# FCC PART 15.247

# TEST REPORT

For

# SZ DJI TECHNOLOGY CO., LTD

14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China

## FCC ID: SS3-CS5501702

| Report Type: | Product Name: |
|---|---|
| Original Report | CrystalSky(5.5 inch) |

| | |
|---|---|
| **Test Engineer:** | *Kevin Hu* |
| **Report Number:** | RDG170212007B |
| **Report Date:** | 2017-03-27 |
| **Reviewed By:** | Henry Ding<br>EMC Leader |
| **Test Laboratory:** | Bay Area Compliance Laboratories Corp. (Chengdu)<br>5040, HuiLongWan Plaza, No. 1, ShaWan Road,<br>JinNiu District, ChengDu, China<br>Tel: 028-65523123, Fax: 028-65525125<br>www.baclcorp.com |

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# GENERAL INFORMATION

## Product Description for Equipment under Test (EUT)

The ***SZ DJI TECHNOLOGY CO., LTD***'s product, model number: ***CS550 (FCC ID: SS3-CS5501702)*** (the "EUT") in this report was a ***CrystalSky(5.5 inch)***, which was measured approximately: 15.4 cm (L) x8.5 cm (W) x 4 cm(H), rated input voltage: DC7.6V from battery. The battery can remove from the EUT and charged by charger base.

**All measurement and test data in this report was gathered from final production sample, serial number: 170212007 (assigned by the BACL, Chengdu). It may have deviation from any other sample.The EUT supplied by the applicant was received on 2017-02-12, and EUT conformed to test requirement.*

## Objective

This report is prepared on behalf of ***SZ DJI TECHNOLOGY CO., LTD*** in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's rules

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.209 and 15.247 rules.

## Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: SS3-CS5501702.
FCC Part 15E NII submissions with FCC ID: SS3-CS5501702.

## Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Chengdu). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## Measurement Uncertainty

| Parameter | Measurement Uncertainty |
|---|---|
| Occupied Channel Bandwidth | ±5 % |
| RF output power, conducted | ±0.62dB |
| Power Spectral Density, conducted | ±0.62 dB |
| Unwanted Emissions, radiated | 30M~200MHz: 4.7 dB for Horizontal, 4.7 dB for Vertical<br>200M~1GHz:6.0 dB for Horizontal, 6.0 for Vertical<br>1G~6GHz: 5.13 dB, 6G~18GHz: 5.47 dB |
| Temperature | ±1℃ |
| Humidity | ±5% |
| DC and low frequency voltages | ±0.4% |
| Duty Cycle | 1% |
| AC Power Lines Conducted Emission | 3.17 dB (150 kHz to 30 MHz) |

## Test Facility

The test site used by BACL to collect test data is located in the5040, HuiLongWan Plaza, No. 1, ShaWan Road,JinNiu District, ChengDu, China

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.:560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

# SYSTEM TEST CONFIGURATION

## Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

For 2.4GHz band, the device employed 802.11b/g/n ht20 modes.

For 802.11b, 802.11g, and 802.11n20 modes, 11 channels are provided:

| 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 | / | / |

## EUT Exercise Software

The software “DJI-RF Certification” was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations.

For 802.11b/g/n mode, the maximum power was as below setting, the power setting was provided by the manufacturer:

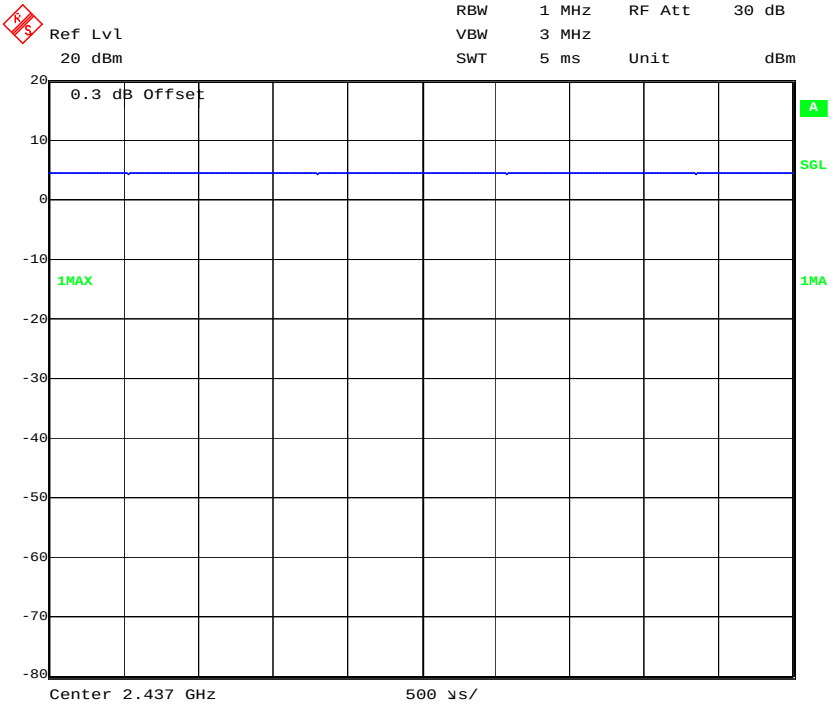
| Antenna 0&1 | | | | |
|---|---|---|---|---|
| **Test Mode** | Test Software Version | DJI-RF Certification | | |
| **802.11b** | Frequency (MHz) | 2412 | 2417~2457 | 2462 |
| | Data Rate | 1Mbps | 1Mbps | 1Mbps |
| | Power Level Setting | 7 | 10 | 7 |
| **802.11g** | Data Rate | 6Mbps | 6Mbps | 6Mbps |
| | Power Level Setting | 7 | 10 | 7 |
| **802.11n ht20** | Data Rate | MCS0 | MCS0 | MCS0 |
| | Power Level Setting | 7 | 10 | 7 |

All test items performed at Low, Middle and High Channel, and according to the power test, the high channels for 802.11b/g/n was lower than other channels, 2457MHz was added for testing with output power and radiation bandedge test.

The software configured maximum duty cycle as below:

| Mode | $T_{on}$ (ms) | $T_{on+off}$ (ms) | Duty Cycle (%) |
|---|---|---|---|
| 802.11b | 5 | 5 | 100% |
| 802.11g | 2.09 | 2.12 | 99% |
| 802.11n ht20 | 1.94 | 1.98 | 98% |

## 802.11b mode

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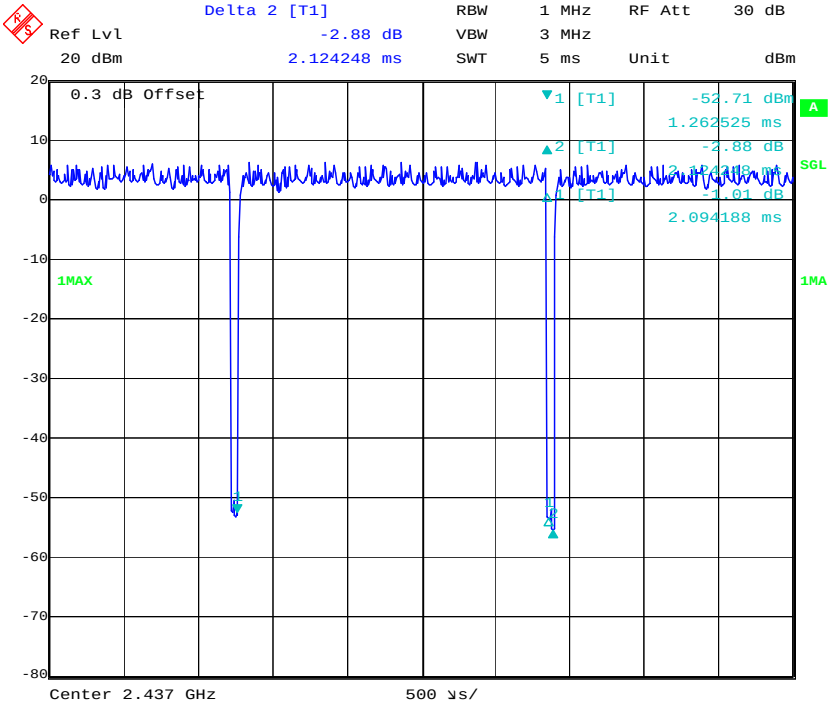
## 802.11g mode

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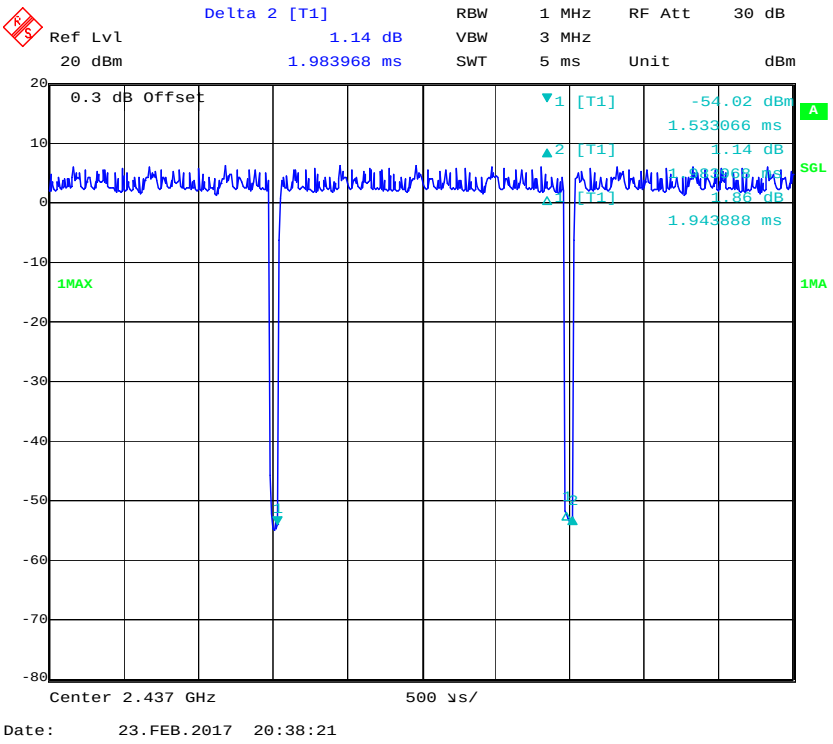
**802.11n ht20 mode**

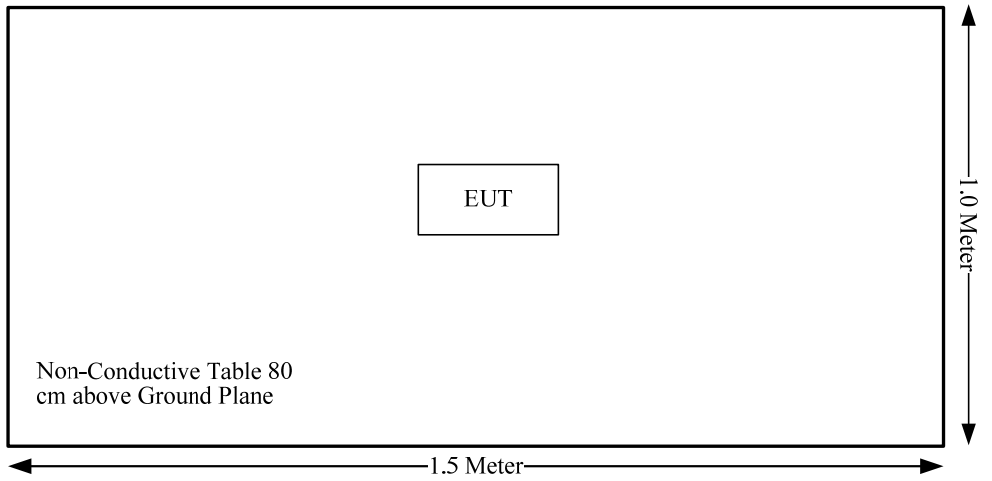



## Equipment Modifications

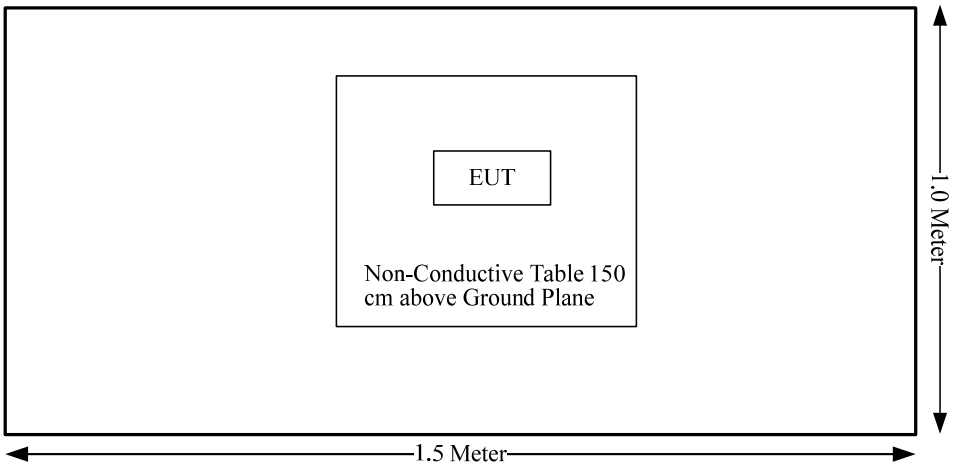
No modification was made to the EUT.

## Block Diagram of Test Setup

Radiation test below 1GHz:




Radiation test above 1GHz:



# SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Result |
|---|---|---|
| FCC §15.247 (i) & §1.1310 & §2.1093 | RF Exposure | Compliance |
| §15.203 | Antenna Requirement | Compliance |
| §15.207 (a) | AC Line Conducted Emissions | Not Applicable |
| §15.205, §15.209, §15.247(d) | Spurious Emissions | Compliance |
| §15.247 (a)(2) | 6 dB Bandwidth | Compliance |
| §15.247(b)(3) | Maximum Peak Conducted Output Power | Compliance |
| §15.247(d) | 100 kHz Bandwidth of Frequency Band Edge | Compliance |
| §15.247(e) | Power Spectral Density | Compliance |

Not Applicable: the EUT was powered by battery.

# FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

## Applicable Standard

According to§15.247(i),§1.1310 and §2.1093.

## Test Result

Compliant, please refer to the SAR report: RDG170212007-20A.

# FCC §15.203 - ANTENNA REQUIREMENT

## Applicable Standard

According to § 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

## Antenna Connector Construction

The EUT has 2 internal antennas, the antenna gain of chain 0 are 2.2 dBi in 2.4GHz band, 2.5dBi in the 5150-5250MHz Band, 5.6 dBi in 5725-5850MHz band, the antenna gain of chain 1 are 2.0 dBi in 2.4GHz band, 4.3dBi in the 5150-5250MHz Band, 5.3 dBi in 5725-5850MHz band, that fulfill the requirement of the item. Please refer to the internal photos.

**Result:** Compliance.

# FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

## Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

## Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If $U_{lab}$ is less than or equal to $U_{cispr}$ of Table 2, then:
–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.
If $U_{lab}$ is greater than $U_{cispr}$ of Table 2, then:
–compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
–non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

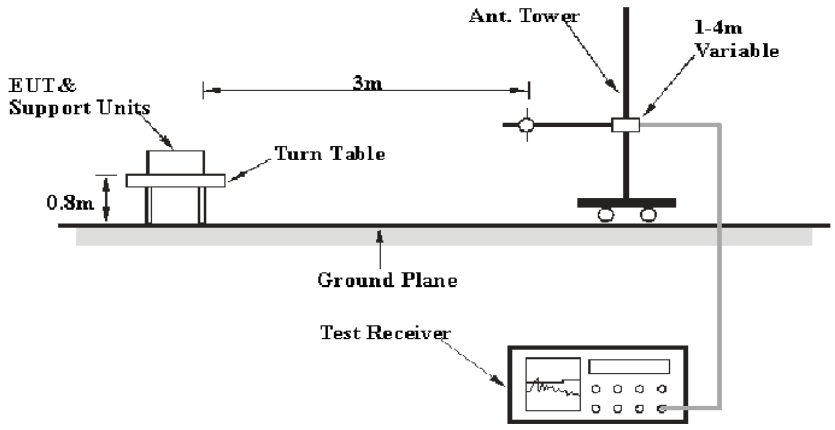
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Chengdu) is:
30M~200MHz: ±4.7 dB;
200M~1GHz: ±6.0 dB;
1G~6GHz: ±5.13dB;
6G~25GHz: ±5.47 dB;

Table 2 – Values of $U_{cispr}$

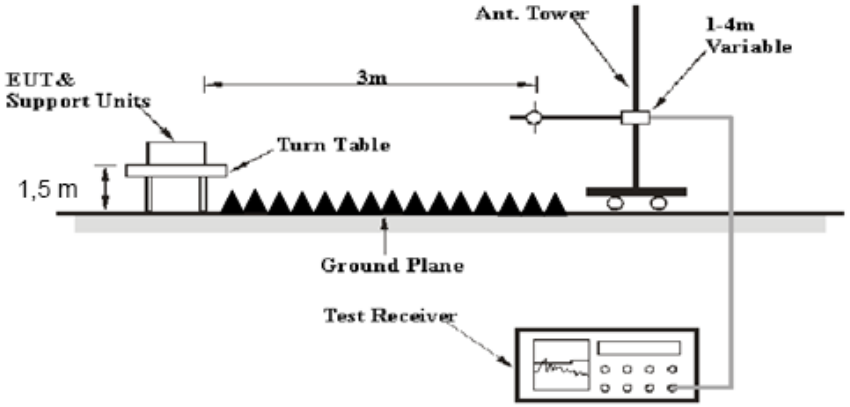
| Measurement | | $U_{cispr}$ |
|---|---|---|
| Radiated disturbance (electric field strength at an OATS or in a SAC) | (30 MHz to 1000 MHz) | 6.3 dB |
| Radiated disturbance (electric field strength in a FAR) | (1 GHz to 6 GHz) | 5.2 dB |
| Radiated disturbance (electric field strength in a FAR) | (6 GHz to 18 GHz) | 5.5 dB |

## EUT Setup

**Below 1GHz:**




**Above 1GHz:**




The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The spacing between the peripherals was 10 cm.

## 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:

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

1GHz- 25GHz:

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

Note: T is minimum transmission duration

## 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.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | Amplifier | 8447D | 2944A10442 | 2016-12-02 | 2017-12-01 |
| Rohde & Schwarz | EMI Test Receiver | ESCI | 100028 | 2016-12-02 | 2017-12-01 |
| Sunol Sciences | Broadband Antenna | JB3 | A101808 | 2016-04-10 | 2019-04-09 |
| Rohde & Schwarz | Spectrum Analyzer | FSEM30 | 100018 | 2016-12-02 | 2017-12-01 |
| ETS | Horn Antenna | 3115 | 003-6076 | 2016-12-02 | 2017-12-01 |
| Ducommun Technologies | Horn Antenna | ARH-4223-02 | 1007726-0113028 | 2014-06-16 | 2017-06-15 |
| Mini-circuits | Amplifier | ZVA-183-S+ | 771001215 | 2016-05-20 | 2017-05-19 |
| HP | Amplifier | 8449B | 3008A00277 | 2016-12-02 | 2017-12-01 |
| EMCT | Semi-Anechoic Chamber | 966 | N/A | 2015-04-24 | 2018-04-23 |
| N/A | RF Cable (below 1GHz) | NO.1 | N/A | 2016-11-10 | 2017-11-09 |
| N/A | RF Cable (below 1GHz) | NO.4 | N/A | 2016-11-10 | 2017-11-09 |
| N/A | RF Cable (above 1GHz) | NO.2 | N/A | 2016-11-10 | 2017-11-09 |

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.1 °C |
| **Relative Humidity:** | 51 % |
| **ATM Pressure:** | 97.2 kPa |

*The testing was performed by Kevin Hu on 2017-03-26.*

*Test Result: Compliance, please Refer to the following data*

*Test Mode: Transmitting*

**30MHz-25GHz:**

802.11b Mode(2TX mode was the worst)

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Low Channel: 2412 MHz | | | | | | | | | |
| 2412 | 71.88 | PK | H | 23.50 | 3.00 | 0.00 | 98.38 | N/A | N/A |
| 2412 | 68.62 | AV | H | 23.50 | 3.00 | 0.00 | 95.12 | N/A | N/A |
| 2412 | 70.66 | PK | V | 23.50 | 3.00 | 0.00 | 97.16 | N/A | N/A |
| 2412 | 66.99 | AV | V | 23.50 | 3.00 | 0.00 | 93.49 | N/A | N/A |
| 2390 | 30.67 | PK | H | 23.57 | 3.00 | 0.00 | 57.24 | 74.00 | 16.76 |
| 2390 | 17.45 | AV | H | 23.57 | 3.00 | 0.00 | 44.02 | 54.00 | 9.98 |
| 4824 | 31.35 | PK | H | 30.84 | 5.11 | 26.87 | 40.43 | 74.00 | 33.57 |
| 4824 | 22.47 | AV | H | 30.84 | 5.11 | 26.87 | 31.55 | 54.00 | 22.45 |
| 7236 | 24 | PK | H | 34.77 | 6.18 | 26.36 | 38.59 | 74.00 | 35.41 |
| 7236 | 15.32 | AV | H | 34.77 | 6.18 | 26.36 | 29.91 | 54.00 | 24.09 |
| 2018 | 37.89 | PK | H | 24.84 | 3.05 | 26.82 | 38.96 | 74.00 | 35.04 |
| 2018 | 26.73 | AV | H | 24.84 | 3.05 | 26.82 | 27.80 | 54.00 | 26.20 |
| 76.56 | 45.5 | QP | H | 7.83 | 0.46 | 28.41 | 25.38 | 40.00 | 14.62 |
| 516.94 | 35.4 | QP | H | 18.27 | 1.65 | 28.82 | 26.50 | 46.00 | 19.50 |
| Middle Channel: 2437 MHz | | | | | | | | | |
| 2437 | 72.3 | PK | H | 23.41 | 3.00 | 0.00 | 98.71 | N/A | N/A |
| 2437 | 69.21 | AV | H | 23.41 | 3.00 | 0.00 | 95.62 | N/A | N/A |
| 2437 | 71.15 | PK | V | 23.41 | 3.00 | 0.00 | 97.56 | N/A | N/A |
| 2437 | 67.04 | AV | V | 23.41 | 3.00 | 0.00 | 93.45 | N/A | N/A |
| 4874 | 30.96 | PK | H | 31.00 | 5.09 | 26.87 | 40.18 | 74.00 | 33.82 |
| 4874 | 22.2 | AV | H | 31.00 | 5.09 | 26.87 | 31.42 | 54.00 | 22.58 |
| 7311 | 23.92 | PK | H | 34.92 | 6.21 | 26.40 | 38.65 | 74.00 | 35.35 |
| 7311 | 15.19 | AV | H | 34.92 | 6.21 | 26.40 | 29.92 | 54.00 | 24.08 |
| 2054 | 37.88 | PK | H | 24.72 | 3.04 | 26.83 | 38.81 | 74.00 | 35.19 |
| 2054 | 26.82 | AV | H | 24.72 | 3.04 | 26.83 | 27.75 | 54.00 | 26.25 |
| 3167 | 31.85 | PK | H | 25.14 | 3.68 | 26.47 | 34.20 | 74.00 | 39.80 |
| 3167 | 20.77 | AV | H | 25.14 | 3.68 | 26.47 | 23.12 | 54.00 | 30.88 |
| 76.56 | 45.5 | QP | H | 7.83 | 0.46 | 28.41 | 25.38 | 40.00 | 14.62 |
| 516.94 | 35.2 | QP | H | 18.27 | 1.65 | 28.82 | 26.30 | 46.00 | 19.70 |
| High Channel: 2462 MHz | | | | | | | | | |
| 2462 | 71.83 | PK | H | 23.33 | 2.99 | 0.00 | 98.15 | N/A | N/A |
| 2462 | 68.41 | AV | H | 23.33 | 2.99 | 0.00 | 94.73 | N/A | N/A |
| 2462 | 70.62 | PK | V | 23.33 | 2.99 | 0.00 | 96.94 | N/A | N/A |
| 2462 | 67.53 | AV | V | 23.33 | 2.99 | 0.00 | 93.85 | N/A | N/A |
| 2483.5 | 30.87 | PK | H | 23.26 | 2.99 | 0.00 | 57.12 | 74.00 | 16.88 |
| 2483.5 | 17.98 | AV | H | 23.26 | 2.99 | 0.00 | 44.23 | 54.00 | 9.77 |
| 4924 | 31.33 | PK | H | 31.16 | 5.07 | 26.88 | 40.68 | 74.00 | 33.32 |
| 4924 | 22.21 | AV | H | 31.16 | 5.07 | 26.88 | 31.56 | 54.00 | 22.44 |
| 7386 | 22.87 | PK | H | 35.07 | 6.25 | 26.43 | 37.76 | 74.00 | 36.24 |
| 7386 | 14.15 | AV | H | 35.07 | 6.25 | 26.43 | 29.04 | 54.00 | 24.96 |
| 2098 | 38.89 | PK | H | 24.57 | 3.04 | 26.83 | 39.67 | 74.00 | 34.33 |
| 2098 | 27.45 | AV | H | 24.57 | 3.04 | 26.83 | 28.23 | 54.00 | 25.77 |
| 76.56 | 45.3 | QP | H | 7.83 | 0.46 | 28.41 | 25.18 | 40.00 | 14.82 |
| 516.94 | 35 | QP | H | 18.27 | 1.65 | 28.82 | 26.10 | 46.00 | 19.90 |
| 2462 | 71.83 | PK | H | 23.33 | 2.99 | 0.00 | 98.15 | N/A | N/A |
| 2462 | 68.41 | AV | H | 23.33 | 2.99 | 0.00 | 94.73 | N/A | N/A |

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Additional Channel: 2457MHz | | | | | | | | | |
| 2457 | 72.02 | PK | H | 23.35 | 3.00 | 0.00 | 98.37 | N/A | N/A |
| 2457 | 68.31 | AV | H | 23.35 | 3.00 | 0.00 | 94.66 | N/A | N/A |
| 2483.5 | 30.64 | PK | H | 23.26 | 2.99 | 0.00 | 56.89 | 74.00 | 17.11 |
| 2483.5 | 17.71 | AV | H | 23.26 | 2.99 | 0.00 | 43.96 | 54.00 | 10.04 |

802.11g Mode(2TX mode was the worst)

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Low Channel: 2412 MHz | | | | | | | | | |
| 2412 | 74.92 | PK | H | 23.50 | 3.00 | 0.00 | 101.42 | N/A | N/A |
| 2412 | 64 | AV | H | 23.50 | 3.00 | 0.00 | 90.50 | N/A | N/A |
| 2412 | 73.18 | PK | V | 23.50 | 3.00 | 0.00 | 99.68 | N/A | N/A |
| 2412 | 62.43 | AV | V | 23.50 | 3.00 | 0.00 | 88.93 | N/A | N/A |
| 2390 | 32.32 | PK | H | 23.57 | 3.00 | 0.00 | 58.89 | 74.00 | 15.11 |
| 2390 | 18.83 | AV | H | 23.57 | 3.00 | 0.00 | 45.40 | 54.00 | 8.60 |
| 4824 | 28.29 | PK | H | 30.84 | 5.11 | 26.87 | 37.37 | 74.00 | 36.63 |
| 4824 | 17.66 | AV | H | 30.84 | 5.11 | 26.87 | 26.74 | 54.00 | 27.26 |
| 7236 | 23.44 | PK | H | 34.77 | 6.18 | 26.36 | 38.03 | 74.00 | 35.97 |
| 7236 | 12.56 | AV | H | 34.77 | 6.18 | 26.36 | 27.15 | 54.00 | 26.85 |
| 2018 | 37.63 | PK | H | 24.84 | 3.05 | 26.82 | 38.70 | 74.00 | 35.30 |
| 2018 | 27.05 | AV | H | 24.84 | 3.05 | 26.82 | 28.12 | 54.00 | 25.88 |
| 76.56 | 45.7 | QP | H | 7.83 | 0.46 | 28.41 | 25.58 | 40.00 | 14.42 |
| 516.94 | 35.1 | QP | H | 18.27 | 1.65 | 28.82 | 26.20 | 46.00 | 19.80 |
| Middle Channel: 2437 MHz | | | | | | | | | |
| 2437 | 74.71 | PK | H | 23.41 | 3.00 | 0.00 | 101.12 | N/A | N/A |
| 2437 | 63.85 | AV | H | 23.41 | 3.00 | 0.00 | 90.26 | N/A | N/A |
| 2437 | 73.33 | PK | V | 23.41 | 3.00 | 0.00 | 99.74 | N/A | N/A |
| 2437 | 62.5 | AV | V | 23.41 | 3.00 | 0.00 | 88.91 | N/A | N/A |
| 4874 | 27.8 | PK | H | 31.00 | 5.09 | 26.87 | 37.02 | 74.00 | 36.98 |
| 4874 | 17.41 | AV | H | 31.00 | 5.09 | 26.87 | 26.63 | 54.00 | 27.37 |
| 7311 | 23.1 | PK | H | 34.92 | 6.21 | 26.40 | 37.83 | 74.00 | 36.17 |
| 7311 | 12.32 | AV | H | 34.92 | 6.21 | 26.40 | 27.05 | 54.00 | 26.95 |
| 2054 | 37.66 | PK | H | 24.72 | 3.04 | 26.83 | 38.59 | 74.00 | 35.41 |
| 2054 | 27.07 | AV | H | 24.72 | 3.04 | 26.83 | 28.00 | 54.00 | 26.00 |
| 3167 | 32.08 | PK | H | 25.14 | 3.68 | 26.47 | 34.43 | 74.00 | 39.57 |
| 3167 | 20.64 | AV | H | 25.14 | 3.68 | 26.47 | 22.99 | 54.00 | 31.01 |
| 76.56 | 45.6 | QP | H | 7.83 | 0.46 | 28.41 | 25.48 | 40.00 | 14.52 |
| 516.94 | 35 | QP | H | 18.27 | 1.65 | 28.82 | 26.10 | 46.00 | 19.90 |
| High Channel: 2462 MHz | | | | | | | | | |
| 2462 | 75.44 | PK | H | 23.33 | 2.99 | 0.00 | 101.76 | N/A | N/A |
| 2462 | 64.21 | AV | H | 23.33 | 2.99 | 0.00 | 90.53 | N/A | N/A |
| 2462 | 73.03 | PK | V | 23.33 | 2.99 | 0.00 | 99.35 | N/A | N/A |
| 2462 | 62.45 | AV | V | 23.33 | 2.99 | 0.00 | 88.77 | N/A | N/A |
| 2483.5 | 32.4 | PK | H | 23.26 | 2.99 | 0.00 | 58.65 | 74.00 | 15.35 |
| 2483.5 | 19.64 | AV | H | 23.26 | 2.99 | 0.00 | 45.89 | 54.00 | 8.11 |
| 4924 | 28.05 | PK | H | 31.16 | 5.07 | 26.88 | 37.40 | 74.00 | 36.60 |
| 4924 | 16.73 | AV | H | 31.16 | 5.07 | 26.88 | 26.08 | 54.00 | 27.92 |
| 7386 | 23.64 | PK | H | 35.07 | 6.25 | 26.43 | 38.53 | 74.00 | 35.47 |
| 7386 | 12.95 | AV | H | 35.07 | 6.25 | 26.43 | 27.84 | 54.00 | 26.16 |
| 2098 | 38.61 | PK | H | 24.57 | 3.04 | 26.83 | 39.39 | 74.00 | 34.61 |
| 2098 | 28.45 | AV | H | 24.57 | 3.04 | 26.83 | 29.23 | 54.00 | 24.77 |
| 76.56 | 45.3 | QP | H | 7.83 | 0.46 | 28.41 | 25.18 | 40.00 | 14.82 |
| 516.94 | 35.1 | QP | H | 18.27 | 1.65 | 28.82 | 26.20 | 46.00 | 19.80 |
| 2462 | 75.44 | PK | H | 23.33 | 2.99 | 0.00 | 101.76 | N/A | N/A |
| 2462 | 64.21 | AV | H | 23.33 | 2.99 | 0.00 | 90.53 | N/A | N/A |

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBµV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Additional Channel: 2457 MHz | | | | | | | | | |
| 2457 | 75.49 | PK | H | 23.35 | 3.00 | 0.00 | 101.84 | N/A | N/A |
| 2457 | 64.12 | AV | H | 23.35 | 3.00 | 0.00 | 90.47 | N/A | N/A |
| 2483.5 | 32.5 | PK | H | 23.26 | 2.99 | 0.00 | 58.75 | 74.00 | 15.25 |
| 2483.5 | 19.06 | AV | H | 23.26 | 2.99 | 0.00 | 45.31 | 54.00 | 8.69 |

802.11 n ht20 Mode(2TX mode was the worst)

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Low Channel: 2412 MHz | | | | | | | | | |
| 2412 | 75.58 | PK | H | 23.50 | 3.00 | 0.00 | 102.08 | N/A | N/A |
| 2412 | 63.77 | AV | H | 23.50 | 3.00 | 0.00 | 90.27 | N/A | N/A |
| 2412 | 73.5 | PK | V | 23.50 | 3.00 | 0.00 | 100.00 | N/A | N/A |
| 2412 | 62.96 | AV | V | 23.50 | 3.00 | 0.00 | 89.46 | N/A | N/A |
| 2390 | 36.42 | PK | H | 23.57 | 3.00 | 0.00 | 62.99 | 74.00 | 11.01 |
| 2390 | 22.54 | AV | H | 23.57 | 3.00 | 0.00 | 49.11 | 54.00 | 4.89 |
| 4824 | 27.99 | PK | H | 30.84 | 5.11 | 26.87 | 37.07 | 74.00 | 36.93 |
| 4824 | 17.11 | AV | H | 30.84 | 5.11 | 26.87 | 26.19 | 54.00 | 27.81 |
| 7236 | 23.52 | PK | H | 34.77 | 6.18 | 26.36 | 38.11 | 74.00 | 35.89 |
| 7236 | 12.27 | AV | H | 34.77 | 6.18 | 26.36 | 26.86 | 54.00 | 27.14 |
| 2018 | 37.31 | PK | H | 24.84 | 3.05 | 26.82 | 38.38 | 74.00 | 35.62 |
| 2018 | 27.57 | AV | H | 24.84 | 3.05 | 26.82 | 28.64 | 54.00 | 25.36 |
| 76.56 | 45.6 | QP | H | 7.83 | 0.46 | 28.41 | 25.48 | 40.00 | 14.52 |
| 516.94 | 35.1 | QP | H | 18.27 | 1.65 | 28.82 | 26.20 | 46.00 | 19.80 |
| Middle Channel: 2437 MHz | | | | | | | | | |
| 2437 | 75.12 | PK | H | 23.41 | 3.00 | 0.00 | 101.53 | N/A | N/A |
| 2437 | 64.28 | AV | H | 23.41 | 3.00 | 0.00 | 90.69 | N/A | N/A |
| 2437 | 73.49 | PK | V | 23.41 | 3.00 | 0.00 | 99.90 | N/A | N/A |
| 2437 | 62.31 | AV | V | 23.41 | 3.00 | 0.00 | 88.72 | N/A | N/A |
| 4874 | 27.54 | PK | H | 31.00 | 5.09 | 26.87 | 36.76 | 74.00 | 37.24 |
| 4874 | 8.47 | AV | H | 31.00 | 5.09 | 26.87 | 17.69 | 54.00 | 36.31 |
| 7311 | 23.07 | PK | H | 34.92 | 6.21 | 26.40 | 37.80 | 74.00 | 36.20 |
| 7311 | 12.29 | AV | H | 34.92 | 6.21 | 26.40 | 27.02 | 54.00 | 26.98 |
| 2054 | 38.07 | PK | H | 24.72 | 3.04 | 26.83 | 39.00 | 74.00 | 35.00 |
| 2054 | 26.96 | AV | H | 24.72 | 3.04 | 26.83 | 27.89 | 54.00 | 26.11 |
| 3167 | 32.2 | PK | H | 25.14 | 3.68 | 26.47 | 34.55 | 74.00 | 39.45 |
| 3167 | 21.38 | AV | H | 25.14 | 3.68 | 26.47 | 23.73 | 54.00 | 30.27 |
| 76.56 | 45.7 | QP | H | 7.83 | 0.46 | 28.41 | 25.58 | 40.00 | 14.42 |
| 516.94 | 34.9 | QP | H | 18.27 | 1.65 | 28.82 | 26.00 | 46.00 | 20.00 |
| High Channel: 2462 MHz | | | | | | | | | |
| 2462 | 75.45 | PK | H | 23.33 | 2.99 | 0.00 | 101.77 | N/A | N/A |
| 2462 | 64.03 | AV | H | 23.33 | 2.99 | 0.00 | 90.35 | N/A | N/A |
| 2462 | 73.26 | PK | V | 23.33 | 2.99 | 0.00 | 99.58 | N/A | N/A |
| 2462 | 62.51 | AV | V | 23.33 | 2.99 | 0.00 | 88.83 | N/A | N/A |
| 2483.5 | 33.44 | PK | H | 23.26 | 2.99 | 0.00 | 59.69 | 74.00 | 14.31 |
| 2483.5 | 21.13 | AV | H | 23.26 | 2.99 | 0.00 | 47.38 | 54.00 | 6.62 |
| 4924 | 26.37 | PK | H | 31.16 | 5.07 | 26.88 | 35.72 | 74.00 | 38.28 |
| 4924 | 15.18 | AV | H | 31.16 | 5.07 | 26.88 | 24.53 | 54.00 | 29.47 |
| 7386 | 23.88 | PK | H | 35.07 | 6.25 | 26.43 | 38.77 | 74.00 | 35.23 |
| 7386 | 13.34 | AV | H | 35.07 | 6.25 | 26.43 | 28.23 | 54.00 | 25.77 |
| 2098 | 38.14 | PK | H | 24.57 | 3.04 | 26.83 | 38.92 | 74.00 | 35.08 |
| 2098 | 26.63 | AV | H | 24.57 | 3.04 | 26.83 | 27.41 | 54.00 | 26.59 |
| 76.56 | 45.8 | QP | H | 7.83 | 0.46 | 28.41 | 25.68 | 40.00 | 14.32 |
| 516.94 | 35.1 | QP | H | 18.27 | 1.65 | 28.82 | 26.20 | 46.00 | 19.80 |
| 2462 | 75.45 | PK | H | 23.33 | 2.99 | 0.00 | 101.77 | N/A | N/A |
| 2462 | 64.03 | AV | H | 23.33 | 2.99 | 0.00 | 90.35 | N/A | N/A |

| Frequency (MHz) | Receiver | | Rx Antenna | | Cable loss (dB) | Amplifier Gain (dB) | Corrected Amplitude (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBµV) | Detector (PK/QP/AV) | Polar (H/V) | Factor (dB) | | | | | |
| Additional Channel: 2457 MHz | | | | | | | | | |
| 2457 | 75.87 | PK | H | 23.35 | 3.00 | 0.00 | 102.22 | N/A | N/A |
| 2457 | 63.94 | AV | H | 23.35 | 3.00 | 0.00 | 90.29 | N/A | N/A |
| 2483.5 | 33.6 | PK | H | 23.26 | 2.99 | 0.00 | 59.85 | 74.00 | 14.15 |
| 2483.5 | 21.22 | AV | H | 23.26 | 2.99 | 0.00 | 47.47 | 54.00 | 6.53 |

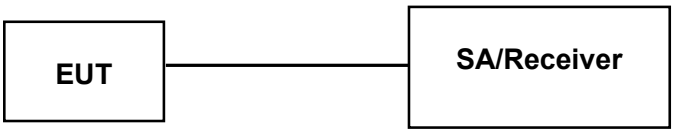
# FCC §15.247(a) (2) – 6dB BANDWIDTH

## Applicable Standard

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.

## Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.




## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Rohde & Schwarz | Signal Analyzer | FSIQ26 | 831929/005 | 2016-09-21 | 2017-09-20 |
| N/A | RF Cable | N/A | N/A | Each Time | / |

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 26.4 °C |
| **Relative Humidity:** | 38 % |
| **ATM Pressure:** | 95.6kPa |

*The testing was performed by Kevin Hu on 2017-02-22.*

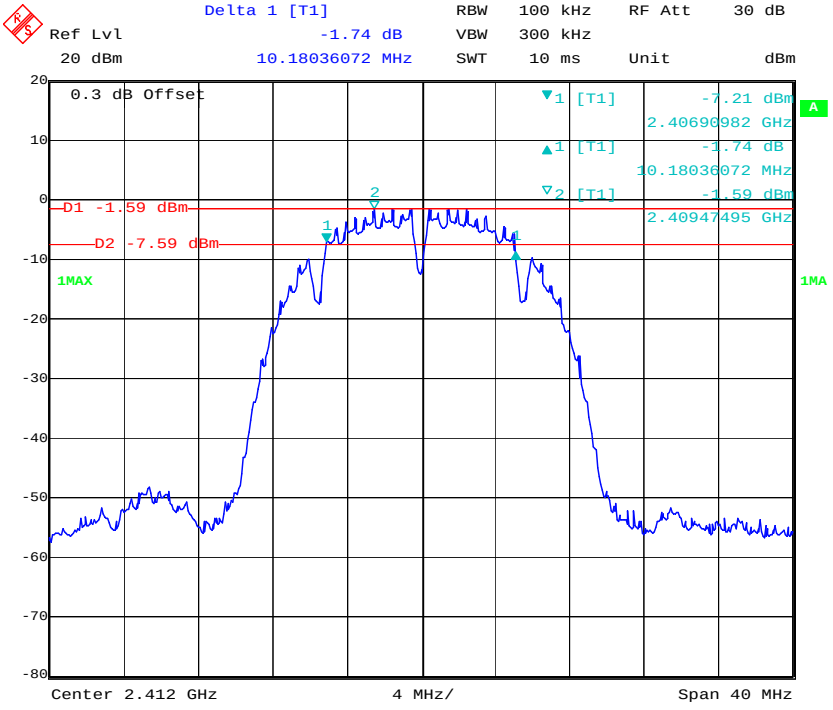
**Test Result:** Compliance.

Please refer to the following tables and plots.

*Test Mode: Transmitting (Test performed at Chain 0)*

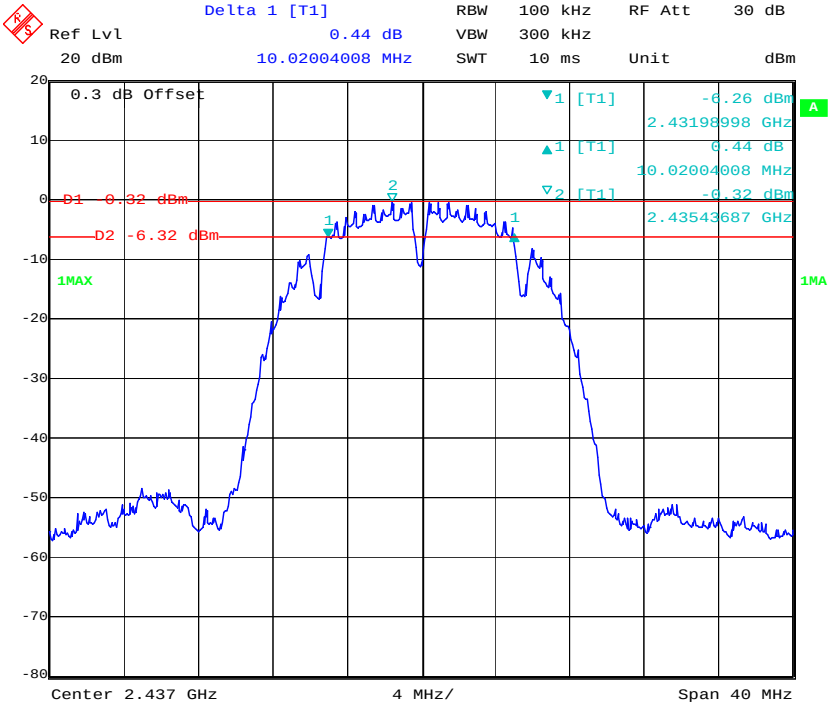
| Test mode | Channel | Frequency (MHz) | 6 dB Emission Bandwidth (MHz) | Limit (MHz) |
|---|---|---|---|---|
| 802.11b | Low | 2412 | 10.18 | ≥0.5 |
| | Middle | 2437 | 10.02 | ≥0.5 |
| | High | 2462 | 10.1 | ≥0.5 |
| 802.11g | Low | 2412 | 16.43 | ≥0.5 |
| | Middle | 2437 | 16.43 | ≥0.5 |
| | High | 2462 | 16.43 | ≥0.5 |
| 802.11n20 | Low | 2412 | 17.47 | ≥0.5 |
| | Middle | 2437 | 17.64 | ≥0.5 |
| | High | 2462 | 17.64 | ≥0.5 |

## 802.11b Low Channel



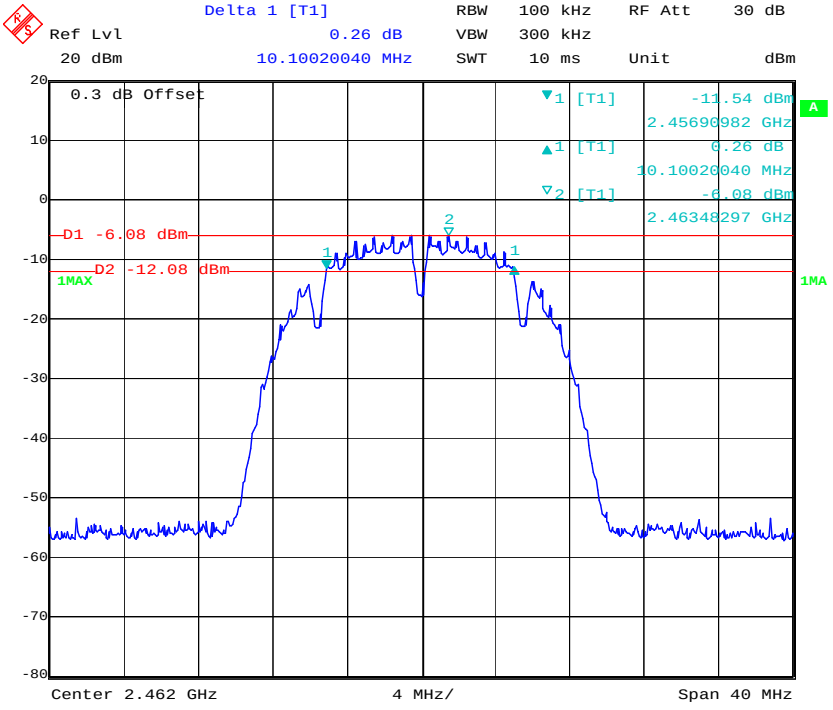

Date: 22.FEB.2017 20:48:20

## 802.11b Middle Channel

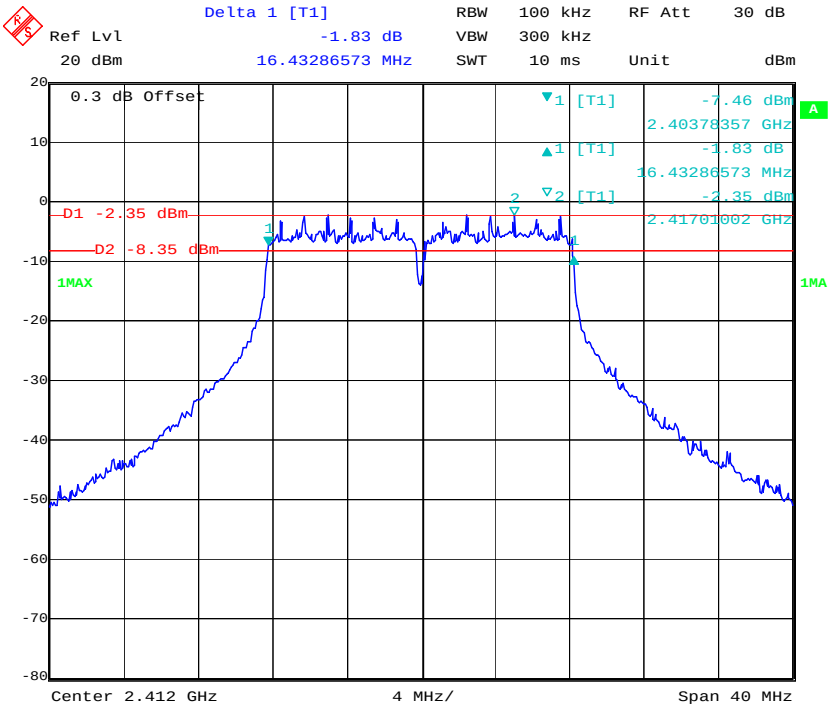



Date: 22.FEB.2017 20:50:39

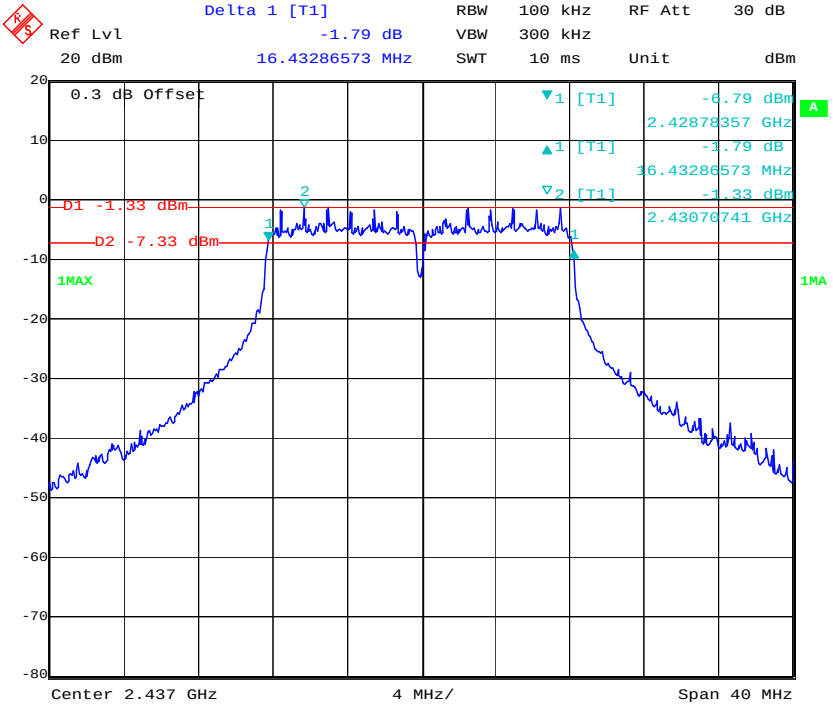
## 802.11b High Channel




## 802.11g Low Channel

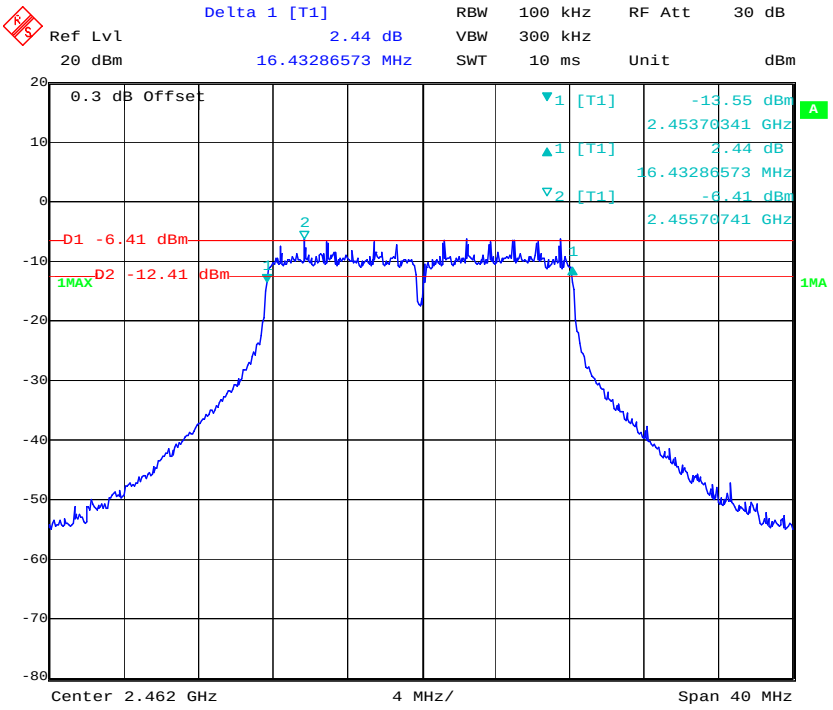


## 802.11g Middle Channel



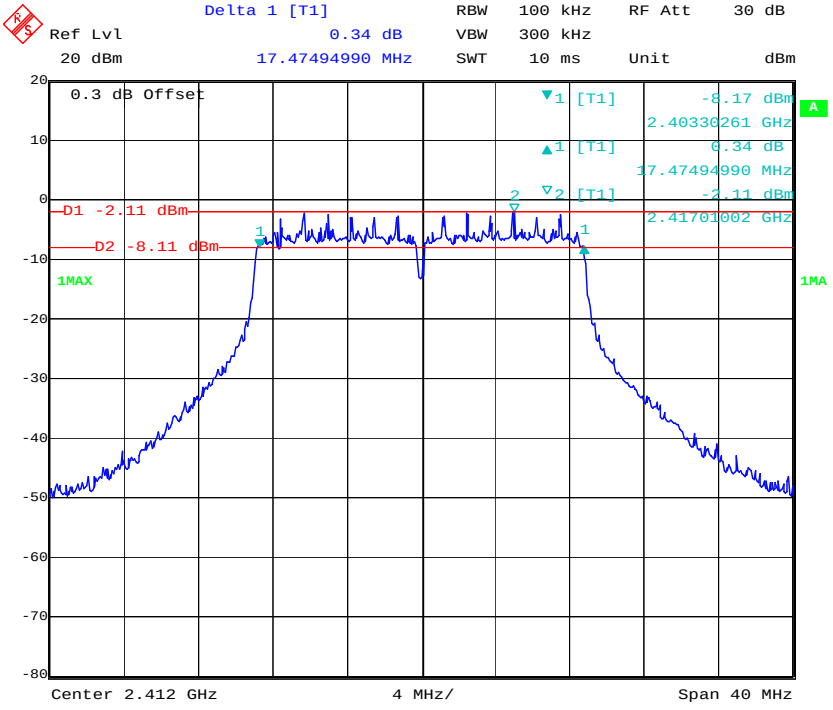

Date: 22.FEB.2017 21:06:15

## 802.11g High Channel

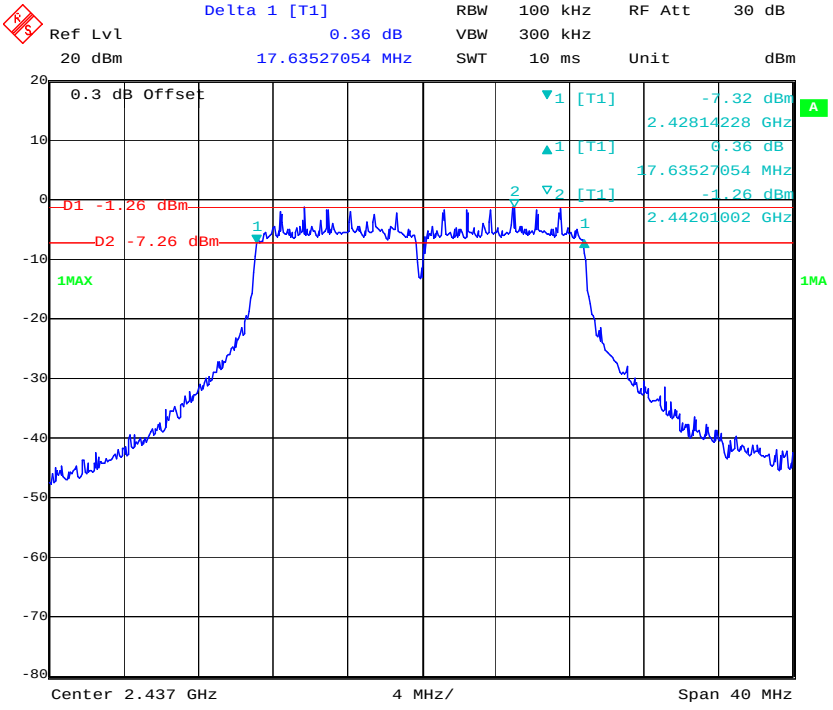



Date: 22.FEB.2017 21:02:54

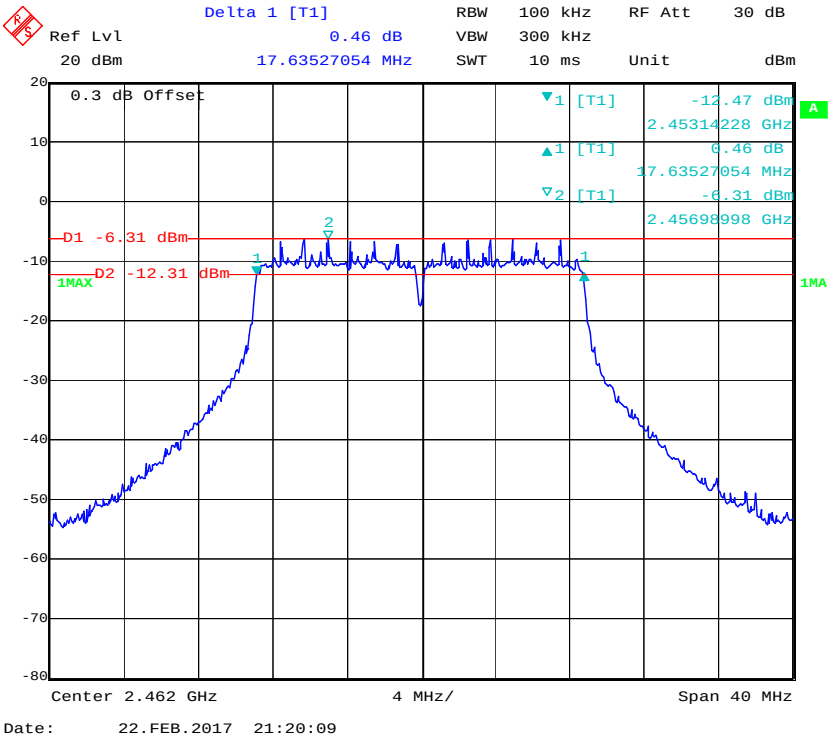
## 802.11n ht20 Low Channel




## 802.11n ht20 Middle Channel



## 802.11n ht20 High Channel



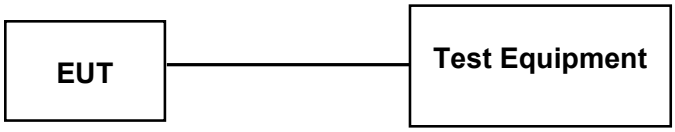
# FCC §15.247(b) (3) - MAXIMUM PEAK CONDUCTED OUTPUT POWER

## Applicable Standard

According to 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.

## Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Test Equipment.




## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | Wideband Power Sensor | N1921A | MY54170074 | 2017-01-03 | 2018-01-03 |
| Agilent | P-Series Power Meter | N1912A | MY5000798 | 2017-01-03 | 2018-01-03 |
| N/A | RF Cable | N/A | N/A | Each Time | / |

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.1 °C |
| **Relative Humidity:** | 51 % |
| **ATM Pressure:** | 97.2 kPa |

*The testing was performed by Kevin Hu on 2017-02-16*

*Test Mode: Transmitting*

| Test Mode | Frequency (MHz) | Conducted Peak Output Power (dBm) | | Total (dBm) | Limits (dBm) |
|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | | |
| 802.11b | 2412 | 11.07 | 11.24 | 14.17 | 30 |
| | 2437 | 12.1 | 12.44 | 15.28 | 30 |
| | 2457 | 11.48 | 11.24 | 14.37 | 30 |
| | 2462 | 7.39 | 8.96 | 11.26 | 30 |
| 802.11g | 2412 | 18.69 | 18.76 | 21.74 | 30 |
| | 2437 | 19.2 | 19.54 | 22.38 | 30 |
| | 2457 | 18.94 | 18.5 | 21.74 | 30 |
| | 2462 | 15.3 | 16.2 | 18.78 | 30 |
| 802.11n 20 | 2412 | 18.52 | 18.71 | 21.63 | 30 |
| | 2437 | 18.91 | 19.39 | 22.17 | 30 |
| | 2457 | 18.59 | 18.64 | 21.63 | 30 |
| | 2462 | 14.67 | 16.01 | 18.40 | 30 |

| Test Mode | Frequency (MHz) | Conducted Average Output Power (dBm) | | Total (dBm) | Limits (dBm) |
|---|---|---|---|---|---|
| | | Chain 0 | Chain 1 | | |
| 802.11b | 2412 | 9.08 | 9.79 | 12.46 | 30 |
| | 2437 | 9.45 | 10.34 | 12.93 | 30 |
| | 2457 | 9.01 | 9.83 | 12.45 | 30 |
| | 2462 | 5.04 | 6.65 | 8.93 | 30 |
| 802.11g | 2412 | 9.01 | 9.65 | 12.35 | 30 |
| | 2437 | 9.14 | 10.24 | 12.74 | 30 |
| | 2457 | 9.36 | 9.64 | 12.51 | 30 |
| | 2462 | 5.42 | 6.54 | 9.03 | 30 |
| 802.11n 20 | 2412 | 8.91 | 9.61 | 12.28 | 30 |
| | 2437 | 9.07 | 10.26 | 12.72 | 30 |
| | 2457 | 8.75 | 9.39 | 12.09 | 30 |
| | 2462 | 5.33 | 6.53 | 8.98 | 30 |

Note: For 802.11b/g/n the device employed Cyclic Delay Diversity (CDD) for MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

So:

Directional gain = GANT + Array Gain = 2.2dBi < 6dBi

# FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

## Applicable Standard

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)).

## Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Rohde & Schwarz | Signal Analyzer | FSIQ26 | 831929/005 | 2016-09-21 | 2017-09-20 |
| N/A | RF Cable | N/A | N/A | Each Time | / |

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

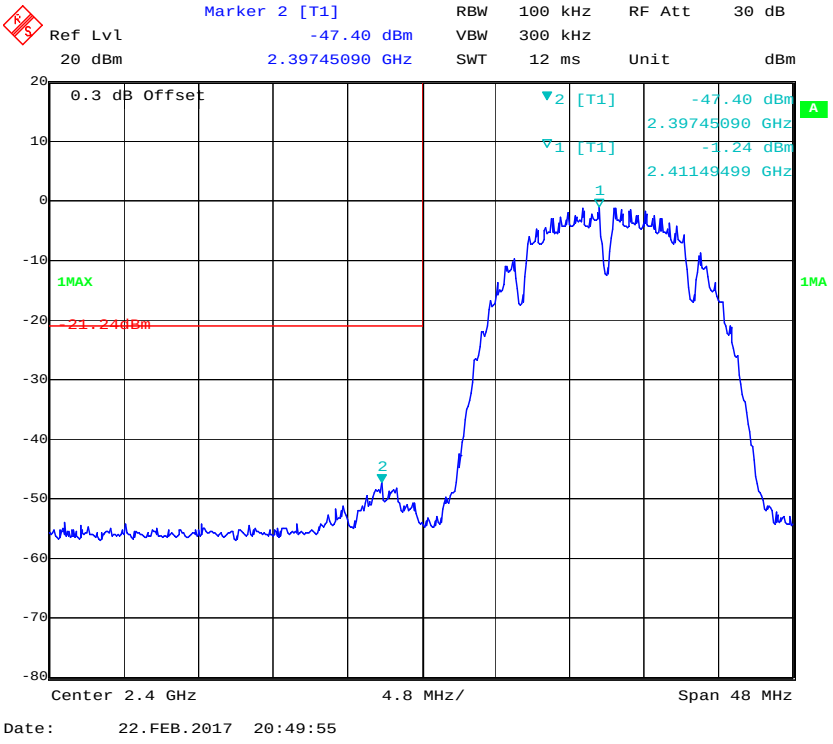
| | |
|---|---|
| **Temperature:** | 25.8 °C |
| **Relative Humidity:** | 42 % |
| **ATM Pressure:** | 96.4 kPa |

*The testing was performed by Kevin Hu from 2017-02-22.*

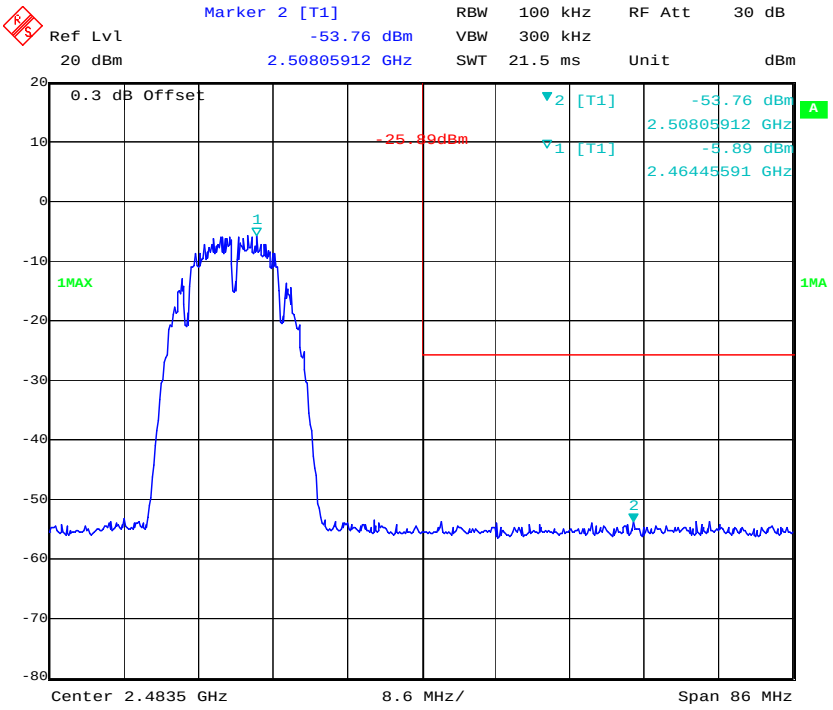
*Test mode: Transmitting*

*Test Result: Compliant. Please refer to following plots.*

**Chain 0-802.11b Band Edge, Left Side**



## Chain 0-802.11b Band Edge, Right Side

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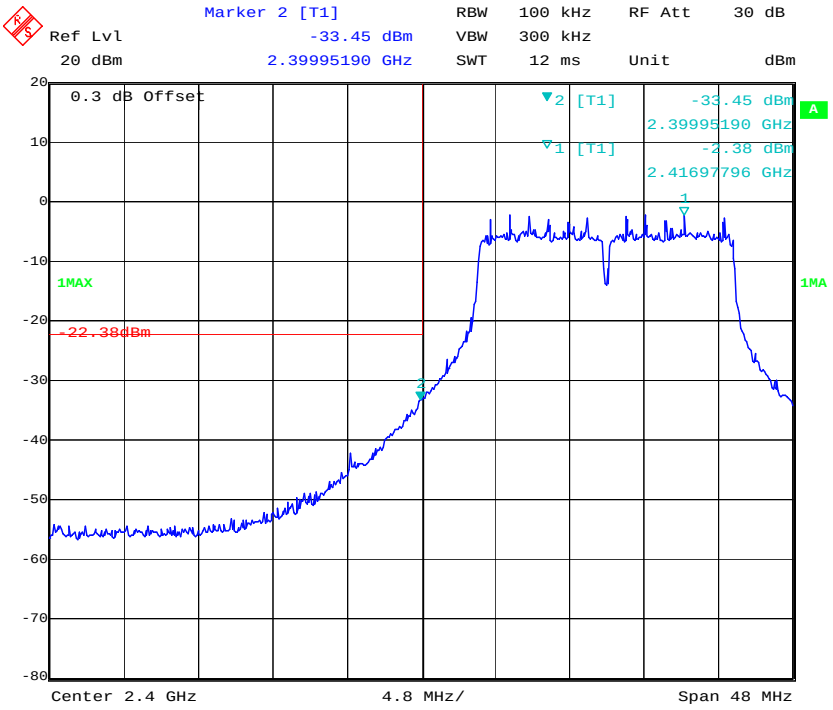
## Chain 0-802.11g Band Edge, Left Side

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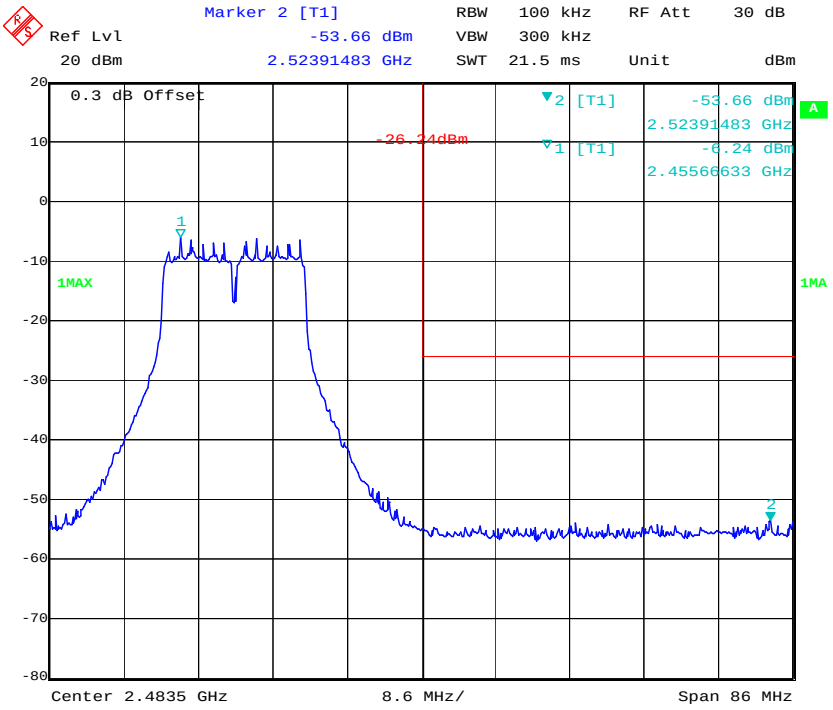
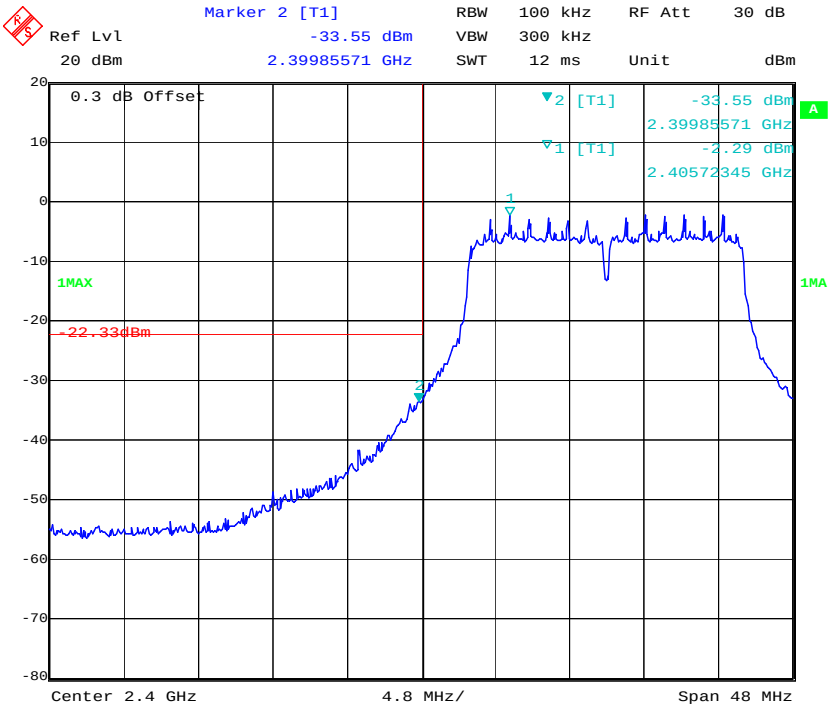
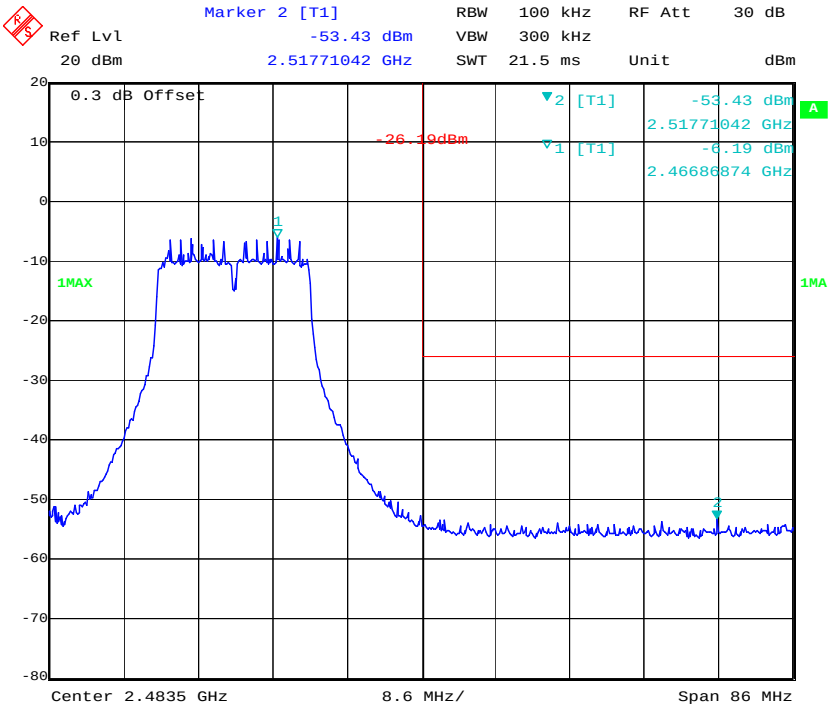
## Chain 0-802.11g Band Edge, Right Side



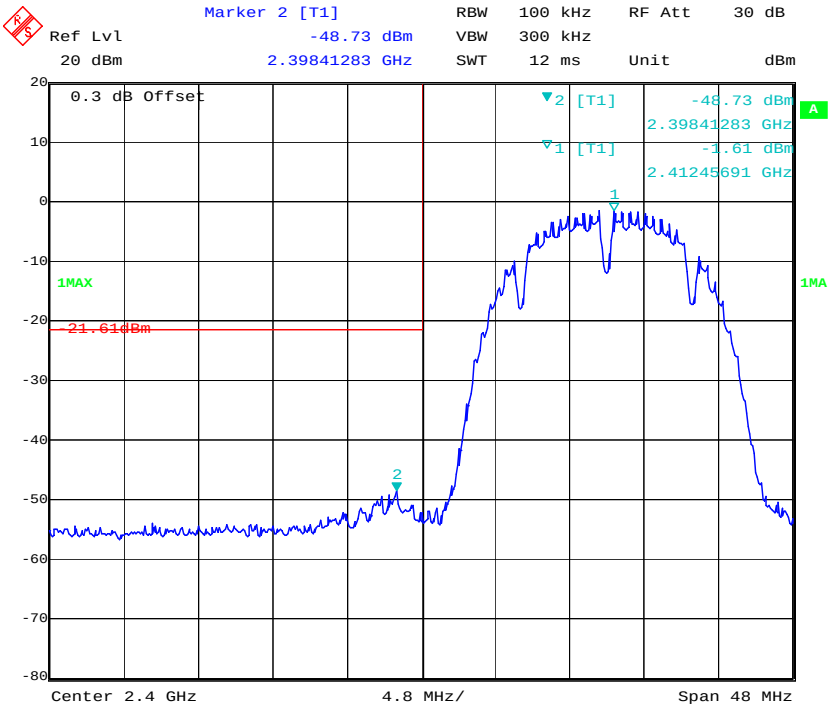

## Chain 0-802.11n ht20 Band Edge, Left Side



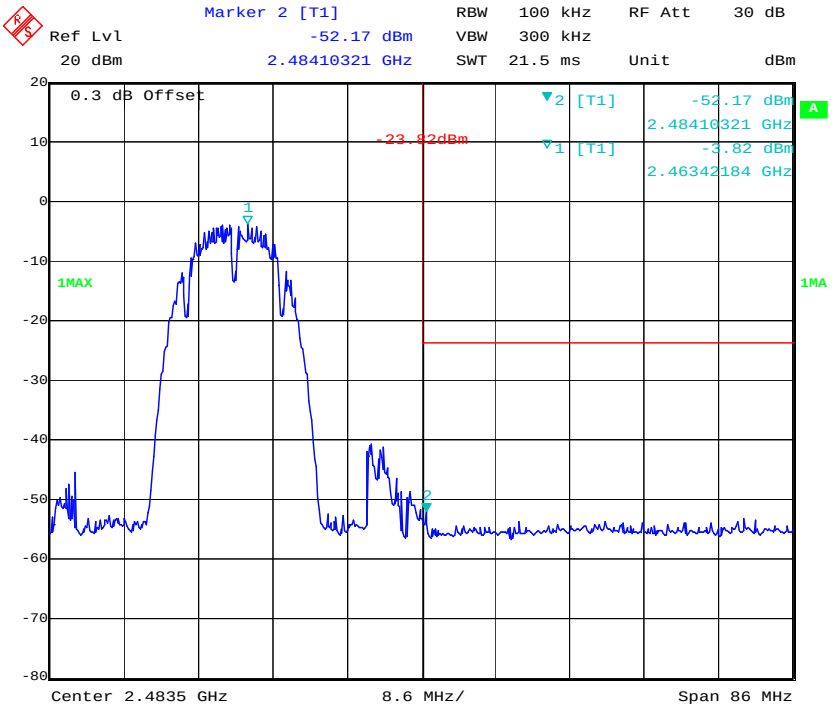
## Chain 0-802.11n ht20 Band Edge, Right Side




## Chain 1-802.11b Band Edge, Left Side

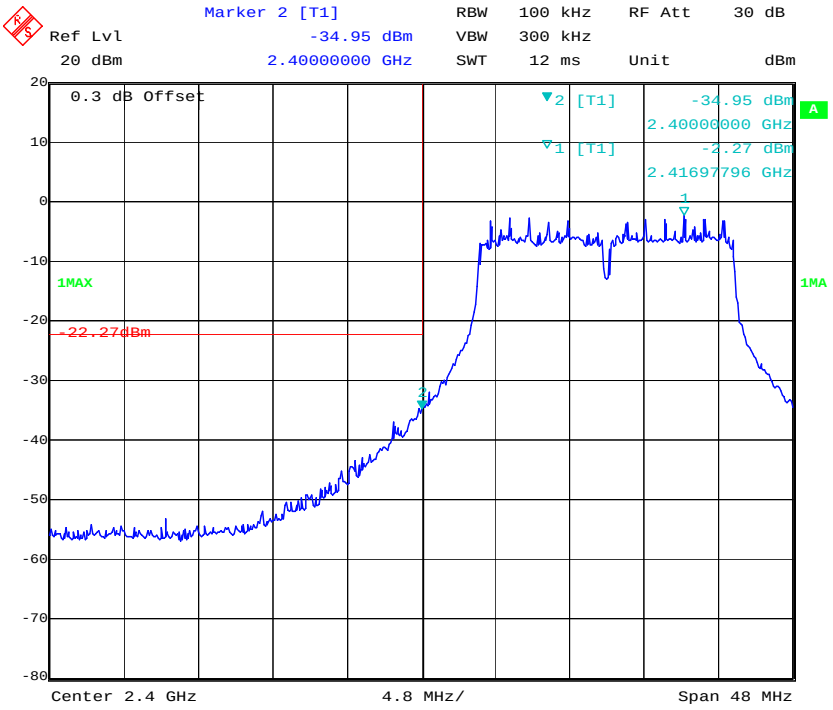


## Chain 1-802.11b Band Edge, Right Side



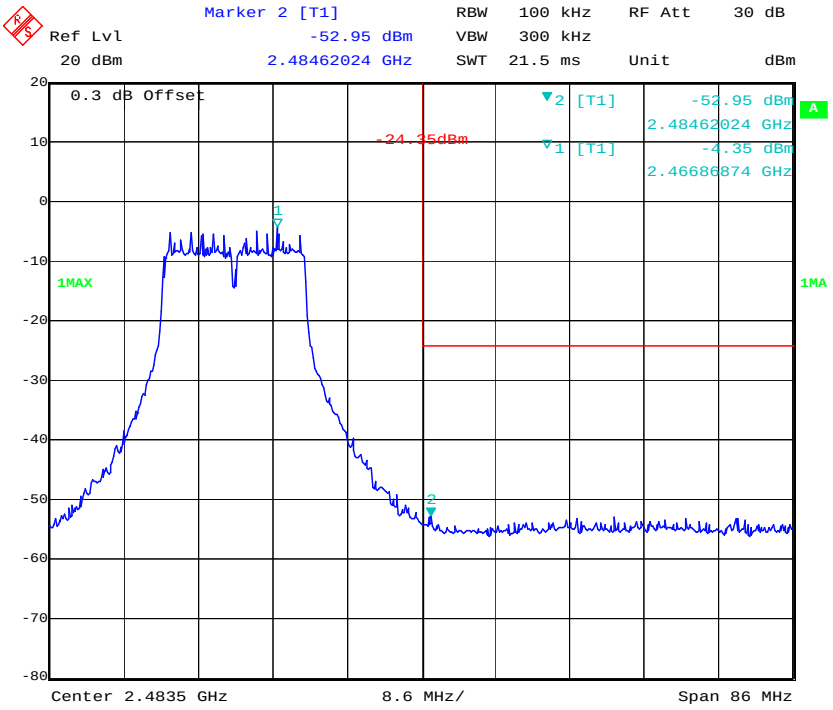

Date: 22.FEB.2017 21:52:35

## Chain 1-802.11g Band Edge, Left Side



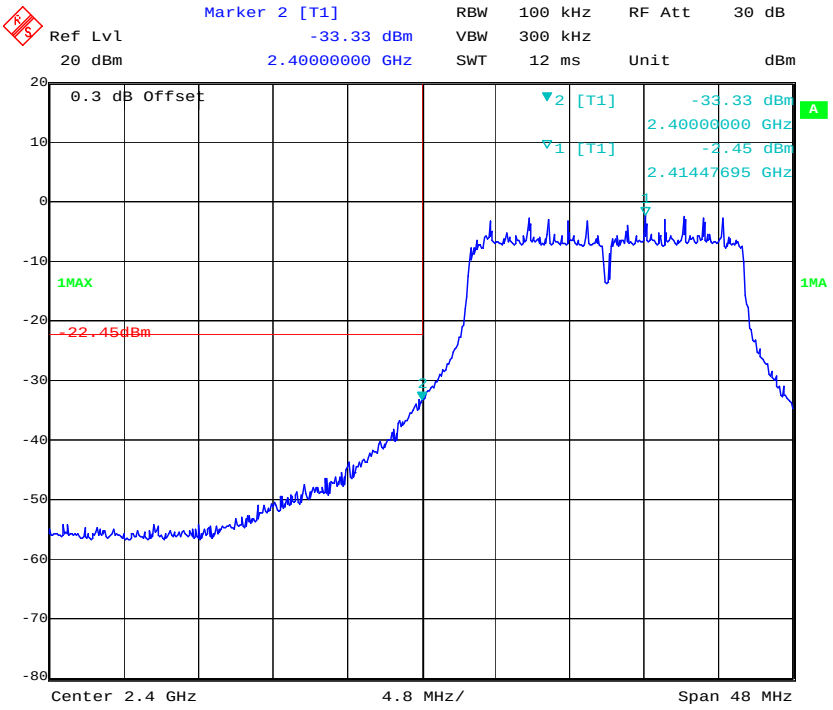

Date: 22.FEB.2017 21:46:10

## Chain 1-802.11g Band Edge, Right Side



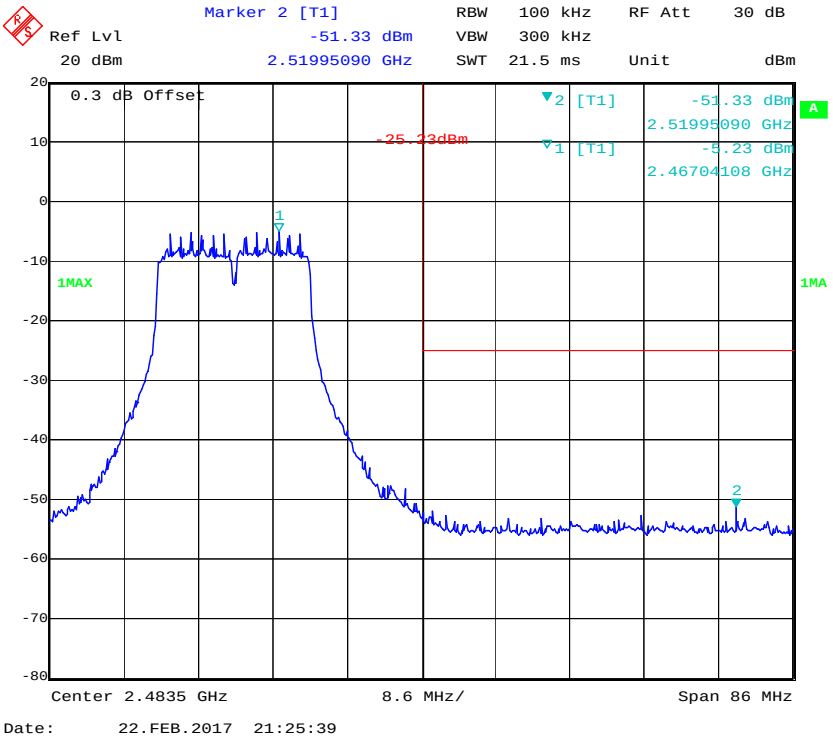

Date: 22.FEB.2017 21:50:30

## Chain 1-802.11n ht20 Band Edge, Left Side




Date: 22.FEB.2017 21:30:20

## Chain 1-802.11n ht20 Band Edge, Right Side



# FCC §15.247(e) - POWER SPECTRAL DENSITY

## Applicable Standard

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.

## Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Rohde & Schwarz | Signal Analyzer | FSIQ26 | 831929/005 | 2016-09-21 | 2017-09-20 |
| N/A | RF Cable | N/A | N/A | Each Time | / |

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25.8 °C |
| **Relative Humidity:** | 42 % |
| **ATM Pressure:** | 96.4 kPa |

*The testing was performed by Kevin Hu from 2017-02-22*

**Test Result:** Compliance

*Test Mode: Transmitting*

| Test mode | Channel | Frequency MHz | Power Spectral Density (dBm/3kHz) | | Total (dBm/3kHz) | Limits (dBm/3kHz) | Result |
|---|---|---|---|---|---|---|---|
| | | | Chain 0 | Chain 1 | | | |
| 802.11b | Low | 2412 | -17.1 | -17.15 | -14.11 | 8 | Compliance |
| | Middle | 2437 | -16.82 | -15.77 | -13.25 | 8 | Compliance |
| | High | 2462 | -21.31 | -20.18 | -17.7 | 8 | Compliance |
| 802.11g | Low | 2412 | -17.1 | -17.12 | -14.1 | 8 | Compliance |
| | Middle | 2437 | -17.71 | -16.77 | -14.2 | 8 | Compliance |
| | High | 2462 | -22.29 | -20.79 | -18.47 | 8 | Compliance |
| 802.11n20 | Low | 2412 | -17.68 | -17.49 | -14.57 | 8 | Compliance |
| | Middle | 2437 | -16.14 | -17.02 | -13.55 | 8 | Compliance |
| | High | 2462 | -21.55 | -20.12 | -17.77 | 8 | Compliance |

Note: the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

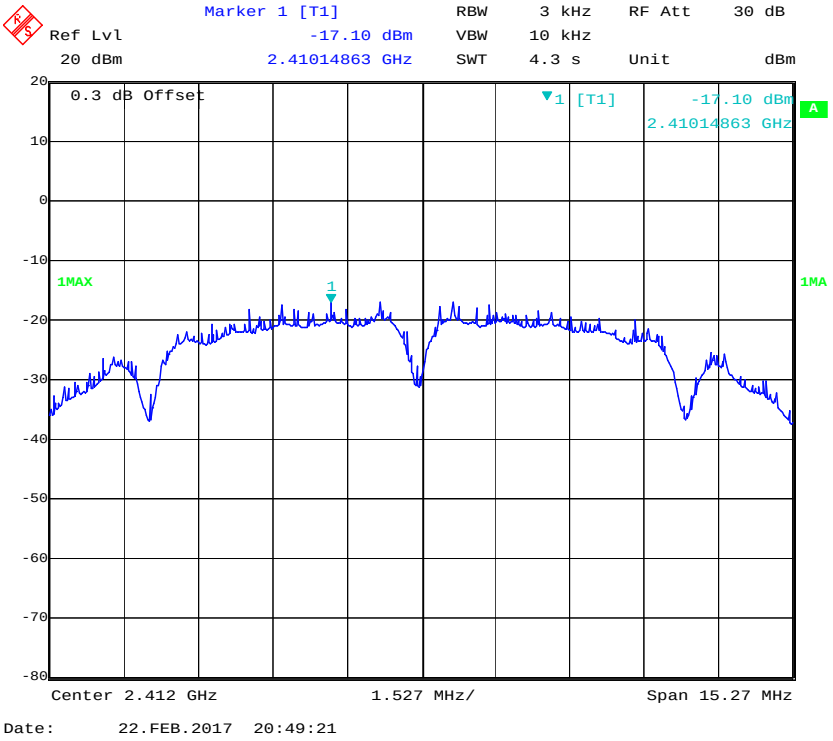
Array Gain = 10 log(NANT/NSS) dB.

So:

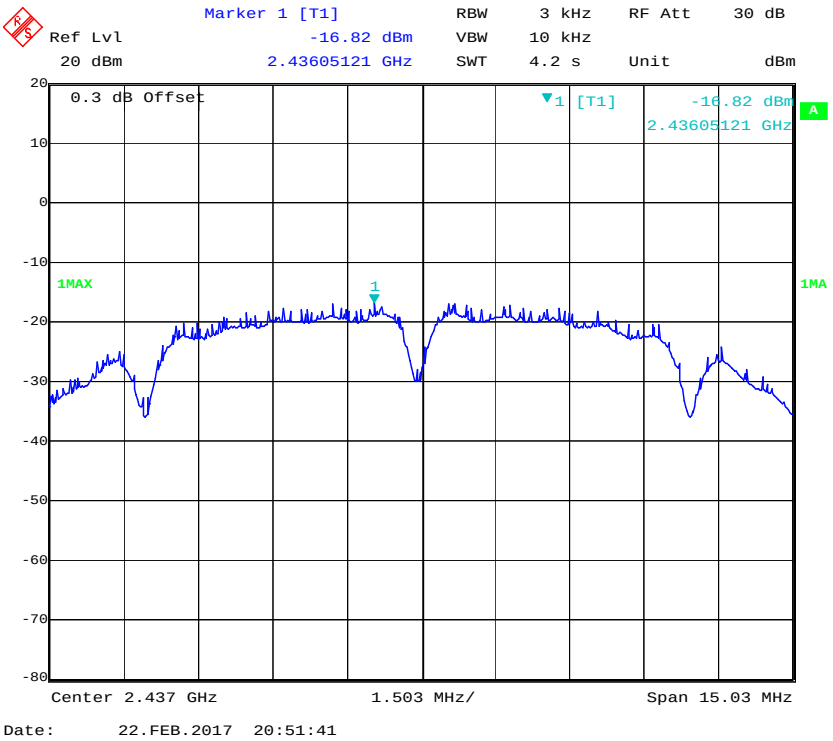
Directional gain = GANT + Array Gain = 2.2+10*log(2) =5.2 dBi< 6dBi

Please refer to the following plots

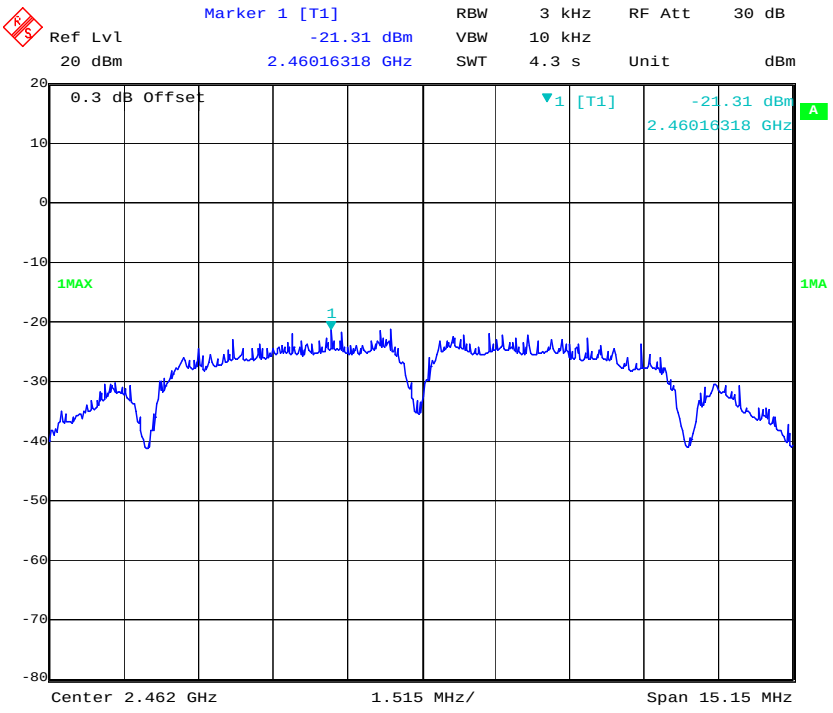
## Chain 0-Power Spectral Density, 802.11b Low Channel




## Chain 0-Power Spectral Density, 802.11b Middle Channel

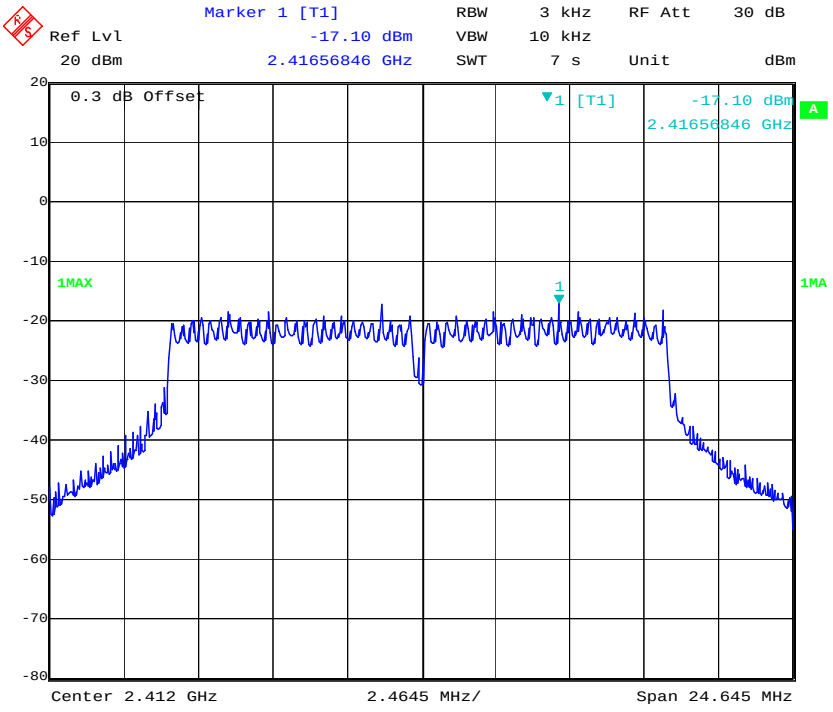


## Chain 0-Power Spectral Density, 802.11b High Channel



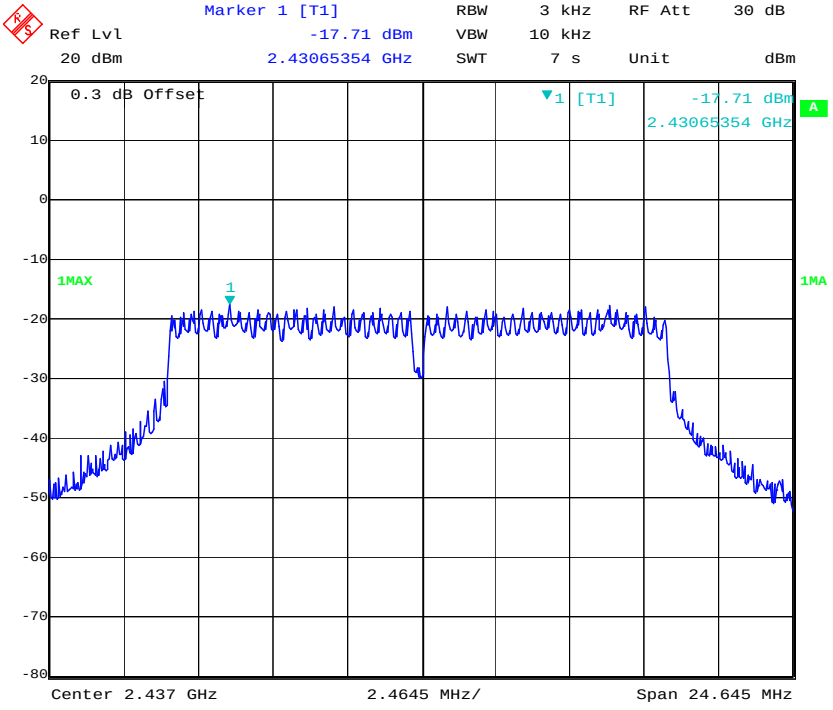

Date: 22.FEB.2017 21:01:30

## Chain 0-Power Spectral Density, 802.11g Low Channel



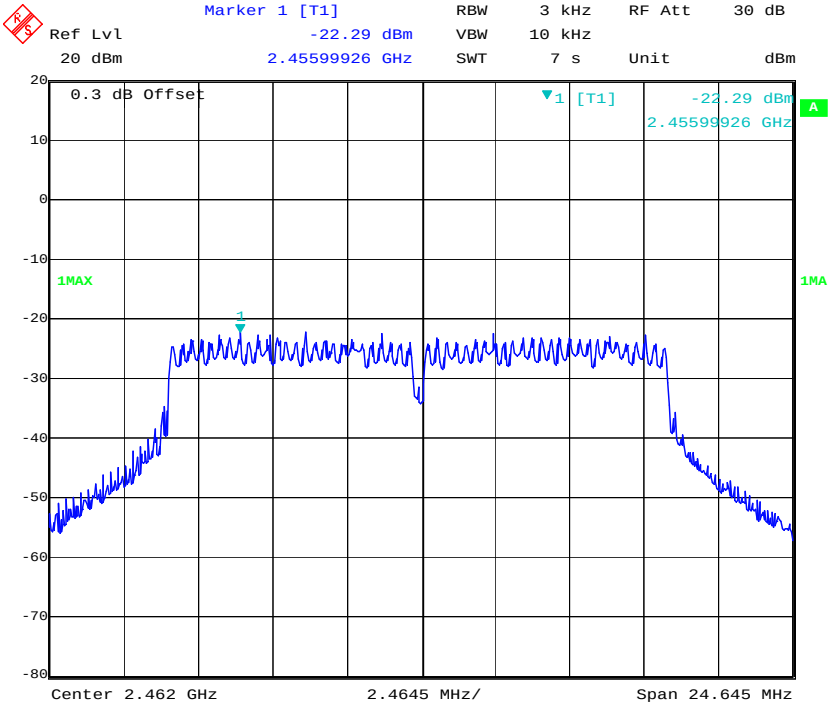

Date: 22.FEB.2017 21:10:02

## Chain 0-Power Spectral Density, 802.11g Middle Channel



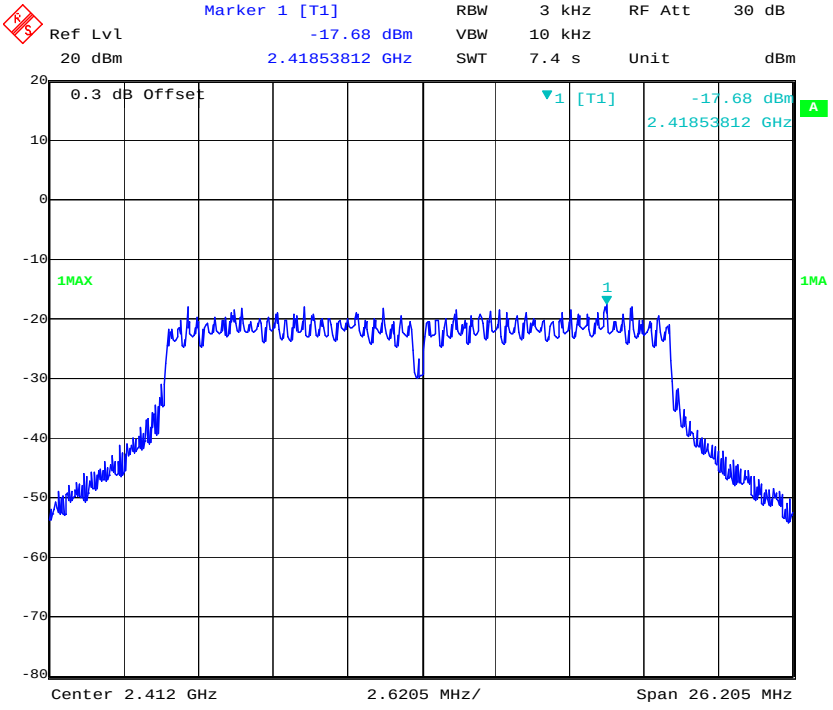

Date: 22.FEB.2017 21:07:19

## Chain 0-Power Spectral Density, 802.11g High Channel



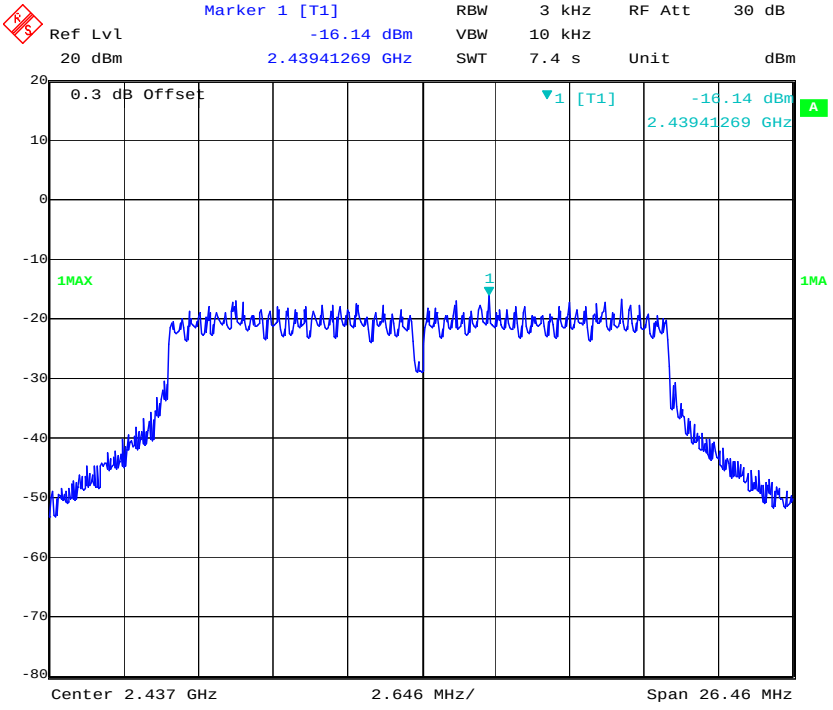

Date: 22.FEB.2017 21:04:08

## Chain 0-Power Spectral Density, 802.11n ht20 Low Channel



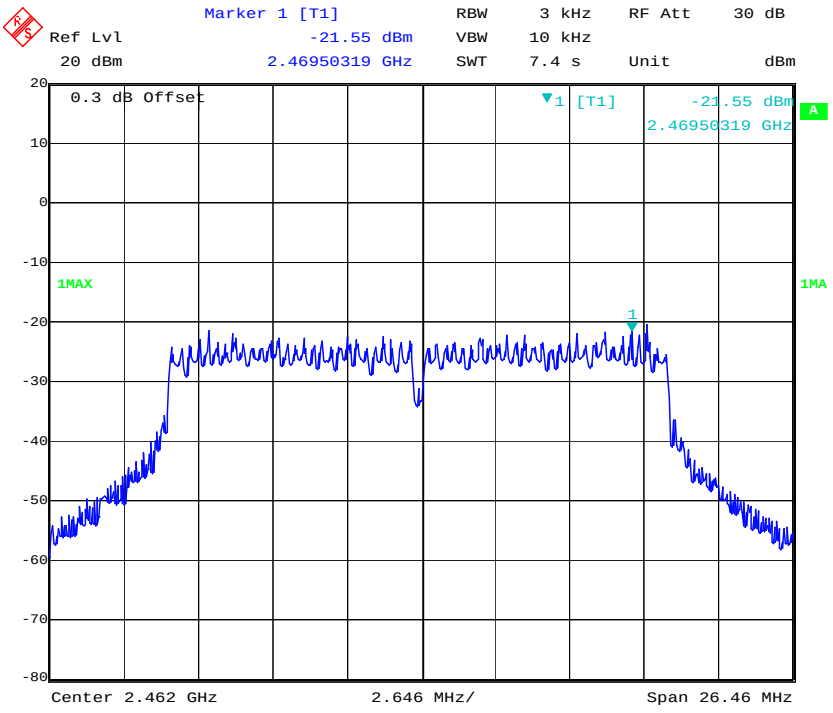

Date: 22.FEB.2017 21:12:45

## Chain 0-Power Spectral Density, 802.11n ht20 Middle Channel

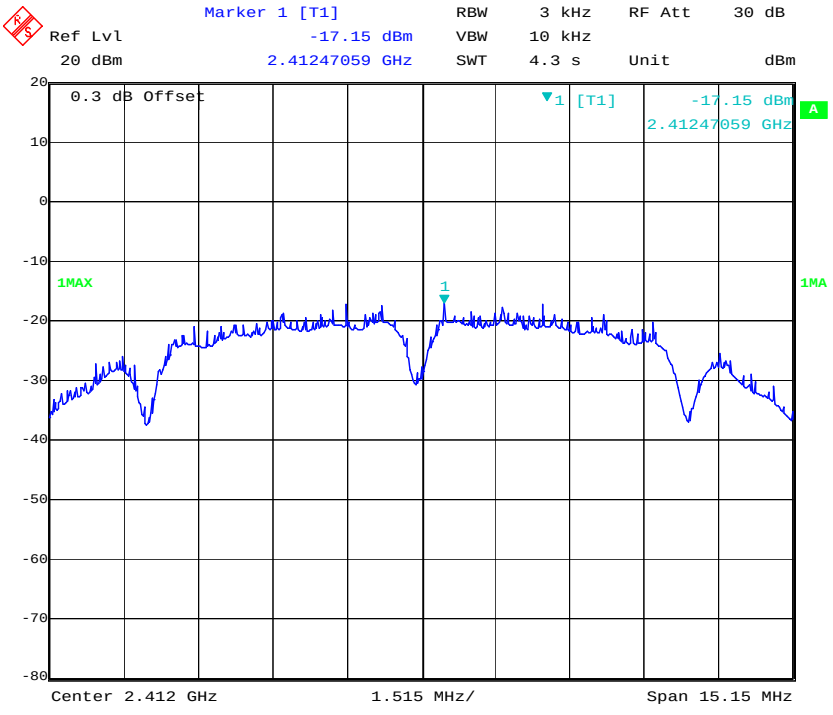



Date: 22.FEB.2017 21:18:46

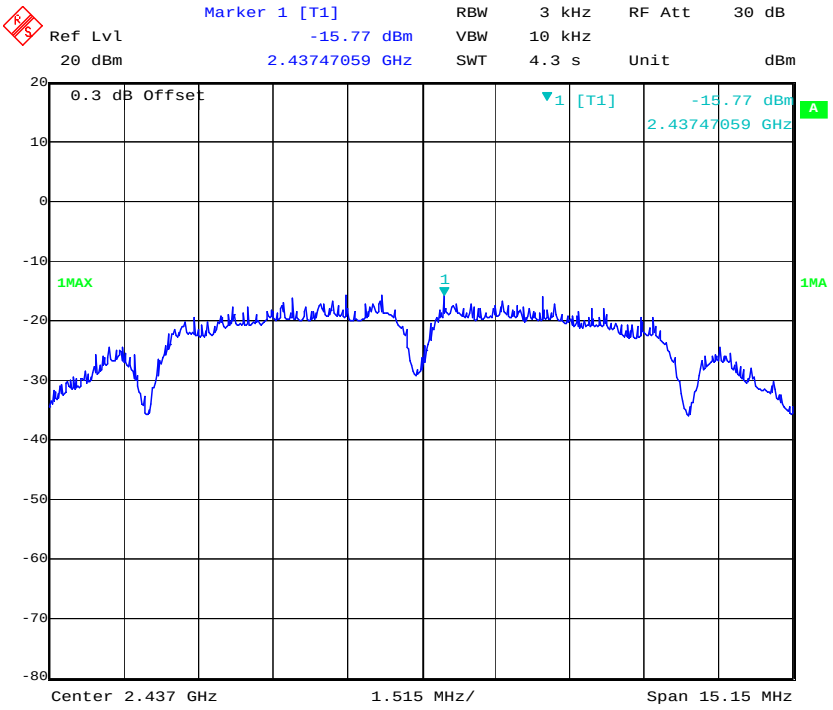
## Chain 0-Power Spectral Density, 802.11n ht20 High Channel




## Chain 1-Power Spectral Density, 802.11b Low Channel

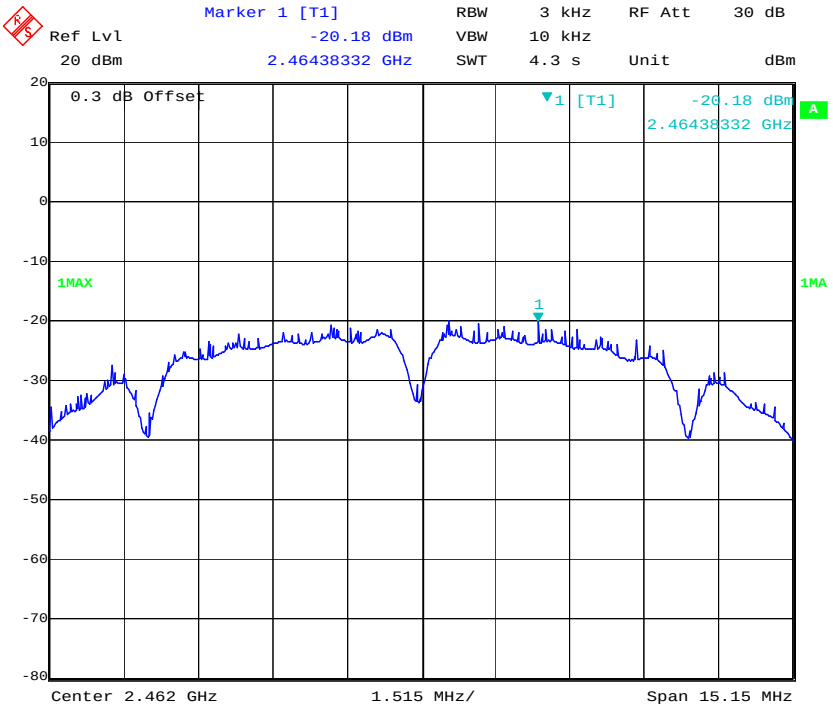


## Chain 1-Power Spectral Density, 802.11b Middle Channel



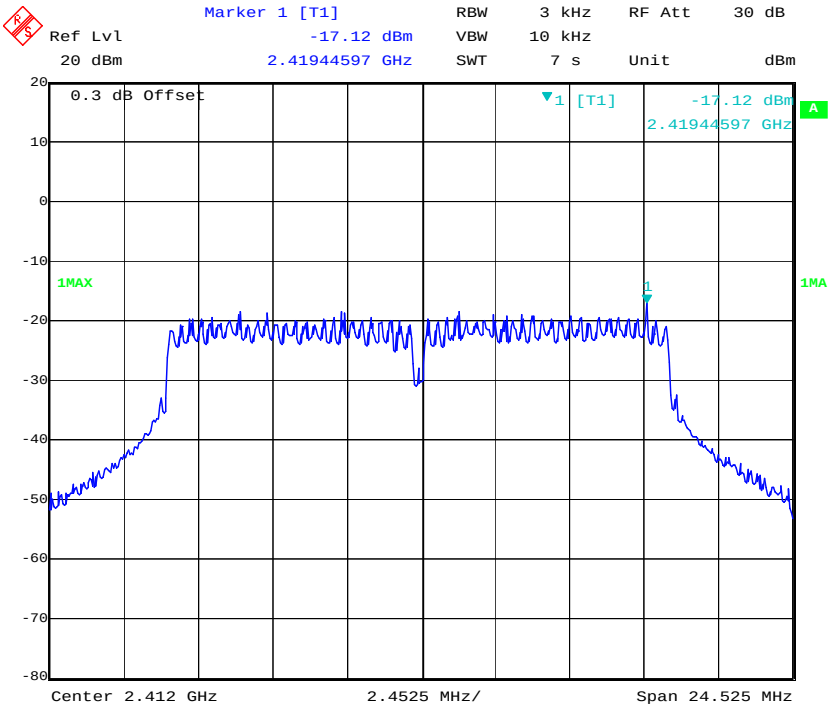

Date: 22.FEB.2017 21:54:15

## Chain 1-Power Spectral Density, 802.11b High Channel



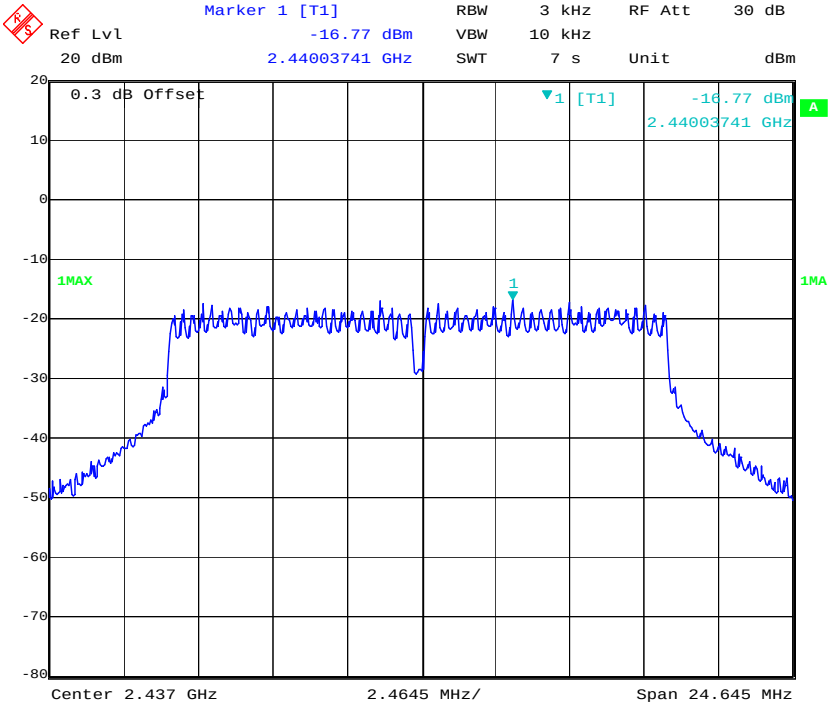

Date: 22.FEB.2017 21:52:02

## Chain 1-Power Spectral Density, 802.11g Low Channel



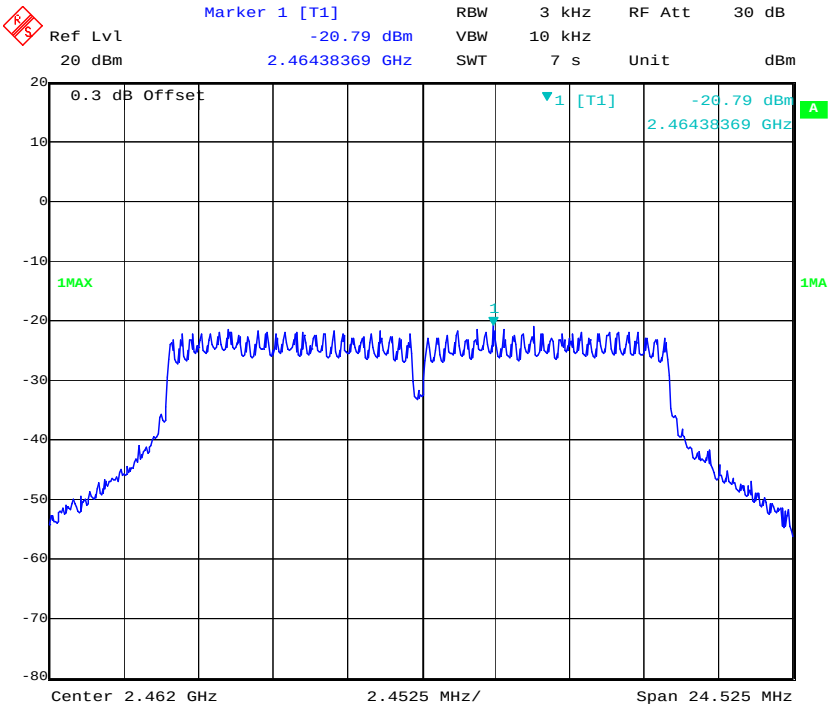

Date: 22.FEB.2017 21:45:49

## Chain 1-Power Spectral Density, 802.11g Middle Channel



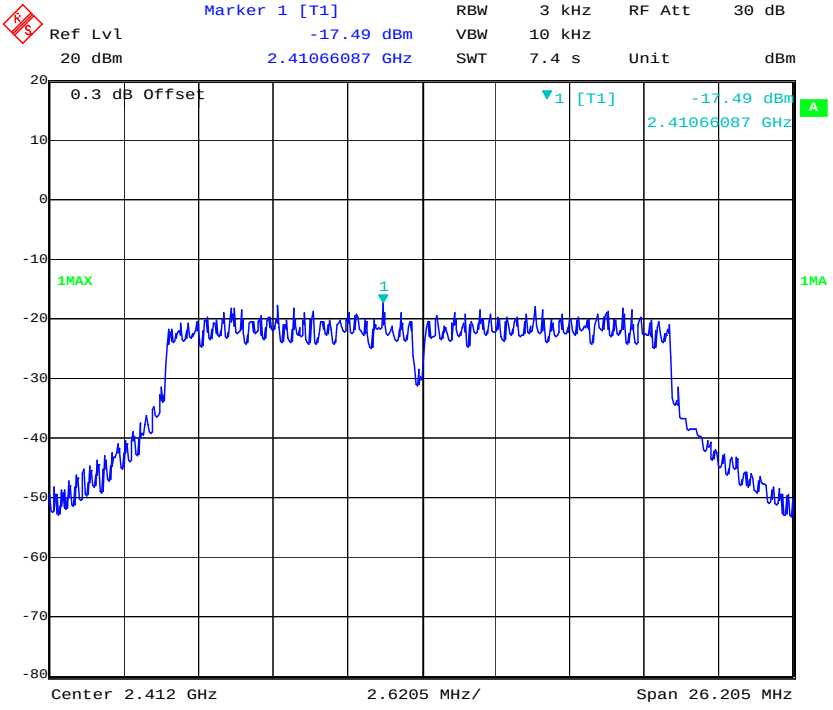

Date: 22.FEB.2017 21:48:07

## Chain 1-Power Spectral Density, 802.11g High Channel



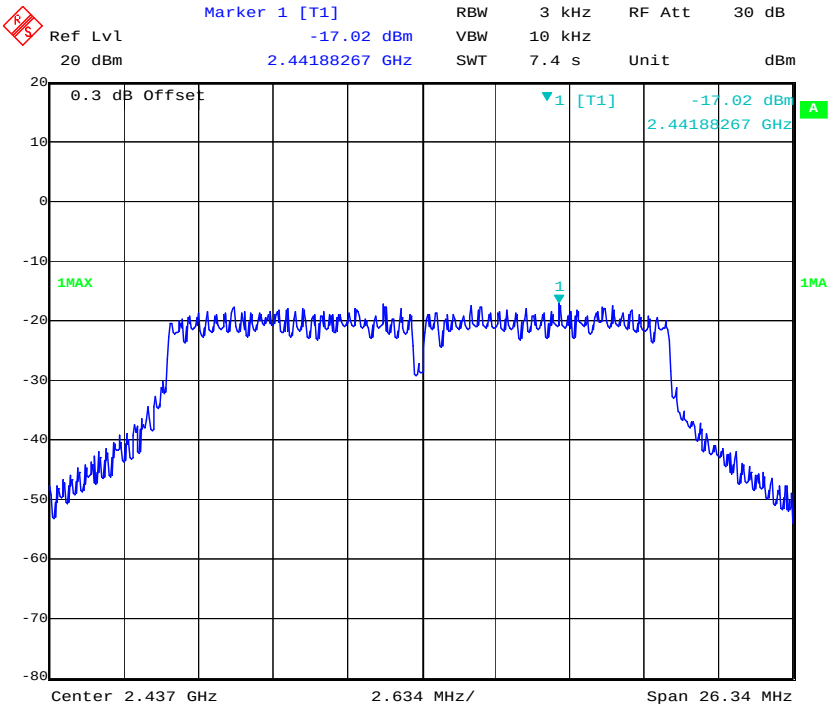

Date: 22.FEB.2017 21:50:10

## Chain 1-Power Spectral Density, 802.11n ht20 Low Channel



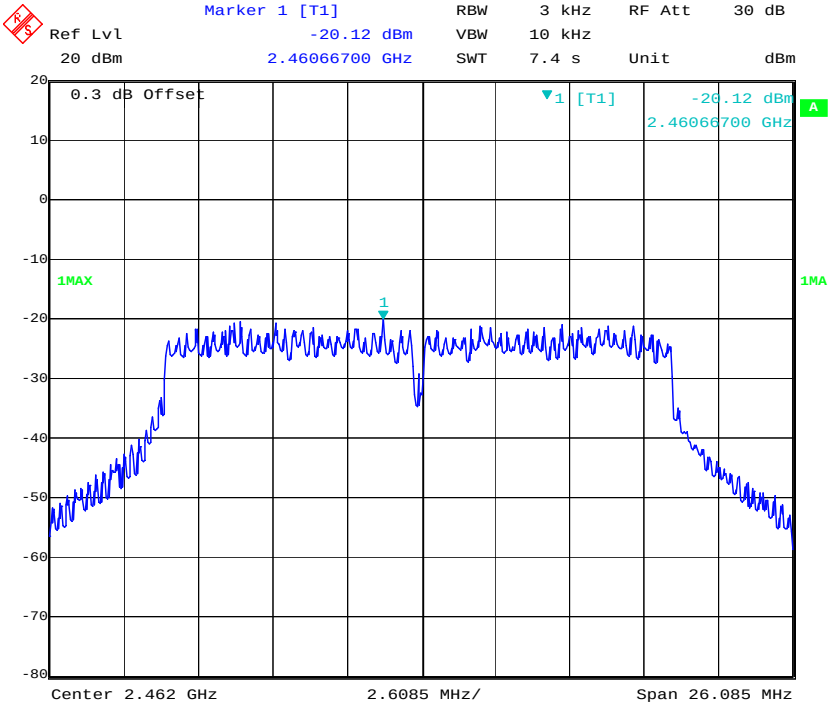

Date: 22.FEB.2017 21:29:59

## Chain 1-Power Spectral Density, 802.11n ht20 Middle Channel




Date: 22.FEB.2017 21:27:33

## Chain 1-Power Spectral Density, 802.11n ht20 High Channel




Date: 22.FEB.2017 21:25:18

********END OF REPORT********