# FCC Part 15.247; LP0002-2018

# RSS-247 Issue 2, Feb 2017; RSS-Gen Issue 5, Feb 2019

# TEST REPORT

For

# Cisco Systems, Inc.

125 West Tasman Dr., San Jose, CA 95134, USA

**FCC ID: LDKAX5122118**
**IC : 2461N-AX5122118**

| | |
|---|---|
| **Report Type :** | Original Report |
| **Product Type :** | Cisco Catalyst 9130AX Series Wi-Fi 6 Access Points |
| **Product Name :** | For FCC: **C9130AXI-B**<br>For Canada: **C9130AXI-A**<br>For Taiwan: **C9130AXI-T** |
| **Report Number :** | RLK190621001-00E |
| **Report Date :** | 2019/08/30 |
| **Reviewed By :** | Zeus Chen |

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# Revision History

| Revision | Report Number | Issue Date | Description |
|---|---|---|---|
| 1.0 | RLK190621001-00E | 2019/08/30 | Original Report |

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# 1 General Information

## 1.1 Product Description for Equipment under Test (EUT)

| | |
|---|---|
| **Applicant** | **Cisco Systems, Inc.**<br>125 West Tasman Dr., San Jose, CA 95134, USA |
| **Manufacturer** | **Cisco Systems, Inc.**<br>125 West Tasman Dr., San Jose, CA 95134, USA |
| **Brand(Trade) Name** | **Cisco** |
| **Product (Equipment)** | **Cisco Catalyst 9130AX Series Wi-Fi 6 Access Points** |
| **Model Name** | **For FCC: C9130AXI-B**<br>**For Canada: C9130AXI-A**<br>**For Taiwan: C9130AXI-T** |
| **Frequency Range** | **802.11b/g/n HT20/ax HE20: 2412-2462 MHz**<br>**BLE: 2402-2480 MHz** |
| **Received Date** | Jun. 21, 2019. |
| **Date of Test** | Jun. 21, 2019 ~ Aug. 26, 2019 |
| **Modulation Type** | IEEE 802.11b : DSSS<br>IEEE 802.11g/n HT20/ax HE20: OFDM<br>BLE mode: GFSK |
| **Related Submittal(s)/Grant(s)** | **FCC Part 15.407 UNII with FCC ID: LDKAX5122118**<br>**ISEDC RSS-247: UNII IC: 2461N-AX5122118** |

**All measurement and test data in this report was gathered from production sample serial number: KWC2317002 (Assigned by BACL-LK)*

## 1.2 Operation Condition of EUT

| | |
|---|---|
| **Power Operation (Voltage Range)** | ☒ DC Type<br>☒ PoE: 30W<br>*Brand Name: Cisco*<br>*Model: SB-PWR-INJ2*<br>*I/P: 100-240Vac,50/60Hz, 0.67A*<br>*O/P: 55Vdc,0.6A*<br>☐ By Power Core |

## 1.3 Objective and Test Methodology

**The Objective of this Test Report was to document the compliance of the Cisco System, Inc. Appliance (Model: For FCC: C9130AXI-B; For Canada: C9130AXI-A, For Taiwan: C9130AXI-T) to the requirements of the following Standards:**

*-Part 2, Subpart J, Part 15 Subparts A and Part 15 Subparts E of the Federal Communication Commission's rules.*

*-ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.*

*-KDB 662911 D01 Multiple Transmitter Output v02r01.*

*-KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.*

*-RSS-247 Issue 2, Feb 2017 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.*

*-RSS-Gen Issue 5, Feb 2019 — General Requirements for Compliance of Radio Apparatus.*

*-LP0002 — Low-power Radio-frequency Devices Technical Regulations.*

## 1.4 Measurement Uncertainty

| Parameter | Expanded Measurement uncertainty |
|---|---|
| RF output power with Power Meter | ± 0.55 dB |
| Occupied Channel Bandwidth | ± 4.45 % |
| RF Conducted test with Spectrum | ± 1.45 dB |
| AC Power Line Conducted Emission | ± 2.66 dB |
| Radiated Below 1G | ± 3.57 dB |
| Radiated Above 1G-18G | ± 4.29 dB |
| Radiated Above 18G-40G | ± 4.67 dB |

## 1.5 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Taiwan) to collect test data is located on

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database. The FCC Registration No.: 0027578244. Designation No.: TW3546. The Test Firm Registration No.: 181430.

# 2 System Test Configuration

## 2.1 Test Channels and Description of Worst Test Configuration

The system was configured for testing in testing mode which was provided by manufacturer.

No special accessory, No modification was made to the EUT and No special equipment used during test.

- **For Wi-Fi 2.4G mode:**

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

*For 802.11b/g/n HT20/ax HE20 modes: Channel 1, 6 and 11 were tested.*

- **For BLE mode:**

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| **0** | **2402** | 20 | 2442 |
| 1 | 2404 | -- | -- |
| 2 | 2406 | -- | -- |
| 3 | 2408 | 37 | 2476 |
| -- | -- | 38 | 2478 |
| **12** | **2426** | **39** | **2480** |

*For BLE modes: Channel 0, 12 and 39 were tested.*

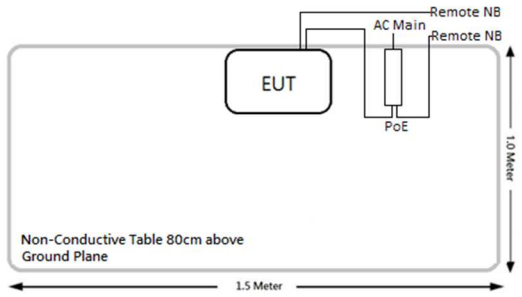
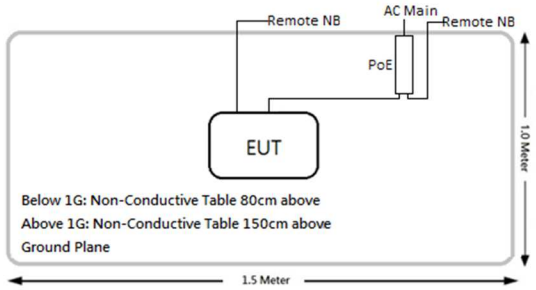
Radiated below 1G were tested worst output power mode.

## 2.2 Support Equipment List and External Cable List

| No. | Description | Manufacturer | Model Number | BSMI | FCC ID / DoC |
|---|---|---|---|---|---|
| A | Notebook PC*2 | DELL | Latitude E5470 | R33002 | DoC |

| No. | Cable Description | Length (m) | From | To |
|---|---|---|---|---|
| 1 | LAN Cable | Non- Shielded | EUT | NB |
| 2 | LAN Cable | Non- Shielded | EUT | PoE |
| 3 | LAN Cable | Non- Shielded | NB | PoE |

## 2.3 Block Diagram of Test Setup

| Conduction | Radiation |
|---|---|
|  |  |





| Modulation Used for Conformance Test | | | |
|---|---|---|---|
| **Configuration** | **NTX** | **Data Rate** | **Worst Data Rate** |
| **802.11b mode** | 4 | 1-11 Mbps | 1 Mbps |
| **802.11g mode** | 4/1(ChillWave) | 6-54 Mbps | 6 Mbps |
| **802.11n HT 20 mode** | 4 | MCS 0-7 | MCS 0 |
| **802.11ax HE 20 mode** | 4 | MCS 0-7 | MCS 0 |
| **BLE mode** | 1 | 125 kbps-1 Mbps | 1 Mbps |

| Worst Case of Power Setting | | | | |
|---|---|---|---|---|
| **EUT Exercise Software** | | Command | | |
| **Configuration** | **NTX** | **Low CH** | **Mid CH** | **High CH** |
| **802.11b mode** | 4 | 17 | 17 | 17 |
| **802.11g mode** | 4/1(ChillWave) | 17 | 17 | 17 |
| **802.11n HT 20 mode** | 4 | 17 | 17 | 17 |
| **802.11ax HE 20 mode** | 4 | 17 | 17 | 17 |
| **BLE mode** | 1 | 5 | 5 | 5 |

## 2.4 Duty Cycle

**According to KDB 558074 D01 15.247 Meas Guidance v05r02:**

All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum power transmission duration, T, are required for each tested mode of operation.

| Configuration | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Factor (dB) |
|---|---|---|---|---|
| **802.11b mode** | 0.96 | 1.17 | 92.10 | 0.36 |
| **802.11g mode** | 1.43 | 1.56 | 82.26 | 0.85 |
| **802.11n HT 20 mode** | 5.43 | 5.75 | 96.11 | 0.17 |
| **802.11ax HE 20 mode** | 5.45 | 5.74 | 95.73 | 0.19 |
| **BLE mode** | - | - | 100 | 0 |
| **ChillWave mode 802.11g** | - | - | 100 | 0 |

**Note: Duty Factor = 10*log (1/Duty cycle)*

# 3 Summary of Test Results

| FCC/ISEDC/NCC Rules | Description of Test | Result |
|---|---|---|
| §15.247(i), §1.1317, §2.1091<br>ISEDC RSS-102<br>LP0002 Sec 5.20.2 | Maximum Permissible Exposure (MPE) | Note[1] |
| FCC §15.203<br>ISEDC RSS-Gen Sec 6.8<br>LP0002-2018 Sec 2.2 and 3.10.1.3 | Antenna Requirement | Compliance |
| FCC §15.207<br>ISEDC RSS-Gen Sec 8.8<br>LP0002-2018 Sec 2.3 | AC Line Conducted Emissions | Compliance |
| FCC §15.205, §15.209, §15.247(d)<br>ISEDC RSS-Gen Sec 8.9 and 8.10<br>ISEDC RSS-247 Sec 5.5<br>LP0002-2018 Sec 3.10, 2.7 and 2.8 | Spurious Unwanted Emission | Compliance |
| FCC §15.247(a)(2)<br>ISEDC RSS-247 Sec 5.2<br>ISEDC RSS-Gen Sec 6.7<br>LP0002 Sec 3.10.1.6 | Emission Bandwidth | Note[2] |
| FCC §15.247(b)(3)<br>ISED RSS-247 Sec5.4(d)<br>LP0002 Sec 3.10.1.2 | Maximum Output Power | Note[2] |
| FCC §2.1051, §15.247(d)<br>ISEDC RSS-247 Sec 5.5<br>LP0002 Sec 3.10.1.5 | Band Edge | Note[2] |
| FCC §15.247(e)<br>ISEDC RSS-247 Sec 5.2(b)<br>LP0002 Sec 3.10.1.6(2)(b) | Power Spectral Density | Note[2] |

Note[1]**:** RF Exposure evaluation was recorded in a separate report in this filing.

Note[2]**:** Compliance test data was recorded in a separate reports, please refer to Test Report: EDCS-17873174, EDCS-17873187, EDCS-17873175.

# 4 FCC §15.203, RSS-Gen and LP0002 Sec 2.2- Antenna Requirements

## 4.1 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.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna does not exceed 6dBi

## 4.2 Antenna List and Details

| Radio | Item | Manufacturer | Antenna Type | Antenna Gain |
|---|---|---|---|---|
| BLE | BLE | Cisco | Internal antenna | 4 dBi |
| XOR | Wi-Fi 2.4G Chain 0 | Cisco | Internal antenna | 4 dBi |
| | Wi-Fi 2.4G Chain 1 | Cisco | Internal antenna | 4 dBi |
| | Wi-Fi 2.4G Chain 2 | Cisco | Internal antenna | 4 dBi |
| | Wi-Fi 2.4G Chain 3 | Cisco | Internal antenna | 4 dBi |
| | Wi-Fi 5G Chain 0 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 1 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 2 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 3 | Cisco | Internal antenna | 6 dBi |
| Regular | Wi-Fi 5G Chain 4 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 5 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 6 | Cisco | Internal antenna | 6 dBi |
| | Wi-Fi 5G Chain 7 | Cisco | Internal antenna | 6 dBi |
| Chillwave | Wi-Fi 2.4G | Cisco | Internal antenna | 5 dBi |
| | Wi-Fi 5G | Cisco | Internal antenna | 6 dBi |

*The EUT has an internal antenna arrangement, which was permanently attached, fulfill the requirement of this section.*

# 5 FCC §15.207, §15.407 (b), RSS-Gen Sec 8.8 and LP0002 Sec 2.3 - AC Line Conducted Emissions

## 5.1 Applicable Standard

According to FCC §15.407(b) (6) , RSS-Gen Sec 8.8 and LP0002 Sec 2.3.

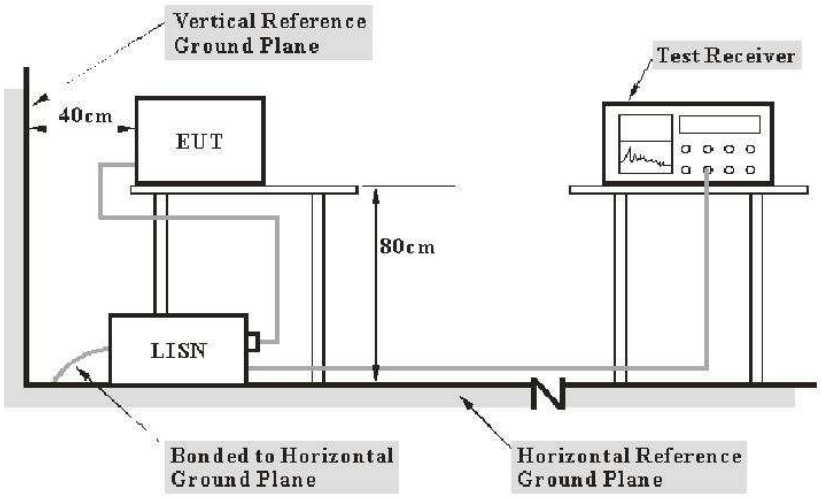
Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

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 µH/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 frequencies ranges.

| Channel | Conducted Limit (dBuV) | |
|---|---|---|
| | Quasi-Peak | Average |
| 0.15-0.5 | 66 to 56 Note 1 | 56 to 46 Note 2 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Note 1: Decreases with the logarithm of the frequency. Note 2: A linear average detector is required

## 5.2 EUT Setup and Test Procedure




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 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 | Receiver RBW |
|---|---|
| 150 kHz - 30 MHz | 9 kHz |

During the conducted emission test, the adapter was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

## 5.3 Test Equipment List and Details

| Description | Manufacture | Model | Serial No. | Cal. Date. | Cal. Due. |
|---|---|---|---|---|---|
| **Conduction Room** | | | | | |
| LISN | Rohde & Schwarz | ENV216 | 101612 | 2019/02/21 | 2020/02/20 |
| LISN | Rohde & Schwarz | ENV216 | 101248 | 2019/06/26 | 2020/06/25 |
| EMI Test Receiver | Rohde & Schwarz | ESR7 | 101419 | 2018/10/23 | 2019/10/22 |
| Pulse Limiter | Rohde & Schwarz | ESH3Z2 | TXZEM104 | 2018/08/03 | 2019/08/02 |
| RF Cable | EMEC | EM-CB5D | 001 | 2019/07/01 | 2020/06/30 |
| Software | AUDIX | E3 | LKCO01 | N.C.R | N.C.R |

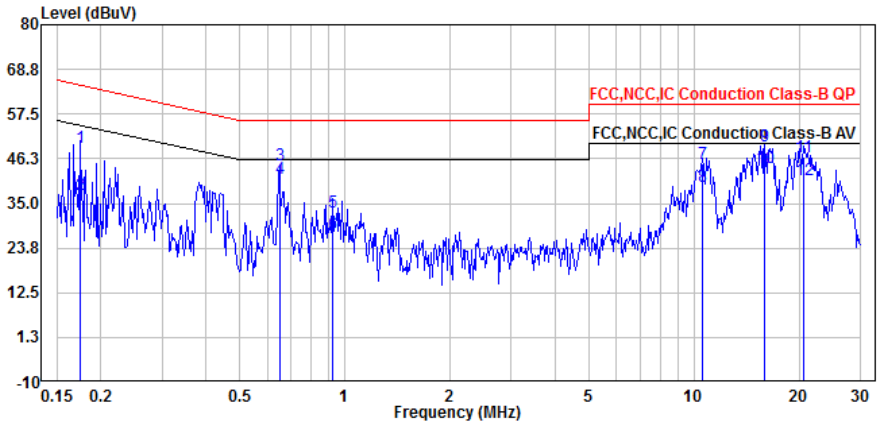
***Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).*

## 5.4 Test Environmental Conditions

| | | | |
|---|---|---|---|
| **Temperature:** | 20-25 ℃ | **Relative Humidity:** | 45-55 % |
| **ATM Pressure:** | 1010 hPa | **Test Engineer:** | Ray Huang |
| **Test Date:** | 2019-08-27 | | |

## 5.5 AC Line Conducted Emission Test Plot and Data

### Mode: AC 120V/60 Hz, Co-location (2.4G+BLE), Line




| | Freq | Read Level | Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.175 | 29.33 | 49.19 | 19.86 | 64.74 | -15.55 | QP |
| 2 | 0.175 | 17.41 | 37.27 | 19.86 | 54.74 | -17.47 | Average |
| 3 | 0.650 | 24.81 | 44.70 | 19.89 | 56.00 | -11.30 | QP |
| 4 | 0.650 | 21.30 | 41.19 | 19.89 | 46.00 | -4.81 | Average |
| 5 | 0.923 | 12.87 | 32.76 | 19.89 | 56.00 | -23.24 | QP |
| 6 | 0.923 | 7.59 | 27.48 | 19.89 | 46.00 | -18.52 | Average |
| 7 | 10.564 | 25.05 | 45.15 | 20.10 | 60.00 | -14.85 | QP |
| 8 | 10.564 | 19.27 | 39.37 | 20.10 | 50.00 | -10.63 | Average |
| 9 | 15.987 | 29.22 | 49.37 | 20.15 | 60.00 | -10.63 | QP |
| 10 | 15.987 | 23.95 | 44.10 | 20.15 | 50.00 | -5.90 | Average |
| 11 | 20.630 | 26.50 | 46.68 | 20.18 | 60.00 | -13.32 | QP |
| 12 | 20.630 | 20.92 | 41.10 | 20.18 | 50.00 | -8.90 | Average |

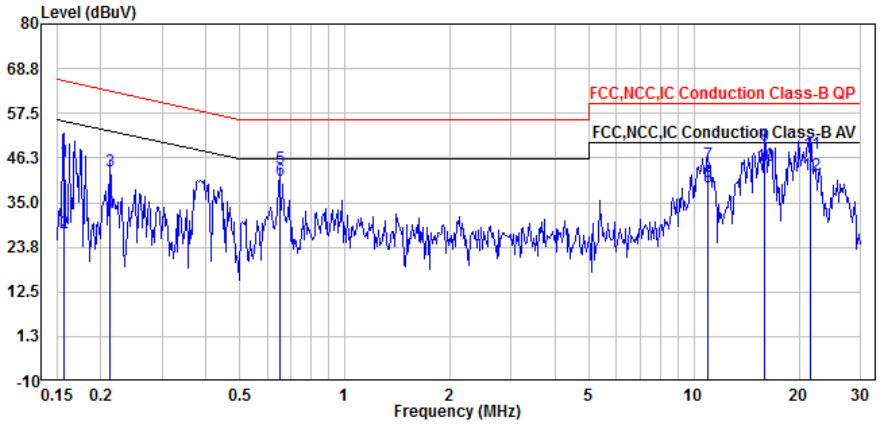
*Note:*

*Level = Read Level + Factor*

*Over Limit (Margin) = Level – Limit Line*

*Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator*

## Mode: AC 120V/60 Hz, Co-location (2.4G+BLE), Neutral




| | Freq | Read Level | Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.157 | 25.57 | 45.44 | 19.87 | 65.60 | -20.16 | QP |
| 2 | 0.157 | 7.64 | 27.51 | 19.87 | 55.60 | -28.09 | Average |
| 3 | 0.213 | 23.04 | 42.90 | 19.86 | 63.09 | -20.19 | QP |
| 4 | 0.213 | 12.68 | 32.54 | 19.86 | 53.09 | -20.55 | Average |
| 5 | 0.650 | 23.70 | 43.59 | 19.89 | 56.00 | -12.41 | QP |
| 6 | 0.650 | 20.64 | 40.53 | 19.89 | 46.00 | -5.47 | Average |
| 7 | 10.994 | 24.44 | 44.57 | 20.13 | 60.00 | -15.43 | QP |
| 8 | 10.994 | 18.74 | 38.87 | 20.13 | 50.00 | -11.13 | Average |
| 9 | 15.987 | 29.41 | 49.60 | 20.19 | 60.00 | -10.40 | QP |
| 10 | 15.987 | 24.17 | 44.36 | 20.19 | 50.00 | -5.64 | Average |
| 11 | 21.640 | 27.33 | 47.55 | 20.22 | 60.00 | -12.45 | QP |
| 12 | 21.640 | 21.58 | 41.80 | 20.22 | 50.00 | -8.20 | Average |

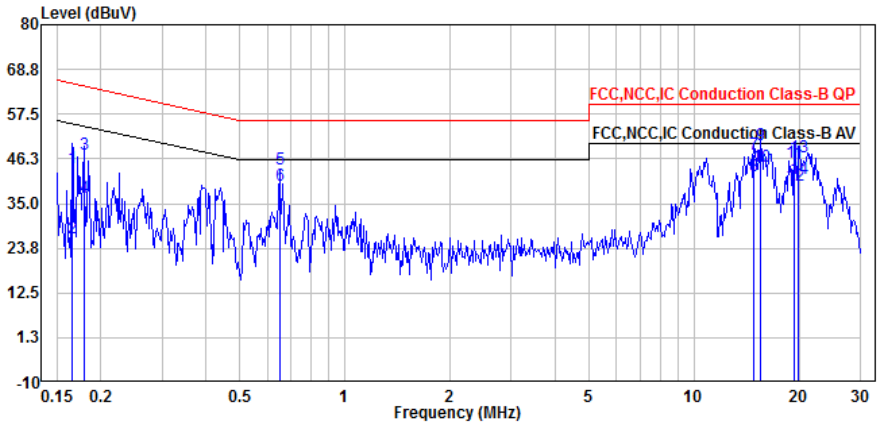
*Note:*

*Level = Read Level + Factor*

*Over Limit (Margin) = Level – Limit Line*

*Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator*

## Mode: AC 110V/60 Hz, Co-location (2.4G+BLE), Line




| | Freq | Read Level | Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.165 | 24.24 | 44.11 | 19.87 | 65.21 | -21.10 | QP |
| 2 | 0.165 | 6.63 | 26.50 | 19.87 | 55.21 | -28.71 | Average |
| 3 | 0.179 | 27.45 | 47.31 | 19.86 | 64.54 | -17.23 | QP |
| 4 | 0.179 | 16.62 | 36.48 | 19.86 | 54.54 | -18.06 | Average |
| 5 | 0.650 | 23.73 | 43.62 | 19.89 | 56.00 | -12.38 | QP |
| 6 | 0.650 | 19.79 | 39.68 | 19.89 | 46.00 | -6.32 | Average |
| 7 | 14.881 | 27.39 | 47.53 | 20.14 | 60.00 | -12.47 | QP |
| 8 | 14.881 | 21.94 | 42.08 | 20.14 | 50.00 | -7.92 | Average |
| 9 | 15.485 | 29.55 | 49.69 | 20.14 | 60.00 | -10.31 | QP |
| 10 | 15.485 | 24.16 | 44.30 | 20.14 | 50.00 | -5.70 | Average |
| 11 | 19.356 | 25.35 | 45.52 | 20.17 | 60.00 | -14.48 | QP |
| 12 | 19.356 | 19.48 | 39.65 | 20.17 | 50.00 | -10.35 | Average |
| 13 | 19.983 | 26.67 | 46.84 | 20.17 | 60.00 | -13.16 | QP |
| 14 | 19.983 | 21.20 | 41.37 | 20.17 | 50.00 | -8.63 | Average |

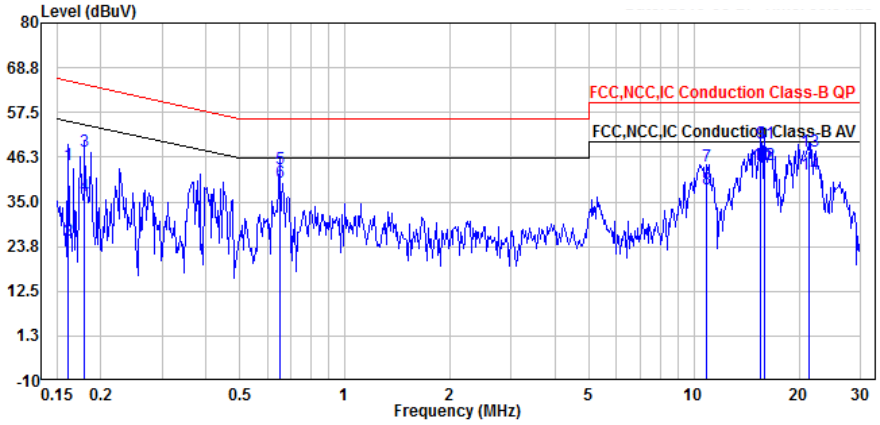
*Note:*

*Level = Read Level + Factor*

*Over Limit (Margin) = Level – Limit Line*

*Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator*

## Mode: AC 110V/60 Hz, Co-location (2.4G+BLE), Neutral




| | Freq | Read Level | Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.161 | 24.60 | 44.47 | 19.87 | 65.40 | -20.93 | QP |
| 2 | 0.161 | 5.49 | 25.36 | 19.87 | 55.40 | -30.04 | Average |
| 3 | 0.180 | 27.78 | 47.64 | 19.86 | 64.48 | -16.84 | QP |
| 4 | 0.180 | 16.56 | 36.42 | 19.86 | 54.48 | -18.06 | Average |
| 5 | 0.650 | 23.34 | 43.23 | 19.89 | 56.00 | -12.77 | QP |
| 6 | 0.650 | 19.92 | 39.81 | 19.89 | 46.00 | -6.19 | Average |
| 7 | 10.906 | 23.74 | 43.87 | 20.13 | 60.00 | -16.13 | QP |
| 8 | 10.906 | 18.15 | 38.28 | 20.13 | 50.00 | -11.72 | Average |
| 9 | 15.485 | 29.69 | 49.87 | 20.18 | 60.00 | -10.13 | QP |
| 10 | 15.485 | 24.17 | 44.35 | 20.18 | 50.00 | -5.65 | Average |
| 11 | 15.987 | 29.42 | 49.61 | 20.19 | 60.00 | -10.39 | QP |
| 12 | 15.987 | 24.08 | 44.27 | 20.19 | 50.00 | -5.73 | Average |
| 13 | 21.298 | 27.40 | 47.62 | 20.22 | 60.00 | -12.38 | QP |
| 14 | 21.298 | 21.68 | 41.90 | 20.22 | 50.00 | -8.10 | Average |

*Note:*

*Level = Read Level + Factor*

*Over Limit (Margin) = Level – Limit Line*

*Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator*

# 6 FCC §15.209, §15.205, §15.247(d), §2.1053, RSS-Gen Sec 8.9, 8.10, RSS-247 Sec 5.5 and LP0002 Sec 3.10, 2.7 and 2.8 – Spurious Unwanted Emissions

## 6.1 Applicable Standard

According to FCC §15.247 (d), LP0002 Sec 3.10,. ISED RSS-247 Sec 5.5
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c). (7) The provisions of §15.205 apply to intentional radiators operating under this section.

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090-0.110 | 13.36-13.41 | 399.9-410 | 4.5-5.15 |
| 0.495-0.505 | 16.42-16.423 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.69475-16.69525 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | Above 38.6 |

As per NCC Section 2.7,

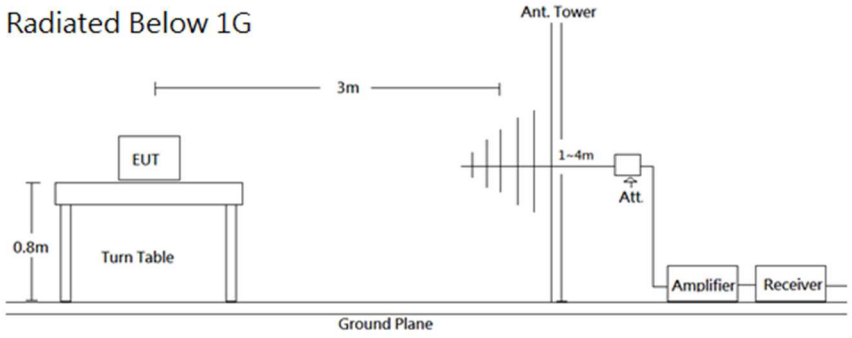
| MHz | MHz | MHz |
|---|---|---|
| 0.090 - 0.110 | 167.72 - 173.20 | 3260.0 - 3267.0 |
| 0.490 - 0.510 | 240.00 - 285.00 | 3332.0 - 3339.0 |
| 2.172 - 2.198 | 322.00 - 335.40 | 3345.8 - 3358.0 |
| 3.013 - 3.033 | 399.90 - 410.00 | 3500.0 - 4400.0 |
| 4.115 - 4.198 | 608.00 - 614.00 | 4500.0 - 5250.0 |
| 5.670 - 5.690 | 703.00 - 748.00 | 5350.0 - 5460.0 |
| 6.200 - 6.300 | 758.00 - 803.00 | 7250.0 - 7750.0 |
| 8.230 - 8.400 | 825.00 - 915.00 | 8025.0 - 8500.0 |
| 12.265 - 12.600 | 930.00 - 1240.0 | 9000.0 - 9200.0 |
| 13.340 - 13.430 | 1300.0 - 1427.0 | 9300.0 - 9500.0 |
| 14.965 - 15.020 | 1435.0 - 1626.5 | 10600 - 12700 |
| 16.700 - 16.755 | 1660.0 - 1785.0 | 13250 - 13400 |
| 19.965 - 20.020 | 1805.0 - 1880.0 | 14470 - 14500 |
| 25.500 - 25.700 | 1885.0 - 1900.0 | 15350 - 16200 |
| 37.475 - 38.275 | 1905.0 - 1985.0 | 17700 - 21400 |
| 73.500 - 75.400 | 2010.0 - 2025.0 | 22010 - 23120 |
| 108.00 - 138.00 | 2110.0 - 2170.0 | 23600 - 24000 |
| 149.90 - 150.05 | 2200.0 - 2300.0 | 31200 - 31800 |
| 156.70 - 156.90 | 2310.0 - 2390.0 | 36430 - 36500 |
| 162.01 - 167.17 | 2483.5 - 2900.0 | Above 38600 |

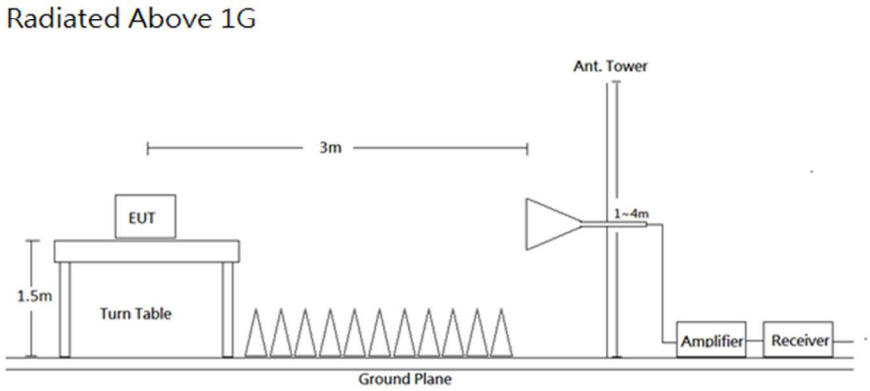
As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (micro volts/meter) | Measurement Distance (meters) |
|---|---|---|
| 0.009 - 0.490 | 2400/F(kHz) | 300 |
| 0.490 - 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 - 88 | 100** | 3 |
| 88 - 216 | 150** | 3 |
| 216 - 960 | 200** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

## 6.2 EUT Setup and Test Procedure



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 Part 15.209 and FCC 15.247 Limits.

The system was investigated from 30 MHz to 26.5 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

| Frequency Range | RBW | VBW | Detector | Duty cycle | Measurement method |
|---|---|---|---|---|---|
| **30-1000 MHz** | 120 kHz | / | QP | - | QP |
| **Above 1 GHz** | 1 MHz | 3 MHz | PK | - | PK |
| | 1 MHz | 3 MHz | RMS | >98% | Ave |
| | 1 MHz | 1/T | PK | <98% | Ave |

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations. All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

## 6.3 Test Equipment List and Details

| Description | Manufacture | Model | Serial No. | Cal. Date. | Cal. Due. |
|---|---|---|---|---|---|
| **966A Room** | | | | | |
| Active Loop Antenna | ETS-Lindgren | 6502 | 00035796 | 2019/03/12 | 2020/03/11 |
| Bilog Antenna with 6 dB Attenuator | Sunol & Mini-Circuits | JB6/UNAT-6+ | A050115/15542_01 | 2018/12/11 | 2019/12/10 |
| Horn Antenna | EMCO | SAS-571 | 1983 | 2019/04/30 | 2020/04/29 |
| Horn Antenna | ETS-Lindgren | 3116 | 62638 | 2018/08/29 | 2019/08/28 |
| Preamplifier | Sonoma | 310N | 130601 | 2018/09/20 | 2019/09/19 |
| Preamplifier | EM Electronics Corp. | EM01G18G | 060698 | 2019/04/12 | 2020/04/11 |
| Microware Preamplifier | EM Electronics Corporatino | EM18G40G | 060656 | 2019/01/11 | 2020/01/10 |
| EMI Test Receiver | Rohde & Schwarz | ESR7 | 101419 | 2018/10/23 | 2019/10/22 |
| Spectrum Analyzer | Rohde & Schwarz | FSV40 | 101204 | 2019/07/04 | 2020/07/03 |
| Microflex Cable | UTIFLEX | UFB197C-1-2362-70U-70U | 225756-001 | 2019/07/01 | 2020/06/30 |
| Microflex Cable | UTIFLEX | UFA210A-1-3149-300300 | MFR64639 226389-001 | 2018/11/19 | 2019/11/18 |
| Microflex Cable | ROSNOL | K1K50-UP0264-K1K50-450CM | 160309-1 | 2019/03/04 | 2020/03/03 |
| Microflex Cable | ROSNOL | K1K50-UP0264-K1K50-80CM | 160309-2 | 2019/01/16 | 2020/01/15 |
| Turn Table | Champro | TT-2000 | 060772-T | N.C.R | N.C.R |
| Antenna Tower | Champro | AM-BS-4500-B | 060772-A | N.C.R | N.C.R |
| Controller | Champro | EM1000 | 60772 | N.C.R | N.C.R |
| Software | AUDIX | E3 | LKCO01 | N.C.R | N.C.R |

***Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).*

## 6.4 Test Environmental Conditions

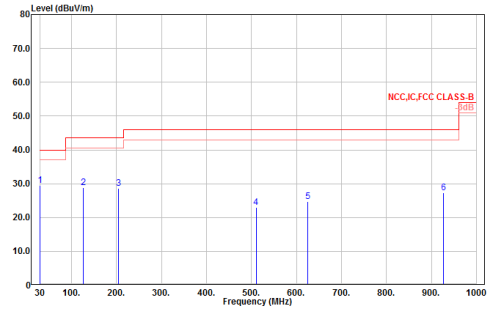
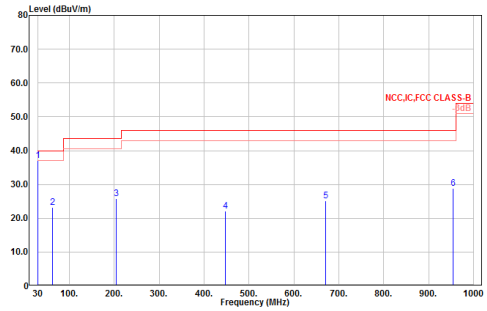
| | | | |
|---|---|---|---|
| **Temperature:** | 20-25 ℃ | **Relative Humidity:** | 45-55 % |
| **ATM Pressure:** | 1014hPa | **Test Engineer:** | Leo Chang |
| **Test Date:** | 2019-06-19~2019-08-06 | - | - |

## 6.5 Radiated Emission Test Plot and Data

**Wi-Fi 2.4G mode - 4TX**

**Transmitting mode** (Pre-scan with three orthogonal axis, and worse case as Z axis)

**Below 1G (30 MHz-1 GHz) test the output power worst mode**

| Horizontal | Vertical |
|---|---|
|  |  |



| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | 30.000 | 29.55 | 40.00 | -10.45 | 35.38 | -5.83 | Peak | horizontal |
| 2 | 126.030 | 28.73 | 43.50 | -14.77 | 45.39 | -16.66 | Peak | horizontal |
| 3 | 204.600 | 28.72 | 43.50 | -14.78 | 48.05 | -19.33 | Peak | horizontal |
| 4 | 510.150 | 23.09 | 46.00 | -22.91 | 36.50 | -13.41 | Peak | horizontal |
| 5 | 625.580 | 24.72 | 46.00 | -21.28 | 36.20 | -11.48 | Peak | horizontal |
| 6 | 927.250 | 27.32 | 46.00 | -18.68 | 35.17 | -7.85 | Peak | horizontal |

| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 30.970 | 37.02 | 40.00 | -2.98 | 43.58 | -6.56 | QP | vertical |
| 2 | 62.980 | 23.22 | 40.00 | -16.78 | 45.43 | -22.21 | Peak | vertical |
| 3 | 204.600 | 25.75 | 43.50 | -17.75 | 45.08 | -19.33 | Peak | vertical |
| 4 | 447.100 | 22.20 | 46.00 | -23.80 | 36.92 | -14.72 | Peak | vertical |
| 5 | 670.200 | 25.05 | 46.00 | -20.95 | 35.88 | -10.83 | Peak | vertical |
| 6 | 954.410 | 28.92 | 46.00 | -17.08 | 36.33 | -7.41 | Peak | vertical |

*Result = Reading + Correct Factor*

*Margin = Result – Limit*

*Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain*

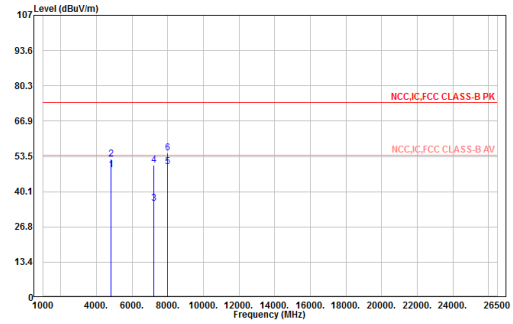
*Spurious emissions more than 20 dB below the limit were not reported*

## Wi-Fi 2.4G mode - 4TX

## Above 1G (1 GHz-26.5 GHz):

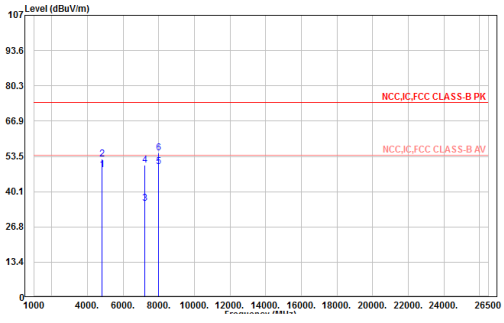
### 802.11b mode: 2412MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4824.000 | 48.44 | 54.00 | -5.56 | 47.80 | 0.64 | Average | horizontal |
| 2 | 4824.000 | 52.43 | 74.00 | -21.57 | 51.79 | 0.64 | Peak | horizontal |
| 3 ! | 7236.000 | 35.80 | 54.00 | -18.20 | 30.42 | 5.38 | Average | horizontal |
| 4 | 7236.000 | 50.14 | 74.00 | -23.86 | 44.76 | 5.38 | Peak | horizontal |
| 5 ! | 8000.000 | 49.45 | 54.00 | -4.55 | 43.20 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.87 | 74.00 | -19.13 | 48.62 | 6.25 | Peak | horizontal |

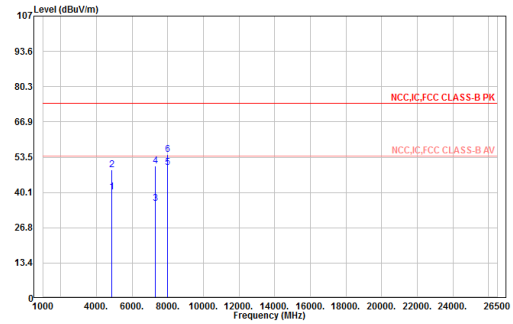
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4824.000 | 48.44 | 54.00 | -5.56 | 47.80 | 0.64 | Average | horizontal |
| 2 | 4824.000 | 52.43 | 74.00 | -21.57 | 51.79 | 0.64 | Peak | horizontal |
| 3 ! | 7236.000 | 35.80 | 54.00 | -18.20 | 30.42 | 5.38 | Average | horizontal |
| 4 | 7236.000 | 50.14 | 74.00 | -23.86 | 44.76 | 5.38 | Peak | horizontal |
| 5 ! | 8000.000 | 49.45 | 54.00 | -4.55 | 43.20 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.87 | 74.00 | -19.13 | 48.62 | 6.25 | Peak | horizontal |

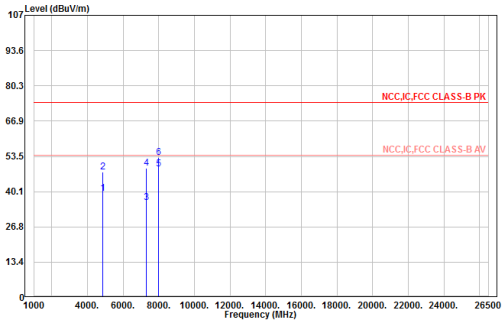
### 802.11b mode: 2437 MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4874.000 | 40.19 | 54.00 | -13.81 | 39.40 | 0.79 | Average | horizontal |
| 2 | 4874.000 | 48.64 | 74.00 | -25.36 | 47.85 | 0.79 | Peak | horizontal |
| 3 ! | 7311.000 | 36.08 | 54.00 | -17.92 | 30.44 | 5.64 | Average | horizontal |
| 4 | 7311.000 | 50.04 | 74.00 | -23.96 | 44.40 | 5.64 | Peak | horizontal |
| 5 ! | 8000.000 | 49.47 | 54.00 | -4.53 | 43.22 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.53 | 74.00 | -19.47 | 48.28 | 6.25 | Peak | horizontal |

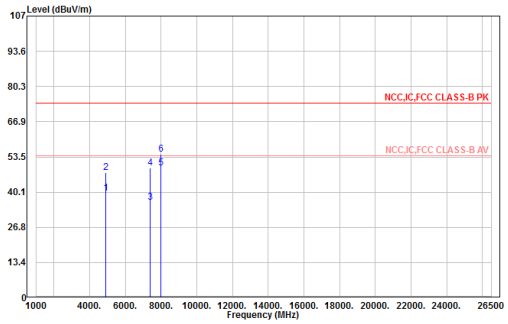
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4874.000 | 39.41 | 54.00 | -14.59 | 38.62 | 0.79 | Average | vertical |
| 2 | 4874.000 | 47.59 | 74.00 | -26.41 | 46.80 | 0.79 | Peak | vertical |
| 3 ! | 7311.000 | 35.99 | 54.00 | -18.01 | 30.35 | 5.64 | Average | vertical |
| 4 | 7311.000 | 48.98 | 74.00 | -25.02 | 43.34 | 5.64 | Peak | vertical |
| 5 ! | 8000.000 | 48.60 | 54.00 | -5.40 | 42.35 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.16 | 74.00 | -20.84 | 46.91 | 6.25 | Peak | vertical |

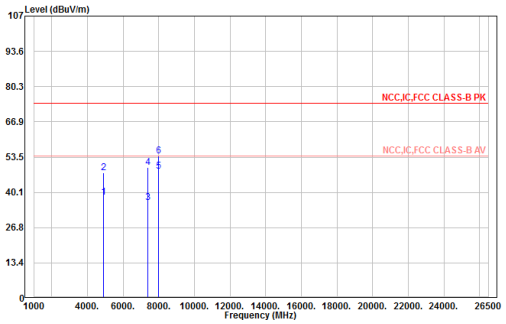
## 802.11b mode: 2462 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4924.000 | 39.66 | 54.00 | -14.34 | 38.82 | 0.84 | Average | horizontal |
| 2 | 4924.000 | 47.69 | 74.00 | -26.31 | 46.85 | 0.84 | Peak | horizontal |
| 3 ! | 7386.000 | 36.28 | 54.00 | -17.72 | 30.36 | 5.92 | Average | horizontal |
| 4 | 7386.000 | 49.31 | 74.00 | -24.69 | 43.39 | 5.92 | Peak | horizontal |
| 5 ! | 8000.000 | 49.40 | 54.00 | -4.60 | 43.15 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.47 | 74.00 | -19.53 | 48.22 | 6.25 | Peak | horizontal |

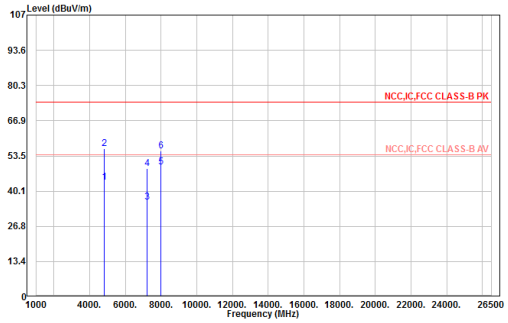
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4924.000 | 38.38 | 54.00 | -15.62 | 37.54 | 0.84 | Average | vertical |
| 2 | 4924.000 | 47.42 | 74.00 | -26.58 | 46.58 | 0.84 | Peak | vertical |
| 3 ! | 7386.000 | 36.28 | 54.00 | -17.72 | 30.36 | 5.92 | Average | vertical |
| 4 | 7386.000 | 49.47 | 74.00 | -24.53 | 43.55 | 5.92 | Peak | vertical |
| 5 ! | 8000.000 | 48.07 | 54.00 | -5.93 | 41.82 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.86 | 74.00 | -20.14 | 47.61 | 6.25 | Peak | vertical |

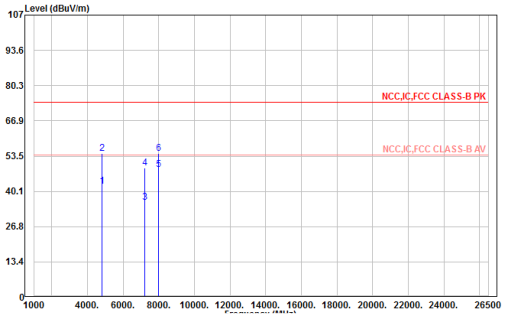
## 802.11g mode: 2412 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4814.000 | 43.49 | 54.00 | -10.51 | 42.88 | 0.61 | Average | horizontal |
| 2 ! | 4814.000 | 56.23 | 74.00 | -17.77 | 55.62 | 0.61 | Peak | horizontal |
| 3 ! | 7236.000 | 36.04 | 54.00 | -17.96 | 30.66 | 5.38 | Average | horizontal |
| 4 | 7236.000 | 48.74 | 74.00 | -25.26 | 43.36 | 5.38 | Peak | horizontal |
| 5 ! | 8000.000 | 49.31 | 54.00 | -4.69 | 43.06 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 55.29 | 74.00 | -18.71 | 49.04 | 6.25 | Peak | horizontal |

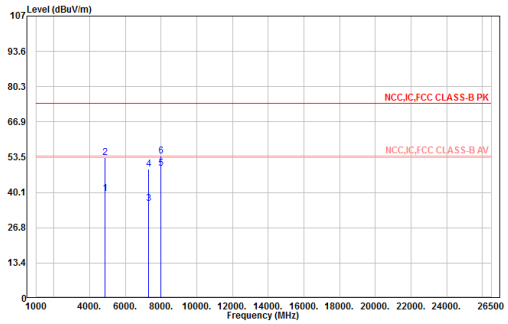
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4814.000 | 42.17 | 54.00 | -11.83 | 41.56 | 0.61 | Average | vertical |
| 2 ! | 4814.000 | 54.47 | 74.00 | -19.53 | 53.83 | 0.64 | Peak | vertical |
| 3 ! | 7236.000 | 35.96 | 54.00 | -18.04 | 30.58 | 5.38 | Average | vertical |
| 4 | 7236.000 | 48.92 | 74.00 | -25.08 | 43.54 | 5.38 | Peak | vertical |
| 5 ! | 8000.000 | 48.41 | 54.00 | -5.59 | 42.13 | 6.28 | Average | vertical |
| 6 ! | 8000.000 | 54.41 | 74.00 | -19.59 | 48.16 | 6.25 | Peak | vertical |

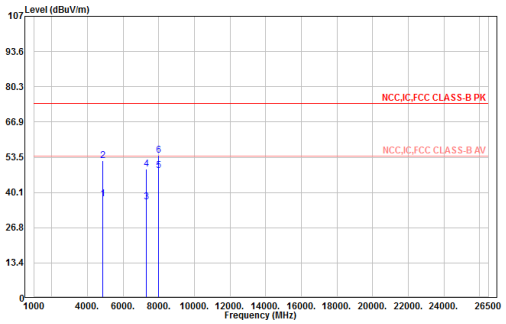
## 802.11g mode: 2437 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4862.000 | 39.74 | 54.00 | -14.26 | 39.04 | 0.70 | Average | horizontal |
| 2 | 4862.000 | 53.46 | 74.00 | -20.54 | 52.76 | 0.70 | Peak | horizontal |
| 3 ! | 7311.000 | 35.97 | 54.00 | -18.03 | 30.33 | 5.64 | Average | horizontal |
| 4 | 7311.000 | 49.01 | 74.00 | -24.99 | 43.37 | 5.64 | Peak | horizontal |
| 5 ! | 8000.000 | 49.31 | 54.00 | -4.69 | 43.06 | 6.25 | Average | horizontal |
| 6 | 8000.000 | 53.99 | 74.00 | -20.01 | 47.74 | 6.25 | Peak | horizontal |

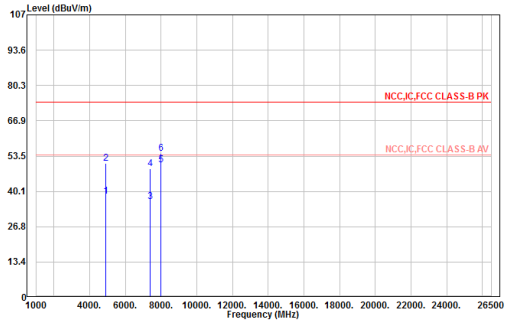
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4862.000 | 37.68 | 54.00 | -16.32 | 36.98 | 0.70 | Average | vertical |
| 2 | 4862.000 | 52.15 | 74.00 | -21.85 | 51.45 | 0.70 | Peak | vertical |
| 3 ! | 7311.000 | 36.66 | 54.00 | -17.34 | 31.02 | 5.64 | Average | vertical |
| 4 | 7311.000 | 48.90 | 74.00 | -25.10 | 43.26 | 5.64 | Peak | vertical |
| 5 ! | 8000.000 | 48.49 | 54.00 | -5.51 | 42.24 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.19 | 74.00 | -19.81 | 47.94 | 6.25 | Peak | vertical |

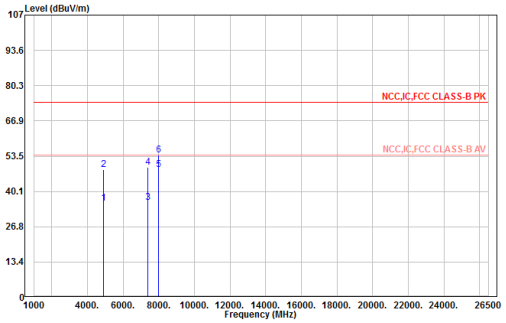
## 802.11g mode: 2462 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4912.000 | 38.28 | 54.00 | -15.72 | 37.43 | 0.85 | Average | horizontal |
| 2 | 4912.000 | 50.64 | 74.00 | -23.36 | 49.79 | 0.85 | Peak | horizontal |
| 3 ! | 7386.000 | 36.35 | 54.00 | -17.65 | 30.43 | 5.92 | Average | horizontal |
| 4 | 7386.000 | 48.76 | 74.00 | -25.24 | 42.84 | 5.92 | Peak | horizontal |
| 5 ! | 8000.000 | 50.15 | 54.00 | -3.85 | 43.90 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.65 | 74.00 | -19.35 | 48.40 | 6.25 | Peak | horizontal |

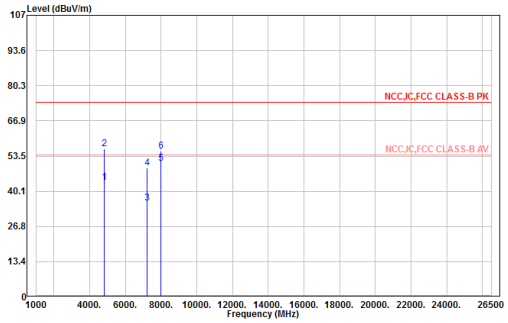
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4912.000 | 35.60 | 54.00 | -18.40 | 34.75 | 0.85 | Average | vertical |
| 2 | 4912.000 | 48.43 | 74.00 | -25.57 | 47.58 | 0.85 | Peak | vertical |
| 3 ! | 7386.000 | 36.06 | 54.00 | -17.94 | 30.14 | 5.92 | Average | vertical |
| 4 | 7386.000 | 49.24 | 74.00 | -24.76 | 43.32 | 5.92 | Peak | vertical |
| 5 ! | 8000.000 | 48.51 | 54.00 | -5.49 | 42.26 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.90 | 74.00 | -20.10 | 47.65 | 6.25 | Peak | vertical |

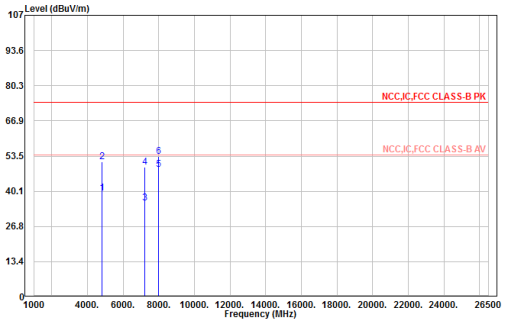
## 802.11n HT20 mode: 2412 MHz

### Horizontal




| | | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | | 4837.000 | 43.50 | 74.00 | -30.50 | 42.86 | 0.64 | Average | horizontal |
| 2 | ! | 4837.000 | 56.26 | 74.00 | -17.74 | 55.62 | 0.64 | Peak | horizontal |
| 3 | ! | 7236.000 | 35.66 | 54.00 | -18.34 | 30.28 | 5.38 | Average | horizontal |
| 4 | | 7236.000 | 48.98 | 74.00 | -25.02 | 43.60 | 5.38 | Peak | horizontal |
| 5 | ! | 8000.000 | 50.80 | 54.00 | -3.20 | 44.55 | 6.25 | Average | horizontal |
| 6 | ! | 8000.000 | 55.40 | 74.00 | -18.60 | 49.15 | 6.25 | Peak | horizontal |

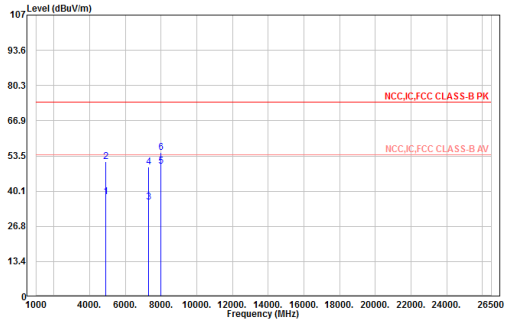
### Vertical




| | | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | ! | 4837.000 | 39.31 | 54.00 | -14.69 | 38.67 | 0.64 | Average | vertical |
| 2 | | 4837.000 | 51.30 | 74.00 | -22.70 | 50.66 | 0.64 | Peak | vertical |
| 3 | ! | 7236.000 | 35.61 | 54.00 | -18.39 | 30.23 | 5.38 | Average | vertical |
| 4 | | 7236.000 | 49.30 | 74.00 | -24.70 | 43.92 | 5.38 | Peak | vertical |
| 5 | ! | 8000.000 | 48.45 | 54.00 | -5.55 | 42.20 | 6.25 | Average | vertical |
| 6 | | 8000.000 | 53.41 | 74.00 | -20.59 | 47.16 | 6.25 | Peak | vertical |

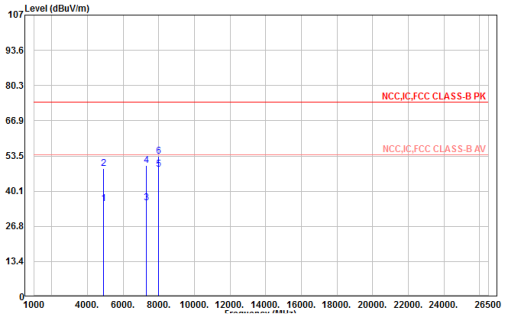
## 802.11n HT20 mode: 2437 MHz

### Horizontal




| | | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | ! | 4886.000 | 38.04 | 54.00 | -15.96 | 37.24 | 0.80 | Average | horizontal |
| 2 | | 4886.000 | 51.47 | 74.00 | -22.53 | 50.67 | 0.80 | Peak | horizontal |
| 3 | ! | 7311.000 | 36.09 | 54.00 | -17.91 | 30.45 | 5.64 | Average | horizontal |
| 4 | | 7311.000 | 49.31 | 74.00 | -24.69 | 43.67 | 5.64 | Peak | horizontal |
| 5 | ! | 8000.000 | 49.46 | 54.00 | -4.54 | 43.21 | 6.25 | Average | horizontal |
| 6 | ! | 8000.000 | 54.80 | 74.00 | -19.20 | 48.55 | 6.25 | Peak | horizontal |

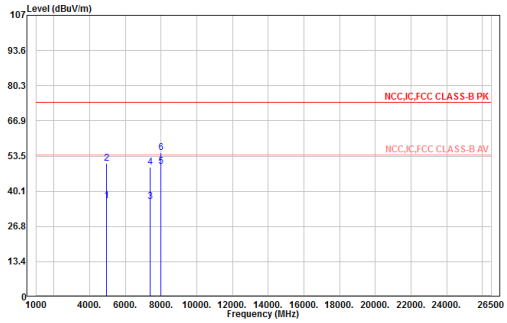
### Vertical




| | | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | ! | 4886.000 | 35.50 | 54.00 | -18.50 | 34.71 | 0.79 | Average | vertical |
| 2 | | 4886.000 | 48.71 | 74.00 | -25.29 | 47.92 | 0.79 | Peak | vertical |
| 3 | ! | 7311.000 | 35.80 | 54.00 | -18.20 | 30.16 | 5.64 | Average | vertical |
| 4 | | 7311.000 | 49.82 | 74.00 | -24.18 | 44.18 | 5.64 | Peak | vertical |
| 5 | ! | 8000.000 | 48.44 | 54.00 | -5.56 | 42.19 | 6.25 | Average | vertical |
| 6 | | 8000.000 | 53.47 | 74.00 | -20.53 | 47.19 | 6.28 | Peak | vertical |

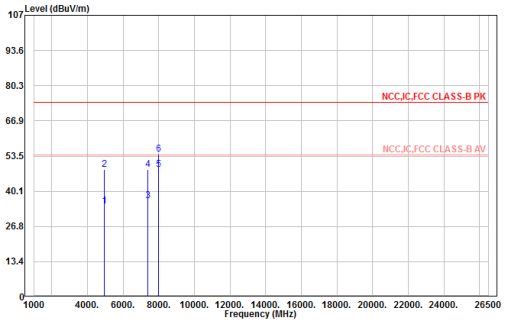
## 802.11n HT20 mode: 2462 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4937.000 | 36.53 | 54.00 | -17.47 | 35.70 | 0.83 | Average | horizontal |
| 2 | 4937.000 | 50.72 | 74.00 | -23.28 | 49.89 | 0.83 | Peak | horizontal |
| 3 ! | 7386.000 | 36.17 | 54.00 | -17.83 | 30.25 | 5.92 | Average | horizontal |
| 4 | 7386.000 | 49.39 | 74.00 | -24.61 | 43.47 | 5.92 | Peak | horizontal |
| 5 ! | 8000.000 | 49.52 | 54.00 | -4.48 | 43.27 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.92 | 74.00 | -19.08 | 48.67 | 6.25 | Peak | horizontal |

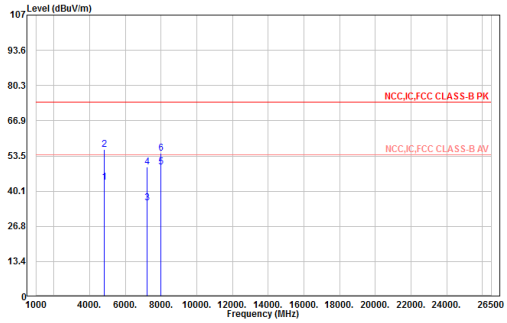
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4937.000 | 34.58 | 54.00 | -19.42 | 33.75 | 0.83 | Average | vertical |
| 2 | 4937.000 | 48.49 | 74.00 | -25.51 | 47.66 | 0.83 | Peak | vertical |
| 3 ! | 7386.000 | 36.40 | 54.00 | -17.60 | 30.48 | 5.92 | Average | vertical |
| 4 | 7386.000 | 48.56 | 74.00 | -25.44 | 42.64 | 5.92 | Peak | vertical |
| 5 ! | 8000.000 | 48.40 | 54.00 | -5.60 | 42.15 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.18 | 74.00 | -19.82 | 47.93 | 6.25 | Peak | vertical |

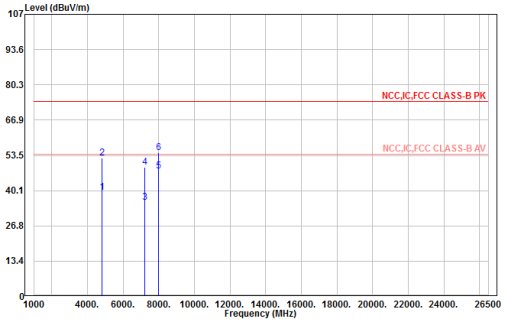
## 802.11ax HE20 mode: 2412 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4836.000 | 43.53 | 54.00 | -10.47 | 42.89 | 0.64 | Average | horizontal |
| 2 ! | 4836.000 | 56.06 | 74.00 | -17.94 | 55.42 | 0.64 | Peak | horizontal |
| 3 ! | 7236.000 | 35.66 | 54.00 | -18.34 | 30.28 | 5.38 | Average | horizontal |
| 4 | 7236.000 | 49.36 | 74.00 | -24.64 | 43.98 | 5.38 | Peak | horizontal |
| 5 ! | 8000.000 | 49.41 | 54.00 | -4.59 | 43.16 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.43 | 74.00 | -19.57 | 48.18 | 6.25 | Peak | horizontal |

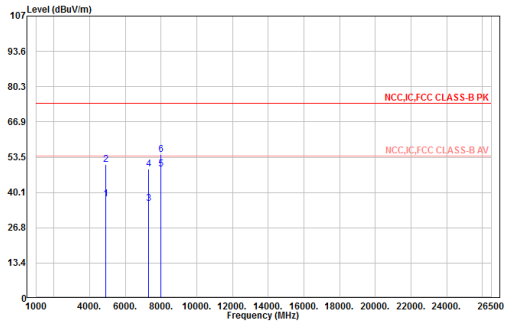
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4836.000 | 39.54 | 54.00 | -14.46 | 38.90 | 0.64 | Average | vertical |
| 2 | 4836.000 | 52.61 | 74.00 | -21.39 | 51.97 | 0.64 | Peak | vertical |
| 3 ! | 7236.000 | 35.64 | 54.00 | -18.36 | 30.26 | 5.38 | Average | vertical |
| 4 | 7236.000 | 49.14 | 74.00 | -24.86 | 43.76 | 5.38 | Peak | vertical |
| 5 ! | 8000.000 | 47.64 | 54.00 | -6.36 | 41.39 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.42 | 74.00 | -19.58 | 48.17 | 6.25 | Peak | vertical |

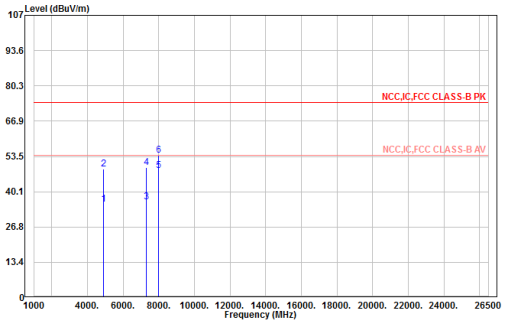
## 802.11ax HE20 mode: 2437 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4887.000 | 37.68 | 54.00 | -16.32 | 36.88 | 0.80 | Average | horizontal |
| 2 | 4887.000 | 50.82 | 74.00 | -23.18 | 50.02 | 0.80 | Peak | horizontal |
| 3 ! | 7311.000 | 35.95 | 54.00 | -18.05 | 30.31 | 5.64 | Average | horizontal |
| 4 | 7311.000 | 48.97 | 74.00 | -25.03 | 43.33 | 5.64 | Peak | horizontal |
| 5 ! | 8000.000 | 49.03 | 54.00 | -4.97 | 42.78 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.43 | 74.00 | -19.57 | 48.18 | 6.25 | Peak | horizontal |

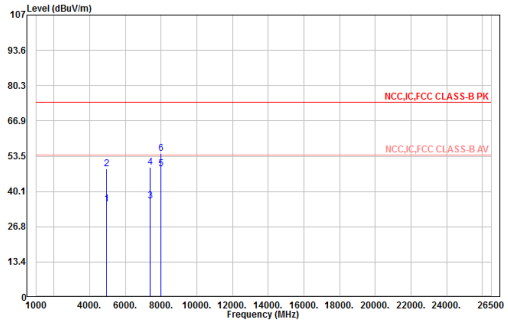
### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4887.000 | 35.51 | 54.00 | -18.49 | 34.72 | 0.79 | Average | vertical |
| 2 | 4887.000 | 48.66 | 74.00 | -25.34 | 47.87 | 0.79 | Peak | vertical |
| 3 ! | 7311.000 | 36.17 | 54.00 | -17.83 | 30.53 | 5.64 | Average | vertical |
| 4 | 7311.000 | 49.21 | 74.00 | -24.79 | 43.57 | 5.64 | Peak | vertical |
| 5 ! | 8000.000 | 48.02 | 54.00 | -5.98 | 41.77 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.85 | 74.00 | -20.15 | 47.60 | 6.25 | Peak | vertical |

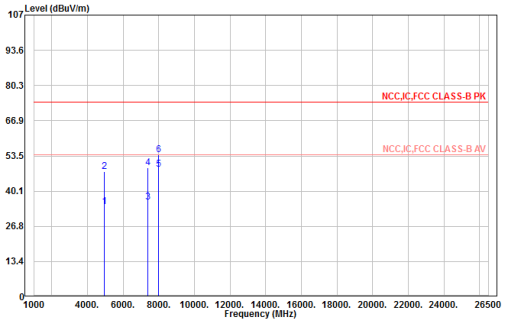
## 802.11ax HE20 mode: 2462 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4937.000 | 35.45 | 54.00 | -18.55 | 34.62 | 0.83 | Average | horizontal |
| 2 | 4937.000 | 48.58 | 74.00 | -25.42 | 47.75 | 0.83 | Peak | horizontal |
| 3 ! | 7386.000 | 36.52 | 54.00 | -17.48 | 30.60 | 5.92 | Average | horizontal |
| 4 | 7386.000 | 49.38 | 74.00 | -24.62 | 43.46 | 5.92 | Peak | horizontal |
| 5 ! | 8000.000 | 48.84 | 54.00 | -5.16 | 42.59 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.64 | 74.00 | -19.36 | 48.39 | 6.25 | Peak | horizontal |

### Vertical



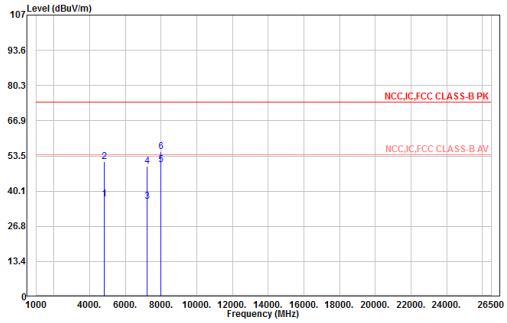

| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4937.000 | 34.14 | 54.00 | -19.86 | 33.30 | 0.84 | Average | vertical |
| 2 | 4937.000 | 47.58 | 74.00 | -26.42 | 46.74 | 0.84 | Peak | vertical |
| 3 ! | 7386.000 | 36.05 | 54.00 | -17.95 | 30.13 | 5.92 | Average | vertical |
| 4 | 7386.000 | 48.93 | 74.00 | -25.07 | 43.01 | 5.92 | Peak | vertical |
| 5 ! | 8000.000 | 48.34 | 54.00 | -5.66 | 42.09 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.82 | 74.00 | -20.18 | 47.57 | 6.25 | Peak | vertical |

## ChillWave mode -

## Above 1G (1 GHz-26.5 GHz):

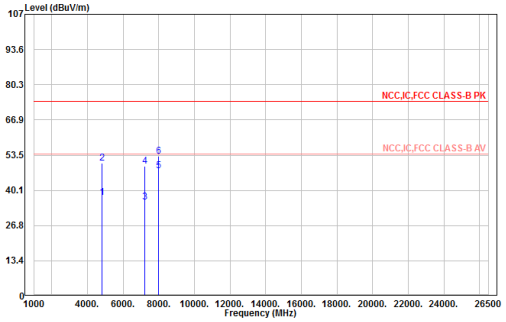
### 802.11g mode: 2412MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4824.000 | 37.05 | 54.00 | -16.95 | 36.41 | 0.64 | Average | horizontal |
| 2 | 4824.000 | 51.44 | 74.00 | -22.56 | 50.80 | 0.64 | Peak | horizontal |
| 3 ! | 7236.000 | 36.17 | 54.00 | -17.83 | 30.79 | 5.38 | Average | horizontal |
| 4 | 7236.000 | 49.66 | 74.00 | -24.34 | 44.28 | 5.38 | Peak | horizontal |
| 5 ! | 8000.000 | 50.10 | 54.00 | -3.90 | 43.85 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 55.02 | 74.00 | -18.98 | 48.77 | 6.25 | Peak | horizontal |

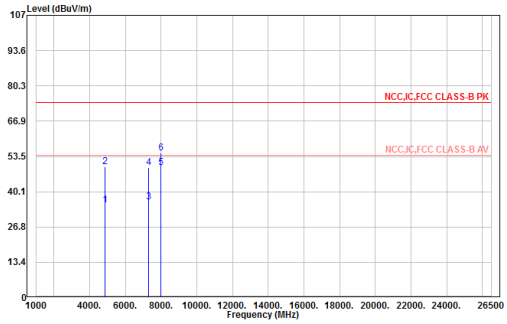
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4824.000 | 37.27 | 54.00 | -16.73 | 36.63 | 0.64 | Average | vertical |
| 2 | 4824.000 | 50.51 | 74.00 | -23.49 | 49.87 | 0.64 | Peak | vertical |
| 3 ! | 7236.000 | 35.71 | 54.00 | -18.29 | 30.33 | 5.38 | Average | vertical |
| 4 | 7236.000 | 49.31 | 74.00 | -24.69 | 43.93 | 5.38 | Peak | vertical |
| 5 ! | 8000.000 | 47.44 | 54.00 | -6.56 | 41.19 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.15 | 74.00 | -20.85 | 46.90 | 6.25 | Peak | vertical |

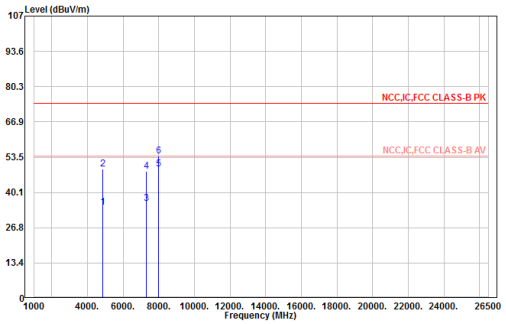
### 802.11g mode: 2437 MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4874.000 | 35.05 | 54.00 | -18.95 | 34.26 | 0.79 | Average | horizontal |
| 2 | 4874.000 | 49.65 | 74.00 | -24.35 | 48.86 | 0.79 | Peak | horizontal |
| 3 ! | 7311.000 | 36.20 | 54.00 | -17.80 | 30.56 | 5.64 | Average | horizontal |
| 4 | 7311.000 | 49.17 | 74.00 | -24.83 | 43.53 | 5.64 | Peak | horizontal |
| 5 ! | 8000.000 | 49.42 | 54.00 | -4.58 | 43.17 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.92 | 74.00 | -19.08 | 48.67 | 6.25 | Peak | horizontal |

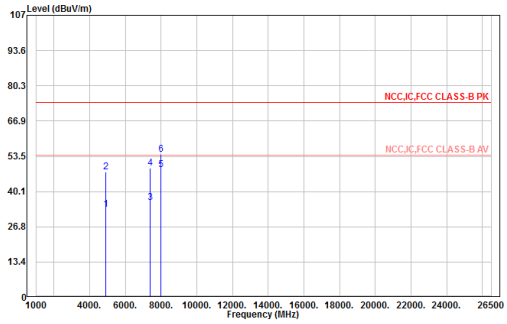
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4874.000 | 34.46 | 54.00 | -19.54 | 33.67 | 0.79 | Average | vertical |
| 2 | 4874.000 | 49.06 | 74.00 | -24.94 | 48.27 | 0.79 | Peak | vertical |
| 3 ! | 7311.000 | 35.95 | 54.00 | -18.05 | 30.31 | 5.64 | Average | vertical |
| 4 | 7311.000 | 48.27 | 74.00 | -25.73 | 42.63 | 5.64 | Peak | vertical |
| 5 ! | 8000.000 | 48.90 | 54.00 | -5.10 | 42.65 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.06 | 74.00 | -19.94 | 47.81 | 6.25 | Peak | vertical |

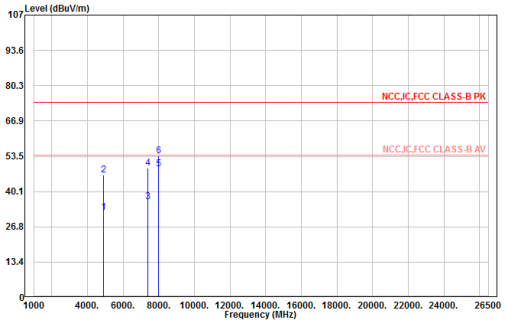
## 802.11g mode: 2462 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | 4924.000 | 33.38 | 54.00 | -20.62 | 32.54 | 0.84 | Average | horizontal |
| 2 | 4924.000 | 47.54 | 74.00 | -26.46 | 46.70 | 0.84 | Peak | horizontal |
| 3 ! | 7386.000 | 36.09 | 54.00 | -17.91 | 30.17 | 5.92 | Average | horizontal |
| 4 | 7386.000 | 49.14 | 74.00 | -24.86 | 43.22 | 5.92 | Peak | horizontal |
| 5 ! | 8000.000 | 48.44 | 54.00 | -5.56 | 42.19 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.21 | 74.00 | -19.79 | 47.96 | 6.25 | Peak | horizontal |

### Vertical

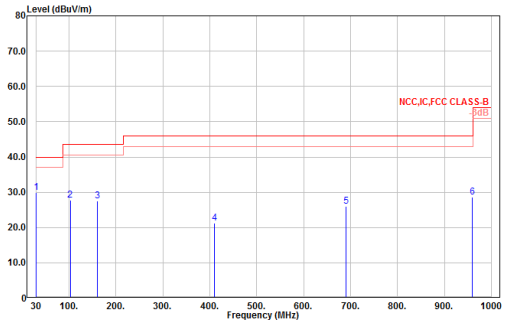
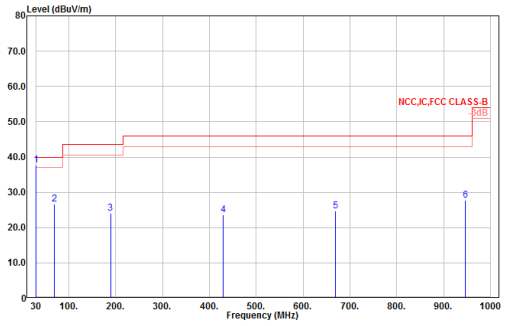



| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | 4924.000 | 32.30 | 54.00 | -21.70 | 31.46 | 0.84 | Average | vertical |
| 2 | 4924.000 | 46.51 | 74.00 | -27.49 | 45.67 | 0.84 | Peak | vertical |
| 3 ! | 7386.000 | 36.34 | 54.00 | -17.66 | 30.42 | 5.92 | Average | vertical |
| 4 | 7386.000 | 48.97 | 74.00 | -25.03 | 43.05 | 5.92 | Peak | vertical |
| 5 ! | 8000.000 | 48.59 | 54.00 | -5.41 | 42.34 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.61 | 74.00 | -20.39 | 47.36 | 6.25 | Peak | vertical |

## BLE mode

**Transmitting mode** (Pre-scan with three orthogonal axis, and worse case as Z axis)

**Below 1G (30 MHz-1 GHz) test the output power worst mode**

| Horizontal | Vertical |
|---|---|
|  |  |



| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 | 30.970 | 30.02 | 40.00 | -9.98 | 36.58 | -6.56 | Peak | horizontal |
| 2 | 102.750 | 27.67 | 43.50 | -15.83 | 47.47 | -19.80 | Peak | horizontal |
| 3 | 159.980 | 27.53 | 43.50 | -15.97 | 45.91 | -18.38 | Peak | horizontal |
| 4 | 410.240 | 21.21 | 46.00 | -24.79 | 36.60 | -15.39 | Peak | horizontal |
| 5 | 689.600 | 25.97 | 46.00 | -20.03 | 36.57 | -10.60 | Peak | horizontal |
| 6 | 959.260 | 28.62 | 46.00 | -17.38 | 35.97 | -7.35 | Peak | horizontal |

| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 30.000 | 37.77 | 40.00 | -2.23 | 43.60 | -5.83 | Peak | vertical |
| 2 | 69.770 | 26.59 | 40.00 | -13.41 | 48.47 | -21.88 | Peak | vertical |
| 3 | 189.080 | 24.10 | 43.50 | -19.40 | 44.10 | -20.00 | Peak | vertical |
| 4 | 429.640 | 23.58 | 46.00 | -22.42 | 38.60 | -15.02 | Peak | vertical |
| 5 | 669.230 | 24.73 | 46.00 | -21.27 | 35.57 | -10.84 | Peak | vertical |
| 6 | 946.650 | 27.70 | 46.00 | -18.30 | 35.23 | -7.53 | Peak | vertical |

*Result = Reading + Correct Factor*

*Margin = Result – Limit*

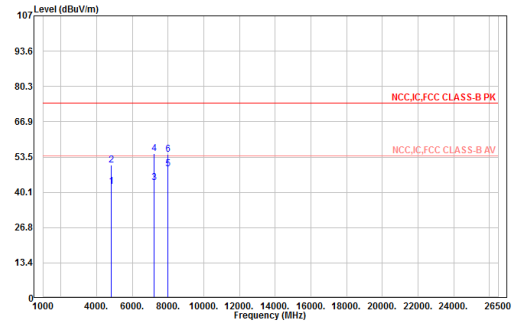
*Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain*

*Spurious emissions more than 20 dB below the limit were not reported*

## Above 1G (1 GHz-26.5 GHz):

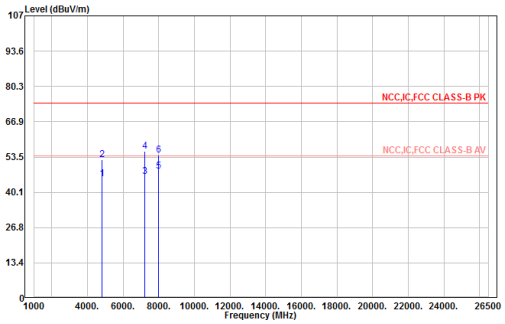
### BLE mode: 2402 MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4804.000 | 42.24 | 54.00 | -11.76 | 41.63 | 0.61 | Average | horizontal |
| 2 | 4804.000 | 50.58 | 74.00 | -23.42 | 49.97 | 0.61 | Peak | horizontal |
| 3 ! | 7206.000 | 43.77 | 54.00 | -10.23 | 38.55 | 5.22 | Average | horizontal |
| 4 ! | 7206.000 | 54.89 | 74.00 | -19.11 | 49.67 | 5.22 | Peak | horizontal |
| 5 ! | 8000.000 | 49.05 | 54.00 | -4.95 | 42.80 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.55 | 74.00 | -19.45 | 48.30 | 6.25 | Peak | horizontal |

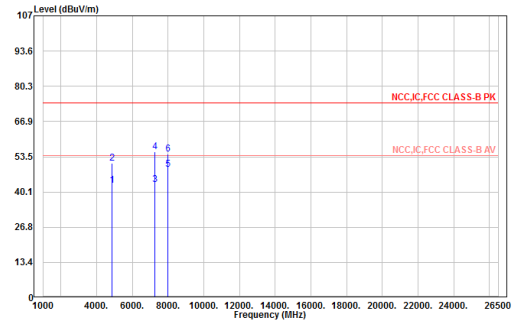
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4804.000 | 45.12 | 54.00 | -8.88 | 44.51 | 0.61 | Average | vertical |
| 2 | 4804.000 | 52.47 | 74.00 | -21.53 | 51.86 | 0.61 | Peak | vertical |
| 3 ! | 7206.000 | 46.10 | 54.00 | -7.90 | 40.88 | 5.22 | Average | vertical |
| 4 ! | 7206.000 | 55.79 | 74.00 | -18.21 | 50.57 | 5.22 | Peak | vertical |
| 5 ! | 8000.000 | 48.16 | 54.00 | -5.84 | 41.91 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.10 | 74.00 | -19.90 | 47.85 | 6.25 | Peak | vertical |

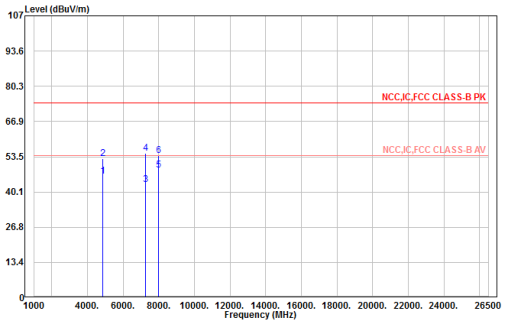
### BLE mode: 2426 MHz

#### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4852.000 | 42.63 | 54.00 | -11.37 | 41.93 | 0.70 | Average | horizontal |
| 2 | 4852.000 | 50.92 | 74.00 | -23.08 | 50.22 | 0.70 | Peak | horizontal |
| 3 ! | 7278.000 | 42.85 | 54.00 | -11.15 | 37.41 | 5.44 | Average | horizontal |
| 4 ! | 7278.000 | 55.33 | 74.00 | -18.67 | 49.89 | 5.44 | Peak | horizontal |
| 5 ! | 8000.000 | 48.59 | 54.00 | -5.41 | 42.34 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.64 | 74.00 | -19.36 | 48.39 | 6.25 | Peak | horizontal |

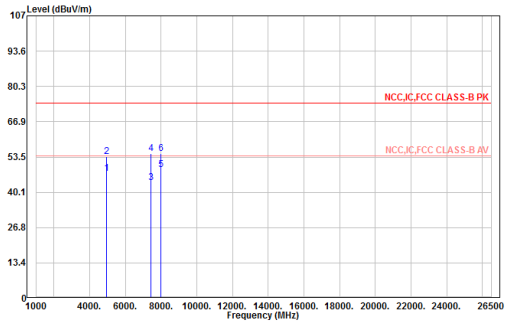
#### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4852.000 | 46.12 | 54.00 | -7.88 | 45.42 | 0.70 | Average | vertical |
| 2 | 4852.000 | 52.64 | 74.00 | -21.36 | 51.94 | 0.70 | Peak | vertical |
| 3 ! | 7278.000 | 42.88 | 54.00 | -11.12 | 37.44 | 5.44 | Average | vertical |
| 4 ! | 7278.000 | 54.94 | 74.00 | -19.06 | 49.50 | 5.44 | Peak | vertical |
| 5 ! | 8000.000 | 48.35 | 54.00 | -5.65 | 42.10 | 6.25 | Average | vertical |
| 6 ! | 8000.000 | 54.00 | 74.00 | -20.00 | 47.75 | 6.25 | Peak | vertical |

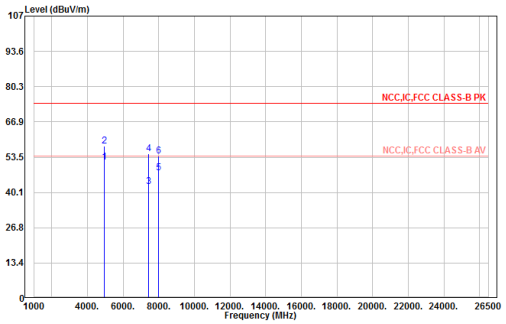
## BLE mode: 2480 MHz

### Horizontal




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4960.000 | 47.37 | 54.00 | -6.63 | 46.54 | 0.83 | Average | horizontal |
| 2 | 4960.000 | 53.69 | 74.00 | -20.31 | 52.86 | 0.83 | Peak | horizontal |
| 3 ! | 7440.000 | 43.76 | 54.00 | -10.24 | 37.70 | 6.06 | Average | horizontal |
| 4 ! | 7440.000 | 54.71 | 74.00 | -19.29 | 48.65 | 6.06 | Peak | horizontal |
| 5 ! | 8000.000 | 48.60 | 54.00 | -5.40 | 42.35 | 6.25 | Average | horizontal |
| 6 ! | 8000.000 | 54.81 | 74.00 | -19.19 | 48.56 | 6.25 | Peak | horizontal |

### Vertical




| | Freq | Level | Limit Line | Over Limit | Read Level | Factor | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | | |
| 1 ! | 4960.000 | 51.57 | 54.00 | -2.43 | 50.74 | 0.83 | Average | vertical |
| 2 ! | 4960.000 | 57.64 | 74.00 | -16.36 | 56.81 | 0.83 | Peak | vertical |
| 3 ! | 7440.000 | 42.31 | 54.00 | -11.69 | 36.25 | 6.06 | Average | vertical |
| 4 ! | 7440.000 | 54.66 | 74.00 | -19.34 | 48.60 | 6.06 | Peak | vertical |
| 5 ! | 8000.000 | 47.65 | 54.00 | -6.35 | 41.40 | 6.25 | Average | vertical |
| 6 | 8000.000 | 53.97 | 74.00 | -20.03 | 47.72 | 6.25 | Peak | vertical |

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