



中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: Hytera Communications Corporation Limited

Address: Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road,
Nanshan District, Shenzhen, 518057 China

FCC ID: YAMPNC360S

Product Name: PoC Radio

Standard(s): 47 CFR Part 15, Subpart C(15.247)
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested and found compliance with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR21110036-00CM1

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number | Description of Revision | Date of Revision |
|-----------------|------------------|--|------------------|
| 1.0 | CR21110036-00C | Original Report | 2022/1/6 |
| 2.0 | CR21110036-00CM1 | Update the data of maximum peak conducted output power of 802.11n ht40 | 2023/4/20 |

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

| | |
|---|--|
| EUT Name: | PoC Radio |
| Test Model: | PNC360S |
| Operation Frequency: | 2412-2462 MHz(802.11b/g/n ht20), 2422-2452 MHz(802.11n ht40) |
| Maximum Peak Output Power (Conducted): | 23.72 dBm |
| Modulation Type: | DSSS, OFDM |
| Rated Input Voltage: | DC 3.85V from battery or DC 5V from adapter |
| Serial Number: | CR21110036-RF-S1 CR21110036-RF-S2 |
| EUT Received Date: | 2021/11/30 |
| EUT Received Status: | Good |

Operation Frequency Detail:

For 802.11b/g/n ht20:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 1 | 2412 | 7 | 2442 |
| 2 | 2417 | 8 | 2447 |
| 3 | 2422 | 9 | 2452 |
| 4 | 2427 | 10 | 2457 |
| 5 | 2432 | 11 | 2462 |
| 6 | 2437 | / | / |

Per section 15.31(m), the lowest frequency, middle frequency, and highest frequency were performed the test as below:

| Test Channel | Frequency (MHz) |
|--------------|-----------------|
| Lowest | 2412 |
| Middle | 2437 |
| Highest | 2462 |

For 802.11n ht40:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 3 | 2422 | 7 | 2442 |
| 4 | 2427 | 8 | 2447 |
| 5 | 2432 | 9 | 2452 |
| 6 | 2437 | / | / |

Per section 15.31(m), the lowest frequency, middle frequency, and highest frequency were performed the test as below:

| Test Channel | Frequency (MHz) |
|--------------|-----------------|
| Lowest | 2422 |
| Middle | 2437 |
| Highest | 2452 |

Antenna Information Detail▲:

| Antenna Manufacturer | Antenna Type | input impedance (Ohm) | Antenna Gain /Frequency Range | §15.203 Requirement |
|---|--------------|-----------------------|-------------------------------|---------------------|
| Hytera Communications Corporation Limited | FPC | 50 | 0 dBi/2.4~2.5GHz | Compliance |

The Method of §15.203 Compliance:

- Antenna must be permanently attached to the unit.
- Antenna must use a unique type of connector to attach to the EUT.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Accessory Information:

| Accessory Description | Manufacturer | Model | Parameters |
|-----------------------|--------------|---------------|---|
| Adapter | Hytera | S010WU0500200 | Input: 100-240V~50/60Hz 400mA Output: 5.0V 2000mA |

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

For 802.11b/g/n:

| EUT Operation Mode: | The system was configured for testing in Engineering Mode, which was provided by the manufacturer. | | | |
|--|--|---------------------|----------------|-----------------|
| Equipment Modifications: | No | | | |
| EUT Exercise Software: | QRCT | | | |
| The software " QRCT"was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer ▲ : | | | | |
| Test Modes | Data Rate | Power Level Setting | | |
| | | Lowest Channel | Middle Channel | Highest Channel |
| 802.11b | 1Mbps | 15 | 15 | 15 |
| 802.11g | 6Mbps | 15 | 15 | 15 |
| 802.11n ht20 | MCS0 | 15 | 15 | 15 |
| 802.11n ht40 | MCS0 | 8 | 8 | 8 |
| The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations. | | | | |

1.2.2 Support Equipment List and Details

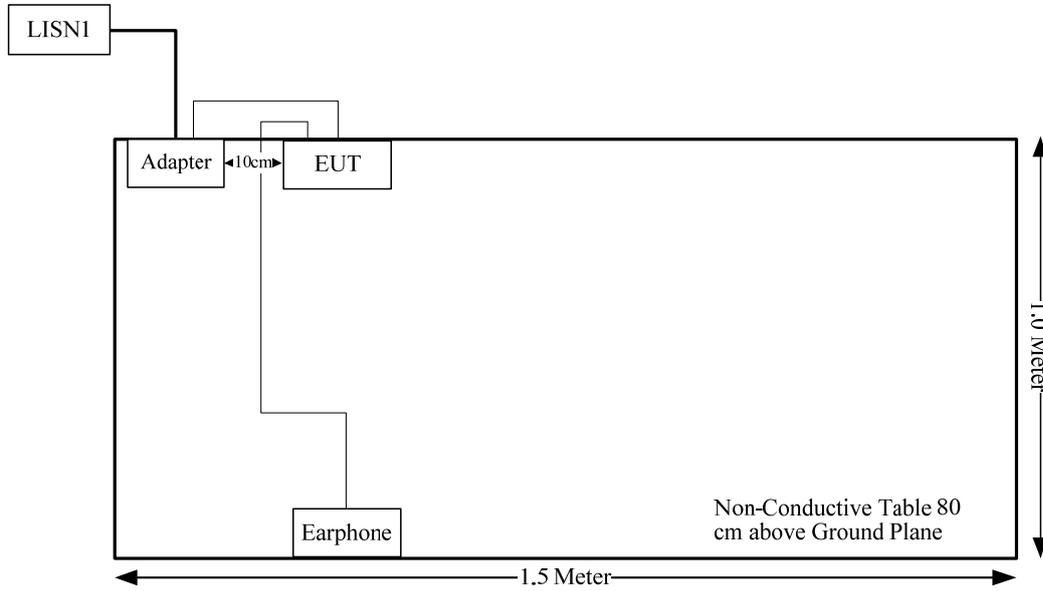
| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|-------|---------------|
| / | / | / | / |

1.2.3 Support Cable List and Details

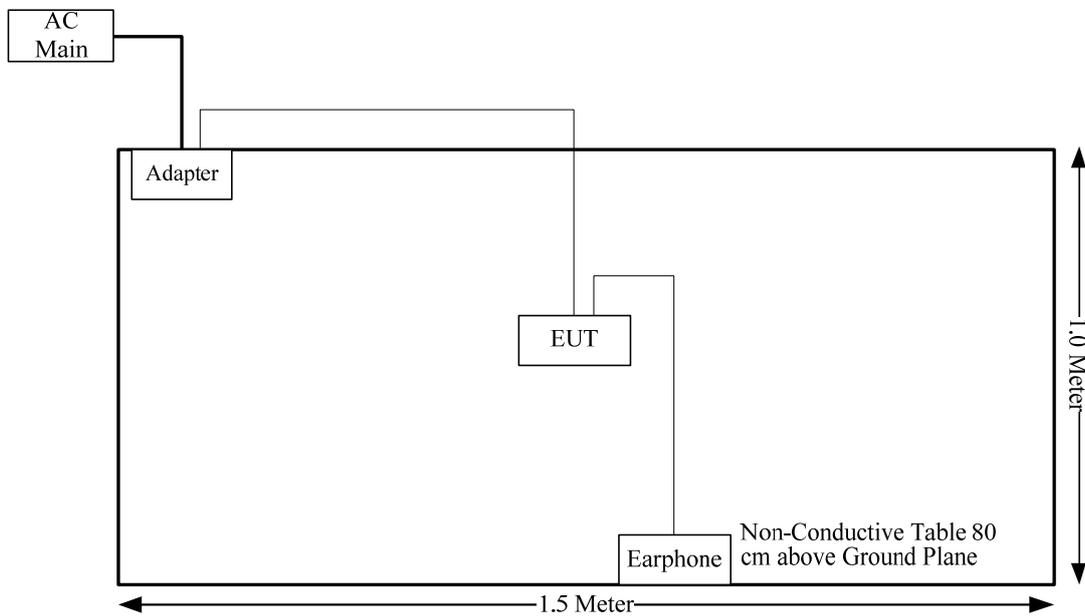
| Cable Description | Shielding Type | Ferrite Core | Length (m) | From Port | To |
|-------------------|----------------|--------------|------------|-----------|----------|
| Earphone Cable | Yes | No | 1.2 | EUT | Earphone |
| DC Cable | Yes | No | 1.2 | Adapter | EUT |

1.2.4 Block Diagram of Test Setup

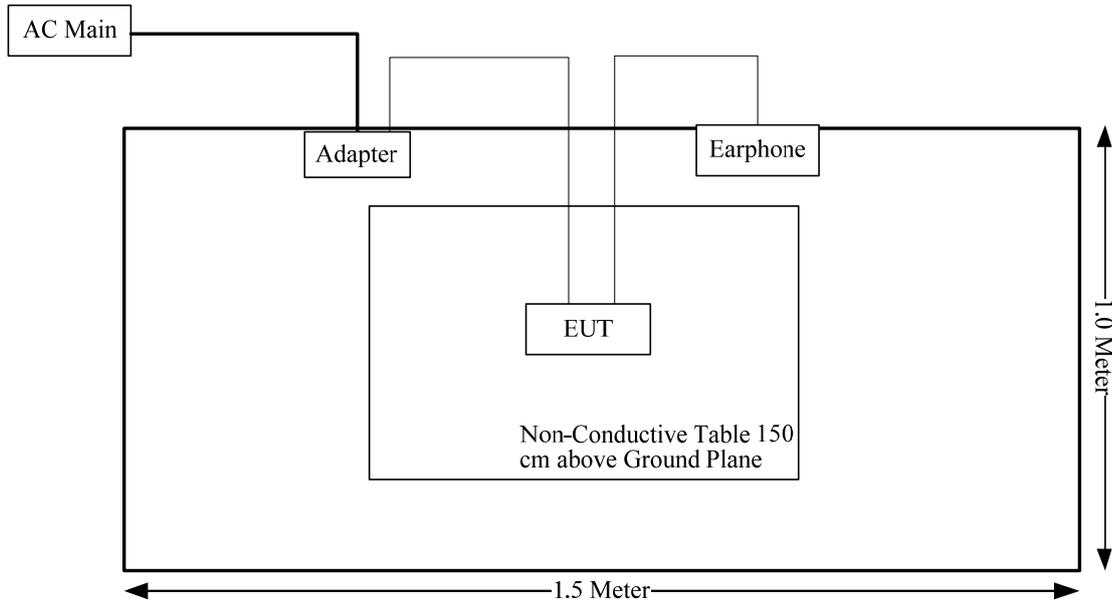
AC line conducted emissions:



Spurious Emissions:



Above 1GHz:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

| Parameter | Measurement Uncertainty |
|-----------------------------------|---|
| Occupied Channel Bandwidth | ±5 % |
| RF output power, conducted | ±0.61dB |
| Power Spectral Density, conducted | ±0.61 dB |
| Unwanted Emissions, radiated | 30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB |
| Unwanted Emissions, conducted | ±1.26 dB |
| Temperature | ±1 °C |
| Humidity | ±5% |
| DC and low frequency voltages | ±0.4% |
| Duty Cycle | 1% |
| AC Power Lines Conducted Emission | 2.8 dB (150 kHz to 30 MHz) |

2. SUMMARY OF TEST RESULTS

| Standard(s) Section | Test Items | Result |
|---------------------------------------|--|------------|
| §15.207(a) | AC line conducted emissions | Compliance |
| §15.205, §15.209, §15.247(d) | Spurious Emissions | Compliance |
| §15.247 (a)(2) | 6 dB Bandwidth | Compliance |
| §15.247(b)(3) | Maximum Conducted Output Power | Compliance |
| §15.247(d) | 100 kHz Bandwidth of Frequency Band Edge | Compliance |
| §15.247(e) | Power Spectral Density | Compliance |
| §15.203 | Antenna Requirement | Compliance |
| FCC§15.247 (i) & §1.1310 & §2.1093 | RF Exposure | Compliance |

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

| Frequency of emission (MHz) | Conducted limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | 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.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

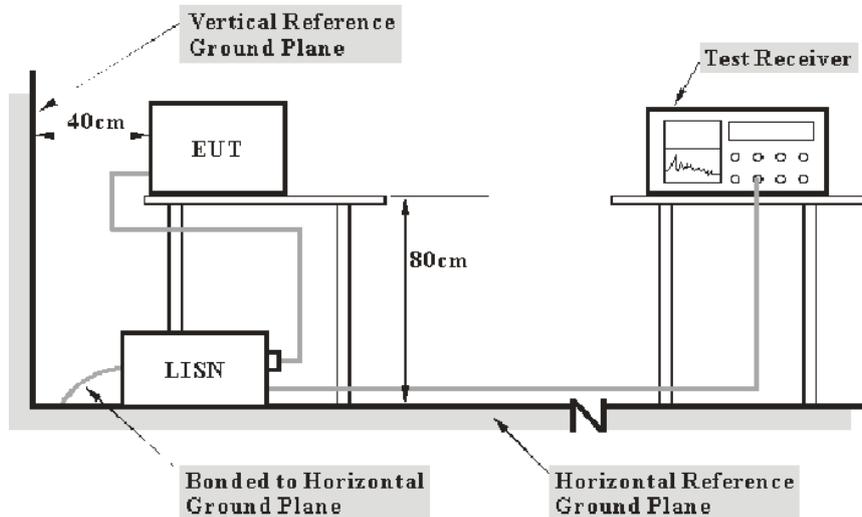
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μ V within the frequency band 535-1705 kHz, as measured using a 50 μ H/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 EUT Setup



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

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz |

3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase (“hot”) line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.2 Radiation Spurious Emissions

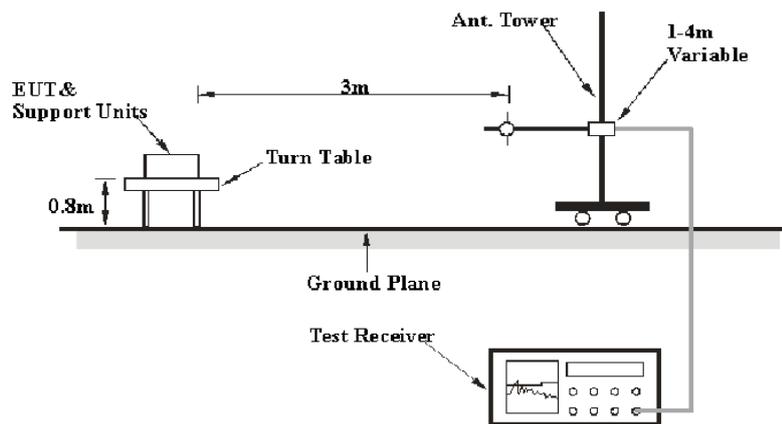
3.2.1 Applicable Standard

FCC §15.247 (d);

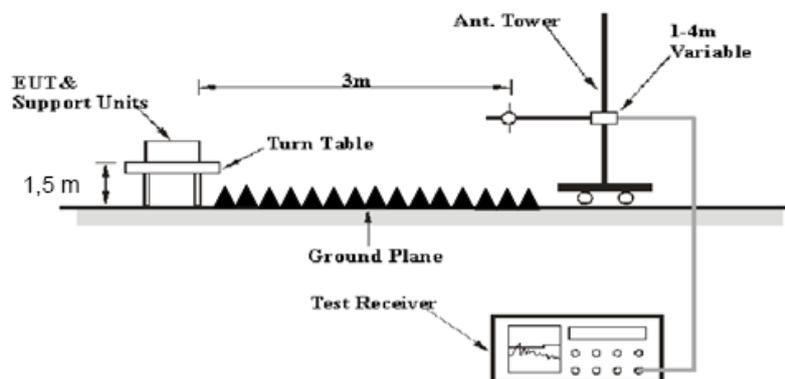
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

3.2.2 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30MHz-1000MHz:

| Measurement | RBW | Video B/W | IF B/W |
|-------------|---------|-----------|--------|
| QP | 120 kHz | 300 kHz | 120kHz |

1GHz- 25GHz:

| Measurement | Duty cycle | RBW | Video B/W |
|-------------|------------|------|-----------|
| PK | Any | 1MHz | 3 MHz |
| AV | >98% | 1MHz | 10 Hz |
| | <98% | 1MHz | 1/T |

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

3.2.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.3 6 dB Emission Bandwidth:

3.3.1 Applicable Standard

FCC §15.247 (a)(2)

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

3.3.2 EUT Setup



3.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.4 99% Occupied Bandwidth:

3.4.1 EUT Setup



3.4.2 Test Procedure

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

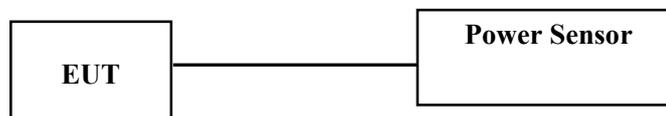
3.5 Maximum Conducted output power:

3.5.1 Applicable Standard

FCC §15.247 (b)(3)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

3.5.2 EUT Setup



3.5.3 Test Procedure

Peak Output Power:

According to ANSI C63.10-2013 Section 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

- a) Set the EUT in transmitting mode.
- b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
- c) Add a correction factor to the display.
- d) Set the power meter to test peak output power, record the result.

Average Output power:

According to ANSI C63.10-2013 Section 11.9.2.3.2

Method AVGPM-G is a measurement using a gated RF average power meter.

Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.6 Maximum power spectral density:

3.6.1 Applicable Standard

FCC §15.247 (e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

3.6.2 EUT Setup



3.6.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW $\geq [3 \times \text{RBW}]$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

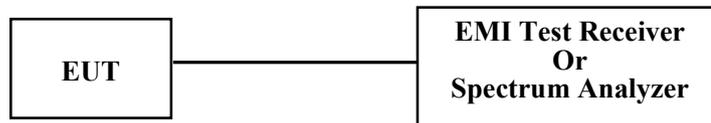
3.7 100 kHz Bandwidth of Frequency Band Edge:

3.7.1 Applicable Standard

FCC §15.247 (d);

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)).

3.7.2 EUT Setup



3.7.3 Test Procedure

According to ANSI C63.10-2013 Section 11.11

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW $\geq [3 \times \text{RBW}]$.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

3.8 Duty Cycle:

3.8.1 EUT Setup



3.8.2 Test Procedure

According to ANSI C63.10-2013 Section 11.6

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.
- 3) Set $VBW \geq RBW$. Set detector = peak or average.
- 4) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7 \mu s$.)

3.9 Antenna Requirement

3.9.1 Applicable Standard

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.9.2 Judgment

Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

| | | | |
|----------------|------------------|--------------|--|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/04 |
| Test Site: | CE | Test Mode: | Transmitting (802.11b Middle channel was the worst) |
| Tester: | Nick Tang | Test Result: | Pass |

Environmental Conditions:

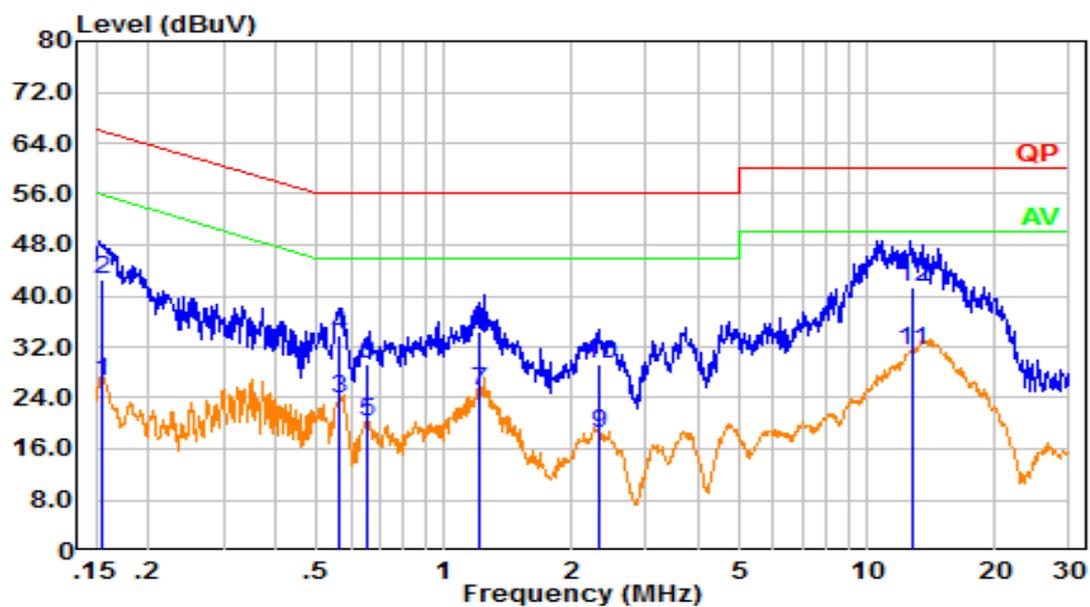
| | | | | | |
|----------------------|------|---------------------------|----|------------------------|-------|
| Temperature: (°C) | 18.4 | Relative Humidity: (%) | 33 | ATM Pressure: (kPa) | 101.7 |
|----------------------|------|---------------------------|----|------------------------|-------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|--------------|-------------------|---------|---------------|------------------|----------------------|
| R&S | LISN | ENV216 | 101134 | 2021/04/25 | 2022/04/24 |
| R&S | EMI Test Receiver | ESR3 | 102726 | 2021/07/22 | 2022/07/21 |
| MICRO-COAX | Coaxial Cable | UTIFLEX | C-0200-01 | 2021/08/08 | 2022/08/07 |
| Audix | Test Software | E3 | 190306 (V9) | N/A | N/A |

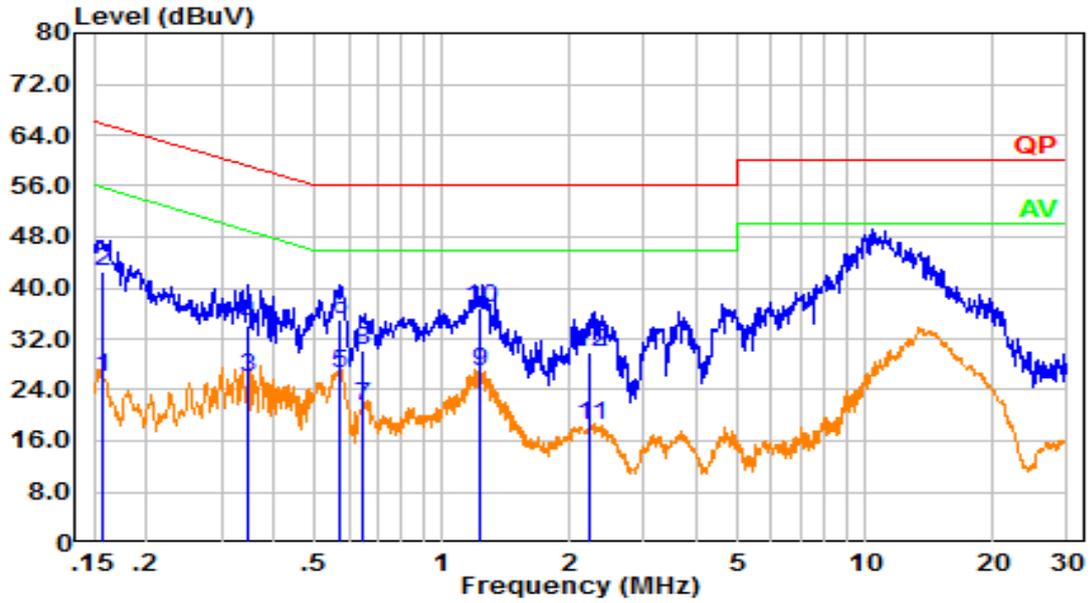
* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Line:



| No. | Frequency (MHz) | Reading (dB μ V) | Factor (dB) | Result (dB μ V) | Limit (dB μ V) | Margin (dB) | Detector |
|-----|-----------------|----------------------|-------------|---------------------|--------------------|-------------|----------|
| 1 | 0.154 | 16.81 | 9.61 | 26.42 | 55.76 | 29.34 | Average |
| 2 | 0.154 | 33.09 | 9.61 | 42.70 | 65.76 | 23.06 | QP |
| 3 | 0.563 | 14.14 | 9.62 | 23.76 | 46.00 | 22.24 | Average |
| 4 | 0.563 | 24.07 | 9.62 | 33.69 | 56.00 | 22.31 | QP |
| 5 | 0.661 | 10.56 | 9.62 | 20.18 | 46.00 | 25.82 | Average |
| 6 | 0.661 | 19.79 | 9.62 | 29.41 | 56.00 | 26.59 | QP |
| 7 | 1.212 | 15.41 | 9.62 | 25.03 | 46.00 | 20.97 | Average |
| 8 | 1.212 | 24.80 | 9.62 | 34.42 | 56.00 | 21.58 | QP |
| 9 | 2.311 | 8.87 | 9.64 | 18.51 | 46.00 | 27.49 | Average |
| 10 | 2.311 | 19.56 | 9.64 | 29.20 | 56.00 | 26.80 | QP |
| 11 | 12.736 | 21.61 | 9.68 | 31.29 | 50.00 | 18.71 | Average |
| 12 | 12.736 | 31.78 | 9.68 | 41.46 | 60.00 | 18.54 | QP |

Neutral:



| No. | Frequency (MHz) | Reading (dBμV) | Factor (dB) | Result (dBμV) | Limit (dBμV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|---------------|--------------|-------------|----------|
| 1 | 0.158 | 16.49 | 9.61 | 26.10 | 55.59 | 29.49 | Average |
| 2 | 0.158 | 32.84 | 9.61 | 42.45 | 65.59 | 23.14 | QP |
| 3 | 0.347 | 16.40 | 9.61 | 26.01 | 49.04 | 23.03 | Average |
| 4 | 0.347 | 24.57 | 9.61 | 34.18 | 59.04 | 24.86 | QP |
| 5 | 0.569 | 16.95 | 9.62 | 26.56 | 46.00 | 19.44 | Average |
| 6 | 0.569 | 25.27 | 9.62 | 34.88 | 56.00 | 21.12 | QP |
| 7 | 0.646 | 11.69 | 9.62 | 21.31 | 46.00 | 24.69 | Average |
| 8 | 0.646 | 20.59 | 9.62 | 30.21 | 56.00 | 25.79 | QP |
| 9 | 1.229 | 17.20 | 9.62 | 26.82 | 46.00 | 19.18 | Average |
| 10 | 1.229 | 27.09 | 9.62 | 36.71 | 56.00 | 19.29 | QP |
| 11 | 2.237 | 8.67 | 9.63 | 18.30 | 46.00 | 27.70 | Average |
| 12 | 2.237 | 20.11 | 9.63 | 29.74 | 56.00 | 26.26 | QP |

4.2 Radiation Spurious Emissions

| | | | |
|----------------|-----------------------|--------------|--------------|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/06 |
| Test Site: | 966-1, 966-2 | Test Mode: | Transmitting |
| Tester: | Carl Liang, Tommy Luo | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature: (°C) | 19.1 | Relative Humidity: (%) | 43 | ATM Pressure: (kPa) | 101.6 |
|----------------------|------|------------------------------|----|------------------------|-------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-----------------------|-----------------------|---------------|------------------|----------------------|
| Sunol Sciences | Antenna | JB6 | A082520-5 | 2020/10/19 | 2023/10/18 |
| R&S | EMI Test Receiver | ESR3 | 102724 | 2021/07/22 | 2022/07/21 |
| TIMES MICROWAVE | Coaxial Cable | LMR-600-UltraFlex | C-0470-02 | 2021/07/18 | 2022/07/17 |
| TIMES MICROWAVE | Coaxial Cable | LMR-600-UltraFlex | C-0780-01 | 2021/07/18 | 2022/07/17 |
| Sonoma | Amplifier | 310N | 186165 | 2021/07/18 | 2022/07/17 |
| ETS-Lindgren | Horn Antenna | 3115 | 9912-5985 | 2020/10/13 | 2023/10/12 |
| R&S | Spectrum Analyzer | FSV40 | 101591 | 2021/07/22 | 2022/07/21 |
| MICRO-COAX | Coaxial Cable | UFA210A-1-1200-70U300 | 217423-008 | 2021/08/08 | 2022/08/07 |
| MICRO-COAX | Coaxial Cable | UFA210A-1-2362-300300 | 235780-001 | 2021/08/08 | 2022/08/07 |
| Mini | Pre-amplifier | ZVA-183-S+ | 5969001149 | 2021/11/10 | 2022/11/09 |
| Audix | Test Software | E3 | 201021 (V9) | N/A | N/A |
| PASTERNAK | Horn Antenna | PE9852/2F-20 | 112002 | 2021/02/05 | 2024/02/04 |
| AH | Preamplifier | PAM-1840VH | 190 | 2021/11/19 | 2022/11/18 |
| MICRO-COAX | Coaxial Cable | UFB142A-1-2362-200200 | 235772-001 | 2021/08/08 | 2022-08-07 |
| E-Microwave | Band Rejection Filter | 2400-2483.5MHz | OE01902424 | 2021/08/08 | 2022/08/07 |
| Mini Circuits | High Pass Filter | VHF-6010+ | 31119 | 2021/08/08 | 2022/08/07 |

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

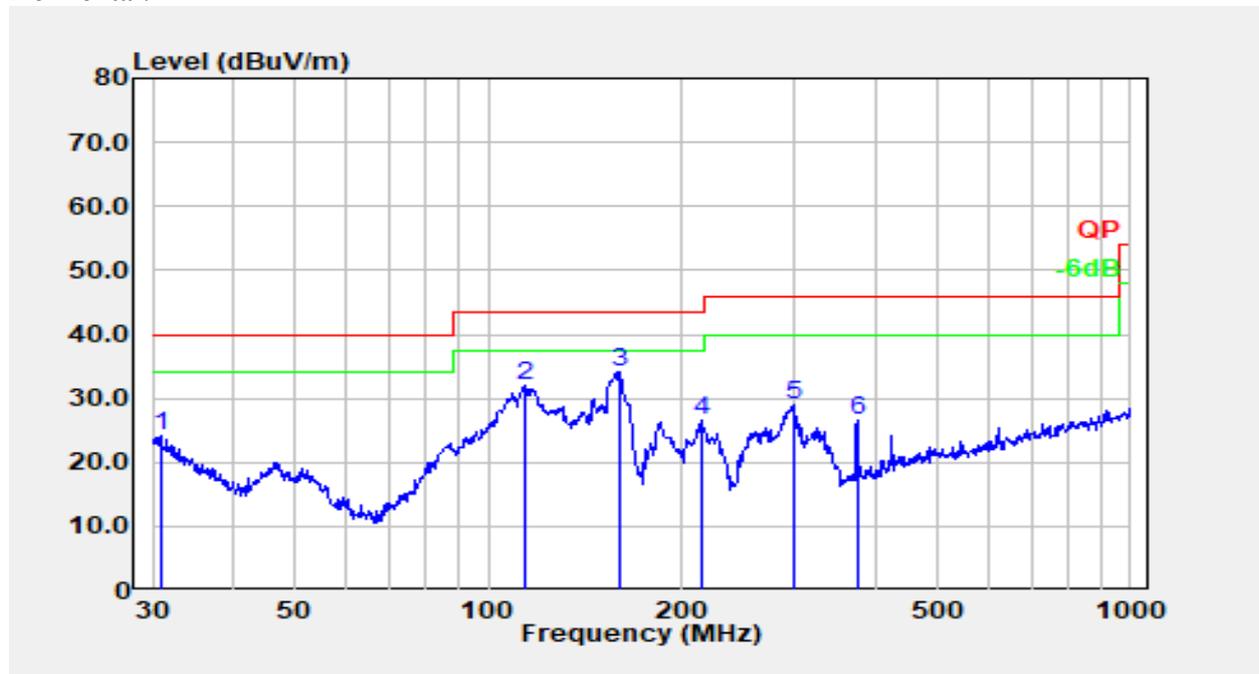
Test Data:

Please refer to the below table and plots.

Note: The device can be mounted in multiple orientations, test was performed with X,Y, Z Axis, the worst orientation was photographed and it's data was recorded.

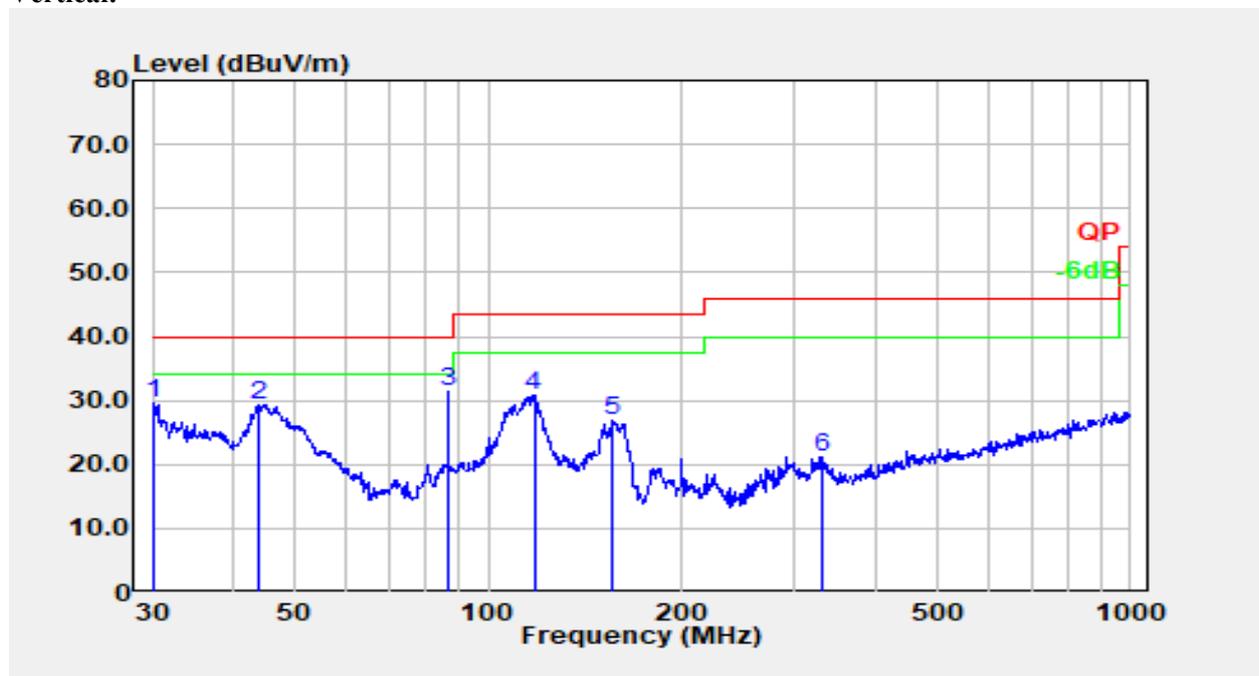
1) 30MHz-1GHz(802.11b Low channel was the worst)

Horizontal:



| No. | Frequency (MHz) | Reading (dB μ V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Detector |
|-----|-----------------|----------------------|---------------|-----------------------|----------------------|-------------|----------|
| 1 | 30.853 | 28.55 | -4.45 | 24.10 | 40.00 | 15.90 | Peak |
| 2 | 114.114 | 44.20 | -12.23 | 31.97 | 43.50 | 11.53 | Peak |
| 3 | 160.909 | 46.38 | -12.38 | 34.00 | 43.50 | 9.50 | Peak |
| 4 | 214.514 | 39.29 | -12.78 | 26.51 | 43.50 | 16.99 | Peak |
| 5 | 298.268 | 39.91 | -10.86 | 29.05 | 46.00 | 16.95 | Peak |
| 6 | 375.939 | 36.07 | -9.48 | 26.59 | 46.00 | 19.41 | Peak |

Vertical:



| No. | Frequency (MHz) | Reading (dB μ V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Detector |
|-----|-----------------|----------------------|---------------|-----------------------|----------------------|-------------|----------|
| 1 | 30.000 | 33.35 | -3.79 | 29.56 | 40.00 | 10.44 | Peak |
| 2 | 43.812 | 43.06 | -13.80 | 29.26 | 40.00 | 10.74 | Peak |
| 3 | 86.503 | 48.81 | -17.36 | 31.44 | 40.00 | 8.56 | Peak |
| 4 | 117.773 | 42.66 | -11.95 | 30.71 | 43.50 | 12.79 | Peak |
| 5 | 155.910 | 39.30 | -12.32 | 26.97 | 43.50 | 16.53 | Peak |
| 6 | 330.195 | 31.57 | -10.40 | 21.17 | 46.00 | 24.83 | Peak |

2) 1-25GHz:
802.11b Mode:

| Frequency (MHz) | Receiver | | Polar (H/V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|--------------------------|----------------------|----------|-------------|---------------|-----------------------|----------------------|-------------|
| | Reading (dB μ V) | Detector | | | | | |
| Low Channel: 2412 MHz | | | | | | | |
| 2412.00 | 72.46 | PK | H | 31.53 | 103.99 | N/A | N/A |
| 2412.00 | 67.18 | AV | H | 31.53 | 98.71 | N/A | N/A |
| 2412.00 | 66.98 | PK | V | 31.53 | 98.51 | N/A | N/A |
| 2412.00 | 61.70 | AV | V | 31.53 | 93.23 | N/A | N/A |
| 2390.00 | 27.63 | PK | H | 31.46 | 59.09 | 74.00 | 14.91 |
| 2390.00 | 14.29 | AV | H | 31.46 | 45.75 | 54.00 | 8.25 |
| 4824.00 | 35.45 | PK | H | 10.94 | 46.39 | 74.00 | 27.61 |
| 4824.00 | 23.30 | AV | H | 10.94 | 34.24 | 54.00 | 19.76 |
| 7236.00 | 34.95 | PK | H | 14.44 | 49.39 | 74.00 | 24.61 |
| 7236.00 | 22.65 | AV | H | 14.44 | 37.09 | 54.00 | 16.91 |
| Middle Channel: 2437 MHz | | | | | | | |
| 2437.00 | 72.59 | PK | H | 31.60 | 104.19 | N/A | N/A |
| 2437.00 | 67.26 | AV | H | 31.60 | 98.86 | N/A | N/A |
| 2437.00 | 66.77 | PK | V | 31.60 | 98.37 | N/A | N/A |
| 2437.00 | 61.21 | AV | V | 31.60 | 92.81 | N/A | N/A |
| 4874.00 | 35.27 | PK | H | 11.05 | 46.32 | 74.00 | 27.68 |
| 4874.00 | 23.24 | AV | H | 11.05 | 34.29 | 54.00 | 19.71 |
| 7311.00 | 34.54 | PK | H | 14.80 | 49.34 | 74.00 | 24.66 |
| 7311.00 | 23.30 | AV | H | 14.80 | 38.10 | 54.00 | 15.90 |
| High Channel: 2462MHz | | | | | | | |
| 2462.00 | 72.31 | PK | H | 31.63 | 103.94 | N/A | N/A |
| 2462.00 | 67.07 | AV | H | 31.63 | 98.70 | N/A | N/A |
| 2462.00 | 67.74 | PK | V | 31.63 | 99.37 | N/A | N/A |
| 2462.00 | 62.06 | AV | V | 31.63 | 93.69 | N/A | N/A |
| 2483.50 | 27.44 | PK | H | 31.64 | 59.08 | 74.00 | 14.92 |
| 2483.50 | 14.51 | AV | H | 31.64 | 46.15 | 54.00 | 7.85 |
| 4924.00 | 36.27 | PK | H | 11.18 | 47.45 | 74.00 | 26.55 |
| 4924.00 | 24.10 | AV | H | 11.18 | 35.28 | 54.00 | 18.72 |
| 7386.00 | 34.47 | PK | H | 14.89 | 49.36 | 74.00 | 24.64 |
| 7386.00 | 22.15 | AV | H | 14.89 | 37.04 | 54.00 | 16.96 |

802.11g Mode:

| Frequency (MHz) | Receiver | | Polar (H/V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|--------------------------|----------------------|----------|-------------|---------------|-----------------------|----------------------|-------------|
| | Reading (dB μ V) | Detector | | | | | |
| Low Channel: 2412 MHz | | | | | | | |
| 2412.00 | 74.74 | PK | H | 31.53 | 106.27 | N/A | N/A |
| 2412.00 | 63.32 | AV | H | 31.53 | 94.85 | N/A | N/A |
| 2412.00 | 69.97 | PK | V | 31.53 | 101.50 | N/A | N/A |
| 2412.00 | 57.15 | AV | V | 31.53 | 88.68 | N/A | N/A |
| 2390.00 | 35.56 | PK | H | 31.46 | 67.02 | 74.00 | 6.98 |
| 2390.00 | 18.18 | AV | H | 31.46 | 49.64 | 54.00 | 4.36 |
| 4824.00 | 35.55 | PK | H | 10.94 | 46.49 | 74.00 | 27.51 |
| 4824.00 | 23.48 | AV | H | 10.94 | 34.42 | 54.00 | 19.58 |
| 7236.00 | 34.55 | PK | H | 14.44 | 48.99 | 74.00 | 25.01 |
| 7236.00 | 22.69 | AV | H | 14.44 | 37.13 | 54.00 | 16.87 |
| Middle Channel: 2437 MHz | | | | | | | |
| 2437.00 | 73.60 | PK | H | 31.60 | 105.20 | N/A | N/A |
| 2437.00 | 61.77 | AV | H | 31.60 | 93.37 | N/A | N/A |
| 2437.00 | 69.57 | PK | V | 31.60 | 101.17 | N/A | N/A |
| 2437.00 | 57.77 | AV | V | 31.60 | 89.37 | N/A | N/A |
| 4874.00 | 35.21 | PK | H | 11.05 | 46.26 | 74.00 | 27.74 |
| 4874.00 | 23.40 | AV | H | 11.05 | 34.45 | 54.00 | 19.55 |
| 7311.00 | 34.50 | PK | H | 14.80 | 49.30 | 74.00 | 24.70 |
| 7311.00 | 22.58 | AV | H | 14.80 | 37.38 | 54.00 | 16.62 |
| High Channel: 2462MHz | | | | | | | |
| 2462.00 | 73.31 | PK | H | 31.63 | 104.94 | N/A | N/A |
| 2462.00 | 61.52 | AV | H | 31.63 | 93.15 | N/A | N/A |
| 2462.00 | 69.83 | PK | V | 31.63 | 101.46 | N/A | N/A |
| 2462.00 | 57.46 | AV | V | 31.63 | 89.09 | N/A | N/A |
| 2483.50 | 36.30 | PK | H | 31.64 | 67.94 | 74.00 | 6.06 |
| 2483.50 | 16.30 | AV | H | 31.64 | 47.94 | 54.00 | 6.06 |
| 4924.00 | 35.58 | PK | H | 11.18 | 46.76 | 74.00 | 27.24 |
| 4924.00 | 23.64 | AV | H | 11.18 | 34.82 | 54.00 | 19.18 |
| 7386.00 | 34.07 | PK | H | 14.89 | 48.96 | 74.00 | 25.04 |
| 7386.00 | 22.13 | AV | H | 14.89 | 37.02 | 54.00 | 16.98 |

802.11n ht20 Mode:

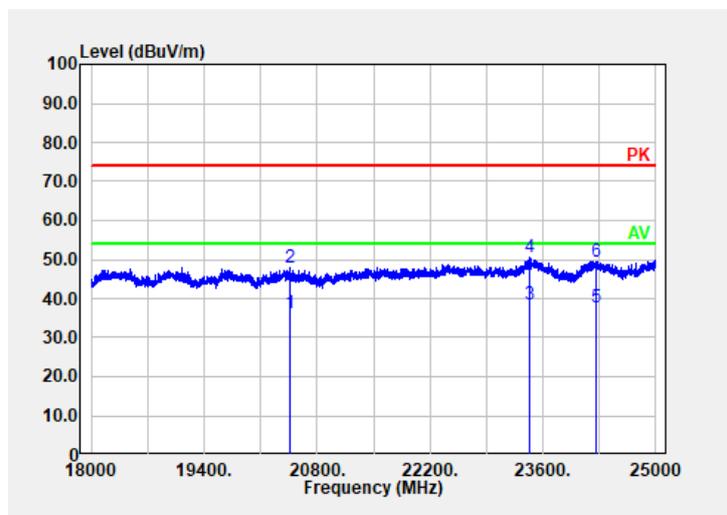
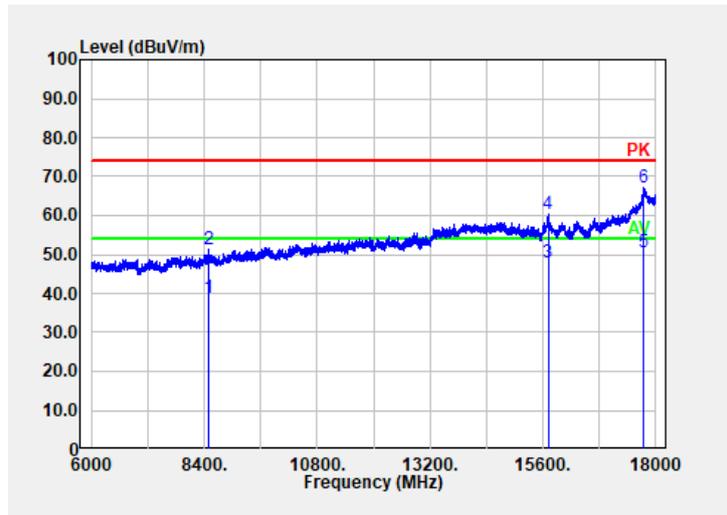
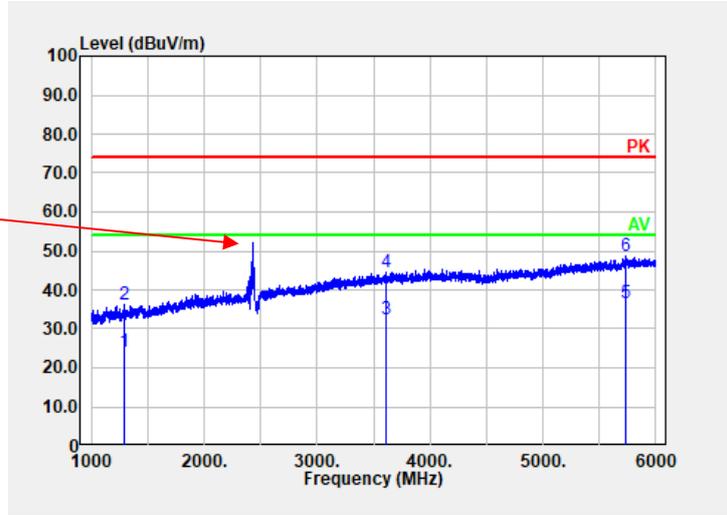
| Frequency (MHz) | Receiver | | Polar (H/V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|--------------------------|----------------------|----------|-------------|---------------|-----------------------|----------------------|-------------|
| | Reading (dB μ V) | Detector | | | | | |
| Low Channel: 2412 MHz | | | | | | | |
| 2412.00 | 74.20 | PK | H | 31.53 | 105.73 | N/A | N/A |
| 2412.00 | 62.19 | AV | H | 31.53 | 93.72 | N/A | N/A |
| 2412.00 | 69.34 | PK | V | 31.53 | 100.87 | N/A | N/A |
| 2412.00 | 57.16 | AV | V | 31.53 | 88.69 | N/A | N/A |
| 2390.00 | 38.41 | PK | H | 31.46 | 69.87 | 74.00 | 4.13 |
| 2390.00 | 19.75 | AV | H | 31.46 | 51.21 | 54.00 | 2.79 |
| 4824.00 | 35.52 | PK | H | 10.94 | 46.46 | 74.00 | 27.54 |
| 4824.00 | 23.60 | AV | H | 10.94 | 34.54 | 54.00 | 19.46 |
| 7236.00 | 34.05 | PK | H | 14.44 | 48.49 | 74.00 | 25.51 |
| 7236.00 | 21.89 | AV | H | 14.44 | 36.33 | 54.00 | 17.67 |
| Middle Channel: 2437 MHz | | | | | | | |
| 2437.00 | 74.69 | PK | H | 31.60 | 106.29 | N/A | N/A |
| 2437.00 | 62.57 | AV | H | 31.60 | 94.17 | N/A | N/A |
| 2437.00 | 69.81 | PK | V | 31.60 | 101.41 | N/A | N/A |
| 2437.00 | 57.34 | AV | V | 31.60 | 88.94 | N/A | N/A |
| 4874.00 | 34.62 | PK | H | 11.05 | 45.67 | 74.00 | 28.33 |
| 4874.00 | 22.53 | AV | H | 11.05 | 33.58 | 54.00 | 20.42 |
| 7311.00 | 34.42 | PK | H | 14.80 | 49.22 | 74.00 | 24.78 |
| 7311.00 | 22.37 | AV | H | 14.80 | 37.17 | 54.00 | 16.83 |
| High Channel: 2462MHz | | | | | | | |
| 2462.00 | 73.34 | PK | H | 31.63 | 104.97 | N/A | N/A |
| 2462.00 | 61.37 | AV | H | 31.63 | 93.00 | N/A | N/A |
| 2462.00 | 69.84 | PK | V | 31.63 | 101.47 | N/A | N/A |
| 2462.00 | 57.03 | AV | V | 31.63 | 88.66 | N/A | N/A |
| 2483.50 | 38.29 | PK | H | 31.64 | 69.93 | 74.00 | 4.07 |
| 2483.50 | 17.16 | AV | H | 31.64 | 48.80 | 54.00 | 5.20 |
| 4924.00 | 35.42 | PK | H | 11.18 | 46.60 | 74.00 | 27.40 |
| 4924.00 | 23.55 | AV | H | 11.18 | 34.73 | 54.00 | 19.27 |
| 7386.00 | 33.95 | PK | H | 14.89 | 48.84 | 74.00 | 25.16 |
| 7386.00 | 21.68 | AV | H | 14.89 | 36.57 | 54.00 | 17.43 |

802.11n ht40 Mode:

| Frequency (MHz) | Receiver | | Polar (H/V) | Factor (dB/m) | Result (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|--------------------------|----------------------|----------|-------------|---------------|-----------------------|----------------------|-------------|
| | Reading (dB μ V) | Detector | | | | | |
| Low Channel: 2422 MHz | | | | | | | |
| 2422.00 | 66.55 | PK | H | 31.56 | 98.11 | N/A | N/A |
| 2422.00 | 52.87 | AV | H | 31.56 | 84.43 | N/A | N/A |
| 2422.00 | 61.31 | PK | V | 31.56 | 92.87 | N/A | N/A |
| 2422.00 | 47.57 | AV | V | 31.56 | 79.13 | N/A | N/A |
| 2390.00 | 28.18 | PK | H | 31.46 | 59.64 | 74.00 | 14.36 |
| 2390.00 | 14.47 | AV | H | 31.46 | 45.93 | 54.00 | 8.07 |
| 4844.00 | 34.06 | PK | H | 10.96 | 45.02 | 74.00 | 28.98 |
| 4844.00 | 22.17 | AV | H | 10.96 | 33.13 | 54.00 | 20.87 |
| 7266.00 | 35.51 | PK | H | 14.63 | 50.14 | 74.00 | 23.86 |
| 7266.00 | 23.42 | AV | H | 14.63 | 38.05 | 54.00 | 15.95 |
| Middle Channel: 2437 MHz | | | | | | | |
| 2437.00 | 67.68 | PK | H | 31.60 | 99.28 | N/A | N/A |
| 2437.00 | 54.56 | AV | H | 31.60 | 86.16 | N/A | N/A |
| 2437.00 | 60.92 | PK | V | 31.60 | 92.52 | N/A | N/A |
| 2437.00 | 47.34 | AV | V | 31.60 | 78.94 | N/A | N/A |
| 4874.00 | 34.88 | PK | H | 11.05 | 45.93 | 74.00 | 28.07 |
| 4874.00 | 22.69 | AV | H | 11.05 | 33.74 | 54.00 | 20.26 |
| 7311.00 | 34.14 | PK | H | 14.80 | 48.94 | 74.00 | 25.06 |
| 7311.00 | 22.26 | AV | H | 14.80 | 37.06 | 54.00 | 16.94 |
| High Channel: 2452MHz | | | | | | | |
| 2452.00 | 63.84 | PK | H | 31.63 | 95.47 | N/A | N/A |
| 2452.00 | 51.17 | AV | H | 31.63 | 82.80 | N/A | N/A |
| 2452.00 | 58.25 | PK | V | 31.63 | 89.88 | N/A | N/A |
| 2452.00 | 44.90 | AV | V | 31.63 | 76.53 | N/A | N/A |
| 2483.50 | 28.59 | PK | H | 31.64 | 60.23 | 74.00 | 13.77 |
| 2483.50 | 14.53 | AV | H | 31.64 | 46.17 | 54.00 | 7.83 |
| 4904.00 | 35.18 | PK | H | 11.14 | 46.32 | 74.00 | 27.68 |
| 4904.00 | 22.74 | AV | H | 11.14 | 33.88 | 54.00 | 20.12 |
| 7356.00 | 34.21 | PK | H | 14.80 | 49.01 | 74.00 | 24.99 |
| 7356.00 | 22.40 | AV | H | 14.80 | 37.20 | 54.00 | 16.80 |

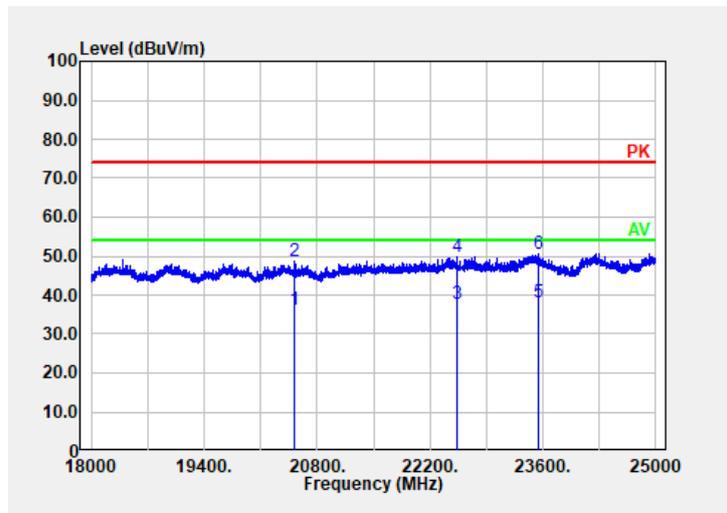
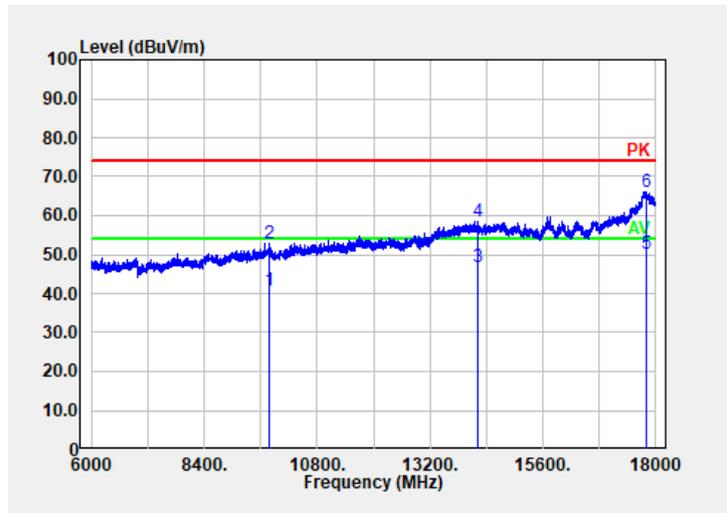
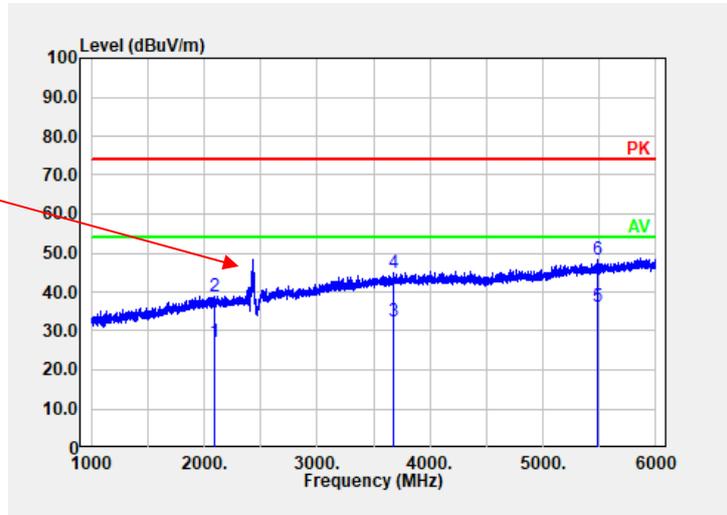
Worst Test plots(802.11b middle channel was the worst)
Horizontal:

Fundamental Test with Band Rejection Filter



Vertical:

Fundamental Test with Band Rejection Filter



4.3 6 dB Emission Bandwidth:

| | | | |
|----------------|------------------|--------------|--------------|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/03 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | LE Qiao | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature: (°C) | 20.8 | Relative Humidity: (%) | 29 | ATM Pressure: (kPa) | 101.7 |
|----------------------|------|------------------------------|----|------------------------|-------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------|-----------|---------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40 | 101474 | 2021/07/22 | 2022/07/21 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211001 | Each time | N/A |
| Mini-Circuits | DC Block | BLK-18-S+ | 1554403 | Each time | N/A |

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

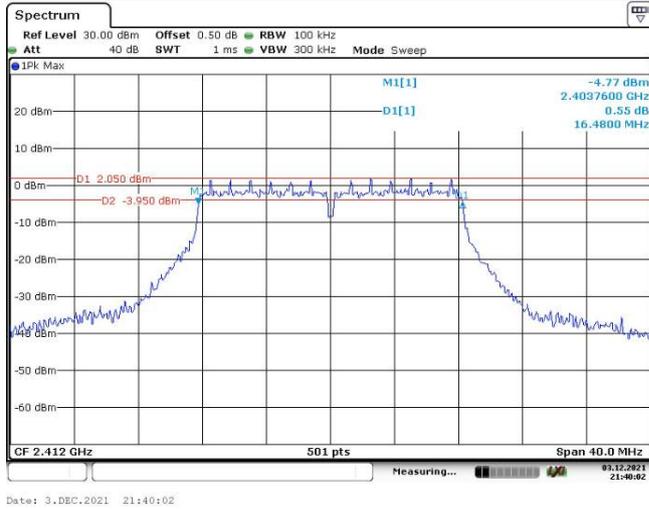
| Test Modes | Test Frequency (MHz) | 6 dB Bandwidth (MHz) | Limit (MHz) |
|--------------|----------------------|----------------------|-------------|
| 802.11b | 2412 | 7.600 | 0.5 |
| | 2437 | 7.200 | 0.5 |
| | 2462 | 7.200 | 0.5 |
| 802.11g | 2412 | 16.480 | 0.5 |
| | 2437 | 16.480 | 0.5 |
| | 2462 | 16.320 | 0.5 |
| 802.11n ht20 | 2412 | 17.440 | 0.5 |
| | 2437 | 17.680 | 0.5 |
| | 2462 | 17.680 | 0.5 |
| 802.11n ht40 | 2422 | 35.520 | 0.5 |
| | 2437 | 35.680 | 0.5 |
| | 2452 | 35.360 | 0.5 |

6dB Emission Bandwidth

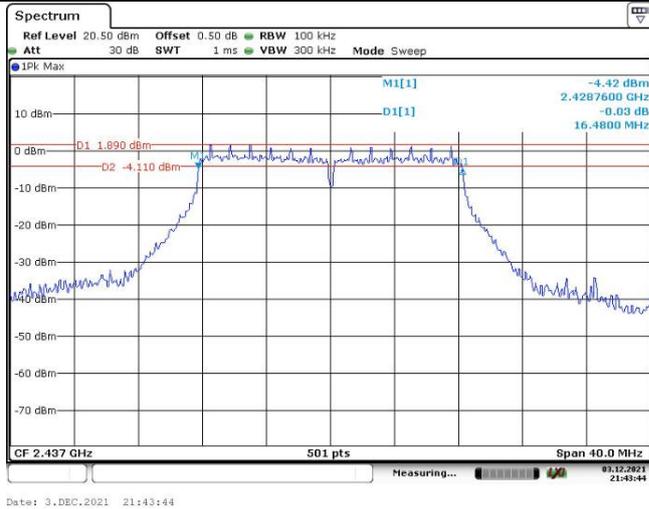
| | |
|------------------------------------|--|
| <p>802.11b Lowest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 100 kHz Att 40 dB SWT 1 ms VBW 300 kHz Mode Sweep 1Pk Max M1[1] 0.95 dBm 2.4080000 GHz D1[1] 0.49 dB 7.6000 MHz D1 6.950 dBm D2 0.950 dBm CF 2.412 GHz 501 pts Span 40.0 MHz Measuring... 93.12.2821 21:32:08 Date: 3.DEC.2021 21:32:08</p> |
| <p>802.11b Middle Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 100 kHz Att 40 dB SWT 1 ms VBW 300 kHz Mode Sweep 1Pk Max M1[1] -0.40 dBm 2.4334000 GHz D1[1] 0.23 dB 7.2000 MHz D1 6.910 dBm D2 0.910 dBm CF 2.437 GHz 501 pts Span 40.0 MHz Measuring... 93.12.2821 21:35:37 Date: 3.DEC.2021 21:35:38</p> |
| <p>802.11b Highest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 100 kHz Att 40 dB SWT 1 ms VBW 300 kHz Mode Sweep 1Pk Max M1[1] 0.29 dBm 2.4584000 GHz D1[1] 1.00 dB 7.2000 MHz D1 7.630 dBm D2 1.630 dBm CF 2.462 GHz 501 pts Span 40.0 MHz Measuring... 93.12.2821 21:37:31 Date: 3.DEC.2021 21:37:31</p> |

6dB Emission Bandwidth

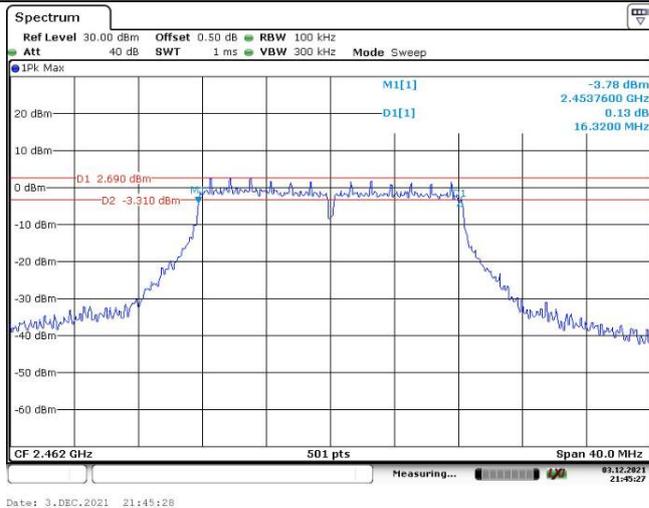
802.11g
Lowest Channel



802.11g
Middle Channel

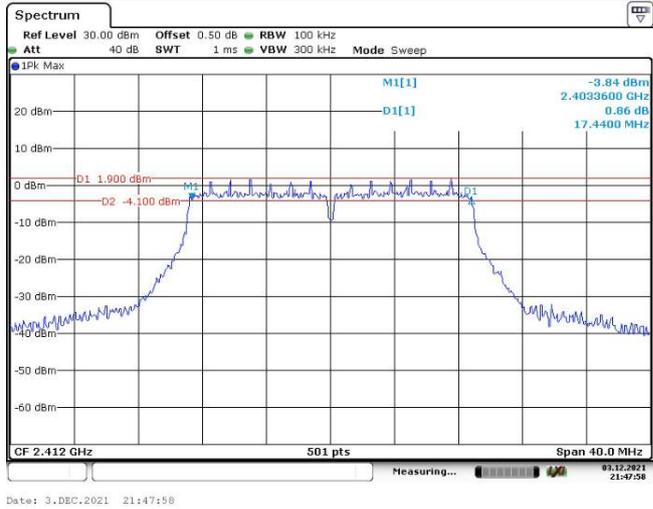


802.11g
Highest Channel

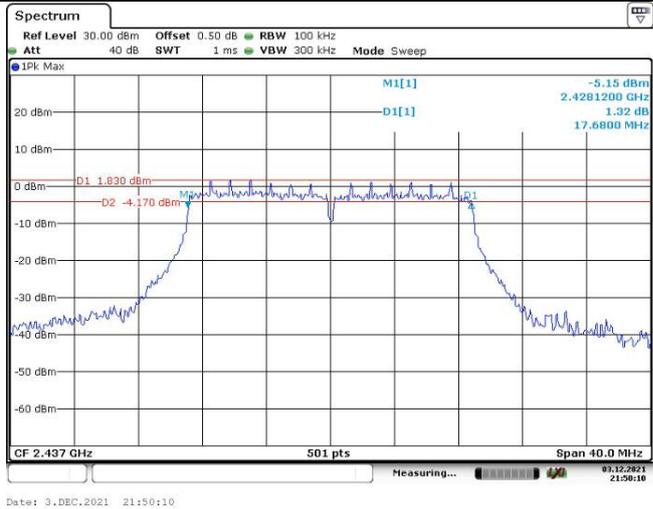


6dB Emission Bandwidth

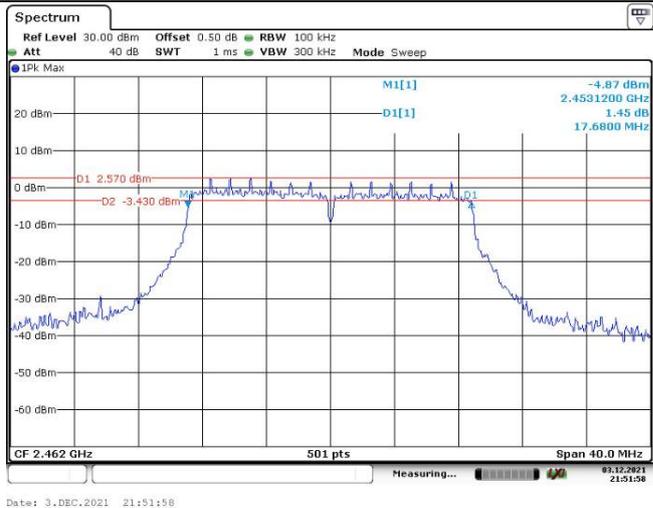
802.11n ht20
Lowest Channel



802.11n ht20
Middle Channel



802.11n ht20
Highest Channel



6dB Emission Bandwidth

| | |
|---|--|
| <p>802.11n ht40 Lowest Channel</p> | |
| <p>802.11n ht40 Middle Channel</p> | |
| <p>802.11n ht40 Highest Channel</p> | |

4.5 Maximum conducted output power:

| | | | |
|----------------|--------------------------------------|--------------|--------------------------|
| Serial Number: | CR21110036-RF-S1 CR21110036-RF-S2 | Test Date: | 2021/12/03 2023/04/14 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | LE Qiao Julie Tan | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|-----------|------------------------------|-------|------------------------|-------------|
| Temperature: (°C) | 20.8~25.4 | Relative Humidity: (%) | 29~51 | ATM Pressure: (kPa) | 101.4~101.7 |
|----------------------|-----------|------------------------------|-------|------------------------|-------------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|--------------|---------------------------|---------------|---------------|------------------|----------------------|
| eastsheep | Coaxial Attenuator | 2W-SMA-JK-18G | 21060301 | Each time | N/A |
| zhuoxiang | Coaxial Cable | SMA-178 | 211001 | Each time | N/A |
| Agilent | USB Wideband Power Sensor | U2021XA | MY54080015 | 2021-07-22 | 2022-07-21 |

Note: above equipments were used for 802.11b/g/n ht20 test on 2021/12/03

| | | | | | |
|-----------|--------------------|---------------|----------|------------|------------|
| zhuoxiang | Coaxial Cable | SMA-174 | 211008 | Each time | N/A |
| eastsheep | Coaxial Attenuator | 2W-SMA-JK-18G | 21060301 | Each time | N/A |
| Anritsu | Power Sensor | MA24440A | 11849 | 2022/07/22 | 2023/07/21 |

Note: above equipments were used for 802.11n ht40 test on 2023/04/14

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

| Test Modes | Test Channel | Test Frequency (MHz) | Maximum Conducted Peak Output Power (dBm) | Maximum Conducted Average Output Power (dBm) | Limit (dBm) |
|--------------|--------------|----------------------|---|--|-------------|
| 802.11b | Lowest | 2412 | 17.72 | 14.51 | 30 |
| | Middle | 2437 | 17.52 | 14.27 | 30 |
| | Highest | 2462 | 18.17 | 15.03 | 30 |
| 802.11g | Lowest | 2412 | 21.44 | 13.02 | 30 |
| | Middle | 2437 | 21.38 | 12.89 | 30 |
| | Highest | 2462 | 21.63 | 13.52 | 30 |
| 802.11n ht20 | Lowest | 2412 | 21.56 | 13.17 | 30 |
| | Middle | 2437 | 21.32 | 12.97 | 30 |
| | Highest | 2462 | 22.04 | 13.59 | 30 |

Tested on 2021/12/03 by LE Qiao.

| Test Modes | Test Channel | Test Frequency (MHz) | Maximum Conducted Peak Output Power (dBm) | Maximum Conducted Average Output Power (dBm) | Limit (dBm) |
|--------------|--------------|----------------------|---|--|-------------|
| 802.11n ht40 | Lowest | 2422 | 23.72 | 12.77 | 30 |
| | Middle | 2437 | 22.64 | 11.08 | 30 |
| | Highest | 2452 | 23.18 | 12.14 | 30 |

Tested on 2023/04/14 by Julie Tan.

4.6 Maximum power spectral density:

| | | | |
|----------------|------------------|--------------|--------------|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/03 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | LE Qiao | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature: (°C) | 20.8 | Relative Humidity: (%) | 29 | ATM Pressure: (kPa) | 101.7 |
|----------------------|------|------------------------------|----|------------------------|-------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------|-----------|---------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40 | 101474 | 2021/7/22 | 2022/7/21 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211001 | Each time | N/A |
| Mini-Circuits | DC Block | BLK-18-S+ | 1554403 | Each time | N/A |

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

| Test Channel | Test Frequency (MHz) | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) |
|--------------|----------------------|-----------------------------------|------------------|
| 802.11b | 2412 | -6.54 | 8.00 |
| | 2437 | -6.56 | 8.00 |
| | 2462 | -5.55 | 8.00 |
| 802.11g | 2412 | -11.19 | 8.00 |
| | 2437 | -10.46 | 8.00 |
| | 2462 | -10.68 | 8.00 |
| 802.11n ht20 | 2412 | -12.23 | 8.00 |
| | 2437 | -12.33 | 8.00 |
| | 2462 | -12.02 | 8.00 |
| 802.11n ht40 | 2422 | -15.09 | 8.00 |
| | 2437 | -16.08 | 8.00 |
| | 2452 | -16.09 | 8.00 |

Maximum power spectral density

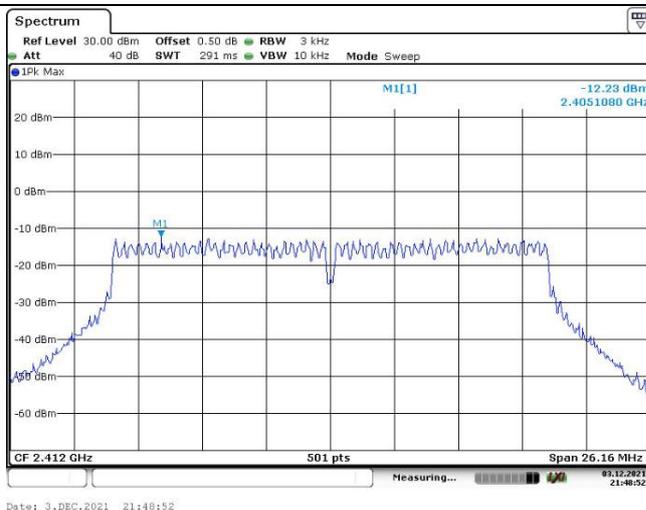
| | |
|------------------------------------|--|
| <p>802.11b Lowest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 127 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -6.54 dBm 2.4130010 GHz CF 2.412 GHz 501 pts Span 11.4 MHz Measuring... 93.12.2821 21:32:50 Date: 3, DEC, 2021 21:32:50</p> |
| <p>802.11b Middle Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 120 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -6.56 dBm 2.4378410 GHz CF 2.437 GHz 501 pts Span 10.8 MHz Measuring... 93.12.2821 21:36:26 Date: 3, DEC, 2021 21:36:26</p> |
| <p>802.11b Highest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 120 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -5.55 dBm 2.4615040 GHz CF 2.462 GHz 501 pts Span 10.9 MHz Measuring... 93.12.2821 21:38:25 Date: 3, DEC, 2021 21:38:25</p> |

Maximum power spectral density

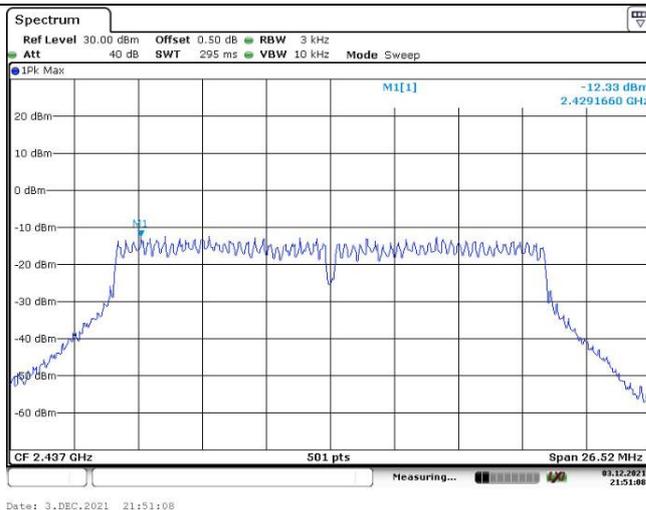
| | |
|------------------------------------|---|
| <p>802.11g Lowest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 275 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -11.19 dBm 2.4073130 GHz CF 2.412 GHz 501 pts Span 24.72 MHz Measuring... 03.12.2021 21:41:06</p> |
| <p>802.11g Middle Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 275 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -10.46 dBm 2.4320170 GHz CF 2.437 GHz 501 pts Span 24.72 MHz Measuring... 03.12.2021 21:44:39</p> |
| <p>802.11g Highest Channel</p> | <p>Spectrum Ref Level 30.00 dBm Offset 0.50 dB RBW 3 kHz Att 40 dB SWT 272 ms VBW 10 kHz Mode Sweep 1Pk Max M1[1] -10.68 dBm 2.4569670 GHz CF 2.462 GHz 501 pts Span 24.48 MHz Measuring... 03.12.2021 21:46:19</p> |

Maximum power spectral density

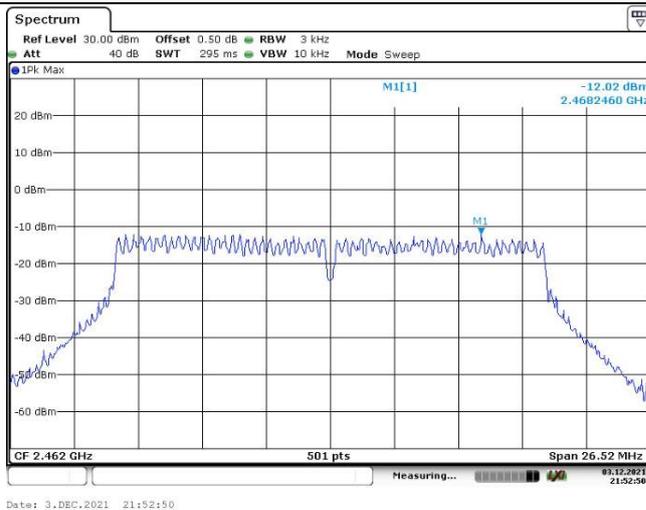
802.11n ht20
Lowest Channel



802.11n ht20
Middle Channel



802.11n ht20
Highest Channel



Maximum power spectral density

| | |
|---|--|
| <p>802.11n ht40 Lowest Channel</p> | |
| <p>802.11n ht40 Middle Channel</p> | |
| <p>802.11n ht40 Highest Channel</p> | |

4.7 100 kHz Bandwidth of Frequency Band Edge:

| | | | |
|----------------|------------------|--------------|--------------|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/03 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | LE Qiao | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature: (°C) | 20.8 | Relative Humidity: (%) | 29 | ATM Pressure: (kPa) | 101.7 |
|----------------------|------|------------------------------|----|------------------------|-------|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------|-----------|---------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40 | 101474 | 2021/7/22 | 2022/7/21 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211001 | Each time | N/A |
| Mini-Circuits | DC Block | BLK-18-S+ | 1554403 | Each time | N/A |

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

100 kHz Bandwidth of Frequency Band Edge

802.11b
Lowest Band edge

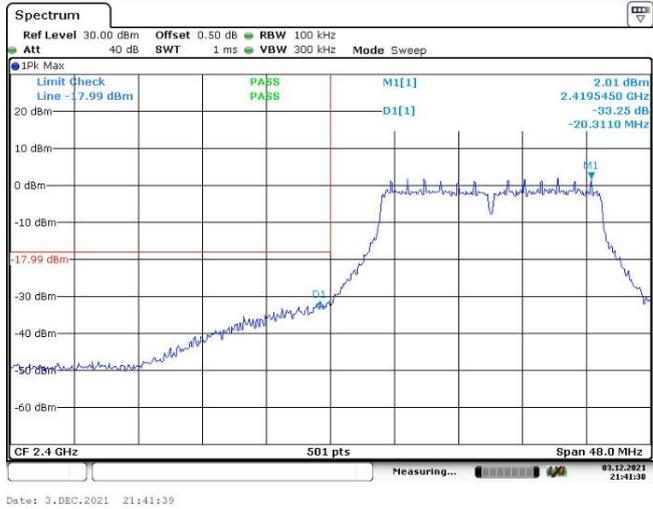


802.11b
Highest Band edge



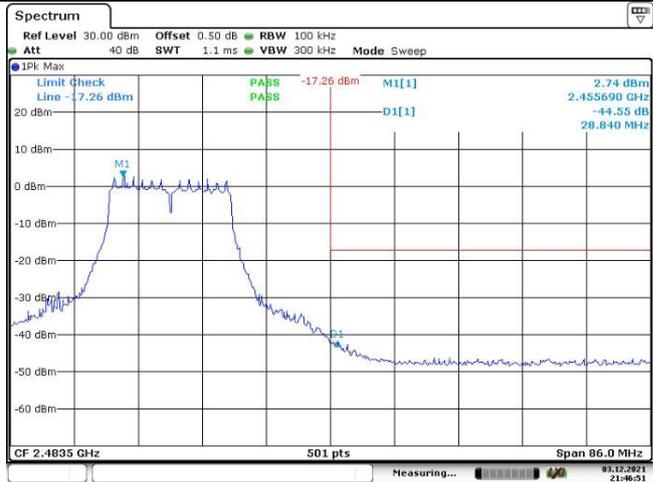
100 kHz Bandwidth of Frequency Band Edge

802.11g
Lowest Band edge



Date: 3.DEC.2021 21:41:39

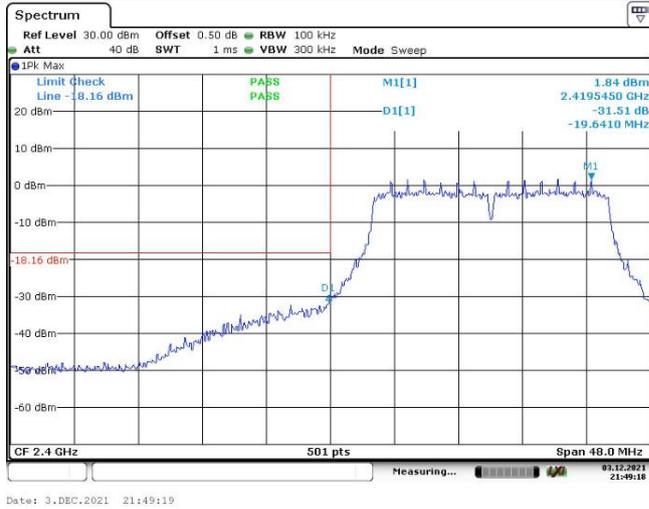
802.11g
Highest Band edge



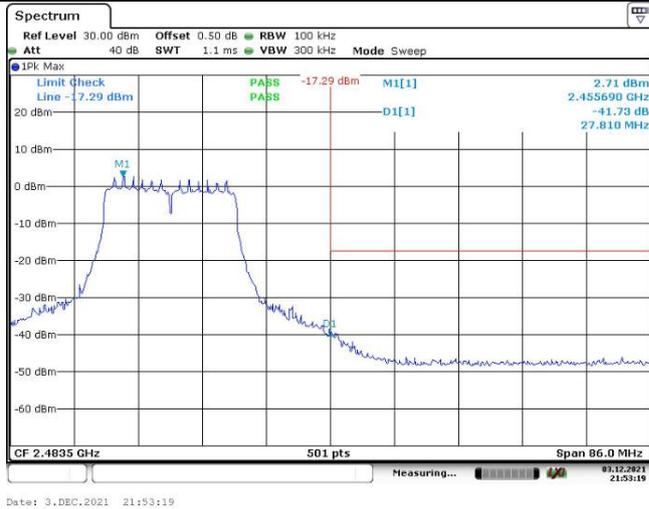
Date: 3.DEC.2021 21:46:52

100 kHz Bandwidth of Frequency Band Edge

802.11n ht20
Lowest Band edge

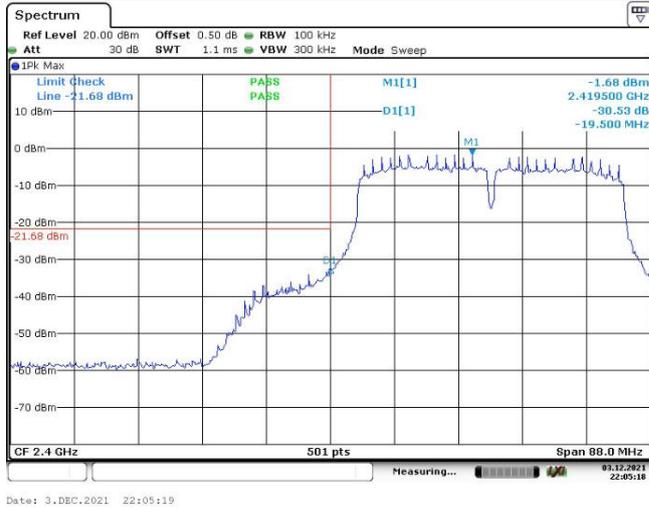


802.11n ht20
Highest Band edge

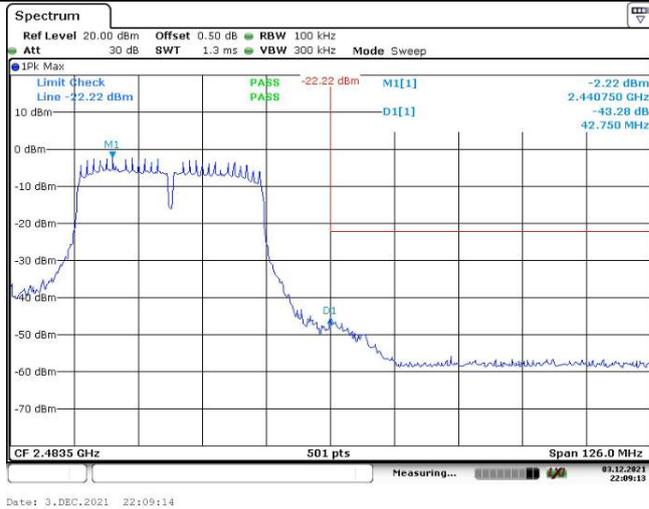


100 kHz Bandwidth of Frequency Band Edge

802.11n ht40
Lowest Band edge



802.11n ht40
Highest Band edge



4.8 Duty Cycle:

| | | | |
|----------------|------------------|--------------|--------------|
| Serial Number: | CR21110036-RF-S1 | Test Date: | 2021/12/03 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | LE Qiao | Test Result: | N/A |

Environmental Conditions:

| | | | | | |
|----------------------|------|------------------------------|----|------------------------|-------|
| Temperature: (°C) | 20.8 | Relative Humidity: (%) | 29 | ATM Pressure: (kPa) | 101.7 |
|----------------------|------|------------------------------|----|------------------------|-------|

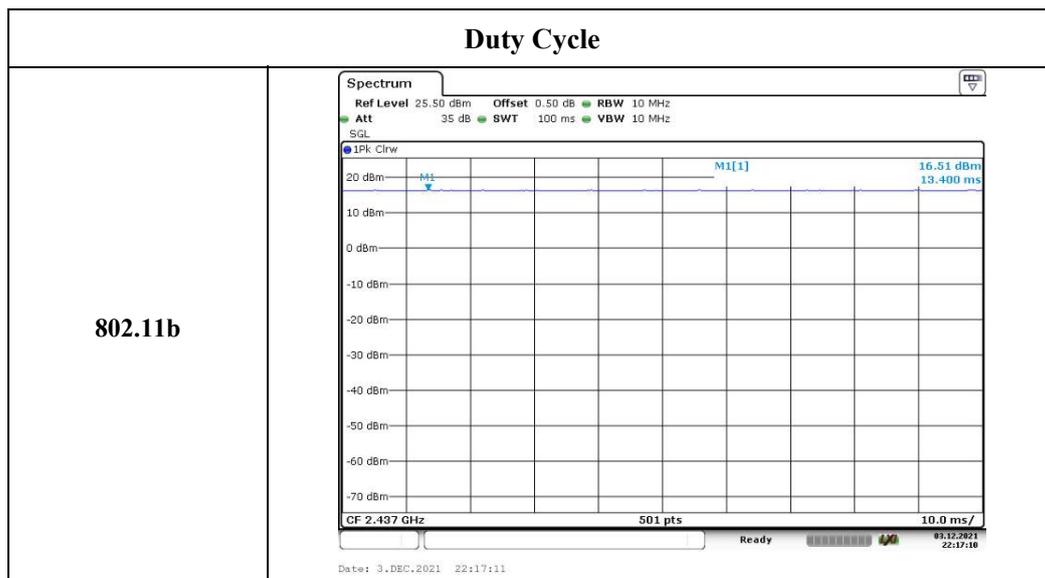
Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------|-----------|---------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40 | 101474 | 2021/7/22 | 2022/7/21 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211001 | Each time | N/A |
| Mini-Circuits | DC Block | BLK-18-S+ | 1554403 | Each time | N/A |

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

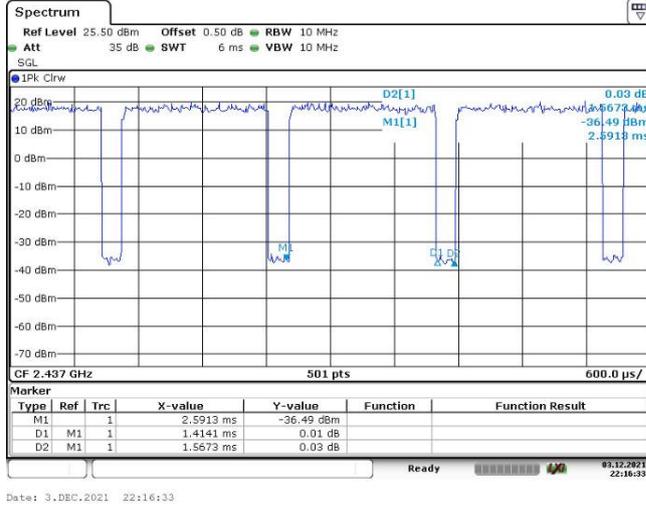
Test Data:

| Test Modes | Ton (ms) | Ton+off (ms) | Duty cycle (%) |
|--------------|----------|--------------|----------------|
| 802.11b | 100 | 100 | 100.00 |
| 802.11g | 1.414 | 1.567 | 90.24 |
| 802.11n ht20 | 1.317 | 1.479 | 89.05 |
| 802.11n ht40 | 0.665 | 0.847 | 78.51 |



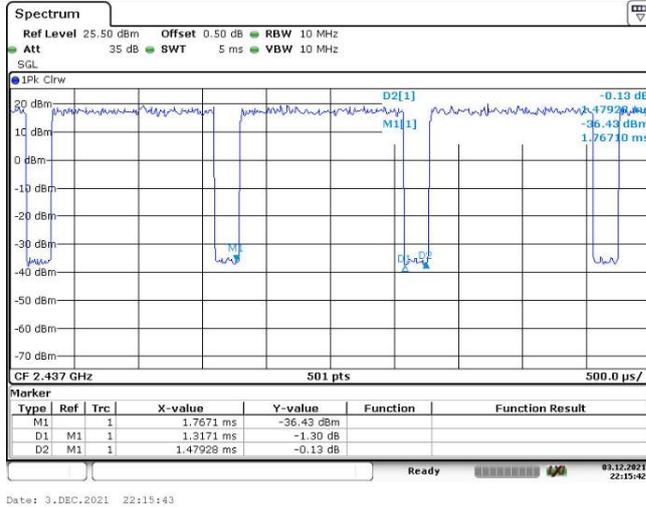
Duty Cycle

802.11g



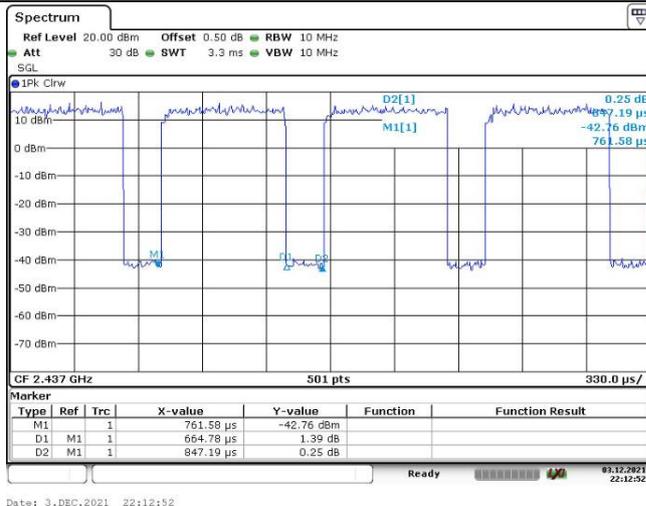
Date: 3.DEC.2021 22:16:33

802.11n ht20



Date: 3.DEC.2021 22:15:43

802.11n ht40



Date: 3.DEC.2021 22:12:52

5. RF EXPOSURE EVALUATION

5.1 Applicable Standard

FCC §15.247 (i)

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §1.1307(b)(1) of this chapter.

5.2 Measurement Result

Result: Compliance. Please refer to the SAR report: CR21110036-SA.

===== END OF REPORT =====