>Client Reference No.:                                                                                                                                                                                                                                                                                                                                                                                                        | <b>614156</b>                                                                                                                                                                                                           | <b>Auftragsdatum:</b><br>Order date:                                                | <b>30.09.2014</b>    |                                           |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                             | Sky Innovation Technology (Shanghai) Limited Room 913, No.2016-2018(even numbers) Yishan Rd. Minhang District, Shanghai, China                                                                                          |                                                                                     |                      |                                           |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                        | Automatic Electronic Blood Pressure Monitor                                                                                                                                                                             |                                                                                     |                      |                                           |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type No.:                                                                                                                                                                                                                                                                                                                                                                                                 | XM-01<br>FCC ID: 2ADZAXM01A01                                                                                                                                                                                           |                                                                                     |                      |                                           |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                                   | Complete test                                                                                                                                                                                                           |                                                                                     |                      |                                           |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                                | FCC CFR47 Part 15, Subpart C<br>ANSI C63.4-2009<br>KDB 558074 D01 DTS Meas Guidance v03r02<br>Public Notice DA 00-705: Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems (March 30, 2000) |                                                                                     |                      |                                           |
| <b>Wareneingangsdatum:</b><br>Date of receipt:                                                                                                                                                                                                                                                                                                                                                                                                              | <b>30.09.2014</b>                                                                                                                                                                                                       |  |                      |                                           |
| <b>Prüfmuster-Nr.:</b><br>Test sample No.:                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>A00123343-001</b>                                                                                                                                                                                                    |                                                                                     |                      |                                           |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>20.10.2014 – 31.10.2014</b>                                                                                                                                                                                          |                                                                                     |                      |                                           |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                                | <b>MRT Technology (Suzhou) Co., Ltd.</b>                                                                                                                                                                                |                                                                                     |                      |                                           |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                             | <b>TÜV Rheinland (Shanghai) Co., Ltd.</b>                                                                                                                                                                               |                                                                                     |                      |                                           |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Pass</b>                                                                                                                                                                                                             |                                                                                     |                      |                                           |
| <b>geprüft von / tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                         | <b>kontrolliert von / reviewed by:</b>                                              |                      |                                           |
| 03.11.2014 Adrian Shi / PE                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                         | 03.11.2014 Shi Li / Reviewer                                                        |                      |                                           |
| <b>Datum</b><br>Date                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Name / Stellung</b><br>Name / Position                                                                                                                                                                               | <b>Unterschrift</b><br>Signature                                                    | <b>Datum</b><br>Date | <b>Name / Stellung</b><br>Name / Position |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                         |                                                                                     |                      |                                           |
| <b>Sonstiges / Other:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                         |                                                                                     |                      |                                           |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                         | <b>Prüfmuster vollständig und unbeschädigt</b><br>Test item complete and undamaged  |                      |                                           |
| <p>* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft<br/>P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet</p> <p>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor<br/>P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p>              |                                                                                                                                                                                                                         |                                                                                     |                      |                                           |
| <p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br/>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</p> |                                                                                                                                                                                                                         |                                                                                     |                      |                                           |

VD4

## TEST SUMMARY

**5.1.1 ANTENNA REQUIREMENT***RESULT: Pass***5.1.2 PEAK OUTPUT POWER***RESULT: Pass***5.1.3 20dB BANDWIDTH AND 99% BANDWIDTH***RESULT: Pass***5.1.4 6dB BANDWIDTH AND 99% BANDWIDTH***RESULT: Pass***5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100KHz BANDWIDTH***RESULT: Pass***5.1.6 POWER SPECTRAL DENSITY***RESULT: Pass***5.1.7 SPURIOUS EMISSION***RESULT: Pass***5.1.8 FREQUENCY SEPARATION***RESULT: Pass***5.1.9 NUMBER OF HOPPING FREQUENCY***RESULT: Pass***5.1.10 TIME OF OCCUPANCY***RESULT: Pass***5.1.11 CONDUCTED EMISSIONS***RESULT: Pass*

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## 1. General Remarks

### 1.1 Complementary Materials

None

## 2. Test Sites

### 2.1 Test Facilities

MRT Technology (Suzhou) Co., Ltd.

D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 809388.

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

### Conducted Emissions

| Instrument                  | Manufacturer | Type No. | Cali. Interval | Cali. Due Date |
|-----------------------------|--------------|----------|----------------|----------------|
| EMI Test Receiver           | R&S          | ESR7     | 1 year         | 2014/11/08     |
| Two-Line V-Network          | R&S          | ENV216   | 1 year         | 2014/11/08     |
| Two-Line V-Network          | R&S          | ENV216   | 1 year         | 2014/11/08     |
| Temperature/ Meter Humidity | Anymetre     | TH101B   | 1 year         | 2014/11/15     |

### Radiated Emission

| Instrument                 | Manufacturer | Type No.  | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-----------|----------------|----------------|
| Spectrum Analyzer          | Agilent      | E4447A    | 1 year         | 2014/11/18     |
| EMI Test Receiver          | R&S          | ESR7      | 1 year         | 2014/11/08     |
| Preamplifier               | MRT          | AP18G40   | 1 year         | 2015/10/06     |
| Preamplifier               | MRT          | AP01G18   | 1 year         | 2015/10/06     |
| Loop Antenna               | Schwarzbeck  | FMZB1519  | 1 year         | 2014/11/24     |
| TRILOG Antenna             | Schwarzbeck  | VULB9162  | 1 year         | 2014/11/24     |
| Broad-Band Horn Antenna    | Schwarzbeck  | BBHA9120D | 1 year         | 2014/11/24     |
| Broadband Horn Antenna     | Schwarzbeck  | BBHA9170  | 1 year         | 2014/12/11     |
| Temperature/Humidity Meter | Anymetre     | TH101B    | 1 year         | 2014/11/15     |

### Conducted Test Equipment

| Instrument                 | Manufacturer | Type No. | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|----------|----------------|----------------|
| Spectrum Analyzer          | Agilent      | N9010A   | 1 year         | 2015/01/04     |
| Wideband Peak Power Meter  | Anritsu      | ML2495A  | 1 year         | 2015/01/12     |
| Power Sensor               | Anritsu      | MA2411B  | 1 year         | 2015/01/12     |
| Temperature/Humidity Meter | Anymetre     | TH101B   | 1 year         | 2014/11/15     |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

### Table 2: Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

|                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC Conducted Emission Measurement</b>                                                                                                         |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):<br>150kHz~30MHz: $\pm 3.46\text{dB}$                                     |
| <b>Radiated Emission Measurement</b>                                                                                                             |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):<br>9kHz ~ 1GHz: $\pm 4.18\text{dB}$<br>1GHz ~ 40GHz: $\pm 4.76\text{dB}$ |

### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is Automatic Electronic Blood Pressure Monitor. It's used to measure adults' systolic pressure, diastolic pressure and pulse rate with the oscillometric method, and the data it produces are only an aid to diagnosis.

For the further information, refer to the user's manual.

#### 3.2 Ratings and System Details

**Table 3: Technical Specification of Bluetooth (BDR & EDR mode)**

| Technical Specification   | Value                                                                            |
|---------------------------|----------------------------------------------------------------------------------|
| Kind of Equipment         | Automatic Electronic Blood Pressure Monitor                                      |
| Type Designation          | XM-01                                                                            |
| Extreme Temperature Range | +10°C ~ +40°C                                                                    |
| Operation Voltage         | DC 3.7V                                                                          |
| Operating Frequency band  | 2402 – 2480MHz                                                                   |
| Bluetooth version         | 4.0 dual mode                                                                    |
| Number of channels        | BDR/EDR: 79CH<br>BLE: 40CH                                                       |
| Channel separation        | BDR/EDR:1MHz<br>BLE: 2MHz                                                        |
| Modulation                | BDR/EDR: GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps),<br>8DPSK(3Mbps)<br>BLE: GFSK(1Mbps) |
| Antenna Gain              | 2dBi                                                                             |
| Antenna type              | Chip antenna                                                                     |

**Table 4: RF channel and frequency of Bluetooth (BDR & EDR mode)**

| RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) |
|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| 0          | 2402.00         | 21         | 2423.00         | 42         | 2444.00         | 63         | 2465.00         |
| 1          | 2403.00         | 22         | 2424.00         | 43         | 2445.00         | 64         | 2466.00         |
| 2          | 2404.00         | 23         | 2425.00         | 44         | 2446.00         | 65         | 2467.00         |
| 3          | 2405.00         | 24         | 2426.00         | 45         | 2447.00         | 66         | 2468.00         |
| 4          | 2406.00         | 25         | 2427.00         | 46         | 2448.00         | 67         | 2469.00         |
| 5          | 2407.00         | 26         | 2428.00         | 47         | 2449.00         | 68         | 2470.00         |
| 6          | 2408.00         | 27         | 2429.00         | 48         | 2450.00         | 69         | 2471.00         |

|    |         |    |         |    |         |    |         |
|----|---------|----|---------|----|---------|----|---------|
| 7  | 2409.00 | 28 | 2430.00 | 49 | 2451.00 | 70 | 2472.00 |
| 8  | 2410.00 | 29 | 2431.00 | 50 | 2452.00 | 71 | 2473.00 |
| 9  | 2411.00 | 30 | 2432.00 | 51 | 2453.00 | 72 | 2474.00 |
| 10 | 2412.00 | 31 | 2433.00 | 52 | 2454.00 | 73 | 2475.00 |
| 11 | 2413.00 | 32 | 2434.00 | 53 | 2455.00 | 74 | 2476.00 |
| 12 | 2414.00 | 33 | 2435.00 | 54 | 2456.00 | 75 | 2477.00 |
| 13 | 2415.00 | 34 | 2436.00 | 55 | 2457.00 | 76 | 2478.00 |
| 14 | 2416.00 | 35 | 2437.00 | 56 | 2458.00 | 77 | 2479.00 |
| 15 | 2417.00 | 36 | 2438.00 | 57 | 2459.00 | 78 | 2480.00 |
| 16 | 2418.00 | 37 | 2439.00 | 58 | 2460.00 |    |         |
| 17 | 2419.00 | 38 | 2440.00 | 59 | 2461.00 |    |         |
| 18 | 2420.00 | 39 | 2441.00 | 60 | 2462.00 |    |         |
| 19 | 2421.00 | 40 | 2442.00 | 61 | 2463.00 |    |         |
| 20 | 2422.00 | 41 | 2443.00 | 62 | 2464.00 |    |         |

**Table 5: RF channel and frequency of Bluetooth (BLE mode)**

| RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) |
|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| 0          | 2402.00         | 10         | 2422.00         | 20         | 2442.00         | 30         | 2462.00         |
| 1          | 2404.00         | 11         | 2424.00         | 21         | 2444.00         | 31         | 2464.00         |
| 2          | 2406.00         | 12         | 2426.00         | 22         | 2446.00         | 32         | 2466.00         |
| 3          | 2408.00         | 13         | 2428.00         | 23         | 2448.00         | 33         | 2468.00         |
| 4          | 2410.00         | 14         | 2430.00         | 24         | 2450.00         | 34         | 2470.00         |
| 5          | 2412.00         | 15         | 2432.00         | 25         | 2452.00         | 35         | 2472.00         |
| 6          | 2414.00         | 16         | 2434.00         | 26         | 2454.00         | 36         | 2474.00         |
| 7          | 2416.00         | 17         | 2436.00         | 27         | 2456.00         | 37         | 2476.00         |
| 8          | 2418.00         | 18         | 2438.00         | 28         | 2458.00         | 38         | 2478.00         |
| 9          | 2420.00         | 19         | 2440.00         | 29         | 2460.00         | 39         | 2480.00         |

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On
  - 1. Bluetooth mode (BDR & EDR mode)
    - a. Transmitting
      - i. Low Channel
      - ii. Middle Channel
      - iii. High Channel
    - b. Receiving
  - 2. Bluetooth mode (BLE mode)
    - a. Transmitting
      - i. Low Channel
      - ii. Middle Channel
      - iii. High Channel
    - b. Receiving
- B. Standby
- C. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

### 3.5 Submitted Documents

- |                    |                      |
|--------------------|----------------------|
| - Bill of Material | - Circuit Diagram    |
| - PCB Layout       | - Instruction Manual |
| - Photo Document   | - Rating Label       |

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4:2009.

### 4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

| Description | Manufacturer  | Part No. | S/N       |
|-------------|---------------|----------|-----------|
| Adapter     | Supply by MRT | N/A      | HSU50600F |

### 4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

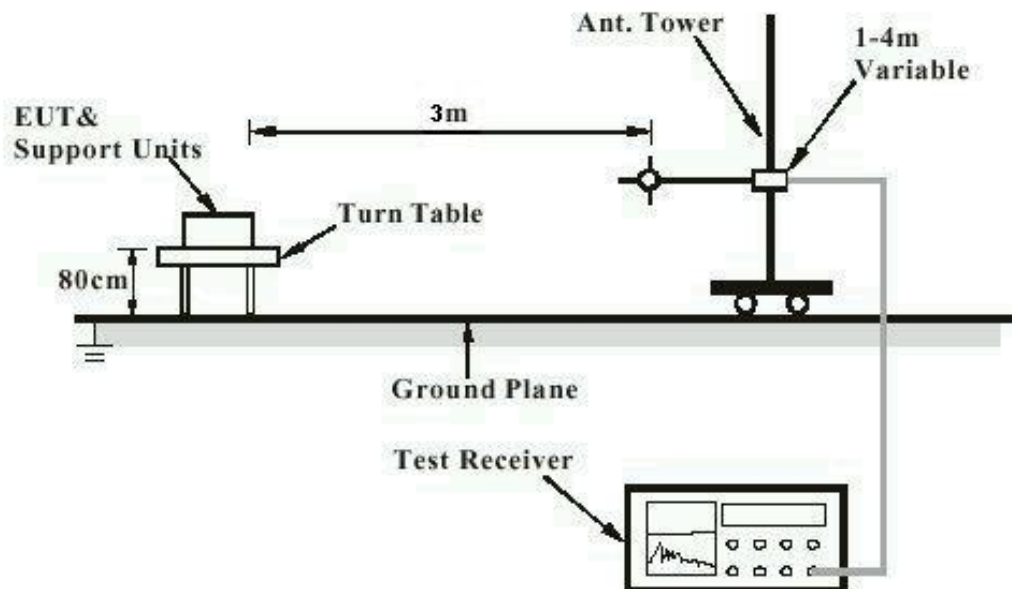
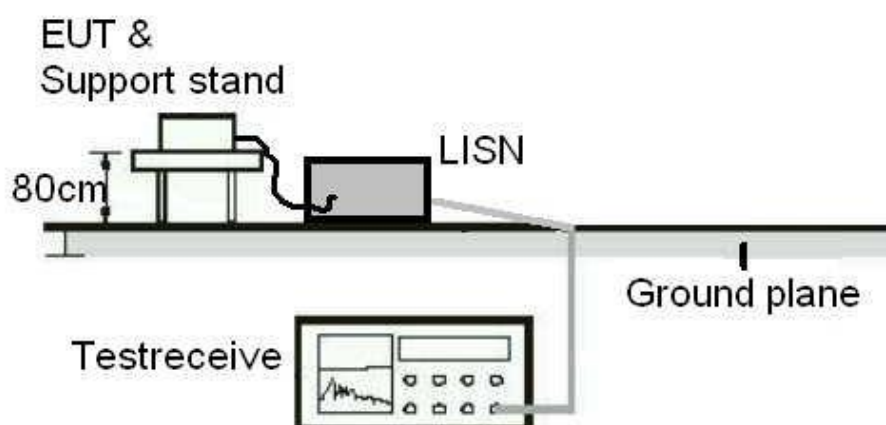
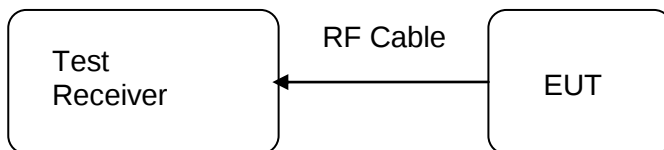


Diagram of Measurement Equipment Configuration for Conduction Measurement



**Diagram of Measurement Equipment Configuration for Transmitter Measurement**



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:****Pass**

Test standard : FCC Part 15.247(b)(4) and Part 15.203  
Limit The use of antennas with directional gains that do not exceed 6dBi

According to the manufacturer declared, the EUT has a chip antenna, the directional gain of antennas is 2dBi for Bluetooth, and the antenna connectors are designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

## 5.1.2 Peak Output Power

**RESULT:**
**Pass**

Test date : 2014-10-26 ~ 2014-10-29  
 Test standard : FCC Part 15.247(b)(1)  
 FCC Part 15.247(b)(3)  
 Basic standard : ANSI C63.4: 2009  
 Public Notice DA 00-705  
 Clause 9.1 of KDB 558074 v03r02  
 Limit : 125mW, 1W  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A.1.a, A.2.a  
 Ambient temperature : 25°C  
 Relative humidity : 52%  
 Atmospheric pressure : 101kPa

**Table 6: Test result of Peak Output Power of Bluetooth (BDR mode)**

| Channel        | Channel Frequency (MHz) | Peak Output Power (dBm) | Limit (dBm) |
|----------------|-------------------------|-------------------------|-------------|
| Low Channel    | 2402                    | -9.735                  | 30          |
| Middle Channel | 2441                    | -9.305                  | 30          |
| High Channel   | 2480                    | -9.332                  | 30          |

**Table 7: Test result of Peak Output Power of Bluetooth (EDR mode)**

| Channel        | Channel Frequency (MHz) | Peak Output Power (dBm) | Limit (dBm) |
|----------------|-------------------------|-------------------------|-------------|
| Low Channel    | 2402                    | -8.341                  | 21          |
| Middle Channel | 2441                    | -7.691                  | 21          |
| High Channel   | 2480                    | -8.789                  | 21          |

**Table 8: Test result of Peak Output Power of Bluetooth (BLE mode)**

| Channel        | Channel Frequency (MHz) | Peak Output Power (dBm) | Limit (dBm) |
|----------------|-------------------------|-------------------------|-------------|
| Low Channel    | 2402                    | -4.02                   | 21          |
| Middle Channel | 2442                    | -3.94                   | 21          |
| High Channel   | 2480                    | -4.55                   | 21          |

### 5.1.3 20dB Bandwidth and 99% Bandwidth

**RESULT:**
**Pass**

Date of testing : 2014-10-26  
 Test standard : FCC Part 15.247(a)(1)  
 Basic standard : ANSI C63.4: 2009  
 Public Notice DA 00-705  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A.1.a  
 Ambient temperature : 25°C  
 Relative humidity : 52%  
 Atmospheric pressure : 101kPa

**Table 9: Test result of 20dB & 99% Bandwidth of BDR mode**

| Channel      | Channel Frequency (MHz) | 20dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|--------------|-------------------------|----------------------|---------------------|
| Low Channel  | 2402                    | 0.958                | 0.894               |
| Mid Channel  | 2441                    | 0.955                | 0.889               |
| High Channel | 2480                    | 0.918                | 0.866               |

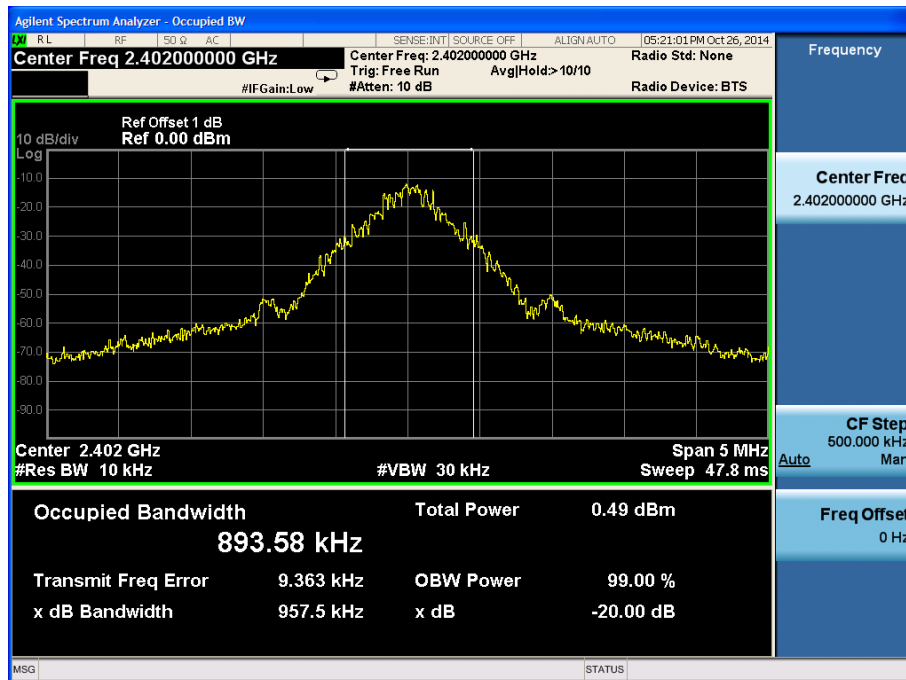
**Table 10: Test result of 20dB & 99% Bandwidth of EDR mode**

| Channel      | Channel Frequency (MHz) | 20dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|--------------|-------------------------|----------------------|---------------------|
| Low Channel  | 2402                    | 1.255                | 1.170               |
| Mid Channel  | 2441                    | 1.257                | 1.167               |
| High Channel | 2480                    | 1.259                | 1.174               |

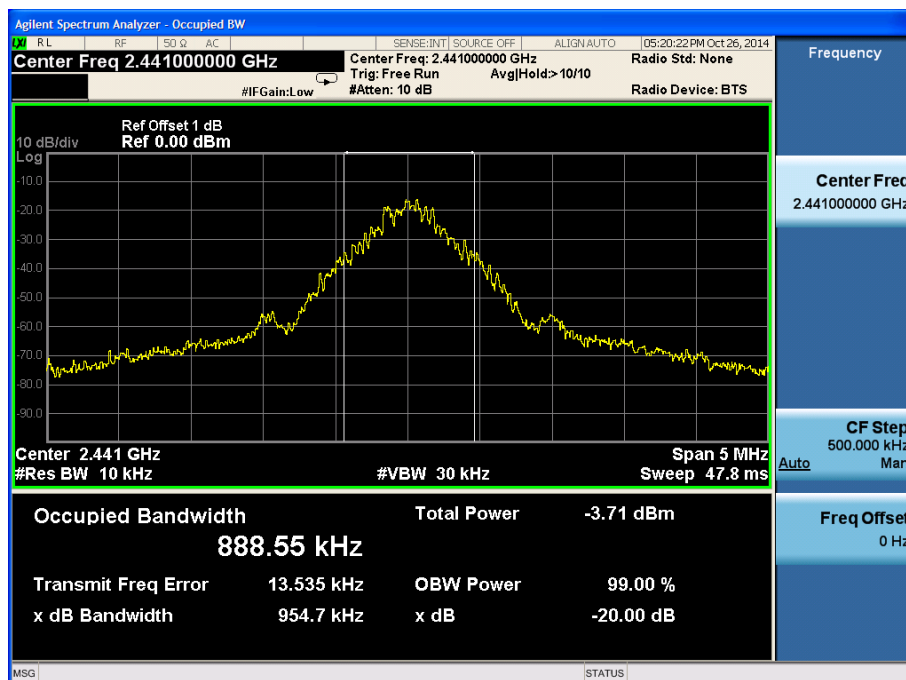
For details refer to following test plot.

## Test Plot of 20dB & 99% Bandwidth measured in 10kHz Bandwidth of BDR mode

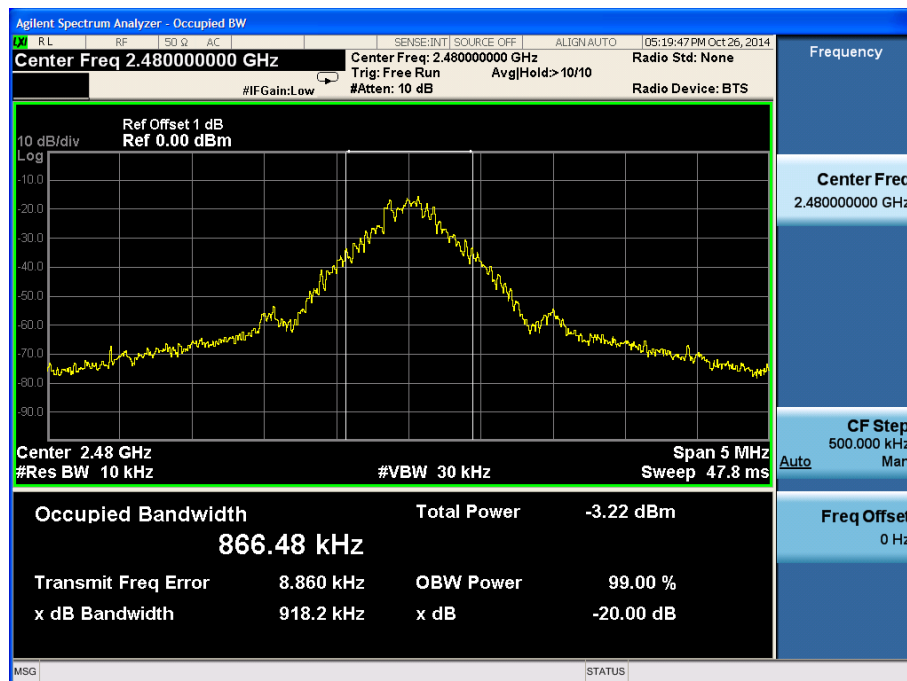
### Low Channel



### Middle Channel

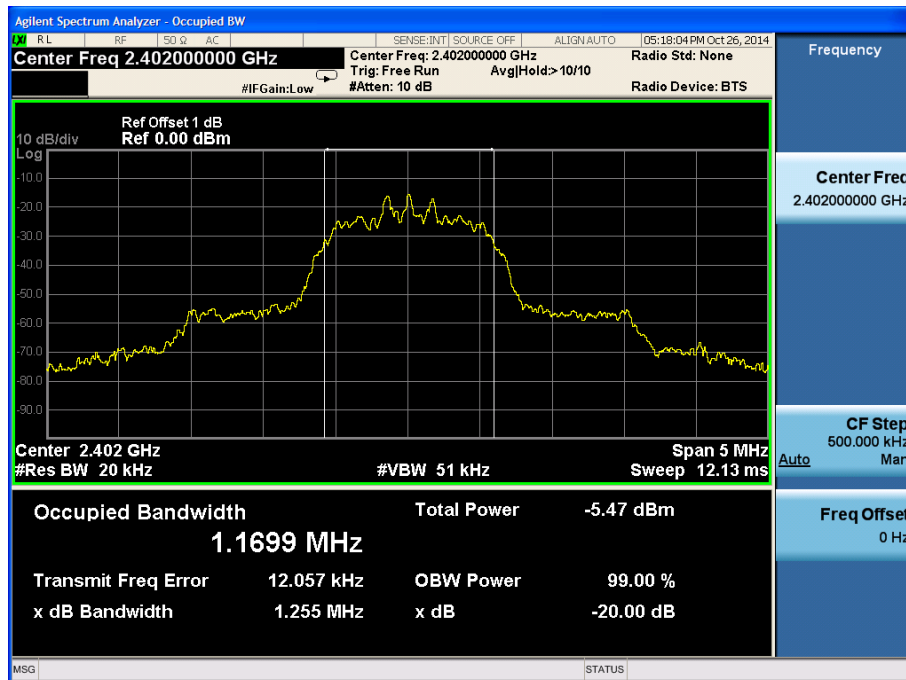


## High Channel

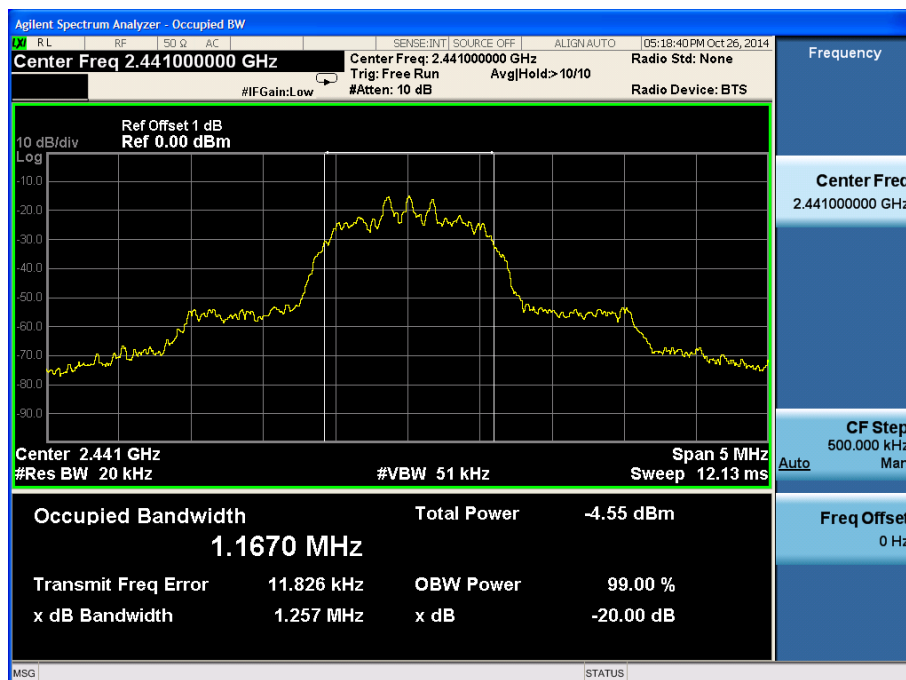


## Test Plot of 20dB & 99% Bandwidth measured in 20kHz Bandwidth of EDR mode

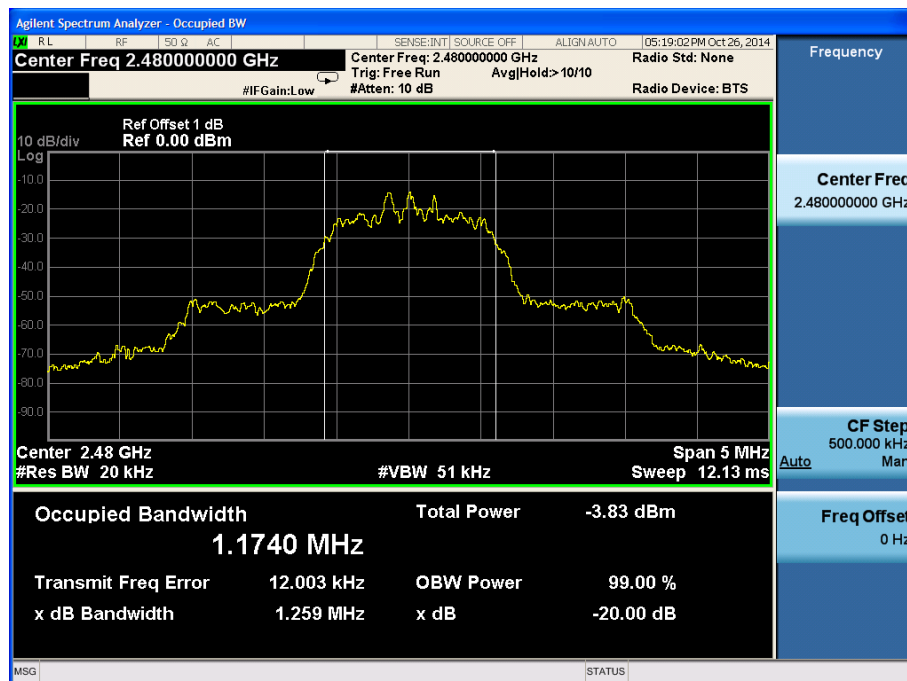
### Low Channel



### Middle Channel



## High Channel



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**5.1.4 6dB Bandwidth and 99% Bandwidth****RESULT:****Pass**

Date of testing : 2014-10-22  
Test standard : FCC Part 15.247(a)(2)  
Basic standard : ANSI C63.4: 2009  
Clause 8 of KDB 558074 v03r02  
Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A.2.a  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

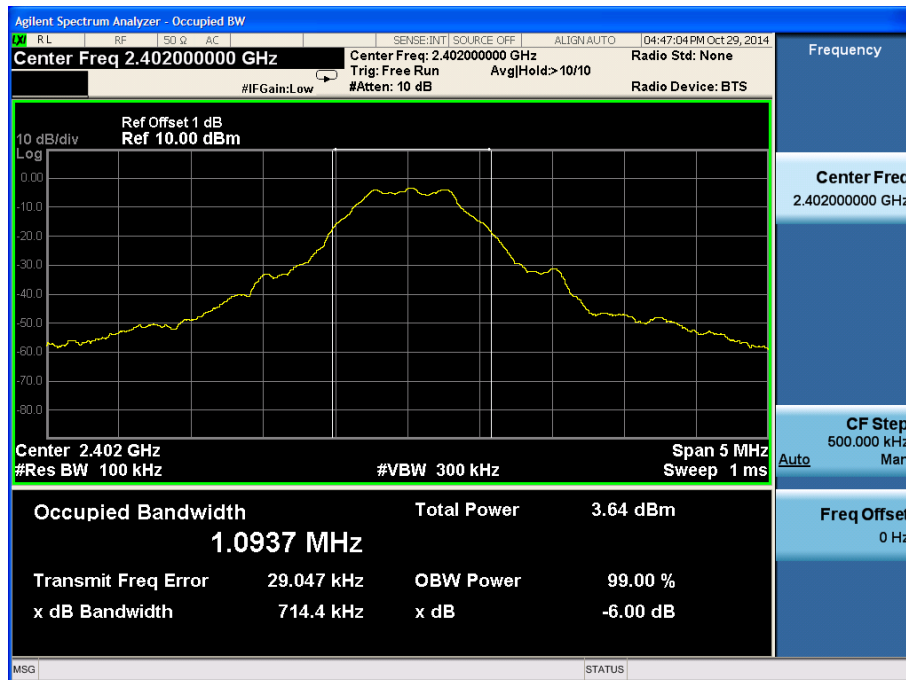
**Table 11: Test result of 6dB & 99% Bandwidth of BLE mode**

| Channel      | Channel Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|--------------|-------------------------|---------------------|---------------------|
| Low Channel  | 2402                    | 0.714               | 1.094               |
| Mid Channel  | 2442                    | 0.715               | 1.088               |
| High Channel | 2480                    | 0.700               | 1.085               |

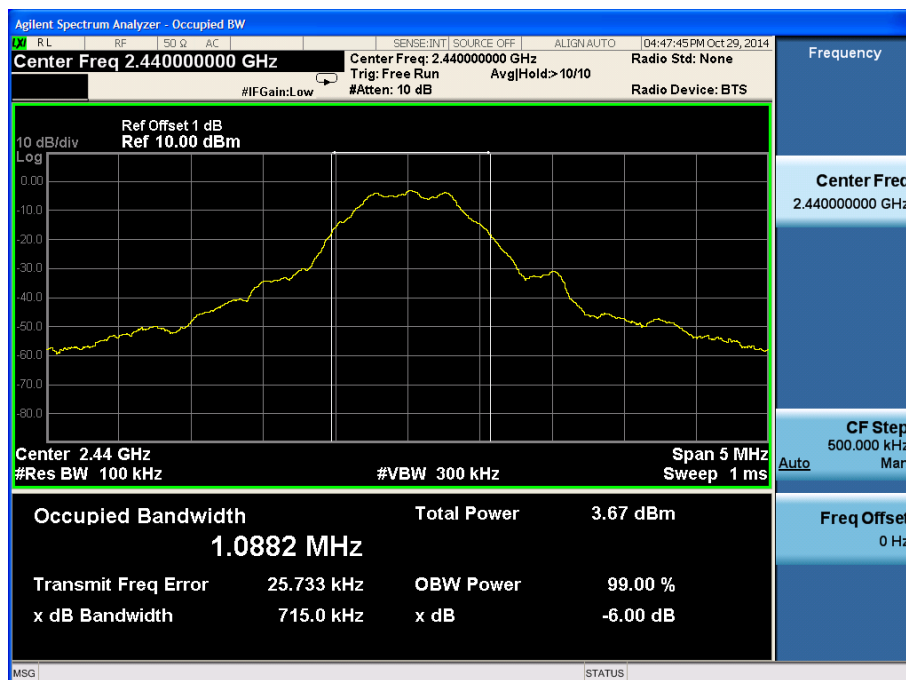
For details refer to following test plot.

## Test Plot of 6dB & 99% Bandwidth measured in 100kHz Bandwidth of BLE mode

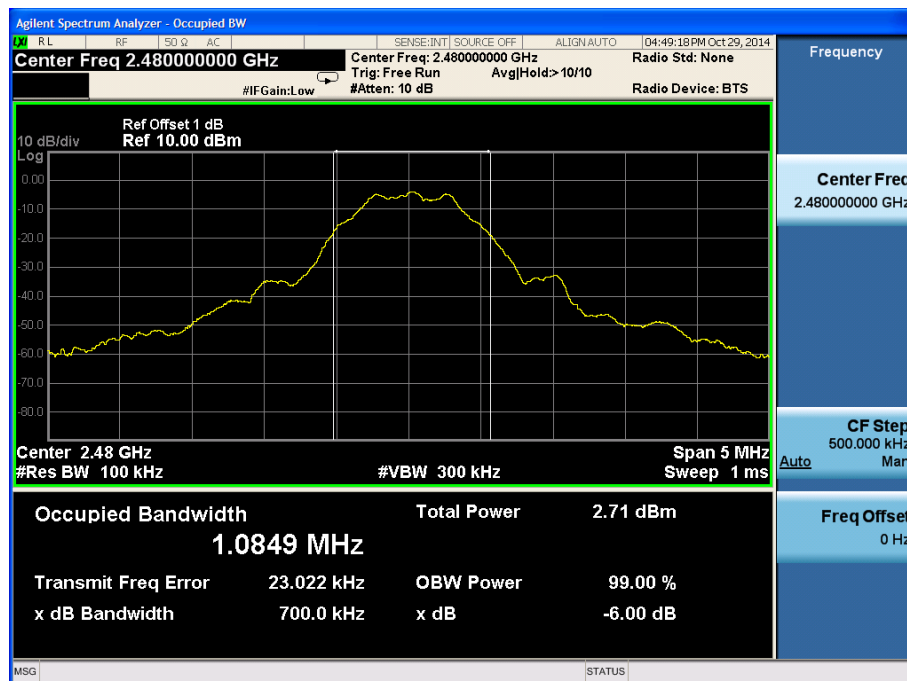
### Low Channel



### Middle Channel



## High Channel



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**5.1.5 Conducted Spurious Emissions measured in 100kHz Bandwidth****RESULT:****Pass**

Date of testing : 2014-10-27 & 2014-10-29  
Test standard : FCC part 15.247(d)  
Basic standard : ANSI C63.4: 2009  
Limit : 20dB (below that in the 100kHz bandwidth within  
the band that contains the highest level of the  
desired power);  
Kind of test site : Shield room

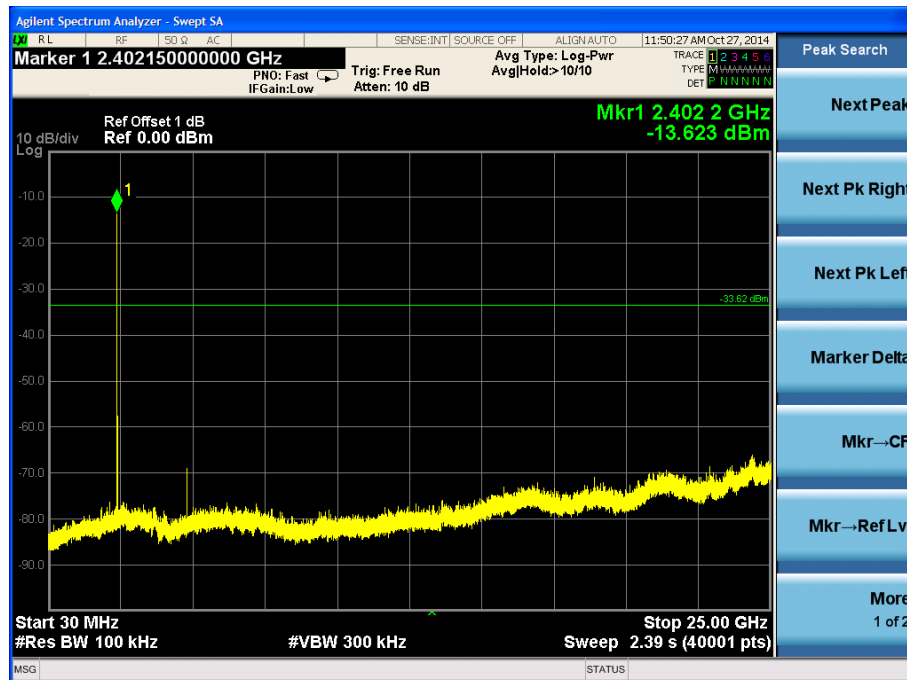
**Test setup**

Test Channel : Low/ Middle/ High  
Operation mode : A.1.a, A.2.a  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

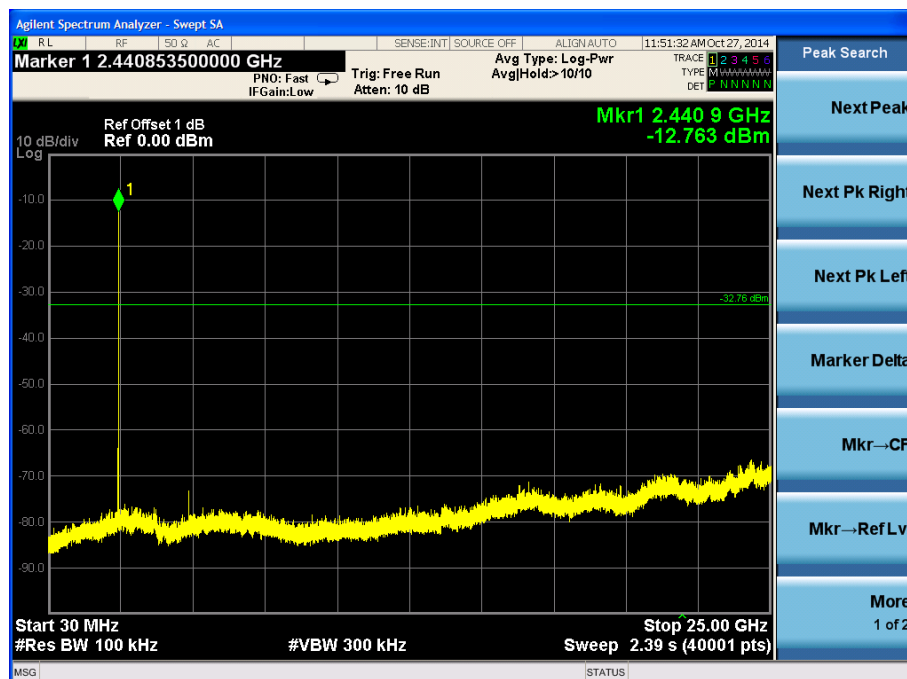
For details refer to following test plot.

## Test Plot of Conducted spurious emissions measured in 100kHz Bandwidth of BDR mode

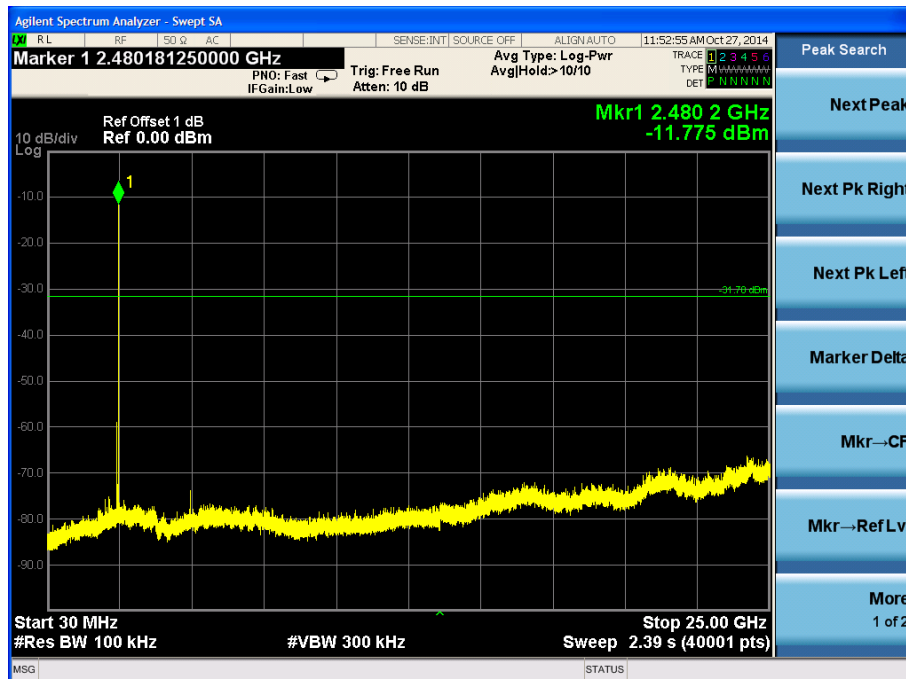
### Low Channel

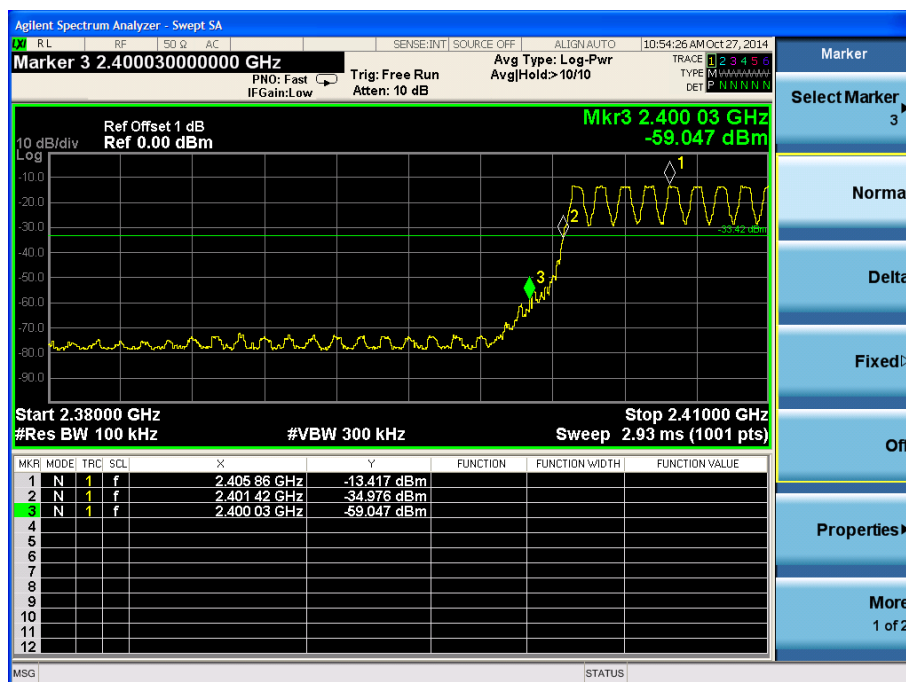


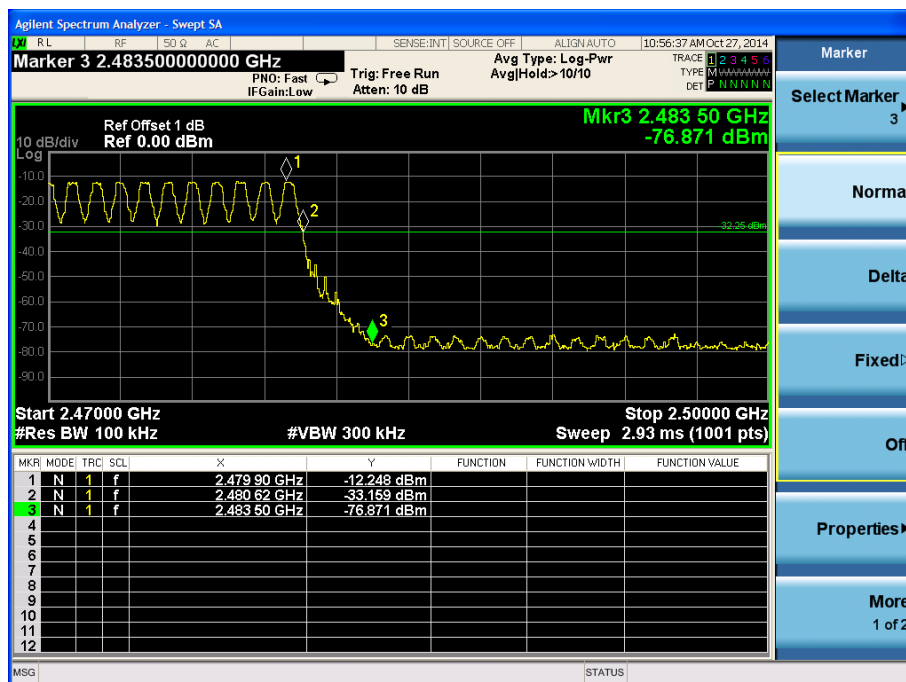
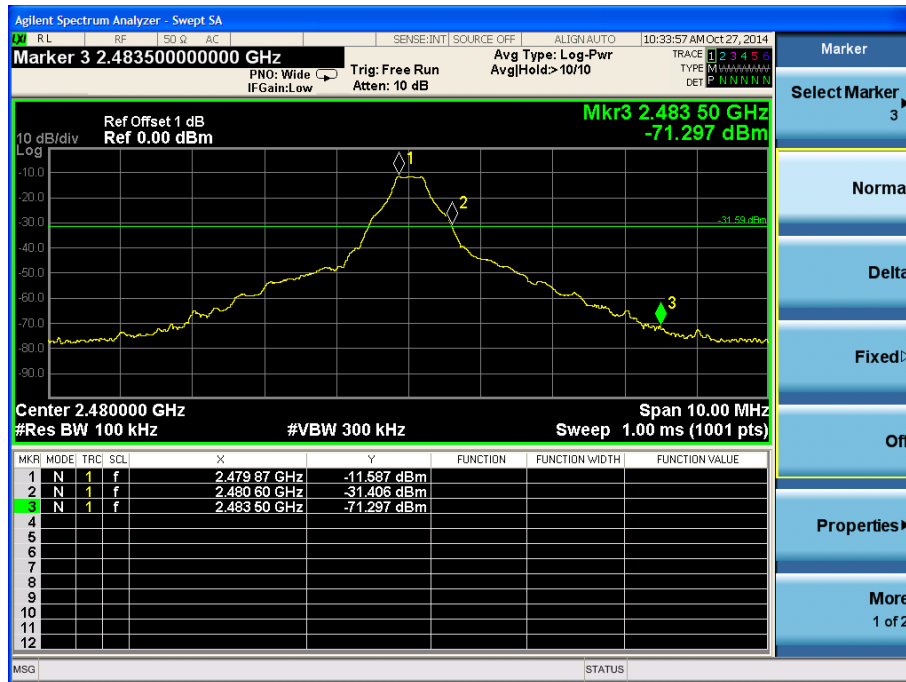
### Middle Channel



## High Channel

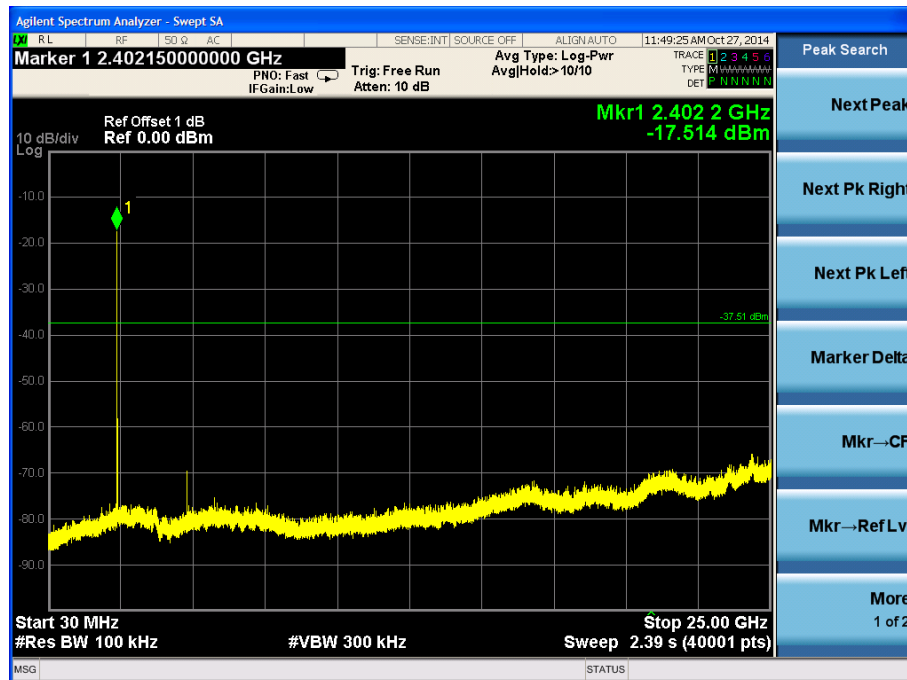


**Band Edge**


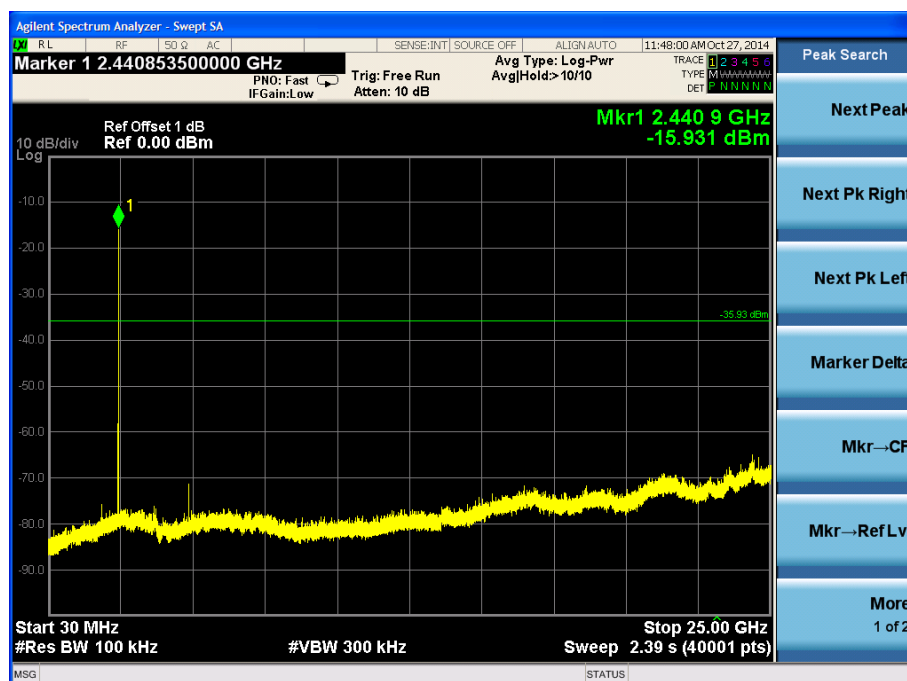


## Test Plot of Conducted spurious emissions measured in 100kHz Bandwidth of EDR mode

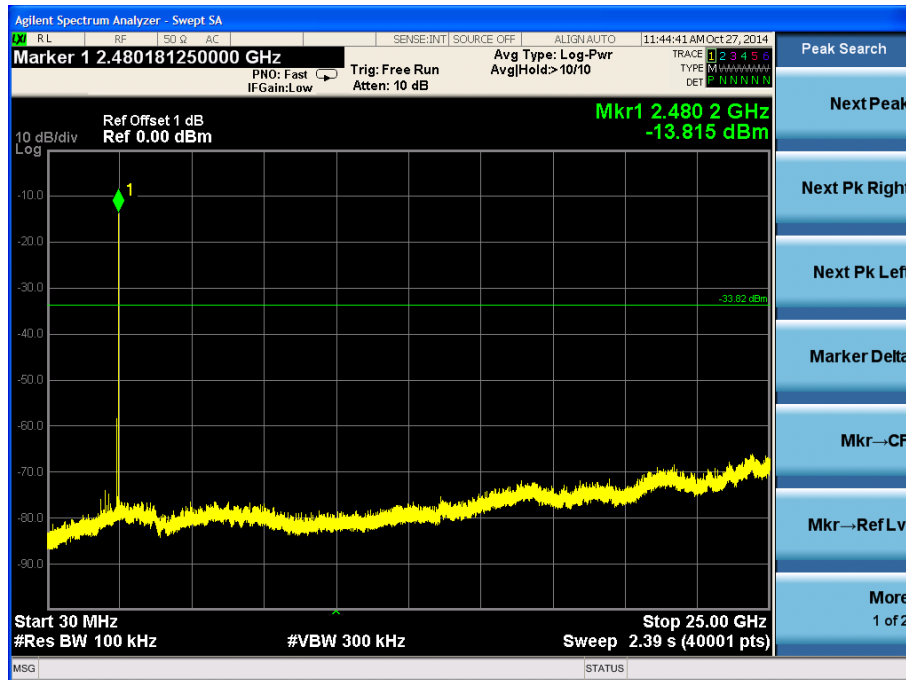
### Low Channel

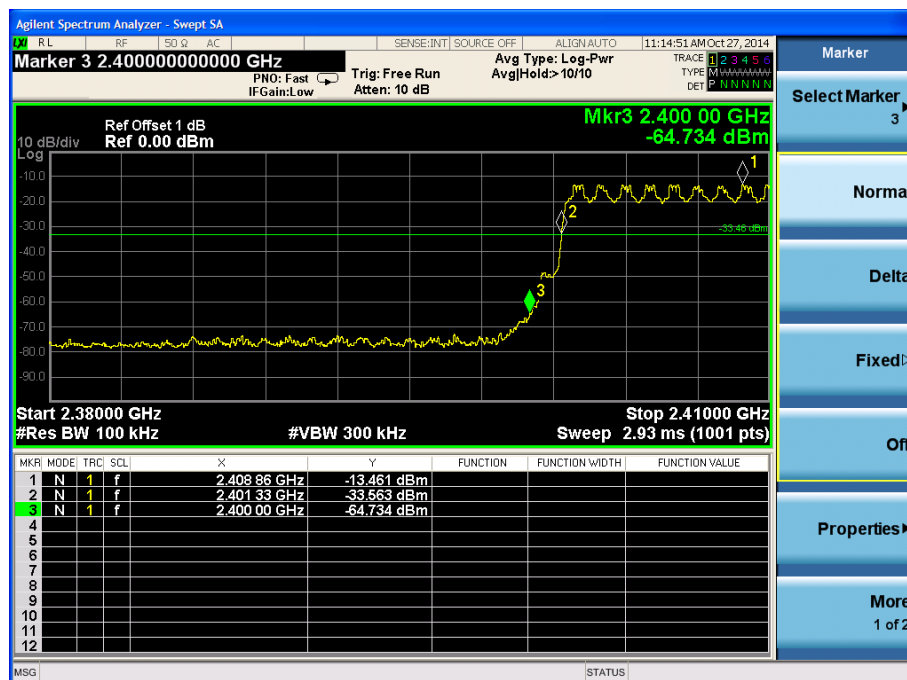
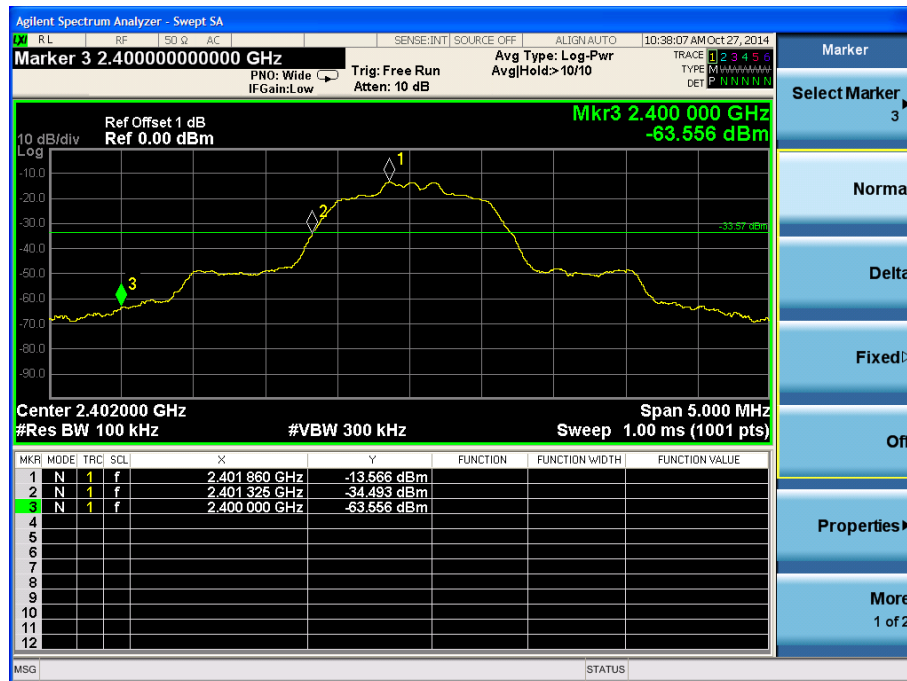


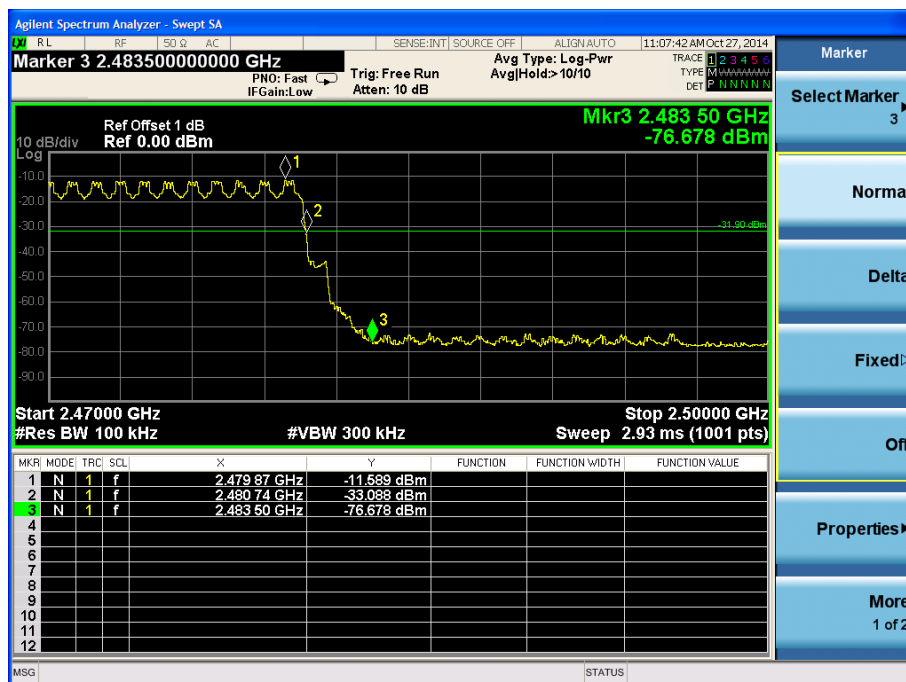
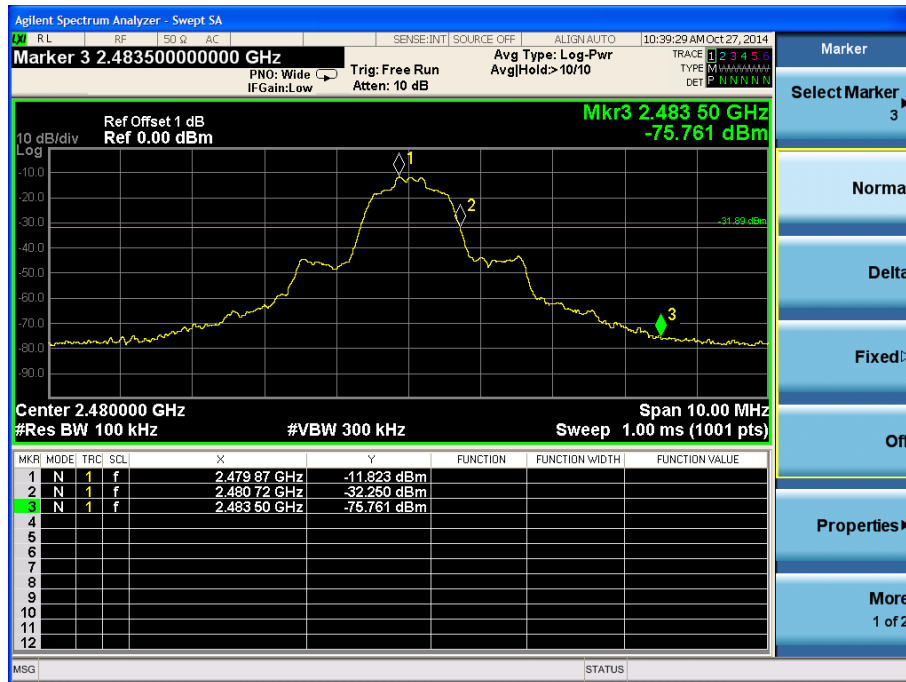
### Middle Channel



## High Channel

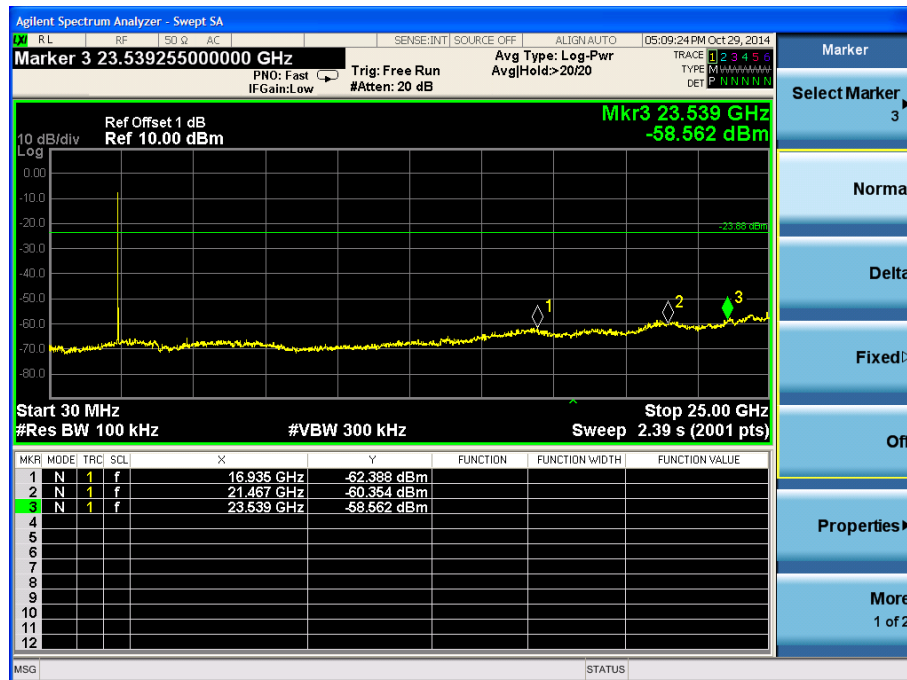


**Band Edge**


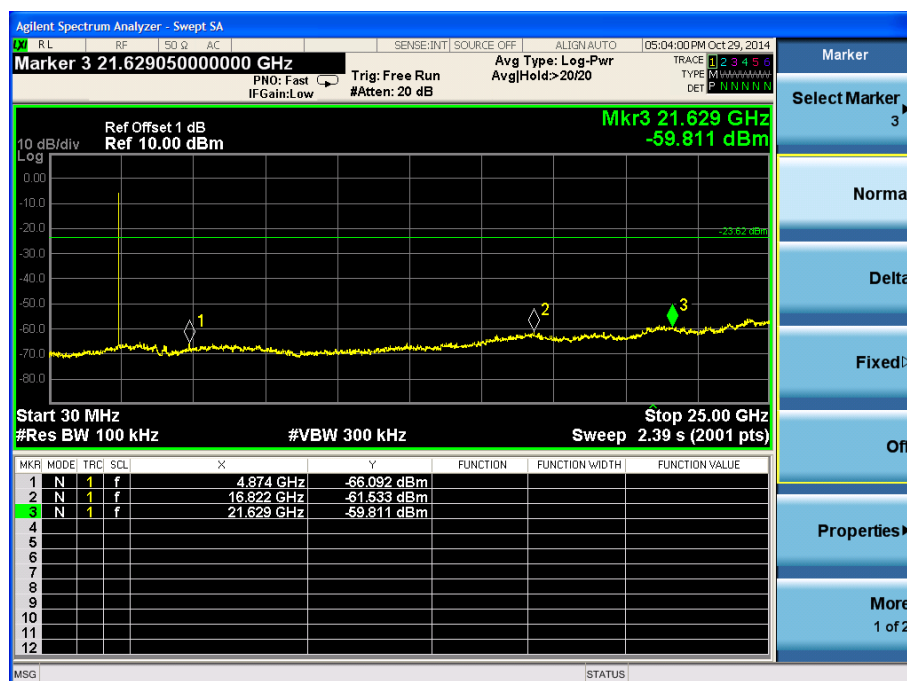


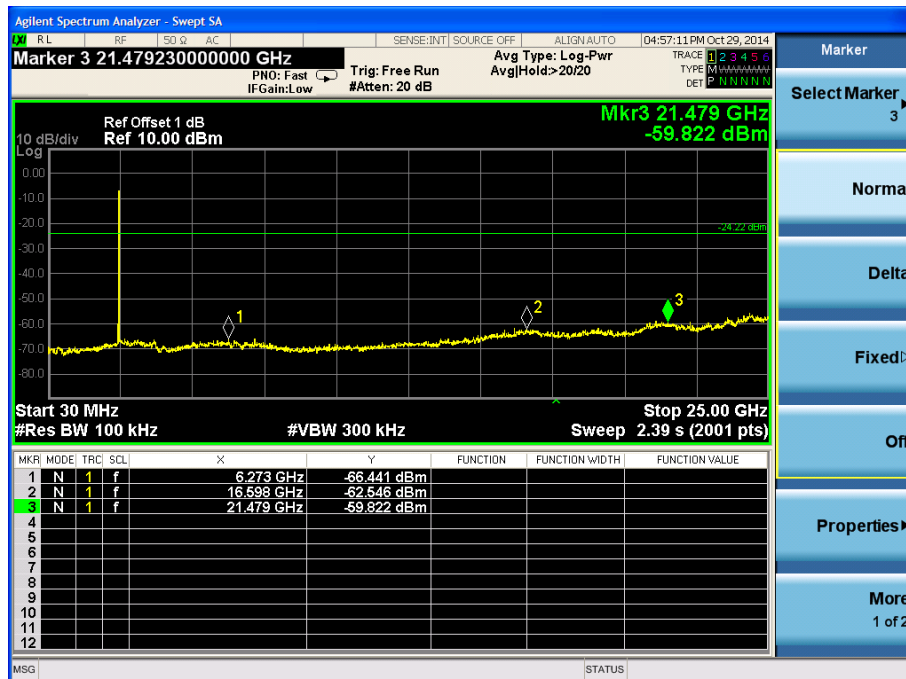
## Test Plot of Conducted spurious emissions measured in 100kHz Bandwidth of BLE mode

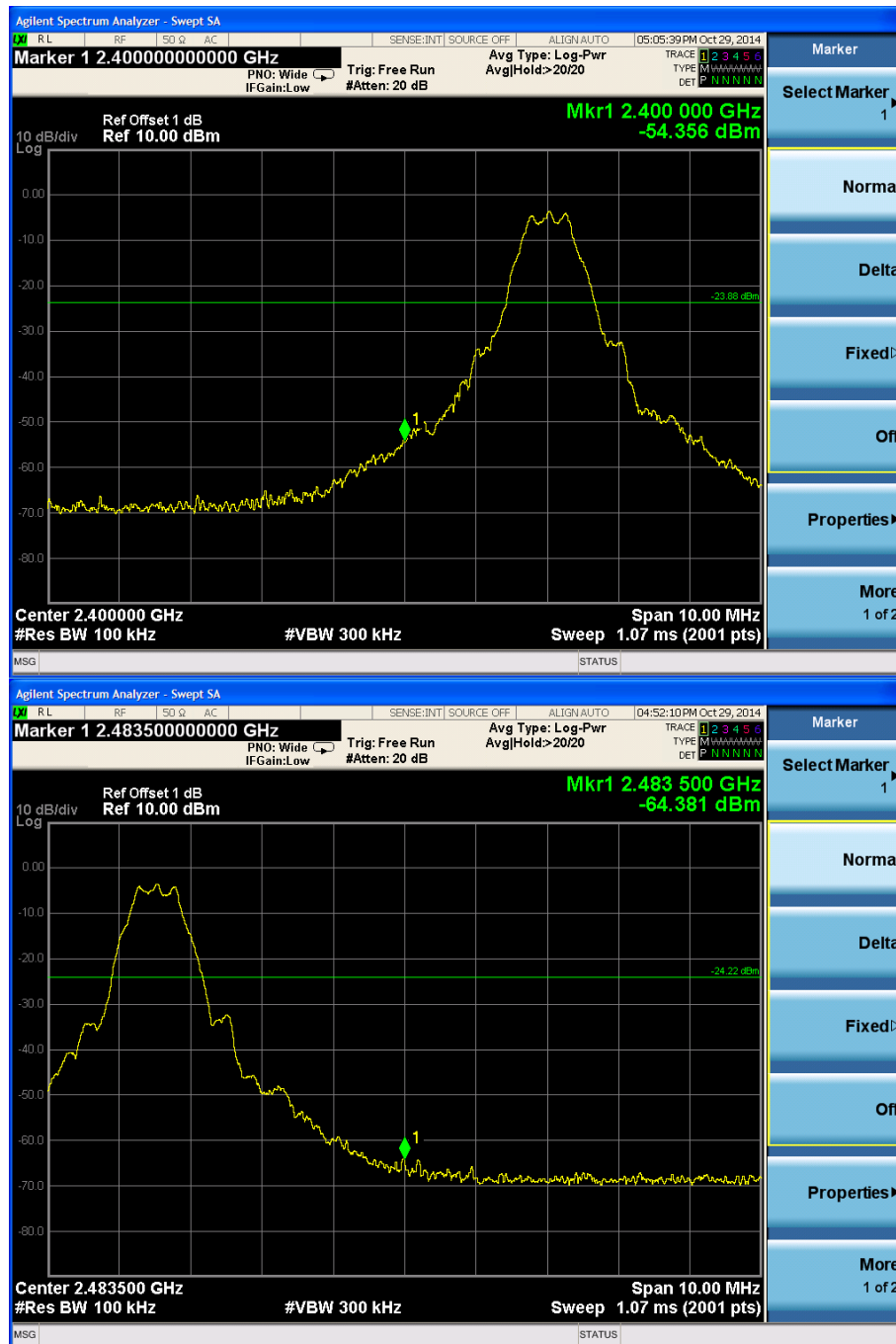
### Low Channel



### Middle Channel





**Band Edge**


### 5.1.6 Power spectral density

**RESULT:****Pass**

Date of testing : 2014-10-29  
Test standard : FCC part 15.247(e)  
Basic standard : ANSI C63.4: 2009  
Clause 10 of KDB 558074 v03r02  
Limit : 8dBm/3kHz  
Kind of test site : Shield room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation mode : A.2.a  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

**Table 12: Test result of power spectral density:**

| Mode | Channel (MHz) | Result (dBm/3kHz) | Limit (dBm/3kHz) | Conclusion |
|------|---------------|-------------------|------------------|------------|
| BLE  | 2402          | -19.953           | 8                | Pass       |
|      | 2442          | -17.839           | 8                | Pass       |
|      | 2480          | -18.447           | 8                | Pass       |

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**5.1.7 Spurious Emission****RESULT:****Pass**

Date of testing : 2014-10-25 & 2014-10-29  
Test standard : FCC part 15.247(d)  
Basic standard : ANSI C63.4: 2009  
Public Notice DA 00-705  
Clause 11 of KDB 558074 v03r02  
Limits : FCC part 15.209(a)  
Kind of test site : 3m Semi-Anechoic Chamber

**Test setup**

Test Channel : Low/ Middle/ High  
Operation mode : A.1, A.2  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

**Table 13: Test result of Spurious Emission of Bluetooth (BDR mode)**

| Channel | Freq.<br>[MHz] | Measure<br>Level<br>[dBm] | Reading<br>Level<br>[dBm] | Margin<br>[dB] | Limit<br>[dBm] | Correct<br>Factor<br>[dB] | Detector | Polar |
|---------|----------------|---------------------------|---------------------------|----------------|----------------|---------------------------|----------|-------|
| Low     | 304.025        | 42.264                    | 28.035                    | -3.736         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 42.215                    | 27.593                    | -3.785         | 46.000         | 14.622                    | PEAK     |       |
|         | 4157.000       | 42.286                    | 37.655                    | -31.714        | 74.000         | 4.631                     | PEAK     |       |
|         | 4326.000       | 43.666                    | 38.330                    | -30.334        | 74.000         | 5.336                     | PEAK     |       |
|         | 4808.000       | 49.001                    | 42.632                    | -24.999        | 74.000         | 6.369                     | PEAK     |       |
|         | 7356.000       | 49.296                    | 35.266                    | -24.704        | 74.000         | 14.030                    | PEAK     |       |
|         | 304.025        | 33.244                    | 19.015                    | -12.756        | 46.000         | 14.228                    | PEAK     | V     |
|         | 320.030        | 32.412                    | 17.790                    | -13.588        | 46.000         | 14.622                    | PEAK     |       |
|         | 4056.000       | 41.911                    | 37.361                    | -32.089        | 74.000         | 4.550                     | PEAK     |       |
|         | 4326.000       | 43.181                    | 37.845                    | -30.819        | 74.000         | 5.336                     | PEAK     |       |
|         | 4414.000       | 43.707                    | 38.199                    | -30.293        | 74.000         | 5.508                     | PEAK     |       |
|         | 4808.000       | 47.541                    | 41.172                    | -26.459        | 74.000         | 6.369                     | PEAK     |       |
| Mid     | 304.025        | 41.063                    | 26.834                    | -4.937         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 42.380                    | 27.758                    | -3.620         | 46.000         | 14.622                    | PEAK     |       |
|         | 4219.000       | 42.687                    | 37.811                    | -31.313        | 74.000         | 4.877                     | PEAK     |       |
|         | 4327.000       | 41.999                    | 36.662                    | -32.001        | 74.000         | 5.336                     | PEAK     |       |
|         | 4884.500       | 48.902                    | 42.252                    | -25.098        | 74.000         | 6.651                     | PEAK     |       |
|         | 7323.000       | 49.478                    | 35.464                    | -24.522        | 74.000         | 14.014                    | PEAK     |       |
|         | 320.030        | 32.330                    | 17.708                    | -13.670        | 46.000         | 14.622                    | PEAK     | V     |
|         | 912.700        | 41.778                    | 18.355                    | -4.222         | 46.000         | 23.423                    | PEAK     |       |
|         | 4258.000       | 42.026                    | 36.997                    | -31.974        | 74.000         | 5.029                     | PEAK     |       |
|         | 4419.000       | 42.804                    | 37.296                    | -31.196        | 74.000         | 5.508                     | PEAK     |       |
|         | 4884.500       | 47.881                    | 41.231                    | -26.119        | 74.000         | 6.651                     | PEAK     |       |
|         | 7323.000       | 48.761                    | 34.747                    | -25.239        | 74.000         | 14.014                    | PEAK     |       |
| High    | 304.025        | 43.152                    | 28.923                    | -2.848         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 38.673                    | 24.051                    | -7.327         | 46.000         | 14.622                    | PEAK     |       |
|         | 4216.000       | 42.025                    | 37.160                    | -31.975        | 74.000         | 4.865                     | PEAK     |       |
|         | 4319.000       | 43.490                    | 38.161                    | -30.510        | 74.000         | 5.328                     | PEAK     |       |
|         | 4961.000       | 48.654                    | 41.864                    | -25.346        | 74.000         | 6.790                     | PEAK     |       |
|         | 7440.000       | 49.383                    | 35.215                    | -24.617        | 74.000         | 14.168                    | PEAK     |       |
|         | 320.030        | 32.170                    | 17.548                    | -13.830        | 46.000         | 14.622                    | PEAK     | V     |
|         | 910.275        | 37.615                    | 14.225                    | -8.385         | 46.000         | 23.390                    | PEAK     |       |
|         | 4219.000       | 41.631                    | 36.755                    | -32.369        | 74.000         | 4.877                     | PEAK     |       |
|         | 4419.000       | 42.872                    | 37.364                    | -31.128        | 74.000         | 5.508                     | PEAK     |       |
|         | 4961.000       | 46.790                    | 40.000                    | -27.210        | 74.000         | 6.790                     | PEAK     |       |
|         | 7440.000       | 49.576                    | 35.408                    | -24.424        | 74.000         | 14.168                    | PEAK     |       |

**Notes:**

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. Due to the peak measure values also meet the average limit (54dBm), the average measurement is not tested based on technical judgment.

**Table 14: Test result of Spurious Emission of Bluetooth (EDR mode)**

| Channel | Freq.<br>[MHz] | Measure<br>Level<br>[dBm] | Reading<br>Level<br>[dBm] | Margin<br>[dB] | Limit<br>[dBm] | Correct<br>Factor<br>[dB] | Detector | Polar |
|---------|----------------|---------------------------|---------------------------|----------------|----------------|---------------------------|----------|-------|
| Low     | 304.025        | 42.898                    | 28.669                    | -3.102         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 37.921                    | 23.299                    | -8.079         | 46.000         | 14.622                    | PEAK     |       |
|         | 4189.000       | 42.159                    | 37.416                    | -31.841        | 74.000         | 4.742                     | PEAK     |       |
|         | 4326.000       | 42.564                    | 37.228                    | -31.436        | 74.000         | 5.336                     | PEAK     |       |
|         | 4808.000       | 48.135                    | 41.766                    | -25.865        | 74.000         | 6.369                     | PEAK     |       |
|         | 7569.000       | 50.306                    | 35.625                    | -23.694        | 74.000         | 14.682                    | PEAK     |       |
|         | 320.030        | 33.795                    | 19.173                    | -12.205        | 46.000         | 14.622                    | PEAK     | V     |
|         | 859.350        | 36.897                    | 13.924                    | -9.103         | 46.000         | 22.973                    | PEAK     |       |
|         | 4213.000       | 42.676                    | 37.822                    | -31.324        | 74.000         | 4.854                     | PEAK     |       |
|         | 4319.000       | 42.533                    | 37.204                    | -31.467        | 74.000         | 5.328                     | PEAK     |       |
|         | 4808.000       | 46.654                    | 40.285                    | -27.346        | 74.000         | 6.369                     | PEAK     |       |
|         | 7495.000       | 49.357                    | 34.934                    | -24.643        | 74.000         | 14.422                    | PEAK     |       |
| Mid     | 304.025        | 41.622                    | 27.393                    | -4.378         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 42.083                    | 27.461                    | -3.917         | 46.000         | 14.622                    | PEAK     |       |
|         | 4078.000       | 42.329                    | 37.764                    | -31.671        | 74.000         | 4.565                     | PEAK     |       |
|         | 4169.000       | 41.008                    | 36.350                    | -32.992        | 74.000         | 4.658                     | PEAK     |       |
|         | 4884.500       | 47.421                    | 40.771                    | -26.579        | 74.000         | 6.651                     | PEAK     |       |
|         | 7323.000       | 50.380                    | 36.366                    | -23.620        | 74.000         | 14.014                    | PEAK     |       |
|         | 320.030        | 33.071                    | 18.449                    | -12.929        | 46.000         | 14.622                    | PEAK     | V     |
|         | 912.700        | 37.098                    | 13.675                    | -8.902         | 46.000         | 23.423                    | PEAK     |       |
|         | 4159.000       | 42.469                    | 37.837                    | -31.531        | 74.000         | 4.632                     | PEAK     |       |
|         | 4219.000       | 42.265                    | 37.389                    | -31.735        | 74.000         | 4.877                     | PEAK     |       |
|         | 4884.500       | 47.280                    | 40.630                    | -26.720        | 74.000         | 6.651                     | PEAK     |       |
|         | 7323.000       | 48.977                    | 34.963                    | -25.023        | 74.000         | 14.014                    | PEAK     |       |
| High    | 304.025        | 42.932                    | 28.703                    | -3.068         | 46.000         | 14.228                    | PEAK     | H     |
|         | 320.030        | 40.162                    | 25.540                    | -5.838         | 46.000         | 14.622                    | PEAK     |       |
|         | 4198.000       | 42.817                    | 38.031                    | -31.183        | 74.000         | 4.786                     | PEAK     |       |
|         | 4297.000       | 42.654                    | 37.410                    | -31.346        | 74.000         | 5.244                     | PEAK     |       |
|         | 4961.000       | 47.461                    | 40.671                    | -26.539        | 74.000         | 6.790                     | PEAK     |       |
|         | 7323.000       | 49.994                    | 35.980                    | -24.006        | 74.000         | 14.014                    | PEAK     |       |
|         | 320.030        | 33.160                    | 18.538                    | -12.840        | 46.000         | 14.622                    | PEAK     | V     |
|         | 909.305        | 37.617                    | 14.237                    | -8.383         | 46.000         | 23.380                    | PEAK     |       |
|         | 4074.000       | 42.054                    | 37.491                    | -31.946        | 74.000         | 4.563                     | PEAK     |       |
|         | 4119.000       | 42.096                    | 37.481                    | -31.904        | 74.000         | 4.614                     | PEAK     |       |
|         | 4960.000       | 44.741                    | 37.954                    | -29.259        | 74.000         | 6.787                     | PEAK     |       |
|         | 7440.000       | 49.612                    | 35.444                    | -24.388        | 74.000         | 14.168                    | PEAK     |       |

**Notes:**

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. Due to the peak measure values also meet the average limit (54dBm), the average measurement is not tested based on technical judgment.

**Table 15: Test result of Spurious Emission of Bluetooth (BLE mode)**

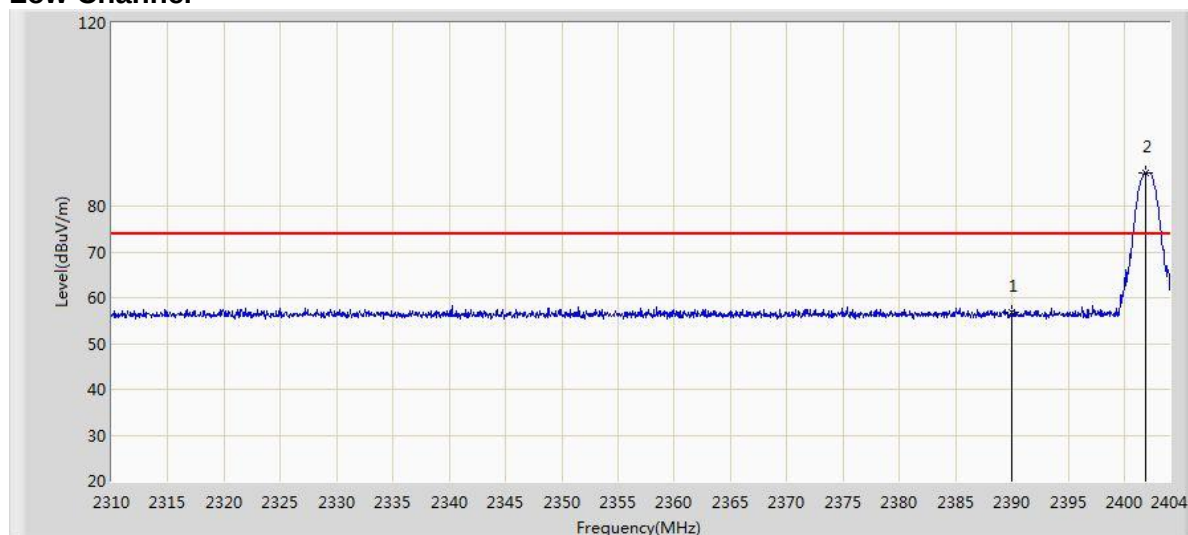
| Channel | Freq.<br>[MHz] | Measure<br>Level<br>[dBm] | Reading<br>Level<br>[dBm] | Margin<br>[dB] | Limit<br>[dBm] | Correct<br>Factor<br>[dB] | Detector | Polar |
|---------|----------------|---------------------------|---------------------------|----------------|----------------|---------------------------|----------|-------|
| Low     | 250.190        | 38.276                    | 24.992                    | -7.724         | 46.000         | 13.284                    | PEAK     | H     |
|         | 390.840        | 30.101                    | 14.061                    | -15.899        | 46.000         | 16.040                    | PEAK     |       |
|         | 4048.000       | 42.478                    | 37.939                    | -31.522        | 74.000         | 4.539                     | PEAK     |       |
|         | 4326.000       | 43.128                    | 37.792                    | -30.872        | 74.000         | 5.336                     | PEAK     |       |
|         | 4808.000       | 49.901                    | 43.532                    | -24.099        | 74.000         | 6.369                     | PEAK     |       |
|         | 7356.000       | 50.353                    | 36.323                    | -23.647        | 74.000         | 14.030                    | PEAK     |       |
|         | 128.455        | 24.142                    | 14.216                    | -19.358        | 43.500         | 9.926                     | PEAK     | V     |
|         | 799.210        | 29.932                    | 7.834                     | -16.068        | 46.000         | 22.098                    | PEAK     |       |
|         | 4169.000       | 41.859                    | 37.201                    | -32.141        | 74.000         | 4.658                     | PEAK     |       |
|         | 4358.000       | 43.106                    | 37.702                    | -30.894        | 74.000         | 5.404                     | PEAK     |       |
|         | 4799.500       | 45.739                    | 39.397                    | -28.261        | 74.000         | 6.342                     | PEAK     |       |
|         | 7357.000       | 49.600                    | 35.570                    | -24.400        | 74.000         | 14.029                    | PEAK     |       |
| Mid     | 250.190        | 36.140                    | 22.856                    | -9.860         | 46.000         | 13.284                    | PEAK     | H     |
|         | 798.240        | 31.166                    | 9.085                     | -14.834        | 46.000         | 22.081                    | PEAK     |       |
|         | 4169.000       | 41.545                    | 36.887                    | -32.455        | 74.000         | 4.658                     | PEAK     |       |
|         | 4297.000       | 43.273                    | 38.029                    | -30.727        | 74.000         | 5.244                     | PEAK     |       |
|         | 4876.000       | 47.607                    | 40.987                    | -26.393        | 74.000         | 6.620                     | PEAK     |       |
|         | 7458.000       | 49.745                    | 35.583                    | -24.255        | 74.000         | 14.163                    | PEAK     |       |
|         | 127.970        | 24.090                    | 14.121                    | -19.410        | 43.500         | 9.969                     | PEAK     | V     |
|         | 796.785        | 31.710                    | 9.654                     | -14.290        | 46.000         | 22.055                    | PEAK     |       |
|         | 4016.000       | 42.884                    | 38.388                    | -31.116        | 74.000         | 4.496                     | PEAK     |       |
|         | 4323.000       | 42.725                    | 37.392                    | -31.275        | 74.000         | 5.333                     | PEAK     |       |
|         | 4876.000       | 45.998                    | 39.378                    | -28.002        | 74.000         | 6.620                     | PEAK     |       |
|         | 7569.000       | 49.693                    | 35.012                    | -24.307        | 74.000         | 14.682                    | PEAK     |       |
| High    | 250.190        | 38.723                    | 25.439                    | -7.277         | 46.000         | 13.284                    | PEAK     | H     |
|         | 798.240        | 31.311                    | 9.230                     | -14.689        | 46.000         | 22.081                    | PEAK     |       |
|         | 4087.000       | 42.428                    | 37.857                    | -31.572        | 74.000         | 4.572                     | PEAK     |       |
|         | 4313.000       | 43.033                    | 37.717                    | -30.967        | 74.000         | 5.316                     | PEAK     |       |
|         | 4961.000       | 47.477                    | 40.687                    | -26.523        | 74.000         | 6.790                     | PEAK     |       |
|         | 7569.000       | 49.336                    | 34.655                    | -24.664        | 74.000         | 14.682                    | PEAK     |       |
|         | 251.160        | 26.228                    | 12.918                    | -19.772        | 46.000         | 13.310                    | PEAK     | V     |
|         | 799.695        | 29.514                    | 7.409                     | -16.486        | 46.000         | 22.105                    | PEAK     |       |
|         | 4018.000       | 42.407                    | 37.908                    | -31.593        | 74.000         | 4.500                     | PEAK     |       |
|         | 4185.000       | 42.250                    | 37.527                    | -31.750        | 74.000         | 4.723                     | PEAK     |       |
|         | 4868.000       | 44.263                    | 37.687                    | -29.737        | 74.000         | 6.575                     | PEAK     |       |
|         | 7569.000       | 50.201                    | 35.520                    | -23.799        | 74.000         | 14.682                    | PEAK     |       |

**Notes:**

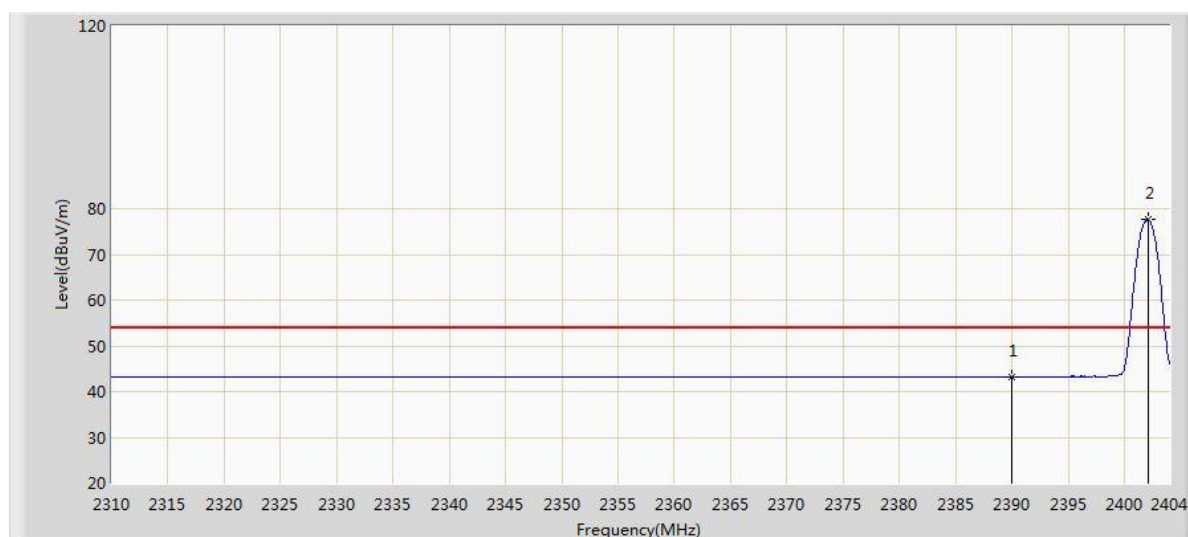
- For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
- Due to the peak measure values also meet the average limit (54dBm), the average measurement is not tested based on technical judgment.

## Test Plot of Frequency Band Edge of Bluetooth BDR mode

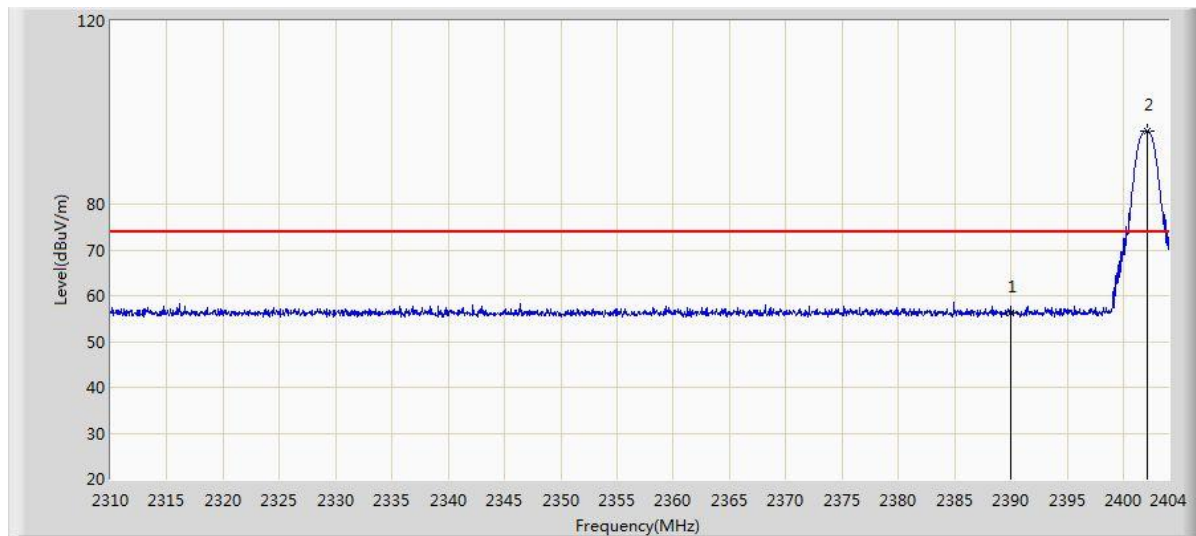
### Low Channel



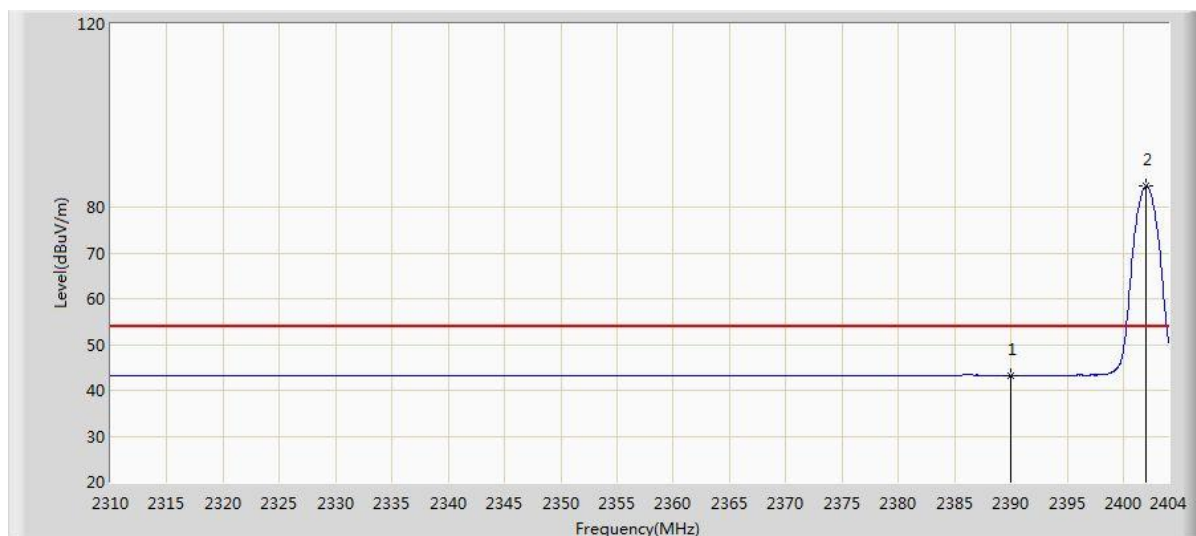
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 56.835                       | 26.151               | -17.165     | 74.000               | 30.684              | PK       | H     |
| 2401.885    | 87.245                       | 56.584               | N/A         | N/A                  | 30.661              | PK       |       |



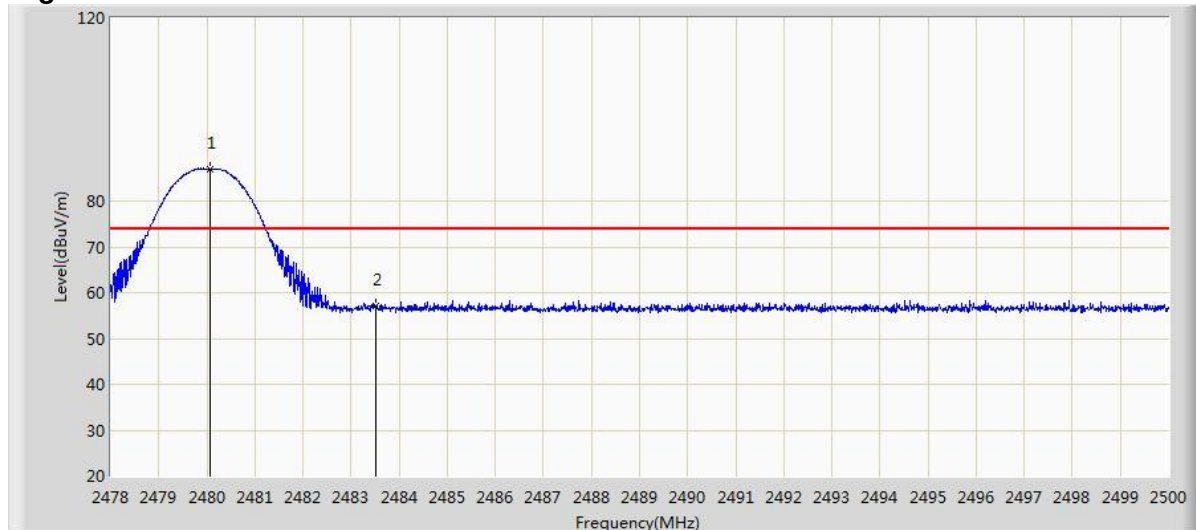
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 43.288                       | 12.604               | -10.712     | 54.000               | 30.684              | AV       | H     |
| 2402.073    | 77.658                       | 46.997               | N/A         | N/A                  | 30.661              | AV       |       |



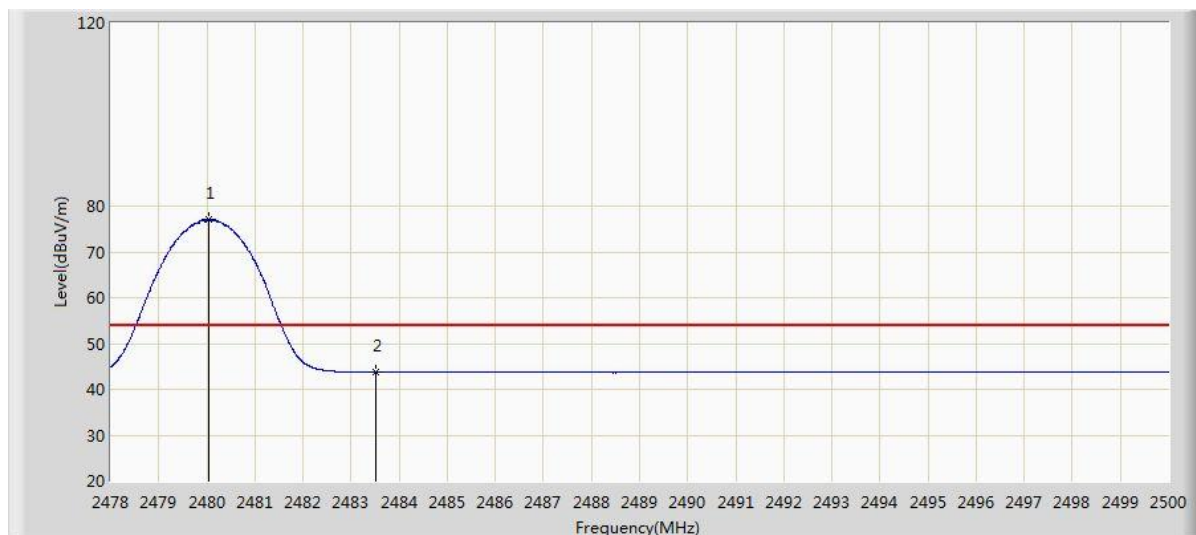
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 56.172                       | 25.488               | -17.828     | 74.000               | 30.684              | PK       | V     |
| 2402.073    | 95.959                       | 65.298               | N/A         | N/A                  | 30.661              | PK       |       |



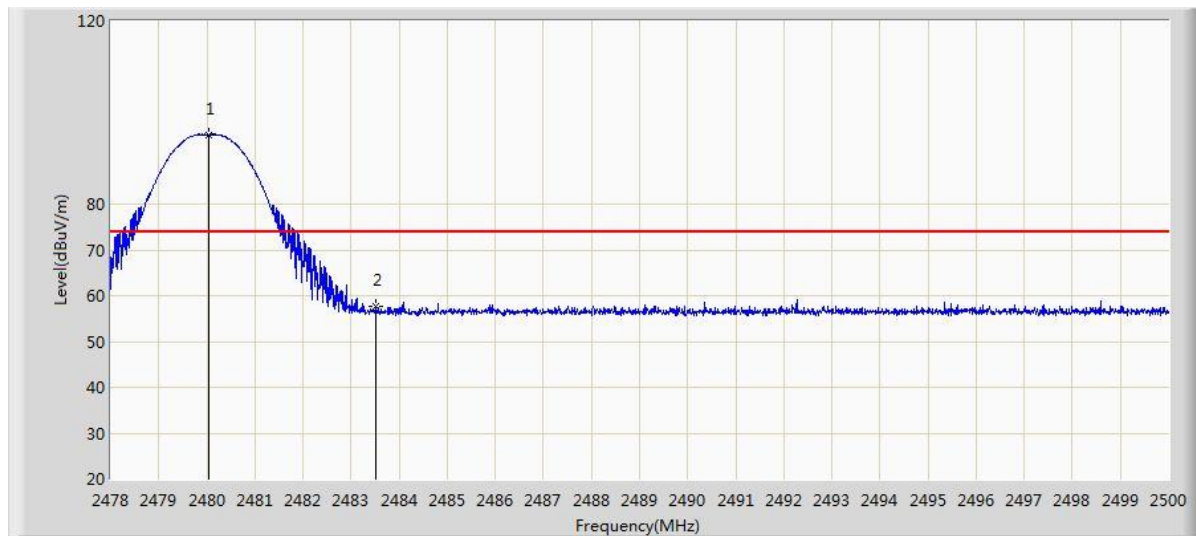
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 43.272                       | 12.588               | -10.728     | 54.000               | 30.684              | AV       | V     |
| 2401.979    | 84.522                       | 53.861               | N/A         | N/A                  | 30.662              | AV       |       |

**High Channel**


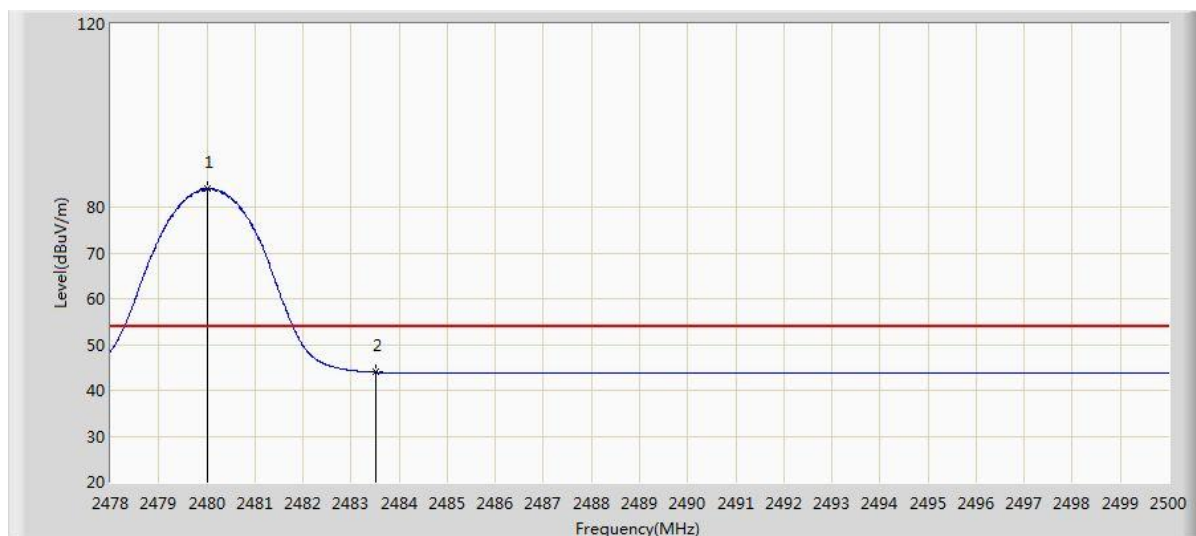
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.079    | 86.980                       | 56.317               | N/A         | N/A                  | 30.662              | PK       | H     |
| 2483.500    | 57.097                       | 26.424               | -16.903     | 74.000               | 30.673              | PK       |       |



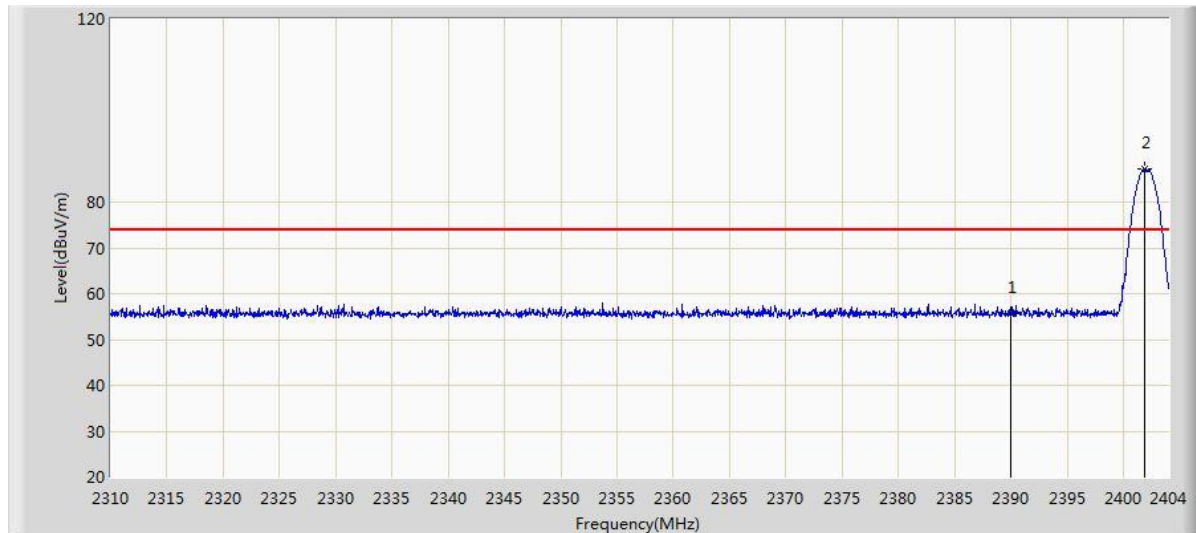
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.046    | 76.999                       | 46.336               | N/A         | N/A                  | 30.662              | AV       | H     |
| 2483.500    | 43.724                       | 13.051               | -10.276     | 54.000               | 30.673              | AV       |       |



| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.046    | 95.143                       | 64.480               | N/A         | N/A                  | 30.662              | PK       | V     |
| 2483.500    | 57.820                       | 27.147               | -16.180     | 74.000               | 30.673              | PK       |       |



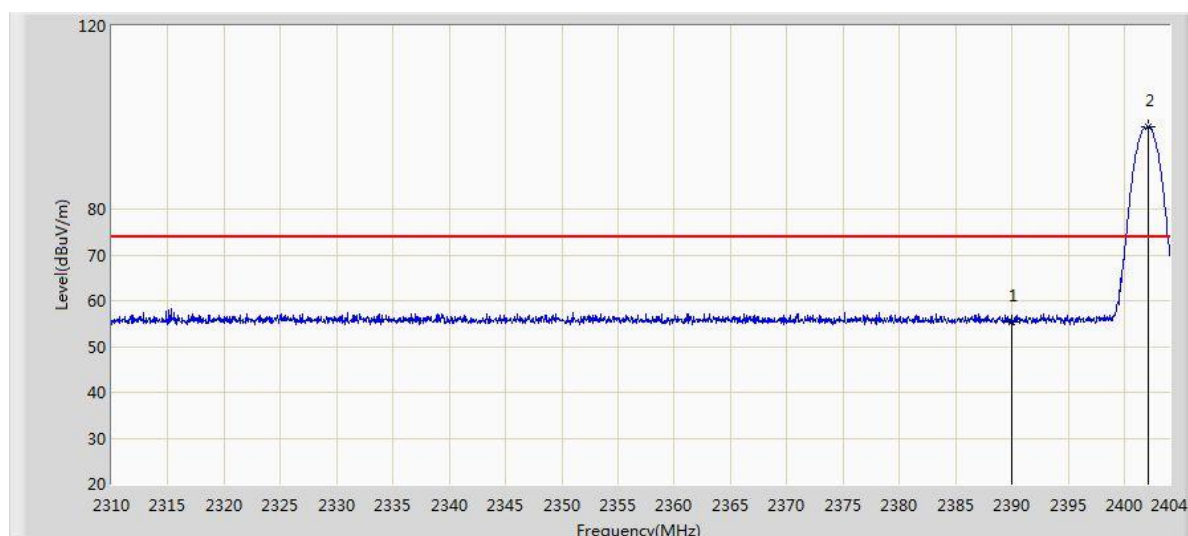
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.002    | 84.027                       | 53.365               | N/A         | N/A                  | 30.662              | AV       | V     |
| 2483.500    | 43.929                       | 13.256               | -10.071     | 54.000               | 30.673              | AV       |       |

**Test Plot of Frequency Band Edge of Bluetooth EDR mode**  
**Low Channel**


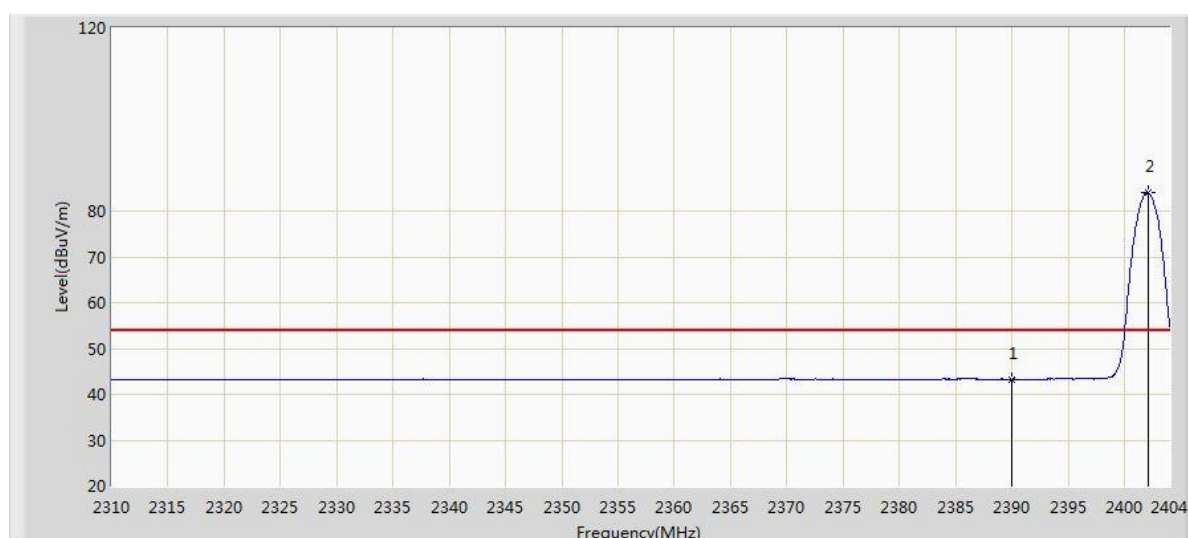
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 55.591                       | 24.907               | -18.409     | 74.000               | 30.684              | PK       | H     |
| 2401.885    | 87.342                       | 56.681               | N/A         | N/A                  | 30.661              | PK       |       |



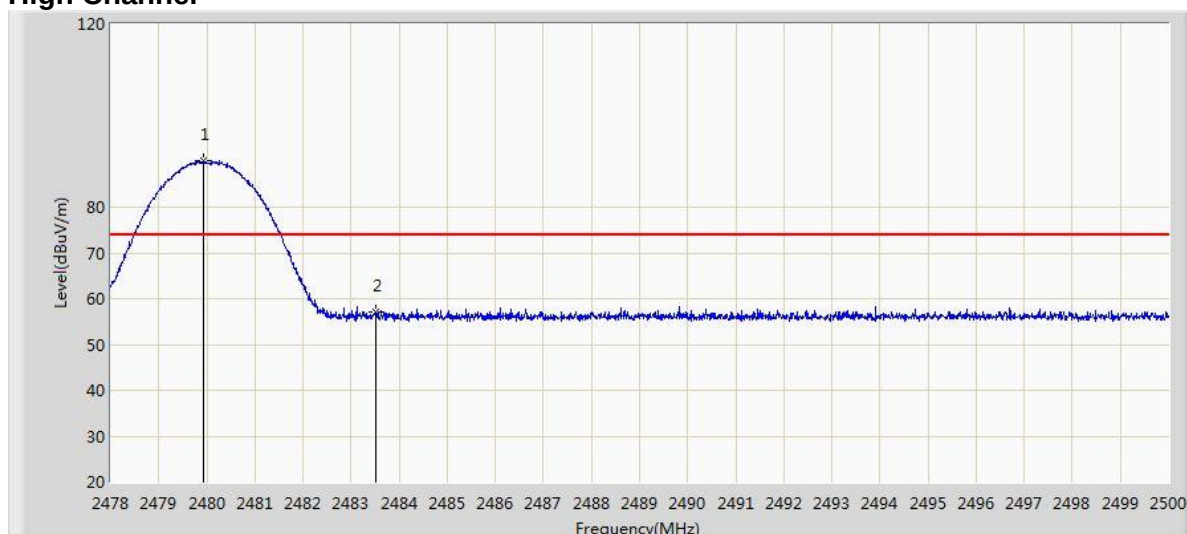
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 43.312                       | 12.628               | -10.688     | 54.000               | 30.684              | AV       | H     |
| 2401.838    | 75.238                       | 44.577               | N/A         | N/A                  | 30.661              | AV       |       |



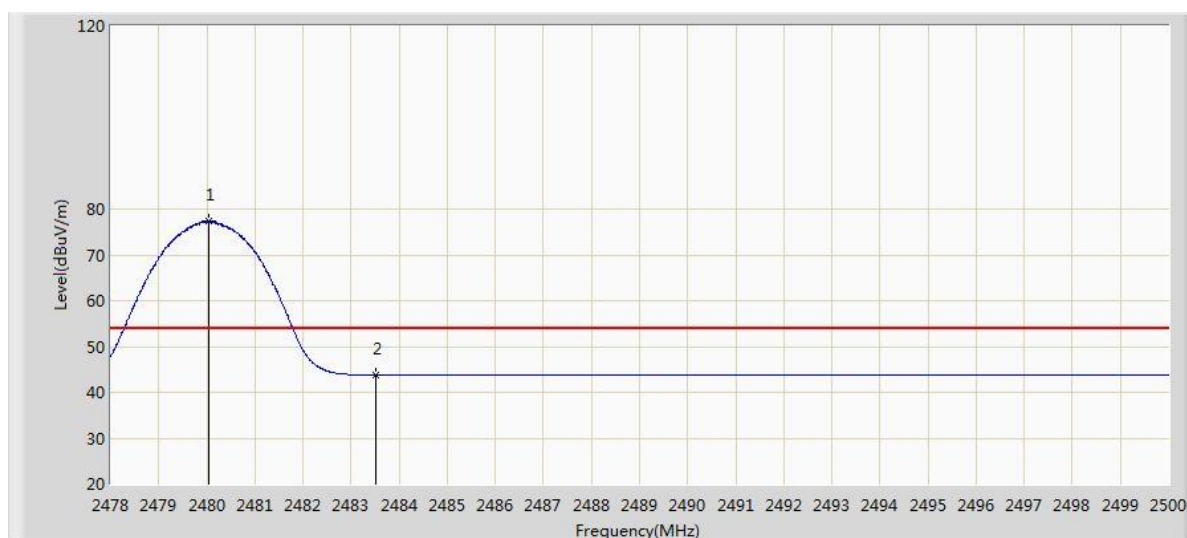
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 55.429                       | 24.745               | -18.571     | 74.000               | 30.684              | PK       | V     |
| 2402.073    | 98.049                       | 67.388               | N/A         | N/A                  | 30.661              | PK       |       |



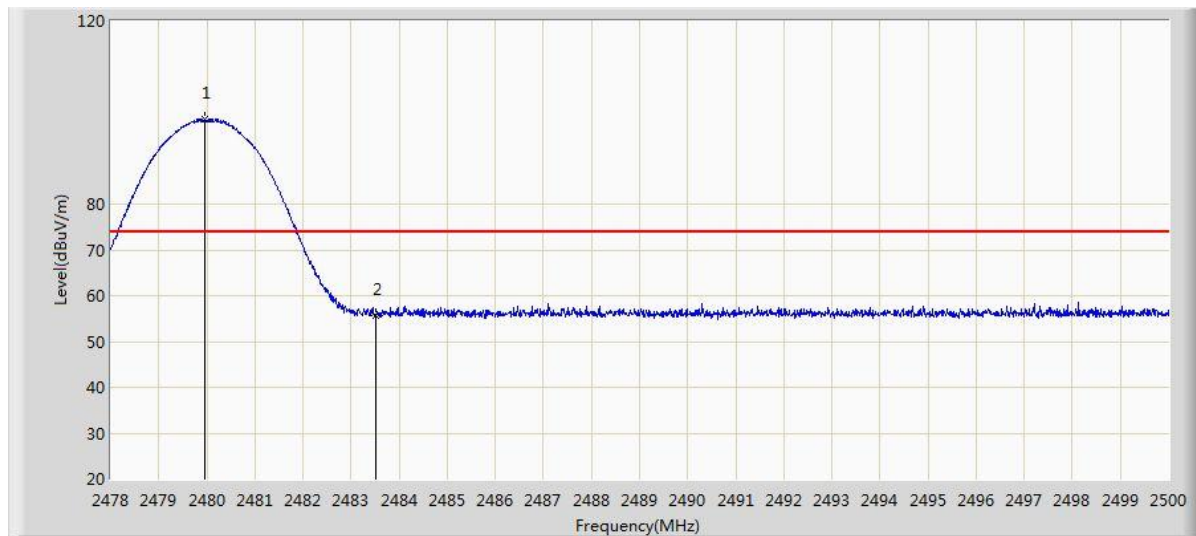
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 43.290                       | 12.606               | -10.710     | 54.000               | 30.684              | AV       | V     |
| 2402.073    | 84.200                       | 53.539               | N/A         | N/A                  | 30.661              | AV       |       |

**High Channel**


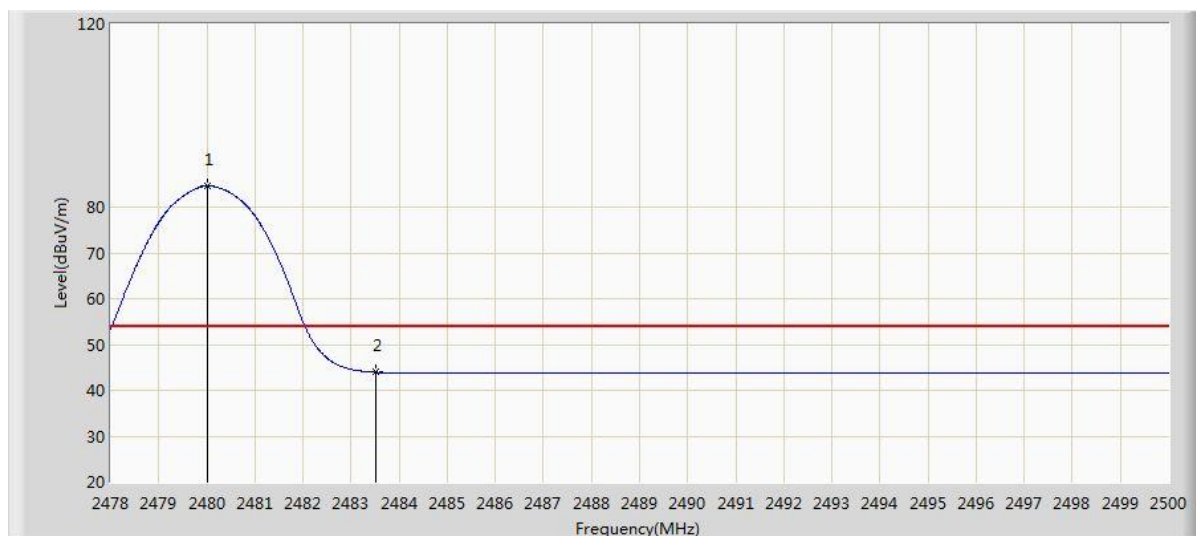
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2479.936    | 90.241                       | 59.579               | N/A         | N/A                  | 30.662              | PK       | H     |
| 2483.500    | 57.192                       | 26.519               | -16.808     | 74.000               | 30.673              | PK       |       |



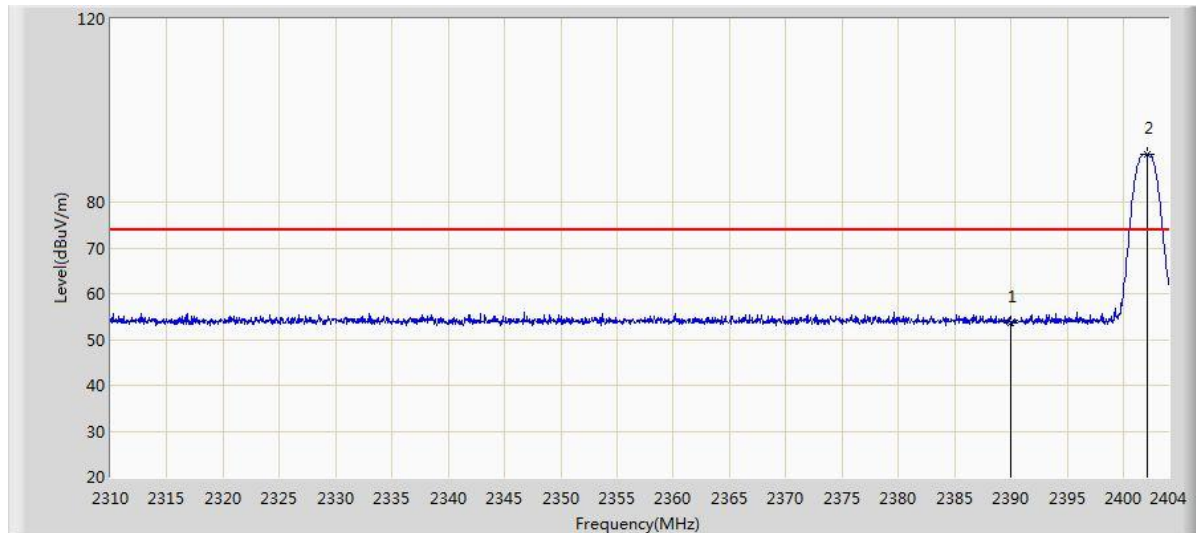
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.046    | 77.304                       | 46.641               | N/A         | N/A                  | 30.662              | AV       | H     |
| 2483.500    | 43.695                       | 13.022               | -10.305     | 54.000               | 30.673              | AV       |       |



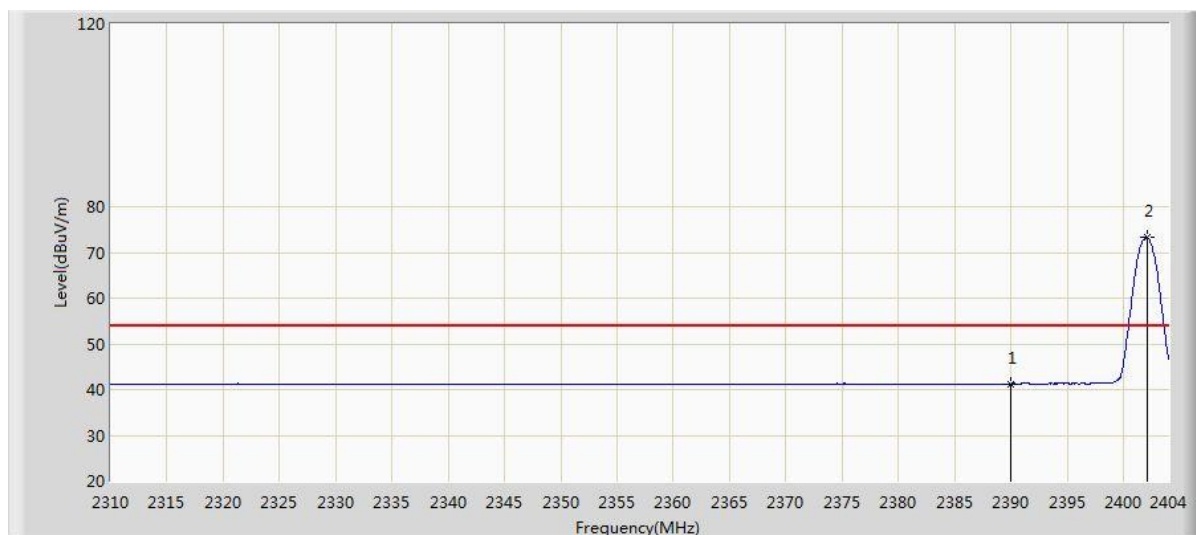
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2479.969    | 98.439                       | 67.777               | N/A         | N/A                  | 30.662              | PK       | V     |
| 2483.500    | 55.543                       | 24.870               | -18.457     | 74.000               | 30.673              | PK       |       |



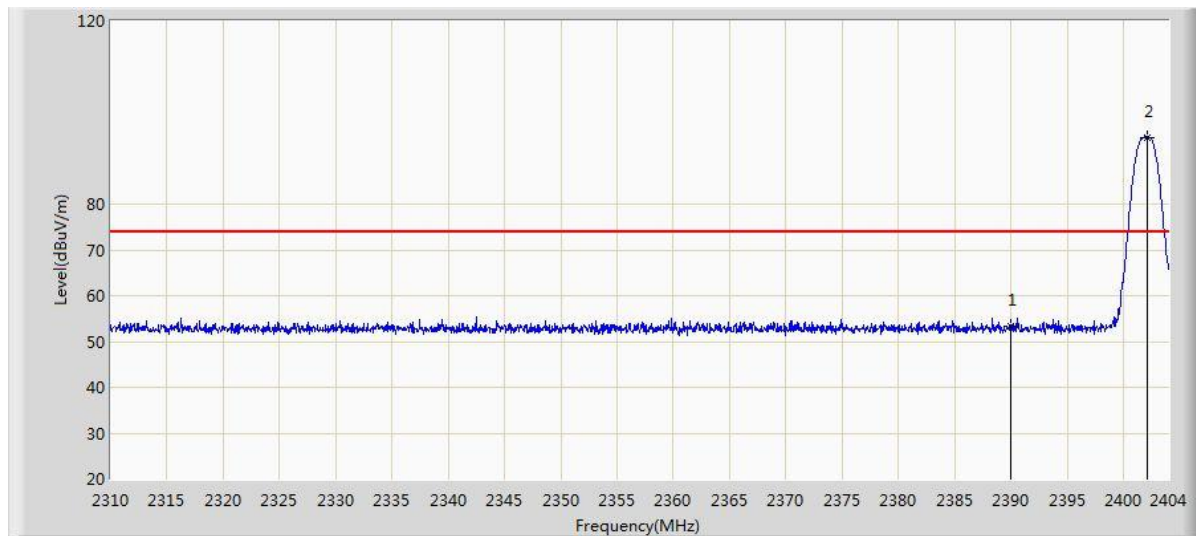
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.002    | 84.603                       | 53.941               | N/A         | N/A                  | 30.662              | AV       | V     |
| 2483.500    | 43.948                       | 13.275               | -10.052     | 54.000               | 30.673              | AV       |       |

**Test Plot of Frequency Band Edge of Bluetooth BLE mode**  
**Low Channel**


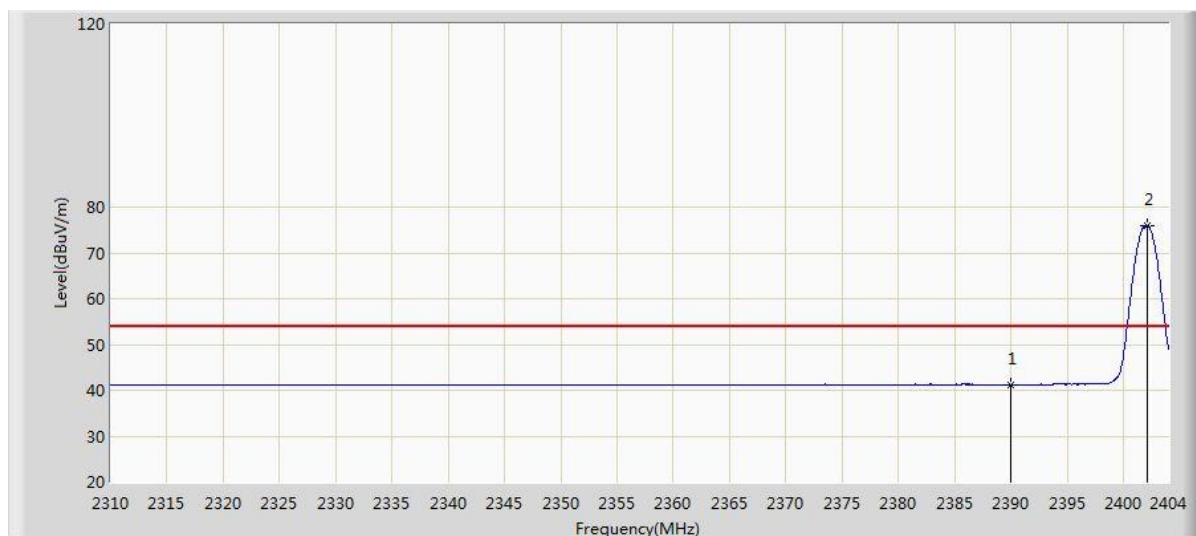
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 53.743                       | 23.059               | -20.257     | 74.000               | 30.684              | PK       | H     |
| 2402.073    | 90.491                       | 59.830               | N/A         | N/A                  | 30.661              | PK       |       |



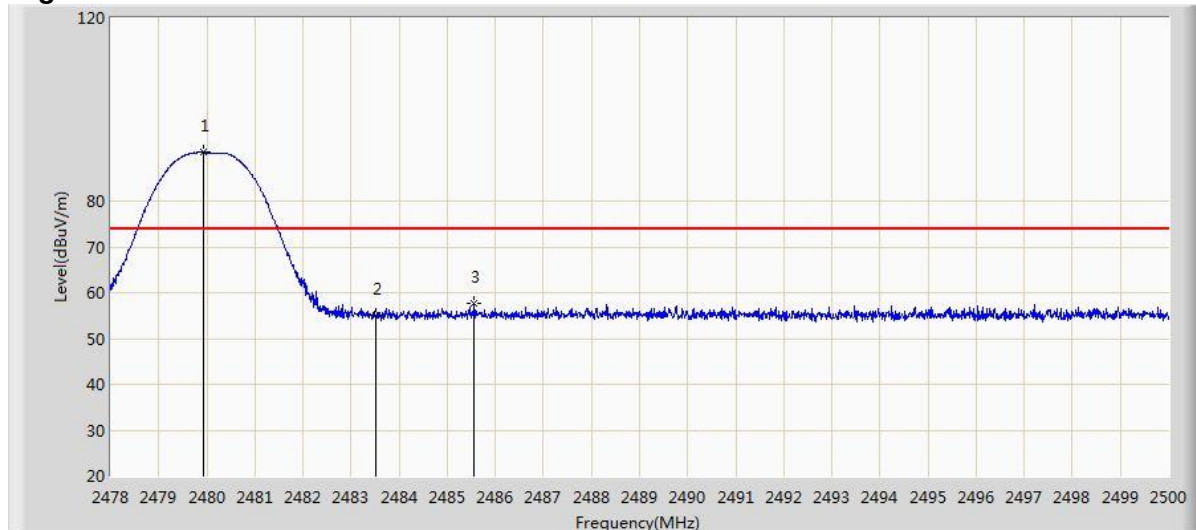
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 41.262                       | 10.578               | -12.738     | 54.000               | 30.684              | AV       | H     |
| 2402.073    | 73.268                       | 42.607               | N/A         | N/A                  | 30.661              | AV       |       |



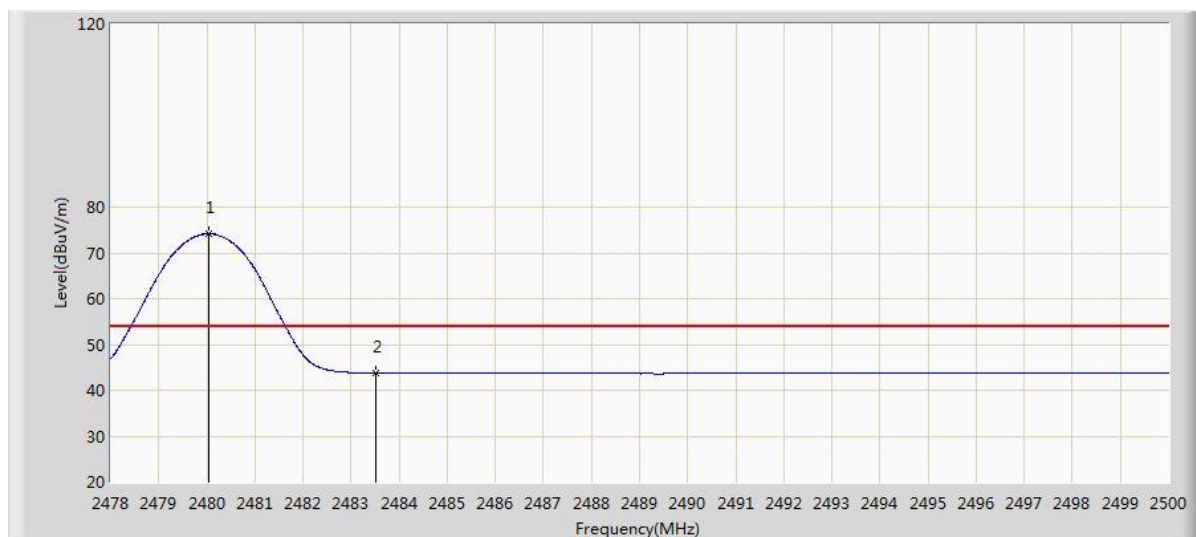
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 53.426                       | 22.742               | -20.574     | 74.000               | 30.684              | PK       | V     |
| 2402.073    | 94.607                       | 63.946               | N/A         | N/A                  | 30.661              | PK       |       |



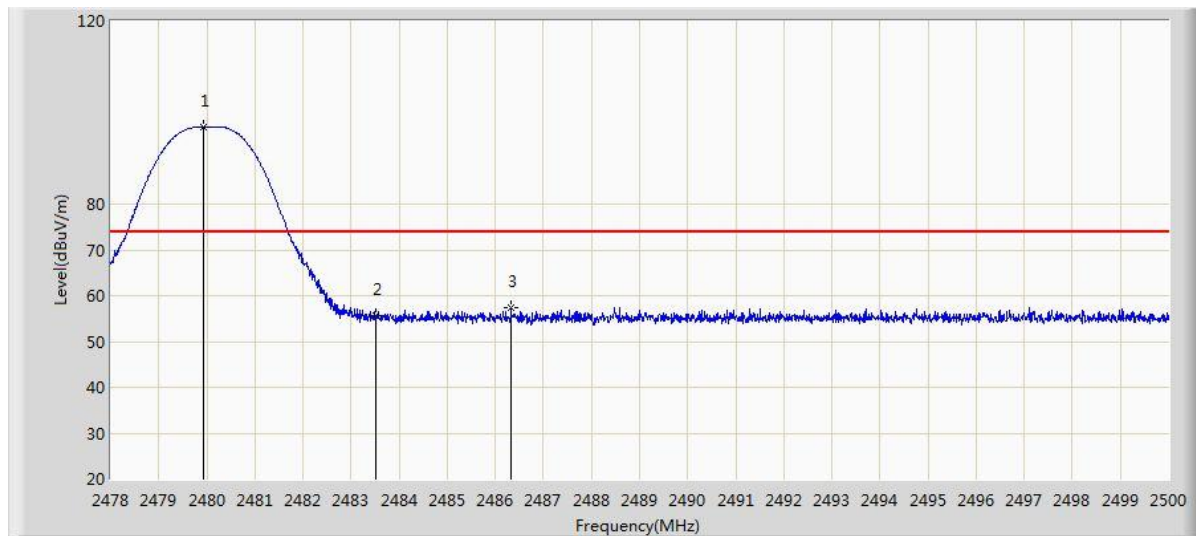
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2390.000    | 41.280                       | 10.596               | -12.720     | 54.000               | 30.684              | AV       | V     |
| 2402.073    | 76.040                       | 45.379               | N/A         | N/A                  | 30.661              | AV       |       |

**High Channel**


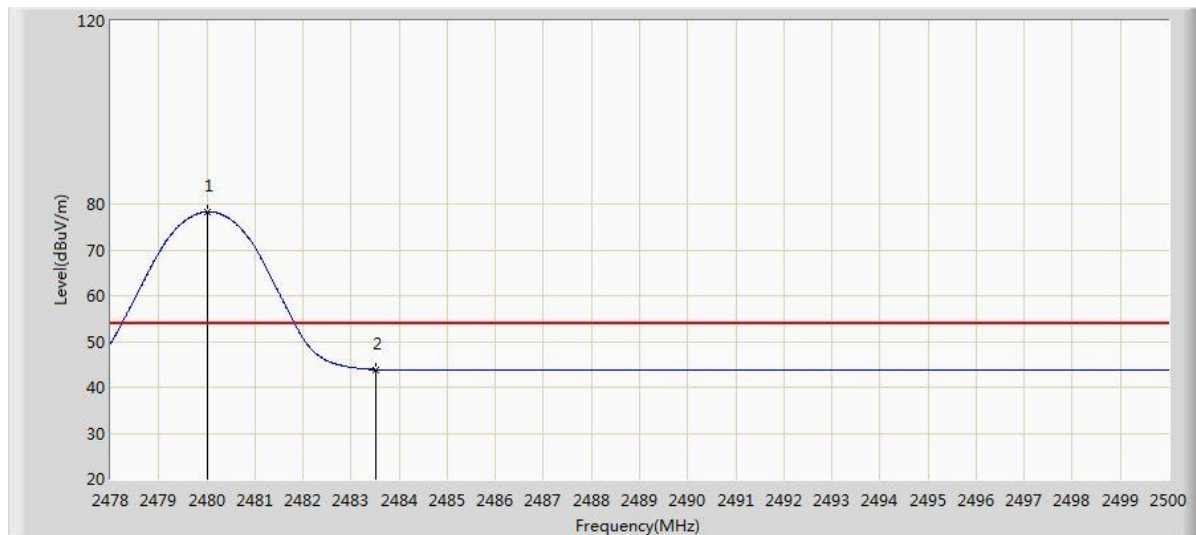
| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2479.936    | 90.654                       | 59.992               | N/A         | N/A                  | 30.662              | PK       | H     |
| 2483.500    | 55.112                       | 24.439               | -18.888     | 74.000               | 30.673              | PK       |       |
| 2485.557    | 57.729                       | 27.050               | -16.271     | 74.000               | 30.678              | PK       |       |



| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.046    | 74.140                       | 43.477               | N/A         | N/A                  | 30.662              | AV       | H     |
| 2483.500    | 43.749                       | 13.076               | -10.251     | 54.000               | 30.673              | AV       |       |



| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2479.936    | 96.881                       | 66.219               | N/A         | N/A                  | 30.662              | PK       | V     |
| 2483.500    | 55.543                       | 24.870               | -18.457     | 74.000               | 30.673              | PK       |       |
| 2486.327    | 57.293                       | 26.612               | -16.707     | 74.000               | 30.681              | PK       |       |



| Freq. (MHz) | Measure Level (dB $\mu$ V/m) | Reading (dB $\mu$ V) | Margin (dB) | Limit (dB $\mu$ V/m) | Correct Factor (dB) | Detector | Polar |
|-------------|------------------------------|----------------------|-------------|----------------------|---------------------|----------|-------|
| 2480.002    | 78.315                       | 47.653               | N/A         | N/A                  | 30.662              | AV       | V     |
| 2483.500    | 43.909                       | 13.236               | -10.091     | 54.000               | 30.673              | AV       |       |

### 5.1.8 Frequency Separation

**RESULT:**
**Pass**

Date of testing : 2014-10-26  
 Test standard : FCC part 15.247(a)(1)  
 Basic standard : ANSI C63.4: 2009  
 Limit :  $\geq 25\text{kHz}$  or two-thirds of 20dB bandwidth,  
 whichever is greater  
 Kind of test site : Shield room

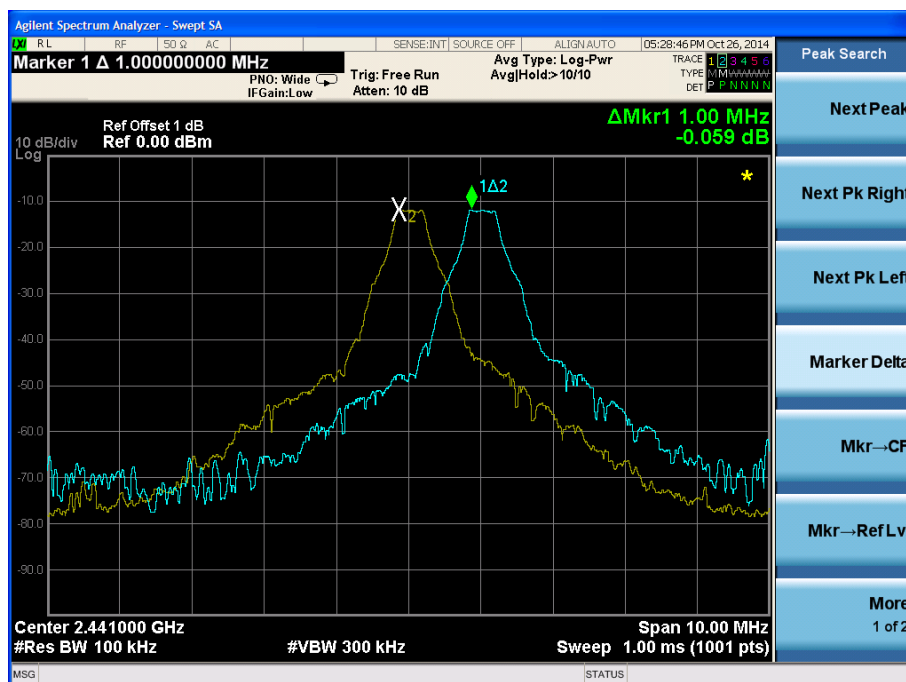
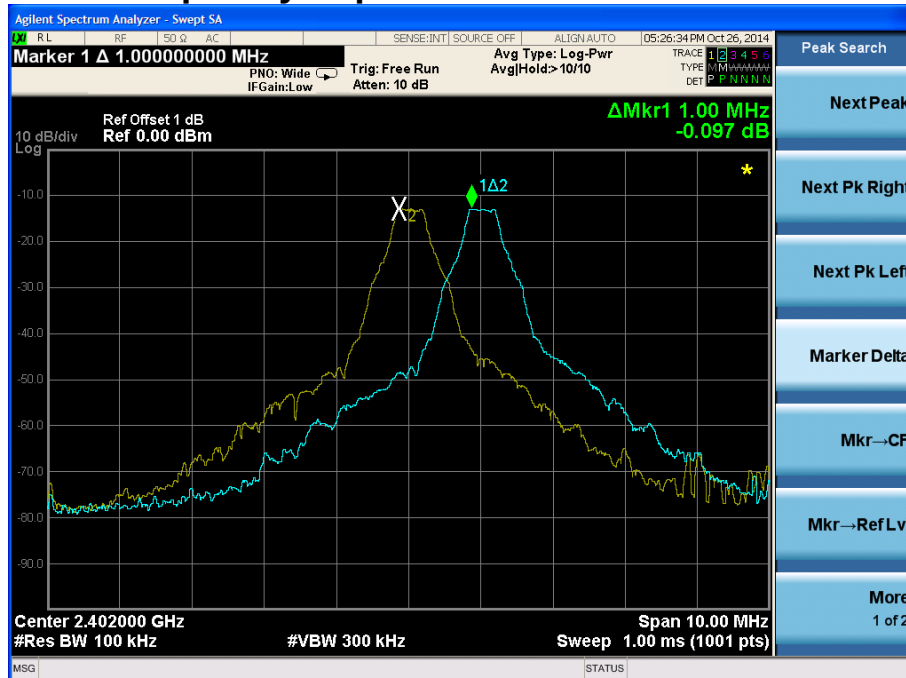
**Test setup**

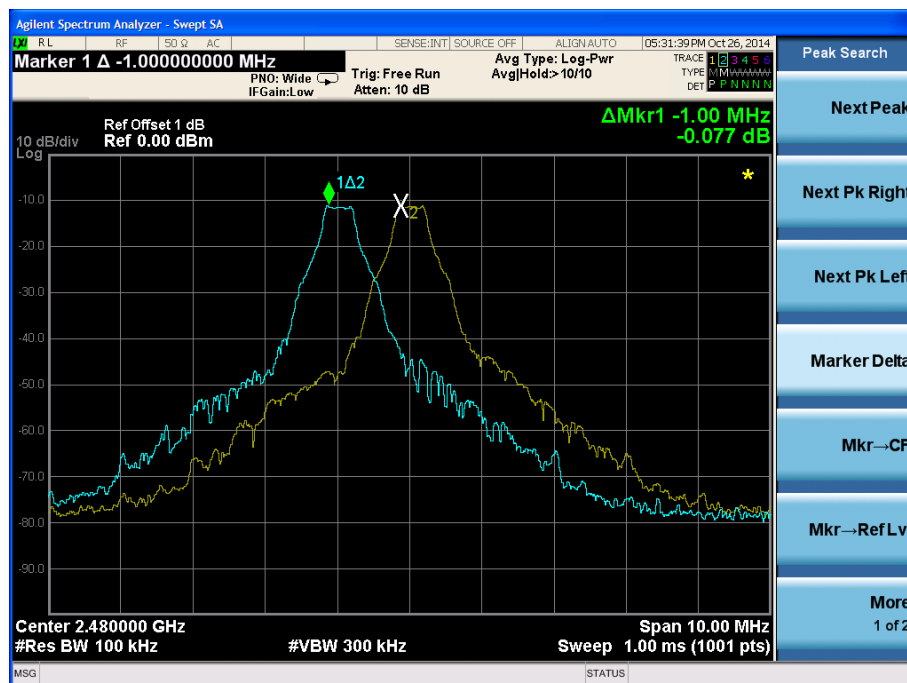
Test Channel : Low/ Middle/ High  
 Operation Mode : A.1.a  
 Ambient temperature : 25°C  
 Relative humidity : 52%  
 Atmospheric pressure : 101kPa

**Table 16: Test result of Frequency Separation**

| Channel           | Channel Frequency (MHz) | Measured Channel Separation (MHz) | Limit (kHz)                                         | Result |
|-------------------|-------------------------|-----------------------------------|-----------------------------------------------------|--------|
| Low Channel       | 2402                    | 1                                 | $\geq 25\text{kHz}$ or two-thirds of 20dB bandwidth | Pass   |
| Adjacency Channel | 2403                    |                                   |                                                     |        |
| Mid Channel       | 2441                    | 1                                 | $\geq 25\text{kHz}$ or two-thirds of 20dB bandwidth | Pass   |
| Adjacency Channel | 2442                    |                                   |                                                     |        |
| High Channel      | 2479                    | 1                                 | $\geq 25\text{kHz}$ or two-thirds of 20dB bandwidth | Pass   |
| Adjacency Channel | 2480                    |                                   |                                                     |        |

## Test Plot of Frequency Separation





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**5.1.9 Number of hopping frequency****RESULT:****Pass**

Date of testing : 2014-10-27  
Test standard : FCC part 15.247(a)(1)(iii)  
Basic standard : ANSI C63.4: 2009  
Limits :  $\geq 15$  non-overlapping channels  
Kind of test site : Shield room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A.1.a  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

**Table 17: Test result of Number of hopping frequency**

| Frequency Range | Measured Quantity of Hopping Channel | Limit     | Result |
|-----------------|--------------------------------------|-----------|--------|
| 2402 to 2480MHz | 79                                   | $\geq 15$ | Pass   |

**5.1.10 Time of Occupancy****RESULT:****Pass**

Date of testing : 2014-10-26  
Test standard : FCC part 15.247(a)(1)(iii)  
Basic standard : ANSI C63.4: 2009  
Limits : 0.4s  
Kind of test site : Shield room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A.1.a  
Ambient temperature : 25°C  
Relative humidity : 52%  
Atmospheric pressure : 101kPa

**Table 18: Test result of Time of Occupancy**

| Mode | Packet Type | Channel Frequency (MHz) | Packet Duration [ms] | Number of Hops per Channel | Dwell Time (ms) | Limit [ms] |
|------|-------------|-------------------------|----------------------|----------------------------|-----------------|------------|
| BDR  | DH1         | 2441                    | 0.410                | 320                        | 131.20          | 400        |
|      | DH3         | 2441                    | 1.660                | 160                        | 265.60          | 400        |
|      | DH5         | 2441                    | 2.910                | 104                        | 302.64          | 400        |
| EDR  | DH1         | 2441                    | 0.410                | 320                        | 131.20          | 400        |
|      | DH3         | 2441                    | 1.660                | 160                        | 265.60          | 400        |
|      | DH5         | 2441                    | 2.910                | 104                        | 302.64          | 400        |

### 5.1.11 Conducted emissions

**RESULT:**
**Pass**

Date of testing : 2014-10-26  
 Test standard : FCC Part 15.207  
 Basic standard : ANSI C63.4: 2009  
 Frequency range : 0.15 – 30MHz  
 Limits : FCC Part 15.207  
 Kind of test site : Shield room

**Test setup**

Input Voltage : AC 120V, 60Hz  
 Operation Mode : A.1  
 Earthing : Not Connected  
 Ambient temperature : 25°C  
 Relative humidity : 52%  
 Atmospheric pressure : 101kPa

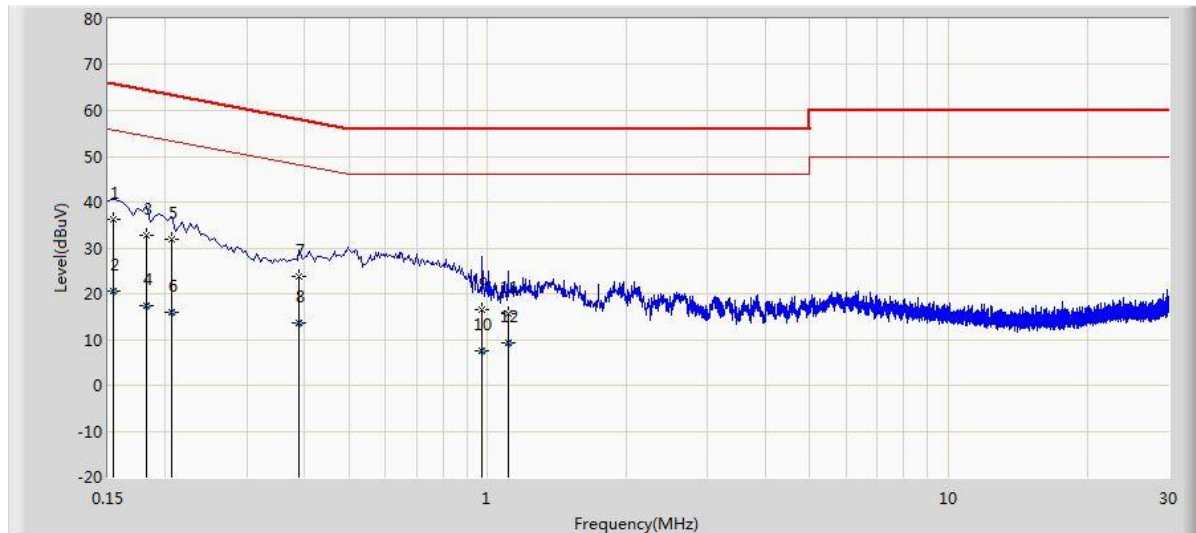
**Table 19: Test result of Conducted Emission**

| Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Factor | Type | Line |
|-----------------|----------------------|----------------------|-----------------|--------------|--------|------|------|
| 0.154           | 36.286               | 25.547               | -29.495         | 65.781       | 10.740 | QP   | L    |
| 0.154           | 20.459               | 9.719                | -35.322         | 55.781       | 10.740 | AV   | L    |
| 0.182           | 32.752               | 22.704               | -31.642         | 64.394       | 10.048 | QP   | L    |
| 0.182           | 17.347               | 7.299                | -37.046         | 54.394       | 10.048 | AV   | L    |
| 0.206           | 31.761               | 21.780               | -31.604         | 63.365       | 9.981  | QP   | L    |
| 0.206           | 15.865               | 5.885                | -37.500         | 53.365       | 9.981  | AV   | L    |
| 0.390           | 23.764               | 13.687               | -34.300         | 58.064       | 10.077 | QP   | L    |
| 0.390           | 13.491               | 3.414                | -34.572         | 48.064       | 10.077 | AV   | L    |
| 0.974           | 16.580               | 6.658                | -39.420         | 56.000       | 9.922  | QP   | L    |
| 0.974           | 7.602                | -2.320               | -38.398         | 46.000       | 9.922  | AV   | L    |
| 1.106           | 15.648               | 5.744                | -40.352         | 56.000       | 9.904  | QP   | L    |
| 1.106           | 9.234                | -0.671               | -36.766         | 46.000       | 9.904  | AV   | L    |

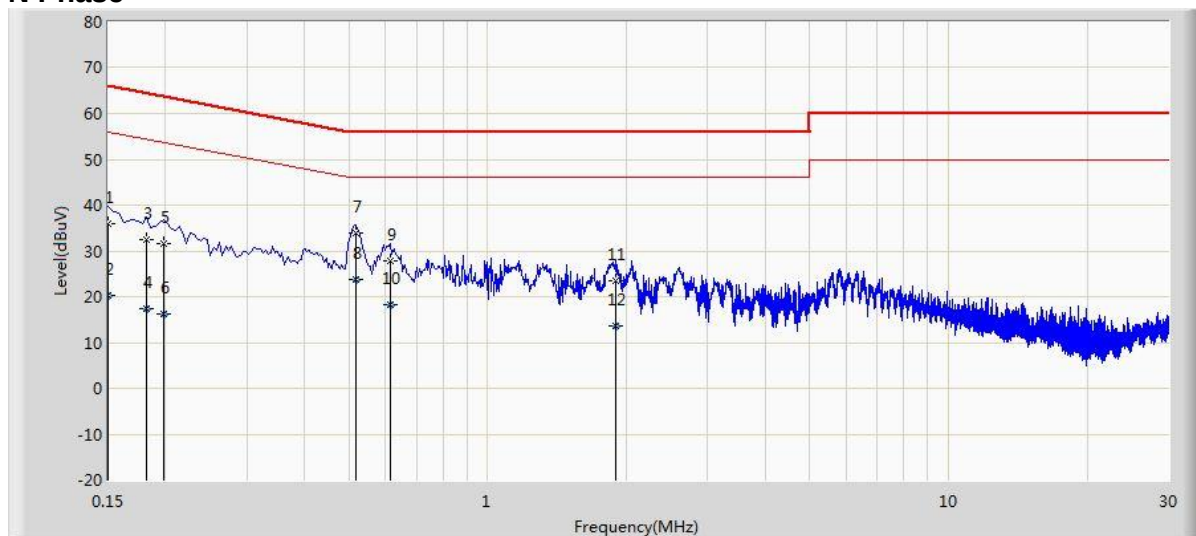
| Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Factor | Type | Line |
|-----------------|----------------------|----------------------|-----------------|--------------|--------|------|------|
| 0.150           | 36.009               | 24.867               | -29.991         | 66.000       | 11.142 | QP   | N    |
| 0.150           | 20.432               | 9.290                | -35.568         | 56.000       | 11.142 | AV   | N    |
| 0.182           | 32.395               | 22.352               | -31.999         | 64.394       | 10.042 | QP   | N    |
| 0.182           | 17.407               | 7.365                | -36.987         | 54.394       | 10.042 | AV   | N    |
| 0.198           | 31.651               | 21.637               | -32.043         | 63.694       | 10.015 | QP   | N    |
| 0.198           | 16.204               | 6.189                | -37.491         | 53.694       | 10.015 | AV   | N    |
| 0.518           | 33.813               | 23.638               | -22.187         | 56.000       | 10.175 | QP   | N    |
| 0.518           | 23.863               | 13.688               | -22.137         | 46.000       | 10.175 | AV   | N    |
| 0.614           | 27.780               | 17.657               | -28.220         | 56.000       | 10.124 | QP   | N    |
| 0.614           | 18.403               | 8.279                | -27.597         | 46.000       | 10.124 | AV   | N    |
| 1.898           | 23.506               | 13.629               | -32.494         | 56.000       | 9.877  | QP   | N    |
| 1.898           | 13.582               | 3.705                | -32.418         | 46.000       | 9.877  | AV   | N    |

## Test Plot of Conducted Emission

### L Phase



### N Phase



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