

# TEST REPORT

**Reference No.**..... : WTX23X12290901W001  
**FCC ID**..... : 2BEB4-H6  
**Applicant**..... : Guangzhou Weiwei electronics co.,ltd  
**Address**..... : No.3 on the second floor, No.12Yayao Middle Road,P.O. Box Huadu  
District,Guangzhou,China  
**Product Name**..... : Projector  
**Test Model**..... : H6  
**Standards**..... : FCC Part 15.247  
**Date of Receipt sample**..... : December 27, 2023  
**Date of Test**..... : December 27, 2023 to January 1, 2024  
**Date of Issue**..... : January 1, 2024  
**Test Result**..... : **Pass**

**Remarks:**

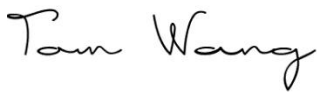
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

**Waltek Testing Group (Shenzhen) Co., Ltd.**

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,  
Block 70 Bao'an District, Shenzhen, Guangdong, China

Tested by:



---

Tom Wang/ Project Engineer

Approved & Authorized By:



---

Silin Chen / Manager

## **TABLE OF CONTENTS**

|                                                              |           |
|--------------------------------------------------------------|-----------|
| <b>1. GENERAL INFORMATION .....</b>                          | <b>4</b>  |
| 1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) ..... | 4         |
| 1.2 TEST STANDARDS .....                                     | 6         |
| 1.3 TEST METHODOLOGY .....                                   | 6         |
| 1.4 TEST FACILITY .....                                      | 6         |
| 1.5 EUT SETUP AND TEST MODE .....                            | 7         |
| 1.6 MEASUREMENT UNCERTAINTY .....                            | 8         |
| 1.7 TEST EQUIPMENT LIST AND DETAILS .....                    | 9         |
| <b>2. SUMMARY OF TEST RESULTS .....</b>                      | <b>11</b> |
| <b>3. ANTENNA REQUIREMENT .....</b>                          | <b>12</b> |
| 3.1 STANDARD APPLICABLE .....                                | 12        |
| 3.2 EVALUATION INFORMATION .....                             | 12        |
| <b>4. POWER SPECTRAL DENSITY .....</b>                       | <b>13</b> |
| 4.1 STANDARD APPLICABLE .....                                | 13        |
| 4.2 TEST SETUP BLOCK DIAGRAM .....                           | 13        |
| 4.3 TEST PROCEDURE .....                                     | 13        |
| 4.4 SUMMARY OF TEST RESULTS/PLOTS .....                      | 13        |
| <b>5. DTS BANDWIDTH .....</b>                                | <b>14</b> |
| 5.1 STANDARD APPLICABLE .....                                | 14        |
| 5.2 TEST SETUP BLOCK DIAGRAM .....                           | 14        |
| 5.3 TEST PROCEDURE .....                                     | 14        |
| 5.4 SUMMARY OF TEST RESULTS/PLOTS .....                      | 14        |
| <b>6. RF OUTPUT POWER .....</b>                              | <b>15</b> |
| 6.1 STANDARD APPLICABLE .....                                | 15        |
| 6.2 TEST SETUP BLOCK DIAGRAM .....                           | 15        |
| 6.3 TEST PROCEDURE .....                                     | 15        |
| 6.4 SUMMARY OF TEST RESULTS/PLOTS .....                      | 15        |
| <b>7. FIELD STRENGTH OF SPURIOUS EMISSIONS .....</b>         | <b>16</b> |
| 7.1 STANDARD APPLICABLE .....                                | 16        |
| 7.2 TEST PROCEDURE .....                                     | 16        |
| 7.3 CORRECTED AMPLITUDE & MARGIN CALCULATION .....           | 18        |
| 7.4 SUMMARY OF TEST RESULTS/PLOTS .....                      | 18        |
| <b>8. OUT OF BAND EMISSIONS .....</b>                        | <b>22</b> |
| 8.1 STANDARD APPLICABLE .....                                | 22        |
| 8.2 TEST PROCEDURE .....                                     | 22        |
| 8.3 SUMMARY OF TEST RESULTS/PLOTS .....                      | 23        |
| <b>9. CONDUCTED EMISSIONS .....</b>                          | <b>27</b> |
| 9.1 TEST PROCEDURE .....                                     | 27        |
| 9.2 BASIC TEST SETUP BLOCK DIAGRAM .....                     | 27        |
| 9.3 TEST RECEIVER SETUP .....                                | 27        |
| 9.4 SUMMARY OF TEST RESULTS/PLOTS .....                      | 27        |
| <b>APPENDIX SUMMARY .....</b>                                | <b>30</b> |
| <b>APPENDIX A .....</b>                                      | <b>31</b> |
| <b>APPENDIX B .....</b>                                      | <b>36</b> |
| <b>APPENDIX C .....</b>                                      | <b>41</b> |
| <b>APPENDIX D .....</b>                                      | <b>42</b> |
| <b>APPENDIX E .....</b>                                      | <b>54</b> |
| <b>APPENDIX PHOTOGRAPHS .....</b>                            | <b>58</b> |

Report version

| Version No. | Date of issue   | Description |
|-------------|-----------------|-------------|
| Rev.00      | January 1, 2024 | Original    |
| /           | /               | /           |

## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: Guangzhou Weiwei electronics co.,ltd  
 Address of applicant: No.3 on the second floor, No.12Yayao Middle Road,P.O. Box  
 Huadu District,Guangzhou,China

Manufacturer: Guangzhou Weiwei electronics co.,ltd  
 Address of manufacturer: No.3 on the second floor, No.12Yayao Middle Road,P.O. Box  
 Huadu District,Guangzhou,China

| General Description of EUT                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:                                                                                 | Projector                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Trade Name:                                                                                   | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Model No.:                                                                                    | H6                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Adding Model(s):                                                                              | JS1, JS2, JS3, JS4, JS5, JS6, JS7, JS8, JS9, H80, H89, H90, H2, H3, H5, T2, T3, T5, T6, T9, S1, S2, S3, S5, S6, S8, S9, A6X Pro, CS9 Pro, V2 Pro, MX8 Pro, GX6 Pro, KS6 Pro, KS8 Pro, TF90 Pro, SF90 Pro, KT8 Pro, M9S Pro, MAX10 Pro, VR9 Pro, G9K Pro, RS8 Pro, RS9 Pro, DX9 Pro, ZX6 Pro, ZX8 Pro, ZX9 Pro, FX8 Pro, FX9 Pro, MG8 Pro, HS6 Pro, A6X, CS9, V2 PRO, MX8, GX6, KS6, KS8, TF90, SF90, KT8, M9S, MAX10, VR9, G9K, RS8, RS9, DX9, ZX6, ZX8, ZX9, FX8, FX9, MG8, HS6 |
| Rated Voltage:                                                                                | AC 120V/60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Power Adapter Model:                                                                          | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Serial number:                                                                                | S-01                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Note: The test data is gathered from a production sample provided by the manufacturer.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Technical Characteristics of EUT |                                                                      |
|----------------------------------|----------------------------------------------------------------------|
| Support Standards:               | 802.11b, 802.11g, 802.11n                                            |
| Frequency Range:                 | 2412-2462MHz for 802.11b/g/n(HT20)<br>2422-2452MHz for 802.11n(HT40) |
| RF Output Power:                 | 17.41dBm (Conducted)                                                 |
| Type of Modulation:              | DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM                                    |
| Quantity of Channels:            | 11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)                        |

Reference No.: WTX23X12290901W001

|                     |                  |
|---------------------|------------------|
| Channel Separation: | 5MHz             |
| Type of Antenna:    | Integral Antenna |
| Antenna Gain:       | 3dBi             |

## 1.2 Test Standards

The tests were performed according to following standards:

**FCC Rules Part 15.247:** Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

**558074 D01 15.247 Meas Guidance v05r02:** Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under section 15.247 of the FCC rules.

**ANSI C63.10-2013:** American National Standard for Testing Unlicensed Wireless Devices.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which results in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.4 Test Facility

### Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

### FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

## 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, with a duty cycle equal to 100%, and to measure its highest possible emissions level, more detailed description as follows:

| Test Mode List |              |                                          |
|----------------|--------------|------------------------------------------|
| Test Mode      | Description  | Remark                                   |
| TM1            | 802.11b      | Low:2412MHz, Middle:2437MHz,High:2462MHz |
| TM2            | 802.11g      | Low:2412MHz, Middle:2437MHz,High:2462MHz |
| TM3            | 802.11n-HT20 | Low:2412MHz, Middle:2437MHz,High:2462MHz |
| TM4            | 802.11n-HT40 | Low:2422MHz, Middle:2437MHz,High:2452MHz |

| Test Conditions    |           |
|--------------------|-----------|
| Temperature:       | 22~25 °C  |
| Relative Humidity: | 45~55 %.  |
| ATM Pressure:      | 1019 mbar |

| Test software(Fix the Tx frequency) | Power level(Testing) |
|-------------------------------------|----------------------|
| Name                                | level                |
| Putty                               | Index                |

| EUT Cable List and Details |            |                     |                        |
|----------------------------|------------|---------------------|------------------------|
| Cable Description          | Length (m) | Shielded/Unshielded | With / Without Ferrite |
|                            |            |                     |                        |

| Special Cable List and Details |            |                     |                        |
|--------------------------------|------------|---------------------|------------------------|
| Cable Description              | Length (m) | Shielded/Unshielded | With / Without Ferrite |
|                                |            |                     |                        |

| Auxiliary Equipment List and Details |              |       |               |
|--------------------------------------|--------------|-------|---------------|
| Description                          | Manufacturer | Model | Serial Number |
|                                      |              |       |               |

## 1.6 Measurement Uncertainty

| Measurement uncertainty        |            |                                |
|--------------------------------|------------|--------------------------------|
| Parameter                      | Conditions | Uncertainty                    |
| RF Output Power                | Conducted  | $\pm 0.42\text{dB}$            |
| Occupied Bandwidth             | Conducted  | $\pm 1.5\%$                    |
| Power Spectral Density         | Conducted  | $\pm 1.8\text{dB}$             |
| Conducted Spurious Emission    | Conducted  | $\pm 2.17\text{dB}$            |
| Conducted Emissions            | Conducted  | 9-150kHz $\pm 3.74\text{dB}$   |
|                                |            | 0.15-30MHz $\pm 3.34\text{dB}$ |
| Transmitter Spurious Emissions | Radiated   | 30-200MHz $\pm 4.52\text{dB}$  |
|                                |            | 0.2-1GHz $\pm 5.56\text{dB}$   |
|                                |            | 1-6GHz $\pm 3.84\text{dB}$     |
|                                |            | 6-26GHz $\pm 3.92\text{dB}$    |

**1.7 Test Equipment List and Details**

| No.       | Description             | Manufacturer           | Model                 | Serial No.  | Cal Date   | Due. Date  |
|-----------|-------------------------|------------------------|-----------------------|-------------|------------|------------|
| SEMT-1075 | Communication Tester    | Rohde & Schwarz        | CMW500                | 148650      | 2023-03-27 | 2024-03-26 |
| SEMT-1063 | GSM Tester              | Rohde & Schwarz        | CMU200                | 114403      | 2023-03-27 | 2024-03-26 |
| SEMT-1072 | Spectrum Analyzer       | Agilent                | E4407B                | MY41440400  | 2023-03-27 | 2024-03-26 |
| SEMT-1079 | Spectrum Analyzer       | Agilent                | N9020A                | US47140102  | 2023-03-27 | 2024-03-26 |
| SEMT-1080 | Signal Generator        | Agilent                | 83752A                | 3610A01453  | 2023-03-27 | 2024-03-26 |
| SEMT-1081 | Vector Signal Generator | Agilent                | N5182A                | MY47070202  | 2023-03-27 | 2024-03-26 |
| SEMT-1028 | Power Divider           | Weinschel              | 1506A                 | PM204       | 2023-03-27 | 2024-03-26 |
| SEMT-1082 | Power Divider           | RF-Lambda              | RFLT4W5M18G           | 14110400027 | 2023-03-27 | 2024-03-26 |
| SEMT-1031 | Spectrum Analyzer       | Rohde & Schwarz        | FSP30                 | 836079/035  | 2023-03-27 | 2024-03-26 |
| SEMT-1007 | EMI Test Receiver       | Rohde & Schwarz        | ESVB                  | 825471/005  | 2023-03-27 | 2024-03-26 |
| SEMT-1008 | Amplifier               | Agilent                | 8447F                 | 3113A06717  | 2023-04-12 | 2024-04-11 |
| SEMT-1043 | Amplifier               | C&D                    | PAP-1G18              | 2002        | 2023-04-12 | 2024-04-11 |
| SEMT-1069 | Loop Antenna            | Schwarz beck           | FMZB 1516             | 9773        | 2023-03-19 | 2025-03-18 |
| SEMT-1068 | Broadband Antenna       | Schwarz beck           | VULB9163              | 9163-333    | 2023-03-19 | 2025-03-18 |
| SEMT-1042 | Horn Antenna            | ETS                    | 3117                  | 00086197    | 2023-03-19 | 2025-03-18 |
| SEMT-1121 | Horn Antenna            | Schwarzbeck            | BBHA 9170             | BBHA9170582 | 2023-03-27 | 2024-03-26 |
| SEMT-1169 | Pre-amplifier           | Direction Systems Inc. | PAP-2640              | 14145-14153 | 2023-03-27 | 2024-03-26 |
| SEMT-1163 | Spectrum Analyzer       | Rohde & Schwarz        | FSP40                 | 100612      | 2023-03-27 | 2024-03-26 |
| SEMT-1166 | Power Limiter           | Agilent                | N9356B                | MY45450376  | 2023-03-27 | 2024-03-26 |
| SEMT-1076 | RF Switcher             | Top Precision          | RCS03-A2              | /           | 2023-03-19 | 2025-03-18 |
| SEMT-1096 | Power Sensor            | Agilent                | U2021XA               | MY54250019  | 2023-03-27 | 2024-03-26 |
| SEMT-C001 | Cable                   | Zheng DI               | LL142-07-07-10M(A)    | /           | /          | /          |
| SEMT-C002 | Cable                   | Zheng DI               | ZT40-2.92J-2.92J-6M   | /           | /          | /          |
| SEMT-C003 | Cable                   | Zheng DI               | ZT40-2.92J-2.92J-2.5M | /           | /          | /          |
| SEMT-C004 | Cable                   | Zheng DI               | 2M0RFC                | /           | /          | /          |
| SEMT-C005 | Cable                   | Zheng DI               | 1M0RFC                | /           | /          | /          |
| SEMT-C006 | Cable                   | Zheng DI               | 1M0RFC                | /           | /          | /          |

| Software List                              |              |        |         |
|--------------------------------------------|--------------|--------|---------|
| Description                                | Manufacturer | Model  | Version |
| EMI Test Software<br>(Radiated Emission)*  | Farad        | EZ-EMC | RA-03A1 |
| EMI Test Software<br>(Conducted Emission)* | Farad        | EZ-EMC | RA-03A1 |

\*Remark: indicates software version used in the compliance certification testing.

## 2. SUMMARY OF TEST RESULTS

---

| FCC Rules                 | Description of Test Item          | Result    |
|---------------------------|-----------------------------------|-----------|
| §15.203; §15.247(b)(4)(i) | Antenna Requirement               | Compliant |
| §15.205                   | Restricted Band of Operation      | Compliant |
| §15.207(a)                | Conducted Emission                | Compliant |
| §15.247(e)                | Power Spectral Density            | Compliant |
| §15.247(a)(2)             | DTS Bandwidth                     | Compliant |
| §15.247(b)(3)             | RF Output Power                   | Compliant |
| §15.209(a)                | Radiated Emission                 | Compliant |
| §15.247(d)                | Band Edge (Out of Band Emissions) | Compliant |

N/A: Not applicable.

### **3. Antenna Requirement**

---

#### **3.1 Standard Applicable**

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

#### **3.2 Evaluation Information**

This product has an integral antenna, fulfill the requirement of this section.

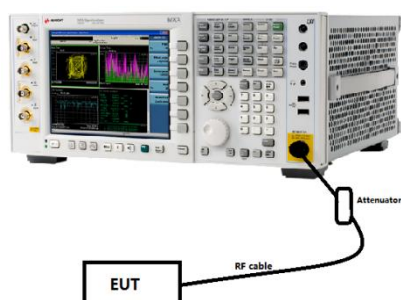
## 4. Power Spectral Density

---

### 4.1 Standard Applicable

According to 15.247(a)(1)(iii), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

### 4.2 Test Setup Block Diagram



### 4.3 Test Procedure

According to the KDB 558074 D01 v05r02 Subclause 8.4 and ANSI C63.10-2013 Subclause 11.10.3, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to:  $3\text{kHz} \leq \text{RBW} \leq 100\text{kHz}$ .
- d) Set VBW  $\geq 3 \times \text{RBW}$ .
- e) Detector = power averaging (RMS) or sample detector (when RMS not available).
- f) Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$ .
- g) Sweep time = auto couple.
- h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i) Use the peak marker function to determine the maximum amplitude level.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

### 4.4 Summary of Test Results/Plots

Please refer to Appendix A

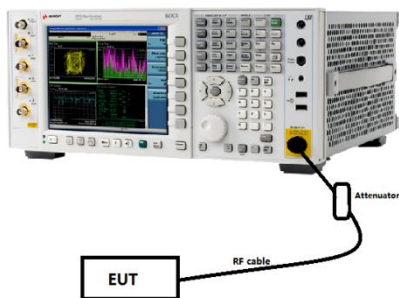
## 5. DTS Bandwidth

---

### 5.1 Standard Applicable

According to 15.247(a)(2), systems using digital modulation techniques may operate in the 902–928MHz, 2400–2483.5MHz, and 5725–5850MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

### 5.2 Test Setup Block Diagram



### 5.3 Test Procedure

According to the KDB 558074 D01 v05r02 Subclause 8.2 and ANSI C63.10-2013 Subclause 11.8.1, the test method of DTS Bandwidth as below:

- a) Set RBW = 100kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 5.4 Summary of Test Results/Plots

Please refer to Appendix B

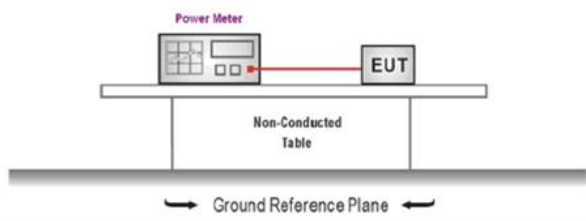
## 6. RF Output Power

---

### 6.1 Standard Applicable

According to 15.247(b)(3), for systems using digital modulation in the 902–928MHz, 2400–2483.5MHz, and 5725–5850MHz bands: 1 Watt.

### 6.2 Test Setup Block Diagram



### 6.3 Test Procedure

According to the KDB-558074 D01 v05r02 Subclause 8.3.1.1 and ANSI C63.10-2013 Subclause 11.9.1.1, this procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

- a) The maximum peak conducted output power may be measured using a broadband peak RF power meter.
- b) The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.
- c) Record the measurement data.

### 6.4 Summary of Test Results/Plots

Please refer to Appendix C

## 7. Field Strength of Spurious Emissions

### 7.1 Standard Applicable

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

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

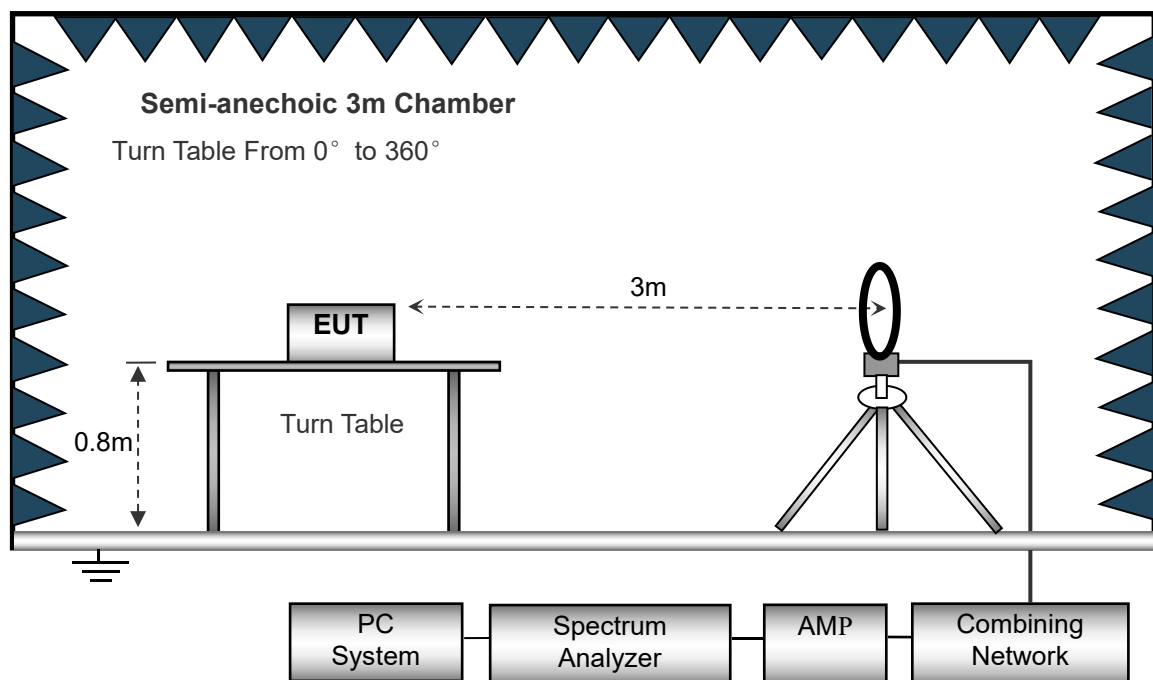
### 7.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

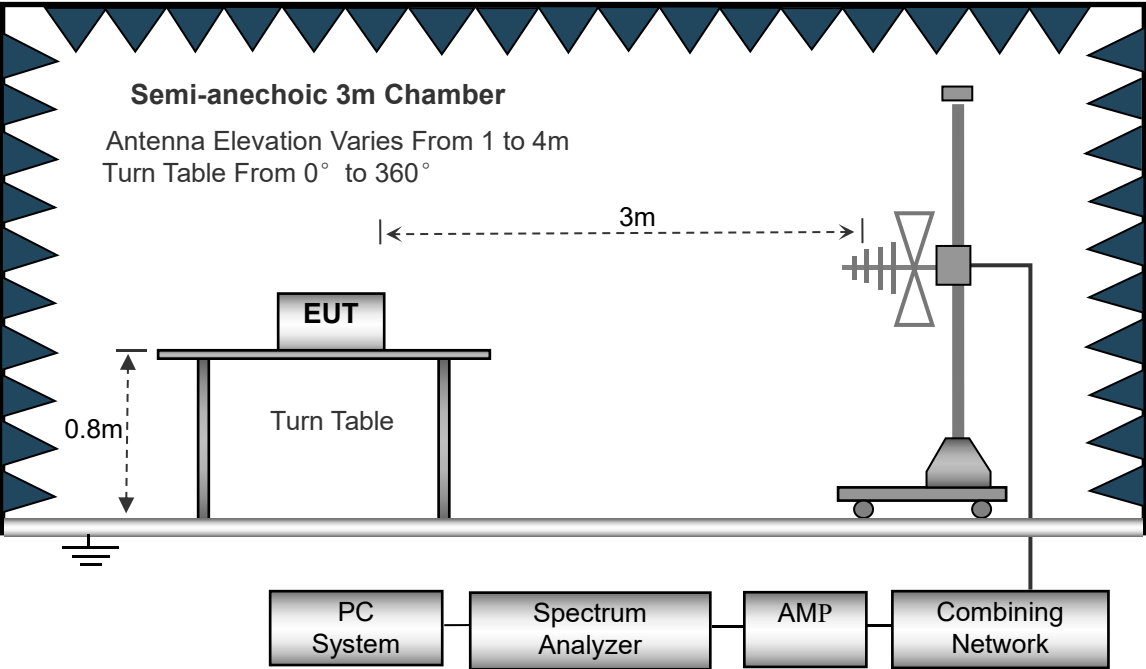
The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

The spacing between the peripherals was 10cm.

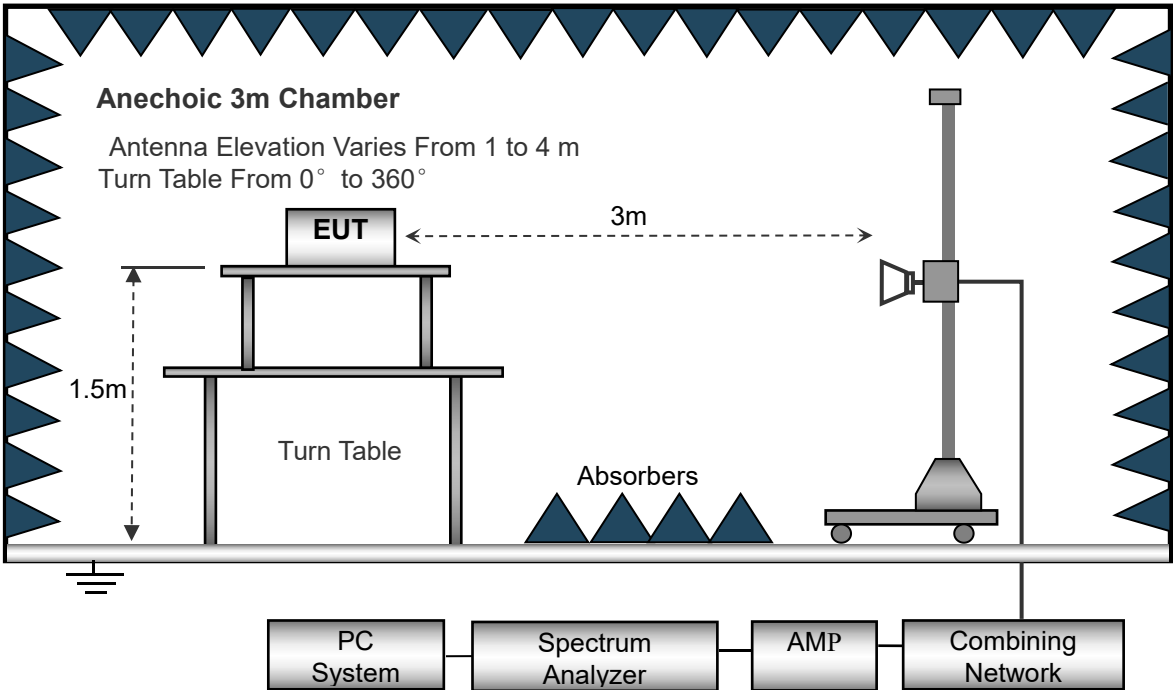
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1GHz.



|                          |                              |                              |
|--------------------------|------------------------------|------------------------------|
| Frequency :9kHz-30MHz    | Frequency :30MHz-1GHz        | Frequency :Above 1GHz        |
| RBW=10KHz,               | RBW=120KHz,                  | RBW=1MHz,                    |
| VBW =30KHz               | VBW=300KHz                   | VBW=3MHz(Peak), 10Hz(AV)     |
| Sweep time= Auto         | Sweep time= Auto             | Sweep time= Auto             |
| Trace = max hold         | Trace = max hold             | Trace = max hold             |
| Detector function = peak | Detector function = peak, QP | Detector function = peak, AV |

### 7.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\begin{aligned}\text{Result} &= \text{Indicated Reading} + \text{Correct} \\ \text{Correct} &= \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}\end{aligned}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

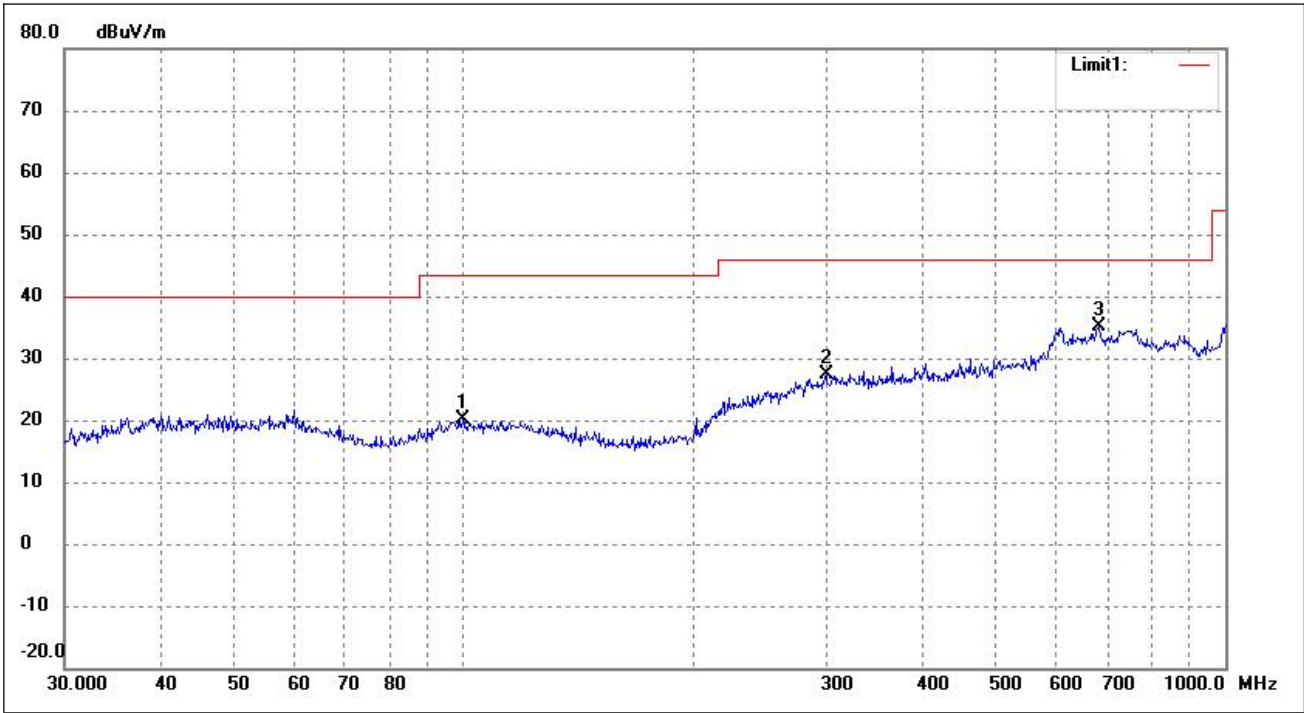
$$\text{Margin} = \text{Result} - \text{FCC Part 15 Limit}$$

### 7.4 Summary of Test Results/Plots

*Note: 1.This EUT was tested in 3 orthogonal positions and the worst case position data was reported.  
All test modes (different data rate and different modulation) are performed, but only the worst case(802.11b\_low channel 11Mbps) is recorded in this report.*

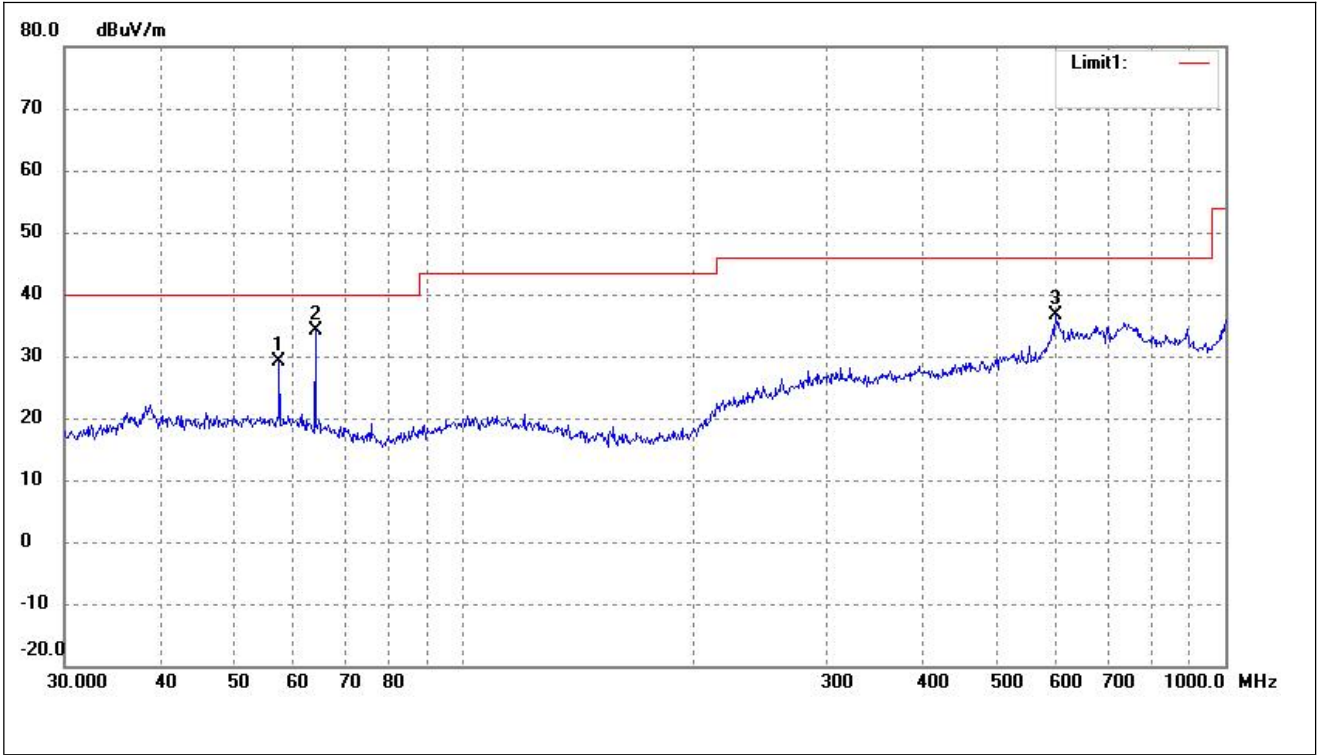
➤ Spurious Emissions Below 1GHz

|                |     |           |            |
|----------------|-----|-----------|------------|
| 802.11b_11Mbps |     |           |            |
| Test Channel   | Low | Polarity: | Horizontal |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|-------------------|-----------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 99.8777            | 15.14             | 5.11            | 20.25              | 43.50             | -23.25         | -               | -              | peak   |
| 2   | 299.3158           | 15.19             | 12.15           | 27.34              | 46.00             | -18.66         | -               | -              | peak   |
| 3   | 682.3485           | 15.96             | 19.08           | 35.04              | 46.00             | -10.96         | -               | -              | peak   |

|                |     |           |          |
|----------------|-----|-----------|----------|
| 802.11b_11Mbps |     |           |          |
| Test Channel   | Low | Polarity: | Vertical |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|-------------------|-----------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 57.3923            | 23.91             | 5.34            | 29.25              | 40.00             | -10.75         | -               | -              | peak   |
| 2   | 63.9828            | 29.75             | 4.50            | 34.25              | 40.00             | -5.75          | -               | -              | peak   |
| 3   | 599.3213           | 17.38             | 19.19           | 36.57              | 46.00             | -9.43          | -               | -              | peak   |

Remark: ‘-’Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

- Spurious Emissions Above 1GHz
- Test Mode: 802.11b\_11Mbps (worst case)

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2412MHz    |          |         |          |          |        |       |          |
| 4824.000               | 54.09    | -3.87   | 50.22    | 74.00    | -23.78 | H     | PK       |
| 4824.000               | 38.84    | -3.87   | 34.97    | 54.00    | -19.03 | H     | AV       |
| 7236.000               | 46.30    | 1.14    | 47.44    | 74.00    | -26.56 | H     | PK       |
| 7236.000               | 34.98    | 1.19    | 36.17    | 54.00    | -17.83 | H     | AV       |
| 4824.000               | 57.31    | -3.86   | 53.45    | 74.00    | -20.55 | V     | PK       |
| 4824.000               | 40.50    | -3.86   | 36.64    | 54.00    | -17.36 | V     | AV       |
| 7236.000               | 49.11    | 1.10    | 50.21    | 74.00    | -23.79 | V     | PK       |
| 7236.000               | 37.44    | 1.10    | 38.54    | 54.00    | -15.46 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874.000               | 54.74    | -3.74   | 51.00    | 74.00    | -23.00 | H     | PK       |
| 4874.000               | 39.99    | -3.74   | 36.25    | 54.00    | -17.75 | H     | AV       |
| 7311.000               | 47.77    | 1.47    | 49.24    | 74.00    | -24.76 | H     | PK       |
| 7311.000               | 33.10    | 1.47    | 34.57    | 54.00    | -19.43 | H     | AV       |
| 4874.000               | 53.97    | -3.74   | 50.23    | 74.00    | -23.77 | V     | PK       |
| 4874.000               | 40.89    | -3.74   | 37.15    | 54.00    | -16.85 | V     | AV       |
| 7311.000               | 47.98    | 1.47    | 49.45    | 74.00    | -24.55 | V     | PK       |
| 7311.000               | 34.08    | 1.47    | 35.55    | 54.00    | -18.45 | V     | AV       |
| High Channel-2462MHz   |          |         |          |          |        |       |          |
| 4924.000               | 55.82    | -3.59   | 52.23    | 74.00    | -21.77 | H     | PK       |
| 4924.000               | 41.76    | -3.59   | 38.17    | 54.00    | -15.83 | H     | AV       |
| 7386.000               | 46.38    | 1.79    | 48.17    | 74.00    | -25.83 | H     | PK       |
| 7386.000               | 34.83    | 1.79    | 36.62    | 54.00    | -17.38 | H     | AV       |
| 4924.000               | 54.94    | -3.59   | 51.35    | 74.00    | -22.65 | V     | PK       |
| 4924.000               | 42.04    | -3.59   | 38.45    | 54.00    | -15.55 | V     | AV       |
| 7386.000               | 47.99    | 1.79    | 49.78    | 74.00    | -24.22 | V     | PK       |
| 7386.000               | 35.18    | 1.79    | 36.97    | 54.00    | -17.03 | V     | AV       |

*Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*

## 8. Out of Band Emissions

---

### 8.1 Standard Applicable

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

### 8.2 Test Procedure

According to the KDB 558074D01 v05r02 Subclause 8.4 and ANSI C63.10-2013 Subclause 11.11, the Emissions in nonrestricted frequency bands test method as follows:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100kHz.
- c) Set the VBW  $\geq [3 \times \text{RBW}]$ .
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

According to the KDB 558074 D01 v05r02 Subclause 8.5 and ANSI C63.10-2013 Subclause 11.12, the Emissions in restricted frequency bands test method as follows:

#### A. Radiated emission measurements:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)

RBW = 1MHz, VBW = 1MHz for peak value measured

RBW = 1MHz, VBW = 10Hz for average value measured

Sweep = auto; Detector function = peak/average; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement

KDB publication number: 913591 may be used for the radiated bandedge measurements.

#### B. Antenna-port conducted measurements

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 9.
- b)  $VBW \geq [3 \times RBW]$ .
- c) Detector = peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be lengthened for low-duty-cycle applications.)

**Table 9—RBW as a function of frequency**

| Frequency          | RBW                |
|--------------------|--------------------|
| 9 kHz to 150 kHz   | 200 Hz to 300 Hz   |
| 0.15 MHz to 30 MHz | 9 kHz to 10 kHz    |
| 30 MHz to 1000 MHz | 100 kHz to 120 kHz |
| >1000 MHz          | 1 MHz              |

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

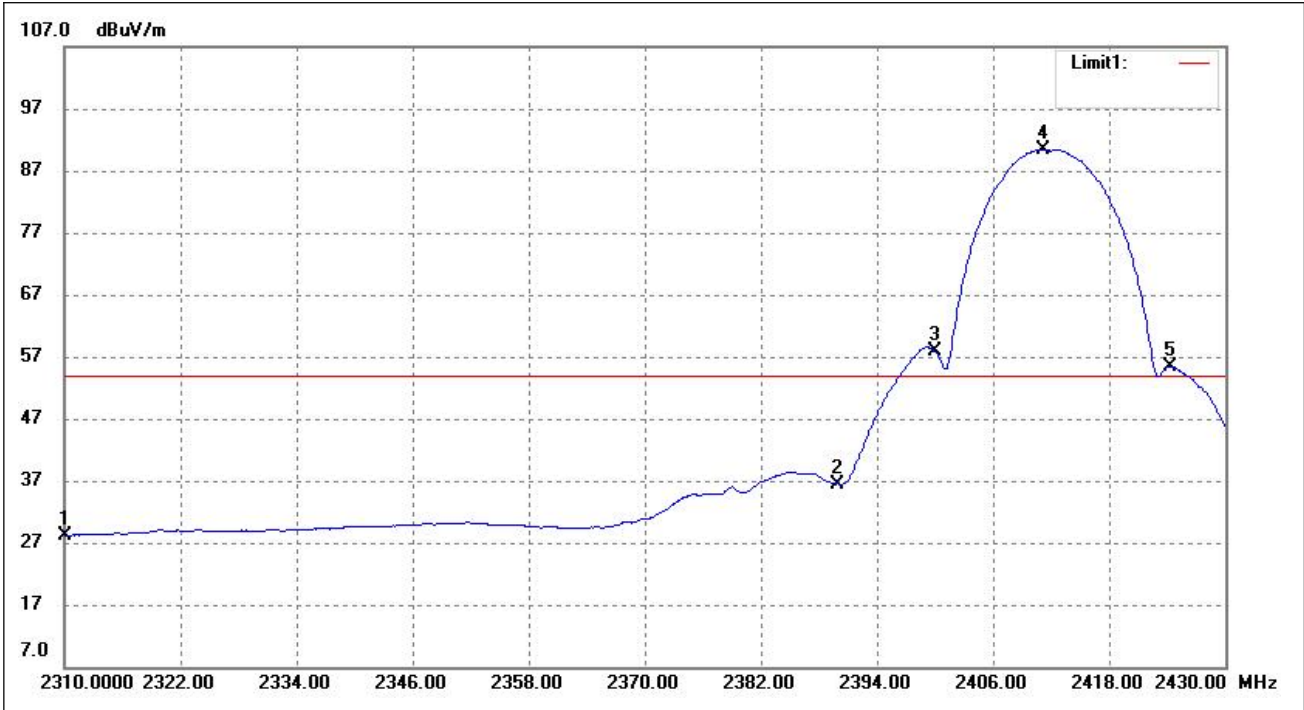
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

### 8.3 Summary of Test Results/Plots

*Note: All test modes (different data rate and different modulation) are performed, but only the worst case(802.11b\_11Mbps Vertical) is recorded in this report.*

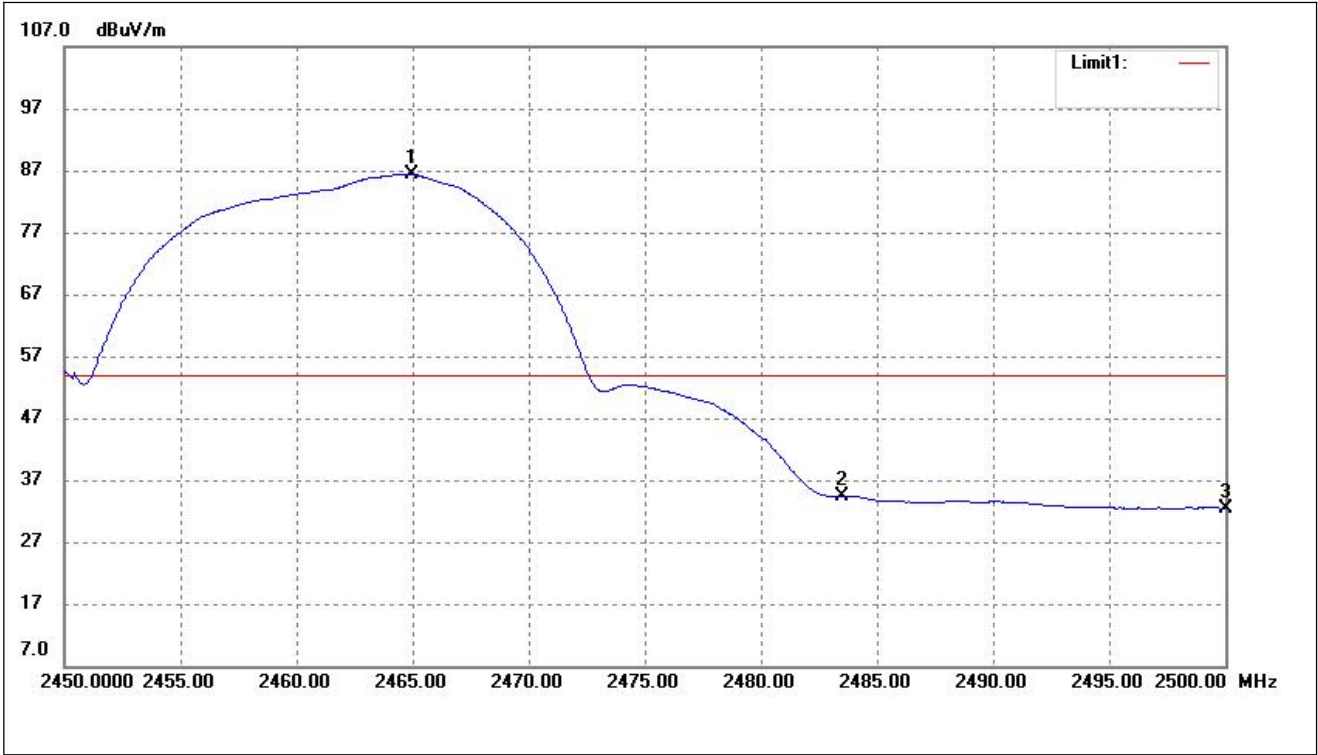
➤ Radiated test

|                |     |           |                      |
|----------------|-----|-----------|----------------------|
| 802.11b_11Mbps |     |           |                      |
| Test Channel   | Low | Polarity: | Vertical(worst case) |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark           |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|------------------|
| 1   | 2310.000           | 31.53               | -3.35           | 28.18              | 54.00             | -25.82         | Average Detector |
|     | 2310.000           | 45.17               | -3.35           | 41.82              | 74.00             | -32.18         | Peak Detector    |
| 2   | 2390.000           | 40.78               | -4.29           | 36.49              | 54.00             | -17.51         | Average Detector |
|     | 2390.000           | 56.38               | -4.29           | 52.09              | 74.00             | -21.91         | Peak Detector    |
| 3   | 2400.000           | 62.25               | -4.40           | 57.85              | /                 |                | Average Detector |
| 4   | 2411.160           | 94.88               | -4.44           | 90.44              |                   |                | Average Detector |

|                |      |           |                      |
|----------------|------|-----------|----------------------|
| 802.11b_11Mbps |      |           |                      |
| Test Channel   | High | Polarity: | Vertical(worst case) |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark           |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|------------------|
| 1   | 2464.950           | 89.68               | -3.29           | 86.39              | /                 | /              | Average Detector |
|     | 2463.650           | 97.45               | -3.29           | 94.16              | /                 | /              | Peak Detector    |
| 2   | 2483.500           | 89.68               | -3.29           | 34.43              | 54.00             | -19.57         | Average Detector |
|     | 2483.500           | 97.45               | -3.29           | 46.87              | 74.00             | -27.13         | Peak Detector    |
| 3   | 2500.000           | 35.64               | -3.20           | 32.44              | 54.00             | -21.56         | Average Detector |
|     | 2500.000           | 47.53               | -3.20           | 44.33              | 74.00             | -29.67         | Peak Detector    |

Reference No.: WTX23X12290901W001

➤ Conducted test

**Please refer to Appendix D and E**

9. Conducted Emissions

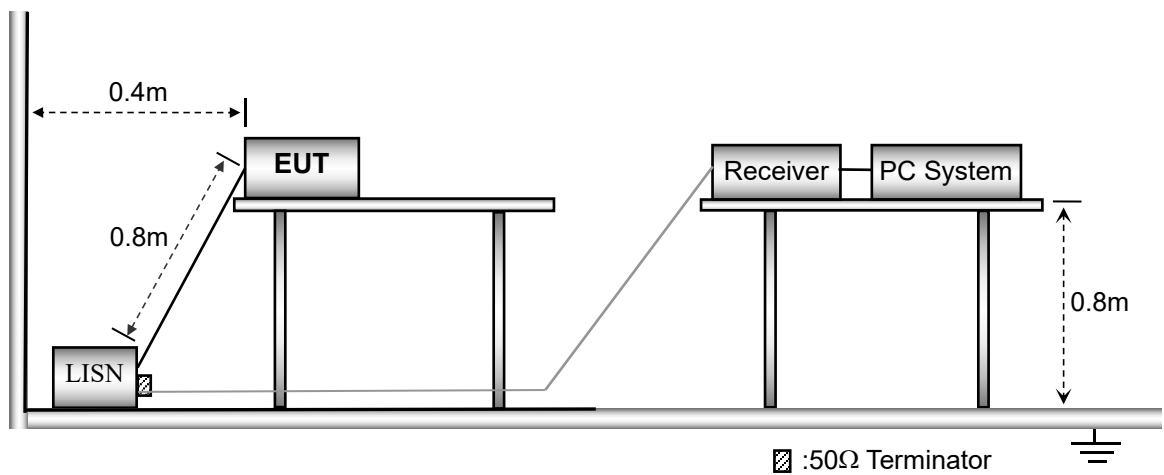
9.1 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

The spacing between the peripherals was 10cm.

9.2 Basic Test Setup Block Diagram



9.3 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

|                                   |        |
|-----------------------------------|--------|
| Start Frequency.....              | 150kHz |
| Stop Frequency.....               | 30MHz  |
| Sweep Speed.....                  | Auto   |
| IF Bandwidth.....                 | 10kHz  |
| Quasi-Peak Adapter Bandwidth..... | 9kHz   |
| Quasi-Peak Adapter Mode.....      | Normal |

9.4 Summary of Test Results/Plots

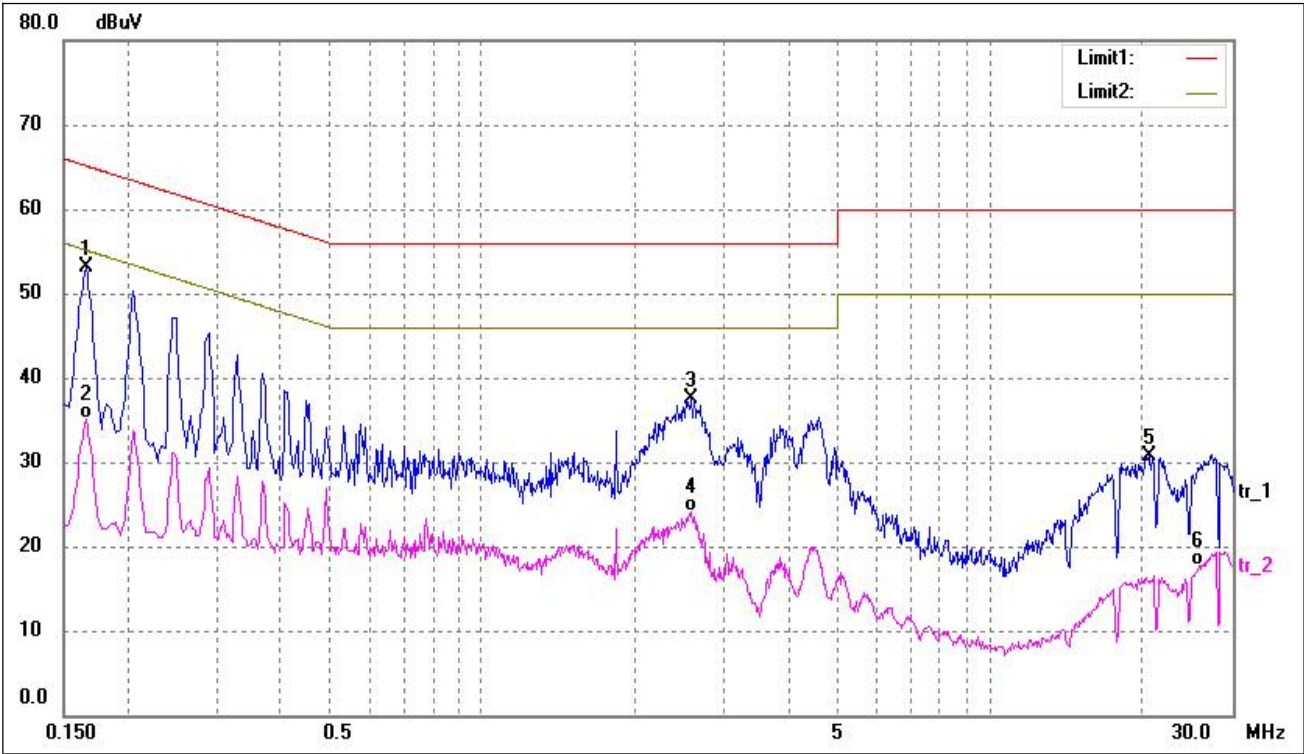
Remark:

Result = Indicated Reading + Correct

Correct=Cable lose + Pulse Limiter Factor + Artificial Mains Factor

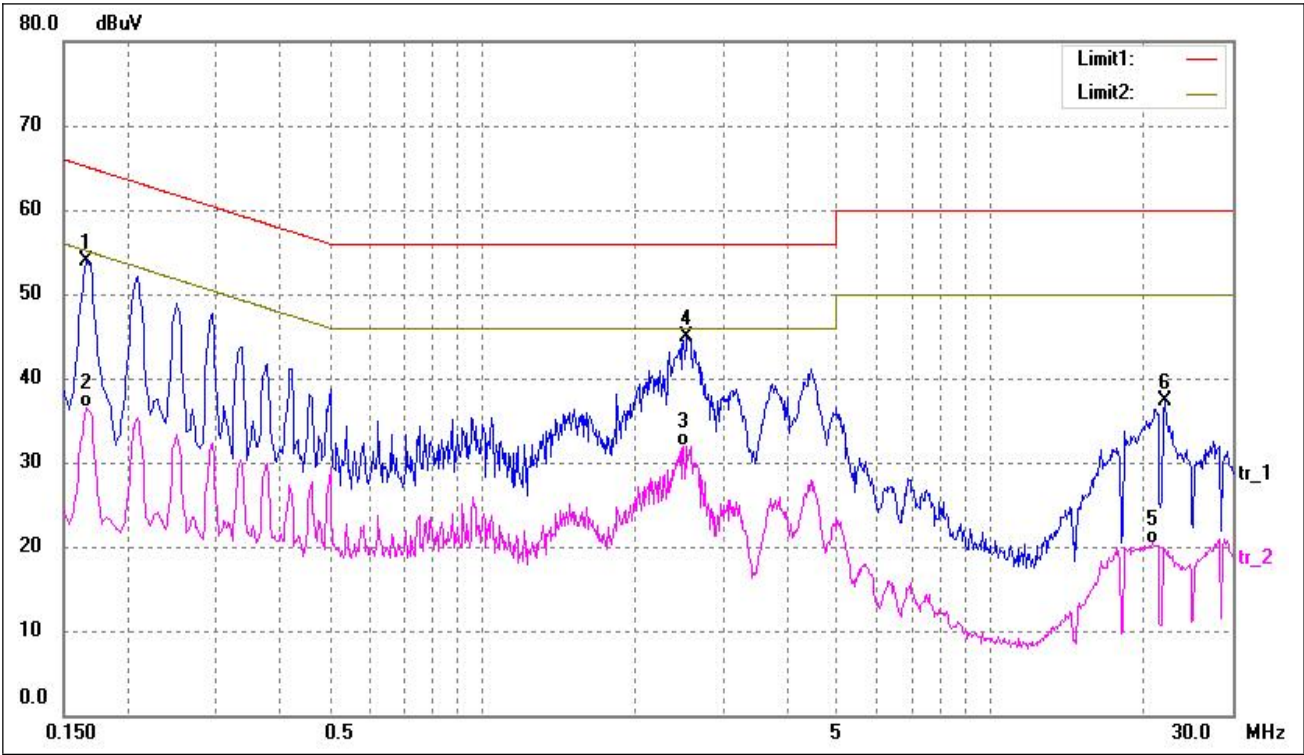
Margin=Result- Limit

|           |               |           |      |
|-----------|---------------|-----------|------|
| Test Mode | Communication | Polarity: | Line |
|-----------|---------------|-----------|------|



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Detector |
|-----|--------------------|-------------------|-------------------|------------------|-----------------|----------------|----------|
| 1*  | 0.1660             | 43.70             | 9.50              | 53.20            | 65.16           | -11.96         | peak     |
| 2   | 0.1660             | 25.58             | 9.50              | 35.08            | 55.16           | -20.08         | AVG      |
| 3   | 2.5940             | 27.57             | 10.00             | 37.57            | 56.00           | -18.43         | peak     |
| 4   | 2.5940             | 14.09             | 10.00             | 24.09            | 46.00           | -21.91         | AVG      |
| 5   | 20.5060            | 18.76             | 12.00             | 30.76            | 60.00           | -29.24         | peak     |
| 6   | 25.8260            | 4.75              | 13.00             | 17.75            | 50.00           | -32.25         | AVG      |

|           |               |           |         |
|-----------|---------------|-----------|---------|
| Test Mode | Communication | Polarity: | Neutral |
|-----------|---------------|-----------|---------|



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Detector |
|-----|--------------------|-------------------|-------------------|------------------|-----------------|----------------|----------|
| 1   | 0.1660             | 44.47             | 9.50              | 53.97            | 65.16           | -11.19         | peak     |
| 2   | 0.1660             | 27.02             | 9.50              | 36.52            | 55.16           | -18.64         | AVG      |
| 3   | 2.4980             | 21.94             | 10.00             | 31.94            | 46.00           | -14.06         | AVG      |
| 4*  | 2.5380             | 34.84             | 10.00             | 44.84            | 56.00           | -11.16         | peak     |
| 5   | 20.8660            | 8.40              | 12.00             | 20.40            | 50.00           | -29.60         | AVG      |
| 6   | 22.0820            | 25.20             | 12.03             | 37.23            | 60.00           | -22.77         | peak     |

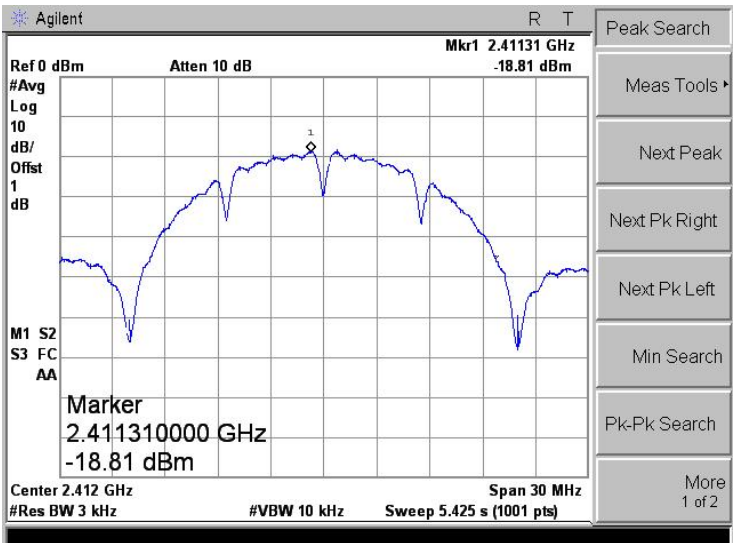
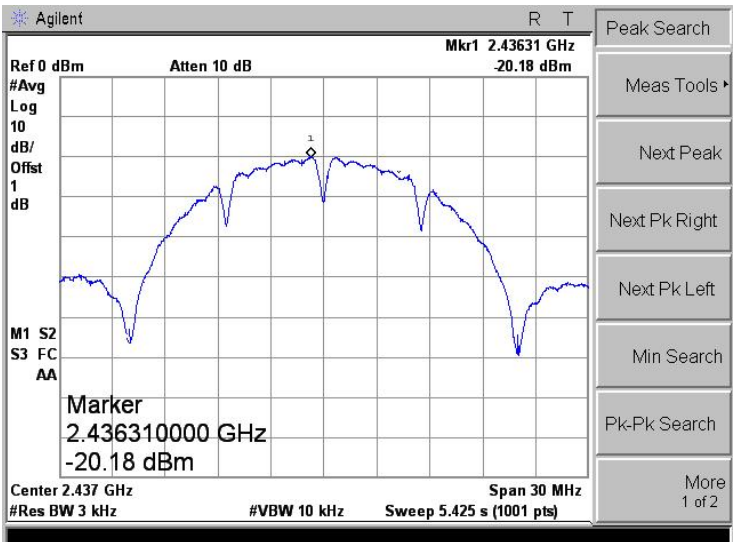
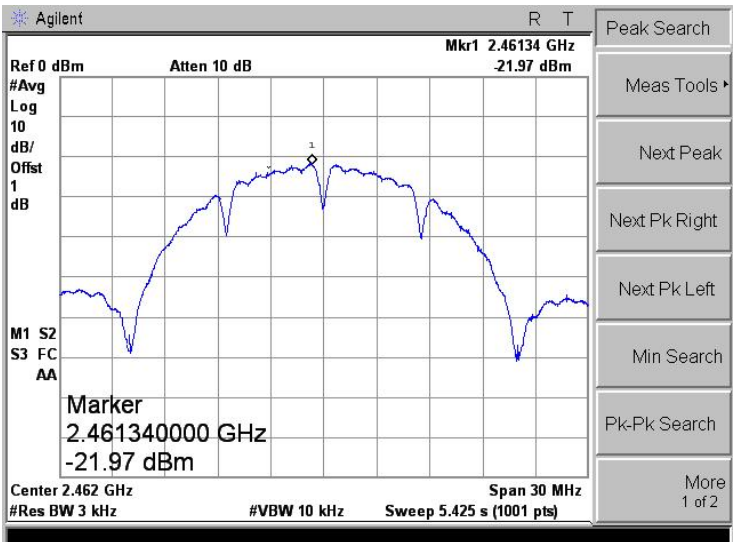
APPENDIX SUMMARY

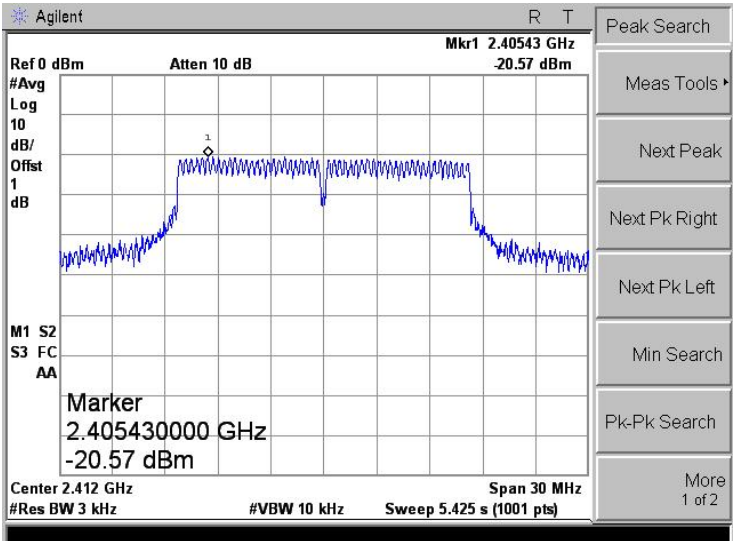
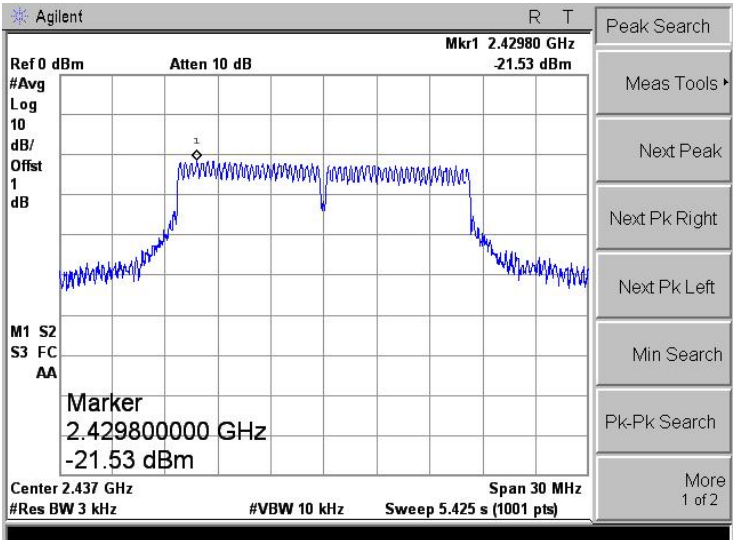
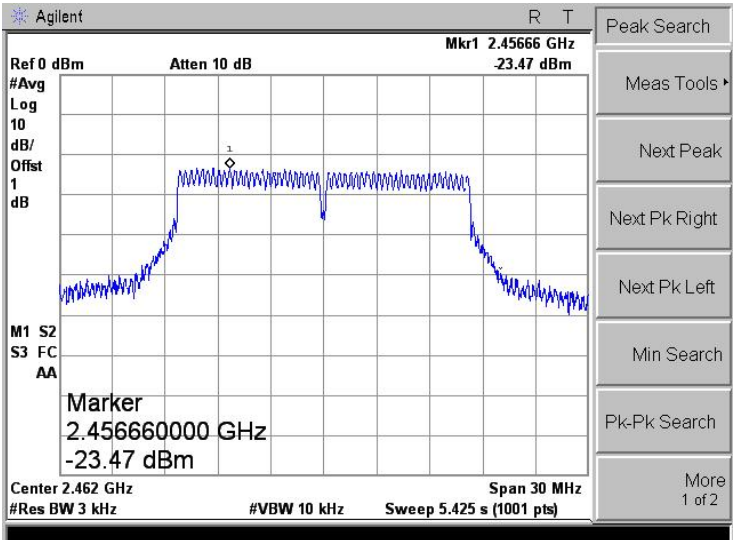
|                   |                    |               |            |
|-------------------|--------------------|---------------|------------|
| Project No.       | WTX23X12290901W001 | Test Engineer | Tom Wang   |
| Start date        | 2023/12/27         | Finish date   | 2023/01/01 |
| Temperature       | 24.1℃              | Humidity      | 52%        |
| RF specifications | WIFI-2.4G          |               |            |

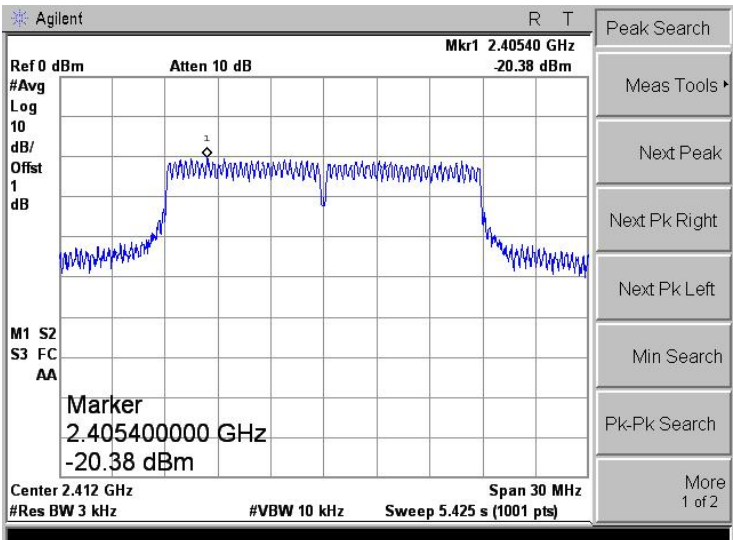
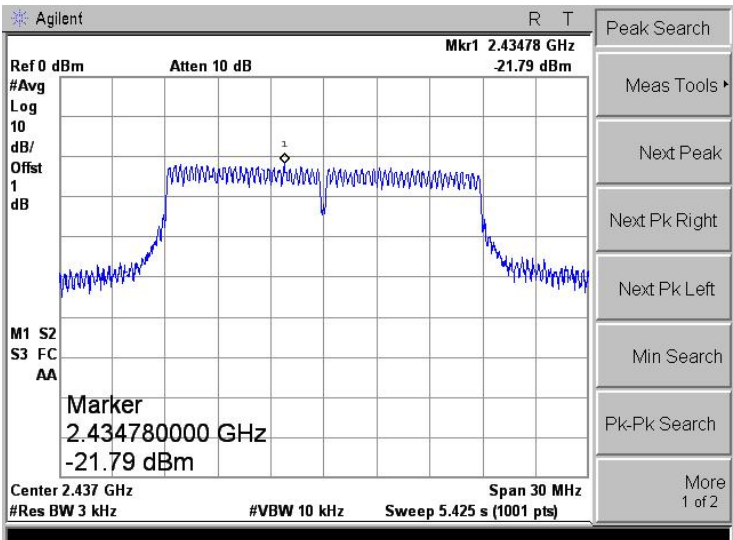
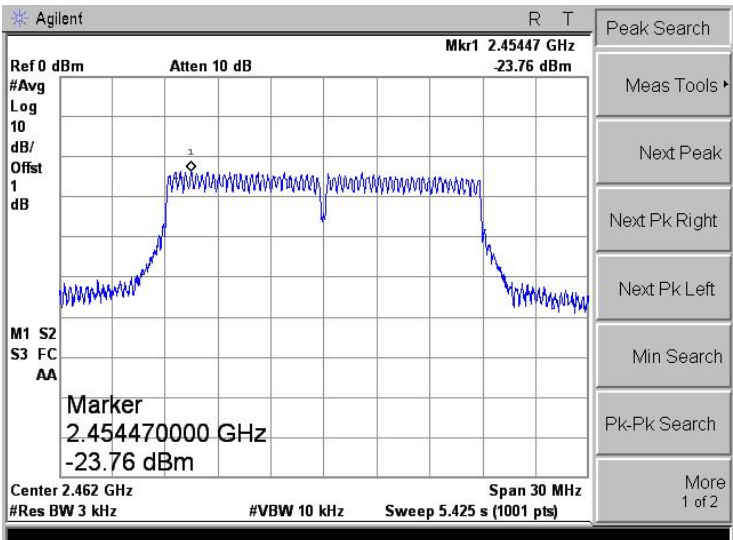
| APPENDIX | Description of Test Item        | Result    |
|----------|---------------------------------|-----------|
| A        | Power Spectral Density          | Compliant |
| B        | DTS Bandwidth                   | Compliant |
| C        | RF Output Power                 | Compliant |
| D        | Conducted Out of Band Emissions | Compliant |
| E        | Conducted Spurious Emissions    | Compliant |

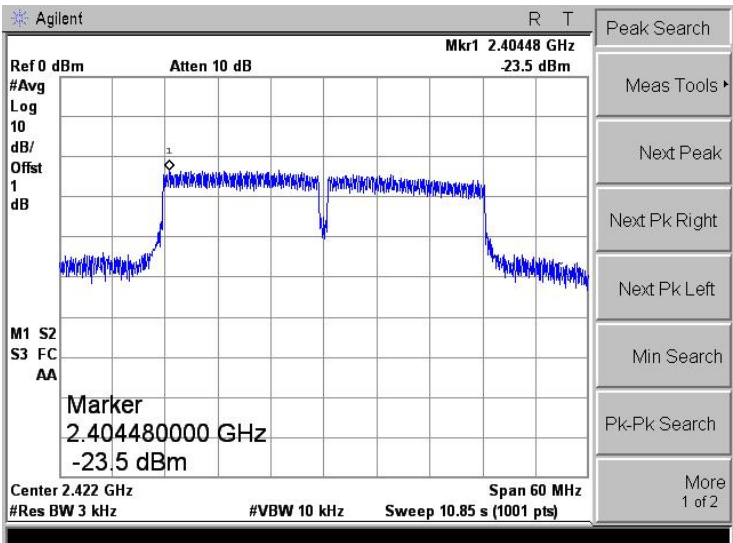
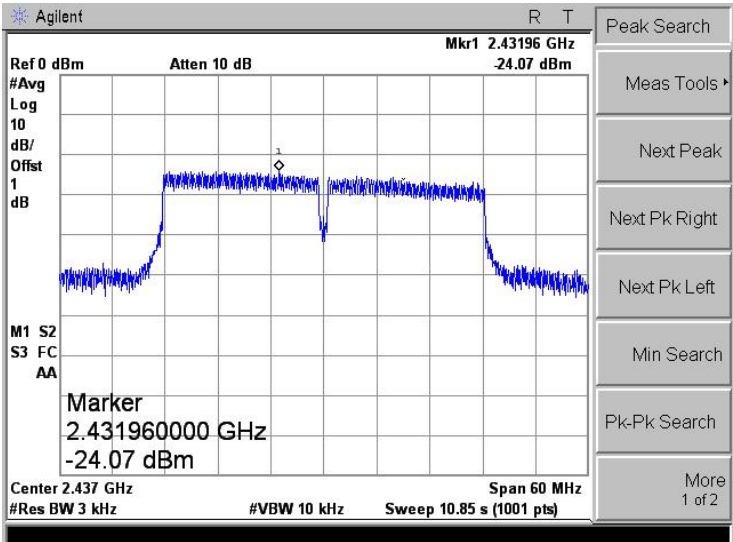
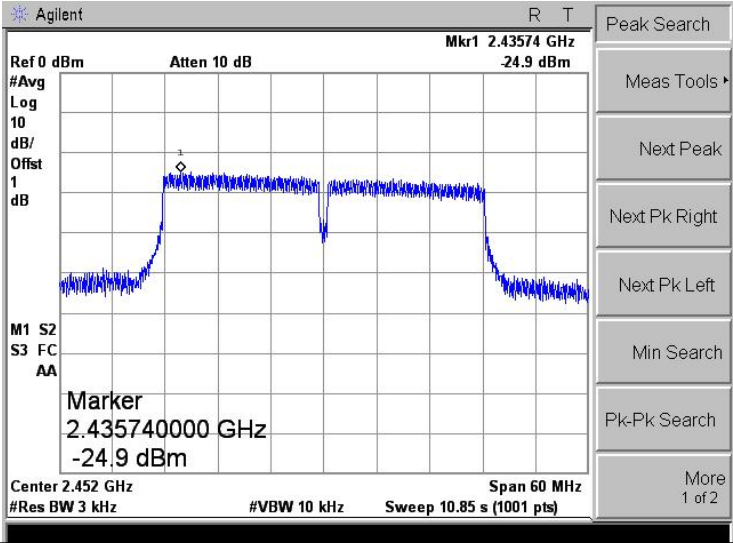
APPENDIX A

| Power Spectral Density |                     |                                    |                   |
|------------------------|---------------------|------------------------------------|-------------------|
| Test Mode              | Test Channel<br>MHz | Power Spectral Density<br>dBm/3kHz | Limit<br>dBm/3kHz |
| 802.11b_11Mbps         | 2412                | -18.81                             | 8                 |
|                        | 2437                | -20.18                             | 8                 |
|                        | 2462                | -21.97                             | 8                 |
| 802.11g_54Mbps         | 2412                | -20.57                             | 8                 |
|                        | 2437                | -21.53                             | 8                 |
|                        | 2462                | -23.47                             | 8                 |
| 802.11n-HT20_MCS7      | 2412                | -20.38                             | 8                 |
|                        | 2437                | -21.79                             | 8                 |
|                        | 2462                | -23.76                             | 8                 |
| 802.11n-HT40_MCS7      | 2422                | -23.50                             | 8                 |
|                        | 2437                | -24.07                             | 8                 |
|                        | 2452                | -24.90                             | 8                 |

|                |                                                                                      |
|----------------|--------------------------------------------------------------------------------------|
| 802.11b-Low    |    |
| 802.11b-Middle |   |
| 802.11b-High   |  |

|                |                                                                                      |
|----------------|--------------------------------------------------------------------------------------|
| 802.11g-Low    |    |
| 802.11g-Middle |   |
| 802.11g-High   |  |

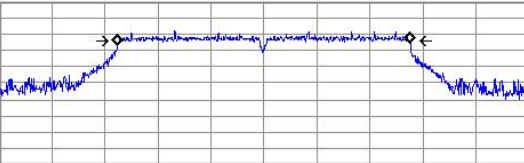
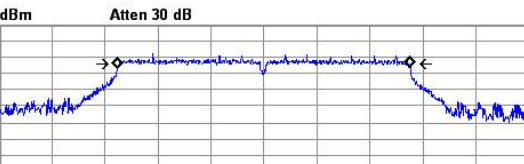
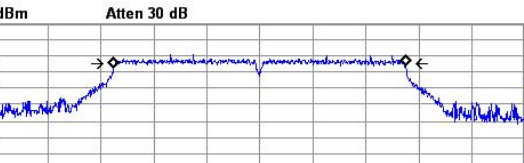
|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| 802.11n-HT20-Low    |    |
| 802.11n-HT20-Middle |   |
| 802.11n-HT20-High   |  |

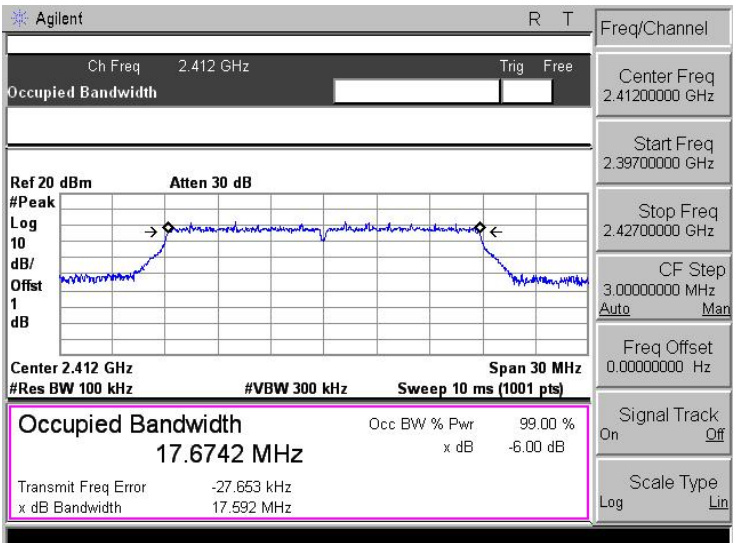
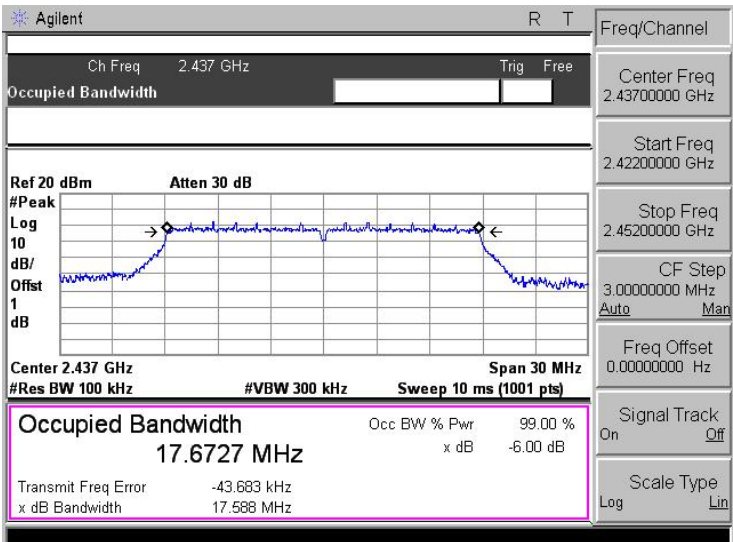
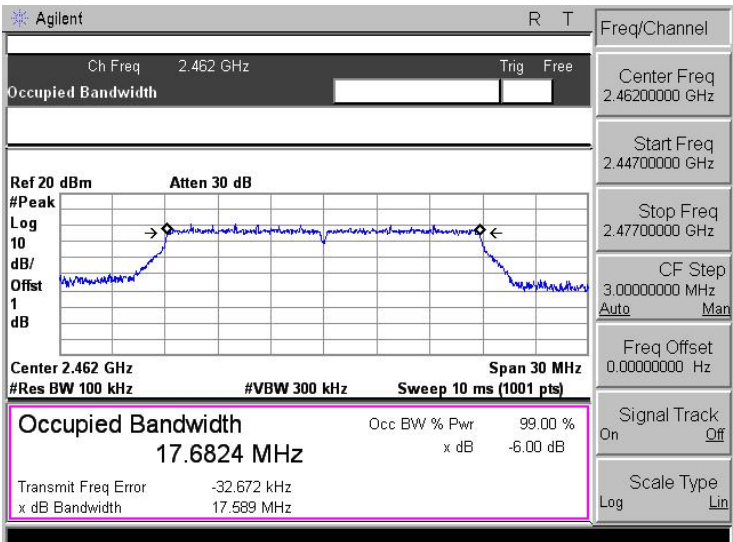
|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| 802.11n-HT40-Low    |    |
| 802.11n-HT40-Middle |   |
| 802.11n-HT40-High   |  |

APPENDIX B

| DTS Bandwidth     |                     |                       |              |
|-------------------|---------------------|-----------------------|--------------|
| Test Mode         | Test Channel<br>MHz | 6 dB Bandwidth<br>MHz | Limit<br>kHz |
| 802.11b_11Mbps    | 2412                | 10.056                | ≥500         |
|                   | 2437                | 10.063                | ≥500         |
|                   | 2462                | 10.036                | ≥500         |
| 802.11g_54Mbps    | 2412                | 16.348                | ≥500         |
|                   | 2437                | 16.342                | ≥500         |
|                   | 2462                | 16.363                | ≥500         |
| 802.11n-HT20_MCS7 | 2412                | 17.592                | ≥500         |
|                   | 2437                | 17.588                | ≥500         |
|                   | 2462                | 17.589                | ≥500         |
| 802.11n-HT40_MCS7 | 2422                | 36.101                | ≥500         |
|                   | 2437                | 36.319                | ≥500         |
|                   | 2452                | 36.326                | ≥500         |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 802.11b-Low    | <div><div><div>Agilent</div><div>R T</div><div>Ch Freq 2.412 GHz</div><div>Trig Free</div><div>Occupied Bandwidth</div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.412 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>15.0867 MHz</div><div>Occ BW % Pwr 99.00 %</div><div>x dB -6.00 dB</div><div>Transmit Freq Error -16.131 kHz</div><div>x dB Bandwidth 10.056 MHz</div></div></div><div><div>Trace/View</div><div>Trace 1 2 3</div><div>Clear Write</div><div>Max Hold</div><div>Min Hold</div><div>View</div><div>Blank</div><div>More 1 of 2</div></div></div>                                                                                                                           |
| 802.11b-Middle | <div><div><div>Agilent</div><div>R T</div><div>Ch Freq 2.437 GHz</div><div>Trig Free</div><div>Occupied Bandwidth</div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.437 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>15.0884 MHz</div><div>Occ BW % Pwr 99.00 %</div><div>x dB -6.00 dB</div><div>Transmit Freq Error -63.660 kHz</div><div>x dB Bandwidth 10.063 MHz</div></div></div><div><div>Freq/Channel</div><div>Center Freq 2.43700000 GHz</div><div>Start Freq 2.42200000 GHz</div><div>Stop Freq 2.45200000 GHz</div><div>CF Step 3.00000000 MHz</div><div>Auto Man</div><div>Freq Offset 0.00000000 Hz</div><div>Signal Track On Off</div><div>Scale Type Log Lin</div></div></div> |
| 802.11b-High   | <div><div><div>Agilent</div><div>R T</div><div>Ch Freq 2.462 GHz</div><div>Trig Free</div><div>Occupied Bandwidth</div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.462 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>15.0603 MHz</div><div>Occ BW % Pwr 99.00 %</div><div>x dB -6.00 dB</div><div>Transmit Freq Error -32.187 kHz</div><div>x dB Bandwidth 10.036 MHz</div></div></div><div><div>Freq/Channel</div><div>Center Freq 2.46200000 GHz</div><div>Start Freq 2.44700000 GHz</div><div>Stop Freq 2.47700000 GHz</div><div>CF Step 3.00000000 MHz</div><div>Auto Man</div><div>Freq Offset 0.00000000 Hz</div><div>Signal Track On Off</div><div>Scale Type Log Lin</div></div></div> |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 802.11g-Low    | <div><div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.412 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div></div><div><div>Center 2.412 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>16.5274 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-32.481 kHz</div><div>x dB Bandwidth</div><div>16.348 MHz</div></div></div><div><div>Freq/Channel</div><div>Center Freq</div><div>2.41200000 GHz</div><div>Start Freq</div><div>2.39700000 GHz</div><div>Stop Freq</div><div>2.42700000 GHz</div><div>CF Step</div><div>3.00000000 MHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0.00000000 Hz</div><div>Signal Track</div><div>On</div><div>Off</div><div>Scale Type</div><div>Log</div><div>Lin</div></div></div></div>   |
| 802.11g-Middle | <div><div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.437 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div></div><div><div>Center 2.437 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>16.5292 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-47.380 kHz</div><div>x dB Bandwidth</div><div>16.342 MHz</div></div></div><div><div>Freq/Channel</div><div>Center Freq</div><div>2.43700000 GHz</div><div>Start Freq</div><div>2.42200000 GHz</div><div>Stop Freq</div><div>2.45200000 GHz</div><div>CF Step</div><div>3.00000000 MHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0.00000000 Hz</div><div>Signal Track</div><div>On</div><div>Off</div><div>Scale Type</div><div>Log</div><div>Lin</div></div></div></div> |
| 802.11g-High   | <div><div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.462 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div></div><div><div>Center 2.462 GHz</div><div>Span 30 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>16.5257 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-39.702 kHz</div><div>x dB Bandwidth</div><div>16.363 MHz</div></div></div><div><div>Trace/View</div><div>1</div><div>Trace</div><div>2</div><div>3</div><div>Clear Write</div><div>Max Hold</div><div>Min Hold</div><div>View</div><div>Blank</div><div>More</div><div>1 of 2</div></div></div></div>                                                                                                                                                                                       |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 802.11n-HT20-Low    |  <p>Agilent R T</p> <p>Ch Freq 2.412 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.412 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 17.6742 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -27.653 kHz</p> <p>x dB Bandwidth 17.592 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.39700000 GHz</p> <p>Stop Freq 2.42700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>   |
| 802.11n-HT20-Middle |  <p>Agilent R T</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.437 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 17.6727 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -43.683 kHz</p> <p>x dB Bandwidth 17.588 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.42200000 GHz</p> <p>Stop Freq 2.45200000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>  |
| 802.11n-HT20-High   |  <p>Agilent R T</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 20 dBm Atten 30 dB</p> <p>#Peak Log 10 dB/Offset 1 dB</p> <p>Center 2.462 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 17.6824 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error -32.672 kHz</p> <p>x dB Bandwidth 17.589 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.44700000 GHz</p> <p>Stop Freq 2.47700000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p> |

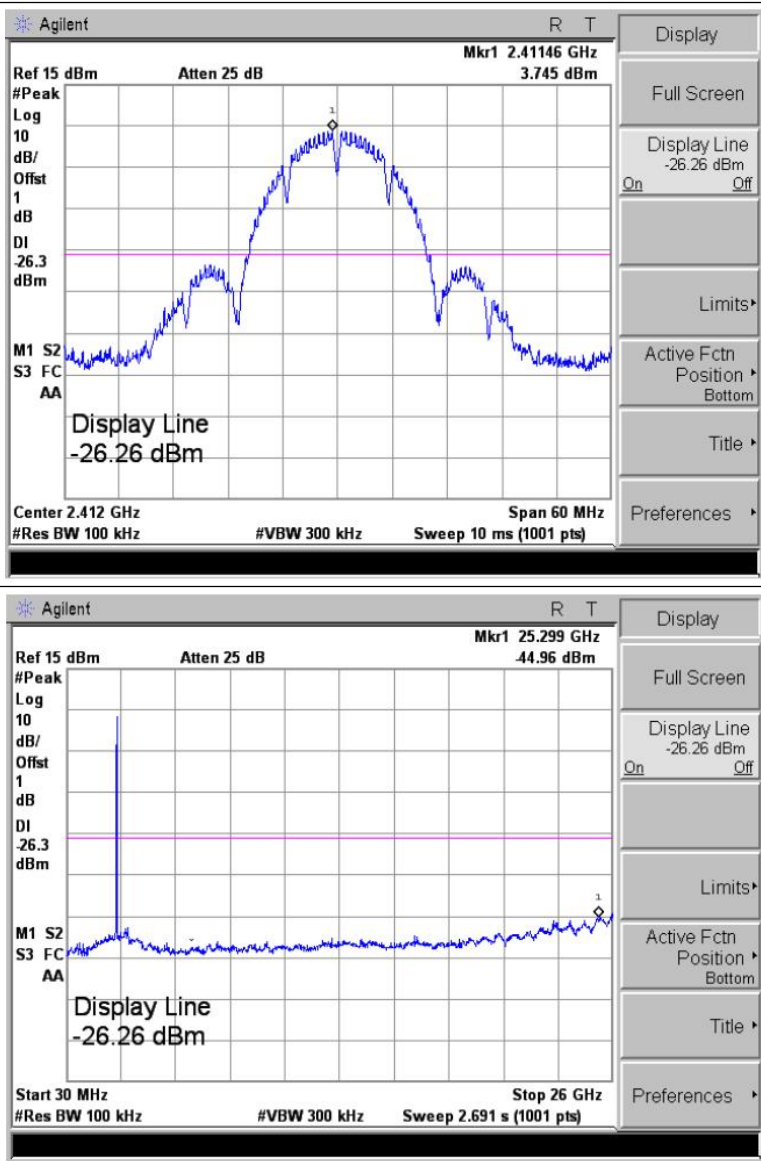
|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 802.11n-HT40-Low    | <div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.422 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.422 GHz</div><div>Span 60 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>36.1550 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-40.770 kHz</div><div>x dB Bandwidth</div><div>36.101 MHz</div></div></div> <div><div>Freq/Channel</div><div>Center Freq</div><div>2.42200000 GHz</div><div>Start Freq</div><div>2.39200000 GHz</div><div>Stop Freq</div><div>2.45200000 GHz</div><div>CF Step</div><div>6.00000000 MHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0.00000000 Hz</div><div>Signal Track</div><div>On</div><div>Off</div><div>Scale Type</div><div>Log</div><div>Lin</div></div>                                 |
| 802.11n-HT40-Middle | <div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.437 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.437 GHz</div><div>Span 60 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>36.1762 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-53.437 kHz</div><div>x dB Bandwidth</div><div>36.319 MHz</div></div></div> <div><div>Freq/Channel</div><div>Center Freq</div><div>2.43700000 GHz</div><div>Start Freq</div><div>2.40700000 GHz</div><div>Stop Freq</div><div>2.46700000 GHz</div><div>CF Step</div><div>6.00000000 MHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0.00000000 Hz</div><div>Signal Track</div><div>On</div><div>Off</div><div>Scale Type</div><div>Log</div><div>Lin</div></div>                                 |
| 802.11n-HT40-High   | <div><div><div><div>Agilent</div><div>R</div><div>T</div></div><div><div>Ch Freq</div><div>2.452 GHz</div><div>Trig</div><div>Free</div></div><div><div>Occupied Bandwidth</div><div></div></div></div><div><div>Center 2.45200000 GHz</div><div>Ref 20 dBm</div><div>Atten 30 dB</div><div>#Peak</div><div>Log</div><div>10</div><div>dB/</div><div>Offset</div><div>1</div><div>dB</div></div><div><div>Center 2.452 GHz</div><div>Span 60 MHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Sweep 10 ms (1001 pts)</div></div><div><div>Occupied Bandwidth</div><div>35.7932 MHz</div><div>Occ BW % Pwr</div><div>99.00 %</div><div>x dB</div><div>-6.00 dB</div><div>Transmit Freq Error</div><div>-33.845 kHz</div><div>x dB Bandwidth</div><div>36.326 MHz</div></div></div> <div><div>Freq/Channel</div><div>Center Freq</div><div>2.45200000 GHz</div><div>Start Freq</div><div>2.42200000 GHz</div><div>Stop Freq</div><div>2.48200000 GHz</div><div>CF Step</div><div>6.00000000 MHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0.00000000 Hz</div><div>Signal Track</div><div>On</div><div>Off</div><div>Scale Type</div><div>Log</div><div>Lin</div></div> |

APPENDIX C

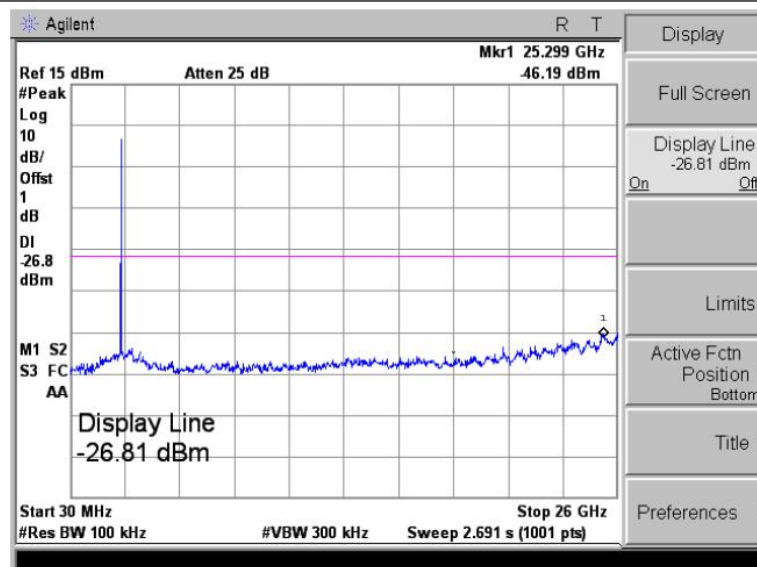
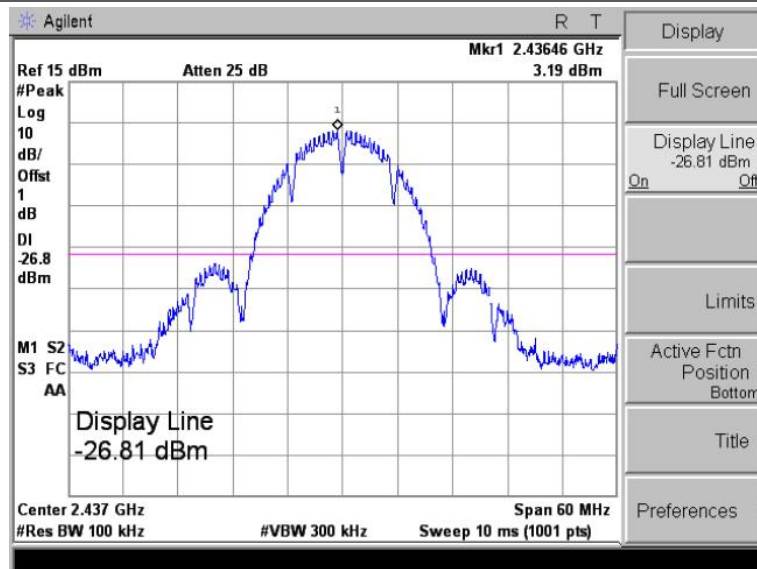
| Output power      |                  |                |              |
|-------------------|------------------|----------------|--------------|
| Test Mode         | Frequency<br>MHz | Reading<br>dBm | Limit<br>dBm |
| 802.11b_11Mbps    | 2412             | 17.24          | 30.00        |
|                   | 2437             | 17.41          | 30.00        |
|                   | 2462             | 17.26          | 30.00        |
| 802.11g_54Mbps    | 2412             | 15.17          | 30.00        |
|                   | 2437             | 15.24          | 30.00        |
|                   | 2462             | 14.11          | 30.00        |
| 802.11n HT20_MCS7 | 2412             | 14.58          | 30.00        |
|                   | 2437             | 14.69          | 30.00        |
|                   | 2462             | 13.87          | 30.00        |
| 802.11n HT40_MCS7 | 2422             | 13.57          | 30.00        |
|                   | 2437             | 13.55          | 30.00        |
|                   | 2452             | 13.69          | 30.00        |

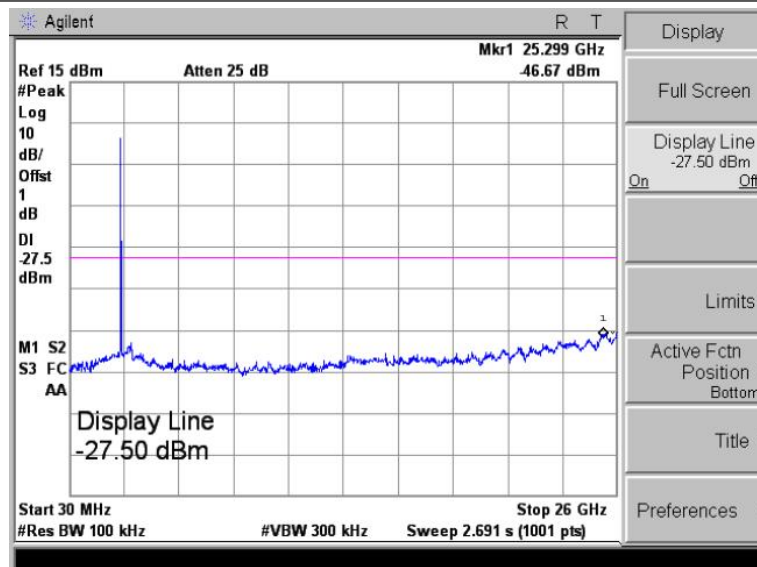
APPENDIX D

802.11B-Low

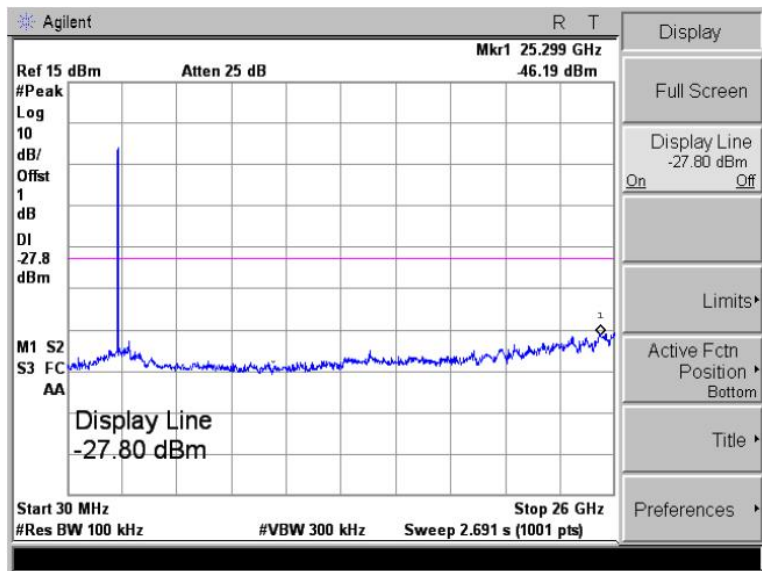
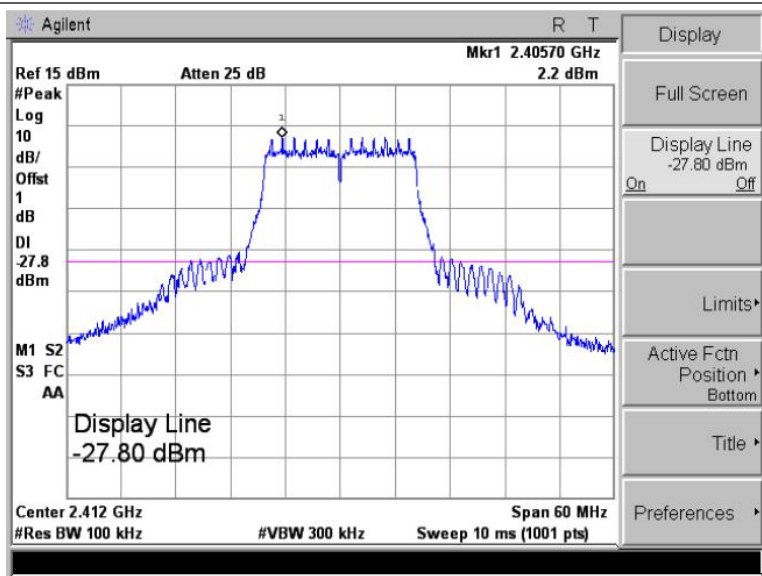


802.11B-Middle

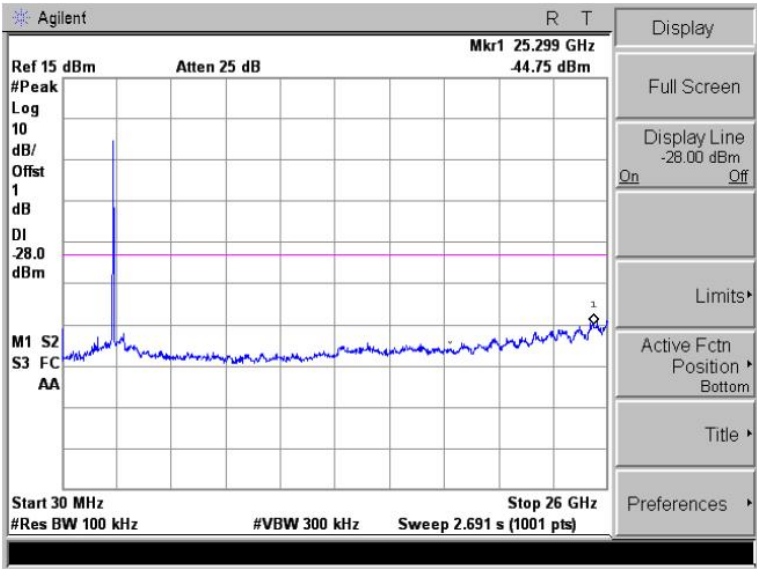
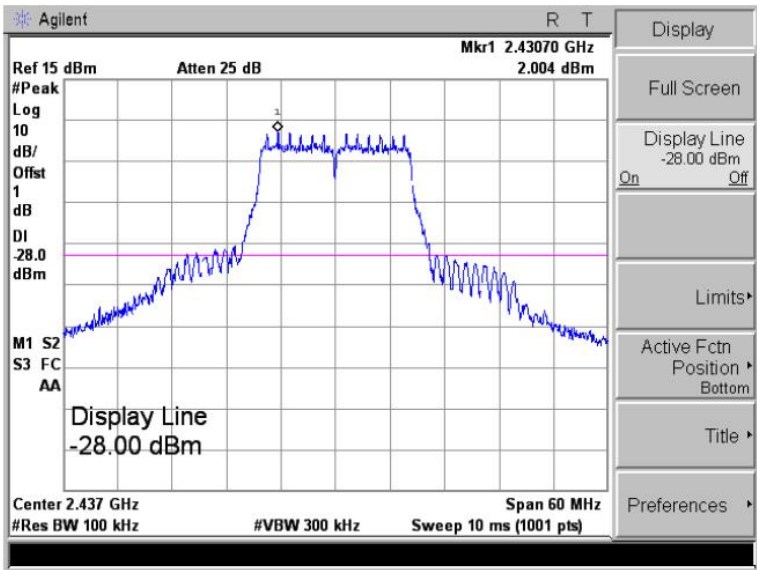




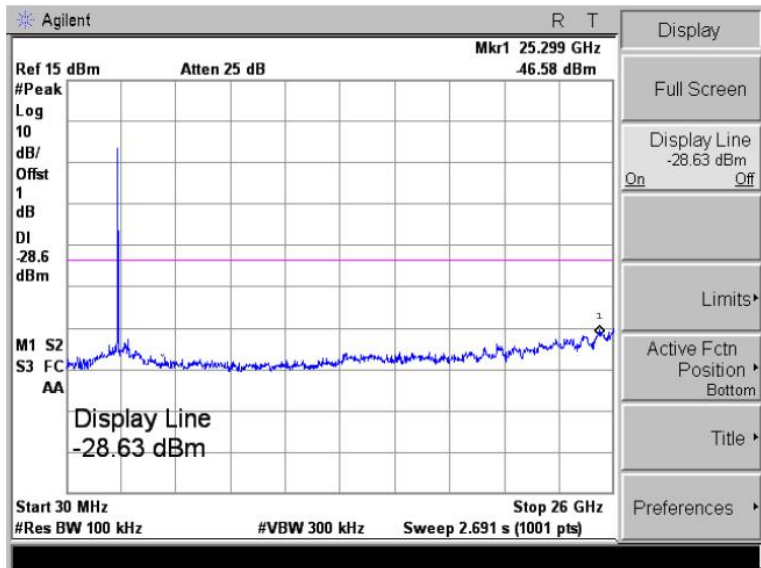
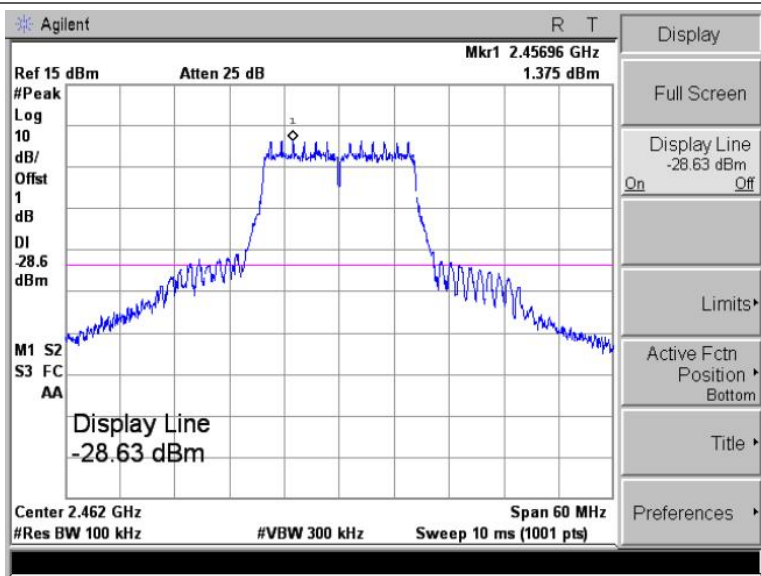
802.11G-Low



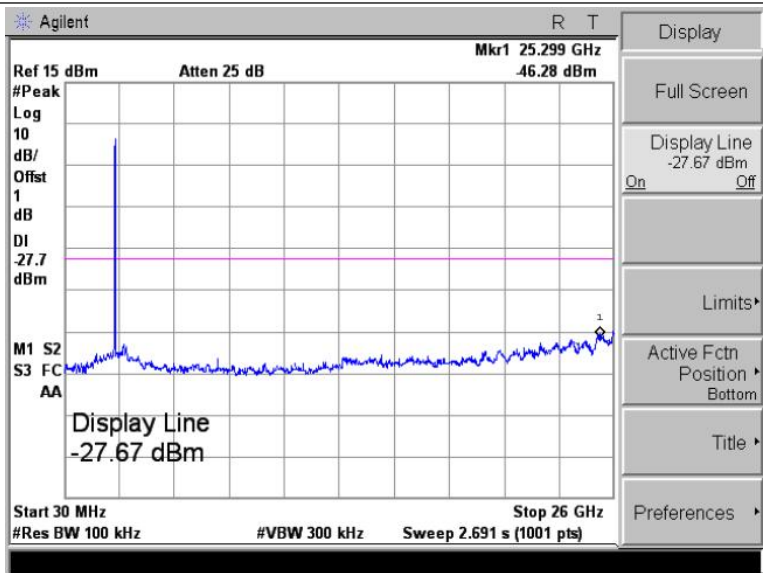
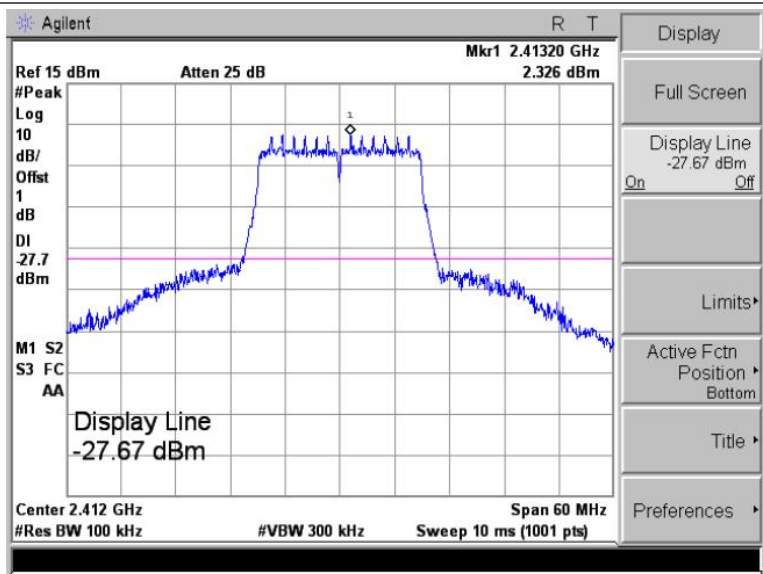
802.11G-Middle



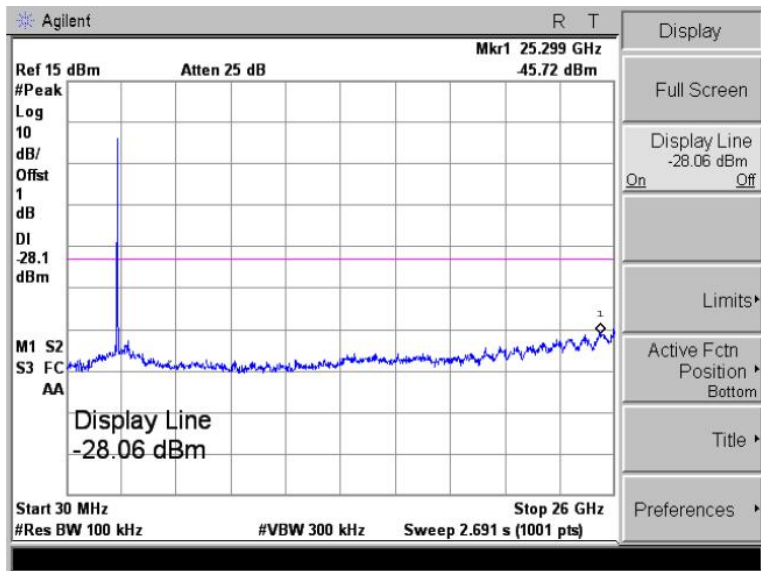
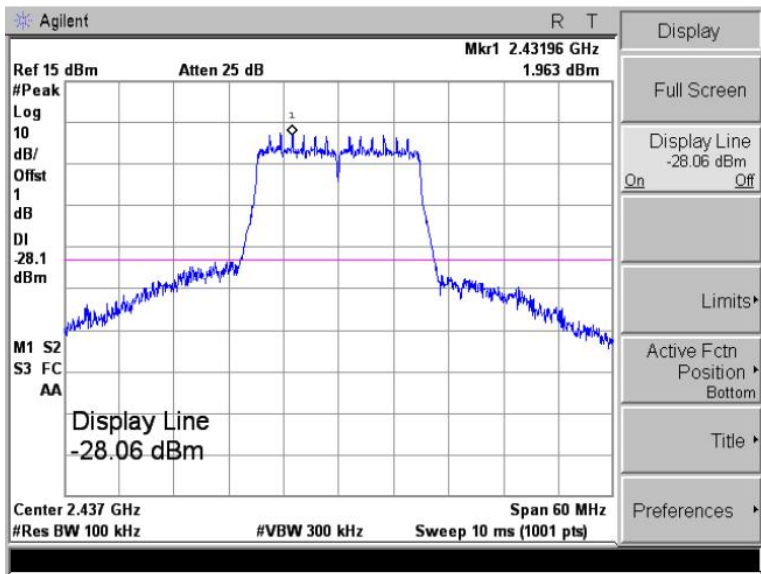
802.11G-High



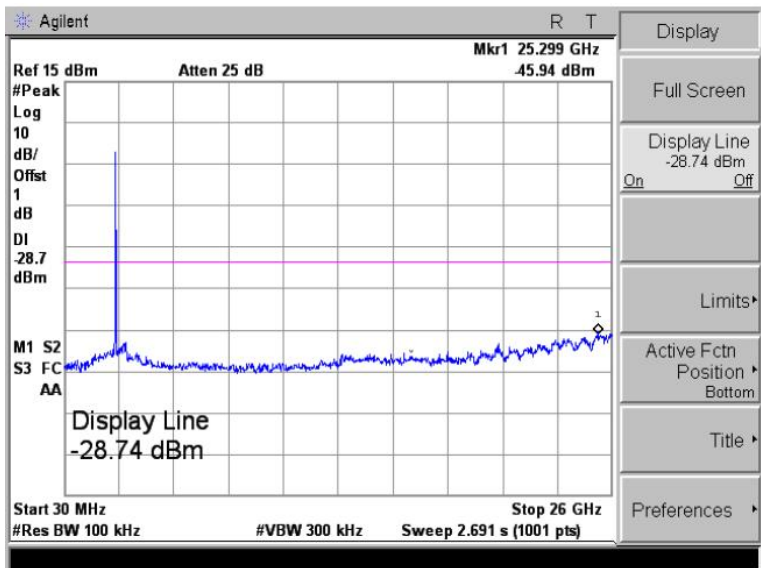
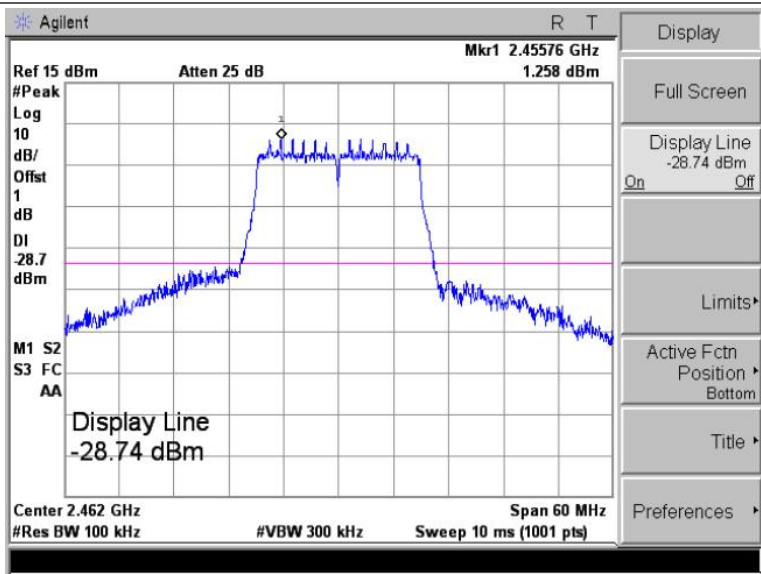
802.11N-HT20-Low



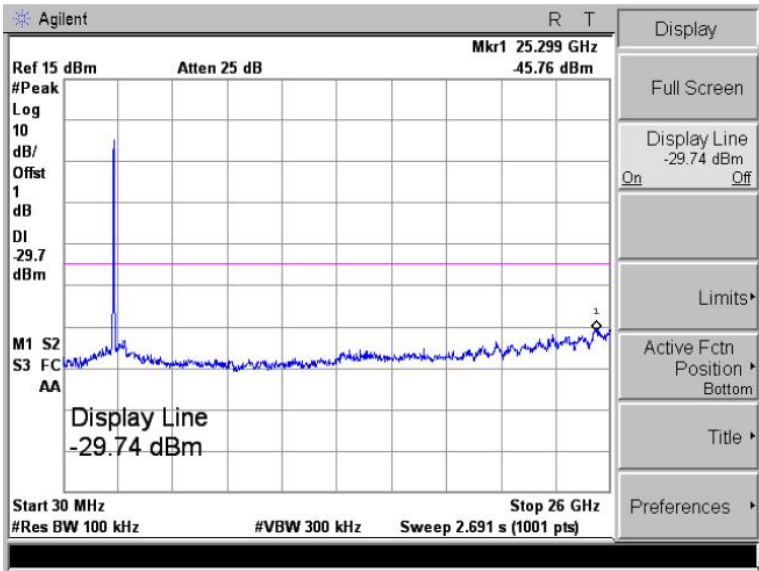
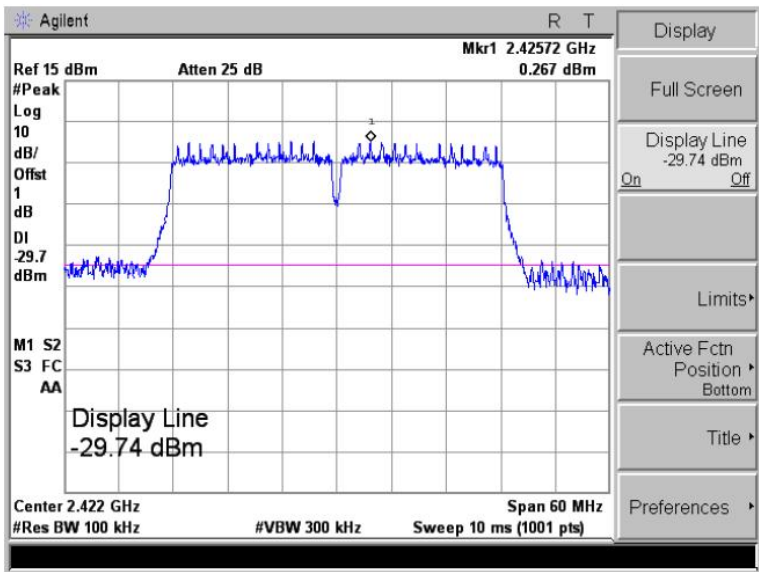
802.11N-HT20-Middle



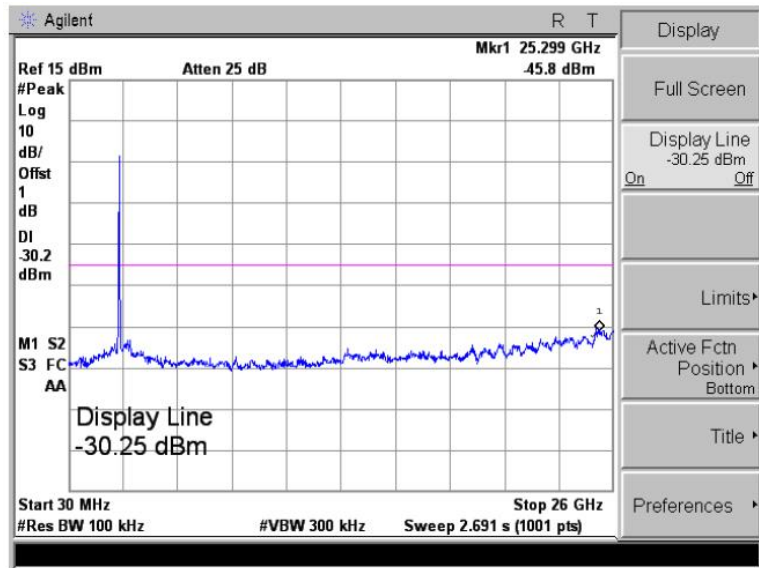
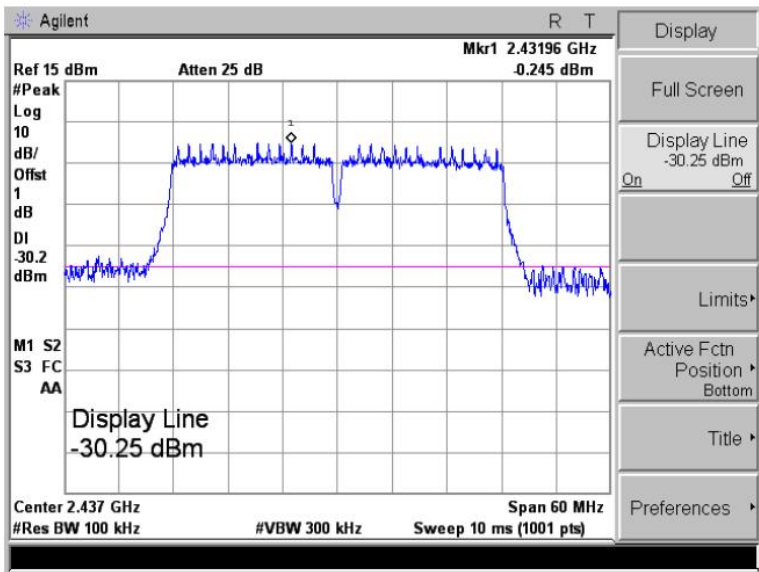
802.11N-HT20-High



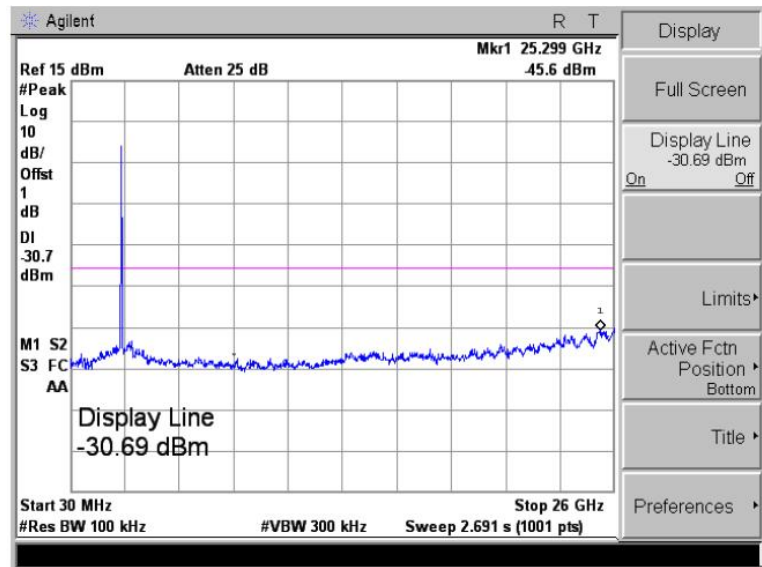
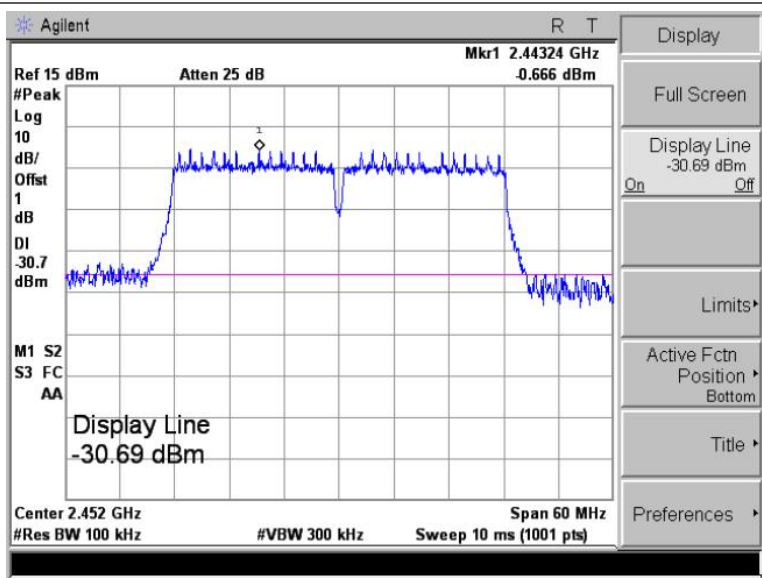
802.11N-HT40-Low



802.11N-HT40-Middle

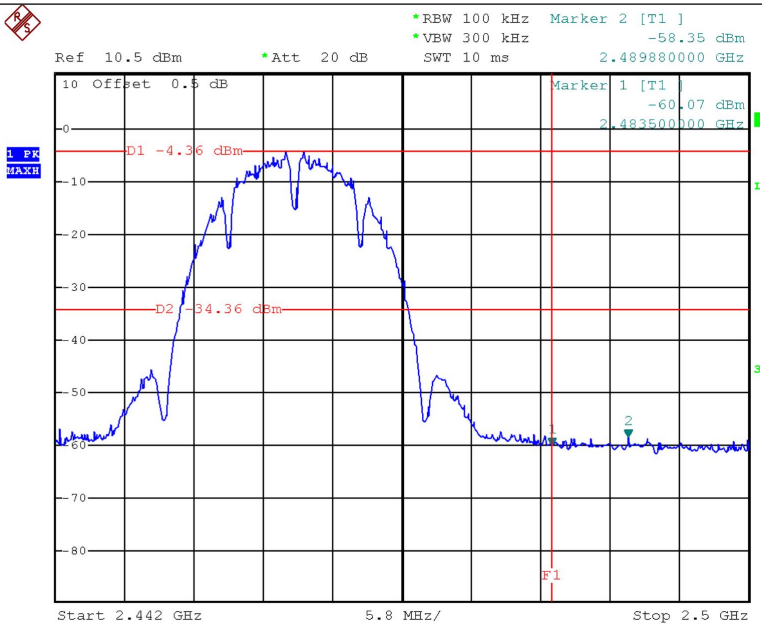
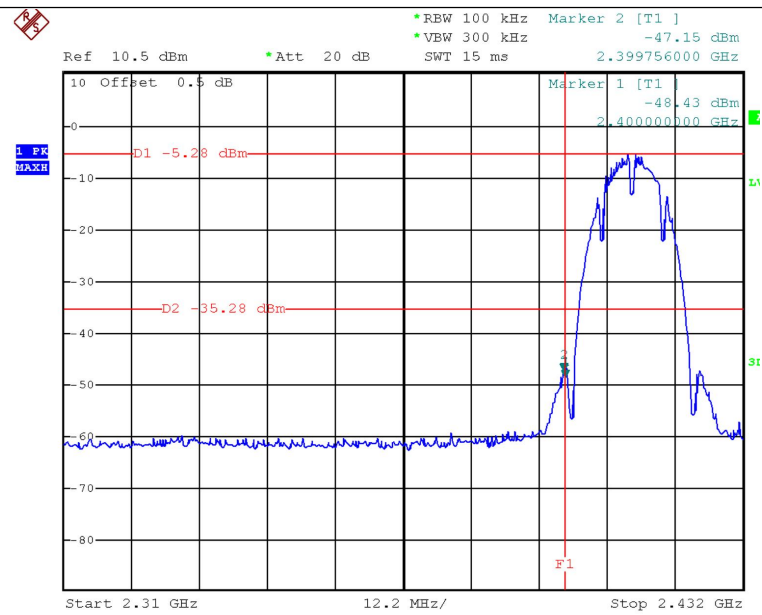


802.11N-HT40-High

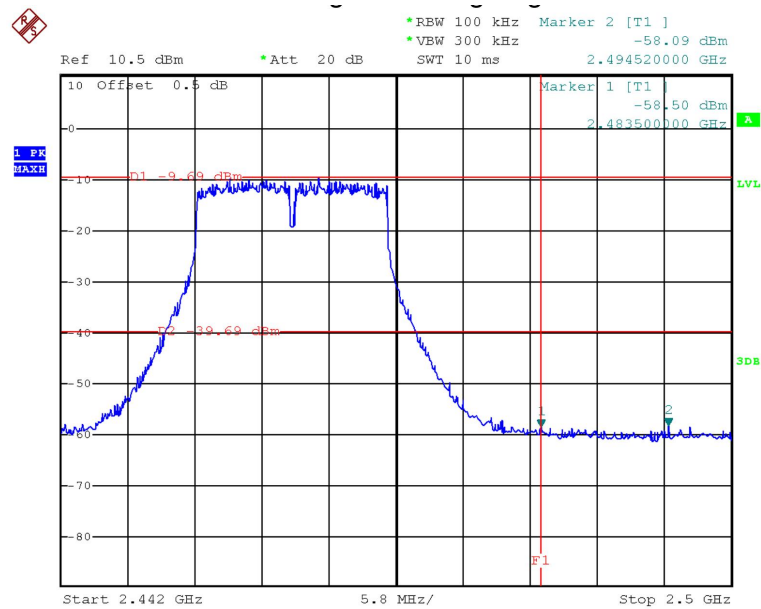
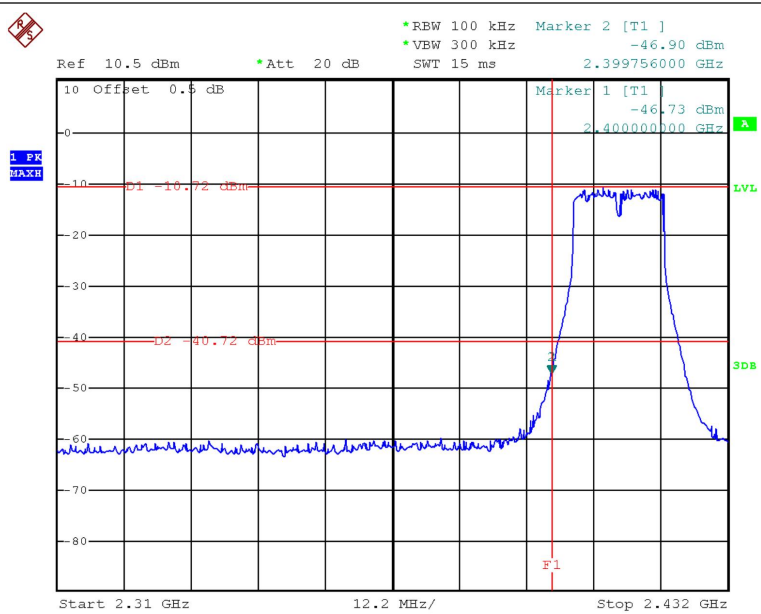


APPENDIX E

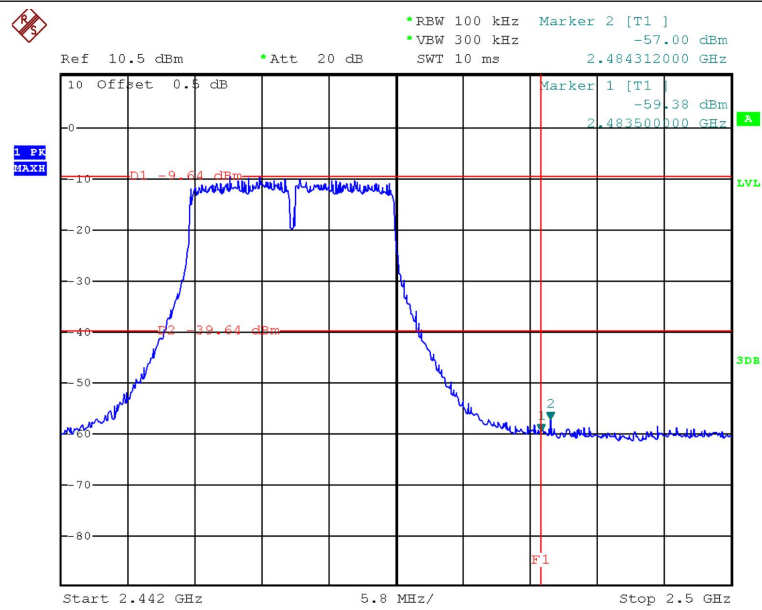
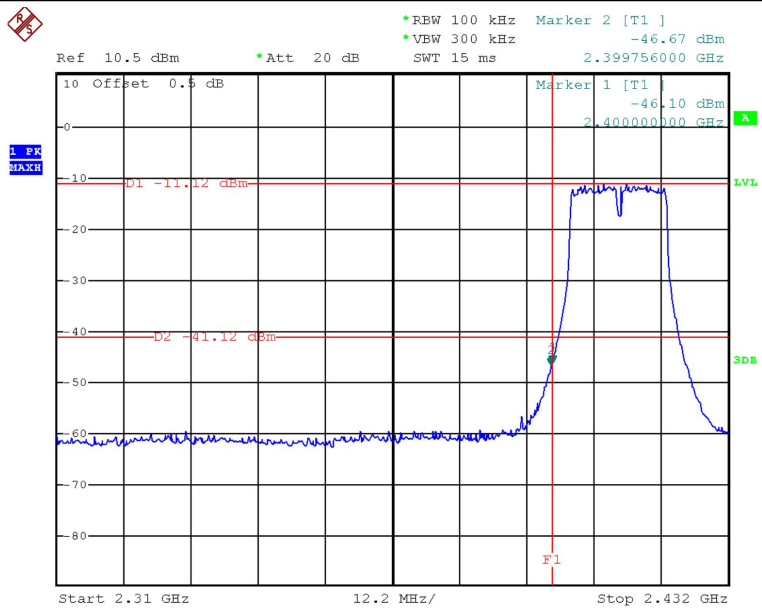
802.11B



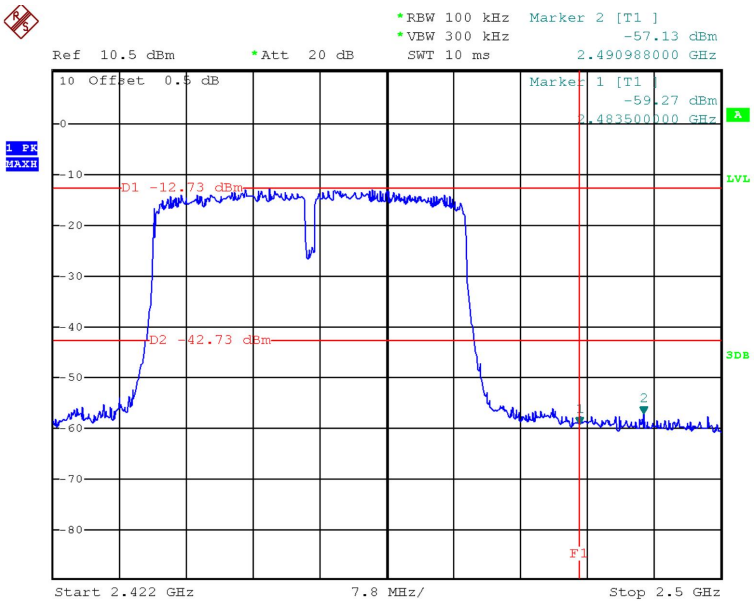
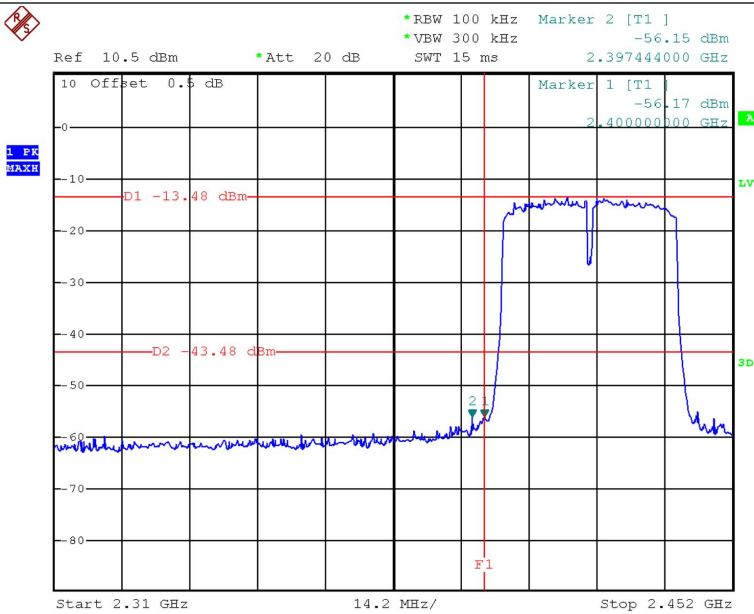
802.11G



802.11N-HT20



802.11N-HT40



## APPENDIX PHOTOGRAPHS

---

Please refer to “ANNEX”

**\*\*\*\*\* END OF REPORT \*\*\*\*\***