



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

198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technological
Development District, Guangzhou, China 510663
Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: ee.guangzhou@sgs.com

Report No.: GZEM160400260001
Page: 1 of 91
FCC ID: R6Z2016777325

TEST REPORT

The following sample(s) was/were submitted and identified on behalf of the client as:

Application No.:	GZEM1604002600CR
Applicant:	SHANTOU CITY HAPPY COW TOYS INDUSTRIAL CO., LTD.
FCC ID:	R6Z2016777325
Product Description:	Remote control car series
Model No.:	1100, 777-128, 777-325, 777-270, 777-650, 777-651, 777-652, 777-653, 777-655, 777-656, 777-657, 777-658, 777-659, 777-660, 777-369, 777-370, 777-371, 777-372, 777-373, 777-374, 777-375, 777-376, 777-377, 777-378, 777-379, 777-380, 777-358, 777-359, 777-360, 777-339♣
♣	Please refer to section 3 of this report for further details.
Supplier:	GOLDLIGHT TOYS FACTORY
Standards:	CFR 47 FCC PART 15 SUBPART C:2015 section 15.247
Date of Receipt:	2016-05-03
Date of Test:	2016-06-07 to 2016-06-29
Date of Issue:	2016-07-04
Test Result :	Pass*

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.



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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2016-07-04		Original Report

Authorized for issue by:			
Tested By			2016-06-07 to 2016-06-29 Date
	(Lily Kuang) / Project Engineer		
Prepared By			2016-07-04 Date
	(June Chen) / Clerk		
Checked By			2016-07-04 Date
	(Little Xiang) / Reviewer		



3 Test Summary

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

Remark:

EUT: In this whole report EUT means Equipment Under Test.

N/A: not applicable. Refer to the relative section for the details.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

♣ **Model No.:** 1100, 777-128, 777-325, 777-270, 777-650, 777-651, 777-652, 777-653, 777-655, 777-656, 777-657, 777-658, 777-659, 777-660, 777-369, 777-370, 777-371, 777-372, 777-373, 777-374, 777-375, 777-376, 777-377, 777-378, 777-379, 777-380, 777-358, 777-359, 777-360, 777-339

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the appearance and model name.

Therefore only one model 777-325 was tested in this report.



4 Contents

1	Cover Page	1
2	Version	2
3	Test Summary	3
4	Contents	4
5	General Information.....	5
5.1	Client Information.....	5
5.2	General Description of E.U.T.	5
5.3	Details of E.U.T.	5
5.4	Description of Support Units.....	6
5.5	Deviation from Standards	6
5.6	Abnormalities from Standard Conditions	6
5.7	Other Information Requested by the Customer.....	6
5.8	Test Location.....	6
5.9	Test Facility	7
6	Equipment List.....	8
7	Test Results.....	9
7.1	E.U.T. test conditions	9
7.2	Antenna Requirement.....	12
7.3	6 dB Bandwidth.....	13
7.4	Maximum Peak Output Power.....	20
7.5	Peak Power Spectral Density	28
7.6	Conducted Spurious Emissions.....	40
7.7	Band Edges Requirement	84



5 General Information

5.1 Client Information

Applicant: SHANTOU CITY HAPPY COW TOYS INDUSTRIAL CO., LTD.
Address of Applicant: 7TH Bldg., Chousha Garth, Shanfen Road., Chenghai, Shantou, G.D.
China

5.2 General Description of E.U.T.

Product Description: Remote control car series
Model No.: 777-325

5.3 Details of E.U.T.

Operating Frequency 2412 MHz to 2462 MHz for 802.11b/g/n(HT20)
Type of Modulation: 802.11b: DSSS(CCK/QPSK/BPSK)
802.11g: OFDM(BPSK/QPSK/16QAM/64QAM)
802.11n: OFDM (BPSK/QPSK/16QAM/64QAM)
802.11b :1/2/5.5/11 Mbps
Transmit Data Rate: 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 Mbps
Number of Channels 11 Channels for 802.11b/g/n(HT20)
Channel Separation: 5 MHz
Antenna Type integrated antenna
Antenna gain: 3.0 dBi
Function: Wireless Wi-Fi for car
Test Software: serial port debugging tool
Power Supply: NI-MH 7.2V 1300mAh rechargeable battery



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	T40	99-FBAF9 03/09
Router	TP-LINK	TL-WR841N	9727201635

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

5.5 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 Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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 accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

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

- **ACMA**

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

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

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

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

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

- **FCC (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 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



6 Equipment List

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal. Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-12-05	2016-12-04
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2016-02-01	2017-01-31
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2016-02-01	2017-01-31
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2016-04-19	2018-04-18
EMC2025	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3372	2014-07-14	2017-07-13
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2013-08-31	2016-08-30
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-05-04	2017-05-03
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2013-08-31	2016-08-30
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2016-01-25	2017-01-24
EMC2065	Amplifier	HP	8447F	N/A	2015-07-18	2016-07-17
EMC2086	PRE AMPLIFIER MH648A	ANRITSU CORP	MH648A	N/A	2015-12-19	2016-12-18
EMC2063	Pre-amplifier 1GHz-26GHz	Compliance Direction Systems Lnc.	PAP-1G26-48	6279.628	2016-01-06	2017-01-05
EMC0523	Active Loop Antenna	EMCO	6502	42963	2016-02-27	2018-02-26
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014-05-26	2017-05-25
EMC2079	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	009	2016-01-25	2017-01-24
EMC2069	2.4GHz Filter	Micro-Tronics	BRM 50702	149	2016-01-25	2017-01-24
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2016-04-30	2018-04-29

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal. Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2015-09-17	2016-09-16
EMC0007	DMM	Fluke	73	70671122	2015-09-17	2016-09-16



7 Test Results

7.1 E.U.T. test conditions

Test Voltage:	DC 7.2V
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:



Number of fundamental frequencies to be tested in EUT transmit band

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

Frequency range of radiated emission measurements

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



EUT channels and frequencies list:

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

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

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

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

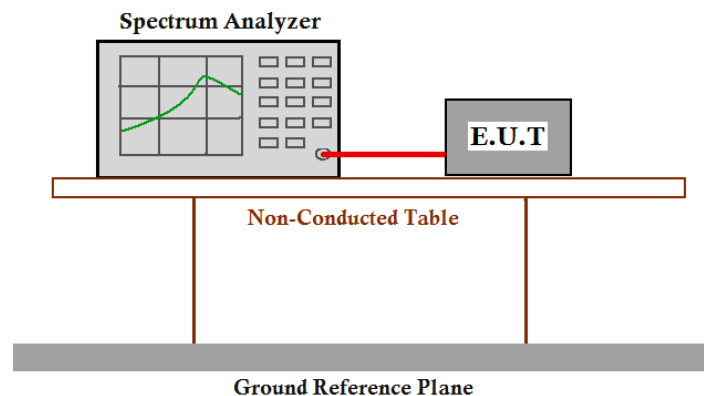
The antenna is an integral and no consideration of replacement. The best case gain of the antenna is 3.0 dBi.



Test result: The unit does meet the FCC requirements.

7.3 6 dB Bandwidth

- Test Requirement:** FCC Part 15 C section 15.247
 (a)(2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
- Test Method:** ANSI C63.10: Clause 11.8
- Test Status:** Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
- Test Configuration:**



Test Procedure:

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



Channel No.	Frequency (MHz)	Mode	Data Rate	Measured 6dB bandwidth (MHz)	Limit	Result
1	2412	802.11b	11 Mbps	10.220	≥500KHz	Pass
7	2442		11 Mbps	10.020		Pass
11	2462		11 Mbps	10.120		Pass
1	2412	802.11g	54 Mbps	16.633	≥500KHz	Pass
7	2442		54 Mbps	16.633		Pass
11	2462		54 Mbps	16.633		Pass
1	2412	802.11n (HT20)	65 Mbps	17.835	≥500KHz	Pass
7	2442		65 Mbps	17.835		Pass
11	2462		65 Mbps	17.835		Pass

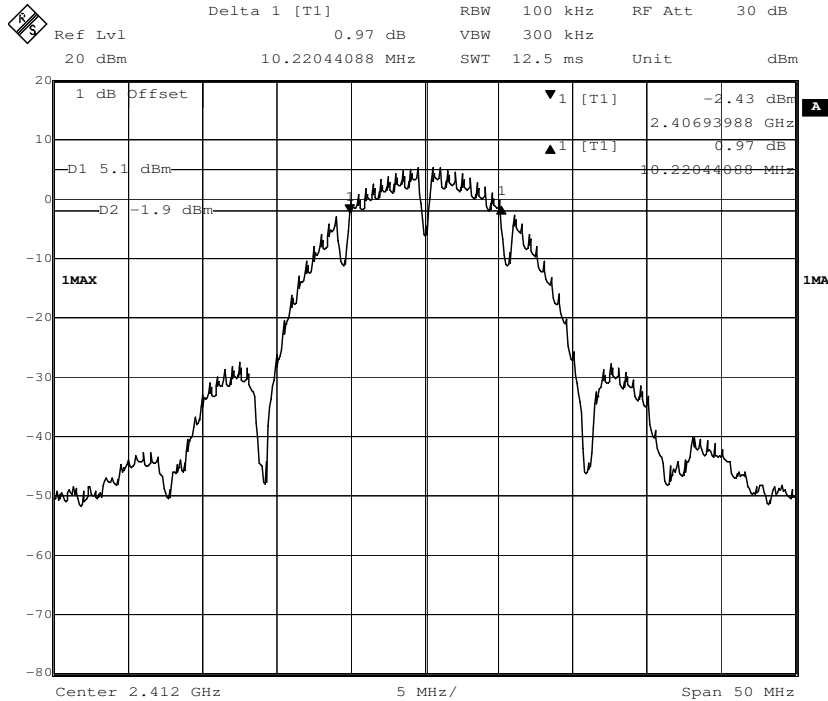
Test result: The unit does meet the FCC requirements.



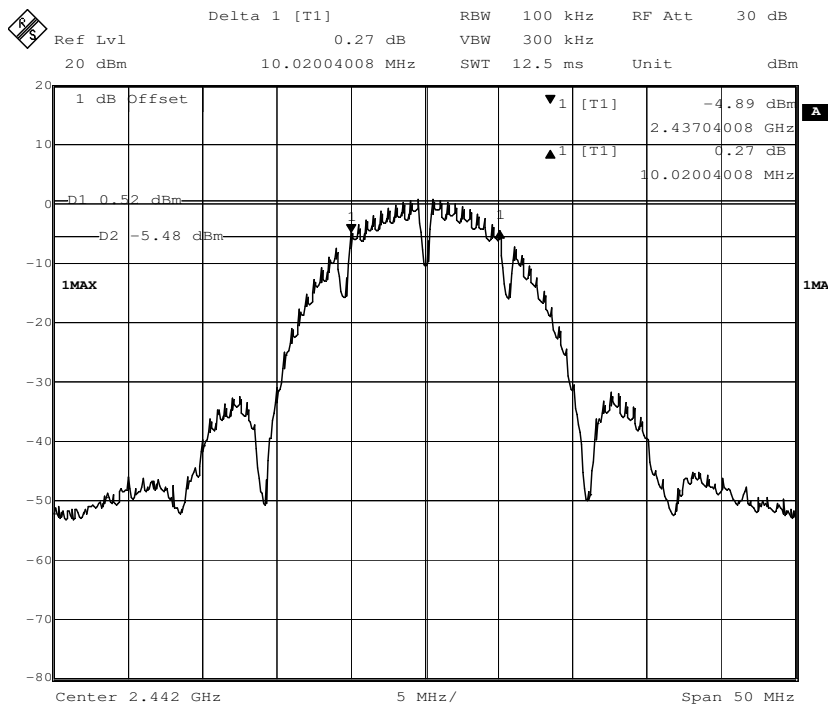
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:

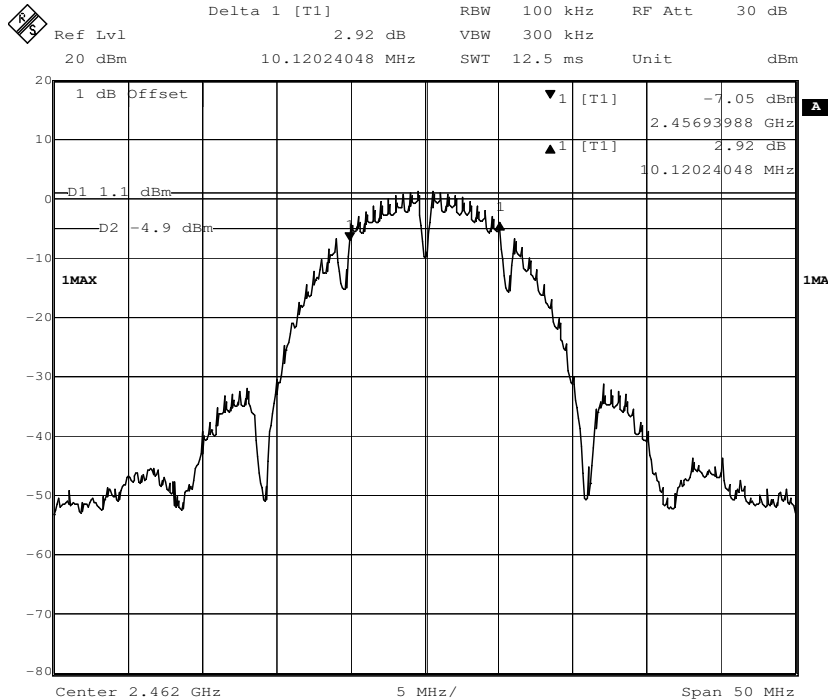


Channel 7: 2.442GHz:



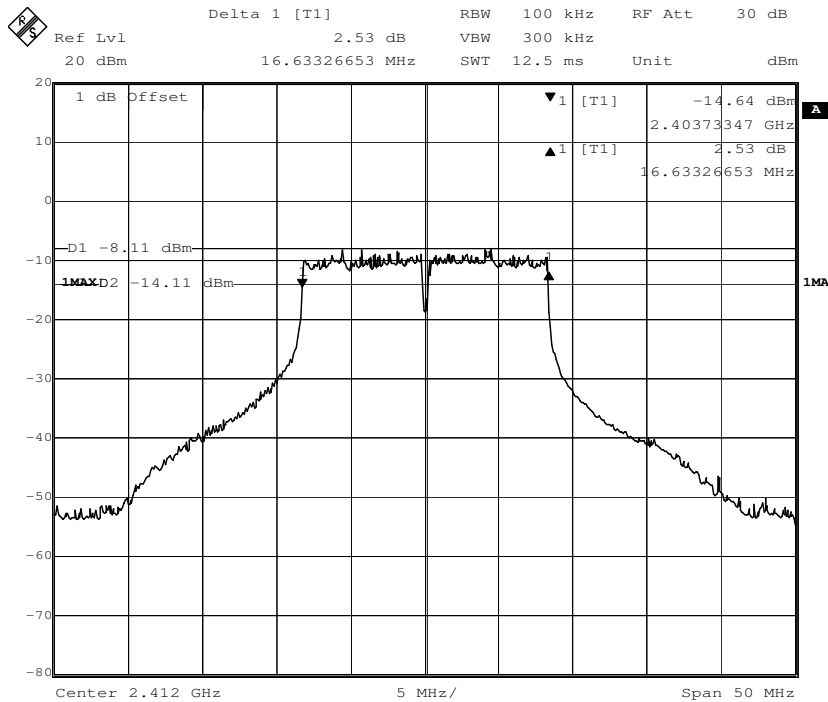


Channel 11: 2.462GHz:



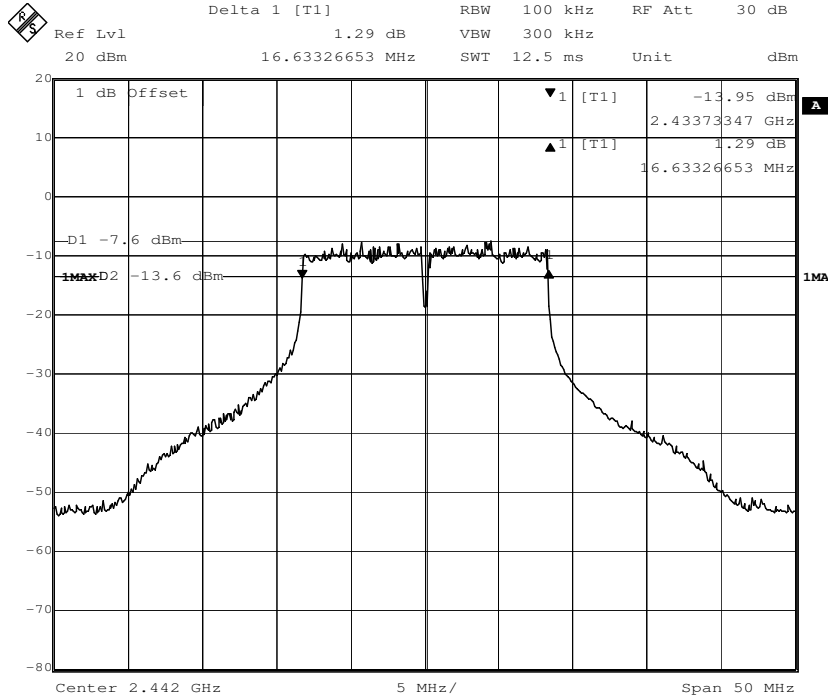
802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:

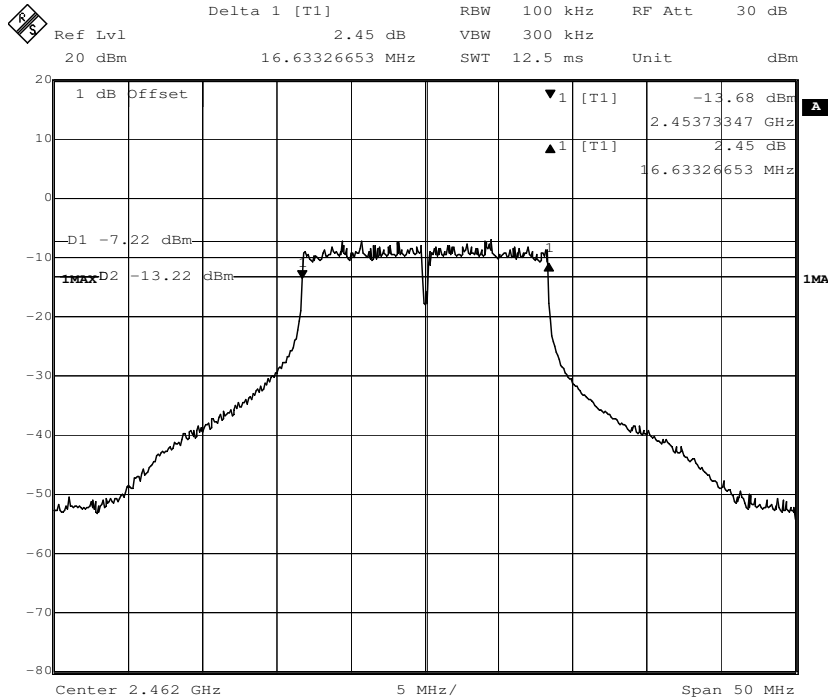




Channel 7: 2.442GHz:



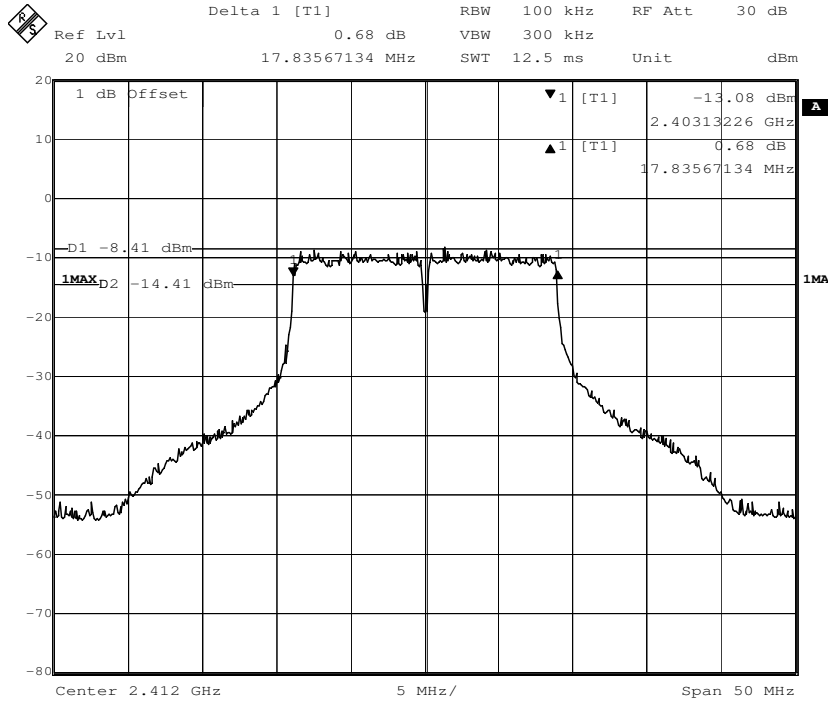
Channel 11: 2.462GHz:



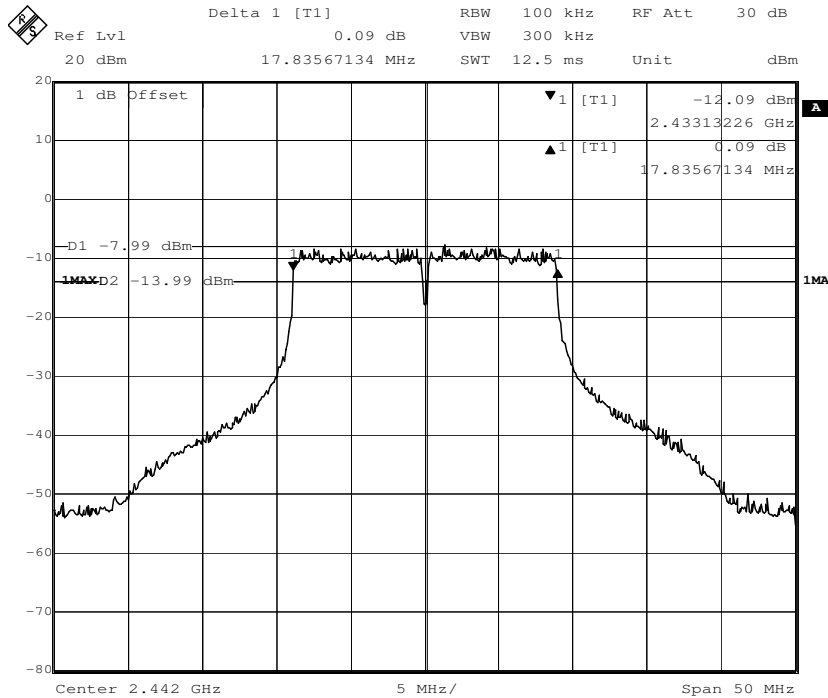


802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:

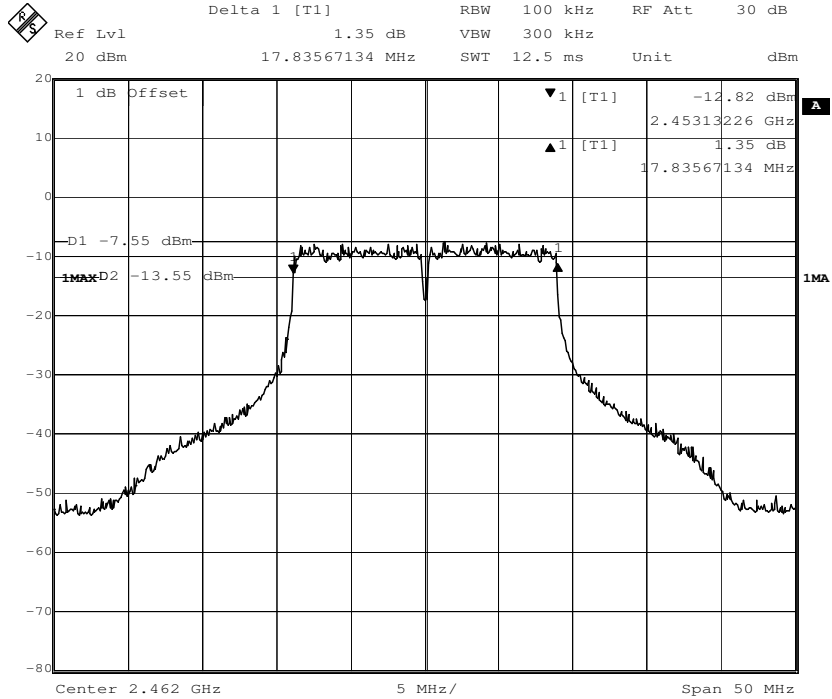


Channel 7: 2.442GHz:



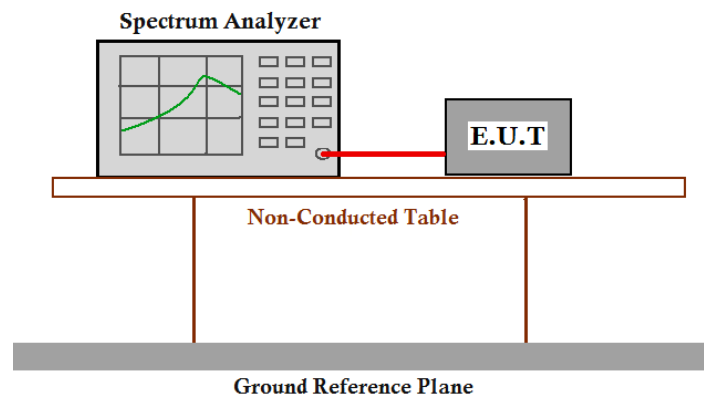


Channel 11: 2.462GHz:



7.4 Maximum Peak Output Power

Test Requirement:	FCC Part 15 C section 15.247 (b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1), (b) (2), and (b) (3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Test Method:	ANSI C63.10: Clause 11.9
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	





Test Procedure:

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



Test result:

Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
1	2412	802.11b	11 Mbps	15.43	1W(30dBm)	Pass
7	2442		11 Mbps	16.81		Pass
11	2462		11 Mbps	16.90		Pass
1	2412	802.11g	54 Mbps	15.40		Pass
7	2442		54 Mbps	16.05		Pass
11	2462		54 Mbps	16.47		Pass
1	2412	802.11n (HT20)	65 Mbps	15.45		Pass
7	2442		65 Mbps	15.78		Pass
11	2462		65 Mbps	16.18		Pass

Remark: Level = Read Level + Cable Loss + Antenna Gain

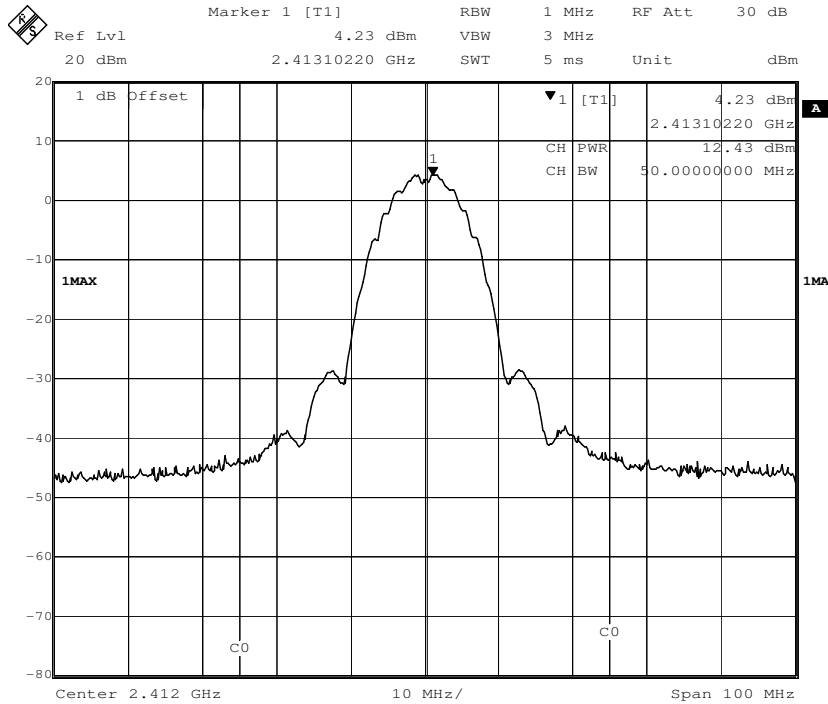
The unit does meet the FCC requirements.



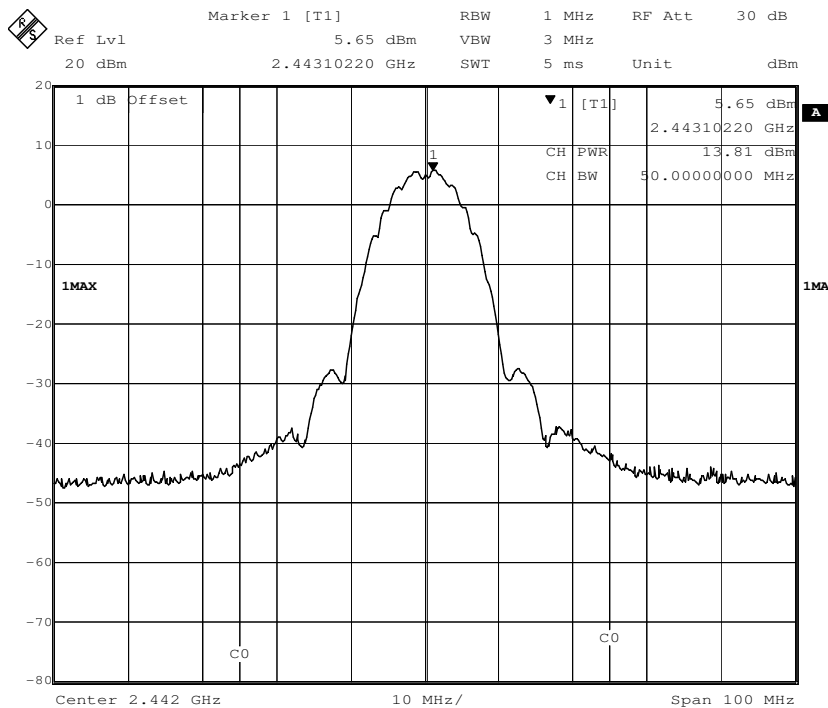
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:

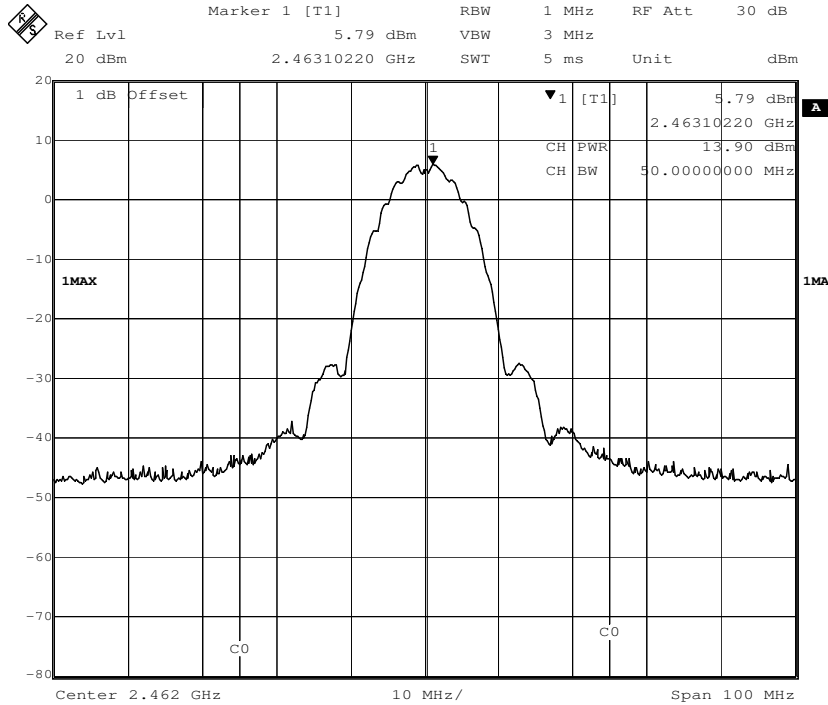


Channel 7: 2.442GHz:



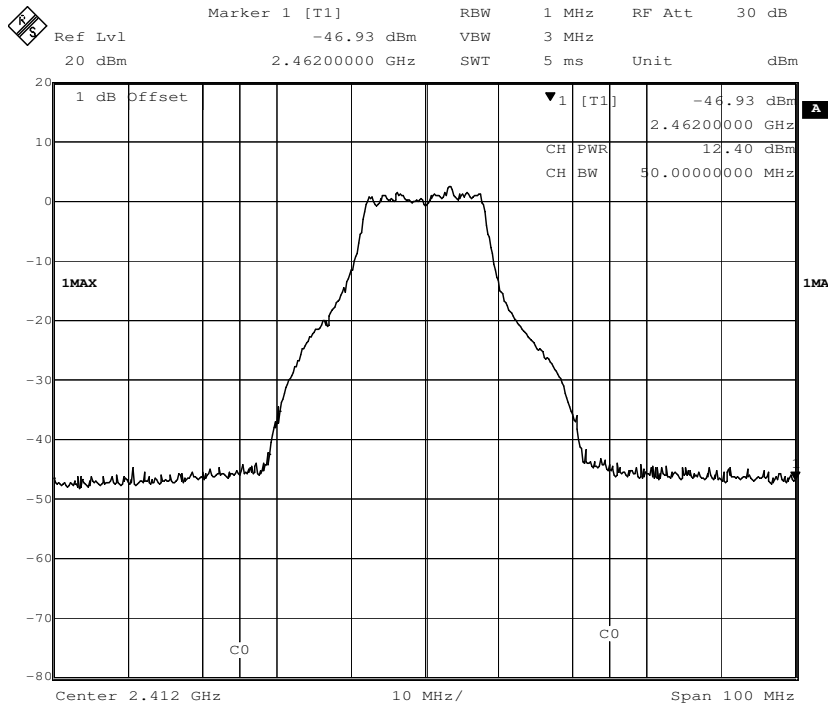


Channel 11: 2.462GHz:



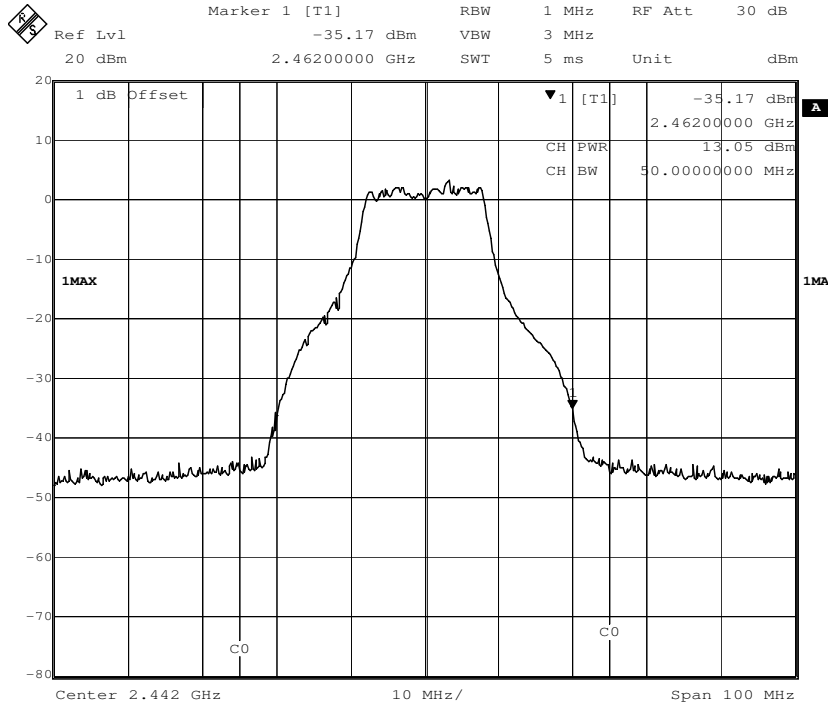
802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:

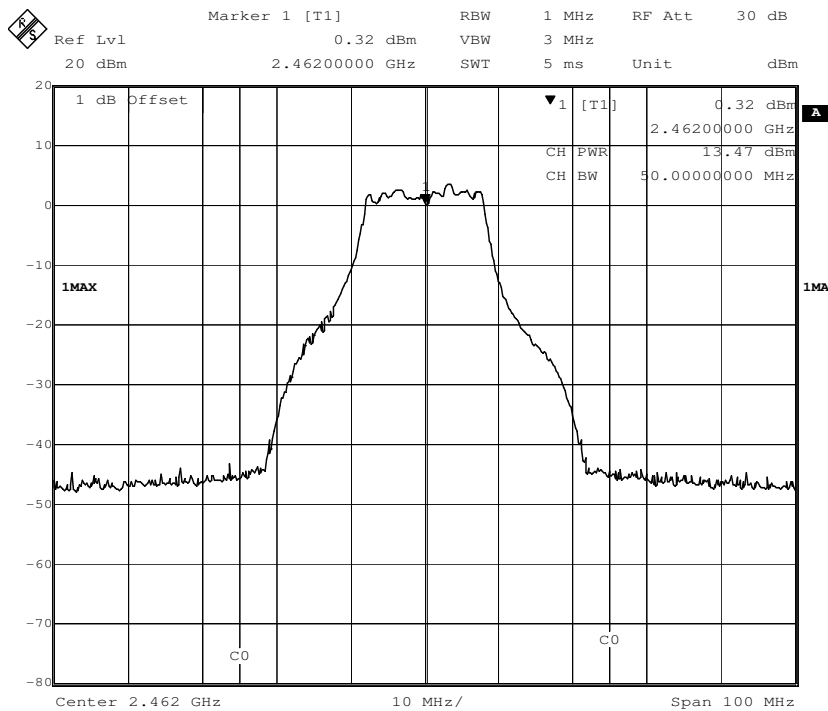




Channel 7: 2.442GHz:



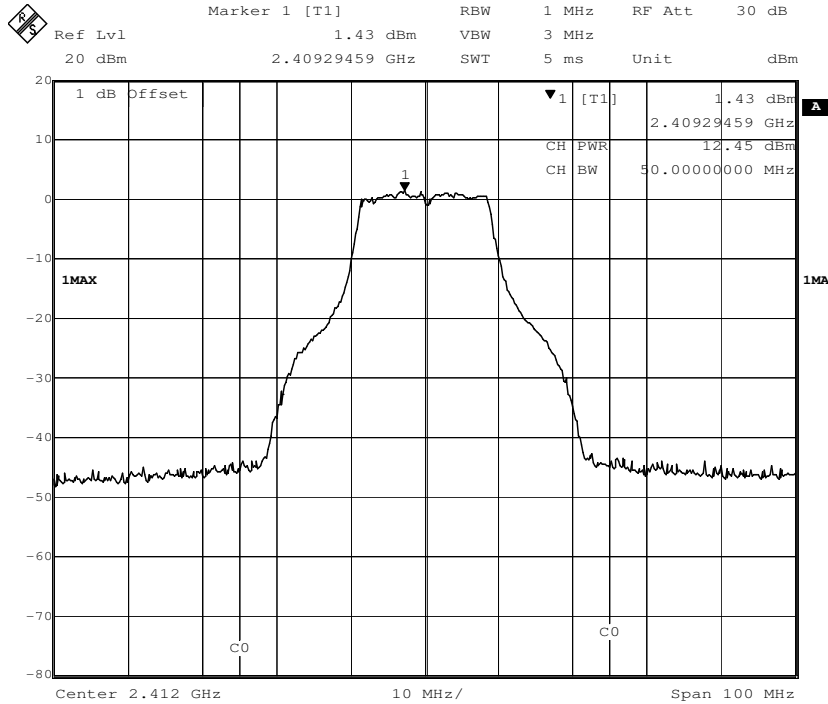
Channel 11: 2.462GHz:



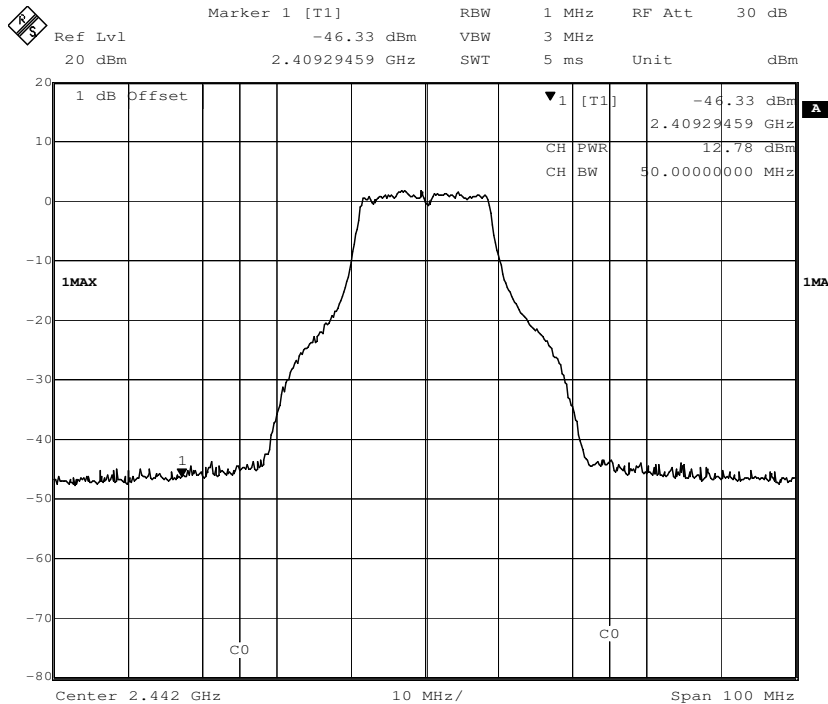


802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:

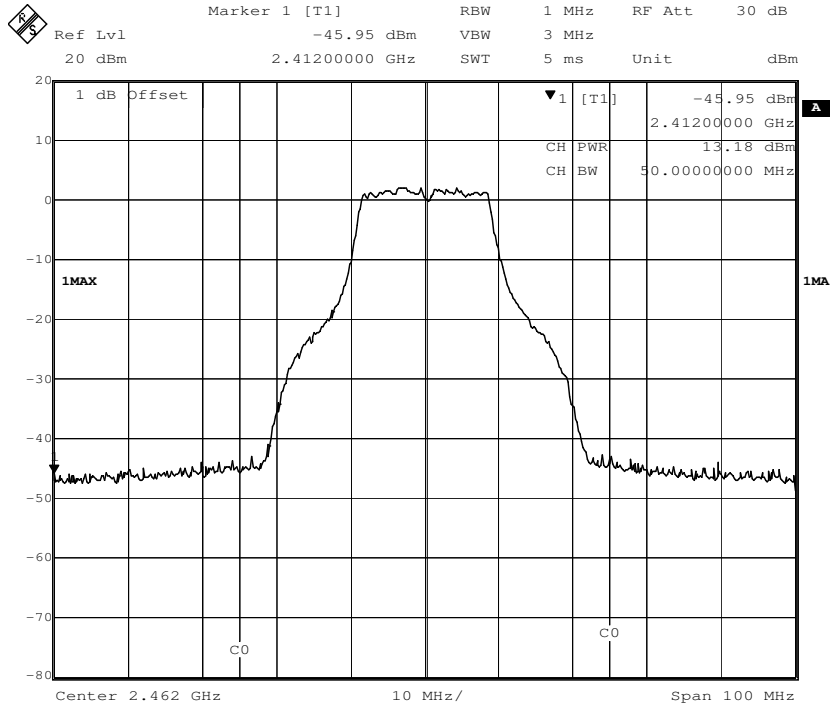


Channel 7: 2.442GHz:



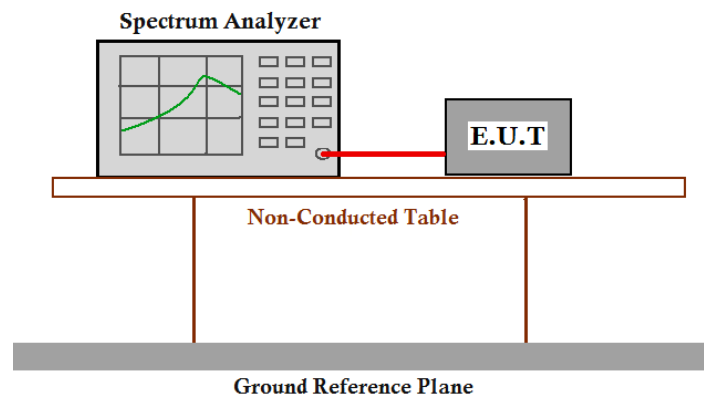


Channel 11: 2.462GHz:



7.5 Peak Power Spectral Density

Test Requirement:	FCC Part 15 C section 15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10: Clause 11.10
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	





Test Procedure:

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



Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
1	2412	802.11b	11 Mbps	-20.24	8dBm/3KHz	Pass
7	2442		11 Mbps	-19.74		Pass
11	2462		11 Mbps	-19.50		Pass
1	2412	802.11g	54 Mbps	-23.48		Pass
7	2442		54 Mbps	-22.98		Pass
11	2462		54 Mbps	-22.72		Pass
1	2412	802.11n (HT20)	65 Mbps	-23.72		Pass
7	2442		65 Mbps	-22.51		Pass
11	2462		65 Mbps	-22.77		Pass

Test result: Level = Read Level + Cable Loss.

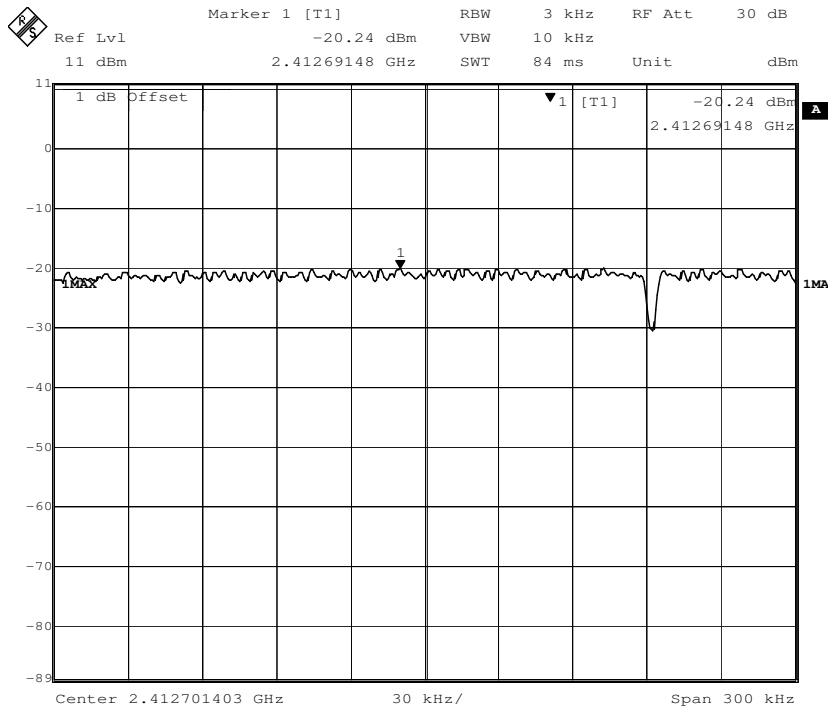
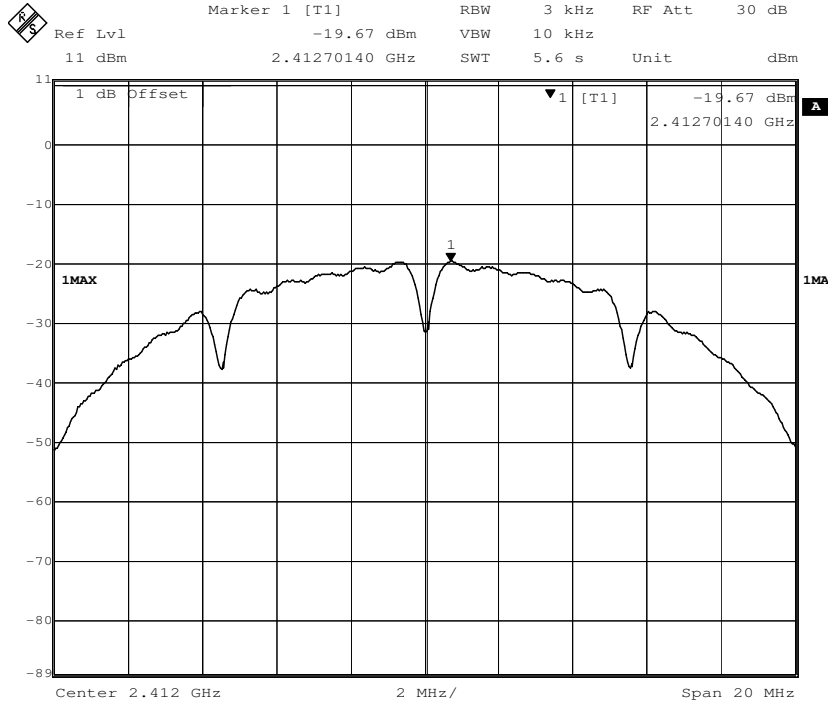
The unit does meet the FCC requirements.



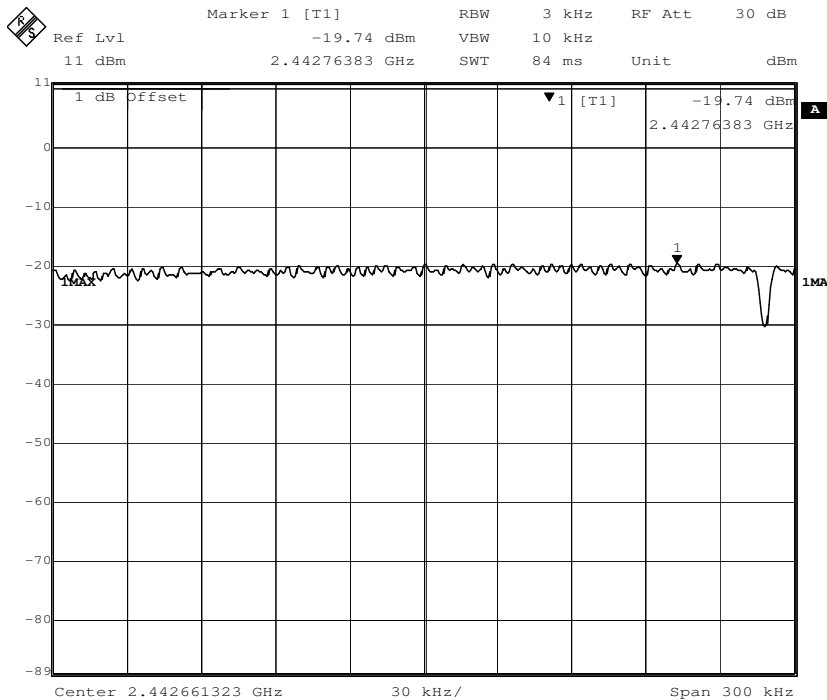
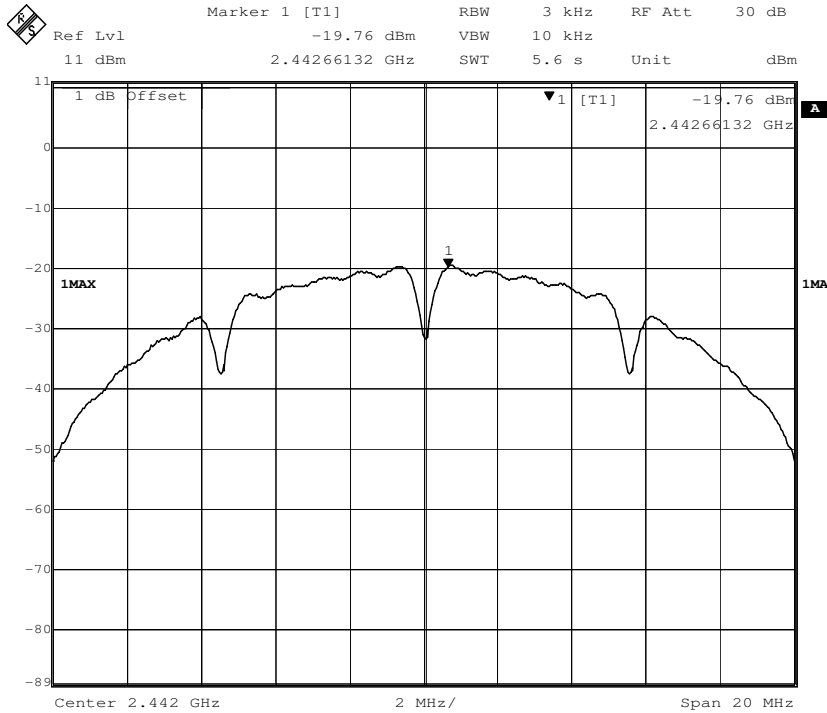
Result plot as follows:

802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:

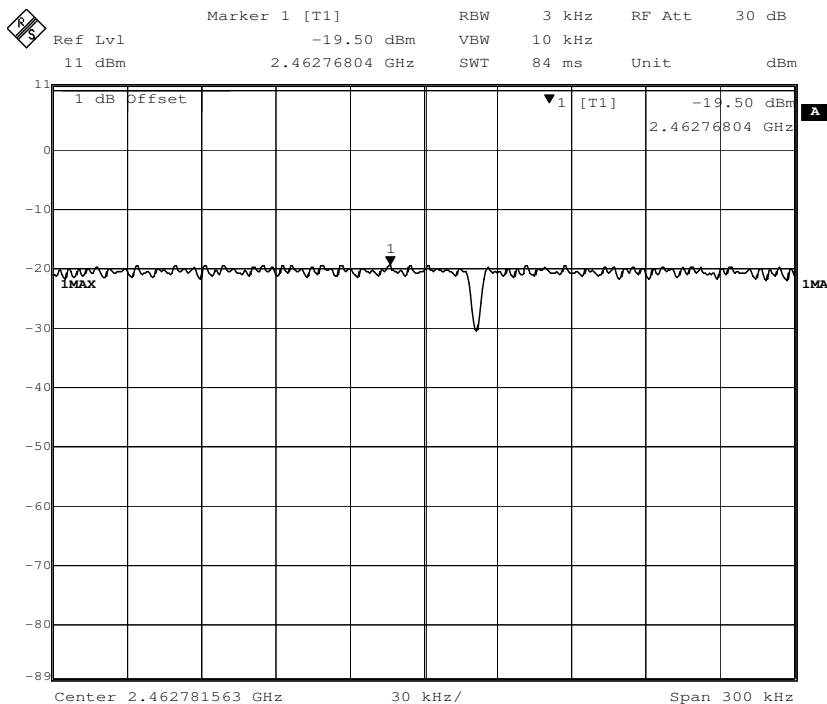
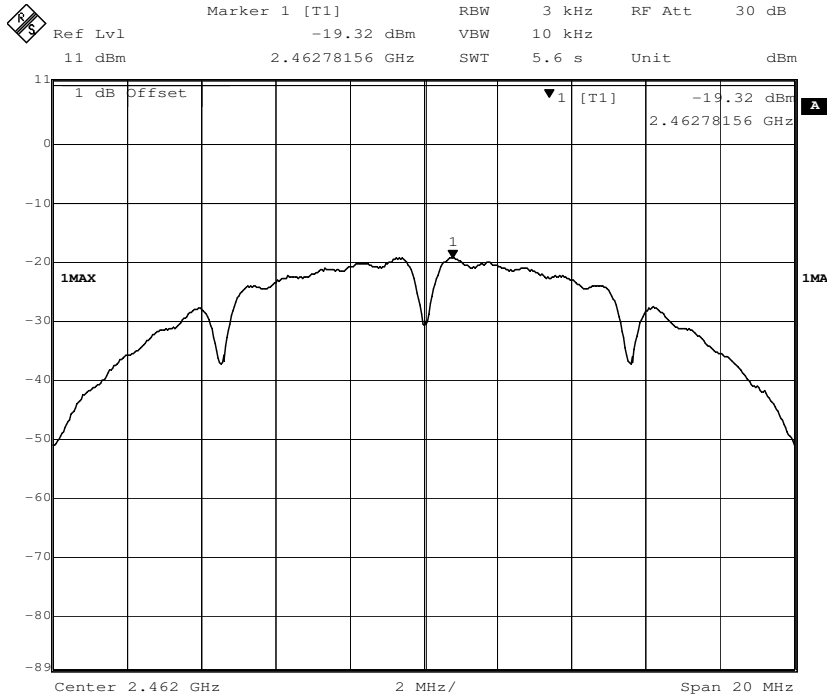


Channel 7: 2.442GHz:





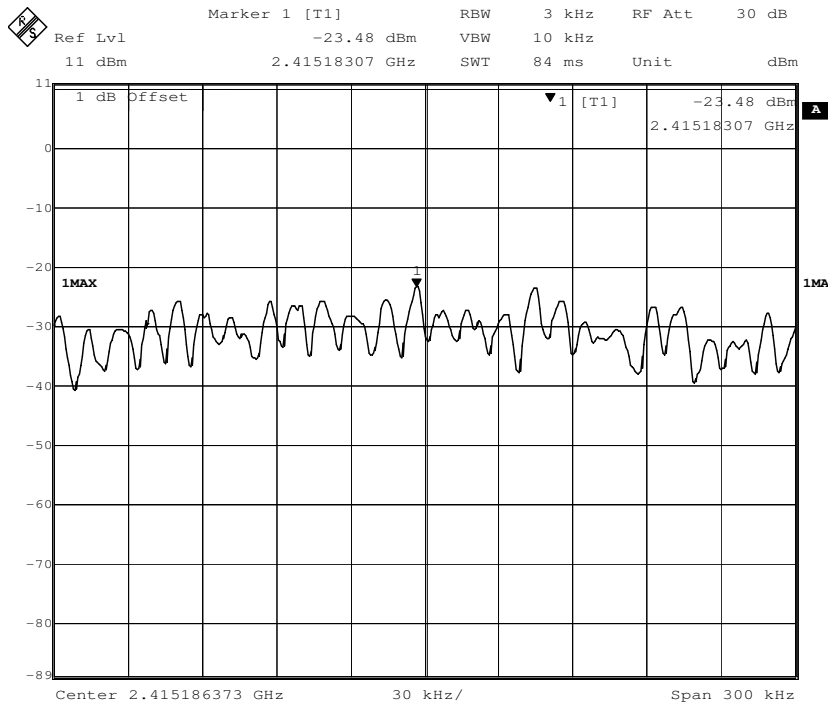
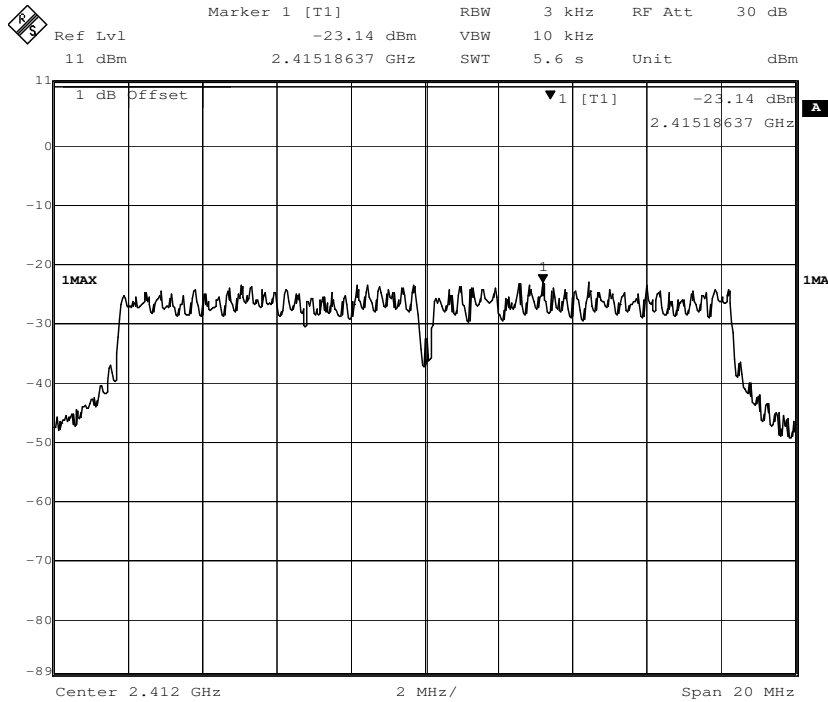
Channel 11: 2.462GHz:





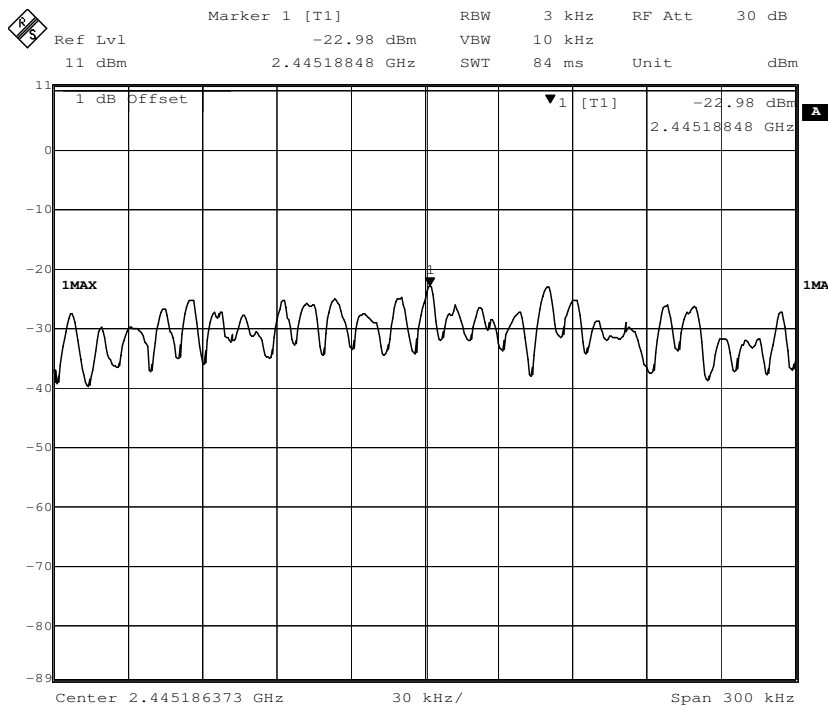
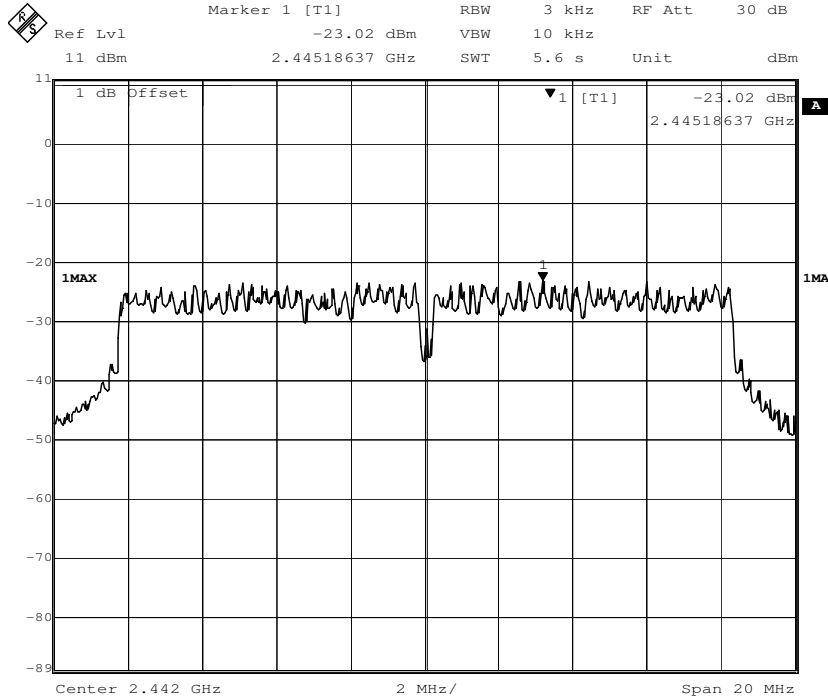
802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz:



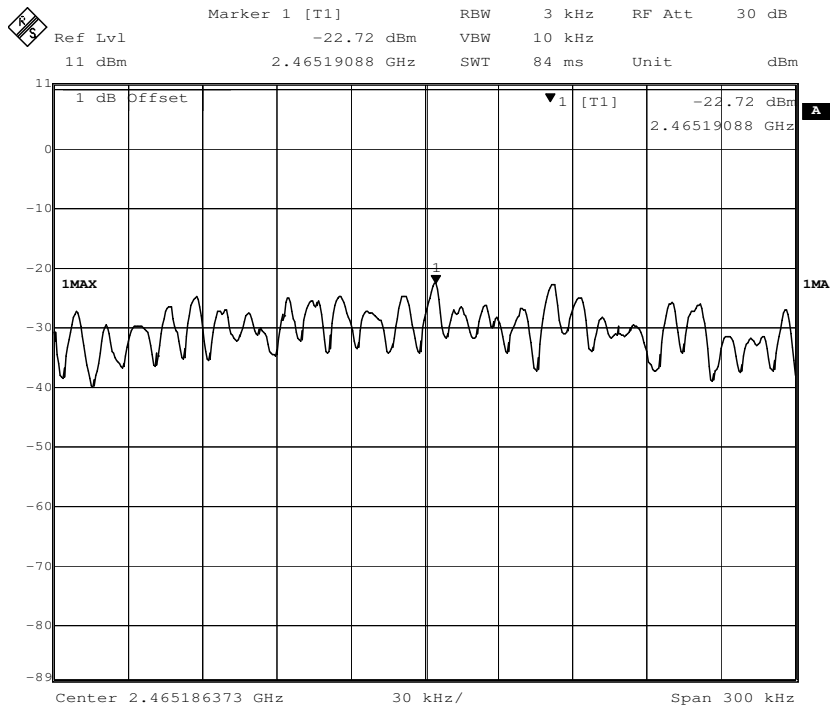
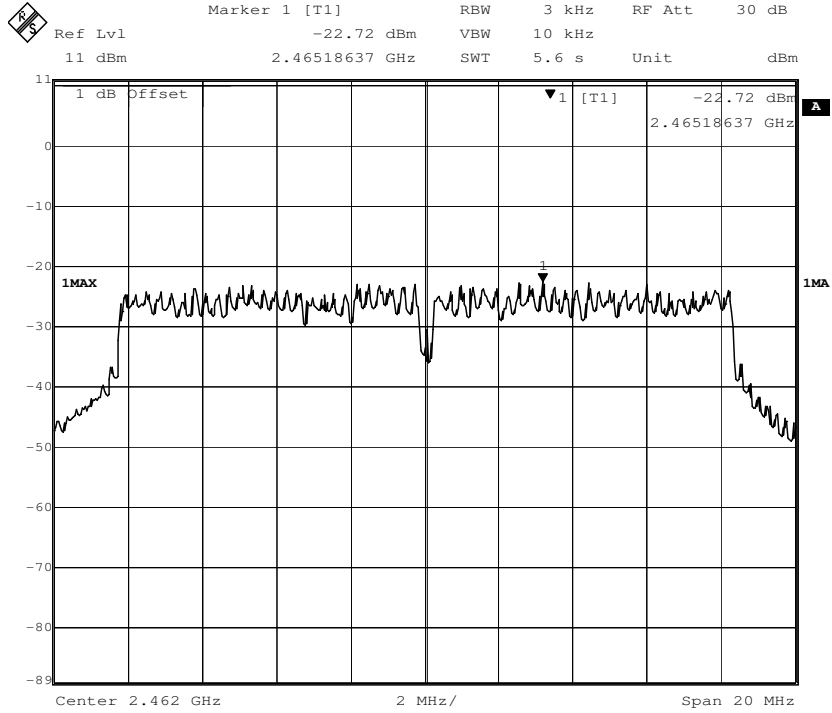


Channel 7: 2.442GHz:





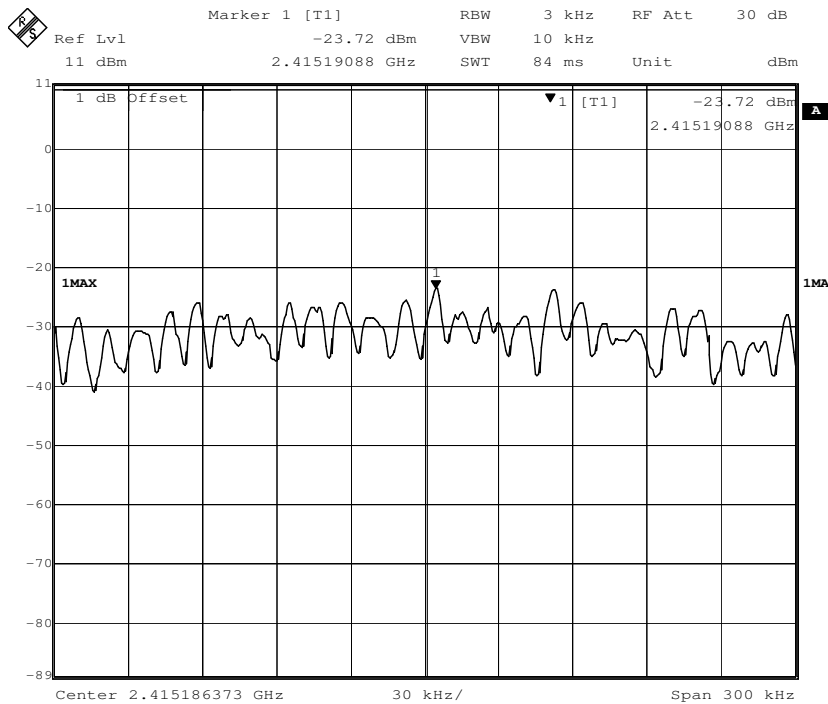
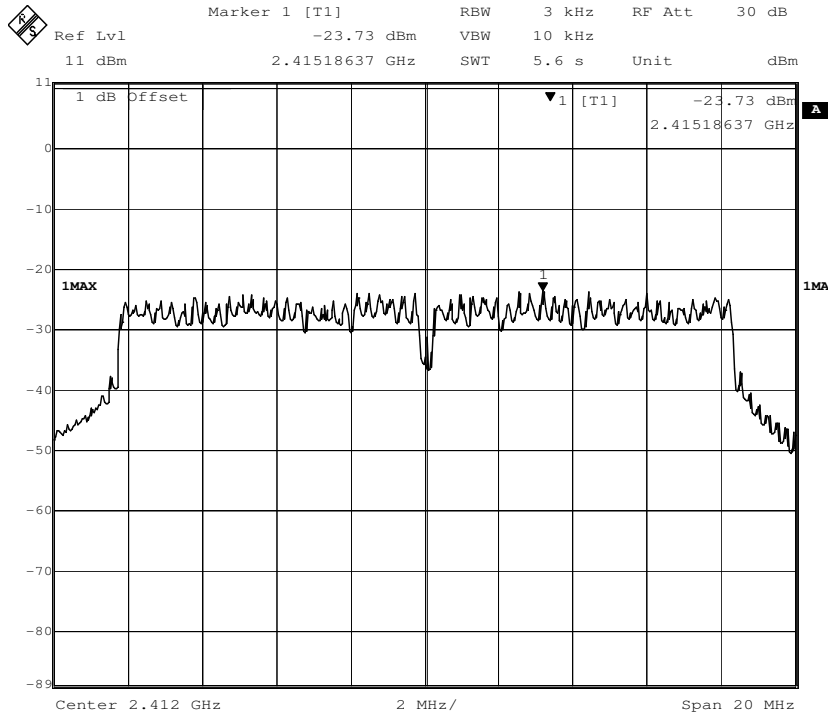
Channel 11: 2.462GHz:





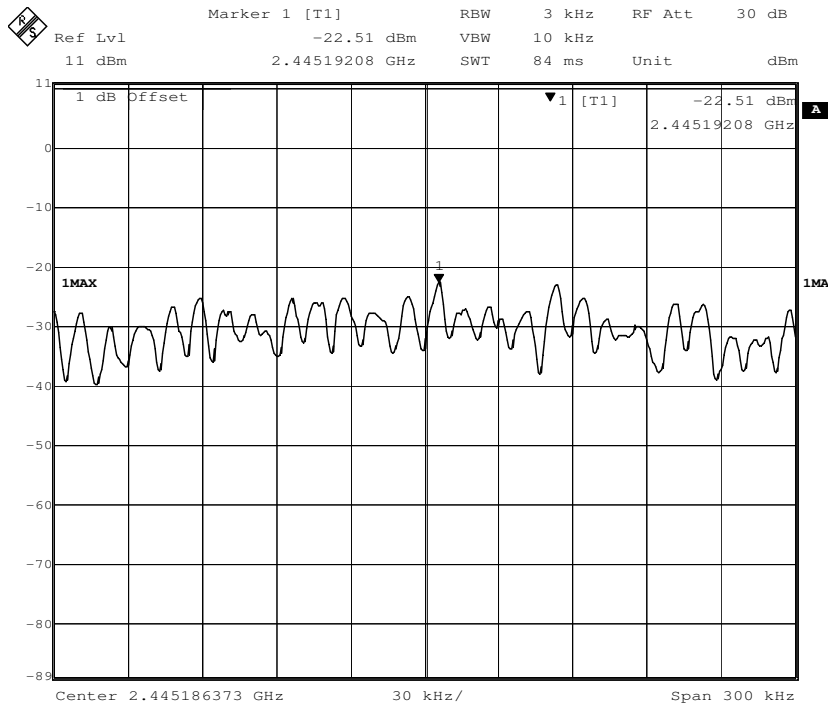
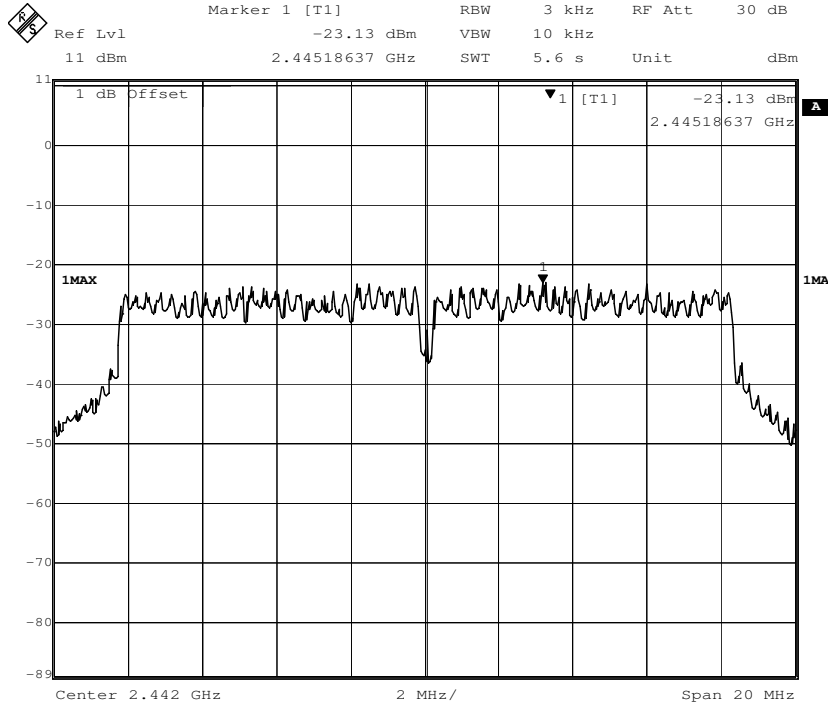
802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:



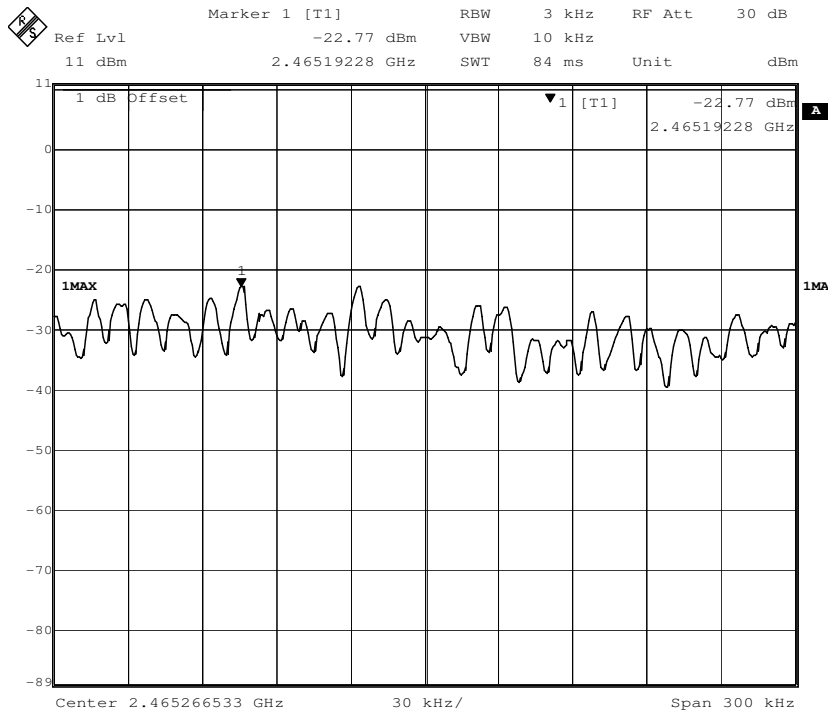
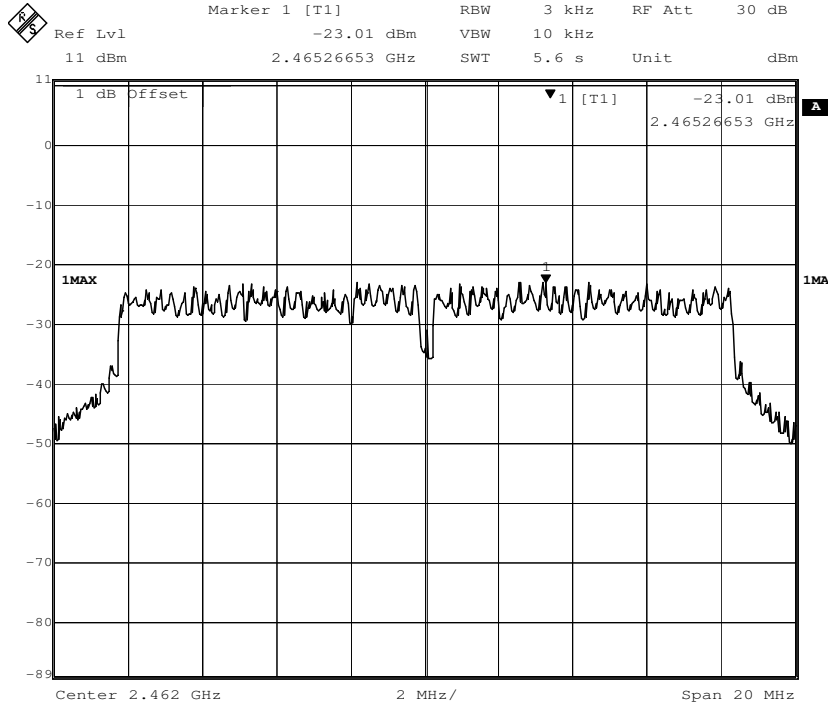


Channel 7: 2.442GHz:



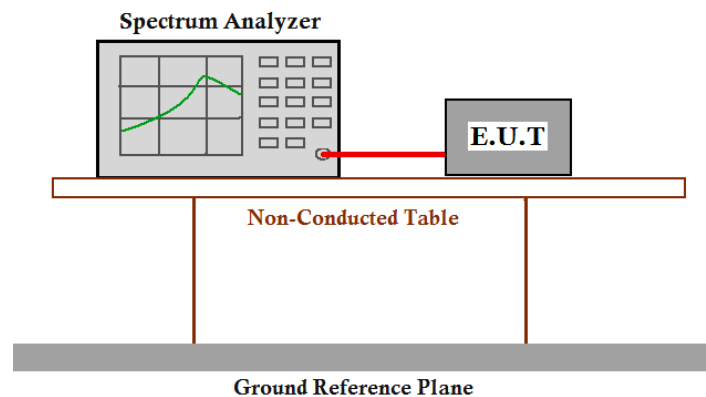


Channel 11: 2.462GHz:



7.6 Conducted Spurious Emissions

Test Requirement:	FCC Part 15 C section 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.
Test Method:	ANSI C63.10: Clause 11.11
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	



Test Procedure:

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

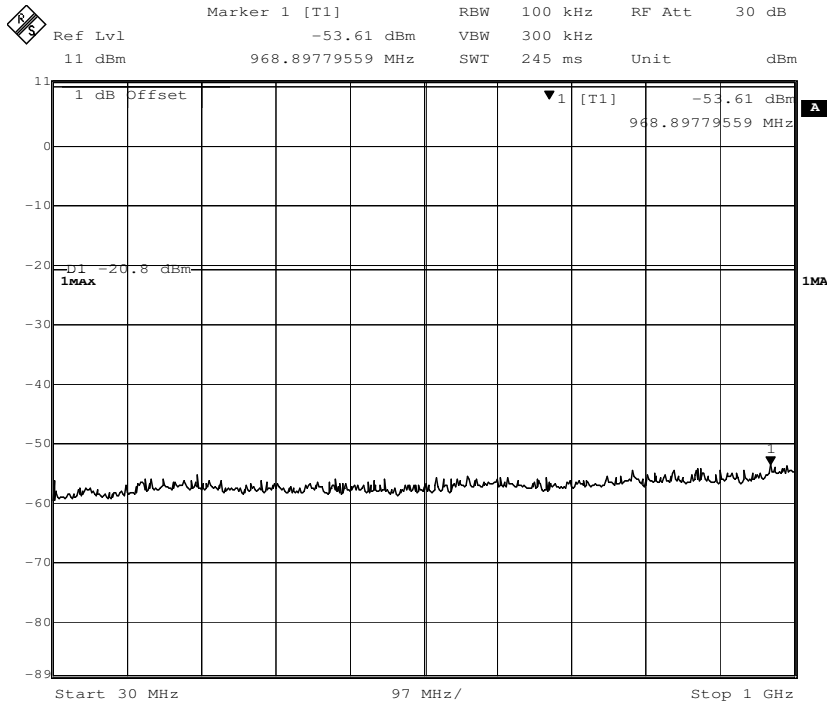


Result plot as follows:

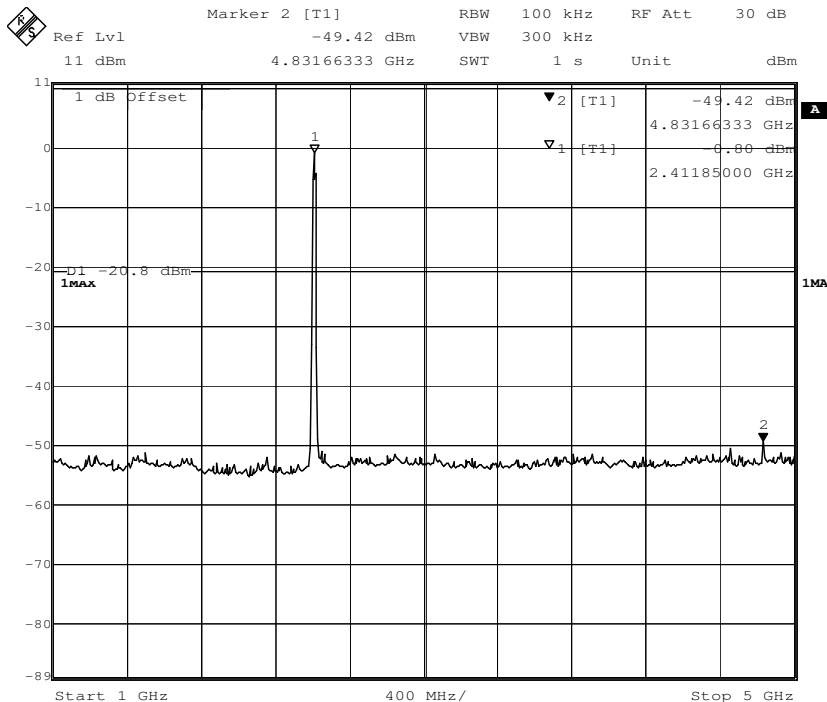
802.11b mode with 11Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz

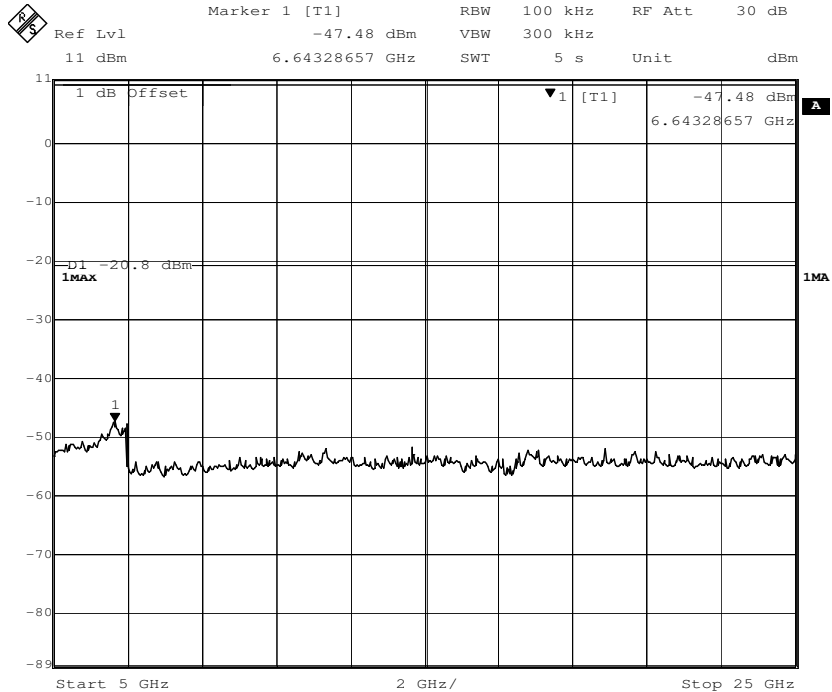


1 G to 5 GHz



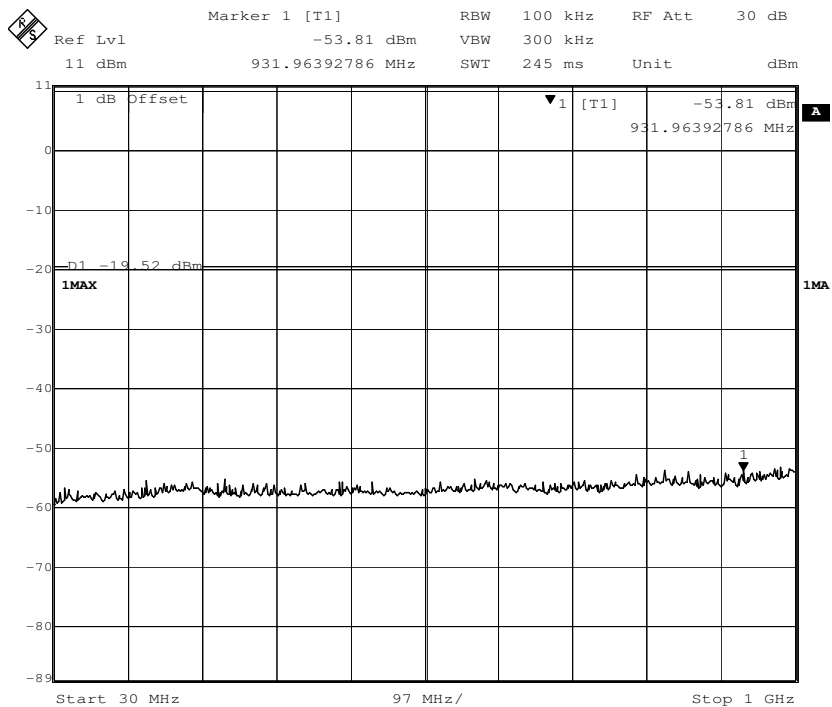


5 G to 25 GHz



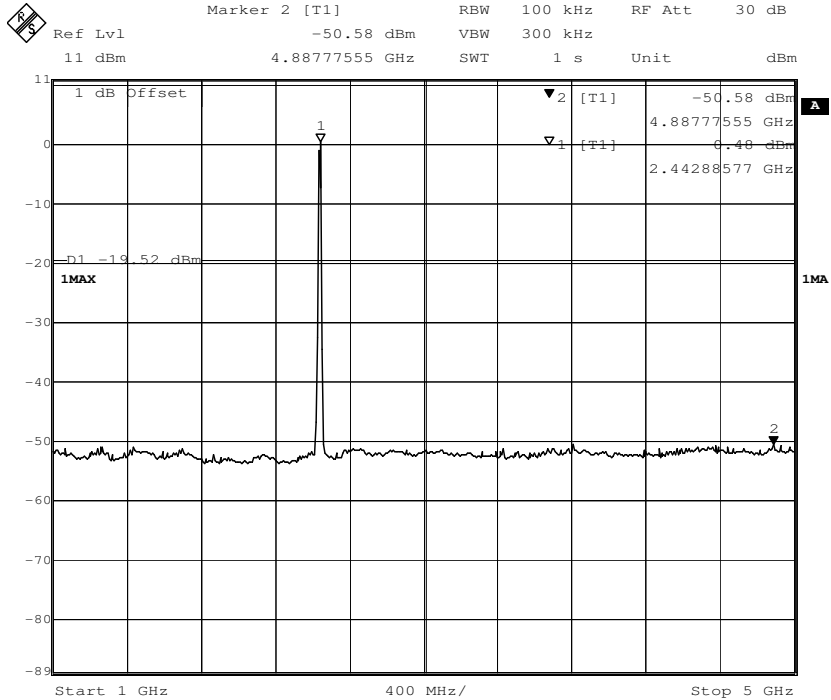
Channel 7: 2.442GHz:

30 MHz to 1 GHz

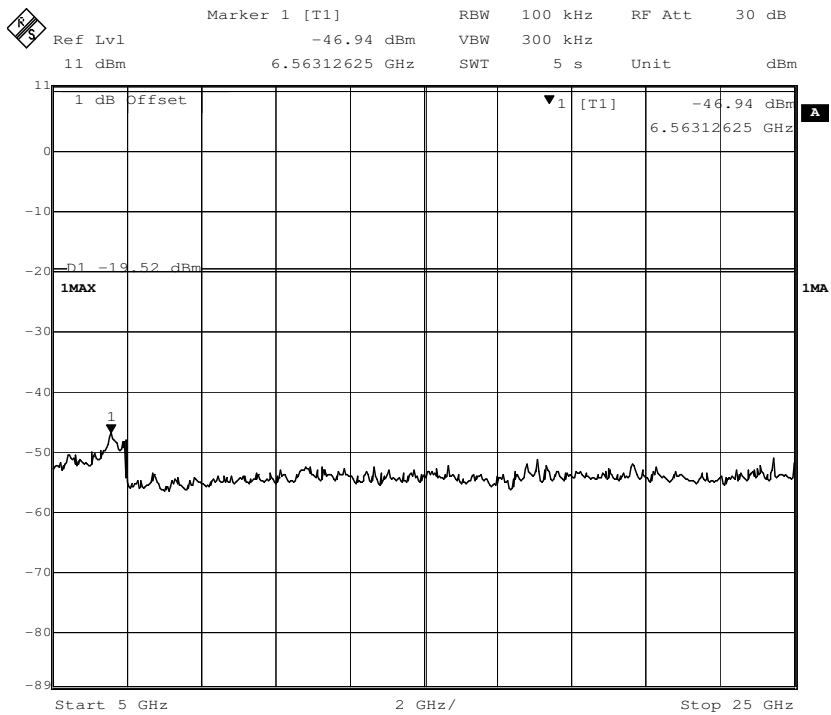




1 G to 5 GHz



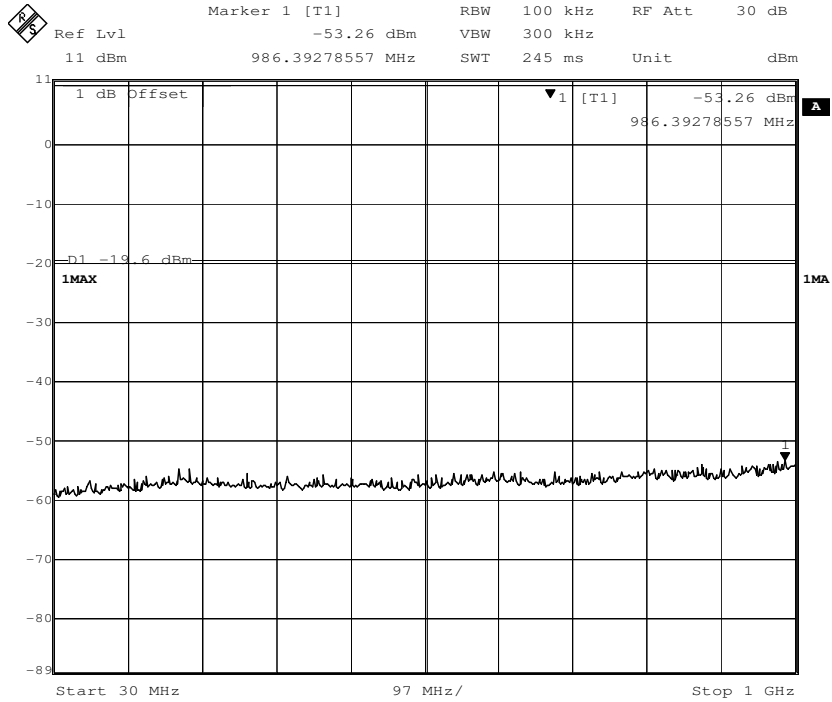
5 G to 25 GHz



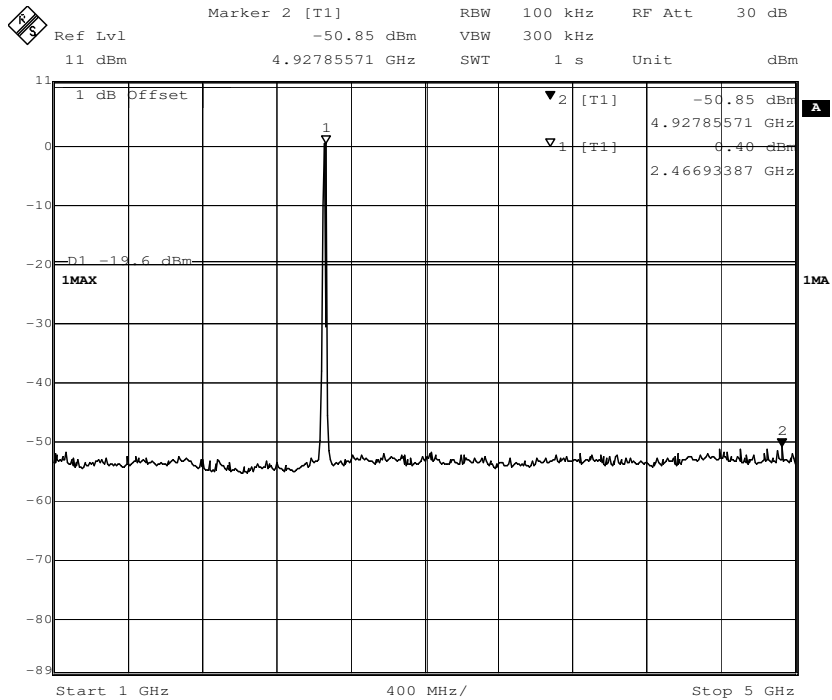


Channel 11:2.462 GHz

30 MHz to 1 GHz

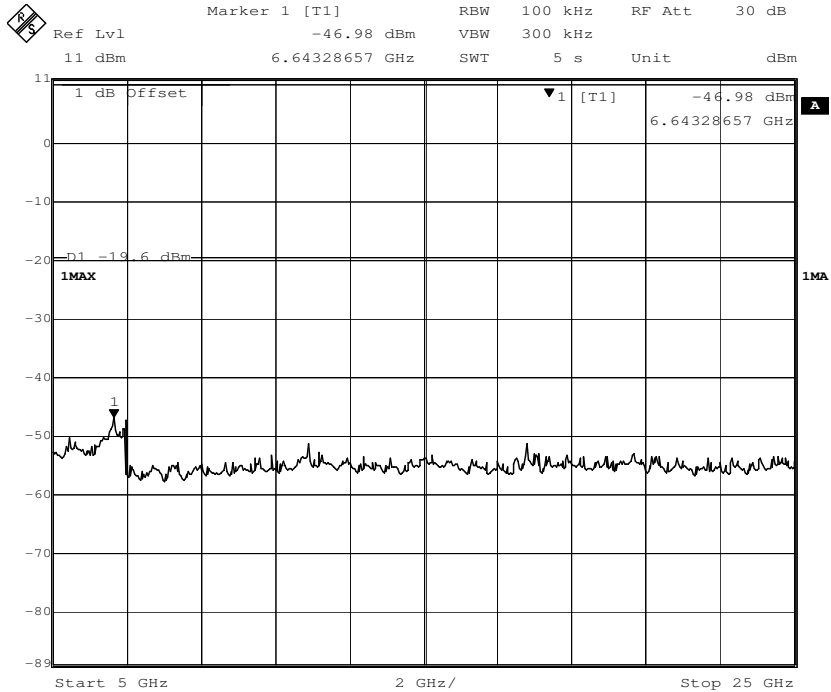


1 G to 5 GHz





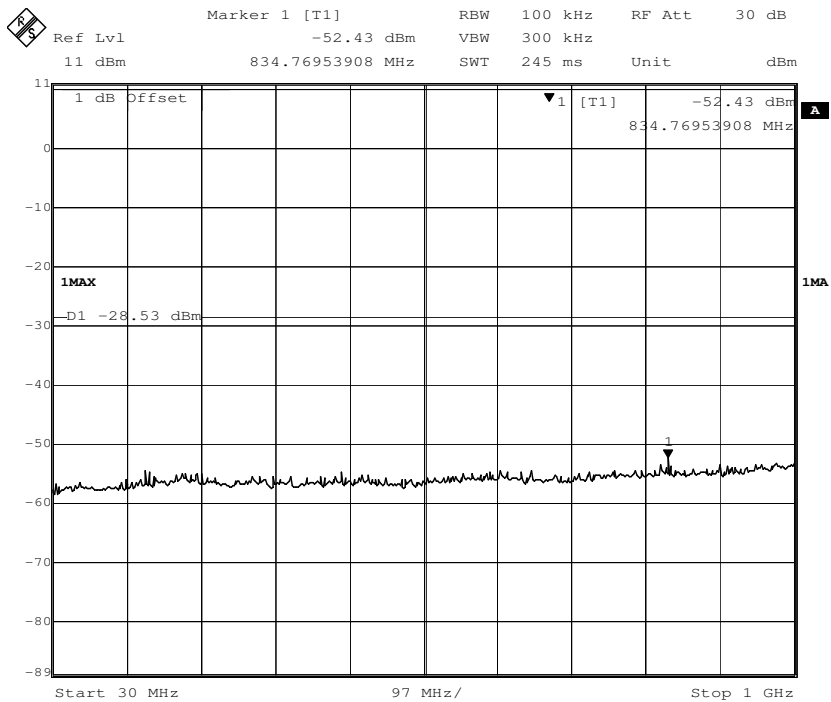
5 G to 25 GHz



802.11g mode with 54Mbps data rate

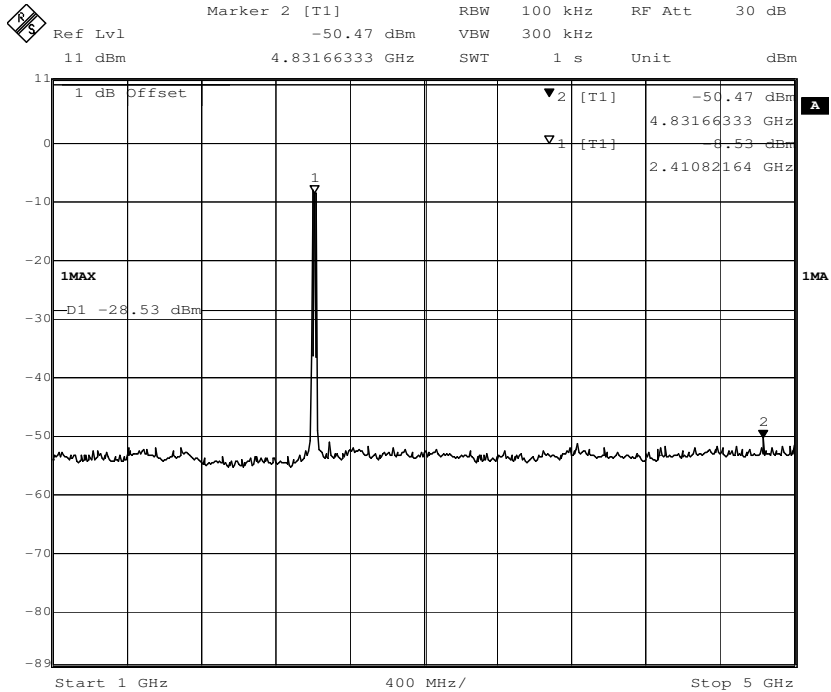
Channel 1: 2.412GHz:

30 MHz to 1 GHz

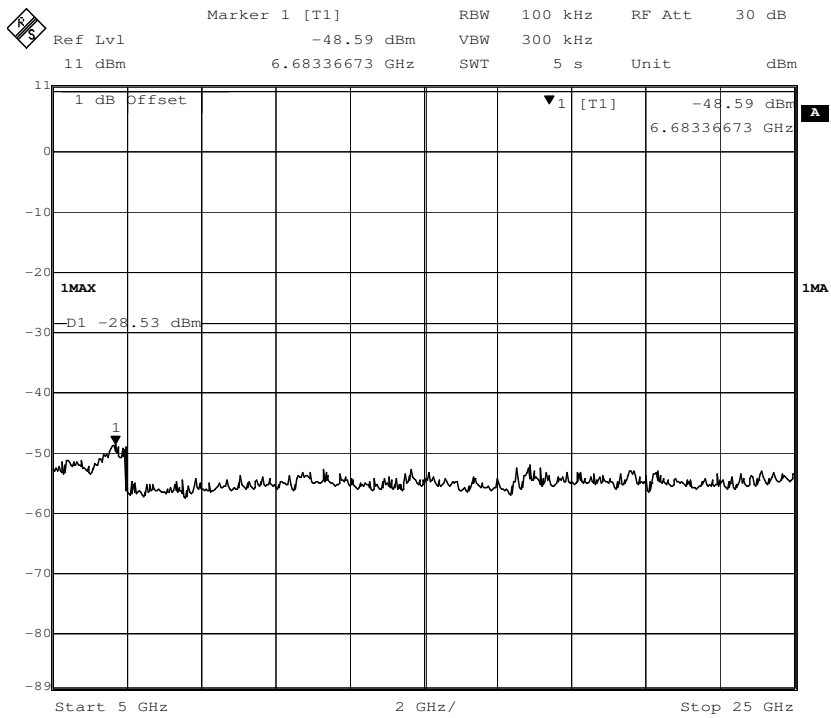




1 G to 5 GHz



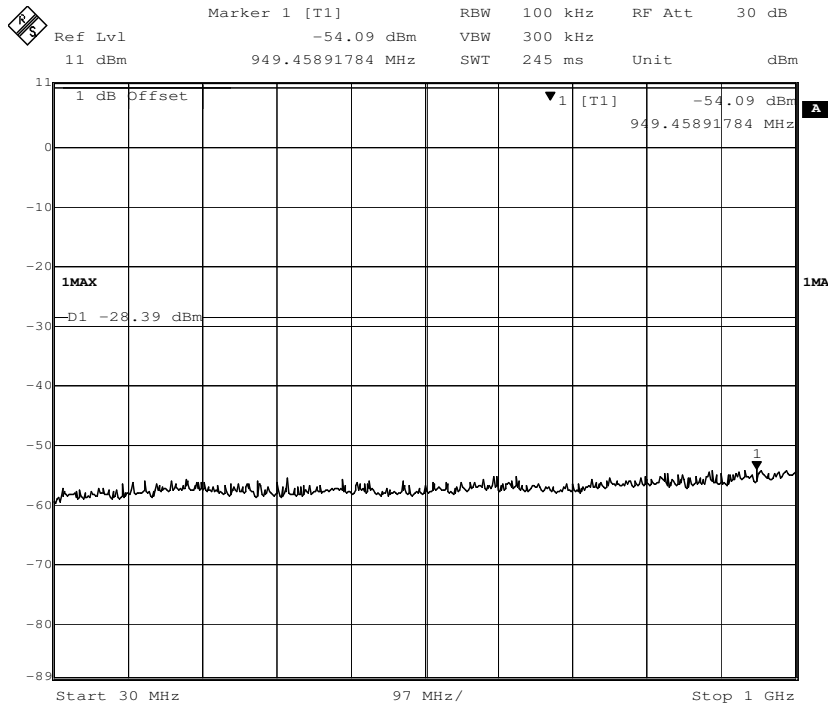
5 G to 25 GHz



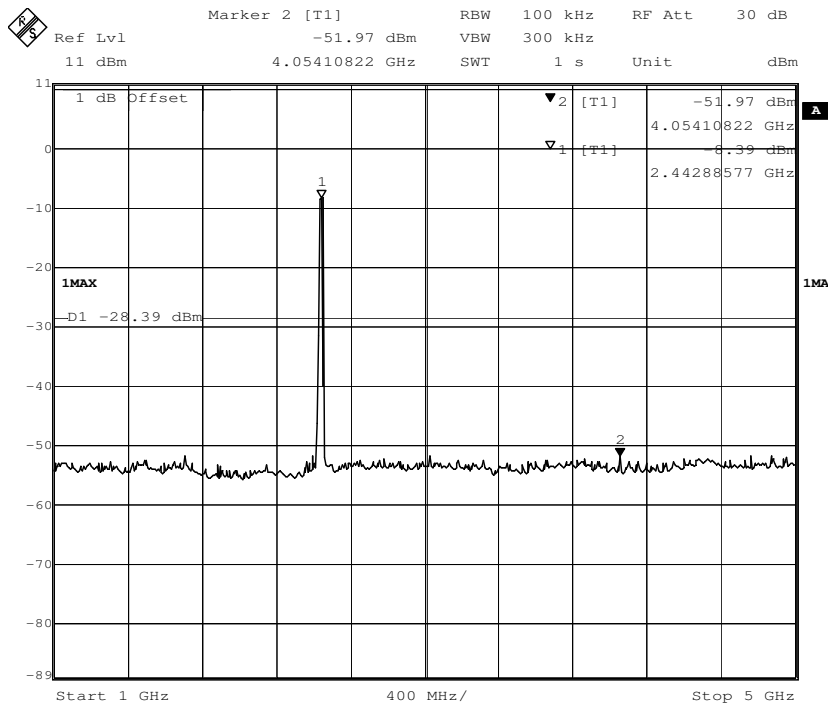


Channel 7: 2.442GHz:

30 MHz to 1 GHz

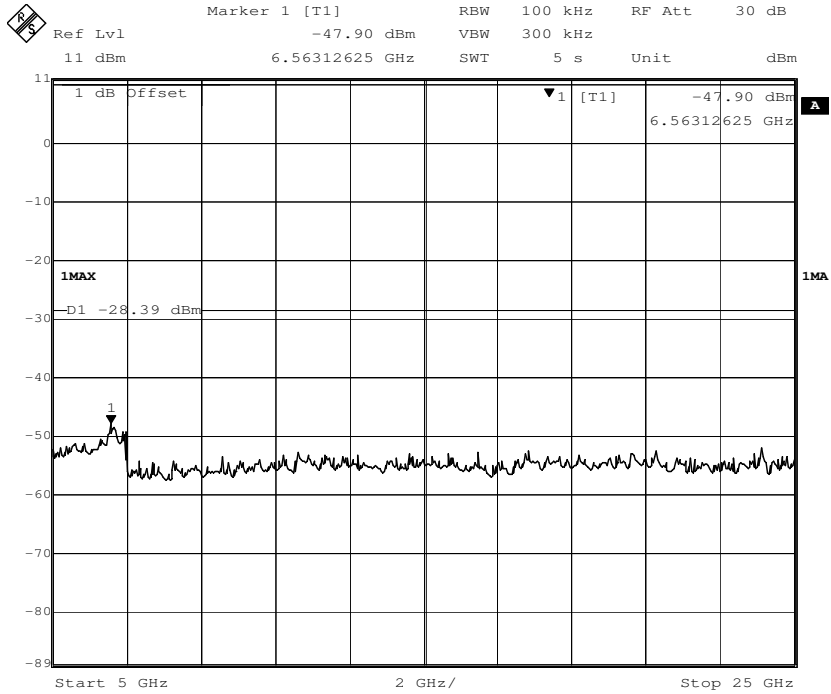


1 G to 5 GHz



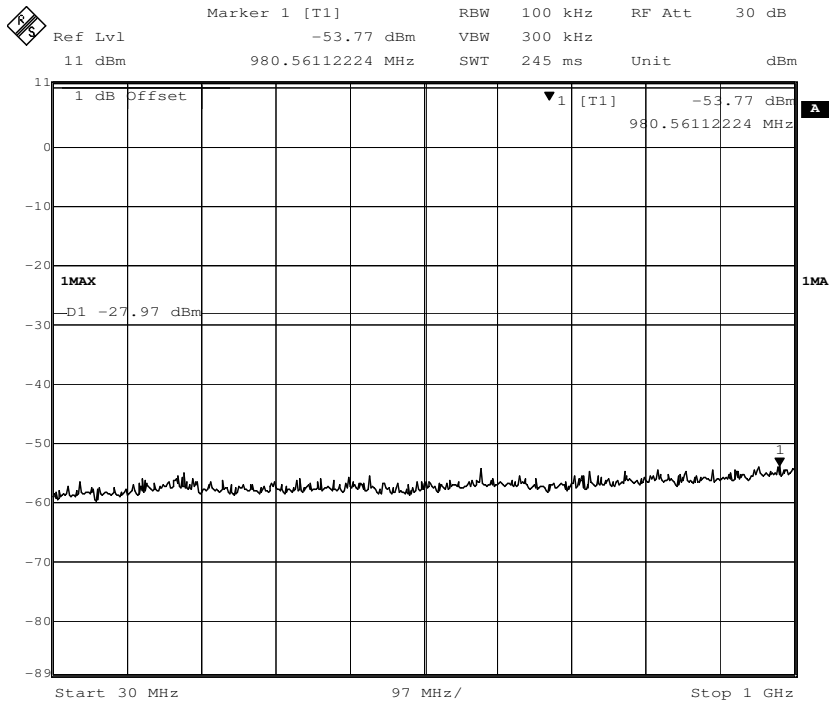


5 G to 25 GHz



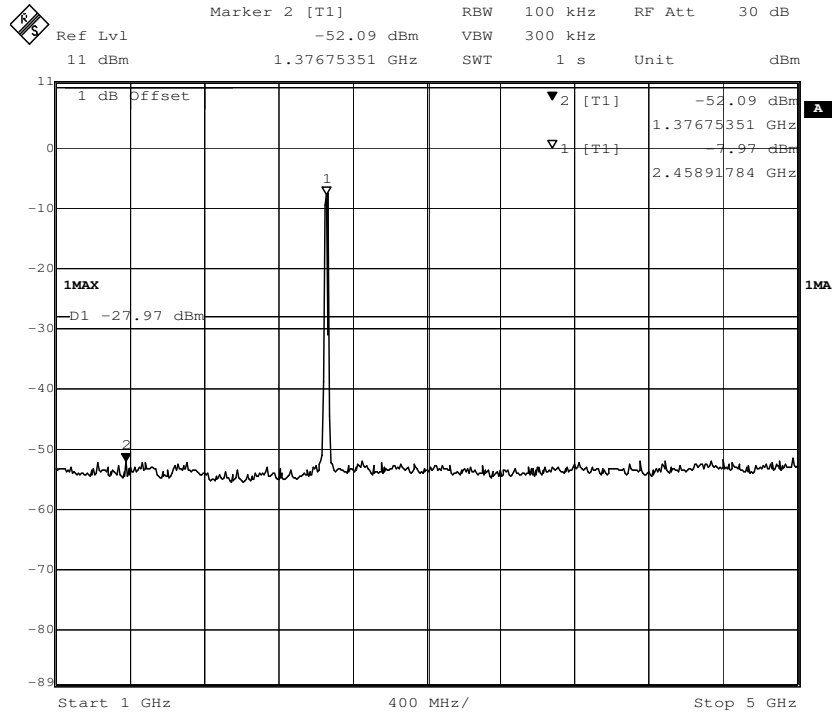
Channel 11:2.462 GHz

30 MHz to 1 GHz

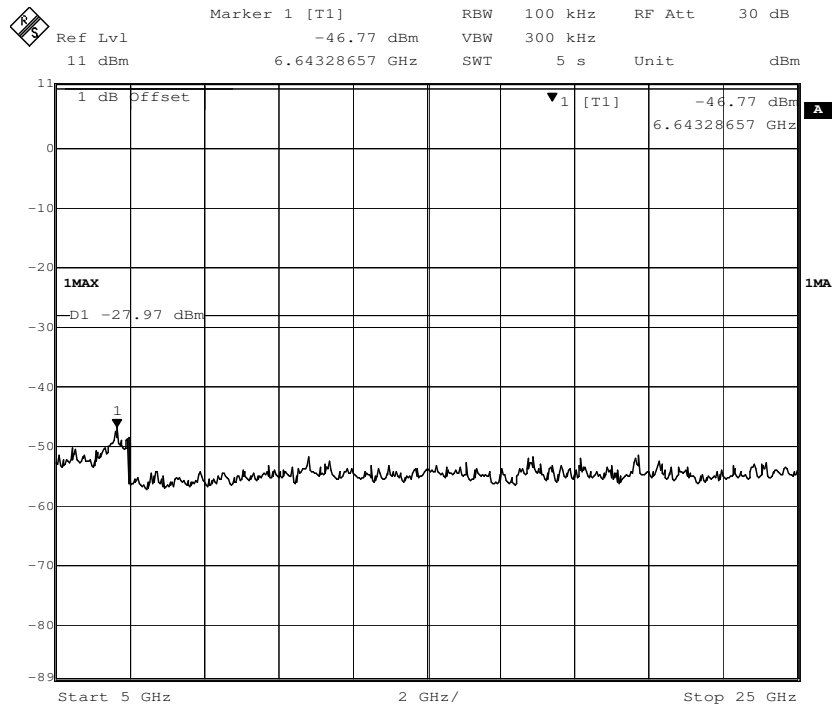




1 G to 5 GHz



5 G to 25 GHz

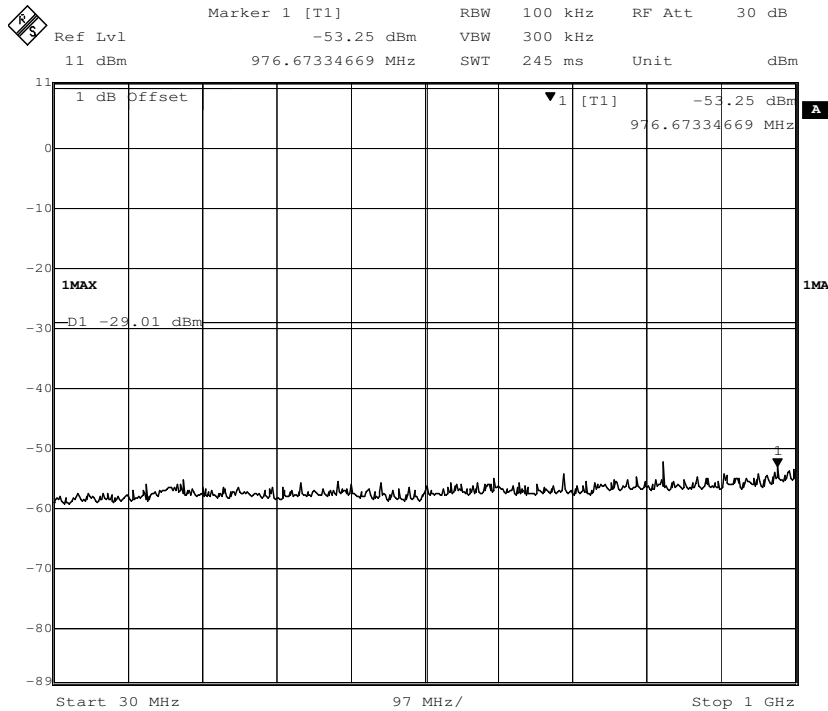




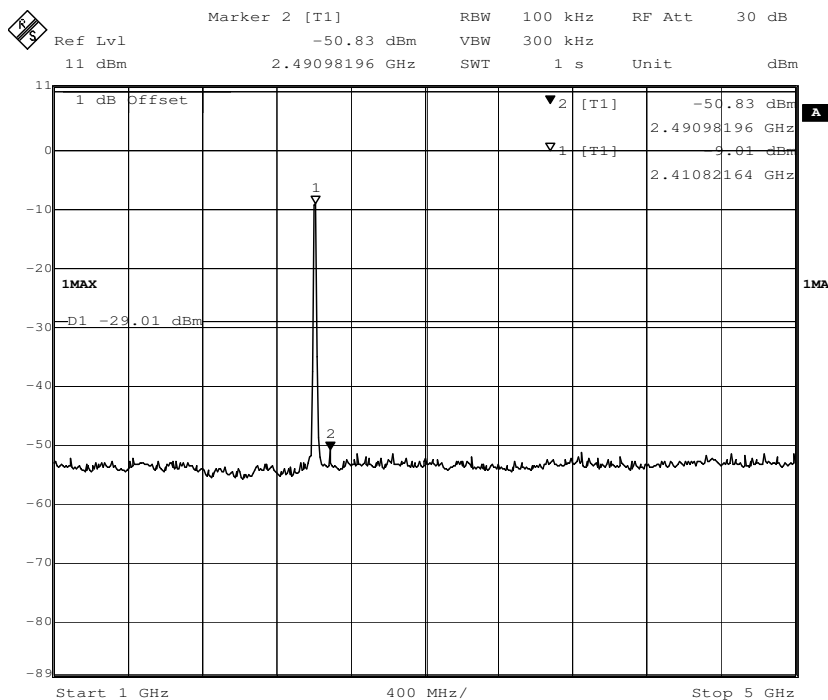
802.11n(HT20) mode with 65Mbps data rate

Channel 1: 2.412GHz:

30 MHz to 1 GHz

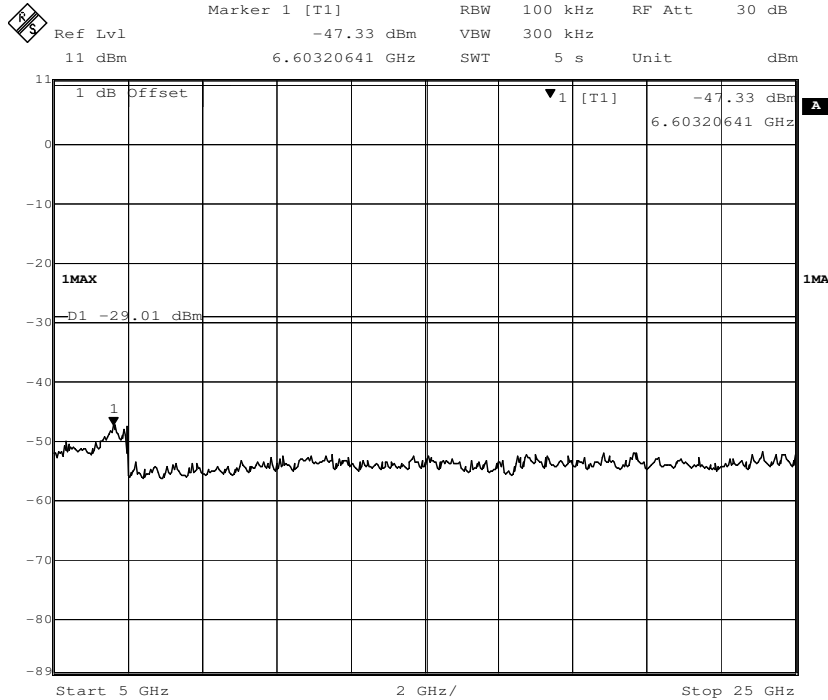


1 G to 5 GHz



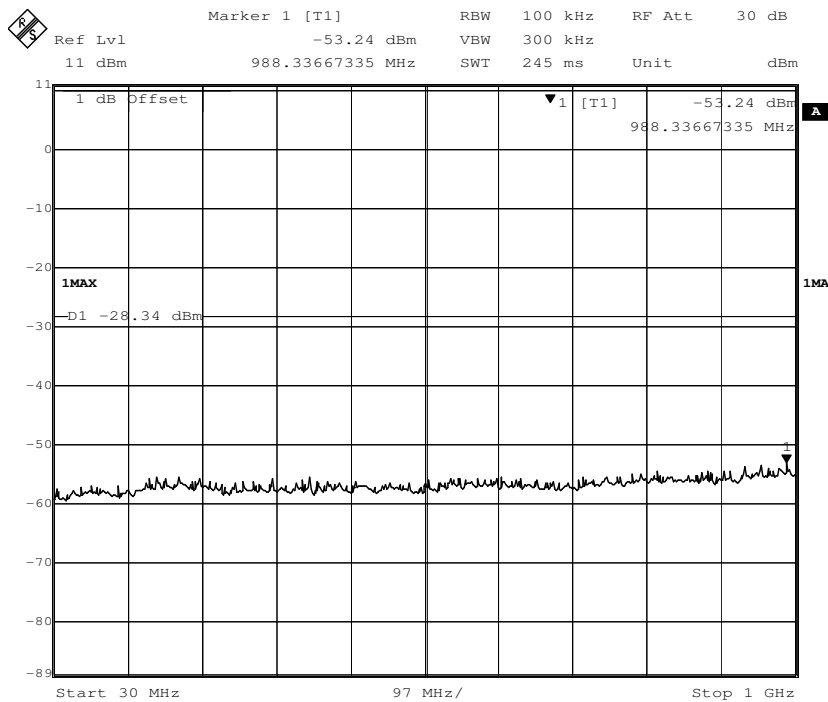


5 G to 25 GHz



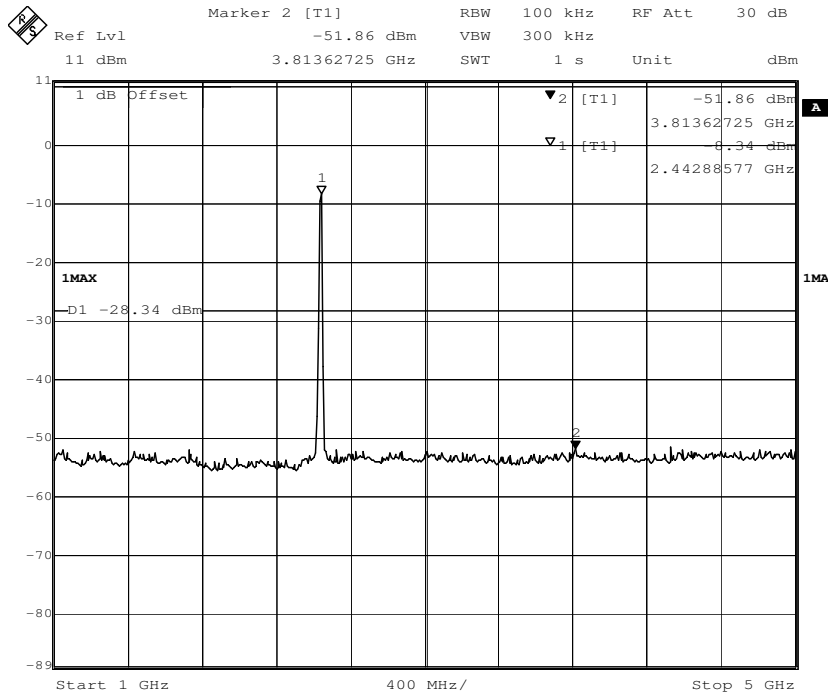
Channel 7: 2.442GHz:

30 MHz to 1 GHz

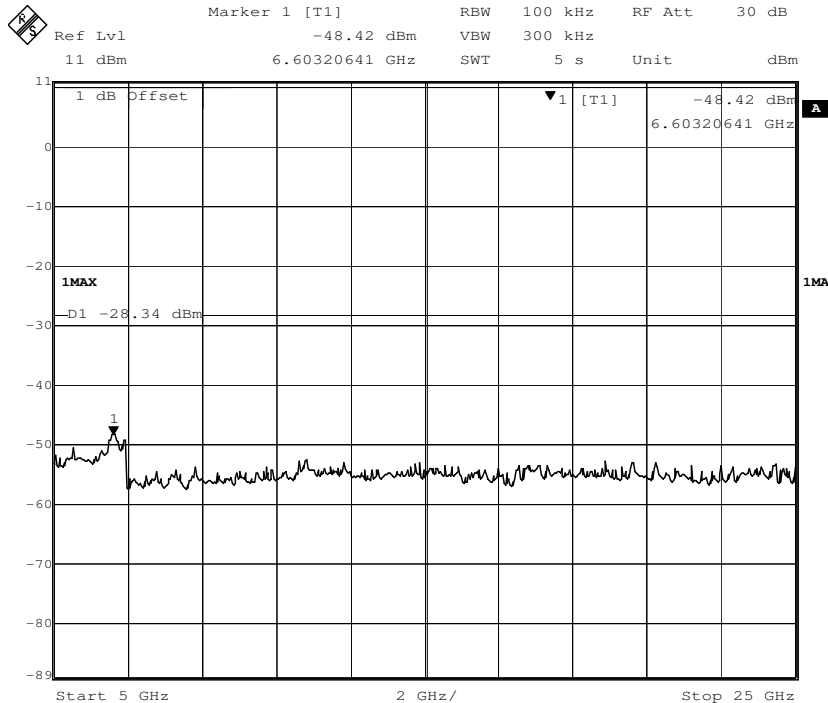




1 G to 5 GHz



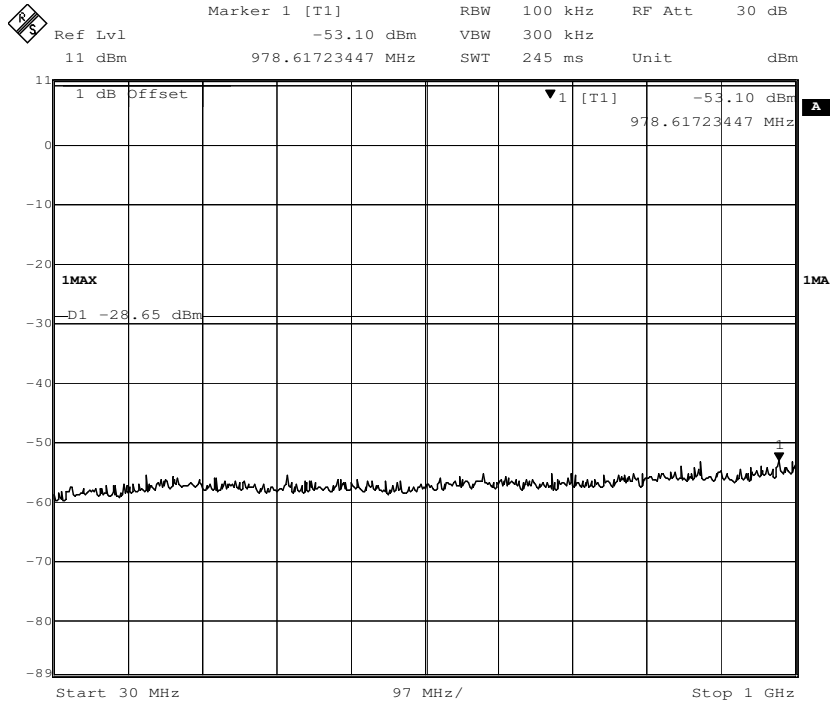
5 G to 25 GHz



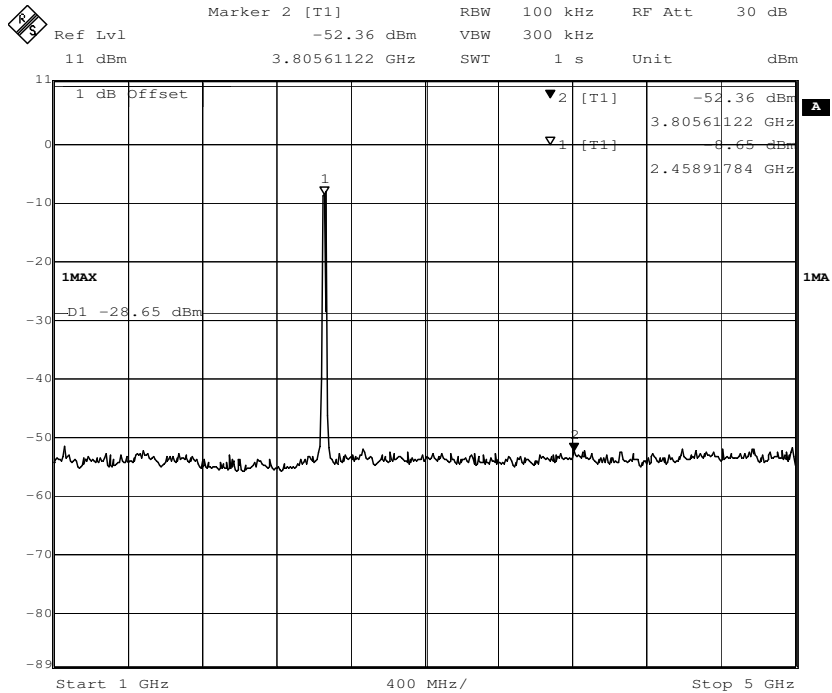


Channel 11:2.462 GHz

30 MHz to 1 GHz

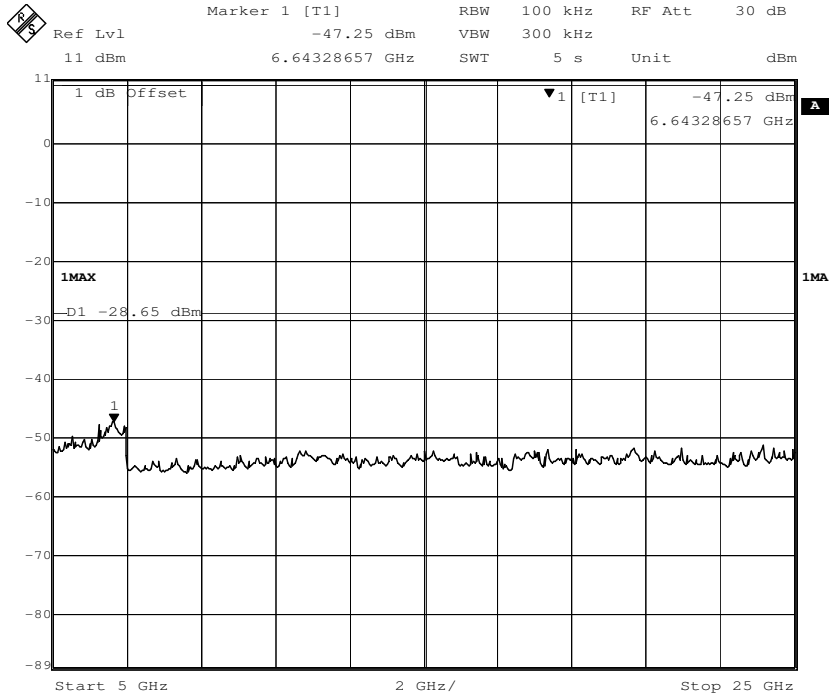


1 G to 5 GHz





5 G to 25 GHz





7.6.1 Radiated Emissions which fall in the restricted bands

Test Requirement:	FCC Part 15 C section 15.247 (d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
Test Method:	ANSI C63.10: Clause 11.12, 6.3, 6.5 and 6.6
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Limit:	40.0 dB μ V/m between 30MHz & 88MHz; 43.5 dB μ V/m between 88MHz & 216MHz; 46.0 dB μ V/m between 216MHz & 960MHz; 54.0 dB μ V/m above 960MHz.
Detector:	For PK value: RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz VBW \geq RBW Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz VBW = 10Hz Sweep = auto Detector function = peak Trace = max hold
Test Frequency Range:	30M-26.5GHz



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		



Test Result:

30MHz~1000 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

7.6.1.1 802.11b mode with 11Mbps data rate

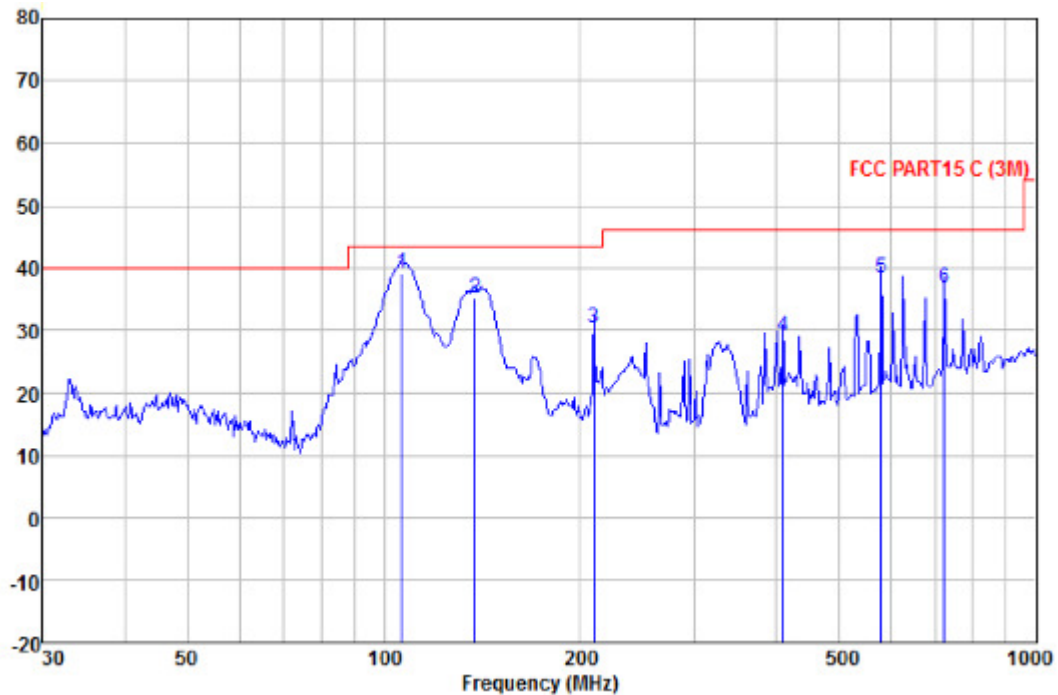
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

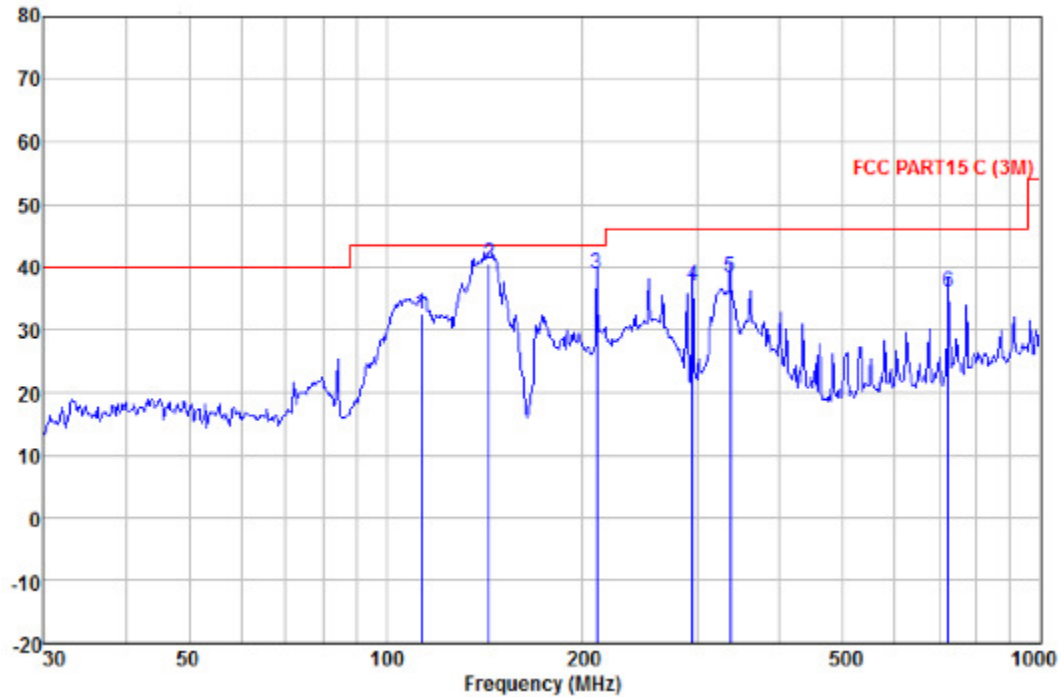
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
106.385	49.65	14.63	1.88	26.90	39.26	43.50	-4.24	QP
137.903	47.19	12.55	2.21	26.83	35.12	43.50	-8.38	QP
210.048	43.16	11.10	2.77	26.57	30.46	43.50	-13.04	QP
408.946	35.93	16.35	3.95	27.24	28.99	46.00	-17.01	QP
578.670	43.85	17.80	4.73	28.00	38.38	46.00	-7.62	QP
724.261	40.10	19.37	5.25	28.00	36.72	46.00	-9.28	QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark		
MHz	Level	Factor	Loss	Line	Limit			
	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
113.316	42.07	15.36	2.02	26.90	32.55	43.50	-10.95	QP
143.830	53.84	11.15	2.26	26.81	40.44	43.50	-3.06	QP
210.048	51.52	11.10	2.77	26.57	38.82	43.50	-4.68	QP
294.114	46.81	13.40	3.29	26.40	37.10	46.00	-8.90	QP
336.035	47.32	14.17	3.61	26.63	38.47	46.00	-7.53	QP
724.261	39.38	19.37	5.25	28.00	36.00	46.00	-10.00	QP



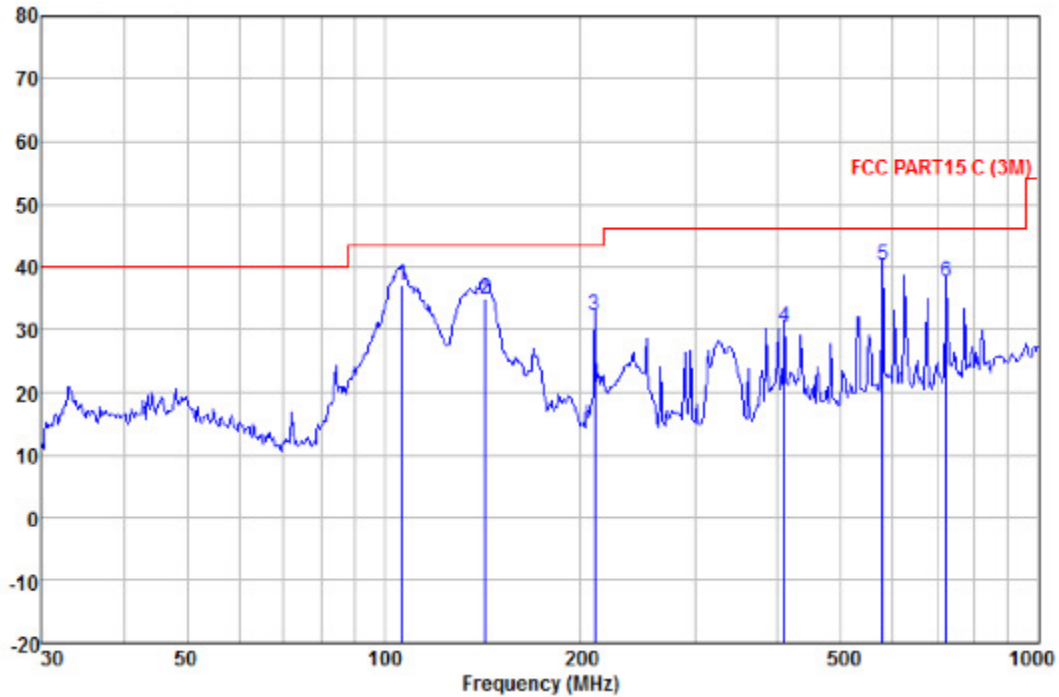
Test at Channel 7 (2.442 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

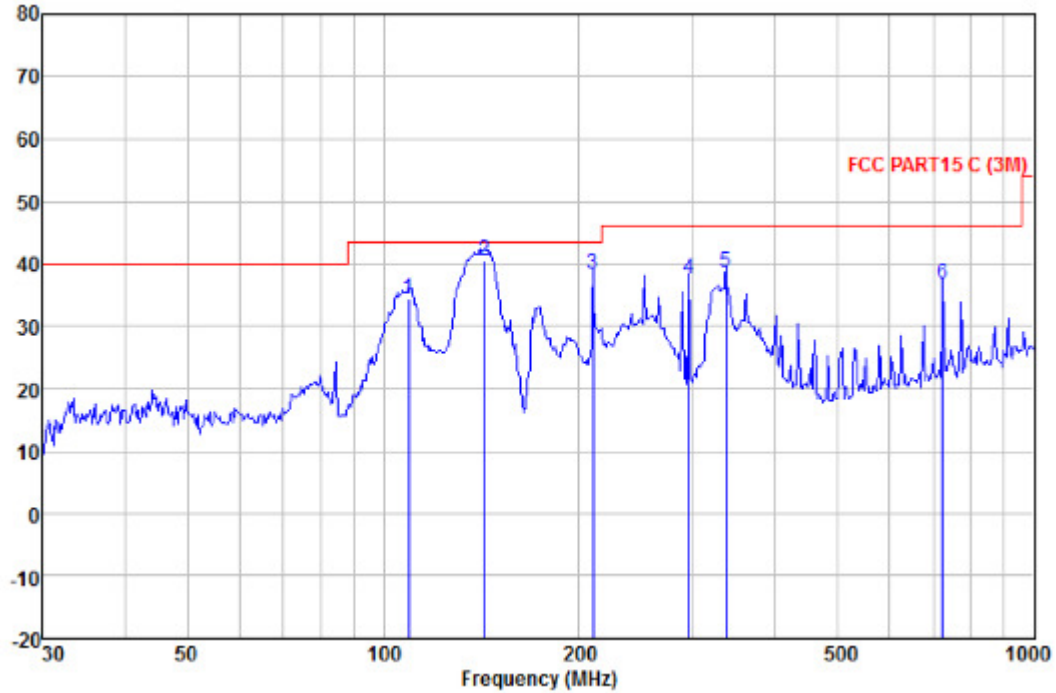
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
106.385	47.56	14.63	1.88	26.90	37.17	43.50	-6.33	QP
142.824	48.14	11.29	2.25	26.81	34.87	43.50	-8.63	QP
210.048	44.99	11.10	2.77	26.57	32.29	43.50	-11.21	QP
408.946	37.44	16.35	3.95	27.24	30.50	46.00	-15.50	QP
578.670	45.82	17.80	4.73	28.00	40.35	46.00	-5.65	QP
724.261	41.05	19.37	5.25	28.00	37.67	46.00	-8.33	QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark	
MHz	Level	Factor	Loss	Line	Limit		
	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
109.412	44.00	15.40	1.95	26.90	34.45	43.50	-9.05 QP
142.824	53.74	11.29	2.25	26.81	40.47	43.50	-3.03 QP
210.048	51.16	11.10	2.77	26.57	38.46	43.50	-5.04 QP
294.114	47.22	13.40	3.29	26.40	37.51	46.00	-8.49 QP
336.035	47.52	14.17	3.61	26.63	38.67	46.00	-7.33 QP
724.261	40.15	19.37	5.25	28.00	36.77	46.00	-9.23 QP



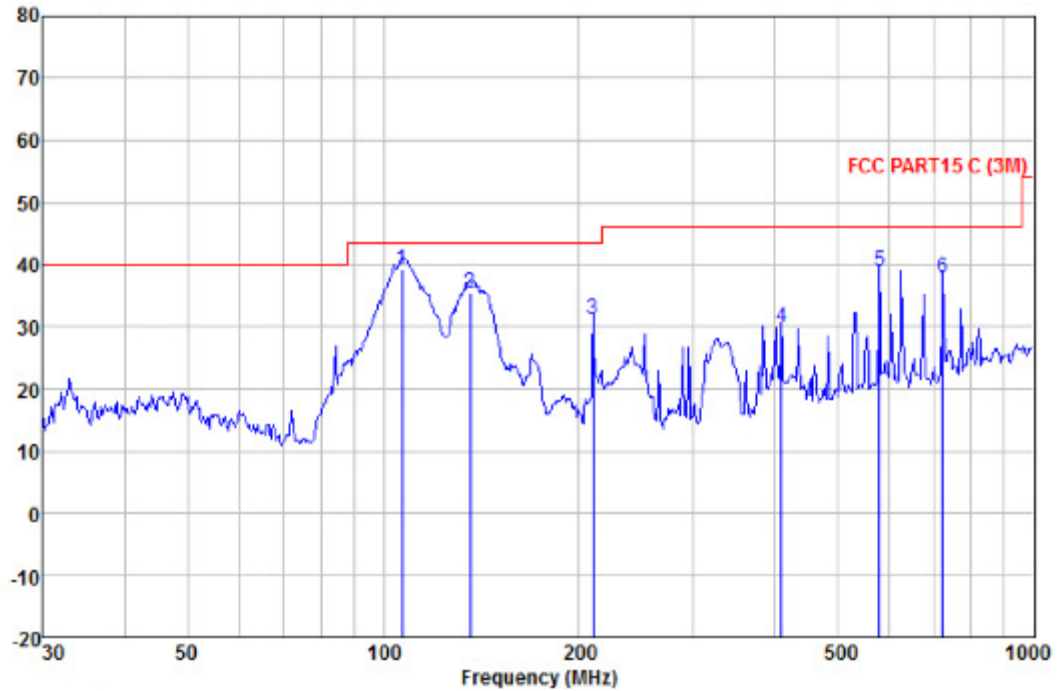
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

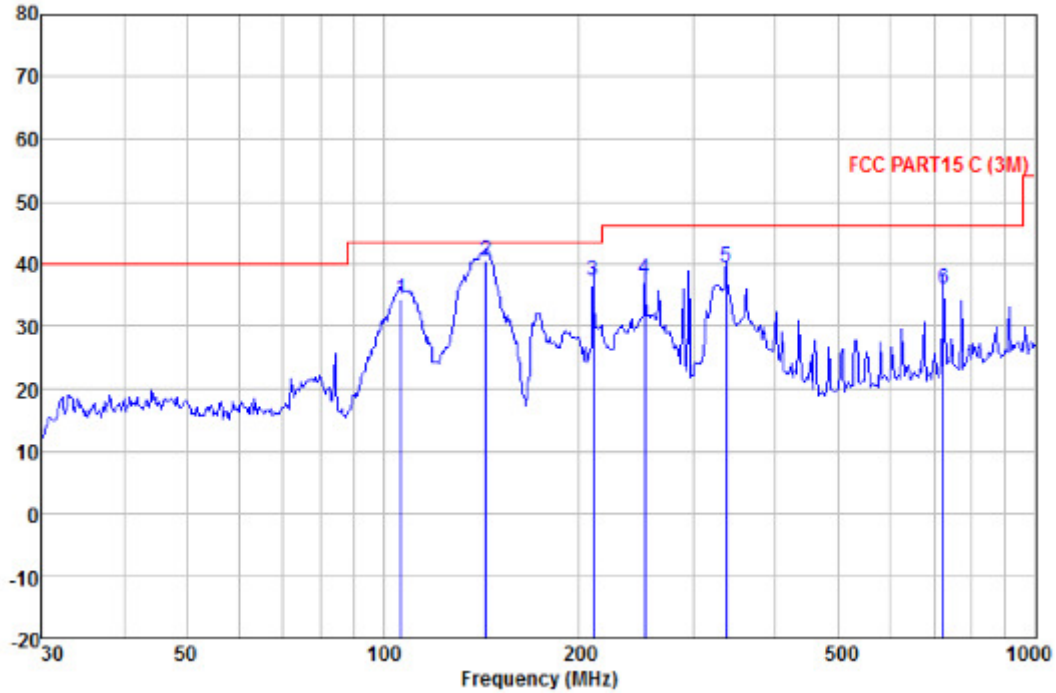
Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark	
MHz	Level	Factor	Loss	Line	Limit		
	dBuV	dB/m	dB	dB	dBuV/m	dB	
106.759	49.45	14.76	1.88	26.90	39.19	43.50	-4.31 QP
135.982	47.08	12.98	2.20	26.84	35.42	43.50	-8.08 QP
210.048	43.95	11.10	2.77	26.57	31.25	43.50	-12.25 QP
408.946	36.73	16.35	3.95	27.24	29.79	46.00	-16.21 QP
578.670	44.46	17.80	4.73	28.00	38.99	46.00	-7.01 QP
724.261	41.35	19.37	5.25	28.00	37.97	46.00	-8.03 QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
106.385	44.79	14.63	1.88	26.90	34.40	43.50	-9.10	QP
143.830	53.85	11.15	2.26	26.81	40.45	43.50	-3.05	QP
210.048	50.16	11.10	2.77	26.57	37.46	43.50	-6.04	QP
252.063	48.99	12.05	3.08	26.44	37.68	46.00	-8.32	QP
336.035	48.43	14.17	3.61	26.63	39.58	46.00	-6.42	QP
724.261	39.45	19.37	5.25	28.00	36.07	46.00	-9.93	QP

7.6.1.2 802.11g mode with 54Mbps data rate

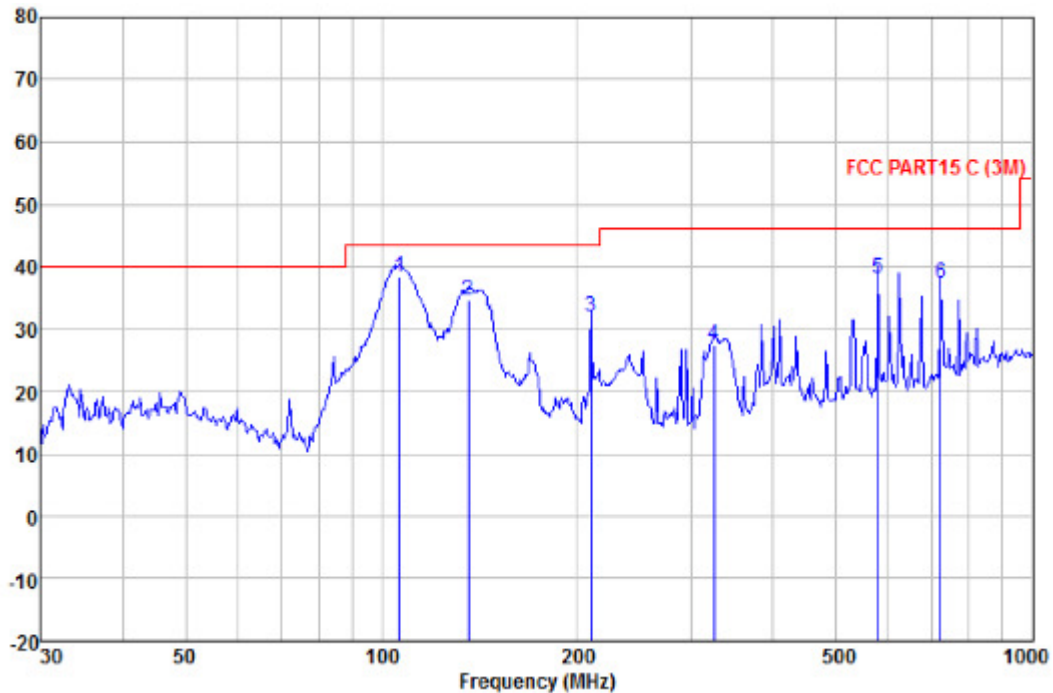
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

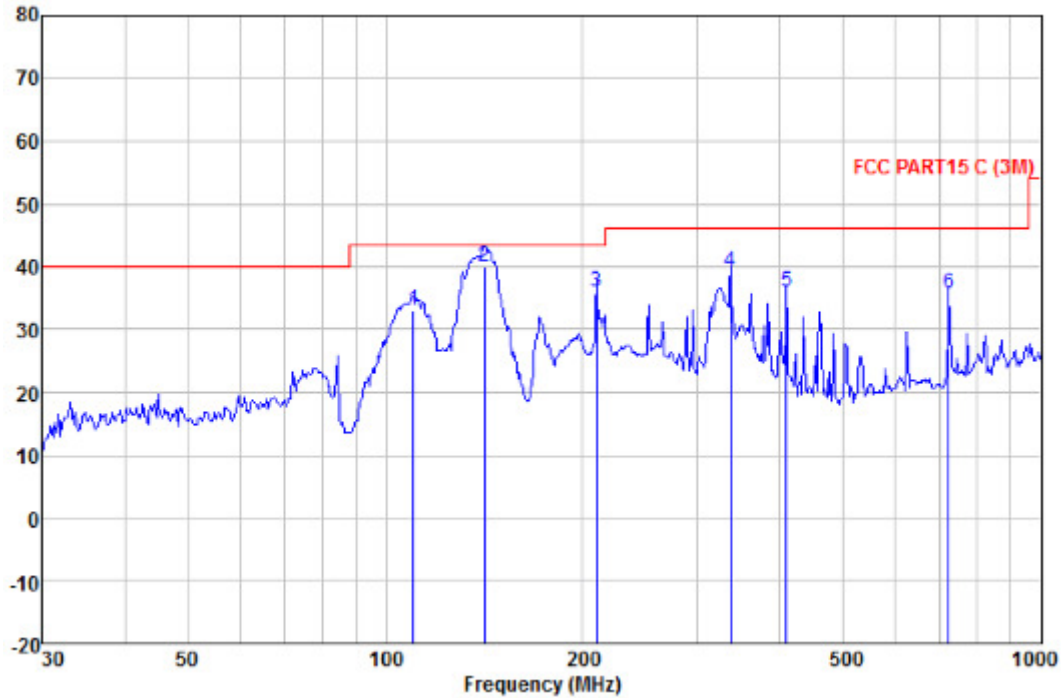
Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark	
MHz	Level	Factor	Loss	Line	Limit		
	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	
106.385	48.68	14.63	1.88	26.90	38.29	43.50	-5.21 QP
135.982	46.40	12.98	2.20	26.84	34.74	43.50	-8.76 QP
210.048	44.64	11.10	2.77	26.57	31.94	43.50	-11.56 QP
324.456	36.48	13.90	3.55	26.57	27.36	46.00	-18.64 QP
578.670	43.54	17.80	4.73	28.00	38.07	46.00	-7.93 QP
724.261	40.81	19.37	5.25	28.00	37.43	46.00	-8.57 QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark		
MHz	Level	Factor	Loss	Factor	Level	Line	Limit	dB
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
110.182	42.61	15.50	1.95	26.90	33.16	43.50	-10.34	QP
141.826	53.05	11.65	2.25	26.82	40.13	43.50	-3.37	QP
210.048	48.76	11.10	2.77	26.57	36.06	43.50	-7.44	QP
336.035	47.97	14.17	3.61	26.63	39.12	46.00	-6.88	QP
408.946	42.99	16.35	3.95	27.24	36.05	46.00	-9.95	QP
724.261	39.19	19.37	5.25	28.00	35.81	46.00	-10.19	QP



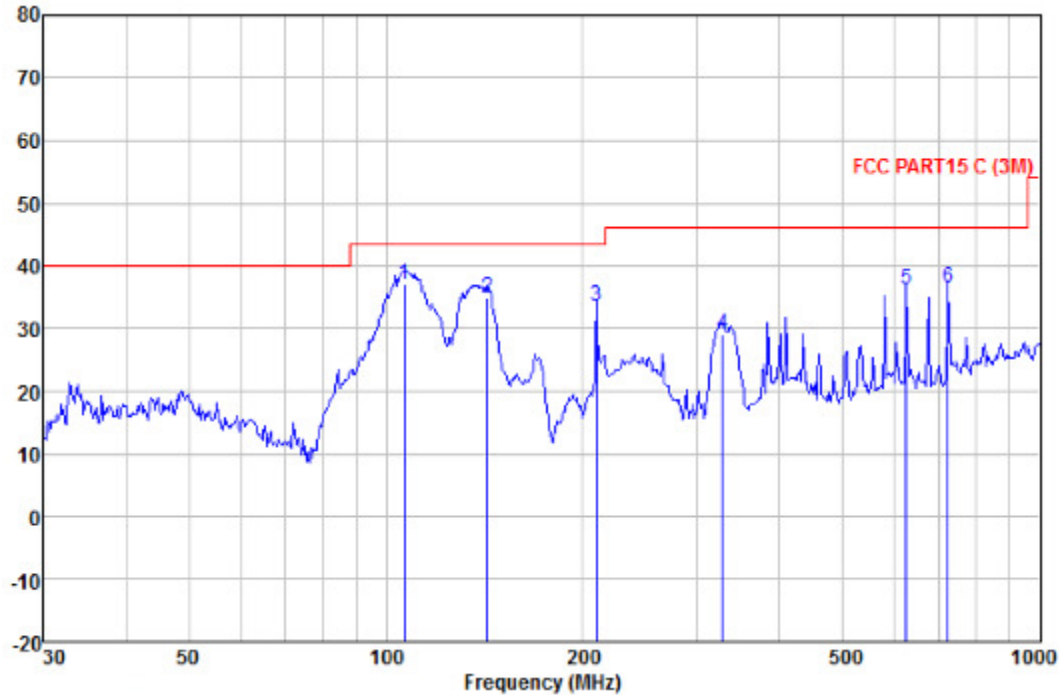
Test at Channel 7 (2.442 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

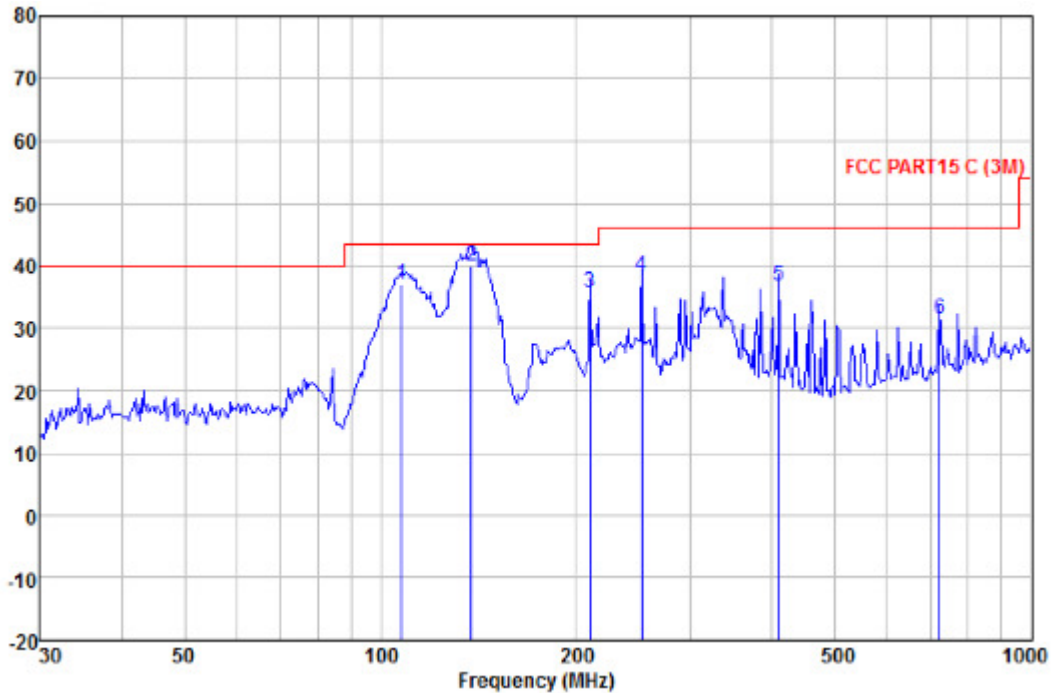
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
106.759	47.41	14.76	1.88	26.90	37.15	43.50	-6.35	QP
142.824	48.15	11.29	2.25	26.81	34.88	43.50	-8.62	QP
210.048	46.24	11.10	2.77	26.57	33.54	43.50	-9.96	QP
326.740	38.06	13.90	3.57	26.58	28.95	46.00	-17.05	QP
625.078	42.06	17.47	4.90	28.09	36.34	46.00	-9.66	QP
724.261	40.00	19.37	5.25	28.00	36.62	46.00	-9.38	QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
107.888	46.94	15.04	1.90	26.90	36.98	43.50	-6.52	QP
137.903	52.15	12.55	2.21	26.83	40.08	43.50	-3.42	QP
210.048	48.56	11.10	2.77	26.57	35.86	43.50	-7.64	QP
252.063	49.73	12.05	3.08	26.44	38.42	46.00	-7.58	QP
408.946	43.63	16.35	3.95	27.24	36.69	46.00	-9.31	QP
724.261	34.92	19.37	5.25	28.00	31.54	46.00	-14.46	QP



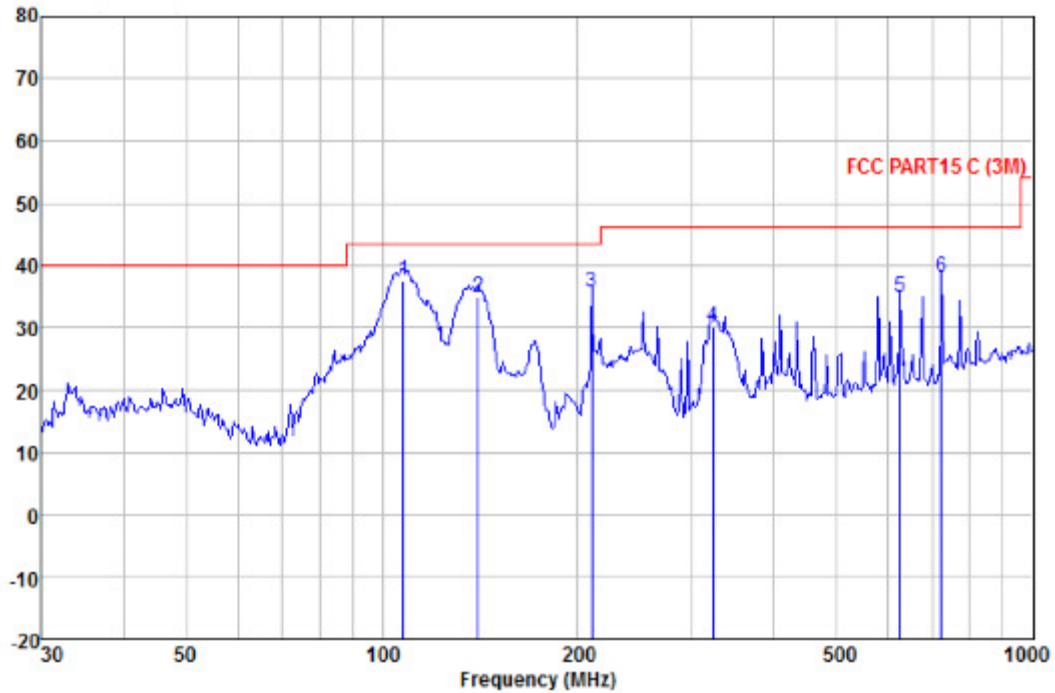
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

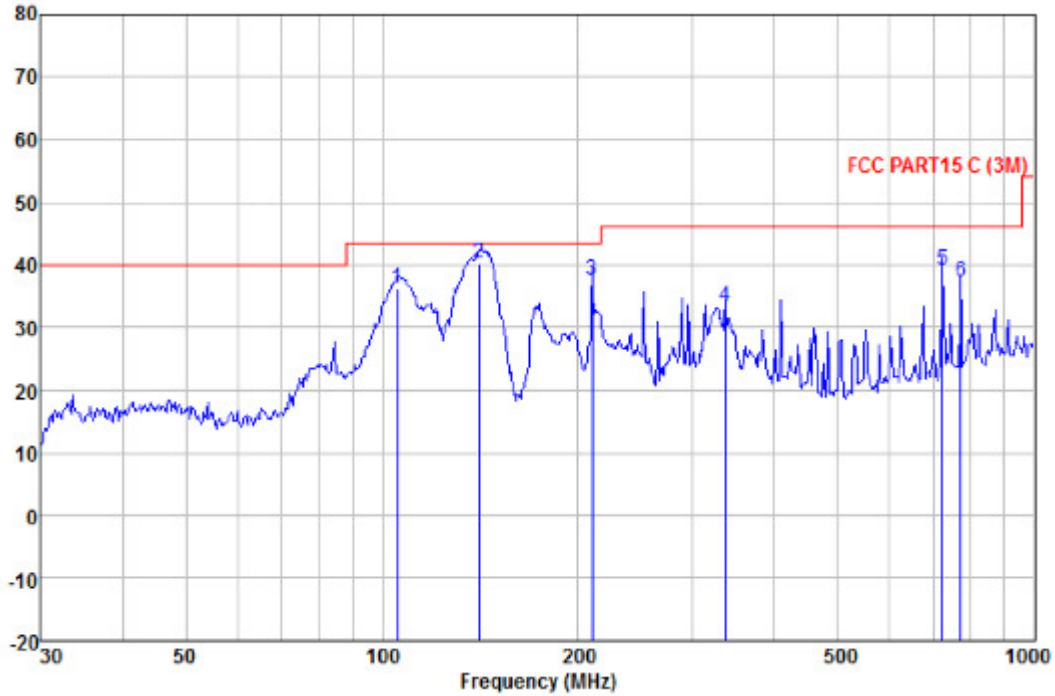
ReadAntenna Freq	Level	Cable Factor	Preamp Loss	Factor	Limit Level	Over Line	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB
107.888	47.53	15.04	1.90	26.90	37.57	43.50	-5.93 QP
140.342	47.48	12.00	2.24	26.82	34.90	43.50	-8.60 QP
210.048	48.38	11.10	2.77	26.57	35.68	43.50	-7.82 QP
322.189	39.26	13.90	3.55	26.56	30.15	46.00	-15.85 QP
625.078	40.66	17.47	4.90	28.09	34.94	46.00	-11.06 QP
724.261	41.51	19.37	5.25	28.00	38.13	46.00	-7.87 QP



Horizontal:

Peak scan

Level (dB μ V/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	
105.642	46.91	14.40	1.88	26.90	36.29	43.50	-7.21	QP
140.835	53.09	11.83	2.24	26.82	40.34	43.50	-3.16	QP
210.048	50.19	11.10	2.77	26.57	37.49	43.50	-6.01	QP
336.035	42.30	14.17	3.61	26.63	33.45	46.00	-12.55	QP
724.261	42.51	19.37	5.25	28.00	39.13	46.00	-6.87	QP
771.449	41.07	18.70	5.50	27.99	37.28	46.00	-8.72	QP

7.6.1.3 802.11n(HT20) mode with 65Mbps data rate

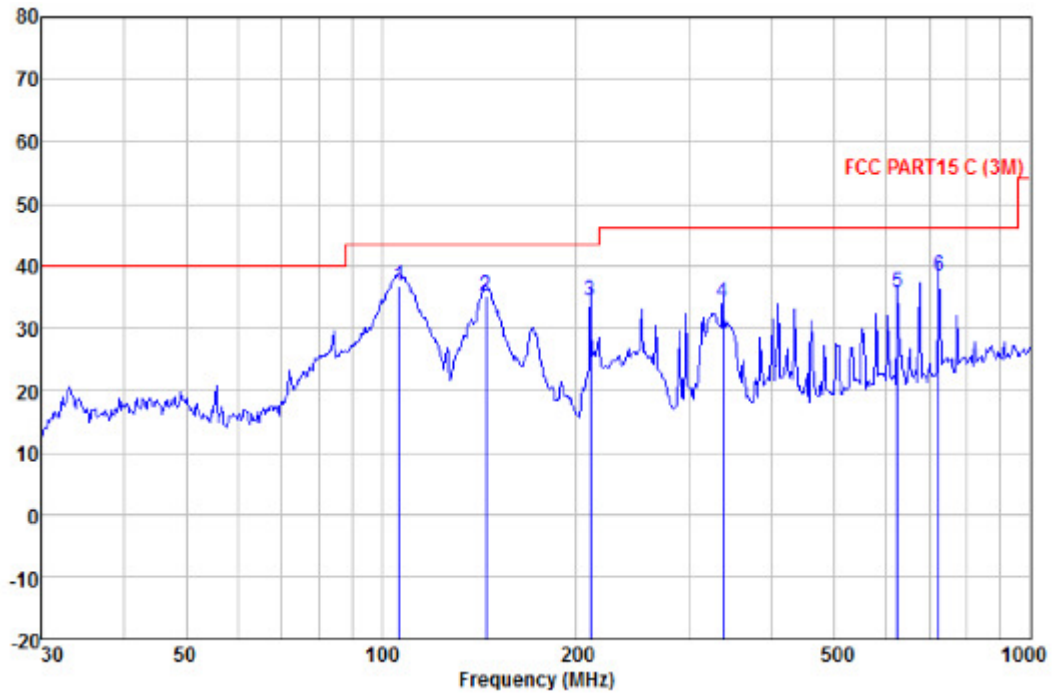
Test at Channel 1 (2.412 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

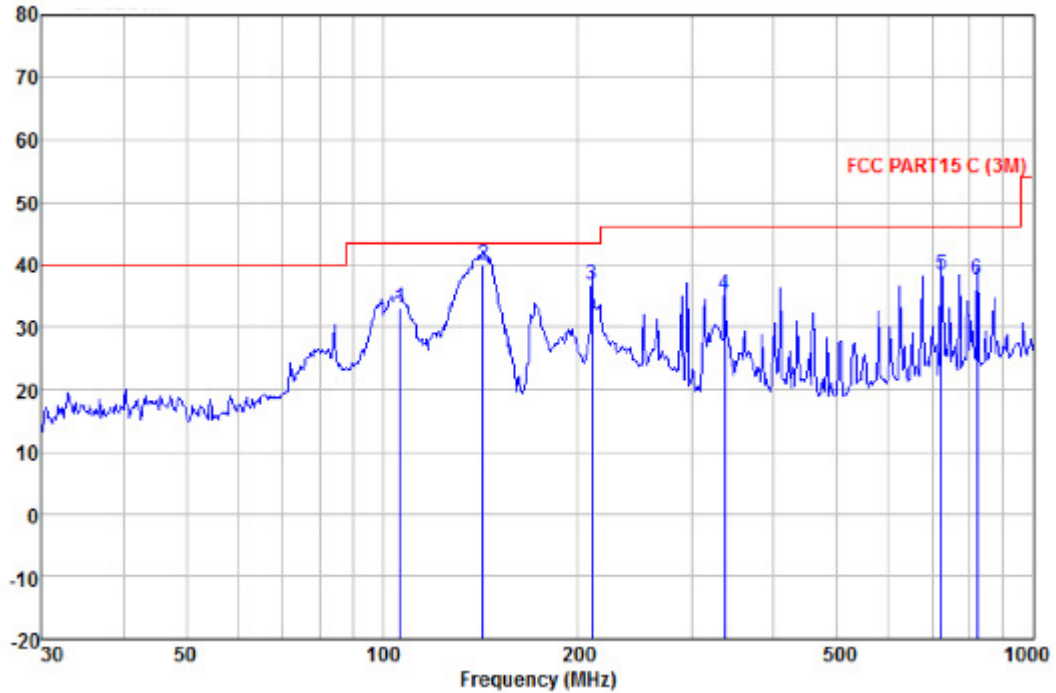
Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Remark
MHz	Level	Factor	Loss	Factor	Line	Limit	
	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB
106.385	47.11	14.63	1.88	26.90	36.72	43.50	-6.78 QP
144.842	48.76	10.90	2.27	26.81	35.12	43.50	-8.38 QP
210.048	47.14	11.10	2.77	26.57	34.44	43.50	-9.06 QP
336.035	43.06	14.17	3.61	26.63	34.21	46.00	-11.79 QP
625.078	41.53	17.47	4.90	28.09	35.81	46.00	-10.19 QP
724.261	41.80	19.37	5.25	28.00	38.42	46.00	-7.58 QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
106.385	43.53	14.63	1.88	26.90	33.14	43.50	-10.36	QP
142.824	53.31	11.29	2.25	26.81	40.04	43.50	-3.46	QP
210.048	49.59	11.10	2.77	26.57	36.89	43.50	-6.61	QP
336.035	44.09	14.17	3.61	26.63	35.24	46.00	-10.76	QP
724.261	41.78	19.37	5.25	28.00	38.40	46.00	-7.60	QP
821.710	39.87	19.90	5.67	27.90	37.54	46.00	-8.46	QP

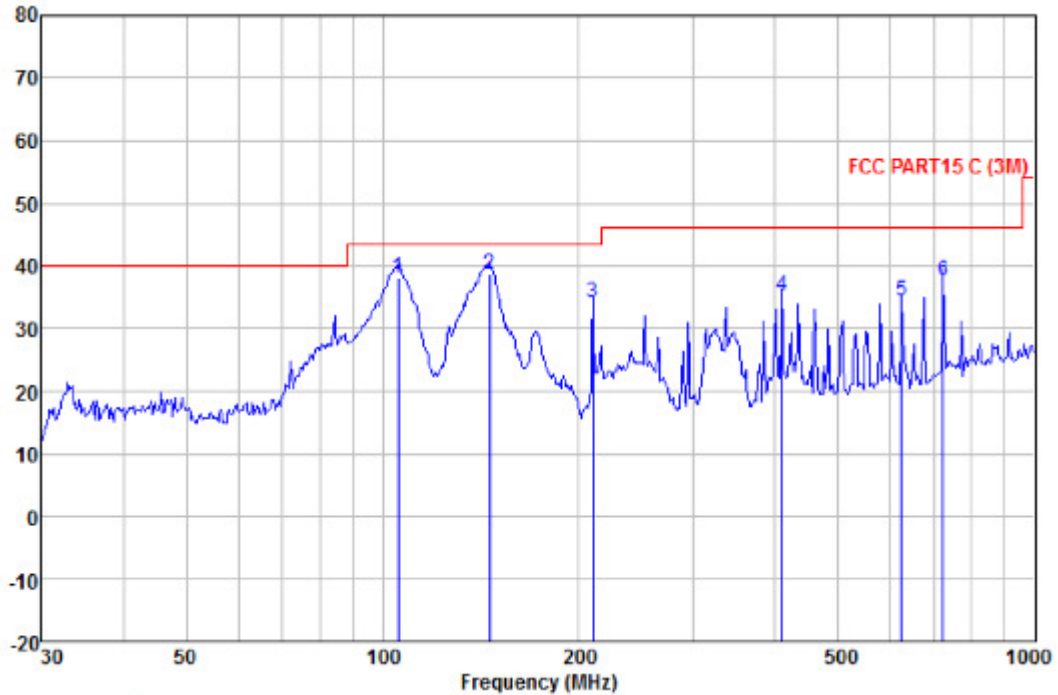
Test at Channel 7 (2.442 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

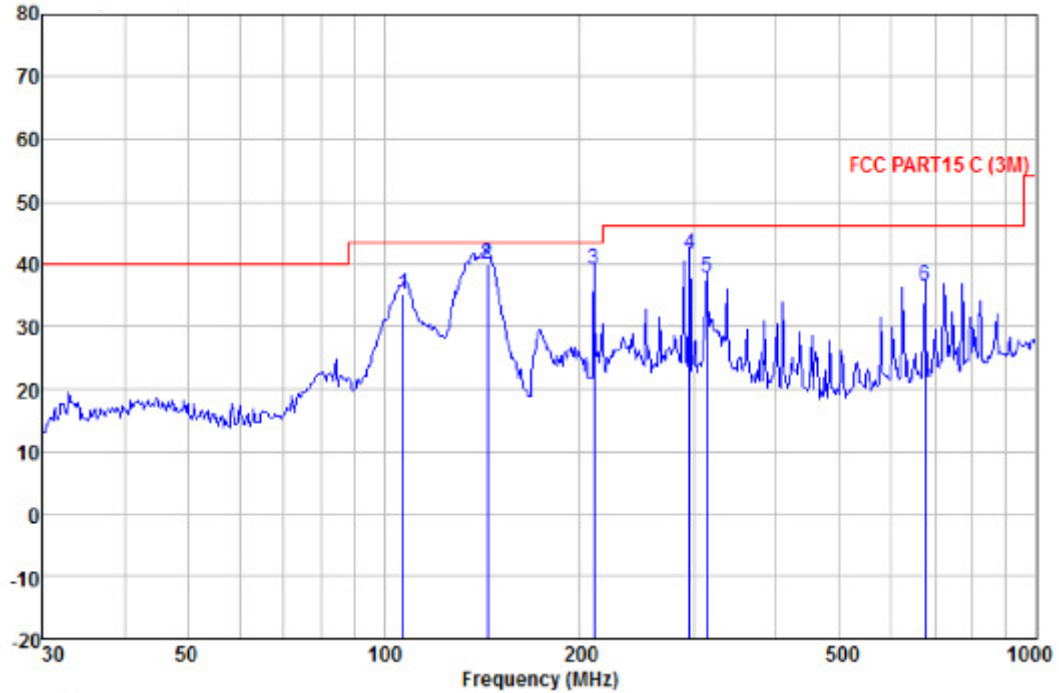
Freq	ReadAntenna	Cable	Preamp	Limit	Over	Remark	
MHz	Level	Factor	Loss	Line	Limit		
	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	
105.642	48.85	14.40	1.88	26.90	38.23	43.50	-5.27 QP
145.861	52.41	10.75	2.27	26.81	38.62	43.50	-4.88 QP
210.048	46.92	11.10	2.77	26.57	34.22	43.50	-9.28 QP
408.946	42.15	16.35	3.95	27.24	35.21	46.00	-10.79 QP
625.078	40.11	17.47	4.90	28.09	34.39	46.00	-11.61 QP
724.261	40.89	19.37	5.25	28.00	37.51	46.00	-8.49 QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
107.134	45.33	14.76	1.90	26.90	35.09	43.50	-8.41	QP
144.335	53.40	11.02	2.26	26.81	39.87	43.50	-3.63	QP
210.048	51.97	11.10	2.77	26.57	39.27	43.50	-4.23	QP
294.114	51.32	13.40	3.29	26.40	41.61	46.00	-4.39	QP
313.276	47.14	13.70	3.45	26.49	37.80	46.00	-8.20	QP
675.208	41.93	17.60	5.07	28.01	36.59	46.00	-9.41	QP

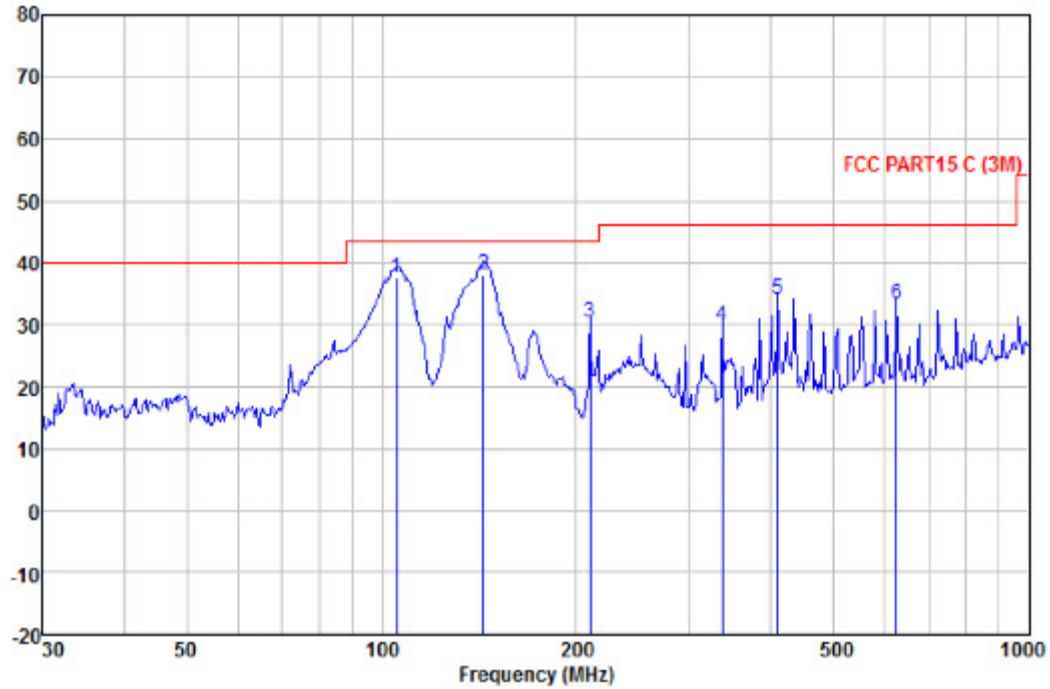
Test at Channel 11 (2.462 GHz) in transmitting status

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

Vertical:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

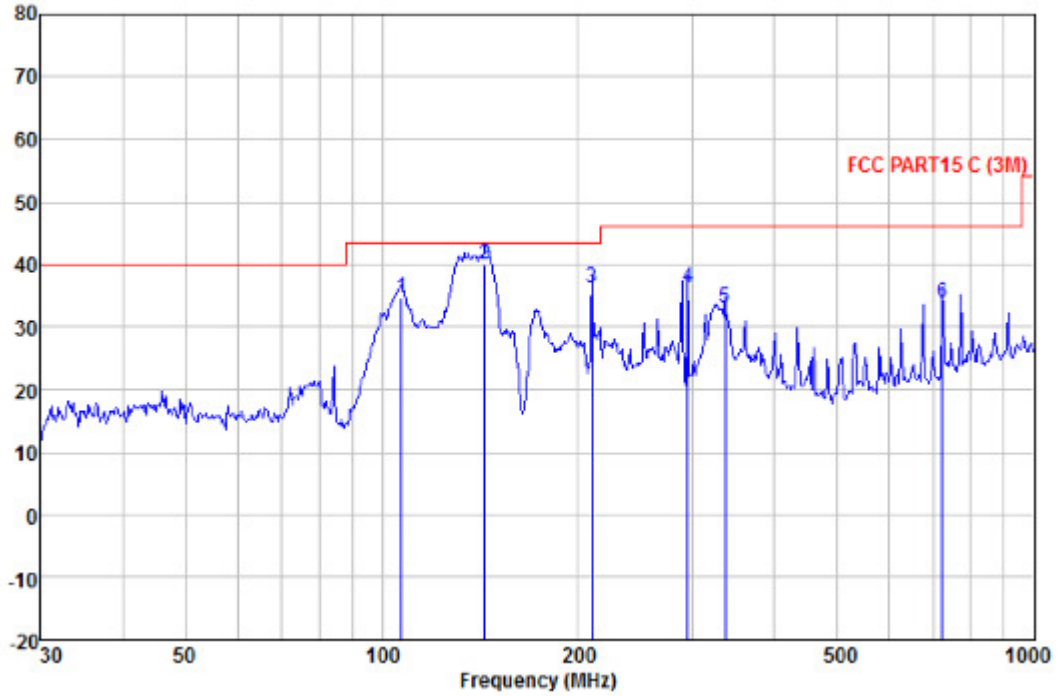
Freq	ReadAntenna Level	Cable Preamp	Limit	Over	Remark			
MHz	dBuV	Factor	Loss	Line	Limit			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
105.642	48.14	14.40	1.88	26.90	37.52	43.50	-5.98	QP
143.830	51.56	11.15	2.26	26.81	38.16	43.50	-5.34	QP
210.048	43.08	11.10	2.77	26.57	30.38	43.50	-13.12	QP
336.035	38.65	14.17	3.61	26.63	29.80	46.00	-16.20	QP
408.946	40.99	16.35	3.95	27.24	34.05	46.00	-11.95	QP
625.078	39.07	17.47	4.90	28.09	33.35	46.00	-12.65	QP



Horizontal:

Peak scan

Level (dB μ V/m)



Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
107.134	44.94	14.76	1.90	26.90	34.70	43.50	-8.80	QP
143.830	53.38	11.15	2.26	26.81	39.98	43.50	-3.52	QP
210.048	49.01	11.10	2.77	26.57	36.31	43.50	-7.19	QP
294.114	46.11	13.40	3.29	26.40	36.40	46.00	-9.60	QP
336.035	41.85	14.17	3.61	26.63	33.00	46.00	-13.00	QP
724.261	37.31	19.37	5.25	28.00	33.93	46.00	-12.07	QP



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

7.6.1.4 802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.47	27.93	6.80	35.20	41.00	74.00	Vertical
2390.00	48.05	27.61	6.87	35.20	47.33	74.00	V
2483.50	44.17	27.55	7.07	35.27	43.52	74.00	V
2500.00	42.67	27.55	7.10	35.30	42.02	74.00	V
2310.00	43.64	27.93	6.80	35.20	43.17	74.00	Horizontal
2390.00	53.36	27.61	6.87	35.20	52.64	74.00	H
2483.50	46.82	27.55	7.07	35.27	46.17	74.00	H
2500.00	50.20	27.55	7.10	35.30	49.55	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	28.11	27.93	6.80	35.20	27.64	54.00	Vertical
2390.00	34.33	27.61	6.87	35.20	33.61	54.00	V
2483.50	29.83	27.55	7.07	35.27	29.18	54.00	V
2500.00	29.30	27.55	7.10	35.30	28.65	54.00	V
2310.00	29.09	27.93	6.80	35.20	28.62	54.00	Horizontal
2390.00	33.82	27.61	6.87	35.20	33.10	54.00	H
2483.50	29.98	27.55	7.07	35.27	29.33	54.00	H
2500.00	29.11	27.55	7.10	35.30	28.46	54.00	H



Test at Channel 7 (2.442 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.89	27.93	6.80	35.20	41.42	74.00	Vertical
2390.00	44.12	27.61	6.87	35.20	43.40	74.00	V
2483.50	43.93	27.55	7.07	35.27	43.28	74.00	V
2500.00	42.59	27.55	7.10	35.30	41.94	74.00	V
2310.00	44.89	27.93	6.80	35.20	44.42	74.00	Horizontal
2390.00	46.39	27.61	6.87	35.20	45.67	74.00	H
2483.50	49.78	27.55	7.07	35.27	49.13	74.00	H
2500.00	49.27	27.55	7.10	35.30	48.62	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	30.92	27.93	6.80	35.20	30.45	54.00	Vertical
2390.00	35.58	27.61	6.87	35.20	34.86	54.00	V
2483.50	30.50	27.55	7.07	35.27	29.85	54.00	V
2500.00	29.28	27.55	7.10	35.30	28.63	54.00	V
2310.00	28.43	27.93	6.80	35.20	27.96	54.00	Horizontal
2390.00	29.91	27.61	6.87	35.20	29.19	54.00	H
2483.50	30.61	27.55	7.07	35.27	29.96	54.00	H
2500.00	31.01	27.55	7.10	35.30	30.36	54.00	H



Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.30	27.93	6.80	35.20	40.83	74.00	Vertical
2390.00	42.49	27.61	6.87	35.20	41.77	74.00	V
2483.50	53.54	27.55	7.07	35.27	52.89	74.00	V
2500.00	43.84	27.55	7.10	35.30	43.19	74.00	V
2310.00	42.39	27.93	6.80	35.20	41.92	74.00	Horizontal
2390.00	44.65	27.61	6.87	35.20	43.93	74.00	H
2483.50	56.05	27.55	7.07	35.27	55.40	74.00	H
2500.00	50.41	27.55	7.10	35.30	49.76	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	30.16	27.93	6.80	35.20	29.69	54.00	Vertical
2390.00	29.58	27.61	6.87	35.20	28.86	54.00	V
2483.50	40.33	27.55	7.07	35.27	39.68	54.00	V
2500.00	31.12	27.55	7.10	35.30	30.47	54.00	V
2310.00	28.33	27.93	6.80	35.20	27.86	54.00	Horizontal
2390.00	27.49	27.61	6.87	35.20	26.77	54.00	H
2483.50	43.04	27.55	7.07	35.27	42.39	54.00	H
2500.00	29.68	27.55	7.10	35.30	29.03	54.00	H



7.6.1.5 802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.56	27.93	6.80	35.20	41.09	74.00	Vertical
2390.00	47.39	27.61	6.87	35.20	46.67	74.00	V
2483.50	42.68	27.55	7.07	35.27	42.03	74.00	V
2500.00	44.41	27.55	7.10	35.30	43.76	74.00	V
2310.00	44.22	27.93	6.80	35.20	43.75	74.00	Horizontal
2390.00	55.12	27.61	6.87	35.20	54.40	74.00	H
2483.50	49.37	27.55	7.07	35.27	48.72	74.00	H
2500.00	48.19	27.55	7.10	35.30	47.54	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	30.98	27.93	6.80	35.20	30.51	54.00	Vertical
2390.00	33.60	27.61	6.87	35.20	32.88	54.00	V
2483.50	31.39	27.55	7.07	35.27	30.74	54.00	V
2500.00	29.70	27.55	7.10	35.30	29.05	54.00	V
2310.00	30.77	27.93	6.80	35.20	30.30	54.00	Horizontal
2390.00	40.25	27.61	6.87	35.20	39.53	54.00	H
2483.50	31.46	27.55	7.07	35.27	30.81	54.00	H
2500.00	31.70	27.55	7.10	35.30	31.05	54.00	H



Test at Channel 7 (2.442 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.42	27.93	6.80	35.20	40.95	74.00	Vertical
2390.00	41.56	27.61	6.87	35.20	40.84	74.00	V
2483.50	51.89	27.55	7.07	35.27	51.24	74.00	V
2500.00	42.93	27.55	7.10	35.30	42.28	74.00	V
2310.00	43.95	27.93	6.80	35.20	43.48	74.00	Horizontal
2390.00	45.88	27.61	6.87	35.20	45.16	74.00	H
2483.50	54.86	27.55	7.07	35.27	54.21	74.00	H
2500.00	48.86	27.55	7.10	35.30	48.21	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	29.20	27.93	6.80	35.20	28.73	54.00	Vertical
2390.00	31.20	27.61	6.87	35.20	30.48	54.00	V
2483.50	39.58	27.55	7.07	35.27	38.93	54.00	V
2500.00	29.82	27.55	7.10	35.30	29.17	54.00	V
2310.00	31.43	27.93	6.80	35.20	30.96	54.00	Horizontal
2390.00	31.75	27.61	6.87	35.20	31.03	54.00	H
2483.50	31.06	27.55	7.07	35.27	30.41	54.00	H
2500.00	30.03	27.55	7.10	35.30	29.38	54.00	H



Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.36	27.93	6.80	35.20	40.89	74.00	Vertical
2390.00	41.19	27.61	6.87	35.20	40.47	74.00	V
2483.50	52.32	27.55	7.07	35.27	51.67	74.00	V
2500.00	43.58	27.55	7.10	35.30	42.93	74.00	V
2310.00	44.65	27.93	6.80	35.20	44.18	74.00	Horizontal
2390.00	45.77	27.61	6.87	35.20	45.05	74.00	H
2483.50	65.70	27.55	7.07	35.27	65.05	74.00	H
2500.00	51.48	27.55	7.10	35.30	50.83	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	28.51	27.93	6.80	35.20	28.04	54.00	Vertical
2390.00	28.96	27.61	6.87	35.20	28.24	54.00	V
2483.50	40.42	27.55	7.07	35.27	39.77	54.00	V
2500.00	30.47	27.55	7.10	35.30	29.82	54.00	V
2310.00	32.36	27.93	6.80	35.20	31.89	54.00	Horizontal
2390.00	30.99	27.61	6.87	35.20	30.27	54.00	H
2483.50	51.15	27.55	7.07	35.27	50.50	54.00	H
2500.00	33.82	27.55	7.10	35.30	33.17	54.00	H



7.6.1.6 802.11n(HT20) mode with 65Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.03	27.93	6.80	35.20	40.56	74.00	Vertical
2390.00	44.01	27.61	6.87	35.20	43.29	74.00	V
2483.50	42.78	27.55	7.07	35.27	42.13	74.00	V
2500.00	42.29	27.55	7.10	35.30	41.64	74.00	V
2310.00	43.72	27.93	6.80	35.20	43.25	74.00	Horizontal
2390.00	47.29	27.61	6.87	35.20	46.57	74.00	H
2483.50	46.64	27.55	7.07	35.27	45.99	74.00	H
2500.00	48.87	27.55	7.10	35.30	48.22	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	29.65	27.93	6.80	35.20	29.18	54.00	Vertical
2390.00	28.14	27.61	6.87	35.20	27.42	54.00	V
2483.50	30.02	27.55	7.07	35.27	29.37	54.00	V
2500.00	29.10	27.55	7.10	35.30	28.45	54.00	V
2310.00	28.23	27.93	6.80	35.20	27.76	54.00	Horizontal
2390.00	33.30	27.61	6.87	35.20	32.58	54.00	H
2483.50	30.43	27.55	7.07	35.27	29.78	54.00	H
2500.00	28.99	27.55	7.10	35.30	28.34	54.00	H



Test at Channel 7 (2.442 GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.56	27.93	6.80	35.20	41.09	74.00	Vertical
2390.00	41.74	27.61	6.87	35.20	41.02	74.00	V
2483.50	43.47	27.55	7.07	35.27	42.82	74.00	V
2500.00	43.44	27.55	7.10	35.30	42.79	74.00	V
2310.00	42.65	27.93	6.80	35.20	42.18	74.00	Horizontal
2390.00	48.19	27.61	6.87	35.20	47.47	74.00	H
2483.50	46.69	27.55	7.07	35.27	46.04	74.00	H
2500.00	47.86	27.55	7.10	35.30	47.21	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	29.70	27.93	6.80	35.20	29.23	54.00	Vertical
2390.00	29.33	27.61	6.87	35.20	28.61	54.00	V
2483.50	27.82	27.55	7.07	35.27	27.17	54.00	V
2500.00	29.16	27.55	7.10	35.30	28.51	54.00	V
2310.00	29.64	27.93	6.80	35.20	29.17	54.00	Horizontal
2390.00	29.26	27.61	6.87	35.20	28.54	54.00	H
2483.50	28.86	27.55	7.07	35.27	28.21	54.00	H
2500.00	29.23	27.55	7.10	35.30	28.58	54.00	H



Test at Channel 11 (2.462 GHz) in transmitting status

Peak Measurement:

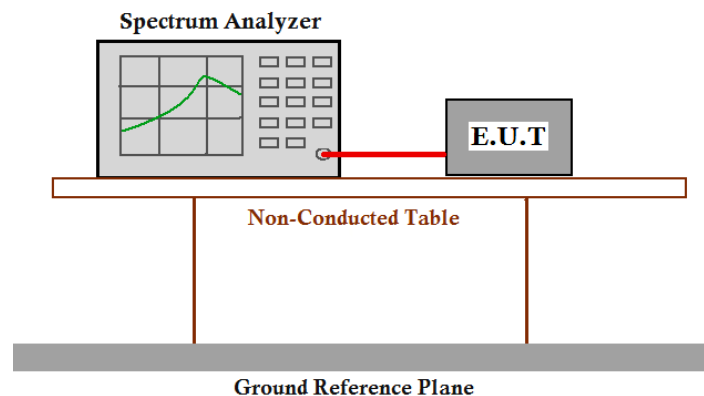
Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	41.63	27.93	6.80	35.20	41.16	74.00	Vertical
2390.00	42.43	27.61	6.87	35.20	41.71	74.00	V
2483.50	46.90	27.55	7.07	35.27	46.25	74.00	V
2500.00	43.39	27.55	7.10	35.30	42.74	74.00	V
2310.00	43.84	27.93	6.80	35.20	43.37	74.00	Horizontal
2390.00	44.86	27.61	6.87	35.20	44.14	74.00	H
2483.50	63.28	27.55	7.07	35.27	62.63	74.00	H
2500.00	48.75	27.55	7.10	35.30	48.10	74.00	H

Average Measurement:

Frequency (MHz)	Reading Level (dB μ V)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Antenna polarization
2310.00	28.21	27.93	6.80	35.20	27.74	54.00	Vertical
2390.00	28.71	27.61	6.87	35.20	27.99	54.00	V
2483.50	29.64	27.55	7.07	35.27	28.99	54.00	V
2500.00	30.64	27.55	7.10	35.30	29.99	54.00	V
2310.00	29.82	27.93	6.80	35.20	29.35	54.00	Horizontal
2390.00	28.83	27.61	6.87	35.20	28.11	54.00	H
2483.50	48.24	27.55	7.07	35.27	47.59	54.00	H
2500.00	30.10	27.55	7.10	35.30	29.45	54.00	H

7.7 Band Edges Requirement

Test Requirement:	FCC Part 15 C section 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Based on either an RF conducted or a radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.
Frequency Band:	2400 MHz to 2483.5 MHz
Test Method:	ANSI C63.10: Clause 11.13
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	





Test Procedure:

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



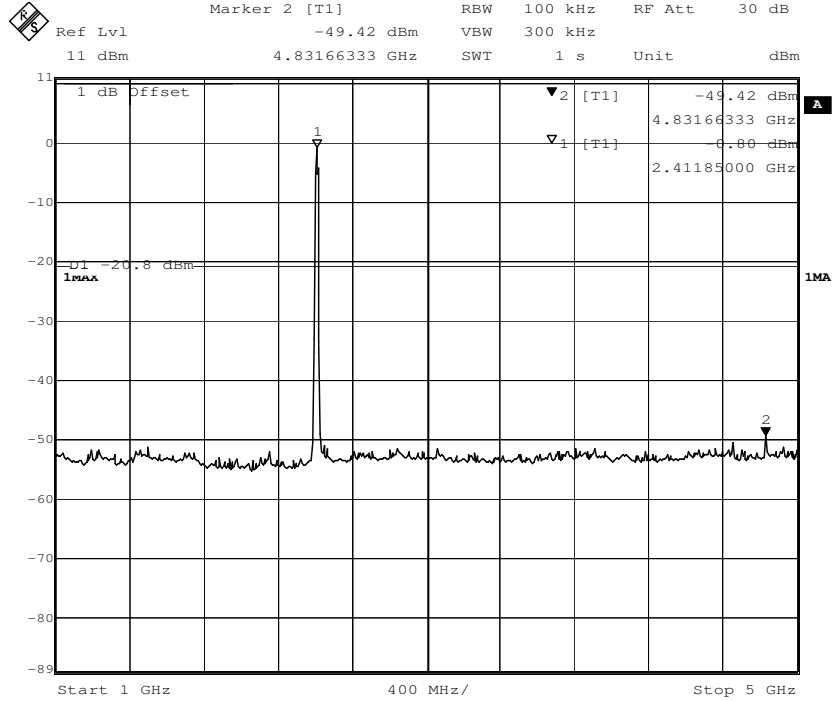
Test result with plots as follows:

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

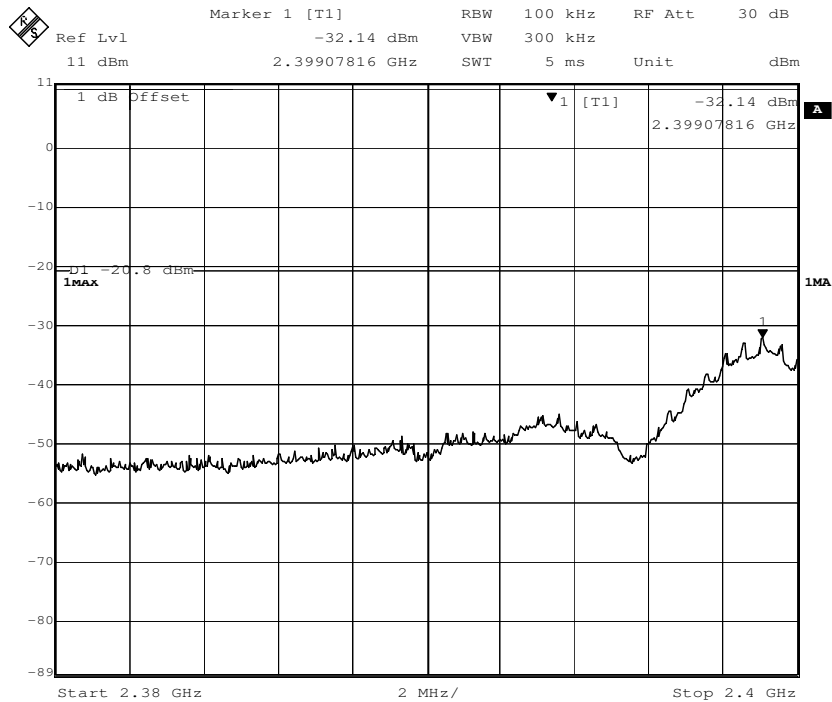
802.11b mode with 11 Mbps data rate

Channel1: 2.412 GHz

Step 1



Step 2

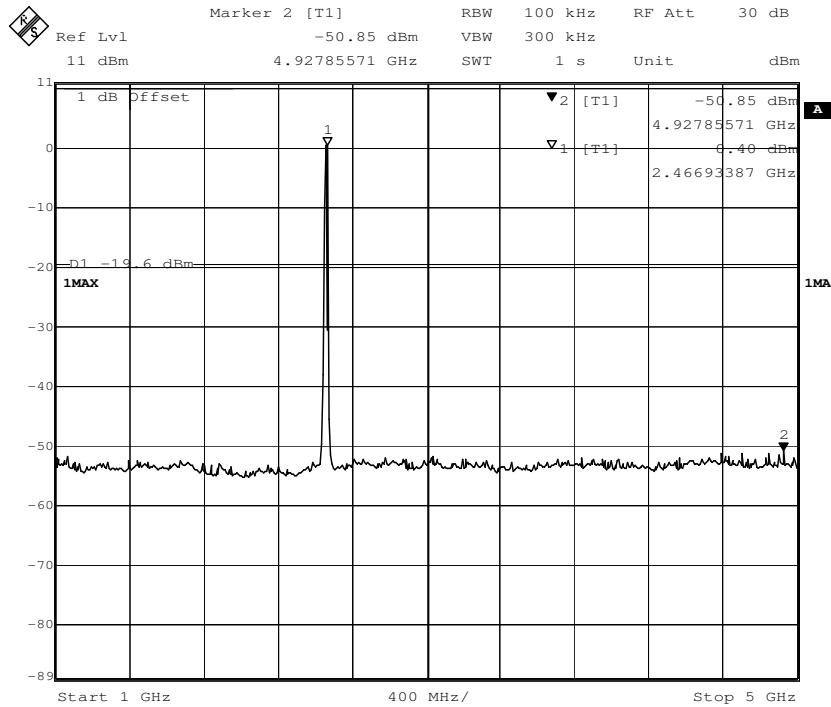




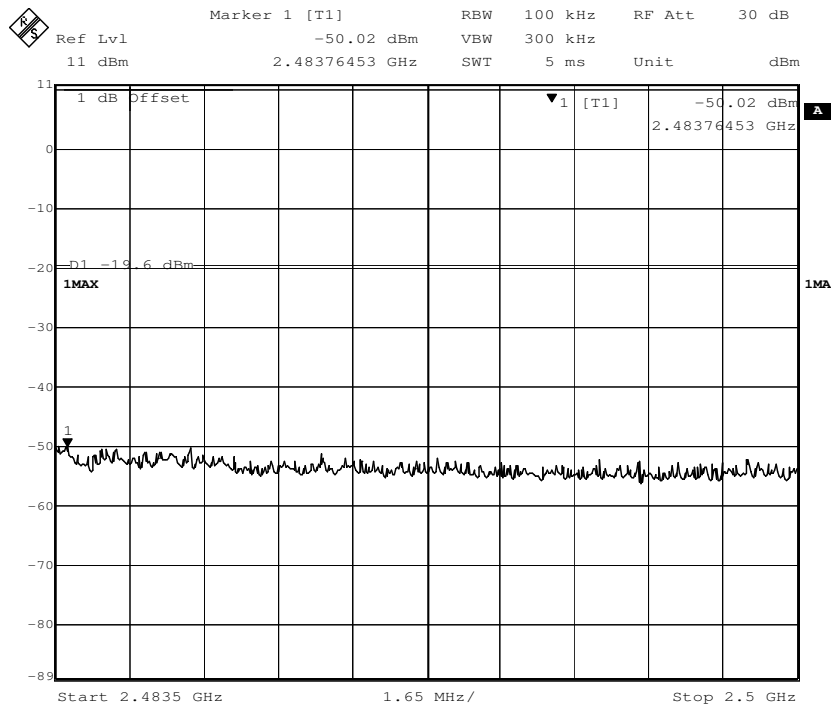
802.11b mode with 11 Mbps data rate

Channel11: 2.462 GHz

Step 1



Step 2

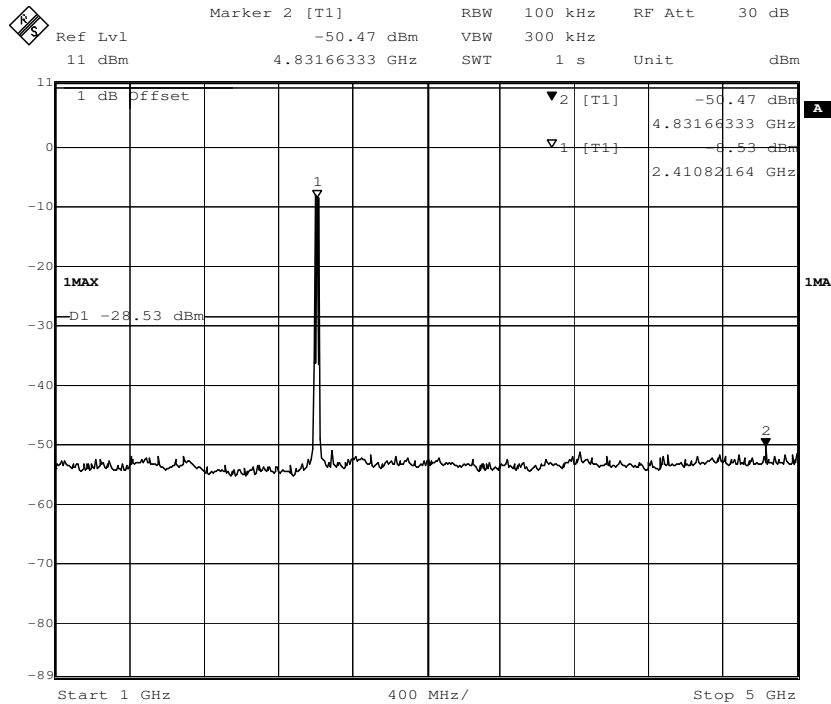




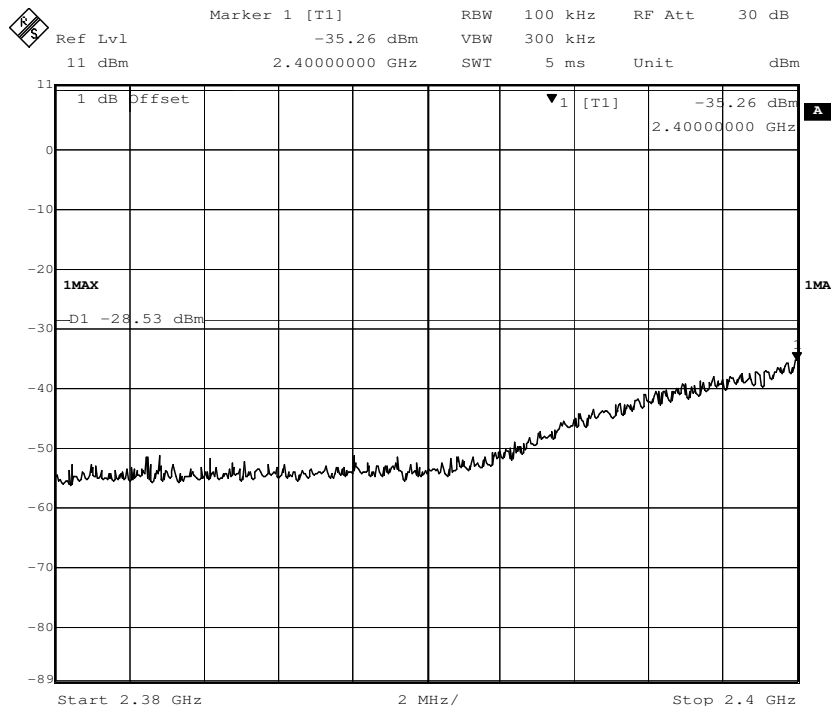
802.11g mode with 54 Mbps data rate

Channel11: 2.462 GHz

Step 1



Step 2

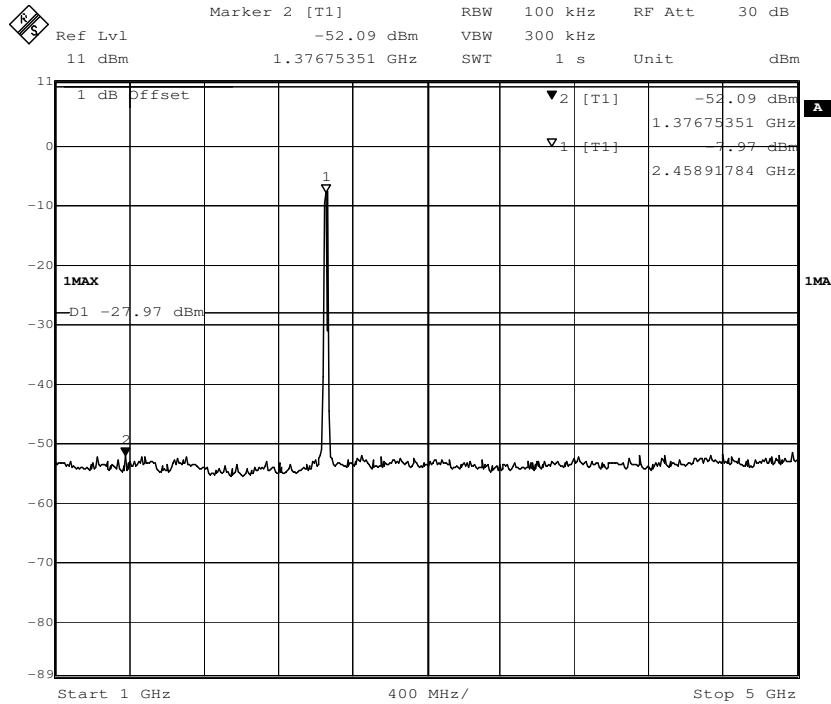




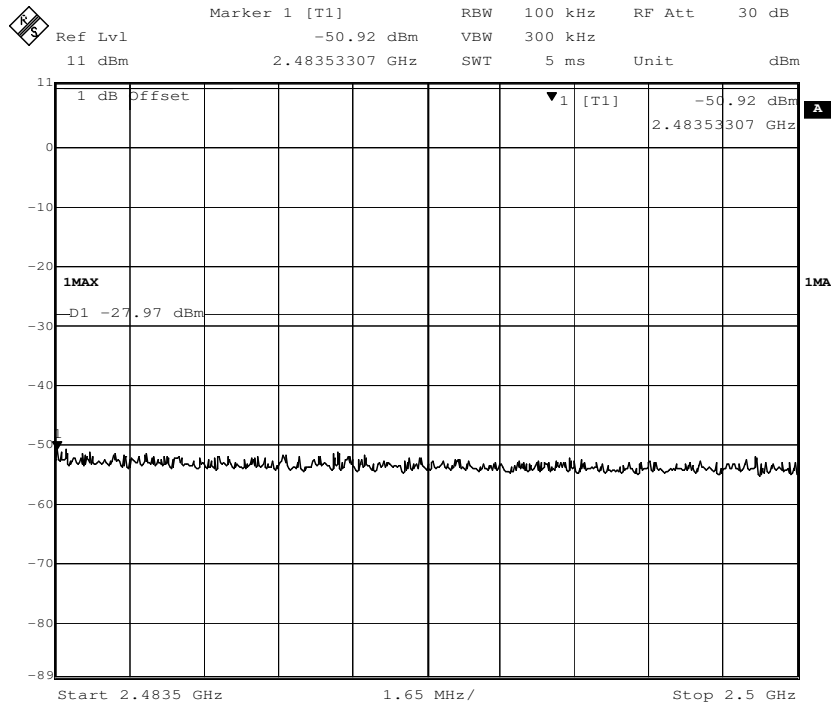
802.11g mode with 54 Mbps data rate

Channel11: 2.462 GHz

Step 1



Step 2

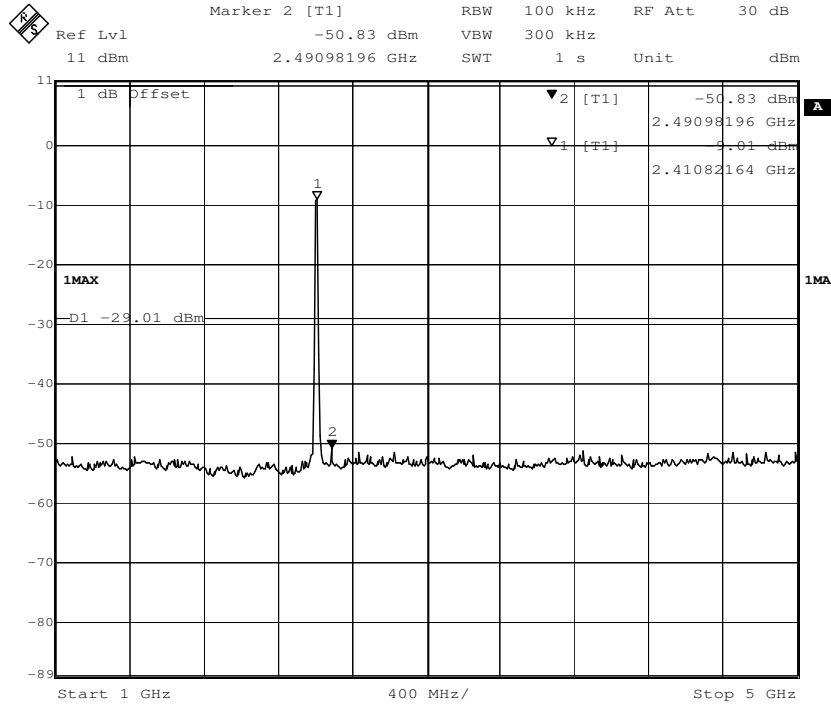




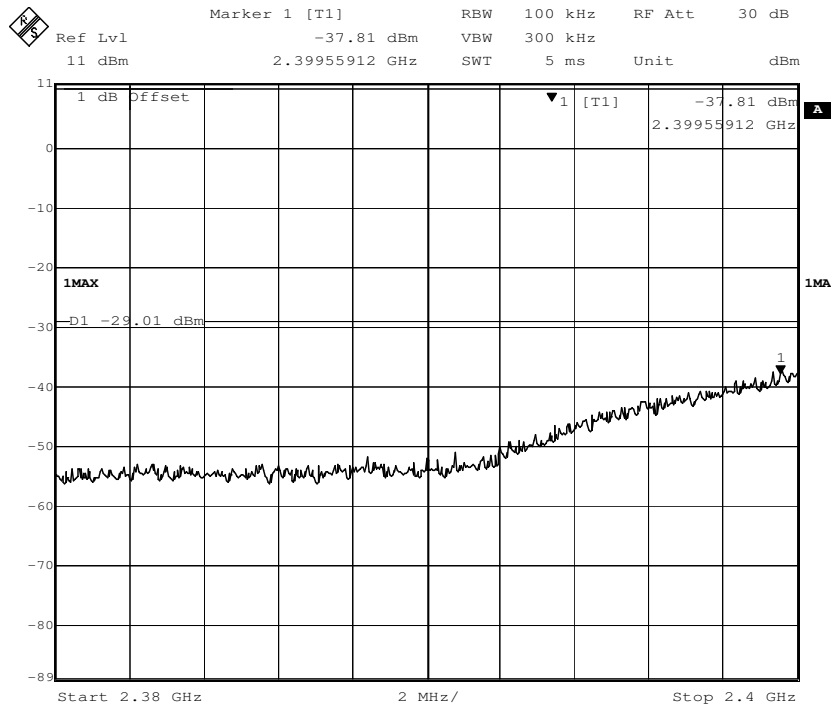
802.11n(HT20) mode with 65Mbps data rate

Channel1: 2.412 GHz

Step 1



Step 2

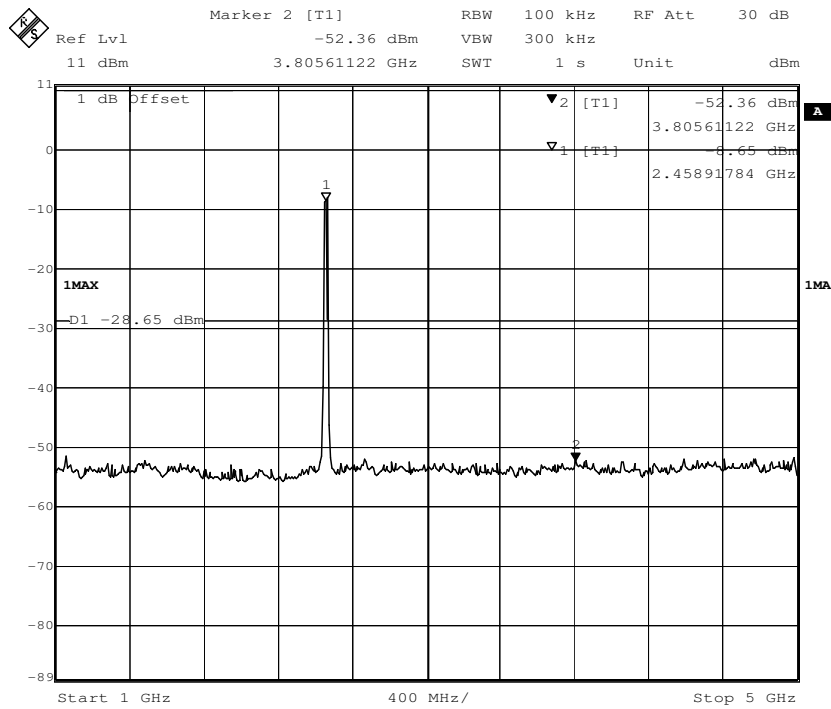




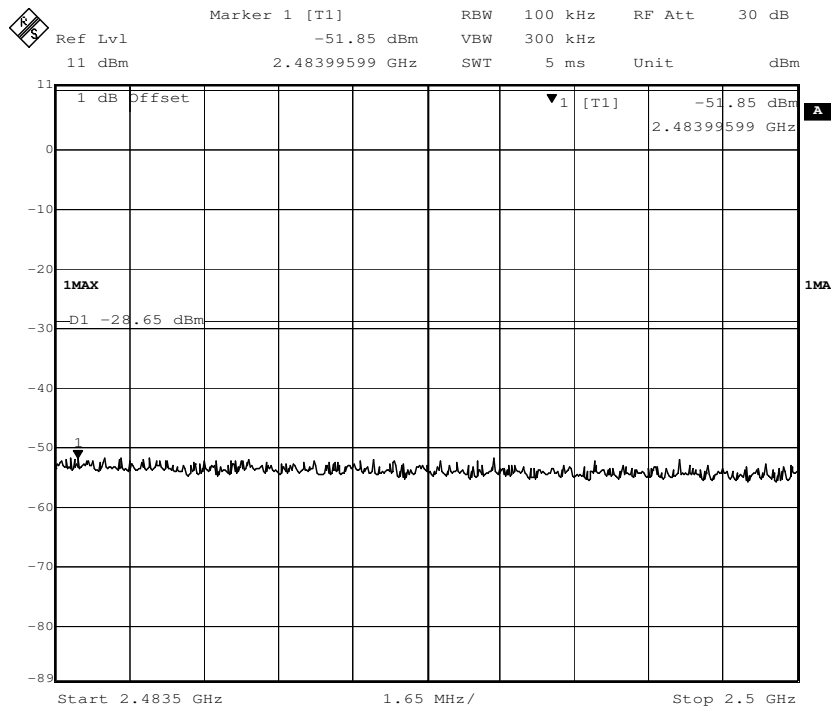
802.11n(HT20) mode with 65Mbps data rate

Channel11: 2.462 GHz

Step 1



Step 2



--End of Report--