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FCC ID: 2AFO5SNIOT621

# *TEST REPORT*

| | |
|---|---|
| **Application No.**: | GZEM1705002568CR |
| **Applicant:** | Guangdong Scinan Internet of Things Co., Ltd. |
| **Address of Applicant:** | 15/F Bldg 1, Dezhong Plaza Torch Development Zone Zhongshan, Guangdong |
| **Equipment Under Test (EUT):** | |
| **FCC ID:** | 2AFO5SNIOT621 |
| **EUT Name:** | 2.4G Wifi Model |
| **Model No.:** | SNIOT621B, SNIOT621R. ¤ |
| ¤ | Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical. |
| **Standards**: | 47 CFR Part 15, Subpart C 15.247 |
| **Date of Receipt**: | 2017-05-10 |
| **Date of Test**: | 2017-05-18 to 2017-07-11 |
| **Date of Issue**: | 2017-07-25 |
| **Test Result :** | **Pass*** |

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

Authorized Signature:

Ricky Liu
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| 00 | | 2017-07-25 | | Original Report |
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|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| **Tested By** | | Vico.Cui<br>**Vico_Cui /Project Engineer** | | 2017-05-18 to 2017-07-11<br>**Date** |
| **Checked By** | | Ricky Liu<br>**Ricky_Liu /Reviewer** | | 2017-07-25<br>**Date** |

# 2 Test Summary

| Test | Test Requirement | Test method | Result |
|---|---|---|---|
| Antenna Requirement | FCC PART 15 C section 15.247 (c) and Section 15.203 | FCC PART 15 C section 15.247 (c) and Section 15.203 | PASS |
| 6 dB Bandwidth | FCC PART 15 C section 15.247 (a)(2) | ANSI C63.10: Clause 11.8 | PASS |
| Maximum Peak Output Power | FCC PART 15 C section 15.247(b)(3) | ANSI C63.10: Clause 11.9 | PASS |
| Peak Power Spectral Density | FCC PART 15 C section 15.247(e) | ANSI C63.10: Clause 11.10 | PASS |
| Conducted Spurious Emission (30MHz to 25GHz) | FCC PART 15 C section 15.209 &15.247(d) | ANSI C63.10: Clause 11.11 | PASS |
| Radiated Spurious Emission 30 MHz to 25 GHz) | FCC PART 15 C section 15.209 &15.247(d) | ANSI C63.10: Clause 11.12,6.3,6.5 and 6.6 | PASS |
| Band Edges Measurement | FCC PART 15 C section 15.247 (d) &15.205 | ANSI C63.10: Clause 11.13 | PASS |
| Conducted Emissions at Mains Terminals | FCC PART 15 C section 15.207 | ANSI C63.10: Clause 6.2 | PASS |

**Remark:**
EUT: In this whole report EUT means Equipment Under Test.
N/A: not applicable. Refer to the relative section for the details.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.
ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

¤ **Declaration of EUT Family Grouping:**

**Model No.:** SNIOT621B, SNIOT621R.

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, only with different colour (SNIOT621B: Black, SNIOT621R: Red) and silk-screen of Logo.

Therefore only one model SNIOT621R was tested in this report.

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# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Operating Frequency | 2412 MHz to 2462 MHz for 802.11b/g/n(HT20) |
| Type of Modulation: | 802.11b: DSSS(CCK/QPSK/BPSK)<br>802.11g: OFDM(BPSK/QPSK/16QAM/64QAM)<br>802.11n: MIMO OFDM (BPSK/QPSK/16QAM/64QAM) |
| Transmit Data Rate: | 802.11b :1/2/5.5/11 Mbps<br>802.11g :6/9/12/18/24/36/48/54 Mbps<br>802.11n(HT20): 7.2/14.4/21.7/28.9/43.3/57.8/65/72.2 Mbps |
| Number of Channels | 11 Channels for 802.11b/g/n(HT20) |
| Channel Separation: | 5 MHz |
| Antenna Type | dedicated Dipole antenna |
| Function: | Wireless Wi-Fi module |
| Antenna Gain: | 4.4 dBi |
| Test Software: | Serial port debugging tool |
| Power Supply: | DC 3.3V |

## 4.2 Description of Support Units

The EUT has been tested with corresponding accessories as below supplied by SGS:

| Description | Manufacturer | Model No. | Serial No. |
|---|---|---|---|
| Adapter | Apple | A1357 W010A051 | REF. No.SEA0500 |
| Laptop | ASUS | A556U | FBN0CV921312487 |

Using the special software and development board we can enter the product for engineer mode then we can control the EUT to select the wanted channel for test. The test board and PC are only to configure the engineer mode and not used to final test.

## 4.3 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

## 4.4 Abnormalities from Standard Conditions

None.

## 4.5 Other Information Requested by the Customer

None.

## 4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 4.7 Measurement uncertainty

| No. | Item | Measurement uncertainty |
|---|---|---|
| 1 | Conducted Emission | 1.02dB(9kHz to 150kHz) |
| | | 1.05dB(150kHz to 30MHz) |
| 2 | Radiated Emission | 5.06dB(30MHz to 1GHz) |
| | | 5.06dB(1GHz to 26GHz) |

## 4.8 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

  The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co. Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584，G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

# 5 Equipment List

| RE in Chamber | | | | | | |
|---|---|---|---|---|---|---|
| No. | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. date (YYYY-MM-DD) | Cal.Due date (YYYY-MM-DD) |
| EMC0525 | Compact Semi-Anechoic Chamber | ChangZhou ZhongYu | N/A | N/A | 2016-12-04 | 2019-12-03 |
| EMC0522 | EMI Test Receiver | Rohde & Schwarz | ESIB26 | 100283 | 2017-01-20 | 2018-01-19 |
| EMC0056 | EMI Test Receiver | Rohde & Schwarz | ESCI | 100236 | 2017-01-20 | 2018-01-19 |
| EMC0528 | RI High frequency Cable | SGS | 20 m | N/A | 2016-04-19 | 2018-04-18 |
| EMC2025 | Trilog Broadband Antenna 30-1000MHz | SCHWARZBECK MESS-ELEKTRONIK | VULB 9160 | 9160-3372 | 2016-09-08 | 2019-09-07 |
| SEM003-18 | Trilog Broadband Antenna 25-2000MHz | SCHWARZBECK MESS-ELEKTRONIK | VULB 9168 | 665 | 2016-06-29 | 2019-06-28 |
| EMC0524 | Bi-log Type Antenna | Schaffner -Chase | CBL6112B | 2966 | 2016-09-08 | 2019-09-07 |
| EMC0519 | Bilog Type Antenna | Schaffner -Chase | CBL6143 | 5070 | 2017-05-04 | 2020-05-03 |
| EMC2026 | Horn Antenna 1-18GHz | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120D | 9120D-841 | 2016-09-09 | 2019-09-08 |
| EMC0521 | 1-26.5 GHz Pre-Amplifier | Agilent | 8449B | 3008A01649 | 2017-01-20 | 2018-01-19 |
| EMC2065 | Amplifier | HP | 8447F | N/A | 2017-06-19 | 2018-06-18 |
| EMC2086 | PRE AMPLIFIER MH648A | ANRITSU CORP | MH648A | N/A | 2016-12-02 | 2017-12-01 |
| EMC2063 | Pre-amplifier 1GHz-26GHz | Compliance Direction Systems Lnc. | PAP-1G26-48 | 6279.628 | 2016-12-02 | 2017-12-01 |
| EMC0523 | Active Loop Antenna | EMCO | 6502 | 42963 | 2016-02-27 | 2018-02-26 |
| EMC2041 | Broad-Band Horn Antenna (14)15-26.5(40)GHz | SCHWARZBECK MESS-ELEKTRONI | BBHA 9170 | 9170-375 | 2017-05-23 | 2020-05-22 |
| EMC2079 | High Pass Filter(915MHz) | FSY MICROWAVE | HM1465-9SS | 009 | 2017-01-20 | 2018-01-19 |
| EMC2069 | 2.4GHz Filter | Micro-Tronics | BRM 50702 | 149 | 2017-01-20 | 2018-01-19 |
| EMC0530 | 10m Semi-Anechoic Chamber | ETS | N/A | N/A | 2016-04-30 | 2018-04-29 |

| General used equipment | | | | | | |
|---|---|---|---|---|---|---|
| No. | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. date (YYYY-MM-DD) | Cal.Due date (YYYY-MM-DD) |
| EMC0006 | DMM | Fluke | 73 | 70681569 | 2016-09-01 | 2017-08-31 |
| EMC0007 | DMM | Fluke | 73 | 70671122 | 2016-08-22 | 2017-08-21 |

# 6 Test Results

## 6.1 E.U.T. test conditions

| | |
|---|---|
| **Test Voltage:** | DC 3.3V |
| **Temperature:** | 20.0 -25.0 °C |
| **Humidity:** | 38-50 % RH |
| **Atmospheric Pressure:** | 1000 -1010 mbar |
| **Requirements:** | **15.31(e):** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.<br>**15.32:** Power supplies and CPU boards used with personal computers and for which separate authorizations are required to be obtained shall be tested as follows: Testing shall be in accordance with the procedures specified in Section 15.31 of this part. |
| **Test frequencies and frequency range:** | According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:<br>According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table: |

**Number of fundamental frequencies to be tested in EUT transmit band**

| Frequency range in which device operates | Number of frequencies | Location in frequency range of operation |
|---|---|---|
| 1 MHz or less | 1 | Middle |
| 1 MHz to 10 MHz | 2 | 1 near top and 1 near bottom |
| More than 10 MHz | 3 | 1 near top, 1 near middle and 1 near bottom |

**Frequency range of radiated emission measurements**

| Lowest frequency generated in the device | Upper frequency range of measurement |
|---|---|
| 9 kHz to below 10 GHz | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower |
| At or above 10 GHz to below 30 GHz | 5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower |
| At or above 30 GHz | 5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified |

**EUT channels and frequencies list:**

1. Test frequencies are lowest channel: 2412 MHz, middle channel: 2442MHz and highest channel: 2462 MHz for 802.11b/g/n(HT20)

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

2. Using the special software we can enter the product for engineer mode then we can control the EUT to select the wanted channel for test as above list.

## 6.2 Antenna Requirement

**Standard requirement**

15.203 requirement:

For intentional device. According to 15.203. an intentional radiator shall be designed to

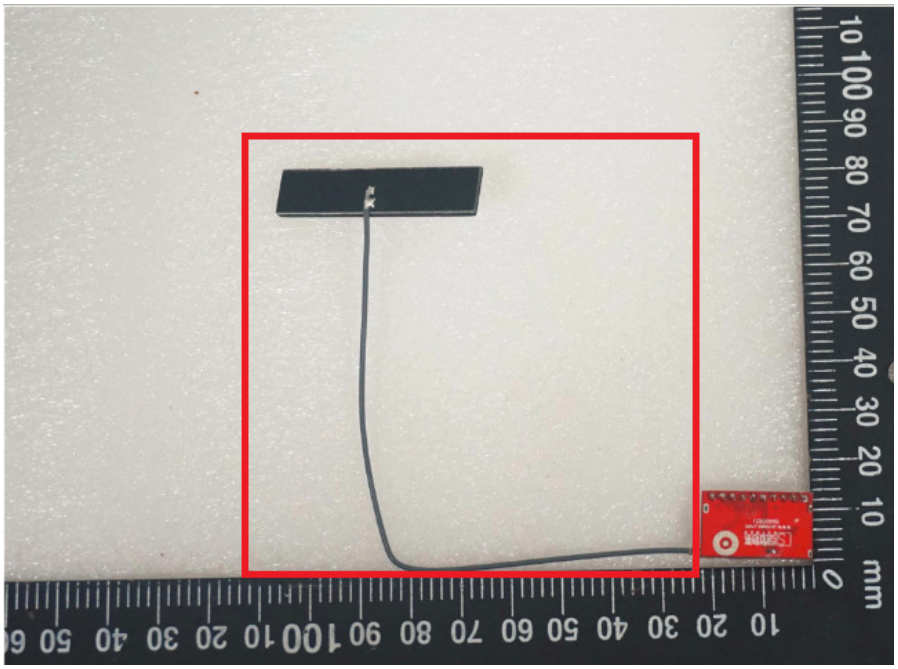
Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

**EUT Antenna**

The antenna is dedicated antenna and no consideration of replacement by end user. The best case gain of the antenna is 4.4dBi.



**Test result: The unit does meet the FCC requirements.**

## 6.3 6 dB Bandwidth

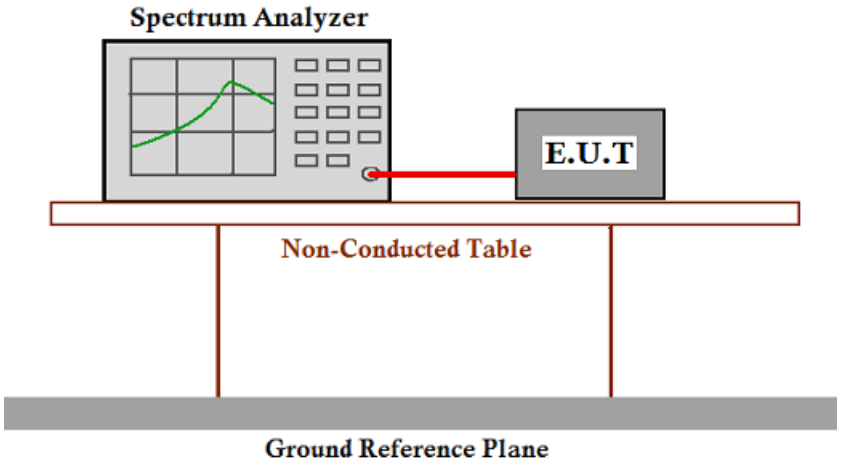
Test Requirement: FCC Part 15 C section 15.247

(a)(2)Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method: ANSI C63.10: Clause 11.8

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1.0dB) from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW=100 kHz. VBW = 300 kHz. Sweep = auto; Detector Function = Peak. Trace = Max Hold, Set span to encompass the entire emission bandwidth of the signal..
3. Mark the peak power frequency and -6dB (upper and lower) power frequency.
4. Repeat until all the test status is investigated.
5. Report the worse case.

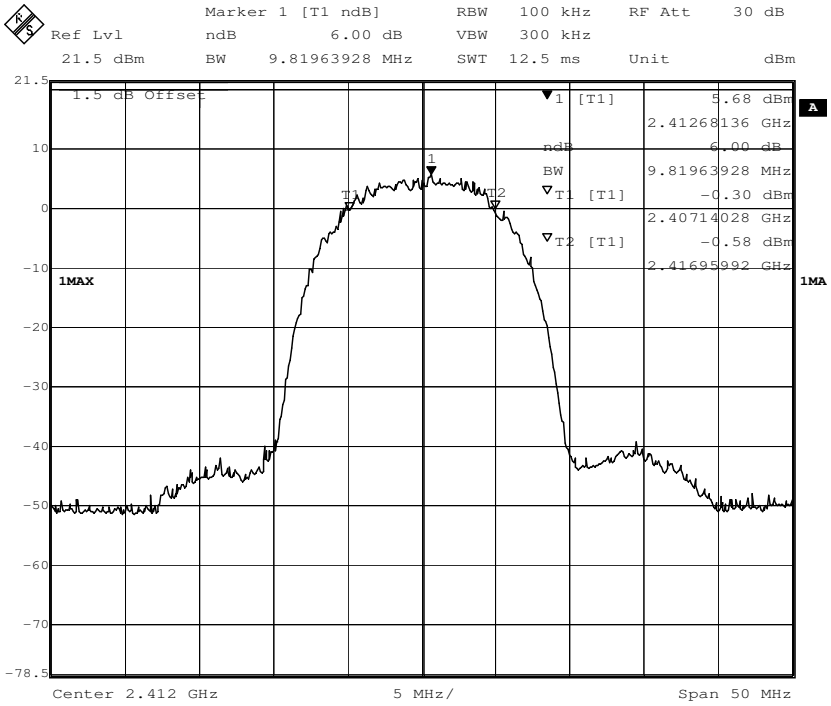
| Test Mode | Test Channel | EBW[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|
| 11B | 2412 | 9.819 | ≥0.5 | PASS |
| 11B | 2442 | 10.320 | ≥0.5 | PASS |
| 11B | 2462 | 10.120 | ≥0.5 | PASS |
| 11G | 2412 | 16.633 | ≥0.5 | PASS |
| 11G | 2442 | 16.733 | ≥0.5 | PASS |
| 11G | 2462 | 16.733 | ≥0.5 | PASS |
| 11N20SISO | 2412 | 17.935 | ≥0.5 | PASS |
| 11N20SISO | 2442 | 17.935 | ≥0.5 | PASS |
| 11N20SISO | 2462 | 17.935 | ≥0.5 | PASS |

**Test result: The unit does meet the FCC requirements.**

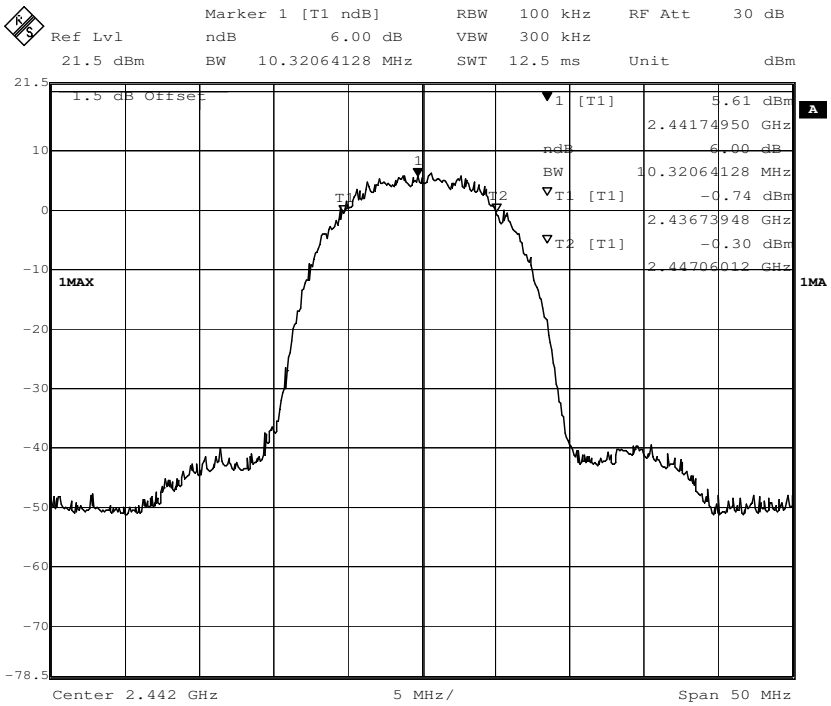
**Result plot as follows:**

**802.11b mode with 11Mbps data rate**

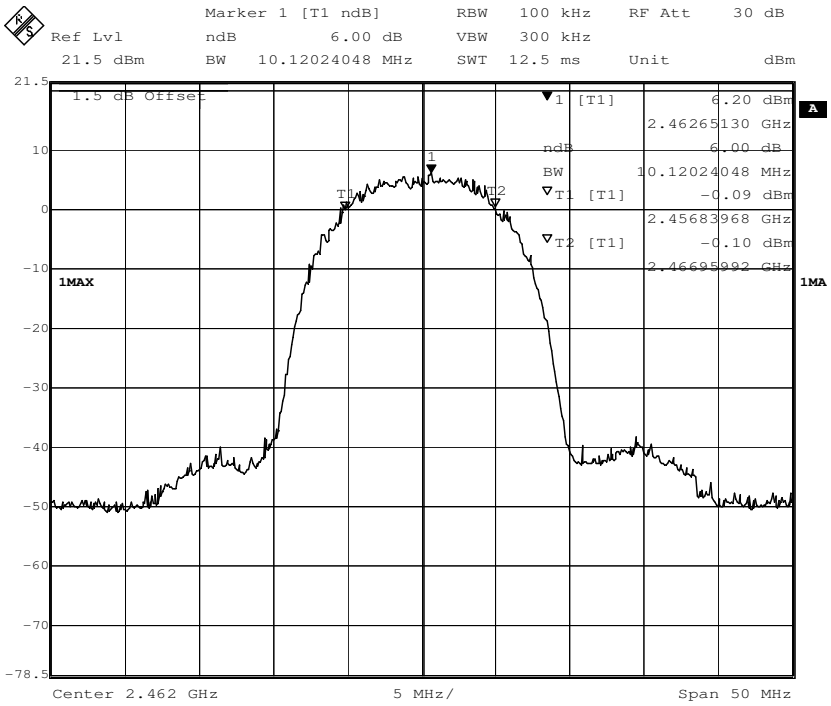
Channel 1: 2.412GHz:




Channel 7: 2.442GHz:

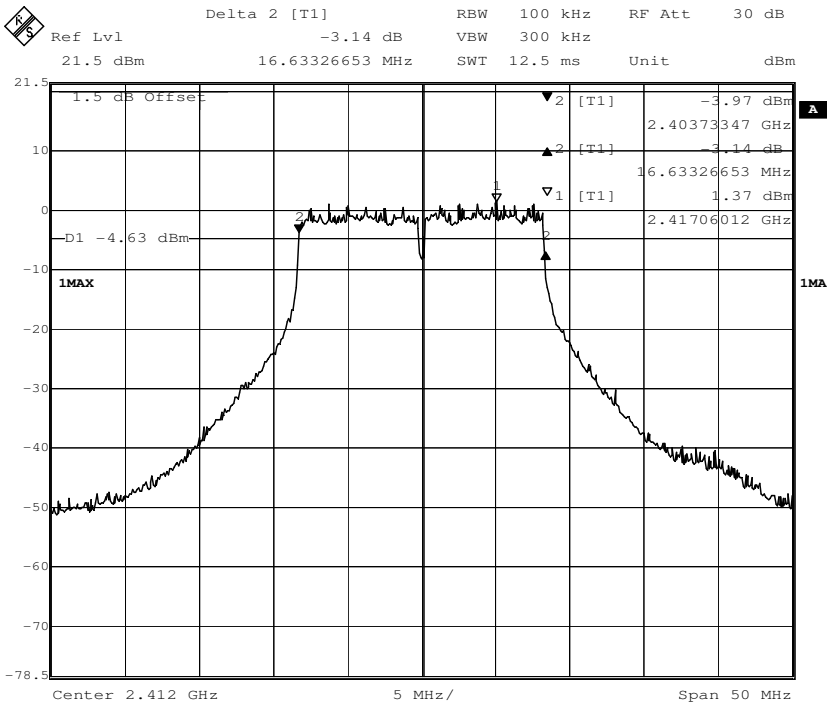


Channel 11: 2.462GHz:

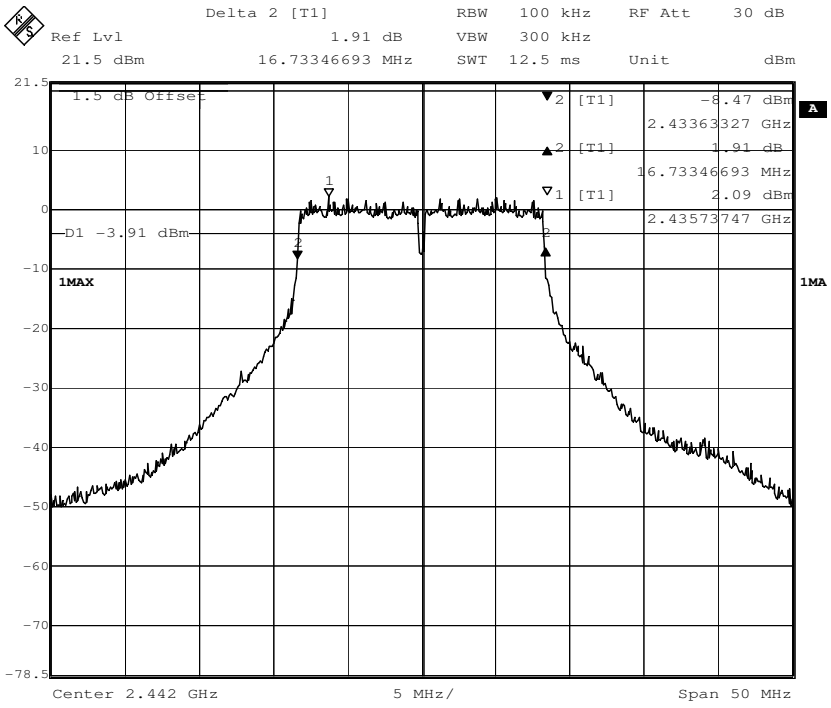



**802.11g mode with 54Mbps data rate**

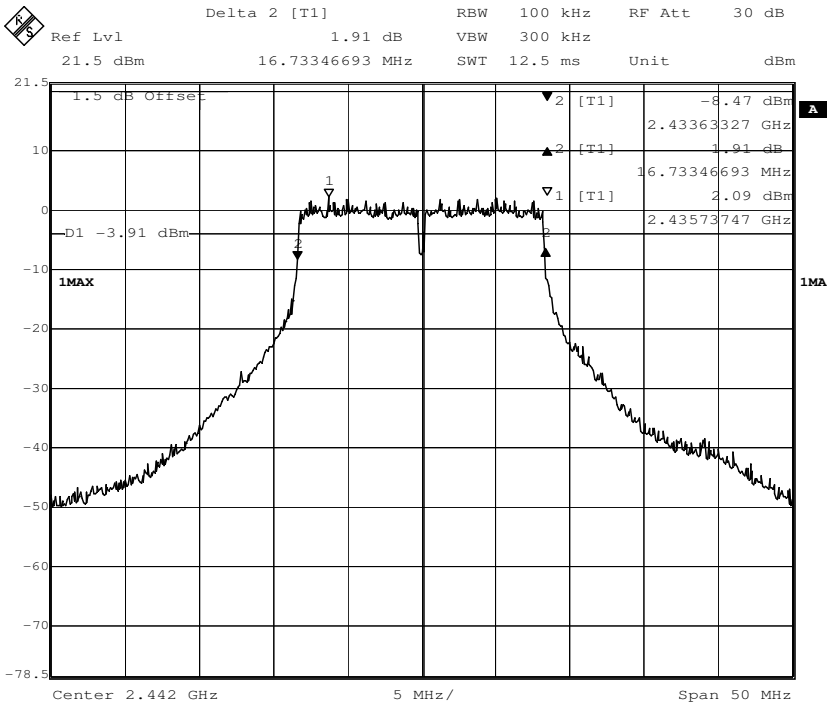
Channel 1: 2.412GHz:



Channel 7: 2.442GHz:

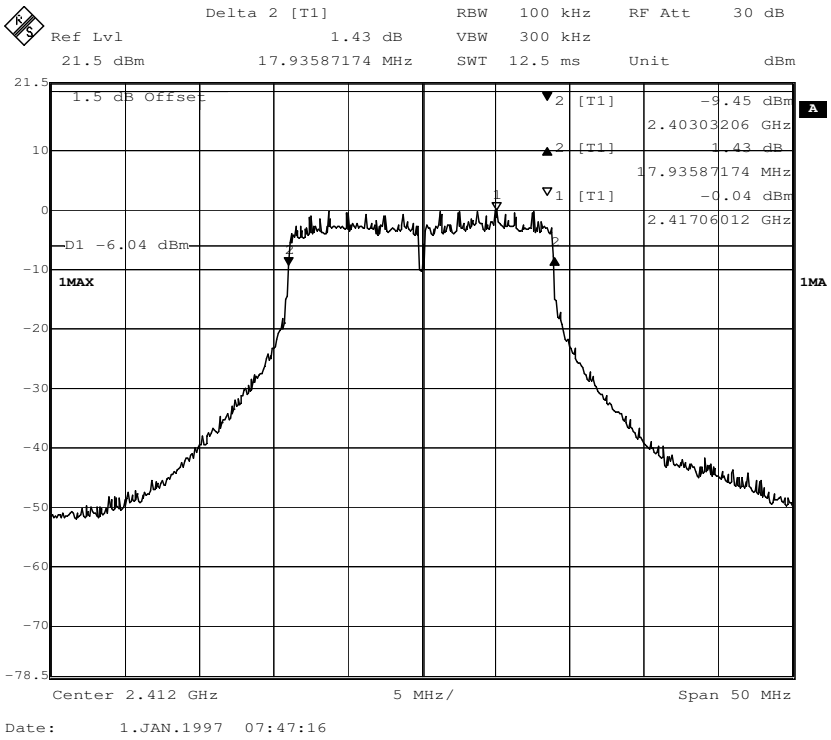



Channel 11: 2.462GHz:

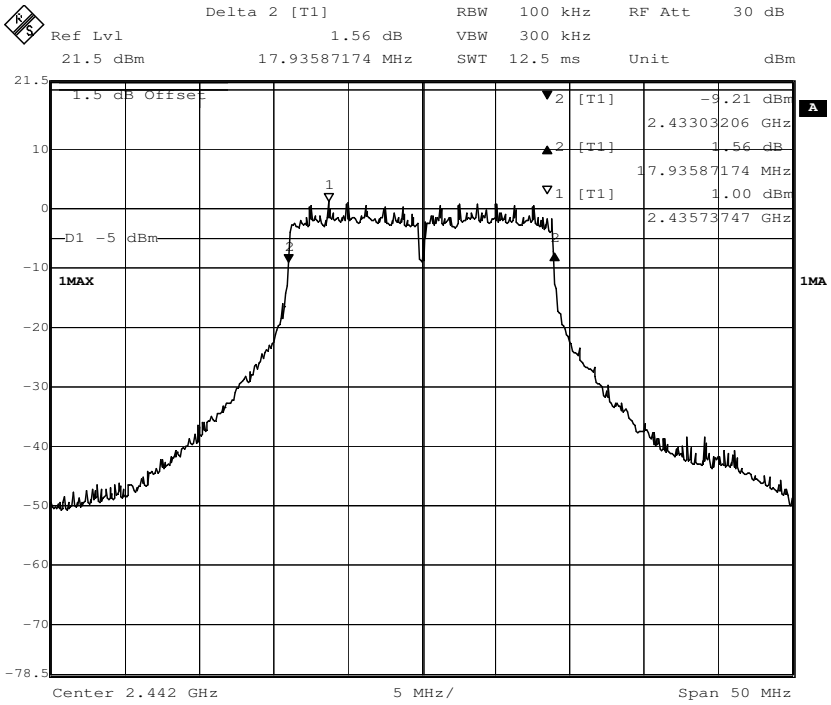


**802.11n(HT20) mode with 72.2Mbps data rate**

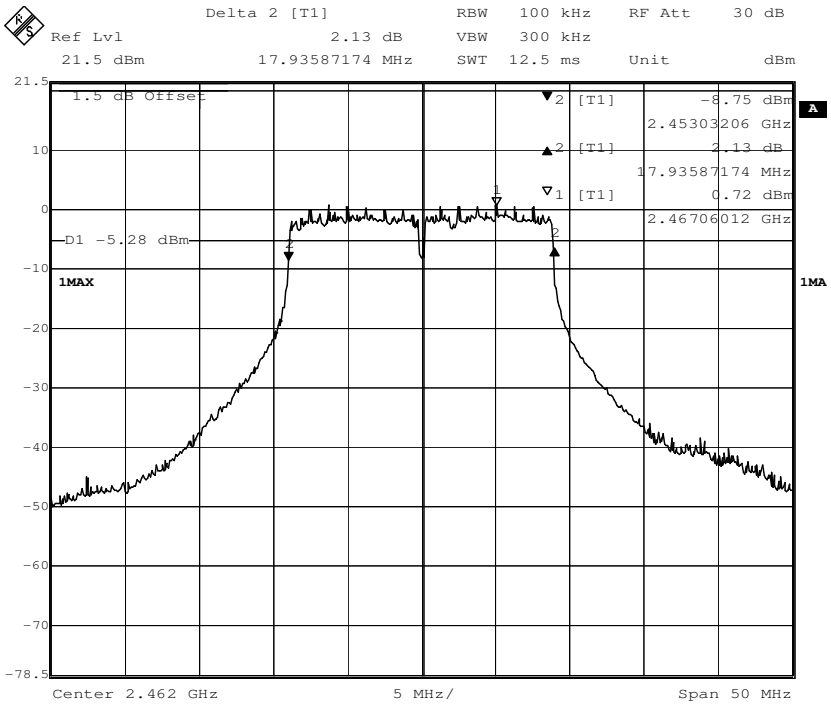
Channel 1: 2.412GHz:




Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



## 6.4 Maximum Peak Output Power

Test Requirement: FCC Part 15 C section 15.247

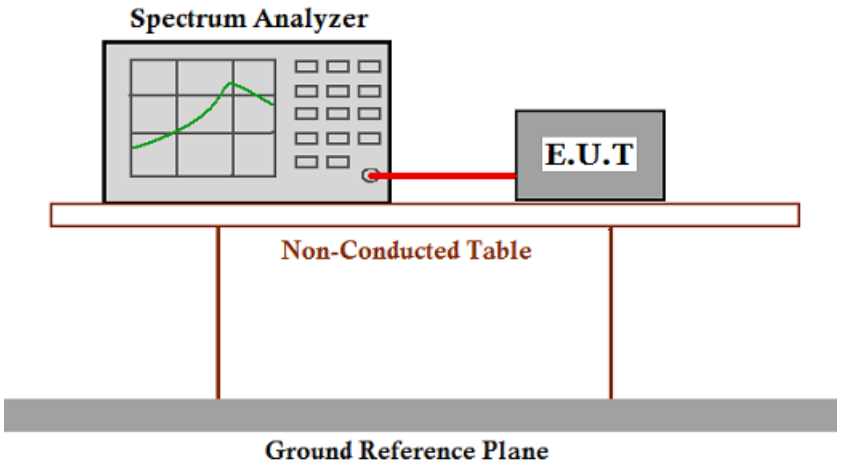
(b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1), (b) (2), and (b) (3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Method: ANSI C63.10: Clause 11.9

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (Cable loss =1.0dB) from the antenna port to the spectrum.
2. Set the RBW=1MHz
3. Set the VBW ≥ 3 x RBW
4. Set the span ≥1.5 x DTS bandwidth
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.
10. Measure the channel power of the test frequency with special test status.
11. Repeat until all the test status is investigated and report the worse case.

**Test result:**

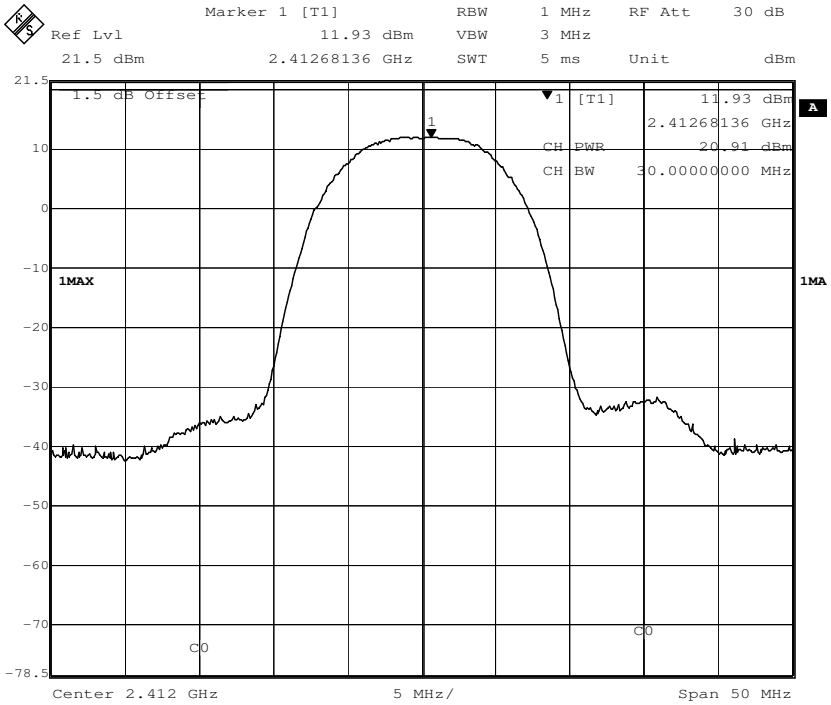
| Test Mode | Test Channel | Power[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|
| 11B | 2412 | 20.91 | 30 | PASS |
| 11B | 2442 | 22.03 | 30 | PASS |
| 11B | 2462 | 21.50 | 30 | PASS |
| 11G | 2412 | 20.19 | 30 | PASS |
| 11G | 2442 | 21.20 | 30 | PASS |
| 11G | 2462 | 21.27 | 30 | PASS |
| 11N20SISO | 2412 | 19.40 | 30 | PASS |
| 11N20SISO | 2442 | 20.12 | 30 | PASS |
| 11N20SISO | 2462 | 19.66 | 30 | PASS |

**The unit does meet the FCC requirements.**

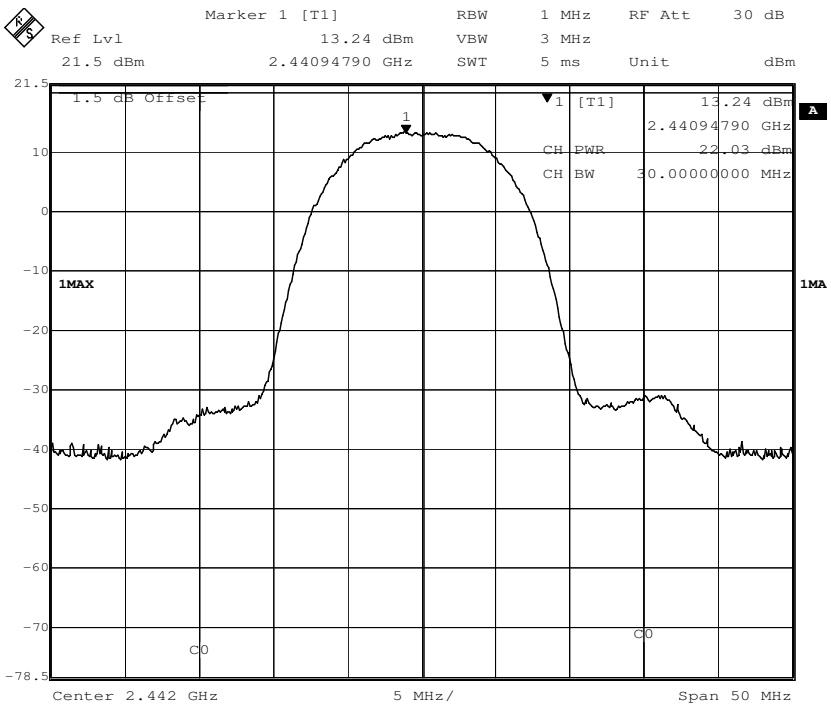
**Result plot as follows:**

**802.11b mode with 11Mbps data rate**

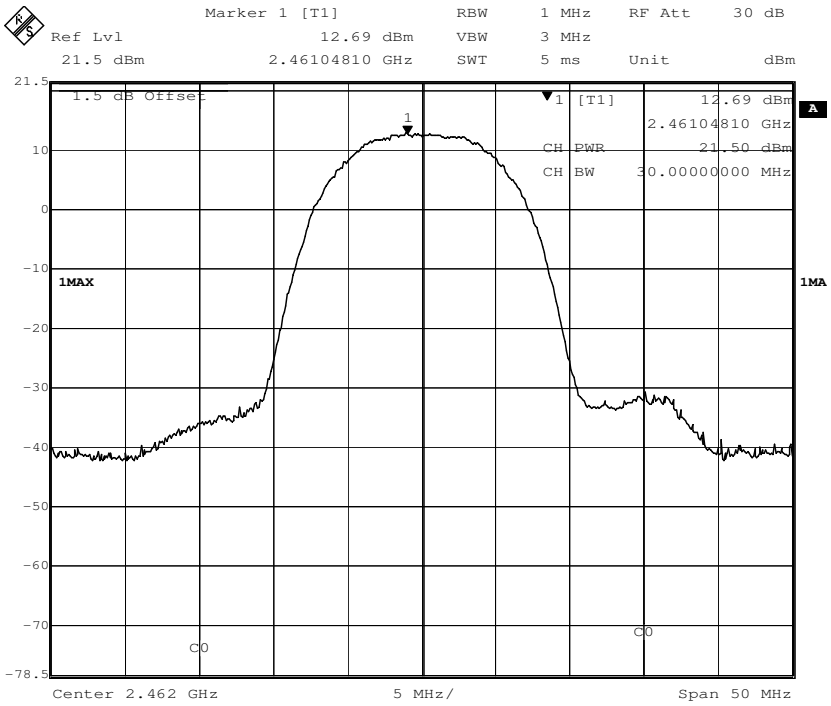
Channel 1: 2.412GHz:




Channel 7: 2.442GHz:

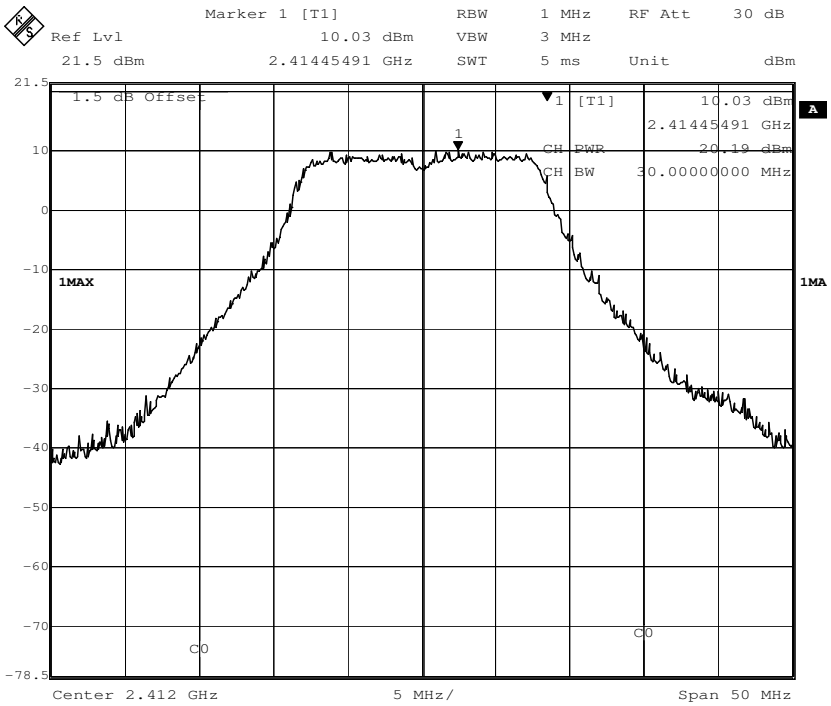


Channel 11: 2.462GHz:

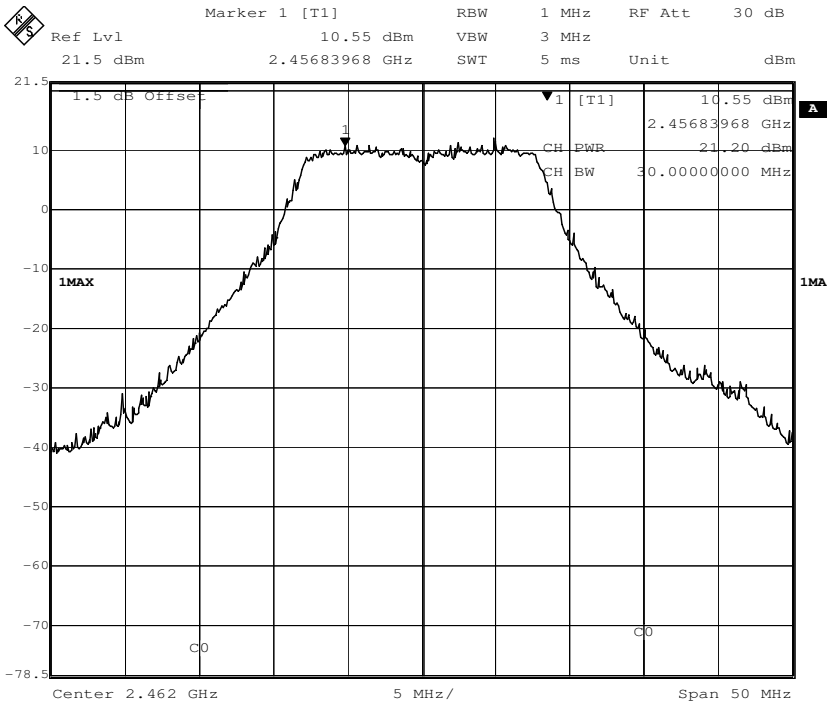



**802.11g mode with 54Mbps data rate**

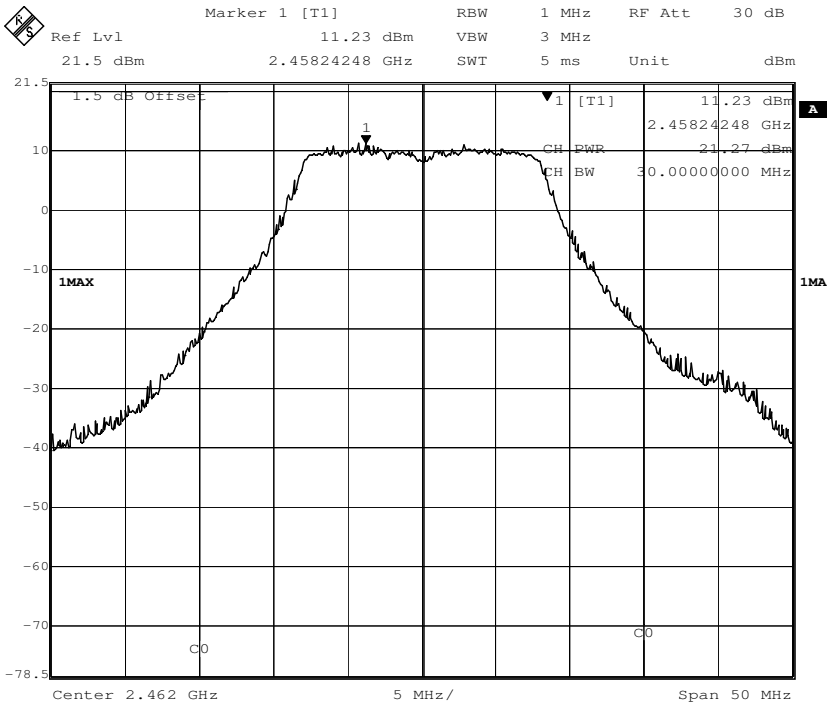
Channel 1: 2.412GHz:



Channel 7: 2.442GHz:

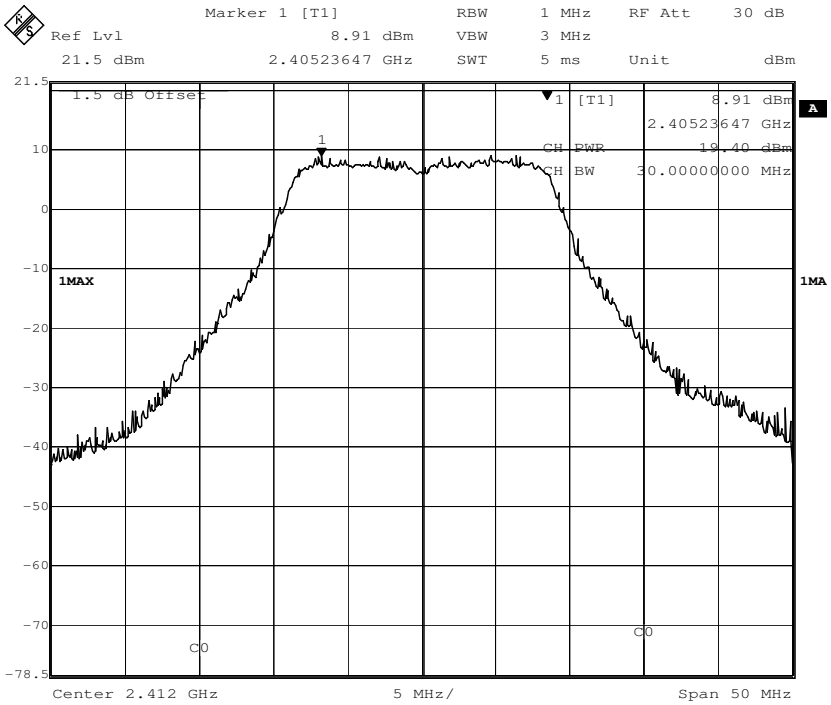



Channel 11: 2.462GHz:

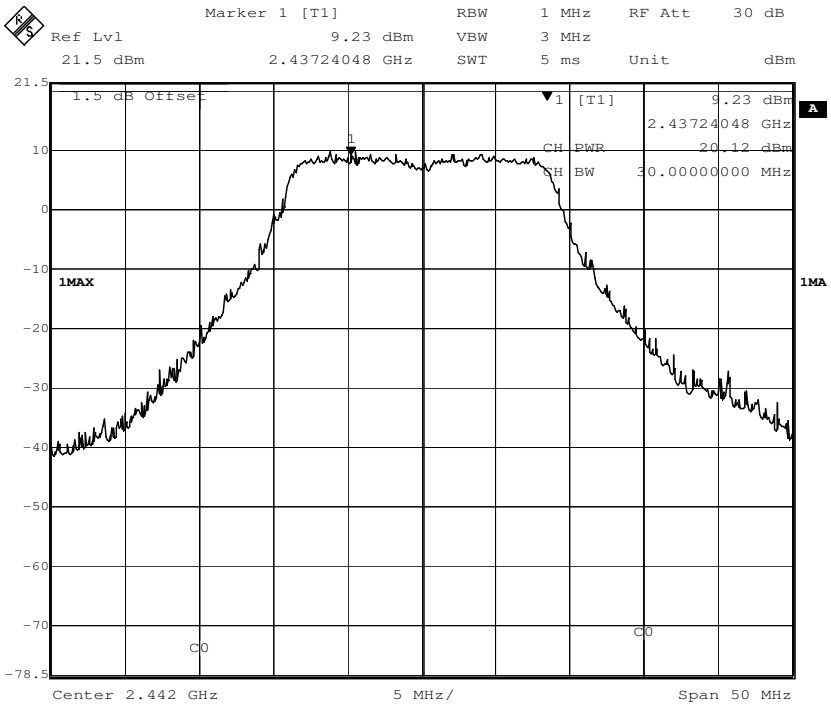


**802.11n(HT20) mode with 72.2Mbps data rate**

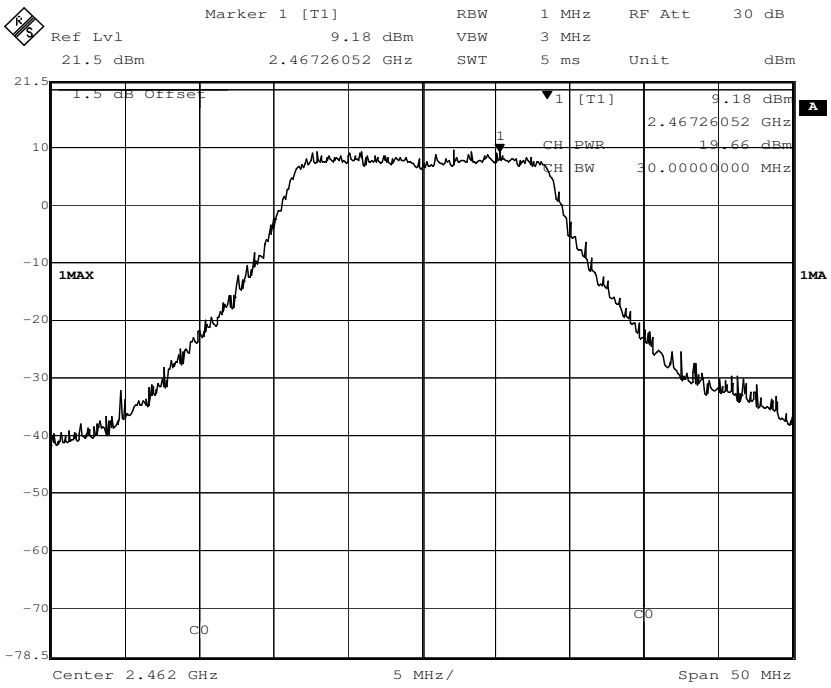
Channel 1: 2.412GHz:




Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



## 6.5 Peak Power Spectral Density

Test Requirement: FCC Part 15 C section 15.247

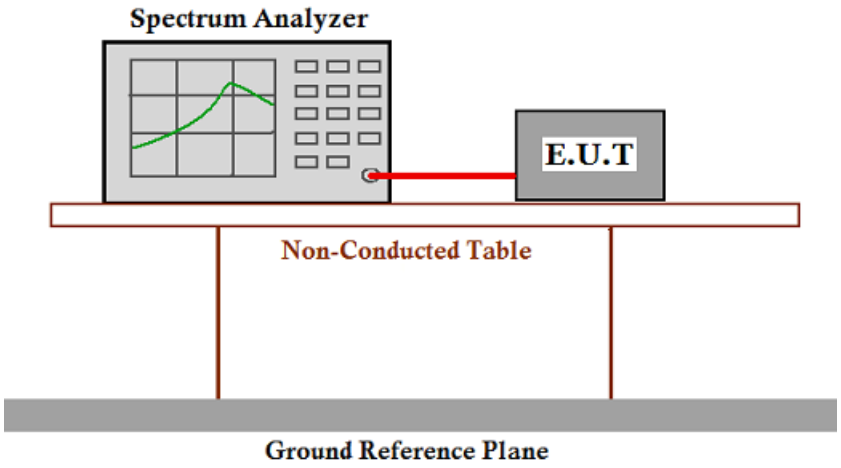
(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Method: ANSI C63.10: Clause 11.10

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1.0dB) from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer: RBW=3 kHz. VBW = 10 kHz. sweep= (SPAN/3 kHz); Detector Function = Peak. Trace = Max Hold, Centre = the Peak Power of the signal.
3. Measure the Power Spectral Density of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse case.

**Test result:**

| Test Mode | Test Channel | PSD[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|---|---|---|---|---|
| 11B | 2412 | -10.11 | 8.00 | PASS |
| 11B | 2442 | -8.680 | 8.00 | PASS |
| 11B | 2462 | -10.54 | 8.00 | PASS |
| 11G | 2412 | -14.95 | 8.00 | PASS |
| 11G | 2442 | -12.36 | 8.00 | PASS |
| 11G | 2462 | -13.63 | 8.00 | PASS |
| 11N20SISO | 2412 | -13.91 | 8.00 | PASS |
| 11N20SISO | 2442 | -14.06 | 8.00 | PASS |
| 11N20SISO | 2462 | -14.85 | 8.00 | PASS |

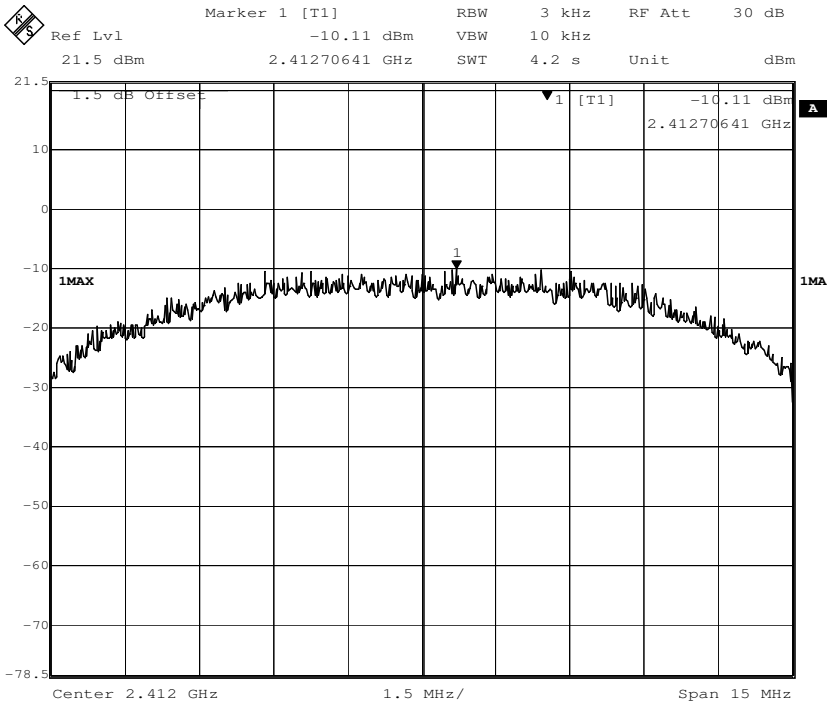
**Test result: Level = Read Level + Cable Loss.**

**The unit does meet the FCC requirements.**

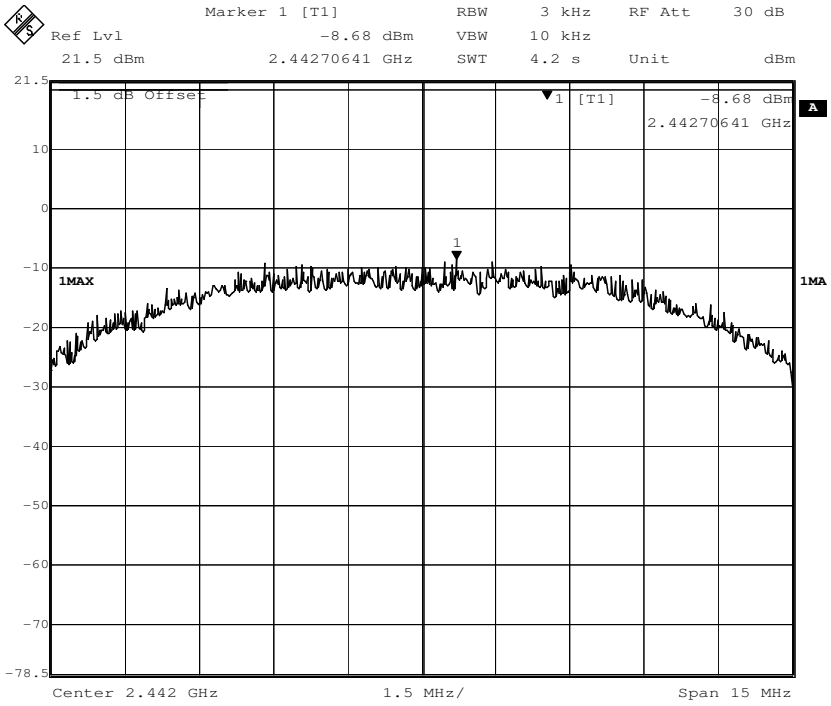
**Result plot as follows:**

**802.11b mode with 11Mbps data rate**

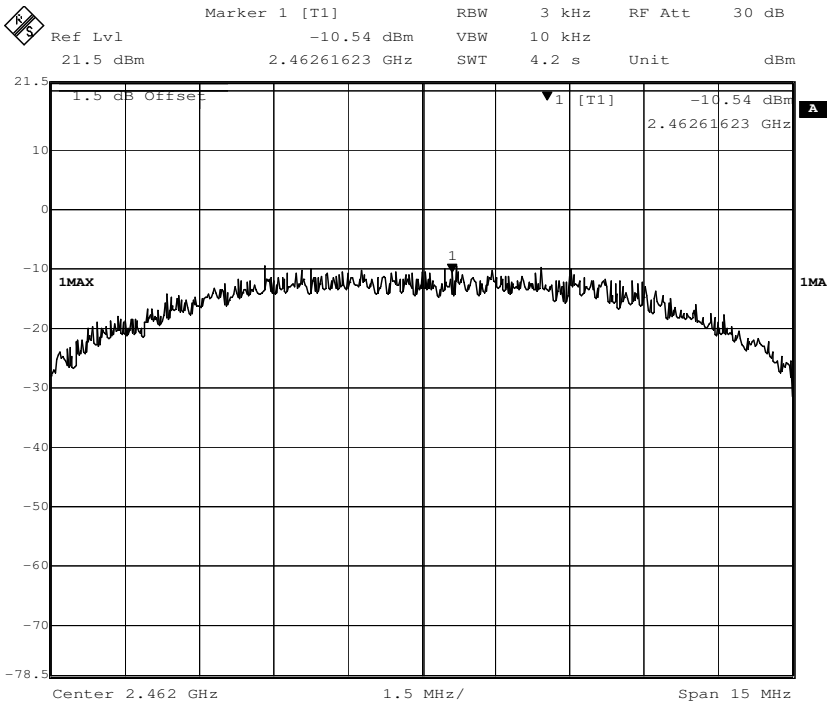
Channel 1: 2.412GHz:



Channel 7: 2.442GHz:

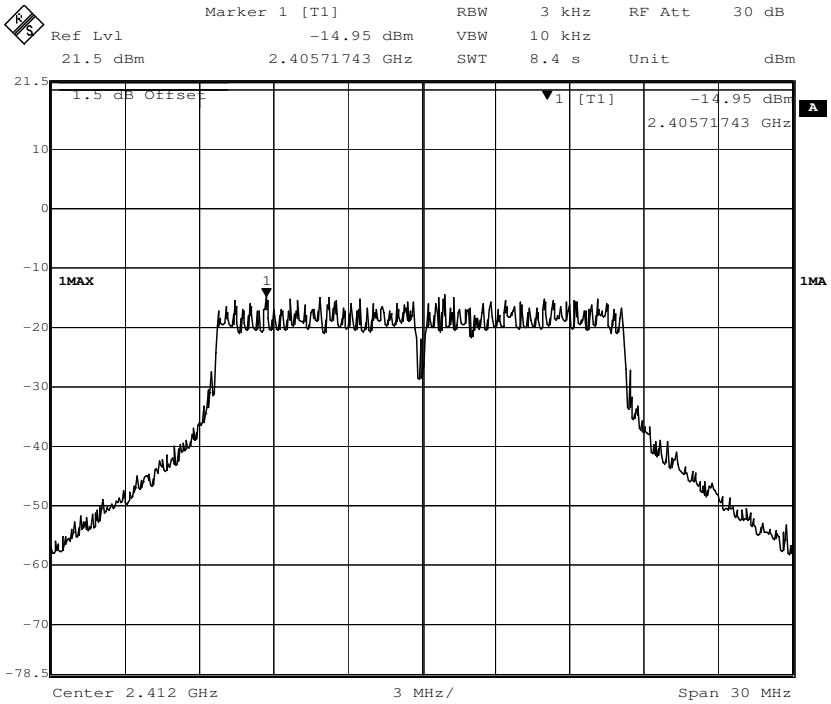


Channel 11: 2.462GHz:

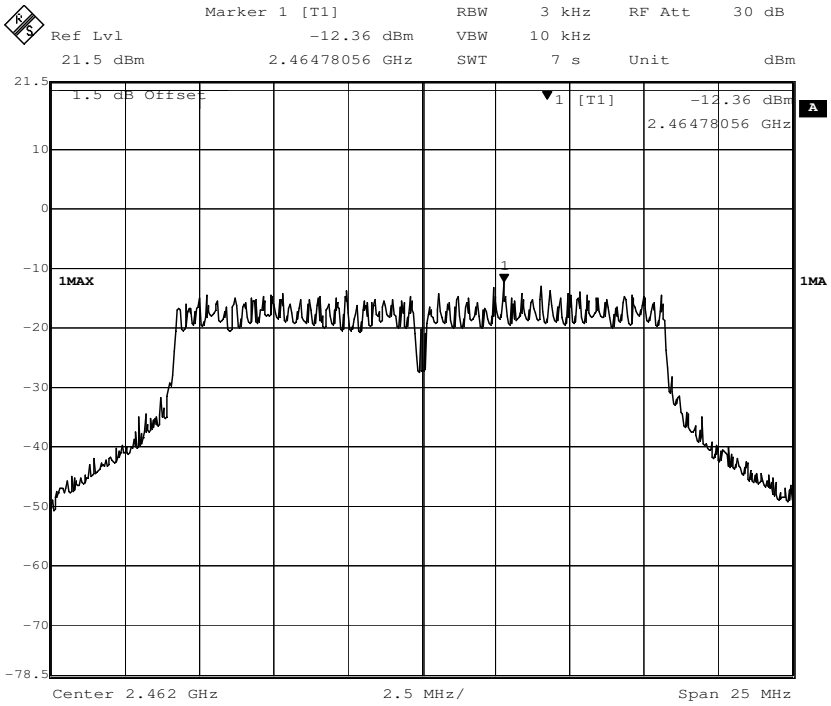


**802.11g mode with 54Mbps data rate**

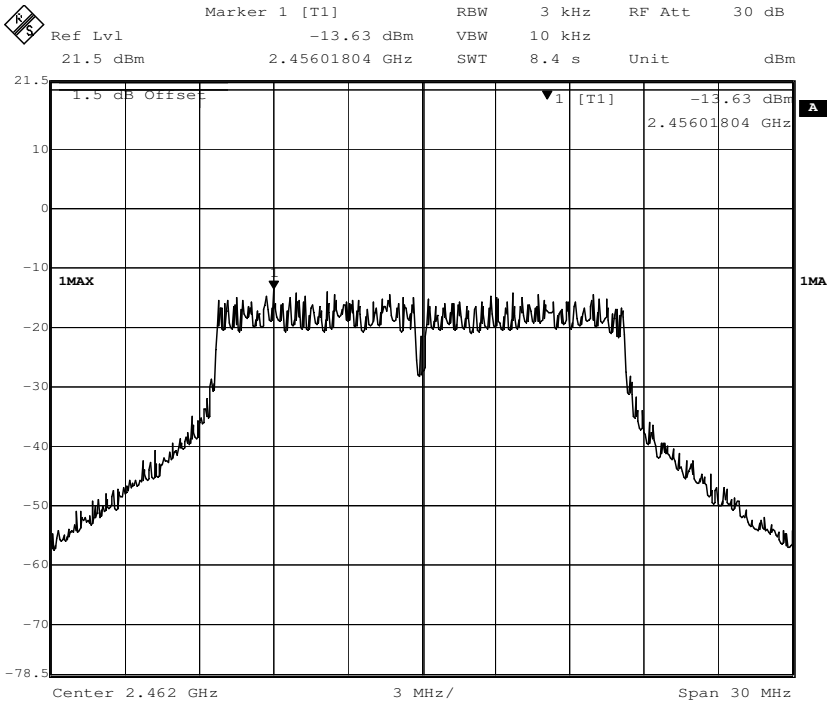
Channel 1: 2.412GHz:



Channel 7: 2.442GHz:

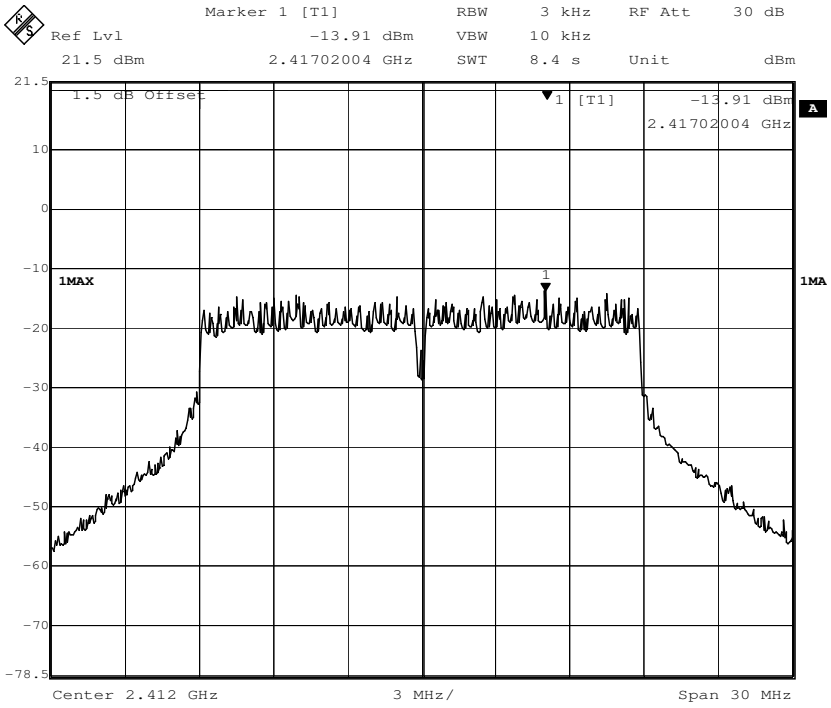


Channel 11: 2.462GHz:

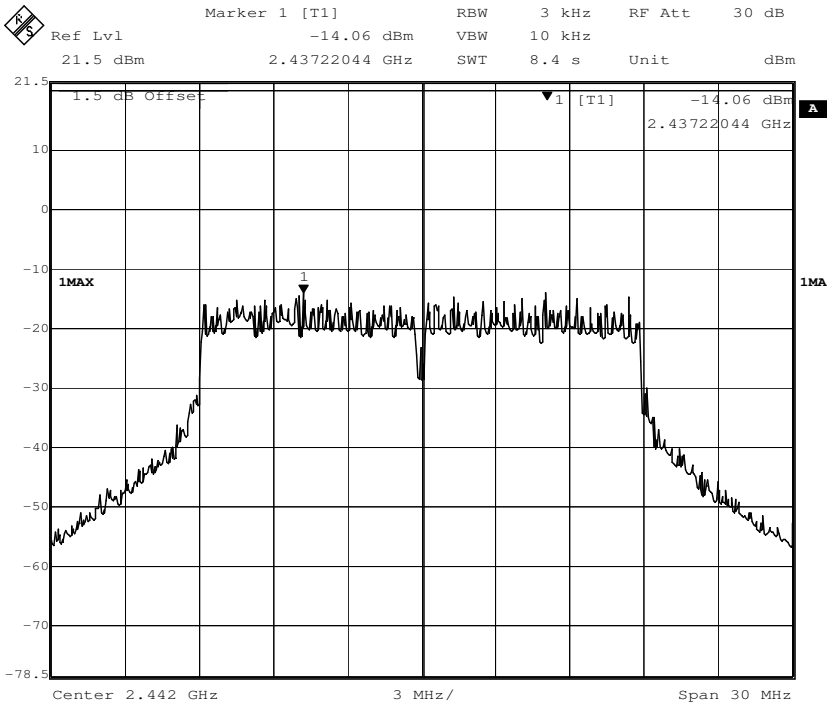


**802.11n(HT20) mode with 72.2Mbps data rate**

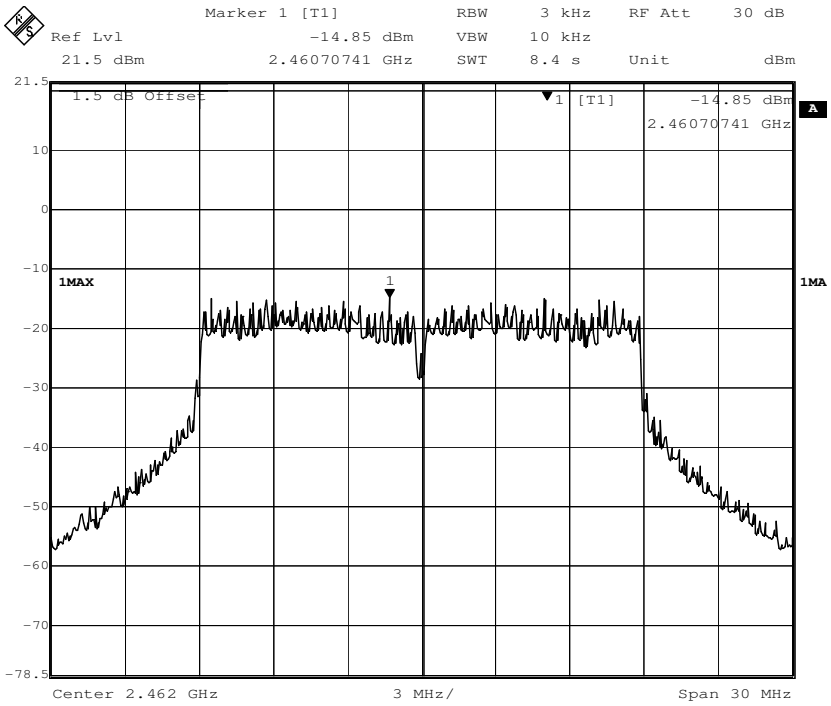
Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



## 6.6 Conducted Spurious Emissions

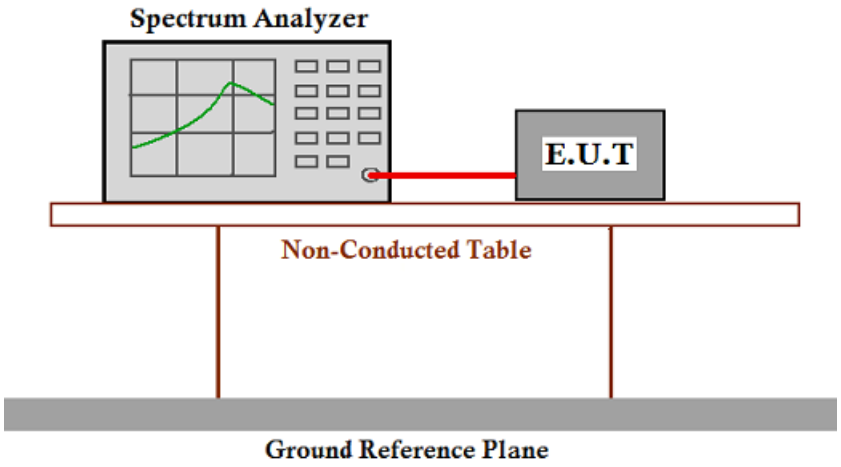
Test Requirement: FCC Part 15 C section 15.247

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Method: ANSI C63.10: Clause 11.11

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

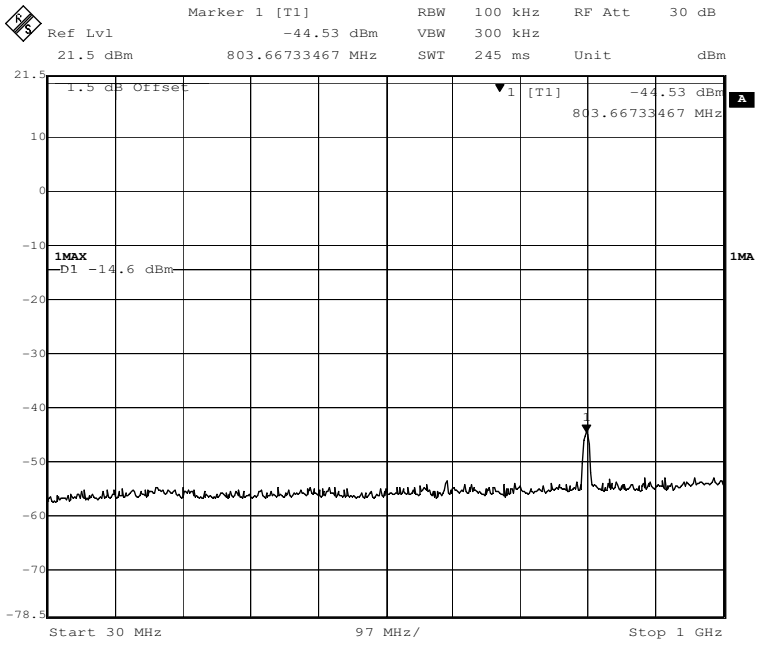
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer: RBW=100 KHz, VBW = 300KHz. Sweep = auto; Detector Function = Peak. Trace = Max Hold, Scan up through 10th harmonic.
3. Measure the Conducted Spurious Emissions of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse case.

**Result plot as follows:**

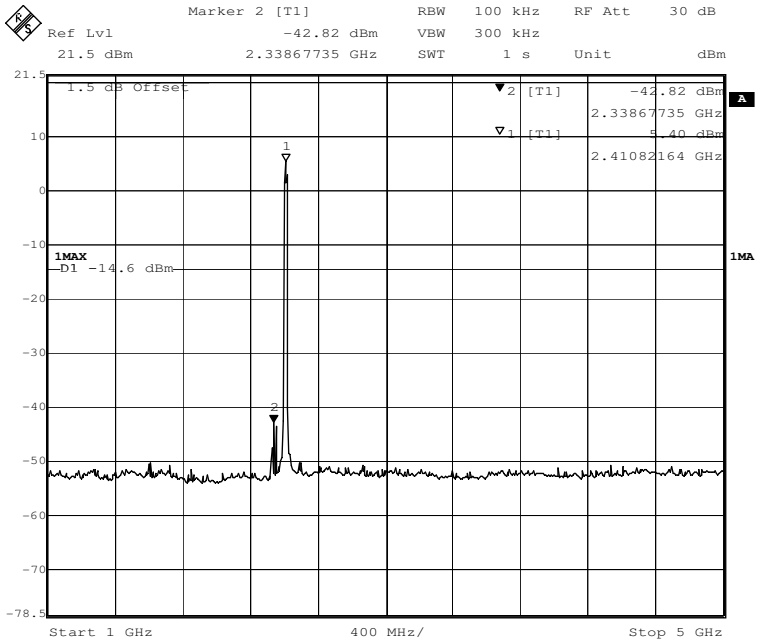
**802.11b mode with 11Mbps data rate**

Channel 1: 2.412GHz:

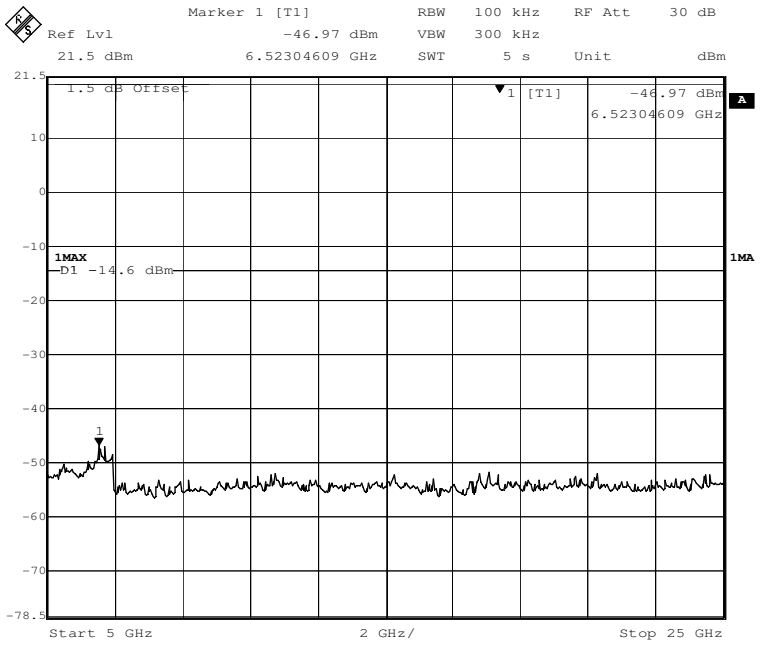
30 MHz to 1 GHz




1 G to 5 GHz

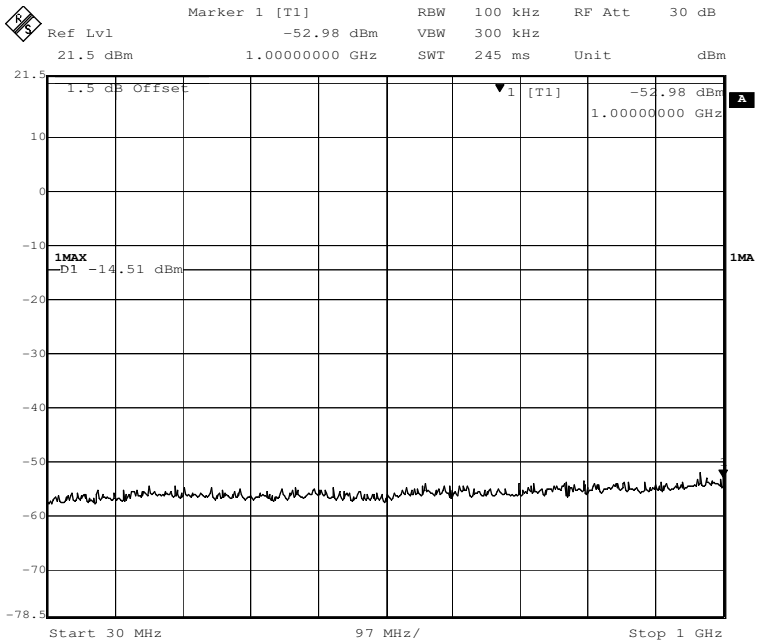


5 G to 25 GHz

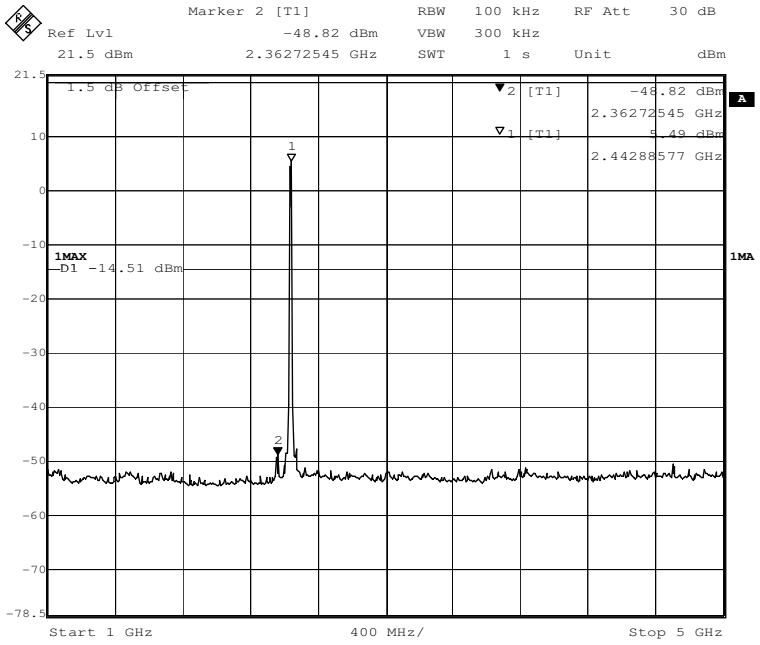



Channel 7: 2.442GHz:

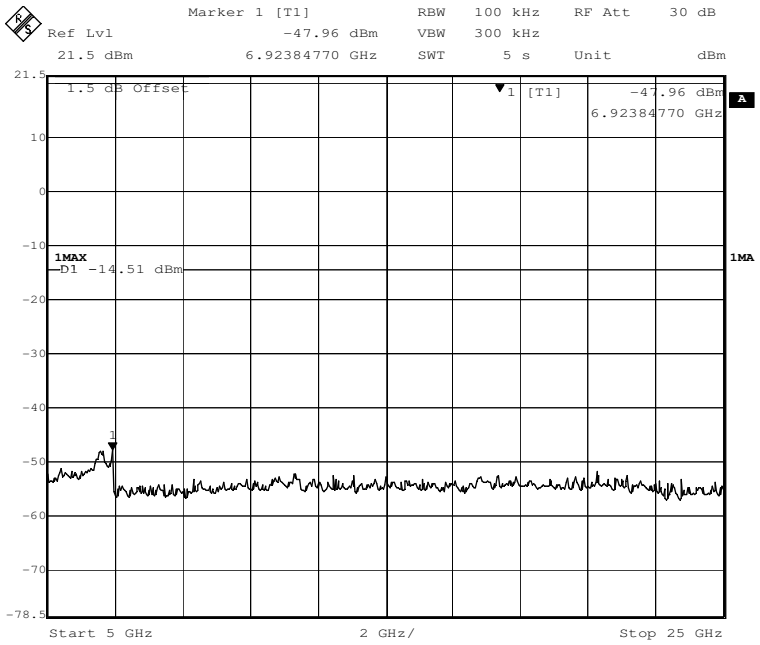
30 MHz to 1 GHz



1 G to 5 GHz

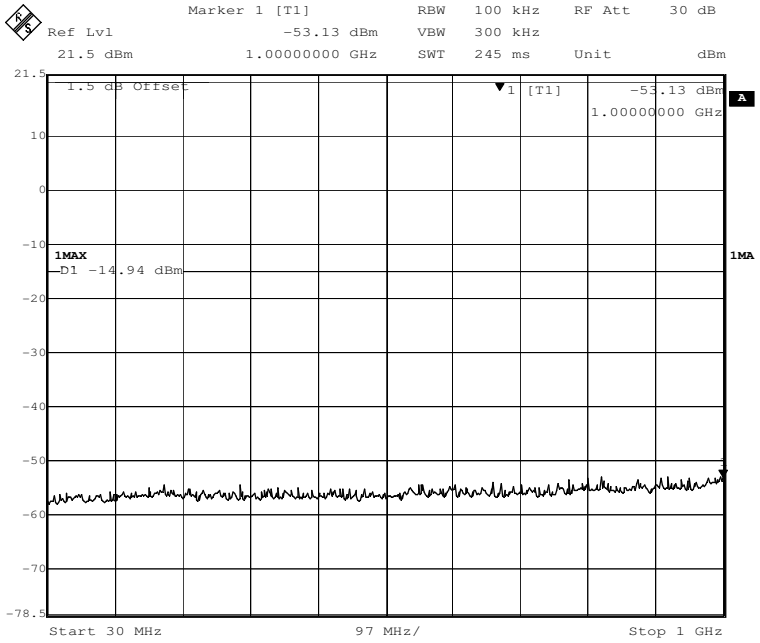



5 G to 25 GHz

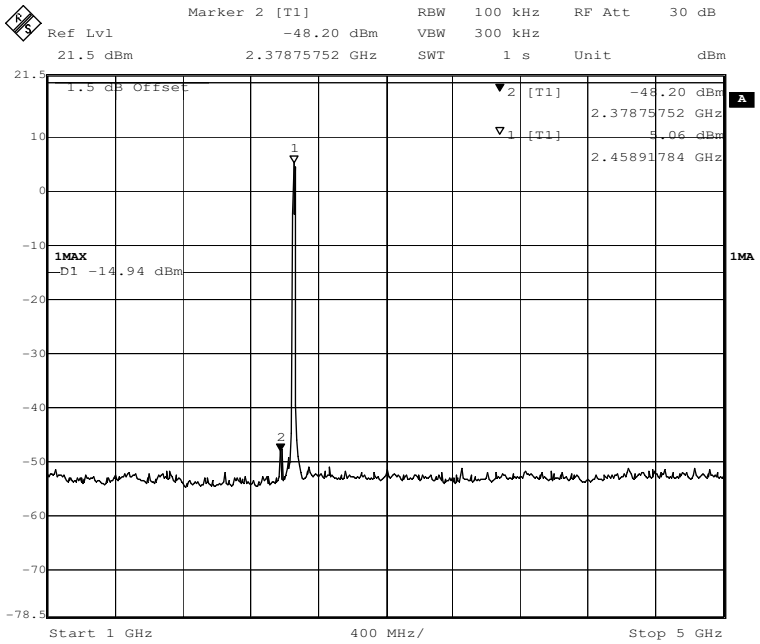


Channel 11:2.462 GHz

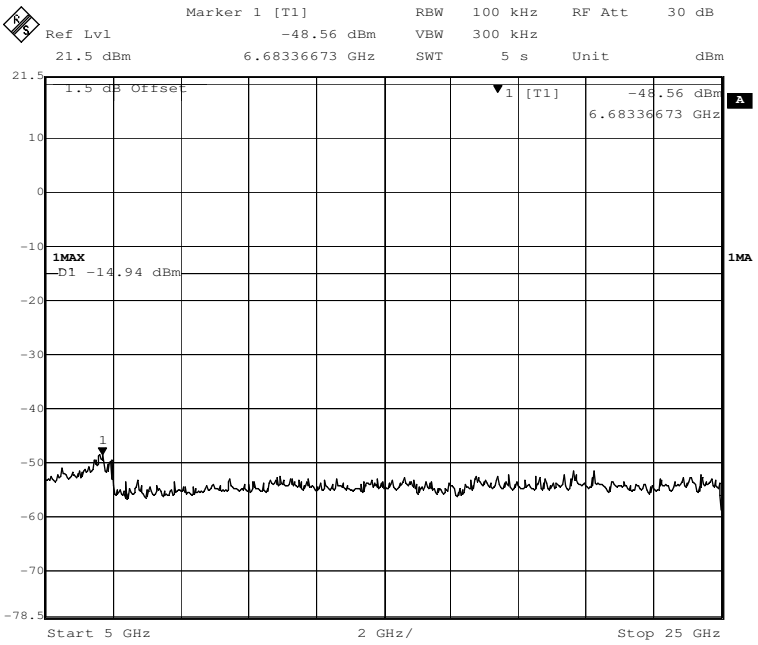
30 MHz to 1 GHz




1 G to 5 GHz



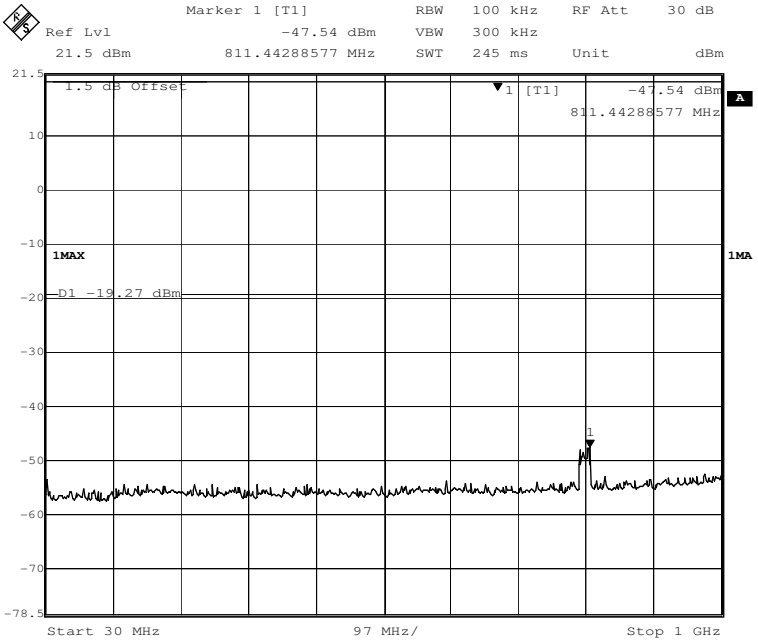
5 G to 25 GHz



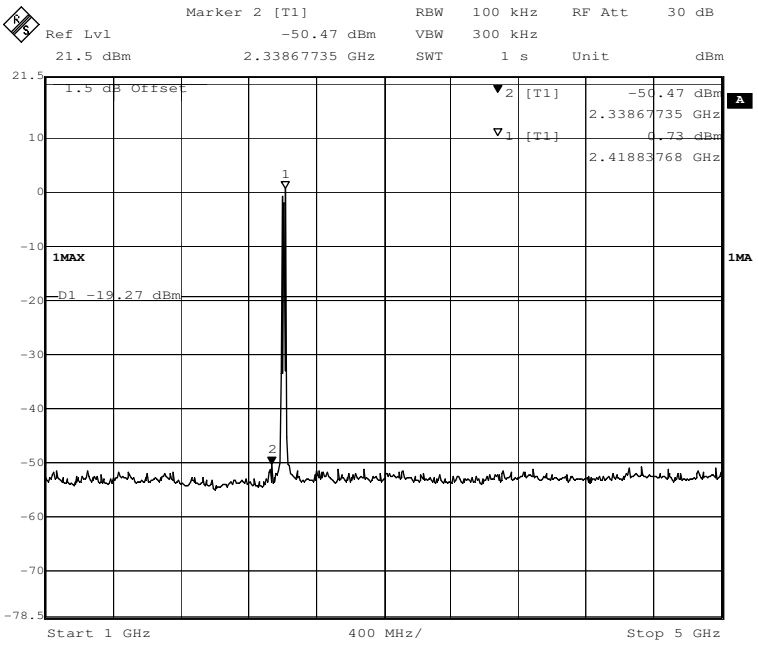

**802.11g mode with 54Mbps data rate**

Channel 1: 2.412GHz:

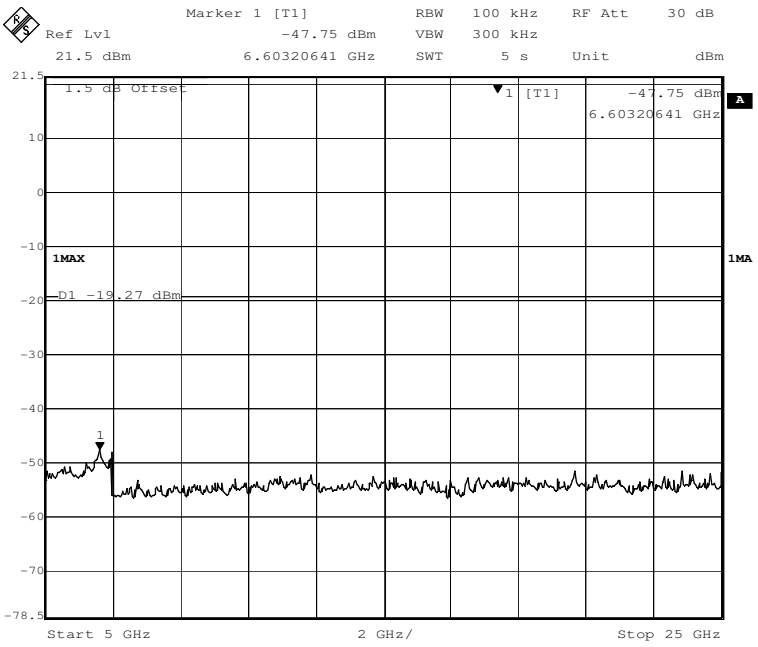
30 MHz to 1 GHz



1 G to 5 GHz

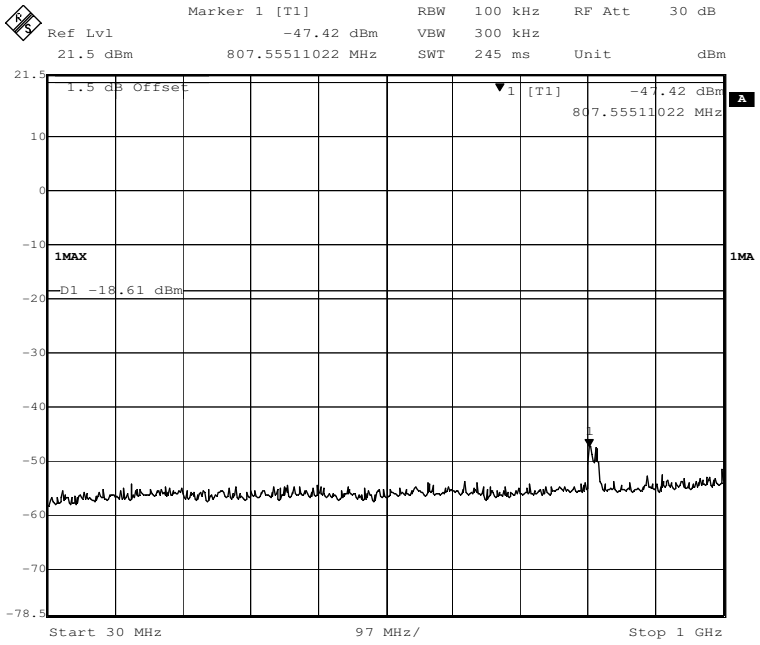



5 G to 25 GHz

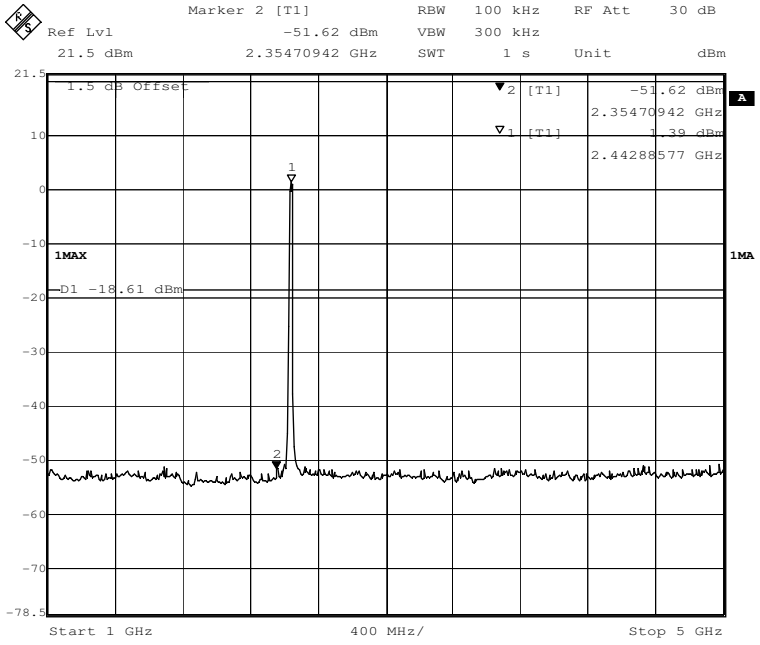


Channel 7: 2.442GHz:

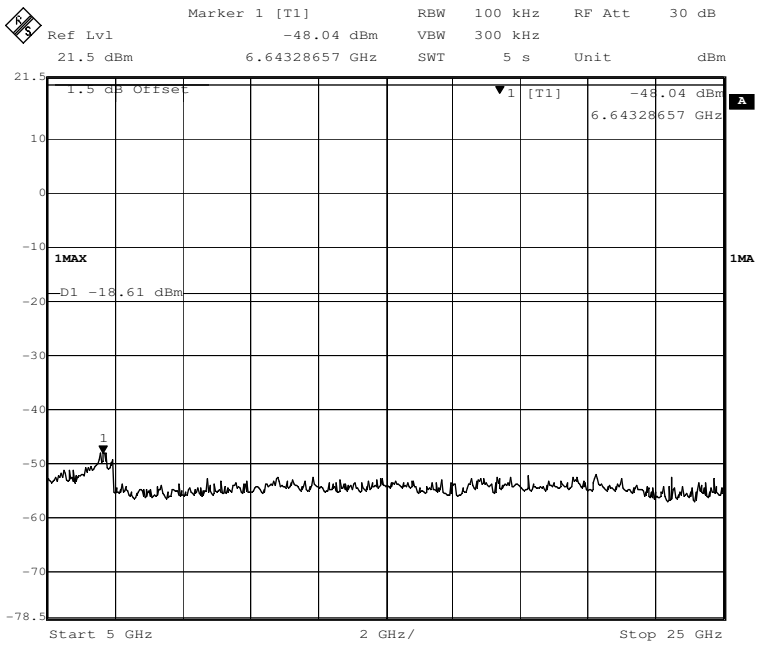
30 MHz to 1 GHz




1 G to 5 GHz

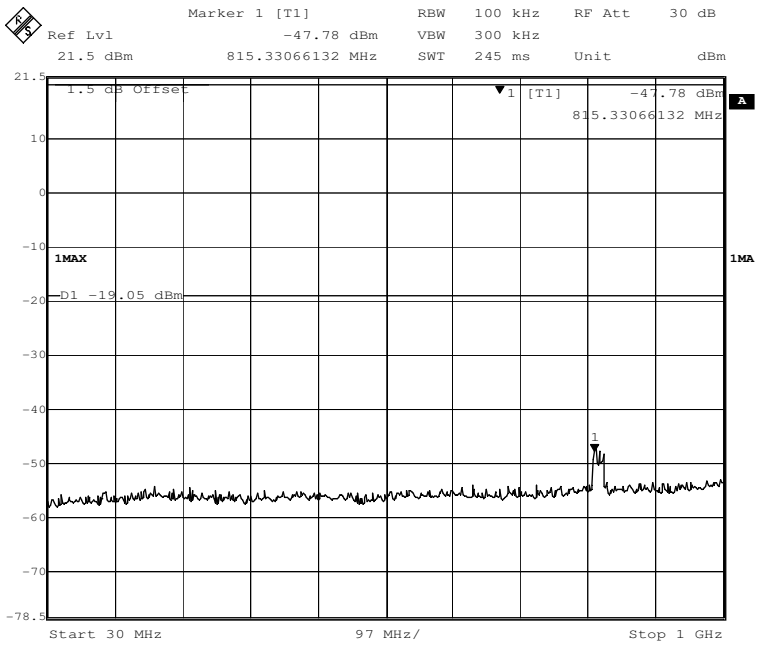


5 G to 25 GHz

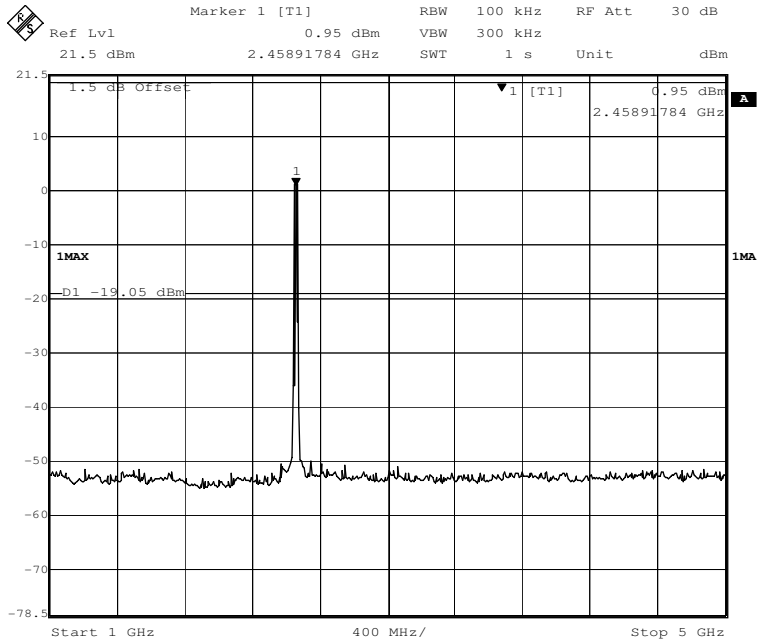



Channel 11:2.462 GHz

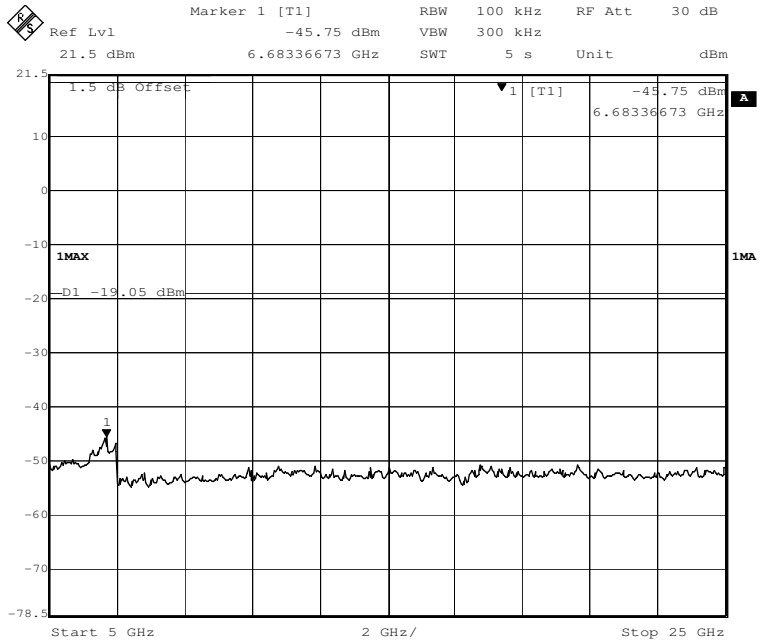
30 MHz to 1 GHz



1 G to 5 GHz



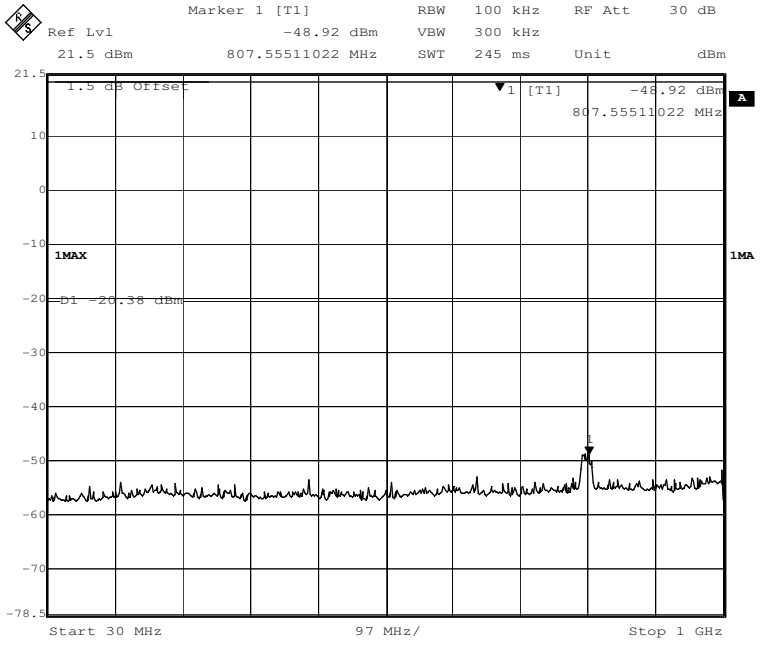

5 G to 25 GHz



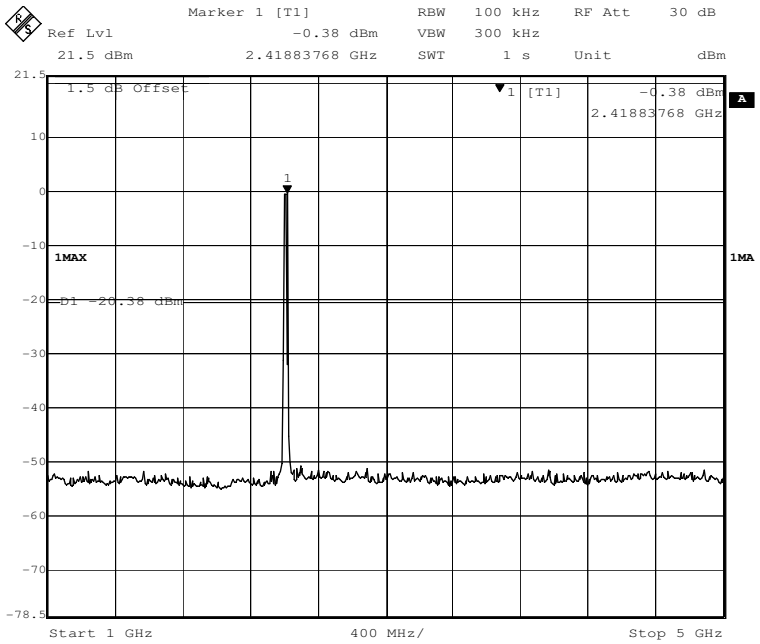
**802.11n(HT20) mode with 72.2Mbps data rate**

Channel 1: 2.412GHz:

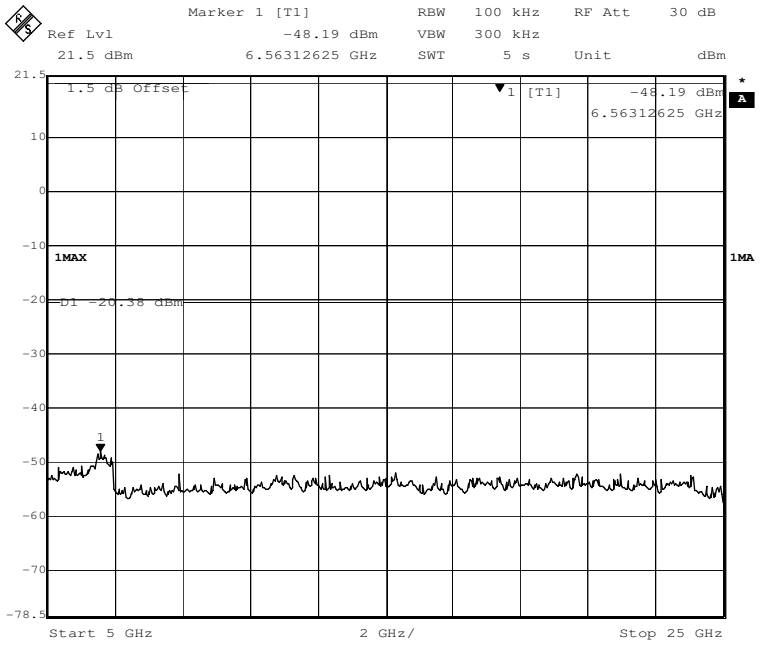
30 MHz to 1 GHz




1 G to 5 GHz

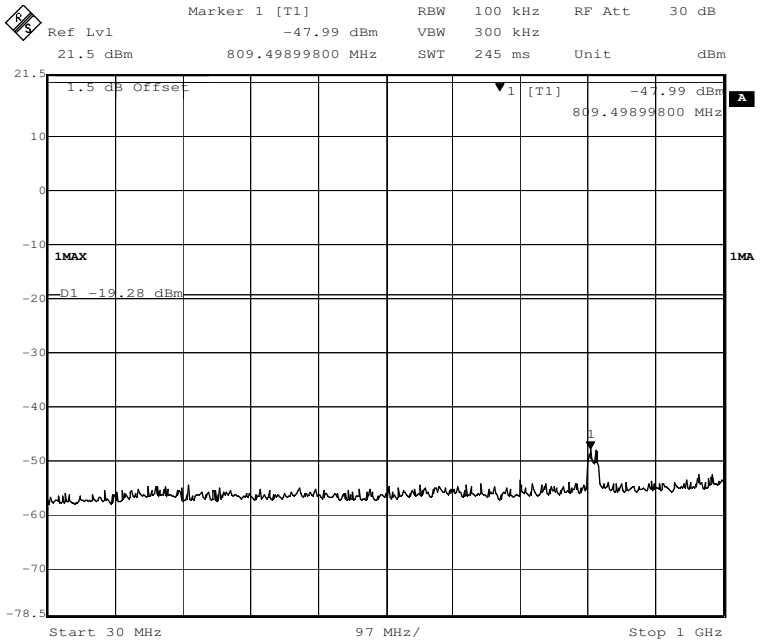


5 G to 25 GHz

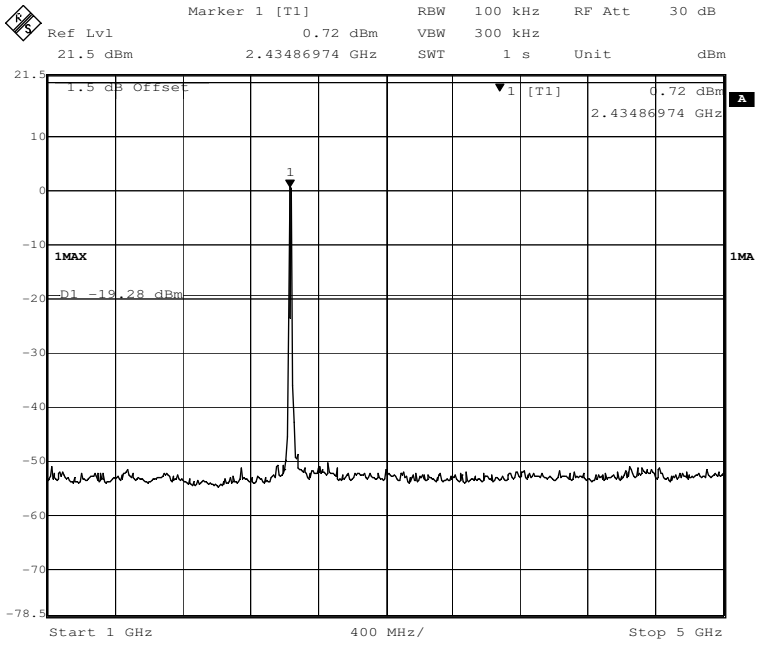



Channel 7: 2.442GHz:

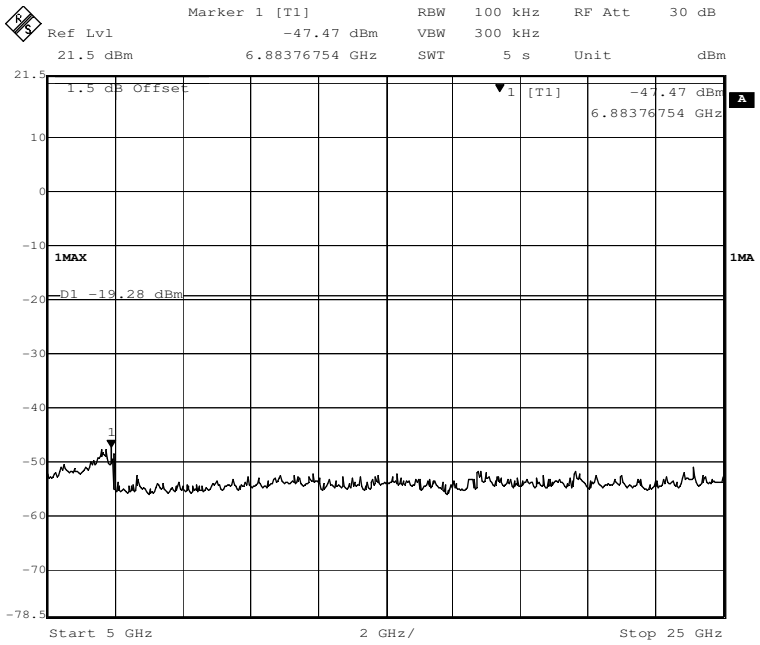
30 MHz to 1 GHz



1 G to 5 GHz

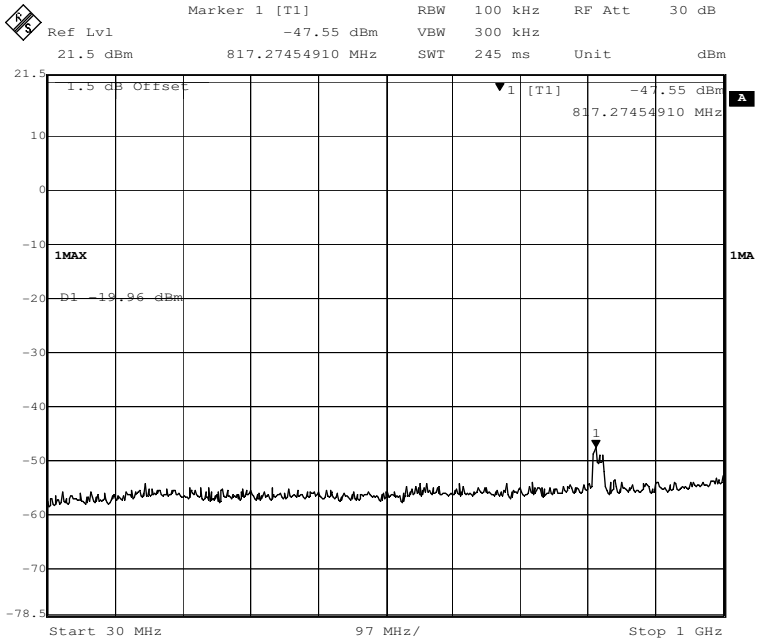



5 G to 25 GHz

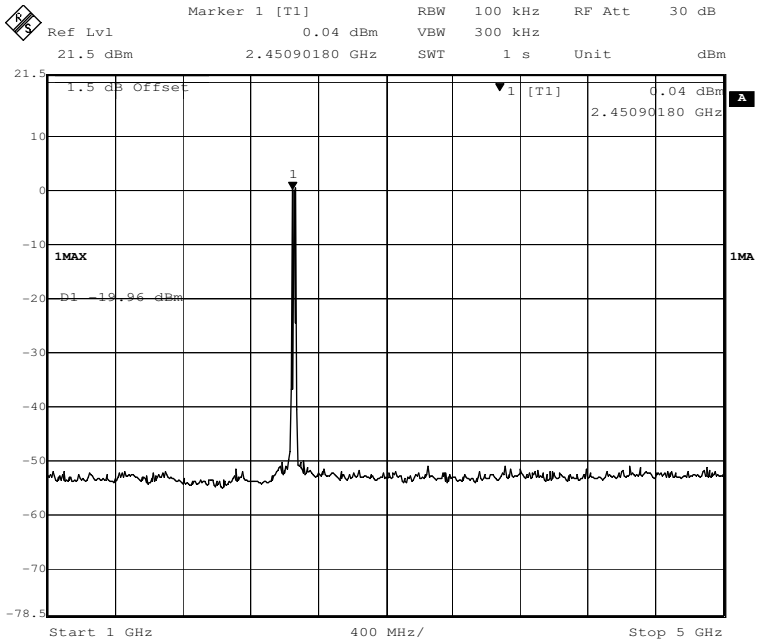


Channel 11:2.462 GHz

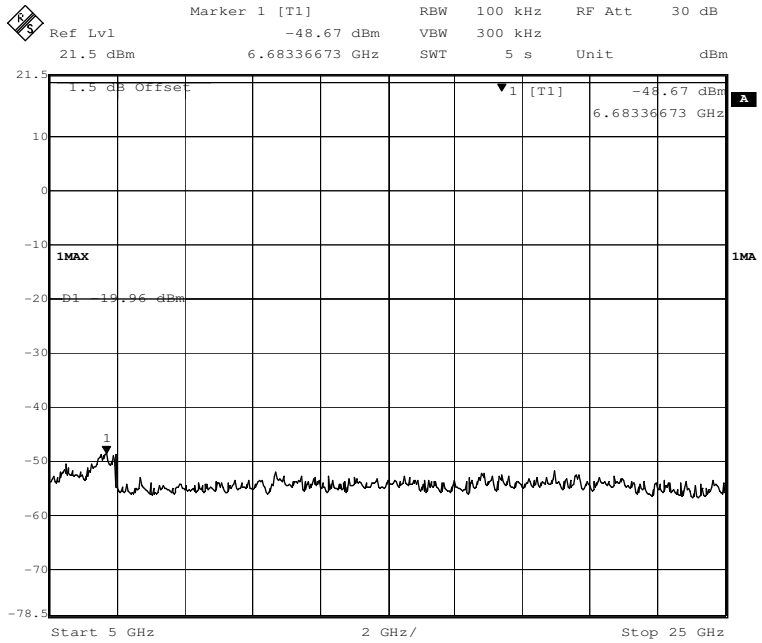
30 MHz to 1 GHz




1 G to 5 GHz



5 G to 25 GHz

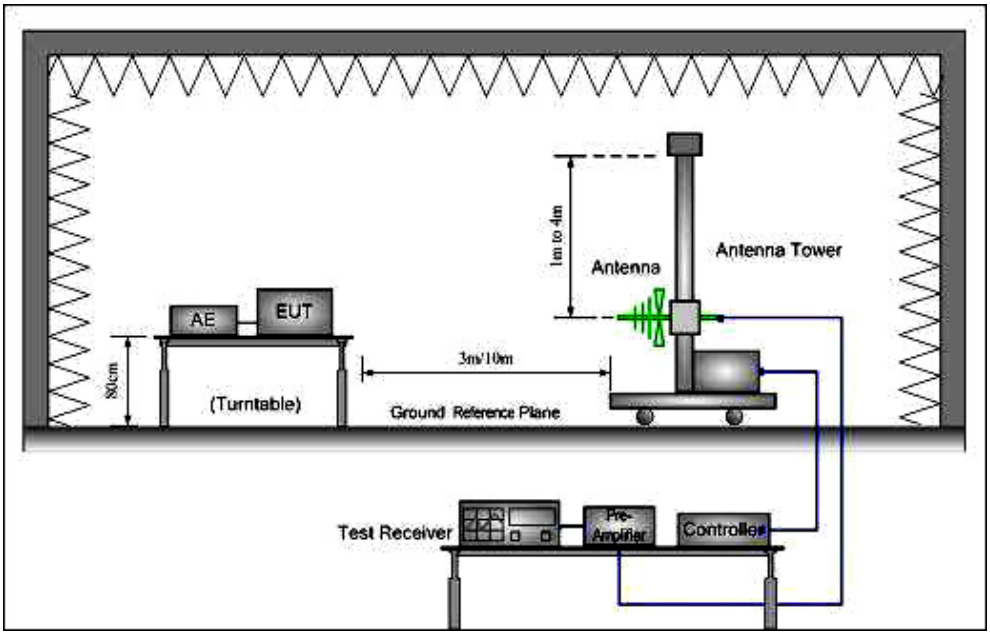


## 6.7 Radiated Emissions which fall in the restricted bands

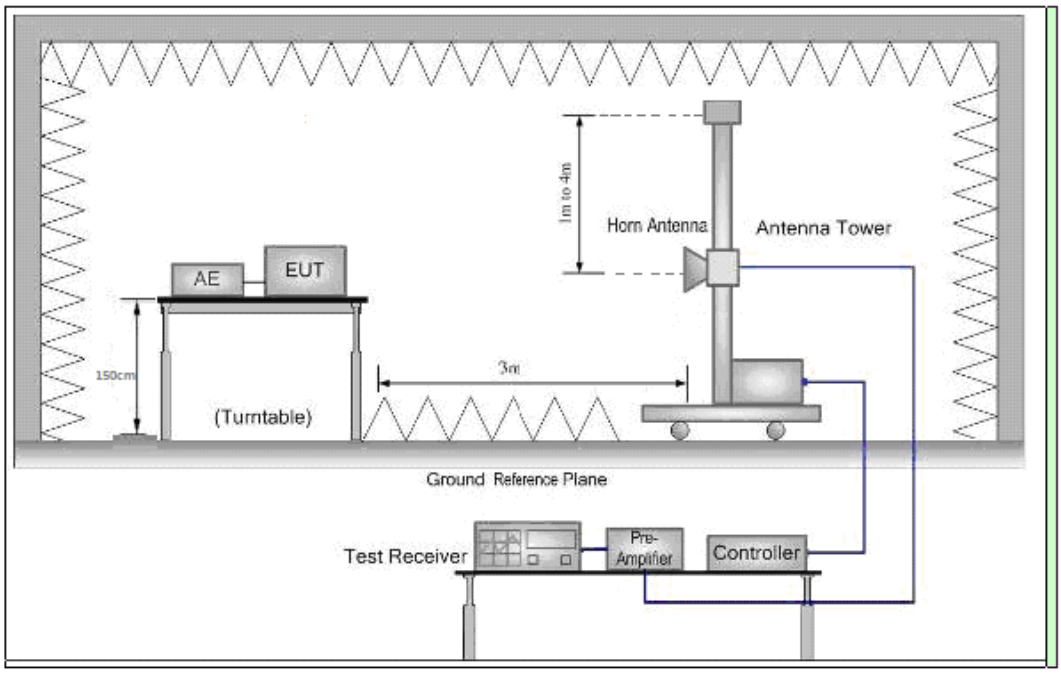
| | |
|---|---|
| Test Requirement: | FCC Part 15 C section 15.247<br>(d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). |
| Test Method: | ANSI C63.10 (2013) Section 6.10.5 |
| Measurement Distance: | 3m |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber) |
| Limit: | 40.0 dBμV/m between 30MHz & 88MHz;<br>43.5 dBμV/m between 88MHz & 216MHz;<br>46.0 dBμV/m between 216MHz & 960MHz;<br>54.0 dBμV/m above 960MHz. |
| Detector: | For PK value:<br>RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz<br>VBW ≥ RBW<br>Sweep = auto<br>Detector function = peak<br>Trace = max hold<br>For AV value:<br>RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz<br>VBW =10Hz<br>Sweep = auto<br>Detector function = peak<br>Trace = max hold |

Test Configuration:

1). 30 MHz to 1 GHz emissions:




2). 1 GHz to 40 GHz emissions:



**Test Result**

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

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

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

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

**30MHz~1GHz Radiated Emissions. Quasi-Peak Measurement**

The measurements with Loop antenna and the amplitude of spurious emissions from the radiator are attenuated more than 20dB below the limit, so the test data were not recorded in the test report.

**Above 1GHz Radiated Emissions. Peak and Average Measurement**

**802.11b mode with 11Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 44.53 | 26.43 | 18.87 | 39.10 | 50.73 | 54.00 | -3.27 | Average | Vertical |
| 2310.000 | 42.11 | 26.25 | 18.80 | 39.07 | 48.09 | 74.00 | -25.91 | Peak | Vertical |
| 2390.000 | 44.52 | 26.43 | 18.87 | 39.10 | 50.72 | 54.00 | -3.28 | Average | Vertical |
| 2390.000 | 59.73 | 26.43 | 18.87 | 39.10 | 65.93 | 74.00 | -8.07 | Peak | Vertical |
| 2483.500 | 34.33 | 26.58 | 19.07 | 39.14 | 40.84 | 54.00 | -13.16 | Average | Vertical |
| 2483.500 | 46.79 | 26.58 | 19.07 | 39.14 | 53.30 | 74.00 | -20.70 | Peak | Vertical |
| 2500.000 | 29.62 | 26.60 | 19.10 | 39.14 | 36.18 | 54.00 | -17.82 | Average | Vertical |
| 2500.000 | 42.66 | 26.60 | 19.10 | 39.14 | 49.22 | 74.00 | -24.78 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 30.00 | 26.25 | 18.80 | 39.07 | 35.98 | 54.00 | -18.02 | Average | Horizontal |
| 2310.000 | 42.16 | 26.25 | 18.80 | 39.07 | 48.14 | 74.00 | -25.86 | Peak | Horizontal |
| 2390.000 | 44.25 | 26.43 | 18.87 | 39.10 | 50.45 | 54.00 | -3.55 | Average | Horizontal |
| 2390.000 | 58.78 | 26.43 | 18.87 | 39.10 | 64.98 | 74.00 | -9.02 | Peak | Horizontal |
| 2483.500 | 30.30 | 26.58 | 19.07 | 39.14 | 36.81 | 54.00 | -17.19 | Average | Horizontal |
| 2483.500 | 42.30 | 26.58 | 19.07 | 39.14 | 48.81 | 74.00 | -25.19 | Peak | Horizontal |
| 2500.000 | 27.57 | 26.60 | 19.10 | 39.14 | 34.13 | 54.00 | -19.87 | Average | Horizontal |
| 2500.000 | 41.77 | 26.60 | 19.10 | 39.14 | 48.33 | 74.00 | -25.67 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 28.07 | 26.25 | 18.80 | 39.07 | 34.05 | 54.00 | -19.95 | Average | Vertical |
| 2310.000 | 41.30 | 26.25 | 18.80 | 39.07 | 47.28 | 74.00 | -26.72 | Peak | Vertical |
| 2390.000 | 32.29 | 26.43 | 18.87 | 39.10 | 38.49 | 54.00 | -15.51 | Average | Vertical |
| 2390.000 | 47.19 | 26.43 | 18.87 | 39.10 | 53.39 | 74.00 | -20.61 | Peak | Vertical |
| 2483.500 | 30.80 | 26.58 | 19.07 | 39.14 | 37.31 | 54.00 | -16.69 | Average | Vertical |
| 2483.500 | 43.95 | 26.58 | 19.07 | 39.14 | 50.46 | 74.00 | -23.54 | Peak | Vertical |
| 2500.000 | 28.25 | 26.60 | 19.10 | 39.14 | 34.81 | 54.00 | -19.19 | Average | Vertical |
| 2500.000 | 41.56 | 26.60 | 19.10 | 39.14 | 48.12 | 74.00 | -25.88 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 27.31 | 26.25 | 18.80 | 39.07 | 33.29 | 54.00 | -20.71 | Average | Horizontal |
| 2310.000 | 40.43 | 26.25 | 18.80 | 39.07 | 46.41 | 74.00 | -27.59 | Peak | Horizontal |
| 2390.000 | 31.47 | 26.43 | 18.87 | 39.10 | 37.67 | 54.00 | -16.33 | Average | Horizontal |
| 2390.000 | 48.78 | 26.43 | 18.87 | 39.10 | 54.98 | 74.00 | -19.02 | Peak | Horizontal |
| 2483.500 | 43.64 | 26.58 | 19.07 | 39.14 | 50.15 | 54.00 | -3.85 | Average | Horizontal |
| 2483.500 | 64.33 | 26.58 | 19.07 | 39.14 | 70.84 | 74.00 | -3.16 | Peak | Horizontal |
| 2500.000 | 39.44 | 26.60 | 19.10 | 39.14 | 46.00 | 54.00 | -8.00 | Average | Horizontal |
| 2500.000 | 60.58 | 26.60 | 19.10 | 39.14 | 67.14 | 74.00 | -6.86 | Peak | Horizontal |

**802.11g mode with 54Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 29.50 | 26.25 | 18.80 | 39.07 | 35.48 | 54.00 | -18.52 | Average | Vertical |
| 2310.000 | 41.49 | 26.25 | 18.80 | 39.07 | 47.47 | 74.00 | -26.53 | Peak | Vertical |
| 2390.000 | 40.62 | 26.43 | 18.87 | 39.10 | 46.82 | 54.00 | -7.18 | Average | Vertical |
| 2390.000 | 63.77 | 26.43 | 18.87 | 39.10 | 69.97 | 74.00 | -4.03 | Peak | Vertical |
| 2483.500 | 29.06 | 26.58 | 19.07 | 39.14 | 35.57 | 54.00 | -18.43 | Average | Vertical |
| 2483.500 | 41.77 | 26.58 | 19.07 | 39.14 | 48.28 | 74.00 | -25.72 | Peak | Vertical |
| 2500.000 | 29.10 | 26.60 | 19.10 | 39.14 | 35.66 | 54.00 | -18.34 | Average | Vertical |
| 2500.000 | 42.43 | 26.60 | 19.10 | 39.14 | 48.99 | 74.00 | -25.01 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 30.20 | 26.25 | 18.80 | 39.07 | 36.18 | 54.00 | -17.82 | Average | Horizontal |
| 2310.000 | 42.26 | 26.25 | 18.80 | 39.07 | 48.24 | 74.00 | -25.76 | Peak | Horizontal |
| 2390.000 | 37.52 | 26.43 | 18.87 | 39.10 | 43.72 | 54.00 | -10.28 | Average | Horizontal |
| 2390.000 | 63.81 | 26.43 | 18.87 | 39.10 | 70.01 | 74.00 | -3.99 | Peak | Horizontal |
| 2483.500 | 29.61 | 26.58 | 19.07 | 39.14 | 36.12 | 54.00 | -17.88 | Average | Horizontal |
| 2483.500 | 44.20 | 26.58 | 19.07 | 39.14 | 50.71 | 74.00 | -23.29 | Peak | Horizontal |
| 2500.000 | 27.56 | 26.60 | 19.10 | 39.14 | 34.12 | 54.00 | -19.88 | Average | Horizontal |
| 2500.000 | 41.03 | 26.60 | 19.10 | 39.14 | 47.59 | 74.00 | -26.41 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 26.56 | 26.25 | 18.80 | 39.07 | 32.54 | 54.00 | -21.46 | Average | Vertical |
| 2310.000 | 40.92 | 26.25 | 18.80 | 39.07 | 46.90 | 74.00 | -27.10 | Peak | Vertical |
| 2390.000 | 26.66 | 26.43 | 18.87 | 39.10 | 32.86 | 54.00 | -21.14 | Average | Vertical |
| 2390.000 | 41.68 | 26.43 | 18.87 | 39.10 | 47.88 | 74.00 | -26.12 | Peak | Vertical |
| 2483.500 | 40.02 | 26.58 | 19.07 | 39.14 | 46.53 | 54.00 | -7.47 | Average | Vertical |
| 2483.500 | 59.54 | 26.58 | 19.07 | 39.14 | 66.05 | 74.00 | -7.95 | Peak | Vertical |
| 2500.000 | 35.81 | 26.60 | 19.10 | 39.14 | 42.37 | 54.00 | -11.63 | Average | Vertical |
| 2500.000 | 49.29 | 26.60 | 19.10 | 39.14 | 55.85 | 74.00 | -18.15 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 25.30 | 26.25 | 18.80 | 39.07 | 31.28 | 54.00 | -22.72 | Average | Horizontal |
| 2310.000 | 41.34 | 26.25 | 18.80 | 39.07 | 47.32 | 74.00 | -26.68 | Peak | Horizontal |
| 2390.000 | 33.86 | 26.43 | 18.87 | 39.10 | 40.06 | 54.00 | -13.94 | Average | Horizontal |
| 2390.000 | 49.03 | 26.43 | 18.87 | 39.10 | 55.23 | 74.00 | -18.77 | Peak | Horizontal |
| 2483.500 | 44.32 | 26.58 | 19.07 | 39.14 | 50.83 | 54.00 | -3.17 | Average | Horizontal |
| 2483.500 | 63.68 | 26.58 | 19.07 | 39.14 | 70.19 | 74.00 | -3.81 | Peak | Horizontal |
| 2500.000 | 41.15 | 26.60 | 19.10 | 39.14 | 47.71 | 54.00 | -6.29 | Average | Horizontal |
| 2500.000 | 60.01 | 26.60 | 19.10 | 39.14 | 66.57 | 74.00 | -7.43 | Peak | Horizontal |

**802.11n(HT20) mode with 72.2Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 28.12 | 26.25 | 18.80 | 39.07 | 34.10 | 54.00 | -19.90 | Average | Vertical |
| 2310.000 | 40.94 | 26.25 | 18.80 | 39.07 | 46.92 | 74.00 | -27.08 | Peak | Vertical |
| 2390.000 | 38.05 | 26.43 | 18.87 | 39.10 | 44.25 | 54.00 | -9.75 | Average | Vertical |
| 2390.000 | 57.64 | 26.43 | 18.87 | 39.10 | 63.84 | 74.00 | -10.16 | Peak | Vertical |
| 2483.500 | 29.01 | 26.58 | 19.07 | 39.14 | 35.52 | 54.00 | -18.48 | Average | Vertical |
| 2483.500 | 41.26 | 26.58 | 19.07 | 39.14 | 47.77 | 74.00 | -26.23 | Peak | Vertical |
| 2500.000 | 26.89 | 26.60 | 19.10 | 39.14 | 33.45 | 54.00 | -20.55 | Average | Vertical |
| 2500.000 | 40.79 | 26.60 | 19.10 | 39.14 | 47.35 | 74.00 | -26.65 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 27.91 | 26.25 | 18.80 | 39.07 | 33.89 | 54.00 | -20.11 | Average | Horizontal |
| 2310.000 | 42.17 | 26.25 | 18.80 | 39.07 | 48.15 | 74.00 | -25.85 | Peak | Horizontal |
| 2390.000 | 44.26 | 26.43 | 18.87 | 39.10 | 50.46 | 54.00 | -3.54 | Average | Horizontal |
| 2390.000 | 64.29 | 26.43 | 18.87 | 39.10 | 70.49 | 74.00 | -3.51 | Peak | Horizontal |
| 2483.500 | 31.68 | 26.58 | 19.07 | 39.14 | 38.19 | 54.00 | -15.81 | Average | Horizontal |
| 2483.500 | 46.27 | 26.58 | 19.07 | 39.14 | 52.78 | 74.00 | -21.22 | Peak | Horizontal |
| 2500.000 | 28.53 | 26.60 | 19.10 | 39.14 | 35.09 | 54.00 | -18.91 | Average | Horizontal |
| 2500.000 | 41.35 | 26.60 | 19.10 | 39.14 | 47.91 | 74.00 | -26.09 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 28.97 | 26.25 | 18.80 | 39.07 | 34.95 | 54.00 | -19.05 | Average | Vertical |
| 2310.000 | 41.25 | 26.25 | 18.80 | 39.07 | 47.23 | 74.00 | -26.77 | Peak | Vertical |
| 2390.000 | 27.80 | 26.43 | 18.87 | 39.10 | 34.00 | 54.00 | -20.00 | Average | Vertical |
| 2390.000 | 40.93 | 26.43 | 18.87 | 39.10 | 47.13 | 74.00 | -26.87 | Peak | Vertical |
| 2483.500 | 36.26 | 26.58 | 19.07 | 39.14 | 42.77 | 54.00 | -11.23 | Average | Vertical |
| 2483.500 | 51.53 | 26.58 | 19.07 | 39.14 | 58.04 | 74.00 | -15.96 | Peak | Vertical |
| 2500.000 | 34.84 | 26.60 | 19.10 | 39.14 | 41.40 | 54.00 | -12.60 | Average | Vertical |
| 2500.000 | 45.38 | 26.60 | 19.10 | 39.14 | 51.94 | 74.00 | -22.06 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2310.000 | 28.97 | 26.25 | 18.80 | 39.07 | 34.95 | 54.00 | -19.05 | Average | Horizontal |
| 2310.000 | 40.96 | 26.25 | 18.80 | 39.07 | 46.94 | 74.00 | -27.06 | Peak | Horizontal |
| 2390.000 | 29.99 | 26.43 | 18.87 | 39.10 | 36.19 | 54.00 | -17.81 | Average | Horizontal |
| 2390.000 | 46.17 | 26.43 | 18.87 | 39.10 | 52.37 | 74.00 | -21.63 | Peak | Horizontal |
| 2483.500 | 44.38 | 26.58 | 19.07 | 39.14 | 50.89 | 54.00 | -3.11 | Average | Horizontal |
| 2483.500 | 64.25 | 26.58 | 19.07 | 39.14 | 70.76 | 74.00 | -3.24 | Peak | Horizontal |
| 2500.000 | 43.34 | 26.60 | 19.10 | 39.14 | 49.90 | 54.00 | -4.10 | Average | Horizontal |
| 2500.000 | 59.55 | 26.60 | 19.10 | 39.14 | 66.11 | 74.00 | -7.89 | Peak | Horizontal |

## 6.8 Radiated Spurious Emissions

Test Requirement: FCC Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.10.4

Measurement Distance: 3m

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

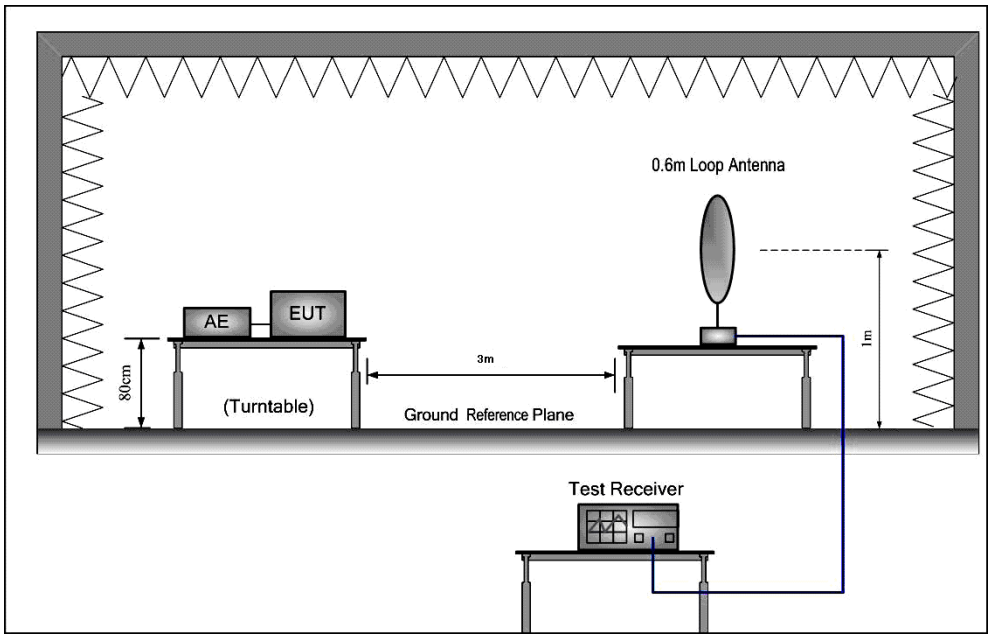
Test Site: Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit:

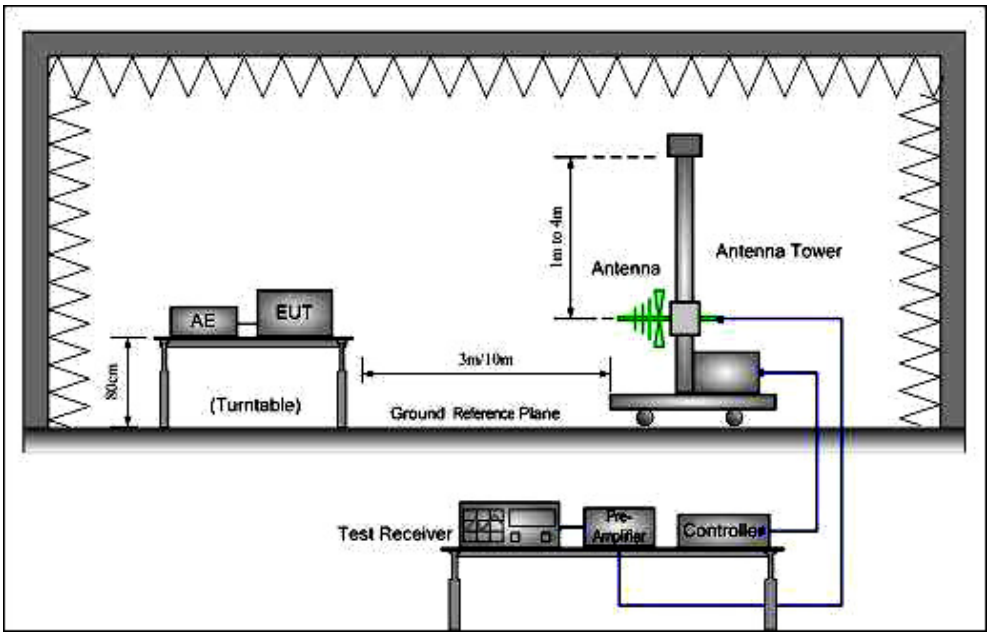
| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |
| Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. | | |

Test Configuration:

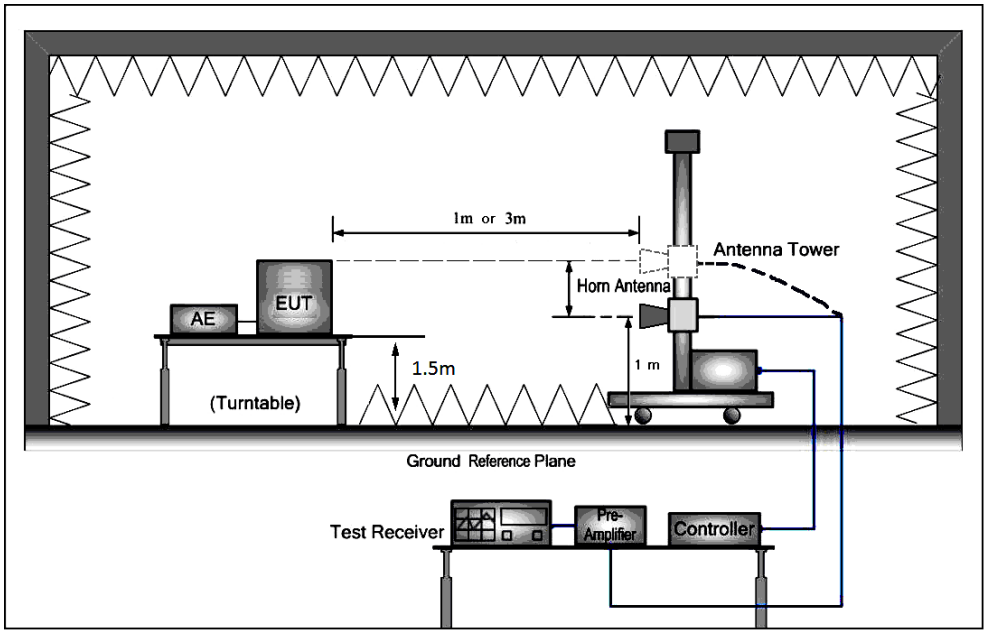
1) 9K to 30MHz emissions:




2). 30 MHz to 1 GHz emissions:



3). 1 GHz to 40 GHz emissions:



**Test Result**

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

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

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

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

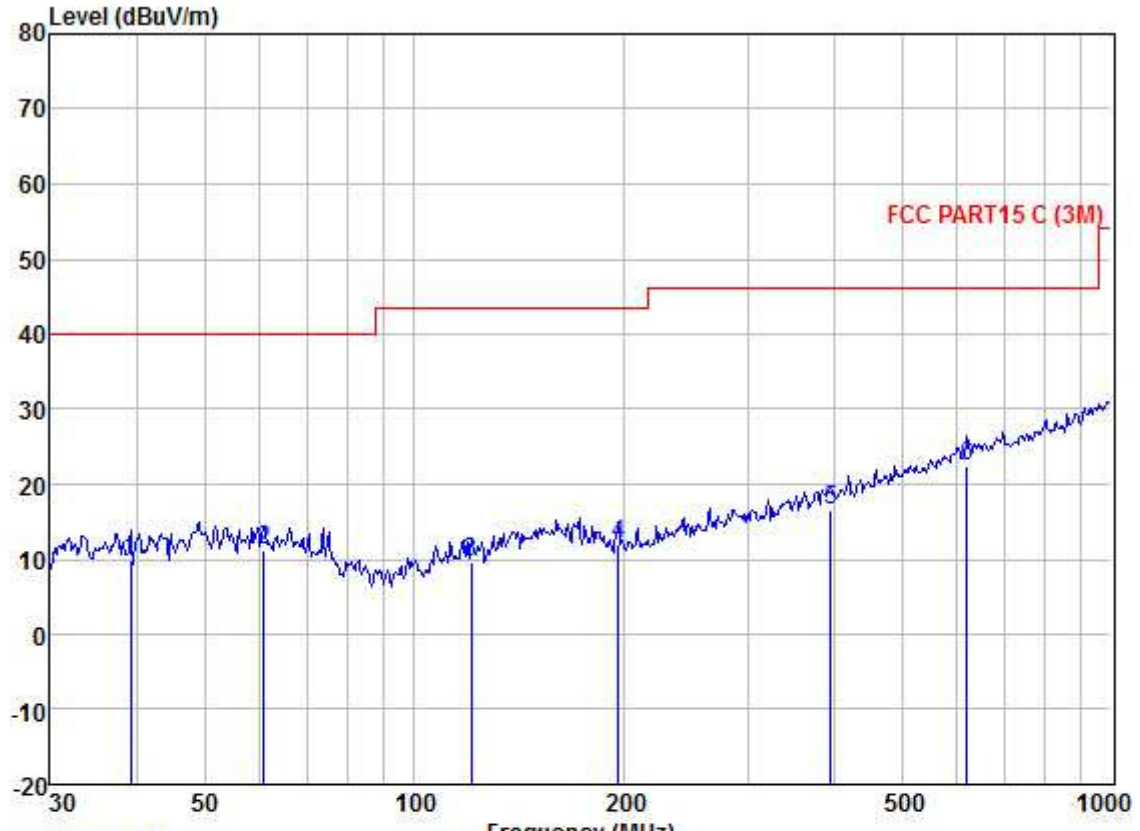
**1)9K to 30MHz Radiated Spurious Emissions. Quasi-Peak Measurement**

The measurements with Loop antenna and the amplitude of spurious emissions from the radiator are attenuated more than 20dB below the limit, so the test data were not recorded in the test report.

**30 MHz~1 GHz Radiated Spurious Emissions. Quasi-Peak Measurement**

Pre-test all modes with the according rate, the worst case is 802.11n (HT20) with 72.2Mbps, so the final compliance test result is recorded in 802.11n (HT20) with 72.2Mbps mode.

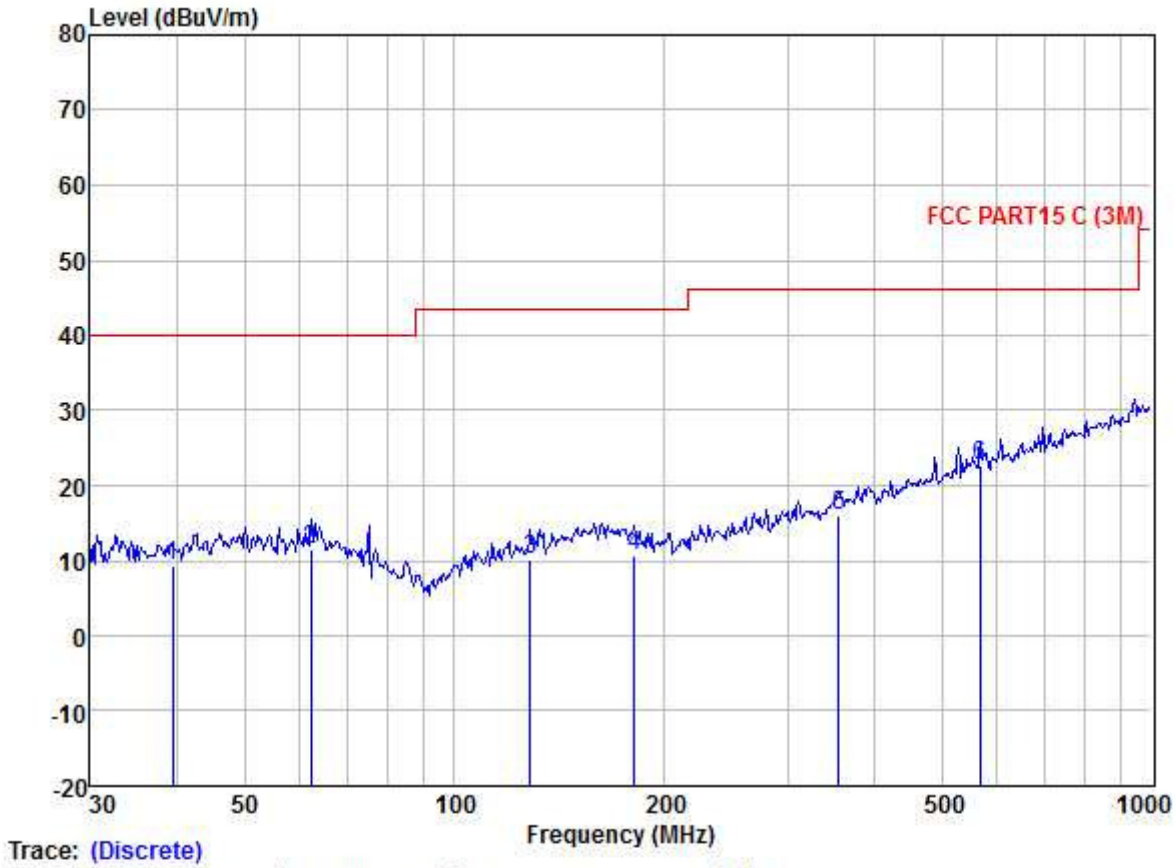
**Vertical:**




Trace: (Discrete)

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 39.162 | 21.94 | 13.72 | 1.10 | 27.00 | 9.76 | 40.00 | -30.24 | VERTICAL | QP |
| 2 | 60.704 | 22.82 | 14.04 | 1.41 | 27.00 | 11.27 | 40.00 | -28.73 | VERTICAL | QP |
| 3 | 120.699 | 23.32 | 11.06 | 2.10 | 26.90 | 9.58 | 43.50 | -33.92 | VERTICAL | QP |
| 4 | 195.822 | 24.53 | 11.42 | 2.69 | 26.61 | 12.03 | 43.50 | -31.47 | VERTICAL | QP |
| 5 | 394.855 | 23.47 | 16.24 | 3.88 | 27.15 | 16.44 | 46.00 | -29.56 | VERTICAL | QP |
| 6 | 620.710 | 25.04 | 20.46 | 4.88 | 28.07 | 22.31 | 46.00 | -23.69 | VERTICAL | QP |

**Horizontal:**




Trace: (Discrete)

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 39.437 | 21.46 | 13.71 | 1.10 | 27.00 | 9.27 | 40.00 | -30.73 | HORIZONTAL | QP |
| 2 | 62.213 | 23.05 | 13.87 | 1.44 | 27.00 | 11.36 | 40.00 | -28.64 | HORIZONTAL | QP |
| 3 | 128.563 | 22.96 | 11.84 | 2.14 | 26.88 | 10.06 | 43.50 | -33.44 | HORIZONTAL | QP |
| 4 | 181.283 | 22.01 | 12.63 | 2.59 | 26.65 | 10.58 | 43.50 | -32.92 | HORIZONTAL | QP |
| 5 | 355.427 | 23.64 | 15.49 | 3.70 | 26.82 | 16.01 | 46.00 | -29.99 | HORIZONTAL | QP |
| 6 | 566.622 | 26.14 | 19.80 | 4.66 | 28.00 | 22.60 | 46.00 | -23.40 | HORIZONTAL | QP |

**Above 1GHz Radiated Spurious Emissions. Peak and Average Measurement**

**802.11b mode with 11Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 32.21 | 24.16 | 4.50 | 38.85 | 22.02 | 54.00 | -31.98 | Average | Vertical |
| 1059.511 | 46.71 | 24.16 | 4.50 | 38.85 | 36.52 | 74.00 | -37.48 | Peak | Vertical |
| 1792.937 | 32.64 | 25.14 | 5.99 | 38.97 | 24.80 | 54.00 | -29.20 | Average | Vertical |
| 1792.937 | 46.58 | 25.14 | 5.99 | 38.97 | 38.74 | 74.00 | -35.26 | Peak | Vertical |
| 4824.110 | 37.07 | 30.82 | 9.96 | 40.21 | 37.64 | 54.00 | -16.36 | Average | Vertical |
| 4824.110 | 51.89 | 30.82 | 9.96 | 40.21 | 52.46 | 74.00 | -21.54 | Peak | Vertical |
| 6835.278 | 28.32 | 34.89 | 12.29 | 39.36 | 36.14 | 54.00 | -17.86 | Average | Vertical |
| 6835.278 | 40.42 | 34.89 | 12.29 | 39.36 | 48.24 | 74.00 | -25.76 | Peak | Vertical |
| 7762.260 | 24.17 | 36.28 | 13.33 | 39.13 | 34.65 | 54.00 | -19.35 | Average | Vertical |
| 7762.260 | 35.92 | 36.28 | 13.33 | 39.13 | 46.40 | 74.00 | -27.60 | Peak | Vertical |
| 11076.100 | 18.35 | 39.91 | 15.08 | 37.97 | 35.37 | 54.00 | -18.63 | Average | Vertical |
| 11076.100 | 32.96 | 39.91 | 15.08 | 37.97 | 49.98 | 74.00 | -24.02 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1053.404 | 36.14 | 24.16 | 4.50 | 38.84 | 25.96 | 54.00 | -28.04 | Average | Horizontal |
| 1053.404 | 47.51 | 24.16 | 4.50 | 38.84 | 37.33 | 74.00 | -36.67 | Peak | Horizontal |
| 1625.121 | 32.15 | 25.04 | 5.65 | 38.95 | 23.89 | 54.00 | -30.11 | Average | Horizontal |
| 1625.121 | 44.53 | 25.04 | 5.65 | 38.95 | 36.27 | 74.00 | -37.73 | Peak | Horizontal |
| 4824.110 | 37.58 | 30.82 | 9.96 | 40.21 | 38.15 | 54.00 | -15.85 | Average | Horizontal |
| 4824.110 | 54.88 | 30.82 | 9.96 | 40.21 | 55.45 | 74.00 | -18.55 | Peak | Horizontal |
| 6303.890 | 29.44 | 33.60 | 11.49 | 39.67 | 34.86 | 54.00 | -19.14 | Average | Horizontal |
| 6303.890 | 41.11 | 33.60 | 11.49 | 39.67 | 46.53 | 74.00 | -27.47 | Peak | Horizontal |
| 6914.763 | 27.35 | 35.01 | 12.41 | 39.34 | 35.43 | 54.00 | -18.57 | Average | Horizontal |
| 6914.763 | 39.86 | 35.01 | 12.41 | 39.34 | 47.94 | 74.00 | -26.06 | Peak | Horizontal |
| 11076.100 | 20.34 | 39.91 | 15.08 | 37.97 | 37.36 | 54.00 | -16.64 | Average | Horizontal |
| 11076.100 | 32.73 | 39.91 | 15.08 | 37.97 | 49.75 | 74.00 | -24.25 | Peak | Horizontal |

Test at Channel 7 (2.442 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1498.781 | 36.01 | 25.00 | 0.00 | 38.93 | 22.08 | 54.00 | -31.92 | Average | Vertical |
| 1498.781 | 48.31 | 25.00 | 0.00 | 38.93 | 34.38 | 74.00 | -39.62 | Peak | Vertical |
| 2012.686 | 35.25 | 25.22 | 0.00 | 38.98 | 21.49 | 54.00 | -32.51 | Average | Vertical |
| 2012.686 | 48.75 | 25.22 | 0.00 | 38.98 | 34.99 | 74.00 | -39.01 | Peak | Vertical |
| 3455.508 | 37.30 | 27.90 | 0.00 | 39.87 | 25.33 | 54.00 | -28.67 | Average | Vertical |
| 3455.508 | 49.60 | 27.90 | 0.00 | 39.87 | 37.63 | 74.00 | -36.37 | Peak | Vertical |
| 4924.000 | 48.48 | 31.01 | 0.00 | 40.22 | 39.27 | 54.00 | -14.73 | Average | Vertical |
| 4924.000 | 61.67 | 31.01 | 0.00 | 40.22 | 52.46 | 74.00 | -21.54 | Peak | Vertical |
| 7784.729 | 36.17 | 36.31 | 0.00 | 39.13 | 33.35 | 54.00 | -20.65 | Average | Vertical |
| 7784.729 | 48.57 | 36.31 | 0.00 | 39.13 | 45.75 | 74.00 | -28.25 | Peak | Vertical |
| 10760.540 | 34.71 | 39.50 | 0.00 | 37.91 | 36.30 | 54.00 | -17.70 | Average | Vertical |
| 10760.540 | 47.51 | 39.50 | 0.00 | 37.91 | 49.10 | 74.00 | -24.90 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1071.832 | 37.58 | 24.18 | 0.00 | 38.85 | 22.91 | 54.00 | -31.09 | Average | Horizontal |
| 1071.832 | 48.28 | 24.18 | 0.00 | 38.85 | 33.61 | 74.00 | -40.39 | Peak | Horizontal |
| 1966.680 | 38.46 | 25.19 | 0.00 | 38.98 | 24.67 | 54.00 | -29.33 | Average | Horizontal |
| 1966.680 | 48.16 | 25.19 | 0.00 | 38.98 | 34.37 | 74.00 | -39.63 | Peak | Horizontal |
| 3856.668 | 38.09 | 29.19 | 0.00 | 40.03 | 27.25 | 54.00 | -26.75 | Average | Horizontal |
| 3856.668 | 50.29 | 29.19 | 0.00 | 40.03 | 39.45 | 74.00 | -34.55 | Peak | Horizontal |
| 4924.000 | 48.47 | 31.01 | 0.00 | 40.22 | 39.26 | 54.00 | -14.74 | Average | Horizontal |
| 4924.000 | 62.66 | 31.01 | 0.00 | 40.22 | 53.45 | 74.00 | -20.55 | Peak | Horizontal |
| 7762.260 | 38.54 | 36.28 | 0.00 | 39.13 | 35.69 | 54.00 | -18.31 | Average | Horizontal |
| 7762.260 | 49.24 | 36.28 | 0.00 | 39.13 | 46.39 | 74.00 | -27.61 | Peak | Horizontal |
| 15221.820 | 39.14 | 39.55 | 0.00 | 38.49 | 40.20 | 54.00 | -13.80 | Average | Horizontal |
| 15221.820 | 51.44 | 39.55 | 0.00 | 38.49 | 52.50 | 74.00 | -21.50 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 34.40 | 24.16 | 4.50 | 38.85 | 24.21 | 54.00 | -29.79 | Average | Vertical |
| 1059.511 | 47.61 | 24.16 | 4.50 | 38.85 | 37.42 | 74.00 | -36.58 | Peak | Vertical |
| 1634.543 | 33.03 | 25.04 | 5.67 | 38.96 | 24.78 | 54.00 | -29.22 | Average | Vertical |
| 1634.543 | 46.26 | 25.04 | 5.67 | 38.96 | 38.01 | 74.00 | -35.99 | Peak | Vertical |
| 3924.135 | 27.39 | 29.35 | 8.92 | 40.05 | 25.61 | 54.00 | -28.39 | Average | Vertical |
| 3924.135 | 42.20 | 29.35 | 8.92 | 40.05 | 40.42 | 74.00 | -33.58 | Peak | Vertical |
| 4925.490 | 37.63 | 31.01 | 10.06 | 40.22 | 38.48 | 54.00 | -15.52 | Average | Vertical |
| 4925.490 | 51.45 | 31.01 | 10.06 | 40.22 | 52.30 | 74.00 | -21.70 | Peak | Vertical |
| 6914.763 | 26.03 | 35.01 | 12.41 | 39.34 | 34.11 | 54.00 | -19.89 | Average | Vertical |
| 6914.763 | 39.83 | 35.01 | 12.41 | 39.34 | 47.91 | 74.00 | -26.09 | Peak | Vertical |
| 9530.432 | 20.32 | 37.43 | 14.50 | 38.00 | 34.25 | 54.00 | -19.75 | Average | Vertical |
| 9530.432 | 33.73 | 37.43 | 14.50 | 38.00 | 47.66 | 74.00 | -26.34 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1644.019 | 31.65 | 25.04 | 5.69 | 38.96 | 23.42 | 54.00 | -30.58 | Average | Horizontal |
| 1644.019 | 47.44 | 25.04 | 5.69 | 38.96 | 39.21 | 74.00 | -34.79 | Peak | Horizontal |
| 2138.635 | 31.97 | 25.49 | 6.50 | 39.02 | 24.94 | 54.00 | -29.06 | Average | Horizontal |
| 2138.635 | 47.02 | 25.49 | 6.50 | 39.02 | 39.99 | 74.00 | -34.01 | Peak | Horizontal |
| 3007.868 | 28.43 | 27.90 | 7.71 | 39.42 | 24.62 | 54.00 | -29.38 | Average | Horizontal |
| 3007.868 | 42.51 | 27.90 | 7.71 | 39.42 | 38.70 | 74.00 | -35.30 | Peak | Horizontal |
| 4925.490 | 35.48 | 31.01 | 10.06 | 40.22 | 36.33 | 54.00 | -17.67 | Average | Horizontal |
| 4925.490 | 54.04 | 31.01 | 10.06 | 40.22 | 54.89 | 74.00 | -19.11 | Peak | Horizontal |
| 6795.879 | 26.31 | 34.83 | 12.23 | 39.38 | 33.99 | 54.00 | -20.01 | Average | Horizontal |
| 6795.879 | 40.19 | 34.83 | 12.23 | 39.38 | 47.87 | 74.00 | -26.13 | Peak | Horizontal |
| 9641.257 | 19.43 | 37.54 | 14.48 | 37.95 | 33.50 | 54.00 | -20.50 | Average | Horizontal |
| 9641.257 | 34.05 | 37.54 | 14.48 | 37.95 | 48.12 | 74.00 | -25.88 | Peak | Horizontal |

**802.11g mode with 54Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 34.25 | 24.16 | 4.50 | 38.85 | 24.06 | 54.00 | -29.94 | Average | Vertical |
| 1059.511 | 48.12 | 24.16 | 4.50 | 38.85 | 37.93 | 74.00 | -36.07 | Peak | Vertical |
| 4814.110 | 35.64 | 30.82 | 9.96 | 40.21 | 36.21 | 54.00 | -17.79 | Average | Vertical |
| 4814.110 | 49.94 | 30.82 | 9.96 | 40.21 | 50.51 | 74.00 | -23.49 | Peak | Vertical |
| 6679.040 | 28.43 | 34.57 | 11.97 | 39.43 | 35.54 | 54.00 | -18.46 | Average | Vertical |
| 6679.040 | 40.69 | 34.57 | 11.97 | 39.43 | 47.80 | 74.00 | -26.20 | Peak | Vertical |
| 8319.836 | 24.02 | 36.22 | 13.71 | 38.95 | 35.00 | 54.00 | -19.00 | Average | Vertical |
| 8319.836 | 36.26 | 36.22 | 13.71 | 38.95 | 47.24 | 74.00 | -26.76 | Peak | Vertical |
| 11076.100 | 20.24 | 39.91 | 15.08 | 37.97 | 37.26 | 54.00 | -16.74 | Average | Vertical |
| 11076.100 | 32.77 | 39.91 | 15.08 | 37.97 | 49.79 | 74.00 | -24.21 | Peak | Vertical |
| 13097.620 | 20.28 | 39.06 | 17.15 | 38.22 | 38.27 | 54.00 | -15.73 | Average | Vertical |
| 13097.620 | 33.17 | 39.06 | 17.15 | 38.22 | 51.16 | 74.00 | -22.84 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1587.975 | 33.35 | 25.02 | 5.54 | 38.95 | 24.96 | 54.00 | -29.04 | Average | Horizontal |
| 1587.975 | 47.31 | 25.02 | 5.54 | 38.95 | 38.92 | 74.00 | -35.08 | Peak | Horizontal |
| 2089.751 | 34.25 | 25.37 | 6.44 | 39.01 | 27.05 | 54.00 | -26.95 | Average | Horizontal |
| 2089.751 | 48.01 | 25.37 | 6.44 | 39.01 | 40.81 | 74.00 | -33.19 | Peak | Horizontal |
| 4824.110 | 37.63 | 30.82 | 9.96 | 40.21 | 38.20 | 54.00 | -15.80 | Average | Horizontal |
| 4824.110 | 53.06 | 30.82 | 9.96 | 40.21 | 53.63 | 74.00 | -20.37 | Peak | Horizontal |
| 6340.436 | 29.64 | 33.76 | 11.54 | 39.63 | 35.31 | 54.00 | -18.69 | Average | Horizontal |
| 6340.436 | 40.38 | 33.76 | 11.54 | 39.63 | 46.05 | 74.00 | -27.95 | Peak | Horizontal |
| 7200.309 | 26.25 | 35.45 | 12.73 | 39.26 | 35.17 | 54.00 | -18.83 | Average | Horizontal |
| 7200.309 | 39.02 | 35.45 | 12.73 | 39.26 | 47.94 | 74.00 | -26.06 | Peak | Horizontal |
| 10698.510 | 19.73 | 39.34 | 14.87 | 37.90 | 36.04 | 54.00 | -17.96 | Average | Horizontal |
| 10698.510 | 33.65 | 39.34 | 14.87 | 37.90 | 49.96 | 74.00 | -24.04 | Peak | Horizontal |

Test at Channel 7 (2.442 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1366.374 | 36.68 | 24.89 | 0.00 | 38.89 | 22.68 | 54.00 | -31.32 | Average | Vertical |
| 1366.374 | 49.28 | 24.89 | 0.00 | 38.89 | 35.28 | 74.00 | -38.72 | Peak | Vertical |
| 1989.550 | 35.39 | 25.20 | 0.00 | 38.98 | 21.61 | 54.00 | -32.39 | Average | Vertical |
| 1989.550 | 48.39 | 25.20 | 0.00 | 38.98 | 34.61 | 74.00 | -39.39 | Peak | Vertical |
| 3114.025 | 37.38 | 27.90 | 0.00 | 39.53 | 25.75 | 54.00 | -28.25 | Average | Vertical |
| 3114.025 | 49.88 | 27.90 | 0.00 | 39.53 | 38.25 | 74.00 | -35.75 | Peak | Vertical |
| 4924.000 | 47.43 | 31.01 | 0.00 | 40.22 | 38.22 | 54.00 | -15.78 | Average | Vertical |
| 4924.000 | 59.72 | 31.01 | 0.00 | 40.22 | 50.51 | 74.00 | -23.49 | Peak | Vertical |
| 7762.260 | 37.09 | 36.28 | 0.00 | 39.13 | 34.24 | 54.00 | -19.76 | Average | Vertical |
| 7762.260 | 49.29 | 36.28 | 0.00 | 39.13 | 46.44 | 74.00 | -27.56 | Peak | Vertical |
| 12361.950 | 37.36 | 38.98 | 0.00 | 38.11 | 38.23 | 54.00 | -15.77 | Average | Vertical |
| 12361.950 | 49.06 | 38.98 | 0.00 | 38.11 | 49.93 | 74.00 | -24.07 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1653.550 | 38.15 | 25.05 | 0.00 | 38.96 | 24.24 | 54.00 | -29.76 | Average | Horizontal |
| 1653.550 | 51.65 | 25.05 | 0.00 | 38.96 | 37.74 | 74.00 | -36.26 | Peak | Horizontal |
| 1989.550 | 37.41 | 25.20 | 0.00 | 38.98 | 23.63 | 54.00 | -30.37 | Average | Horizontal |
| 1989.550 | 52.01 | 25.20 | 0.00 | 38.98 | 38.23 | 74.00 | -35.77 | Peak | Horizontal |
| 3357.061 | 37.03 | 27.90 | 0.00 | 39.81 | 25.12 | 54.00 | -28.88 | Average | Horizontal |
| 3357.061 | 49.53 | 27.90 | 0.00 | 39.81 | 37.62 | 74.00 | -36.38 | Peak | Horizontal |
| 4924.000 | 48.35 | 31.01 | 0.00 | 40.22 | 39.14 | 54.00 | -14.86 | Average | Horizontal |
| 4924.000 | 62.84 | 31.01 | 0.00 | 40.22 | 53.63 | 74.00 | -20.37 | Peak | Horizontal |
| 8082.804 | 35.29 | 36.44 | 0.00 | 39.06 | 32.67 | 54.00 | -21.33 | Average | Horizontal |
| 8082.804 | 48.49 | 36.44 | 0.00 | 39.06 | 45.87 | 74.00 | -28.13 | Peak | Horizontal |
| 10729.480 | 35.46 | 39.42 | 0.00 | 37.91 | 36.97 | 54.00 | -17.03 | Average | Horizontal |
| 10729.480 | 47.86 | 39.42 | 0.00 | 37.91 | 49.37 | 74.00 | -24.63 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 32.43 | 24.16 | 4.50 | 38.85 | 22.24 | 54.00 | -31.76 | Average | Vertical |
| 1059.511 | 47.91 | 24.16 | 4.50 | 38.85 | 37.72 | 74.00 | -36.28 | Peak | Vertical |
| 4914.490 | 35.27 | 30.99 | 10.05 | 40.22 | 36.09 | 54.00 | -17.91 | Average | Vertical |
| 4914.490 | 48.09 | 30.99 | 10.05 | 40.22 | 48.91 | 74.00 | -25.09 | Peak | Vertical |
| 6717.762 | 26.38 | 34.65 | 12.05 | 39.41 | 33.67 | 54.00 | -20.33 | Average | Vertical |
| 6717.762 | 41.15 | 34.65 | 12.05 | 39.41 | 48.44 | 74.00 | -25.56 | Peak | Vertical |
| 8995.123 | 22.37 | 36.50 | 14.20 | 38.40 | 34.67 | 54.00 | -19.33 | Average | Vertical |
| 8995.123 | 34.77 | 36.50 | 14.20 | 38.40 | 47.07 | 74.00 | -26.93 | Peak | Vertical |
| 10393.710 | 19.64 | 38.79 | 14.71 | 37.86 | 35.28 | 54.00 | -18.72 | Average | Vertical |
| 10393.710 | 32.92 | 38.79 | 14.71 | 37.86 | 48.56 | 74.00 | -25.44 | Peak | Vertical |
| 12290.700 | 19.05 | 39.09 | 16.15 | 38.11 | 36.18 | 54.00 | -17.82 | Average | Vertical |
| 12290.700 | 33.54 | 39.09 | 16.15 | 38.11 | 50.67 | 74.00 | -23.33 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 36.18 | 24.16 | 4.50 | 38.85 | 25.99 | 54.00 | -28.01 | Average | Horizontal |
| 1059.511 | 48.70 | 24.16 | 4.50 | 38.85 | 38.51 | 74.00 | -35.49 | Peak | Horizontal |
| 1663.137 | 31.53 | 25.05 | 5.73 | 38.96 | 23.35 | 54.00 | -30.65 | Average | Horizontal |
| 1663.137 | 44.85 | 25.05 | 5.73 | 38.96 | 36.67 | 74.00 | -37.33 | Peak | Horizontal |
| 3598.203 | 33.43 | 28.14 | 8.50 | 39.94 | 30.13 | 54.00 | -23.87 | Average | Horizontal |
| 3598.203 | 44.70 | 28.14 | 8.50 | 39.94 | 41.40 | 74.00 | -32.60 | Peak | Horizontal |
| 4914.490 | 32.49 | 30.99 | 10.05 | 40.22 | 33.31 | 54.00 | -20.69 | Average | Horizontal |
| 4914.490 | 45.61 | 30.99 | 10.05 | 40.22 | 46.43 | 74.00 | -27.57 | Peak | Horizontal |
| 6756.708 | 25.33 | 34.75 | 12.15 | 39.39 | 32.84 | 54.00 | -21.16 | Average | Horizontal |
| 6756.708 | 40.70 | 34.75 | 12.15 | 39.39 | 48.21 | 74.00 | -25.79 | Peak | Horizontal |
| 11140.310 | 19.64 | 39.81 | 15.17 | 37.99 | 36.63 | 54.00 | -17.37 | Average | Horizontal |
| 11140.310 | 33.16 | 39.81 | 15.17 | 37.99 | 50.15 | 74.00 | -23.85 | Peak | Horizontal |

**802.11n (HT20) mode with 72.2Mbps data rate**

Test at Channel 1 (2.412 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1059.511 | 33.26 | 24.16 | 4.50 | 38.85 | 23.07 | 54.00 | -30.93 | Average | Vertical |
| 1059.511 | 47.64 | 24.16 | 4.50 | 38.85 | 37.45 | 74.00 | -36.55 | Peak | Vertical |
| 1634.543 | 34.36 | 25.04 | 5.67 | 38.96 | 26.11 | 54.00 | -27.89 | Average | Vertical |
| 1634.543 | 45.85 | 25.04 | 5.67 | 38.96 | 37.60 | 74.00 | -36.40 | Peak | Vertical |
| 4824.110 | 38.03 | 30.82 | 9.96 | 40.21 | 38.60 | 54.00 | -15.40 | Average | Vertical |
| 4824.110 | 50.25 | 30.82 | 9.96 | 40.21 | 50.82 | 74.00 | -23.18 | Peak | Vertical |
| 5813.812 | 30.22 | 32.17 | 10.91 | 39.98 | 33.32 | 54.00 | -20.68 | Average | Vertical |
| 5813.812 | 42.26 | 32.17 | 10.91 | 39.98 | 45.36 | 74.00 | -28.64 | Peak | Vertical |
| 6954.852 | 26.34 | 35.06 | 12.46 | 39.32 | 34.54 | 54.00 | -19.46 | Average | Vertical |
| 6954.852 | 39.93 | 35.06 | 12.46 | 39.32 | 48.13 | 74.00 | -25.87 | Peak | Vertical |
| 9641.257 | 20.89 | 37.54 | 14.48 | 37.95 | 34.96 | 54.00 | -19.04 | Average | Vertical |
| 9641.257 | 34.92 | 37.54 | 14.48 | 37.95 | 48.99 | 74.00 | -25.01 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1663.137 | 35.54 | 25.05 | 5.73 | 38.96 | 27.36 | 54.00 | -26.64 | Average | Horizontal |
| 1663.137 | 46.04 | 25.05 | 5.73 | 38.96 | 37.86 | 74.00 | -36.14 | Peak | Horizontal |
| 2101.866 | 35.35 | 25.40 | 6.48 | 39.01 | 28.22 | 54.00 | -25.78 | Average | Horizontal |
| 2101.866 | 49.15 | 25.40 | 6.48 | 39.01 | 42.02 | 74.00 | -31.98 | Peak | Horizontal |
| 2973.293 | 32.54 | 27.87 | 7.70 | 39.40 | 28.71 | 54.00 | -25.29 | Average | Horizontal |
| 2973.293 | 43.92 | 27.87 | 7.70 | 39.40 | 40.09 | 74.00 | -33.91 | Peak | Horizontal |
| 4804.110 | 37.64 | 30.79 | 9.95 | 40.21 | 38.17 | 54.00 | -15.83 | Average | Horizontal |
| 4804.110 | 54.88 | 30.79 | 9.95 | 40.21 | 55.41 | 74.00 | -18.59 | Peak | Horizontal |
| 6679.040 | 29.35 | 34.57 | 11.97 | 39.43 | 36.46 | 54.00 | -17.54 | Average | Horizontal |
| 6679.040 | 40.82 | 34.57 | 11.97 | 39.43 | 47.93 | 74.00 | -26.07 | Peak | Horizontal |
| 9923.991 | 22.54 | 37.92 | 14.41 | 37.84 | 37.03 | 54.00 | -16.97 | Average | Horizontal |
| 9923.991 | 34.53 | 37.92 | 14.41 | 37.84 | 49.02 | 74.00 | -24.98 | Peak | Horizontal |

Test at Channel 7 (2.442 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 2095.800 | 37.19 | 25.38 | 0.00 | 39.01 | 23.56 | 54.00 | -30.44 | Average | Vertical |
| 2095.800 | 49.26 | 25.38 | 0.00 | 39.01 | 35.63 | 74.00 | -38.37 | Peak | Vertical |
| 3060.486 | 36.41 | 27.90 | 0.00 | 39.47 | 24.84 | 54.00 | -29.16 | Average | Vertical |
| 3060.486 | 49.23 | 27.90 | 0.00 | 39.47 | 37.66 | 74.00 | -36.34 | Peak | Vertical |
| 4924.000 | 51.00 | 31.01 | 0.00 | 40.22 | 41.79 | 54.00 | -12.21 | Average | Vertical |
| 4924.000 | 59.03 | 31.01 | 0.00 | 40.22 | 49.82 | 74.00 | -24.18 | Peak | Vertical |
| 6954.852 | 40.31 | 35.06 | 0.00 | 39.32 | 36.05 | 54.00 | -17.95 | Average | Vertical |
| 6954.852 | 52.39 | 35.06 | 0.00 | 39.32 | 48.13 | 74.00 | -25.87 | Peak | Vertical |
| 9641.257 | 36.13 | 37.54 | 0.00 | 37.95 | 35.72 | 54.00 | -18.28 | Average | Vertical |
| 9641.257 | 49.20 | 37.54 | 0.00 | 37.95 | 48.79 | 74.00 | -25.21 | Peak | Vertical |
| 14618.170 | 36.56 | 41.68 | 0.00 | 38.45 | 39.79 | 54.00 | -14.21 | Average | Vertical |
| 14618.170 | 50.89 | 41.68 | 0.00 | 38.45 | 54.12 | 74.00 | -19.88 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1366.374 | 38.67 | 24.89 | 0.00 | 38.89 | 24.67 | 54.00 | -29.33 | Average | Horizontal |
| 1366.374 | 50.86 | 24.89 | 0.00 | 38.89 | 36.86 | 74.00 | -37.14 | Peak | Horizontal |
| 2101.866 | 42.35 | 25.40 | 0.00 | 39.01 | 28.74 | 54.00 | -25.26 | Average | Horizontal |
| 2101.866 | 55.63 | 25.40 | 0.00 | 39.01 | 42.02 | 74.00 | -31.98 | Peak | Horizontal |
| 3376.523 | 38.57 | 27.90 | 0.00 | 39.83 | 26.64 | 54.00 | -27.36 | Average | Horizontal |
| 3376.523 | 50.40 | 27.90 | 0.00 | 39.83 | 38.47 | 74.00 | -35.53 | Peak | Horizontal |
| 4924.000 | 50.65 | 31.01 | 0.00 | 40.22 | 41.44 | 54.00 | -12.56 | Average | Horizontal |
| 4924.000 | 62.62 | 31.01 | 0.00 | 40.22 | 53.41 | 74.00 | -20.59 | Peak | Horizontal |
| 7117.542 | 40.57 | 35.28 | 0.00 | 39.28 | 36.57 | 54.00 | -17.43 | Average | Horizontal |
| 7117.542 | 52.08 | 35.28 | 0.00 | 39.28 | 48.08 | 74.00 | -25.92 | Peak | Horizontal |
| 13442.810 | 37.22 | 40.10 | 0.00 | 38.28 | 39.04 | 54.00 | -14.96 | Average | Horizontal |
| 13442.810 | 50.72 | 40.10 | 0.00 | 38.28 | 52.54 | 74.00 | -21.46 | Peak | Horizontal |

Test at Channel 11 (2.462 GHz) in transmitting status

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1053.404 | 34.57 | 24.16 | 4.50 | 38.84 | 24.39 | 54.00 | -29.61 | Average | Vertical |
| 1053.404 | 47.04 | 24.16 | 4.50 | 38.84 | 36.86 | 74.00 | -37.14 | Peak | Vertical |
| 1634.543 | 32.64 | 25.04 | 5.67 | 38.96 | 24.39 | 54.00 | -29.61 | Average | Vertical |
| 1634.543 | 44.97 | 25.04 | 5.67 | 38.96 | 36.72 | 74.00 | -37.28 | Peak | Vertical |
| 4924.490 | 45.66 | 31.01 | 0.00 | 40.22 | 36.45 | 54.00 | -17.55 | Average | Vertical |
| 4924.490 | 56.20 | 31.01 | 0.00 | 40.22 | 46.99 | 74.00 | -27.01 | Peak | Vertical |
| 6717.762 | 29.59 | 34.65 | 12.05 | 39.41 | 36.88 | 54.00 | -17.12 | Average | Vertical |
| 6717.762 | 41.77 | 34.65 | 12.05 | 39.41 | 49.06 | 74.00 | -24.94 | Peak | Vertical |
| 9641.257 | 22.25 | 37.54 | 14.48 | 37.95 | 36.32 | 54.00 | -17.68 | Average | Vertical |
| 9641.257 | 34.42 | 37.54 | 14.48 | 37.95 | 48.49 | 74.00 | -25.51 | Peak | Vertical |
| 12219.850 | 19.53 | 39.21 | 16.05 | 38.10 | 36.69 | 54.00 | -17.31 | Average | Vertical |
| 12219.850 | 33.39 | 39.21 | 16.05 | 38.10 | 50.55 | 74.00 | -23.45 | Peak | Vertical |

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1692.231 | 34.23 | 25.07 | 5.79 | 38.96 | 26.13 | 54.00 | -27.87 | Average | Horizontal |
| 1692.231 | 47.13 | 25.07 | 5.79 | 38.96 | 39.03 | 74.00 | -34.97 | Peak | Horizontal |
| 2138.635 | 38.53 | 25.49 | 6.50 | 39.02 | 31.50 | 54.00 | -22.50 | Average | Horizontal |
| 2138.635 | 49.50 | 25.49 | 6.50 | 39.02 | 42.47 | 74.00 | -31.53 | Peak | Horizontal |
| 4914.490 | 36.22 | 30.99 | 10.05 | 40.22 | 37.04 | 54.00 | -16.96 | Average | Horizontal |
| 4914.490 | 48.47 | 30.99 | 10.05 | 40.22 | 49.29 | 74.00 | -24.71 | Peak | Horizontal |
| 6914.763 | 29.56 | 35.01 | 12.41 | 39.34 | 37.64 | 54.00 | -16.36 | Average | Horizontal |
| 6914.763 | 40.93 | 35.01 | 12.41 | 39.34 | 49.01 | 74.00 | -24.99 | Peak | Horizontal |
| 11076.100 | 23.01 | 39.91 | 15.08 | 37.97 | 40.03 | 54.00 | -13.97 | Average | Horizontal |
| 11076.100 | 33.04 | 39.91 | 15.08 | 37.97 | 50.06 | 74.00 | -23.94 | Peak | Horizontal |
| 14079.080 | 20.57 | 41.33 | 18.13 | 38.40 | 41.63 | 54.00 | -12.37 | Average | Horizontal |
| 14079.080 | 32.04 | 41.33 | 18.13 | 38.40 | 53.10 | 74.00 | -20.90 | Peak | Horizontal |

## 6.9 Band edge

Test Requirement: FCC Part 15 C section 15.247

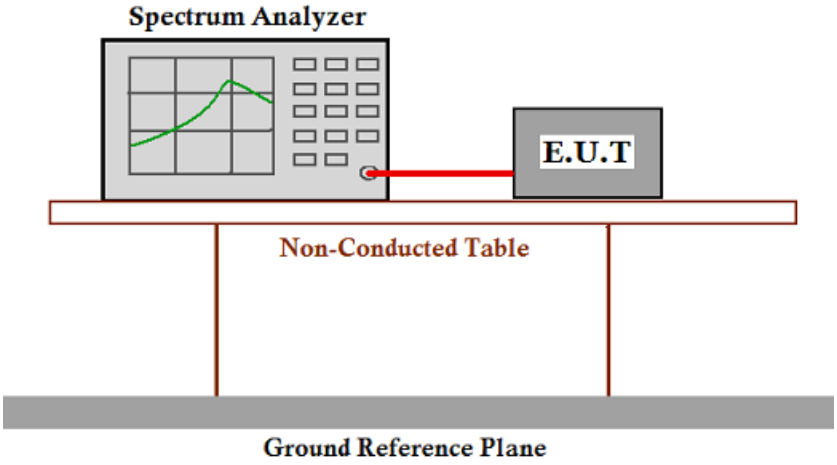
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.

Frequency Band: 2400 MHz to 2483.5 MHz

Test Method: ANSI C63.10: Clause 11.13

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:

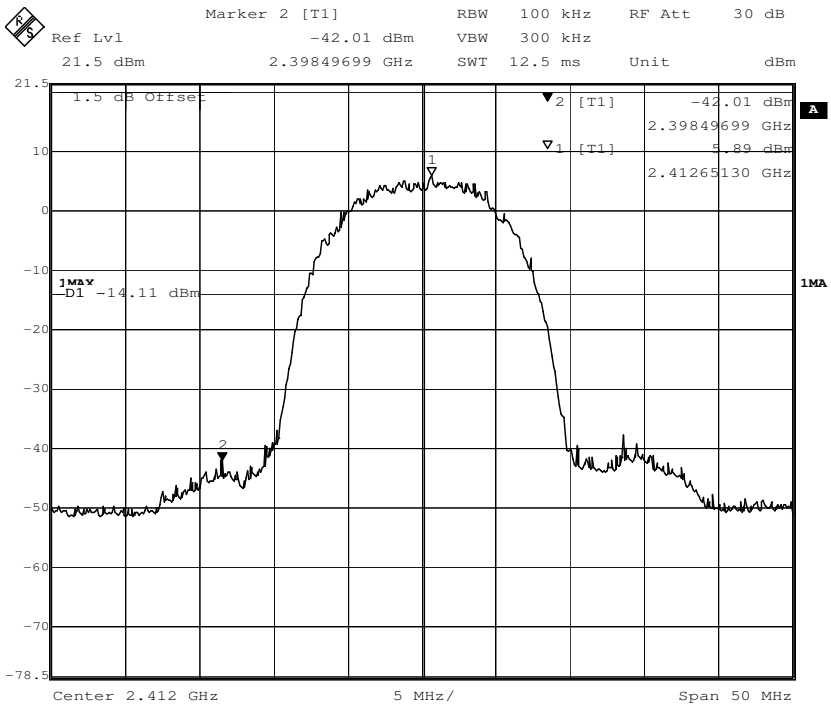


Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer or power meter.
2. Set instrument center frequency to the frequency of the emission to be measured(must be within 2MHz of the authorized band edge).
3. Set span to 2MHz,
4. RBW=100kHz,
5. VBW≥3×RBW
6. Detector=peak
7. Sweep time =auto,
8. Trace mode=max hold.
9. Allow sweep to continue until the trace stabilizes(required measurement time may increase for low duty cycle applications)
10. Compute the power by integrating the spectrum over 1MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency($f_{emission}$)±0.5MHz.If the instrument does not have a band power function,the sum the amplitude levels(in power units) at 100kHz intervals extending across the 1MHz spectrum defined by femission±0.5MHz.

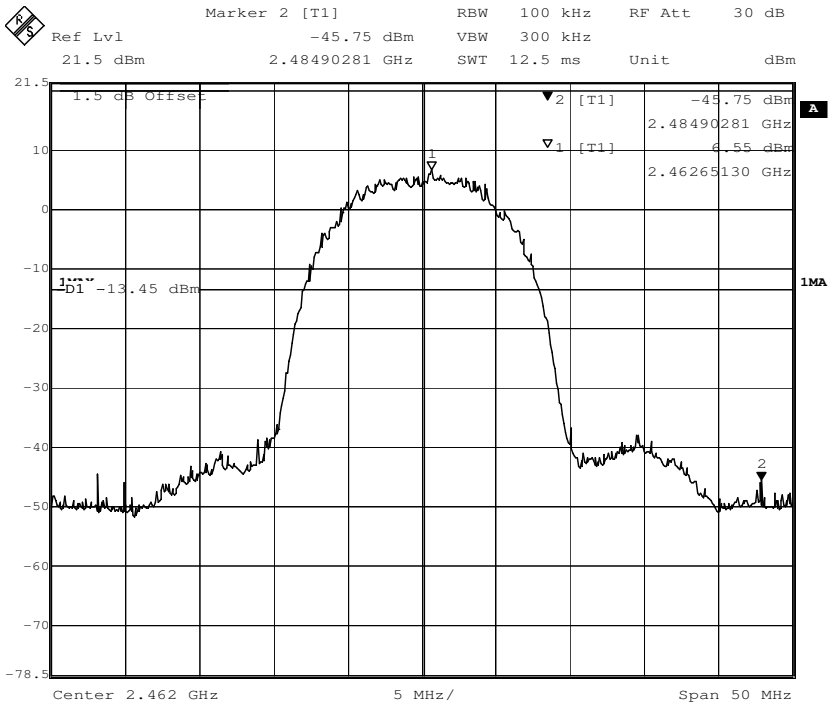
**802.11b mode with 11 Mbps data rate**

Channel1: 2.412 GHz



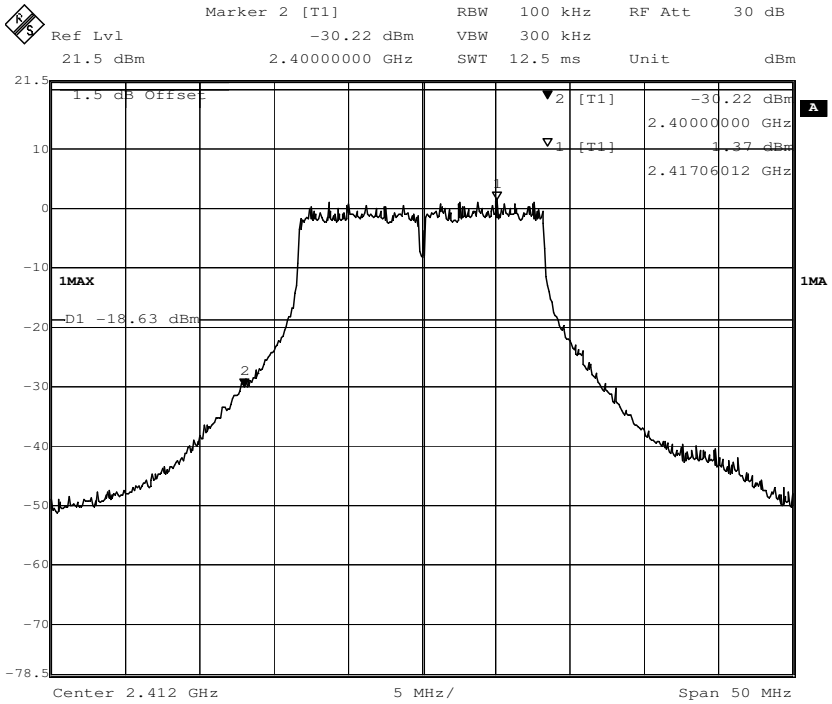

**802.11b mode with 11 Mbps data rate**

Channel11: 2.462 GHz



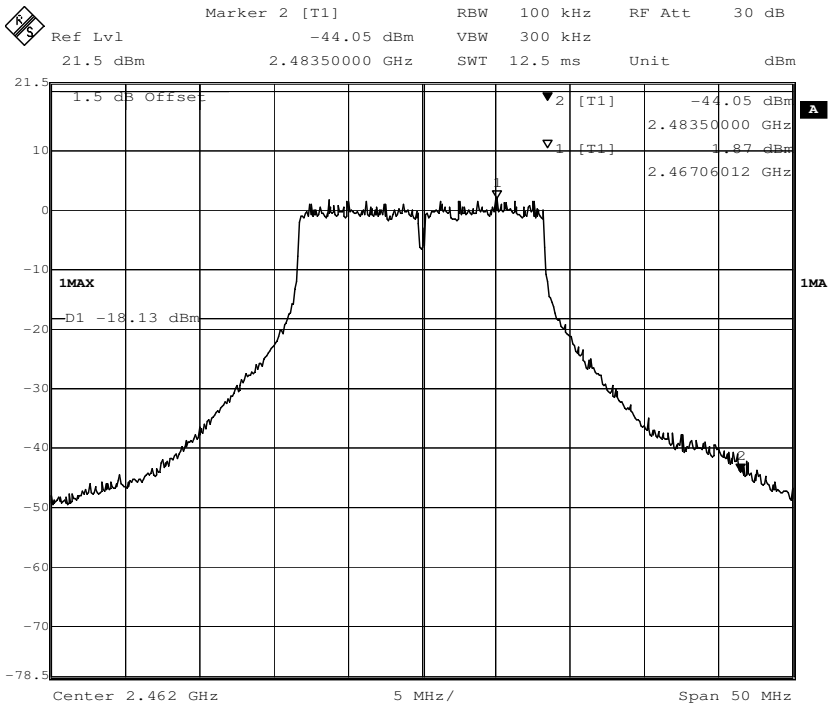
**802.11g mode with 54 Mbps data rate**

Channel1: 2.412 GHz



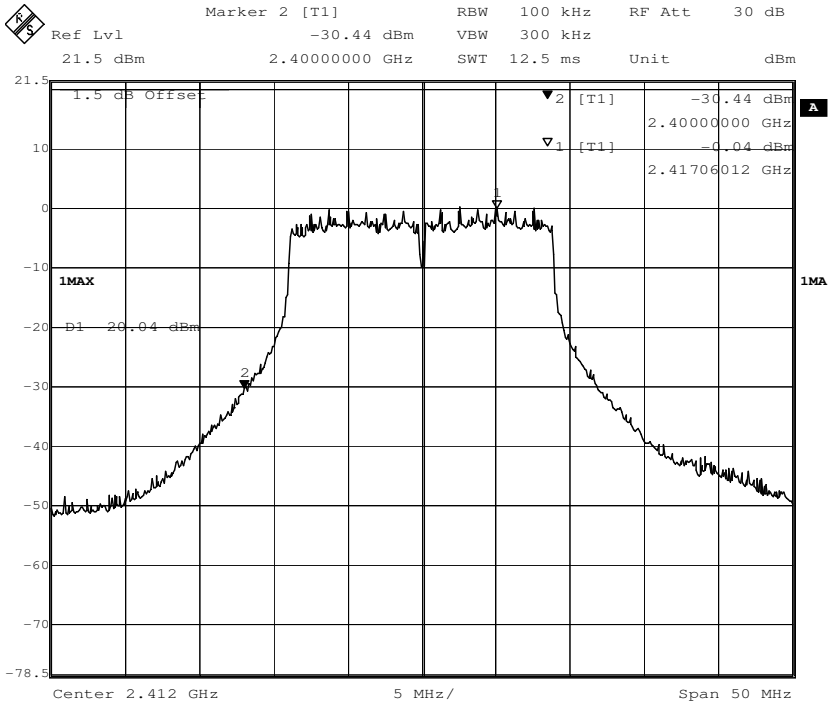

**802.11g mode with 54 Mbps data rate**

Channel11: 2.462 GHz



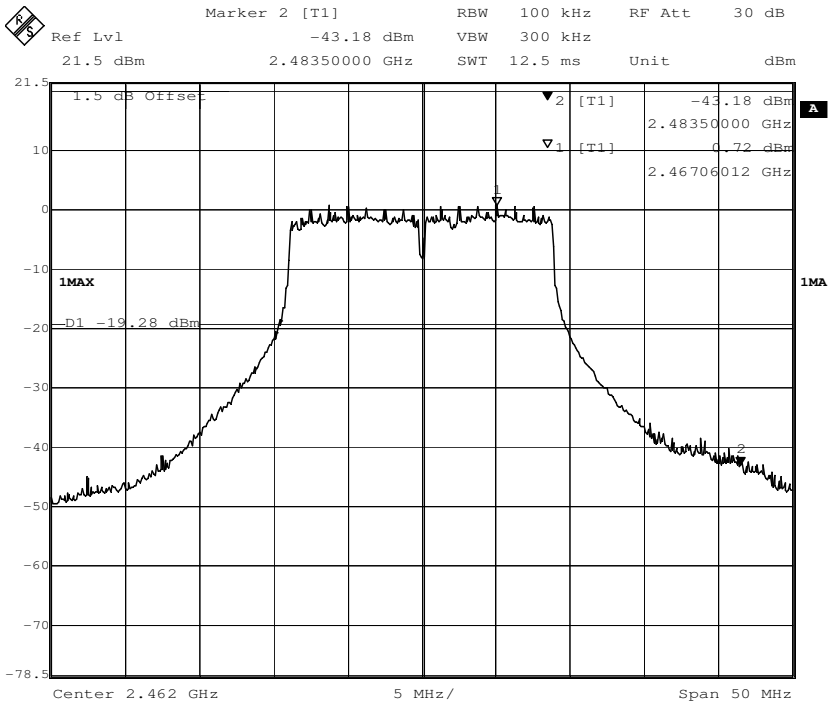
**802.11n(HT20) mode with 72.2Mbps data rate**

Channel1: 2.412 GHz




**802.11n(HT20) mode with 72.2Mbps data rate**

Channel11: 2.462 GHz



## 6.10 Conducted emission at mains terminals 150 KHz to 30 MHz

**Test Requirement:** FCC Part 15 C section 15.207

**Test Method:** ANSI C63.10: Clause 6.2

**Frequency Range:** 150 kHz to 30 MHz

**Detector:** Peak for pre-scan (9 kHz Resolution Bandwidth)

**Test Limit**

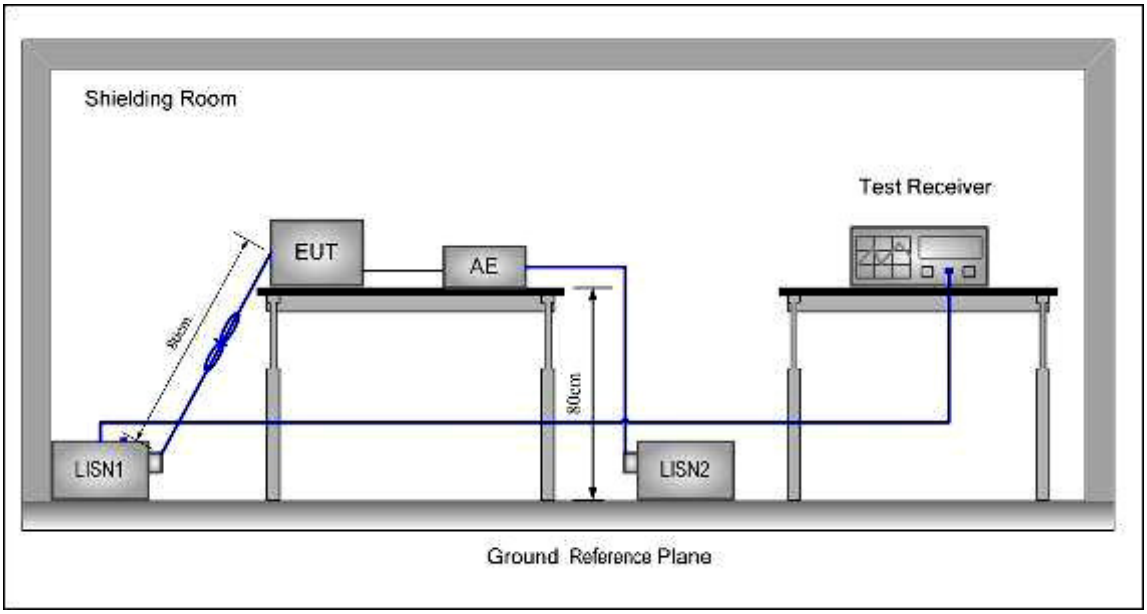
**Limits for conducted disturbance at the mains ports of class B**

| Frequency Range (MHz) | Class B Limit dB(μV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz. | | |

EUT Operation: Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

**Test Configuration:**



**Test procedure:**

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

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

3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

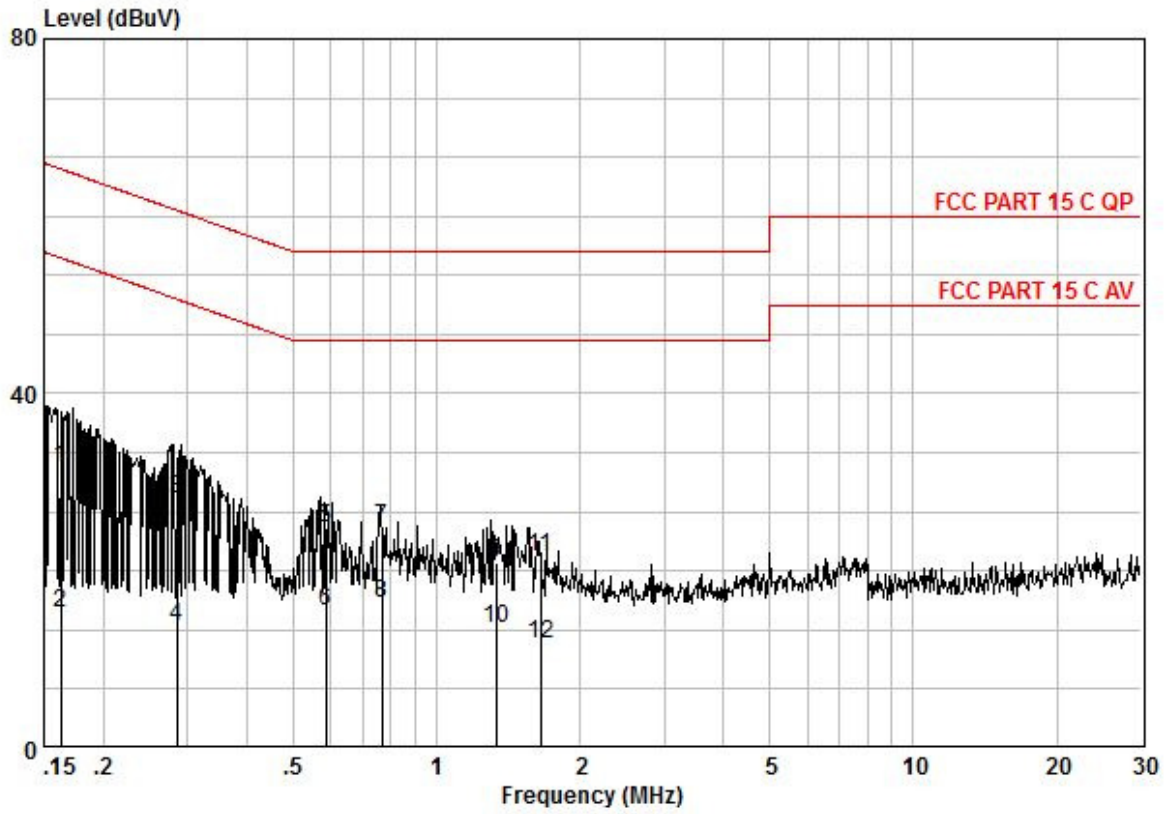
**The following Quasi-Peak and Average measurements were performed on the EUT:**

**Test Result:**

**1.** Neutral Line

Level(dBμV)

Measure data:



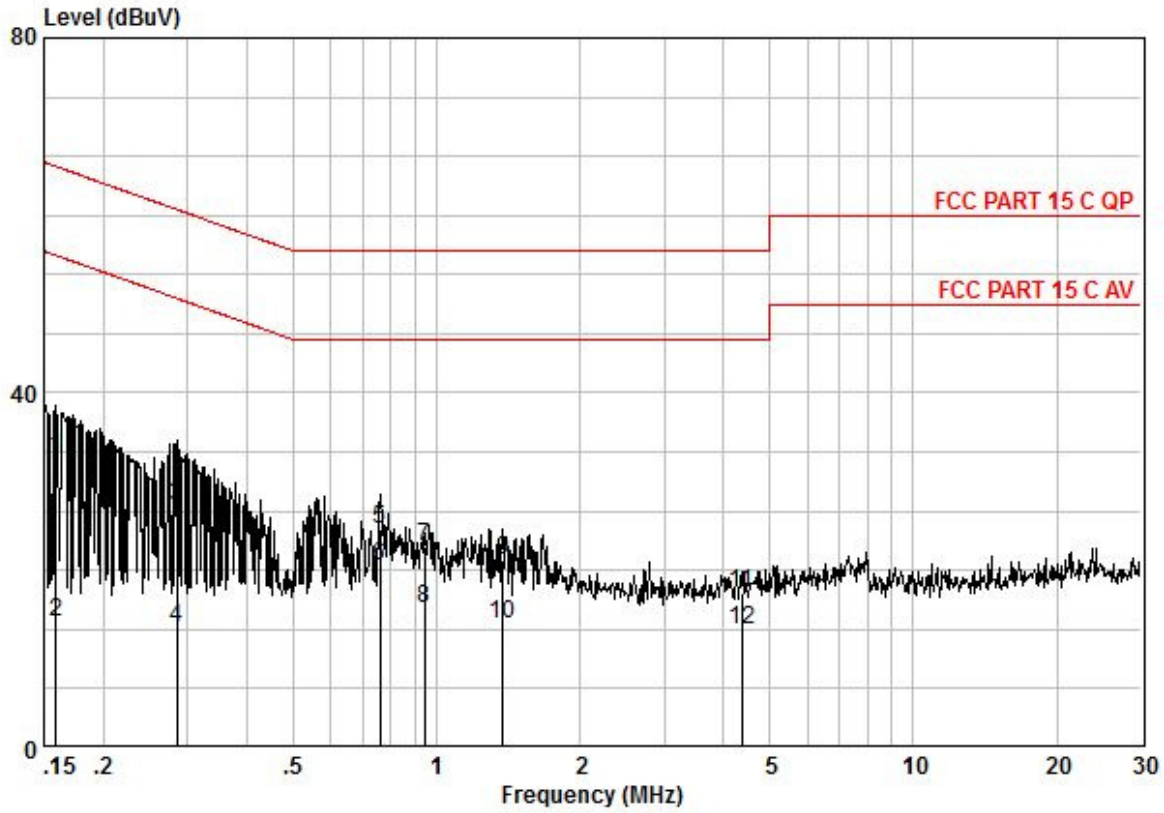

Pol :LIVE
No :
Model :

| Frequency MHz | read level dBuV | Cable Loss dB | LISN Factor dB | Measured level dBuV | Limit Line dBuV | Over limit dB | Remark |
|---|---|---|---|---|---|---|---|
| 0,16 | 21,90 | 0,10 | 9,65 | 31,65 | 65,34 | -33,69 | QP |
| 0,16 | 5,48 | 0,10 | 9,65 | 15,23 | 55,34 | -40,11 | AVERAGE |
| 0,28 | 18,37 | 0,14 | 9,64 | 28,15 | 60,68 | -32,53 | QP |
| 0,28 | 3,90 | 0,14 | 9,64 | 13,68 | 50,68 | -37,00 | AVERAGE |
| 0,59 | 14,92 | 0,22 | 9,64 | 24,79 | 56,00 | -31,21 | QP |
| 0,59 | 5,64 | 0,22 | 9,64 | 15,51 | 46,00 | -30,49 | AVERAGE |
| 0,77 | 15,02 | 0,26 | 9,65 | 24,93 | 56,00 | -31,07 | QP |
| 0,77 | 6,47 | 0,26 | 9,65 | 16,38 | 46,00 | -29,62 | AVERAGE |
| 1,33 | 10,99 | 0,30 | 9,66 | 20,95 | 56,00 | -35,05 | QP |
| 1,33 | 3,48 | 0,30 | 9,66 | 13,44 | 46,00 | -32,56 | AVERAGE |
| 1,65 | 11,64 | 0,33 | 9,66 | 21,64 | 56,00 | -34,36 | QP |
| 1,65 | 1,85 | 0,33 | 9,66 | 11,85 | 46,00 | -34,15 | AVERAGE |

Live Line

Level(dBμV)

Measure data:




Pol :NEUTRAL
No :
Model :

| Frequency MHz | read level dBuV | Cable Loss dB | LISN Factor dB | Measured level dBuV | Limit Line dBuV | Over limit dB | Remark |
|---|---|---|---|---|---|---|---|
| 0,16 | 22,91 | 0,10 | 9,67 | 32,68 | 65,52 | -32,84 | QP |
| 0,16 | 4,37 | 0,10 | 9,67 | 14,14 | 55,52 | -41,38 | AVERAGE |
| 0,28 | 17,52 | 0,14 | 9,66 | 27,32 | 60,68 | -33,36 | QP |
| 0,28 | 3,80 | 0,14 | 9,66 | 13,60 | 50,68 | -37,08 | AVERAGE |
| 0,76 | 14,75 | 0,26 | 9,67 | 24,68 | 56,00 | -31,32 | QP |
| 0,76 | 10,57 | 0,26 | 9,67 | 20,50 | 46,00 | -25,50 | AVERAGE |
| 0,94 | 12,68 | 0,29 | 9,67 | 22,65 | 56,00 | -33,35 | QP |
| 0,94 | 5,82 | 0,29 | 9,67 | 15,79 | 46,00 | -30,21 | AVERAGE |
| 1,37 | 11,21 | 0,30 | 9,68 | 21,19 | 56,00 | -34,81 | QP |
| 1,37 | 3,95 | 0,30 | 9,68 | 13,93 | 46,00 | -32,07 | AVERAGE |
| 4,36 | 7,03 | 0,65 | 9,72 | 17,40 | 56,00 | -38,60 | QP |
| 4,36 | 2,83 | 0,65 | 9,72 | 13,20 | 46,00 | -32,80 | AVERAGE |

**--End of Report--**