

## TEST REPORT

**Application No.:** GZCR2604000634LM

**Applicant:** Shenzhen Daybetter OPTO-ELECTRONICS Co., Ltd

**Address of Applicant:** Floor 4, Building 2, Antuoshan High-tech Park, Xinsha Road, Shajing, Baoan District, Shenzhen, China

**Manufacturer:** Shenzhen Daybetter OPTO-ELECTRONICS Co., Ltd

**Address of Manufacturer:** Floor 4, Building 2, Antuoshan High-tech Park, Xinsha Road, Shajing, Baoan District, Shenzhen, China

**Factory:** Shenzhen Daybetter OPTO-ELECTRONICS Co., Ltd

**Address of Factory:** Floor 4, Building 2, Antuoshan High-tech Park, Xinsha Road, Shajing, Baoan District, Shenzhen, China

**Product Name:** LED strip lights

**Model No.:** TC00A150000-KW03, TC00A150000-KS03, TC00A110000-KW03, TC00A110000-KS03, TC206275000-KW03, TC206260000-KW03, TC206275000-KS03, TC00A150000-WW03, TC00A110000-WW03, TC00A150000-WS03 ♣

♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

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

**Date of Receipt:** 2026-04-01

**Date of Test:** 2026-04-21 to 2026-05-10

**Date of Issue:** 2026-07-16

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.



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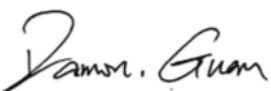
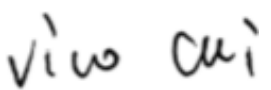
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| Revision Record |                 |            |          |
|-----------------|-----------------|------------|----------|
| Version         | Report No.      | Date       | Remark   |
| 01              | GZCR26040006302 | 2026-07-16 | Original |
|                 |                 |            |          |
|                 |                 |            |          |

|                          |  |                                                                                     |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                     |  |
|                          |  |  |  |
|                          |  | Damon Guan/Project Engineer                                                         |  |
| Approved By              |  |  |  |
|                          |  | Vico Cui/Reviewer                                                                   |  |



## 2 Test Summary

| Radio Spectrum Technical Requirement |                                  |        |                                                 |        |
|--------------------------------------|----------------------------------|--------|-------------------------------------------------|--------|
| Item                                 | Standard                         | Method | Requirement                                     | Result |
| Antenna Requirement                  | 47 CFR Part 15, Subpart C 15.247 | N/A    | 47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4) | Pass   |

| Radio Spectrum Matter Part                            |                                  |                                           |                                           |        |
|-------------------------------------------------------|----------------------------------|-------------------------------------------|-------------------------------------------|--------|
| Item                                                  | Standard                         | Method                                    | Requirement                               | Result |
| Conducted Emissions at AC Power Line (150kHz-30MHz)   | 47 CFR Part 15, Subpart C 15.247 | ANSI C63.10 (2020) Section 6.2            | 47 CFR Part 15, Subpart C 15.207          | Pass   |
| Radiated Emissions which fall in the restricted bands |                                  | ANSI C63.10 (2020) Section 6.10.5 & 11.12 | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass   |
| Radiated Spurious Emissions Below 1GHz                |                                  | ANSI C63.10 (2020) Section 6.4,6.5        | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass   |
| Radiated Spurious Emissions Above 1GHz                |                                  | ANSI C63.10 (2020) Section 6.6 & 11.12    | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass   |
| Maximum Conducted Output Power                        |                                  | ANSI C63.10 (2020) Section 11.9.2         | 47 CFR Part 15, Subpart C 15.247(b)(3)    | Pass   |
| Minimum 6dB Bandwidth                                 |                                  | ANSI C63.10 (2020) Section 11.8.1         | 47 CFR Part 15, Subpart C 15.247a(2)      | Pass   |
| Power Spectral Density                                |                                  | ANSI C63.10 (2020) Section 11.10.3        | 47 CFR Part 15, Subpart C 15.247(e)       | Pass   |
| Conducted Band Edges Measurement                      |                                  | ANSI C63.10 (2020) Section 6.10.4         | 47 CFR Part 15, Subpart C 15.247(d)       | Pass   |
| Conducted Spurious Emissions                          |                                  | ANSI C63.10 (2020) Section 11.11          | 47 CFR Part 15, Subpart C 15.247(d)       | Pass   |

**Note:**

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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### ♣ Declaration of EUT Family Grouping:

Model No.:

TC00A150000-KW03, TC00A150000-KS03, TC00A110000-KW03, TC00A110000-KS03,  
TC206275000-KW03, TC206260000-KW03, TC206275000-KS03, TC00A150000-WW03,  
TC00A110000-WW03, TC00A150000-WS03

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, only different on the LED output type is single or double.

| Models No.                                                                      | Power supply     | Total Rating | LED Type | LED controller                           |
|---------------------------------------------------------------------------------|------------------|--------------|----------|------------------------------------------|
| TC00A150000-KW03,<br>TC00A150000-KS03,<br>TC00A110000-KW03,<br>TC00A110000-KS03 | BI36G-240150-AdU | Max.36W      | COB      | Wi-Fi Type,<br>Sigle output              |
| <b>TC206275000-KW03</b> ,<br>TC206260000-KW03,<br>TC206275000-KS03              |                  |              | LED 2835 | Wi-Fi Type,<br>Sigle or double<br>output |
| TC00A150000-WW03,<br>TC00A110000-WW03,<br>TC00A150000-WS03                      |                  |              | COB      | Wi-Fi Type,<br>Sigle output              |

Therefore, only one model **TC206275000-KW03** was tested in this report.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: AC 100-240V 50/60Hz for AC/DC adapter.  
AC/DC adapter Model: BI36G-240150-AdU  
Input: AC 100-240V 50/60Hz 1.2A  
Output: DC 24V 1.5A

Cable(s): About 1.8m x 2 wires unscreened DC output cable for AC/DC adapter.  
Test Voltage: AC 120 V 60 Hz  
Operation Frequency: 802.11b/g/n(HT20): 2412MHz to 2462MHz;  
802.11b: DSSS (CCK, DQPSK, DBPSK);  
Modulation Type: 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)  
Number of Channels: 802.11b/g/n(HT20):11  
Channel Spacing: 5MHz  
Antenna Type: PCB Antenna  
Antenna Gain: 3.34dBi according to antenna specification  
Antenna Number: 1

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

### 4.2 Description of Support Units

| Description        | Manufacturer | Model No.     | Serial No. |
|--------------------|--------------|---------------|------------|
| Note Book Computer | LENOVO       | ThinkPad T490 | PF1D1MVJ   |



### 4.3 Measurement Uncertainty

| Test Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Measurement Uncertainty                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Conducted Emissions at AC Power Line (150kHz-30MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ±3.22dB                                                                                                 |
| Radiated Emissions which fall in the restricted bands                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±5.14dB (3m); ±4.90dB (10m);±4.88dB (1GHz-6GHz);±5.06dB (6GHz-18GHz); ±5.30dB (18GHz-40GHz)             |
| Radiated Spurious Emissions Below 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ±3.08dB (9kHz to 150kHz);±3.19dB(150kHz to 30MHz);±5.14dB (30MHz-1GHz) (3m); ±4.90dB (30MHz-1GHz) (10m) |
| Radiated Spurious Emissions Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ±4.88dB (1GHz-6GHz);±5.06dB (6GHz-18GHz); ±5.30dB (18GHz-40GHz)                                         |
| Maximum Conducted Output Power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ± 0.75dB                                                                                                |
| Minimum 6dB Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ± 0.274%                                                                                                |
| Power Spectral Density                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ± 2.84dB                                                                                                |
| Conducted Band Edges Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ± 0.75dB                                                                                                |
| Conducted Spurious Emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ± 0.75dB                                                                                                |
| <p>Remark:</p> <p>The <math>U_{lab}</math> (lab Uncertainty) is less than <math>U_{CISPR}</math> (CISPR Uncertainty) or <math>U_{ETSI}</math>(ETSI Uncertainty).</p> <p>Emission decision rule:</p> <ul style="list-style-type: none"> <li>– Compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit, marked as Pass in the report.</li> <li>– Non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit, marked as Fail in the report.</li> </ul> |                                                                                                         |

### 4.4 Test Location

All tests were performed at:

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No tests were sub-contracted.



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## 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### ● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

### ● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

### ● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

### ● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

### ● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

### ● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

| Conducted Emissions at AC Power Line (150kHz-30MHz) |                   |                 |               |            |              |
|-----------------------------------------------------|-------------------|-----------------|---------------|------------|--------------|
| Equipment                                           | Manufacturer      | Model No.       | Inventory No. | Cal Date   | Cal Due Date |
| Coaxial Cable                                       | HangTianXing      | BL03-NMNM-6.00M | EMC0107       | 2025/8/12  | 2026/8/11    |
| Shielding Room                                      | ChangZhou ZhongYu | 8m x 3m x 3.8m  | EMC0306       | 2025/8/14  | 2028/8/13    |
| Two-Line V-Network-GZ                               | Rohde & Schwarz   | ENV216          | EMC2135       | 2025/8/13  | 2026/8/12    |
| EMI Test Receiver (9kHz-3.6GHz)                     | Rohde & Schwarz   | ESR3            | EMC2221       | 2025/11/18 | 2026/11/17   |
| Test Software E3r                                   | Audix             | Ver.6.191211    | GZE100-77     | N/A        | N/A          |

| Radiated Emissions which fall in the restricted bands |                             |               |               |           |              |
|-------------------------------------------------------|-----------------------------|---------------|---------------|-----------|--------------|
| Equipment                                             | Manufacturer                | Model No.     | Inventory No. | Cal Date  | Cal Due Date |
| 1-26.5 GHz Pre-Amplifier                              | Agilent                     | 8449B         | EMC0521       | 2025/8/11 | 2026/8/10    |
| EMI Test Receiver (10Hz-26.5GHz)                      | Rohde & Schwarz             | ESIB26        | EMC0522       | 2025/8/11 | 2026/8/10    |
| Chamber cable (Above 1GHz)                            | Scoflex                     | KMKM-8.0m     | EMC0545       | 2024/8/19 | 2026/8/18    |
| Horn Antenna (1-18GHz)                                | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120D    | EMC2026       | 2025/5/13 | 2027/5/12    |
| Horn Antenna (14-40GHz)                               | SCHWARZBECK                 | BBHA 9170     | EMC2041       | 2023/6/18 | 2026/6/17    |
| EXA Signal Analyzer (10Hz-44GHz)                      | Keysight                    | N9010A        | EMC2138       | 2025/8/12 | 2026/8/11    |
| MXE EMI Receiver (10Hz-8.4GHz)                        | Keysight                    | N9038A        | EMC2139       | 2025/8/11 | 2026/8/10    |
| 966 Anechoic Chamber                                  | Shenzhen C.R.T              | CRTSGSSAC966  | EMC2230       | 2025/3/22 | 2028/3/21    |
| Test Software E3                                      | Audix                       | Ver.6.120110a | GZE100-61     | N/A       | N/A          |



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| Radiated Spurious Emissions Below 1GHz |                             |               |               |            |              |
|----------------------------------------|-----------------------------|---------------|---------------|------------|--------------|
| Equipment                              | Manufacturer                | Model No.     | Inventory No. | Cal Date   | Cal Due Date |
| 10m Semi-Anechoic Chamber              | ETS                         | N/A           | EMC0530       | 2025/8/13  | 2028/8/12    |
| Coaxial cable                          | Mirco-COAX<br>UTIFLEX       | 311A          | EMC0540       | 2024/8/19  | 2026/8/18    |
| Amplifier (9kHz-1.3GHz)                | HP                          | 8447F         | EMC2065       | 2025/11/25 | 2026/11/24   |
| Active Loop Antenna-RED                | ETS-Lindgren                | 6502          | EMC2190       | 2026/3/28  | 2028/3/27    |
| EMI Test Receiver (9kHz-7GHz)          | Rohde & Schwarz             | ESR7          | EMC2220       | 2025/11/18 | 2026/11/17   |
| Test Software E3                       | Audix                       | Ver.6.120110a | GZE100-61     | N/A        | N/A          |
| Trilog Broadband Antenna (25MHz-2GHz)  | Schwarzbeck Mess-Elektronik | VULB 9168     | EMC2174       | 2025/4/21  | 2027/4/20    |

| Radiated Spurious Emissions Above 1GHz   |                                |               |               |           |              |
|------------------------------------------|--------------------------------|---------------|---------------|-----------|--------------|
| Equipment                                | Manufacturer                   | Model No.     | Inventory No. | Cal Date  | Cal Due Date |
| 1-26.5 GHz Pre-Amplifier                 | Agilent                        | 8449B         | EMC0521       | 2025/8/11 | 2026/8/10    |
| EMI Test Receiver (10Hz-26.5GHz)         | Rohde & Schwarz                | ESIB26        | EMC0522       | 2025/8/11 | 2026/8/10    |
| Chamber cable (Above 1GHz)               | Scoflex                        | KMKM-8.0m     | EMC0545       | 2024/8/19 | 2026/8/18    |
| Horn Antenna (1-18GHz)                   | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120D    | EMC2026       | 2025/5/13 | 2027/5/12    |
| Horn Antenna (14-40GHz)                  | SCHWARZBECK                    | BBHA 9170     | EMC2041       | 2023/6/18 | 2026/6/17    |
| 2.4GHz Filter                            | Micro-Tronics                  | BRM 50702     | EMC2069       | 2025/8/12 | 2026/8/11    |
| EXA Signal Analyzer (10Hz-44GHz)         | Keysight                       | N9010A        | EMC2138       | 2025/8/12 | 2026/8/11    |
| MXE EMI Receiver (10Hz-8.4GHz)           | Keysight                       | N9038A        | EMC2139       | 2025/8/11 | 2026/8/10    |
| 966 Anechoic Chamber                     | Shenzhen C.R.T                 | CRTSGSSAC966  | EMC2230       | 2025/3/22 | 2028/3/21    |
| Test Software E3                         | Audix                          | Ver.6.120110a | GZE100-61     | N/A       | N/A          |
| Preamplifier (1-18GHz)                   | Shenzhen TST                   | LNA010180G50  | EMC6036       | 2026/4/14 | 2027/4/13    |
| Intelligent Coaxial RF Switch (DC-18GHz) | Shenzhen TST                   | ICS01018      | EMC6037       | 2026/4/14 | 2027/4/13    |



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| RF Conducted Test                   |              |           |               |           |              |
|-------------------------------------|--------------|-----------|---------------|-----------|--------------|
| Equipment                           | Manufacturer | Model No. | Inventory No. | Cal Date  | Cal Due Date |
| MI CABLE                            | SGS-EMC      | 0.8M      | EMC2137       | 2025/11/2 | 2026/11/1    |
| 4X4 Power sensor Unit               | TST          | TSPS2023R | EMC2226       | 2025/8/12 | 2026/8/11    |
| Test Software                       | TST          | V2.0      | GZE100-78     | N/A       | N/A          |
| EXA Signal Analyzer<br>(10Hz-44GHz) | Keysight     | N9010A    | EMC2138       | 2025/8/12 | 2026/8/11    |

| General used equipment |              |          |              |            |              |
|------------------------|--------------|----------|--------------|------------|--------------|
| Equipment              | Manufacturer | Model No | Inventory No | Cal Date   | Cal Due Date |
| DMM                    | Fluke        | 73       | EMC0006      | 2025-06-03 | 2026-06-02   |



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## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

#### 6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3.34 dBi.

Antenna location: Refer to internal photo.



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## 7 Radio Spectrum Matter Test Results

### 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2020) Section 6.2

Test Engineer: Luffy Chen

Limit:

| Frequency of emission<br>(MHz)                                         | Conducted limit (dBμV) |           |
|------------------------------------------------------------------------|------------------------|-----------|
|                                                                        | Quasi-peak             | Average   |
| 0.15-0.5                                                               | 66 to 56*              | 56 to 46* |
| 0.5-5                                                                  | 56                     | 46        |
| 5-30                                                                   | 60                     | 50        |
| *Decreases with the logarithm of the frequency.                        |                        |           |
| Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz |                        |           |

#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C

Humidity: 52.6 % RH

Atmospheric Pressure: 1010 mbar

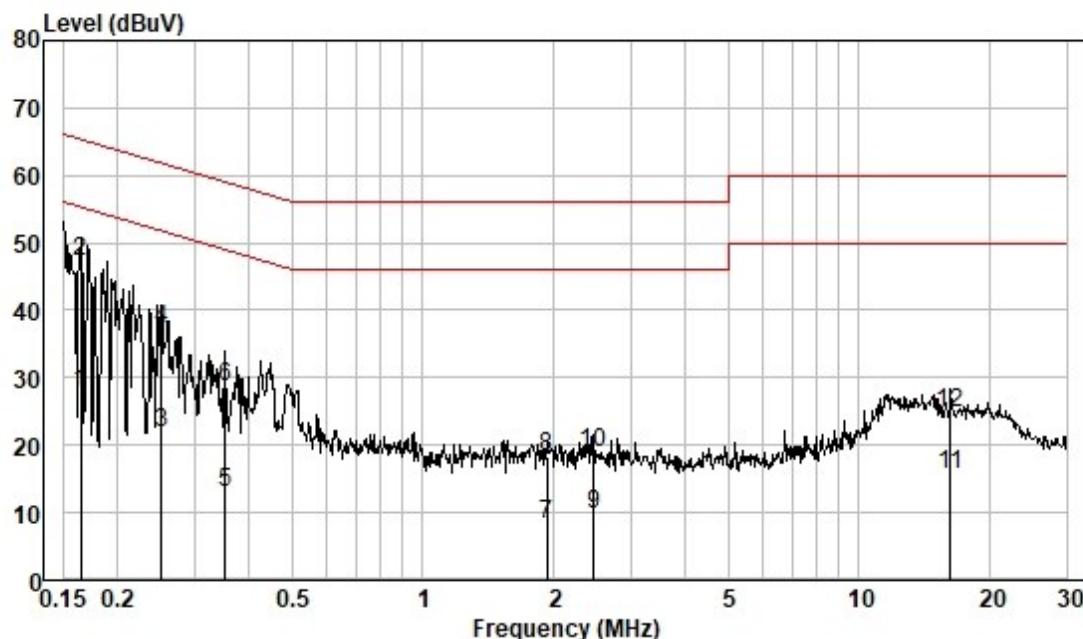
#### 7.1.2 Test Mode Description

Pre-scan / Mode  
Final test Code Description

TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



Test Mode: 00; Line: Live line

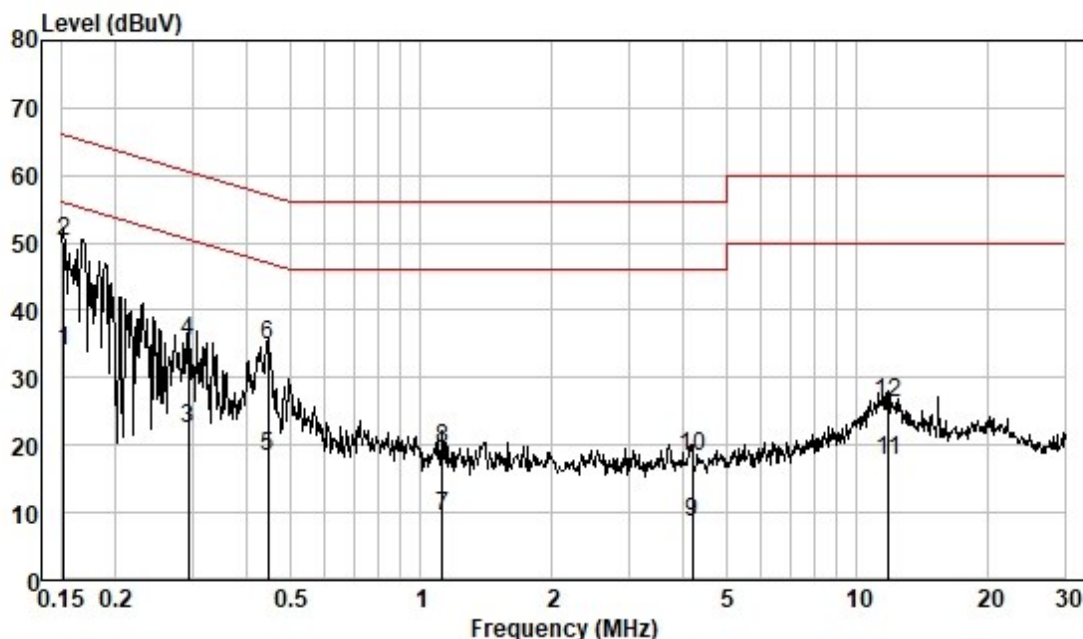


Pol : NEUTRAL  
Mode :  
Model :  
Power :

|    | Frequency<br>MHz | Read<br>Level<br>dBuV | Cable<br>Loss<br>dB | LISN<br>Factor<br>dB | Measured<br>Level<br>dBuV | Limit<br>Line<br>dBuV | Over<br>Limit<br>dB | Remark  |
|----|------------------|-----------------------|---------------------|----------------------|---------------------------|-----------------------|---------------------|---------|
| 1  | 0.164            | 18.20                 | 0.04                | 9.52                 | 27.76                     | 55.25                 | -27.49              | Average |
| 2  | 0.164            | 37.79                 | 0.04                | 9.52                 | 47.35                     | 65.25                 | -17.90              | QP      |
| 3  | 0.252            | 12.24                 | 0.04                | 9.53                 | 21.81                     | 51.69                 | -29.88              | Average |
| 4  | 0.252            | 27.76                 | 0.04                | 9.53                 | 37.33                     | 61.69                 | -24.36              | QP      |
| 5  | 0.352            | 3.26                  | 0.05                | 9.56                 | 12.87                     | 48.91                 | -36.04              | Average |
| 6  | 0.352            | 19.10                 | 0.05                | 9.56                 | 28.71                     | 58.91                 | -30.20              | QP      |
| 7  | 1.928            | -1.52                 | 0.12                | 9.57                 | 8.17                      | 46.00                 | -37.83              | Average |
| 8  | 1.928            | 8.63                  | 0.12                | 9.57                 | 18.32                     | 56.00                 | -37.68              | QP      |
| 9  | 2.461            | 0.00                  | 0.14                | 9.54                 | 9.68                      | 46.00                 | -36.32              | Average |
| 10 | 2.461            | 9.11                  | 0.14                | 9.54                 | 18.79                     | 56.00                 | -37.21              | QP      |
| 11 | 16.226           | 5.53                  | 0.34                | 9.91                 | 15.78                     | 50.00                 | -34.22              | Average |
| 12 | 16.226           | 14.66                 | 0.34                | 9.91                 | 24.91                     | 60.00                 | -35.09              | QP      |



Test Mode: 00; Line: Neutral Line



Pol :LINE  
Mode :  
Model :  
Power :

|    | Freque | Read  | Cable | LISN   | Measured | Limit | Over   | Remark  |
|----|--------|-------|-------|--------|----------|-------|--------|---------|
|    | nc     | Level | Loss  | Factor | Level    | Line  | Limit  |         |
|    | MHz    | dBuV  | dB    | dB     | dBuV     | dBuV  | dB     |         |
| 1  | 0.152  | 24.50 | 0.04  | 9.54   | 34.08    | 55.91 | -21.83 | Average |
| 2  | 0.152  | 40.57 | 0.04  | 9.54   | 50.15    | 65.91 | -15.76 | QP      |
| 3  | 0.292  | 12.81 | 0.04  | 9.55   | 22.40    | 50.46 | -28.06 | Average |
| 4  | 0.292  | 25.84 | 0.04  | 9.55   | 35.43    | 60.46 | -25.03 | QP      |
| 5  | 0.447  | 8.82  | 0.05  | 9.56   | 18.43    | 46.93 | -28.50 | Average |
| 6  | 0.447  | 25.15 | 0.05  | 9.56   | 34.76    | 56.93 | -22.17 | QP      |
| 7  | 1.117  | -0.16 | 0.08  | 9.58   | 9.50     | 46.00 | -36.50 | Average |
| 8  | 1.117  | 9.73  | 0.08  | 9.58   | 19.39    | 56.00 | -36.61 | QP      |
| 9  | 4.202  | -1.21 | 0.18  | 9.62   | 8.59     | 46.00 | -37.41 | Average |
| 10 | 4.202  | 8.52  | 0.18  | 9.62   | 18.32    | 56.00 | -37.68 | QP      |
| 11 | 11.807 | 7.52  | 0.28  | 9.81   | 17.61    | 50.00 | -32.39 | Average |
| 12 | 11.807 | 16.28 | 0.28  | 9.81   | 26.37    | 60.00 | -33.63 | QP      |



### 7.2 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209  
 Test Method: ANSI C63.10 (2020) Section 6.10.5 & 11.12  
 Test Engineer: Lily Kuang  
 Limit:  
 Test Distance: 3 m

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance(meters) |
|-----------------|-----------------------------------|------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                          |
| 0.490-1.705     | 24000/F(kHz)                      | 30                           |
| 1.705-30.0      | 30                                | 30                           |
| 30-88           | 100                               | 3                            |
| 88-216          | 150                               | 3                            |
| 216-960         | 200                               | 3                            |
| Above 960       | 500                               | 3                            |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

#### 7.2.1 E.U.T. Operation

Operating Environment:  
 Temperature: 25.1 °C Humidity: 52.0 % RH Atmospheric Pressure: 1010 mbar

#### 7.2.2 Test Mode Description

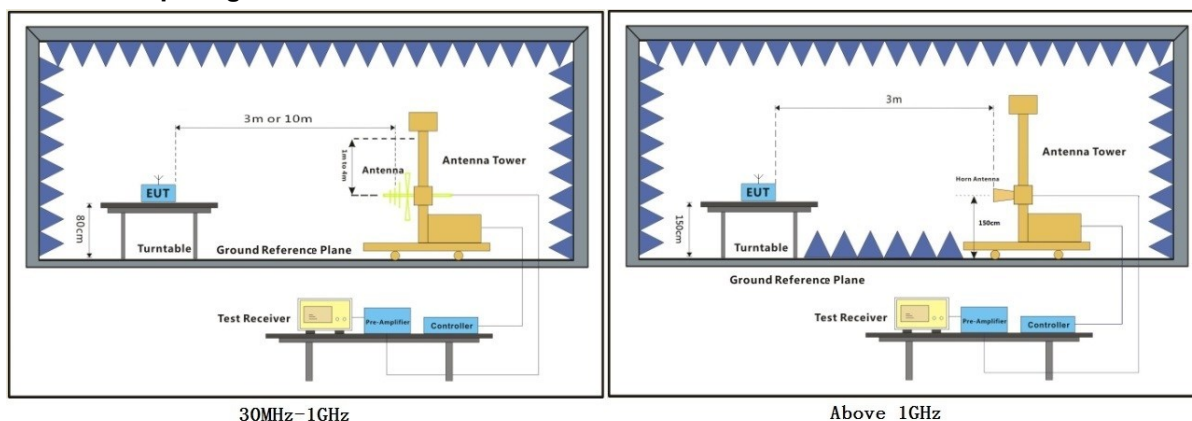
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-scan / Mode | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Final test Code |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Final test 00   | TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |



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### 7.2.3 Test Setup Diagram



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## 7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

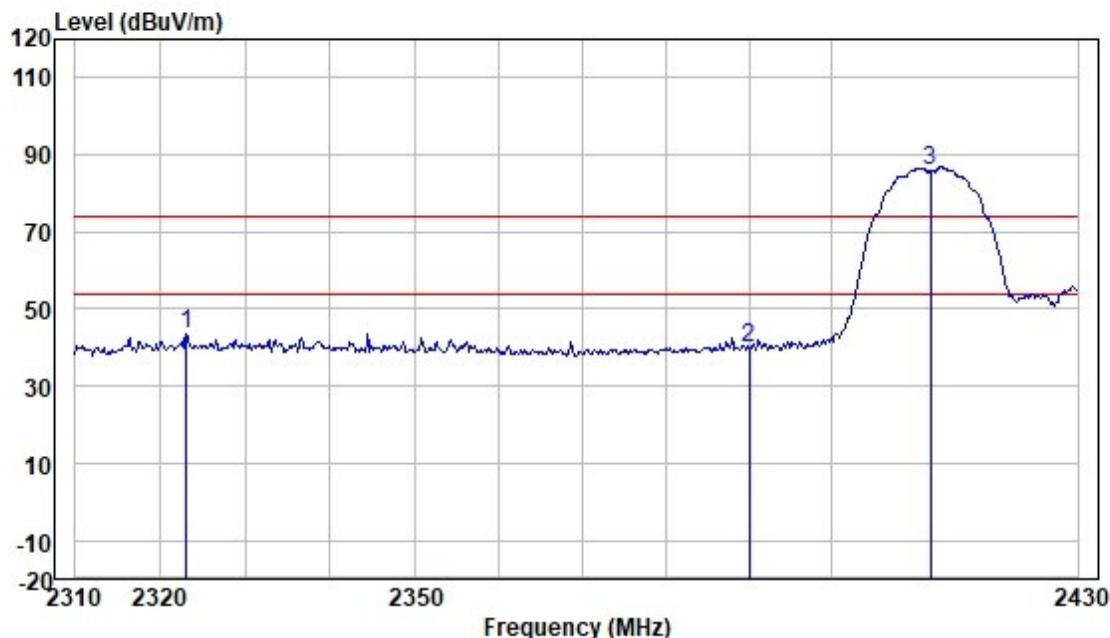
Remark 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

Remark 4:For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle $<98\%$ ) or 10Hz (Duty cycle $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.

Remark 5: The test plot was got by the test software, and the test result of Radiated Emissions which fall in the restricted bands was the same as the one got manually.



Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



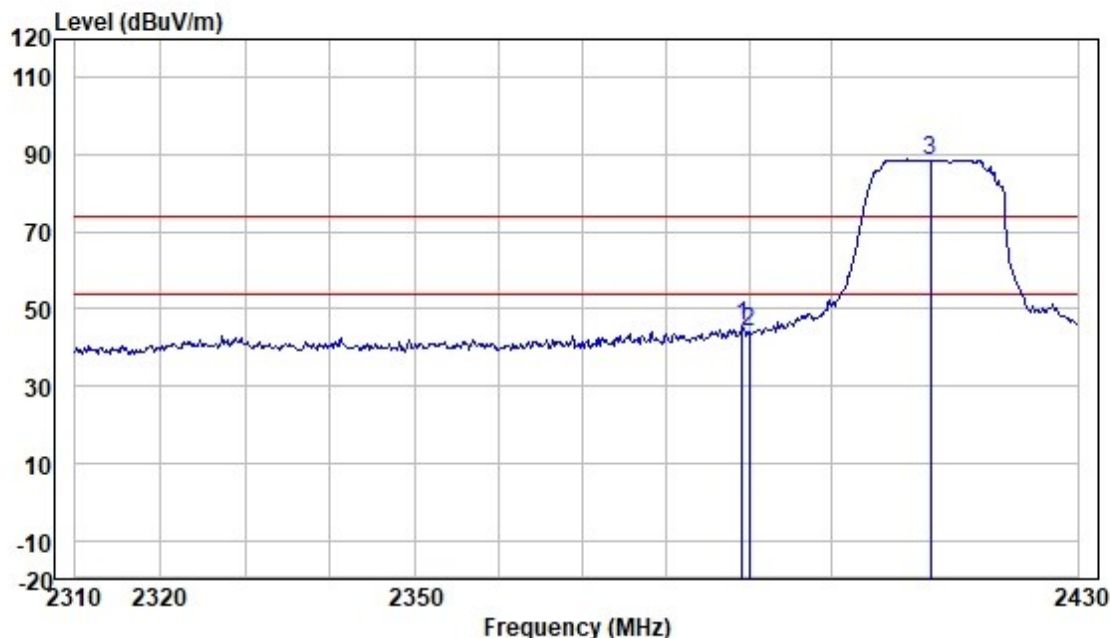
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1  | 2323.02 | 50.27      | 27.52          | 3.41       | 37.77         | 43.43  | 74.00      | -30.57     | VERTICAL  | peak   |
| 2  | 2390.00 | 46.81      | 27.63          | 3.44       | 37.77         | 40.11  | 74.00      | -33.89     | VERTICAL  | peak   |
| 3* | 2412.00 | 92.57      | 27.67          | 3.46       | 37.77         | 85.93  | 74.00      | 11.93      | VERTICAL  | peak   |



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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



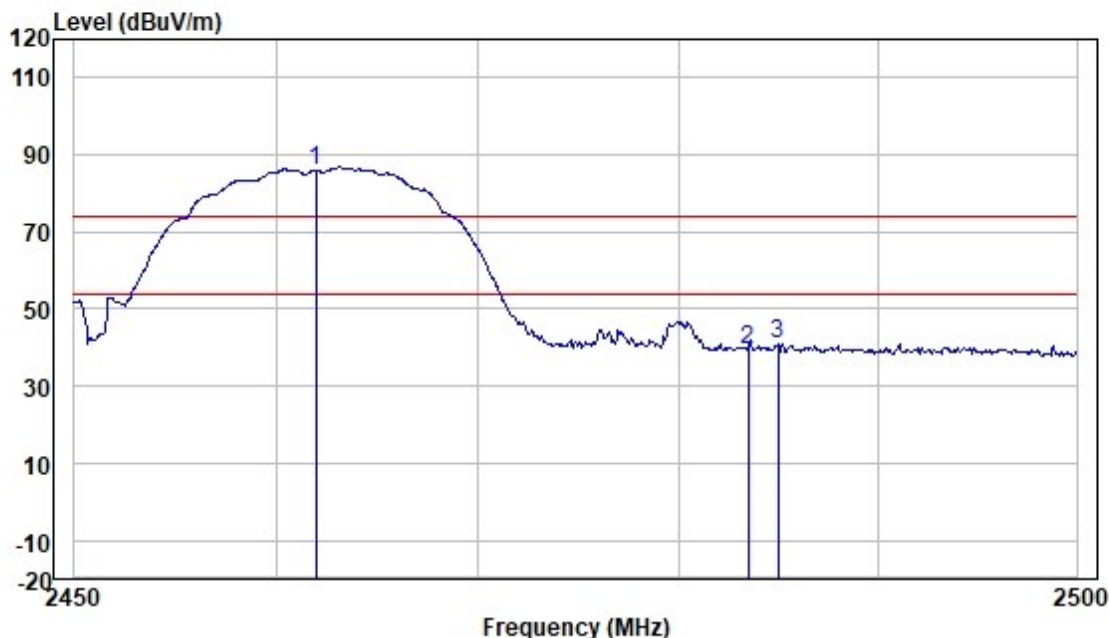
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1  | 2389.12 | 52.50      | 27.63          | 3.44       | 37.77         | 45.80  | 74.00      | -28.20     | HORIZONTAL | peak   |
| 2  | 2390.00 | 50.59      | 27.63          | 3.44       | 37.77         | 43.89  | 74.00      | -30.11     | HORIZONTAL | peak   |
| 3* | 2412.00 | 95.30      | 27.67          | 3.46       | 37.77         | 88.66  | 74.00      | 14.66      | HORIZONTAL | peak   |



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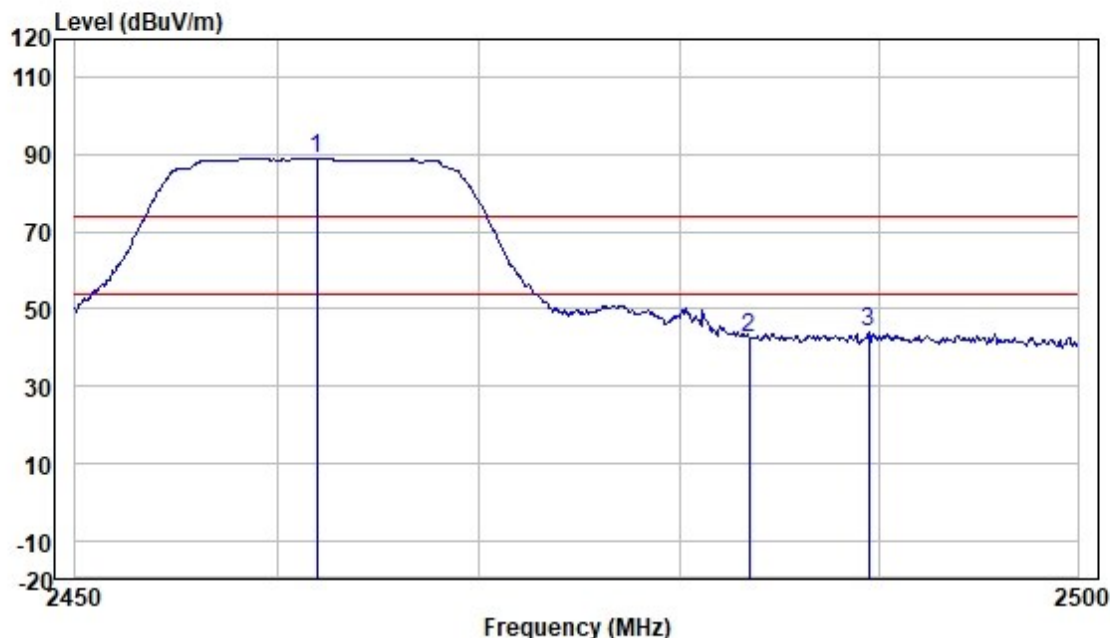
Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1* | 2462.00 | 92.34      | 27.73          | 3.48       | 37.76         | 85.79  | 74.00      | 11.79      | VERTICAL  | peak   |
| 2  | 2483.50 | 45.69      | 27.76          | 3.49       | 37.76         | 39.18  | 74.00      | -34.82     | VERTICAL  | peak   |
| 3  | 2484.99 | 47.60      | 27.76          | 3.49       | 37.76         | 41.09  | 74.00      | -32.91     | VERTICAL  | peak   |



Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



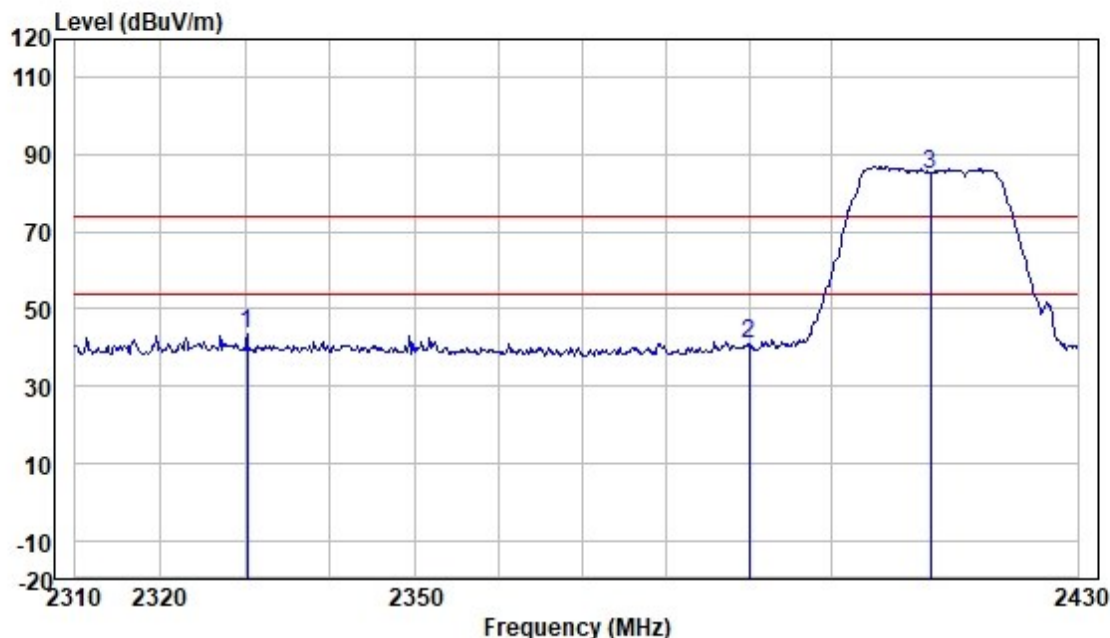
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1* | 2462.00 | 95.32      | 27.73          | 3.48       | 37.76         | 88.77  | 74.00      | 14.77      | HORIZONTAL | peak   |
| 2  | 2483.50 | 49.15      | 27.76          | 3.49       | 37.76         | 42.64  | 74.00      | -31.36     | HORIZONTAL | peak   |
| 3  | 2489.47 | 50.56      | 27.76          | 3.49       | 37.76         | 44.05  | 74.00      | -29.95     | HORIZONTAL | peak   |



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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



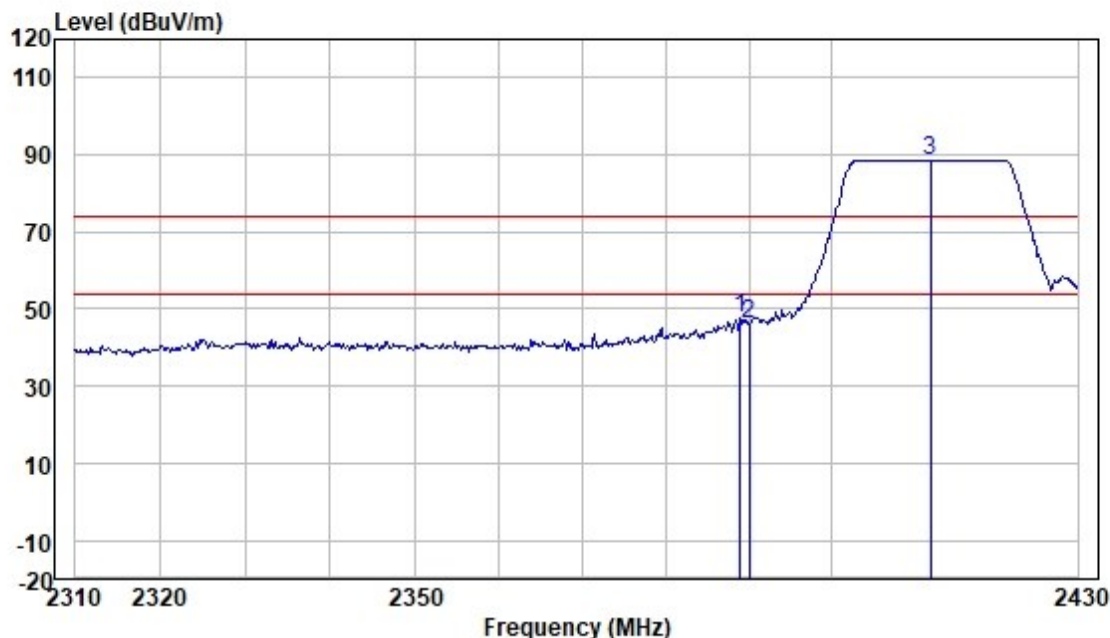
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1  | 2330.21 | 50.30      | 27.53          | 3.41       | 37.77         | 43.47  | 74.00      | -30.53     | VERTICAL  | peak   |
| 2  | 2390.00 | 47.51      | 27.63          | 3.44       | 37.77         | 40.81  | 74.00      | -33.19     | VERTICAL  | peak   |
| 3* | 2412.00 | 91.75      | 27.67          | 3.46       | 37.77         | 85.11  | 74.00      | 11.11      | VERTICAL  | peak   |



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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



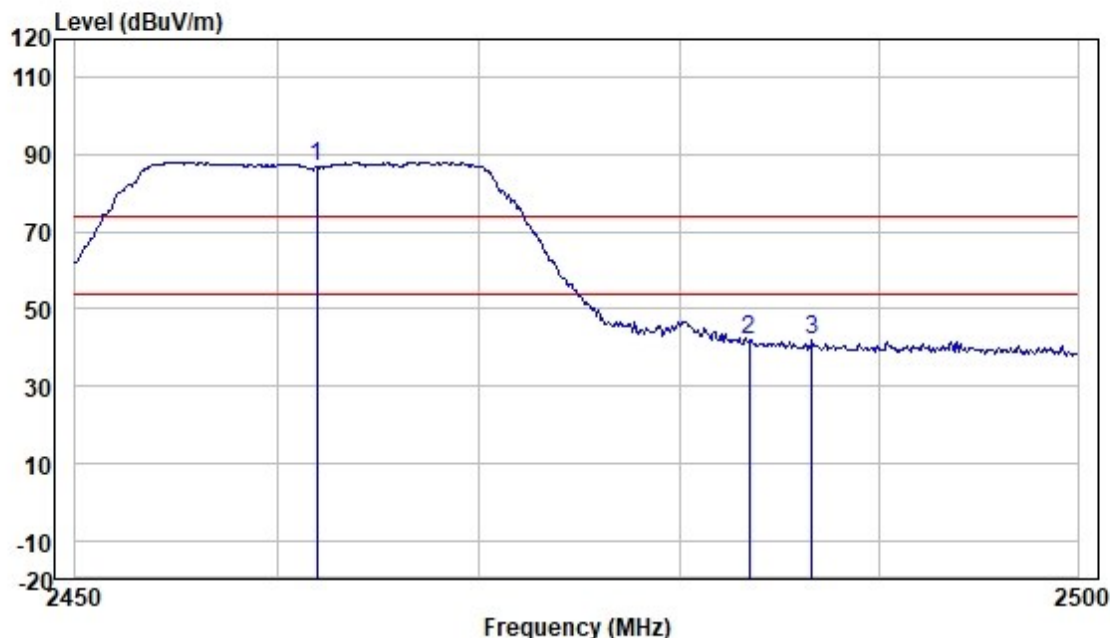
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1  | 2388.88 | 54.53      | 27.63          | 3.44       | 37.77         | 47.83  | 74.00      | -26.17     | HORIZONTAL | peak   |
| 2  | 2390.00 | 52.85      | 27.63          | 3.44       | 37.77         | 46.15  | 74.00      | -27.85     | HORIZONTAL | peak   |
| 3* | 2412.00 | 95.13      | 27.67          | 3.46       | 37.77         | 88.49  | 74.00      | 14.49      | HORIZONTAL | peak   |



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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



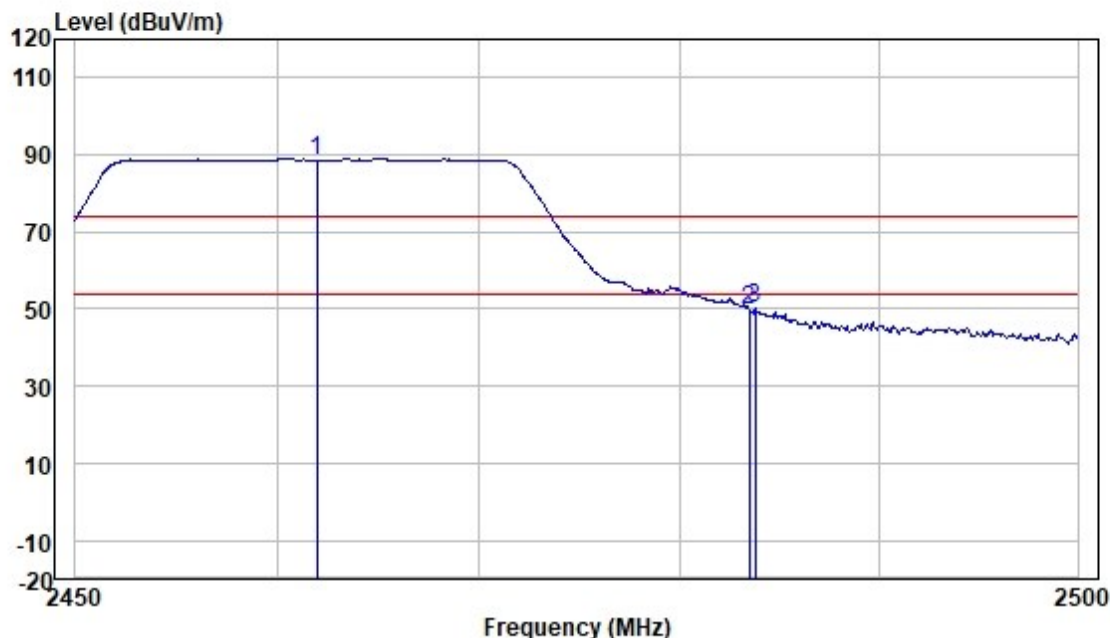
|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1* | 2462.00 | 93.36      | 27.73          | 3.48       | 37.76         | 86.81  | 74.00      | 12.81      | VERTICAL  | peak   |
| 2  | 2483.50 | 48.40      | 27.76          | 3.49       | 37.76         | 41.89  | 74.00      | -32.11     | VERTICAL  | peak   |
| 3  | 2486.65 | 48.56      | 27.76          | 3.49       | 37.76         | 42.05  | 74.00      | -31.95     | VERTICAL  | peak   |



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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



|    | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|----|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|    | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1* | 2462.00 | 95.13      | 27.73          | 3.48       | 37.76         | 88.58  | 74.00      | 14.58      | HORIZONTAL | peak   |
| 2  | 2483.50 | 56.15      | 27.76          | 3.49       | 37.76         | 49.64  | 74.00      | -24.36     | HORIZONTAL | peak   |
| 3  | 2483.79 | 56.56      | 27.76          | 3.49       | 37.76         | 50.05  | 74.00      | -23.95     | HORIZONTAL | peak   |



## 7.3 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.4,6.5

Test Engineer: Bob Qu

Limit:

Test Distance: 10m above 30 MHz, 3m below 30 MHz

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| 960-1000       | 500                              | 3                            |

### Note

1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

2. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Limit = The limit above - Aux Factor (if applicable)

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is  $40\log(3/300) = -80\text{dB}$  (for 3m test distance).

EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is  $20\log(10/3) = 10.46\text{dB}$  (for 10m test distance).

### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C

Humidity: 55.6 % RH

Atmospheric Pressure: 1010 mbar



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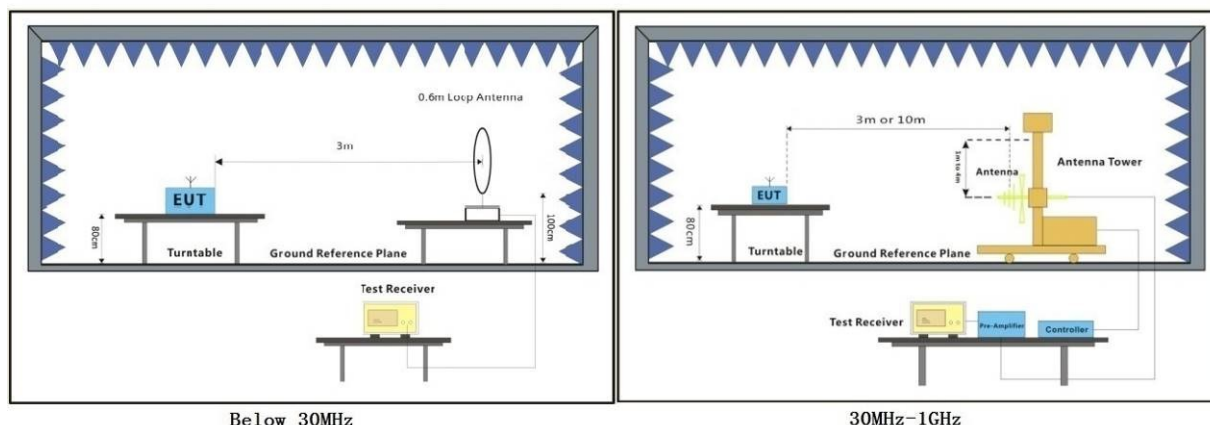
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### 7.3.2 Test Mode Description

| Pre-scan / | Mode | Description |
|------------|------|-------------|
| Final test | Code |             |

|            |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final test | 00 | TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |
|------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 7.3.3 Test Setup Diagram



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## 7.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8m above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.
- c. The antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1m) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is  $40\log(3/300) = -80\text{dB}$  (for 3m test distance).

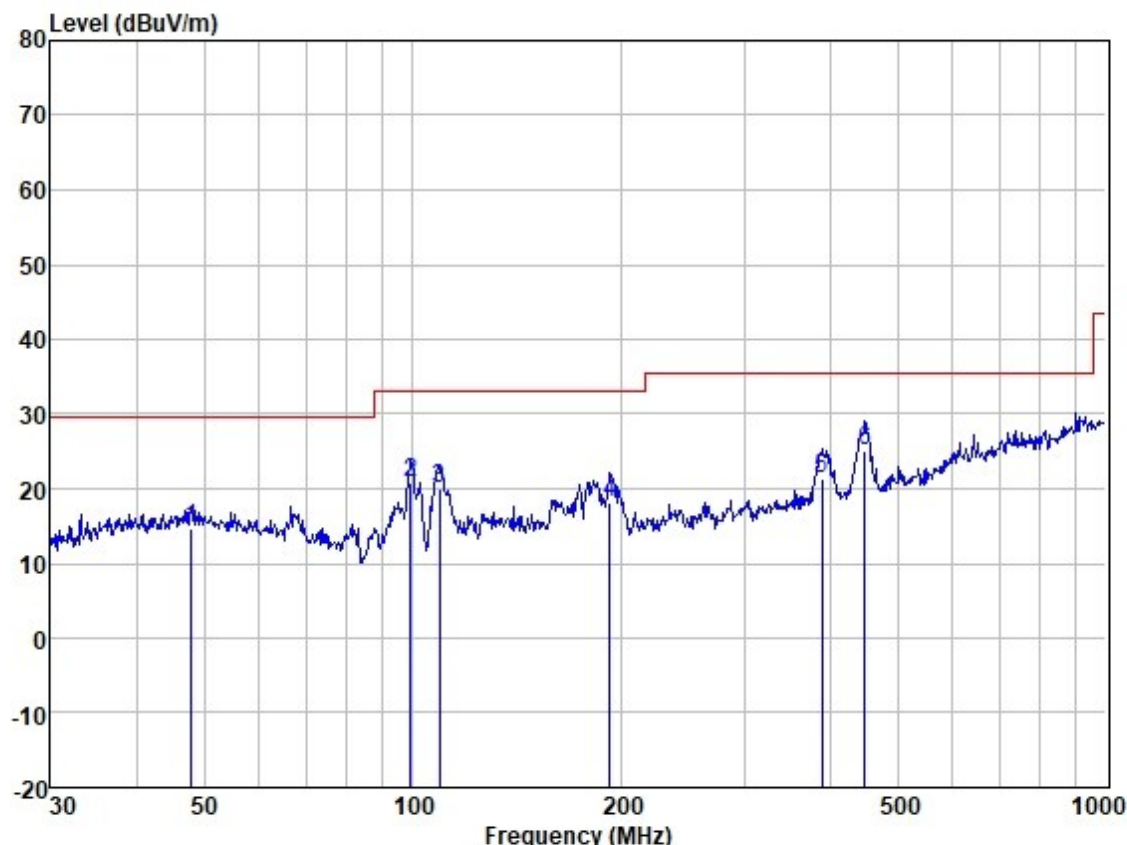
EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is  $20\log(10/3) = 10.46\text{dB}$  (for 10m test distance).

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.



Test Mode: 00; Polarity: Horizontal

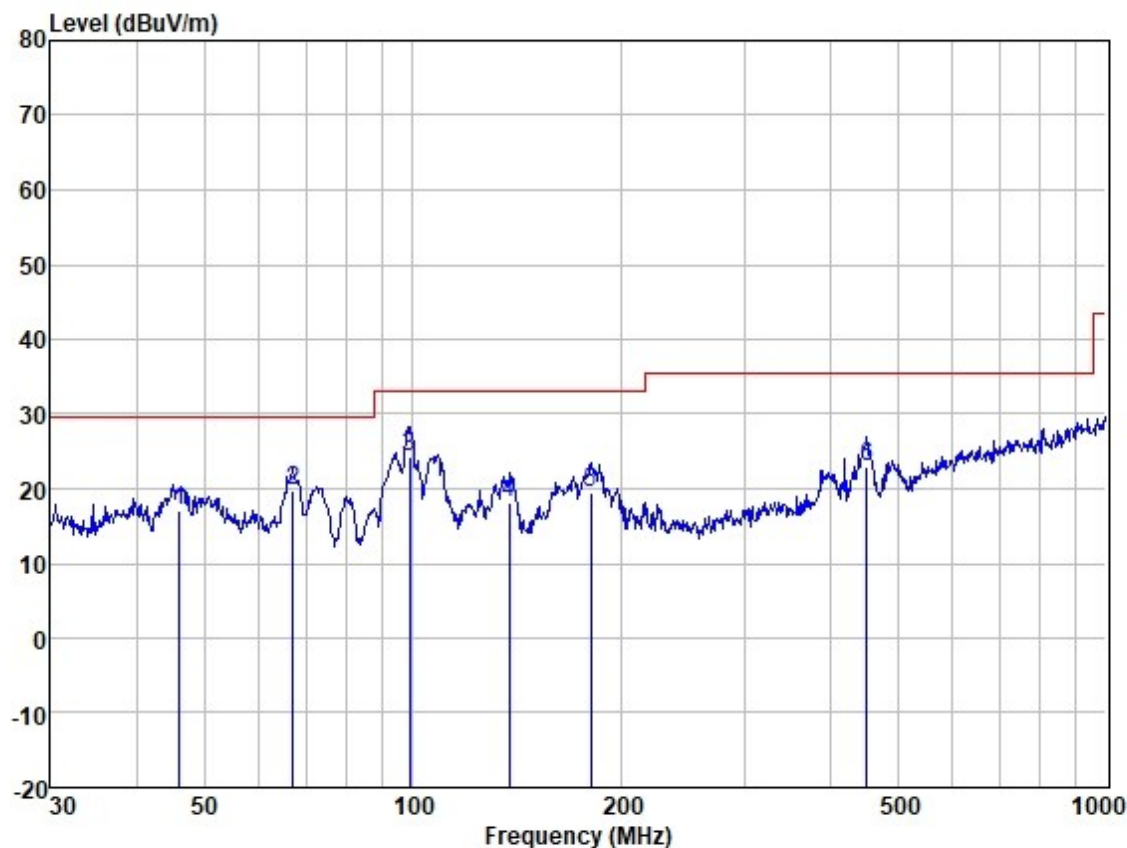


Site : SGS  
t :  
Model :  
Power :  
Test Mode : TX

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamplifier Factor | Measured Level | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------------|----------------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB                  | dBuV/m         | dBuV/m     | dB         |            |        |
| 1 | 47.826  | 27.94      | 13.93          | 0.73       | 27.97               | 14.63          | 29.54      | -14.91     | HORIZONTAL | QP     |
| 2 | 99.180  | 38.96      | 8.88           | 0.84       | 27.80               | 20.88          | 33.06      | -12.18     | HORIZONTAL | QP     |
| 3 | 109.029 | 36.63      | 10.29          | 0.86       | 27.79               | 19.99          | 33.06      | -13.07     | HORIZONTAL | QP     |
| 4 | 192.419 | 33.02      | 11.63          | 1.15       | 27.57               | 18.23          | 33.06      | -14.83     | HORIZONTAL | QP     |
| 5 | 389.355 | 31.52      | 15.58          | 1.81       | 27.64               | 21.27          | 35.56      | -14.29     | HORIZONTAL | QP     |
| 6 | 447.982 | 34.22      | 17.21          | 1.86       | 28.33               | 24.96          | 35.56      | -10.60     | HORIZONTAL | QP     |



Test Mode: 00; Polarity: Vertical



Site : SGS  
t :  
Model :  
Power :  
Test Mode : TX

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamplifier Factor | Measured Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------------|----------------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB                  | dBuV/m         | dBuV/m     | dB         |           |        |
| 1 | 46.016  | 30.36      | 13.93          | 0.73       | 27.97               | 17.05          | 29.54      | -12.49     | VERTICAL  | QP     |
| 2 | 67.202  | 34.70      | 12.04          | 0.80       | 27.89               | 19.65          | 29.54      | -9.89      | VERTICAL  | QP     |
| 3 | 98.833  | 42.42      | 8.88           | 0.84       | 27.80               | 24.34          | 33.06      | -8.72      | VERTICAL  | QP     |
| 4 | 137.420 | 31.91      | 12.96          | 0.95       | 27.75               | 18.07          | 33.06      | -14.99     | VERTICAL  | QP     |
| 5 | 180.649 | 33.12      | 12.90          | 1.10       | 27.64               | 19.48          | 33.06      | -13.58     | VERTICAL  | QP     |
| 6 | 451.135 | 32.22      | 17.26          | 1.86       | 28.34               | 23.00          | 35.56      | -12.56     | VERTICAL  | QP     |



## 7.4 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.6 & 11.12

Test Engineer: Lily Kuang

Limit:

| Frequency<br>(MHz) | Field strength<br>(microvolts/meter) | Measurement distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| Above 1000         | 500                                  | 3                                |

Note:

At Above 18GHz, measurements may be performed at a distance shorter than that specified in the regulations

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Above 18GHz, Aux Factor = 20 dB/decade of distance, the aux factor is  $20\log(1/3) = -9.54\text{dB}$  (for 1m test distance).

### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C

Humidity: 52.0 % RH

Atmospheric Pressure: 1010 mbar

### 7.4.2 Test Mode Description

Pre-scan / Mode  
Final test Code Description

TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



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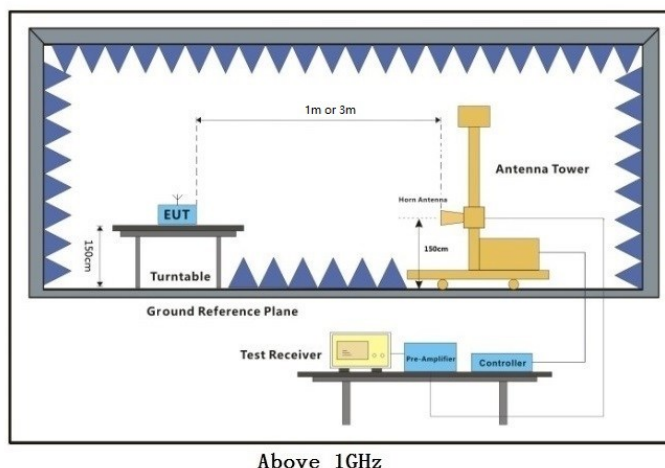
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t (86-20) 82155555 sgs.china@sgs.com

### 7.4.3 Test Setup Diagram



### 7.4.4 Measurement Procedure and Data

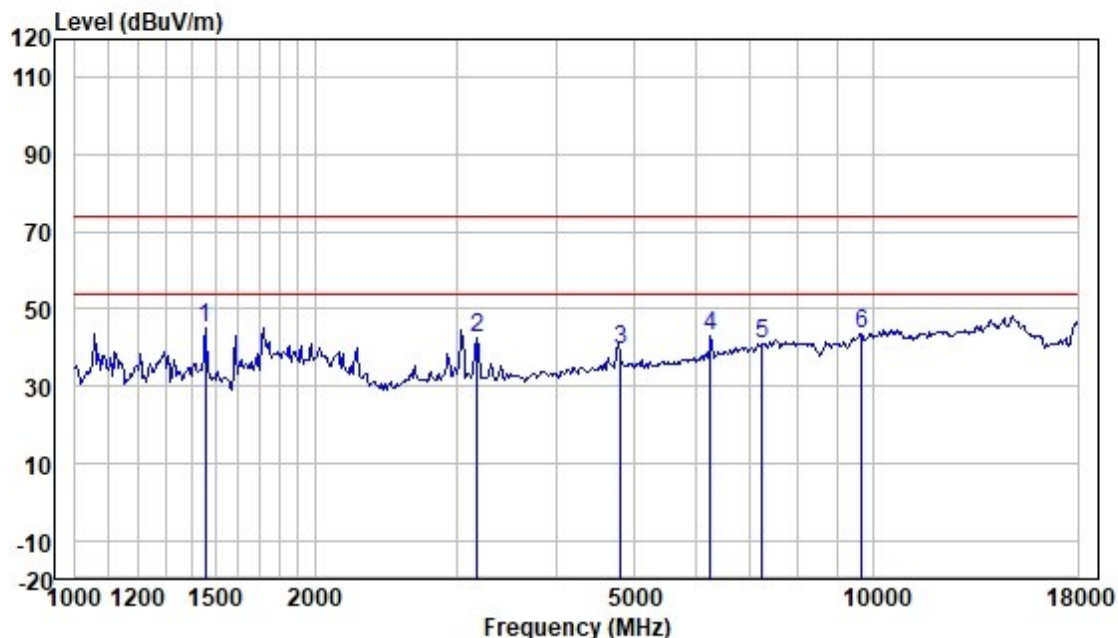
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5m above the ground at a 3m fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3m away from the interference-receiving antenna from 1GHz to 18GHz, and 1m away from the interference-receiving antenna above 18GHz.
- The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.
- The antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1m to 4m and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.

Remark:

- Scan from 1GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.
- As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- For the frequency above 18GHz, testing had been executed under all test modes, only the worst-case test curve is displayed in the report.
- For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s).



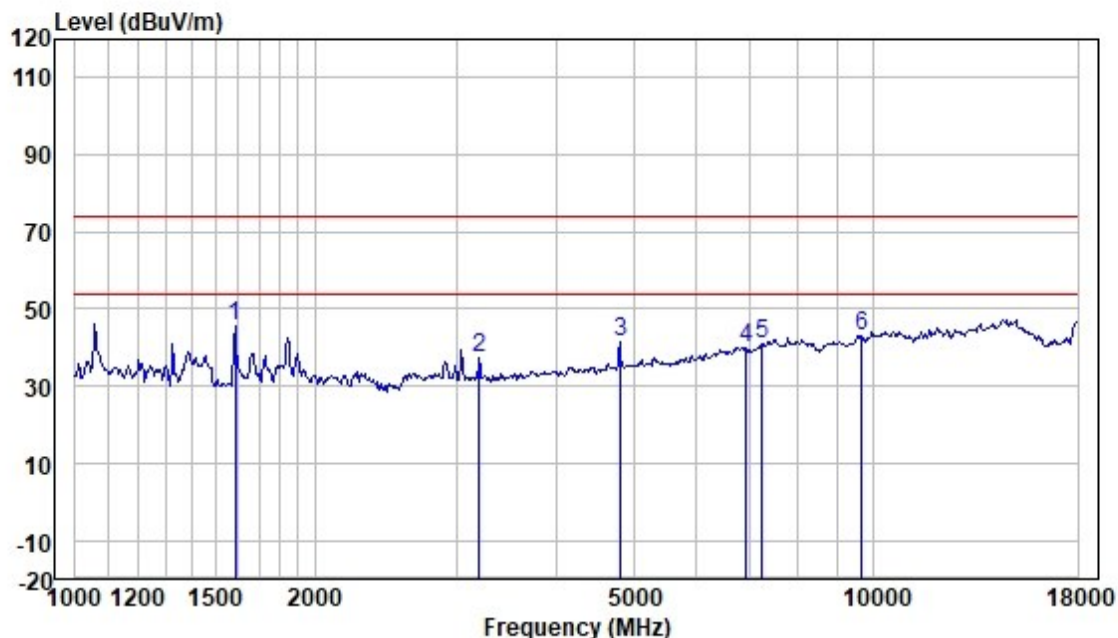
Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1 | 1456.08 | 71.31      | 25.87          | 2.68       | 54.57         | 45.29  | 74.00      | -28.71     | VERTICAL  | peak   |
| 2 | 3186.87 | 64.35      | 28.79          | 3.91       | 54.79         | 42.26  | 74.00      | -31.74     | VERTICAL  | peak   |
| 3 | 4824.00 | 56.80      | 31.54          | 4.82       | 53.90         | 39.26  | 74.00      | -34.74     | VERTICAL  | peak   |
| 4 | 6231.43 | 57.49      | 33.43          | 5.53       | 53.20         | 43.25  | 74.00      | -30.75     | VERTICAL  | peak   |
| 5 | 7236.00 | 52.16      | 35.97          | 5.95       | 53.25         | 40.83  | 74.00      | -33.17     | VERTICAL  | peak   |
| 6 | 9648.00 | 51.05      | 38.73          | 7.05       | 53.43         | 43.40  | 74.00      | -30.60     | VERTICAL  | peak   |



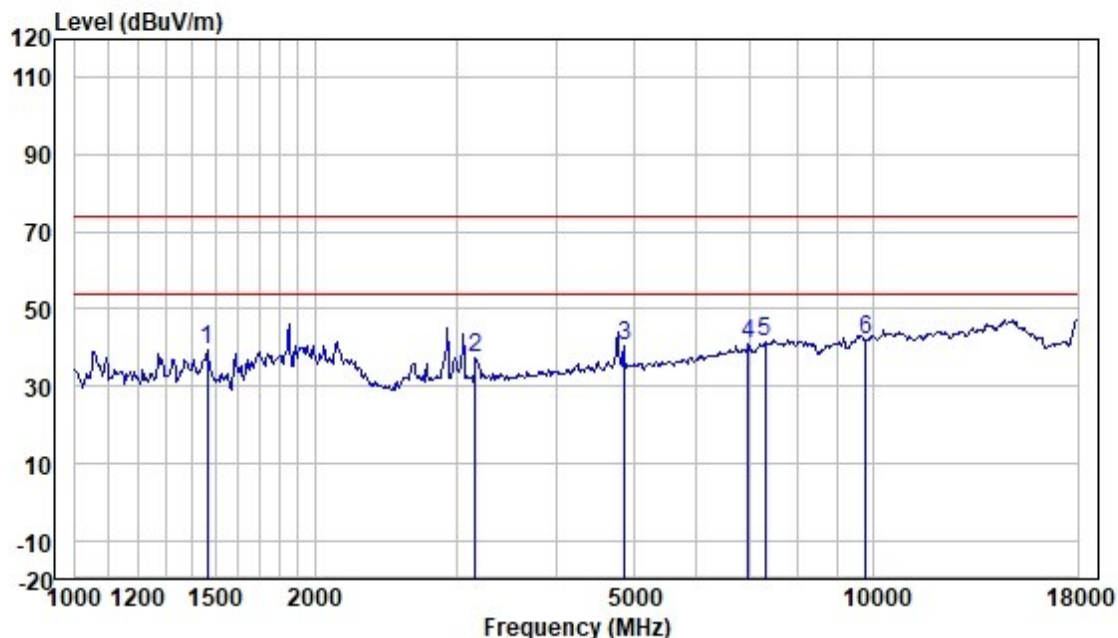
Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1587.98 | 71.63      | 25.99          | 2.75       | 54.63         | 45.74  | 74.00      | -28.26     | HORIZONTAL | peak   |
| 2 | 3205.35 | 59.50      | 28.80          | 3.92       | 54.78         | 37.44  | 74.00      | -36.56     | HORIZONTAL | peak   |
| 3 | 4824.00 | 59.11      | 31.54          | 4.82       | 53.90         | 41.57  | 74.00      | -32.43     | HORIZONTAL | peak   |
| 4 | 6914.76 | 52.40      | 35.11          | 5.84       | 53.20         | 40.15  | 74.00      | -33.85     | HORIZONTAL | peak   |
| 5 | 7236.00 | 52.19      | 35.97          | 5.95       | 53.25         | 40.86  | 74.00      | -33.14     | HORIZONTAL | peak   |
| 6 | 9648.00 | 50.72      | 38.73          | 7.05       | 53.43         | 43.07  | 74.00      | -30.93     | HORIZONTAL | peak   |



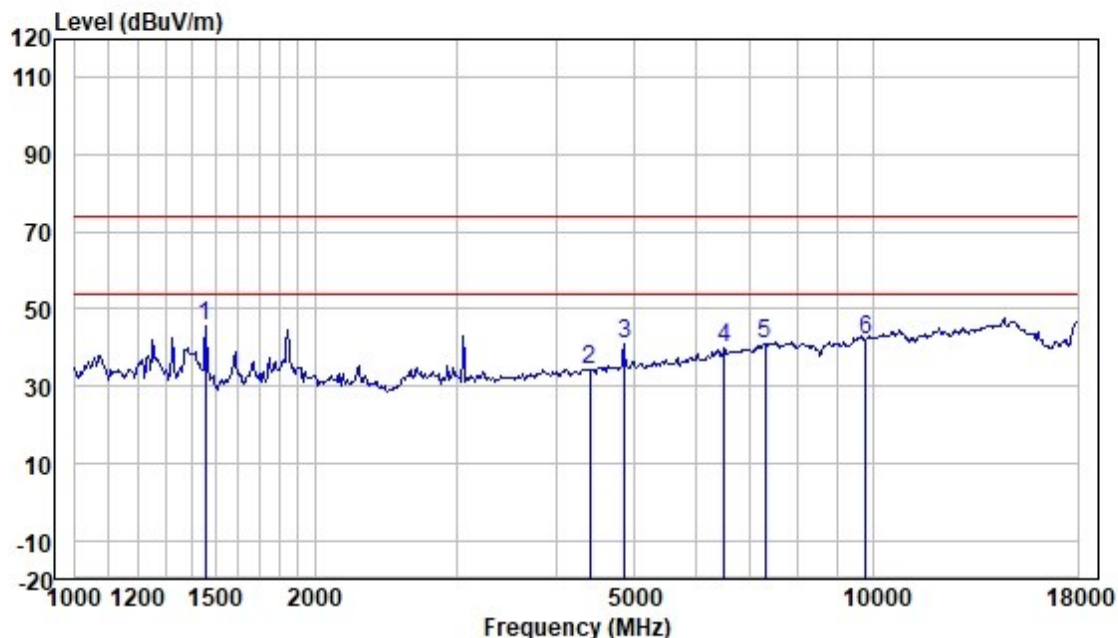
Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1 | 1464.52 | 65.45      | 25.88          | 2.69       | 54.58         | 39.44  | 74.00      | -34.56     | VERTICAL  | peak   |
| 2 | 3168.50 | 59.44      | 28.77          | 3.89       | 54.81         | 37.29  | 74.00      | -36.71     | VERTICAL  | peak   |
| 3 | 4874.00 | 57.76      | 31.63          | 4.85       | 53.87         | 40.37  | 74.00      | -33.63     | VERTICAL  | peak   |
| 4 | 6954.85 | 53.26      | 35.17          | 5.86       | 53.20         | 41.09  | 74.00      | -32.91     | VERTICAL  | peak   |
| 5 | 7311.00 | 52.53      | 36.22          | 5.98       | 53.27         | 41.46  | 74.00      | -32.54     | VERTICAL  | peak   |
| 6 | 9748.00 | 49.36      | 38.87          | 7.11       | 53.42         | 41.92  | 74.00      | -32.08     | VERTICAL  | peak   |



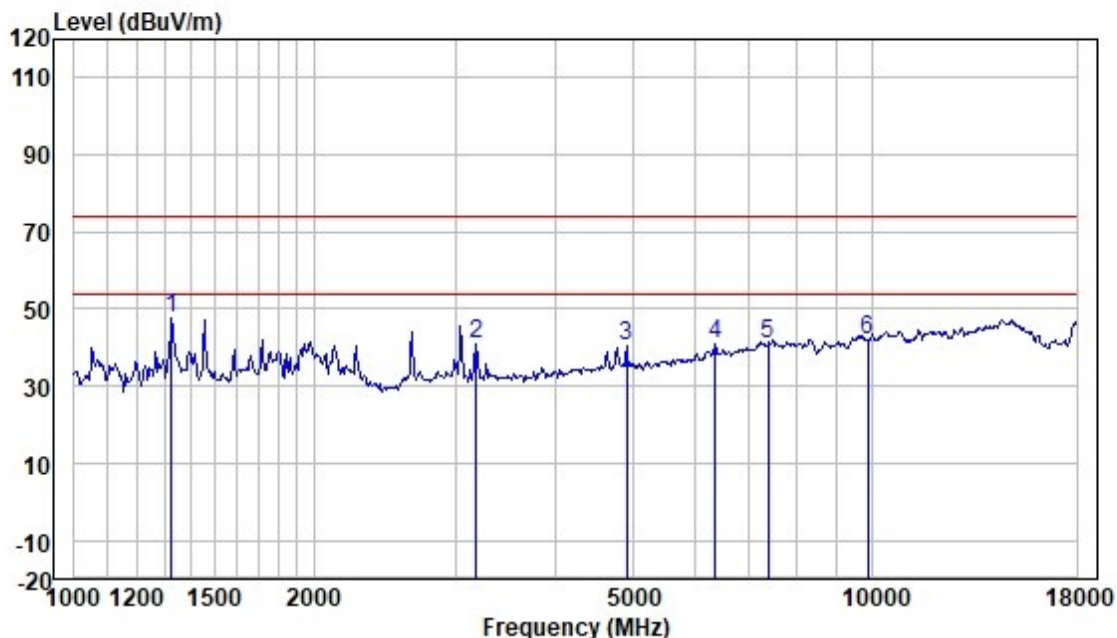
Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1456.08 | 71.65      | 25.87          | 2.68       | 54.57         | 45.63  | 74.00      | -28.37     | HORIZONTAL | peak   |
| 2 | 4405.09 | 53.17      | 30.80          | 4.61       | 54.14         | 34.44  | 74.00      | -39.56     | HORIZONTAL | peak   |
| 3 | 4874.00 | 58.39      | 31.63          | 4.85       | 53.87         | 41.00  | 74.00      | -33.00     | HORIZONTAL | peak   |
| 4 | 6488.75 | 53.19      | 34.15          | 5.64       | 53.20         | 39.78  | 74.00      | -34.22     | HORIZONTAL | peak   |
| 5 | 7311.00 | 52.25      | 36.22          | 5.98       | 53.27         | 41.18  | 74.00      | -32.82     | HORIZONTAL | peak   |
| 6 | 9748.00 | 49.63      | 38.87          | 7.11       | 53.42         | 42.19  | 74.00      | -31.81     | HORIZONTAL | peak   |



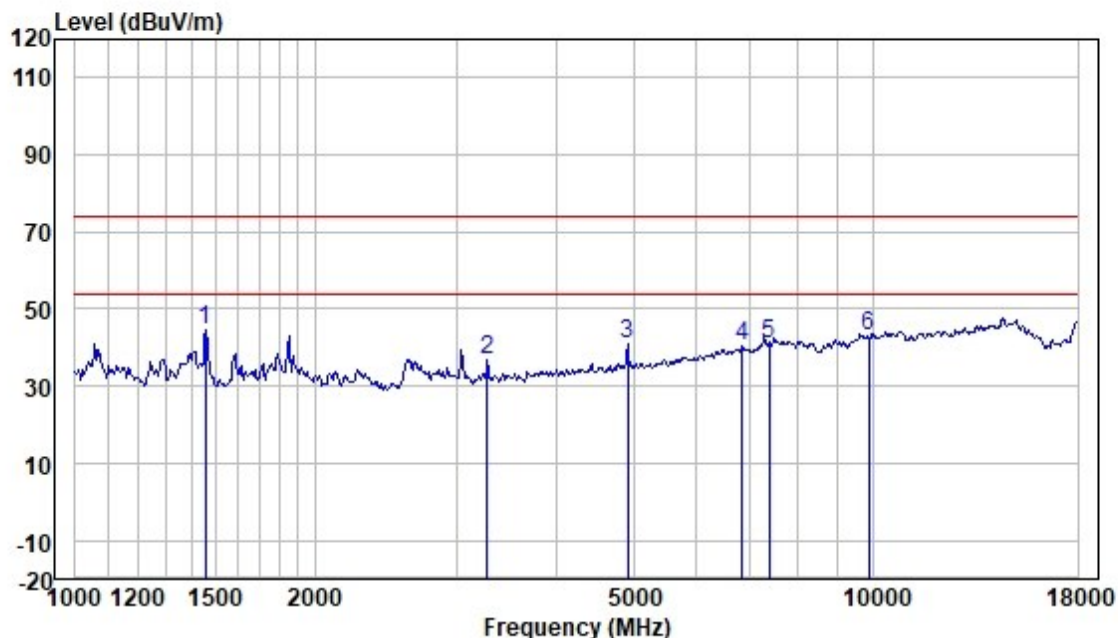
Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1 | 1327.45 | 74.06      | 25.66          | 2.61       | 54.50         | 47.83  | 74.00      | -26.17     | VERTICAL  | peak   |
| 2 | 3186.87 | 63.15      | 28.79          | 3.91       | 54.79         | 41.06  | 74.00      | -32.94     | VERTICAL  | peak   |
| 3 | 4924.00 | 57.85      | 31.70          | 4.88       | 53.84         | 40.59  | 74.00      | -33.41     | VERTICAL  | peak   |
| 4 | 6340.44 | 54.98      | 33.81          | 5.59       | 53.20         | 41.18  | 74.00      | -32.82     | VERTICAL  | peak   |
| 5 | 7386.00 | 51.63      | 36.47          | 6.00       | 53.28         | 40.82  | 74.00      | -33.18     | VERTICAL  | peak   |
| 6 | 9848.00 | 49.37      | 38.98          | 7.15       | 53.41         | 42.09  | 74.00      | -31.91     | VERTICAL  | peak   |



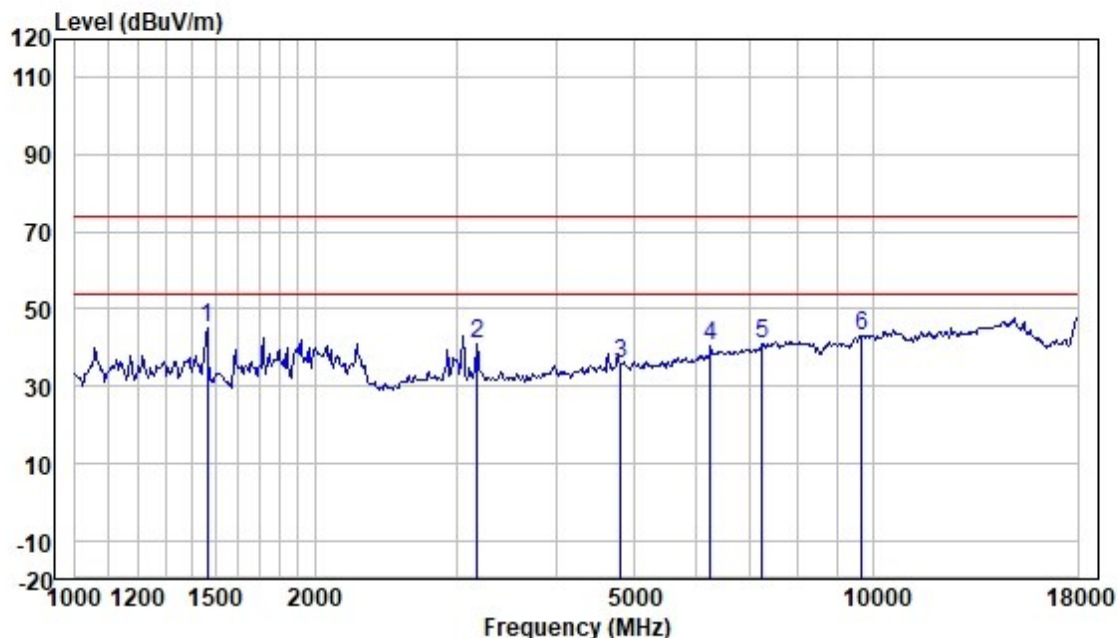
Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1456.08 | 70.72      | 25.87          | 2.68       | 54.57         | 44.70  | 74.00      | -29.30     | HORIZONTAL | peak   |
| 2 | 3280.33 | 58.95      | 28.87          | 3.99       | 54.74         | 37.07  | 74.00      | -36.93     | HORIZONTAL | peak   |
| 3 | 4924.00 | 58.17      | 31.70          | 4.88       | 53.84         | 40.91  | 74.00      | -33.09     | HORIZONTAL | peak   |
| 4 | 6835.28 | 52.74      | 34.96          | 5.81       | 53.20         | 40.31  | 74.00      | -33.69     | HORIZONTAL | peak   |
| 5 | 7386.00 | 51.72      | 36.47          | 6.00       | 53.28         | 40.91  | 74.00      | -33.09     | HORIZONTAL | peak   |
| 6 | 9848.00 | 50.10      | 38.98          | 7.15       | 53.41         | 42.82  | 74.00      | -31.18     | HORIZONTAL | peak   |



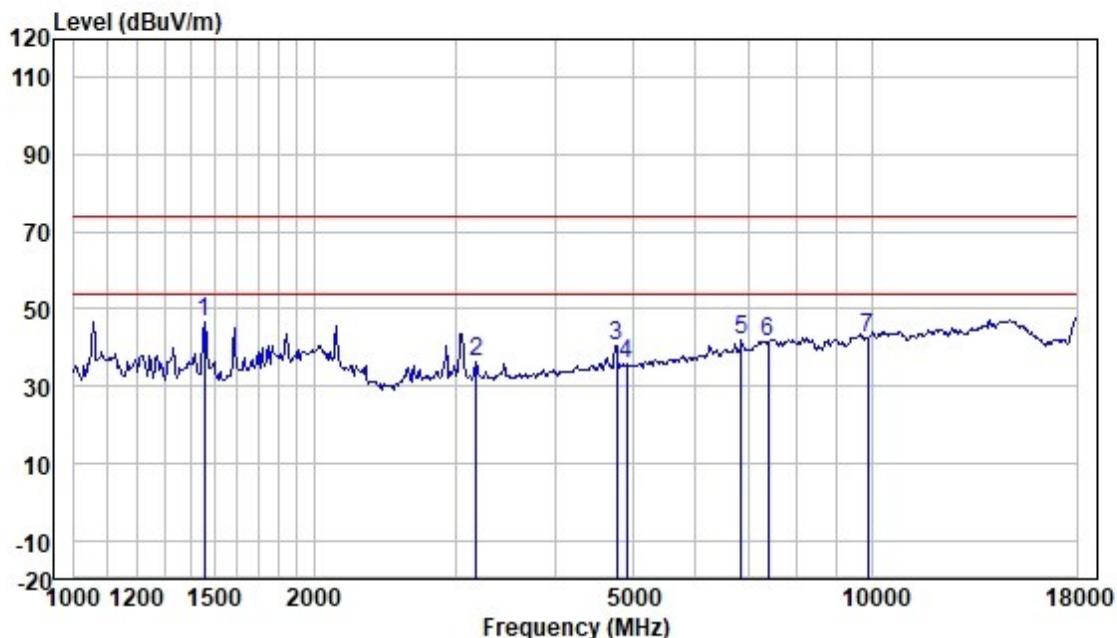
Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1 | 1464.52 | 70.96      | 25.88          | 2.69       | 54.58         | 44.95  | 74.00      | -29.05     | VERTICAL  | peak   |
| 2 | 3186.87 | 63.21      | 28.79          | 3.91       | 54.79         | 41.12  | 74.00      | -32.88     | VERTICAL  | peak   |
| 3 | 4824.00 | 53.54      | 31.54          | 4.82       | 53.90         | 36.00  | 74.00      | -38.00     | VERTICAL  | peak   |
| 4 | 6231.43 | 54.64      | 33.43          | 5.53       | 53.20         | 40.40  | 74.00      | -33.60     | VERTICAL  | peak   |
| 5 | 7236.00 | 52.51      | 35.97          | 5.95       | 53.25         | 41.18  | 74.00      | -32.82     | VERTICAL  | peak   |
| 6 | 9648.00 | 50.63      | 38.73          | 7.05       | 53.43         | 42.98  | 74.00      | -31.02     | VERTICAL  | peak   |



Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



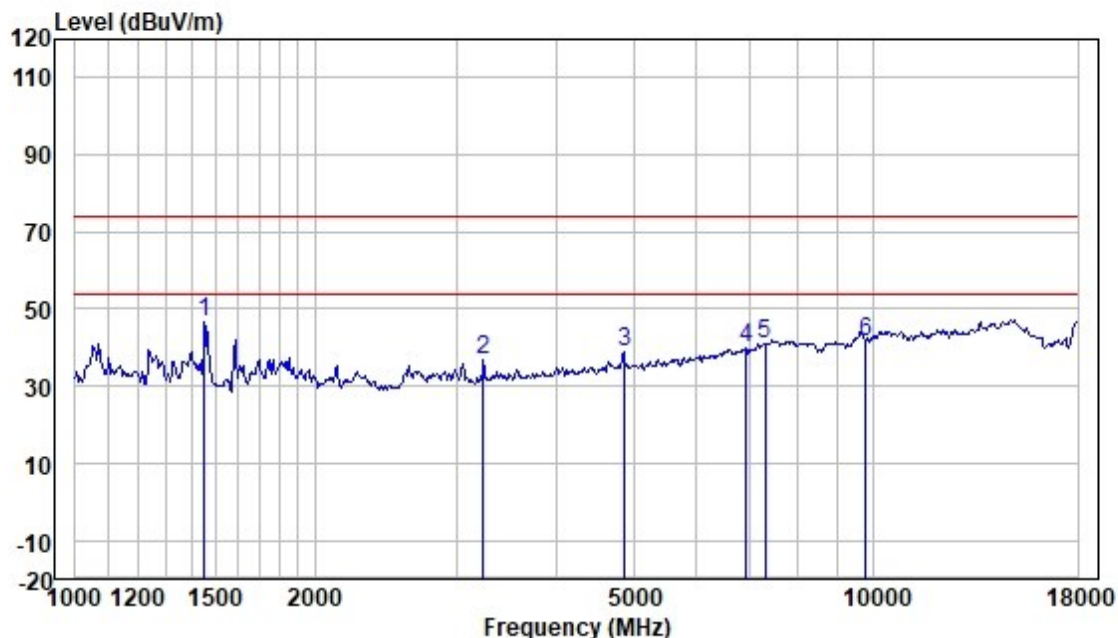
|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1456.08 | 72.68      | 25.87          | 2.68       | 54.57         | 46.66  | 74.00      | -27.34     | HORIZONTAL | Peak   |
| 2 | 3186.87 | 58.27      | 28.79          | 3.91       | 54.79         | 36.18  | 74.00      | -37.82     | HORIZONTAL | Peak   |
| 3 | 4776.42 | 58.36      | 31.45          | 4.79       | 53.92         | 40.68  | 74.00      | -33.32     | HORIZONTAL | Peak   |
| 4 | 4924.00 | 52.80      | 31.70          | 4.88       | 53.84         | 35.54  | 74.00      | -38.46     | HORIZONTAL | Peak   |
| 5 | 6835.28 | 54.26      | 34.96          | 5.81       | 53.20         | 41.83  | 74.00      | -32.17     | HORIZONTAL | Peak   |
| 6 | 7386.00 | 52.03      | 36.47          | 6.00       | 53.28         | 41.22  | 74.00      | -32.78     | HORIZONTAL | Peak   |
| 7 | 9848.00 | 49.99      | 38.98          | 7.15       | 53.41         | 42.71  | 74.00      | -31.29     | HORIZONTAL | Peak   |



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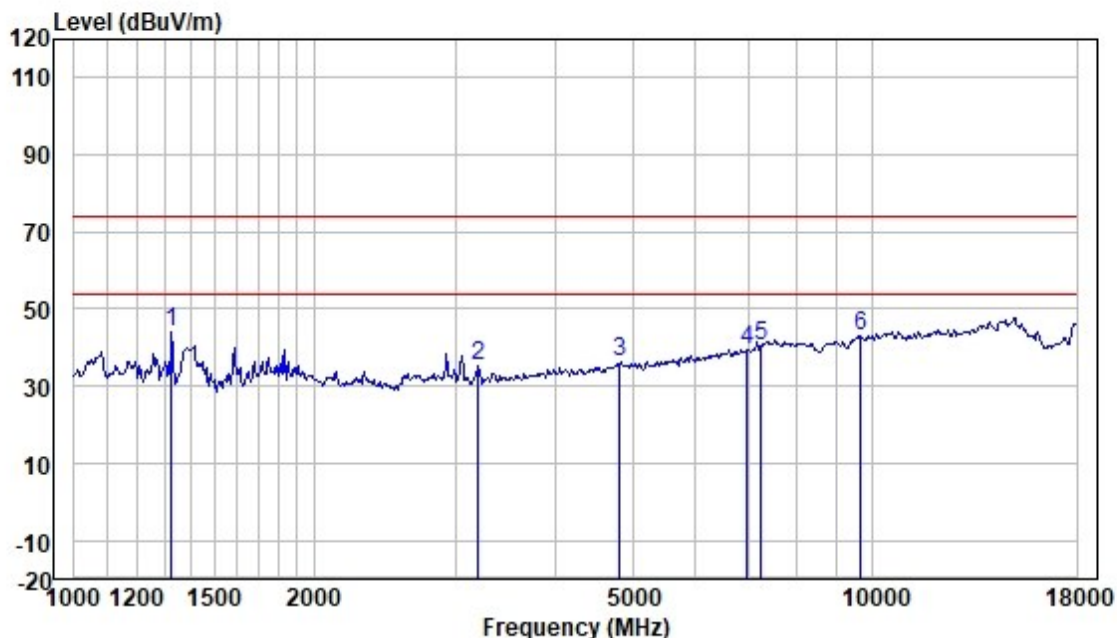
Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1451.88 | 72.67      | 25.86          | 2.68       | 54.57         | 46.64  | 74.00      | -27.36     | VERTICAL   | Peak   |
| 2 | 3242.62 | 58.62      | 28.84          | 3.96       | 54.76         | 36.66  | 74.00      | -37.34     | HORIZONTAL | Peak   |
| 3 | 4874.00 | 56.17      | 31.63          | 4.85       | 53.87         | 38.78  | 74.00      | -35.22     | HORIZONTAL | Peak   |
| 4 | 6914.76 | 52.20      | 35.11          | 5.84       | 53.20         | 39.95  | 74.00      | -34.05     | HORIZONTAL | Peak   |
| 5 | 7311.00 | 52.27      | 36.22          | 5.98       | 53.27         | 41.20  | 74.00      | -32.80     | HORIZONTAL | Peak   |
| 6 | 9748.00 | 49.09      | 38.87          | 7.11       | 53.42         | 41.65  | 74.00      | -32.35     | HORIZONTAL | Peak   |



Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



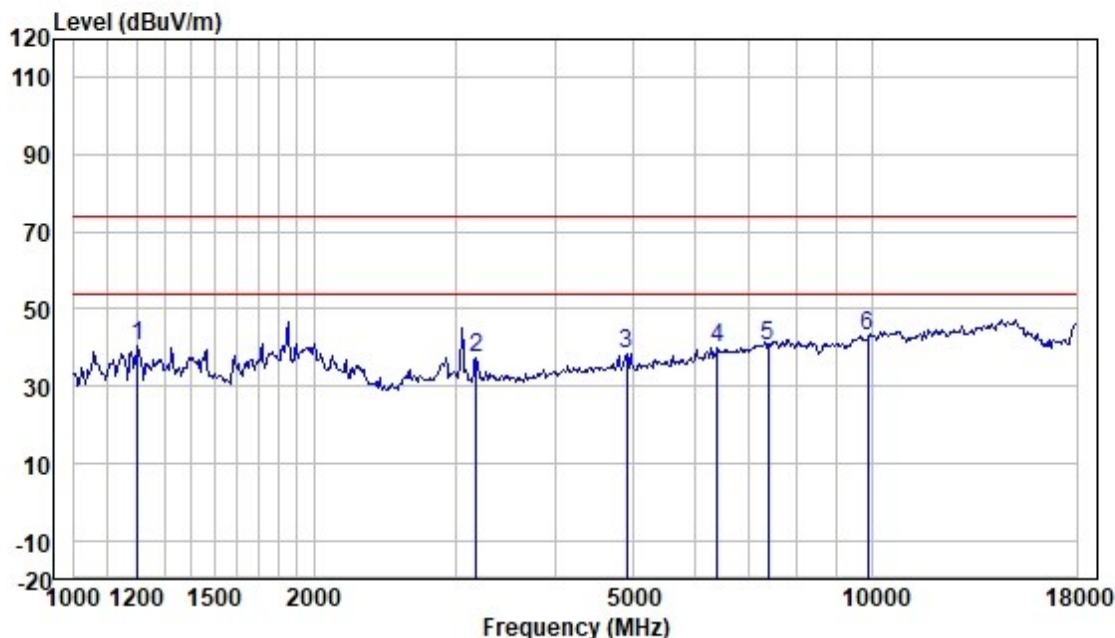
|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1327.45 | 70.07      | 25.66          | 2.61       | 54.50         | 43.84  | 74.00      | -30.16     | HORIZONTAL | peak   |
| 2 | 3205.35 | 57.22      | 28.80          | 3.92       | 54.78         | 35.16  | 74.00      | -38.84     | HORIZONTAL | peak   |
| 3 | 4824.00 | 53.90      | 31.54          | 4.82       | 53.90         | 36.36  | 74.00      | -37.64     | HORIZONTAL | peak   |
| 4 | 6954.85 | 51.57      | 35.17          | 5.86       | 53.20         | 39.40  | 74.00      | -34.60     | HORIZONTAL | peak   |
| 5 | 7236.00 | 51.74      | 35.97          | 5.95       | 53.25         | 40.41  | 74.00      | -33.59     | HORIZONTAL | peak   |
| 6 | 9648.00 | 50.74      | 38.73          | 7.05       | 53.43         | 43.09  | 74.00      | -30.91     | HORIZONTAL | peak   |



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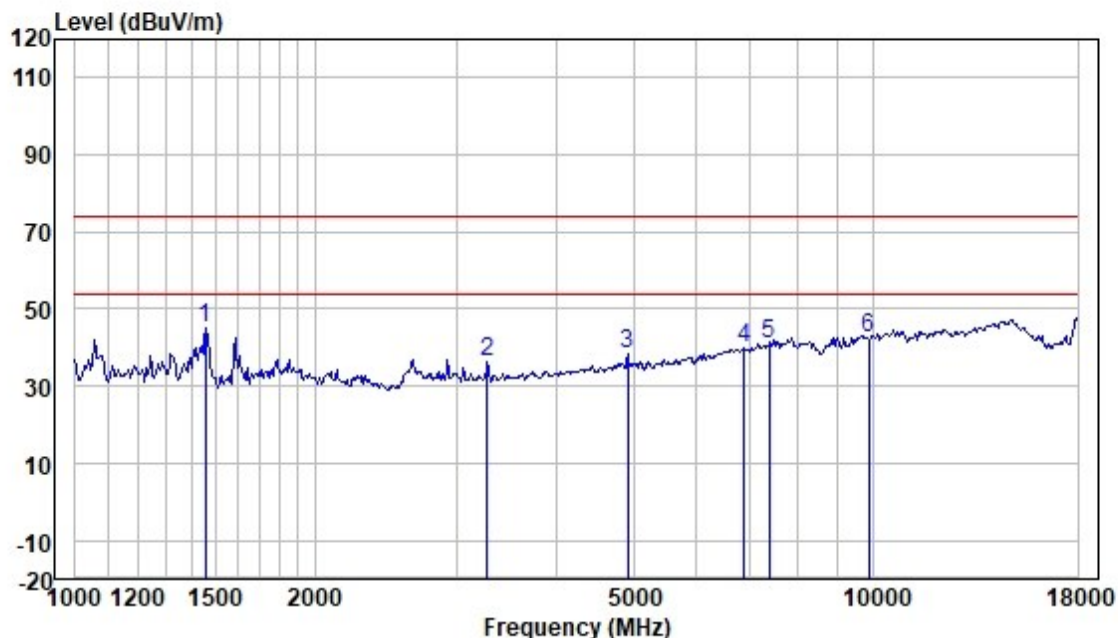
Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |           |        |
| 1 | 1203.20 | 67.54      | 25.07          | 2.40       | 54.43         | 40.58  | 74.00      | -33.42     | VERTICAL  | peak   |
| 2 | 3186.87 | 59.57      | 28.79          | 3.91       | 54.79         | 37.48  | 74.00      | -36.52     | VERTICAL  | peak   |
| 3 | 4924.00 | 55.44      | 31.70          | 4.88       | 53.84         | 38.18  | 74.00      | -35.82     | VERTICAL  | peak   |
| 4 | 6377.20 | 53.84      | 33.91          | 5.61       | 53.20         | 40.16  | 74.00      | -33.84     | VERTICAL  | peak   |
| 5 | 7386.00 | 51.25      | 36.47          | 6.00       | 53.28         | 40.44  | 74.00      | -33.56     | VERTICAL  | peak   |
| 6 | 9848.00 | 50.46      | 38.98          | 7.15       | 53.41         | 43.18  | 74.00      | -30.82     | VERTICAL  | peak   |



Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|--------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |            |        |
| 1 | 1456.08 | 71.31      | 25.87          | 2.68       | 54.57         | 45.29  | 74.00      | -28.71     | HORIZONTAL | peak   |
| 2 | 3280.33 | 58.28      | 28.87          | 3.99       | 54.74         | 36.40  | 74.00      | -37.60     | HORIZONTAL | peak   |
| 3 | 4924.00 | 55.65      | 31.70          | 4.88       | 53.84         | 38.39  | 74.00      | -35.61     | HORIZONTAL | peak   |
| 4 | 6874.91 | 52.09      | 35.04          | 5.83       | 53.20         | 39.76  | 74.00      | -34.24     | HORIZONTAL | peak   |
| 5 | 7386.00 | 51.88      | 36.47          | 6.00       | 53.28         | 41.07  | 74.00      | -32.93     | HORIZONTAL | peak   |
| 6 | 9848.00 | 49.59      | 38.98          | 7.15       | 53.41         | 42.31  | 74.00      | -31.69     | HORIZONTAL | peak   |



### 7.5 Maximum Conducted Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2020) Section 11.9.2

Test Engineer: Banna Ban

Limit:

| Frequency range(MHz) | Output power of the intentional radiator(watt)         |
|----------------------|--------------------------------------------------------|
| 902-928              | 1 for $\geq 50$ hopping channels                       |
|                      | 0.25 for $25 \leq$ hopping channels $< 50$             |
|                      | 1 for digital modulation                               |
| 2400-2483.5          | 1 for $\geq 75$ non-overlapping hopping channels       |
|                      | 0.125 for all other frequency hopping systems          |
|                      | 1 for digital modulation                               |
| 5725-5850            | 1 for frequency hopping systems and digital modulation |

#### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C

Humidity: 57.4 % RH

Atmospheric Pressure: 1010 mbar

#### 7.5.2 Test Mode Description

Pre-scan / Mode  
Final test Code Description

TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



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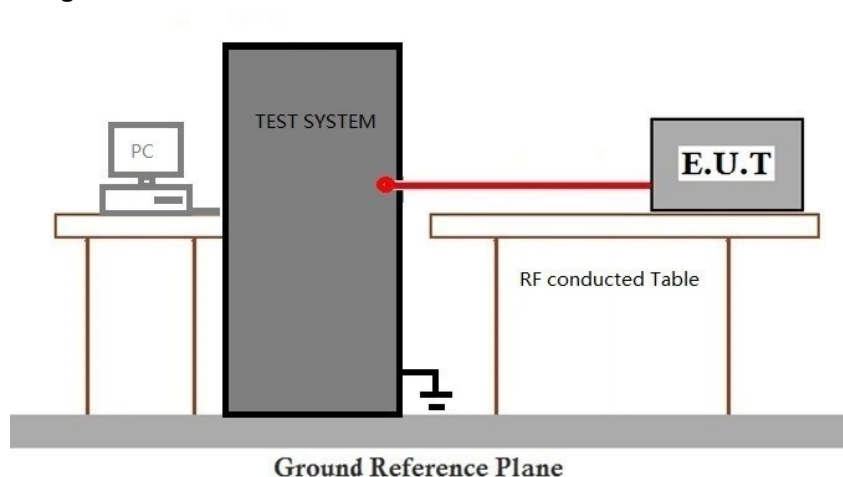
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### 7.5.3 Test Setup Diagram



### 7.5.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

### 7.6 Minimum 6dB Bandwidth

|                  |                                      |
|------------------|--------------------------------------|
| Test Requirement | 47 CFR Part 15, Subpart C 15.247a(2) |
| Test Method:     | ANSI C63.10 (2020) Section 11.8.1    |
| Test Engineer:   | Banna Ban                            |
| Limit:           | ≥500 kHz                             |

#### 7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C Humidity: 57.4 % RH Atmospheric Pressure: 1010 mbar

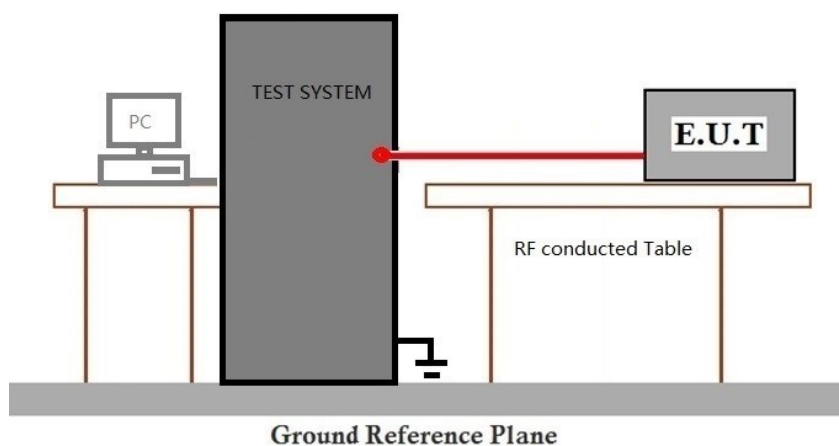
#### 7.6.2 Test Mode Description

| Pre-scan / Mode | Description |
|-----------------|-------------|
| Final test Code |             |

TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Final test 00

#### 7.6.3 Test Setup Diagram



#### 7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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### 7.7 Power Spectral Density

|                  |                                                                             |
|------------------|-----------------------------------------------------------------------------|
| Test Requirement | 47 CFR Part 15, Subpart C 15.247(e)                                         |
| Test Method:     | ANSI C63.10 (2020) Section 11.10.3                                          |
| Test Engineer:   | Banna Ban                                                                   |
| Limit:           | ≤8dBm in any 3 kHz band during any time interval of continuous transmission |

#### 7.7.1 E.U.T. Operation

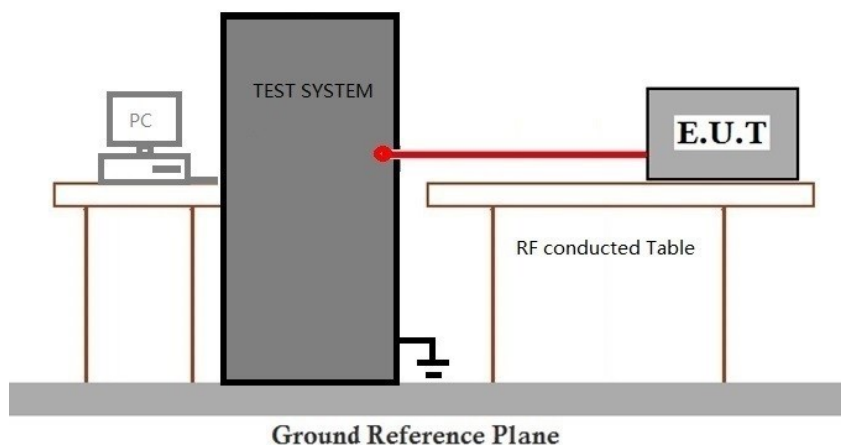
Operating Environment:

Temperature: 22.2 °C Humidity: 57.4 % RH Atmospheric Pressure: 1010 mbar

#### 7.7.2 Test Mode Description

| Pre-scan / Mode | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final test Code |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Final test 00   | TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

#### 7.7.3 Test Setup Diagram



#### 7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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### 7.8 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) Section 6.10.4

Test Engineer: Banna Ban

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 §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).

#### 7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C

Humidity: 57.4 % RH

Atmospheric Pressure: 1010 mbar

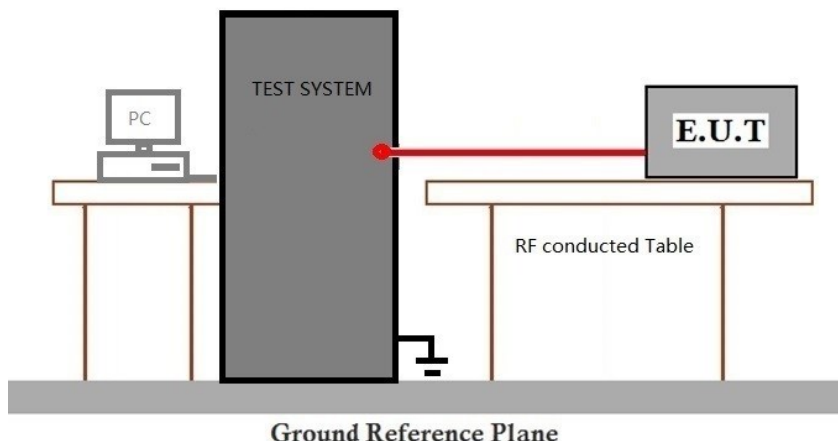
#### 7.8.2 Test Mode Description

| Pre-scan / Mode | Description |
|-----------------|-------------|
| Final test Code |             |

|            |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final test | 00 | TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |
|------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



### 7.8.3 Test Setup Diagram



### 7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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### 7.9 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) Section 11.11

Test Engineer: Banna Ban

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 §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).

#### 7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C Humidity: 57.4 % RH Atmospheric Pressure: 1010 mbar

#### 7.9.2 Test Mode Description

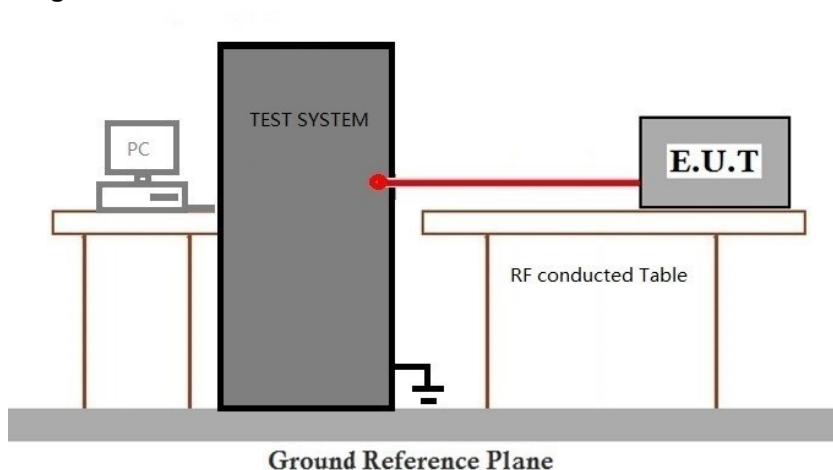
| Pre-scan / Mode | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final test Code |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Final test 00   | TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |



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### 7.9.3 Test Setup Diagram



### 7.9.4 Measurement Procedure and Data

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## 8 Test Setup Photo

Refer to Setup Photos for GZCR260400063402



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## 9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2604000634LM



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## 10 Appendix

### 1. Duty Cycle

#### 1.1 Test Result

##### 1.1.1 Ant1

| Ant1           |         |                 |           |             |                |                                   |                       |
|----------------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode           | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 802.11b        | SISO    | 2412            | 32.950    | 32.980      | 99.91          | 0.00                              | 0.01                  |
|                |         | 2437            | 32.953    | 32.983      | 99.91          | 0.00                              | 0.01                  |
|                |         | 2462            | 32.954    | 32.984      | 99.91          | 0.00                              | 0.01                  |
| 802.11n (HT20) | SISO    | 2412            | 5.081     | 5.107       | 99.49          | 0.02                              | 0.04                  |
|                |         | 2437            | 5.080     | 5.105       | 99.51          | 0.02                              | 0.00                  |
|                |         | 2462            | 5.079     | 5.105       | 99.49          | 0.02                              | 0.04                  |

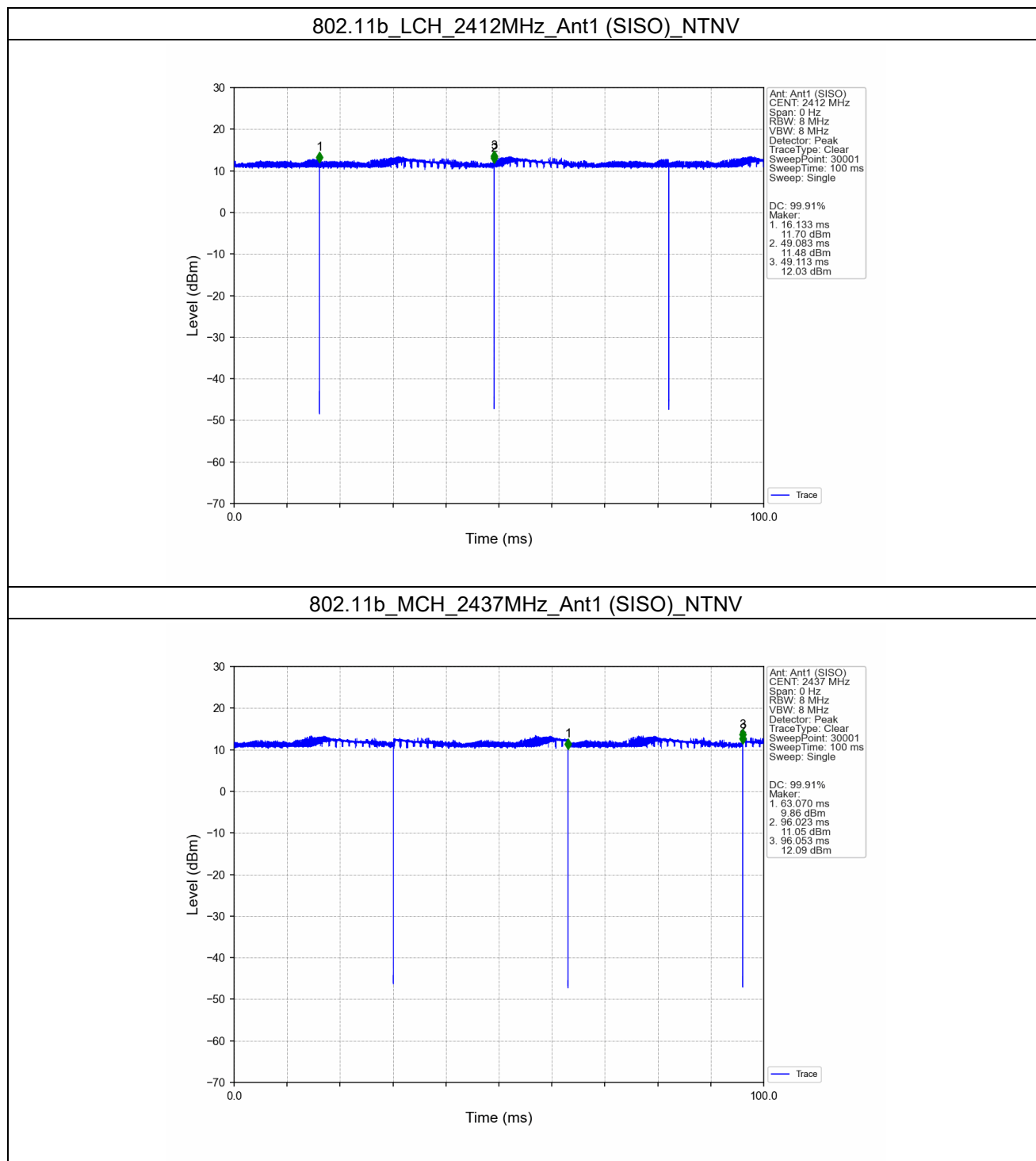


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### 1.2 Test Graph

#### 1.2.1 Ant1



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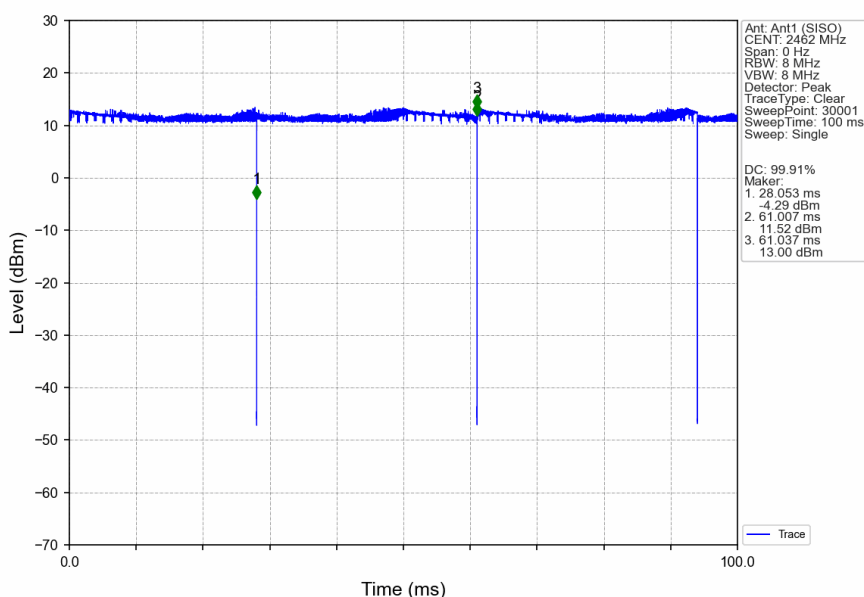
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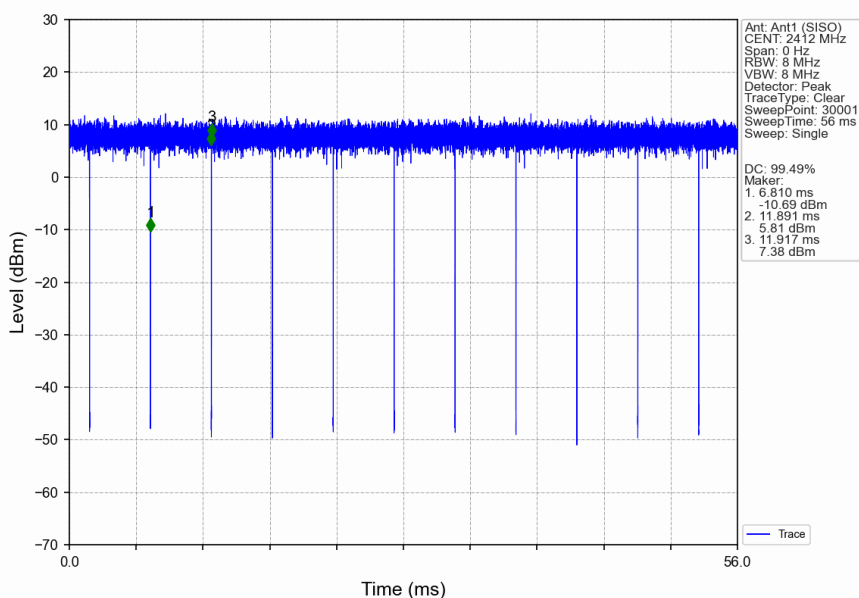
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### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



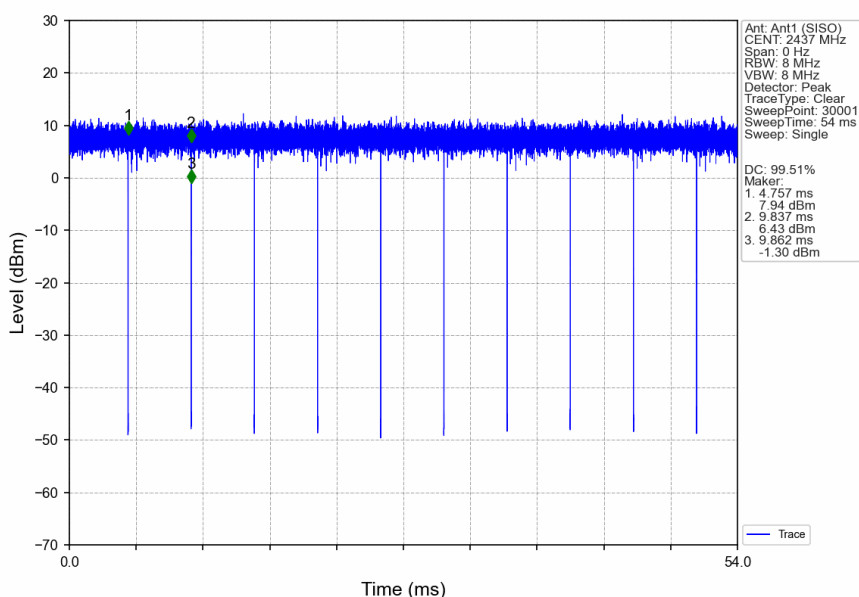
### 802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



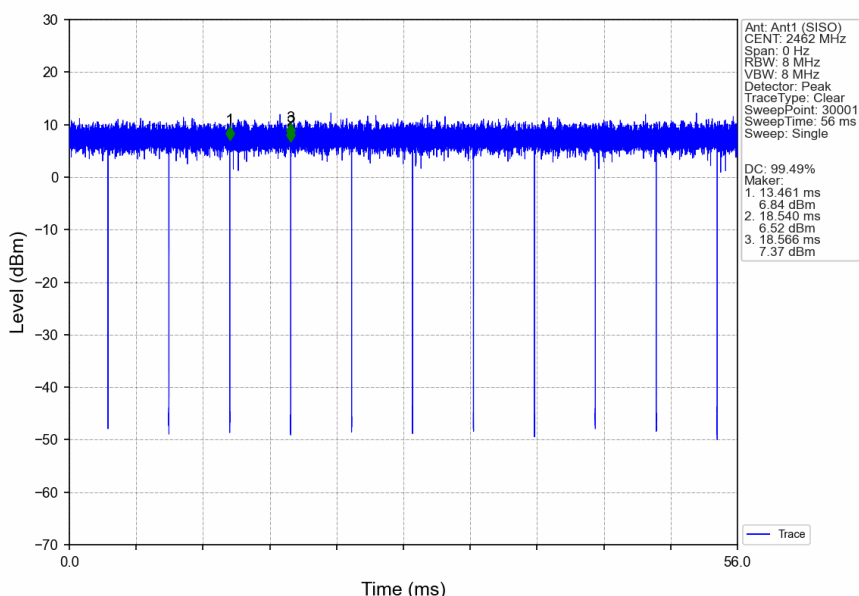
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### 802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



### 802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 6dB BW

| Mode           | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|----------------|---------|-----------------|-----|---------------------|------------|---------|
|                |         |                 |     | Result              | Limit      |         |
| 802.11b        | SISO    | 2412            | 1   | 8.904               | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 8.994               | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 8.884               | $\geq 0.5$ | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 17.185              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 17.238              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 17.195              | $\geq 0.5$ | Pass    |

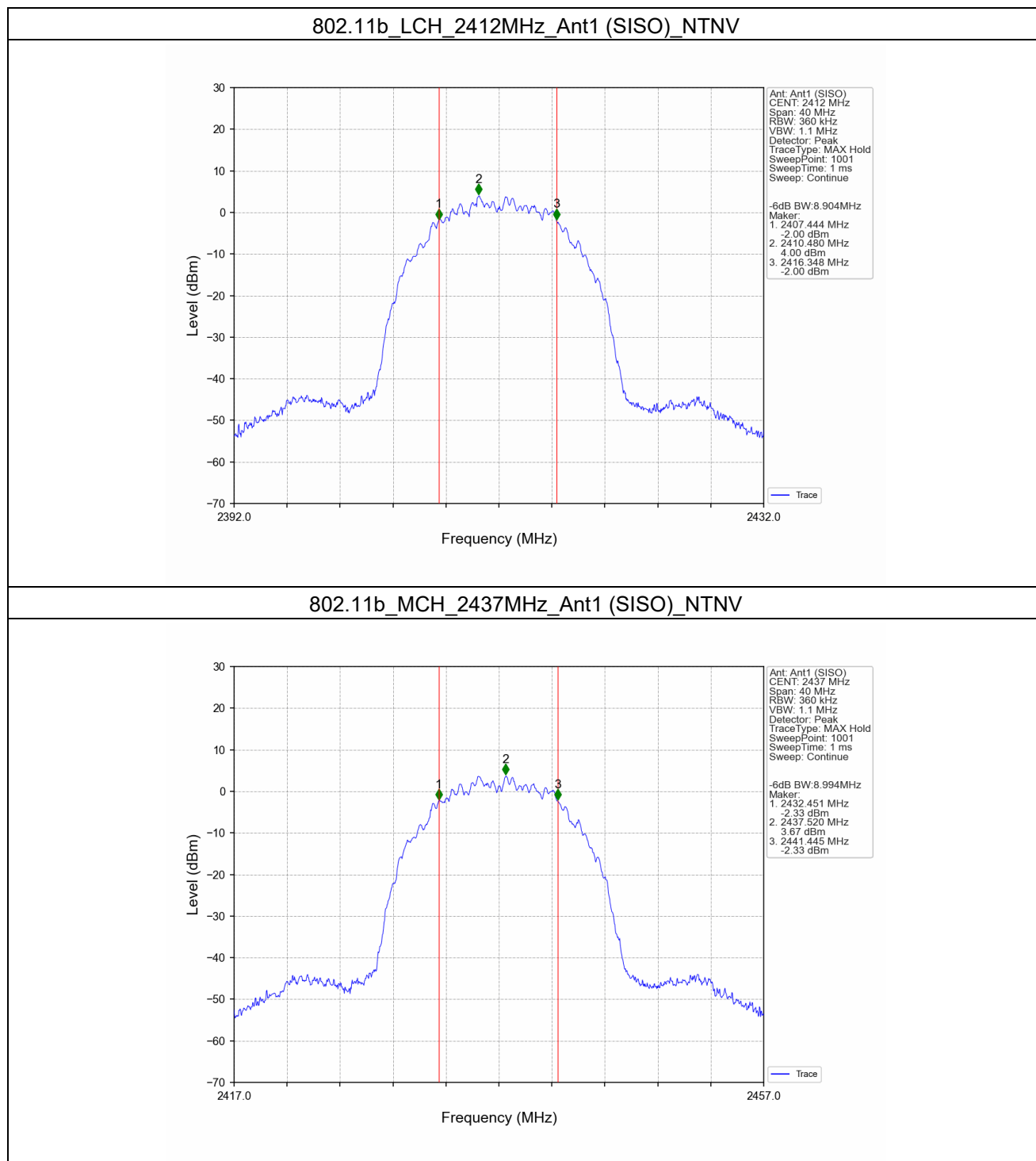


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## 2.2 Test Graph

### 2.2.1 6dB BW



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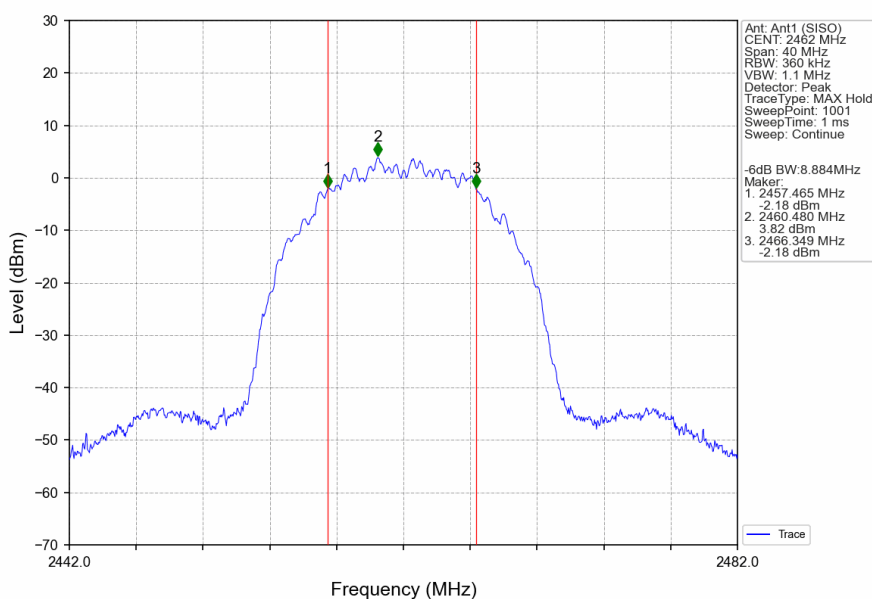
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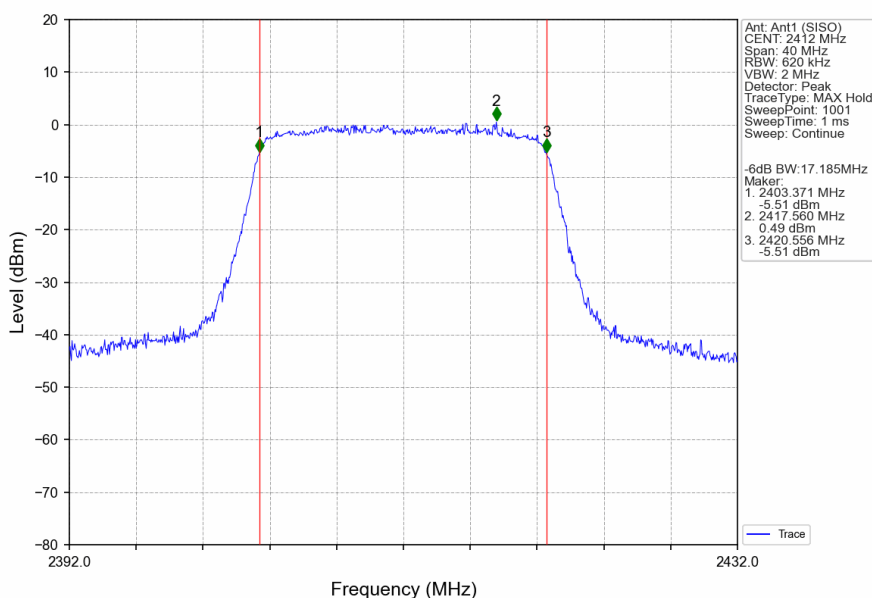
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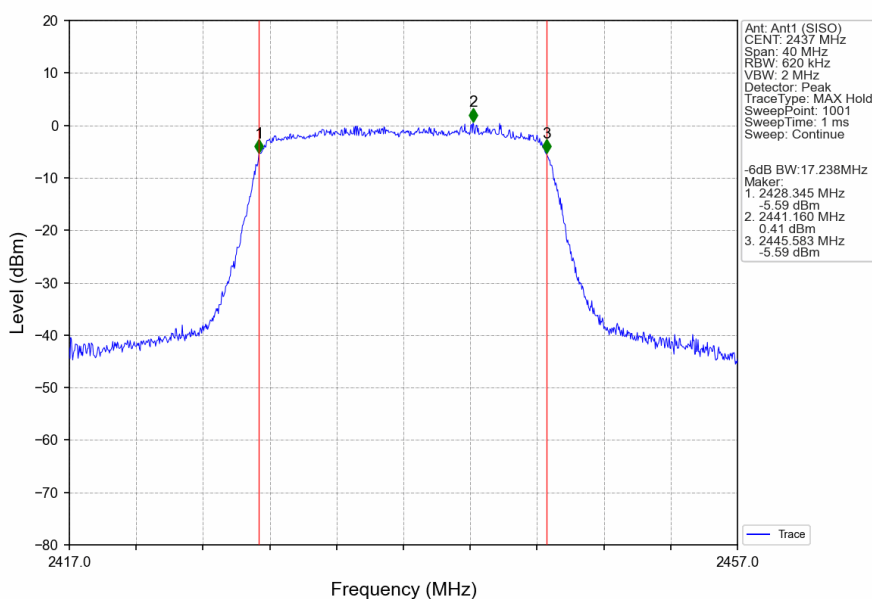
### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



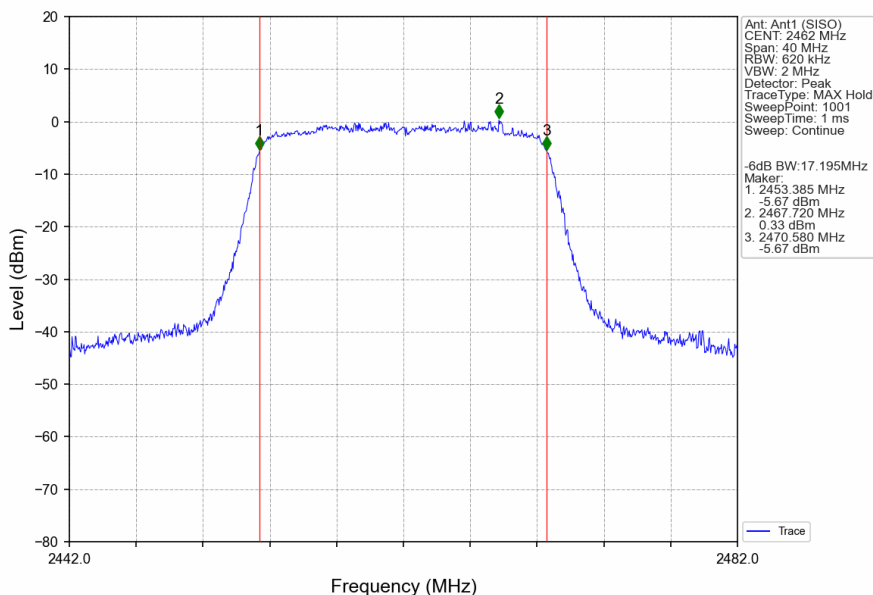
### 802.11n(HT20)\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



### 802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



### 802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



## 3. Maximum Conducted Output Power

### 3.1 Test Result

#### 3.1.1 Power

| Mode           | TX Type | Frequency (MHz) | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|----------------|---------|-----------------|-------------------------------------------|-------|---------|
|                |         |                 | ANT1                                      | Limit |         |
| 802.11b        | SISO    | 2412            | <b>14.29</b>                              | <=30  | Pass    |
|                |         | 2437            | 14.13                                     | <=30  | Pass    |
|                |         | 2462            | 14.19                                     | <=30  | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 13.50                                     | <=30  | Pass    |
|                |         | 2437            | 13.35                                     | <=30  | Pass    |
|                |         | 2462            | 13.27                                     | <=30  | Pass    |

## 4. Maximum Power Spectral Density

### 4.1 Test Result

#### 4.1.1 PSD

| Mode           | TX Type | Frequency (MHz) | Maximum PSD (dBm) |                 | Verdict |
|----------------|---------|-----------------|-------------------|-----------------|---------|
|                |         |                 | ANT1              | Limit(dBm/3kHz) |         |
| 802.11b        | SISO    | 2412            | -0.35dBm/100kHz   | <=8             | Pass    |
|                |         | 2437            | -0.59dBm/100kHz   | <=8             | Pass    |
|                |         | 2462            | 0.24dBm/100kHz    | <=8             | Pass    |
| 802.11n (HT20) | SISO    | 2412            | -5.02dBm/100kHz   | <=8             | Pass    |
|                |         | 2437            | -5.21dBm/100kHz   | <=8             | Pass    |
|                |         | 2462            | -4.80dBm/100kHz   | <=8             | Pass    |



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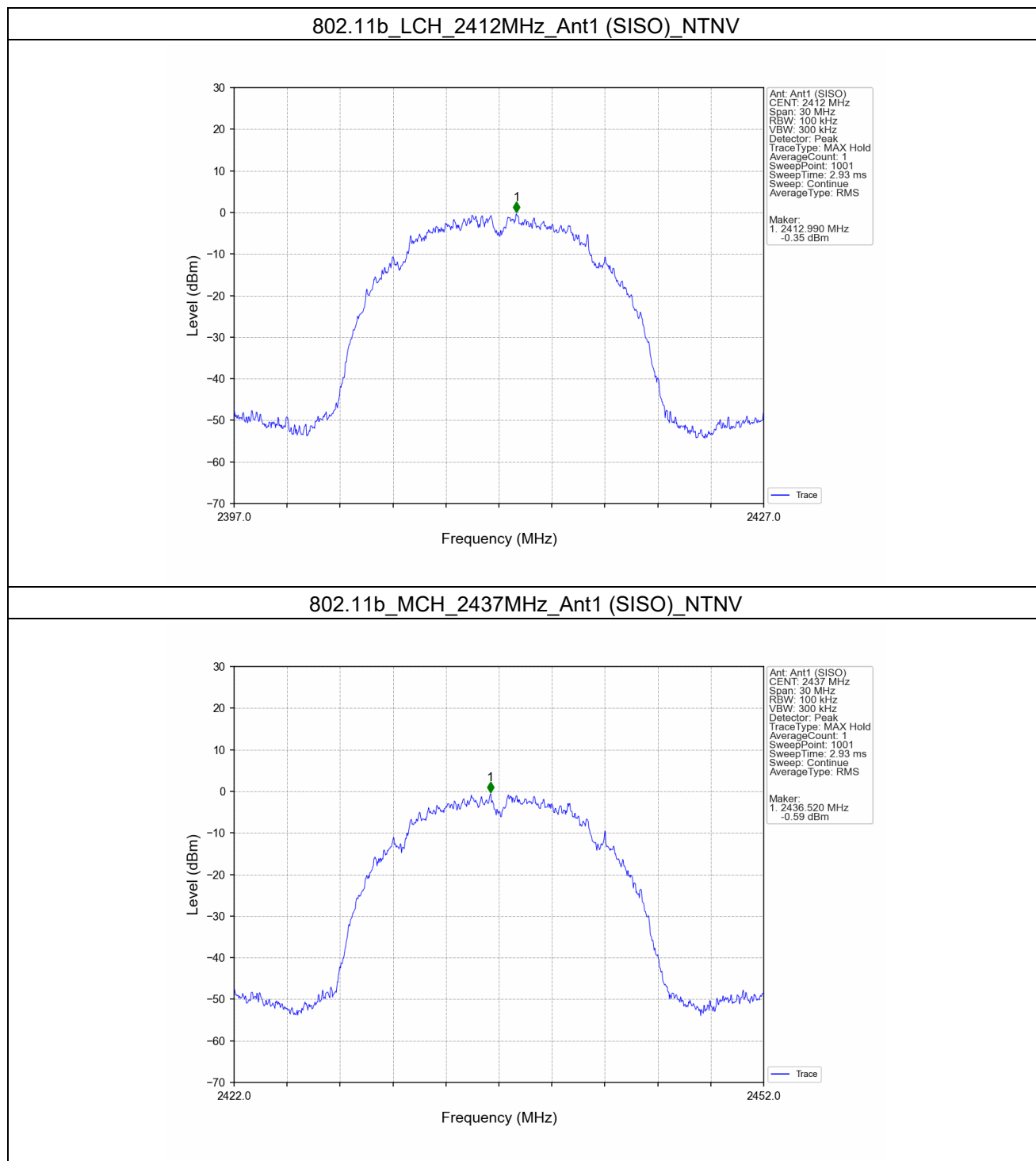
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### 4.2 Test Graph

#### 4.2.1 PSD



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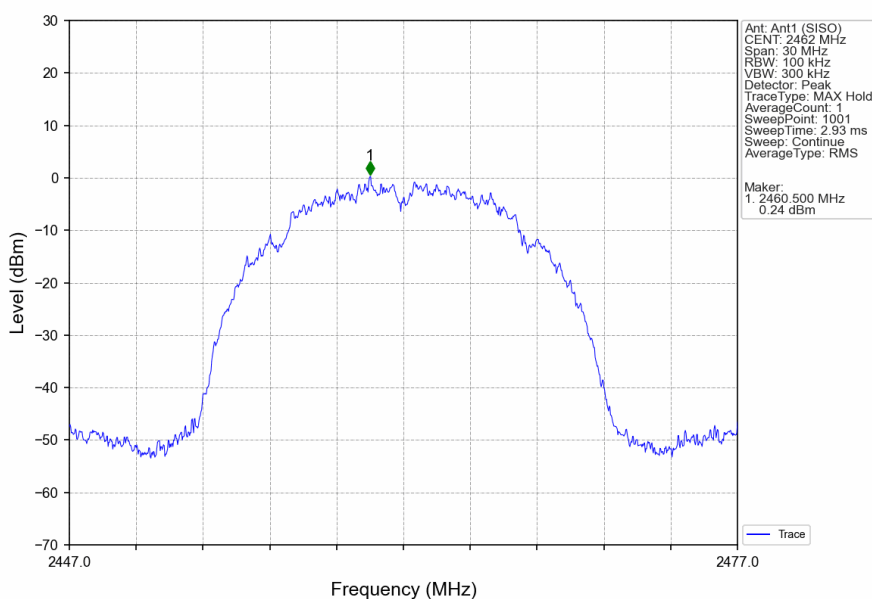
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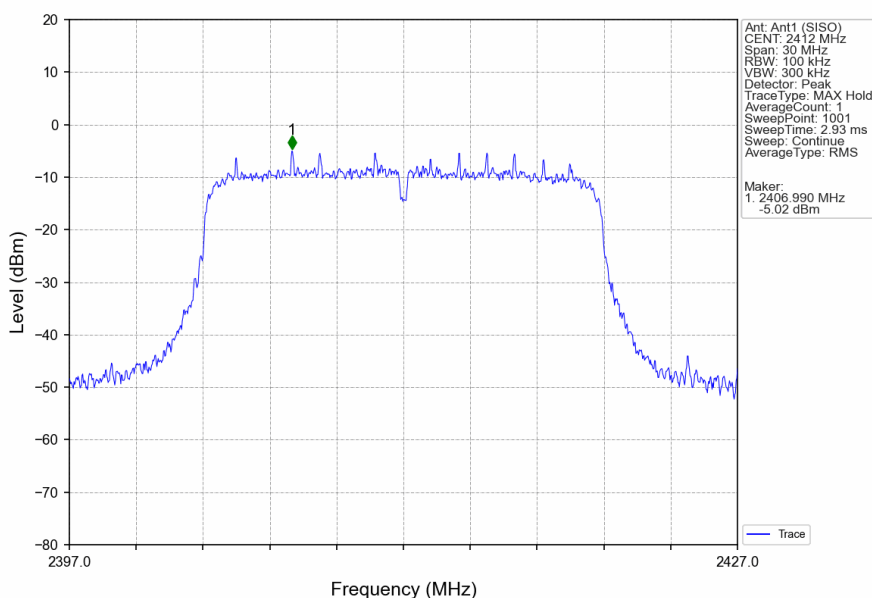
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### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



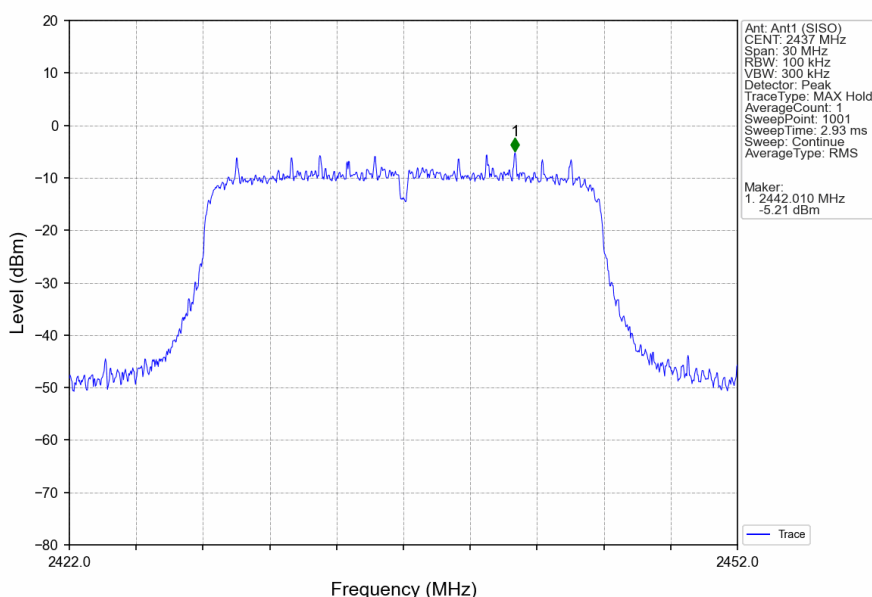
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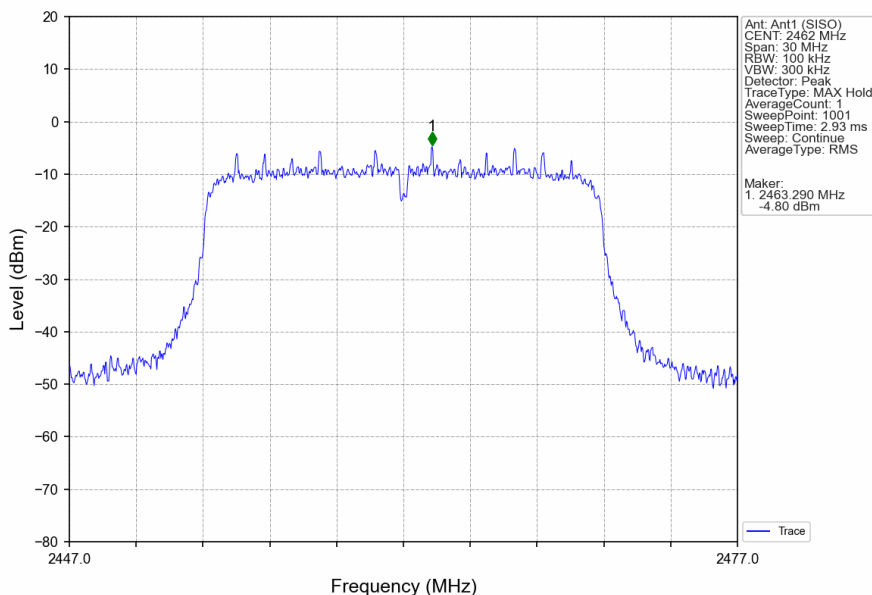
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### 802.11n(HT20)\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



### 802.11n(HT20)\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



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## 5. Unwanted Emissions In Non-restricted Frequency Bands

### 5.1 Test Result

#### 5.1.1 Ref

| Mode           | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) |
|----------------|---------|-----------------|-----|--------------------------|
| 802.11b        | SISO    | 2412            | 1   | -0.14                    |
|                |         | 2437            | 1   | -0.19                    |
|                |         | 2462            | 1   | -0.38                    |
| 802.11n (HT20) | SISO    | 2412            | 1   | -5.26                    |
|                |         | 2437            | 1   | -5.21                    |
|                |         | 2462            | 1   | -5.03                    |

#### 5.1.2 CSE and Band Edges

| Mode           | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|----------------|---------|-----------------|-----|--------------------------|-------------|---------|
| 802.11b        | SISO    | 2412            | 1   | -0.14                    | -20.14      | Pass    |
|                |         | 2437            | 1   | -0.14                    | -20.14      | Pass    |
|                |         | 2462            | 1   | -0.14                    | -20.14      | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | -5.03                    | -25.03      | Pass    |
|                |         | 2437            | 1   | -5.03                    | -25.03      | Pass    |
|                |         | 2462            | 1   | -5.03                    | -25.03      | Pass    |



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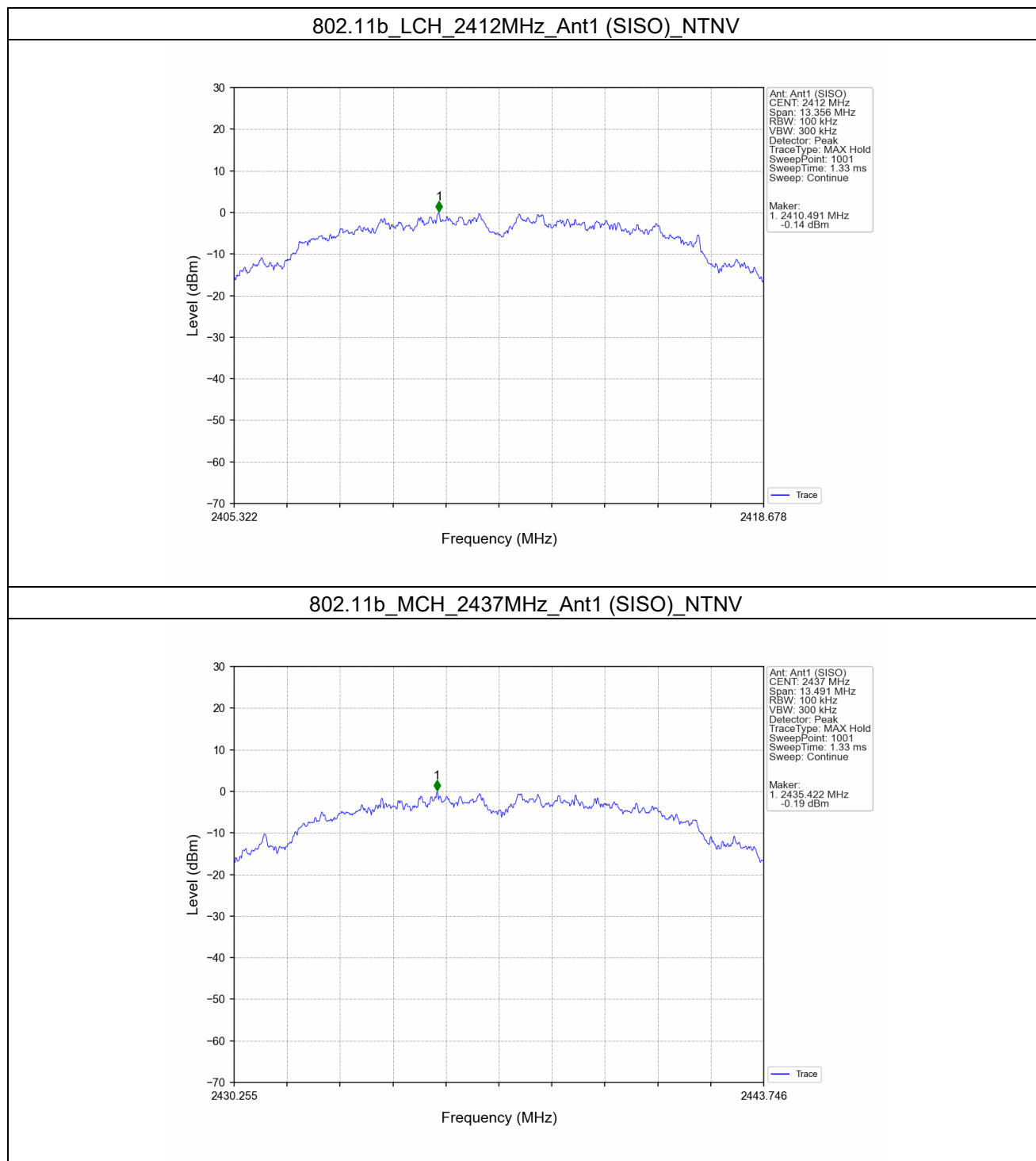
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### 5.2 Test Graph

#### 5.2.1 Ref



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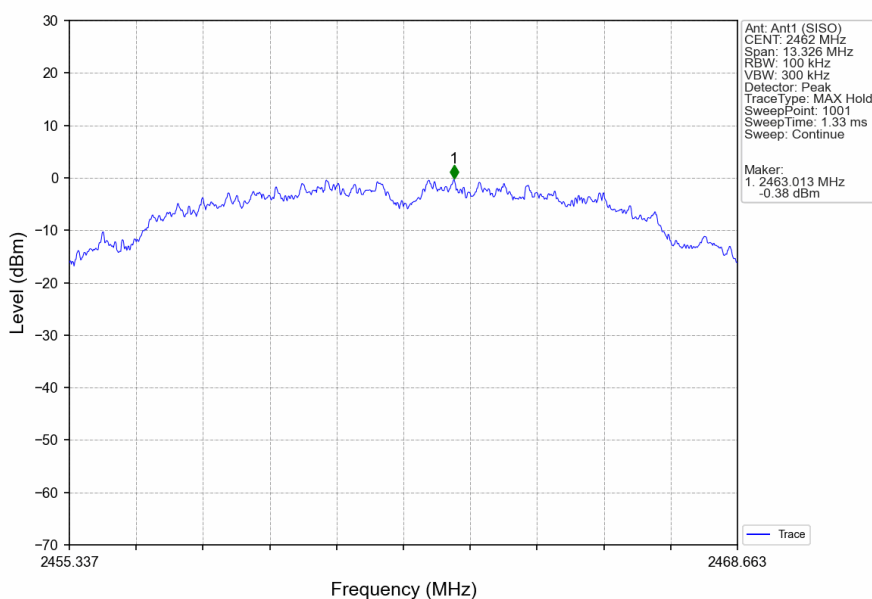
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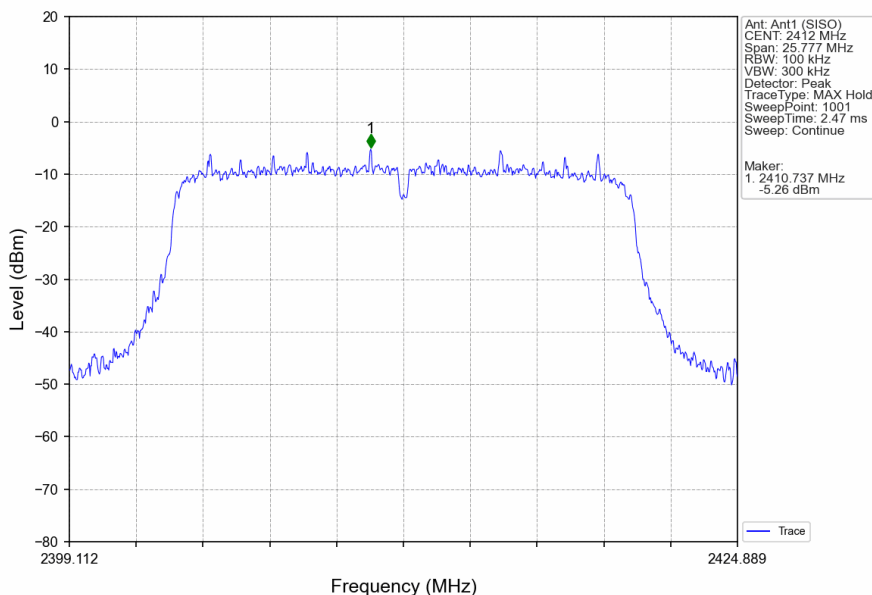
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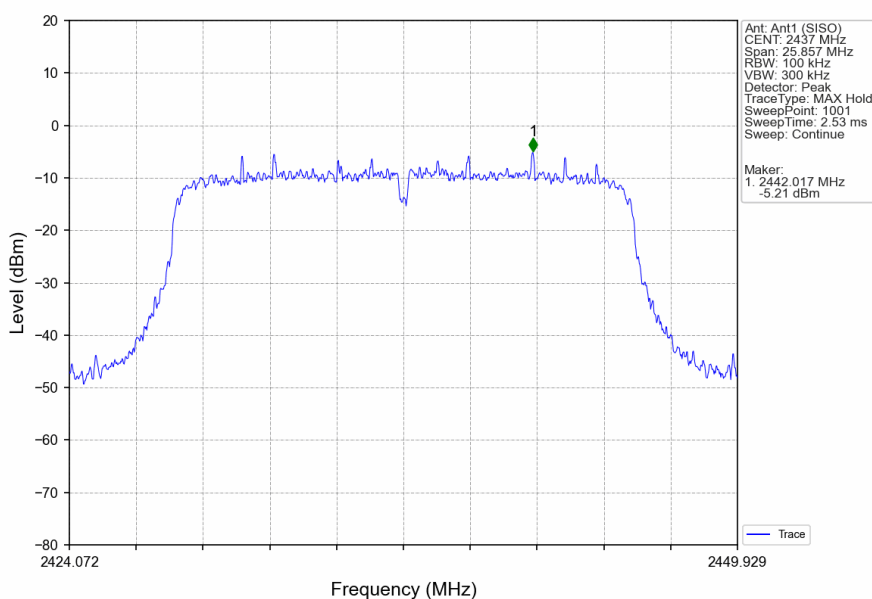
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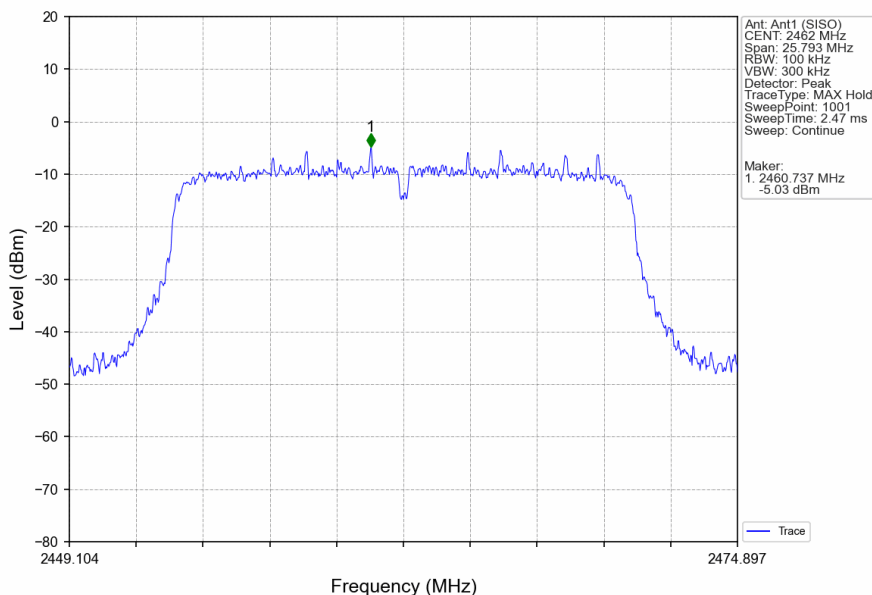
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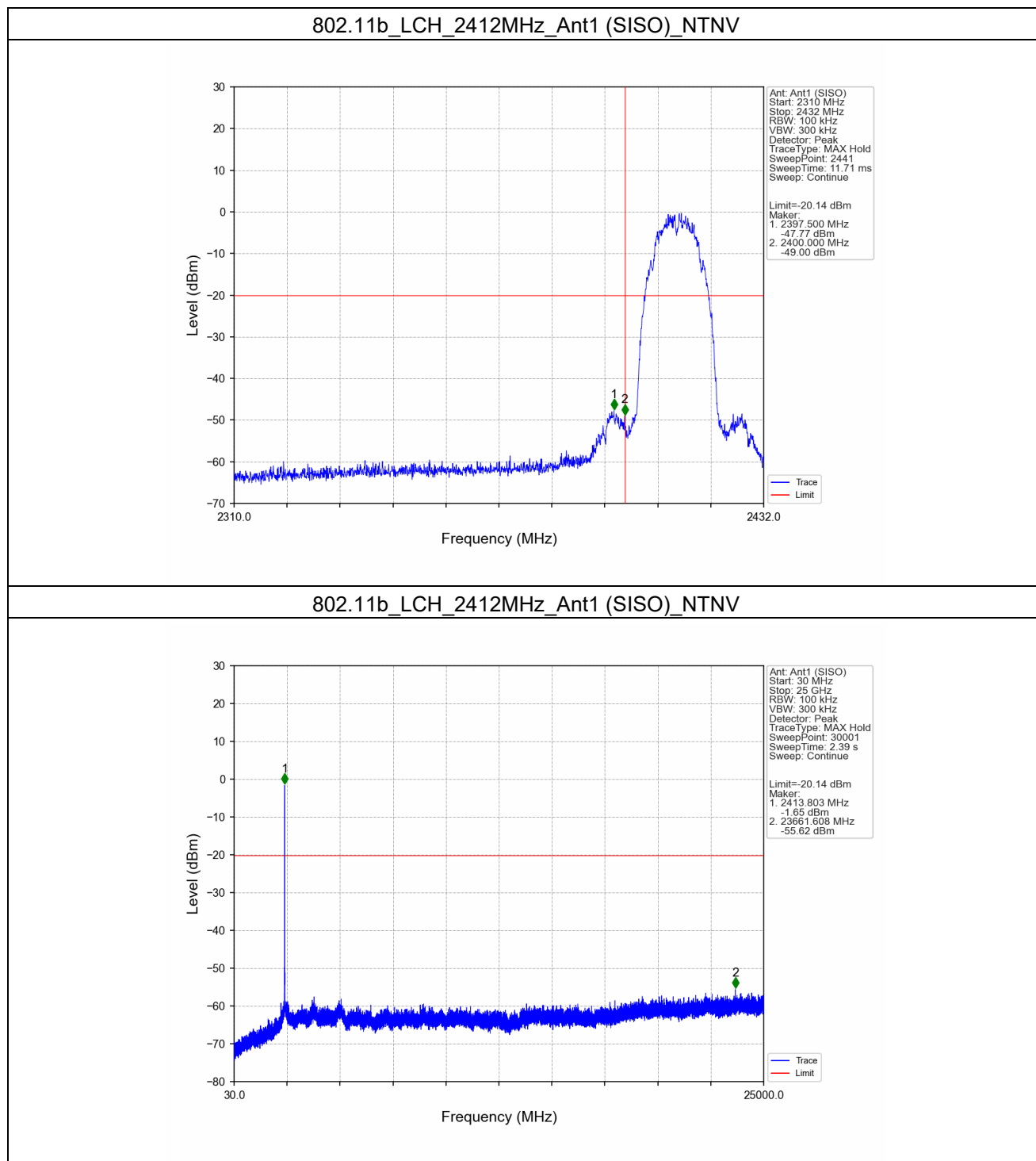
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### 5.2.2 CSE and Band Edges



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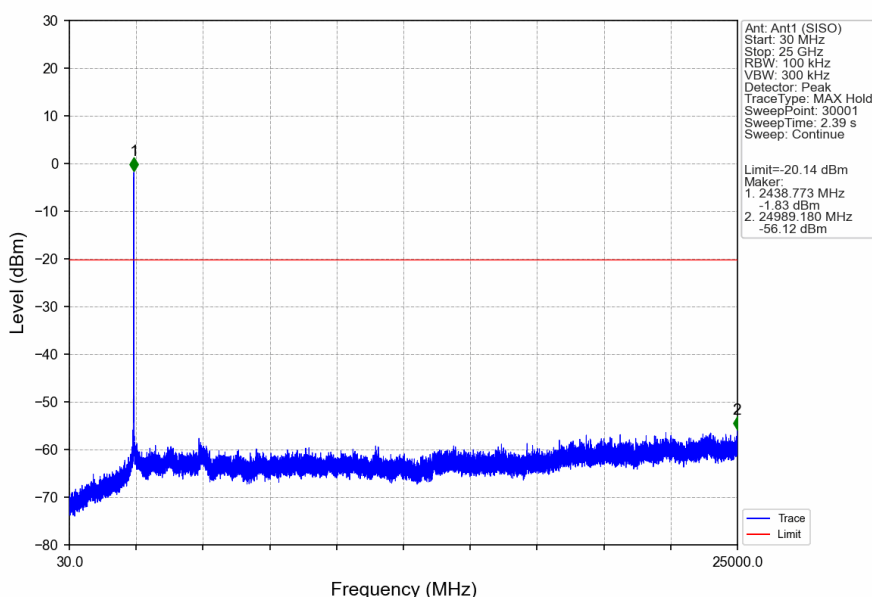
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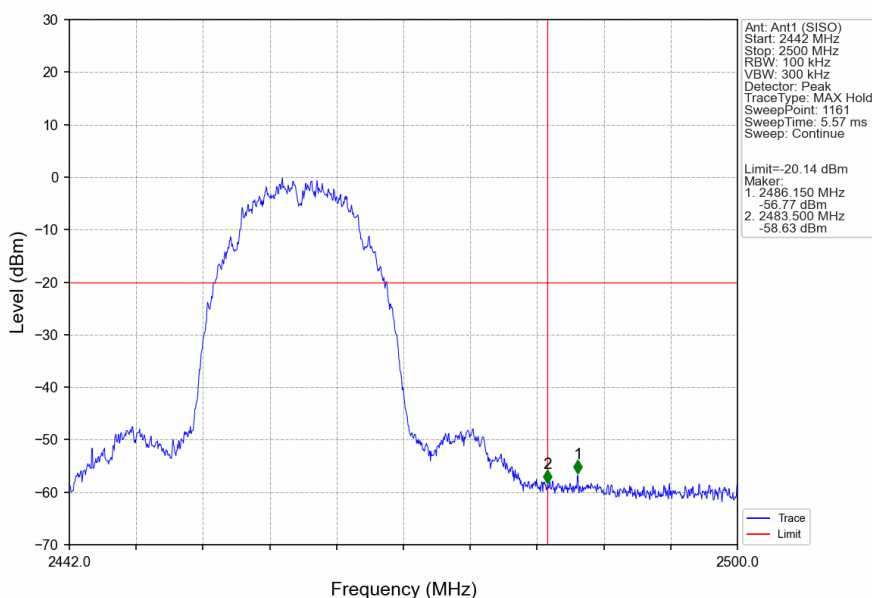
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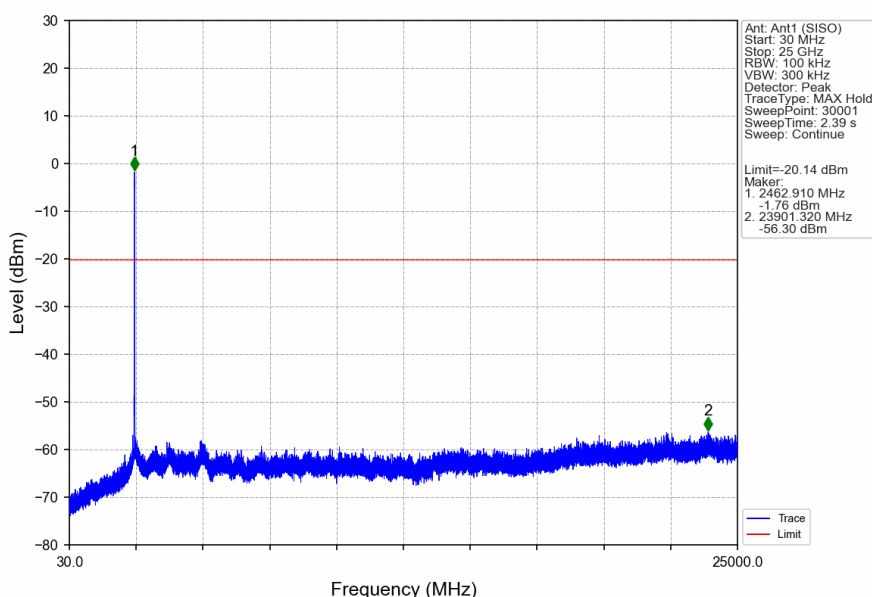
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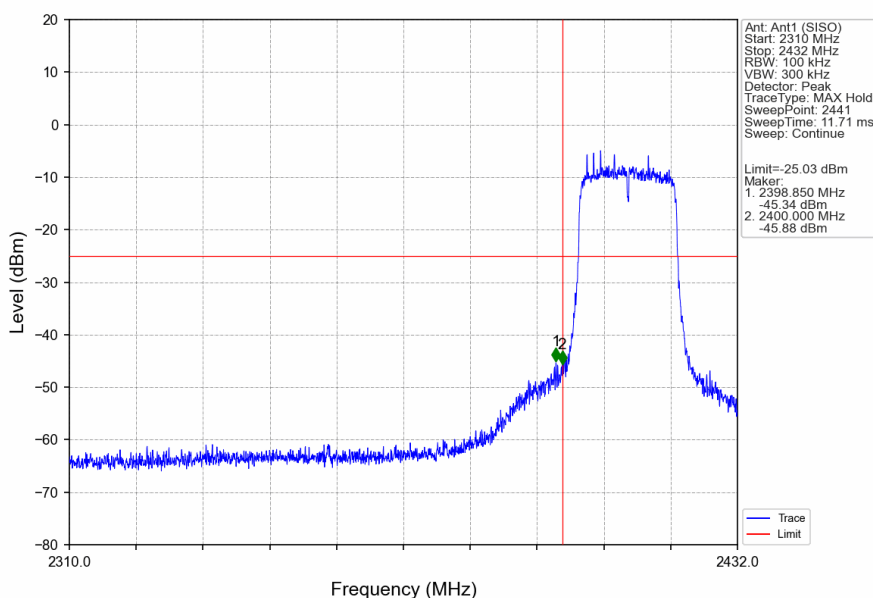
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### 802.11b\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



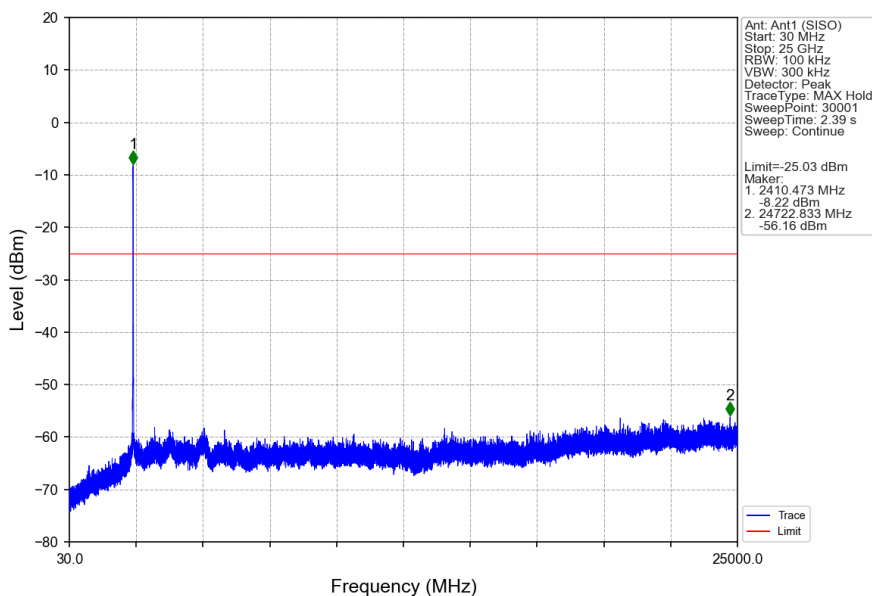
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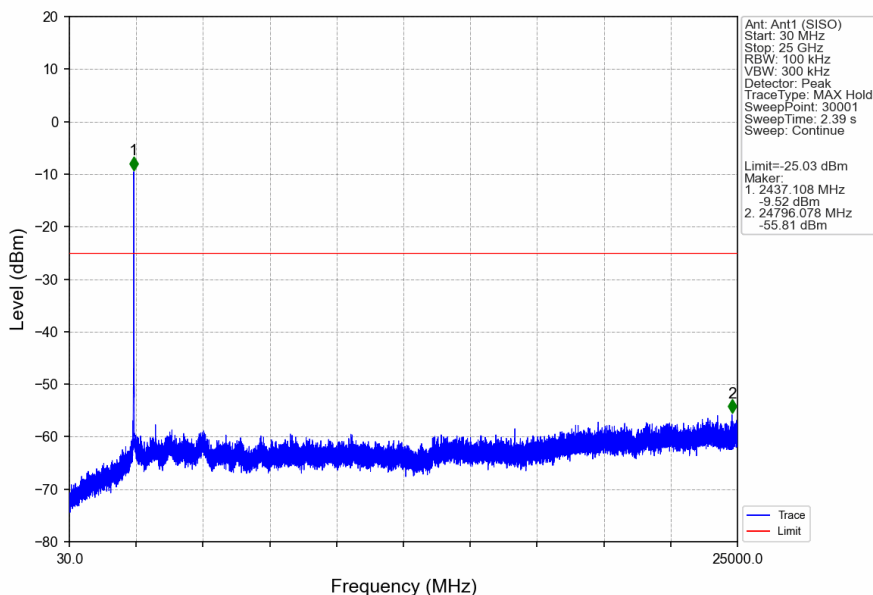
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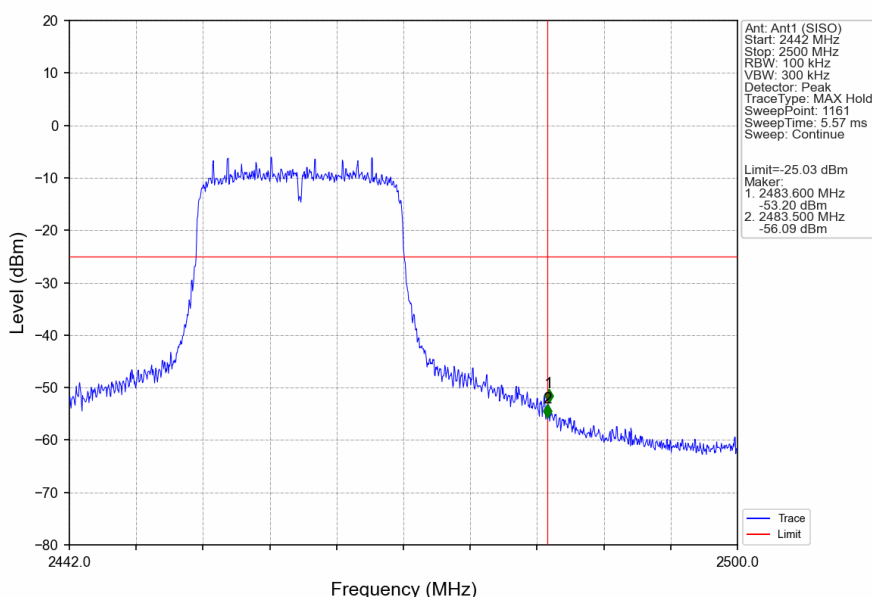
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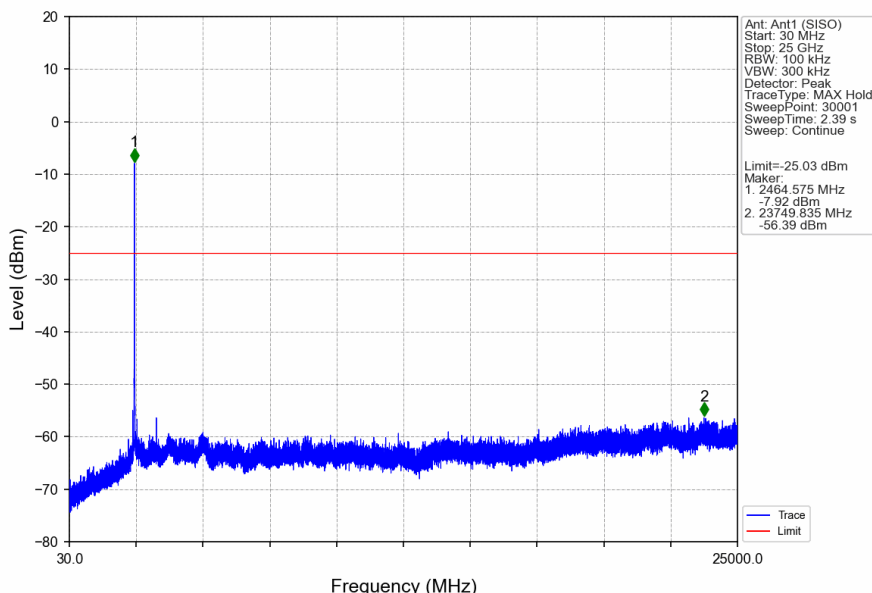
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