SGS-CSTC Standards Technical Services Co., Ltd.

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TEST REPORT

Application No.:	GZEM1401000246IT
Applicant:	ZhuHai Seine Technology Co.,Ltd.
FCC ID:	2ABSEPANTUM
Product Name:	Monochrome Laser Printer
Product Description:	802.11b/g/n Wireless Monochrome Laser Printer with 2.4 GHz as carrier.
Model No.:	P2500W
Trade mark:	PANTUM
Standards:	47 CFR PART 15 Subpart C: 2012 section 15.247
Date of Receipt:	2014-01-24
Date of Test:	2014-01-24 to 2014-02-28
Date of Issue:	2014-03-17
Test Result :	**Pass***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further detail.

Authorized Signature:

Richard Li
Managerr

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.

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		2014-03-17		Original

Authorized for issue by:				
Tested By		(Fred Zhu) /Project Engineer		2014-01-24 to 2014-02-28 **Date**
Prepared By		(Fred Zhu) /Project Engineer		2014-02-28 **Date**
Checked By		(Storm Shu)/Reviewer		2014-03-17 **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 6.9.1	PASS
Maximum Peak Output Power	FCC PART 15 C section 15.247(b)(3)	FCC/KDB-558074 D01 v03r01 Clause 9.1.2	PASS
Peak Power Spectral Density	FCC PART 15 C section 15.247(e)	ANSI C63.10: Clause 6.11.2.3	PASS
Conducted Spurious Emission (30MHz to 25GHz)	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 6.7	PASS
Radiated Spurious Emission 30 MHz to 25 GHz)	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 6.4, 6.5 and 6.6	PASS
Band Edges Measurement	FCC PART 15 C section 15.247 (d) &15.205	ANSI C63.10: Clause 6.9.2	PASS
Conducted Emissions at Mains Terminals	FCC PART 15 C section 15.207	ANSI C63.10: Clause 6.2	PASS

Remark:

N/A: not applicable. Refer to the relative section for the details.
EUT: In this whole report EUT means Equipment Under Test.
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 C63.10:2009 in the whole report.

♣Model No.: P2500W

The flat cable connecting the laser module is divided into two types, which did not affect the test data. More details please refer to construction photos.

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5 General Information

5.1 Client Information

Applicant:	ZhuHai Seine Technology Co.,Ltd.
Address of Applicant:	No.3883 Zhuhai Avenue, Xiangzhou District, Zhuhai, Guangdong, P.R. China

5.2 General Description of E.U.T.

Product Name:	Monochrome Laser Printer
Model No.:	P2500W

5.3 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	Integral
Antenna gain:	2.0 dBi
Function:	802.11b/g/n Wireless Monochrome Laser Printer
Power Supply:	AC 100-127V 50/60Hz 6.0A
Normal Test Voltage:	AC 120V 60Hz
Power cord:	1.9 m x 3 wires unscreened AC mains cable 1.5 m x 4 wires screened USB cable

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5.4 Description of Support Units

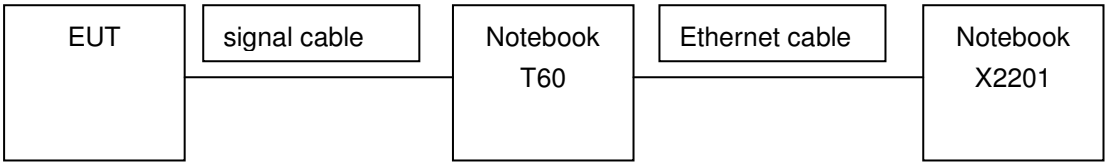
The EUT has been tested with corresponding accessories as below:

Supplied by SGS:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook	IBM	T60	L3-F3755
Mouse	DELL	MOC5UO	G1B02ZP5

Supplied by Client:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook	lenovo	X2201	OA89241



After conneting the support unit as above shown,notebook T60 and notebook X2201 worked togerther to set a fixed frequency signal.The signal will be sent from notebook T60 to the EUT.

When the EUT got the signal, notebooks and cables were removed.

5.5 Deviation from Standards

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

5.6 Abnormalities from Standard Conditions

None.

5.7 Other Information Requested by the Customer

None.

5.8 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou 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.

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5.9 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 recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **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 (Registration No.: 282399)**

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

- **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 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.

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6 Equipment Used during Test

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-08-30	2Y
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2014-05-06	1Y
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2014-03-04	1Y
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2014-05-09	1Y
EMC2025	Trilog Broadband Antenna 30-3000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9163	9163-450	2016-08-31	3Y
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2016-08-31	3Y
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-06-02	2Y
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2016-08-31	3Y
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2014-07-01	2Y
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2014-03-04	1Y
EMC2065	Amplifier	HP	8447F	N/A	2014-08-31	1Y
EMC2063	1-26GHz Pre Amplifier	Compliance Direction System Inc.	PAP-1G26-48	6279.628	2014-07-29	1Y
EMC0075	310N Amplifier	Sonama	310N	272683	2014-03-04	1Y
EMC0523	Active Loop Antenna	EMCO	6502	42963	2014-04-07	2Y
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	9170-375	2014-06-01	3Y
EMC2069	2.4GHz filter	Micro-Tronics	BRM 50702	149	2014-06-05	1Y
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-04-27	2Y
EMC2041	Broad-Band Horn Antenna(14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014/6/11	3Y

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Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2014-03-04	1Y
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2014-8-31	1Y
EMC2046	Artificial Mains Network (LISN)	AFJ Instruments	LT32C	S.N.32031120150	2014-03-04	1Y
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2014-03-04	1Y
EMC0107	Coaxial Cable	SGS	2m	N/A	2014-07-25	2Y
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	1Y
EMC0120	8 Line ISN	Fischer Custom Communications	FCC-TLISN-T8-02	20550	2014-8-31	1Y
EMC0121	4 Line ISN	Fischer Custom Communications	FCC-TLISN-T4-02	20549	2014-8-31	1Y
EMC0122	2 Line ISN	Fischer Custom Communications	FCC-TLISN-T2-02	20548	2014-8-31	1Y
EMC2047	CDN	Elektronik-Feinmechanik	L-801:AF2	2793	2014-11-11	3Y
EMC2048	CDN	Elektronik-Feinmechanik	L-801:M2/M3	2738	2014-11-11	3Y
EMC2062	6dB Attenuator	HP	8491A	24487	2015-01-04	1Y
EMC167	Conical metal housing	SGS-EMC	N/A	N/A	2016-2-16	2Y

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0006	DMM	Fluke	73	70681569	2014-09-13	1Y
EMC0007	DMM	Fluke	73	70671122	2014-09-13	1Y

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7 Test Results

7.1 E.U.T. test conditions

Test Voltage:	AC 120V, 60 Hz
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: 2437 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: 2437 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

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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

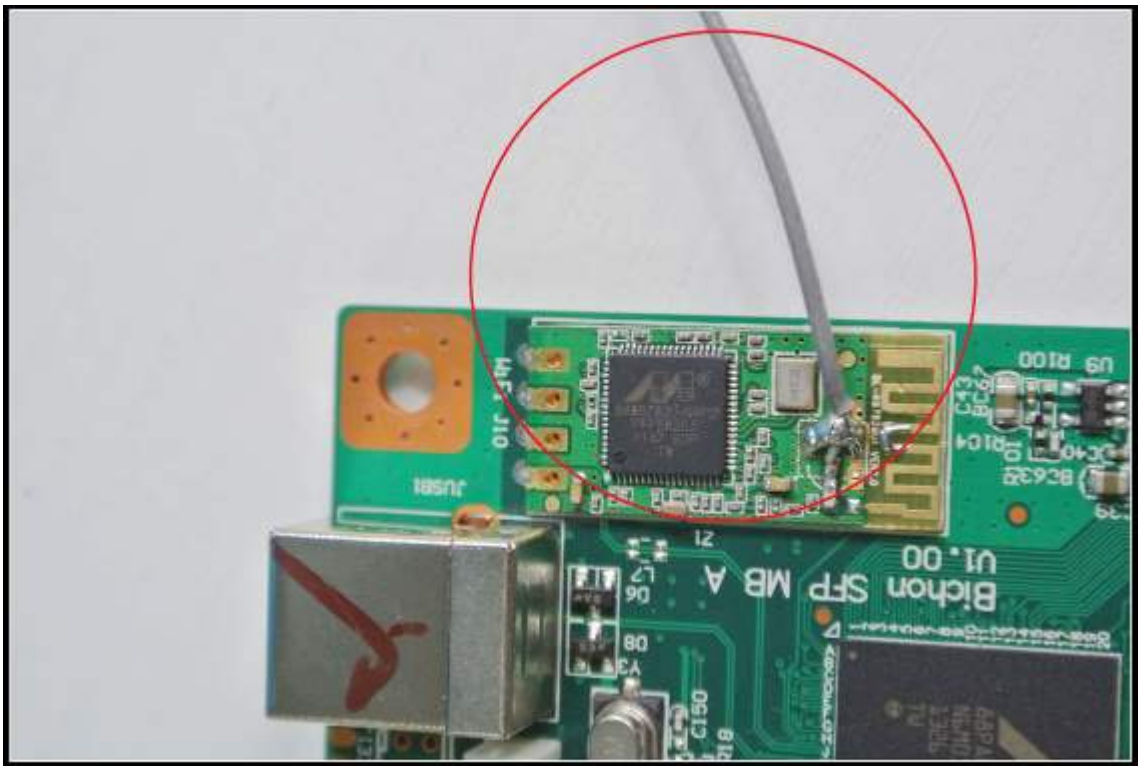
Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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 no consideration of replacement. The maximum gain of the antenna is 2.0 dBi.



Test result: The unit does meet the FCC requirements.

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7.3 6 dB Bandwidth

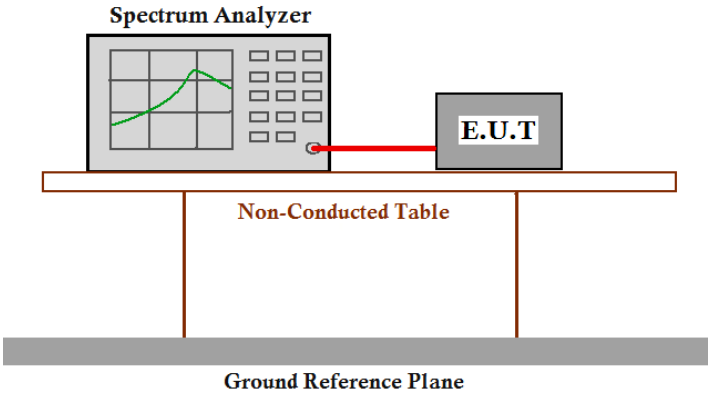
Test Requirement: FCC Part 15 C section 15.247

(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 6.9.1

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:

   Sweep = auto; Detector Function = Peak; ace = Max Hold

   RBW: 1%~5% OBW; VBW: ⩾3*RBW

   Span: two times and five times the OBW.
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	8.737	≥500KHz	Pass
6	2437		11 Mbps	8.717		Pass
11	2462		11 Mbps	8.737		Pass
1	2412	802.11g	54 Mbps	16.754	≥500KHz	Pass
6	2437		54 Mbps	16.673		Pass
11	2462		54 Mbps	16.834		Pass
1	2412	802.11n (HT20)	72.2 Mbps	17.956	≥500KHz	Pass
6	2437		72.2 Mbps	17.876		Pass
11	2462		72.2 Mbps	17.796		Pass
3	2422	802.11n (HT40)	150 Mbps	37.034	≥500KHz	Pass
6	2437		150 Mbps	36.713		Pass
9	2452		150 Mbps	37.034		Pass

Test result: The unit does meet the FCC requirements.

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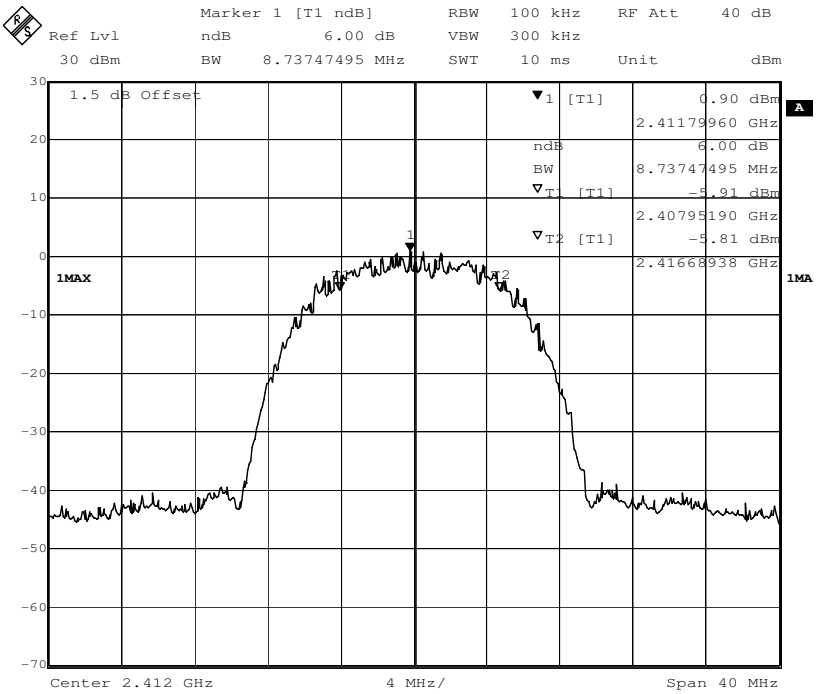
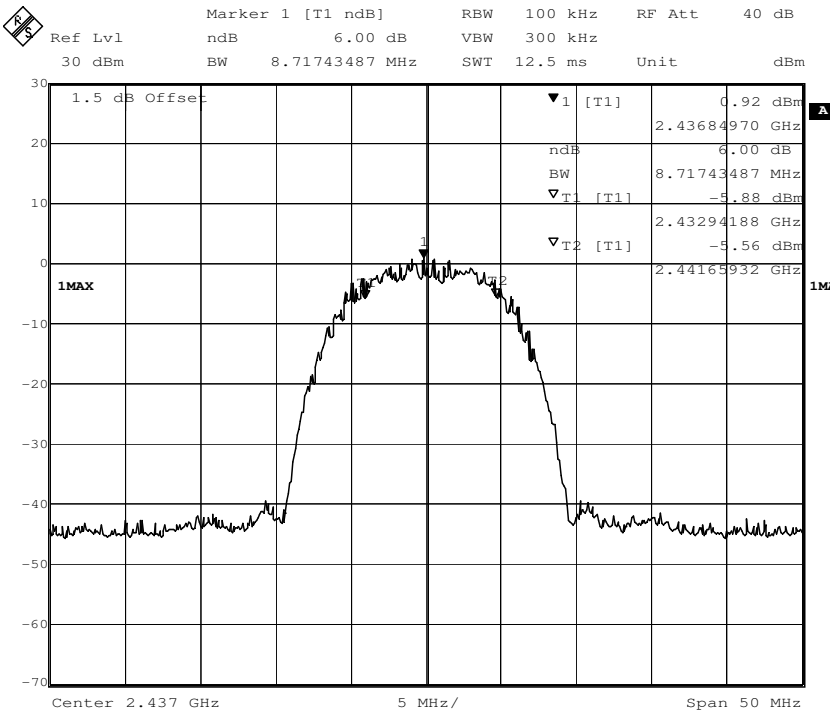
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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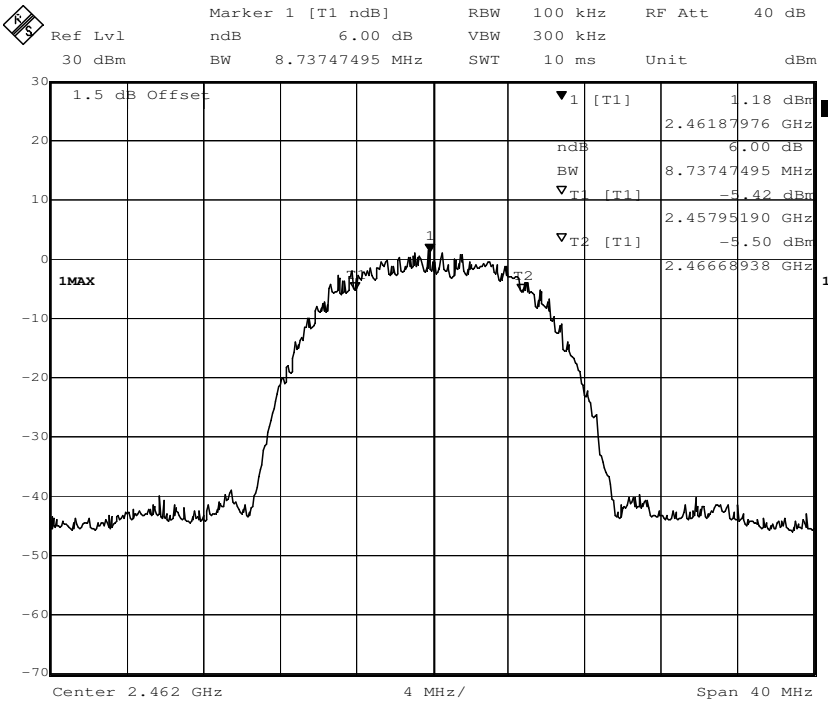
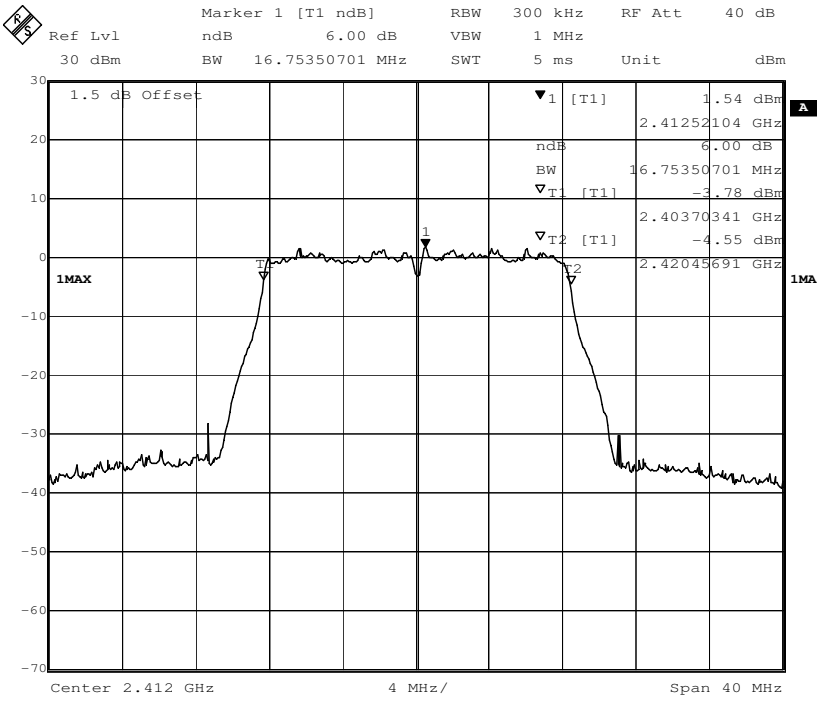
Channel 11: 2.462GHz:



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



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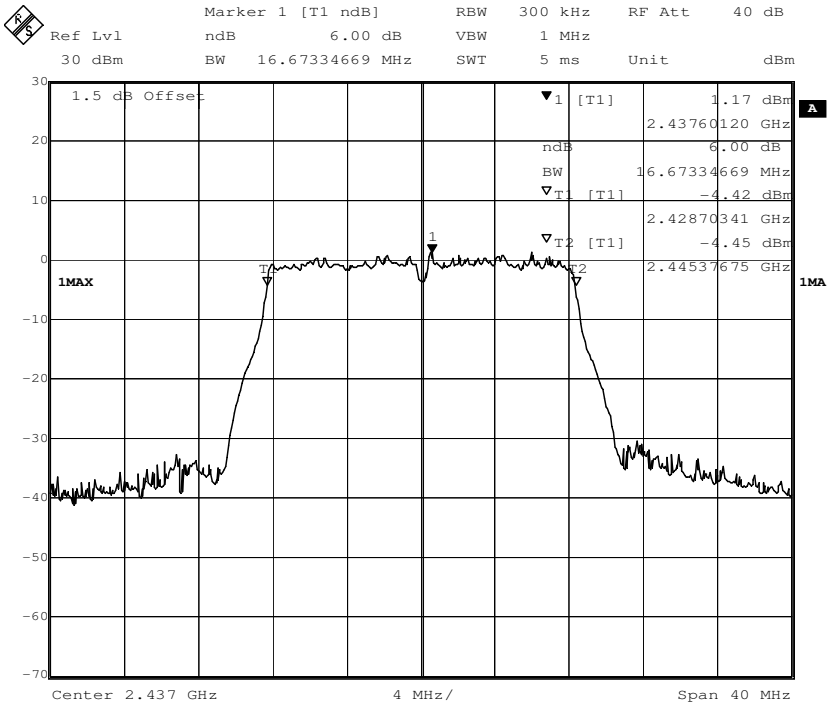
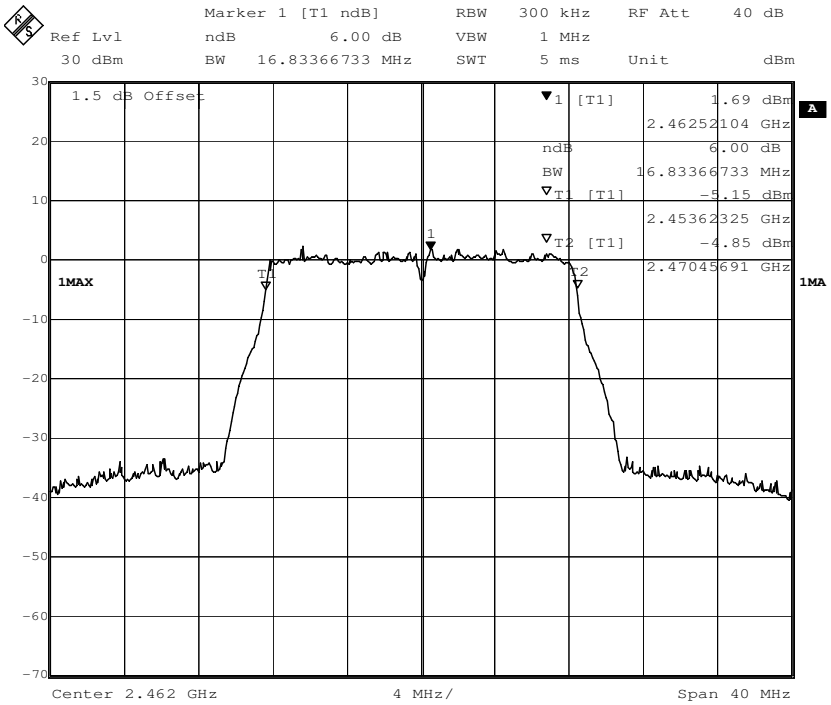
Channel 6: 2.437GHz:



Channel 11: 2.462GHz:



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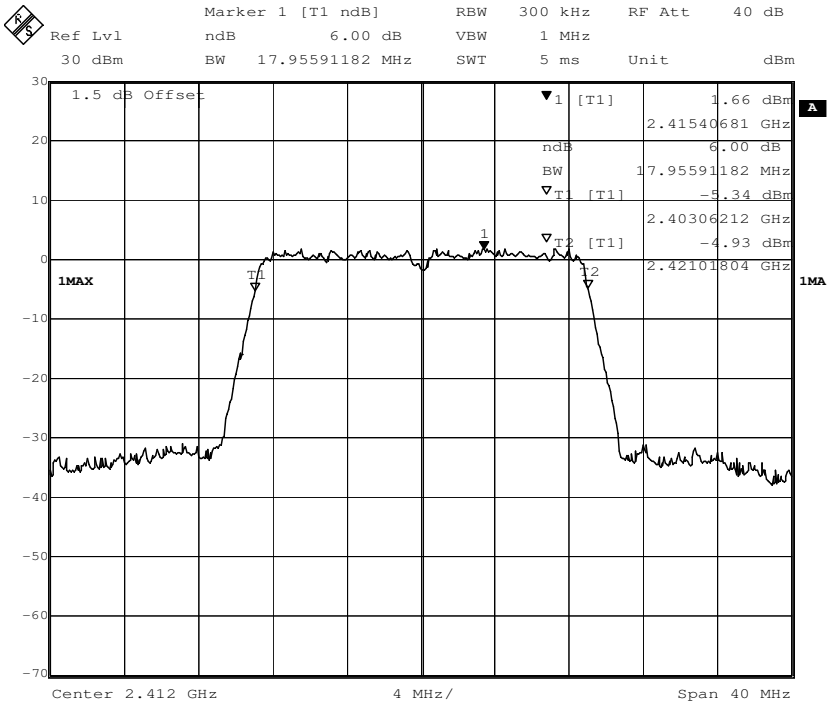
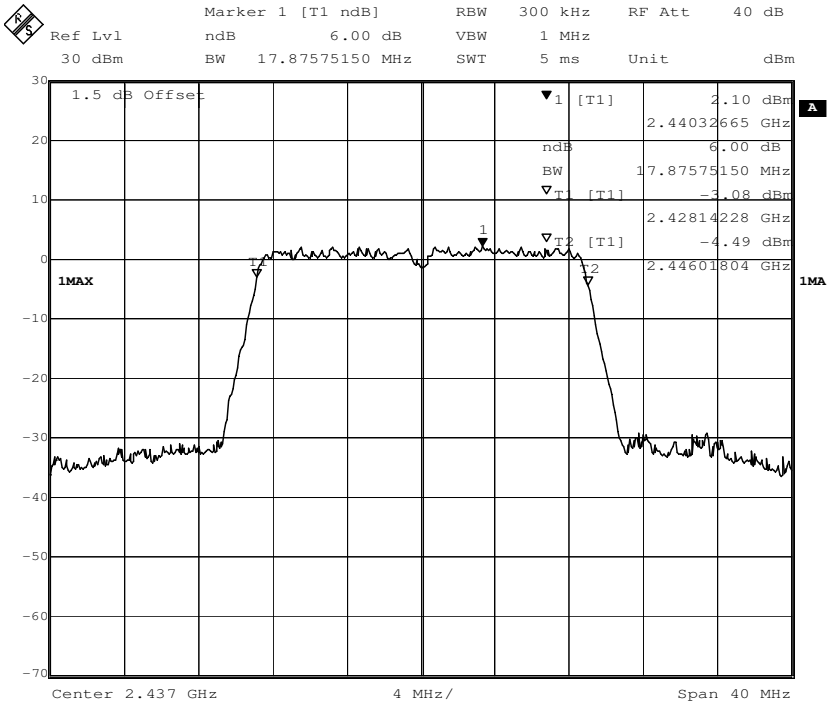
802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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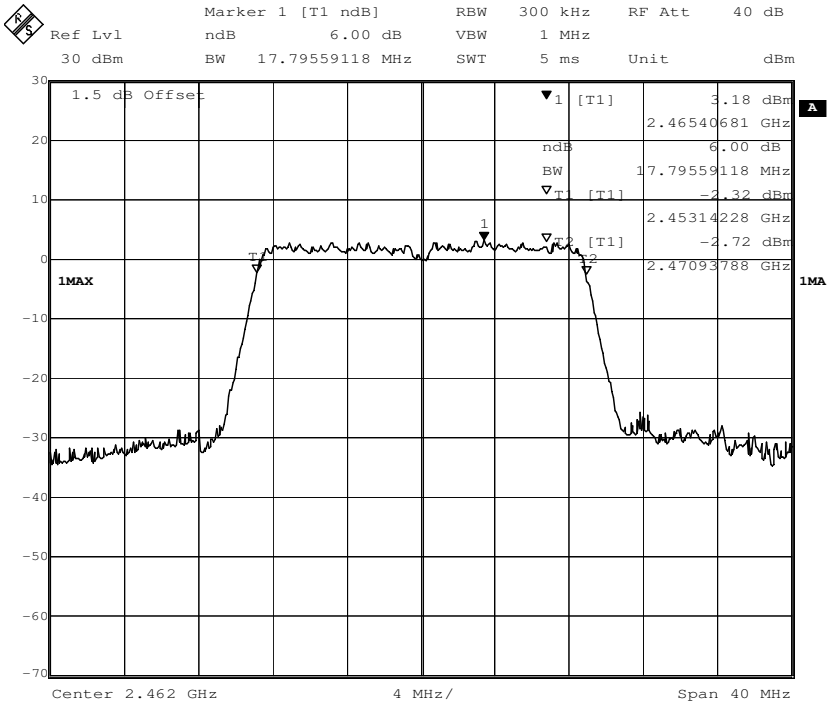
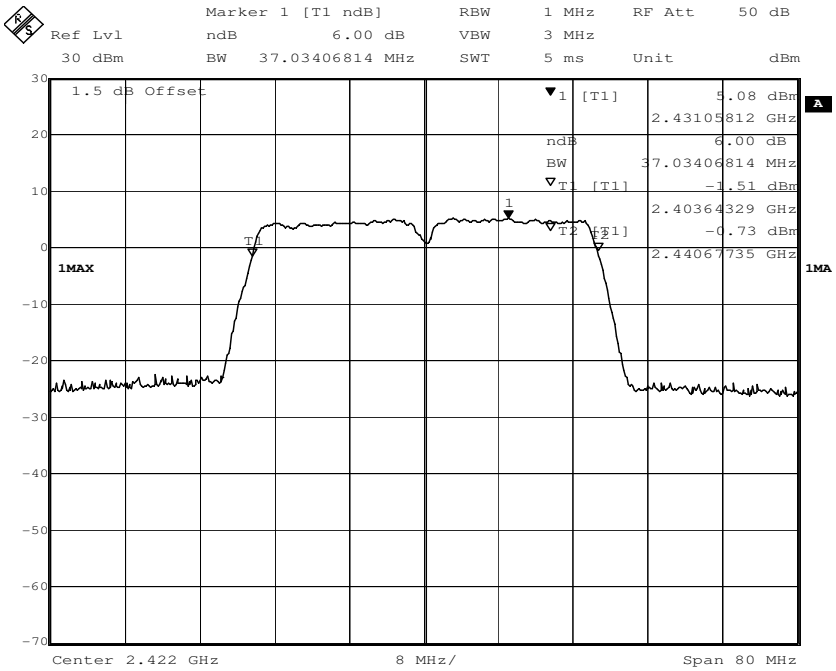
Channel 11: 2.462GHz:



802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:



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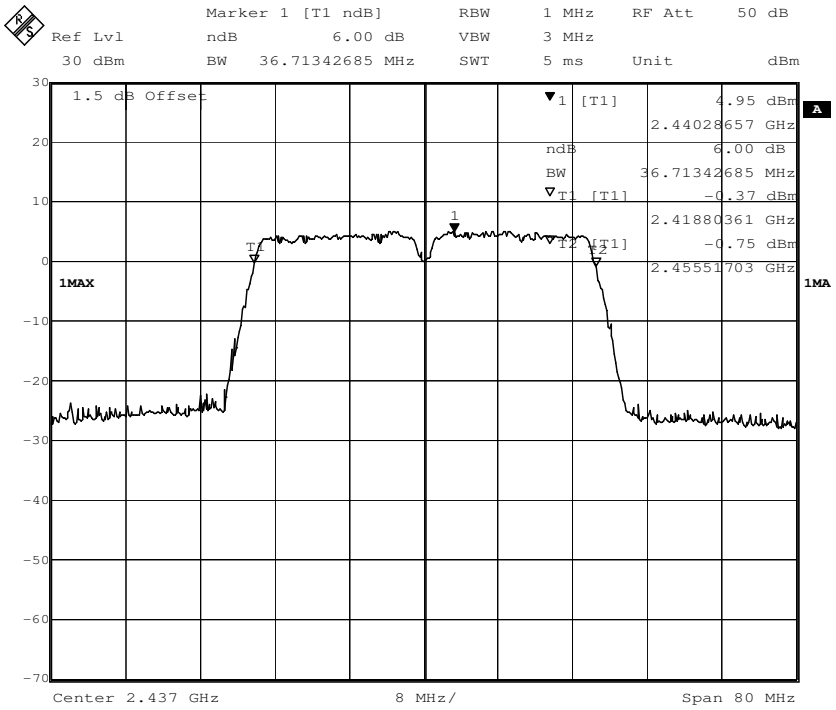
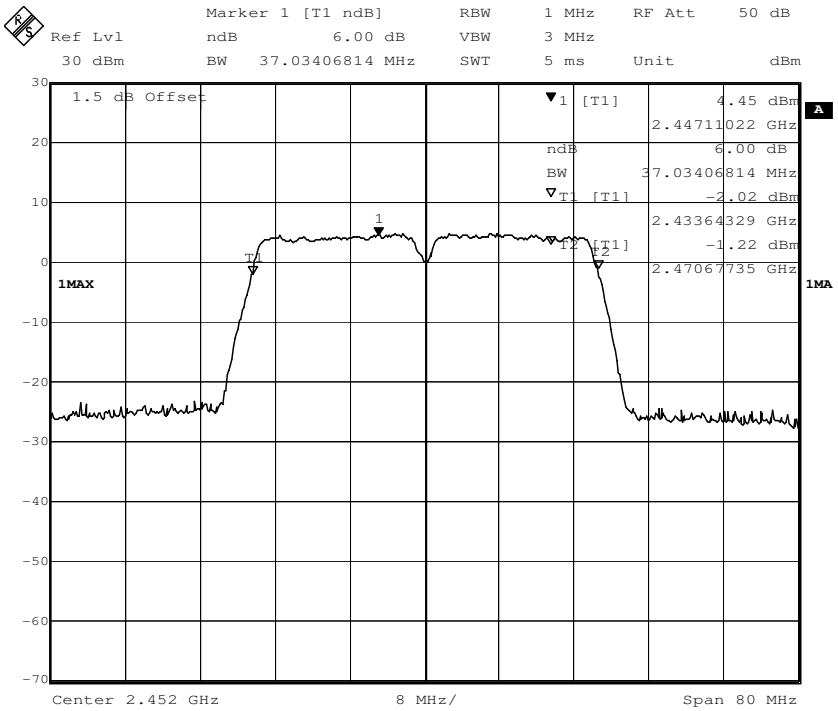
Channel 6: 2.437GHz:



Channel 9: 2.452GHz:



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7.4 Maximum Peak Output Power

Test Requirement: FCC Part 15 C section 15.247

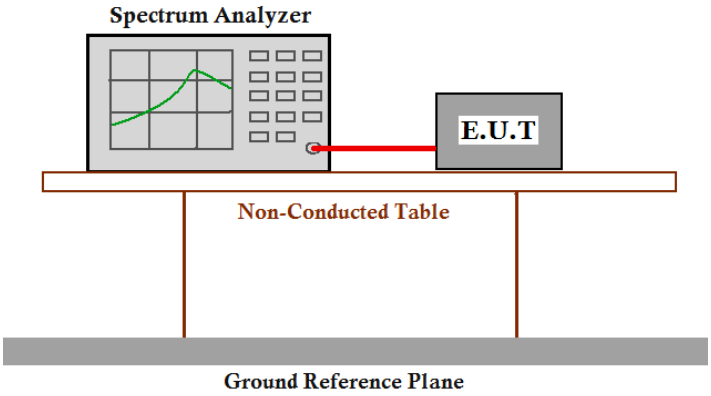
(b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

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: FCC/KDB-558074 D01 v03r01 Clause 9.1.2.

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.

2. Set the RBW = 1 MHz.
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.

   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.
12. 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	16.27	1W(30dBm)	Pass
6	2437		11 Mbps	16.40		Pass
11	2462		11 Mbps	16.91		Pass
1	2412	802.11g	54 Mbps	18.42		Pass
6	2437		54 Mbps	18.97		Pass
11	2462		54 Mbps	19.03		Pass
1	2412	802.11n (HT20)	72.2 Mbps	20.11		Pass
6	2437		72.2 Mbps	19.36		Pass
11	2462		72.2 Mbps	18.72		Pass
3	2422	802.11n (HT40)	150 Mbps	19.19		Pass
6	2437		150 Mbps	19.65		Pass
9	2452		150 Mbps	18.95		Pass

Remark: Level = Read Level + Cable Loss.

The unit does meet the FCC requirements.

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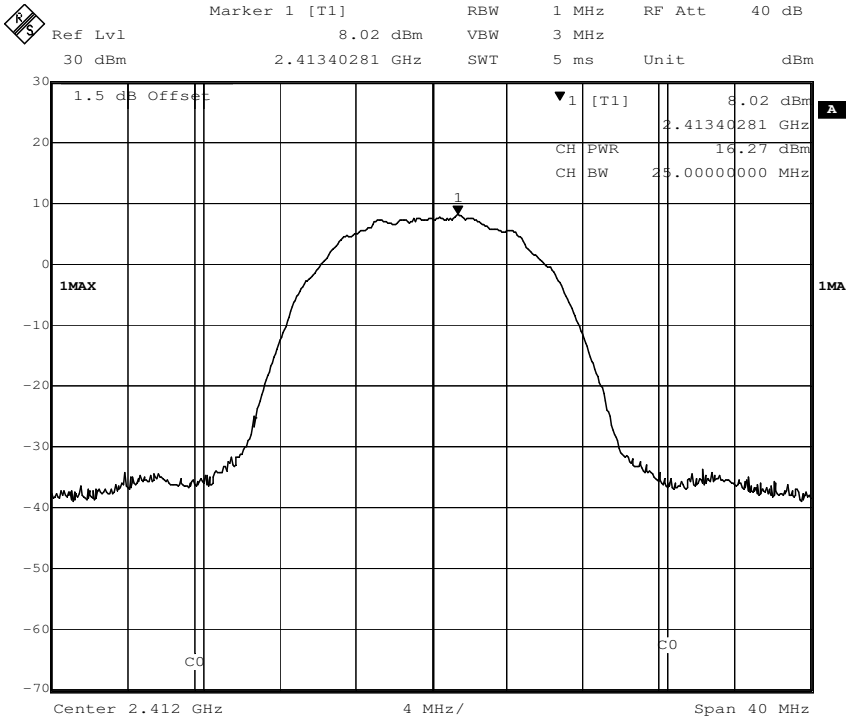
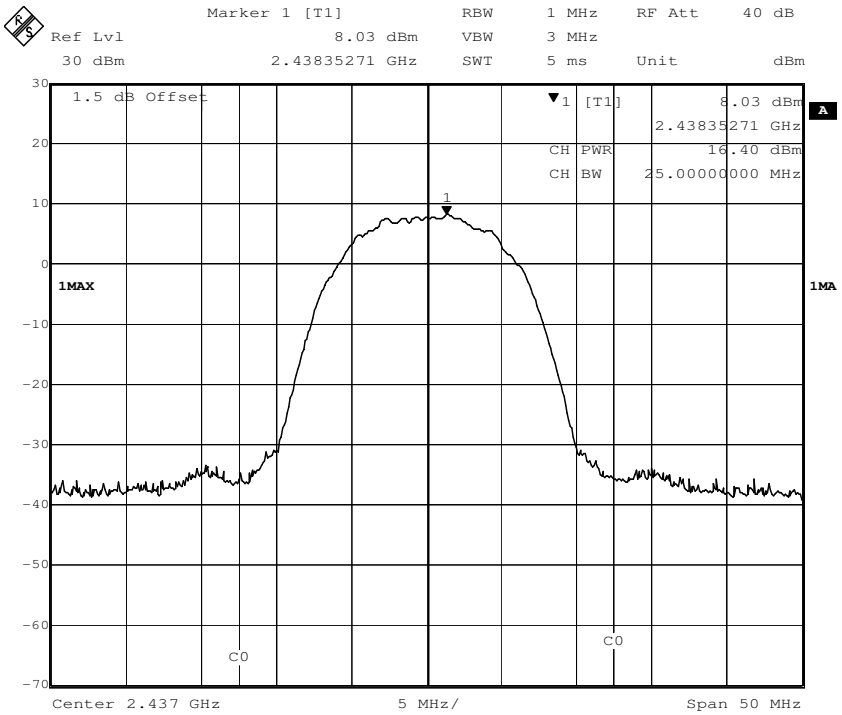
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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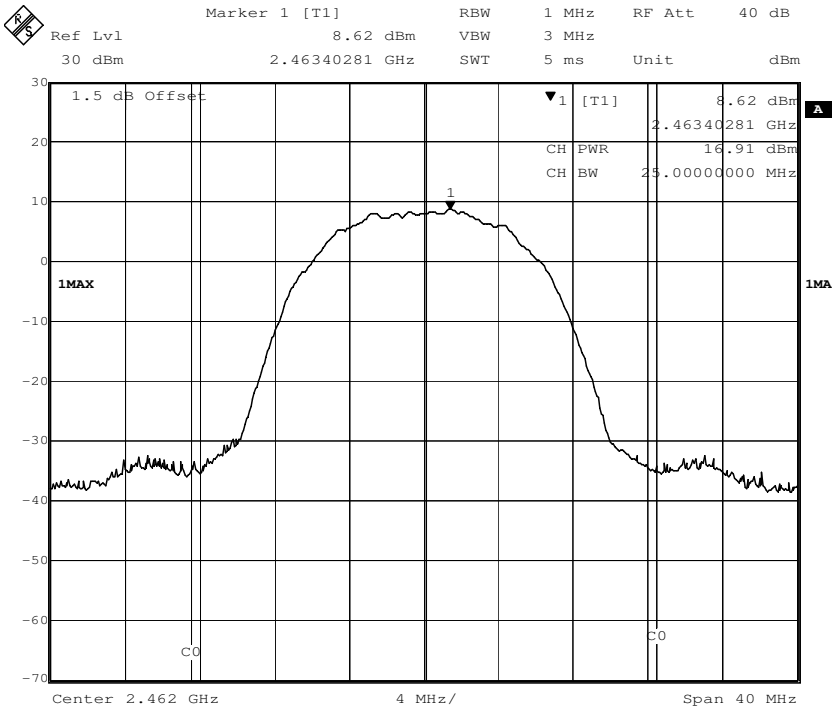
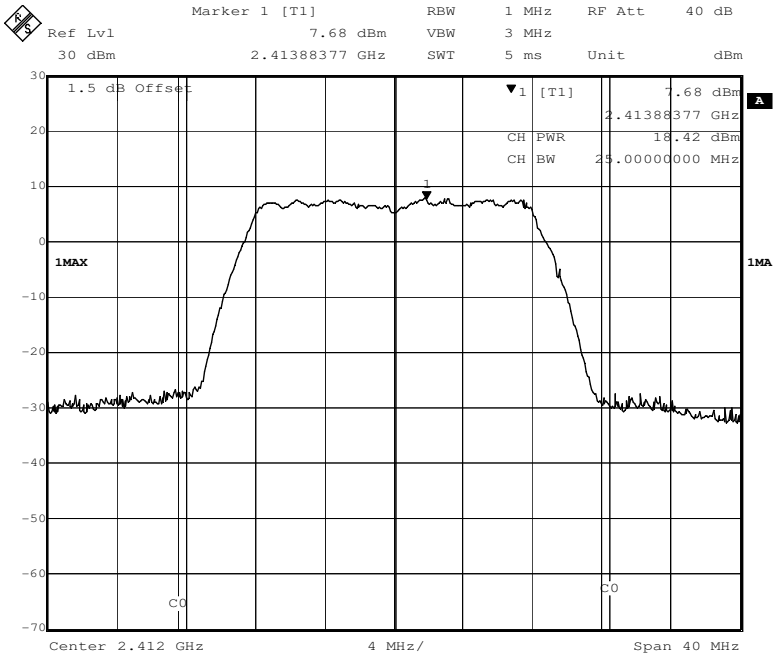
Channel 11: 2.462GHz:



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



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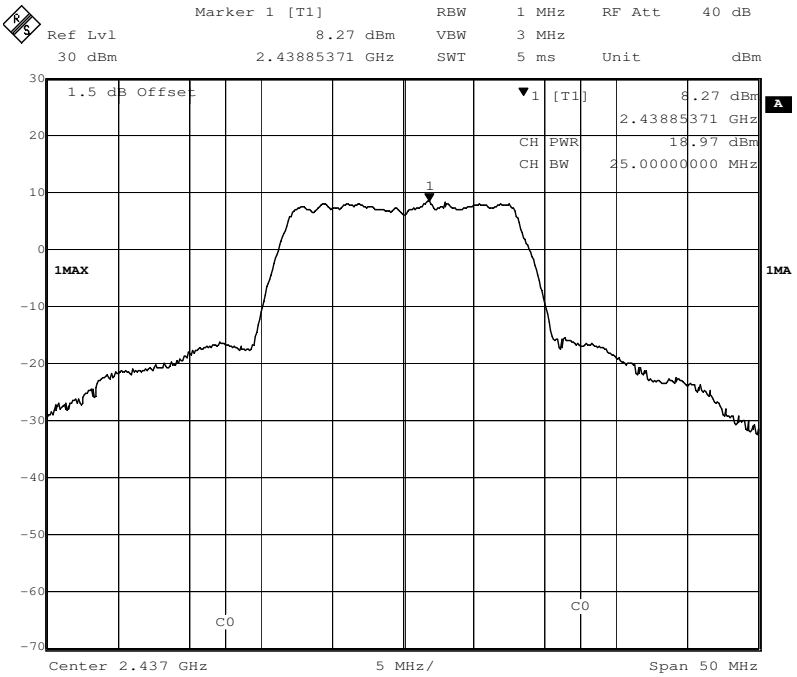
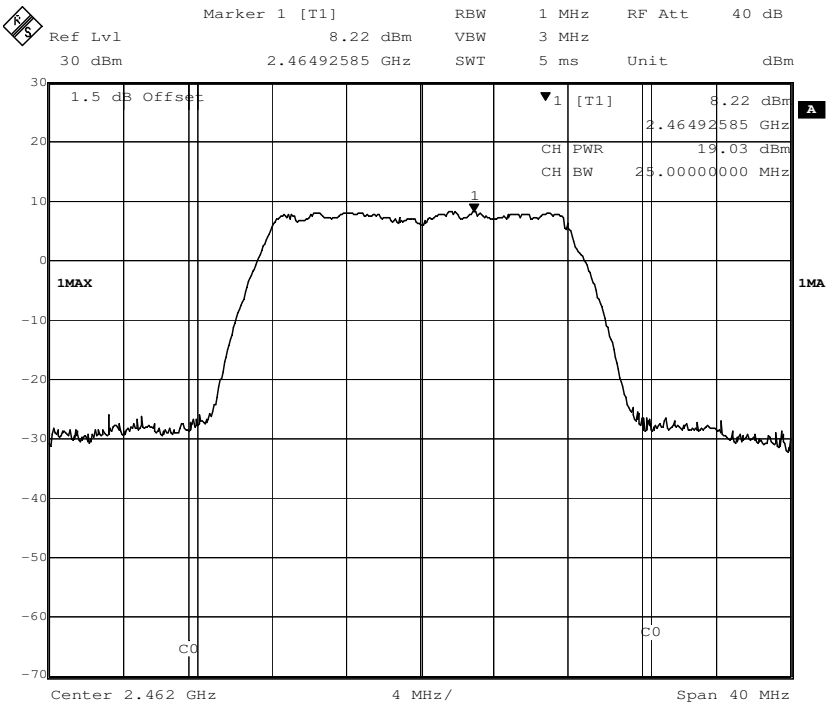
Channel 6: 2.437GHz:



Channel 11: 2.462GHz:



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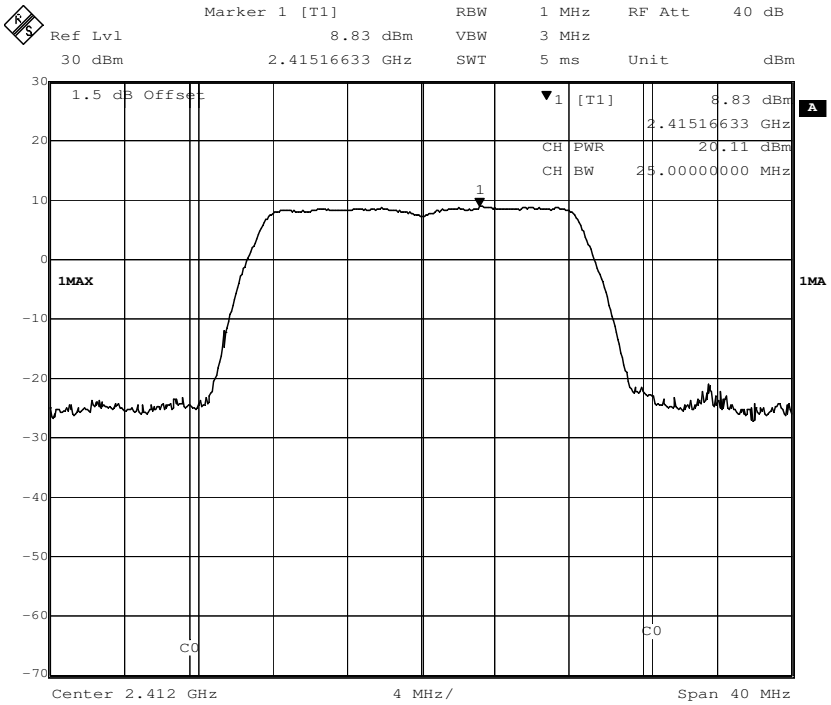
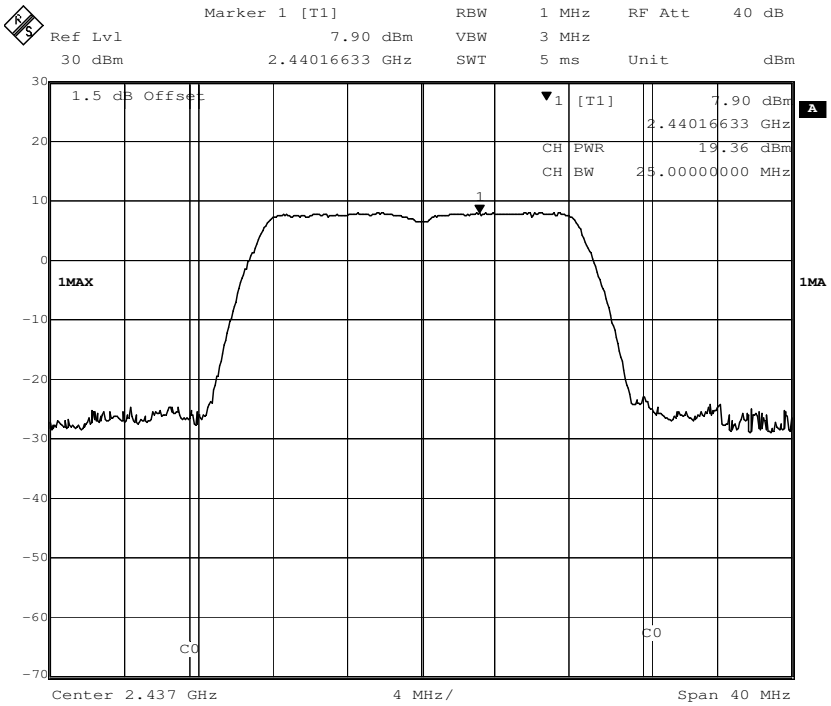
802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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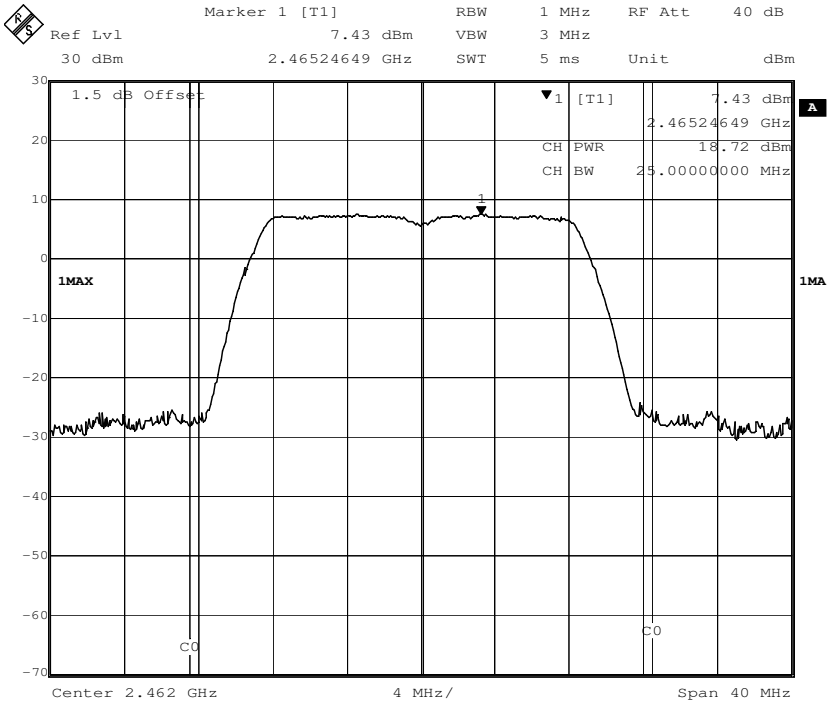
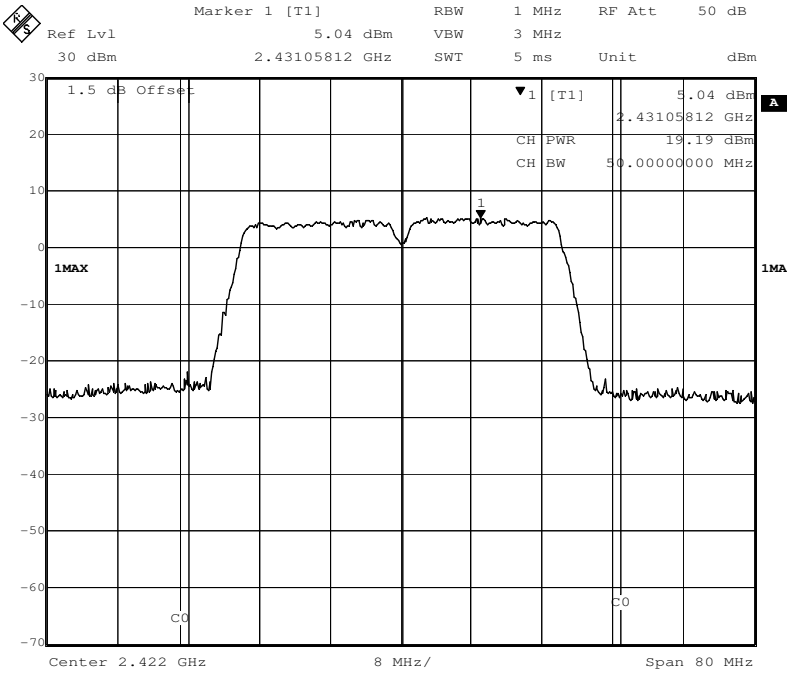
Channel 11: 2.462GHz:



802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:



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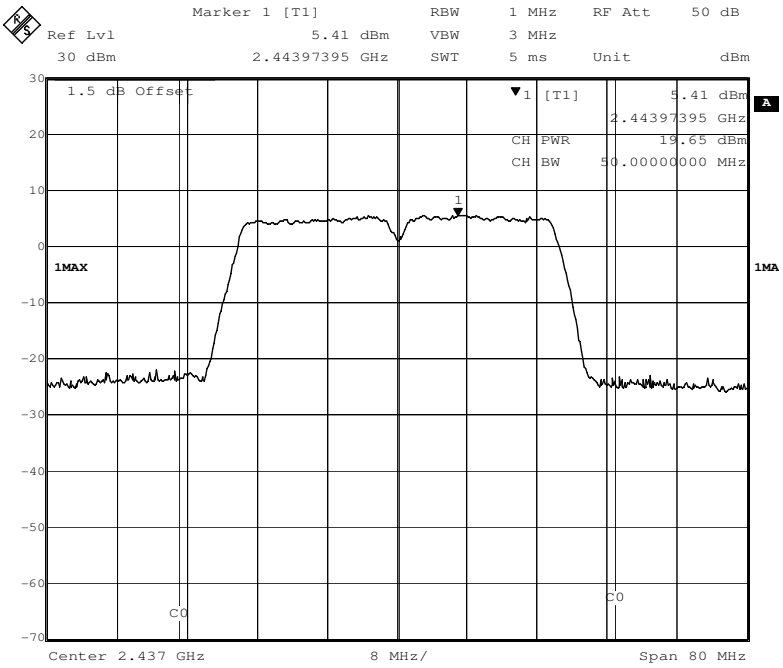
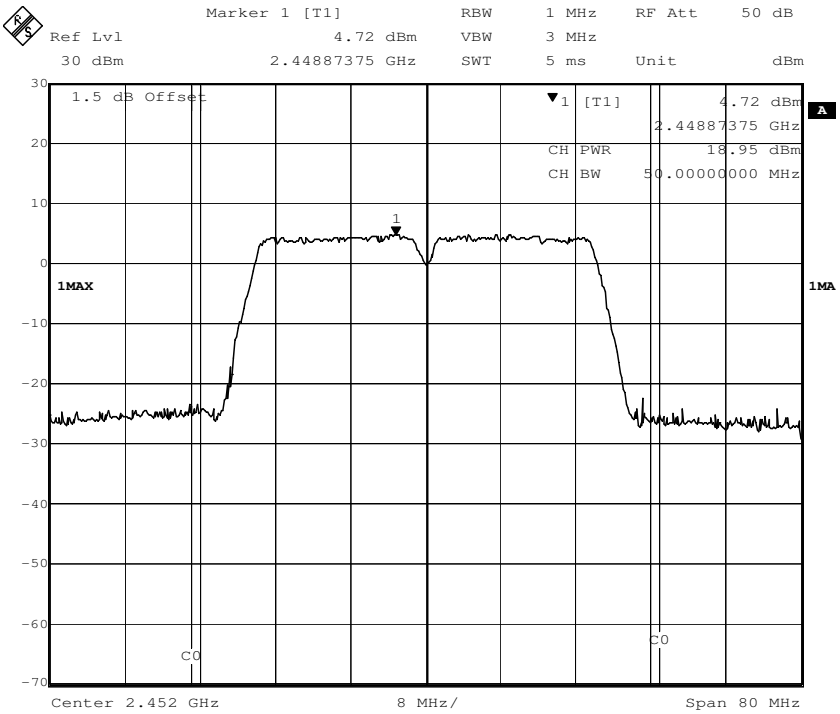
Channel 6: 2.437GHz:



Channel 9: 2.452GHz:



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7.5 Peak Power Spectral Density

Test Requirement: FCC Part 15 C section 15.247

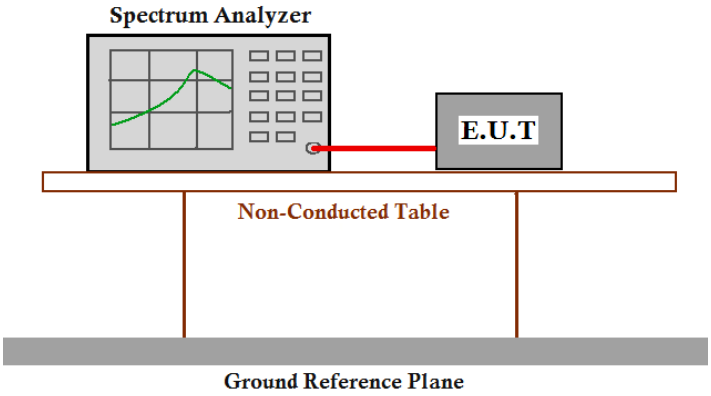
(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

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 6.11.2.3

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:

   a) Set CENTER FREQUENCY = Frequency from Power Spectral Density Test Matrix (see 6.10.2)
   b) Set SPAN = 20 MHz (For devices with a nominal 40 MHz BW, 50 MHz span will be needed)
   c) Set REFERENCE LEVEL = 20 dBm
   d) Set ATTENUATION = 0 dB (add internal attenuation, if necessary)
   e) Set SWEEP TIME = Coupled
   f) Set RBW = 3 kHz
   g) Set VBW = 10 kHz
   h) Set DETECTOR = Peak
   i) Set MKR = Center Frequency
   j) Set TRACE = CLEAR WRITE

   Place the radio in continuous transmit mode. Set the TRACE to MAX HOLD, and after the trace stabilizes, the TRACE to VIEW. Set the marker on the peak of the signal and then adjust the center frequency of the spectrum analyzer to the marker frequency.

   After viewing the EUT waveform on the spectrum analyzer, perform the following spectrum analyzer functions to capture the trace:

   Set SPAN = 300 kHz
   Set SWEEP TIME = 100 s
   Set TRACE = MAX HOLD
   Set MKR = PEAK SEARCH
3. Measure the Power Spectral Density of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse case.

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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	-12.46	8dBm/3KHz	Pass
6	2437		11 Mbps	-13.25		Pass
11	2462		11 Mbps	-12.95		Pass
1	2412	802.11g	54 Mbps	-18.43		Pass
6	2437		54 Mbps	-17.72		Pass
11	2462		54 Mbps	-16.85		Pass
1	2412	802.11n (HT20)	72.2 Mbps	-17.04		Pass
6	2437		72.2 Mbps	-15.85		Pass
11	2462		72.2 Mbps	-16.20		Pass
3	2422	802.11n (HT40)	150 Mbps	-20.63		Pass
6	2437		150 Mbps	-20.00		Pass
9	2452		150 Mbps	-19.26		Pass

Test result: Level = Read Level + Cable Loss.

The unit does meet the FCC requirements.

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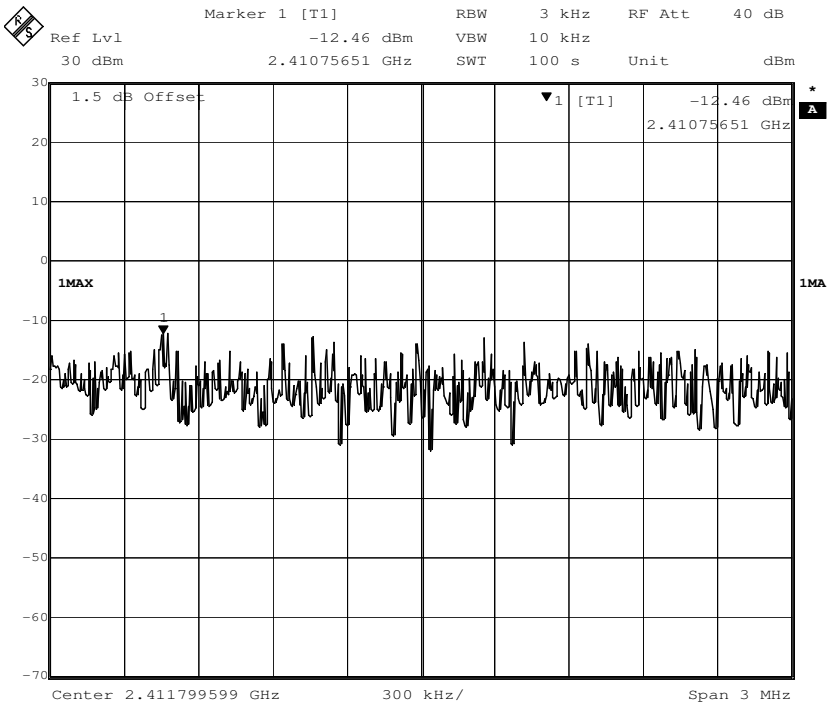
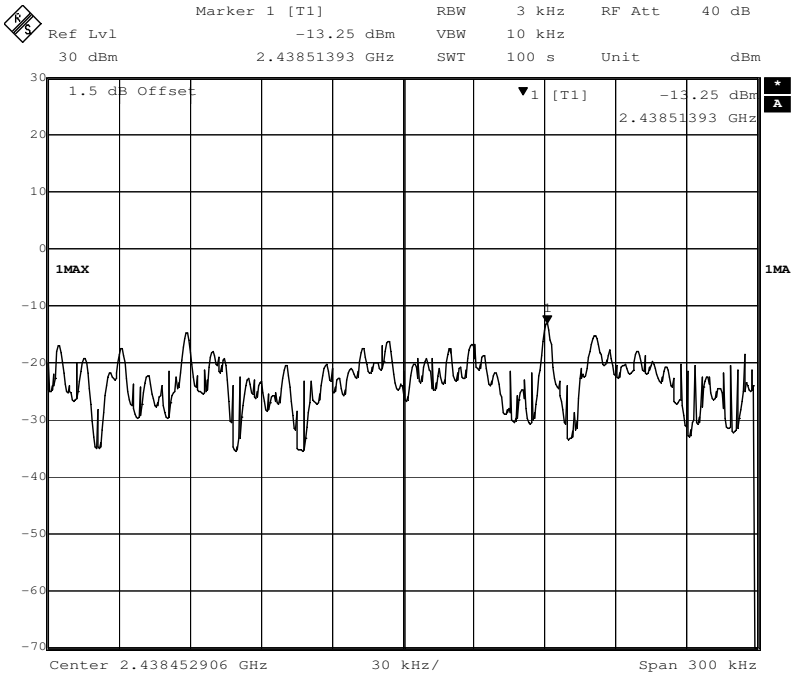
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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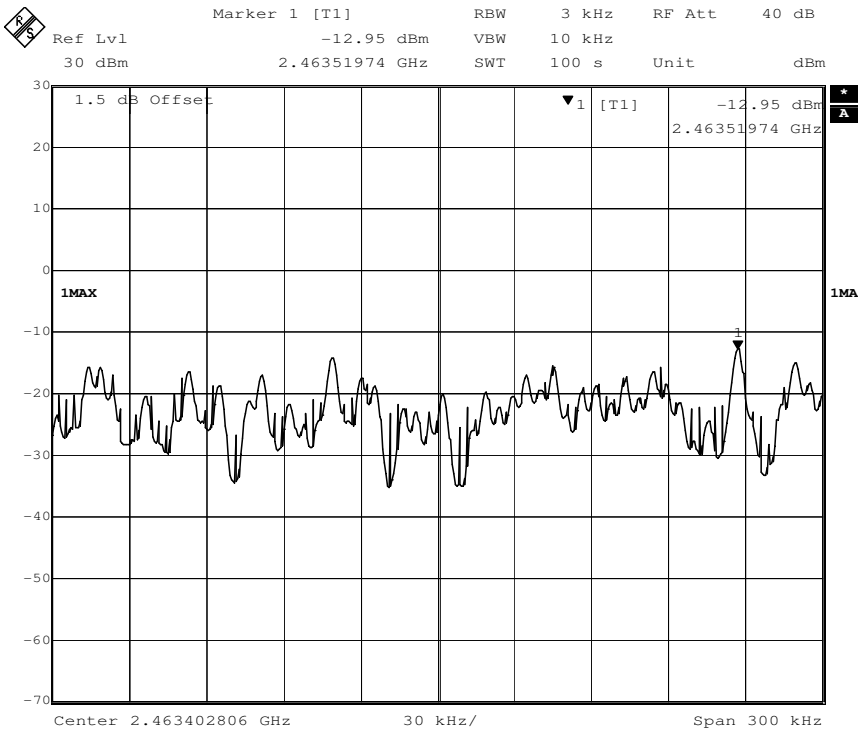
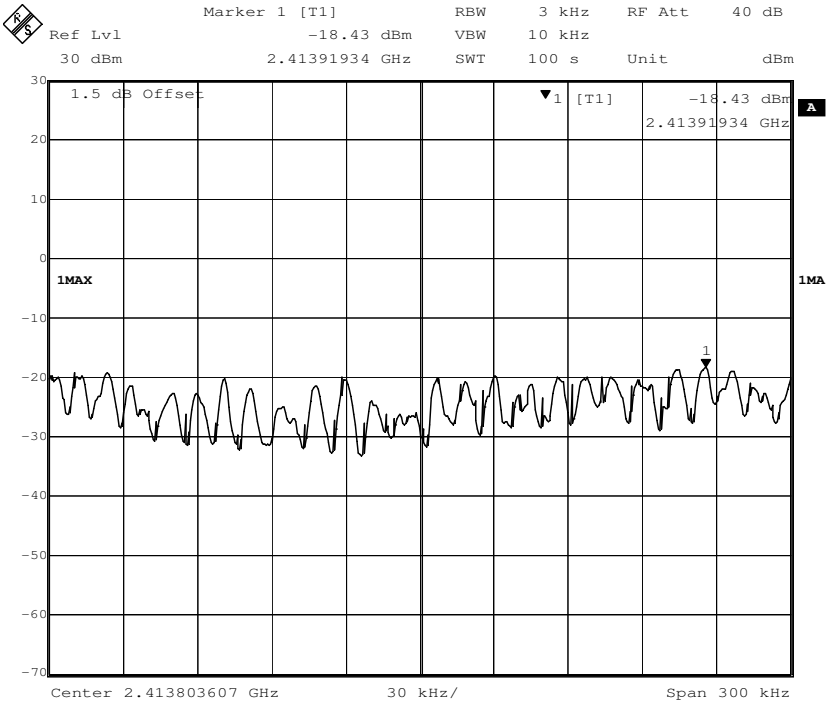
Channel 11: 2.462GHz:



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



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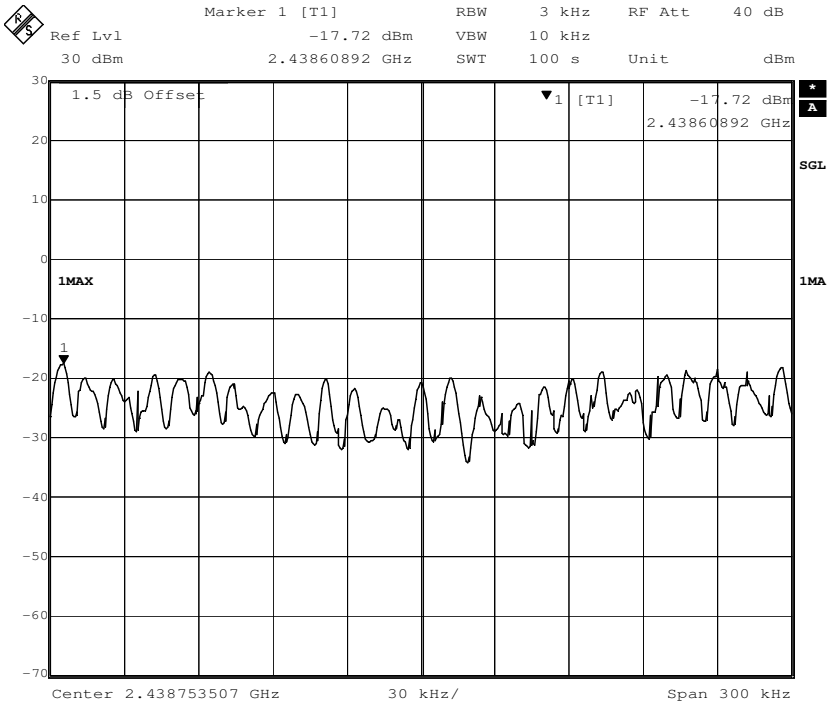
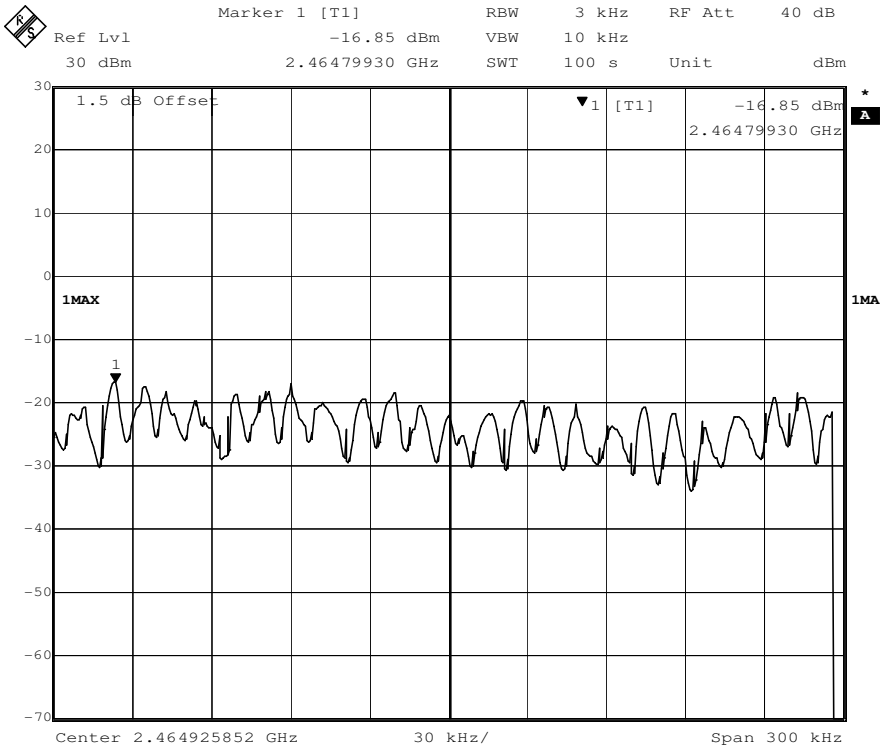
Channel 6: 2.437GHz:



Channel 11: 2.462GHz:



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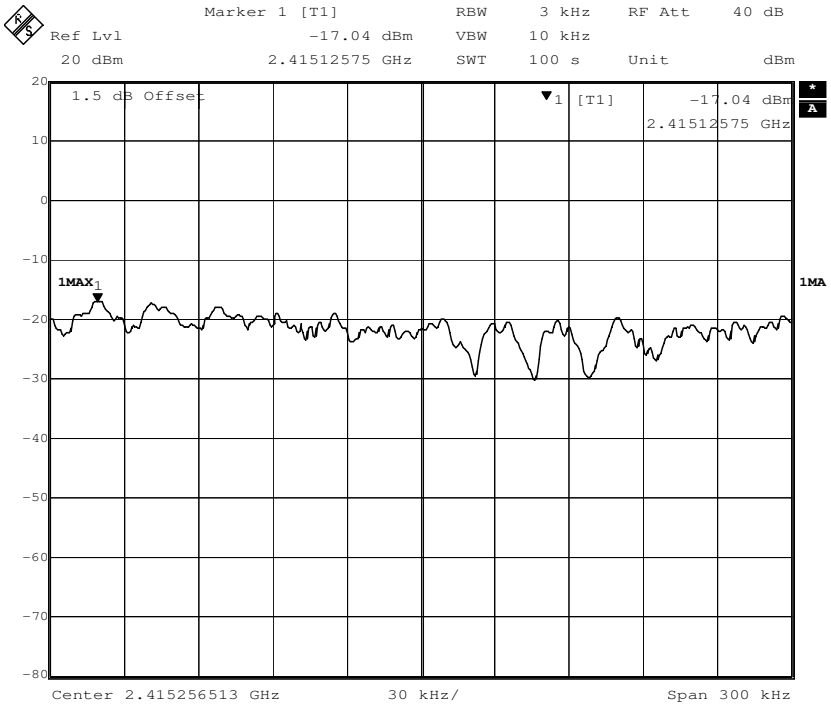
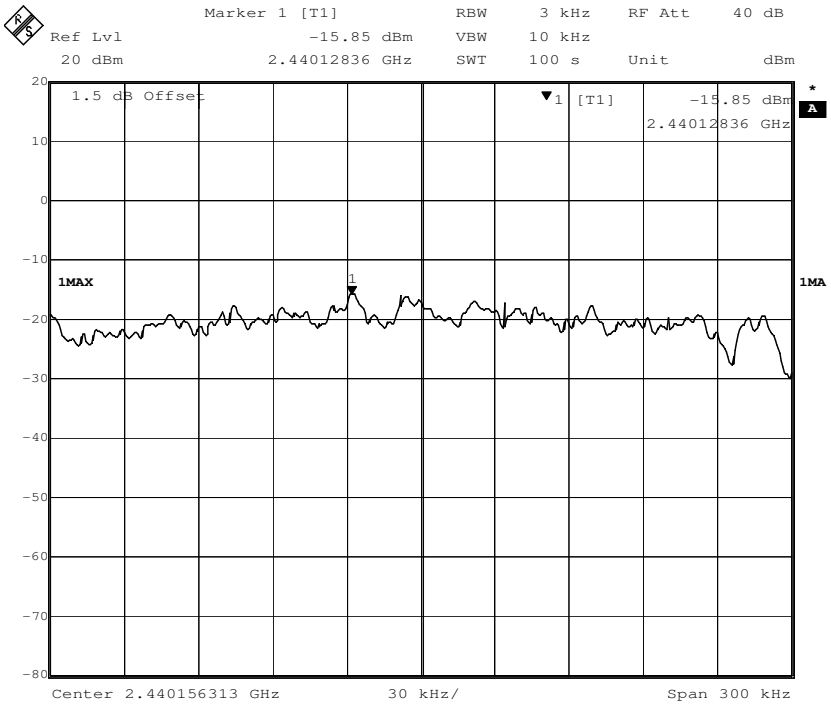
802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:



Channel 6: 2.437GHz:



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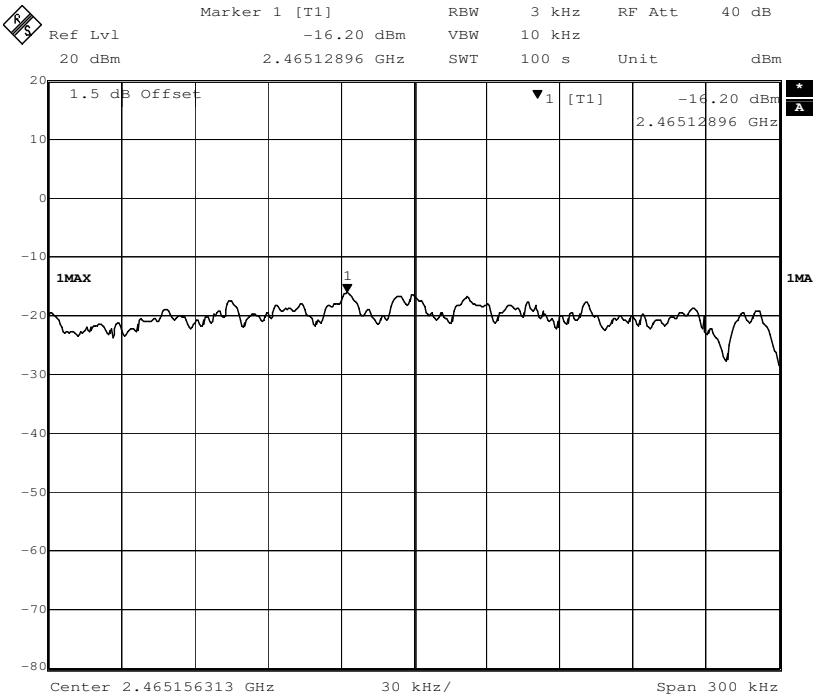
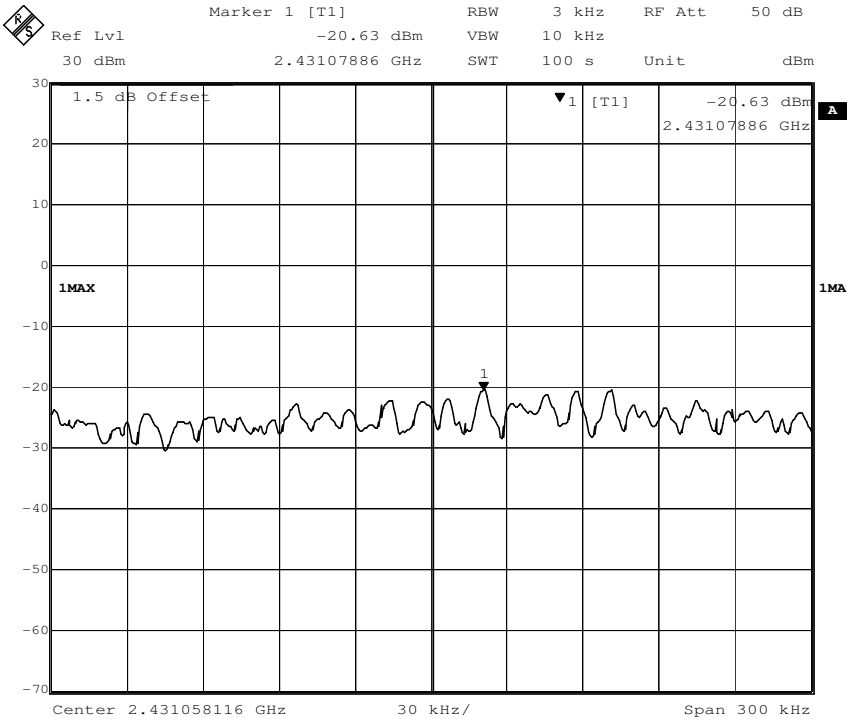
Channel 11: 2.462GHz:



802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:



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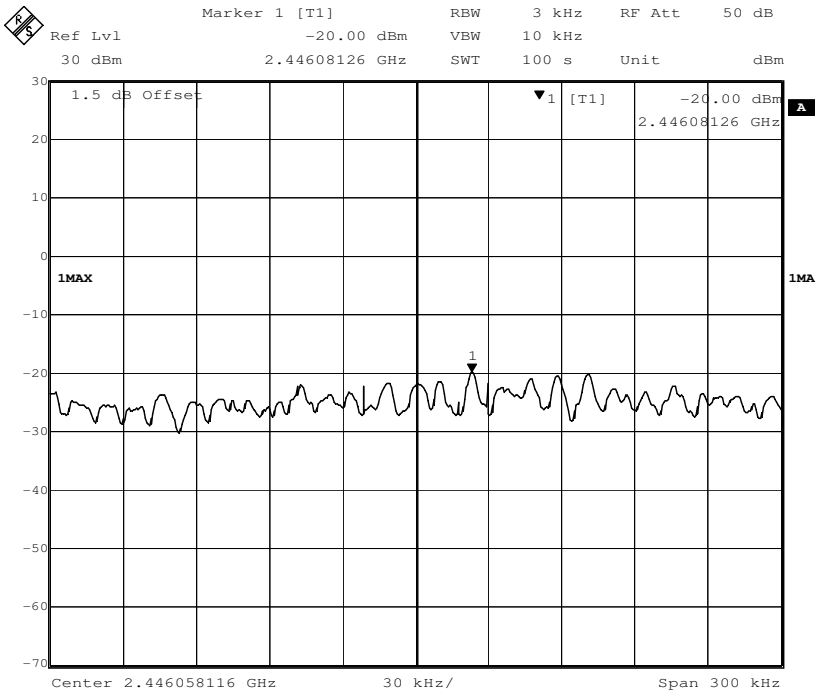
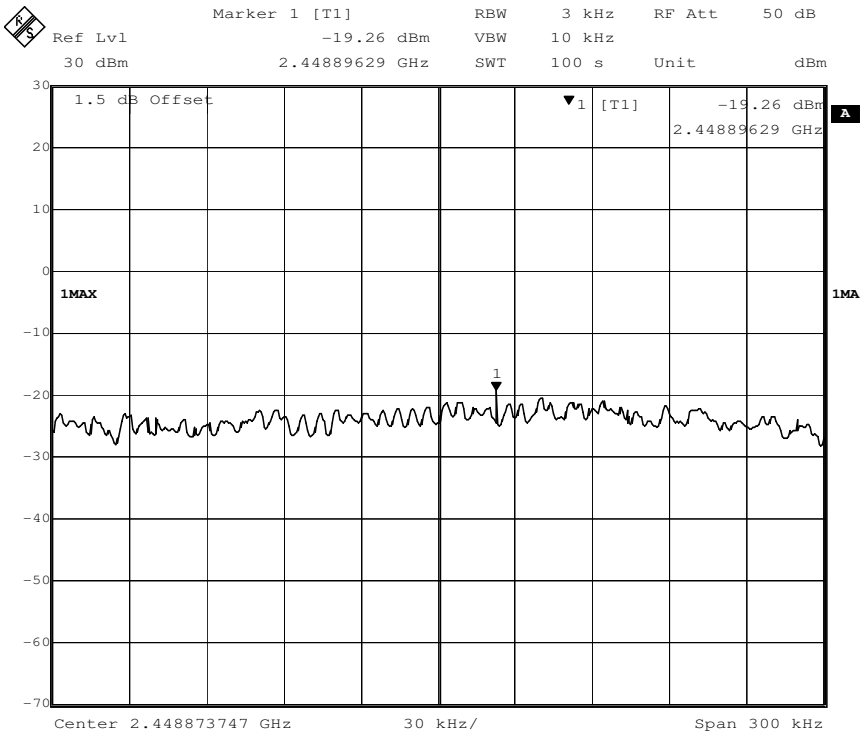
Channel 6: 2.437GHz:



Channel 9: 2.452GHz:



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7.6 Conducted Spurious Emissions

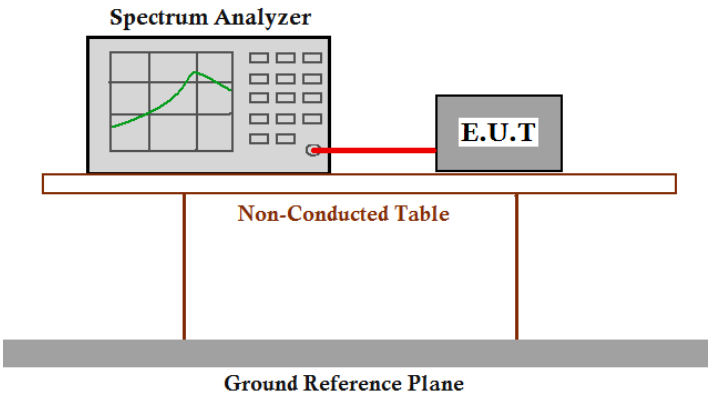
Test Requirement: FCC Part 15 C section 15.247

(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 6.7

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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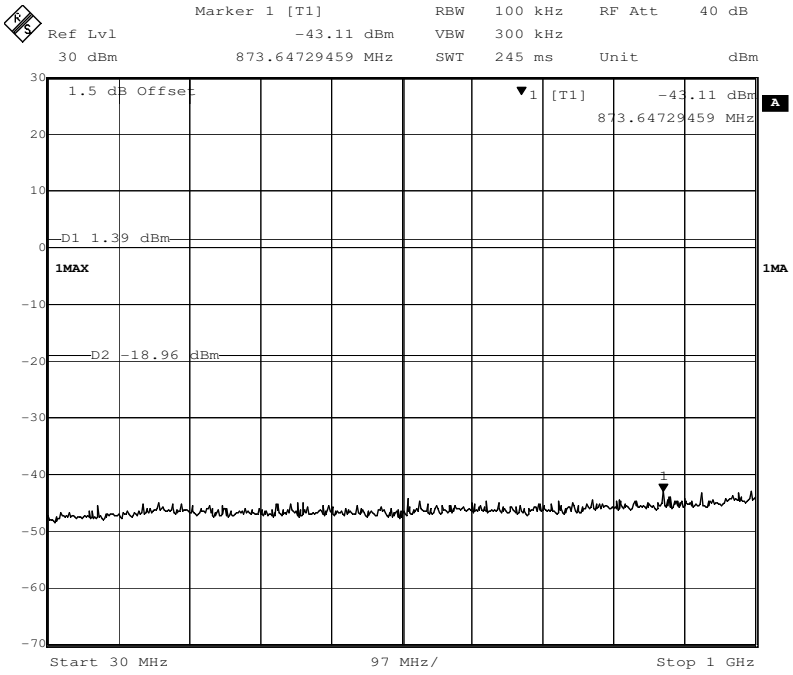
Result plot as follows:

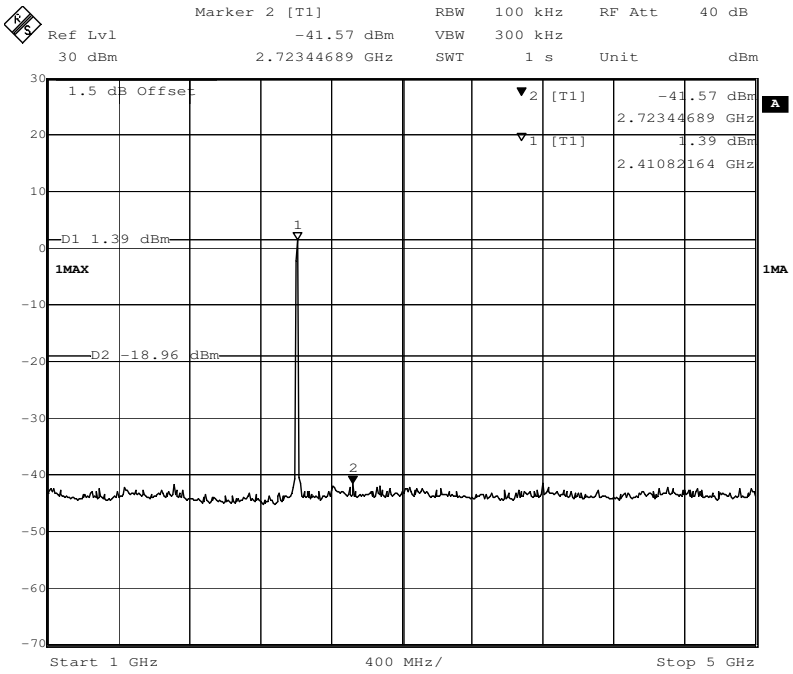
802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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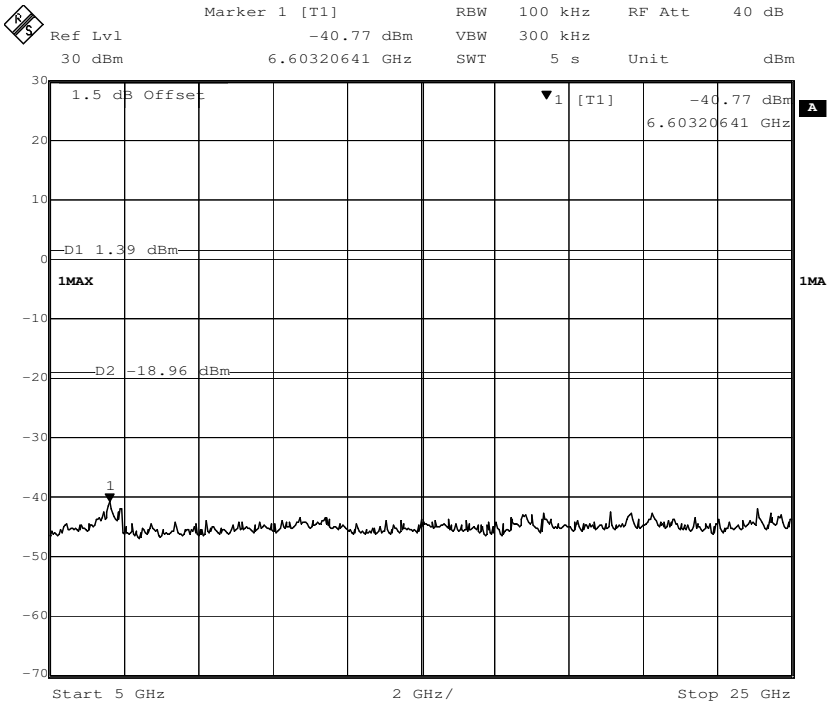
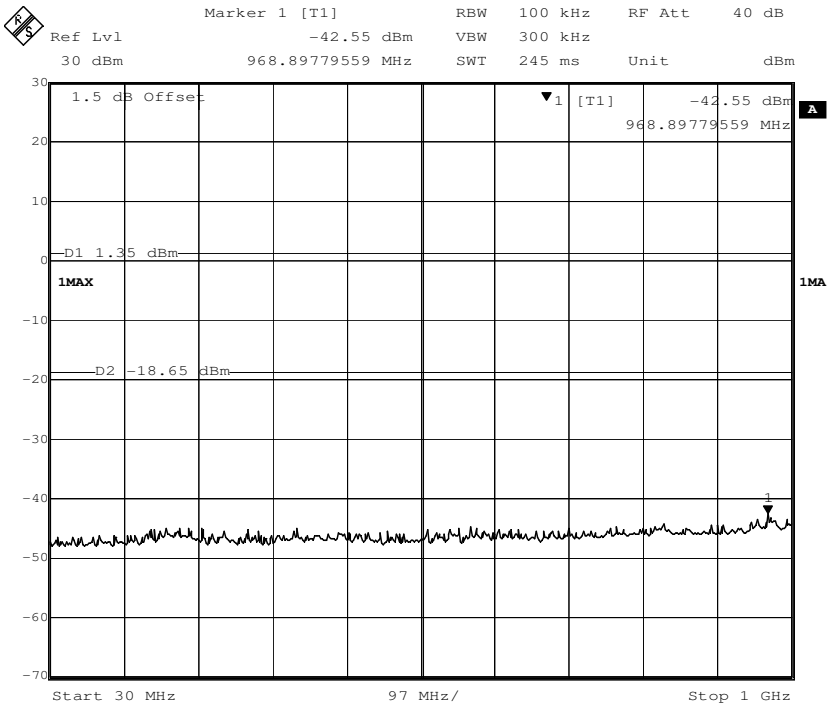
5 G to 25 GHz



Channel 6: 2.437GHz:

30 MHz to 1 GHz



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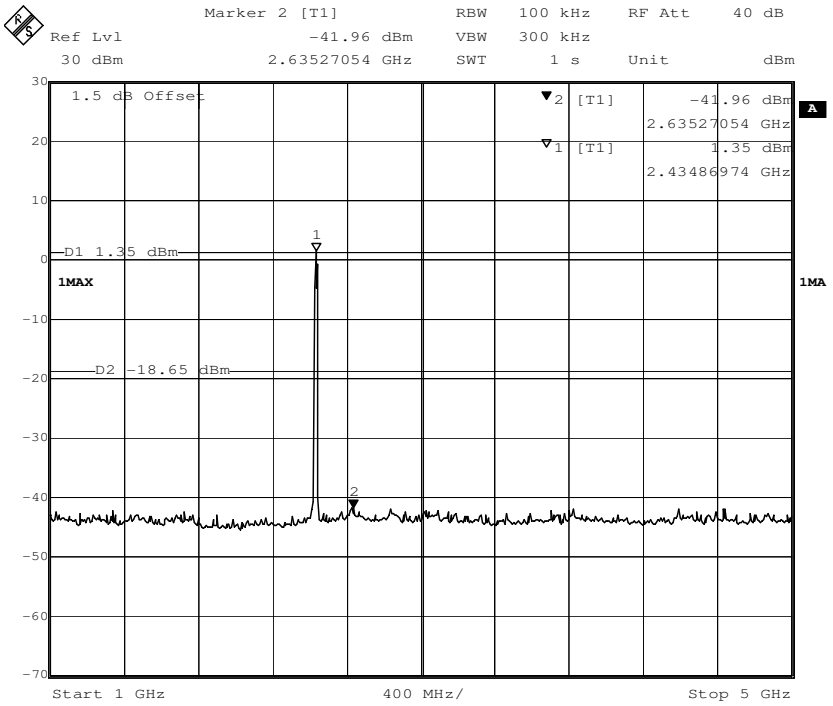
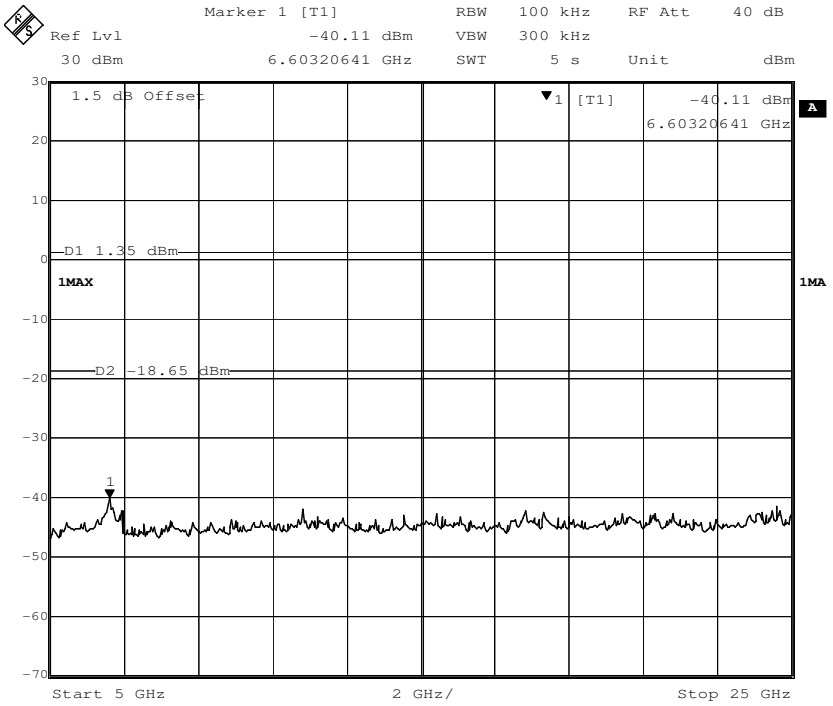
1 G to 5 GHz



5 G to 25 GHz



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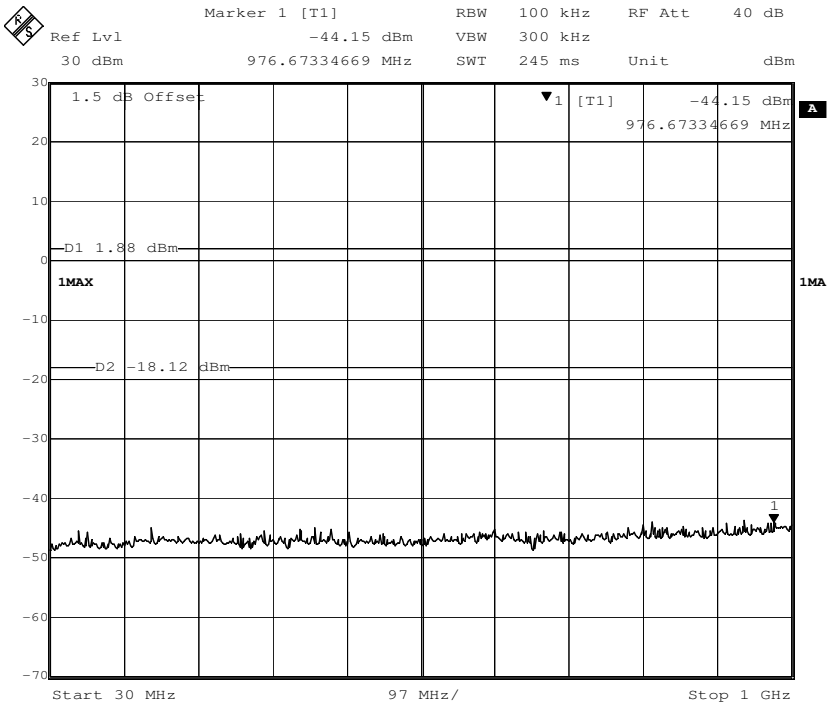
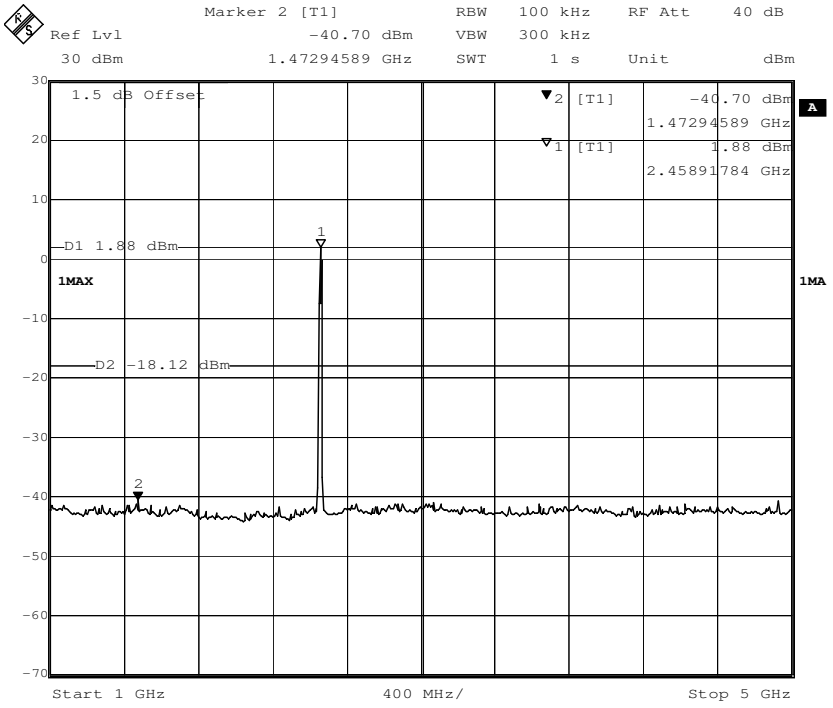
Channel 11:2.462 GHz

30 MHz to 1 GHz



1 G to 5 GHz



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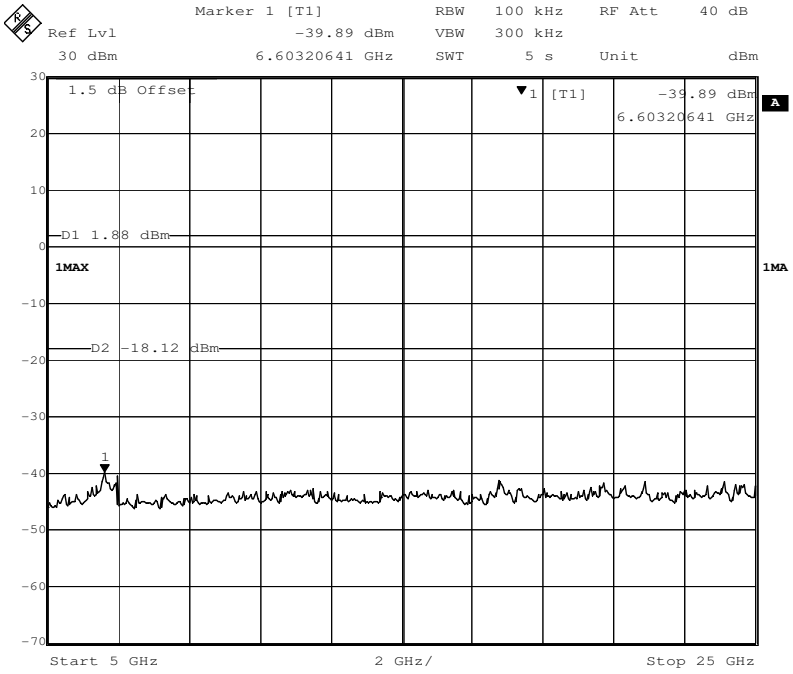
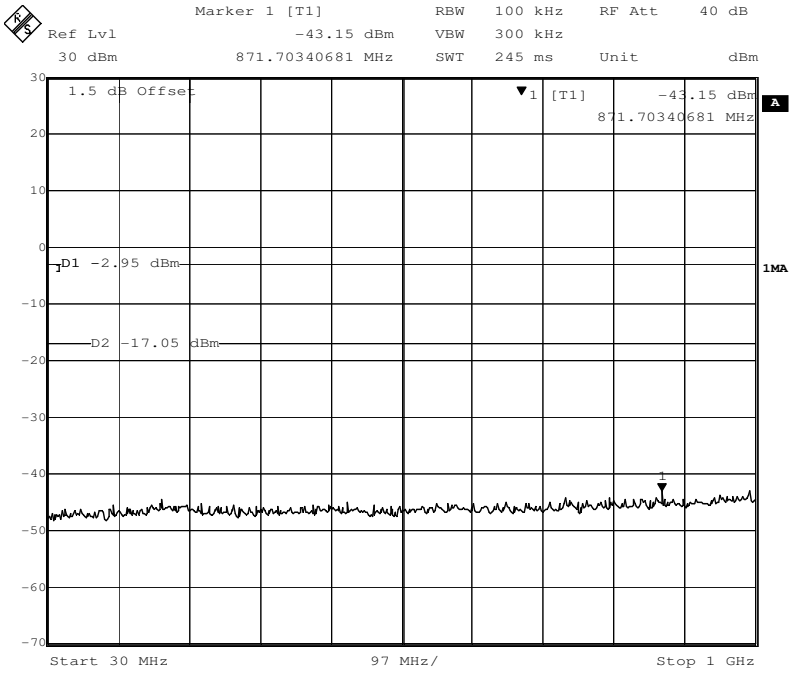
5 G to 25 GHz



802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz



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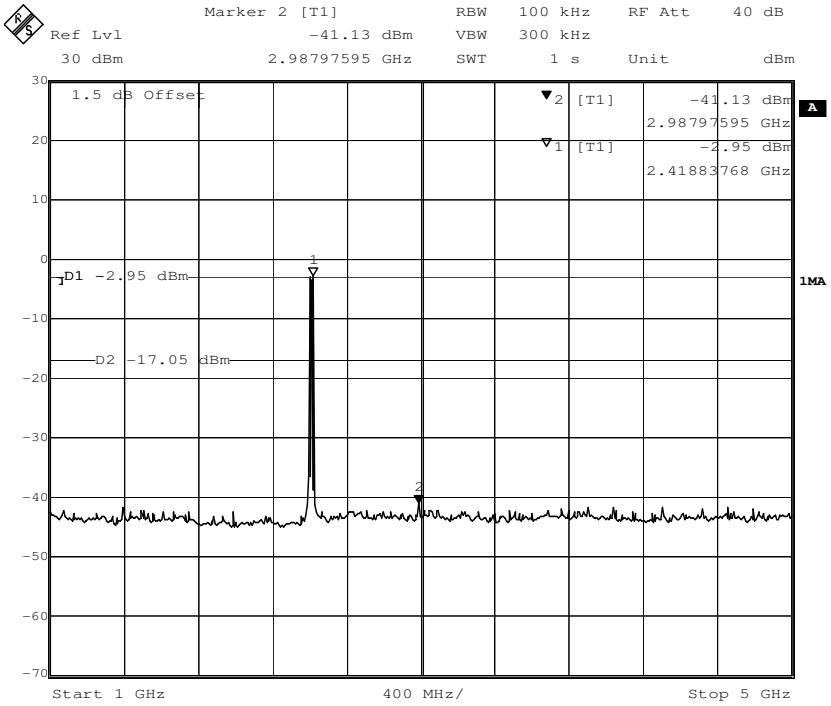
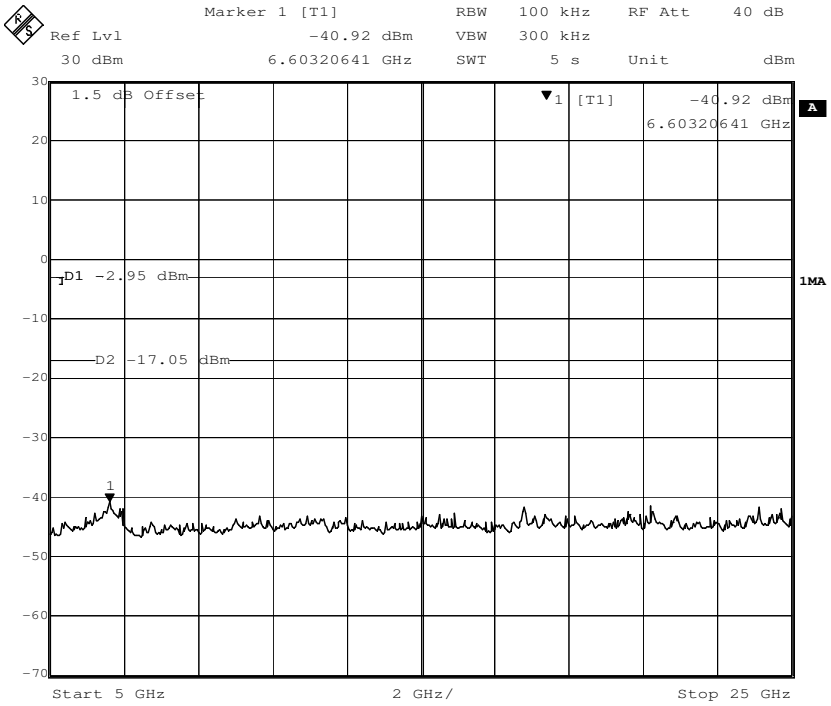
1 G to 5 GHz



5 G to 25 GHz



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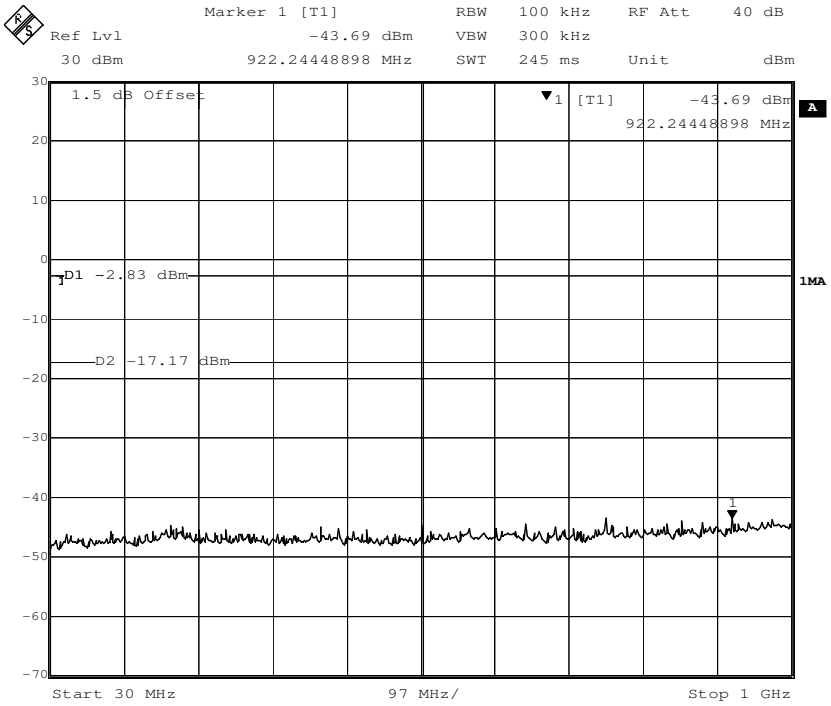
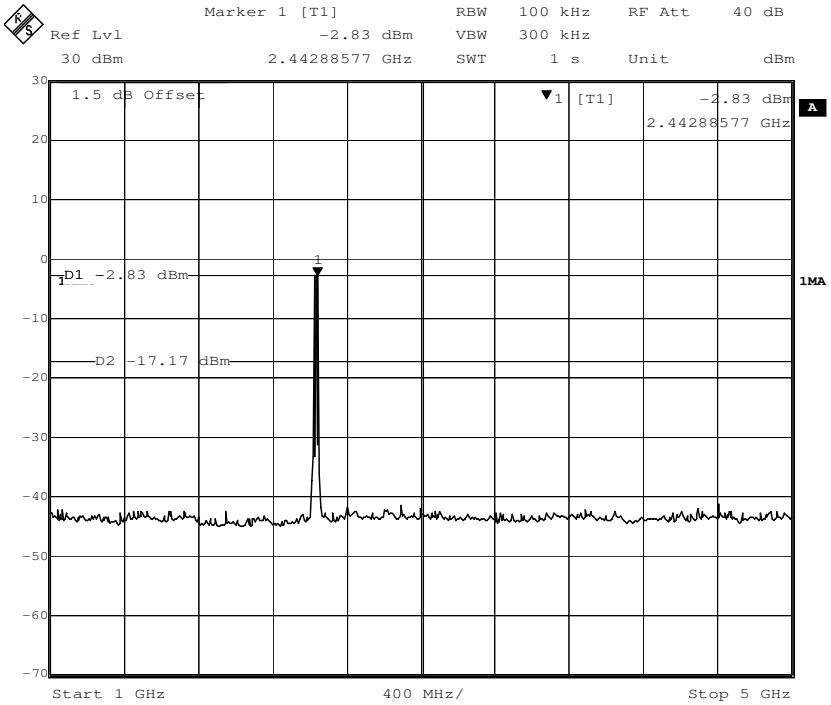
Channel 6: 2.437GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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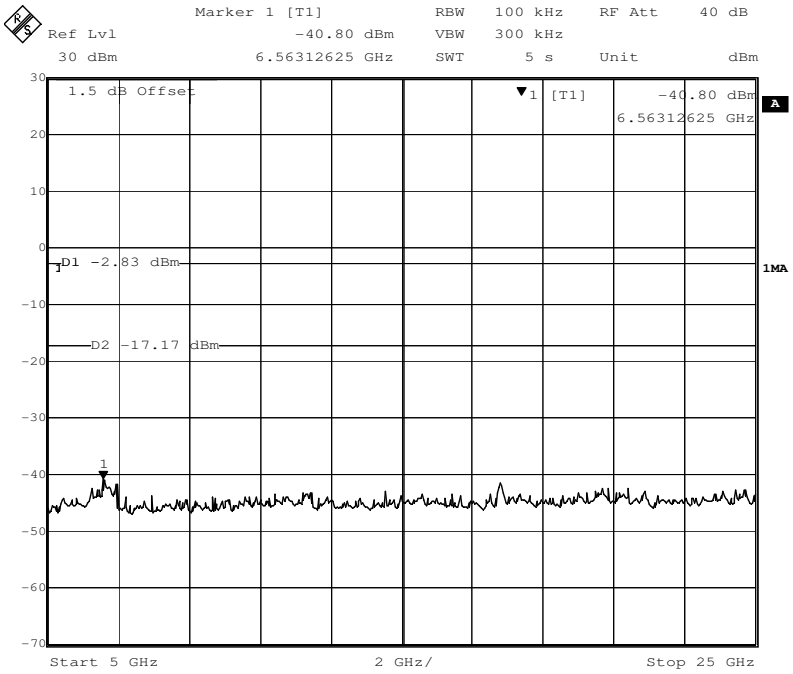
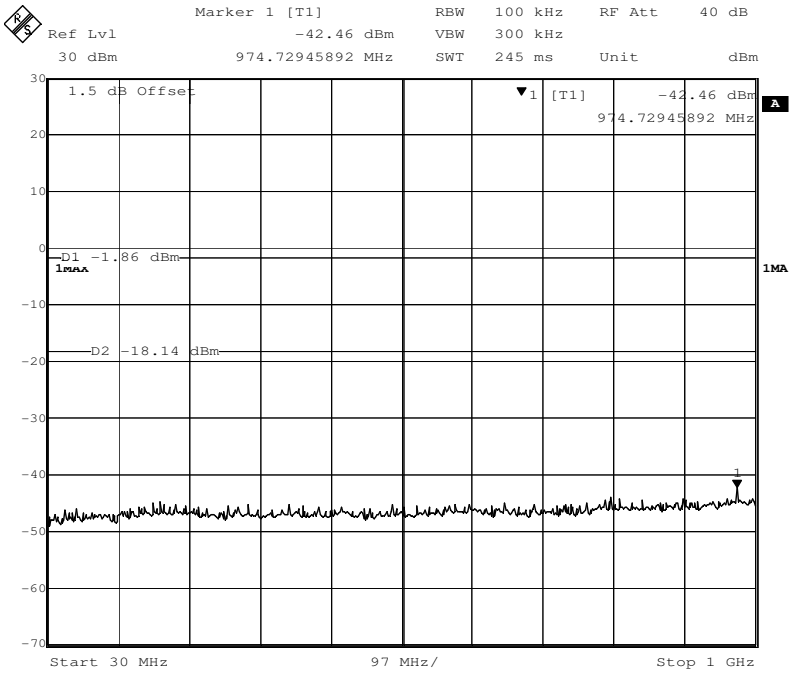
5 G to 25 GHz



Channel 11:2.462 GHz

30 MHz to 1 GHz



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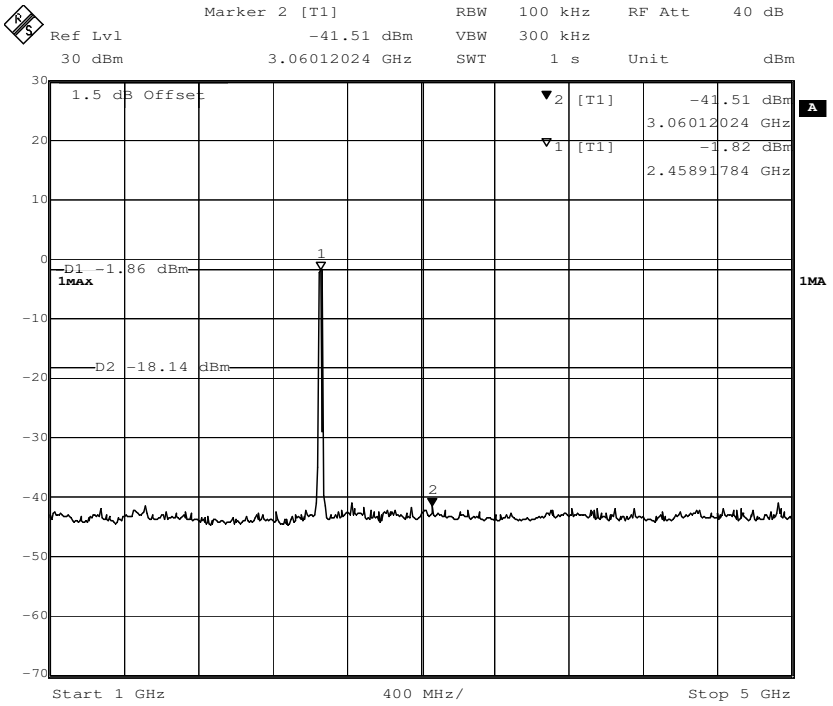
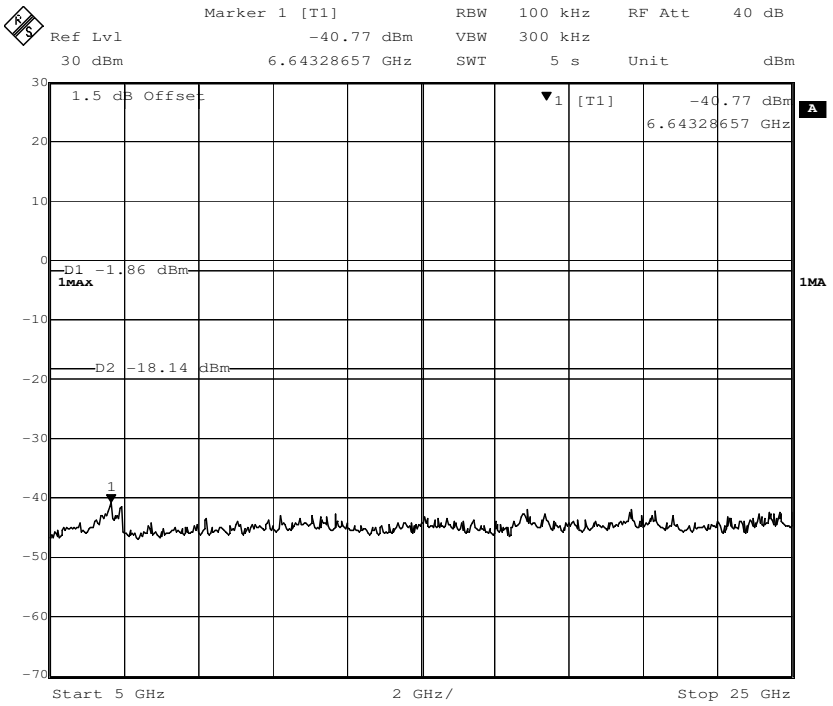
1 G to 5 GHz



5 G to 25 GHz



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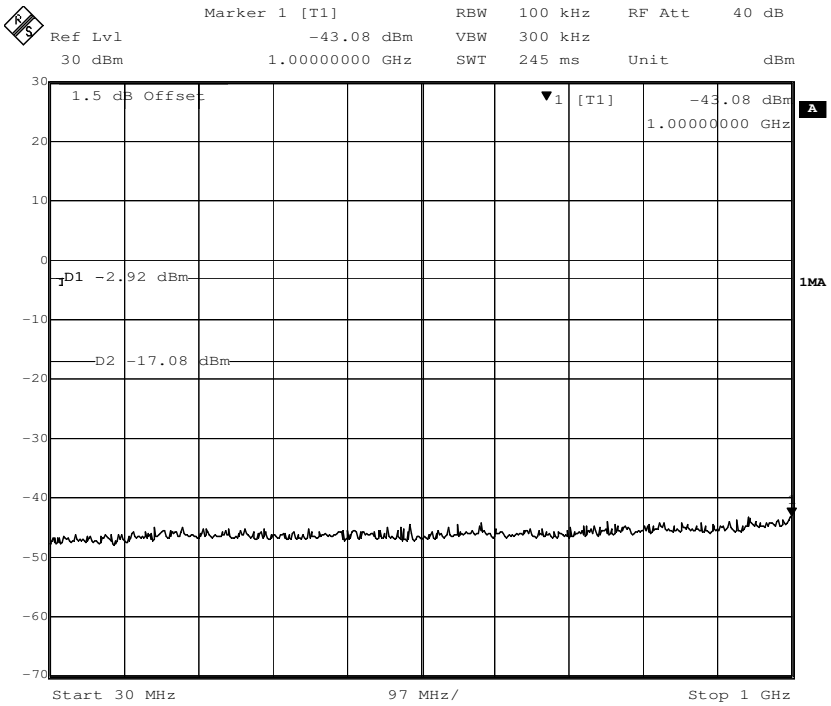
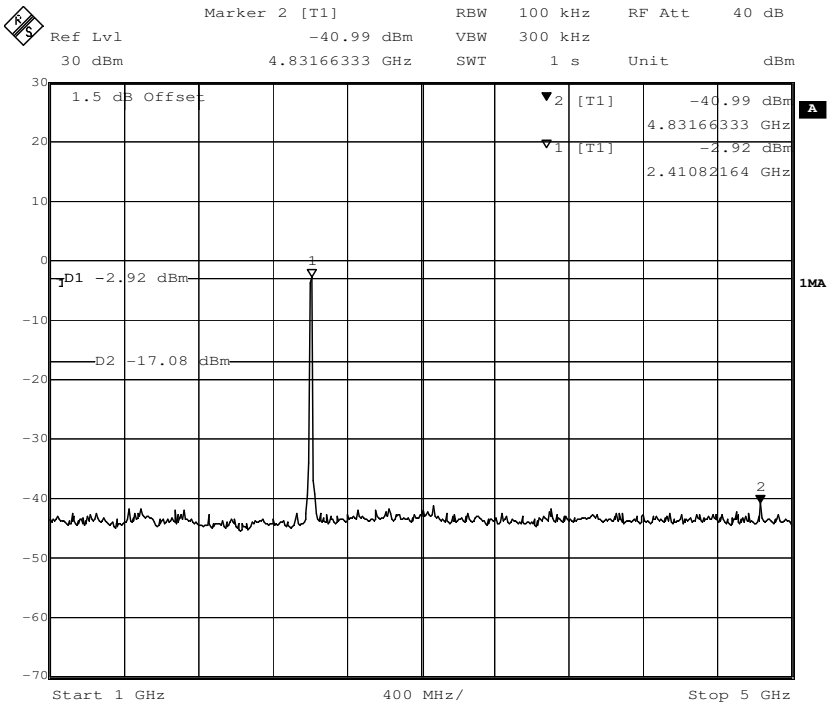
802.11n(HT20) mode with 72.2Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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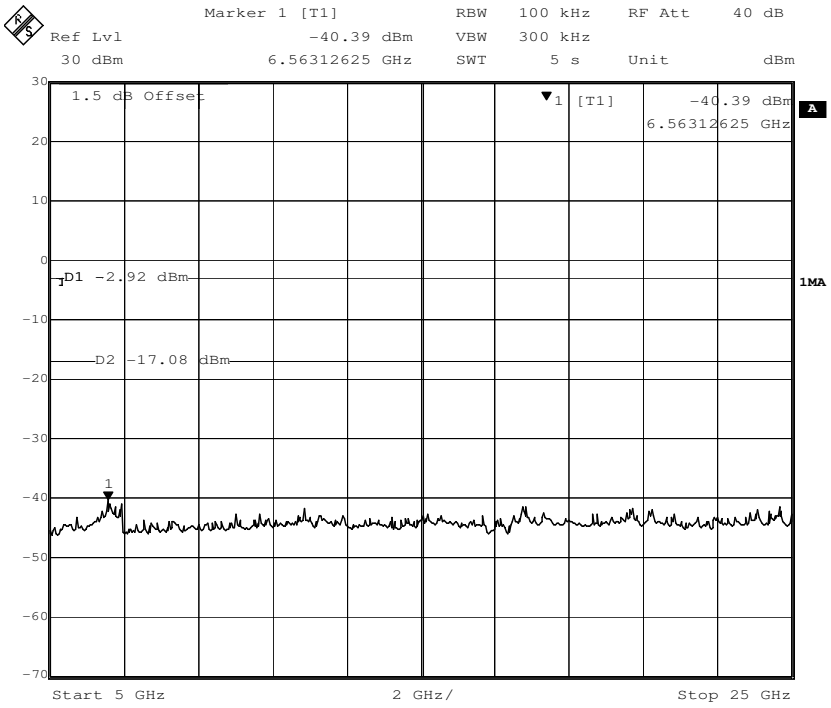
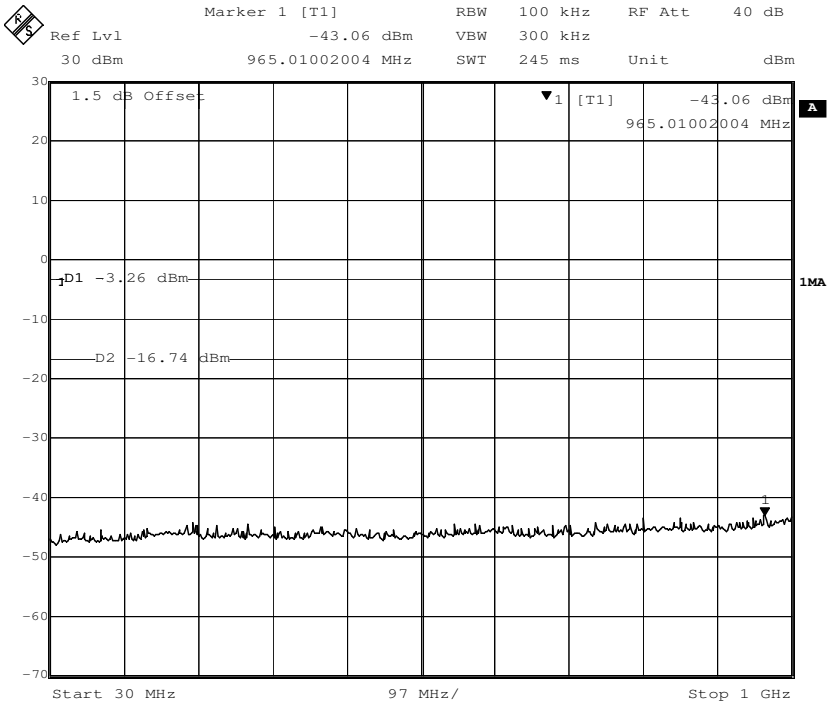
5 G to 25 GHz



Channel 6: 2.437GHz:

30 MHz to 1 GHz



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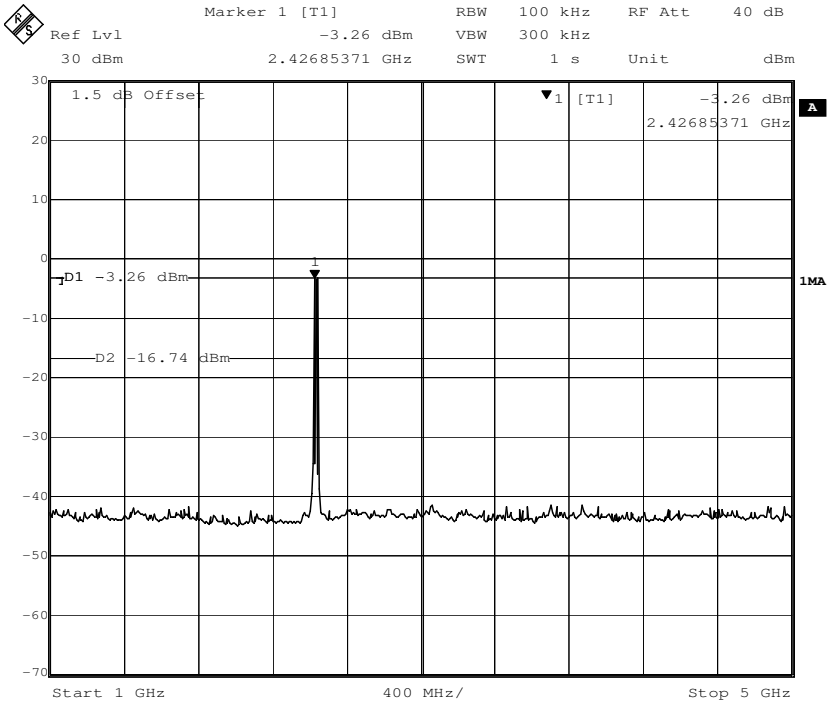
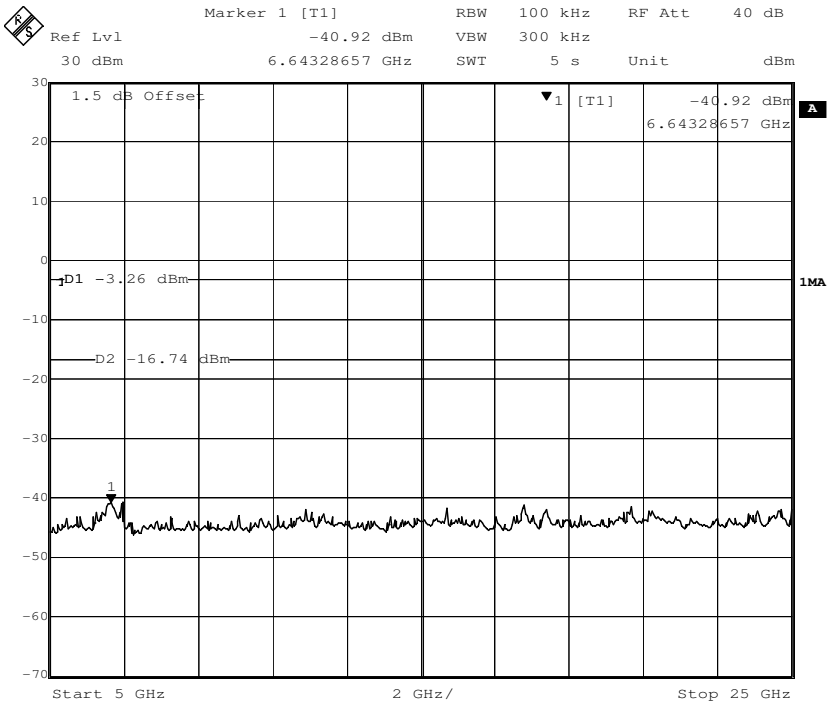
1 G to 5 GHz



5 G to 25 GHz



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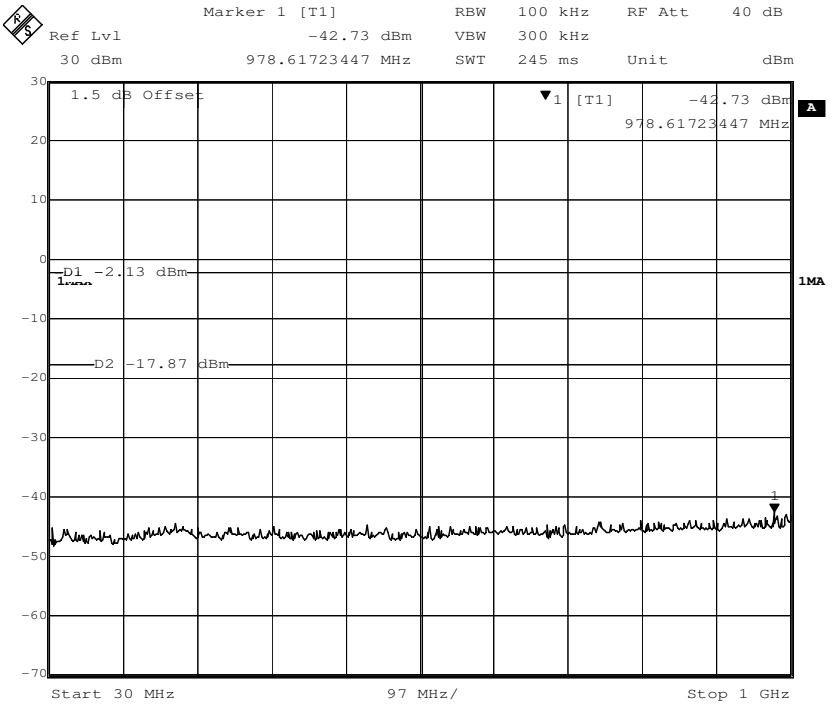
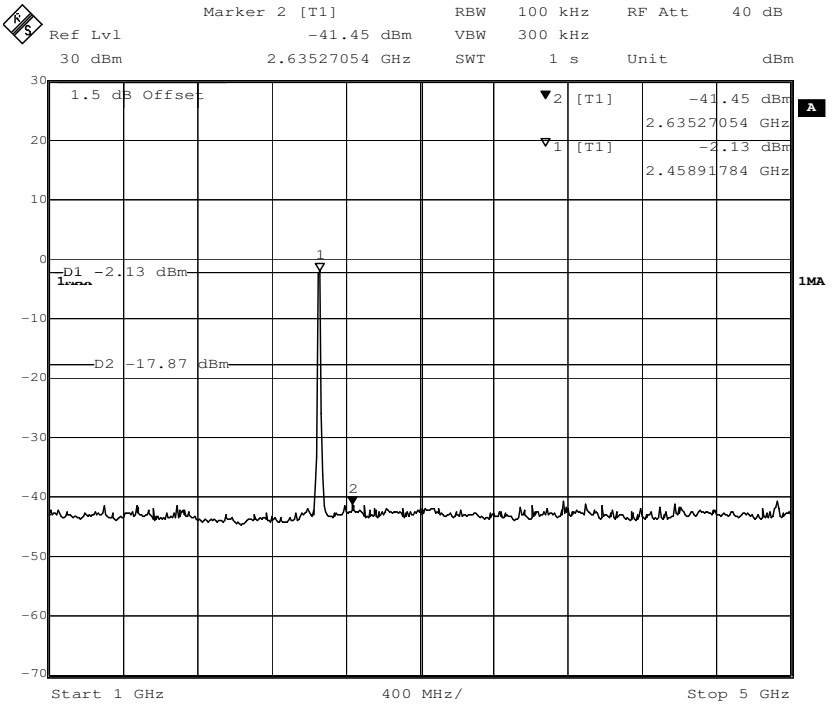
Channel 11:2.462 GHz

30 MHz to 1 GHz



1 G to 5 GHz



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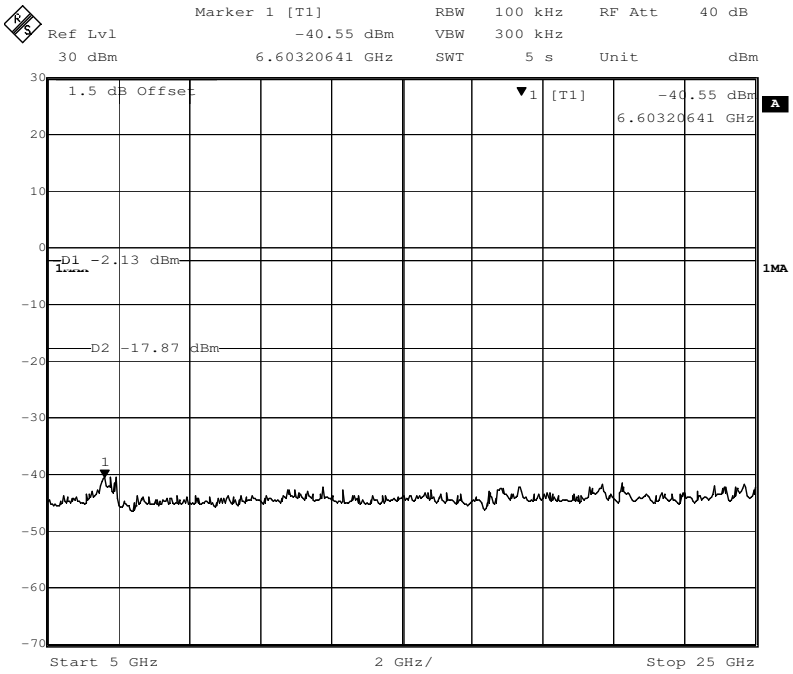
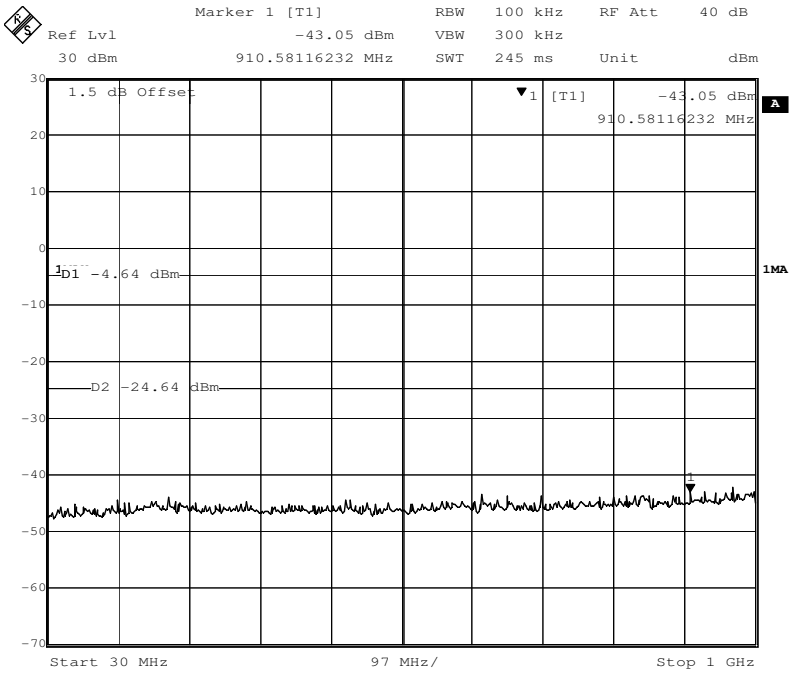
5 G to 25 GHz



802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422GHz:

30 MHz to 1 GHz



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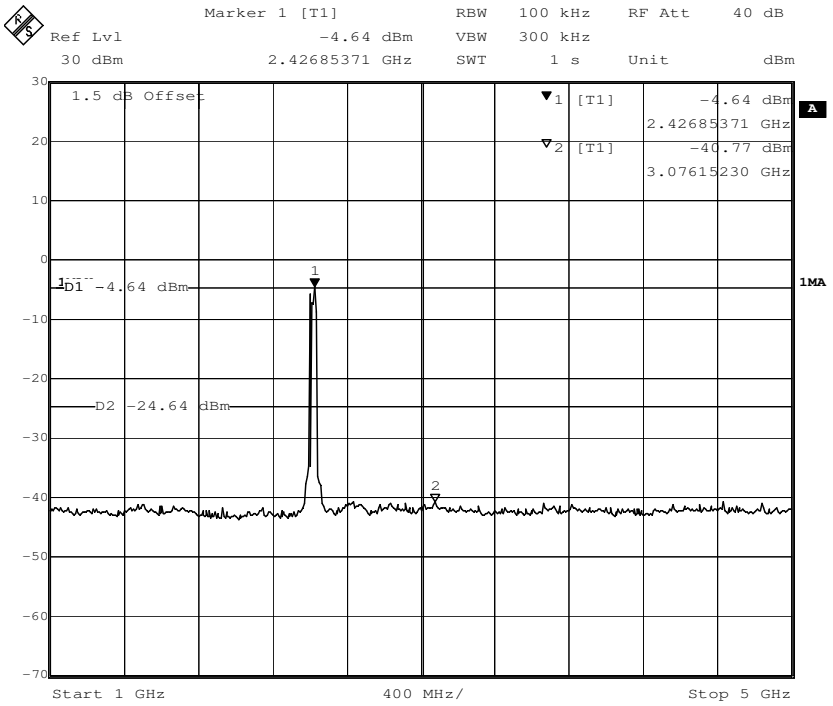
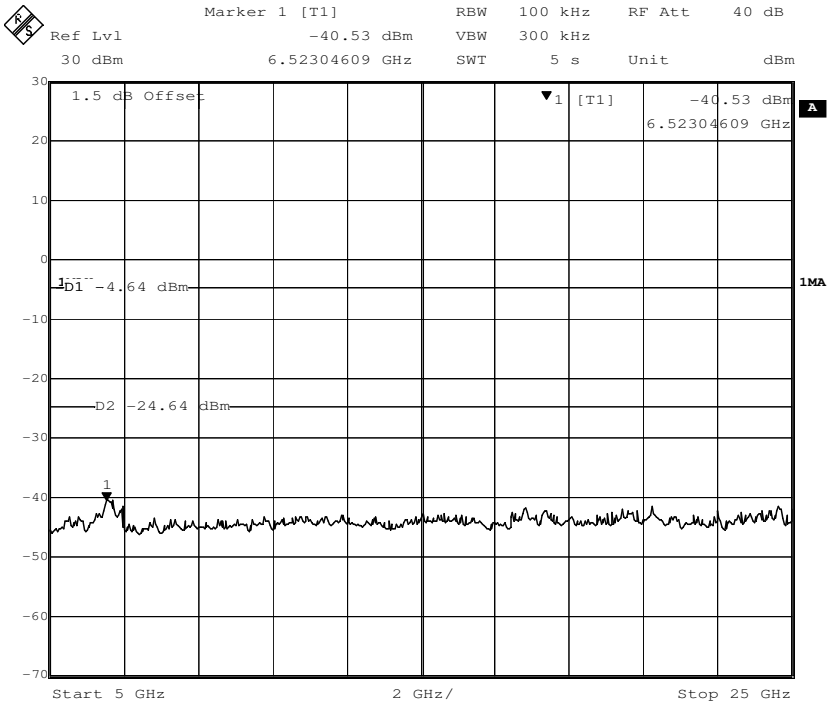
1 G to 5 GHz



5 G to 25 GHz



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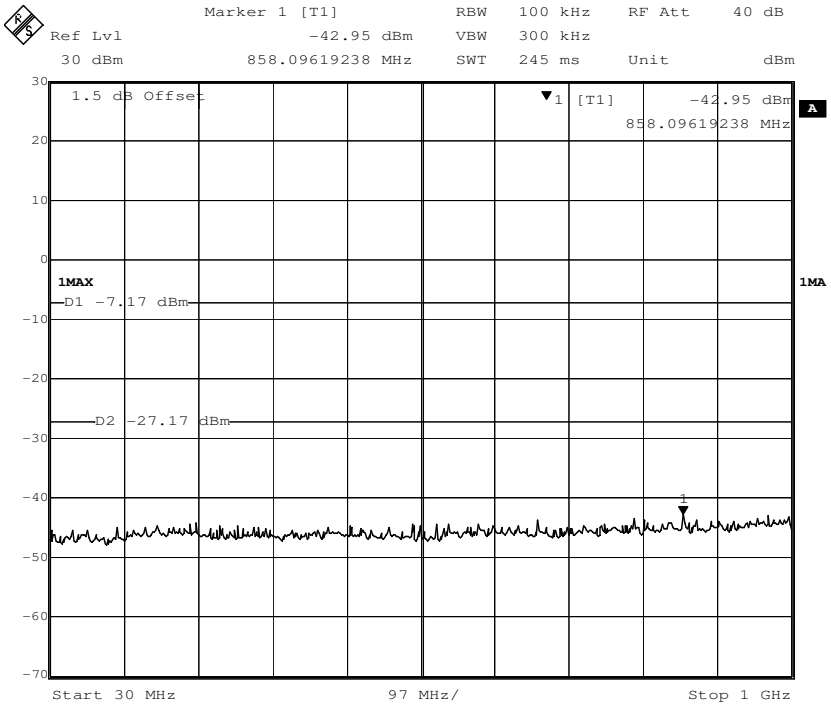
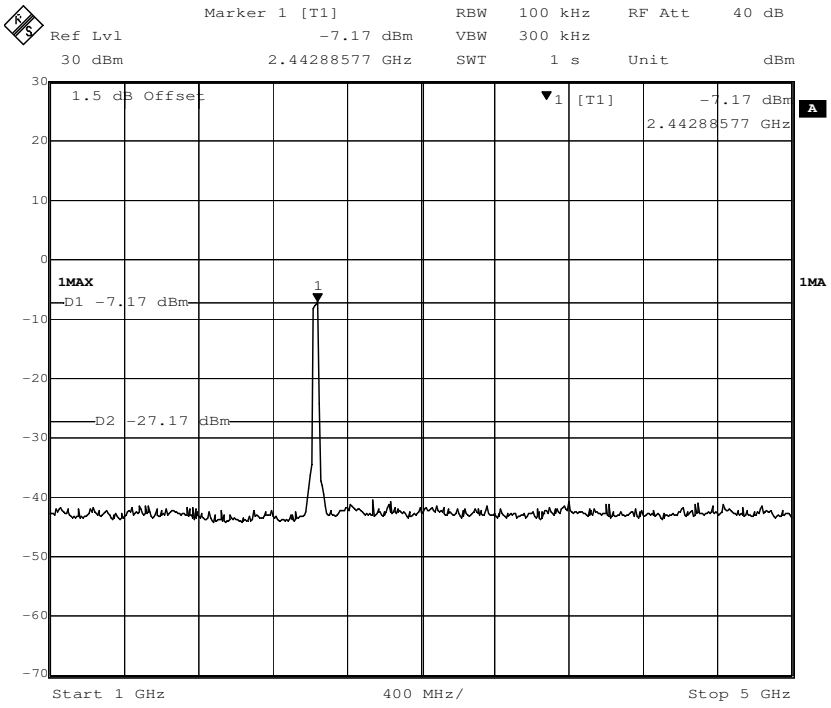
Channel 6: 2.437GHz:

30 MHz to 1 GHz



1 G to 5 GHz



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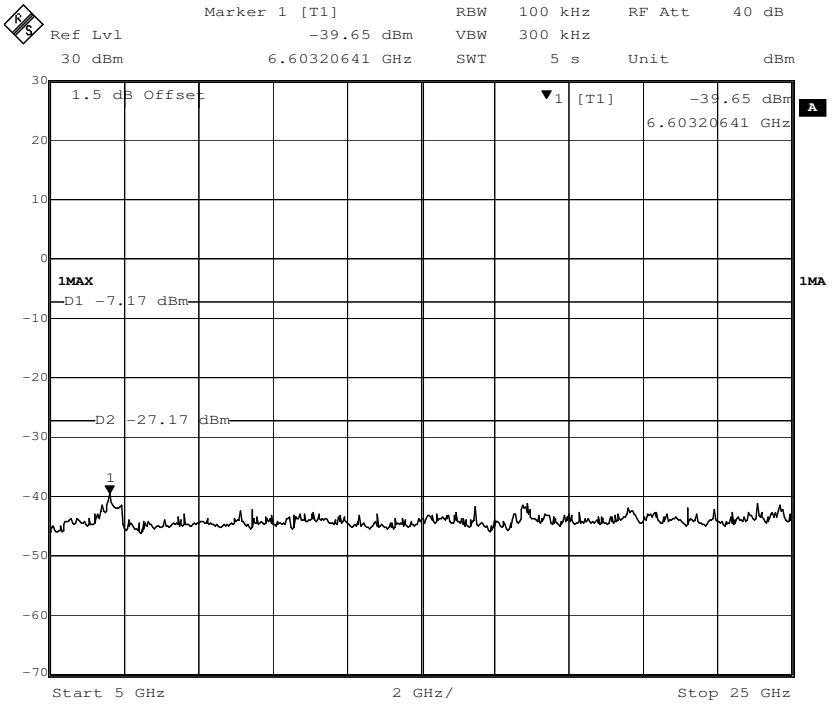
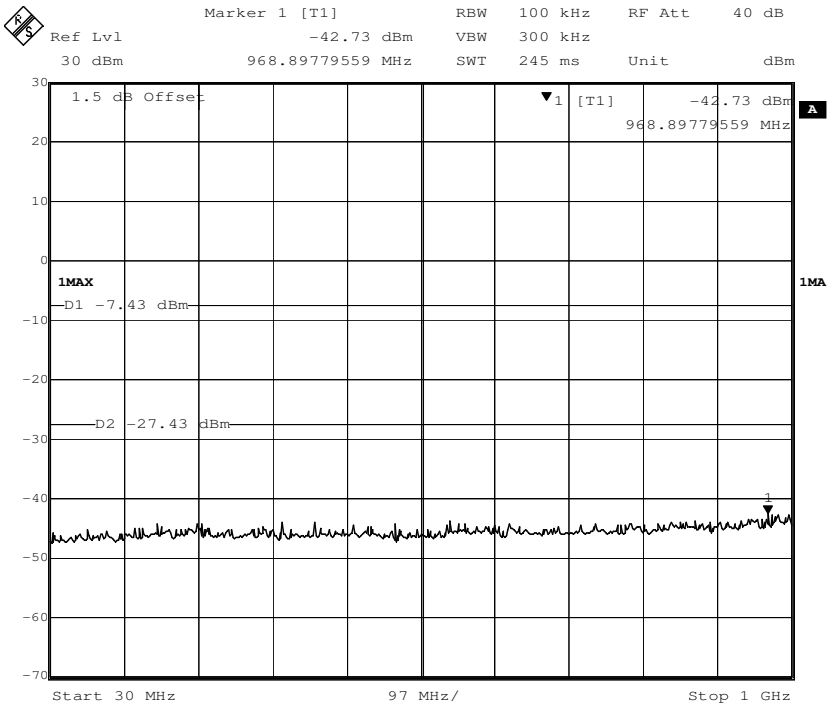
5 G to 25 GHz



Channel 9:2.452 GHz

30 MHz to 1 GHz



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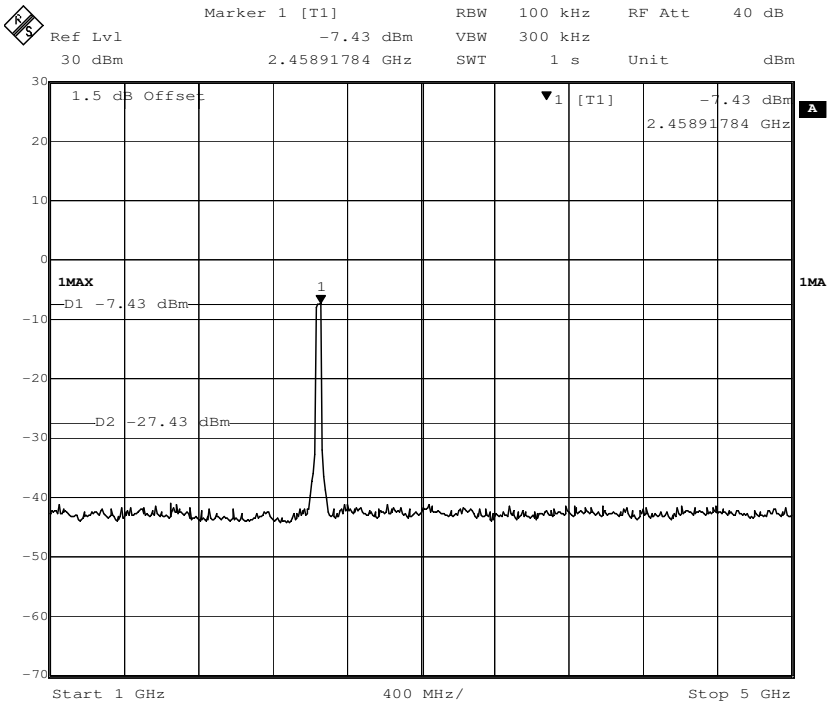
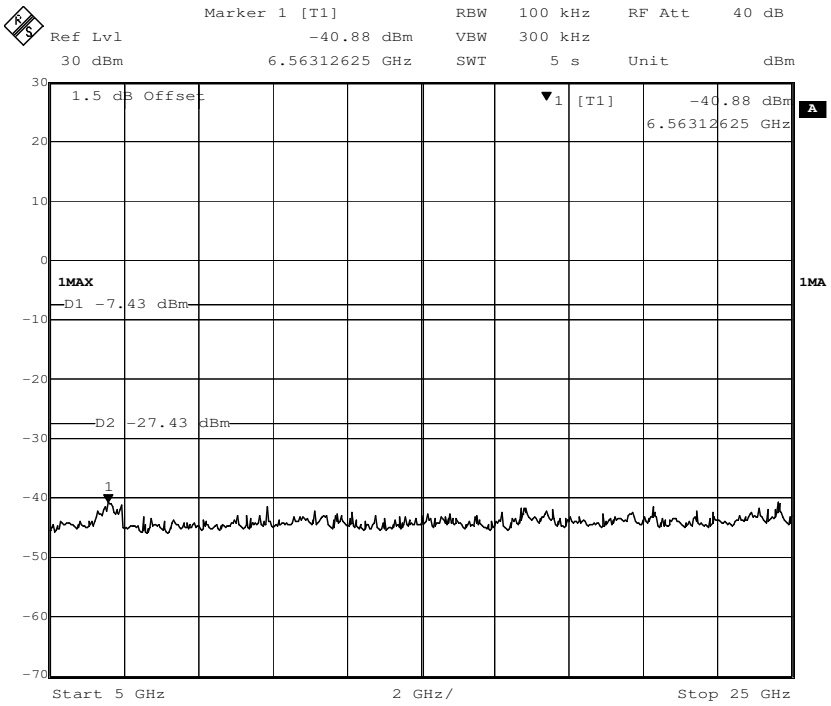
1 G to 5 GHz



5 G to 25 GHz



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7.7 Radiated Spurious Emissions

Test Requirement:	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, and provided the transmitter demonstrates compliance with the peak conducted power limits.
Test Method:	ANSI C63.10: Clause 6.4, 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.
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
15.209 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

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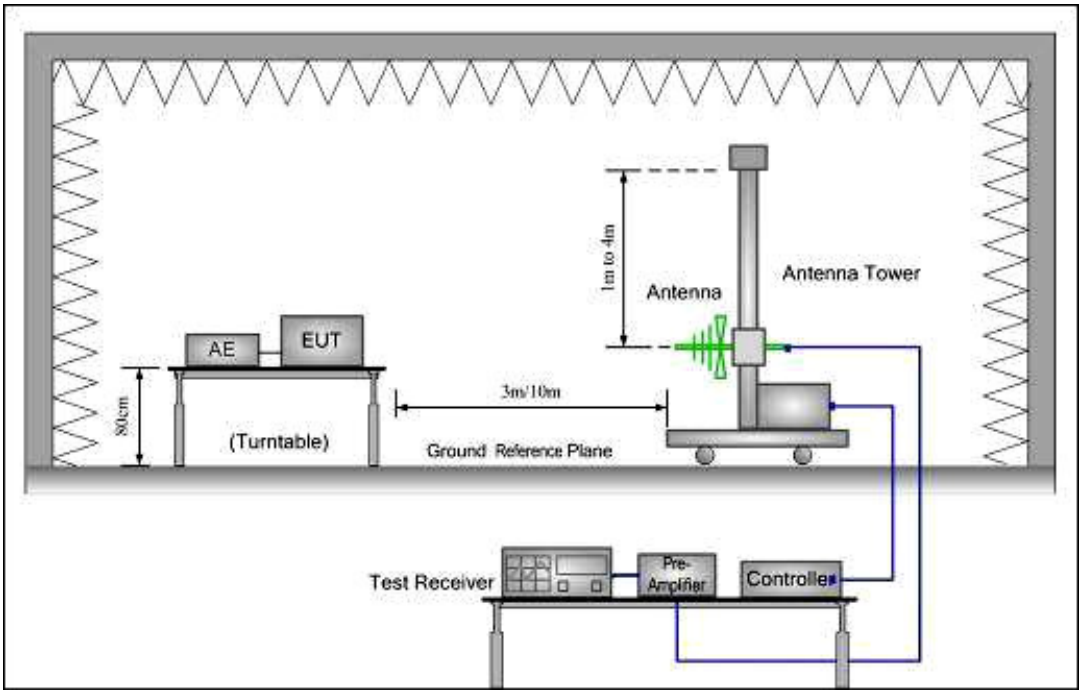
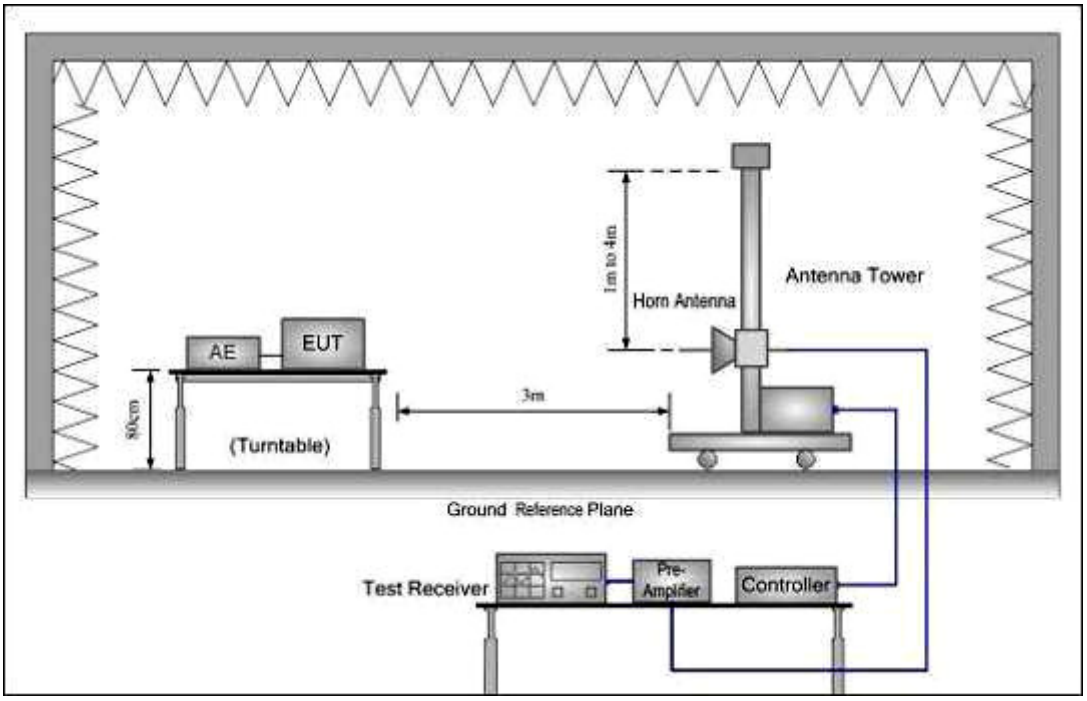
Test Configuration:

1) 30 MHz to 1 GHz emissions:



2) 1 GHz to 40 GHz emissions:



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Test Procedure:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

The receiver was scanned from 30MHz 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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7.7.1 Harmonic and other spurious emissions

7.7.1.1 802.11b mode with 11Mbps data rate

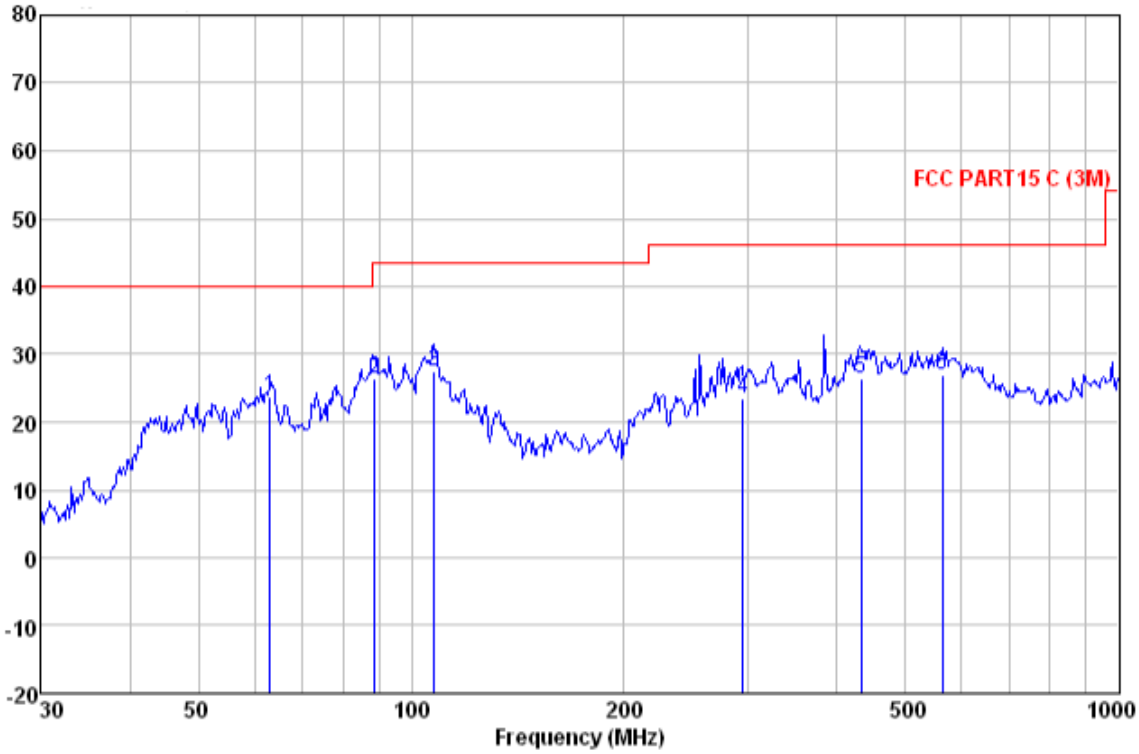
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
63.092	40.58	11.50	1.15	29.57	23.66	40.00	-16.34	QP
88.652	43.22	11.47	1.33	29.67	26.35	43.50	-17.15	QP
107.888	43.20	12.44	1.48	29.70	27.42	43.50	-16.08	QP
294.114	37.78	12.95	2.33	29.59	23.47	46.00	-22.53	QP
432.546	37.56	15.53	2.86	29.57	26.38	46.00	-19.62	QP
562.662	35.45	17.83	3.14	29.43	26.99	46.00	-19.01	QP

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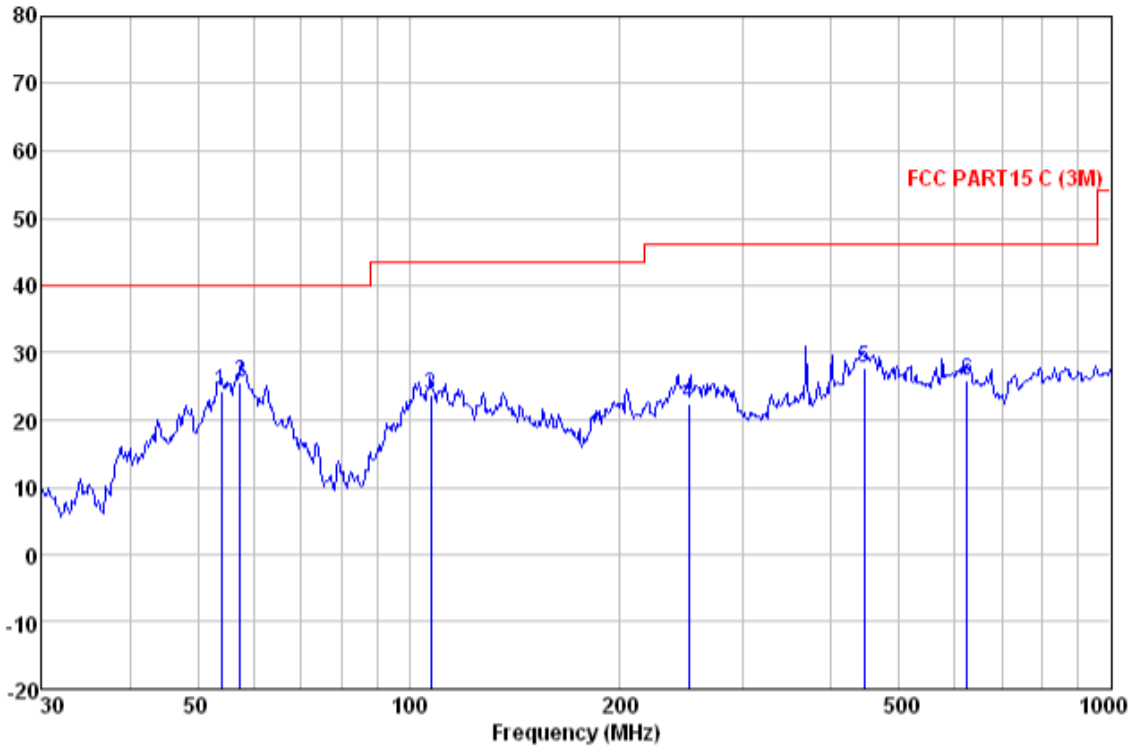
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
54.071	39.63	13.06	1.05	29.52	24.22	40.00	-15.78	QP
57.392	41.14	12.85	1.09	29.54	25.54	40.00	-14.46	QP
107.510	39.56	12.49	1.48	29.70	23.83	43.50	-19.67	QP
250.301	37.87	12.07	2.15	29.56	22.53	46.00	-23.47	QP
444.851	38.77	15.57	2.91	29.55	27.70	46.00	-18.30	QP
625.078	33.42	18.54	3.37	29.37	25.96	46.00	-20.04	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	62.57	31.54	11.14	49.30	55.95	74	V
7236.00	54.80	36.48	13.03	49.69	54.62	74	V
4824.00	66.68	31.54	11.14	49.30	60.06	74	H
7236.00	58.53	36.48	13.03	49.69	58.35	74	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	56.57	31.54	11.14	49.30	49.95	54	V
7236.00	47.80	36.48	13.03	49.69	47.62	54	V
4824.00	54.68	31.54	11.14	49.30	48.06	54	H
7236.00	49.53	36.48	13.03	49.69	49.35	54	H

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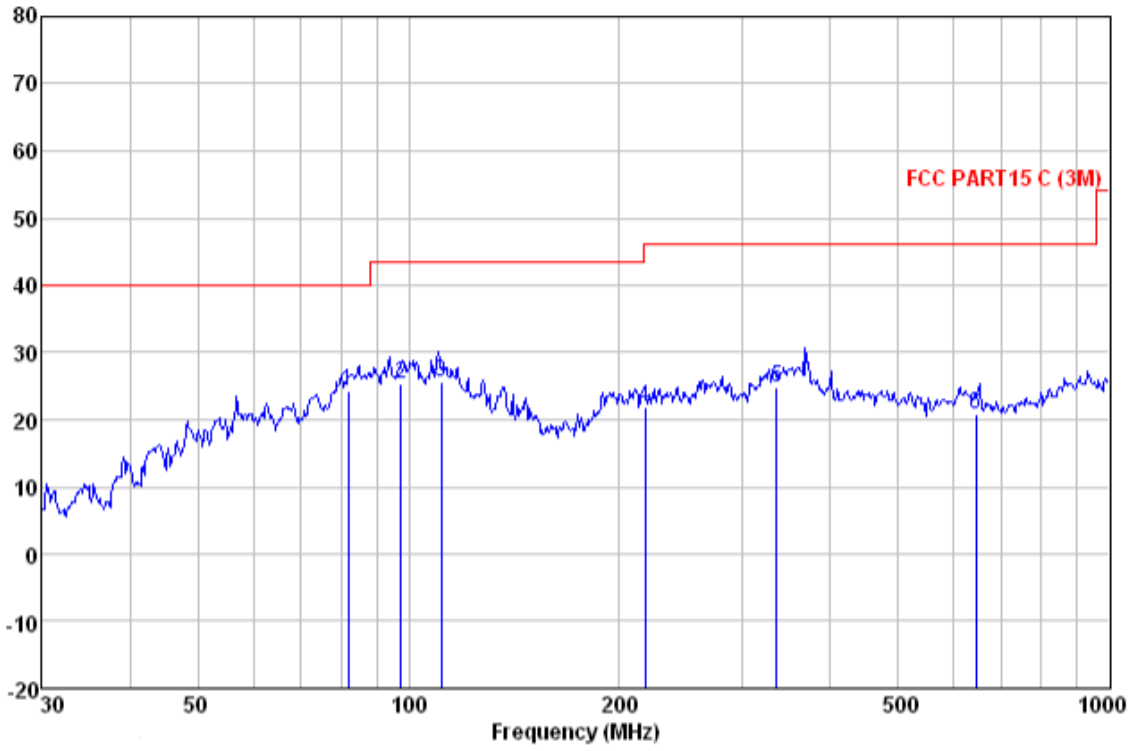
Test at Channel 6 (2.437 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
82.071	43.44	9.28	1.30	29.64	24.38	40.00	-15.62	QP
97.456	40.50	13.00	1.41	29.69	25.22	43.50	-18.28	QP
111.347	41.88	12.04	1.50	29.70	25.72	43.50	-17.78	QP
217.544	38.29	11.10	1.98	29.52	21.85	46.00	-24.15	QP
334.859	37.85	13.92	2.50	29.60	24.67	46.00	-21.33	QP
645.120	28.04	18.61	3.44	29.35	20.74	46.00	-25.26	QP

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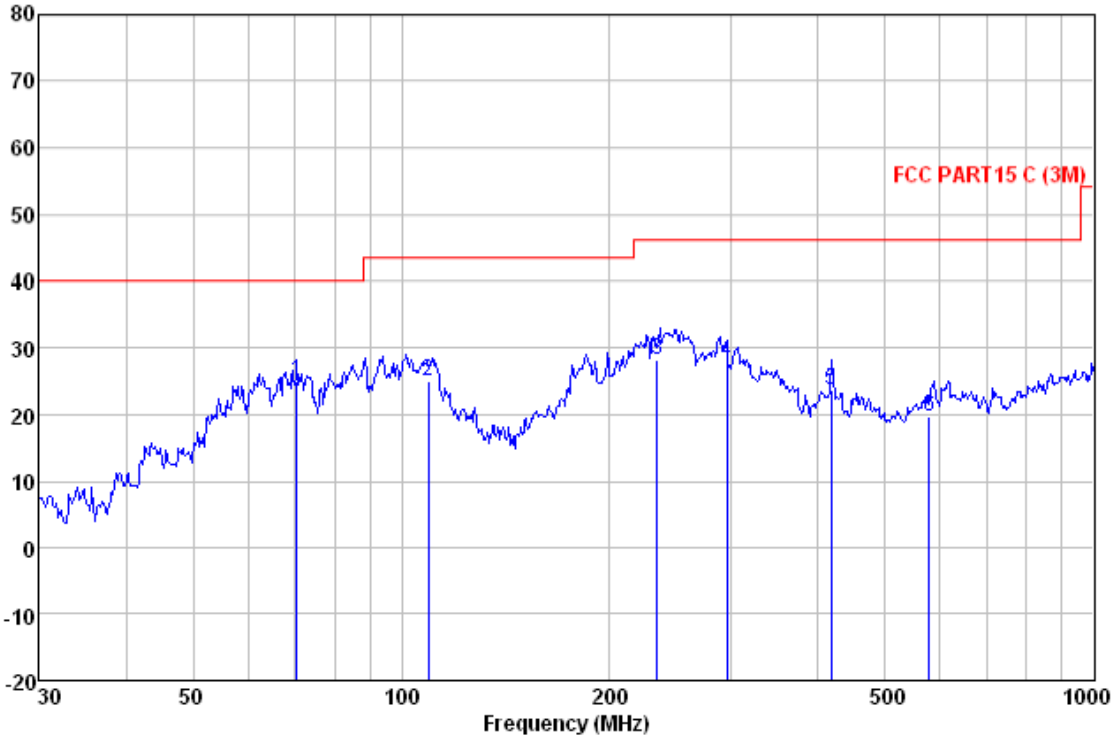
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
70.584	44.79	8.52	1.23	29.60	24.94	40.00	-15.06	QP
109.412	41.09	12.30	1.49	29.70	25.18	43.50	-18.32	QP
234.168	43.80	11.83	2.07	29.54	28.16	46.00	-17.84	QP
295.147	42.38	12.95	2.33	29.60	28.06	46.00	-17.94	QP
417.641	35.00	15.43	2.79	29.58	23.64	46.00	-22.36	QP
578.670	27.78	18.09	3.20	29.42	19.65	46.00	-26.35	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	64.27	31.57	11.24	49.30	57.78	74.00	V
7311.00	56.38	36.49	13.22	49.71	56.38	74.00	V
4874.00	62.94	31.57	11.24	49.30	56.45	74.00	H
7311.00	59.45	36.49	13.22	49.71	59.45	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	56.27	31.57	11.24	49.30	49.78	54.00	V
7311.00	50.38	36.49	13.22	49.71	50.38	54.00	V
4874.00	52.70	31.57	11.24	49.30	46.21	54.00	H
7311.00	49.44	36.49	13.22	49.71	49.44	54.00	H

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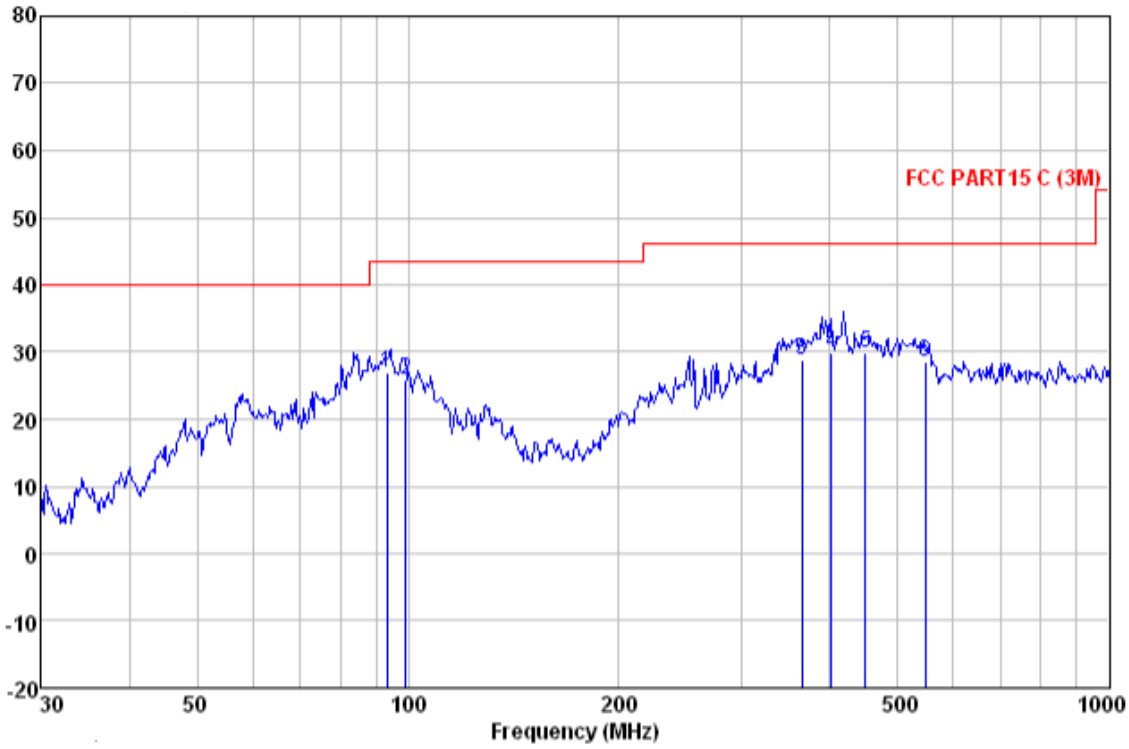
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
93.440	42.73	12.58	1.37	29.68	27.00	43.50	-16.50	QP
99.180	41.00	13.13	1.42	29.70	25.85	43.50	-17.65	QP
364.260	41.24	14.46	2.60	29.60	28.70	46.00	-17.30	QP
401.839	41.67	15.10	2.72	29.60	29.89	46.00	-16.11	QP
449.556	41.01	15.57	2.93	29.55	29.96	46.00	-16.04	QP
547.098	37.29	17.51	3.09	29.45	28.44	46.00	-17.56	QP

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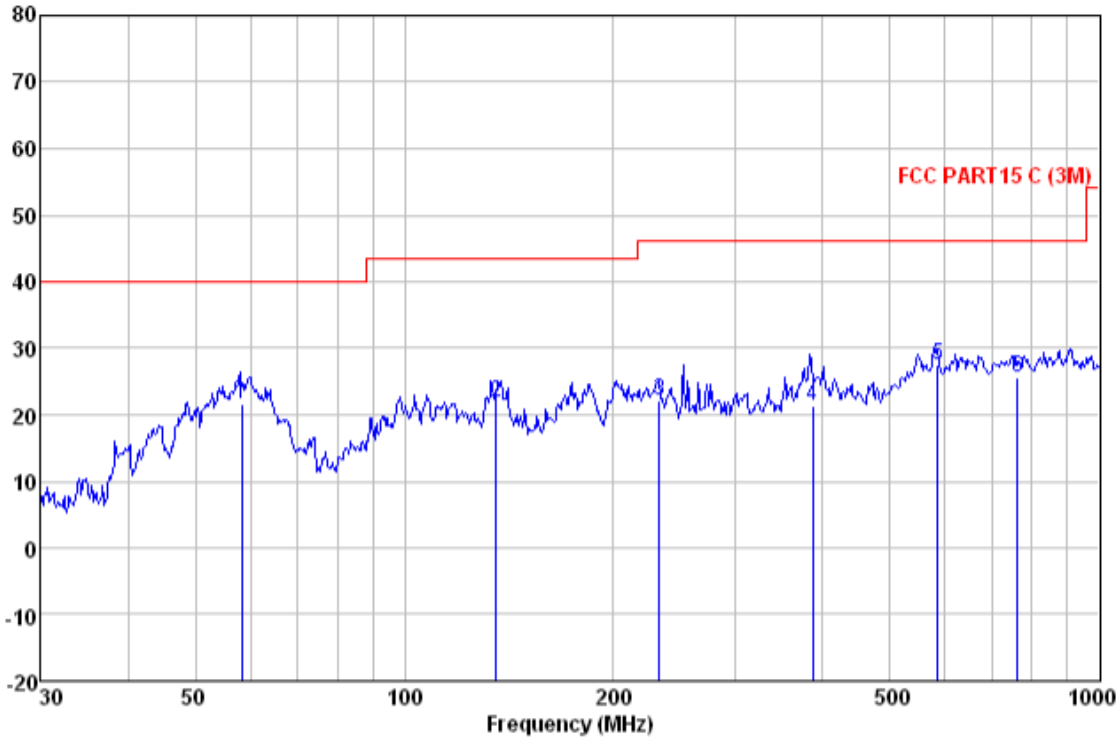
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
58.407	37.30	12.80	1.10	29.54	21.66	40.00	-18.34	QP
135.506	41.32	8.51	1.64	29.70	21.77	43.50	-21.73	QP
232.532	37.98	11.72	2.06	29.54	22.22	46.00	-23.78	QP
386.634	33.49	14.78	2.67	29.60	21.34	46.00	-24.66	QP
584.790	35.52	18.19	3.22	29.41	27.52	46.00	-18.48	QP
763.376	31.49	19.63	3.77	29.23	25.66	46.00	-20.34	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	64.09	31.65	11.34	49.30	57.78	74.00	V
7386.00	54.64	36.54	13.47	49.72	54.93	74.00	V
4924.00	63.21	31.65	11.34	49.30	56.90	74.00	H
7386.00	59.15	36.54	13.47	49.72	59.44	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	56.09	31.65	11.34	49.30	49.78	54.00	V
7386.00	49.64	36.54	13.47	49.72	49.93	54.00	V
4924.00	56.21	31.65	11.34	49.30	49.90	54.00	H
7386.00	50.15	36.54	13.47	49.72	50.44	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Loss –Preamplifier Factor.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

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7.7.1.2 802.11g mode with 54Mbps data rate

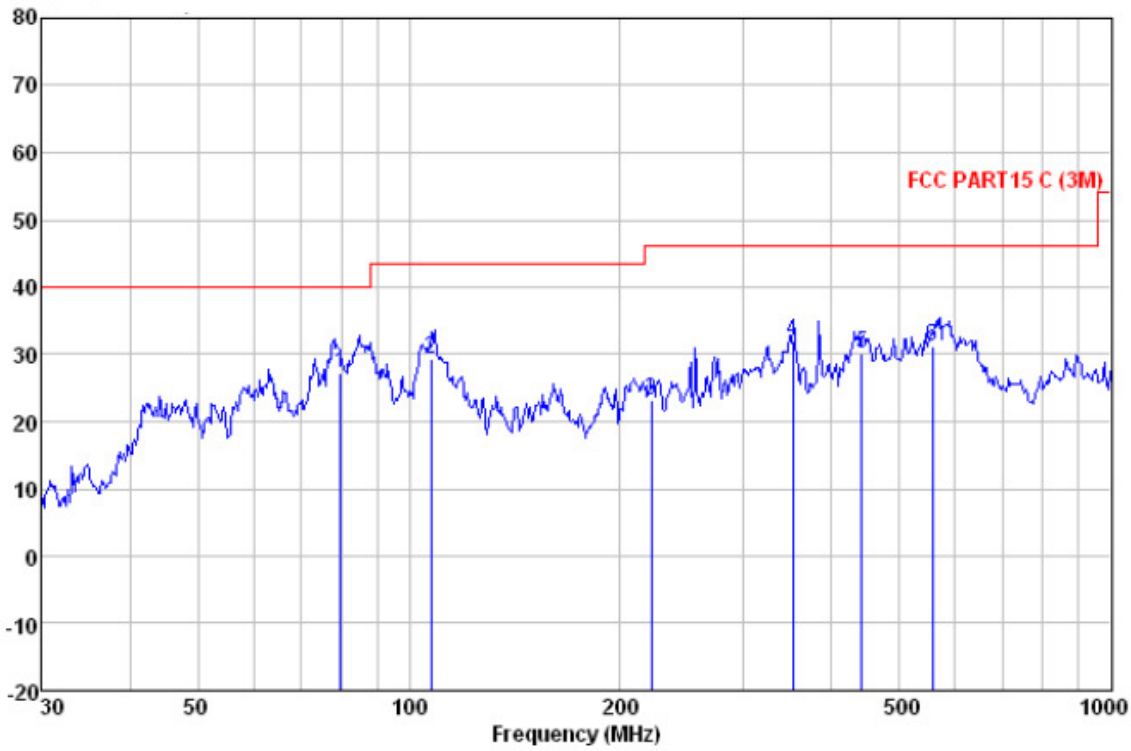
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
79.800	47.14	8.54	1.29	29.64	27.33	40.00	-12.67	QP
107.510	44.99	12.49	1.48	29.70	29.26	43.50	-14.24	QP
221.392	39.43	11.25	2.00	29.52	23.16	46.00	-22.84	QP
351.708	44.63	14.30	2.56	29.60	31.89	46.00	-14.11	QP
441.743	41.16	15.56	2.90	29.56	30.06	46.00	-15.94	QP
556.774	39.75	17.67	3.11	29.44	31.09	46.00	-14.91	QP

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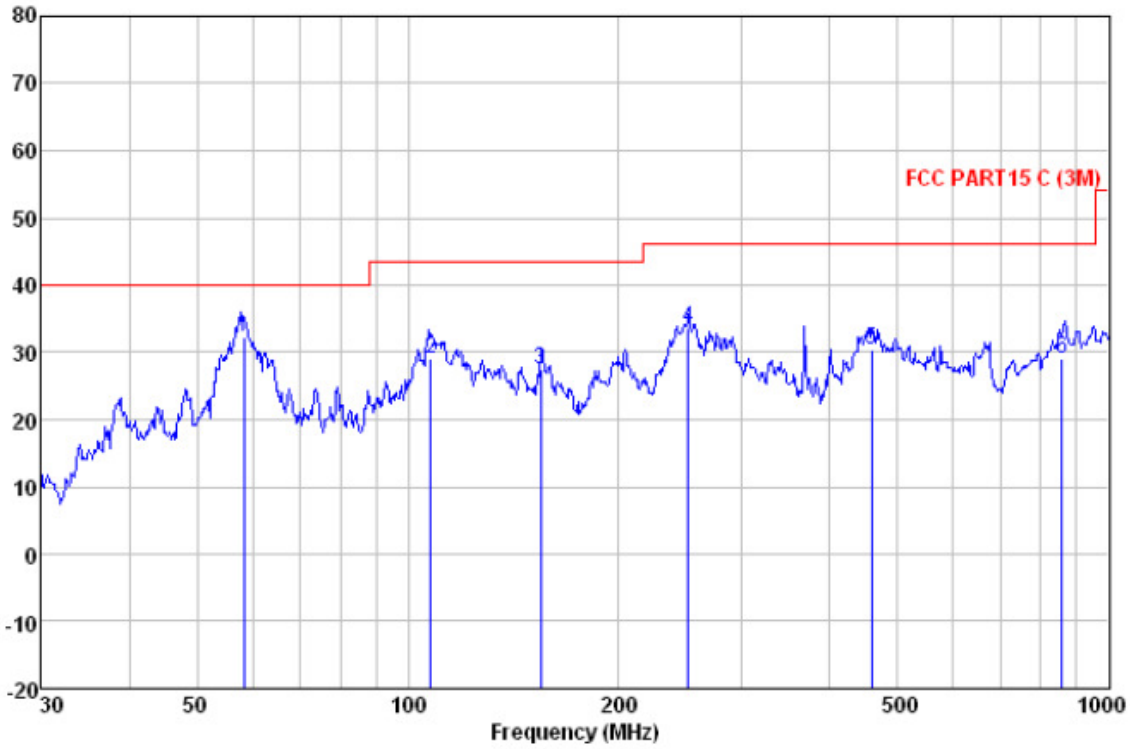
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
58.407	47.91	12.80	1.10	29.54	32.27	40.00	-7.73	QP
107.888	44.97	12.44	1.48	29.70	29.19	43.50	-14.31	QP
154.821	46.88	8.45	1.73	29.68	27.38	43.50	-16.12	QP
251.180	48.99	12.07	2.15	29.56	33.65	46.00	-12.35	QP
459.114	41.51	15.59	2.96	29.54	30.52	46.00	-15.48	QP
857.025	33.18	20.64	4.00	28.67	29.15	46.00	-16.85	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	62.93	31.54	11.14	49.30	56.31	74.00	V
7236.00	55.45	36.48	13.03	49.69	55.27	74.00	V
4824.00	67.05	31.54	11.14	49.30	60.43	74.00	H
7236.00	60.22	36.48	13.03	49.69	60.04	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	57.05	31.54	11.14	49.30	50.43	54.00	V
7236.00	48.34	36.48	13.03	49.69	48.16	54.00	V
4824.00	56.33	31.54	11.14	49.30	49.71	54.00	H
7236.00	50.66	36.48	13.03	49.69	50.48	54.00	H

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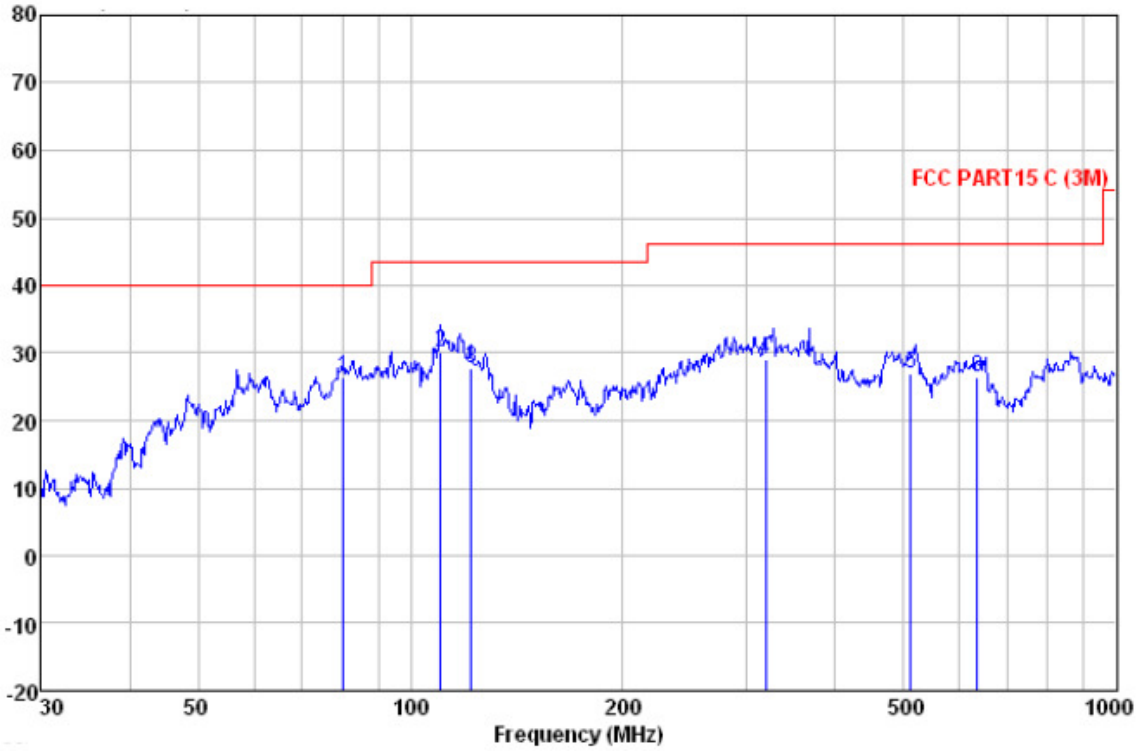
Test at Channel 6 (2.437GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
80.362	46.17	8.69	1.29	29.64	26.51	40.00	-13.49	QP
110.182	45.99	12.25	1.50	29.70	30.04	43.50	-13.46	QP
121.976	45.71	10.19	1.57	29.70	27.77	43.50	-15.73	QP
318.817	42.87	13.33	2.43	29.60	29.03	46.00	-16.97	QP
511.835	36.42	16.84	3.09	29.49	26.86	46.00	-19.14	QP
636.134	33.86	18.59	3.41	29.36	26.50	46.00	-19.50	QP

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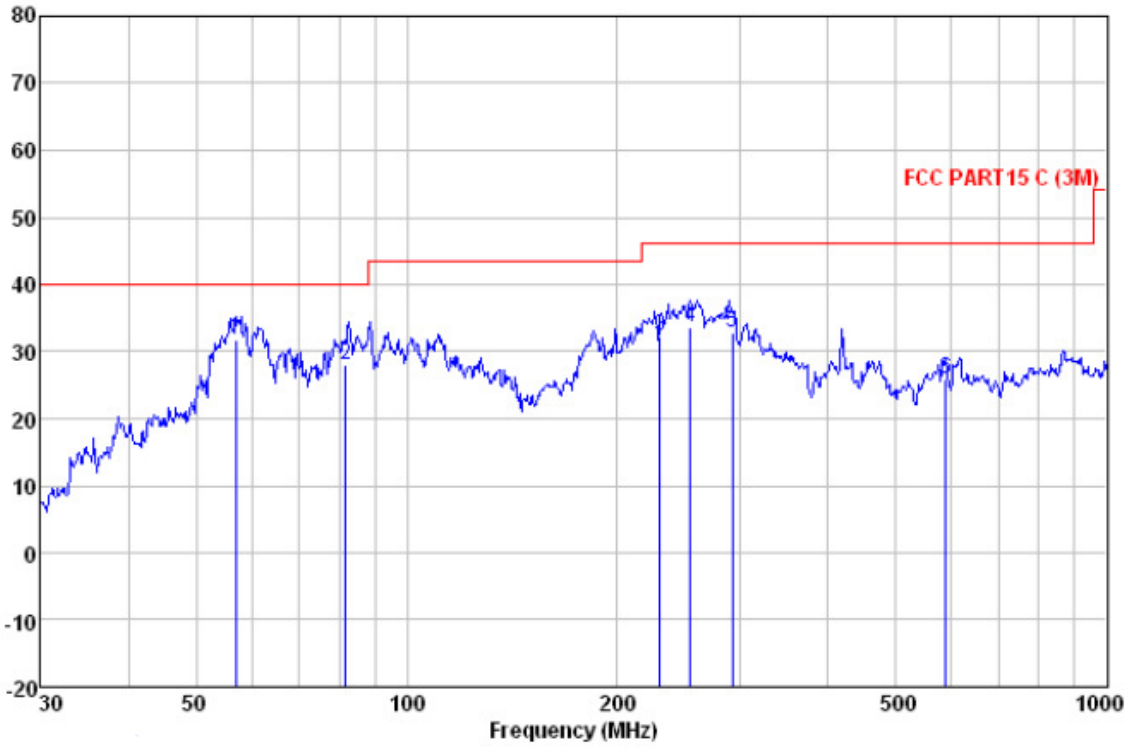
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
56.991	47.17	12.89	1.09	29.54	31.61	40.00	-8.39	QP
81.783	47.18	9.28	1.30	29.64	28.12	40.00	-11.88	QP
230.099	48.00	11.62	2.05	29.53	32.14	46.00	-13.86	QP
253.837	48.82	12.06	2.17	29.56	33.49	46.00	-12.51	QP
292.058	47.11	12.89	2.32	29.59	32.73	46.00	-13.27	QP
588.905	33.62	18.29	3.24	29.41	25.74	46.00	-20.26	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	64.11	31.57	11.24	49.30	57.62	74.00	V
7311.00	54.13	36.49	13.22	49.71	54.13	74.00	V
4874.00	63.05	31.57	11.24	49.30	56.56	74.00	H
7311.00	61.30	36.49	13.22	49.71	61.30	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	57.06	31.57	11.24	49.30	50.57	54.00	V
7311.00	50.04	36.49	13.22	49.71	50.04	54.00	V
4874.00	53.67	31.57	11.24	49.30	47.18	54.00	H
7311.00	50.40	36.49	13.22	49.71	50.40	54.00	H

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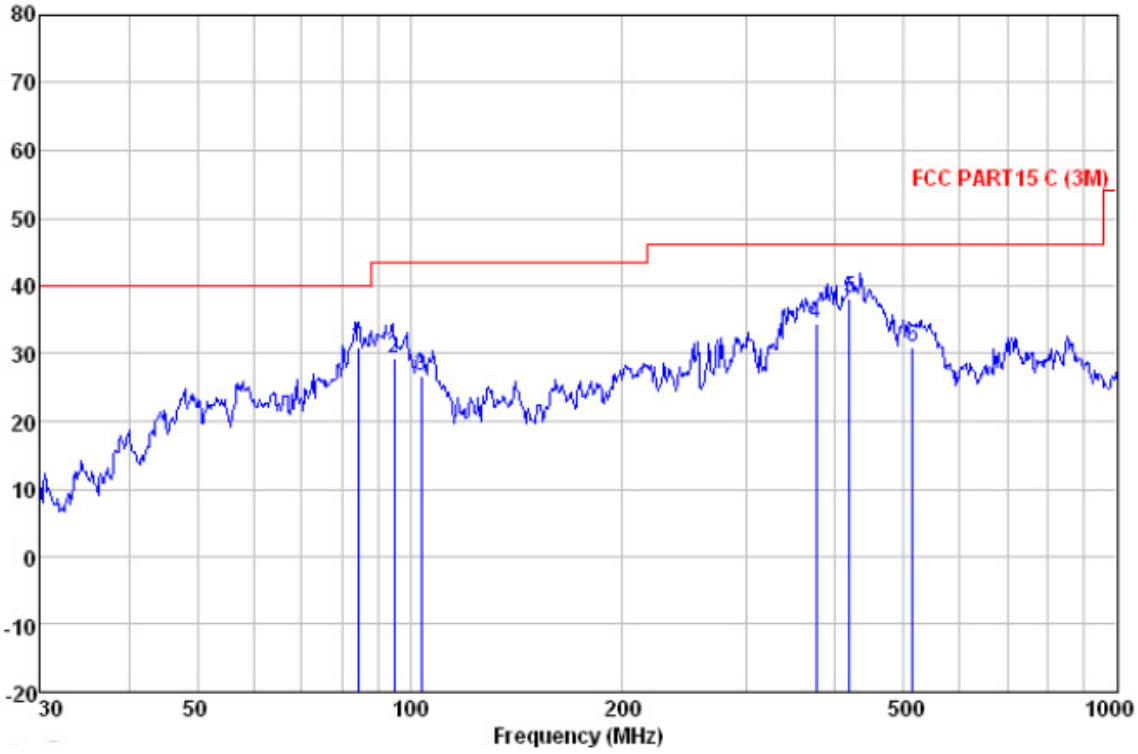
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
84.405	49.03	10.16	1.31	29.65	30.85	40.00	-9.15	QP
95.093	44.87	12.84	1.38	29.69	29.40	43.50	-14.10	QP
103.806	42.17	12.78	1.46	29.70	26.71	43.50	-16.79	QP
375.939	46.76	14.56	2.64	29.60	34.36	46.00	-11.64	QP
419.108	49.38	15.43	2.80	29.58	38.03	46.00	-7.97	QP
513.633	40.54	16.89	3.09	29.48	31.04	46.00	-14.96	QP

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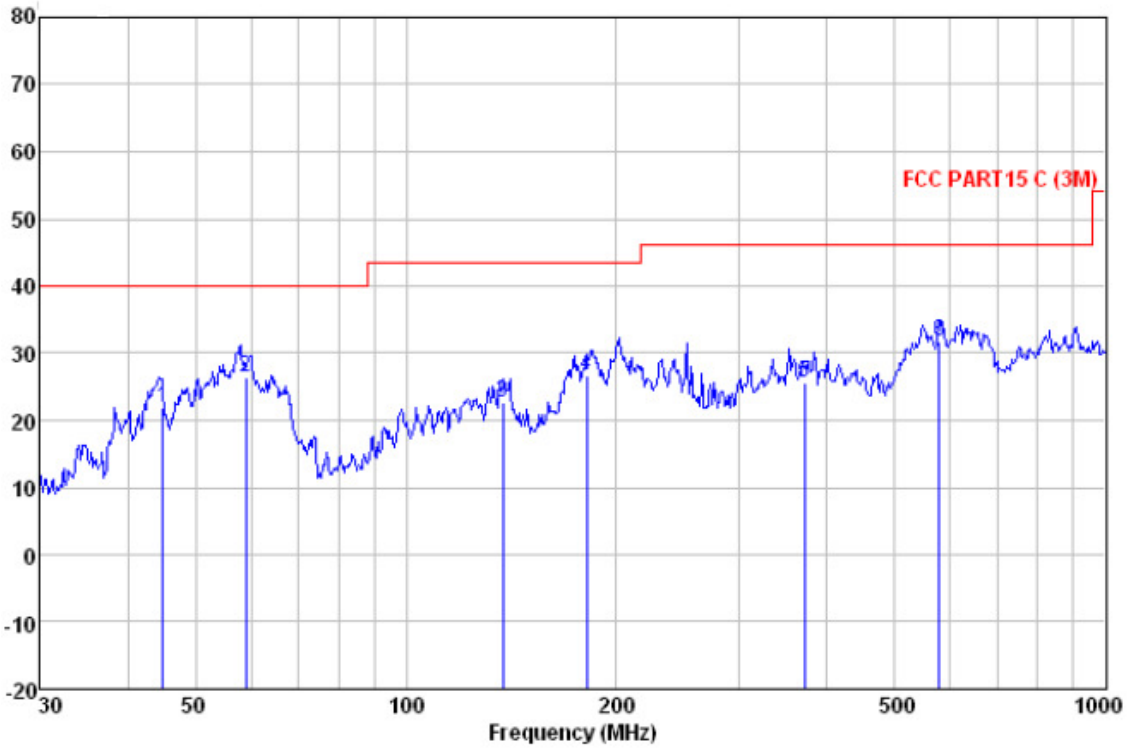
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
44.901	36.85	13.55	0.97	29.50	21.87	40.00	-18.13	QP
59.025	41.96	12.76	1.11	29.55	26.28	40.00	-13.72	QP
137.420	42.38	8.35	1.65	29.70	22.68	43.50	-20.82	QP
181.283	44.73	9.76	1.82	29.57	26.74	43.50	-16.76	QP
370.702	38.13	14.51	2.62	29.60	25.66	46.00	-20.34	QP
578.670	39.97	18.09	3.20	29.42	31.84	46.00	-14.16	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	66.06	31.65	11.34	49.30	59.75	74.00	V
7386.00	55.82	36.54	13.47	49.72	56.11	74.00	V
4924.00	62.49	31.65	11.34	49.30	56.18	74.00	H
7386.00	60.14	36.54	13.47	49.72	60.43	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	55.84	31.65	11.34	49.30	49.53	54.00	V
7386.00	50.07	36.54	13.47	49.72	50.36	54.00	V
4924.00	55.79	31.65	11.34	49.30	49.48	54.00	H
7386.00	50.45	36.54	13.47	49.72	50.74	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Preamplifier Factor.

No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

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7.7.1.3 802.11n(HT20) mode with 72.2Mbps data rate

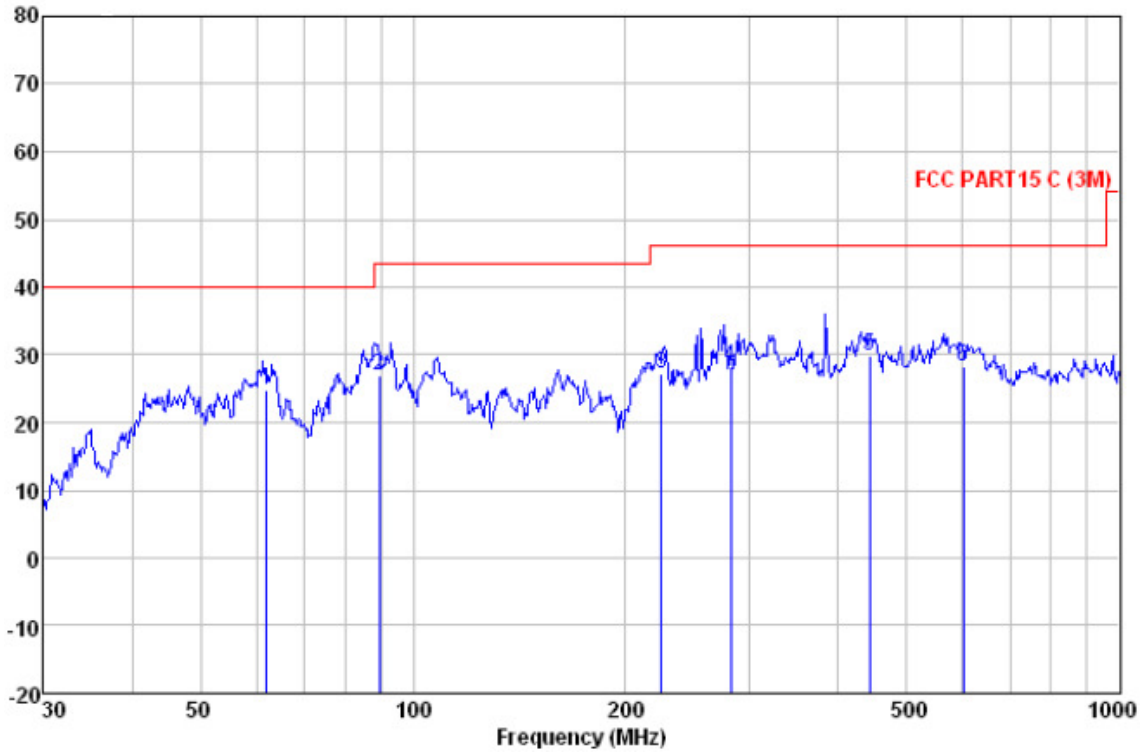
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
61.995	41.22	11.90	1.14	29.56	24.70	40.00	-15.30	QP
89.590	43.47	11.76	1.33	29.67	26.89	43.50	-16.61	QP
224.519	43.29	11.41	2.02	29.53	27.19	46.00	-18.81	QP
281.995	42.76	12.70	2.28	29.58	28.16	46.00	-17.84	QP
443.294	40.82	15.57	2.90	29.55	29.74	46.00	-16.26	QP
601.427	35.94	18.46	3.29	29.40	28.29	46.00	-17.71	QP

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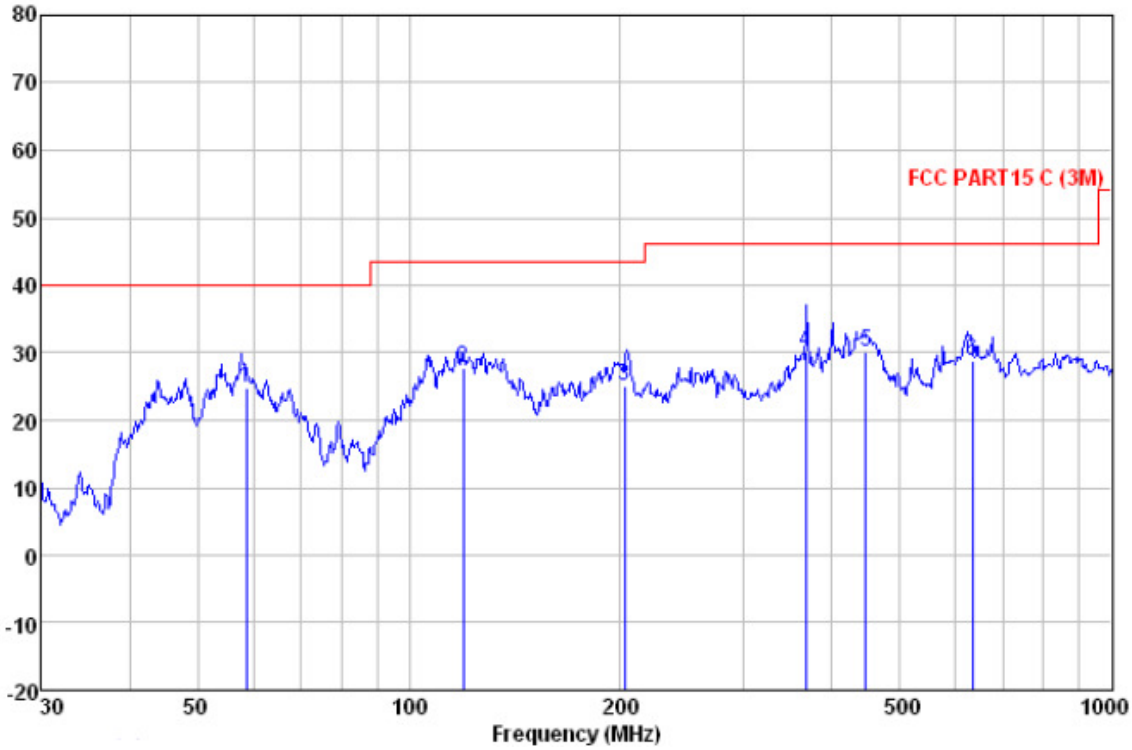
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
58.613	40.44	12.78	1.10	29.55	24.77	40.00	-15.23	QP
119.436	45.22	10.58	1.55	29.70	27.65	43.50	-15.85	QP
202.810	42.12	10.64	1.90	29.50	25.16	43.50	-18.34	QP
366.823	42.53	14.48	2.61	29.60	30.02	46.00	-15.98	QP
446.414	41.28	15.57	2.92	29.55	30.22	46.00	-15.78	QP
633.907	36.25	18.58	3.40	29.36	28.87	46.00	-17.13	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	63.93	31.54	11.14	49.30	57.31	74.00	V
7236.00	58.17	36.48	13.03	49.69	57.99	74.00	V
4824.00	66.98	31.54	11.14	49.30	60.36	74.00	H
7236.00	61.31	36.48	13.03	49.69	61.13	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	58.33	31.54	11.14	49.30	51.71	54.00	V
7236.00	49.24	36.48	13.03	49.69	49.06	54.00	V
4824.00	53.07	31.54	11.14	49.30	46.45	54.00	H
7236.00	51.05	36.48	13.03	49.69	50.87	54.00	H

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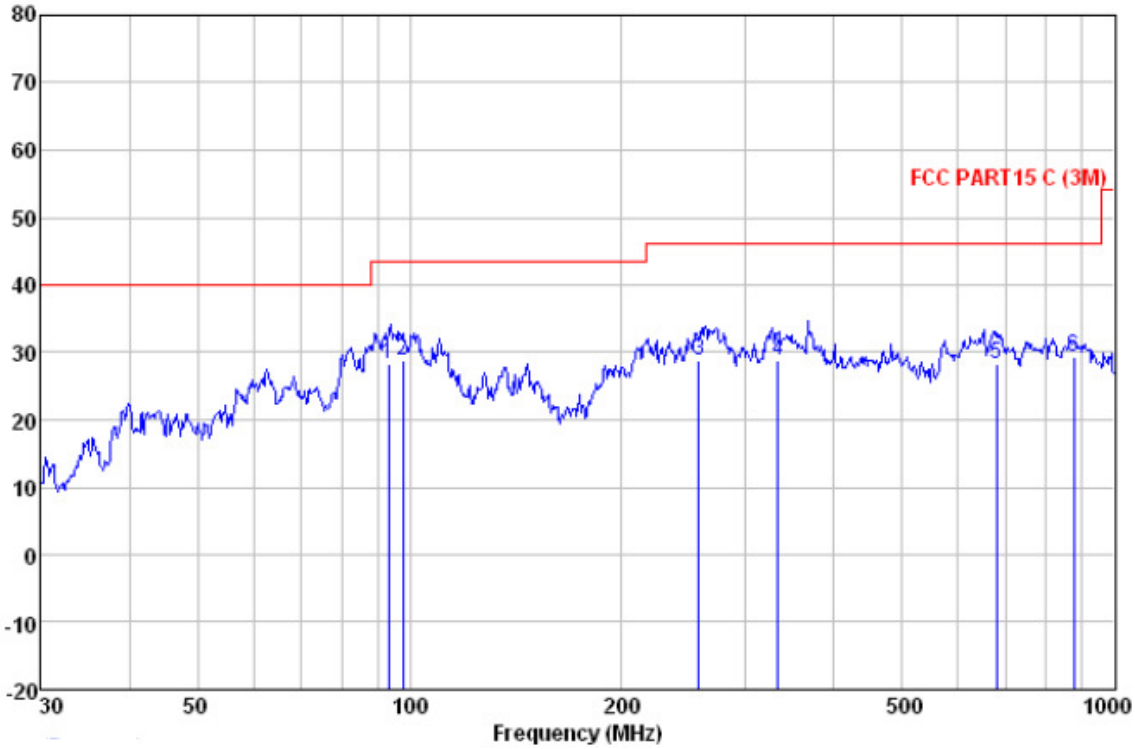
Test at Channel 6 (2.437 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
93.440	44.00	12.58	1.37	29.68	28.27	43.50	-15.23	QP
97.798	44.09	13.03	1.41	29.69	28.84	43.50	-14.66	QP
257.422	44.03	12.06	2.18	29.56	28.71	46.00	-17.29	QP
332.519	42.16	13.86	2.49	29.60	28.91	46.00	-17.09	QP
679.960	35.33	18.74	3.50	29.32	28.25	46.00	-17.75	QP
875.247	33.02	20.87	4.08	28.51	29.46	46.00	-16.54	QP

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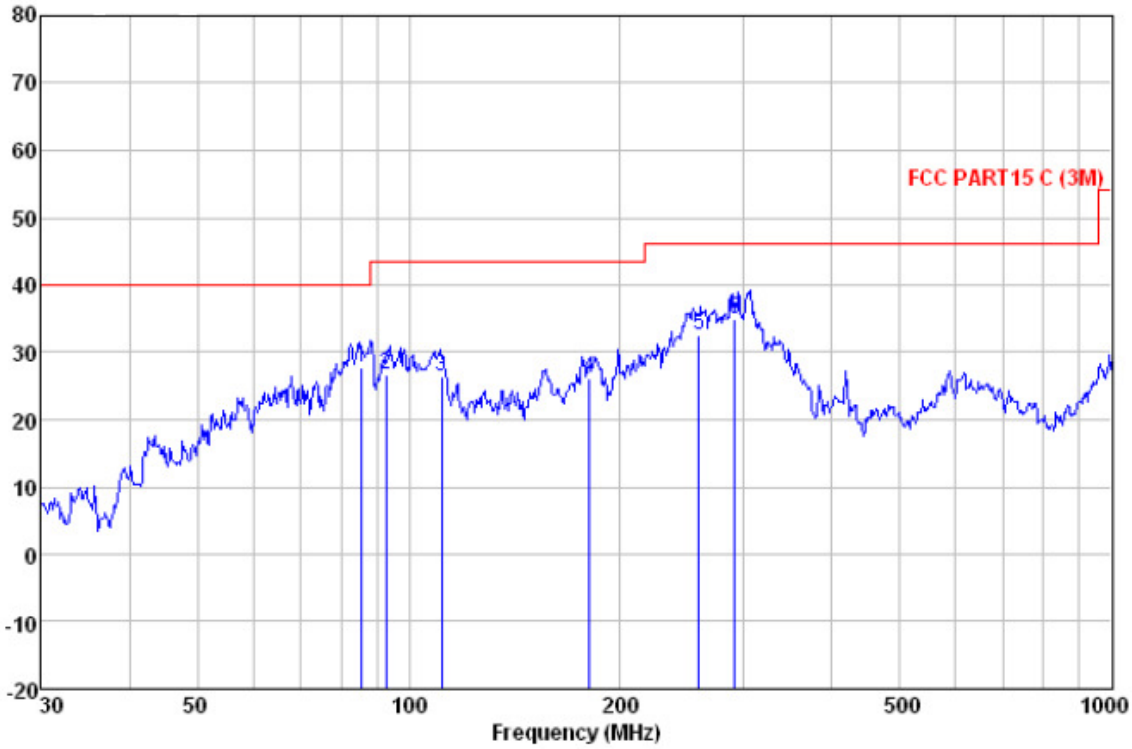
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
85.598	45.50	10.60	1.31	29.66	27.75	40.00	-12.25	QP
92.787	42.50	12.41	1.36	29.68	26.59	43.50	-16.91	QP
111.347	42.55	12.04	1.50	29.70	26.39	43.50	-17.11	QP
180.649	44.00	9.76	1.82	29.57	26.01	43.50	-17.49	QP
258.326	47.87	12.05	2.18	29.56	32.54	46.00	-13.46	QP
291.036	49.42	12.89	2.32	29.59	35.04	46.00	-10.96	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	65.55	31.57	11.24	49.30	59.06	74.00	V
7311.00	64.22	36.49	13.22	49.71	64.22	74.00	V
4874.00	65.31	31.57	11.24	49.30	58.82	74.00	H
7311.00	61.44	36.49	13.22	49.71	61.44	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	56.88	31.57	11.24	49.30	50.39	54.00	V
7311.00	50.28	36.49	13.22	49.71	50.28	54.00	V
4874.00	54.08	31.57	11.24	49.30	47.59	54.00	H
7311.00	49.21	36.49	13.22	49.71	49.21	54.00	H

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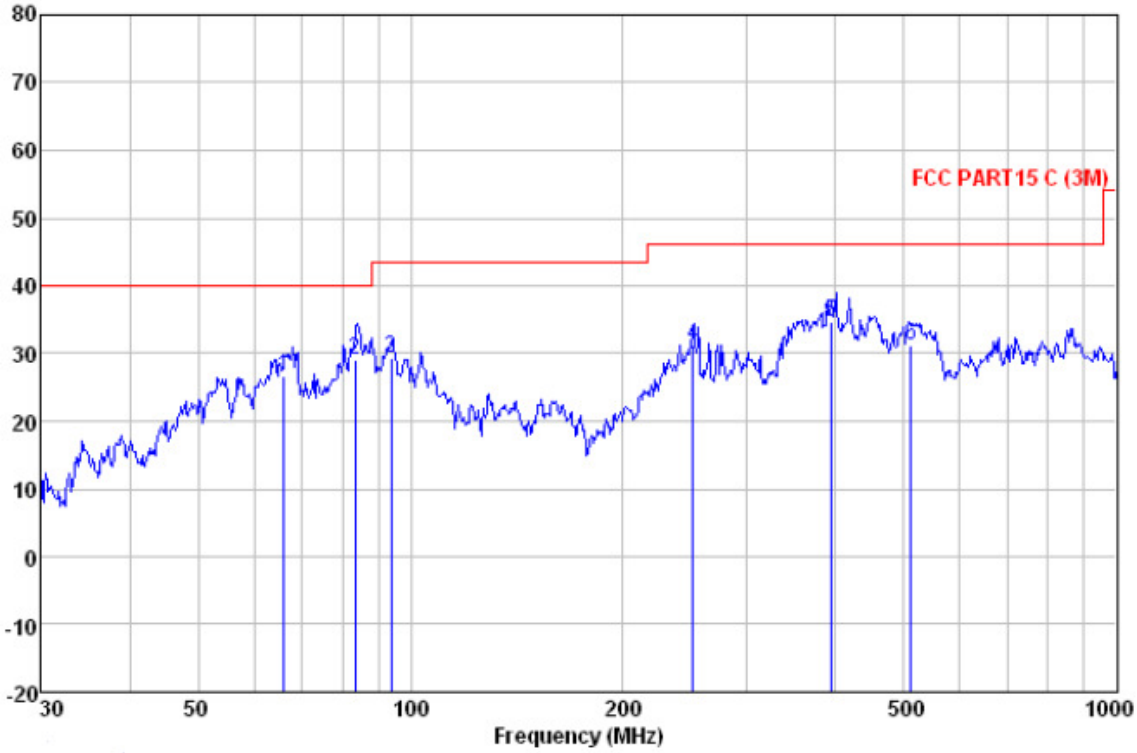
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
66.266	44.94	10.16	1.19	29.58	26.71	40.00	-13.29	QP
83.522	47.67	9.87	1.30	29.65	29.19	40.00	-10.81	QP
93.768	44.97	12.58	1.37	29.68	29.24	43.50	-14.26	QP
251.180	46.47	12.07	2.15	29.56	31.13	46.00	-14.87	QP
393.472	46.69	14.92	2.69	29.60	34.70	46.00	-11.30	QP
511.835	40.74	16.84	3.09	29.49	31.18	46.00	-14.82	QP

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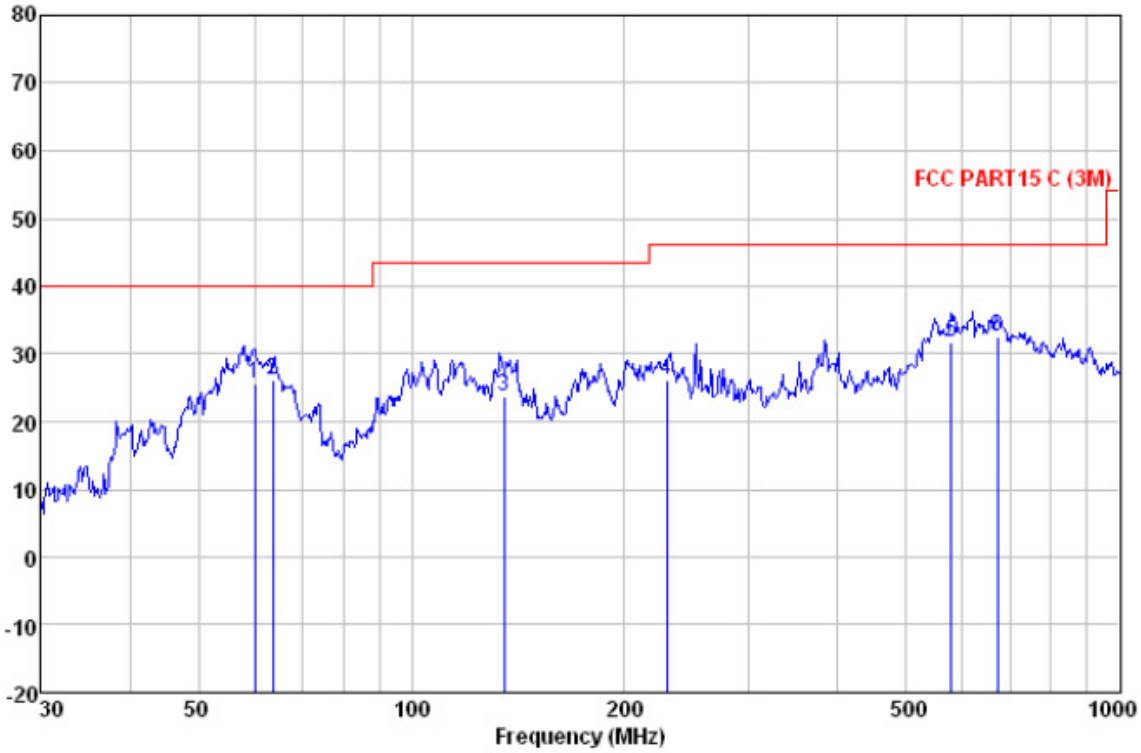
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
60.069	41.38	12.69	1.12	29.55	25.64	40.00	-14.36	QP
63.759	43.18	11.24	1.16	29.57	26.01	40.00	-13.99	QP
135.032	43.31	8.56	1.64	29.70	23.81	43.50	-19.69	QP
229.293	41.91	11.62	2.04	29.53	26.04	46.00	-19.96	QP
578.670	39.97	18.09	3.20	29.42	31.84	46.00	-14.16	QP
672.845	39.72	18.72	3.49	29.32	32.61	46.00	-13.39	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	67.33	31.65	11.34	49.30	61.02	74.00	V
7386.00	56.05	36.54	13.47	49.72	56.34	74.00	V
4924.00	63.48	31.65	11.34	49.30	57.17	74.00	H
7386.00	61.04	36.54	13.47	49.72	61.33	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	57.03	31.65	11.34	49.30	50.72	54.00	V
7386.00	50.08	36.54	13.47	49.72	50.37	54.00	V
4924.00	56.07	31.65	11.34	49.30	49.76	54.00	H
7386.00	50.07	36.54	13.47	49.72	50.36	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Loss –Preamplifier Factor.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

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7.7.1.4 802.11n(HT40) mode with 150Mbps data rate

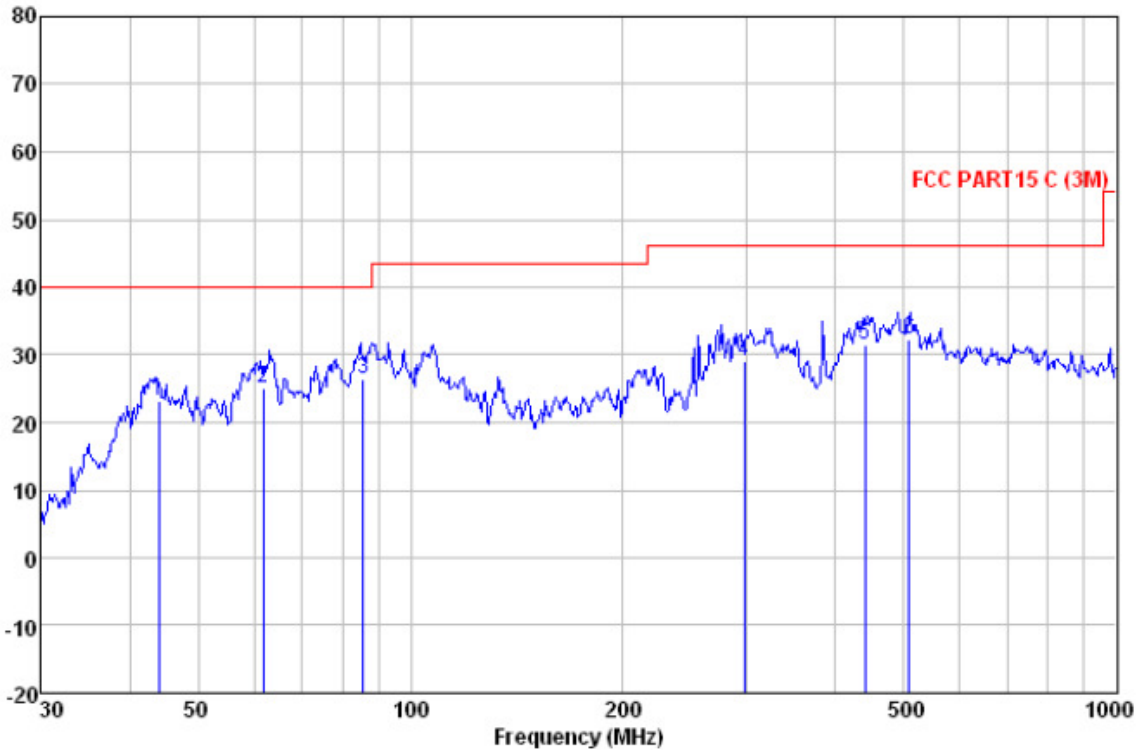
Test at Channel 3 (2.422 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
43.966	38.25	13.56	0.96	29.50	23.27	40.00	-16.73	QP
61.778	41.38	12.03	1.14	29.56	24.99	40.00	-15.01	QP
85.598	44.05	10.60	1.31	29.66	26.30	40.00	-13.70	QP
297.224	43.27	13.00	2.34	29.60	29.01	46.00	-16.99	QP
440.196	42.49	15.56	2.89	29.56	31.38	46.00	-14.62	QP
508.258	41.98	16.74	3.09	29.49	32.32	46.00	-13.68	QP

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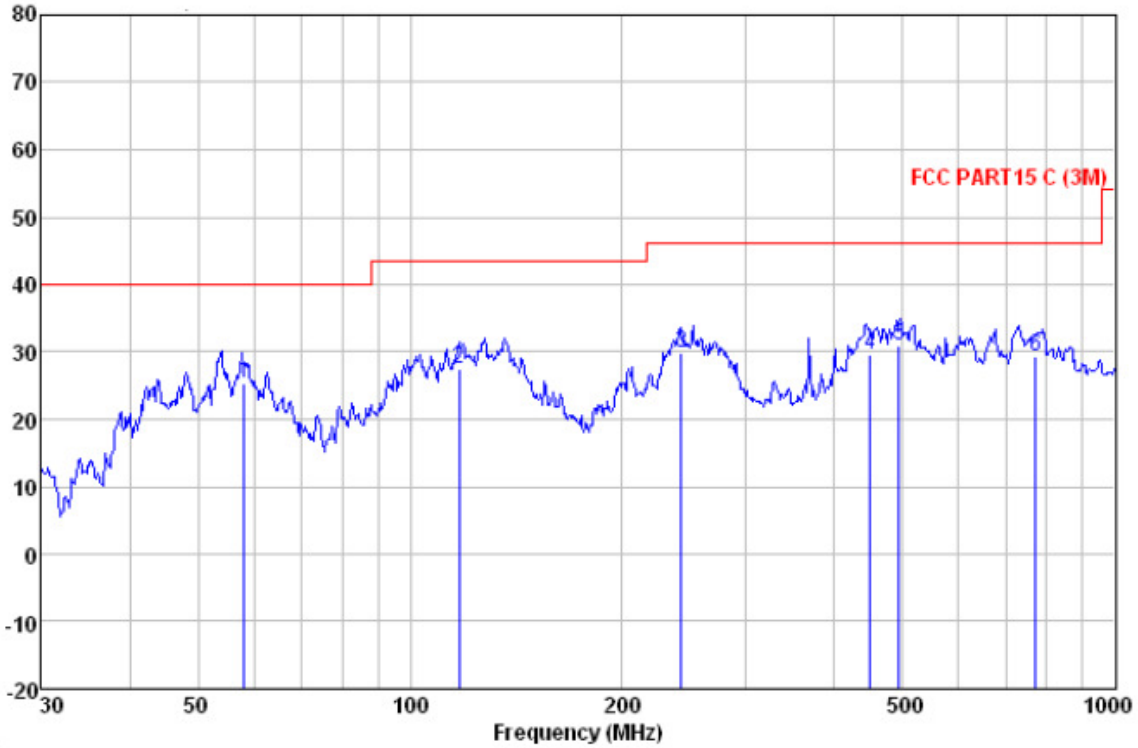
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
58.203	40.89	12.80	1.10	29.54	25.25	40.00	-14.75	QP
117.360	44.73	10.90	1.54	29.70	27.47	43.50	-16.03	QP
242.525	45.17	12.08	2.11	29.55	29.81	46.00	-16.19	QP
449.556	40.68	15.57	2.93	29.55	29.63	46.00	-16.37	QP
494.199	40.92	16.45	3.07	29.50	30.94	46.00	-15.06	QP
771.449	35.01	19.72	3.80	29.23	29.30	46.00	-16.70	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4844.00	62.67	31.56	11.19	49.30	56.12	74.00	V
7266.00	54.79	36.48	13.09	49.70	54.66	74.00	V
4844.00	65.13	31.56	11.19	49.30	58.58	74.00	H
7266.00	59.48	36.48	13.09	49.70	59.35	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4844.00	56.67	31.56	11.19	49.30	50.12	54.00	V
7266.00	48.79	36.48	13.09	49.70	48.66	54.00	V
4844.00	57.13	31.56	11.19	49.30	50.58	54.00	H
7266.00	50.48	36.48	13.09	49.70	50.35	54.00	H

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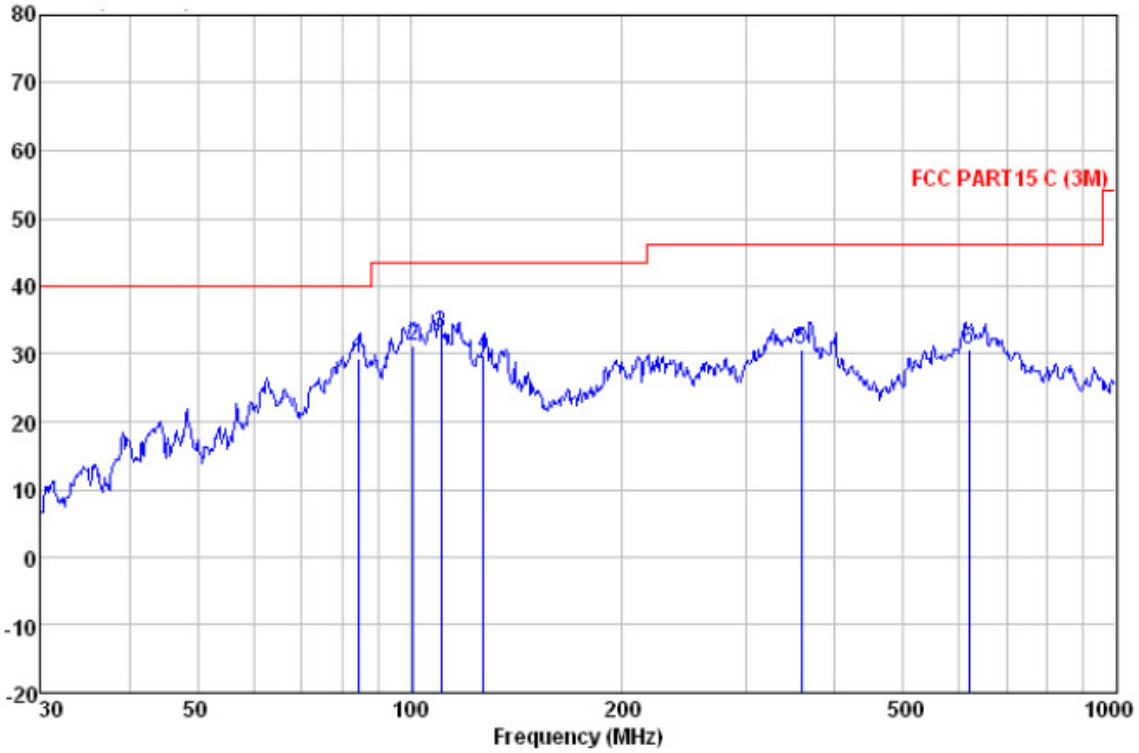
Test at Channel 6 (2.437 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
84.702	47.61	10.16	1.31	29.65	29.43	40.00	-10.57	QP
100.934	46.52	13.06	1.44	29.70	31.32	43.50	-12.18	QP
110.569	49.04	12.15	1.50	29.70	32.99	43.50	-10.51	QP
127.218	48.58	9.32	1.60	29.70	29.80	43.50	-13.70	QP
357.929	43.40	14.38	2.58	29.60	30.76	46.00	-15.24	QP
618.537	38.30	18.52	3.35	29.38	30.79	46.00	-15.21	QP

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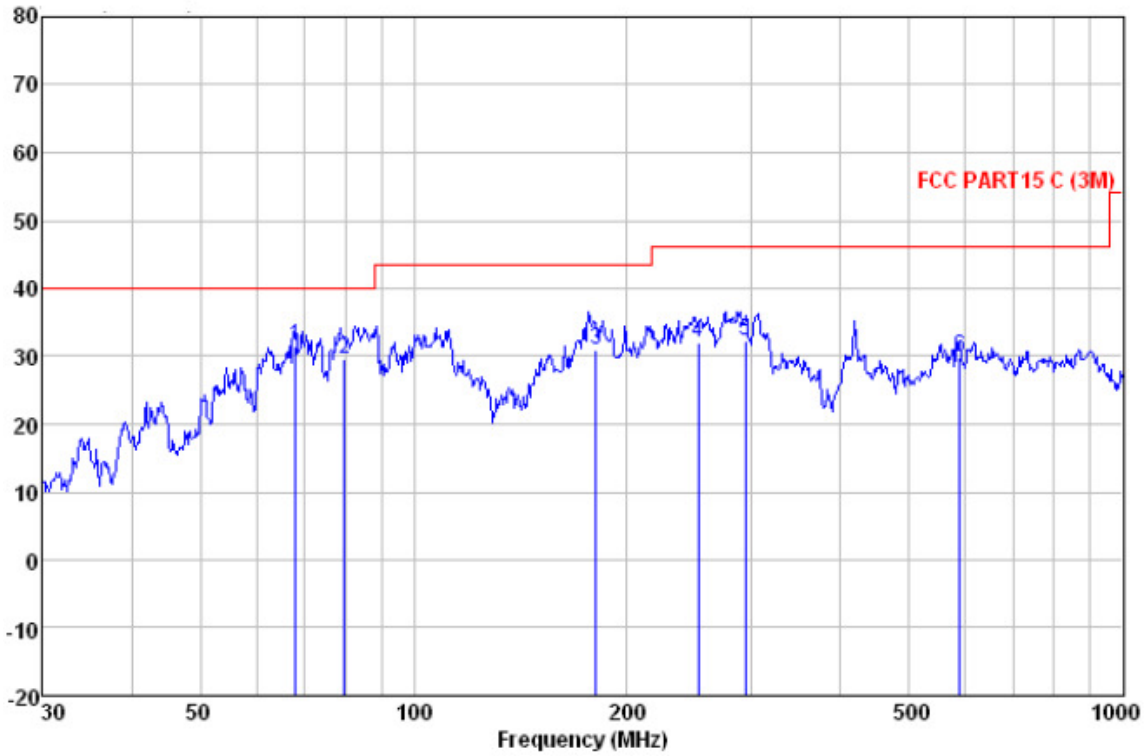
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
68.151	50.47	9.34	1.21	29.59	31.43	40.00	-8.57	QP
79.800	49.50	8.54	1.29	29.64	29.69	40.00	-10.31	QP
180.649	49.00	9.76	1.82	29.57	31.01	43.50	-12.49	QP
252.063	47.39	12.07	2.16	29.56	32.06	46.00	-13.94	QP
293.084	46.70	12.92	2.32	29.59	32.35	46.00	-13.65	QP
588.905	37.62	18.29	3.24	29.41	29.74	46.00	-16.26	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	65.07	31.57	11.24	49.30	58.58	74.00	V
7311.00	54.04	36.49	13.22	49.71	54.04	74.00	V
4874.00	66.25	31.57	11.24	49.30	59.76	74.00	H
7311.00	58.44	36.49	13.22	49.71	58.44	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	57.07	31.57	11.24	49.30	50.58	54.00	V
7311.00	50.04	36.49	13.22	49.71	50.04	54.00	V
4874.00	56.25	31.57	11.24	49.30	49.76	54.00	H
7311.00	50.44	36.49	13.22	49.71	50.44	54.00	H

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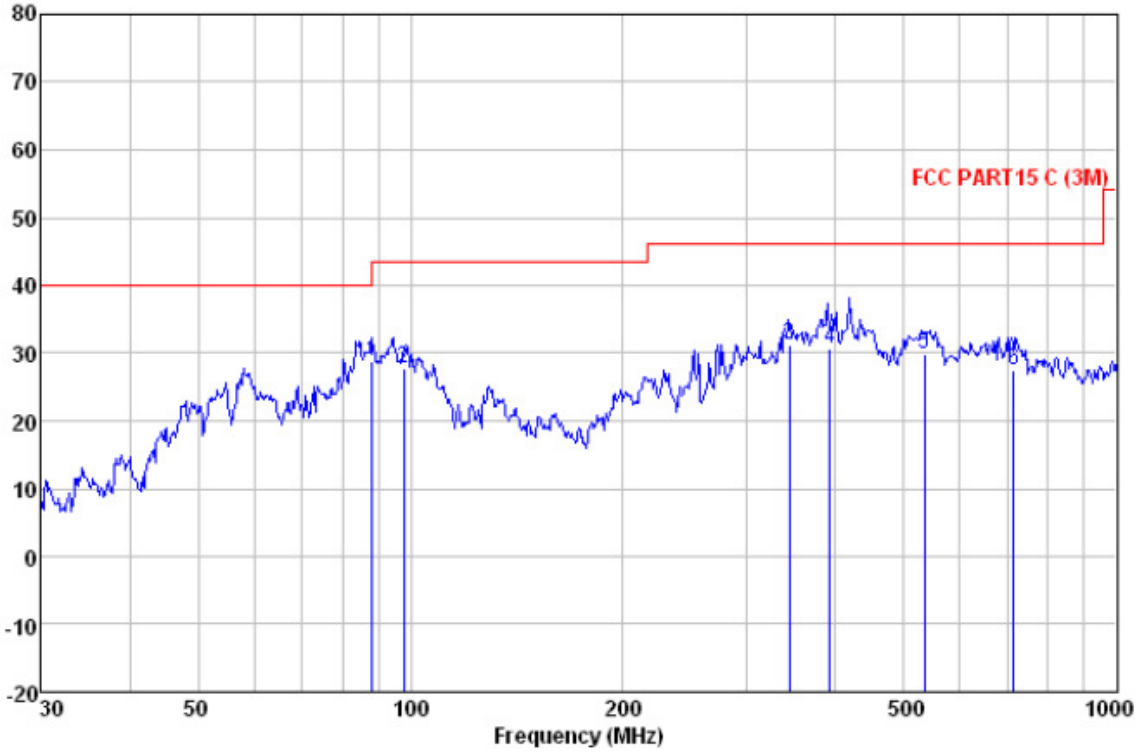
Test at Channel 9 (2.452 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
88.342	45.54	11.47	1.32	29.66	28.67	43.50	-14.83	QP
97.798	43.00	13.03	1.41	29.69	27.75	43.50	-15.75	QP
344.386	43.99	14.20	2.54	29.60	31.13	46.00	-14.87	QP
392.095	42.78	14.87	2.69	29.60	30.74	46.00	-15.26	QP
533.832	39.01	17.26	3.09	29.46	29.90	46.00	-16.10	QP
714.173	34.13	19.00	3.58	29.28	27.43	46.00	-18.57	QP

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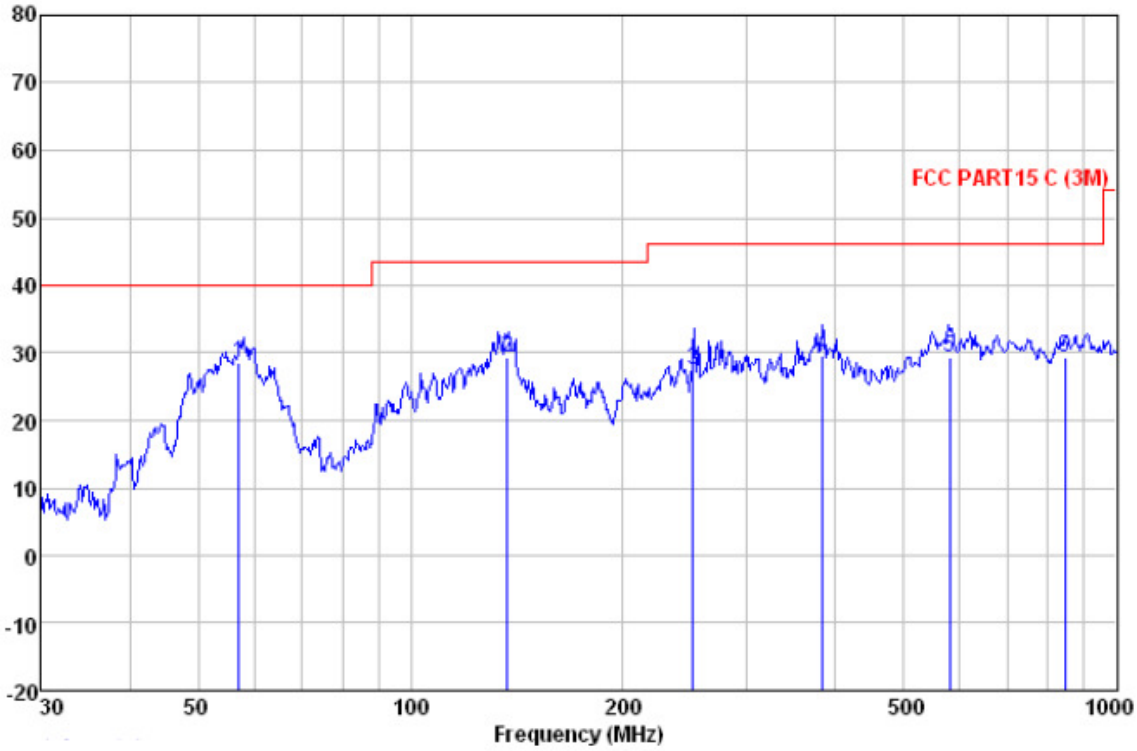
Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
57.191	44.19	12.87	1.09	29.54	28.61	40.00	-11.39	QP
136.939	49.00	8.40	1.65	29.70	29.35	43.50	-14.15	QP
251.180	42.84	12.07	2.15	29.56	27.50	46.00	-18.50	QP
383.932	41.77	14.68	2.66	29.60	29.51	46.00	-16.49	QP
580.703	37.31	18.14	3.21	29.42	29.24	46.00	-16.76	QP
845.088	33.51	20.55	3.96	28.78	29.24	46.00	-16.76	QP

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1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4904.00	64.18	31.59	11.29	49.30	57.76	74.00	V
7356.00	54.49	36.51	13.34	49.71	54.63	74.00	V
4904.00	64.87	31.59	11.29	49.30	58.45	74.00	H
7356.00	59.30	36.51	13.34	49.71	59.44	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4904.00	57.18	31.59	11.29	49.30	50.76	54.00	V
7356.00	47.49	36.51	13.34	49.71	47.63	54.00	V
4904.00	54.87	31.59	11.29	49.30	48.45	54.00	H
7356.00	50.30	36.51	13.34	49.71	50.44	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Loss –Preamplifier Factor.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

Remark:

1) .For this intentional radiator operates below 25 GHz. The spectrum shall be investigated to the tenth harmonics of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 3rd harmonic.
2). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
3). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

Test result: The unit does meet the FCC requirements.

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7.7.2 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 6.4, 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

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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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Test Result:

7.7.2.1 802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.32	27.93	6.52	49.47	39.30	74.00	Vertical
2390.000	57.79	27.63	6.55	49.45	42.52	74.00	V
2483.500	55.71	27.55	6.99	49.42	40.83	74.00	V
2500.000	54.94	27.55	7.02	49.42	40.09	74.00	V
2310.000	54.83	27.93	6.52	49.47	39.81	74.00	Horizontal
2390.000	55.85	27.63	6.55	49.45	40.58	74.00	H
2483.500	55.82	27.55	6.99	49.42	40.94	74.00	H
2500.000	56.45	27.55	7.02	49.42	41.60	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	49.32	27.93	6.52	49.47	34.30	54.00	Vertical
2390.000	50.79	27.63	6.55	49.45	35.52	54.00	V
2483.500	49.71	27.55	6.99	49.42	34.83	54.00	V
2500.000	49.94	27.55	7.02	49.42	35.09	54.00	V
2310.000	49.83	27.93	6.52	49.47	34.81	54.00	Horizontal
2390.000	50.85	27.63	6.55	49.45	35.58	54.00	H
2483.500	48.82	27.55	6.99	49.42	33.94	54.00	H
2500.000	50.45	27.55	7.02	49.42	35.60	54.00	H

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Test at Channel 6 (2.437 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	55.35	27.93	6.52	49.47	40.33	74.00	Vertical
2390.000	55.91	27.63	6.55	49.45	40.64	74.00	V
2483.500	55.04	27.55	6.99	49.42	40.16	74.00	V
2500.000	55.74	27.55	7.02	49.42	40.89	74.00	V
2310.000	53.96	27.93	6.52	49.47	38.94	74.00	Horizontal
2390.000	57.30	27.63	6.55	49.45	42.03	74.00	H
2483.500	54.91	27.55	6.99	49.42	40.03	74.00	H
2500.000	53.75	27.55	7.02	49.42	38.90	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	49.35	27.93	6.52	49.47	34.33	54.00	Vertical
2390.000	50.91	27.63	6.55	49.45	35.64	54.00	V
2483.500	50.04	27.55	6.99	49.42	35.16	54.00	V
2500.000	50.74	27.55	7.02	49.42	35.89	54.00	V
2310.000	47.96	27.93	6.52	49.47	32.94	54.00	Horizontal
2390.000	48.51	27.63	6.55	49.45	33.24	54.00	H
2483.500	48.78	27.55	6.99	49.42	33.90	54.00	H
2500.000	49.06	27.55	7.02	49.42	34.21	54.00	H

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Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.39	27.93	6.52	49.47	39.37	74.00	Vertical
2390.000	60.03	27.63	6.55	49.45	44.76	74.00	V
2483.500	56.80	27.55	6.99	49.42	41.92	74.00	V
2500.000	55.44	27.55	7.02	49.42	40.59	74.00	V
2310.000	53.69	27.93	6.52	49.47	38.67	74.00	Horizontal
2390.000	57.30	27.63	6.55	49.45	42.03	74.00	H
2483.500	55.82	27.55	6.99	49.42	40.94	74.00	H
2500.000	54.06	27.55	7.02	49.42	39.21	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	50.39	27.93	6.52	49.47	35.37	54.00	Vertical
2390.000	54.03	27.63	6.55	49.45	38.76	54.00	V
2483.500	51.80	27.55	6.99	49.42	36.92	54.00	V
2500.000	48.66	27.99	7.32	49.38	34.59	54.00	V
2310.000	49.69	27.93	6.52	49.47	34.67	54.00	Horizontal
2390.000	51.30	27.63	6.55	49.45	36.03	54.00	H
2483.500	49.82	27.55	6.99	49.42	34.94	54.00	H
2500.000	49.06	27.55	7.02	49.42	34.21	54.00	H

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7.7.2.2 802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	55.87	27.93	6.52	49.47	40.85	74.00	Vertical
2390.000	59.07	27.63	6.55	49.45	43.80	74.00	V
2483.500	56.24	27.55	6.99	49.42	41.36	74.00	V
2500.000	57.12	27.55	7.02	49.42	42.27	74.00	V
2310.000	55.81	27.93	6.52	49.47	40.79	74.00	Horizontal
2390.000	57.47	27.63	6.55	49.45	42.20	74.00	H
2483.500	54.39	27.55	6.99	49.42	39.51	74.00	H
2500.000	57.84	27.55	7.02	49.42	42.99	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	50.67	27.93	6.52	49.47	35.65	54.00	Vertical
2390.000	53.01	27.63	6.55	49.45	37.74	54.00	V
2483.500	53.42	27.55	6.99	49.42	38.54	54.00	V
2500.000	52.07	27.55	7.02	49.42	37.22	54.00	V
2310.000	50.61	27.93	6.52	49.47	35.59	54.00	Horizontal
2390.000	53.07	27.63	6.55	49.45	37.80	54.00	H
2483.500	47.63	27.55	6.99	49.42	32.75	54.00	H
2500.000	51.63	27.55	7.02	49.42	36.78	54.00	H

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Test at Channel 6 (2.437 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	56.48	27.93	6.52	49.47	41.46	74.00	Vertical
2390.000	53.50	27.63	6.55	49.45	38.23	74.00	V
2483.500	56.45	27.55	6.99	49.42	41.57	74.00	V
2500.000	56.44	27.55	7.02	49.42	41.59	74.00	V
2310.000	53.83	27.93	6.52	49.47	38.81	74.00	Horizontal
2390.000	58.28	27.63	6.55	49.45	43.01	74.00	H
2483.500	55.09	27.55	6.99	49.42	40.21	74.00	H
2500.000	54.68	27.55	7.02	49.42	39.83	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	49.37	27.93	6.52	49.47	34.35	54.00	Vertical
2390.000	50.62	27.63	6.55	49.45	35.35	54.00	V
2483.500	49.62	27.55	6.99	49.42	34.74	54.00	V
2500.000	51.07	27.55	7.02	49.42	36.22	54.00	V
2310.000	48.21	27.93	6.52	49.47	33.19	54.00	Horizontal
2390.000	49.53	27.63	6.55	49.45	34.26	54.00	H
2483.500	49.36	27.55	6.99	49.42	34.48	54.00	H
2500.000	50.75	27.55	7.02	49.42	35.90	54.00	H

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Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	53.55	27.93	6.52	49.47	38.53	74.00	Vertical
2390.000	61.12	27.63	6.55	49.45	45.85	74.00	V
2483.500	55.92	27.55	6.99	49.42	41.04	74.00	V
2500.000	56.35	27.55	7.02	49.42	41.50	74.00	V
2310.000	53.98	27.93	6.52	49.47	38.96	74.00	Horizontal
2390.000	56.85	27.63	6.55	49.45	41.58	74.00	H
2483.500	57.64	27.55	6.99	49.42	42.76	74.00	H
2500.000	53.68	27.55	7.02	49.42	38.83	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	51.34	27.93	6.52	49.47	36.32	54.00	Vertical
2390.000	56.82	27.63	6.55	49.45	41.55	54.00	V
2483.500	52.68	27.55	6.99	49.42	37.80	54.00	V
2500.000	48.00	27.99	7.32	49.38	33.93	54.00	V
2310.000	49.49	27.93	6.52	49.47	34.47	54.00	Horizontal
2390.000	51.78	27.63	6.55	49.45	36.51	54.00	H
2483.500	49.34	27.55	6.99	49.42	34.46	54.00	H
2500.000	50.55	27.55	7.02	49.42	35.70	54.00	H

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7.7.2.3 802.11n(HT20) mode with 72.2Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	56.43	27.93	6.52	49.47	41.41	74.00	Vertical
2390.000	60.19	27.63	6.55	49.45	44.92	74.00	V
2483.500	59.68	27.55	6.99	49.42	44.80	74.00	V
2500.000	58.12	27.55	7.02	49.42	43.27	74.00	V
2310.000	56.66	27.93	6.52	49.47	41.64	74.00	Horizontal
2390.000	59.47	27.63	6.55	49.45	44.20	74.00	H
2483.500	55.39	27.55	6.99	49.42	40.51	74.00	H
2500.000	59.62	27.55	7.02	49.42	44.77	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	52.34	27.93	6.52	49.47	37.32	54.00	Vertical
2390.000	56.04	27.63	6.55	49.45	40.77	54.00	V
2483.500	55.07	27.55	6.99	49.42	40.19	54.00	V
2500.000	54.67	27.55	7.02	49.42	39.82	54.00	V
2310.000	53.07	27.93	6.52	49.47	38.05	54.00	Horizontal
2390.000	54.68	27.63	6.55	49.45	39.41	54.00	H
2483.500	49.69	27.55	6.99	49.42	34.81	54.00	H
2500.000	53.20	27.55	7.02	49.42	38.35	54.00	H

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Test at Channel 6 (2.437 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.21	27.93	6.52	49.47	39.19	74.00	Vertical
2390.000	54.87	27.63	6.55	49.45	39.60	74.00	V
2483.500	57.10	27.55	6.99	49.42	42.22	74.00	V
2500.000	58.43	27.55	7.02	49.42	43.58	74.00	V
2310.000	55.86	27.93	6.52	49.47	40.84	74.00	Horizontal
2390.000	61.09	27.63	6.55	49.45	45.82	74.00	H
2483.500	56.74	27.55	6.99	49.42	41.86	74.00	H
2500.000	57.04	27.55	7.02	49.42	42.19	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	52.09	27.93	6.52	49.47	37.07	54.00	Vertical
2390.000	51.07	27.63	6.55	49.45	35.80	54.00	V
2483.500	48.23	27.55	6.99	49.42	33.35	54.00	V
2500.000	50.92	27.55	7.02	49.42	36.07	54.00	V
2310.000	49.03	27.93	6.52	49.47	34.01	54.00	Horizontal
2390.000	47.09	27.63	6.55	49.45	31.82	54.00	H
2483.500	48.54	27.55	6.99	49.42	33.66	54.00	H
2500.000	49.32	27.55	7.02	49.42	34.47	54.00	H

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Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.71	27.93	6.52	49.47	39.69	74.00	Vertical
2390.000	60.12	27.63	6.55	49.45	44.85	74.00	V
2483.500	56.48	27.55	6.99	49.42	41.60	74.00	V
2500.000	57.69	27.55	7.02	49.42	42.84	74.00	V
2310.000	54.03	27.93	6.52	49.47	39.01	74.00	Horizontal
2390.000	57.65	27.63	6.55	49.45	42.38	74.00	H
2483.500	58.34	27.55	6.99	49.42	43.46	74.00	H
2500.000	57.64	27.55	7.02	49.42	42.79	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	53.18	27.93	6.52	49.47	38.16	54.00	Vertical
2390.000	49.33	27.63	6.55	49.45	34.06	54.00	V
2483.500	53.62	27.55	6.99	49.42	38.74	54.00	V
2500.000	52.64	27.55	7.02	49.42	37.79	54.00	V
2310.000	50.62	27.93	6.52	49.47	35.60	54.00	Horizontal
2390.000	52.18	27.63	6.55	49.45	36.91	54.00	H
2483.500	50.62	27.55	6.99	49.42	35.74	54.00	H
2500.000	52.68	27.55	7.02	49.42	37.83	54.00	H

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7.7.2.4 802.11n(HT40) mode with 150Mbps data rate

Test at Channel 3 (2.422 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	55.52	27.93	6.52	49.47	40.50	74.00	Vertical
2390.000	58.05	27.63	6.55	49.45	42.78	74.00	V
2483.500	55.75	27.55	6.99	49.42	40.87	74.00	V
2500.000	54.94	27.55	7.02	49.42	40.09	74.00	V
2310.000	54.36	27.93	6.52	49.47	39.34	74.00	Horizontal
2390.000	54.51	27.63	6.55	49.45	39.24	74.00	H
2483.500	57.28	27.55	6.99	49.42	42.40	74.00	H
2500.000	56.80	27.55	7.02	49.42	41.95	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	50.52	27.93	6.52	49.47	35.50	54.00	Vertical
2390.000	52.05	27.63	6.55	49.45	36.78	54.00	V
2483.500	50.75	27.55	6.99	49.42	35.87	54.00	V
2500.000	48.94	27.55	7.02	49.42	34.09	54.00	V
2310.000	49.36	27.93	6.52	49.47	34.34	54.00	Horizontal
2390.000	49.34	27.63	6.55	49.45	34.07	54.00	H
2483.500	50.28	27.55	6.99	49.42	35.40	54.00	H
2500.000	50.80	27.55	7.02	49.42	35.95	54.00	H

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Test at Channel 6 (2.437 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.95	27.93	6.52	49.47	39.93	74.00	Vertical
2390.000	58.68	27.63	6.55	49.45	43.41	74.00	V
2483.500	58.02	27.55	6.99	49.42	43.14	74.00	V
2500.000	55.55	27.55	7.02	49.42	40.70	74.00	V
2310.000	53.37	27.93	6.52	49.47	38.35	74.00	Horizontal
2390.000	54.46	27.63	6.55	49.45	39.19	74.00	H
2483.500	53.77	27.55	6.99	49.42	38.89	74.00	H
2500.000	53.16	27.55	7.02	49.42	38.31	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	49.95	27.93	6.52	49.47	34.93	54.00	Vertical
2390.000	52.68	27.63	6.55	49.45	37.41	54.00	V
2483.500	51.02	27.55	6.99	49.42	36.14	54.00	V
2500.000	49.55	27.55	7.02	49.42	34.70	54.00	V
2310.000	48.37	27.93	6.52	49.47	33.35	54.00	Horizontal
2390.000	48.46	27.63	6.55	49.45	33.19	54.00	H
2483.500	47.77	27.55	6.99	49.42	32.89	54.00	H
2500.000	48.16	27.55	7.02	49.42	33.31	54.00	H

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Test at Channel 9 (2.452 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	54.85	27.93	6.52	49.47	39.83	74.00	Vertical
2390.000	58.68	27.63	6.55	49.45	43.41	74.00	V
2483.500	54.78	27.55	6.99	49.42	39.90	74.00	V
2500.000	55.74	27.55	7.02	49.42	40.89	74.00	V
2310.000	53.37	27.93	6.52	49.47	38.35	74.00	Horizontal
2390.000	54.08	27.63	6.55	49.45	38.81	74.00	H
2483.500	53.78	27.55	6.99	49.42	38.90	74.00	H
2500.000	53.27	27.55	7.02	49.42	38.42	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	49.85	27.93	6.52	49.47	34.83	54.00	Vertical
2390.000	51.68	27.63	6.55	49.45	36.41	54.00	V
2483.500	49.78	27.55	6.99	49.42	34.90	54.00	V
2500.000	49.74	27.55	7.02	49.42	34.89	54.00	V
2310.000	48.37	27.93	6.52	49.47	33.35	54.00	Horizontal
2390.000	49.08	27.63	6.55	49.45	33.81	54.00	H
2483.500	47.78	27.55	6.99	49.42	32.90	54.00	H
2500.000	48.27	27.55	7.02	49.42	33.42	54.00	H

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7.8 Band Edges Requirement

Test Requirement: FCC Part 15 C section 15.247

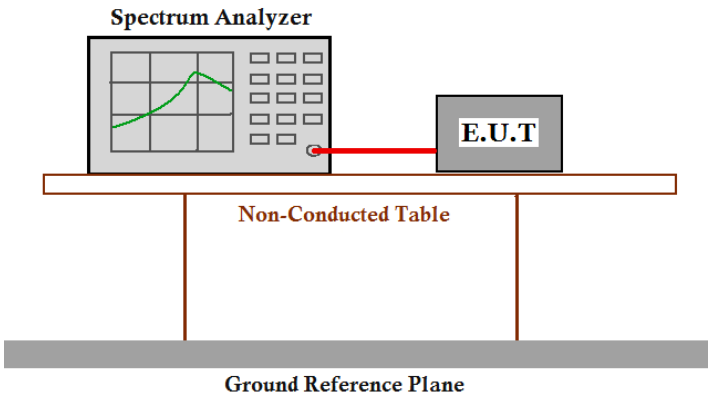
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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 6.9.2

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 span to encompass the entire emission bandwidth (EBW) of the signal.
3. RBW⩾1% of spectrum analyzer display span; VBW⩾RBW.
4. Sweep=auto; Detector function=Peak; Trace=Max hold.
5. Measure the Conducted Spurious Emissions and Radiated Emissions of the test frequency with special test status.
6. Repeat until all the test status is investigated.
7. Report the worse.

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Test result with plots as follows:

The band edges was measured and recorded Result:

The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

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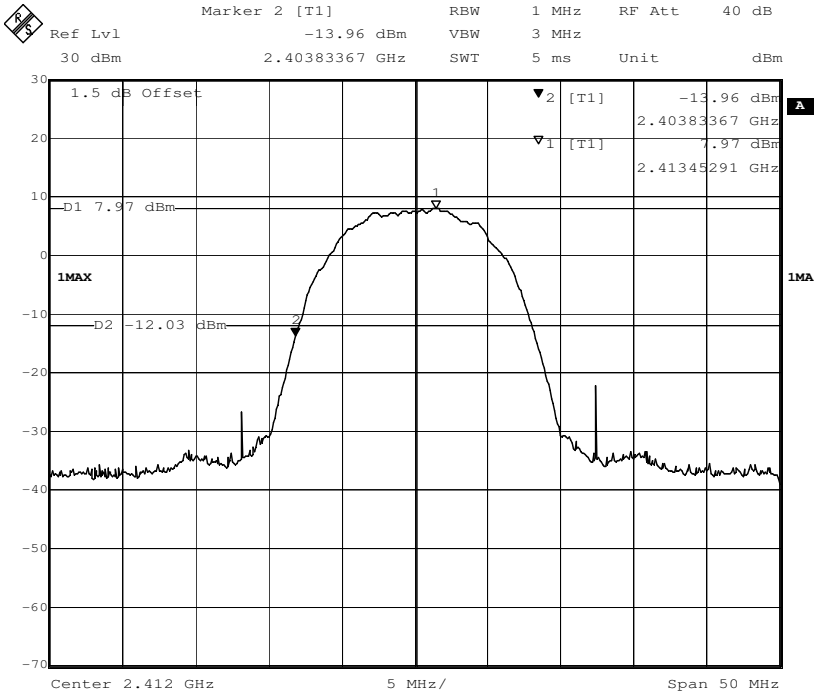
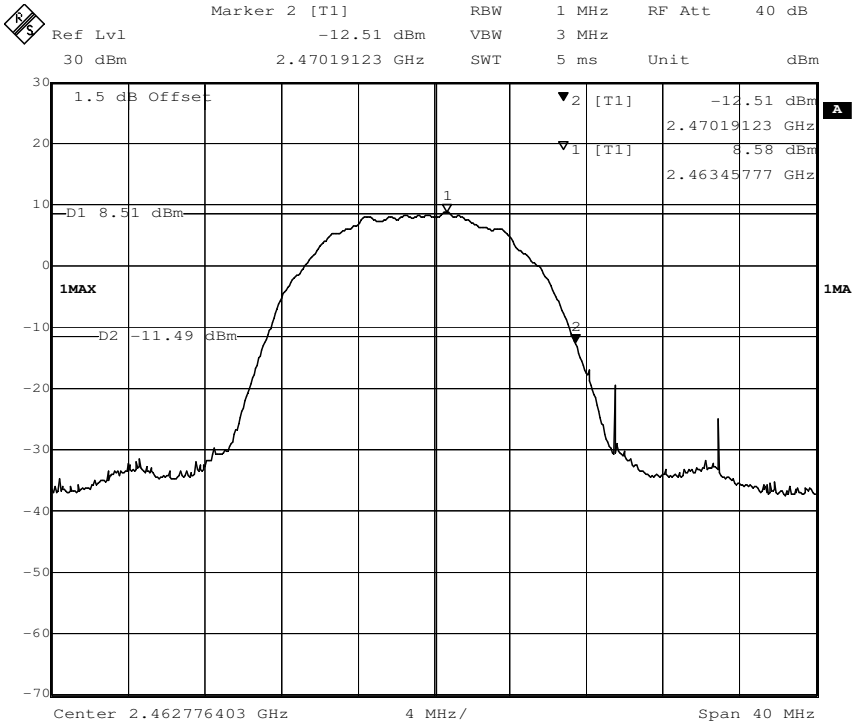
Result plot as follows:

802.11b mode with 11 Mbps data rate

Channel1: 2.412 GHz



Channel 11: 2.462 GHz



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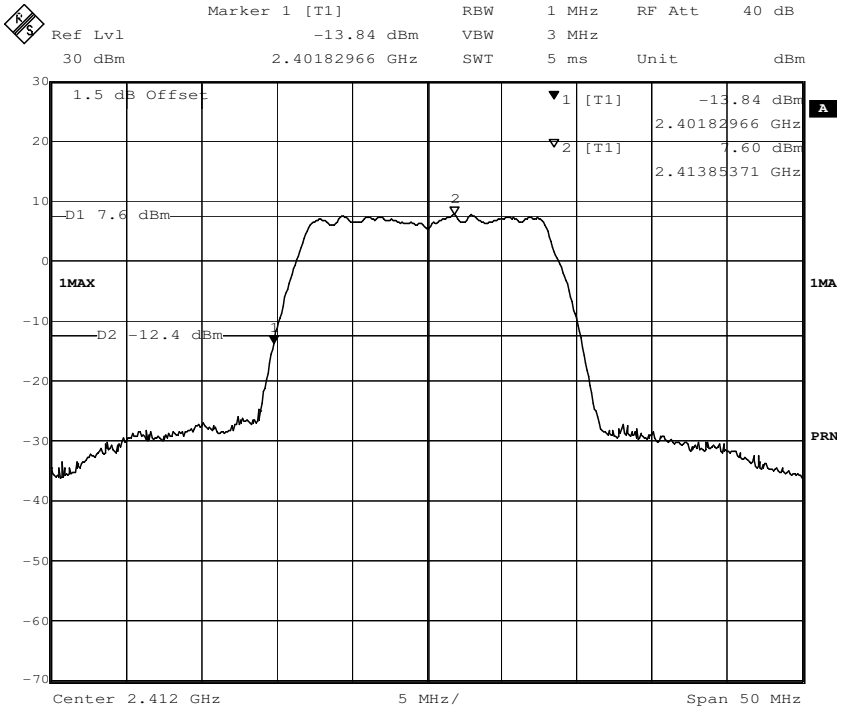
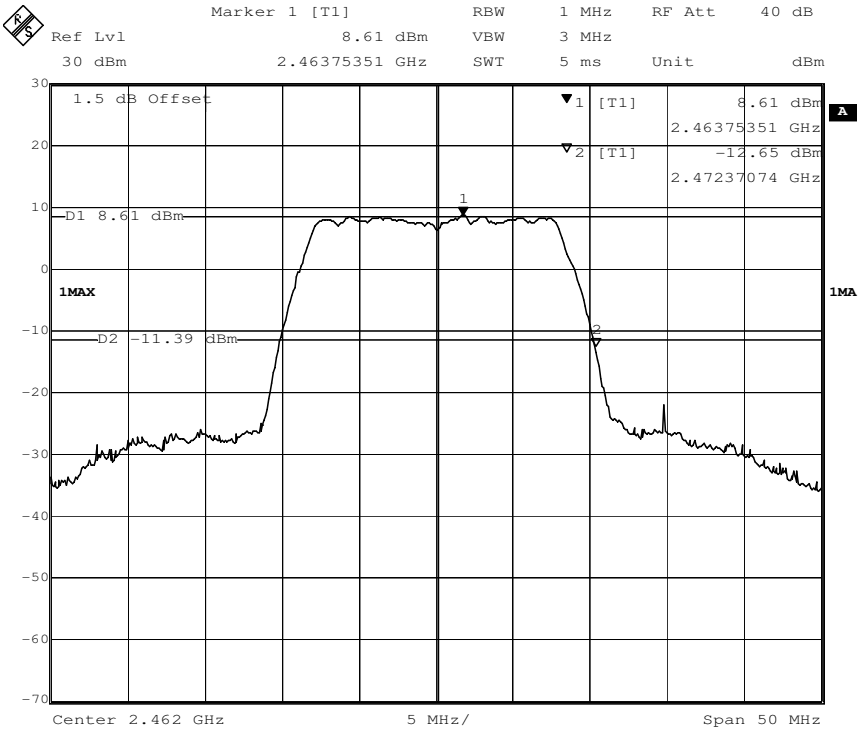
802.11g mode with 54 Mbps data rate

Channel1: 2.412 GHz



Channel 11: 2.462 GHz



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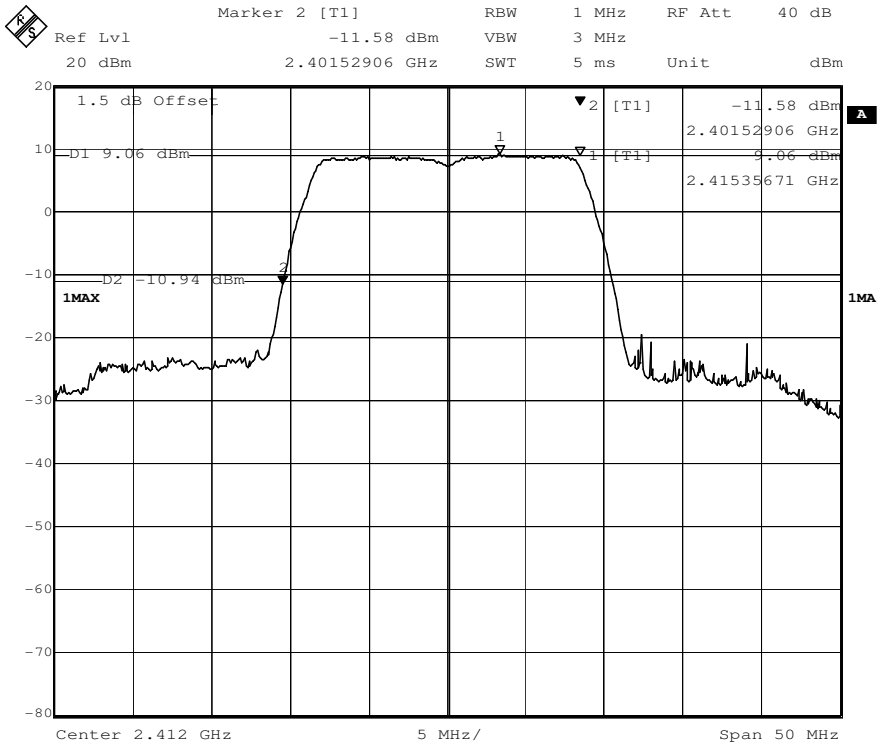
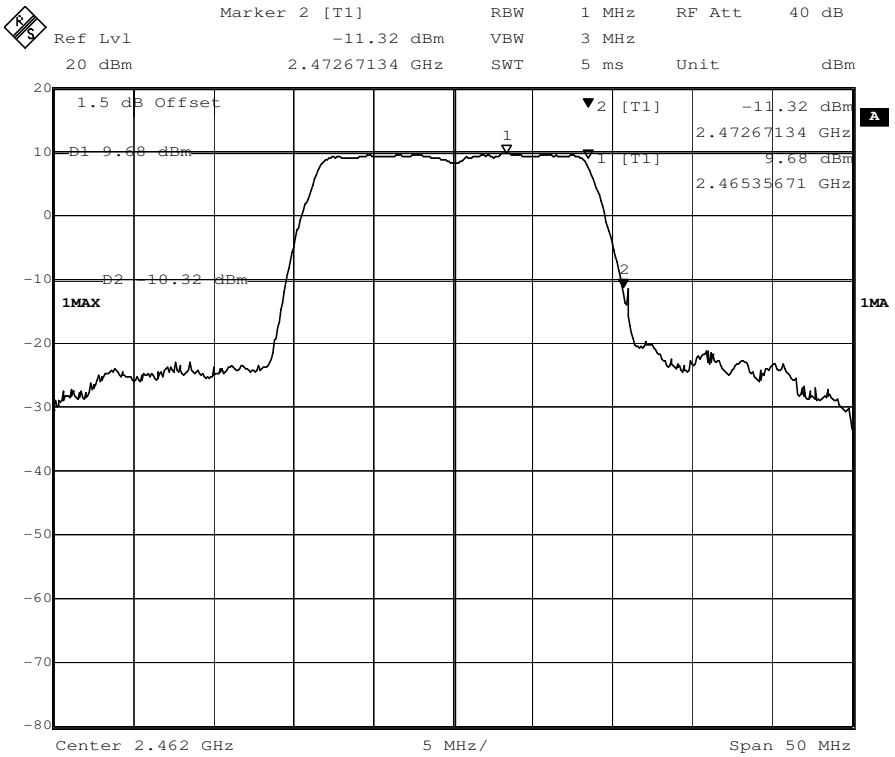
802.11n(HT20) mode with 72.2Mbps data rate

Channel1: 2.412 GHz



Channel 11: 2.462 GHz



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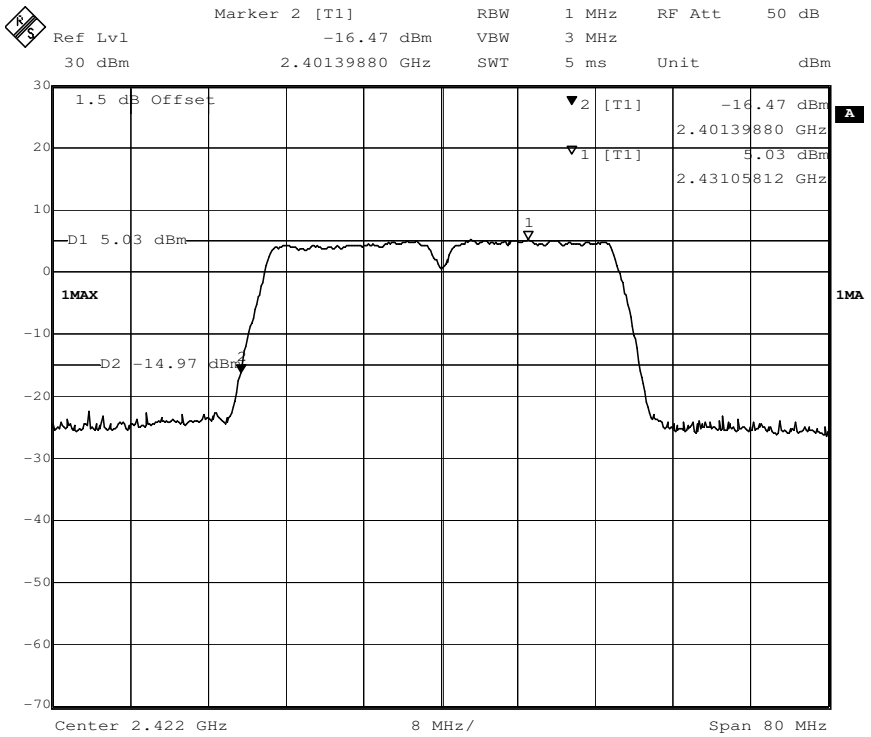
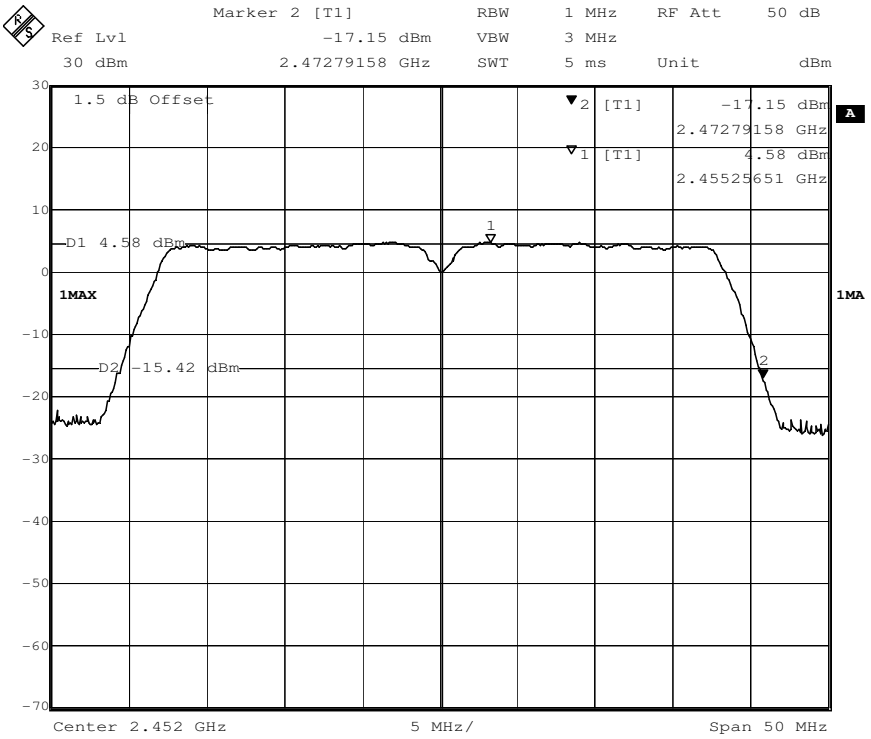
802.11n(HT40) mode with 150Mbps data rate

Channel 3: 2.422 GHz



Channel 9: 2.452 GHz



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7.9 Conducted Emissions at Mains Terminals 150 kHz to 30MHz

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 (9kHz Resolution Bandwidth)

Test Limit

Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	Class B Limit (dBuV)	
	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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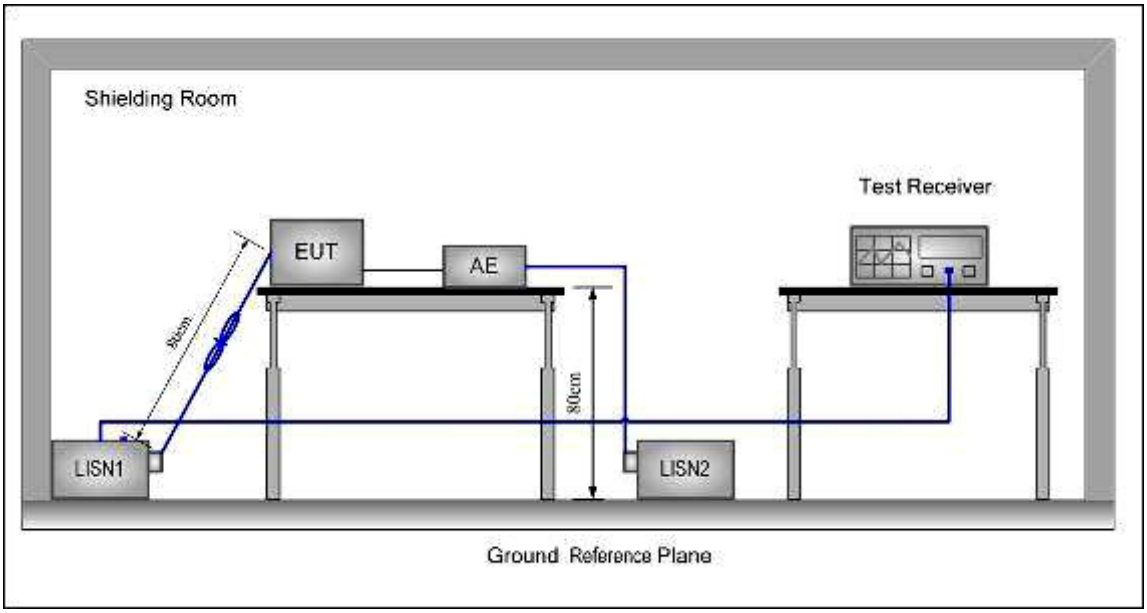
Test Configuration:



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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7.9.1 Measurement Data

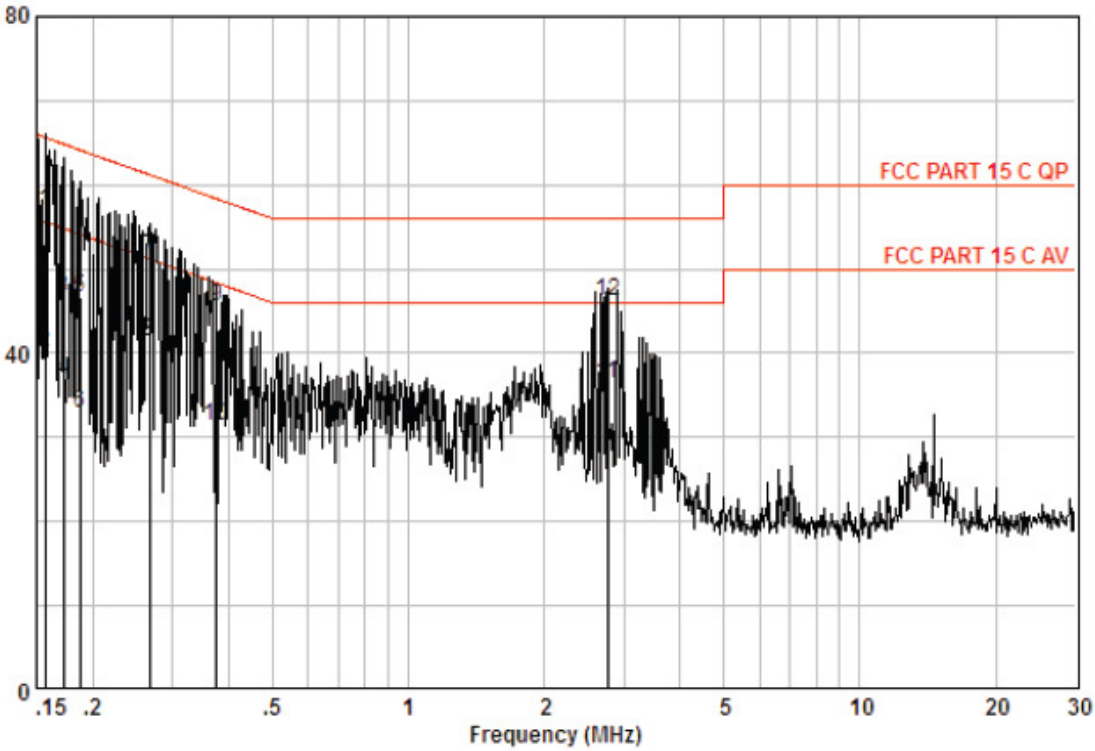
An initial pre-scan was performed on the live and neutral lines with peak detector.

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:

Neutral Line

Level(dB μ V)



Measure data:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.156	47.32	0.08	9.51	56.91	65.65	-8.74	QP
0.156	30.57	0.08	9.51	40.16	55.65	-15.49	AVERAGE
0.172	37.00	0.09	9.51	46.61	64.86	-18.25	QP
0.172	27.27	0.09	9.51	36.88	54.86	-17.98	AVERAGE
0.187	37.00	0.11	9.52	46.63	64.15	-17.52	QP
0.187	23.18	0.11	9.52	32.81	54.15	-21.34	AVERAGE
0.267	41.76	0.11	9.52	51.39	61.20	-9.81	QP
0.267	31.84	0.11	9.52	41.47	51.20	-9.73	AVERAGE
0.375	35.98	0.07	9.56	45.61	58.39	-12.78	QP
0.375	21.68	0.07	9.56	31.31	48.39	-17.08	AVERAGE
2.765	26.74	0.13	9.62	36.49	46.00	-9.51	AVERAGE
2.765	36.56	0.13	9.62	46.31	56.00	-9.69	QP

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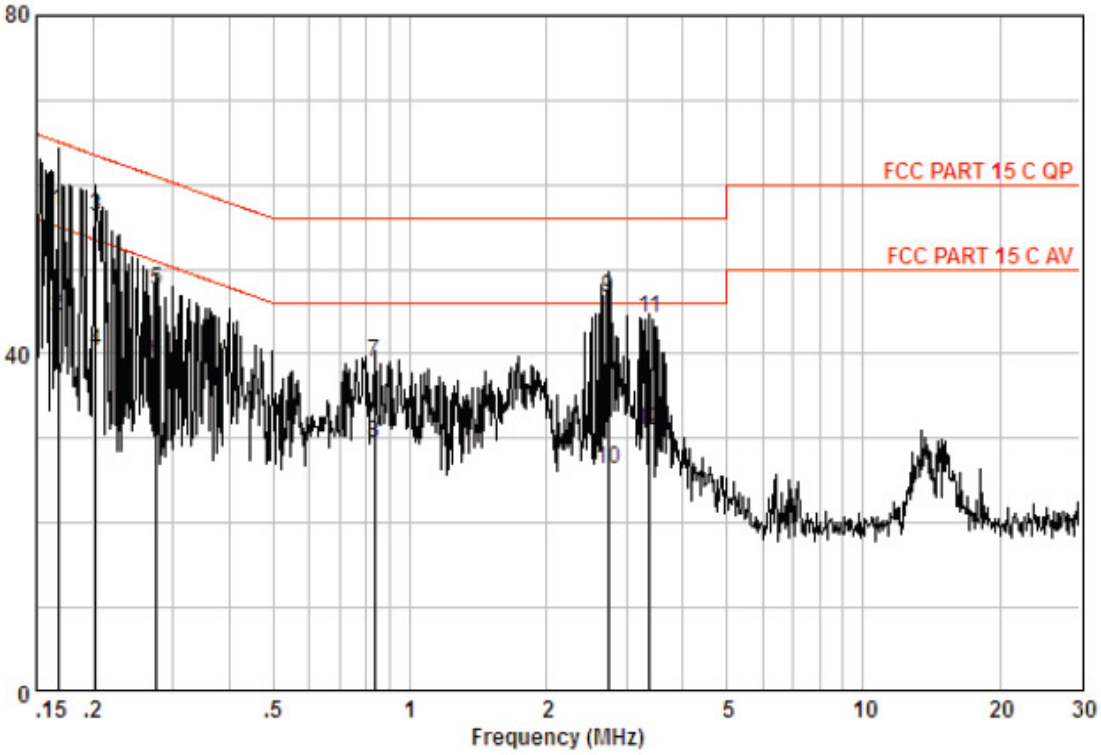
Live Line

Level(dB μ V)



Measure result:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.168	47.28	0.09	9.49	56.86	65.08	-8.22	QP
0.168	34.96	0.09	9.49	44.54	55.08	-10.54	AVERAGE
0.203	46.72	0.12	9.50	56.34	63.49	-7.15	QP
0.203	30.70	0.12	9.50	40.32	53.49	-13.17	AVERAGE
0.276	37.88	0.10	9.51	47.49	60.94	-13.45	QP
0.276	29.55	0.10	9.51	39.16	50.94	-11.78	AVERAGE
0.835	29.48	0.06	9.54	39.08	56.00	-16.92	QP
0.835	19.88	0.06	9.54	29.48	46.00	-16.52	Average
2.736	36.96	0.13	9.57	46.66	56.00	-9.34	QP
2.736	16.57	0.13	9.57	26.27	46.00	-19.73	AVERAGE
3.381	34.58	0.15	9.57	44.31	56.00	-11.69	QP
3.381	21.21	0.15	9.57	30.94	46.00	-15.06	AVERAGE

--End of Report--

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