

# TEST REPORT

Applicant : Shenzhen Qianhai Linghangwan Technology Co., Ltd.

Address : 18th Floor, Building 1, COFCO Chuangxin R&D Center, Liuxian 1st Road, Xinan Street, Bao'an District, Shenzhen City

Manufacturer : SHENZHEN MAKERFIRE TECHNOLOGY CO.,LTD.

Address : 18th Floor, Building 1, COFCO Chuangxin R&D Center, Liuxian 1st Road, Xinan Street, Bao'an District, Shenzhen City

Product Name : LoRa AIOT Development Kit

Model Number : W10-V1.2, DEVK V1.1

Trademark :  MESHnology

FCC ID : 2BRTY-DEVK

Test Date : Feb.05 , 2026 -Feb.12 , 2026

Date of Report : Apr. 09, 2026

Test Result : This device described above has been tested by BKC, and the test results show that the equipment under test (EUT) is in compliance with the Standard requirements. And it is applicable only to the tested sample identified in the report.

Test Procedure Used:

Standards : FCC CFR Title 47 Part 15 Subpart C Section 15.247  
ANSI C63.10-2020+Cor 1-2023

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## TABLE OF CONTENT

|                                                                 |           |
|-----------------------------------------------------------------|-----------|
| <b>1. General Information .....</b>                             | <b>4</b>  |
| 1.1. Description of Device (EUT) .....                          | 4         |
| 1.2. Channel List .....                                         | 4         |
| 1.3. Summary of test result .....                               | 4         |
| 1.4. Special Accessories and Auxiliary Equipment .....          | 5         |
| 1.5. Test mode .....                                            | 5         |
| 1.6. Block Diagram .....                                        | 5         |
| 1.7. Test Conditions .....                                      | 6         |
| 1.8. Measurement Uncertainty (95% confidence levels, k=2) ..... | 6         |
| 1.9. Test Facility .....                                        | 6         |
| 1.10. Test Equipment .....                                      | 7         |
| <b>2. Conducted emission at the mains terminals test .....</b>  | <b>9</b>  |
| 2.1. Limit .....                                                | 9         |
| 2.2. Test Setup .....                                           | 9         |
| 2.3. Test Procedure .....                                       | 9         |
| 2.4. Test Result .....                                          | 10        |
| <b>3. Radiated Spurious Emissions .....</b>                     | <b>12</b> |
| 3.1. Limit .....                                                | 12        |
| 3.2. Test Setup .....                                           | 13        |
| 3.3. Test Procedure .....                                       | 15        |
| 3.4. Test Result .....                                          | 16        |
| <b>4. Conducted Spurious Emissions .....</b>                    | <b>19</b> |
| 4.1. Limit .....                                                | 19        |
| 4.2. Test Setup .....                                           | 19        |
| 4.3. Test Procedure .....                                       | 19        |
| 4.4. Test Result .....                                          | 19        |
| <b>5. Band Edge Measurement .....</b>                           | <b>32</b> |
| 5.1. Limit .....                                                | 32        |
| 5.2. Test setup .....                                           | 32        |
| 5.3. Test Procedure .....                                       | 32        |
| 5.4. Test Result .....                                          | 32        |
| <b>6. -6 dB Bandwidth and 99% Bandwidth Measurement .....</b>   | <b>41</b> |
| 6.1. Limit .....                                                | 41        |
| 6.2. Test Setup .....                                           | 41        |
| 6.3. Test Procedure .....                                       | 41        |
| 6.4. Test Result .....                                          | 41        |
| <b>7. Maximum Output Power&amp; E.I.R.P .....</b>               | <b>48</b> |
| 7.1. Limit .....                                                | 48        |
| 7.2. Test Setup .....                                           | 48        |
| 7.3. Test Procedure .....                                       | 48        |
| 7.4. Test Result .....                                          | 48        |
| <b>8. Power Spectral Density .....</b>                          | <b>49</b> |
| 8.1. Limit .....                                                | 49        |
| 8.2. Test Setup .....                                           | 49        |
| 8.3. Test Procedure .....                                       | 49        |
| 8.4. Test Result .....                                          | 50        |
| <b>9. Antenna Requirement .....</b>                             | <b>57</b> |
| <b>10. Test Photographs .....</b>                               | <b>57</b> |
| <b>11. Appendix I: Photos of the EUT .....</b>                  | <b>57</b> |



## 1. General Information

### 1.1. Description of Device (EUT)

|                        |                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name               | : LoRa AIOT Development Kit                                                                                                                |
| Model No.              | : W10-V1.2, DEVK V1.1 (Note: This time, the "W10-V1.2" model is the main test model.)                                                      |
| Model Difference       | : All the models have the same configuration, only the model numbers and product colors are different.                                     |
| Power supply           | : Input: 5V DC 3A                                                                                                                          |
| Operation frequency    | : 2.412-2.462GHz                                                                                                                           |
| Max. RF output power:  | : 17.15 dBm                                                                                                                                |
| Modulation             | : 802.11b: Direct Sequence Spread Spectrum(DSSS)<br>802.11g/802.11n(H20)/802.11n(H40):<br>Orthogonal Frequency Division Multiplexing(OFDM) |
| Antenna Type           | : Internal antenna, Maximum Gain is 2dBi                                                                                                   |
| Hardware Version       | : V1.0.0                                                                                                                                   |
| Software Version       | : V1.2                                                                                                                                     |
| Intend use environment | : Residential, commercial and light industrial environment                                                                                 |

### 1.2. Channel List

| Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) |
|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|
| 1           | 2412            | 2           | 2417            | 3           | 2422            | 4           | 2427            |
| 5           | 2432            | 6           | 2437            | 7           | 2442            | 8           | 2447            |
| 9           | 2452            | 10          | 2457            | 11          | 2462            | /           | /               |
| /           | /               |             |                 |             |                 |             |                 |

### 1.3. Summary of test result

| RF PART                          |                              |        |
|----------------------------------|------------------------------|--------|
| Test Items                       | Test Requirement             | Result |
| Antenna requirement              | FCC part 15.203/15.247(b)(4) | PASS   |
| AC Power Line Conducted Emission | FCC part 15.207              | PASS   |
| Conducted Peak Output Power      | FCC part 15.247 (b)(3)       | PASS   |
| Channel Bandwidth& 99% OCB       | FCC part 15.247 (a)(2)       | PASS   |
| Power Spectral Density           | FCC part 15.247 (e)          | PASS   |
| Band Edge                        | FCC part 15.247(d)           | PASS   |
| Spurious Emission                | FCC part 15.205/15.209       | PASS   |

Remark:  
N/A is an abbreviation for Not Applicable.  
Measurement Uncertainty is not taken into account for conformity statement

## 1.4.Special Accessories and Auxiliary Equipment

| Description | Manufacturer | Model No. | Serial Number     |
|-------------|--------------|-----------|-------------------|
| Adapter     | Salcomp      | A2244     | F1625031EBDPMG9DK |
| /           | /            | /         | /                 |

## 1.5.Test mode

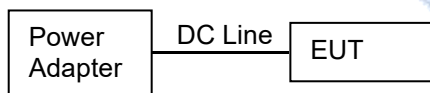
The special RF test software was used to control EUT work in Continuous WIFI TX mode, and select test channel, wireless mode.

| Test mode | Description | Low channel | Middle channel | High channel |
|-----------|-------------|-------------|----------------|--------------|
| TM1       | 802.11b     | 2412MHz     | 2437MHz        | 2462MHz      |
| TM2       | 802.11g     | 2412MHz     | 2437MHz        | 2462MHz      |
| TM3       | 802.11n20   | 2412MHz     | 2437MHz        | 2462MHz      |
| TM4       | 802.11n40   | 2422MHz     | 2437MHz        | 2452MHz      |

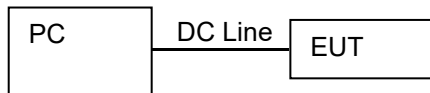
Note: /

## 1.6.Block Diagram

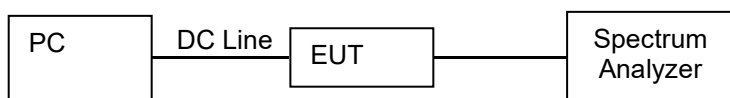
### Conducted Emission



### Radiated Emission



### RF Conducted Test



## 1.7. Test Conditions

| Category                                         | Normal Conditions           | Extreme Conditions |
|--------------------------------------------------|-----------------------------|--------------------|
| Temperature range                                | 15-35°C                     | N/A                |
| Humidity range                                   | 20-75%                      | N/A                |
| Pressure range                                   | 86-106kPa                   | N/A                |
| Power supply                                     | 120Vac for adapter or DC 5V | N/A                |
| Note: N/A is an abbreviation for Not Applicable. |                             |                    |

## 1.8. Measurement Uncertainty (95% confidence levels, k=2)

| Item                                                                                            | MU                                                               | Remark |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------|
| Uncertainty for radio frequency                                                                 | $\pm 7 \times 10^{-8}$                                           |        |
| Conducted Emissions (150kHz~30MHz)                                                              | $\pm 2.54\text{dB}$                                              |        |
| Radiated Emission(9KHz~30MHz)                                                                   | $\pm 1.6\text{ dB}$                                              |        |
| Radiated Emission(30MHz~1GHz)                                                                   | Vertical: $\pm 4.14\text{dB}$<br>Horizontal: $\pm 4.25\text{dB}$ |        |
| Radiated Emission(1GHz~6GHz)                                                                    | $\pm 3.9\text{dB}$                                               |        |
| Radiated Emission(6GHz~18GHz)                                                                   | $\pm 4.3\text{dB}$                                               |        |
| Radiated Emission(18GHz~40GHz)                                                                  | $\pm 3.38\text{dB}$                                              |        |
| Uncertainty for conducted RF Power                                                              | $\pm 0.20\text{dB}$                                              |        |
| Conducted spurious emissions                                                                    | $\pm 0.24\text{dB}$                                              |        |
| Uncertainty for temperature                                                                     | 0.6°C                                                            |        |
| Uncertainty for humidity                                                                        | 1%                                                               |        |
| Bandwidth                                                                                       | $\pm 1.5 \times 10^{-6}$                                         |        |
| Time                                                                                            | $\pm 2\%$                                                        |        |
| Duty Cycle                                                                                      | $\pm 2\%$                                                        |        |
| Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95% |                                                                  |        |

## 1.9. Test Facility

| Site Description                  |                                                                                                                          |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Name of Firm                      | : Shenzhen BKC Testing Co., Ltd.                                                                                         |
| Site Location                     | : Room 103, 1/F, Huaya Building, Huaya Industrial Park, Longhua Community, Longhua District, Shenzhen, Guangdong, China. |
| ISED CAB identifier               | : CN0188                                                                                                                 |
| ISED Company Number               | : 34333                                                                                                                  |
| FCC Designation Number            | : CN1416                                                                                                                 |
| FCC Test Firm Registration Number | : 701543                                                                                                                 |

## 1.10. Test Equipment

### Conducted Test Site

| Item | Kind of Equipment               | Manufacturer | Type No.  | Serial No. | Last calibration | Calibrated until |
|------|---------------------------------|--------------|-----------|------------|------------------|------------------|
| 1    | LISN                            | R&S          | ENV216    | 102762     | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                                 |              |           |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 2    | EMI Test Receiver               | R&S          | ESCI      | 101424     | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                                 |              |           |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 3    | Rf cables                       | HTEC         | HCE 2M-CE | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                                 |              |           |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 4    | Coupling/<br>Decoupling Network | Diamond      | CX210     | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                                 |              |           |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 5    | CE Testing software             | EZ           | EZ-EMC    | /          | /                | /                |

### Radiated Test Site(Below 1G and Above 1G)

| Item | Kind of Equipment          | Manufacturer | Type No.   | Serial No. | Last calibration | Calibrated until |
|------|----------------------------|--------------|------------|------------|------------------|------------------|
| 1    | Antenna                    | Schwarzbeck  | VULB 9168  | 01321      | Mar. 20. 2025    | Mar. 19. 2028    |
| 2    | EMI Test Receiver          | R&S          | ESRP       | 101478     | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 3    | Preamplifier               | HP           | 8447D      | 2727A05345 | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 4    | Double Ridged<br>Broadband | SCHWARZBECK  | BBHA 9120D | 02621      | Mar. 10. 2025    | Mar. 19. 2028    |
| 5    | Preamplifier               | Schwarzbeck  | BBV 9718D  | 00041      | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 6    | Rf cables                  | HUBER+SUHNER | 8M-RE      | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 7    | Rf cables                  | HUBER+SUHNER | 1.5M-RE    | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 8    | Rf cables                  | HUBER+SUHNER | 1.5M-AP-RE | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
|      |                            |              |            |            | Mar. 09. 2026    | Mar. 10. 2027    |
| 9    | Spectrum                   | Agilent      | N9020A     | MY50510311 | Mar. 09. 2026    | Mar. 10. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |
| 10   | Spectrum analyzer          | R&S          | FSP40      | 200061     | Feb. 13. 2025    | Feb. 12. 2026    |
|      |                            |              |            |            | Mar. 11. 2026    | Mar. 10. 2027    |



|    |                                      |           |         |          |               |               |
|----|--------------------------------------|-----------|---------|----------|---------------|---------------|
| 11 | Double Ridged Broadband Horn Antenna | COM-POWER | AH-1840 | 10100009 | Mar. 09. 2026 | Mar. 10. 2026 |
|    |                                      |           |         |          | Mar. 11. 2026 | Mar. 10. 2027 |
| 12 | RE Testing software                  | EZ        | EZ-EMC  | /        |               | /             |

## RF Test Site

| Item | Kind of Equipment   | Manufacturer    | Type No.   | Serial No.    | Last calibration | Calibrated until |
|------|---------------------|-----------------|------------|---------------|------------------|------------------|
| 1    | Spectrum            | Agilent         | N9020A     | MY50510311    | Mar. 09. 2026    | Mar. 10. 2027    |
|      |                     |                 |            |               | Mar. 11. 2026    | Mar. 10. 2027    |
| 2    | Vector source       | Agilent         | N5182A     | MY47420223    | Mar. 09. 2026    | Mar. 10. 2027    |
|      |                     |                 |            |               | Mar. 11. 2026    | Mar. 10. 2027    |
| 3    | All instrument      | Rohde & Schwarz | CMW 500    | 101131        | Mar. 09. 2026    | Mar. 10. 2027    |
|      |                     |                 |            |               | Mar. 11. 2026    | Mar. 10. 2027    |
| 4    | control unit        | MW              | MW100-RFCB | MW200411BK-34 | Mar. 09. 2026    | Mar. 10. 2027    |
|      |                     |                 |            |               | Mar. 11. 2026    | Mar. 10. 2027    |
| 5    | RF Testing software | MW              | MTS 8310   | /             | /                | /                |
| 6    | Spectrum analyzer   | R&S             | FSP40      | 200061        | Feb. 13. 2025    | Feb. 12. 2026    |
|      |                     |                 |            |               | Mar. 11. 2026    | Mar. 10. 2027    |

## Test software

|                  |                     |
|------------------|---------------------|
| Software name    | RF Testing software |
| Software version | 2.0.0.0             |
| Software name    | RE Testing software |
| Software version | EMEC-03A2 RE+       |
| Software name    | CE Testing software |
| Software version | EMEC-3A1+           |

## 2. Conducted emission at the mains terminals test

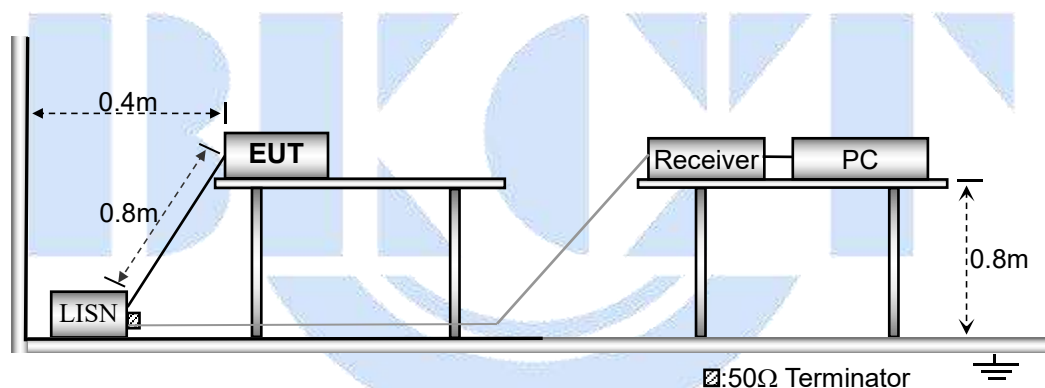
### 2.1.Limit

|                       |                                      |
|-----------------------|--------------------------------------|
| Test Requirement:     | FCC Part15 C Section 15.207          |
| Test Method:          | ANSI C63.10-2020+Cor 1-2023          |
| Test Frequency Range: | 150KHz to 30MHz                      |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto |

| Frequency<br>MHz | Limits dB( $\mu$ V) |               |
|------------------|---------------------|---------------|
|                  | Quasi-peak Level    | Average Level |
| 0.15 ~ 0.50      | 66 ~ 56*            | 56 ~ 46*      |
| 0.50 ~ 5.00      | 56                  | 46            |
| 5.00 ~ 30.00     | 60                  | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The lower limit shall apply at the transition frequencies.

### 2.2.Test Setup



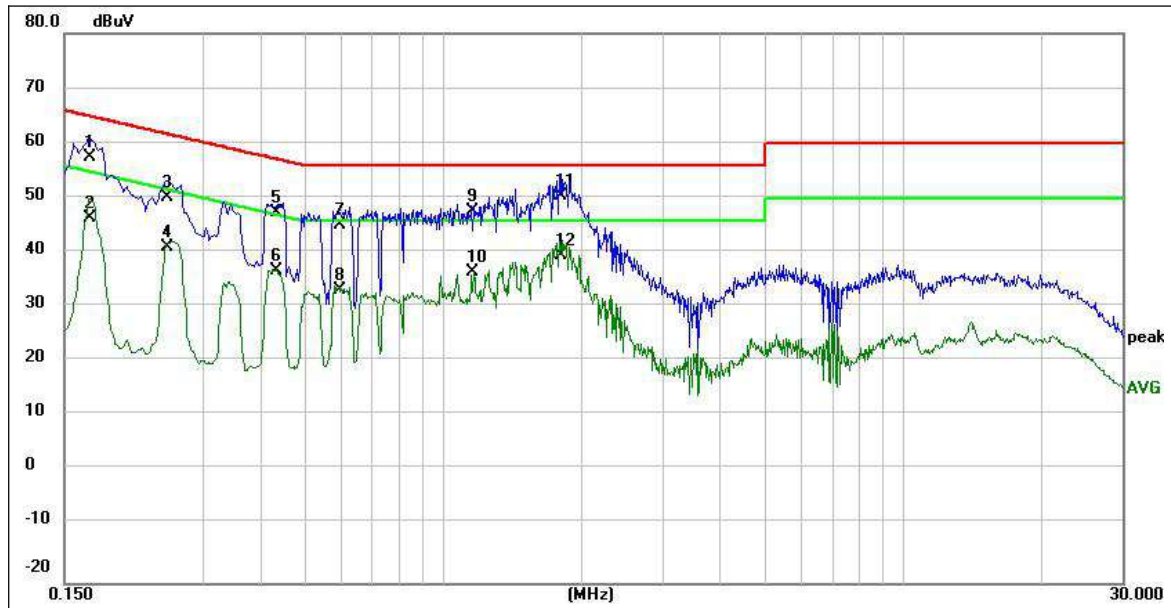
### 2.3.Test Procedure

1. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
4. LISN at least 80 cm from nearest part of EUT chassis.
5. For the actual test configuration, please refer to the related Item - EUT Test Photos.

## 2.4. Test Result

Note: Only the worst Data 802.11b/2412MHz Record in the report.

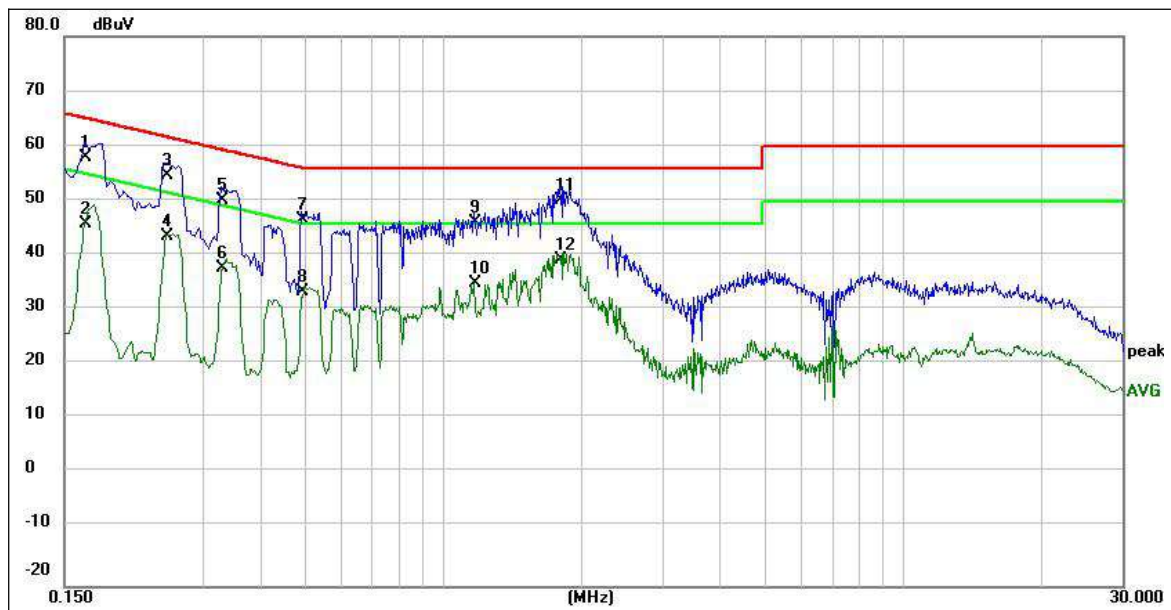
| Conducted Emission At The Mains Terminals Test Data |              |                    |             |
|-----------------------------------------------------|--------------|--------------------|-------------|
| Temperature:                                        | 25.1 °C      | Relative Humidity: | 56%         |
| Pressure:                                           | 1008hPa      | Phase :            | Line        |
| Test Voltage :                                      | AC 120V/60Hz | Test Mode:         | TM1-2412MHz |
| Model No. :                                         | W10-V1.2     |                    |             |



| No. | Frequency (MHz) | Reading Level(dBuV) | Factor (dB) | Measurement(dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|---------------------|-------------|-------------------|--------------|-------------|----------|
| 1   | 0.1700          | 36.69               | 20.77       | 57.46             | 64.96        | -7.50       | QP       |
| 2   | 0.1700          | 25.75               | 20.77       | 46.52             | 54.96        | -8.44       | AVG      |
| 3   | 0.2500          | 28.43               | 21.91       | 50.34             | 61.76        | -11.42      | QP       |
| 4   | 0.2500          | 19.33               | 21.91       | 41.24             | 51.76        | -10.52      | AVG      |
| 5   | 0.4320          | 25.56               | 21.89       | 47.45             | 57.21        | -9.76       | QP       |
| 6   | 0.4320          | 15.12               | 21.89       | 37.01             | 47.21        | -10.20      | AVG      |
| 7   | 0.5924          | 23.38               | 21.89       | 45.27             | 56.00        | -10.73      | QP       |
| 8   | 0.5924          | 11.62               | 21.89       | 33.51             | 46.00        | -12.49      | AVG      |
| 9   | 1.1539          | 26.10               | 21.73       | 47.83             | 56.00        | -8.17       | QP       |
| 10  | 1.1539          | 14.98               | 21.73       | 36.71             | 46.00        | -9.29       | AVG      |
| 11  | 1.7980          | 29.34               | 21.08       | 50.42             | 56.00        | -5.58       | QP       |
| 12  | 1.7980          | 18.70               | 21.08       | 39.78             | 46.00        | -6.22       | AVG      |

### Conducted Emission At The Mains Terminals Test Data

|                |              |                    |             |
|----------------|--------------|--------------------|-------------|
| Temperature:   | 25.1℃        | Relative Humidity: | 56%         |
| Pressure:      | 1008hPa      | Phase :            | Neutral     |
| Test Voltage : | AC 120V/60Hz | Test Mode:         | TM1-2412MHz |
| Model No. :    | W10-V1.2     |                    |             |



| No. | Frequency (MHz) | Reading Level(dBuV) | Factor (dB) | Measurement(dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|---------------------|-------------|-------------------|--------------|-------------|----------|
| 1   | 0.1660          | 37.36               | 20.61       | 57.97             | 65.16        | -7.19       | QP       |
| 2   | 0.1660          | 25.33               | 20.61       | 45.94             | 55.16        | -9.22       | AVG      |
| 3   | 0.2500          | 32.93               | 21.91       | 54.84             | 61.76        | -6.92       | QP       |
| 4   | 0.2500          | 21.84               | 21.91       | 43.75             | 51.76        | -8.01       | AVG      |
| 5   | 0.3300          | 28.30               | 21.88       | 50.18             | 59.45        | -9.27       | QP       |
| 6   | 0.3300          | 16.00               | 21.88       | 37.88             | 49.45        | -11.57      | AVG      |
| 7   | 0.4940          | 24.72               | 21.89       | 46.61             | 56.10        | -9.49       | QP       |
| 8   | 0.4940          | 11.78               | 21.89       | 33.67             | 46.10        | -12.43      | AVG      |
| 9   | 1.1660          | 24.40               | 21.71       | 46.11             | 56.00        | -9.89       | QP       |
| 10  | 1.1660          | 13.51               | 21.71       | 35.22             | 46.00        | -10.78      | AVG      |
| 11  | 1.7940          | 29.02               | 21.09       | 50.11             | 56.00        | -5.89       | QP       |
| 12  | 1.7940          | 18.44               | 21.09       | 39.53             | 46.00        | -6.47       | AVG      |

### 3. Radiated Spurious Emissions

#### 3.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247  
Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02;  
ANSI C63.10-2020+Cor 1-2023  
Test Result: PASS  
Measurement Distance: 3m

| Frequency    | Detector   | RBW    | VBW    | Value      |
|--------------|------------|--------|--------|------------|
| 9KHz-150KHz  | Quasi-peak | 200Hz  | 600Hz  | Quasi-peak |
| 150KHz-30MHz | Quasi-peak | 9KHz   | 30KHz  | Quasi-peak |
| 30MHz-1GHz   | Quasi-peak | 100KHz | 300KHz | Quasi-peak |
| Above 1GHz   | Peak       | 1MHz   | 3MHz   | Peak       |
|              | Peak       | 1MHz   | 10Hz   | Average    |

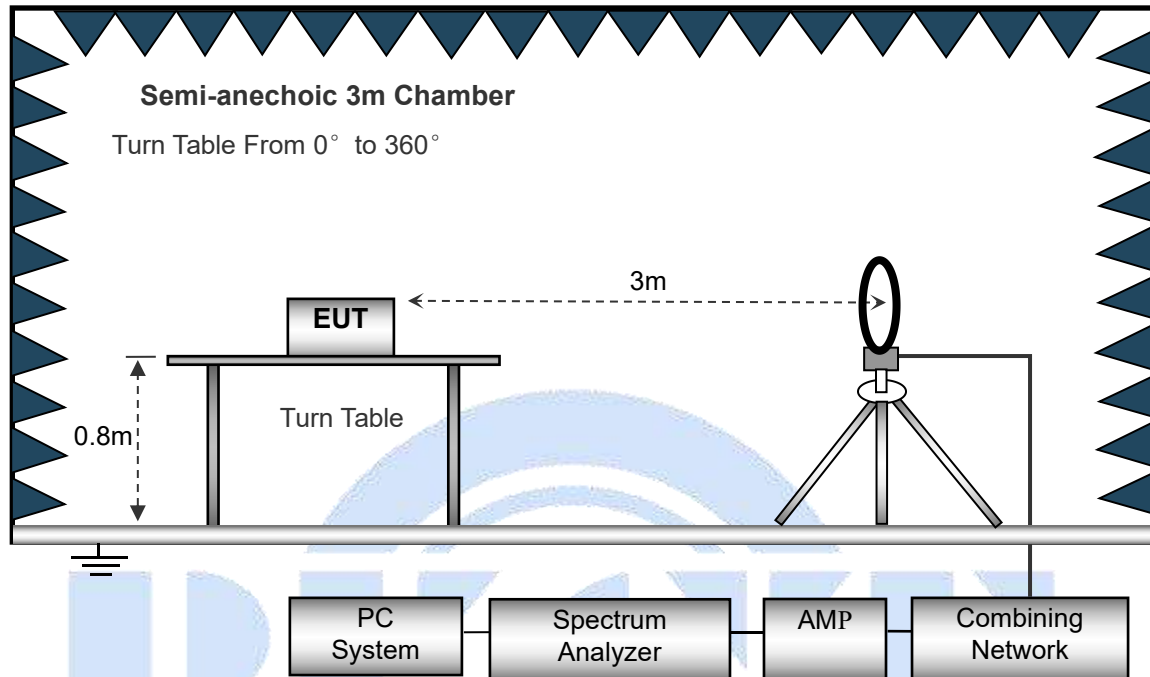
Limit:

| Frequency (MHz) | Field Strength        |              | Field Strength Limit at 3m Measurement Dist |                                    |
|-----------------|-----------------------|--------------|---------------------------------------------|------------------------------------|
|                 | uV/m                  | Distance (m) | uV/m                                        | dBuV/m                             |
| 0.009 ~ 0.490   | $2400/F(\text{kHz})$  | 300          | $10000 * 2400/F(\text{kHz})$                | $20\log(2400/F(\text{kHz})) + 80$  |
| 0.490 ~ 1.705   | $24000/F(\text{kHz})$ | 30           | $100 * 24000/F(\text{kHz})$                 | $20\log(24000/F(\text{kHz})) + 40$ |
| 1.705 ~ 30      | 30                    | 30           | $100 * 30$                                  | $20\log(30) + 40$                  |
| 30 ~ 88         | 100                   | 3            | 100                                         | $20\log(100)$                      |
| 88 ~ 216        | 150                   | 3            | 150                                         | $20\log(150)$                      |
| 216 ~ 960       | 200                   | 3            | 200                                         | $20\log(200)$                      |
| Above 960       | 500                   | 3            | 500                                         | $20\log(500)$                      |

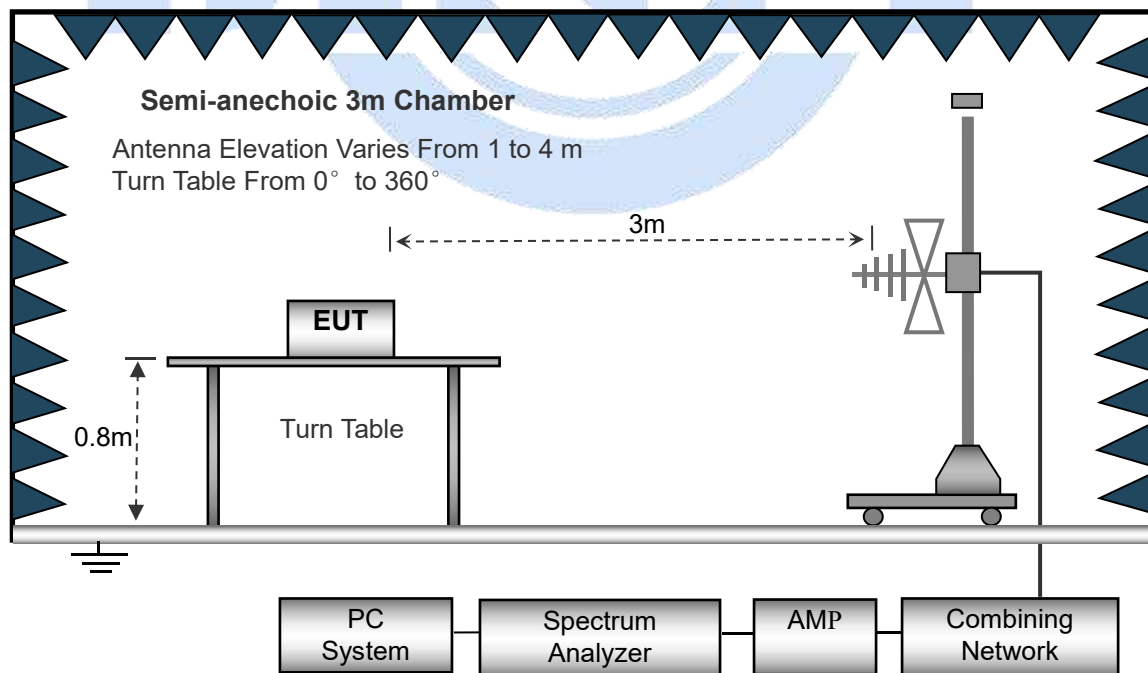
### 3.2. Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

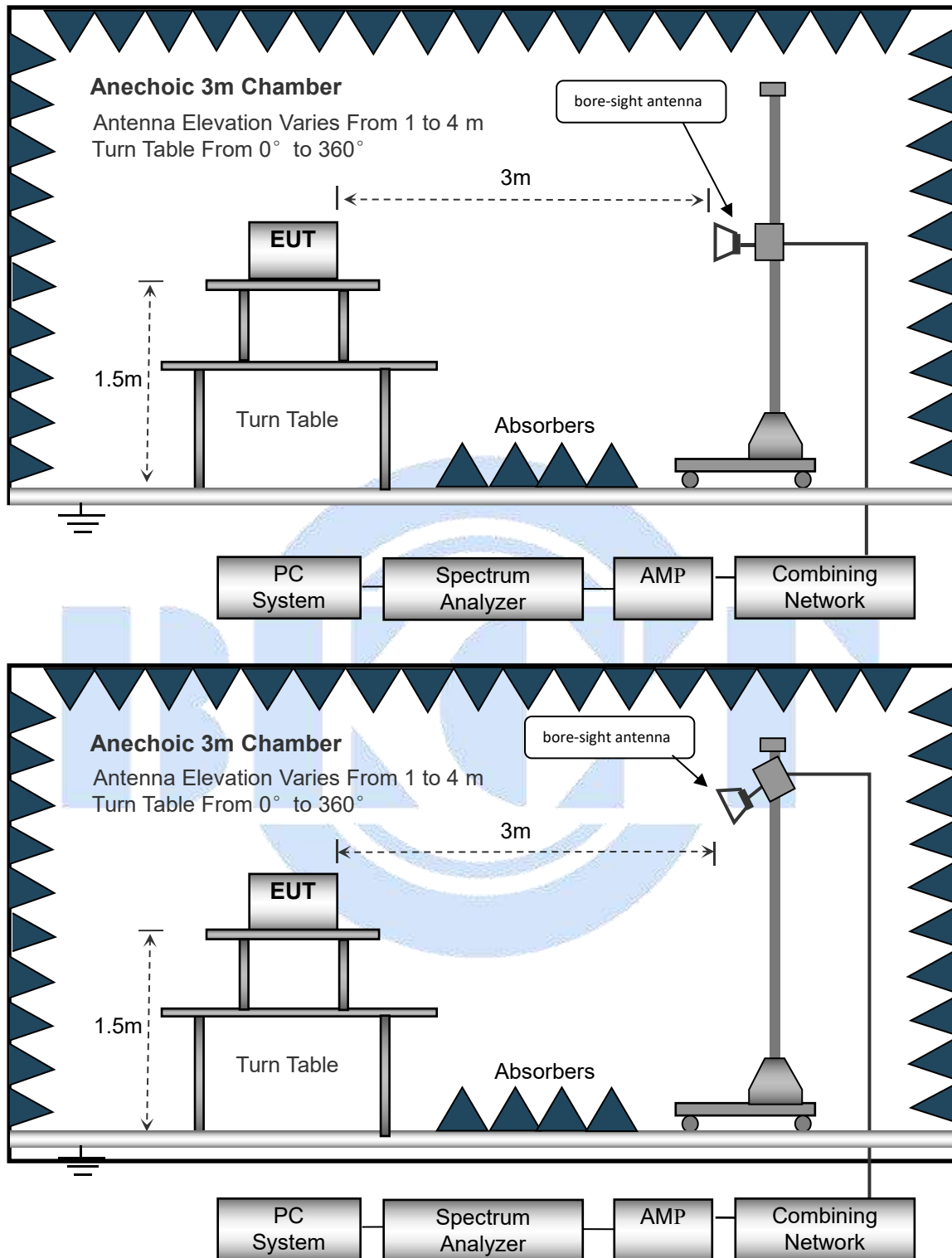
The test setup for emission measurement below 30MHz.



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

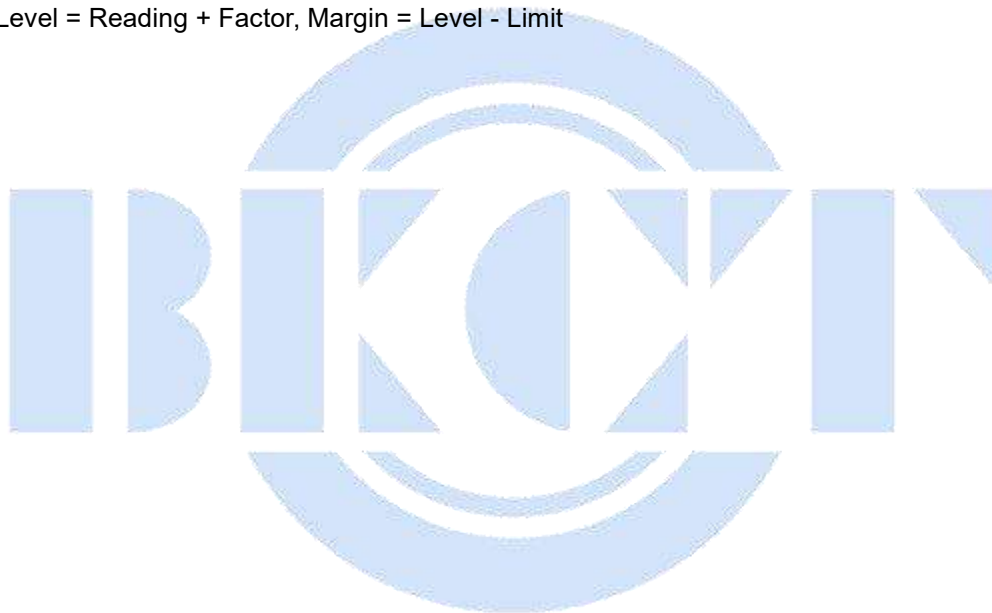


The test setup for emission measurement above 1 GHz.



### 3.3. Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.
8. A 2.4GHz high - pass filter is used during radiated emissions above 1GHz measurement.
9. Remark: Level = Reading + Factor, Margin = Level - Limit



### 3.4. Test Result

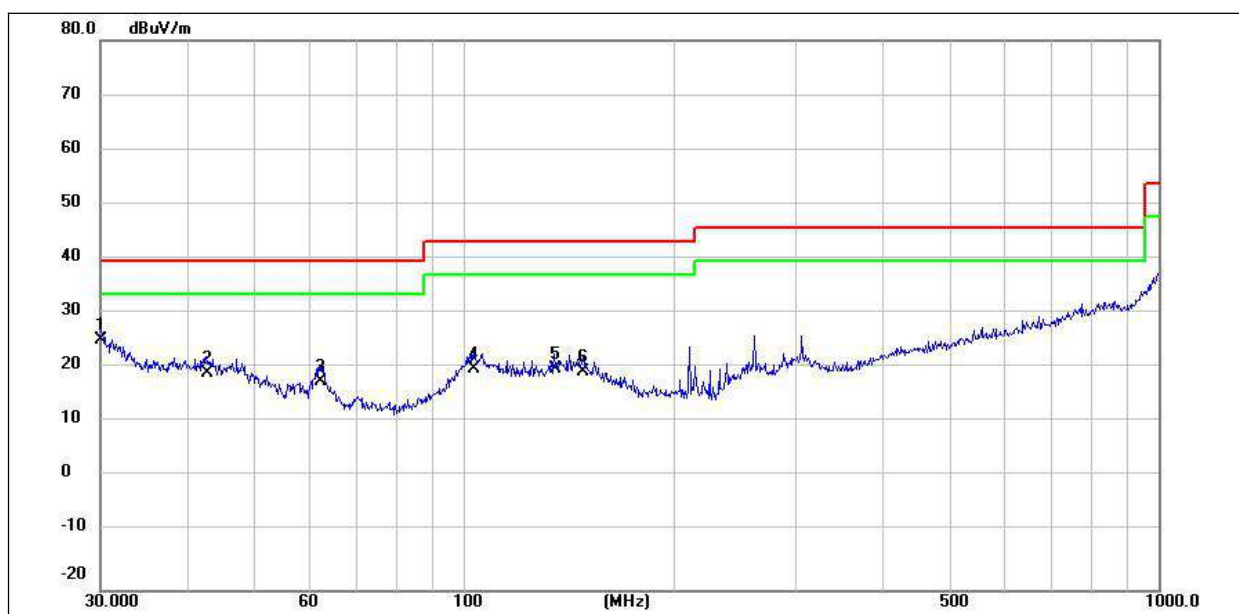
Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

Note: Only the worst Data 802.11b/2412MHz Record in the report.

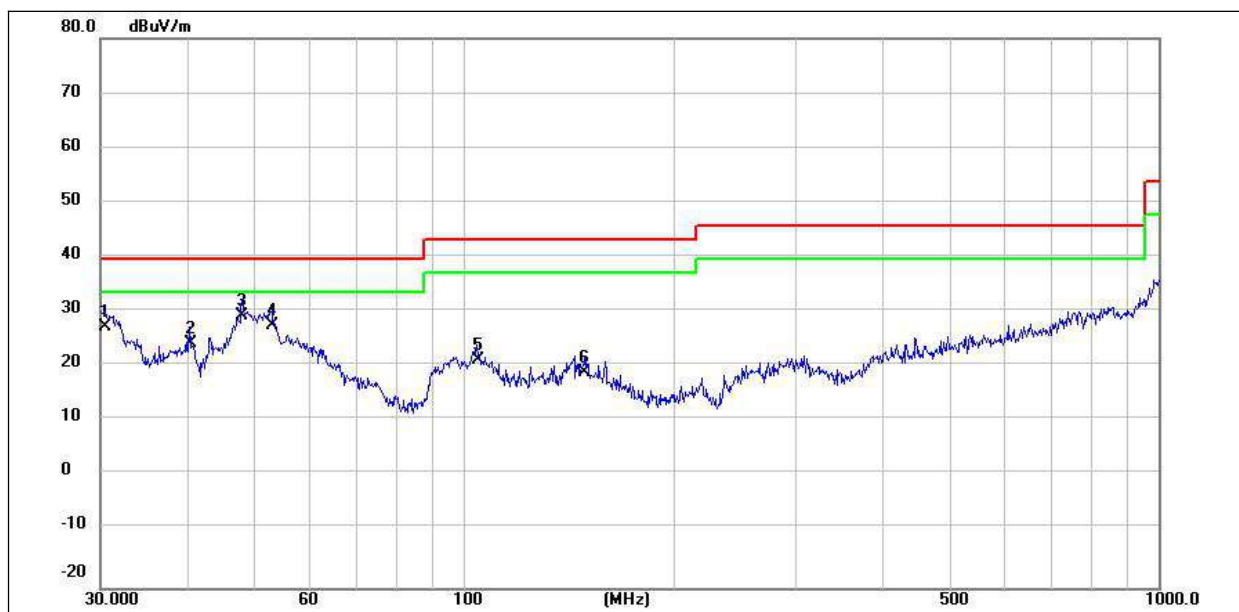
Test Frequency : 30MHz ~ 1GHz

| Radiation Emission Test Data |              |                    |             |
|------------------------------|--------------|--------------------|-------------|
| Temperature:                 | 25.1℃        | Relative Humidity: | 56%         |
| Pressure:                    | 1008hPa      | Phase :            | Horizontal  |
| Test Voltage :               | AC 120V/60Hz | Test Mode          | TM1-2412MHz |
| Model No. :                  | W10-V1.2     |                    |             |



| No. | Frequency (MHz) | Reading Level (dBuV) | Correct Factor (dB/m) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |  |  |  |
|-----|-----------------|----------------------|-----------------------|-------------------------|----------------|-------------|--------|--|--|--|
| 1   | 30.0000         | 22.21                | 3.38                  | 25.59                   | 40.00          | -14.41      | QP     |  |  |  |
| 2   | 42.6000         | 22.70                | -3.03                 | 19.67                   | 40.00          | -20.33      | QP     |  |  |  |
| 3   | 61.9951         | 27.90                | -9.93                 | 17.97                   | 40.00          | -22.03      | QP     |  |  |  |
| 4   | 103.4421        | 24.91                | -4.57                 | 20.34                   | 43.50          | -23.16      | QP     |  |  |  |
| 5   | 135.0319        | 23.33                | -2.93                 | 20.40                   | 43.50          | -23.10      | QP     |  |  |  |
| 6   | 148.4410        | 23.17                | -3.32                 | 19.85                   | 43.50          | -23.65      | QP     |  |  |  |

| Radiation Emission Test Data |              |                    |             |
|------------------------------|--------------|--------------------|-------------|
| Temperature:                 | 25.1°C       | Relative Humidity: | 56%         |
| Pressure:                    | 1008hPa      | Phase :            | Vertical    |
| Test Voltage :               | AC 120V/60Hz | Test Mode          | TM1-2412MHz |
| Model No. :                  | W10-V1.2     |                    |             |



| No. | Frequency (MHz) | Reading Level (dBuV) | Correct Factor (dB/m) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |  |  |  |
|-----|-----------------|----------------------|-----------------------|-------------------------|----------------|-------------|--------|--|--|--|
| 1   | 30.5306         | 24.69                | 2.81                  | 27.50                   | 40.00          | -12.50      | QP     |  |  |  |
| 2   | 40.2757         | 26.71                | -2.14                 | 24.57                   | 40.00          | -15.43      | QP     |  |  |  |
| 3   | 47.9940         | 34.77                | -5.09                 | 29.68                   | 40.00          | -10.32      | QP     |  |  |  |
| 4   | 52.9453         | 34.89                | -7.00                 | 27.89                   | 40.00          | -12.11      | QP     |  |  |  |
| 5   | 104.5361        | 25.97                | -4.50                 | 21.47                   | 43.50          | -22.03      | QP     |  |  |  |
| 6   | 149.4857        | 22.81                | -3.42                 | 19.39                   | 43.50          | -24.11      | QP     |  |  |  |

### Test Frequency 1GHz-25GHz:

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b\_2412MHz recorded was report as below:

| Test mode: 802.11b |          | Frequency:             |       | Channel 1: 2412MHz |       |          |        |
|--------------------|----------|------------------------|-------|--------------------|-------|----------|--------|
| Freq. (MHz)        | Ant.Pol. | Emission Level(dBuV/m) |       | Limit 3m(dBuV/m)   |       | Over(dB) |        |
|                    | H/V      | PK                     | AV    | PK                 | AV    | PK       | AV     |
| 4824               | V        | 45.61                  | 44.91 | 74.00              | 54.00 | -28.39   | -9.09  |
| 7236               | V        | 46.68                  | 41.22 | 74.00              | 54.00 | -27.32   | -12.78 |
| 9648               | V        | 58.02                  | 35.74 | 74.00              | 54.00 | -15.98   | -18.26 |
| 12060              | V        | 47.60                  | 38.45 | 74.00              | 54.00 | -26.40   | -15.55 |
| 14472              | V        | 58.60                  | 40.23 | 74.00              | 54.00 | -15.40   | -13.77 |
| 4824               | H        | 57.42                  | 43.31 | 74.00              | 54.00 | -16.58   | -10.69 |
| 7236               | H        | 47.06                  | 43.06 | 74.00              | 54.00 | -26.94   | -10.94 |
| 9648               | H        | 51.82                  | 41.03 | 74.00              | 54.00 | -22.18   | -12.97 |
| 12060              | H        | 47.35                  | 35.87 | 74.00              | 54.00 | -26.65   | -18.13 |
| 14472              | H        | 58.08                  | 42.44 | 74.00              | 54.00 | -15.92   | -11.56 |

**Note:** (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.

### Radiated Band Emission Measurement:

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:

| Test mode: 802.11b |              | Frequency:            |                   | Channel 1: 2412MHz    |                   |
|--------------------|--------------|-----------------------|-------------------|-----------------------|-------------------|
| Frequency (MHz)    | Polarity H/V | PK(dBuV/m) (VBW=3MHz) | Limit 3m (dBuV/m) | AV(dBuV/m) (VBW=10Hz) | Limit 3m (dBuV/m) |
| 2310.00            | H            | 55.72                 | 74.00             | 44.34                 | 54.00             |
| 2390.00            | H            | 58.80                 | 74.00             | 44.93                 | 54.00             |
| 2310.00            | V            | 58.91                 | 74.00             | 43.83                 | 54.00             |
| 2390.00            | V            | 48.06                 | 74.00             | 35.52                 | 54.00             |

| Test mode: 802.11b |              | Frequency:            |                   | Channel 11: 2462MHz   |                   |
|--------------------|--------------|-----------------------|-------------------|-----------------------|-------------------|
| Frequency (MHz)    | Polarity H/V | PK(dBuV/m) (VBW=3MHz) | Limit 3m (dBuV/m) | AV(dBuV/m) (VBW=10Hz) | Limit 3m (dBuV/m) |
| 2483.50            | H            | 54.80                 | 74.00             | 37.56                 | 54.00             |
| 2500.00            | H            | 55.07                 | 74.00             | 35.29                 | 54.00             |
| 2483.50            | V            | 52.30                 | 74.00             | 36.05                 | 54.00             |
| 2500.00            | V            | 48.12                 | 74.00             | 38.44                 | 54.00             |

**Note:** (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz)  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.

## 4. Conducted Spurious Emissions

### 4.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247  
Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02;  
ANSI C63.10-2020+Cor 1-2023  
Test Result: PASS

#### Limit:

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

### 4.2.Test Setup



### 4.3.Test Procedure

- 1) Remove the antenna from the EUT and connect to the spectrum analyzer via a low loss RF cable.
- 2) Set instrument center frequency to DTS channel center frequency.
- 3) Set the span to 1.5 times the DTS bandwidth.
- 4) Set the RBW = 100 kHz.
- 5) Set the VBW [3 × RBW].
- 6) Detector = peak.
- 7) Sweep time = auto couple.
- 8) Trace mode = max hold.
- 9) Allow trace to fully stabilize.
- 10) Use the peak marker function to determine the maximum PSD level.

#### Emission level measurement:

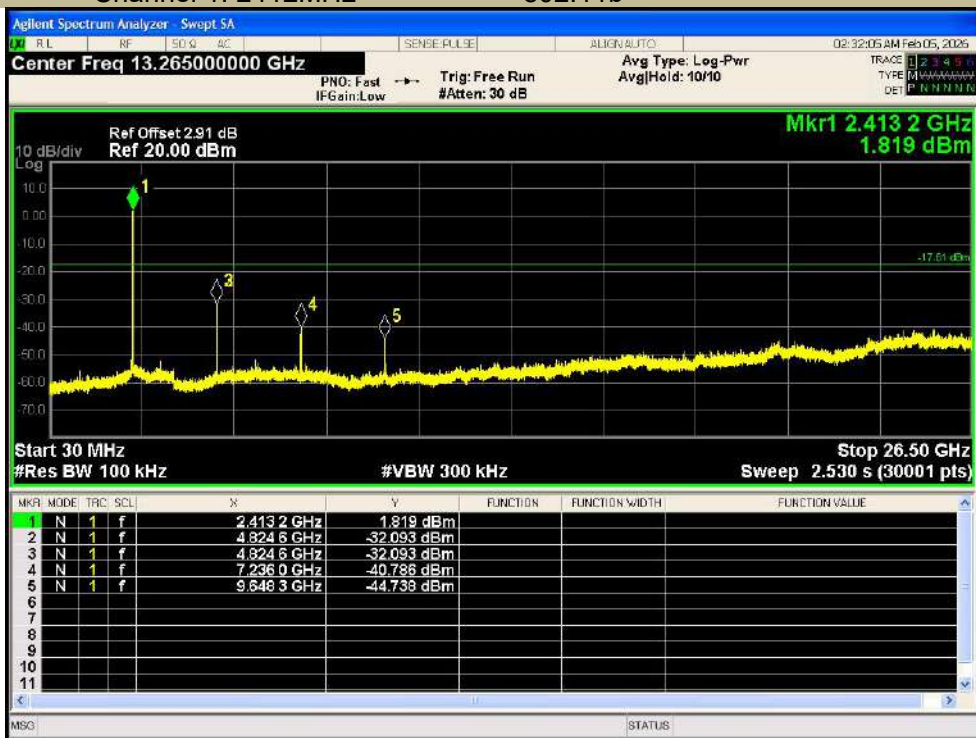
- 1) Set the center frequency and span to encompass frequency range to be measured.
- 2) Set the RBW = 100 kHz.
- 3) Set the VBW [3 × RBW].
- 4) Detector = peak.
- 5) Sweep time = auto couple.
- 6) Trace mode = max hold.
- 7) Allow trace to fully stabilize.
- 8) Use the peak marker function to determine the maximum amplitude level.

### 4.4.Test Result

Test Model

Maximum Conducted Level RBW=100kHz  
Channel 1: 2412MHz 802.11b

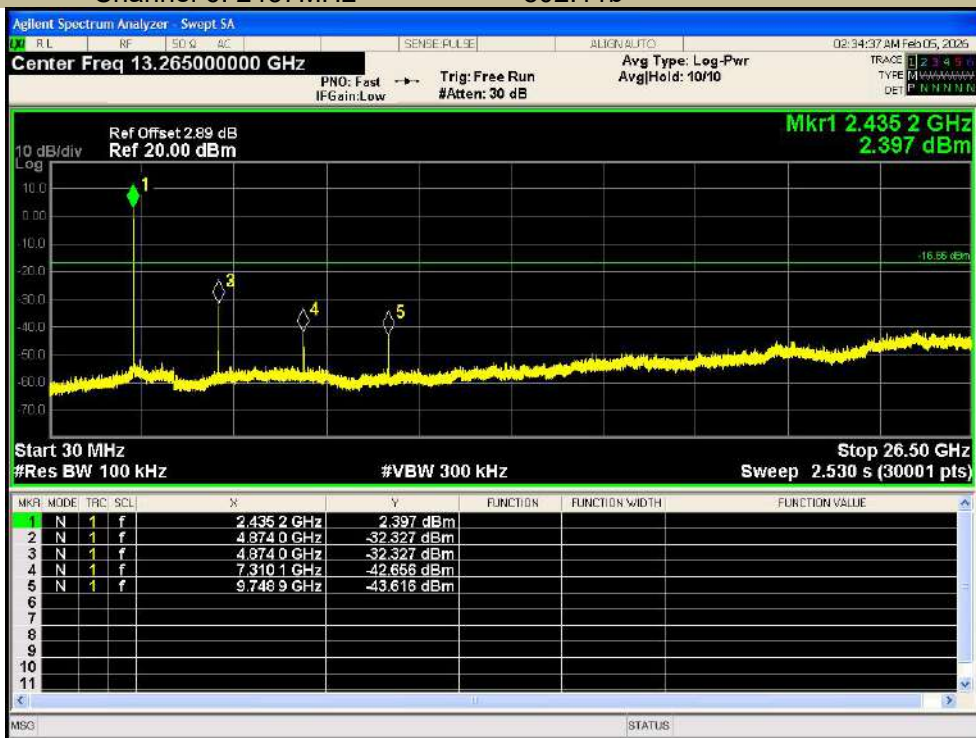

Test Model

Conducted Spurious RF Conducted Emission  
Channel 1: 2412MHz 802.11b


Test Model

Maximum Conducted Level RBW=100kHz  
Channel 6: 2437MHz 802.11b

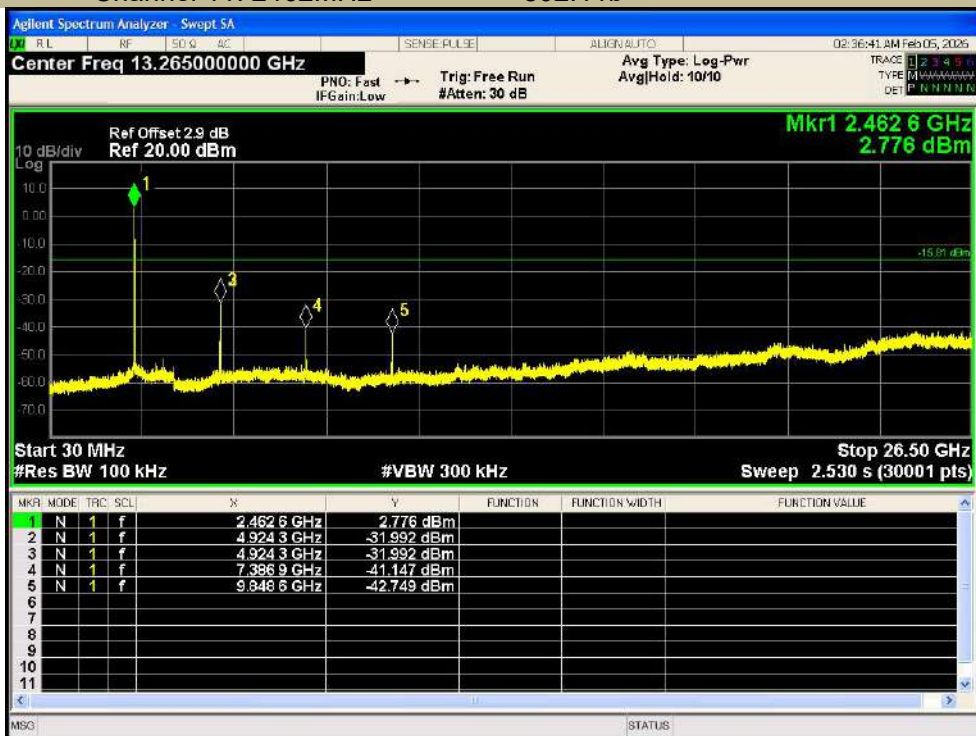

Test Model

Conducted Spurious RF Conducted Emission  
Channel 6: 2437MHz 802.11b


Test Model Maximum Conducted Level RBW=100kHz  
Channel 11: 2462MHz 802.11b



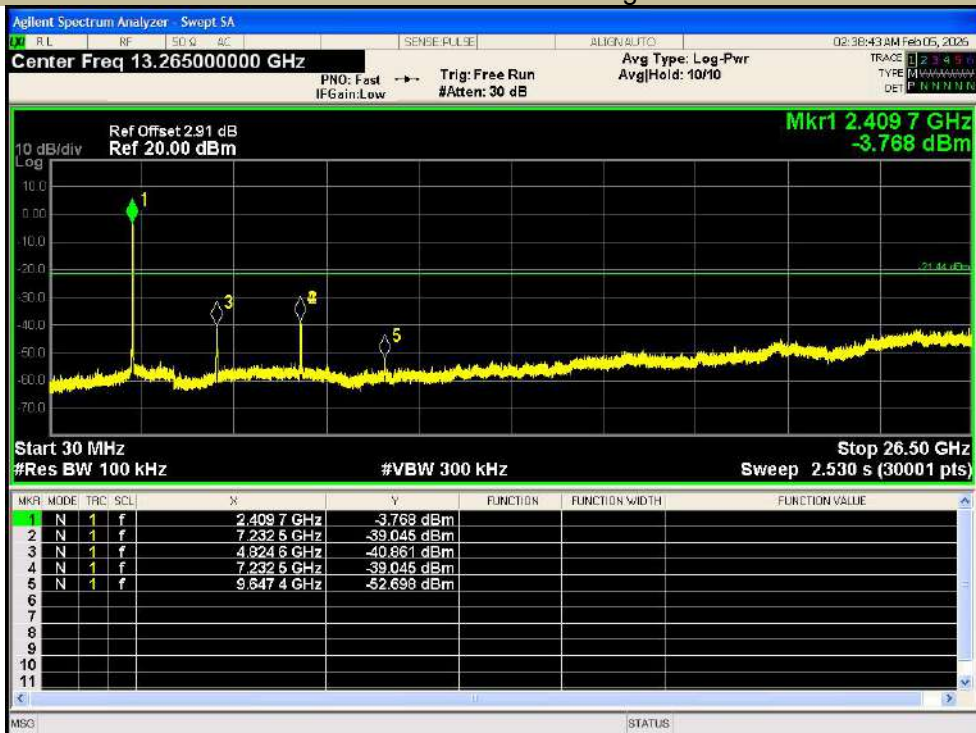
Test Model Conducted Spurious RF Conducted Emission  
Channel 11: 2462MHz 802.11b



Test Model Maximum Conducted Level RBW=100kHz  
Channel 1: 2412MHz 802.11g



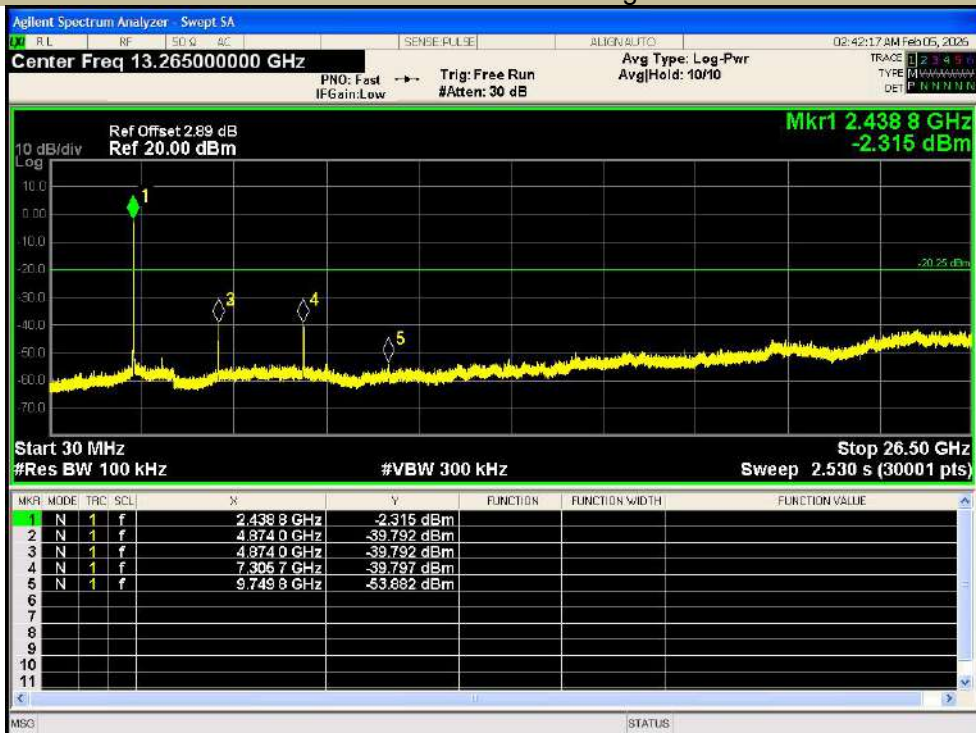
Test Model Conducted Spurious RF Conducted Emission  
Channel 1: 2412MHz 802.11g



Test Model Maximum Conducted Level RBW=100kHz  
Channel 6: 2437MHz 802.11g



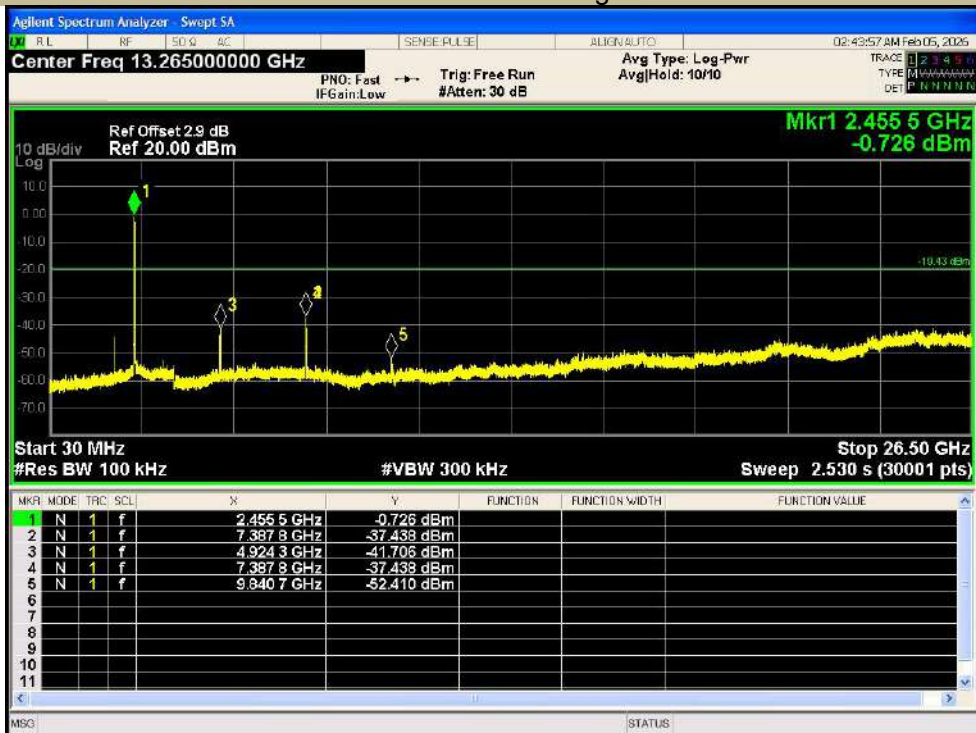
Test Model Conducted Spurious RF Conducted Emission  
Channel 6: 2437MHz 802.11g



Test Model Maximum Conducted Level RBW=100kHz  
Channel 11: 2462MHz 802.11g



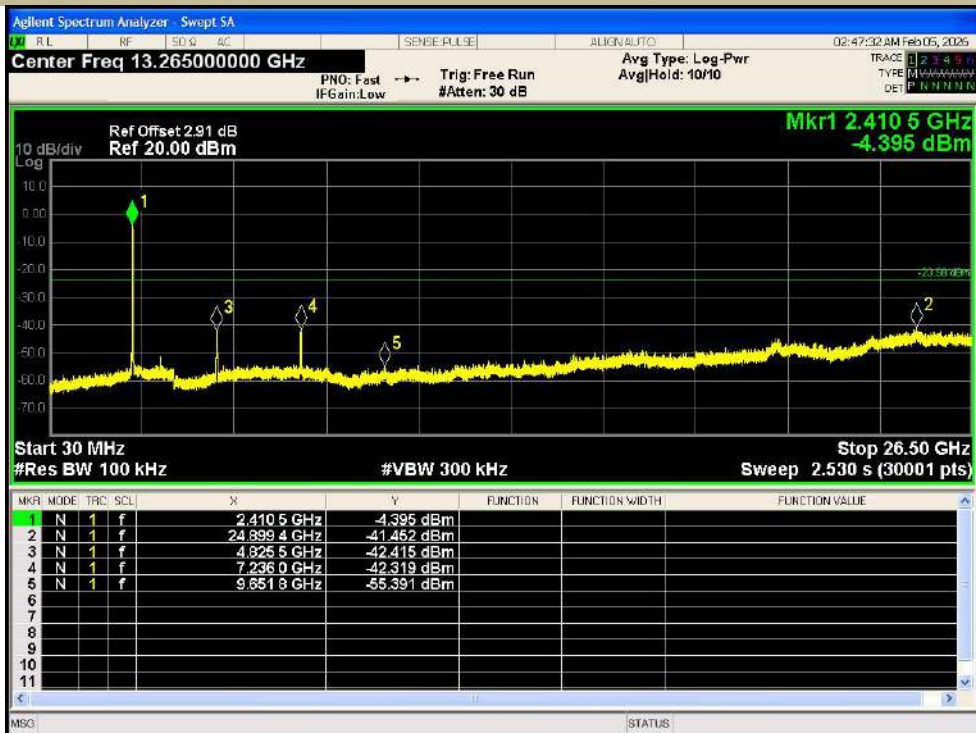
Test Model Conducted Spurious RF Conducted Emission  
Channel 11: 2462MHz 802.11g



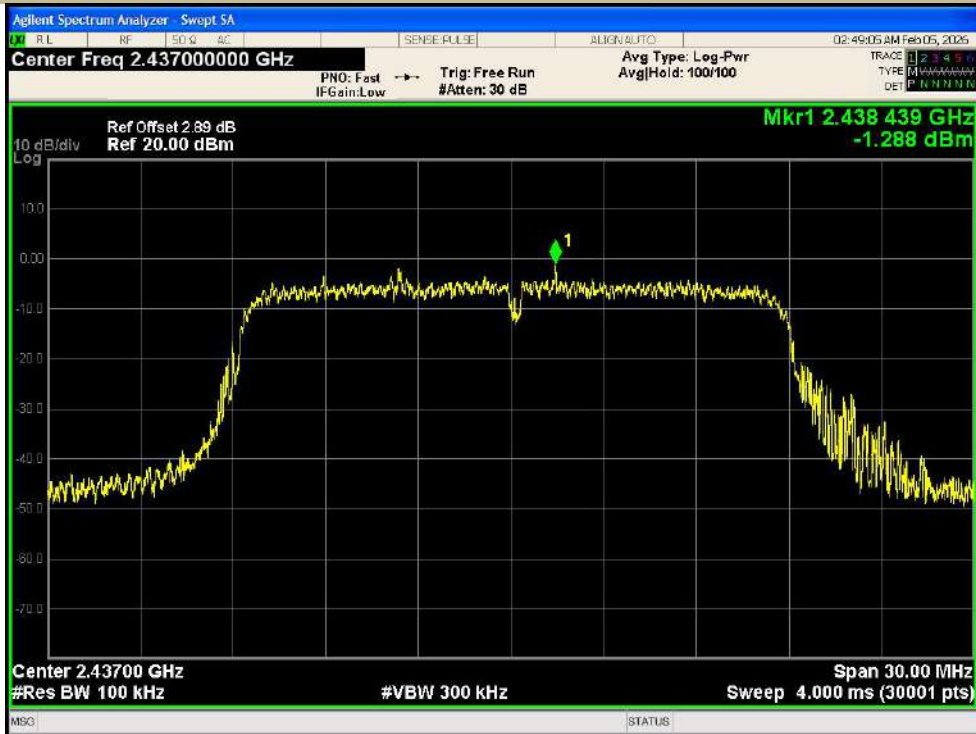
Test Model Maximum Conducted Level RBW=100kHz  
Channel 1: 2412MHz 802.11n20



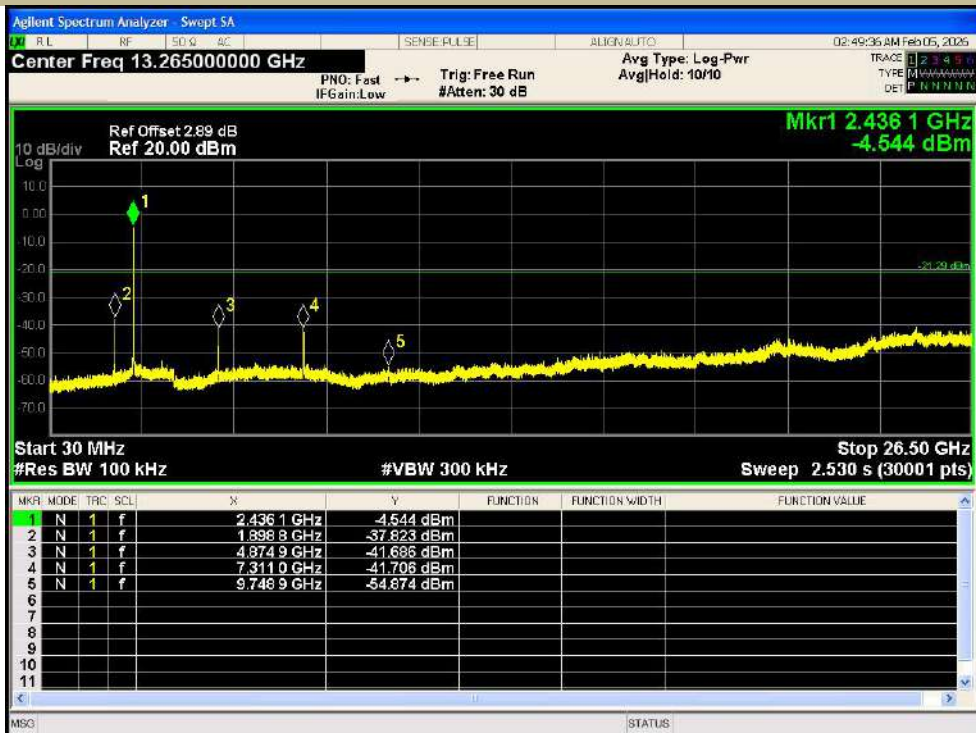
Test Model Conducted Spurious RF Conducted Emission  
Channel 1: 2412MHz 802.11n20



Test Model Maximum Conducted Level RBW=100kHz  
Channel 6: 2437MHz 802.11n20



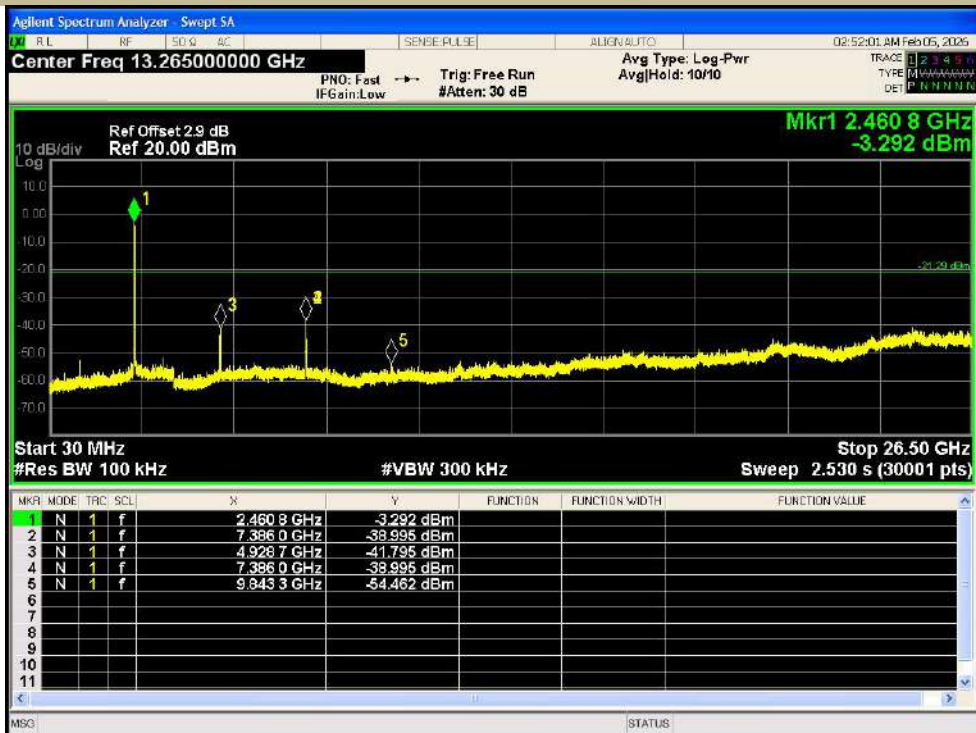
Test Model Conducted Spurious RF Conducted Emission  
Channel 6: 2437MHz 802.11n20



Test Model Maximum Conducted Level RBW=100kHz  
Channel 11: 2462MHz 802.11n20



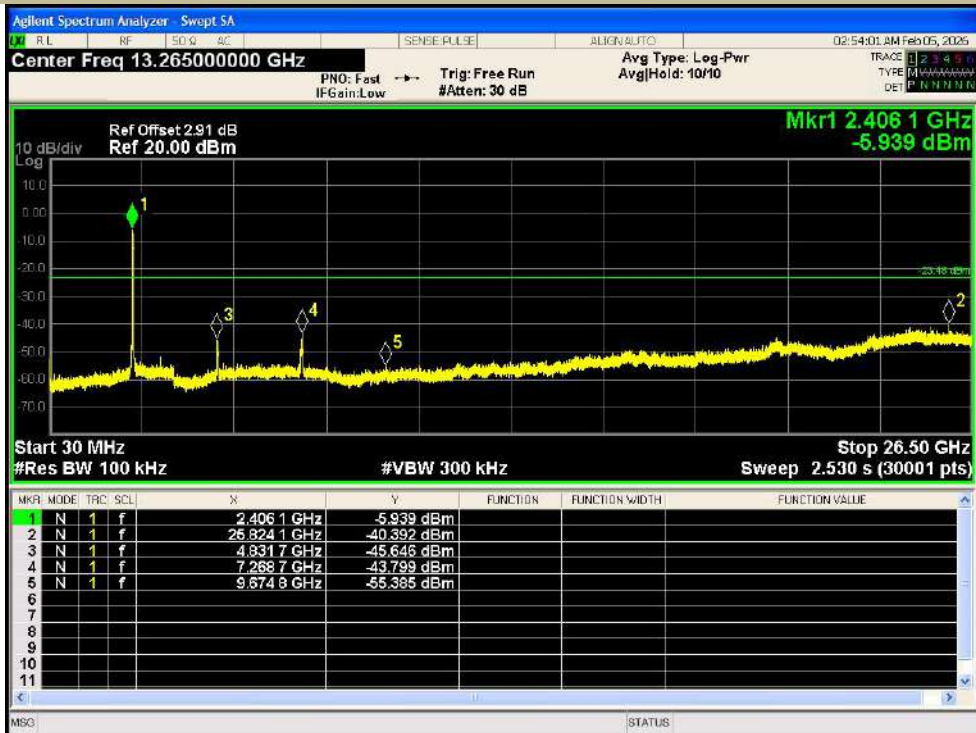
Test Model Conducted Spurious RF Conducted Emission  
Channel 11: 2462MHz 802.11n20



Test Model

Maximum Conducted Level RBW=100kHz  
Channel 3: 2422MHz 802.11n40

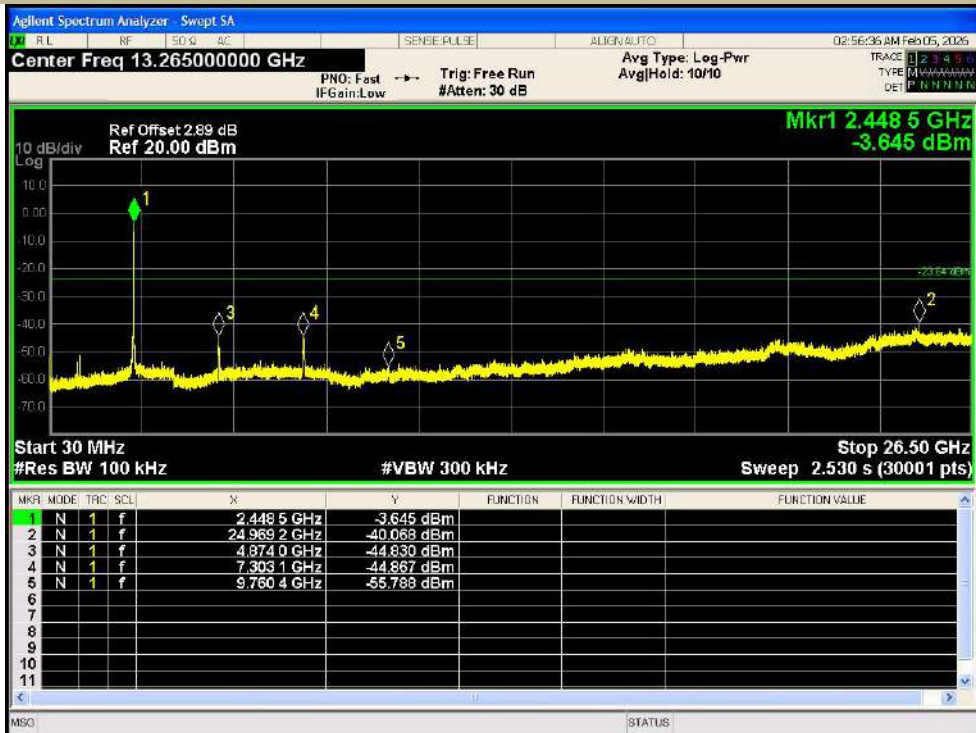

Test Model

Conducted Spurious RF Conducted Emission  
Channel 3: 2422MHz 802.11n40


Test Model

Maximum Conducted Level RBW=100kHz  
Channel 6: 2437MHz 802.11n40

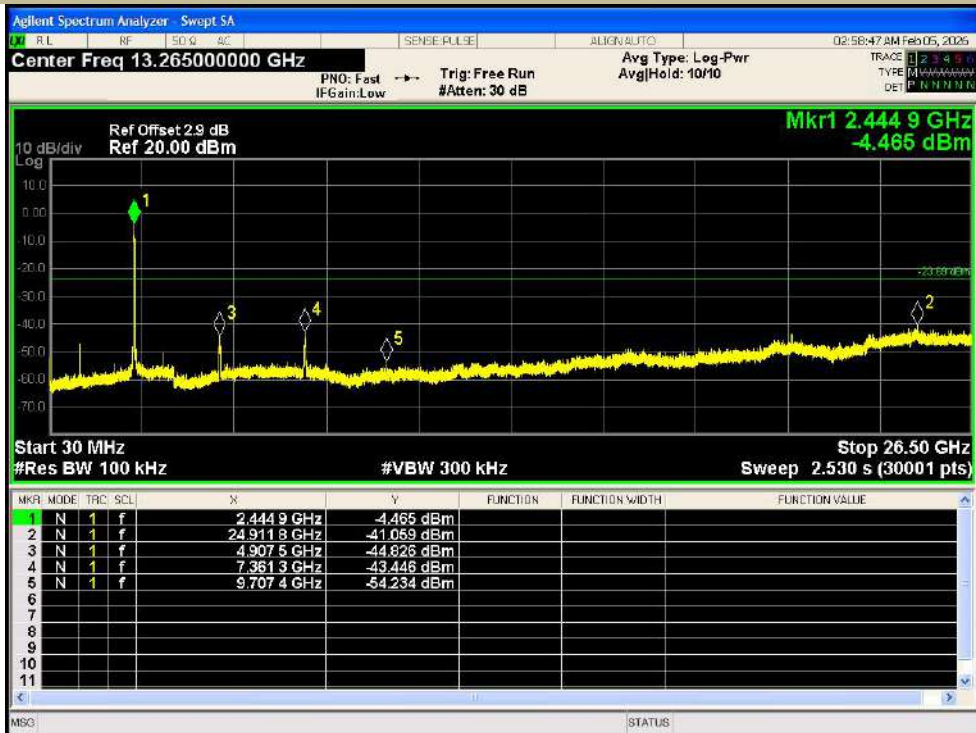

Test Model

Conducted Spurious RF Conducted Emission  
Channel 6: 2437MHz 802.11n40


Test Model

Maximum Conducted Level RBW=100kHz  
Channel 9: 2452MHz 802.11n40


Test Model

Conducted Spurious RF Conducted Emission  
Channel 9: 2452MHz 802.11n40


## 5. Band Edge Measurement

### 5.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02;

ANSI C63.10-2020+Cor 1-2023

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

Test Mode: TM1

### 5.2.Test setup



### 5.3.Test Procedure

- 1) Remove the antenna from the EUT and connect to the spectrum analyzer via a low loss RF cable.
- 2) Set instrument center frequency to DTS channel center frequency.
- 3) Set the span to 1.5 times the DTS bandwidth.
- 4) Set the RBW = 100 kHz.
- 5) Set the VBW [3 × RBW].
- 6) Detector = peak.
- 7) Sweep time = auto couple.
- 8) Trace mode = max hold.
- 9) Allow trace to fully stabilize.
- 10) Use the peak marker function to determine the maximum PSD level.

Emission level measurement:

- 1) Set the center frequency and span to encompass frequency range to be measured.
- 2) Set the RBW = 100 kHz.
- 3) Set the VBW [3 × RBW].
- 4) Detector = peak.
- 5) Sweep time = auto couple.
- 6) Trace mode = max hold.
- 7) Allow trace to fully stabilize.
- 8) Use the peak marker function to determine the maximum amplitude level.

### 5.4.Test Result

Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11b



Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11b



Test Model

Band-edge Conducted Emissions

Channel 11: 2462MHz

802.11b

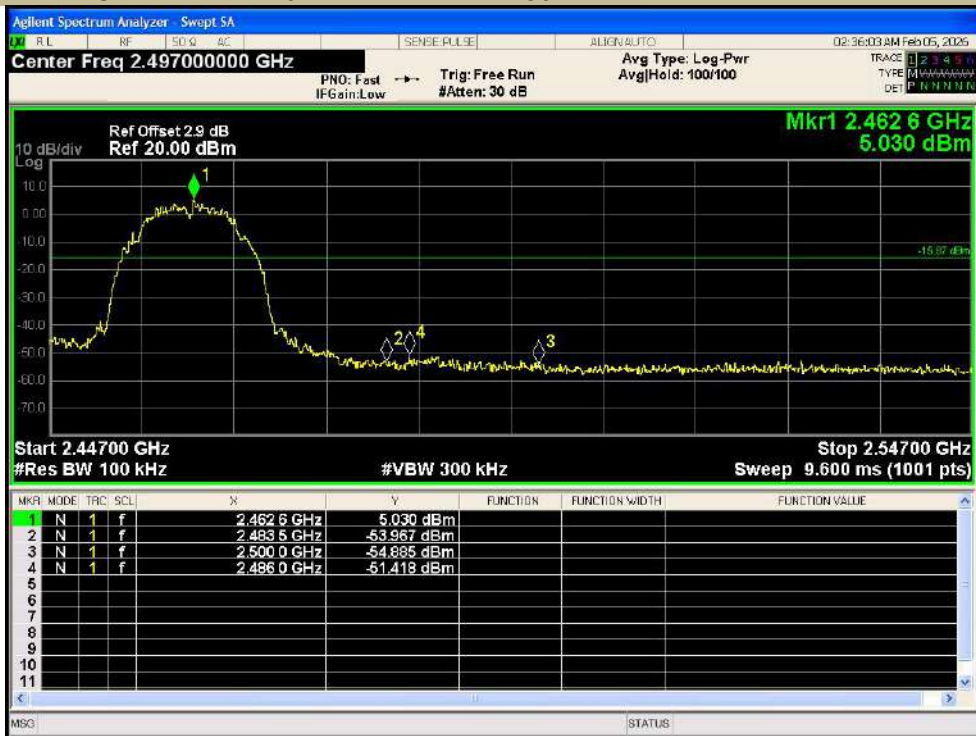


Test Model

Band-edge Conducted Emissions

Channel 11: 2462MHz

802.11b



Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11g



Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11g



Test Model Band-edge Conducted Emissions  
Channel 11: 2462MHz 802.11g



Test Model Band-edge Conducted Emissions  
Channel 11: 2462MHz 802.11g



Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11n20



Test Model Band-edge Conducted Emissions  
Channel 1: 2412MHz 802.11n20



Test Model

Band-edge Conducted Emissions

Channel 11: 2462MHz

802.11n20



Test Model

Band-edge Conducted Emissions

Channel 11: 2462MHz

802.11n20



Test Model Band-edge Conducted Emissions  
Channel 3: 2422MHz 802.11n40



Test Model Band-edge Conducted Emissions  
Channel 3: 2422MHz 802.11n40



Test Model

Band-edge Conducted Emissions

Channel 6: 2452MHz

802.11n40



Test Model

Band-edge Conducted Emissions

Channel 9: 2452MHz

802.11n40



## 6. -6 dB Bandwidth and 99% Bandwidth Measurement

### 6.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02; ANSI C63.10-2020+Cor 1-2023

### 6.2.Test Setup



### 6.3.Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. 6dB: Set RBW = shall be in the range of 1%% to 5% of the OBW but not less than 100 kHz.  
Set the VBW  $\geq [3 \times \text{RBW}]$ .  
Detector = peak.  
Trace mode = max-hold.  
Sweep = No faster than coupled (auto) time.  
Allow the trace to stabilize.

99%: Set RBW = 1%~5% of 99% bandwidth, VBW  $\geq [3 \times \text{RBW}]$ , Sweep = Auto.

### 6.4.Test Result

| Operation Mode | Channel Number | Channel Frequency (MHz) | Measurement Bandwidth (MHz) | Limit (kHz) | Verdict |
|----------------|----------------|-------------------------|-----------------------------|-------------|---------|
| 802.11b        | 1              | 2412                    | 9.095                       | >500        | PASS    |
|                | 6              | 2437                    | 8.804                       | >500        | PASS    |
|                | 11             | 2462                    | 8.788                       | >500        | PASS    |
| 802.11g        | 1              | 2412                    | 16.639                      | >500        | PASS    |
|                | 6              | 2437                    | 16.584                      | >500        | PASS    |
|                | 11             | 2462                    | 16.221                      | >500        | PASS    |
| 802.11n20      | 1              | 2412                    | 17.282                      | >500        | PASS    |
|                | 6              | 2437                    | 17.366                      | >500        | PASS    |
|                | 11             | 2462                    | 17.152                      | >500        | PASS    |
| 802.11n40      | 1              | 2422                    | 35.09                       | >500        | PASS    |
|                | 6              | 2437                    | 34.895                      | >500        | PASS    |
|                | 11             | 2452                    | 35.352                      | >500        | PASS    |

Test Model -6dB Bandwidth  
Channel 1: 2412MHz 802.11b



Test Model -6dB Bandwidth  
Channel 1: 2437MHz 802.11b



Test Model      -6dB Bandwidth  
Channel 11: 2462MHz      802.11b



Test Model      -6dB Bandwidth  
Channel 1: 2412MHz      802.11g



Test Model -6dB Bandwidth  
Channel 6: 2437MHz 802.11g



Test Model -6dB Bandwidth  
Channel 11: 2462MHz 802.11g



Test Model -6dB Bandwidth  
Channel 1: 2412MHz 802.11n20



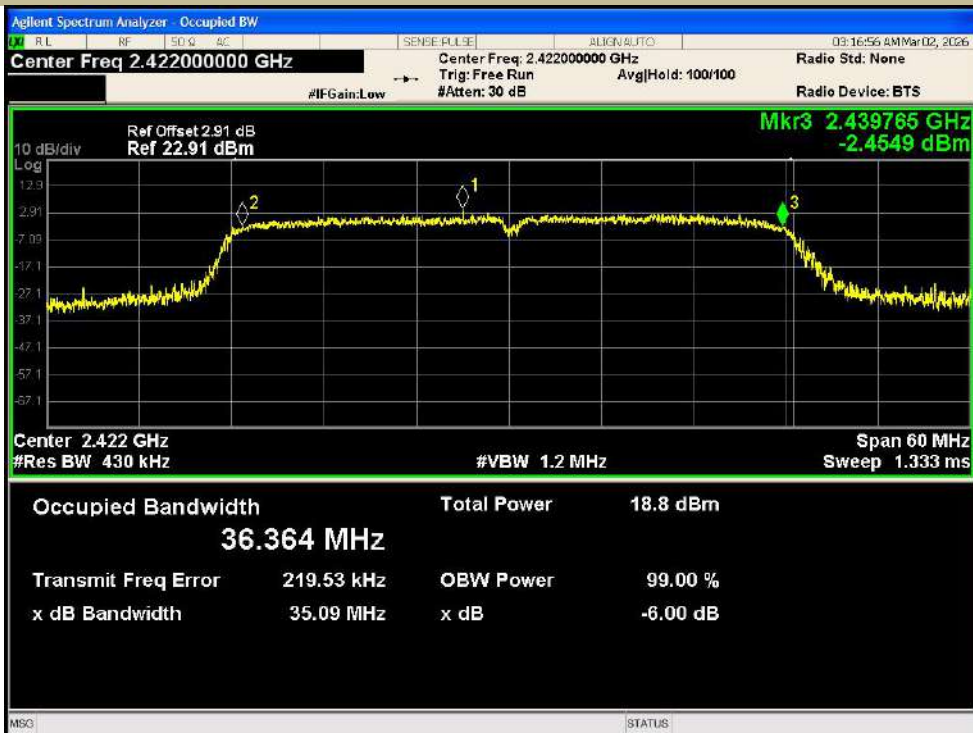
Test Model -6dB Bandwidth  
Channel 6: 2437MHz 802.11n20



Test Model      -6dB Bandwidth  
Channel 11: 2462MHz      802.11n20



Test Model      -6dB Bandwidth  
Channel 3: 2422MHz      802.11n40



Test Model      -6dB Bandwidth  
Channel 6: 2437MHz      802.11n40



Test Model      -6dB Bandwidth  
Channel 9: 2452MHz      802.11n40



## 7. Maximum Output Power& E.I.R.P

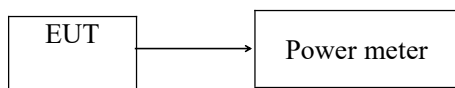
### 7.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02;  
ANSI C63.10-2020+Cor 1-2023

| FCC Part15 (15.247) , Subpart C |              |                 |                       |        |
|---------------------------------|--------------|-----------------|-----------------------|--------|
| Section                         | Test Item    | Limit           | Frequency Range (MHz) | Result |
| 15.247(b)(3)                    | Output Power | 1 watt or 30dBm | 2400-2483.5           | PASS   |

### 7.2.Test Setup



### 7.3.Test Procedure

1. The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum output power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the report.

### 7.4.Test Result

| Mode | Frequency (MHz) | Conducted Power (dBm) | Limit (dBm) | E.I.R.P value (dBm) | Test Result |
|------|-----------------|-----------------------|-------------|---------------------|-------------|
| b    | 2412            | 15.75                 | 30          | 17.75               | PASS        |
| b    | 2437            | 16.42                 | 30          | 18.42               | PASS        |
| b    | 2462            | 17.15                 | 30          | 19.15               | PASS        |
| g    | 2412            | 15.21                 | 30          | 17.21               | PASS        |
| g    | 2437            | 15.99                 | 30          | 17.99               | PASS        |
| g    | 2462            | 16.65                 | 30          | 18.65               | PASS        |
| n20  | 2412            | 14.10                 | 30          | 16.10               | PASS        |
| n20  | 2437            | 14.88                 | 30          | 16.88               | PASS        |
| n20  | 2462            | 15.69                 | 30          | 17.69               | PASS        |
| n40  | 2422            | 14.51                 | 30          | 16.51               | PASS        |
| n40  | 2437            | 14.82                 | 30          | 16.82               | PASS        |
| n40  | 2452            | 15.24                 | 30          | 17.24               | PASS        |

Note: EIRP= Total Output Power+ ANT Gain, ANT Gain =2dBi.

## 8. Power Spectral Density

### 8.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02; ANSI C63.10-2020+Cor 1-2023

| FCC Part15 (15.247) , Subpart C |                        |           |                       |        |
|---------------------------------|------------------------|-----------|-----------------------|--------|
| Section                         | Test Item              | Limit     | Frequency Range (MHz) | Result |
| 15.247 (e)                      | Power Spectral Density | 8dBm/3kHz | 2400-2483.5           | PASS   |

### 8.2.Test Setup



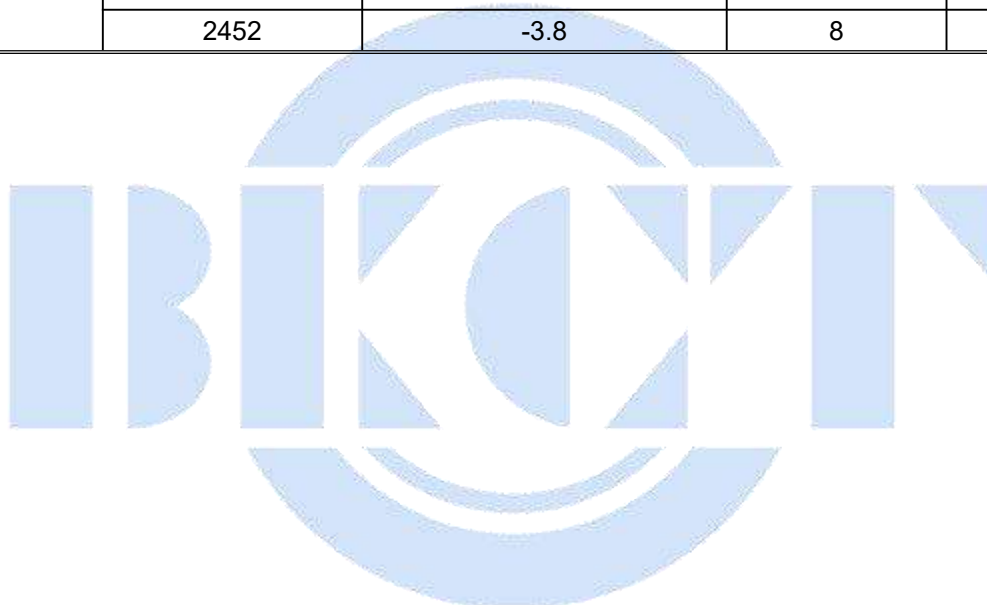
### 8.3.Test Procedure

KDB 558074 D01 15.247 Meas Guidance v05r02;

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set instrument center frequency to DTS channel center frequency
3. Set span to  $> 1.5$  times the OBW.
4. Set RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
5. Set VBW  $\geq [3 \times \text{RBW}]$
6. Detector = power averaging (rms) or sample detector (when rms not available).
7. Ensure that the number of measurement points in the sweep  $\geq [2 \times \text{span} / \text{RBW}]$ .
8. Sweep time = auto couple.
9. Employ trace averaging (rms) mode over a minimum of 100 traces.
10. Use the peak marker function to determine the maximum amplitude level.
11. If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat(note that this might require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).
12. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

#### 8.4. Test Result

| Operation Mode | Frequency (MHz) | Power density (dBm/3kHz) | (dBm/3kHz) Limit | Test Result |
|----------------|-----------------|--------------------------|------------------|-------------|
| 802.11b        | 2412            | 3.22                     | 8                | PASS        |
|                | 2437            | 3.27                     | 8                | PASS        |
|                | 2462            | 4.09                     | 8                | PASS        |
| 802.11g        | 2412            | -0.97                    | 8                | PASS        |
|                | 2437            | -0.75                    | 8                | PASS        |
|                | 2462            | 1.42                     | 8                | PASS        |
| 802.11n20      | 2412            | -2.69                    | 8                | PASS        |
|                | 2437            | -1.5                     | 8                | PASS        |
|                | 2462            | -2.25                    | 8                | PASS        |
| 802.11n40      | 2422            | -4.09                    | 8                | PASS        |
|                | 2437            | -4.29                    | 8                | PASS        |
|                | 2452            | -3.8                     | 8                | PASS        |



Test Model Power Spectral Density Channel 1: 2412MHz 802.11b



Test Model Power Spectral Density Channel 6: 2437MHz 802.11b



Test Model      Power Spectral Density      802.11b  
Channel 11: 2462MHz



Test Model      Power Spectral Density      802.11g  
Channel 1: 2412MHz



Test Model Power Spectral Density Channel 6: 2437MHz 802.11g



Test Model Power Spectral Density Channel 11: 2462MHz 802.11g



Test Model

Power Spectral Density  
Channel 1: 2412MHz

802.11n20



Test Model

Power Spectral Density  
Channel 6: 2437MHz

802.11n20



Test Model Power Spectral Density Channel 11: 2462MHz 802.11n20



Test Model Power Spectral Density Channel 3: 2422MHz 802.11n40



Test Model Power Spectral Density Channel 6: 2437MHz 802.11n40



Test Model Power Spectral Density Channel 9: 2452MHz 802.11n40



## 9. Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. This product has an ceramic antenna fulfill the requirement of this section.

## 10. Test Photographs

Please see Attachment for test photographs.

## 11. Appendix I: Photos of the EUT

12. Please see Attachment for EUT photographs.

