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Report No.: SHEM130400066701
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FCC Part 15C TEST REPORT

Application No. :	SHEM1304000667RF
Applicant:	Lenbrook Industries Limited
FCC ID:	SVC-NADD7050
IC:	152C-NADD7050
Equipment Under Test (EUT):	
NOTE: The following sample(s) submitted was/were identified on behalf of the client as	
Product Name:	Direct Digital Network Amplifier
Brand Name:	NAD
Model:	D7050 DIRECT DIGITAL NETWORK AMPLIFIER
Added Model:	N/A
Standards:	FCC PART 15 SUBPART C, Section 15.247:2012 RSS-210 Issue 8 (December 2010) RSS-Gen Issue 3 (December 2010)
Date of Receipt:	April 23, 2013
Date of Test:	May 02, 2013 to May 29, 2013
Date of Issue:	May 31, 2013
Test Result:	PASS *

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



Tony Wu
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.

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	/	May 31, 2013	/	Original

Authorized for issue by:			
Engineer		Zenger Zhang _____	<i>Zenger Zhang</i> _____
Clerk		Susie Liu _____	<i>Susie Liu</i> _____
Reviewer		Kenx Xu _____	<i>Kenx Xu</i> _____



3 Test Summary

TEST ITEM	FCC REFERANCE	IC REFERANCE	Test Procedure	RESULT
Power line conducted emission	15.207	RSS-Gen Issue 8 Clause 7.2.4	ANSI C63.10,2009 Clause 6.2	Pass
Radiated emission	15.205 & 15.209	RSS-Gen Issue 8 Clause 7.2.5	ANSI C63.10,2009 Clause 6.4	Pass
Minimum 6dB Bandwidth	15.247(a)(2)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.9	Pass
Maximum peak output power	15.247(b)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.10.2	Pass
Power spectrum density	15.247(e)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.11	Pass
RF Conducted Spurious Emissions	15.247(d)	RSS-210 Issue 8 Annex 8	ANSI C63.10 2009 Clause 6.9	Pass
Radiated Emission BandEdge	15.247(d)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.9	Pass
Emission outside the Frequency band	15.247(d)	RSS-210 Issue 8 Annex 8	ANSI C63.4,2003 Clause 6.12	Pass
Occupied bandwidth	---	RSS-Gen Issue 3 Clause 4.6.1	RSS-Gen Issue 3 Clause 4.6.1	Tested



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5 General Information

5.1 Client Information

Applicant:	Lenbrook Industries Limited
Address of Applicant:	633 Granite Court, Pickering Ontario, Toronto L1W 3K1, Canada
Manufacturer:	Lenbrook Industries Limited
Address of Manufacturer:	633 Granite Court, Pickering Ontario, Toronto L1W 3K1, Canada
Factory:	Hansong (Nanjing) Technology Ltd.

5.2 General Description of E.U.T.

Product Name	Direct Digital Network Amplifier
Brand Name:	NAD
Model No:	D7050 DIRECT DIGITAL NETWORK AMPLIFIER
Added Model:	N/A
Product Description:	Mobile production

5.3 Technical Specifications:

Operation Frequency:	802.11b/g:2412MHz~2462MHz	
Modulation Technique:	802.11b: DSSS, 802.11g: OFDM	
Power Supply:	Rated Input:	AC 100V-240V, 50-60Hz
Cable:	AC Cable:	About 100cm Length (3 Wires)
Antenna Type	Integral	
Antenna Gain	2.0dBi	

5.4 Support equipments for Testing

Description	Manufacturer	Model No.	Serial No.	Supplied By
Laptop	Lenovo	ThinkPadX100e	2876A65	SGS
Wireless Route	N/A	N/A	N/A	SGS
Voice box	Guangdong Shantou Zhongwang Electronics Co., Ltd.	CT-338	N/A	SGS
DVD	N/A	N/A	N/A	SGS

Software name	Manufacturer	Supplied By
Blue Test3 (For CSR)		SGS

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5.5 Details of Test Mode

Test Mode	Description of Test Mode
Transmitting mode:	Using the Blue Test3 make the EUT continue transmitting on working frequency.

Test Channel:

For 802.11b/g:

Channel	Frequency
The Lowest channel	2412MHz
The Middle channel	2437MHz
The Highest channel	2462MHz

5.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
No.588 West Jindu Road, Songjiang District, Shanghai, China.201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

5.7 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

6 Equipments Used during Test

Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2013-02-23	2014-02-22
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2013-03-07	2014-03-06
3	CONTROLLER	INNCO	CO200	474	/	/
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2013-03-07	2014-03-06
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2013-03-07	2014-03-06
6	Low noise amplifier	LNA6900	TESEQ	71033	2013-02-23	2014-02-22

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2013-02-23	2014-02-22
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2013-02-23	2014-02-22
3	Line impedance stabilization network	ETS	3816/2	00034161	2013-02-23	2014-02-22

RF Conducted Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-03	2013-06-01
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-06-03	2013-06-01
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2012-06-03	2013-06-01

4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2012-06-03	2013-06-01
5	Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA91703 73	2012-03-15	2013-03-14
6	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2012-10-09	2013-10-08
7	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY—2009P	--	2012-10-09	2013-10-08
8	CLAMP METER	FLUKE	316	86080010	2012-06-03	2013-06-01
9	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2012-10-09	2013-10-08
11	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2012-06-03	2013-06-01
12	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800.0/ 2000.0- 0.2/40-5SSK	11	2012-06-03	2013-06-01
13	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/ 880.0- 0.2/40-5SSK	9	2012-06-03	2013-06-01
14	High pass Filter	FSCW	HP 12/2800-5AA2	19A45-02	2012-06-03	2013-06-01
15	Low noise amplifier	TESEQ	LNA6900	70133	2012-06-03	2013-06-01
16	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-06-03	2013-06-01
17	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-06-03	2013-06-01

7 Test Results

7.1 E.U.T. test conditions

Test Power:	AC 120V, 60Hz
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.
Operating Environment:	
Temperature:	20.0 -25.0 °C
Humidity:	35-75 % RH
Atmospheric Pressure:	992 -1020 mbar

7.2 Antenna Requirement

Standard requirement

15.203 requirement:

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

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. 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.

EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement. The gain of the antenna is less than 2.0 dBi.

7.3 Conducted Emissions on Mains Terminals

Test Requirement: FCC Part 15C, Section 15.207
RSS-Gen Issue 8 Clause 7.2.4

Test Method: ANSI C63.10:2009 Section 6.2

Test Date: May 13, 2013

Test Result: Pass

Test Voltage: AC 120V 60Hz

Frequency Range: 150 KHz to 30 MHz

Class/Severity: Class B

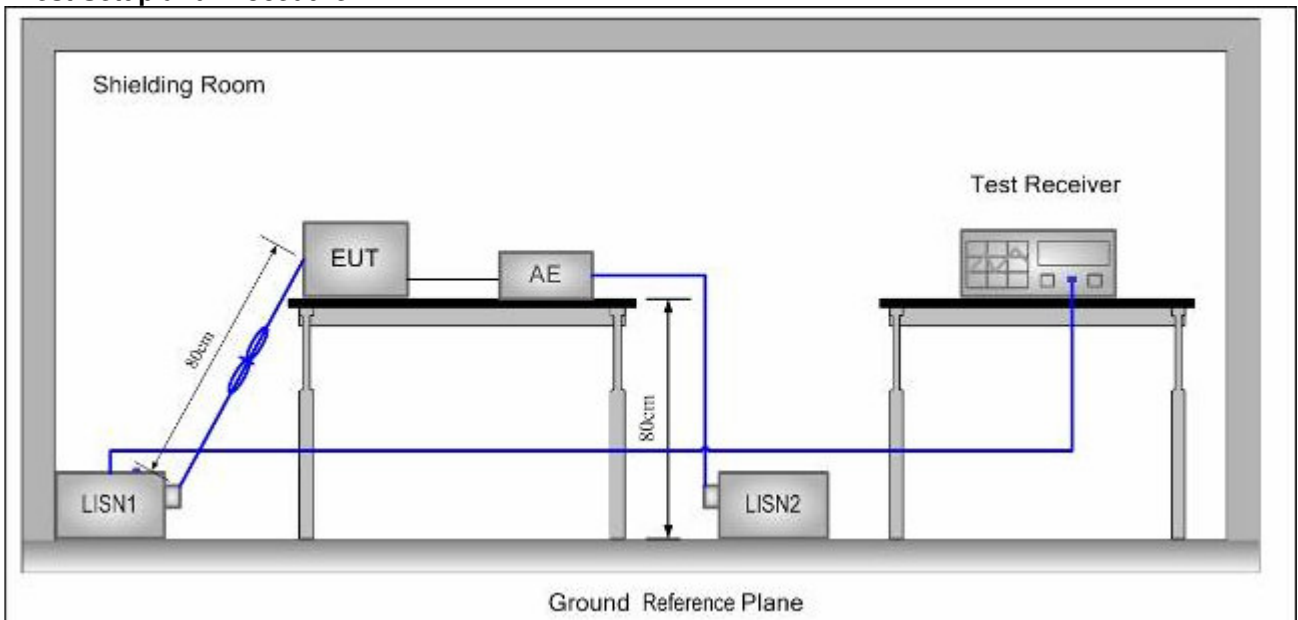
Test mode: Transmitting mode

Limit:

Frequency range MHz	Class B Limits dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.
Note2: The lower limit is applicable at the transition frequency.

Test Setup and Procedure



1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT was connected to a second LISN, which was bonded to the ground reference plane in the same way as the

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LISN 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 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment was at least 0,8 m from the LISN.

Measurement Data

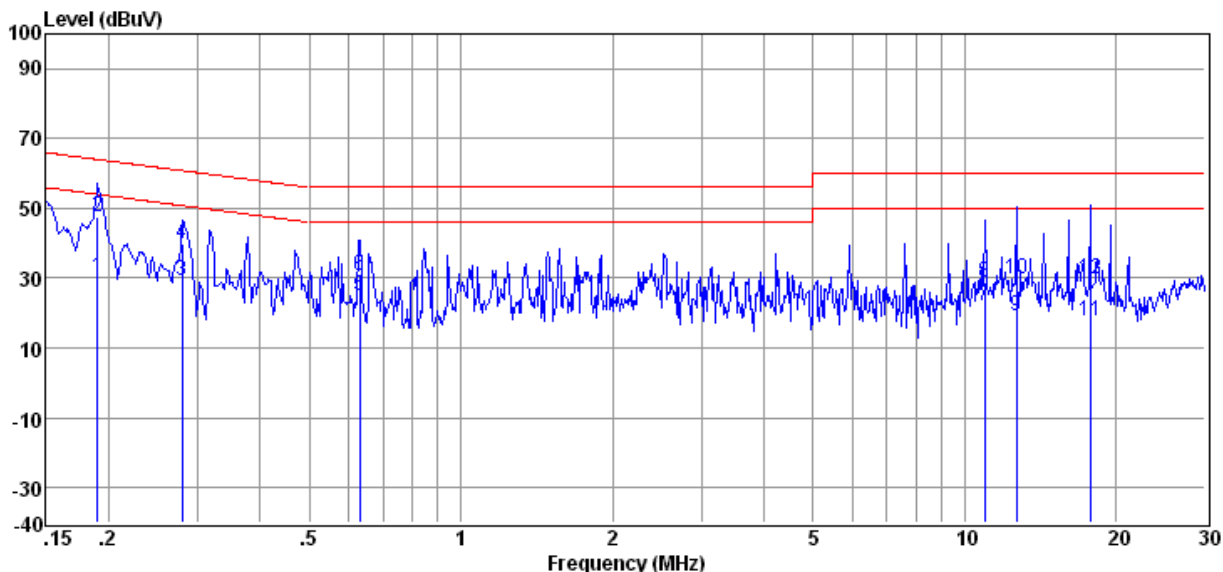
Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected.

Please see the attached Quasi-peak and Average test results.

Level = Read Level + LISN/ISN Factor + Cable Loss.

Test Mode: Transmitting mode

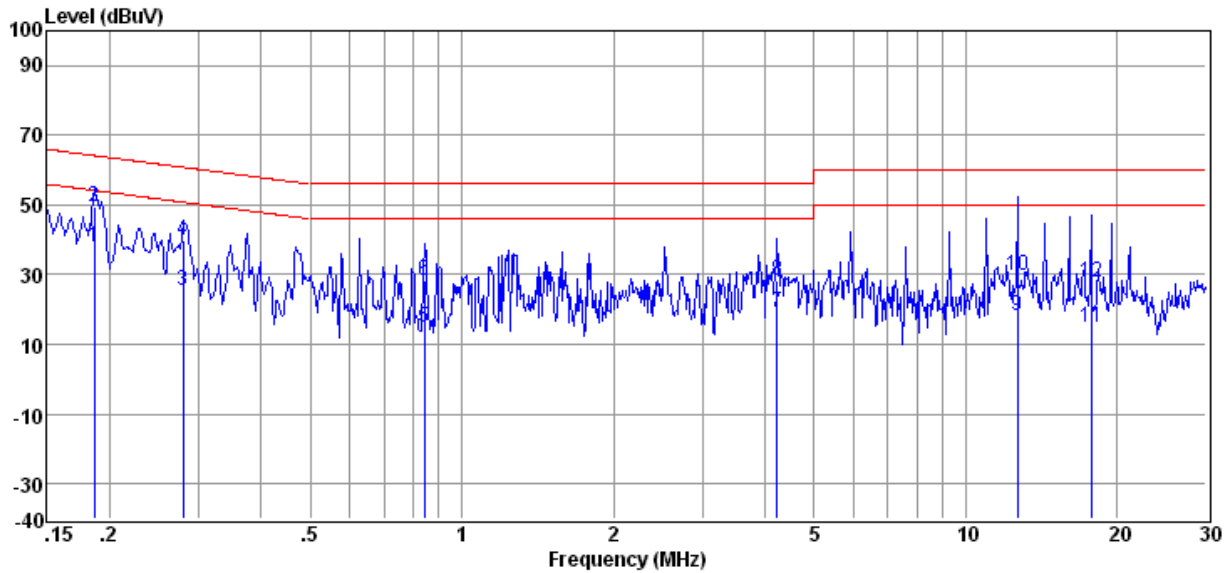
Test Port: AC Live Line



Freq (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
0.190	30.06	0.12	0.10	30.28	54.02	-23.74	Average	Live
0.190	47.51	0.12	0.10	47.73	64.02	-16.29	QP	Live
0.280	28.89	0.13	0.10	29.12	50.81	-21.69	Average	Live
0.280	39.48	0.13	0.10	39.71	60.81	-21.10	QP	Live
0.630	24.49	0.20	0.10	24.79	46.00	-21.21	Average	Live
0.630	30.24	0.20	0.10	30.54	56.00	-25.46	QP	Live
10.963	21.34	0.60	0.10	22.04	50.00	-27.96	Average	Live
10.963	28.14	0.60	0.10	28.84	60.00	-31.16	QP	Live
12.649	18.54	0.60	0.10	19.24	50.00	-30.76	Average	Live
12.649	29.26	0.60	0.10	29.96	60.00	-30.04	QP	Live
17.755	16.82	0.60	0.16	17.58	50.00	-32.42	Average	Live
17.755	29.05	0.60	0.16	29.81	60.00	-30.19	QP	Live

Test Mode: Transmitting mode

Test Port: AC Neutral Line



Freq (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
0.186	37.49	0.12	0.10	37.71	54.20	-16.49	Average	Neutral
0.186	49.05	0.12	0.10	49.27	64.20	-14.93	QP	Neutral
0.280	25.01	0.10	0.10	25.21	50.81	-25.60	Average	Neutral
0.280	39.46	0.10	0.10	39.66	60.81	-21.15	QP	Neutral
0.844	14.69	0.20	0.10	14.99	46.00	-31.01	Average	Neutral
0.844	28.05	0.20	0.10	28.35	56.00	-27.65	QP	Neutral
4.224	18.92	0.22	0.17	19.31	46.00	-26.69	Average	Neutral
4.224	27.73	0.22	0.17	28.12	56.00	-27.88	QP	Neutral
12.649	17.47	0.50	0.10	18.07	50.00	-31.93	Average	Neutral
12.649	28.96	0.50	0.10	29.56	60.00	-30.44	QP	Neutral
17.755	14.25	0.56	0.16	14.97	50.00	-35.03	Average	Neutral
17.755	26.90	0.56	0.16	27.62	60.00	-32.38	QP	Neutral

7.4 6dB Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.247 (a)(2)
RSS-210 Issue 8 Annex 8

Test Method: KDB558074 D01 Section 7.1

Test Date: May 18, 2013

Test Result: Pass

Final Test Mode: Transmitting mode

Limit: ≥ 500 kHz

Test Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=100KHz, VBW =3* RBW, Span=30/50MHz, Sweep=auto
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

Test date

For Antenna A:

EUT Mode	Test Channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Results
802.11b	Low	5.65	500	Pass
	Middle	7.10	500	Pass
	High	5.85	500	Pass
802.11g	Low	8.00	500	Pass
	Middle	10.90	500	Pass
	High	13.35	500	Pass

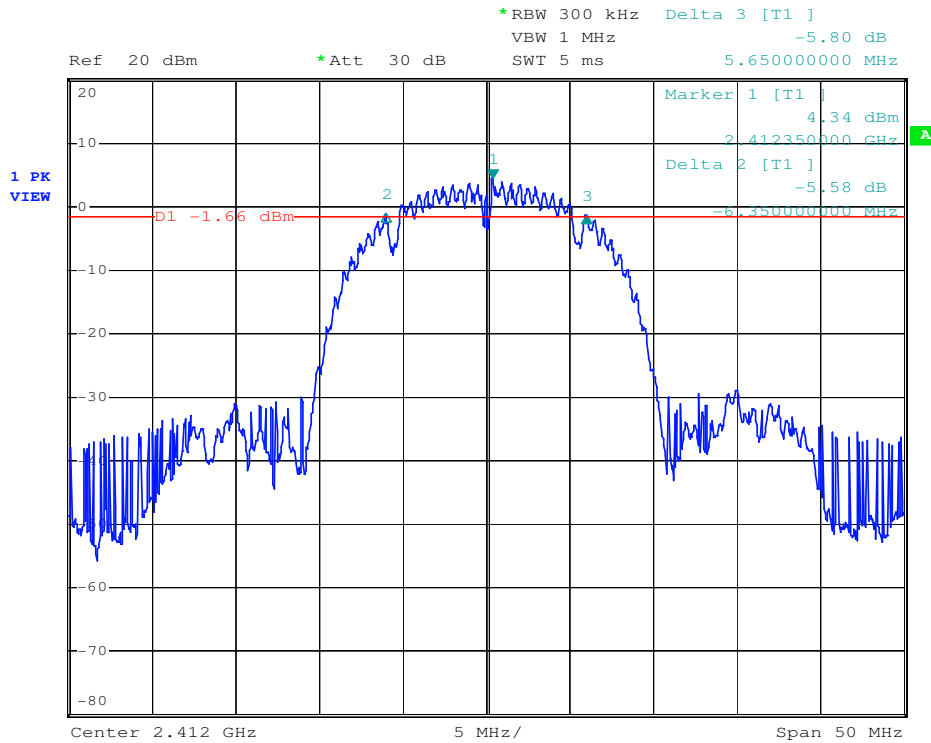
For Antenna B:

EUT Mode	Test Channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Results
802.11b	Low	5.65	500	Pass
	Middle	7.10	500	Pass
	High	5.85	500	Pass
802.11g	Low	8.00	500	Pass
	Middle	10.90	500	Pass
	High	13.35	500	Pass

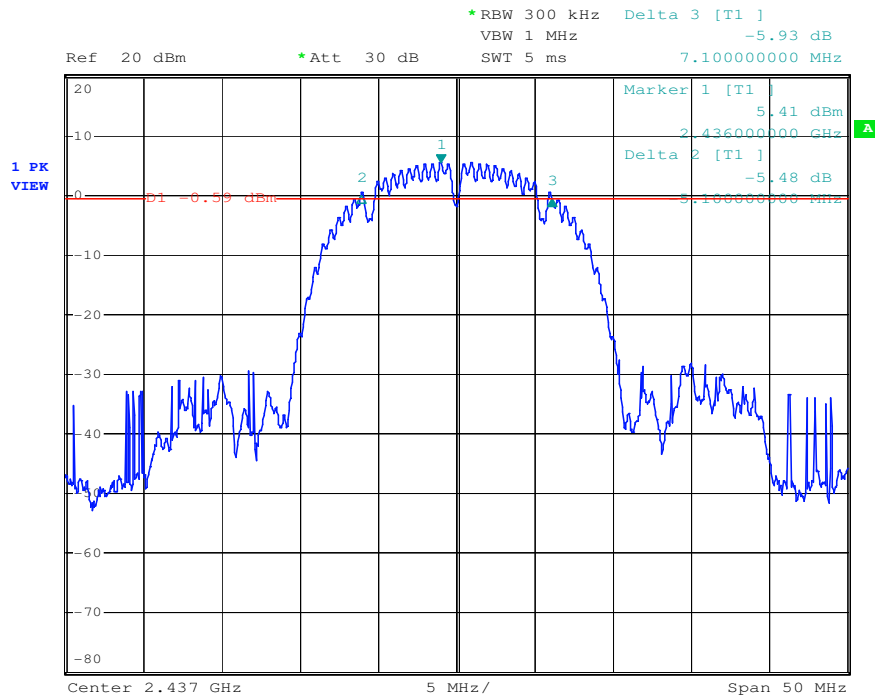


**For Antenna A:
Test plot as follows:**

Test mode:	802.11b	Test channel:	Lowest
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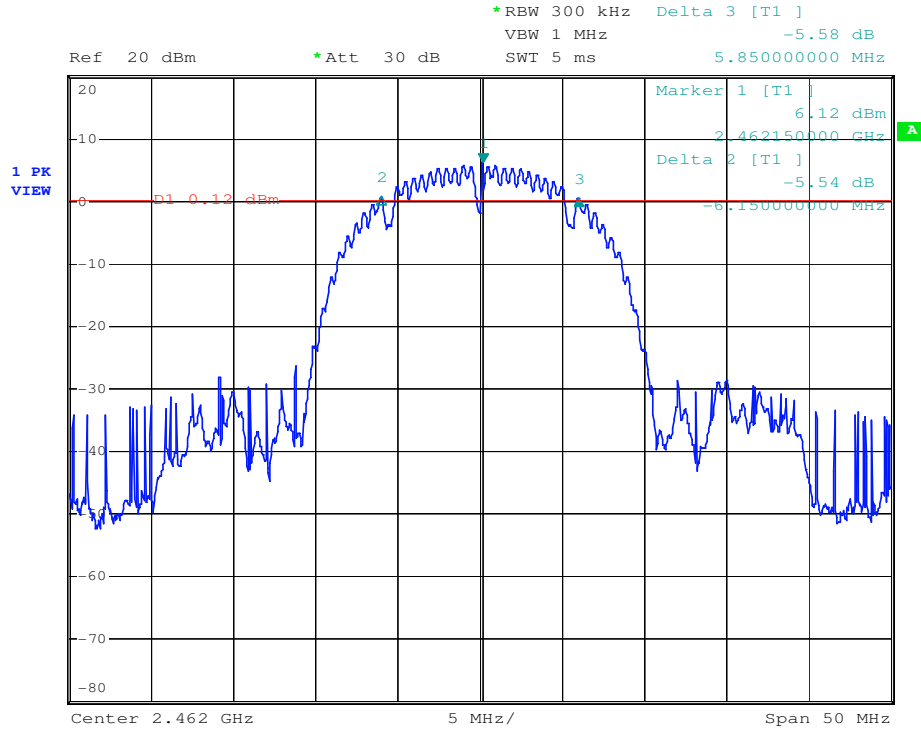
Test mode:	802.11b	Test channel:	Middle
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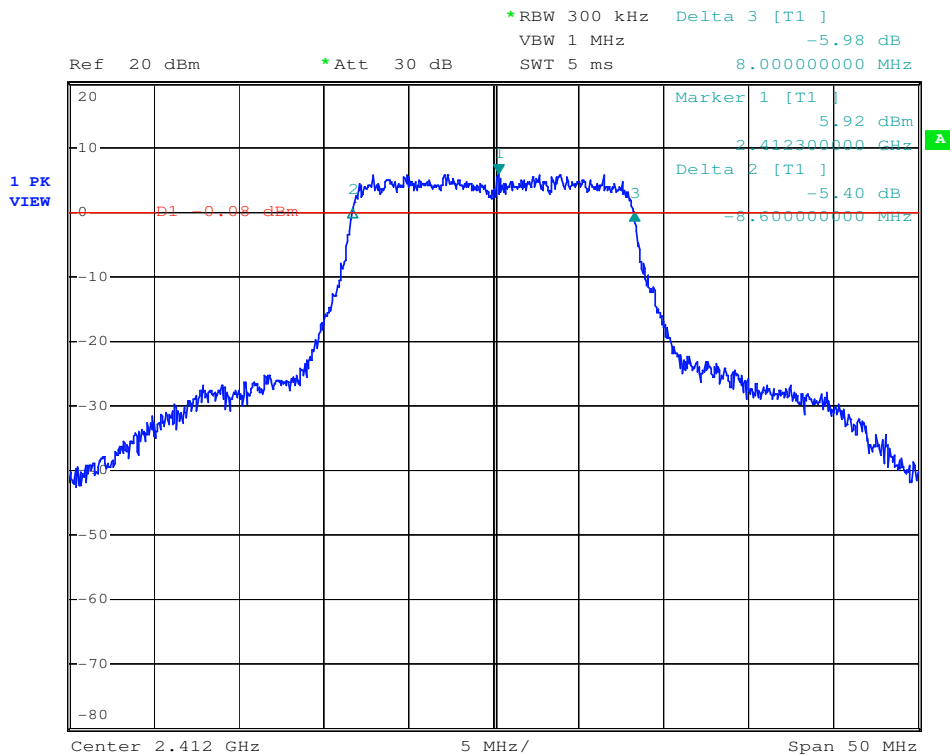
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Test mode:	802.11b	Test channel:	Highest
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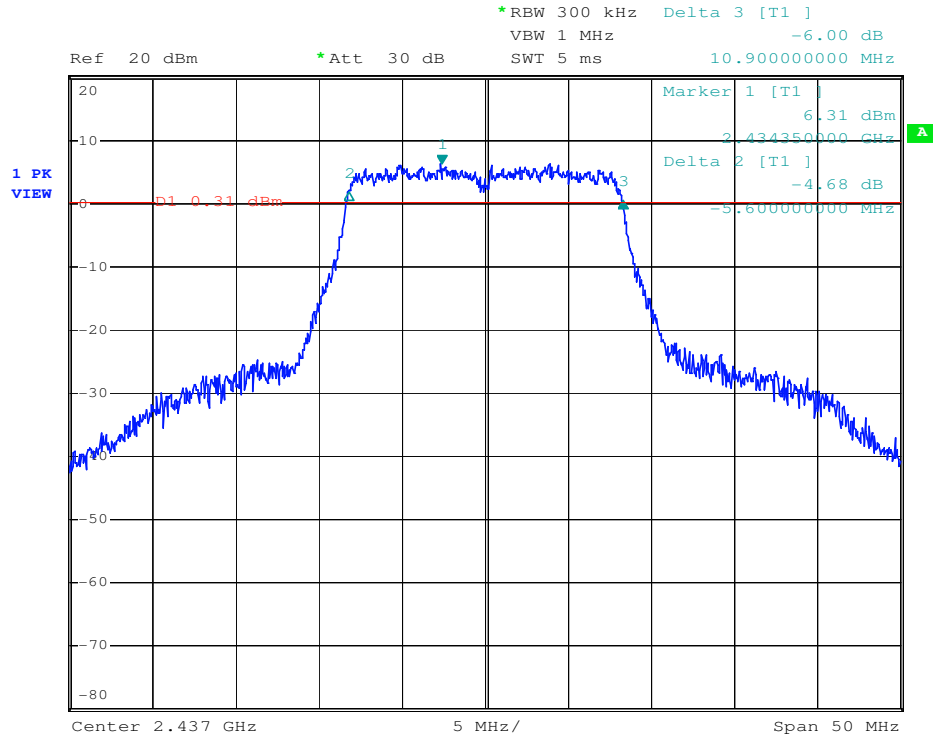
Test mode:	802.11g	Test channel:	Lowest
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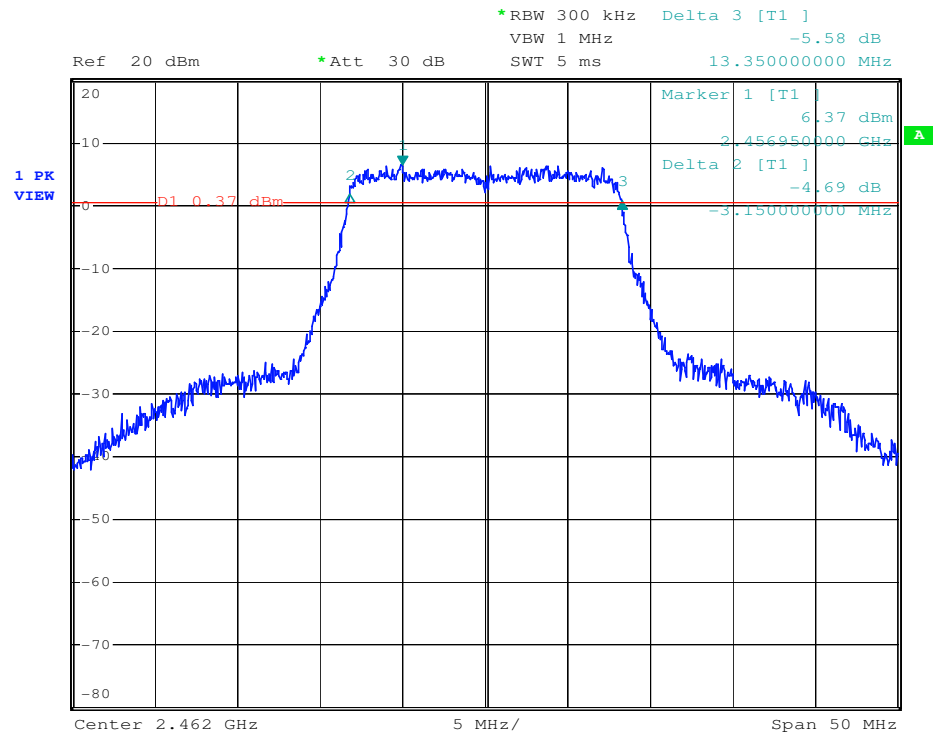
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Test mode:	802.11g	Test channel:	Middle
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Test mode:	802.11g	Test channel:	Highest
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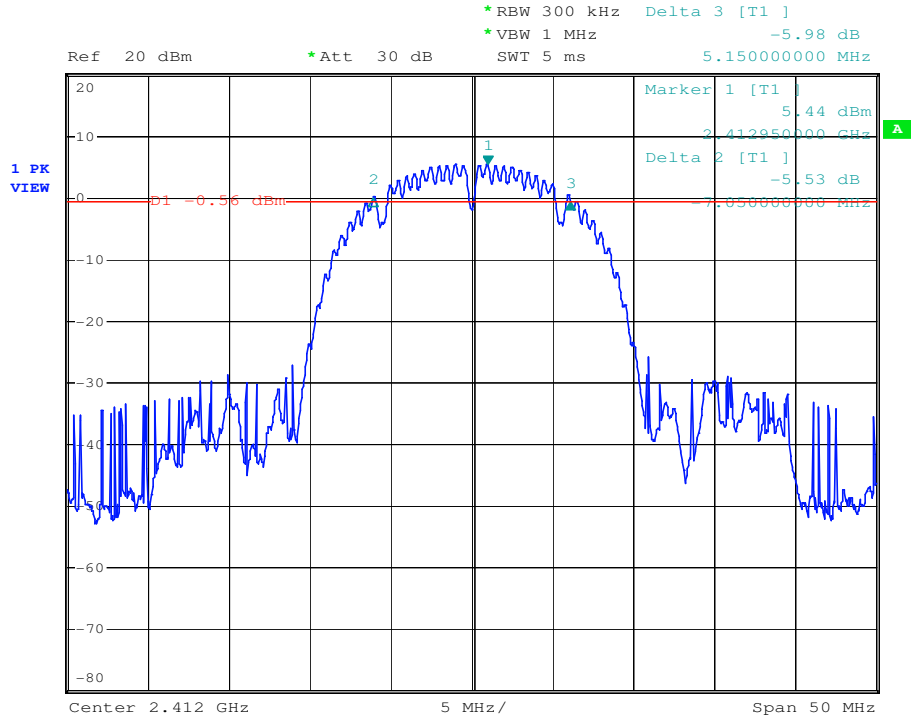
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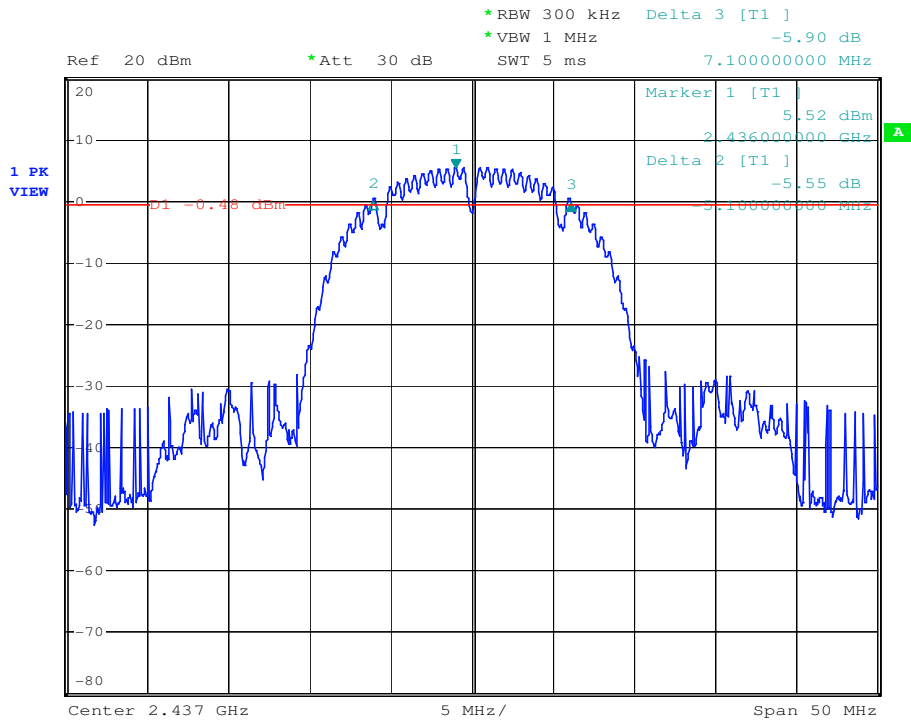
For Antenna B:

Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
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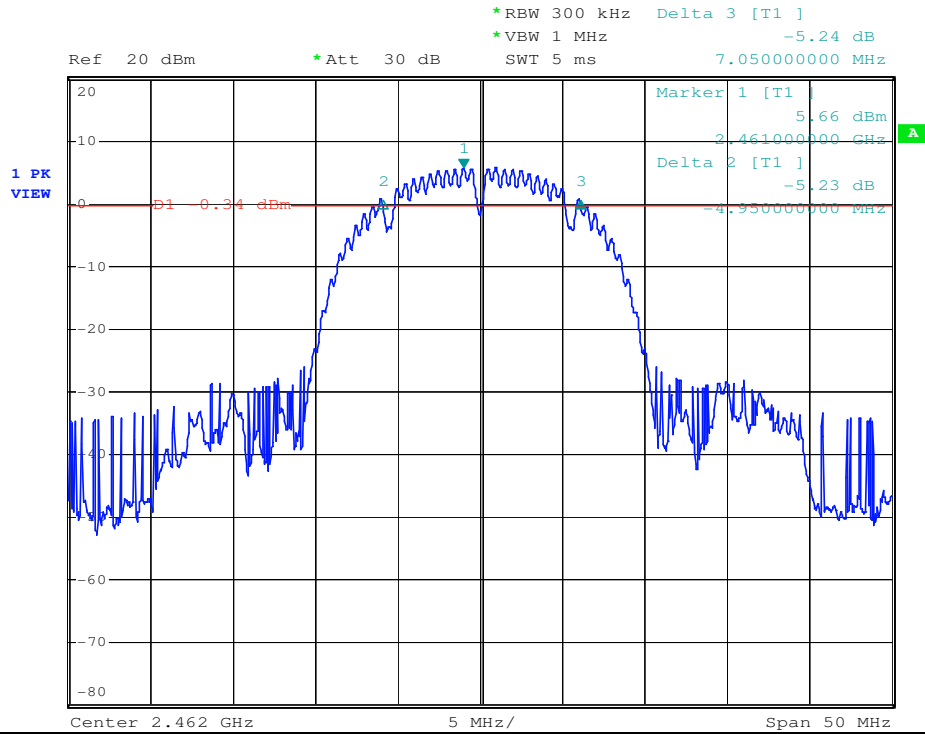
Test mode:	802.11b	Test channel:	Middle
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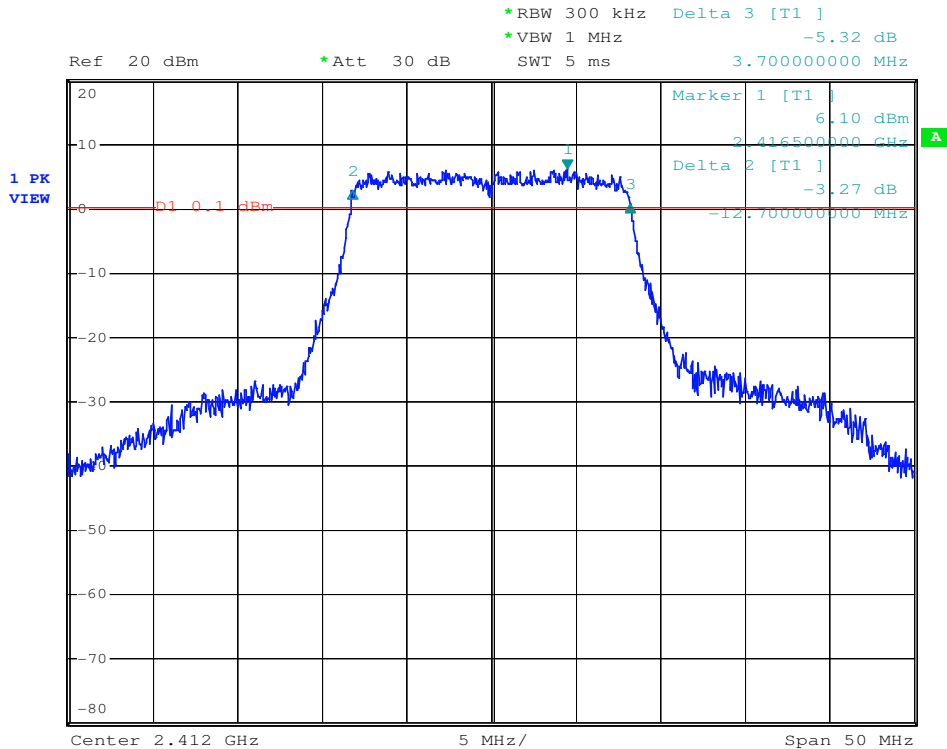
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Test mode:	802.11b	Test channel:	Highest
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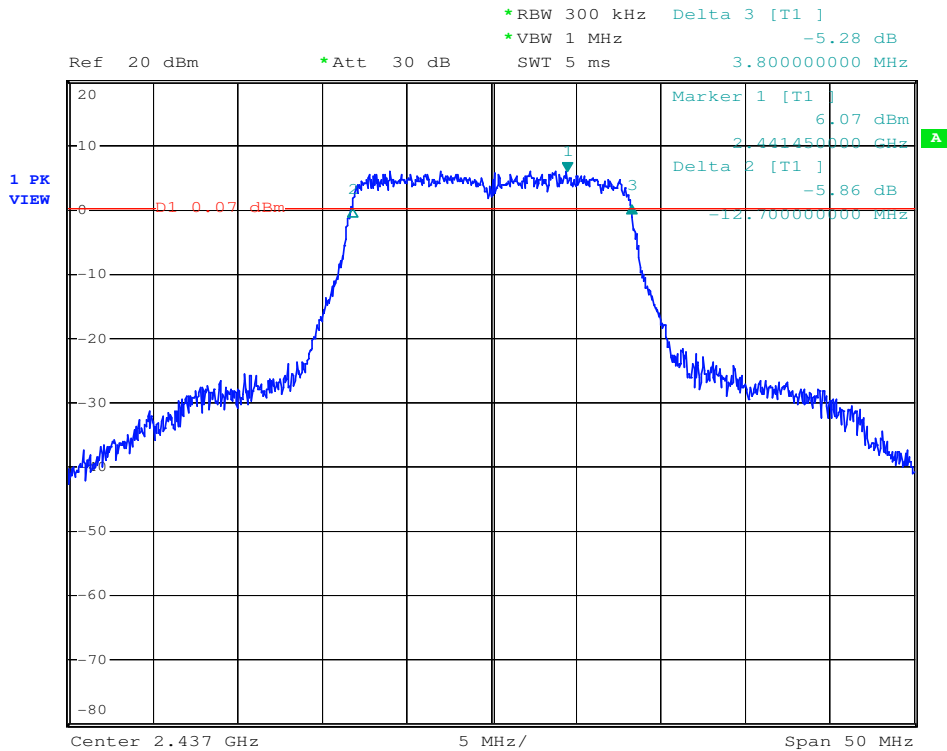
Test mode:	802.11g	Test channel:	Lowest
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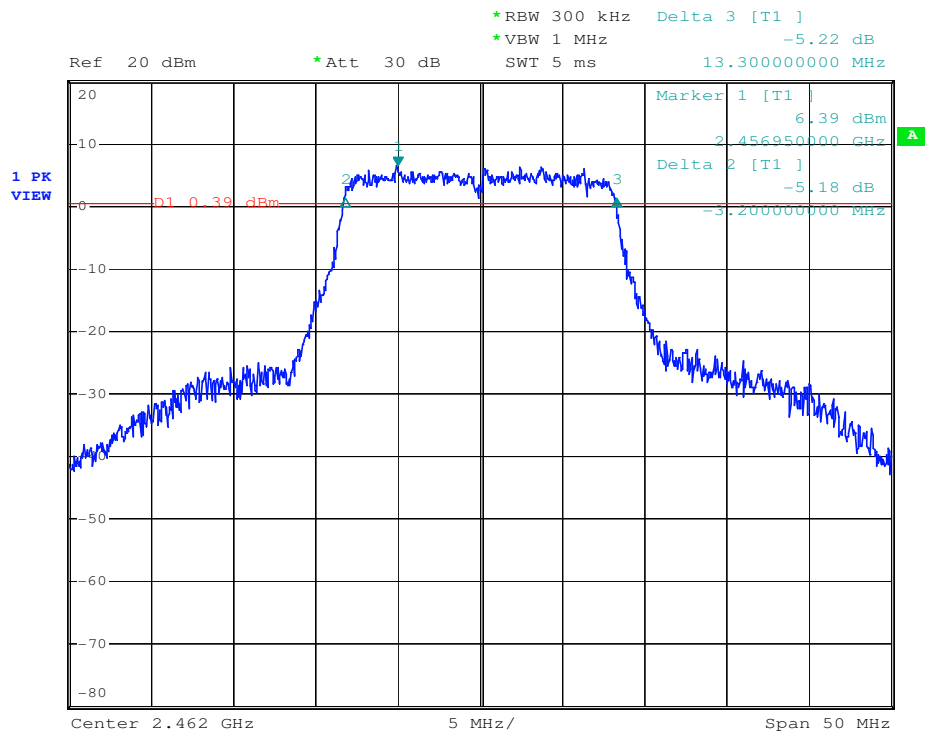
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Test mode:	802.11g	Test channel:	Middle
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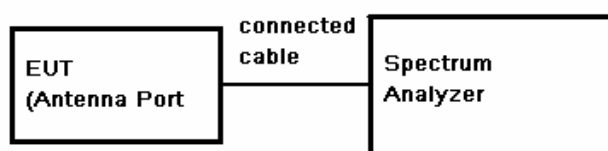
Test mode:	802.11g	Test channel:	Highest
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7.5 Conducted Peak Output Power

Test Requirement:	FCC Part 15.247 Section 15.247(b)(3) RSS-210 Issue 8 Annex 8
Test Method:	KDB558074 D01 Section 8.1.2
Test Date:	May 18, 2013
Test Result:	Pass
Test Limit:	30dBm
Final Test Mode:	Transmitting mode
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.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Span= fully encompass the bandwidth, Sweep = auto; Detector Function = Peak Trace mode=max hold
3. Use the spectrum analyzer's channel power measurement function with the band limits set equal to the bandwidth edges.
4. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

Test Results record:

For Antenna A:

Test mode	Channel	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
802.11b	Low	18.83	1.5	20.33	107.89	30	PASS
	Mid	19.08	1.5	20.58	114.29	30	PASS
	High	19.42	1.5	20.92	123.59	30	PASS
802.11g	Low	22.85	1.5	24.35	272.27	30	PASS
	Mid	22.75	1.5	24.25	266.07	30	PASS
	High	22.89	1.5	24.39	274.79	30	PASS

For Antenna B:

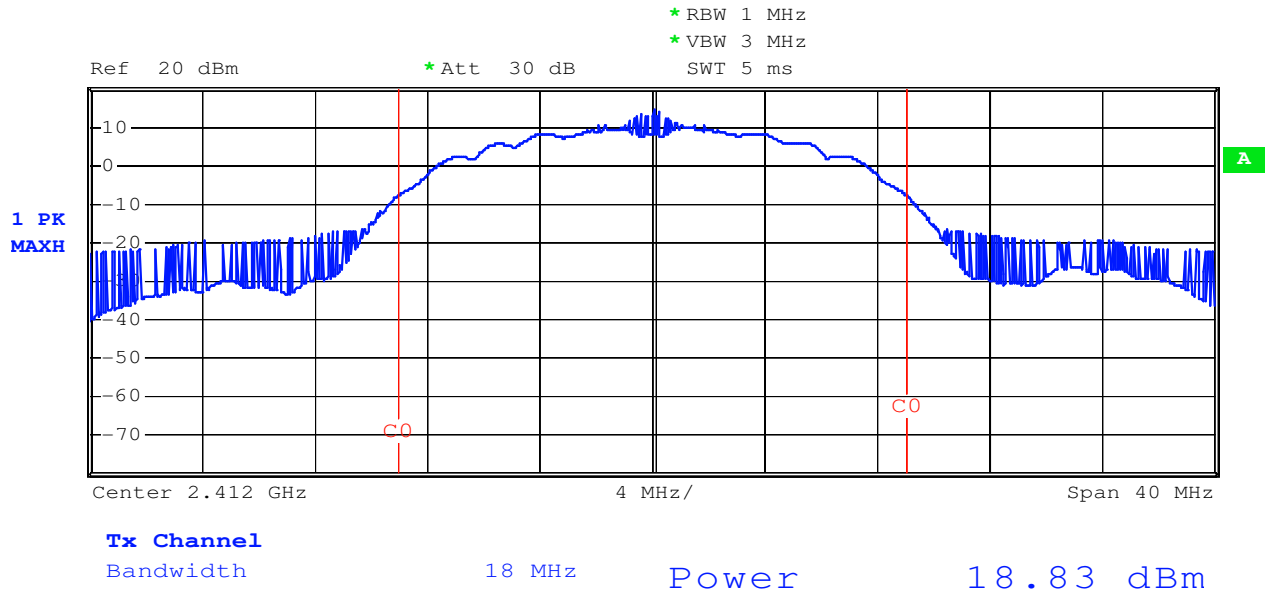
Test mode	Channel	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
802.11b	Low	18.67	1.5	20.17	103.99	30	PASS
	Mid	19.16	1.5	20.66	116.41	30	PASS
	High	19.24	1.5	20.74	118.58	30	PASS
802.11g	Low	22.26	1.5	23.76	237.68	30	PASS
	Mid	22.58	1.5	24.08	255.86	30	PASS
	High	22.94	1.5	24.44	277.97	30	PASS



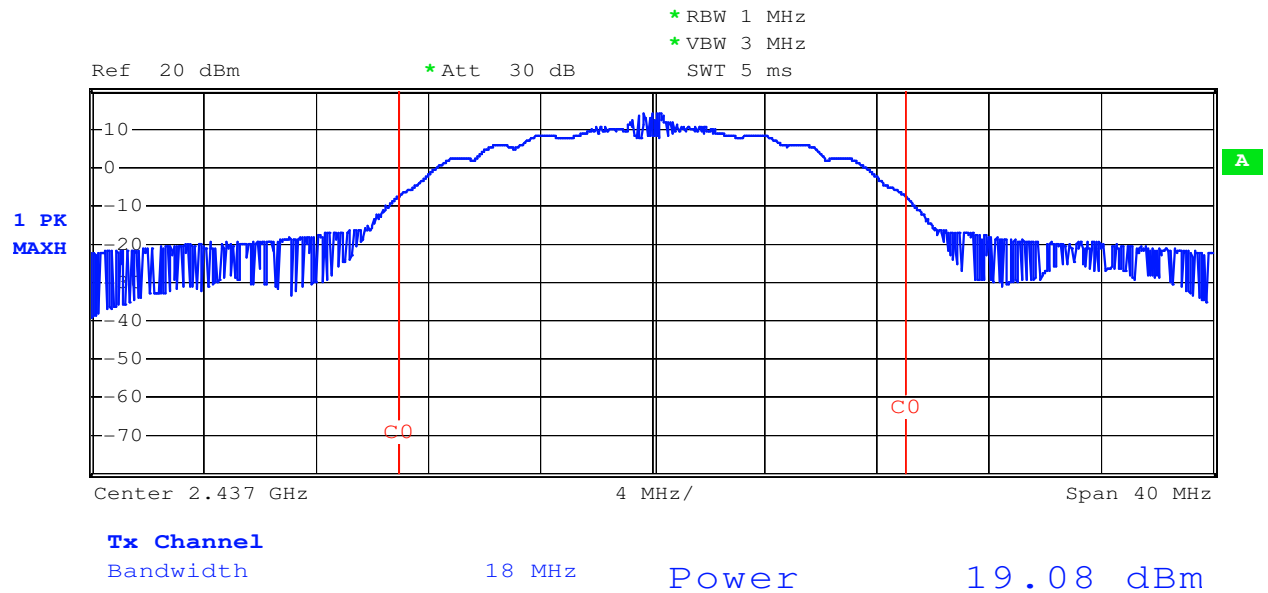
Test result plot as follows:

For Antenna A:

Test mode:	802.11b	Test channel:	Lowest
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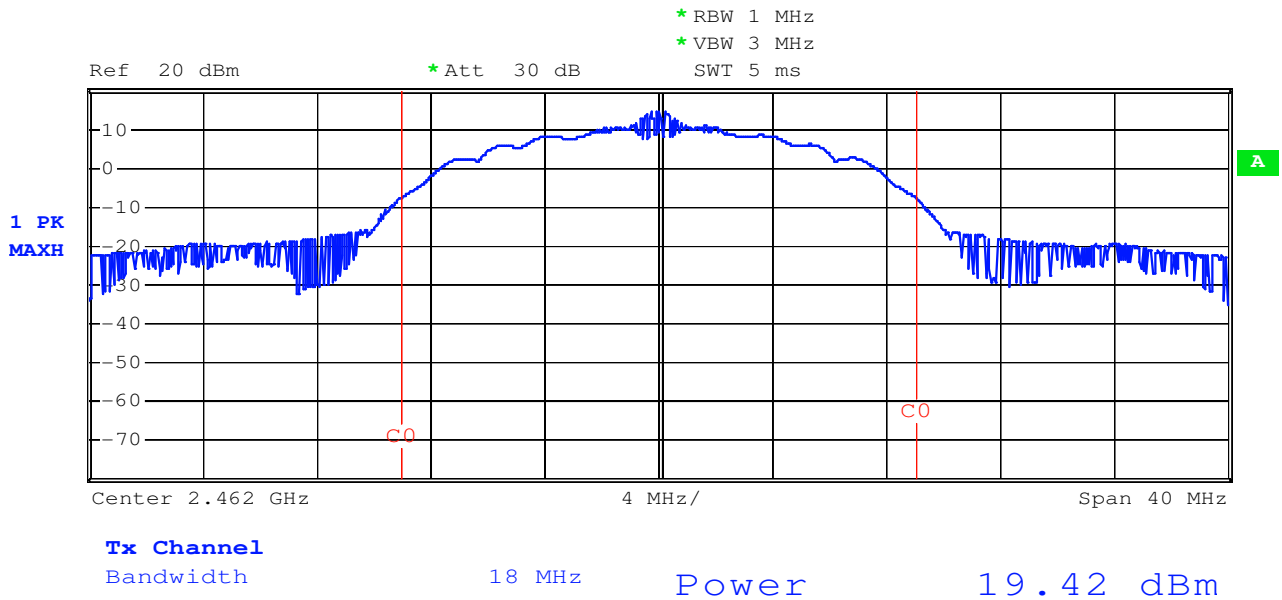
Test mode:	802.11b	Test channel:	Middle
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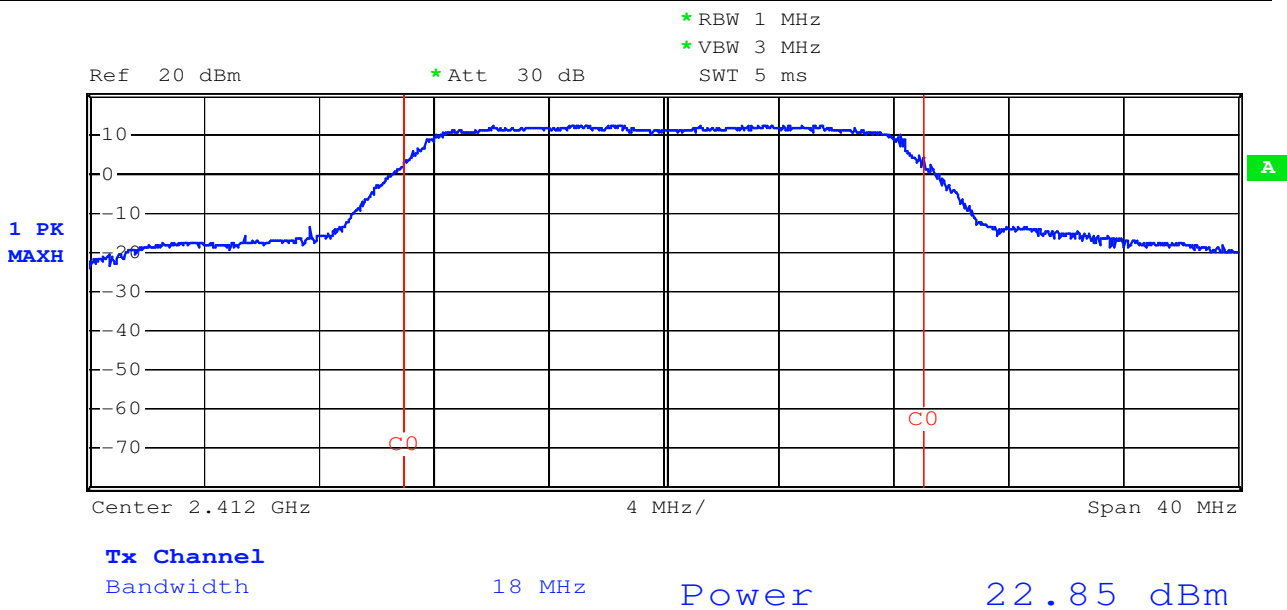
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Test mode:	802.11b	Test channel:	Highest
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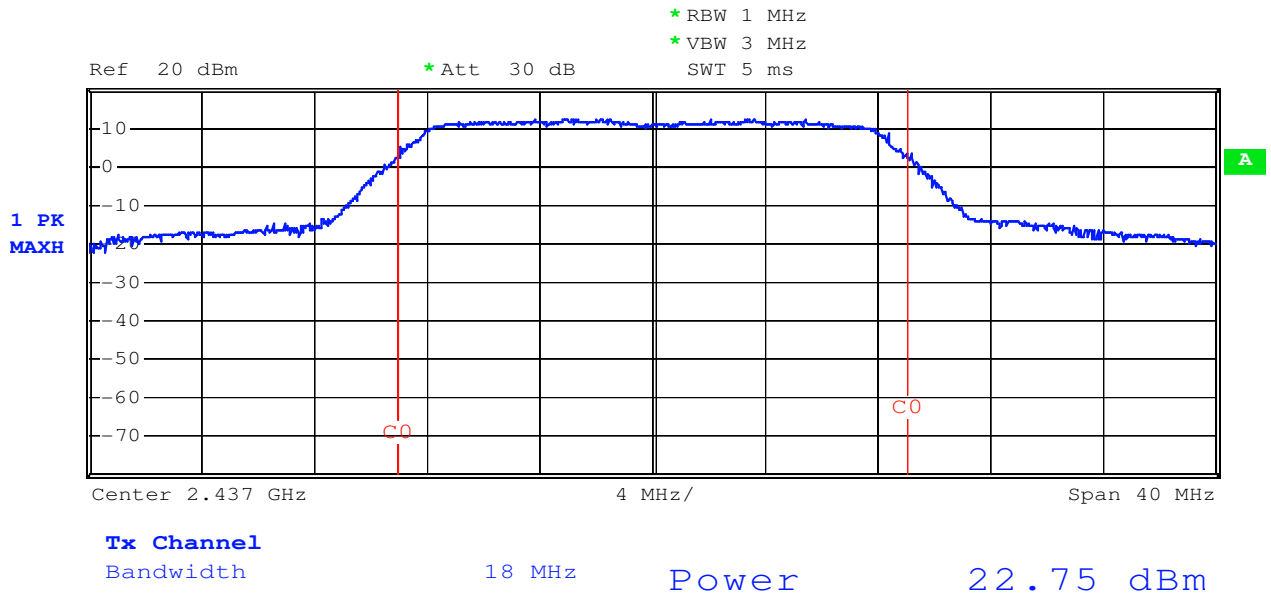
Test mode:	802.11g	Test channel:	Lowest
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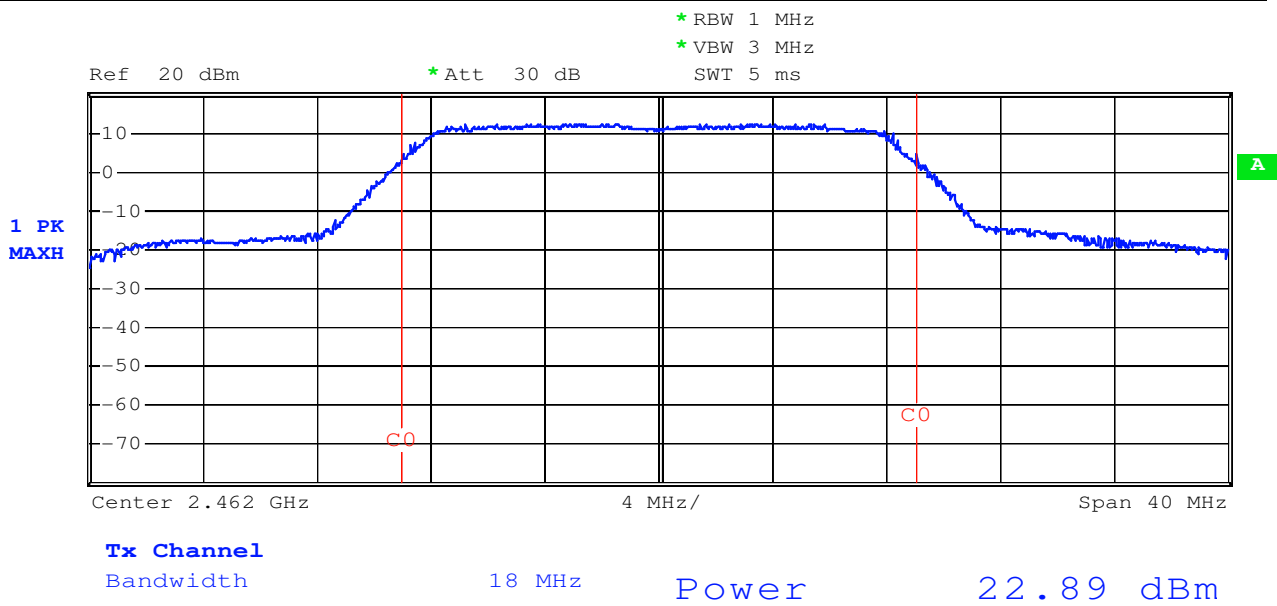
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Test mode:	802.11g	Test channel:	Middle
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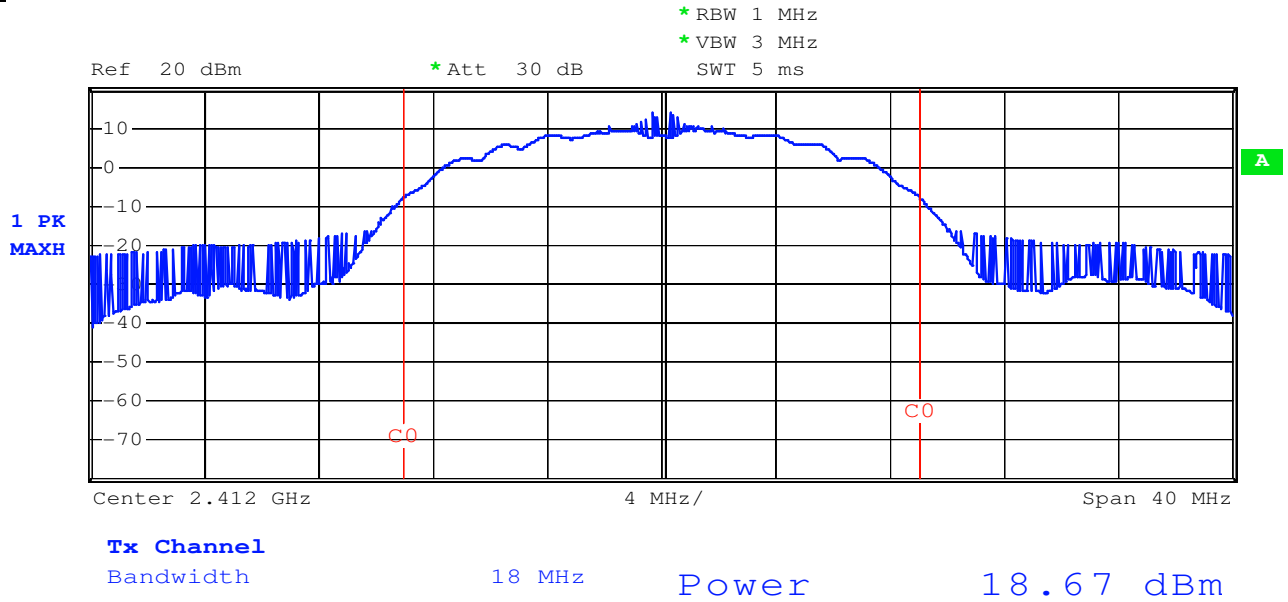
Test mode:	802.11g	Test channel:	Highest
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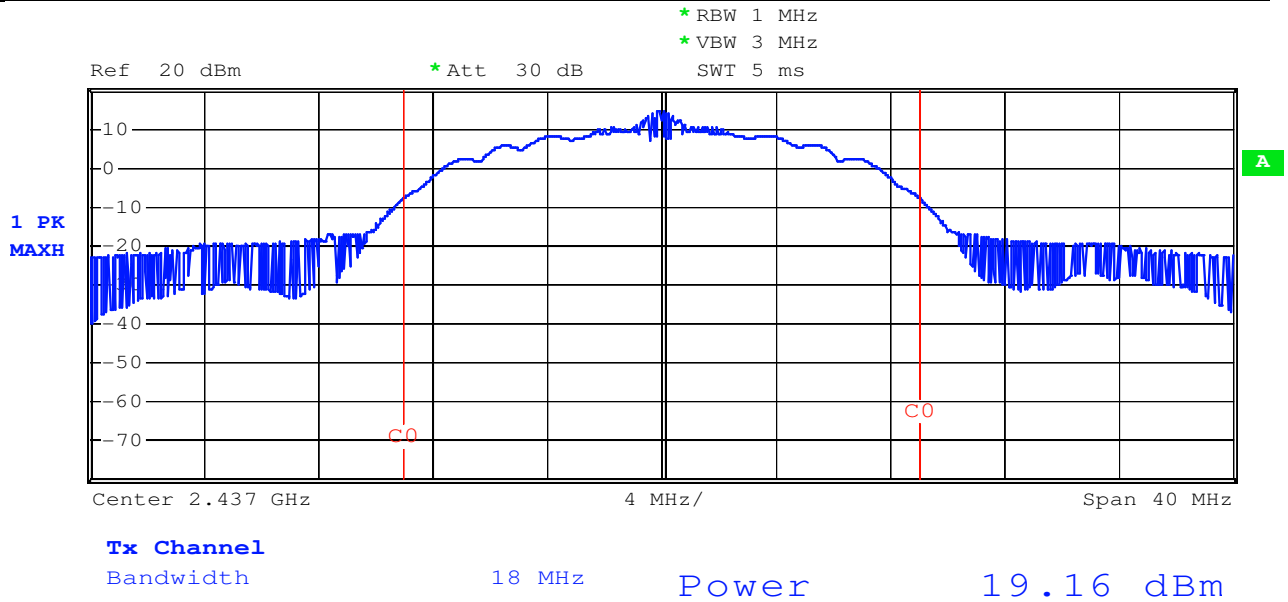
Test result plot as follows:

For Antenna B:

Test mode:	802.11b	Test channel:	Lowest
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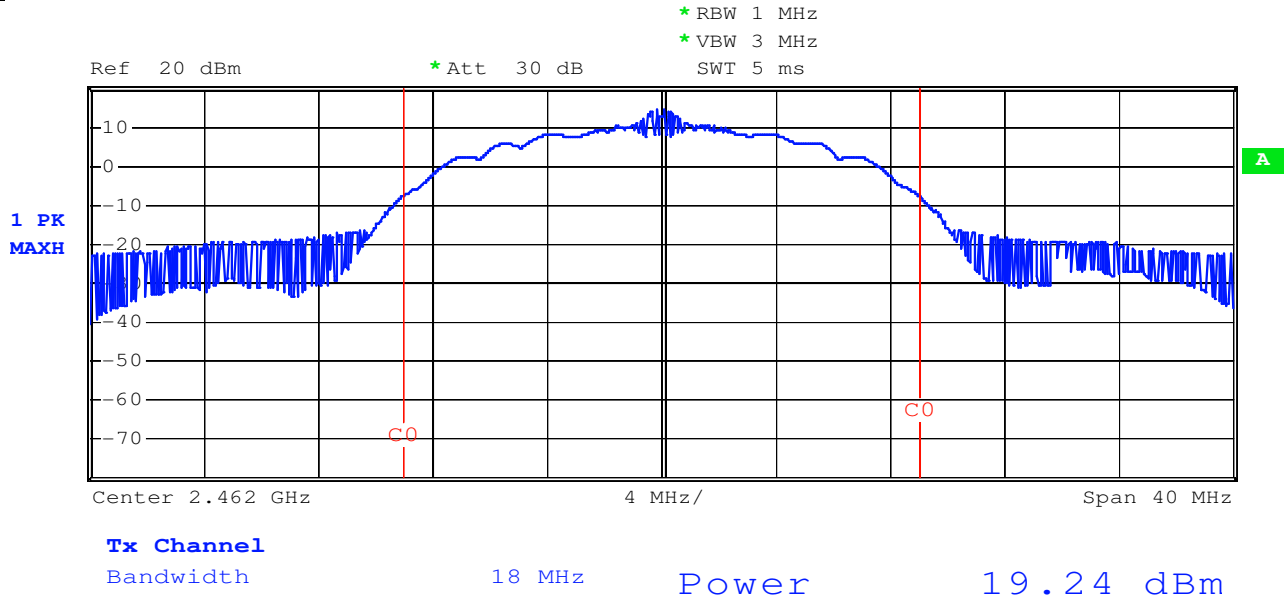


Test mode:	802.11b	Test channel:	Middle
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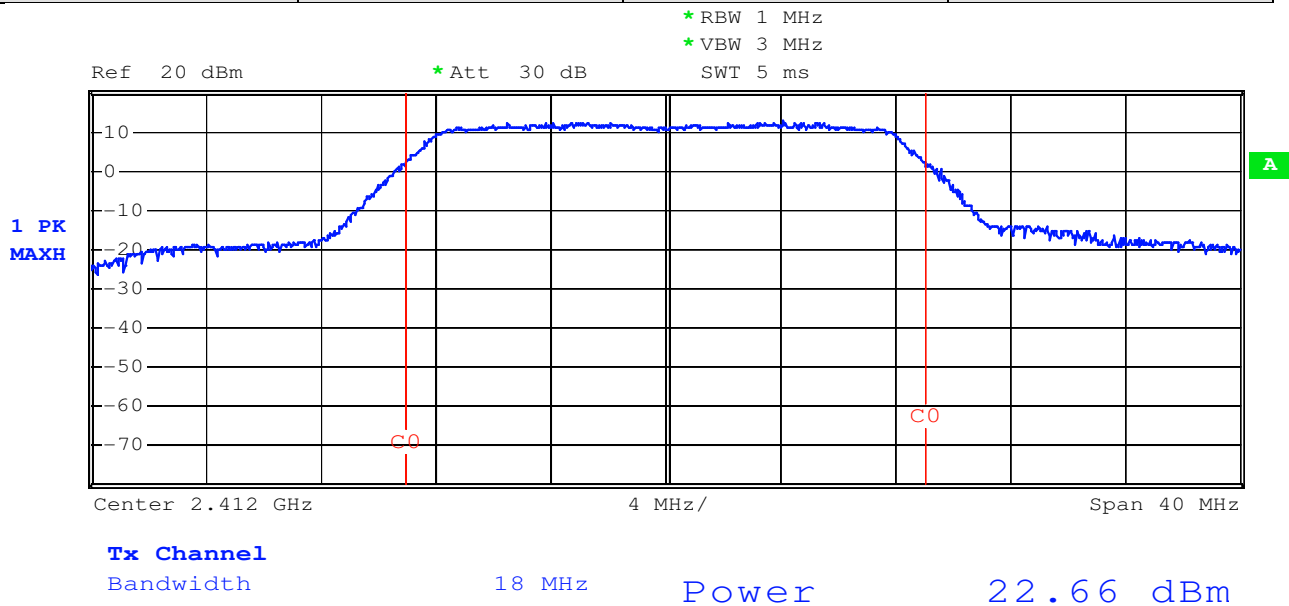




Test mode:	802.11b	Test channel:	Highest
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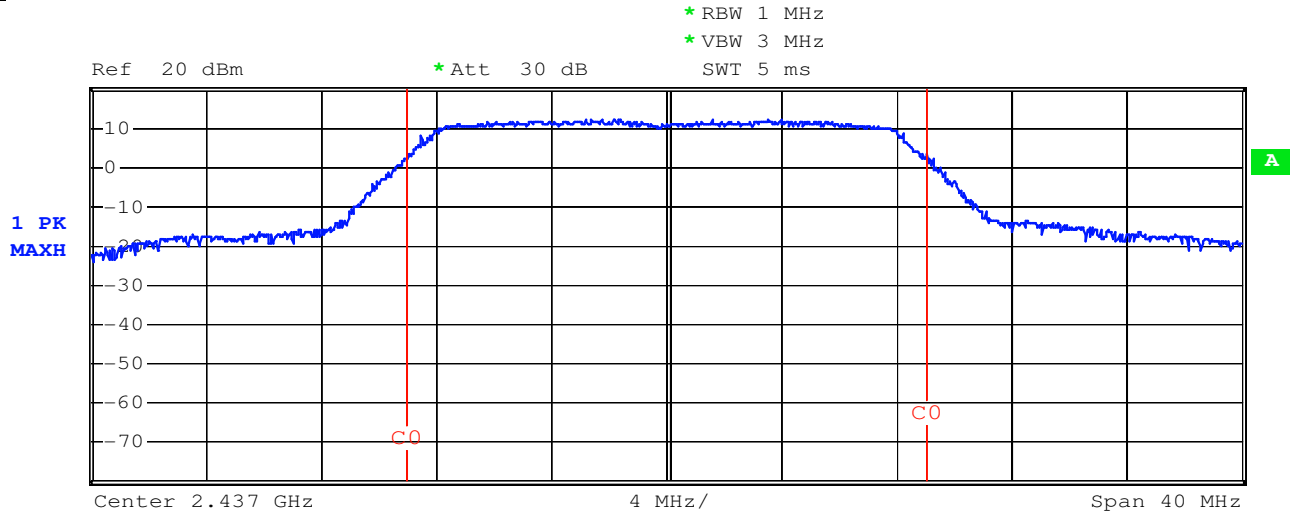
Test mode:	802.11g	Test channel:	Lowest
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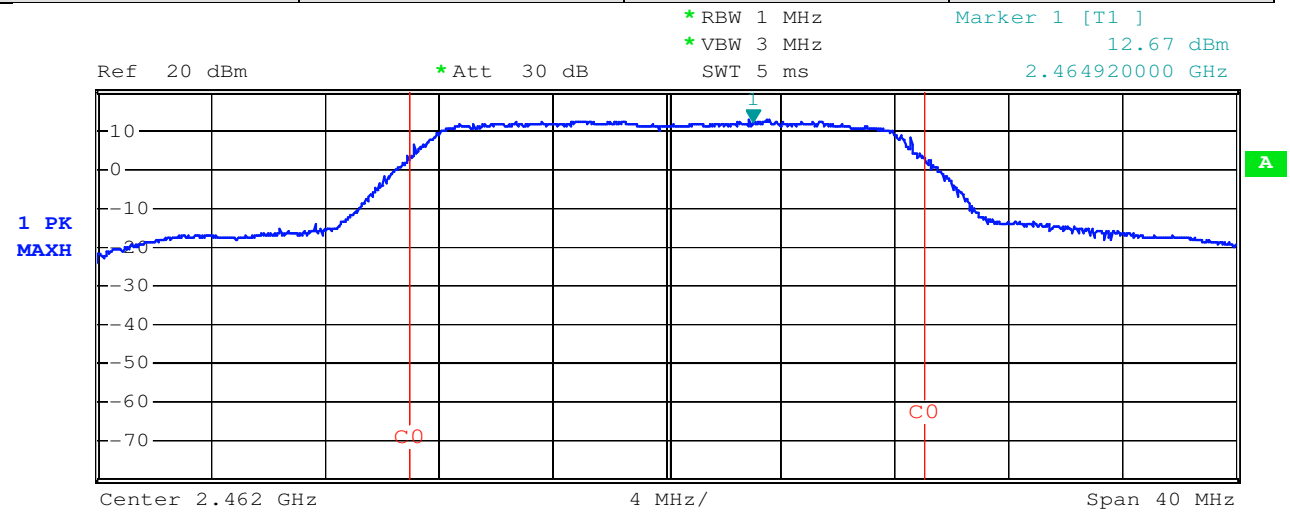


Test mode:	802.11g	Test channel:	Middle
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Tx Channel
Bandwidth 18 MHz Power 22.58 dBm

Test mode:	802.11g	Test channel:	Highest
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Tx Channel
Bandwidth 18 MHz Power 22.94 dBm

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7.6 Peak Power Spectral Density

Test Requirement:	FCC Part 15, Subpart C Section 15.247 (e) RSS-210 Issue 8 Annex 8
Test Method:	ANSI C63.10,2009 Section 6.11.2
Test Date:	May 18, 2013
Test Result:	Pass
Test Limit:	8dBm/3kHz
Final Test Mode:	Transmitting mode
Measurement Procedure:	<ol style="list-style-type: none"> 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum. 2. Set the spectrum analyzer: Center Frequency= Channel Frequency, RBW = 3kHz VBW = 10kHz. Span= fully encompass the bandwidth, Sweep = auto; Detector Function = Peak Trace mode=max hold, 3. Set MKR=Center Frequency, Trace=Clear Write. 4. Adjust the Span = 300kHz, Sweep Time=100s, Trace=Max Hold, MKR=Peak Search. 5. Record the marker level for the particular mode. 6. Repeat these steps for other channel and device modes.

Test Results record:

For Antenna A:

Test mode	Channel	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Peak Power Limit (dBm)	Result
802.11b	Low	-8.49	1.9	-6.59	8	PASS
	Mid	-8.00	1.9	-6.10	8	PASS
	High	-8.40	1.9	-6.50	8	PASS
802.11g	Low	-12.96	1.9	-11.06	8	PASS
	Mid	-13.39	1.9	-11.49	8	PASS
	High	-13.77	1.9	-11.87	8	PASS

For Antenna B:

Test mode	Channel	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Peak Power Limit (dBm)	Result
802.11b	Low	-9.43	1.9	-7.53	8	PASS
	Mid	-8.48	1.9	-6.58	8	PASS
	High	-7.98	1.9	-6.08	8	PASS
802.11g	Low	-12.12	1.9	-10.22	8	PASS
	Mid	-12.43	1.9	-10.53	8	PASS



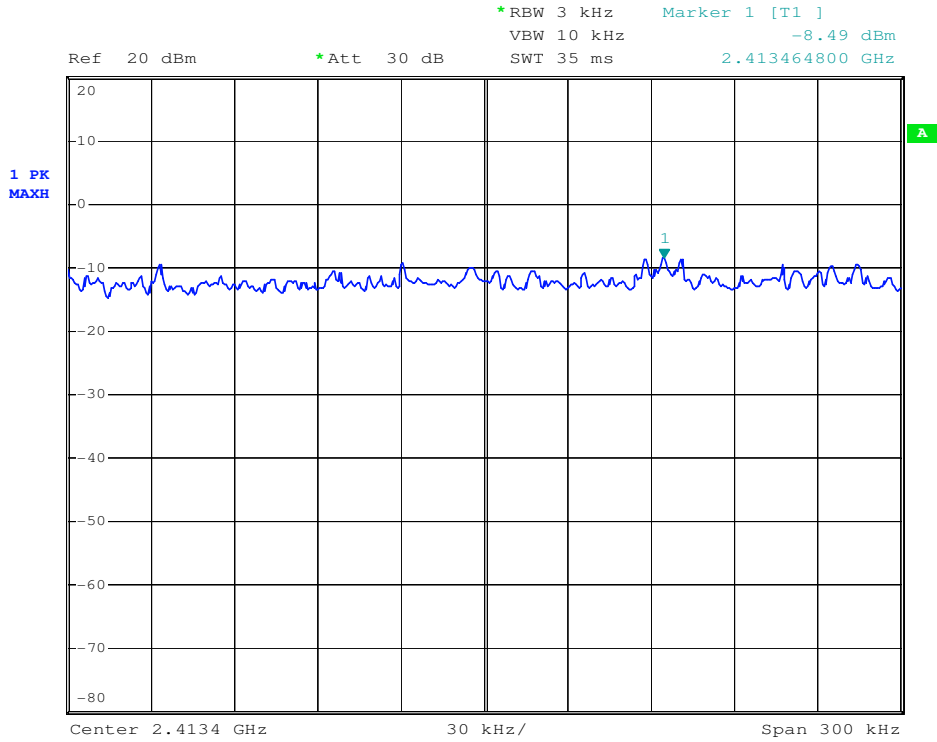
	High	-12.02	1.9	-10.12	8	PASS
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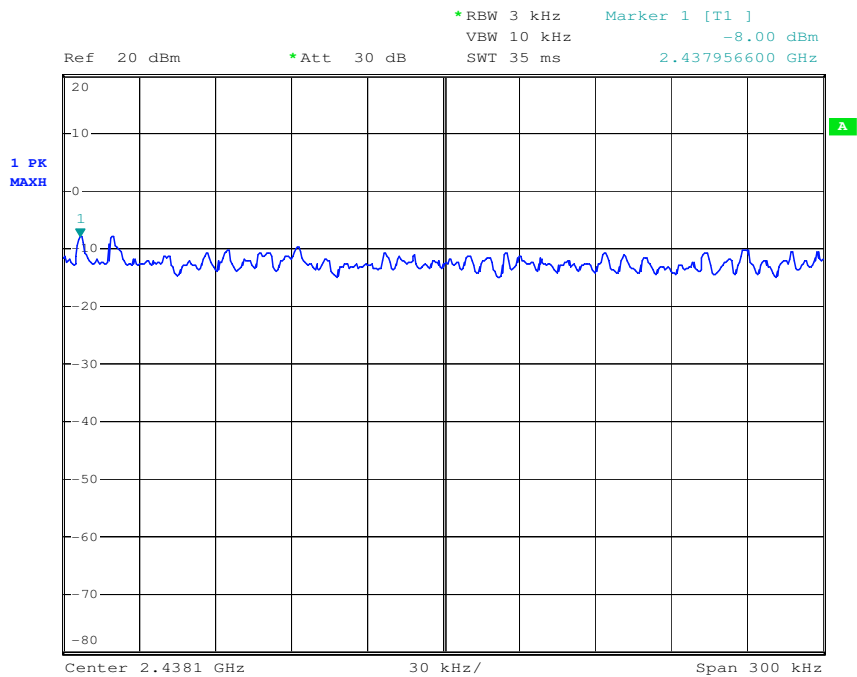
Test plot as follows:

For Antenna A:

Test mode:	802.11b	Test channel:	Lowest
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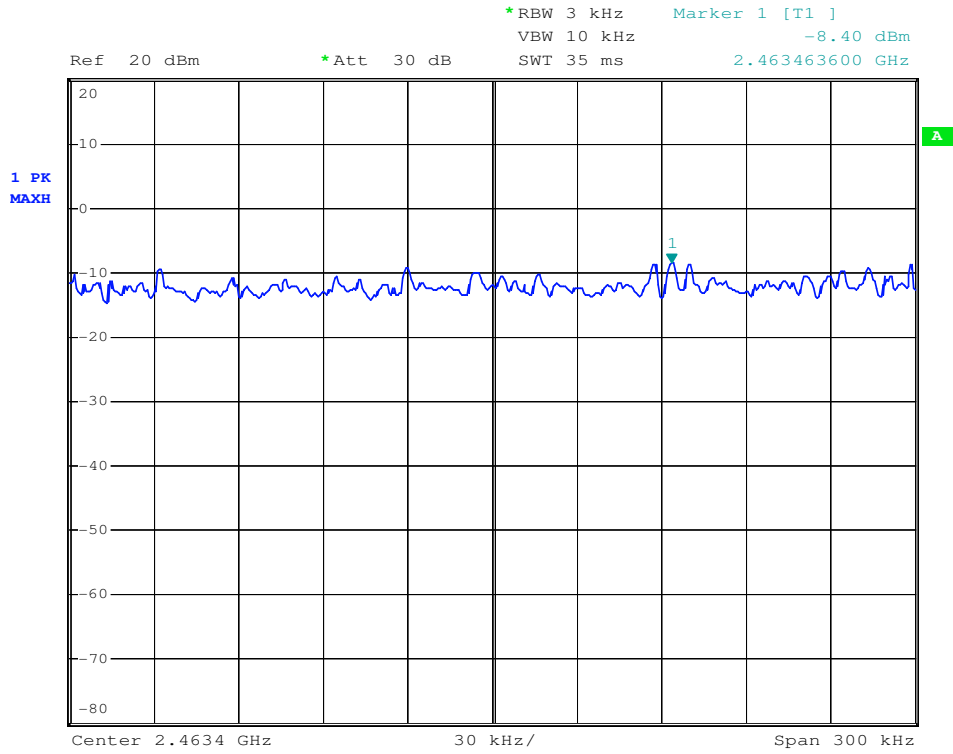
Test mode:	802.11b	Test channel:	Middle
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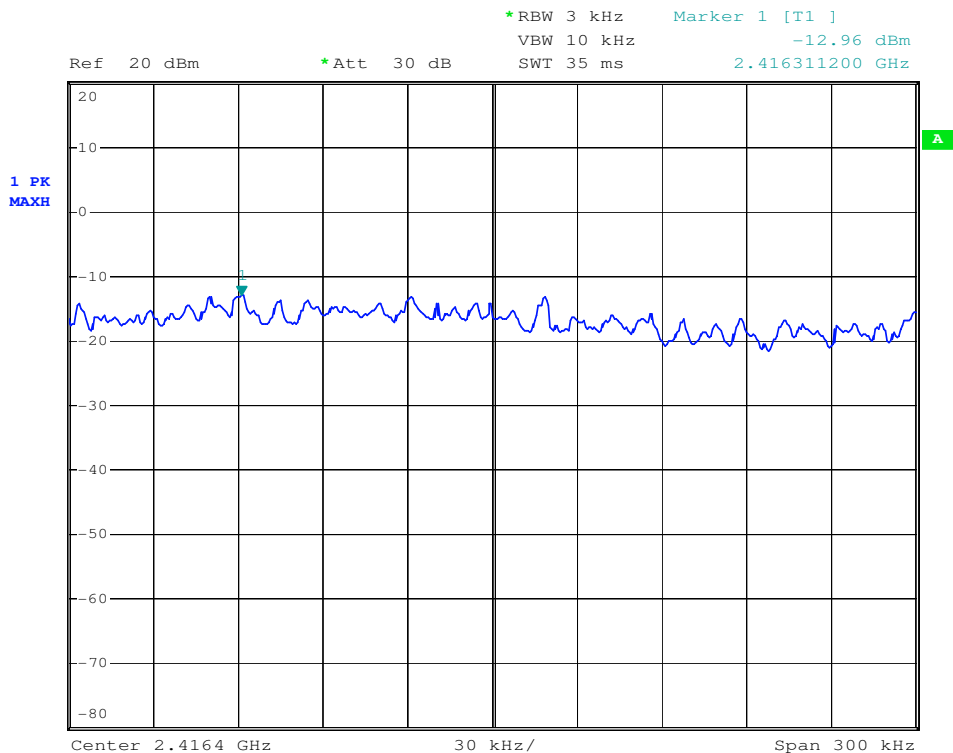
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Test mode:	802.11b	Test channel:	Highest
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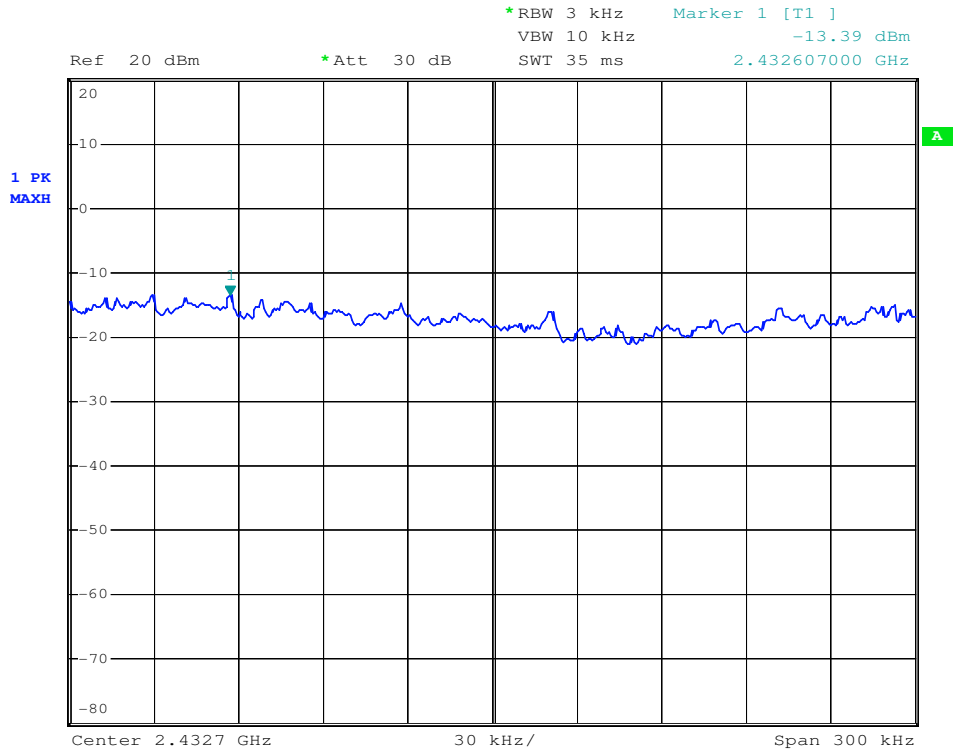
Test mode:	802.11g	Test channel:	Lowest
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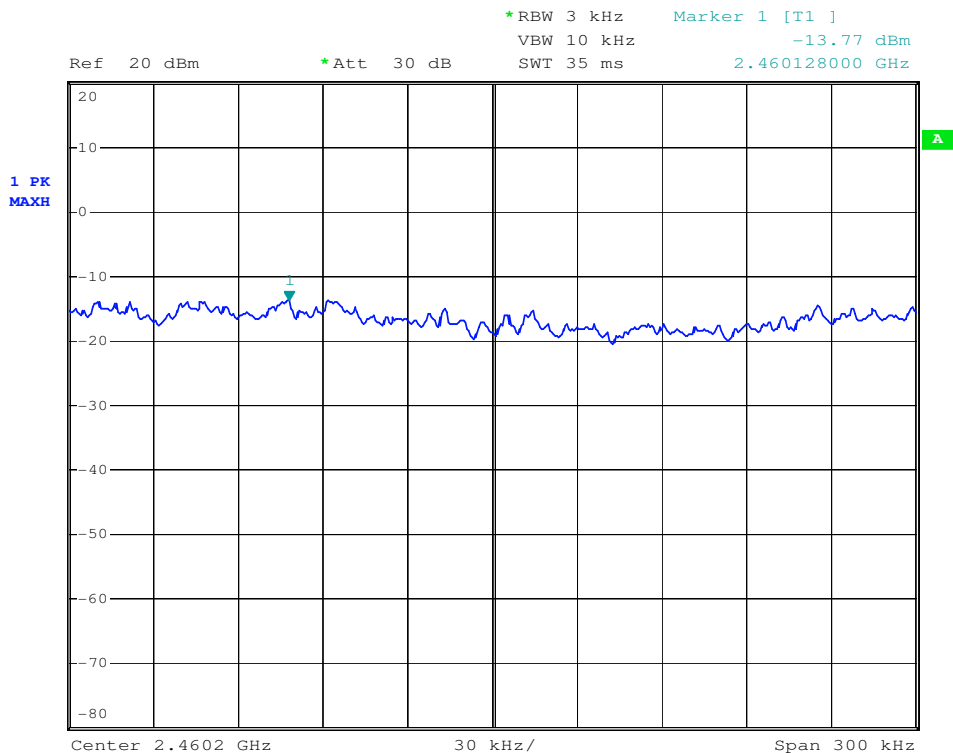
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Test mode:	802.11g	Test channel:	Middle
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Test mode:	802.11g	Test channel:	Highest
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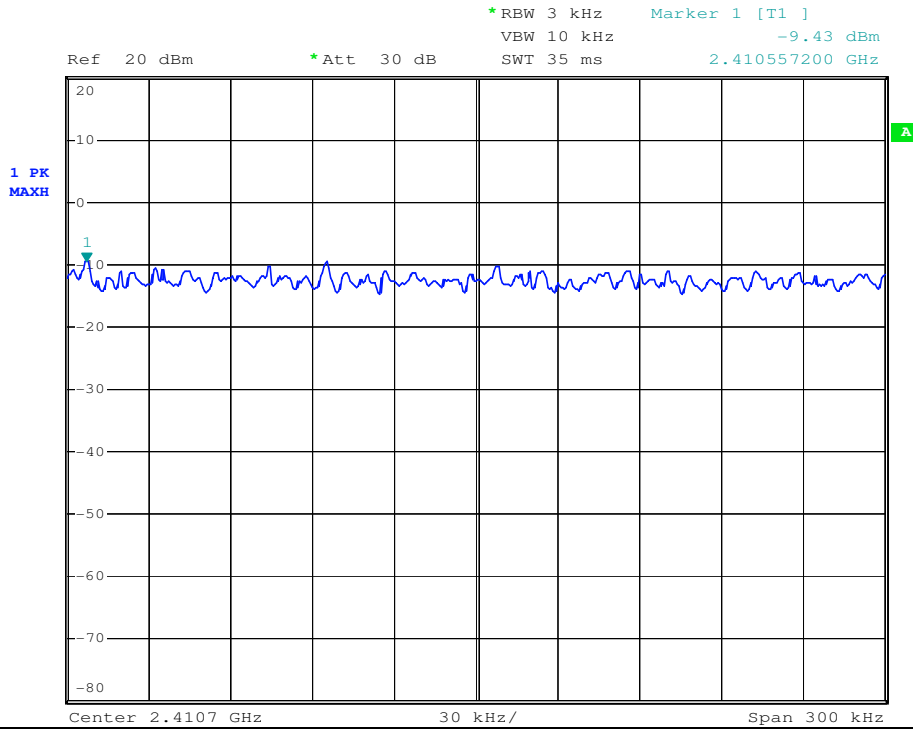
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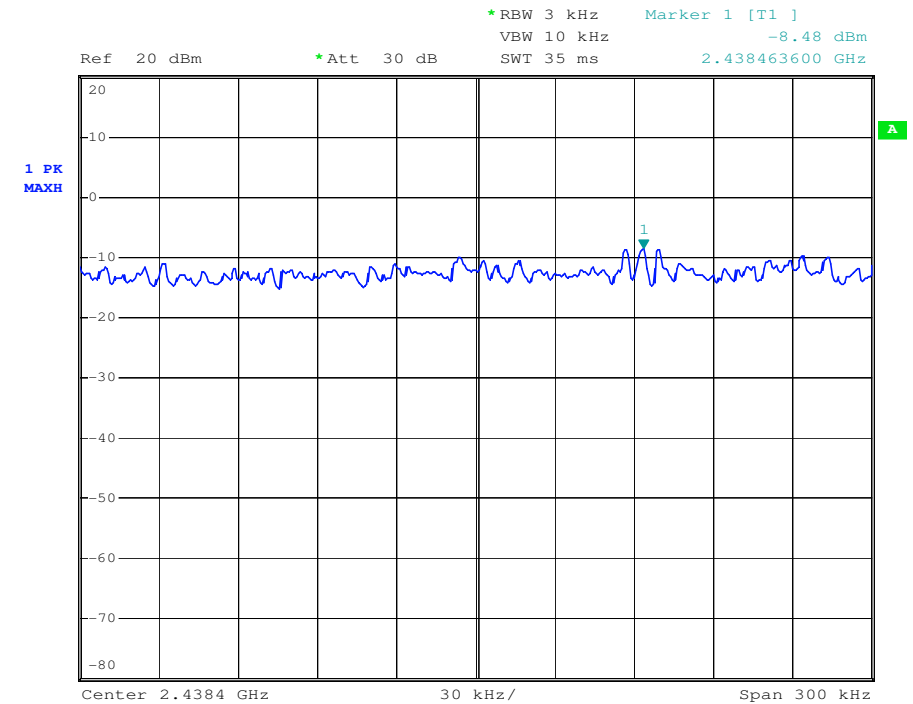
Test plot as follows:

For Antenna B:

Test mode:	802.11b	Test channel:	Lowest
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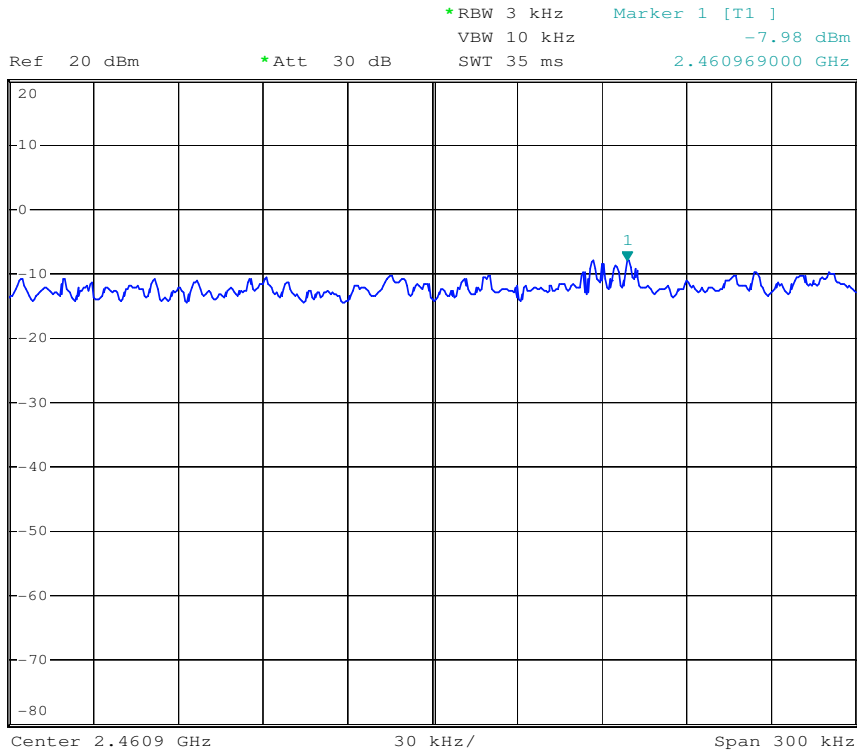
Test mode:	802.11b	Test channel:	Middle
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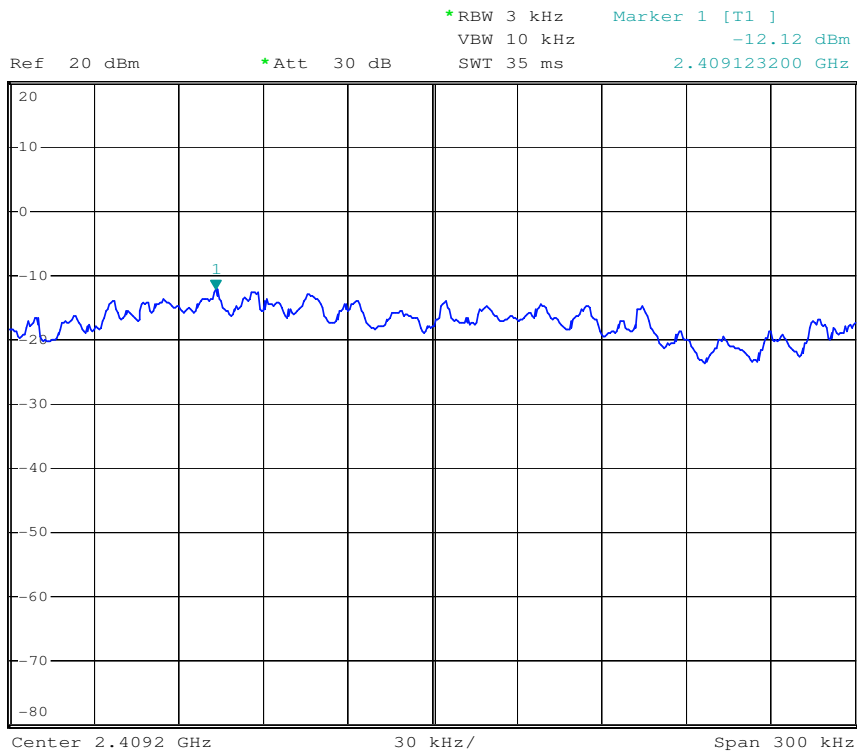
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Test mode:	802.11b	Test channel:	Highest
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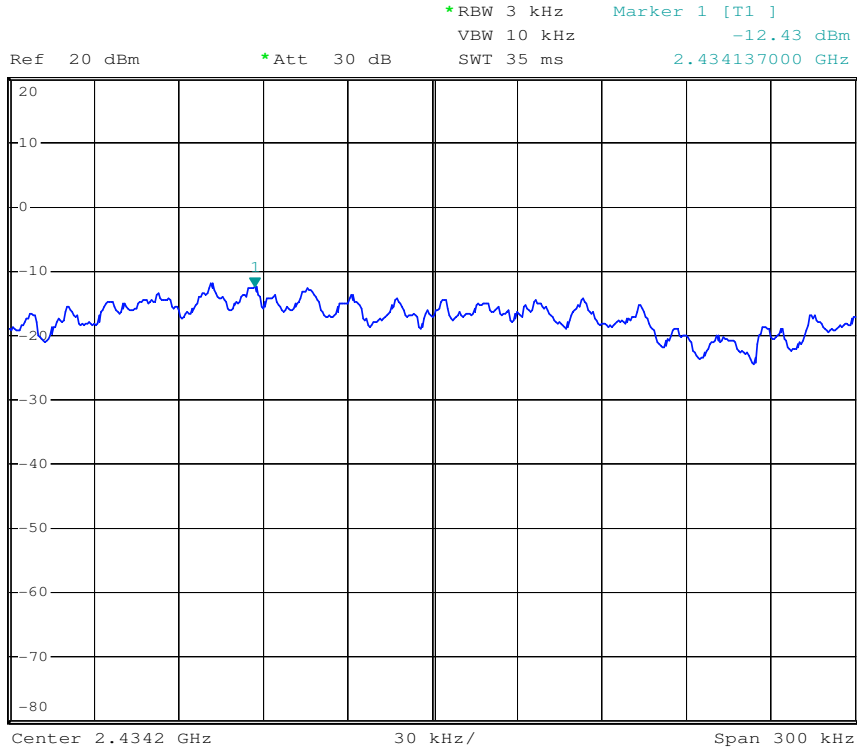
Test mode:	802.11g	Test channel:	Lowest
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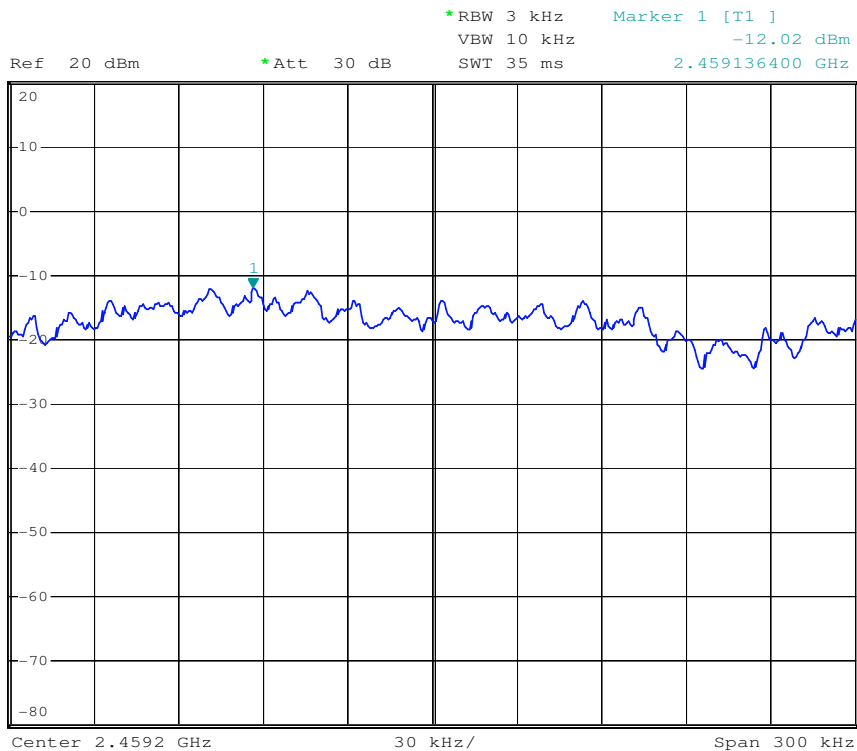
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Test mode:	802.11g	Test channel:	Middle
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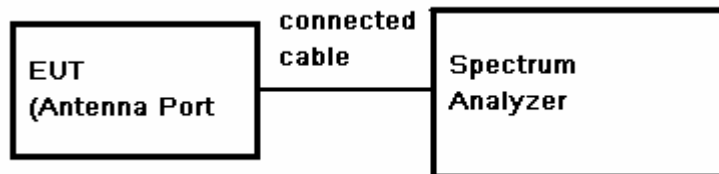
Test mode:	802.11g	Test channel:	Highest
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7.7 Conducted Spurious Emissions

Test Requirement:	FCC Part 15 Section 15.247(d) RSS-210 Issue 8 Annex 8
Test Method:	ANSI C63.10:2009 Clause 7.7.10
Test Date:	May 19, 2013
Test Result:	Pass
Limit:	(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.
Final Test Mode:	Transmitting mode
Test Configuration:	



Test Procedure:	<ol style="list-style-type: none"> 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum. 2. Set the spectrum analyzer: RBW = 100KHz. VBW >= RBW. Sweep = auto; Detector Function = Peak (Max. hold).
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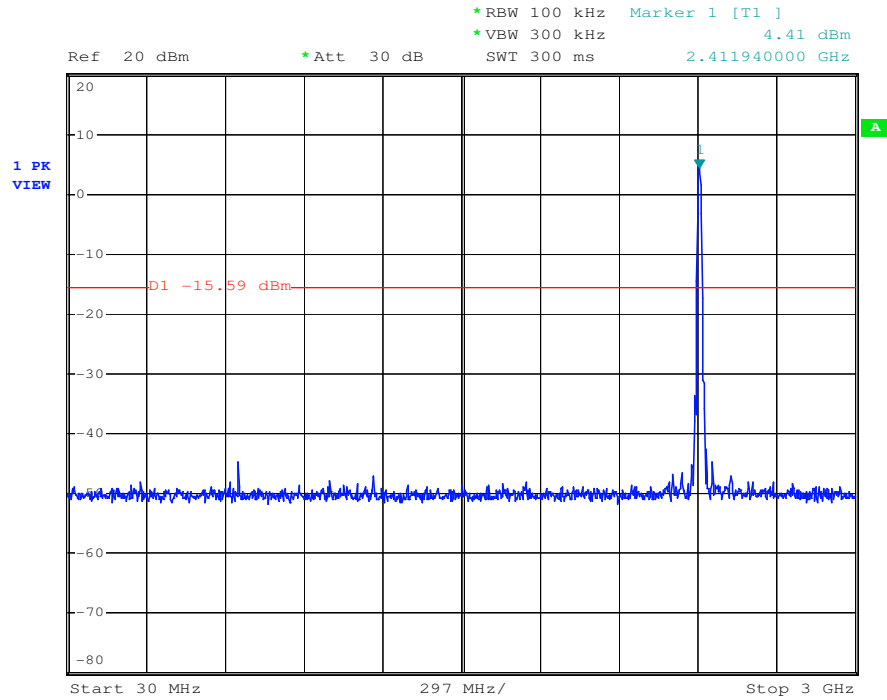


Test plot as follows:

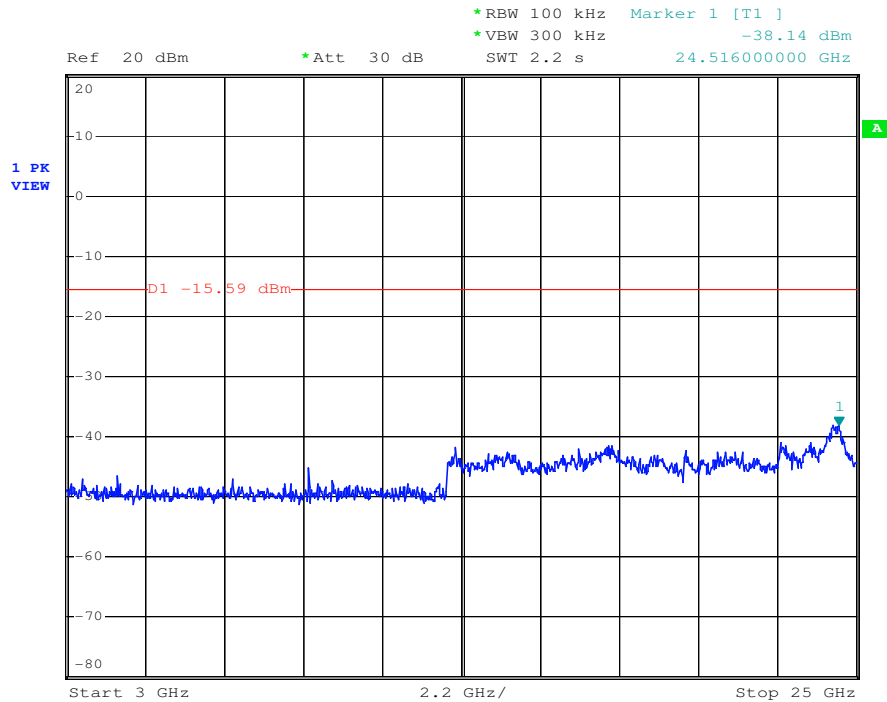
For Antenna A:

Test mode:	802.11b	Test channel:	Lowest
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30MHz-3GHz



3GHz-25GHz

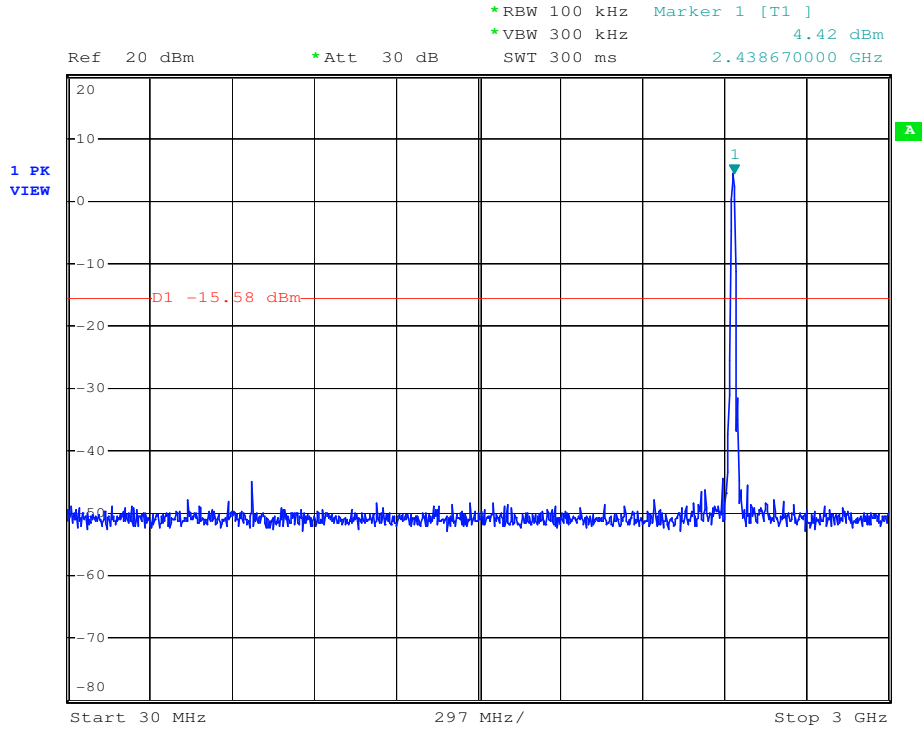


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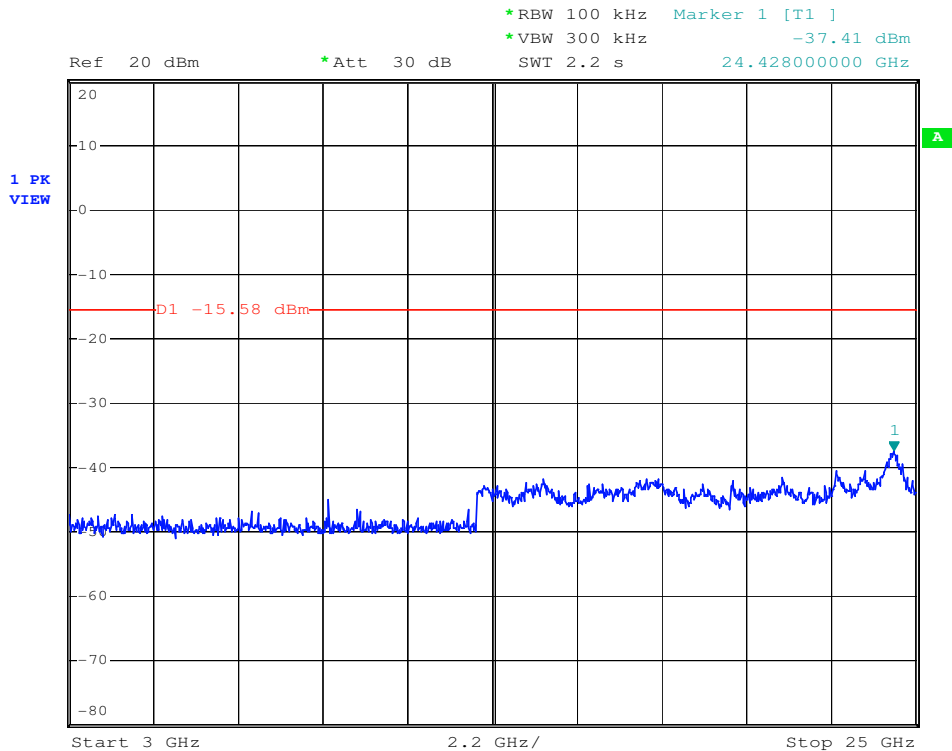


Test mode:	802.11b	Test channel:	Middle
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30MHz-3GHz



3GHz-25GHz

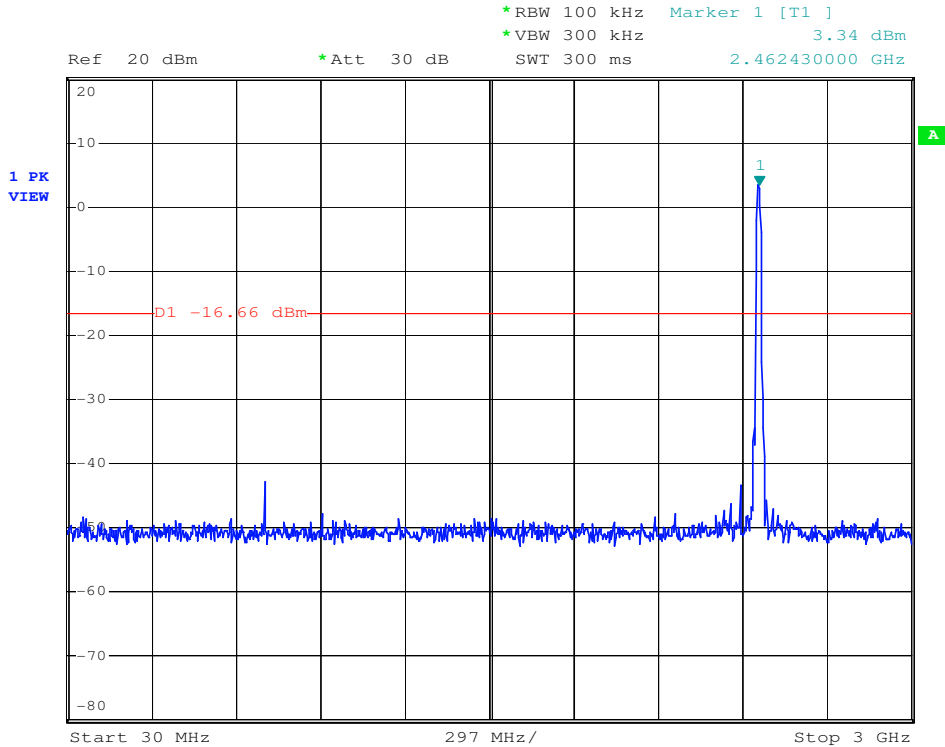


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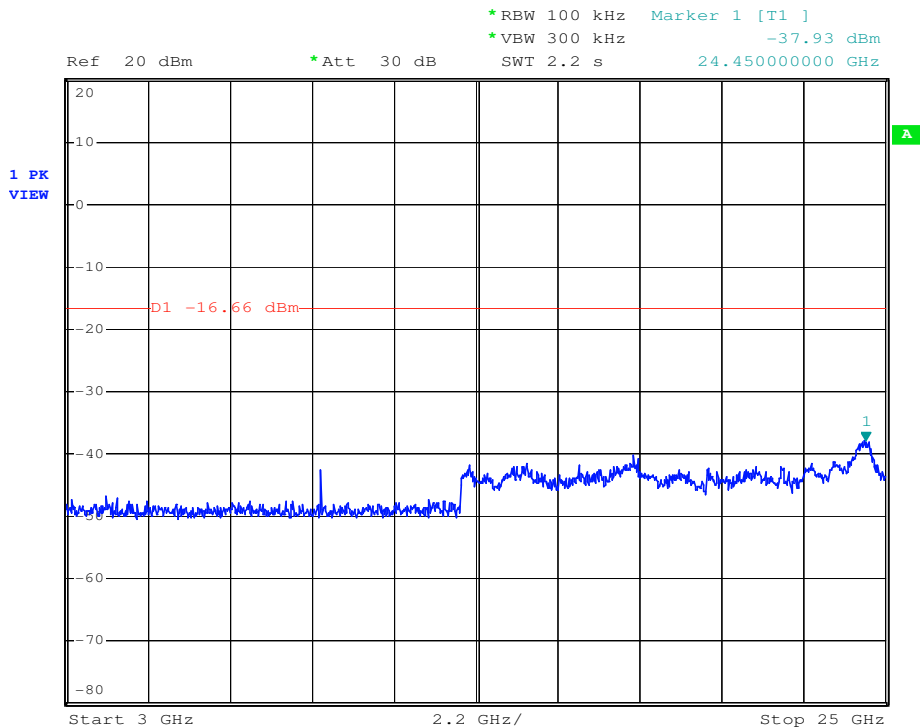


Test mode:	802.11b	Test channel:	Highest
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30MHz-3GHz



3GHz-25GHz

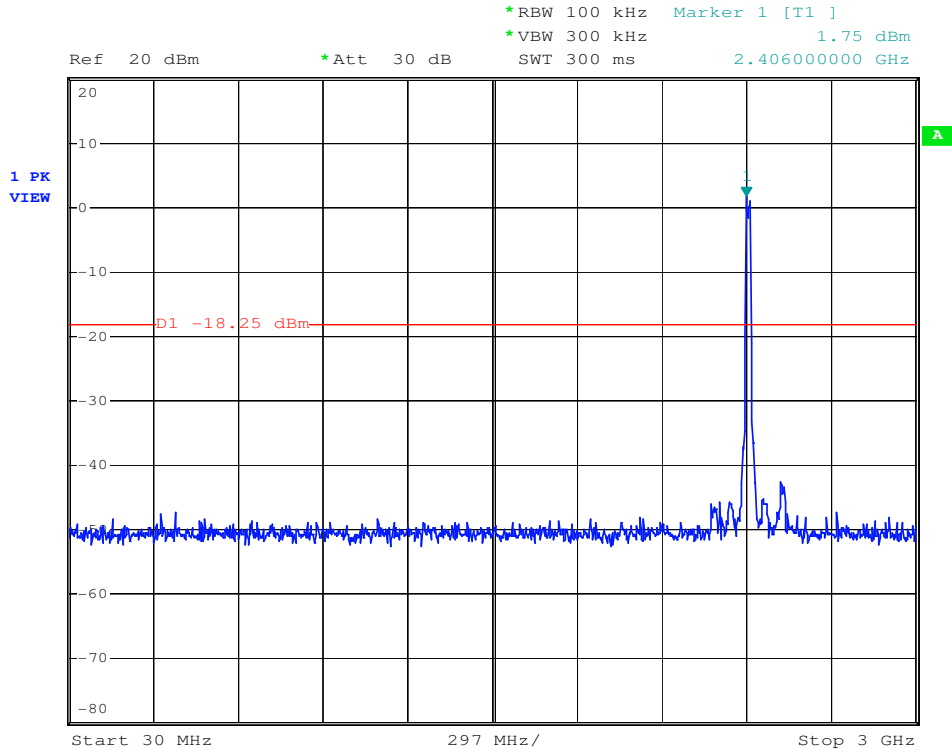


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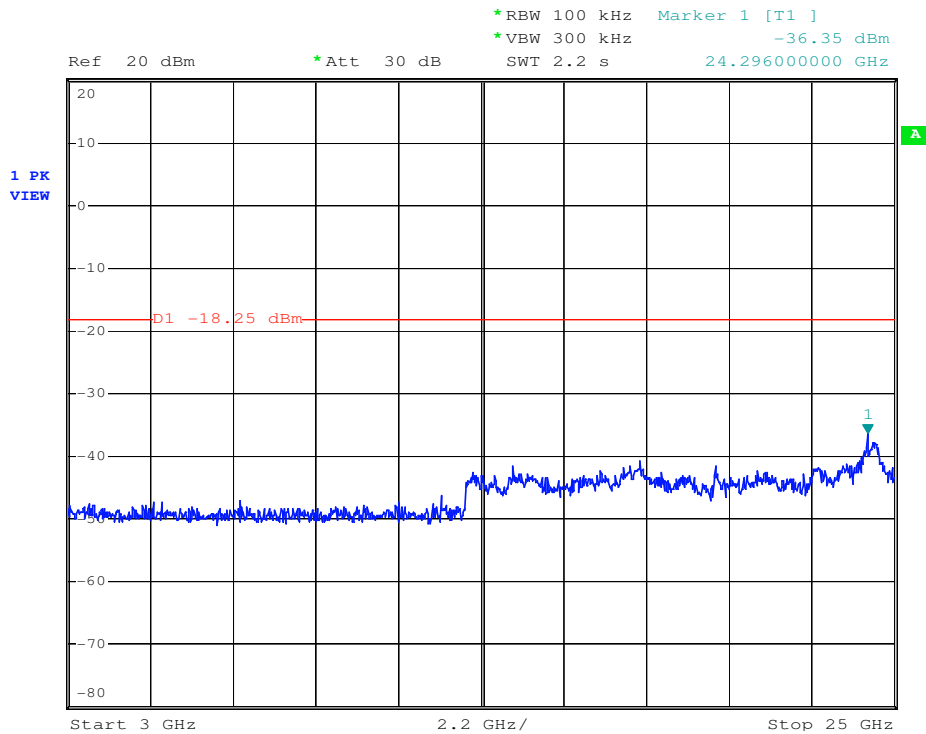


Test mode:	802.11g	Test channel:	Lowest
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30MHz-3GHz



3GHz-25GHz

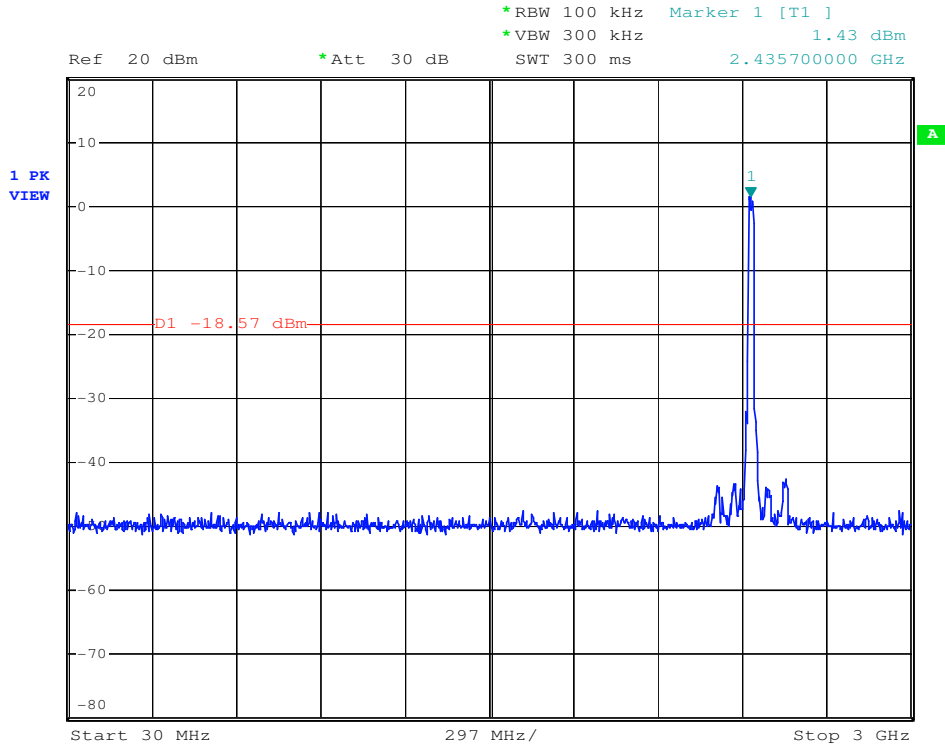


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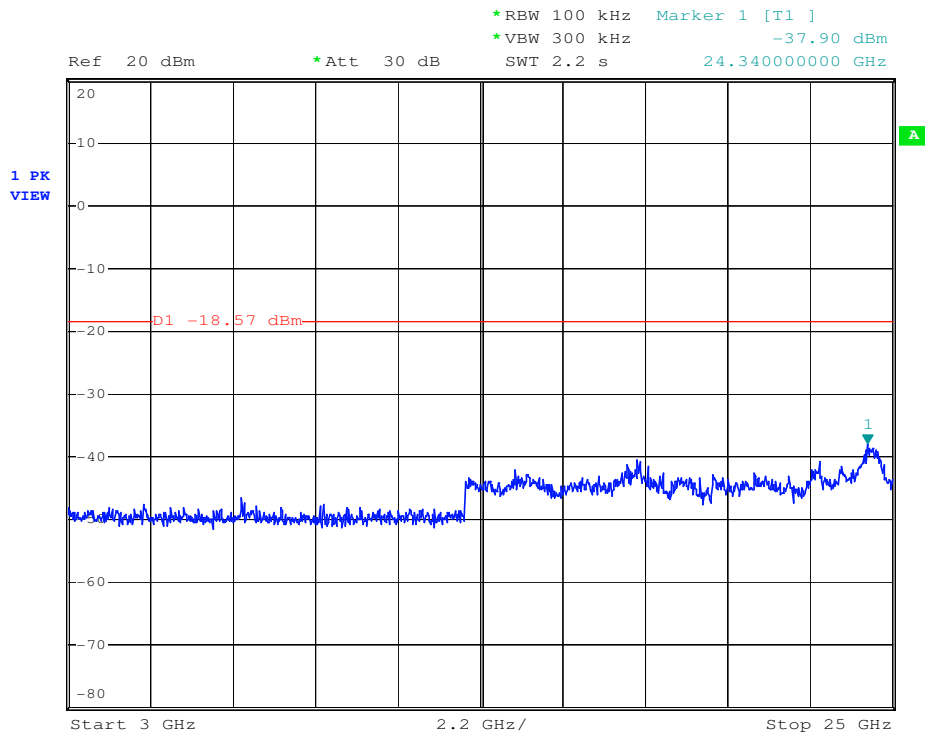


Test mode:	802.11g	Test channel:	Middle
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30MHz-3GHz



3GHz-25GHz

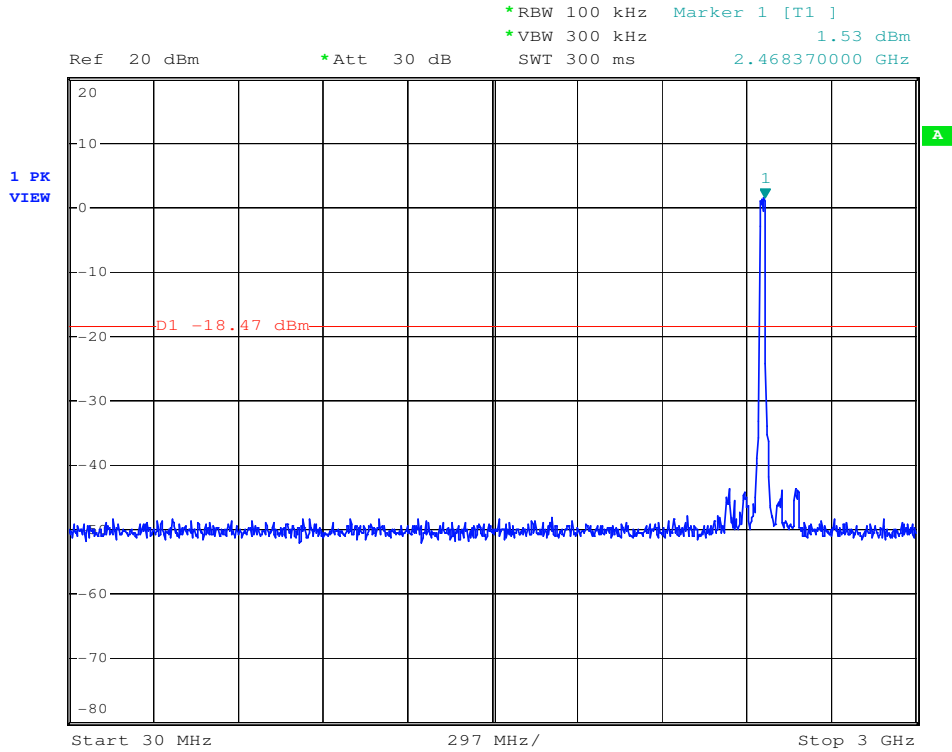


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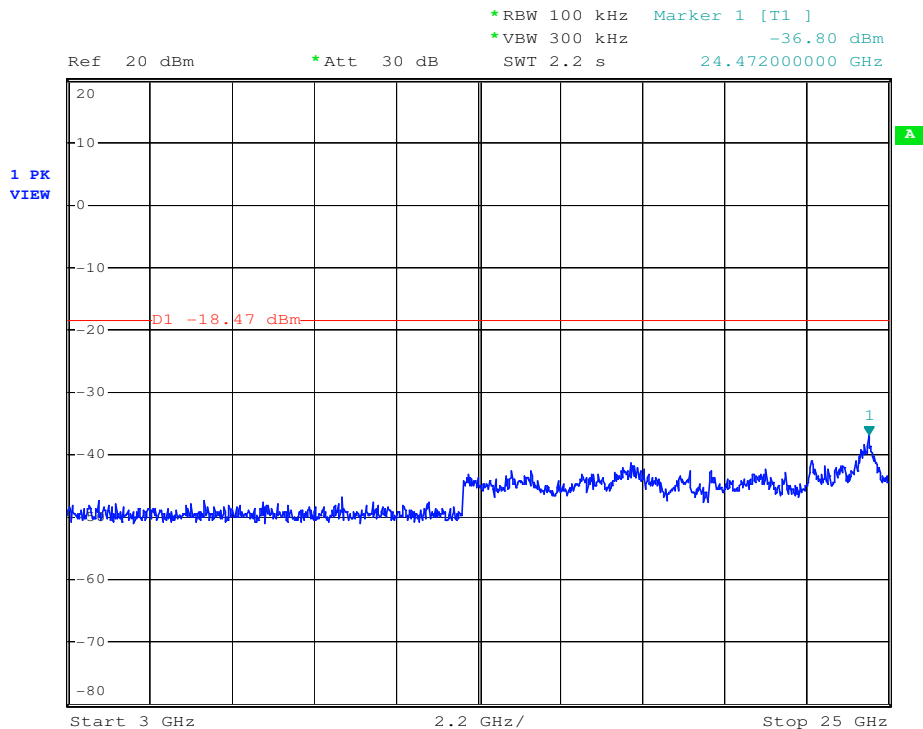


Test mode:	802.11g	Test channel:	Highest
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30MHz-3GHz



3GHz-25GHz



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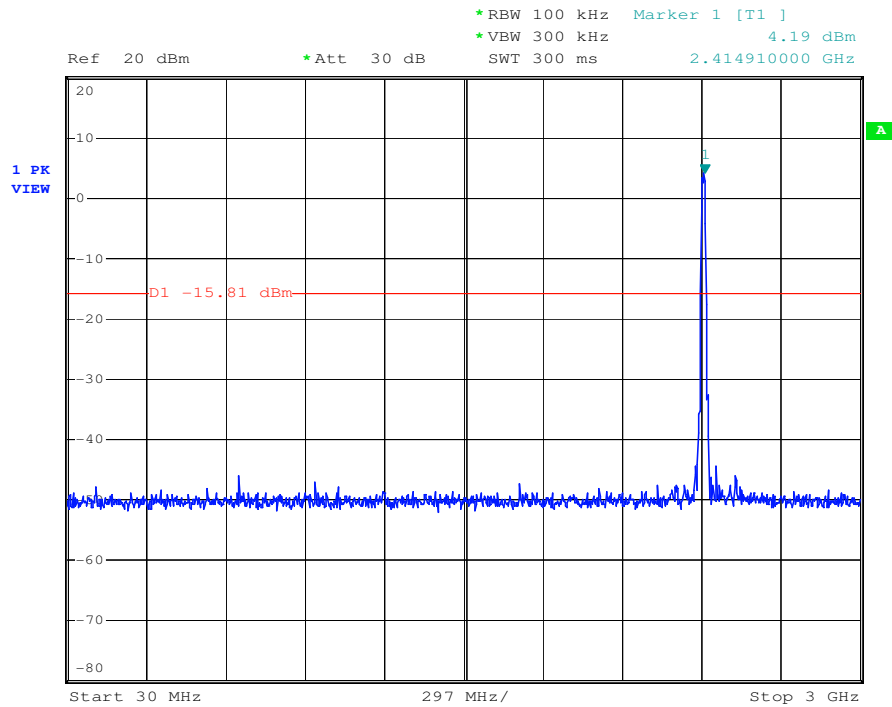


Test plot as follows:

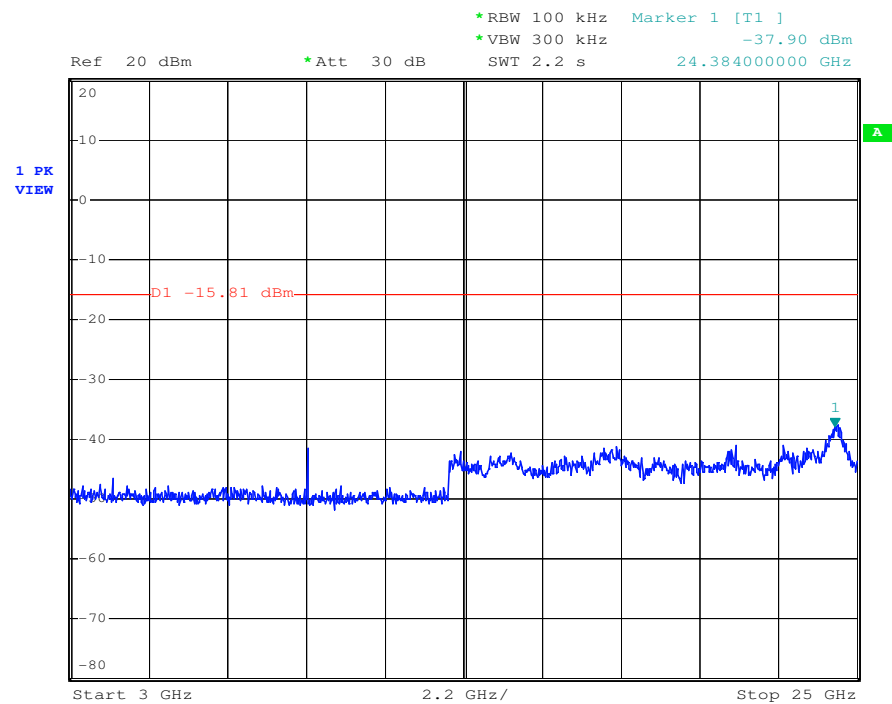
For Antenna B:

Test mode:	802.11b	Test channel:	Lowest
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30MHz-3GHz



3GHz-25GHz

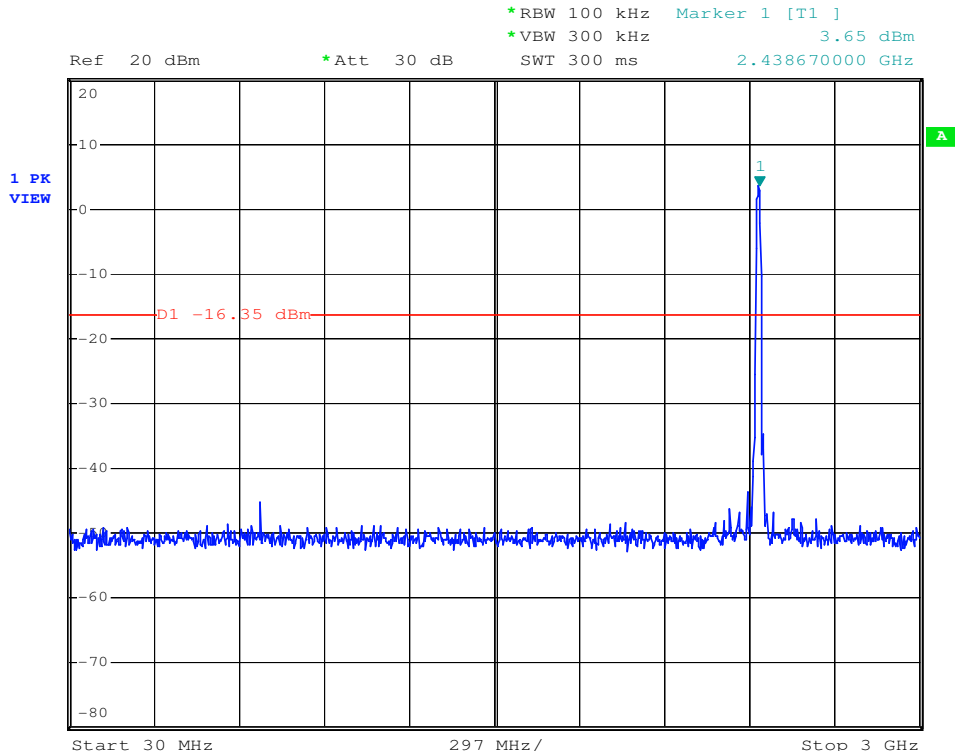


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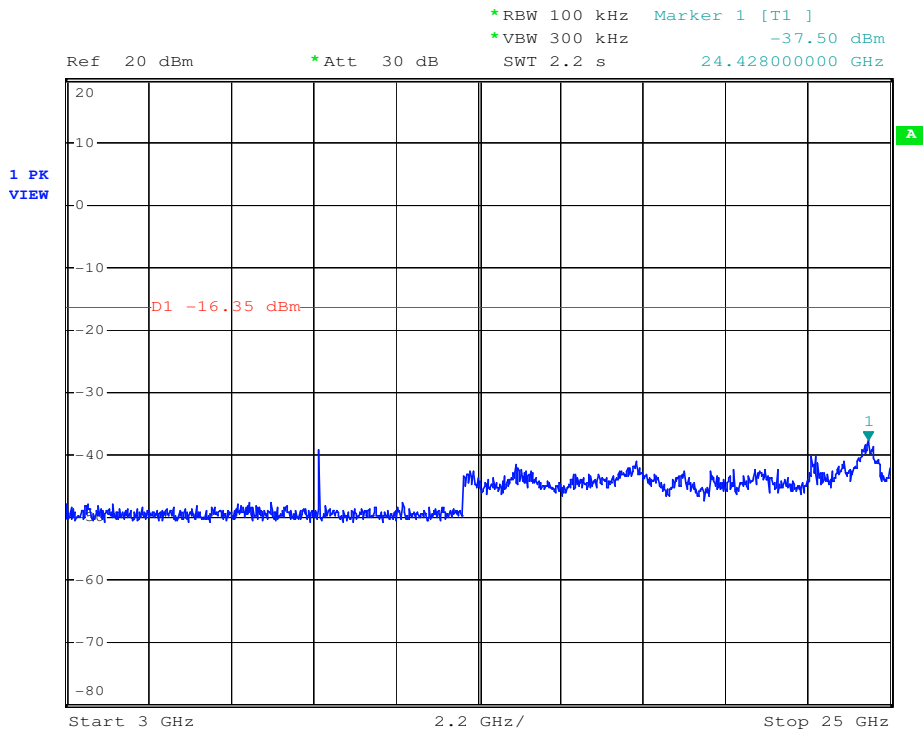


Test mode:	802.11b	Test channel:	Middle
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30MHz-3GHz



3GHz-25GHz

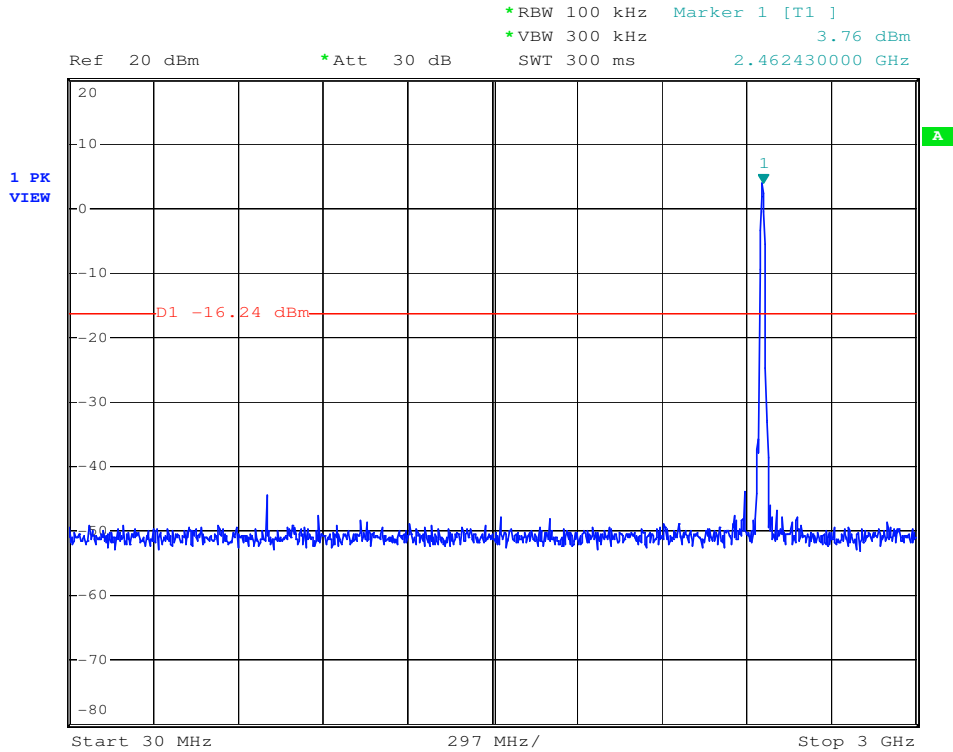


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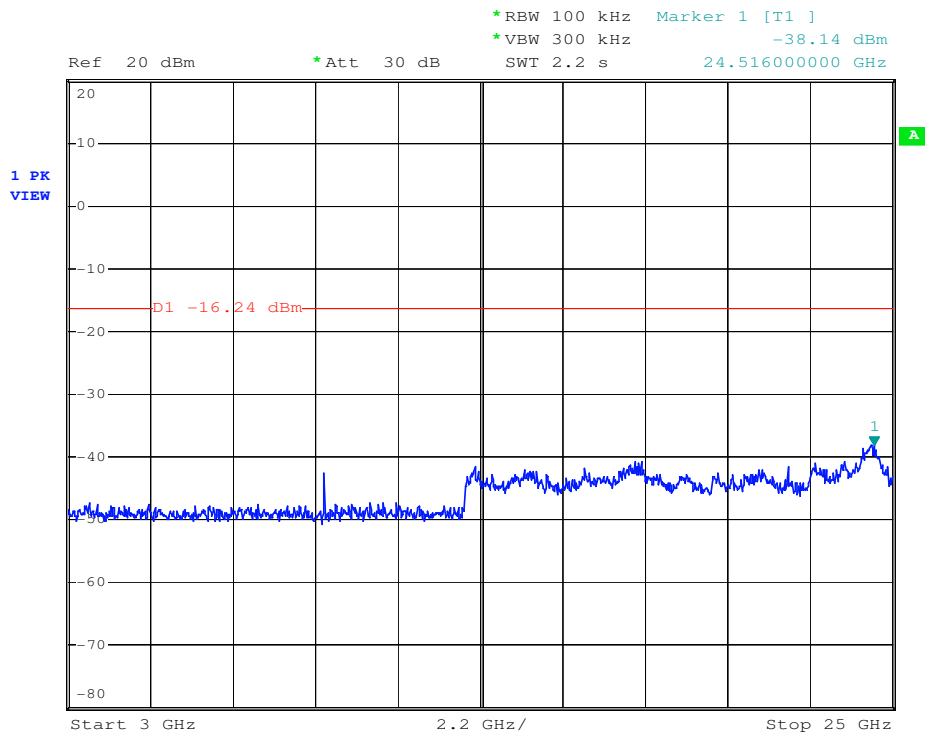


Test mode:	802.11b	Test channel:	Highest
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30MHz-3GHz



3GHz-25GHz

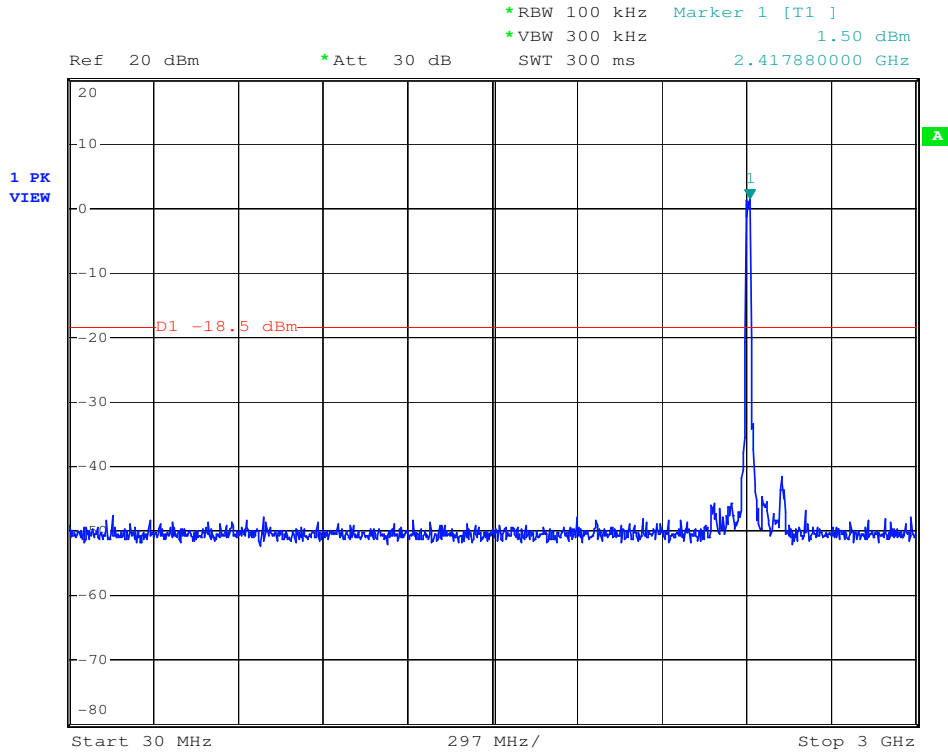


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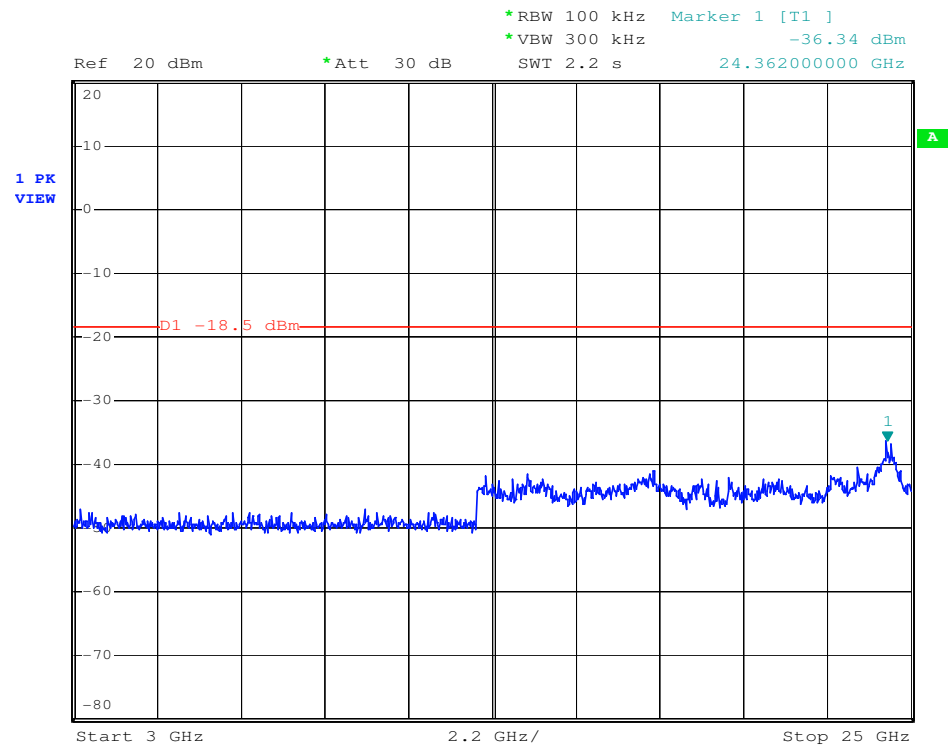


Test mode:	802.11g	Test channel:	Lowest
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30MHz-3GHz



3GHz-25GHz

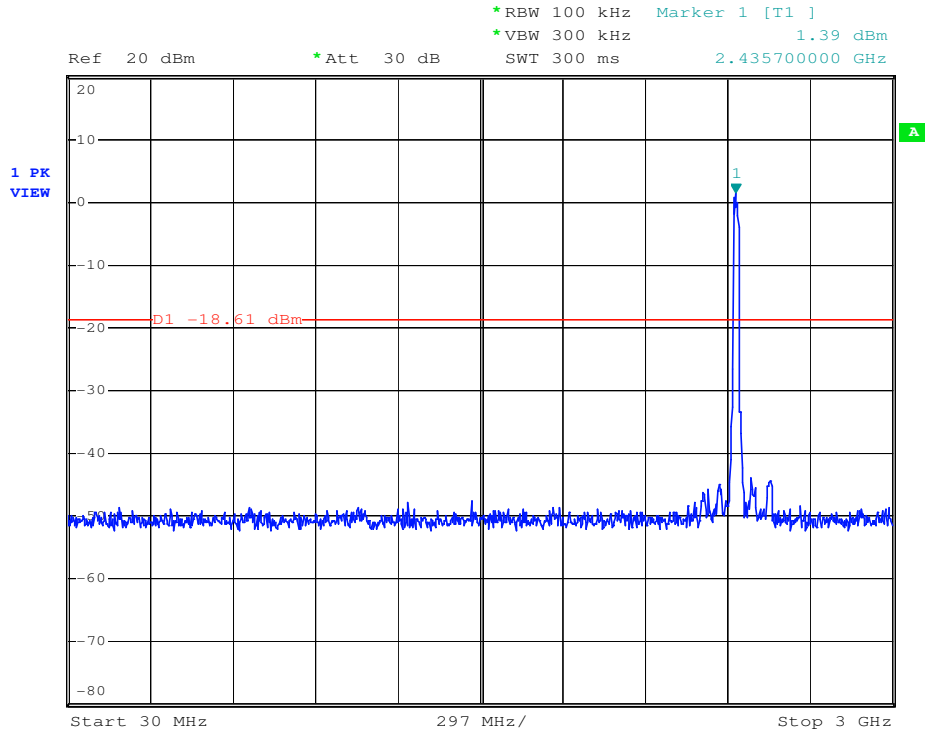


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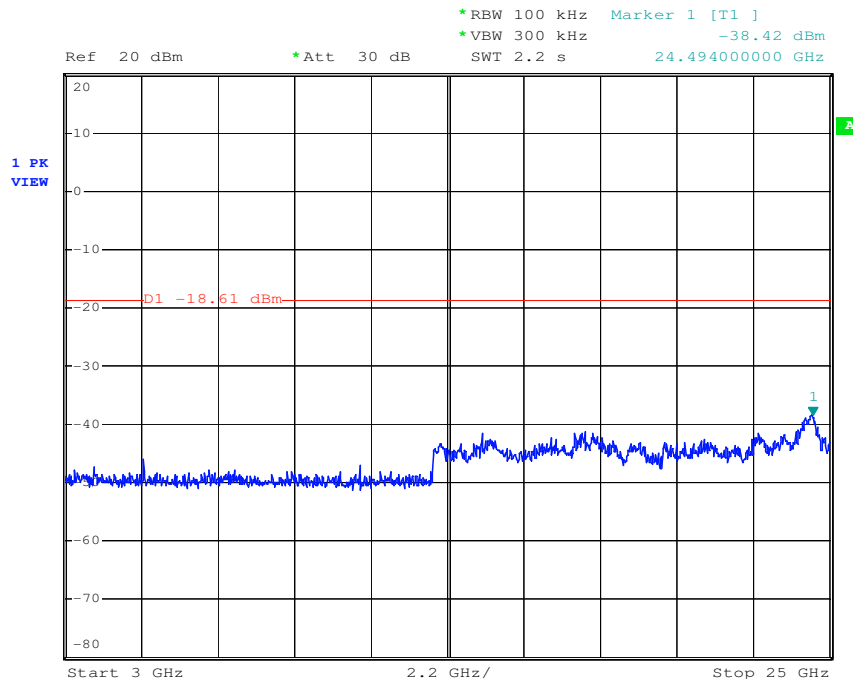


Test mode:	802.11g	Test channel:	Middle
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30MHz-3GHz



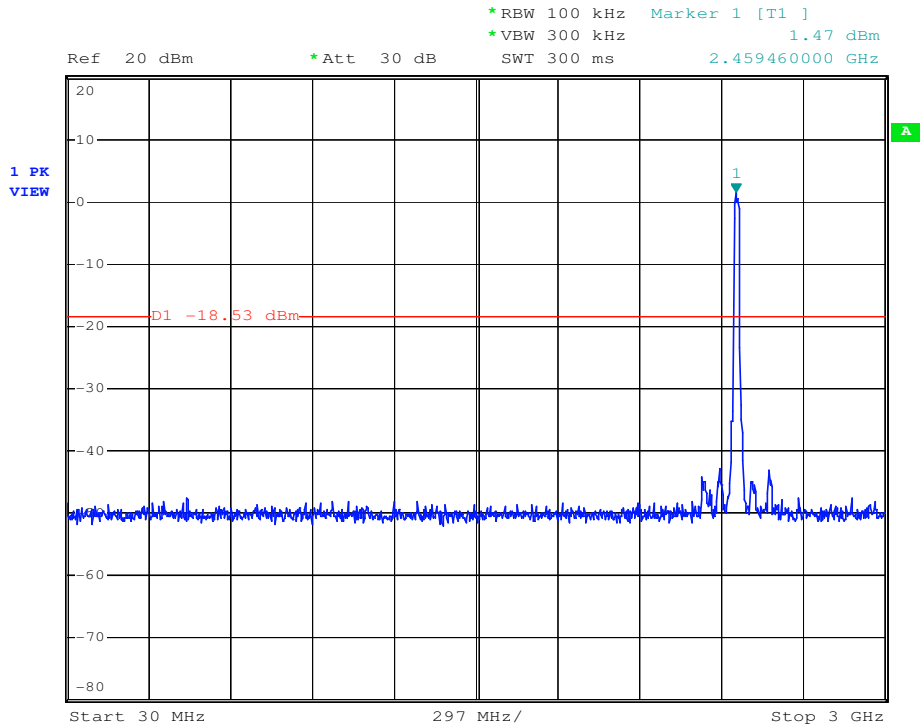
3GHz-25GHz



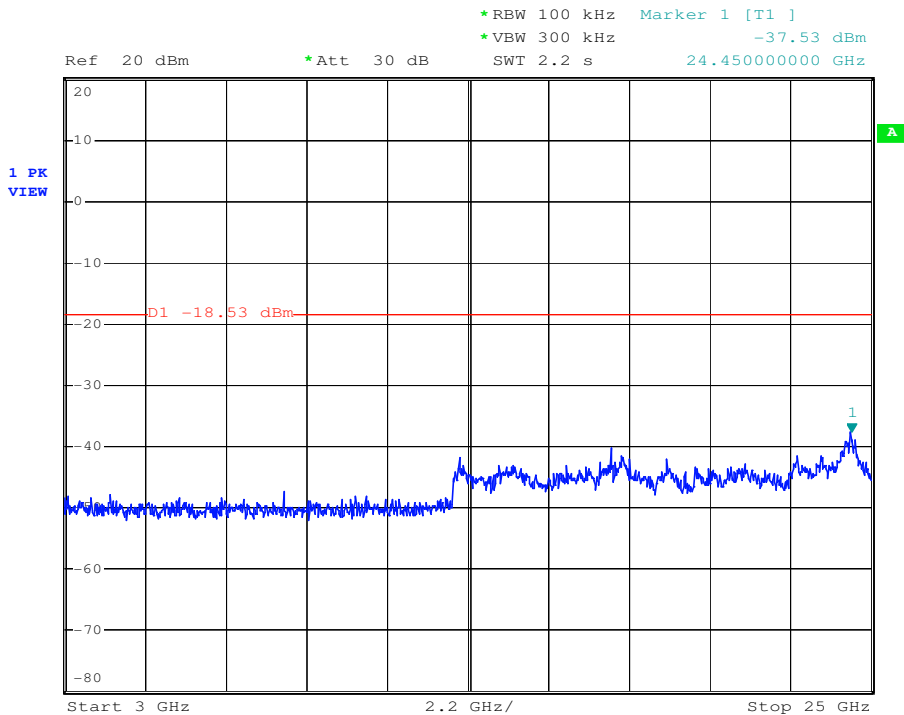


Test mode:	802.11g	Test channel:	Highest
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30MHz-3GHz



3GHz-25GHz



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7.8 Conducted Band-edge

Test Requirement: FCC Part 15 Section 15.247(d)
RSS-210 Issue 8 Annex 8

Test Method: ANSI C63.10:2009 Clause 7.7.10

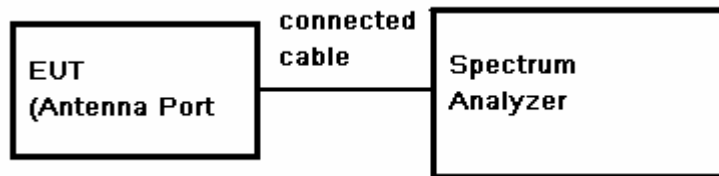
Test Date: May 21, 2013

Test Result: Pass

Limit: (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.

Final Test Mode: Transmitting mode

Test Configuration:



Test Procedure:

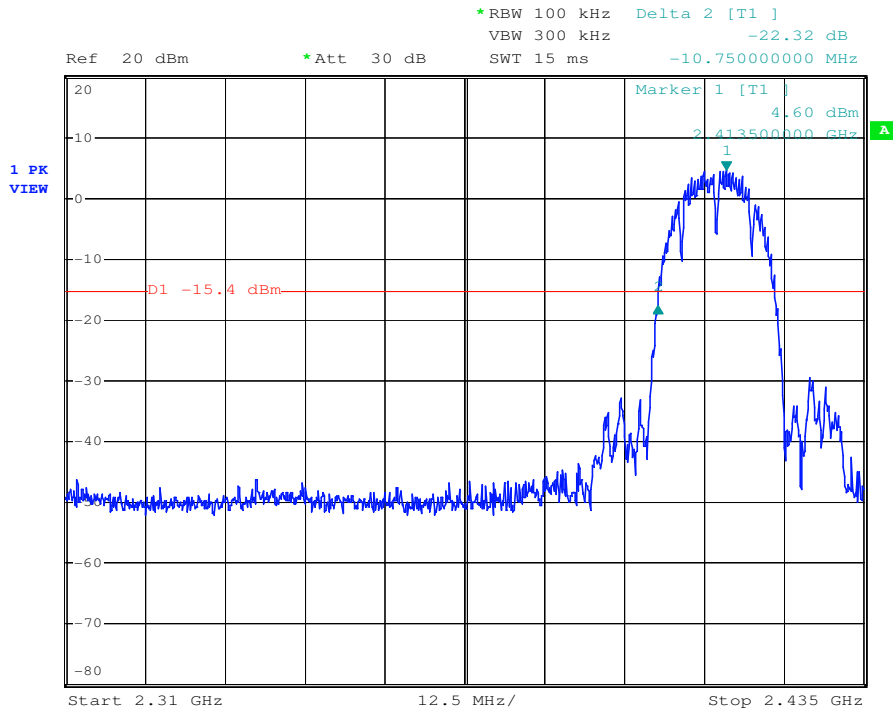
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100KHz. VBW >= RBW. Sweep = auto; Detector Function = Peak (Max. hold).



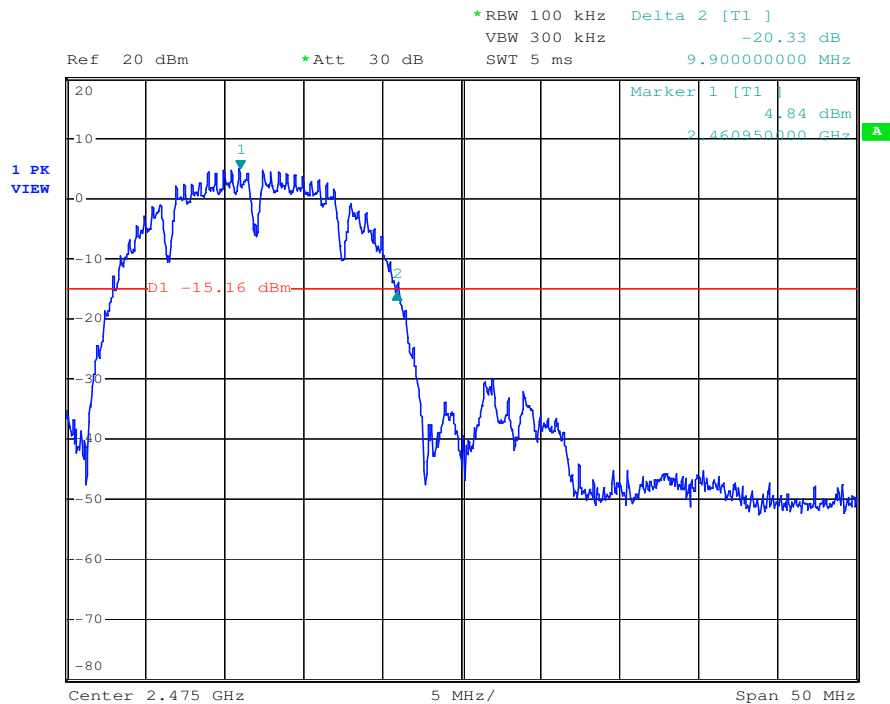
Test plot as follows:

For Antenna A:

Test mode:	802.11b	Test channel:	Lowest
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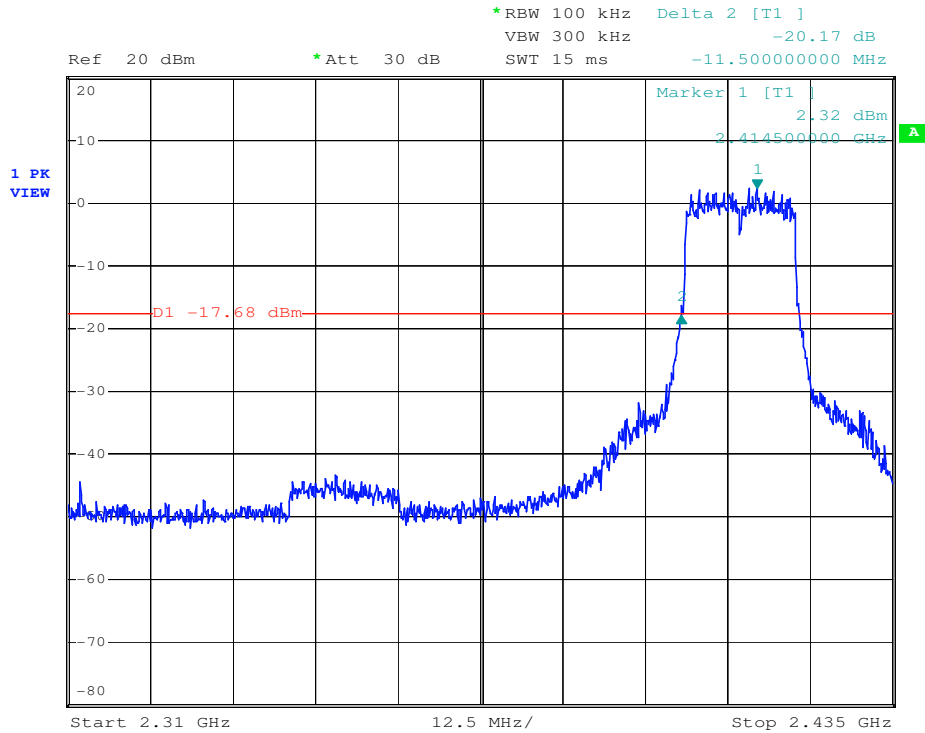
Test mode:	802.11b	Test channel:	Highest
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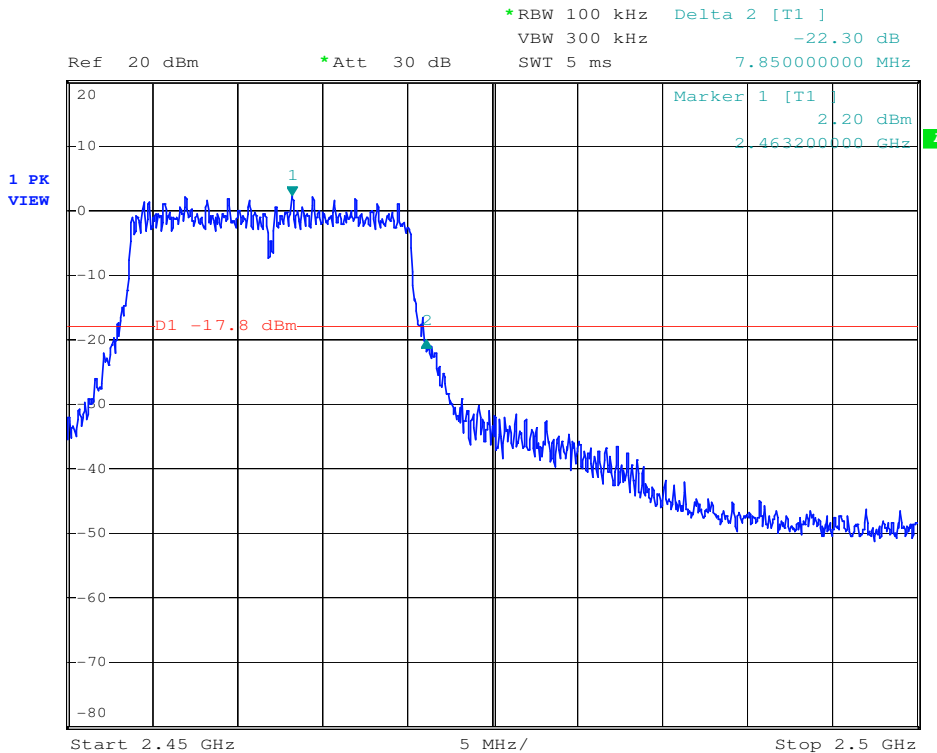
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Test mode:	802.11g	Test channel:	Lowest
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Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------



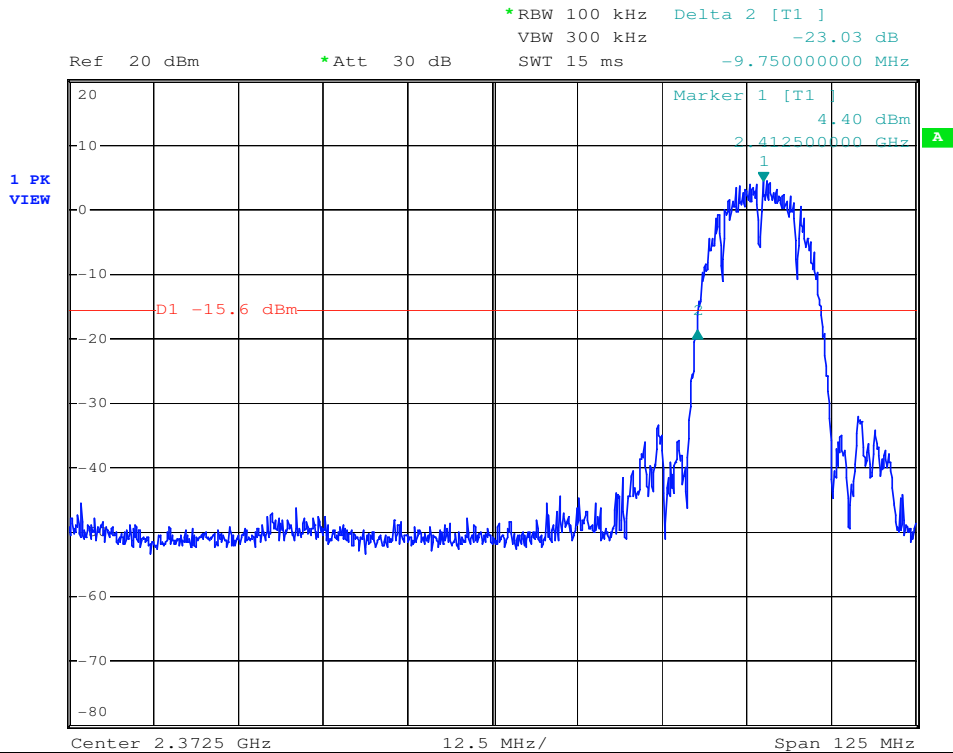
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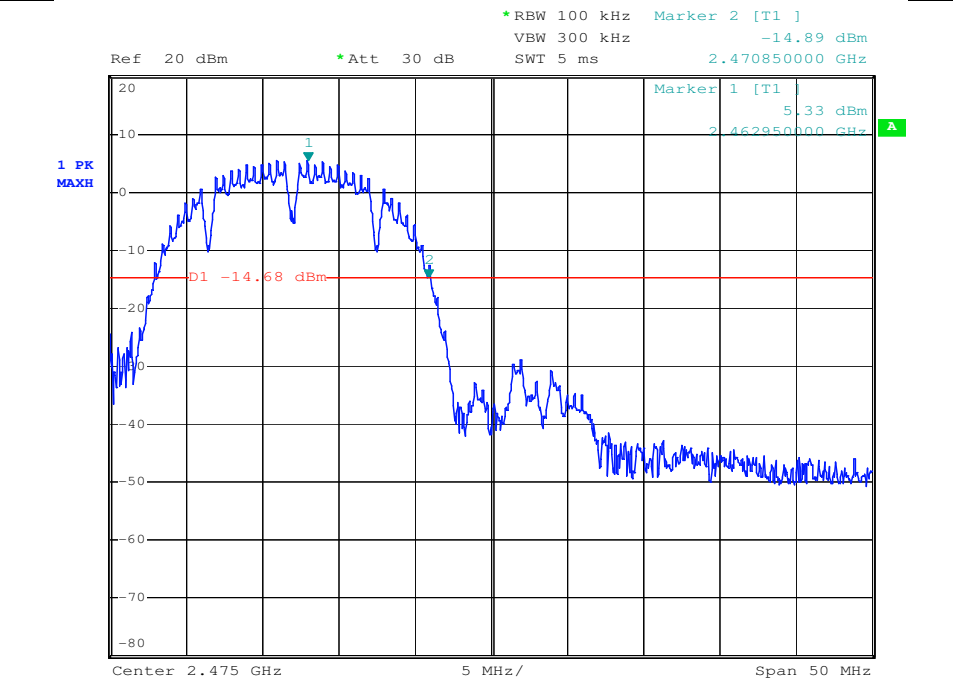
Test plot as follows:

For Antenna B:

Test mode:	802.11b	Test channel:	Lowest
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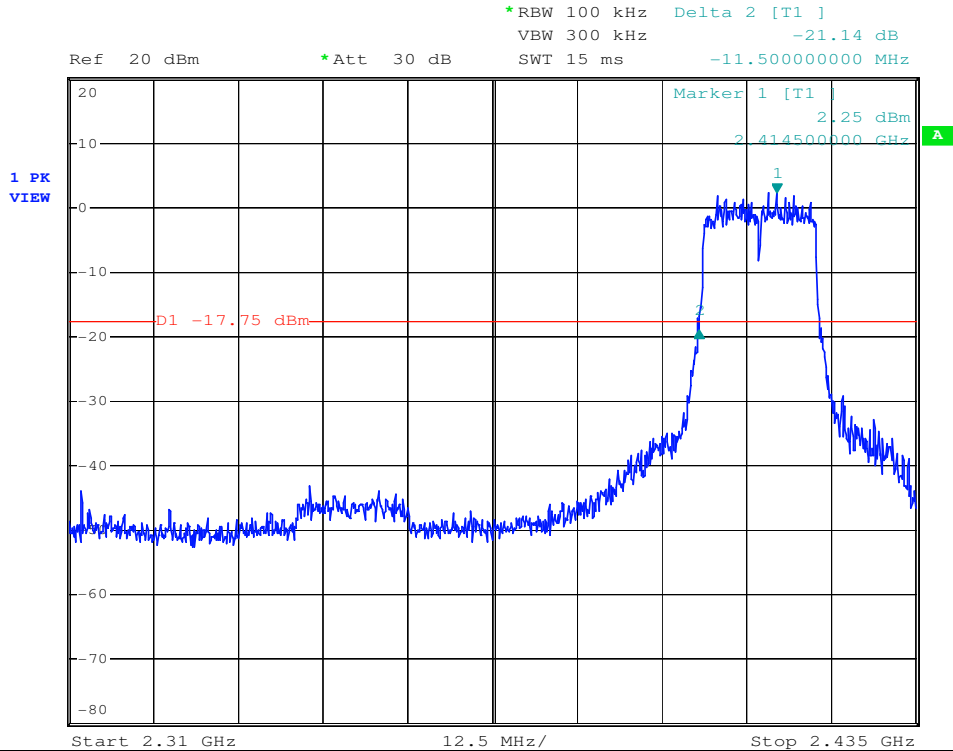
Test mode:	802.11b	Test channel:	Highest
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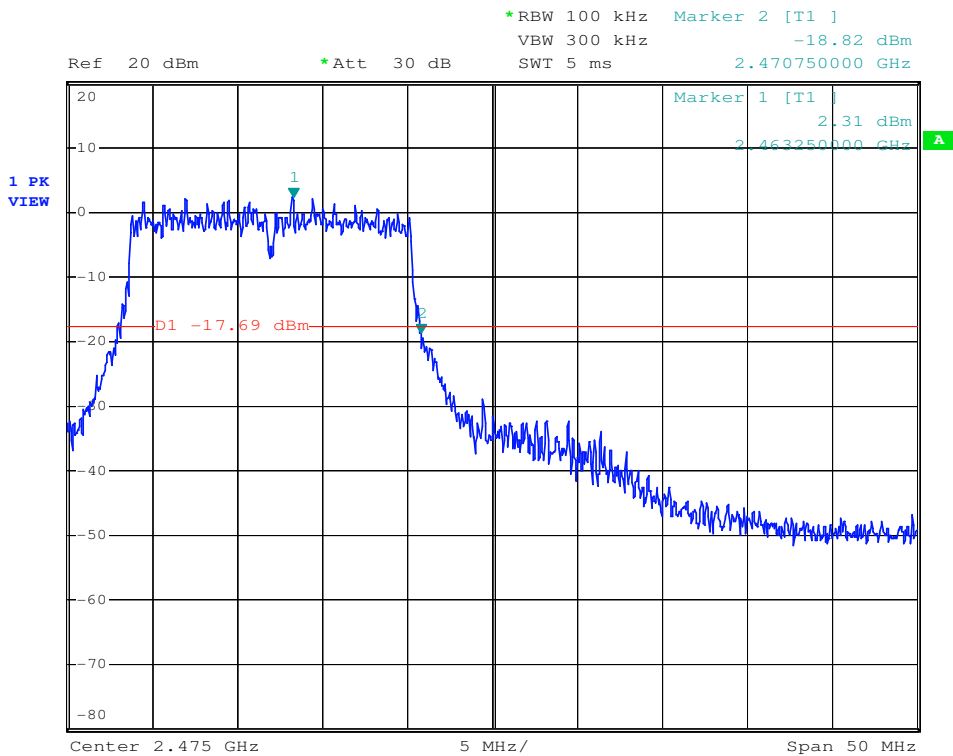
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Test mode:	802.11g	Test channel:	Lowest
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Test mode:	802.11g	Test channel:	Highest
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7.9 Radiated Spurious Emissions

Test Requirement:	FCC Part 15 Section 15.209 and Section 15.205 RSS-210 Issue 8 Annex 8
Test Method:	ANSI C63.10:2009 Clause 6.12
Test Date:	May 21, 2013
Test Result:	Pass
Final Test Mode:	Transmitting mode
Test site/setup:	Measurement Distance: 3m (Semi-Anechoic Chamber) Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz). For PK value: RBW = 1 MHz for $f \geq 1$ GHz VBW \geq RBW; Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for $f \geq 1$ GHz VBW = 10Hz; Sweep = auto Detector function = peak Trace = max hold Receive antenna scan height 1 m - 4 m. polarization Vertical / Horizontal
15.209 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

Test Configuration:

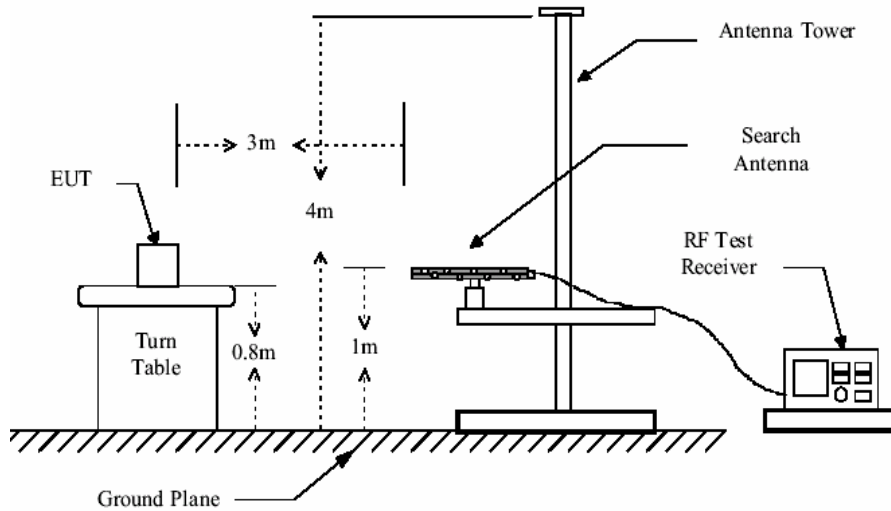


Figure 1. 30MHz to 1GHz radiated emissions test configuration

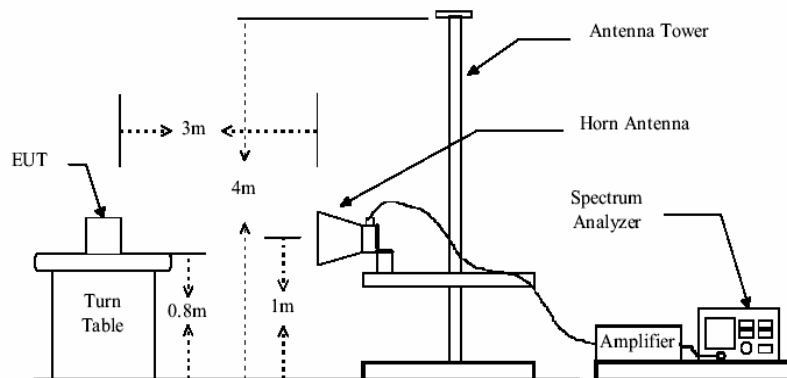


Figure 2. Above 1GHz radiated emissions test configuration

Test Procedure:

The procedure used was ANSI Standard C63.10:2009. 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.

Low noise amplifier was used below 1GHz, High pass Filter was used above 3GHz.

Between 1G and 3GHz, we did not use any amplifier or filter.

Pre-test was performed on 802.11b mode and 802.11g mode with charging, Compliance test was performed on worst case (802.11g mode with charging).

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Test were performed for there spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was submitted.

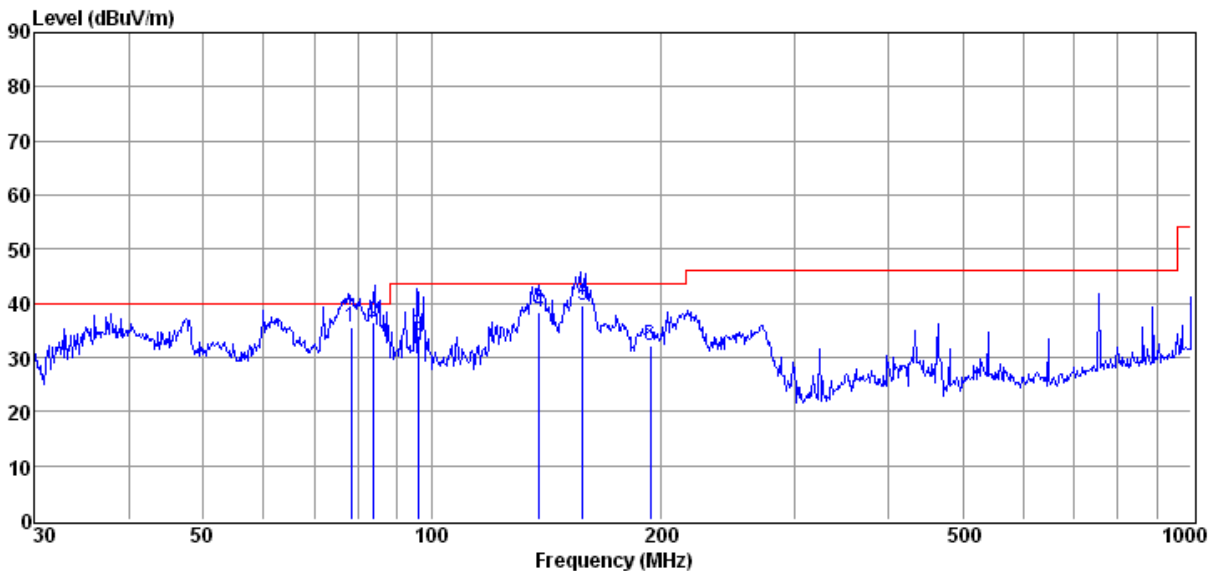
1) For this intentional radiator operates below 25 GHz. the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 5rd harmonic.

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.

The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

30MHz-1GHz For 802.11g:

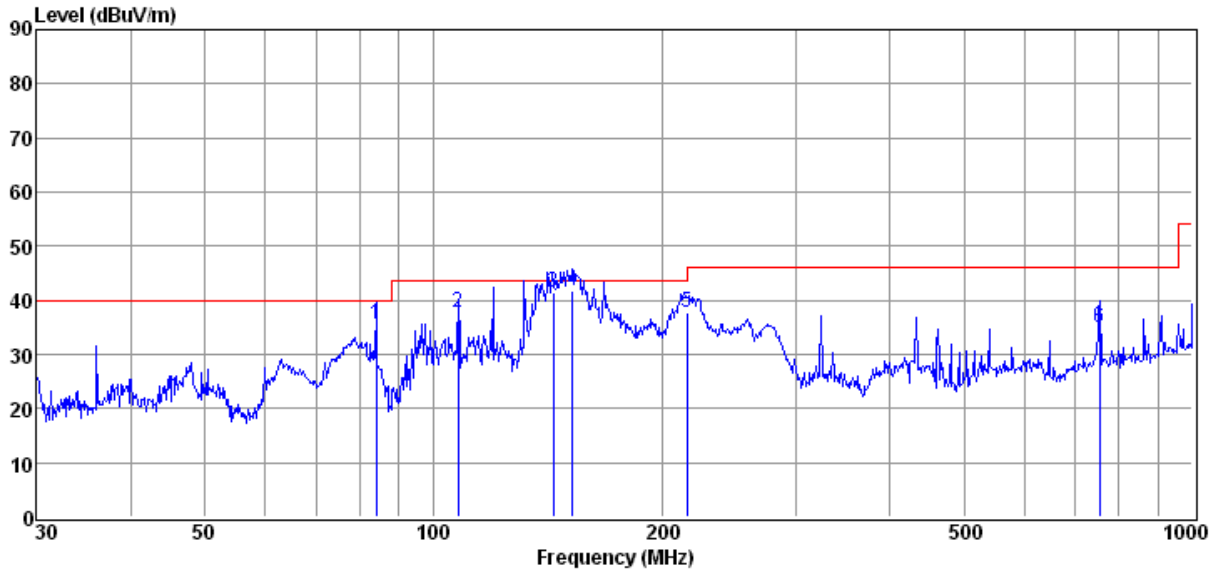
Vertical:



Item	Freq.	Read Level	Antenna Factor	Preamplifier Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1	78.36	50.30	9.13	24.70	0.86	35.59	40.00	-4.41	QP
2	83.98	51.50	8.68	24.70	0.90	36.38	40.00	-3.62	QP
3	95.99	48.90	8.92	24.70	1.00	34.12	43.50	-9.38	QP
4	138.39	50.12	11.86	24.70	1.22	38.50	43.50	-5.00	QP
5	158.21	50.39	12.62	24.70	1.31	39.62	43.50	-3.88	QP
6	194.03	45.77	9.54	24.60	1.48	32.19	43.50	-11.31	QP

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Horizontal:



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
1	84.11	50.68	8.68	24.70	0.90	35.56	40.00	-4.44	QP
2	107.89	51.53	9.91	24.70	1.08	37.82	43.50	-5.68	QP
3	144.05	52.61	12.34	24.70	1.25	41.50	43.50	-2.00	QP
4	152.66	52.50	12.67	24.70	1.28	41.75	43.50	-1.75	QP
5	216.02	51.54	9.14	24.60	1.58	37.66	46.00	-8.34	QP
6	755.39	33.88	21.61	24.00	3.34	34.83	46.00	-11.17	QP

1GHz-12GHz For 802.11g:

For Antenna A:

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1834.25	51.07	-8.44	42.63	54	11.37	peak
2	5700.00	43.91	1.48	45.39	54	8.61	peak
3	7615.25	41.44	7.74	49.18	54	4.82	peak
4	8144.00	42.18	7.95	50.13	54	3.87	peak
5	9448.25	41.11	11.71	52.82	54	1.18	peak
6	11152.00	41.62	9.73	51.35	54	2.65	peak

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1834.25	51.64	-8.44	43.20	54	10.80	peak
2	5582.50	43.88	1.22	45.10	54	8.90	peak
3	8108.75	42.15	7.91	50.06	54	3.94	peak
4	9565.75	41.17	11.82	52.99	54	1.01	peak
5	11210.75	41.48	9.64	51.12	54	2.88	peak
6	11669.00	42.21	9.07	51.28	54	2.72	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1834.25	51.41	-8.44	42.97	54	-31.03	peak
2	5688.25	44.94	1.46	46.40	54	-27.60	peak
3	7580.00	41.72	7.73	49.45	54	-24.55	peak
4	9554.00	41.28	11.83	53.11	54	-20.89	peak
5	11175.50	41.68	9.70	51.38	54	-22.62	peak
6	11669.00	42.17	9.07	51.24	54	-22.76	peak

Test Antenna: Vertical

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1352.50	55.15	-11.78	43.37	54	11.03	peak
2	3021.00	46.40	-5.13	41.27	54	7.60	peak
3	5641.25	44.30	1.36	45.66	54	4.55	peak
4	7568.25	41.81	7.73	49.54	54	0.89	peak
5	9448.25	41.09	11.71	52.80	54	2.62	peak
6	11763.00	41.45	9.01	50.46	54	2.76	peak

Test Antenna: Horizontal

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1834.25	52.26	-8.44	43.82	54	10.18	peak
2	5641.25	44.32	1.36	45.68	54	8.32	peak
3	7591.75	42.11	7.74	49.85	54	4.15	peak
4	8226.25	41.93	8.08	50.01	54	3.99	peak
5	9577.50	40.87	11.79	52.66	54	1.34	peak
6	11140.25	41.25	9.75	51.00	54	3.00	peak

Test Antenna: Vertical

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1352.50	55.68	-11.78	43.90	54	10.10	peak
2	5641.25	43.75	1.36	45.11	54	8.89	peak
3	7627.00	41.76	7.73	49.49	54	4.51	peak
4	9589.25	40.68	11.78	52.46	54	1.54	peak
5	11187.25	40.79	9.68	50.47	54	3.53	peak
6	11939.25	41.67	8.89	50.56	54	3.44	peak

For Antenna B:

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1834.25	51.54	-8.44	43.10	54	10.9	peak
2	5570.75	43.75	1.20	44.95	54	9.05	peak
3	7544.75	42.41	7.73	50.14	54	3.86	peak
4	8296.75	41.82	8.19	50.01	54	3.99	peak
5	9436.50	41.32	11.66	52.98	54	1.02	peak
6	11175.5	41.39	9.70	51.09	54	2.91	peak

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1199.75	54.89	-12.51	42.38	54	11.62	peak
2	5535.50	44.67	1.13	45.80	54	8.20	peak
3	7650.50	41.36	7.73	49.09	54	4.91	peak
4	8097.00	41.56	7.89	49.45	54	4.55	peak
5	9554.00	40.76	11.83	52.59	54	1.41	peak
6	11199.00	41.58	9.66	51.24	54	2.76	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3185.50	47.04	-4.68	42.36	54	11.64	peak
2	5711.75	44.73	1.50	46.23	54	7.77	peak
3	7568.25	41.16	7.73	48.89	54	5.11	peak
4	8308.50	41.33	8.21	49.54	54	4.46	peak
5	9460.00	40.66	11.75	52.41	54	1.59	peak
6	11187.25	40.95	9.68	50.63	54	3.37	peak

Test Antenna: Vertical

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1199.75	56.24	-12.51	43.73	54	10.27	peak
2	5606.00	44.58	1.28	45.86	54	8.14	peak
3	7603.50	41.12	7.73	48.85	54	5.15	peak
4	8308.50	41.47	8.21	49.68	54	4.32	peak
5	9542.25	41.16	11.84	53.00	54	1.00	peak
6	11152.00	41.15	9.73	50.88	54	3.12	peak

Test Antenna: Horizontal

Test Channel: High

Mark	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Emission (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	3021.00	45.4	-5.13	40.27	54	13.73	peak
2	5582.50	43.77	1.22	44.99	54	9.01	peak
3	7556.50	42.09	7.73	49.82	54	4.18	peak
4	8132.25	41.78	7.94	49.72	54	4.28	peak
5	9530.50	41.36	11.86	53.22	54	0.78	peak
6	11140.25	41.13	9.75	50.88	54	3.12	peak

Test Antenna: Vertical

Test Channel: High

Mark	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Emission (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	1199.75	57.03	-12.51	44.52	54	9.48	peak
2	5653.00	44.15	1.38	45.53	54	8.47	peak
3	7568.25	41.15	7.73	48.88	54	5.12	peak
4	8085.25	42.50	7.87	50.37	54	3.63	peak
5	9577.50	41.08	11.79	52.87	54	1.13	peak
6	11904.00	41.63	8.93	50.56	54	3.44	peak

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

Remark: 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.

7.10 Band edge (Radiated Emission)

Test Requirement:	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 63.10:2009 Clause 6.12
Test Date:	May 22, 2013
Test Result:	Pass
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 VBW \geq RBW; Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for $f \geq 1$ GHz VBW =10Hz; Sweep = auto Detector function = peak Trace = max hold

According to section,15.35(b) 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.

Pre-test were performed for there spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was submitted.

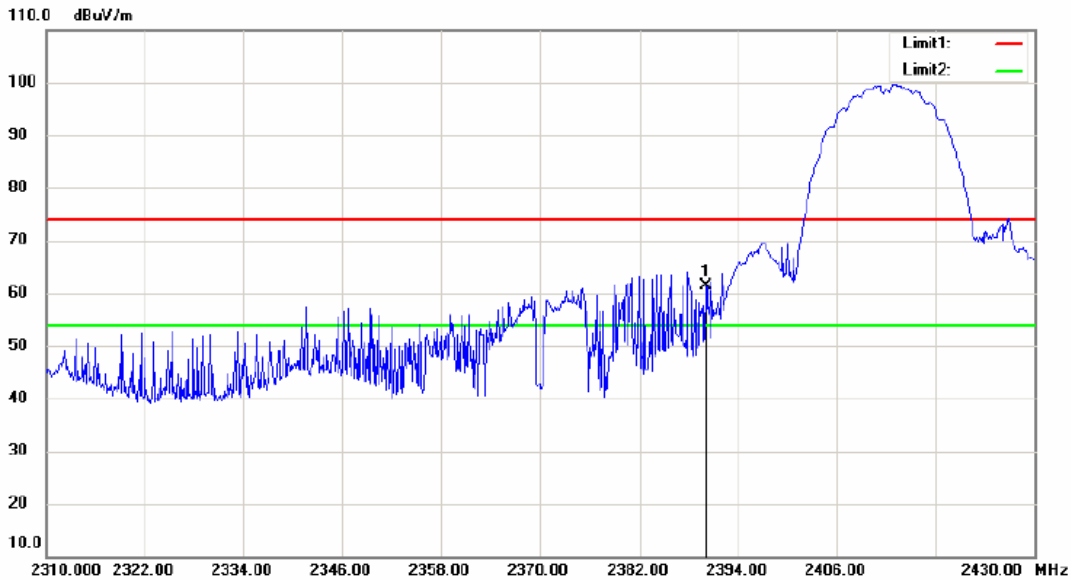
Test Result: The EUT does meet the FCC requirements.



**Measurement Result:
For Antenna A:**

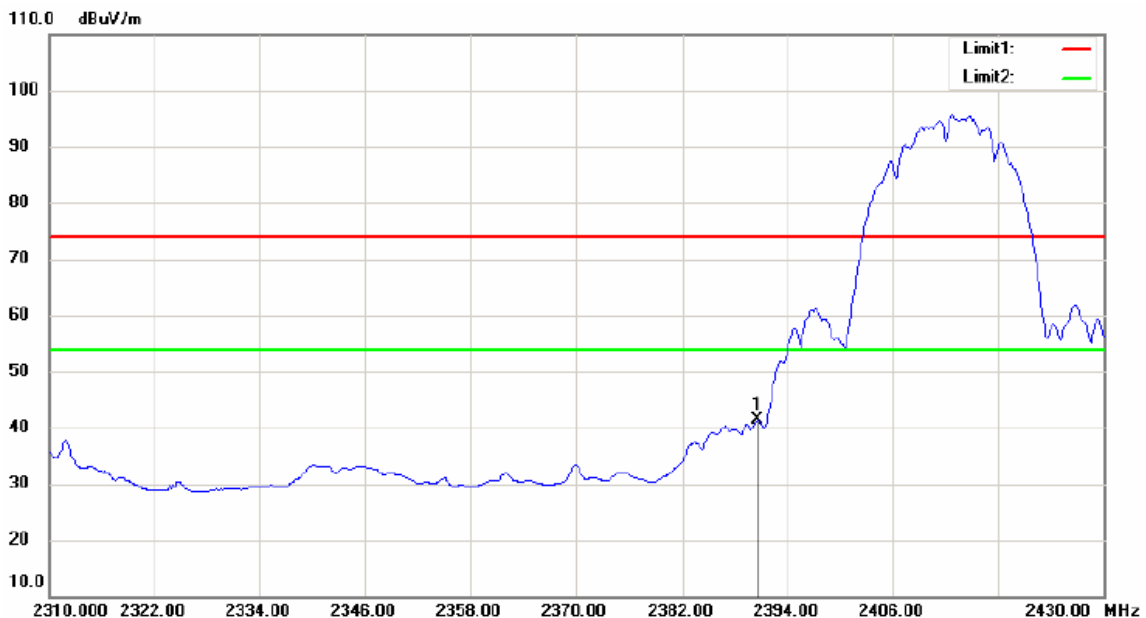
Test mode:	802.11b	Test channel:	Lowest
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Horizontal, Peak Detector:



Mk	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.040	67.82	peak	-6.55	61.27	74.00	-12.73

Horizontal, Average Detector:



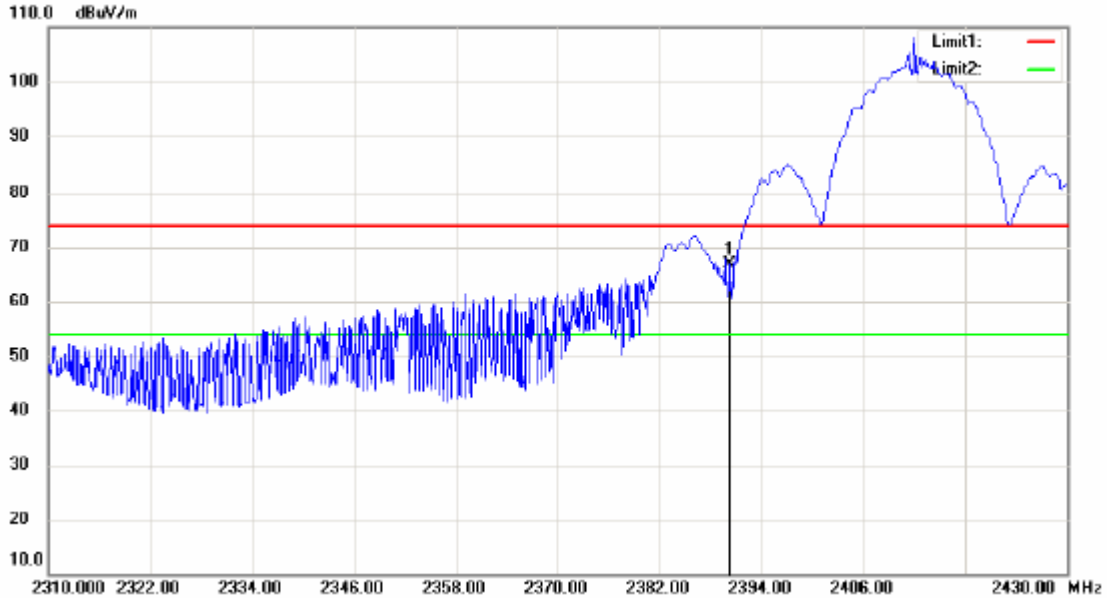
Mk	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.520	47.98	peak	-6.55	41.43	74.00	-32.57

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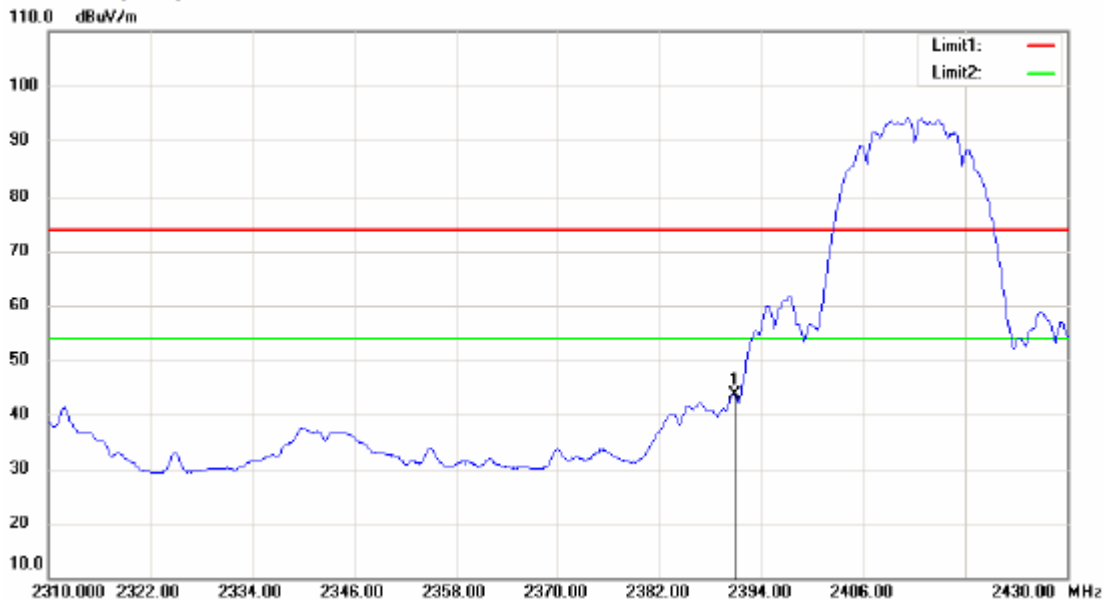
Test mode:	802.11b	Test channel:	Lowest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.280	73.44	peak	-6.55	66.89	74.00	-7.11

Vertical, Average Detector:



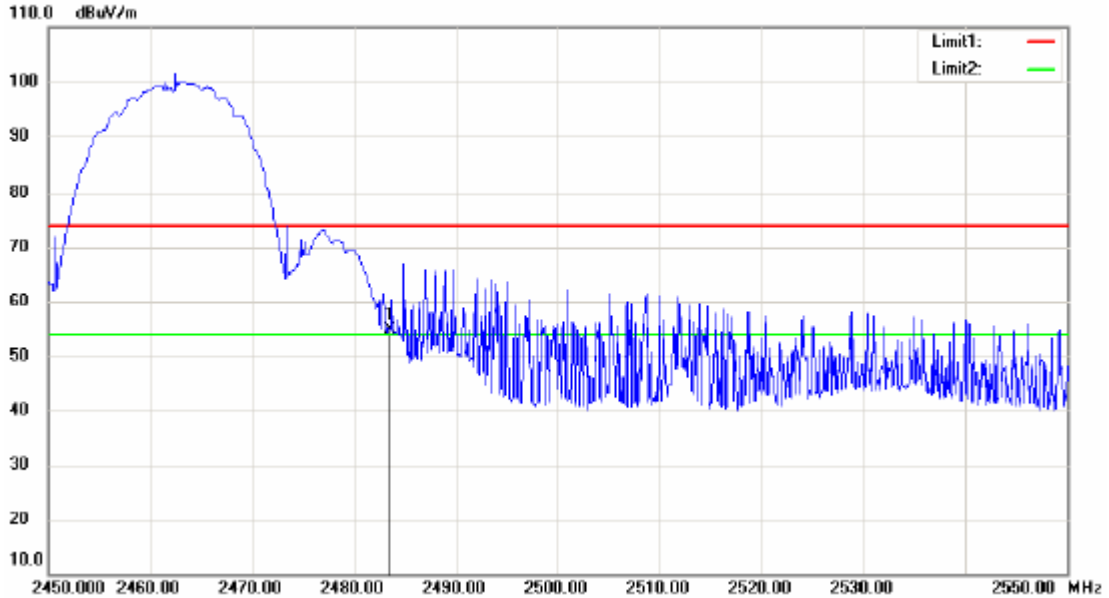
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.880	50.12	peak	-6.55	43.57	74.00	-30.43

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Test mode:	802.11b	Test channel:	Highest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	61.38	peak	-6.41	54.97	74.00	-19.03

Horizontal, Average Detector:



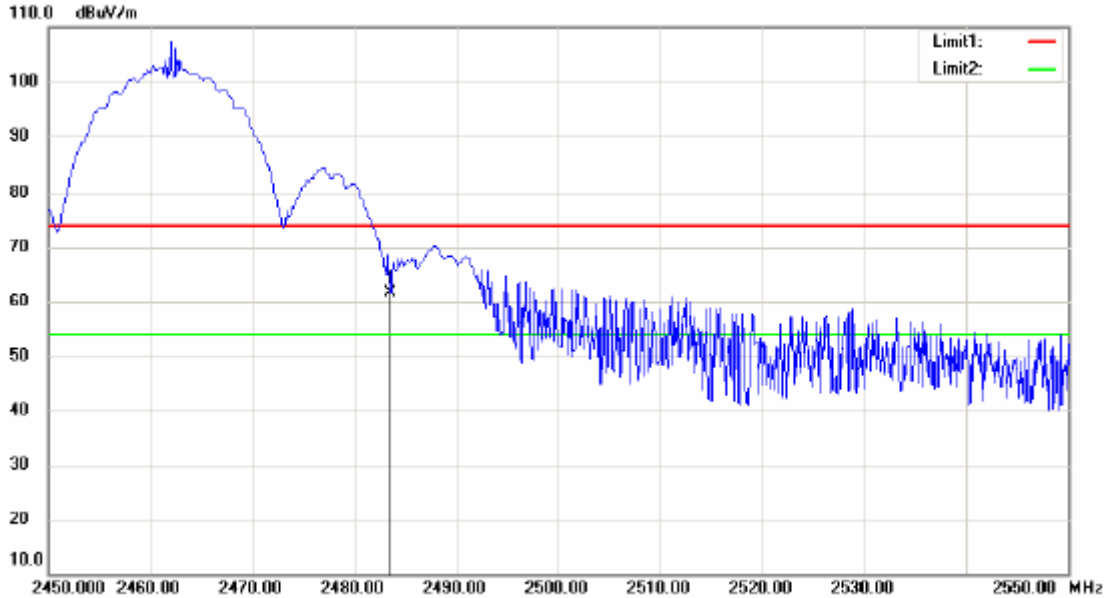
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	39.29	peak	-6.41	32.88	74.00	-41.12

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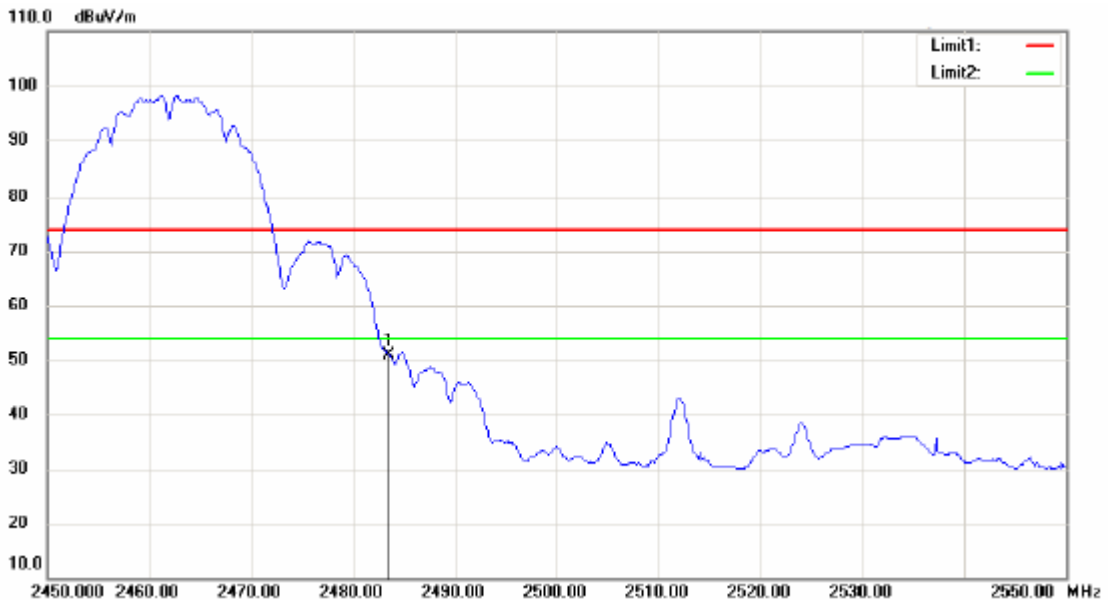
Test mode:	802.11b	Test channel:	Highest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	68.00	peak	-6.41	61.59	74.00	-12.41

Vertical, Average Detector:



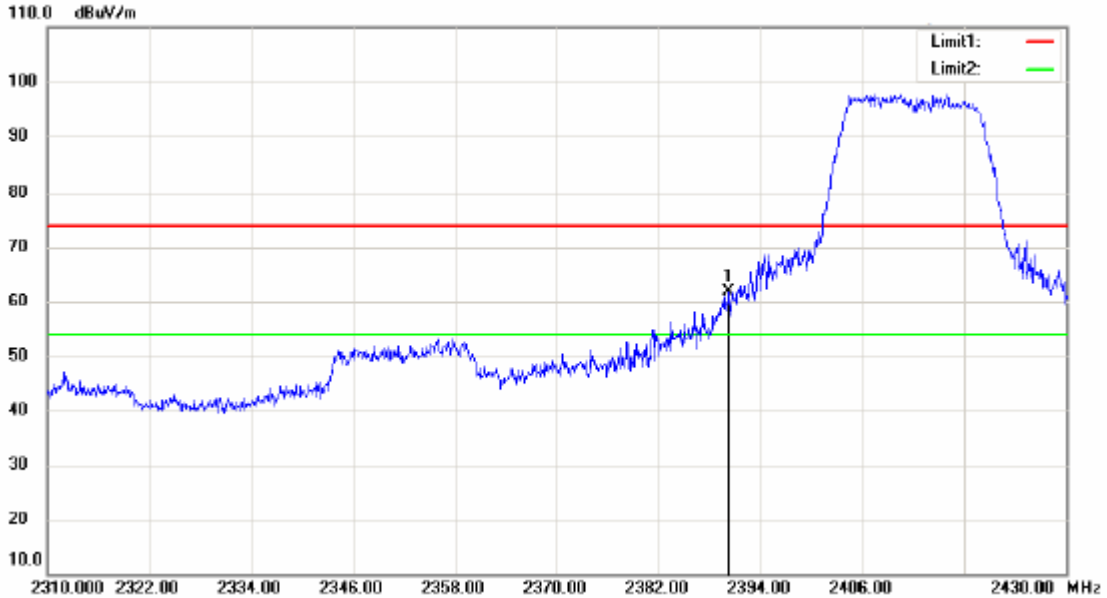
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	57.37	peak	-6.41	50.96	74.00	-23.04

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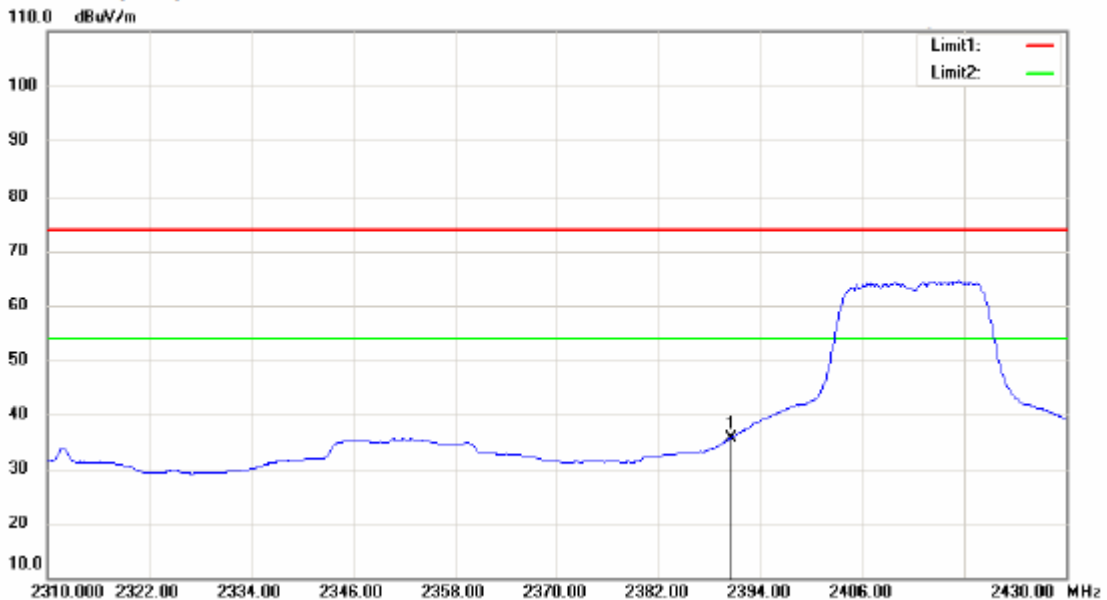
Test mode:	802.11g	Test channel:	Lowest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.280	68.32	peak	-6.55	61.77	74.00	-12.23

Horizontal, Average Detector:



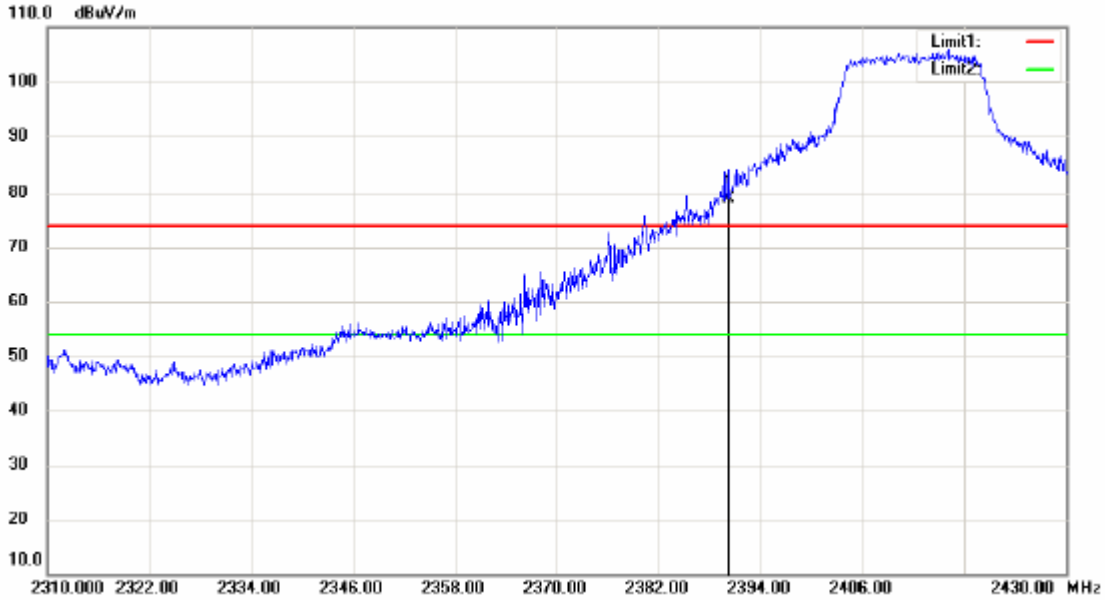
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.520	42.28	peak	-6.55	35.73	74.00	-38.27

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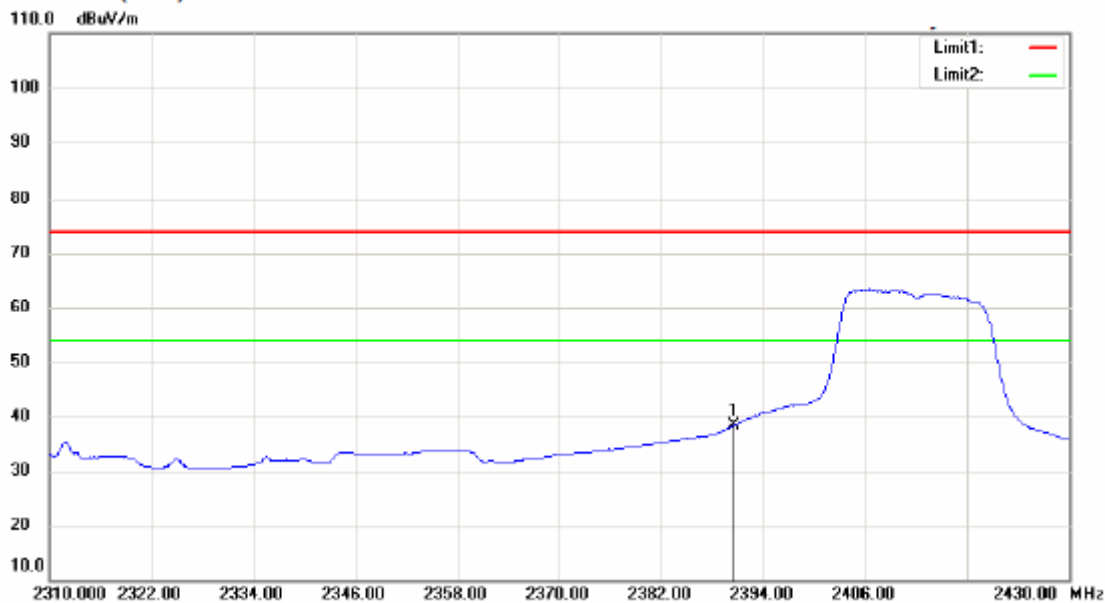
Test mode:	802.11g	Test channel:	Lowest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.280	85.51	peak	-6.55	78.96	74.00	4.96

Vertical, Average Detector:



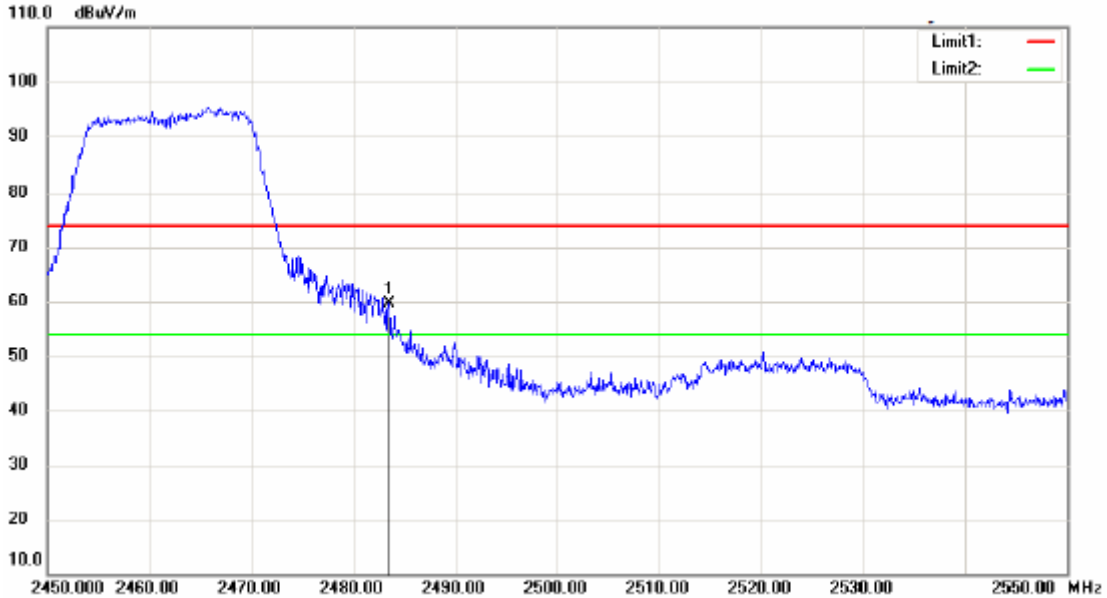
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.520	44.92	peak	-6.55	38.37	74.00	-35.63

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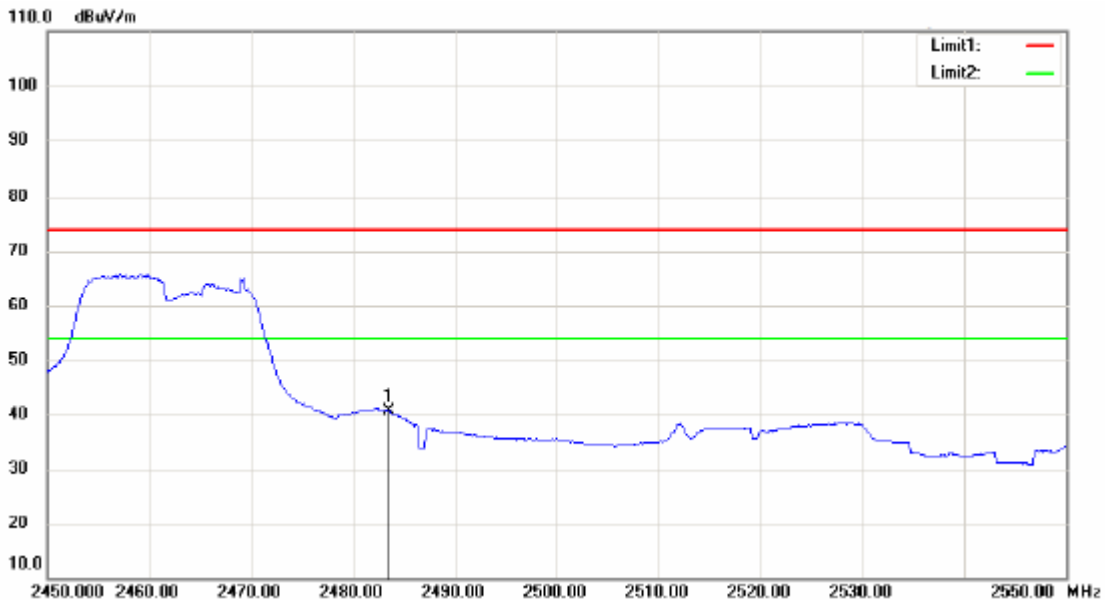
Test mode:	802.11g	Test channel:	Highest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	65.94	peak	-6.41	59.53	74.00	-14.47

Horizontal, Average Detector:



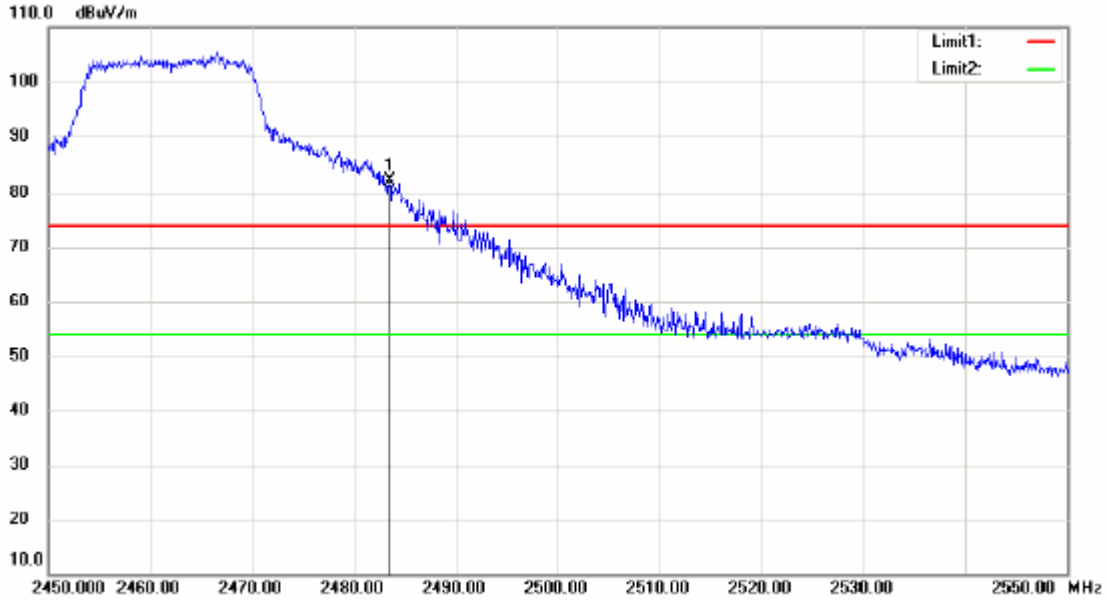
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	47.06	peak	-6.41	40.65	74.00	-33.35

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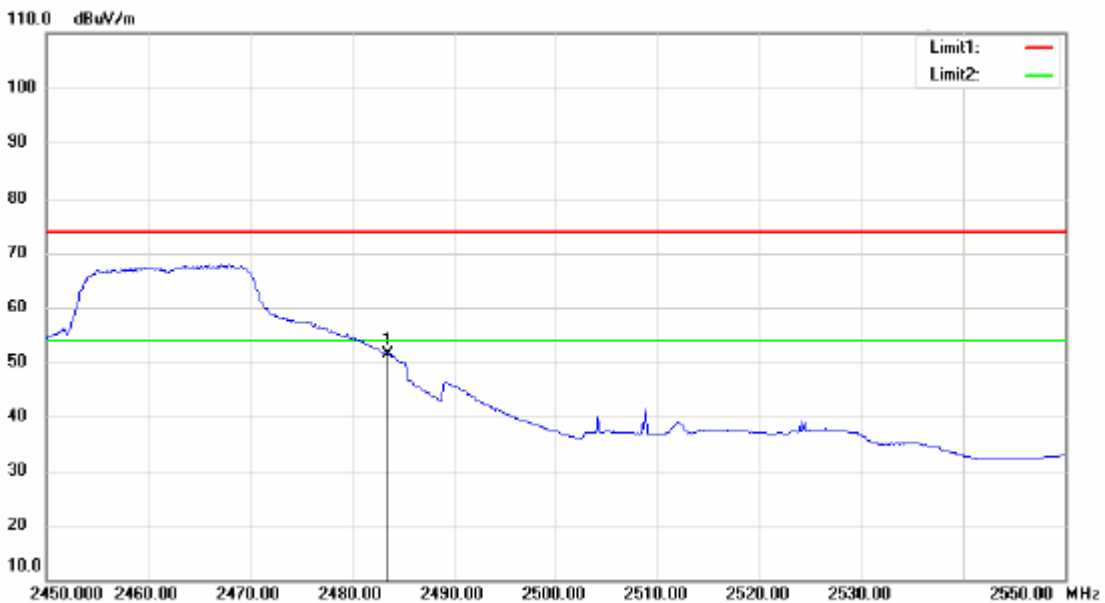
Test mode:	802.11g	Test channel:	Highest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	88.23	peak	-6.41	81.82	74.00	7.82

Vertical, Average Detector:



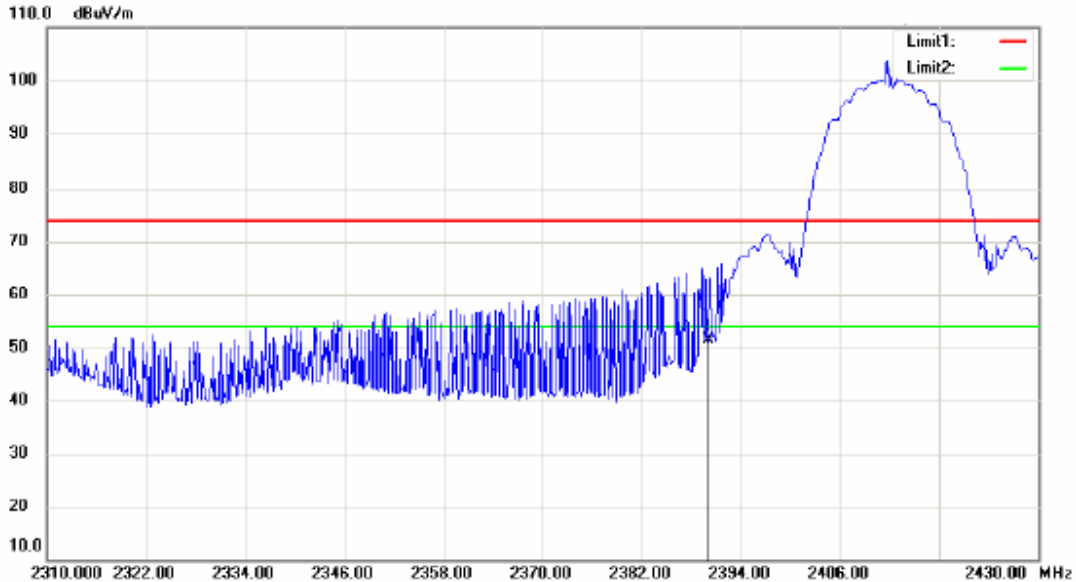
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	57.88	peak	-6.41	51.47	74.00	-22.53

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**Measurement Result:
For Antenna B:**

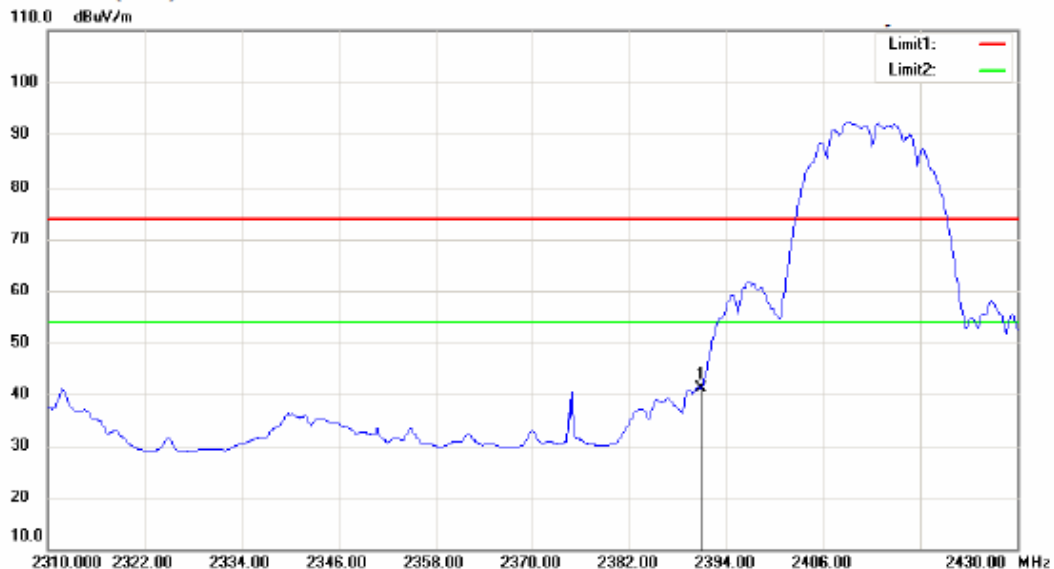
Test mode:	802.11b	Test channel:	Lowest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.040	57.82	peak	-6.55	51.27	74.00	-22.73

Horizontal, Average Detector:



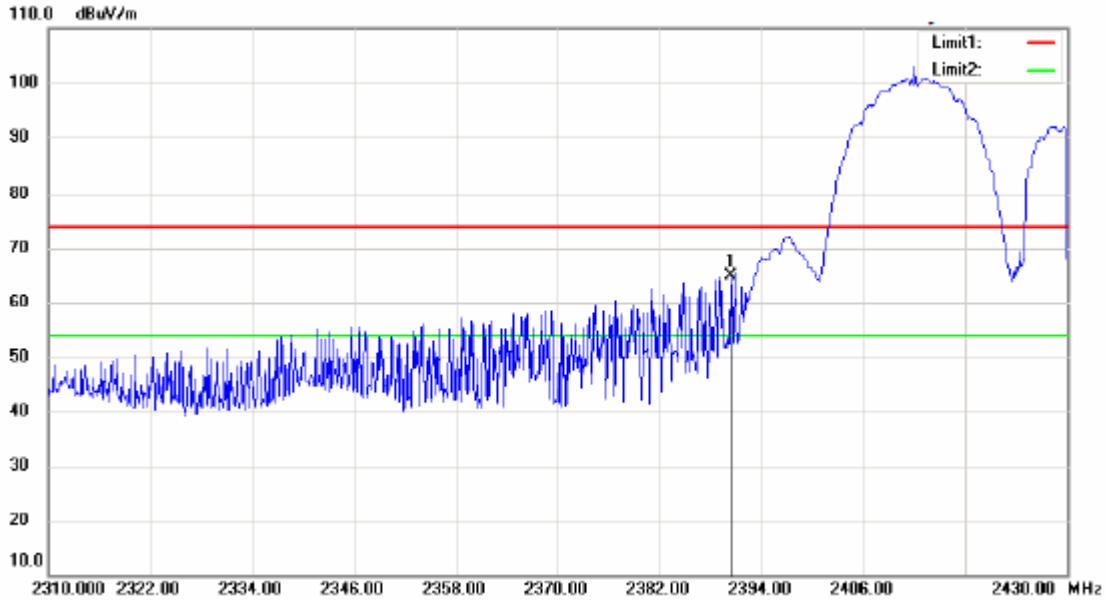
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.880	47.64	peak	-6.55	41.09	74.00	-32.91

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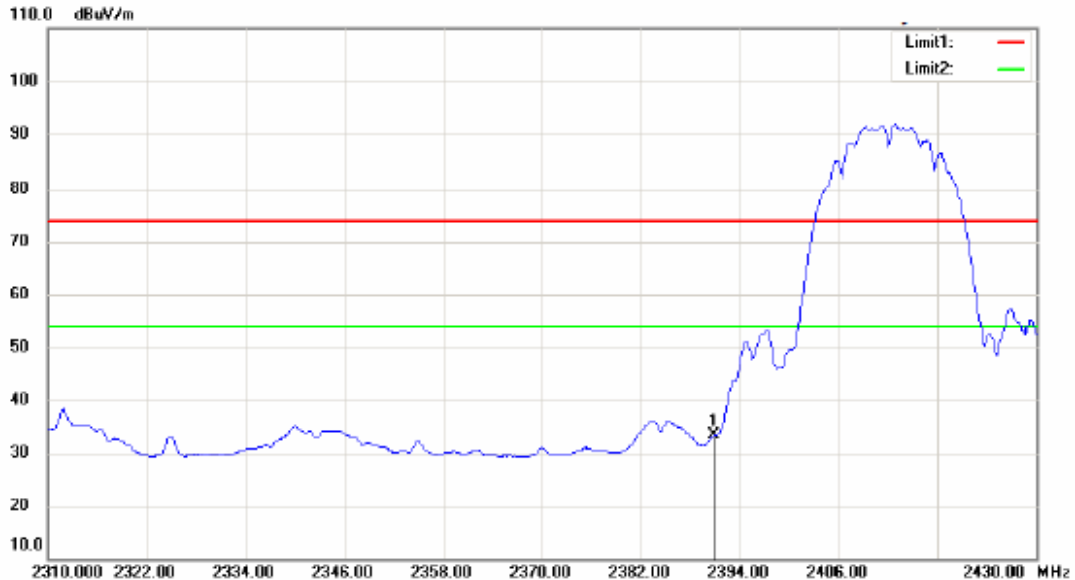
Test mode:	802.11b	Test channel:	Lowest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.400	71.39	peak	-6.55	64.84	74.00	-9.16

Vertical, Average Detector:



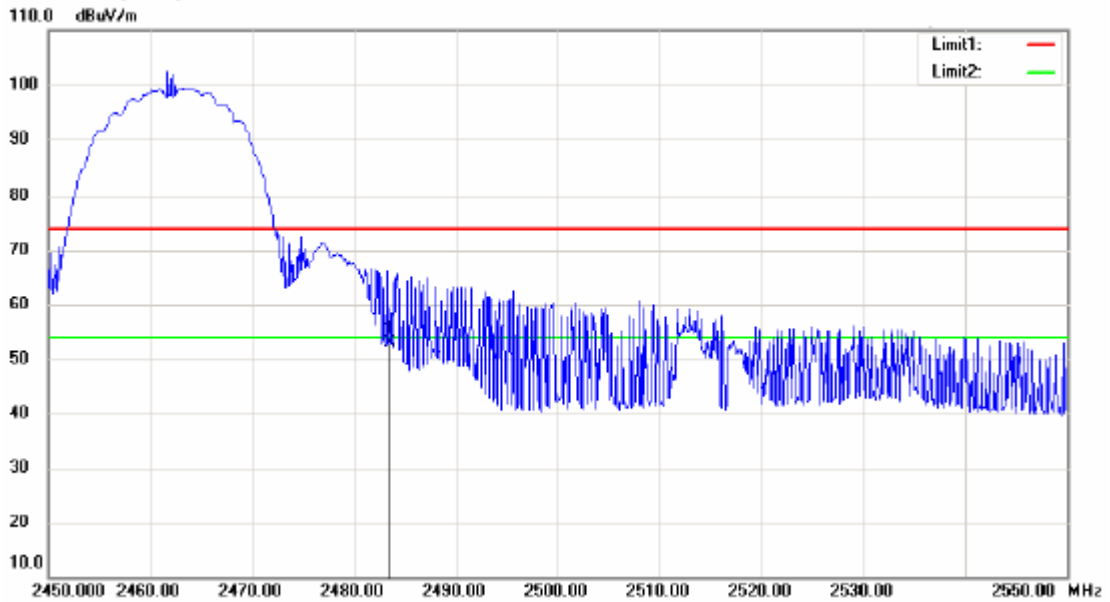
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.880	39.84	peak	-6.55	33.29	74.00	-40.71

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Test mode:	802.11b	Test channel:	Highest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	59.21	peak	-6.41	52.80	74.00	-21.20

Horizontal, Average Detector:



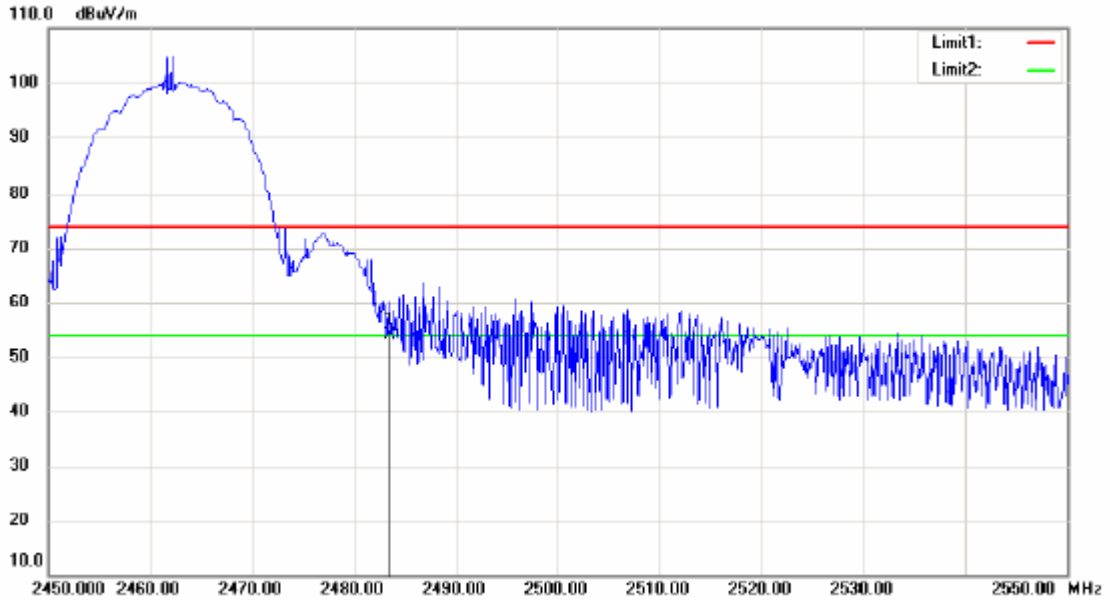
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	51.69	peak	-6.41	45.28	74.00	-28.72

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Test mode:	802.11b	Test channel:	Highest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	60.66	peak	-6.41	54.25	74.00	-19.75

Vertical, Average Detector:



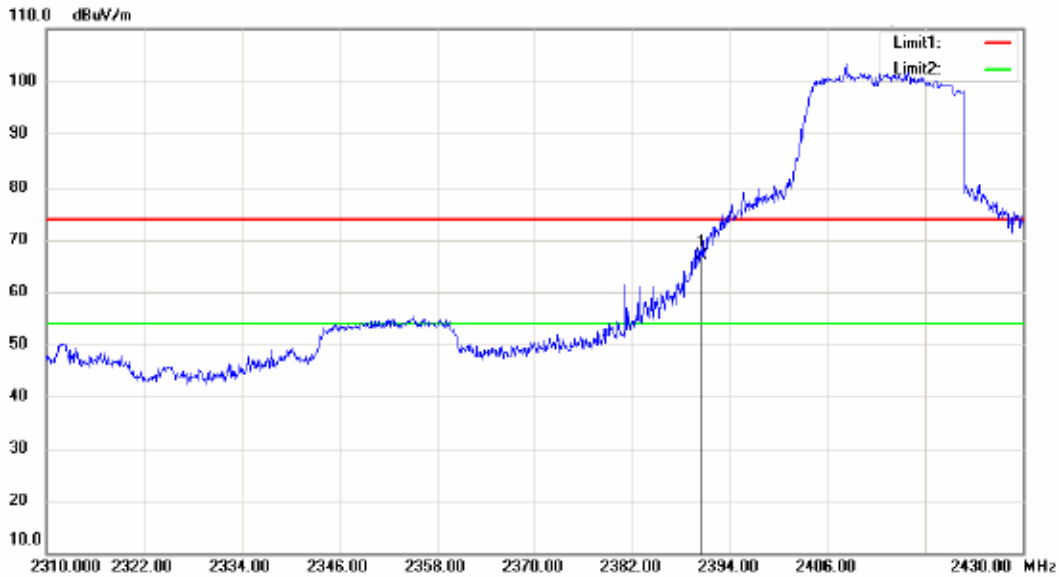
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	46.99	peak	-6.41	40.58	74.00	-33.42

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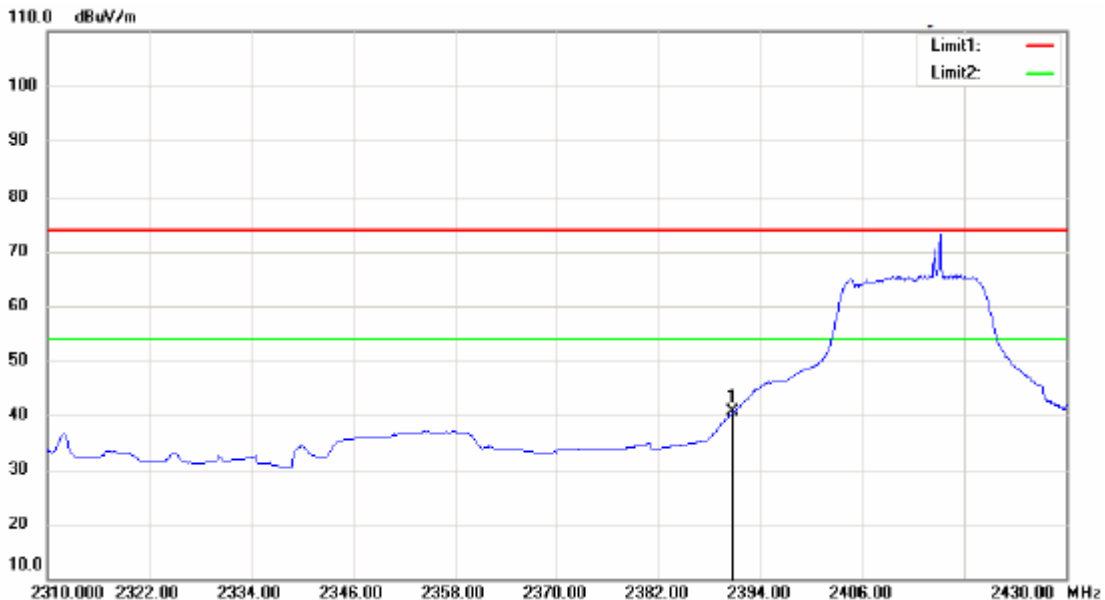
Test mode:	802.11g	Test channel:	Lowest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.520	73.49	peak	-6.55	66.94	74.00	-7.06

Horizontal, Average Detector:



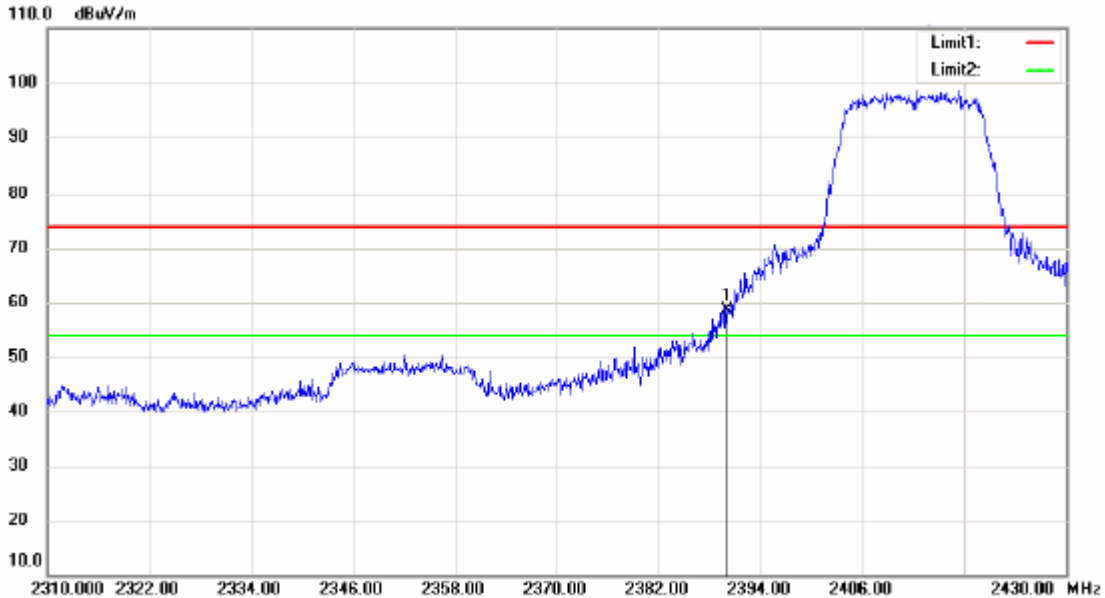
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.760	47.09	peak	-6.55	40.54	74.00	-33.46

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Test mode:	802.11g	Test channel:	Lowest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.040	65.27	peak	-6.55	58.72	74.00	-15.28

Vertical, Average Detector:



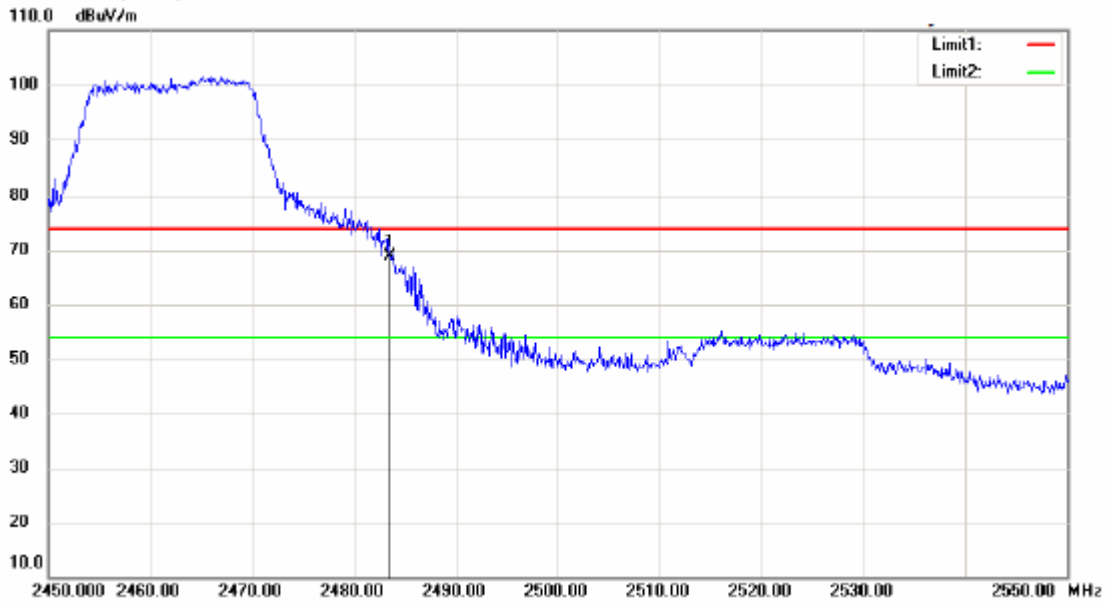
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.040	40.50	peak	-6.55	33.95	74.00	-40.05

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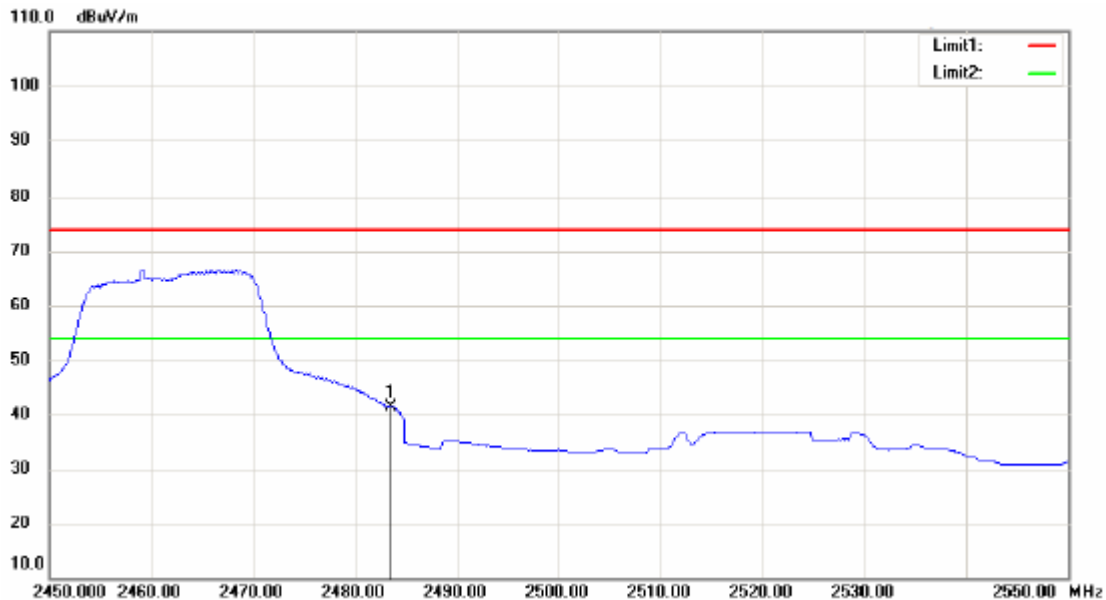
Test mode:	802.11g	Test channel:	Highest
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Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	75.36	peak	-6.41	68.95	74.00	-5.05

Horizontal, Average Detector:

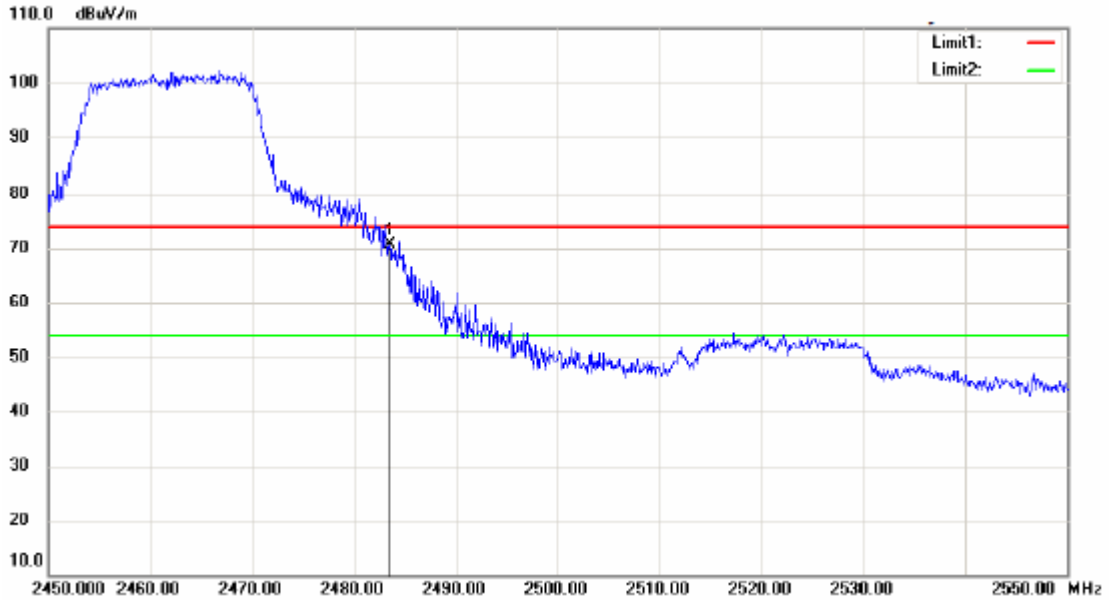


Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	47.87	peak	-6.41	41.46	74.00	-32.54

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Test mode:	802.11g	Test channel:	Highest
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Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	77.14	peak	-6.41	70.73	74.00	-3.27

Vertical, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	46.25	peak	-6.41	39.84	74.00	-34.16

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Remark: No any other emission which fall in restricted bands can be detected and be reported.

Test Level = Receiver Reading + Antenna Factor + Cable Loss- Pre-amplifier Factor

All frequencies within the "Restricted bands" have been evaluated to compliance. Section 15.205 Restricted bands of operation.



7.11 Occupied Bandwidth Test

Test Requirement: RSS-Gen Issue 3 Clause 4.6.1
Standard Applicable According to the section RSS-Gen Issue 3 Clause 4.6.1
EUT Setup The occupied bandwidth per RSS-Gen Issue 3 Clause 4.6.1 was measured using the Spectrum Analyzer with the resolutions set at 100kHz,the video bandwidth set at 300kHz.

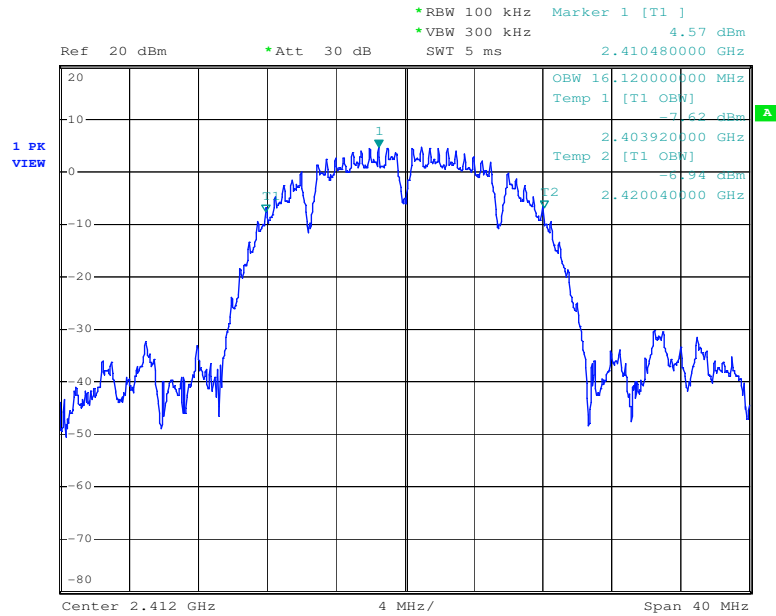
**Measurement Result:
For 2412-2464MHz Band**

Test Antenna	Channel	Frequency (MHz)	Bandwidth (MHz)
Antenna A	Low	2412	13.77
	Middle	2438	13.74
	High	2464	13.74
Antenna B	Low	2412	13.77
	Middle	2438	13.77
	High	2464	13.74

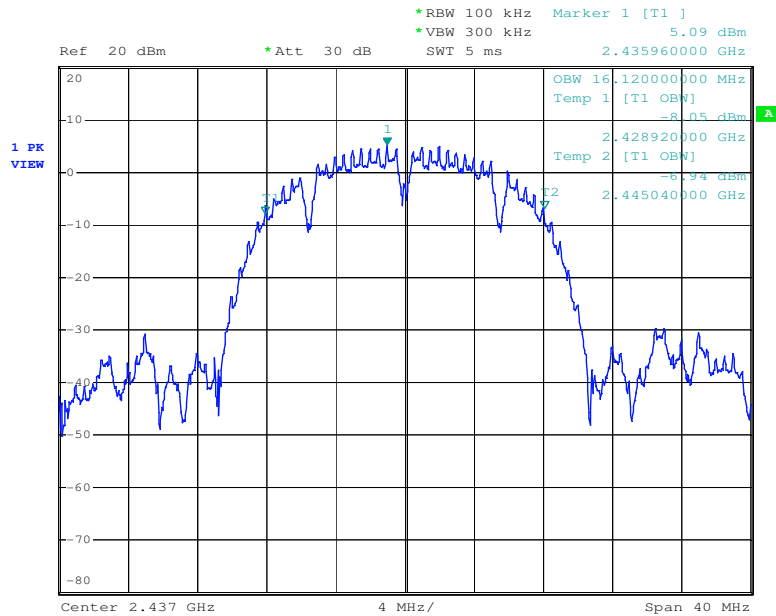
Test Antenna	Test mode	Channel	Frequency (MHz)	Bandwidth (MHz)
Antenna A	802.11b	Low	2412	16.12
		Middle	2437	16.12
		High	2462	16.04
	802.11g	Low	2412	16.48
		Middle	2437	16.44
		High	2462	16.44
Antenna B	802.11b	Low	2412	16.12
		Middle	2437	16.12
		High	2462	16.04
	802.11g	Low	2412	16.44
		Middle	2437	16.48
		High	2462	16.48



Test mode:	802.11b Antenna A	Test channel:	Low
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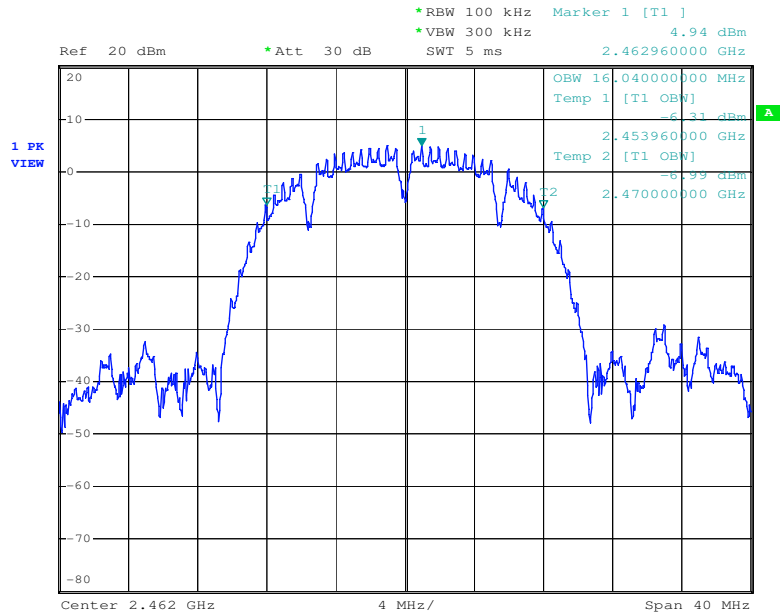
Test mode:	802.11b Antenna A	Test channel:	Middle
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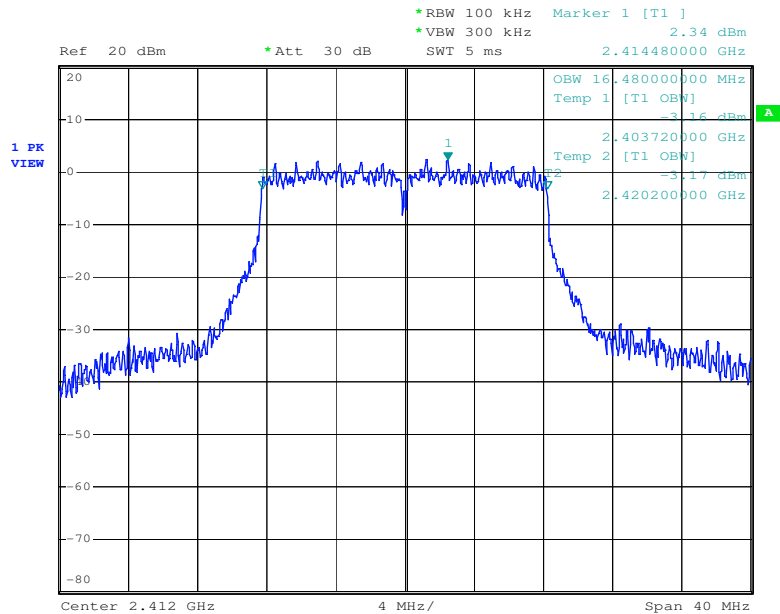
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Test mode:	802.11b Antenna A	Test channel:	High
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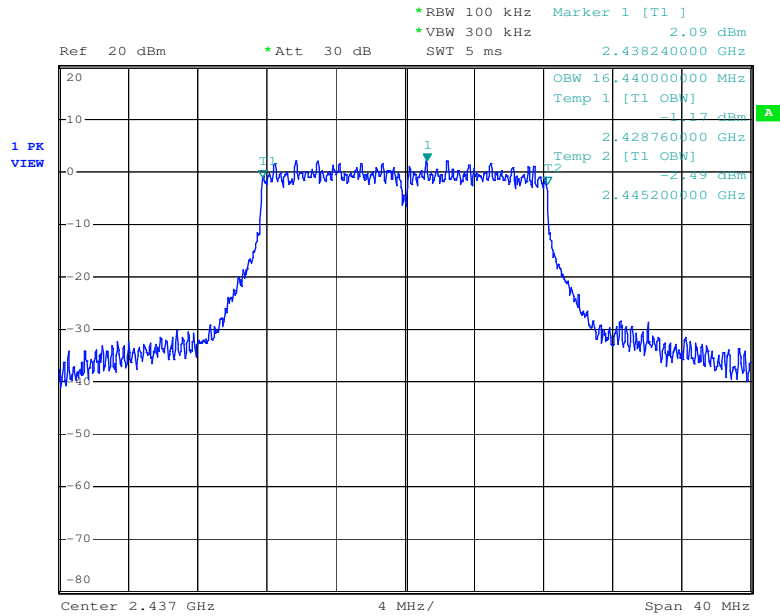
Test mode:	802.11g Antenna A	Test channel:	Low
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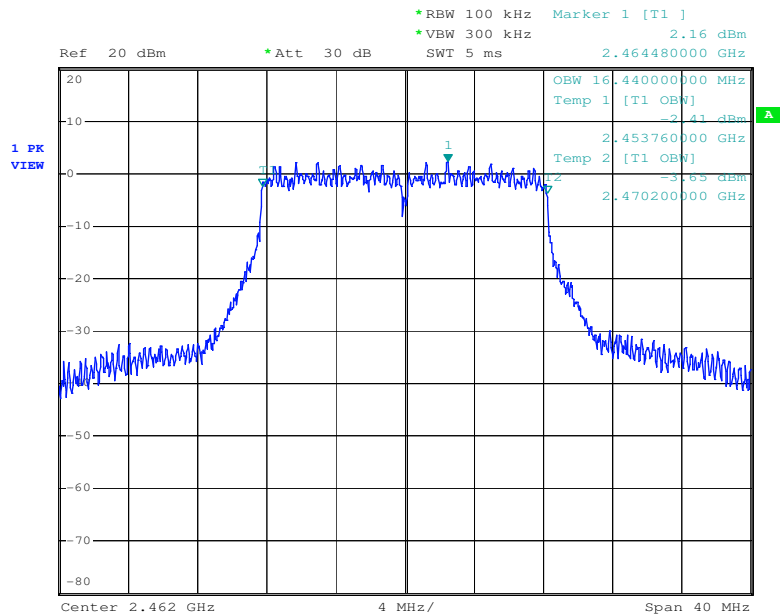
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Test mode:	802.11g Antenna A	Test channel:	Middle
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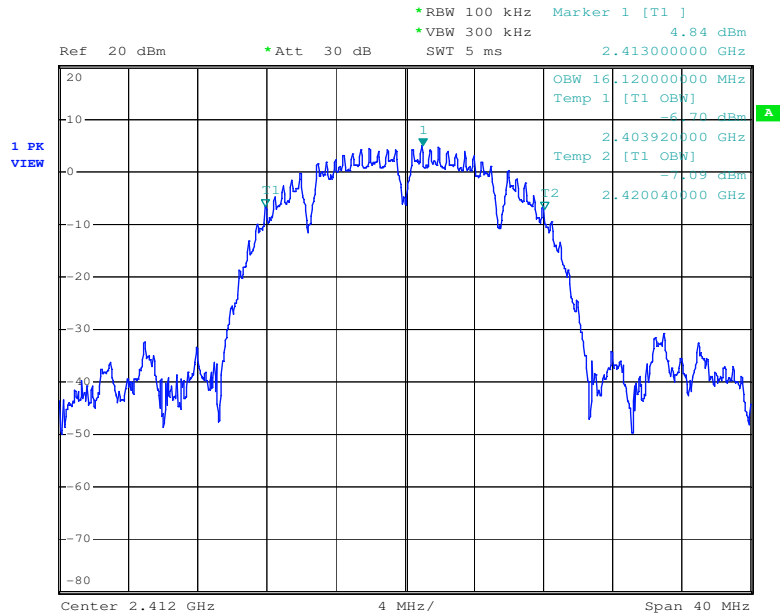
Test mode:	802.11g Antenna A	Test channel:	High
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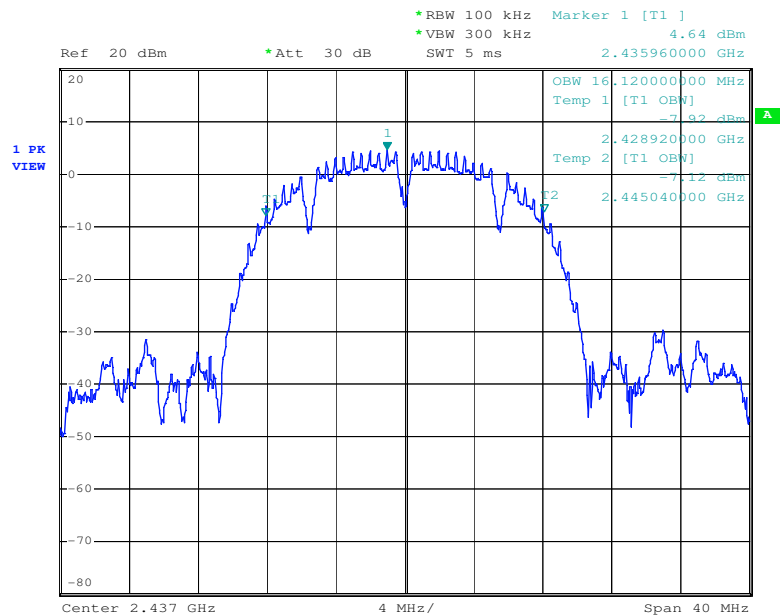
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Test mode:	802.11b Antenna B	Test channel:	Low
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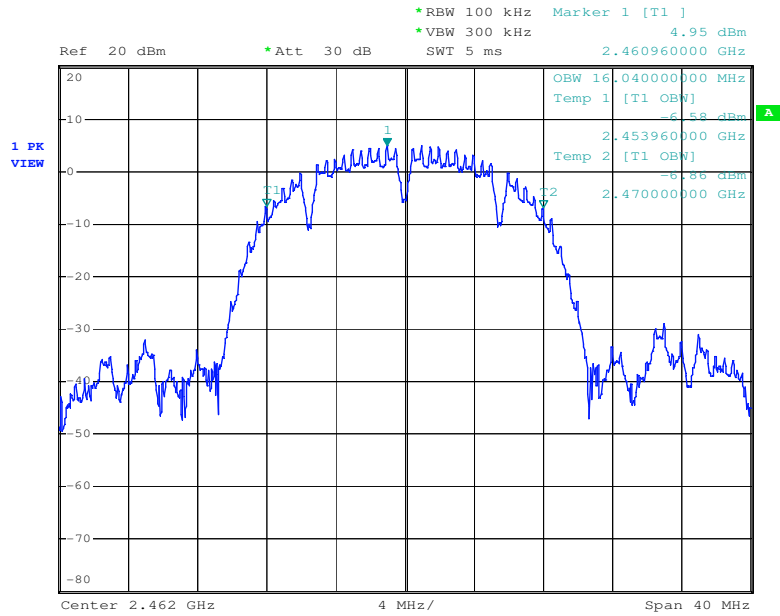
Test mode:	802.11b Antenna B	Test channel:	Middle
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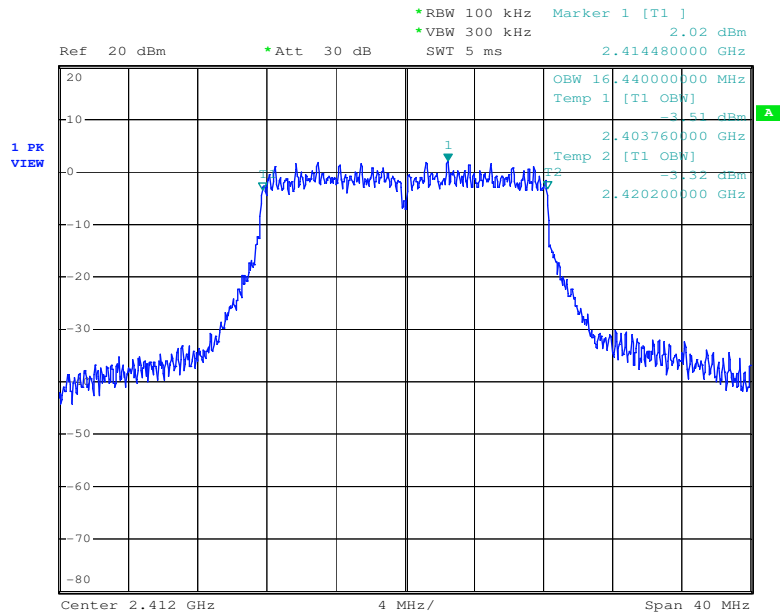
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Test mode:	802.11b Antenna B	Test channel:	High
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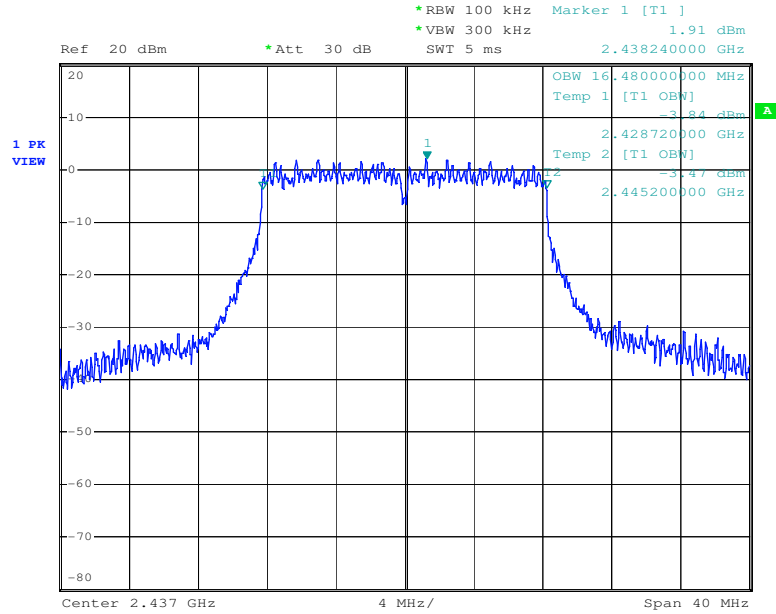
Test mode:	802.11g Antenna B	Test channel:	Low
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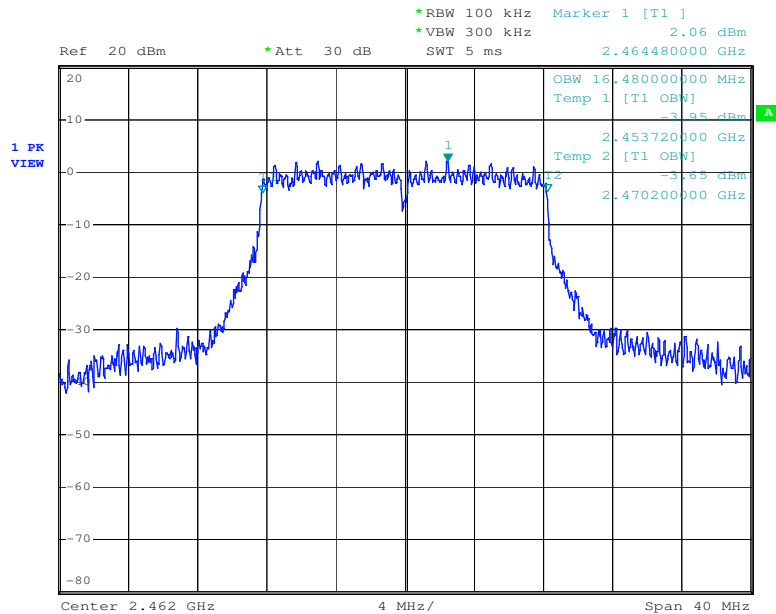
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Test mode:	802.11g Antenna B	Test channel:	Middle
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Test mode:	802.11g Antenna B	Test channel:	High
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8 Test Setup Photographs

Refer to the < D7050 DIRECT DIGITAL NETWORK AMPLIFIER_Test Setup photos>.

9 EUT Constructional Details

Refer to the < D7050 DIRECT DIGITAL NETWORK AMPLIFIER_External Photos > & < D7050 DIRECT DIGITAL NETWORK AMPLIFIER_Internal Photos >.

End of Report