# FCC TEST REPORT

## FCC ID: 2AHW7-AK4000

On Behalf of

Guilin Feiyu Technology Incorporated Company

3-Axis Stabilized Handheld Gimbal for Camera

Model No.: AK4000, AK2000

| | | |
|---|---|---|
| Prepared for | : | Guilin Feiyu Technology Incorporated Company |
| Address | : | 3rd Floor, B, Guilin Electric Valley, Innovation Building, Information Industry Park, ChaoYang Road, Qi Xing District, Guilin 541004, China |

| | | |
|---|---|---|
| Prepared By | : | Shenzhen Alpha Product Testing Co., Ltd. |
| Address | : | Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China |

| | | |
|---|---|---|
| Report Number | : | T1881386 06 |
| Date of Receipt | : | September 04, 2018 |
| Date of Test | : | September 04-28, 2018 |
| Date of Report | : | September 28, 2018 |
| Version Number | : | REV0 |

# TABLE OF CONTENTS

# TEST REPORT DECLARATION

| | | |
|---|---|---|
| Applicant | : | Guilin Feiyu Technology Incorporated Company |
| Address | : | 3rd Floor, B, Guilin Electric Valley, Innovation Building, Information Industry Park, ChaoYang Road, Qi Xing District, Guilin 541004, China |
| Manufacturer | : | Guilin Feiyu Technology Incorporated Company |
| Address | : | 3rd Floor, B, Guilin Electric Valley, Innovation Building, Information Industry Park, ChaoYang Road, Qi Xing District, Guilin 541004, China |
| EUT Description | : | 3-Axis Stabilized Handheld Gimbal for Camera |
| | | (A) Model No. : AK4000, AK2000 |
| | | (B) Trademark : FeiyuTech |

Measurement Standard Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016,**

**ANSI C63.10-2013**

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

| | | |
|---|---|---|
| Tested by (name + signature).....: | Reak Yang<br>Project Engineer | Reak Yang |
| Approved by (name + signature).....: | Simple Guan<br>Project Manager | |
| Date of issue..... .....: | September 28, 2018 | |

## Revision History

| Revision | Issue Date | Revisions | Revised By |
|---|---|---|---|
| 00 | September 28, 2018 | Initial released Issue | Simple Guan |

# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

| Test Item | Test Requirement | Standards Paragraph | Result |
|---|---|---|---|
| Conducted Emission | FCC PART 15:2016 | 15.207 | P |
| 6dB Bandwidth | FCC PART 15:2016 | 15.247 (a)(2) | P |
| Output Power | FCC PART 15:2016 | 15.247 (b)(3) | P |
| Radiated Spurious Emission | FCC PART 15:2016 | 15.247 (c) | P |
| Conducted Spurious & Band Edge Emission | FCC PART 15:2016 | 15.247 (d) | P |
| Power Spectral Density | FCC PART 15:2016 | 15.247 (e) | P |
| Radiated Band Edge Emission | FCC PART 15:2016 | 15.205 | P |
| Antenna Requirement | FCC PART 15:2016 | 15.203 | P |
| Note: | 1. P is an abbreviation for Pass.<br>2. F is an abbreviation for Fail.<br>3. N/A is an abbreviation for Not Applicable. | | |

# 2. GENERAL INFORMATION

## 2.1.Description of Device (EUT)

| | | |
|---|---|---|
| Description | : | 3-Axis Stabilized Handheld Gimbal for Camera |
| Model Number | : | AK4000, AK2000 |
| Diff | : | Only model names are different |
| Trademark | : | FeiyuTech |
| Test Voltage | : | DC 14.8V from battery |
| Operation frequency | : | IEEE 802.11b/g: 2412MHz-2462MHz<br>IEEE 802.11n HT20: 2412MHz-2462MHz<br>IEEE 802.11n HT40: 2422MHz-2452MHz |
| Channel No. | : | IEEE 802.11b/g:11Channels<br>IEEE 802.11n HT20: 11 Channels<br>IEEE 802.11n HT40: 7Channels |
| Modulation type | : | IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)<br>IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK) |
| Antenna Type | : | PCB Antenna, Maximum Gain is 1.68dBi |
| Software version | : | V1.0 |
| Hardware version | : | V1.0 |

## 2.2.Accessories of Device (EUT)

Power Source : N/A

## 2.3.Tested Supporting System Details

| No. | Description | Manufacturer | Model | Serial Number | Certification or DOC |
|---|---|---|---|---|---|
| 1 | N/A | N/A | N/A | N/A | N/A |

## 2.4.Block Diagram of connection between EUT and simulators

## 2.5.Test Mode Description

| Duty cycle :100%Keeping TX | | | | |
|---|---|---|---|---|
| **Mode** | **Setting output power (Max)** | **data rate (Mbps)(see Note)** | **Channel** | **Frequency (MHz)** |
| IEEE 802.11b | 8dBm | 1 | Low :CH1 | 2412 |
| | | 1 | Middle: CH6 | 2437 |
| | | 1 | High: CH11 | 2462 |
| IEEE 802.11g | 8 dBm | 6 | Low :CH1 | 2412 |
| | | 6 | Middle: CH6 | 2437 |
| | | 6 | High: CH11 | 2462 |
| IEEE 802.11 n/HT20 with 2.4G | 8 dBm | 6.5 | Low :CH1 | 2412 |
| | | 6.5 | Middle: CH6 | 2437 |
| | | 6.5 | High: CH11 | 2462 |
| IEEE 802.11 n/HT40 with 2.4G | 5 dBm | 13.5 | Low :CH3 | 2422 |
| | | 13.5 | Middle:CH6 | 2437 |
| | | 13.5 | High:CH9 | 2452 |
| Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test. | | | | |

Channel list:

For IEEE 802.11b/g and IEEE 802.11n/HT20 with 2.4G

| **Channel** | **Frequency (MHz)** | **Channel** | **Frequency (MHz)** | **Channel** | **Frequency (MHz)** |
|---|---|---|---|---|---|
| CH1 | 2412 | CH5 | 2432 | CH9 | 2452 |
| CH2 | 2417 | CH6 | 2437 | CH10 | 2457 |
| CH3 | 2422 | CH7 | 2442 | CH11 | 2462 |
| CH4 | 2427 | CH8 | 2447 | | |

For IEEE 802.11n/HT40 with 2.4G

| **Channel** | **Frequency (MHz)** | **Channel** | **Frequency (MHz)** | **Channel** | **Frequency (MHz)** |
|---|---|---|---|---|---|
| CH1 | / | CH5 | 2432 | CH9 | 2452 |
| CH2 | / | CH6 | 2437 | / | / |
| CH3 | 2422 | CH7 | 2442 | / | / |
| CH4 | 2427 | CH8 | 2447 | / | / |

## 2.6.Test Conditions

| Items | Required | Actual |
|---|---|---|
| Temperature range: | 15-35℃ | 27℃ |
| Humidity range: | 25-75% | 56% |
| Pressure range: | 86-106kPa | 980kPa |

## 2.7.Test Facility

Shenzhen Alpha Product Testing Co., Ltd

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission
Registration Number: 293961

July 25, 2017 Certificated by IC
Registration Number: 12135A

## 2.8.Measurement Uncertainty

(95% confidence levels, k=2)

| Item | Uncertainty |
|---|---|
| Uncertainty for Power point Conducted Emissions Test | 2.42dB |
| Uncertainty for Radiation Emission test in 3m chamber (below 30MHz) | 2.13 dB(Polarize: V) |
| | 2.57dB(Polarize: H) |
| Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz) | 3.54dB(Polarize: V) |
| | 4.1dB(Polarize: H) |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz) | 2.08dB(Polarize: H) |
| | 2.56dB(Polarize: V) |
| Uncertainty for radio frequency | 1×10-9 |
| Uncertainty for conducted RF Power | 0.65dB |
| Uncertainty for temperature | 0.2℃ |
| Uncertainty for humidity | 1% |
| Uncertainty for DC and low frequency voltages | 0.06% |

## 2.9.Test Equipment List

| Equipment | Manufacture | Model No. | Serial No. | Last cal. | Cal Interval |
|---|---|---|---|---|---|
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | BBHA 9120 D(1201) | 2018.04.13 | 2020.04.12 |
| Filter | KANGMAI | ZLPF-LDC-1000- 1959 | 1209002075 | 2018.09.21 | 2019.09.20 |
| Filter | WAINWRIGHT | WHKX2.80 /18G- 12SS | SN1 | 2018.09.21 | 2019.09.20 |
| RF Cable | Resenberger | Cable 4 | N/A | 2018.09.21 | 2019.09.20 |
| Signal Analyzer | Agilent | N9020A | MY499100060 | 2018.09.21 | 2019.09.20 |
| Filter | WAINWRIGHT | WHKX1.0G/15G- 10SS | SN40 | 2018.09.21 | 2019.09.20 |
| Test Receiver | ROHDE&SCHWARZ | ESR | 1316.3003K03-102082-Wa | 2018.09.21 | 2019.09.20 |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 9168-438 | 2018.04.13 | 2020.04.12 |
| 9*6*6 anechoic chamber | CHENYU | 9*6*6 | N/A | 2018.09.21 | 2019.09.20 |
| RF Cable | Resenberger | Cable 1 | N/A | 2018.09.21 | 2019.09.20 |
| RF Cable | Resenberger | Cable 2 | N/A | 2018.09.21 | 2019.09.20 |
| RF Cable | Resenberger | Cable 3 | N/A | 2018.09.21 | 2019.09.20 |
| Loop Antenna | SCHWARZBECK | FMZB 1519B | 00005 | 2018.09.21 | 2019.09.20 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA 9170294 | 2017.03.16 | 2019.03.15 |
| Preamplifier | SCHWARZBECK | BBV9721 | 9721-031 | 2018.09.02 | 2019.09.01 |
| Spectrum analyzer | ROHDE&SCHWARZ | FSQ40 | 200061 | 2017.12.28 | 2018.12.27 |
| Power Meter | Anritsu | ML2487A | 6K00001491 | 2018.09.21 | 2019.09.20 |
| 20dB Attenuator | ICPROBING | IATS1 | 82347 | 2018.09.21 | 2019.09.20 |

# 3. SPURIOUS EMISSION

## 3.1.Test Limits

| Frequencies (MHz) | Field Strength (micorvolts/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 |

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

**NOTE:**

a) The tighter limit applies at the band edges.
b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

## 3.2.Test Procedure

The measuring distance of 3m shall be used for measurements at frequency up to 1GH and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above1GHz testing, The table was rotated 360 degrees to determine the position of the highest radiation

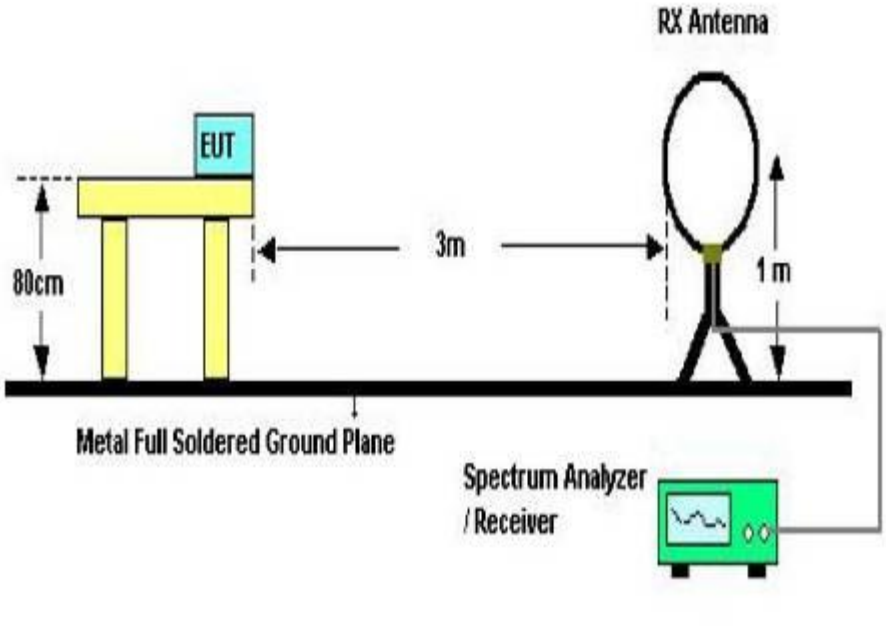
The Test antenna shall vary between 1m and 4m,Both Horizontal and Vertical antenna are set of make measurement.

The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured

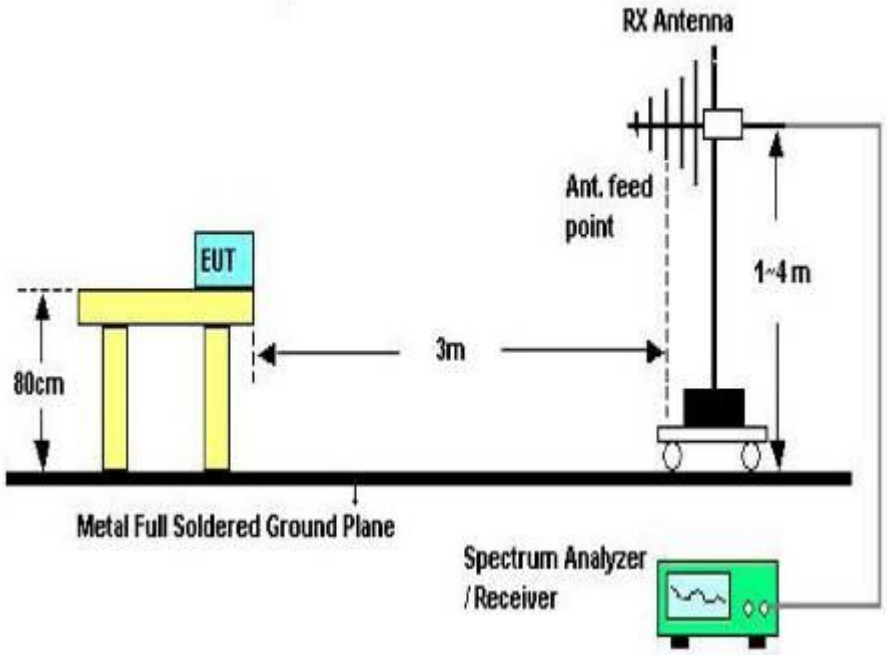
If Peak value comply with QP limit Below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.

For the actual test configuration, please see the test setup photo.

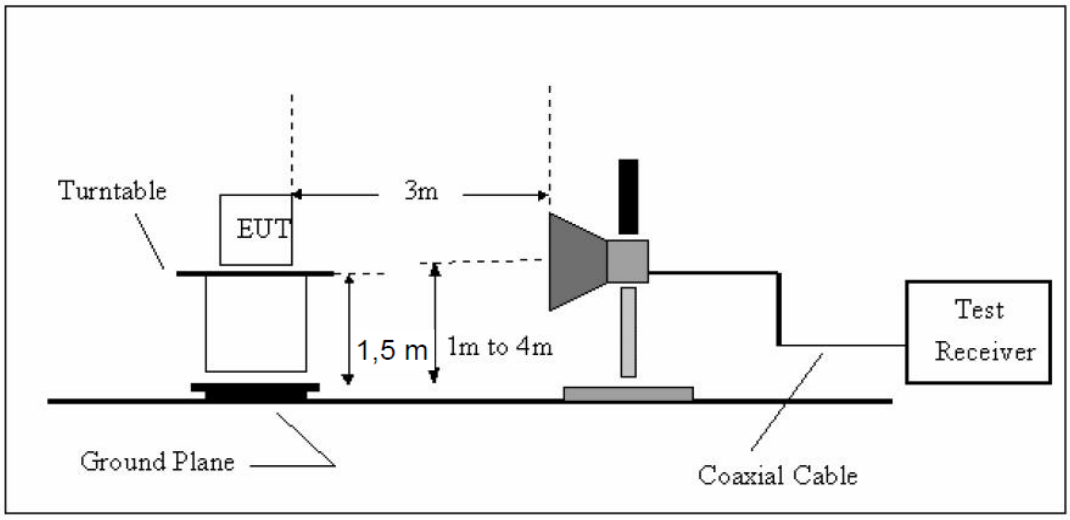
## 3.3.Test Setup




Below 30MHz Test Setup




Above 30MHz Test Setup




Above 1GHz Test Setup

## 3.4.Test Results

Test Condition
Continual Transmitting in maximum power.

| | | |
|---|---|---|
| 9KHz~150KHz | RBW200Hz | VBW1KHz |
| 150KHz~30MHz | RBW9KHz | VBW 30KHz |
| 30MHZ~1GHz | RBW120KHz | VBW 300KHz |
| Above1GHz | RBW1MHz | VBW 3MHz |

We have scanned the 10th harmonic from 9 kHz to the EUT.

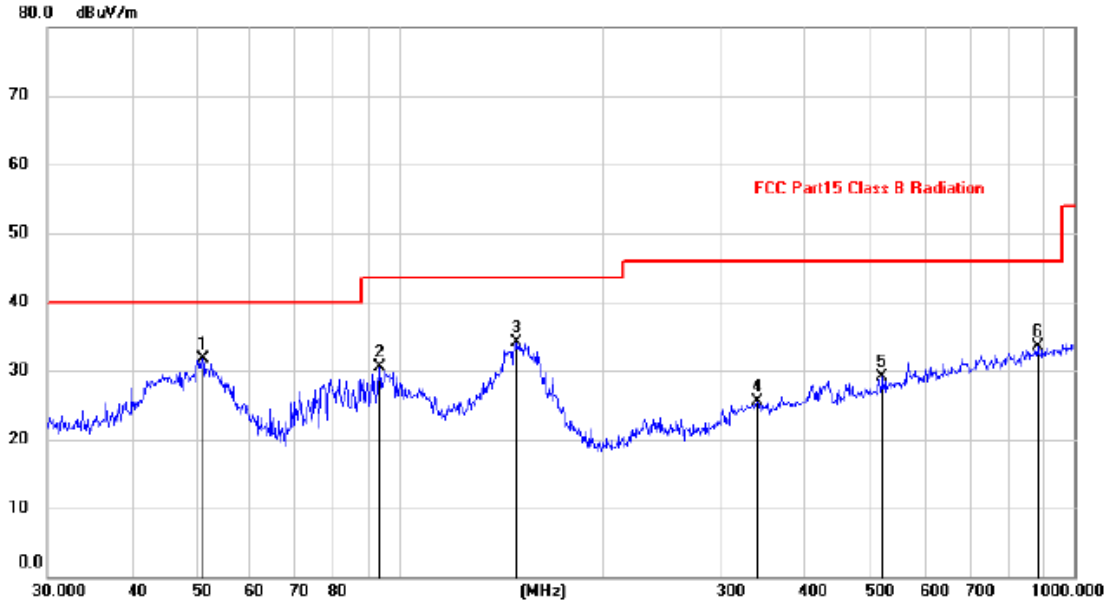
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note:1.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

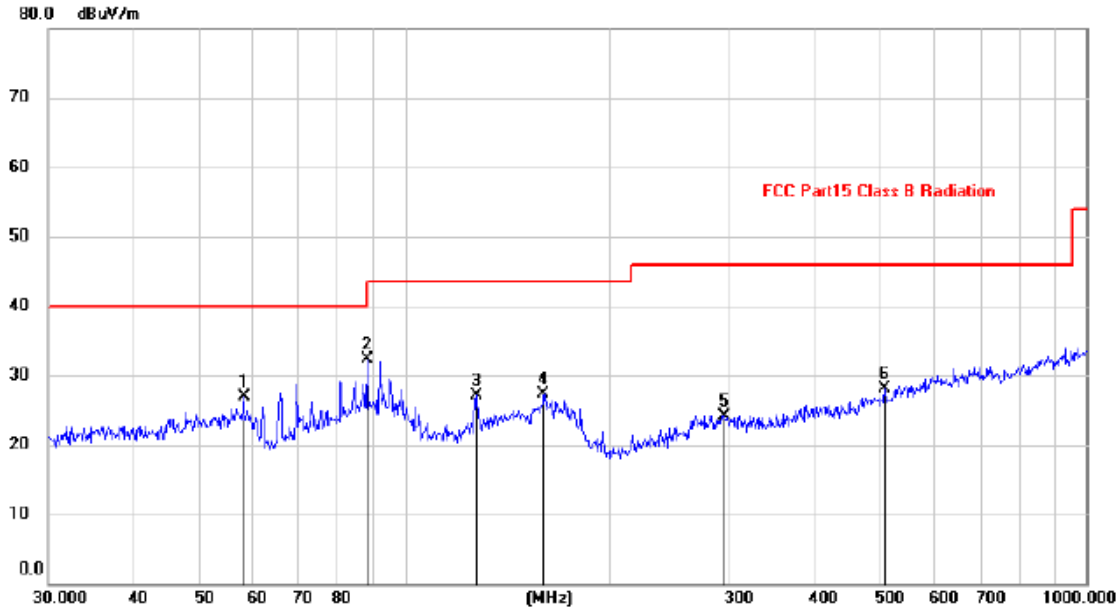
2.Only show the test data of the worst Channel in this report.

H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 50.9420 | 18.13 | 13.64 | 31.77 | 40.00 | -8.23 | peak | | | |
| 2 | | 93.1132 | 20.51 | 10.00 | 30.51 | 43.50 | -12.99 | peak | | | |
| 3 | | 148.4410 | 19.70 | 14.44 | 34.14 | 43.50 | -9.36 | peak | | | |
| 4 | | 339.5887 | 11.17 | 14.42 | 25.59 | 46.00 | -20.41 | peak | | | |
| 5 | | 519.0647 | 11.28 | 17.84 | 29.12 | 46.00 | -16.88 | peak | | | |
| 6 | | 881.4067 | 10.60 | 22.92 | 33.52 | 46.00 | -12.48 | peak | | | |

V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 58.2028 | 13.76 | 13.13 | 26.89 | 40.00 | -13.11 | peak | | | |
| 2 | * | 88.0327 | 22.54 | 9.73 | 32.27 | 43.50 | -11.23 | peak | | | |
| 3 | | 127.2176 | 14.02 | 13.06 | 27.08 | 43.50 | -16.42 | peak | | | |
| 4 | | 160.3454 | 12.65 | 14.56 | 27.21 | 43.50 | -16.29 | peak | | | |
| 5 | | 294.1136 | 10.90 | 13.27 | 24.17 | 46.00 | -21.83 | peak | | | |
| 6 | | 506.4791 | 10.76 | 17.30 | 28.06 | 46.00 | -17.94 | peak | | | |

Remark: Above is below 1GHz test data. This report only shall the worst case mode for TX IEEE 802.11b 2437MHz.

From 1G-25GHz

| Test Mode: IEEE 802.11b TX Low | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Freq (MHz) | Read Level (dBuV/m) | **Polar (H/V)** | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 4824 | 43.56 | V | 33.95 | 10.18 | 34.26 | 53.43 | 74 | 20.57 | PK |
| 4824 | 34.83 | V | 33.95 | 10.18 | 34.26 | 44.70 | 54 | 9.30 | AV |
| 7236 | | | | | | | | | |
| 9648 | | | | | | | | | |
| 4824 | 43.22 | H | 33.95 | 10.18 | 34.26 | 53.09 | 74 | 20.91 | PK |
| 4824 | 33.93 | H | 33.95 | 10.18 | 34.26 | 43.80 | 54 | 10.20 | AV |
| 7236 | | | | | | | | | |
| 9648 | | | | | | | | | |
| Test Mode: IEEE 802.11b TX Mid | | | | | | | | | |
| 4874 | 41.15 | V | 33.93 | 10.2 | 34.29 | 50.99 | 74 | 23.01 | PK |
| 4874 | 32.35 | V | 33.93 | 10.2 | 34.29 | 42.19 | 54 | 11.81 | AV |
| 7311 | | | | | | | | | |
| 9748 | | | | | | | | | |
| 4874 | 41.91 | H | 33.93 | 10.2 | 34.29 | 51.75 | 74 | 22.25 | PK |
| 4874 | 32.89 | H | 33.93 | 10.2 | 34.29 | 42.73 | 54 | 11.27 | AV |
| 7311 | | | | | | | | | |
| 9748 | | | | | | | | | |
| Test Mode: IEEE 802.11b TX High | | | | | | | | | |
| 4924 | 42.09 | V | 33.98 | 10.22 | 34.25 | 52.04 | 74 | 21.96 | PK |
| 4924 | 32.72 | V | 33.98 | 10.22 | 34.25 | 42.67 | 54 | 11.33 | AV |
| 7386 | | | | | | | | | |
| 9848 | | | | | | | | | |
| 4924 | 42.35 | H | 33.98 | 10.22 | 34.25 | 52.30 | 74 | 21.70 | PK |
| 4924 | 32.02 | H | 33.98 | 10.22 | 34.25 | 41.97 | 54 | 12.03 | AV |
| 7386 | | | | | | | | | |
| 9848 | | | | | | | | | |

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| Test Mode: IEEE 802.11g TX Low | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Freq (MHz) | Read Level (dBuV/m) | Polar (H/V) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 4824 | 43.27 | V | 33.95 | 10.18 | 34.26 | 53.14 | 74 | 20.86 | PK |
| 4824 | 31.94 | V | 33.95 | 10.18 | 34.26 | 41.81 | 54 | 12.19 | AV |
| 7236 | / | | | | | | | | |
| 9648 | / | | | | | | | | |
| 4824 | 43.66 | H | 33.95 | 10.18 | 34.26 | 53.53 | 74 | 20.47 | PK |
| 4824 | 32.10 | H | 33.95 | 10.18 | 34.26 | 41.97 | 54 | 12.03 | AV |
| 7236 | | | | | | | | | |
| 9648 | | | | | | | | | |
| Test Mode: IEEE 802.11g TX Mid | | | | | | | | | |
| 4874 | 43.84 | V | 33.98 | 10.2 | 34.25 | 53.77 | 74 | 20.23 | PK |
| 4874 | 30.45 | V | 33.98 | 10.2 | 34.25 | 40.38 | 54 | 13.62 | AV |
| 7311 | / | | | | | | | | |
| 9748 | / | | | | | | | | |
| 4874 | 43.12 | H | 33.93 | 10.2 | 34.29 | 52.96 | 74 | 21.04 | PK |
| 4874 | 33.60 | H | 33.93 | 10.2 | 34.29 | 43.44 | 54 | 10.56 | AV |
| 7311 | | | | | | | | | |
| 9748 | | | | | | | | | |
| Test Mode: IEEE 802.11g TX High | | | | | | | | | |
| 4924 | 41.75 | V | 33.98 | 10.22 | 34.25 | 51.70 | 74 | 22.30 | PK |
| 4924 | 32.95 | V | 33.98 | 10.22 | 34.25 | 42.90 | 54 | 11.10 | AV |
| 7386 | / | | | | | | | | |
| 9848 | / | | | | | | | | |
| 4924 | 42.87 | H | 33.98 | 10.22 | 34.25 | 52.82 | 74 | 21.18 | PK |
| 4924 | 31.60 | H | 33.98 | 10.22 | 34.25 | 41.55 | 54 | 12.45 | AV |
| 7386 | | | | | | | | | |
| 9848 | | | | | | | | | |

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| Test ModeIEEE 802.11n HT20 TX Low | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Freq (MHz) | Read Level (dBuV/m) | Polar (H/V) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 4824 | 41.93 | V | 33.95 | 10.18 | 34.26 | 51.80 | 74 | 22.20 | PK |
| 4824 | 31.96 | V | 33.95 | 10.18 | 34.26 | 41.83 | 54 | 12.17 | AV |
| 7236 | / | | | | | | | | |
| 9648 | / | | | | | | | | |
| 4824 | 41.11 | H | 33.95 | 10.18 | 34.26 | 50.98 | 74 | 23.02 | PK |
| 4824 | 32.05 | H | 33.95 | 10.18 | 34.26 | 41.92 | 54 | 12.08 | AV |
| 7236 | | | | | | | | | |
| 9648 | | | | | | | | | |
| Test Mode:IEEE 802.11n HT20 TX Mid | | | | | | | | | |
| 4874 | 41.79 | V | 33.93 | 10.2 | 34.29 | 51.63 | 74 | 22.37 | PK |
| 4874 | 32.41 | V | 33.93 | 10.2 | 34.29 | 42.25 | 54 | 11.75 | AV |
| 7311 | / | | | | | | | | |
| 9748 | / | | | | | | | | |
| 4874 | 42.28 | H | 33.93 | 10.2 | 34.29 | 52.12 | 74 | 21.88 | PK |
| 4874 | 32.67 | H | 33.93 | 10.2 | 34.29 | 42.51 | 54 | 11.49 | AV |
| 7311 | | | | | | | | | |
| 9748 | | | | | | | | | |
| Test Mode:IEEE 802.11n HT20 TX High | | | | | | | | | |
| 4924 | 42.14 | V | 33.98 | 10.22 | 34.25 | 52.09 | 74 | 21.91 | PK |
| 4924 | 32.77 | V | 33.98 | 10.22 | 34.25 | 42.72 | 54 | 11.28 | AV |
| 7386 | / | | | | | | | | |
| 9848 | / | | | | | | | | |
| 4924 | 41.88 | H | 33.98 | 10.22 | 34.25 | 51.83 | 74 | 22.17 | PK |
| 4924 | 32.66 | H | 33.98 | 10.22 | 34.25 | 42.61 | 54 | 11.39 | AV |
| 7386 | | | | | | | | | |
| 9848 | | | | | | | | | |

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| Test ModeIEEE 802.11n HT40 TX Low | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Freq (MHz) | Read Level (dBuV/m) | Polar (H/V) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 4844 | 42.12 | V | 33.95 | 10.18 | 34.26 | 51.99 | 74 | 22.01 | PK |
| 4844 | 31.52 | V | 33.95 | 10.18 | 34.26 | 41.39 | 54 | 12.61 | AV |
| 7266 | / | | | | | | | | |
| 9688 | / | | | | | | | | |
| 4844 | 40.32 | H | 33.95 | 10.18 | 34.26 | 50.19 | 74 | 23.81 | PK |
| 4844 | 31.91 | H | 33.95 | 10.18 | 34.26 | 41.78 | 54 | 12.22 | AV |
| 7266 | | | | | | | | | |
| 9688 | | | | | | | | | |
| Test Mode:IEEE 802.11n HT40 TX Mid | | | | | | | | | |
| 4874 | 41.74 | V | 33.93 | 10.2 | 34.29 | 51.58 | 74 | 22.42 | PK |
| 4874 | 31.72 | V | 33.93 | 10.2 | 34.29 | 41.56 | 54 | 12.44 | AV |
| 7311 | / | | | | | | | | |
| 9748 | / | | | | | | | | |
| 4874 | 42.85 | H | 33.93 | 10.2 | 34.29 | 52.69 | 74 | 21.31 | PK |
| 4874 | 33.25 | H | 33.93 | 10.2 | 34.29 | 43.09 | 54 | 10.91 | AV |
| 7311 | | | | | | | | | |
| 9748 | | | | | | | | | |
| Test Mode:IEEE 802.11n HT40 TX High | | | | | | | | | |
| 4904 | 41.66 | V | 33.98 | 10.22 | 34.25 | 51.61 | 74 | 22.39 | PK |
| 4904 | 32.20 | V | 33.98 | 10.22 | 34.25 | 42.15 | 54 | 11.85 | AV |
| 7356 | / | | | | | | | | |
| 9808 | / | | | | | | | | |
| 4904 | 42.07 | H | 33.98 | 10.22 | 34.25 | 52.02 | 74 | 21.98 | PK |
| 4904 | 33.22 | H | 33.98 | 10.22 | 34.25 | 43.17 | 54 | 10.83 | AV |
| 7356 | | | | | | | | | |
| 9808 | | | | | | | | | |

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# 4. POWER LINE CONDUCTED EMISSION

## 4.1. Test Limits

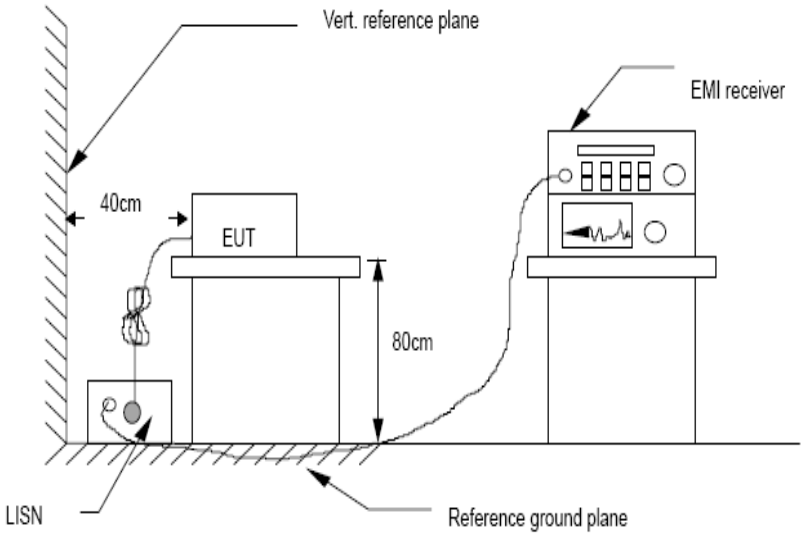
| Frequency | Limits dB(μV) | |
|---|---|---|
| MHz | Quasi-peak Level | Average Level |
| 0.15 -0.50 | 66 -56* | 56 - 46* |
| 0.50 -5.00 | 56 | 46 |
| 5.00 -30.00 | 60 | 50 |

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.
3.The limit decreases in line with the logarithm of the frequency in the rang of 0.15 to 0.50 MHz.

## 4.2. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10:2013 on Conducted Emission Measurement.
The bandwidth of test receiver is set at 9 kHz.

## 4.3.Test Setup



## 4.4. Test Results

EUT power supply by battery, so the test not applicable.

# 5. CONDUCTED MAXIMUM OUTPUT POWER

## 5.1. Test limits

Please refer section15.247.

Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1 W(30dBm)

## 5.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance V04

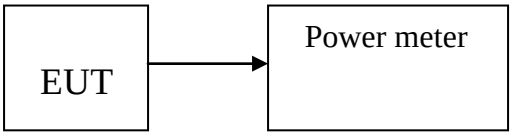
5.2.1 Place the EUT on the table and set it in transmitting mode.

5.2.2 Connected the EUT's antenna port to peak power meter by 20dB attenuator.

5.2.3 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.

## 5.3. Test Setup




## 5.4. Test Results

PASS

Detailed information please see the following page.

| Mode | Frequency (MHz) | Ant Port | PK Output power(dBm) | | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| IEEE 802.11 b | CH1: 2412 | 1 | 7.472 | 7. 472 | 30 | 22.528 |
| | | / | / | | | |
| | CH6: 2437 | 1 | 6.254 | 6. 254 | 30 | 23.746 |
| | | / | / | | | |
| | CH11: 2462 | 1 | 6.186 | 6. 186 | 30 | 23.814 |
| | | / | / | | | |
| IEEE 802.11 g | CH1: 2412 | 1 | 6.243 | 6. 243 | 30 | 23.757 |
| | | / | / | | | |
| | CH6: 2437 | 1 | 6.595 | 6. 595 | 30 | 23.405 |
| | | / | / | | | |
| | CH11: 2462 | 1 | 6.337 | 6. 337 | 30 | 23.663 |
| | | / | / | | | |
| IEEE 802.11 n/HT20 with 2.4G | CH1: 2412 | 1 | 6.201 | 6. 201 | 30 | 23.799 |
| | | / | / | | | |
| | CH6: 2437 | 1 | 6.195 | 6. 195 | 30 | 23.805 |
| | | / | / | | | |
| | CH11: 2462 | 1 | 6.359 | 6.359 | 30 | 23.641 |
| | | / | / | | | |
| IEEE 802.11 n/HT40 with 2.4G | CH1: 2422 | 1 | 3.136 | 3.136 | 30 | 26.864 |
| | | / | / | | | |
| | CH4: 2437 | 1 | 3.114 | 3.114 | 30 | 26.886 |
| | | / | / | | | |
| | CH7: 2452 | 1 | 3.061 | 3.061 | 30 | 26.939 |
| | | / | / | | | |
| Conclusion: PASS | | | | | | |

# 6. PEAK POWER SPECTRAL DENSITY

## 6.1.Test limits

6.1.1 Please refer section15.247.

6.1.2 For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

6.1.3 The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

## 6.2.Test Procedure

Details see the KDB558074 D01 Meas Guidance V04

6.2.1 Place the EUT on the table and set it in transmitting mode.

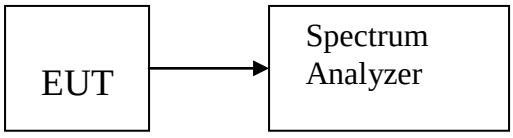
6.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

6.2.3 Set the spectrum analyzer as RBW = 3kHz(Set the RBW to: 3 kHz≤RBW≤100 kHz.), VBW = 10kHz(Set the VBW≥3×RBW), span=1.5×DTS bandwidth., detail see the test plot.

6.2.4 Record the max reading.

6.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

## 6.3.Test Setup

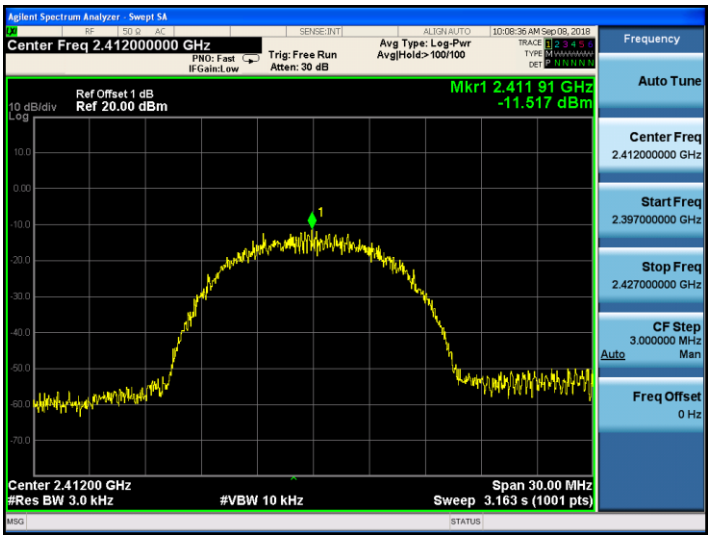


## 6.4. Test Results

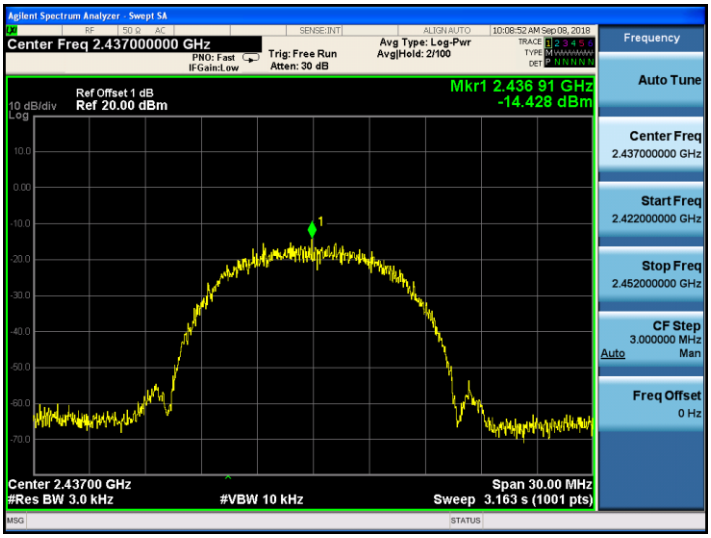
| Mode | Frequency (MHz) | Ant Port | PK Output power(dBm) | | Limit (dBm) | Result |
|---|---|---|---|---|---|---|
| IEEE 802.11 b | CH1: 2412 | 1 | -11.517 | -11.517 | 8 | PASS |
| | | / | / | | | |
| | CH6: 2437 | 1 | -14.428 | -14.428 | 8 | PASS |
| | | / | / | | | |
| | CH11: 2462 | 1 | -15.088 | -15.088 | 8 | PASS |
| | | / | / | | | |
| IEEE 802.11 g | CH1: 2412 | 1 | -14.781 | -14.781 | 8 | PASS |
| | | / | / | | | |
| | CH6: 2437 | 1 | -17.651 | -17.651 | 8 | PASS |
| | | / | / | | | |
| | CH11: 2462 | 1 | -17.864 | -17.864 | 8 | PASS |
| | | / | / | | | |
| IEEE 802.11 n/HT20 with 2.4G | CH1: 2412 | 1 | -16.263 | -16.263 | 8 | PASS |
| | | / | / | | | |
| | CH6: 2437 | 1 | -18.075 | -18.075 | 8 | PASS |
| | | / | / | | | |
| | CH11: 2462 | 1 | -18.505 | -18.505 | 8 | PASS |
| | | / | / | | | |
| IEEE 802.11 n/HT40 with 2.4G | CH1: 2422 | 1 | -18.892 | -18.892 | 8 | PASS |
| | | / | / | | | |
| | CH4: 2437 | 1 | -20.974 | -20.974 | 8 | PASS |
| | | / | / | | | |
| | CH7: 2452 | 1 | -21.069 | -21.069 | 8 | PASS |
| | | / | / | | | |
| Conclusion: PASS | | | | | | |

IEEE 802.11b :

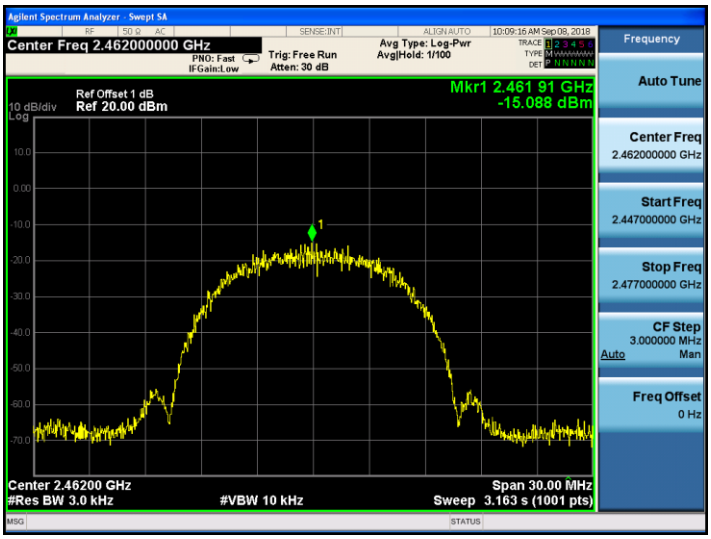
CH Low :



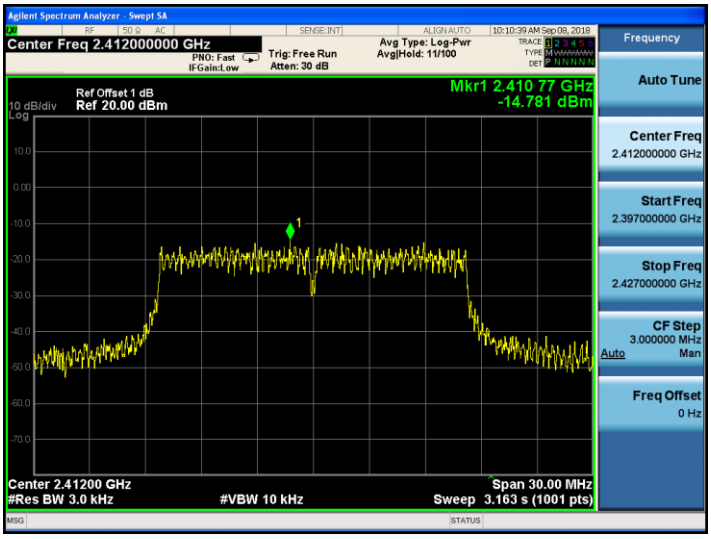

CH Mid:



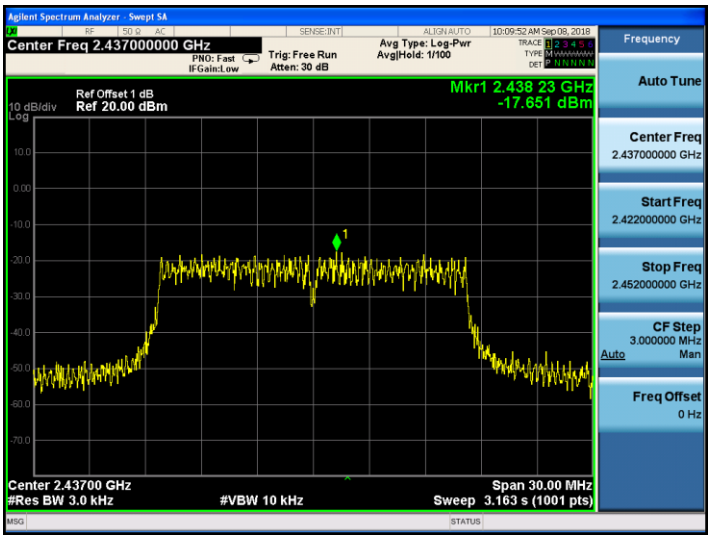
CH Hig:



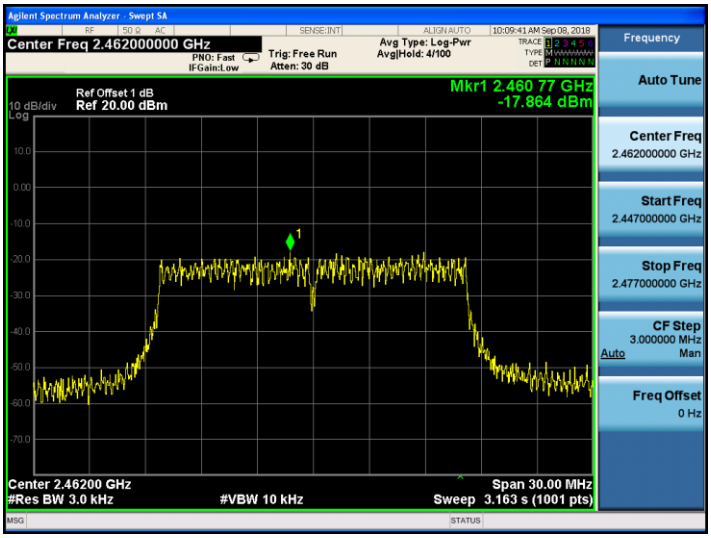

IEEE 802.11g :
CH Low



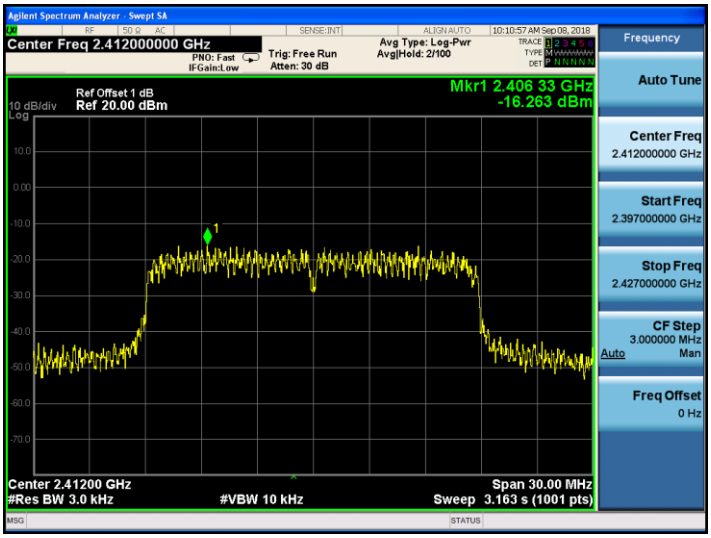
CH Mid:


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
10:09:52 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.438 23 GHz
-17.651 dBm
Center 2.43700 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
Sweep 3.163 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.437000000 GHz
Start Freq
2.422000000 GHz
Stop Freq
2.452000000 GHz
CF Step
3.000000 MHz
Auto
Man
Freq Offset
0 Hz

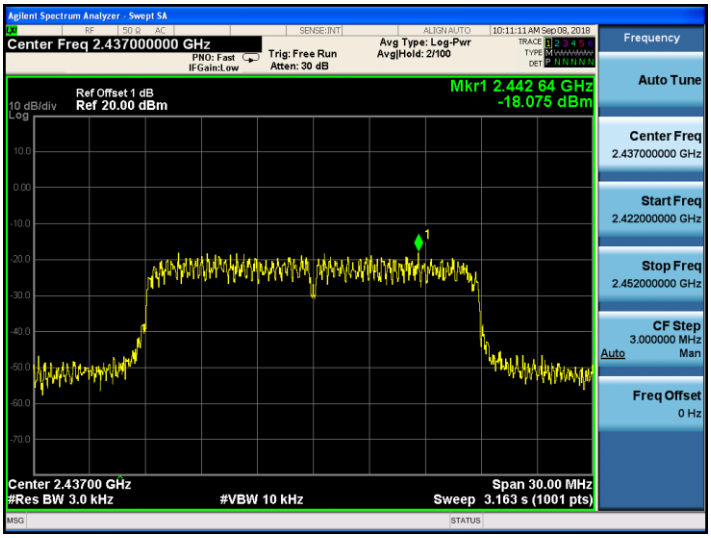
CH Hig:


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
10:09:41 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.460 77 GHz
-17.864 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
Sweep 3.163 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.447000000 GHz
Stop Freq
2.477000000 GHz
CF Step
3.000000 MHz
Auto
Man
Freq Offset
0 Hz

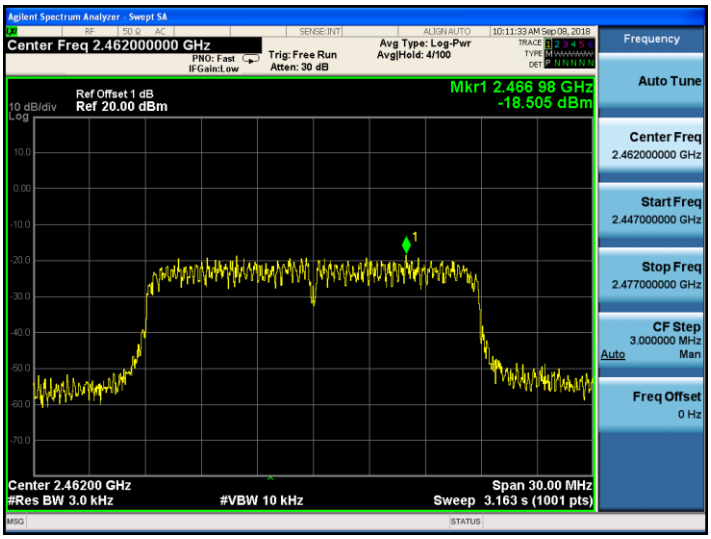
IEEE 802.11n HT20 :
CH Low :



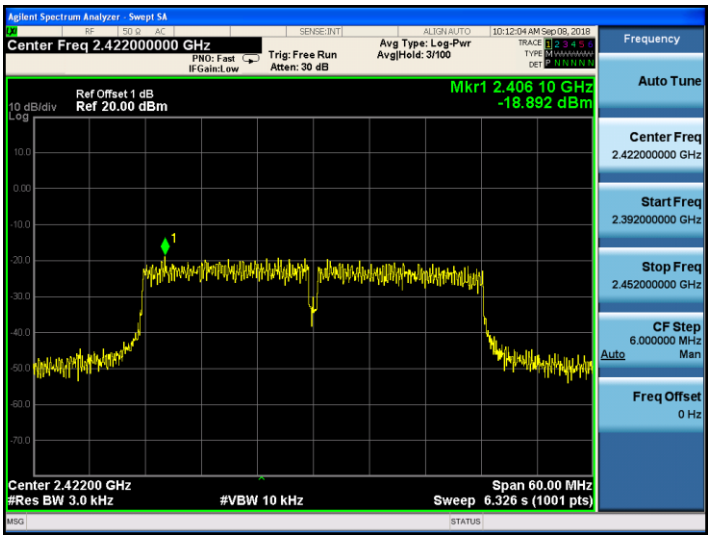

CH Mid:



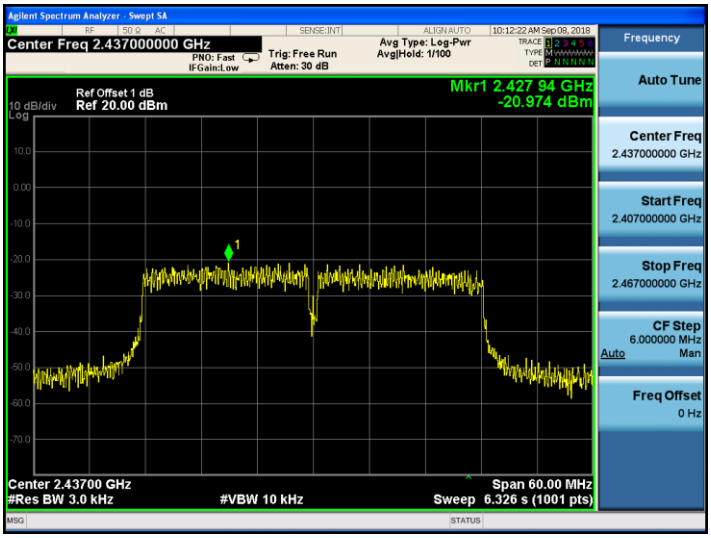
CH High:



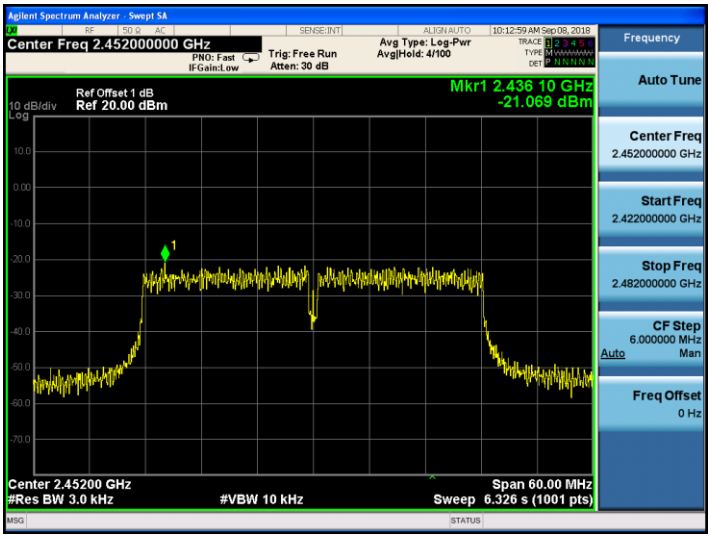

IEEE 802.11n HT40 :
CH Low :



CH Mid:




CH High:



# 7. **BANDWIDTH**

## 7.1.Test limits

Please refer section15.247
For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz.

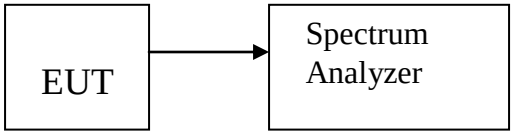
## 7.2.Test Procedure

Details see the KDB558074 D01 Meas Guidance V04

a) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW = 100kHz, VBW≥3*RBW =300kHz,, Peak Detector, Sweep time set auto, detail see the test plot.

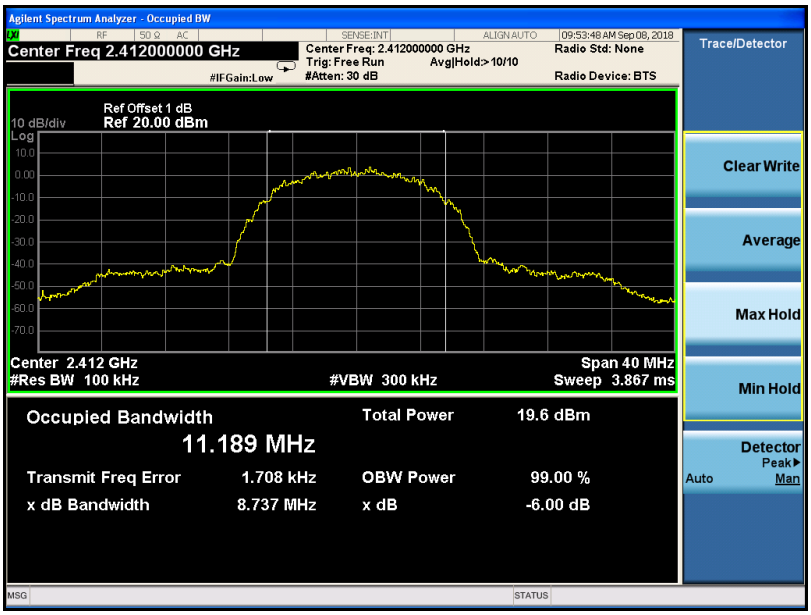
## 7.3.Test Setup



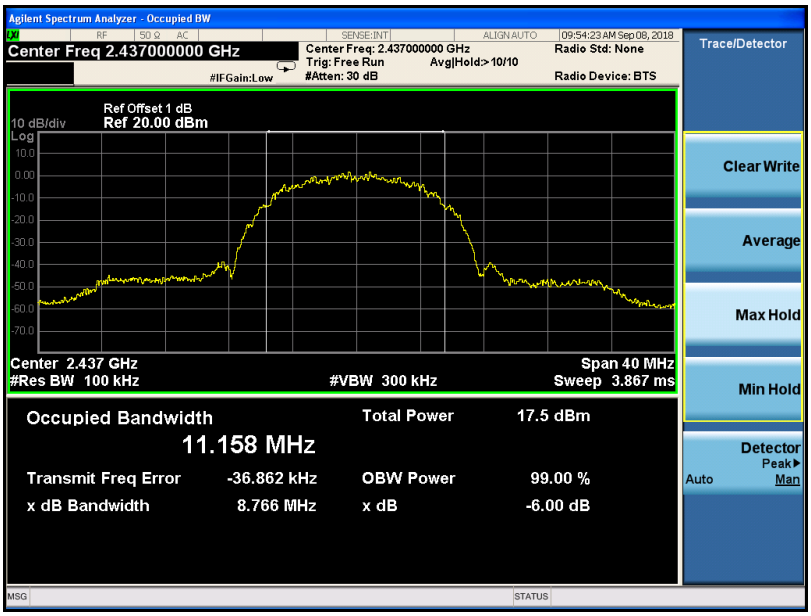

## 7.4.Test Results

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Limit (MHz) | Result |
|---|---|---|---|---|---|
| IEEE 802.11b: | | | | | |
| Low | 2412 | 8.737 | 11.189 | 0.5 | PASS |
| Mid | 2437 | 8.766 | 11.158 | 0.5 | PASS |
| High | 2462 | 7.587 | 11.078 | 0.5 | PASS |
| IEEE 802.11g | | | | | |
| Low | 2412 | 15.69 | 16.486 | 0.5 | PASS |
| Mid | 2437 | 15.99 | 16.431 | 0.5 | PASS |
| High | 2462 | 16.11 | 16.388 | 0.5 | PASS |
| IEEE 802.11n/HT20 | | | | | |
| Low | 2412 | 15.93 | 17.491 | 0.5 | PASS |
| Mid | 2437 | 16.51 | 17.445 | 0.5 | PASS |
| High | 2462 | 16.53 | 17.404 | 0.5 | PASS |
| IEEE 802.11n/HT40 | | | | | |
| Low | 2422 | 35.19 | 36.286 | 0.5 | PASS |
| Mid | 2437 | 35.57 | 36.277 | 0.5 | PASS |
| High | 2452 | 35.37 | 36.160 | 0.5 | PASS |

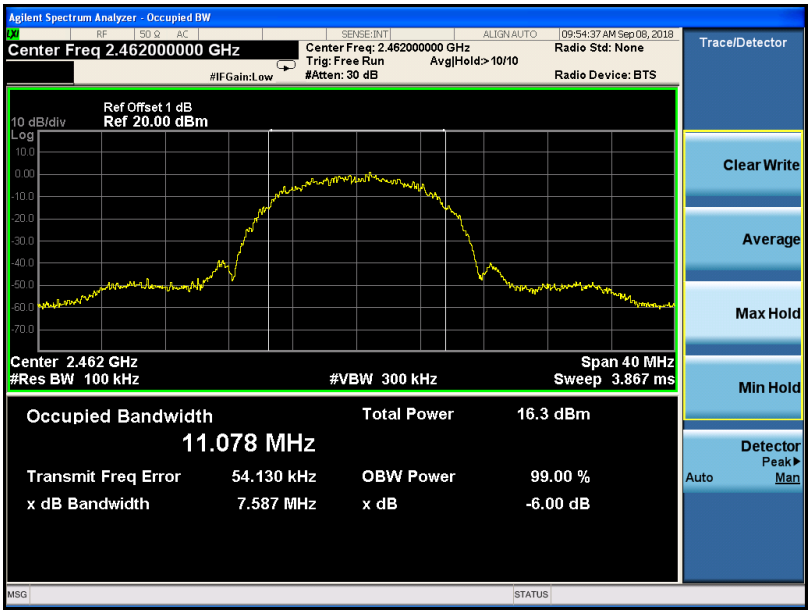
IEEE 802.11b:
CH Low :



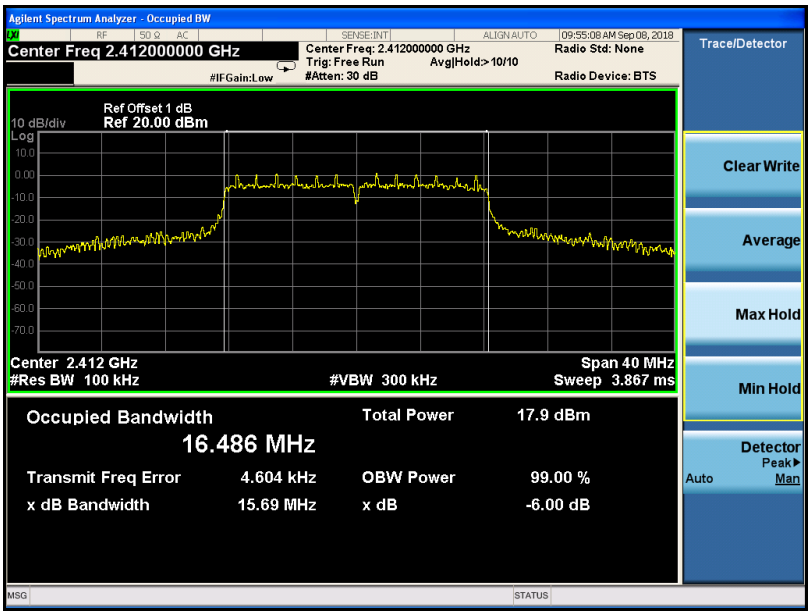

CH Mid :



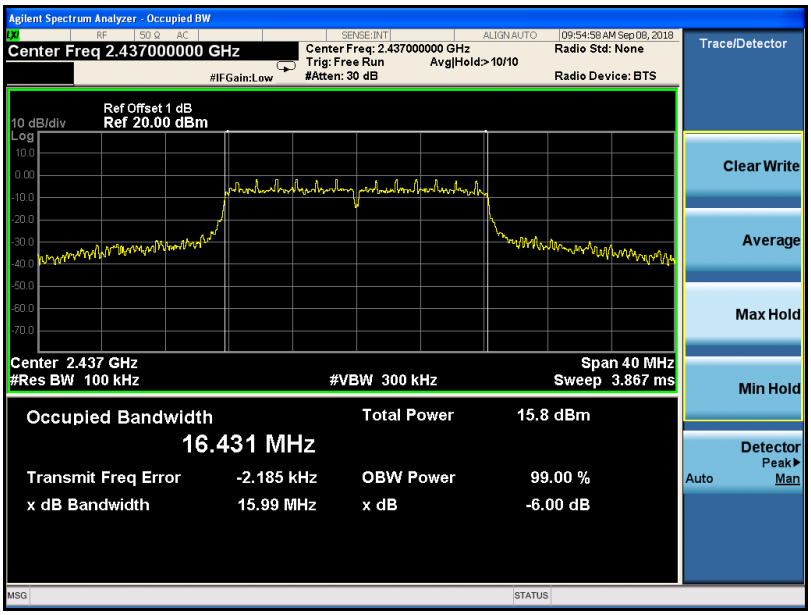
CH High :



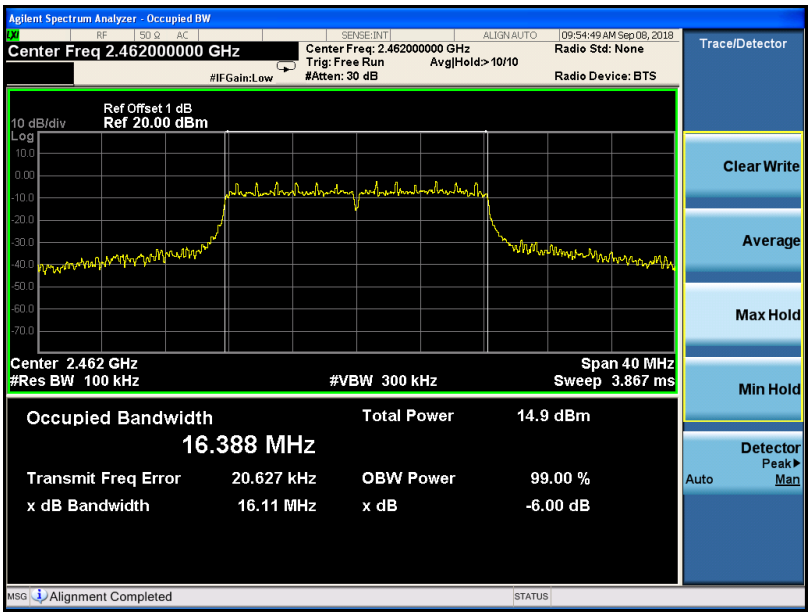

IEEE 802.11g:
CH Low :



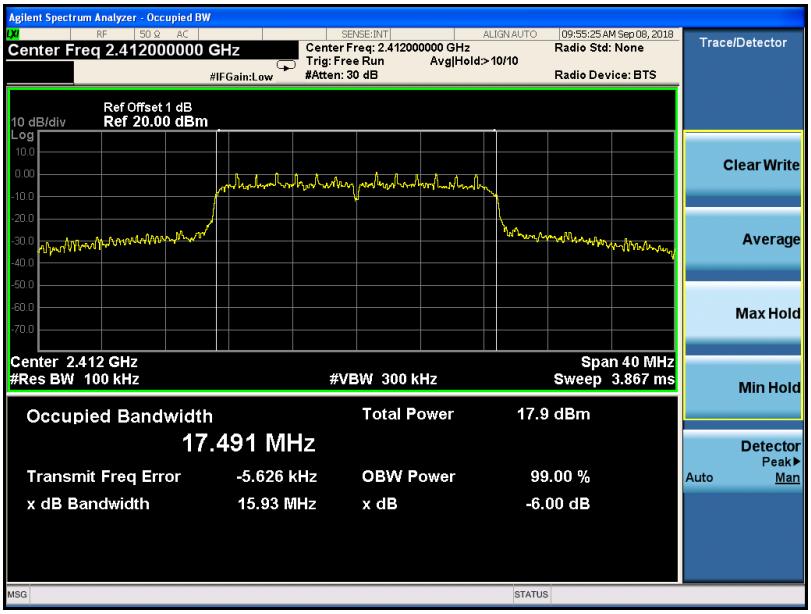
CH Mid:



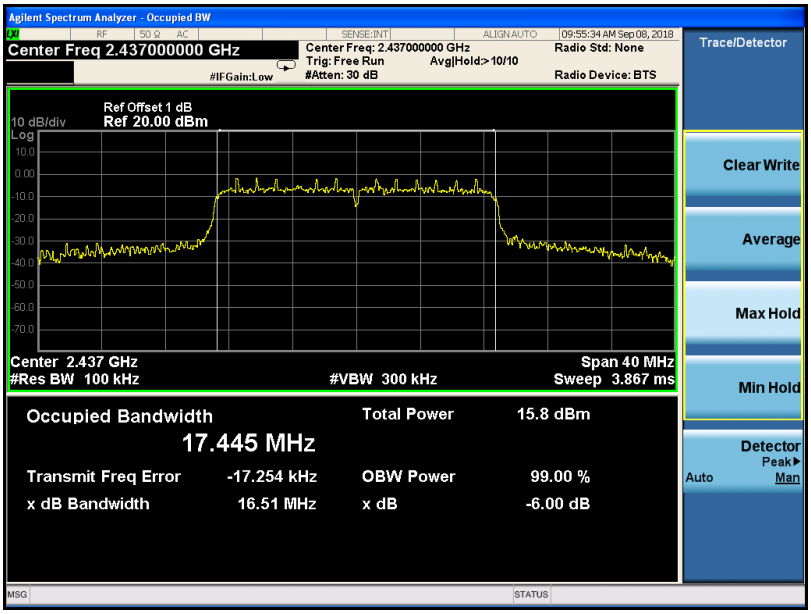

CH High



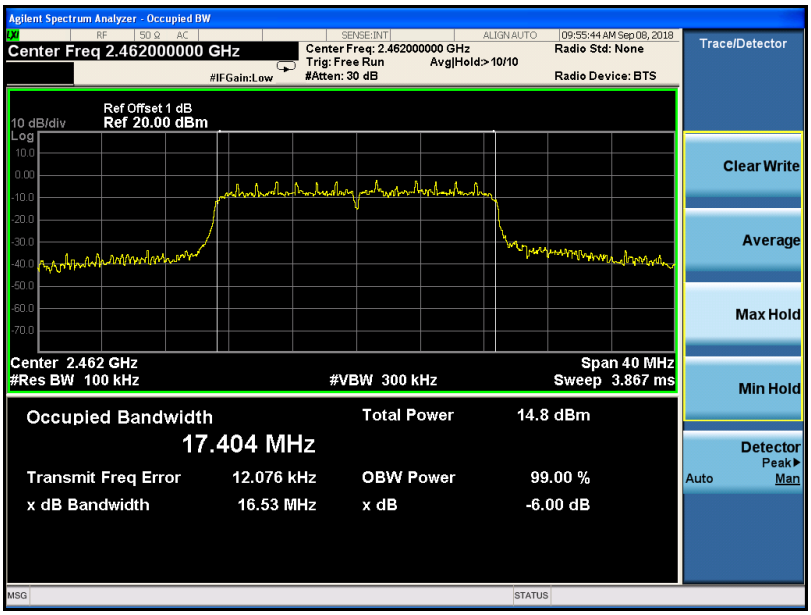
IEEE 802.11n HT20:
CH Low :



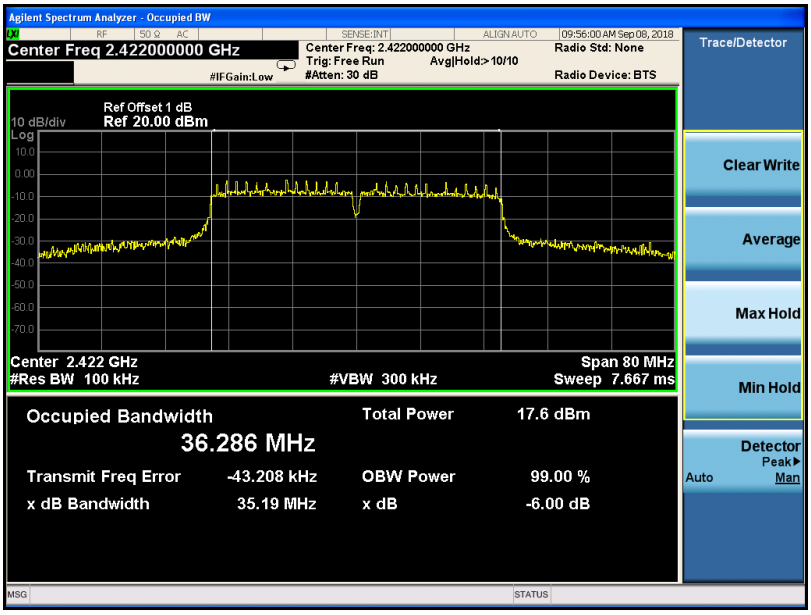

CH Mid :



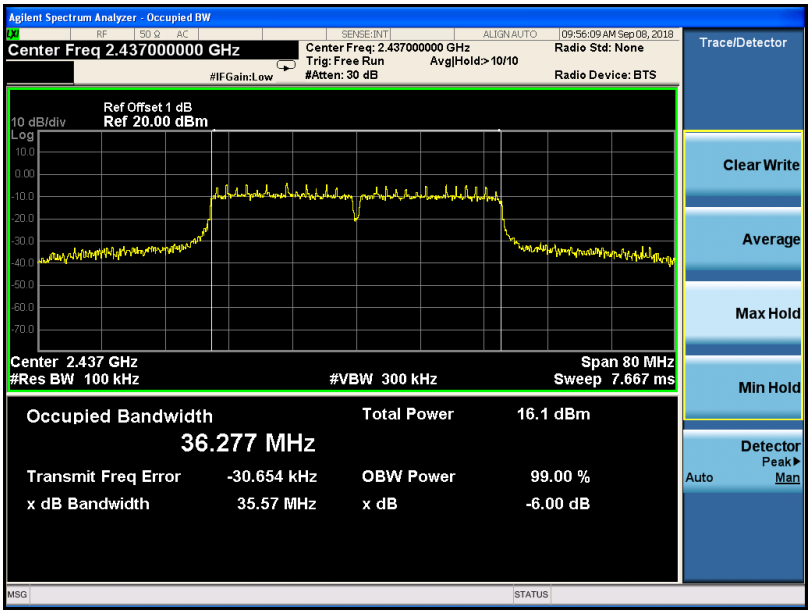
CH High :



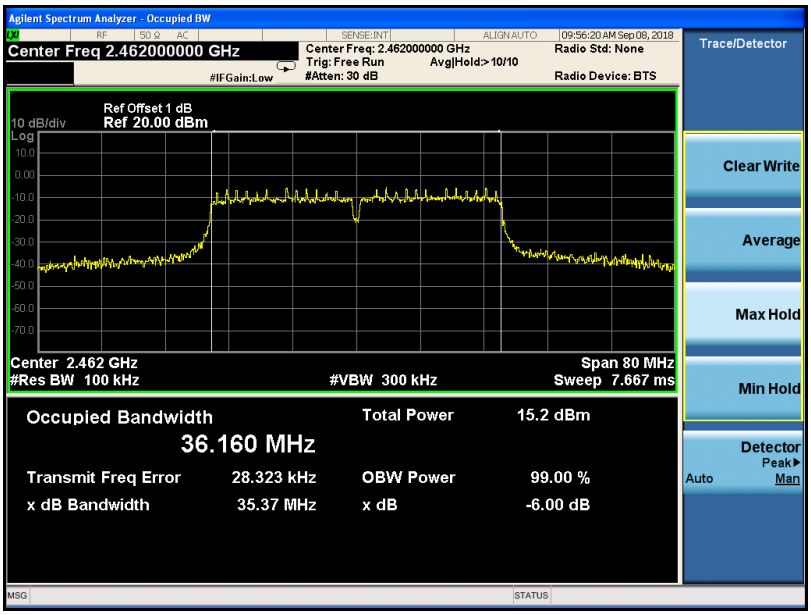

IEEE 802.11n HT40:
CH Low :



CH Mid :




CH High :



# 8. BAND EDGE CHECK

## 8.1.Test limits

Please refer section15.247

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz and 5725MHz to 5850MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

## 8.2.Test Procedure

Details see the KDB558074 D01 Meas Guidance V04

8.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

8.2.2 Check the spurious emissions out of band.

8.2.3 RBW 1MHz, VBW 3MHz, peak detector for peak value , RBW 1MHz ,VBW 3MHz , RMS detector for AV value.

## 8.3.Test Setup

Same as 5.2.2.

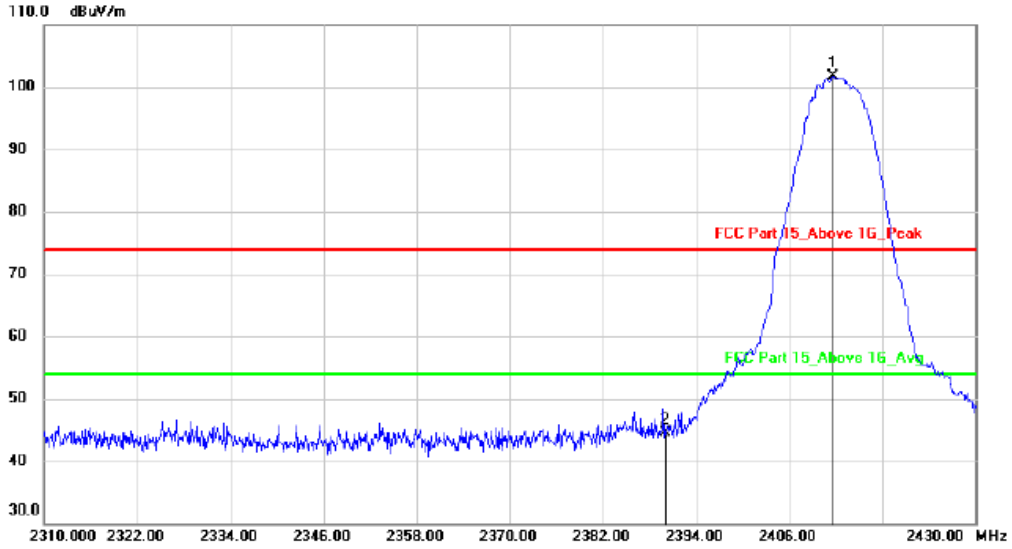
## 8.4.Test Results

PASS.

Detailed information please see the following page.

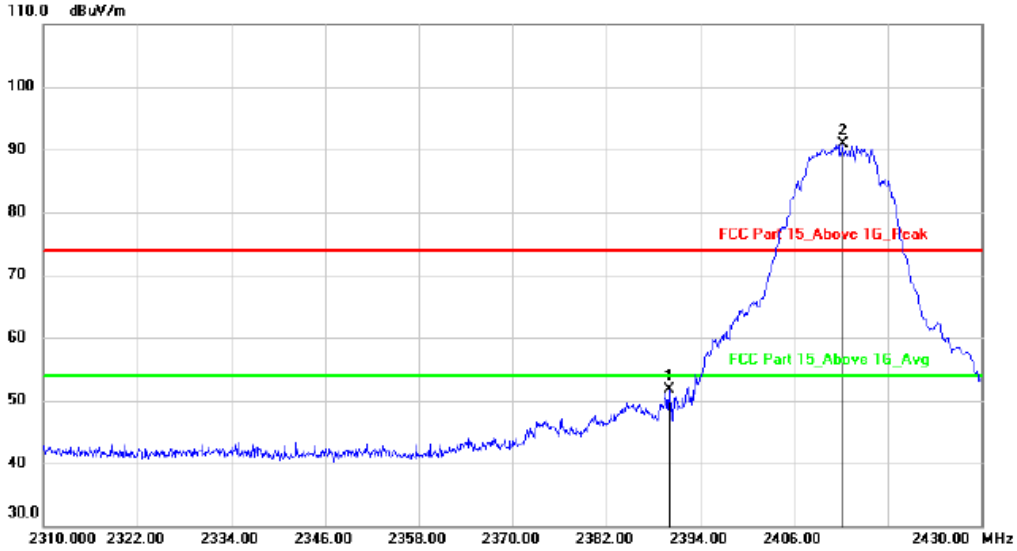
Radiated Method:
IEEE 802.11b TX Low:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2411.640 | 105.18 | -3.40 | 101.78 | 74.00 | 27.78 | peak | | | |
| 2 | | 2390.000 | 47.98 | -3.40 | 44.58 | 74.00 | -29.42 | peak | | | |

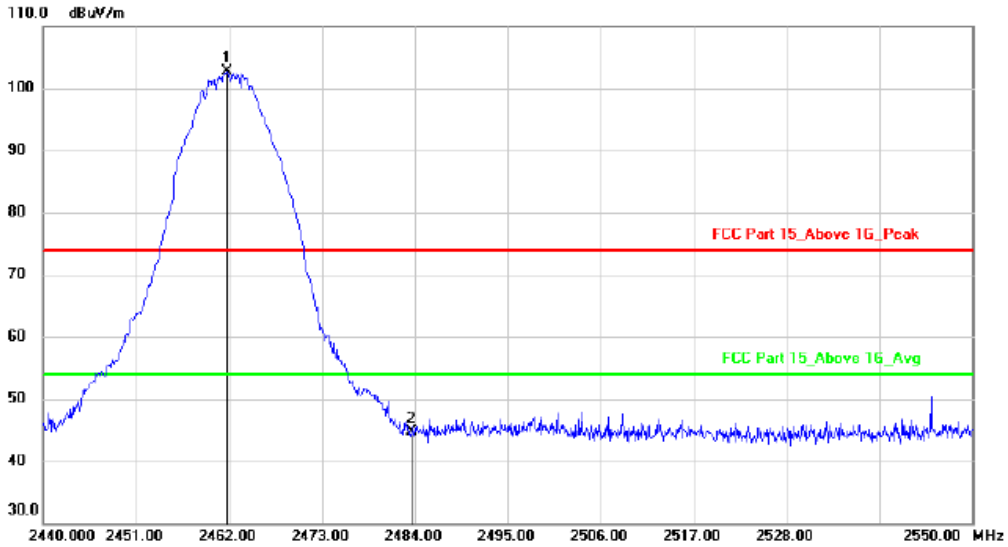
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 2390.000 | 55.02 | -3.40 | 51.62 | 74.00 | -22.38 | peak | | | |
| 2 | * | 2412.240 | 94.24 | -3.40 | 90.84 | 74.00 | 16.84 | peak | | | |

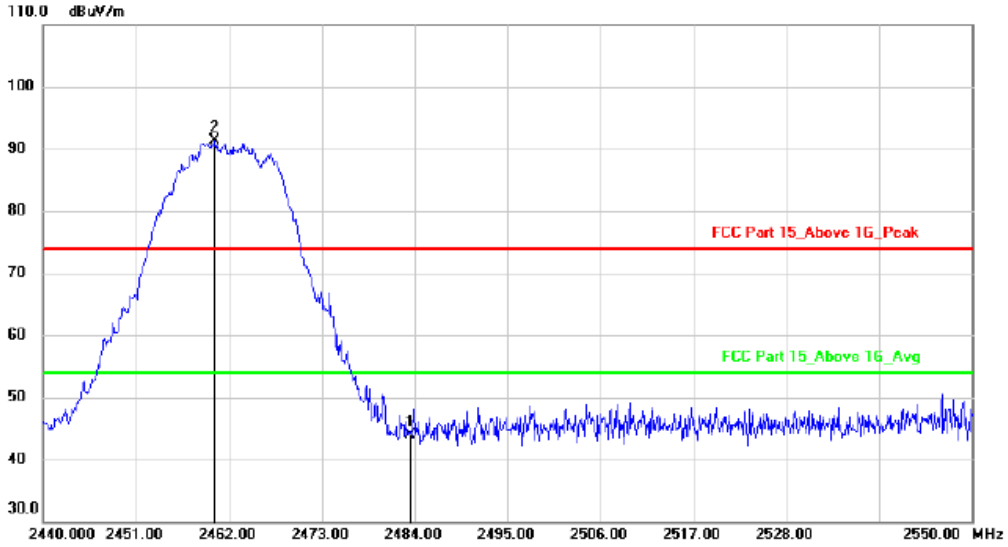
IEEE 802.11b TX High:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2461.780 | 106.02 | -3.39 | 102.63 | 74.00 | 28.63 | peak | | | |
| 2 | | 2483.500 | 48.16 | -3.38 | 44.78 | 74.00 | -29.22 | peak | | | |

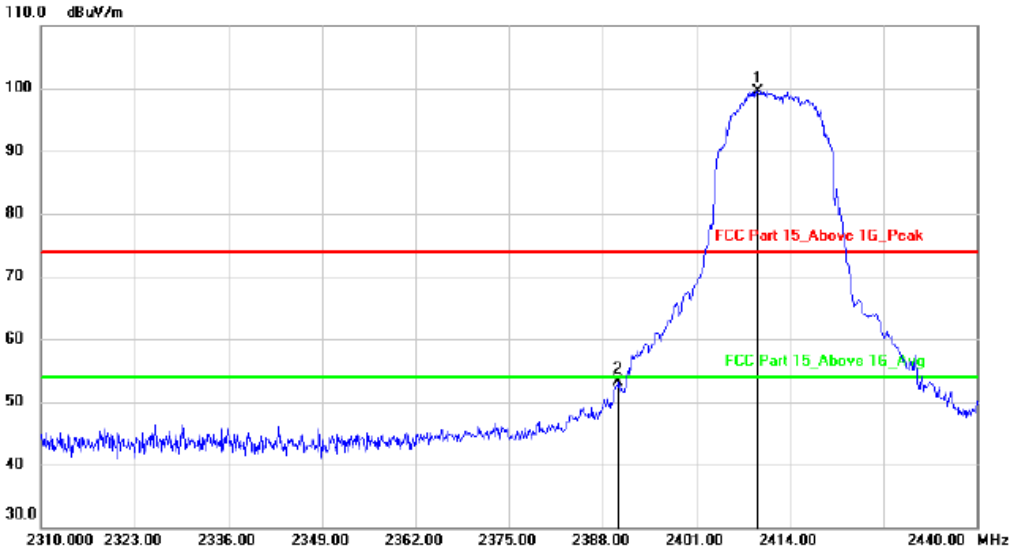
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 2483.500 | 47.30 | -3.38 | 43.92 | 74.00 | -30.08 | peak | | | |
| 2 | * | 2460.240 | 94.75 | -3.39 | 91.36 | 74.00 | 17.36 | peak | | | |

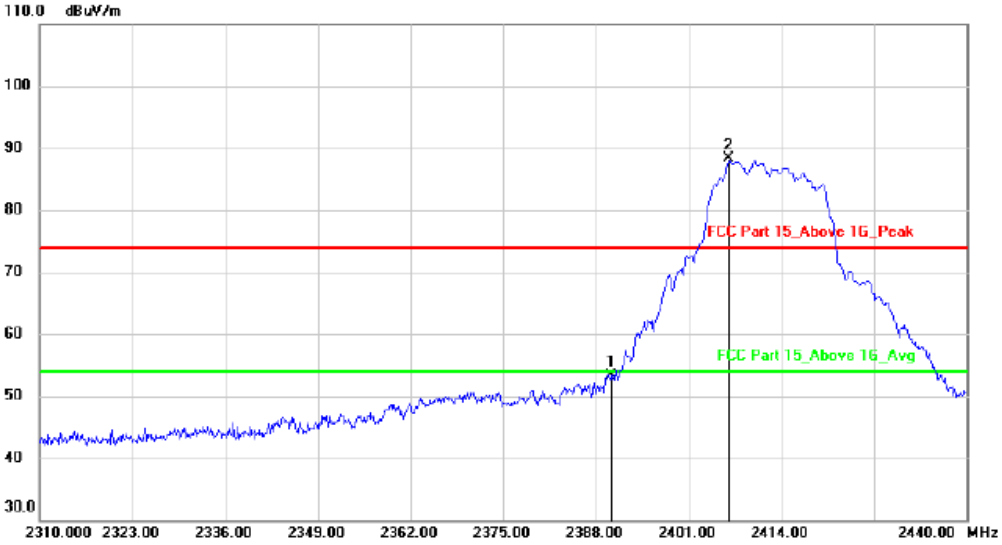
IEEE 802.11g TX Low:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2409.580 | 102.86 | -3.40 | 99.46 | 74.00 | 25.46 | peak | | | |
| 2 | | 2390.000 | 56.52 | -3.40 | 53.12 | 74.00 | -20.88 | peak | | | |

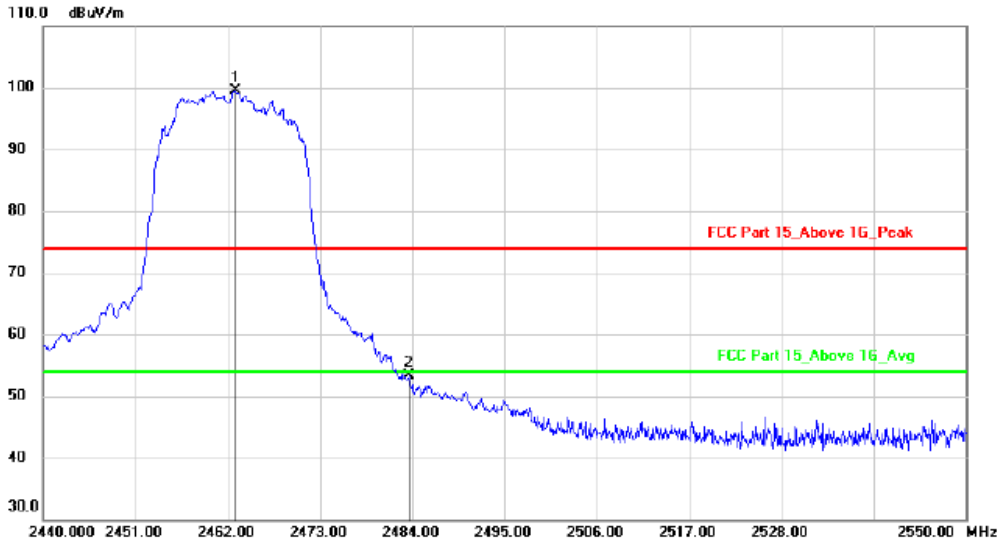
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 2390.000 | 56.66 | -3.40 | 53.26 | 74.00 | -20.74 | peak | | | |
| 2 | * | 2406.590 | 91.74 | -3.41 | 88.33 | 74.00 | 14.33 | peak | | | |

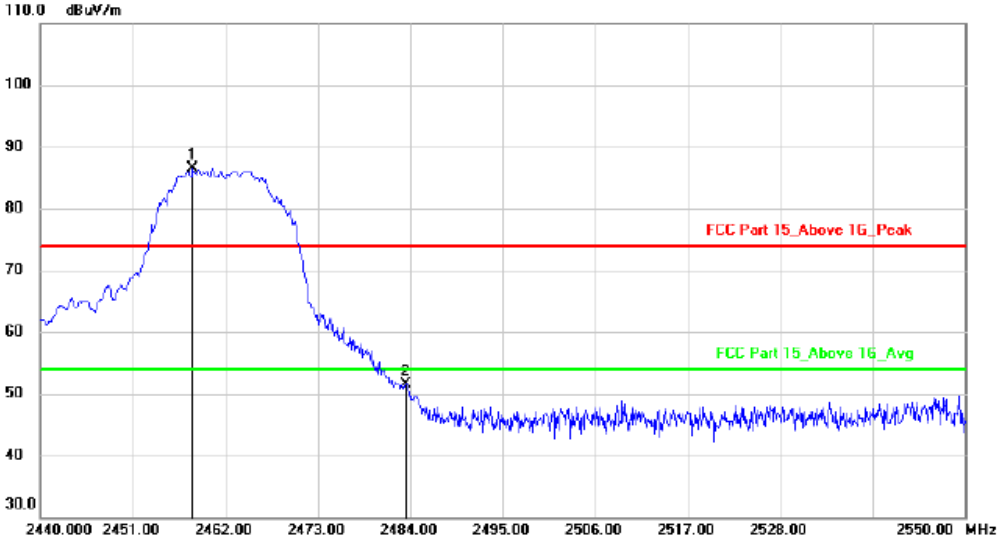
IEEE 802.11g TX High:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2462.990 | 102.86 | -3.40 | 99.46 | 74.00 | 25.46 | peak | | | |
| 2 | | 2483.500 | 56.62 | -3.38 | 53.24 | 74.00 | -20.76 | peak | | | |

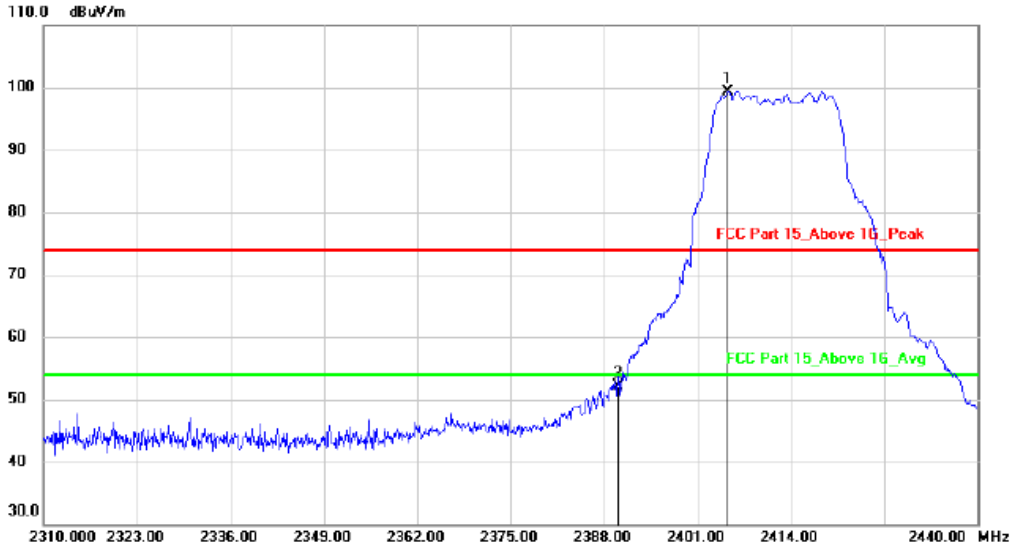
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2458.150 | 89.89 | -3.39 | 86.50 | 74.00 | 12.50 | peak | | | |
| 2 | | 2483.500 | 54.85 | -3.38 | 51.47 | 74.00 | -22.53 | peak | | | |

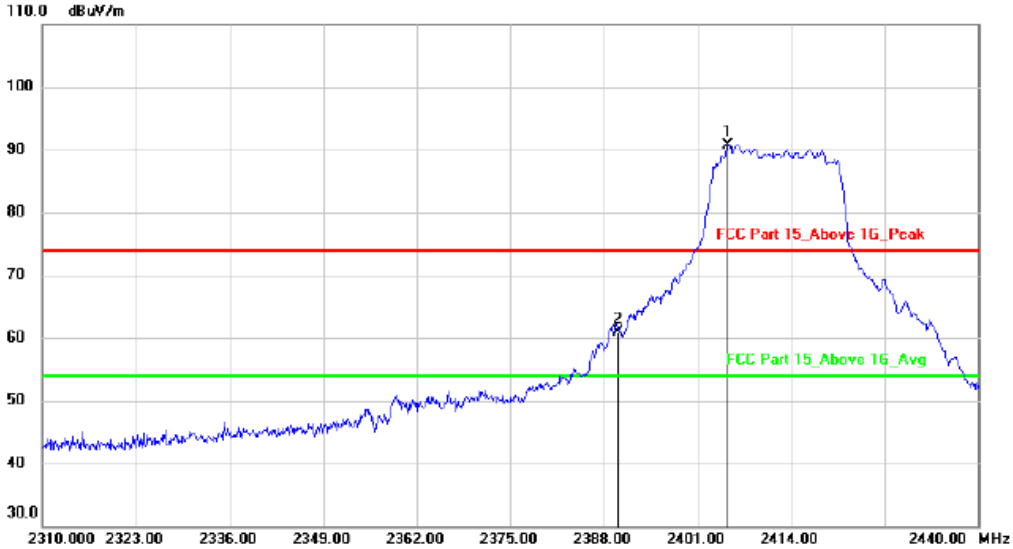
IEEE 802.11n HT20TX Low:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2405.290 | 102.73 | -3.41 | 99.32 | 74.00 | 25.32 | peak | | | |
| 2 | | 2390.000 | 55.42 | -3.40 | 52.02 | 74.00 | -21.98 | peak | | | |

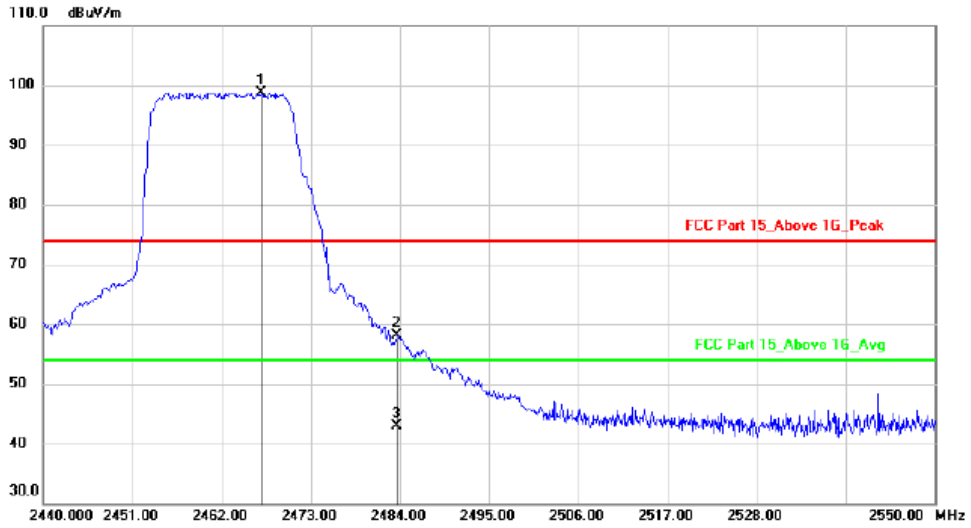
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2405.290 | 94.11 | -3.41 | 90.70 | 74.00 | 16.70 | peak | | | |
| 2 | | 2390.000 | 64.38 | -3.40 | 60.98 | 74.00 | -13.02 | peak | | | |

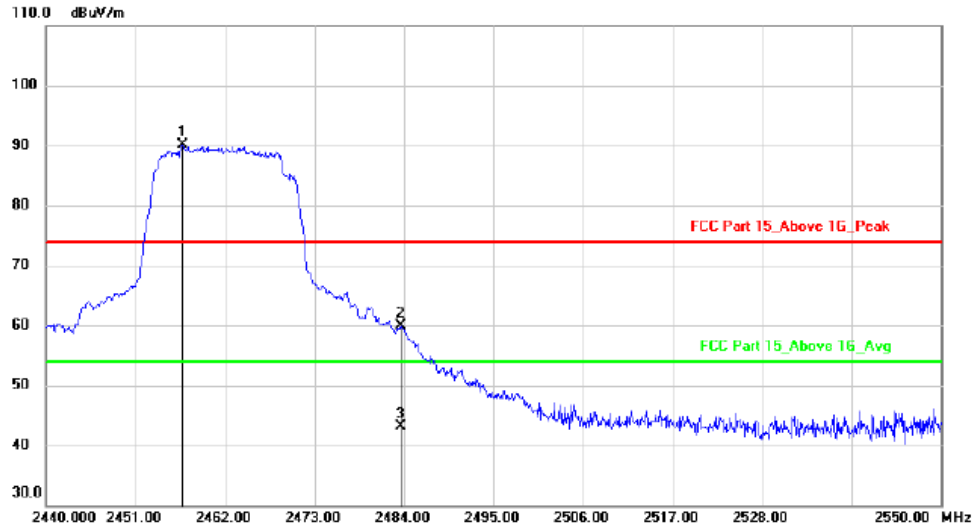
IEEE 802.11n HT20TX High:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector cm | degree | Comment |
| 1 | * | 2466.950 | 102.18 | -3.39 | 98.79 | 74.00 | 24.79 | peak | | |
| 2 | | 2483.500 | 61.51 | -3.38 | 58.13 | 74.00 | -15.87 | peak | | |
| 3 | | 2483.500 | 46.31 | -3.38 | 42.93 | 54.00 | -11.07 | AVG | | |

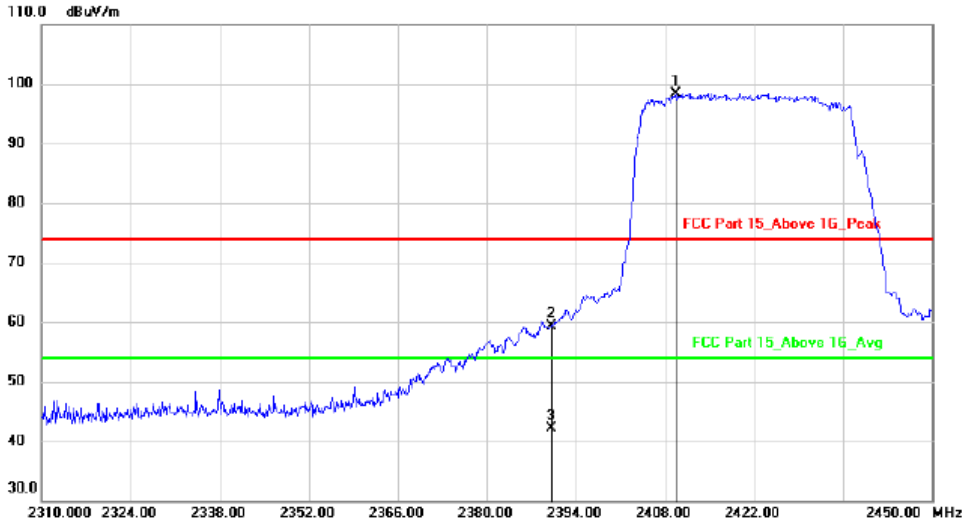
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector cm | degree | Comment |
| 1 | * | 2456.830 | 93.58 | -3.39 | 90.19 | 74.00 | 16.19 | peak | | |
| 2 | | 2483.500 | 63.23 | -3.38 | 59.85 | 74.00 | -14.15 | peak | | |
| 3 | | 2483.500 | 46.40 | -3.38 | 43.02 | 54.00 | -10.98 | AVG | | |

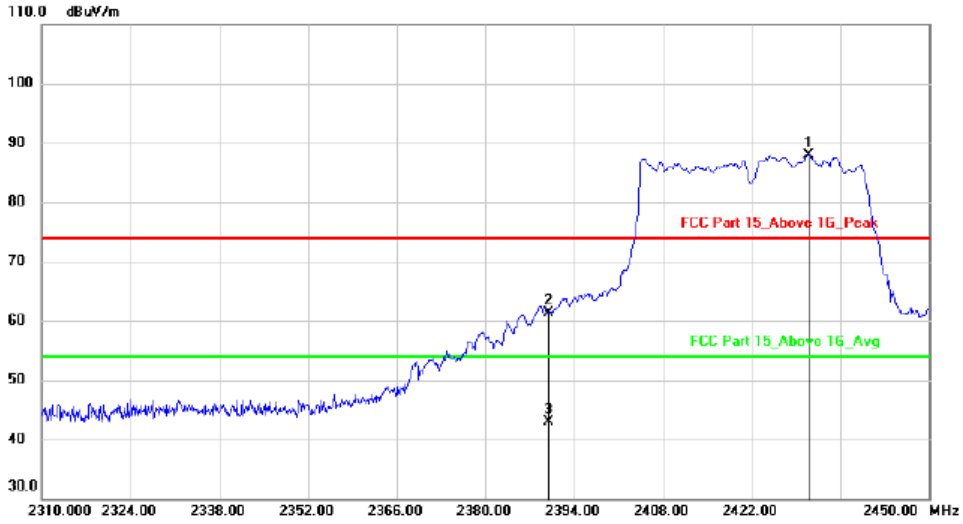
IEEE 802.11n HT40TX Low:

Polarization: V




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2409.680 | 101.70 | -3.40 | 98.30 | 74.00 | 24.30 | peak | | | |
| 2 | | 2390.000 | 62.68 | -3.40 | 59.28 | 74.00 | -14.72 | peak | | | |
| 3 | | 2390.000 | 45.49 | -3.40 | 42.09 | 54.00 | -11.91 | AVG | | | |

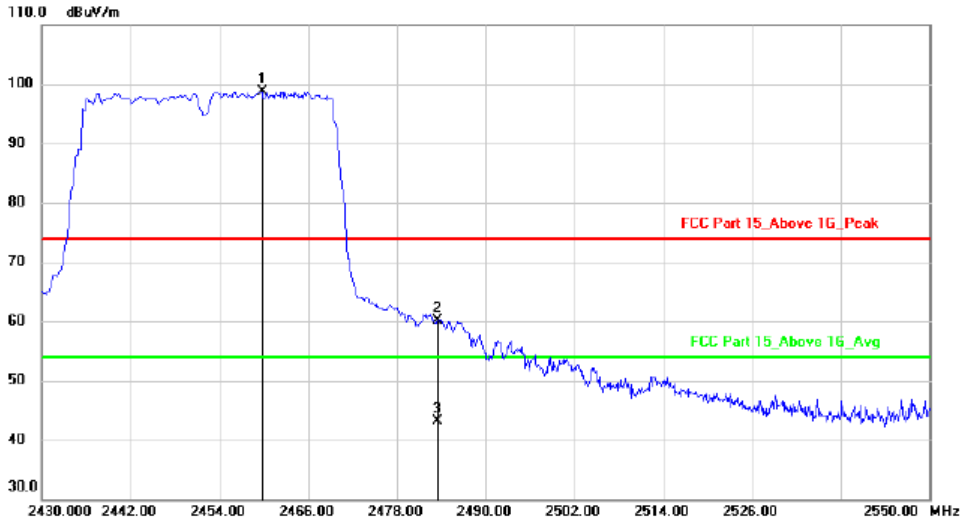
Polarization: H




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2431.100 | 91.39 | -3.40 | 87.99 | 74.00 | 13.99 | peak | | | |
| 2 | | 2390.000 | 64.74 | -3.40 | 61.34 | 74.00 | -12.66 | peak | | | |
| 3 | | 2390.000 | 46.24 | -3.40 | 42.84 | 54.00 | -11.16 | AVG | | | |

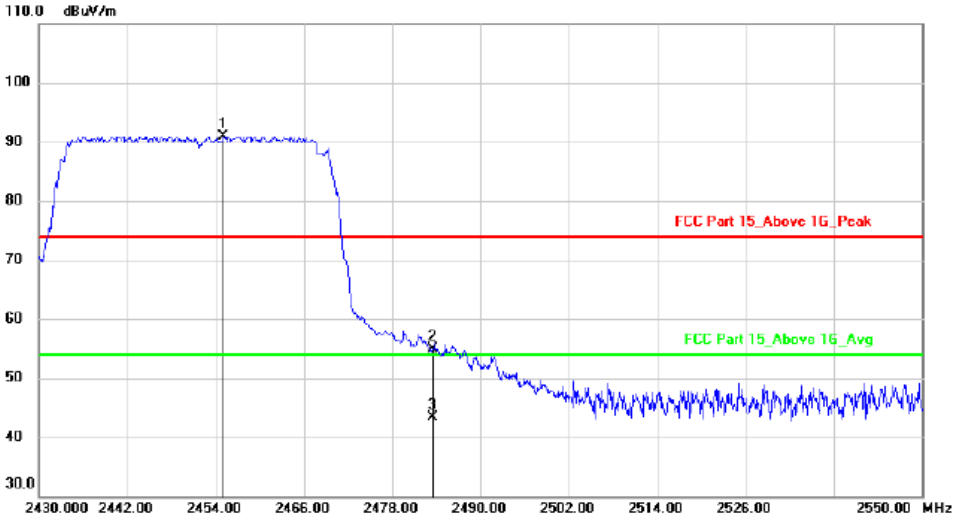
IEEE 802.11n HT40TX High:

Polarization: V



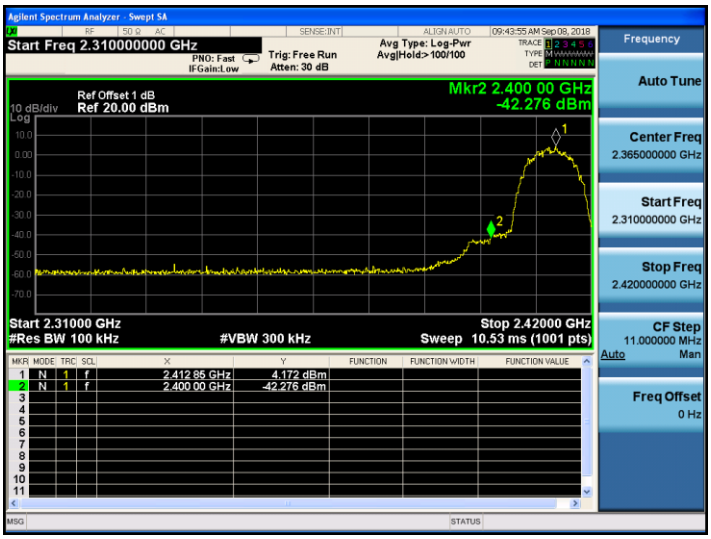

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2459.760 | 102.09 | -3.39 | 98.70 | 74.00 | 24.70 | peak | | | |
| 2 | | 2483.500 | 63.47 | -3.38 | 60.09 | 74.00 | -13.91 | peak | | | |
| 3 | | 2483.500 | 46.39 | -3.38 | 43.01 | 54.00 | -10.99 | AVG | | | |

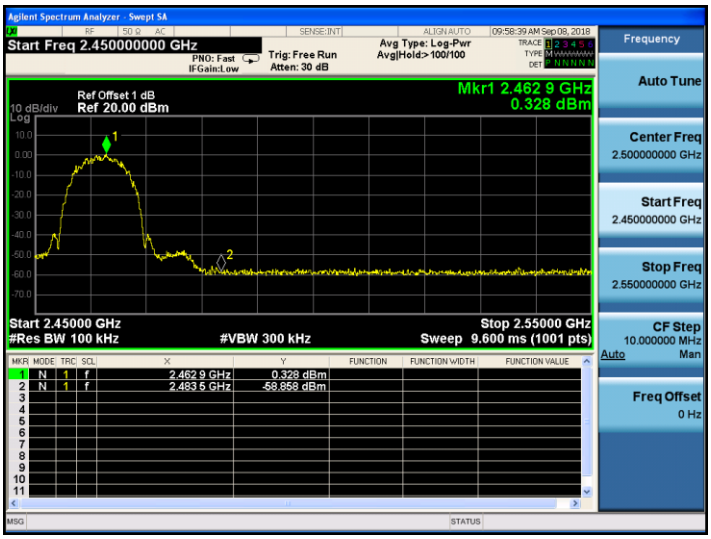
Polarization: H



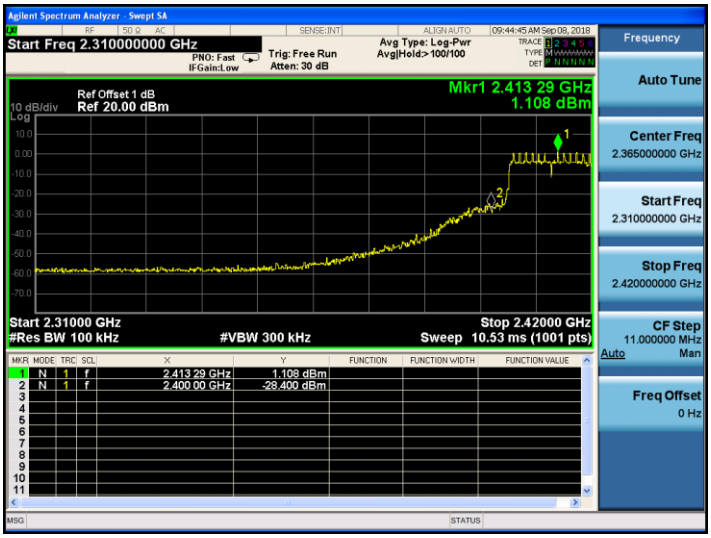

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 2455.080 | 94.28 | -3.39 | 90.89 | 74.00 | 16.89 | peak | | | |
| 2 | | 2483.500 | 58.22 | -3.38 | 54.84 | 74.00 | -19.16 | peak | | | |
| 3 | | 2483.500 | 46.58 | -3.38 | 43.20 | 54.00 | -10.80 | AVG | | | |

802.11b


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:43:55 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 2.400 00 GHz
-42.276 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42000 GHz
Sweep 10.53 ms (1001 pts)
1 N 1 f 2.412 85 GHz 4.172 dBm
2 N 1 f 2.400 00 GHz -42.276 dBm
Frequency
Auto Tune
Center Freq
2.365000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.420000000 GHz
CF Step
11.000000 MHz
Auto
Man
Freq Offset
0 Hz

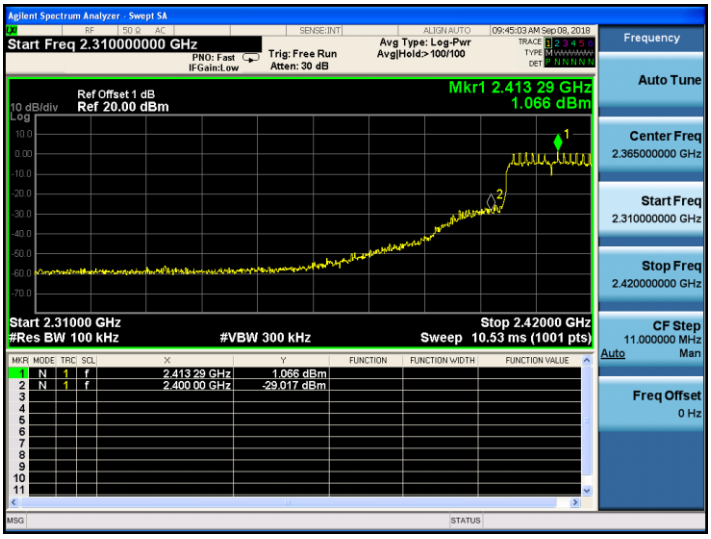

Agilent Spectrum Analyzer - Swept SA
Start Freq 2.450000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:58:39 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.462 9 GHz
0.328 dBm
Start 2.45000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 9.600 ms (1001 pts)
1 N 1 f 2.462 9 GHz 0.328 dBm
2 N 1 f 2.483 5 GHz -58.858 dBm
Frequency
Auto Tune
Center Freq
2.500000000 GHz
Start Freq
2.450000000 GHz
Stop Freq
2.550000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz

802.11g


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:44:45 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.413 29 GHz
1.108 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42000 GHz
Sweep 10.53 ms (1001 pts)
1 N 1 f 2.413 29 GHz 1.108 dBm
2 N 1 f 2.400 00 GHz -28.400 dBm
Frequency
Auto Tune
Center Freq
2.365000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.420000000 GHz
CF Step
11.000000 MHz
Auto
Man
Freq Offset
0 Hz

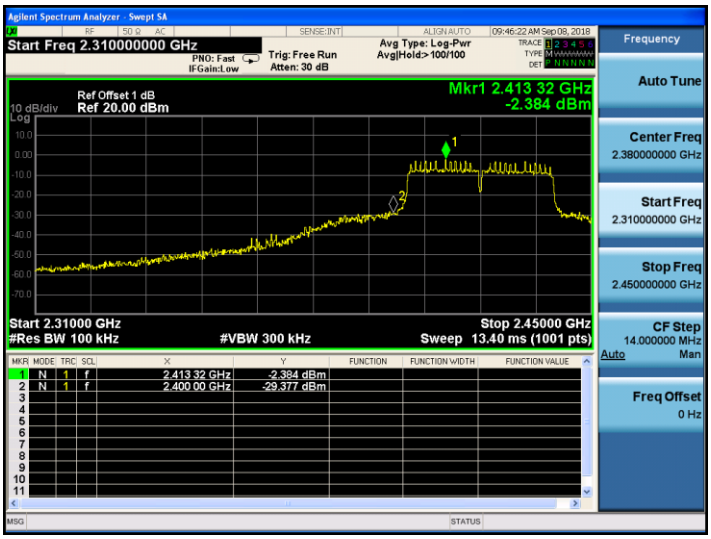

Agilent Spectrum Analyzer - Swept SA
Start Freq 2.450000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
09:58:29 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.465 7 GHz
-2.721 dBm
Start 2.45000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 9.600 ms (1001 pts)
1 N 1 f 2.465 7 GHz -2.721 dBm
2 N 1 f 2.483 5 GHz -38.964 dBm
Frequency
Auto Tune
Center Freq
2.500000000 GHz
Start Freq
2.450000000 GHz
Stop Freq
2.550000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz

802.11n HT20


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:45:03 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.413 29 GHz
1.066 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42000 GHz
Sweep 10.53 ms (1001 pts)
1 N 1 f 2.413 29 GHz 1.066 dBm
2 N 1 f 2.400 00 GHz -29.017 dBm
Frequency
Auto Tune
Center Freq
2.365000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.420000000 GHz
CF Step
11.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.450000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:58:19 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.469 5 GHz
-3.018 dBm
Start 2.45000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 9.600 ms (1001 pts)
1 N 1 f 2.469 5 GHz -3.018 dBm
2 N 1 f 2.483 5 GHz -41.262 dBm
Frequency
Auto Tune
Center Freq
2.500000000 GHz
Start Freq
2.450000000 GHz
Stop Freq
2.550000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz

802.11n HT40


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:46:22 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.413 32 GHz
-2.384 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.45000 GHz
Sweep 13.40 ms (1001 pts)
1 N 1 f 2.413 32 GHz -2.384 dBm
2 N 1 f 2.400 00 GHz -29.377 dBm
Frequency
Auto Tune
Center Freq
2.380000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.450000000 GHz
CF Step
14.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Start Freq 2.450000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:58:07 AM Sep 08, 2018
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.463 2 GHz
-5.009 dBm
Start 2.45000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 9.600 ms (1001 pts)
1 N 1 f 2.463 2 GHz -5.009 dBm
2 N 1 f 2.483 5 GHz -36.296 dBm
Frequency
Auto Tune
Center Freq
2.500000000 GHz
Start Freq
2.450000000 GHz
Stop Freq
2.550000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz

# 9. ANTENNA REQUIREMENT

## 9.1.Standard Requirement

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

## 9.2.Antenna Connected Construction

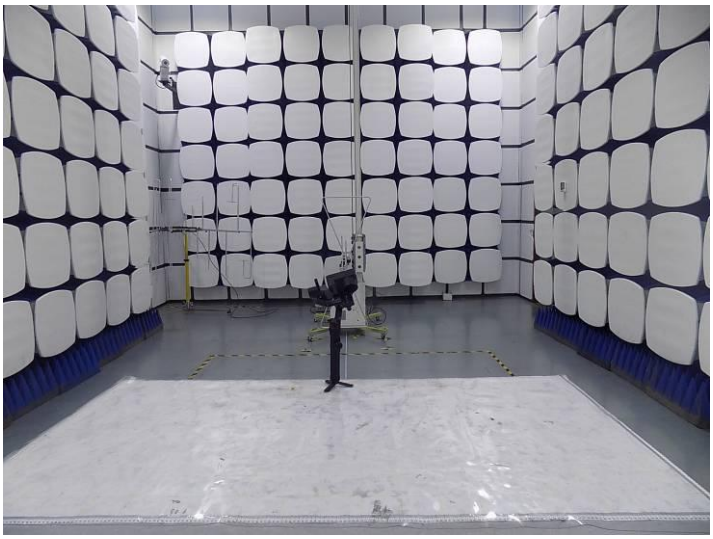
The antenna is PCB antenna and no consideration of replacement. Please see EUT photo for details.

## 9.3.Results

The EUT antenna is PCB Antenna. It comply with the standard requirement.

# 10. TEST SETUP PHOTO

## 10.1. Photos of Radiated emission



# 11. PHOTO OF EUT

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