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FCC ID: 2AOQ5-R20-PM810

TEST REPORT

Application No.:	GZEM1710006288CR
Applicant:	Xiamen Cowell Industrial Ltd
Address of Applicant:	No.1999, Dongfu Industrial Zone, Haicang District, Xiamen City, China
Manufacturer:	The same as Applicant
Address of Manufacturer:	The same as Applicant
Factory:	The same as Applicant
Address of Factory:	The same as Applicant
Equipment Under Test (EUT):	
EUT Name:	treadmill
FCC ID:	2AOQ5-R20-PM810
Model No.:	PM810, PM820 ¤
¤	Please refer to section 3 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	PACEMASTER
Standards:	47 CFR Part 15, Subpart C:2016 section 15.247
Date of Receipt:	2017-10-27
Date of Test:	2017-11-16 to 2017-12-11
Date of Issue:	2018-03-15
Test Result :	**Pass***

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

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Kobe Jian
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.

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2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2018-03-15		Original

Authorized for issue by:				
Tested By		Vico.Cui **Vico_Cui /Project Engineer**		2017-11-16 to 2017-12-11 **Date**
Checked By		Riday Liu **Ricky_Liu /Reviewer**		2017-12-15 **Date**

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3 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 Emissions	47 CFR Part 15C Section 15.209 and 15.205	ANSI C63.10: 2013	PASS
Radiated Emissions which fall in the restricted bands	FCC Part 15 C section 15.247	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.: PM810, PM820

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 on model name, and motor rated power. Here two models **PM820 with motors SLM100L1-4(3.5HP), MS-BP160CQ & PM810 with motors SLM100L1-4(3.0HP), MS-BP160.**

Therefore only one model **PM820 with motors SLM100L1-4(3.5HP)** was tested in this report.

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5 General Information

5.1 Details of E.U.T.

Operating Frequency	2412 MHz to 2462 MHz for 802.11b/g/n(HT20) 2422 MHz to 2452 MHz for 802.11n(HT40)
Type of Modulation:	802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) 802.11n: MIMO OFDM (BPSK/QPSK/16QAM/64QAM)
Transmit Data Rate:	802.11b :1/2/5.5/11 Mbps 802.11g :6/9/12/18/24/36/48/54 Mbps 802.11n(HT20): 7.2/14.4/21.7/28.9/43.3/57.8/65/72.2 Mbps 802.11n(HT40): 15/30/45/60/90/120/135/150 Mbps
Number of Channels	11 Channels for 802.11b/g/n(HT20) 7 Channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna Type	integrated antenna
Antenna gain:	2 dBi
Power Supply:	AC 120V 60Hz
Power Cord:	1 X about 1.8m three wires unscreened AC input cable.

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5.2 Description of Support Units

The EUT has been tested with corresponding accessories as below:

Supplied by SGS:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook	IBM	T40	99-FBAF9 03/09

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.

5.3 Deviation from Standards

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

5.4 Abnormalities from Standard Conditions

None.

5.5 Other Information Requested by the Customer

None.

5.6 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.

5.7 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)

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5.8 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 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.

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6 Equipment List

FCC & IC equipment						
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
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
EMC2136	MI Cable	SGS	0.8m	N/A	2017-11-02	2018-11-01
EMC2137	MI Cable	SGS	0.8m	N/A	2017-11-02	2018-11-01
EMC2138	EXA Signal Analyzer	KEYSIGHT	N9010A	MY57120105	2017-11-15	2018-11-14
EMC0069	Signal Analyzer(20Hz ~ 26.5Ghz	R&S	FSIQ26	100312	2017-11-20	2018-11-19

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Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date (YYYY-MM-DD)	Cal.Due date (YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	2016-12-27	2019-12-26
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2017-01-20	2018-01-19
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2017-09-20	2018-09-19
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2017-11-27	2018-11-26
EMC0107	Coaxial Cable	SGS	2m	N/A	2016-07-24	2018-07-23
EMC0106	Voltage Probe	SGS	N/A	N/A	2016-04-05	2018-04-04
EMC2123	8 Line ISN Cat 6	SCHWARZBECK MESS-ELEKTRONIK	NTFM 8158	NTFM 8158 0151	2017-06-23	2018-06-22
EMC2124	8 Line ISN Cat 5	SCHWARZBECK MESS-ELEKTRONIK	CAT5 8158	CAT5 8158-188	2017-06-23	2018-06-22
EMC2126	8 Line ISN Cat 3	SCHWARZBECK MESS-ELEKTRONIK	CAT3 8158	CAT38158-0081	2017-06-23	2018-06-22
EMC2122	ISN S8	SCHWARZBECK MESS-ELEKTRONIK	ISN S8	57	2017-06-23	2018-06-22
EMC2121	ISN S1	SCHWARZBECK MESS-ELEKTRONIK	ISN S1	10	2017-06-23	2018-06-22
EMC2125	2 wires ISN	SCHWARZBECK MESS-ELEKTRONIK	NTFM 8131	8131-198	2017-06-23	2018-06-22
EMC2047	CDN	Elektronik-Feinmechanik	L-801:AF2	2793	2015-09-19	2018-09-18
EMC2048	CDN	Elektronik-Feinmechanik	L-801:M2/M3	2738	2015-09-25	2018-09-24
EMC2062	6dB Attenuator	HP	8491A	24487	2016-04-05	2018-04-04
EMC0167	Conical metal housing	SGS-EMC	N/A	N/A	2016-04-19	2018-04-18

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	2017-07-26	2018-07-25
EMC0007	DMM	Fluke	73	70671122	2017-07-26	2018-07-25

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7 Test Results

7.1 E.U.T. test conditions

Test Voltage:	AC 120V
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. **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: 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:

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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

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EUT channels and frequencies list:

1. Test frequencies are lowest channel: 2412 MHz, middle channel: 2442 MHz 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. Test frequencies are lowest channel: 2422 MHz, middle channel: 2442 MHz and highest channel: 2452 MHz for 802.11n(HT40)

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

3. 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.

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7.2 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.

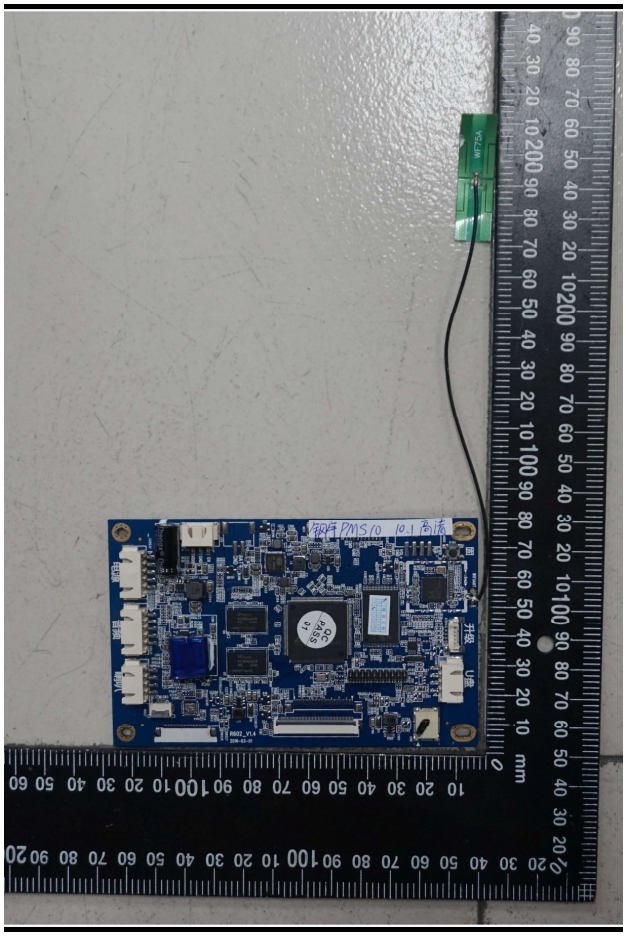
15.247(c) (1)(i) requirement:

(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 an integral antenna and integrated on the PCB no consideration of replacement.

The best-case gain of the antenna is 2 dBi.



Test result: The unit does meet the FCC requirements.

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7.3 6 dB Bandwidth

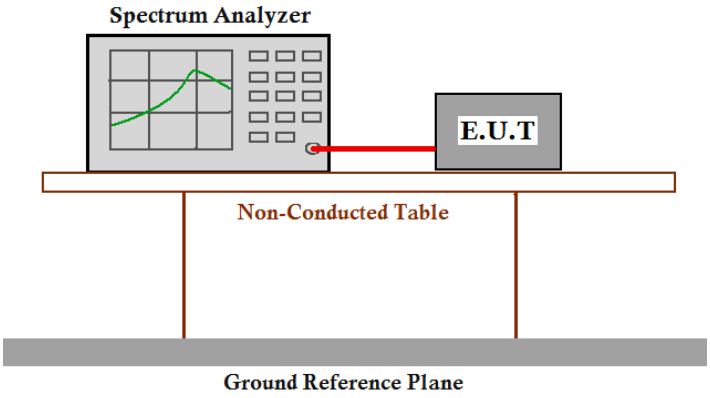
Test Requirement: FCC Part 15 C section 15.247

(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 =1.5dB) 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.

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Channel No.	Frequency (MHz)	Mode	Data Rate	Measured 6dB bandwidth (MHz)	Limit	Result
1	2412	802.11b	11 Mbps	9.81	≥500KHz	Pass
7	2442		11 Mbps	10.32		Pass
11	2462		11 Mbps	10.12		Pass
1	2412	802.11g	54 Mbps	16.63	≥500KHz	Pass
7	2442		54 Mbps	16.73		Pass
11	2462		54 Mbps	16.73		Pass
1	2412	802.11n (HT20)	65 Mbps	17.93	≥500KHz	Pass
7	2442		65 Mbps	17.93		Pass
11	2462		65 Mbps	17.93		Pass
3	2422	802.11n (HT40)	135Mbps	36.71	≥500KHz	Pass
7	2442		135Mbps	36.67		Pass
9	2452		135Mbps	37.07		Pass

Test result: The unit does meet the FCC requirements.

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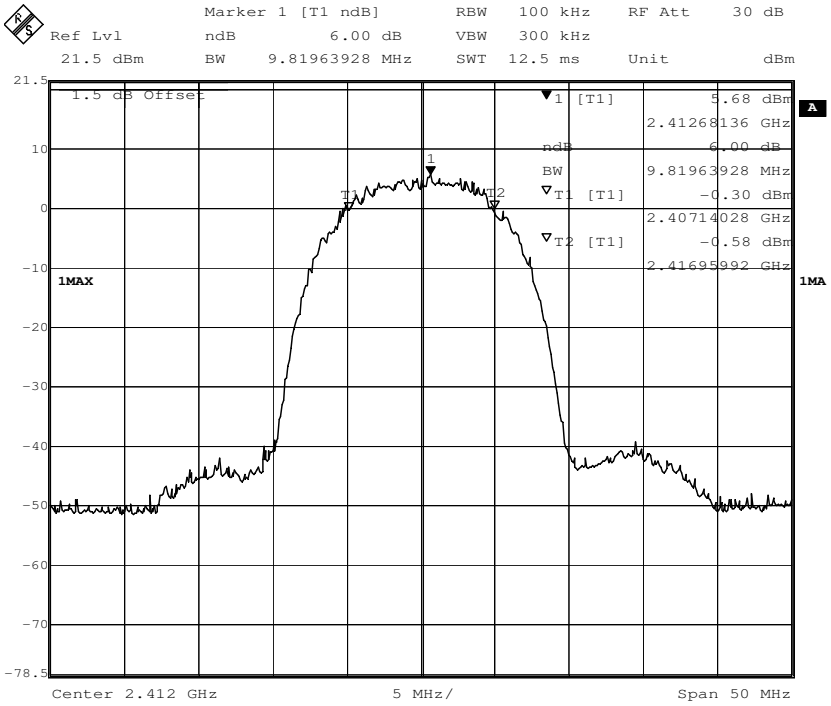
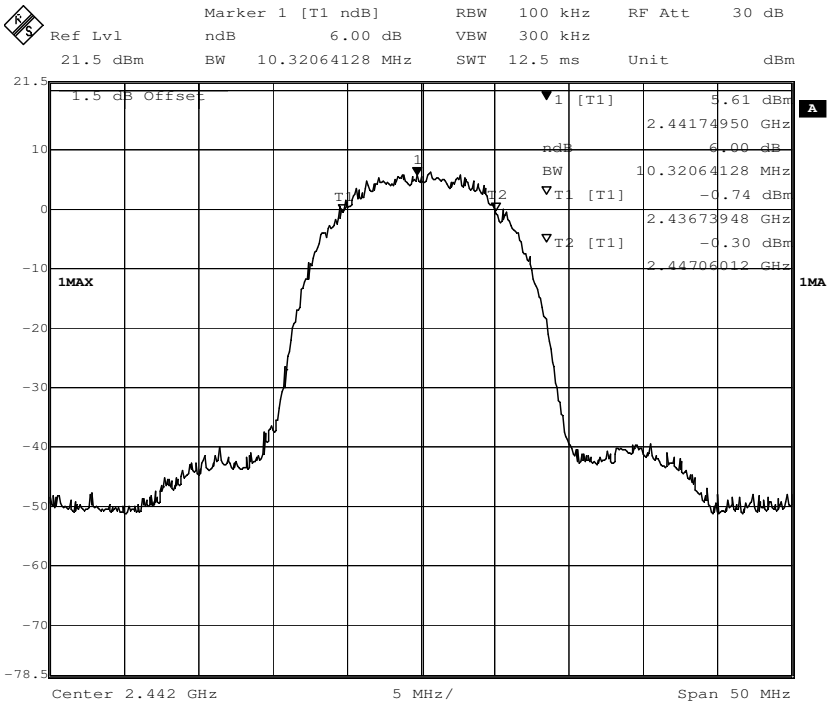
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



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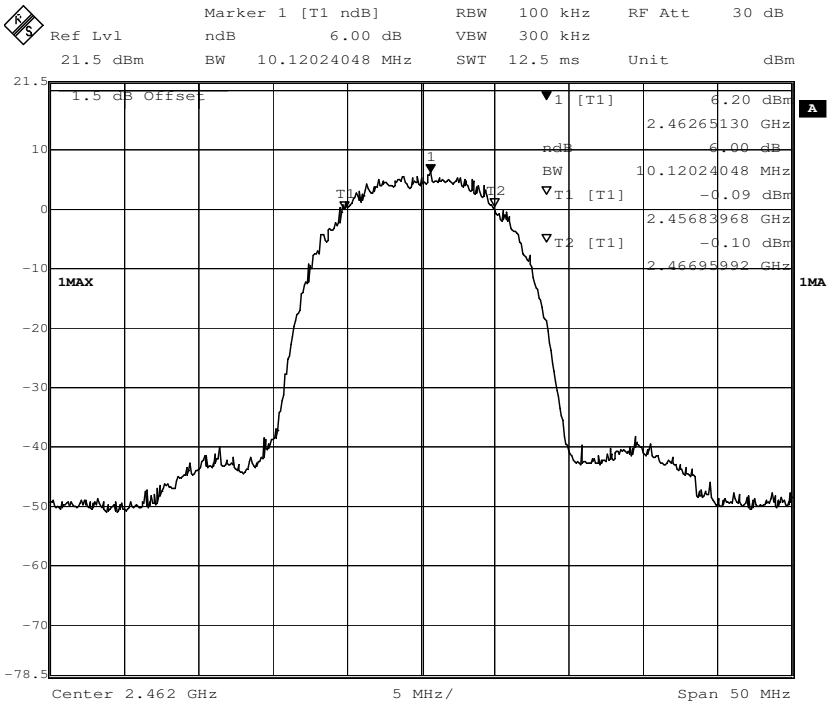
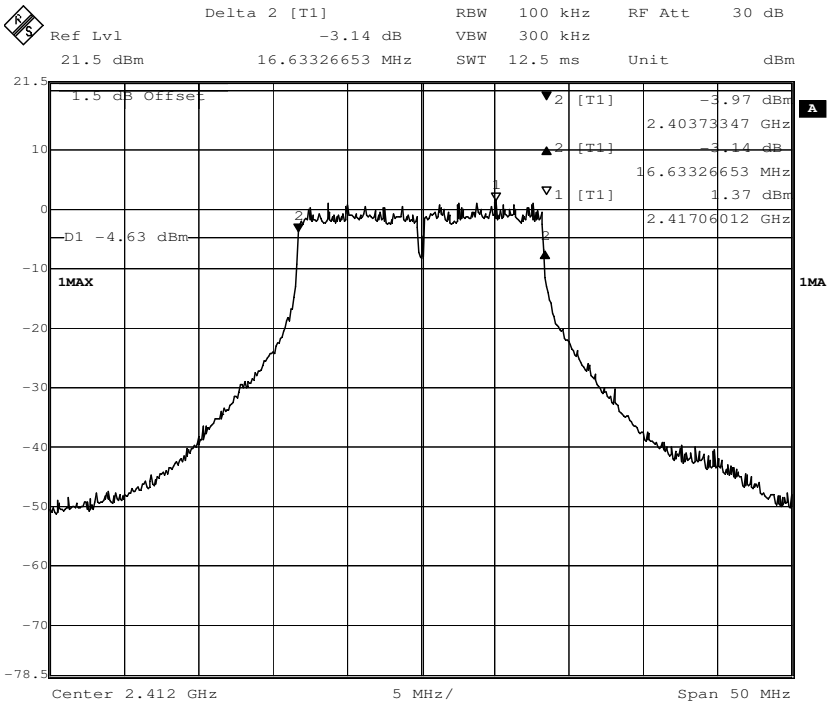
Channel 11: 2.462GHz:



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



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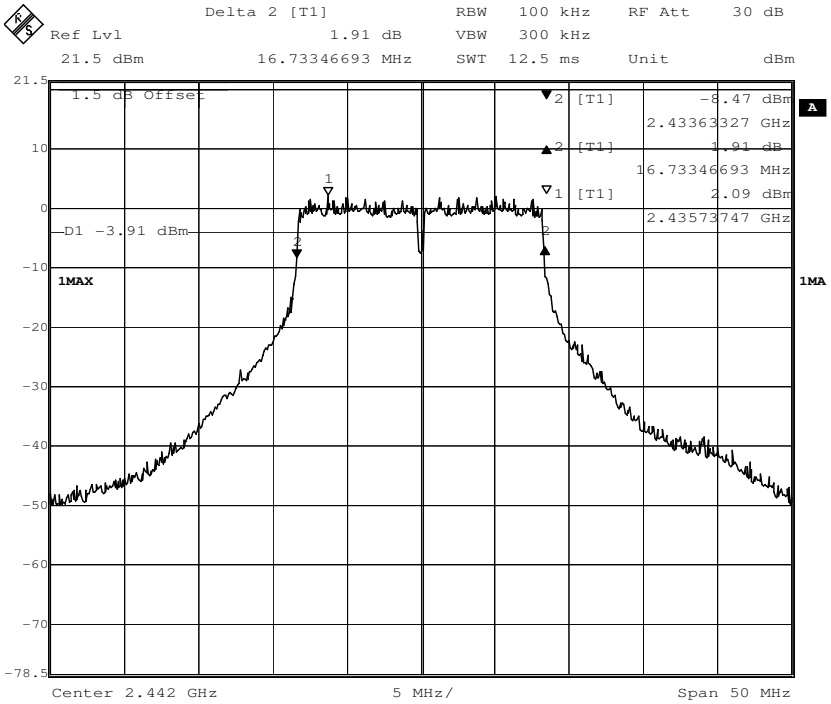
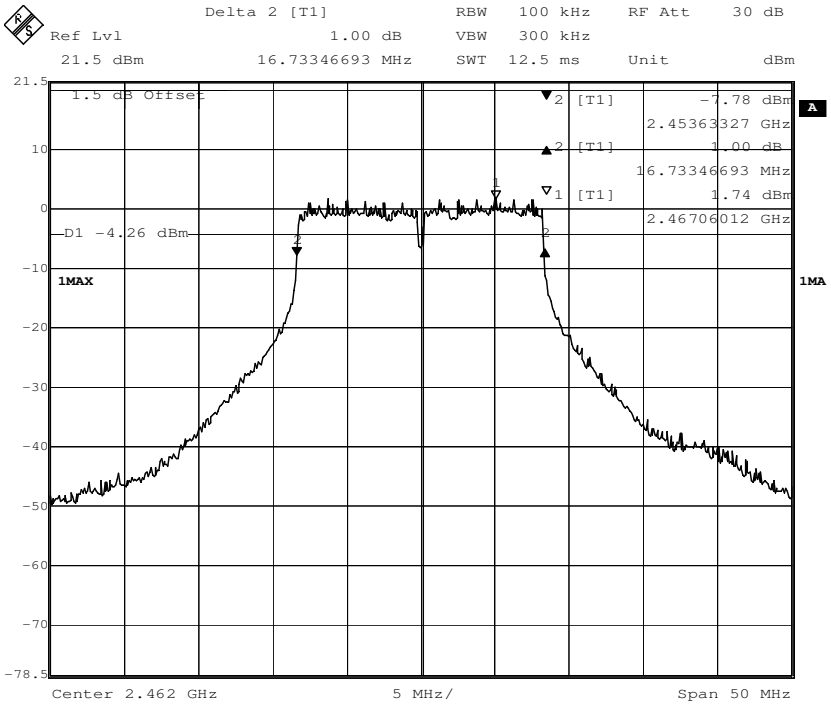
Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



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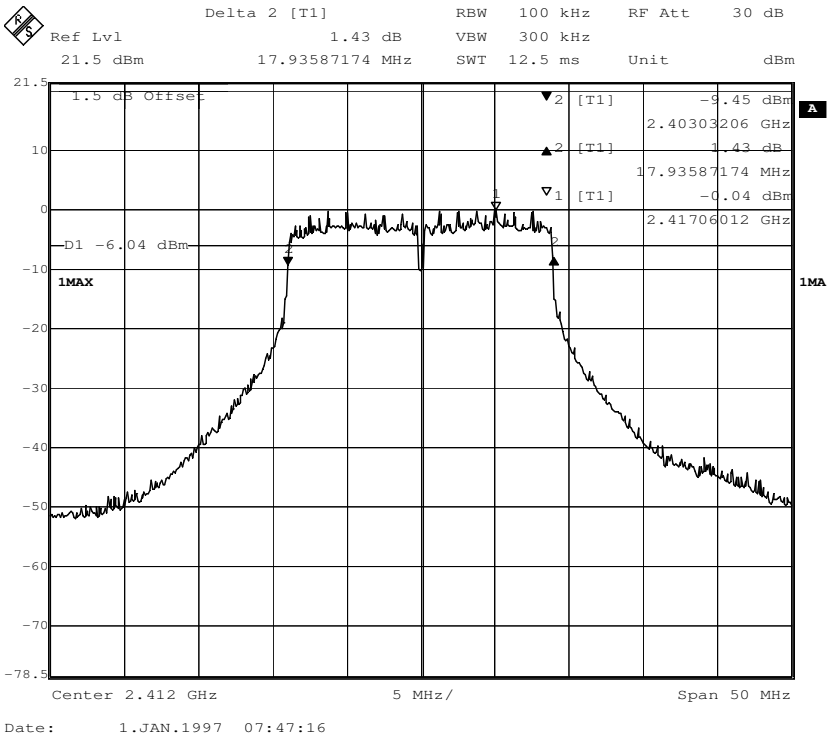
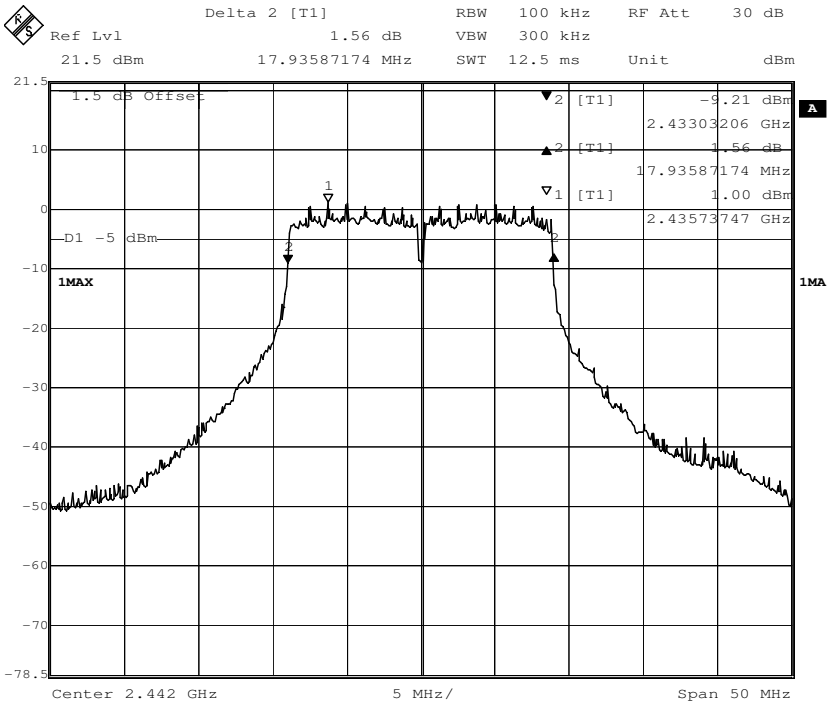
802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



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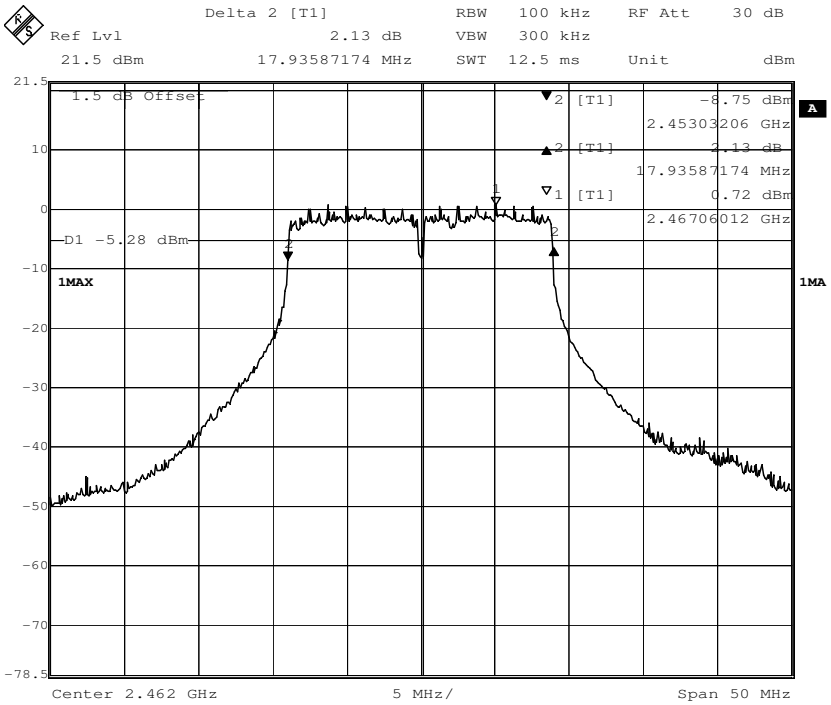
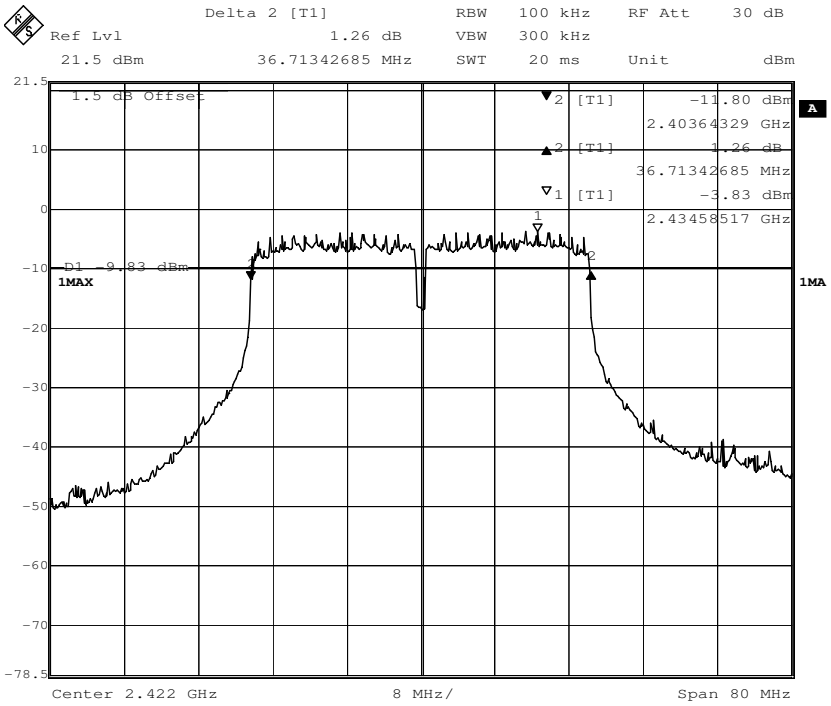
Channel 11: 2.462GHz:



802.11n(HT40) mode with 135Mbps data rate

Channel 3: 2.422GHz:



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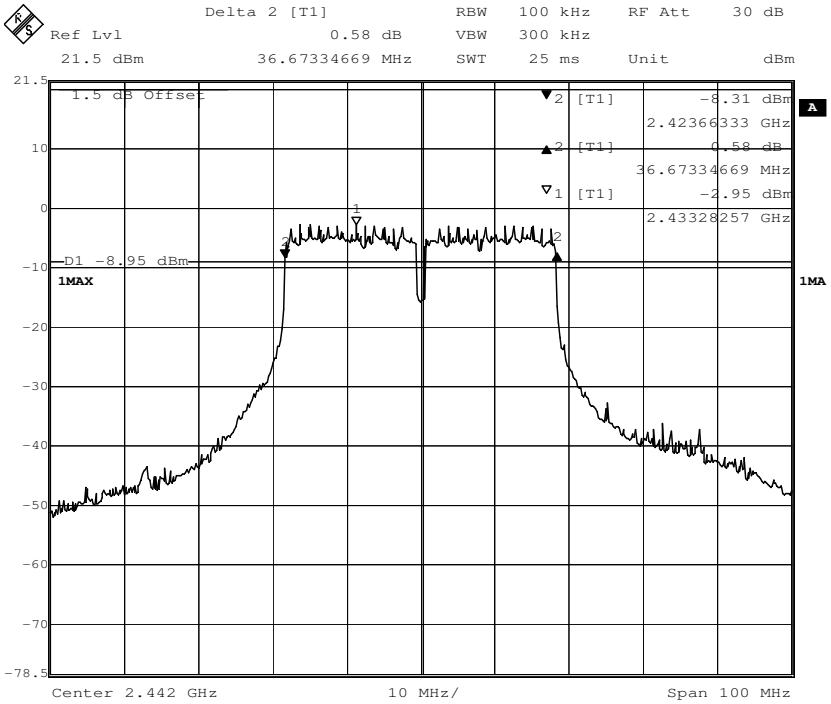
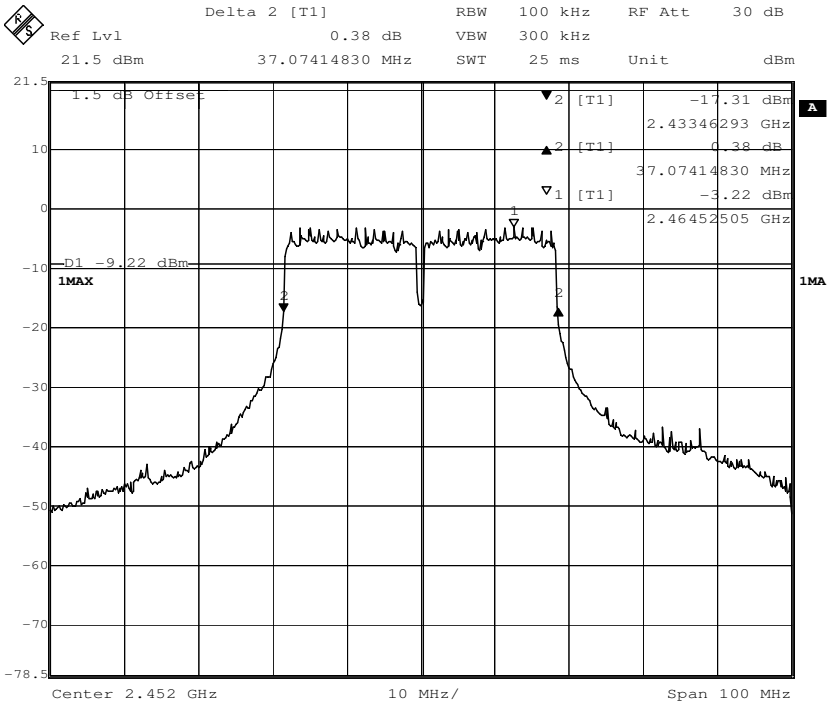
Channel 7: 2.442GHz:



Channel 9: 2.452GHz:



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7.4 Maximum Peak Output Power

Test Requirement: FCC Part 15 C section 15.247

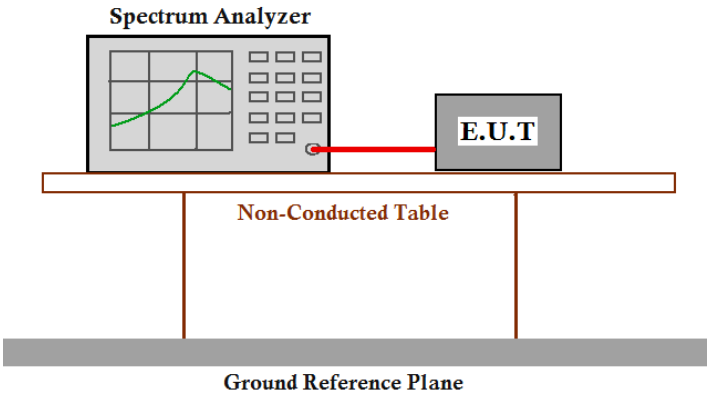
(b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

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:



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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.

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Test result:

Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
1	2412	802.11b	11 Mbps	18.45	1W(30dBm)	Pass
7	2442		11 Mbps	18.57		Pass
11	2462		11 Mbps	18.40		Pass
1	2412	802.11g	54 Mbps	18.22		Pass
7	2442		54 Mbps	18.30		Pass
11	2462		54 Mbps	18.47		Pass
1	2412	802.11n (HT20)	65 Mbps	16.38		Pass
7	2442		65 Mbps	16.65		Pass
11	2462		65 Mbps	16.65		Pass
3	2422	802.11n (HT40)	135Mbps	16.56		Pass
7	2442		135Mbps	16.75		Pass
9	2452		135Mbps	16.61		Pass

Remark: Level = Read Level + Cable Loss

The unit does meet the FCC requirements.

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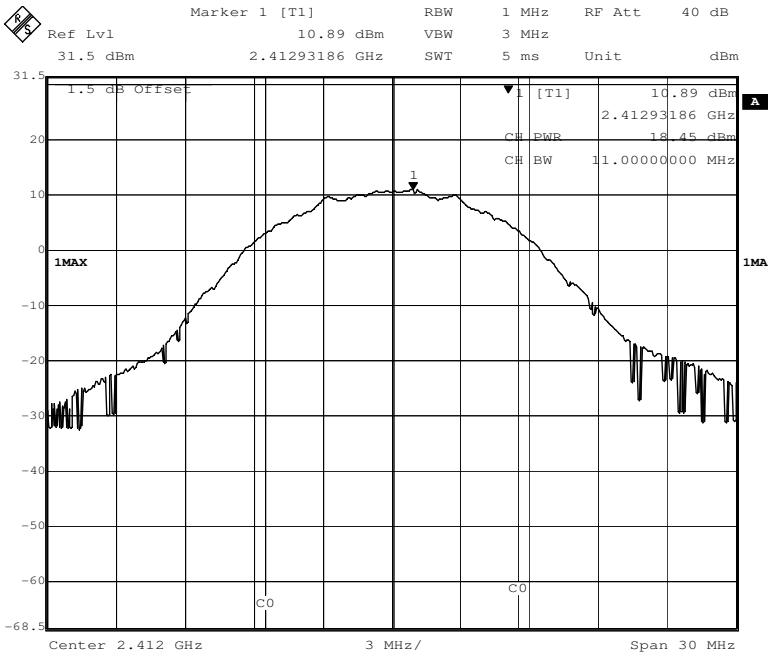
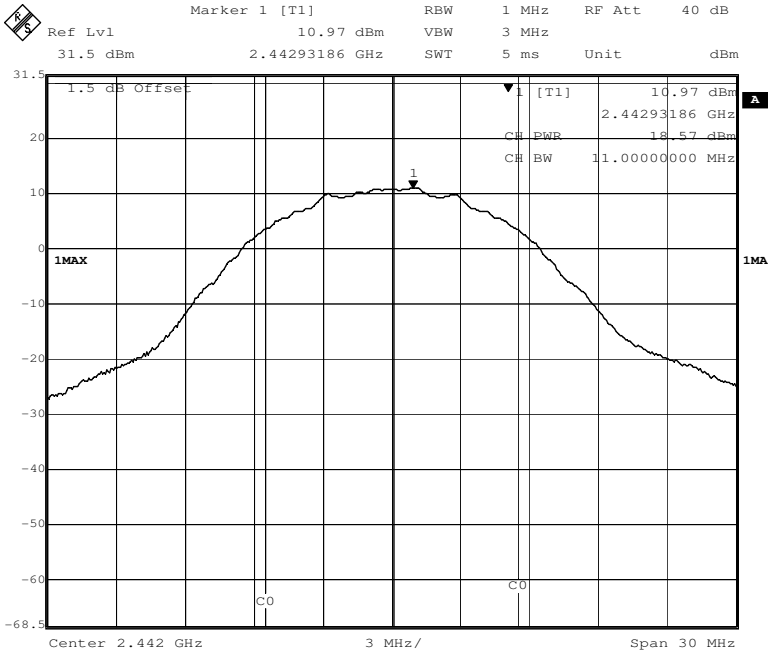
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



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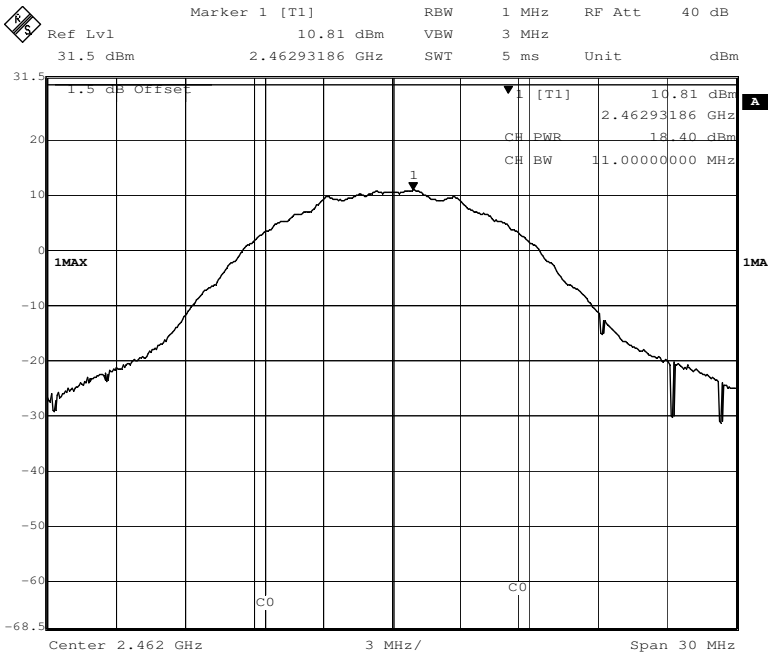
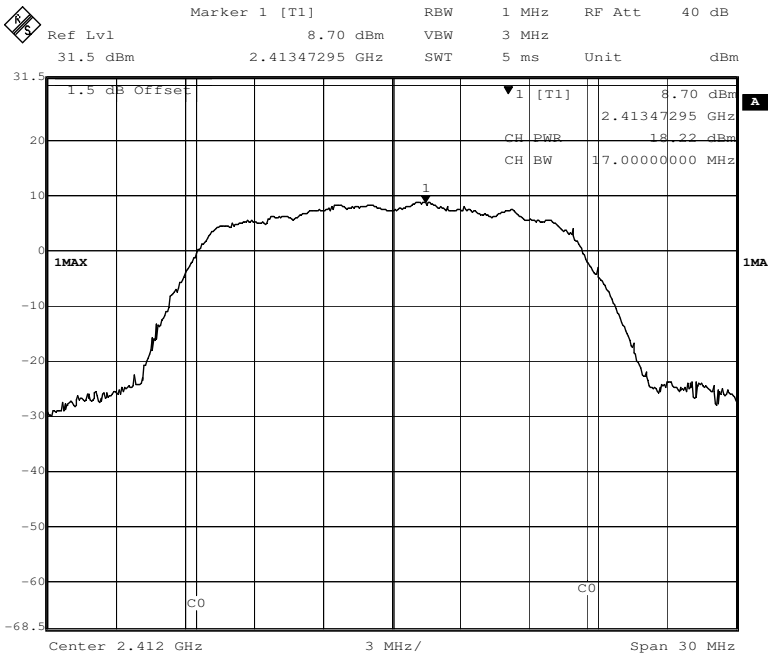
Channel 11: 2.462GHz:



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



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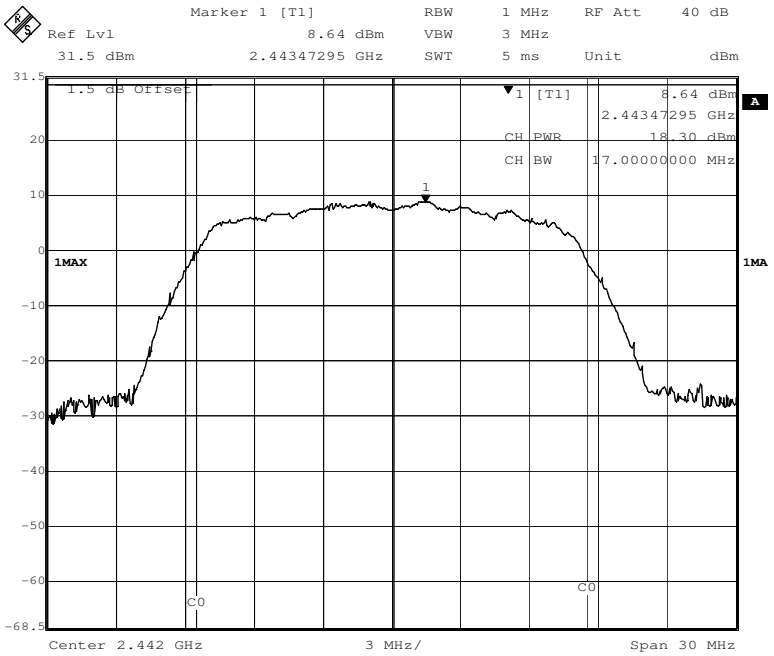
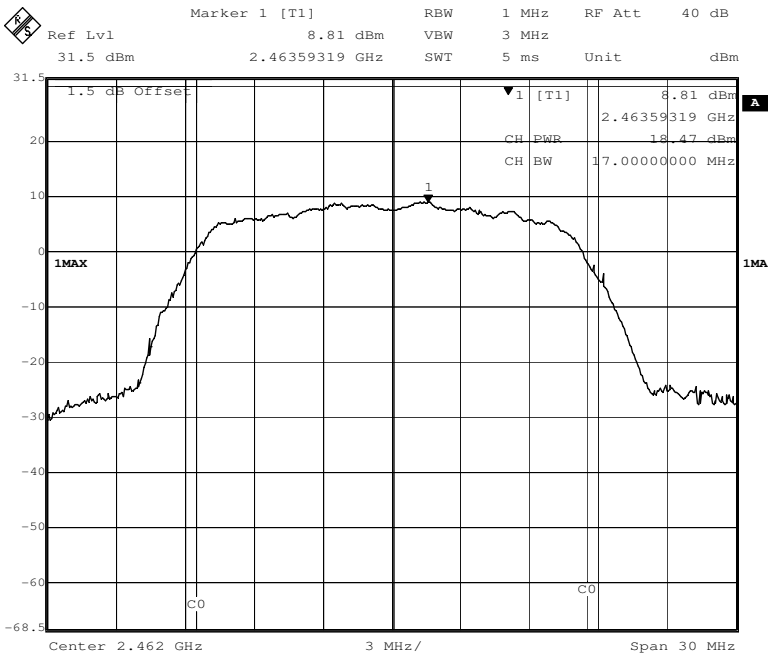
Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



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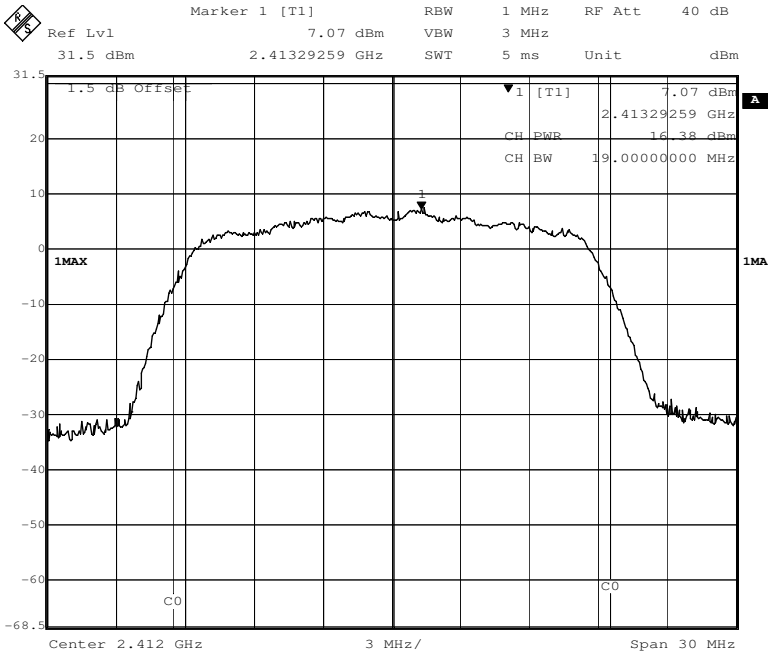
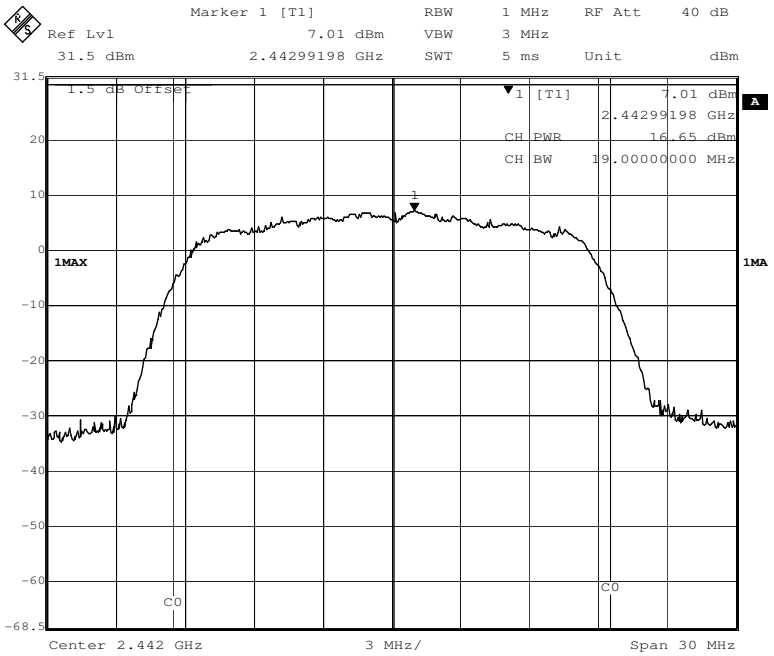
802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



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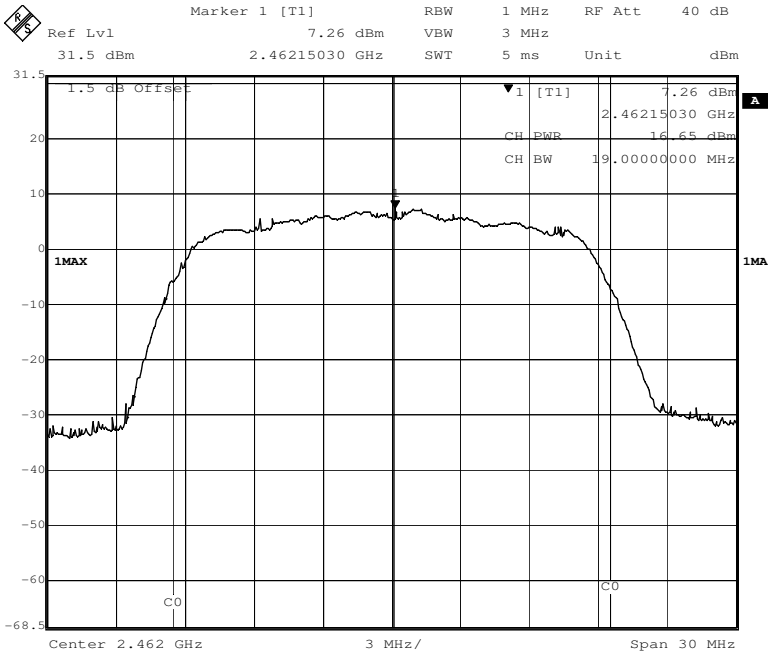
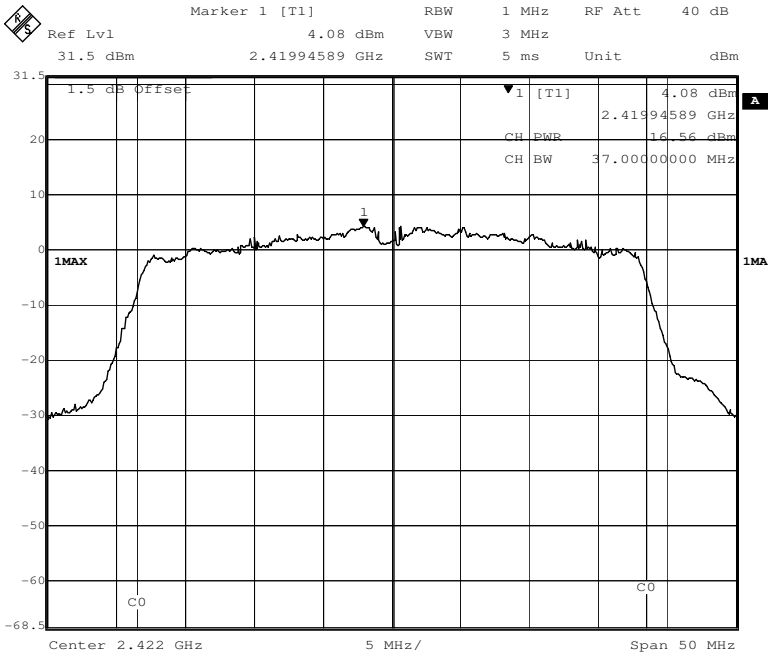
Channel 11: 2.462GHz:



802.11n(HT40) mode with 135Mbps data rate

Channel 3: 2.422GHz:



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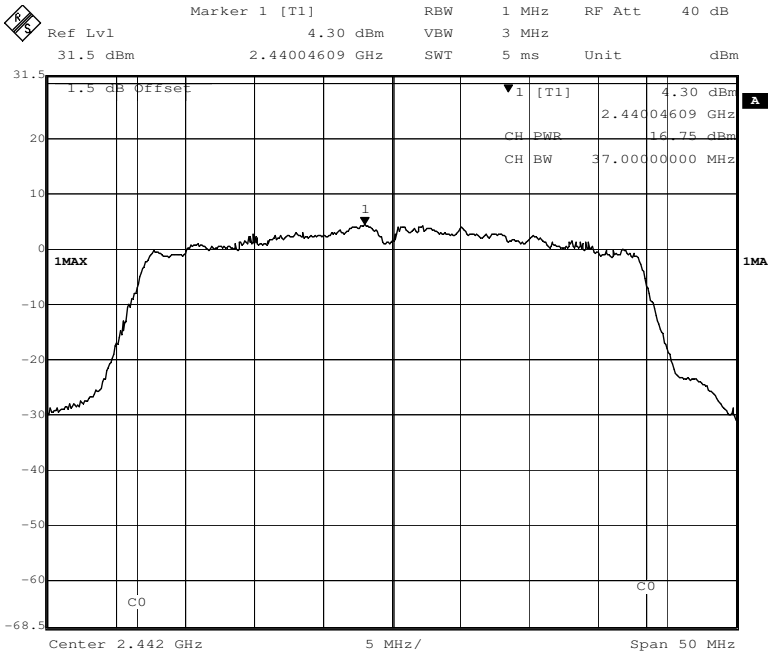
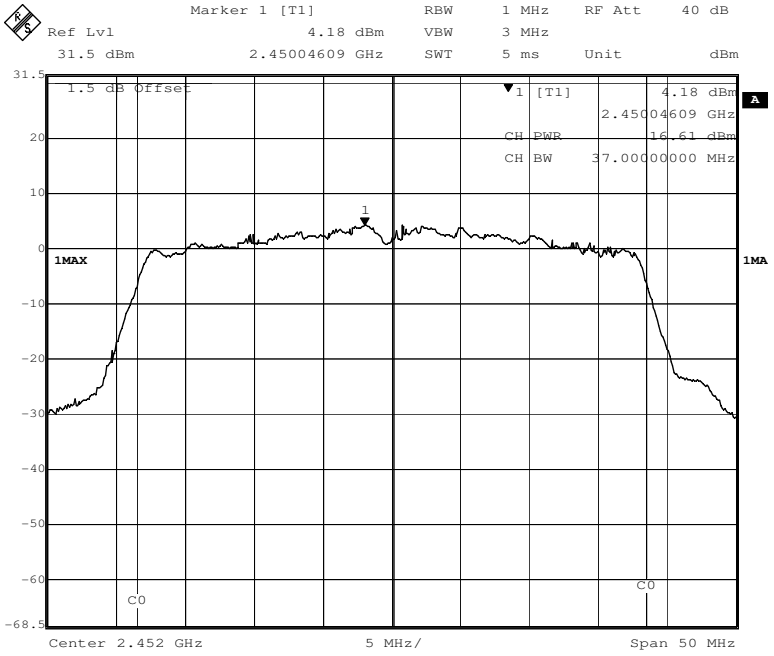
Channel 7: 2.442GHz:



Channel 9: 2.452GHz:



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7.5 Peak Power Spectral Density

Test Requirement: FCC Part 15 C section 15.247

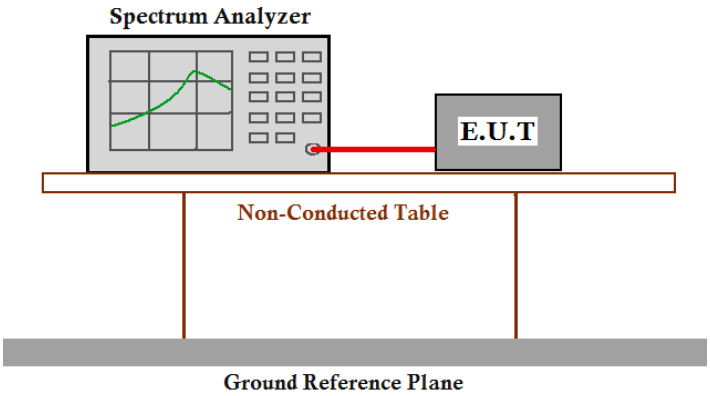
(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

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:



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Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1.5dB) 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 worst case.

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Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
1	2412	802.11b	11 Mbps	-10.11	8dBm/3KHz	Pass
7	2442		11 Mbps	-8.68		Pass
11	2462		11 Mbps	-10.54		Pass
1	2412	802.11g	54 Mbps	-14.95		Pass
7	2442		54 Mbps	-16.34		Pass
11	2462		54 Mbps	-13.63		Pass
1	2412	802.11n (HT20)	65 Mbps	-13.91		Pass
7	2442		65 Mbps	-14.06		Pass
11	2462		65 Mbps	-14.85		Pass
3	2422	802.11n (HT40)	135 Mbps	-19.20		Pass
7	2442		135 Mbps	-18.15		Pass
9	2452		135 Mbps	-17.76		Pass

Test result: Level = Read Level + Cable Loss.

The unit does meet the FCC requirements.

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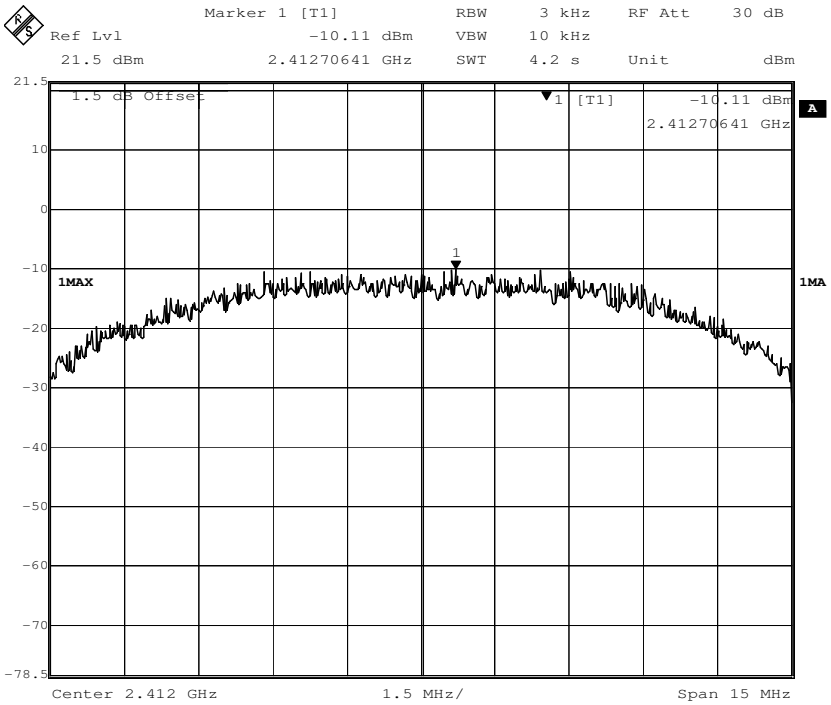
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



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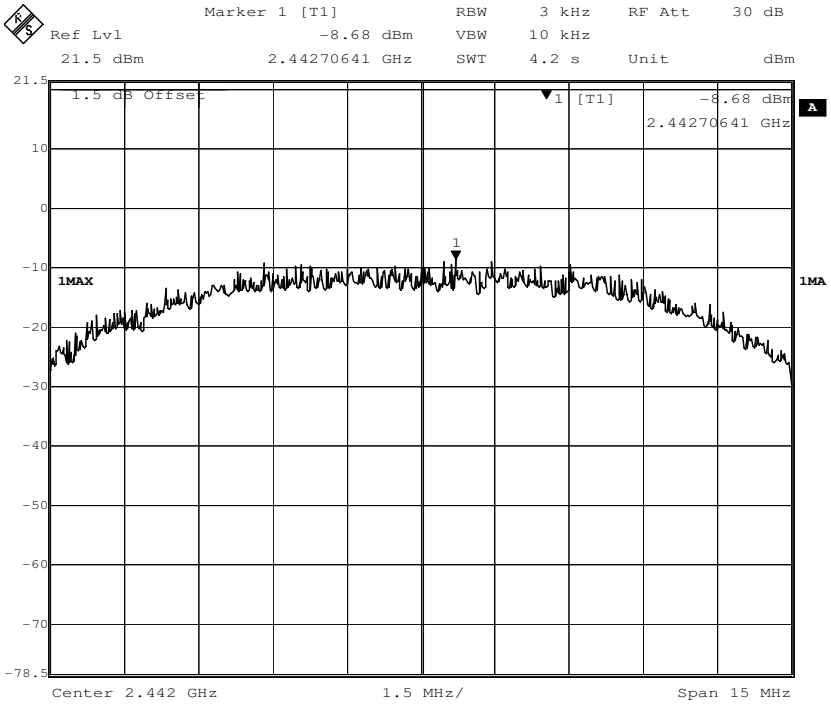
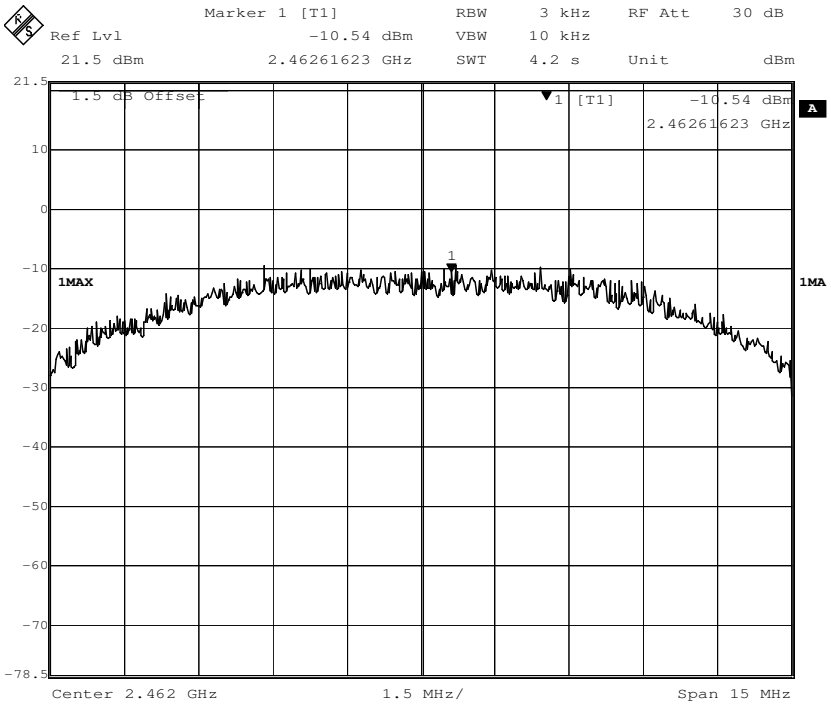
Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



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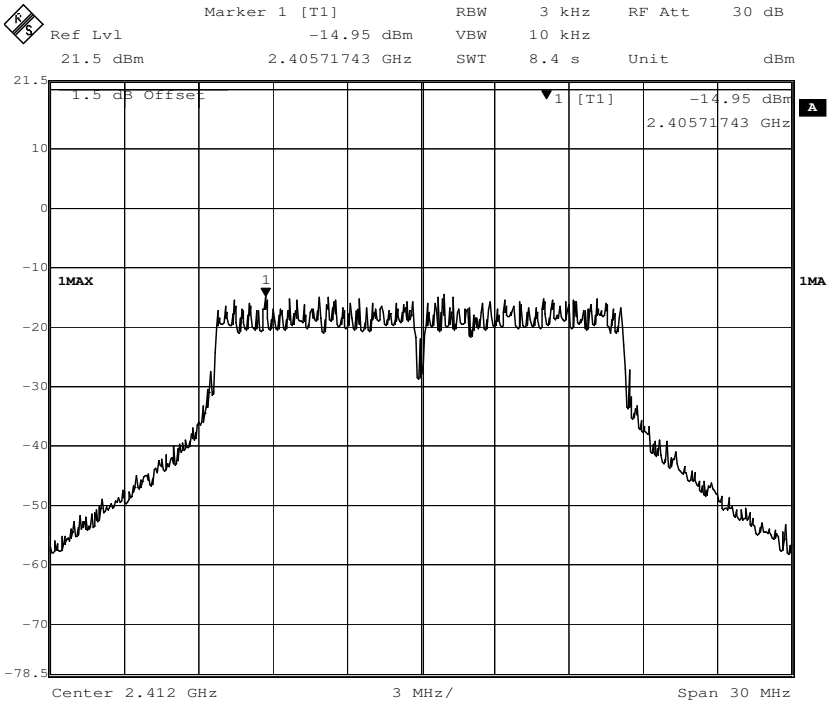
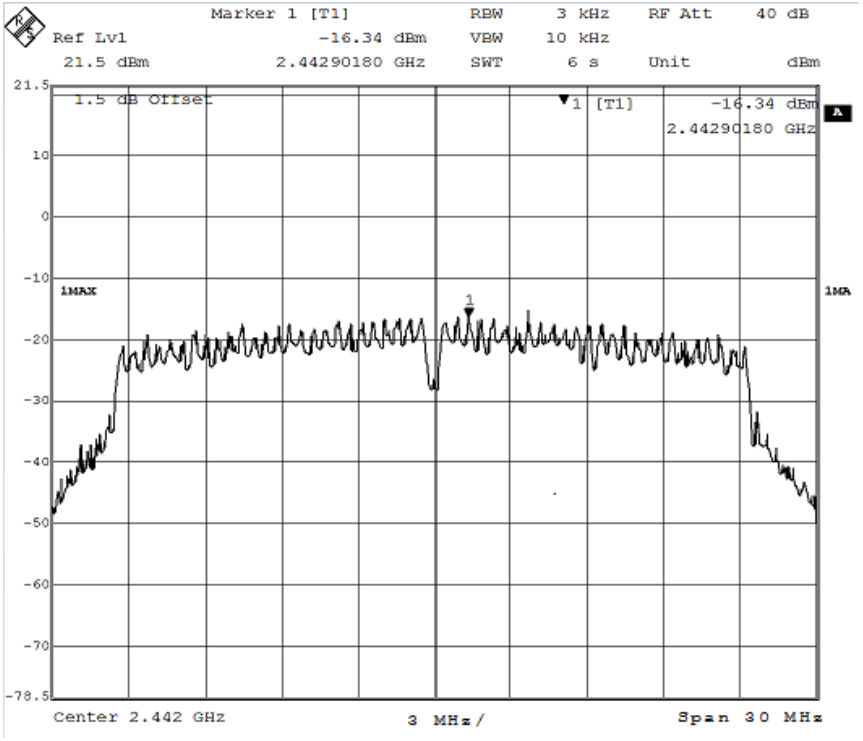
802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



Channel 7: 2.442GHz:



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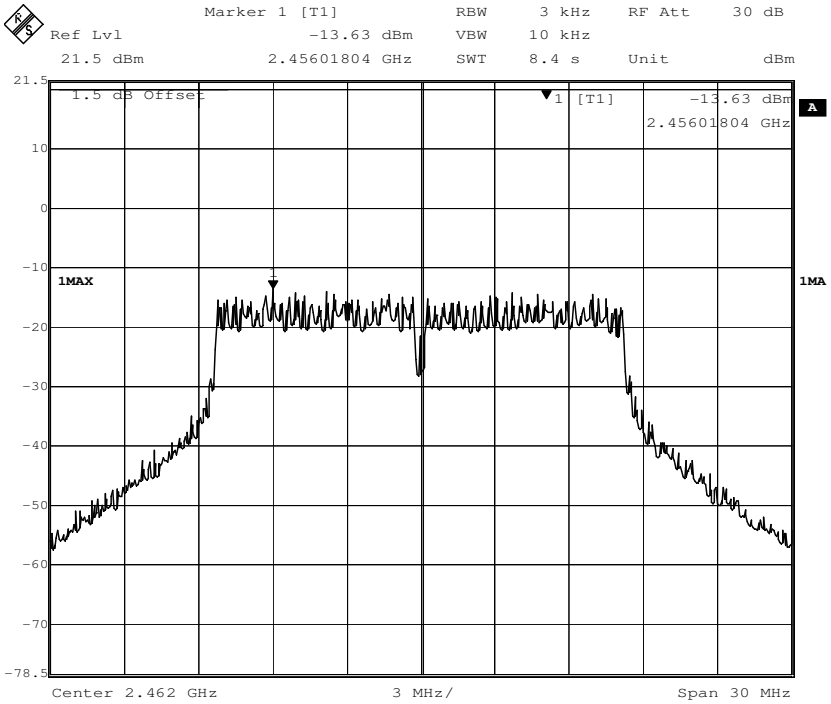
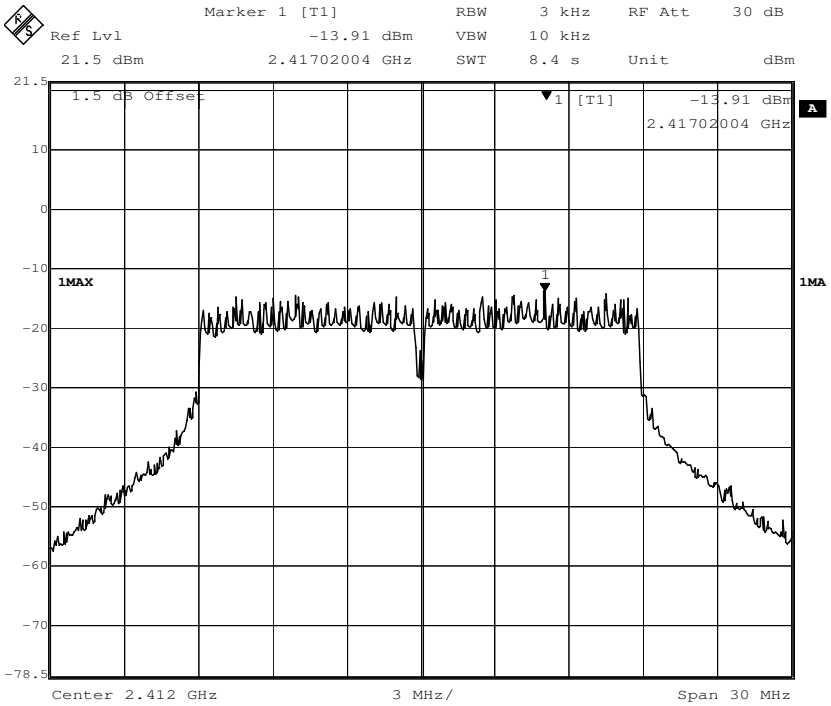
Channel 11: 2.462GHz:



802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:



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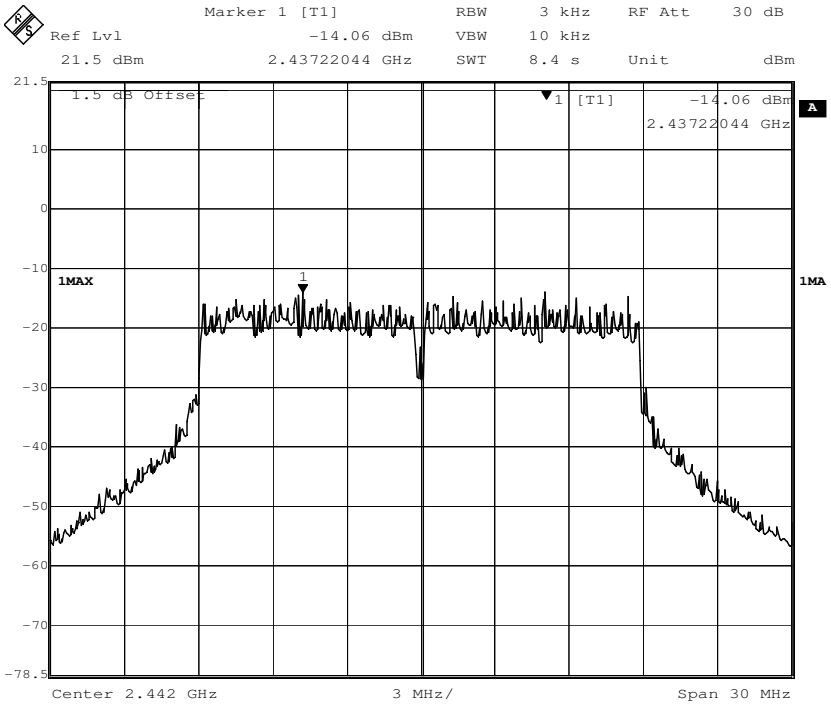
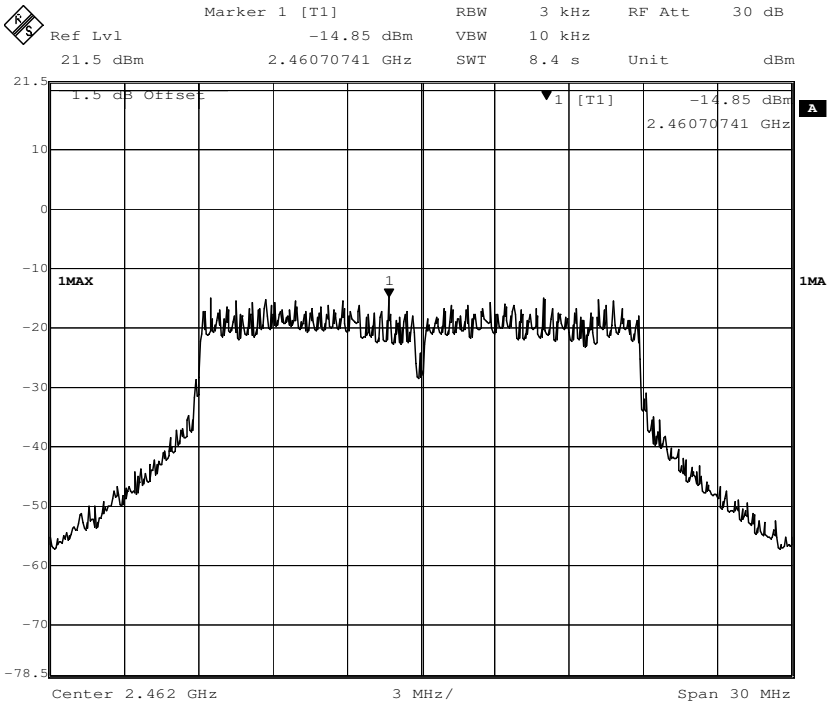
Channel 7: 2.442GHz:



Channel 11: 2.462GHz:



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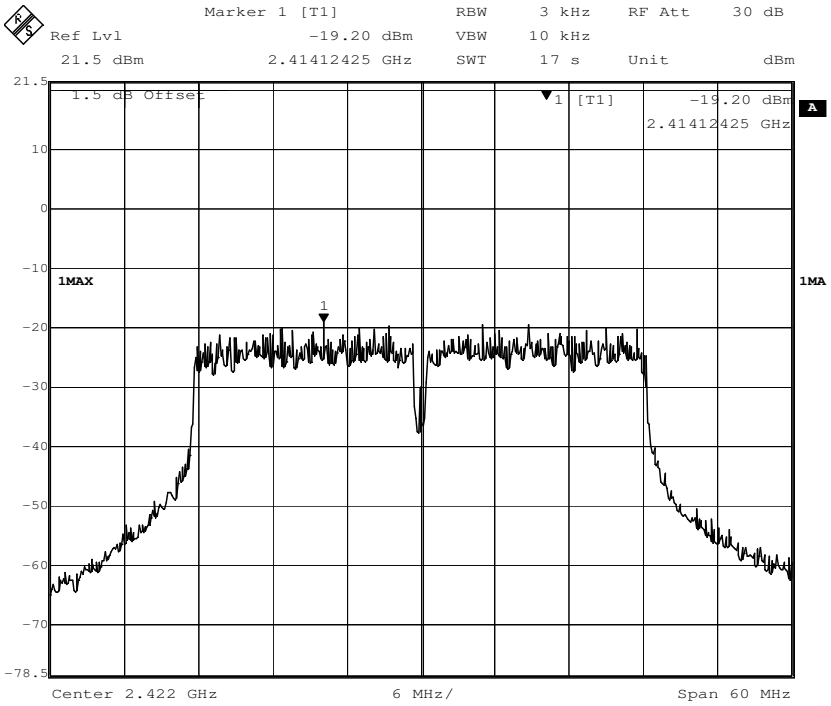
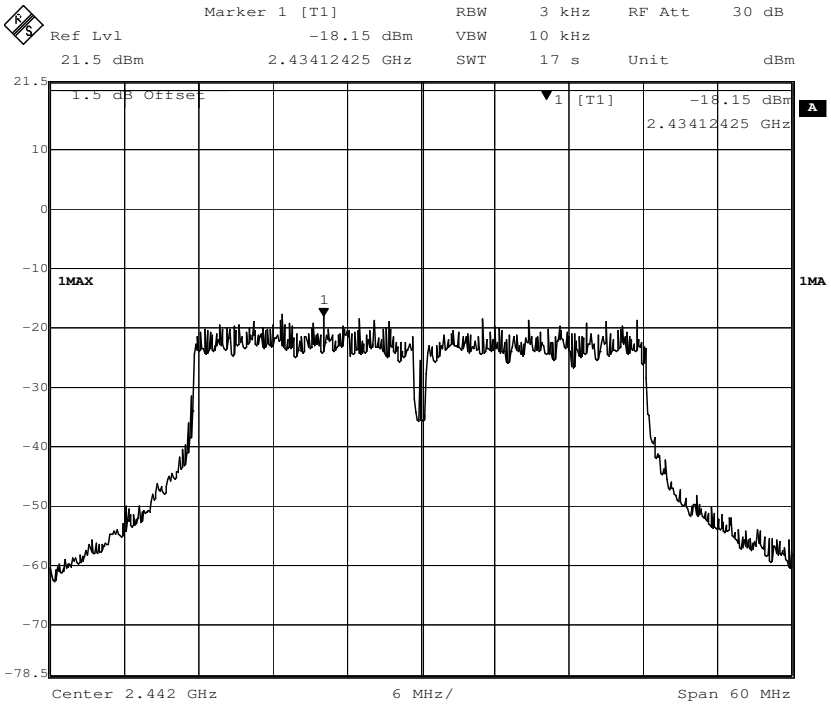
802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:



Channel 7: 2.442GHz:



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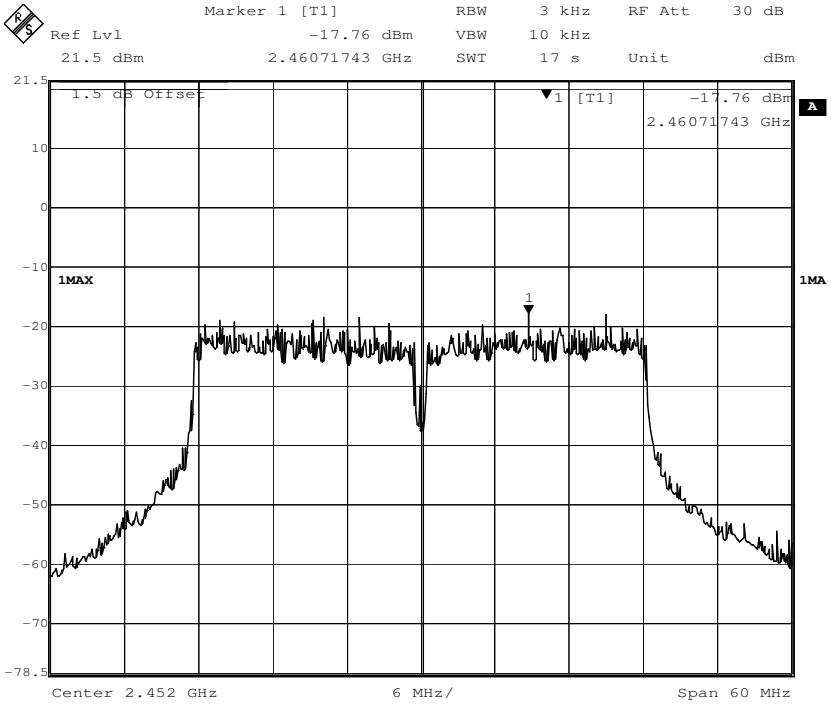
Channel 9: 2.452GHz:



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7.6 Conducted Spurious Emissions

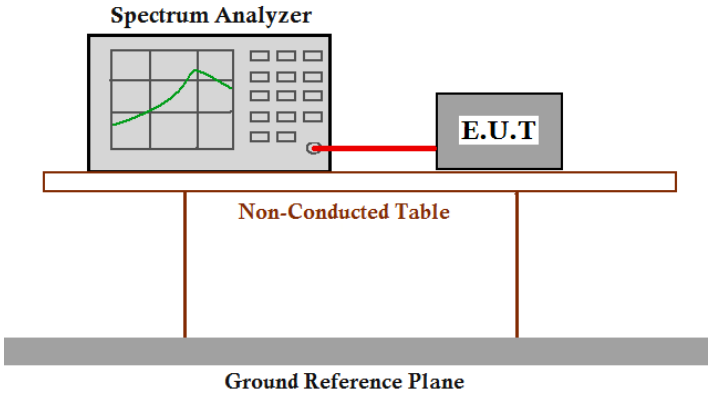
Test Requirement: FCC Part 15 C section 15.247

(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.

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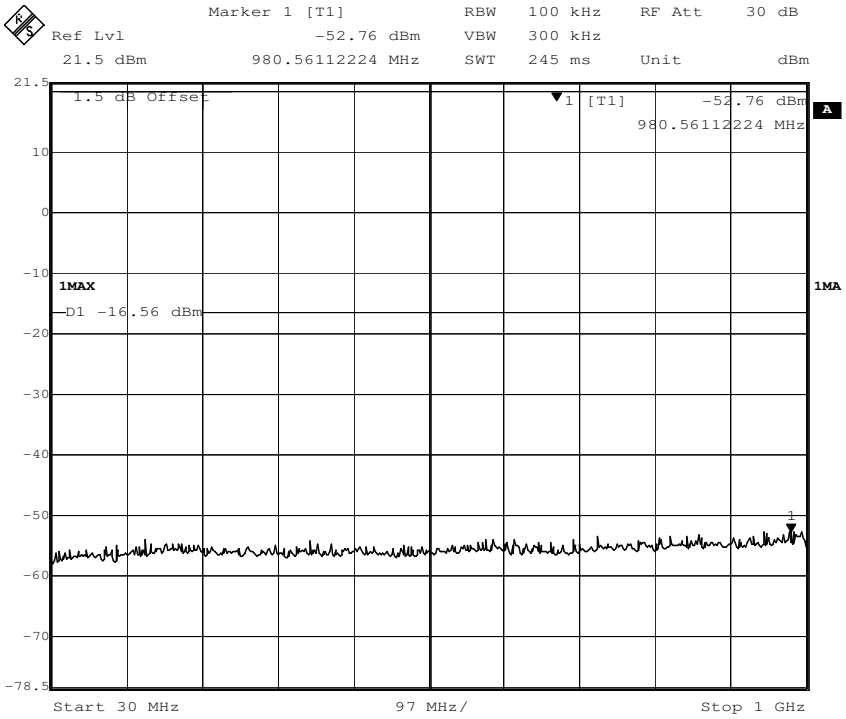
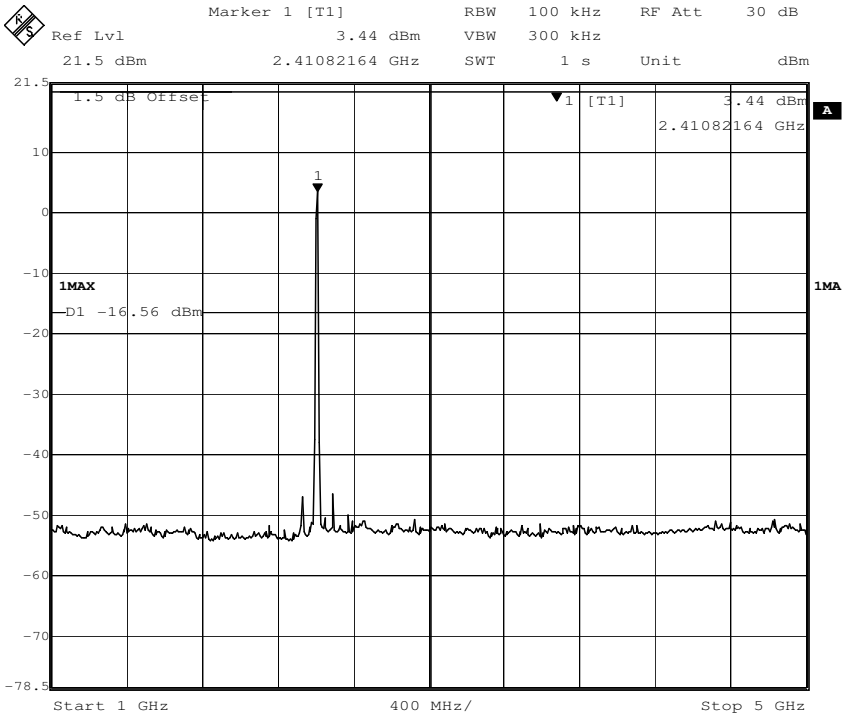
Result plot as follows:
802.11b mode with 11Mbps data rate
Channel 1: 2.412GHz:
30 MHz to 1 GHz



1 G to 5 GHz



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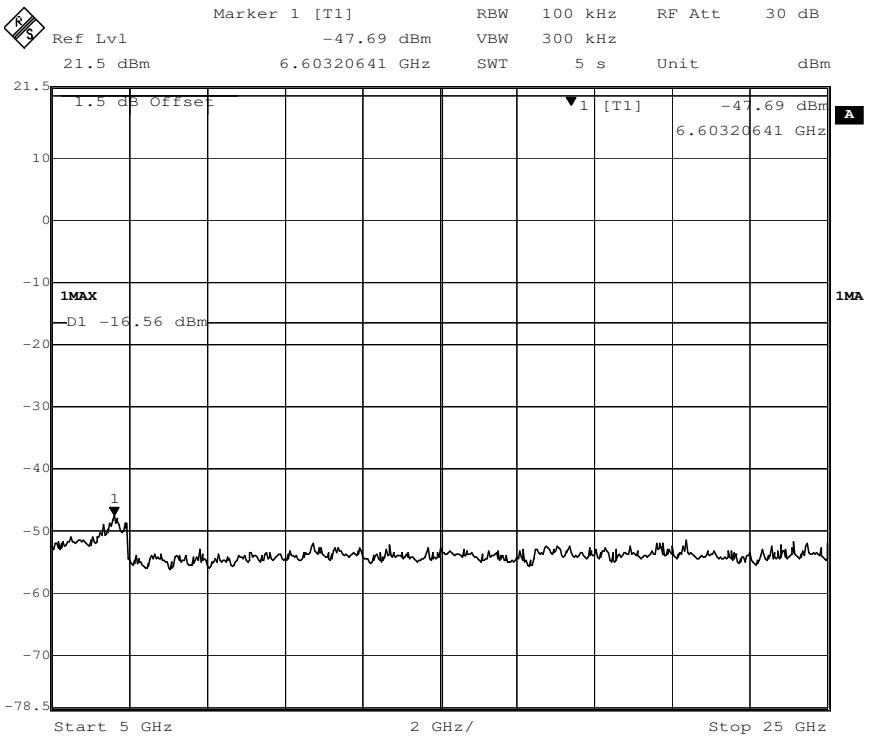
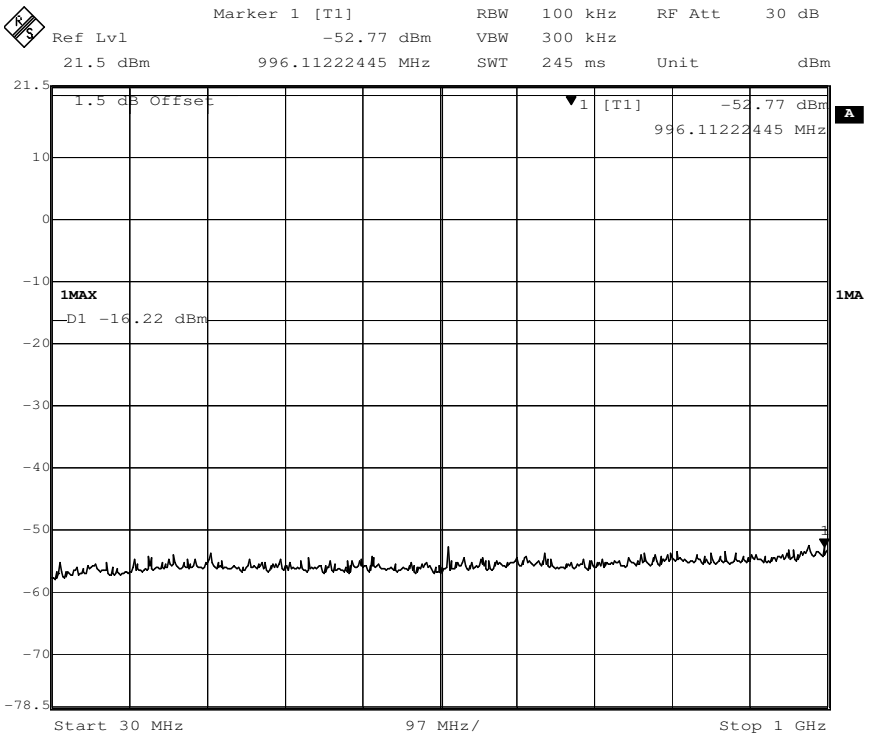
5 G to 25 GHz



Channel 7: 2.442GHz:

30 MHz to 1 GHz



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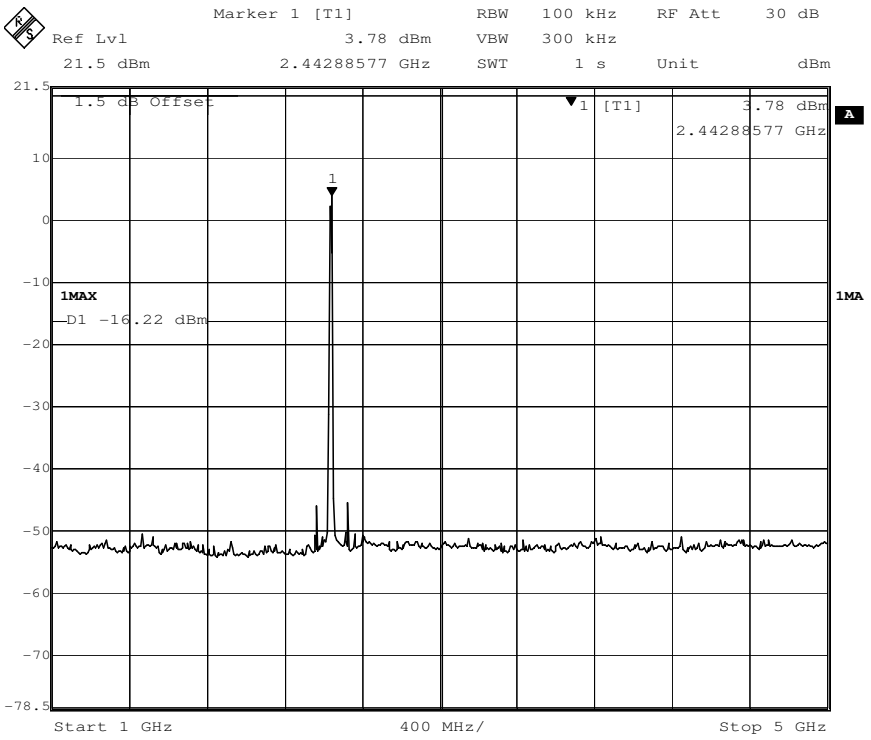
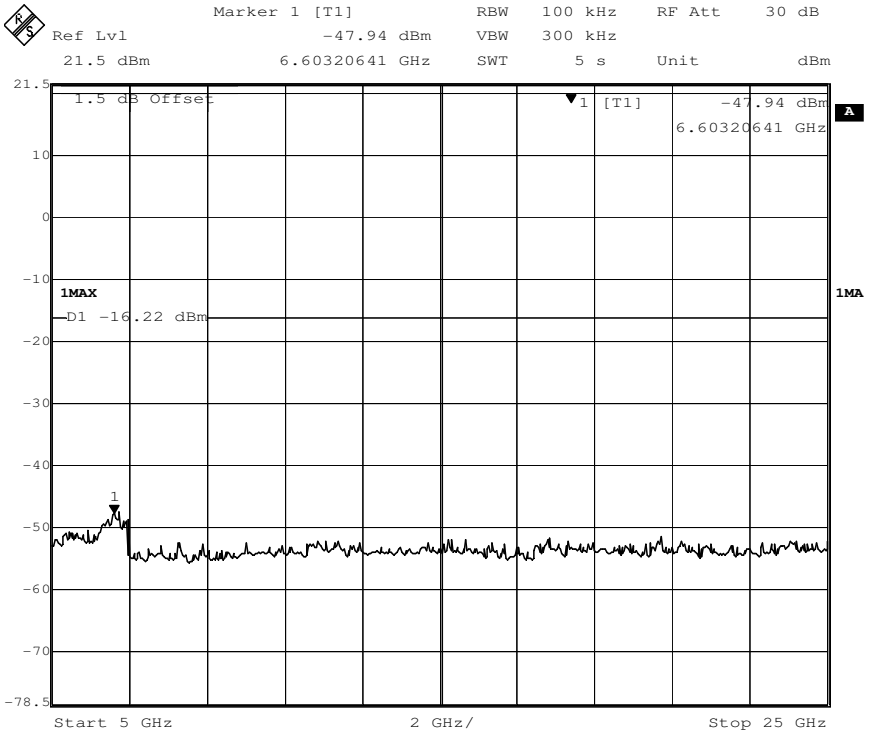
1 G to 5 GHz



5 G to 25 GHz



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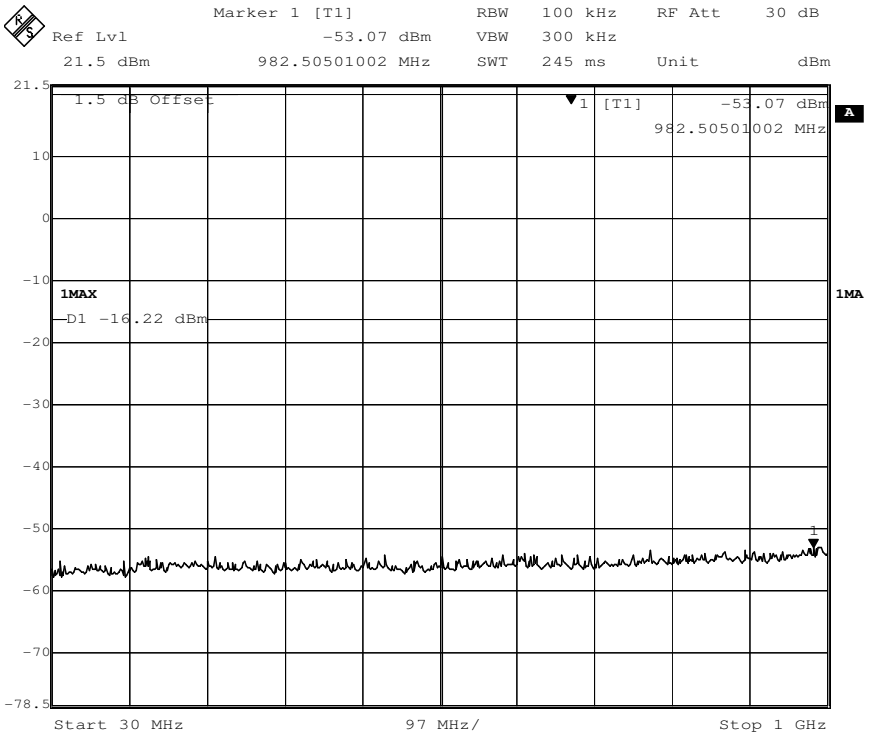
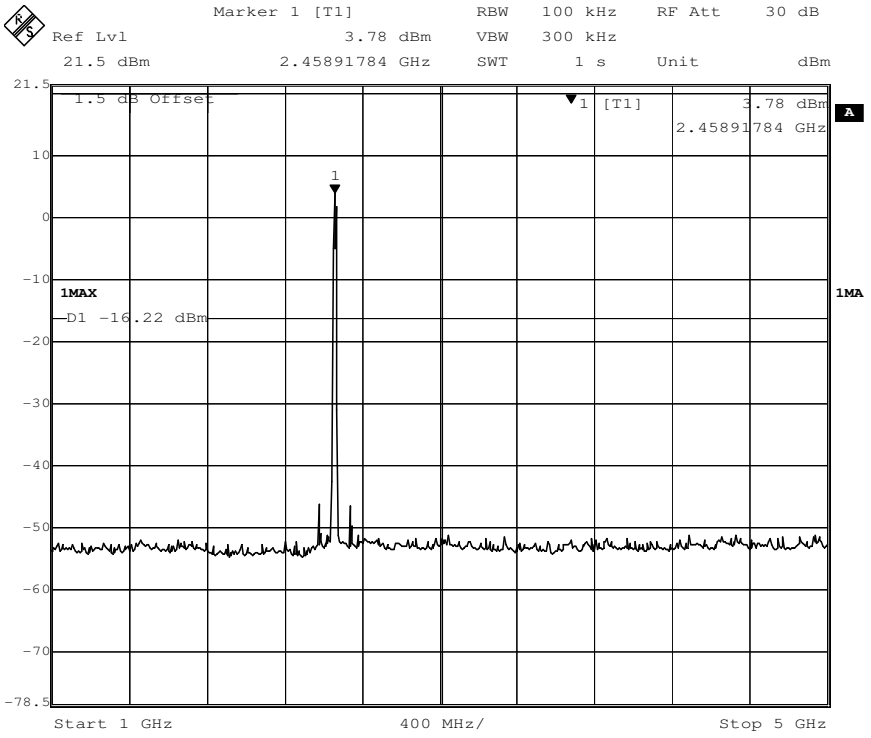
Channel 11:2.462 GHz

30 MHz to 1 GHz



1 G to 5 GHz



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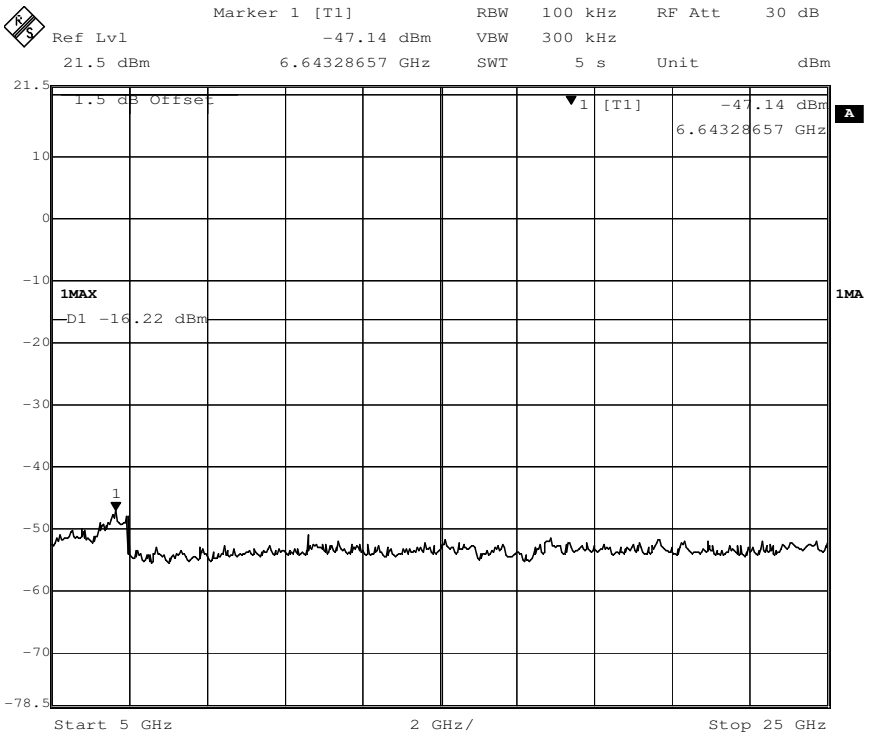
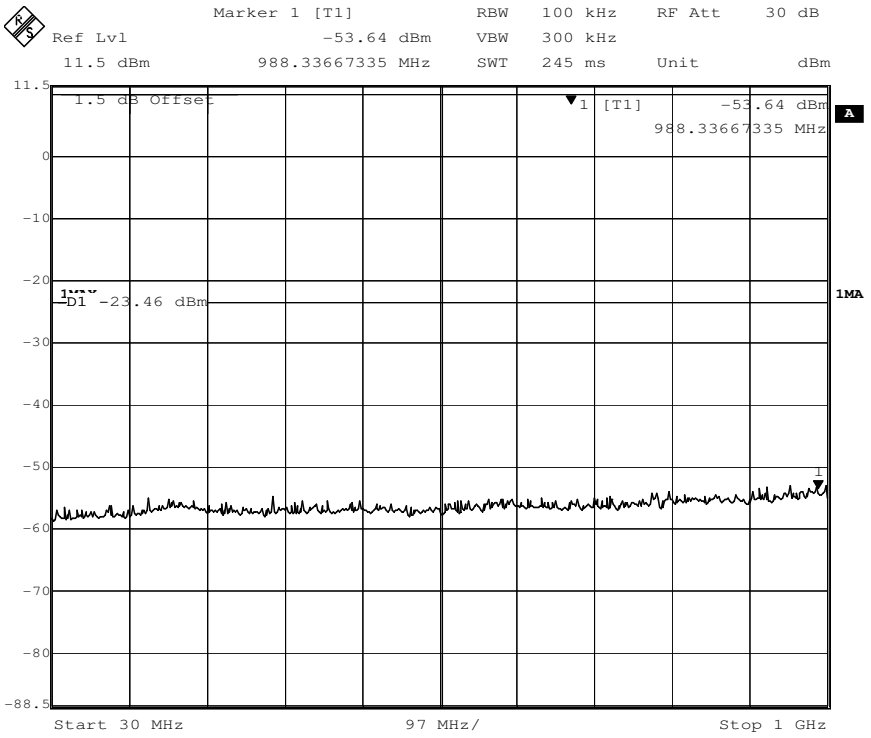
5 G to 25 GHz



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz



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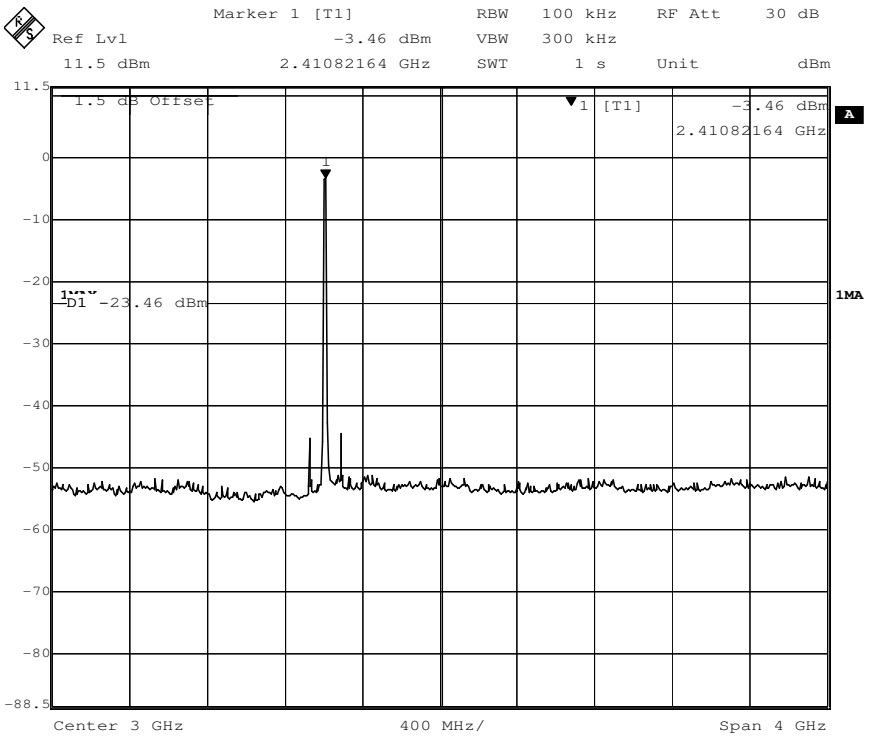
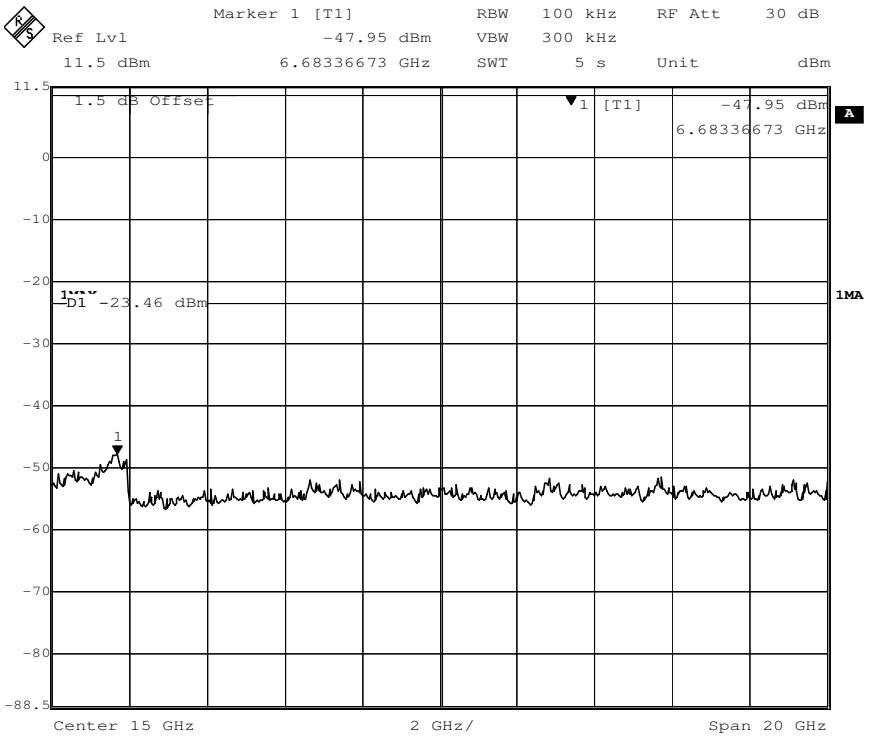
1 G to 5 GHz



5 G to 25 GHz



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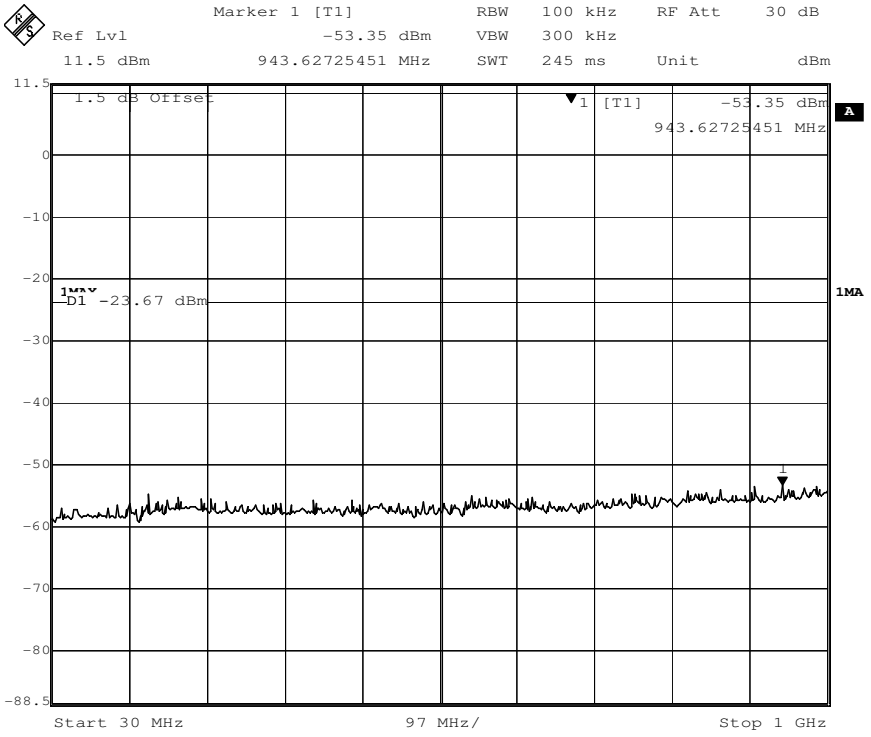
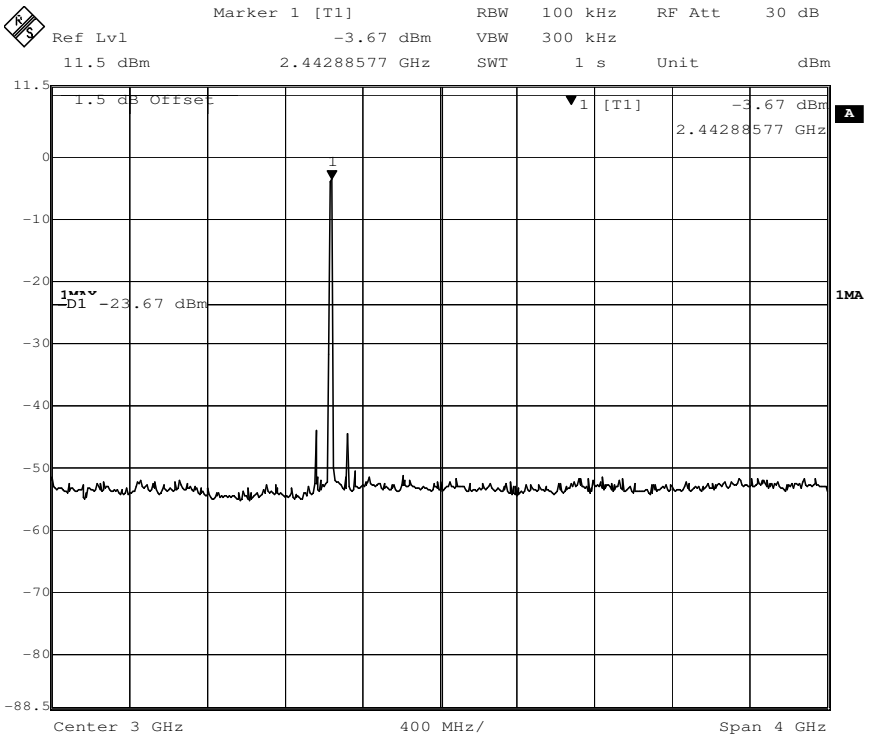
Channel 7: 2.442GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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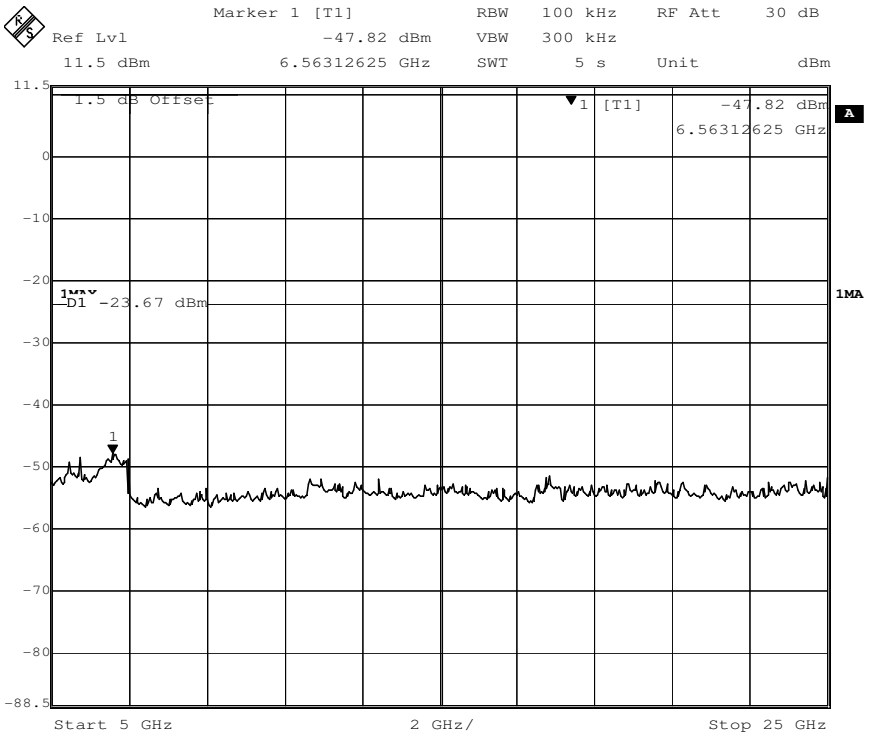
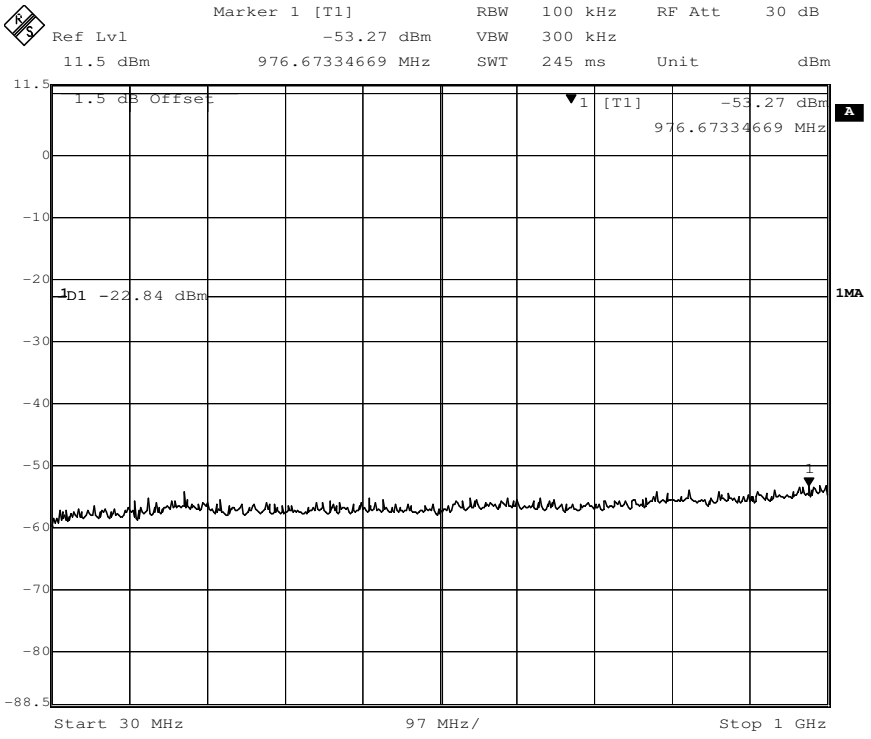
5 G to 25 GHz



Channel 11:2.462 GHz
30 MHz to 1 GHz



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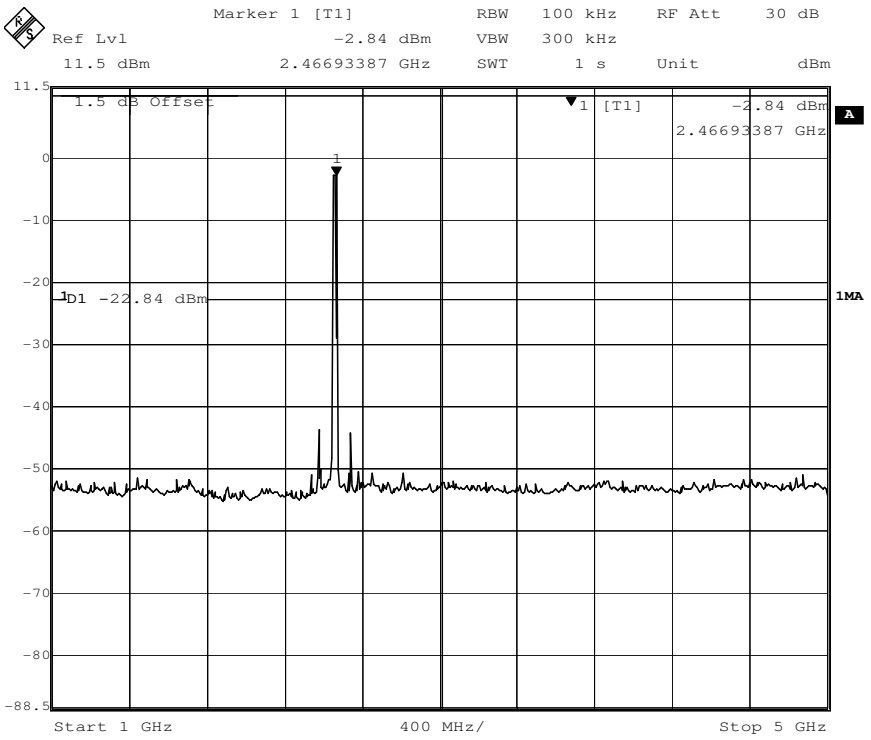
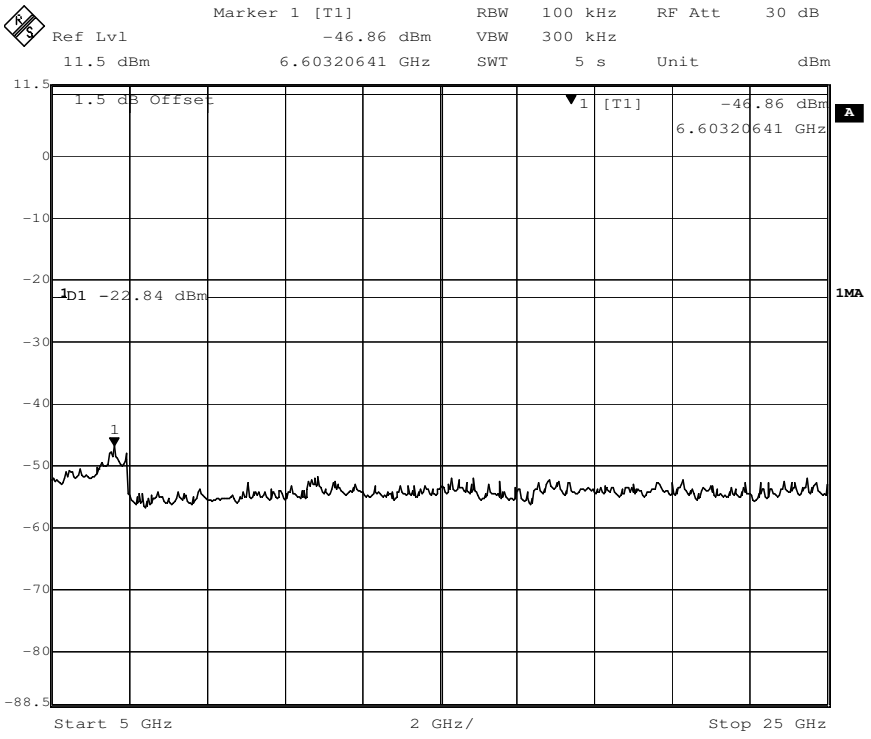
1 G to 5 GHz



5 G to 25 GHz



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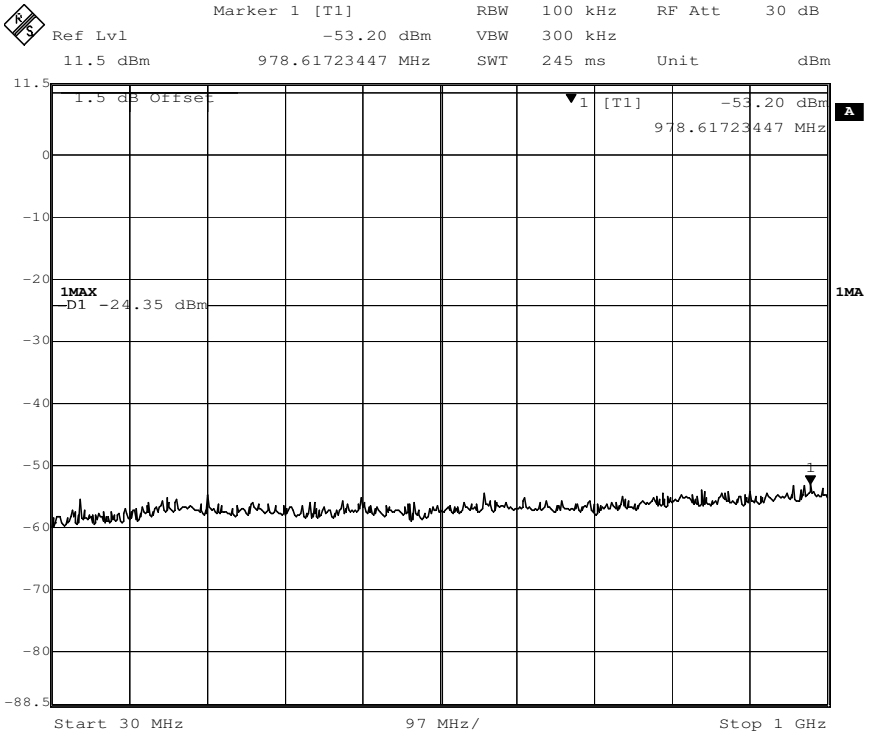
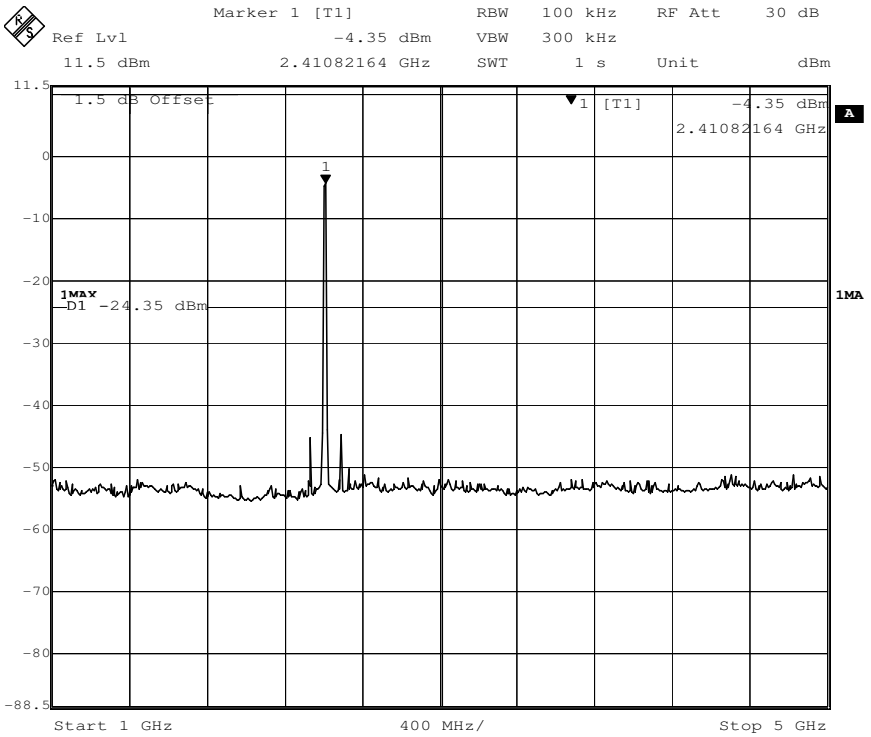
802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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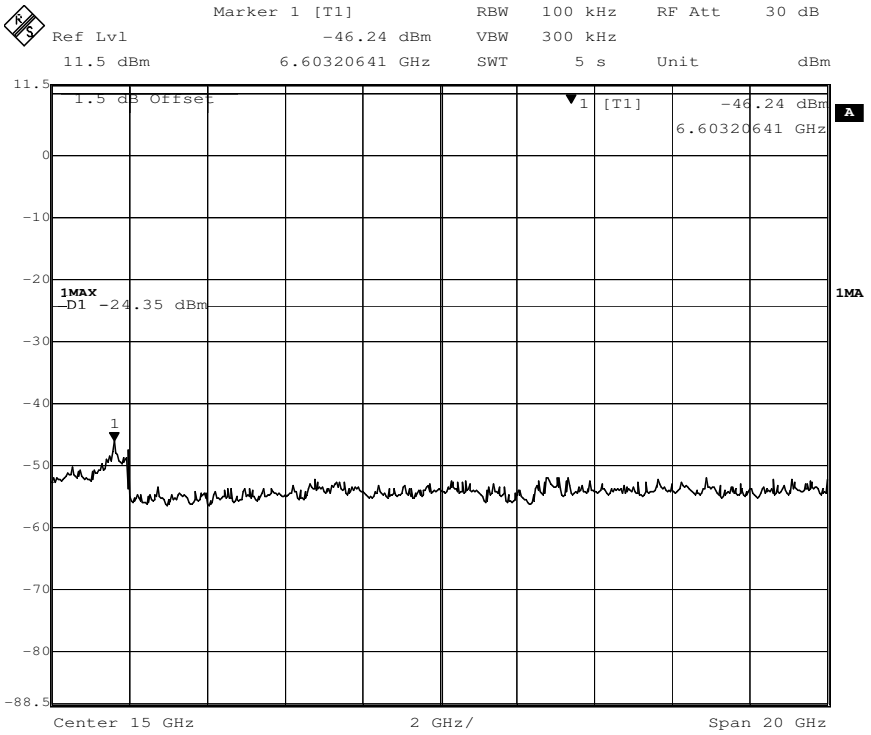
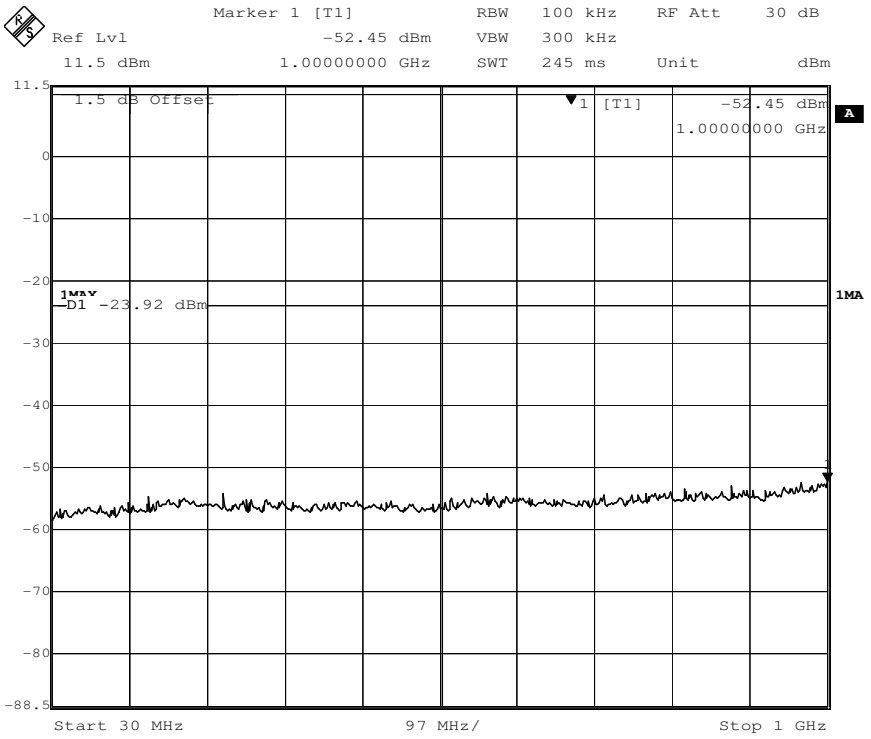
5 G to 25 GHz



Channel 7: 2.442GHz:

30 MHz to 1 GHz



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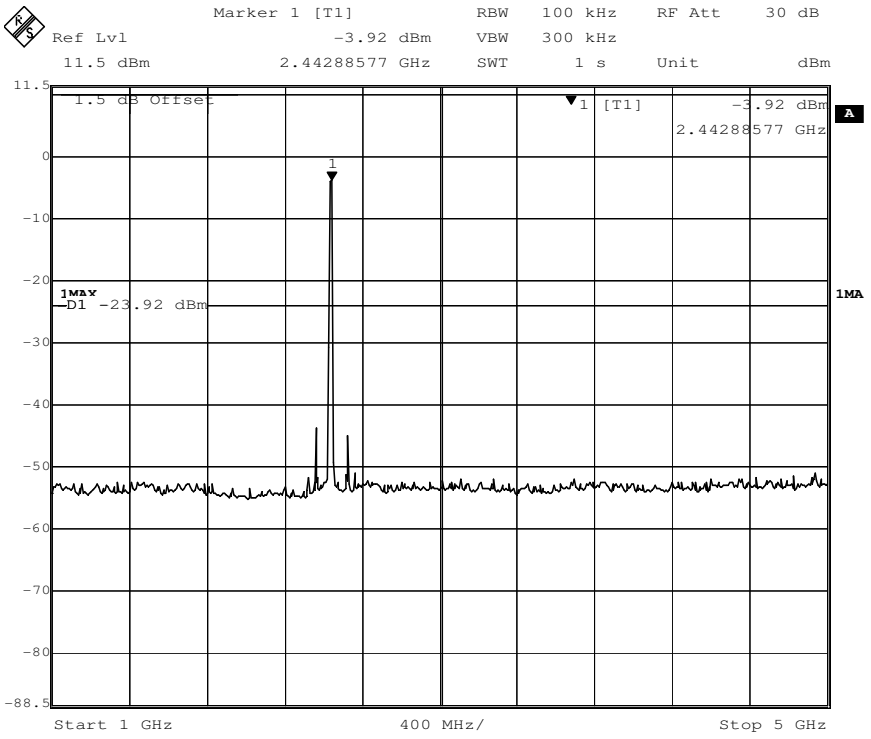
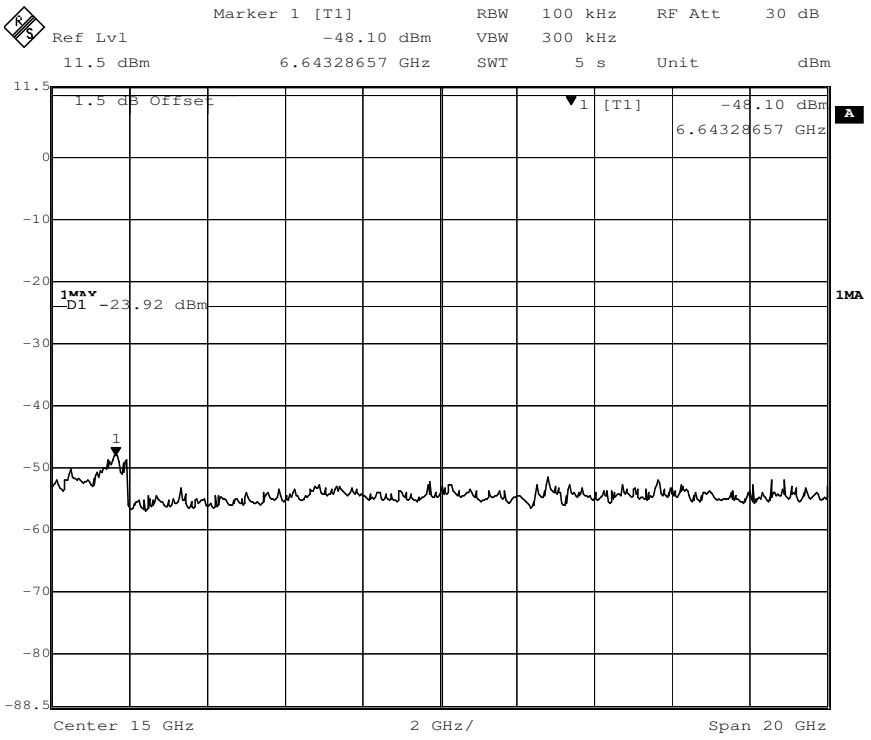
1 G to 5 GHz



5 G to 25 GHz



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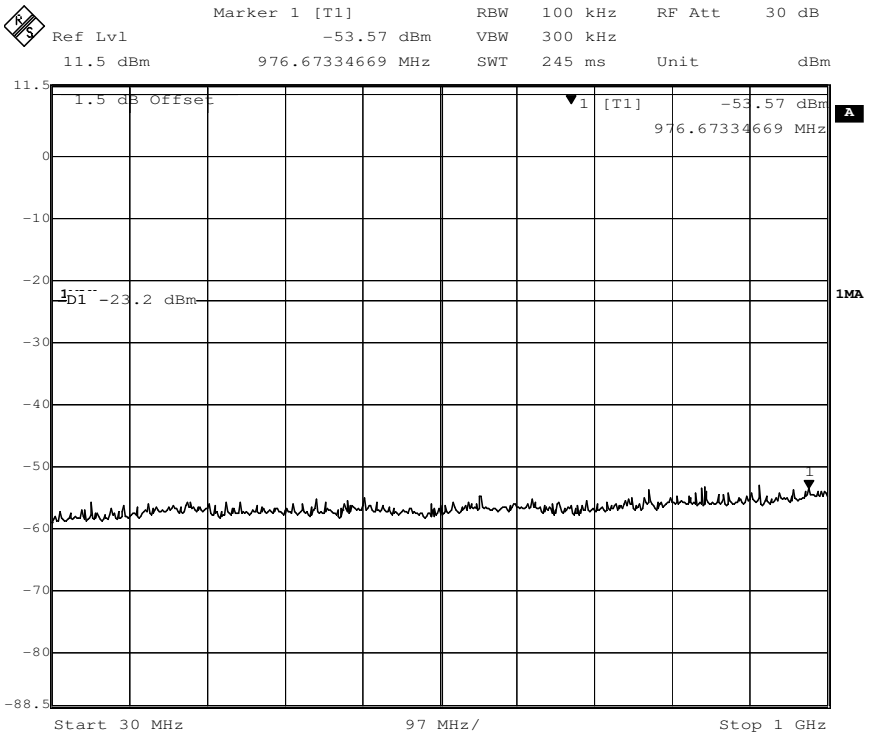
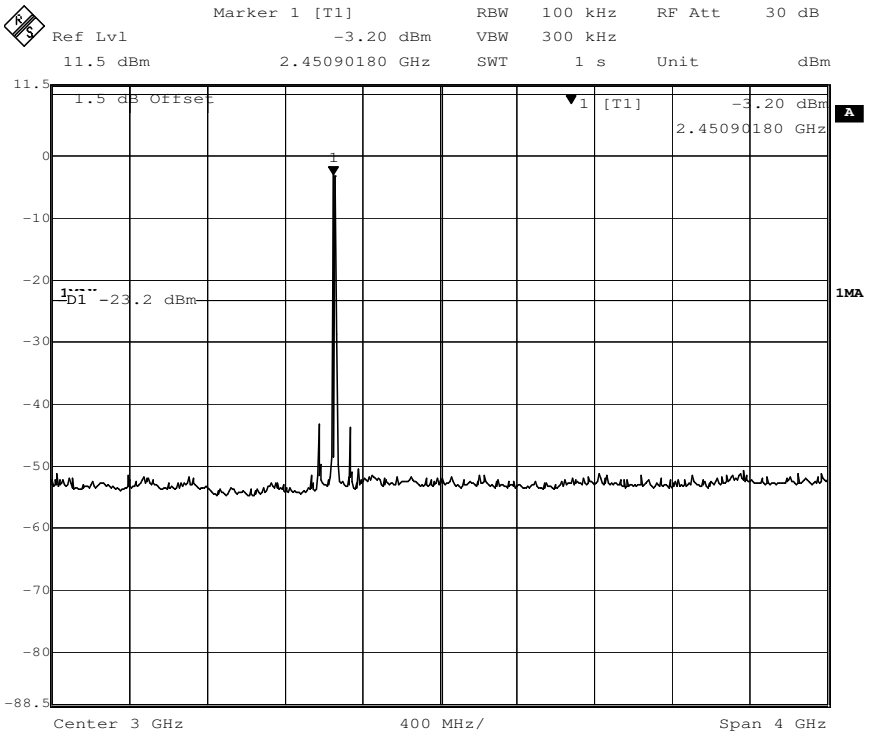
Channel 11:2.462 GHz

30 MHz to 1 GHz



1 G to 5 GHz



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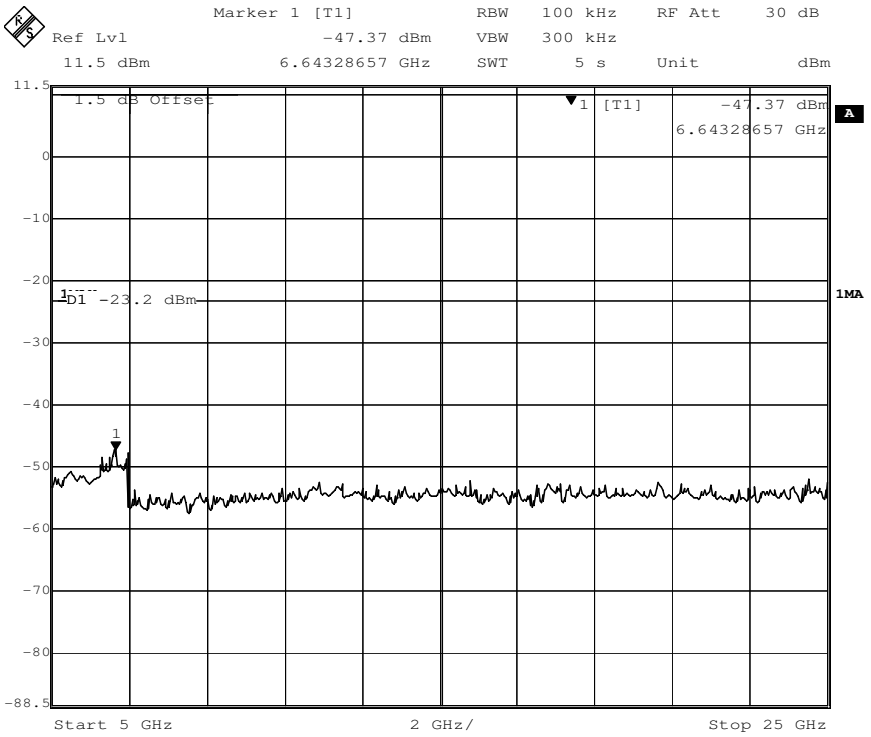
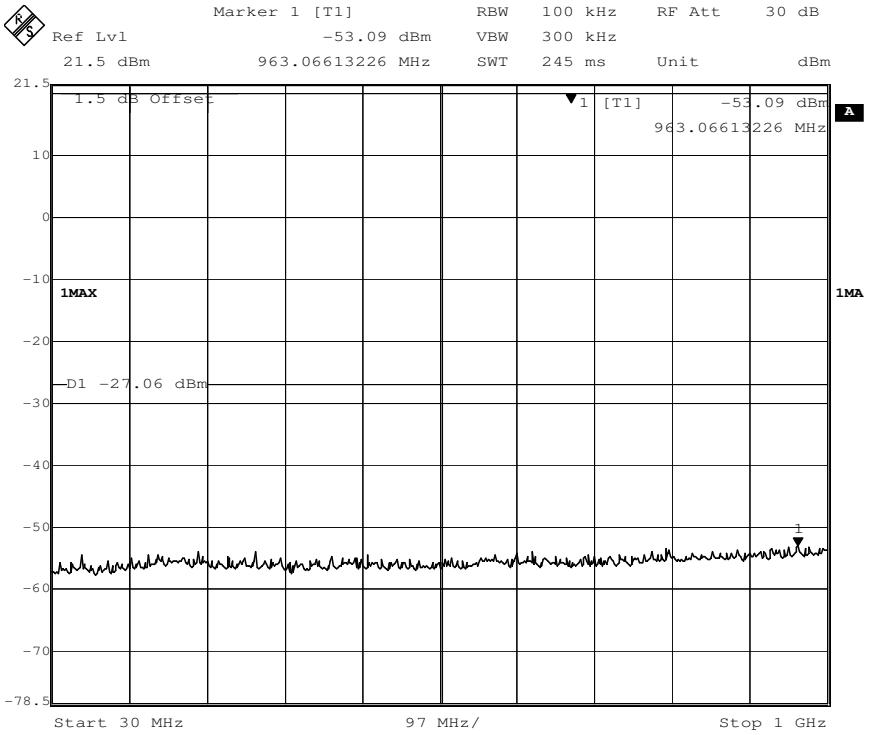
5 G to 25 GHz



802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:

30 MHz to 1 GHz



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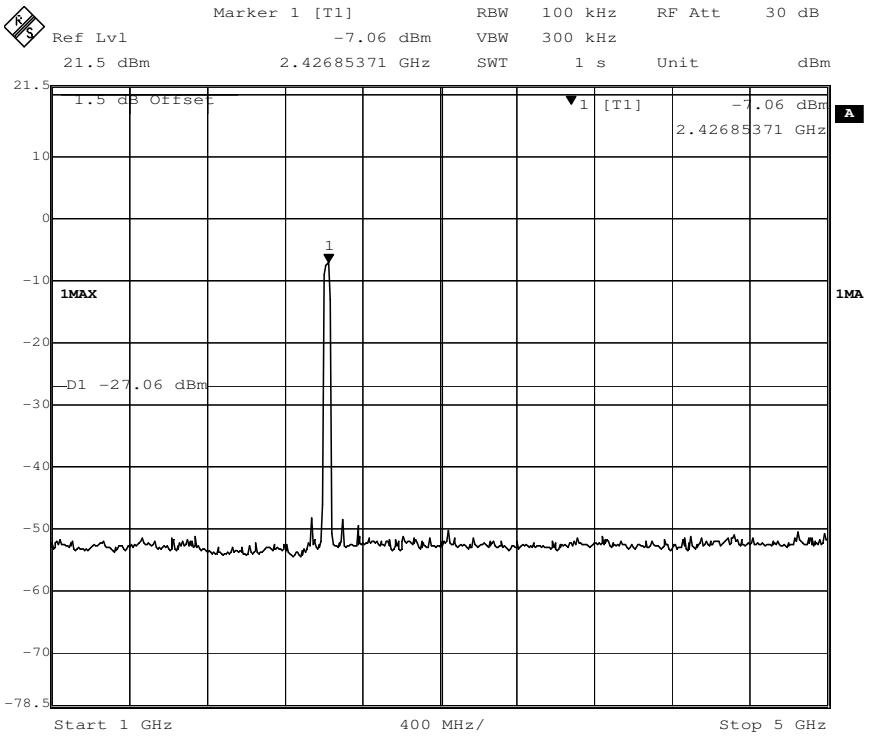
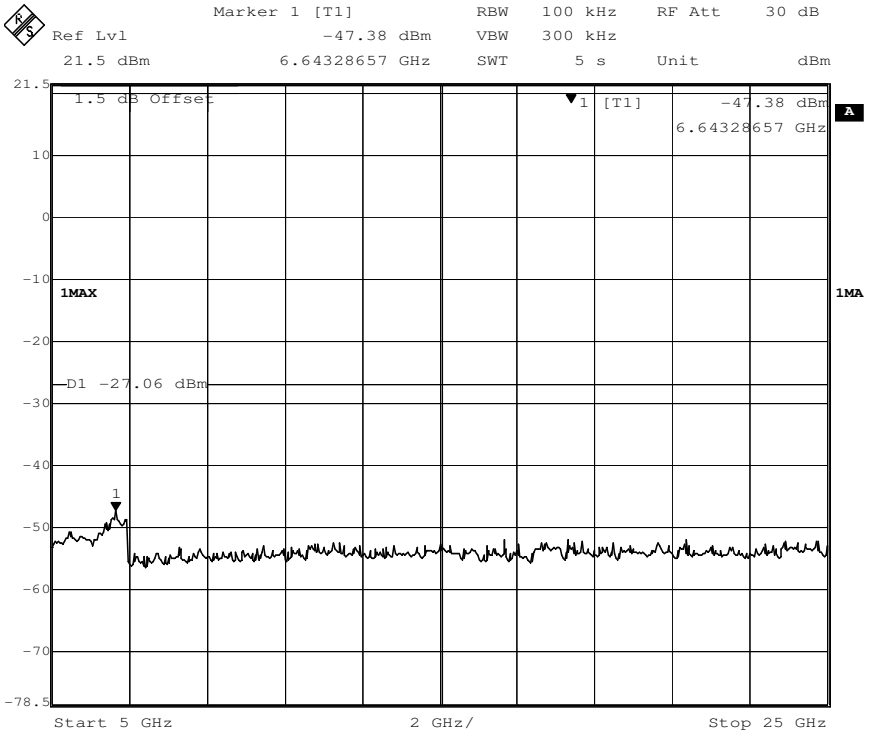
1 G to 5 GHz



5 G to 25 GHz



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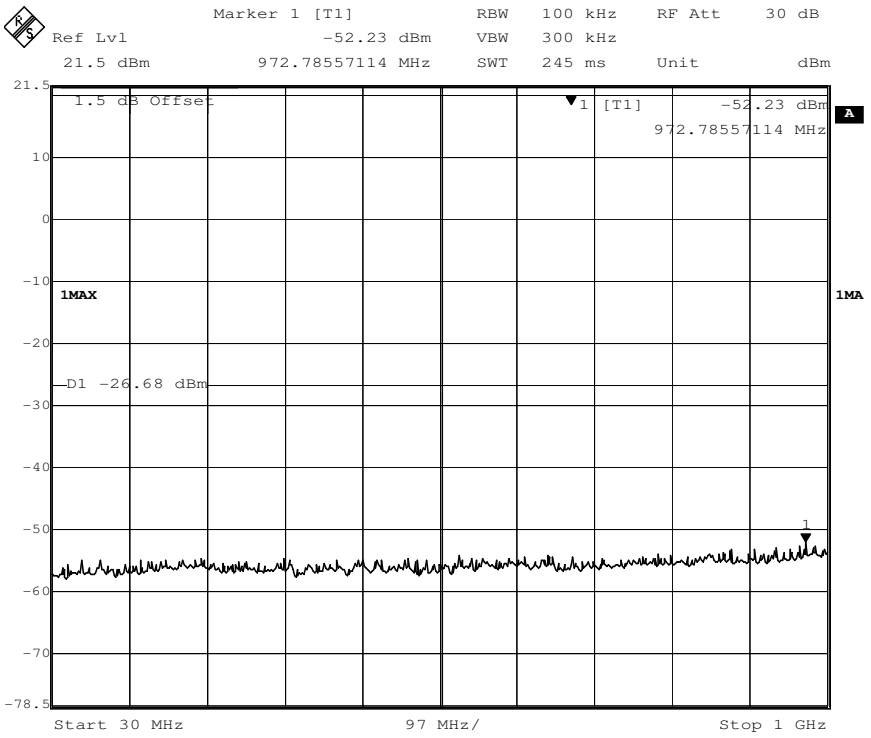
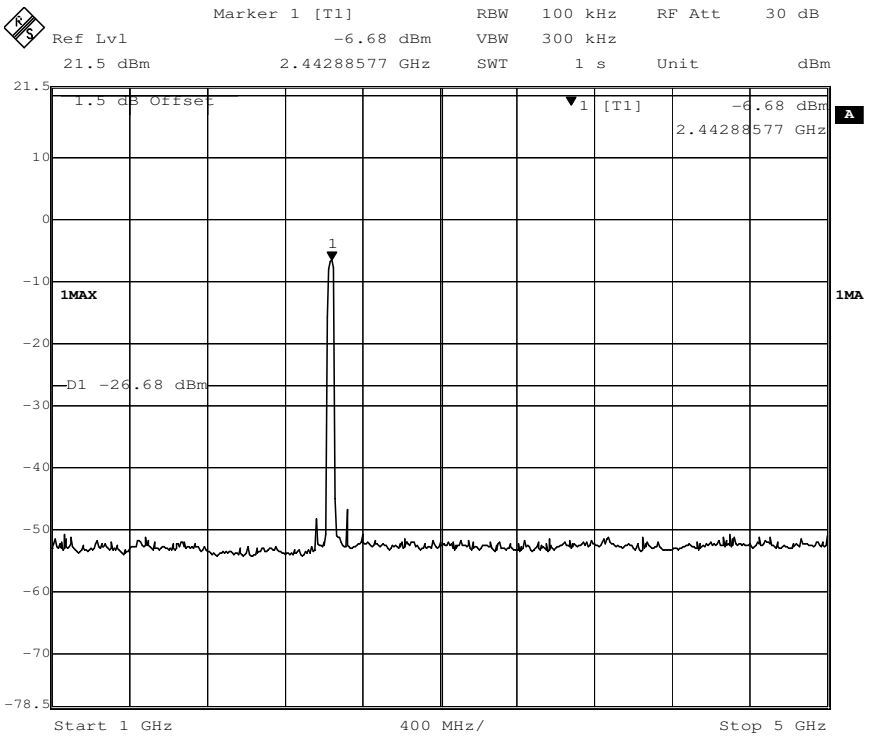
Channel 7: 2.442GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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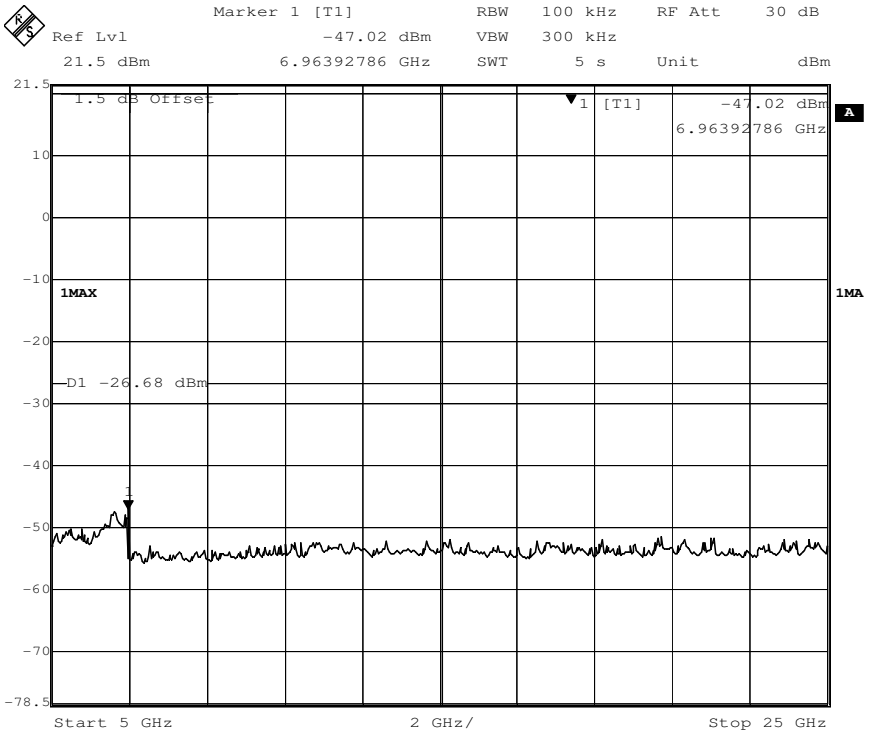
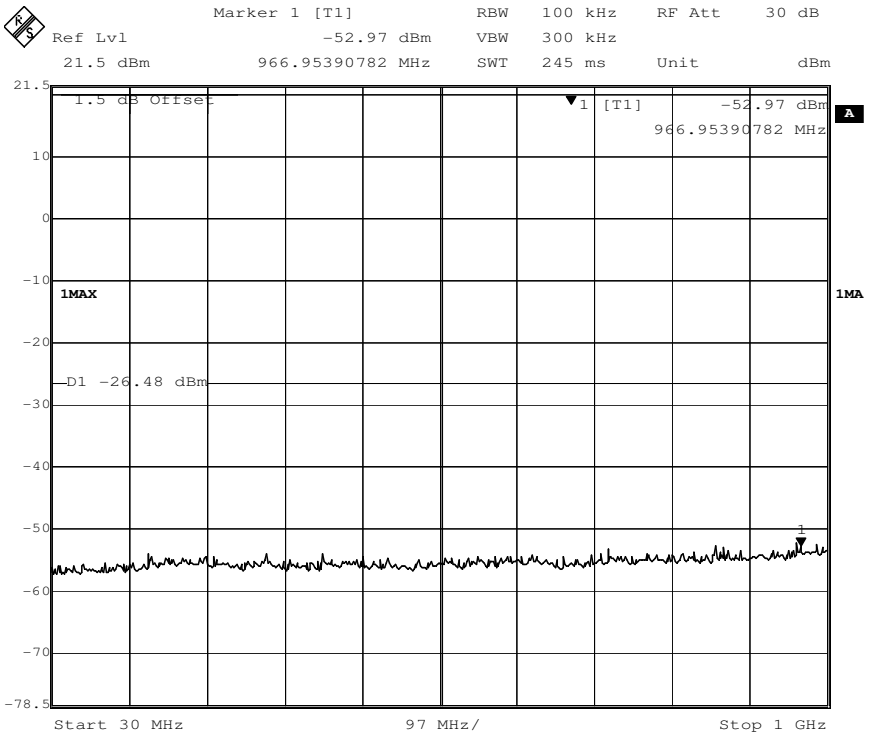
5 G to 25 GHz



Channel 9:2.452 GHz

30 MHz to 1 GHz



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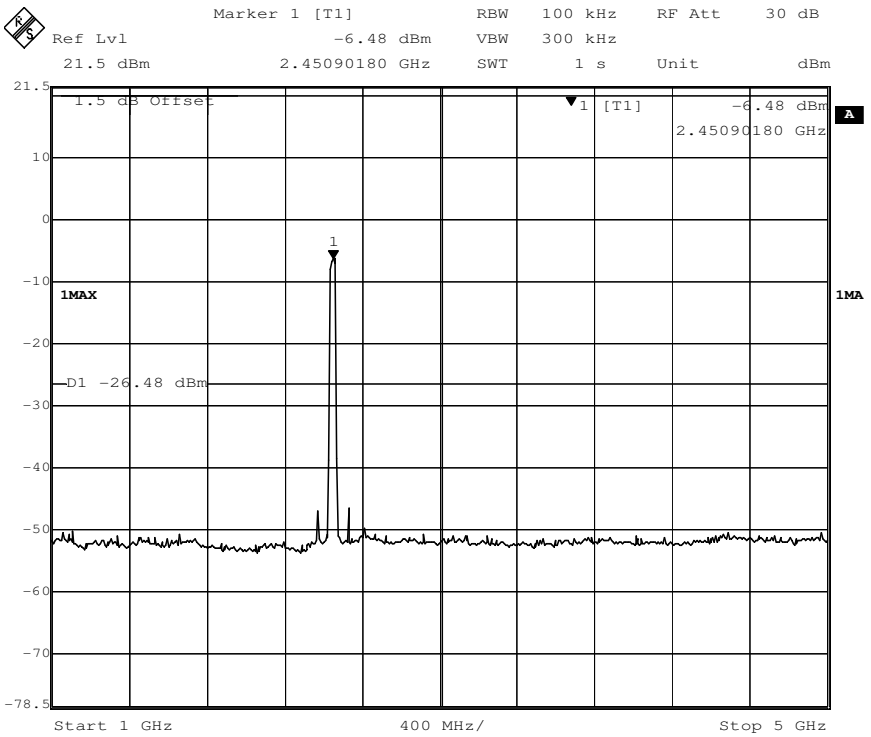
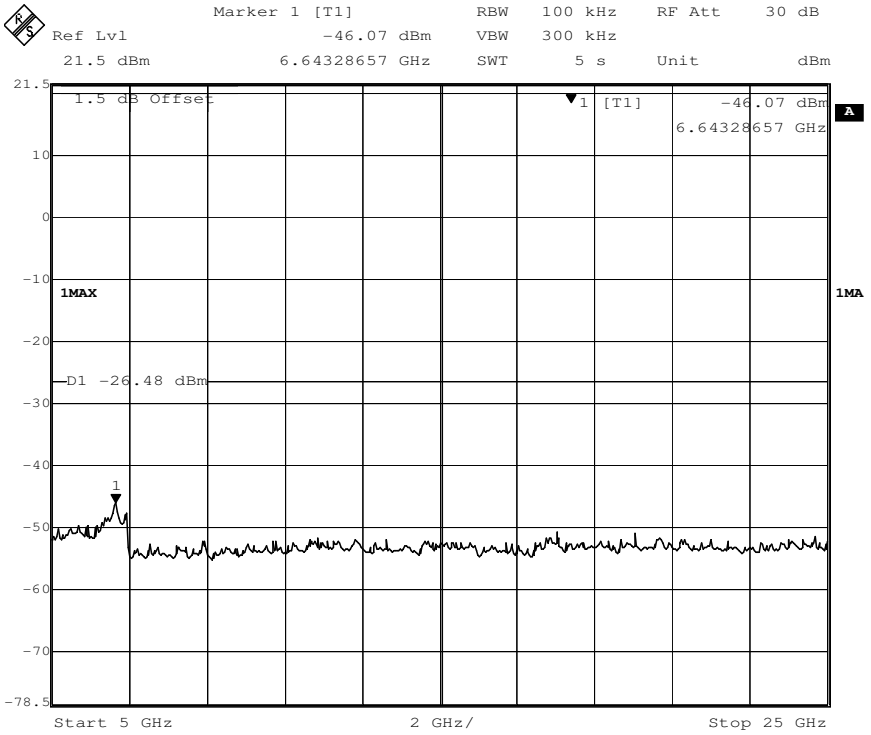
1 G to 5 GHz



5 G to 25 GHz



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7.7 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15C Section 15.209 and 15.205

Test Method: ANSI C63.10: 2013

Test Site: Measurement Distance:3m
(Semi-Anechoic Chamber below 1GHz, Full Anechoic Chamber above 1GHz)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

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Test Setup:

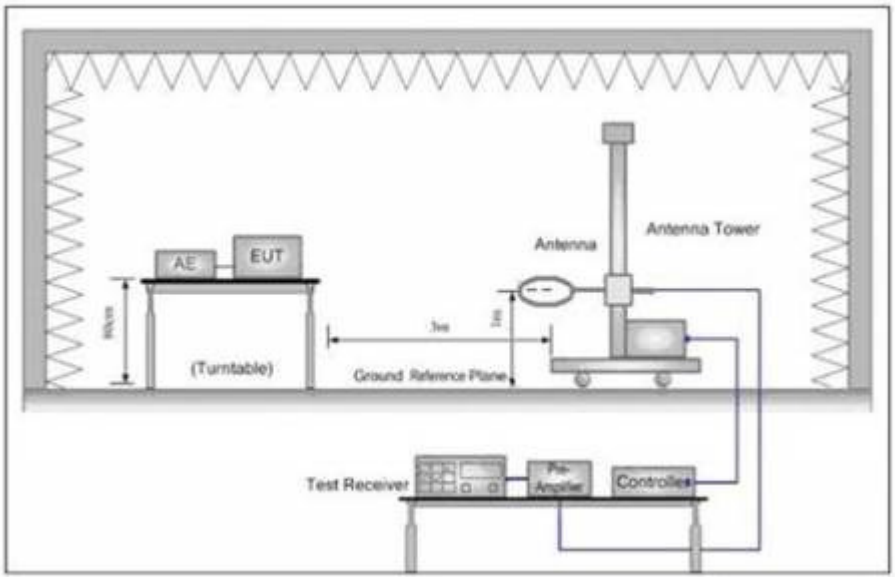

Figure 1. Below 30MHz

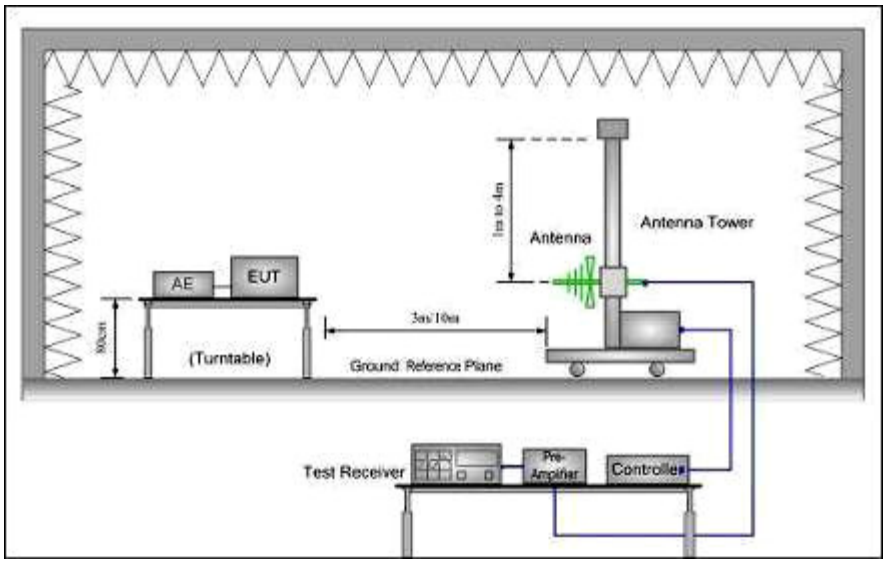

Figure 2. 30MHz to 1GHz

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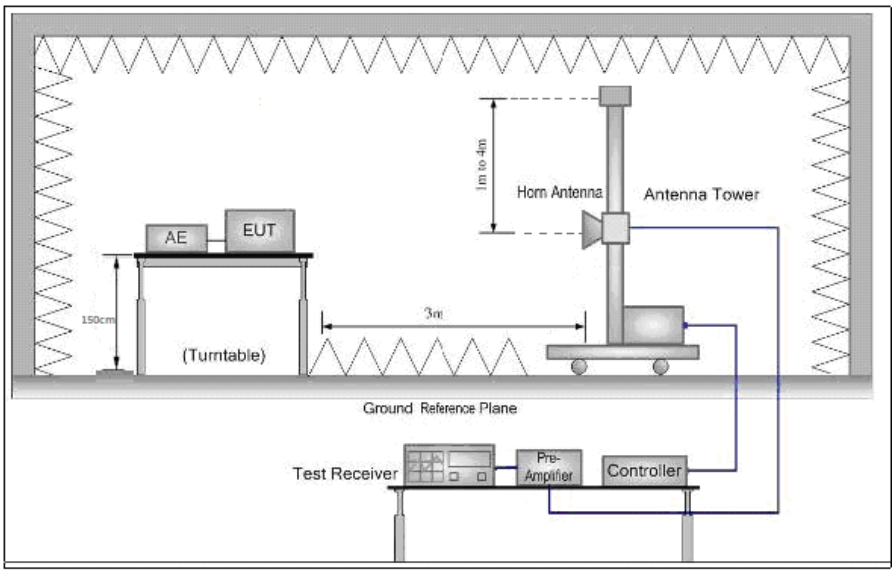

Figure 3. Above 1 GHz

Test Procedure:

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 and 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 full-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 degree 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 (2412MHz),the middle channel (2442MHz),the Highest channel (2462MHz)
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.

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Test Result:

9KHz~30 MHz Field Strength of Unwanted 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.

30MHz~1GHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

For below 1GHz part, through pre-scan at lowest /middle /highest channel transmitting mode, the worst case is the lowest channel and recorded in the report

802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	37.548	21.59	13.75	1.10	27.00	9.44	40.00	-30.56	VERTICAL	QP
2	49.014	22.19	14.46	1.28	27.00	10.93	40.00	-29.07	VERTICAL	QP
3	112.524	22.66	10.51	2.00	26.90	8.27	43.50	-35.23	VERTICAL	QP
4	172.599	22.59	13.00	2.50	26.71	11.38	43.50	-32.12	VERTICAL	QP
5	352.943	23.01	15.40	3.68	26.78	15.31	46.00	-30.69	VERTICAL	QP
6	620.710	25.04	20.46	4.88	28.07	22.31	46.00	-23.69	VERTICAL	QP

	Freq	Read Level	Antenna 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	42.600	21.52	13.86	1.15	27.00	9.53	40.00	-30.47	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	23.01	12.63	2.59	26.65	11.58	43.50	-31.92	HORIZONTAL	QP
5	392.095	23.82	16.21	3.85	27.12	16.76	46.00	-29.24	HORIZONTAL	QP
6	699.305	25.11	21.30	5.20	28.00	23.61	46.00	-22.39	HORIZONTAL	QP

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802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	45.058	22.02	14.15	1.20	27.00	10.37	40.00	-29.63	VERTICAL	QP
2	60.069	23.01	14.10	1.40	27.00	11.51	40.00	-28.49	VERTICAL	QP
3	128.563	21.54	11.84	2.14	26.88	8.64	43.50	-34.86	VERTICAL	QP
4	185.138	22.75	12.38	2.62	26.63	11.12	43.50	-32.38	VERTICAL	QP
5	340.782	22.97	14.80	3.63	26.66	14.74	46.00	-31.26	VERTICAL	QP
6	689.565	23.90	21.24	5.15	28.00	22.29	46.00	-23.71	VERTICAL	QP

	Freq	Read Level	Antenna 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	40.276	22.21	13.71	1.11	27.00	10.03	40.00	-29.97	HORIZONTAL	QP
2	66.266	23.13	13.12	1.50	27.00	10.75	40.00	-29.25	HORIZONTAL	QP
3	114.917	24.07	10.72	2.04	26.90	9.93	43.50	-33.57	HORIZONTAL	QP
4	167.824	22.24	13.33	2.43	26.74	11.26	43.50	-32.24	HORIZONTAL	QP
5	459.114	24.34	17.57	4.20	27.59	18.52	46.00	-27.48	HORIZONTAL	QP
6	724.261	24.16	21.52	5.25	28.00	22.93	46.00	-23.07	HORIZONTAL	QP

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802.11n(HT20) mode with 72.2Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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

	Freq	Read Level	Antenna 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

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802.11n(HT40) mode with 150Mbps data rate

Test at Channel 3 (2.422 GHz) in transmitting status

	Freq	Read Level	Antenna 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	32.864	22.56	14.01	1.10	27.10	10.57	40.00	-29.43	VERTICAL	QP
2	62.431	24.73	13.85	1.44	27.00	13.02	40.00	-26.98	VERTICAL	QP
3	74.919	24.52	11.15	1.60	27.00	10.27	40.00	-29.73	VERTICAL	QP
4	139.361	22.03	12.97	2.23	26.82	10.41	43.50	-33.09	VERTICAL	QP
5	164.908	23.74	13.50	2.41	26.75	12.90	43.50	-30.60	VERTICAL	QP
6	804.603	26.33	22.44	5.60	27.90	26.47	46.00	-19.53	VERTICAL	QP

	Freq	Read Level	Antenna 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	33.680	23.83	13.97	1.10	27.10	11.80	40.00	-28.20	HORIZONTAL	QP
2	48.843	23.63	14.45	1.28	27.00	12.36	40.00	-27.64	HORIZONTAL	QP
3	73.617	24.25	11.74	1.57	27.00	10.56	40.00	-29.44	HORIZONTAL	QP
4	138.387	24.34	12.92	2.23	26.83	12.66	43.50	-30.84	HORIZONTAL	QP
5	170.195	22.49	13.15	2.48	26.72	11.40	43.50	-32.10	HORIZONTAL	QP
6	798.980	25.94	22.40	5.60	27.90	26.04	46.00	-19.96	HORIZONTAL	QP

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Above 1GHz Field Strength of Unwanted Emissions. Peak & Average Measurement

802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1059.511	32.21	24.16	4.50	38.85	22.02	54.00	-31.98	VERTICAL	Average
2	1059.511	46.71	24.16	4.50	38.85	36.52	74.00	-37.48	VERTICAL	Peak
3	1792.937	32.64	25.14	5.99	38.97	24.80	54.00	-29.20	VERTICAL	Average
4	1792.937	46.58	25.14	5.99	38.97	38.74	74.00	-35.26	VERTICAL	Peak
5	4824.110	37.07	30.82	9.96	40.21	37.64	54.00	-16.36	VERTICAL	Average
6	4824.110	51.89	30.82	9.96	40.21	52.46	74.00	-21.54	VERTICAL	Peak
7	6835.278	28.32	34.89	12.29	39.36	36.14	54.00	-17.86	VERTICAL	Average
8	6835.278	40.42	34.89	12.29	39.36	48.24	74.00	-25.76	VERTICAL	Peak
9	7762.260	24.17	36.28	13.33	39.13	34.65	54.00	-19.35	VERTICAL	Average
10	7762.260	35.92	36.28	13.33	39.13	46.40	74.00	-27.60	VERTICAL	Peak
11	11076.100	18.35	39.91	15.08	37.97	35.37	54.00	-18.63	VERTICAL	Average
12	11076.100	32.96	39.91	15.08	37.97	49.98	74.00	-24.02	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1053.404	36.14	24.16	4.50	38.84	25.96	54.00	-28.04	HORIZONTAL	Average
2	1053.404	47.51	24.16	4.50	38.84	37.33	74.00	-36.67	HORIZONTAL	Peak
3	1625.121	32.15	25.04	5.65	38.95	23.89	54.00	-30.11	HORIZONTAL	Average
4	1625.121	44.53	25.04	5.65	38.95	36.27	74.00	-37.73	HORIZONTAL	Peak
5	4824.110	37.58	30.82	9.96	40.21	38.15	54.00	-15.85	HORIZONTAL	Average
6	4824.110	54.88	30.82	9.96	40.21	55.45	74.00	-18.55	HORIZONTAL	Peak
7	6303.890	29.44	33.60	11.49	39.67	34.86	54.00	-19.14	HORIZONTAL	Average
8	6303.890	41.11	33.60	11.49	39.67	46.53	74.00	-27.47	HORIZONTAL	Peak
9	6914.763	27.35	35.01	12.41	39.34	35.43	54.00	-18.57	HORIZONTAL	Average
10	6914.763	39.86	35.01	12.41	39.34	47.94	74.00	-26.06	HORIZONTAL	Peak
11	11076.100	20.34	39.91	15.08	37.97	37.36	54.00	-16.64	HORIZONTAL	Average
12	11076.100	32.73	39.91	15.08	37.97	49.75	74.00	-24.25	HORIZONTAL	Peak

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Test at Channel 7 (2.442 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1498.781	31.01	25.00	5.50	38.93	22.58	54.00	-31.42	VERTICAL	Average
2	1498.781	41.31	25.00	5.50	38.93	32.88	74.00	-41.12	VERTICAL	Peak
3	2012.686	30.25	25.22	6.30	38.98	22.79	54.00	-31.21	VERTICAL	Average
4	2012.686	41.75	25.22	6.30	38.98	34.29	74.00	-39.71	VERTICAL	Peak
5	3455.508	30.31	27.90	8.32	39.87	26.66	54.00	-27.34	VERTICAL	Average
6	3455.508	40.61	27.90	8.32	39.87	36.96	74.00	-37.04	VERTICAL	Peak
7	4924.000	40.47	31.01	10.06	40.22	41.32	54.00	-12.68	VERTICAL	Average
8	4924.000	51.66	31.01	10.06	40.22	52.51	74.00	-21.49	VERTICAL	Peak
9	7784.729	23.17	36.31	13.35	39.13	33.70	54.00	-20.30	VERTICAL	Average
10	7784.729	35.57	36.31	13.35	39.13	46.10	74.00	-27.90	VERTICAL	Peak
11	10760.540	19.71	39.50	14.90	37.91	36.20	54.00	-17.80	VERTICAL	Average
12	10760.540	32.51	39.50	14.90	37.91	49.00	74.00	-25.00	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1071.832	30.58	24.18	4.53	38.85	20.44	54.00	-33.56	HORIZONTAL	Average
2	1071.832	43.28	24.18	4.53	38.85	33.14	74.00	-40.86	HORIZONTAL	Peak
3	1966.680	30.46	25.19	6.30	38.98	22.97	54.00	-31.03	HORIZONTAL	Average
4	1966.680	42.16	25.19	6.30	38.98	34.67	74.00	-39.33	HORIZONTAL	Peak
5	3856.668	28.09	29.19	8.82	40.03	26.07	54.00	-27.93	HORIZONTAL	Average
6	3856.668	41.29	29.19	8.82	40.03	39.27	74.00	-34.73	HORIZONTAL	Peak
7	4924.000	38.46	31.01	10.06	40.22	39.31	54.00	-14.69	HORIZONTAL	Average
8	4924.000	52.66	31.01	10.06	40.22	53.51	74.00	-20.49	HORIZONTAL	Peak
9	7762.260	20.54	36.28	13.33	39.13	31.02	54.00	-22.98	HORIZONTAL	Average
10	7762.260	36.24	36.28	13.33	39.13	46.72	74.00	-27.28	HORIZONTAL	Peak
11	15221.820	20.14	39.55	18.55	38.49	39.75	54.00	-14.25	HORIZONTAL	Average
12	15221.820	32.44	39.55	18.55	38.49	52.05	74.00	-21.95	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1059.511	34.40	24.16	4.50	38.85	24.21	54.00	-29.79	VERTICAL	Average
2	1059.511	47.61	24.16	4.50	38.85	37.42	74.00	-36.58	VERTICAL	Peak
3	1634.543	33.03	25.04	5.67	38.96	24.78	54.00	-29.22	VERTICAL	Average
4	1634.543	46.26	25.04	5.67	38.96	38.01	74.00	-35.99	VERTICAL	Peak
5	3924.135	27.39	29.35	8.92	40.05	25.61	54.00	-28.39	VERTICAL	Average
6	3924.135	42.20	29.35	8.92	40.05	40.42	74.00	-33.58	VERTICAL	Peak
7	4925.490	37.63	31.01	10.06	40.22	38.48	54.00	-15.52	VERTICAL	Average
8	4925.490	51.45	31.01	10.06	40.22	52.30	74.00	-21.70	VERTICAL	Peak
9	6914.763	26.03	35.01	12.41	39.34	34.11	54.00	-19.89	VERTICAL	Average
10	6914.763	39.83	35.01	12.41	39.34	47.91	74.00	-26.09	VERTICAL	Peak
11	9530.432	20.32	37.43	14.50	38.00	34.25	54.00	-19.75	VERTICAL	Average
12	9530.432	33.73	37.43	14.50	38.00	47.66	74.00	-26.34	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1644.019	31.65	25.04	5.69	38.96	23.42	54.00	-30.58	HORIZONTAL	Average
2	1644.019	47.44	25.04	5.69	38.96	39.21	74.00	-34.79	HORIZONTAL	Peak
3	2138.635	31.97	25.49	6.50	39.02	24.94	54.00	-29.06	HORIZONTAL	Average
4	2138.635	47.02	25.49	6.50	39.02	39.99	74.00	-34.01	HORIZONTAL	Peak
5	3007.868	28.43	27.90	7.71	39.42	24.62	54.00	-29.38	HORIZONTAL	Average
6	3007.868	42.51	27.90	7.71	39.42	38.70	74.00	-35.30	HORIZONTAL	Peak
7	4925.490	35.48	31.01	10.06	40.22	36.33	54.00	-17.67	HORIZONTAL	Average
8	4925.490	54.04	31.01	10.06	40.22	54.89	74.00	-19.11	HORIZONTAL	Peak
9	6795.879	26.31	34.83	12.23	39.38	33.99	54.00	-20.01	HORIZONTAL	Average
10	6795.879	40.19	34.83	12.23	39.38	47.87	74.00	-26.13	HORIZONTAL	Peak
11	9641.257	19.43	37.54	14.48	37.95	33.50	54.00	-20.50	HORIZONTAL	Average
12	9641.257	34.05	37.54	14.48	37.95	48.12	74.00	-25.88	HORIZONTAL	Peak

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802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1059.511	34.25	24.16	4.50	38.85	24.06	54.00	-29.94	VERTICAL	Average
2	1059.511	48.12	24.16	4.50	38.85	37.93	74.00	-36.07	VERTICAL	Peak
3	4814.110	35.64	30.82	9.96	40.21	36.21	54.00	-17.79	VERTICAL	Average
4	4814.110	49.94	30.82	9.96	40.21	50.51	74.00	-23.49	VERTICAL	Peak
5	6679.040	28.43	34.57	11.97	39.43	35.54	54.00	-18.46	VERTICAL	Average
6	6679.040	40.69	34.57	11.97	39.43	47.80	74.00	-26.20	VERTICAL	Peak
7	8319.836	24.02	36.22	13.71	38.95	35.00	54.00	-19.00	VERTICAL	Average
8	8319.836	36.26	36.22	13.71	38.95	47.24	74.00	-26.76	VERTICAL	Peak
9	11076.100	20.24	39.91	15.08	37.97	37.26	54.00	-16.74	VERTICAL	Average
10	11076.100	32.77	39.91	15.08	37.97	49.79	74.00	-24.21	VERTICAL	Peak
11	13097.620	20.28	39.06	17.15	38.22	38.27	54.00	-15.73	VERTICAL	Average
12	13097.620	33.17	39.06	17.15	38.22	51.16	74.00	-22.84	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1587.975	33.35	25.02	5.54	38.95	24.96	54.00	-29.04	HORIZONTAL	Average
2	1587.975	47.31	25.02	5.54	38.95	38.92	74.00	-35.08	HORIZONTAL	Peak
3	2089.751	34.25	25.37	6.44	39.01	27.05	54.00	-26.95	HORIZONTAL	Average
4	2089.751	48.01	25.37	6.44	39.01	40.81	74.00	-33.19	HORIZONTAL	Peak
5	4824.110	37.63	30.82	9.96	40.21	38.20	54.00	-15.80	HORIZONTAL	Average
6	4824.110	53.06	30.82	9.96	40.21	53.63	74.00	-20.37	HORIZONTAL	Peak
7	6340.436	29.64	33.76	11.54	39.63	35.31	54.00	-18.69	HORIZONTAL	Average
8	6340.436	40.38	33.76	11.54	39.63	46.05	74.00	-27.95	HORIZONTAL	Peak
9	7200.309	26.25	35.45	12.73	39.26	35.17	54.00	-18.83	HORIZONTAL	Average
10	7200.309	39.02	35.45	12.73	39.26	47.94	74.00	-26.06	HORIZONTAL	Peak
11	10698.510	19.73	39.34	14.87	37.90	36.04	54.00	-17.96	HORIZONTAL	Average
12	10698.510	33.65	39.34	14.87	37.90	49.96	74.00	-24.04	HORIZONTAL	Peak

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Test at Channel 7 (2.442 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1366.374	32.67	24.89	5.14	38.89	23.81	54.00	-30.19	VERTICAL	Average
2	1366.374	43.27	24.89	5.14	38.89	34.41	74.00	-39.59	VERTICAL	Peak
3	1989.550	31.39	25.20	6.30	38.98	23.91	54.00	-30.09	VERTICAL	Average
4	1989.550	42.39	25.20	6.30	38.98	34.91	74.00	-39.09	VERTICAL	Peak
5	3114.025	29.38	27.90	7.92	39.53	25.67	54.00	-28.33	VERTICAL	Average
6	3114.025	40.88	27.90	7.92	39.53	37.17	74.00	-36.83	VERTICAL	Peak
7	4924.000	39.42	31.01	10.06	40.22	40.27	54.00	-13.73	VERTICAL	Average
8	4924.000	49.72	31.01	10.06	40.22	50.57	74.00	-23.43	VERTICAL	Peak
9	7762.260	25.09	36.28	13.33	39.13	35.57	54.00	-18.43	VERTICAL	Average
10	7762.260	35.29	36.28	13.33	39.13	45.77	74.00	-28.23	VERTICAL	Peak
11	12361.950	20.35	38.98	16.25	38.11	37.47	54.00	-16.53	VERTICAL	Average
12	12361.950	32.05	38.98	16.25	38.11	49.17	74.00	-24.83	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1653.550	33.15	25.05	5.71	38.96	24.95	54.00	-29.05	HORIZONTAL	Average
2	1653.550	44.65	25.05	5.71	38.96	36.45	74.00	-37.55	HORIZONTAL	Peak
3	1989.550	30.41	25.20	6.30	38.98	22.93	54.00	-31.07	HORIZONTAL	Average
4	1989.550	44.01	25.20	6.30	38.98	36.53	74.00	-37.47	HORIZONTAL	Peak
5	3357.061	30.03	27.90	8.12	39.81	26.24	54.00	-27.76	HORIZONTAL	Average
6	3357.061	40.53	27.90	8.12	39.81	36.74	74.00	-37.26	HORIZONTAL	Peak
7	4924.000	39.34	31.01	10.06	40.22	40.19	54.00	-13.81	HORIZONTAL	Average
8	4924.000	51.84	31.01	10.06	40.22	52.69	74.00	-21.31	HORIZONTAL	Peak
9	8082.804	22.29	36.44	13.54	39.06	33.21	54.00	-20.79	HORIZONTAL	Average
10	8082.804	34.49	36.44	13.54	39.06	45.41	74.00	-28.59	HORIZONTAL	Peak
11	10729.480	19.46	39.42	14.88	37.91	35.85	54.00	-18.15	HORIZONTAL	Average
12	10729.480	32.86	39.42	14.88	37.91	49.25	74.00	-24.75	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1059.511	32.43	24.16	4.50	38.85	22.24	54.00	-31.76	VERTICAL	Average
2	1059.511	47.91	24.16	4.50	38.85	37.72	74.00	-36.28	VERTICAL	Peak
3	4914.490	35.27	30.99	10.05	40.22	36.09	54.00	-17.91	VERTICAL	Average
4	4914.490	48.09	30.99	10.05	40.22	48.91	74.00	-25.09	VERTICAL	Peak
5	6717.762	26.38	34.65	12.05	39.41	33.67	54.00	-20.33	VERTICAL	Average
6	6717.762	41.15	34.65	12.05	39.41	48.44	74.00	-25.56	VERTICAL	Peak
7	8995.123	22.37	36.50	14.20	38.40	34.67	54.00	-19.33	VERTICAL	Average
8	8995.123	34.77	36.50	14.20	38.40	47.07	74.00	-26.93	VERTICAL	Peak
9	10393.710	19.64	38.79	14.71	37.86	35.28	54.00	-18.72	VERTICAL	Average
10	10393.710	32.92	38.79	14.71	37.86	48.56	74.00	-25.44	VERTICAL	Peak
11	12290.700	19.05	39.09	16.15	38.11	36.18	54.00	-17.82	VERTICAL	Average
12	12290.700	33.54	39.09	16.15	38.11	50.67	74.00	-23.33	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1059.511	36.18	24.16	4.50	38.85	25.99	54.00	-28.01	HORIZONTAL	Average
2	1059.511	48.70	24.16	4.50	38.85	38.51	74.00	-35.49	HORIZONTAL	Peak
3	1663.137	31.53	25.05	5.73	38.96	23.35	54.00	-30.65	HORIZONTAL	Average
4	1663.137	44.85	25.05	5.73	38.96	36.67	74.00	-37.33	HORIZONTAL	Peak
5	3598.203	33.43	28.14	8.50	39.94	30.13	54.00	-23.87	HORIZONTAL	Average
6	3598.203	44.70	28.14	8.50	39.94	41.40	74.00	-32.60	HORIZONTAL	Peak
7	4914.490	32.49	30.99	10.05	40.22	33.31	54.00	-20.69	HORIZONTAL	Average
8	4914.490	45.61	30.99	10.05	40.22	46.43	74.00	-27.57	HORIZONTAL	Peak
9	6756.708	25.33	34.75	12.15	39.39	32.84	54.00	-21.16	HORIZONTAL	Average
10	6756.708	40.70	34.75	12.15	39.39	48.21	74.00	-25.79	HORIZONTAL	Peak
11	11140.310	19.64	39.81	15.17	37.99	36.63	54.00	-17.37	HORIZONTAL	Average
12	11140.310	33.16	39.81	15.17	37.99	50.15	74.00	-23.85	HORIZONTAL	Peak

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802.11n(HT20) mode with 72.2Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1059.511	33.26	24.16	4.50	38.85	23.07	54.00	-30.93	VERTICAL	Average
2	1059.511	47.64	24.16	4.50	38.85	37.45	74.00	-36.55	VERTICAL	Peak
3	1634.543	34.36	25.04	5.67	38.96	26.11	54.00	-27.89	VERTICAL	Average
4	1634.543	45.85	25.04	5.67	38.96	37.60	74.00	-36.40	VERTICAL	Peak
5	4824.110	38.03	30.82	9.96	40.21	38.60	54.00	-15.40	VERTICAL	Average
6	4824.110	50.25	30.82	9.96	40.21	50.82	74.00	-23.18	VERTICAL	Peak
7	5813.812	30.22	32.17	10.91	39.98	33.32	54.00	-20.68	VERTICAL	Average
8	5813.812	42.26	32.17	10.91	39.98	45.36	74.00	-28.64	VERTICAL	Peak
9	6954.852	26.34	35.06	12.46	39.32	34.54	54.00	-19.46	VERTICAL	Average
10	6954.852	39.93	35.06	12.46	39.32	48.13	74.00	-25.87	VERTICAL	Peak
11	9641.257	20.89	37.54	14.48	37.95	34.96	54.00	-19.04	VERTICAL	Average
12	9641.257	34.92	37.54	14.48	37.95	48.99	74.00	-25.01	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1663.137	35.54	25.05	5.73	38.96	27.36	54.00	-26.64	HORIZONTAL	Average
2	1663.137	46.04	25.05	5.73	38.96	37.86	74.00	-36.14	HORIZONTAL	Peak
3	2101.866	35.35	25.40	6.48	39.01	28.22	54.00	-25.78	HORIZONTAL	Average
4	2101.866	49.15	25.40	6.48	39.01	42.02	74.00	-31.98	HORIZONTAL	Peak
5	2973.293	32.54	27.87	7.70	39.40	28.71	54.00	-25.29	HORIZONTAL	Average
6	2973.293	43.92	27.87	7.70	39.40	40.09	74.00	-33.91	HORIZONTAL	Peak
7	4804.110	37.64	30.79	9.95	40.21	38.17	54.00	-15.83	HORIZONTAL	Average
8	4804.110	54.88	30.79	9.95	40.21	55.41	74.00	-18.59	HORIZONTAL	Peak
9	6679.040	29.35	34.57	11.97	39.43	36.46	54.00	-17.54	HORIZONTAL	Average
10	6679.040	40.82	34.57	11.97	39.43	47.93	74.00	-26.07	HORIZONTAL	Peak
11	9923.991	22.54	37.92	14.41	37.84	37.03	54.00	-16.97	HORIZONTAL	Average
12	9923.991	34.53	37.92	14.41	37.84	49.02	74.00	-24.98	HORIZONTAL	Peak

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Test at Channel 7 (2.442 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2095.800	33.19	25.38	6.46	39.01	26.02	54.00	-27.98	VERTICAL	Average
2	2095.800	42.27	25.38	6.46	39.01	35.10	74.00	-38.90	VERTICAL	Peak
3	3060.486	31.42	27.90	7.82	39.47	27.67	54.00	-26.33	VERTICAL	Average
4	3060.486	41.23	27.90	7.82	39.47	37.48	74.00	-36.52	VERTICAL	Peak
5	4924.000	42.00	31.01	10.06	40.22	42.85	54.00	-11.15	VERTICAL	Average
6	4924.000	51.02	31.01	10.06	40.22	51.87	74.00	-22.13	VERTICAL	Peak
7	6954.852	28.31	35.06	12.46	39.32	36.51	54.00	-17.49	VERTICAL	Average
8	6954.852	40.39	35.06	12.46	39.32	48.59	74.00	-25.41	VERTICAL	Peak
9	9641.257	24.12	37.54	14.48	37.95	38.19	54.00	-15.81	VERTICAL	Average
10	9641.257	33.20	37.54	14.48	37.95	47.27	74.00	-26.73	VERTICAL	Peak
11	14618.170	22.56	41.68	18.30	38.45	44.09	54.00	-9.91	VERTICAL	Average
12	14618.170	31.89	41.68	18.30	38.45	53.42	74.00	-20.58	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1366.374	34.67	24.89	5.14	38.89	25.81	54.00	-28.19	HORIZONTAL	Average
2	1366.374	44.85	24.89	5.14	38.89	35.99	74.00	-38.01	HORIZONTAL	Peak
3	2101.866	38.35	25.40	6.48	39.01	31.22	54.00	-22.78	HORIZONTAL	Average
4	2101.866	47.63	25.40	6.48	39.01	40.50	74.00	-33.50	HORIZONTAL	Peak
5	3376.523	31.58	27.90	8.16	39.83	27.81	54.00	-26.19	HORIZONTAL	Average
6	3376.523	42.40	27.90	8.16	39.83	38.63	74.00	-35.37	HORIZONTAL	Peak
7	4924.000	41.65	31.01	10.06	40.22	42.50	54.00	-11.50	HORIZONTAL	Average
8	4924.000	53.62	31.01	10.06	40.22	54.47	74.00	-19.53	HORIZONTAL	Peak
9	7117.542	28.57	35.28	12.62	39.28	37.19	54.00	-16.81	HORIZONTAL	Average
10	7117.542	39.08	35.28	12.62	39.28	47.70	74.00	-26.30	HORIZONTAL	Peak
11	13442.810	21.22	40.10	17.38	38.28	40.42	54.00	-13.58	HORIZONTAL	Average
12	13442.810	33.72	40.10	17.38	38.28	52.92	74.00	-21.08	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	1053.404	34.57	24.16	4.50	38.84	24.39	54.00	-29.61	VERTICAL	Average
2	1053.404	47.04	24.16	4.50	38.84	36.86	74.00	-37.14	VERTICAL	Peak
3	1634.543	32.64	25.04	5.67	38.96	24.39	54.00	-29.61	VERTICAL	Average
4	1634.543	44.97	25.04	5.67	38.96	36.72	74.00	-37.28	VERTICAL	Peak
5	4924.490	45.66	31.01	0.00	40.22	36.45	54.00	-17.55	VERTICAL	Average
6	4924.490	56.20	31.01	0.00	40.22	46.99	74.00	-27.01	VERTICAL	Peak
7	6717.762	29.59	34.65	12.05	39.41	36.88	54.00	-17.12	VERTICAL	Average
8	6717.762	41.77	34.65	12.05	39.41	49.06	74.00	-24.94	VERTICAL	Peak
9	9641.257	22.25	37.54	14.48	37.95	36.32	54.00	-17.68	VERTICAL	Average
10	9641.257	34.42	37.54	14.48	37.95	48.49	74.00	-25.51	VERTICAL	Peak
11	12219.850	19.53	39.21	16.05	38.10	36.69	54.00	-17.31	VERTICAL	Average
12	12219.850	33.39	39.21	16.05	38.10	50.55	74.00	-23.45	VERTICAL	Peak

	Freq	Read Level	Antenna 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	1692.231	34.23	25.07	5.79	38.96	26.13	54.00	-27.87	HORIZONTAL	Average
2	1692.231	47.13	25.07	5.79	38.96	39.03	74.00	-34.97	HORIZONTAL	Peak
3	2138.635	38.53	25.49	6.50	39.02	31.50	54.00	-22.50	HORIZONTAL	Average
4	2138.635	49.50	25.49	6.50	39.02	42.47	74.00	-31.53	HORIZONTAL	Peak
5	4914.490	36.22	30.99	10.05	40.22	37.04	54.00	-16.96	HORIZONTAL	Average
6	4914.490	48.47	30.99	10.05	40.22	49.29	74.00	-24.71	HORIZONTAL	Peak
7	6914.763	29.56	35.01	12.41	39.34	37.64	54.00	-16.36	HORIZONTAL	Average
8	6914.763	40.93	35.01	12.41	39.34	49.01	74.00	-24.99	HORIZONTAL	Peak
9	11076.100	23.01	39.91	15.08	37.97	40.03	54.00	-13.97	HORIZONTAL	Average
10	11076.100	33.04	39.91	15.08	37.97	50.06	74.00	-23.94	HORIZONTAL	Peak
11	14079.080	20.57	41.33	18.13	38.40	41.63	54.00	-12.37	HORIZONTAL	Average
12	14079.080	32.04	41.33	18.13	38.40	53.10	74.00	-20.90	HORIZONTAL	Peak

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802.11n(HT40) mode with 150Mbps data rate

Test at Channel 3 (2.422 GHz) in transmitting status

	Freq	Read Level	Antenna 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	3946.885	33.65	29.40	8.94	40.06	31.93	54.00	-22.07	VERTICAL	Average
2	3946.885	41.79	29.40	8.94	40.06	40.07	74.00	-33.93	VERTICAL	Peak
3	4844.110	41.15	30.88	9.99	40.21	41.81	54.00	-12.19	VERTICAL	Average
4	4844.110	49.85	30.88	9.99	40.21	50.51	74.00	-23.49	VERTICAL	Peak
5	6377.195	31.87	33.91	11.58	39.60	37.76	54.00	-16.24	VERTICAL	Average
6	6377.195	40.65	33.91	11.58	39.60	46.54	74.00	-27.46	VERTICAL	Peak
7	7266.836	29.48	35.60	12.84	39.24	38.68	54.00	-15.32	VERTICAL	Average
8	7266.836	38.04	35.60	12.84	39.24	47.24	74.00	-26.76	VERTICAL	Peak
9	9688.991	24.81	37.61	14.46	37.93	38.95	54.00	-15.05	VERTICAL	Average
10	9688.991	34.28	37.61	14.46	37.93	48.42	74.00	-25.58	VERTICAL	Peak
11	12110.950	23.82	39.37	15.91	38.09	41.01	54.00	-12.99	VERTICAL	Average
12	12110.950	32.74	39.37	15.91	38.09	49.93	74.00	-24.07	VERTICAL	Peak

	Freq	Read Level	Antenna 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	4844.110	41.86	30.88	9.99	40.21	42.52	54.00	-11.48	HORIZONTAL	Average
2	4844.110	49.97	30.88	9.99	40.21	50.63	74.00	-23.37	HORIZONTAL	Peak
3	7266.309	29.37	35.60	12.84	39.24	38.57	54.00	-15.43	HORIZONTAL	Average
4	7266.309	38.74	35.60	12.84	39.24	47.94	74.00	-26.06	HORIZONTAL	Peak
5	8368.069	25.95	36.18	13.74	38.92	36.95	54.00	-17.05	HORIZONTAL	Average
6	8368.069	34.81	36.18	13.74	38.92	45.81	74.00	-28.19	HORIZONTAL	Peak
7	9688.432	23.79	37.61	14.46	37.93	37.93	54.00	-16.07	HORIZONTAL	Average
8	9688.432	33.69	37.61	14.46	37.93	47.83	74.00	-26.17	HORIZONTAL	Peak
9	10698.510	24.69	39.34	14.87	37.90	41.00	54.00	-13.00	HORIZONTAL	Average
10	10698.510	33.65	39.34	14.87	37.90	49.96	74.00	-24.04	HORIZONTAL	Peak
11	12110.700	22.03	39.37	15.91	38.09	39.22	54.00	-14.78	HORIZONTAL	Average
12	12110.700	32.82	39.37	15.91	38.09	50.01	74.00	-23.99	HORIZONTAL	Peak

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Test at Channel 7 (2.442 GHz) in transmitting status

	Freq	Read Level	Antenna 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	4873.962	38.07	30.93	10.01	40.22	38.79	54.00	-15.21	VERTICAL	Average
2	4873.962	47.34	30.93	10.01	40.22	48.06	74.00	-25.94	VERTICAL	Peak
3	6267.553	30.37	33.41	11.43	39.70	35.51	54.00	-18.49	VERTICAL	Average
4	6267.553	40.33	33.41	11.43	39.70	45.47	74.00	-28.53	VERTICAL	Peak
5	7311.518	28.71	35.70	12.90	39.23	38.08	54.00	-15.92	VERTICAL	Average
6	7311.518	37.68	35.70	12.90	39.23	47.05	74.00	-26.95	VERTICAL	Peak
7	9748.257	24.36	37.70	14.45	37.90	38.61	54.00	-15.39	VERTICAL	Average
8	9748.257	34.74	37.70	14.45	37.90	48.99	74.00	-25.01	VERTICAL	Peak
9	11076.100	22.79	39.91	15.08	37.97	39.81	54.00	-14.19	VERTICAL	Average
10	11076.100	33.47	39.91	15.08	37.97	50.49	74.00	-23.51	VERTICAL	Peak
11	12185.210	22.45	39.27	16.00	38.10	39.62	54.00	-14.38	VERTICAL	Average
12	12185.210	32.67	39.27	16.00	38.10	49.84	74.00	-24.16	VERTICAL	Peak

	Freq	Read Level	Antenna 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	4874.110	40.13	30.93	10.01	40.22	40.85	54.00	-13.15	HORIZONTAL	Average
2	4874.110	48.69	30.93	10.01	40.22	49.41	74.00	-24.59	HORIZONTAL	Peak
3	6679.040	30.19	34.57	11.97	39.43	37.30	54.00	-16.70	HORIZONTAL	Average
4	6679.040	40.82	34.57	11.97	39.43	47.93	74.00	-26.07	HORIZONTAL	Peak
5	7311.260	28.24	35.70	12.90	39.23	37.61	54.00	-16.39	HORIZONTAL	Average
6	7311.260	37.52	35.70	12.90	39.23	46.89	74.00	-27.11	HORIZONTAL	Peak
7	9748.684	24.12	37.70	14.45	37.90	38.37	54.00	-15.63	HORIZONTAL	Average
8	9748.684	33.69	37.70	14.45	37.90	47.94	74.00	-26.06	HORIZONTAL	Peak
9	11012.250	24.20	40.00	15.00	37.96	41.24	54.00	-12.76	HORIZONTAL	Average
10	11012.250	32.58	40.00	15.00	37.96	49.62	74.00	-24.38	HORIZONTAL	Peak
11	12185.440	23.59	39.27	16.00	38.10	40.76	54.00	-13.24	HORIZONTAL	Average
12	12185.440	33.44	39.27	16.00	38.10	50.61	74.00	-23.39	HORIZONTAL	Peak

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Test at Channel 9 (2.452 GHz) in transmitting status

	Freq	Read Level	Antenna 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	3924.135	34.37	29.35	8.92	40.05	32.59	54.00	-21.41	VERTICAL	Average
2	3924.135	42.20	29.35	8.92	40.05	40.42	74.00	-33.58	VERTICAL	Peak
3	4904.490	42.74	30.97	10.04	40.22	43.53	54.00	-10.47	VERTICAL	Average
4	4904.490	49.51	30.97	10.04	40.22	50.30	74.00	-23.70	VERTICAL	Peak
5	7356.664	27.49	35.78	12.95	39.22	37.00	54.00	-17.00	VERTICAL	Average
6	7356.664	36.32	35.78	12.95	39.22	45.83	74.00	-28.17	VERTICAL	Peak
7	9748.991	24.27	37.70	14.45	37.90	38.52	54.00	-15.48	VERTICAL	Average
8	9748.991	33.42	37.70	14.45	37.90	47.67	74.00	-26.33	VERTICAL	Peak
9	12260.250	25.38	39.15	16.10	38.11	42.52	54.00	-11.48	VERTICAL	Average
10	12260.250	33.38	39.15	16.10	38.11	50.52	74.00	-23.48	VERTICAL	Peak
11	13798.240	22.58	40.87	17.87	38.35	42.97	54.00	-11.03	VERTICAL	Average
12	13798.240	31.48	40.87	17.87	38.35	51.87	74.00	-22.13	VERTICAL	Peak

	Freq	Read Level	Antenna 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	4904.721	38.38	30.97	10.04	40.22	39.17	54.00	-14.83	HORIZONTAL	Average
2	4904.721	47.49	30.97	10.04	40.22	48.28	74.00	-25.72	HORIZONTAL	Peak
3	6159.797	33.69	32.84	11.26	39.80	37.99	54.00	-16.01	HORIZONTAL	Average
4	6159.797	40.24	32.84	11.26	39.80	44.54	74.00	-29.46	HORIZONTAL	Peak
5	7356.429	27.26	35.78	12.95	39.22	36.77	54.00	-17.23	HORIZONTAL	Average
6	7356.429	37.13	35.78	12.95	39.22	46.64	74.00	-27.36	HORIZONTAL	Peak
7	9808.684	24.25	37.79	14.44	37.88	38.60	54.00	-15.40	HORIZONTAL	Average
8	9808.684	33.00	37.79	14.44	37.88	47.35	74.00	-26.65	HORIZONTAL	Peak
9	11076.100	21.20	39.91	15.08	37.97	38.22	54.00	-15.78	HORIZONTAL	Average
10	11076.100	32.57	39.91	15.08	37.97	49.59	74.00	-24.41	HORIZONTAL	Peak
11	12260.950	23.25	39.15	16.10	38.11	40.39	54.00	-13.61	HORIZONTAL	Average
12	12260.950	33.28	39.15	16.10	38.11	50.42	74.00	-23.58	HORIZONTAL	Peak

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7.8 Radiated Emissions which fall in the restricted bands

Test Requirement:	FCC Part 15 C section 15.247 (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: Clause 11.12, 6.3, 6.5 and 6.6
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; 43.5 dBμV/m between 88MHz & 216MHz; 46.0 dBμV/m between 216MHz & 960MHz; 54.0 dBμV/m above 960MHz.
Detector:	For PK value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW =10Hz Sweep = auto Detector function = peak Trace = max hold
Test Frequency Range:	9kHz-26.5GHz

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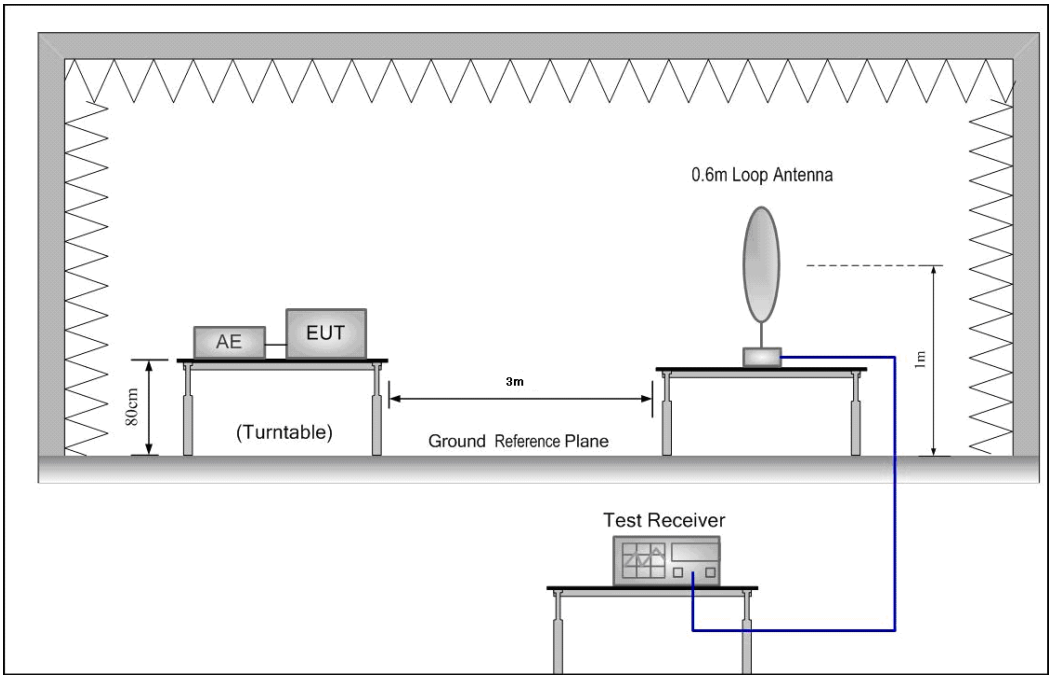
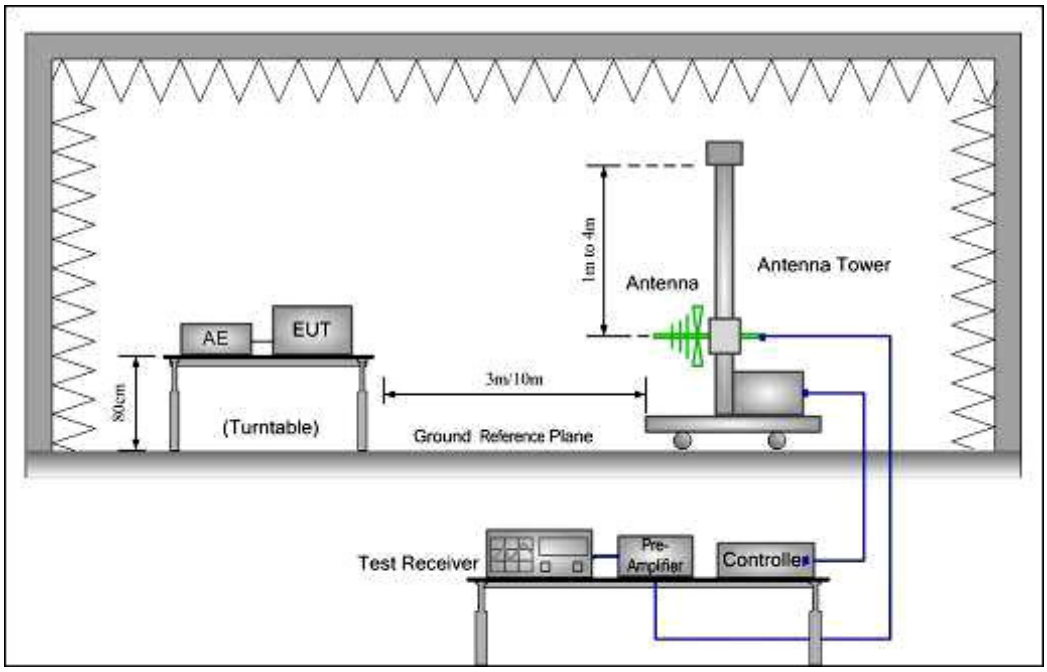
Test Configuration:

1) 9k to 30MHz emissions:



2) 30 MHz to 1 GHz emissions:



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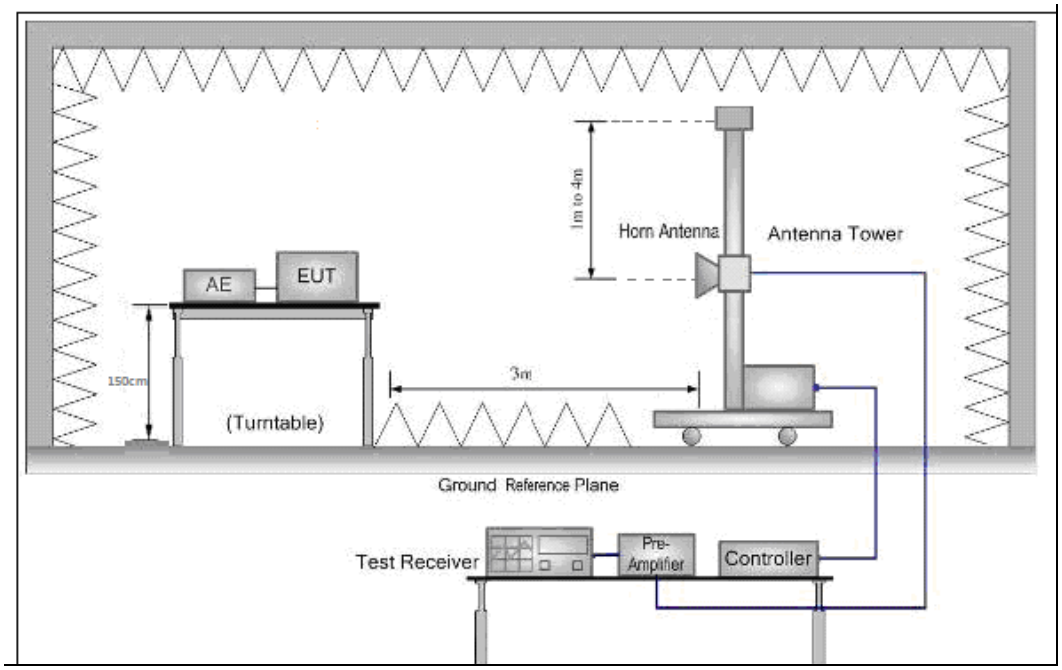
3) 1 GHz to 40 GHz emissions:



Test Procedure:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

The receiver scanned from the lowest frequency generated within the EUT to 25GHz.When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. 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. The worst case emissions were reported.

From 30MHz to 1GHz, read the Quasi-Peak field strength of the emissions with receiver QP detector RBW=120KHz.

Above 1GHz, read the Peak field strength and Average field strength.

Read the Peak field strength through RBW=1MHz,VBW=3MHz in spectrum analyzer setting;

Read the Average field strength through RBW=1MHz,VBW=10Hz in spectrum analyzer setting;

While maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the average field strength reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit.

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Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		

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30MHz~1000 MHz, Quasi-Peak Measurement

The measurements with Log antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Above 1GHz Field Strength of Unwanted Emissions. Peak and Average Measurement

802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	28.86	26.25	18.80	39.07	34.84	54.00	-19.16	VERTICAL	Average
2	2310.000	42.11	26.25	18.80	39.07	48.09	74.00	-25.91	VERTICAL	Peak
3	2390.000	41.52	26.43	18.87	39.10	47.72	54.00	-6.28	VERTICAL	Average
4	2390.000	55.73	26.43	18.87	39.10	61.93	74.00	-12.07	VERTICAL	Peak
5	2483.500	34.33	26.58	19.07	39.14	40.84	54.00	-13.16	VERTICAL	Average
6	2483.500	46.79	26.58	19.07	39.14	53.30	74.00	-20.70	VERTICAL	Peak
7	2500.000	29.62	26.60	19.10	39.14	36.18	54.00	-17.82	VERTICAL	Average
8	2500.000	42.66	26.60	19.10	39.14	49.22	74.00	-24.78	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	30.00	26.25	18.80	39.07	35.98	54.00	-18.02	HORIZONTAL	Average
2	2310.000	42.16	26.25	18.80	39.07	48.14	74.00	-25.86	HORIZONTAL	Peak
3	2390.000	42.25	26.43	18.87	39.10	48.45	54.00	-5.55	HORIZONTAL	Average
4	2390.000	54.78	26.43	18.87	39.10	60.98	74.00	-13.02	HORIZONTAL	Peak
5	2483.500	30.30	26.58	19.07	39.14	36.81	54.00	-17.19	HORIZONTAL	Average
6	2483.500	42.30	26.58	19.07	39.14	48.81	74.00	-25.19	HORIZONTAL	Peak
7	2500.000	27.57	26.60	19.10	39.14	34.13	54.00	-19.87	HORIZONTAL	Average
8	2500.000	41.77	26.60	19.10	39.14	48.33	74.00	-25.67	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	27.10	26.25	18.80	39.07	33.08	54.00	-20.92	VERTICAL	Average
2	2310.000	40.93	26.25	18.80	39.07	46.91	74.00	-27.09	VERTICAL	Peak
3	2390.000	27.34	26.43	18.87	39.10	33.54	54.00	-20.46	VERTICAL	Average
4	2390.000	40.83	26.43	18.87	39.10	47.03	74.00	-26.97	VERTICAL	Peak
5	2483.500	34.69	26.58	19.07	39.14	41.20	54.00	-12.80	VERTICAL	Average
6	2483.500	54.90	26.58	19.07	39.14	61.41	74.00	-12.59	VERTICAL	Peak
7	2500.000	31.80	26.60	19.10	39.14	38.36	54.00	-15.64	VERTICAL	Average
8	2500.000	48.26	26.60	19.10	39.14	54.82	74.00	-19.18	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	27.31	26.25	18.80	39.07	33.29	54.00	-20.71	HORIZONTAL	Average
2	2310.000	40.43	26.25	18.80	39.07	46.41	74.00	-27.59	HORIZONTAL	Peak
3	2390.000	31.47	26.43	18.87	39.10	37.67	54.00	-16.33	HORIZONTAL	Average
4	2390.000	48.78	26.43	18.87	39.10	54.98	74.00	-19.02	HORIZONTAL	Peak
5	2483.500	40.64	26.58	19.07	39.14	47.15	54.00	-6.85	HORIZONTAL	Average
6	2483.500	60.33	26.58	19.07	39.14	66.84	74.00	-7.16	HORIZONTAL	Peak
7	2500.000	38.44	26.60	19.10	39.14	45.00	54.00	-9.00	HORIZONTAL	Average
8	2500.000	56.58	26.60	19.10	39.14	63.14	74.00	-10.86	HORIZONTAL	Peak

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802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	29.50	26.25	18.80	39.07	35.48	54.00	-18.52	VERTICAL	Average
2	2310.000	41.49	26.25	18.80	39.07	47.47	74.00	-26.53	VERTICAL	Peak
3	2390.000	37.62	26.43	18.87	39.10	43.82	54.00	-10.18	VERTICAL	Average
4	2390.000	55.77	26.43	18.87	39.10	61.97	74.00	-12.03	VERTICAL	Peak
5	2483.500	28.06	26.58	19.07	39.14	34.57	54.00	-19.43	VERTICAL	Average
6	2483.500	41.77	26.58	19.07	39.14	48.28	74.00	-25.72	VERTICAL	Peak
7	2500.000	29.10	26.60	19.10	39.14	35.66	54.00	-18.34	VERTICAL	Average
8	2500.000	42.43	26.60	19.10	39.14	48.99	74.00	-25.01	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	30.20	26.25	18.80	39.07	36.18	54.00	-17.82	HORIZONTAL	Average
2	2310.000	42.26	26.25	18.80	39.07	48.24	74.00	-25.76	HORIZONTAL	Peak
3	2390.000	35.52	26.43	18.87	39.10	41.72	54.00	-12.28	HORIZONTAL	Average
4	2390.000	55.81	26.43	18.87	39.10	62.01	74.00	-11.99	HORIZONTAL	Peak
5	2483.500	29.61	26.58	19.07	39.14	36.12	54.00	-17.88	HORIZONTAL	Average
6	2483.500	44.20	26.58	19.07	39.14	50.71	74.00	-23.29	HORIZONTAL	Peak
7	2500.000	27.56	26.60	19.10	39.14	34.12	54.00	-19.88	HORIZONTAL	Average
8	2500.000	41.03	26.60	19.10	39.14	47.59	74.00	-26.41	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	26.56	26.25	18.80	39.07	32.54	54.00	-21.46	VERTICAL	Average
2	2310.000	40.92	26.25	18.80	39.07	46.90	74.00	-27.10	VERTICAL	Peak
3	2390.000	26.66	26.43	18.87	39.10	32.86	54.00	-21.14	VERTICAL	Average
4	2390.000	41.68	26.43	18.87	39.10	47.88	74.00	-26.12	VERTICAL	Peak
5	2483.500	40.02	26.58	19.07	39.14	46.53	54.00	-7.47	VERTICAL	Average
6	2483.500	59.54	26.58	19.07	39.14	66.05	74.00	-7.95	VERTICAL	Peak
7	2500.000	35.81	26.60	19.10	39.14	42.37	54.00	-11.63	VERTICAL	Average
8	2500.000	49.29	26.60	19.10	39.14	55.85	74.00	-18.15	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	25.30	26.25	18.80	39.07	31.28	54.00	-22.72	HORIZONTAL	Average
2	2310.000	41.34	26.25	18.80	39.07	47.32	74.00	-26.68	HORIZONTAL	Peak
3	2390.000	33.86	26.43	18.87	39.10	40.06	54.00	-13.94	HORIZONTAL	Average
4	2390.000	49.03	26.43	18.87	39.10	55.23	74.00	-18.77	HORIZONTAL	Peak
5	2483.500	41.32	26.58	19.07	39.14	47.83	54.00	-6.17	HORIZONTAL	Average
6	2483.500	60.68	26.58	19.07	39.14	67.19	74.00	-6.81	HORIZONTAL	Peak
7	2500.000	40.15	26.60	19.10	39.14	46.71	54.00	-7.29	HORIZONTAL	Average
8	2500.000	58.01	26.60	19.10	39.14	64.57	74.00	-9.43	HORIZONTAL	Peak

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802.11n(HT20) mode with 72.2Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	28.12	26.25	18.80	39.07	34.10	54.00	-19.90	VERTICAL	Average
2	2310.000	40.94	26.25	18.80	39.07	46.92	74.00	-27.08	VERTICAL	Peak
3	2390.000	37.05	26.43	18.87	39.10	43.25	54.00	-10.75	VERTICAL	Average
4	2390.000	55.64	26.43	18.87	39.10	61.84	74.00	-12.16	VERTICAL	Peak
5	2483.500	29.01	26.58	19.07	39.14	35.52	54.00	-18.48	VERTICAL	Average
6	2483.500	41.26	26.58	19.07	39.14	47.77	74.00	-26.23	VERTICAL	Peak
7	2500.000	26.89	26.60	19.10	39.14	33.45	54.00	-20.55	VERTICAL	Average
8	2500.000	40.79	26.60	19.10	39.14	47.35	74.00	-26.65	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	27.91	26.25	18.80	39.07	33.89	54.00	-20.11	HORIZONTAL	Average
2	2310.000	42.17	26.25	18.80	39.07	48.15	74.00	-25.85	HORIZONTAL	Peak
3	2390.000	41.26	26.43	18.87	39.10	47.46	54.00	-6.54	HORIZONTAL	Average
4	2390.000	60.29	26.43	18.87	39.10	66.49	74.00	-7.51	HORIZONTAL	Peak
5	2483.500	31.68	26.58	19.07	39.14	38.19	54.00	-15.81	HORIZONTAL	Average
6	2483.500	46.27	26.58	19.07	39.14	52.78	74.00	-21.22	HORIZONTAL	Peak
7	2500.000	28.53	26.60	19.10	39.14	35.09	54.00	-18.91	HORIZONTAL	Average
8	2500.000	41.35	26.60	19.10	39.14	47.91	74.00	-26.09	HORIZONTAL	Peak

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Test at Channel 11 (2.462 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	28.97	26.25	18.80	39.07	34.95	54.00	-19.05	VERTICAL	Average
2	2310.000	41.25	26.25	18.80	39.07	47.23	74.00	-26.77	VERTICAL	Peak
3	2390.000	27.80	26.43	18.87	39.10	34.00	54.00	-20.00	VERTICAL	Average
4	2390.000	40.93	26.43	18.87	39.10	47.13	74.00	-26.87	VERTICAL	Peak
5	2483.500	36.26	26.58	19.07	39.14	42.77	54.00	-11.23	VERTICAL	Average
6	2483.500	51.53	26.58	19.07	39.14	58.04	74.00	-15.96	VERTICAL	Peak
7	2500.000	34.84	26.60	19.10	39.14	41.40	54.00	-12.60	VERTICAL	Average
8	2500.000	45.38	26.60	19.10	39.14	51.94	74.00	-22.06	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	28.97	26.25	18.80	39.07	34.95	54.00	-19.05	HORIZONTAL	Average
2	2310.000	40.96	26.25	18.80	39.07	46.94	74.00	-27.06	HORIZONTAL	Peak
3	2390.000	29.99	26.43	18.87	39.10	36.19	54.00	-17.81	HORIZONTAL	Average
4	2390.000	46.17	26.43	18.87	39.10	52.37	74.00	-21.63	HORIZONTAL	Peak
5	2483.500	39.38	26.58	19.07	39.14	45.89	54.00	-8.11	HORIZONTAL	Average
6	2483.500	59.25	26.58	19.07	39.14	65.76	74.00	-8.24	HORIZONTAL	Peak
7	2500.000	36.34	26.60	19.10	39.14	42.90	54.00	-11.10	HORIZONTAL	Average
8	2500.000	55.55	26.60	19.10	39.14	62.11	74.00	-11.89	HORIZONTAL	Peak

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802.11n(HT40) mode with 150Mbps data rate

Test at Channel 3 (2.422 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	21.46	45.47	0.00	39.07	27.86	54.00	-26.14	VERTICAL	Average
2	2310.000	34.32	45.47	0.00	39.07	40.72	74.00	-33.28	VERTICAL	Peak
3	2390.000	34.12	45.85	0.00	39.10	40.87	54.00	-13.13	VERTICAL	Average
4	2390.000	45.02	45.85	0.00	39.10	51.77	74.00	-22.23	VERTICAL	Peak
5	2483.500	22.15	45.81	0.00	39.14	28.82	54.00	-25.18	VERTICAL	Average
6	2483.500	33.56	45.81	0.00	39.14	40.23	74.00	-33.77	VERTICAL	Peak
7	2500.000	21.86	46.52	0.00	39.14	29.24	54.00	-24.76	VERTICAL	Average
8	2500.000	33.01	46.52	0.00	39.14	40.39	74.00	-33.61	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	24.54	46.34	0.00	39.07	31.81	54.00	-22.19	HORIZONTAL	Average
2	2310.000	33.72	46.34	0.00	39.07	40.99	74.00	-33.01	HORIZONTAL	Peak
3	2390.000	31.11	46.71	0.00	39.10	38.72	54.00	-15.28	HORIZONTAL	Average
4	2390.000	44.74	46.71	0.00	39.10	52.35	74.00	-21.65	HORIZONTAL	Peak
5	2483.500	23.26	47.17	0.00	39.14	31.29	54.00	-22.71	HORIZONTAL	Average
6	2483.500	33.60	47.17	0.00	39.14	41.63	74.00	-32.37	HORIZONTAL	Peak
7	2500.000	22.22	47.43	0.00	39.14	30.51	54.00	-23.49	HORIZONTAL	Average
8	2500.000	33.04	47.43	0.00	39.14	41.33	74.00	-32.67	HORIZONTAL	Peak

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Test at Channel 9 (2.452 GHz) in transmitting status

	Freq	Read Level	Antenna 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	2310.000	21.97	45.47	0.00	39.07	28.37	54.00	-25.63	VERTICAL	Average
2	2310.000	33.08	45.47	0.00	39.07	39.48	74.00	-34.52	VERTICAL	Peak
3	2390.000	21.39	45.85	0.00	39.10	28.14	54.00	-25.86	VERTICAL	Average
4	2390.000	33.22	45.85	0.00	39.10	39.97	74.00	-34.03	VERTICAL	Peak
5	2483.500	39.36	45.81	0.00	39.14	46.03	54.00	-7.97	VERTICAL	Average
6	2483.500	53.05	45.81	0.00	39.14	59.72	74.00	-14.28	VERTICAL	Peak
7	2500.000	34.02	46.52	0.00	39.14	41.40	54.00	-12.60	VERTICAL	Average
8	2500.000	48.11	46.52	0.00	39.14	55.49	74.00	-18.51	VERTICAL	Peak

	Freq	Read Level	Antenna 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	2310.000	21.81	46.34	0.00	39.07	29.08	54.00	-24.92	HORIZONTAL	Average
2	2310.000	33.32	46.34	0.00	39.07	40.59	74.00	-33.41	HORIZONTAL	Peak
3	2390.000	22.54	46.71	0.00	39.10	30.15	54.00	-23.85	HORIZONTAL	Average
4	2390.000	37.58	46.71	0.00	39.10	45.19	74.00	-28.81	HORIZONTAL	Peak
5	2483.500	36.15	47.17	0.00	39.14	44.18	54.00	-9.82	HORIZONTAL	Average
6	2483.500	50.49	47.17	0.00	39.14	58.52	74.00	-15.48	HORIZONTAL	Peak
7	2500.000	29.56	47.43	0.00	39.14	37.85	54.00	-16.15	HORIZONTAL	Average
8	2500.000	42.04	47.43	0.00	39.14	50.33	74.00	-23.67	HORIZONTAL	Peak

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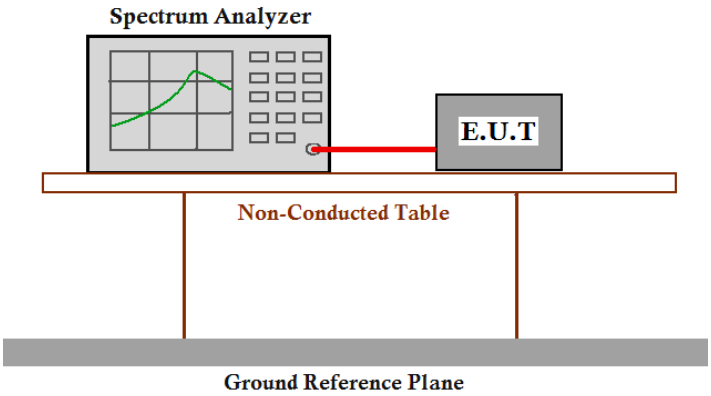
7.9 Band Edges Requirement

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:	



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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.

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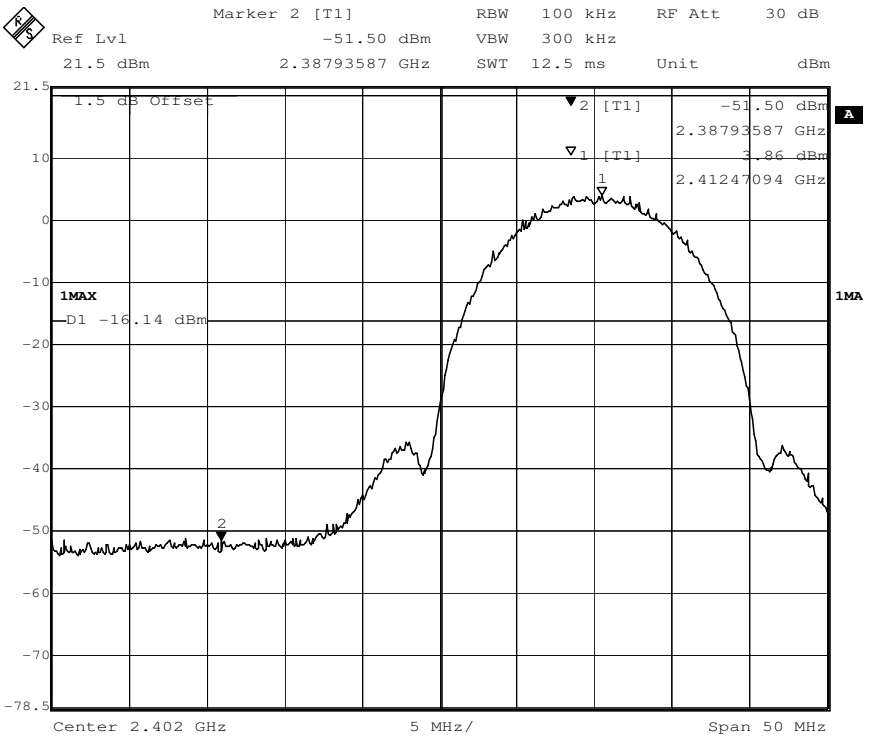
Test result with plots as follows:

Compare with the output power of the lowest frequency, the Lower Edges attenuated more than 20dB
Compare with the output power of the highest frequency, the Upper Edges attenuated more than 20dB.

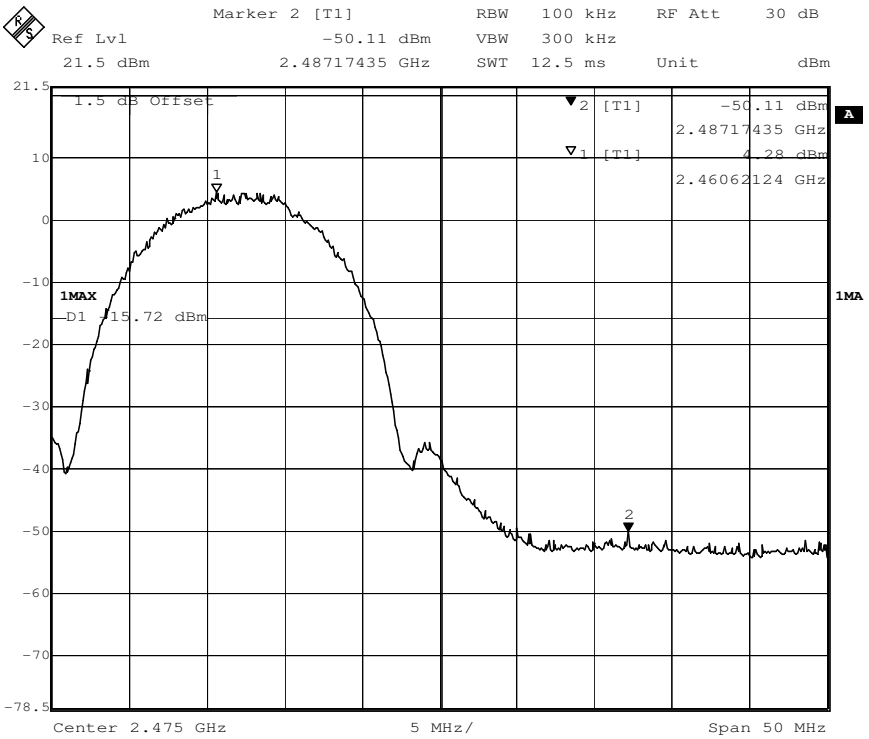
802.11b mode with 11 Mbps data rate

Channel1: 2.412 GHz



802.11b mode with 11 Mbps data rate

Channel11: 2.462 GHz



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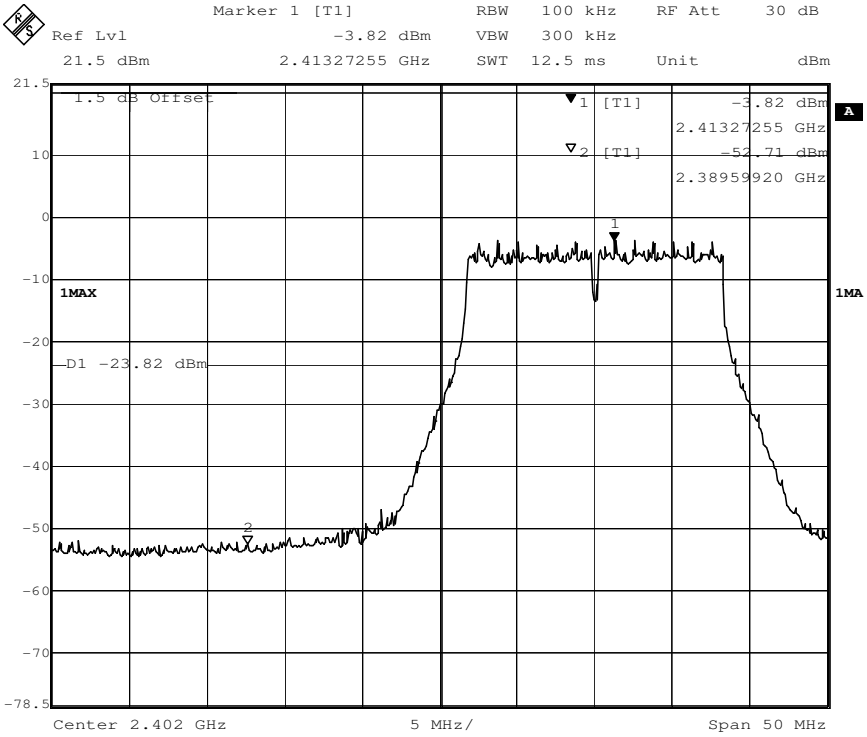
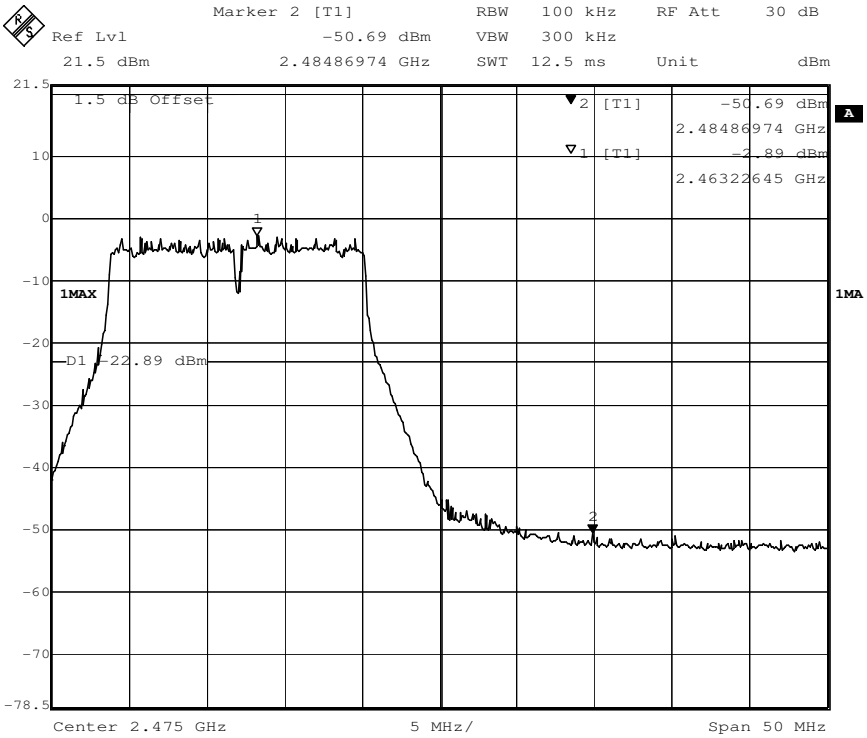
802.11g mode with 54 Mbps data rate

Channel11: 2.412 GHz



802.11g mode with 54 Mbps data rate

Channel11: 2.462 GHz



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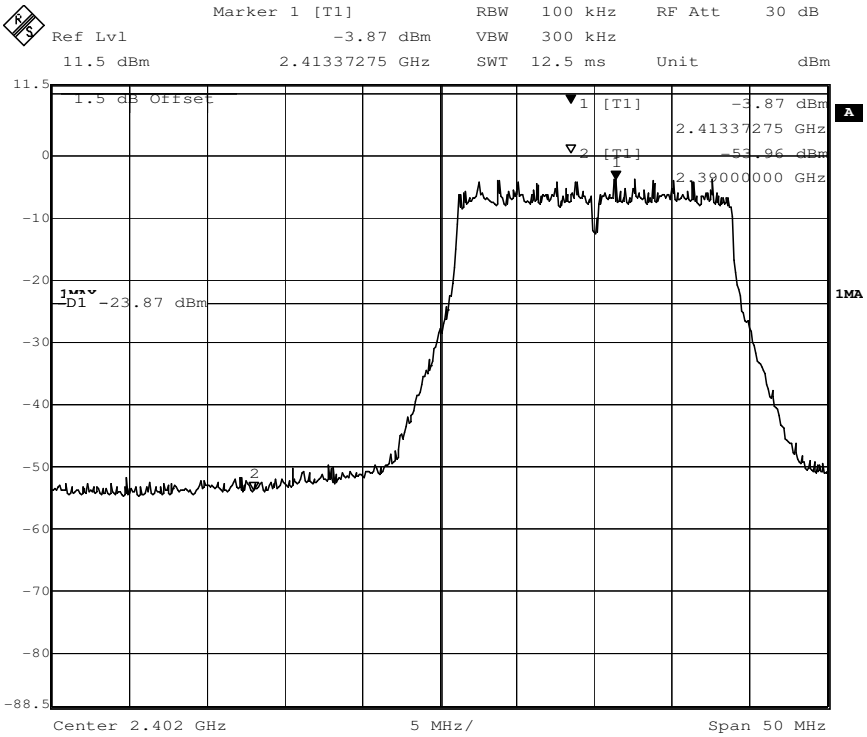
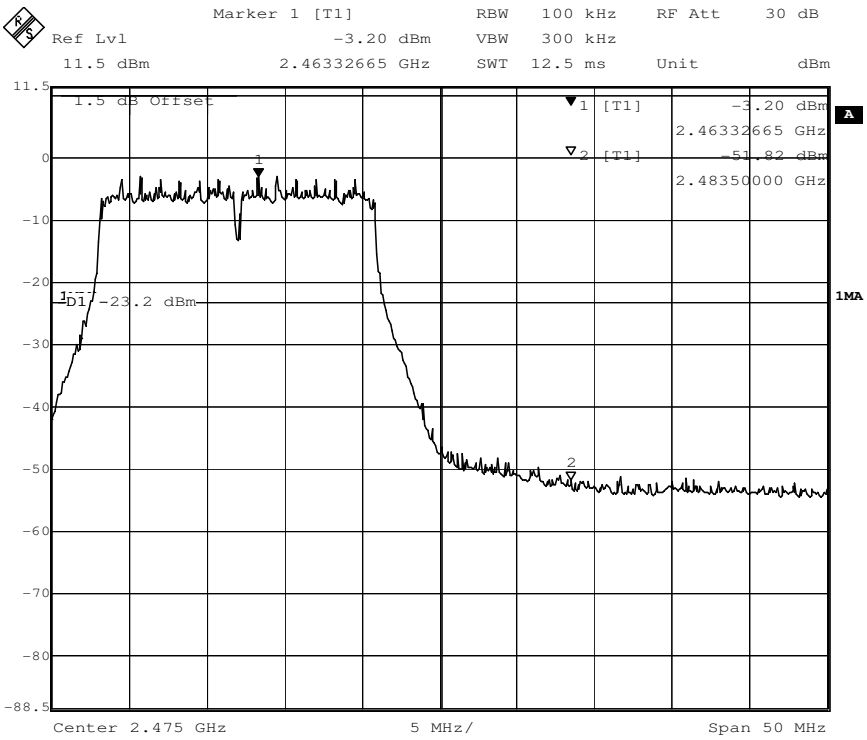
802.11n(HT20) mode with 72.2Mbps data rate

Channel1: 2.412 GHz



802.11n(HT20) mode with 72.2Mbps data rate

Channel11: 2.462 GHz



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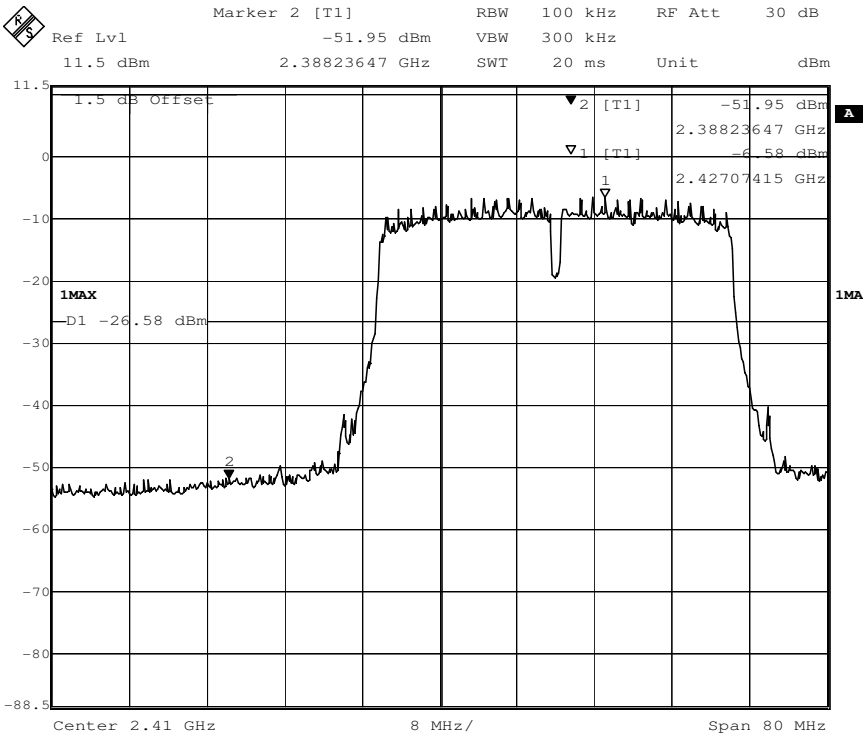
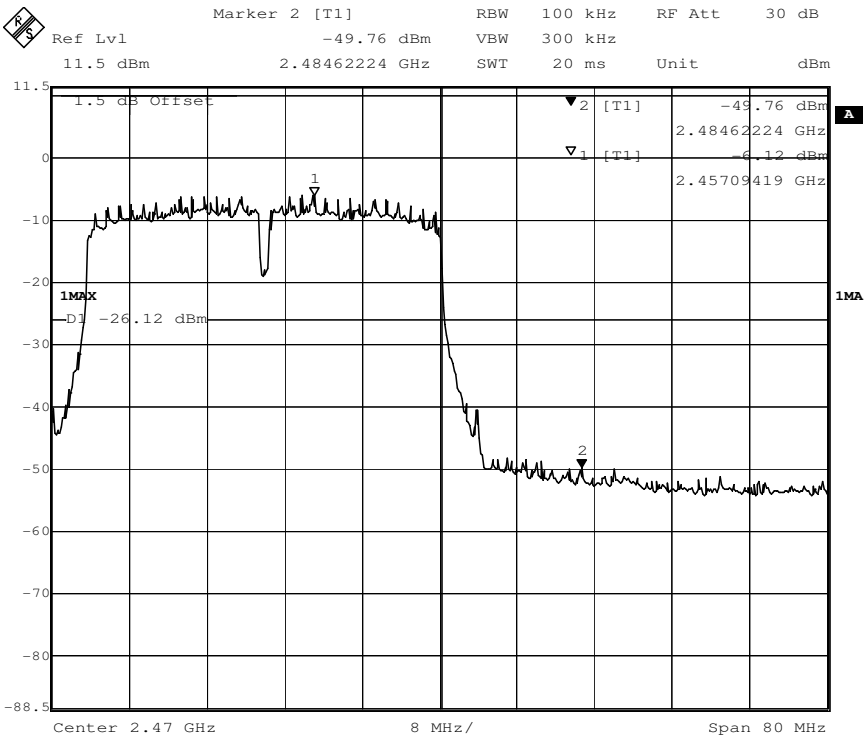
802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422 GHz



802.11n(HT40) mode with 150Mbps data rate

Channel 9: 2.452 GHz



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7.10 Conducted Emissions 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).

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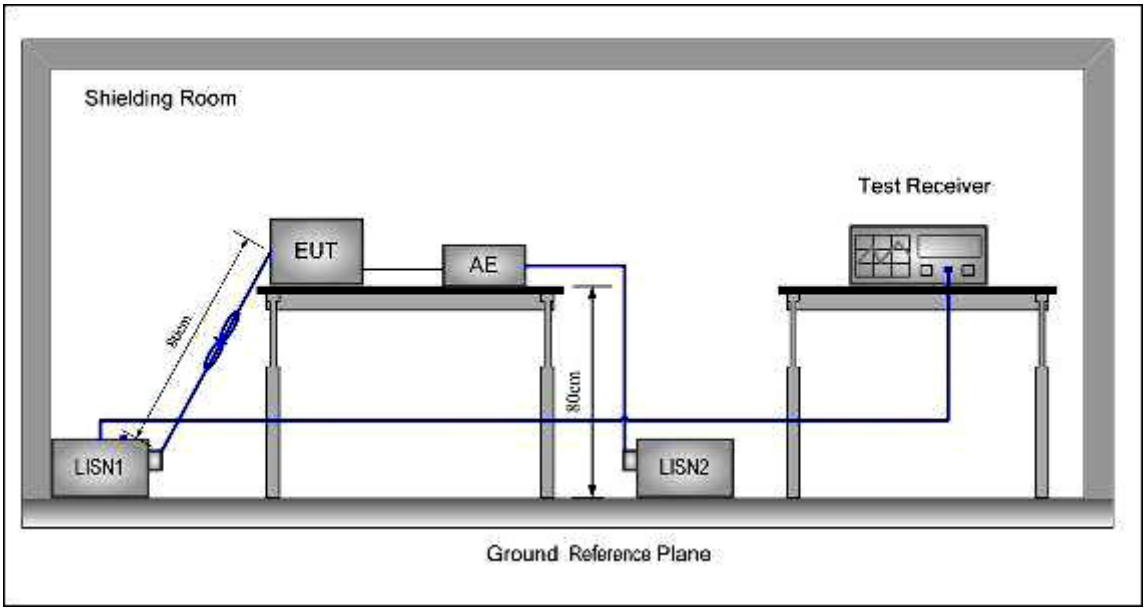
Test Configuration:



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.

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Measurement Data

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

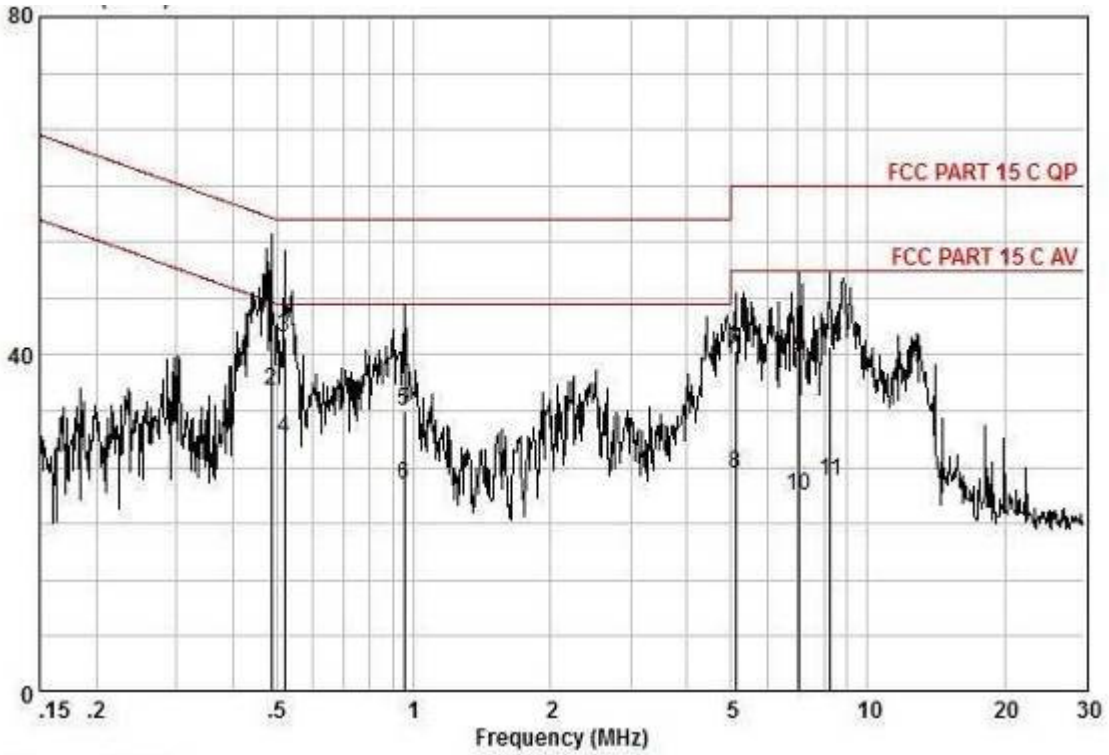
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

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

Test Result:

Neutral Line

Level(dBµV)



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
0.49	35.28	0.20	9.55	45.03	56.23	-11.20	QP
0.49	25.99	0.20	9.55	35.74	46.23	-10.49	AVERAGE
0.52	32.28	0.21	9.55	42.04	56.00	-13.96	QP
0.52	20.36	0.21	9.55	30.12	46.00	-15.88	AVERAGE
0.95	23.56	0.29	9.59	33.44	56.00	-22.56	QP
0.95	14.76	0.29	9.59	24.64	46.00	-21.36	AVERAGE
5.11	30.20	0.70	9.61	40.51	60.00	-19.49	QP
5.11	15.68	0.70	9.61	25.99	50.00	-24.01	AVERAGE
7.06	29.38	0.65	9.59	39.62	60.00	-20.38	QP
7.06	13.18	0.65	9.59	23.42	50.00	-26.58	AVERAGE
8.28	14.76	0.63	9.61	25.00	50.00	-25.00	AVERAGE
8.28	30.80	0.63	9.61	41.04	60.00	-18.96	QP

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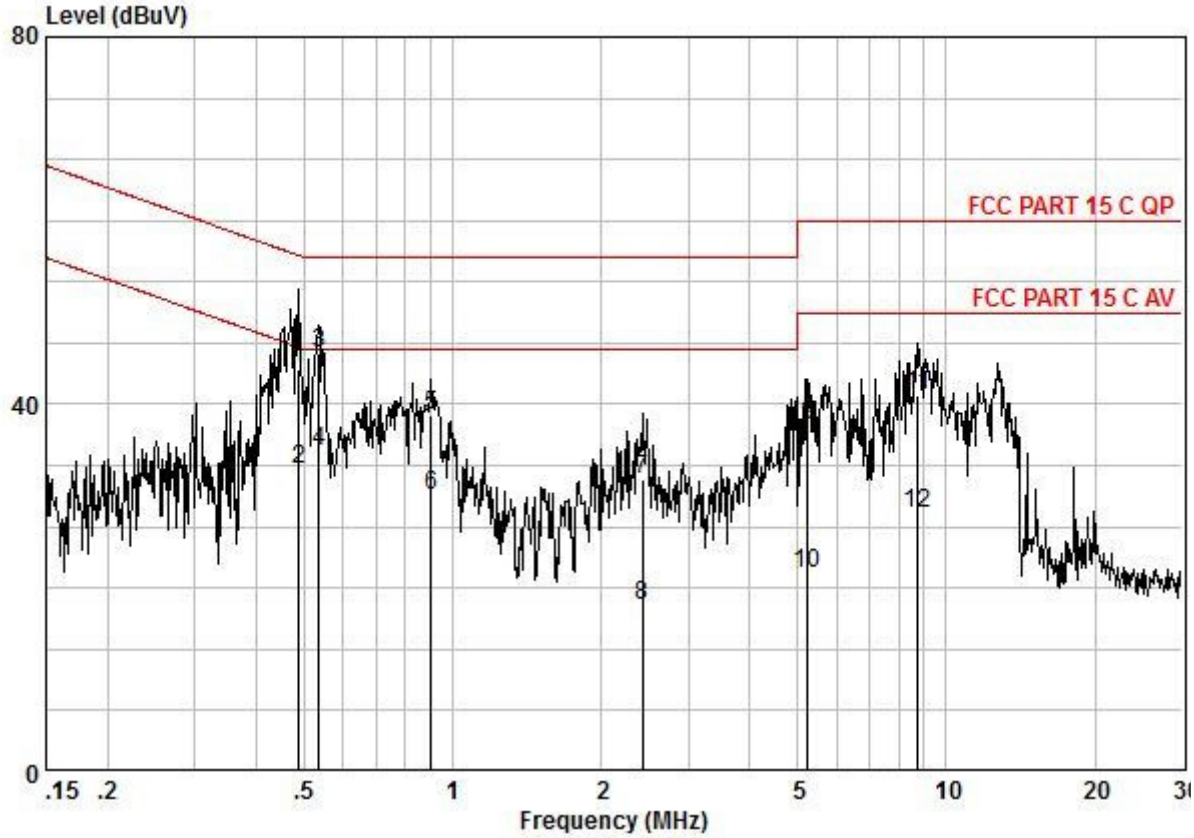
Live Line



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
0,49	34,00	0,20	9,65	43,85	56,19	-12,34	QP
0,49	22,99	0,20	9,65	32,84	46,19	-13,35	AVERAGE
0,53	35,80	0,21	9,64	45,65	56,00	-10,35	QP
0,53	24,97	0,21	9,64	34,82	46,00	-11,18	AVERAGE
0,90	29,00	0,28	9,62	38,91	56,00	-17,09	QP
0,90	20,19	0,28	9,62	30,10	46,00	-15,90	AVERAGE
2,42	21,84	0,46	9,61	31,92	56,00	-24,08	QP
2,42	7,93	0,46	9,61	18,01	46,00	-27,99	AVERAGE
5,25	27,46	0,69	9,63	37,78	60,00	-22,22	QP
5,25	11,18	0,69	9,63	21,50	50,00	-28,50	AVERAGE
8,78	30,64	0,62	9,64	40,90	60,00	-19,10	QP
8,78	17,95	0,62	9,64	28,21	50,00	-21,79	AVERAGE

--End of Report--

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