

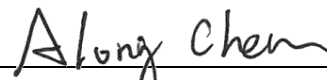
# FCC Test Report

**FCC ID** : P27CAP1800AX  
**Equipment** : CAP1800-AX  
**Model No.** : CAP1800-AX  
**Brand Name** : Centurylink  
**Applicant** : Sercomm Corporation  
**Address** : 8F, No. 3-1, YuanQu St., NanKang, Taipei 115,  
Taiwan, R.O.C.  
**Standard** : 47 CFR FCC Part 15.247  
**Received Date** : Apr. 15, 2020  
**Tested Date** : Apr. 24 ~ Jun. 04, 2020

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

Reviewed by:

  
Along Chen / Assistant Manager

Approved by:

  
Gary Chang / Manager



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## Release Record

| Report No. | Version | Description   | Issued Date   |
|------------|---------|---------------|---------------|
| FR041501AC | Rev. 01 | Initial issue | Jul. 02, 2020 |

## Summary of Test Results

| FCC Rules           | Test Items             | Measured                                                                                     | Result |
|---------------------|------------------------|----------------------------------------------------------------------------------------------|--------|
| 15.207              | Conducted Emissions    | [dBuV]: 13.479MHz<br>37.13 (Margin -12.87dB) - AV                                            | Pass   |
| 15.247(d)<br>15.209 | Radiated Emissions     | [dBuV/m at 3m]: 2483.50MHz<br>72.95 (Margin -1.05dB) - PK                                    | Pass   |
| 15.247(b)(3)        | Maximum Output Power   | Max Power [dBm]:<br><b>Non-beamforming mode</b><br>29.72<br><b>Beamforming mode</b><br>26.63 | Pass   |
| 15.247(a)(2)        | 6dB Bandwidth          | Meet the requirement of limit                                                                | Pass   |
| 15.247(e)           | Power Spectral Density | Meet the requirement of limit                                                                | Pass   |
| 15.203              | Antenna Requirement    | Meet the requirement of limit                                                                | Pass   |

### Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

### Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

# 1 General Description

## 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

| RF General Information |                  |                 |                |                                    |                 |
|------------------------|------------------|-----------------|----------------|------------------------------------|-----------------|
| Frequency Range (MHz)  | IEEE Std. 802.11 | Ch. Freq. (MHz) | Channel Number | Transmit Chains (N <sub>TX</sub> ) | Data Rate / MCS |
| 2400-2483.5            | b                | 2412-2462       | 1-11 [11]      | 2                                  | 1-11 Mbps       |
| 2400-2483.5            | g                | 2412-2462       | 1-11 [11]      | 2                                  | 6-54 Mbps       |
| 2400-2483.5            | n (HT20)         | 2412-2462       | 1-11 [11]      | 2                                  | MCS 0-15        |
| 2400-2483.5            | n (HT40)         | 2422-2452       | 3-9 [7]        | 2                                  | MCS 0-15        |
| 2400-2483.5            | ac (VHT20)       | 2412-2462       | 1-11 [11]      | 2                                  | MCS 0-9         |
| 2400-2483.5            | ac (VHT40)       | 2422-2452       | 3-9 [7]        | 2                                  | MCS 0-9         |
| 2400-2483.5            | ax (HE20)        | 2412-2462       | 1-11 [11]      | 2                                  | MCS 0-11        |
| 2400-2483.5            | ax (HE40)        | 2422-2452       | 3-9 [7]        | 2                                  | MCS 0-11        |

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.  
 Note 2: Modulation  
 DSSS-DBPSK, DQPSK, CCK  
 OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM  
 Note 3: 802.11ax supports beamforming function.  
 Note 4: 802.11ax supports full RU tones only.

### 1.1.2 Antenna Details

| Ant. No. | Model | Type   | Connector | Operating Frequencies (MHz) / Antenna Gain (dBi) |           |           |           |           |
|----------|-------|--------|-----------|--------------------------------------------------|-----------|-----------|-----------|-----------|
|          |       |        |           | 2400~2483.5                                      | 5150~5250 | 5250~5350 | 5470~5725 | 5725~5850 |
| 1        | ANT 1 | Dipole | I-PEX     | 3.1                                              | --        | --        | --        | --        |
| 2        | ANT 2 | Dipole | I-PEX     | 4                                                | --        | --        | --        | --        |
| 3        | ANT 3 | Dipole | I-PEX     | --                                               | 2.4       | 2.4       | 2.6       | 2.3       |
| 4        | ANT 4 | Dipole | I-PEX     | --                                               | 3.3       | 3.3       | 2.9       | 2.7       |

### 1.1.3 Power Supply Type of Equipment under Test (EUT)

|                   |                    |
|-------------------|--------------------|
| Power Supply Type | 12Vdc from adapter |
|-------------------|--------------------|

#### 1.1.4 Accessories

| Accessories |            |                                                                                                                                                 |
|-------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| No.         | Equipment  | Description                                                                                                                                     |
| 1           | AC adapter | Brand: LEI<br>Model: MU24B1120200-A1<br>I/P: 100-240Vac, 50/60Hz, 0.7A<br>O/P: 12Vdc, 2A<br>Power Line: 1.5m non-shielded without core          |
| 2           | AC adapter | Brand: Sercomm<br>Model: PU24W120ULB15-DFD-00<br>I/P: 100-240Vac, 50/60Hz, 0.8A<br>O/P: 12Vdc, 2A<br>Power Line: 1.5m non-shielded without core |
| 3           | AC adapter | Brand: Actiontec<br>Model: CDS024T-W120U<br>I/P: 120Vac, 50/60Hz, 0.58A<br>O/P: 12Vdc, 2A<br>Power Line: 1.8m non-shielded without core         |
| 4           | RJ45 cable | Brand: Ekson<br>Model: 4550159REK<br>1.83m non-shielded without core                                                                            |
| 5           | RJ45 cable | Brand: EJE<br>Model: ZY-875<br>1.75m non-shielded without core                                                                                  |

### 1.1.5 Channel List

| Frequency band (MHz)                   |                | 2400~2483.5                       |                |
|----------------------------------------|----------------|-----------------------------------|----------------|
| 802.11bg / n HT20 / ac VHT20 / ax HE20 |                | 802.11n HT40 / ac VHT40 / ax HE40 |                |
| Channel                                | Frequency(MHz) | Channel                           | Frequency(MHz) |
| 1                                      | 2412           | 3                                 | 2422           |
| 2                                      | 2417           | 4                                 | 2427           |
| 3                                      | 2422           | 5                                 | 2432           |
| 4                                      | 2427           | 6                                 | 2437           |
| 5                                      | 2432           | 7                                 | 2442           |
| 6                                      | 2437           | 8                                 | 2447           |
| 7                                      | 2442           | 9                                 | 2452           |
| 8                                      | 2447           | ---                               | ---            |
| 9                                      | 2452           | ---                               | ---            |
| 10                                     | 2457           | ---                               | ---            |
| 11                                     | 2462           | ---                               | ---            |

### 1.1.6 Test Tool and Duty Cycle

| Test Tool                  | QATool, V.0.0.2.15 |                |                  |
|----------------------------|--------------------|----------------|------------------|
| Duty Cycle and Duty Factor | Mode               | Duty Cycle (%) | Duty Factor (dB) |
|                            | 11b                | 99.71%         | 0.01             |
|                            | 11g                | 98.94%         | 0.05             |
|                            | ax (HE20)          | 98.31%         | 0.07             |
|                            | ax (HE40)          | 95.89%         | 0.18             |

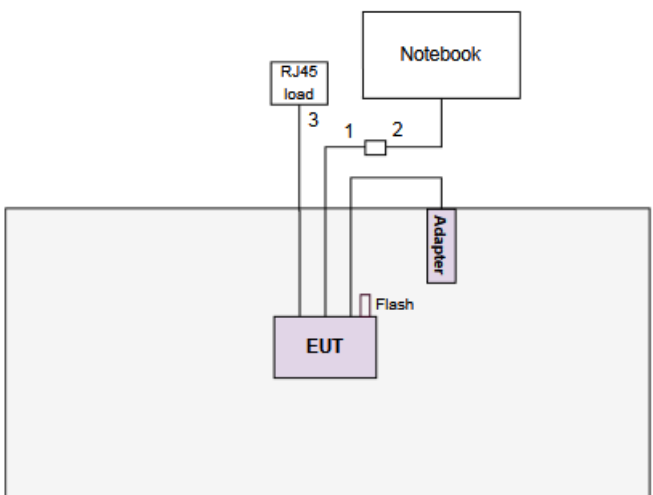
### 1.1.7 Power Index of Test Tool

| Modulation Mode | Test Frequency (MHz) | Power Index |
|-----------------|----------------------|-------------|
| 11b             | 2412                 | 18          |
| 11b             | 2437                 | 21          |
| 11b             | 2462                 | 17          |
| 11g             | 2412                 | 15          |
| 11g             | 2437                 | 19          |
| 11g             | 2462                 | 15          |
| 11ax HE20       | 2412                 | 16          |
| 11ax HE20       | 2437                 | 20          |
| 11ax HE20       | 2462                 | 16          |
| 11ax HE40       | 2422                 | 15          |
| 11ax HE40       | 2437                 | 16          |
| 11ax HE40       | 2452                 | 15          |

## 1.2 Local Support Equipment List

| Support Equipment List |               |           |                |        |         |
|------------------------|---------------|-----------|----------------|--------|---------|
| No.                    | Equipment     | Brand     | Model          | FCC ID | Remarks |
| 1                      | Notebook      | DELL      | Latitude E6430 | DoC    | ---     |
| 2                      | USB 3.0 Flash | Transcend | JetFlash 700   | ---    | ---     |
| 3                      | RJ45 load     | ICC       | ---            | ---    | ---     |

## 1.3 Test Setup Chart

| Test Setup Diagram                                                                                                                                 |                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <p style="text-align: center;"><b>Kept in control area</b></p>  |                                    |
| No.                                                                                                                                                | Signal cable / Length (m)          |
| 1                                                                                                                                                  | RJ45, 1.83m non-shielded.          |
| 2                                                                                                                                                  | RJ45, 10m non-shielded.            |
| 3                                                                                                                                                  | RJ45, 1.3m non-shielded with load. |

## 1.4 The Equipment List

|                                                                     |                               |                  |                   |                         |                          |
|---------------------------------------------------------------------|-------------------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | Conducted Emission            |                  |                   |                         |                          |
| <b>Test Site</b>                                                    | Conduction room 1 / (CO01-WS) |                  |                   |                         |                          |
| <b>Tested Date</b>                                                  | Jun. 04, 2020                 |                  |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Manufacturer</b>           | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Receiver                                                            | R&S                           | ESR3             | 101658            | Dec. 12, 2019           | Dec. 11, 2020            |
| LISN                                                                | R&S                           | ENV216           | 101579            | Mar. 12, 2020           | Mar. 11, 2021            |
| RF Cable-CON                                                        | Woken                         | CFD200-NL        | CFD200-NL-001     | Oct. 22, 2019           | Oct. 21, 2020            |
| Measurement Software                                                | AUDIX                         | e3               | 6.120210k         | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                               |                  |                   |                         |                          |

|                                                                     |                            |                      |                   |                         |                          |
|---------------------------------------------------------------------|----------------------------|----------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | Radiated Emission          |                      |                   |                         |                          |
| <b>Test Site</b>                                                    | 966 chamber1 / (03CH01-WS) |                      |                   |                         |                          |
| <b>Tested Date</b>                                                  | Apr. 24 ~ May 08, 2020     |                      |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Manufacturer</b>        | <b>Model No.</b>     | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Spectrum Analyzer                                                   | R&S                        | FSV40                | 101498            | Dec. 17, 2019           | Dec. 16, 2020            |
| Receiver                                                            | R&S                        | ESR3                 | 101657            | Feb. 14, 2020           | Feb. 13, 2021            |
| Bilog Antenna                                                       | SCHWARZBECK                | VULB9168             | VULB9168-522      | Jul. 12, 2019           | Jul. 11, 2020            |
| Horn Antenna 1G-18G                                                 | SCHWARZBECK                | BBHA 9120 D          | BBHA 9120 D 1096  | Dec. 12, 2019           | Dec. 11, 2020            |
| Horn Antenna 18G-40G                                                | SCHWARZBECK                | BBHA 9170            | BBHA 9170517      | Nov. 15, 2019           | Nov. 14, 2020            |
| Loop Antenna                                                        | R&S                        | HFH2-Z2              | 100330            | Nov. 13, 2019           | Nov. 12, 2020            |
| Loop Antenna Cable                                                  | KOAX KABEL                 | 101354-BW            | 101354-BW         | Oct. 07, 2019           | Oct. 06, 2020            |
| Preamplifier                                                        | EMC                        | EMC02325             | 980225            | Jul. 09, 2019           | Jul. 08, 2020            |
| Preamplifier                                                        | Agilent                    | 83017A               | MY39501308        | Oct. 08, 2019           | Oct. 07, 2020            |
| Preamplifier                                                        | EMC                        | EMC184045B           | 980192            | Aug. 01, 2019           | Jul. 31, 2020            |
| RF Cable                                                            | EMC                        | EMC104-SM-SM-8000    | 181106            | Oct. 07, 2019           | Oct. 06, 2020            |
| RF Cable                                                            | HUBER+SUHNER               | SUCOFLEX104          | MY16019/4         | Oct. 07, 2019           | Oct. 06, 2020            |
| RF Cable                                                            | HUBER+SUHNER               | SUCOFLEX104          | MY16014/4         | Oct. 07, 2019           | Oct. 06, 2020            |
| LF cable 1M                                                         | EMC                        | EMCCFD400-NM-NM-1000 | 160502            | Oct. 07, 2019           | Oct. 06, 2020            |
| LF cable 3M                                                         | Woken                      | CFD400NL-LW          | CFD400NL-001      | Oct. 07, 2019           | Oct. 06, 2020            |
| LF cable 10M                                                        | Woken                      | CFD400NL-LW          | CFD400NL-002      | Oct. 07, 2019           | Oct. 06, 2020            |
| Measurement Software                                                | AUDIX                      | e3                   | 6.120210g         | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                            |                      |                   |                         |                          |

|                                                                     |                     |                  |                   |                         |                          |
|---------------------------------------------------------------------|---------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | RF Conducted        |                  |                   |                         |                          |
| <b>Test Site</b>                                                    | (TH01-WS)           |                  |                   |                         |                          |
| <b>Tested Date</b>                                                  | Jun. 02, 2020       |                  |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Spectrum Analyzer                                                   | R&S                 | FSV40            | 101063            | Apr. 30, 2020           | Apr. 29, 2021            |
| Power Meter                                                         | Anritsu             | ML2495A          | 1241002           | Oct. 23, 2019           | Oct. 22, 2020            |
| Power Sensor                                                        | Anritsu             | MA2411B          | 1207366           | Oct. 23, 2019           | Oct. 22, 2020            |
| AC POWER SOURCE                                                     | APC                 | AFC-500W         | F312060012        | Dec. 02, 2019           | Dec. 01, 2020            |
| Measurement Software                                                | Sporton             | SENSE-15247_DTS  | V5.9              | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                     |                  |                   |                         |                          |

## 1.5 Test Standards

47 CFR FCC Part 15.247  
ANSI C63.10-2013

## 1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02  
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

## 1.7 Deviation from Test Standard and Measurement Procedure

None

## 1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ )).

| Measurement Uncertainty        |                 |
|--------------------------------|-----------------|
| Parameters                     | Uncertainty     |
| Bandwidth                      | $\pm 34.130$ Hz |
| Conducted power                | $\pm 0.808$ dB  |
| Power density                  | $\pm 0.583$ dB  |
| Conducted emission             | $\pm 2.715$ dB  |
| AC conducted emission          | $\pm 2.92$ dB   |
| Radiated emission $\leq 1$ GHz | $\pm 3.41$ dB   |
| Radiated emission $> 1$ GHz    | $\pm 4.59$ dB   |

## 2 Test Configuration

### 2.1 Testing Condition

| Test Item          | Test Site | Ambient Condition | Tested By              |
|--------------------|-----------|-------------------|------------------------|
| AC Conduction      | CO01-WS   | 24°C / 59%        | Alex Tsai              |
| Radiated Emissions | 03CH01-WS | 21-25°C / 66-67%  | Roger Lu<br>Akun Chung |
| RF Conducted       | TH01-WS   | 24°C / 67%        | Aska Huang             |

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

### 2.2 Testing Facility

|                      |                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------|
| Test Laboratory      | International Certification Corp.                                                       |
| Test Site            | CO01-WS, 03CH01-WS, TH01-WS                                                             |
| Address of Test Site | No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C. |

### 2.3 The Worst Test Modes and Channel Details

| Test item                                                           | Modulation Mode                      | Test Frequency (MHz)                                                                 | Data Rate (Mbps) / MCS             | Test Configuration |
|---------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|------------------------------------|--------------------|
| Conducted Emissions                                                 | 11g                                  | 2437                                                                                 | 6 Mbps                             | Non-beamforming    |
| Radiated Emissions ≤1GHz                                            | 11g                                  | 2437                                                                                 | 6 Mbps                             | Non-beamforming    |
| Maximum Output Power                                                | 11b<br>11g<br>11ax HE20<br>11ax HE40 | 2412 / 2437 / 2462<br>2412 / 2437 / 2462<br>2412 / 2437 / 2462<br>2422 / 2437 / 2452 | 1 Mbps<br>6 Mbps<br>MCS 0<br>MCS 0 | Non-beamforming    |
| Maximum Output Power                                                | 11ax HE20<br>11ax HE40               | 2412 / 2437 / 2462<br>2422 / 2437 / 2452                                             | MCS 0<br>MCS 0                     | Beamforming        |
| Radiated Emissions >1GHz<br>6dB bandwidth<br>Power spectral density | 11b<br>11g<br>11ax HE20<br>11ax HE40 | 2412 / 2437 / 2462<br>2412 / 2437 / 2462<br>2412 / 2437 / 2462<br>2422 / 2437 / 2452 | 1 Mbps<br>6 Mbps<br>MCS 0<br>MCS 0 | Non-beamforming    |

**NOTE:**

- Two RJ45 cables (Ekson & EJE) had been covered during the pretest and found that **Ekson** RJ45 cable was the worst case and was selected for final testing.
- Three adapters (LEI, Sercomm & Actiontec) had been covered during the pretest and found that **LEI** adapter was the worst case for radiated emission test and **Actiontec** adapter was the worst case for conducted emission test

### 3 Transmitter Test Results

#### 3.1 Conducted Emissions

##### 3.1.1 Limit of Conducted Emissions

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

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

##### 3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

##### 3.1.3 Test Setup

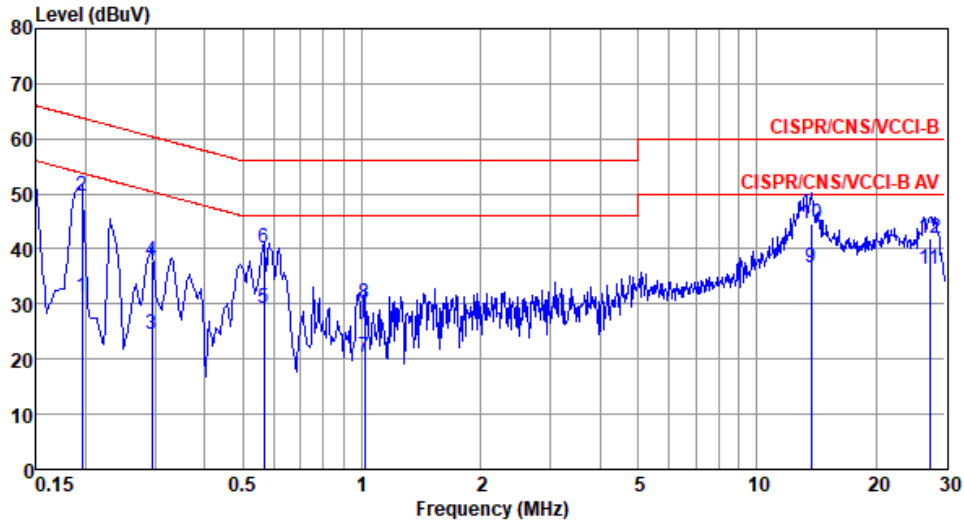


- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

### 3.1.4 Test Result of Conducted Emissions

|             |      |                  |      |
|-------------|------|------------------|------|
| Modulation  | 11g  | Test Freq. (MHz) | 2437 |
| Power Phase | Line |                  |      |

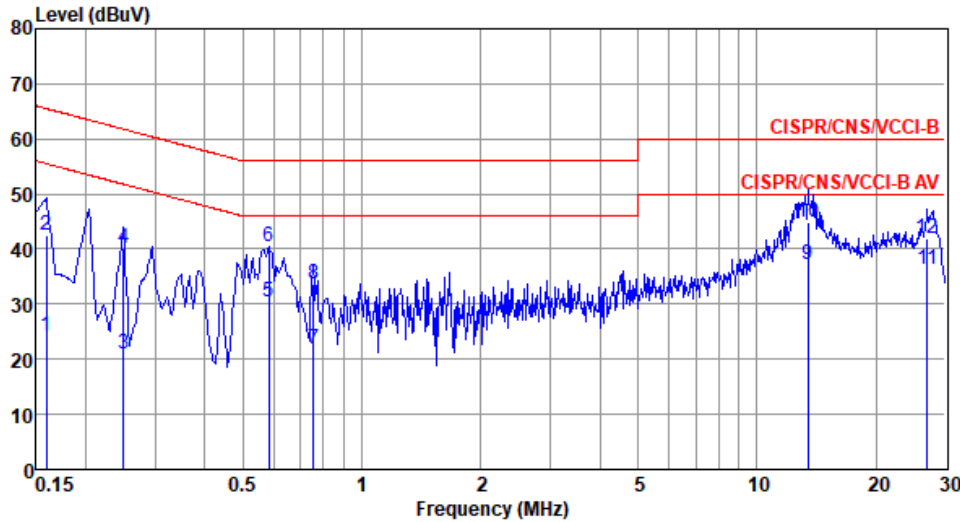


|    | Freq<br>MHz | Level<br>dBuV | Limit<br>Line<br>dBuV | Over<br>Limit<br>dB | Read<br>Level<br>dBuV | LISN<br>factor<br>dB | cable<br>loss<br>dB | Remark  |
|----|-------------|---------------|-----------------------|---------------------|-----------------------|----------------------|---------------------|---------|
| 1  | 0.195       | 31.16         | 53.80                 | -22.64              | 21.28                 | 9.63                 | 0.06                | Average |
| 2  | 0.195       | 49.68         | 63.80                 | -14.12              | 39.80                 | 9.63                 | 0.06                | QP      |
| 3  | 0.294       | 24.48         | 50.41                 | -25.93              | 14.56                 | 9.63                 | 0.07                | Average |
| 4  | 0.294       | 37.72         | 60.41                 | -22.69              | 27.80                 | 9.63                 | 0.07                | QP      |
| 5  | 0.564       | 29.20         | 46.00                 | -16.80              | 19.20                 | 9.63                 | 0.09                | Average |
| 6  | 0.564       | 40.26         | 56.00                 | -15.74              | 30.26                 | 9.63                 | 0.09                | QP      |
| 7  | 1.016       | 20.45         | 46.00                 | -25.55              | 10.38                 | 9.63                 | 0.12                | Average |
| 8  | 1.016       | 30.21         | 56.00                 | -25.79              | 20.14                 | 9.63                 | 0.12                | QP      |
| 9* | 13.695      | 36.52         | 50.00                 | -13.48              | 25.81                 | 9.70                 | 0.55                | Average |
| 10 | 13.695      | 44.49         | 60.00                 | -15.51              | 33.78                 | 9.70                 | 0.55                | QP      |
| 11 | 27.416      | 36.38         | 50.00                 | -13.62              | 25.20                 | 9.64                 | 0.75                | Average |
| 12 | 27.416      | 41.96         | 60.00                 | -18.04              | 30.78                 | 9.64                 | 0.75                | QP      |

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).  
 Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

|             |         |                  |      |
|-------------|---------|------------------|------|
| Modulation  | 11g     | Test Freq. (MHz) | 2437 |
| Power Phase | Neutral |                  |      |



|    | Freq<br>MHz | Level<br>dBUV | Limit<br>Line<br>dBUV | Over<br>Limit<br>dB | Read<br>Level<br>dBUV | LISN<br>factor<br>dB | cable<br>loss<br>dB | Remark  |
|----|-------------|---------------|-----------------------|---------------------|-----------------------|----------------------|---------------------|---------|
| 1  | 0.159       | 24.28         | 55.52                 | -31.24              | 14.44                 | 9.66                 | 0.05                | Average |
| 2  | 0.159       | 42.42         | 65.52                 | -23.10              | 32.58                 | 9.66                 | 0.05                | QP      |
| 3  | 0.249       | 20.95         | 51.78                 | -30.83              | 11.07                 | 9.65                 | 0.07                | Average |
| 4  | 0.249       | 40.17         | 61.78                 | -21.61              | 30.29                 | 9.65                 | 0.07                | QP      |
| 5  | 0.582       | 30.44         | 46.00                 | -15.56              | 20.51                 | 9.65                 | 0.10                | Average |
| 6  | 0.582       | 40.30         | 56.00                 | -15.70              | 30.37                 | 9.65                 | 0.10                | QP      |
| 7  | 0.755       | 21.74         | 46.00                 | -24.26              | 11.79                 | 9.65                 | 0.11                | Average |
| 8  | 0.755       | 33.67         | 56.00                 | -22.33              | 23.72                 | 9.65                 | 0.11                | QP      |
| 9* | 13.479      | 37.13         | 50.00                 | -12.87              | 26.45                 | 9.78                 | 0.54                | Average |
| 10 | 13.479      | 44.88         | 60.00                 | -15.12              | 34.20                 | 9.78                 | 0.54                | QP      |
| 11 | 26.984      | 36.22         | 50.00                 | -13.78              | 24.98                 | 9.79                 | 0.74                | Average |
| 12 | 26.984      | 42.03         | 60.00                 | -17.97              | 30.79                 | 9.79                 | 0.74                | QP      |

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB).  
 Note 2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).

## 3.2 6dB and Occupied Bandwidth

### 3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

### 3.2.2 Test Procedures

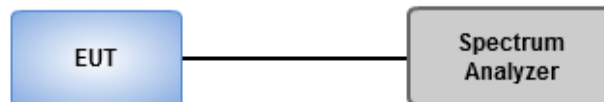
#### 6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

#### Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

### 3.2.3 Test Setup



### 3.2.4 Test Result of 6dB and Occupied Bandwidth

#### Summary

| Mode                           | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|--------------------------------|------------------|-----------------|----------|------------------|-----------------|
| 2.4-2.4835GHz                  | -                | -               | -        | -                | -               |
| 802.11b_Nss1,(1Mbps)_2TX       | 9.565M           | 14.182M         | 14M2G1D  | 7.029M           | 12.663M         |
| 802.11g_Nss1,(6Mbps)_2TX       | 16.377M          | 17.294M         | 17M3D1D  | 14.493M          | 16.353M         |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 18.696M          | 19.32M          | 19M3D1D  | 17.681M          | 18.886M         |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 36.957M          | 37.627M         | 37M6D1D  | 34.928M          | 37.482M         |

**Max-N dB** = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

**Min-N dB** = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

#### Result

| Mode                           | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) | Port 2-N dB<br>(Hz) | Port 2-OBW<br>(Hz) |
|--------------------------------|--------|---------------|---------------------|--------------------|---------------------|--------------------|
| 802.11b_Nss1,(1Mbps)_2TX       | -      | -             | -                   | -                  | -                   | -                  |
| 2412MHz                        | Pass   | 500k          | 7.536M              | 12.735M            | 7.029M              | 12.808M            |
| 2437MHz                        | Pass   | 500k          | 9.565M              | 14.182M            | 7.609M              | 13.097M            |
| 2462MHz                        | Pass   | 500k          | 8.043M              | 12.663M            | 7.609M              | 12.808M            |
| 802.11g_Nss1,(6Mbps)_2TX       | -      | -             | -                   | -                  | -                   | -                  |
| 2412MHz                        | Pass   | 500k          | 15.87M              | 16.425M            | 15.652M             | 16.353M            |
| 2437MHz                        | Pass   | 500k          | 16.377M             | 17.294M            | 16.014M             | 16.643M            |
| 2462MHz                        | Pass   | 500k          | 14.493M             | 16.425M            | 15.072M             | 16.425M            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | -      | -             | -                   | -                  | -                   | -                  |
| 2412MHz                        | Pass   | 500k          | 18.696M             | 18.958M            | 18.551M             | 19.03M             |
| 2437MHz                        | Pass   | 500k          | 18.551M             | 19.32M             | 17.681M             | 19.03M             |
| 2462MHz                        | Pass   | 500k          | 18.623M             | 18.958M            | 18.623M             | 18.886M            |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | -      | -             | -                   | -                  | -                   | -                  |
| 2422MHz                        | Pass   | 500k          | 36.522M             | 37.627M            | 35.797M             | 37.627M            |
| 2437MHz                        | Pass   | 500k          | 34.928M             | 37.627M            | 35.217M             | 37.627M            |
| 2452MHz                        | Pass   | 500k          | 35.942M             | 37.627M            | 36.957M             | 37.482M            |

**Port X-N dB** = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

### 3.3 RF Output Power

#### 3.3.1 Limit of RF Output Power

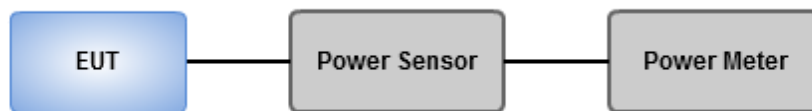
Conducted power shall not exceed 1Watt.

Antenna gain  $\leq 6\text{dBi}$ , no any corresponding reduction is in output power limit.

#### 3.3.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

#### 3.3.3 Test Setup



### 3.3.4 Test Result of Maximum Output Power

#### Non-beamforming mode

##### Summary of Conducted (Peak) Output Power

| Mode                           | Total Power<br>(dBm) | Total Power<br>(W) |
|--------------------------------|----------------------|--------------------|
| 2.4-2.4835GHz                  | -                    | -                  |
| 802.11b_Nss1,(1Mbps)_2TX       | 28.31                | 0.67764            |
| 802.11g_Nss1,(6Mbps)_2TX       | 29.72                | 0.93756            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 29.64                | 0.92045            |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 28.32                | 0.67920            |

##### Result

| Mode                              | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Total<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) |
|-----------------------------------|--------|-------------|-----------------|-----------------|-------------------------|-------------------------|---------------|---------------------|
| 802.11b_Nss1,(1Mbps)_2TX          | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 22.68           | 22.30           | 25.50                   | 30.00                   | 29.50         | 36.00               |
| 2437MHz                           | Pass   | 4.00        | 25.56           | 25.02           | 28.31                   | 30.00                   | 32.31         | 36.00               |
| 2462MHz                           | Pass   | 4.00        | 21.79           | 21.27           | 24.55                   | 30.00                   | 28.55         | 36.00               |
| 802.11g_Nss1,(6Mbps)_2TX          | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 25.34           | 25.01           | 28.19                   | 30.00                   | 32.19         | 36.00               |
| 2437MHz                           | Pass   | 4.00        | 26.68           | 26.74           | 29.72                   | 30.00                   | 33.72         | 36.00               |
| 2462MHz                           | Pass   | 4.00        | 25.66           | 25.11           | 28.40                   | 30.00                   | 32.40         | 36.00               |
| 802.11ax<br>HEW20_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 25.22           | 25.01           | 28.13                   | 30.00                   | 32.13         | 36.00               |
| 2437MHz                           | Pass   | 4.00        | 26.63           | 26.63           | 29.64                   | 30.00                   | 33.64         | 36.00               |
| 2462MHz                           | Pass   | 4.00        | 25.56           | 25.12           | 28.36                   | 30.00                   | 32.36         | 36.00               |
| 802.11ax<br>HEW40_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2422MHz                           | Pass   | 4.00        | 24.19           | 24.01           | 27.11                   | 30.00                   | 31.11         | 36.00               |
| 2437MHz                           | Pass   | 4.00        | 25.66           | 24.93           | 28.32                   | 30.00                   | 32.32         | 36.00               |
| 2452MHz                           | Pass   | 4.00        | 24.56           | 24.02           | 27.31                   | 30.00                   | 31.31         | 36.00               |

DG = Directional Gain; Port X = Port X output power

### Summary of Conducted (Average) Output Power

| Mode                           | Total Power<br>(dBm) | Total Power<br>(W) |
|--------------------------------|----------------------|--------------------|
| 2.4-2.4835GHz                  | -                    | -                  |
| 802.11b_Nss1,(1Mbps)_2TX       | 26.29                | 0.42560            |
| 802.11g_Nss1,(6Mbps)_2TX       | 24.37                | 0.27353            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 24.29                | 0.26853            |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 20.29                | 0.10691            |

### Result

| Mode                              | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Total<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) |
|-----------------------------------|--------|-------------|-----------------|-----------------|-------------------------|-------------------------|---------------|---------------------|
| 802.11b_Nss1,(1Mbps)_2TX          | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 20.21           | 19.86           | 23.05                   | -                       | 27.05         | -                   |
| 2437MHz                           | Pass   | 4.00        | 23.69           | 22.82           | 26.29                   | -                       | 30.29         | -                   |
| 2462MHz                           | Pass   | 4.00        | 19.28           | 18.81           | 22.06                   | -                       | 26.06         | -                   |
| 802.11g_Nss1,(6Mbps)_2TX          | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 17.48           | 17.19           | 20.35                   | -                       | 24.35         | -                   |
| 2437MHz                           | Pass   | 4.00        | 21.76           | 20.92           | 24.37                   | -                       | 28.37         | -                   |
| 2462MHz                           | Pass   | 4.00        | 17.72           | 17.28           | 20.52                   | -                       | 24.52         | -                   |
| 802.11ax<br>HEW20_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                           | Pass   | 4.00        | 17.38           | 17.05           | 20.23                   | -                       | 24.23         | -                   |
| 2437MHz                           | Pass   | 4.00        | 21.67           | 20.84           | 24.29                   | -                       | 28.29         | -                   |
| 2462MHz                           | Pass   | 4.00        | 17.62           | 17.17           | 20.41                   | -                       | 24.41         | -                   |
| 802.11ax<br>HEW40_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2422MHz                           | Pass   | 4.00        | 16.22           | 15.93           | 19.09                   | -                       | 23.09         | -                   |
| 2437MHz                           | Pass   | 4.00        | 17.73           | 16.78           | 20.29                   | -                       | 24.29         | -                   |
| 2452MHz                           | Pass   | 4.00        | 16.53           | 16.64           | 19.60                   | -                       | 23.60         | -                   |

DG = Directional Gain; Port X = Port X output power

Note : Conducted average output power is for reference only

### Beamforming mode

#### Summary of Conducted (Peak) Output Power

| Mode                              | Total Power<br>(dBm) | Total Power<br>(W) |
|-----------------------------------|----------------------|--------------------|
| 2.4-2.4835GHz                     | -                    | -                  |
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | 26.63                | 0.46026            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | 25.31                | 0.33963            |

#### Result

| Mode                                 | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Total<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) |
|--------------------------------------|--------|-------------|-----------------|-----------------|-------------------------|-------------------------|---------------|---------------------|
| 802.11ax<br>HEW20-BF_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                              | Pass   | 6.57        | 22.21           | 22              | 25.12                   | 29.43                   | 31.69         | 36.00               |
| 2437MHz                              | Pass   | 6.57        | 23.62           | 23.62           | 26.63                   | 29.43                   | 33.20         | 36.00               |
| 2462MHz                              | Pass   | 6.57        | 22.55           | 22.11           | 25.35                   | 29.43                   | 31.92         | 36.00               |
| 802.11ax<br>HEW40-BF_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2422MHz                              | Pass   | 6.57        | 21.18           | 21              | 24.10                   | 29.43                   | 30.67         | 36.00               |
| 2437MHz                              | Pass   | 6.57        | 22.65           | 21.92           | 25.31                   | 29.43                   | 31.88         | 36.00               |
| 2452MHz                              | Pass   | 6.57        | 21.55           | 21.01           | 24.30                   | 29.43                   | 30.87         | 36.00               |

**DG** = Directional Gain =  $10 * \log((10^{3.1/20} + 10^{4/20})/2) = 6.57 \text{ dBi} > 6 \text{ dBi}$ , limit shall be reduced to  $30 \text{ dBm} - (6.57 \text{ dBi} - 6 \text{ dBi}) = 29.43 \text{ dBm}$

**Port X** = Port X output power

### Summary of Conducted (Average) Output Power

| Mode                              | Total Power<br>(dBm) | Total Power<br>(W) |
|-----------------------------------|----------------------|--------------------|
| 2.4-2.4835GHz                     | -                    | -                  |
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | 21.28                | 0.13428            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | 17.28                | 0.05346            |

### Result

| Mode                                 | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Total<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) |
|--------------------------------------|--------|-------------|-----------------|-----------------|-------------------------|-------------------------|---------------|---------------------|
| 802.11ax<br>HEW20-BF_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2412MHz                              | Pass   | 6.57        | 14.37           | 14.04           | 17.22                   | -                       | 23.79         | -                   |
| 2437MHz                              | Pass   | 6.57        | 18.66           | 17.83           | 21.28                   | -                       | 27.85         | -                   |
| 2462MHz                              | Pass   | 6.57        | 14.61           | 14.16           | 17.40                   | -                       | 23.97         | -                   |
| 802.11ax<br>HEW40-BF_Nss1,(MCS0)_2TX | -      | -           | -               | -               | -                       | -                       | -             | -                   |
| 2422MHz                              | Pass   | 6.57        | 13.21           | 12.92           | 16.08                   | -                       | 22.65         | -                   |
| 2437MHz                              | Pass   | 6.57        | 14.72           | 13.77           | 17.28                   | -                       | 23.85         | -                   |
| 2452MHz                              | Pass   | 6.57        | 13.52           | 13.63           | 16.59                   | -                       | 23.16         | -                   |

**DG** = Directional Gain;  $10 * \log((10^{3.1/20} + 10^{4/20})^2 / 2) = 6.57$  dBi

**Port X** = Port X output power

**Note** : Conducted average output power is for reference only

### 3.4 Power Spectral Density

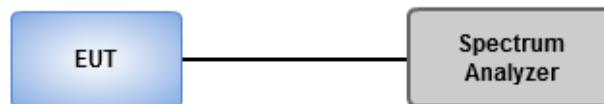
#### 3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

#### 3.4.2 Test Procedures

- 1 Set the RBW = 3 kHz, VBW = 10 kHz. Detector = RMS.
- 2 Set the sweep time to:  $\geq 10$  (number of measurement points in sweep)  $\times$  (total on/off period of the transmitted signal).
- 3 Perform the measurement over a single sweep.
- 4 Use the peak marker function to determine the maximum amplitude level.
- 5 Add  $10 \log(1/x)$ , where  $x$  is the duty cycle.

#### 3.4.3 Test Setup



### 3.4.4 Test Result of Power Spectral Density

#### Summary

| Mode                           | PD<br>(dBm/RBW) |
|--------------------------------|-----------------|
| 2.4-2.4835GHz                  | -               |
| 802.11b_Nss1,(1Mbps)_2TX       | 1.86            |
| 802.11g_Nss1,(6Mbps)_2TX       | -1.18           |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | -2.94           |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | -8.85           |

#### Result

| Mode                           | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | Port 2<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|--------------------------------|--------|-------------|---------------------|---------------------|-----------------|-----------------------|
| 802.11b_Nss1,(1Mbps)_2TX       | -      | -           | -                   | -                   | -               | -                     |
| 2412MHz                        | Pass   | 6.57        | -2.57               | -2.26               | -0.28           | 7.43                  |
| 2437MHz                        | Pass   | 6.57        | 0.12                | 0.12                | 1.86            | 7.43                  |
| 2462MHz                        | Pass   | 6.57        | -2.95               | -5.33               | -1.26           | 7.43                  |
| 802.11g_Nss1,(6Mbps)_2TX       | -      | -           | -                   | -                   | -               | -                     |
| 2412MHz                        | Pass   | 6.57        | -6.76               | -6.50               | -4.52           | 7.43                  |
| 2437MHz                        | Pass   | 6.57        | -3.13               | -3.84               | -1.18           | 7.43                  |
| 2462MHz                        | Pass   | 6.57        | -6.40               | -8.16               | -5.10           | 7.43                  |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | -      | -           | -                   | -                   | -               | -                     |
| 2412MHz                        | Pass   | 6.57        | -8.38               | -7.72               | -6.33           | 7.43                  |
| 2437MHz                        | Pass   | 6.57        | -4.82               | -5.68               | -2.94           | 7.43                  |
| 2462MHz                        | Pass   | 6.57        | -6.84               | -8.88               | -5.48           | 7.43                  |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | -      | -           | -                   | -                   | -               | -                     |
| 2422MHz                        | Pass   | 6.57        | -11.79              | -12.34              | -10.05          | 7.43                  |
| 2437MHz                        | Pass   | 6.57        | -11.06              | -11.80              | -8.85           | 7.43                  |
| 2452MHz                        | Pass   | 6.57        | -10.53              | -12.75              | -9.28           | 7.43                  |

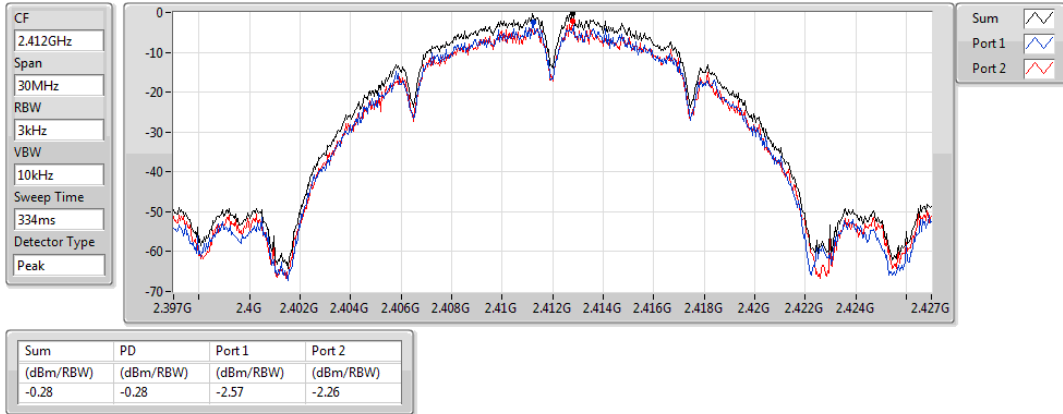
**DG** = Directional Gain =  $10 \cdot \log((10^{3.1/20} + 10^{4/20})/2) = 6.57 \text{ dBi} > 6 \text{ dBi}$ , limit shall be reduced to 8 dBm – ( 6.57 dBi – 6 dBi ) = 7.43 dBm

**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

### 802.11b\_Nss1,(1Mbps)\_2TX

PSD

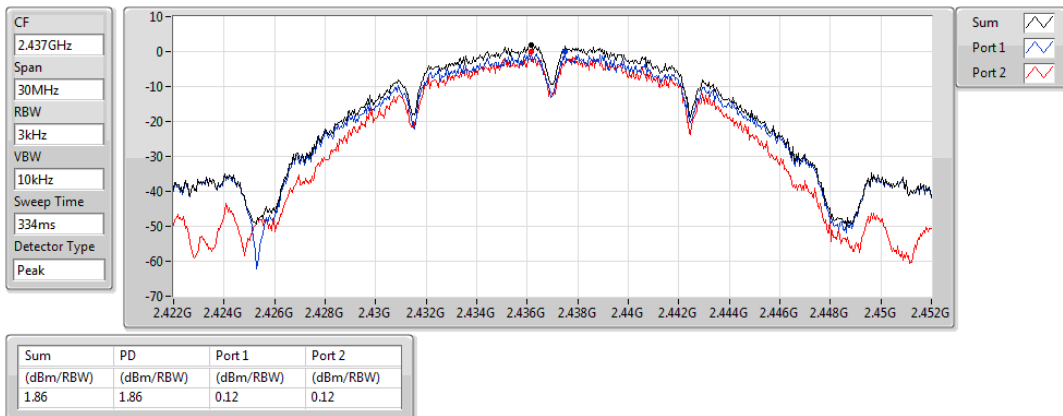
2412MHz



### 802.11b\_Nss1,(1Mbps)\_2TX

PSD

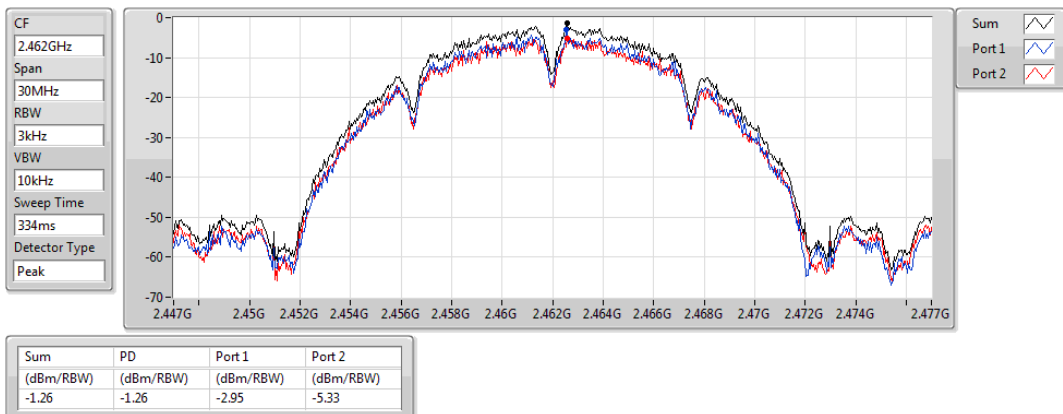
2437MHz



### 802.11b\_Nss1,(1Mbps)\_2TX

PSD

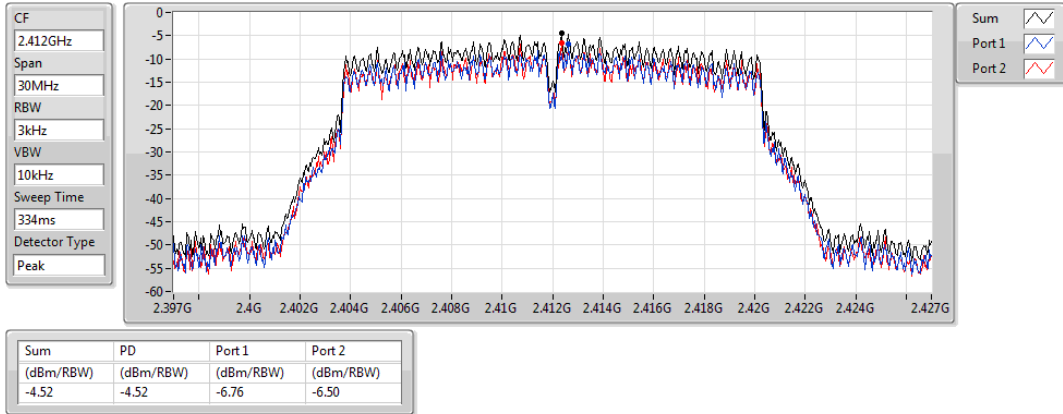
2462MHz



### 802.11g\_Nss1,(6Mbps)\_2TX

PSD

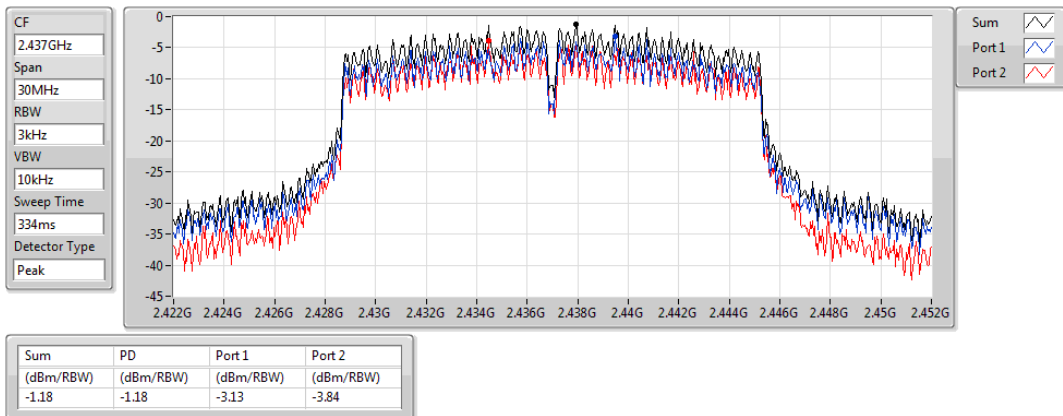
2412MHz



### 802.11g\_Nss1,(6Mbps)\_2TX

PSD

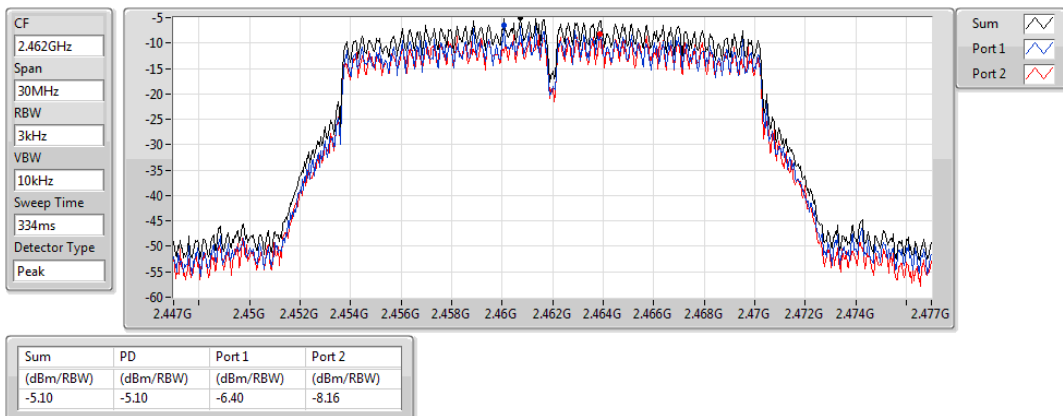
2437MHz



### 802.11g\_Nss1,(6Mbps)\_2TX

PSD

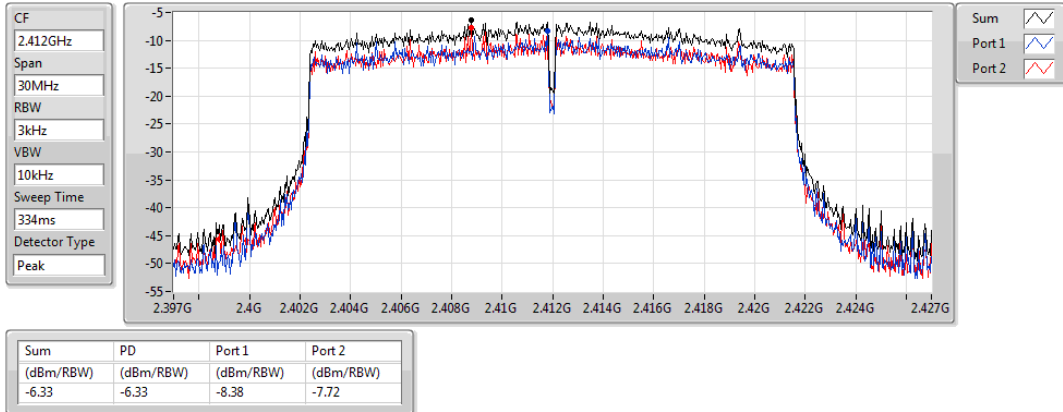
2462MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

PSD

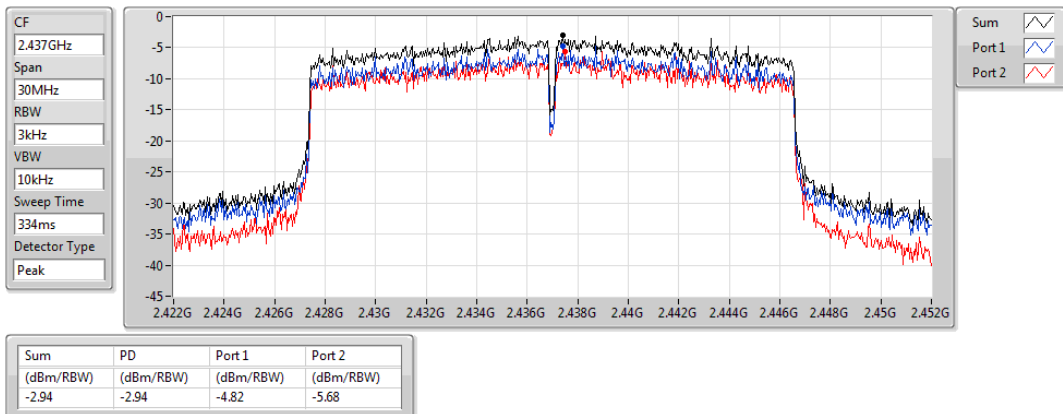
2412MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

PSD

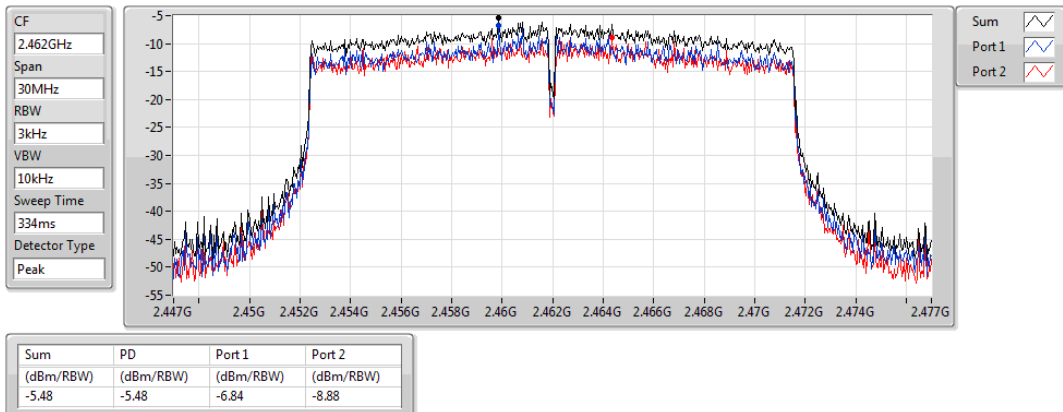
2437MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

PSD

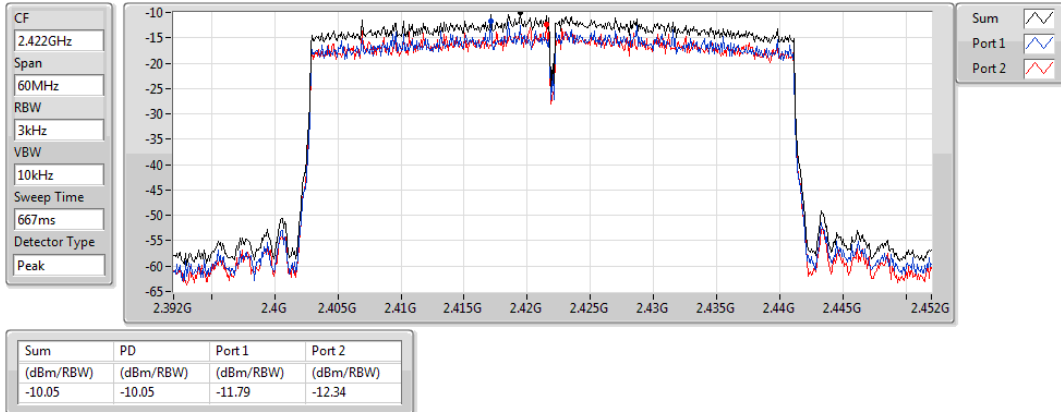
2462MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

PSD

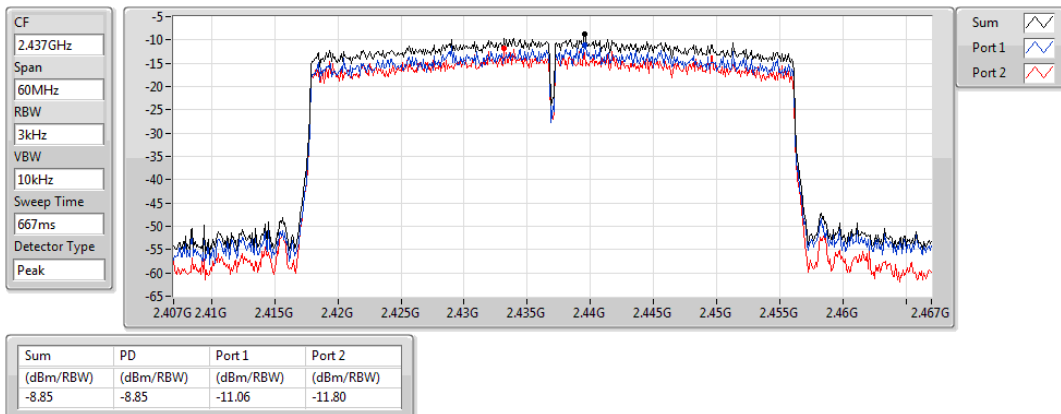
2422MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

PSD

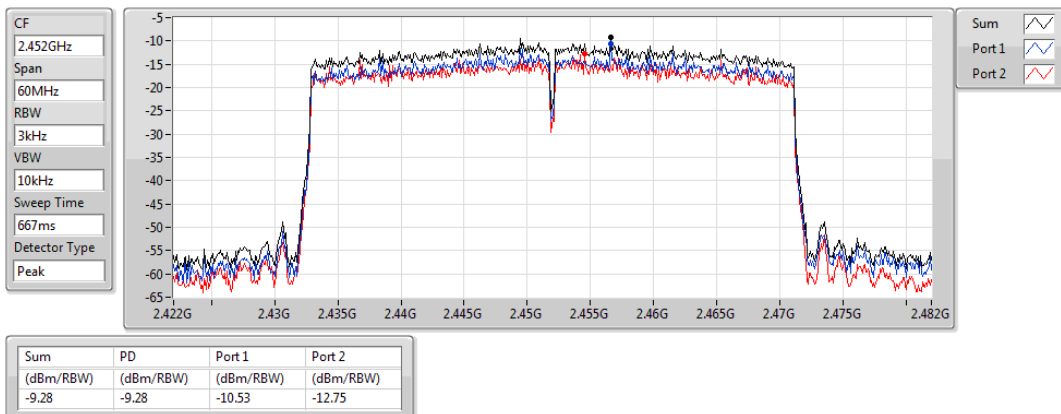
2437MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

PSD

2452MHz



### 3.5 Unwanted Emissions into Restricted Frequency Bands

#### 3.5.1 Limit of Unwanted Emissions into Restricted Frequency Bands

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

**Note 1:**  
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

#### 3.5.2 Test Procedures

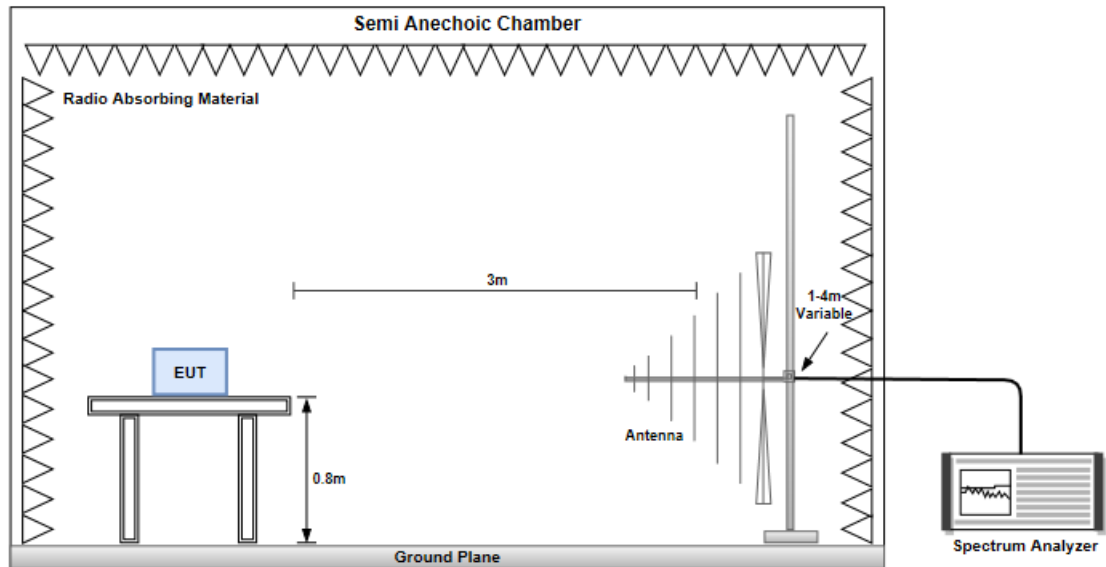
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

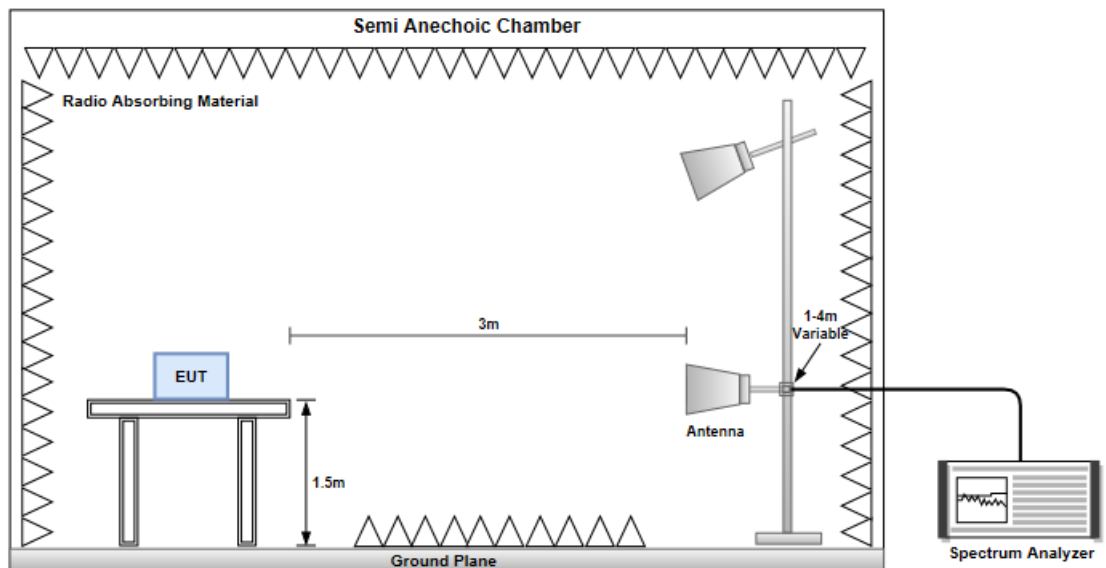
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

### 3.5.3 Test Setup

#### Radiated Emissions below 1 GHz

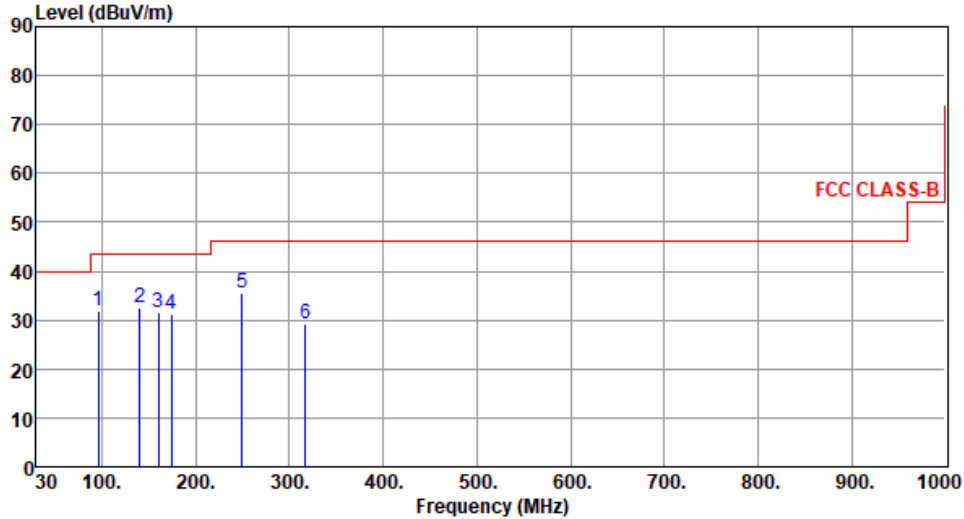


#### Radiated Emissions above 1 GHz



### 3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11g        | Test Freq. (MHz) | 2437 |
| Polarization | Horizontal |                  |      |

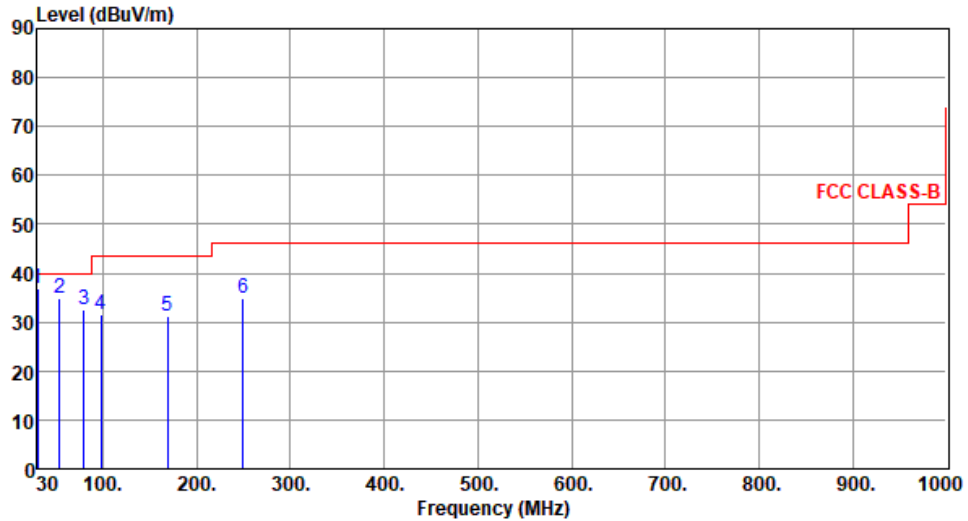
  


The graph displays the radiated unwanted emissions for a transmitter operating at 2437 MHz. The y-axis represents the emission level in dBuV/m, ranging from 0 to 90. The x-axis represents the frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBuV/m from 30 MHz to 100 MHz, 45 dBuV/m from 100 MHz to 1000 MHz, and 55 dBuV/m above 1000 MHz. Six measured emissions are shown as blue vertical lines, labeled 1 through 6. The emission levels are approximately 31.88, 32.39, 31.63, 31.32, 35.52, and 29.07 dBuV/m at frequencies of 96.55, 140.60, 160.25, 173.88, 249.39, and 317.05 MHz, respectively. The margins are -11.62, -11.11, -11.87, -12.18, -10.48, and -16.93 dB.

|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|--------|-------------------|----------------------|
| 1 | 96.55        | 31.88                       | 43.50           | -11.62       | 45.35                 | -13.47       | Peak   | ---               | ---                  |
| 2 | 140.60       | 32.39                       | 43.50           | -11.11       | 41.25                 | -8.86        | Peak   | ---               | ---                  |
| 3 | 160.25       | 31.63                       | 43.50           | -11.87       | 40.05                 | -8.42        | Peak   | ---               | ---                  |
| 4 | 173.88       | 31.32                       | 43.50           | -12.18       | 40.58                 | -9.26        | Peak   | ---               | ---                  |
| 5 | 249.39       | 35.52                       | 46.00           | -10.48       | 45.48                 | -9.96        | Peak   | ---               | ---                  |
| 6 | 317.05       | 29.07                       | 46.00           | -16.93       | 36.54                 | -7.47        | Peak   | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11g      | Test Freq. (MHz) | 2437 |
| Polarization | Vertical |                  |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|--------|-------------------|----------------------|
| 1 | 30.02        | 36.89                       | 40.00           | -3.11        | 46.60                 | -9.71        | QP     | 100               | 183                  |
| 2 | 54.15        | 35.02                       | 40.00           | -4.98        | 43.54                 | -8.52        | QP     | 117               | 177                  |
| 3 | 79.66        | 32.66                       | 40.00           | -7.34        | 45.65                 | -12.99       | Peak   | ---               | ---                  |
| 4 | 97.84        | 31.71                       | 43.50           | -11.79       | 45.02                 | -13.31       | Peak   | ---               | ---                  |
| 5 | 168.54       | 31.12                       | 43.50           | -12.38       | 39.88                 | -8.76        | Peak   | ---               | ---                  |
| 6 | 249.85       | 35.02                       | 46.00           | -10.98       | 44.98                 | -9.96        | Peak   | ---               | ---                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)

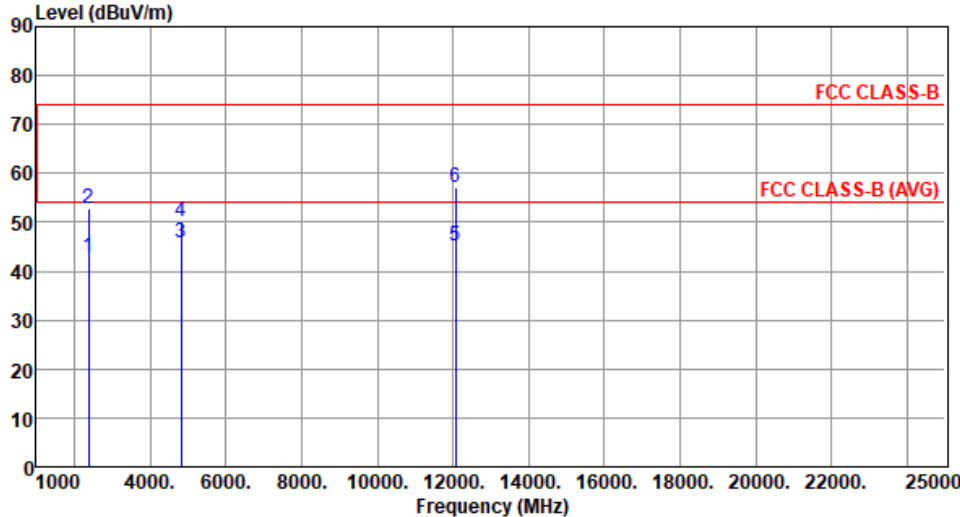
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

### 3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

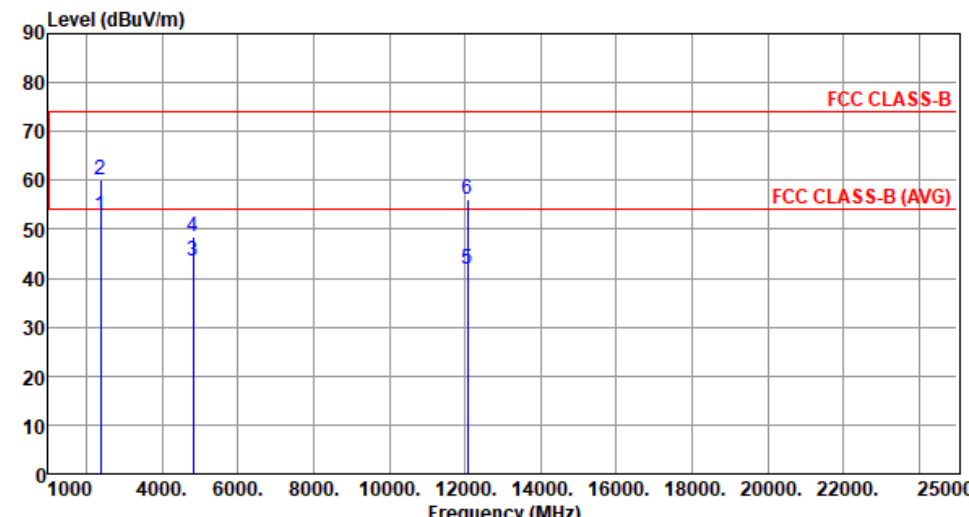
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11b        | Test Freq. (MHz) | 2412 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 42.78                       | 54.00           | -11.22       | 45.58                 | -2.80        | Average | 225               | 59                   |
| 2 | 2390.00      | 52.70                       | 74.00           | -21.30       | 55.50                 | -2.80        | Peak    | 225               | 59                   |
| 3 | 4824.00      | 45.77                       | 54.00           | -8.23        | 42.17                 | 3.60         | Average | 358               | 78                   |
| 4 | 4824.00      | 50.24                       | 74.00           | -23.76       | 46.64                 | 3.60         | Peak    | 358               | 78                   |
| 5 | 12060.00     | 45.10                       | 54.00           | -8.90        | 31.25                 | 13.85        | Average | 100               | 50                   |
| 6 | 12060.00     | 57.01                       | 74.00           | -16.99       | 43.16                 | 13.85        | Peak    | 100               | 50                   |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

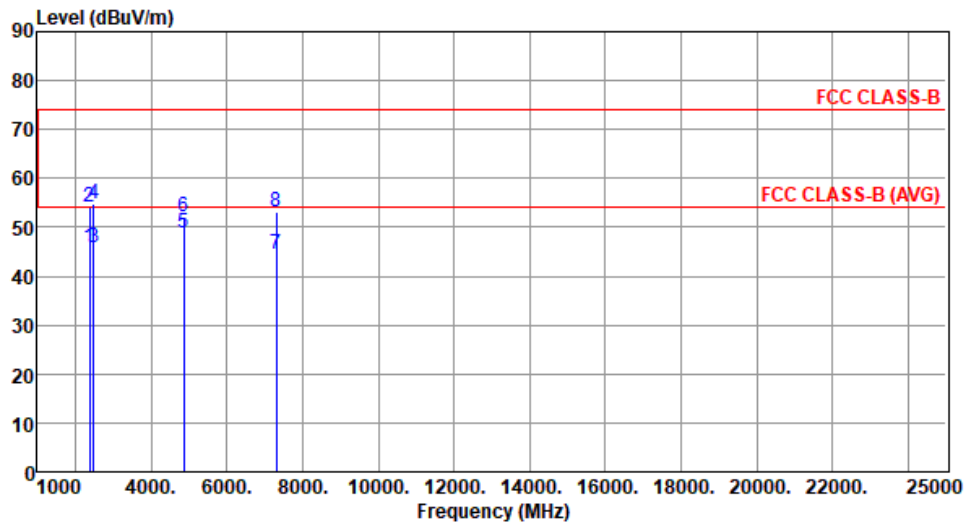
|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11b      | Test Freq. (MHz) | 2412 |
| Polarization | Vertical |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 52.88                       | 54.00           | -1.12        | 55.68                 | -2.80        | Average | 254               | 140                  |
| 2 | 2390.00      | 60.04                       | 74.00           | -13.96       | 62.84                 | -2.80        | Peak    | 254               | 140                  |
| 3 | 4824.00      | 43.59                       | 54.00           | -10.41       | 39.99                 | 3.60         | Average | 122               | 308                  |
| 4 | 4824.00      | 48.44                       | 74.00           | -25.56       | 44.84                 | 3.60         | Peak    | 122               | 308                  |
| 5 | 12060.00     | 41.99                       | 54.00           | -12.01       | 28.14                 | 13.85        | Average | 100               | 300                  |
| 6 | 12060.00     | 56.10                       | 74.00           | -17.90       | 42.25                 | 13.85        | Peak    | 100               | 300                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11b        | Test Freq. (MHz) | 2437 |
| Polarization | Horizontal |                  |      |



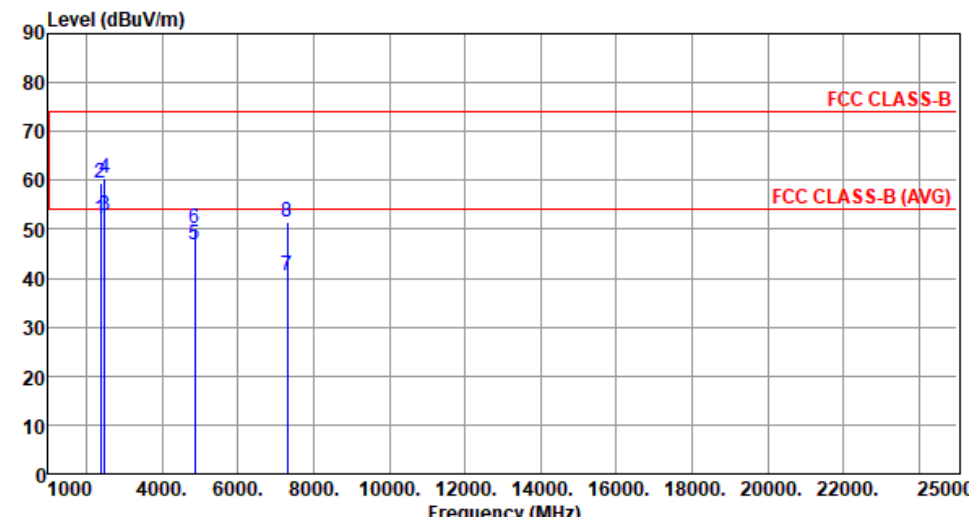
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 45.84                       | 54.00           | -8.16        | 48.64                 | -2.80        | Average | 237               | 55                   |
| 2 | 2390.00      | 54.12                       | 74.00           | -19.88       | 56.92                 | -2.80        | Peak    | 237               | 55                   |
| 3 | 2483.50      | 45.90                       | 54.00           | -8.10        | 48.93                 | -3.03        | Average | 237               | 55                   |
| 4 | 2483.50      | 54.82                       | 74.00           | -19.18       | 57.85                 | -3.03        | Peak    | 237               | 55                   |
| 5 | 4874.00      | 48.97                       | 54.00           | -5.03        | 45.33                 | 3.64         | Average | 377               | 83                   |
| 6 | 4874.00      | 51.99                       | 74.00           | -22.01       | 48.35                 | 3.64         | Peak    | 377               | 83                   |
| 7 | 7311.00      | 44.42                       | 54.00           | -9.58        | 35.15                 | 9.27         | Average | 146               | 257                  |
| 8 | 7311.00      | 53.30                       | 74.00           | -20.70       | 44.03                 | 9.27         | Peak    | 146               | 257                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11b      | Test Freq. (MHz) | 2437 |
| Polarization | Vertical |                  |      |

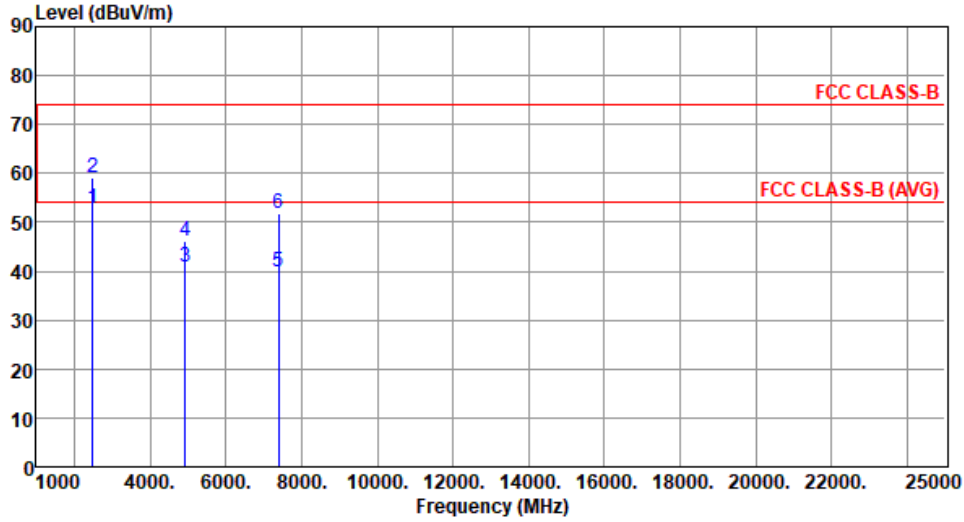
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 52.06                       | 54.00           | -1.94        | 54.86                 | -2.80        | Average | 277               | 143                  |
| 2 | 2390.00      | 59.53                       | 74.00           | -14.47       | 62.33                 | -2.80        | Peak    | 277               | 143                  |
| 3 | 2483.50      | 52.78                       | 54.00           | -1.22        | 55.81                 | -3.03        | Average | 277               | 143                  |
| 4 | 2483.50      | 60.44                       | 74.00           | -13.56       | 63.47                 | -3.03        | Peak    | 277               | 143                  |
| 5 | 4874.00      | 46.90                       | 54.00           | -7.10        | 43.26                 | 3.64         | Average | 121               | 313                  |
| 6 | 4874.00      | 50.24                       | 74.00           | -23.76       | 46.60                 | 3.64         | Peak    | 121               | 313                  |
| 7 | 7311.00      | 40.50                       | 54.00           | -13.50       | 31.23                 | 9.27         | Average | 100               | 261                  |
| 8 | 7311.00      | 51.43                       | 74.00           | -22.57       | 42.16                 | 9.27         | Peak    | 100               | 261                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
 \*Factor includes antenna factor , cable loss and amplifier gain  
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11b        | Test Freq. (MHz) | 2462 |
| Polarization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Horizontal |                  |      |
| <div><div><div>Level (dBUV/m)</div><div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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|            |                  |      |

|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11b      | Test Freq. (MHz) | 2462 |
| Polarization | Vertical |                  |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 52.83                       | 54.00           | -1.17        | 55.86                 | -3.03        | Average | 222               | 104                  |
| 2 | 2483.50      | 59.26                       | 74.00           | -14.74       | 62.29                 | -3.03        | Peak    | 222               | 104                  |
| 3 | 4924.00      | 40.79                       | 54.00           | -13.21       | 37.10                 | 3.69         | Average | 128               | 309                  |
| 4 | 4924.00      | 46.21                       | 74.00           | -27.79       | 42.52                 | 3.69         | Peak    | 128               | 309                  |
| 5 | 7386.00      | 39.70                       | 54.00           | -14.30       | 30.63                 | 9.07         | Average | 100               | 301                  |
| 6 | 7386.00      | 51.91                       | 74.00           | -22.09       | 42.84                 | 9.07         | Peak    | 100               | 301                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
 \*Factor includes antenna factor , cable loss and amplifier gain  
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

### 3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

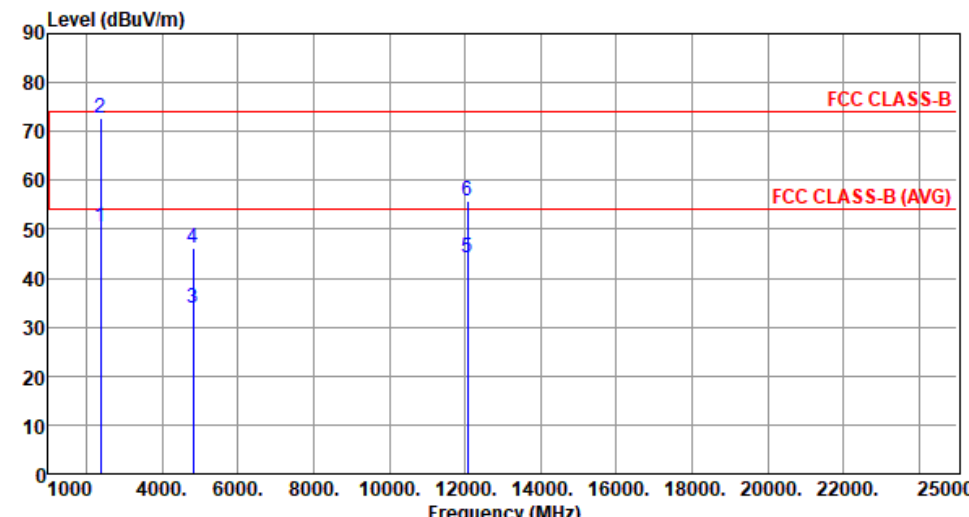
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11g        | Test Freq. (MHz) | 2412 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 42.45                       | 54.00           | -11.55       | 45.25                 | -2.80        | Average | 225               | 57                   |
| 2 | 2390.00      | 62.45                       | 74.00           | -11.55       | 65.25                 | -2.80        | Peak    | 225               | 57                   |
| 3 | 4824.00      | 35.17                       | 54.00           | -18.83       | 31.57                 | 3.60         | Average | 100               | 109                  |
| 4 | 4824.00      | 46.57                       | 74.00           | -27.43       | 42.97                 | 3.60         | Peak    | 100               | 109                  |
| 5 | 12060.00     | 45.51                       | 54.00           | -8.49        | 31.66                 | 13.85        | Average | 100               | 102                  |
| 6 | 12060.00     | 56.51                       | 74.00           | -17.49       | 42.66                 | 13.85        | Peak    | 100               | 102                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

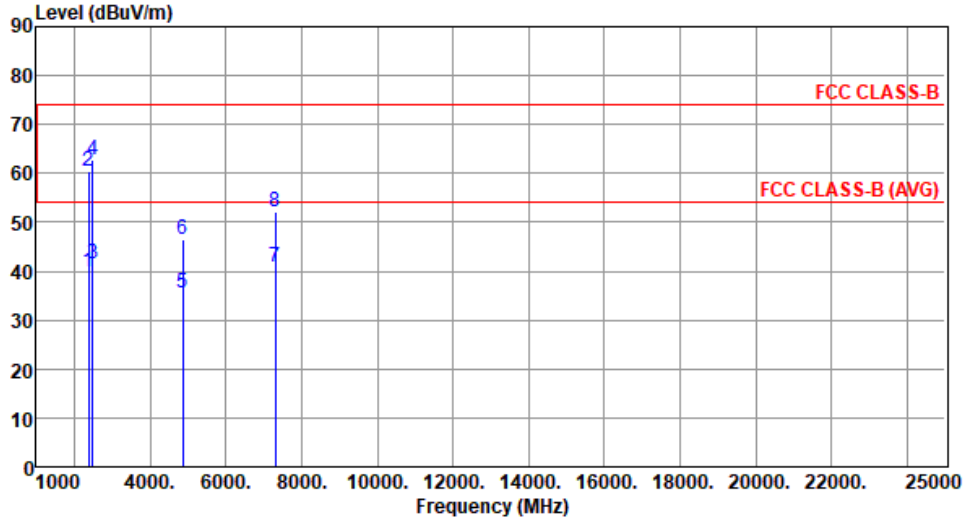
|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11g      | Test Freq. (MHz) | 2412 |
| Polarization | Vertical |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 50.36                       | 54.00           | -3.64        | 53.16                 | -2.80        | Average | 237               | 98                   |
| 2 | 2390.00      | 72.58                       | 74.00           | -1.42        | 75.38                 | -2.80        | Peak    | 237               | 98                   |
| 3 | 4824.00      | 33.72                       | 54.00           | -20.28       | 30.12                 | 3.60         | Average | 100               | 309                  |
| 4 | 4824.00      | 46.01                       | 74.00           | -27.99       | 42.41                 | 3.60         | Peak    | 100               | 309                  |
| 5 | 12060.00     | 44.29                       | 54.00           | -9.71        | 30.44                 | 13.85        | Average | 100               | 302                  |
| 6 | 12060.00     | 55.95                       | 74.00           | -18.05       | 42.10                 | 13.85        | Peak    | 100               | 302                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

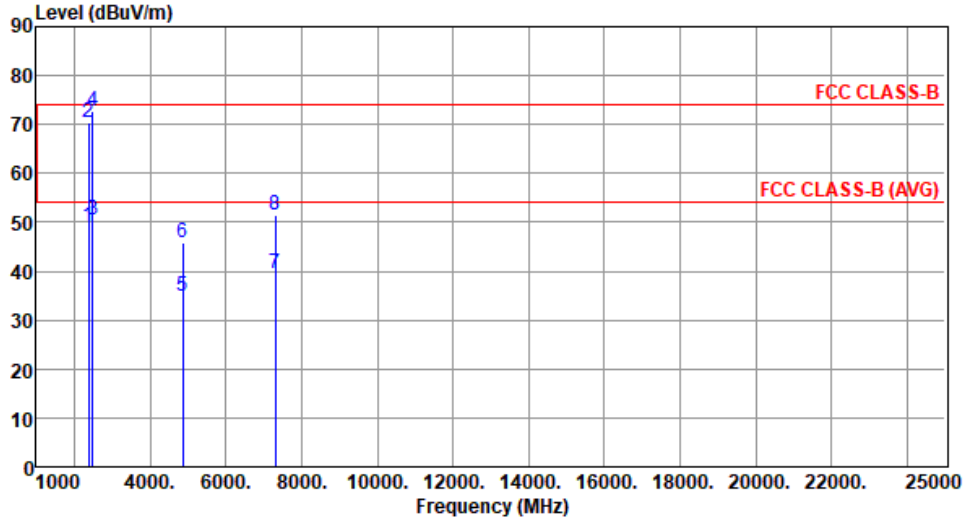
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11g        | Test Freq. (MHz) | 2437 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 39.86                       | 54.00           | -14.14       | 42.66                 | -2.80        | Average | 252               | 53                   |
| 2 | 2390.00      | 60.45                       | 74.00           | -13.55       | 63.25                 | -2.80        | Peak    | 252               | 53                   |
| 3 | 2483.50      | 41.55                       | 54.00           | -12.45       | 44.58                 | -3.03        | Average | 252               | 53                   |
| 4 | 2483.50      | 62.90                       | 74.00           | -11.10       | 65.93                 | -3.03        | Peak    | 252               | 53                   |
| 5 | 4874.00      | 35.51                       | 54.00           | -18.49       | 31.87                 | 3.64         | Average | 100               | 105                  |
| 6 | 4874.00      | 46.58                       | 74.00           | -27.42       | 42.94                 | 3.64         | Peak    | 100               | 105                  |
| 7 | 7311.00      | 40.95                       | 54.00           | -13.05       | 31.68                 | 9.27         | Average | 100               | 101                  |
| 8 | 7311.00      | 52.04                       | 74.00           | -21.96       | 42.77                 | 9.27         | Peak    | 100               | 101                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

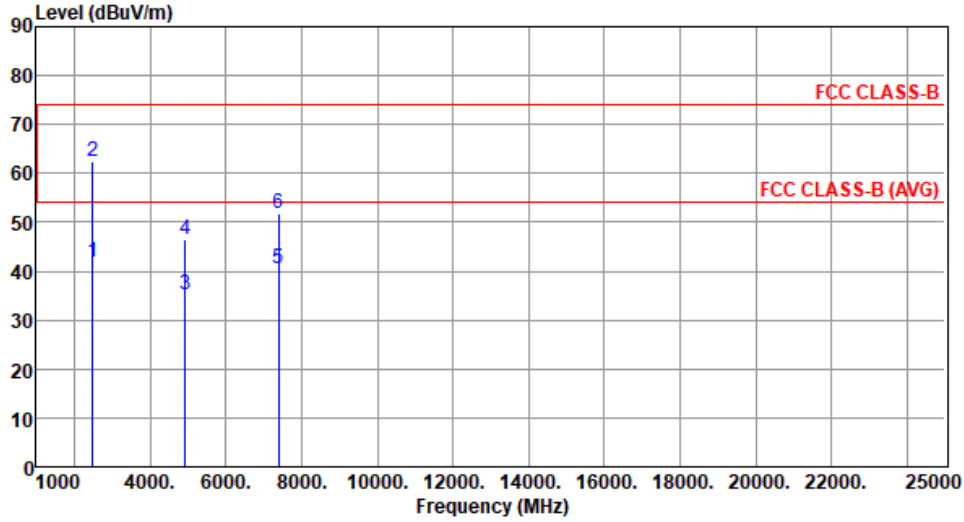
|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11g      | Test Freq. (MHz) | 2437 |
| Polarization | Vertical |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 49.21                       | 54.00           | -4.79        | 52.01                 | -2.80        | Average | 218               | 96                   |
| 2 | 2390.00      | 70.39                       | 74.00           | -3.61        | 73.19                 | -2.80        | Peak    | 218               | 96                   |
| 3 | 2483.50      | 50.57                       | 54.00           | -3.43        | 53.60                 | -3.03        | Average | 218               | 96                   |
| 4 | 2483.50      | 72.76                       | 74.00           | -1.24        | 75.79                 | -3.03        | Peak    | 218               | 96                   |
| 5 | 4874.00      | 34.89                       | 54.00           | -19.11       | 31.25                 | 3.64         | Average | 100               | 309                  |
| 6 | 4874.00      | 45.78                       | 74.00           | -28.22       | 42.14                 | 3.64         | Peak    | 100               | 309                  |
| 7 | 7311.00      | 39.51                       | 54.00           | -14.49       | 30.24                 | 9.27         | Average | 100               | 305                  |
| 8 | 7311.00      | 51.51                       | 74.00           | -22.49       | 42.24                 | 9.27         | Peak    | 100               | 305                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

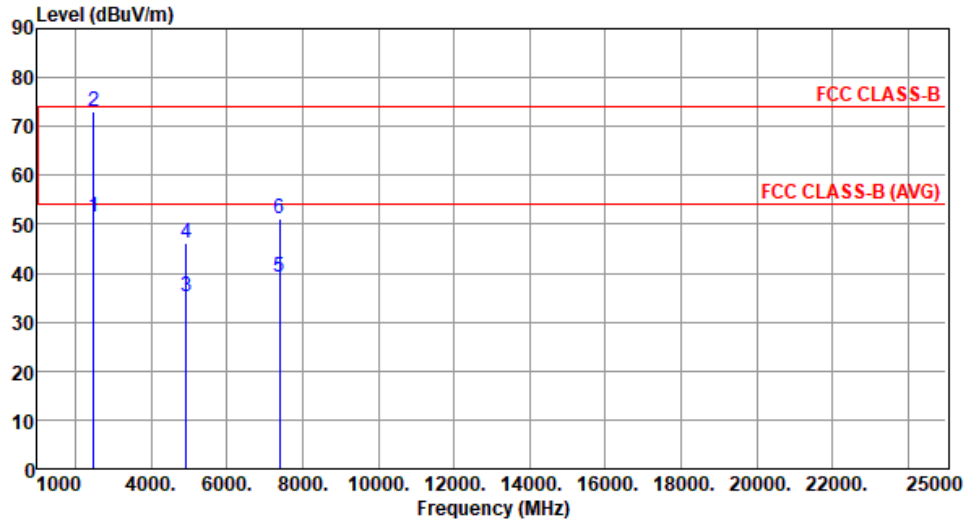
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11g        | Test Freq. (MHz) | 2462 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 41.86                       | 54.00           | -12.14       | 44.89                 | -3.03        | Average | 221               | 57                   |
| 2 | 2483.50      | 62.33                       | 74.00           | -11.67       | 65.36                 | -3.03        | Peak    | 221               | 57                   |
| 3 | 4924.00      | 35.32                       | 54.00           | -18.68       | 31.63                 | 3.69         | Average | 100               | 107                  |
| 4 | 4924.00      | 46.55                       | 74.00           | -27.45       | 42.86                 | 3.69         | Peak    | 100               | 107                  |
| 5 | 7386.00      | 40.67                       | 54.00           | -13.33       | 31.60                 | 9.07         | Average | 100               | 108                  |
| 6 | 7386.00      | 51.87                       | 74.00           | -22.13       | 42.80                 | 9.07         | Peak    | 100               | 108                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |          |                  |      |
|--------------|----------|------------------|------|
| Modulation   | 11g      | Test Freq. (MHz) | 2462 |
| Polarization | Vertical |                  |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 51.35                       | 54.00           | -2.65        | 54.38                 | -3.03        | Average | 223               | 93                   |
| 2 | 2483.50      | 72.92                       | 74.00           | -1.08        | 75.95                 | -3.03        | Peak    | 223               | 93                   |
| 3 | 4924.00      | 35.16                       | 54.00           | -18.84       | 31.47                 | 3.69         | Average | 100               | 305                  |
| 4 | 4924.00      | 46.13                       | 74.00           | -27.87       | 42.44                 | 3.69         | Peak    | 100               | 305                  |
| 5 | 7386.00      | 39.32                       | 54.00           | -14.68       | 30.25                 | 9.07         | Average | 100               | 302                  |
| 6 | 7386.00      | 51.27                       | 74.00           | -22.73       | 42.20                 | 9.07         | Peak    | 100               | 302                  |

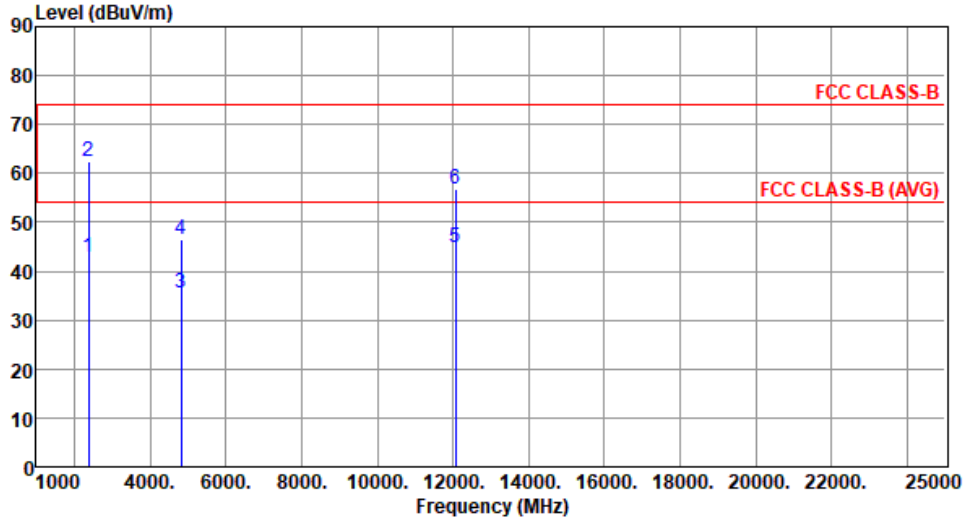
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

### 3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11ax HE20

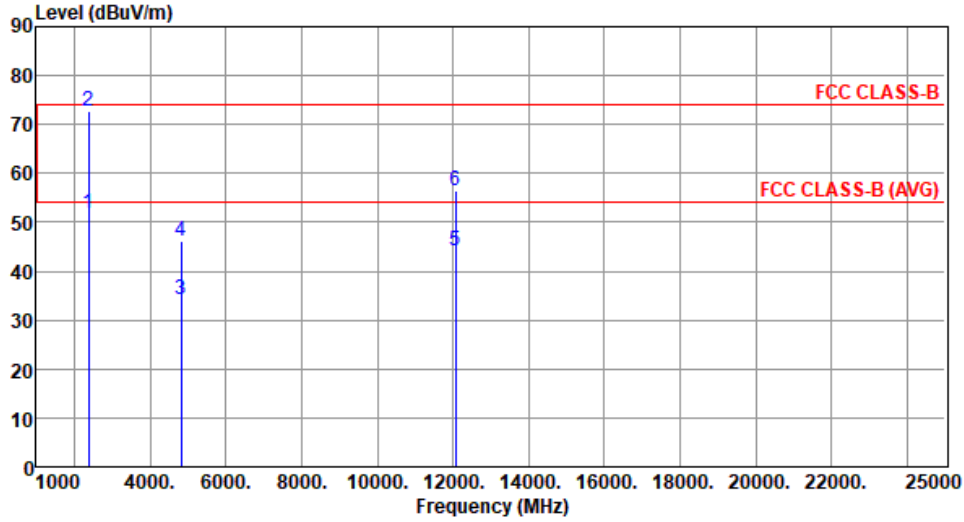
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE20  | Test Freq. (MHz) | 2412 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 42.83                       | 54.00           | -11.17       | 45.63                 | -2.80        | Average | 229               | 108                  |
| 2 | 2390.00      | 62.43                       | 74.00           | -11.57       | 65.23                 | -2.80        | Peak    | 229               | 108                  |
| 3 | 4824.00      | 35.43                       | 54.00           | -18.57       | 31.83                 | 3.60         | Average | 100               | 110                  |
| 4 | 4824.00      | 46.49                       | 74.00           | -27.51       | 42.89                 | 3.60         | Peak    | 100               | 110                  |
| 5 | 12060.00     | 44.81                       | 54.00           | -9.19        | 30.96                 | 13.85        | Average | 100               | 98                   |
| 6 | 12060.00     | 56.73                       | 74.00           | -17.27       | 42.88                 | 13.85        | Peak    | 100               | 98                   |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
 \*Factor includes antenna factor , cable loss and amplifier gain  
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

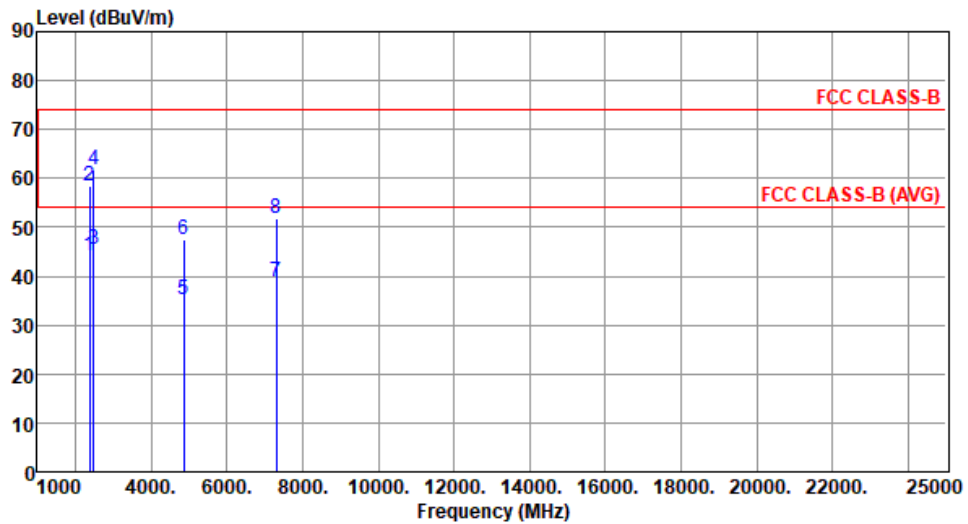
|              |           |                  |      |
|--------------|-----------|------------------|------|
| Modulation   | 11ax HE20 | Test Freq. (MHz) | 2412 |
| Polarization | Vertical  |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 51.90                       | 54.00           | -2.10        | 54.70                 | -2.80        | Average | 205               | 90                   |
| 2 | 2390.00      | 72.62                       | 74.00           | -1.38        | 75.42                 | -2.80        | Peak    | 205               | 90                   |
| 3 | 4824.00      | 34.22                       | 54.00           | -19.78       | 30.62                 | 3.60         | Average | 100               | 305                  |
| 4 | 4824.00      | 46.00                       | 74.00           | -28.00       | 42.40                 | 3.60         | Peak    | 100               | 305                  |
| 5 | 12060.00     | 44.26                       | 54.00           | -9.74        | 30.41                 | 13.85        | Average | 100               | 302                  |
| 6 | 12060.00     | 56.37                       | 74.00           | -17.63       | 42.52                 | 13.85        | Peak    | 100               | 302                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE20  | Test Freq. (MHz) | 2437 |
| Polarization | Horizontal |                  |      |



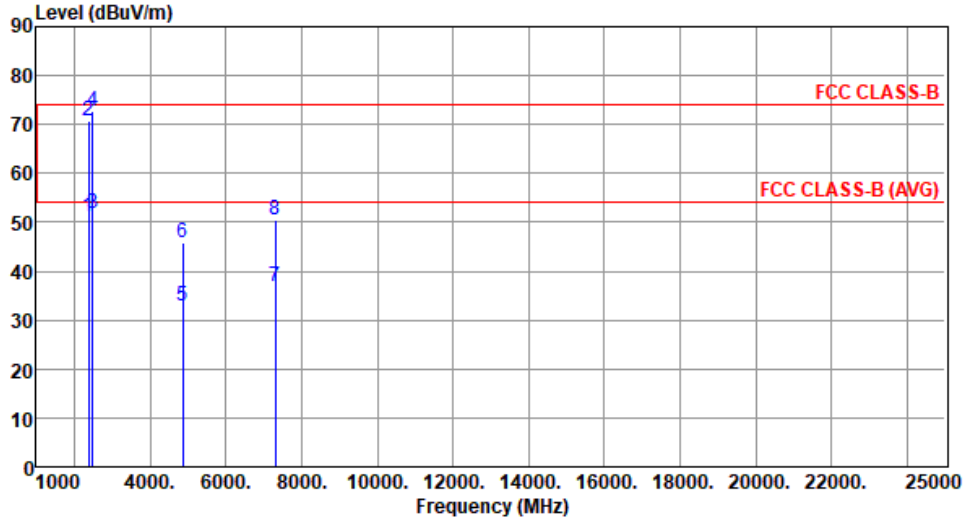
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 44.18                       | 54.00           | -9.82        | 46.98                 | -2.80        | Average | 224               | 49                   |
| 2 | 2390.00      | 58.56                       | 74.00           | -15.44       | 61.36                 | -2.80        | Peak    | 224               | 49                   |
| 3 | 2483.50      | 45.45                       | 54.00           | -8.55        | 48.48                 | -3.03        | Average | 224               | 49                   |
| 4 | 2483.50      | 61.74                       | 74.00           | -12.26       | 64.77                 | -3.03        | Peak    | 224               | 49                   |
| 5 | 4874.00      | 35.05                       | 54.00           | -18.95       | 31.41                 | 3.64         | Average | 187               | 87                   |
| 6 | 4874.00      | 47.40                       | 74.00           | -26.60       | 43.76                 | 3.64         | Peak    | 187               | 87                   |
| 7 | 7311.00      | 38.99                       | 54.00           | -15.01       | 29.72                 | 9.27         | Average | 130               | 259                  |
| 8 | 7311.00      | 51.82                       | 74.00           | -22.18       | 42.55                 | 9.27         | Peak    | 130               | 259                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

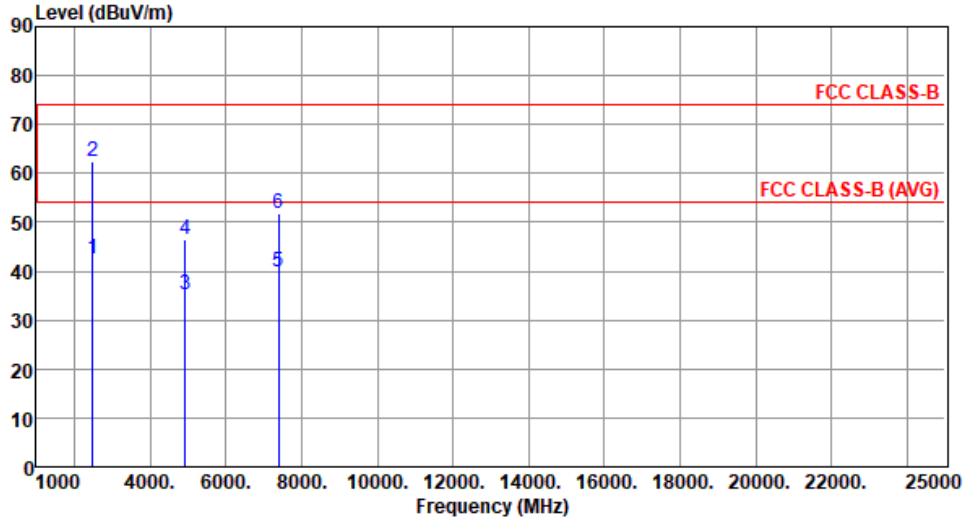
|              |           |                  |      |
|--------------|-----------|------------------|------|
| Modulation   | 11ax HE20 | Test Freq. (MHz) | 2437 |
| Polarization | Vertical  |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 51.06                       | 54.00           | -2.94        | 53.86                 | -2.80        | Average | 216               | 104                  |
| 2 | 2390.00      | 70.75                       | 74.00           | -3.25        | 73.55                 | -2.80        | Peak    | 216               | 104                  |
| 3 | 2483.50      | 51.81                       | 54.00           | -2.19        | 54.84                 | -3.03        | Average | 216               | 104                  |
| 4 | 2483.50      | 72.85                       | 74.00           | -1.15        | 75.88                 | -3.03        | Peak    | 216               | 104                  |
| 5 | 4874.00      | 32.90                       | 54.00           | -21.10       | 29.26                 | 3.64         | Average | 100               | 315                  |
| 6 | 4874.00      | 45.80                       | 74.00           | -28.20       | 42.16                 | 3.64         | Peak    | 100               | 315                  |
| 7 | 7311.00      | 36.95                       | 54.00           | -17.05       | 27.68                 | 9.27         | Average | 100               | 255                  |
| 8 | 7311.00      | 50.58                       | 74.00           | -23.42       | 41.31                 | 9.27         | Peak    | 100               | 255                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE20  | Test Freq. (MHz) | 2462 |
| Polarization | Horizontal |                  |      |

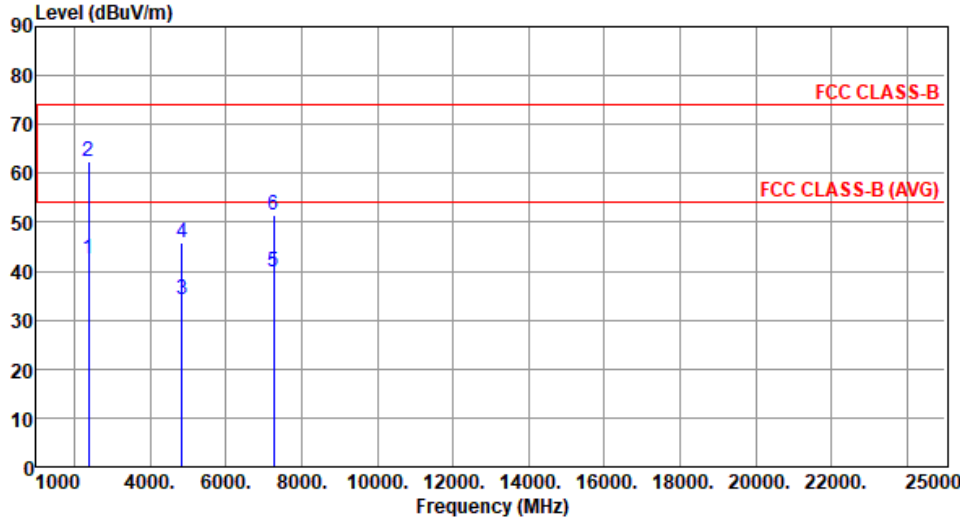
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 42.66                       | 54.00           | -11.34       | 45.69                 | -3.03        | Average | 255               | 100                  |
| 2 | 2483.50      | 62.32                       | 74.00           | -11.68       | 65.35                 | -3.03        | Peak    | 255               | 100                  |
| 3 | 4924.00      | 35.21                       | 54.00           | -18.79       | 31.52                 | 3.69         | Average | 100               | 106                  |
| 4 | 4924.00      | 46.66                       | 74.00           | -27.34       | 42.97                 | 3.69         | Peak    | 100               | 106                  |
| 5 | 7386.00      | 39.70                       | 54.00           | -14.30       | 30.63                 | 9.07         | Average | 100               | 102                  |
| 6 | 7386.00      | 51.92                       | 74.00           | -22.08       | 42.85                 | 9.07         | Peak    | 100               | 102                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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| Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11ax HE20 | Test Freq. (MHz) | 2462 |
| Polarization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Vertical  |                  |      |
| <div><div><div>Level (dBuV/m)</div><div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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|           |                  |      |

### 3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11ax HE40

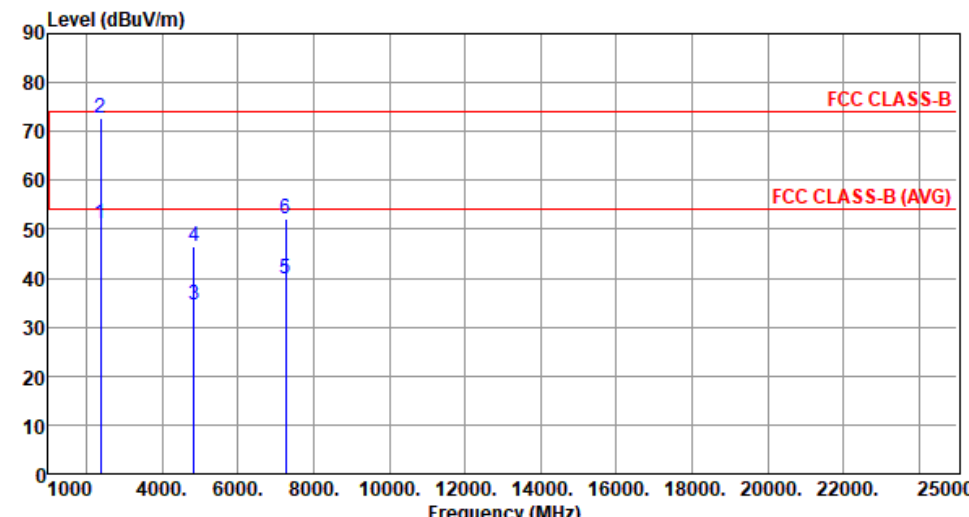
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE40  | Test Freq. (MHz) | 2422 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 42.56                       | 54.00           | -11.44       | 45.36                 | -2.80        | Average | 228               | 108                  |
| 2 | 2390.00      | 62.45                       | 74.00           | -11.55       | 65.25                 | -2.80        | Peak    | 228               | 108                  |
| 3 | 4844.00      | 34.34                       | 54.00           | -19.66       | 30.69                 | 3.65         | Average | 100               | 100                  |
| 4 | 4844.00      | 45.90                       | 74.00           | -28.10       | 42.25                 | 3.65         | Peak    | 100               | 100                  |
| 5 | 7266.00      | 39.99                       | 54.00           | -14.01       | 30.66                 | 9.33         | Average | 100               | 93                   |
| 6 | 7266.00      | 51.47                       | 74.00           | -22.53       | 42.14                 | 9.33         | Peak    | 100               | 93                   |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

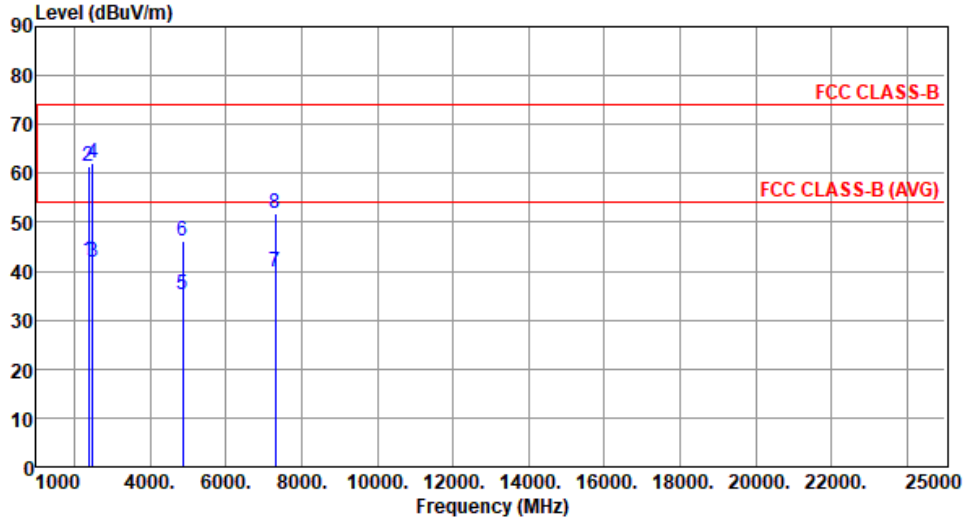
|              |           |                  |      |
|--------------|-----------|------------------|------|
| Modulation   | 11ax HE40 | Test Freq. (MHz) | 2422 |
| Polarization | Vertical  |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 51.23                       | 54.00           | -2.77        | 54.03                 | -2.80        | Average | 230               | 104                  |
| 2 | 2390.00      | 72.87                       | 74.00           | -1.13        | 75.67                 | -2.80        | Peak    | 230               | 104                  |
| 3 | 4844.00      | 34.43                       | 54.00           | -19.57       | 30.78                 | 3.65         | Average | 100               | 305                  |
| 4 | 4844.00      | 46.53                       | 74.00           | -27.47       | 42.88                 | 3.65         | Peak    | 100               | 305                  |
| 5 | 7266.00      | 39.75                       | 54.00           | -14.25       | 30.42                 | 9.33         | Average | 100               | 301                  |
| 6 | 7266.00      | 52.10                       | 74.00           | -21.90       | 42.77                 | 9.33         | Peak    | 100               | 301                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE40  | Test Freq. (MHz) | 2437 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 42.07                       | 54.00           | -11.93       | 44.87                 | -2.80        | Average | 233               | 107                  |
| 2 | 2390.00      | 61.45                       | 74.00           | -12.55       | 64.25                 | -2.80        | Peak    | 233               | 107                  |
| 3 | 2483.50      | 41.83                       | 54.00           | -12.17       | 44.86                 | -3.03        | Average | 233               | 107                  |
| 4 | 2483.50      | 62.22                       | 74.00           | -11.78       | 65.25                 | -3.03        | Peak    | 233               | 107                  |
| 5 | 4874.00      | 35.19                       | 54.00           | -18.81       | 31.55                 | 3.64         | Average | 100               | 95                   |
| 6 | 4874.00      | 46.20                       | 74.00           | -27.80       | 42.56                 | 3.64         | Peak    | 100               | 95                   |
| 7 | 7311.00      | 39.81                       | 54.00           | -14.19       | 30.54                 | 9.27         | Average | 100               | 97                   |
| 8 | 7311.00      | 51.86                       | 74.00           | -22.14       | 42.59                 | 9.27         | Peak    | 100               | 97                   |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|              |           |                  |      |
|--------------|-----------|------------------|------|
| Modulation   | 11ax HE40 | Test Freq. (MHz) | 2437 |
| Polarization | Vertical  |                  |      |

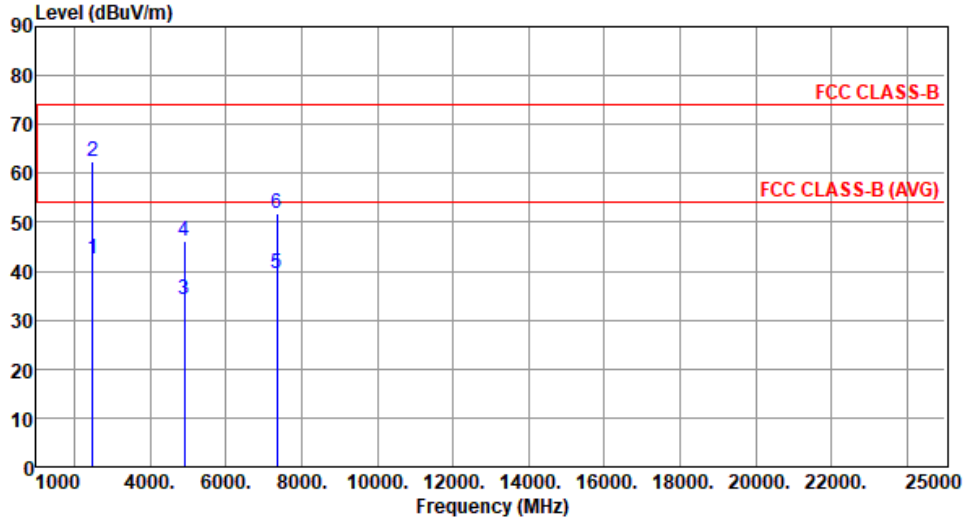
  

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 49.91                       | 54.00           | -4.09        | 52.71                 | -2.80        | Average | 215               | 135                  |
| 2 | 2390.00      | 70.32                       | 74.00           | -3.68        | 73.12                 | -2.80        | Peak    | 215               | 135                  |
| 3 | 2483.50      | 50.90                       | 54.00           | -3.10        | 53.93                 | -3.03        | Average | 215               | 135                  |
| 4 | 2483.50      | 72.95                       | 74.00           | -1.05        | 75.98                 | -3.03        | Peak    | 215               | 135                  |
| 5 | 4874.00      | 33.89                       | 54.00           | -20.11       | 30.25                 | 3.64         | Average | 100               | 302                  |
| 6 | 4874.00      | 45.89                       | 74.00           | -28.11       | 42.25                 | 3.64         | Peak    | 100               | 302                  |
| 7 | 7311.00      | 39.51                       | 54.00           | -14.49       | 30.24                 | 9.27         | Average | 100               | 309                  |
| 8 | 7311.00      | 51.56                       | 74.00           | -22.44       | 42.29                 | 9.27         | Peak    | 100               | 309                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
 \*Factor includes antenna factor , cable loss and amplifier gain  
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

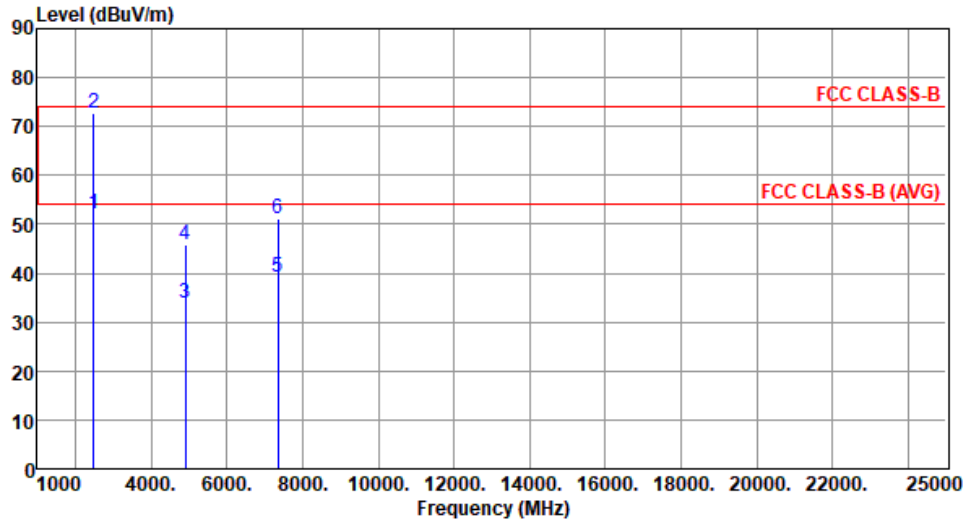
|              |            |                  |      |
|--------------|------------|------------------|------|
| Modulation   | 11ax HE40  | Test Freq. (MHz) | 2452 |
| Polarization | Horizontal |                  |      |

|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 42.63                       | 54.00           | -11.37       | 45.66                 | -3.03        | Average | 224               | 105                  |
| 2 | 2483.50      | 62.60                       | 74.00           | -11.40       | 65.63                 | -3.03        | Peak    | 224               | 105                  |
| 3 | 4904.00      | 34.23                       | 54.00           | -19.77       | 30.60                 | 3.63         | Average | 100               | 101                  |
| 4 | 4904.00      | 46.18                       | 74.00           | -27.82       | 42.55                 | 3.63         | Peak    | 100               | 101                  |
| 5 | 7356.00      | 39.67                       | 54.00           | -14.33       | 30.59                 | 9.08         | Average | 100               | 107                  |
| 6 | 7356.00      | 51.75                       | 74.00           | -22.25       | 42.67                 | 9.08         | Peak    | 100               | 107                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

|              |           |                  |      |
|--------------|-----------|------------------|------|
| Modulation   | 11ax HE40 | Test Freq. (MHz) | 2452 |
| Polarization | Vertical  |                  |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBUV/m | Limit<br>dBUV/m | Margin<br>dB | SA<br>reading<br>dBUV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 52.12                       | 54.00           | -1.88        | 55.15                 | -3.03        | Average | 242               | 97                   |
| 2 | 2483.50      | 72.85                       | 74.00           | -1.15        | 75.88                 | -3.03        | Peak    | 242               | 97                   |
| 3 | 4904.00      | 33.84                       | 54.00           | -20.16       | 30.21                 | 3.63         | Average | 100               | 305                  |
| 4 | 4904.00      | 45.85                       | 74.00           | -28.15       | 42.22                 | 3.63         | Peak    | 100               | 305                  |
| 5 | 7356.00      | 39.28                       | 54.00           | -14.72       | 30.20                 | 9.08         | Average | 100               | 301                  |
| 6 | 7356.00      | 51.25                       | 74.00           | -22.75       | 42.17                 | 9.08         | Peak    | 100               | 301                  |

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor\* (dB)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

## 3.6 Emissions in Non-Restricted Frequency Bands

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

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

### 3.6.2 Test Procedures

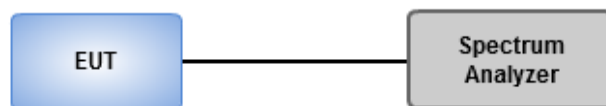
#### Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

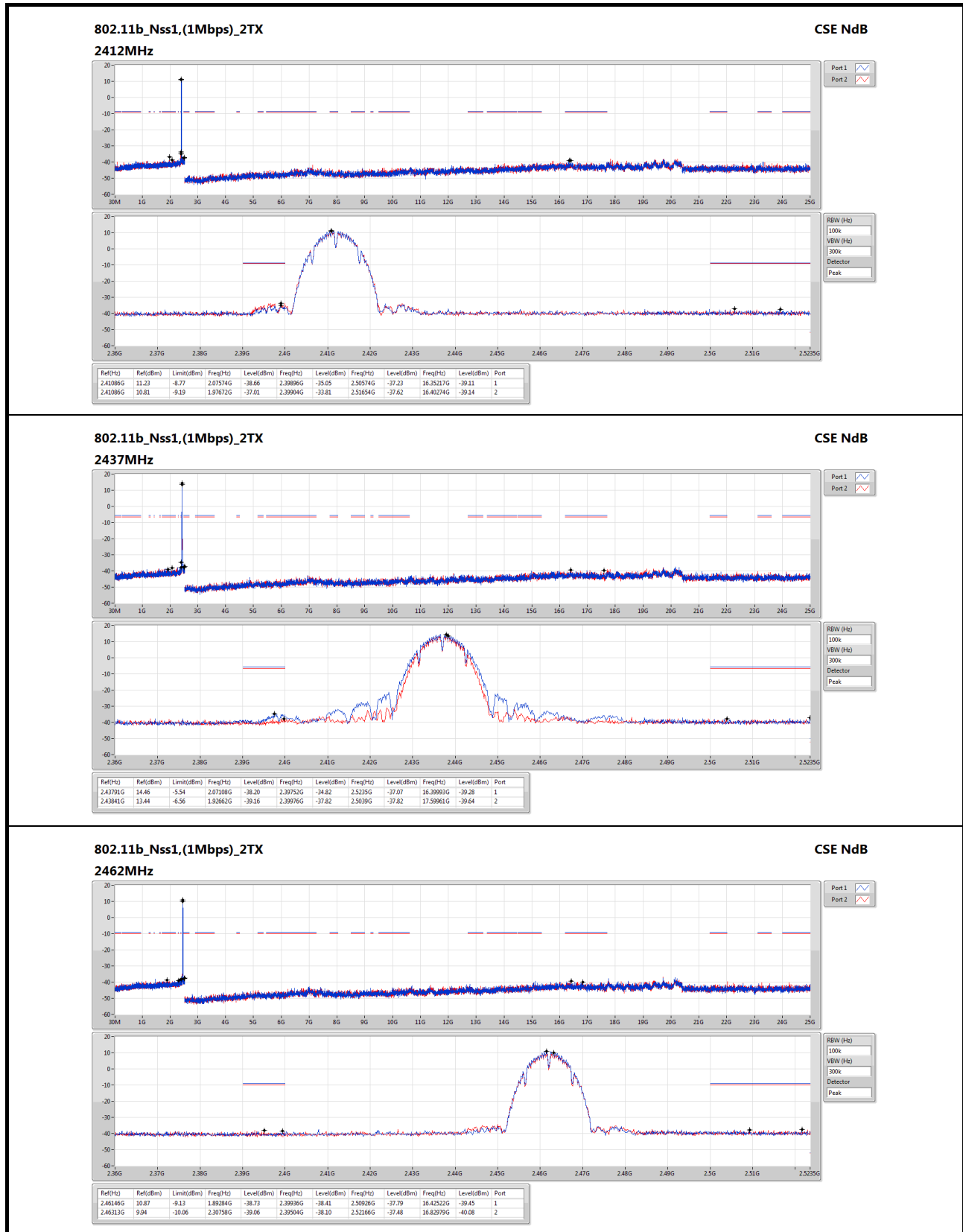
#### Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

### 3.6.3 Test Setup



### 3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands



### 802.11g\_Nss1,(6Mbps)\_2TX

CSE NdB

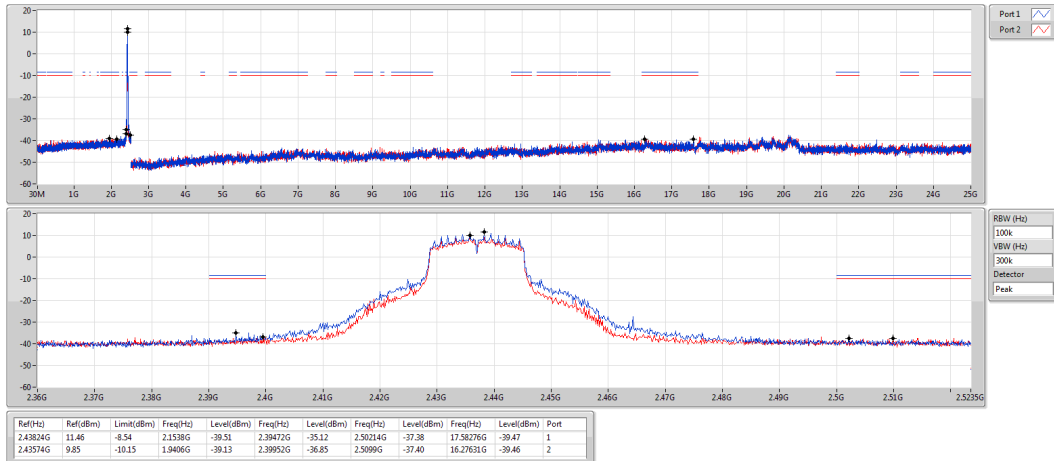
2412MHz



### 802.11g\_Nss1,(6Mbps)\_2TX

CSE NdB

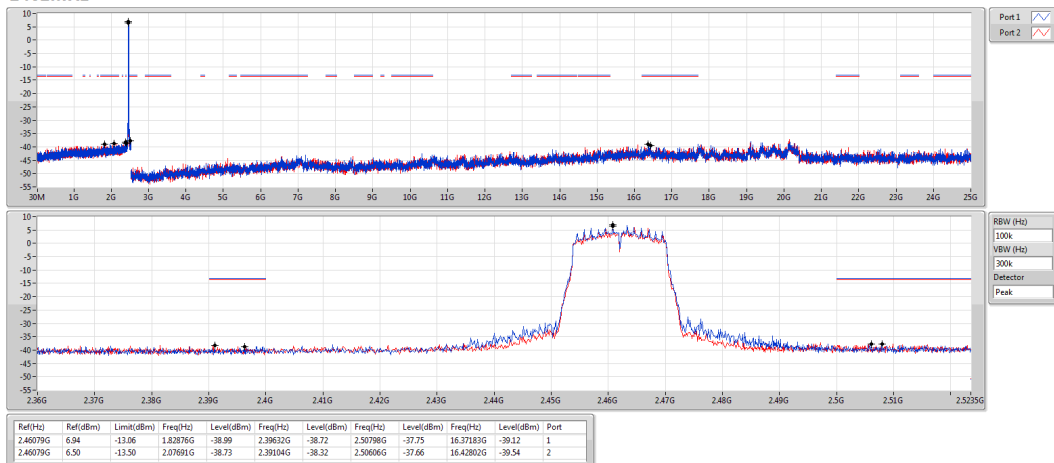
2437MHz



### 802.11g\_Nss1,(6Mbps)\_2TX

CSE NdB

2462MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

CSE NdB

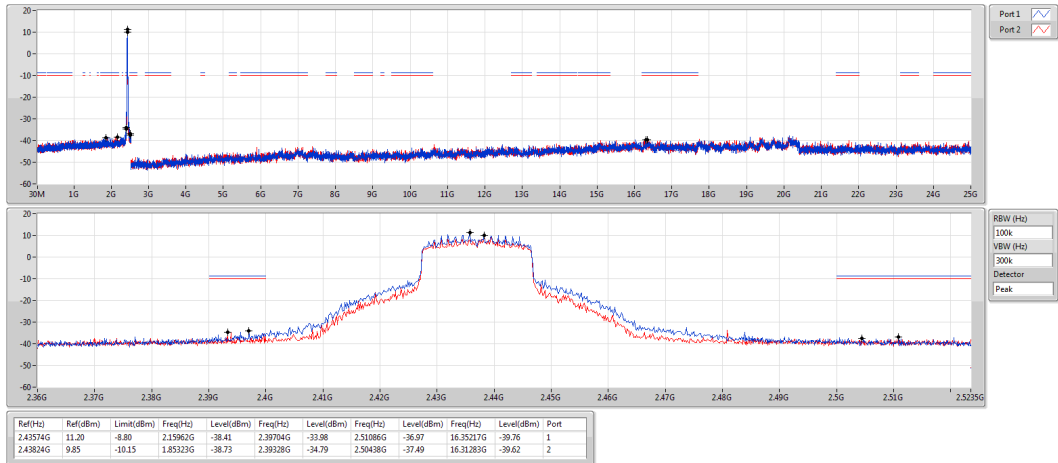
2412MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

CSE NdB

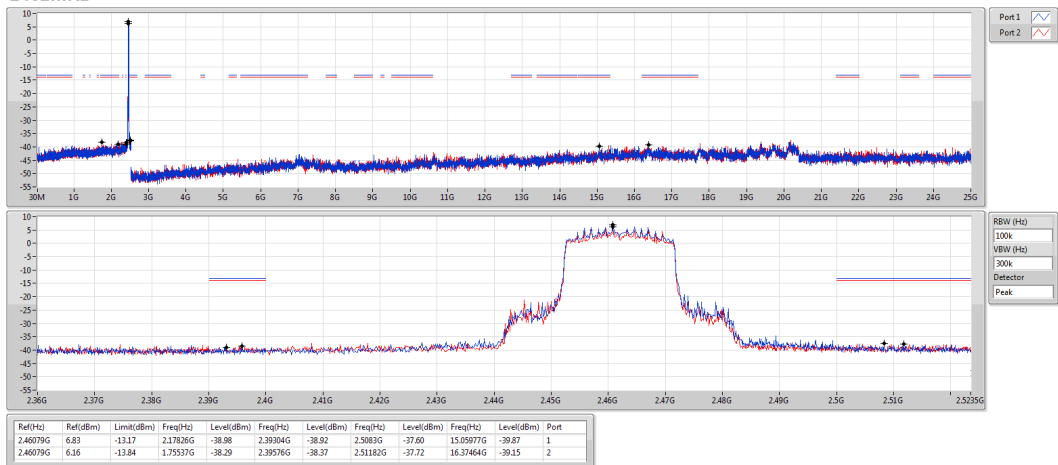
2437MHz



### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

CSE NdB

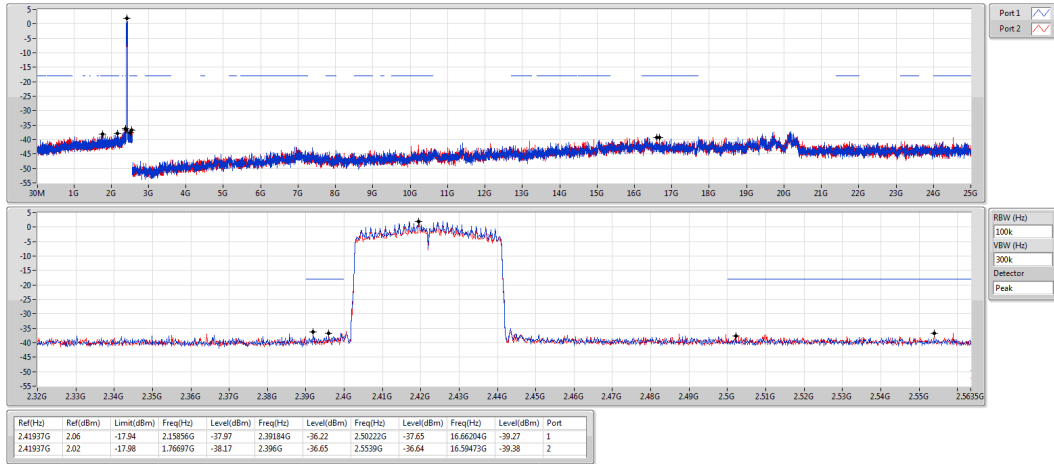
2462MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

CSE NdB

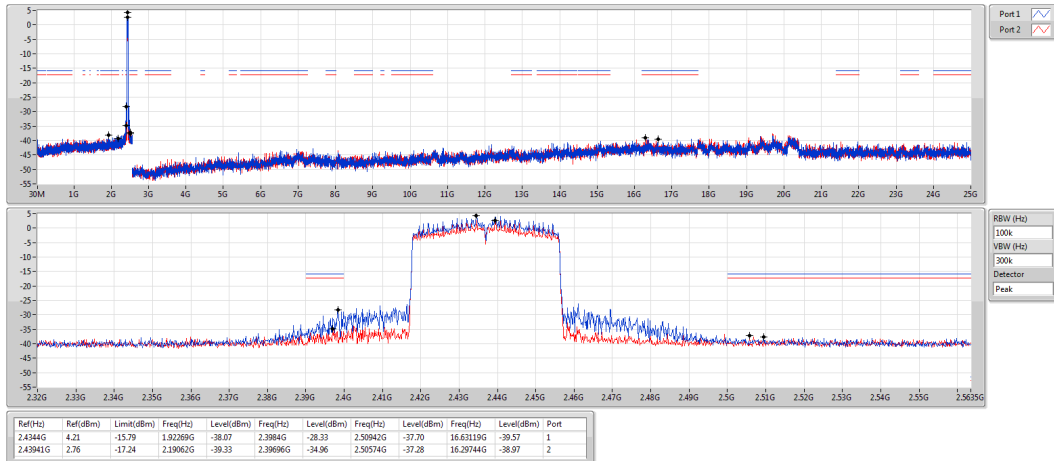
2422MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

CSE NdB

2437MHz



### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

CSE NdB

2452MHz



## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

### **Linkou**

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin  
Kou District, New Taipei City,  
Taiwan, R.O.C.

### **Kwei Shan**

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,  
Kwei Shan District, Tao Yuan City  
333, Taiwan, R.O.C.

### **Kwei Shan Site II**

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd  
St., Kwei Shan District, Tao Yuan  
City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

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Fax: 886-3-318-0155

Email: ICC\_Service@icertifi.com.tw

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