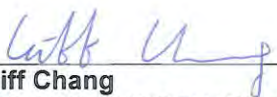


# FCC Test Report

**Equipment** : AC1300 Whole Home Wi-Fi System  
**Brand Name** : TP-Link  
**Model No.** : Deco M5  
**FCC ID** : TE7M5  
**Standard** : 47 CFR FCC Part 15.247  
**Operating Band** : 2400 MHz – 2483.5 MHz  
**Applicant** : TP-Link Technologies Co., Ltd.  
Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central  
Science and Technology Park,Shennan Rd, Nanshan,  
Shenzhen,China  
**Manufacturer** : TP-Link Technologies Co., Ltd.  
Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central  
Science and Technology Park,Shennan Rd, Nanshan,  
Shenzhen,China

The product sample received on Jun. 29, 2016 and completely tested on Jan. 13, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given inanes and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONALINC., the test report shall not be reproduced except in full.

  
Cliff Chang  
SPORTON INTERNATIONAL INC.



## Table of Contents

|                                                                                       |                                                          |           |
|---------------------------------------------------------------------------------------|----------------------------------------------------------|-----------|
| <b>1</b>                                                                              | <b>GENERAL DESCRIPTION .....</b>                         | <b>5</b>  |
| 1.1                                                                                   | Information.....                                         | 5         |
| 1.2                                                                                   | Testing Applied Standards .....                          | 7         |
| 1.3                                                                                   | Testing Location Information .....                       | 7         |
| 1.4                                                                                   | Measurement Uncertainty .....                            | 8         |
| <b>2</b>                                                                              | <b>TEST CONFIGURATION OF EUT.....</b>                    | <b>9</b>  |
| 2.1                                                                                   | Test Channel Mode .....                                  | 9         |
| 2.2                                                                                   | The Worst Case Measurement Configuration.....            | 10        |
| 2.3                                                                                   | EUT Operation during Test .....                          | 11        |
| 2.4                                                                                   | Accessories .....                                        | 12        |
| 2.5                                                                                   | Support Equipment.....                                   | 12        |
| 2.6                                                                                   | Test Setup Diagram .....                                 | 13        |
| <b>3</b>                                                                              | <b>TRANSMITTER TEST RESULT .....</b>                     | <b>16</b> |
| 3.1                                                                                   | AC Power-line Conducted Emissions .....                  | 16        |
| 3.2                                                                                   | 20dB Bandwidth and Carrier Frequency Separation.....     | 18        |
| 3.3                                                                                   | Maximum Conducted Output Power .....                     | 19        |
| 3.4                                                                                   | Number of Hopping Frequencies and Hopping Bandedge ..... | 20        |
| 3.5                                                                                   | Time of Occupancy (Dwell Time) .....                     | 21        |
| 3.6                                                                                   | Emissions in Non-restricted Frequency Bands .....        | 22        |
| 3.7                                                                                   | Emissions in Restricted Frequency Bands.....             | 23        |
| <b>4</b>                                                                              | <b>TEST EQUIPMENT AND CALIBRATION DATA .....</b>         | <b>26</b> |
| <b>APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS</b>                  |                                                          |           |
| <b>APPENDIX B. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION</b>    |                                                          |           |
| <b>APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER</b>                     |                                                          |           |
| <b>APPENDIX D. TEST RESULTS OF NUMBER OF HOPPING FREQUENCIES AND HOPPING BANDEDGE</b> |                                                          |           |
| <b>APPENDIX E. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)</b>                     |                                                          |           |
| <b>APPENDIX F. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS</b>        |                                                          |           |
| <b>APPENDIX G. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS</b>            |                                                          |           |
| <b>APPENDIX H. TEST RESULTS OF RADIATED EMISSION CO-LOCATION</b>                      |                                                          |           |
| <b>APPENDIX I. TEST PHOTOS</b>                                                        |                                                          |           |
| <b>PHOTOGRAPHS OF EUT V01</b>                                                         |                                                          |           |

## Summary of Test Result

| Conformance Test Specifications |                  |                                                     |                                 |          |
|---------------------------------|------------------|-----------------------------------------------------|---------------------------------|----------|
| Report Clause                   | Ref. Std. Clause | Description                                         | Limit                           | Result   |
| 1.1.2                           | 15.203           | Antenna Requirement                                 | FCC 15.203                      | Complied |
| 3.1                             | 15.207           | AC Power-line Conducted Emissions                   | FCC 15.207                      | Complied |
| 3.2                             | 15.247(a)        | 20dB Bandwidth                                      | 15.247(a)                       | Complied |
| 3.2                             | 15.247(a)        | Carrier Frequency Separation                        | 15.247(a)                       | Complied |
| 3.3                             | 15.247(b)        | Maximum Conducted Output Power                      | 15.247(b)                       | Complied |
| 3.4                             | 15.247(a)        | Number of Hopping Frequencies and Hopping Band edge | 15.247(a)                       | Complied |
| 3.5                             | 15.247(a)        | Time of Occupancy (Dwell Time)                      | 15.247(a)                       | Complied |
| 3.6                             | 15.247(d)        | Emissions in Non-restricted Frequency Bands         | 15.247(d)                       | Complied |
| 3.7                             | 15.247(d)        | Emissions in Restricted Frequency Bands             | Restricted Bands:<br>FCC 15.209 | Complied |



SPORTON INTERNATIONAL INC.  
TEL : 886-3-3273456  
FAX : 886-3-3270973  
FCC ID: TE7M5

# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | Bluetooth Version | Ch. Frequency (MHz) | Channel Number |
|-----------------------|-------------------|---------------------|----------------|
| 2400-2483.5           | BR / EDR          | 2402-2480           | 0-78 [79]      |

| Band | Mode    | BWch (MHz) | Nant |
|------|---------|------------|------|
| 2.4G | BT-EDR  | 1          | 1    |
| 2.4G | BT-EDR2 | 1          | 1    |
| 2.4G | BT-EDR3 | 1          | 1    |

**Note:**

- ♦ 2.4G is the 2.4GHz Band (2.4-2.4835GHz).
- ♦ Bluetooth BR uses a GFSK (1Mbps).
- ♦ Bluetooth EDR uses a combination of  $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).
- ♦ Bluetooth BR/EDR uses as a system using FHSS modulation.
- ♦ BWch is the channel separation
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

**1.1.2 Antenna Information**

| Ant. | Brand   | P/N          | Antenna Type                | Connector | Gain (dBi)   |               |               |           |
|------|---------|--------------|-----------------------------|-----------|--------------|---------------|---------------|-----------|
|      |         |              |                             |           | WLAN<br>2.4G | WLAN<br>5G B1 | WLAN<br>5G B4 | Bluetooth |
| 1    | TP-LINK | 3101501201   | Omni-Directional<br>Antenna | I-PEX     | 1.30         | -             | -             | -         |
| 2    | TP-LINK | 3101501201   | Omni-Directional<br>Antenna | I-PEX     | 1.30         | -             | -             | -         |
| 3    | TP-LINK | 5G2-M5       | Omni-Directional<br>Antenna | N/A       | -            | 0.64          | 0.88          | -         |
| 4    | TP-LINK | 5G2-M5       | Omni-Directional<br>Antenna | N/A       | -            | 0.64          | 0.88          | -         |
| 5    | TP-LINK | Bluetooth-M5 | Omni-Directional<br>Antenna | N/A       | -            | -             | -             | 1.40      |

Note:

Ant. 1~Ant. 2 connect to port1~port 2 for 2.4GHz.

Ant. 3~Ant. 4 connect to port1~port 2 for 5GHz.

Ant. 5 connect to port1 for bluetooth.

**For 2.4GHz IEEE 802.11b/g/n/ac mode (2TX/2RX):**

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

**For 5GHz IEEE 802.11n/a/ac mode (2TX/2RX):**

Ant. 3 and Ant. 4 could transmit/receive simultaneously.

**For bluetooth mode (1TX/1RX):**

Only Ant. 5 could transmit/receive.

**1.1.3 Mode Test Duty Cycle**

| Mode    | DC    | T(s)  |
|---------|-------|-------|
| BT-EDR  | 0.745 | 1.278 |
| BT-EDR2 | 0.789 | 1.029 |
| BT-EDR3 | 0.789 | 1.029 |

**1.1.4 EUT Operational Condition**

|                |                    |
|----------------|--------------------|
| EUT Power Type | From Power Adapter |
|----------------|--------------------|

## 1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ FCC Public Notice DA 00-705
- ◆ FCC KDB 412172 D01 v01r01

## 1.3 Testing Location Information

| Testing Location                    |        |                                                                                  |                      |                      |
|-------------------------------------|--------|----------------------------------------------------------------------------------|----------------------|----------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.   | TEL : 886-3-327-3456 | FAX : 886-3-318-0055 |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. | TEL : 886-3-656-9065 | FAX : 886-3-656-9085 |

| Test Condition | Test Site No. | Test Engineer                                                   | Test Environment | Test Date                     |
|----------------|---------------|-----------------------------------------------------------------|------------------|-------------------------------|
| RF Conducted   | TH01-CB       | Gino Huang & Gary Chu                                           | 22°C / 55%       | Nov. 19, 2016 ~ Jan. 13, 2017 |
| Radiated       | 03CH01-CB     | Poul Chen & Mason Chen & Welson Chen & Steven Liang & Zero Chen | 22°C / 54%       | Nov. 15, 2016 ~ Dec. 13, 2016 |
| AC Conduction  | CO01-CB       | GN Hou & Ryo Fan                                                | 23°C / 60%       | Dec. 01, 2016                 |

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Test Items                           | Uncertainty           | Remark                   |
|--------------------------------------|-----------------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz)  | 3.2 dB                | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 3.6 dB                | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.7 dB                | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB                | Confidence levels of 95% |
| Conducted Emission                   | 1.7 dB                | Confidence levels of 95% |
| Output Power Measurement             | 1.33 dB               | Confidence levels of 95% |
| Bandwidth Measurement                | $9.74 \times 10^{-8}$ | Confidence levels of 95% |



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

| Band | Mode    | BWch (MHz) | Nss-Min | Nant | Ch. (MHz) | Range | Power Setting |
|------|---------|------------|---------|------|-----------|-------|---------------|
| 2.4G | BT-EDR  | 1          | 1       | 1    | 2402      | L     | 8             |
| 2.4G | BT-EDR  | 1          | 1       | 1    | 2441      | M     | 8             |
| 2.4G | BT-EDR  | 1          | 1       | 1    | 2480      | H     | 8             |
| 2.4G | BT-EDR2 | 1          | 1       | 1    | 2402      | L     | 8             |
| 2.4G | BT-EDR2 | 1          | 1       | 1    | 2441      | M     | 8             |
| 2.4G | BT-EDR2 | 1          | 1       | 1    | 2480      | H     | 8             |
| 2.4G | BT-EDR3 | 1          | 1       | 1    | 2402      | L     | 8             |
| 2.4G | BT-EDR3 | 1          | 1       | 1    | 2441      | M     | 8             |
| 2.4G | BT-EDR3 | 1          | 1       | 1    | 2480      | H     | 8             |

Note:

- ♦ Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch.) and C (Straddle Band Ch.).

## 2.2 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests                           |                                                          |
|-------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Tests Item</b>                                                             | AC power-line conducted emissions                        |
| <b>Condition</b>                                                              | AC power-line conducted measurement for line and neutral |
| <b>Operating Mode</b>                                                         | Normal Link                                              |
| 1                                                                             | Repeater Mode with AP_2.4GHz                             |
| 2                                                                             | Repeater Mode with AP_5GHz                               |
| For operating mode 1 is the worst case and it was record in this test report. |                                                          |

| The Worst Case Mode for Following Conformance Tests |                                                                                                                                                                                                                        |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                   | 20dB Bandwidth<br>Carrier Frequency Separation<br>Maximum Conducted Output Power<br>Number of Hopping Frequencies<br>Hopping Bandedge<br>Time of Occupancy (Dwell Time)<br>Emissions in Non-restricted Frequency Bands |
| <b>Test Condition</b>                               | Conducted measurement at transmit chains                                                                                                                                                                               |

| The Worst Case Mode for Following Conformance Tests                           |                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                                             | Emissions in Restricted Frequency Bands                                                                                                                                                                                                             |
| <b>Test Condition</b>                                                         | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. |
| <b>Operating Mode &lt; 1GHz</b>                                               | Normal Link                                                                                                                                                                                                                                         |
| 1                                                                             | Repeater Mode with AP_2.4GHz                                                                                                                                                                                                                        |
| 2                                                                             | Repeater Mode with AP_5GHz                                                                                                                                                                                                                          |
| For operating mode 2 is the worst case and it was record in this test report. |                                                                                                                                                                                                                                                     |
| <b>Operating Mode &gt; 1GHz</b>                                               | CTX                                                                                                                                                                                                                                                 |
| 1                                                                             | EUT in Z axis_Repeater Mode with AP                                                                                                                                                                                                                 |

| The Worst Case Mode for Following Conformance Tests                                                                                                                                                                  |                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>Tests Item</b>                                                                                                                                                                                                    | Simultaneous Transmission Analysis |
| <b>Test Condition</b>                                                                                                                                                                                                | Radiated measurement               |
| <b>Operating Mode</b>                                                                                                                                                                                                | Normal Link                        |
| 1                                                                                                                                                                                                                    | WLAN 2.4GHz + Bluetooth            |
| 2                                                                                                                                                                                                                    | WLAN 5GHz + Bluetooth              |
| For operating mode 2 is the worst case and it was record in this test report.<br>Refer to Sporton Test Report No.: FA672842 for Co-location RF Exposure Evaluation and Appendix H for Radiated Emission Co-location. |                                    |

Note1: The EUT only uses in Z axis.

Note2: The EUT supports both AP and Repeater mode. Repeater mode selected as representative mode because it is equipped with the most complicated functions.

## 2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

## 2.4 Accessories

| Accessories    |                                |             |                                                           |
|----------------|--------------------------------|-------------|-----------------------------------------------------------|
| Equipment Name | Brand Holder                   | Model Name  | Rating                                                    |
| Adapter        | TP-Link Technologies Co., Ltd. | T120120-2B4 | INPUT: 100-240V~50/60Hz 0.4A<br>OUTPUT: 5V-1.2A, 12V-1.2A |

## 2.5 Support Equipment

For Test Site No: CO01-CB

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB*5      | DELL       | E6430      | DoC    |
| 2                 | Device    | TP-Link    | Deco M5    | TE7M5  |
| 3                 | iPad      | Apple      | A1430      | DoC    |

For Test Site No: 03CH01-CB (below 1GHz)

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB*5      | DELL       | E4300      | DoC    |
| 2                 | AP Router | Planex     | GW-AP54SGX | N/A    |
| 3                 | iPad      | Apple      | A1430      | N/A    |

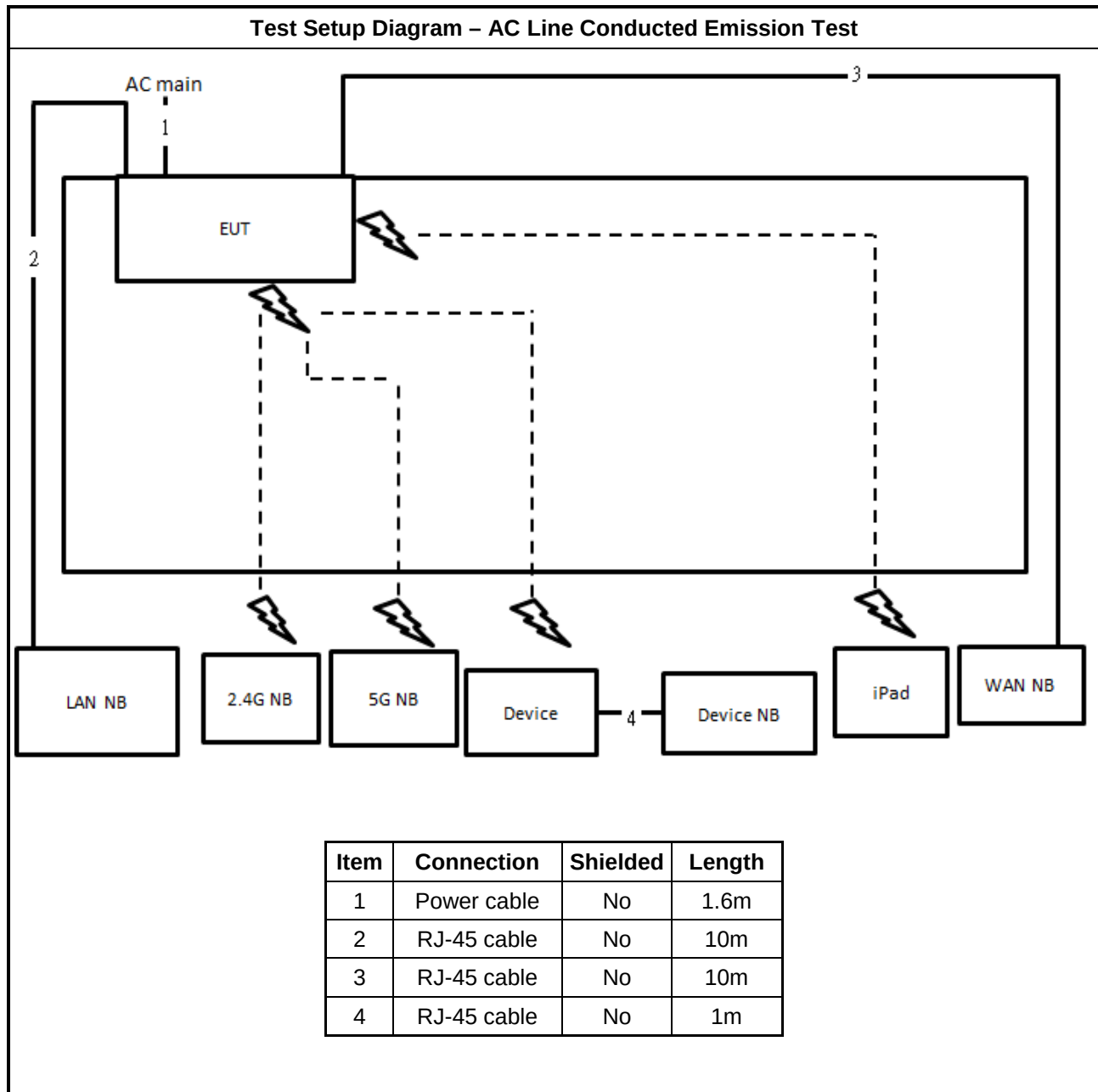
For Test Site No: 03CH01-CB (above 1GHz)

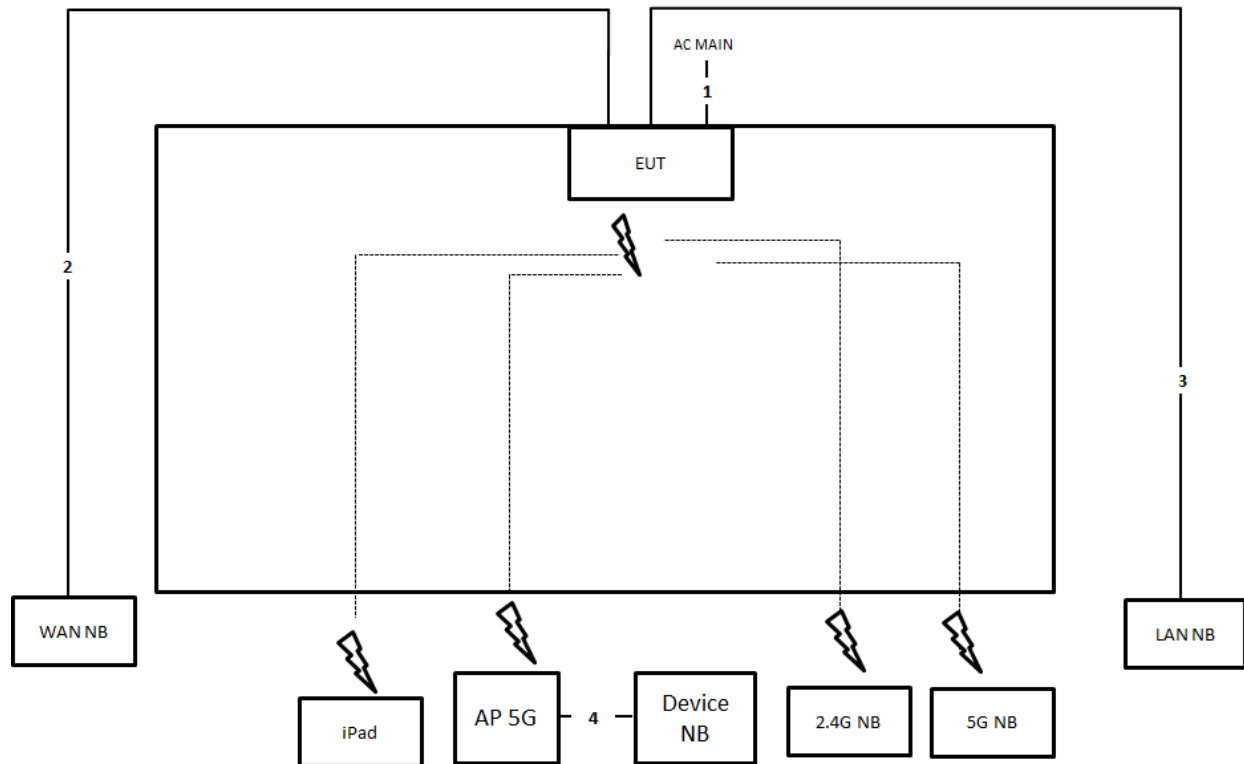
| Support Equipment |              |            |            |        |
|-------------------|--------------|------------|------------|--------|
| No.               | Equipment    | Brand Name | Model Name | FCC ID |
| 1                 | NB           | DELL       | E4300      | DoC    |
| 2                 | Test Fixture | TP-Link    | ZLR113590  | N/A    |

For Test Site No: TH01-CB

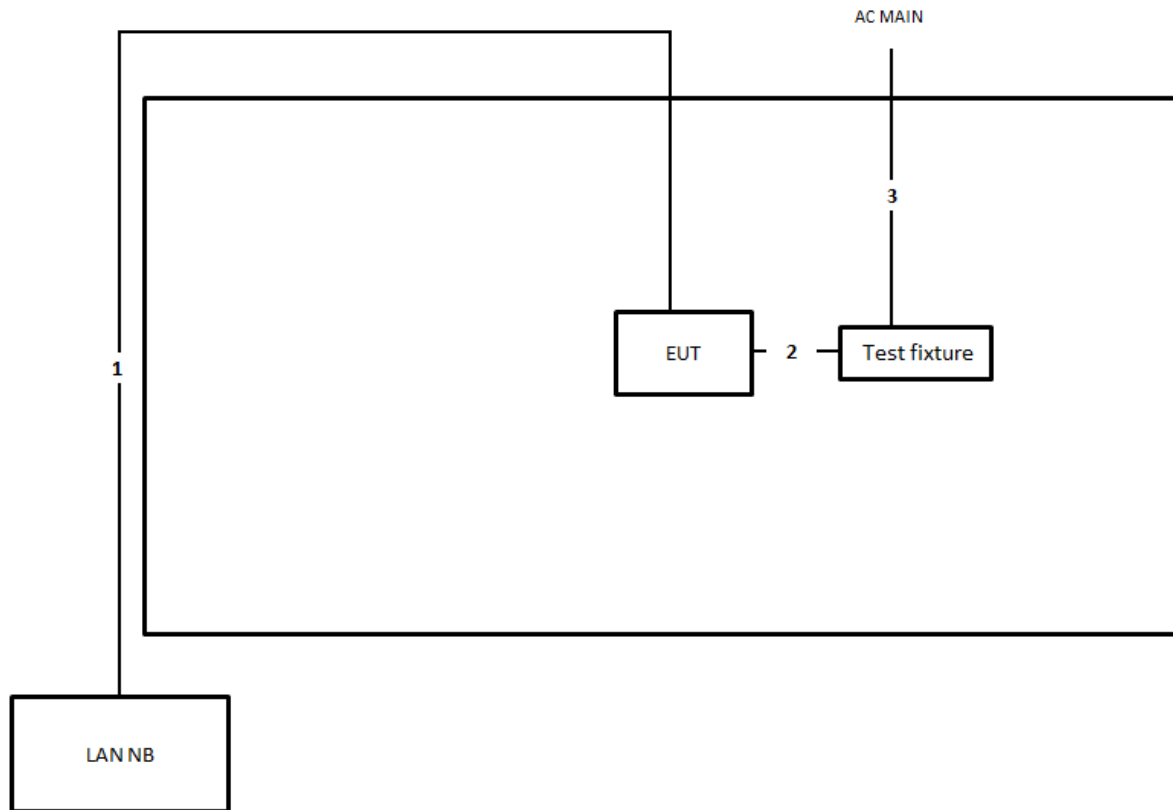
| Support Equipment |              |            |            |        |
|-------------------|--------------|------------|------------|--------|
| No.               | Equipment    | Brand Name | Model Name | FCC ID |
| 1                 | NB           | DELL       | E4300      | DoC    |
| 2                 | Test Fixture | TP-Link    | ZLR113590  | N/A    |

## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test < 1GHz**


| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | Power cable | No       | 1.6m   |
| 2    | RJ-45 cable | No       | 10m    |
| 3    | RJ-45 cable | No       | 10m    |
| 4    | RJ-45 cable | No       | 10m    |

**Test Setup Diagram - Radiated Test > 1GHz**


| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | RJ-45 cable | No       | 10m    |
| 2    | USB cable   | Yes      | 0.15m  |
| 3    | Power cable | No       | 1.6m   |

### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit |            |           |
|-----------------------------------------|------------|-----------|
| Frequency Emission (MHz)                | Quasi-Peak | Average   |
| 0.15-0.5                                | 66 - 56 *  | 56 - 46 * |
| 0.5-5                                   | 56         | 46        |
| 5-30                                    | 60         | 50        |

Note 1: \* Decreases with the logarithm of the frequency.

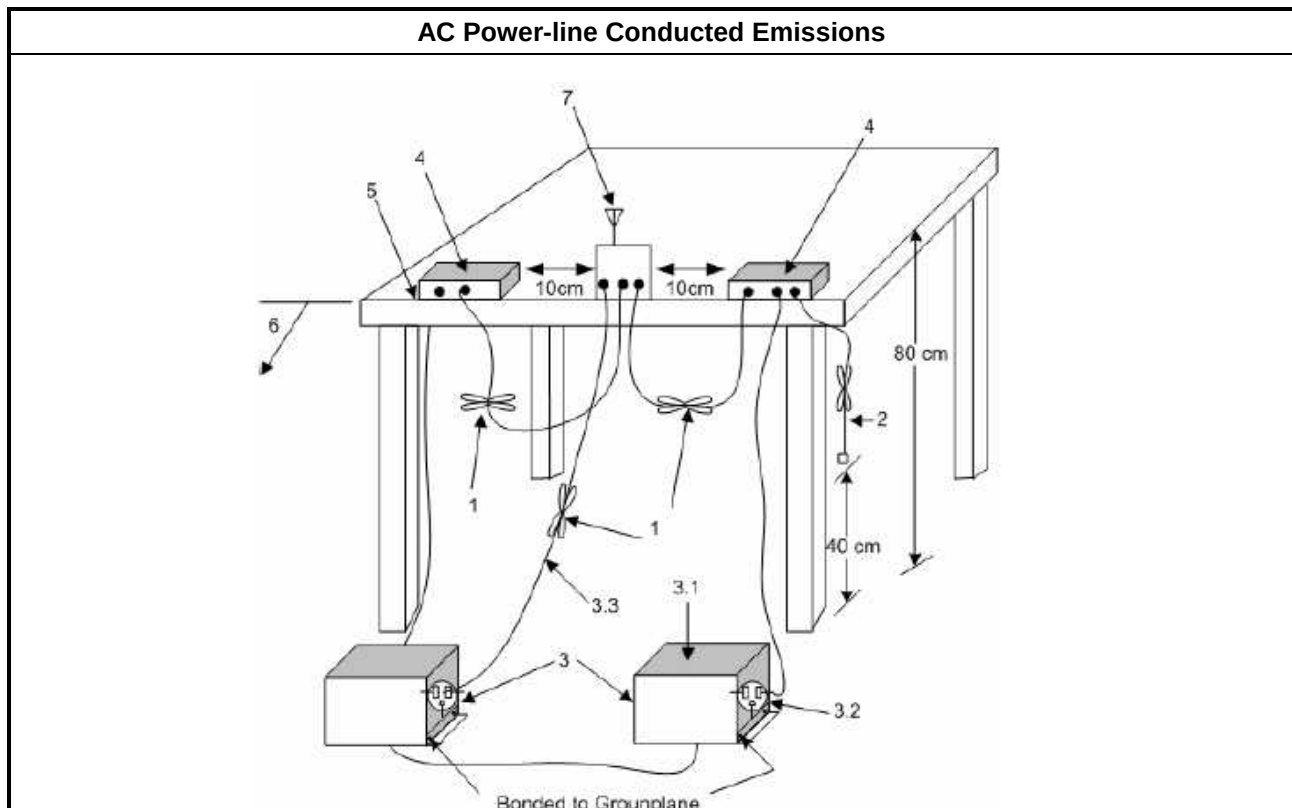
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedures

| Test Method                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.</li> </ul> |

##### 3.1.4 Test Setup







### **3.1.5 Test Result of AC Power-line Conducted Emissions**

Refer as Appendix A

## 3.2 20dB Bandwidth and Carrier Frequency Separation

### 3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

| 20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems |                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| ▪ 902-928 MHz Band:                                                                 |                                                                                                      |
|                                                                                     | ▪ $N \geq 50$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.   |
|                                                                                     | ▪ $50 > N \geq 25$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz. |
| ▪ 2400-2483.5 MHz Band:                                                             |                                                                                                      |
|                                                                                     | ▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz).                                   |
|                                                                                     | ▪ $75 > N \geq 15$ and $ChS \geq \text{MAX}$ (20 dB bandwidth $2/3$ , 25 kHz).                       |
| ▪ 5725-5850 MHz Band:                                                               |                                                                                                      |
|                                                                                     | ▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 1 MHz.     |
| <b>N:</b> Number of Hopping Frequencies; <b>ChS:</b> Hopping Channel Separation     |                                                                                                      |

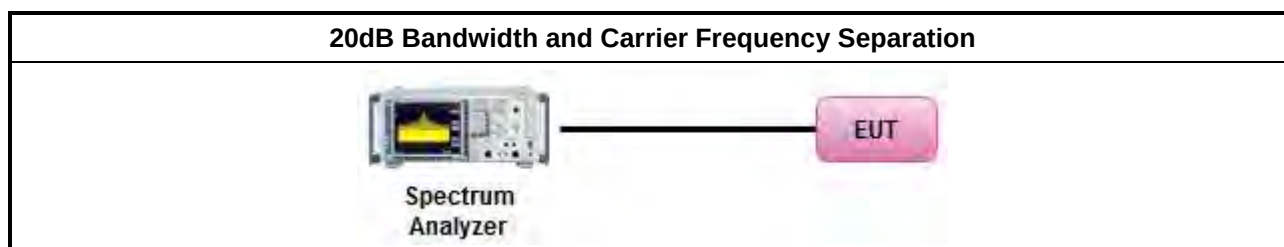
### 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.2.3 Test Procedures

| Test Method                                                                             |
|-----------------------------------------------------------------------------------------|
| ▪ Refer as ANSI C63.10-2013, clause 6.9.1 for 20 dB bandwidth measurement.              |
| ▪ Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement. |

### 3.2.4 Test Setup



### 3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B

### 3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

| Maximum Conducted Output Power Limit |                                              |
|--------------------------------------|----------------------------------------------|
| ▪ 902-928 MHz Band:                  |                                              |
|                                      | ▪ $N \geq 50$ ; Power 30dBm; EIRP 36dBm      |
|                                      | ▪ $50 > N \geq 25$ ; Power 24dBm; EIRP 30dBm |
| ▪ 2400-2483.5 MHz Band:              |                                              |
|                                      | ▪ $N \geq 75$ ; Power 30dBm; EIRP 36dBm      |
|                                      | ▪ $75 > N \geq 15$ ; Power 21dBm; EIRP 27dBm |
| ▪ 5725-5850 MHz Band:                |                                              |
|                                      | ▪ $N \geq 75$ ; Power 30dBm; EIRP 36dBm      |
| N: Number of Hopping Frequencies     |                                              |

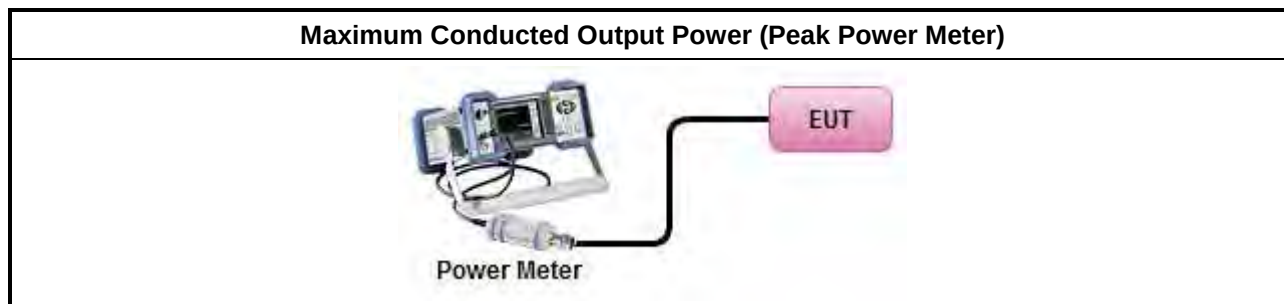
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

| Test Method                                                             |
|-------------------------------------------------------------------------|
| ▪ Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement. |

#### 3.3.4 Test Setup



#### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

### 3.4 Number of Hopping Frequencies and Hopping Bandedge

#### 3.4.1 Number of Hopping Frequencies Limit

| Number of Hopping Frequencies Limit                                |                                                                                                      |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| ▪ 902-928 MHz Band:                                                |                                                                                                      |
|                                                                    | ▪ $N \geq 50$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.   |
|                                                                    | ▪ $50 > N \geq 25$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz. |
| ▪ 2400-2483.5 MHz Band:                                            |                                                                                                      |
|                                                                    | ▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz).                                   |
|                                                                    | ▪ $75 > N \geq 15$ and $ChS \geq \text{MAX}$ (20 dB bandwidth 2/3, 25 kHz).                          |
| ▪ 5725-5850 MHz Band:                                              |                                                                                                      |
|                                                                    | ▪ $N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 1 MHz.     |
| N: Number of Hopping Frequencies; ChS : Hopping Channel Separation |                                                                                                      |

#### 3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

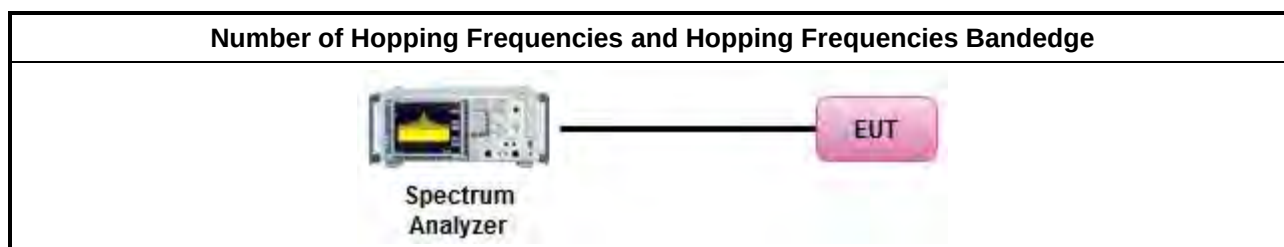
#### 3.4.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.4 Test Procedures

| Test Method                                                                              |
|------------------------------------------------------------------------------------------|
| ▪ Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement. |
| ▪ Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.  |

#### 3.4.5 Test Setup



#### 3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

#### 3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

### 3.5 Time of Occupancy (Dwell Time)

#### 3.5.1 Time of Occupancy (Dwell Time) Limit

| 20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems |                                                    |
|-------------------------------------------------------------------------------------|----------------------------------------------------|
| ▪ 902-928 MHz Band:                                                                 |                                                    |
|                                                                                     | ▪ $N \geq 50$ ; 0.4s in 20s period                 |
|                                                                                     | ▪ $50 > N \geq 25$ ; 0.4s in 10s period            |
| ▪ 2400-2483.5 MHz Band:                                                             |                                                    |
|                                                                                     | ▪ $N \geq 75$ ; 0.4s in $N \times 0.4$ period      |
|                                                                                     | ▪ $75 > N \geq 15$ ; 0.4s in $N \times 0.4$ period |
| ▪ 5725-5850 MHz Band:                                                               |                                                    |
|                                                                                     | ▪ $N \geq 75$ ; 0.4s in 30s period                 |
| N: Number of Hopping Frequencies                                                    |                                                    |

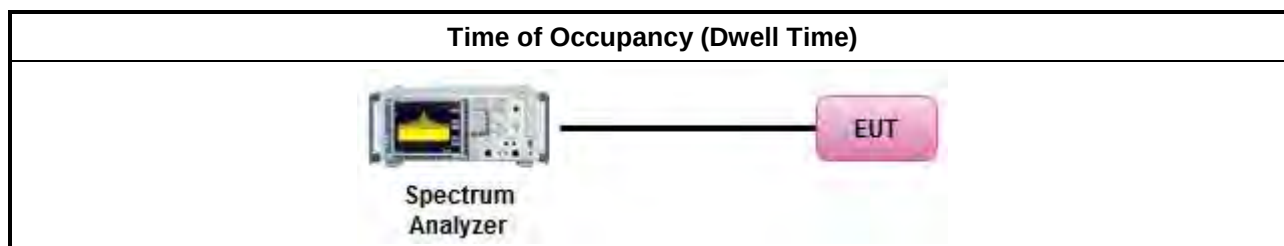
#### 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

| Test Method                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ▪ Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement.                                                                    |                                                                                                                                                                                                                                                                                                                                                  |
| ▪ Bluetooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum dwell time and maximum duty cycle. |                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                          | ▪ The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $5/1600$ seconds, or 3.125ms. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel. |

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix E

### 3.6 Emissions in Non-restricted Frequency Bands

#### 3.6.1 Emissions in Non-restricted Frequency Bands Limit

| Un-restricted Band Emissions Limit                                                                                                                                                                                                                                                                                                            |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| RF output power procedure                                                                                                                                                                                                                                                                                                                     | Limit (dB) |
| Peak output power procedure                                                                                                                                                                                                                                                                                                                   | 20         |
| Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. |            |

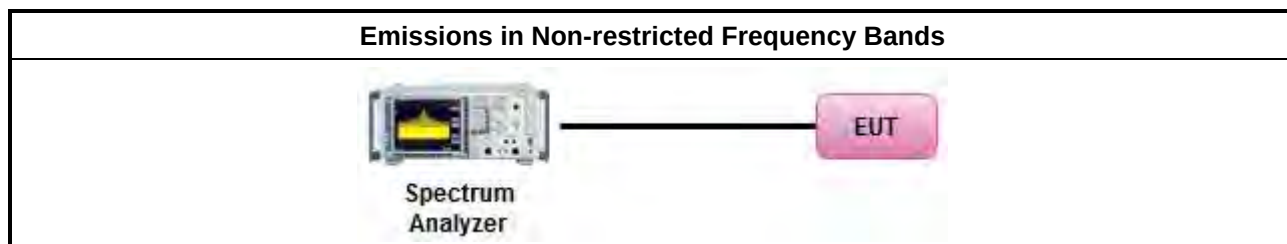
#### 3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.6.3 Test Procedures

| Test Method                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.</li> </ul> |

#### 3.6.4 Test Setup



#### 3.6.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix F

### 3.7 Emissions in Restricted Frequency Bands

#### 3.7.1 Emissions in Restricted Frequency Bands Limit

| Restricted Band Emissions Limit |                       |                         |                      |
|---------------------------------|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz)           | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490                     | 2400/F(kHz)           | 48.5 - 13.8             | 300                  |
| 0.490~1.705                     | 24000/F(kHz)          | 33.8 - 23               | 30                   |
| 1.705~30.0                      | 30                    | 29                      | 30                   |
| 30~88                           | 100                   | 40                      | 3                    |
| 88~216                          | 150                   | 43.5                    | 3                    |
| 216~960                         | 200                   | 46                      | 3                    |
| Above 960                       | 500                   | 54                      | 3                    |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

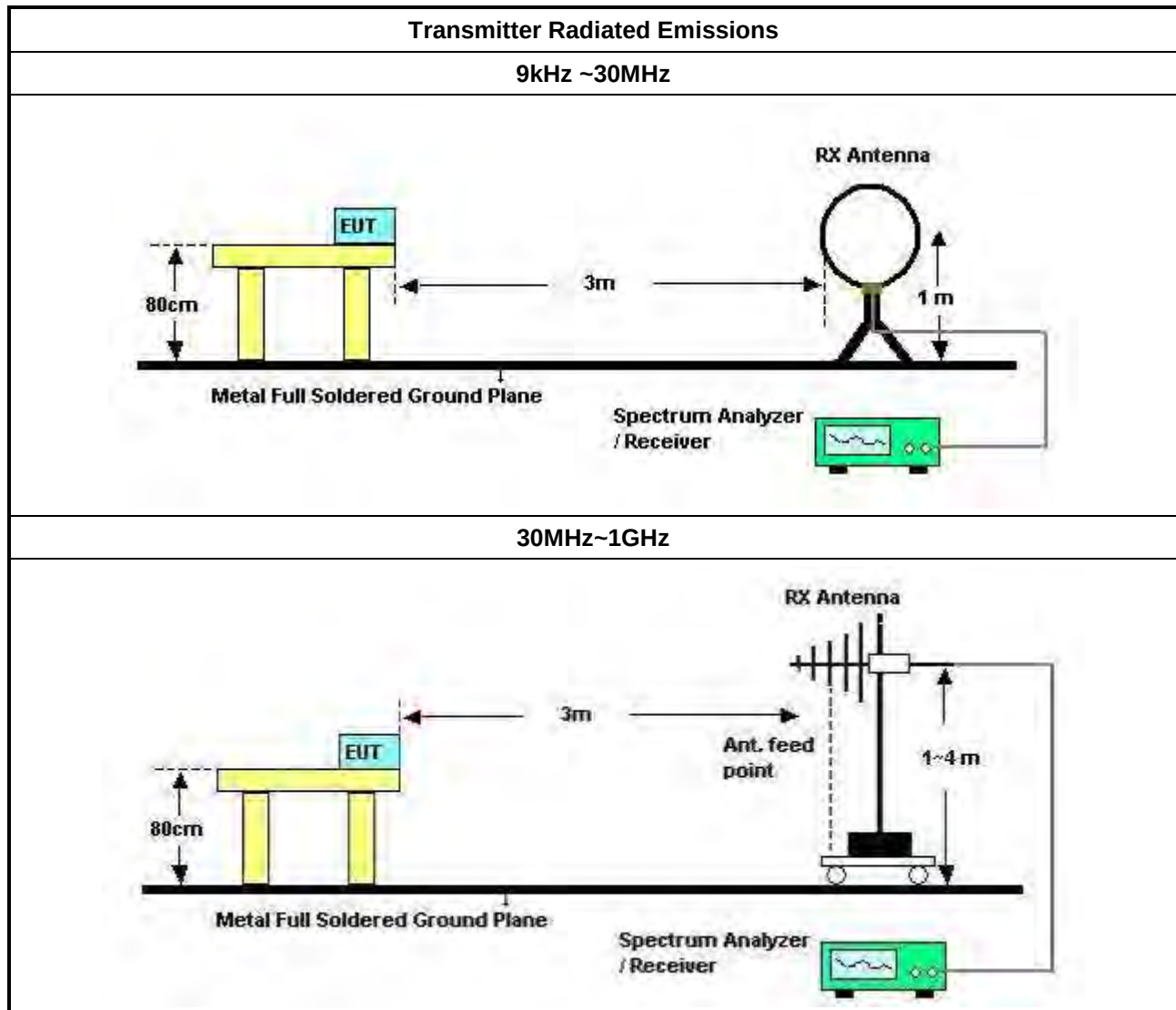
#### 3.7.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

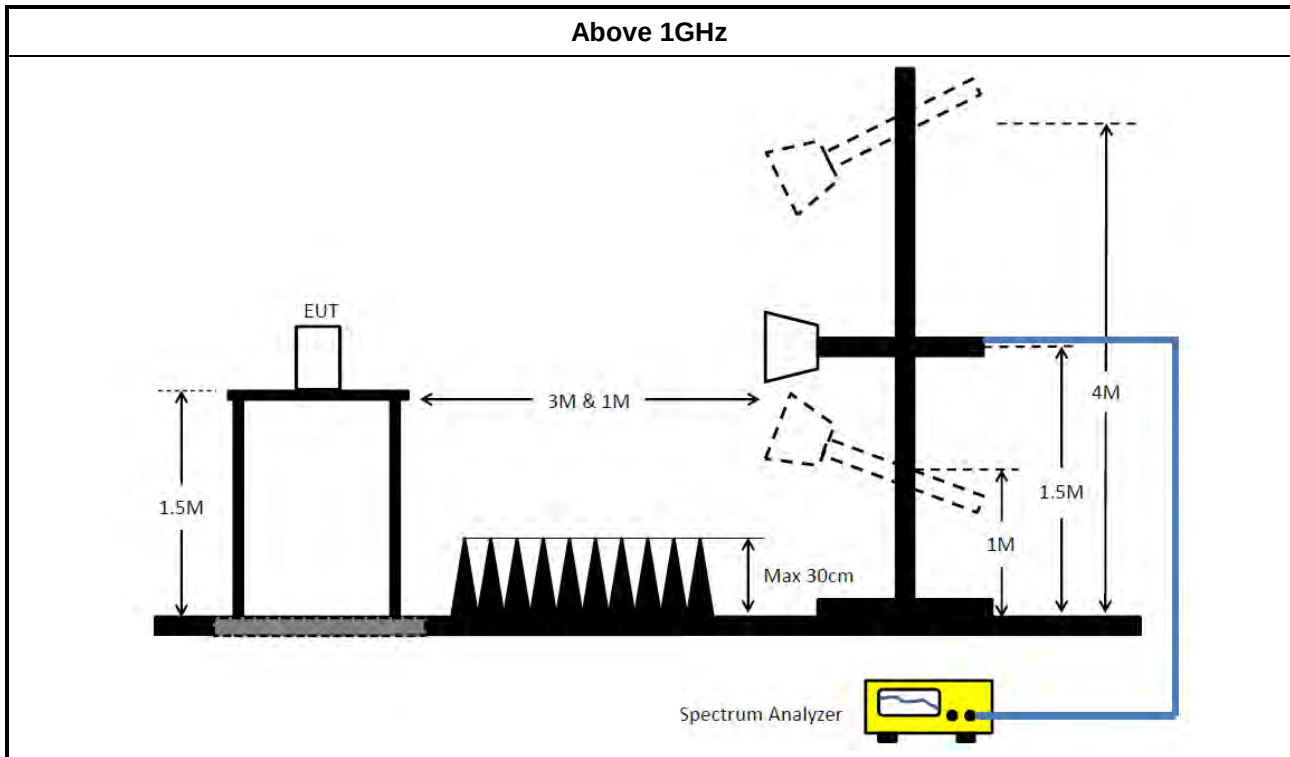
#### 3.7.3 Test Procedures

| Test Method                                                                                                                                                                  |                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ▪ The average emission levels shall be measured in [hopping duty factor].                                                                                                    |                                                                                     |
| ▪ Refer as ANSI C63.10; clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. |                                                                                     |
| ▪ For the transmitter unwanted emissions shall be measured using following options below:                                                                                    |                                                                                     |
|                                                                                                                                                                              | ▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.                                  |
|                                                                                                                                                                              | ▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.                |
|                                                                                                                                                                              | ▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions. |

### 3.7.4 Test Setup







### 3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

### 3.7.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix G



## 4 Test Equipment and Calibration Data

| Instrument                        | Manufacturer | Model No.         | Serial No.       | Characteristics | Calibration Date | Remark                |
|-----------------------------------|--------------|-------------------|------------------|-----------------|------------------|-----------------------|
| EMI Receiver                      | Agilent      | N9038A            | My52260123       | 9kHz ~ 8.45GHz  | Jan. 27, 2016    | Conduction (CO01-CB)  |
| LISN                              | F.C.C.       | FCC-LISN-50-16-2  | 04083            | 150kHz ~ 100MHz | Dec. 08, 2015    | Conduction (CO01-CB)  |
| LISN                              | Schwarzbeck  | NSLK 8127         | 8127647          | 9kHz ~ 30MHz    | Dec. 23, 2015    | Conduction (CO01-CB)  |
| COND Cable                        | Woken        | Cable             | 01               | 150kHz ~ 30MHz  | May 24, 2016     | Conduction (CO01-CB)  |
| Software                          | Audix        | E3                | 6.120210n        | -               | N.C.R.           | Conduction (CO01-CB)  |
| BILOG ANTENNA with 6dB Attenuator | TESEQ & EMC  | CBL6112D & N-6-06 | 37880 & AT-N0609 | 20MHz ~ 2GHz    | Aug. 30, 2016    | Radiation (03CH01-CB) |
| Loop Antenna                      | Teseq        | HLA 6120          | 24155            | 9kHz - 30 MHz   | Mar. 16, 2016*   | Radiation (03CH01-CB) |
| Horn Antenna                      | EMCO         | 3115              | 00075790         | 750MHz ~ 18GHz  | Nov. 10, 2016    | Radiation (03CH01-CB) |
| Horn Antenna                      | Schwarzbeck  | BBHA 9170         | BBHA9170252      | 15GHz ~ 40GHz   | Jul. 25, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | Agilent      | 8447D             | 2944A10991       | 0.1MHz ~ 1.3GHz | Mar. 15, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | Agilent      | 8449B             | 3008A02310       | 1GHz ~ 26.5GHz  | Jan. 18, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | MITEQ        | TTA1840-35-HG     | 1864479          | 18GHz ~ 40GHz   | Jun. 28, 2016    | Radiation (03CH01-CB) |
| Spectrum Analyzer                 | R&S          | FSP-40            | 100019           | 9kHz ~ 40GHz    | Apr. 21, 2016    | Radiation (03CH01-CB) |
| EMI Test                          | R&S          | ESCS              | 100355           | 9kHz ~ 2.75GHz  | May 16, 2016     | Radiation (03CH01-CB) |
| RF Cable-low                      | Woken        | Low Cable-16+17   | N/A              | 30 MHz ~ 1 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16     | N/A              | 1 GHz ~ 18 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16+17  | N/A              | 1 GHz ~ 18 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#1  | N/A              | 18GHz ~ 40 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#2  | N/A              | 18GHz ~ 40 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| Test Software                     | Audix        | E3                | 6.2009-I0-7      | N/A             | N/A              | Radiation (03CH01-CB) |



| Instrument        | Manufacturer | Model No. | Serial No.    | Characteristics  | Calibration Date | Remark              |
|-------------------|--------------|-----------|---------------|------------------|------------------|---------------------|
| Spectrum analyzer | R&S          | FSV40     | 101027        | 9kHz~40GHz       | Jul. 26, 2016    | Conducted (TH01-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-6  | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted (TH01-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-7  | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted (TH01-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-8  | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted (TH01-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-9  | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted (TH01-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-10 | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted (TH01-CB) |
| Power Sensor      | Anritsu      | MA2411B   | 1126203       | 300MHz~40GHz     | Sep. 09, 2016    | Conducted (TH01-CB) |

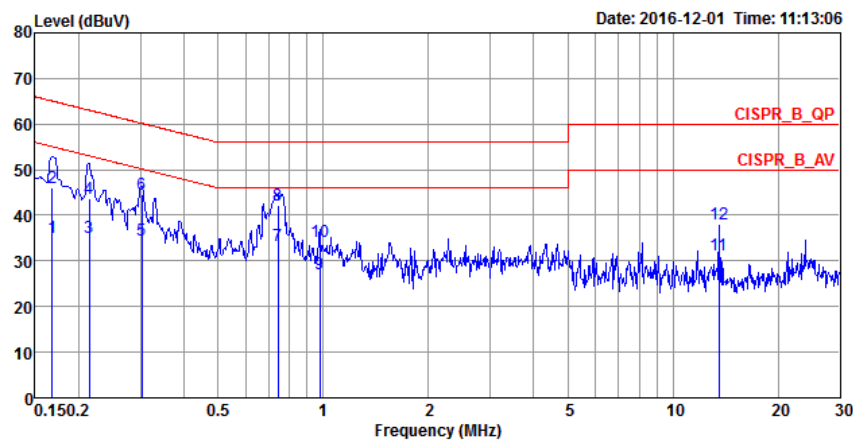
Note: Calibration Interval of instruments listed above is one year.

“\*” Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

## AC Power-line Conducted Emissions Result

|                    |             |             |         |
|--------------------|-------------|-------------|---------|
| Operating Mode     | 1           | Power Phase | Neutral |
| Operating Function | Normal Link |             |         |

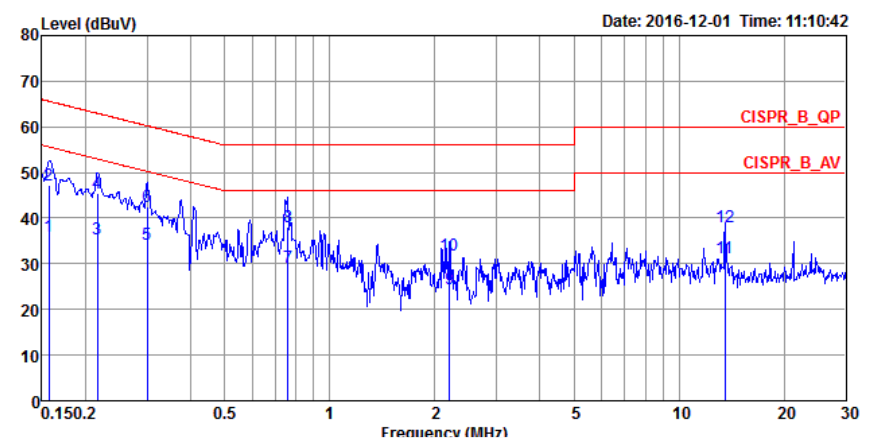


|    | Freq    | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Pol/Phase | Remark  |
|----|---------|-------|------------|------------|------------|-------------|------------|-----------|---------|
|    | MHz     | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |           |         |
| 1  | 0.1677  | 35.16 | -19.92     | 55.08      | 24.97      | 10.02       | 0.17       | NEUTRAL   | Average |
| 2  | 0.1677  | 46.10 | -18.98     | 65.08      | 35.91      | 10.02       | 0.17       | NEUTRAL   | QP      |
| 3  | 0.2139  | 35.07 | -17.98     | 53.05      | 24.98      | 9.92        | 0.17       | NEUTRAL   | Average |
| 4  | 0.2139  | 43.81 | -19.24     | 63.05      | 33.72      | 9.92        | 0.17       | NEUTRAL   | QP      |
| 5  | 0.3035  | 34.55 | -15.60     | 50.15      | 24.55      | 9.92        | 0.08       | NEUTRAL   | Average |
| 6  | 0.3035  | 44.59 | -15.56     | 60.15      | 34.59      | 9.92        | 0.08       | NEUTRAL   | QP      |
| 7  | 0.7430  | 33.22 | -12.78     | 46.00      | 22.79      | 9.93        | 0.50       | NEUTRAL   | Average |
| 8  | 0.7430  | 42.35 | -13.65     | 56.00      | 31.92      | 9.93        | 0.50       | NEUTRAL   | QP      |
| 9  | 0.9787  | 27.08 | -18.92     | 46.00      | 16.42      | 9.94        | 0.72       | NEUTRAL   | Average |
| 10 | 0.9787  | 34.36 | -21.64     | 56.00      | 23.70      | 9.94        | 0.72       | NEUTRAL   | QP      |
| 11 | 13.5597 | 31.27 | -18.73     | 50.00      | 20.86      | 10.21       | 0.20       | NEUTRAL   | Average |
| 12 | 13.5597 | 38.12 | -21.88     | 60.00      | 27.71      | 10.21       | 0.20       | NEUTRAL   | QP      |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

## AC Power-line Conducted Emissions Result

|                    |             |             |      |
|--------------------|-------------|-------------|------|
| Operating Mode     | 1           | Power Phase | Line |
| Operating Function | Normal Link |             |      |



|    | Freq    | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Pol/Phase | Remark  |
|----|---------|-------|------------|------------|------------|-------------|------------|-----------|---------|
|    | MHz     | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |           |         |
| 1  | 0.1573  | 36.09 | -19.51     | 55.60      | 25.90      | 10.02       | 0.17       | LINE      | Average |
| 2  | 0.1573  | 47.22 | -18.38     | 65.60      | 37.03      | 10.02       | 0.17       | LINE      | QP      |
| 3  | 0.2162  | 35.49 | -17.47     | 52.96      | 25.40      | 9.92        | 0.17       | LINE      | Average |
| 4  | 0.2162  | 45.39 | -17.57     | 62.96      | 35.30      | 9.92        | 0.17       | LINE      | QP      |
| 5  | 0.3003  | 34.12 | -16.12     | 50.24      | 24.11      | 9.92        | 0.09       | LINE      | Average |
| 6  | 0.3003  | 42.47 | -17.77     | 60.24      | 32.46      | 9.92        | 0.09       | LINE      | QP      |
| 7  | 0.7589  | 29.19 | -16.81     | 46.00      | 18.74      | 9.93        | 0.52       | LINE      | Average |
| 8  | 0.7589  | 38.06 | -17.94     | 56.00      | 27.61      | 9.93        | 0.52       | LINE      | QP      |
| 9  | 2.2021  | 24.61 | -21.39     | 46.00      | 14.59      | 9.96        | 0.06       | LINE      | Average |
| 10 | 2.2021  | 31.78 | -24.22     | 56.00      | 21.76      | 9.96        | 0.06       | LINE      | QP      |
| 11 | 13.5600 | 31.29 | -18.71     | 50.00      | 20.88      | 10.21       | 0.20       | LINE      | Average |
| 12 | 13.5600 | 38.18 | -21.82     | 60.00      | 27.77      | 10.21       | 0.20       | LINE      | QP      |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

**Summary**

| Mode          | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|---------------|------------------|-----------------|----------|------------------|-----------------|
| BT-BDR        | -                | -               | -        | -                | -               |
| 2.4-2.4835GHz | 921.25k          | 880.81k         | 881kG1D  | 920k             | 878.311k        |
| BT-EDR2       | -                | -               | -        | -                | -               |
| 2.4-2.4835GHz | 1.338M           | 1.248M          | 1M25G1D  | 1.328M           | 1.217M          |
| BT-EDR3       | -                | -               | -        | -                | -               |
| 2.4-2.4835GHz | 1.306M           | 1.237M          | 1M24G1D  | 1.285M           | 1.218M          |

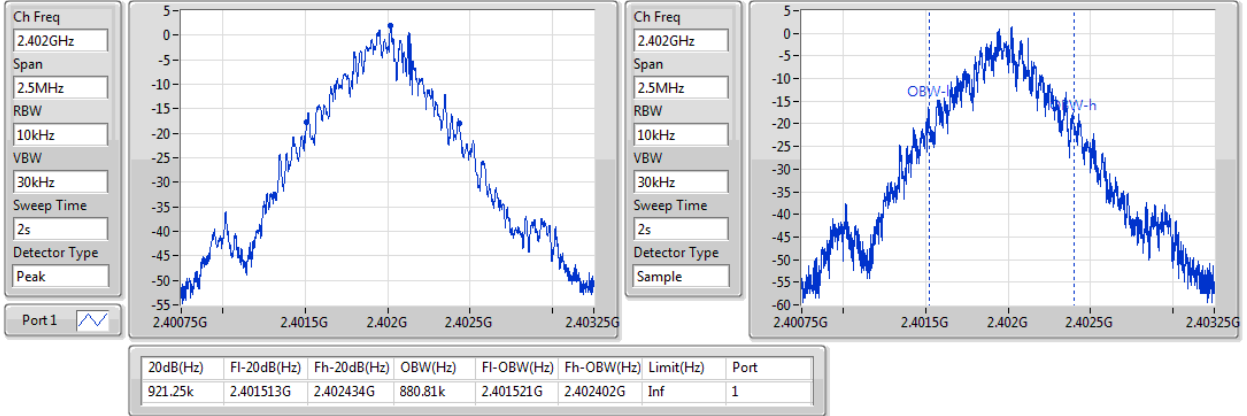
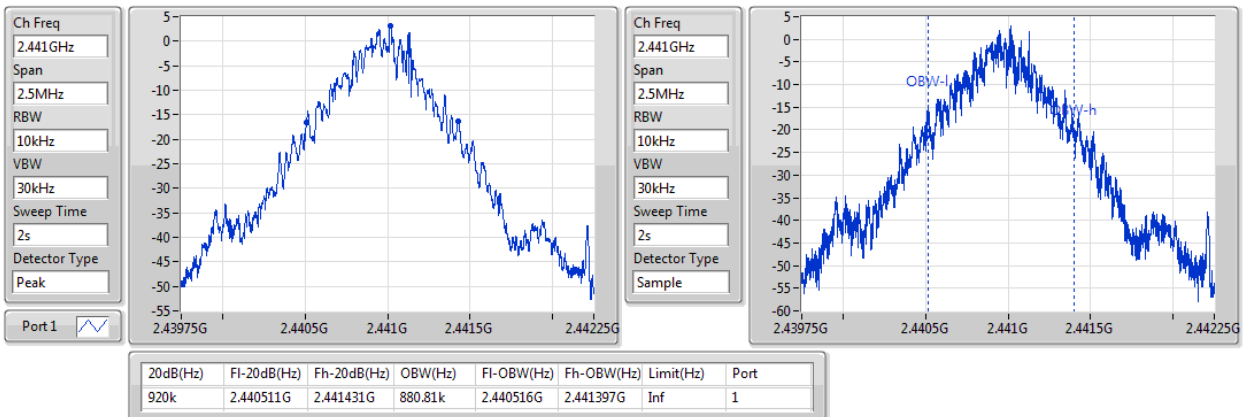
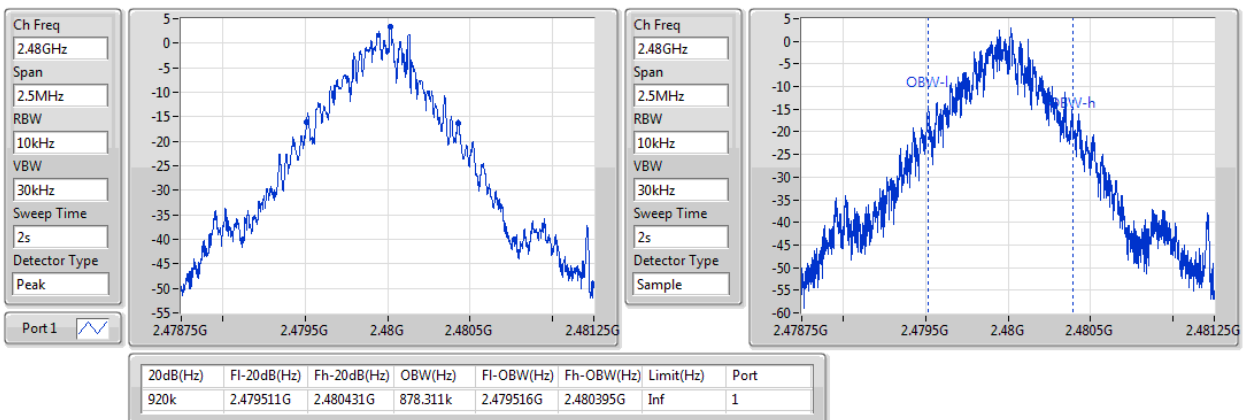
**Max-N dB** = Maximum 20dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

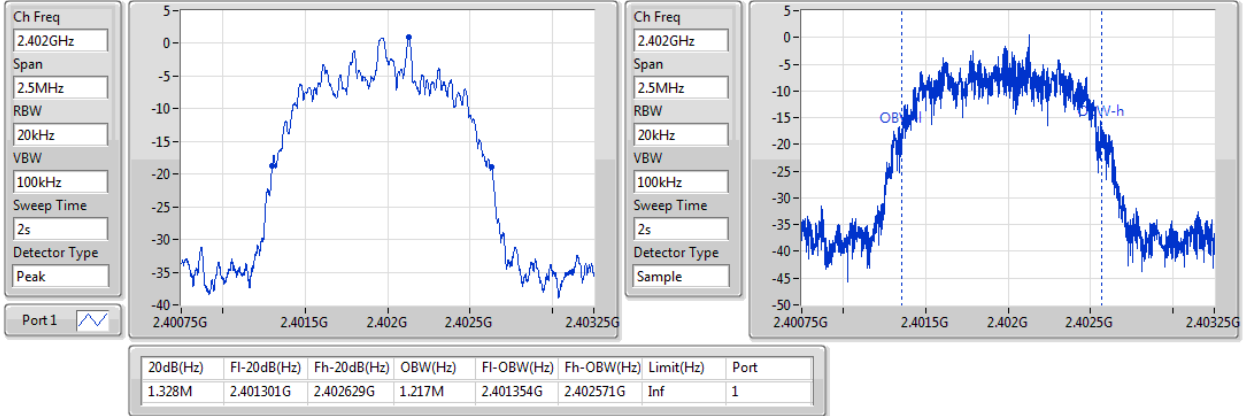
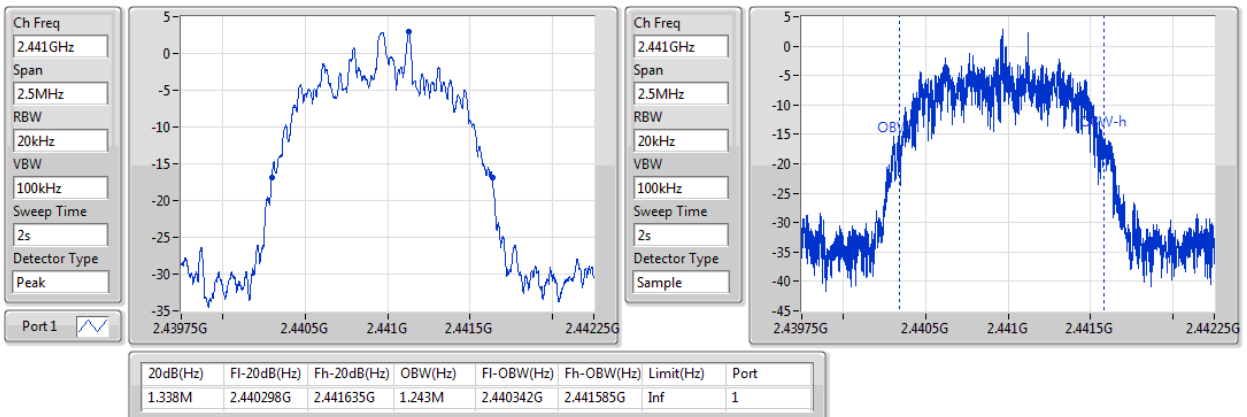
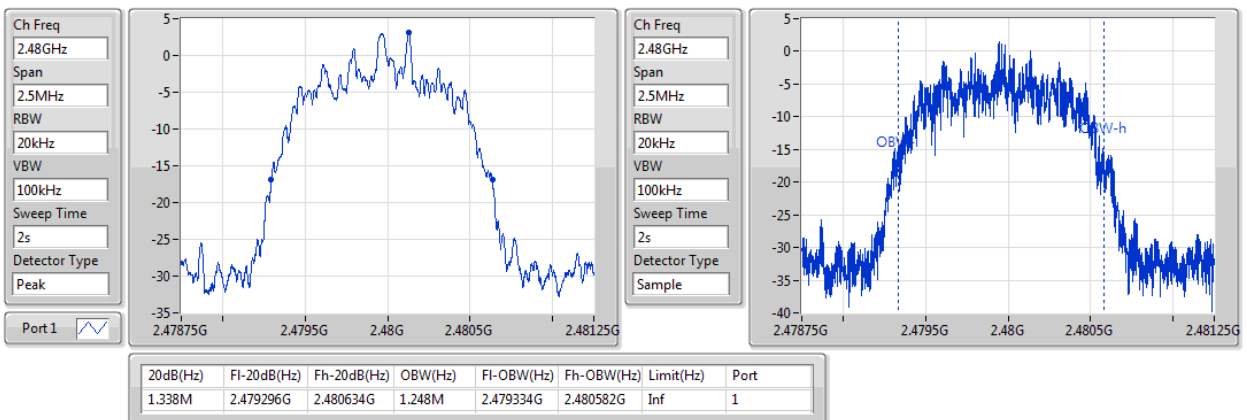
**Min-N dB** = Minimum 20dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

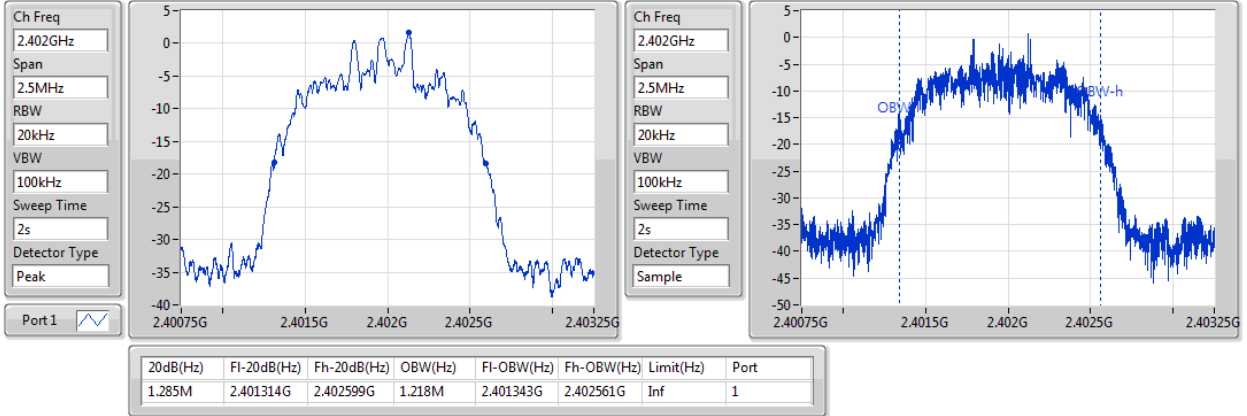
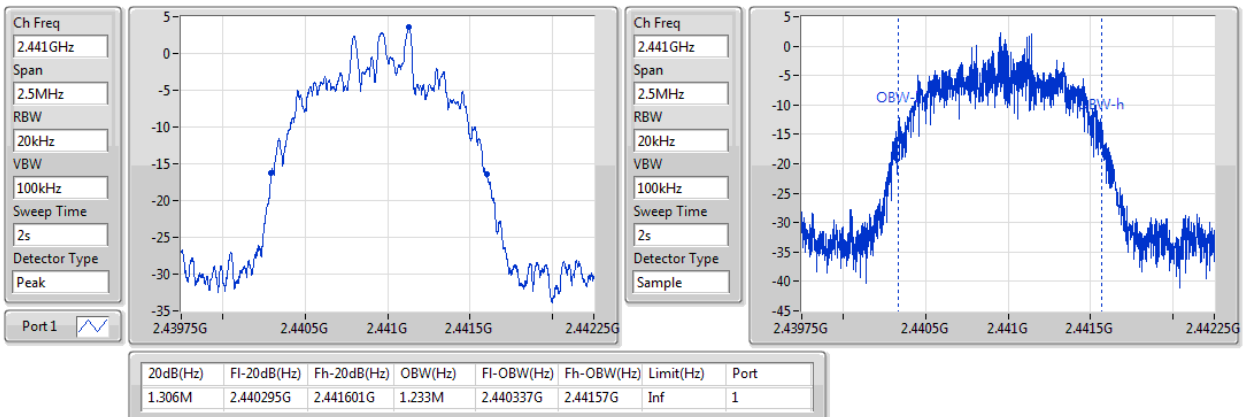
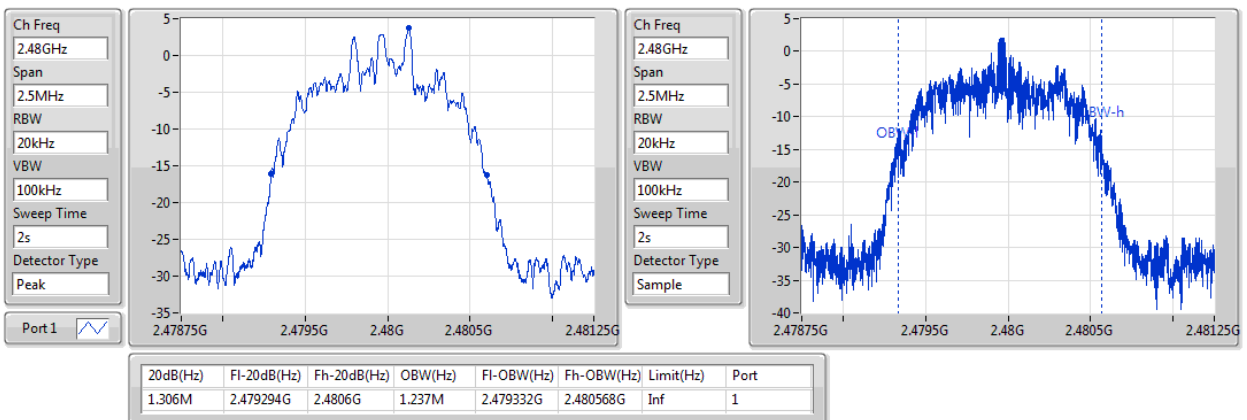
**Result**

| Mode    | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) |
|---------|--------|---------------|---------------------|--------------------|
| BT-BDR  | -      | -             | -                   | -                  |
| 2402MHz | Pass   | Inf           | 921.25k             | 880.81k            |
| 2441MHz | Pass   | Inf           | 920k                | 880.81k            |
| 2480MHz | Pass   | Inf           | 920k                | 878.311k           |
| BT-EDR2 | -      | -             | -                   | -                  |
| 2402MHz | Pass   | Inf           | 1.328M              | 1.217M             |
| 2441MHz | Pass   | Inf           | 1.338M              | 1.243M             |
| 2480MHz | Pass   | Inf           | 1.338M              | 1.248M             |
| BT-EDR3 | -      | -             | -                   | -                  |
| 2402MHz | Pass   | Inf           | 1.285M              | 1.218M             |
| 2441MHz | Pass   | Inf           | 1.306M              | 1.233M             |
| 2480MHz | Pass   | Inf           | 1.306M              | 1.237M             |

**Port X-N dB** = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

**BT-BDR**
**EBW**
**2402MHz**

**BT-BDR**
**EBW**
**2441MHz**

**BT-BDR**
**EBW**
**2480MHz**


**BT-EDR2**
**EBW**
**2402MHz**

**BT-EDR2**
**EBW**
**2441MHz**

**BT-EDR2**
**EBW**
**2480MHz**


**BT-EDR3**
**EBW**
**2402MHz**

**BT-EDR3**
**EBW**
**2441MHz**

**BT-EDR3**
**EBW**
**2480MHz**




## Summary

| Mode          | Max-Space<br>(Hz) | Min-Space<br>(Hz) |
|---------------|-------------------|-------------------|
| BT-BDR        | -                 | -                 |
| 2.4-2.4835GHz | 999k              | 999k              |
| BT-EDR2       | -                 | -                 |
| 2.4-2.4835GHz | 1.0035M           | 1.0035M           |
| BT-EDR3       | -                 | -                 |
| 2.4-2.4835GHz | 997.5k            | 997.5k            |

## Result

| Mode    | Result | Fl<br>(Hz) | Fh<br>(Hz) | Ch.Space<br>(Hz) | Limit<br>(Hz) |
|---------|--------|------------|------------|------------------|---------------|
| BT-BDR  | -      | -          | -          | -                | -             |
| 2402MHz | Pass   | 2.402131G  | 2.402974G  | 834k             | 613.5525k     |
| 2441MHz | Pass   | 2.440972G  | 2.441971G  | 999k             | 612.72k       |
| 2480MHz | Pass   | 2.47997G   | 2.47997G   | 1.002M           | 612.72k       |
| BT-EDR2 | -      | -          | -          | -                | -             |
| 2402MHz | Pass   | 2.401969G  | 2.403091G  | 1.122M           | 884.448k      |
| 2441MHz | Pass   | 2.440968G  | 2.441971G  | 1.0035M          | 891.108k      |
| 2480MHz | Pass   | 2.478971G  | 2.47997G   | 999k             | 891.108k      |
| BT-EDR3 | -      | -          | -          | -                | -             |
| 2402MHz | Pass   | 2.40213G   | 2.403132G  | 1.002M           | 855.81K       |
| 2441MHz | Pass   | 2.441128G  | 2.442126G  | 997.5k           | 869.796k      |
| 2480MHz | Pass   | 2.479125G  | 2.480126G  | 1.0005M          | 869.796K      |

## BT-BDR

## Channel Separation

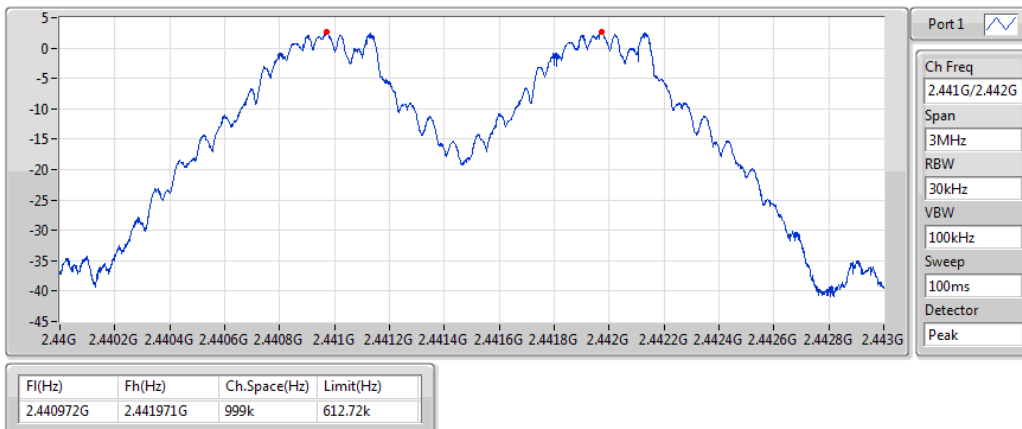
2.402G/2.403GHz



## BT-BDR

## Channel Separation

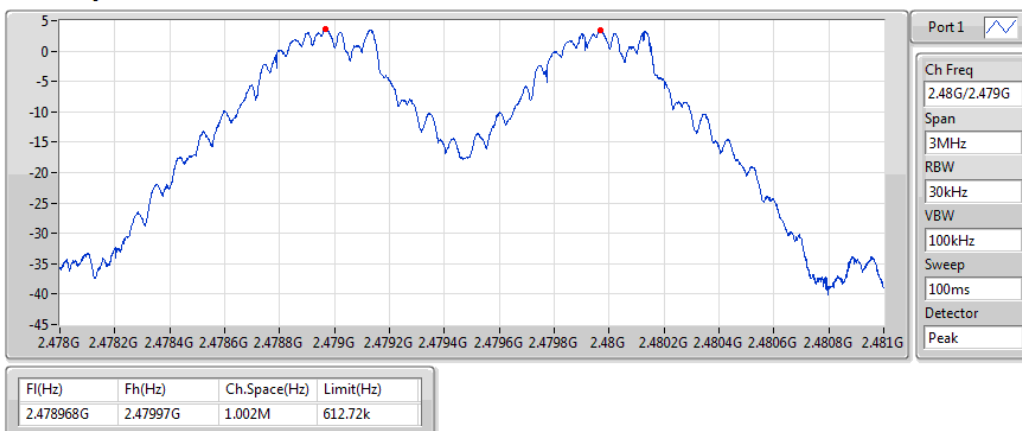
2.441G/2.442GHz



## BT-BDR

## Channel Separation

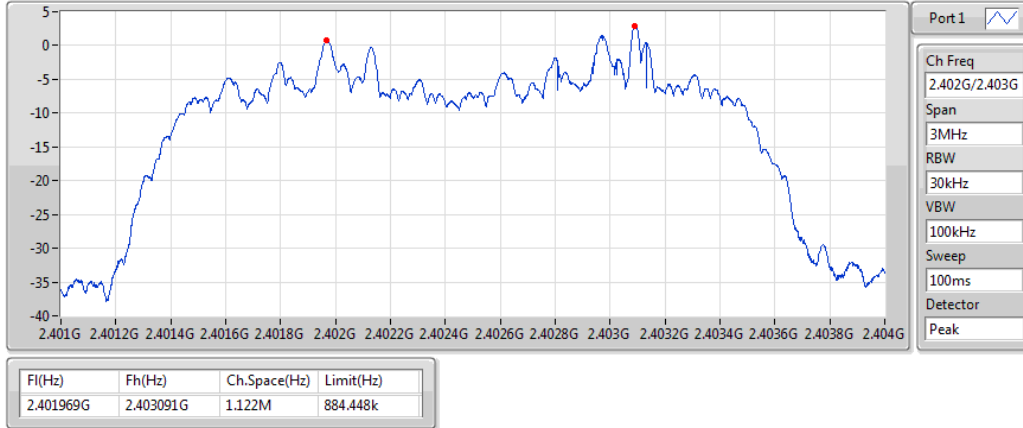
2.48G/2.479GHz



## BT-EDR2

## Channel Separation

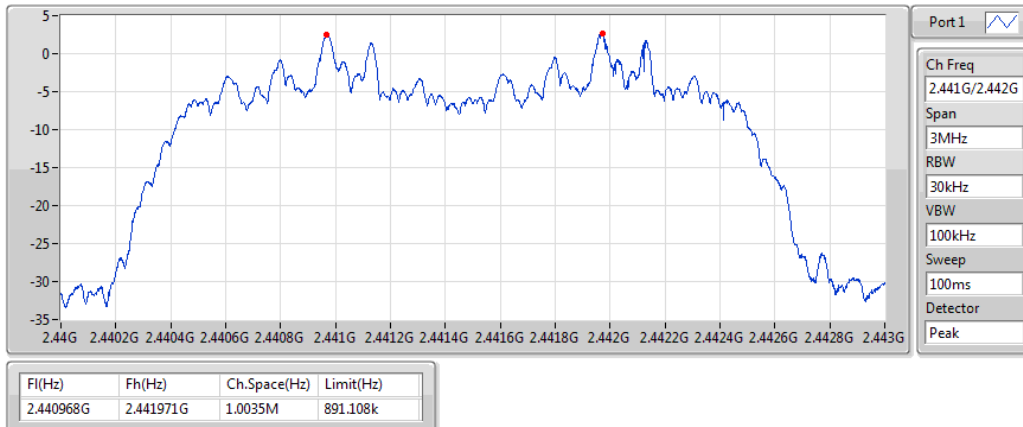
2.402G/2.403GHz



## BT-EDR2

## Channel Separation

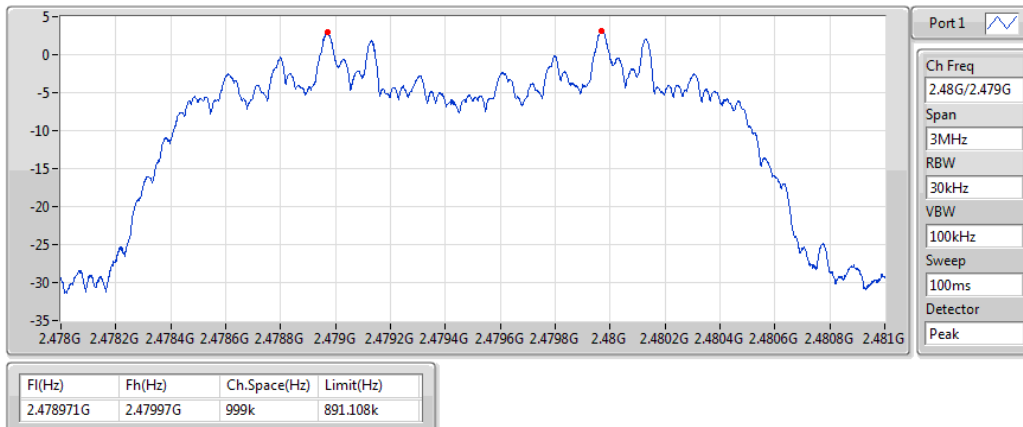
2.441G/2.442GHz



## BT-EDR2

## Channel Separation

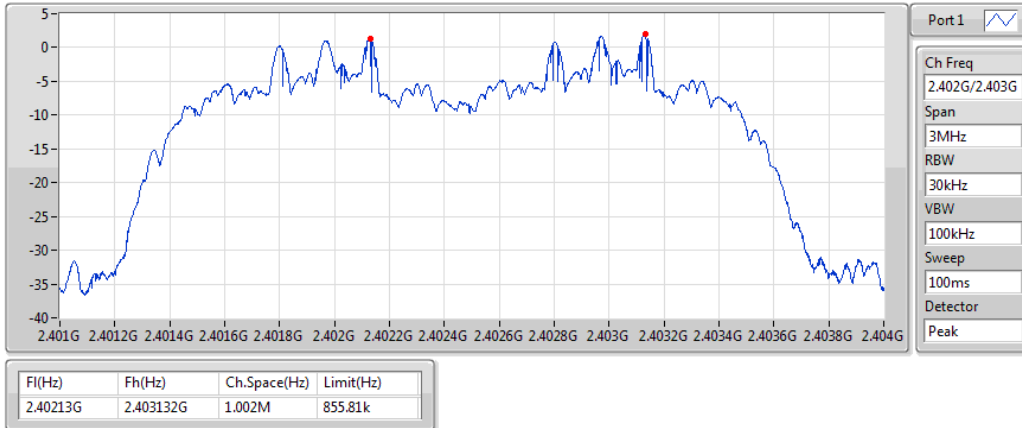
2.48G/2.479GHz



## BT-EDR3

## Channel Separation

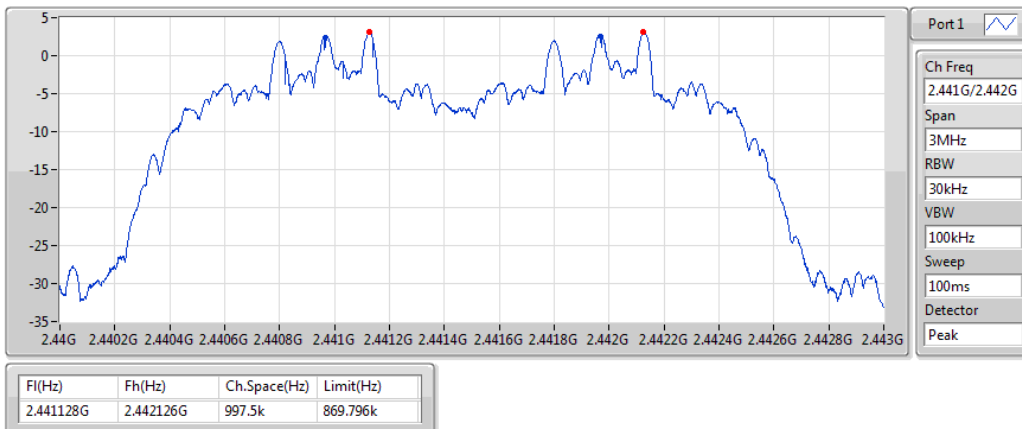
2.402G/2.403GHz



## BT-EDR3

## Channel Separation

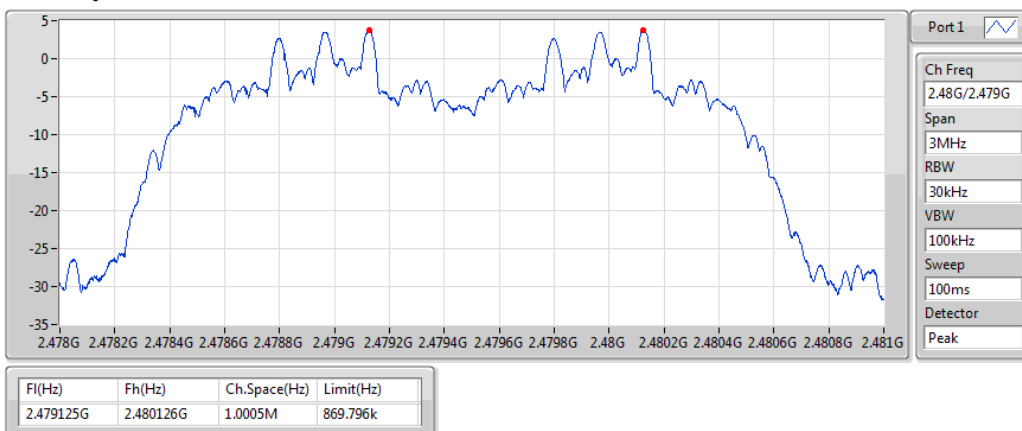
2.441G/2.442GHz



## BT-EDR3

## Channel Separation

2.48G/2.479GHz



**Summary**

| Mode    | Power | Power  |
|---------|-------|--------|
| BT-EDR2 | (dBm) | (W)    |
| 2480MHz | 8.02  | 0.0063 |

**Result**

| Mode    | Result | Gain<br>(dBi) | Power<br>(dBm) | Power Limit<br>(dBm) |
|---------|--------|---------------|----------------|----------------------|
| BT-BDR  | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 7.94           | 21.00                |
| 2441MHz | Pass   | 1.40          | 7.99           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.01           | 21.00                |
| BT-EDR2 | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 6.14           | 21.00                |
| 2441MHz | Pass   | 1.40          | 7.48           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.02           | 21.00                |
| BT-EDR3 | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 6.12           | 21.00                |
| 2441MHz | Pass   | 1.40          | 7.47           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.01           | 21.00                |

**Summary**

| Mode    | Power<br>(dBm) | Power<br>(W) |
|---------|----------------|--------------|
| 2441MHz | 8.19           | 0.0066       |

**Result**

| Mode    | Result | Gain<br>(dBi) | Power<br>(dBm) | Power Limit<br>(dBm) |
|---------|--------|---------------|----------------|----------------------|
| BT-BDR  | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 8.09           | 21.00                |
| 2441MHz | Pass   | 1.40          | 8.19           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.16           | 21.00                |
| BT-EDR2 | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 7.04           | 21.00                |
| 2441MHz | Pass   | 1.40          | 7.67           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.16           | 21.00                |
| BT-EDR3 | -      | -             | -              | -                    |
| 2402MHz | Pass   | 1.40          | 6.42           | 21.00                |
| 2441MHz | Pass   | 1.40          | 7.69           | 21.00                |
| 2480MHz | Pass   | 1.40          | 8.15           | 21.00                |

### Summary

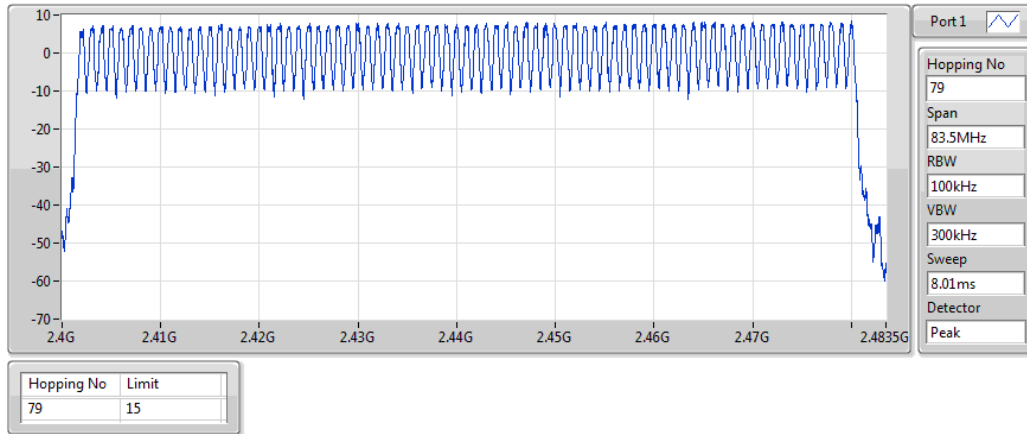
| Mode          | Max-Hop No |
|---------------|------------|
| BT-BDR        | -          |
| 2.4-2.4835GHz | 79         |
| BT-EDR2       | -          |
| 2.4-2.4835GHz | 79         |
| BT-EDR3       | -          |
| 2.4-2.4835GHz | 79         |

### Result

| Mode    | Result | Hopping No | Limit |
|---------|--------|------------|-------|
| BT-BDR  | -      | -          | -     |
| 2402MHz | Pass   | 79         | 15    |
| 2441MHz | Pass   | 79         | 15    |
| 2480MHz | Pass   | 79         | 15    |
| BT-EDR2 | -      | -          | -     |
| 2402MHz | Pass   | 79         | 15    |
| 2441MHz | Pass   | 79         | 15    |
| 2480MHz | Pass   | 79         | 15    |
| BT-EDR3 | -      | -          | -     |
| 2402MHz | Pass   | 79         | 15    |
| 2441MHz | Pass   | 79         | 15    |
| 2480MHz | Pass   | 79         | 15    |

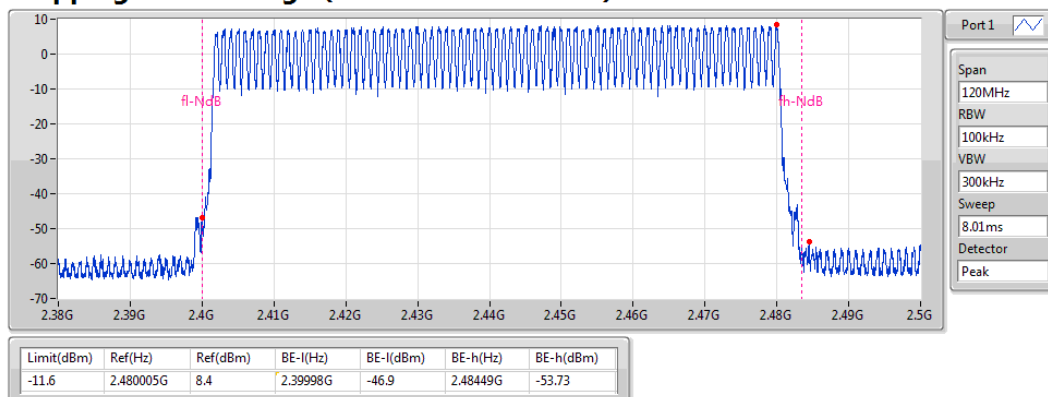
### BT-BDR 2402MHz

### Hopping Ch



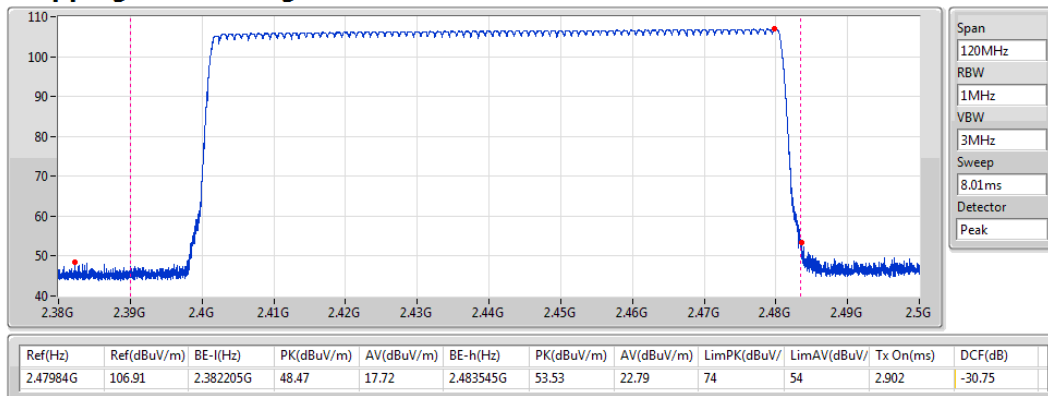
### BT-BDR 2402MHz

### Hopping Ch Bandedge (Non-restricted Band)



### BT-BDR 2402MHz

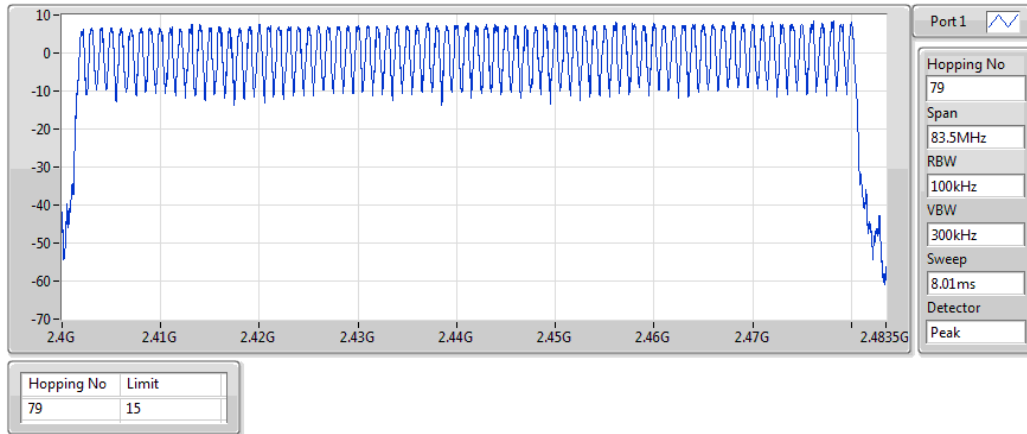
### Hopping Ch Bandedge (Restricted Band)





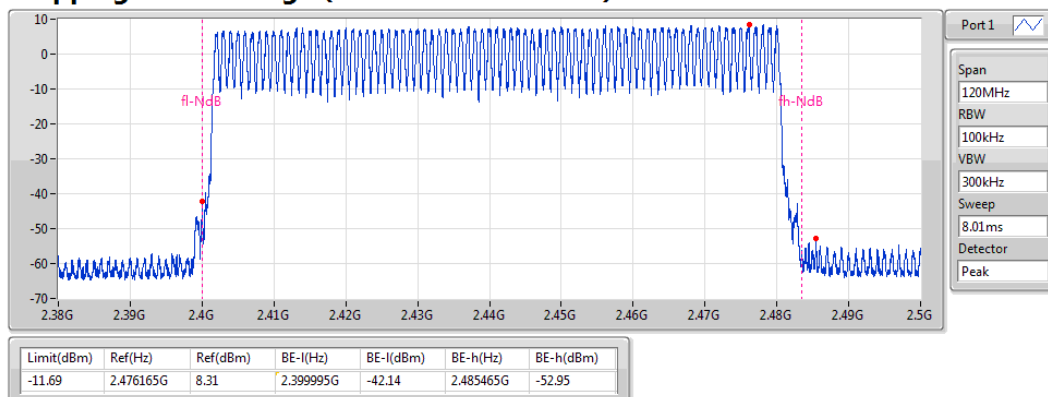
### BT-BDR 2441MHz

### Hopping Ch



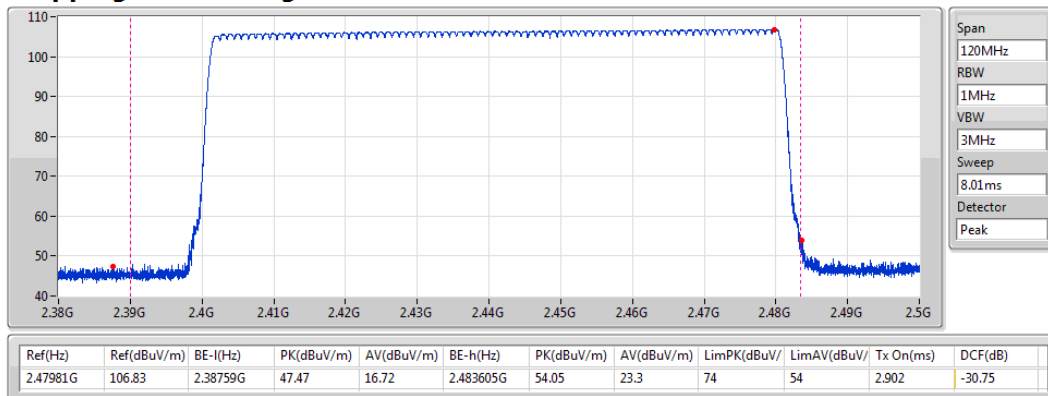
### BT-BDR 2441MHz

### Hopping Ch Bandedge (Non-restricted Band)



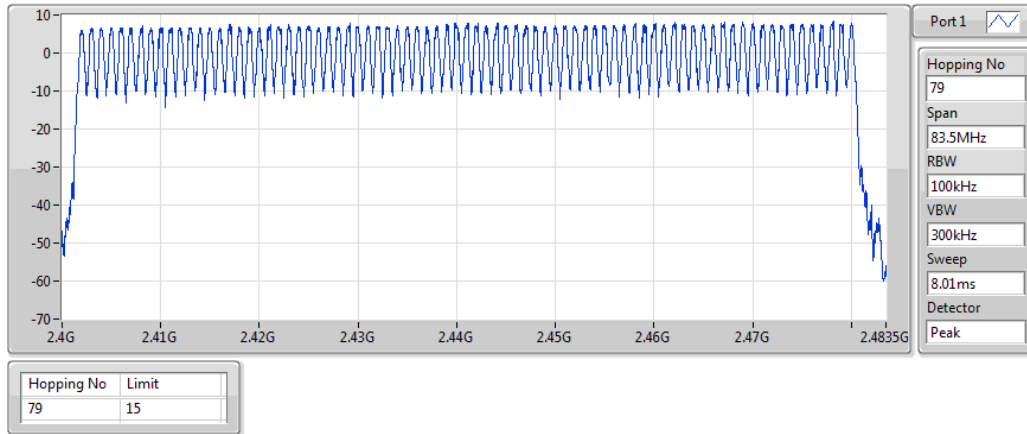
### BT-BDR 2441MHz

### Hopping Ch Bandedge (Restricted Band)



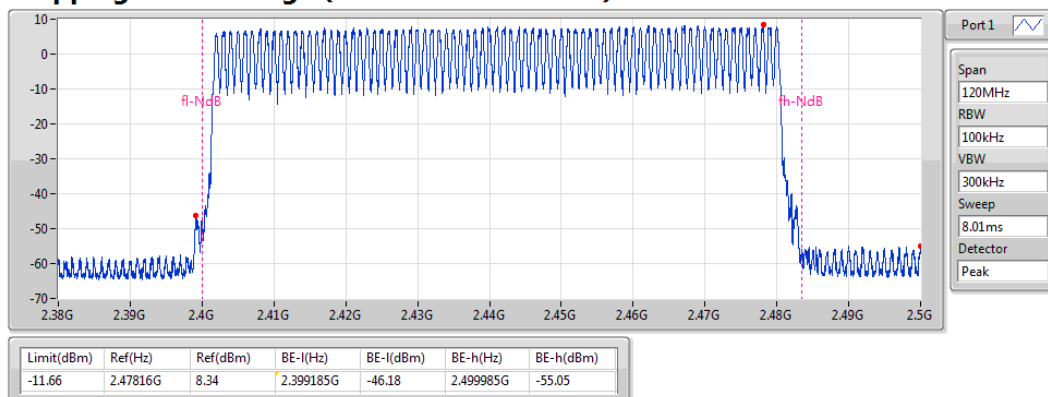
### BT-BDR 2480MHz

### Hopping Ch



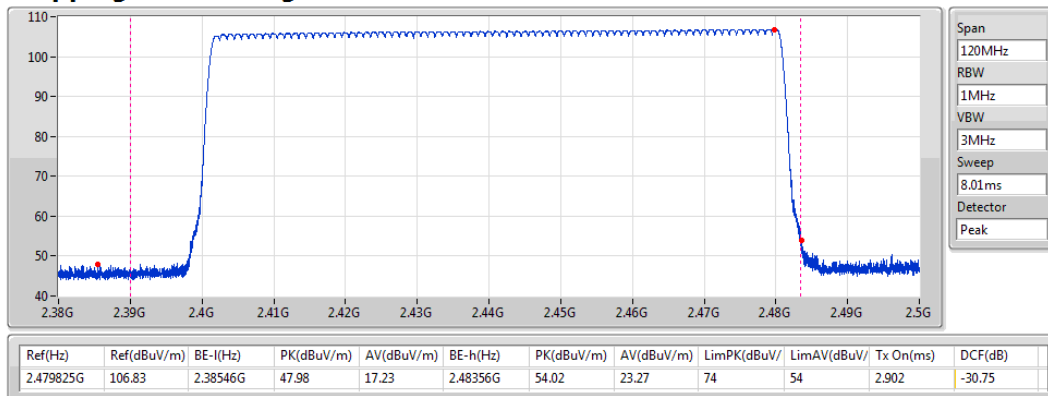
### BT-BDR 2480MHz

### Hopping Ch Bandedge (Non-restricted Band)



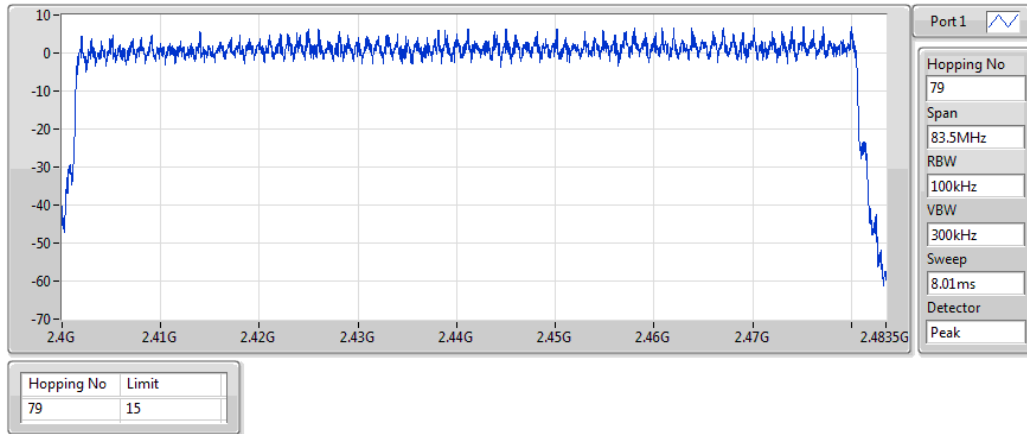
### BT-BDR 2480MHz

### Hopping Ch Bandedge (Restricted Band)



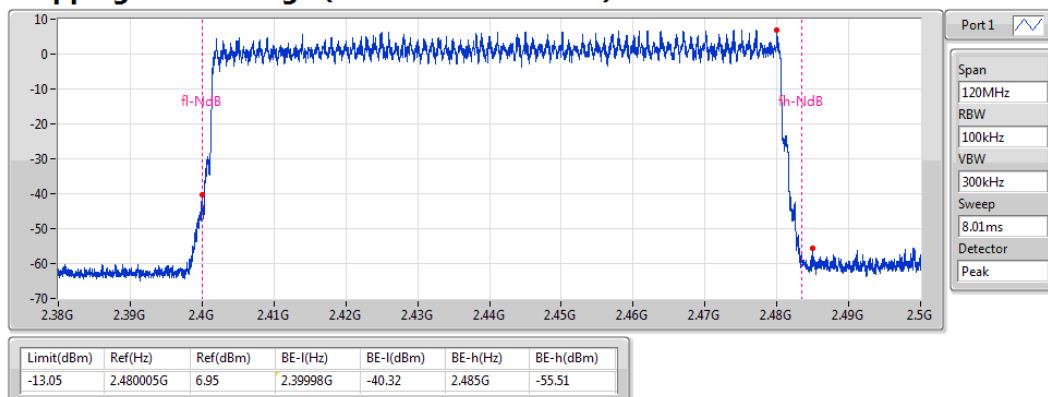
**BT-EDR2**  
**2402MHz**

**Hopping Ch**



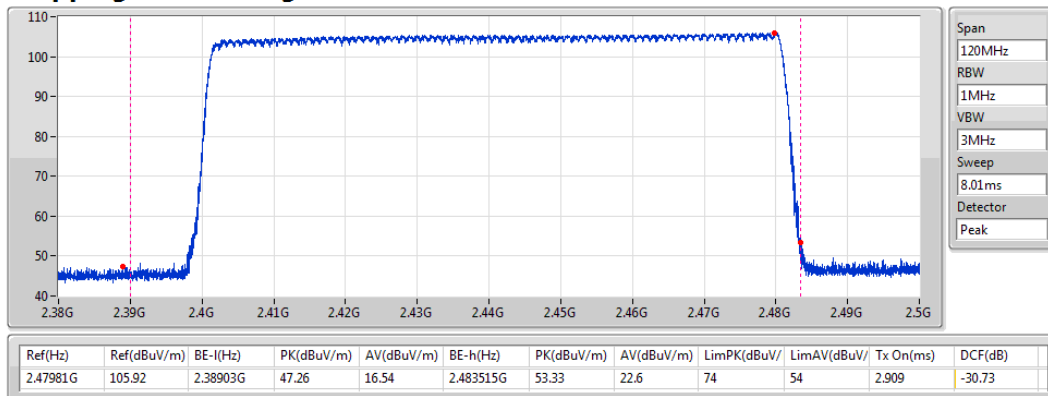
**BT-EDR2**  
**2402MHz**

**Hopping Ch Bandedge (Non-restricted Band)**



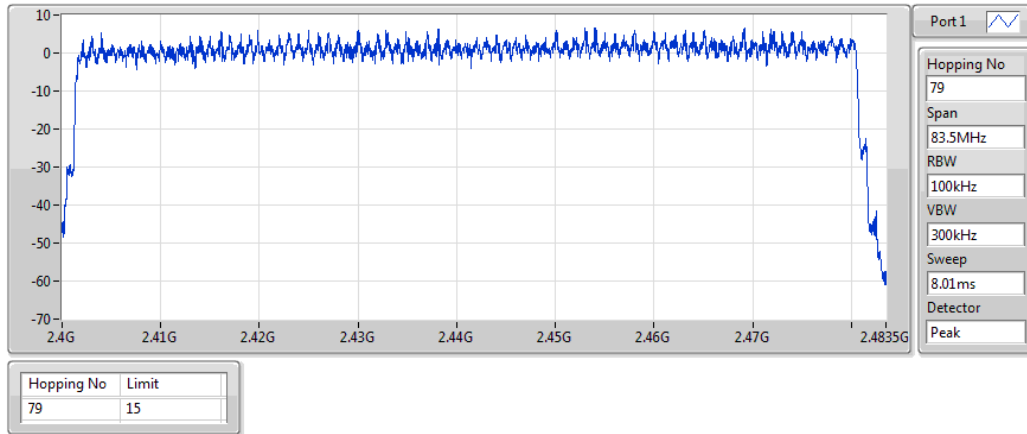
**BT-EDR2**  
**2402MHz**

**Hopping Ch Bandedge (Restricted Band)**



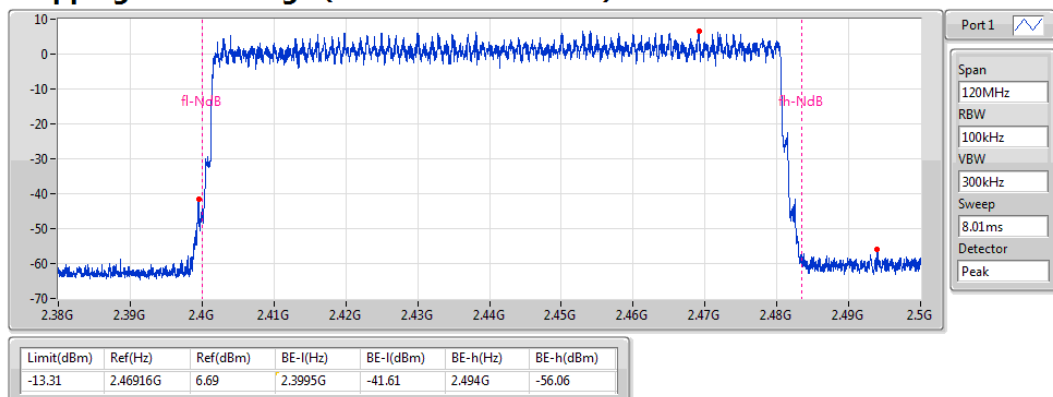
### BT-EDR2 2441MHz

### Hopping Ch



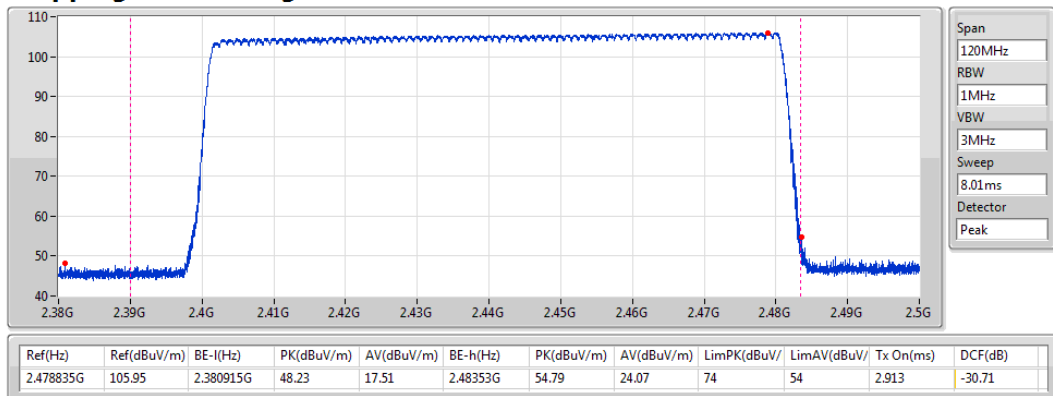
### BT-EDR2 2441MHz

### Hopping Ch Bandedge (Non-restricted Band)



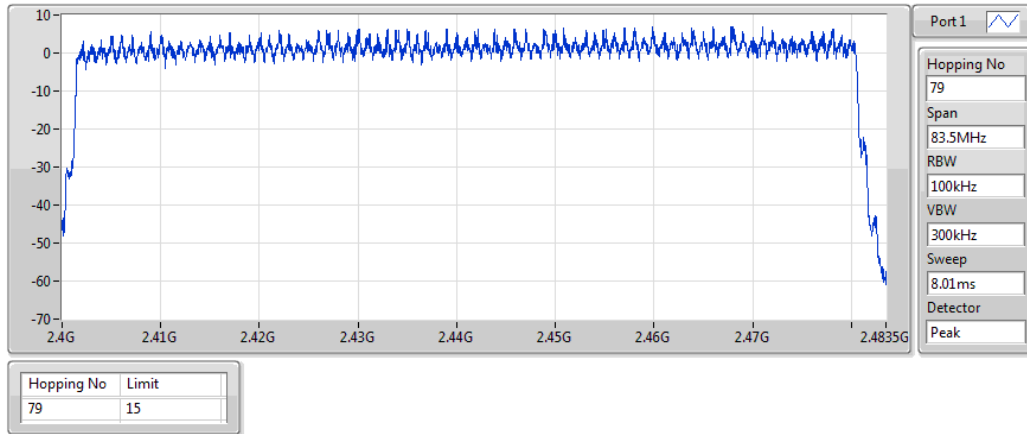
### BT-EDR2 2441MHz

### Hopping Ch Bandedge (Restricted Band)



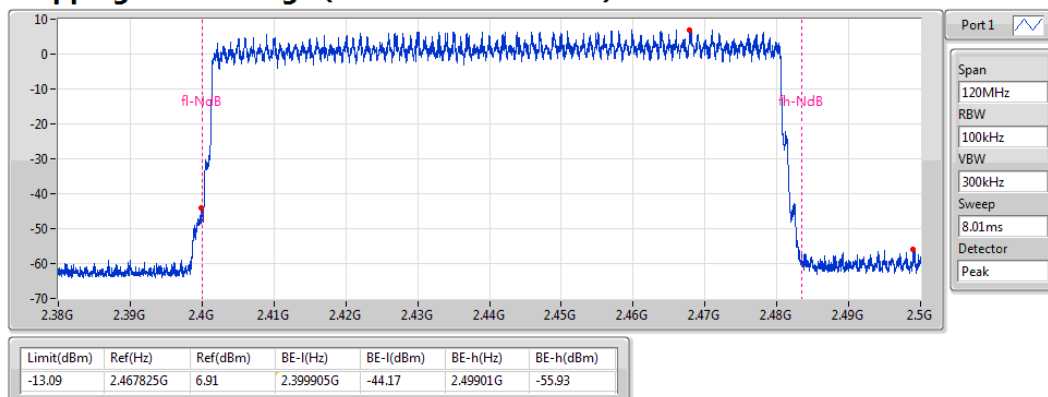
### BT-EDR2 2480MHz

### Hopping Ch



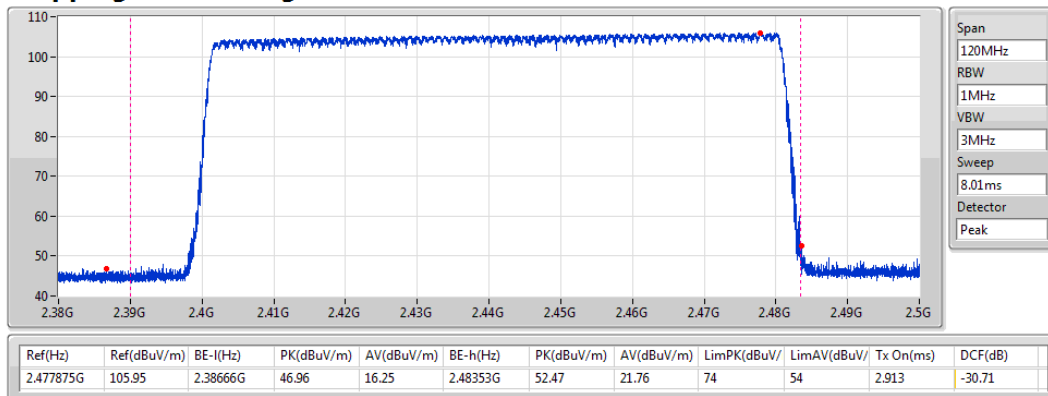
### BT-EDR2 2480MHz

### Hopping Ch Bandedge (Non-restricted Band)



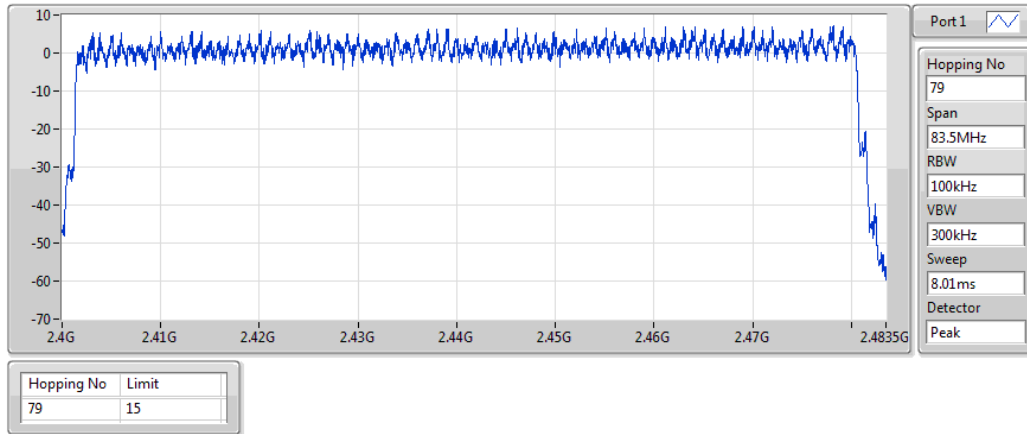
### BT-EDR2 2480MHz

### Hopping Ch Bandedge (Restricted Band)



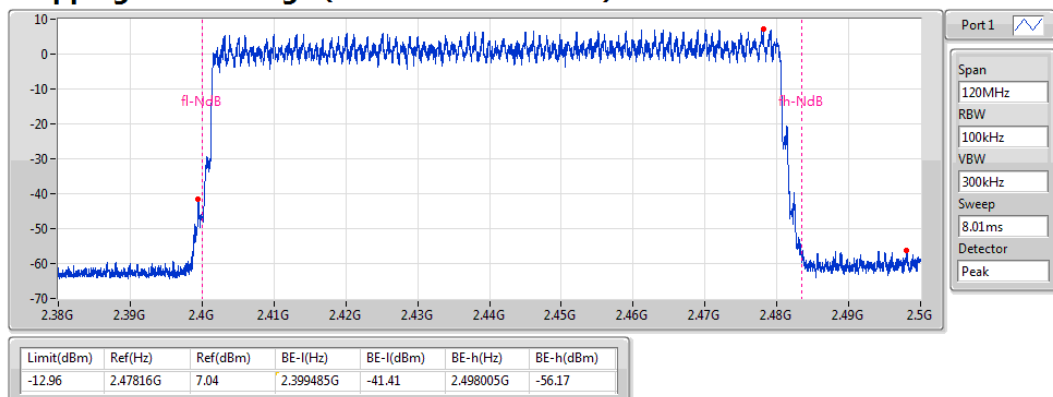
**BT-EDR3**  
**2402MHz**

**Hopping Ch**



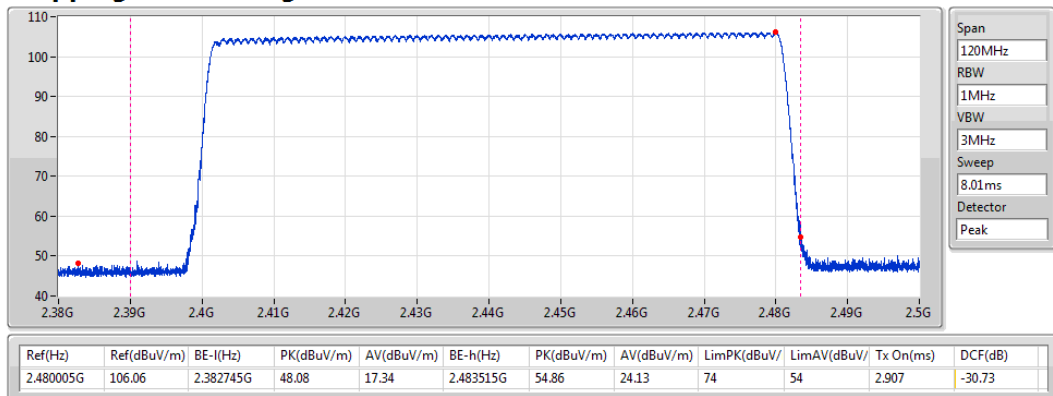
**BT-EDR3**  
**2402MHz**

**Hopping Ch Bandedge (Non-restricted Band)**



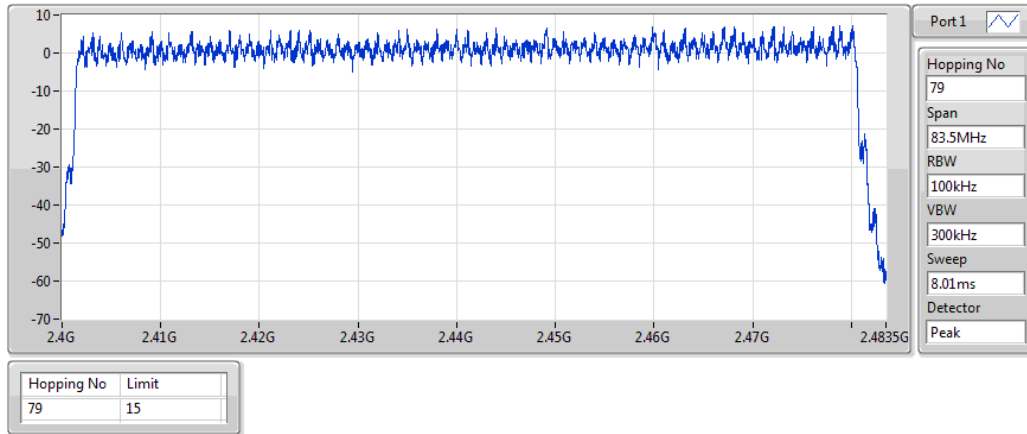
**BT-EDR3**  
**2402MHz**

**Hopping Ch Bandedge (Restricted Band)**



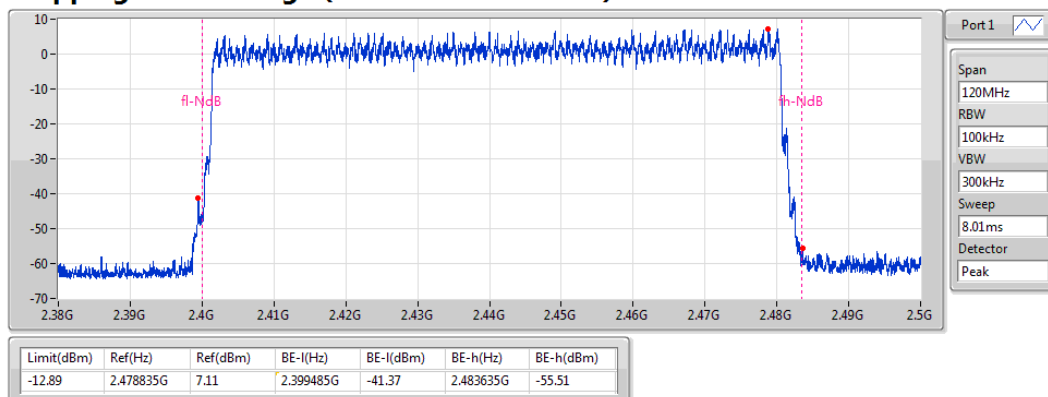
### BT-EDR3 2441MHz

### Hopping Ch



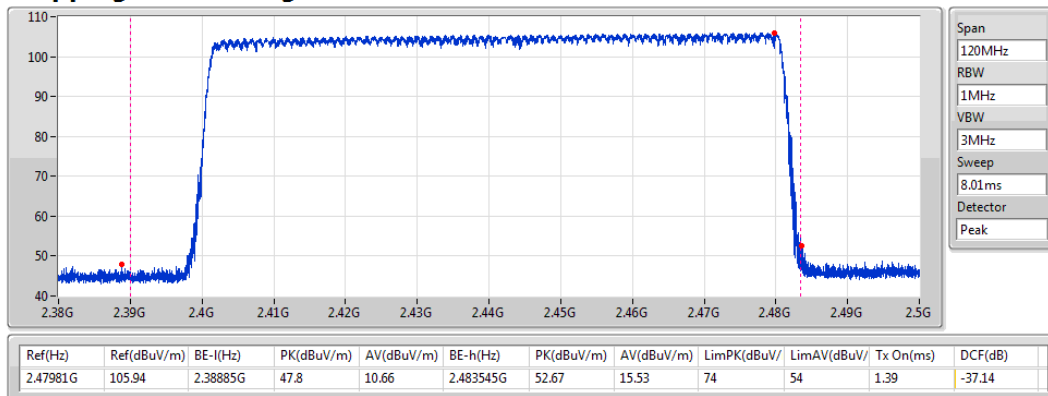
### BT-EDR3 2441MHz

### Hopping Ch Bandedge (Non-restricted Band)



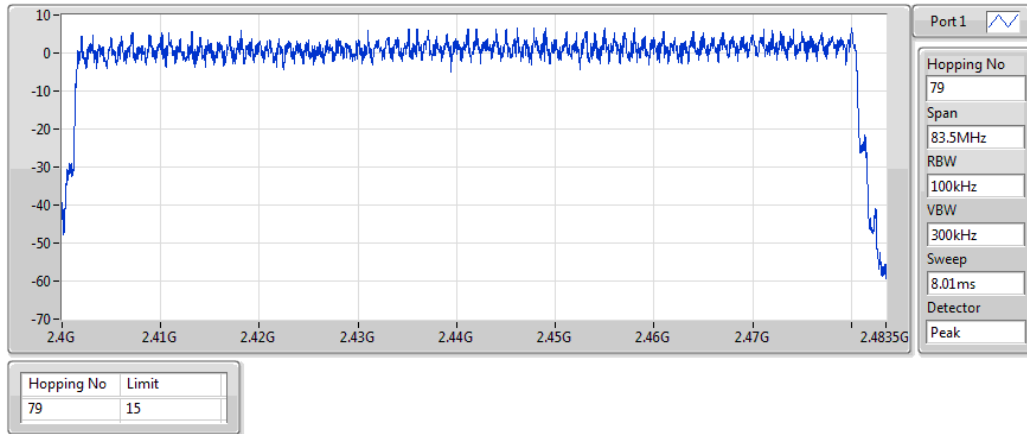
### BT-EDR3 2441MHz

### Hopping Ch Bandedge (Restricted Band)



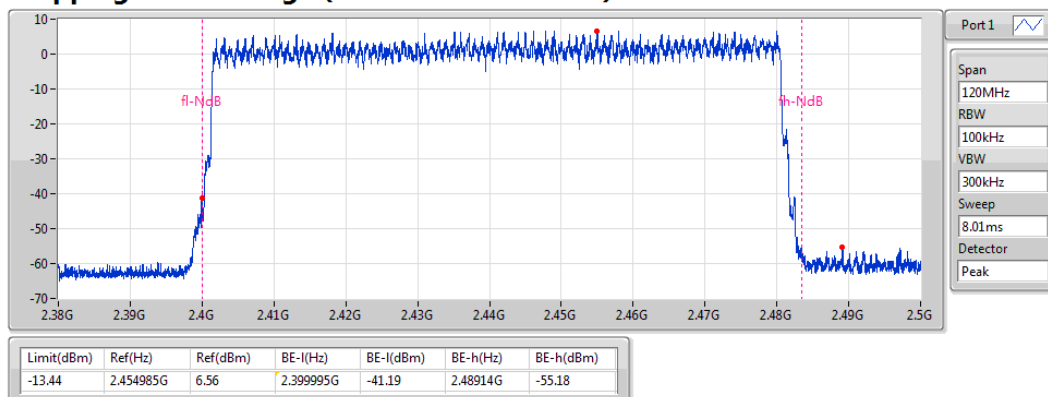
### BT-EDR3 2480MHz

### Hopping Ch



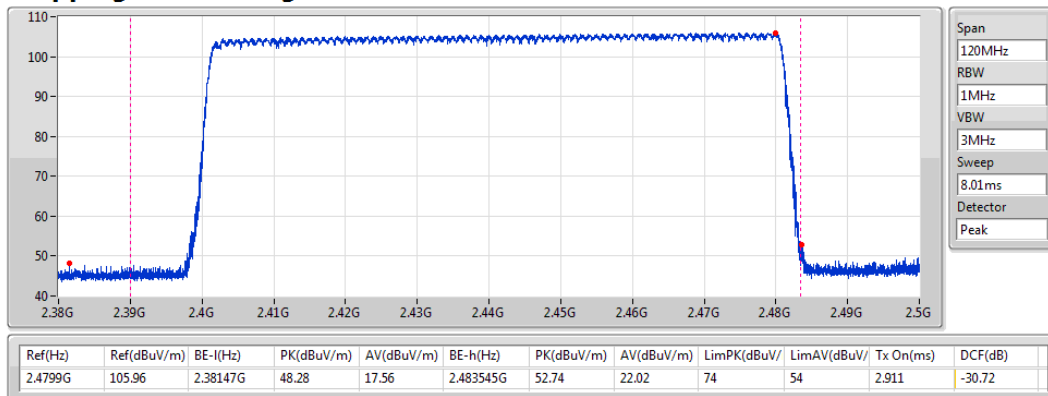
### BT-EDR3 2480MHz

### Hopping Ch Bandedge (Non-restricted Band)



### BT-EDR3 2480MHz

### Hopping Ch Bandedge (Restricted Band)





**Summary**

| Mode          | Max-Dwell<br>(s) |
|---------------|------------------|
| BT-EDR3       | -                |
| 2.4-2.4835GHz | 310.3126m        |

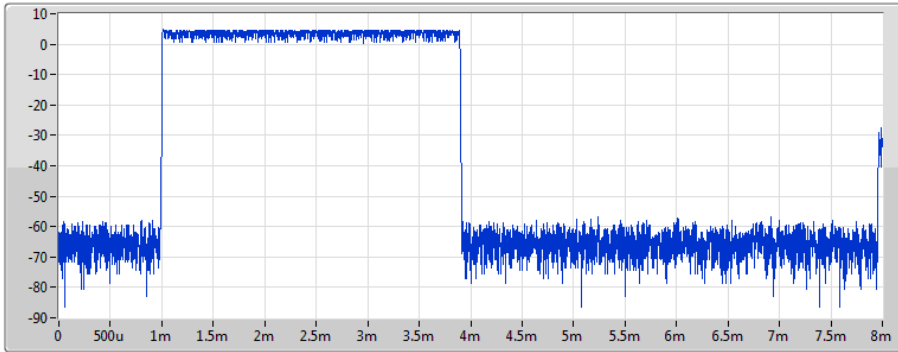
**Result**

| Mode    | Result | Period<br>(s) | Dwell<br>(s) | Limit<br>(s) | Tx On<br>(s) |
|---------|--------|---------------|--------------|--------------|--------------|
| BT-BDR  | -      | -             | -            | -            | -            |
| 2402MHz | Pass   | 31.6          | 309.3532m    | 400m         | 2.902m       |
| 2441MHz | Pass   | 31.6          | 309.3532m    | 400m         | 2.902m       |
| 2480MHz | Pass   | 31.6          | 309.3532m    | 400m         | 2.902m       |
| BT-EDR2 | -      | -             | -            | -            | -            |
| 2402MHz | Pass   | 31.6          | 310.0994m    | 400m         | 2.909m       |
| 2441MHz | Pass   | 31.6          | 310.5258m    | 400m         | 2.913m       |
| 2480MHz | Pass   | 31.6          | 310.5258m    | 400m         | 2.913m       |
| BT-EDR3 | -      | -             | -            | -            | -            |
| 2402MHz | Pass   | 31.6          | 309.8862m    | 400m         | 2.907m       |
| 2441MHz | Pass   | 31.6          | 148.174m     | 400m         | 1.39m        |
| 2480MHz | Pass   | 31.6          | 310.3126m    | 400m         | 2.911m       |

**BT-BDR**

**Dwell**

**2402MHz**



Port 1 

Ch Freq  
2.402GHz

RBW  
300kHz

VBW  
1MHz

Sweep Time  
8ms

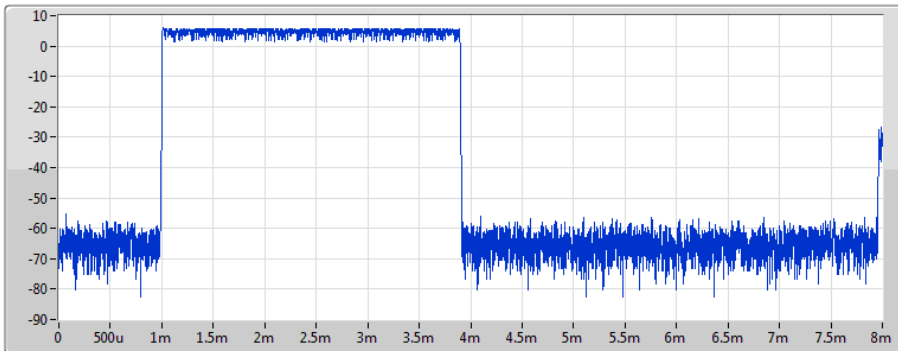
TX Time  
2.902ms

| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 309.3532m | 400m     | 2.902m   |

**BT-BDR**

**Dwell**

**2441MHz**



Port 1 

Ch Freq  
2.441GHz

RBW  
300kHz

VBW  
1MHz

Sweep Time  
8ms

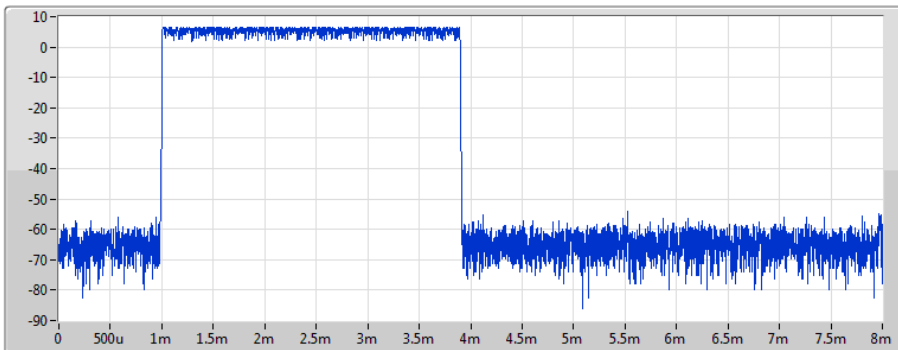
TX Time  
2.902ms

| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 309.3532m | 400m     | 2.902m   |

**BT-BDR**

**Dwell**

**2480MHz**



Port 1 

Ch Freq  
2.48GHz

RBW  
300kHz

VBW  
1MHz

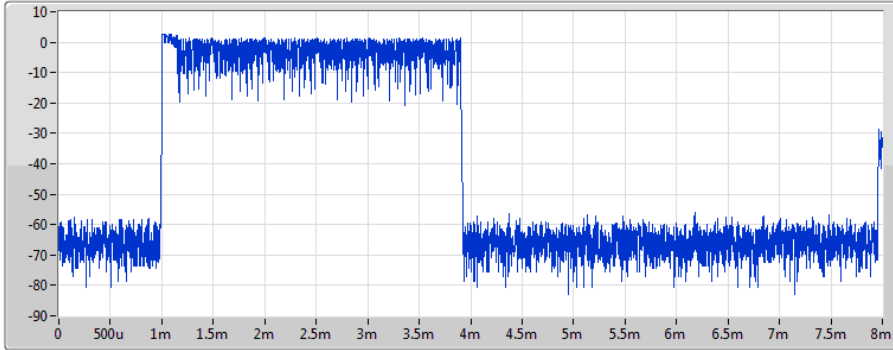
Sweep Time  
8ms

TX Time  
2.902ms

| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 309.3532m | 400m     | 2.902m   |

## BT-EDR2

2402MHz



| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 310.0994m | 400m     | 2.909m   |

## Dwell

Port 1 

Ch Freq  
2.402GHz

RBW  
300kHz

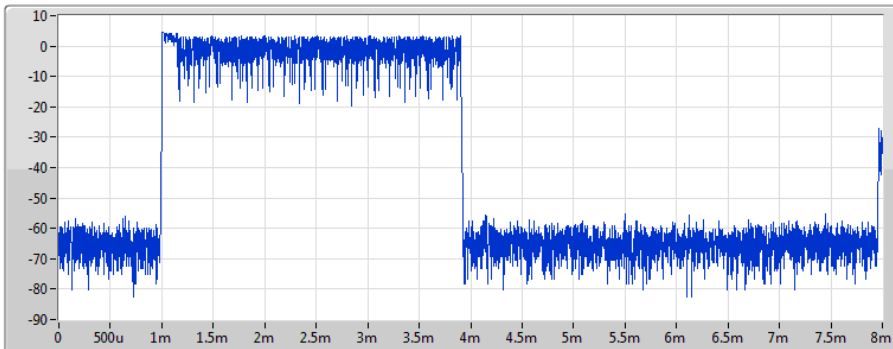
VBW  
1MHz

Sweep Time  
8ms

TX Time  
2.909ms

## BT-EDR2

2441MHz



| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 310.5258m | 400m     | 2.913m   |

## Dwell

Port 1 

Ch Freq  
2.441GHz

RBW  
300kHz

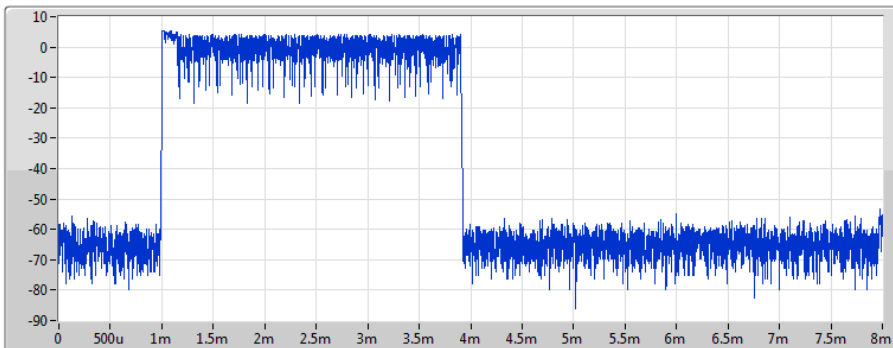
VBW  
1MHz

Sweep Time  
8ms

TX Time  
2.913ms

## BT-EDR2

2480MHz



| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 310.5258m | 400m     | 2.913m   |

## Dwell

Port 1 

Ch Freq  
2.48GHz

RBW  
300kHz

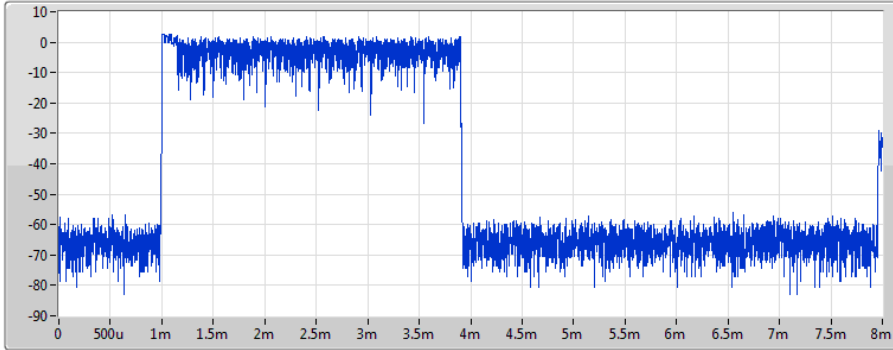
VBW  
1MHz

Sweep Time  
8ms

TX Time  
2.913ms

## BT-EDR3

2402MHz



| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 309.8862m | 400m     | 2.907m   |

## Dwell

Port 1 

Ch Freq  
2.402GHz

RBW  
300kHz

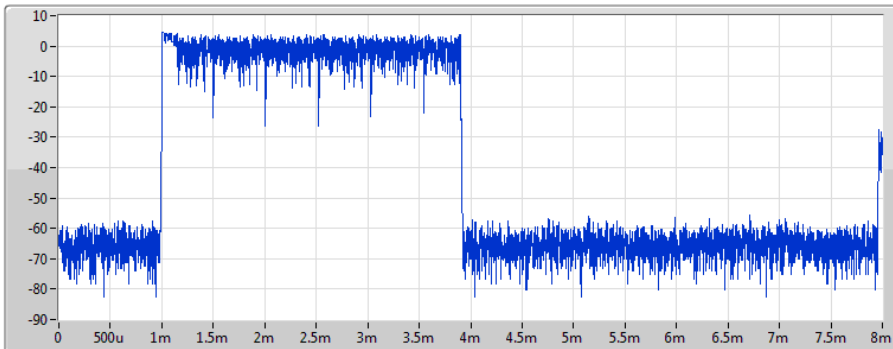
VBW  
1MHz

Sweep Time  
8ms

TX Time  
2.907ms

## BT-EDR3

2441MHz



| Period(s) | Dwell(s) | Limit(s) | Tx On(s) |
|-----------|----------|----------|----------|
| 31.6      | 148.174m | 400m     | 1.39m    |

## Dwell

Port 1 

Ch Freq  
2.441GHz

RBW  
300kHz

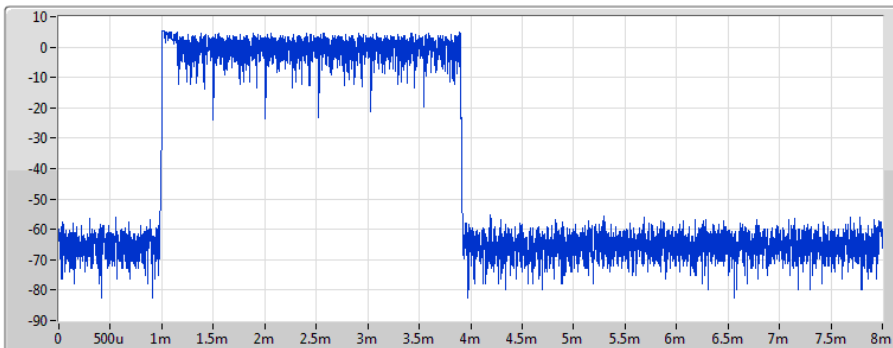
VBW  
1MHz

Sweep Time  
8ms

TX Time  
1.39ms

## BT-EDR3

2480MHz



| Period(s) | Dwell(s)  | Limit(s) | Tx On(s) |
|-----------|-----------|----------|----------|
| 31.6      | 310.3126m | 400m     | 2.911m   |

## Dwell

Port 1 

Ch Freq  
2.48GHz

RBW  
300kHz

VBW  
1MHz

Sweep Time  
8ms

TX Time  
2.911ms

**Summary**

| Mode    | Result | Ref<br>(Hz) | Ref<br>(dBm) | Limit<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|---------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| 2480MHz | Pass   | 2.401837G   | -6.25        | -26.25         | 1.827312G    | -58.22         | 2.39952G     | -52.81         | 2.484984G    | -57.59         | 6.974328G    | -48.17         | 1    |
|         |        |             |              |                |              |                |              |                |              |                |              |                |      |

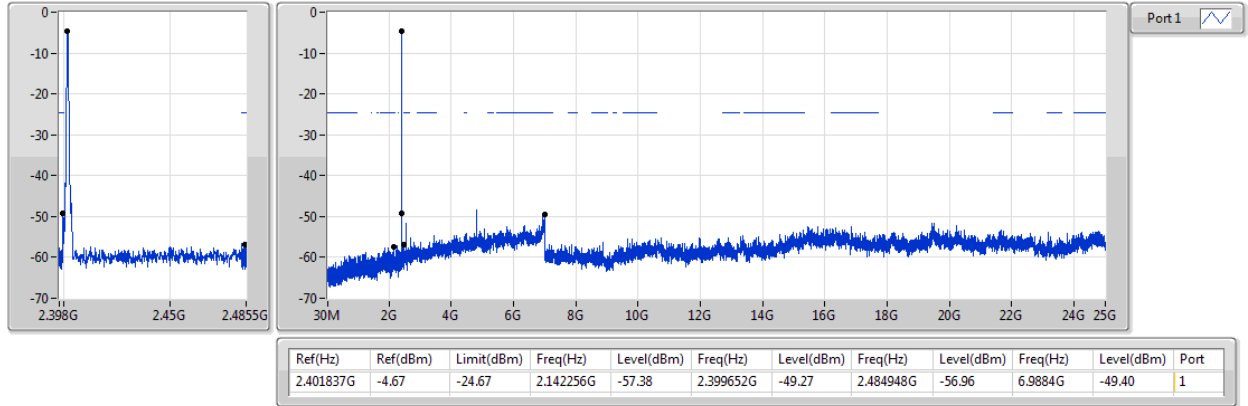
**Result**

| Mode    | Result | Ref<br>(Hz) | Ref<br>(dBm) | Limit<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|---------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| BT-BDR  | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| 2402MHz | Pass   | 2.401837G   | -4.67        | -24.67         | 2.142256G    | -57.38         | 2.399652G    | -49.27         | 2.484948G    | -56.96         | 6.9884G      | -49.40         | 1    |
| 2441MHz | Pass   | 2.440915G   | -4.18        | -24.18         | 1.84744G     | -57.59         | 2.398036G    | -57.09         | 2.48364G     | -56.25         | 6.985586G    | -50.42         | 1    |
| 2480MHz | Pass   | 2.48016G    | -3.31        | -23.31         | 1.806G       | -56.78         | 2.398744G    | -57.53         | 2.484872G    | -56.31         | 24.636954G   | -50.12         | 1    |
| BT-EDR2 | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| 2402MHz | Pass   | 2.401837G   | -7.20        | -27.20         | 1.74088G     | -57.58         | 2.399908G    | -50.26         | 2.485148G    | -57.03         | 6.985586G    | -50.44         | 1    |
| 2441MHz | Pass   | 2.440915G   | -7.73        | -27.73         | 1.957552G    | -57.33         | 2.398676G    | -57.31         | 2.48448G     | -56.06         | 6.940557G    | -50.81         | 1    |
| 2480MHz | Pass   | 2.48016G    | -4.98        | -24.98         | 1.830864G    | -57.81         | 2.399188G    | -57.66         | 2.483504G    | -52.52         | 6.971514G    | -50.27         | 1    |
| BT-EDR3 | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| 2402MHz | Pass   | 2.401837G   | -6.25        | -26.25         | 1.827312G    | -58.22         | 2.39952G     | -52.81         | 2.484984G    | -57.59         | 6.974328G    | -48.17         | 1    |
| 2441MHz | Pass   | 2.440915G   | -6.13        | -26.13         | 2.3092G      | -57.74         | 2.399908G    | -57.52         | 2.485328G    | -57.08         | 6.892713G    | -49.58         | 1    |
| 2480MHz | Pass   | 2.479826G   | -4.20        | -24.20         | 1.988336G    | -57.84         | 2.399636G    | -56.97         | 2.483512G    | -52.10         | 6.932114G    | -51.05         | 1    |

### BT-BDR

CSE NdB

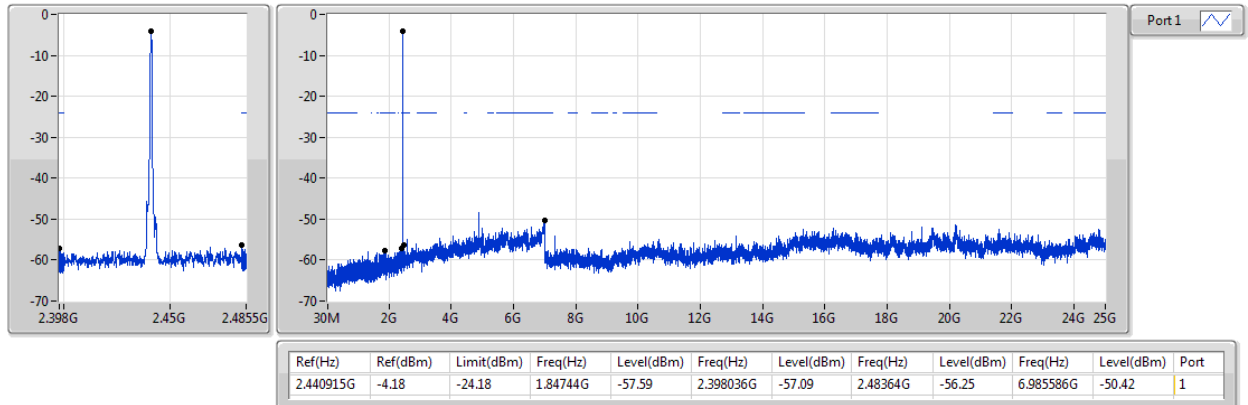
2402MHz



### BT-BDR

CSE NdB

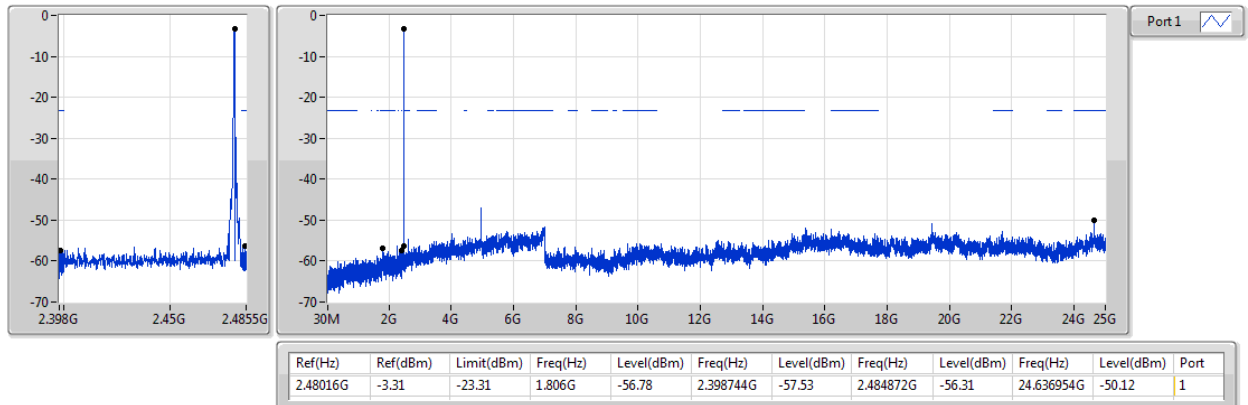
2441MHz



### BT-BDR

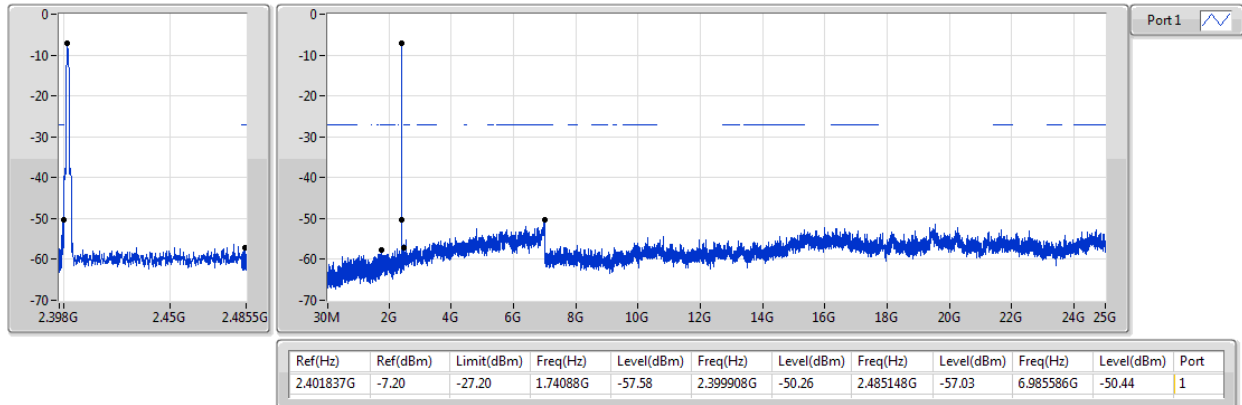
CSE NdB

2480MHz



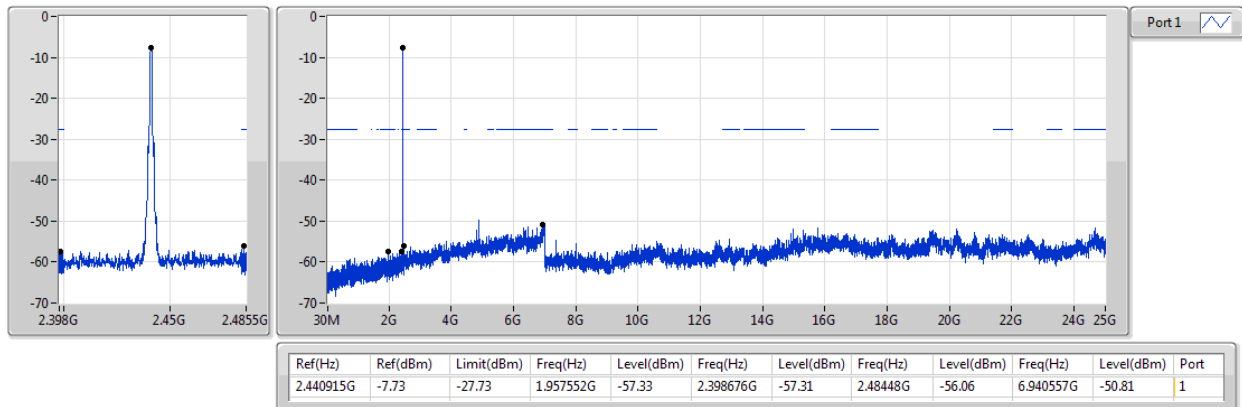
### BT-EDR2 2402MHz

CSE NdB



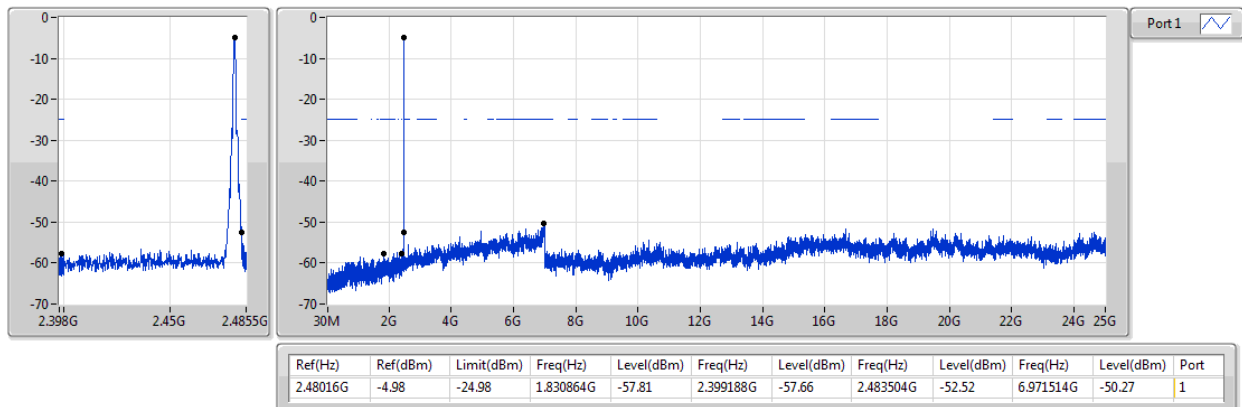
### BT-EDR2 2441MHz

CSE NdB



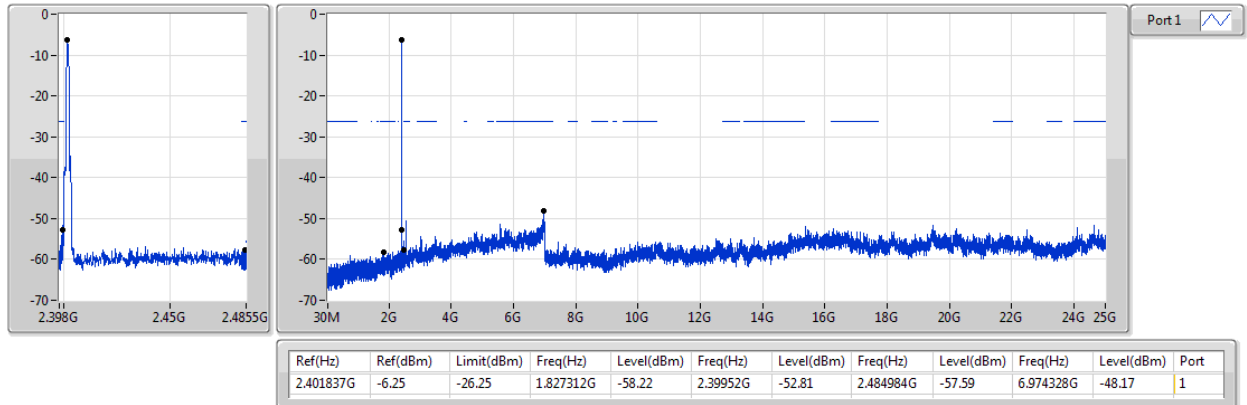
### BT-EDR2 2480MHz

CSE NdB



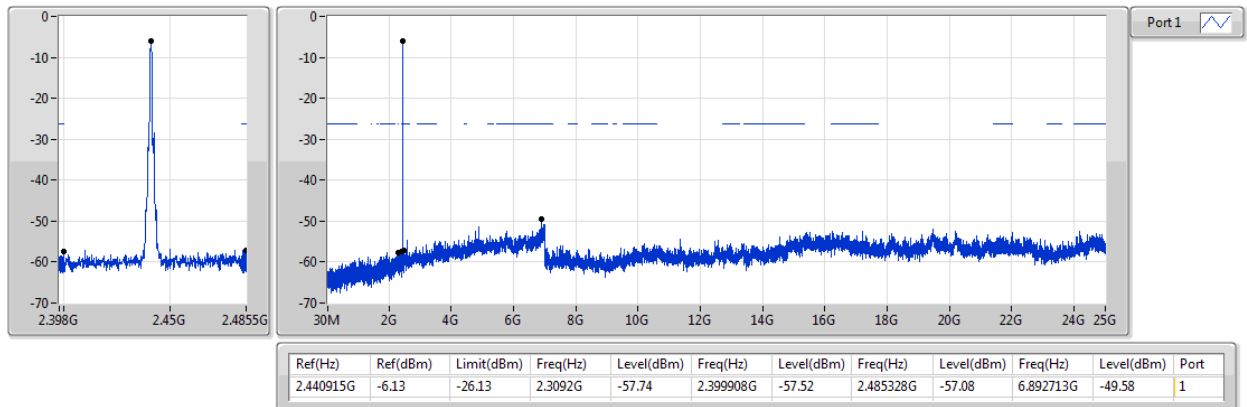
### BT-EDR3 2402MHz

CSE NdB



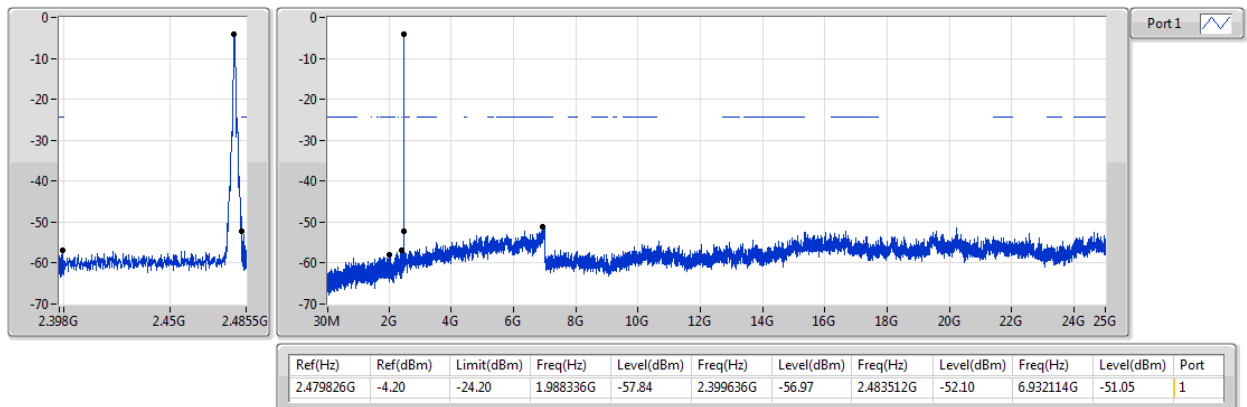
### BT-EDR3 2441MHz

CSE NdB



### BT-EDR3 2480MHz

CSE NdB







| RSE below 1GHz Result                                                                                                                                                                               |             |        |        |        |              |              |        |       |            |          |            |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------|--------|--------------|--------------|--------|-------|------------|----------|------------|--|
| Operating Mode                                                                                                                                                                                      | 2           |        |        |        | Polarization |              |        |       | Horizontal |          |            |  |
| Operating Function                                                                                                                                                                                  | Normal Link |        |        |        |              |              |        |       |            |          |            |  |
| <div><div><div>Level (dBuV/m)</div><div>Date: 2016-11-29 Time: 19:18:19</div><div></div><div>Frequency (MHz)</div></div></div>                                                                      |             |        |        |        |              |              |        |       |            |          |            |  |
|                                                                                                                                                                                                     | Freq        | Level  | Limit  | Over   | Read         | CableAntenna | Preamp | A/Pos | T/Pos      | Remark   | Pol/Phase  |  |
|                                                                                                                                                                                                     | MHz         | dBuV/m | dBuV/m | dB     | dBuV         | dB           | dB/m   | dB    | cm         | deg      |            |  |
| 1                                                                                                                                                                                                   | 30.97       | 24.81  | 40.00  | -15.19 | 32.05        | 0.62         | 25.13  | 32.99 | 100        | 294 Peak | HORIZONTAL |  |
| 2                                                                                                                                                                                                   | 117.30      | 22.77  | 43.50  | -20.73 | 34.95        | 1.22         | 19.02  | 32.42 | 300        | 164 Peak | HORIZONTAL |  |
| 3                                                                                                                                                                                                   | 147.37      | 27.45  | 43.50  | -16.05 | 40.94        | 1.37         | 17.52  | 32.38 | 200        | 25 Peak  | HORIZONTAL |  |
| 4                                                                                                                                                                                                   | 172.59      | 20.63  | 43.50  | -22.87 | 35.02        | 1.49         | 16.48  | 32.36 | 150        | 123 Peak | HORIZONTAL |  |
| 5                                                                                                                                                                                                   | 604.24      | 30.56  | 46.00  | -15.44 | 34.68        | 2.83         | 25.46  | 32.41 | 200        | 277 Peak | HORIZONTAL |  |
| 6                                                                                                                                                                                                   | 771.08      | 33.76  | 46.00  | -12.24 | 36.19        | 3.23         | 26.58  | 32.24 | 125        | 270 Peak | HORIZONTAL |  |
| <div>Note 1: "&gt;20dB" means emission levels that exceed the level of 20 dB below the applicable limit.</div> <div>Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)</div> |             |        |        |        |              |              |        |       |            |          |            |  |

| RSE below 1GHz Result                                                                                                                                                                               |             |        |        |        |             |              |        |       |          |          |           |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------|--------|-------------|--------------|--------|-------|----------|----------|-----------|--|
| Operating Mode                                                                                                                                                                                      | 2           |        |        |        | Power Phase |              |        |       | Vertical |          |           |  |
| Operating Function                                                                                                                                                                                  | Normal Link |        |        |        |             |              |        |       |          |          |           |  |
| <div><div><div>Level (dBuV/m)</div><div>Date: 2016-11-29 Time: 19:18:36</div><div></div><div>Frequency (MHz)</div></div></div>                                                                      |             |        |        |        |             |              |        |       |          |          |           |  |
|                                                                                                                                                                                                     | Freq        | Level  | Limit  | Over   | Read        | CableAntenna | Preamp | A/Pos | T/Pos    | Remark   | Pol/Phase |  |
|                                                                                                                                                                                                     | MHz         | dBuV/m | dBuV/m | dB     | dBuV        | dB           | dB/m   | dB    | cm       | deg      |           |  |
| 1                                                                                                                                                                                                   | 47.46       | 31.32  | 40.00  | -8.68  | 46.99       | 0.77         | 16.00  | 32.44 | 100      | 161 Peak | VERTICAL  |  |
| 2                                                                                                                                                                                                   | 56.19       | 32.54  | 40.00  | -7.46  | 49.96       | 0.83         | 14.14  | 32.39 | 100      | 356 Peak | VERTICAL  |  |
| 3                                                                                                                                                                                                   | 62.01       | 30.42  | 40.00  | -9.58  | 48.40       | 0.88         | 13.54  | 32.40 | 125      | 359 Peak | VERTICAL  |  |
| 4                                                                                                                                                                                                   | 79.47       | 30.81  | 40.00  | -9.19  | 48.68       | 1.00         | 13.56  | 32.43 | 100      | 156 Peak | VERTICAL  |  |
| 5                                                                                                                                                                                                   | 140.58      | 31.11  | 43.50  | -12.39 | 44.01       | 1.33         | 18.16  | 32.39 | 100      | 284 Peak | VERTICAL  |  |
| 6                                                                                                                                                                                                   | 147.37      | 36.80  | 43.50  | -6.70  | 50.29       | 1.37         | 17.52  | 32.38 | 125      | 169 Peak | VERTICAL  |  |
| <div>Note 1: "&gt;20dB" means emission levels that exceed the level of 20 dB below the applicable limit.</div> <div>Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)</div> |             |        |        |        |             |              |        |       |          |          |           |  |

**Radiated Emissions (1GHz~10<sup>th</sup> Harmonic)**

|                       |                         |
|-----------------------|-------------------------|
| <b>Configurations</b> | BR (GFSK) CH 0 / Ant. 5 |
|-----------------------|-------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark     | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|------------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg        |            |
| 1 | 4803.80 | 49.68  | 74.00         | -24.32        | 43.39         | 6.26                        | 33.08            | 33.05 | 282   | 79 Peak    | HORIZONTAL |
| 2 | 4803.92 | 42.01  | 54.00         | -11.99        | 35.72         | 6.26                        | 33.08            | 33.05 | 282   | 79 Average | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark     | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|------------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg        |           |
| 1 | 4803.80 | 51.64  | 74.00         | -22.36        | 45.35         | 6.26                        | 33.08            | 33.05 | 103   | 43 Peak    | VERTICAL  |
| 2 | 4804.00 | 45.91  | 54.00         | -8.09         | 39.62         | 6.26                        | 33.08            | 33.05 | 103   | 43 Average | VERTICAL  |

|                       |                          |
|-----------------------|--------------------------|
| <b>Configurations</b> | BR (GFSK) CH 38 / Ant. 5 |
|-----------------------|--------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark      | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|-------------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg         |            |
| 1 | 4881.86 | 41.48  | 54.00         | -12.52        | 34.96         | 6.28                        | 33.26            | 33.02 | 236   | 72 Average  | HORIZONTAL |
| 2 | 4881.98 | 48.32  | 74.00         | -25.68        | 41.80         | 6.28                        | 33.26            | 33.02 | 236   | 72 Peak     | HORIZONTAL |
| 3 | 7322.38 | 58.03  | 74.00         | -15.97        | 47.55         | 7.87                        | 36.13            | 33.52 | 257   | 154 Peak    | HORIZONTAL |
| 4 | 7322.90 | 50.44  | 54.00         | -3.56         | 39.96         | 7.87                        | 36.13            | 33.52 | 257   | 154 Average | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark      | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|-------------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg         |           |
| 1 | 4881.90 | 41.67  | 54.00         | -12.33        | 35.15         | 6.28                        | 33.26            | 33.02 | 239   | 76 Average  | VERTICAL  |
| 2 | 4882.26 | 50.41  | 74.00         | -23.59        | 43.89         | 6.28                        | 33.26            | 33.02 | 239   | 76 Peak     | VERTICAL  |
| 3 | 7322.50 | 58.51  | 74.00         | -15.49        | 48.03         | 7.87                        | 36.13            | 33.52 | 288   | 147 Peak    | VERTICAL  |
| 4 | 7322.86 | 51.57  | 54.00         | -2.43         | 41.09         | 7.87                        | 36.13            | 33.52 | 288   | 147 Average | VERTICAL  |

|                       |                          |
|-----------------------|--------------------------|
| <b>Configurations</b> | BR (GFSK) CH 78 / Ant. 5 |
|-----------------------|--------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark      | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|-------------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg         |            |
| 1 | 4959.94 | 40.36  | 54.00         | -13.64        | 33.63         | 6.30                        | 33.41            | 32.98 | 105   | 203 Average | HORIZONTAL |
| 2 | 4960.02 | 50.06  | 74.00         | -23.94        | 43.33         | 6.30                        | 33.41            | 32.98 | 105   | 203 Peak    | HORIZONTAL |
| 3 | 7439.76 | 45.57  | 54.00         | -8.43         | 34.87         | 7.93                        | 36.36            | 33.59 | 103   | 148 Average | HORIZONTAL |
| 4 | 7439.80 | 53.69  | 74.00         | -20.31        | 42.99         | 7.93                        | 36.36            | 33.59 | 103   | 148 Peak    | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark      | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|-----------------------------|------------------|-------|-------|-------------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                          | dB/m             | dB    | cm    | deg         |           |
| 1 | 4959.80 | 49.75  | 74.00         | -24.25        | 43.02         | 6.30                        | 33.41            | 32.98 | 134   | 257 Peak    | VERTICAL  |
| 2 | 4959.92 | 43.01  | 54.00         | -10.99        | 36.28         | 6.30                        | 33.41            | 32.98 | 134   | 257 Average | VERTICAL  |
| 3 | 7439.48 | 54.41  | 74.00         | -19.59        | 43.71         | 7.93                        | 36.36            | 33.59 | 233   | 42 Peak     | VERTICAL  |
| 4 | 7439.80 | 45.06  | 54.00         | -8.94         | 34.36         | 7.93                        | 36.36            | 33.59 | 233   | 42 Average  | VERTICAL  |

Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

|                       |                           |
|-----------------------|---------------------------|
| <b>Configurations</b> | EDR (8DPSK) CH 0 / Ant. 5 |
|-----------------------|---------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |            |
| 1 | 4803.80 | 49.68  | 74.00         | -24.32        | 43.39         | 6.26                 | 33.08            | 33.05            | 282   | 79    | Peak    | HORIZONTAL |
| 2 | 4803.92 | 42.01  | 54.00         | -11.99        | 35.72         | 6.26                 | 33.08            | 33.05            | 282   | 79    | Average | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |           |
| 1 | 4803.80 | 51.64  | 74.00         | -22.36        | 45.35         | 6.26                 | 33.08            | 33.05            | 103   | 43    | Peak    | VERTICAL  |
| 2 | 4804.00 | 45.91  | 54.00         | -8.09         | 39.62         | 6.26                 | 33.08            | 33.05            | 103   | 43    | Average | VERTICAL  |

|                       |                            |
|-----------------------|----------------------------|
| <b>Configurations</b> | EDR (8DPSK) CH 38 / Ant. 5 |
|-----------------------|----------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |            |
| 1 | 4881.60 | 34.25  | 54.00         | -19.75        | 27.73         | 6.28                 | 33.26            | 33.02            | 126   | 111   | Average | HORIZONTAL |
| 2 | 4884.48 | 47.02  | 74.00         | -26.98        | 40.50         | 6.28                 | 33.26            | 33.02            | 126   | 111   | Peak    | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |           |
| 1 | 4882.00 | 37.47  | 54.00         | -16.53        | 30.95         | 6.28                 | 33.26            | 33.02            | 126   | 268   | Average | VERTICAL  |
| 2 | 4882.04 | 49.37  | 74.00         | -24.63        | 42.85         | 6.28                 | 33.26            | 33.02            | 126   | 268   | Peak    | VERTICAL  |

|                       |                            |
|-----------------------|----------------------------|
| <b>Configurations</b> | EDR (8DPSK) CH 78 / Ant. 5 |
|-----------------------|----------------------------|

**Horizontal**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase  |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|------------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |            |
| 1 | 4960.06 | 36.66  | 54.00         | -17.34        | 29.93         | 6.30                 | 33.41            | 32.98            | 103   | 193   | Average | HORIZONTAL |
| 2 | 4961.92 | 47.53  | 74.00         | -26.47        | 40.80         | 6.30                 | 33.41            | 32.98            | 103   | 193   | Peak    | HORIZONTAL |

**Vertical**

|   | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | Preamp<br>Factor | A/Pos | T/Pos | Remark  | Pol/Phase |
|---|---------|--------|---------------|---------------|---------------|----------------------|------------------|------------------|-------|-------|---------|-----------|
|   | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB               | cm    | deg   |         |           |
| 1 | 4959.62 | 50.00  | 74.00         | -24.00        | 43.27         | 6.30                 | 33.41            | 32.98            | 121   | 254   | Peak    | VERTICAL  |
| 2 | 4959.86 | 39.35  | 54.00         | -14.65        | 32.62         | 6.30                 | 33.41            | 32.98            | 121   | 254   | Average | VERTICAL  |

Note:

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

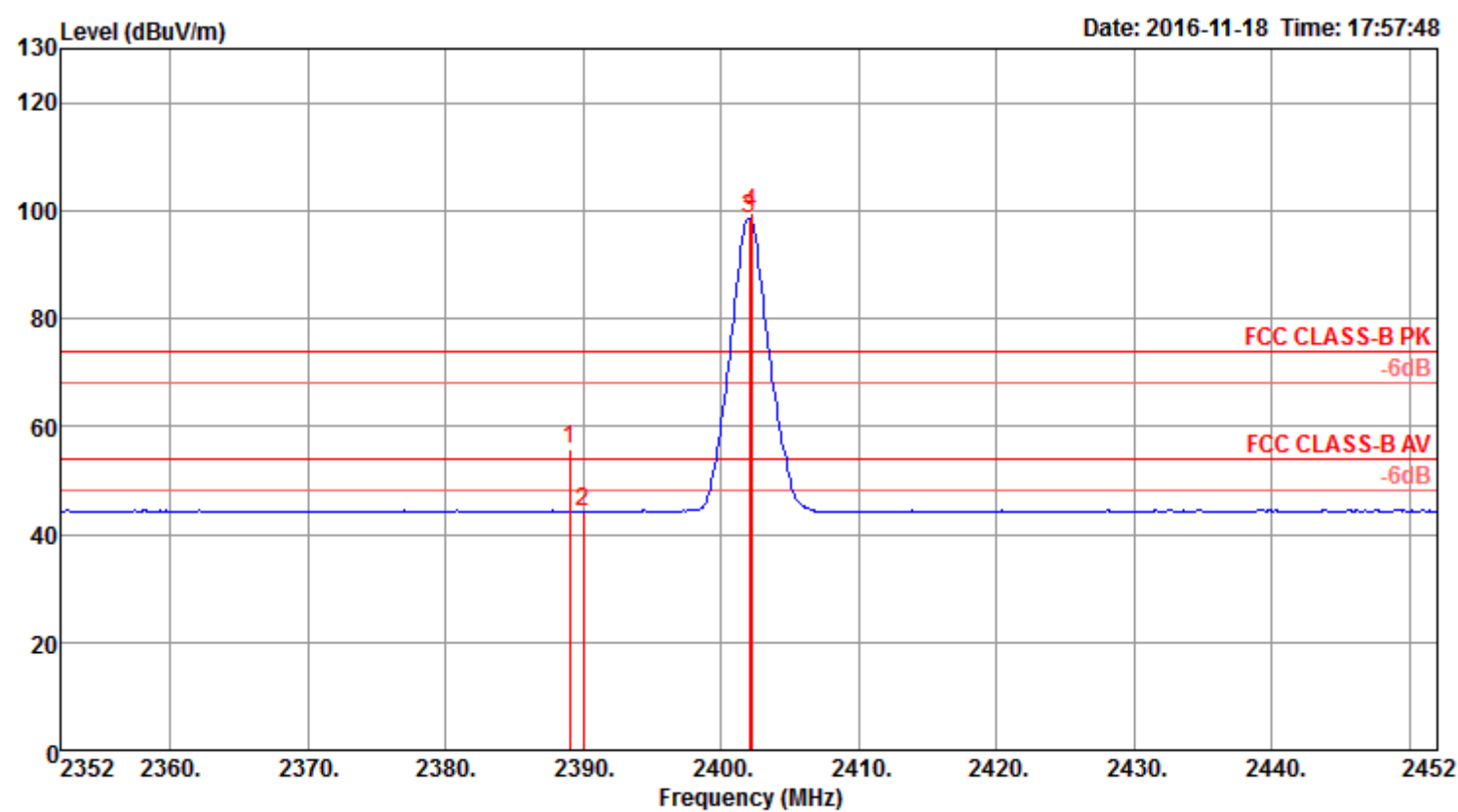
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

## Band Edge Emissions

|                |                                 |
|----------------|---------------------------------|
| Configurations | BR (GFSK) CH 0, 38, 78 / Ant. 5 |
|----------------|---------------------------------|

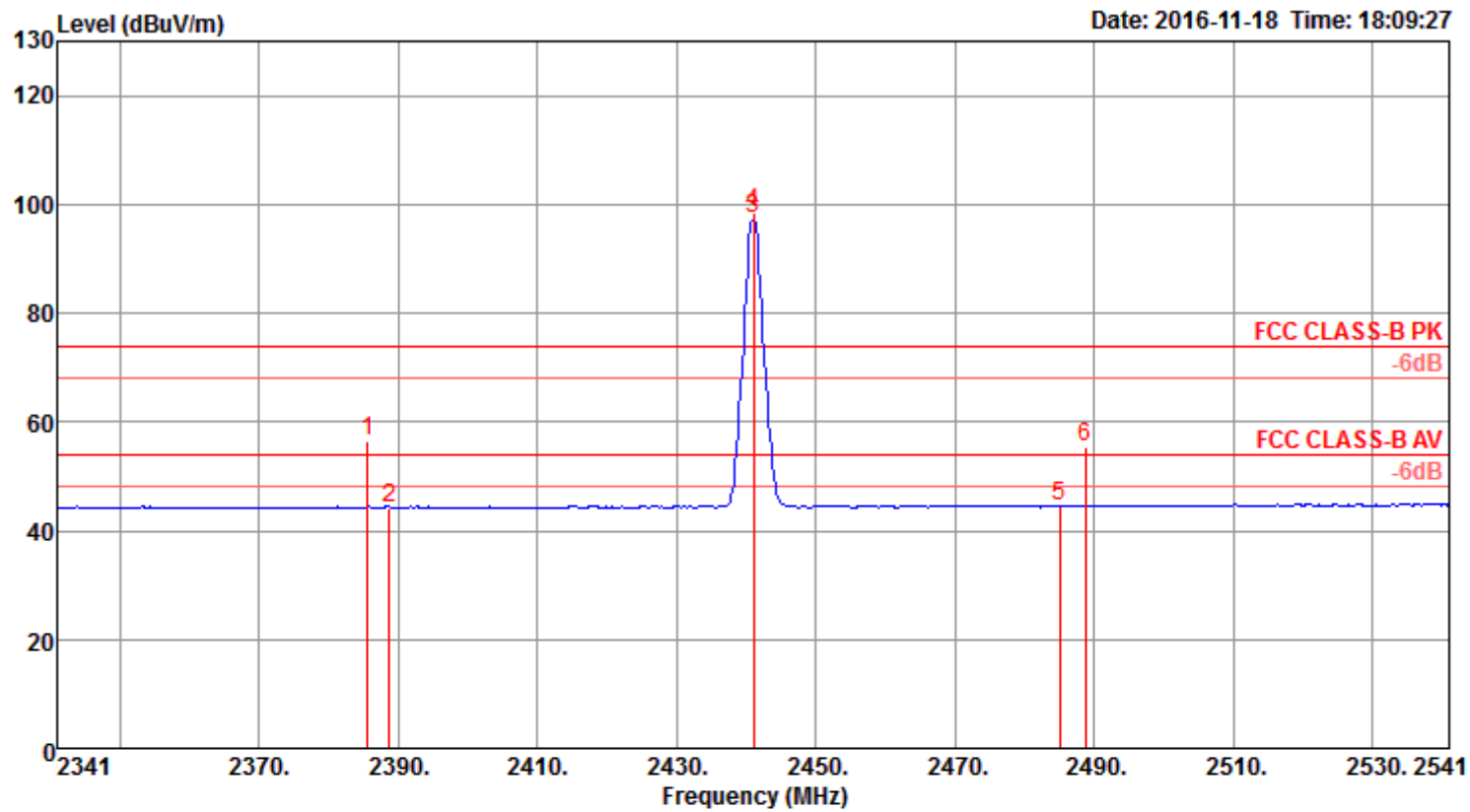
Channel 0



|     | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|---------------|---------------|---------------|----------------------|------------------|-------|-------|--------|-----------|
|     | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB    | cm    | deg    |           |
| 1   | 2389.00 | 55.90  | 74.00         | -18.10        | 23.99         | 3.60                 | 28.31            | 0.00  | 144   | 269    | Peak      |
| 2   | 2390.00 | 44.24  | 54.00         | -9.76         | 12.33         | 3.60                 | 28.31            | 0.00  | 144   | 269    | Average   |
| 3 @ | 2402.00 | 98.55  |               |               | 66.60         | 3.61                 | 28.34            | 0.00  | 144   | 269    | Average   |
| 4 @ | 2402.20 | 99.44  |               |               | 67.49         | 3.61                 | 28.34            | 0.00  | 144   | 269    | Peak      |

Item 3, 4 are the fundamental frequency at 2402 MHz.

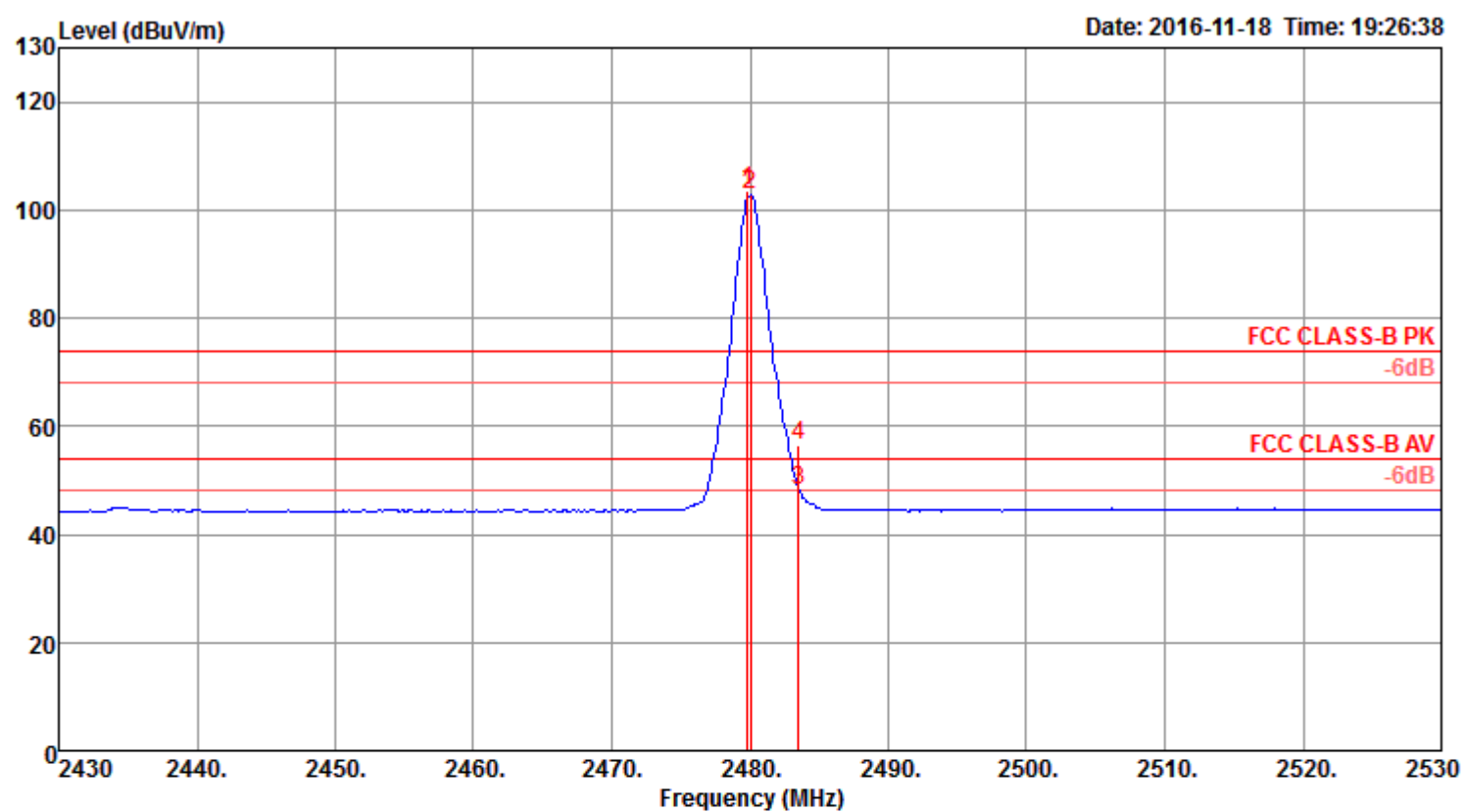
## Channel 38



|     | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|---------------|---------------|---------------|----------------------|------------------|-------|-------|--------|-----------|
|     | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB    | cm    | deg    |           |
| 1   | 2385.60 | 56.33  | 74.00         | -17.67        | 24.42         | 3.60                 | 28.31            | 0.00  | 110   | 242    | Peak      |
| 2   | 2388.80 | 44.31  | 54.00         | -9.69         | 12.40         | 3.60                 | 28.31            | 0.00  | 110   | 242    | Average   |
| 3 @ | 2441.00 | 97.56  |               |               | 65.51         | 3.64                 | 28.41            | 0.00  | 110   | 242    | Average   |
| 4 @ | 2441.00 | 98.41  |               |               | 66.36         | 3.64                 | 28.41            | 0.00  | 110   | 242    | Peak      |
| 5   | 2485.10 | 44.54  | 54.00         | -9.46         | 12.38         | 3.68                 | 28.48            | 0.00  | 110   | 242    | Average   |
| 6   | 2488.70 | 55.44  | 74.00         | -18.56        | 23.28         | 3.68                 | 28.48            | 0.00  | 110   | 242    | Peak      |

Item 3, 4 are the fundamental frequency at 2440 MHz.

## Channel 78



|     | Freq    | Level  | Limit  | Over   | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Remark  | Pol/Phase  |
|-----|---------|--------|--------|--------|-------|-------|---------|--------|-------|-------|---------|------------|
|     | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB    | dB/m    | dB     | cm    | deg   |         |            |
| 1 @ | 2479.80 | 103.56 |        |        | 71.43 | 3.67  | 28.46   | 0.00   | 103   | 311   | Peak    | HORIZONTAL |
| 2 @ | 2480.00 | 102.67 |        |        | 70.54 | 3.67  | 28.46   | 0.00   | 103   | 311   | Average | HORIZONTAL |
| 3   | 2483.50 | 48.04  | 54.00  | -5.96  | 15.88 | 3.68  | 28.48   | 0.00   | 103   | 311   | Average | HORIZONTAL |
| 4   | 2483.50 | 56.45  | 74.00  | -17.55 | 24.29 | 3.68  | 28.48   | 0.00   | 103   | 311   | Peak    | HORIZONTAL |

Item 1, 2 are the fundamental frequency at 2480 MHz.

Note:

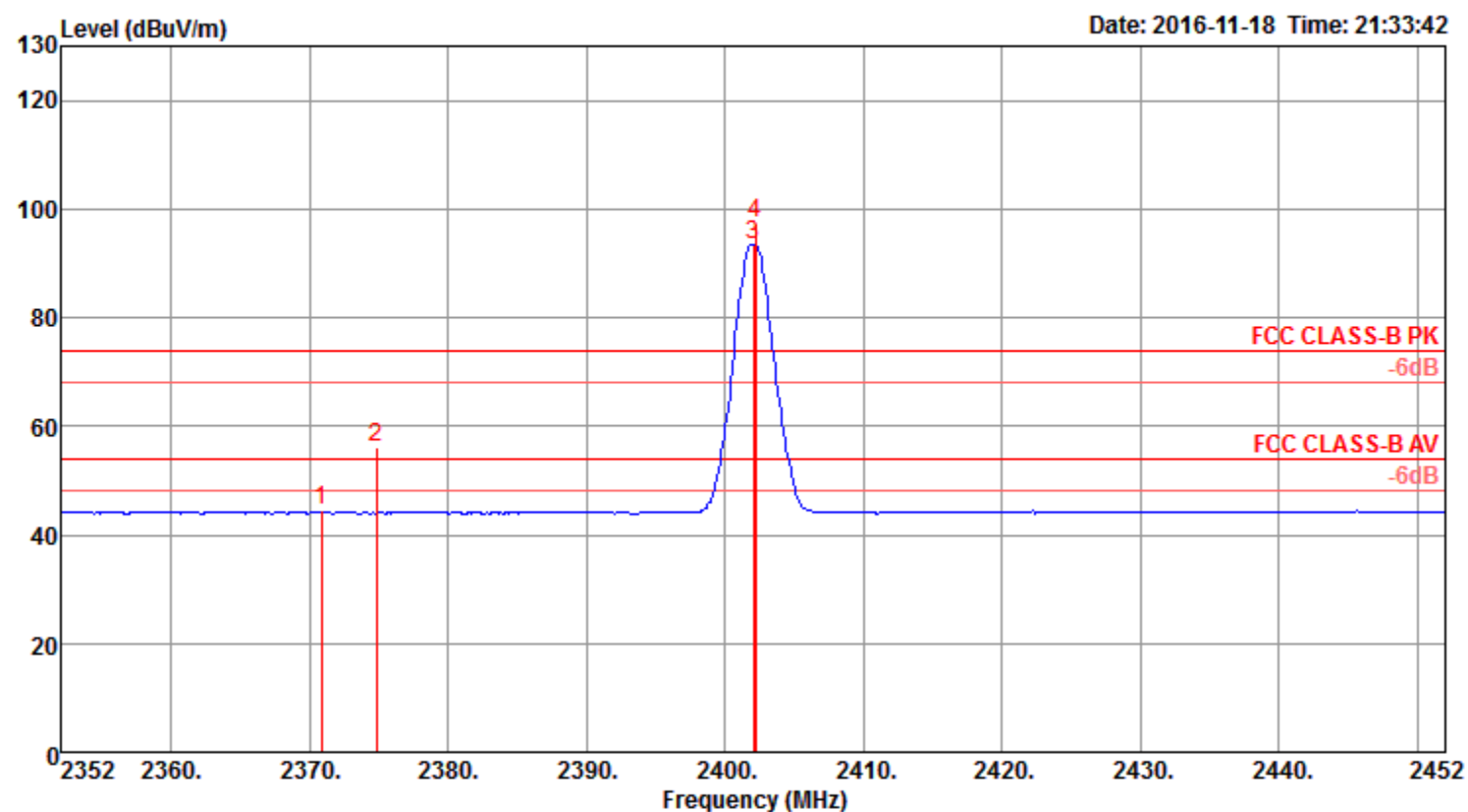
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



|                |                                   |
|----------------|-----------------------------------|
| Configurations | EDR (8DPSK) CH 0, 38, 78 / Ant. 5 |
|----------------|-----------------------------------|

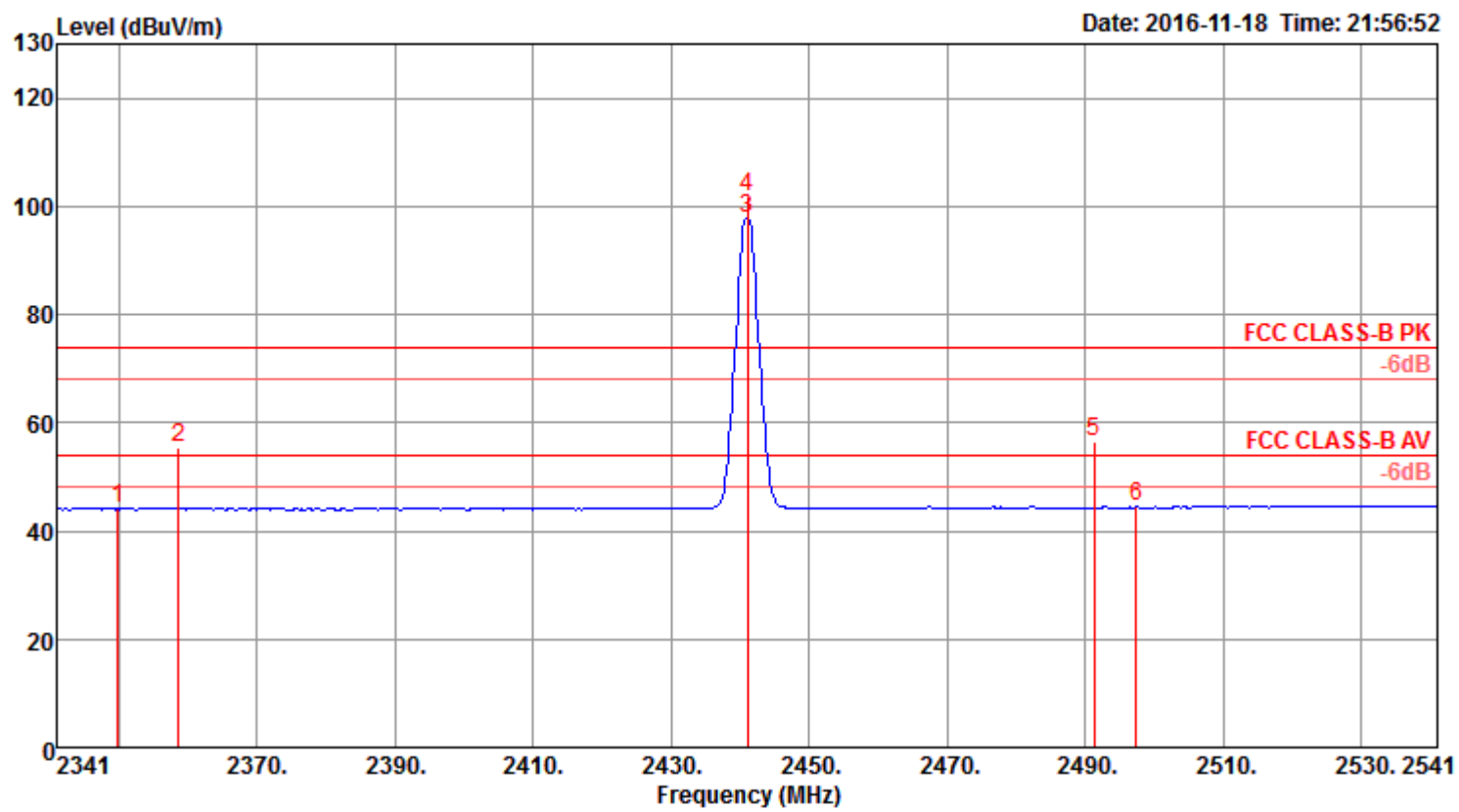
Channel 0



|     | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|---------------|---------------|---------------|----------------------|------------------|-------|-------|--------|-----------|
|     | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB    | cm    | deg    |           |
| 1   | 2370.80 | 44.42  | 54.00         | -9.58         | 12.54         | 3.59                 | 28.29            | 0.00  | 141   | 268    | Average   |
| 2   | 2374.80 | 56.28  | 74.00         | -17.72        | 24.40         | 3.59                 | 28.29            | 0.00  | 141   | 268    | Peak      |
| 3 @ | 2402.00 | 93.61  |               |               | 61.66         | 3.61                 | 28.34            | 0.00  | 141   | 268    | Average   |
| 4 @ | 2402.20 | 97.50  |               |               | 65.55         | 3.61                 | 28.34            | 0.00  | 141   | 268    | Peak      |

Item 3, 4 are the fundamental frequency at 2402 MHz.

## Channel 38

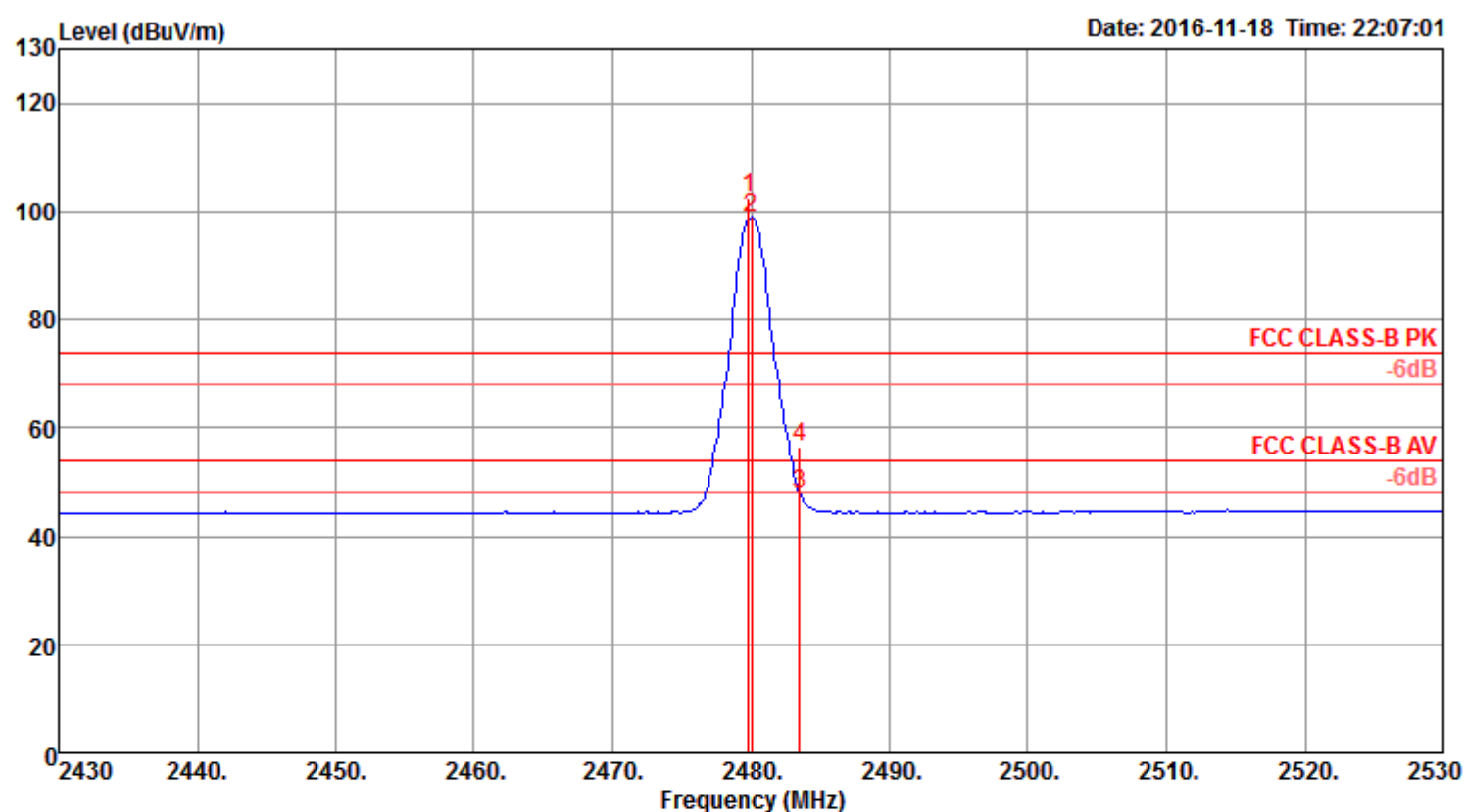


|     | Freq    | Level  | Limit  | Over   | Read  | CableAntenna | Preamp | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|--------|--------|-------|--------------|--------|-------|-------|--------|-----------|
|     | MHz     | dBuV/m | dBuV/m | dB     | dBuV  | dB           | dB/m   | dB    | cm    | deg    |           |
| 1   | 2349.80 | 44.32  | 54.00  | -9.68  | 12.50 | 3.57         | 28.25  | 0.00  | 149   | 280    | Average   |
| 2   | 2358.60 | 55.58  | 74.00  | -18.42 | 23.73 | 3.58         | 28.27  | 0.00  | 149   | 280    | Peak      |
| 3 @ | 2441.00 | 97.90  |        |        | 65.85 | 3.64         | 28.41  | 0.00  | 149   | 280    | Average   |
| 4 @ | 2441.00 | 101.82 |        |        | 69.77 | 3.64         | 28.41  | 0.00  | 149   | 280    | Peak      |
| 5   | 2491.32 | 56.36  | 74.00  | -17.64 | 24.19 | 3.68         | 28.49  | 0.00  | 149   | 280    | Peak      |
| 6   | 2497.40 | 44.55  | 54.00  | -9.45  | 12.36 | 3.69         | 28.50  | 0.00  | 149   | 280    | Average   |

Item 3, 4 are the fundamental frequency at 2440 MHz.



## Channel 78



|     | Freq    | Level  | Limit<br>Line | Over<br>Limit | Read<br>Level | CableAntenna<br>Loss | Preamp<br>Factor | A/Pos | T/Pos | Remark | Pol/Phase |
|-----|---------|--------|---------------|---------------|---------------|----------------------|------------------|-------|-------|--------|-----------|
|     | MHz     | dBuV/m | dBuV/m        | dB            | dBuV          | dB                   | dB/m             | dB    | cm    | deg    |           |
| 1 @ | 2479.80 | 102.53 |               |               | 70.40         | 3.67                 | 28.46            | 0.00  | 102   | 313    | Peak      |
| 2 @ | 2480.00 | 98.70  |               |               | 66.57         | 3.67                 | 28.46            | 0.00  | 102   | 313    | Average   |
| 3   | 2483.50 | 47.64  | 54.00         | -6.36         | 15.48         | 3.68                 | 28.48            | 0.00  | 102   | 313    | Average   |
| 4   | 2483.50 | 56.55  | 74.00         | -17.45        | 24.39         | 3.68                 | 28.48            | 0.00  | 102   | 313    | Peak      |

Item 1, 2 are the fundamental frequency at 2480 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.