

# FCC Test Report

|              |               |
|--------------|---------------|
| Product Name | LTE Router    |
| Model No     | WLD71-T3      |
| FCC ID.      | NKR-WLD71-T3A |

|           |                                                                         |
|-----------|-------------------------------------------------------------------------|
| Applicant | Wistron NeWeb Corporation                                               |
| Address   | 20 Park Avenue II, Hsinchu Science Park, Hsinchu<br>308, Taiwan, R.O.C. |

|                 |                       |
|-----------------|-----------------------|
| Date of Receipt | Oct. 28, 2016         |
| Issue Date      | May 03, 2017          |
| Report No.      | 1720437R-RFUSP01V00-A |
| Report Version  | V1.0                  |



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# Test Report

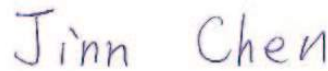
Issue Date: May 03, 2017

Report No.: 1720437R-RFUSP01V00-A



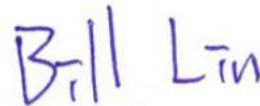
|                     |                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|
| Product Name        | LTE Router                                                                                                              |
| Applicant           | Wistron NeWeb Corporation                                                                                               |
| Address             | 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C.                                                    |
| Manufacturer        | WNC                                                                                                                     |
| Model No.           | WLD71-T3                                                                                                                |
| FCC ID.             | NKR-WLD71-T3A                                                                                                           |
| EUT Rated Voltage   | DC 12V                                                                                                                  |
| EUT Test Voltage    | AC 120V/60Hz                                                                                                            |
| Trade Name          | WNC                                                                                                                     |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2015<br>ANSI C63.4: 2014, ANSI C63.10: 2013<br>KDB 558074 D01 DTS Meas Guidance v04 |
| Test Result         | Complied                                                                                                                |

Documented By :



( Senior Adm. Specialist / Jinn Chen )

Tested By :



( Engineer / Bill Lin )

Approved By :



( Director / Vincent Lin )

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## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                    |                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Product Name       | LTE Router                                                                                                                              |
| Trade Name         | WNC                                                                                                                                     |
| Model No.          | WLD71-T3                                                                                                                                |
| FCC ID.            | NKR-WLD71-T3A                                                                                                                           |
| Frequency Range    | 2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW                                                                        |
| Number of Channels | 802.11b/g/n-20MHz: 11, n-40MHz: 7                                                                                                       |
| Data Speed         | 802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps                                                                            |
| Type of Modulation | 802.11b:DSSS (DBPSK, DQPSK, CCK)<br>802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)                                                           |
| Antenna Type       | Dipole Antenna / Inverted-F Antenna                                                                                                     |
| Antenna Gain       | Refer to the table "Antenna List"                                                                                                       |
| Channel Control    | Auto                                                                                                                                    |
| Power Adapter(1)   | MFR: APD, M/N: WA-12M12FU<br>Input: AC 100-240V~50-60Hz, 0.5A Max<br>Output: 12V $\overline{=}$ 1A<br>Cable Out: Non-shielded, 1.5m     |
| Power Adapter(2)   | MFR: I.T.E., M/N: MU12AR120100-A1<br>Input: AC 100-240V~50/60Hz, 0.3A<br>Output: 12V $\overline{=}$ 1A<br>Cable Out: Non-shielded, 1.5m |

#### Antenna List

| No. | Manufacturer | Part No.                    | Antenna Type       | Peak Gain           | Directional Gain |
|-----|--------------|-----------------------------|--------------------|---------------------|------------------|
| 1   | WNC          | 95XKAB15.G21<br>(WLAN Main) | Dipole Antenna     | 2.0 dBi for 2.4 GHz | 5.06dBi          |
|     |              | WLD71(WLAN Aux)             | Inverted-F Antenna | 2.1 dBi for 2.4 GHz |                  |

Note:

- Directional Gain =  $10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / NANT]$  dBi
- The antenna of EUT conforms to FCC 15.203.
- Only the higher gain antenna was tested and recorded in this report

## 802.11b/g/n-20MHz Center Frequency of Each Channel:

| Channel     | Frequency | Channel     | Frequency | Channel     | Frequency | Channel     | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 01: | 2412 MHz  | Channel 02: | 2417 MHz  | Channel 03: | 2422 MHz  | Channel 04: | 2427 MHz  |
| Channel 05: | 2432 MHz  | Channel 06: | 2437 MHz  | Channel 07: | 2442 MHz  | Channel 08: | 2447 MHz  |
| Channel 09: | 2452 MHz  | Channel 10: | 2457 MHz  | Channel 11: | 2462 MHz  |             |           |

## 802.11n-40MHz Center Frequency of Each Channel:

| Channel     | Frequency | Channel     | Frequency | Channel     | Frequency | Channel     | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 03: | 2422 MHz  | Channel 04: | 2427 MHz  | Channel 05: | 2432 MHz  | Channel 06: | 2437 MHz  |
| Channel 07: | 2442 MHz  | Channel 08: | 2447 MHz  | Channel 09: | 2452 MHz  |             |           |

**Duty Cycle**

| 802.11b | 802.11g | 802.11n20 | 802.11n-40 |
|---------|---------|-----------|------------|
| 1       | 1       | 1         | 1          |

## Note:

1. The EUT is a LTE Router with a built-in WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、802.11g is 6Mbps 、802.11n(20M-BW) is 7.2Mbps and 802.11n(40M-BW) is 15Mbps)
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

|            |                                                |
|------------|------------------------------------------------|
| Test Mode: | Mode 1: Transmit (802.11b 1Mbps)               |
|            | Mode 2: Transmit (802.11g 6Mbps)               |
|            | Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) |
|            | Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  |

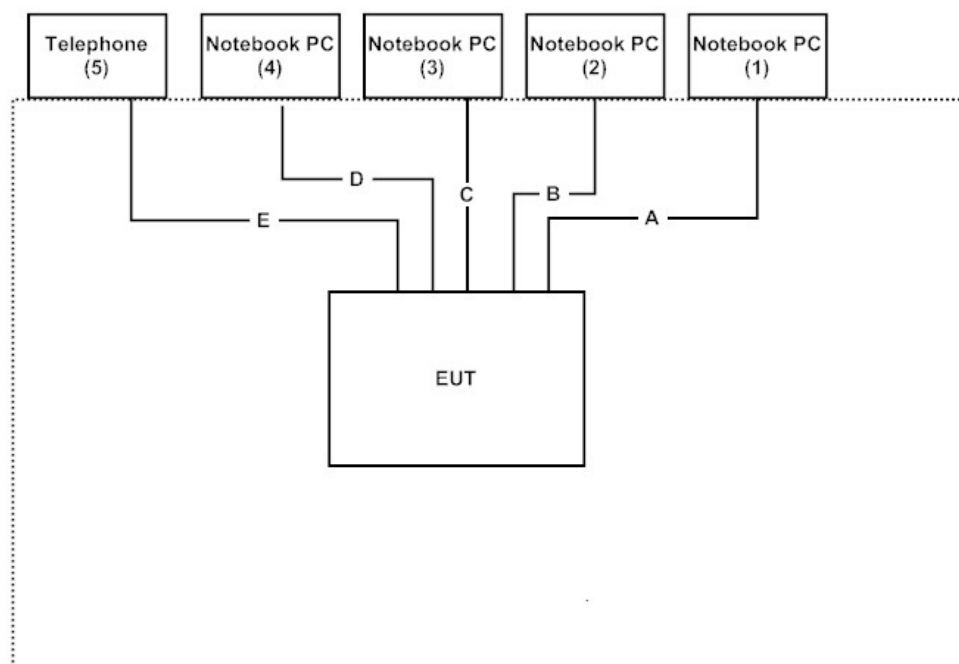
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product       | Manufacturer | Model No. | Serial No.     | Power Cord         |
|---------------|--------------|-----------|----------------|--------------------|
| 1 Notebook PC | DELL         | P62G      | 416FJC2        | Non-shielded, 0.8m |
| 2 Notebook PC | DELL         | P62G      | CY9FJC2        | N/A                |
| 3 Notebook PC | DELL         | P62G      | 229FJC2        | N/A                |
| 4 Notebook PC | DELL         | P62G      | 9TSGJC2        | N/A                |
| 5 Telephone   | TENTEL       | K-302     | 50721005000334 | N/A                |

| Signal Cable Type | Signal cable Description |
|-------------------|--------------------------|
| A LAN Cable       | Non-shielded, 1.5m       |
| B LAN Cable       | Non-shielded, 1.5m       |
| C LAN Cable       | Non-shielded, 1.5m       |
| D LAN Cable       | Non-shielded, 1.5m       |
| E Telephone Cable | Non-shielded, 1.5m       |

### 1.4. Configuration of Tested System



### 1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software "Putty/RTL 819X Release 0.63/3.3" on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press "OK" to start the continuous Transmit.
5. Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 20-35    |
| Humidity (%RH)             | 25-75               | 50-65    |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

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FCC Accreditation Number: TW1014



## 1.7. List of Test Item and Equipment

### For Conduction measurements /ASR1

|   | Equipment          | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data  |
|---|--------------------|--------------|-----------|------------|------------|------------|
| X | EMI Test Receiver  | R&S          | ESR7      | 161601     | 2016.01.05 | 2017.01.04 |
| X | Two-Line V-Network | R&S          | ENV216    | 101306     | 2016.02.15 | 2017.02.14 |
| X | Two-Line V-Network | R&S          | ENV216    | 101307     | 2016.03.16 | 2017.03.15 |
| X | Coaxial Cable      | DEKRA        | RG400_BNC | RF001      | 2016.05.25 | 2017.05.24 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA EMI 2.0 V2.1.113

### For Conducted measurements /ASR4

|   | Equipment         | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data  |
|---|-------------------|--------------|-----------|------------|------------|------------|
| X | Spectrum Analyzer | R&S          | FSV30     | 103464     | 2016.01.08 | 2017.01.07 |
| X | Power Meter       | Anritsu      | ML2496A   | 1548003    | 2016.12.15 | 2017.12.14 |
| X | Power Sensor      | Anritsu      | MA2411B   | 1531024    | 2016.12.15 | 2017.12.14 |
| X | Power Sensor      | Anritsu      | MA2411B   | 1531025    | 2016.12.15 | 2017.12.14 |
|   | Bluetooth Tester  | R&S          | CBT       | 101238     | 2016.01.02 | 2017.01.01 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V8.0.110

### For Radiated measurements /ACB1

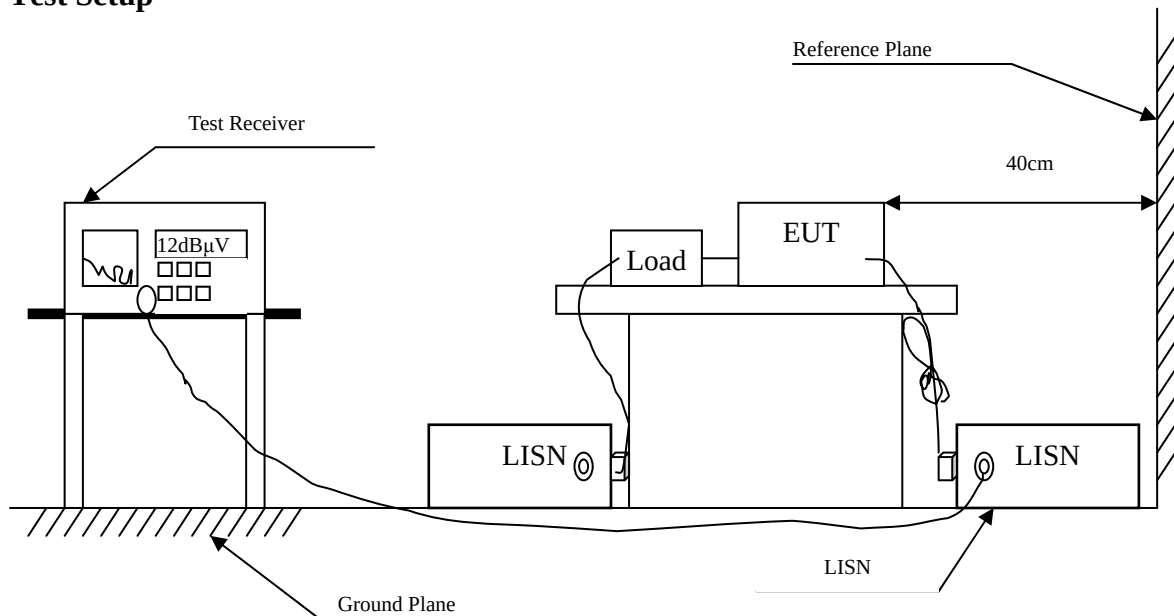
|   | Equipment         | Manufacturer  | Model No.    | Serial No. | Cali. Data | Due. Data  |
|---|-------------------|---------------|--------------|------------|------------|------------|
| X | Loop Antenna      | A.H.          | SAS-562B     | 272        | 2016.07.21 | 2017.07.20 |
| X | Bi-Log Antenna    | SCHWARZBECK   | VULB9168     | 9168-674   | 2016.02.08 | 2017.02.07 |
| X | Horn Antenna      | ETS-Lindgren  | 3117         | 00203800   | 2016.10.13 | 2017.10.12 |
| X | Horn Antenna      | Com-Power     | AH-840       | 101087     | 2016.05.03 | 2017.05.02 |
| X | Pre-Amplifier     | EMCI          | EMC001330    | 980316     | 2016.04.27 | 2017.04.26 |
| X | Pre-Amplifier     | EMCI          | EMC051835SE  | 980311     | 2016.04.27 | 2017.04.26 |
| X | Pre-Amplifier     | EMCI          | EMC05820SE   | 980310     | 2016.04.28 | 2017.04.27 |
| X | Pre-Amplifier     | EMCI          | EMC184045SE  | 980314     | 2016.05.12 | 2017.05.11 |
| X | Filter            | MICRO TRONICS | BRM50702     | G251       | 2016.08.11 | 2017.08.10 |
|   | Filter            | MICRO TRONICS | BRM50716     | G188       | 2016.08.11 | 2017.08.10 |
| X | EMI Test Receiver | R&S           | ESR7         | 101602     | 2016.12.15 | 2017.12.14 |
| X | Spectrum Analyzer | R&S           | FSV40        | 101149     | 2016.12.14 | 2017.12.13 |
| X | Coaxial Cable     | SUHNER        | SUCOFLEX 106 | RF002      | 2016.05.25 | 2017.05.24 |
| X | Mircoflex Cable   | HUBER SUHNER  | SUCOFLEX 102 | MY3381/2   | 2016.08.11 | 2017.08.10 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA EMI 2.0 V2.1.113

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dB $\mu$ V) Limit |        |       |
|-----------------------------------------------------------|--------|-------|
| Frequency<br>MHz                                          | Limits |       |
|                                                           | QP     | AVG   |
| 0.15 - 0.50                                               | 66-56  | 56-46 |
| 0.50-5.0                                                  | 56     | 46    |
| 5.0 - 30                                                  | 60     | 50    |

### 2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 2.4. Uncertainty

$\pm 2.35$  dB

## 2.5. Test Result of Conducted Emission

Product : LTE Router  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)  
 (M/N: WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading | Measurement | Margin  | Limit  |
|-------------------|---------|---------|-------------|---------|--------|
| MHz               | Factor  | Level   | Level       | dB      | dBμV   |
|                   | dB      | dBμV    | dBμV        |         |        |
| <b>Line 1</b>     |         |         |             |         |        |
| <b>Quasi-Peak</b> |         |         |             |         |        |
| 0.160             | 9.704   | 37.928  | 47.633      | -18.081 | 65.714 |
| 0.200             | 9.694   | 33.145  | 42.839      | -21.732 | 64.571 |
| 0.260             | 9.696   | 30.055  | 39.751      | -23.106 | 62.857 |
| 0.470             | 9.732   | 24.244  | 33.976      | -22.881 | 56.857 |
| 2.700             | 9.819   | 20.115  | 29.934      | -26.066 | 56.000 |
| 6.100             | 9.922   | 19.723  | 29.645      | -30.355 | 60.000 |
| <b>Average</b>    |         |         |             |         |        |
| 0.160             | 9.704   | 18.934  | 28.639      | -27.075 | 55.714 |
| 0.200             | 9.694   | 17.950  | 27.645      | -26.926 | 54.571 |
| 0.260             | 9.696   | 13.889  | 23.585      | -29.272 | 52.857 |
| 0.470             | 9.732   | 9.376   | 19.107      | -27.750 | 46.857 |
| 2.700             | 9.819   | 14.861  | 24.681      | -21.319 | 46.000 |
| 6.100             | 9.922   | 13.738  | 23.660      | -26.340 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : LTE Router  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)  
 (M/N: WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading | Measurement | Margin  | Limit  |
|-------------------|---------|---------|-------------|---------|--------|
| MHz               | Factor  | Level   | Level       |         |        |
|                   | dB      | dBμV    | dBμV        | dB      | dBμV   |
| <b>Line 2</b>     |         |         |             |         |        |
| <b>Quasi-Peak</b> |         |         |             |         |        |
| 0.160             | 9.696   | 37.925  | 47.622      | -18.092 | 65.714 |
| 0.240             | 9.692   | 29.263  | 38.955      | -24.474 | 63.429 |
| 0.390             | 9.709   | 33.044  | 42.753      | -16.390 | 59.143 |
| 2.709             | 9.819   | 24.918  | 34.737      | -21.263 | 56.000 |
| 5.000             | 9.890   | 22.455  | 32.345      | -23.655 | 56.000 |
| 24.320            | 10.195  | 16.053  | 26.248      | -33.752 | 60.000 |
| <b>Average</b>    |         |         |             |         |        |
| 0.160             | 9.696   | 19.814  | 29.511      | -26.203 | 55.714 |
| 0.240             | 9.692   | 17.185  | 26.877      | -26.552 | 53.429 |
| 0.390             | 9.709   | 23.980  | 33.689      | -15.454 | 49.143 |
| 2.709             | 9.819   | 17.665  | 27.484      | -18.516 | 46.000 |
| 5.000             | 9.890   | 13.857  | 23.747      | -22.253 | 46.000 |
| 24.320            | 10.195  | 14.819  | 25.015      | -24.985 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : LTE Router  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)  
 (M/N: MU12AR120100-A1)  
 Test Date : 2016/12/31

| Frequency         | Correct | Reading | Measurement | Margin  | Limit  |
|-------------------|---------|---------|-------------|---------|--------|
| MHz               | Factor  | Level   | Level       |         |        |
|                   | dB      | dBμV    | dBμV        | dB      | dBμV   |
| <b>Line 1</b>     |         |         |             |         |        |
| <b>Quasi-Peak</b> |         |         |             |         |        |
| 0.152             | 9.707   | 36.435  | 46.142      | -19.801 | 65.943 |
| 0.679             | 9.741   | 22.151  | 31.892      | -24.108 | 56.000 |
| 1.450             | 9.771   | 28.049  | 37.821      | -18.179 | 56.000 |
| 2.274             | 9.808   | 25.579  | 35.386      | -20.614 | 56.000 |
| 2.731             | 9.819   | 30.109  | 39.928      | -16.072 | 56.000 |
| 10.097            | 9.989   | 11.615  | 21.604      | -38.396 | 60.000 |
| <b>Average</b>    |         |         |             |         |        |
| 0.152             | 9.707   | 26.005  | 35.713      | -20.230 | 55.943 |
| 0.679             | 9.741   | 16.920  | 26.661      | -19.339 | 46.000 |
| 1.450             | 9.771   | 19.981  | 29.753      | -16.247 | 46.000 |
| 2.274             | 9.808   | 19.565  | 29.373      | -16.627 | 46.000 |
| 2.731             | 9.819   | 24.380  | 34.199      | -11.801 | 46.000 |
| 10.097            | 9.989   | 7.493   | 17.481      | -32.519 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : LTE Router  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)  
 (M/N: MU12AR120100-A1)  
 Test Date : 2016/12/31

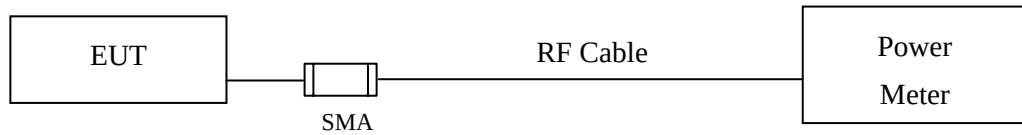
| Frequency         | Correct | Reading | Measurement | Margin  | Limit  |
|-------------------|---------|---------|-------------|---------|--------|
| MHz               | Factor  | Level   | Level       |         |        |
|                   | dB      | dBμV    | dBμV        | dB      | dBμV   |
| <b>Line 2</b>     |         |         |             |         |        |
| <b>Quasi-Peak</b> |         |         |             |         |        |
| 0.157             | 9.697   | 37.101  | 46.798      | -19.002 | 65.800 |
| 0.278             | 9.696   | 26.432  | 36.128      | -26.215 | 62.343 |
| 0.679             | 9.740   | 22.496  | 32.236      | -23.764 | 56.000 |
| 1.448             | 9.770   | 28.236  | 38.006      | -17.994 | 56.000 |
| 2.722             | 9.819   | 30.378  | 40.197      | -15.803 | 56.000 |
| 10.133            | 9.998   | 11.397  | 21.395      | -38.605 | 60.000 |
| <b>Average</b>    |         |         |             |         |        |
| 0.157             | 9.697   | 28.372  | 38.069      | -17.731 | 55.800 |
| 0.278             | 9.696   | 22.102  | 31.798      | -20.545 | 52.343 |
| 0.679             | 9.740   | 16.676  | 26.416      | -19.584 | 46.000 |
| 1.448             | 9.770   | 20.535  | 30.306      | -15.694 | 46.000 |
| 2.722             | 9.819   | 23.816  | 33.635      | -12.365 | 46.000 |
| 10.133            | 9.998   | 7.550   | 17.548      | -32.452 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Peak Power Output

#### 3.1. Test Setup



#### 3.2. Limits

The maximum peak power shall be less 1 Watt.

#### 3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.2 PKPM1 Peak power meter method.

#### 3.4. Uncertainty

$\pm 0.86$  dB

### 3.5. Test Result of Peak Power Output

Product : LTE Router  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2016/12/21

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 1                                               | 2     | 5.5   | 11    | 1             |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |               |                   |        |
| 01         | 2412               | 22.76                                           | --    | --    | --    | 24.3          | <30dBm            | Pass   |
| 06         | 2437               | 23.75                                           | 23.62 | 23.51 | 23.43 | 25.12         | <30dBm            | Pass   |
| 11         | 2462               | 21.68                                           | --    | --    | --    | 23.3          | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss



Product : LTE Router  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
 Test Date : 2016/12/21

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       |       |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 6                                               | 9     | 12    | 18    | 24    | 36    | 48    | 54    | 6             |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |       |       |       |       |               |                   |        |
| 01         | 2412               | 18.45                                           | --    | --    | --    | --    | --    | --    | --    | 25.28         | <30dBm            | Pass   |
| 06         | 2437               | 21.61                                           | 21.53 | 21.42 | 21.33 | 21.21 | 21.45 | 21.33 | 21.24 | 25.86         | <30dBm            | Pass   |
| 11         | 2462               | 17.61                                           | --    | --    | --    | --    | --    | --    | --    | 24.96         | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss

Product : LTE Router  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
 Test Date : 2016/12/21

**CHAIN A**

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       |       |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 7.2                                             | 14.4  | 21.7  | 28.9  | 43.3  | 57.8  | 65    | 72.2  | 7.2           |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |       |       |       |       |               |                   |        |
| 01         | 2412               | 15.76                                           | --    | --    | --    | --    | --    | --    | --    | 24.02         | <30dBm            | Pass   |
| 06         | 2437               | 20.54                                           | 20.39 | 20.27 | 20.15 | 20.06 | 19.87 | 19.74 | 19.62 | 25.48         | <30dBm            | Pass   |
| 11         | 2462               | 13.1                                            | --    | --    | --    | --    | --    | --    | --    | 22.3          | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN B**

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       |       |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 7.2                                             | 14.4  | 21.7  | 28.9  | 43.3  | 57.8  | 65    | 72.2  |               |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |       |       |       |       |               |                   |        |
| 01         | 2412               | 15.71                                           | --    | --    | --    | --    | --    | --    | --    | 23.16         | <30dBm            | Pass   |
| 06         | 2437               | 20.53                                           | 20.45 | 20.31 | 20.21 | 20.11 | 20.03 | 19.85 | 19.72 | 24.68         | <30dBm            | Pass   |
| 11         | 2462               | 14.46                                           | --    | --    | --    | --    | --    | --    | --    | 22.48         | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

| Channel | Frequency<br>(MHz) | Data Rate<br>(Mbps) | Chain A<br>Power<br>(dBm) | Chain B<br>Power<br>(dBm) | Chain A+B<br>Power<br>(dBm) | Limit<br>(dBm) | Result |
|---------|--------------------|---------------------|---------------------------|---------------------------|-----------------------------|----------------|--------|
| 01      | 2412               | 14.4                | 24.02                     | 23.16                     | 26.62                       | <30dBm         | Pass   |
| 06      | 2437               | 14.4                | 25.48                     | 24.68                     | 28.11                       | <30dBm         | Pass   |
| 11      | 2462               | 14.4                | 22.30                     | 22.48                     | 25.40                       | <30dBm         | Pass   |

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : LTE Router  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
 Test Date : 2016/12/21

**CHAIN A**

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       |       |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 15                                              | 30    | 45    | 60    | 90    | 120   | 135   | 150   | 15            |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |       |       |       |       |               |                   |        |
| 03         | 2422               | 15.62                                           | --    | --    | --    | --    | --    | --    | --    | 23.67         | <30dBm            | Pass   |
| 06         | 2437               | 20.14                                           | 20.07 | 19.82 | 19.71 | 19.63 | 19.51 | 19.42 | 19.35 | 25.38         | <30dBm            | Pass   |
| 09         | 2452               | 14.44                                           | --    | --    | --    | --    | --    | --    | --    | 22.94         | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN B**

| Channel No | Frequency<br>(MHz) | Average Power<br>For different Data Rate (Mbps) |       |       |       |       |       |       |       | Peak<br>Power | Required<br>Limit | Result |
|------------|--------------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|-------------------|--------|
|            |                    | 15                                              | 30    | 45    | 60    | 90    | 120   | 135   | 150   | 15            |                   |        |
|            |                    | Measurement Level (dBm)                         |       |       |       |       |       |       |       |               |                   |        |
| 03         | 2422               | 15.55                                           | --    | --    | --    | --    | --    | --    | --    | 23.13         | <30dBm            | Pass   |
| 06         | 2437               | 20.12                                           | 20.01 | 19.88 | 19.73 | 19.61 | 19.52 | 19.43 | 19.33 | 24.85         | <30dBm            | Pass   |
| 09         | 2452               | 15.16                                           | --    | --    | --    | --    | --    | --    | --    | 23.25         | <30dBm            | Pass   |

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

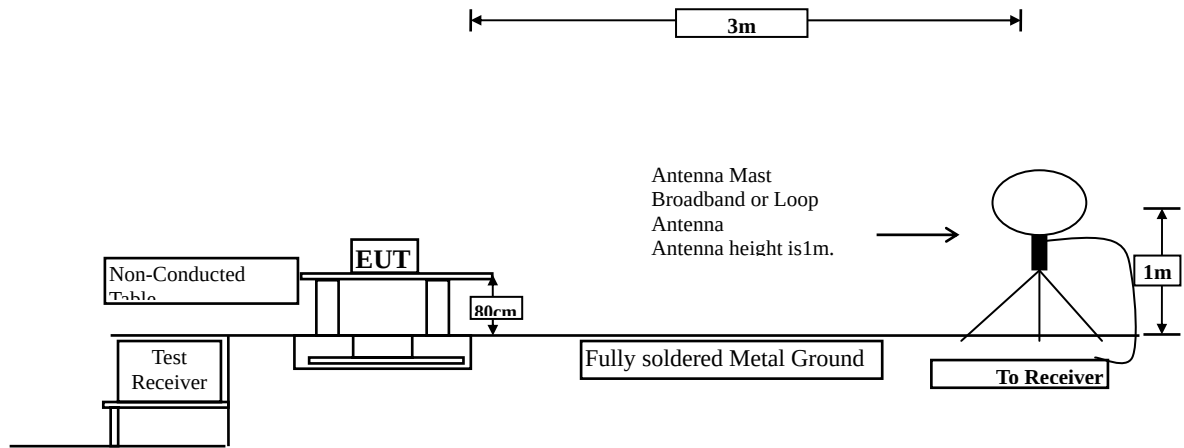
| Channel | Frequency (MHz) | Data Rate (Mbps) | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------------|---------------------|---------------------|-----------------------|-------------|--------|
| 03      | 2422            | 30               | 23.67               | 23.13               | 26.42                 | <30dBm      | Pass   |
| 06      | 2437            | 30               | 25.38               | 24.85               | 28.13                 | <30dBm      | Pass   |
| 09      | 2452            | 30               | 22.94               | 23.25               | 26.11                 | <30dBm      | Pass   |

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

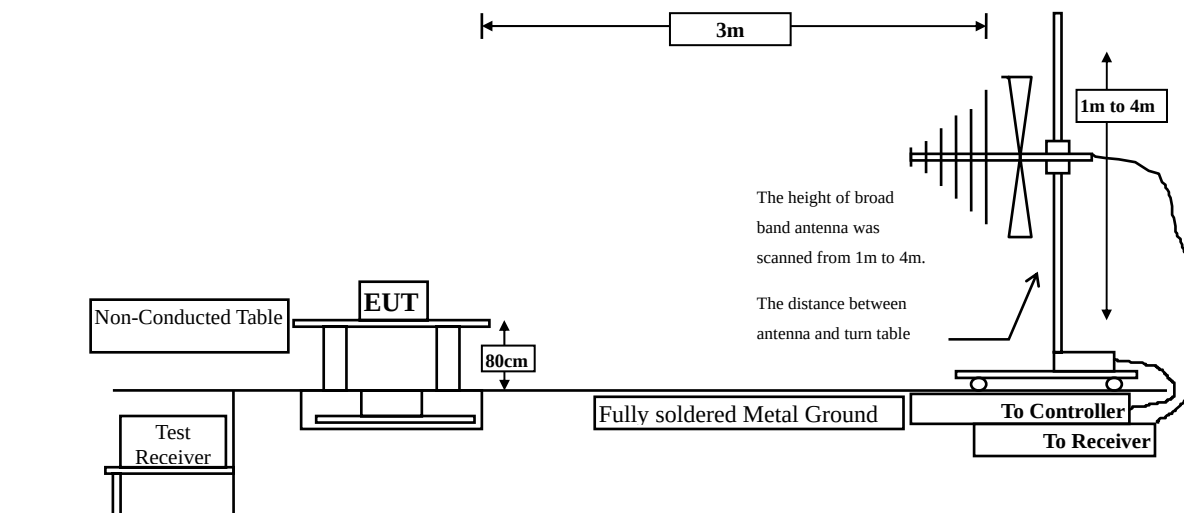
## 4. Radiated Emission

### 4.1. Test Setup

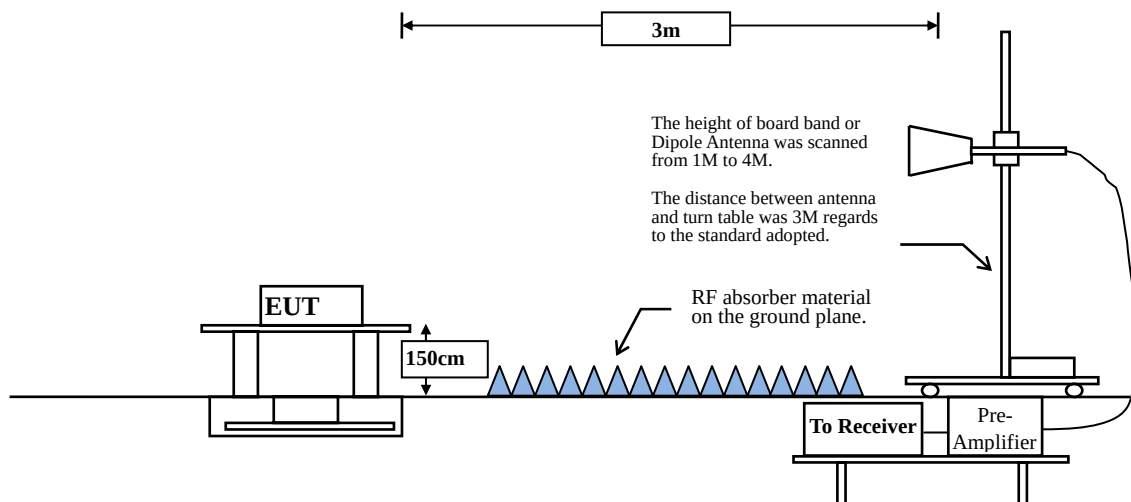
#### Radiated Emission Under 30MHz



#### Radiated Emission Below 1GHz



#### Radiated Emission Above 1GHz



## 4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| <b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b> |                                      |                                 |
|---------------------------------------------------------|--------------------------------------|---------------------------------|
| Frequency<br>MHz                                        | Field strength<br>(microvolts/meter) | Measurement distance<br>(meter) |
| 0.009-0.490                                             | 2400/F(kHz)                          | 300                             |
| 0.490-1.705                                             | 24000/F(kHz)                         | 30                              |
| 1.705-30                                                | 30                                   | 30                              |
| 30-88                                                   | 100                                  | 3                               |
| 88-216                                                  | 150                                  | 3                               |
| 216-960                                                 | 200                                  | 3                               |
| Above 960                                               | 500                                  | 3                               |

Remarks: E field strength (dBμV/m) = 20 log E field strength (uV/m)

## 4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

## 4.4. Uncertainty

Horizontal :

30-300MHz: ±4.08dB ; 300M-1GHz: ±3.86dB ; 1-18GHz: ±3.77dB ; 18-40GHz: ±3.98dB ◦

Vertical :

30-300MHz: ±4.81dB ; 300M-1GHz: ±3.87dB ; 1-18GHz: ±3.83dB ; 18-40GHz: ±3.98dB ◦

#### 4.5. Test Result of Radiated Emission

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dBμV | Measurement<br>Level<br>dBμV/m | Margin<br>dB | Limit<br>dBμV/m |
|--------------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| <b>Horizontal</b>        |                         |                          |                                |              |                 |
| <b>Peak Detector:</b>    |                         |                          |                                |              |                 |
| 4824.000                 | -3.785                  | 53.320                   | 49.536                         | -24.464      | 74.000          |
| 7236.000                 | -0.753                  | 51.220                   | 50.466                         | -23.534      | 74.000          |
| 9648.000                 | 1.186                   | 51.660                   | 52.846                         | -21.154      | 74.000          |
| <b>Average Detector:</b> |                         |                          |                                |              |                 |
| --                       | --                      | --                       | --                             | --           | 54.000          |
| <b>Vertical</b>          |                         |                          |                                |              |                 |
| <b>Peak Detector:</b>    |                         |                          |                                |              |                 |
| 4824.000                 | -3.785                  | 52.720                   | 48.936                         | -25.064      | 74.000          |
| 7236.000                 | -0.753                  | 51.090                   | 50.336                         | -23.664      | 74.000          |
| 9648.000                 | 1.186                   | 51.350                   | 52.536                         | -21.464      | 74.000          |
| <b>Average Detector:</b> |                         |                          |                                |              |                 |
| --                       | --                      | --                       | --                             | --           | 54.000          |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 51.700                         | 47.930                               | -26.070      | 74.000                |
| 7311.000                 | -0.719                  | 51.440                         | 50.722                               | -23.278      | 74.000                |
| 9748.000                 | 1.331                   | 52.380                         | 53.711                               | -20.289      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 51.170                         | 47.400                               | -26.600      | 74.000                |
| 7311.000                 | -0.719                  | 51.170                         | 50.452                               | -23.548      | 74.000                |
| 9748.000                 | 1.331                   | 51.100                         | 52.431                               | -21.569      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 51.550                         | 47.807                               | -26.193      | 74.000                |
| 7386.000                 | -0.683                  | 50.840                         | 50.157                               | -23.843      | 74.000                |
| 9848.000                 | 1.571                   | 50.990                         | 52.561                               | -21.439      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 51.730                         | 47.987                               | -26.013      | 74.000                |
| 7386.000                 | -0.683                  | 50.290                         | 49.607                               | -24.393      | 74.000                |
| 9848.000                 | 1.571                   | 51.450                         | 53.021                               | -20.979      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency                | Correct | Reading    | Measurement  | Margin  | Limit        |
|--------------------------|---------|------------|--------------|---------|--------------|
| MHz                      | Factor  | Level      | Level        |         |              |
|                          | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b>        |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4824.000                 | -3.785  | 51.880     | 48.096       | -25.904 | 74.000       |
| 7236.000                 | -0.753  | 51.050     | 50.296       | -23.704 | 74.000       |
| 9648.000                 | 1.186   | 50.910     | 52.096       | -21.904 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |
| <b>Vertical</b>          |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4824.000                 | -3.785  | 50.780     | 46.996       | -27.004 | 74.000       |
| 7236.000                 | -0.753  | 50.000     | 49.246       | -24.754 | 74.000       |
| 9648.000                 | 1.186   | 50.640     | 51.826       | -22.174 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 52.070                         | 48.300                               | -25.700      | 74.000                |
| 7311.000                 | -0.719                  | 51.680                         | 50.962                               | -23.038      | 74.000                |
| 9748.000                 | 1.331                   | 51.380                         | 52.711                               | -21.289      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 51.810                         | 48.040                               | -25.960      | 74.000                |
| 7311.000                 | -0.719                  | 51.290                         | 50.572                               | -23.428      | 74.000                |
| 9748.000                 | 1.331                   | 50.420                         | 51.751                               | -22.249      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 52.570                         | 48.827                               | -25.173      | 74.000                |
| 7386.000                 | -0.683                  | 50.450                         | 49.767                               | -24.233      | 74.000                |
| 9648.000                 | 1.186                   | 51.550                         | 52.736                               | -21.264      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 51.930                         | 48.187                               | -25.813      | 74.000                |
| 7386.000                 | -0.683                  | 50.780                         | 50.097                               | -23.903      | 74.000                |
| 9848.000                 | 1.571                   | 51.550                         | 53.121                               | -20.879      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency                | Correct | Reading    | Measurement  | Margin  | Limit        |
|--------------------------|---------|------------|--------------|---------|--------------|
| MHz                      | Factor  | Level      | Level        |         |              |
|                          | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b>        |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4824.000                 | -3.785  | 52.040     | 48.256       | -25.744 | 74.000       |
| 7236.000                 | -0.753  | 50.980     | 50.226       | -23.774 | 74.000       |
| 9648.000                 | 1.186   | 50.180     | 51.366       | -22.634 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |
| <b>Vertical</b>          |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4824.000                 | -3.785  | 51.790     | 48.006       | -25.994 | 74.000       |
| 7236.000                 | -0.753  | 50.120     | 49.366       | -24.634 | 74.000       |
| 9648.000                 | 1.186   | 50.040     | 51.226       | -22.774 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 52.150                         | 48.380                               | -25.620      | 74.000                |
| 7311.000                 | -0.719                  | 50.800                         | 50.082                               | -23.918      | 74.000                |
| 9748.000                 | 1.331                   | 50.660                         | 51.991                               | -22.009      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 54.530                         | 50.760                               | -23.240      | 74.000                |
| 7311.000                 | -0.719                  | 50.780                         | 50.062                               | -23.938      | 74.000                |
| 9748.000                 | 1.331                   | 51.350                         | 52.681                               | -21.319      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 51.940                         | 48.197                               | -25.803      | 74.000                |
| 7386.000                 | -0.683                  | 50.790                         | 50.107                               | -23.893      | 74.000                |
| 9848.000                 | 1.571                   | 50.840                         | 52.411                               | -21.589      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4924.000                 | -3.743                  | 51.030                         | 47.287                               | -26.713      | 74.000                |
| 7386.000                 | -0.683                  | 49.840                         | 49.157                               | -24.843      | 74.000                |
| 9848.000                 | 1.571                   | 51.010                         | 52.581                               | -21.419      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2422MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency                | Correct | Reading    | Measurement  | Margin  | Limit        |
|--------------------------|---------|------------|--------------|---------|--------------|
| MHz                      | Factor  | Level      | Level        |         |              |
|                          | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b>        |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4844.000                 | -3.778  | 52.390     | 48.611       | -25.389 | 74.000       |
| 7266.000                 | -0.732  | 50.210     | 49.478       | -24.522 | 74.000       |
| 9688.000                 | 1.249   | 50.580     | 51.830       | -22.170 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |
| <b>Vertical</b>          |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4844.000                 | -3.778  | 50.750     | 46.971       | -27.029 | 74.000       |
| 7266.000                 | -0.732  | 50.750     | 50.018       | -23.982 | 74.000       |
| 9688.000                 | 1.249   | 50.490     | 51.740       | -22.260 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency<br>MHz         | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V/m | Margin<br>dB | Limit<br>dB $\mu$ V/m |
|--------------------------|-------------------------|--------------------------------|--------------------------------------|--------------|-----------------------|
| <b>Horizontal</b>        |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 51.750                         | 47.980                               | -26.020      | 74.000                |
| 7311.000                 | -0.719                  | 51.360                         | 50.642                               | -23.358      | 74.000                |
| 9748.000                 | 1.331                   | 51.190                         | 52.521                               | -21.479      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |
| <b>Vertical</b>          |                         |                                |                                      |              |                       |
| <b>Peak Detector:</b>    |                         |                                |                                      |              |                       |
| 4874.000                 | -3.770                  | 50.880                         | 47.110                               | -26.890      | 74.000                |
| 7311.000                 | -0.719                  | 50.540                         | 49.822                               | -24.178      | 74.000                |
| 9748.000                 | 1.331                   | 51.190                         | 52.521                               | -21.479      | 74.000                |
| <b>Average Detector:</b> |                         |                                |                                      |              |                       |
| --                       | --                      | --                             | --                                   | --           | 54.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : LTE Router  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2452 MHz)  
 (M/N:WA-12M12FU)  
 Test Date : 2017/04/28

| Frequency                | Correct | Reading    | Measurement  | Margin  | Limit        |
|--------------------------|---------|------------|--------------|---------|--------------|
| MHz                      | Factor  | Level      | Level        |         |              |
|                          | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b>        |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4904.000                 | -3.766  | 51.530     | 47.764       | -26.236 | 74.000       |
| 7356.000                 | -0.693  | 50.560     | 49.867       | -24.133 | 74.000       |
| 9808.000                 | 1.467   | 51.030     | 52.496       | -21.504 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |
| <b>Vertical</b>          |         |            |              |         |              |
| <b>Peak Detector:</b>    |         |            |              |         |              |
| 4904.000                 | -3.766  | 50.840     | 47.074       | -26.926 | 74.000       |
| 7356.000                 | -0.693  | 51.220     | 50.527       | -23.473 | 74.000       |
| 9808.000                 | 1.467   | 51.160     | 52.626       | -21.374 | 74.000       |
| <b>Average Detector:</b> |         |            |              |         |              |
| --                       | --      | --         | --           | --      | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)  
 (M/N :WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 105.913           | -14.989 | 42.317     | 27.328       | -16.172 | 43.500       |
| 149.493           | -10.955 | 38.161     | 27.207       | -16.293 | 43.500       |
| 202.913           | -13.492 | 38.454     | 24.962       | -18.538 | 43.500       |
| 481.261           | -6.135  | 31.816     | 25.681       | -20.319 | 46.000       |
| 874.884           | 0.087   | 31.452     | 31.538       | -14.462 | 46.000       |
| 967.667           | 1.210   | 29.294     | 30.504       | -23.496 | 54.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 118.565           | -13.444 | 46.351     | 32.907       | -10.593 | 43.500       |
| 249.304           | -11.924 | 36.387     | 24.463       | -21.537 | 46.000       |
| 394.101           | -7.923  | 31.452     | 23.529       | -22.471 | 46.000       |
| 619.029           | -3.486  | 31.623     | 28.137       | -17.863 | 46.000       |
| 746.957           | -1.499  | 39.584     | 38.085       | -7.915  | 46.000       |
| 977.507           | 1.341   | 29.666     | 31.008       | -22.992 | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)  
 (M/N :WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 104.507           | -15.237 | 41.403     | 26.165       | -17.335 | 43.500       |
| 183.232           | -12.722 | 36.238     | 23.516       | -19.984 | 43.500       |
| 249.304           | -11.924 | 35.120     | 23.196       | -22.804 | 46.000       |
| 516.406           | -5.548  | 30.112     | 24.564       | -21.436 | 46.000       |
| 730.087           | -1.826  | 36.654     | 34.828       | -11.172 | 46.000       |
| 917.058           | 0.623   | 30.213     | 30.836       | -15.164 | 46.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 107.319           | -14.741 | 47.121     | 32.381       | -11.119 | 43.500       |
| 169.174           | -11.000 | 38.123     | 27.123       | -16.377 | 43.500       |
| 243.681           | -11.998 | 34.266     | 22.268       | -23.732 | 46.000       |
| 583.884           | -4.045  | 29.993     | 25.948       | -20.052 | 46.000       |
| 744.145           | -1.554  | 40.570     | 39.016       | -6.984  | 46.000       |
| 893.159           | 0.346   | 30.010     | 30.356       | -15.644 | 46.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)  
 (M/N :WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 150.899           | -10.913 | 36.460     | 25.547       | -17.953 | 43.500       |
| 183.232           | -12.722 | 36.821     | 24.099       | -19.401 | 43.500       |
| 249.304           | -11.924 | 34.594     | 22.670       | -23.330 | 46.000       |
| 499.536           | -5.853  | 33.229     | 27.375       | -18.625 | 46.000       |
| 780.696           | -1.211  | 29.958     | 28.748       | -17.252 | 46.000       |
| 985.942           | 1.452   | 30.572     | 32.024       | -21.976 | 54.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 112.942           | -13.989 | 43.037     | 29.049       | -14.451 | 43.500       |
| 163.551           | -10.807 | 37.502     | 26.695       | -16.805 | 43.500       |
| 342.087           | -9.167  | 30.084     | 20.918       | -25.082 | 46.000       |
| 604.971           | -3.593  | 29.952     | 26.358       | -19.642 | 46.000       |
| 807.406           | -0.941  | 30.752     | 29.810       | -16.190 | 46.000       |
| 936.739           | 0.834   | 30.072     | 30.907       | -15.093 | 46.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2437 MHz)  
 (M/N :WA-12M12FU)  
 Test Date : 2016/12/19

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 148.087           | -11.004 | 39.322     | 28.318       | -15.182 | 43.500       |
| 191.667           | -13.440 | 36.769     | 23.330       | -20.170 | 43.500       |
| 364.580           | -8.630  | 29.421     | 20.792       | -25.208 | 46.000       |
| 597.942           | -3.678  | 30.108     | 26.431       | -19.569 | 46.000       |
| 773.667           | -1.262  | 31.813     | 30.550       | -15.450 | 46.000       |
| 931.116           | 0.774   | 29.791     | 30.565       | -15.435 | 46.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 111.536           | -14.125 | 45.555     | 31.431       | -12.069 | 43.500       |
| 169.174           | -11.000 | 37.988     | 26.988       | -16.512 | 43.500       |
| 340.681           | -9.200  | 30.355     | 21.155       | -24.845 | 46.000       |
| 592.319           | -3.824  | 29.362     | 25.537       | -20.463 | 46.000       |
| 790.536           | -1.137  | 28.312     | 27.175       | -18.825 | 46.000       |
| 980.319           | 1.379   | 28.915     | 30.294       | -23.706 | 54.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)  
 (M/N : MU12AR120100-A1)  
 Test Date : 2016/12/30

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 139.652           | -11.329 | 41.695     | 30.366       | -13.134 | 43.500       |
| 323.812           | -9.607  | 28.381     | 18.774       | -27.226 | 46.000       |
| 472.826           | -6.263  | 30.440     | 24.176       | -21.824 | 46.000       |
| 680.884           | -2.732  | 31.474     | 28.742       | -17.258 | 46.000       |
| 841.145           | -0.402  | 30.250     | 29.848       | -16.152 | 46.000       |
| 943.768           | 0.911   | 29.559     | 30.470       | -15.530 | 46.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 105.913           | -14.989 | 41.968     | 26.979       | -16.521 | 43.500       |
| 329.435           | -9.472  | 29.897     | 20.425       | -25.575 | 46.000       |
| 531.870           | -5.267  | 30.988     | 25.721       | -20.279 | 46.000       |
| 651.362           | -3.204  | 30.115     | 26.911       | -19.089 | 46.000       |
| 782.101           | -1.200  | 30.754     | 29.554       | -16.446 | 46.000       |
| 914.246           | 0.591   | 29.917     | 30.508       | -15.492 | 46.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)  
 (M/N : MU12AR120100-A1)  
 Test Date : 2016/12/30

| Frequency         | Correct | Reading | Measurement | Margin  | Limit  |
|-------------------|---------|---------|-------------|---------|--------|
|                   | Factor  | Level   | Level       |         |        |
| MHz               | dB      | dBμV    | dBμV/m      | dB      | dBμV/m |
| <b>Horizontal</b> |         |         |             |         |        |
| 138.246           | -11.458 | 41.530  | 30.072      | -13.428 | 43.500 |
| 218.377           | -13.135 | 37.542  | 24.406      | -21.594 | 46.000 |
| 436.275           | -6.939  | 30.576  | 23.637      | -22.363 | 46.000 |
| 550.145           | -4.929  | 30.106  | 25.177      | -20.823 | 46.000 |
| 669.638           | -2.912  | 29.647  | 26.735      | -19.265 | 46.000 |
| 828.493           | -0.602  | 29.772  | 29.170      | -16.830 | 46.000 |
| <b>Vertical</b>   |         |         |             |         |        |
| 149.493           | -10.955 | 45.758  | 34.804      | -8.696  | 43.500 |
| 316.783           | -9.777  | 30.576  | 20.799      | -25.201 | 46.000 |
| 493.913           | -5.942  | 29.134  | 23.193      | -22.807 | 46.000 |
| 602.159           | -3.615  | 29.816  | 26.201      | -19.799 | 46.000 |
| 714.623           | -2.136  | 30.611  | 28.475      | -17.525 | 46.000 |
| 867.855           | -0.011  | 29.478  | 29.467      | -16.533 | 46.000 |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)  
 (M/N : MU12AR120100-A1)  
 Test Date : 2016/12/30

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 107.319           | -14.741 | 40.390     | 25.650       | -17.850 | 43.500       |
| 201.507           | -13.524 | 37.184     | 23.660       | -19.840 | 43.500       |
| 448.928           | -6.641  | 29.368     | 22.727       | -23.273 | 46.000       |
| 640.116           | -3.305  | 29.309     | 26.004       | -19.996 | 46.000       |
| 775.072           | -1.252  | 28.944     | 27.692       | -18.308 | 46.000       |
| 910.029           | 0.545   | 28.824     | 29.370       | -16.630 | 46.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 124.188           | -12.862 | 34.596     | 21.735       | -21.765 | 43.500       |
| 274.609           | -10.951 | 28.679     | 17.728       | -28.272 | 46.000       |
| 451.739           | -6.591  | 29.112     | 22.521       | -23.479 | 46.000       |
| 614.812           | -3.518  | 29.005     | 25.487       | -20.513 | 46.000       |
| 756.797           | -1.393  | 29.023     | 27.630       | -18.370 | 46.000       |
| 905.812           | 0.501   | 29.641     | 30.142       | -15.858 | 46.000       |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.



Product : LTE Router  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2437 MHz)  
 (M/N : MU12AR120100-A1)  
 Test Date : 2016/12/30

| Frequency         | Correct | Reading    | Measurement  | Margin  | Limit        |
|-------------------|---------|------------|--------------|---------|--------------|
| MHz               | Factor  | Level      | Level        |         |              |
|                   | dB      | dB $\mu$ V | dB $\mu$ V/m | dB      | dB $\mu$ V/m |
| <b>Horizontal</b> |         |            |              |         |              |
| 141.058           | -11.259 | 39.793     | 28.534       | -14.966 | 43.500       |
| 346.304           | -9.064  | 27.338     | 18.273       | -27.727 | 46.000       |
| 523.435           | -5.420  | 28.951     | 23.531       | -22.469 | 46.000       |
| 651.362           | -3.204  | 27.610     | 24.406       | -21.594 | 46.000       |
| 793.348           | -1.117  | 27.437     | 26.321       | -19.679 | 46.000       |
| 935.333           | 0.820   | 29.500     | 30.320       | -15.680 | 46.000       |
| <b>Vertical</b>   |         |            |              |         |              |
| 107.319           | -14.741 | 39.858     | 25.118       | -18.382 | 43.500       |
| 297.101           | -10.265 | 27.997     | 17.732       | -28.268 | 46.000       |
| 425.029           | -7.201  | 28.512     | 21.312       | -24.688 | 46.000       |
| 552.957           | -4.856  | 28.813     | 23.957       | -22.043 | 46.000       |
| 701.971           | -2.388  | 28.539     | 26.151       | -19.849 | 46.000       |
| 914.246           | 0.591   | 29.708     | 30.299       | -15.701 | 46.000       |

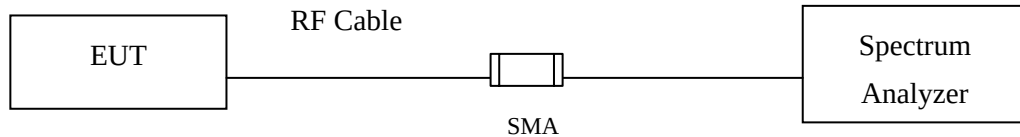
## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

## 5. RF antenna conducted test

### 5.1. Test Setup

#### RF antenna Conducted Measurement:



### 5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### 5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

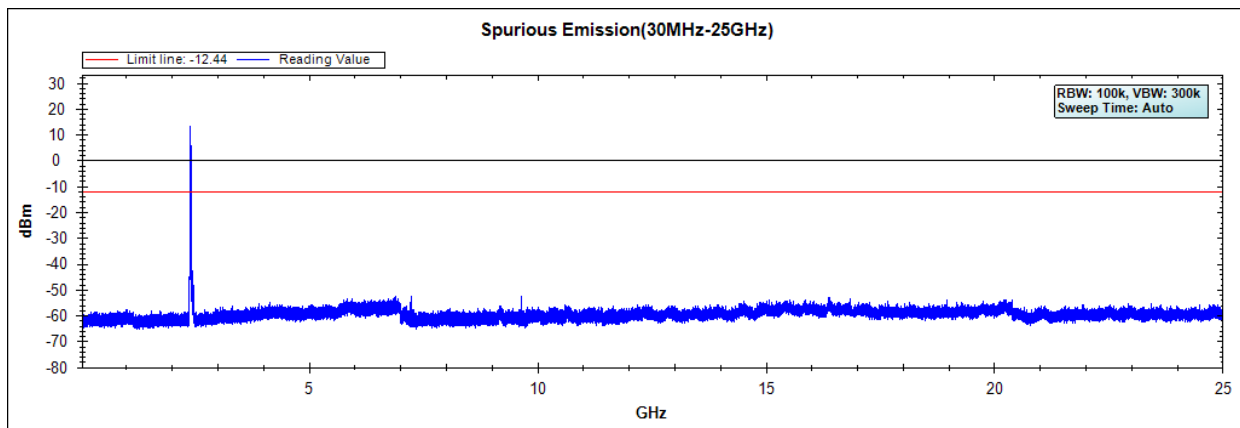
### 5.4. Uncertainty

$\pm 1.23\text{dB}$

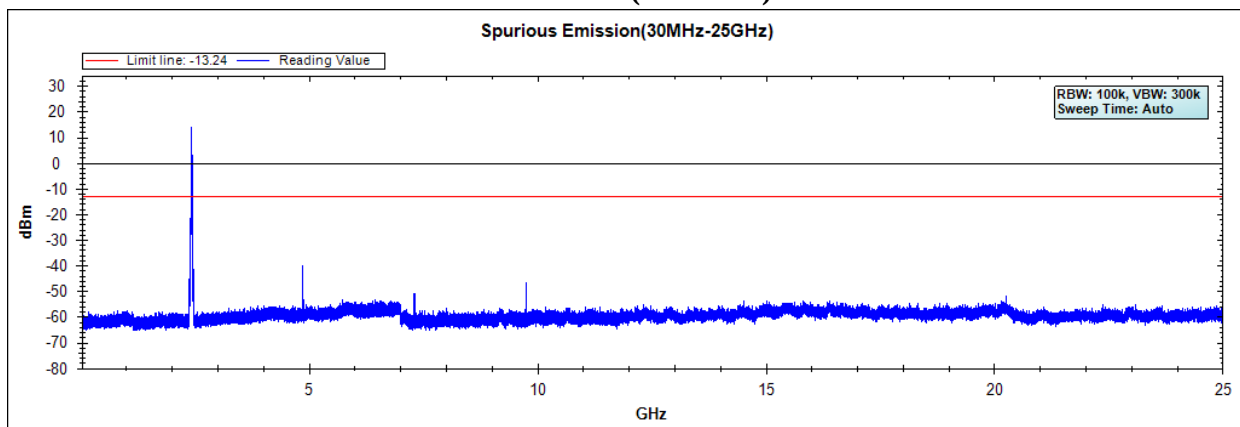
## 5.5. Test Result of RF antenna conducted test

Product : LTE Router  
Test Item : RF antenna conducted test  
Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
Test Date : 2017/01/05

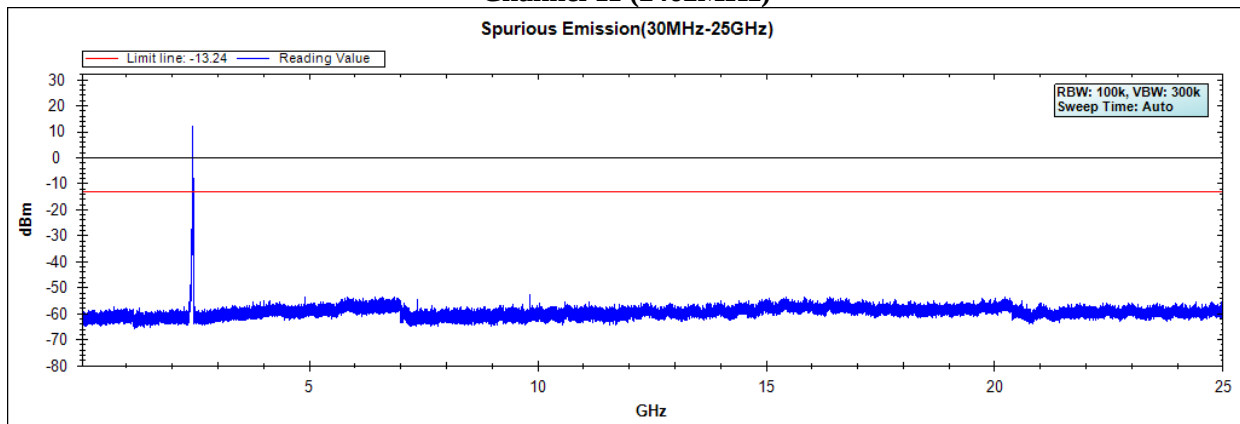
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)



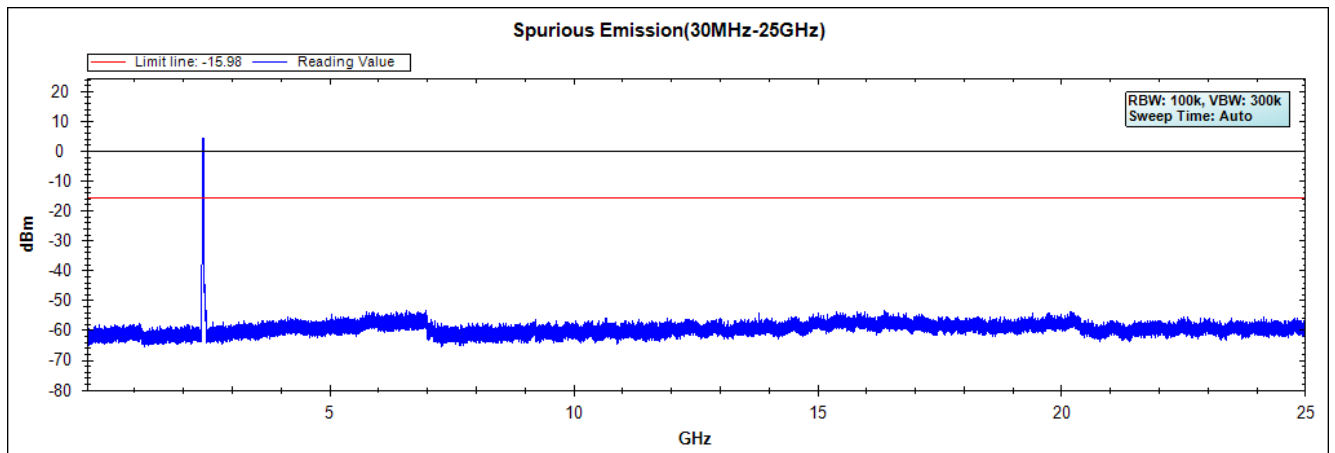
### Channel 11 (2462MHz)



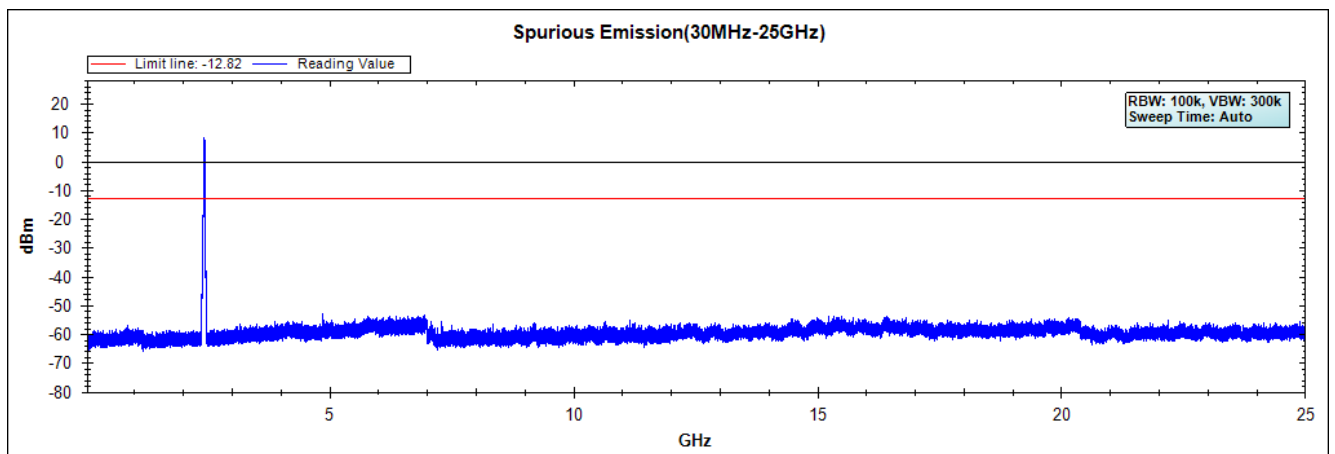
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : LTE Router  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
Test Date : 2017/01/05

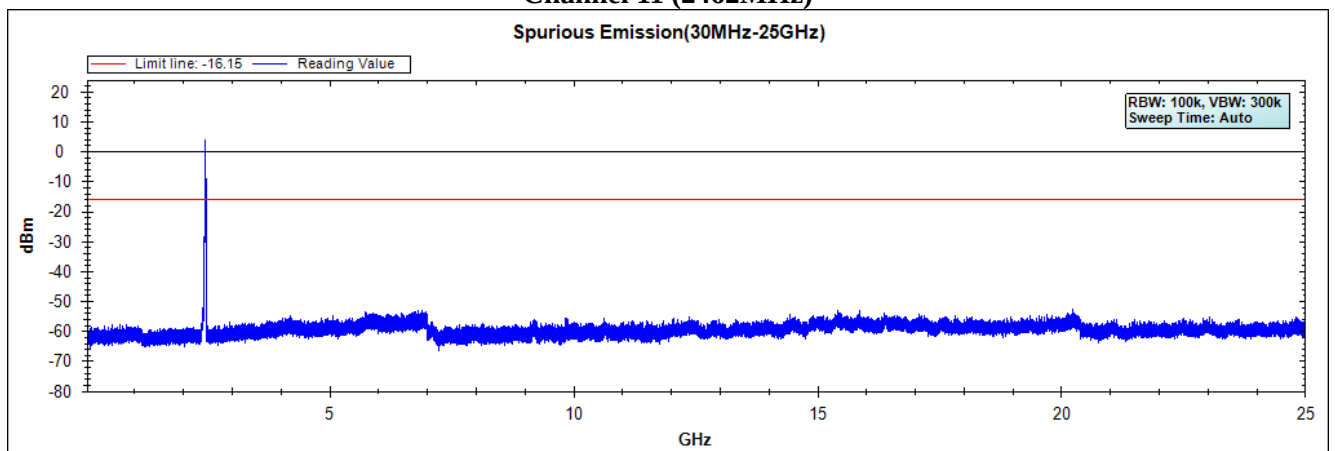
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)



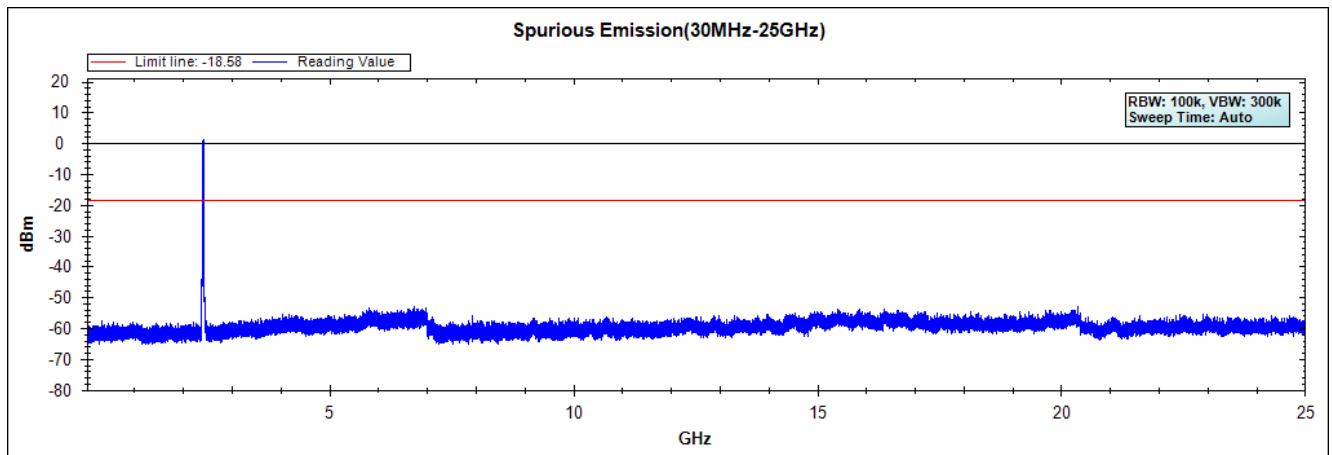
### Channel 11 (2462MHz)



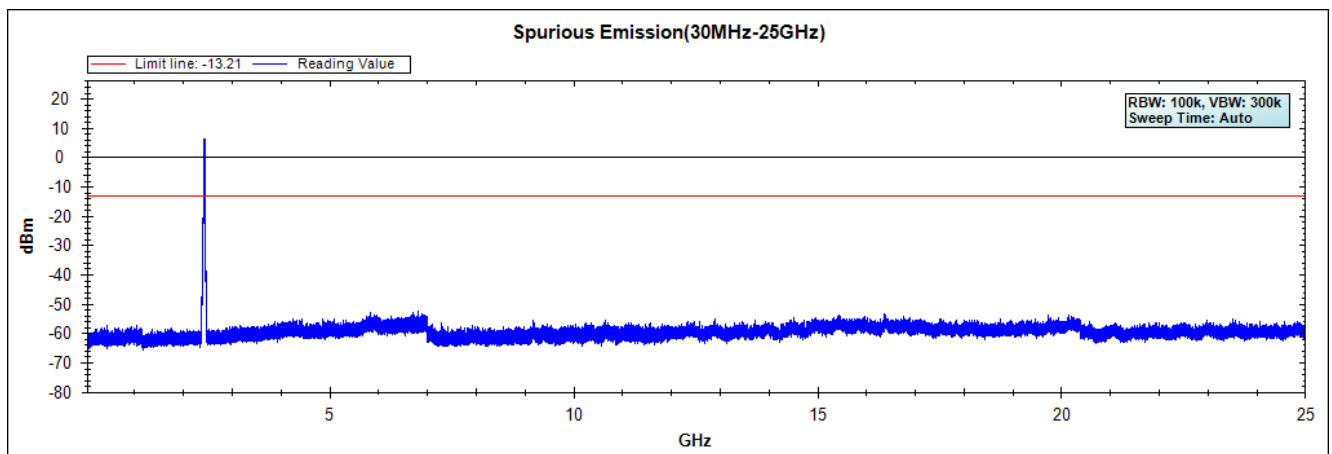
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : LTE Router  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
Test Date : 2017/01/05

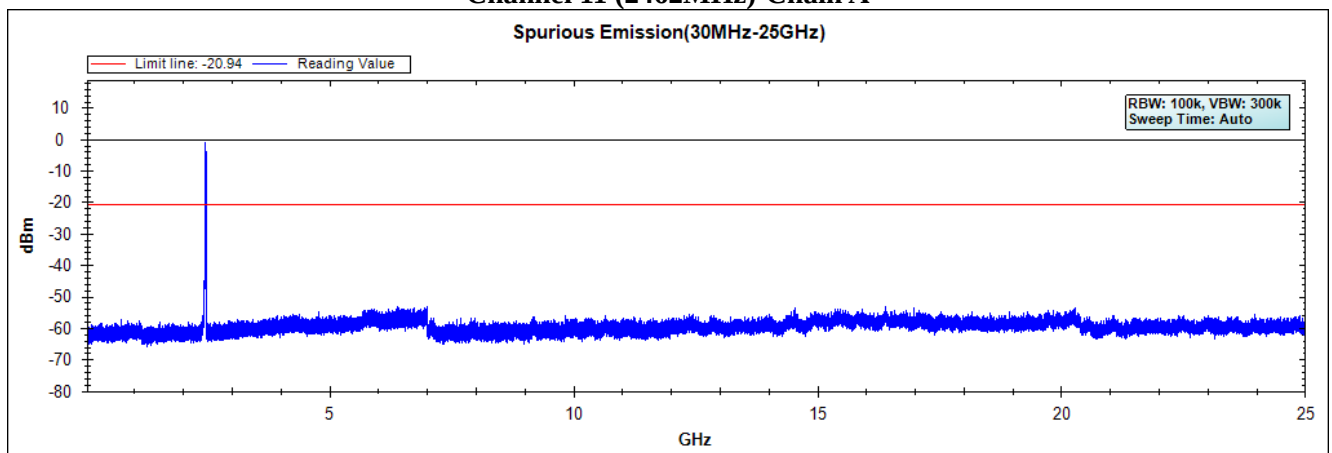
### Channel 01 (2412MHz)-Chain A



### Channel 06 (2437MHz)-Chain A



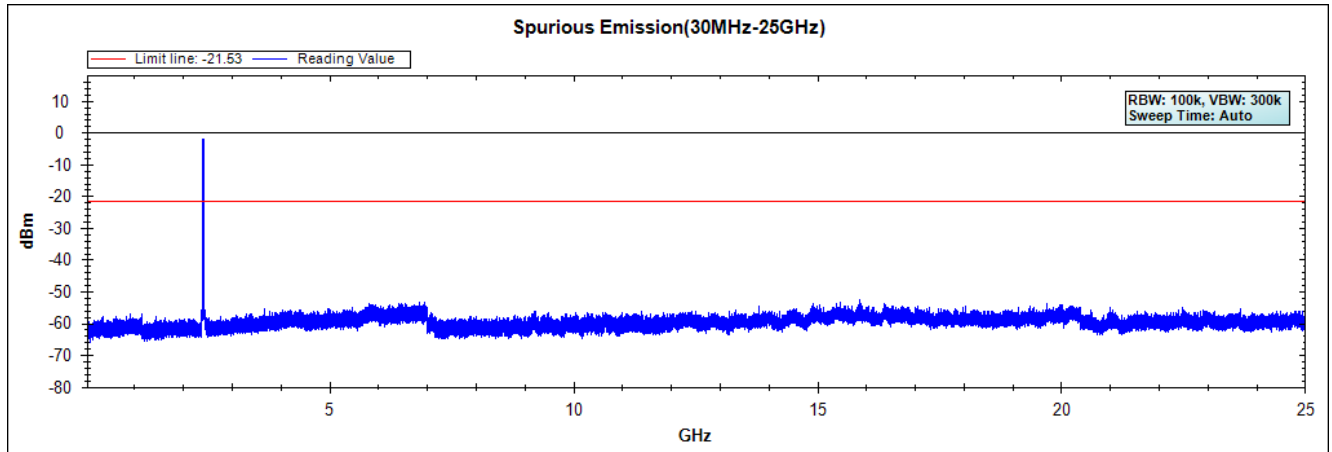
### Channel 11 (2462MHz)-Chain A



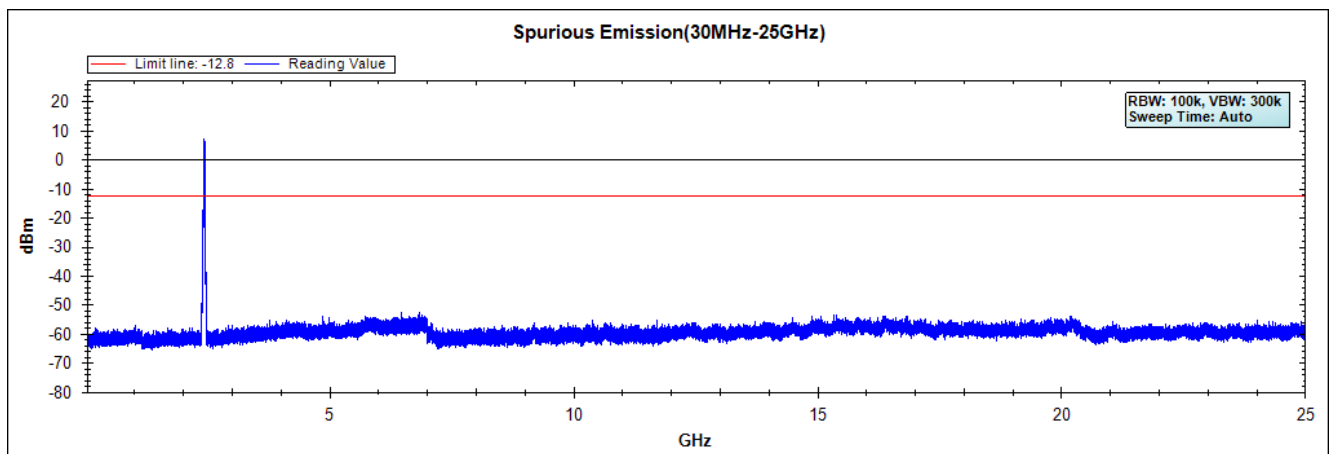
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : LTE Router  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
Test Date : 2017/01/05

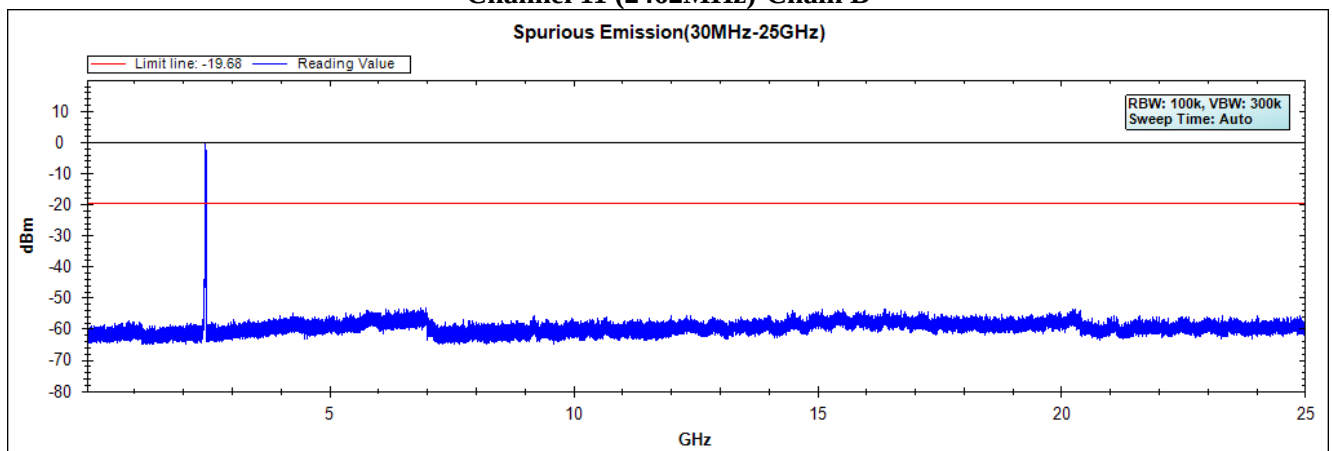
### Channel 01 (2412MHz)-Chain B



### Channel 06 (2437MHz)-Chain B



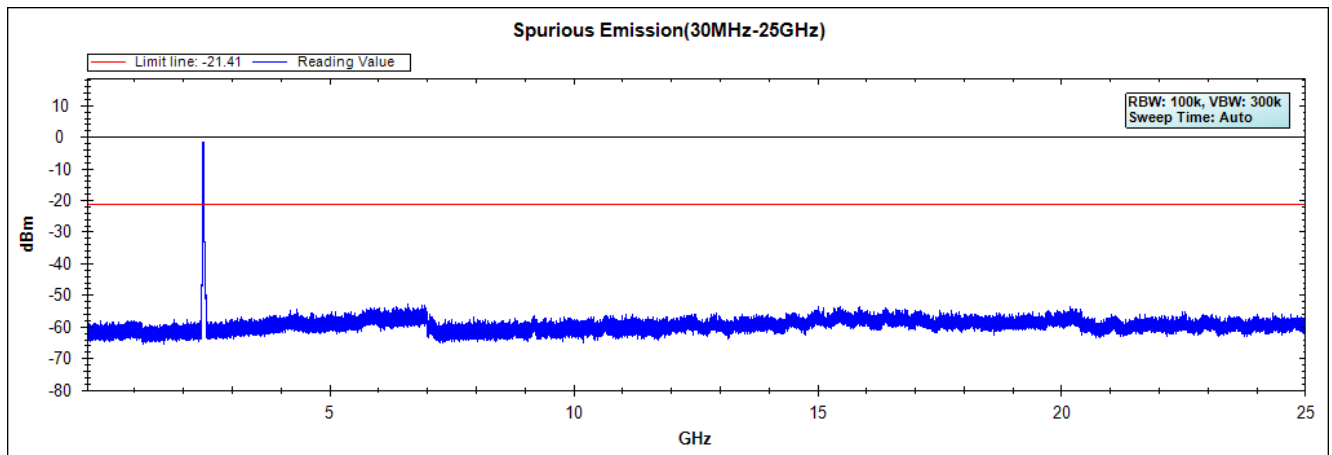
### Channel 11 (2462MHz)-Chain B



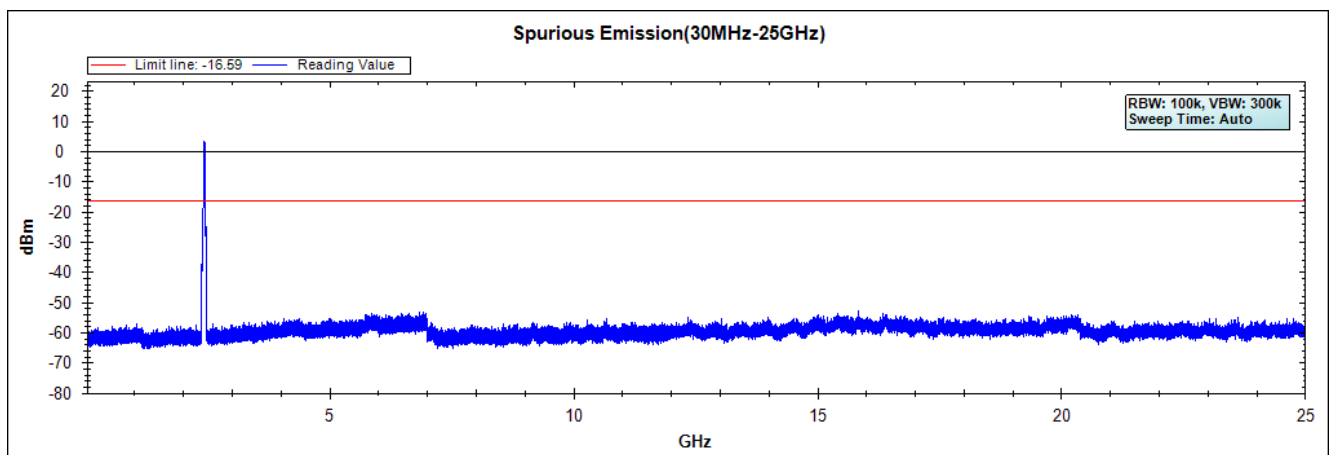
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : LTE Router  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
Test Date : 2017/01/05

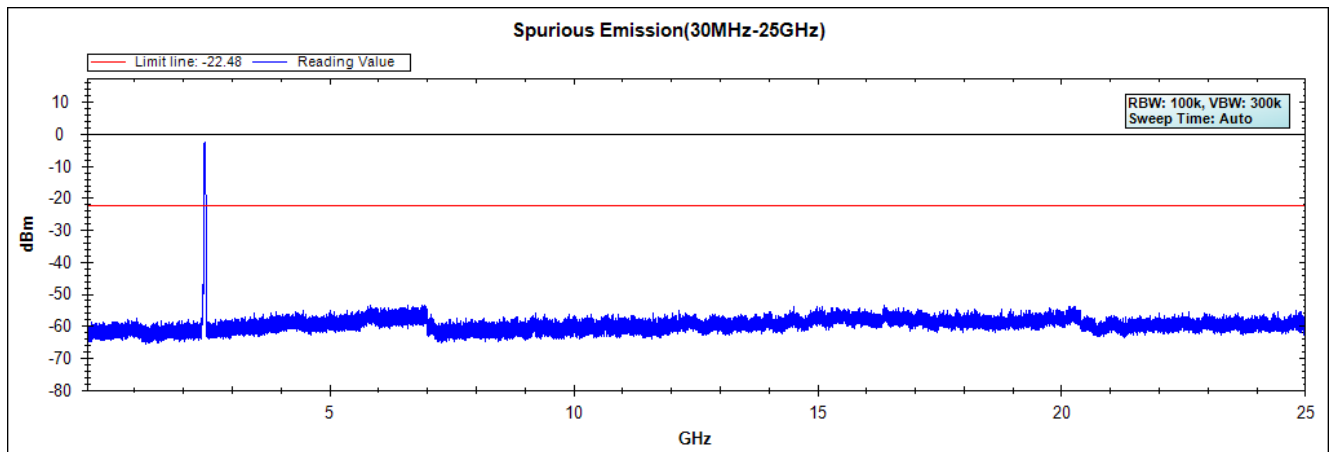
### Channel 01 (2422MHz)-Chain A



### Channel 04 (2437MHz)-Chain A



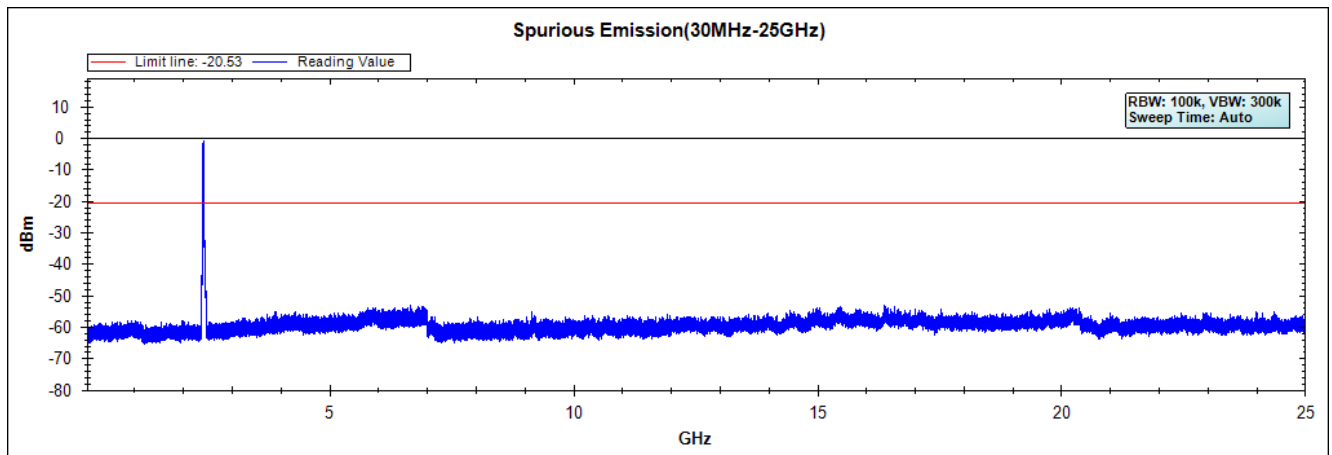
### Channel 07 (2452MHz)-Chain A



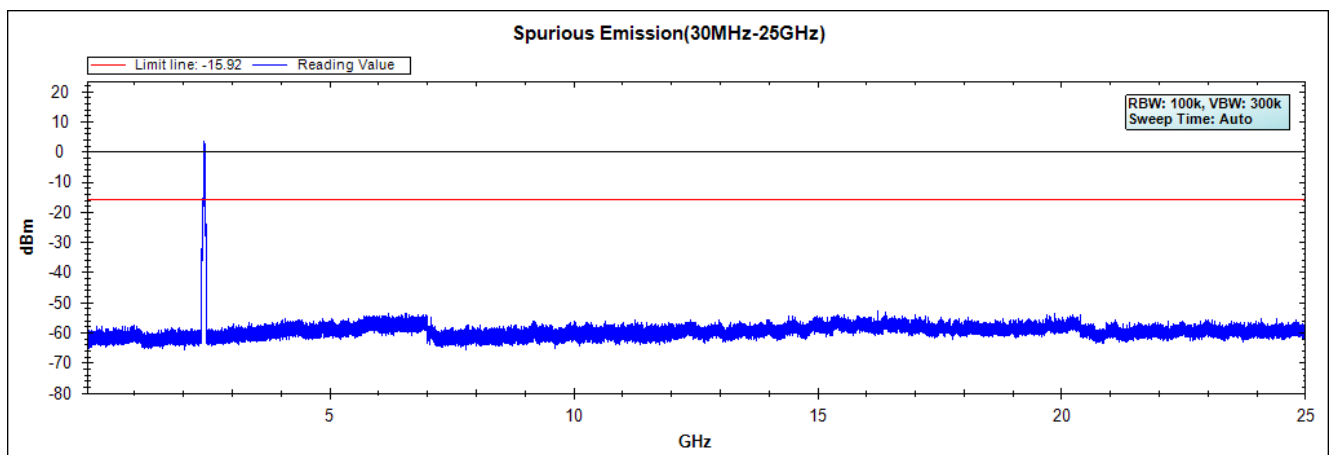
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : LTE Router  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
Test Date : 2017/01/05

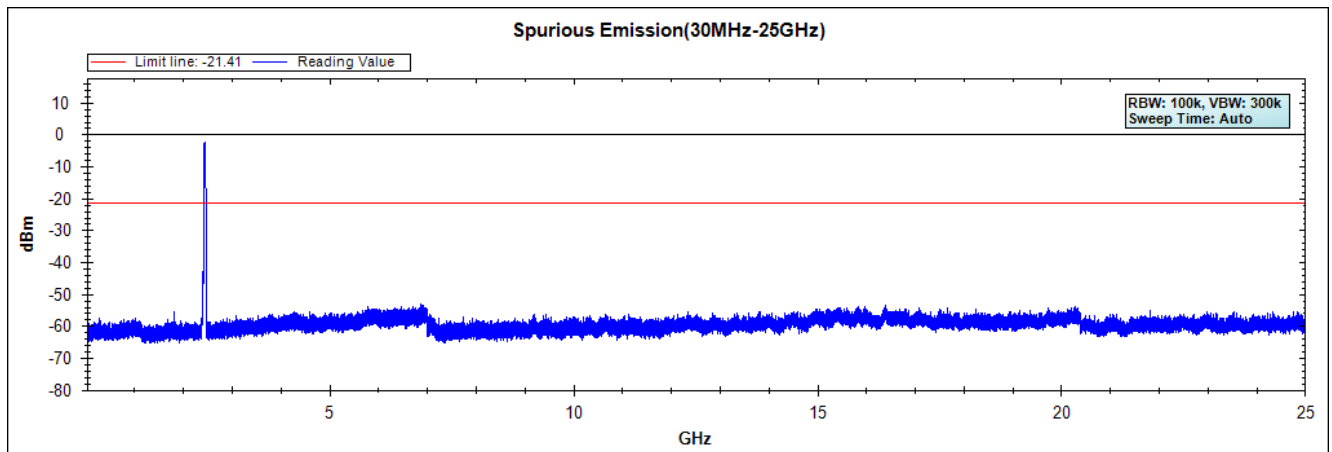
### Channel 01 (2422MHz)-Chain B



### Channel 04 (2437MHz)-Chain B



### Channel 07 (2452MHz)-Chain B



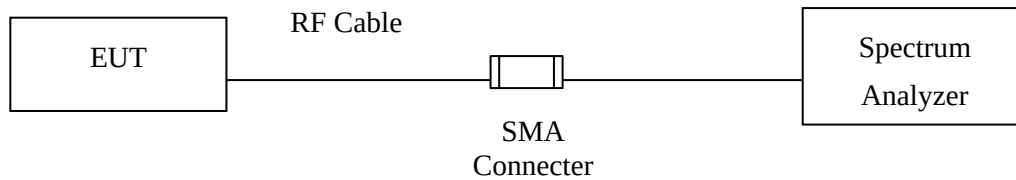
Note: The above test pattern is synthesized by multiple of the frequency range.



## 6. Band Edge

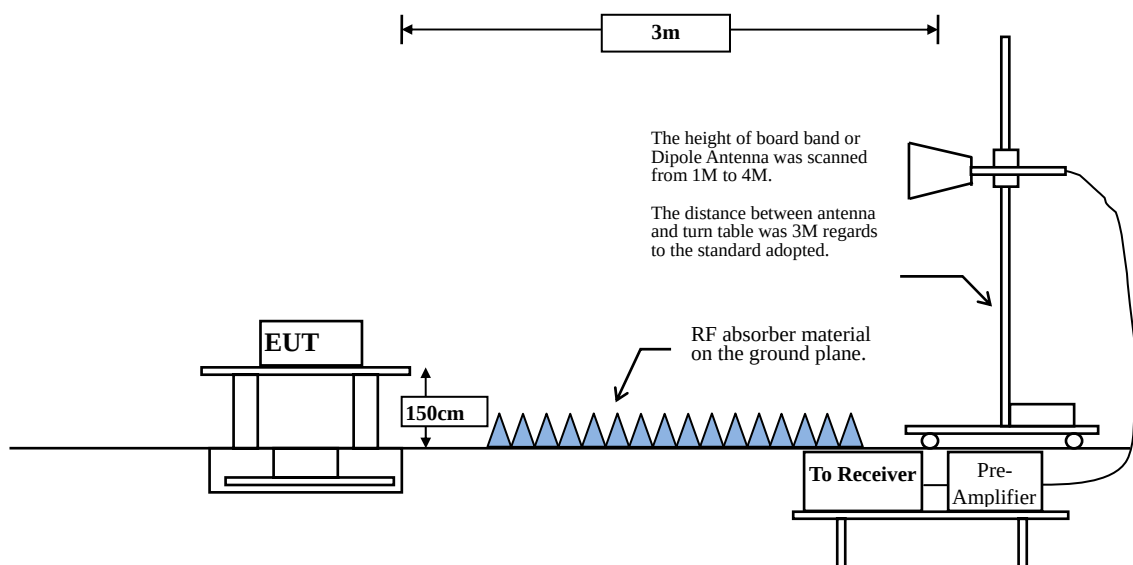
### 6.1. Test Setup

#### RF Conducted Measurement



#### RF Radiated Measurement:

Above 1GHz



## **6.2. Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

## **6.3. Test Procedure**

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

## **6.4. Uncertainty**

Conducted:  $\pm 1.23\text{dB}$

Radiated:

Horizontal polarization : 1-18GHz:  $\pm 3.77\text{dB}$

Vertical polarization : 1-18GHz :  $\pm 3.83\text{dB}$

## 6.5. Test Result of Band Edge

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

### RF Radiated Measurement (Horizontal):

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 37.554               | 49.110                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2398.261        | 11.575              | 61.198               | 72.773                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 59.376               | 70.955                  | --                  | --                     | --     |
| 01 (Peak)    | 2413.043        | 11.610              | 93.276               | 104.886                 | --                  | --                     | --     |
| 01 (Average) | 2390.000        | 11.556              | 28.232               | 39.788                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2398.261        | 11.575              | 58.105               | 69.680                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 55.946               | 67.525                  | --                  | --                     | --     |
| 01 (Average) | 2412.754        | 11.609              | 90.196               | 101.806                 | --                  | --                     | --     |

Figure Channel 01:

Horizontal (Peak)

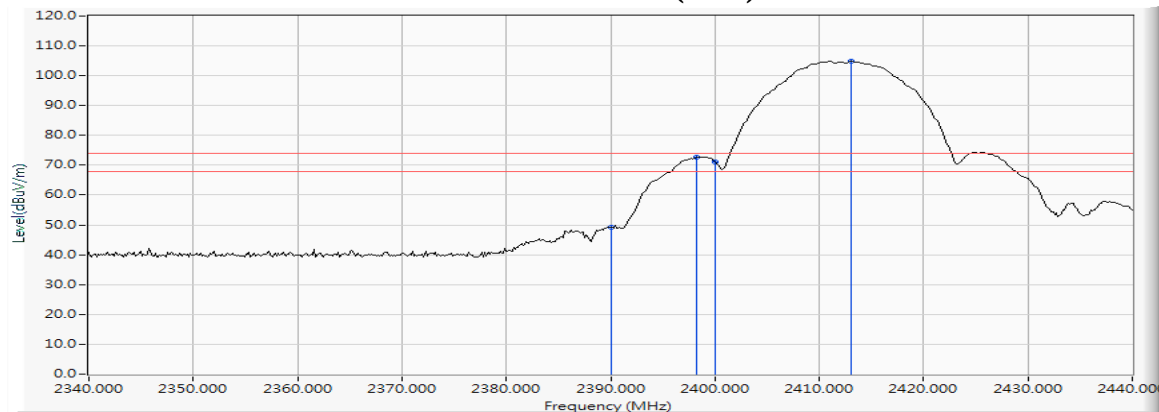
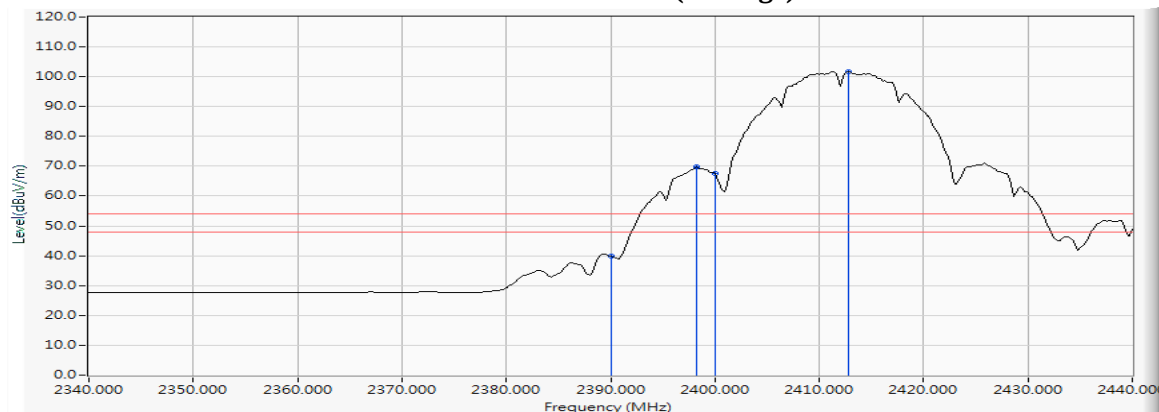


Figure Channel 01:

Horizontal (Average)

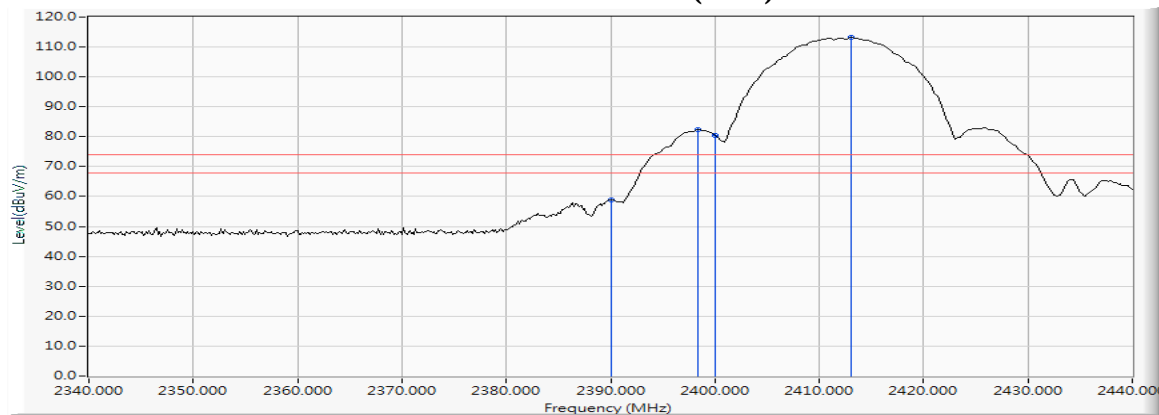
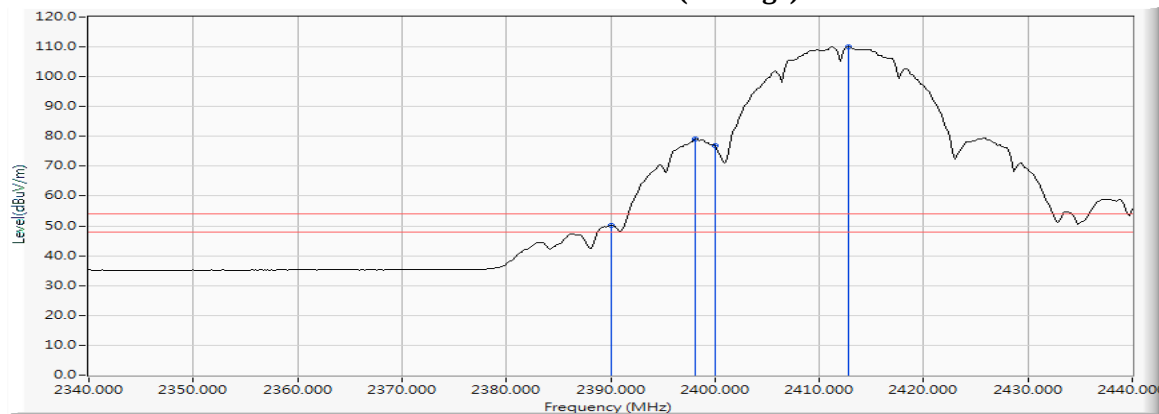


- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 47.289               | 58.845                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2398.406        | 11.575              | 70.777               | 82.352                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 68.831               | 80.410                  | --                  | --                     | --     |
| 01 (Peak)    | 2413.043        | 11.610              | 101.564              | 113.174                 | --                  | --                     | --     |
| 01 (Average) | 2390.000        | 11.556              | 38.489               | 50.045                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2398.116        | 11.574              | 67.521               | 79.096                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 65.284               | 76.863                  | --                  | --                     | --     |
| 01 (Average) | 2412.754        | 11.609              | 98.511               | 110.121                 | --                  | --                     | --     |

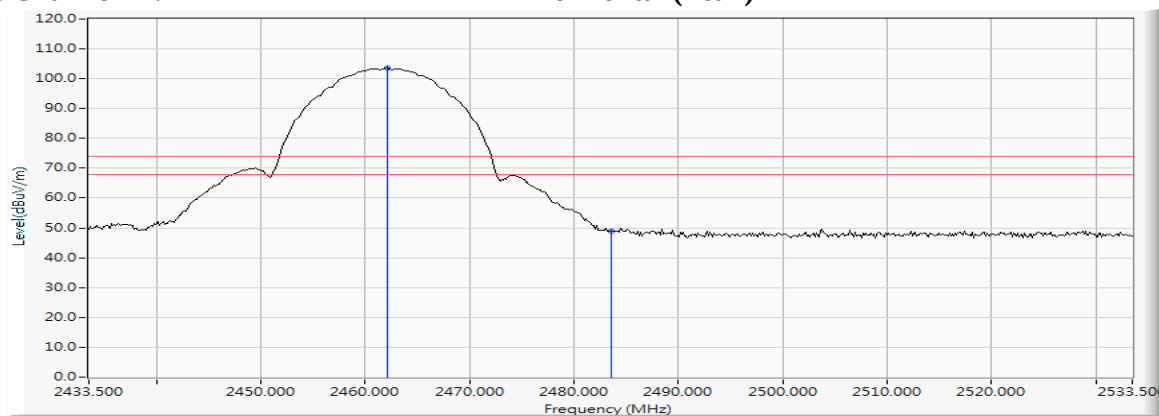
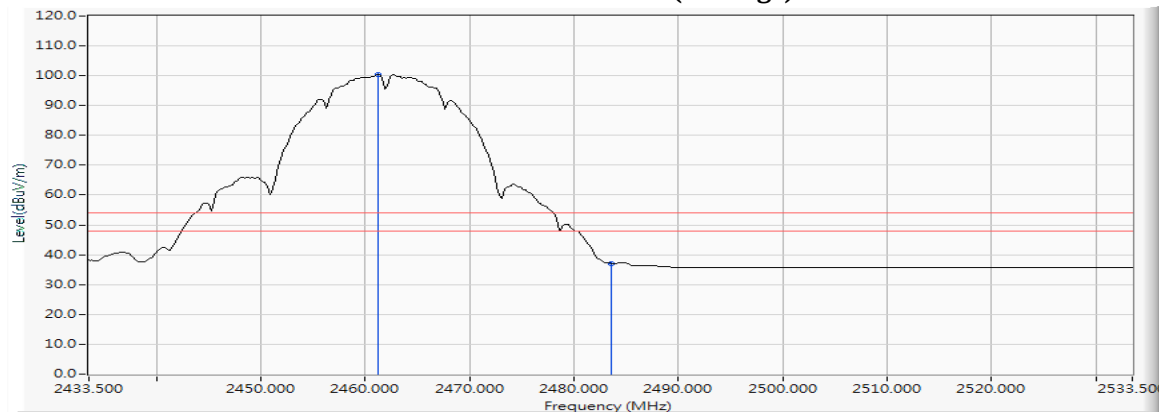
**Figure Channel 01:****VERTICAL (Peak)****Figure Channel 01:****VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. " \* ", means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11 (Peak)    | 2462.051        | 11.742              | 91.698               | 103.441                 | --                  | --                     | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 37.261               | 49.061                  | 74.00               | 54.00                  | Pass   |
| 11 (Average) | 2461.181        | 11.741              | 88.704               | 100.444                 | --                  | --                     | --     |
| 11 (Average) | 2483.500        | 11.800              | 25.356               | 37.156                  | 74.00               | 54.00                  | Pass   |

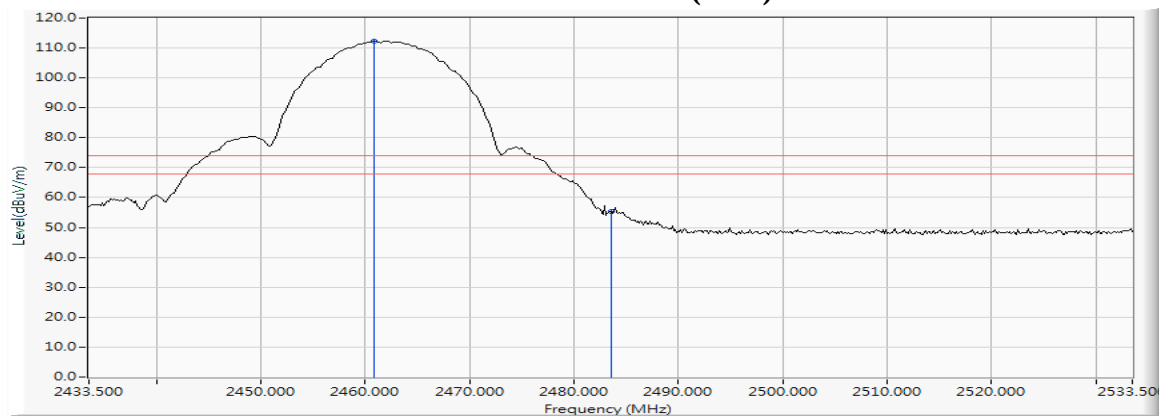
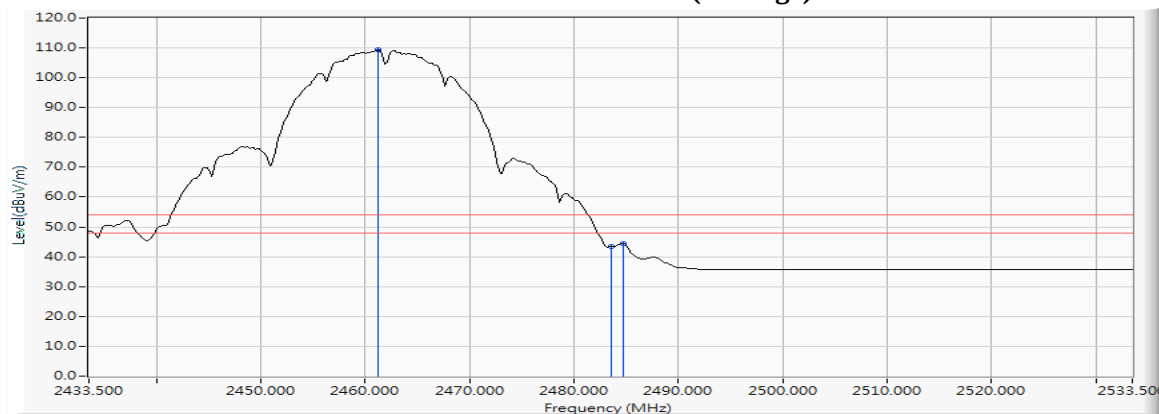
**Figure Channel 11: Horizontal (Peak)**

**Figure Channel 11: Horizontal (Average)**


- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. " \* ", means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/28

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 11 (Peak)    | 2460.891        | 11.739              | 100.515                    | 112.255                       | --                        | --                           | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 43.467                     | 55.267                        | 74.00                     | 54.00                        | Pass   |
| 11 (Average) | 2461.181        | 11.741              | 97.546                     | 109.286                       | --                        | --                           | --     |
| 11 (Average) | 2483.500        | 11.800              | 31.596                     | 43.396                        | 74.00                     | 54.00                        | Pass   |
| 11 (Average) | 2484.659        | 11.803              | 32.651                     | 44.454                        | 74.00                     | 54.00                        | Pass   |

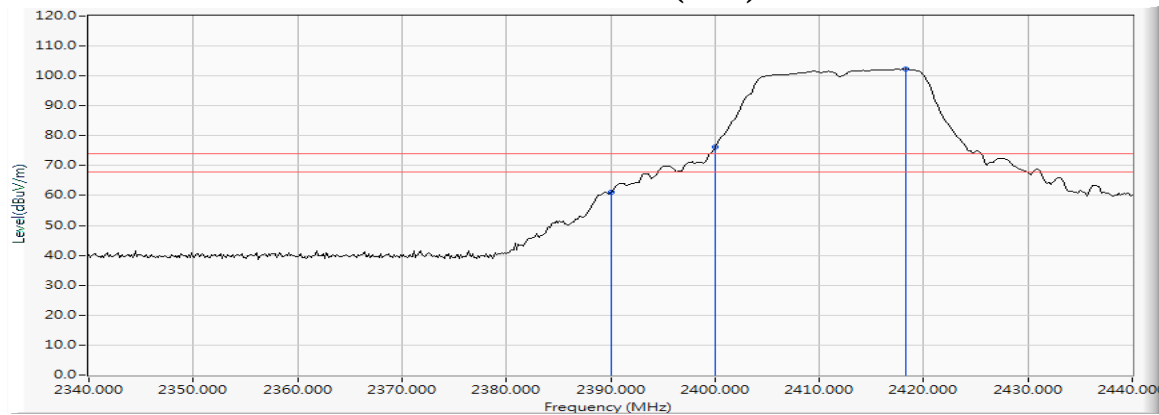
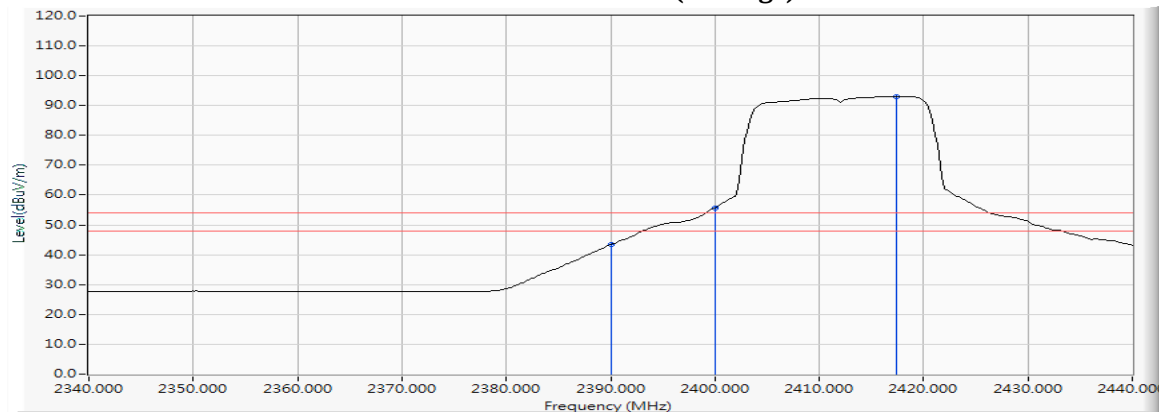
**Figure Channel 11: VERTICAL (Peak)****Figure Channel 11: VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 49.510                     | 61.066                        | 74.00                     | 54.00                        | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 64.538                     | 76.117                        | --                        | --                           | --     |
| 01 (Peak)    | 2418.261        | 11.622              | 90.667                     | 102.290                       | --                        | --                           | --     |
| 01 (Average) | 2390.000        | 11.556              | 31.923                     | 43.479                        | 74.00                     | 54.00                        | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 44.164                     | 55.743                        | --                        | --                           | --     |
| 01 (Average) | 2417.391        | 11.621              | 81.438                     | 93.059                        | --                        | --                           | --     |

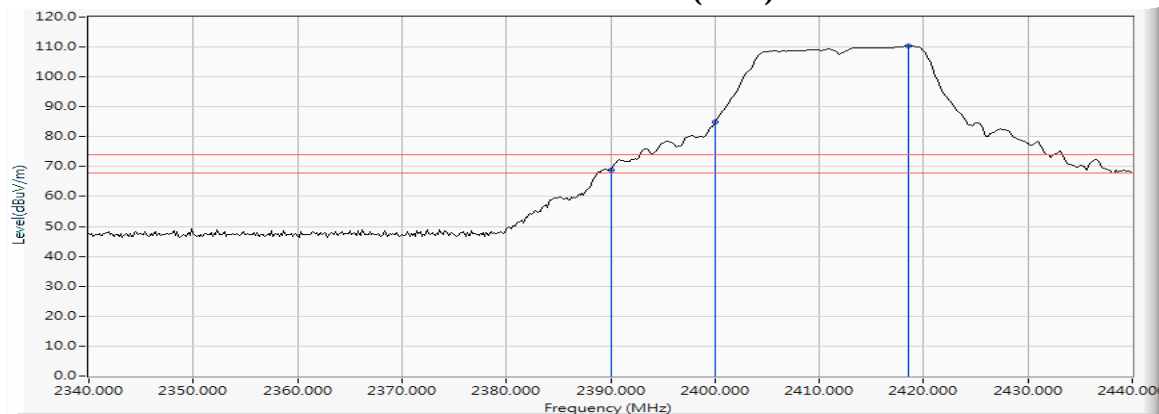
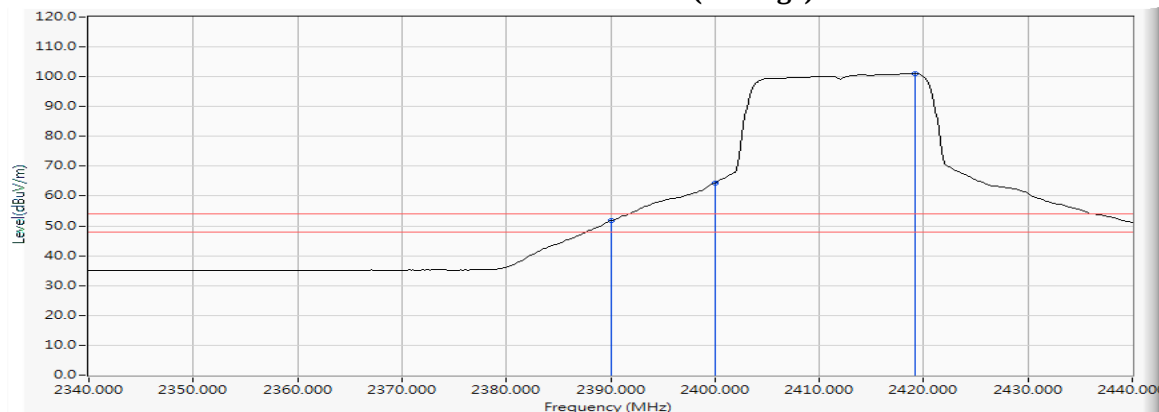
**Figure Channel 01: Horizontal (Peak)****Figure Channel 01: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 57.368                     | 68.924                        | 74.00                     | 54.00                        | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 73.308                     | 84.887                        | --                        | --                           | --     |
| 01 (Peak)    | 2418.551        | 11.624              | 98.633                     | 110.256                       | --                        | --                           | --     |
| 01 (Average) | 2390.000        | 11.556              | 40.202                     | 51.758                        | 74.00                     | 54.00                        | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 52.864                     | 64.443                        | --                        | --                           | --     |
| 01 (Average) | 2419.130        | 11.624              | 89.418                     | 101.043                       | --                        | --                           | --     |

**Figure Channel 01: VERTICAL (Peak)****Figure Channel 01: VERTICAL (Average)**

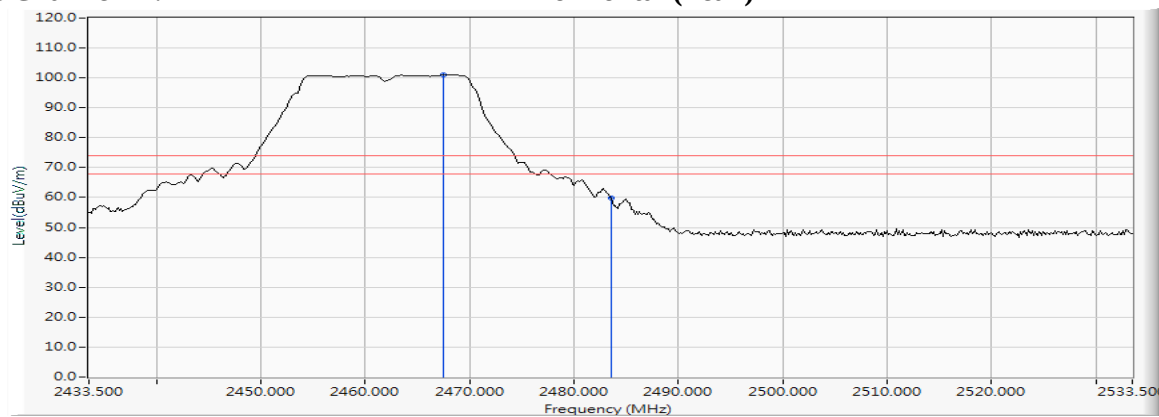
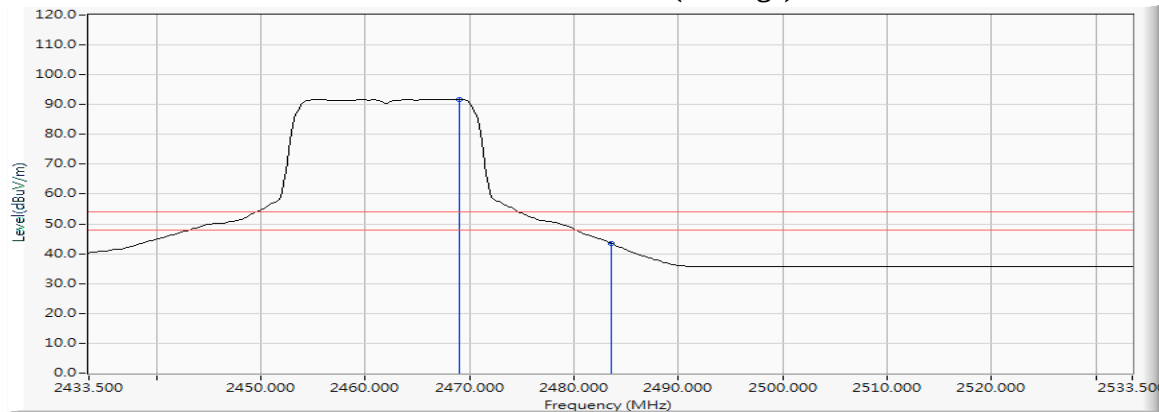
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 11 (Peak)    | 2467.413        | 11.759              | 89.223                     | 100.982                       | --                        | --                           | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 47.931                     | 59.731                        | 74.00                     | 54.00                        | Pass   |
| 11 (Average) | 2469.007        | 11.763              | 80.026                     | 91.790                        | --                        | --                           | --     |
| 11 (Average) | 2483.500        | 11.800              | 31.777                     | 43.577                        | 74.00                     | 54.00                        | Pass   |

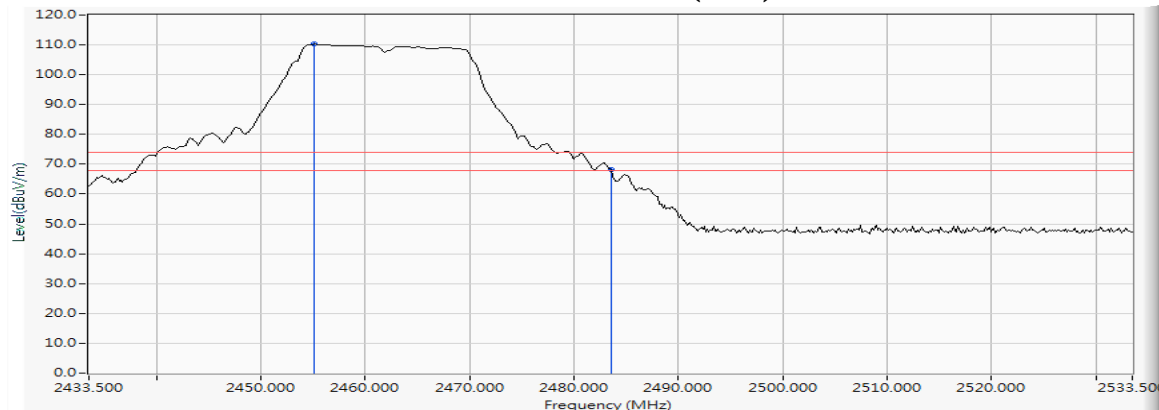
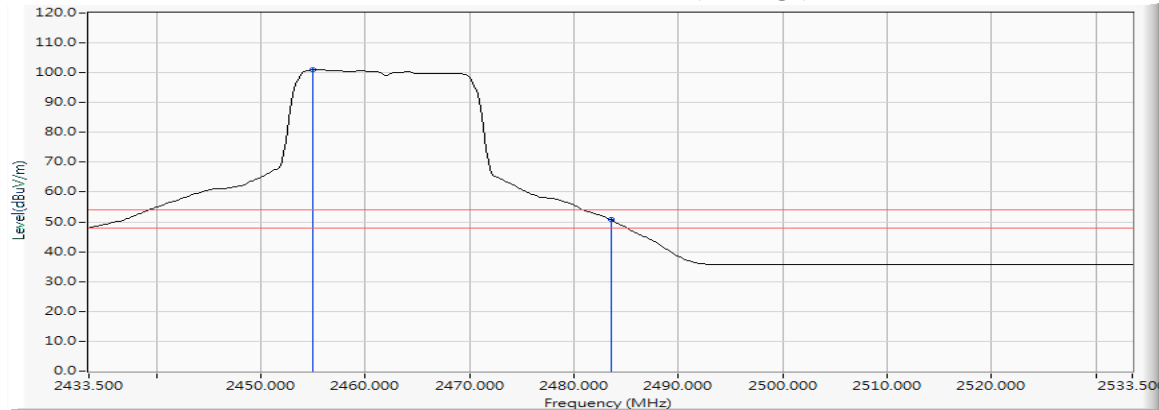
**Figure Channel 11: Horizontal (Peak)****Figure Channel 11: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. " \* ", means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/28

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 11 (Peak)    | 2455.094        | 11.722              | 98.494                     | 110.216                       | --                        | --                           | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 56.260                     | 68.060                        | 74.00                     | 54.00                        | Pass   |
| 11 (Average) | 2454.949        | 11.722              | 89.219                     | 100.940                       | --                        | --                           | --     |
| 11 (Average) | 2483.500        | 11.800              | 38.898                     | 50.698                        | 74.00                     | 54.00                        | Pass   |

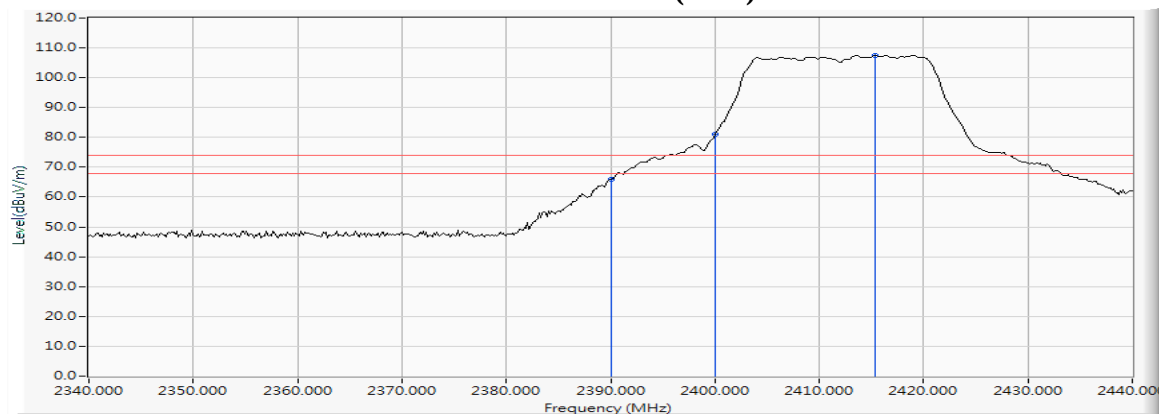
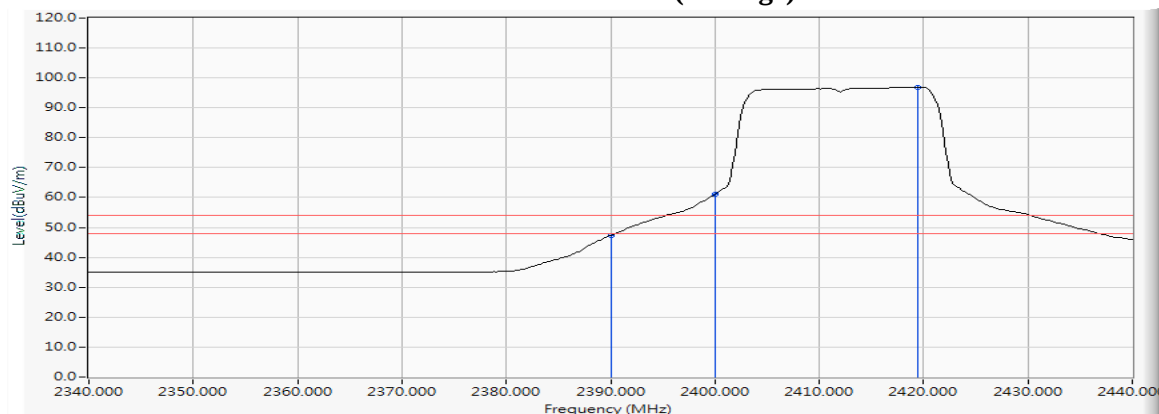
**Figure Channel 11:****VERTICAL (Peak)****Figure Channel 11:****VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 54.444               | 66.000                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 69.514               | 81.093                  | --                  | --                     | --     |
| 01 (Peak)    | 2415.362        | 11.616              | 95.826               | 107.442                 | --                  | --                     | --     |
| 01 (Average) | 2390.000        | 11.556              | 35.833               | 47.389                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 49.535               | 61.114                  | --                  | --                     | --     |
| 01 (Average) | 2419.420        | 11.626              | 85.305               | 96.930                  | --                  | --                     | --     |

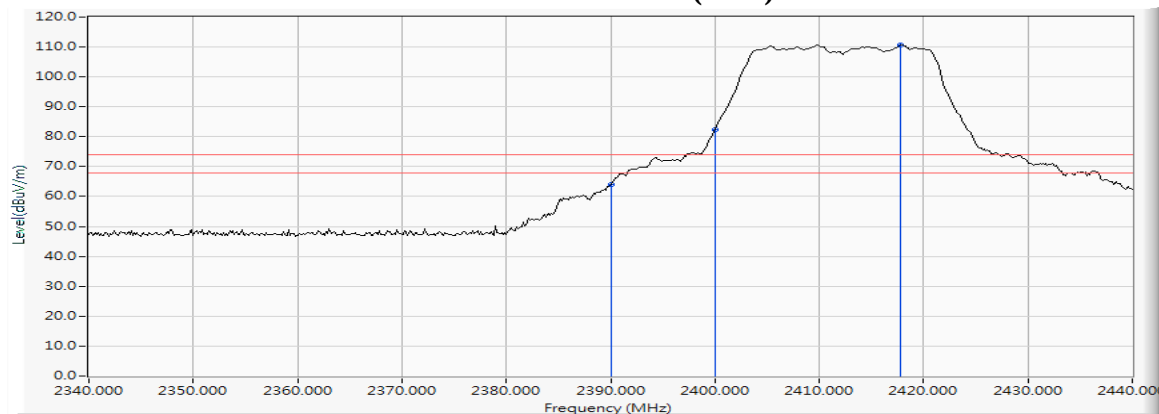
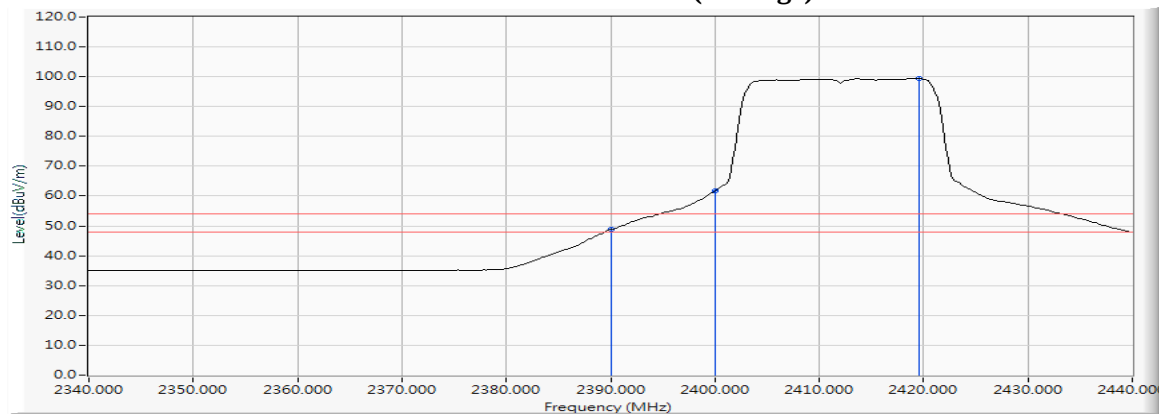
**Figure Channel 01: Horizontal (Peak)****Figure Channel 01: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 01 (Peak)    | 2390.000        | 11.556              | 52.397               | 63.953                  | 74.00               | 54.00                  | Pass   |
| 01 (Peak)    | 2400.000        | 11.579              | 70.877               | 82.456                  | --                  | --                     | --     |
| 01 (Peak)    | 2417.826        | 11.622              | 98.929               | 110.551                 | --                  | --                     | --     |
| 01 (Average) | 2390.000        | 11.556              | 37.220               | 48.776                  | 74.00               | 54.00                  | Pass   |
| 01 (Average) | 2400.000        | 11.579              | 50.160               | 61.739                  | --                  | --                     | --     |
| 01 (Average) | 2419.565        | 11.626              | 87.767               | 99.393                  | --                  | --                     | --     |

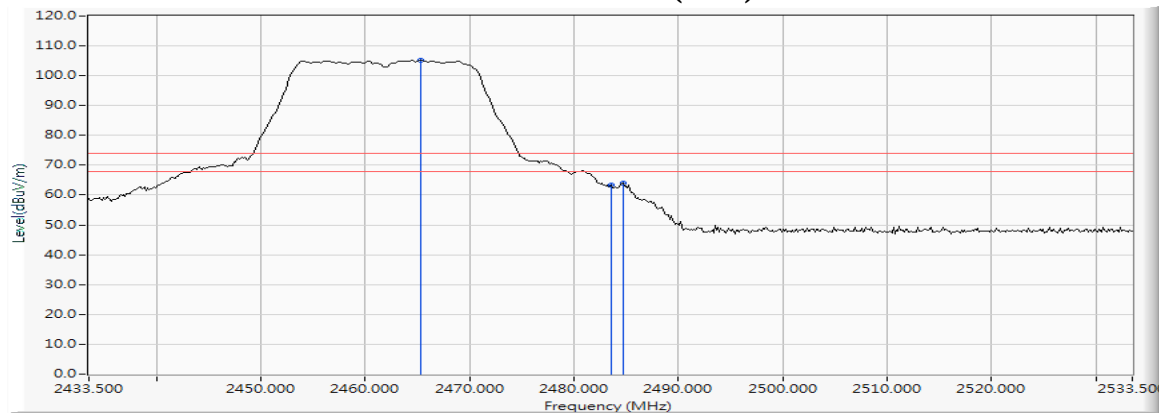
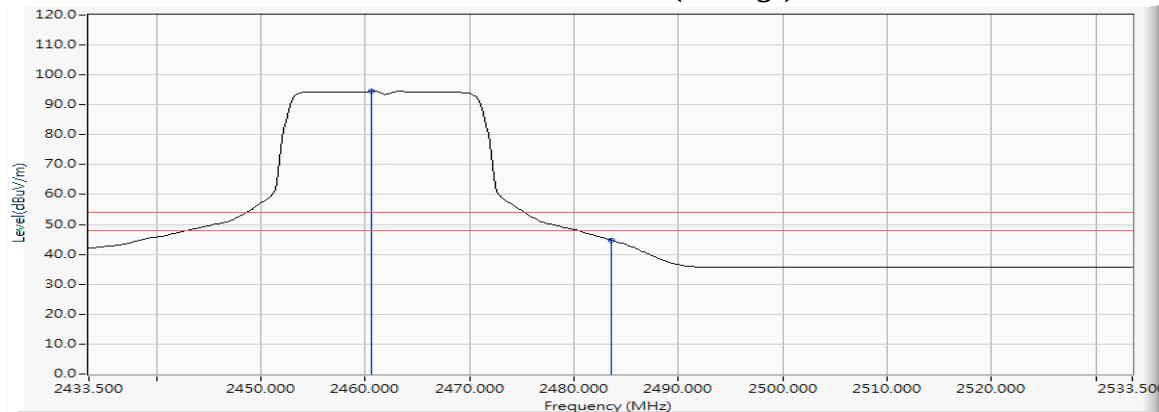
**Figure Channel 01:****VERTICAL (Peak)****Figure Channel 01:****VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11 (Peak)    | 2465.239        | 11.753              | 93.407               | 105.160                 | --                  | --                     | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 51.550               | 63.350                  | 74.00               | 54.00                  | Pass   |
| 11 (Peak)    | 2484.659        | 11.803              | 52.071               | 63.874                  | 74.00               | 54.00                  | Pass   |
| 11 (Average) | 2460.601        | 11.739              | 82.739               | 94.478                  | --                  | --                     | --     |
| 11 (Average) | 2483.500        | 11.800              | 33.013               | 44.813                  | 74.00               | 54.00                  | Pass   |

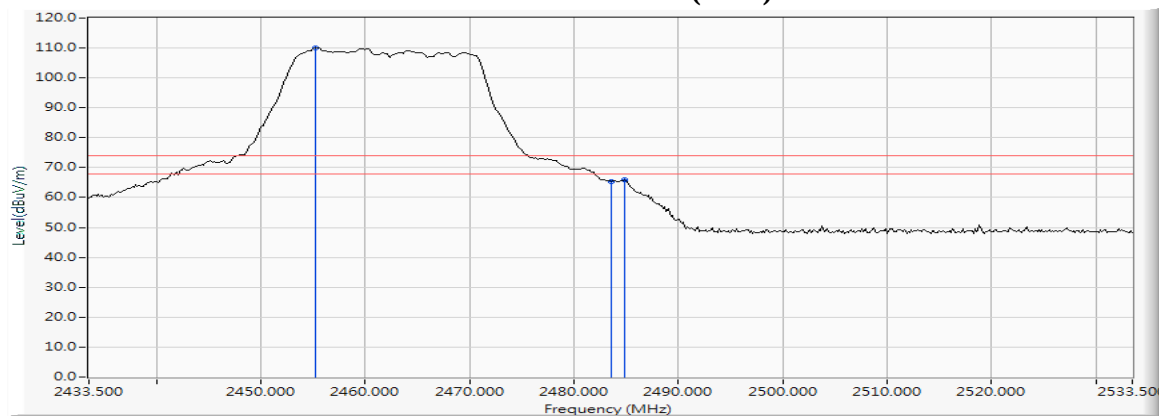
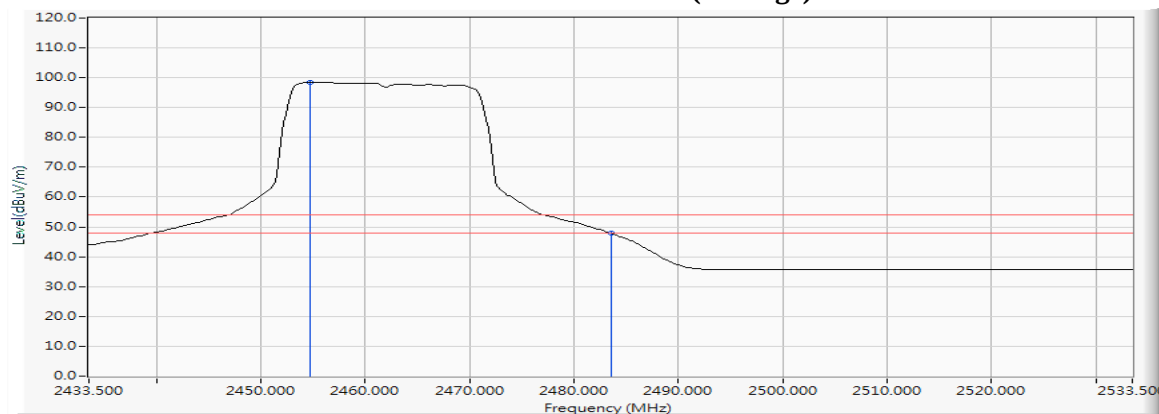
**Figure Channel 11: Horizontal (Peak)****Figure Channel 11: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/28

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 11 (Peak)    | 2455.239        | 11.723              | 98.397                     | 110.119                       | --                        | --                           | --     |
| 11 (Peak)    | 2483.500        | 11.800              | 53.634                     | 65.434                        | 74.00                     | 54.00                        | Pass   |
| 11 (Peak)    | 2484.804        | 11.803              | 54.294                     | 66.097                        | 74.00                     | 54.00                        | Pass   |
| 11 (Average) | 2454.659        | 11.721              | 86.815                     | 98.536                        | --                        | --                           | --     |
| 11 (Average) | 2483.500        | 11.800              | 36.022                     | 47.822                        | 74.00                     | 54.00                        | Pass   |

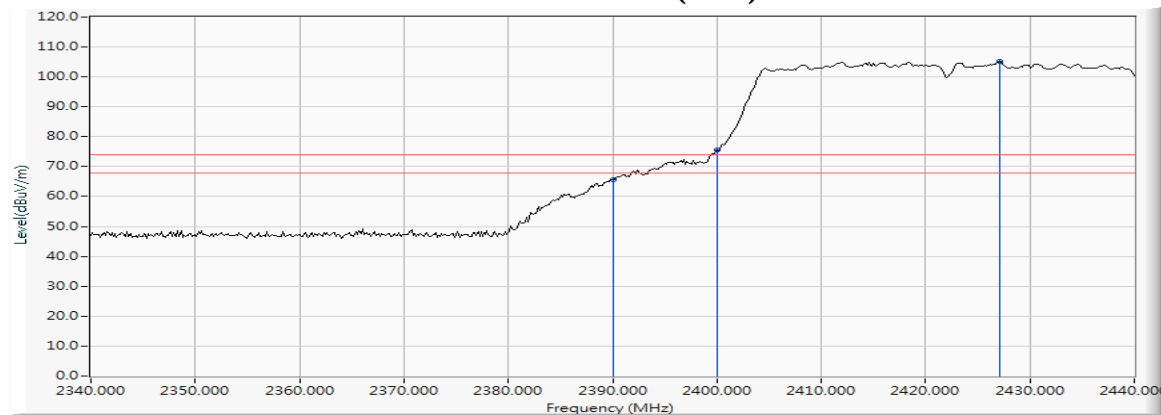
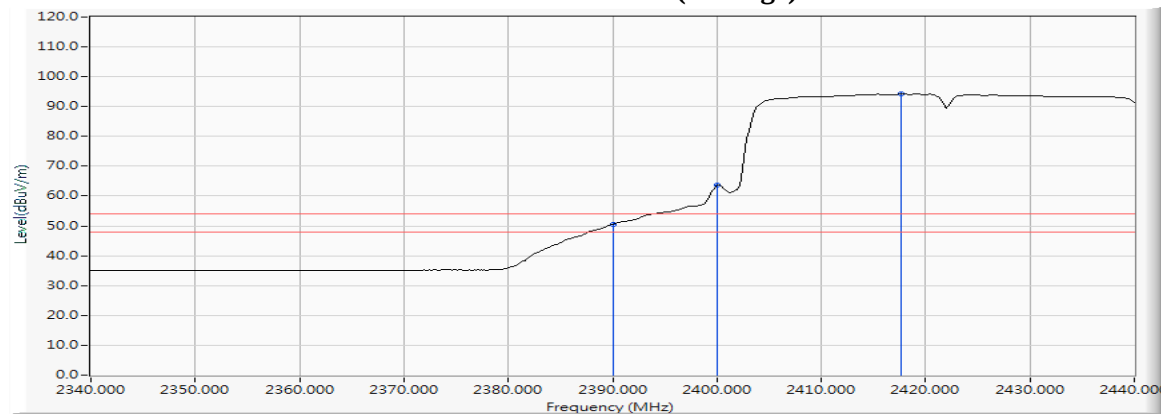
**Figure Channel 11: VERTICAL (Peak)****Figure Channel 11: VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 03 (Peak)    | 2390.000        | 11.556              | 53.999               | 65.555                  | 74.00               | 54.00                  | Pass   |
| 03 (Peak)    | 2400.000        | 11.579              | 63.945               | 75.524                  | --                  | --                     | --     |
| 03 (Peak)    | 2427.101        | 11.644              | 93.452               | 105.096                 | --                  | --                     | --     |
| 03 (Average) | 2390.000        | 11.556              | 39.067               | 50.623                  | 74.00               | 54.00                  | Pass   |
| 03 (Average) | 2400.000        | 11.579              | 51.989               | 63.568                  | --                  | --                     | --     |
| 03 (Average) | 2417.681        | 11.621              | 82.573               | 94.194                  | --                  | --                     | --     |

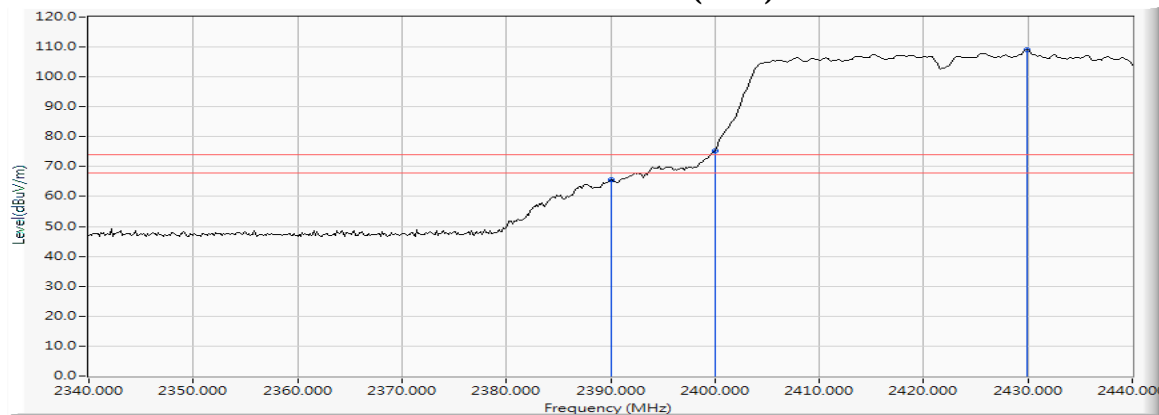
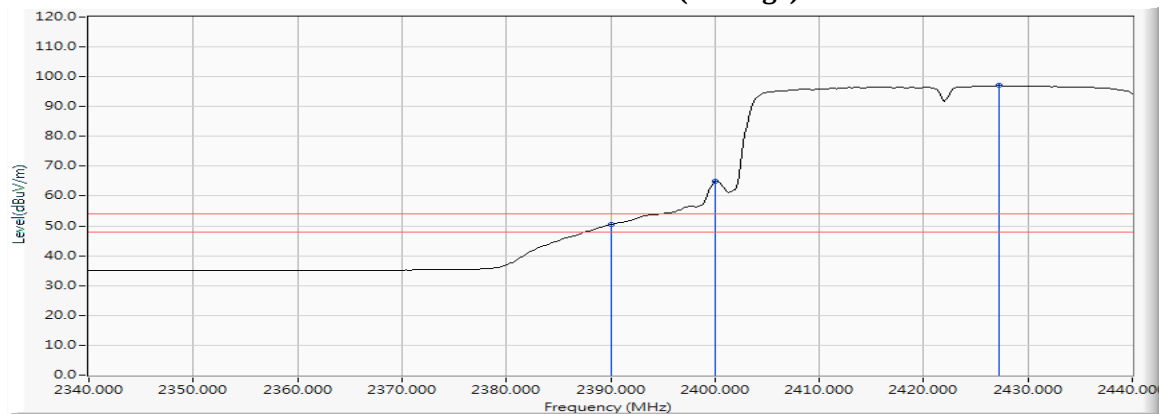
**Figure Channel 03: Horizontal (Peak)****Figure Channel 03: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (VERTICAL):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 03 (Peak)    | 2390.000        | 11.556              | 54.067                     | 65.623                        | 74.00                     | 54.00                        | Pass   |
| 03 (Peak)    | 2400.000        | 11.579              | 63.736                     | 75.315                        | --                        | --                           | --     |
| 03 (Peak)    | 2429.855        | 11.651              | 97.346                     | 108.996                       | --                        | --                           | --     |
| 03 (Average) | 2390.000        | 11.556              | 38.873                     | 50.429                        | 74.00                     | 54.00                        | Pass   |
| 03 (Average) | 2400.000        | 11.579              | 53.267                     | 64.846                        | --                        | --                           | --     |
| 03 (Average) | 2427.246        | 11.644              | 85.383                     | 97.027                        | --                        | --                           | --     |

**Figure Channel 03: VERTICAL (Peak)****Figure Channel 03: VERTICAL (Average)**

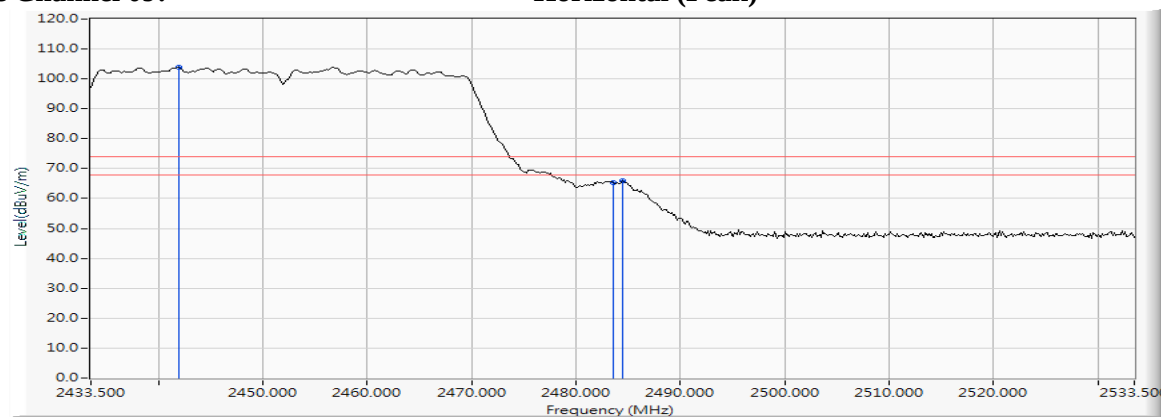
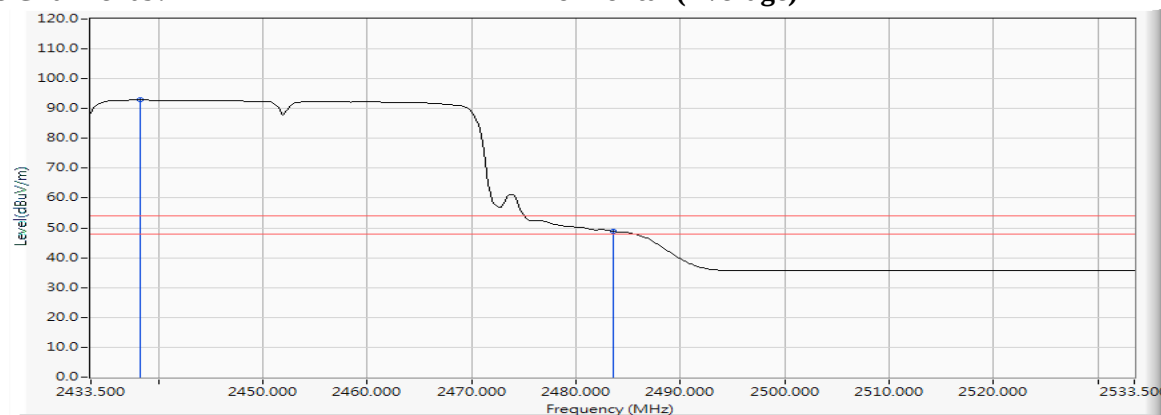
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. " \* ", means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 09 (Peak)    | 2441.906        | 11.684              | 92.164               | 103.847                 | --                  | --                     | --     |
| 09 (Peak)    | 2483.500        | 11.800              | 53.588               | 65.388                  | 74.00               | 54.00                  | Pass   |
| 09 (Peak)    | 2484.514        | 11.801              | 54.075               | 65.877                  | 74.00               | 54.00                  | Pass   |
| 09 (Average) | 2438.283        | 11.673              | 81.232               | 92.904                  | --                  | --                     | --     |
| 09 (Average) | 2483.500        | 11.800              | 37.110               | 48.910                  | 74.00               | 54.00                  | Pass   |

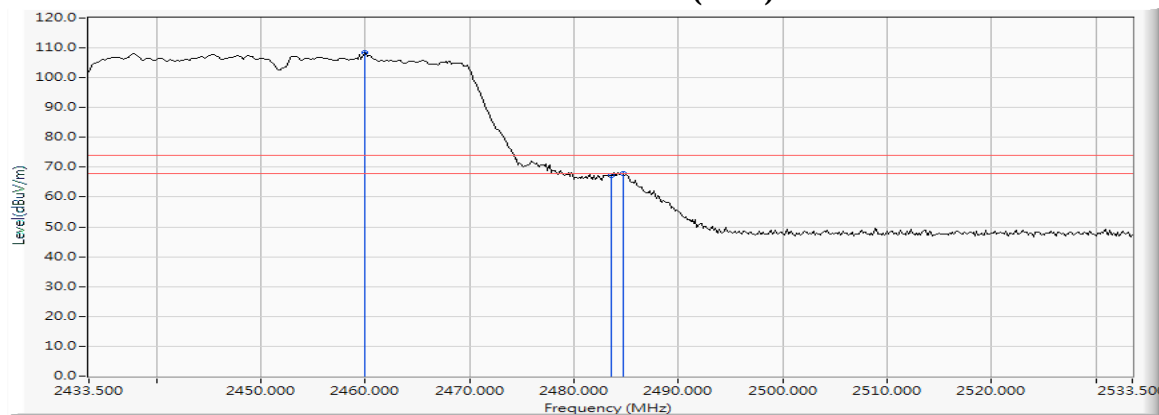
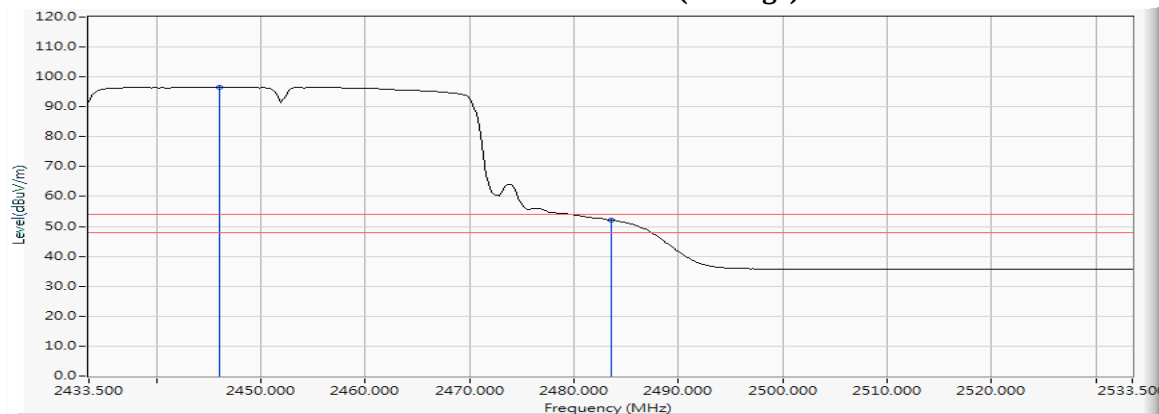
**Figure Channel 09: Horizontal (Peak)****Figure Channel 09: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : LTE Router  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)  
 (M/N : WA-12M12FU)  
 Test Date : 2017/04/27

**RF Radiated Measurement (VERTICAL):**

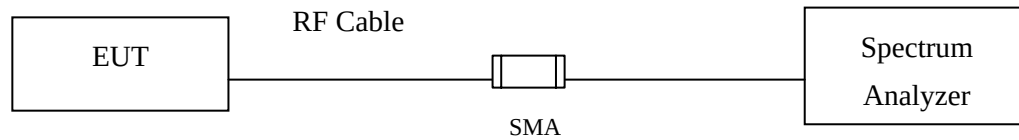
| Channel No.  | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 09 (Peak)    | 2459.877        | 11.736              | 96.643               | 108.379                 | --                  | --                     | --     |
| 09 (Peak)    | 2483.500        | 11.800              | 55.429               | 67.229                  | 74.00               | 54.00                  | Pass   |
| 09 (Peak)    | 2484.659        | 11.803              | 56.134               | 67.937                  | 74.00               | 54.00                  | Pass   |
| 09 (Average) | 2445.964        | 11.695              | 84.971               | 96.666                  | --                  | --                     | --     |
| 09 (Average) | 2483.500        | 11.800              | 40.376               | 52.176                  | 74.00               | 54.00                  | Pass   |

**Figure Channel 09: VERTICAL (Peak)****Figure Channel 09: VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

## 7. 6dB Bandwidth

### 7.1. Test Setup



### 7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 7.4. Uncertainty

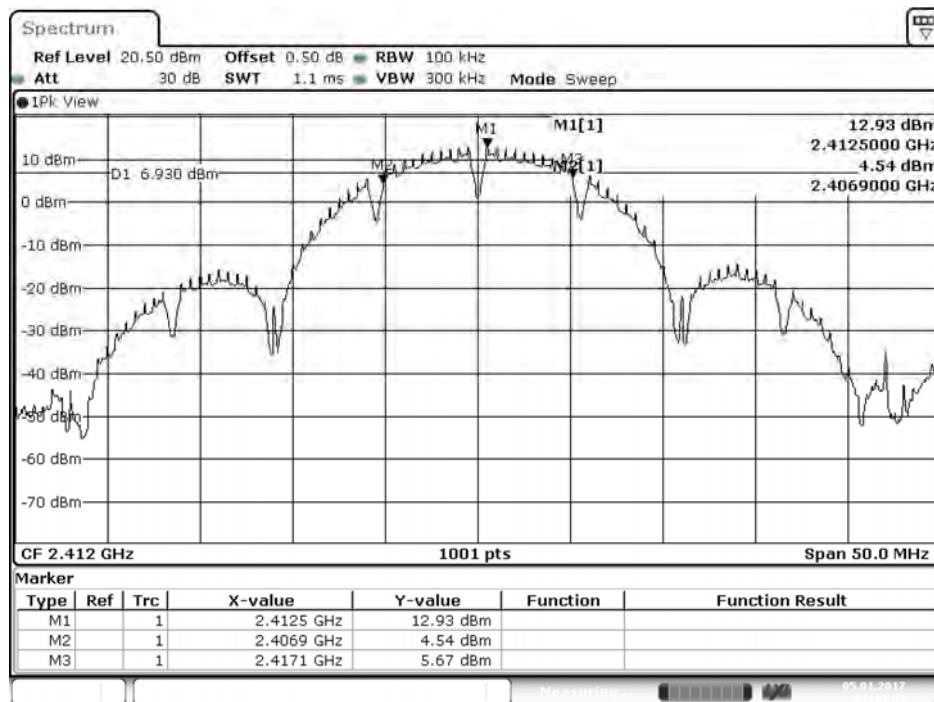
$\pm 279.2\text{Hz}$

## 7.5. Test Result of 6dB Bandwidth

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2017/01/05

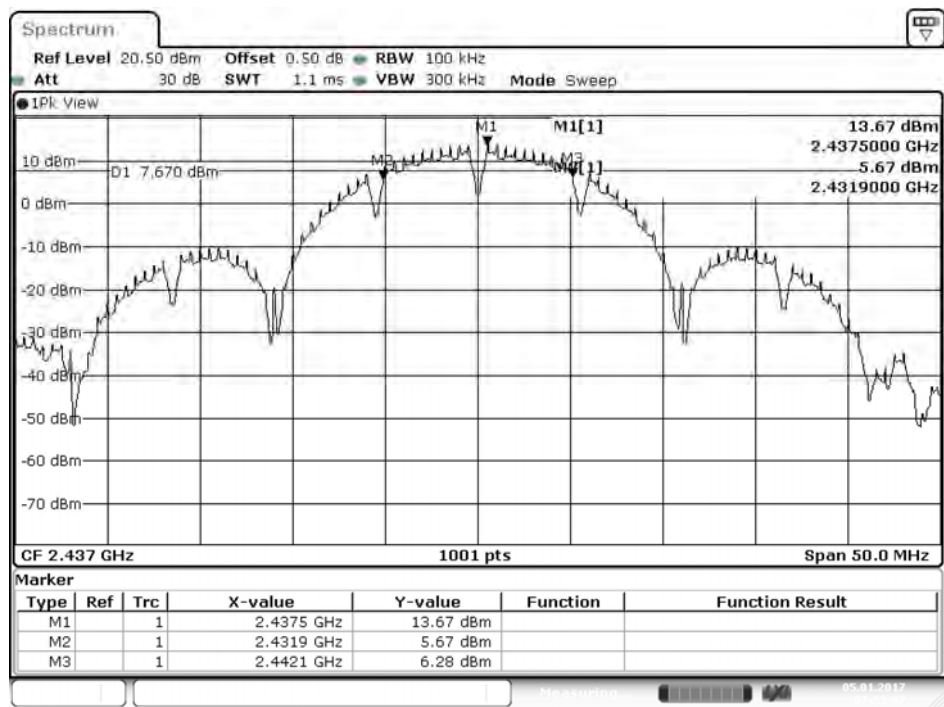
| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 10200                   | >500                 | Pass   |
| 06          | 2437            | 10200                   | >500                 | Pass   |
| 11          | 2462            | 10200                   | >500                 | Pass   |

**Figure Channel 01:**



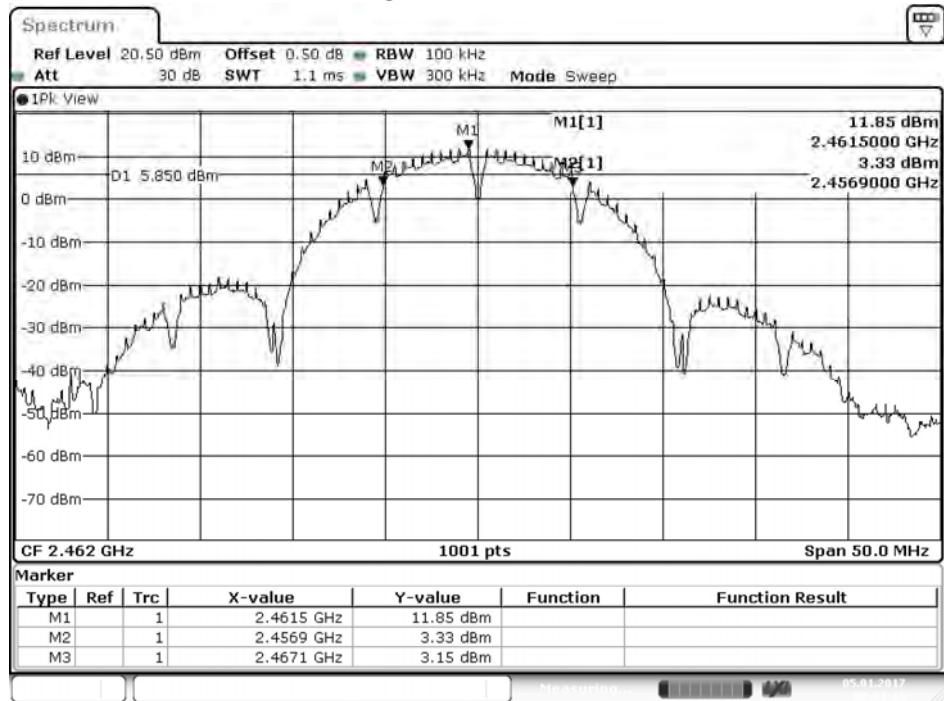
Date: 5.JAN.2017 07:49:00

Figure Channel 06:



Date: 5.JAN.2017 07:55:07

Figure Channel 11:

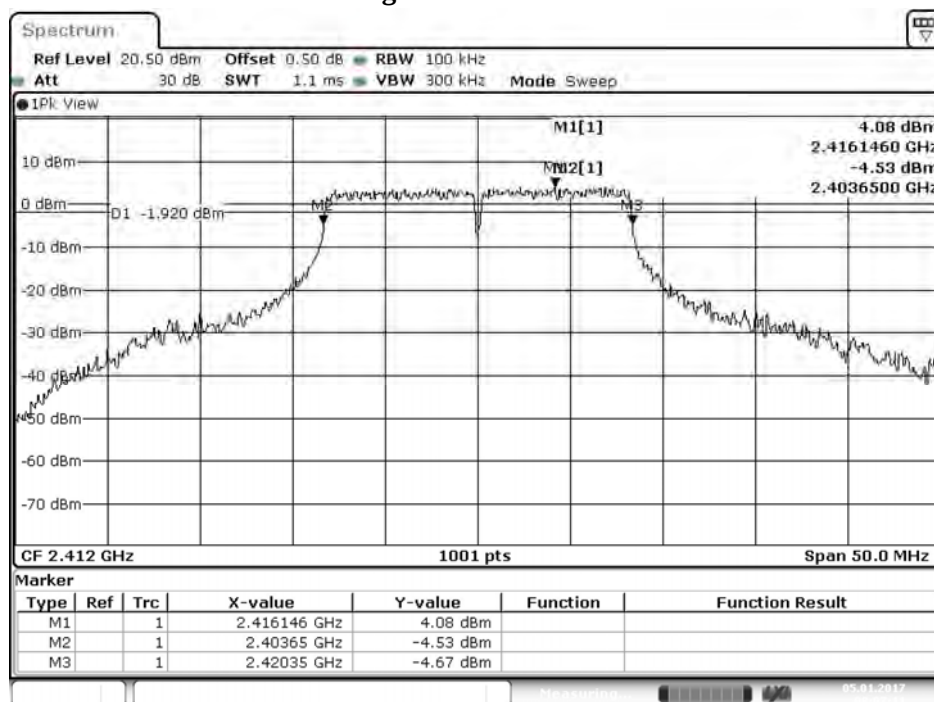


Date: 5.JAN.2017 08:01:19

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/01/05

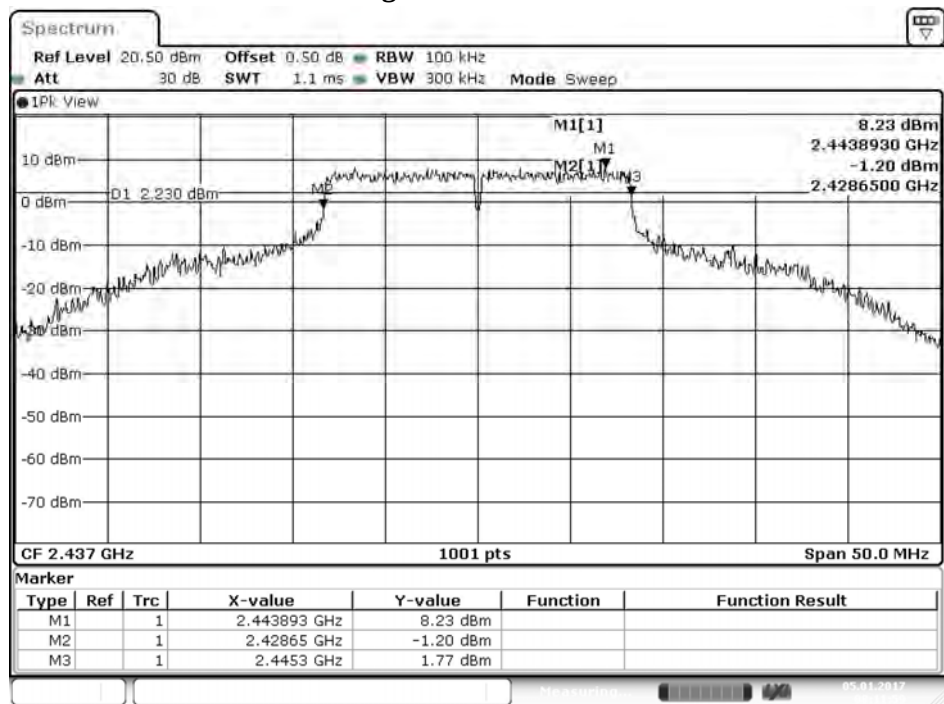
| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 16700                   | >500                 | Pass   |
| 06          | 2437            | 16650                   | >500                 | Pass   |
| 11          | 2462            | 16650                   | >500                 | Pass   |

Figure Channel 01:



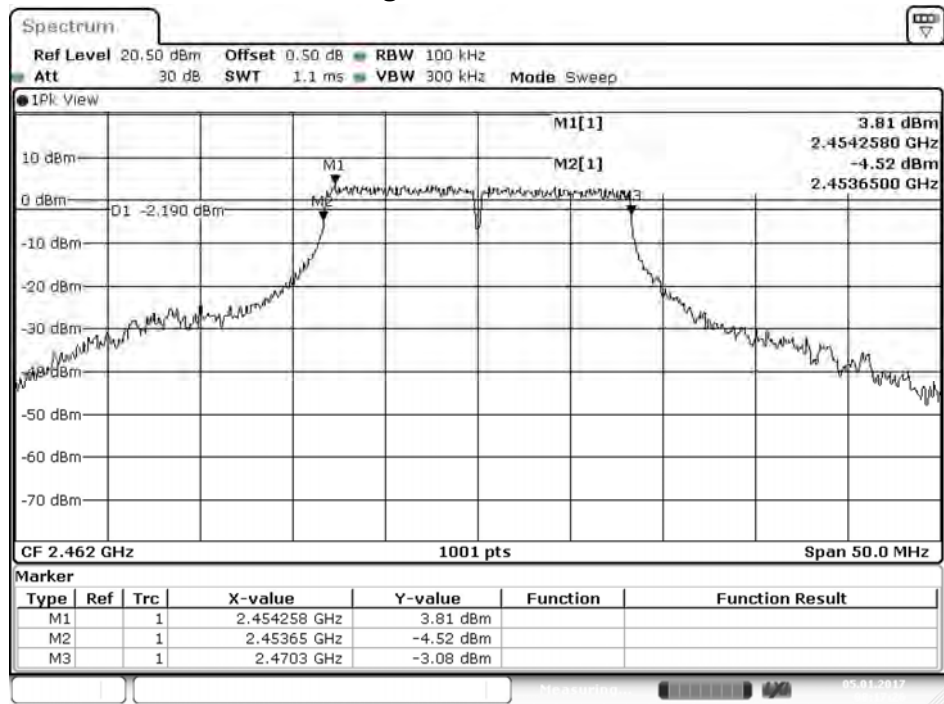
Date: 5.JAN.2017 08:07:11

Figure Channel 06:



Date: 5.JAN.2017 08:11:59

Figure Channel 11:



Date: 5.JAN.2017 08:17:27

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
 Test Date : 2017/01/05

### Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 17900                   | >500                 | Pass   |
| 06          | 2437            | 17900                   | >500                 | Pass   |
| 11          | 2462            | 17900                   | >500                 | Pass   |

Figure Channel 01: (Chain A)

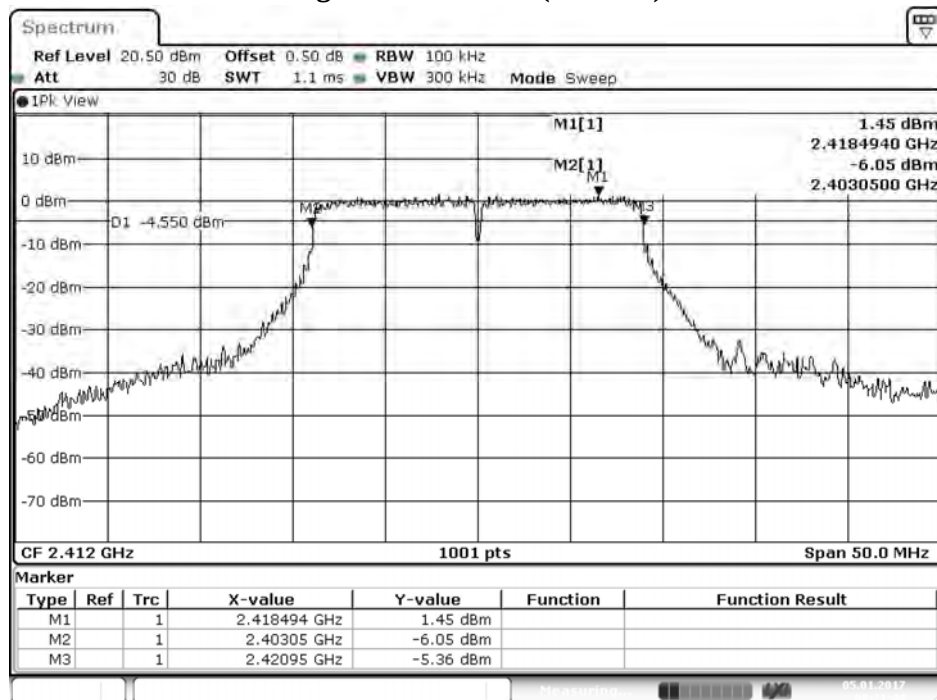
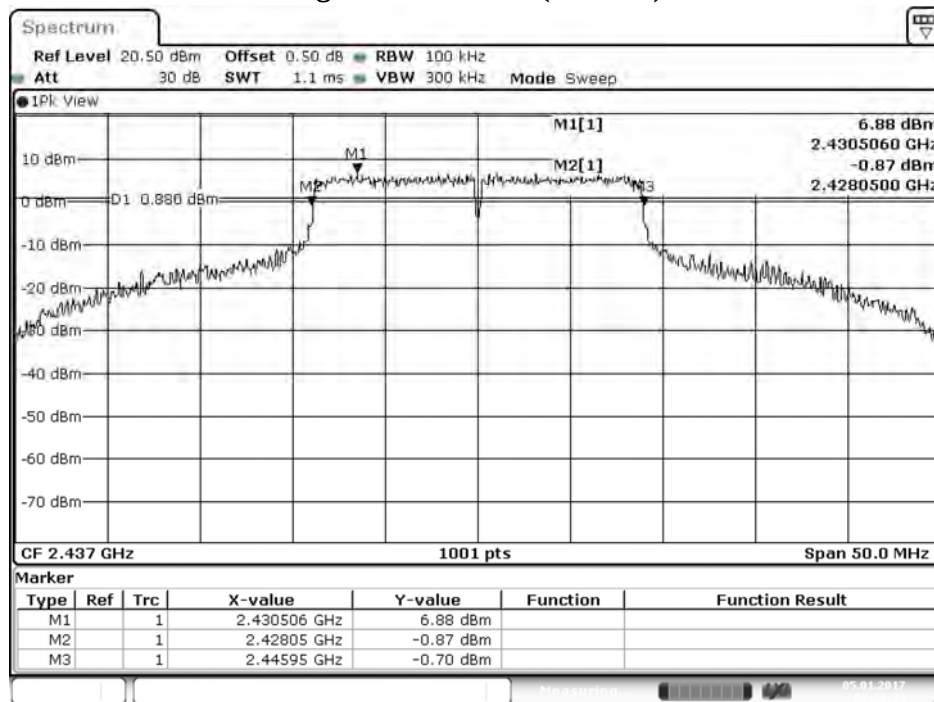


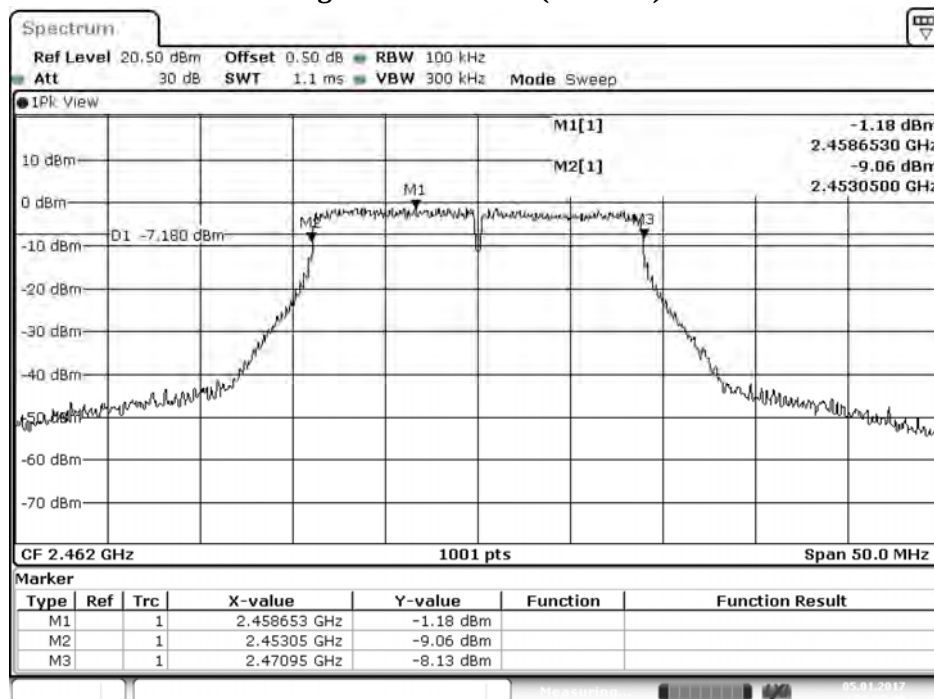


Figure Channel 06: (Chain A)



Date: 5.JAN.2017 08:26:35

Figure Channel 11: (Chain A)

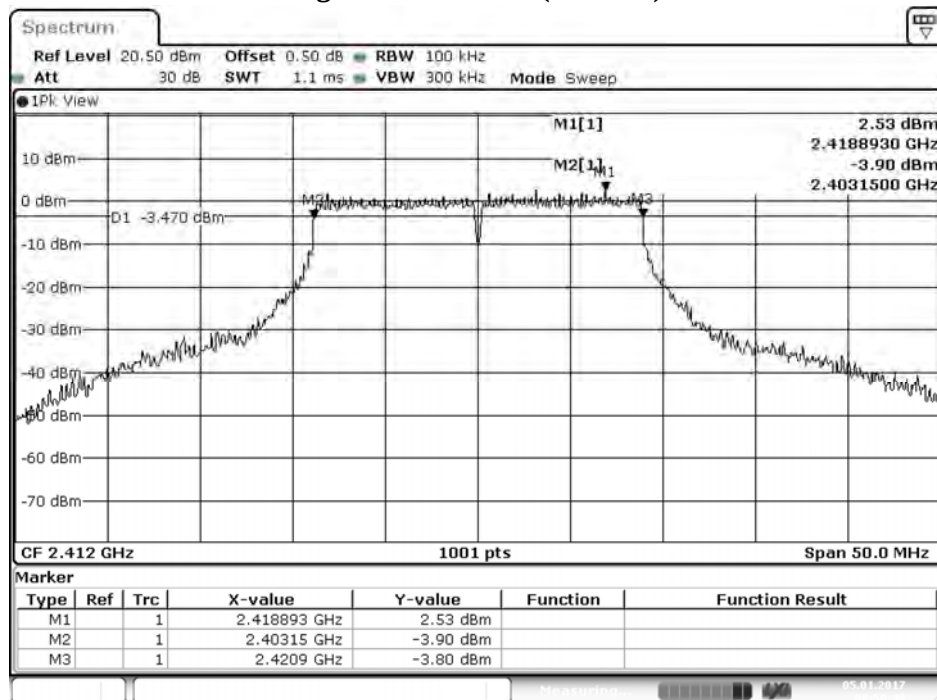


Date: 5.JAN.2017 08:30:41

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
 Test Date : 2017/01/05

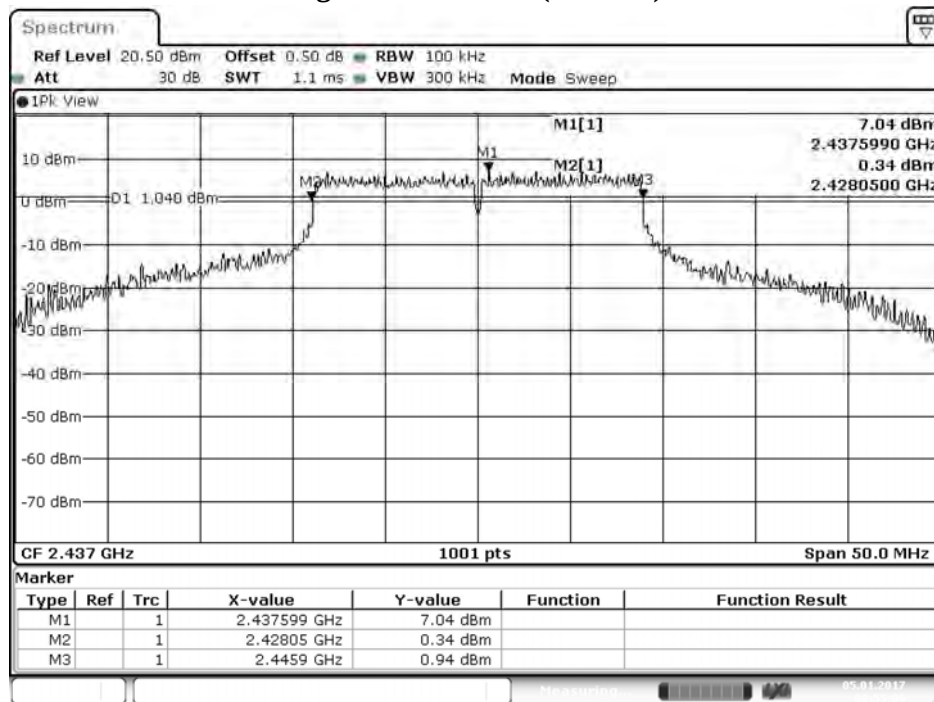
**Chain B**

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 17800                   | >500                 | Pass   |
| 06          | 2437            | 17850                   | >500                 | Pass   |
| 11          | 2462            | 17850                   | >500                 | Pass   |

**Figure Channel 01: (Chain B)**

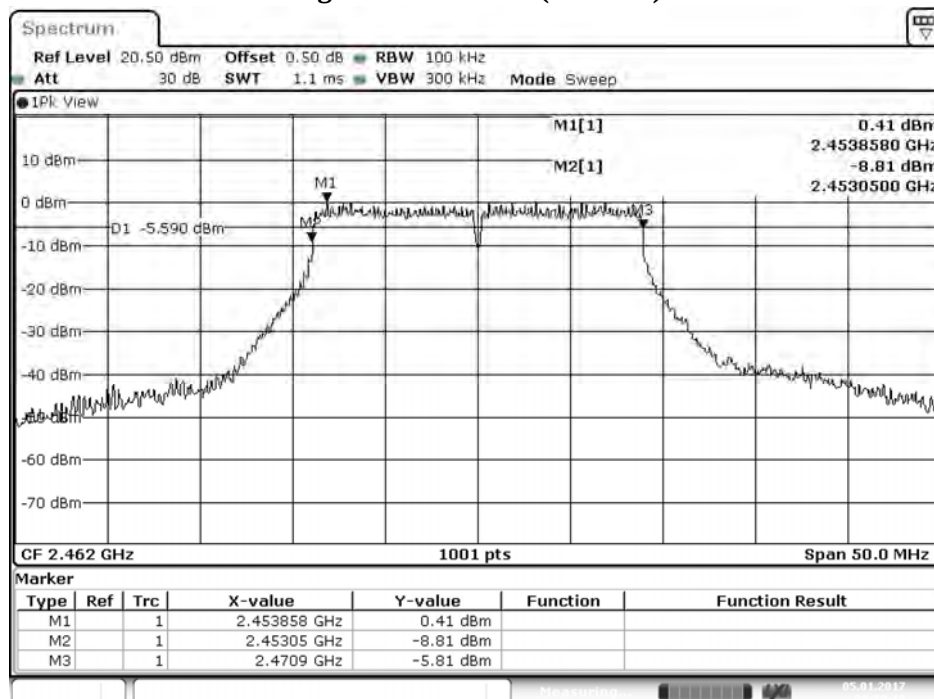
Date: 5.JAN.2017 08:50:48

Figure Channel 06: (Chain B)



Date: 5.JAN.2017 08:55:07

Figure Channel 11: (Chain B)



Date: 5.JAN.2017 08:59:13

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
 Test Date : 2017/01/05

### Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 03          | 2422            | 36500                   | >500                 | Pass   |
| 06          | 2437            | 36600                   | >500                 | Pass   |
| 09          | 2452            | 36600                   | >500                 | Pass   |

Figure Channel 03: (Chain A)

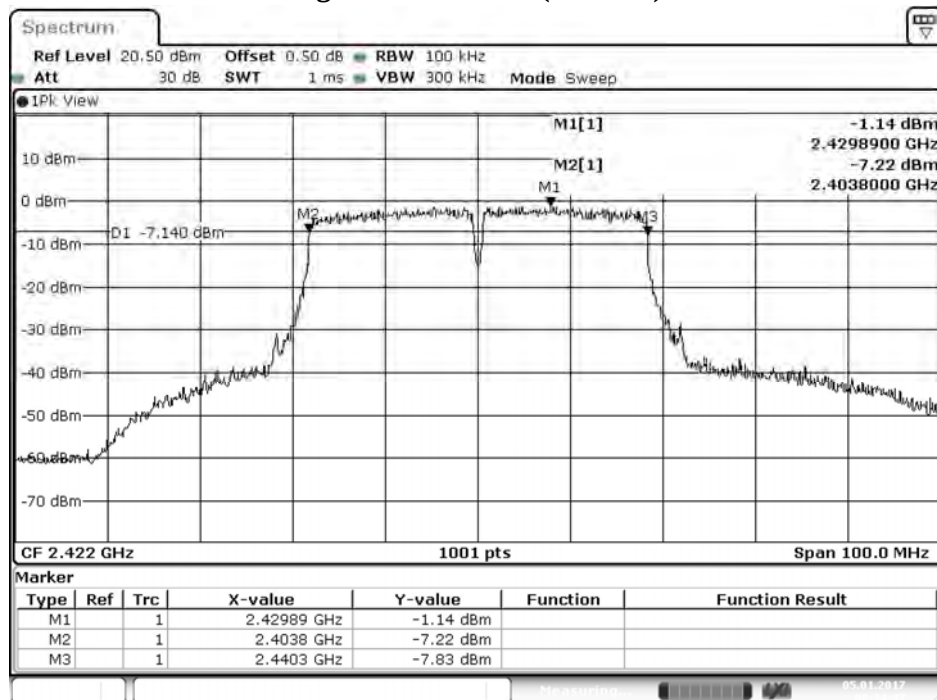
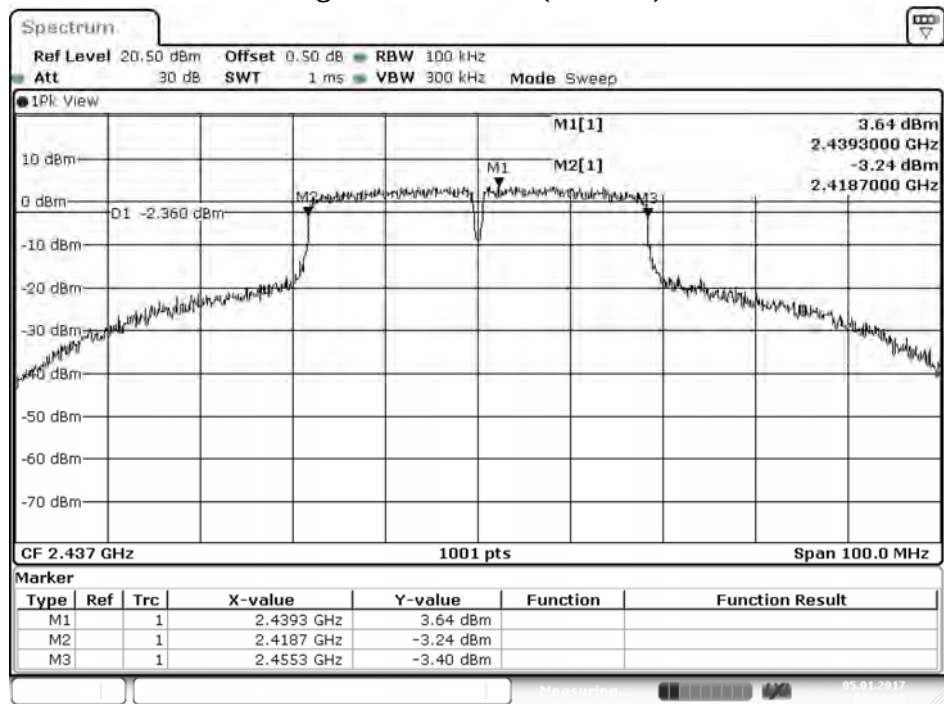
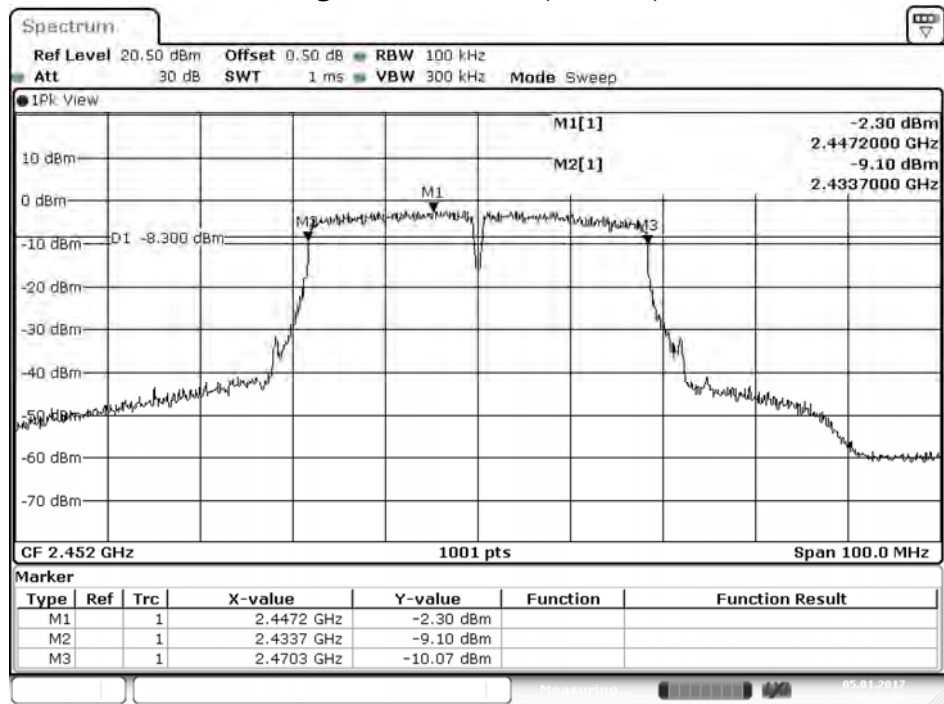


Figure Channel 06: (Chain A)



Date: 5.JAN.2017 08:38:59

Figure Channel 09: (Chain A)



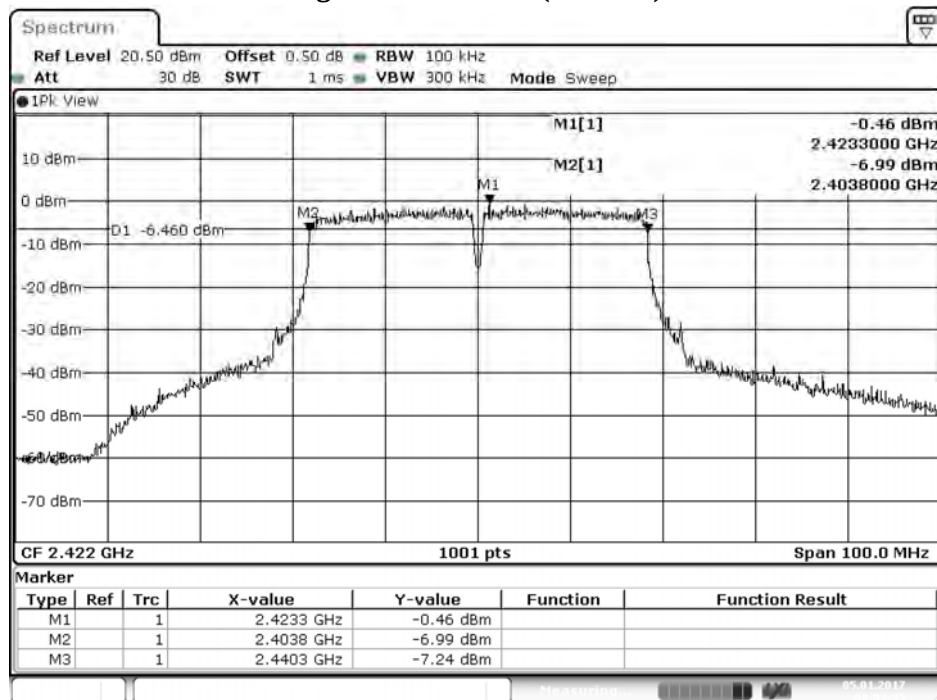
Date: 5.JAN.2017 08:42:57

Product : LTE Router  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
 Test Date : 2017/01/05

### Chain B

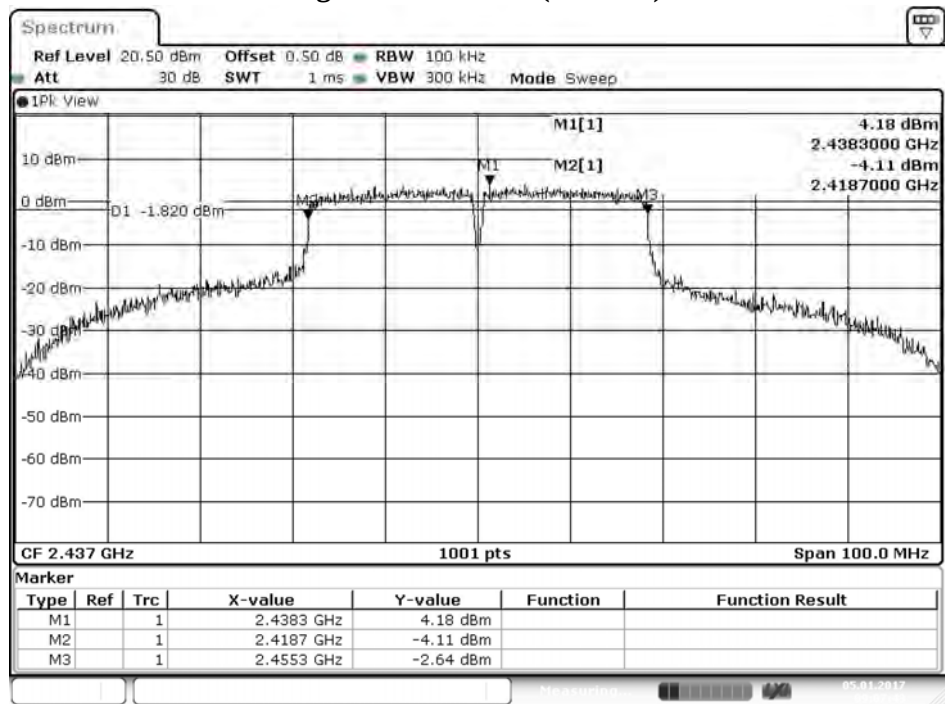
| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 03          | 2422            | 36500                   | >500                 | Pass   |
| 06          | 2437            | 36600                   | >500                 | Pass   |
| 09          | 2452            | 36600                   | >500                 | Pass   |

Figure Channel 03: (Chain B)



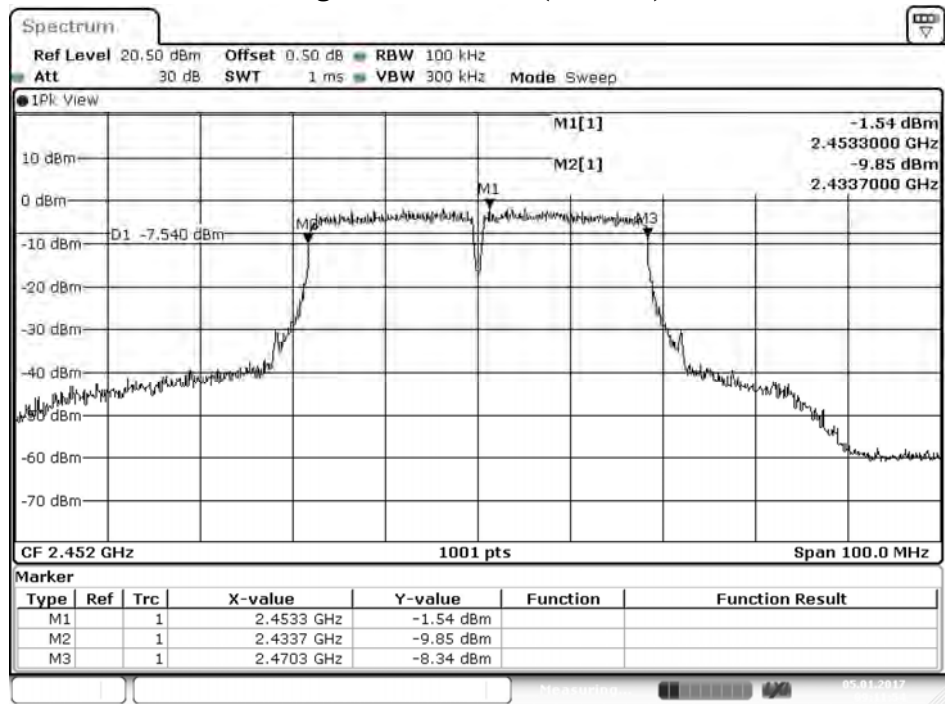
Date: 5.JAN.2017 09:03:35

Figure Channel 06: (Chain B)



Date: 5.JAN.2017 09:07:44

Figure Channel 09: (Chain B)

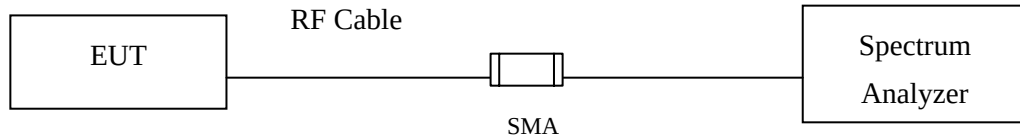


Date: 5.JAN.2017 09:11:54



## 8. Power Density

### 8.1. Test Setup



### 8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

### 8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

### 8.4. Uncertainty

$\pm 1.23$  dB

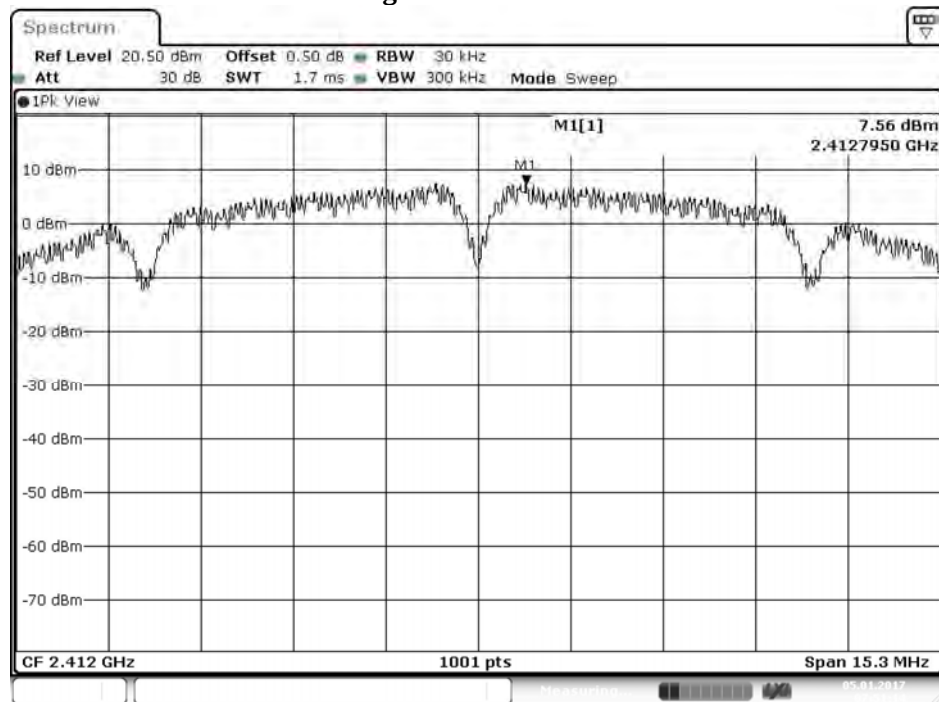


## 8.5. Test Result of Power Density

Product : LTE Router  
 Test Item : Power Density Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2017/01/05

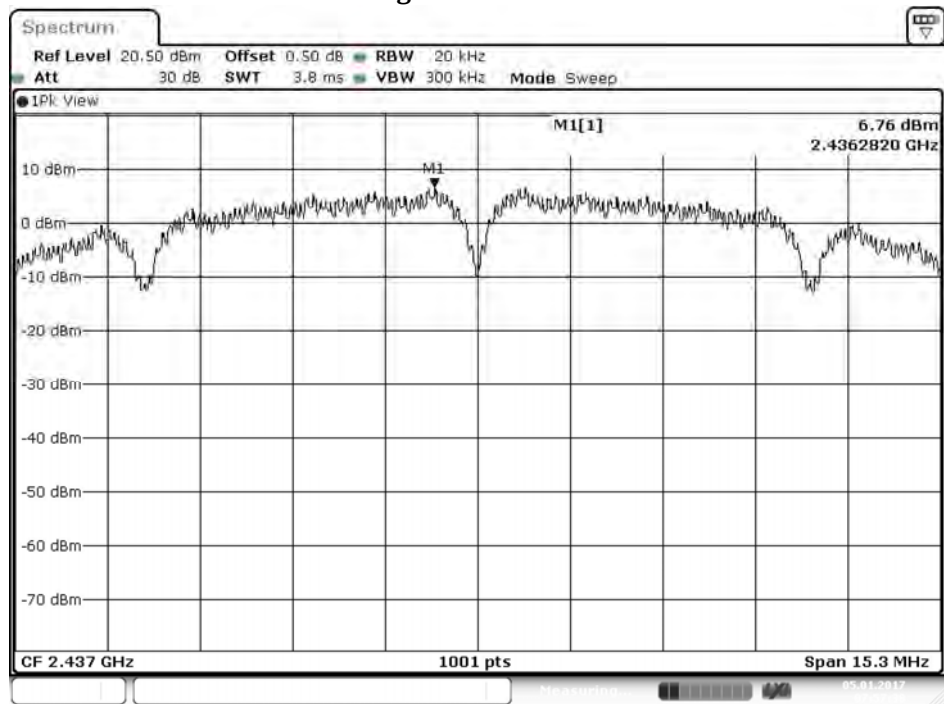
| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)        | Result |
|-------------|-----------------|---------------------|--------------------|--------|
| 01          | 2412            | 7.560               | $\leq 8\text{dBm}$ | Pass   |
| 06          | 2437            | 6.760               | $\leq 8\text{dBm}$ | Pass   |
| 11          | 2462            | 6.760               | $\leq 8\text{dBm}$ | Pass   |

Figure Channel 01:



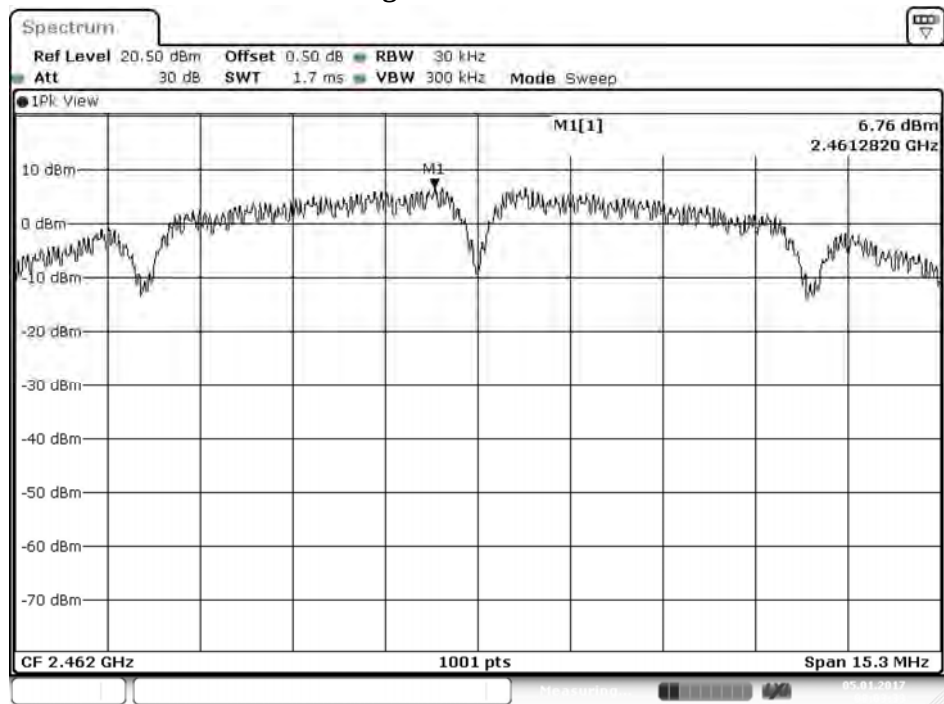
Date: 5.JAN.2017 07:51:14

Figure Channel 06:



Date: 5.JAN.2017 07:57:38

Figure Channel 11:

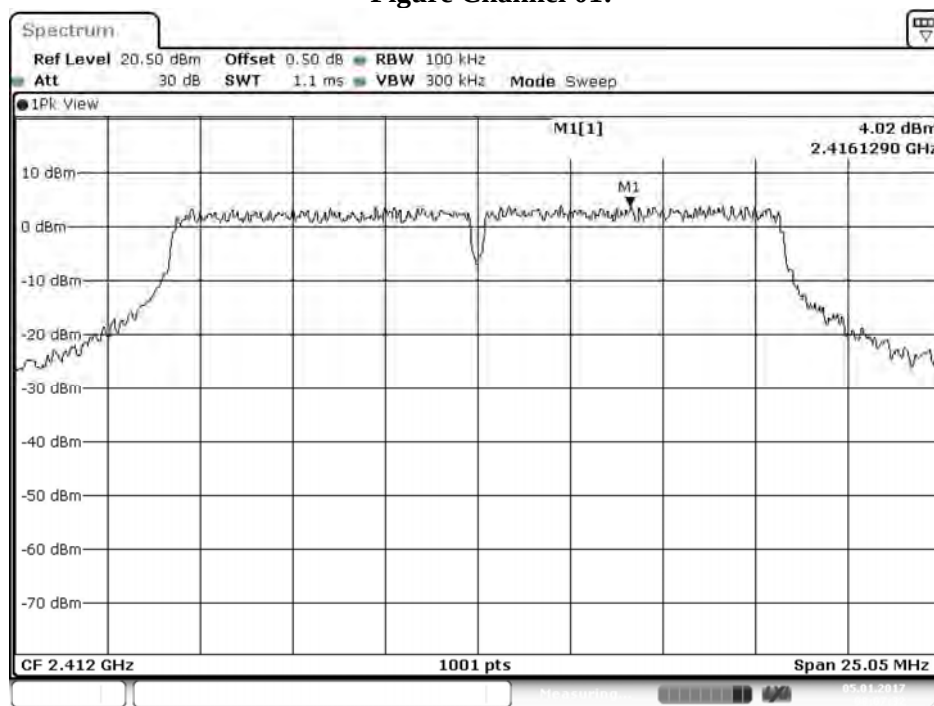


Date: 5.JAN.2017 08:03:33

Product : LTE Router  
 Test Item : Power Density Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
 Test Date : 2017/01/05

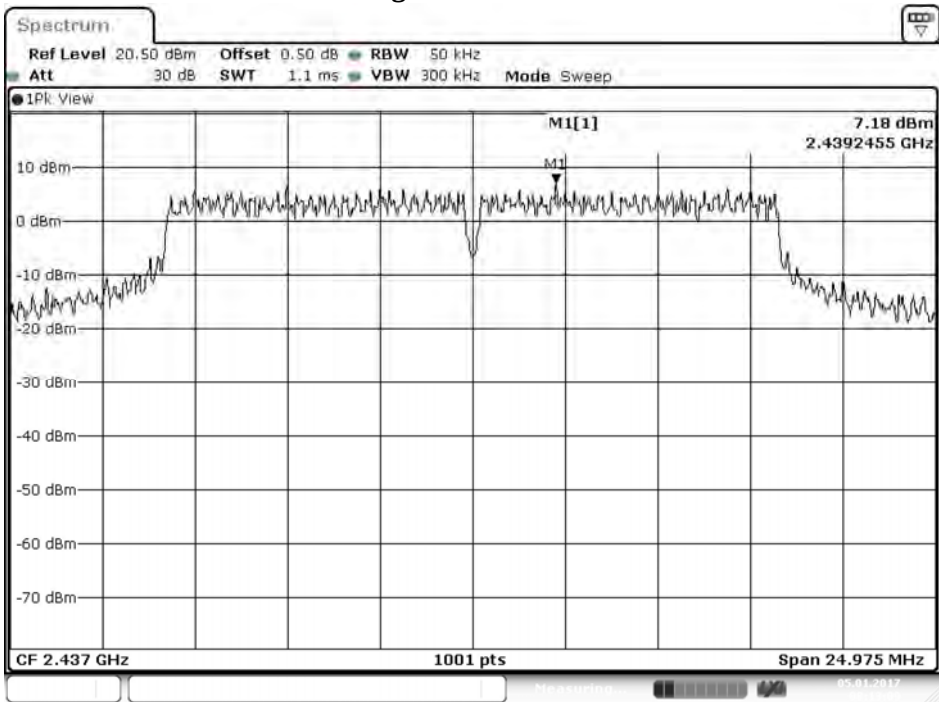
| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)        | Result |
|-------------|-----------------|---------------------|--------------------|--------|
| 01          | 2412            | 4.020               | $\leq 8\text{dBm}$ | Pass   |
| 06          | 2437            | 7.180               | $\leq 8\text{dBm}$ | Pass   |
| 11          | 2462            | 3.850               | $\leq 8\text{dBm}$ | Pass   |

Figure Channel 01:



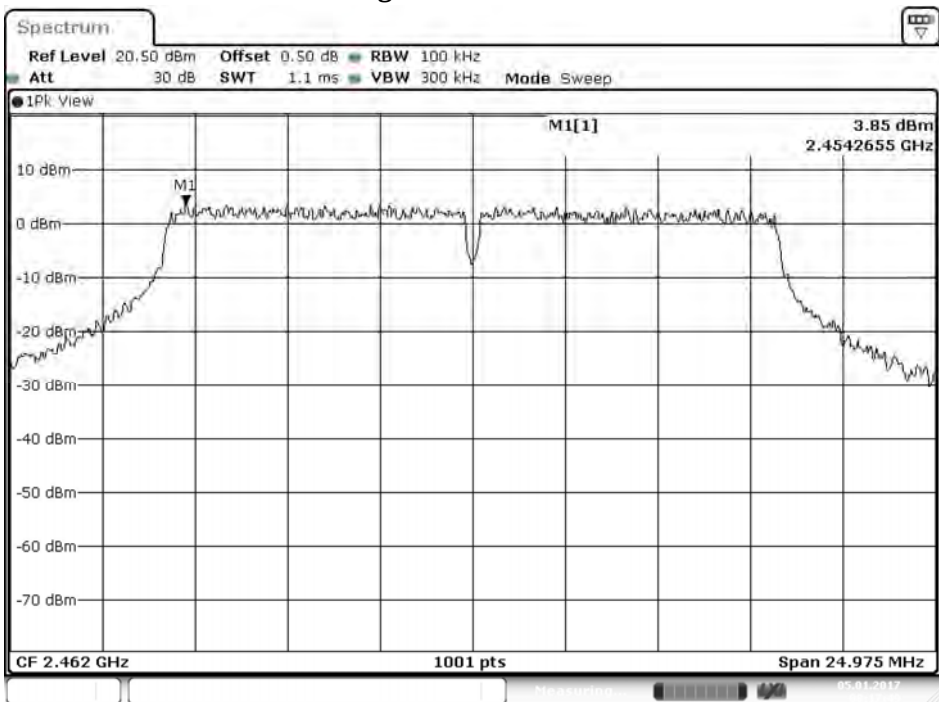
Date: 5.JAN.2017 08:07:32

Figure Channel 06:



Date: 5.JAN.2017 08:13:09

Figure Channel 11:



Date: 5.JAN.2017 08:17:49

Product : LTE Router  
 Test Item : Power Density Data  
 Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)  
 Test Date : 2017/01/05

| Channel No. | Frequency (MHz) | Chain | PPSD/MHz (dBm) | Total PPSD/MHz (dBm) | Limit (dBm)        | Result |
|-------------|-----------------|-------|----------------|----------------------|--------------------|--------|
| 01          | 2412.000        | A     | 1.420          | 4.430                | $\leq 8\text{dBm}$ | Pass   |
|             |                 | B     | -1.530         | 1.480                | $\leq 8\text{dBm}$ | Pass   |
| 06          | 2437.000        | A     | 4.230          | 7.240                | $\leq 8\text{dBm}$ | Pass   |
|             |                 | B     | 4.020          | 7.030                | $\leq 8\text{dBm}$ | Pass   |
| 11          | 2462.000        | A     | -0.940         | 2.070                | $\leq 8\text{dBm}$ | Pass   |
|             |                 | B     | 0.320          | 3.330                | $\leq 8\text{dBm}$ | Pass   |

Figure Channel 1: (Chain A)

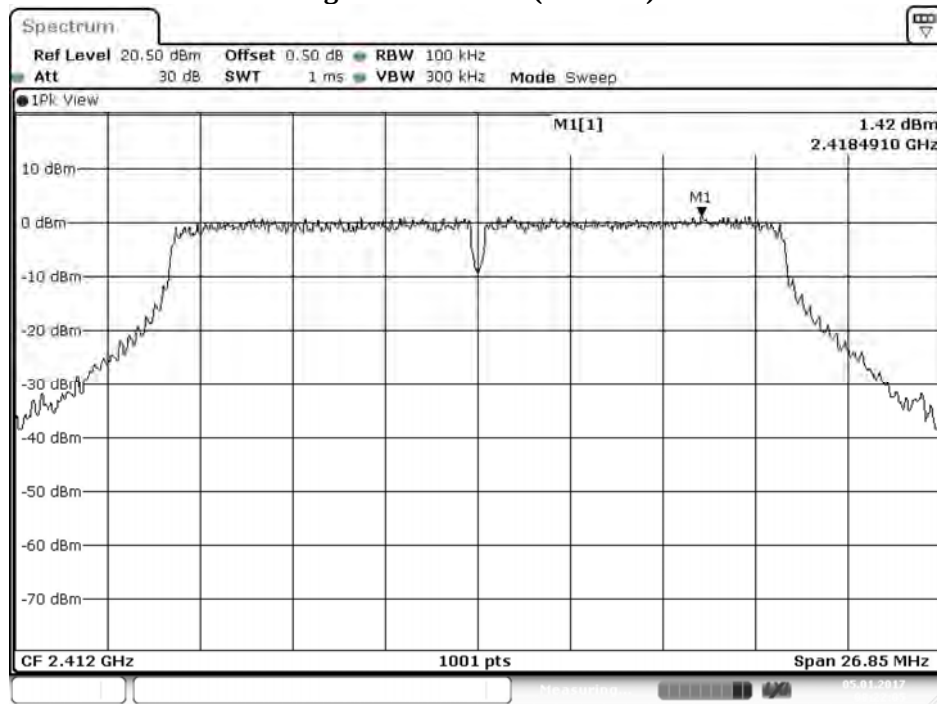
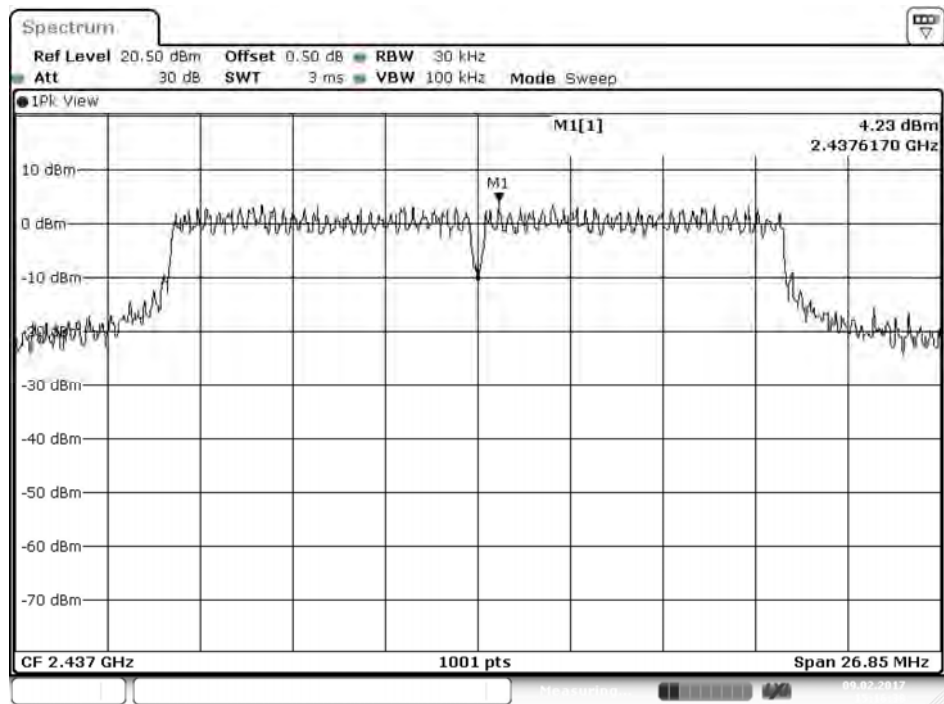
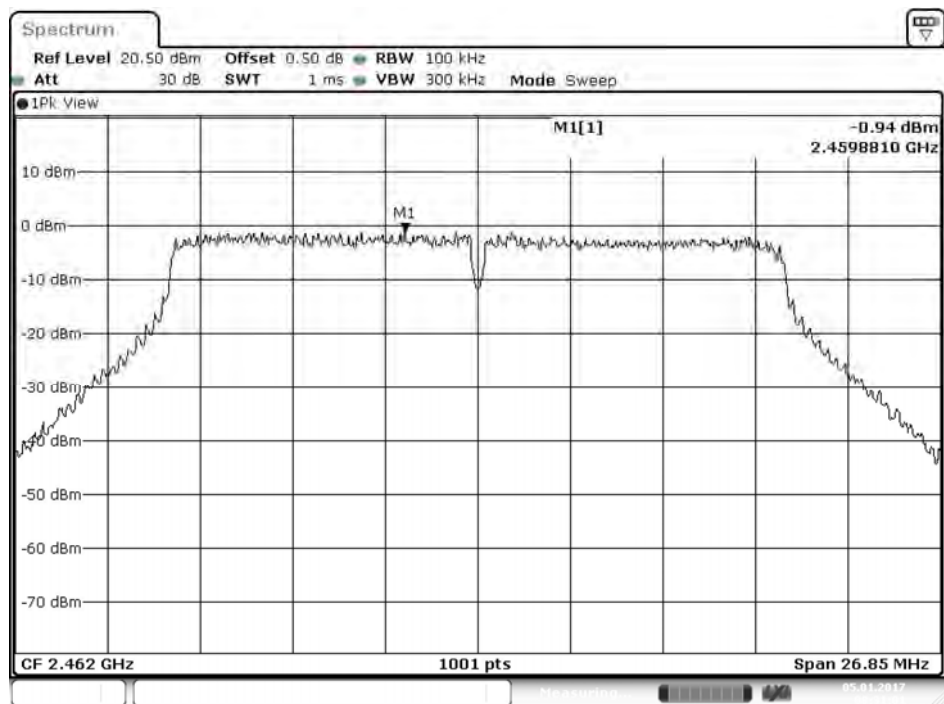


Figure Channel 6: (Chain A)



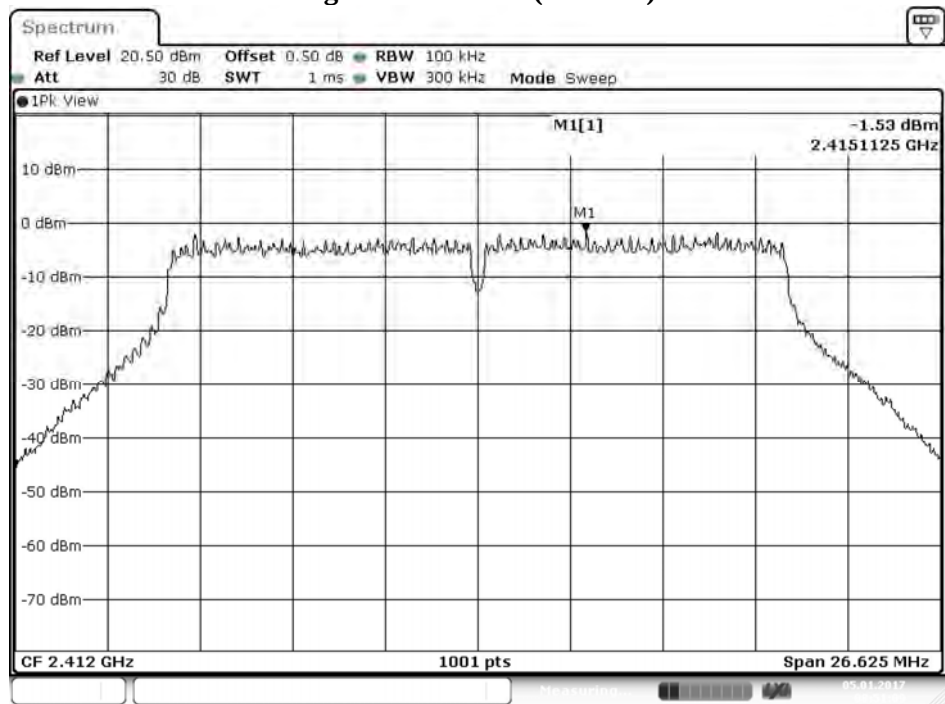
Date: 9.FEB.2017 15:16:38

Figure Channel 11: (Chain A)



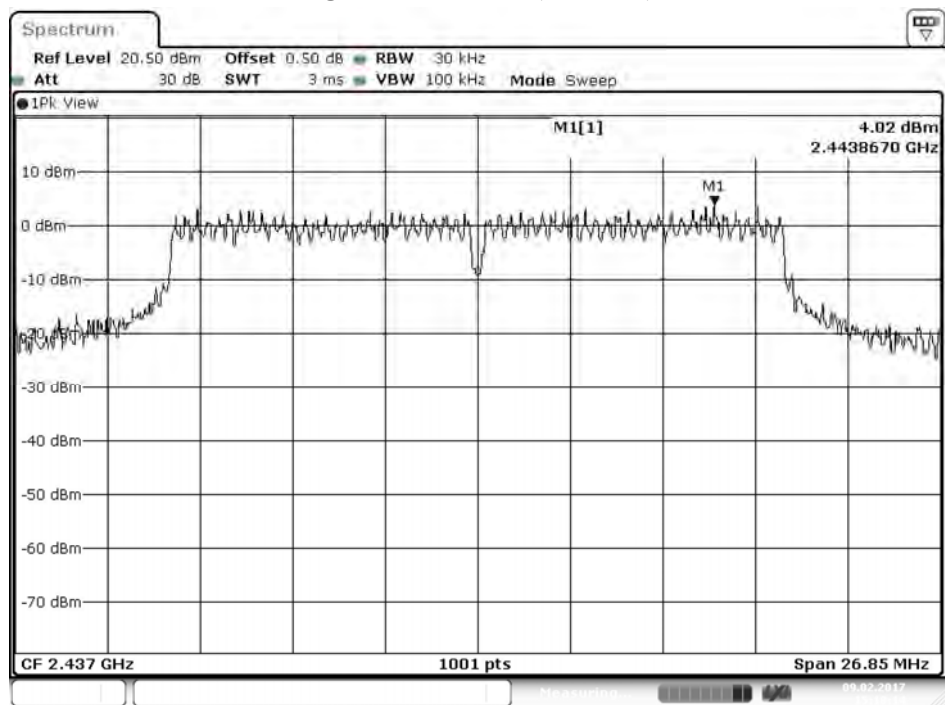
Date: 5.JAN.2017 08:31:02

Figure Channel 1: (Chain B)



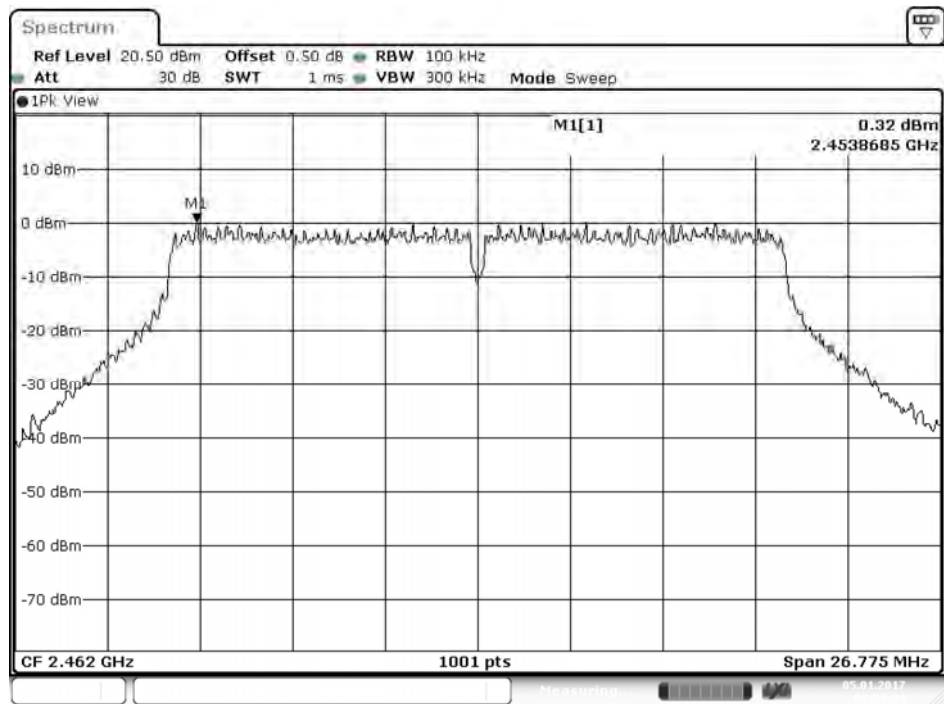
Date: 5.JAN.2017 08:51:10

Figure Channel 6: (Chain B)



Date: 9.FEB.2017 15:18:15

Figure Channel 11: (Chain B)



Date: 5.JAN.2017 08:59:34



Product : LTE Router  
 Test Item : Power Density Data  
 Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)  
 Test Date : 2017/01/05

| Channel No. | Frequency (MHz) | Chain | PPSD/MHz (dBm) | Total PPSD/MHz (dBm) | Limit (dBm)  | Result |
|-------------|-----------------|-------|----------------|----------------------|--------------|--------|
| 03          | 2422.000        | A     | -1.410         | 1.600                | $\leq 8$ dBm | Pass   |
|             |                 | B     | -0.530         | 2.480                | $\leq 8$ dBm | Pass   |
| 06          | 2437.000        | A     | 3.410          | 6.420                | $\leq 8$ dBm | Pass   |
|             |                 | B     | 4.080          | 7.090                | $\leq 8$ dBm | Pass   |
| 09          | 2452.000        | A     | -2.480         | 0.530                | $\leq 8$ dBm | Pass   |
|             |                 | B     | -1.410         | 1.600                | $\leq 8$ dBm | Pass   |

Figure Channel 3: (Chain A)

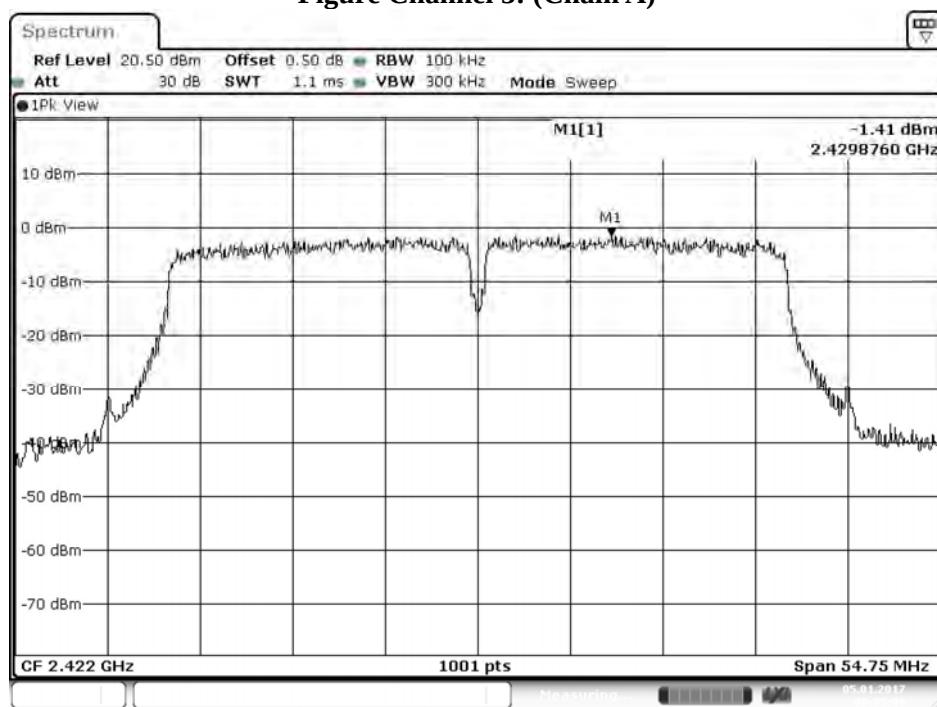
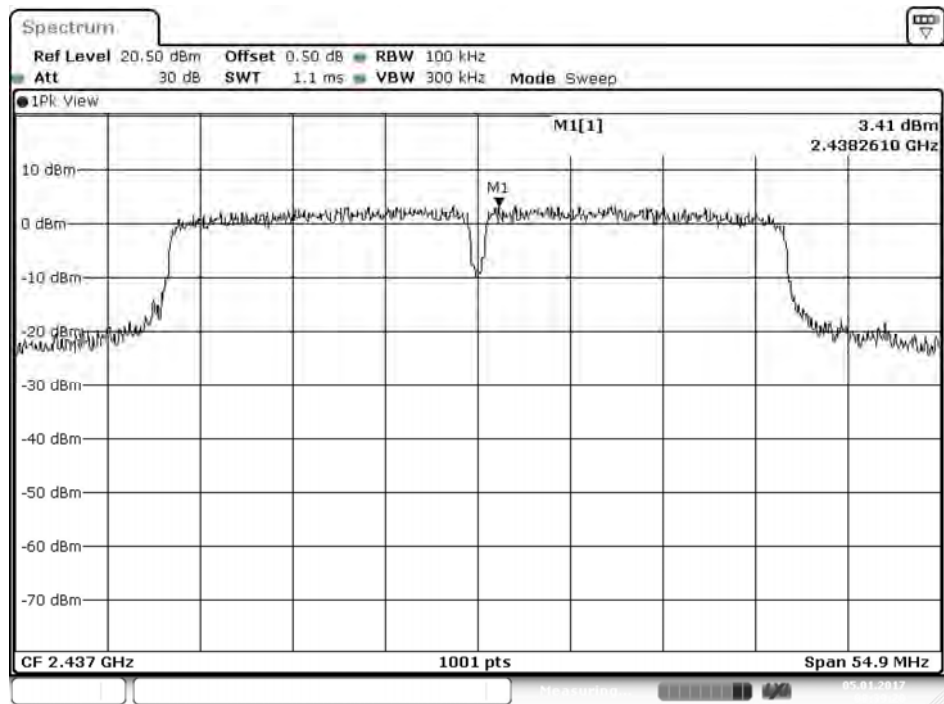
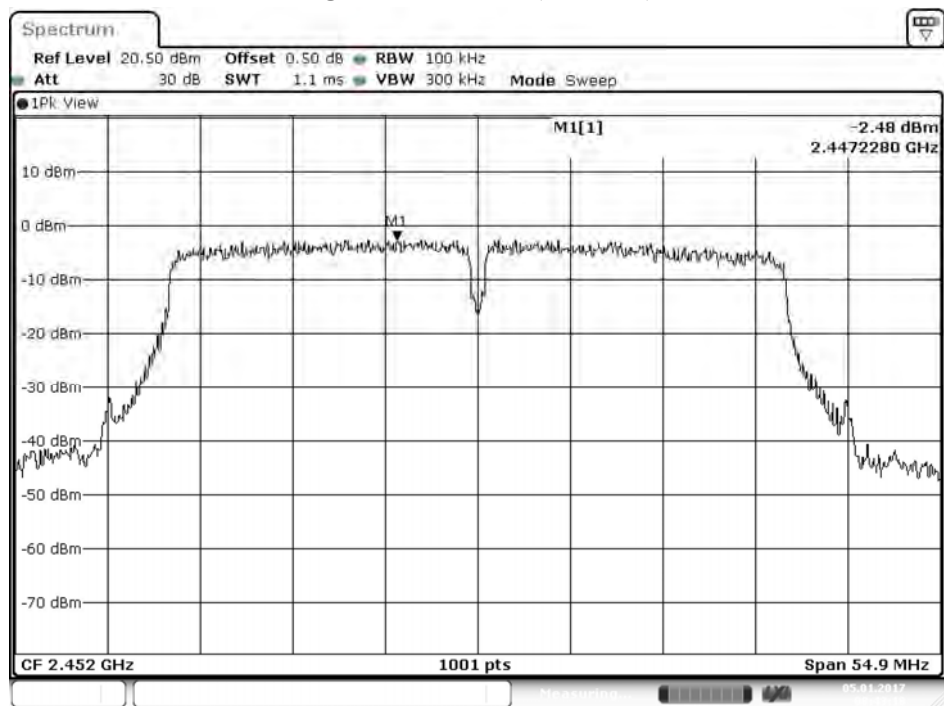


Figure Channel 6: (Chain A)



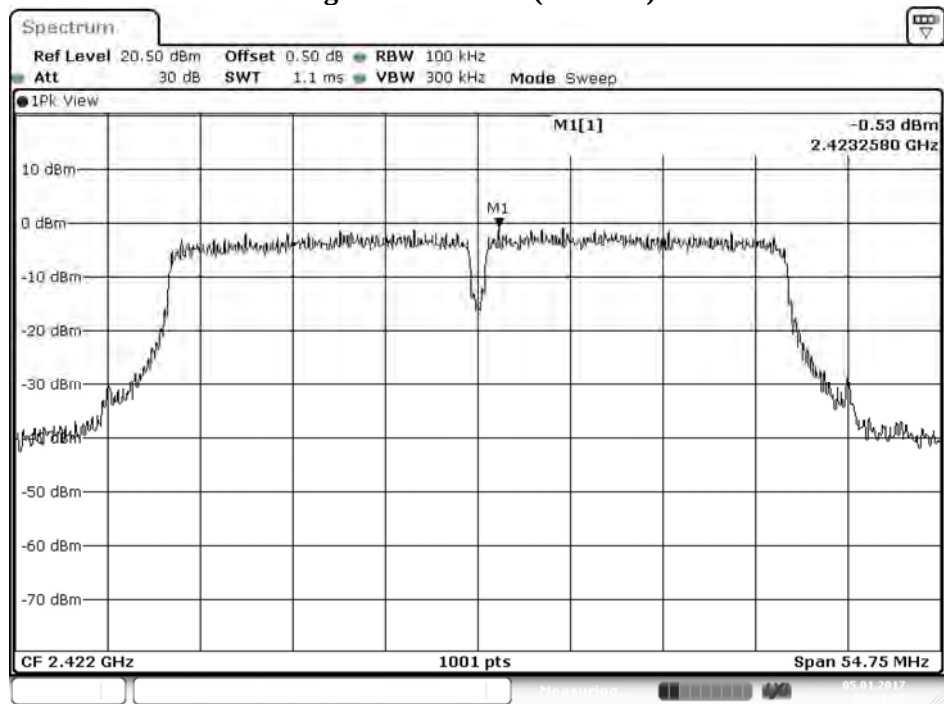
Date: 5.JAN.2017 08:39:21

Figure Channel 9: (Chain A)



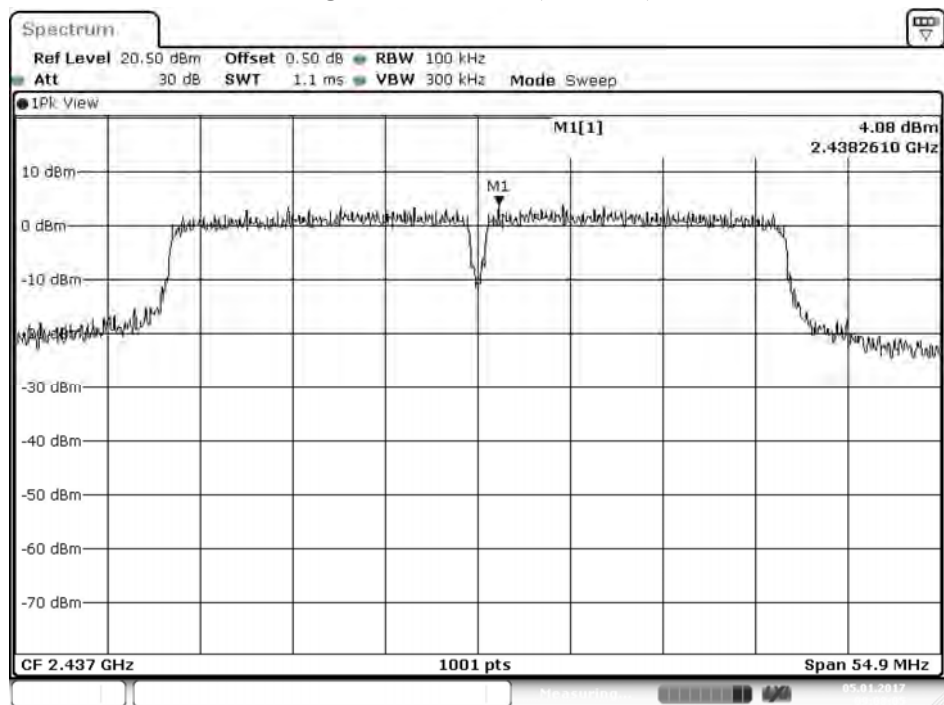
Date: 5.JAN.2017 08:43:18

Figure Channel 3: (Chain B)



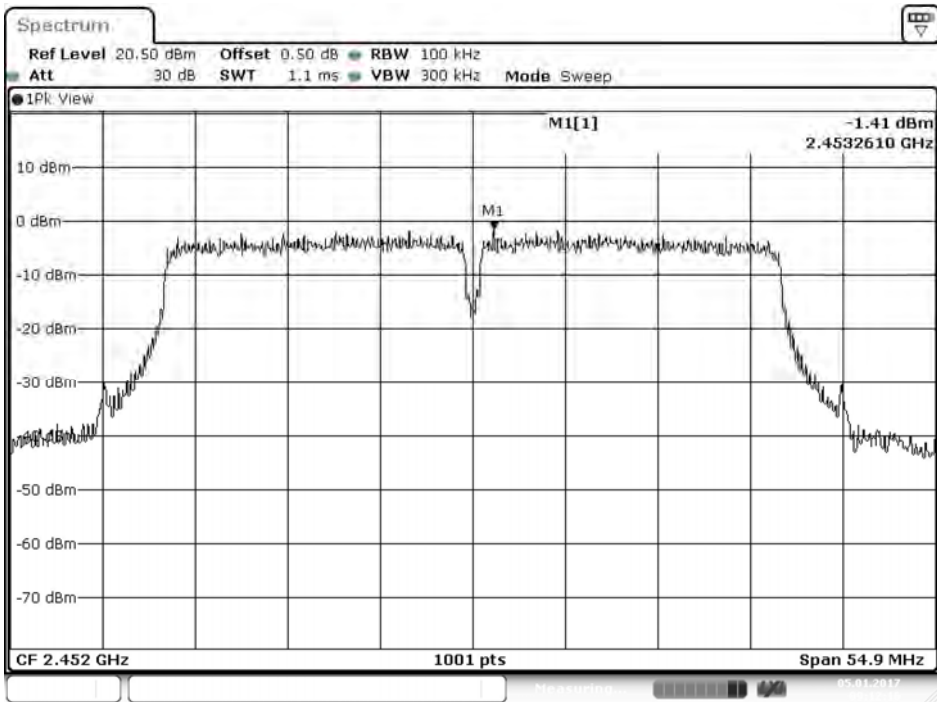
Date: 5.JAN.2017 09:03:57

Figure Channel 6: (Chain B)



Date: 5.JAN.2017 09:08:05

Figure Channel 9: (Chain B)



Date: 5.JAN.2017 09:12:16

## **9. EMI Reduction Method During Compliance Testing**

No modification was made during testing.