

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
**Report No.:** RFBDKX-WTW-P25090552-2  
**FCC ID:** 2AUS4-NFJ1  
**Product:** Touch interface device  
**Trademark/ Brand:** NEAT/ neat.  
**Model No.:** NF-J1  
**Received Date:** 2025/9/22  
**Test Date:** 2025/10/7 ~ 2025/12/4  
**Issued Date:** 2025/12/15  
**Applicant:** Neatframe Limited  
**Address:** 24 Cornhill, London EC3V 3ND, United Kingdom  
**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories  
**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan  
**Test Location:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan  
**FCC Registration /** 198487 / TW2021  
**Designation Number:**

Approved by: \_\_\_\_\_

Jeremy Lin

Jeremy Lin / Project Engineer

, Date: \_\_\_\_\_

2025/12/15

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Prepared by : Annie Chang / Senior Specialist

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## Release Control Record

| Issue No.              | Description       | Date Issued |
|------------------------|-------------------|-------------|
| RFBDKX-WTW-P25090552-2 | Original release. | 2025/12/15  |

## 1 Certificate

**Product:** Touch interface device

**Trademark/ Brand:** NEAT/ neat.

**Test Model:** NF-J1

**Sample Status:** Engineering sample

**Applicant:** Neatframe Limited

**Test Date:** 2025/10/7 ~ 2025/12/4

**Standard:** 47 CFR FCC Part 15, Subpart C (Section 15.247)

**Measurement procedure:** ANSI C63.10-2020  
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)                                   | 6 dB 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 -4.05 dB at 4.63393 MHz        |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions below 1 GHz  | Pass   | Minimum passing margin is -4.2 dB at 474.26 MHz          |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions above 1 GHz  | Pass   | Minimum passing margin is -1.5 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:

| Parameter                       | Specification   | Uncertainty (±) |
|---------------------------------|-----------------|-----------------|
| RF Output Power                 | -               | 1.1 dB          |
| Power Spectral Density          | -               | 1.3 dB          |
| 6 dB Bandwidth                  | -               | 960 Hz          |
| Conducted Out of Band Emissions | 9 kHz ~ 40 GHz  | 2.7 dB          |
| AC Power Conducted Emissions    | 9 kHz ~ 30 MHz  | 2.9 dB          |
| Unwanted Emissions below 1 GHz  | 9 kHz ~ 30 MHz  | 2.55 dB         |
|                                 | 30 MHz ~ 1 GHz  | 5.77 dB         |
| Unwanted Emissions above 1 GHz  | 1 GHz ~ 6 GHz   | 4.71 dB         |
|                                 | 6 GHz ~ 18 GHz  | 5.3 dB          |
|                                 | 18 GHz ~ 40 GHz | 4.98 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               | Touch interface device                                                                                                           |
| Trademark/ Brand      | NEAT/ neat.                                                                                                                      |
| Test Model            | NF-J1                                                                                                                            |
| Status of EUT         | Engineering sample                                                                                                               |
| Power Supply Rating   | 56Vdc                                                                                                                            |
| Modulation Type       | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM<br>256QAM for OFDM in VHT mode<br>1024QAM for OFDMA in 11ax mode |
| Modulation Technology | DSSS, OFDM, OFDMA                                                                                                                |
| Transfer Rate         | Up to 573.5 Mbps                                                                                                                 |
| Operating Frequency   | 2.412 GHz ~ 2.462 GHz                                                                                                            |
| 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          | 694.64 mW (28.42 dBm)                                                                                                            |

Note:

1. The EUT uses following accessories.

| Item       | Specification                 |
|------------|-------------------------------|
| RJ45 Cable | Non-shielded without Core, 3m |

2. There are Bluetooth and WLAN (2.4 GHz & 5 GHz & 6 GHz) technology used for the EUT.

3. Bluetooth and WLAN (2.4 GHz & 5 GHz & 6 GHz) technology can not transmit at same time.

4. The EUT does not support Partial RU technology.

5. The above EUT information is declared by manufacturer and for more detailed features description, please refers 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. | Gain (dBi) | Antenna Type | Connector Type |
|-------------|------------|--------------|----------------|
| 1           | 3.54       | Monopole     | ipex(MHF)      |
| 2           | 3.16       | Monopole     | ipex(MHF)      |

\* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

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

Note:

The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), VHT mode for 20 MHz (40 MHz) and 802.11ax mode for 20 MHz (40 MHz). Therefore the investigated worst case is the representative mode in test report.

### 3.3 Channel List

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), VHT20, 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, 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 antenna can be used in the following ways: X / Y / Z axis. Pre-scan in these ways and find the worst case as a representative test condition. |
| Worst Case: | 1. The antenna the worst case was found when positioned on (X / Y / Z axis): Z axis                                                                  |

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

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

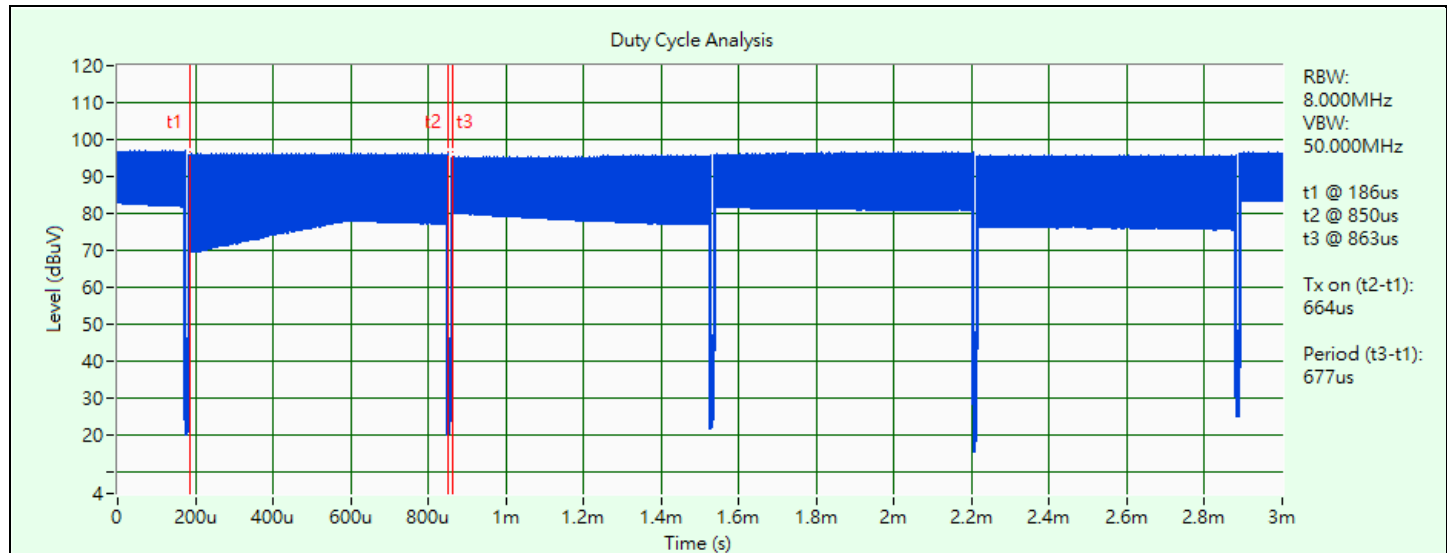
### 3.5 Duty Cycle of Test Signal

**802.11b:** Duty cycle = 0.664 ms / 0.677 ms x 100% = 98.1%

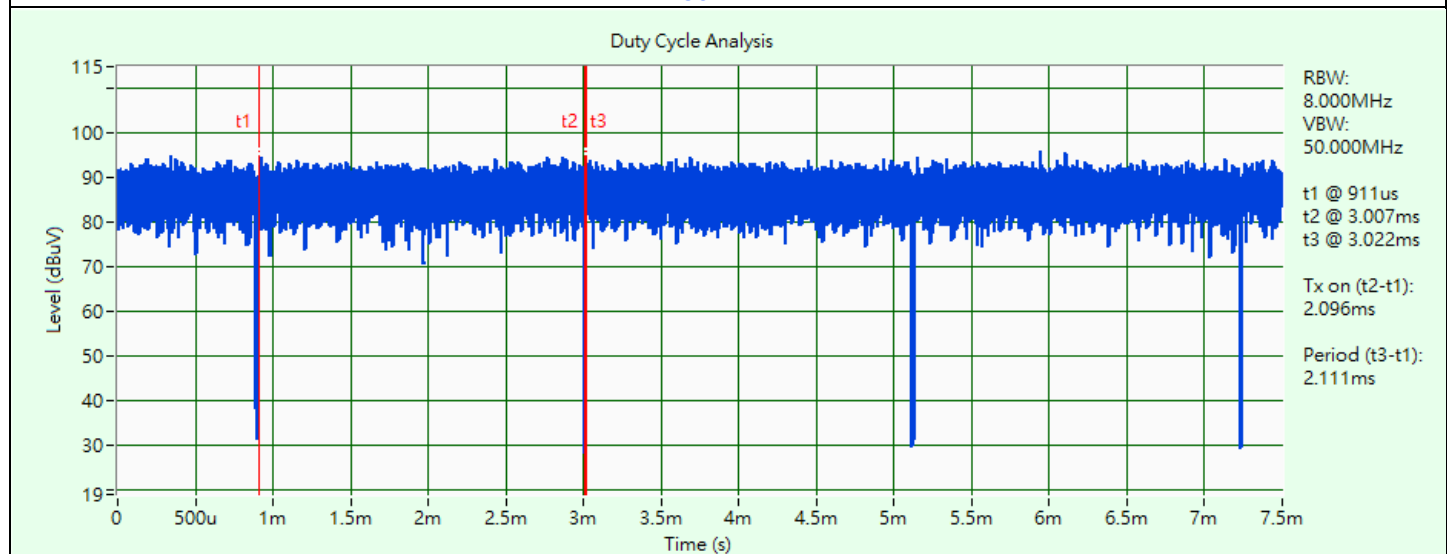
**802.11g:** Duty cycle = 2.096 ms / 2.111 ms x 100% = 99.3%

**802.11ax (HE20):** Duty cycle = 5.429 ms / 5.444 ms x 100% = 99.7%

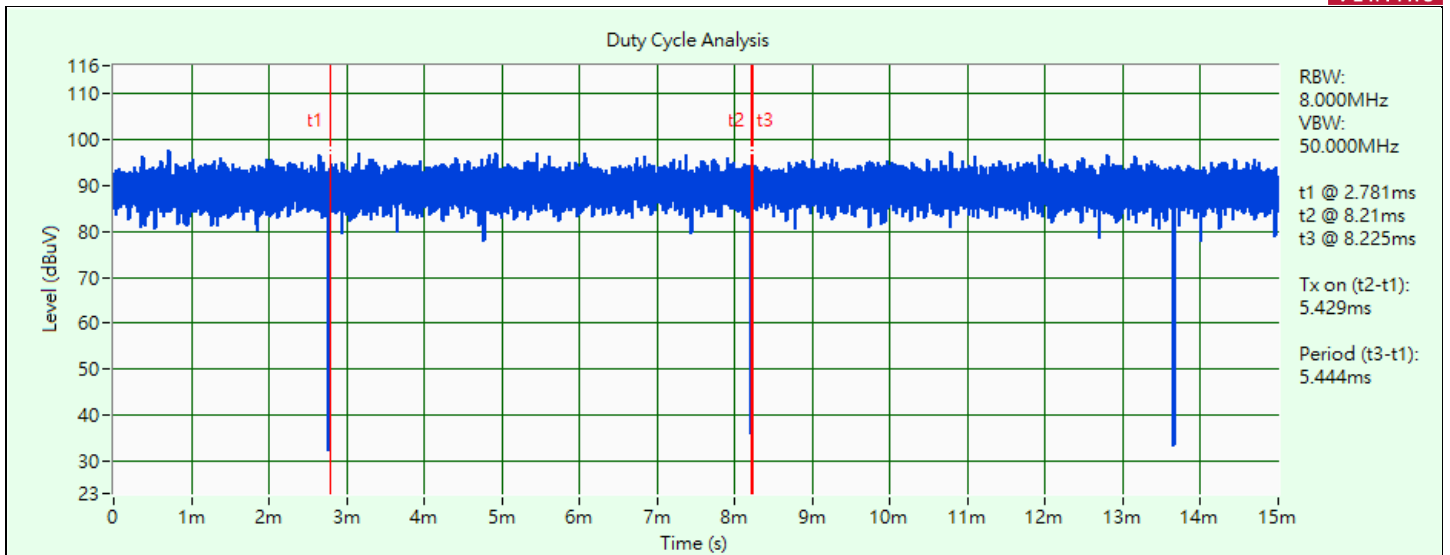
**802.11ax (HE40):** Duty cycle = 5.429 ms / 5.443 ms x 100% = 99.7%



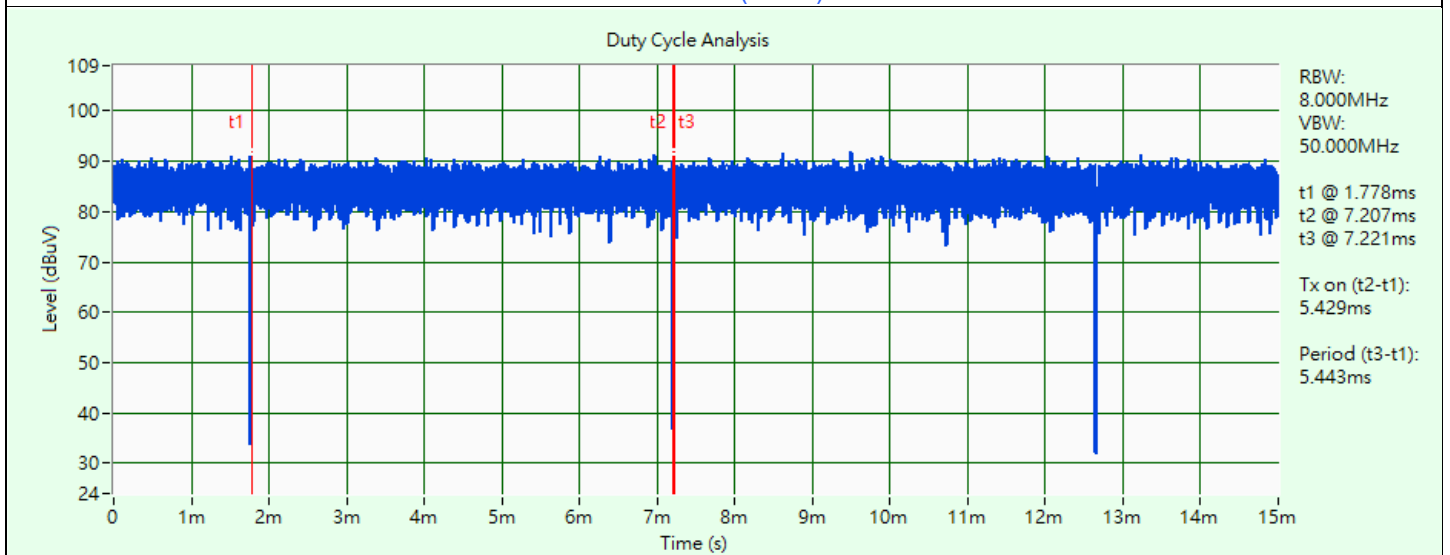
802.11b



802.11g



802.11ax (HE20)



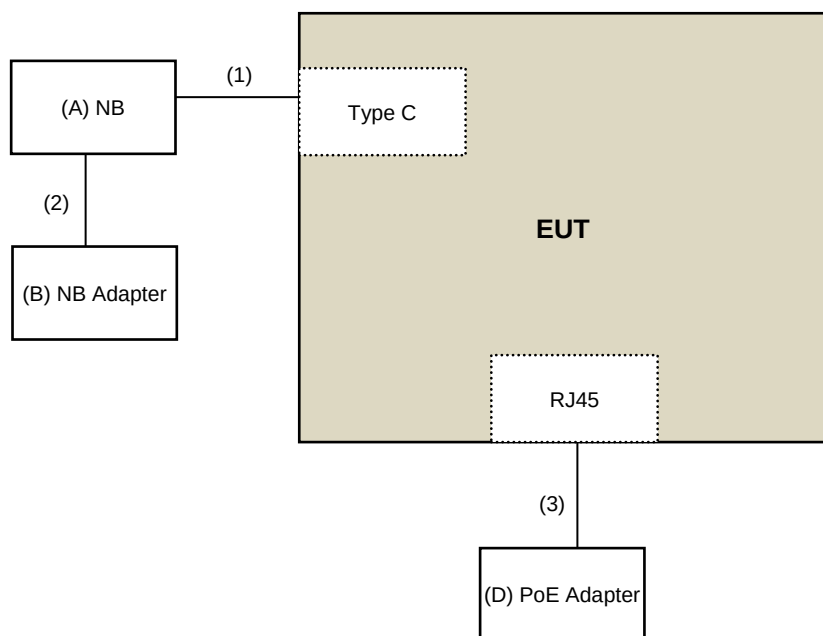
802.11ax (HE40)

### 3.6 Test Program Used and Operation Descriptions

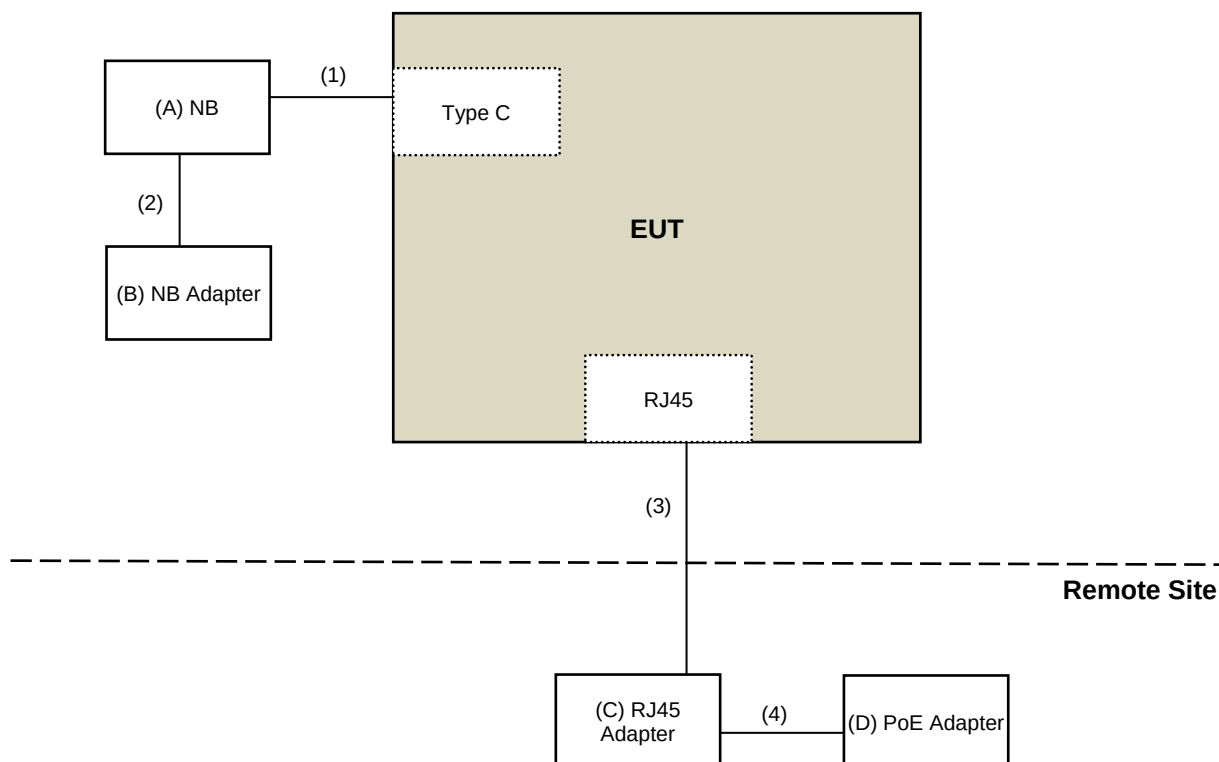
Controlling software QRCT v4.0.163.1(2025/9/26) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

### 3.7 Connection Diagram of EUT and Peripheral Devices

#### For AC Power Conducted Emission



#### For Unwanted Emissions



### 3.8 Configuration of Peripheral Devices and Cable Connections

| ID | Product      | Brand   | Model No.         | Serial No. | FCC ID | Remarks               |
|----|--------------|---------|-------------------|------------|--------|-----------------------|
| A  | NB           | Lenovo  | IdeaPad 5 15ITL05 | N/A        | N/A    | Provided by Lab       |
| B  | NB Adapter   | Lenovo  | ADLX65CLGC2A      | N/A        | N/A    | Provided by Lab       |
| C  | RJ45 Adapter | N/A     | N/A               | N/A        | N/A    | Provided by Lab       |
| D  | PoE Adapter  | PHIHONG | POE16R-1AFG6      | N/A        | N/A    | Supplied by applicant |

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks               |
|----|--------------------|------|------------|--------------------|--------------|-----------------------|
| 1  | Type C cable       | 1    | 1          | Y                  | 0            | Provided by Lab       |
| 2  | DC cable           | 1    | 1.8        | N                  | 0            | Provided by Lab       |
| 3  | RJ45 Cable         | 1    | 3          | N                  | 0            | Supplied by applicant |
| 4  | RJ45 Cable         | 1    | 10         | N                  | 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 |
|-----------------------------------|----------------|-------------------|--------------------|---------------------|
| Fixed Attenuator<br>Woken         | 00800A1K01A-20 | 00800A1K01A-20-02 | 2025/5/23          | 2026/5/22           |
| Pulse Power Sensor<br>Anritsu     | MA2411B        | 1339443           | 2025/5/28          | 2026/5/27           |
| RF Power Meter<br>Anritsu         | ML2495A        | 1529002           | 2025/6/3           | 2026/6/2            |
| Wideband Power Sensor<br>Keysight | N1923A         | MY58020002        | 2025/1/21          | 2026/1/20           |

Notes:

1. The test was performed in LK - Oven
2. Tested Date: 2025/11/10

### 4.2 Power Spectral Density

| Description<br>Manufacturer     | Model No.                        | Serial No.        | Calibrated<br>Date | Calibrated<br>Until |
|---------------------------------|----------------------------------|-------------------|--------------------|---------------------|
| Fixed Attenuator<br>Woken       | 00800A1K01A-20                   | 00800A1K01A-20-02 | 2025/5/23          | 2026/5/22           |
| PXA Signal Analyzer<br>Keysight | N9030A                           | MY54490260        | 2025/7/24          | 2026/7/23           |
| Signal Analyzer<br>R&S          | FSV40                            | 101544            | 2025/7/1           | 2026/6/30           |
| Software                        | ADT_RF Test Software<br>V6.6.5.4 | N/A               | N/A                | N/A                 |

Notes:

1. The test was performed in LK - Oven
2. Tested Date: 2025/11/10

### 4.3 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

### 4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and information of the instruments.

#### 4.5 AC Power Conducted Emissions

| Description<br>Manufacturer          | Model No.     | Serial No.   | Calibrated<br>Date | Calibrated<br>Until |
|--------------------------------------|---------------|--------------|--------------------|---------------------|
| 50 ohm terminal resistance<br>LYNICS | 0900510       | E1-01-305    | 2025/2/20          | 2026/2/19           |
|                                      |               | E1-01-306    | 2025/4/16          | 2026/4/15           |
| DC LISN<br>R&S                       | ESH3-Z6       | 100219       | 2025/7/10          | 2026/7/9            |
|                                      |               | 844950/018   | 2025/7/10          | 2026/7/9            |
| Diode Pulse Limiter<br>Schwarzbeck   | VTSD 9561 F-N | 01631        | 2025/5/2           | 2026/5/1            |
| EMI Test Receiver<br>R&S             | EPL 1000      | 101064       | 2025/4/17          | 2026/4/16           |
|                                      |               | 101065       | 2025/4/22          | 2026/4/21           |
|                                      | ESR3          | 102412       | 2024/12/26         | 2025/12/25          |
| High Pass Filter<br>EMCI             | 150HPF-ME     | 114005       | 2025/5/2           | 2026/5/1            |
|                                      |               | 114006       | 2025/5/2           | 2026/5/1            |
|                                      | 150HPF-MF     | 113009       | 2025/5/2           | 2026/5/1            |
| High Voltage Probe<br>Schwarzbeck    | TK9420        | 00982        | 2024/12/6          | 2025/12/5           |
| LISN<br>R&S                          | ENV216        | 101195       | 2025/7/18          | 2026/7/17           |
|                                      |               | 101196       | 2025/5/19          | 2026/5/18           |
|                                      |               | 101197       | 2025/7/4           | 2026/7/3            |
| LISN<br>Schwarzbeck                  | NNLK 8121     | 8121-731     | 2025/6/10          | 2026/6/9            |
|                                      |               | 8121-00759   | 2025/8/12          | 2026/8/11           |
|                                      |               | 8121-808     | 2025/4/23          | 2026/4/22           |
|                                      | NNLK 8129     | 00624        | 2025/10/9          | 2026/10/8           |
|                                      |               | 8129229      | 2025/10/14         | 2026/10/13          |
|                                      | NSLK 8128     | 8128-244     | 2025/11/11         | 2026/11/10          |
| Passive Voltage Probe<br>R&S         | ESH2-Z3       | 100073       | 2025/5/26          | 2026/5/25           |
| RF Coaxial Cable<br>PEWC             | 5D-FB         | Cable-CO5-01 | 2025/1/17          | 2026/1/16           |
| Software<br>BVADT                    | Cond_V7.4.1.0 | N/A          | N/A                | N/A                 |

Notes:

1. The test was performed in Linkou Conduction 5.
2. Tested Date: 2025/12/4

#### 4.6 Unwanted Emissions below 1 GHz

| Description<br>Manufacturer                  | Model No.           | Serial No.   | Calibrated<br>Date | Calibrated<br>Until |
|----------------------------------------------|---------------------|--------------|--------------------|---------------------|
| Bi_Log Antenna<br>Schwarzbeck                | VULB 9168           | 137          | 2025/9/17          | 2026/9/16           |
| Coupling / Decoupling Network<br>Schwarzbeck | CDNE-M2             | 00097        | 2025/5/28          | 2026/5/27           |
|                                              | CDNE-M3             | 00091        | 2025/3/20          | 2026/3/19           |
| MXE EMI Receiver<br>Agilent                  | N9038A              | MY51210114   | 2025/2/10          | 2026/2/9            |
| Preamplifier<br>Agilent                      | 8447D               | 2944A11064   | 2025/2/14          | 2026/2/13           |
| Radiating Loop Antenna<br>TESEQ              | RLA 6120-20         | 80002        | 2025/7/29          | 2026/7/28           |
| RF Coaxial Cable<br>Pacific                  | 8D-FB               | Cable-CH6-02 | 2025/6/24          | 2026/6/23           |
| Signal Analyzer<br>R&S                       | FSV40               | 101544       | 2025/7/1           | 2026/6/30           |
| Software<br>BVADT                            | Radiated_V7.7.1.1.1 | N/A          | N/A                | N/A                 |
| Tower<br>ADT                                 | AT100               | 0306         | N/A                | N/A                 |
| Turn Table<br>ADT                            | TT100               | 0306         | N/A                | N/A                 |

Notes:

1. The test was performed in Linkou 966 Chamber 6 (CH 6).
2. Tested Date: 2025/10/7

#### 4.7 Unwanted Emissions above 1 GHz

| Description<br>Manufacturer           | Model No.           | Serial No.   | Calibrated<br>Date       | Calibrated<br>Until      |
|---------------------------------------|---------------------|--------------|--------------------------|--------------------------|
| Boresight antenna tower fixture<br>BV | BAF-02              | 6            | N/A                      | N/A                      |
| High Pass Filter<br>Wainwright        | WHK 3.1/18G-10SS    | SN 8         | 2025/5/22                | 2026/5/21                |
| Horn Antenna<br>EMCO                  | 3115                | 00028257     | 2024/11/10<br>2025/11/9  | 2025/11/9<br>2026/11/8   |
| Horn Antenna<br>ETS-Lindgren          | 3117-PA             | 00215857     | 2024/11/10<br>2025/11/9  | 2025/11/9<br>2026/11/8   |
| Horn Antenna<br>Schwarzbeck           | BBHA 9170           | 212          | 2024/10/18<br>2025/10/28 | 2025/10/17<br>2026/10/27 |
|                                       |                     | BBHA9170190  | 2024/11/10<br>2025/11/9  | 2025/11/9<br>2026/11/8   |
| MXE EMI Receiver<br>Agilent           | N9038A              | MY51210114   | 2025/2/10                | 2026/2/9                 |
| Notch Filter<br>Micro-Tronics         | BRC50703-01         | 010          | 2025/5/22                | 2026/5/21                |
|                                       | BRM17690            | 005          | 2025/5/22                | 2026/5/21                |
| Preamplifier<br>EMCI                  | EMC0126545          | 980076       | 2025/2/14                | 2026/2/13                |
|                                       | EMC184045B          | 980175       | 2025/8/23                | 2026/8/22                |
|                                       |                     | 980235       | 2025/2/14                | 2026/2/13                |
| Preamplifier<br>HP                    | 8449B               | 3008A01201   | 2025/2/14                | 2026/2/13                |
| RF Coaxial Cable<br>EMCI              | EMC104              | 190801       | 2025/7/4                 | 2026/7/3                 |
|                                       |                     | 190804       | 2025/7/4                 | 2026/7/3                 |
| RF Coaxial Cable<br>EMEC              | EM102-KMKM-100      | 02           | 2025/7/4                 | 2026/7/3                 |
| RF Coaxial Cable<br>HUBER+SUHNER      | SF-104              | Cable-CH6-01 | 2025/7/4                 | 2026/7/3                 |
| Signal Analyzer<br>R&S                | FSV40               | 101042       | 2025/9/19                | 2026/9/18                |
|                                       |                     | 101544       | 2025/7/1                 | 2026/6/30                |
| Software<br>BVADT                     | Radiated_V7.7.1.1.1 | N/A          | N/A                      | N/A                      |
| Tower<br>ADT                          | AT100               | 0306         | N/A                      | N/A                      |
| Turn Table<br>ADT                     | TT100               | 0306         | N/A                      | N/A                      |

Notes:

1. The test was performed in Linkou 966 Chamber 6 (CH 6).
2. Tested Date: 2025/10/7 ~ 2025/12/3

## 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 6 dB 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 (MHz) | Field Strength (microvolts/meter) | Measurement Distance (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 (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| Above 960         | 500                               | 3                             |

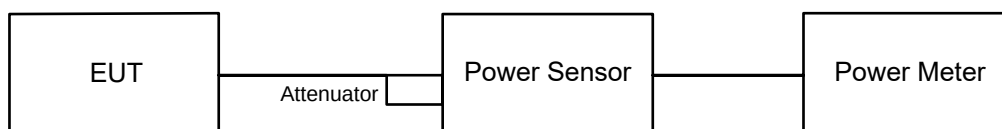
Notes:

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.

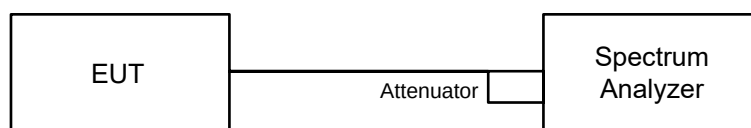
The power meter video bandwidth is greater than or equal to the DTS bandwidth and use a fast responding diode detector.

##### 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

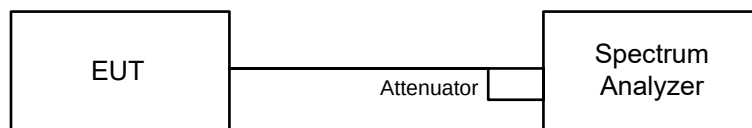


#### 6.2.2 Test Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span > 1.5 times the DTS bandwidth.
- Set the RBW to: 3 kHz.
- Set the VBW  $\geq 3 \times$  RBW.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- 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 6 dB Bandwidth

#### 6.3.1 Test Setup

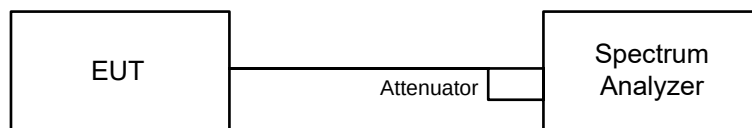


#### 6.3.2 Test Procedure

- a. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- b. Set the VBW  $\geq [3 \times \text{RBW}]$ .
- c. Detector = peak.
- d. Trace mode = max-hold.
- e. Sweep = No faster than coupled (auto) time.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value.

## 6.4 Conducted Out of Band Emissions

### 6.4.1 Test Setup



### 6.4.2 Test Procedure

#### MEASUREMENT PROCEDURE REF

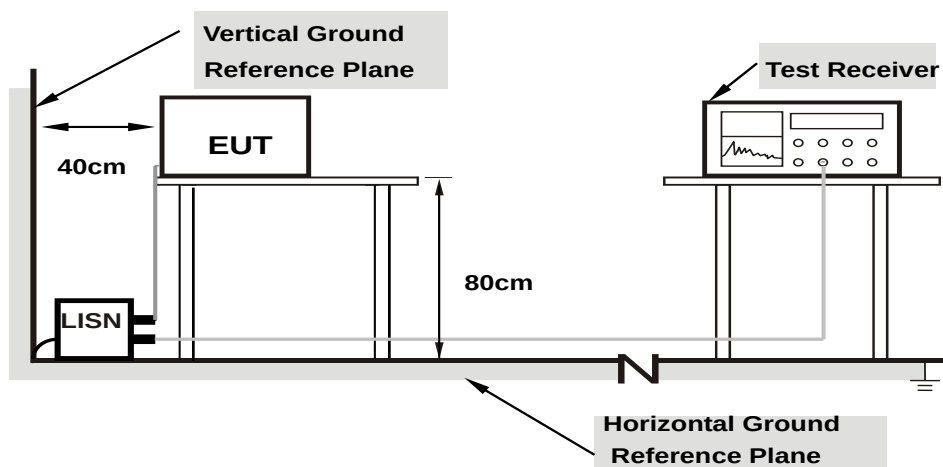
- Set instrument center frequency to DTS channel center frequency.
- Set the span to  $\geq 1.5$  times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

#### MEASUREMENT PROCEDURE OOBE

- Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution.
- Set RBW = 100 kHz.
- Set VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep = No faster than coupled (auto) time.
- 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

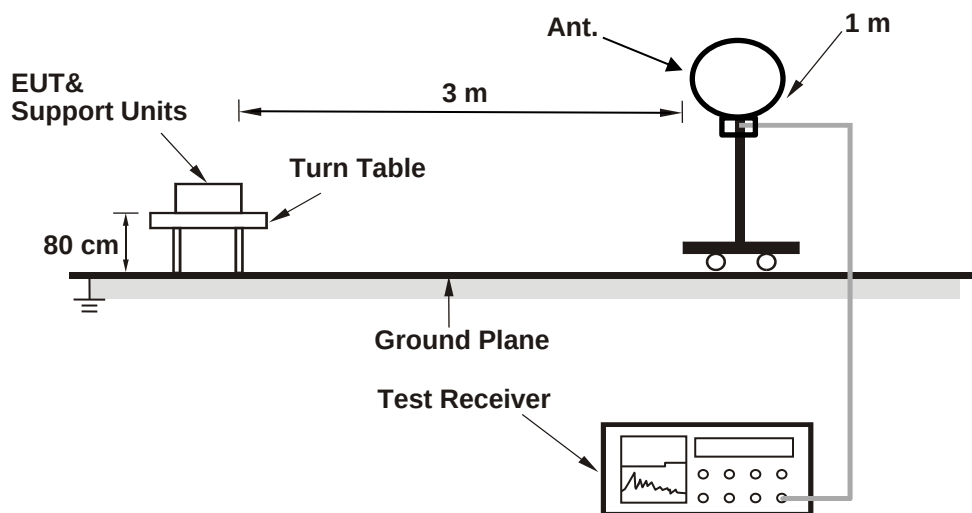
- Exploratory ac power-line conducted emission measurements: The EUT shall be operated on the mid channel and in the mode with highest output power unless the fundamental operates in the AC power-line emission test range then the EUT shall be operated in the range of typical modes of operation.
- The EUT was placed on a 0.8 meter to the top of table and 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.

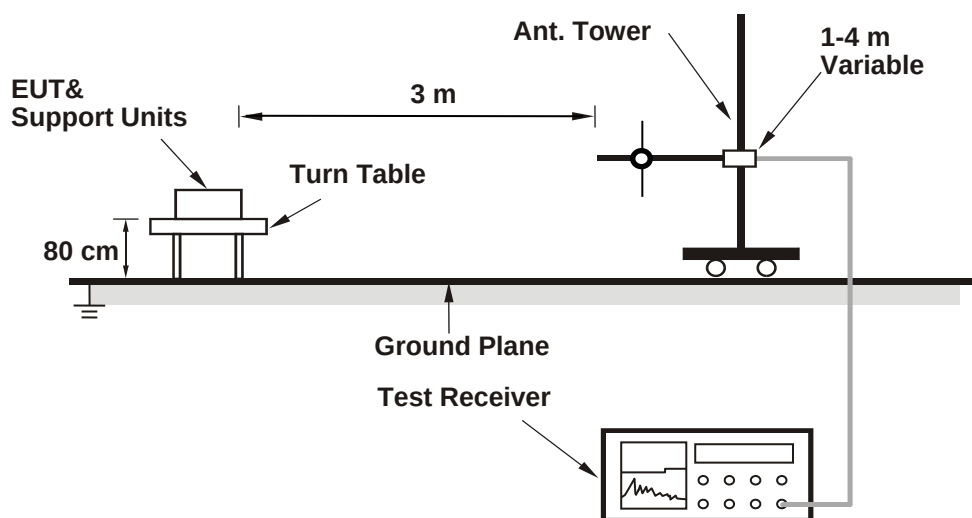
## 6.6 Unwanted Emissions below 1 GHz

### 6.6.1 Test Setup

#### For Radiated emission below 30 MHz



#### For Radiated emission above 30 MHz



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

## 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, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

#### Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

### For Radiated emission above 30 MHz

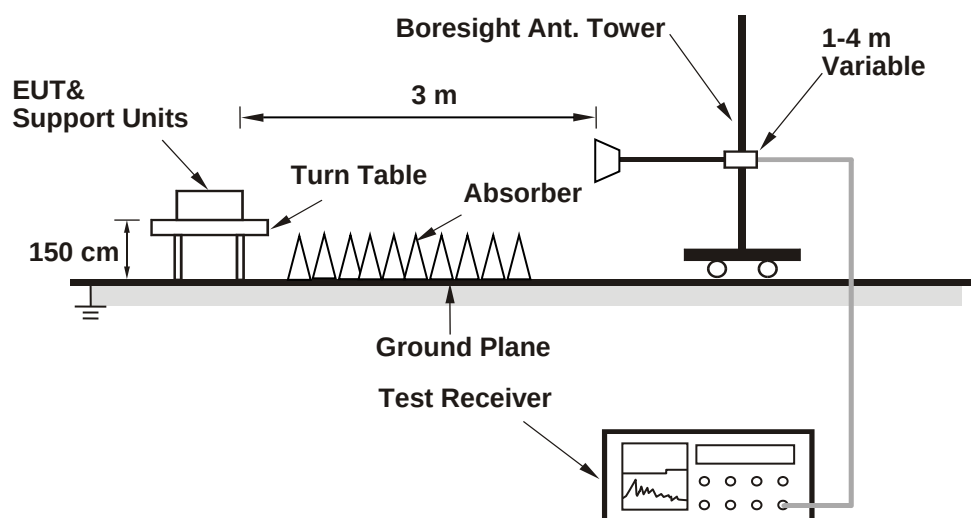
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequencies less than or equal to 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 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) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, 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, 76% RH | Tested By: | Waydi Tuan |
|--------------|----------------|---------------------------|--------------|------------|------------|

#### For Peak Power

##### 802.11b

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 21.26            | 19.37   | 220.156          | 23.43             | 30                | Pass        |
| 6     | 2437              | 21.29            | 19.57   | 225.159          | 23.52             | 30                | Pass        |
| 11    | 2462              | 21.42            | 19.60   | 229.877          | 23.61             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

##### 802.11g

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 25.49            | 24.37   | 627.524          | 27.98             | 30                | Pass        |
| 6     | 2437              | 25.72            | 24.66   | 665.665          | 28.23             | 30                | Pass        |
| 11    | 2462              | 25.80            | 24.71   | 675.991          | 28.30             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

##### VHT20

| Chan. | Chan. Freq. (MHz) | Peak Power (dBm) |         | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|------------------|---------|------------------|-------------------|-------------------|-------------|
|       |                   | Chain 0          | Chain 1 |                  |                   |                   |             |
| 1     | 2412              | 25.72            | 24.67   | 666.339          | 28.24             | 30                | Pass        |
| 6     | 2437              | 25.60            | 24.64   | 654.15           | 28.16             | 30                | Pass        |
| 11    | 2462              | 25.62            | 24.42   | 641.448          | 28.07             | 30                | Pass        |

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

## VHT40

| 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                 | 25.56            | 24.48   | 640.293             | 28.06                | 30                   | Pass        |
| 6     | 2437                 | 25.38            | 24.75   | 643.682             | 28.09                | 30                   | Pass        |
| 9     | 2452                 | 25.88            | 24.62   | 676.992             | 28.31                | 30                   | Pass        |

### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

## 802.11ax (HE20)

| 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                 | 25.87            | 24.75   | 684.905             | 28.36                | 30                   | Pass        |
| 6     | 2437                 | 25.68            | 24.80   | 671.823             | 28.27                | 30                   | Pass        |
| 11    | 2462                 | 25.79            | 24.62   | 669.049             | 28.25                | 30                   | Pass        |

### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

## 802.11ax (HE40)

| 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                 | 25.73            | 24.60   | 662.514             | 28.21                | 30                   | Pass        |
| 6     | 2437                 | 25.51            | 24.85   | 661.123             | 28.20                | 30                   | Pass        |
| 9     | 2452                 | 25.94            | 24.80   | 694.64              | 28.42                | 30                   | Pass        |

### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.54 dBi  $\leq$  6 dBi, so the output power limit shall not be reduced.

## For Average Power

### 802.11b

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.76               | 16.88   | 123.915                     | 20.93                        |
| 6     | 2437                 | 18.70               | 16.95   | 123.676                     | 20.92                        |
| 11    | 2462                 | 18.89               | 17.02   | 127.796                     | 21.07                        |

### 802.11g

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.51               | 17.03   | 121.424                     | 20.84                        |
| 6     | 2437                 | 18.42               | 17.28   | 122.959                     | 20.90                        |
| 11    | 2462                 | 18.61               | 17.26   | 125.821                     | 21.00                        |

### VHT20

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.39               | 16.99   | 119.027                     | 20.76                        |
| 6     | 2437                 | 18.21               | 17.12   | 117.745                     | 20.71                        |
| 11    | 2462                 | 18.35               | 16.97   | 118.165                     | 20.72                        |

### VHT40

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 18.31               | 16.89   | 116.629                     | 20.67                        |
| 6     | 2437                 | 18.14               | 17.05   | 115.862                     | 20.64                        |
| 9     | 2452                 | 18.55               | 17.06   | 122.43                      | 20.88                        |

### 802.11ax (HE20)

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 1     | 2412                 | 18.44               | 17.12   | 121.346                     | 20.84                        |
| 6     | 2437                 | 18.41               | 17.19   | 121.703                     | 20.85                        |
| 11    | 2462                 | 18.54               | 17.05   | 122.149                     | 20.87                        |

### 802.11ax (HE40)

| Chan. | Chan. Freq.<br>(MHz) | Average Power (dBm) |         | Total Average<br>Power (mW) | Total Average<br>Power (dBm) |
|-------|----------------------|---------------------|---------|-----------------------------|------------------------------|
|       |                      | Chain 0             | Chain 1 |                             |                              |
| 3     | 2422                 | 18.48               | 16.99   | 120.473                     | 20.81                        |
| 6     | 2437                 | 18.27               | 17.22   | 119.866                     | 20.79                        |
| 9     | 2452                 | 18.72               | 17.17   | 126.593                     | 21.02                        |

## 7.2 Power Spectral Density

|              |                |                           |              |            |            |
|--------------|----------------|---------------------------|--------------|------------|------------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25°C, 76% RH | Tested By: | Waydi Tuan |
|--------------|----------------|---------------------------|--------------|------------|------------|

### 802.11b

| Chan. | Chan. Freq. (MHz) | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------------|----------------|---------|----------------------|----------------------|-------------|
|       |                   | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412              | -6.21          | -7.23   | -3.68                | 7.64                 | Pass        |
| 6     | 2437              | -5.98          | -7.68   | -3.74                | 7.64                 | Pass        |
| 11    | 2462              | -5.34          | -8.04   | -3.47                | 7.64                 | 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 6.36 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (6.36 - 6) = 7.64$  dBm/3kHz.

### 802.11g

| Chan. | Chan. Freq. (MHz) | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------------|----------------|---------|----------------------|----------------------|-------------|
|       |                   | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412              | -8.37          | -9.05   | -5.69                | 7.64                 | Pass        |
| 6     | 2437              | -8.18          | -8.23   | -5.19                | 7.64                 | Pass        |
| 11    | 2462              | -7.66          | -9.07   | -5.30                | 7.64                 | 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 6.36 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (6.36 - 6) = 7.64$  dBm/3kHz.

### 802.11ax (HE20)

| Chan. | Chan. Freq. (MHz) | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------------|----------------|---------|----------------------|----------------------|-------------|
|       |                   | Chain 0        | Chain 1 |                      |                      |             |
| 1     | 2412              | -9.55          | -10.87  | -7.15                | 7.64                 | Pass        |
| 6     | 2437              | -9.34          | -10.05  | -6.67                | 7.64                 | Pass        |
| 11    | 2462              | -9.31          | -9.50   | -6.39                | 7.64                 | 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 6.36 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (6.36 - 6) = 7.64$  dBm/3kHz.

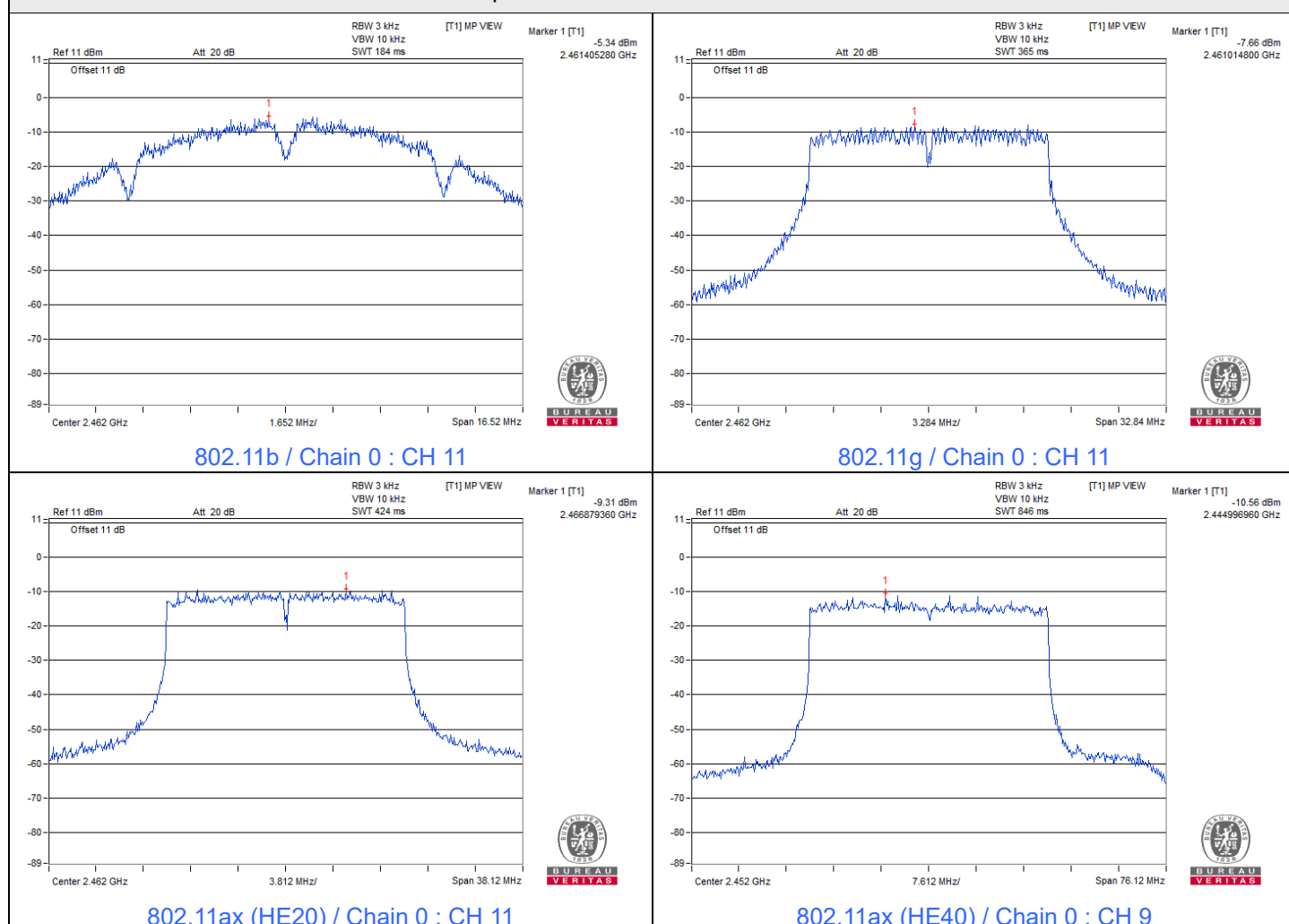
## 802.11ax (HE40)

| Chan. | Chan. Freq. (MHz) | PSD (dBm/3kHz) |         | Total PSD (dBm/3kHz) | PSD Limit (dBm/3kHz) | Test Result |
|-------|-------------------|----------------|---------|----------------------|----------------------|-------------|
|       |                   | Chain 0        | Chain 1 |                      |                      |             |
| 3     | 2422              | -12.18         | -13.02  | -9.57                | 7.64                 | Pass        |
| 6     | 2437              | -11.73         | -11.64  | -8.67                | 7.64                 | Pass        |
| 9     | 2452              | -10.56         | -14.12  | -8.97                | 7.64                 | Pass        |

### Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.36 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (6.36 - 6) = 7.64$  dBm/3kHz.

### Spectrum Plot of Maximum Value



### 7.3 6 dB Bandwidth

|              |                |                           |              |            |            |
|--------------|----------------|---------------------------|--------------|------------|------------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25°C, 76% RH | Tested By: | Waydi Tuan |
|--------------|----------------|---------------------------|--------------|------------|------------|

#### 802.11b

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|----------------------|---------|---------------------|-------------|
|         |                 | Chain 0              | Chain 1 |                     |             |
| 1       | 2412            | 8.25                 | 8.23    | 0.5                 | Pass        |
| 6       | 2437            | 8.25                 | 8.26    | 0.5                 | Pass        |
| 11      | 2462            | 8.26                 | 8.23    | 0.5                 | Pass        |

#### 802.11g

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|----------------------|---------|---------------------|-------------|
|         |                 | Chain 0              | Chain 1 |                     |             |
| 1       | 2412            | 16.44                | 16.50   | 0.5                 | Pass        |
| 6       | 2437            | 16.37                | 16.48   | 0.5                 | Pass        |
| 11      | 2462            | 16.42                | 16.48   | 0.5                 | Pass        |

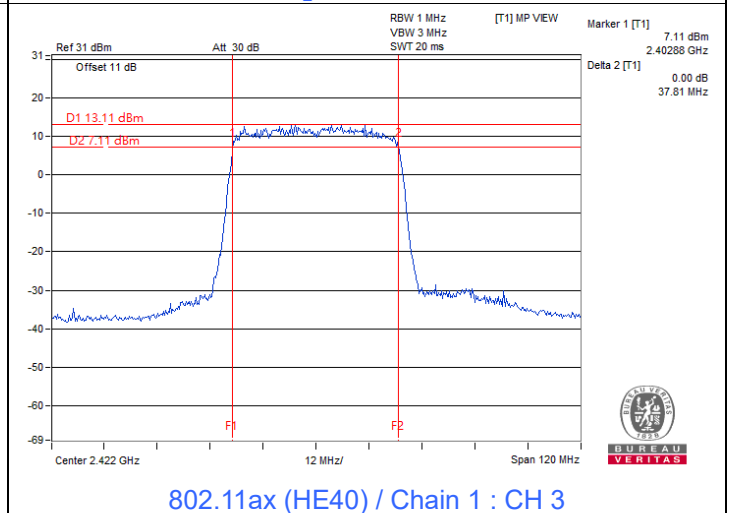
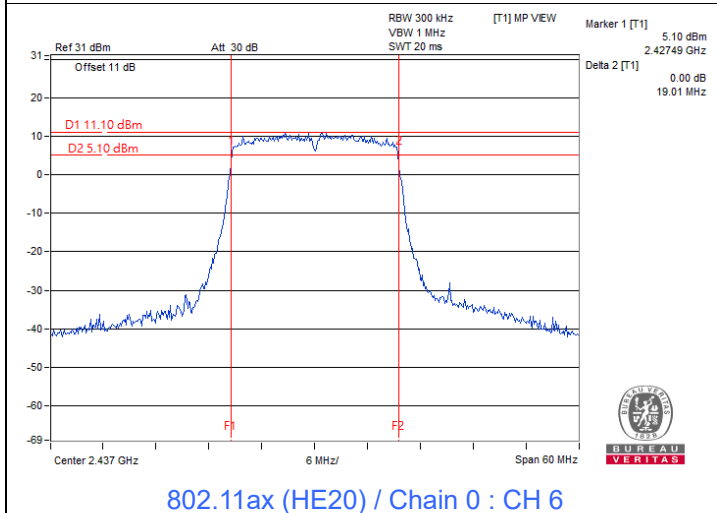
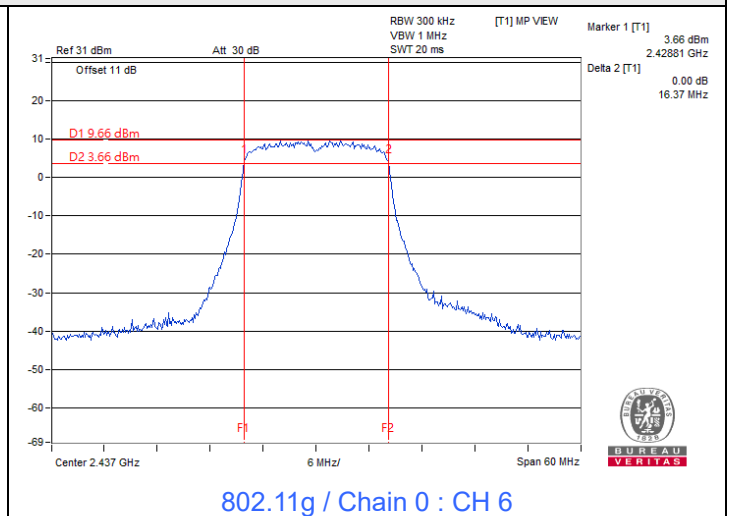
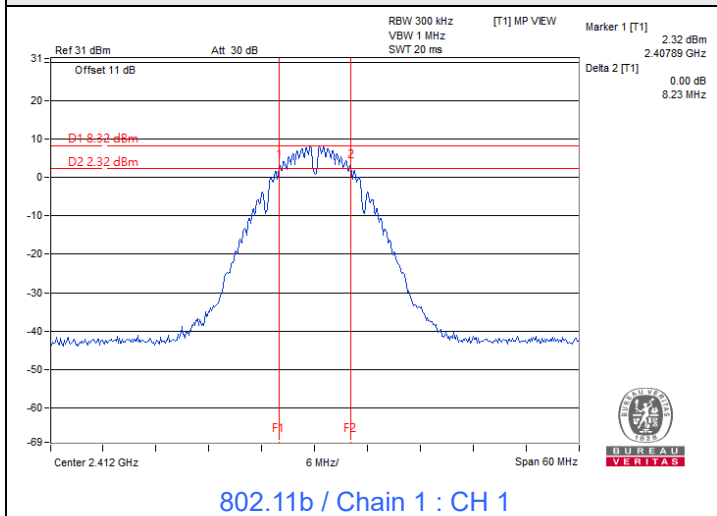
#### 802.11ax (HE20)

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|----------------------|---------|---------------------|-------------|
|         |                 | Chain 0              | Chain 1 |                     |             |
| 1       | 2412            | 19.09                | 19.08   | 0.5                 | Pass        |
| 6       | 2437            | 19.01                | 19.01   | 0.5                 | Pass        |
| 11      | 2462            | 19.06                | 19.01   | 0.5                 | Pass        |

#### 802.11ax (HE40)

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) |         | Minimum Limit (MHz) | Test Result |
|---------|-----------------|----------------------|---------|---------------------|-------------|
|         |                 | Chain 0              | Chain 1 |                     |             |
| 3       | 2422            | 38.08                | 37.81   | 0.5                 | Pass        |
| 6       | 2437            | 37.92                | 37.83   | 0.5                 | Pass        |
| 9       | 2452            | 38.06                | 38.24   | 0.5                 | Pass        |

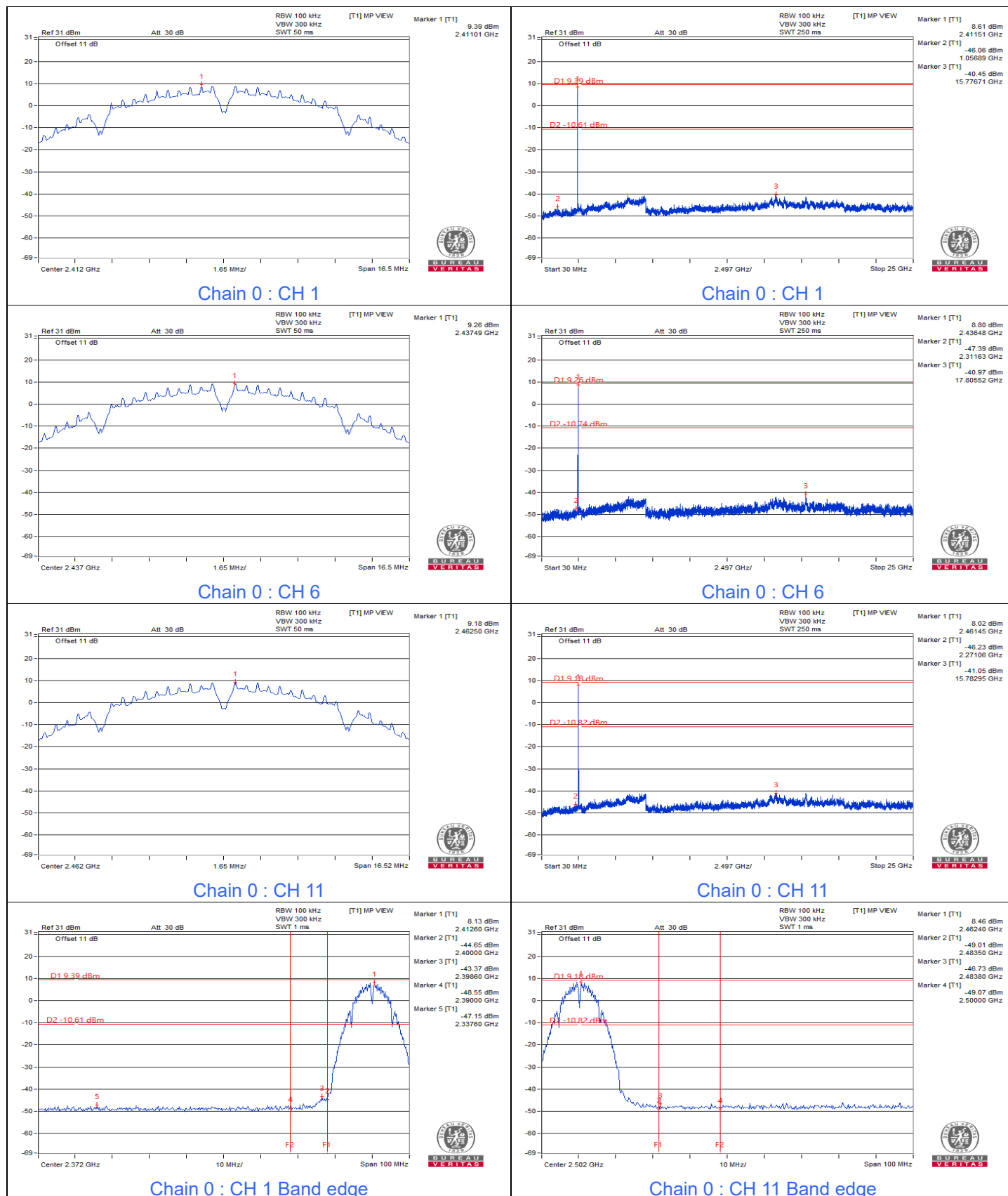
## Spectrum Plot of Minimum Value

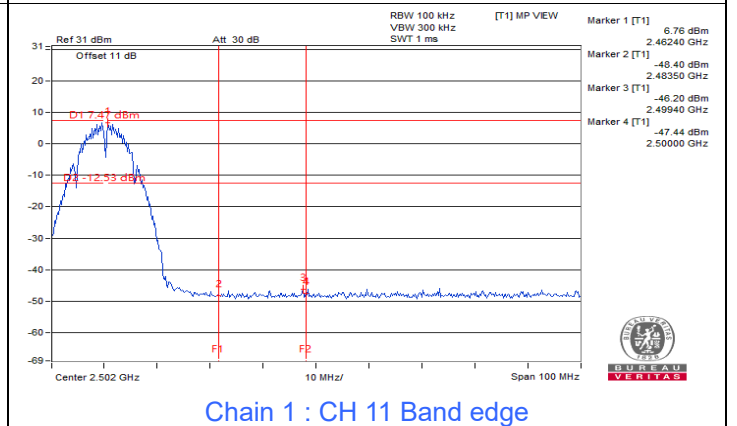
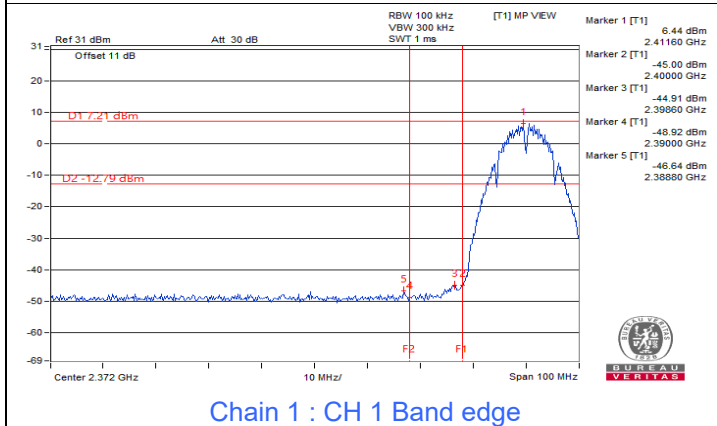
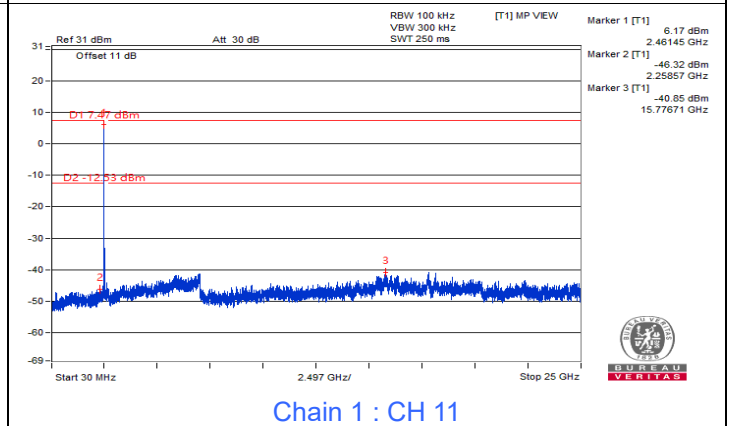
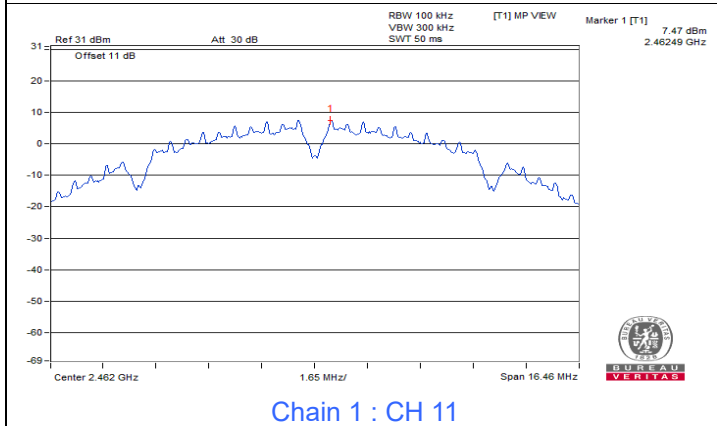
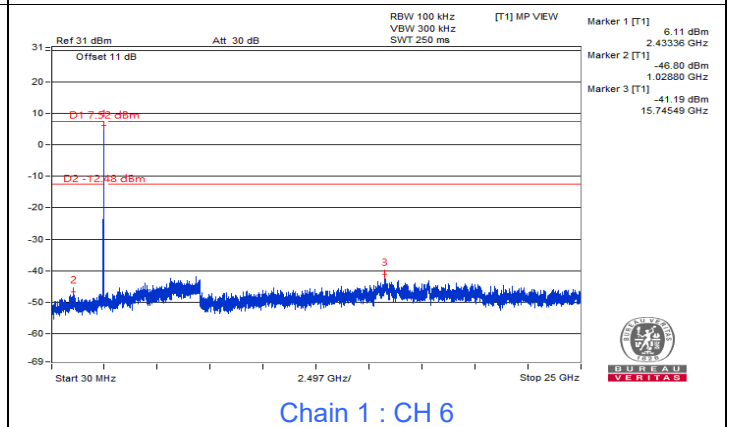
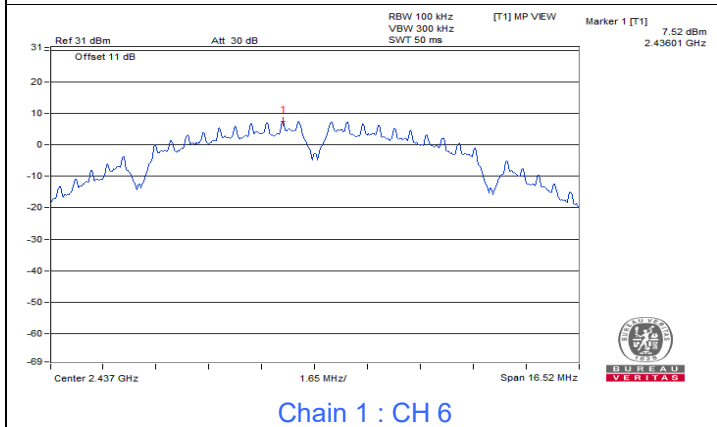
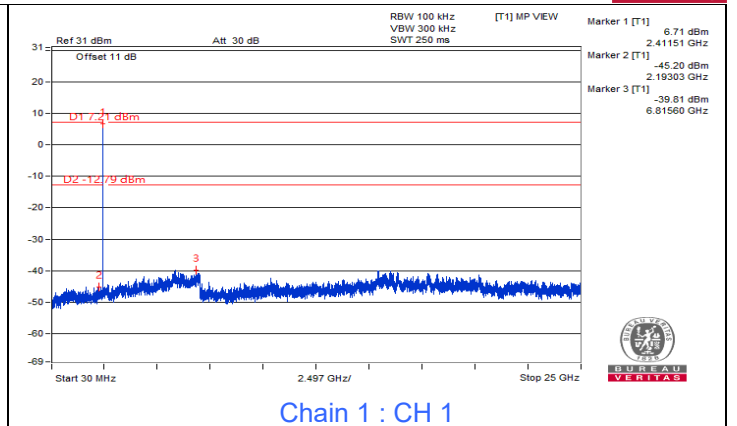
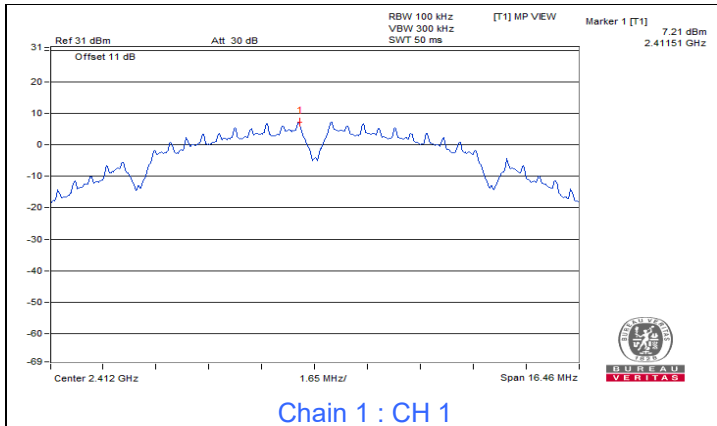


## 7.4 Conducted Out of Band Emissions

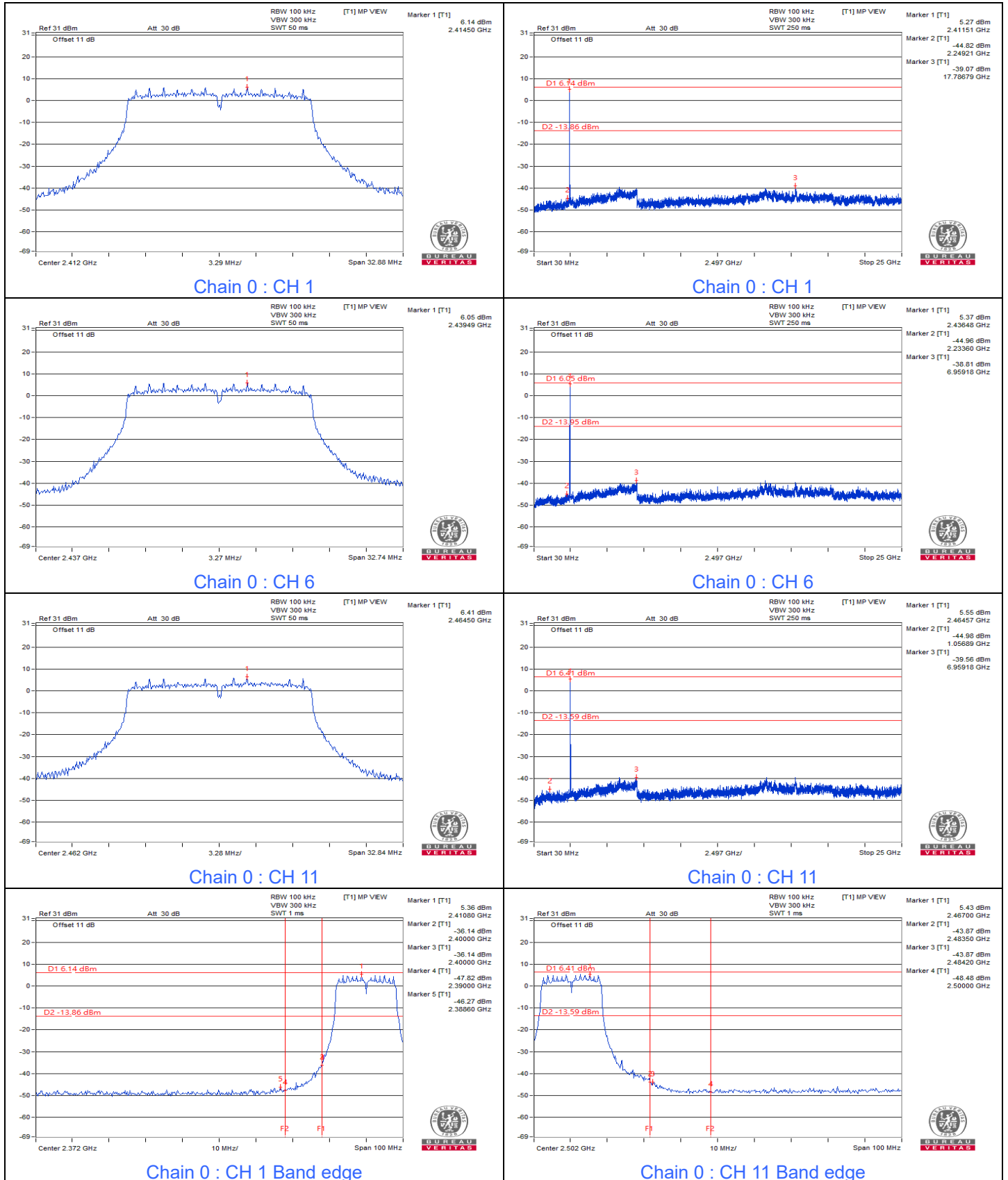
|              |                |                           |              |            |            |
|--------------|----------------|---------------------------|--------------|------------|------------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 25°C, 76% RH | Tested By: | Waydi Tuan |
|--------------|----------------|---------------------------|--------------|------------|------------|

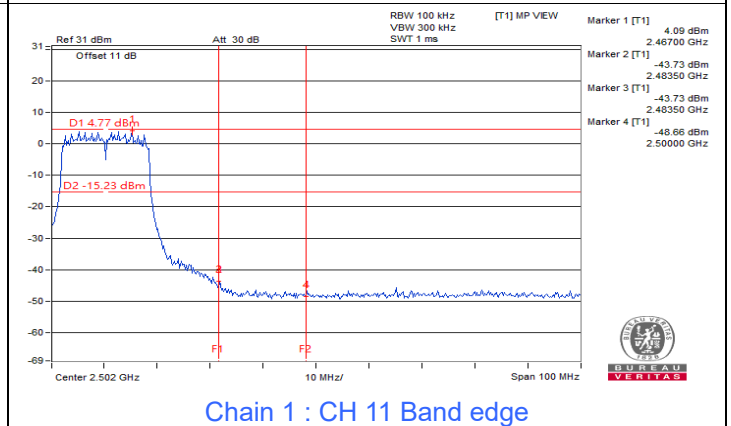
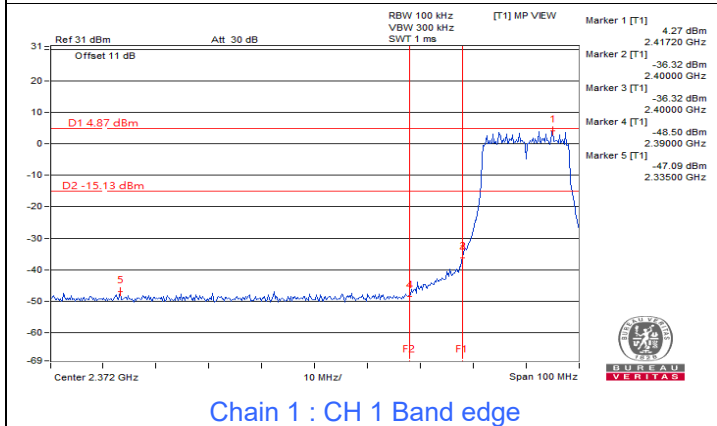
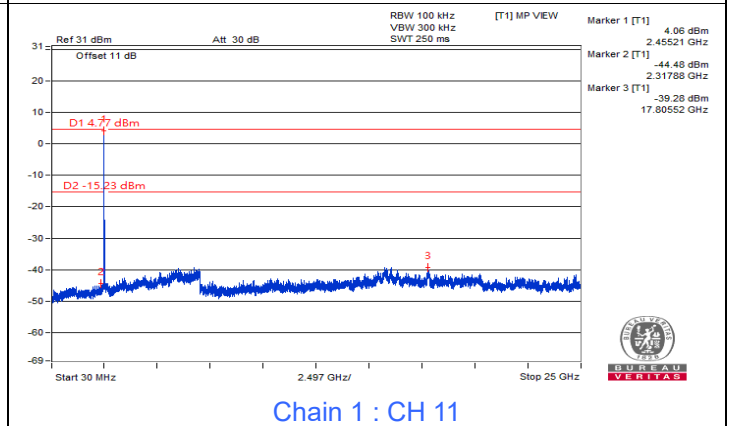
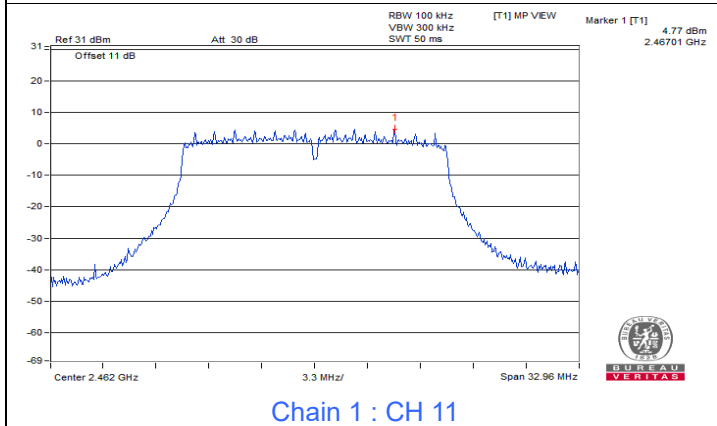
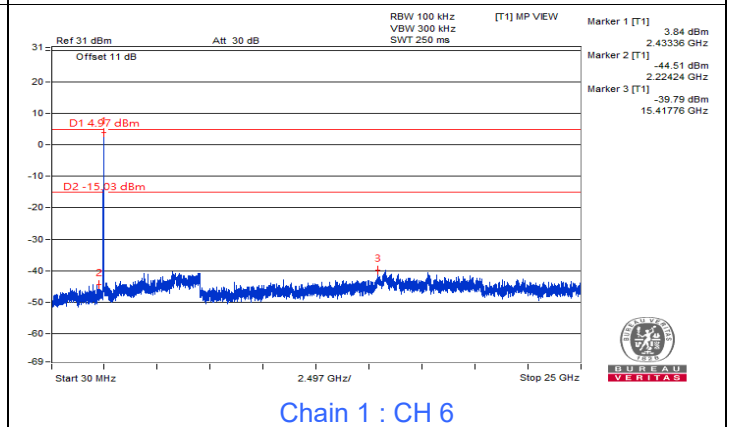
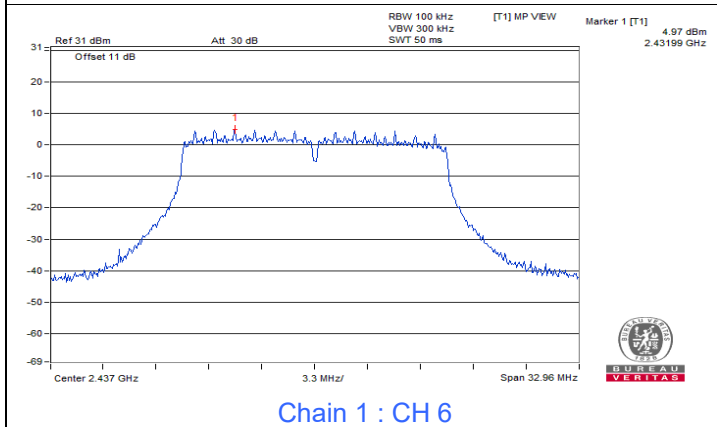
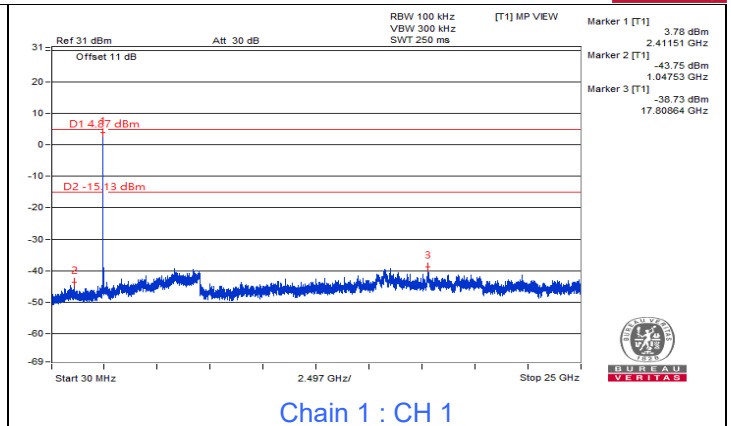
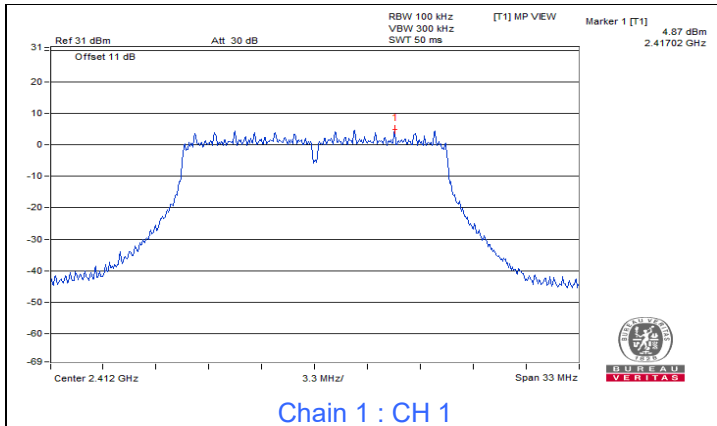
802.11b



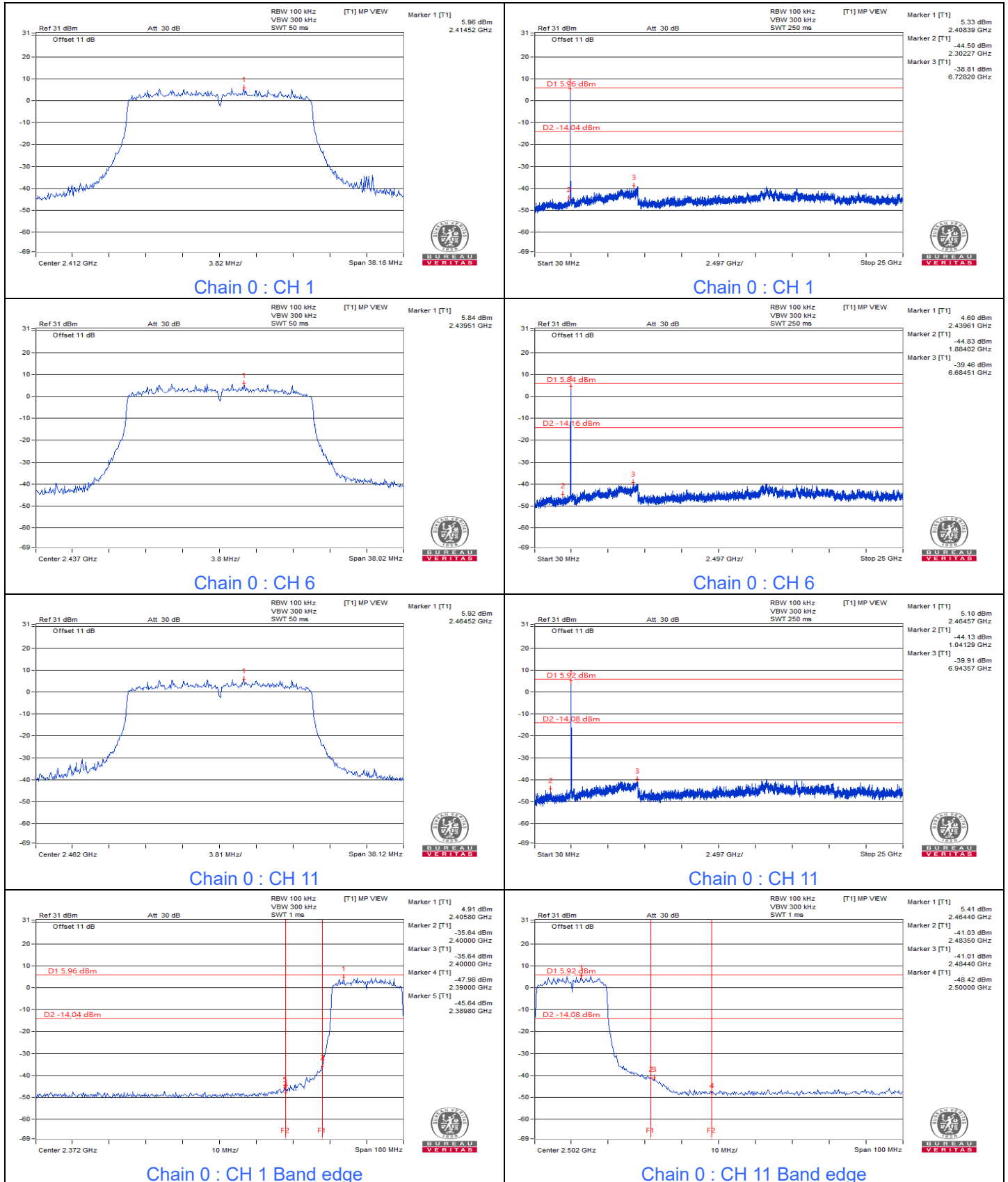


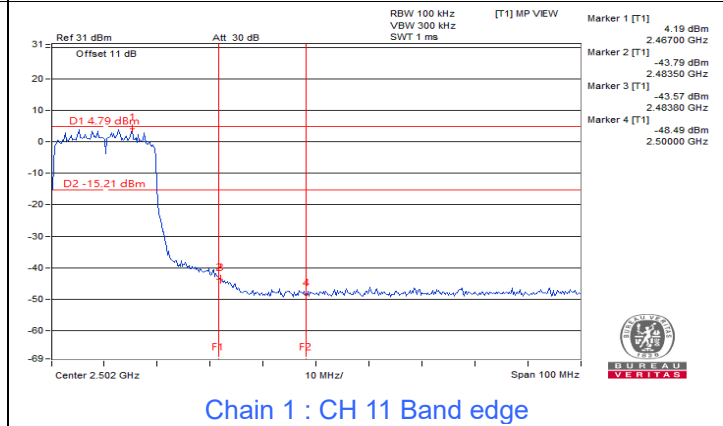
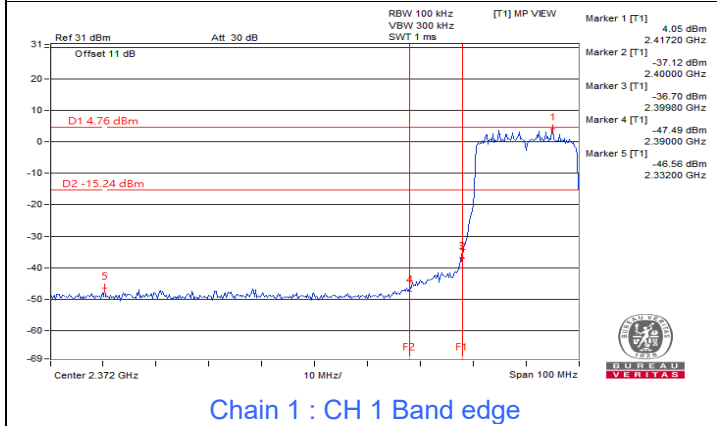
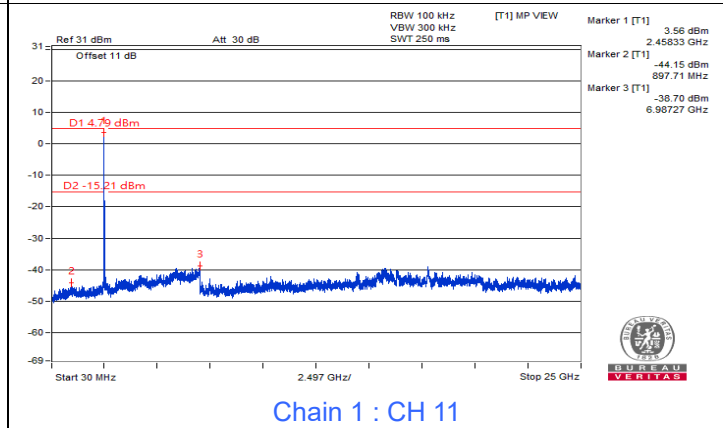
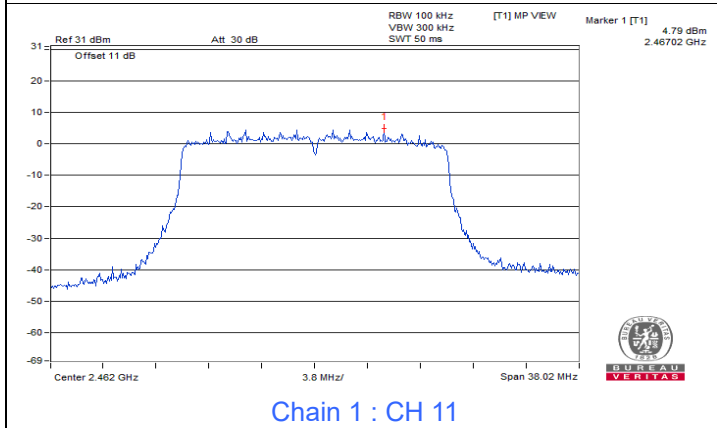
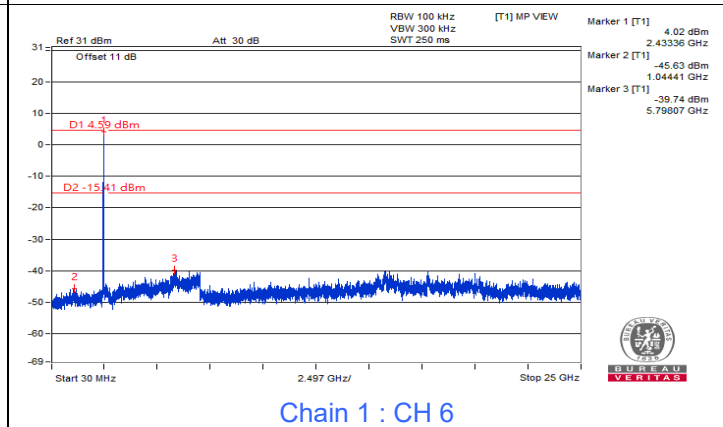
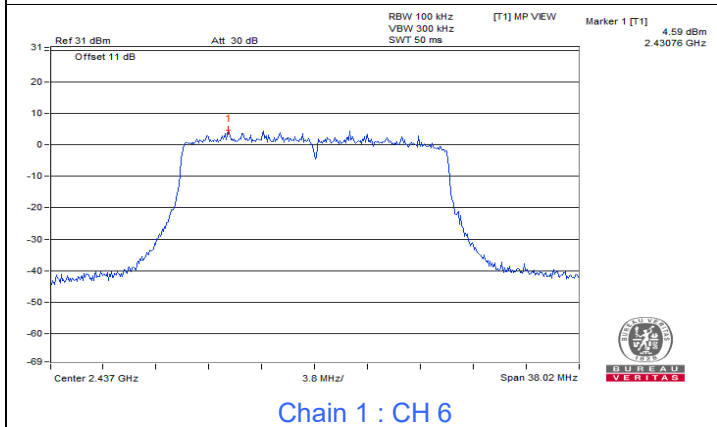
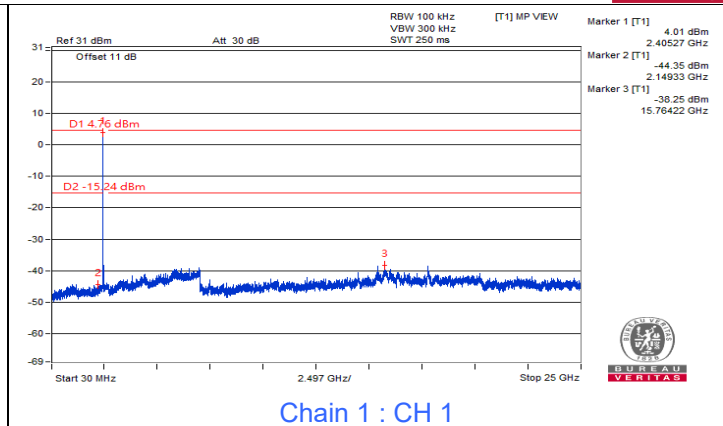
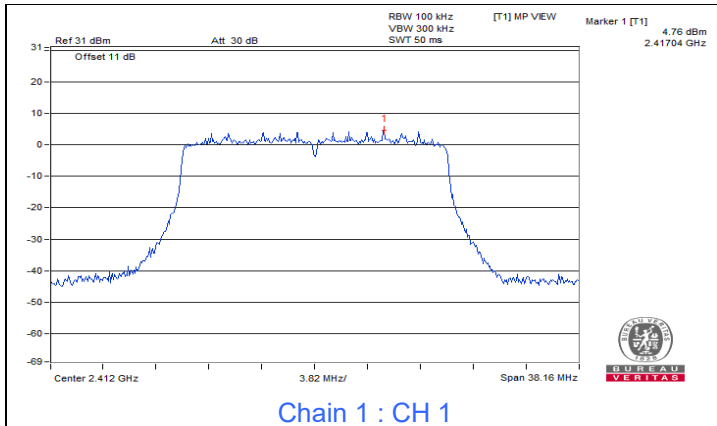
802.11g



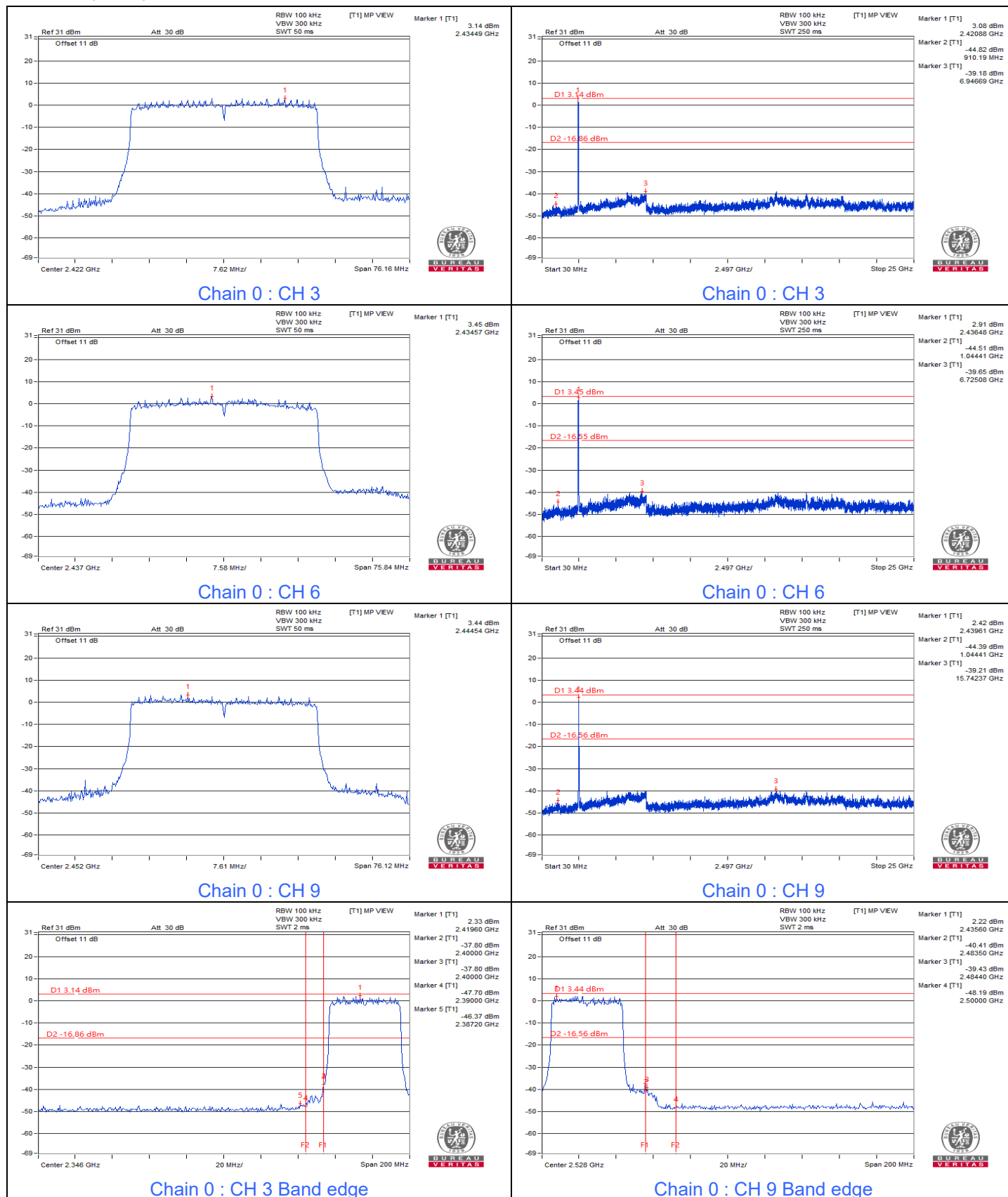


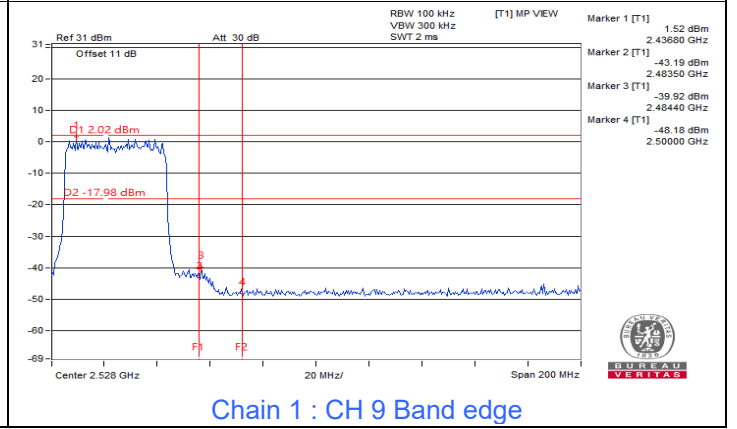
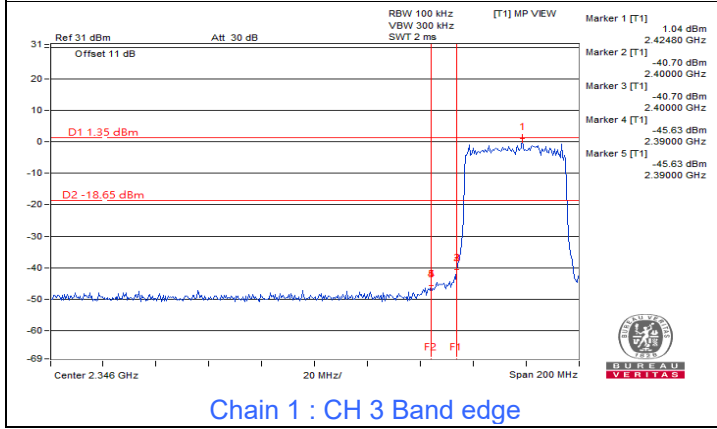
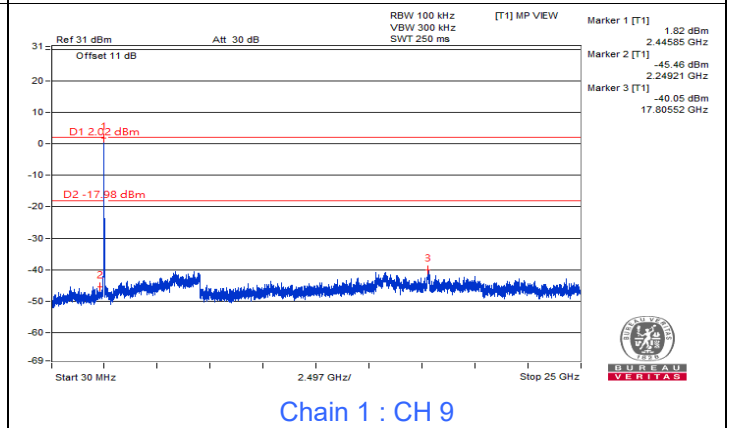
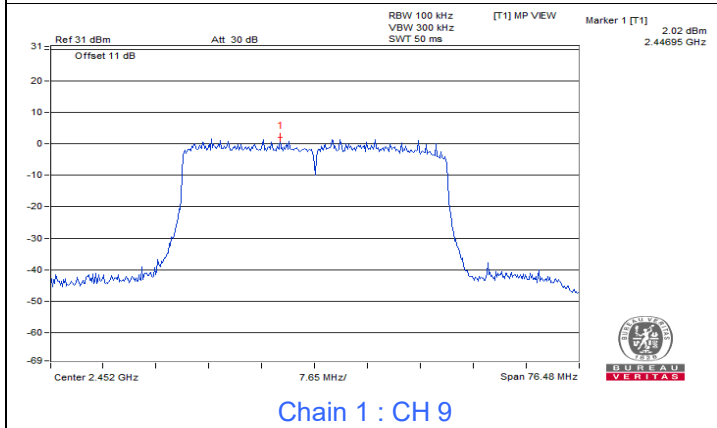
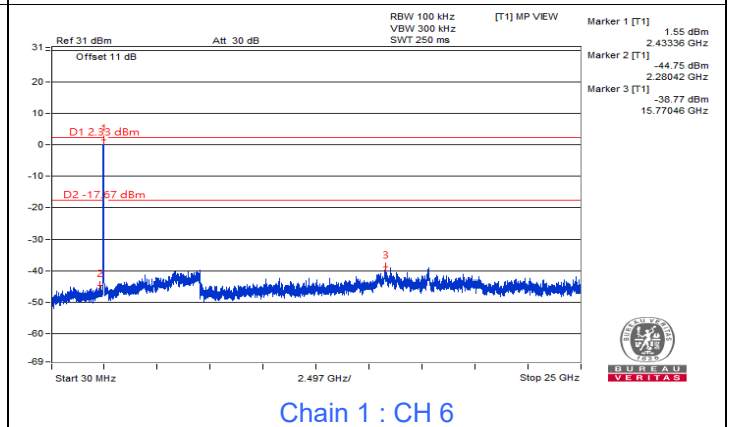
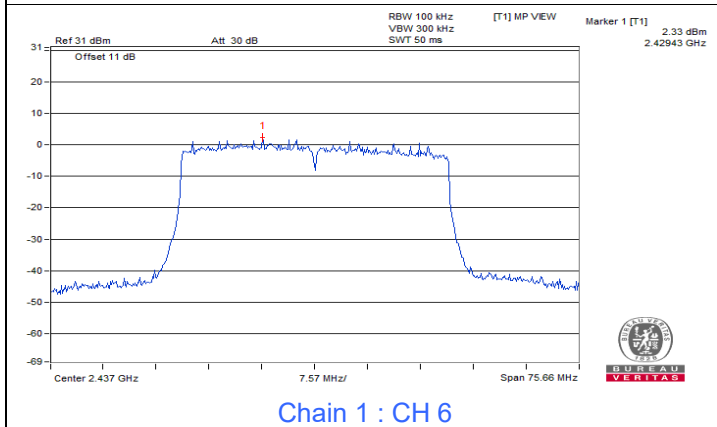
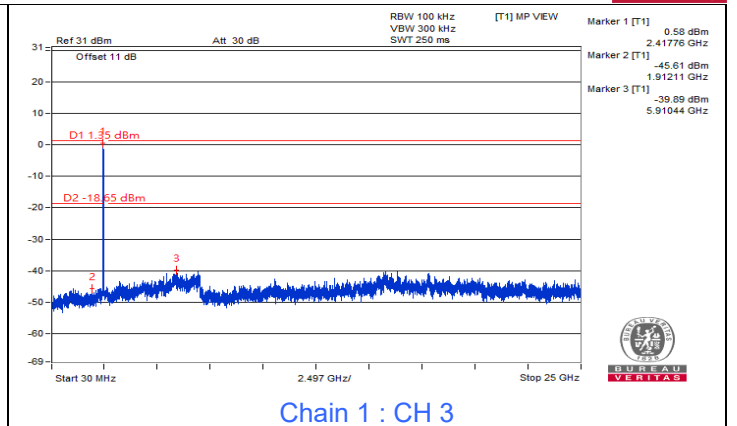
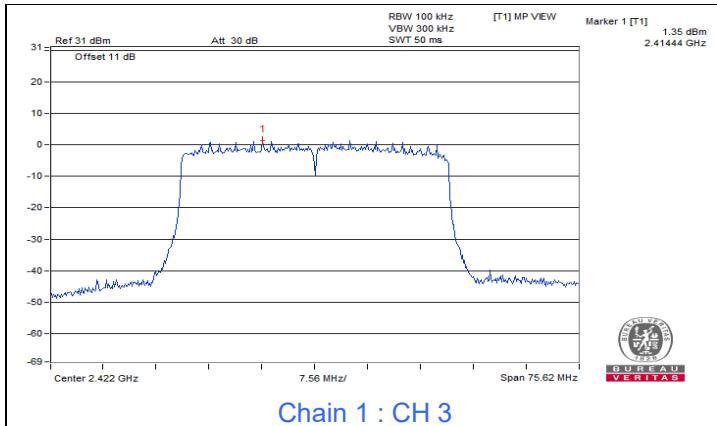
## 802.11ax (HE20)





## 802.11ax (HE40)





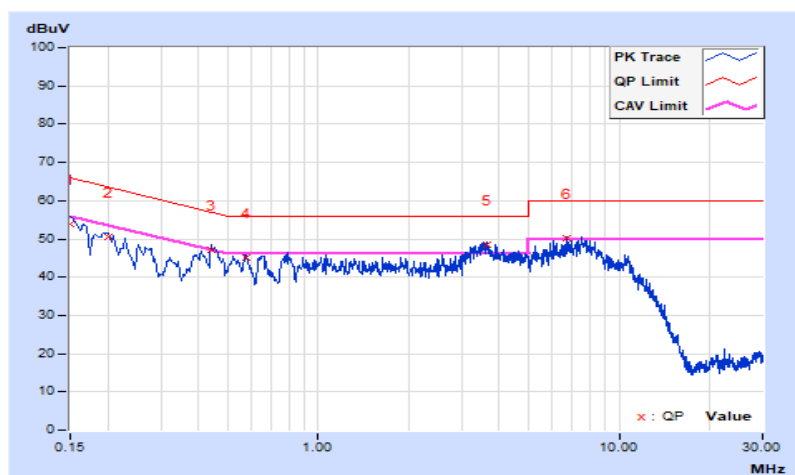
## 7.5 AC Power Conducted Emissions

|                        |                  |                                                     |                                       |
|------------------------|------------------|-----------------------------------------------------|---------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE40)  | <b>Channel</b>                                      | CH 9 : 2452 MHz                       |
| <b>Frequency Range</b> | 150 kHz ~ 30 MHz | <b>Detector Function &amp; Resolution Bandwidth</b> | Quasi-Peak (QP) / Average (AV), 9 kHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz   | <b>Environmental Conditions</b>                     | 25 °C, 75% RH                         |
| <b>Tested By</b>       | Jed Wu           |                                                     |                                       |

| 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                         | 0.15000         | 10.32                  | 43.71                | 29.49 | 54.03                 | 39.81 | 66.00        | 56.00 | -11.97      | -16.19 |
| 2                         | 0.20084         | 10.32                  | 40.24                | 31.92 | 50.56                 | 42.24 | 63.58        | 53.58 | -13.02      | -11.34 |
| 3                         | 0.44333         | 10.42                  | 36.56                | 27.88 | 46.98                 | 38.30 | 57.00        | 47.00 | -10.02      | -8.70  |
| 4                         | 0.57822         | 10.43                  | 34.61                | 25.15 | 45.04                 | 35.58 | 56.00        | 46.00 | -10.96      | -10.42 |
| 5                         | 3.65618         | 10.67                  | 37.74                | 29.64 | 48.41                 | 40.31 | 56.00        | 46.00 | -7.59       | -5.69  |
| 6                         | 6.67000         | 10.84                  | 39.47                | 33.77 | 50.31                 | 44.61 | 60.00        | 50.00 | -9.69       | -5.39  |

### 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

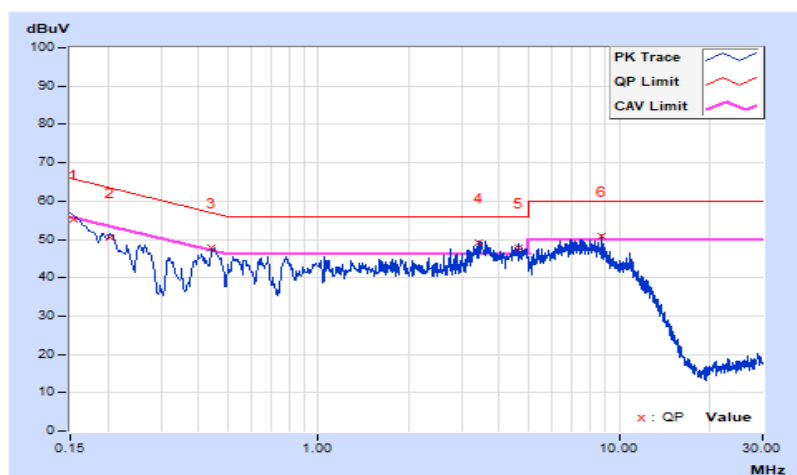


|                 |                  |                                          |                                       |
|-----------------|------------------|------------------------------------------|---------------------------------------|
| RF Mode         | 802.11ax (HE40)  | Channel                                  | CH 9 : 2452 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, 75% RH                         |
| Tested By       | Jed Wu           |                                          |                                       |

| 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                            | 0.15391         | 10.41                  | 44.72                | 32.79 | 55.13                 | 43.20 | 65.79        | 55.79 | -10.66      | -12.59 |
| 2                            | 0.20404         | 10.41                  | 40.02                | 31.54 | 50.43                 | 41.95 | 63.44        | 53.44 | -13.01      | -11.49 |
| 3                            | 0.44333         | 10.43                  | 37.48                | 28.51 | 47.91                 | 38.94 | 57.00        | 47.00 | -9.09       | -8.06  |
| 4                            | 3.43716         | 10.64                  | 38.58                | 31.26 | 49.22                 | 41.90 | 56.00        | 46.00 | -6.78       | -4.10  |
| 5                            | 4.63393         | 10.71                  | 36.97                | 31.24 | 47.68                 | 41.95 | 56.00        | 46.00 | -8.32       | -4.05  |
| 6                            | 8.73500         | 10.97                  | 39.75                | 34.28 | 50.72                 | 45.25 | 60.00        | 50.00 | -9.28       | -4.75  |

#### 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



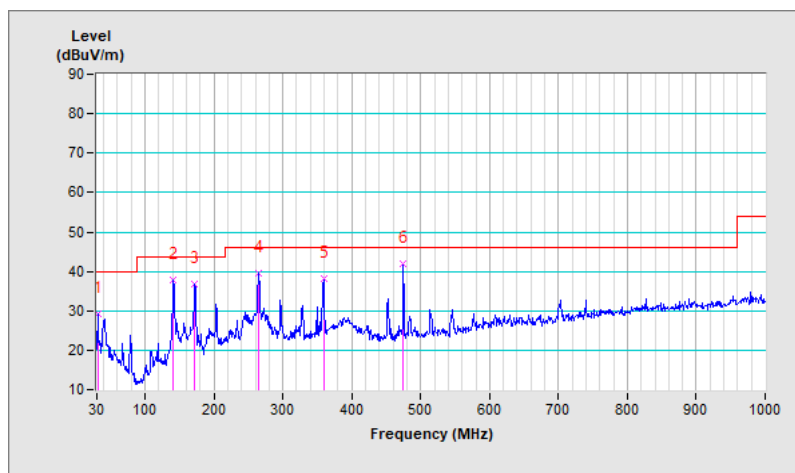
## 7.6 Unwanted Emissions below 1 GHz

|                 |                 |                               |                                |
|-----------------|-----------------|-------------------------------|--------------------------------|
| RF Mode         | 802.11ax (HE40) | Channel                       | CH 9 : 2452 MHz                |
| Frequency Range | 30 MHz ~ 1 GHz  | Detector Function & Bandwidth | QP: RB=120 kHz, DET=Quasi-Peak |
| Input Power     | 120 Vac, 60 Hz  | Environmental Conditions      | 23 °C, 67% RH                  |
| Tested By       | Dalen Dai       |                               |                                |

| 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                                                    | 30.97           | 29.3 QP                 | 40.0           | -10.7       | 1.25 H             | 298                  | 40.1             | -10.8                    |
| 2                                                    | 140.58          | 37.8 QP                 | 43.5           | -5.7        | 1.45 H             | 243                  | 46.3             | -8.5                     |
| 3                                                    | 171.62          | 36.7 QP                 | 43.5           | -6.8        | 1.29 H             | 238                  | 45.0             | -8.3                     |
| 4                                                    | 265.71          | 39.5 QP                 | 46.0           | -6.5        | 1.13 H             | 352                  | 46.4             | -6.9                     |
| 5                                                    | 359.80          | 38.0 QP                 | 46.0           | -8.0        | 1.61 H             | 238                  | 42.4             | -4.4                     |
| 6                                                    | 474.26          | 41.8 QP                 | 46.0           | -4.2        | 1.34 H             | 2                    | 43.4             | -1.6                     |

### 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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

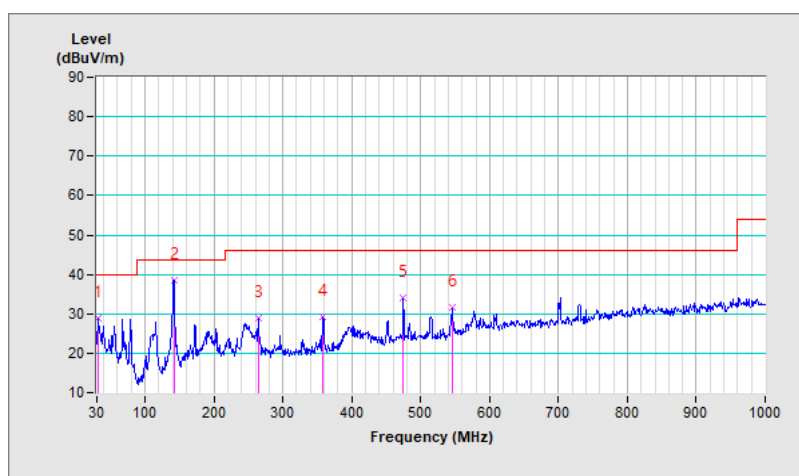


|                 |                 |                               |                                |
|-----------------|-----------------|-------------------------------|--------------------------------|
| RF Mode         | 802.11ax (HE40) | Channel                       | CH 9 : 2452 MHz                |
| Frequency Range | 30 MHz ~ 1 GHz  | Detector Function & Bandwidth | QP: RB=120 kHz, DET=Quasi-Peak |
| Input Power     | 120 Vac, 60 Hz  | Environmental Conditions      | 23 °C, 67% RH                  |
| Tested By       | Dalen Dai       |                               |                                |

| 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                                                  | 31.94           | 29.0 QP                 | 40.0           | -11.0       | 1.59 V             | 34                   | 39.5             | -10.5                    |
| 2                                                  | 141.55          | 38.6 QP                 | 43.5           | -4.9        | 1.73 V             | 89                   | 47.0             | -8.4                     |
| 3                                                  | 264.74          | 28.9 QP                 | 46.0           | -17.1       | 1.61 V             | 176                  | 35.9             | -7.0                     |
| 4                                                  | 358.83          | 29.2 QP                 | 46.0           | -16.8       | 1.87 V             | 291                  | 33.7             | -4.5                     |
| 5                                                  | 474.26          | 34.1 QP                 | 46.0           | -11.9       | 2.17 V             | 217                  | 35.7             | -1.6                     |
| 6                                                  | 545.07          | 31.5 QP                 | 46.0           | -14.5       | 1.92 V             | 196                  | 32.1             | -0.6                     |

#### 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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



## 7.7 Unwanted Emissions above 1 GHz

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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         | 54.2 PK                 | 74.0           | -19.8       | 1.50 H             | 131                  | 54.9             | -0.7                     |
| 2                                                    | 2390.00         | 40.9 AV                 | 54.0           | -13.1       | 1.50 H             | 131                  | 41.6             | -0.7                     |
| 3                                                    | *2412.00        | 111.9 PK                |                |             | 1.50 H             | 131                  | 112.5            | -0.6                     |
| 4                                                    | *2412.00        | 107.9 AV                |                |             | 1.50 H             | 131                  | 108.5            | -0.6                     |
| 5                                                    | 4824.00         | 48.8 PK                 | 74.0           | -25.2       | 1.23 H             | 8                    | 41.5             | 7.3                      |
| 6                                                    | 4824.00         | 36.0 AV                 | 54.0           | -18.0       | 1.23 H             | 8                    | 28.7             | 7.3                      |
| 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         | 55.1 PK                 | 74.0           | -18.9       | 2.00 V             | 217                  | 55.8             | -0.7                     |
| 2                                                    | 2390.00         | 41.3 AV                 | 54.0           | -12.7       | 2.00 V             | 217                  | 42.0             | -0.7                     |
| 3                                                    | *2412.00        | 112.0 PK                |                |             | 2.00 V             | 217                  | 112.6            | -0.6                     |
| 4                                                    | *2412.00        | 108.0 AV                |                |             | 2.00 V             | 217                  | 108.6            | -0.6                     |
| 5                                                    | 4824.00         | 50.4 PK                 | 74.0           | -23.6       | 1.61 V             | 209                  | 43.1             | 7.3                      |
| 6                                                    | 4824.00         | 38.1 AV                 | 54.0           | -15.9       | 1.61 V             | 209                  | 30.8             | 7.3                      |

### 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, the limit was restricted at the RF Output Power.

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11b        | <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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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                                                    | *2437.00        | 111.7 PK                |                |             | 1.53 H             | 134                  | 112.2            | -0.5                     |
| 2                                                    | *2437.00        | 107.8 AV                |                |             | 1.53 H             | 134                  | 108.3            | -0.5                     |
| 3                                                    | 4874.00         | 48.6 PK                 | 74.0           | -25.4       | 1.21 H             | 6                    | 41.1             | 7.5                      |
| 4                                                    | 4874.00         | 35.9 AV                 | 54.0           | -18.1       | 1.21 H             | 6                    | 28.4             | 7.5                      |
| 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                                                    | *2437.00        | 112.2 PK                |                |             | 2.01 V             | 213                  | 112.7            | -0.5                     |
| 2                                                    | *2437.00        | 108.3 AV                |                |             | 2.01 V             | 213                  | 108.8            | -0.5                     |
| 3                                                    | 4874.00         | 50.3 PK                 | 74.0           | -23.7       | 1.59 V             | 206                  | 42.8             | 7.5                      |
| 4                                                    | 4874.00         | 38.0 AV                 | 54.0           | -16.0       | 1.59 V             | 206                  | 30.5             | 7.5                      |

**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.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11b        | <b>Channel</b>                           | CH 11 : 2462 MHz                                                     |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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        | 111.8 PK                |                |             | 1.52 H             | 133                  | 112.1            | -0.3                     |
| 2                                                    | *2462.00        | 107.7 AV                |                |             | 1.52 H             | 133                  | 108.0            | -0.3                     |
| 3                                                    | 2483.50         | 54.4 PK                 | 74.0           | -19.6       | 1.52 H             | 133                  | 54.5             | -0.1                     |
| 4                                                    | 2483.50         | 41.0 AV                 | 54.0           | -13.0       | 1.52 H             | 133                  | 41.1             | -0.1                     |
| 5                                                    | 4924.00         | 49.0 PK                 | 74.0           | -25.0       | 1.18 H             | 10                   | 41.3             | 7.7                      |
| 6                                                    | 4924.00         | 36.2 AV                 | 54.0           | -17.8       | 1.18 H             | 10                   | 28.5             | 7.7                      |
| 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        | 112.1 PK                |                |             | 2.03 V             | 219                  | 112.4            | -0.3                     |
| 2                                                    | *2462.00        | 108.2 AV                |                |             | 2.03 V             | 219                  | 108.5            | -0.3                     |
| 3                                                    | 2483.50         | 55.4 PK                 | 74.0           | -18.6       | 2.03 V             | 219                  | 55.5             | -0.1                     |
| 4                                                    | 2483.50         | 41.6 AV                 | 54.0           | -12.4       | 2.03 V             | 219                  | 41.7             | -0.1                     |
| 5                                                    | 4924.00         | 50.5 PK                 | 74.0           | -23.5       | 1.64 V             | 204                  | 42.8             | 7.7                      |
| 6                                                    | 4924.00         | 38.3 AV                 | 54.0           | -15.7       | 1.64 V             | 204                  | 30.6             | 7.7                      |

**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, the limit was restricted at the RF Output Power.

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11g        | <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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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         | 62.9 PK                 | 74.0           | -11.1       | 1.53 H             | 137                  | 63.6             | -0.7                     |
| 2                                                    | 2390.00         | 44.9 AV                 | 54.0           | -9.1        | 1.53 H             | 137                  | 45.6             | -0.7                     |
| 3                                                    | *2412.00        | 114.1 PK                |                |             | 1.53 H             | 137                  | 114.7            | -0.6                     |
| 4                                                    | *2412.00        | 102.8 AV                |                |             | 1.53 H             | 137                  | 103.4            | -0.6                     |
| 5                                                    | 4824.00         | 48.5 PK                 | 74.0           | -25.5       | 1.21 H             | 16                   | 41.2             | 7.3                      |
| 6                                                    | 4824.00         | 35.6 AV                 | 54.0           | -18.4       | 1.21 H             | 16                   | 28.3             | 7.3                      |
| 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         | 63.9 PK                 | 74.0           | -10.1       | 2.31 V             | 217                  | 64.6             | -0.7                     |
| 2                                                    | 2390.00         | 45.1 AV                 | 54.0           | -8.9        | 2.31 V             | 217                  | 45.8             | -0.7                     |
| 3                                                    | *2412.00        | 115.4 PK                |                |             | 2.31 V             | 217                  | 116.0            | -0.6                     |
| 4                                                    | *2412.00        | 104.1 AV                |                |             | 2.31 V             | 217                  | 104.7            | -0.6                     |
| 5                                                    | 4824.00         | 49.8 PK                 | 74.0           | -24.2       | 1.66 V             | 203                  | 42.5             | 7.3                      |
| 6                                                    | 4824.00         | 37.7 AV                 | 54.0           | -16.3       | 1.66 V             | 203                  | 30.4             | 7.3                      |

**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, the limit was restricted at the RF Output Power.

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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                                                    | *2437.00        | 113.8 PK                |                |             | 1.51 H             | 134                  | 114.3            | -0.5                     |
| 2                                                    | *2437.00        | 102.6 AV                |                |             | 1.51 H             | 134                  | 103.1            | -0.5                     |
| 3                                                    | 4874.00         | 48.4 PK                 | 74.0           | -25.6       | 1.24 H             | 11                   | 40.9             | 7.5                      |
| 4                                                    | 4874.00         | 35.6 AV                 | 54.0           | -18.4       | 1.24 H             | 11                   | 28.1             | 7.5                      |
| 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                                                    | *2437.00        | 115.2 PK                |                |             | 2.27 V             | 219                  | 115.7            | -0.5                     |
| 2                                                    | *2437.00        | 103.9 AV                |                |             | 2.27 V             | 219                  | 104.4            | -0.5                     |
| 3                                                    | 4874.00         | 49.6 PK                 | 74.0           | -24.4       | 1.62 V             | 207                  | 42.1             | 7.5                      |
| 4                                                    | 4874.00         | 37.6 AV                 | 54.0           | -16.4       | 1.62 V             | 207                  | 30.1             | 7.5                      |

**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.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.

|                        |                |                                          |                                                                      |
|------------------------|----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11g        | <b>Channel</b>                           | CH 11 : 2462 MHz                                                     |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 23 °C, 67% RH                                                        |
| <b>Tested By</b>       | Dalen Dai      |                                          |                                                                      |

| 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        | 113.8 PK                |                |             | 1.50 H             | 135                  | 114.1            | -0.3                     |
| 2                                                    | *2462.00        | 102.6 AV                |                |             | 1.50 H             | 135                  | 102.9            | -0.3                     |
| 3                                                    | 2483.50         | 64.3 PK                 | 74.0           | -9.7        | 1.50 H             | 135                  | 64.4             | -0.1                     |
| 4                                                    | 2483.50         | 45.1 AV                 | 54.0           | -8.9        | 1.50 H             | 135                  | 45.2             | -0.1                     |
| 5                                                    | 4924.00         | 48.2 PK                 | 74.0           | -25.8       | 1.23 H             | 7                    | 40.5             | 7.7                      |
| 6                                                    | 4924.00         | 35.5 AV                 | 54.0           | -18.5       | 1.23 H             | 7                    | 27.8             | 7.7                      |
| 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        | 114.4 PK                |                |             | 2.17 V             | 221                  | 114.7            | -0.3                     |
| 2                                                    | *2462.00        | 103.2 AV                |                |             | 2.17 V             | 221                  | 103.5            | -0.3                     |
| 3                                                    | 2483.50         | 65.5 PK                 | 74.0           | -8.5        | 2.17 V             | 221                  | 65.6             | -0.1                     |
| 4                                                    | 2483.50         | 46.2 AV                 | 54.0           | -7.8        | 2.17 V             | 221                  | 46.3             | -0.1                     |
| 5                                                    | 4924.00         | 49.5 PK                 | 74.0           | -24.5       | 1.62 V             | 207                  | 41.8             | 7.7                      |
| 6                                                    | 4924.00         | 37.3 AV                 | 54.0           | -16.7       | 1.62 V             | 207                  | 29.6             | 7.7                      |

**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, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE20) | <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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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         | 66.2 PK                 | 74.0           | -7.8        | 1.37 H             | 136                  | 66.9             | -0.7                     |
| 2                                                    | 2390.00         | 45.3 AV                 | 54.0           | -8.7        | 1.37 H             | 136                  | 46.0             | -0.7                     |
| 3                                                    | *2412.00        | 114.9 PK                |                |             | 1.37 H             | 136                  | 115.5            | -0.6                     |
| 4                                                    | *2412.00        | 101.8 AV                |                |             | 1.37 H             | 136                  | 102.4            | -0.6                     |
| 5                                                    | 4824.00         | 48.7 PK                 | 74.0           | -25.3       | 1.22 H             | 10                   | 41.4             | 7.3                      |
| 6                                                    | 4824.00         | 35.9 AV                 | 54.0           | -18.1       | 1.22 H             | 10                   | 28.6             | 7.3                      |
| 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         | 67.3 PK                 | 74.0           | -6.7        | 2.03 V             | 215                  | 68.0             | -0.7                     |
| 2                                                    | 2390.00         | 46.9 AV                 | 54.0           | -7.1        | 2.03 V             | 215                  | 47.6             | -0.7                     |
| 3                                                    | *2412.00        | 115.8 PK                |                |             | 2.03 V             | 215                  | 116.4            | -0.6                     |
| 4                                                    | *2412.00        | 102.7 AV                |                |             | 2.03 V             | 215                  | 103.3            | -0.6                     |
| 5                                                    | 4824.00         | 49.5 PK                 | 74.0           | -24.5       | 1.73 V             | 199                  | 42.2             | 7.3                      |
| 6                                                    | 4824.00         | 37.4 AV                 | 54.0           | -16.6       | 1.73 V             | 199                  | 30.1             | 7.3                      |

**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, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE20) | <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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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                                                    | *2437.00        | 114.5 PK                |                |             | 1.39 H             | 134                  | 115.0            | -0.5                     |
| 2                                                    | *2437.00        | 101.3 AV                |                |             | 1.39 H             | 134                  | 101.8            | -0.5                     |
| 3                                                    | 4874.00         | 48.4 PK                 | 74.0           | -25.6       | 1.20 H             | 7                    | 40.9             | 7.5                      |
| 4                                                    | 4874.00         | 35.7 AV                 | 54.0           | -18.3       | 1.20 H             | 7                    | 28.2             | 7.5                      |
| 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                                                    | *2437.00        | 115.5 PK                |                |             | 2.06 V             | 217                  | 116.0            | -0.5                     |
| 2                                                    | *2437.00        | 102.4 AV                |                |             | 2.06 V             | 217                  | 102.9            | -0.5                     |
| 3                                                    | 4874.00         | 49.2 PK                 | 74.0           | -24.8       | 1.76 V             | 195                  | 41.7             | 7.5                      |
| 4                                                    | 4874.00         | 37.1 AV                 | 54.0           | -16.9       | 1.76 V             | 195                  | 29.6             | 7.5                      |

**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.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE20) | <b>Channel</b>                           | CH 11 : 2462 MHz                                                     |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz  | <b>Detector Function &amp; Bandwidth</b> | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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        | 114.5 PK                |                |             | 1.41 H             | 137                  | 114.8            | -0.3                     |
| 2                                                    | *2462.00        | 101.4 AV                |                |             | 1.41 H             | 137                  | 101.7            | -0.3                     |
| 3                                                    | 2483.50         | 67.5 PK                 | 74.0           | -6.5        | 1.41 H             | 137                  | 67.6             | -0.1                     |
| 4                                                    | 2483.50         | 47.7 AV                 | 54.0           | -6.3        | 1.41 H             | 137                  | 47.8             | -0.1                     |
| 5                                                    | 4924.00         | 48.5 PK                 | 74.0           | -25.5       | 1.18 H             | 357                  | 40.8             | 7.7                      |
| 6                                                    | 4924.00         | 35.7 AV                 | 54.0           | -18.3       | 1.18 H             | 357                  | 28.0             | 7.7                      |
| 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        | 115.5 PK                |                |             | 2.04 V             | 215                  | 115.8            | -0.3                     |
| 2                                                    | *2462.00        | 102.3 AV                |                |             | 2.04 V             | 215                  | 102.6            | -0.3                     |
| 3                                                    | 2483.50         | 68.3 PK                 | 74.0           | -5.7        | 2.04 V             | 215                  | 68.4             | -0.1                     |
| 4                                                    | 2483.50         | 49.5 AV                 | 54.0           | -4.5        | 2.04 V             | 215                  | 49.6             | -0.1                     |
| 5                                                    | 4924.00         | 49.4 PK                 | 74.0           | -24.6       | 1.75 V             | 201                  | 41.7             | 7.7                      |
| 6                                                    | 4924.00         | 37.3 AV                 | 54.0           | -16.7       | 1.75 V             | 201                  | 29.6             | 7.7                      |

**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, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE40) | <b>Channel</b>                           | CH 3 : 2422 MHz                                                      |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz  | <b>Detector Function &amp; Bandwidth</b> | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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         | 67.1 PK                 | 74.0           | -6.9        | 1.50 H             | 136                  | 67.8             | -0.7                     |
| 2                                                    | 2390.00         | 47.2 AV                 | 54.0           | -6.8        | 1.50 H             | 136                  | 47.9             | -0.7                     |
| 3                                                    | *2422.00        | 112.7 PK                |                |             | 1.50 H             | 136                  | 113.2            | -0.5                     |
| 4                                                    | *2422.00        | 99.4 AV                 |                |             | 1.50 H             | 136                  | 99.9             | -0.5                     |
| 5                                                    | 4844.00         | 48.2 PK                 | 74.0           | -25.8       | 1.23 H             | 17                   | 40.9             | 7.3                      |
| 6                                                    | 4844.00         | 35.5 AV                 | 54.0           | -18.5       | 1.23 H             | 17                   | 28.2             | 7.3                      |
| 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         | 67.5 PK                 | 74.0           | -6.5        | 2.02 V             | 219                  | 68.2             | -0.7                     |
| 2                                                    | 2390.00         | 49.7 AV                 | 54.0           | -4.3        | 2.02 V             | 219                  | 50.4             | -0.7                     |
| 3                                                    | *2422.00        | 113.3 PK                |                |             | 2.02 V             | 219                  | 113.8            | -0.5                     |
| 4                                                    | *2422.00        | 99.8 AV                 |                |             | 2.02 V             | 219                  | 100.3            | -0.5                     |
| 5                                                    | 4844.00         | 49.2 PK                 | 74.0           | -24.8       | 1.77 V             | 194                  | 41.9             | 7.3                      |
| 6                                                    | 4844.00         | 37.1 AV                 | 54.0           | -16.9       | 1.77 V             | 194                  | 29.8             | 7.3                      |

**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, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE40) | <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, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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                                                    | *2437.00        | 113.4 PK                |                |             | 1.47 H             | 135                  | 113.9            | -0.5                     |
| 2                                                    | *2437.00        | 99.9 AV                 |                |             | 1.47 H             | 135                  | 100.4            | -0.5                     |
| 3                                                    | 4874.00         | 48.3 PK                 | 74.0           | -25.7       | 1.21 H             | 13                   | 40.8             | 7.5                      |
| 4                                                    | 4874.00         | 35.6 AV                 | 54.0           | -18.4       | 1.21 H             | 13                   | 28.1             | 7.5                      |
| 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                                                    | *2437.00        | 114.7 PK                |                |             | 2.22 V             | 221                  | 115.2            | -0.5                     |
| 2                                                    | *2437.00        | 101.1 AV                |                |             | 2.22 V             | 221                  | 101.6            | -0.5                     |
| 3                                                    | 4874.00         | 49.4 PK                 | 74.0           | -24.6       | 1.71 V             | 198                  | 41.9             | 7.5                      |
| 4                                                    | 4874.00         | 37.3 AV                 | 54.0           | -16.7       | 1.71 V             | 198                  | 29.8             | 7.5                      |

**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.
5. " \* " : Fundamental frequency, the limit was restricted at the RF Output Power.

|                        |                 |                                          |                                                                      |
|------------------------|-----------------|------------------------------------------|----------------------------------------------------------------------|
| <b>RF Mode</b>         | 802.11ax (HE40) | <b>Channel</b>                           | CH 9 : 2452 MHz                                                      |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz  | <b>Detector Function &amp; Bandwidth</b> | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
| <b>Input Power</b>     | 120 Vac, 60 Hz  | <b>Environmental Conditions</b>          | 23 °C, 71% RH                                                        |
| <b>Tested By</b>       | Dalen Dai       |                                          |                                                                      |

| 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        | 114.2 PK                |                |             | 1.50 H             | 137                  | 114.6            | -0.4                     |
| 2                                                    | *2452.00        | 100.8 AV                |                |             | 1.50 H             | 137                  | 101.2            | -0.4                     |
| <b>3</b>                                             | <b>2483.50</b>  | <b>72.5 PK</b>          | <b>74.0</b>    | <b>-1.5</b> | <b>1.50 H</b>      | <b>137</b>           | <b>72.6</b>      | <b>-0.1</b>              |
| 4                                                    | 2483.50         | 51.7 AV                 | 54.0           | -2.3        | 1.50 H             | 137                  | 51.8             | -0.1                     |
| 5                                                    | 4904.00         | 48.5 PK                 | 74.0           | -25.5       | 1.20 H             | 6                    | 40.9             | 7.6                      |
| 6                                                    | 4904.00         | 35.7 AV                 | 54.0           | -18.3       | 1.20 H             | 6                    | 28.1             | 7.6                      |
| 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        | 115.6 PK                |                |             | 2.20 V             | 220                  | 116.0            | -0.4                     |
| 2                                                    | *2452.00        | 102.0 AV                |                |             | 2.20 V             | 220                  | 102.4            | -0.4                     |
| 3                                                    | 2483.50         | 71.4 PK                 | 74.0           | -2.6        | 2.20 V             | 220                  | 71.5             | -0.1                     |
| 4                                                    | 2483.50         | 51.5 AV                 | 54.0           | -2.5        | 2.20 V             | 220                  | 51.6             | -0.1                     |
| 5                                                    | 4904.00         | 49.5 PK                 | 74.0           | -24.5       | 1.73 V             | 196                  | 41.9             | 7.6                      |
| 6                                                    | 4904.00         | 37.4 AV                 | 54.0           | -16.6       | 1.73 V             | 196                  | 29.8             | 7.6                      |

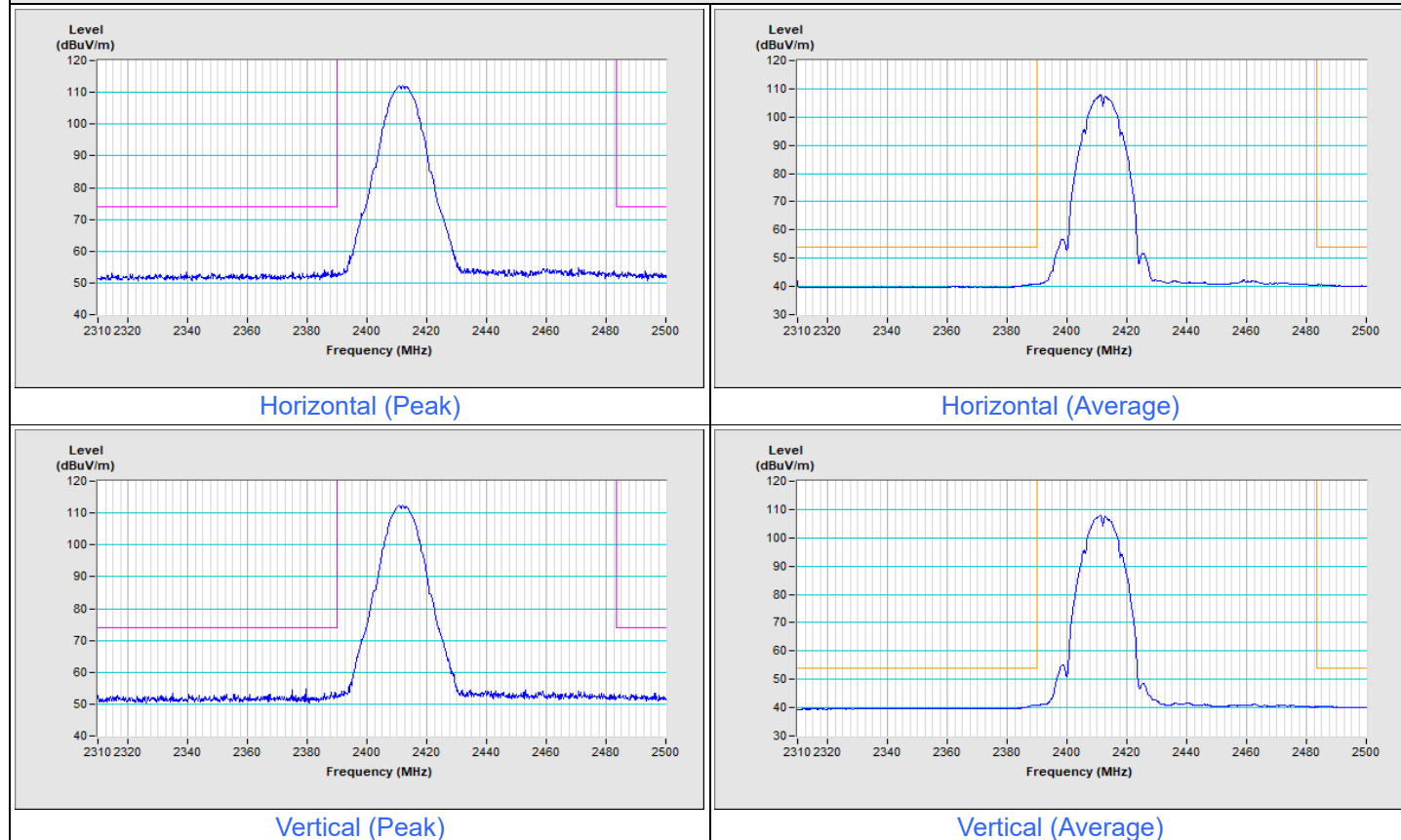
**Remarks:**

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, the limit was restricted at the RF Output Power.

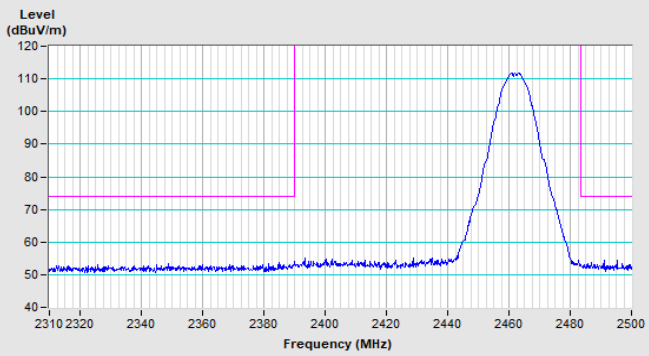
## Plot of Band Edge

|                 |                    |                               |                                                                      |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|
| Frequency Range | 2.31 GHz ~ 2.5 GHz | Detector Function & Bandwidth | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|

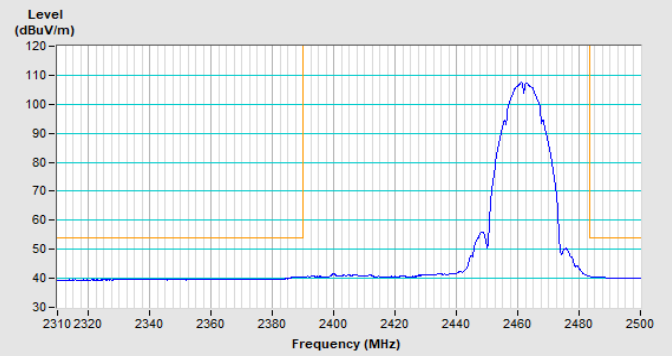
### 802.11b Channel 1



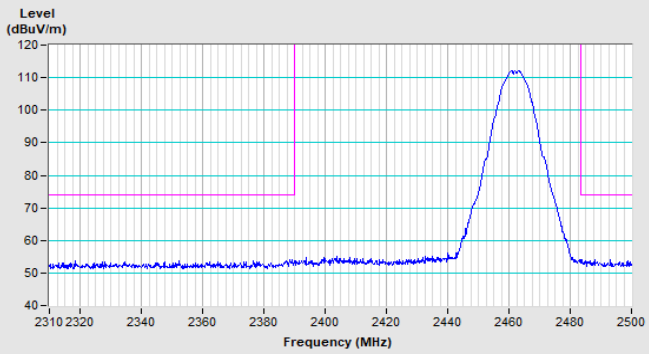
## 802.11b Channel 11



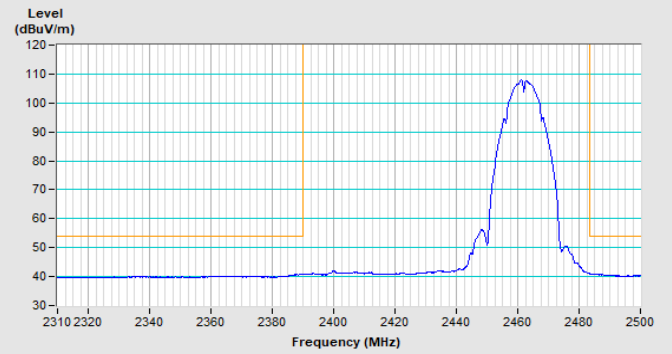
Horizontal (Peak)



Horizontal (Average)



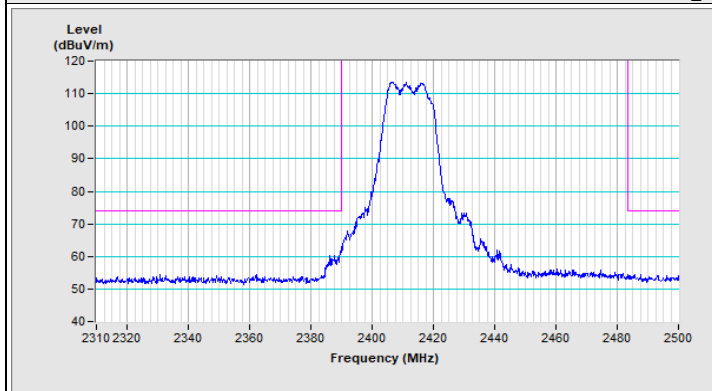
Vertical (Peak)



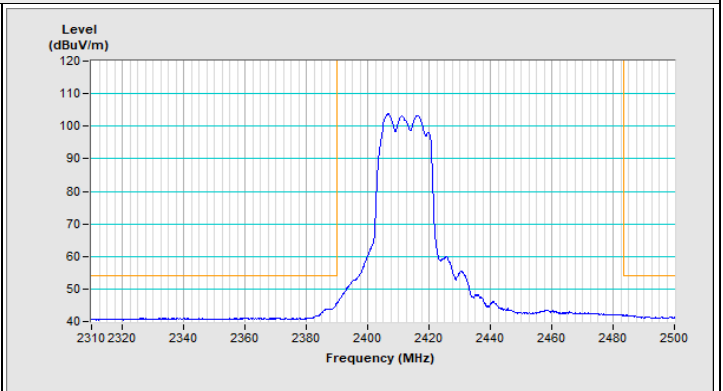
Vertical (Average)

|                 |                    |                               |                                                                      |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|
| Frequency Range | 2.31 GHz ~ 2.5 GHz | Detector Function & Bandwidth | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|

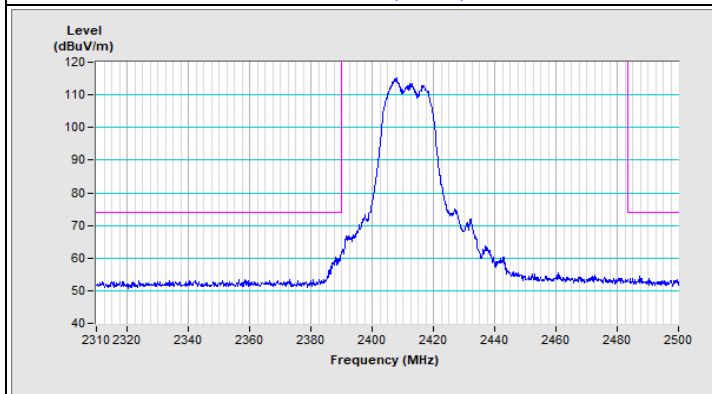
### 802.11g Channel 1



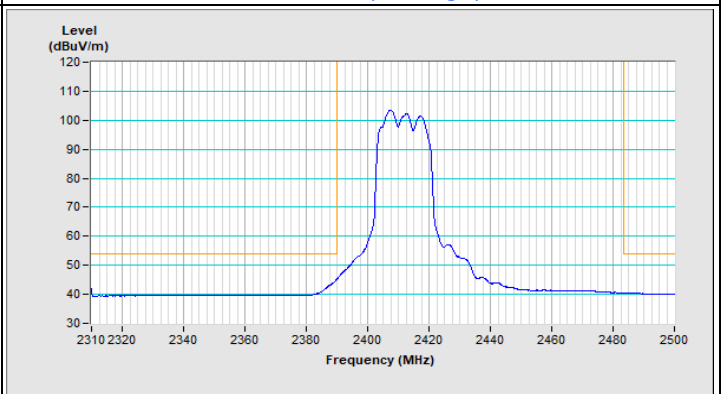
Horizontal (Peak)



Horizontal (Average)

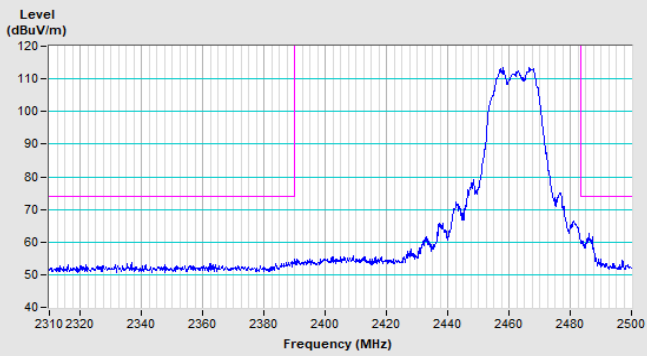


Vertical (Peak)

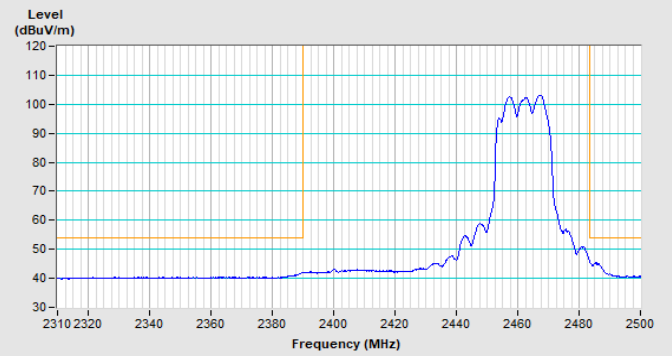


Vertical (Average)

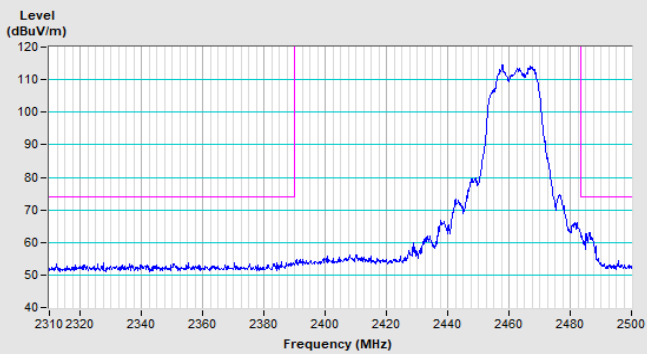
## 802.11g Channel 11



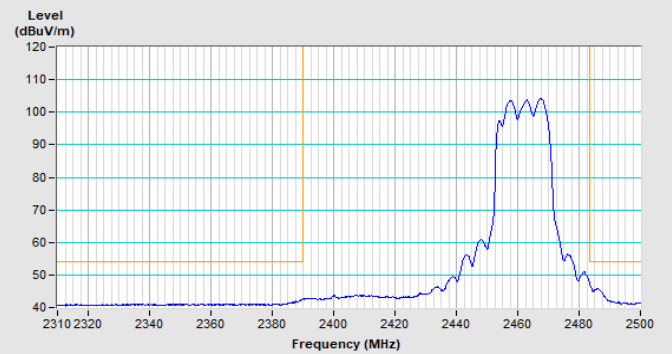
Horizontal (Peak)



Horizontal (Average)



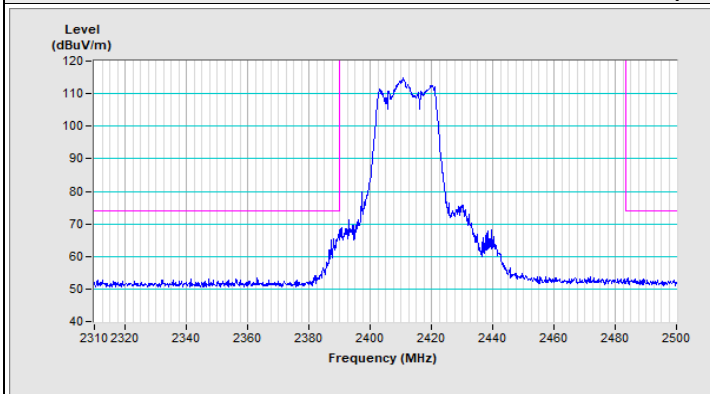
Vertical (Peak)



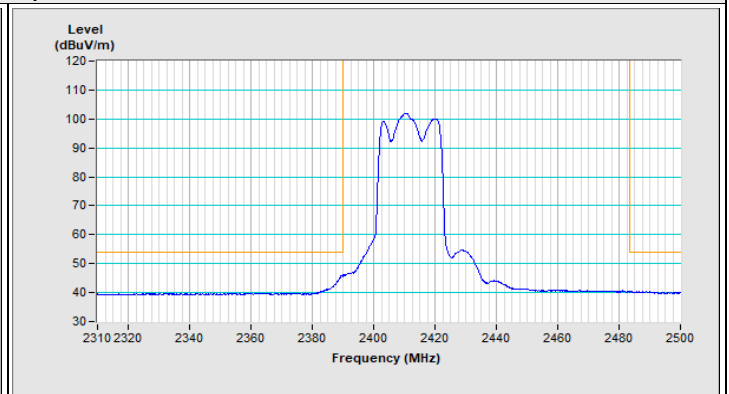
Vertical (Average)

|                 |                    |                               |                                                                      |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|
| Frequency Range | 2.31 GHz ~ 2.5 GHz | Detector Function & Bandwidth | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|

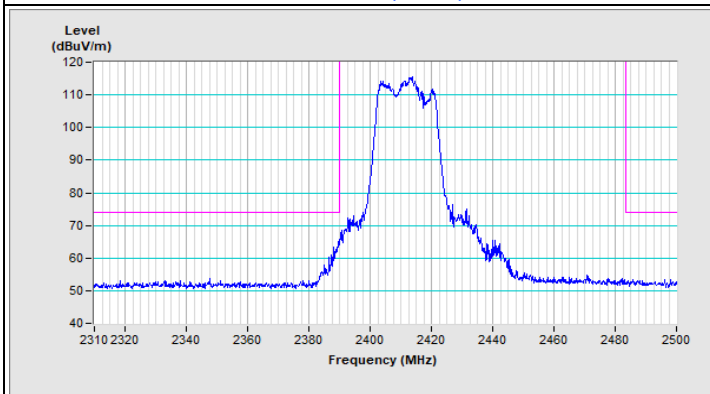
### 802.11ax (HE20) Channel 1



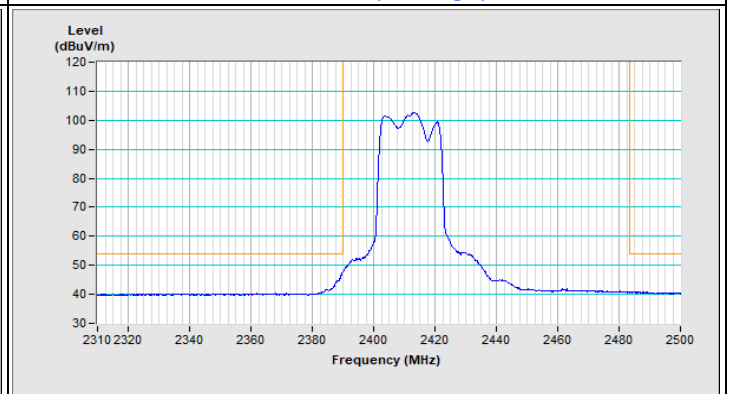
Horizontal (Peak)



Horizontal (Average)

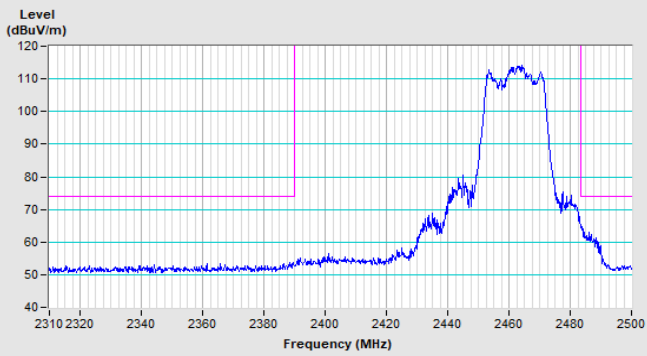


Vertical (Peak)

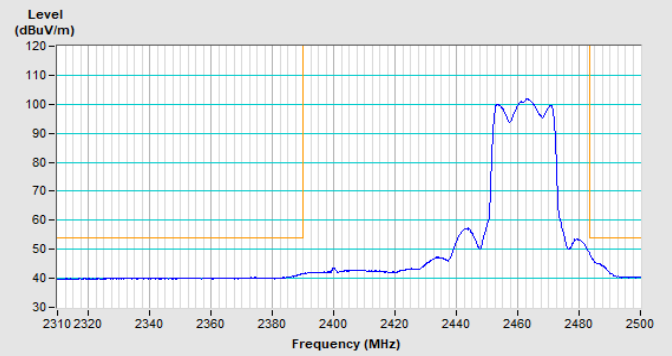


Vertical (Average)

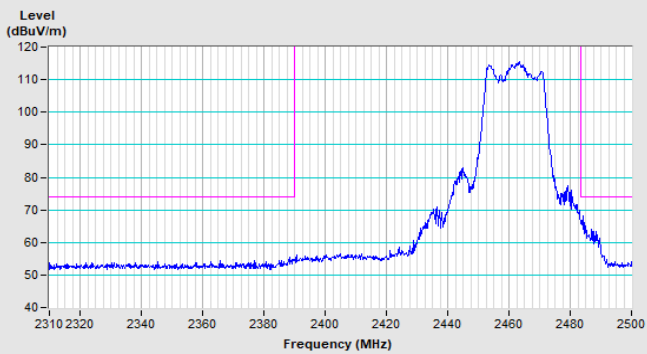
### 802.11ax (HE20) Channel 11



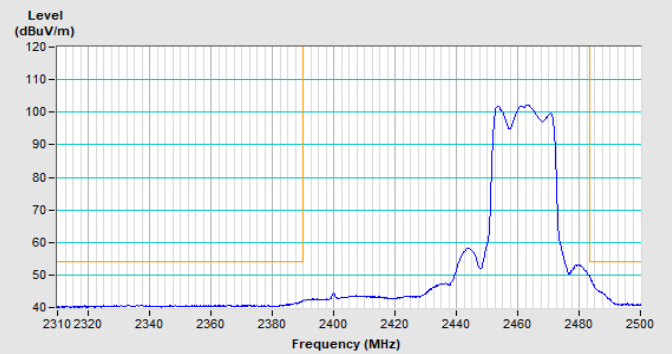
Horizontal (Peak)



Horizontal (Average)



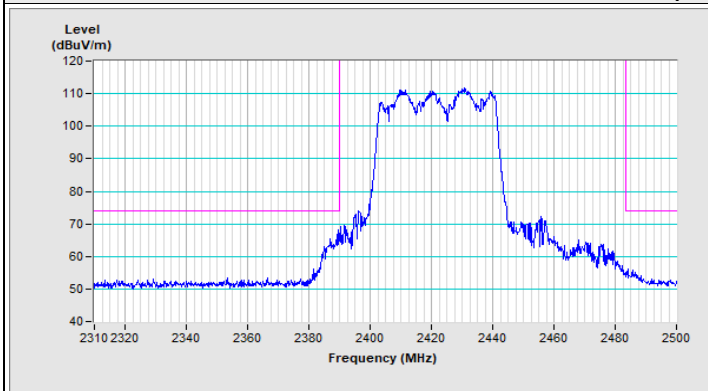
Vertical (Peak)



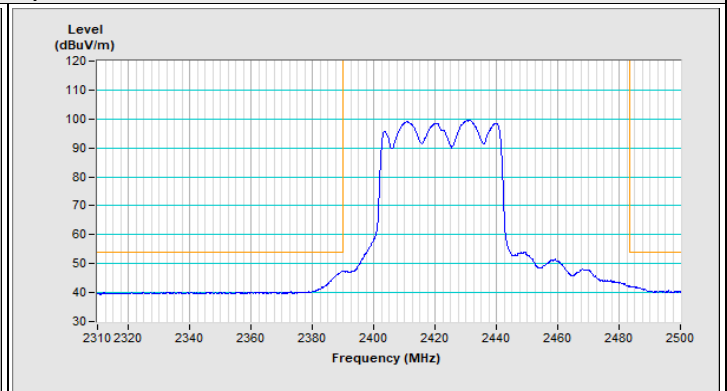
Vertical (Average)

|                 |                    |                               |                                                                      |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|
| Frequency Range | 2.31 GHz ~ 2.5 GHz | Detector Function & Bandwidth | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
|-----------------|--------------------|-------------------------------|----------------------------------------------------------------------|

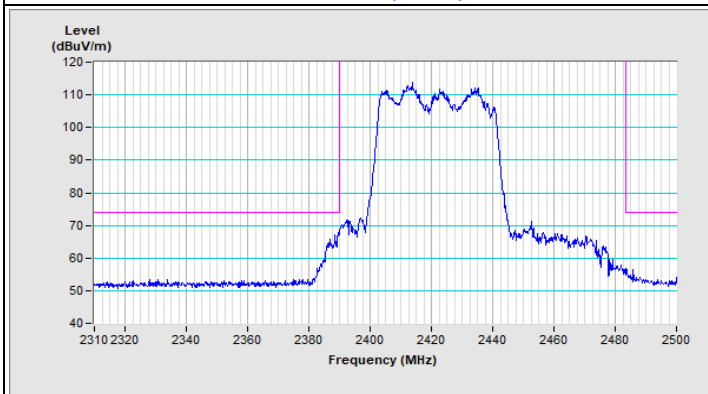
### 802.11ax (HE40) Channel 3



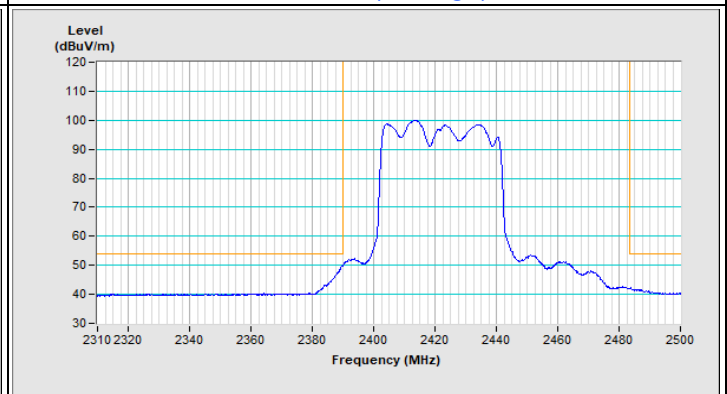
Horizontal (Peak)



Horizontal (Average)

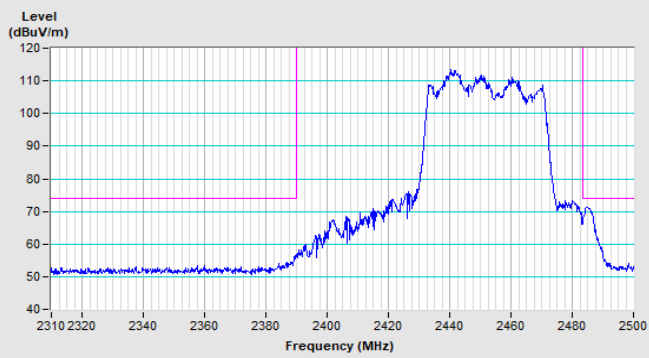


Vertical (Peak)

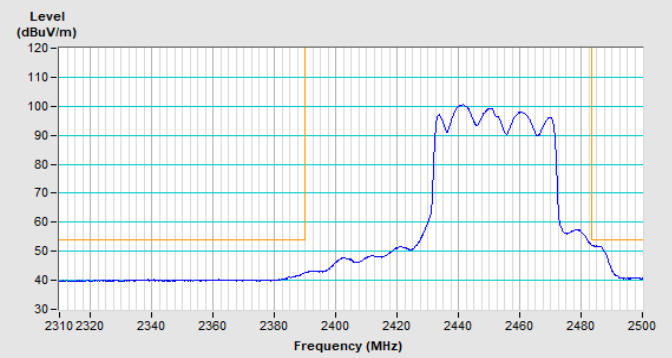


Vertical (Average)

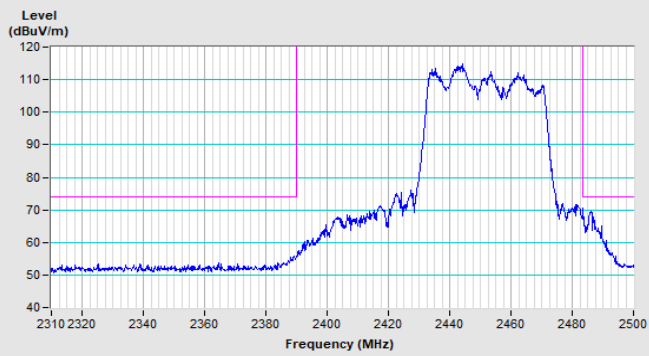
## 802.11ax (HE40) Channel 9



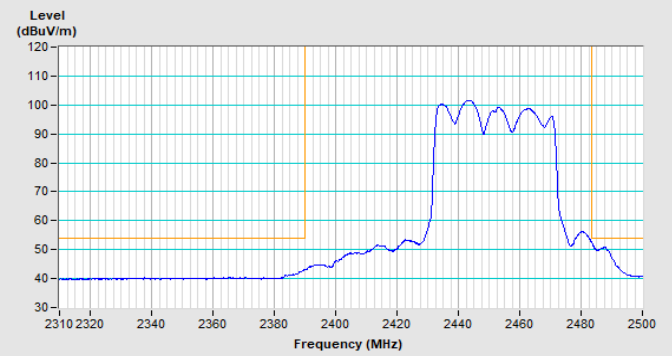
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)

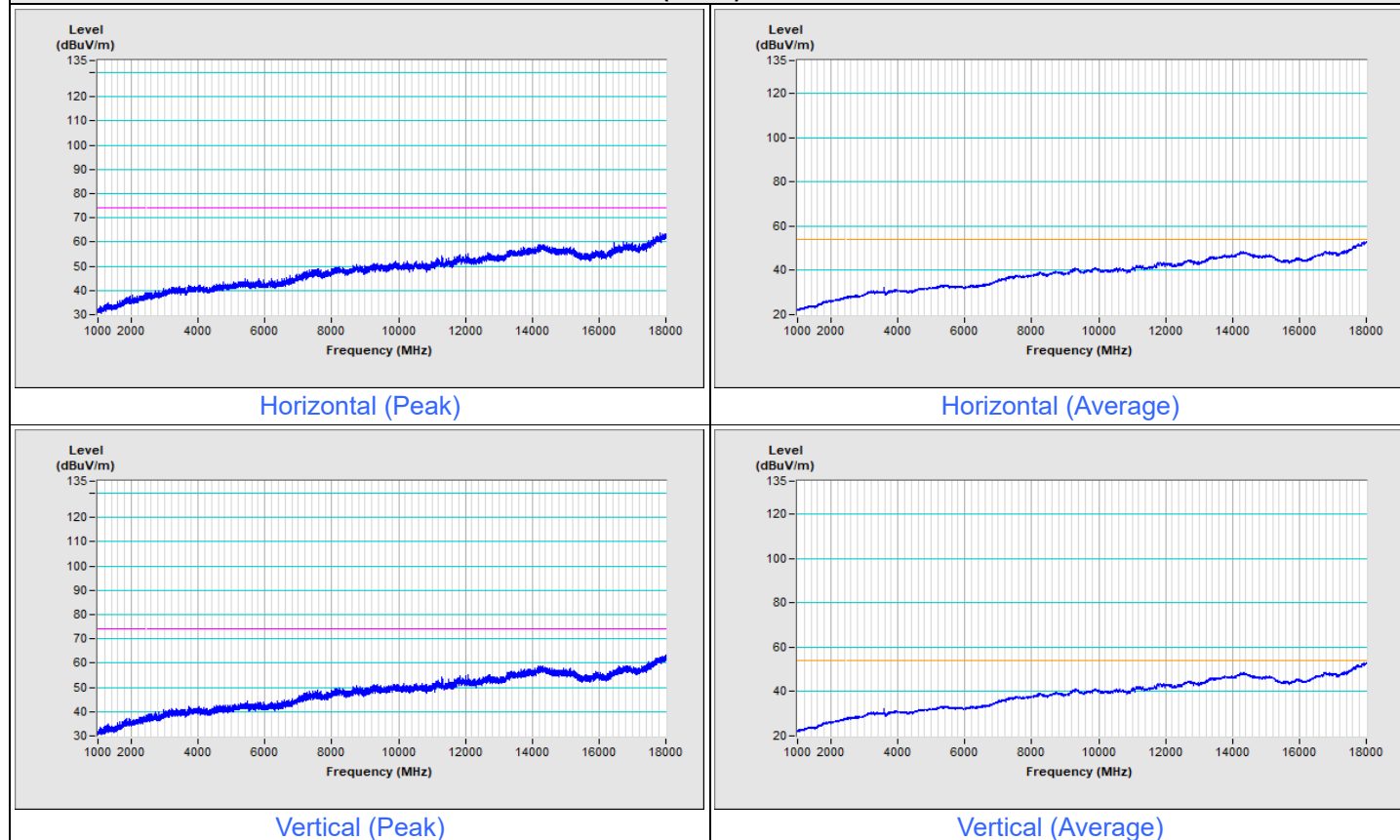


Vertical (Average)

## Plot of Other Emission

|                 |                |                               |                                                                      |
|-----------------|----------------|-------------------------------|----------------------------------------------------------------------|
| Frequency Range | 1 GHz ~ 18 GHz | Detector Function & Bandwidth | PK: RB=1 MHz, VB=3 MHz, DET=Peak<br>AV: RB=1 MHz, VB=10 Hz, DET=Peak |
|-----------------|----------------|-------------------------------|----------------------------------------------------------------------|

### 802.11ax (HE40) Channel 9



#### Notes:

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

## 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.

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

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