

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10-2013

**Report No.:** RFBCKS-WTW-P21123397

**FCC ID:** 2AAAS-BB02

**Model No.:** BB02

**Received Date:** 2021/12/10

**Test Date:** 2021/12/29 ~ 2022/2/17

**Issued Date:** 2022/6/30

**Applicant:** Vivint. Inc.

**Address:** 4931 N. 300 W. Provo, UT 84604 USA

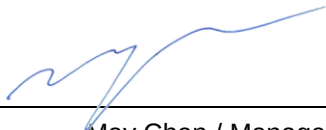
**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**FCC Registration /** 723255 / TW2022

**Designation Number:**

**Approved by:**  , **Date:** 2022/6/30  
May Chen / Manager

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Prepared by : Vivian Huang / Specialist



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## Table of Contents

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>Release Control Record .....</b>                                 | <b>4</b>  |
| <b>1 Certificate.....</b>                                           | <b>5</b>  |
| <b>2 Summary of Test Results .....</b>                              | <b>6</b>  |
| 2.1 Measurement Uncertainty .....                                   | 6         |
| 2.2 Supplementary Information .....                                 | 6         |
| <b>3 General Information .....</b>                                  | <b>7</b>  |
| 3.1 General Description .....                                       | 7         |
| 3.2 Antenna Description of EUT .....                                | 8         |
| 3.3 Channel List .....                                              | 9         |
| 3.4 Test Mode Applicability and Tested Channel Detail .....         | 10        |
| 3.5 Duty Cycle of Test Signal .....                                 | 11        |
| 3.6 Test Program Used and Operation Descriptions .....              | 12        |
| 3.7 Connection Diagram of EUT and Peripheral Devices .....          | 12        |
| 3.8 Configuration of Peripheral Devices and Cable Connections ..... | 13        |
| <b>4 Test Instruments .....</b>                                     | <b>14</b> |
| 4.1 RF Output Power .....                                           | 14        |
| 4.2 Power Spectral Density .....                                    | 14        |
| 4.3 6dB Bandwidth .....                                             | 14        |
| 4.4 Conducted Out of Band Emissions .....                           | 14        |
| 4.5 AC Power Conducted Emissions .....                              | 14        |
| 4.6 Unwanted Emissions below 1 GHz .....                            | 15        |
| 4.7 Unwanted Emissions above 1 GHz .....                            | 16        |
| <b>5 Limits of Test Items.....</b>                                  | <b>17</b> |
| 5.1 RF Output Power .....                                           | 17        |
| 5.2 Power Spectral Density .....                                    | 17        |
| 5.3 6dB Bandwidth .....                                             | 17        |
| 5.4 Conducted Out of Band Emissions .....                           | 17        |
| 5.5 AC Power Conducted Emissions .....                              | 17        |
| 5.6 Unwanted Emissions below 1 GHz .....                            | 18        |
| 5.7 Unwanted Emissions above 1 GHz .....                            | 18        |
| <b>6 Test Arrangements .....</b>                                    | <b>19</b> |
| 6.1 RF Output Power .....                                           | 19        |
| 6.1.1 Test Setup .....                                              | 19        |
| 6.1.2 Test Procedure .....                                          | 19        |
| 6.2 Power Spectral Density .....                                    | 19        |
| 6.2.1 Test Setup .....                                              | 19        |
| 6.2.2 Test Procedure .....                                          | 19        |
| 6.3 6dB Bandwidth .....                                             | 20        |
| 6.3.1 Test Setup .....                                              | 20        |
| 6.3.2 Test Procedure .....                                          | 20        |
| 6.4 Conducted Out of Band Emissions .....                           | 20        |
| 6.4.1 Test Setup .....                                              | 20        |
| 6.4.2 Test Procedure .....                                          | 20        |
| 6.5 AC Power Conducted Emissions .....                              | 21        |
| 6.5.1 Test Setup .....                                              | 21        |
| 6.5.2 Test Procedure .....                                          | 21        |
| 6.6 Unwanted Emissions below 1 GHz .....                            | 22        |
| 6.6.1 Test Setup .....                                              | 22        |
| 6.6.2 Test Procedure .....                                          | 23        |
| 6.7 Unwanted Emissions above 1 GHz .....                            | 24        |
| 6.7.1 Test Setup .....                                              | 24        |
| 6.7.2 Test Procedure .....                                          | 24        |
| <b>7 Test Results of Test Item .....</b>                            | <b>25</b> |

|          |                                                      |           |
|----------|------------------------------------------------------|-----------|
| 7.1      | RF Output Power .....                                | 25        |
| 7.2      | Power Spectral Density .....                         | 30        |
| 7.3      | 6dB Bandwidth .....                                  | 32        |
| 7.4      | Conducted Out of Band Emissions .....                | 34        |
| 7.5      | AC Power Conducted Emissions .....                   | 42        |
| 7.6      | Unwanted Emissions below 1 GHz .....                 | 44        |
| 7.7      | Unwanted Emissions above 1 GHz .....                 | 46        |
| <b>8</b> | <b>Pictures of Test Arrangements .....</b>           | <b>74</b> |
| <b>9</b> | <b>Information of the Testing Laboratories .....</b> | <b>75</b> |

## Release Control Record

| Issue No.            | Description       | Date Issued |
|----------------------|-------------------|-------------|
| RFBCKS-WTW-P21123397 | Original release. | 2022/6/30   |

## 1 Certificate

**Product:** Vivint Air Tower

**Brand:** Vivint, Inc.

**Test Model:** BB02

**Sample Status:** Engineering sample

**Applicant:** Vivint. Inc.

**Test Date:** 2021/12/29 ~ 2022/2/17

**Standard:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10-2013

**Measurement procedure:** KDB 558074 D01 15.247 Meas Guidance v05r02  
KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (Section 15.247) |                                 |        |                                                          |
|------------------------------------------------|---------------------------------|--------|----------------------------------------------------------|
| Standard / Clause                              | Test Item                       | Result | Remark                                                   |
| 15.247(b)                                      | RF Output Power                 | Pass   | Meet the requirement of limit.                           |
| 15.247(e)                                      | Power Spectral Density          | Pass   | Meet the requirement of limit.                           |
| 15.247(a)(2)                                   | 6dB Bandwidth                   | Pass   | Meet the requirement of limit.                           |
| 15.247(d)                                      | Conducted Out of Band Emissions | Pass   | Meet the requirement of limit.                           |
| 15.207                                         | AC Power Conducted Emissions    | Pass   | Minimum passing margin is -4.72 dB at 0.45078 MHz        |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions below 1 GHz  | Pass   | Minimum passing margin is -4.8 dB at 64.10 MHz           |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions above 1 GHz  | Pass   | Minimum passing margin is -0.2 dB at 2483.50 MHz         |
| 15.203                                         | Antenna Requirement             | Pass   | Antenna connector is ipex(MHF) not a standard connector. |

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement                     | Specification    | Expanded Uncertainty (k=2)<br>(±) |
|---------------------------------|------------------|-----------------------------------|
| Conducted Out of Band Emissions | 9 kHz ~ 40 GHz   | 2.5 dB                            |
| AC Power Conducted Emissions    | 150 kHz ~ 30 MHz | 1.9 dB                            |
| Unwanted Emissions below 1 GHz  | 30 MHz ~ 1 GHz   | 5.4 dB                            |
| Unwanted Emissions above 1 GHz  | 1 GHz ~ 18 GHz   | 5.0 dB                            |
|                                 | 18 GHz ~ 40 GHz  | 5.3 dB                            |

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

### 2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

### 3 General Information

#### 3.1 General Description

|                       |                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Product               | Vivint Air Tower                                                                                                                         |
| Brand                 | Vivint, Inc.                                                                                                                             |
| Test Model            | BB02                                                                                                                                     |
| Status of EUT         | Engineering sample                                                                                                                       |
| Power Supply Rating   | 12Vdc from power adapter                                                                                                                 |
| Modulation Type       | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM<br>256QAM for OFDM in VHT20/40 mode<br>1024QAM for OFDMA in 11ax HE mode |
| Modulation Technology | DSSS, OFDM, OFDMA                                                                                                                        |
| Transfer Rate         | 802.11b: up to 11 Mbps<br>802.11g: up to 54 Mbps<br>802.11n: up to 400 Mbps<br>802.11ax: up to 573.5 Mbps                                |
| Operating Frequency   | 2412 ~ 2462 MHz                                                                                                                          |
| Number of Channel     | 802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11<br>802.11n (HT40), VHT40, 802.11ax (HE40): 7                                |
| Output Power          | <b>CDD mode:</b> 939.878 mW<br><b>Beamforming mode:</b> 939.878 mW                                                                       |

Note:

1. The EUT has below radios as following table:

| Radio 1                                                 | Radio 2                                                     |
|---------------------------------------------------------|-------------------------------------------------------------|
| WLAN (2.4GHz / 5GHz Low Band / 5GHz Scanning (only RX)) | WLAN (5GHz High Band / 5GHz Scanning (only RX)) & Bluetooth |

2. Simultaneously transmission condition.

| Condition | Technology           |                       |                       |
|-----------|----------------------|-----------------------|-----------------------|
| 1         | WLAN 2.4GHz          | WLAN 5GHz (Low Band)  | WLAN 5GHz (High Band) |
| 2         | WLAN 5GHz (Low Band) | WLAN 5GHz (High Band) | Bluetooth             |

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

3. The EUT must be supplied with a power adapter and the following different models could be chosen:

| No | Brand    | Model No.              | Spec.                                                                                              |
|----|----------|------------------------|----------------------------------------------------------------------------------------------------|
| 1  | HONOTO   | ADS-24FUD-12 12024EPCU | AC Input : 100-240V, 50/60Hz, 0.6A<br>DC Output : 12V, 2A<br>DC Output Cable : Unshielded, 1.51m   |
| 2  | ZB-Power | ZB-H120020A-88         | AC Input : 100-240V, 50/60Hz, 0.6A<br>DC Output : 12V, 2.0A<br>DC output Cable : Unshielded, 1.51m |

4. The EUT has below source items as following table:

| Source Item | 3.3V to 1.0V DC/DC converter | Package | PCB Board | E-CAP                  |
|-------------|------------------------------|---------|-----------|------------------------|
| G01(A)      | AU1(RT5789BGJ8F)             | SOT23   | PCB A     | Main Source            |
| G01(B)      | AU1(RT5789BGJ8F)             | SOT23   | PCB A     | 2 <sup>nd</sup> Source |
| G02         | AU1(RT5789BGJ8F)             | SOT23   | PCB B     | 2 <sup>nd</sup> Source |
| G03         | AU11 (JWH5276)               | QFN     | PCB B     | 2 <sup>nd</sup> Source |

Note: PCB A(48WHVA11.SGD) and PCB B(48WHVA11.0GA) Layout different with Package, adding Colay-out for QFN.

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Antenna Description of EUT

1. The antenna information is listed as below.

| Antenna No. | RF Chain No. | Model    | Antenna Net Gain (dBi) | Frequency Range (GHz)         | Antenna Type | Connector Type |
|-------------|--------------|----------|------------------------|-------------------------------|--------------|----------------|
| 5G1         | 0            | WHVA1    | 4.5                    | 5.15~5.35 (Scanning, RX only) | PIFA         | None           |
| 5G2         | 1            | WHVA1    | 4.5                    | 5.47~5.85 (Scanning, RX only) | PIFA         | None           |
| ANT 2 (2a)  | 2G           | 48XKAB18 | 3.5                    | 2.4~2.4835                    | Dipole       | ipex(MHF)      |
|             | 5GL          |          | 3.1                    | 5.15~5.35                     |              |                |
| ANT 2 (2b)  | 5GH          | 48XKAB18 | 3.6                    | 5.47~5.85                     | Dipole       | ipex(MHF)      |
| ANT 3 (3a)  | 2G           | 48XKAB19 | 2.7                    | 2.4~2.4835                    | Dipole       | ipex(MHF)      |
|             | 5GL          |          | 3.7                    | 5.15~5.35                     |              |                |
| ANT 3 (3b)  | BT           | 48XKAB19 | 2.9                    | 2.4~2.4835 (BT)               | Dipole       | ipex(MHF)      |
|             | 5GH          |          | 3.5                    | 5.47~5.85                     |              |                |

\*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2. The EUT incorporates a MIMO function:

| Modulation Mode        | 2.4GHz Band           |     |
|------------------------|-----------------------|-----|
|                        | TX & RX Configuration |     |
| <b>802.11b</b>         | 2TX                   | 2RX |
| <b>802.11g</b>         | 2TX                   | 2RX |
| <b>802.11n (HT20)</b>  | 2TX                   | 2RX |
| <b>802.11n (HT40)</b>  | 2TX                   | 2RX |
| <b>VHT20</b>           | 2TX                   | 2RX |
| <b>VHT40</b>           | 2TX                   | 2RX |
| <b>802.11ax (HE20)</b> | 2TX                   | 2RX |
| <b>802.11ax (HE40)</b> | 2TX                   | 2RX |

Note:

1. All of modulation mode support beamforming function except 802.11b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), VHT mode for 20MHz (40MHz) and 802.11ax mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n/VHT mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report.

### 3.3 Channel List

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), VHT20 and 802.11ax (HE20):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 1       | 2412 MHz  | 7       | 2442 MHz  |
| 2       | 2417 MHz  | 8       | 2447 MHz  |
| 3       | 2422 MHz  | 9       | 2452 MHz  |
| 4       | 2427 MHz  | 10      | 2457 MHz  |
| 5       | 2432 MHz  | 11      | 2462 MHz  |
| 6       | 2437 MHz  |         |           |

7 channels are provided for 802.11n (HT40), VHT40 and 802.11ax (HE40):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 3       | 2422 MHz  | 7       | 2442 MHz  |
| 4       | 2427 MHz  | 8       | 2447 MHz  |
| 5       | 2432 MHz  | 9       | 2452 MHz  |
| 6       | 2437 MHz  |         |           |

### 3.4 Test Mode Applicability and Tested Channel Detail

|             |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-Scan:   | 1. The AC Adapter has the following models: Brand: HONOTO, Model: ADS-24FUD-12 12024EPCU / Brand: ZB-Power, Model: ZB-H120020A-88. Pre-scan these models of AC Adapters and find the worst case as a representative test condition.<br>2. For RE Below 1GHz has the following source items :G01(A) / G01(B) / G02 / G03.Pre-scan these source items and find the worst case as a representative test condition. |
| Worst Case: | 1. AC Adapter Worst Condition:<br>Brand: HONOTO, Model: ADS-24FUD-12 12024EPCU<br>2. Source items for RE Below 1GHz Worst Condition:G01(A)<br>3. Data Rate Worst Condition: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).                               |

Note: Partial RU (resource unit) configurations not supported.

Following channel(s) was (were) selected for the final test as listed below:

| Test Item                                                                | EUT Configure Mode | Mode                | Singal Mode     | Tested Channel | Modulation | Data Rate Parameter |
|--------------------------------------------------------------------------|--------------------|---------------------|-----------------|----------------|------------|---------------------|
| AC Power Conducted Emissions                                             | A                  | 802.11g             | CDD             | 6              | BPSK       | 6Mb/s               |
| Unwanted Emissions below 1 GHz                                           | A                  | 802.11g             | CDD             | 6              | BPSK       | 6Mb/s               |
| Unwanted Emissions above 1 GHz                                           | A                  | 802.11b             | CDD             | 1, 6, 11       | DBPSK      | 1Mb/s               |
|                                                                          |                    | 802.11g             | CDD             | 1, 6, 11       | BPSK       | 6Mb/s               |
|                                                                          |                    | 802.11ax (HE20)     | CDD             | 1, 6, 11       | BPSK       | MCS0                |
|                                                                          |                    | 802.11ax (HE40)     | CDD             | 3, 6, 9        | BPSK       | MCS0                |
| RF Output Power                                                          | A                  | 802.11b             | CDD             | 1, 6, 11       | DBPSK      | 1Mb/s               |
|                                                                          |                    | 802.11g             | CDD             | 1, 6, 11       | BPSK       | 6Mb/s               |
|                                                                          |                    | VHT20               | CDD Beamforming | 1, 6, 11       | BPSK       | MCS0                |
|                                                                          |                    | VHT40               | CDD Beamforming | 3, 6, 9        | BPSK       | MCS0                |
|                                                                          |                    | 802.11ax (HE20)     | CDD Beamforming | 1, 6, 11       | BPSK       | MCS0                |
|                                                                          |                    | 802.11ax (HE40)     | CDD Beamforming | 3, 6, 9        | BPSK       | MCS0                |
| 6dB Bandwidth \ Power Spectral Density \ Conducted Out of Band Emissions | A                  | 802.11b             | CDD             | 1, 6, 11       | DBPSK      | 1Mb/s               |
|                                                                          |                    | 802.11g             | CDD             | 1, 6, 11       | BPSK       | 6Mb/s               |
|                                                                          |                    | 802.11ax (HE20)     | CDD             | 1, 6, 11       | BPSK       | MCS0                |
|                                                                          |                    | 802.11ax (HE40)     | CDD             | 3, 6, 9        | BPSK       | MCS0                |
| EUT Configure Mode:                                                      | A                  | EUT with AC adapter |                 |                |            |                     |

### 3.5 Duty Cycle of Test Signal

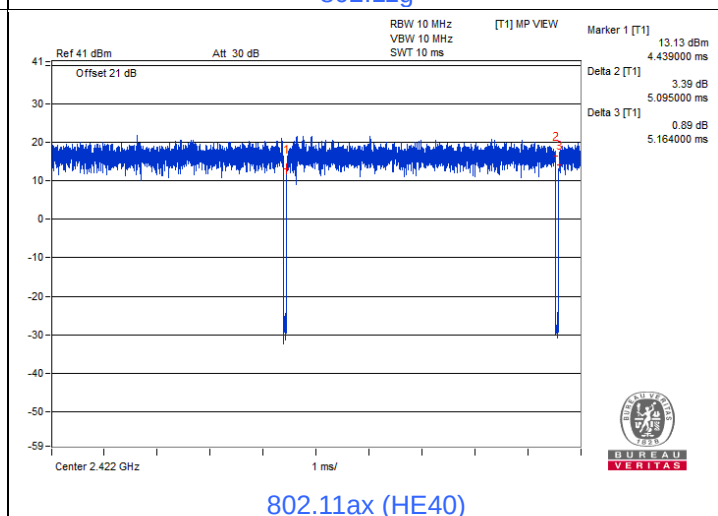
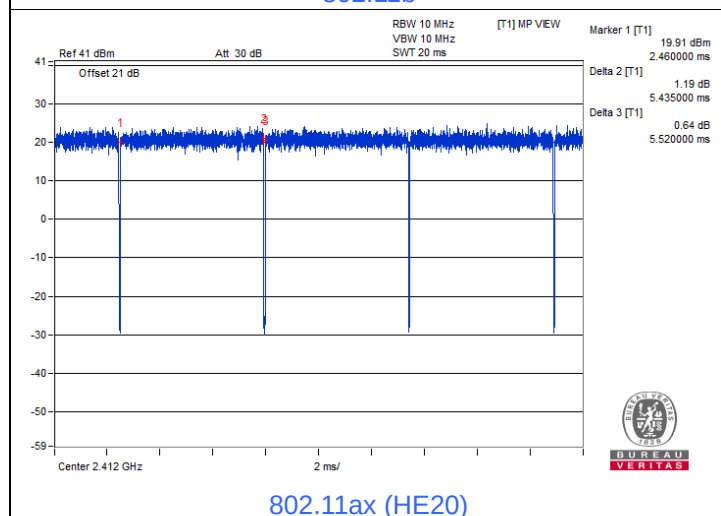
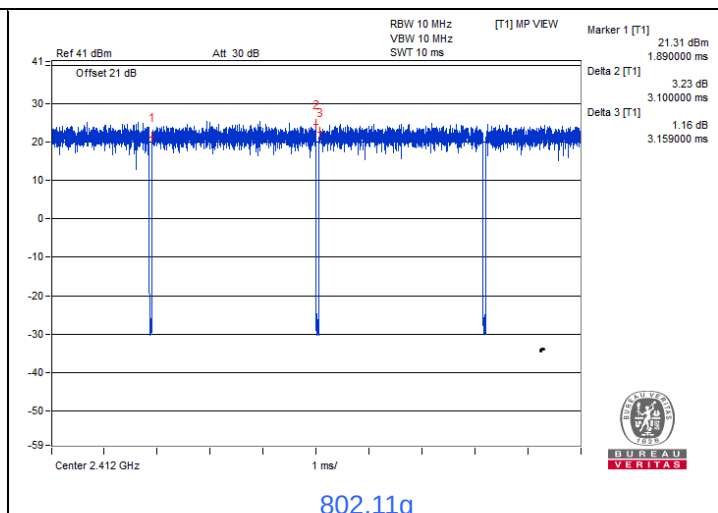
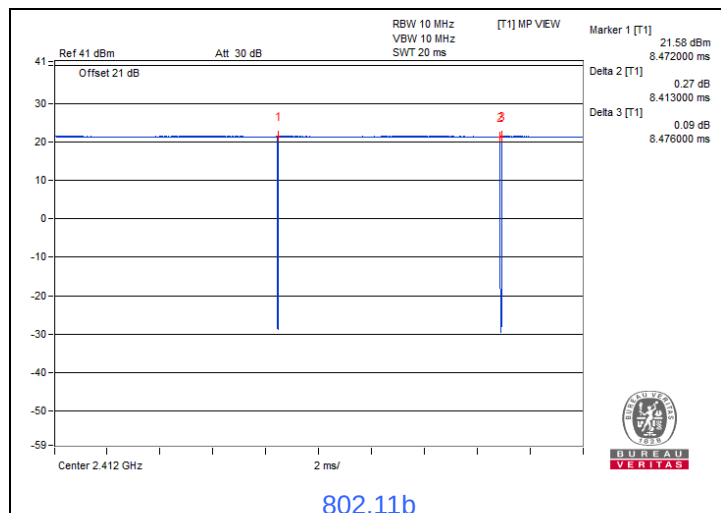
Duty cycle of test signal is  $\geq 98\%$ , duty factor is not required.  
Duty cycle of test signal is  $< 98\%$ , duty factor shall be considered.

**802.11b:** Duty cycle =  $8.413 \text{ ms} / 8.476 \text{ ms} = 99.3\%$

**802.11g:** Duty cycle =  $3.1 \text{ ms} / 3.159 \text{ ms} = 98.1\%$

**802.11ax (HE20):** Duty cycle =  $5.435 \text{ ms} / 5.52 \text{ ms} = 98.5\%$

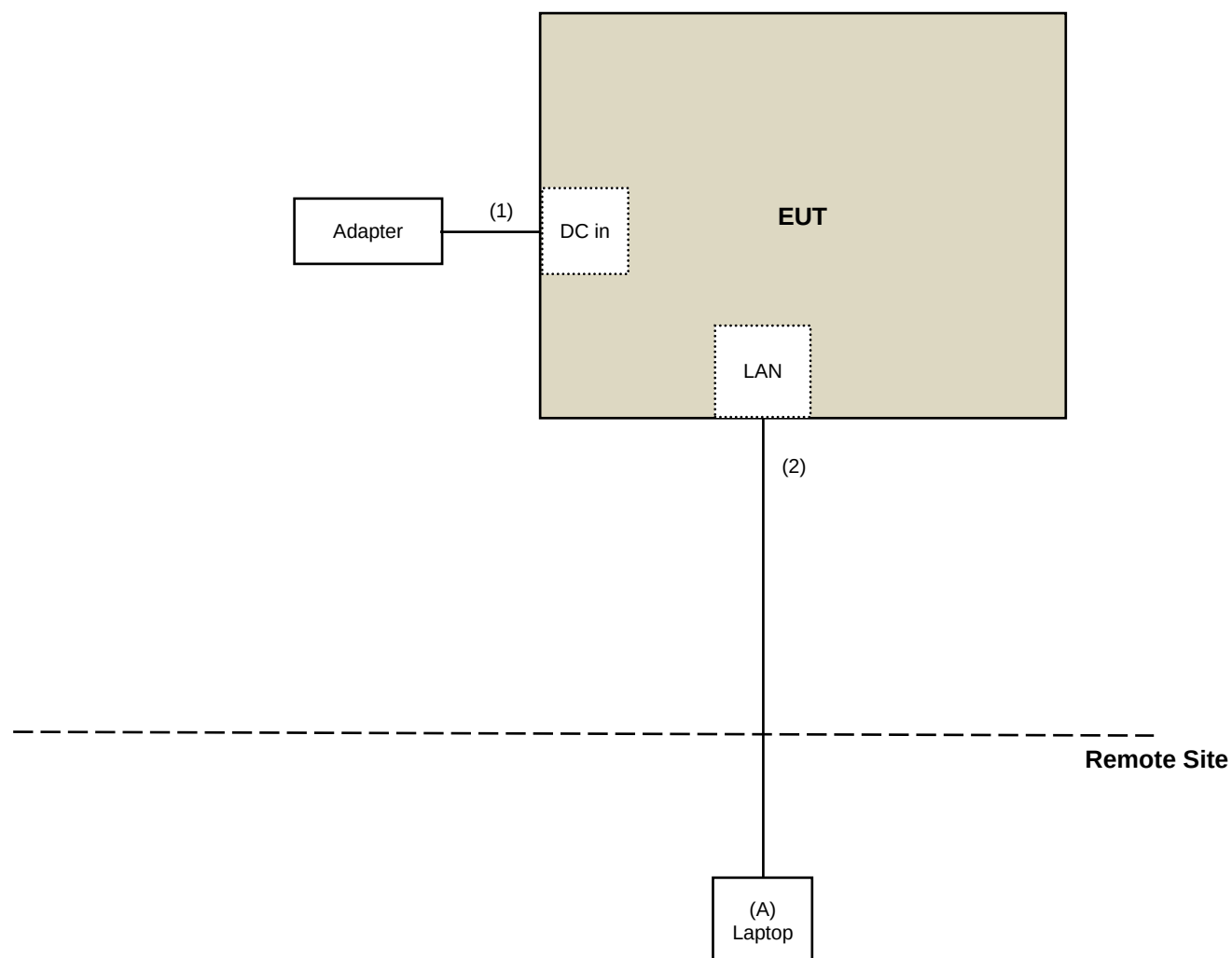
**802.11ax (HE40):** Duty cycle =  $5.095 \text{ ms} / 5.164 \text{ ms} = 98.7\%$



### 3.6 Test Program Used and Operation Descriptions

Controlling software (package\_Ulv2.13\_DLLv5.11\_20191004-alpha-RSSI -DFS) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

### 3.7 Connection Diagram of EUT and Peripheral Devices



### 3.8 Configuration of Peripheral Devices and Cable Connections

| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks         |
|----|---------|-------|-----------|------------|--------|-----------------|
| A  | Laptop  | DELL  | E5520     | 8Y4DMQ1    | N/A    | Provided by Lab |

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks               |
|----|--------------------|------|------------|--------------------|--------------|-----------------------|
| 1  | DC Cable           | 1    | 1.51       | No                 | 0            | Supplied by applicant |
| 2  | RJ-45 Cable        | 1    | 10         | No                 | 0            | Provided by Lab       |

## 4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.1 RF Output Power

| Description<br>Manufacturer   | Model No.                        | Serial No.    | Calibrated<br>Date | Calibrated<br>Until |
|-------------------------------|----------------------------------|---------------|--------------------|---------------------|
| Attenuator<br>WOKEN           | MDCS18N-10                       | MDCS18N-10-01 | 2021/4/13          | 2022/4/12           |
| Power Meter<br>Anritsu        | ML2495A                          | 1529002       | 2021/6/21          | 2022/6/20           |
| Pulse Power Sensor<br>Anritsu | MA2411B                          | 1339443       | 2021/5/31          | 2022/5/30           |
| Software                      | ADT_RF Test Software<br>V6.6.5.4 | NA            | NA                 | NA                  |
| Spectrum Analyzer<br>R&S      | FSV40                            | 101516        | 2021/3/8           | 2022/3/7            |

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2021/12/29

### 4.2 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

### 4.3 6dB Bandwidth

Refer to section 4.1 to get information of the instruments.

### 4.4 Conducted Out of Band Emissions

Refer to section 4.1 to get information of the instruments.

### 4.5 AC Power Conducted Emissions

| Description<br>Manufacturer | Model No.           | Serial No. | Calibrated<br>Date | Calibrated<br>Until |
|-----------------------------|---------------------|------------|--------------------|---------------------|
| 50 ohms Terminator          | 50                  | 3          | 2021/10/27         | 2022/10/26          |
| Fixed attenuator<br>STI     | STI02-2200-10       | 005        | 2021/8/27          | 2022/8/26           |
| LISN<br>R&S                 | ESH3-Z5             | 848773/004 | 2021/10/29         | 2022/10/28          |
| LISN<br>R & S               | ESH3-Z5             | 835239/001 | 2021/3/26          | 2022/3/25           |
| RF Coaxial Cable<br>JYEBO   | 5D-FB               | COCCAB-001 | 2021/9/25          | 2022/9/24           |
| Software<br>BVADT           | BVADT_Cond_V7.3.7.4 | N/A        | N/A                | N/A                 |
| TEST RECEIVER<br>R&S        | ESCS 30             | 847124/029 | 2021/10/13         | 2022/10/12          |

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2021/12/30

#### 4.6 Unwanted Emissions below 1 GHz

| Description<br>Manufacturer             | Model No.            | Serial No.  | Calibrated<br>Date | Calibrated<br>Until |
|-----------------------------------------|----------------------|-------------|--------------------|---------------------|
| Antenna Tower & Turn Table<br>Max-Full  | MF-7802              | MF780208406 | N/A                | N/A                 |
| Fixed attenuator<br>Mini-Circuits       | UNAT-5+              | PAD-3m-3-01 | 2021/9/23          | 2022/9/22           |
| Pre_Amplifier<br>Mini-Circuits          | ZFL-1000VH2          | QA0838008   | 2021/10/19         | 2022/10/18          |
| RF Coaxial Cable<br>COMMATE/PEWC        | 8D                   | 966-3-1     | 2021/3/16          | 2022/3/15           |
|                                         |                      | 966-3-2     | 2021/3/16          | 2022/3/15           |
|                                         |                      | 966-3-3     | 2021/3/16          | 2022/3/15           |
| Software                                | ADT_Radiated_V8.7.08 | N/A         | N/A                | N/A                 |
| Spectrum Analyzer<br>KEYSIGHT           | N9030B               | MY57142938  | 2021/4/26          | 2022/4/25           |
| Test Receiver<br>KEYSIGHT               | N9038A               | MY59050100  | 2021/5/3           | 2022/5/2            |
| Trilog Broadband Antenna<br>Schwarzbeck | VULB 9168            | 9168-361    | 2021/10/26         | 2022/10/25          |
| Pre_Amplifier<br>EMCI                   | EMC001340            | 980142      | 2021/5/24          | 2022/5/23           |
| Loop Antenna<br>TESEQ                   | HLA 6121             | 45745       | 2021/7/21          | 2022/7/20           |
| RF Coaxial Cable<br>JYEBO               | 5D-FB                | LOOPCAB-001 | 2021/1/7           | 2022/1/6            |
| RF Coaxial Cable<br>JYEBO               | 5D-FB                | LOOPCAB-002 | 2021/1/7           | 2022/1/6            |

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2021/12/30

#### 4.7 Unwanted Emissions above 1 GHz

| Description<br>Manufacturer                   | Model No.            | Serial No.  | Calibrated<br>Date | Calibrated<br>Until |
|-----------------------------------------------|----------------------|-------------|--------------------|---------------------|
| Antenna Tower & Turn Table<br>Max-Full        | MF-7802              | MF780208406 | N/A                | N/A                 |
| Fix tool for Boresight antenna tower<br>BV    | FBA-01               | FBA_SIP01   | N/A                | N/A                 |
| Horn Antenna<br>Schwarzbeck                   | BBHA9120-D           | 9120D-406   | 2021/11/14         | 2022/11/13          |
|                                               | BBHA 9170            | BBHA9170519 | 2021/11/14         | 2022/11/13          |
| Pre_Amplifier<br>EMCI                         | EMC12630SE           | 980384      | 2022/1/10          | 2023/1/9            |
|                                               | EMC184045SE          | 980387      | 2022/1/10          | 2023/1/9            |
| RF Cable<br>EMCI                              | EMC104-SM-SM-6000    | 210201      | 2021/5/13          | 2022/5/12           |
| RF cable (40GHz)<br>EMCI                      | EMC-KM-KM-4000       | 200214      | 2021/3/10          | 2022/3/9            |
| RF Cable-Frequency range: 1-<br>40GHz<br>EMCI | EMC102-KM-KM-1200    | 160924      | 2022/1/10          | 2023/1/9            |
| RF Coaxial Cable<br>EMCI                      | EMC104-SM-SM-1500    | 180504      | 2021/4/26          | 2022/4/25           |
|                                               | EMC104-SM-SM-2000    | 180601      | 2021/6/8           | 2022/6/7            |
| Software                                      | ADT_Radiated_V8.7.08 | N/A         | N/A                | N/A                 |
| Spectrum Analyzer<br>KEYSIGHT                 | N9030B               | MY57142938  | 2021/4/26          | 2022/4/25           |
| Spectrum Analyzer<br>Keysight                 | N9030A               | MY54490679  | 2021/7/9           | 2022/7/8            |
| Test Receiver<br>KEYSIGHT                     | N9038A               | MY59050100  | 2021/5/3           | 2022/5/2            |

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/2/17

## 5 Limits of Test Items

### 5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less, for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

### 5.2 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

### 5.3 6dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

### 5.4 Conducted Out of Band Emissions

Below 20 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

### 5.5 AC Power Conducted Emissions

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-peak             | Average |
| 0.15 - 0.5      | 66 - 56                | 56 - 46 |
| 0.50 - 5.0      | 56                     | 46      |
| 5.0 - 30.0      | 60                     | 50      |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

## 5.6 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

| Frequencies<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009 ~ 0.490        | 2400/F(kHz)                          | 300                              |
| 0.490 ~ 1.705        | 24000/F(kHz)                         | 30                               |
| 1.705 ~ 30.0         | 30                                   | 30                               |
| 30 ~ 88              | 100                                  | 3                                |
| 88 ~ 216             | 150                                  | 3                                |
| 216 ~ 960            | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

## 5.7 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

| Frequencies<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| Above 960            | 500                                  | 3                                |

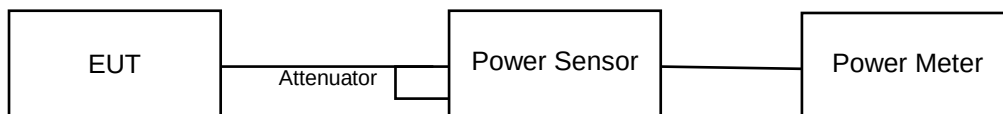
Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

## 6 Test Arrangements

### 6.1 RF Output Power

#### 6.1.1 Test Setup



#### 6.1.2 Test Procedure

##### Peak Power:

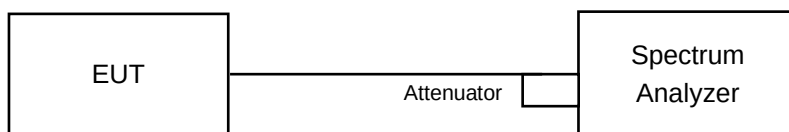
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

##### Average Power:

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

### 6.2 Power Spectral Density

#### 6.2.1 Test Setup

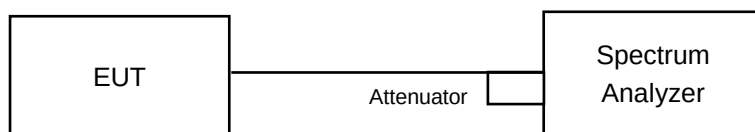


#### 6.2.2 Test Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- Set the VBW  $\geq 3 \times \text{RBW}$ .
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

### 6.3 6dB Bandwidth

#### 6.3.1 Test Setup

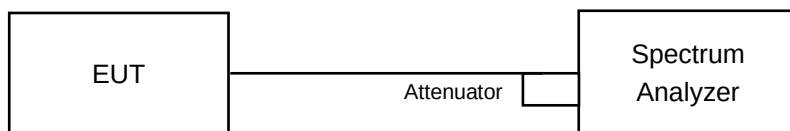


#### 6.3.2 Test Procedure

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

### 6.4 Conducted Out of Band Emissions

#### 6.4.1 Test Setup



#### 6.4.2 Test Procedure

##### MEASUREMENT PROCEDURE REF

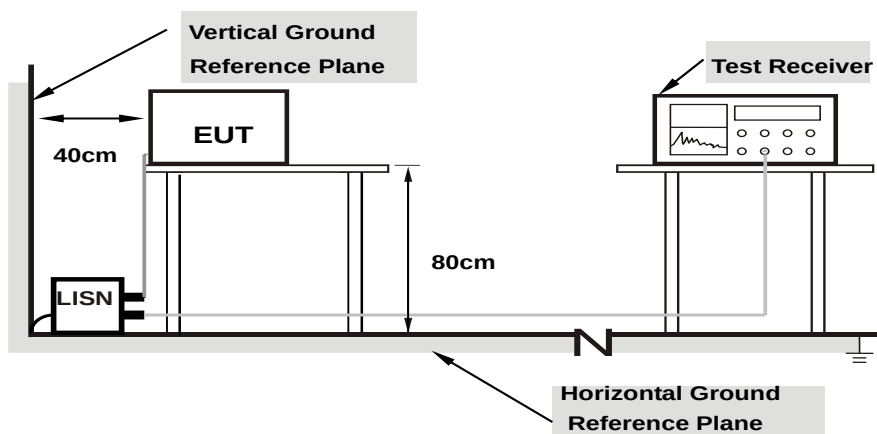
- Set the RBW = 100 kHz.
- Set the VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

##### MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

## 6.5 AC Power Conducted Emissions

### 6.5.1 Test Setup



**Note:** 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 6.5.2 Test Procedure

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

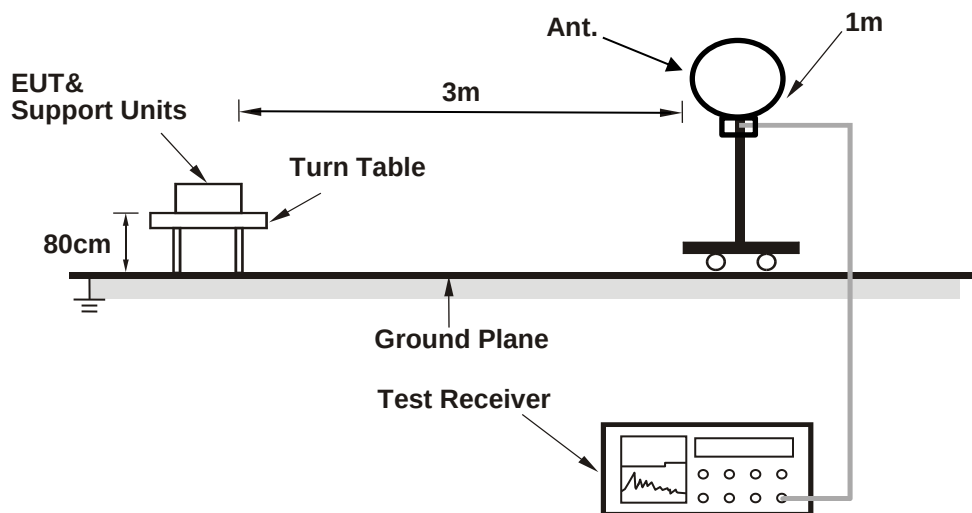
**Note:**

The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

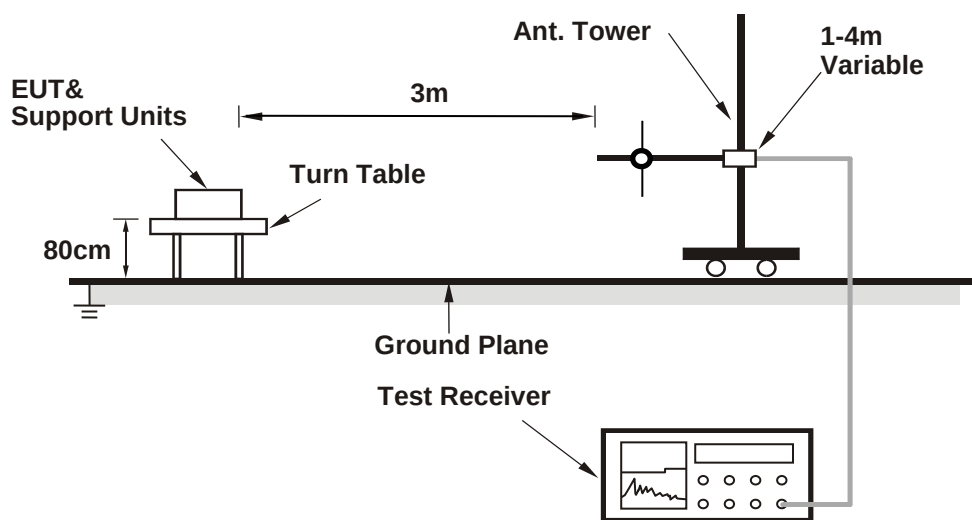
## 6.6 Unwanted Emissions below 1 GHz

### 6.6.1 Test Setup

#### For Radiated emission below 30 MHz



#### For Radiated emission above 30 MHz



## 6.6.2 Test Procedure

### For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

#### Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

### For Radiated emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

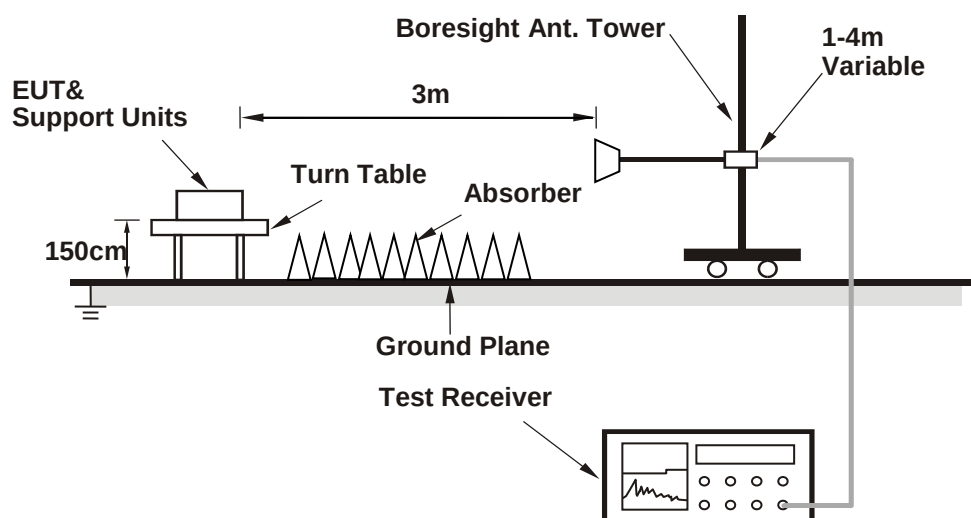
#### Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

## 6.7 Unwanted Emissions above 1 GHz

### 6.7.1 Test Setup

#### For Radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 6.7.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

#### Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle  $< 98\%$ ) or 10 Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

## 7 Test Results of Test Item

### 7.1 RF Output Power

|              |                |                           |                |            |          |
|--------------|----------------|---------------------------|----------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25 °C, 60 % RH | Tested By: | Leon Dai |
|--------------|----------------|---------------------------|----------------|------------|----------|

#### For Peak Power

##### 802.11b CDD

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 21.77            | 21.90   | 305.196          | 24.85             | 30                | Pass        |
| 6     | 2437              | 25.21            | 25.21   | 663.789          | 28.22             | 30                | Pass        |
| 11    | 2462              | 24.44            | 24.42   | 554.665          | 27.44             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

##### 802.11g CDD

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 26.36            | 26.41   | 870.036          | 29.40             | 30                | Pass        |
| 6     | 2437              | 26.73            | 26.71   | 939.791          | 29.73             | 30                | Pass        |
| 11    | 2462              | 26.38            | 26.51   | 882.224          | 29.46             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

##### VHT20 CDD

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 26.15            | 26.04   | 813.888          | 29.11             | 30                | Pass        |
| 6     | 2437              | 26.22            | 26.28   | 843.413          | 29.26             | 30                | Pass        |
| 11    | 2462              | 25.57            | 25.59   | 722.822          | 28.59             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

### VHT40 CDD

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 3     | 2422                 | 24.52            | 24.63   | 573.541             | 27.59                | 30                   | Pass        |
| 6     | 2437                 | 26.01            | 26.15   | 811.122             | 29.09                | 30                   | Pass        |
| 9     | 2452                 | 25.44            | 25.29   | 688.01              | 28.38                | 30                   | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

### 802.11ax (HE20) CDD

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 1     | 2412                 | 26.26            | 26.12   | 831.929             | 29.20                | 30                   | Pass        |
| 6     | 2437                 | 26.66            | 26.78   | 939.878             | 29.73                | 30                   | Pass        |
| 11    | 2462                 | 25.79            | 25.87   | 765.682             | 28.84                | 30                   | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

### 802.11ax (HE40) CDD

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 3     | 2422                 | 24.79            | 24.87   | 608.203             | 27.84                | 30                   | Pass        |
| 6     | 2437                 | 26.15            | 26.32   | 840.646             | 29.25                | 30                   | Pass        |
| 9     | 2452                 | 25.92            | 25.90   | 779.886             | 28.92                | 30                   | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.5 dBi.

### VHT20 Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 1     | 2412                 | 26.15            | 26.04   | 813.888             | 29.11                | 29.88                | Pass        |
| 6     | 2437                 | 26.22            | 26.28   | 843.413             | 29.26                | 29.88                | Pass        |
| 11    | 2462                 | 25.57            | 25.59   | 722.822             | 28.59                | 29.88                | Pass        |

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. The directional gain is 6.12 dBi.

## VHT40 Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 3     | 2422                 | 24.52            | 24.63   | 573.541             | 27.59                | 29.88                | Pass        |
| 6     | 2437                 | 26.01            | 26.15   | 811.122             | 29.09                | 29.88                | Pass        |
| 9     | 2452                 | 25.44            | 25.29   | 688.01              | 28.38                | 29.88                | Pass        |

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. The directional gain is 6.12 dBi.

## 802.11ax (HE20) Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 1     | 2412                 | 26.26            | 26.12   | 831.929             | 29.20                | 29.88                | Pass        |
| 6     | 2437                 | 26.66            | 26.78   | 939.878             | 29.73                | 29.88                | Pass        |
| 11    | 2462                 | 25.79            | 25.87   | 765.682             | 28.84                | 29.88                | Pass        |

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. The directional gain is 6.12 dBi.

## 802.11ax (HE40) Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Peak Power (dBm) |         | Total Power<br>(mW) | Total Power<br>(dBm) | Power Limit<br>(dBm) | Test Result |
|-------|----------------------|------------------|---------|---------------------|----------------------|----------------------|-------------|
|       |                      | Chain 0          | Chain 1 |                     |                      |                      |             |
| 3     | 2422                 | 24.79            | 24.87   | 608.203             | 27.84                | 29.88                | Pass        |
| 6     | 2437                 | 26.15            | 26.32   | 840.646             | 29.25                | 29.88                | Pass        |
| 9     | 2452                 | 25.92            | 25.90   | 779.886             | 28.92                | 29.88                | Pass        |

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. The directional gain is 6.12 dBi.

## For Average Power

### 802.11b CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 19.33               | 19.47   | 174.215                     | 22.41                        |
| 6     | 2437                 | 23.27               | 23.24   | 423.187                     | 26.27                        |
| 11    | 2462                 | 22.24               | 22.13   | 330.799                     | 25.20                        |

### 802.11g CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 19.64               | 19.78   | 187.105                     | 22.72                        |
| 6     | 2437                 | 24.30               | 24.28   | 537.07                      | 27.30                        |
| 11    | 2462                 | 19.90               | 19.66   | 190.239                     | 22.79                        |

### VHT20 CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.11               | 18.08   | 128.983                     | 21.11                        |
| 6     | 2437                 | 23.05               | 23.35   | 418.108                     | 26.21                        |
| 11    | 2462                 | 17.82               | 17.66   | 118.879                     | 20.75                        |

### VHT40 CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 16.42               | 16.47   | 88.214                      | 19.46                        |
| 6     | 2437                 | 19.05               | 19.53   | 170.095                     | 22.31                        |
| 9     | 2452                 | 17.33               | 17.01   | 104.31                      | 20.18                        |

### 802.11ax (HE20) CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.23               | 18.21   | 132.749                     | 21.23                        |
| 6     | 2437                 | 23.39               | 23.52   | 443.178                     | 26.47                        |
| 11    | 2462                 | 18.10               | 17.87   | 125.8                       | 21.00                        |

### 802.11ax (HE40) CDD

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 16.67               | 16.70   | 93.225                      | 19.70                        |
| 6     | 2437                 | 19.37               | 19.88   | 183.772                     | 22.64                        |
| 9     | 2452                 | 17.65               | 17.09   | 109.379                     | 20.39                        |

### VHT20 Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.11               | 18.08   | 128.983                     | 21.11                        |
| 6     | 2437                 | 23.05               | 23.35   | 418.108                     | 26.21                        |
| 11    | 2462                 | 17.82               | 17.66   | 118.879                     | 20.75                        |

### VHT40 Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 16.42               | 16.47   | 88.214                      | 19.46                        |
| 6     | 2437                 | 19.05               | 19.53   | 170.095                     | 22.31                        |
| 9     | 2452                 | 17.33               | 17.01   | 104.31                      | 20.18                        |

### 802.11ax (HE20) Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.23               | 18.21   | 132.749                     | 21.23                        |
| 6     | 2437                 | 23.39               | 23.52   | 443.178                     | 26.47                        |
| 11    | 2462                 | 18.10               | 17.87   | 125.8                       | 21.00                        |

### 802.11ax (HE40) Beamforming

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 16.67               | 16.70   | 93.225                      | 19.70                        |
| 6     | 2437                 | 19.37               | 19.88   | 183.772                     | 22.64                        |
| 9     | 2452                 | 17.65               | 17.09   | 109.379                     | 20.39                        |

## 7.2 Power Spectral Density

|              |                |                           |                |            |          |
|--------------|----------------|---------------------------|----------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25 °C, 60 % RH | Tested By: | Leon Dai |
|--------------|----------------|---------------------------|----------------|------------|----------|

### 802.11b

| Chan. | Chan. Freq. | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------|----------------|---------|----------------------|----------------------|-------------|
|       | (MHz)       | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412        | -3.36          | -3.43   | -0.38                | 7.88                 | Pass        |
| 6     | 2437        | 0.64           | 0.34    | 3.50                 | 7.88                 | Pass        |
| 11    | 2462        | -0.87          | -0.69   | 2.23                 | 7.88                 | Pass        |

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.12 dBi.

### 802.11g

| Chan. | Chan. Freq. | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------|----------------|---------|----------------------|----------------------|-------------|
|       | (MHz)       | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412        | -5.08          | -5.35   | -2.20                | 7.88                 | Pass        |
| 6     | 2437        | -1.20          | -0.54   | 2.15                 | 7.88                 | Pass        |
| 11    | 2462        | -5.45          | -5.56   | -2.49                | 7.88                 | Pass        |

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.12 dBi.

### 802.11ax (HE20)

| Chan. | Chan. Freq. | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------|----------------|---------|----------------------|----------------------|-------------|
|       | (MHz)       | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412        | -7.96          | -7.90   | -4.92                | 7.88                 | Pass        |
| 6     | 2437        | -2.35          | -2.40   | 0.64                 | 7.88                 | Pass        |
| 11    | 2462        | -5.44          | -7.97   | -3.51                | 7.88                 | Pass        |

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.12 dBi.

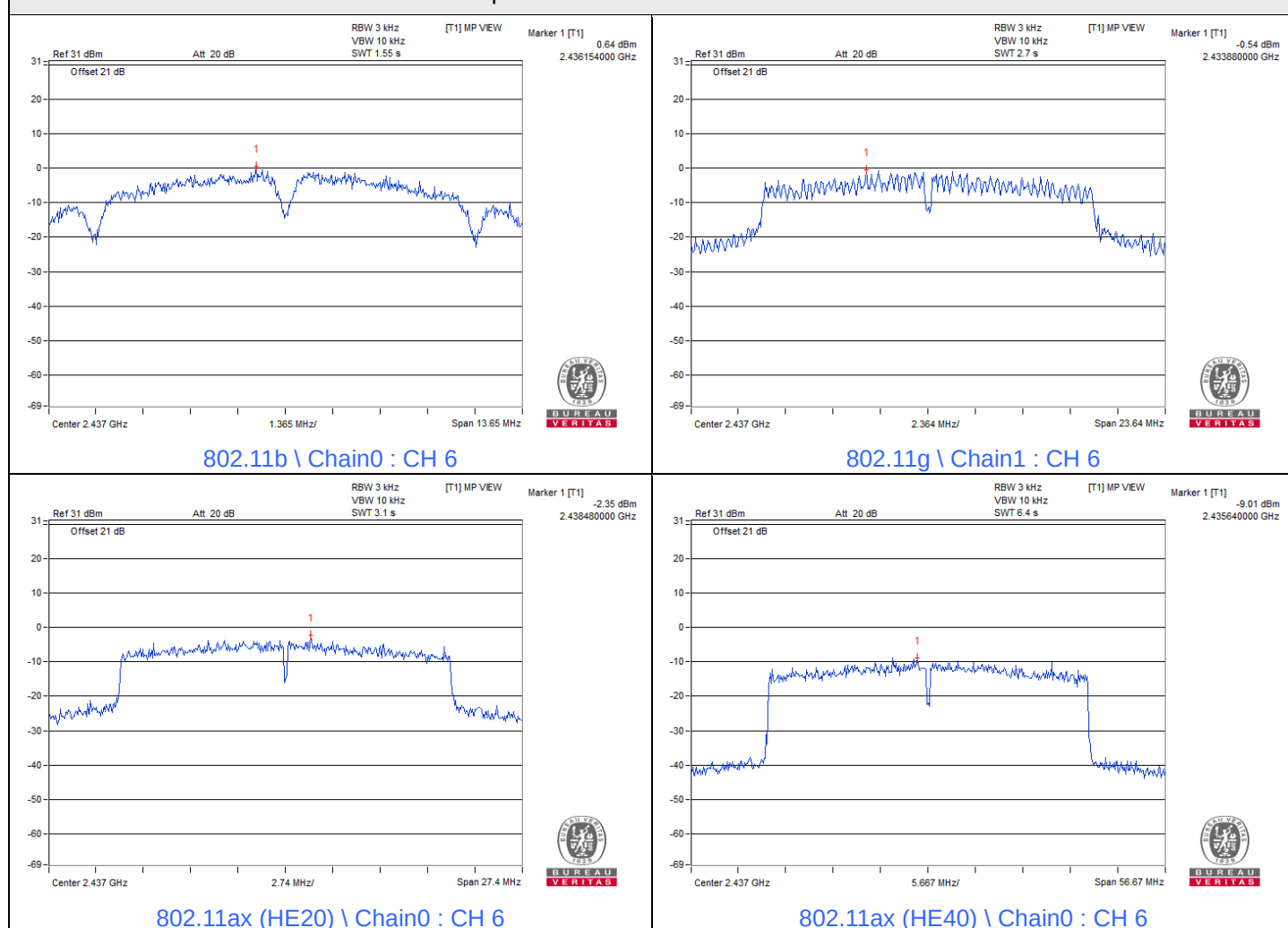
## 802.11ax (HE40)

| Chan. | Chan. Freq. | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------|----------------|---------|----------------------|----------------------|-------------|
|       | (MHz)       | Chain 0        | Chain 1 |                      |                      |             |
| 3     | 2422        | -11.61         | -10.69  | -8.12                | 7.88                 | Pass        |
| 6     | 2437        | -9.01          | -9.44   | -6.21                | 7.88                 | Pass        |
| 9     | 2452        | -9.43          | -10.85  | -7.07                | 7.88                 | Pass        |

### Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.12 dBi.

### Spectrum Plot of Maximum Value



### 7.3 6dB Bandwidth

|              |                |                           |                |            |          |
|--------------|----------------|---------------------------|----------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25 °C, 60 % RH | Tested By: | Leon Dai |
|--------------|----------------|---------------------------|----------------|------------|----------|

#### 802.11b

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|---------------------|---------|---------------------|-------------|
|         |                 | Chain 0             | Chain 1 |                     |             |
| 1       | 2412            | 8.1                 | 8.12    | 0.5                 | Pass        |
| 6       | 2437            | 9.1                 | 9.03    | 0.5                 | Pass        |
| 11      | 2462            | 9.07                | 8.1     | 0.5                 | Pass        |

#### 802.11g

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|---------------------|---------|---------------------|-------------|
|         |                 | Chain 0             | Chain 1 |                     |             |
| 1       | 2412            | 15.49               | 15.44   | 0.5                 | Pass        |
| 6       | 2437            | 16.36               | 15.76   | 0.5                 | Pass        |
| 11      | 2462            | 15.18               | 15.18   | 0.5                 | Pass        |

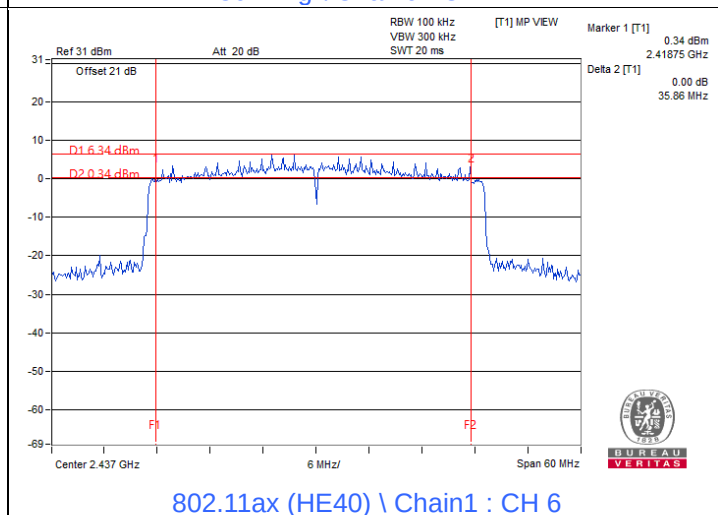
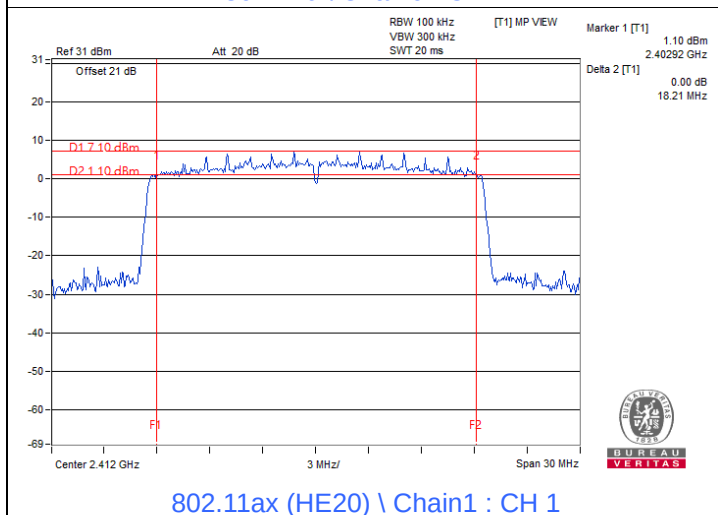
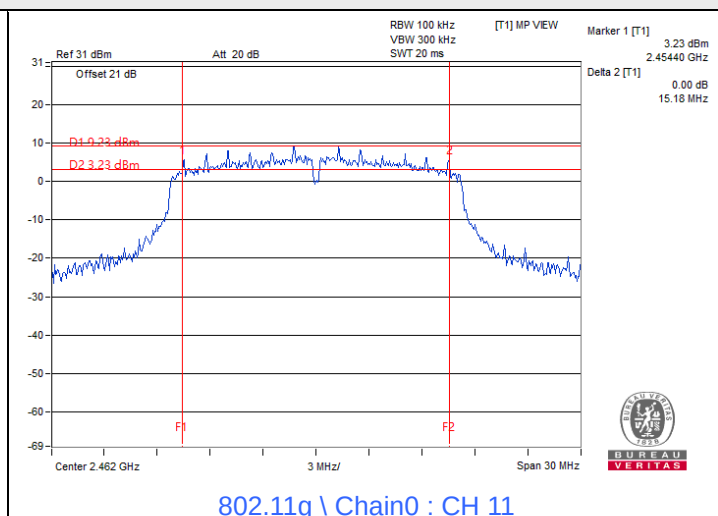
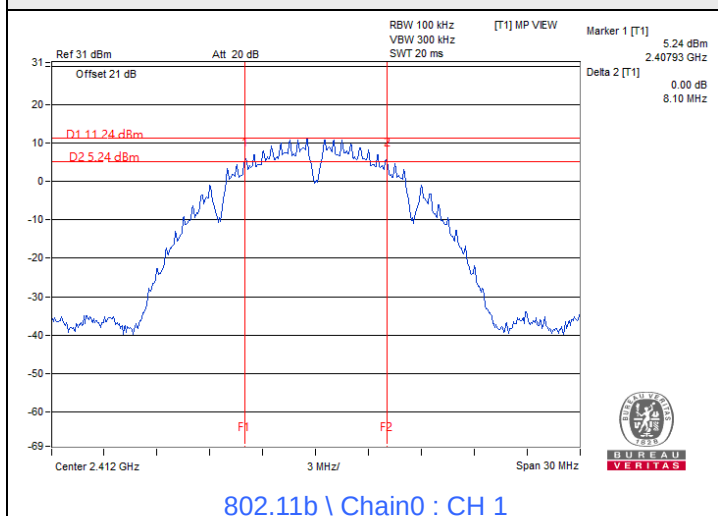
#### 802.11ax (HE20)

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|---------------------|---------|---------------------|-------------|
|         |                 | Chain 0             | Chain 1 |                     |             |
| 1       | 2412            | 18.49               | 18.21   | 0.5                 | Pass        |
| 6       | 2437            | 18.27               | 18.43   | 0.5                 | Pass        |
| 11      | 2462            | 18.41               | 18.66   | 0.5                 | Pass        |

#### 802.11ax (HE40)

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|---------------------|---------|---------------------|-------------|
|         |                 | Chain 0             | Chain 1 |                     |             |
| 3       | 2422            | 37.49               | 36.67   | 0.5                 | Pass        |
| 6       | 2437            | 37.78               | 35.86   | 0.5                 | Pass        |
| 9       | 2452            | 37.75               | 37.01   | 0.5                 | Pass        |

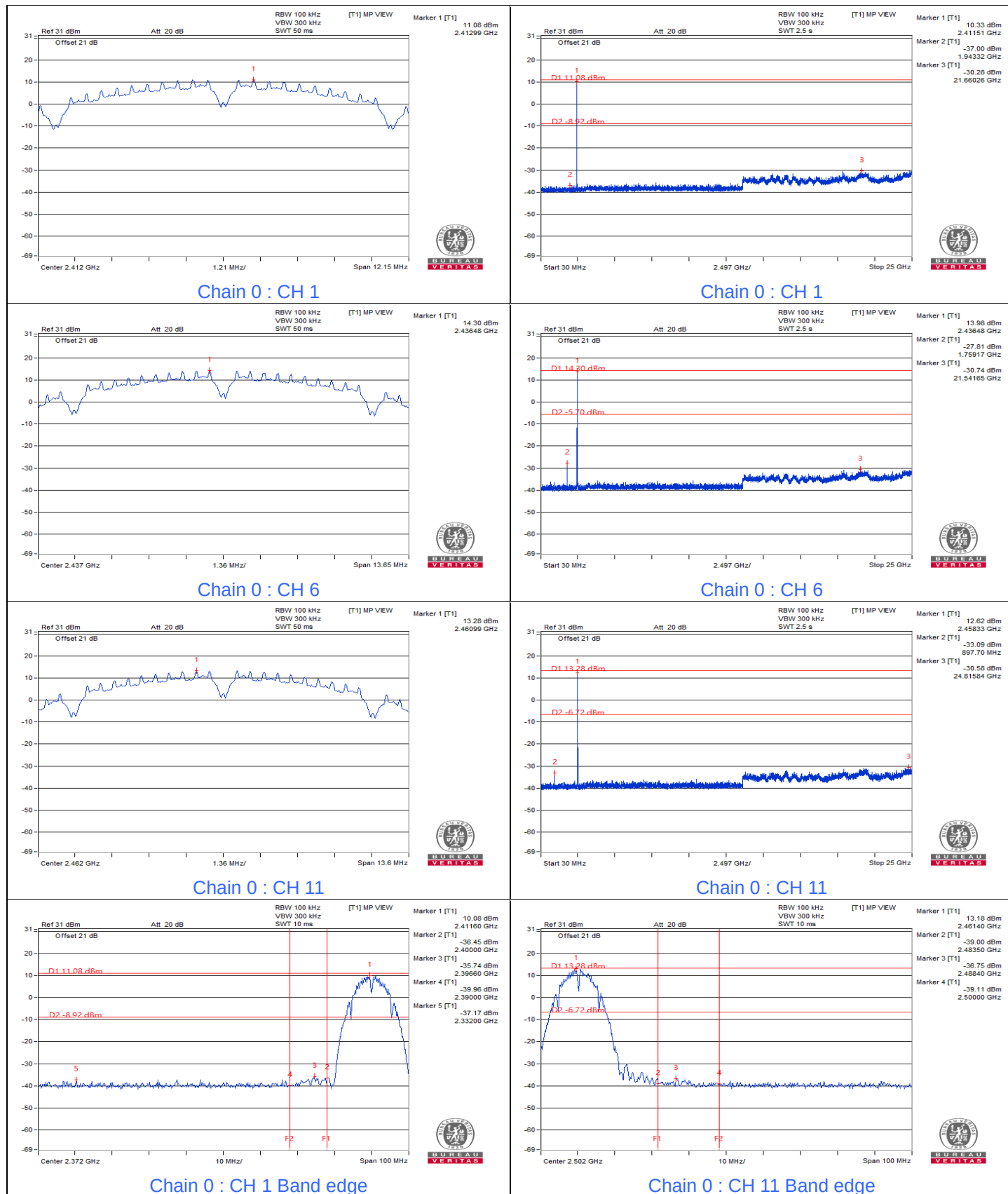
## Spectrum Plot of Minimum Value

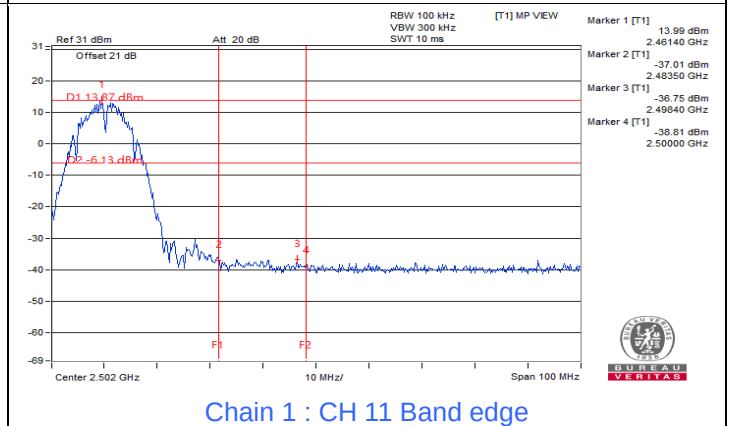
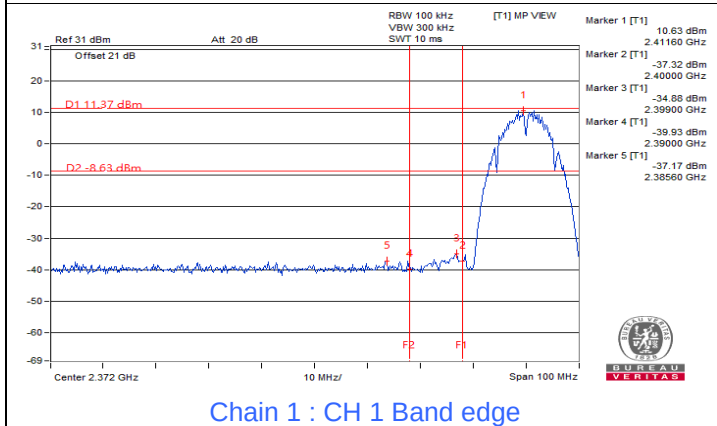
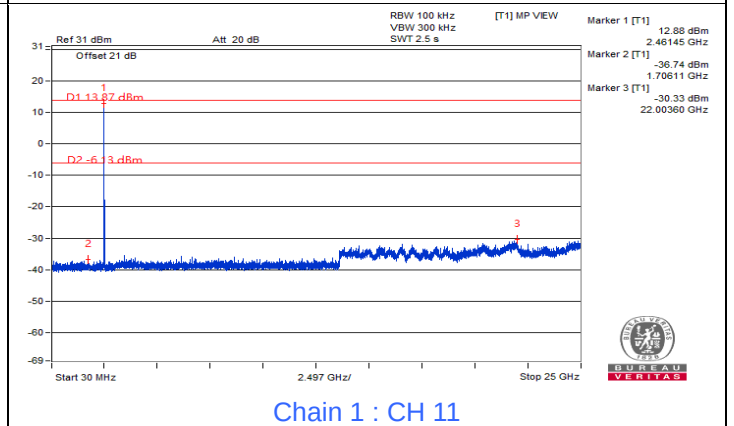
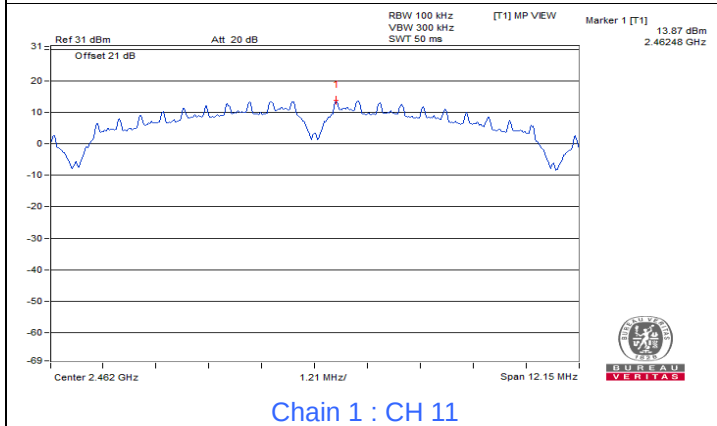
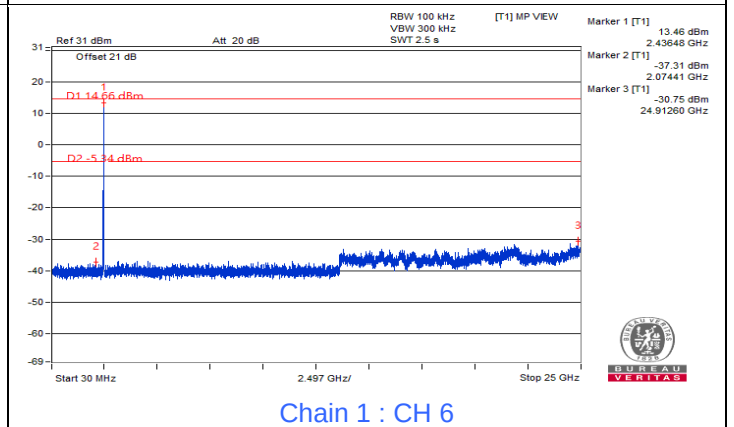
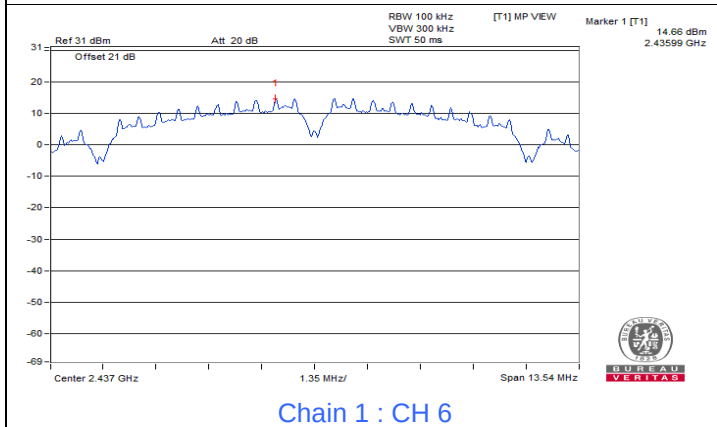
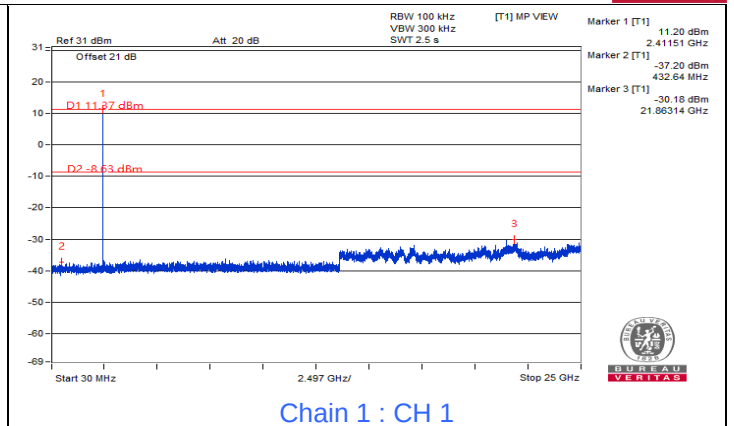
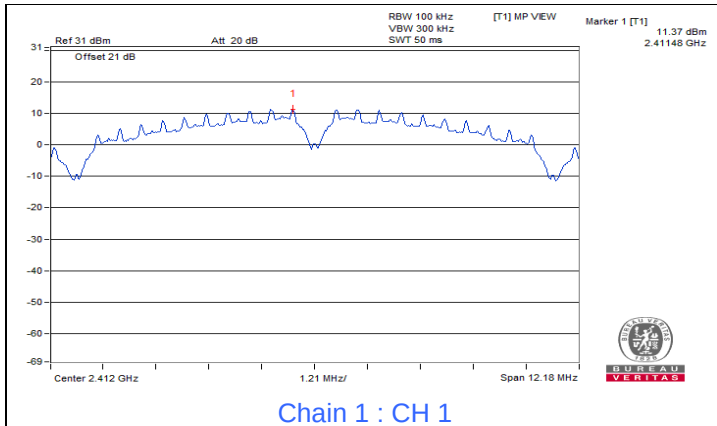


## 7.4 Conducted Out of Band Emissions

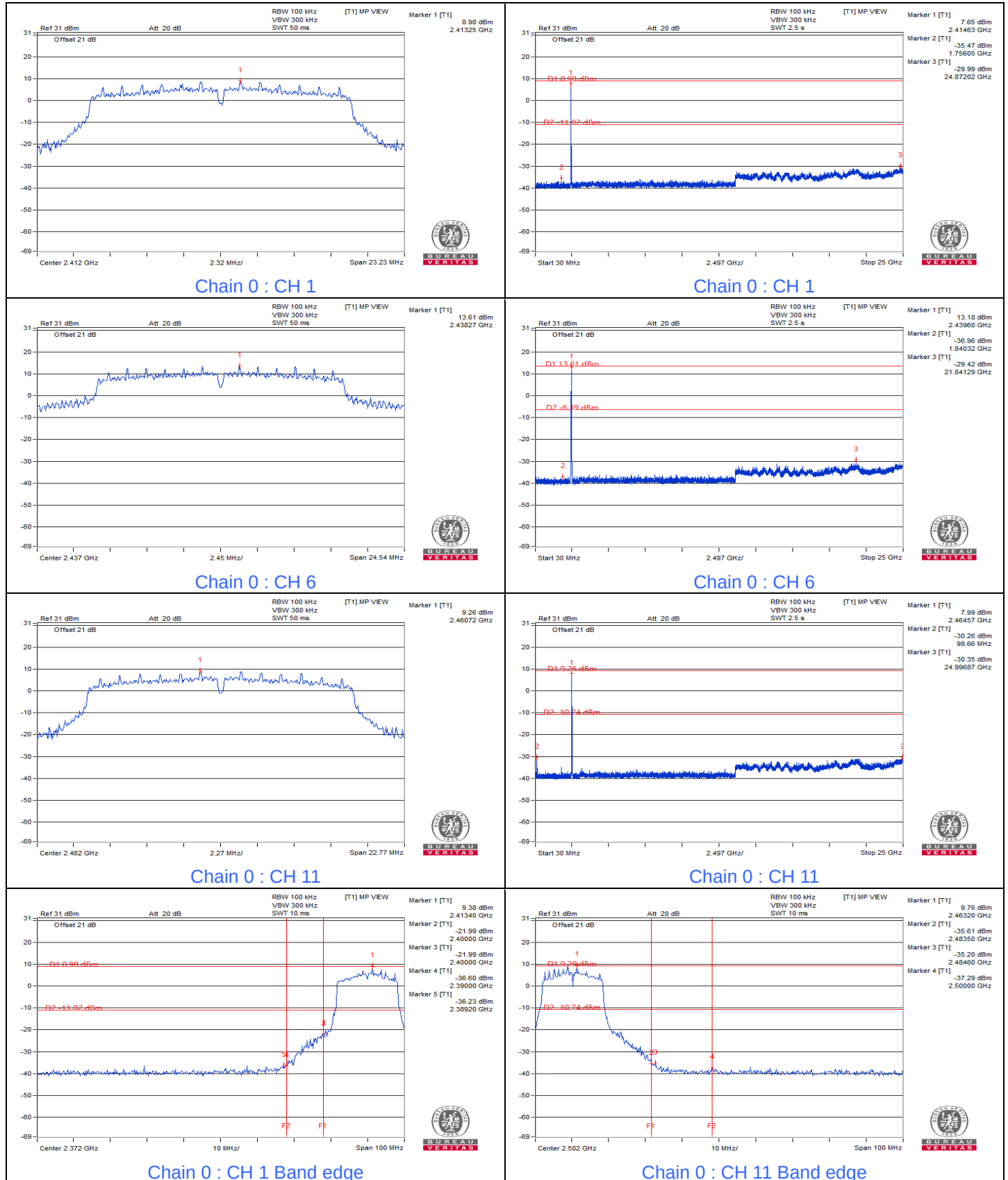
|              |                |                           |                |            |          |
|--------------|----------------|---------------------------|----------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25 °C, 60 % RH | Tested By: | Leon Dai |
|--------------|----------------|---------------------------|----------------|------------|----------|

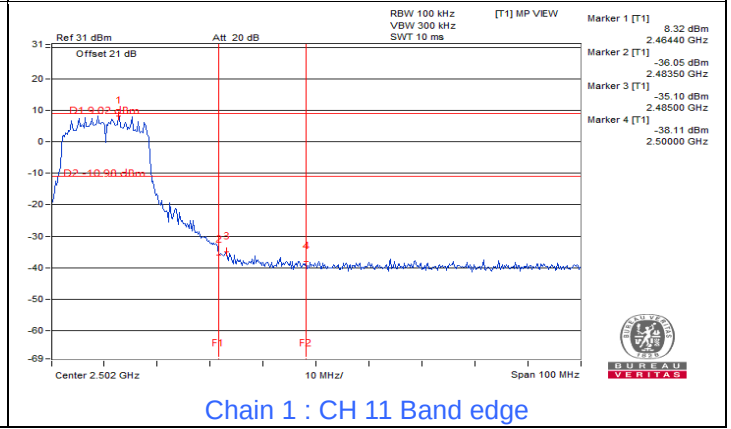
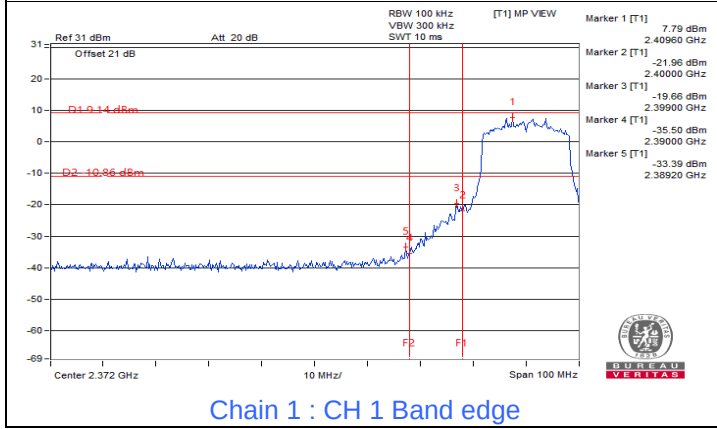
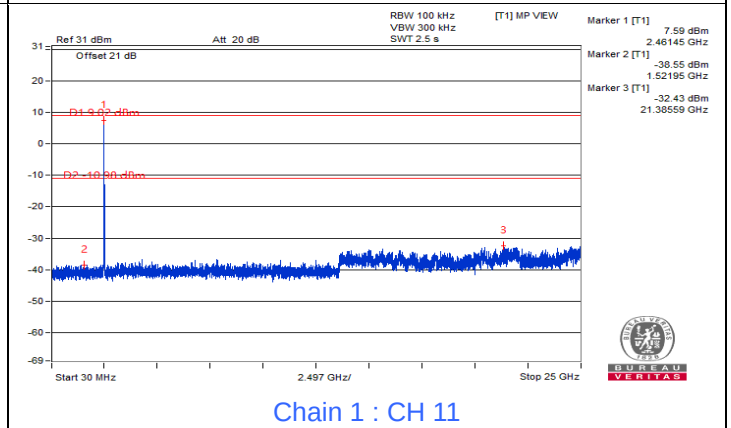
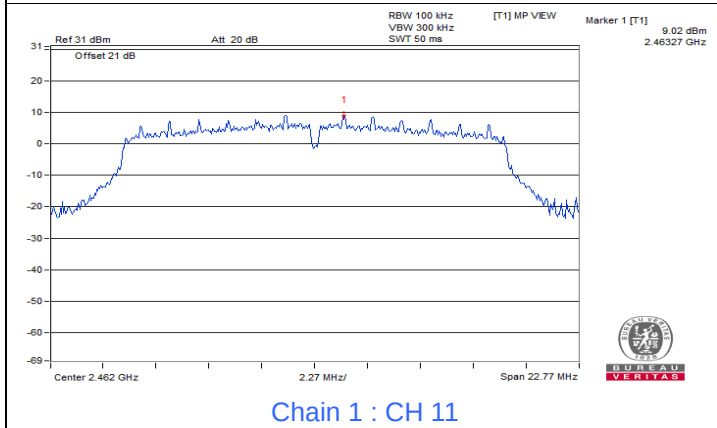
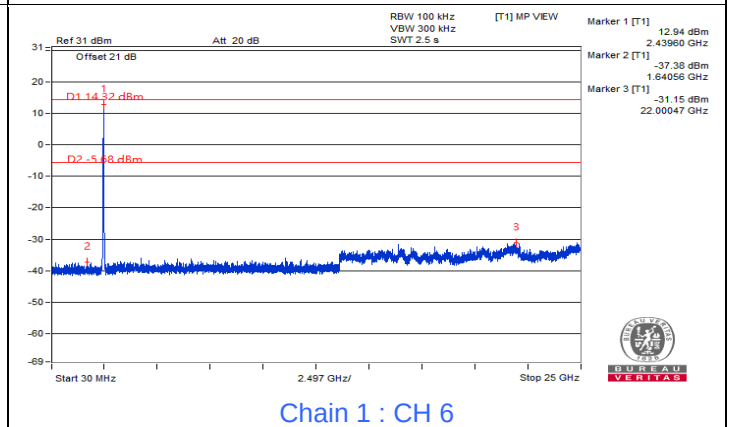
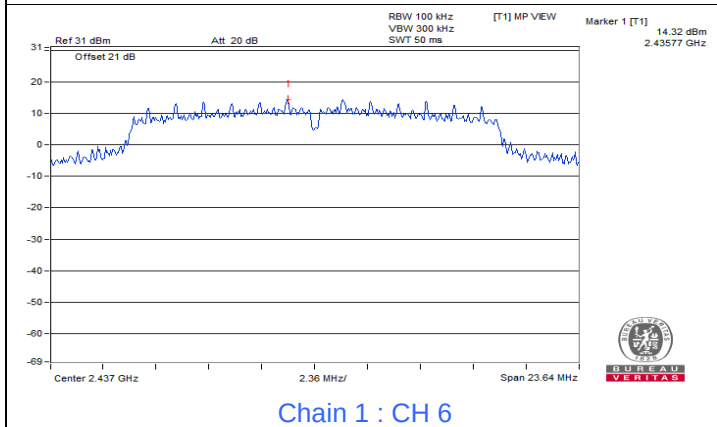
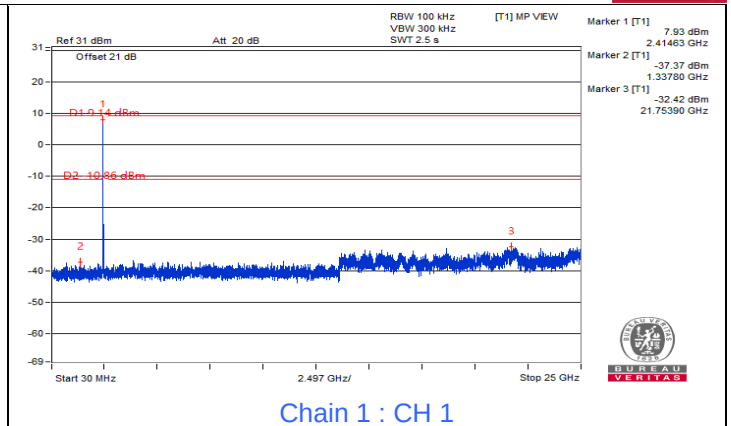
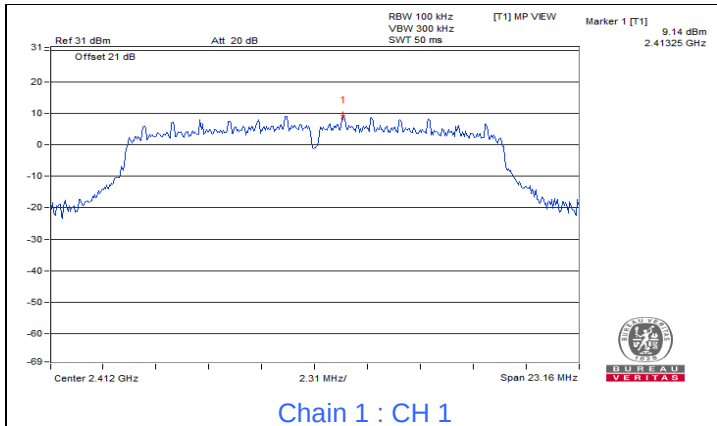
### 802.11b



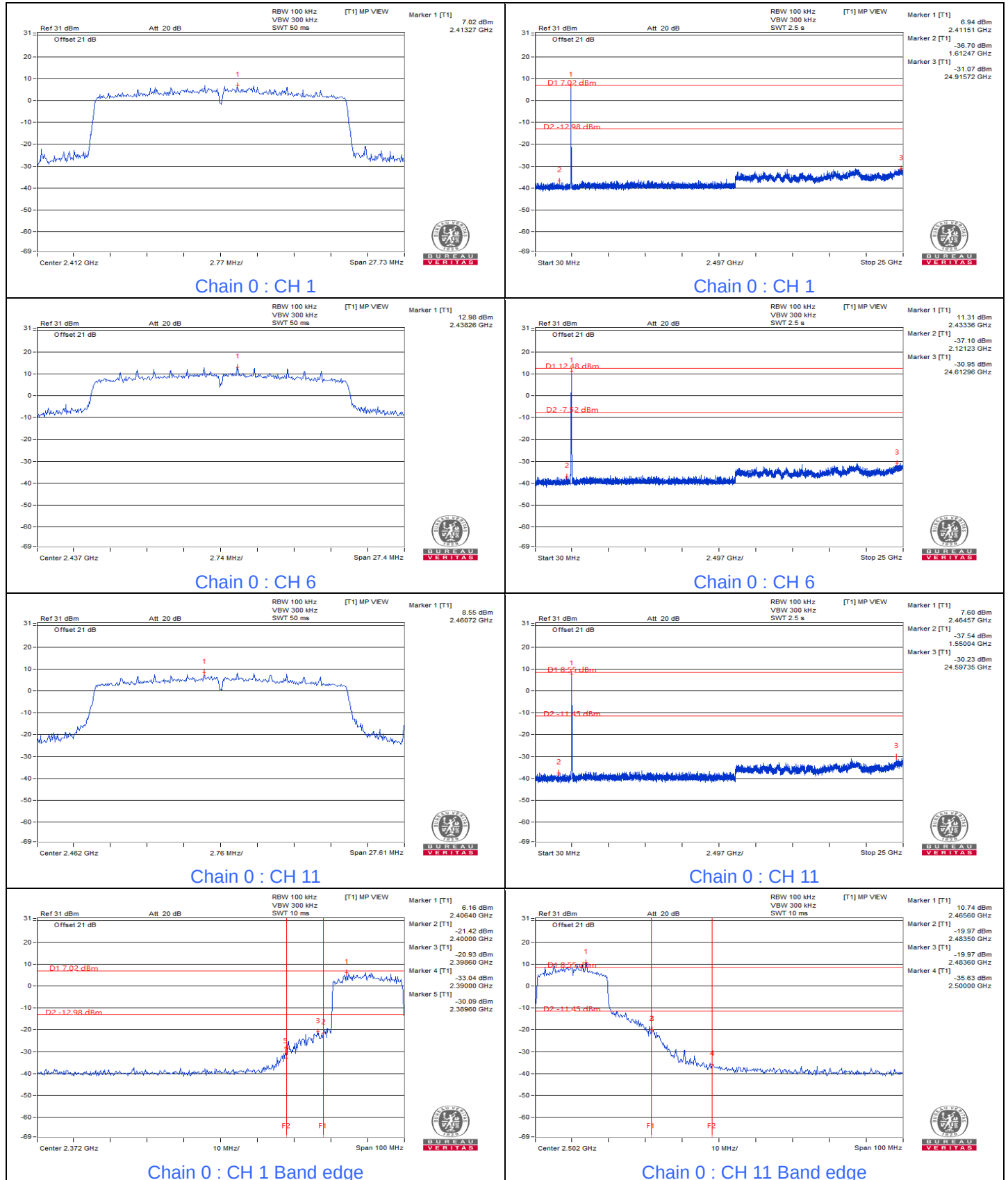


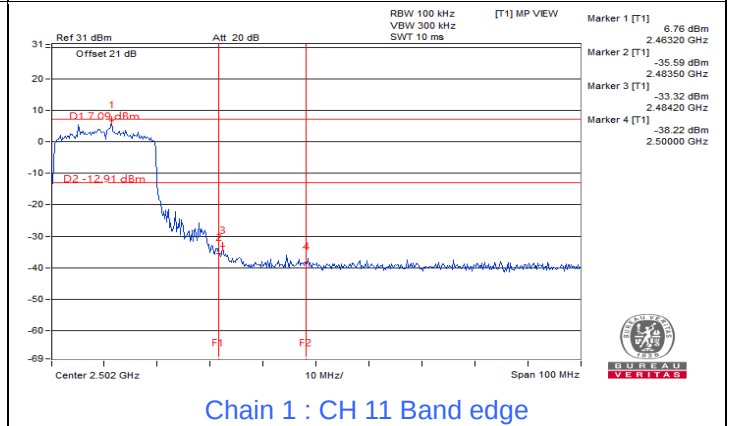
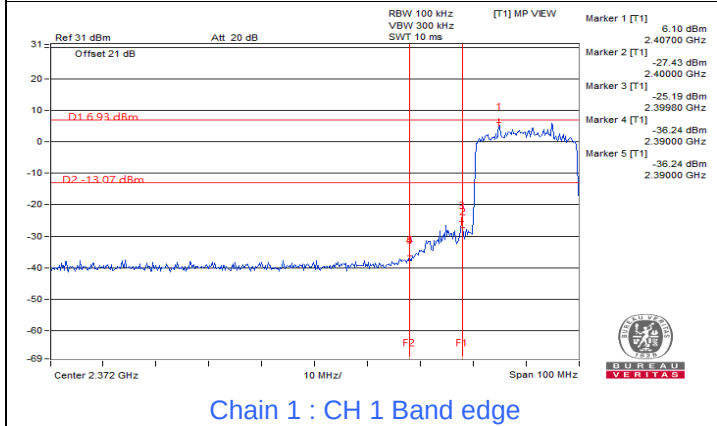
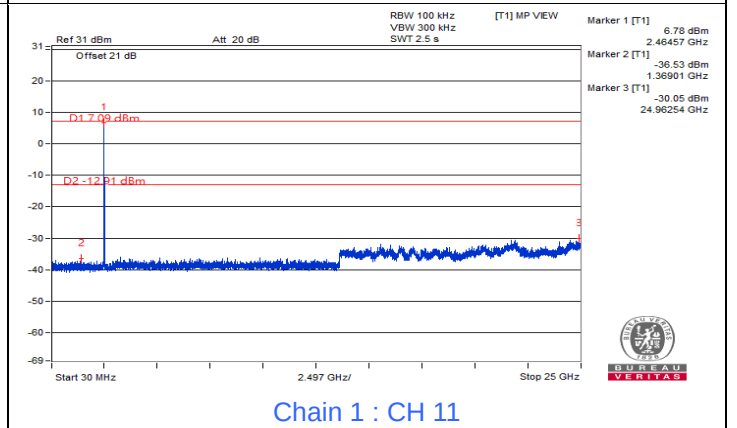
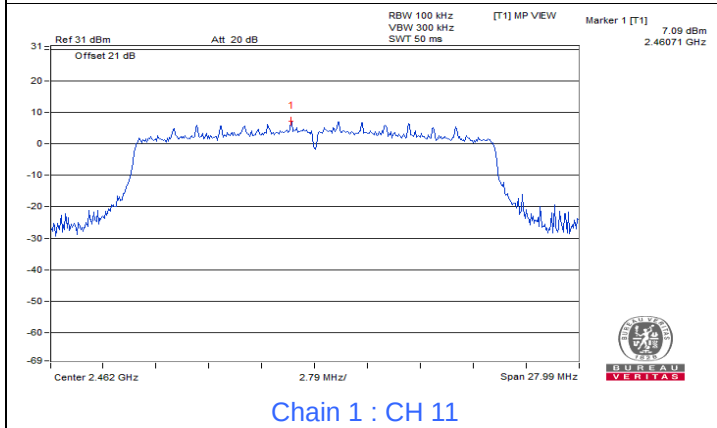
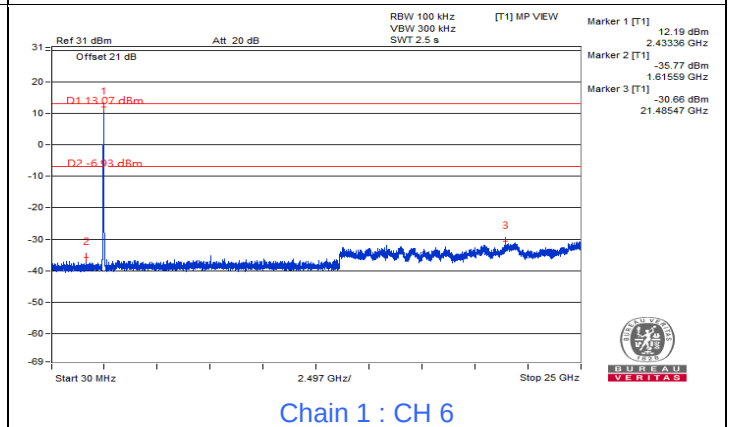
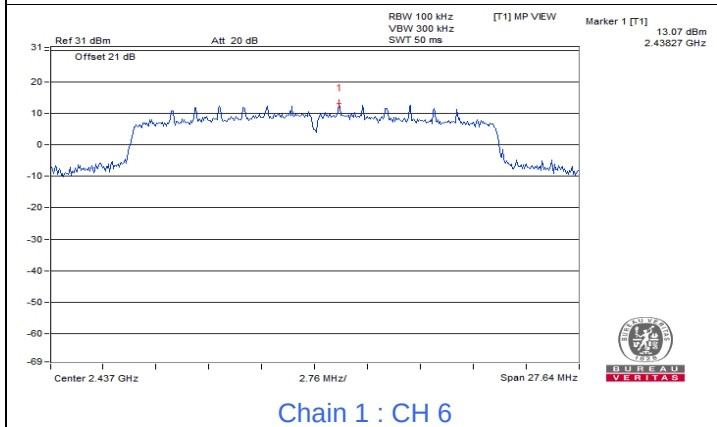
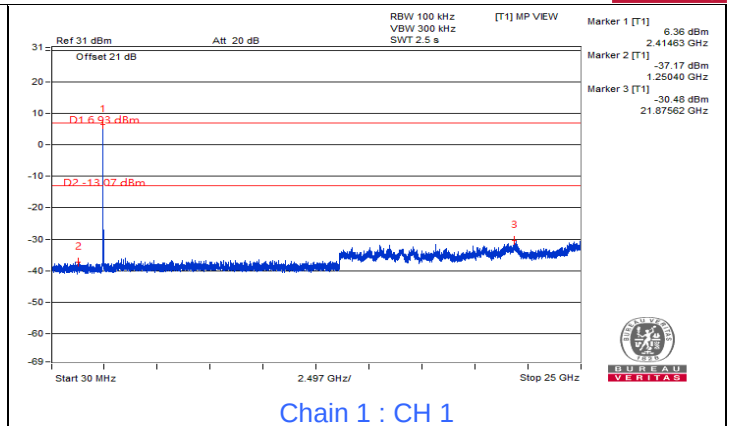
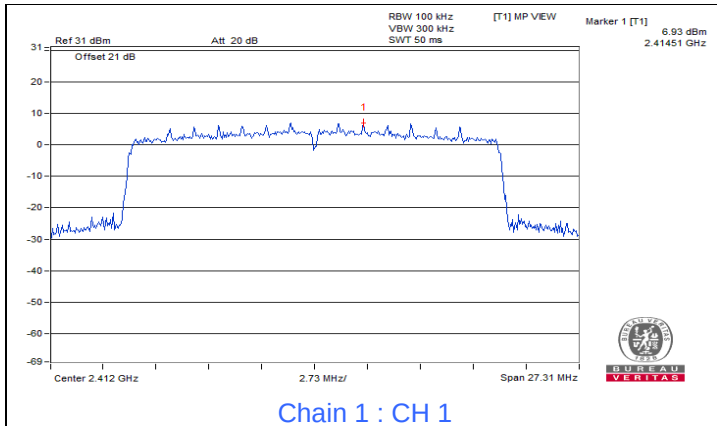
802.11g





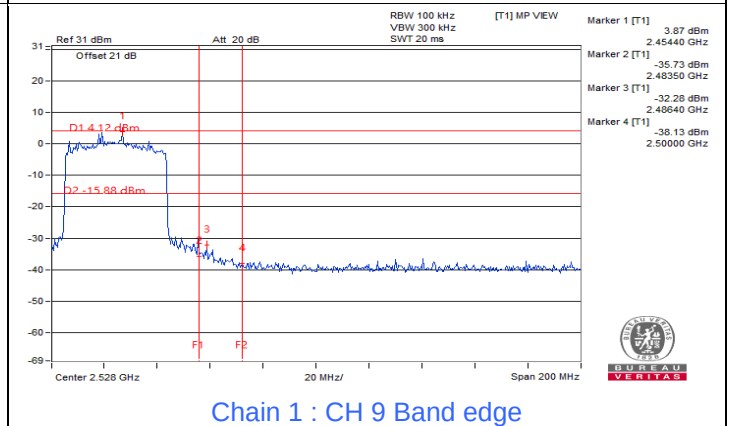
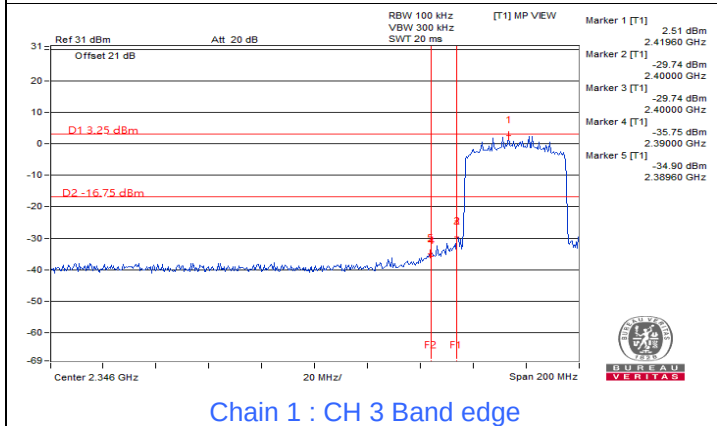
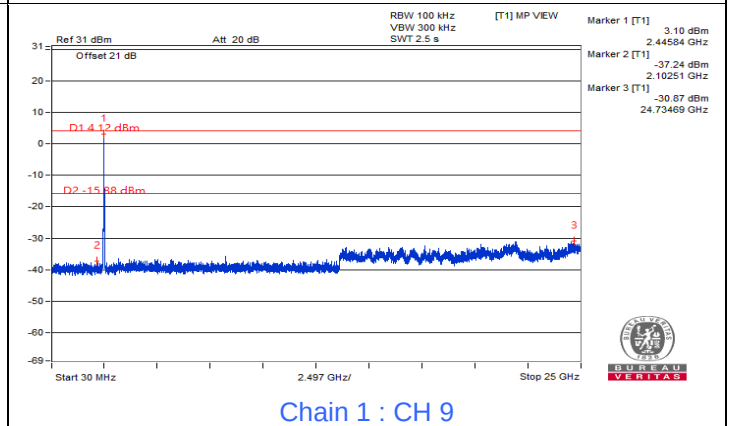
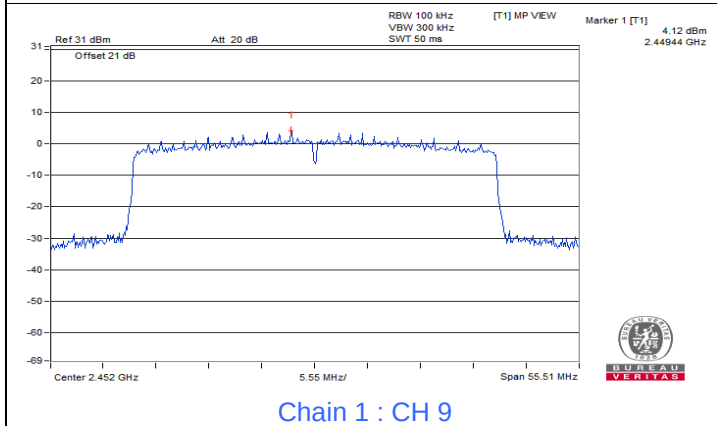
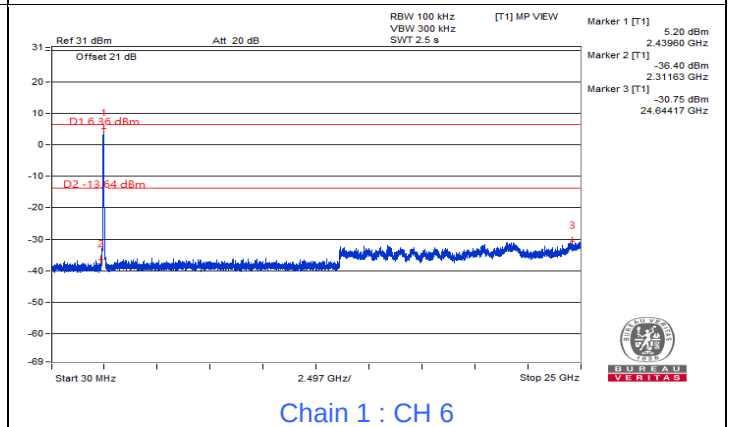
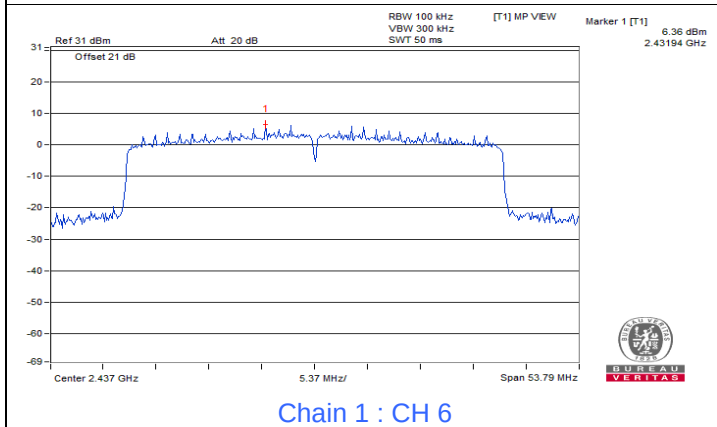
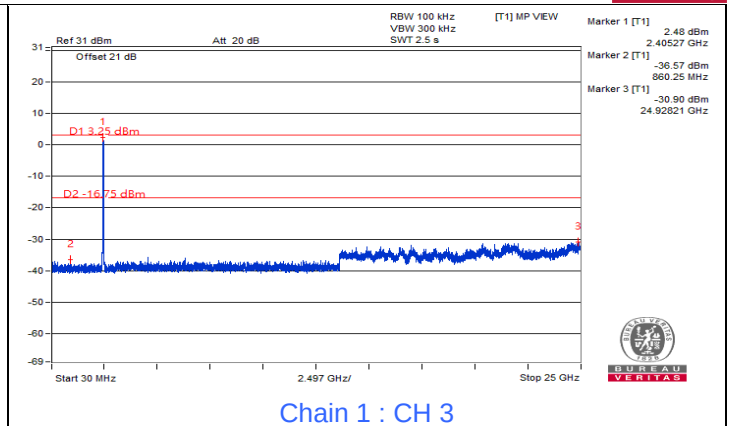
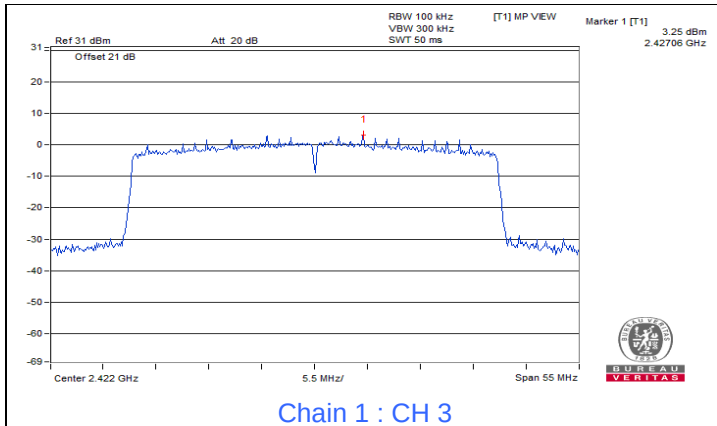
## 802.11ax (HE20)





## 802.11ax (HE40)





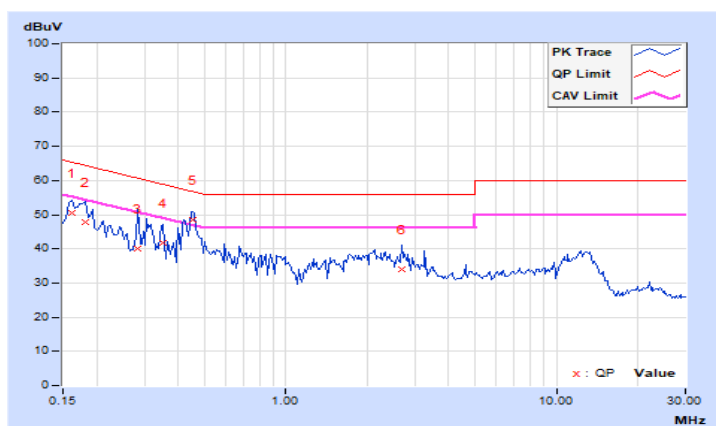
## 7.5 AC Power Conducted Emissions

|                 |                  |                                          |                                       |
|-----------------|------------------|------------------------------------------|---------------------------------------|
| RF Mode         | TX 802.11g       | Channel                                  | CH 6 : 2437 MHz                       |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power     | 120 Vac, 60 Hz   | Environmental Conditions                 | 25 °C, 66 % RH                        |
| Tested By       | Sampson Chen     |                                          |                                       |

| Phase Of Power : Line (L) |                 |                        |                      |       |                       |       |              |       |             |        |
|---------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No                        | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) |       | Emission Level (dBuV) |       | Limit (dBuV) |       | Margin (dB) |        |
|                           |                 |                        | Q.P.                 | AV.   | Q.P.                  | AV.   | Q.P.         | AV.   | Q.P.        | AV.    |
| 1                         | 0.16172         | 10.07                  | 40.37                | 27.62 | 50.44                 | 37.69 | 65.38        | 55.38 | -14.94      | -17.69 |
| 2                         | 0.18125         | 10.08                  | 37.72                | 26.28 | 47.80                 | 36.36 | 64.43        | 54.43 | -16.63      | -18.07 |
| 3                         | 0.28281         | 10.09                  | 29.96                | 21.25 | 40.05                 | 31.34 | 60.73        | 50.73 | -20.68      | -19.39 |
| 4                         | 0.35313         | 10.10                  | 31.70                | 28.18 | 41.80                 | 38.28 | 58.89        | 48.89 | -17.09      | -10.61 |
| 5                         | 0.45078         | 10.11                  | 38.46                | 32.03 | 48.57                 | 42.14 | 56.86        | 46.86 | -8.29       | -4.72  |
| 6                         | 2.67969         | 10.26                  | 23.80                | 15.35 | 34.06                 | 25.61 | 56.00        | 46.00 | -21.94      | -20.39 |

### Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

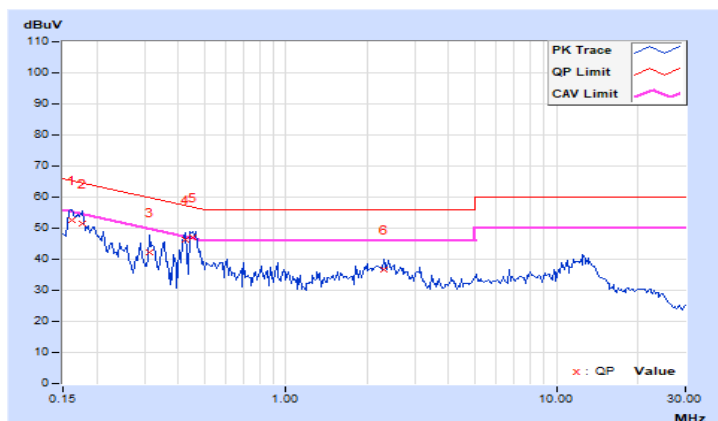


|                 |                  |                                          |                                       |
|-----------------|------------------|------------------------------------------|---------------------------------------|
| RF Mode         | TX 802.11g       | Channel                                  | CH 6 : 2437 MHz                       |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power     | 120 Vac, 60 Hz   | Environmental Conditions                 | 24 °C, 66 % RH                        |
| Tested By       | Sampson Chen     |                                          |                                       |

| Phase Of Power : Neutral (N) |                 |                        |                      |       |                       |       |              |       |             |        |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No                           | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) |       | Emission Level (dBuV) |       | Limit (dBuV) |       | Margin (dB) |        |
|                              |                 |                        | Q.P.                 | AV.   | Q.P.                  | AV.   | Q.P.         | AV.   | Q.P.        | AV.    |
| 1                            | 0.16172         | 10.06                  | 42.61                | 23.43 | 52.67                 | 33.49 | 65.38        | 55.38 | -12.71      | -21.89 |
| 2                            | 0.17734         | 10.07                  | 41.38                | 22.46 | 51.45                 | 32.53 | 64.61        | 54.61 | -13.16      | -22.08 |
| 3                            | 0.31406         | 10.09                  | 32.02                | 22.81 | 42.11                 | 32.90 | 59.86        | 49.86 | -17.75      | -16.96 |
| 4                            | 0.42734         | 10.10                  | 36.25                | 25.29 | 46.35                 | 35.39 | 57.30        | 47.30 | -10.95      | -11.91 |
| 5                            | 0.45078         | 10.10                  | 36.81                | 30.48 | 46.91                 | 40.58 | 56.86        | 46.86 | -9.95       | -6.28  |
| 6                            | 2.30859         | 10.24                  | 26.61                | 17.54 | 36.85                 | 27.78 | 56.00        | 46.00 | -19.15      | -18.22 |

#### Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



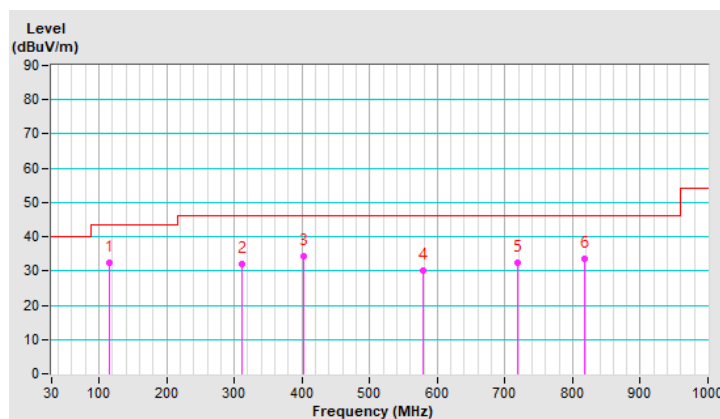
## 7.6 Unwanted Emissions below 1 GHz

|                 |                |                               |                  |
|-----------------|----------------|-------------------------------|------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 6 : 2437 MHz  |
| Frequency Range | 9 kHz ~ 1 GHz  | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 69 % RH   |
| Tested By       | Sampson Chen   |                               |                  |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 115.65          | 32.3 QP                 | 43.5           | -11.2       | 3.00 H             | 285                  | 42.3             | -10.0                    |
| 2                                                    | 312.05          | 31.9 QP                 | 46.0           | -14.1       | 1.00 H             | 166                  | 37.9             | -6.0                     |
| 3                                                    | 402.72          | 34.2 QP                 | 46.0           | -11.8       | 1.00 H             | 322                  | 37.8             | -3.6                     |
| 4                                                    | 579.31          | 29.9 QP                 | 46.0           | -16.1       | 3.00 H             | 10                   | 29.0             | 0.9                      |
| 5                                                    | 718.38          | 32.3 QP                 | 46.0           | -13.7       | 2.00 H             | 360                  | 28.8             | 3.5                      |
| 6                                                    | 817.28          | 33.6 QP                 | 46.0           | -12.4       | 1.00 H             | 313                  | 28.1             | 5.5                      |

### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

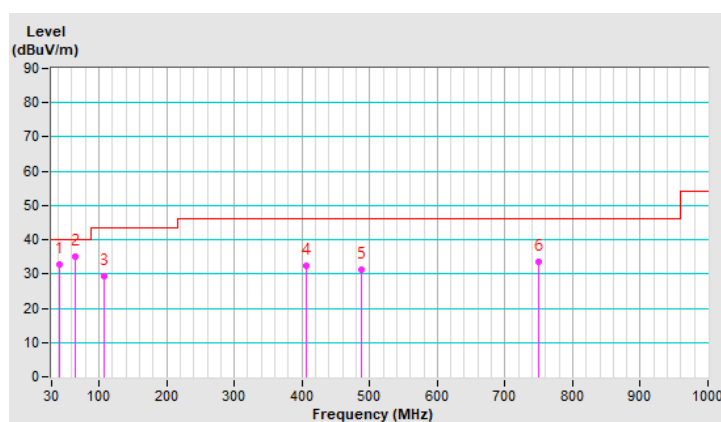


|                 |                |                               |                  |
|-----------------|----------------|-------------------------------|------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 6 : 2437 MHz  |
| Frequency Range | 9 kHz ~ 1 GHz  | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 69 % RH   |
| Tested By       | Sampson Chen   |                               |                  |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 42.49           | 32.8 QP                 | 40.0           | -7.2        | 1.50 V             | 360                  | 41.0             | -8.2                     |
| 2                                                  | <b>64.10</b>    | <b>35.2 QP</b>          | <b>40.0</b>    | <b>-4.8</b> | <b>1.00 V</b>      | <b>360</b>           | <b>44.3</b>      | <b>-9.1</b>              |
| 3                                                  | 108.35          | 29.3 QP                 | 43.5           | -14.2       | 1.00 V             | 258                  | 40.1             | -10.8                    |
| 4                                                  | 406.07          | 32.3 QP                 | 46.0           | -13.7       | 1.50 V             | 360                  | 35.9             | -3.6                     |
| 5                                                  | 487.84          | 31.2 QP                 | 46.0           | -14.8       | 1.50 V             | 247                  | 32.4             | -1.2                     |
| 6                                                  | 750.03          | 33.4 QP                 | 46.0           | -12.6       | 1.50 V             | 360                  | 28.5             | 4.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



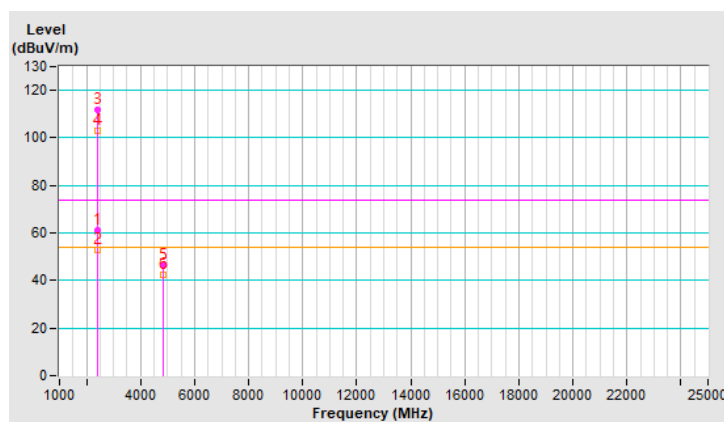
## 7.7 Unwanted Emissions above 1 GHz

|                        |                |                                          |                                                            |
|------------------------|----------------|------------------------------------------|------------------------------------------------------------|
| <b>RF Mode</b>         | TX 802.11b     | <b>Channel</b>                           | CH 1 : 2412 MHz                                            |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 24 °C, 67 % RH                                             |
| <b>Tested By</b>       | Ryan Du        |                                          |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 61.0 PK                 | 74.0           | -13.0       | 2.40 H             | 154                  | 62.0             | -1.0                     |
| 2                                                    | 2390.00         | 52.9 AV                 | 54.0           | -1.1        | 2.40 H             | 154                  | 53.9             | -1.0                     |
| 3                                                    | *2412.00        | 111.8 PK                |                |             | 2.40 H             | 154                  | 112.9            | -1.1                     |
| 4                                                    | *2412.00        | 102.8 AV                |                |             | 2.40 H             | 154                  | 103.9            | -1.1                     |
| 5                                                    | 4824.00         | 46.2 PK                 | 74.0           | -27.8       | 1.20 H             | 59                   | 42.5             | 3.7                      |
| 6                                                    | 4824.00         | 42.5 AV                 | 54.0           | -11.5       | 1.20 H             | 59                   | 38.8             | 3.7                      |

### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

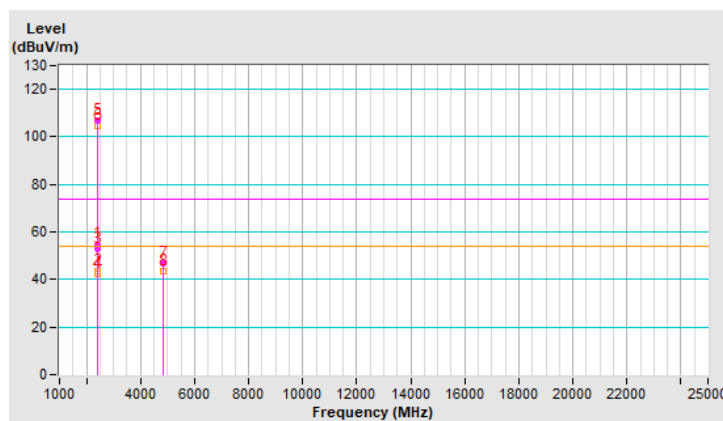


|                        |                |                                          |                                                            |
|------------------------|----------------|------------------------------------------|------------------------------------------------------------|
| <b>RF Mode</b>         | TX 802.11b     | <b>Channel</b>                           | CH 1 : 2412 MHz                                            |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 24 °C, 67 % RH                                             |
| <b>Tested By</b>       | Ryan Du        |                                          |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2385.80         | 54.8 PK                 | 74.0           | -19.2       | 1.72 V             | 312                  | 55.8             | -1.0                     |
| 2                                                  | 2385.80         | 43.5 AV                 | 54.0           | -10.5       | 1.72 V             | 312                  | 44.5             | -1.0                     |
| 3                                                  | 2390.00         | 52.7 PK                 | 74.0           | -21.3       | 1.72 V             | 312                  | 53.7             | -1.0                     |
| 4                                                  | 2390.00         | 42.6 AV                 | 54.0           | -11.4       | 1.72 V             | 312                  | 43.6             | -1.0                     |
| 5                                                  | *2412.00        | 106.6 PK                |                |             | 1.72 V             | 313                  | 107.7            | -1.1                     |
| 6                                                  | *2412.00        | 104.5 AV                |                |             | 1.72 V             | 313                  | 105.6            | -1.1                     |
| 7                                                  | 4824.00         | 46.6 PK                 | 74.0           | -27.4       | 2.46 V             | 264                  | 42.9             | 3.7                      |
| 8                                                  | 4824.00         | 43.7 AV                 | 54.0           | -10.3       | 2.46 V             | 264                  | 40.0             | 3.7                      |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

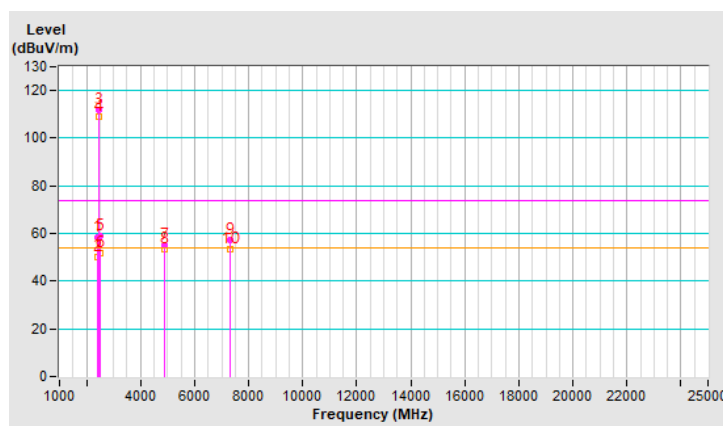


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11b     | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 58.6 PK                 | 74.0           | -15.4       | 1.48 H             | 127                  | 59.6             | -1.0                     |
| 2                                                    | 2390.00         | 50.3 AV                 | 54.0           | -3.7        | 1.48 H             | 127                  | 51.3             | -1.0                     |
| 3                                                    | *2437.00        | 111.6 PK                |                |             | 1.48 H             | 127                  | 112.7            | -1.1                     |
| 4                                                    | *2437.00        | 109.1 AV                |                |             | 1.48 H             | 127                  | 110.2            | -1.1                     |
| 5                                                    | 2483.50         | 58.9 PK                 | 74.0           | -15.1       | 1.48 H             | 127                  | 60.2             | -1.3                     |
| 6                                                    | 2483.50         | 51.7 AV                 | 54.0           | -2.3        | 1.48 H             | 127                  | 53.0             | -1.3                     |
| 7                                                    | 4874.00         | 54.9 PK                 | 74.0           | -19.1       | 2.02 H             | 318                  | 51.2             | 3.7                      |
| 8                                                    | 4874.00         | 53.4 AV                 | 54.0           | -0.6        | 2.02 H             | 318                  | 49.7             | 3.7                      |
| 9                                                    | 7311.00         | 57.2 PK                 | 74.0           | -16.8       | 4.00 H             | 188                  | 47.5             | 9.7                      |
| 10                                                   | 7311.00         | 53.5 AV                 | 54.0           | -0.5        | 4.00 H             | 188                  | 43.8             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

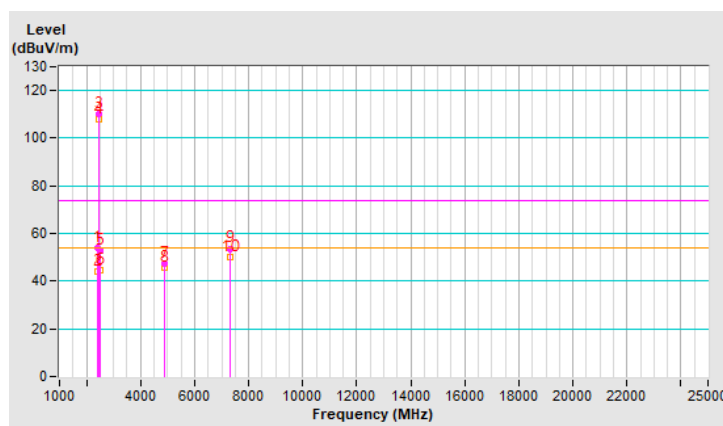


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11b     | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 53.9 PK                 | 74.0           | -20.1       | 1.10 V             | 82                   | 54.9             | -1.0                     |
| 2                                                  | 2390.00         | 44.2 AV                 | 54.0           | -9.8        | 1.10 V             | 82                   | 45.2             | -1.0                     |
| 3                                                  | *2437.00        | 109.9 PK                |                |             | 1.10 V             | 82                   | 111.0            | -1.1                     |
| 4                                                  | *2437.00        | 107.8 AV                |                |             | 1.10 V             | 82                   | 108.9            | -1.1                     |
| 5                                                  | 2483.50         | 52.9 PK                 | 74.0           | -21.1       | 1.10 V             | 82                   | 54.2             | -1.3                     |
| 6                                                  | 2483.50         | 44.4 AV                 | 54.0           | -9.6        | 1.10 V             | 82                   | 45.7             | -1.3                     |
| 7                                                  | 4874.00         | 47.6 PK                 | 74.0           | -26.4       | 1.50 V             | 324                  | 43.9             | 3.7                      |
| 8                                                  | 4874.00         | 45.5 AV                 | 54.0           | -8.5        | 1.50 V             | 324                  | 41.8             | 3.7                      |
| 9                                                  | 7311.00         | 53.7 PK                 | 74.0           | -20.3       | 1.44 V             | 37                   | 44.0             | 9.7                      |
| 10                                                 | 7311.00         | 50.1 AV                 | 54.0           | -3.9        | 1.44 V             | 37                   | 40.4             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

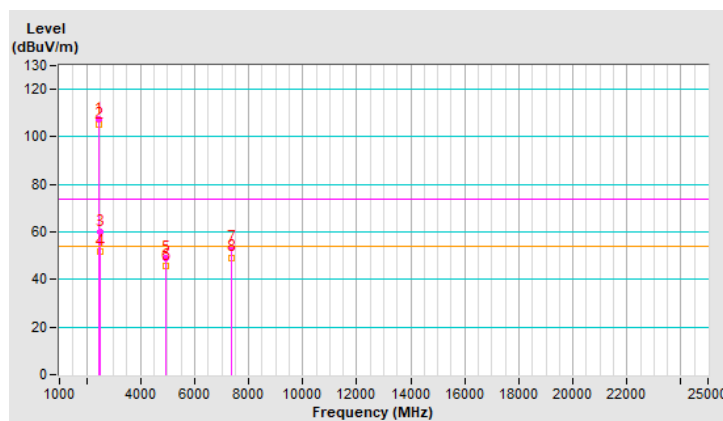


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11b     | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | *2462.00        | 107.6 PK                |                |             | 2.40 H             | 154                  | 108.8            | -1.2                     |
| 2                                                    | *2462.00        | 105.0 AV                |                |             | 2.40 H             | 154                  | 106.2            | -1.2                     |
| 3                                                    | 2483.50         | 59.8 PK                 | 74.0           | -14.2       | 2.40 H             | 154                  | 61.1             | -1.3                     |
| 4                                                    | 2483.50         | 51.9 AV                 | 54.0           | -2.1        | 2.40 H             | 154                  | 53.2             | -1.3                     |
| 5                                                    | 4924.00         | 48.8 PK                 | 74.0           | -25.2       | 1.99 H             | 318                  | 45.0             | 3.8                      |
| 6                                                    | 4924.00         | 45.9 AV                 | 54.0           | -8.1        | 1.99 H             | 318                  | 42.1             | 3.8                      |
| 7                                                    | 7386.00         | 53.2 PK                 | 74.0           | -20.8       | 1.99 H             | 195                  | 43.3             | 9.9                      |
| 8                                                    | 7386.00         | 49.3 AV                 | 54.0           | -4.7        | 1.99 H             | 195                  | 39.4             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

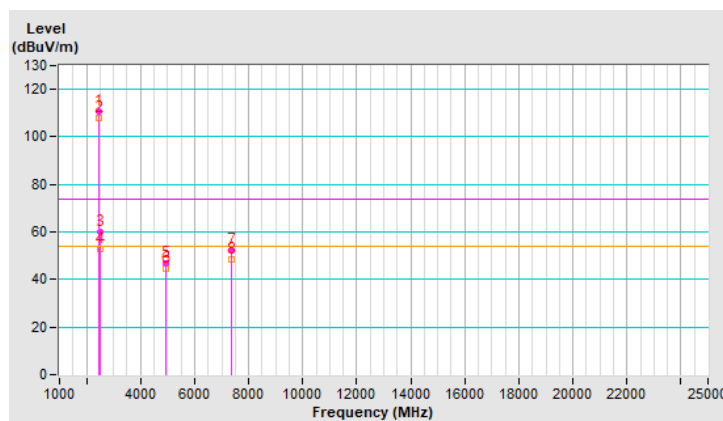


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11b     | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | *2462.00        | 110.5 PK                |                |             | 1.72 V             | 312                  | 111.7            | -1.2                     |
| 2                                                  | *2462.00        | 107.8 AV                |                |             | 1.72 V             | 312                  | 109.0            | -1.2                     |
| 3                                                  | 2483.50         | 59.9 PK                 | 74.0           | -14.1       | 1.72 V             | 312                  | 61.2             | -1.3                     |
| 4                                                  | 2483.50         | 52.9 AV                 | 54.0           | -1.1        | 1.72 V             | 312                  | 54.2             | -1.3                     |
| 5                                                  | 4924.00         | 46.9 PK                 | 74.0           | -27.1       | 1.82 V             | 333                  | 43.1             | 3.8                      |
| 6                                                  | 4924.00         | 44.5 AV                 | 54.0           | -9.5        | 1.82 V             | 333                  | 40.7             | 3.8                      |
| 7                                                  | 7386.00         | 52.3 PK                 | 74.0           | -21.7       | 1.32 V             | 36                   | 42.4             | 9.9                      |
| 8                                                  | 7386.00         | 48.3 AV                 | 54.0           | -5.7        | 1.32 V             | 36                   | 38.4             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

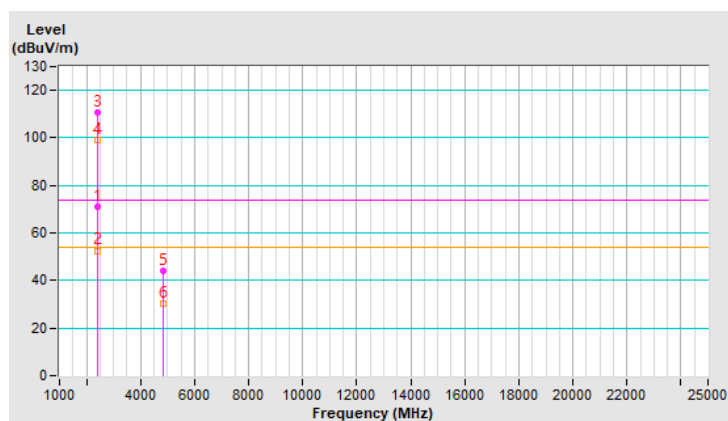


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 1 : 2412 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 70.9 PK                 | 74.0           | -3.1        | 2.16 H             | 138                  | 71.9             | -1.0                     |
| 2                                                    | 2390.00         | 52.6 AV                 | 54.0           | -1.4        | 2.16 H             | 138                  | 53.6             | -1.0                     |
| 3                                                    | *2412.00        | 110.8 PK                |                |             | 2.16 H             | 138                  | 111.9            | -1.1                     |
| 4                                                    | *2412.00        | 98.9 AV                 |                |             | 2.16 H             | 138                  | 100.0            | -1.1                     |
| 5                                                    | 4824.00         | 43.8 PK                 | 74.0           | -30.2       | 2.04 H             | 58                   | 40.1             | 3.7                      |
| 6                                                    | 4824.00         | 30.4 AV                 | 54.0           | -23.6       | 2.04 H             | 58                   | 26.7             | 3.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

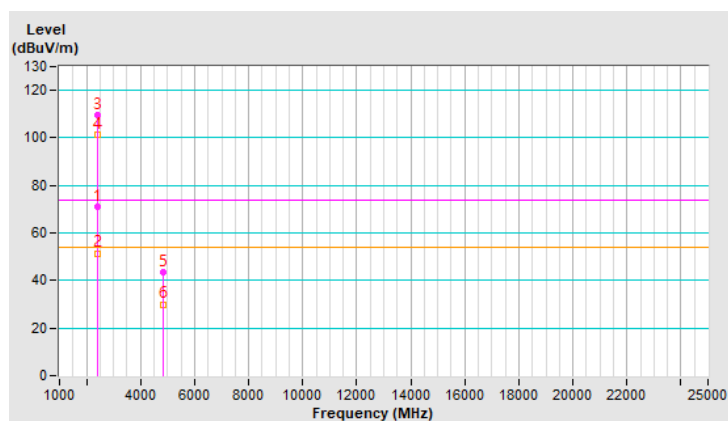


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 1 : 2412 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 70.9 PK                 | 74.0           | -3.1        | 1.70 V             | 64                   | 71.9             | -1.0                     |
| 2                                                  | 2390.00         | 51.5 AV                 | 54.0           | -2.5        | 1.70 V             | 64                   | 52.5             | -1.0                     |
| 3                                                  | *2412.00        | 109.7 PK                |                |             | 1.70 V             | 64                   | 110.8            | -1.1                     |
| 4                                                  | *2412.00        | 101.3 AV                |                |             | 1.70 V             | 64                   | 102.4            | -1.1                     |
| 5                                                  | 4824.00         | 43.4 PK                 | 74.0           | -30.6       | 2.48 V             | 267                  | 39.7             | 3.7                      |
| 6                                                  | 4824.00         | 30.0 AV                 | 54.0           | -24.0       | 2.48 V             | 267                  | 26.3             | 3.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

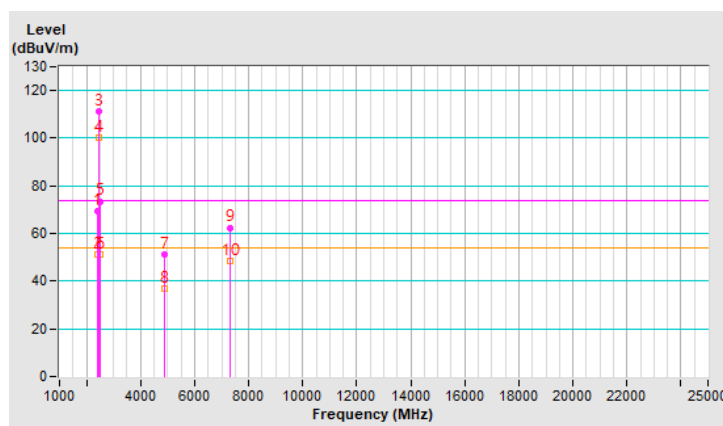


|                        |                |                                          |                                                            |
|------------------------|----------------|------------------------------------------|------------------------------------------------------------|
| <b>RF Mode</b>         | TX 802.11g     | <b>Channel</b>                           | CH 6 : 2437 MHz                                            |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 24 °C, 67 % RH                                             |
| <b>Tested By</b>       | Ryan Du        |                                          |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 69.6 PK                 | 74.0           | -4.4        | 1.48 H             | 126                  | 70.6             | -1.0                     |
| 2                                                    | 2390.00         | 51.1 AV                 | 54.0           | -2.9        | 1.48 H             | 126                  | 52.1             | -1.0                     |
| 3                                                    | *2437.00        | 111.3 PK                |                |             | 1.48 H             | 126                  | 112.4            | -1.1                     |
| 4                                                    | *2437.00        | 100.2 AV                |                |             | 1.48 H             | 126                  | 101.3            | -1.1                     |
| 5                                                    | 2483.50         | 73.5 PK                 | 74.0           | -0.5        | 1.48 H             | 126                  | 74.8             | -1.3                     |
| 6                                                    | 2483.50         | 51.3 AV                 | 54.0           | -2.7        | 1.48 H             | 126                  | 52.6             | -1.3                     |
| 7                                                    | 4874.00         | 51.1 PK                 | 74.0           | -22.9       | 1.00 H             | 322                  | 47.4             | 3.7                      |
| 8                                                    | 4874.00         | 37.1 AV                 | 54.0           | -16.9       | 1.00 H             | 322                  | 33.4             | 3.7                      |
| 9                                                    | 7311.00         | 62.5 PK                 | 74.0           | -11.5       | 1.00 H             | 322                  | 52.8             | 9.7                      |
| 10                                                   | 7311.00         | 48.2 AV                 | 54.0           | -5.8        | 1.00 H             | 322                  | 38.5             | 9.7                      |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

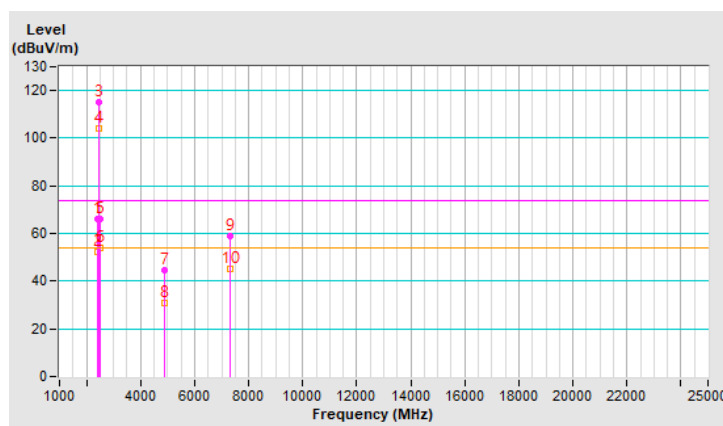


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 66.2 PK                 | 74.0           | -7.8        | 1.54 V             | 301                  | 67.2             | -1.0                     |
| 2                                                  | 2390.00         | 52.1 AV                 | 54.0           | -1.9        | 1.54 V             | 301                  | 53.1             | -1.0                     |
| 3                                                  | *2437.00        | 114.9 PK                |                |             | 1.54 V             | 301                  | 116.0            | -1.1                     |
| 4                                                  | *2437.00        | 104.3 AV                |                |             | 1.54 V             | 301                  | 105.4            | -1.1                     |
| 5                                                  | 2483.50         | 65.9 PK                 | 74.0           | -8.1        | 1.54 V             | 301                  | 67.2             | -1.3                     |
| 6                                                  | <b>2483.50</b>  | <b>53.8 AV</b>          | <b>54.0</b>    | <b>-0.2</b> | <b>1.54 V</b>      | <b>301</b>           | <b>55.1</b>      | <b>-1.3</b>              |
| 7                                                  | 4874.00         | 44.6 PK                 | 74.0           | -29.4       | 3.21 V             | 329                  | 40.9             | 3.7                      |
| 8                                                  | 4874.00         | 30.7 AV                 | 54.0           | -23.3       | 3.21 V             | 329                  | 27.0             | 3.7                      |
| 9                                                  | 7311.00         | 58.9 PK                 | 74.0           | -15.1       | 2.73 V             | 35                   | 49.2             | 9.7                      |
| 10                                                 | 7311.00         | 45.3 AV                 | 54.0           | -8.7        | 2.73 V             | 35                   | 35.6             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

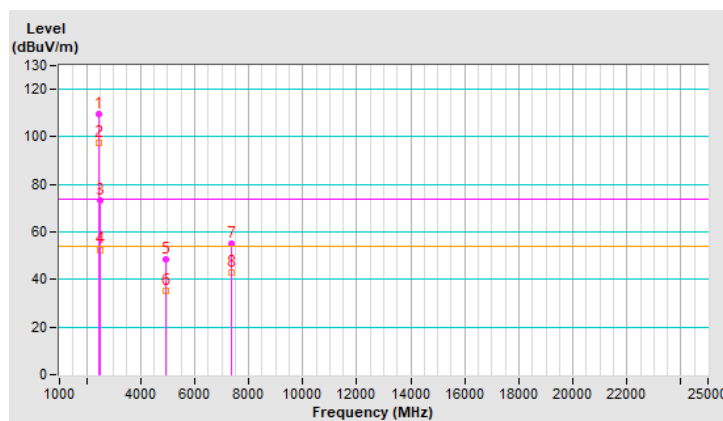


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | *2462.00        | 109.4 PK                |                |             | 2.28 H             | 137                  | 110.6            | -1.2                     |
| 2                                                    | *2462.00        | 97.6 AV                 |                |             | 2.28 H             | 137                  | 98.8             | -1.2                     |
| 3                                                    | 2483.50         | 73.4 PK                 | 74.0           | -0.6        | 2.28 H             | 137                  | 74.7             | -1.3                     |
| 4                                                    | 2483.50         | 52.6 AV                 | 54.0           | -1.4        | 2.28 H             | 137                  | 53.9             | -1.3                     |
| 5                                                    | 4924.00         | 48.5 PK                 | 74.0           | -25.5       | 1.99 H             | 320                  | 44.7             | 3.8                      |
| 6                                                    | 4924.00         | 35.4 AV                 | 54.0           | -18.6       | 1.99 H             | 320                  | 31.6             | 3.8                      |
| 7                                                    | 7386.00         | 55.3 PK                 | 74.0           | -18.7       | 1.93 H             | 194                  | 45.4             | 9.9                      |
| 8                                                    | 7386.00         | 43.1 AV                 | 54.0           | -10.9       | 1.93 H             | 194                  | 33.2             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

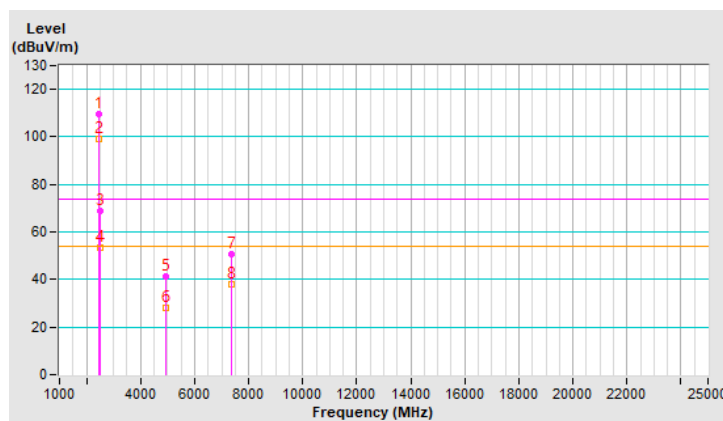


|                 |                |                               |                                                            |
|-----------------|----------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11g     | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du        |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | *2462.00        | 109.6 PK                |                |             | 1.60 V             | 302                  | 110.8            | -1.2                     |
| 2                                                  | *2462.00        | 99.2 AV                 |                |             | 1.60 V             | 302                  | 100.4            | -1.2                     |
| 3                                                  | 2483.50         | 68.8 PK                 | 74.0           | -5.2        | 1.60 V             | 302                  | 70.1             | -1.3                     |
| 4                                                  | 2483.50         | 53.4 AV                 | 54.0           | -0.6        | 1.60 V             | 302                  | 54.7             | -1.3                     |
| 5                                                  | 4924.00         | 41.5 PK                 | 74.0           | -32.5       | 2.18 V             | 306                  | 37.7             | 3.8                      |
| 6                                                  | 4924.00         | 27.9 AV                 | 54.0           | -26.1       | 2.18 V             | 306                  | 24.1             | 3.8                      |
| 7                                                  | 7386.00         | 50.7 PK                 | 74.0           | -23.3       | 2.70 V             | 33                   | 40.8             | 9.9                      |
| 8                                                  | 7386.00         | 37.9 AV                 | 54.0           | -16.1       | 2.70 V             | 33                   | 28.0             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

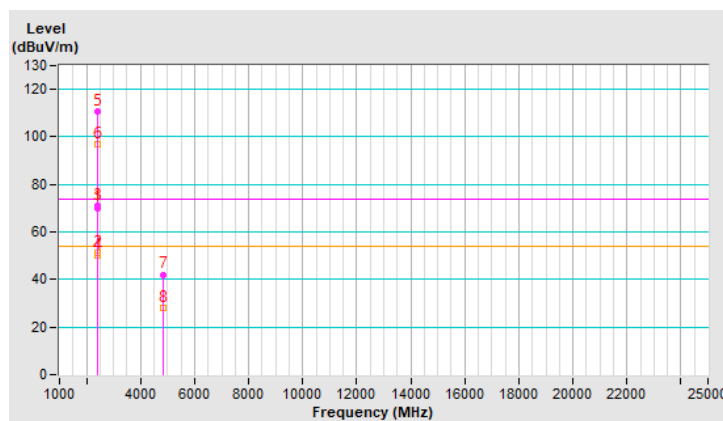


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 1 : 2412 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2389.30         | 70.2 PK                 | 74.0           | -3.8        | 2.19 H             | 156                  | 71.2             | -1.0                     |
| 2                                                    | 2389.30         | 51.4 AV                 | 54.0           | -2.6        | 2.19 H             | 156                  | 52.4             | -1.0                     |
| 3                                                    | 2390.00         | 71.1 PK                 | 74.0           | -2.9        | 2.19 H             | 156                  | 72.1             | -1.0                     |
| 4                                                    | 2390.00         | 50.2 AV                 | 54.0           | -3.8        | 2.19 H             | 156                  | 51.2             | -1.0                     |
| 5                                                    | *2412.00        | 110.7 PK                |                |             | 2.19 H             | 156                  | 111.8            | -1.1                     |
| 6                                                    | *2412.00        | 97.1 AV                 |                |             | 2.19 H             | 156                  | 98.2             | -1.1                     |
| 7                                                    | 4824.00         | 42.1 PK                 | 74.0           | -31.9       | 2.01 H             | 60                   | 38.4             | 3.7                      |
| 8                                                    | 4824.00         | 28.1 AV                 | 54.0           | -25.9       | 2.01 H             | 60                   | 24.4             | 3.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

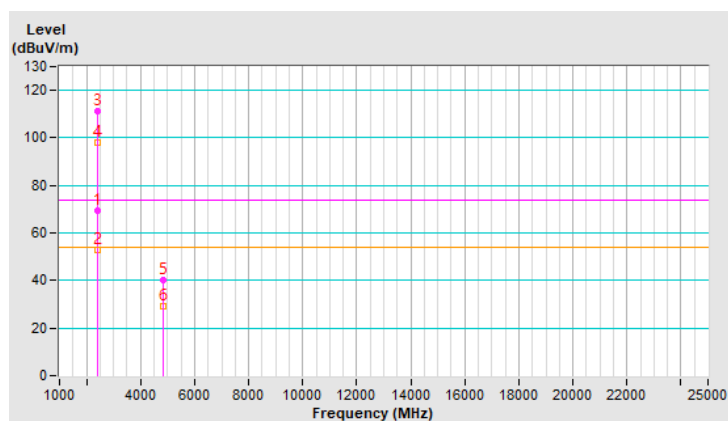


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 1 : 2412 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 69.5 PK                 | 74.0           | -4.5        | 1.73 V             | 65                   | 70.5             | -1.0                     |
| 2                                                  | 2390.00         | 53.1 AV                 | 54.0           | -0.9        | 1.73 V             | 65                   | 54.1             | -1.0                     |
| 3                                                  | *2412.00        | 111.0 PK                |                |             | 1.73 V             | 65                   | 112.1            | -1.1                     |
| 4                                                  | *2412.00        | 98.1 AV                 |                |             | 1.73 V             | 65                   | 99.2             | -1.1                     |
| 5                                                  | 4824.00         | 40.2 PK                 | 74.0           | -33.8       | 2.43 V             | 265                  | 36.5             | 3.7                      |
| 6                                                  | 4824.00         | 29.1 AV                 | 54.0           | -24.9       | 2.43 V             | 265                  | 25.4             | 3.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

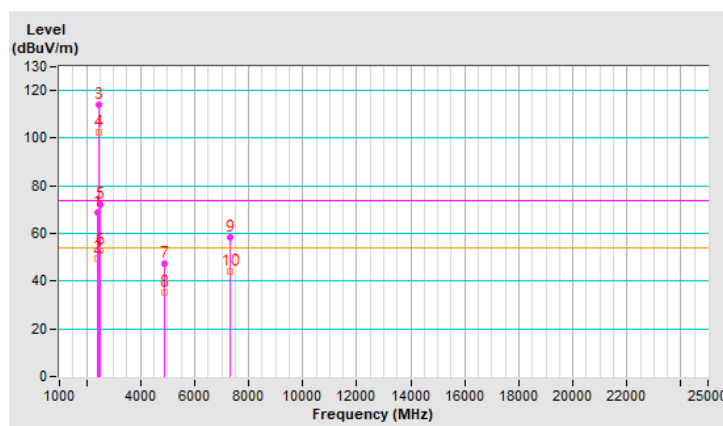


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 69.0 PK                 | 74.0           | -5.0        | 1.15 H             | 121                  | 70.0             | -1.0                     |
| 2                                                    | 2390.00         | 49.5 AV                 | 54.0           | -4.5        | 1.15 H             | 121                  | 50.5             | -1.0                     |
| 3                                                    | *2437.00        | 114.0 PK                |                |             | 1.15 H             | 121                  | 115.1            | -1.1                     |
| 4                                                    | *2437.00        | 102.6 AV                |                |             | 1.15 H             | 121                  | 103.7            | -1.1                     |
| 5                                                    | 2483.50         | 72.3 PK                 | 74.0           | -1.7        | 1.15 H             | 121                  | 73.6             | -1.3                     |
| 6                                                    | 2483.50         | 52.8 AV                 | 54.0           | -1.2        | 1.15 H             | 121                  | 54.1             | -1.3                     |
| 7                                                    | 4874.00         | 47.3 PK                 | 74.0           | -26.7       | 2.07 H             | 319                  | 43.6             | 3.7                      |
| 8                                                    | 4874.00         | 35.2 AV                 | 54.0           | -18.8       | 2.07 H             | 319                  | 31.5             | 3.7                      |
| 9                                                    | 7311.00         | 58.3 PK                 | 74.0           | -15.7       | 1.04 H             | 320                  | 48.6             | 9.7                      |
| 10                                                   | 7311.00         | 43.8 AV                 | 54.0           | -10.2       | 1.04 H             | 320                  | 34.1             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

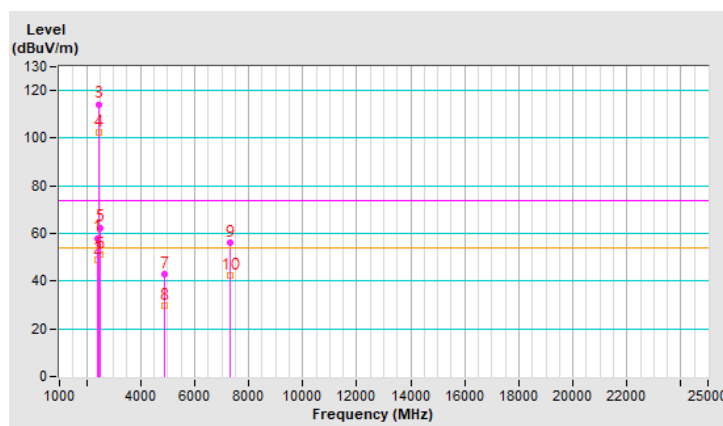


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 58.1 PK                 | 74.0           | -15.9       | 1.56 V             | 300                  | 59.1             | -1.0                     |
| 2                                                  | 2390.00         | 49.1 AV                 | 54.0           | -4.9        | 1.56 V             | 300                  | 50.1             | -1.0                     |
| 3                                                  | *2437.00        | 114.3 PK                |                |             | 1.56 V             | 300                  | 115.4            | -1.1                     |
| 4                                                  | *2437.00        | 102.6 AV                |                |             | 1.56 V             | 300                  | 103.7            | -1.1                     |
| 5                                                  | 2483.50         | 62.5 PK                 | 74.0           | -11.5       | 1.56 V             | 300                  | 63.8             | -1.3                     |
| 6                                                  | 2483.50         | 51.0 AV                 | 54.0           | -3.0        | 1.56 V             | 300                  | 52.3             | -1.3                     |
| 7                                                  | 4874.00         | 42.9 PK                 | 74.0           | -31.1       | 3.25 V             | 330                  | 39.2             | 3.7                      |
| 8                                                  | 4874.00         | 29.9 AV                 | 54.0           | -24.1       | 3.25 V             | 330                  | 26.2             | 3.7                      |
| 9                                                  | 7311.00         | 56.3 PK                 | 74.0           | -17.7       | 2.74 V             | 41                   | 46.6             | 9.7                      |
| 10                                                 | 7311.00         | 42.6 AV                 | 54.0           | -11.4       | 2.74 V             | 41                   | 32.9             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

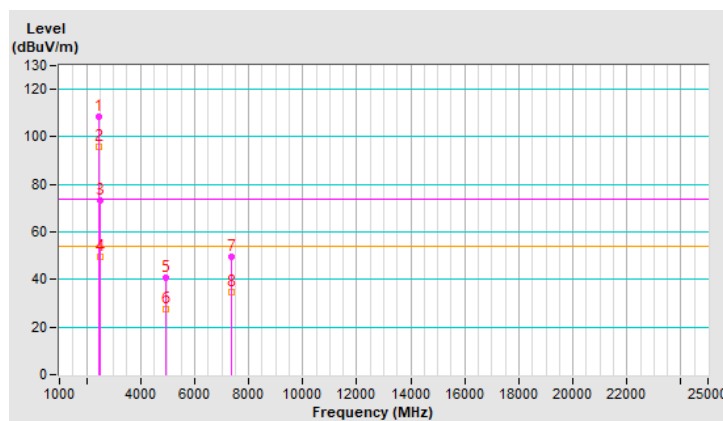


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | *2462.00        | 108.7 PK                |                |             | 1.71 H             | 139                  | 109.9            | -1.2                     |
| 2                                                    | *2462.00        | 95.8 AV                 |                |             | 1.71 H             | 139                  | 97.0             | -1.2                     |
| 3                                                    | 2483.50         | 73.2 PK                 | 74.0           | -0.8        | 1.71 H             | 139                  | 74.5             | -1.3                     |
| 4                                                    | 2483.50         | 49.8 AV                 | 54.0           | -4.2        | 1.71 H             | 139                  | 51.1             | -1.3                     |
| 5                                                    | 4924.00         | 40.9 PK                 | 74.0           | -33.1       | 1.96 H             | 322                  | 37.1             | 3.8                      |
| 6                                                    | 4924.00         | 27.5 AV                 | 54.0           | -26.5       | 1.96 H             | 322                  | 23.7             | 3.8                      |
| 7                                                    | 7386.00         | 49.7 PK                 | 74.0           | -24.3       | 1.81 H             | 193                  | 39.8             | 9.9                      |
| 8                                                    | 7386.00         | 34.5 AV                 | 54.0           | -19.5       | 1.81 H             | 193                  | 24.6             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

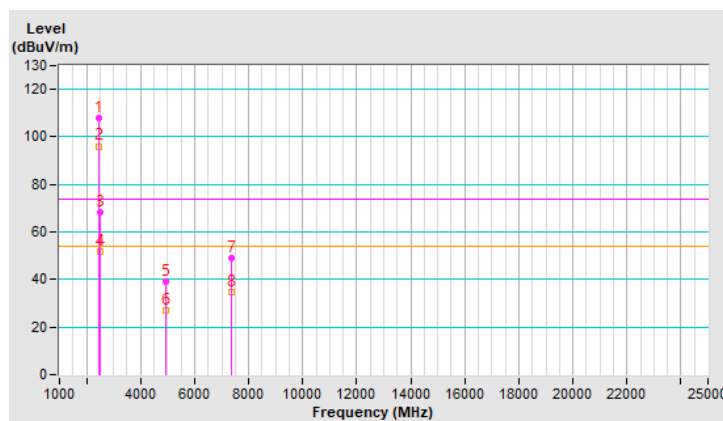


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE20) | Channel                       | CH 11 : 2462 MHz                                           |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | *2462.00        | 108.0 PK                |                |             | 1.72 V             | 43                   | 109.2            | -1.2                     |
| 2                                                  | *2462.00        | 96.1 AV                 |                |             | 1.72 V             | 43                   | 97.3             | -1.2                     |
| 3                                                  | 2483.50         | 68.2 PK                 | 74.0           | -5.8        | 1.72 V             | 43                   | 69.5             | -1.3                     |
| 4                                                  | 2483.50         | 51.7 AV                 | 54.0           | -2.3        | 1.72 V             | 43                   | 53.0             | -1.3                     |
| 5                                                  | 4924.00         | 39.1 PK                 | 74.0           | -34.9       | 2.22 V             | 44                   | 35.3             | 3.8                      |
| 6                                                  | 4924.00         | 27.1 AV                 | 54.0           | -26.9       | 2.22 V             | 44                   | 23.3             | 3.8                      |
| 7                                                  | 7386.00         | 49.0 PK                 | 74.0           | -25.0       | 2.65 V             | 40                   | 39.1             | 9.9                      |
| 8                                                  | 7386.00         | 34.8 AV                 | 54.0           | -19.2       | 2.65 V             | 40                   | 24.9             | 9.9                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

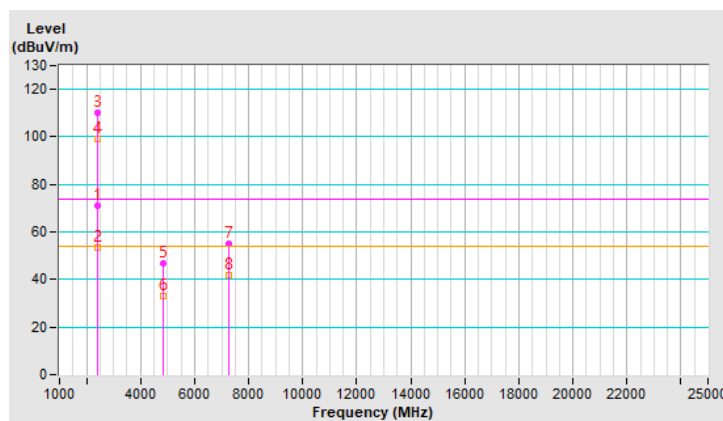


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 3 : 2422 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 71.2 PK                 | 74.0           | -2.8        | 2.37 H             | 145                  | 72.2             | -1.0                     |
| 2                                                    | 2390.00         | 53.2 AV                 | 54.0           | -0.8        | 2.37 H             | 145                  | 54.2             | -1.0                     |
| 3                                                    | *2422.00        | 110.2 PK                |                |             | 2.37 H             | 145                  | 111.3            | -1.1                     |
| 4                                                    | *2422.00        | 99.1 AV                 |                |             | 2.37 H             | 145                  | 100.2            | -1.1                     |
| 5                                                    | 4844.00         | 47.0 PK                 | 74.0           | -27.0       | 2.22 H             | 318                  | 43.3             | 3.7                      |
| 6                                                    | 4844.00         | 33.1 AV                 | 54.0           | -20.9       | 2.22 H             | 318                  | 29.4             | 3.7                      |
| 7                                                    | 7266.00         | 54.9 PK                 | 74.0           | -19.1       | 1.04 H             | 330                  | 45.3             | 9.6                      |
| 8                                                    | 7266.00         | 41.8 AV                 | 54.0           | -12.2       | 1.04 H             | 330                  | 32.2             | 9.6                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

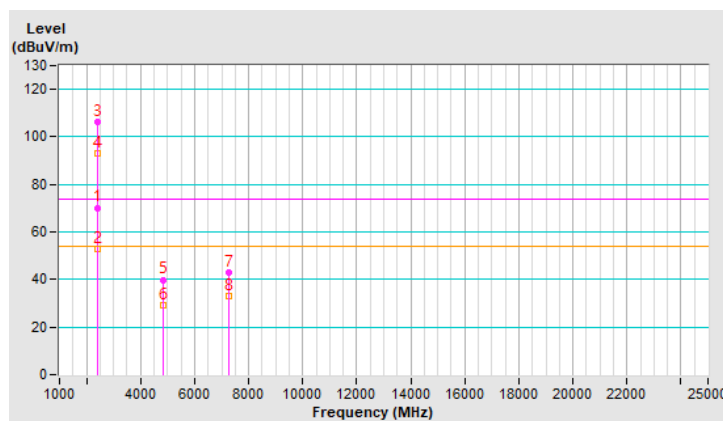


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 3 : 2422 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 70.2 PK                 | 74.0           | -3.8        | 1.72 V             | 304                  | 71.2             | -1.0                     |
| 2                                                  | 2390.00         | 52.8 AV                 | 54.0           | -1.2        | 1.72 V             | 304                  | 53.8             | -1.0                     |
| 3                                                  | *2422.00        | 106.1 PK                |                |             | 1.72 V             | 304                  | 107.2            | -1.1                     |
| 4                                                  | *2422.00        | 93.2 AV                 |                |             | 1.72 V             | 304                  | 94.3             | -1.1                     |
| 5                                                  | 4844.00         | 39.9 PK                 | 74.0           | -34.1       | 2.52 V             | 271                  | 36.2             | 3.7                      |
| 6                                                  | 4844.00         | 29.4 AV                 | 54.0           | -24.6       | 2.52 V             | 271                  | 25.7             | 3.7                      |
| 7                                                  | 7266.00         | 42.8 PK                 | 74.0           | -31.2       | 2.45 V             | 280                  | 33.2             | 9.6                      |
| 8                                                  | 7266.00         | 33.0 AV                 | 54.0           | -21.0       | 2.45 V             | 280                  | 23.4             | 9.6                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

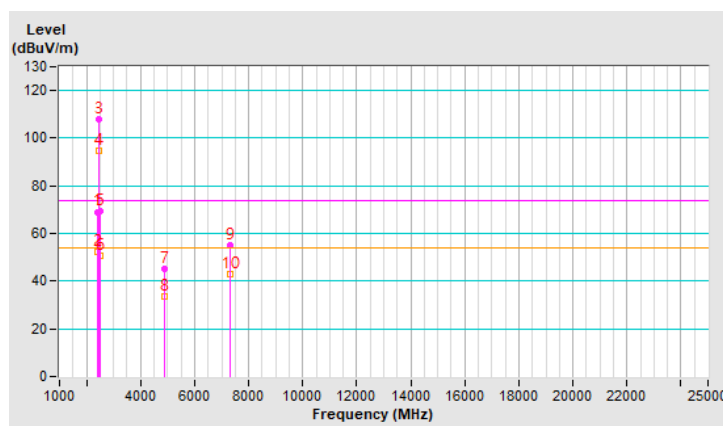


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | 2390.00         | 69.1 PK                 | 74.0           | -4.9        | 2.43 H             | 117                  | 70.1             | -1.0                     |
| 2                                                    | 2390.00         | 52.1 AV                 | 54.0           | -1.9        | 2.43 H             | 117                  | 53.1             | -1.0                     |
| 3                                                    | *2437.00        | 107.8 PK                |                |             | 2.43 H             | 117                  | 108.9            | -1.1                     |
| 4                                                    | *2437.00        | 94.9 AV                 |                |             | 2.43 H             | 117                  | 96.0             | -1.1                     |
| 5                                                    | 2483.50         | 69.3 PK                 | 74.0           | -4.7        | 2.43 H             | 117                  | 70.6             | -1.3                     |
| 6                                                    | 2483.50         | 50.6 AV                 | 54.0           | -3.4        | 2.43 H             | 117                  | 51.9             | -1.3                     |
| 7                                                    | 4874.00         | 45.4 PK                 | 74.0           | -28.6       | 2.02 H             | 318                  | 41.7             | 3.7                      |
| 8                                                    | 4874.00         | 33.4 AV                 | 54.0           | -20.6       | 2.02 H             | 318                  | 29.7             | 3.7                      |
| 9                                                    | 7311.00         | 55.3 PK                 | 74.0           | -18.7       | 1.00 H             | 322                  | 45.6             | 9.7                      |
| 10                                                   | 7311.00         | 43.1 AV                 | 54.0           | -10.9       | 1.00 H             | 322                  | 33.4             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

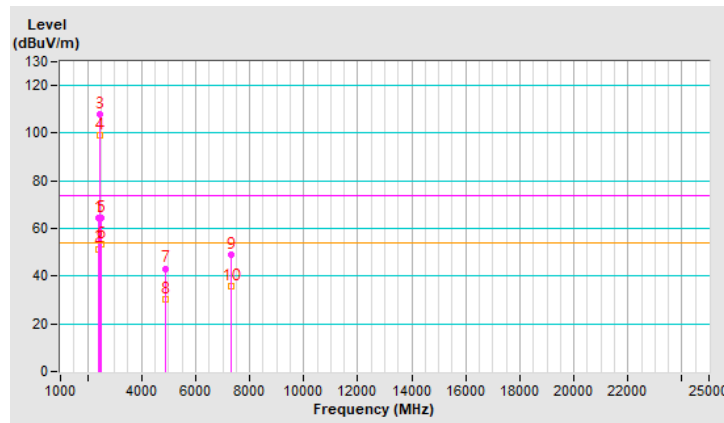


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 6 : 2437 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | 2390.00         | 64.3 PK                 | 74.0           | -9.7        | 1.51 V             | 302                  | 65.3             | -1.0                     |
| 2                                                  | 2390.00         | 51.5 AV                 | 54.0           | -2.5        | 1.51 V             | 302                  | 52.5             | -1.0                     |
| 3                                                  | *2437.00        | 107.9 PK                |                |             | 1.51 V             | 302                  | 109.0            | -1.1                     |
| 4                                                  | *2437.00        | 99.2 AV                 |                |             | 1.51 V             | 302                  | 100.3            | -1.1                     |
| 5                                                  | 2483.50         | 64.5 PK                 | 74.0           | -9.5        | 1.51 V             | 302                  | 65.8             | -1.3                     |
| 6                                                  | 2483.50         | 53.4 AV                 | 54.0           | -0.6        | 1.51 V             | 302                  | 54.7             | -1.3                     |
| 7                                                  | 4874.00         | 43.2 PK                 | 74.0           | -30.8       | 3.22 V             | 327                  | 39.5             | 3.7                      |
| 8                                                  | 4874.00         | 30.1 AV                 | 54.0           | -23.9       | 3.22 V             | 327                  | 26.4             | 3.7                      |
| 9                                                  | 7311.00         | 49.2 PK                 | 74.0           | -24.8       | 2.67 V             | 37                   | 39.5             | 9.7                      |
| 10                                                 | 7311.00         | 35.9 AV                 | 54.0           | -18.1       | 2.67 V             | 37                   | 26.2             | 9.7                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

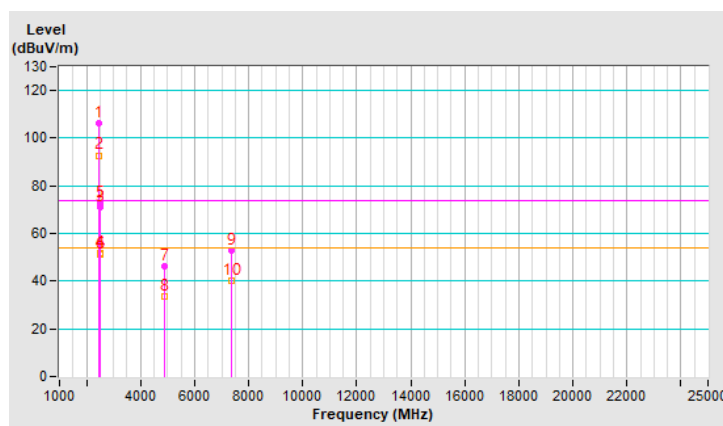


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 9 : 2452 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

| Antenna Polarity & Test Distance : Horizontal at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|------------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                    | *2452.00        | 106.1 PK                |                |             | 1.85 H             | 142                  | 107.3            | -1.2                     |
| 2                                                    | *2452.00        | 92.8 AV                 |                |             | 1.85 H             | 142                  | 94.0             | -1.2                     |
| 3                                                    | 2483.50         | 70.8 PK                 | 74.0           | -3.2        | 1.85 H             | 142                  | 72.1             | -1.3                     |
| 4                                                    | 2483.50         | 51.7 AV                 | 54.0           | -2.3        | 1.85 H             | 142                  | 53.0             | -1.3                     |
| 5                                                    | 2484.30         | 72.7 PK                 | 74.0           | -1.3        | 1.85 H             | 142                  | 74.0             | -1.3                     |
| 6                                                    | 2484.30         | 51.4 AV                 | 54.0           | -2.6        | 1.85 H             | 142                  | 52.7             | -1.3                     |
| 7                                                    | 4904.00         | 46.5 PK                 | 74.0           | -27.5       | 2.18 H             | 323                  | 42.8             | 3.7                      |
| 8                                                    | 4904.00         | 33.5 AV                 | 54.0           | -20.5       | 2.18 H             | 323                  | 29.8             | 3.7                      |
| 9                                                    | 7356.00         | 52.9 PK                 | 74.0           | -21.1       | 1.67 H             | 189                  | 43.1             | 9.8                      |
| 10                                                   | 7356.00         | 40.2 AV                 | 54.0           | -13.8       | 1.67 H             | 189                  | 30.4             | 9.8                      |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

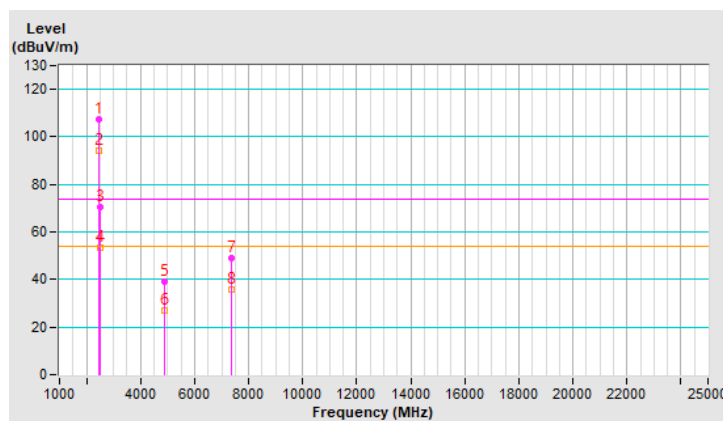


|                 |                    |                               |                                                            |
|-----------------|--------------------|-------------------------------|------------------------------------------------------------|
| RF Mode         | TX 802.11ax (HE40) | Channel                       | CH 9 : 2452 MHz                                            |
| Frequency Range | 1 GHz ~ 25 GHz     | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 10 Hz |
| Input Power     | 120 Vac, 60 Hz     | Environmental Conditions      | 24 °C, 67 % RH                                             |
| Tested By       | Ryan Du            |                               |                                                            |

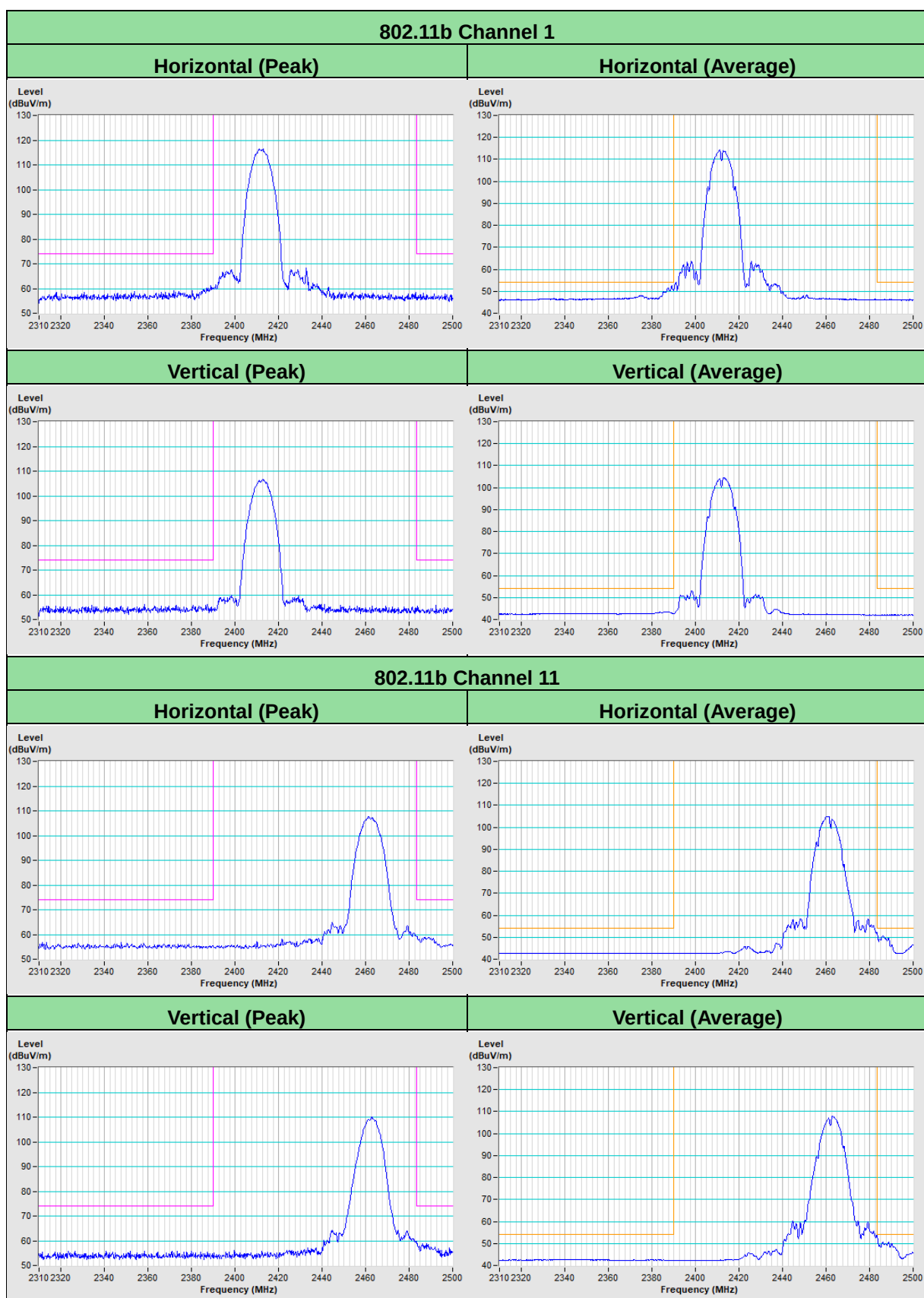
| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|----------------------------------------------------|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No                                                 | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                  | *2452.00        | 107.2 PK                |                |             | 1.73 V             | 304                  | 108.4            | -1.2                     |
| 2                                                  | *2452.00        | 94.0 AV                 |                |             | 1.73 V             | 304                  | 95.2             | -1.2                     |
| 3                                                  | 2483.50         | 70.5 PK                 | 74.0           | -3.5        | 1.73 V             | 304                  | 71.8             | -1.3                     |
| 4                                                  | 2483.50         | 53.4 AV                 | 54.0           | -0.6        | 1.73 V             | 304                  | 54.7             | -1.3                     |
| 5                                                  | 4904.00         | 39.2 PK                 | 74.0           | -34.8       | 2.23 V             | 46                   | 35.5             | 3.7                      |
| 6                                                  | 4904.00         | 27.1 AV                 | 54.0           | -26.9       | 2.23 V             | 46                   | 23.4             | 3.7                      |
| 7                                                  | 7356.00         | 48.8 PK                 | 74.0           | -25.2       | 2.69 V             | 40                   | 39.0             | 9.8                      |
| 8                                                  | 7356.00         | 35.7 AV                 | 54.0           | -18.3       | 2.69 V             | 40                   | 25.9             | 9.8                      |

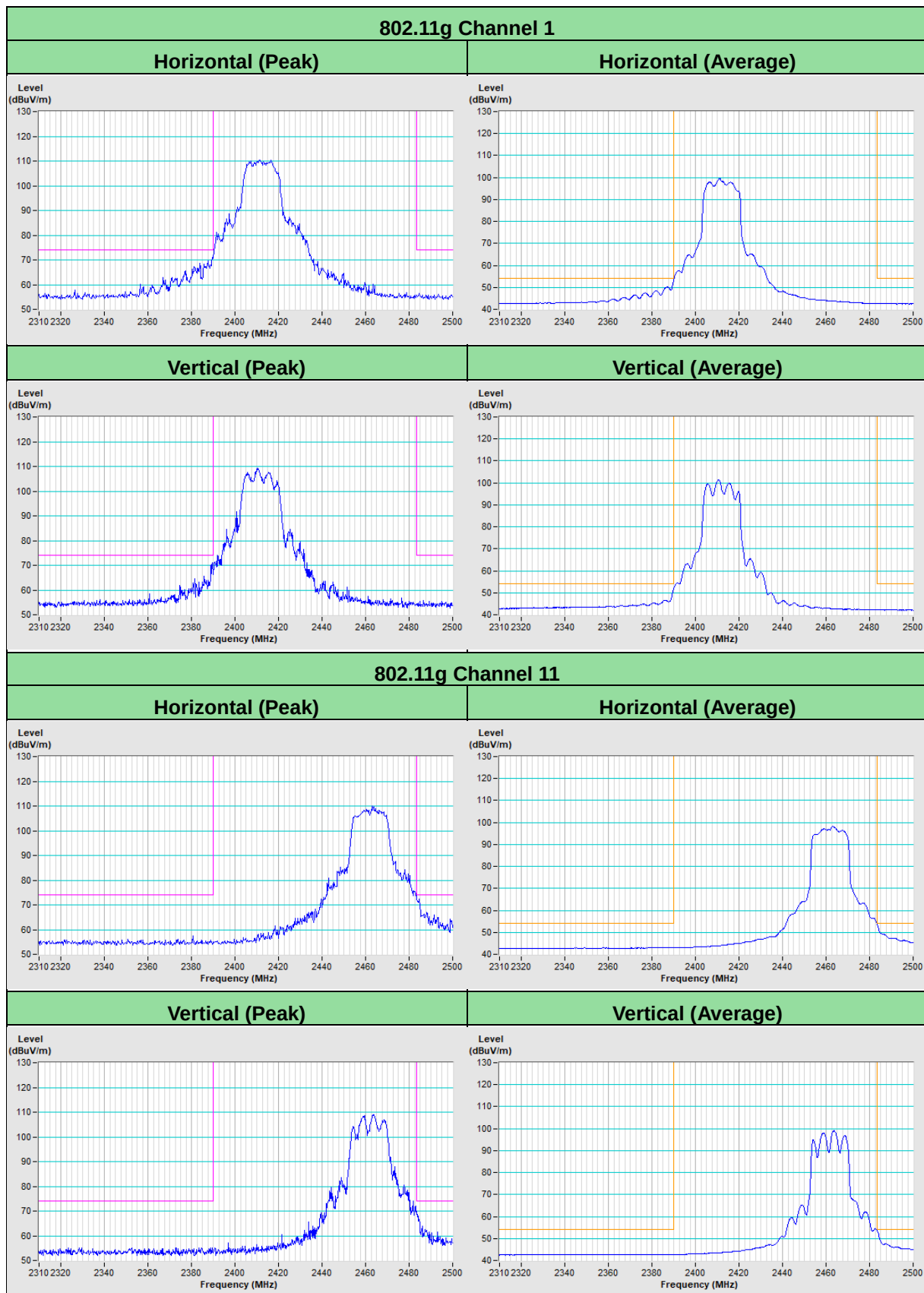
#### Remarks:

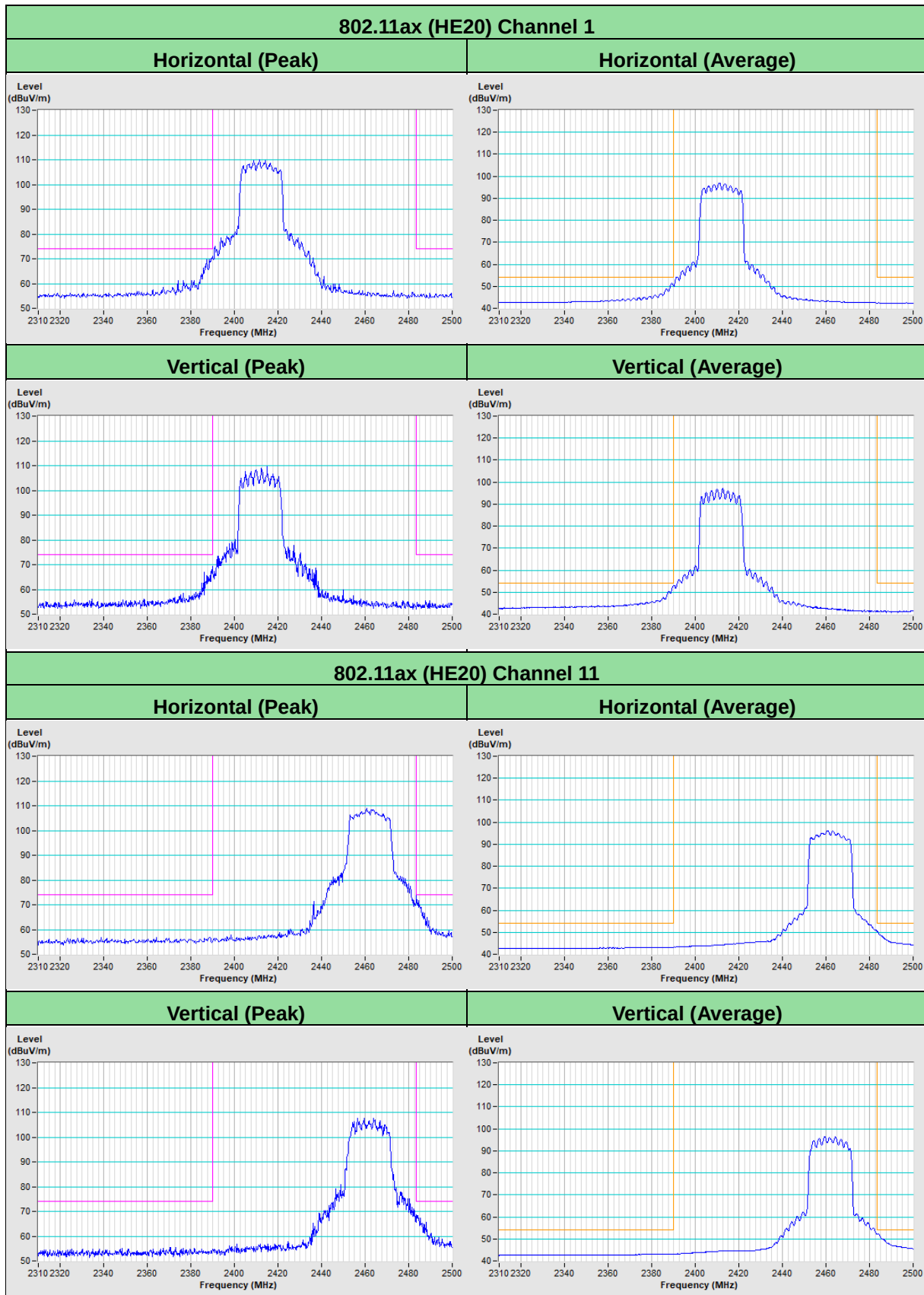
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency.

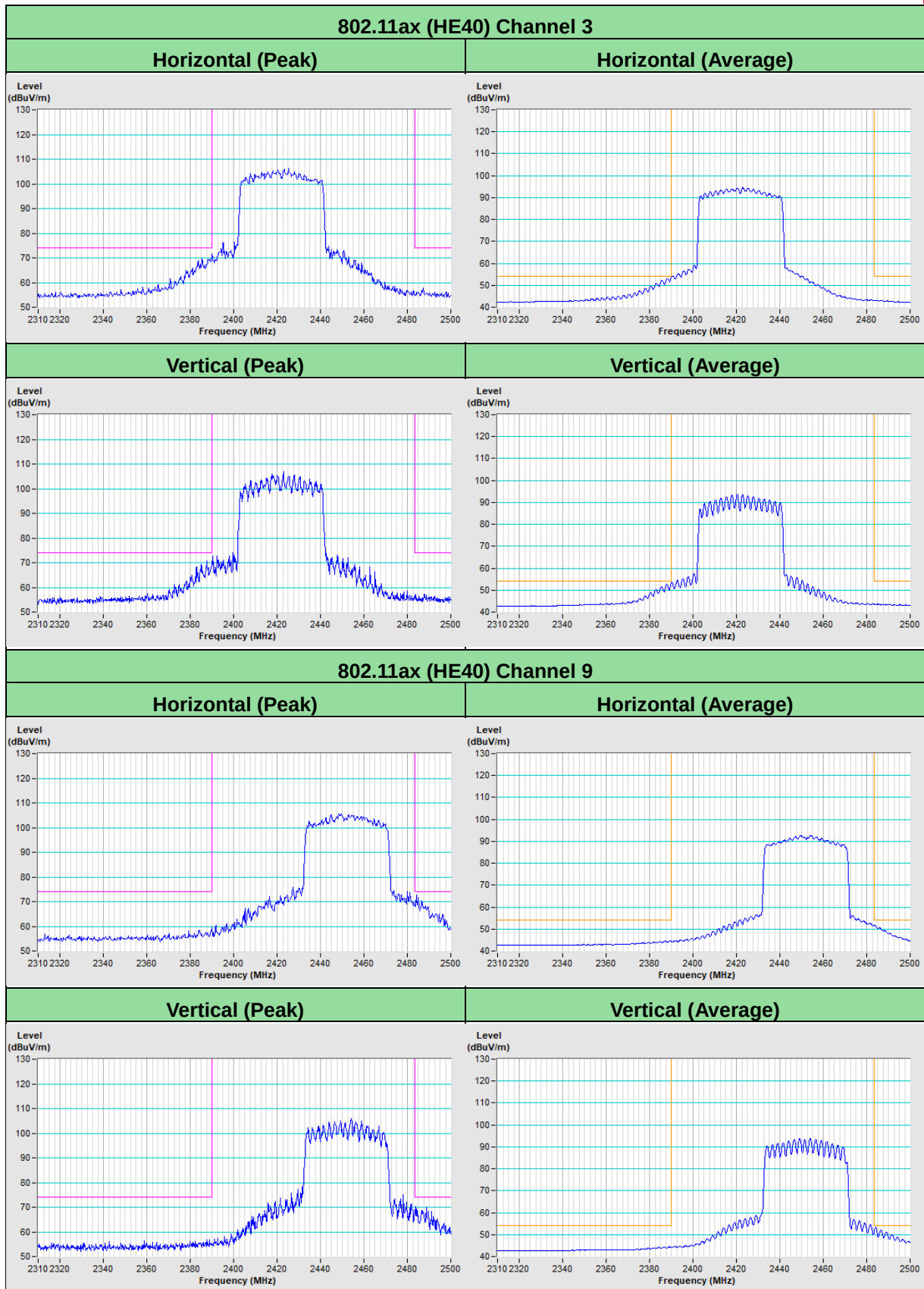


## Plot of Band Edge









## 8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## 9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

**Lin Kou EMC/RF Lab**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**

Tel: 886-3-6668565

Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@bureauveritas.com](mailto:service.adt@bureauveritas.com)

**Web Site:** <http://ee.bureauveritas.com.tw>

The address and road map of all our labs can be found in our web site also.

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