# TEST REPORT

| | |
|---|---|
| **Application No.:** | SUCR2607000644TL |
| **FCC ID:** | 2AH25T5F1AA |
| **Applicant:** | Shanghai Sunmi Technology Co., Ltd. |
| **Address of Applicant:** | Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China |
| **Manufacturer:** | Shanghai Sunmi Technology Co., Ltd. |
| **Address of Manufacturer:** | Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | Wireless data POS System |
| **Model No.:** | T5F1A |
| **Trade Mark:** | SUNMI |
| **Standard(s) :** | 47 CFR Part 15, Subpart C 15.247 |
| **Date of Receipt:** | 2026-07-14 |
| **Date of Test:** | 2026-07-17 to 2026-08-07 |
| **Date of Issue:** | 2026-10-13 |
| **Test Result:** | **Pass*** |

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

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| Revision Record | | | |
|---|---|---|---|
| ***Version*** | **Description** | ***Date*** | ***Remark*** |
| 00 | Original | 2026-10-13 | / |
| | | | |
| | | | |

| | | | | |
|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| **Prepared By** | | Hayley Zhang<br>**Hayley_Zhang/Project Engineer** | | |
| **Approved By** | | Cedar Cheng<br>**Cedar Cheng /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+Cor.1-2023 Section 6.2 | 47 CFR Part 15, Subpart C 15.207 | Pass |
| Radiated Emissions which fall in the restricted bands | | ANSI C63.10-2020+Cor.1-2023 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+Cor.1-2023 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+Cor.1-2023 Section 6.6 & 11.12 | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass |
| Maximum Conducted Output Power | | ANSI C63.10-2020+Cor.1-2023 Section 11.9 | 47 CFR Part 15, Subpart C 15.247(b)(3) | Pass |
| Minimum 6dB Bandwidth | | ANSI C63.10-2020+Cor.1-2023 Section 11.8.1 | 47 CFR Part 15, Subpart C 15.247a(2) | Pass |
| Power Spectral Density | | ANSI C63.10-2020+Cor.1-2023 Section 11.10 | 47 CFR Part 15, Subpart C 15.247(e) | Pass |
| Conducted Band Edges Measurement | | ANSI C63.10-2020+Cor.1-2023 Section 6.10.4 | 47 CFR Part 15, Subpart C 15.247(d) | Pass |
| Conducted Spurious Emissions | | ANSI C63.10-2020+Cor.1-2023 Section 11.11 | 47 CFR Part 15, Subpart C 15.247(d) | Pass |

Remark:

This test report (Report No.: SUCR260700064405 issue on 2026/10/13) is based on the original test report (Report No.: SUCR260700064205 issue on 2026/08/14).

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Therefore in this report all items do not need to retest and all test data in this report are based on the previous report with report number SUCR260700064205 issue on 2026/08/14.

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# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Power supply: | Adapter(TPA-418G050200UU01):<br>Input: 100-240V~50/60Hz 0.3A<br>Output: 5.0V,2.0A |
| Operation Frequency: | 802.11b/g/n(HT20): 2412MHz to 2462MHz;<br>802.11n(HT40): 2422MHz to 2452MHz |
| Modulation Type: | 802.11b: DSSS (DBPSK, DQPSK, CCK);<br>802.11g/n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) |
| Number of Channels: | 802.11b/g/n(HT20):11;802.11n(HT40):7 |
| Channel Spacing: | 5MHz |
| Antenna Gain: | 1.87dBi (Provided by the manufacturer) |
| Antenna Type: | FPC Antenna |

## 4.2 Environment Parameter

| Environment Parameter | Selected Values During Tests | |
|---|---|---|
| Relative Humidity | 41-44% | |
| Value | Temperature(°C) | Voltage(V) |
| NTNV | 23 | 7.7 |

Note:
NV:Normal Voltage LV:Low Extreme Test Voltage HV:High Extreme Test Voltage
NT:Normal Temperature LT:Low Extreme Test Temperature HT:High Extreme Test Temperature

## 4.3 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|---|---|---|---|
| -- | -- | -- | -- |
| The EUT has been tested as an independent unit. | | | |

## 4.4 Measurement Uncertainty & Decision Rule

| No. | Item | Measurement Uncertainty |
|---|---|---|
| 1 | Radio Frequency | ± 7.25 x $10^{-8}$ |
| 2 | Duty cycle | ± 0.37% |
| 3 | Occupied Bandwidth | ± 3% |
| 4 | Conduction emission | ± 3.0dB (150kHz to 30MHz) |
| 5 | RF conducted power | ± 0.75dB |
| 6 | RF power density | ± 2.84dB |
| 7 | Conducted Spurious emissions | ± 0.75dB |
| 8 | RF Radiated power | ±1.56dB (9KHz-30MHz) |
| | | ±4.80dB (30MHz-1GHz) |
| | | ±4.80dB (1GHz-18GHz) |
| | | ±4.80dB (18GHz-40GHz) |
| 9 | Temperature test | ± 1°C |
| 10 | Humidity test | ± 3% |
| 11 | Supply voltages | ± 1% |
| 12 | Time | ± 3% |

Remark:
The $U_{lab}$ (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

## 4.5 Test Location

All tests were performed at:

SGS Tongfang Technical Services (Suzhou) Co., Ltd.

South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

## 4.6 Test Facility

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

**• A2LA (Certificate No. 6336.01)**

SGS Tongfang Technical Services (Suzhou) Co., Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA).

**• FCC (Designation Number: CN1312)**

This site has been recognized as an accredited testing laboratory. Test Firm Registration Number:717327

**• ISED (CAB Identifier: CN0120)**

This site has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594

## 4.7 Deviation from Standards

None

## 4.8 Abnormalities from Standard Conditions

None

# 5 Equipment List

| Item | Equipment | Manufacturer | Model | Inventory No | Cal Date | Cal. Due Date |
|---|---|---|---|---|---|---|
| **Conducted Emission at Mains Terminals** | | | | | | |
| 1 | EMI Test Receive | R&S | ESR7 | SUWI-01-10-01 | 1/14/2026 | 1/13/2027 |
| 2 | LISN | R&S | ENV216 | SUWI-01-19-03 | 4/22/2026 | 4/21/2027 |
| 3 | LISN | Schwarzbeck | ENV216 | SUWI-01-19-04 | 4/22/2026 | 4/21/2027 |
| 4 | Test Software | Tonscend | JS32-CE_4.0.0.2 | SUWI-02-09-05 | N.C.R | N.C.R |
| 5 | Test Cable | Tonscend | NA | SUWI-01-03-04 | 4/22/2026 | 4/21/2027 |
| **RF Conducted Test** | | | | | | |
| 1 | Signal Analyzer | ROHDE&SCHWARZ | FSW43 | SUWI-01-02-04 | 1/14/2026 | 1/13/2027 |
| 2 | Signal Analyzer | KEYSIGHT | N9020A | SUWI-01-02-15 | 11/21/2025 | 11/20/2026 |
| 3 | MXG Vector signal genitor | KEYSIGHT | N5182B | SUWI-01-38-01 | 1/14/2026 | 1/13/2027 |
| 4 | Signal Generator | ROHDE&SCHWARZ | SMW200A | SUWI-01-07-08 | 1/14/2026 | 1/13/2027 |
| 5 | Signal Generator | ROHDE&SCHWARZ | SMW100A | SUWI-01-08-01 | 1/14/2026 | 1/13/2027 |
| 6 | MXG Vector Signal Generator | ROHDE&SCHWARZ | SMR20 | SUWI-01-33-01 | 11/21/2025 | 11/20/2026 |
| 7 | Wideband Radio Communication Tester | ROHDE&SCHWARZ | CMW500 | SUWI-01-16-13 | 4/22/2026 | 4/21/2027 |
| 8 | Wideband Radio Communication Test Station | Anritsu | MT8000A | SUWI-01-34-02 | 11/21/2025 | 11/20/2026 |
| 9 | Wideband Radio Communication Tester | Anritsu | MT8821C | SUWI-01-26-03 | 11/21/2025 | 11/20/2026 |
| 10 | Power meter | Anritsu | ML2495A | SUWI-01-31-01 | 11/21/2025 | 11/20/2026 |
| 11 | Pulse power sensor | Anritsu | MA2411B | SUWI-01-32-01 | 11/21/2025 | 11/20/2026 |
| 12 | DC Power Supply | HYELEC | HY3005B | SUWI-01-18-01 | 1/14/2026 | 1/13/2027 |
| 13 | Temperature and humidity meter | MingGao | TH101B | SUWI-01-01-07 | 2/11/2026 | 2/10/2027 |
| 14 | Temperature Chamber | GIANT FORCE | ICT-017-40-SP-SD | SUWI-01-13-02 | 5/7/2026 | 5/6/2027 |
| 15 | Measurement Software | TST | TST 272 V2.02 | SUWI-03-55-03 | NCR | NCR |
| 16 | RF Control unit | TST | TSCB3023R2 | SUWI-02-20-01 | NCR | NCR |
| 17 | RFCables | Tonscend | NA | SUWI-01-03-01 | 1/15/2026 | 1/14/2027 |
| **RF Radiated Test** | | | | | | |
| 1 | Semi-Anechoic Chamber | Brilliant-emc | N/A | SUWI-04-02-01 | 6/9/2026 | 6/8/2029 |
| 2 | Signal Analyzer | ROHDE&SCHWARZ | FSW43 | SUWI-01-02-04 | 1/14/2026 | 1/13/2027 |
| 3 | Signal Analyzer | KEYSIGHT | N9020A | SUWI-01-02-07 | 11/20/2025 | 11/19/2026 |
| 4 | Test receiver | ROHDE&SCHWARZ | ESR7 | SUWI-01-10-01 | 1/14/2026 | 1/13/2027 |
| 5 | Signal Generator | ROHDE&SCHWARZ | SMW100A | SUWI-01-18-01 | 1/14/2026 | 1/13/2027 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | Receiving antenna | SCHWRZBECK MESS-ELEKTRONIK | VULB 9168 | SUWI-01-11-04 | 11/29/2025 | 11/28/2027 |
| 7 | Receiving antenna | SCHWRZBECK MESS-ELEKTRONIK | BBHA 9120D | SUWI-01-11-02 | 5/7/2025 | 5/6/2027 |
| 8 | Receiving antenna | SCHWRZBECK MESS-ELEKTRONIK | BBHA 9170 | SUWI-01-11-03 | 5/7/2025 | 5/6/2027 |
| 9 | Active Loop Antenna | SCHWRZBECK MESS-ELEKTRONIK | FMZB 1519B | SUWI-01-21-01 | 5/7/2025 | 5/6/2027 |
| 10 | Amplifier | Tonscend | TAP9K3G40 | SUWI-01-14-01 | 1/14/2026 | 1/13/2027 |
| 11 | Amplifier | Tonscend | TAP01018050 | SUWI-01-14-02 | 1/14/2026 | 1/13/2027 |
| 12 | Amplifier | Tonscend | TAP18040048 | SUWI-01-14-03 | 1/14/2026 | 1/13/2027 |
| 13 | Wideband Radio Communication Tester | Anritsu | MT8820C | SUWI-01-26-01 | 8/25/2025 | 8/24/2026 |
| 14 | Wideband Radio Communication Tester | Anritsu | MT8821C | SUWI-01-26-03 | 8/25/2025 | 8/24/2026 |
| 15 | Wideband Radio Communication Tester | ROHDE&SCHWARZ | CMW500 | SUWI-01-16-09 | 8/26/2025 | 8/25/2026 |
| 16 | Radio Communication Analyzer | StarPoint | SP9500E | SUWI-01-28-06 | 11/21/2025 | 11/20/2026 |
| 17 | Signal Generator | ROHDE&SCHWARZ | SMB100A | SUWI-01-08-01 | 1/14/2026 | 1/13/2027 |
| 18 | DC Power Supply | HYELEC | HY3005B | SUWI-01-18-01 | 1/14/2026 | 1/13/2027 |
| 19 | Temperature and humidity meter | MingGao | TH101B | SUWI-01-01-05 | 2/11/2026 | 2/10/2027 |
| 20 | Measurement Software | Tonscend | JS32-RE 4.0.0.0 | SUWI-02-09-06 | NCR | NCR |
| 21 | RF Control unit | Tonscend | JS0806-1 | SUWI-02-20-01 | NCR | NCR |
| 22 | RFCables | Tonscend | NA | SUWI-01-03-02 | 1/15/2026 | 1/14/2027 |

# 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 FPC Antenna and no consideration of replacement. The best case gain of the antenna is 1.87dBi.

Antenna location: Refer to internal photo.

# 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+Cor.1-2023 Section 6.2

Limit:

| Frequency of emission(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 | | |

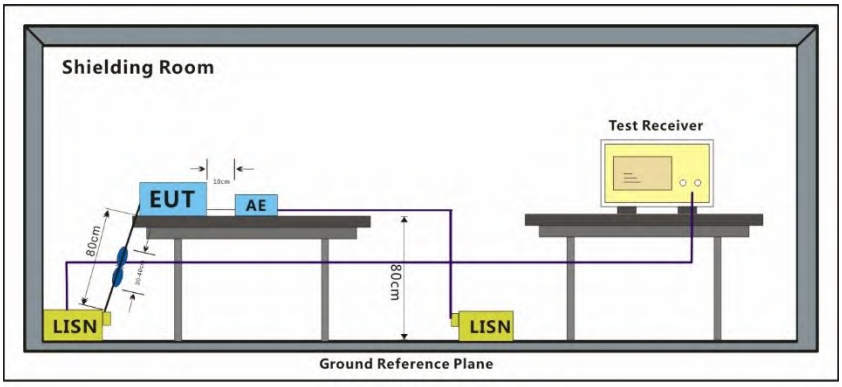
### 7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 41 % RH Atmospheric Pressure: 1001 mbar

### 7.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 7.1.3 Test Setup Diagram




### 7.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

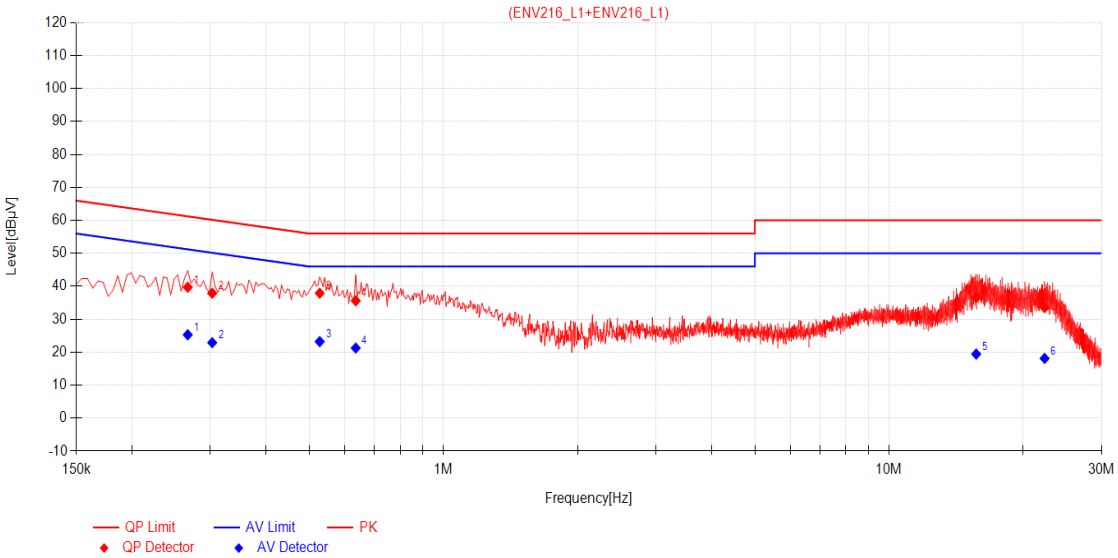
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor

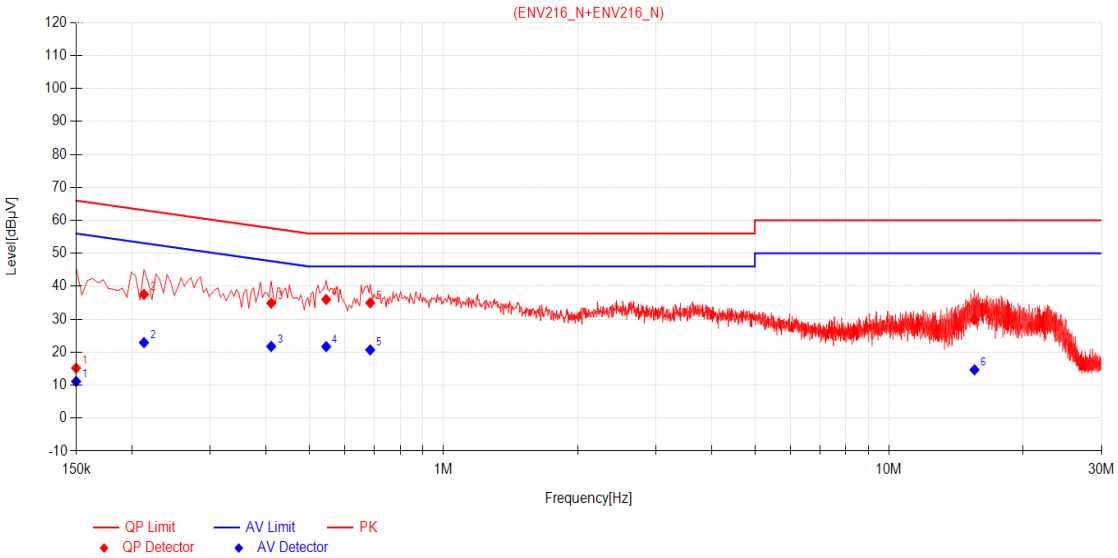
Test Mode: 03; Line: Live line




## Final Data List

| NO. | Frequency [MHz] | Factor [dB] | QP Reading [dBµV] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dBµV] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2670 | 9.96 | 29.75 | 39.71 | 61.21 | 21.50 | 15.32 | 25.28 | 51.21 | 25.93 | PASS |
| 2 | 0.3030 | 9.96 | 27.94 | 37.90 | 60.16 | 22.26 | 12.94 | 22.90 | 50.16 | 27.26 | PASS |
| 3 | 0.5280 | 9.94 | 27.96 | 37.90 | 56.00 | 18.10 | 13.27 | 23.21 | 46.00 | 22.79 | PASS |
| 4 | 0.6360 | 9.94 | 25.67 | 35.61 | 56.00 | 20.39 | 11.33 | 21.27 | 46.00 | 24.73 | PASS |
| 5 | 15.6885 | 10.61 | 26.03 | 36.64 | 60.00 | 23.36 | 8.83 | 19.44 | 50.00 | 30.56 | PASS |
| 6 | 22.3395 | 11.08 | 22.45 | 33.53 | 60.00 | 26.47 | 7.04 | 18.12 | 50.00 | 31.88 | PASS |

Test Mode: 03; Line: Neutral Line




| Final Data List | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Factor [dB] | QP Reading [dBµV] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dBµV] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Verdict |
| 1 | 0.1500 | 9.96 | 5.22 | 15.18 | 66.00 | 50.82 | 1.16 | 11.12 | 56.00 | 44.88 | PASS |
| 2 | 0.2130 | 9.97 | 27.57 | 37.54 | 63.09 | 25.55 | 12.95 | 22.92 | 53.09 | 30.17 | PASS |
| 3 | 0.4110 | 9.94 | 24.94 | 34.88 | 57.63 | 22.75 | 11.81 | 21.75 | 47.63 | 25.88 | PASS |
| 4 | 0.5460 | 9.91 | 26.09 | 36.00 | 56.00 | 20.00 | 11.79 | 21.70 | 46.00 | 24.30 | PASS |
| 5 | 0.6855 | 9.91 | 25.07 | 34.98 | 56.00 | 21.02 | 10.78 | 20.69 | 46.00 | 25.31 | PASS |
| 6 | 15.5490 | 10.70 | 19.14 | 29.84 | 60.00 | 30.16 | 3.97 | 14.67 | 50.00 | 35.33 | PASS |

## 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+Cor.1-2023 Section 6.10.5 & 11.12

Limit:

| 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

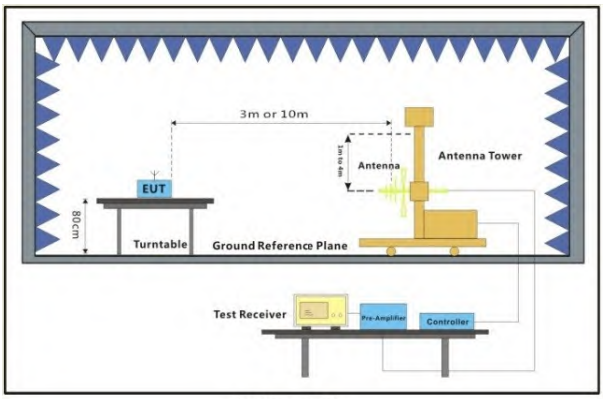
Operating Environment:

Temperature: 23 °C Humidity: 41 % RH Atmospheric Pressure: 1001 mbar

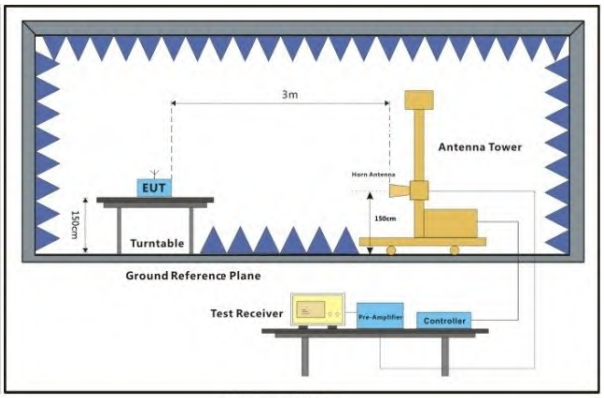
### 7.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 7.2.3 Test Setup Diagram




30MHz-1GHz




Above 1GHz

### 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.

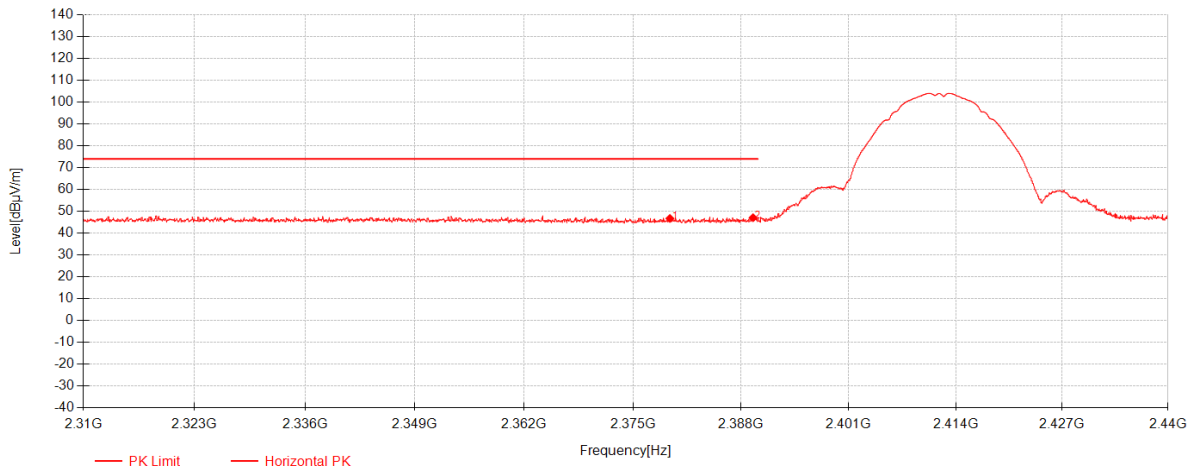
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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.

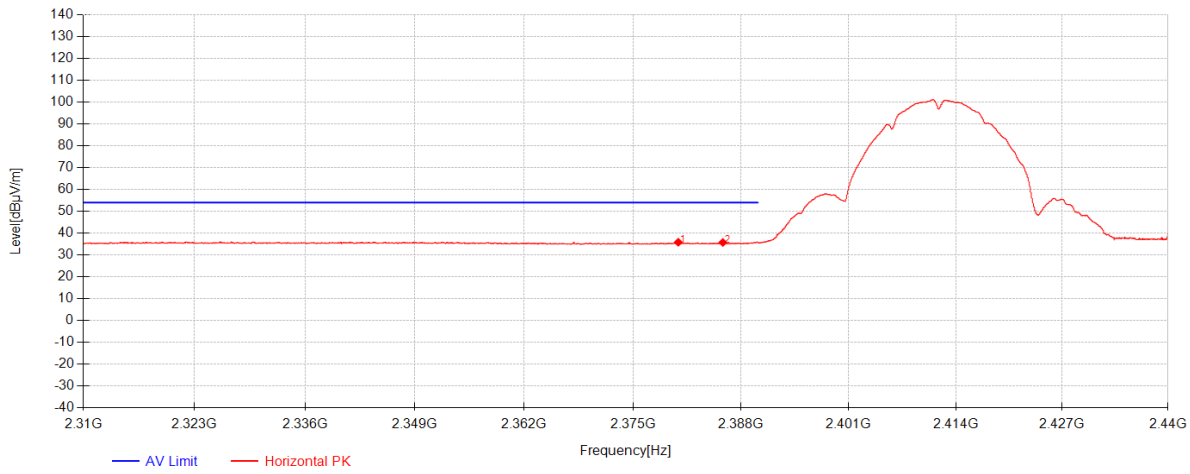
Remark 4:For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ⩾1/T (Duty cycle＜98%) or 10Hz (Duty cycle⩾98%) for Average detection (AV) at frequency above 1GHz.

11b_TX_CH_01_Horizontal_Peak



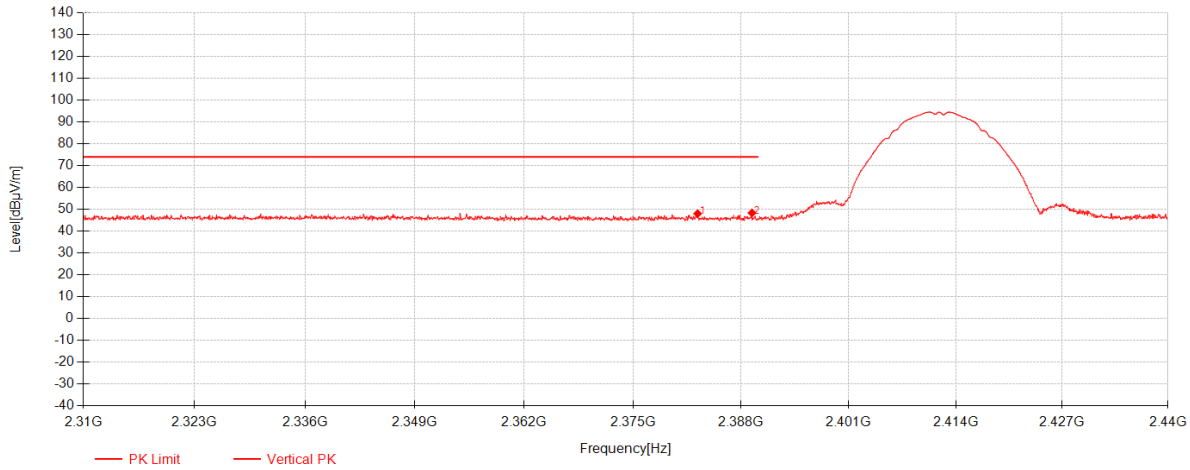

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2379.42 | 43.27 | 26.98 | -23.50 | 46.75 | 74.00 | 27.25 | Horizontal |
| 2 | 2389.43 | 43.61 | 27.00 | -23.52 | 47.09 | 74.00 | 26.91 | Horizontal |

11b_TX_CH_01_Horizontal_Average



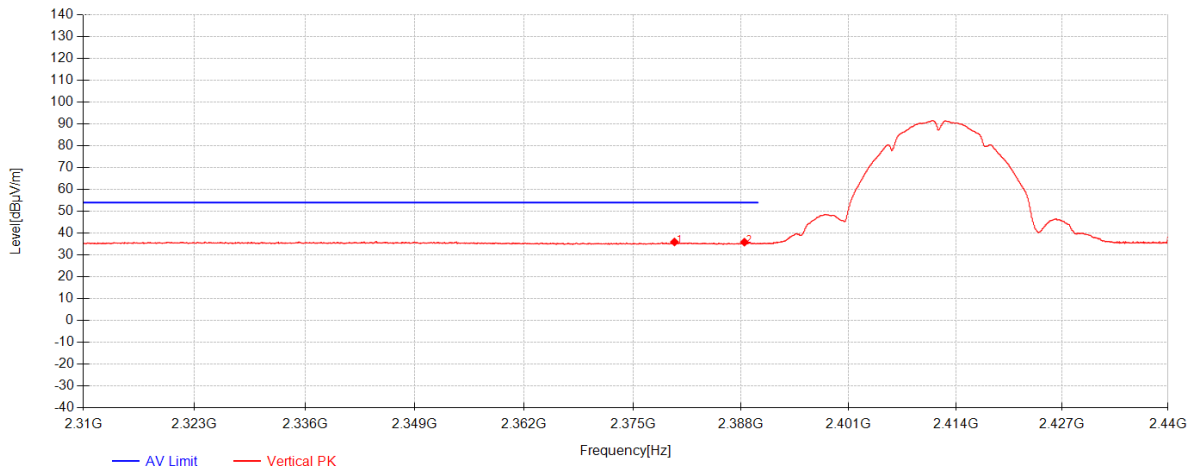

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2380.4275 | 32.35 | 26.98 | -23.50 | 35.83 | 54.00 | 18.17 | Horizontal |
| 2 | 2385.79 | 32.26 | 26.99 | -23.51 | 35.74 | 54.00 | 18.26 | Horizontal |

11b_TX_CH_01_Vertical_Peak



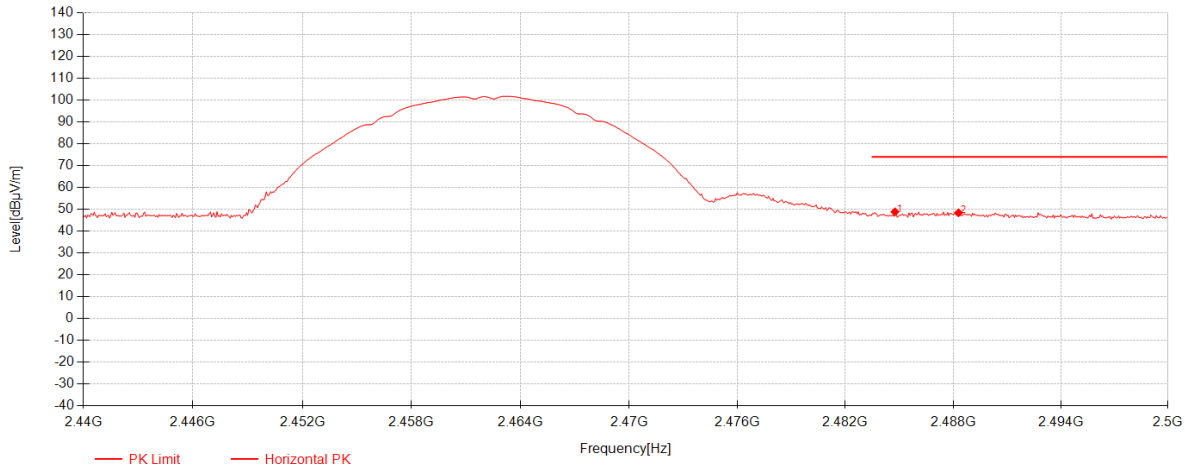

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2382.7567 | 44.54 | 26.99 | -23.51 | 48.02 | 74.00 | 25.98 | Vertical |
| 2 | 2389.3 | 44.87 | 27.00 | -23.52 | 48.35 | 74.00 | 25.65 | Vertical |

11b_TX_CH_01_Vertical_Average



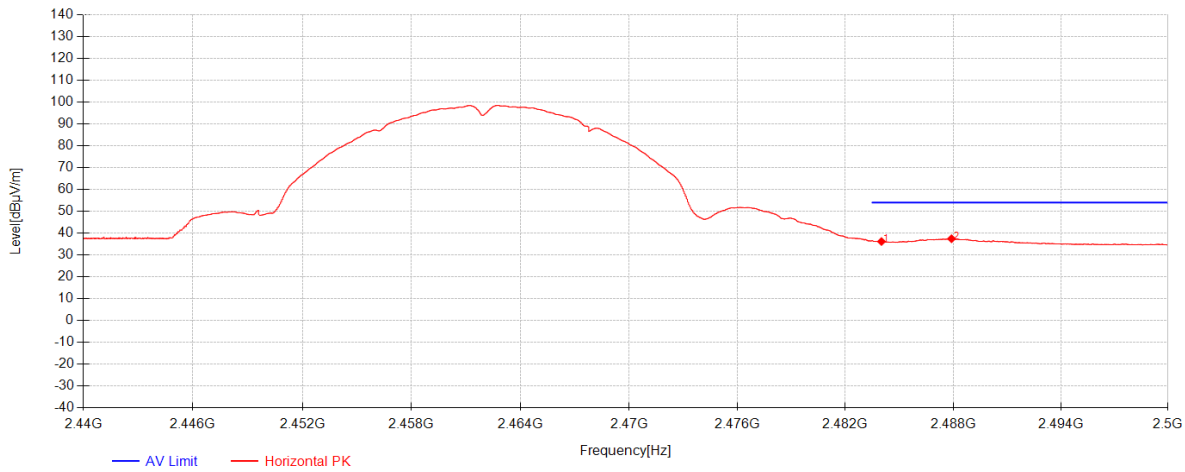

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2379.9725 | 32.47 | 26.98 | -23.50 | 35.95 | 54.00 | 18.05 | Vertical |
| 2 | 2388.39 | 32.40 | 27.00 | -23.51 | 35.88 | 54.00 | 18.12 | Vertical |

11b_TX_CH_11_Horizontal_Peak



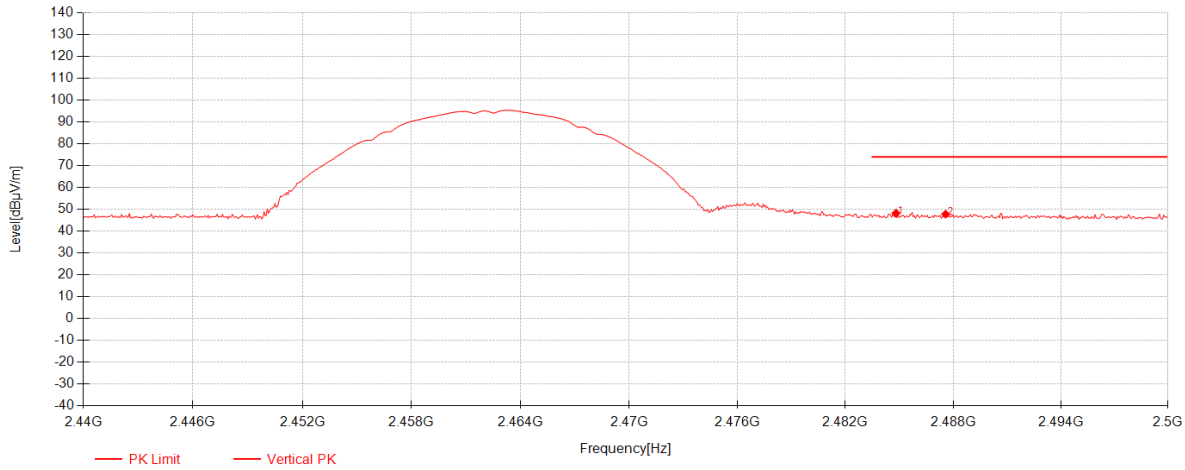

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.76 | 44.87 | 27.17 | -23.17 | 48.87 | 74.00 | 25.13 | Horizontal |
| 2 | 2488.3 | 44.38 | 27.18 | -23.16 | 48.40 | 74.00 | 25.60 | Horizontal |

11b_TX_CH_11_Horizontal_Average



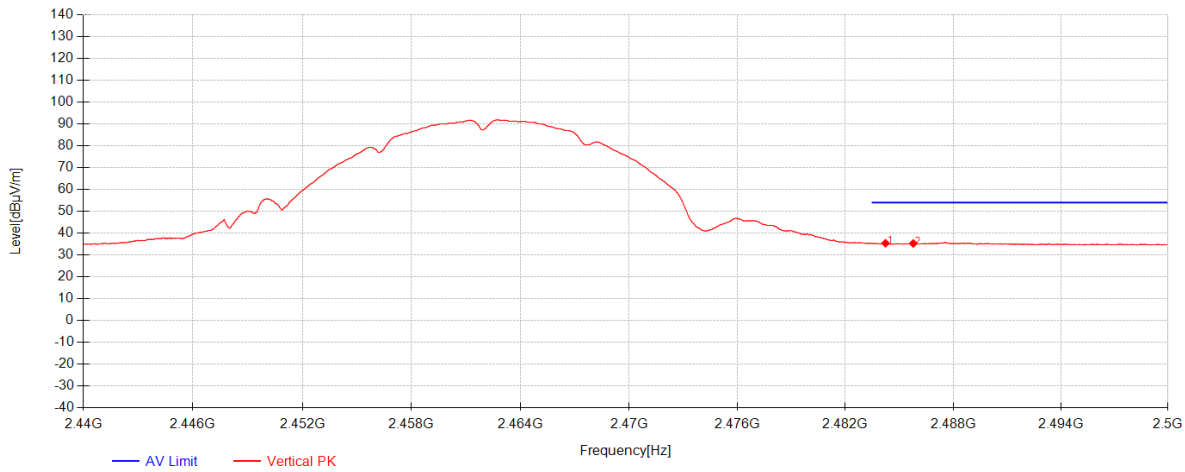

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.01 | 32.18 | 27.17 | -23.18 | 36.17 | 54.00 | 17.83 | Horizontal |
| 2 | 2487.91 | 33.42 | 27.18 | -23.16 | 37.44 | 54.00 | 16.56 | Horizontal |

11b_TX_CH_11_Vertical_Peak



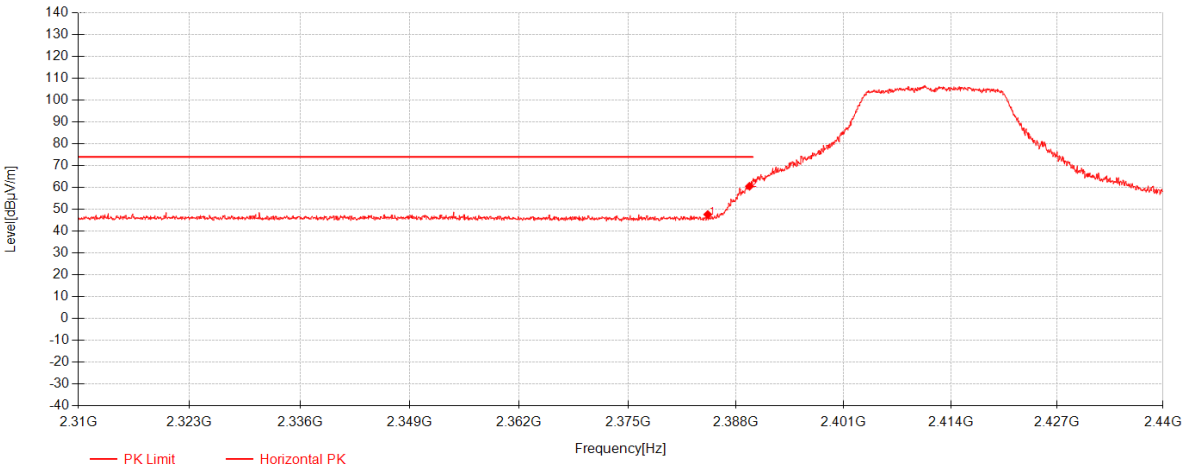

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.82 | 44.26 | 27.17 | -23.17 | 48.26 | 74.00 | 25.74 | Vertical |
| 2 | 2487.58 | 43.75 | 27.18 | -23.16 | 47.77 | 74.00 | 26.23 | Vertical |

11b_TX_CH_11_Vertical_Average



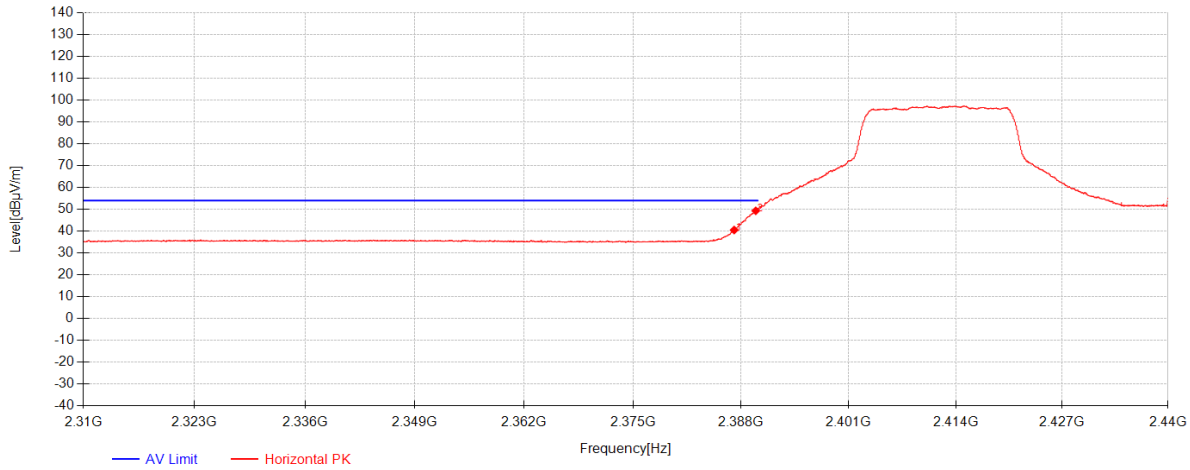

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.235 | 31.36 | 27.17 | -23.18 | 35.36 | 54.00 | 18.64 | Vertical |
| 2 | 2485.78 | 31.27 | 27.17 | -23.17 | 35.27 | 54.00 | 18.73 | Vertical |

11n(HT20)_TX_CH_01_Horizontal_Peak



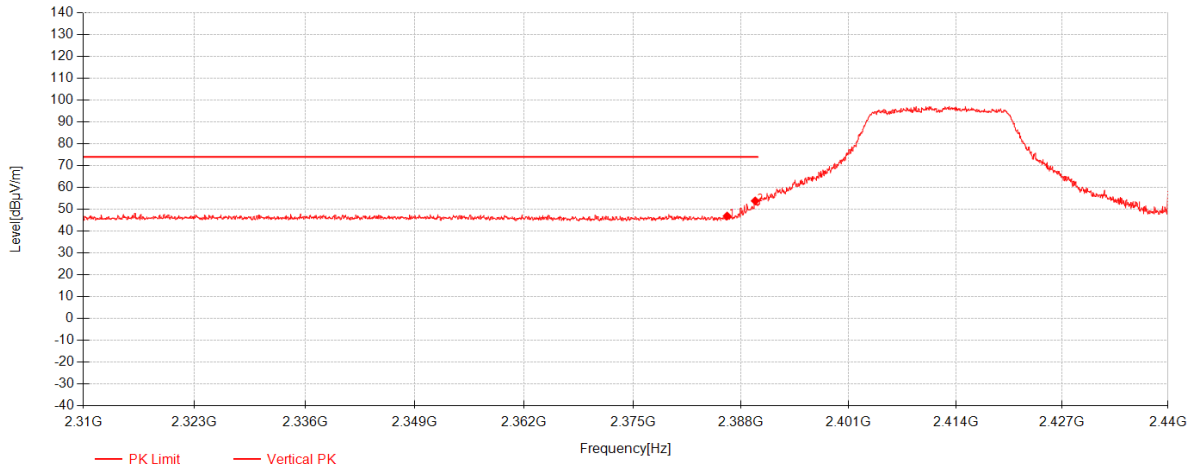

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2384.5767 | 44.15 | 26.99 | -23.51 | 47.63 | 74.00 | 26.37 | Horizontal |
| 2 | 2389.6033 | 57.08 | 27.00 | -23.52 | 60.56 | 74.00 | 13.44 | Horizontal |

11n(HT20)_TX_CH_01_Horizontal_Average



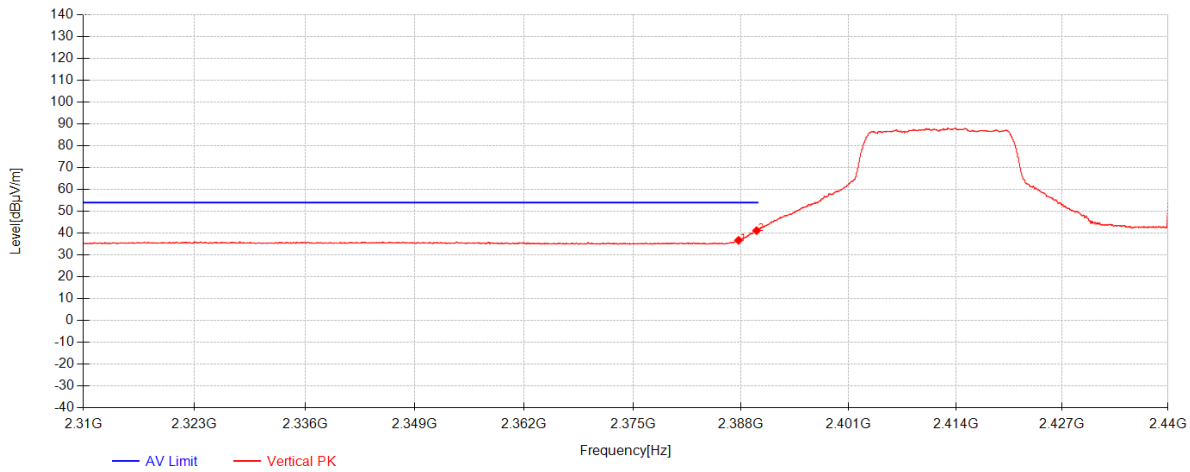

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2387.155 | 37.04 | 27.00 | -23.51 | 40.52 | 54.00 | 13.48 | Horizontal |
| 2 | 2389.755 | 45.83 | 27.00 | -23.52 | 49.31 | 54.00 | 4.69 | Horizontal |

11n(HT20)_TX_CH_01_Vertical_Peak



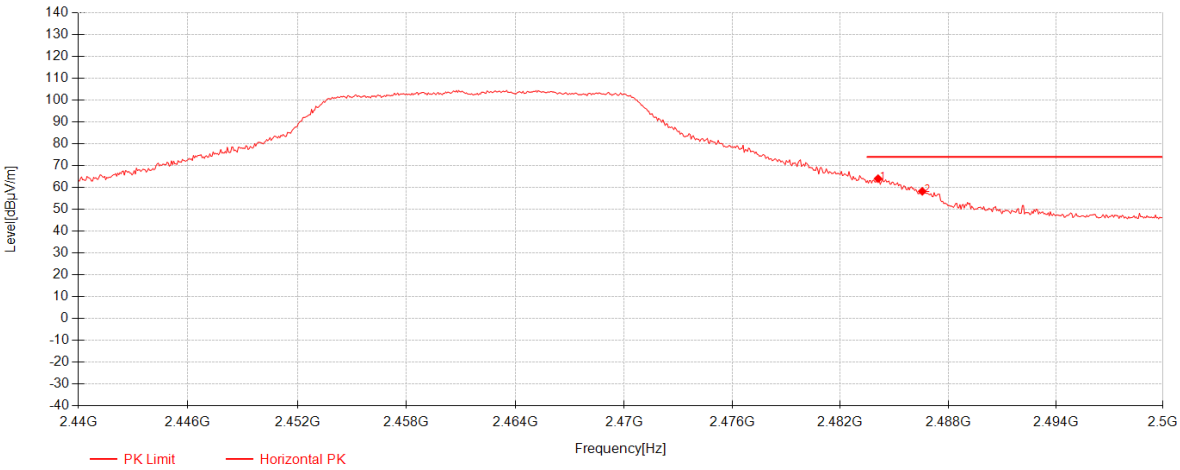

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2386.31 | 43.46 | 27.00 | -23.51 | 46.94 | 74.00 | 27.06 | Vertical |
| 2 | 2389.69 | 50.38 | 27.00 | -23.52 | 53.86 | 74.00 | 20.14 | Vertical |

11n(HT20)_TX_CH_01_Vertical_Average



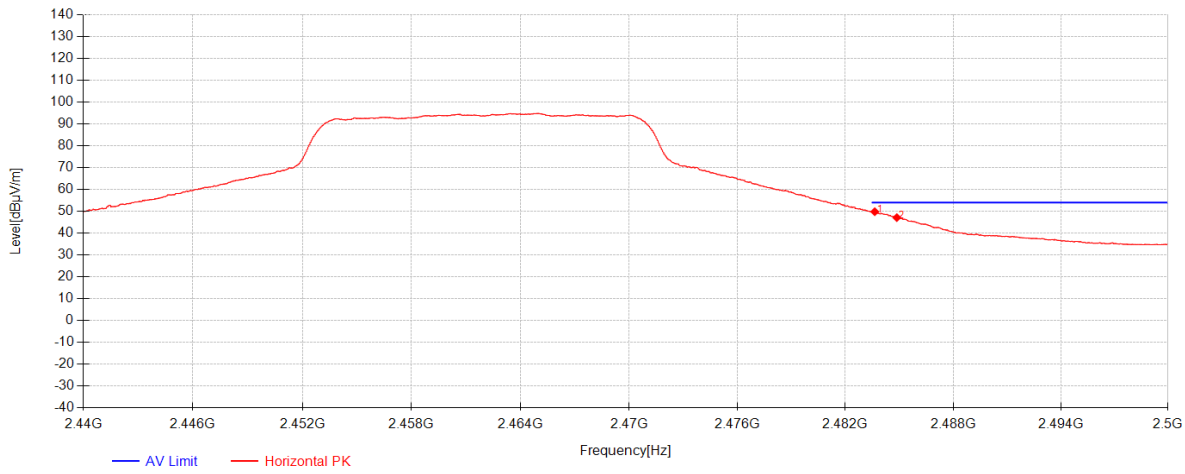

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2387.675 | 33.23 | 27.00 | -23.51 | 36.71 | 54.00 | 17.29 | Vertical |
| 2 | 2389.8525 | 37.68 | 27.00 | -23.52 | 41.16 | 54.00 | 12.84 | Vertical |

11n(HT20)_TX_CH_11_Horizontal_Peak



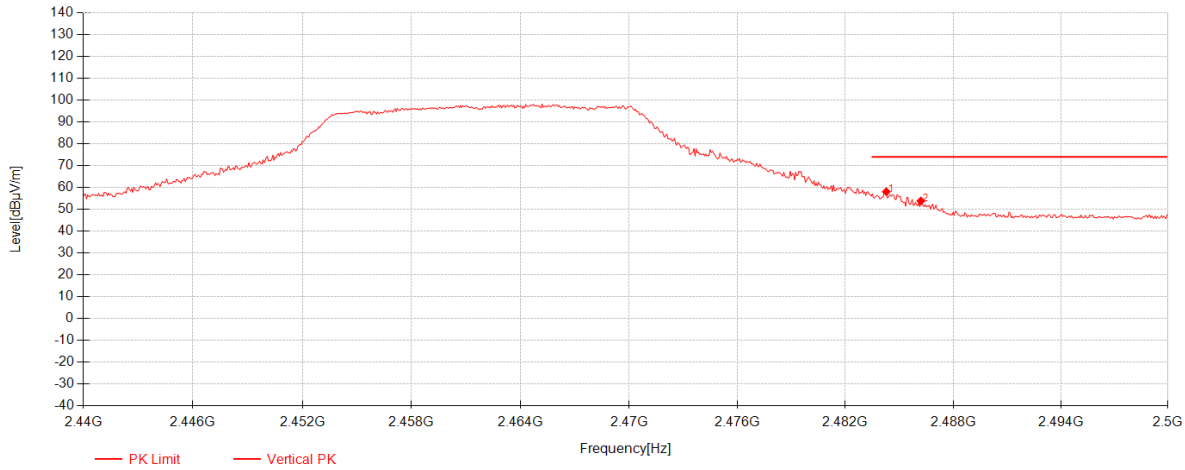

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.1 | 60.08 | 27.17 | -23.18 | 64.07 | 74.00 | 9.93 | Horizontal |
| 2 | 2486.56 | 54.24 | 27.18 | -23.17 | 58.25 | 74.00 | 15.75 | Horizontal |

11n(HT20)_TX_CH_11_Horizontal_Average



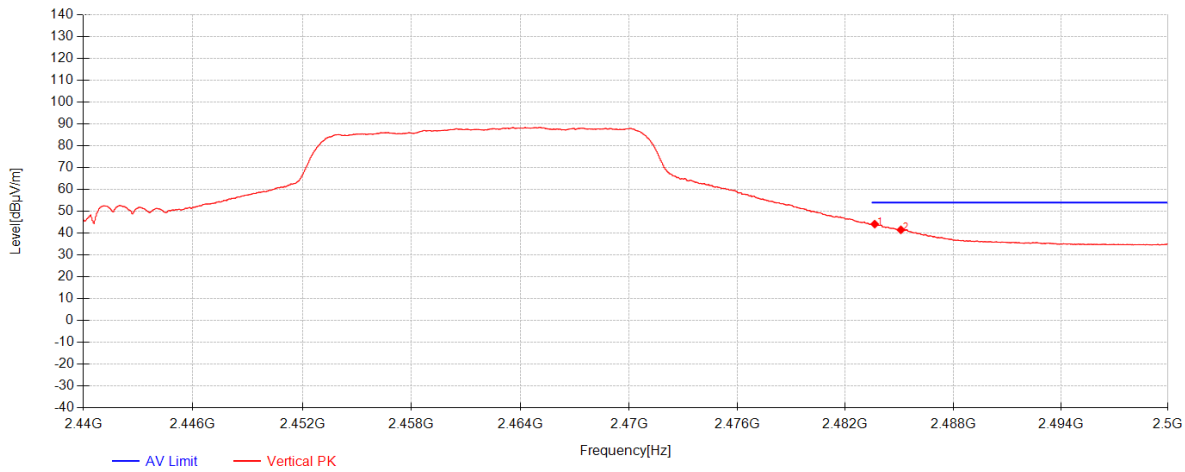

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2483.635 | 45.84 | 27.17 | -23.18 | 49.83 | 54.00 | 4.17 | Horizontal |
| 2 | 2484.865 | 43.12 | 27.17 | -23.17 | 47.12 | 54.00 | 6.88 | Horizontal |

11n(HT20)_TX_CH_11_Vertical_Peak



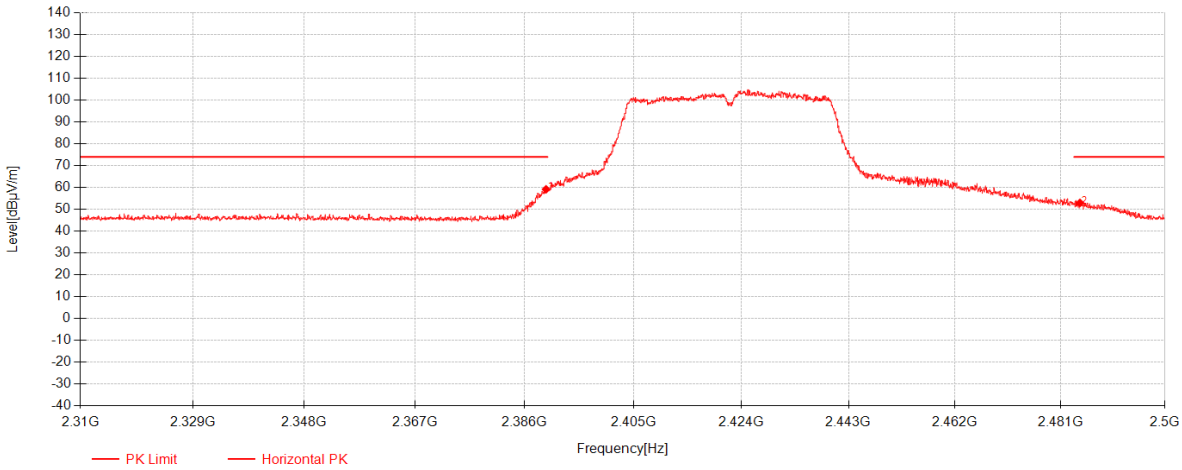

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2484.28 | 54.10 | 27.17 | -23.18 | 58.10 | 74.00 | 15.90 | Vertical |
| 2 | 2486.2 | 49.83 | 27.18 | -23.17 | 53.84 | 74.00 | 20.16 | Vertical |

11n(HT20)_TX_CH_11_Vertical_Average



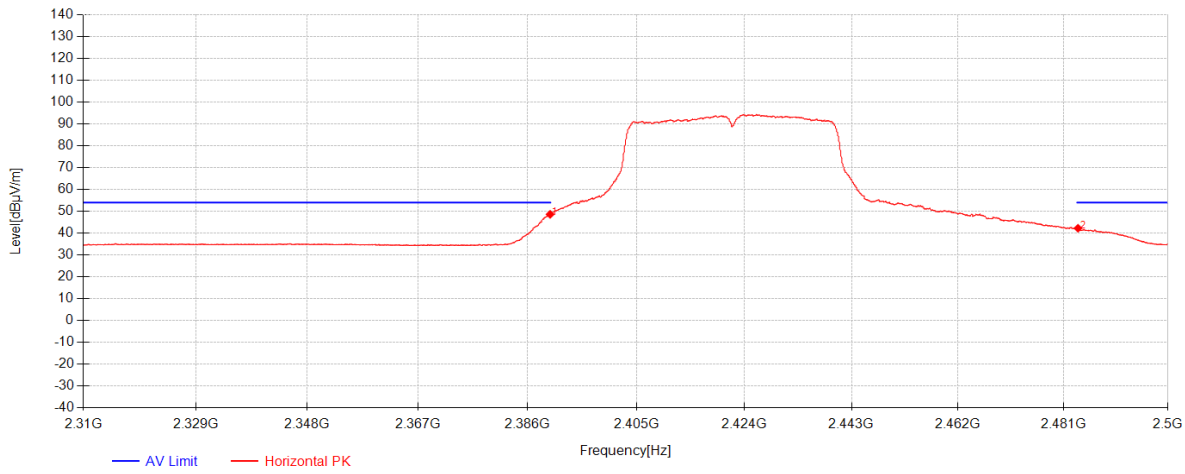

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2483.635 | 40.14 | 27.17 | -23.18 | 44.13 | 54.00 | 9.87 | Vertical |
| 2 | 2485.09 | 37.52 | 27.17 | -23.17 | 41.52 | 54.00 | 12.48 | Vertical |

11n(HT40)_TX_CH_03_Horizontal_Peak



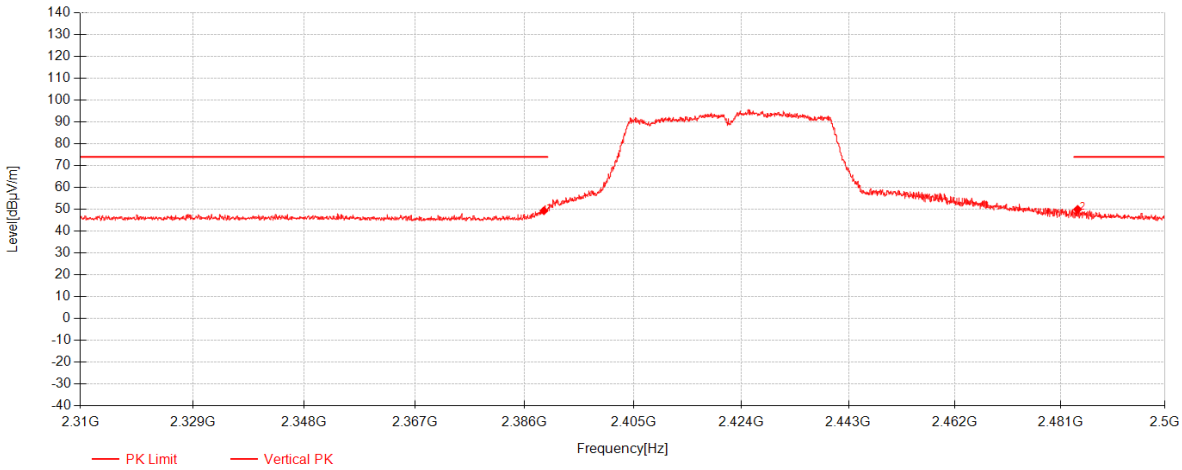

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.7525 | 55.70 | 27.00 | -23.52 | 59.18 | 74.00 | 14.82 | Horizontal |
| 2 | 2484.5625 | 48.95 | 27.17 | -23.17 | 52.95 | 74.00 | 21.05 | Horizontal |

11n(HT40)_TX_CH_03_Horizontal_Average



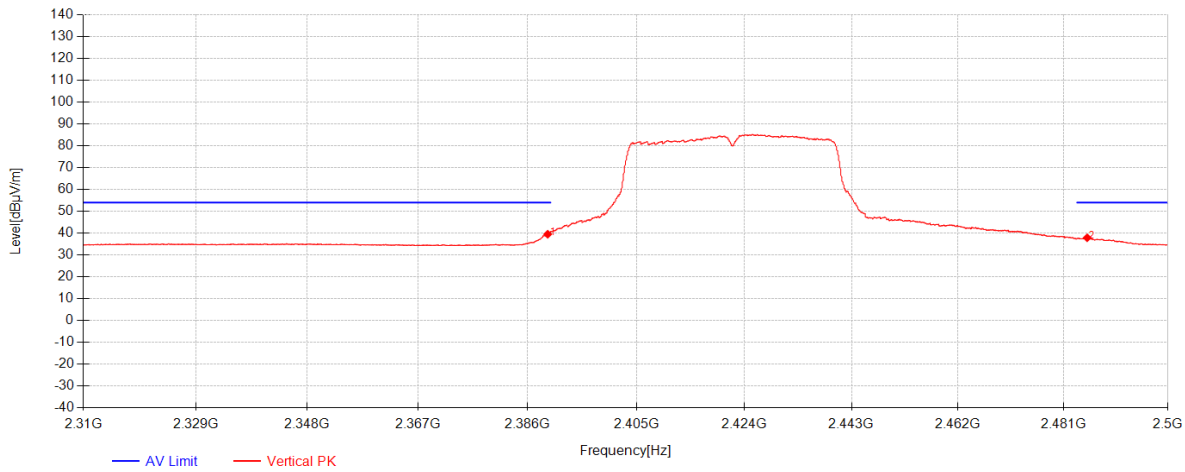

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.9425 | 45.14 | 27.00 | -23.52 | 48.62 | 54.00 | 5.38 | Horizontal |
| 2 | 2483.66 | 38.26 | 27.17 | -23.18 | 42.25 | 54.00 | 11.75 | Horizontal |

11n(HT40)_TX_CH_03_Vertical_Peak



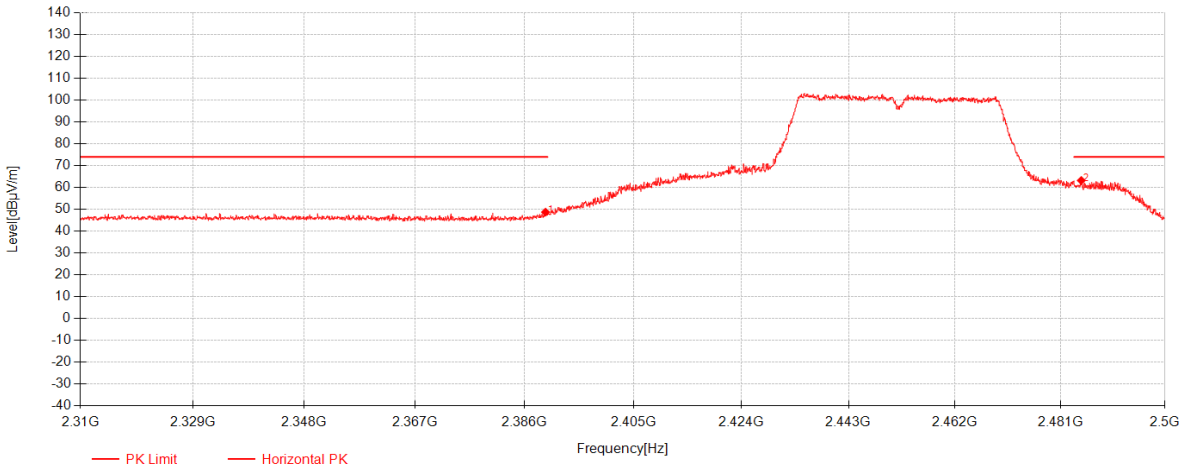

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.3725 | 45.86 | 27.00 | -23.52 | 49.34 | 74.00 | 24.66 | Vertical |
| 2 | 2484.135 | 46.01 | 27.17 | -23.18 | 50.00 | 74.00 | 24.00 | Vertical |

11n(HT40)_TX_CH_03_Vertical_Average



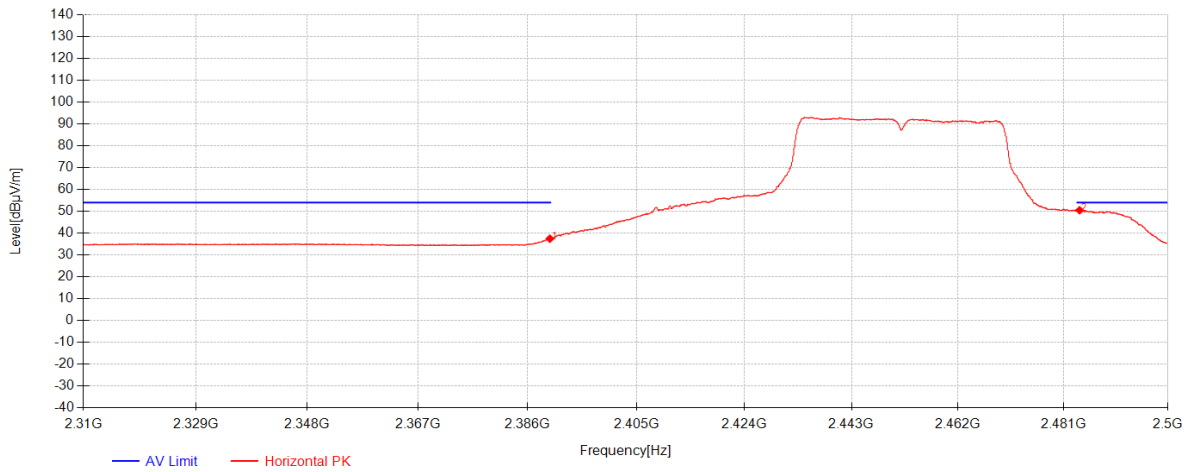

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.515 | 36.02 | 27.00 | -23.52 | 39.50 | 54.00 | 14.50 | Vertical |
| 2 | 2485.3225 | 33.89 | 27.17 | -23.17 | 37.89 | 54.00 | 16.11 | Vertical |

11n(HT40)_TX_CH_09_Horizontal_Peak



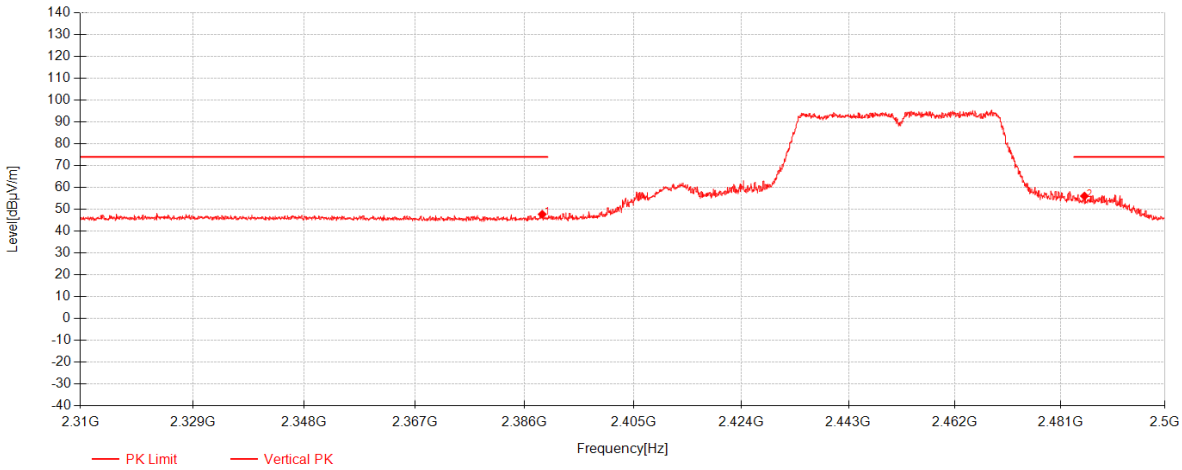

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.6575 | 45.24 | 27.00 | -23.52 | 48.72 | 74.00 | 25.28 | Horizontal |
| 2 | 2484.8 | 59.23 | 27.17 | -23.17 | 63.23 | 74.00 | 10.77 | Horizontal |

11n(HT40)_TX_CH_09_Horizontal_Average



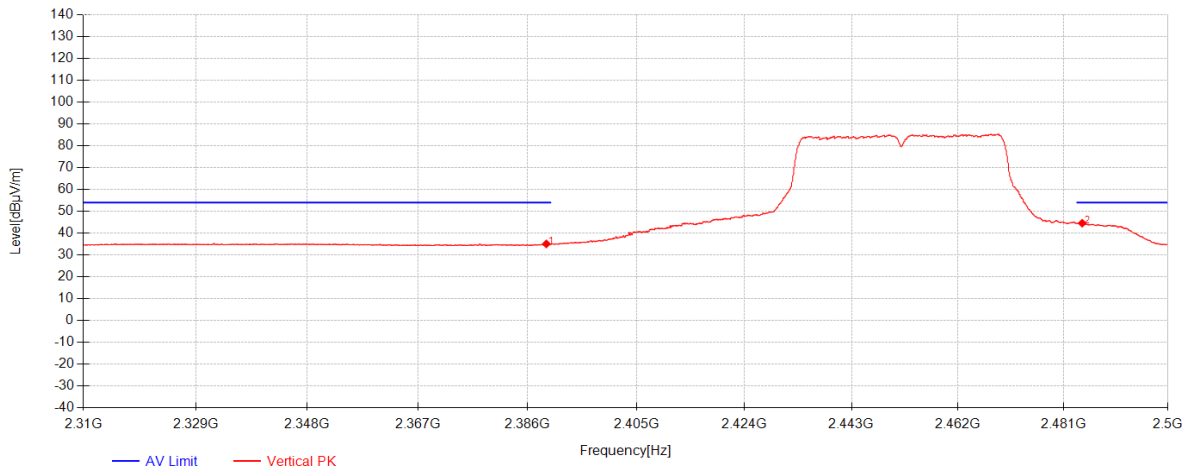

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.895 | 33.97 | 27.00 | -23.52 | 37.45 | 54.00 | 16.55 | Horizontal |
| 2 | 2483.945 | 46.51 | 27.17 | -23.18 | 50.50 | 54.00 | 3.50 | Horizontal |

11n(HT40)_TX_CH_09_Vertical_Peak




| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.0875 | 44.26 | 27.00 | -23.52 | 47.74 | 74.00 | 26.26 | Vertical |
| 2 | 2485.37 | 52.08 | 27.17 | -23.17 | 56.08 | 74.00 | 17.92 | Vertical |

11n(HT40)_TX_CH_09_Vertical_Average




| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 2389.2775 | 31.58 | 27.00 | -23.52 | 35.06 | 54.00 | 18.94 | Vertical |
| 2 | 2484.42 | 40.56 | 27.17 | -23.18 | 44.56 | 54.00 | 9.44 | Vertical |

## 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+Cor.1-2023 Section 6.4,6.5

Limit:

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | Field strength (dBµV/m@3m) |
|---|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 | 128.5 to 93.8 |
| 0.490-1.705 | 24000/F(kHz) | 30 | 73.8 to 62.9 |
| 1.705-30.0 | 30 | 30 | 69.60 |
| 30-88 | 100 | 3 | 40.0 |
| 88-216 | 150 | 3 | 43.5 |
| 216-960 | 200 | 3 | 46.0 |
| 960-1000 | 500 | 3 | 54.0 |

Note : The above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

### 7.3.1 E.U.T. Operation

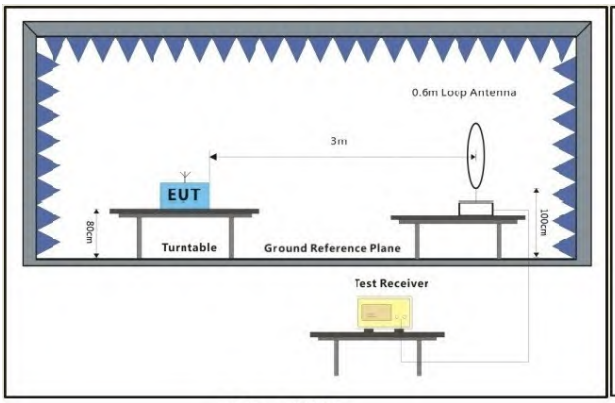
Operating Environment:

Temperature: 23 °C Humidity: 41 % RH Atmospheric Pressure: 1001 mbar

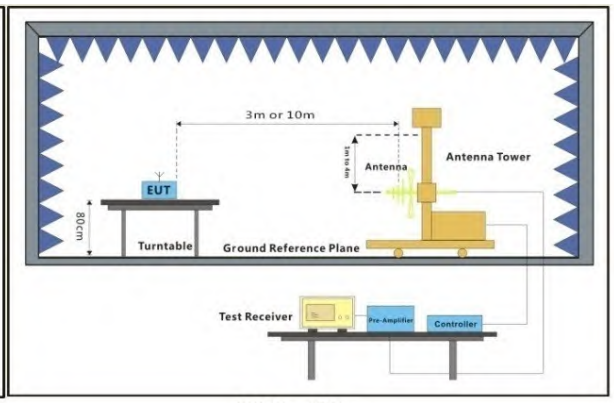
### 7.3.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), 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




Below 30MHz




30MHz-1GHz

### 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.

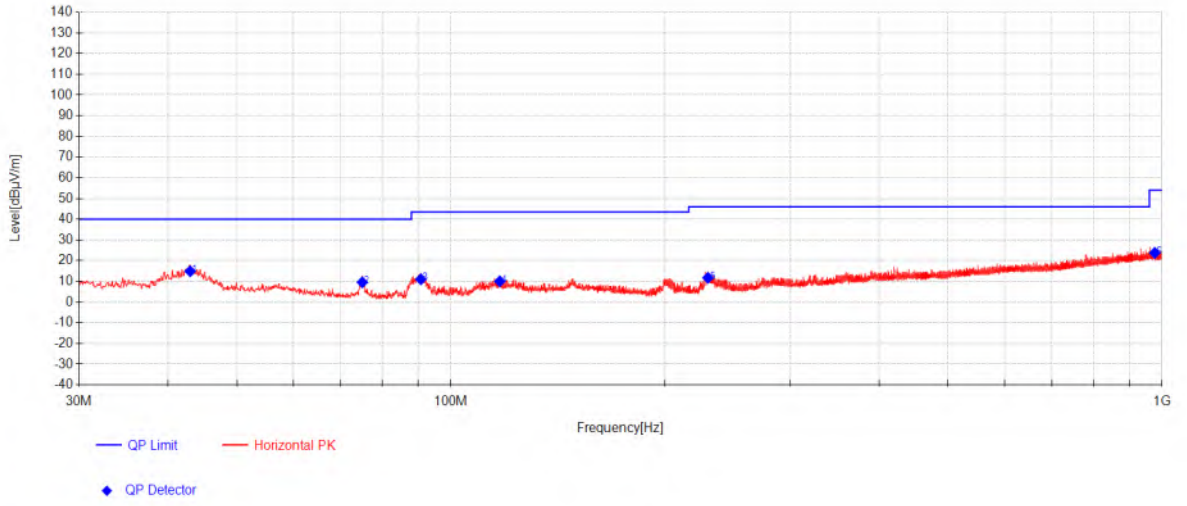
i. Repeat above procedures until all frequencies measured was complete.

Remark:

1 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.

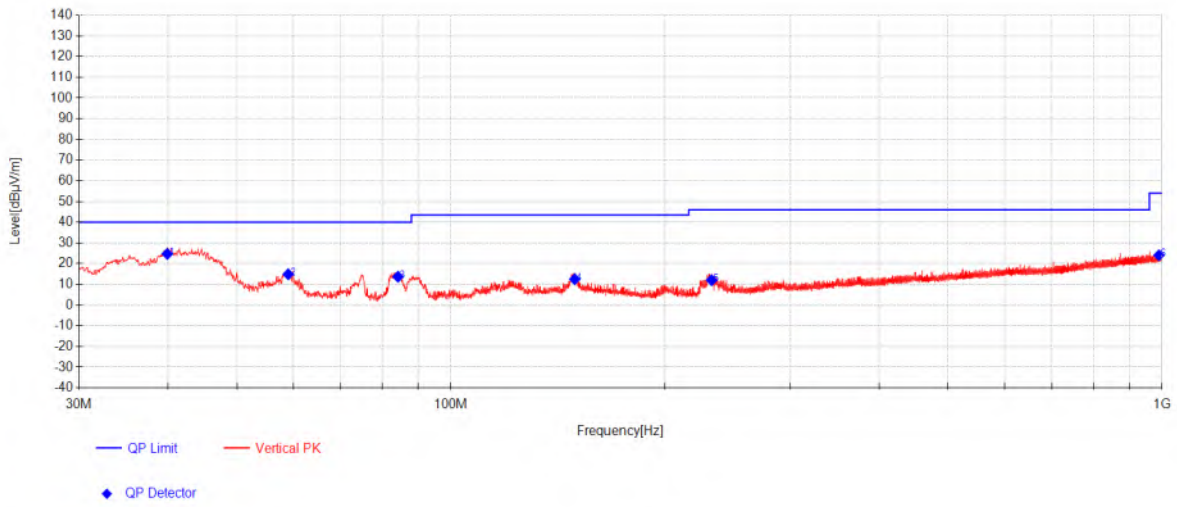
2. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

Test Mode: 03; Polarity: Horizontal




| Final Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Polarity |
| 1 | 42.9872 | 35.39 | 13.29 | -33.81 | 14.87 | 40.00 | 25.13 | Horizontal |
| 2 | 75.0511 | 33.17 | 9.75 | -33.38 | 9.54 | 40.00 | 30.46 | Horizontal |
| 3 | 90.7328 | 35.33 | 8.92 | -33.25 | 11.00 | 43.50 | 32.50 | Horizontal |
| 4 | 117.1383 | 31.80 | 11.17 | -32.94 | 10.03 | 43.50 | 33.47 | Horizontal |
| 5 | 229.82 | 32.65 | 11.14 | -32.10 | 11.69 | 46.00 | 34.31 | Horizontal |
| 6 | 976.3428 | 27.44 | 24.31 | -28.00 | 23.75 | 54.00 | 30.25 | Horizontal |

Test Mode: 03; Polarity: Vertical




| Final Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Polarity |
| 1 | 39.9156 | 45.37 | 13.19 | -33.86 | 24.70 | 40.00 | 15.30 | Vertical |
| 2 | 59.0461 | 36.02 | 12.41 | -33.57 | 14.87 | 40.00 | 25.13 | Vertical |
| 3 | 84.2661 | 37.85 | 9.13 | -33.31 | 13.67 | 40.00 | 26.33 | Vertical |
| 4 | 149.31 | 32.44 | 12.75 | -32.70 | 12.49 | 43.50 | 31.01 | Vertical |
| 5 | 232.5683 | 32.76 | 11.34 | -32.08 | 12.02 | 46.00 | 33.98 | Vertical |
| 6 | 989.9228 | 27.56 | 24.42 | -27.91 | 24.07 | 54.00 | 29.93 | Vertical |

## 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+Cor.1-2023 Section 6.6 & 11.12

Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(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 20log(1/3) = -9.54dB (for 1m test distance).

### 7.4.1 E.U.T. Operation

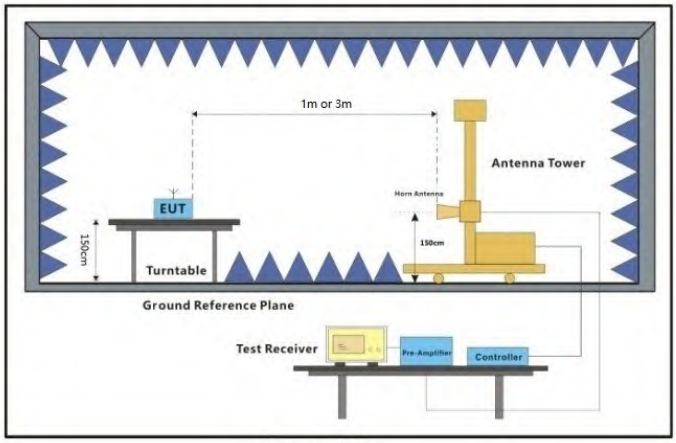
Operating Environment:

Temperature: 23 °C Humidity: 41 % RH Atmospheric Pressure: 1001 mbar

### 7.4.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 7.4.3 Test Setup Diagram




Above 1GHz

### 7.4.4 Measurement Procedure and Data

a. 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.

b. The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.

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 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. Test the EUT in the lowest channel, the middle channel, the Highest channel.

g. 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.

h. Repeat above procedures until all frequencies measured was complete.

Remark:

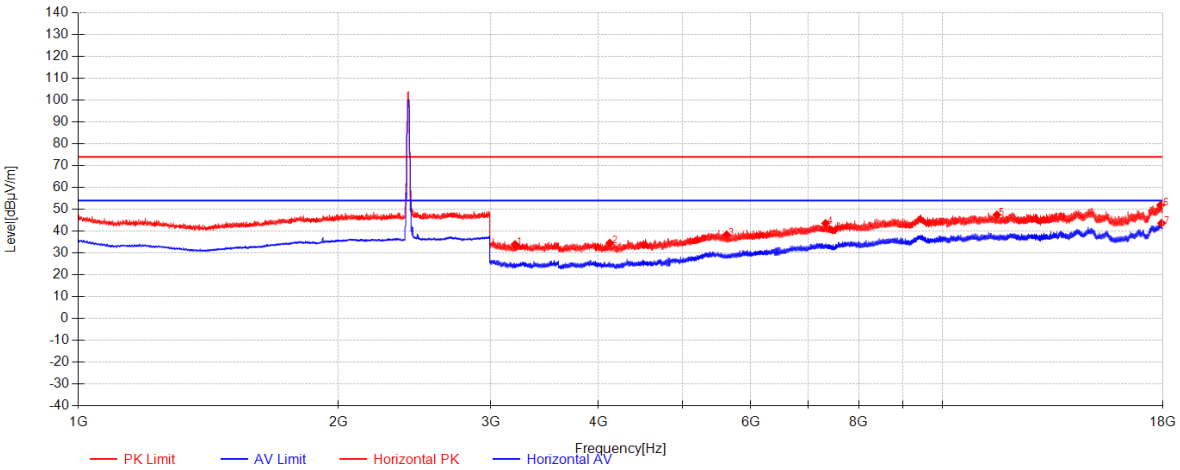
1. Scan from 1GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.

2. 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.

3. For the frequency above 18GHz, testing had been executed under all test modes, only the worst-case test curve is displayed in the report.

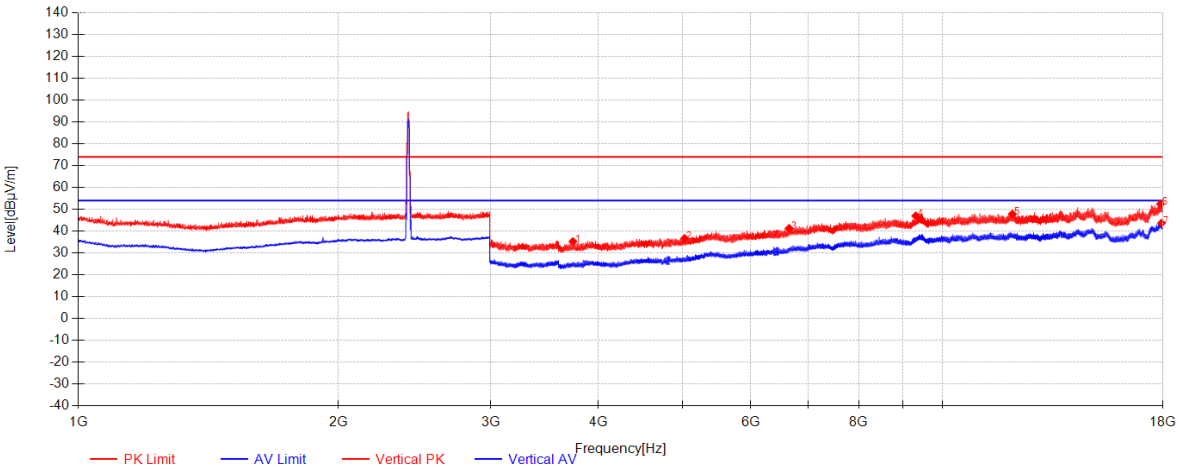
4. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s).

11b_TX_CH_01_Horizontal



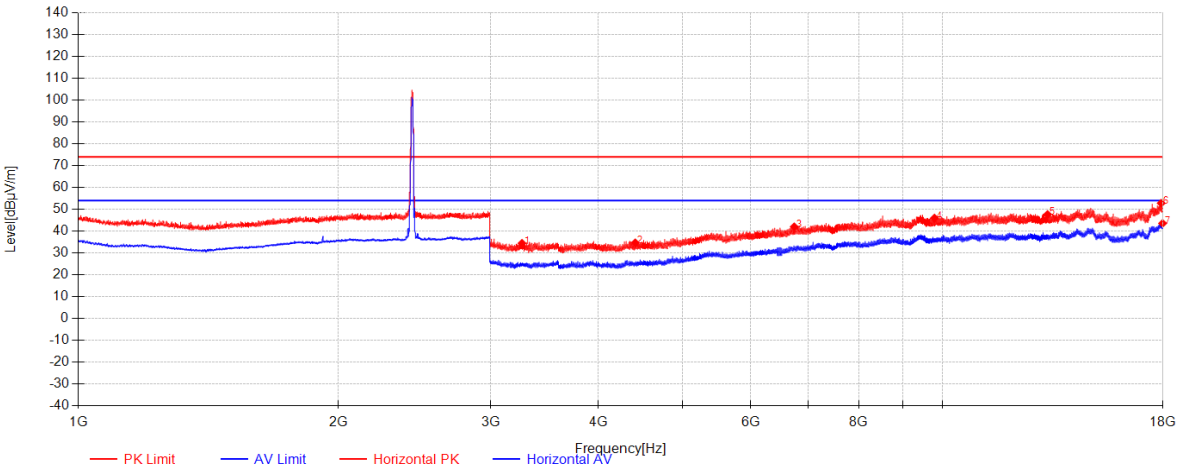

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3201.75 | 53.82 | 28.26 | -48.16 | 33.92 | 74.00 | 40.08 | Horizontal |
| 2 | 4122 | 53.18 | 29.50 | -48.13 | 34.55 | 74.00 | 39.45 | Horizontal |
| 3 | 5627.625 | 53.34 | 32.65 | -47.64 | 38.35 | 74.00 | 35.65 | Horizontal |
| 4 | 7325.25 | 53.64 | 36.09 | -46.16 | 43.56 | 74.00 | 30.44 | Horizontal |
| 5 | 11562.375 | 47.90 | 39.44 | -39.88 | 47.46 | 74.00 | 26.54 | Horizontal |
| 6 | 17893.875 | 45.96 | 44.16 | -38.15 | 51.97 | 74.00 | 22.03 | Horizontal |
| 7 | 17937.75 | 37.68 | 44.43 | -38.43 | 43.67 | 54.00 | 10.33 | Horizontal |

11b_TX_CH_01_Vertical



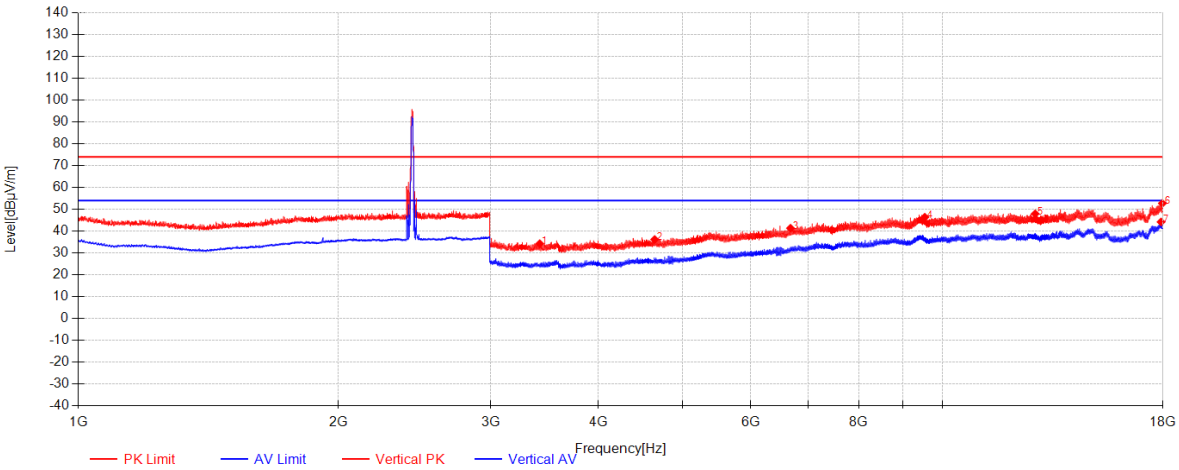

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3735.75 | 54.76 | 28.88 | -48.39 | 35.25 | 74.00 | 38.75 | Vertical |
| 2 | 5031.75 | 53.33 | 31.29 | -47.95 | 36.67 | 74.00 | 37.33 | Vertical |
| 3 | 6647.625 | 53.18 | 34.94 | -46.81 | 41.30 | 74.00 | 32.70 | Vertical |
| 4 | 9313.875 | 52.08 | 37.84 | -42.90 | 47.02 | 74.00 | 26.98 | Vertical |
| 5 | 12050.625 | 48.04 | 39.37 | -39.53 | 47.88 | 74.00 | 26.12 | Vertical |
| 6 | 17883.375 | 46.51 | 44.10 | -38.16 | 52.45 | 74.00 | 21.55 | Vertical |
| 7 | 17927.25 | 37.68 | 44.36 | -38.35 | 43.69 | 54.00 | 10.31 | Vertical |

11b_TX_CH_06_Horizontal



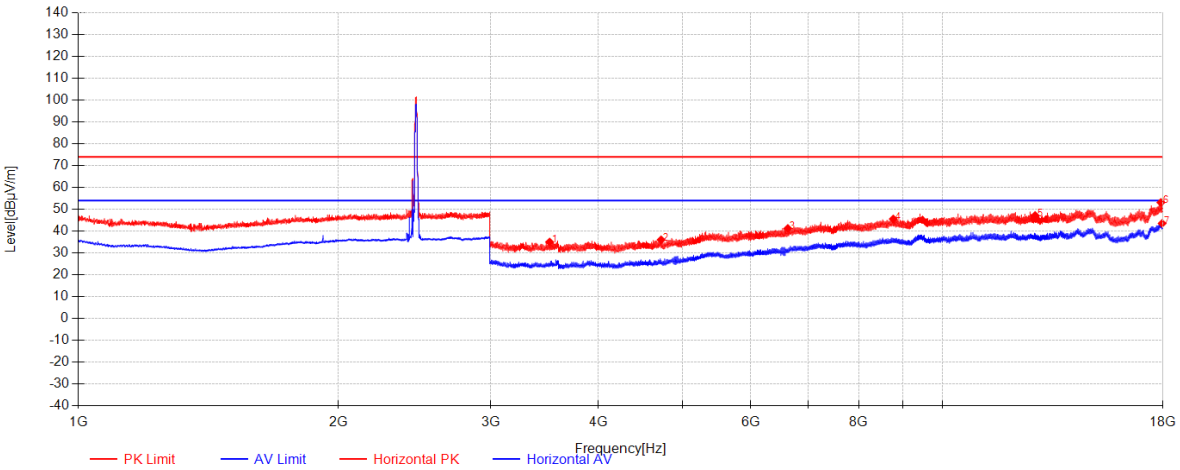

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3262.125 | 54.23 | 28.31 | -48.08 | 34.46 | 74.00 | 39.54 | Horizontal |
| 2 | 4411.5 | 52.80 | 29.96 | -48.10 | 34.66 | 74.00 | 39.34 | Horizontal |
| 3 | 6738.375 | 53.59 | 35.08 | -46.68 | 41.99 | 74.00 | 32.01 | Horizontal |
| 4 | 9790.5 | 49.68 | 38.51 | -42.19 | 46.00 | 74.00 | 28.00 | Horizontal |
| 5 | 13233 | 47.32 | 39.15 | -38.83 | 47.64 | 74.00 | 26.36 | Horizontal |
| 6 | 17914.5 | 46.77 | 44.29 | -38.26 | 52.80 | 74.00 | 21.20 | Horizontal |
| 7 | 17982.375 | 37.64 | 44.69 | -38.77 | 43.57 | 54.00 | 10.43 | Horizontal |

11b_TX_CH_06_Vertical



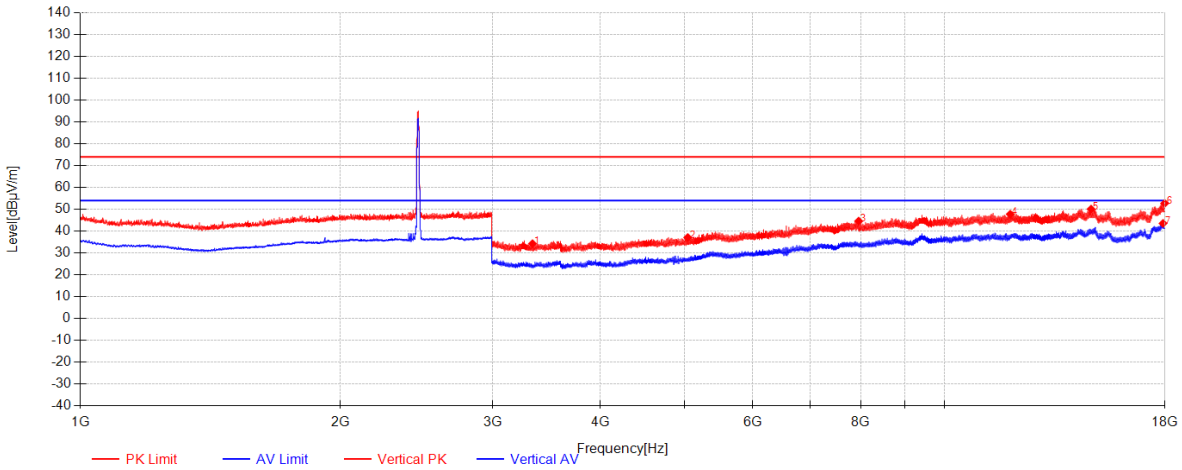

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3420.375 | 54.20 | 28.44 | -48.39 | 34.25 | 74.00 | 39.75 | Vertical |
| 2 | 4645.5 | 53.75 | 30.42 | -47.98 | 36.19 | 74.00 | 37.81 | Vertical |
| 3 | 6672 | 53.06 | 34.98 | -46.69 | 41.35 | 74.00 | 32.65 | Vertical |
| 4 | 9542.625 | 50.54 | 38.16 | -42.31 | 46.39 | 74.00 | 27.61 | Vertical |
| 5 | 12804.75 | 48.33 | 38.92 | -39.31 | 47.94 | 74.00 | 26.06 | Vertical |
| 6 | 17971.125 | 46.81 | 44.63 | -38.68 | 52.75 | 74.00 | 21.25 | Vertical |
| 7 | 17908.5 | 38.17 | 44.25 | -38.21 | 44.21 | 54.00 | 9.79 | Vertical |

11b_TX_CH_11_Horizontal



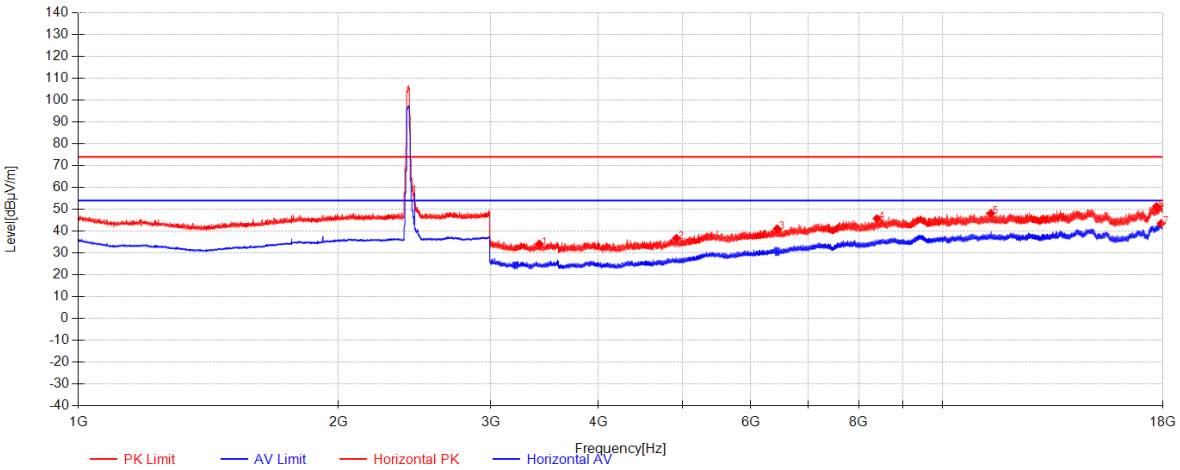

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3511.5 | 54.79 | 28.52 | -48.29 | 35.02 | 74.00 | 38.98 | Horizontal |
| 2 | 4726.125 | 53.39 | 30.60 | -47.97 | 36.01 | 74.00 | 37.99 | Horizontal |
| 3 | 6624.75 | 53.27 | 34.90 | -46.93 | 41.24 | 74.00 | 32.76 | Horizontal |
| 4 | 8773.125 | 52.45 | 37.15 | -44.02 | 45.58 | 74.00 | 28.42 | Horizontal |
| 5 | 12801.75 | 47.56 | 38.92 | -39.30 | 47.18 | 74.00 | 26.82 | Horizontal |
| 6 | 17900.625 | 47.09 | 44.20 | -38.15 | 53.14 | 74.00 | 20.86 | Horizontal |
| 7 | 17958 | 37.59 | 44.55 | -38.59 | 43.55 | 54.00 | 10.45 | Horizontal |

11b_TX_CH_11_Vertical



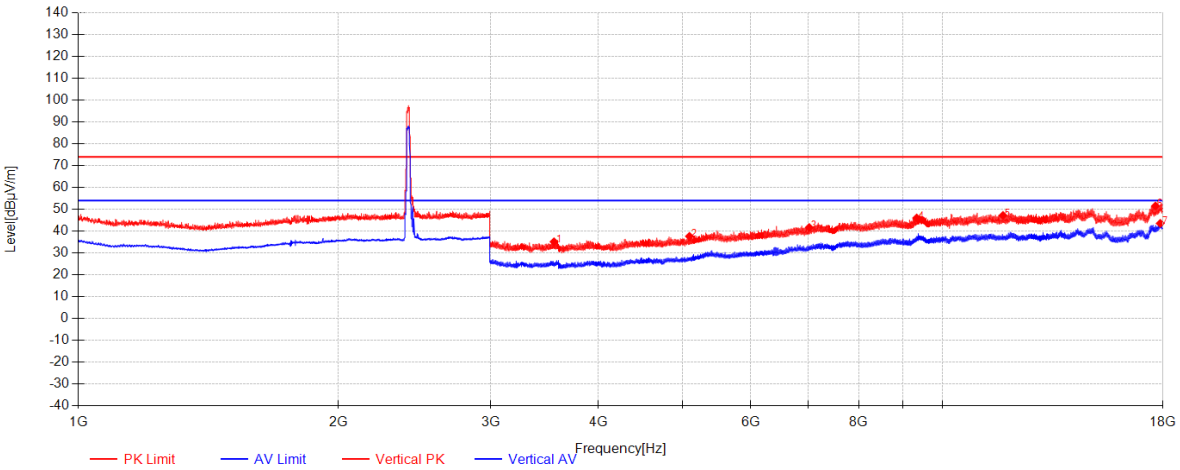

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3337.125 | 54.05 | 28.37 | -48.17 | 34.25 | 74.00 | 39.75 | Vertical |
| 2 | 5046.375 | 53.68 | 31.33 | -47.92 | 37.09 | 74.00 | 36.91 | Vertical |
| 3 | 7957.875 | 53.08 | 36.31 | -44.78 | 44.60 | 74.00 | 29.40 | Vertical |
| 4 | 11917.5 | 48.27 | 39.41 | -39.89 | 47.79 | 74.00 | 26.21 | Vertical |
| 5 | 14782.125 | 46.71 | 40.22 | -36.82 | 50.11 | 74.00 | 23.89 | Vertical |
| 6 | 17988.75 | 46.83 | 44.73 | -38.82 | 52.75 | 74.00 | 21.25 | Vertical |
| 7 | 17907.375 | 37.52 | 44.24 | -38.21 | 43.56 | 54.00 | 10.44 | Vertical |

11n(HT20)_TX_CH_01_Horizontal



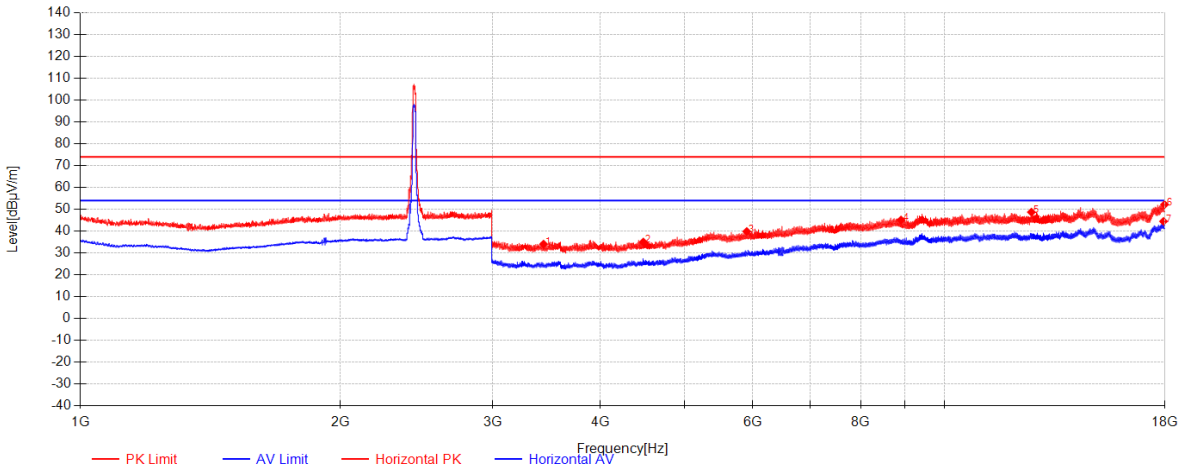

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3417 | 54.10 | 28.43 | -48.39 | 34.14 | 74.00 | 39.86 | Horizontal |
| 2 | 4922.625 | 53.77 | 31.03 | -48.03 | 36.77 | 74.00 | 37.23 | Horizontal |
| 3 | 6438.375 | 53.59 | 34.47 | -46.95 | 41.10 | 74.00 | 32.90 | Horizontal |
| 4 | 8400 | 53.18 | 36.74 | -44.11 | 45.81 | 74.00 | 28.19 | Horizontal |
| 5 | 11381.625 | 48.87 | 39.46 | -40.15 | 48.18 | 74.00 | 25.82 | Horizontal |
| 6 | 17690.625 | 46.95 | 42.94 | -38.58 | 51.31 | 74.00 | 22.69 | Horizontal |
| 7 | 17908.125 | 37.45 | 44.25 | -38.21 | 43.49 | 54.00 | 10.51 | Horizontal |

11n(HT20)_TX_CH_01_Vertical



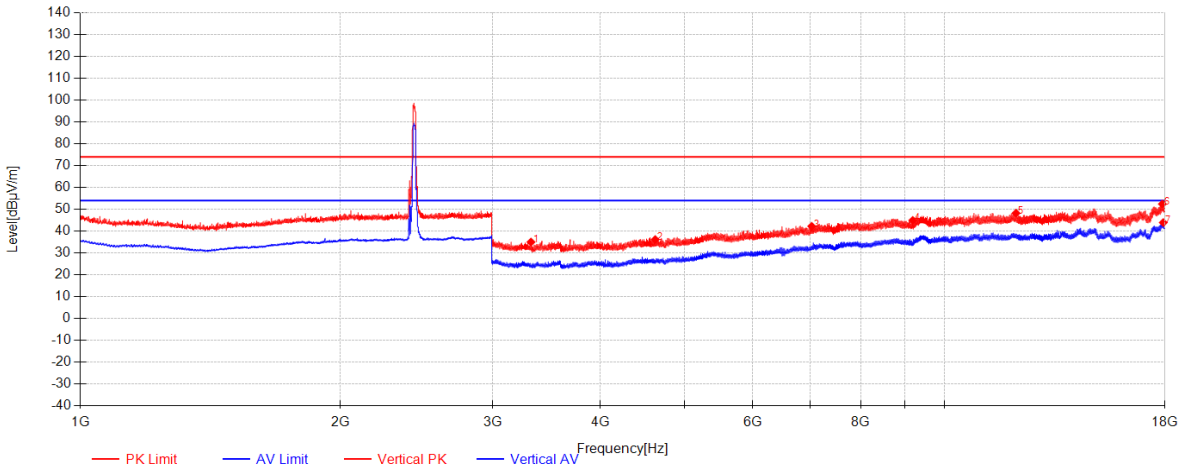

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBμV] | AF [dB/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Polarity |
| 1 | 3552.75 | 54.84 | 28.58 | -48.28 | 35.14 | 74.00 | 38.86 | Vertical |
| 2 | 5097 | 53.97 | 31.47 | -47.83 | 37.62 | 74.00 | 36.38 | Vertical |
| 3 | 7012.5 | 52.67 | 35.52 | -46.50 | 41.69 | 74.00 | 32.31 | Vertical |
| 4 | 9339.75 | 51.12 | 37.88 | -42.95 | 46.05 | 74.00 | 27.95 | Vertical |
| 5 | 11752.5 | 47.56 | 39.42 | -39.77 | 47.21 | 74.00 | 26.79 | Vertical |
| 6 | 17642.625 | 47.32 | 42.66 | -38.43 | 51.55 | 74.00 | 22.45 | Vertical |
| 7 | 17870.25 | 37.70 | 44.02 | -38.16 | 43.56 | 54.00 | 10.44 | Vertical |

11n(HT20)_TX_CH_06_Horizontal



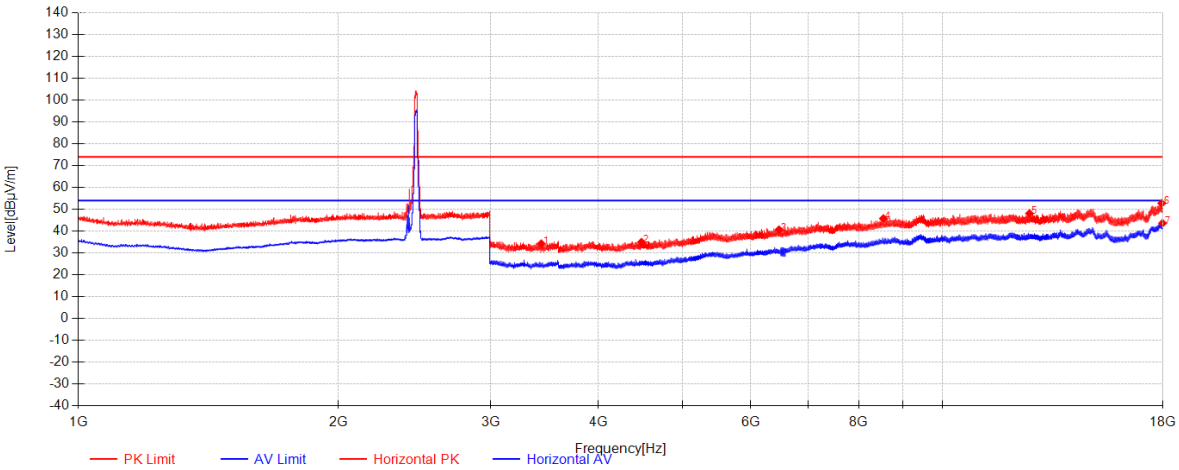

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3436.875 | 53.97 | 28.45 | -48.37 | 34.05 | 74.00 | 39.95 | Horizontal |
| 2 | 4483.125 | 52.93 | 30.07 | -48.00 | 35.00 | 74.00 | 39.00 | Horizontal |
| 3 | 5906.625 | 54.25 | 32.76 | -47.17 | 39.84 | 74.00 | 34.16 | Horizontal |
| 4 | 8908.125 | 51.76 | 37.30 | -43.96 | 45.10 | 74.00 | 28.90 | Horizontal |
| 5 | 12609 | 48.70 | 39.03 | -39.02 | 48.72 | 74.00 | 25.28 | Horizontal |
| 6 | 17979 | 46.27 | 44.67 | -38.74 | 52.20 | 74.00 | 21.80 | Horizontal |
| 7 | 17929.5 | 38.48 | 44.38 | -38.37 | 44.49 | 54.00 | 9.51 | Horizontal |

11n(HT20)_TX_CH_06_Vertical



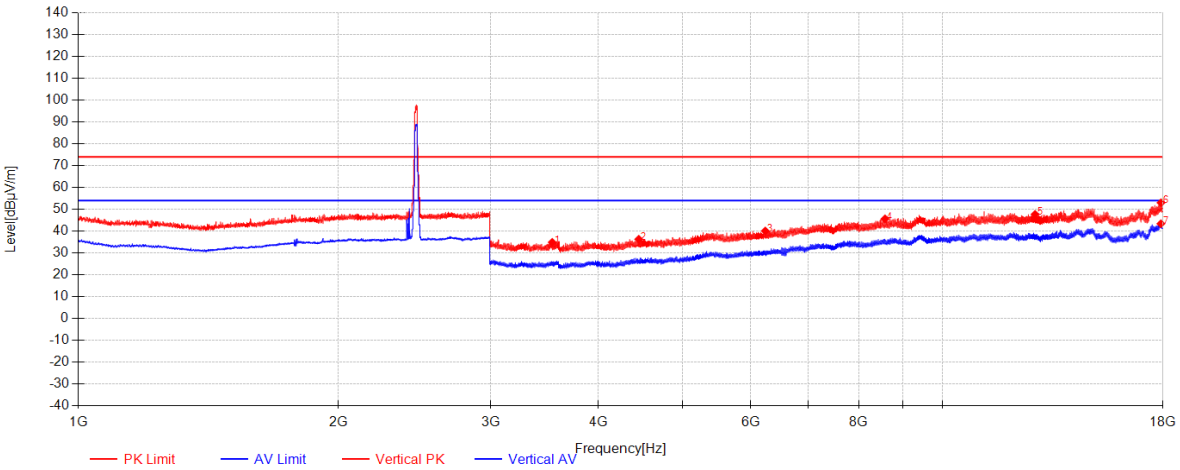

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3323.625 | 54.77 | 28.36 | -48.12 | 35.01 | 74.00 | 38.99 | Vertical |
| 2 | 4627.125 | 53.76 | 30.38 | -47.99 | 36.15 | 74.00 | 37.85 | Vertical |
| 3 | 7022.25 | 53.12 | 35.54 | -46.43 | 42.23 | 74.00 | 31.77 | Vertical |
| 4 | 9191.25 | 50.76 | 37.67 | -43.48 | 44.95 | 74.00 | 29.05 | Vertical |
| 5 | 12103.5 | 48.54 | 39.34 | -39.64 | 48.24 | 74.00 | 25.76 | Vertical |
| 6 | 17875.875 | 46.54 | 44.06 | -38.16 | 52.44 | 74.00 | 21.56 | Vertical |
| 7 | 17918.25 | 37.92 | 44.31 | -38.29 | 43.94 | 54.00 | 10.06 | Vertical |

11n(HT20)_TX_CH_11_Horizontal



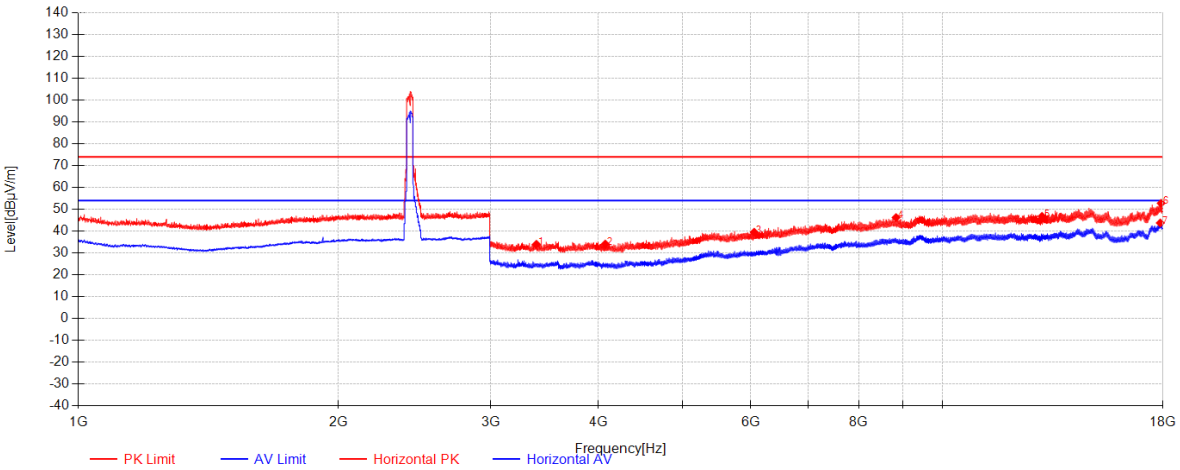

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3434.25 | 54.17 | 28.45 | -48.37 | 34.25 | 74.00 | 39.75 | Horizontal |
| 2 | 4485 | 52.85 | 30.08 | -48.00 | 34.93 | 74.00 | 39.07 | Horizontal |
| 3 | 6471 | 53.04 | 34.59 | -46.97 | 40.66 | 74.00 | 33.34 | Horizontal |
| 4 | 8545.875 | 53.02 | 36.90 | -44.14 | 45.78 | 74.00 | 28.22 | Horizontal |
| 5 | 12611.625 | 48.09 | 39.03 | -39.02 | 48.10 | 74.00 | 25.90 | Horizontal |
| 6 | 17940.375 | 46.76 | 44.44 | -38.45 | 52.75 | 74.00 | 21.25 | Horizontal |
| 7 | 17980.125 | 37.71 | 44.68 | -38.75 | 43.64 | 54.00 | 10.36 | Horizontal |

11n(HT20)_TX_CH_11_Vertical



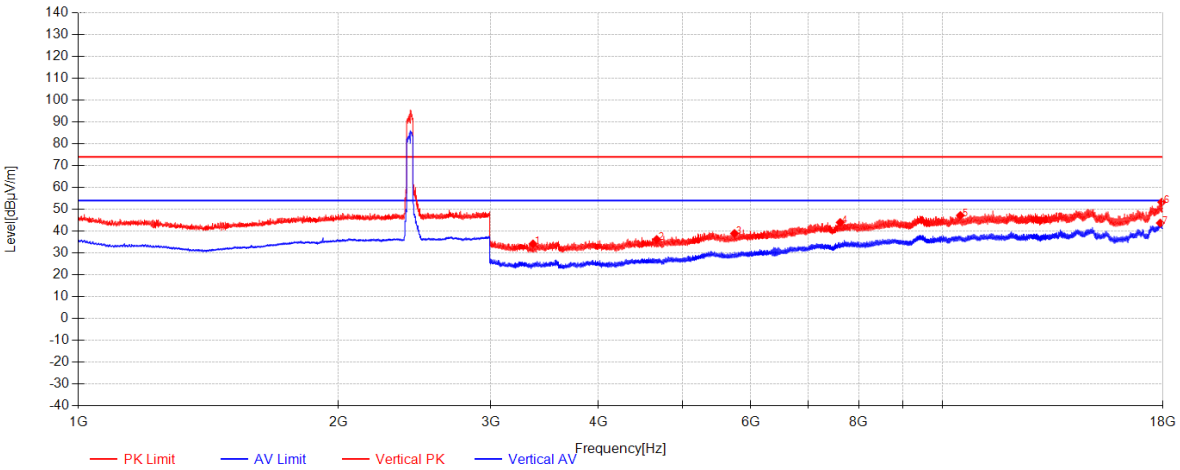

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3535.875 | 54.61 | 28.56 | -48.29 | 34.88 | 74.00 | 39.12 | Vertical |
| 2 | 4452.75 | 54.32 | 30.02 | -48.04 | 36.30 | 74.00 | 37.70 | Vertical |
| 3 | 6238.125 | 53.83 | 33.70 | -47.46 | 40.07 | 74.00 | 33.93 | Vertical |
| 4 | 8582.25 | 52.71 | 36.94 | -44.03 | 45.63 | 74.00 | 28.37 | Vertical |
| 5 | 12799.875 | 48.08 | 38.92 | -39.30 | 47.70 | 74.00 | 26.30 | Vertical |
| 6 | 17905.5 | 46.99 | 44.23 | -38.19 | 53.03 | 74.00 | 20.97 | Vertical |
| 7 | 17901 | 37.36 | 44.21 | -38.16 | 43.41 | 54.00 | 10.59 | Vertical |

11n(HT40)_TX_CH_03_Horizontal



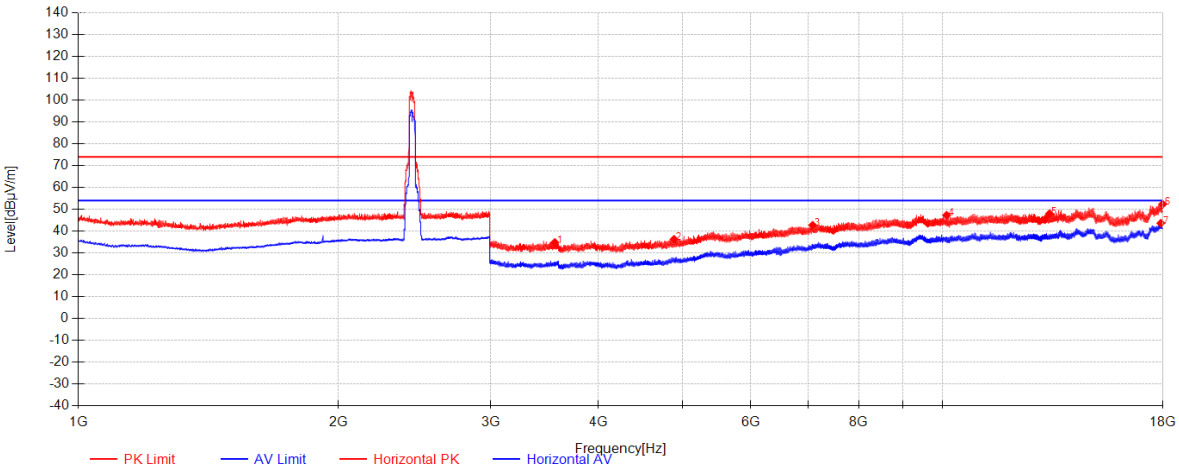

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3389.625 | 53.97 | 28.41 | -48.37 | 34.01 | 74.00 | 39.99 | Horizontal |
| 2 | 4072.875 | 52.78 | 29.42 | -48.09 | 34.10 | 74.00 | 39.90 | Horizontal |
| 3 | 6056.25 | 53.96 | 33.01 | -47.43 | 39.54 | 74.00 | 34.46 | Horizontal |
| 4 | 8838.375 | 53.01 | 37.22 | -44.01 | 46.23 | 74.00 | 27.77 | Horizontal |
| 5 | 13040.625 | 46.94 | 38.86 | -38.99 | 46.81 | 74.00 | 27.19 | Horizontal |
| 6 | 17912.25 | 46.76 | 44.27 | -38.24 | 52.79 | 74.00 | 21.21 | Horizontal |
| 7 | 17869.125 | 37.91 | 44.01 | -38.16 | 43.76 | 54.00 | 10.24 | Horizontal |

11n(HT40)_TX_CH_03_Vertical



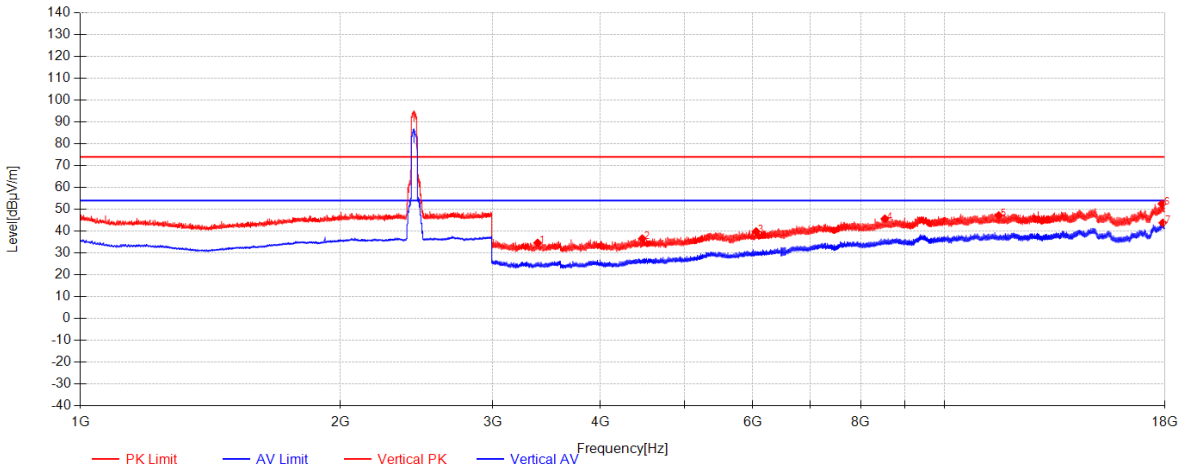

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3359.25 | 54.05 | 28.39 | -48.26 | 34.18 | 74.00 | 39.82 | Vertical |
| 2 | 4671 | 53.74 | 30.48 | -47.97 | 36.24 | 74.00 | 37.76 | Vertical |
| 3 | 5746.125 | 53.83 | 32.70 | -47.56 | 38.96 | 74.00 | 35.04 | Vertical |
| 4 | 7616.25 | 52.27 | 36.38 | -44.67 | 43.97 | 74.00 | 30.03 | Vertical |
| 5 | 10491 | 48.76 | 39.14 | -40.70 | 47.20 | 74.00 | 26.80 | Vertical |
| 6 | 17943.75 | 47.31 | 44.46 | -38.48 | 53.29 | 74.00 | 20.71 | Vertical |
| 7 | 17870.625 | 37.87 | 44.02 | -38.16 | 43.73 | 54.00 | 10.27 | Vertical |

11n(HT40)_TX_CH_06_Horizontal



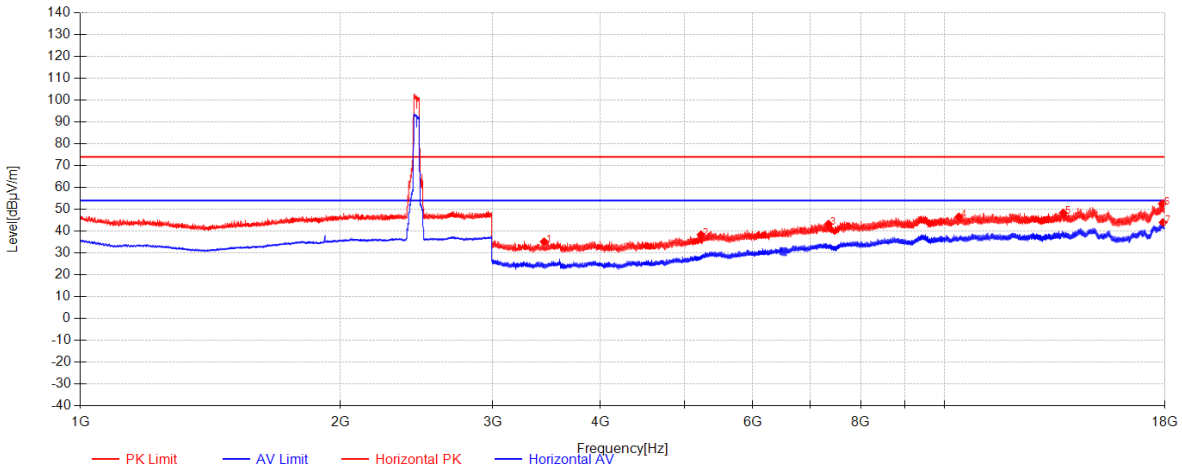

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3560.25 | 54.52 | 28.60 | -48.28 | 34.83 | 74.00 | 39.17 | Horizontal |
| 2 | 4891.5 | 53.32 | 30.96 | -48.03 | 36.25 | 74.00 | 37.75 | Horizontal |
| 3 | 7076.625 | 53.09 | 35.64 | -46.01 | 42.72 | 74.00 | 31.28 | Horizontal |
| 4 | 10114.5 | 50.34 | 38.88 | -41.91 | 47.31 | 74.00 | 26.69 | Horizontal |
| 5 | 13305.75 | 47.84 | 39.26 | -39.09 | 48.00 | 74.00 | 26.00 | Horizontal |
| 6 | 17985 | 46.44 | 44.71 | -38.79 | 52.36 | 74.00 | 21.64 | Horizontal |
| 7 | 17896.875 | 37.62 | 44.18 | -38.15 | 43.65 | 54.00 | 10.35 | Horizontal |

11n(HT40)_TX_CH_06_Vertical



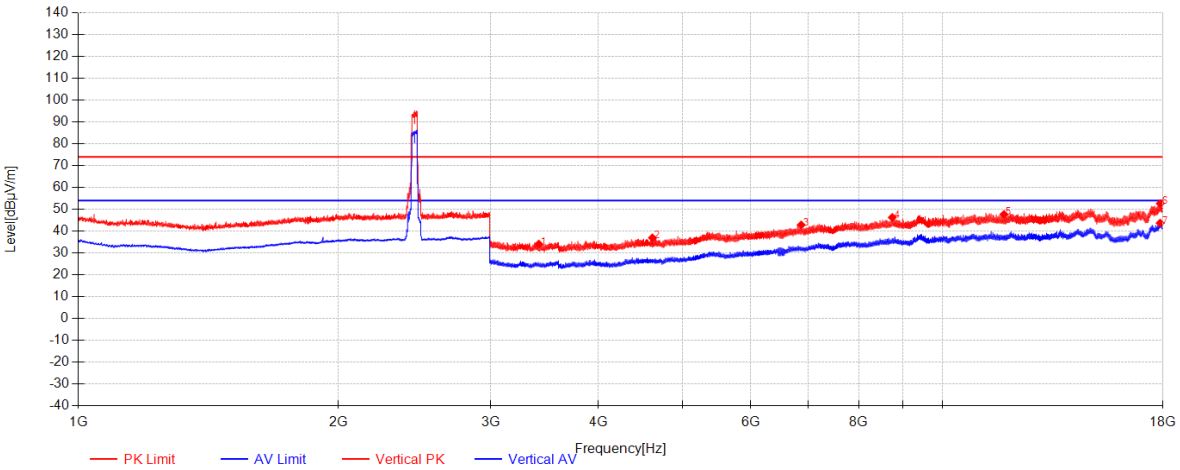

| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3382.875 | 54.55 | 28.41 | -48.34 | 34.61 | 74.00 | 39.39 | Vertical |
| 2 | 4470.375 | 54.55 | 30.05 | -48.02 | 36.58 | 74.00 | 37.42 | Vertical |
| 3 | 6055.5 | 54.26 | 33.01 | -47.43 | 39.84 | 74.00 | 34.16 | Vertical |
| 4 | 8533.5 | 52.98 | 36.89 | -44.18 | 45.69 | 74.00 | 28.31 | Vertical |
| 5 | 11556.375 | 47.63 | 39.44 | -39.90 | 47.18 | 74.00 | 26.82 | Vertical |
| 6 | 17854.125 | 46.74 | 43.92 | -38.17 | 52.50 | 74.00 | 21.50 | Vertical |
| 7 | 17895 | 37.81 | 44.17 | -38.15 | 43.83 | 54.00 | 10.17 | Vertical |

11n(HT40)_TX_CH_09_Horizontal




| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3442.125 | 55.07 | 28.45 | -48.36 | 35.16 | 74.00 | 38.84 | Horizontal |
| 2 | 5229 | 54.37 | 31.84 | -47.86 | 38.35 | 74.00 | 35.65 | Horizontal |
| 3 | 7344.375 | 53.33 | 36.12 | -46.16 | 43.29 | 74.00 | 30.71 | Horizontal |
| 4 | 10394.625 | 48.73 | 39.08 | -41.24 | 46.57 | 74.00 | 27.43 | Horizontal |
| 5 | 13725.75 | 46.71 | 39.89 | -38.24 | 48.36 | 74.00 | 25.64 | Horizontal |
| 6 | 17872.5 | 46.72 | 44.04 | -38.16 | 52.59 | 74.00 | 21.41 | Horizontal |
| 7 | 17907.375 | 37.98 | 44.24 | -38.21 | 44.02 | 54.00 | 9.98 | Horizontal |

11n(HT40)_TX_CH_09_Vertical




| Data List | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | AF [dB/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity |
| 1 | 3412.125 | 54.04 | 28.43 | -48.40 | 34.07 | 74.00 | 39.93 | Vertical |
| 2 | 4617.75 | 54.57 | 30.36 | -47.99 | 36.94 | 74.00 | 37.06 | Vertical |
| 3 | 6864.75 | 54.35 | 35.28 | -46.79 | 42.85 | 74.00 | 31.15 | Vertical |
| 4 | 8749.5 | 53.24 | 37.12 | -44.06 | 46.31 | 74.00 | 27.69 | Vertical |
| 5 | 11783.25 | 48.09 | 39.42 | -39.83 | 47.68 | 74.00 | 26.32 | Vertical |
| 6 | 17868 | 46.81 | 44.01 | -38.16 | 52.66 | 74.00 | 21.34 | Vertical |
| 7 | 17864.25 | 37.88 | 43.99 | -38.16 | 43.70 | 54.00 | 10.30 | Vertical |

## 7.5 Maximum Conducted Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 11.9

Limit:

| Frequency range(MHz) | Output power of the intentional radiator(watt) |
|---|---|
| 902-928 | 1 for ≥50 hopping channels |
| | 0.25 for 25≤ hopping channels <50 |
| | 1 for digital modulation |
| 2400-2483.5 | 1 for ≥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 |

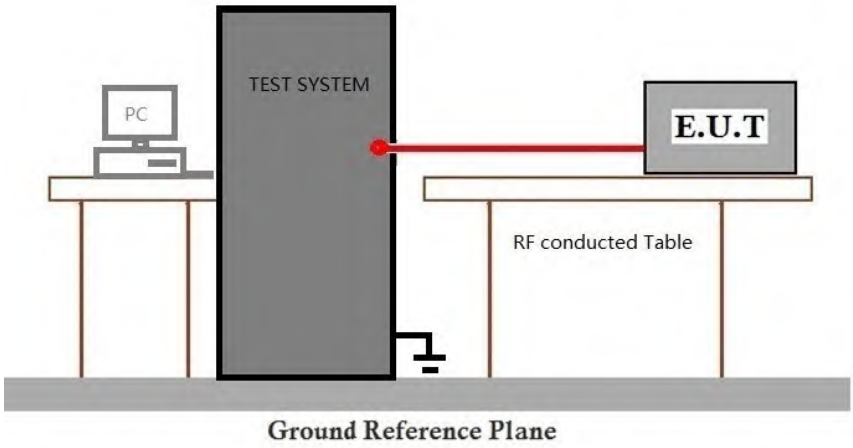
### 7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 43 % RH Atmospheric Pressure: 1001 mbar

### 7.5.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 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+Cor.1-2023 Section 11.8.1

Limit:

≥500 kHz

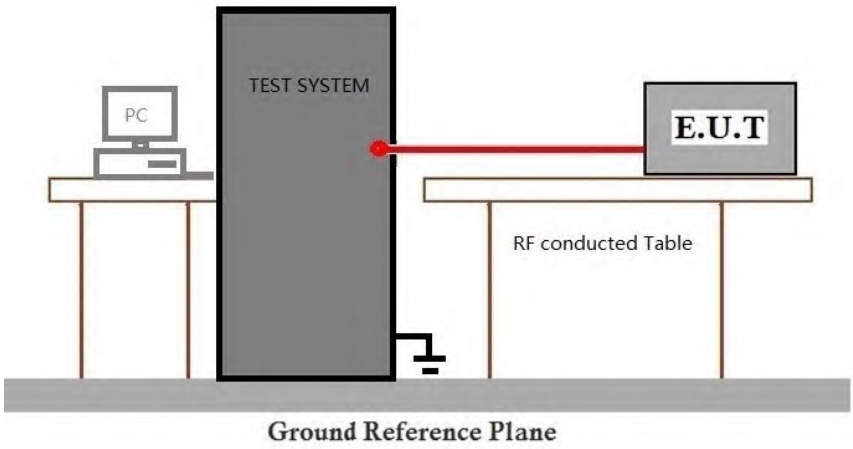
### 7.6.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 43 % RH Atmospheric Pressure: 1001 mbar

### 7.6.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 7.6.3 Test Setup Diagram




### 7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

## 7.7 Power Spectral Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 11.10

Limit:
≤8dBm in any 3 kHz band during any time interval of continuous transmission

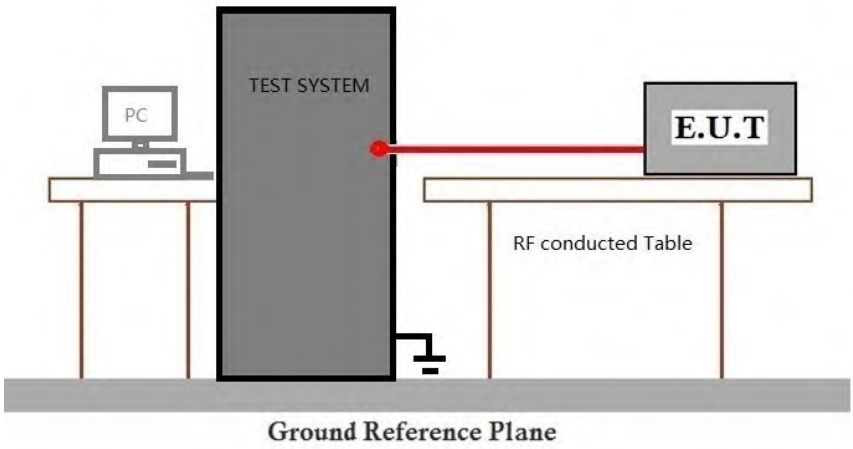
### 7.7.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 44 % RH Atmospheric Pressure: 1001 mbar

### 7.7.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), 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

## 7.8 Conducted Band Edges Measurement

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

Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.10.4

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

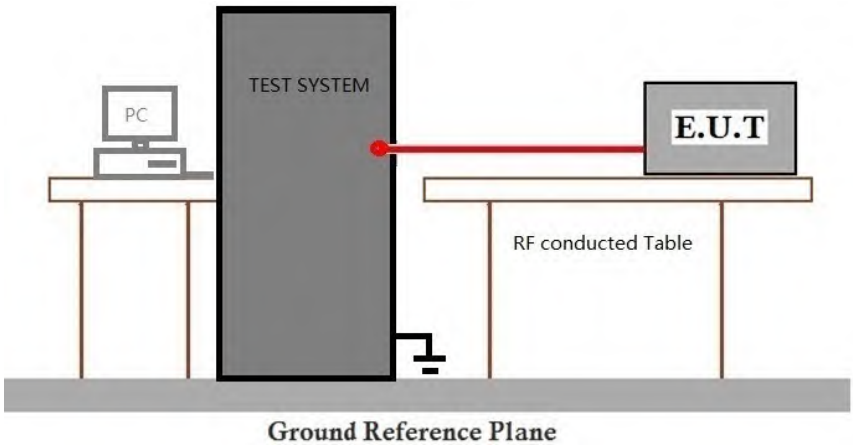
Operating Environment:

Temperature: 23 °C Humidity: 44 % RH Atmospheric Pressure: 1001 mbar

### 7.8.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), 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

## 7.9 Conducted Spurious Emissions

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

Test Method: ANSI C63.10-2020+Cor.1-2023 Section 11.11

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

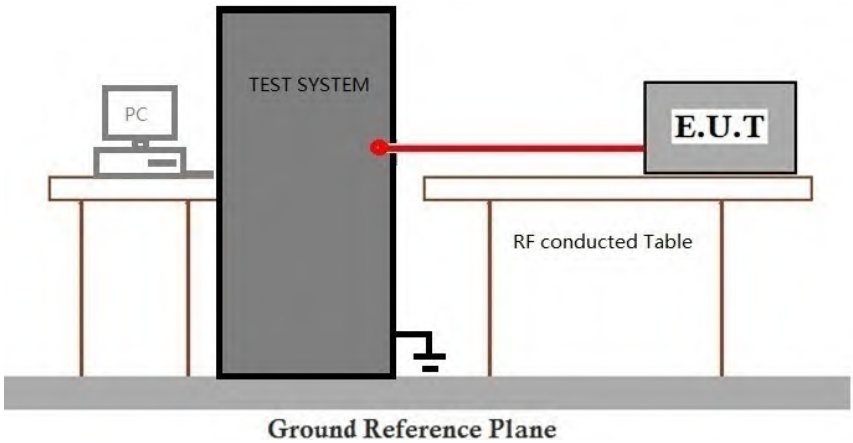
Operating Environment:

Temperature: 23 °C Humidity: 43 % RH Atmospheric Pressure: 1001 mbar

### 7.9.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 03 | 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); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report. |

### 7.9.3 Test Setup Diagram




### 7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details

# 8 Test Setup Photo

Refer to Appendix C.3 - Test Setup Photo for SUCR2607000644TL

# 9 EUT Constructional Details (EUT Photos)

Refer to Appendix C.1_External Photos for SUCR2607000644TL and Appendix C.2_Internal Photos for SUCR2607000644TL

# 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 | 12.433 | 12.623 | 98.49 | 0.07 | 0.08 |
| 802.11g | SISO | 2412 | 2.066 | 2.101 | 98.33 | 0.07 | 0.03 |
| 802.11n (HT20) | SISO | 2412 | 1.928 | 1.963 | 98.22 | 0.08 | 0.03 |
| 802.11n (HT40) | SISO | 2422 | 0.949 | 1.000 | 94.90 | 0.23 | 0.04 |

# 2. Bandwidth

## 2.1 Test Result

### 2.1.1 OBW

| Mode | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) | | Verdict |
|---|---|---|---|---|---|---|
| | | | | Result | Limit | |
| 802.11b | SISO | 2412 | 1 | 14.134 | / | Pass |
| | | 2437 | 1 | 13.910 | / | Pass |
| | | 2462 | 1 | 13.913 | / | Pass |
| 802.11g | SISO | 2412 | 1 | 16.643 | / | Pass |
| | | 2437 | 1 | 16.577 | / | Pass |
| | | 2462 | 1 | 16.570 | / | Pass |
| 802.11n (HT20) | SISO | 2412 | 1 | 17.785 | / | Pass |
| | | 2437 | 1 | 17.763 | / | Pass |
| | | 2462 | 1 | 17.720 | / | Pass |
| 802.11n (HT40) | SISO | 2422 | 1 | 36.263 | / | Pass |
| | | 2437 | 1 | 36.444 | / | Pass |
| | | 2452 | 1 | 36.416 | / | Pass |

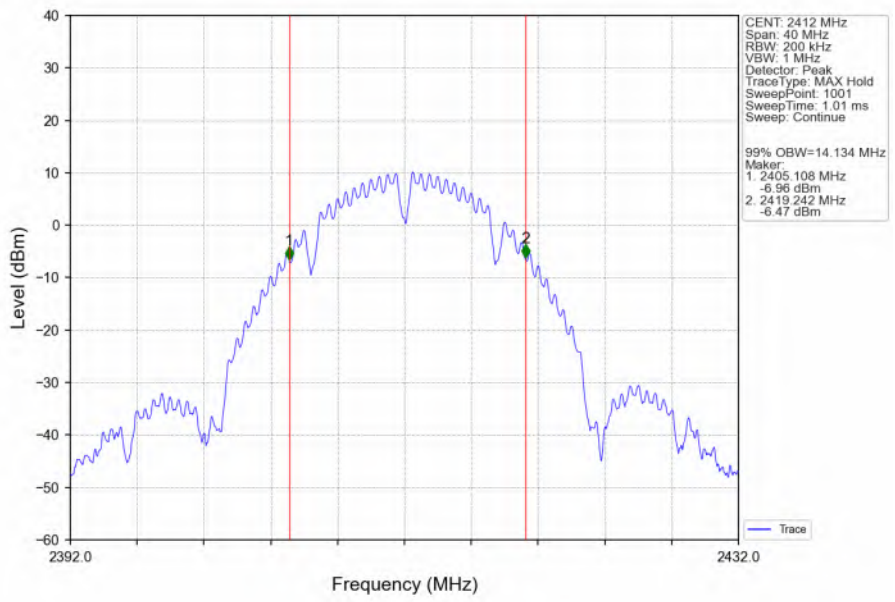
### 2.1.2 6dB BW

| Mode | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) | | Verdict |
|---|---|---|---|---|---|---|
| | | | | Result | Limit | |
| 802.11b | SISO | 2412 | 1 | 8.697 | >=0.5 | Pass |
| | | 2437 | 1 | 8.684 | >=0.5 | Pass |
| | | 2462 | 1 | 9.124 | >=0.5 | Pass |
| 802.11g | SISO | 2412 | 1 | 16.046 | >=0.5 | Pass |
| | | 2437 | 1 | 16.132 | >=0.5 | Pass |
| | | 2462 | 1 | 15.967 | >=0.5 | Pass |
| 802.11n (HT20) | SISO | 2412 | 1 | 17.028 | >=0.5 | Pass |
| | | 2437 | 1 | 17.102 | >=0.5 | Pass |
| | | 2462 | 1 | 16.986 | >=0.5 | Pass |
| 802.11n (HT40) | SISO | 2422 | 1 | 36.053 | >=0.5 | Pass |
| | | 2437 | 1 | 36.413 | >=0.5 | Pass |
| | | 2452 | 1 | 36.424 | >=0.5 | Pass |

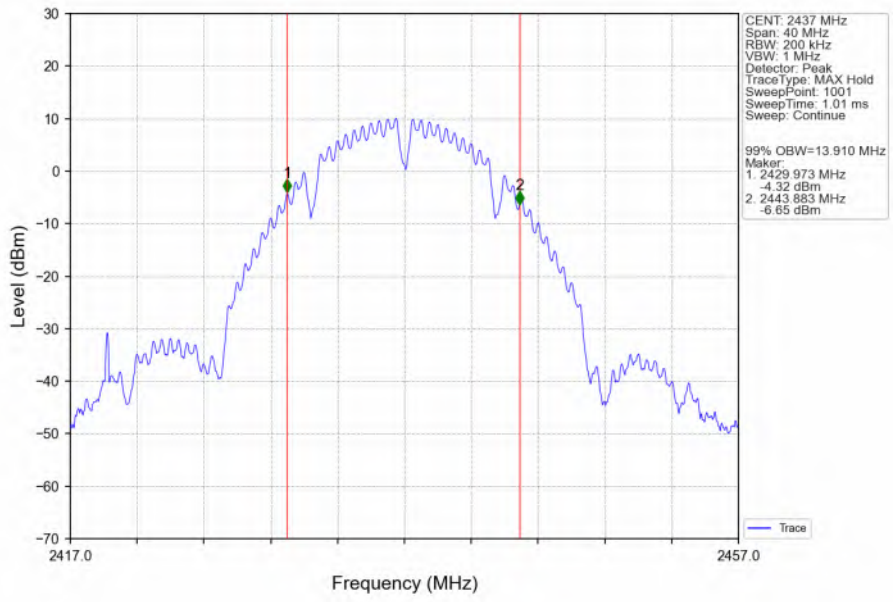
## 2.2 Test Graph

### 2.2.1 OBW

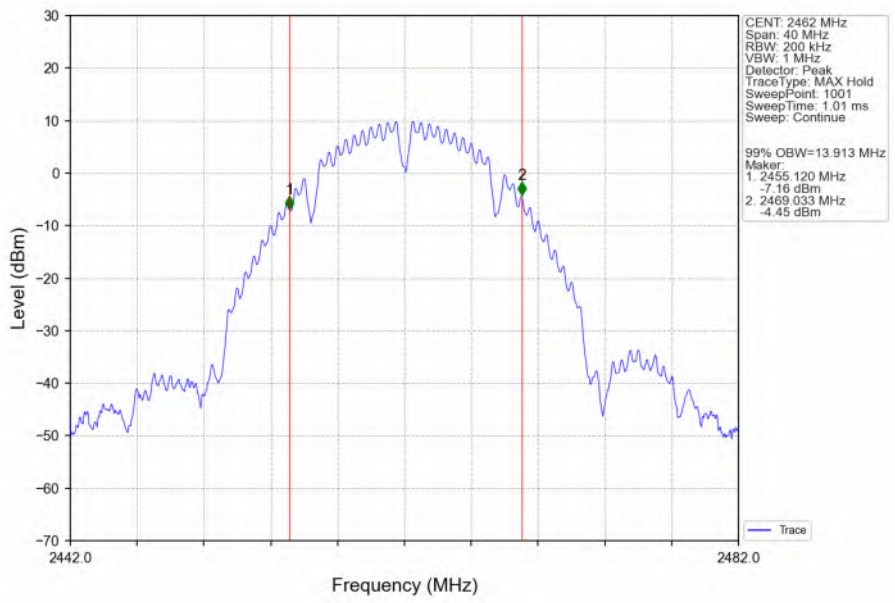
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



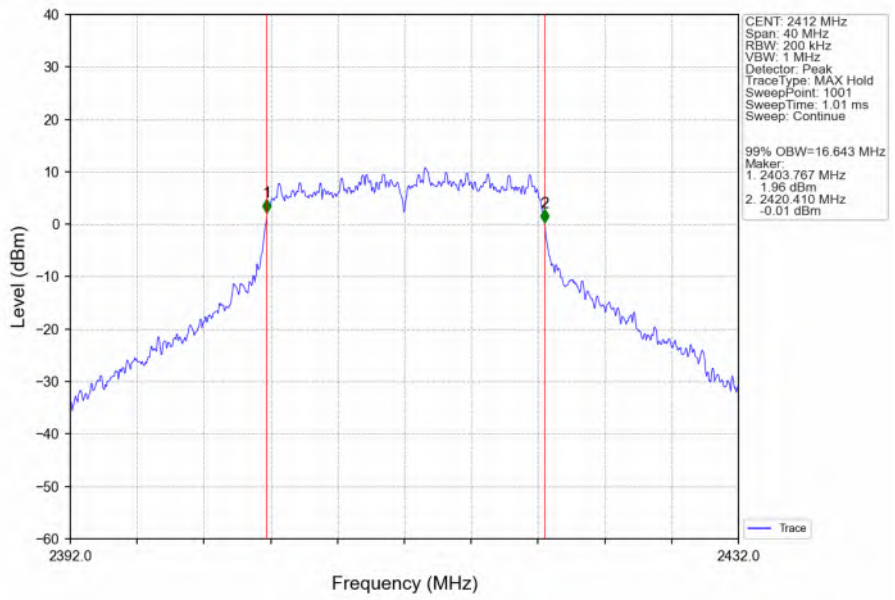

802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



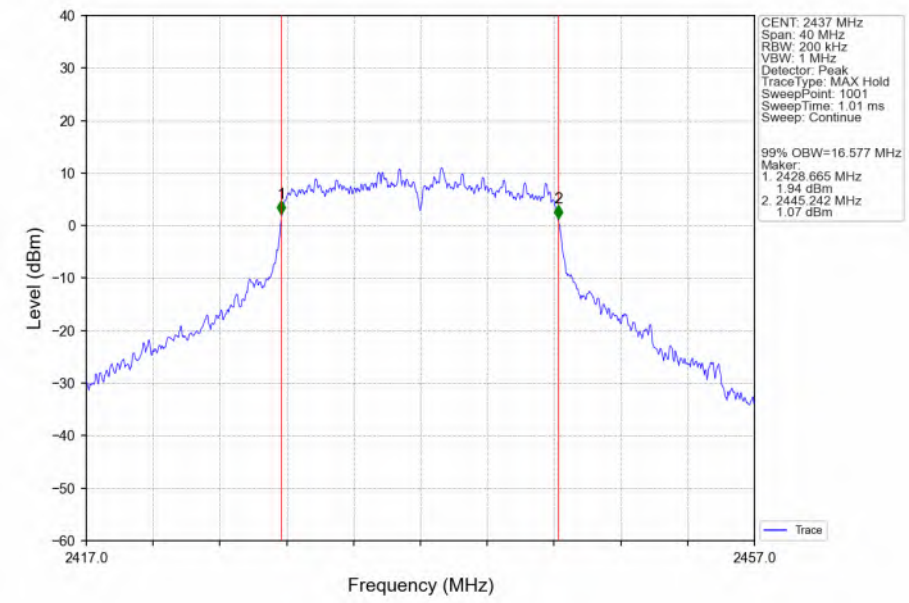
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



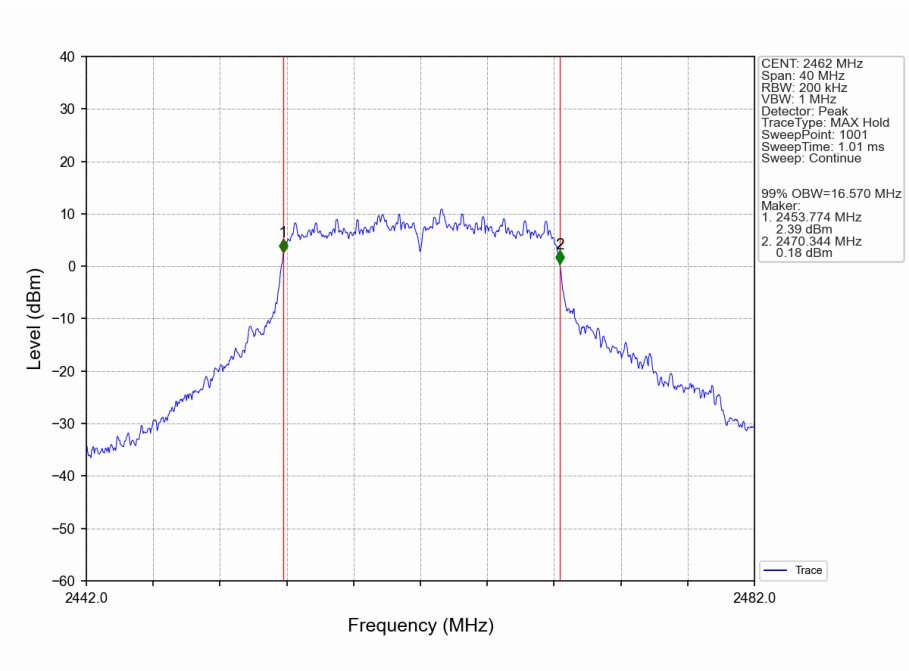

802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



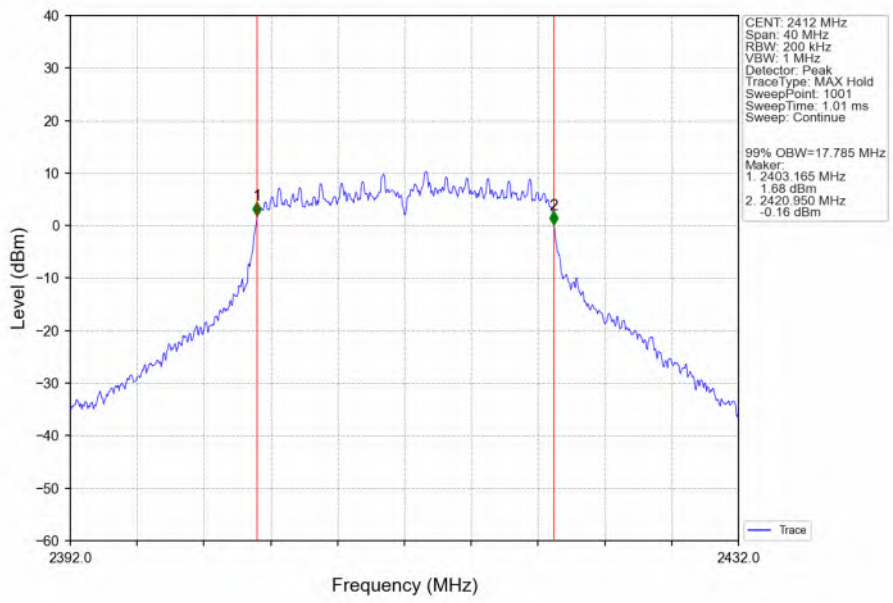
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



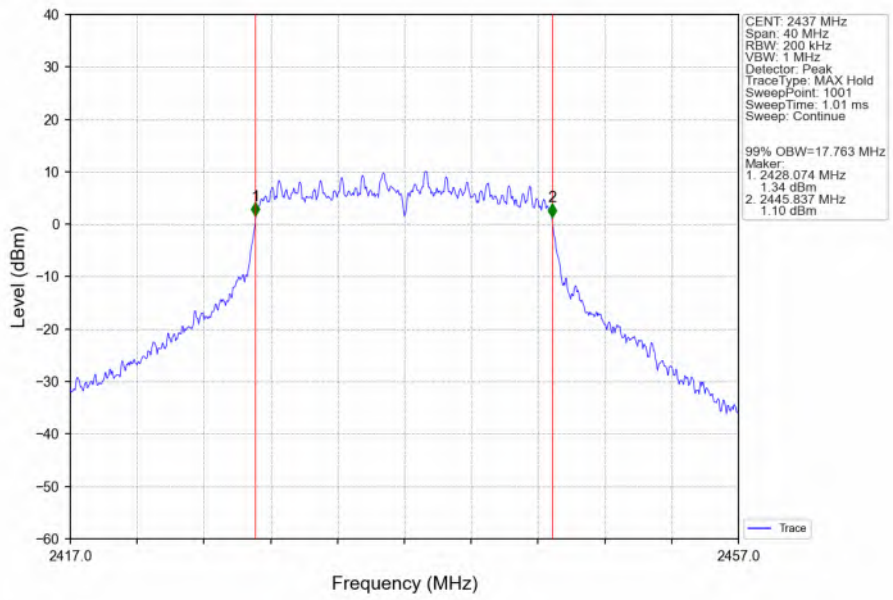

802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



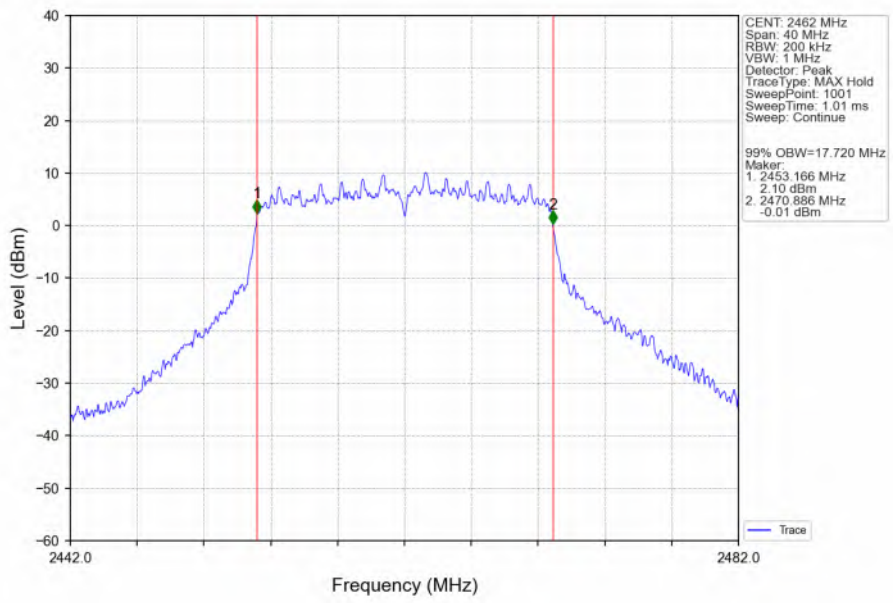
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



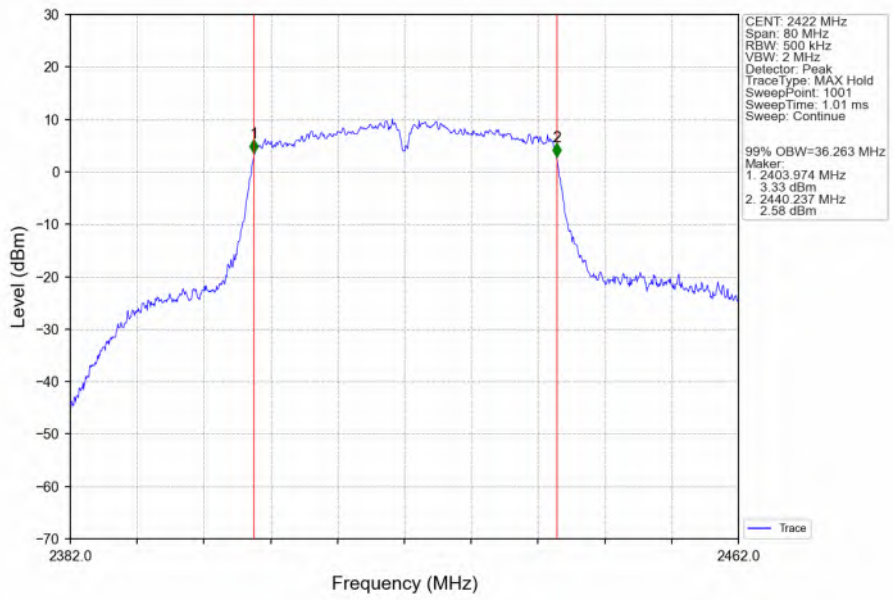

802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



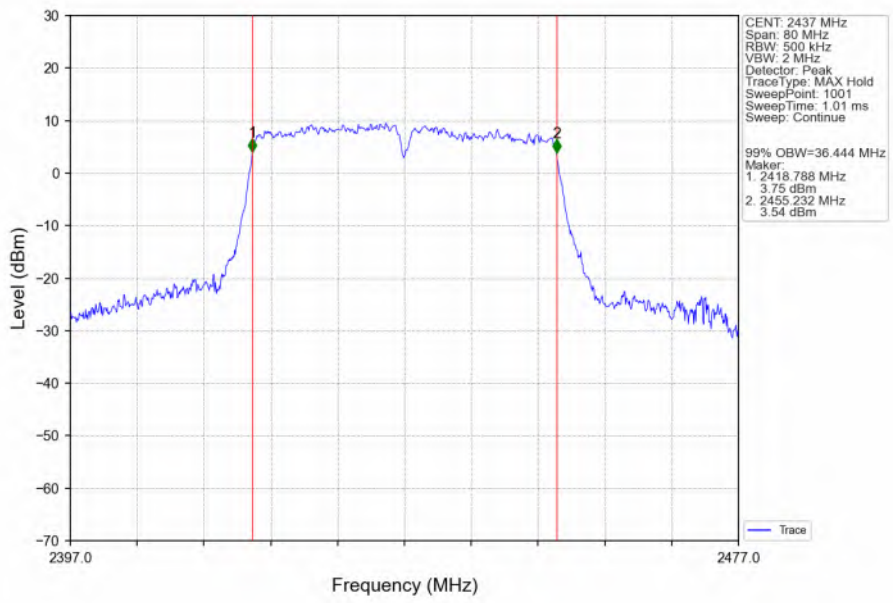
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



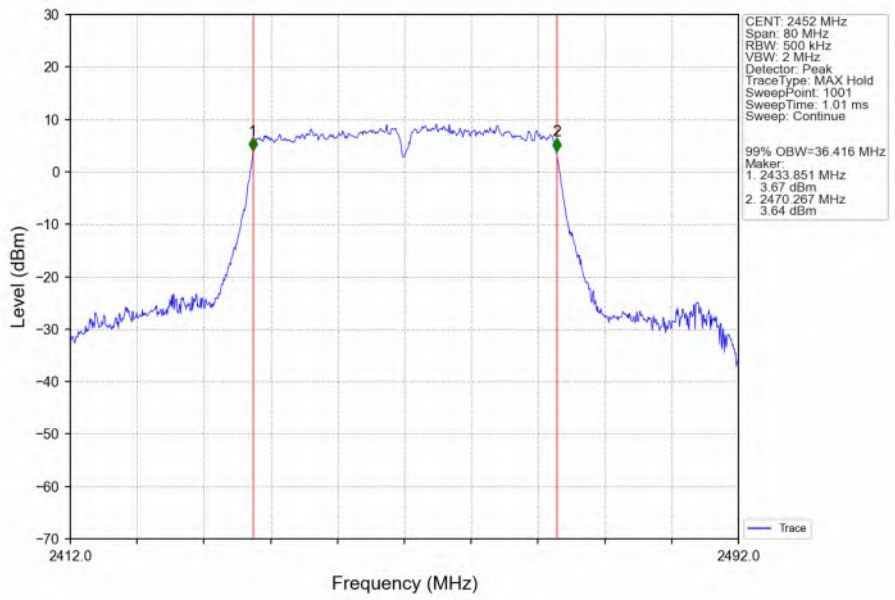

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

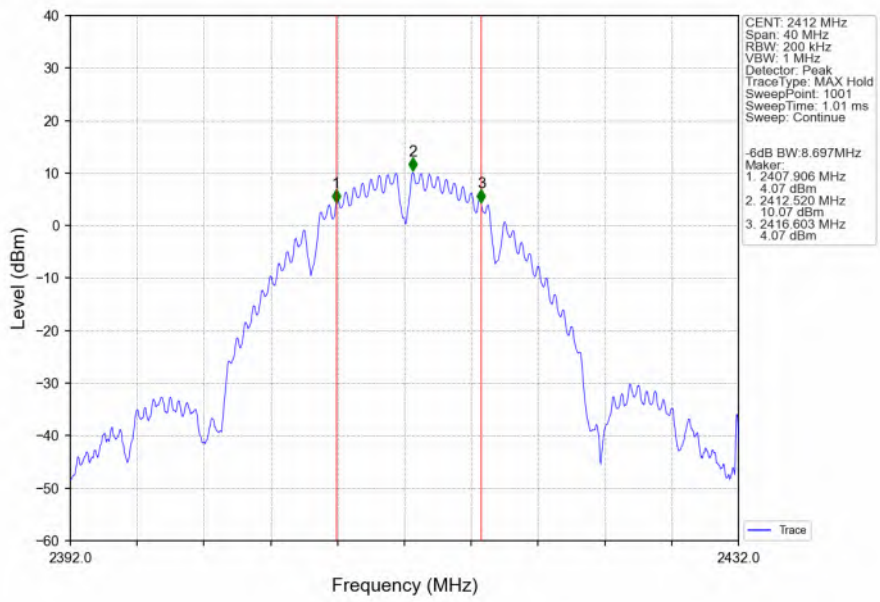



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

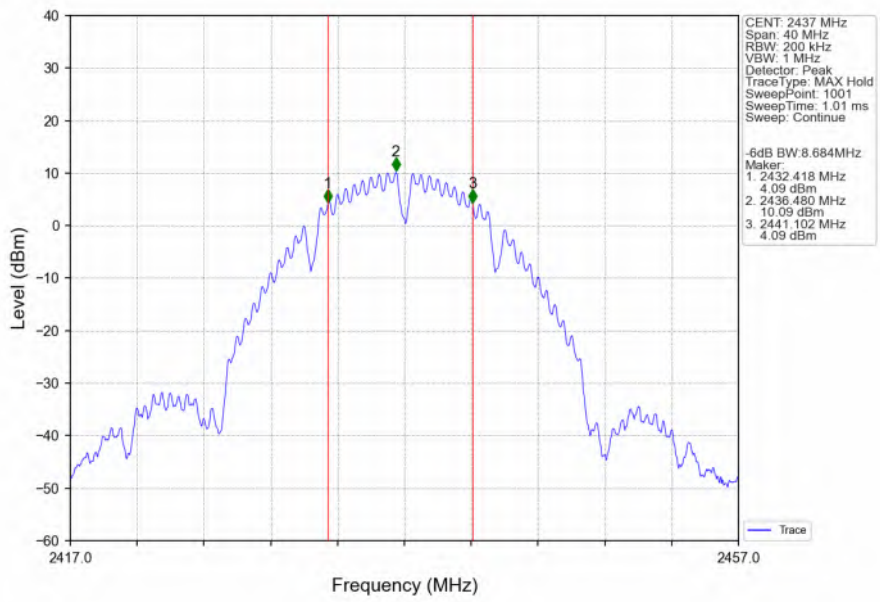


## 2.2.2 6dB BW

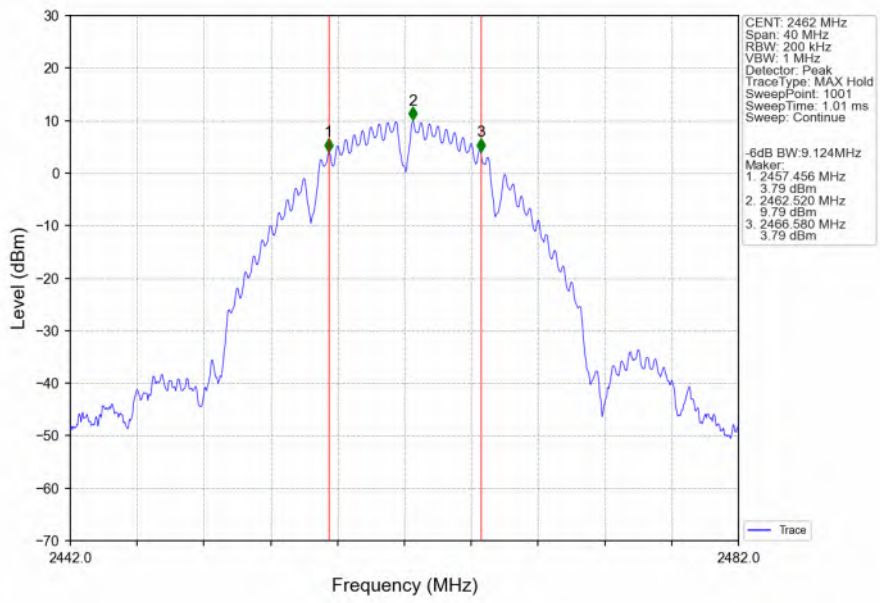
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



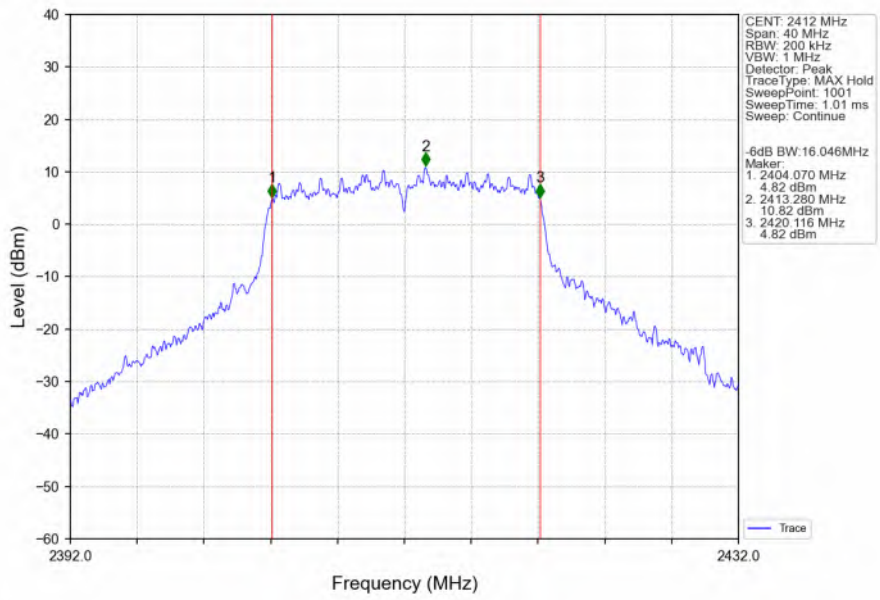

802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



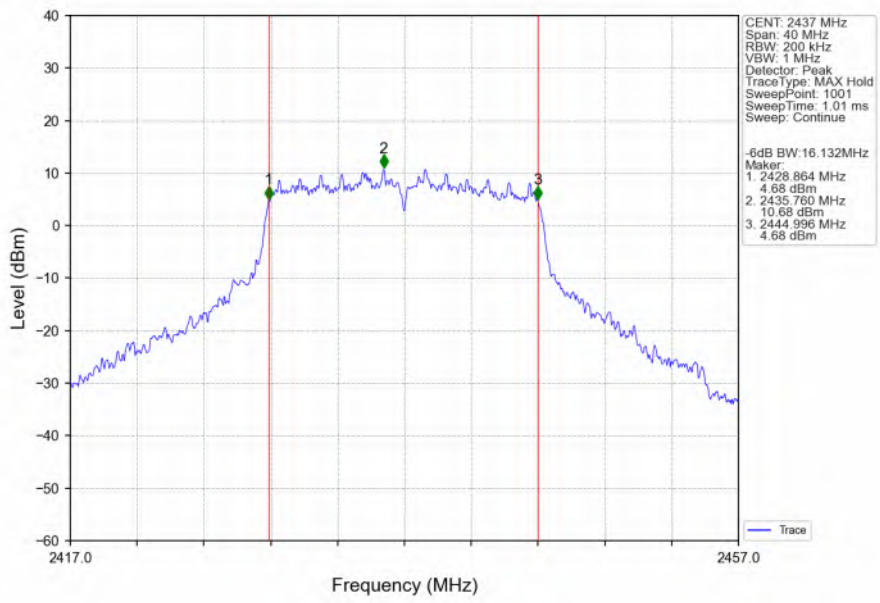
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



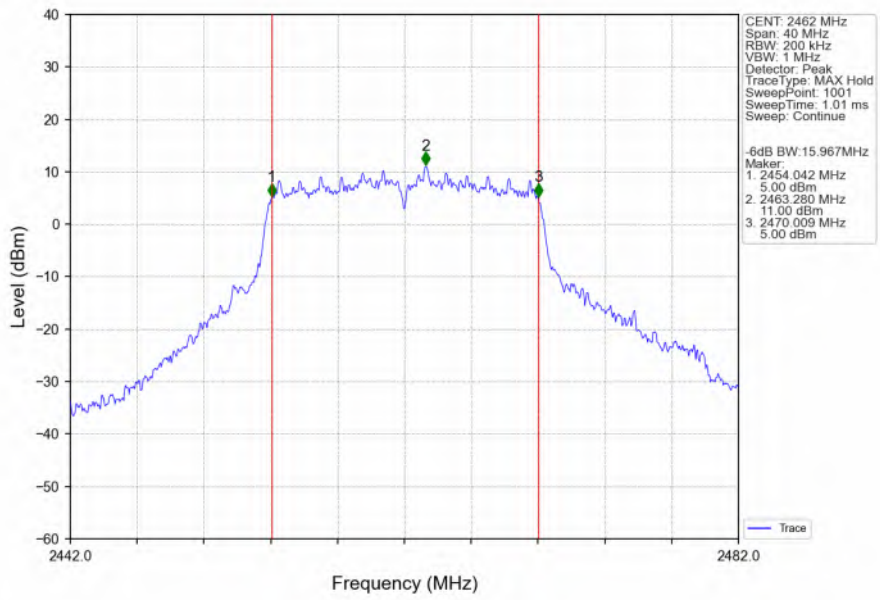

802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



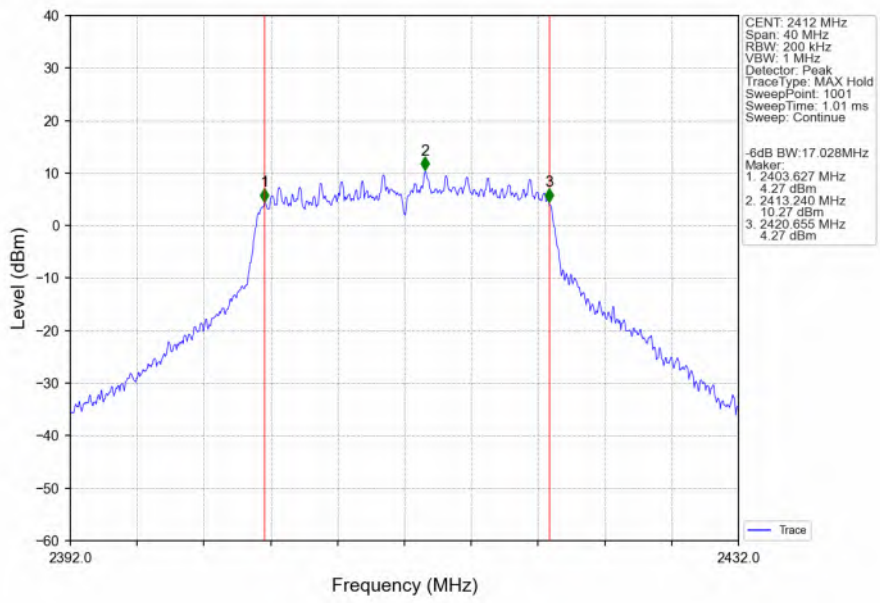
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



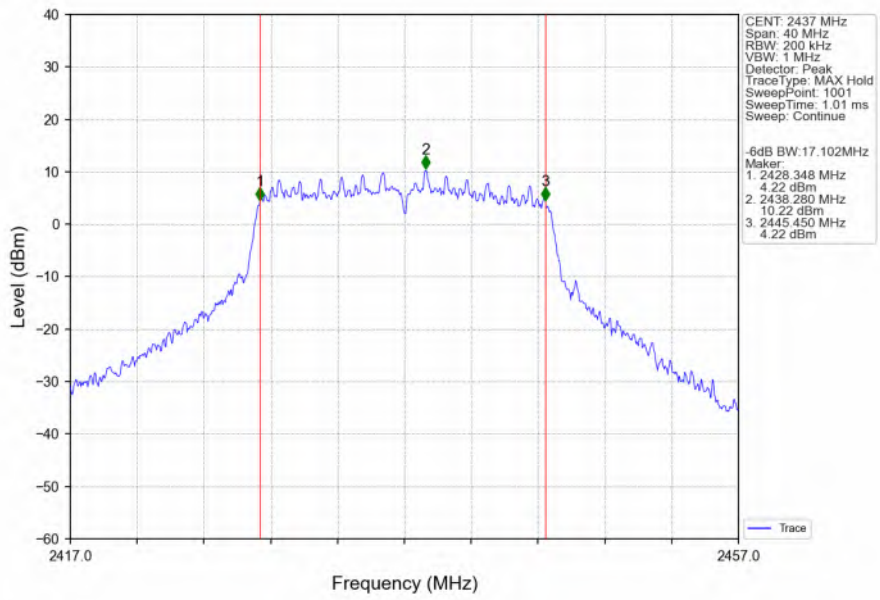

802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



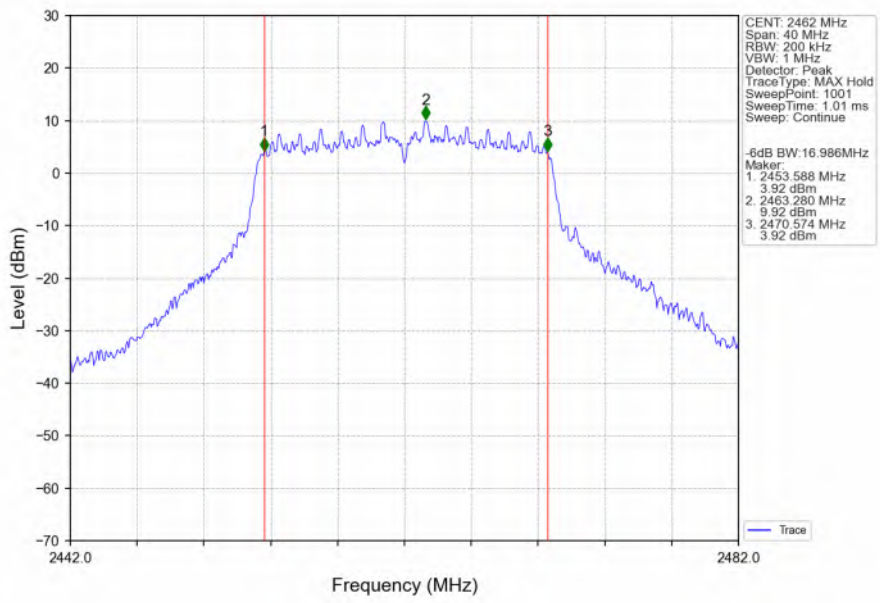
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



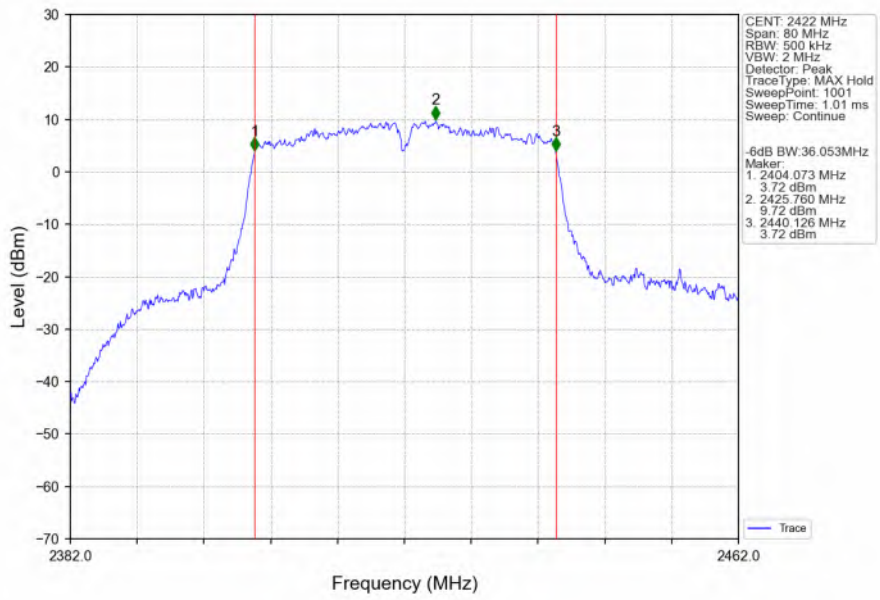

802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



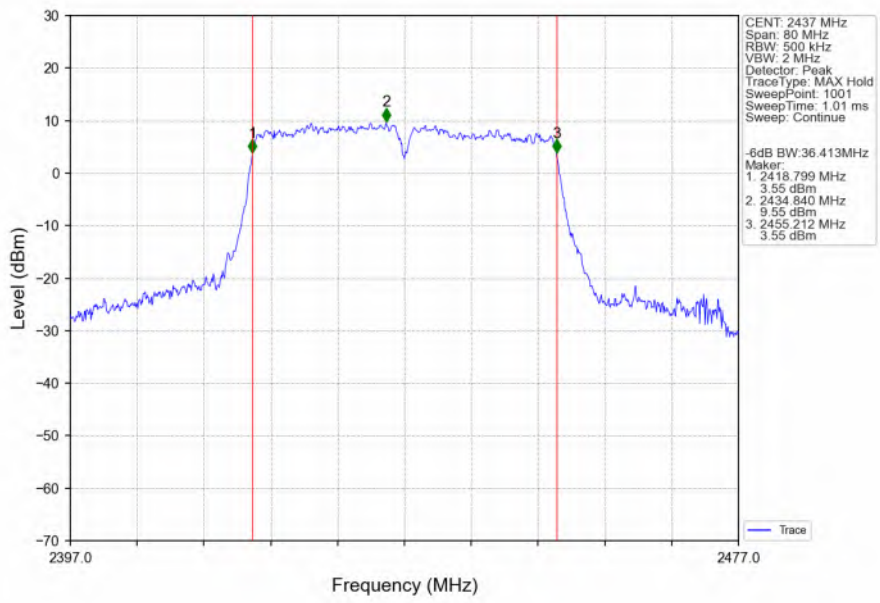
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



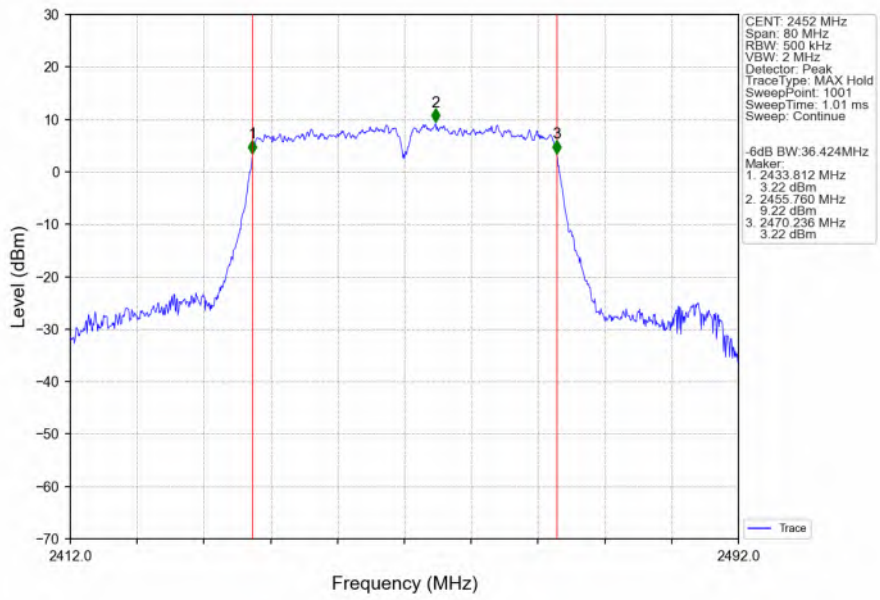

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV




802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



# 3. Maximum Conducted Output Power

## 3.1 Test Result

### 3.1.1 Power

| Mode | TX Type | Frequency (MHz) | Maximum Average Conducted Output Power (dBm) | | Verdict |
|---|---|---|---|---|---|
| | | | ANT1 | Limit | |
| 802.11b | SISO | 2412 | 18.02 | <=30 | Pass |
| | | 2437 | 17.86 | <=30 | Pass |
| | | 2462 | 17.72 | <=30 | Pass |
| 802.11g | SISO | 2412 | 19.07 | <=30 | Pass |
| | | 2437 | 19.20 | <=30 | Pass |
| | | 2462 | 19.08 | <=30 | Pass |
| 802.11n (HT20) | SISO | 2412 | 18.29 | <=30 | Pass |
| | | 2437 | 18.24 | <=30 | Pass |
| | | 2462 | 18.13 | <=30 | Pass |
| 802.11n (HT40) | SISO | 2422 | 18.04 | <=30 | Pass |
| | | 2437 | 18.36 | <=30 | Pass |
| | | 2452 | 18.02 | <=30 | Pass |
| Note1: Antenna Gain: Ant1: 1.87dBi; | | | | | |

# 4. Maximum Power Spectral Density

## 4.1 Test Result

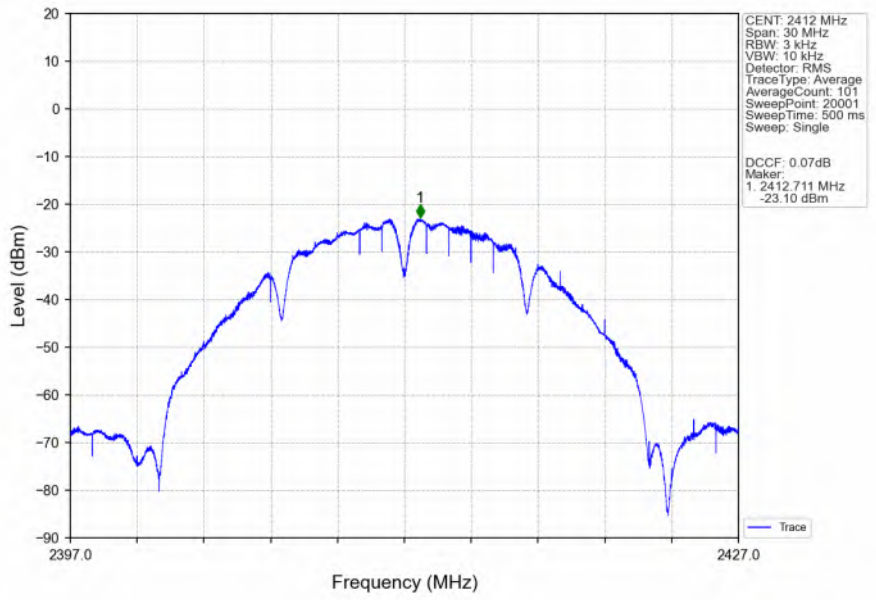
### 4.1.1 PSD

| Mode | TX Type | Frequency (MHz) | Maximum PSD (dBm) | | Verdict |
|---|---|---|---|---|---|
| | | | ANT1 | Limit(dBm/3kHz) | |
| 802.11b | SISO | 2412 | -23.10dBm/3kHz | <=8 | Pass |
| | | 2437 | -22.71dBm/3kHz | <=8 | Pass |
| | | 2462 | -22.08dBm/3kHz | <=8 | Pass |
| 802.11g | SISO | 2412 | -23.98dBm/3kHz | <=8 | Pass |
| | | 2437 | -23.38dBm/3kHz | <=8 | Pass |
| | | 2462 | -23.77dBm/3kHz | <=8 | Pass |
| 802.11n (HT20) | SISO | 2412 | -24.09dBm/3kHz | <=8 | Pass |
| | | 2437 | -23.66dBm/3kHz | <=8 | Pass |
| | | 2462 | -24.29dBm/3kHz | <=8 | Pass |
| 802.11n (HT40) | SISO | 2422 | -27.09dBm/3kHz | <=8 | Pass |
| | | 2437 | -27.12dBm/3kHz | <=8 | Pass |
| | | 2452 | -27.22dBm/3kHz | <=8 | Pass |
| Note1: Antenna Gain: Ant1: 1.87dBi; | | | | | |

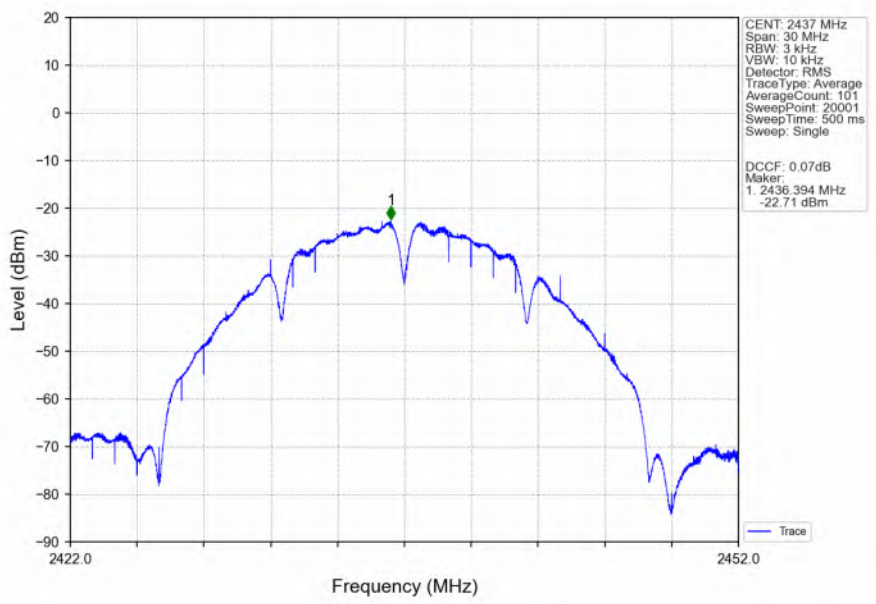
## 4.2 Test Graph

### 4.2.1 PSD

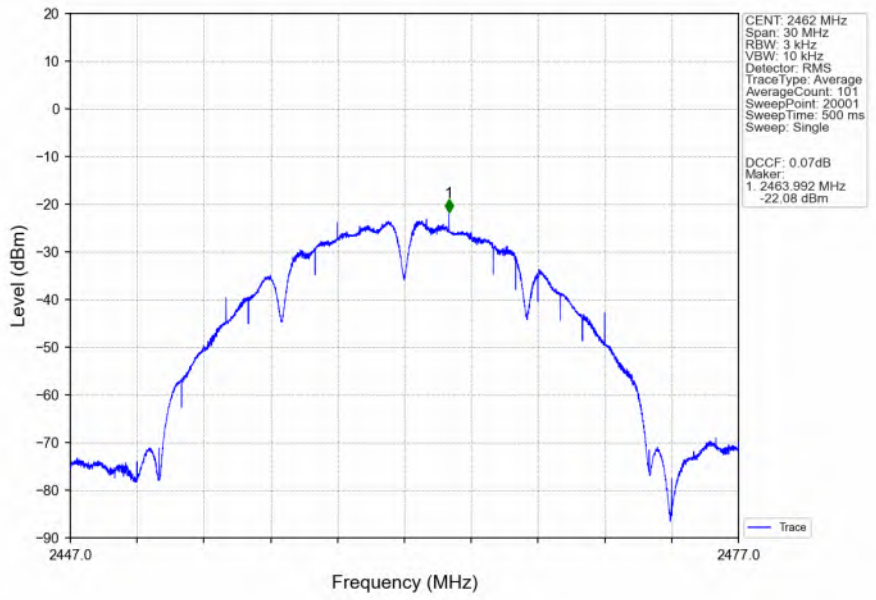
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



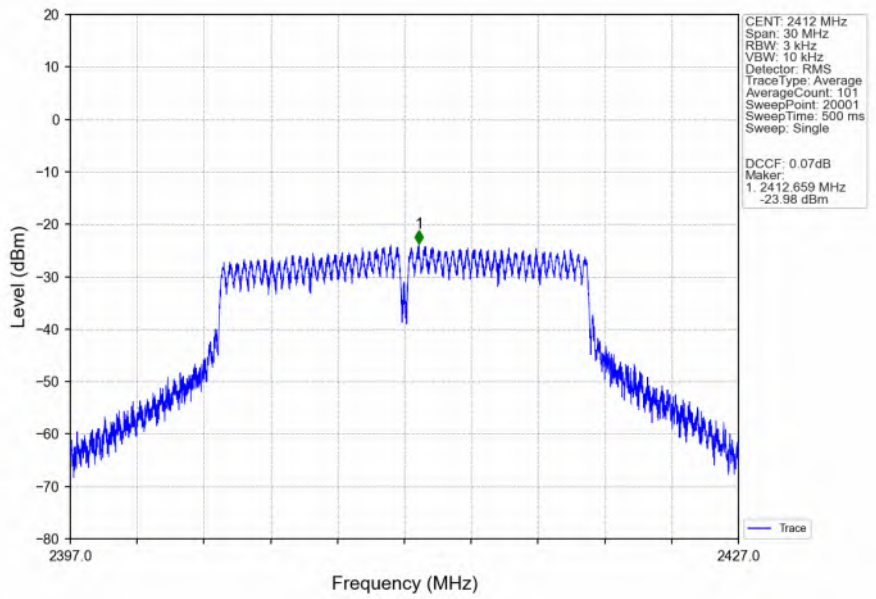

802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



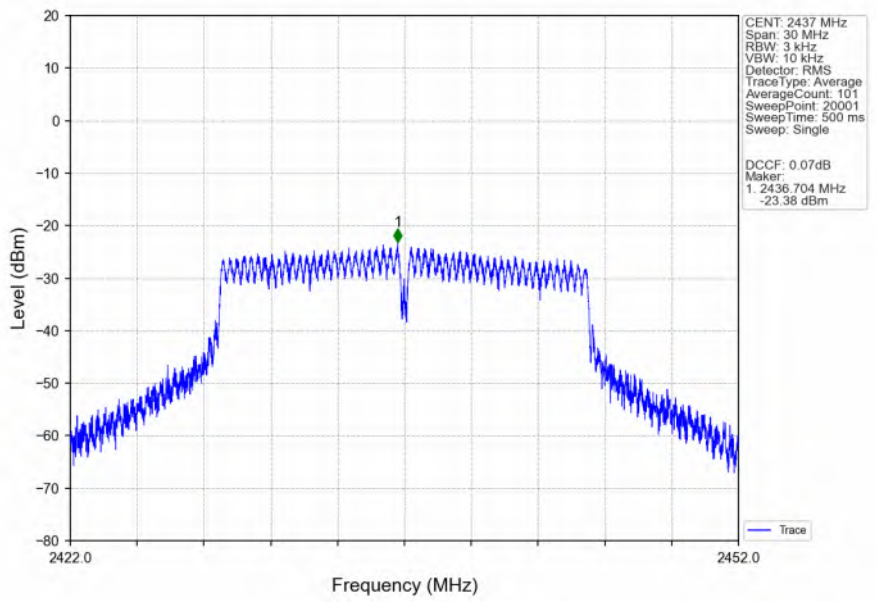

802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



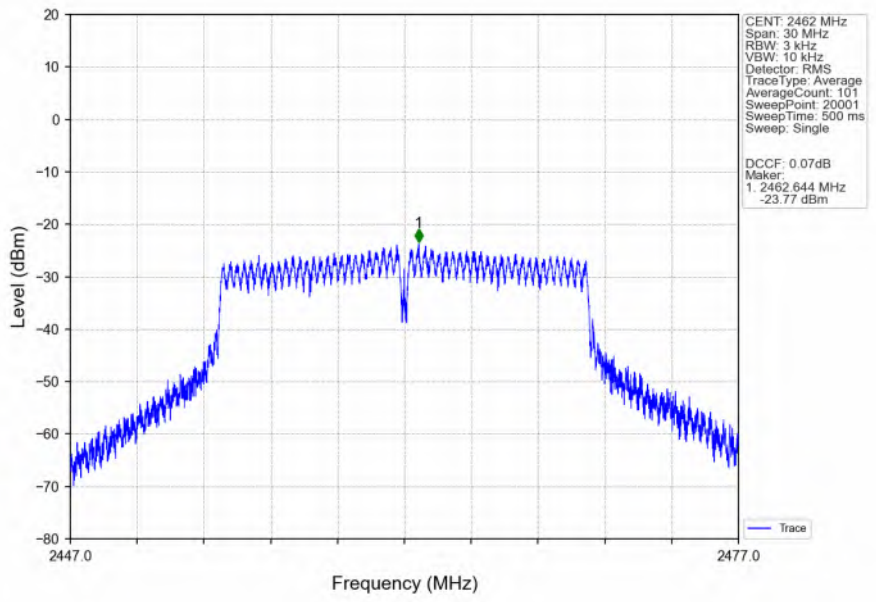

802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



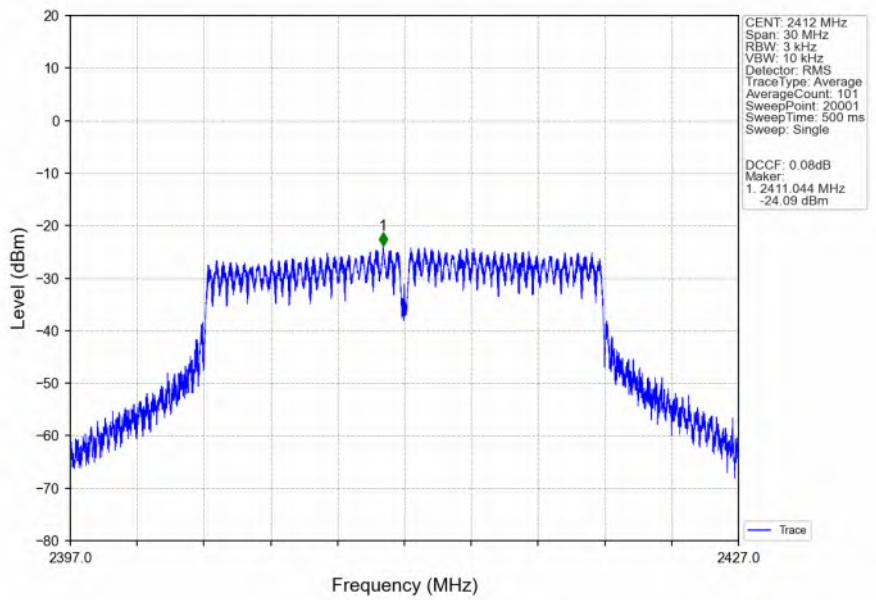
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



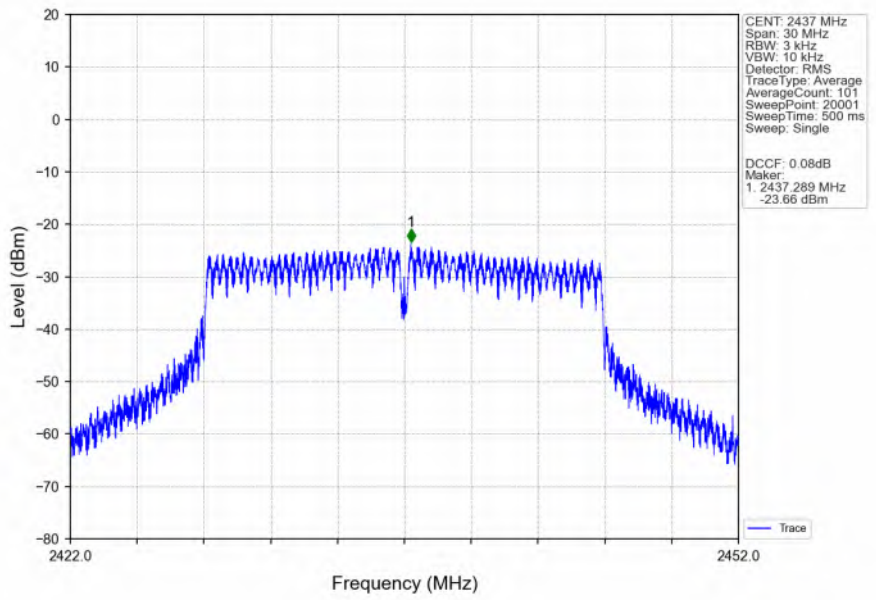

802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



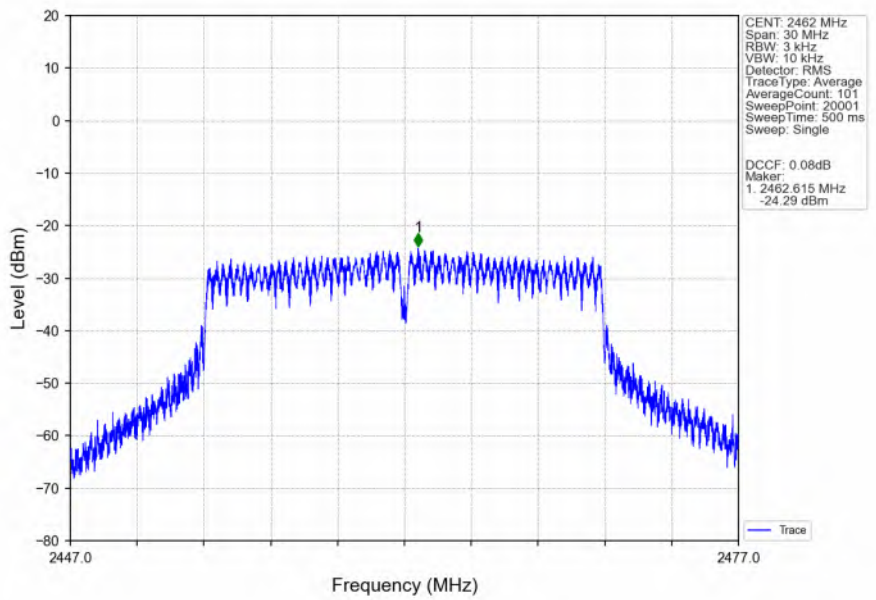
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



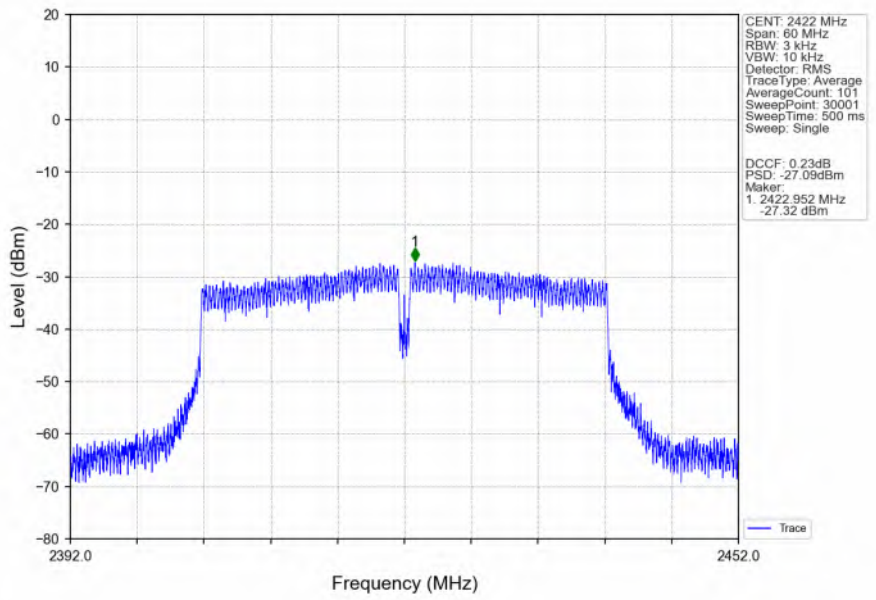

802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



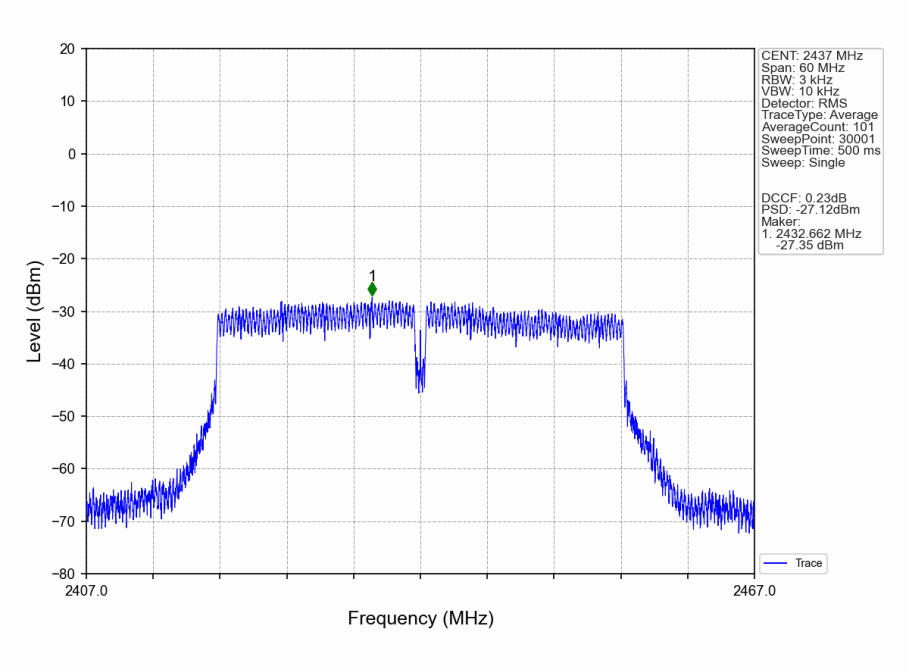
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



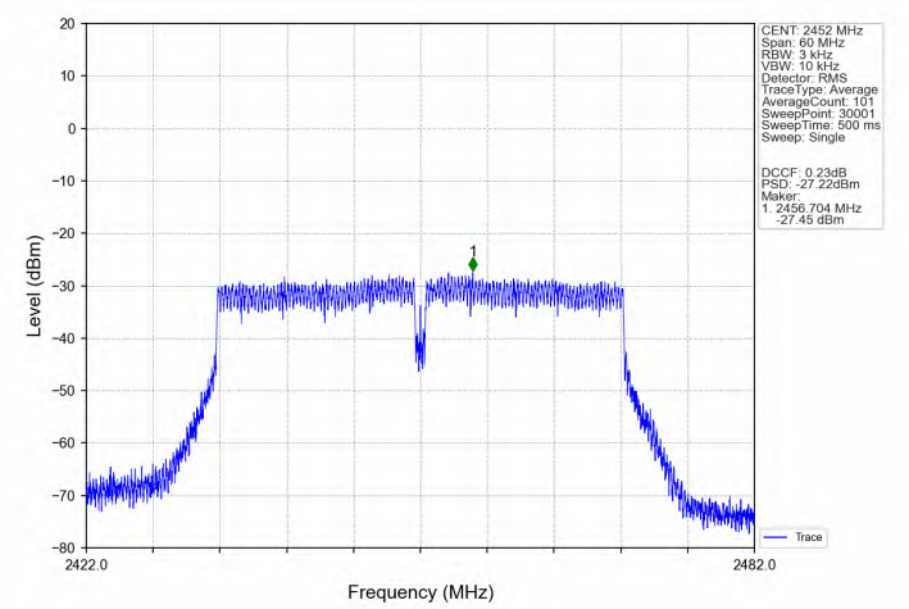

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV




802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



# 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 | 9.88 |
| | | 2437 | 1 | 9.80 |
| | | 2462 | 1 | 9.64 |
| 802.11g | SISO | 2412 | 1 | 9.61 |
| | | 2437 | 1 | 9.70 |
| | | 2462 | 1 | 9.52 |
| 802.11n (HT20) | SISO | 2412 | 1 | 9.08 |
| | | 2437 | 1 | 8.86 |
| | | 2462 | 1 | 8.88 |
| 802.11n (HT40) | SISO | 2422 | 1 | 5.76 |
| | | 2437 | 1 | 5.85 |
| | | 2452 | 1 | 5.27 |

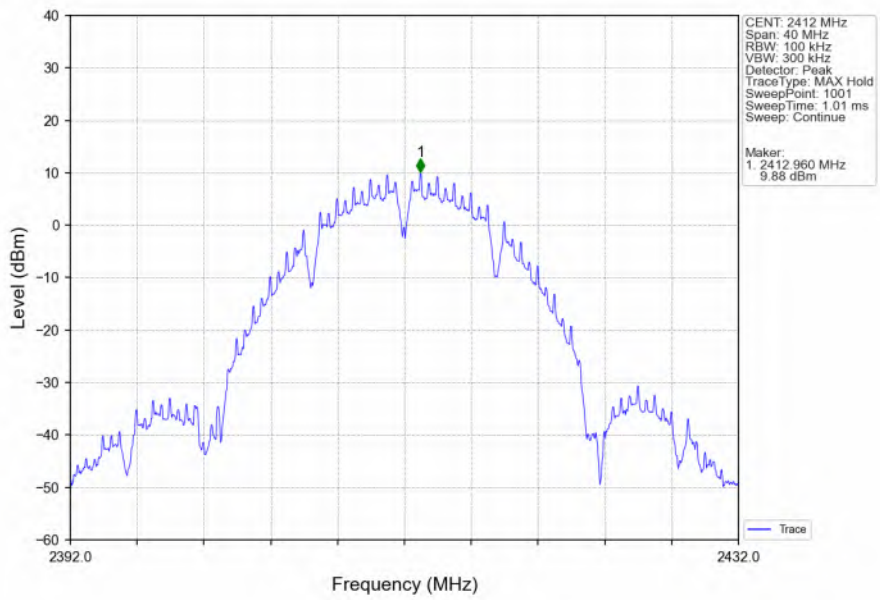
### 5.1.2 CSE

| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| 802.11b | SISO | 2412 | 1 | 9.88 | -20.12 | Pass |
| | | 2437 | 1 | 9.88 | -20.12 | Pass |
| | | 2462 | 1 | 9.88 | -20.12 | Pass |
| 802.11g | SISO | 2412 | 1 | 9.70 | -20.30 | Pass |
| | | 2437 | 1 | 9.70 | -20.30 | Pass |
| | | 2462 | 1 | 9.70 | -20.30 | Pass |
| 802.11n (HT20) | SISO | 2412 | 1 | 9.08 | -20.92 | Pass |
| | | 2437 | 1 | 9.08 | -20.92 | Pass |
| | | 2462 | 1 | 9.08 | -20.92 | Pass |
| 802.11n (HT40) | SISO | 2422 | 1 | 5.85 | -24.15 | Pass |
| | | 2437 | 1 | 5.85 | -24.15 | Pass |
| | | 2452 | 1 | 5.85 | -24.15 | Pass |

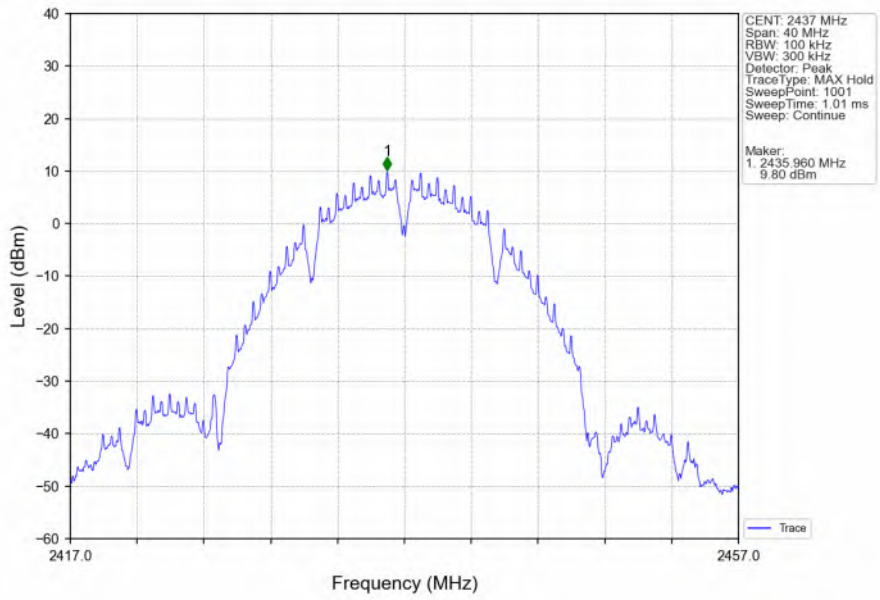
## 5.2 Test Graph

### 5.2.1 Ref

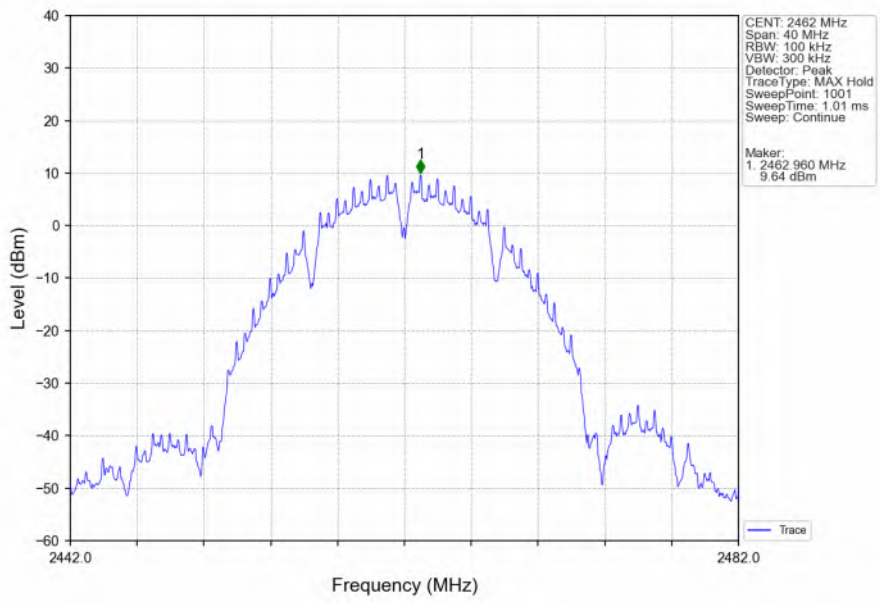
802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



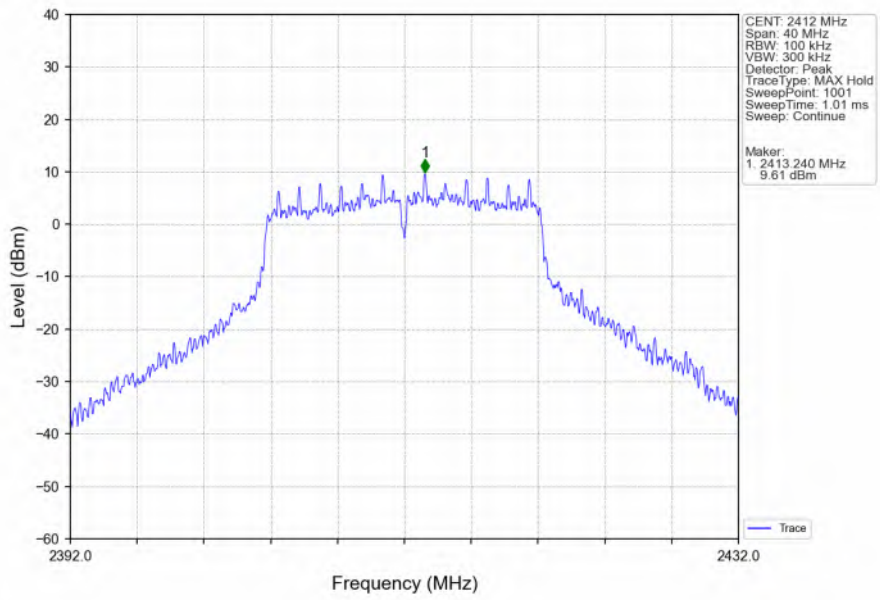

802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



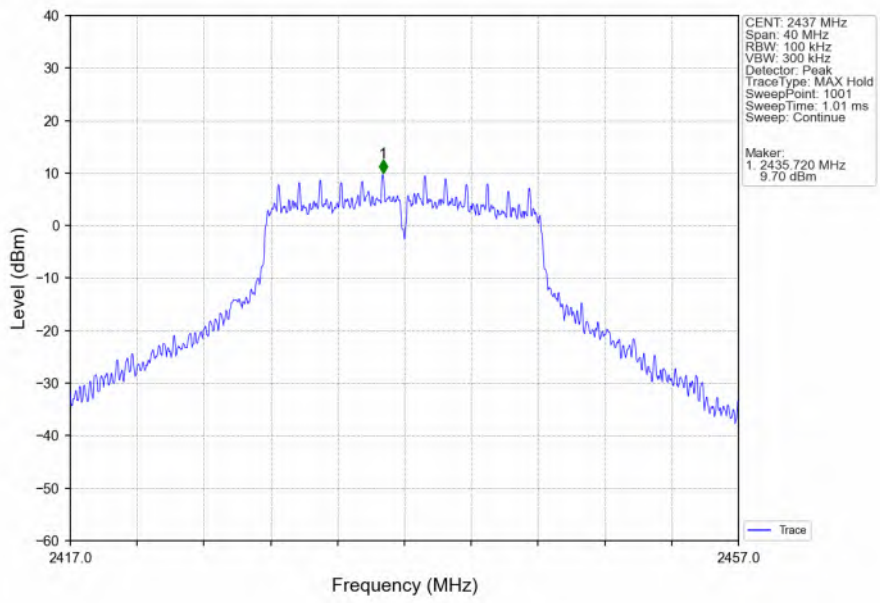
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV




802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV

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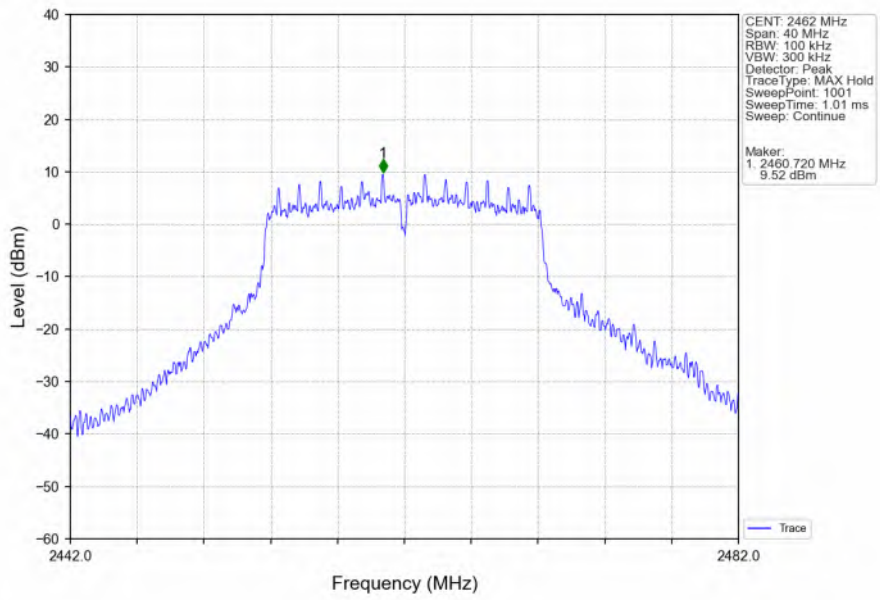
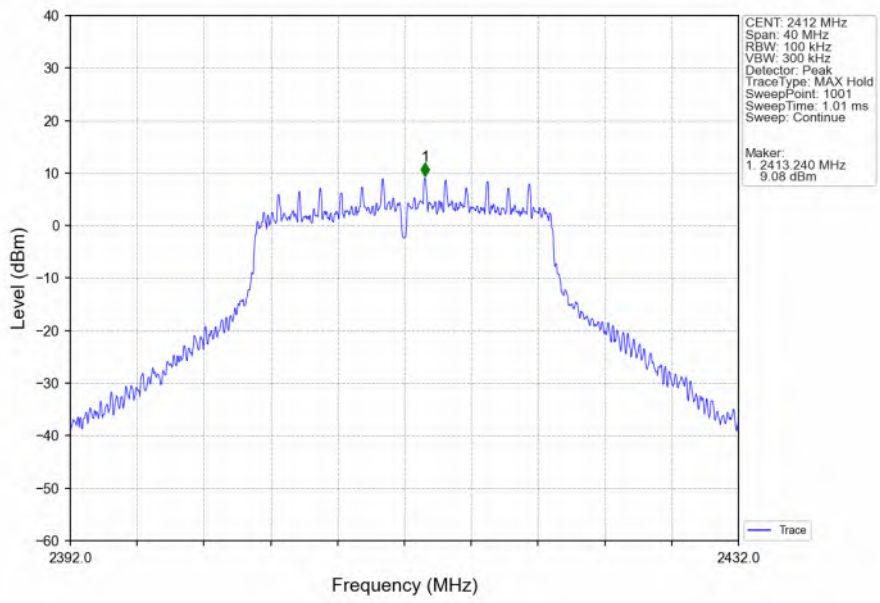


802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV

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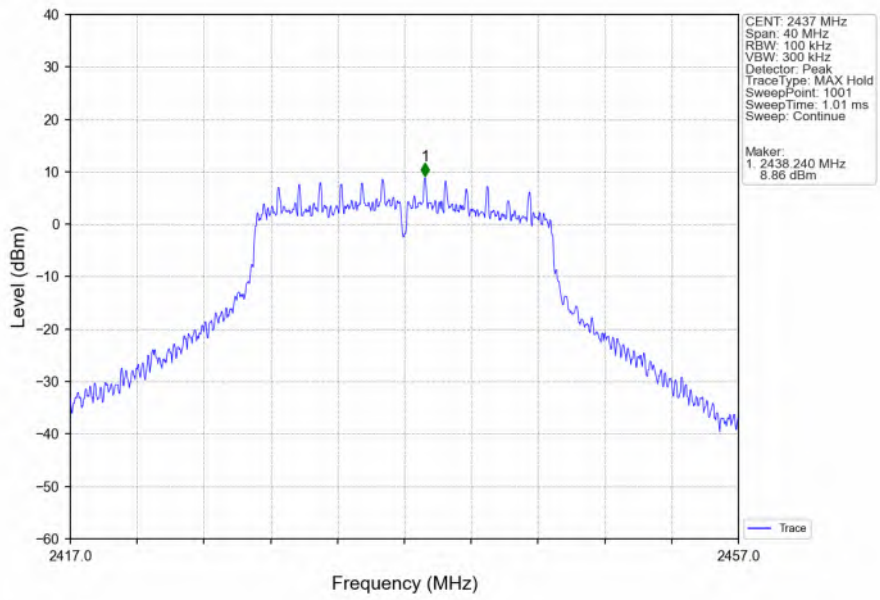

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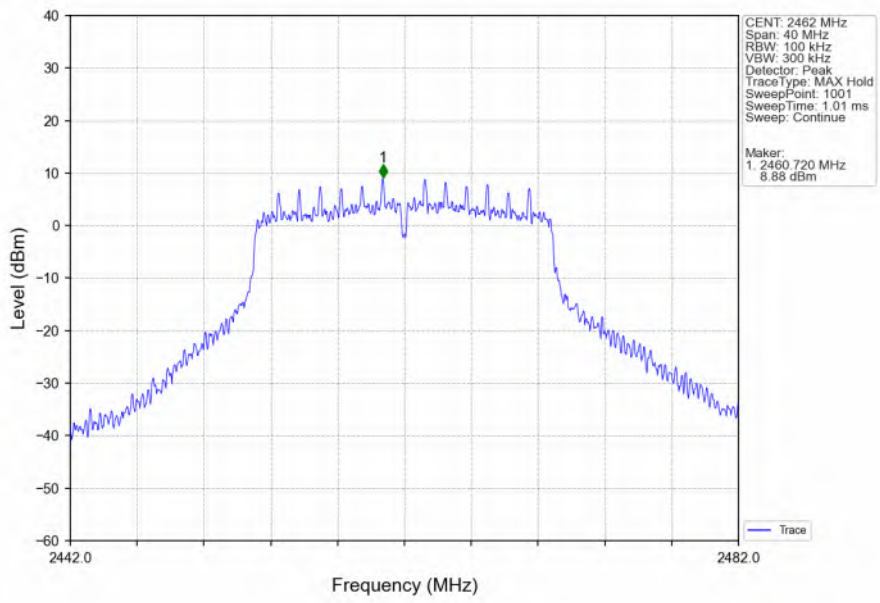
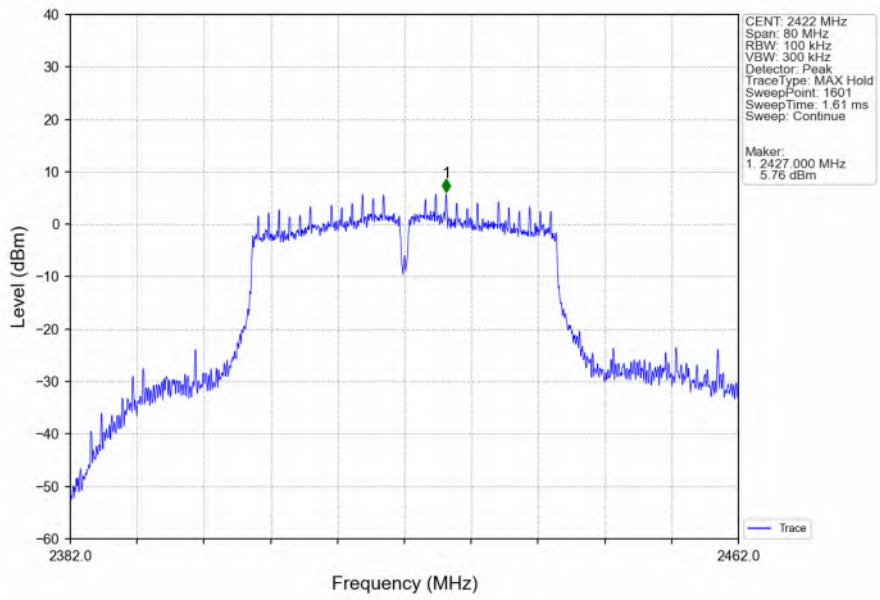
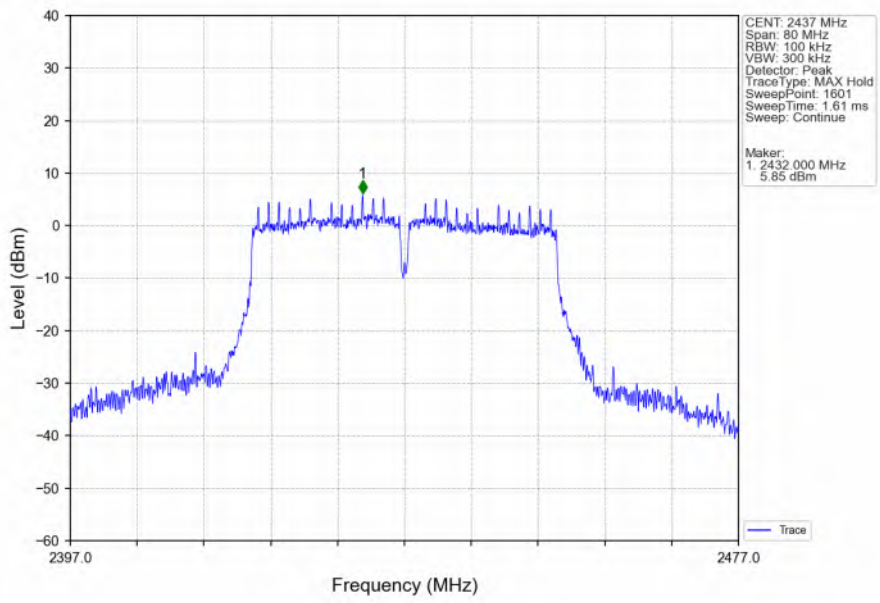


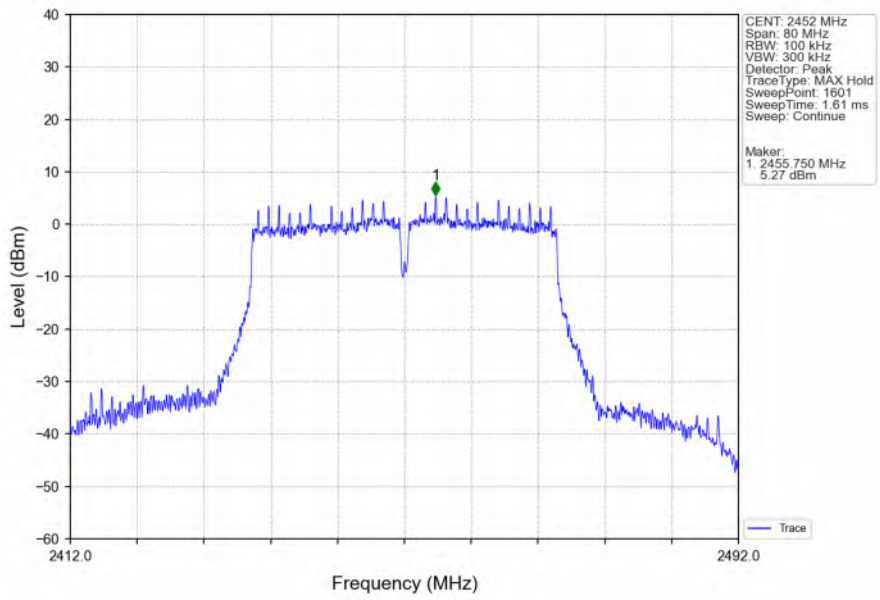

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

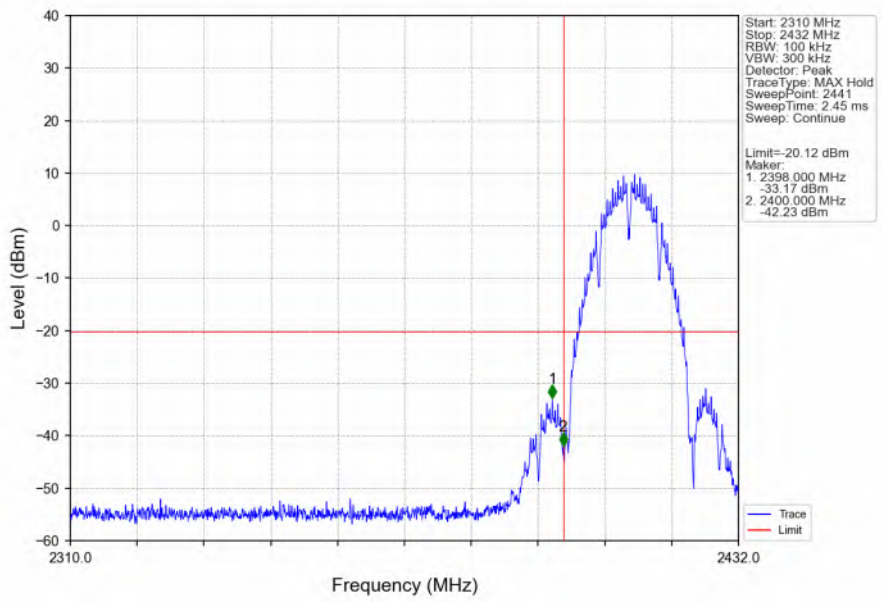



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



## 5.2.2 CSE

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV

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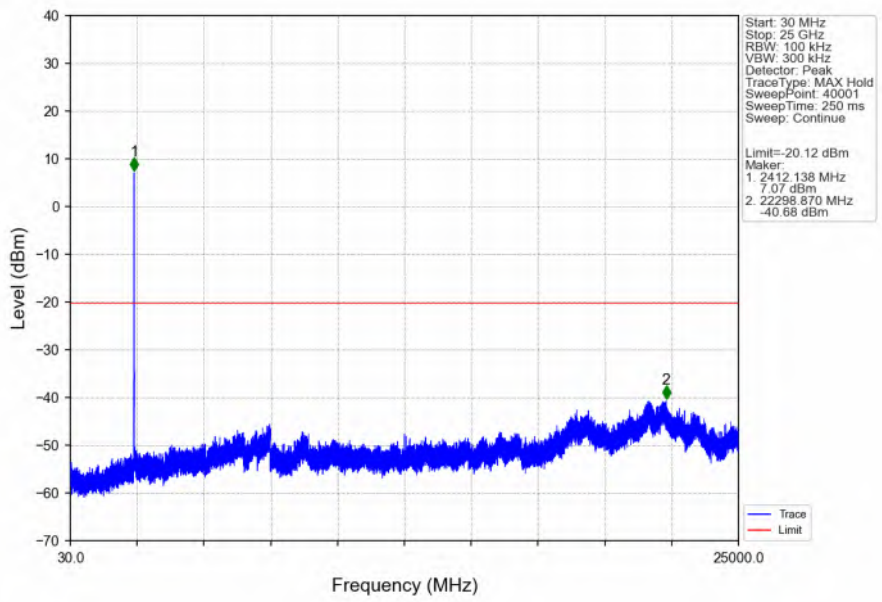

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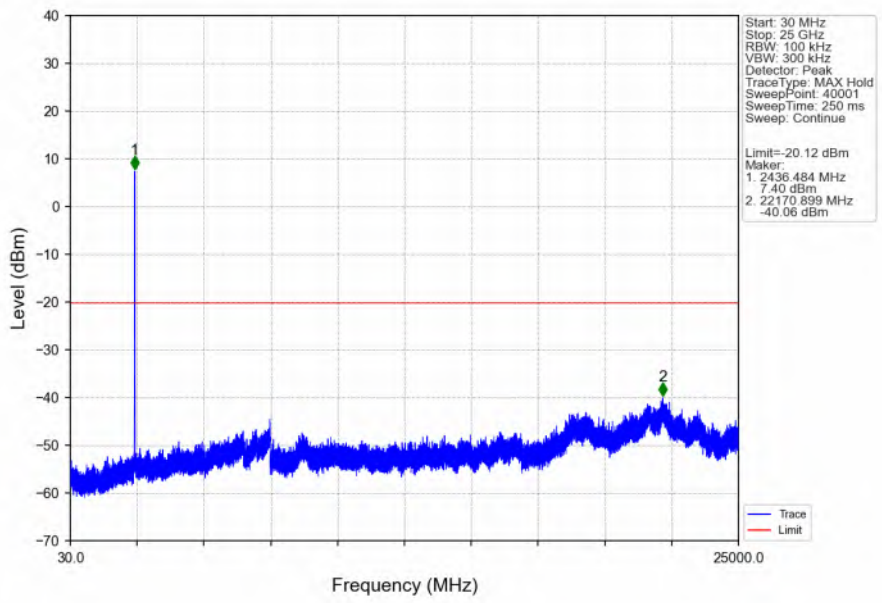


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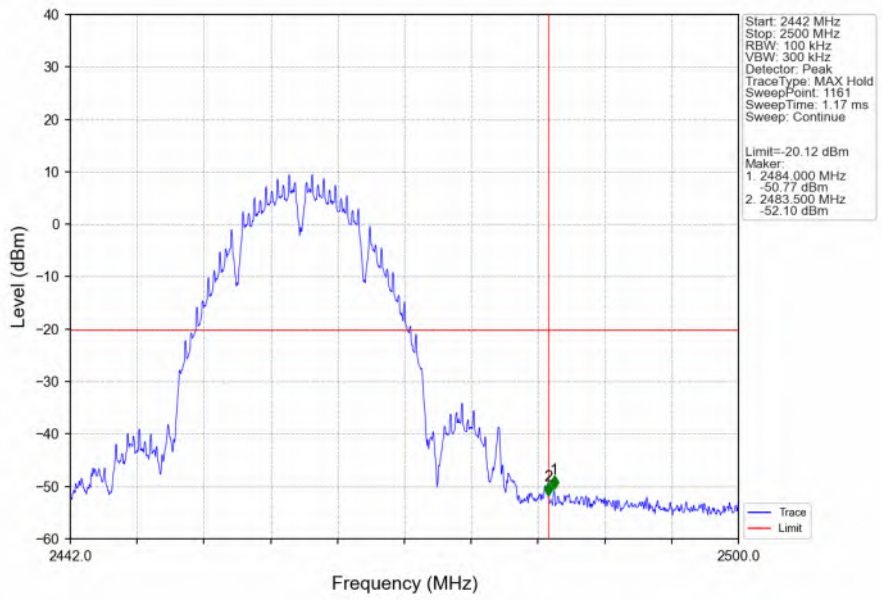

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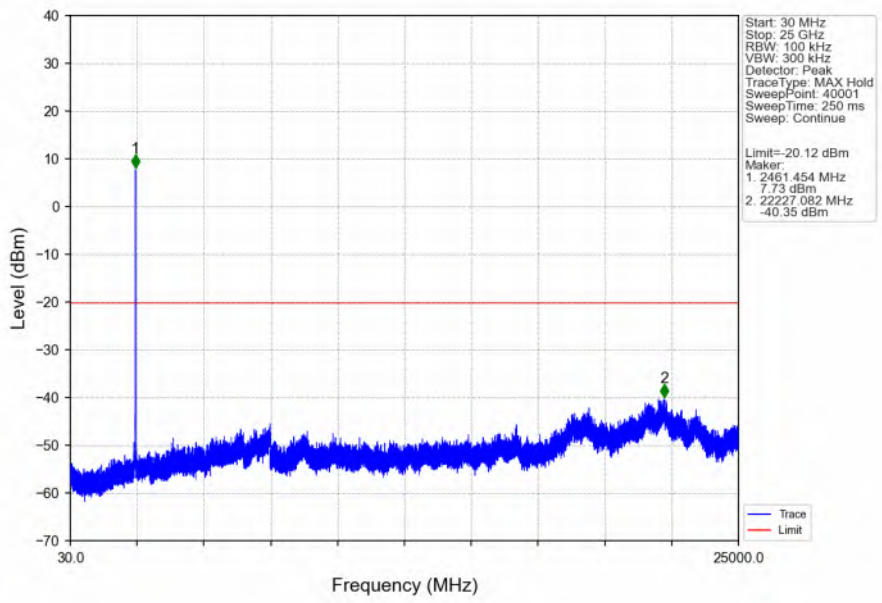
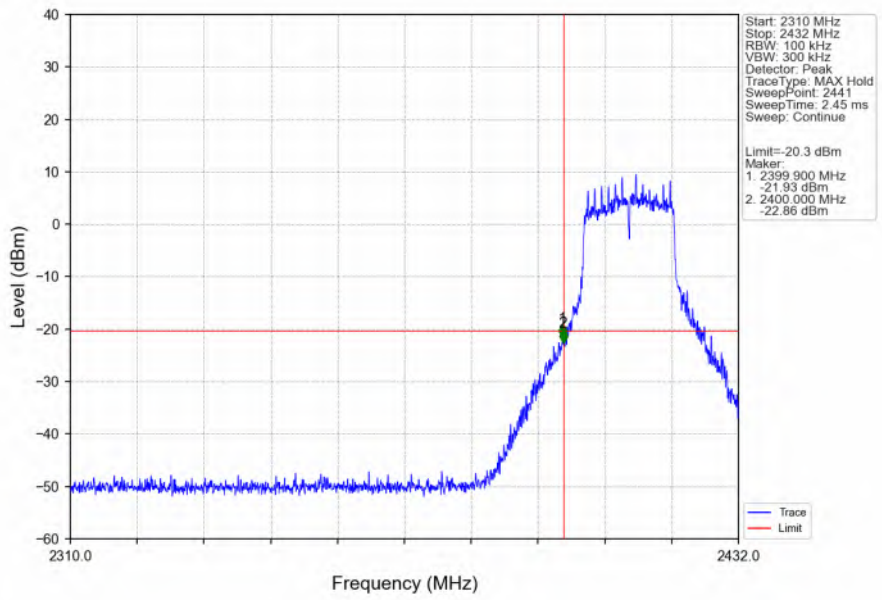
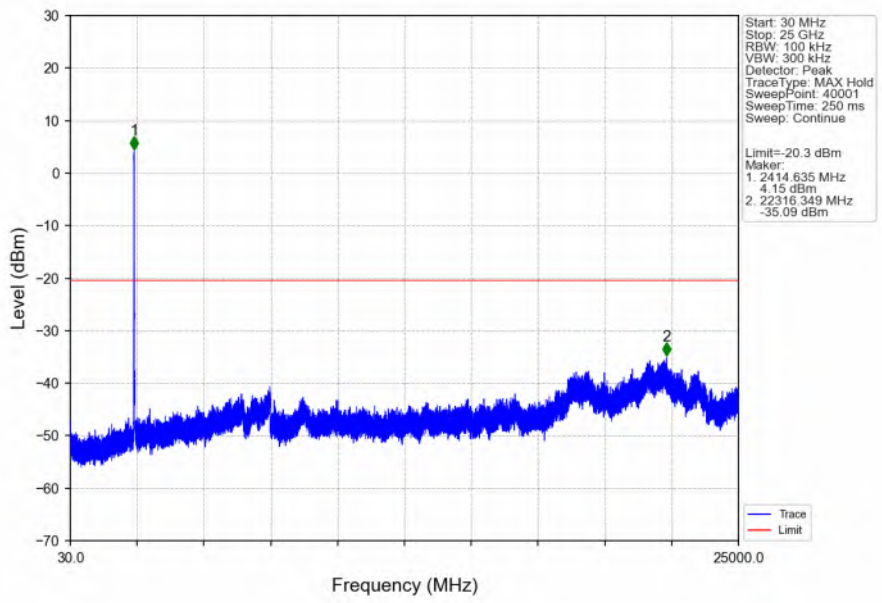


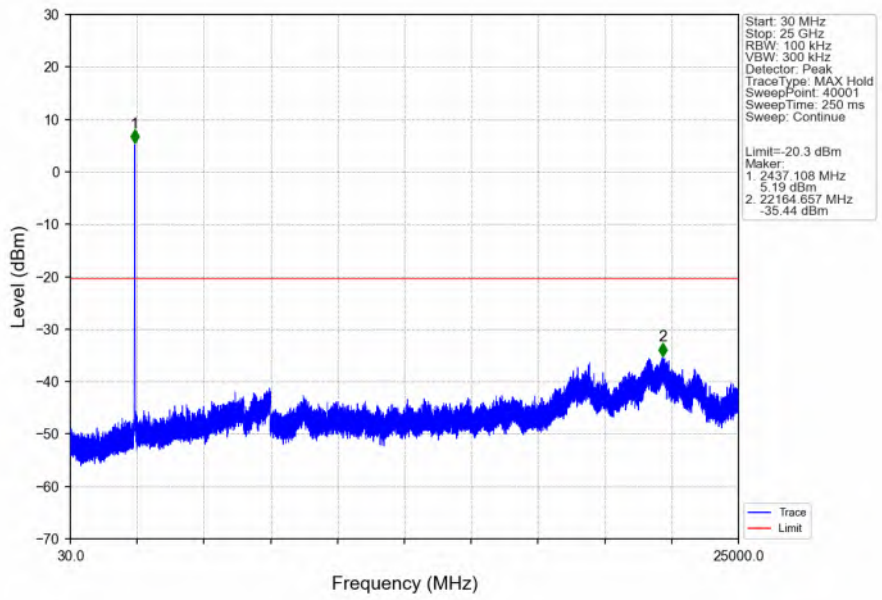

802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



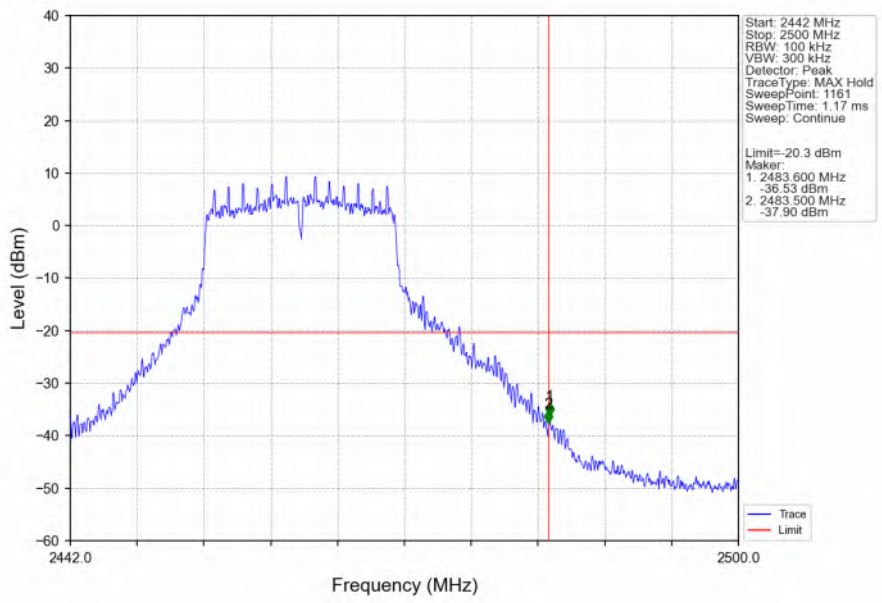
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



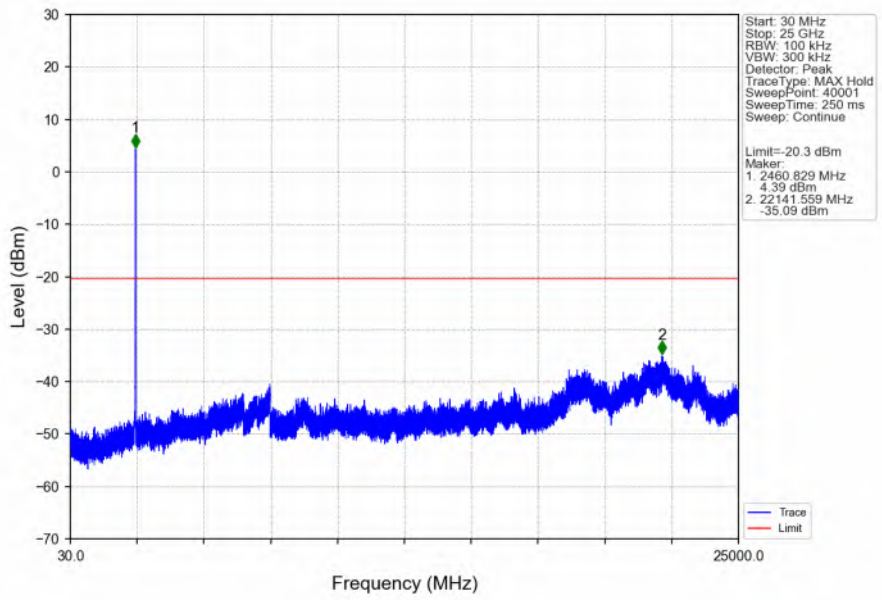

802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



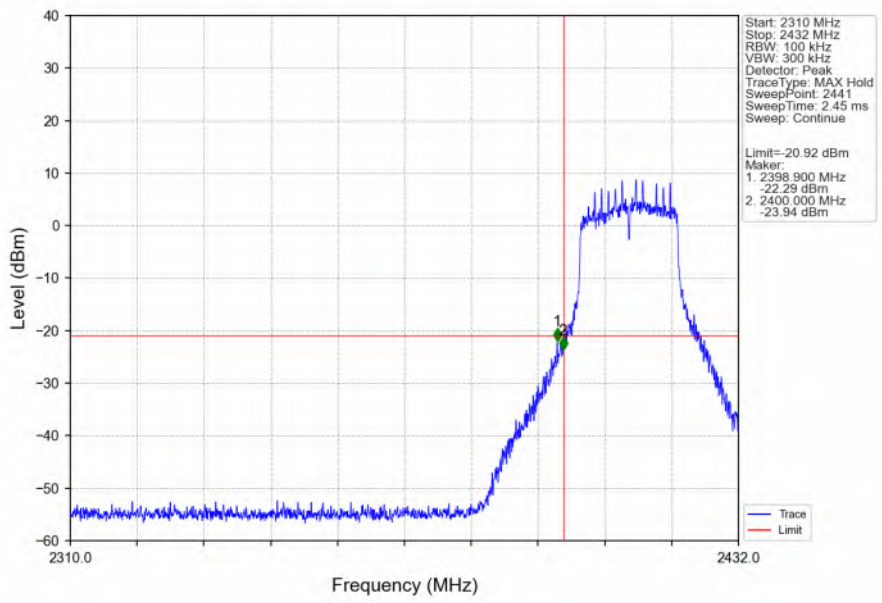
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



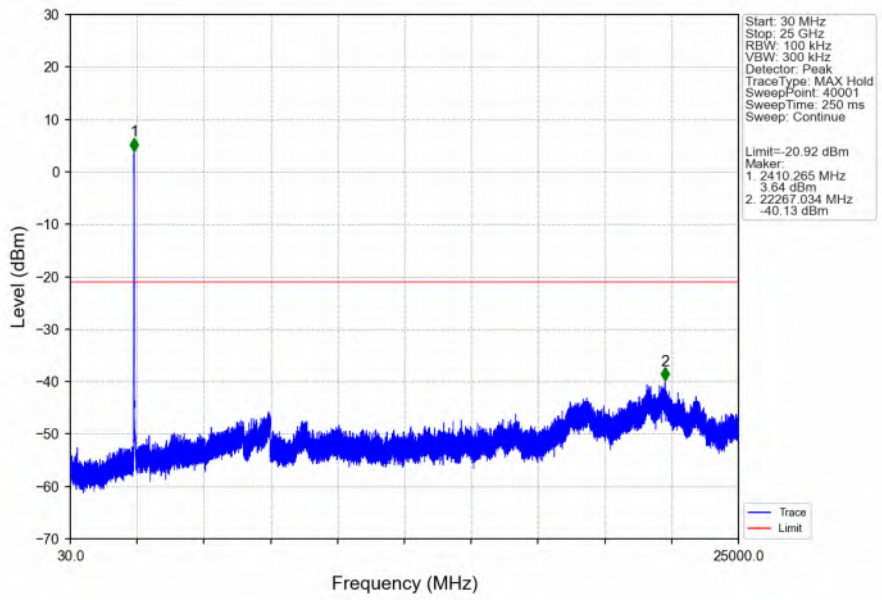

802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



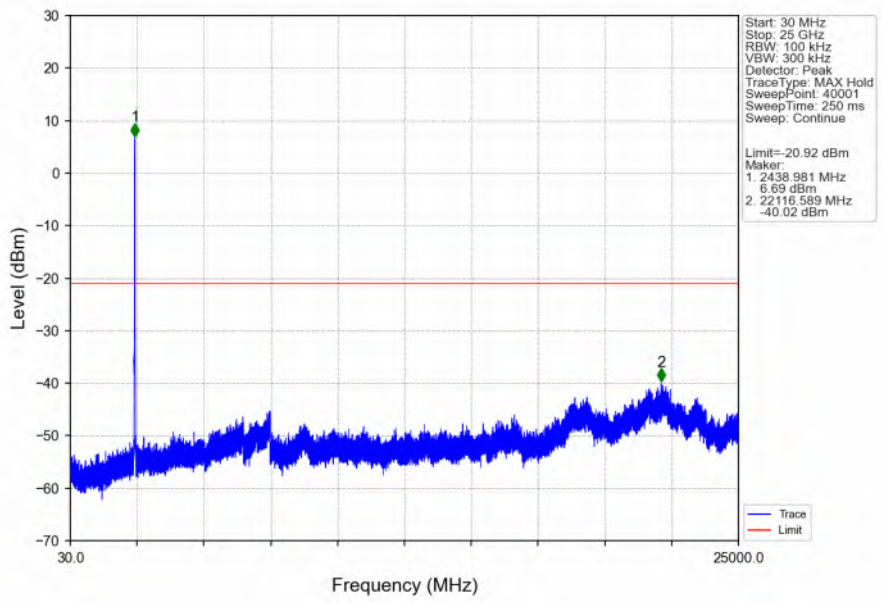
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



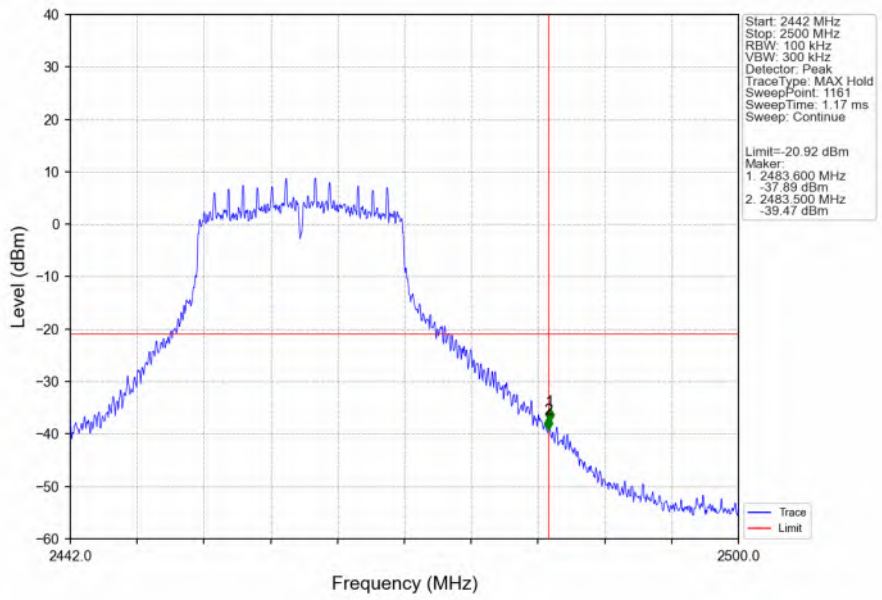

802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



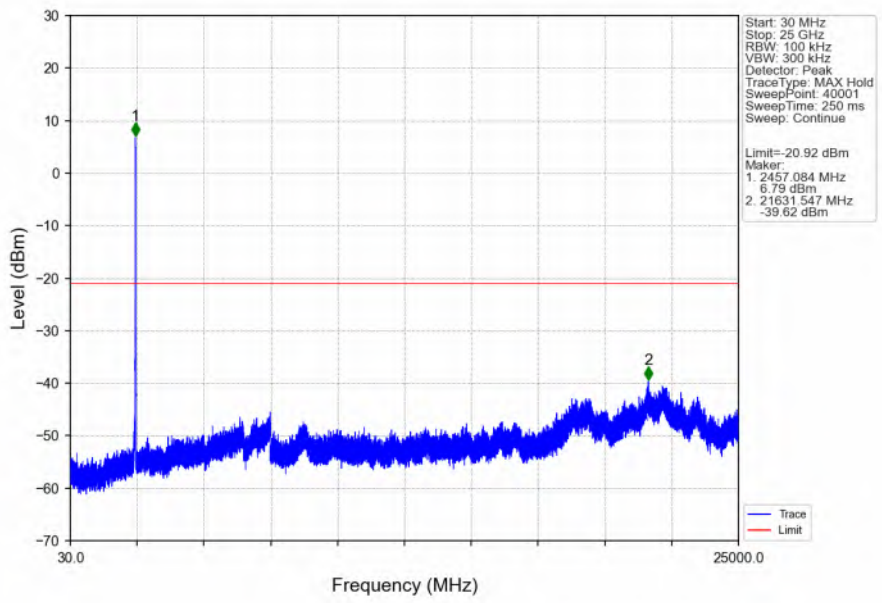
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



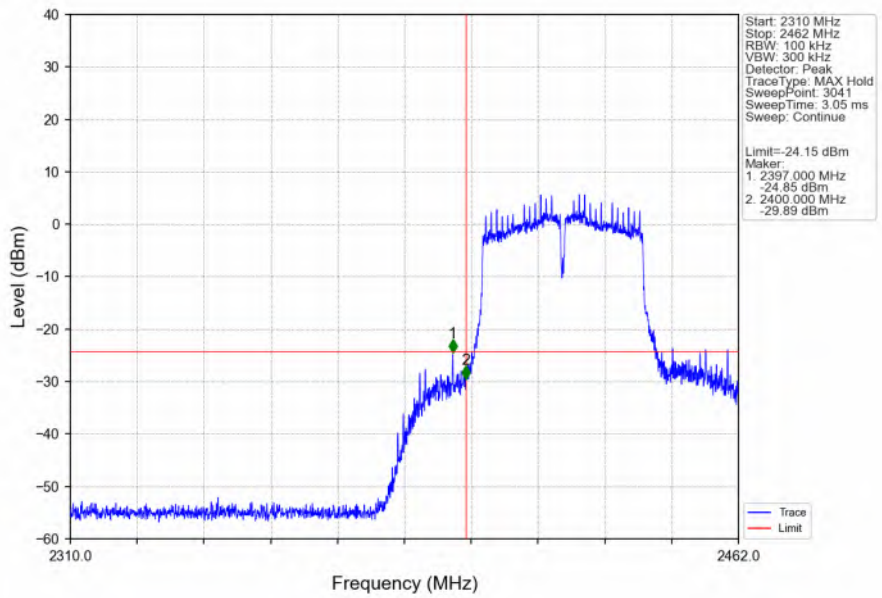

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



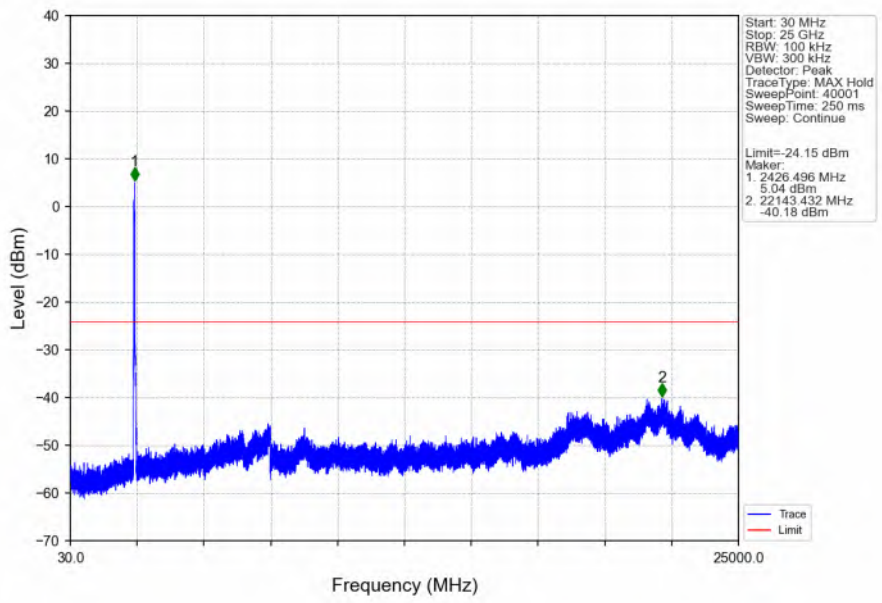
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



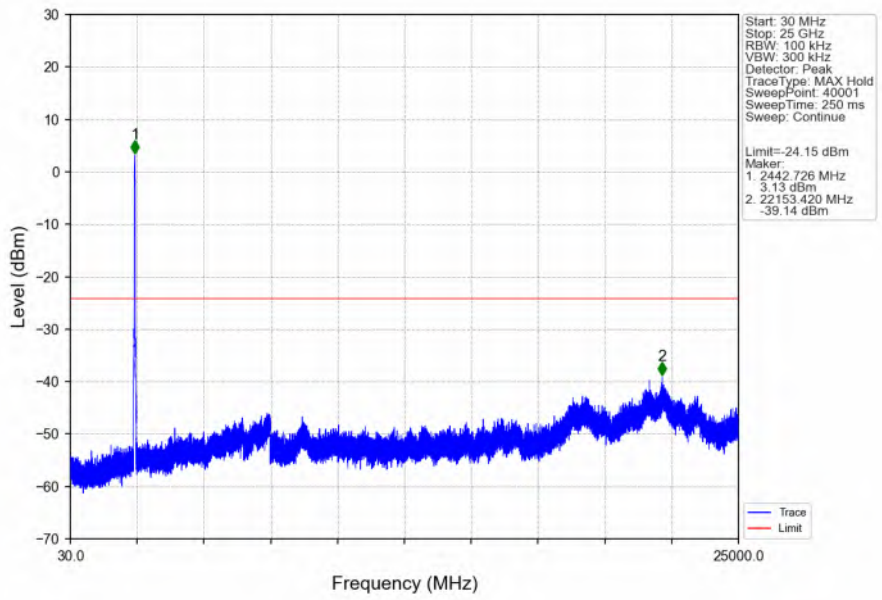

802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



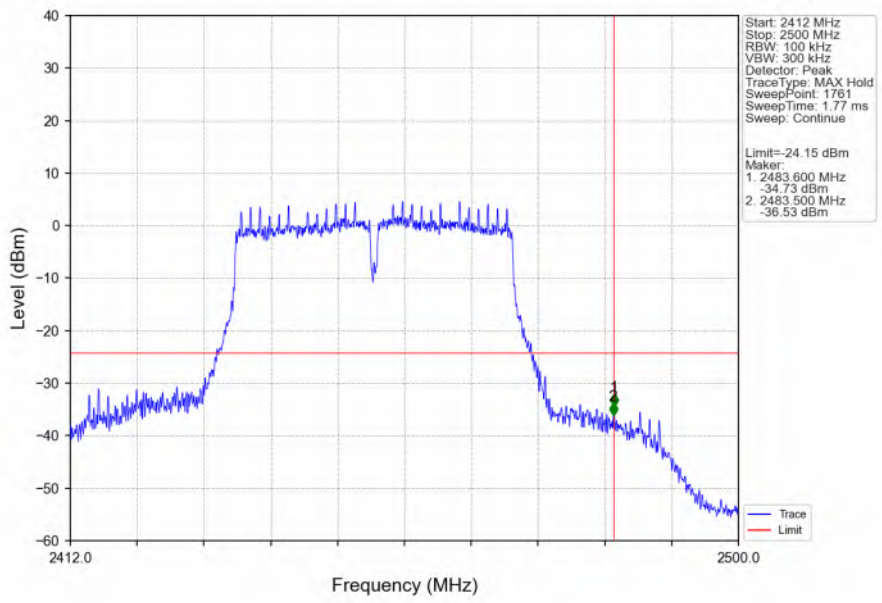
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



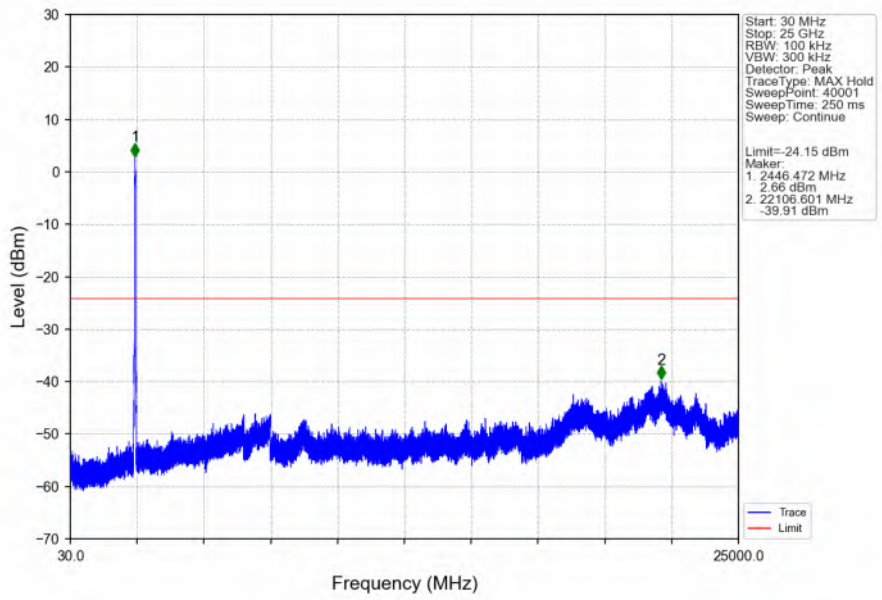

802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV




802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV




- End of the Report -