FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Wireless Network HD Camera

Model Name:
RC8111xxxxxxxx(x= 0~9, A~Z, Blank or any Character)

Trade Name: Sercomm

Issued to

Sercomm Corporation
8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: December 2, 2014

Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		December 2, 2014		Initial Issue	ALL	Doris Chu

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1. TEST RESULT CERTIFICATION

Applicant:	Sercomm Corporation 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Equipment Under Test:	Wireless Network HD Camera
Model Name:	RC8111xxxxxxxx(x= 0~9, A~Z, Blank or any Character)
Trade Name:	Sercomm
Date of Test:	November 21 ~ 26, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

We hereby certify that:

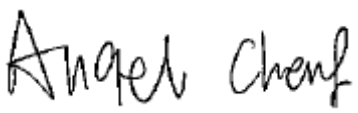
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Miller Lee
Section Manager
Compliance Certification Services Inc.

Reviewed by:



Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Wireless Network HD Camera
Model Name	RC8111xxxxxxxx(x= 0~9, A~Z, Blank or any Character)
Trade Name	Sercomm
Model Discrepancy	All the above models are identical except for the designation of model numbers. The suffix of (The "x" in model name can be 0 to 9, A to Z, blank or "-" , for marking purpose) on model number is just for marketing purpose only.`
Received Date	October 31, 2014
Power Rating	Vdc form Power Adapter.
Power Adaptor Power Rating / Manufacturer	**Sunny / SYS1381-1212-W2** Input : 100-240V~0.5A MAX,50-60Hz, Output : 12V 1A
	Sunny / SYS1381-1212-W2A Input : 100-240V~0.5A MAX,50-60Hz, Output : 12V 1A
	Phihung / PSAA12A-120 Input : 100-240V~0.3A, 50-60Hz 25-34VA, Output : 12V 1A
	Phihung / PSAA12S-120(SC)-R Input : 100-240V~0.3A, 50-60Hz, Output : 12V 1A
	APD / WA-12M12FU Input : 100-240V~50-60Hz, 0.5A Max, Output : 12V 1A
	APD / WA-12M12FN Input : 100-240V~50-60Hz,, 0.5A Max, Output : 12V 1A
Frequency Range	2412 ~ 2462 MHz
Transmit Power	IEEE 802.11b mode: 19.81 dBm IEEE 802.11g mode: 24.95 dBm IEEE 802.11n HT 20 mode: 27.00 dBm IEEE 802.11n HT 40 mode: 26.94 dBm
Modulation Technique	IEEE 802.11b mode: DSSS IEEE 802.11g mode: OFDM IEEE 802.11n HT 20 mode: OFDM IEEE 802.11n HT 40 mode: OFDM
Number of Channels	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT 20 mode: 11 Channels IEEE 802.11n HT 40 mode: 7 Channels
Antenna Specification	PIFA Antenna / Gain: 2.81 dBi

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: **P27RC8111** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47 Part 15.207, 15.209, 15.247, KDB558074.

3.1EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

3.4FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(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	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.5DESCRIPTION OF TEST MODES

The EUT (Model: RC8111) had been tested under operating and standby condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in double TX chains and double RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and 1).

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

IEEE 802.11b mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate and cyclic delay diversity were chosen for full testing.

IEEE 802.11g mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate and cyclic delay diversity were chosen for full testing.

IEEE 802.11n HT 20 mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 mode:
Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in s lie-down position (X axis) and the worst case was recorded.

4. INSTRUMENT CALIBRATION

4.1MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/19/2015
Power Meter	Anritsu	ML2495A	1012009	06/03/2015
Power Sensor	Anritsu	MA2411A	0917072	06/03/2015

3M Chamber Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510268	11/04/2015
EMI Test Receiver	R&S	ESCI	100064	02/26/2015
Pre-Amplifier	Mini-Circults	ZFL-1000LN	SF350700823	01/11/2015
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1415367	11/17/2015
Bilog Antenna	Sunol Sciences	JB3	A030105	09/30/2015
Horn Antenna	EMCO	3117	00055165	02/12/2015
Horn Antenna	EMCO	3116	2487	10/08/2015
Loop Antenna	EMCO	6502	8905/2356	06/11/2015
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Site NSA	CCS	N/A	N/A	12/21/2014
Test S/W	EZ-EMC (CCS-3A1RE)			

Conducted Emission room # A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	101203	09/11/2015
LISN	R&S	ESH3-Z5	848773/014	12/09/2014
ISN	FCC	FCC-TLISN-T8-02-09	101131	09/03/2015
Coaxial Cable	Commate	CFD300-NL	NA	12/05/2014
Test S/W	CCS-3A1-CE			

4.3MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2159
3M Semi Anechoic Chamber / <200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

***Remark**: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

5. FACILITIES AND ACCREDITATIONS

5.1FACILITIES

All measurement facilities used to collect the measurement data are located at

☒ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

***Remark**: The Powerline Conducted test items was tested at Compliance Certification Services Inc. (Hsintien Lab.) The test equipments were listed in page 10 and the test data, please refer page 125-126.*

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	TAF Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada IC 2324G-1 IC 2324G-2

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6. SETUP OF EQUIPMENT UNDER TEST

6.1SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	IBM	7663 (T61)	L3E9812	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

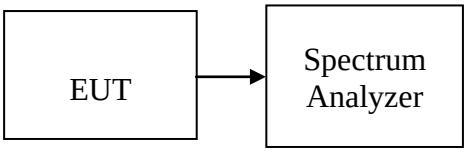
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. Set the RBW=100kHz the emission bandwidth, VBW ≥ 3 x RBW, Detector = Peak, Trace mode = max hold, Sweep = auto couple. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

TEST RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.3334	>500	PASS
Mid	2437	10.3334		PASS
High	2462	10.3334		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.8333	>500	PASS
Mid	2437	16.8333		PASS
High	2462	16.8333		PASS

Test mode: IEEE 802.11n HT 20 mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.8334	>500	PASS
Mid	2437	17.8334		PASS
High	2462	17.8334		PASS

Test mode: IEEE 802.11n HT 20 mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.9167	>500	PASS
Mid	2437	17.9167		PASS
High	2462	17.9167		PASS

Test mode: IEEE 802.11n HT 40 mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.4167	>500	PASS
Mid	2437	36.4167		PASS
High	2452	36.4167		PASS

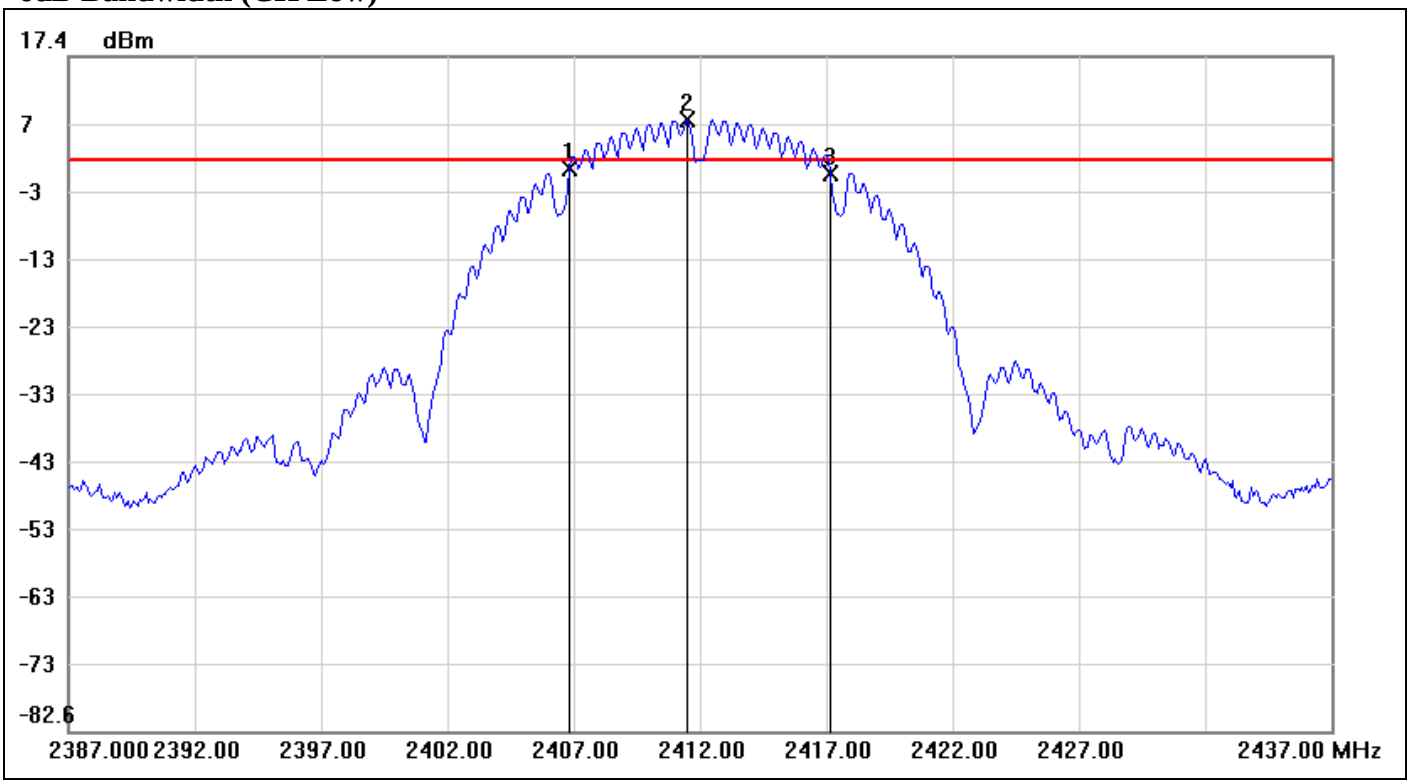
Test mode: IEEE 802.11n HT 40 mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.4167	>500	PASS
Mid	2437	36.1667		PASS
High	2452	36.1667		PASS

Test Plot

IEEE 802.11b mode

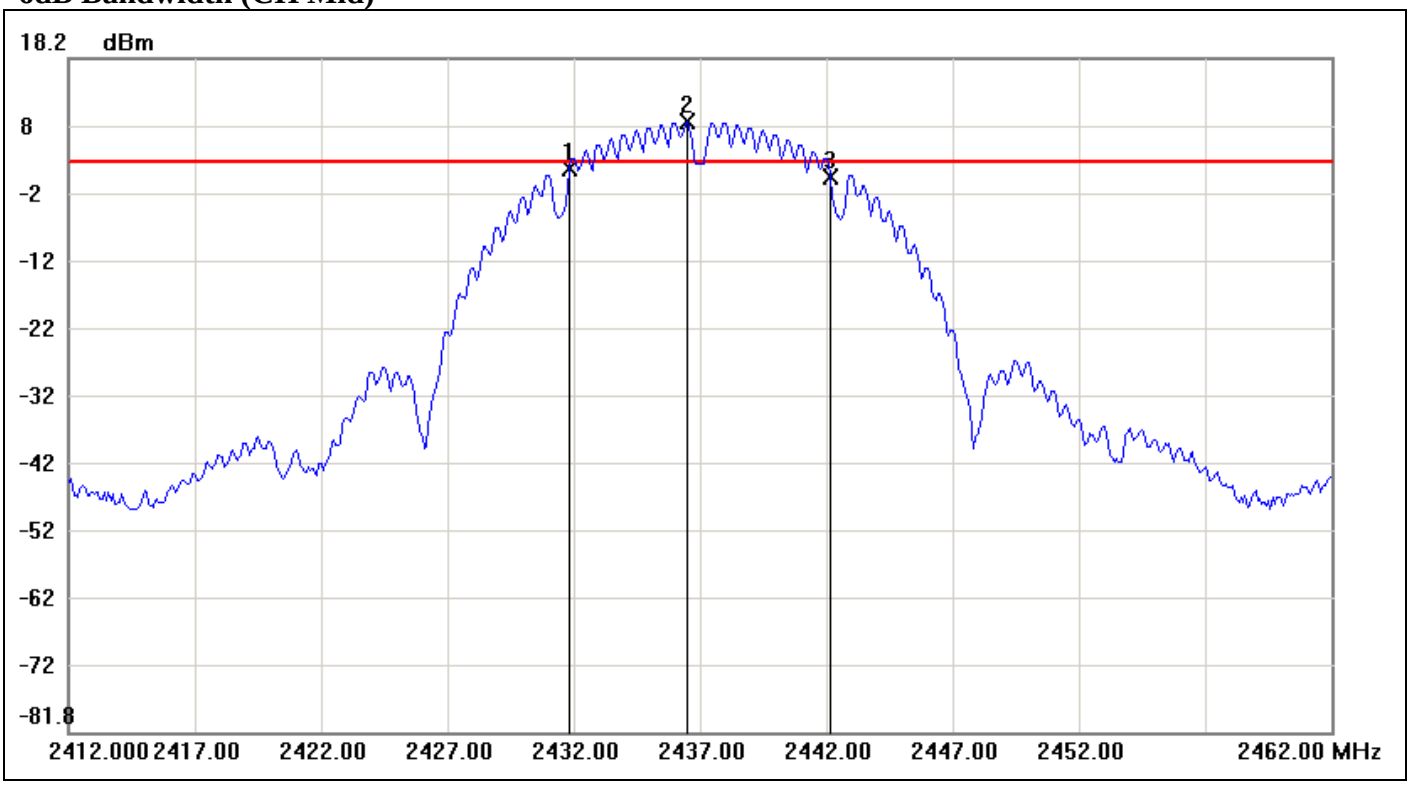
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2406.8333	0.91	2.00	-1.09
2	2411.5000	8.00	2.00	6.00
3	2417.1667	0.10	2.00	-1.90

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.3334	-0.81

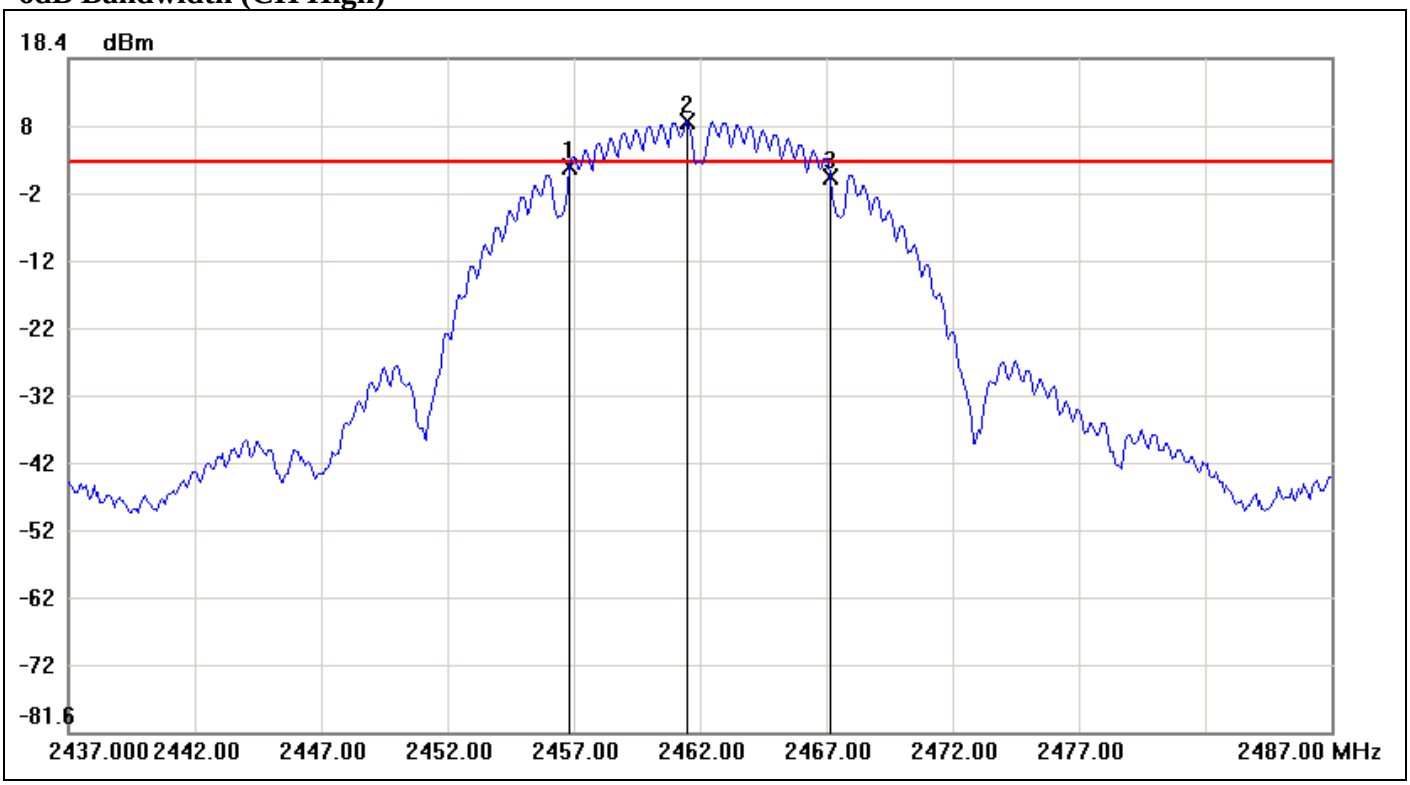
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2431.8333	1.90	2.71	-0.81
2	2436.5000	8.71	2.71	6.00
3	2442.1667	0.64	2.71	-2.07

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.3334	-1.26

6dB Bandwidth (CH High)

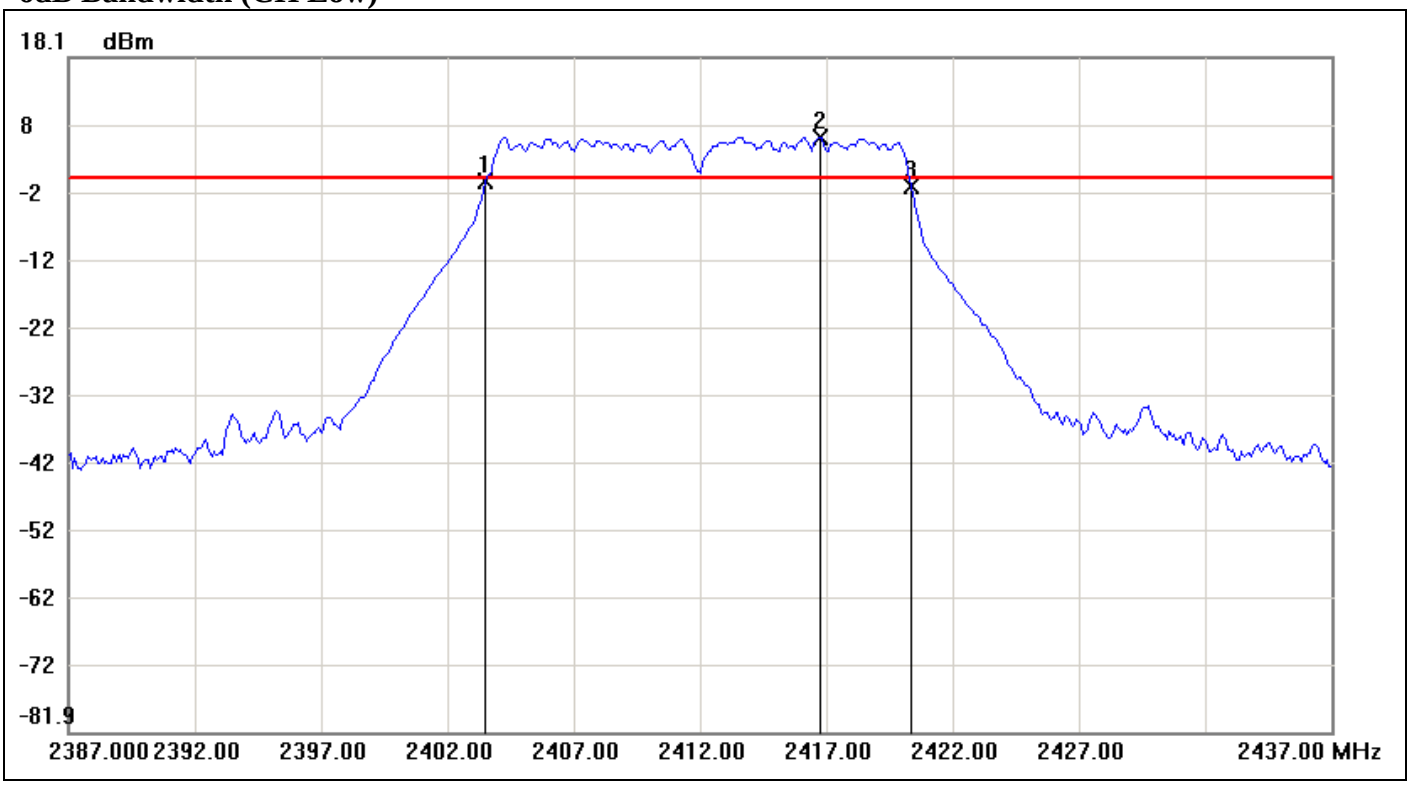


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2456.8333	2.17	2.96	-0.79
2	2461.5000	8.96	2.96	6.00
3	2467.1667	0.76	2.96	-2.20

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.3334	-1.41

IEEE 802.11g mode

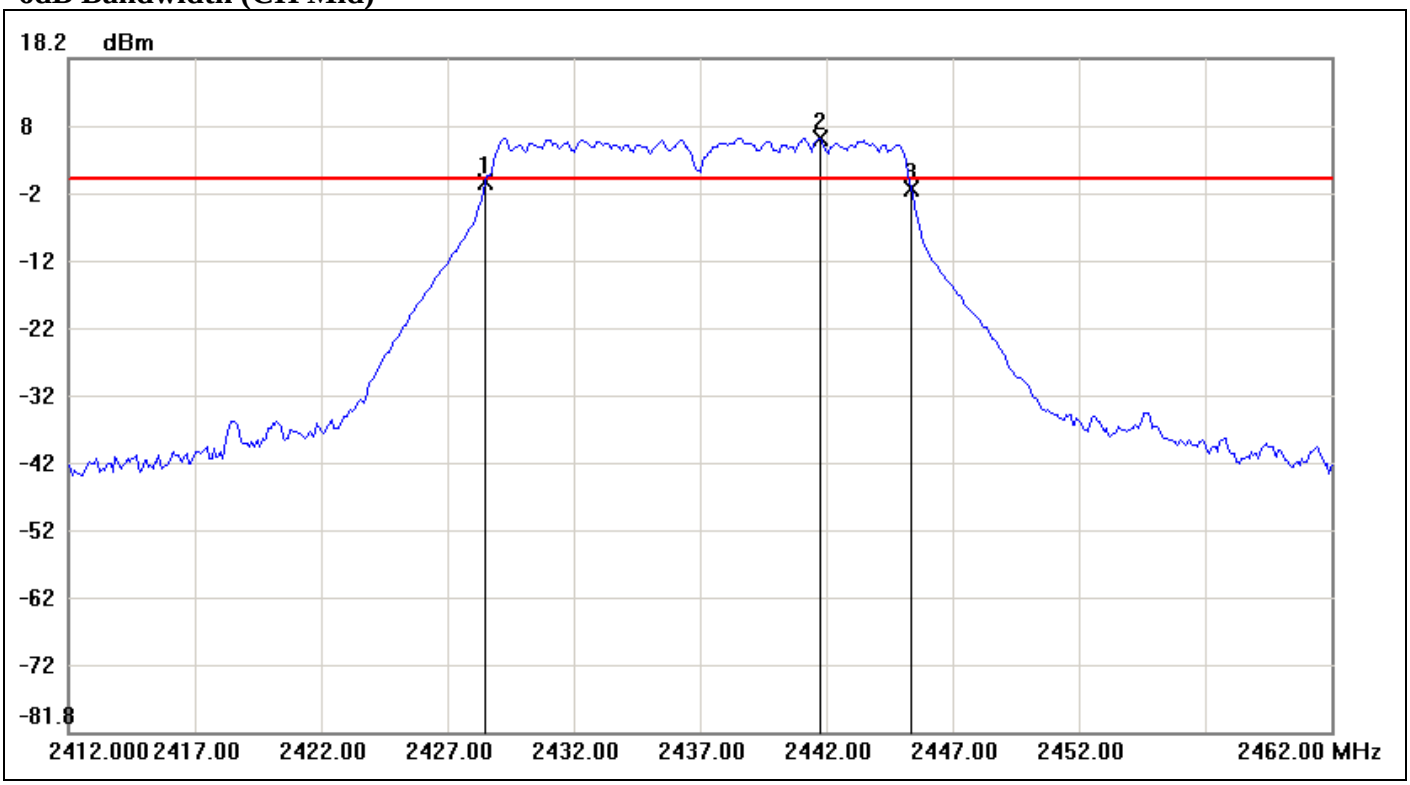
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.5000	-0.24	0.35	-0.59
2	2416.7500	6.35	0.35	6.00
3	2420.3333	-1.06	0.35	-1.41

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.8333	-0.82

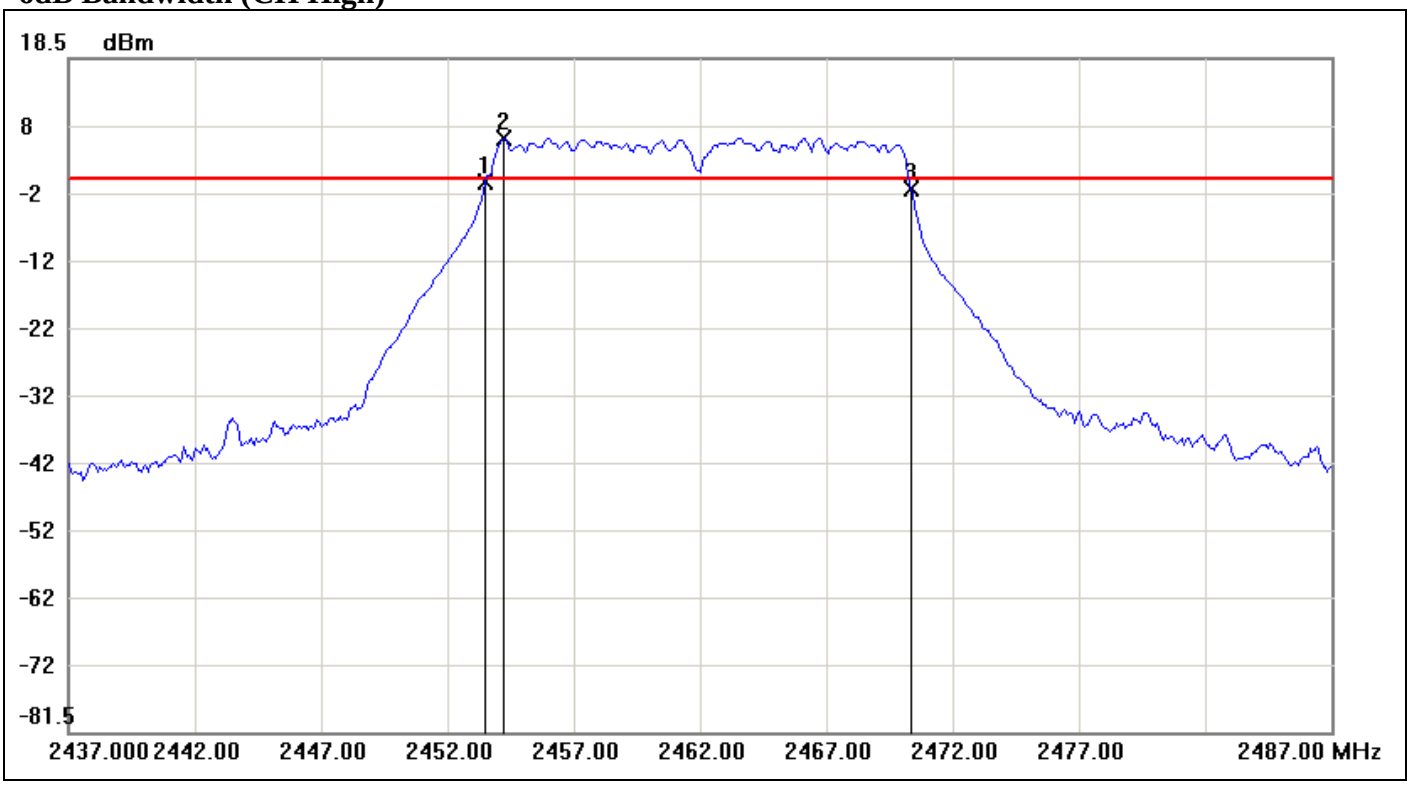
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.5000	-0.17	0.34	-0.51
2	2441.7500	6.34	0.34	6.00
3	2445.3333	-1.07	0.34	-1.41

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.8333	-0.9

6dB Bandwidth (CH High)

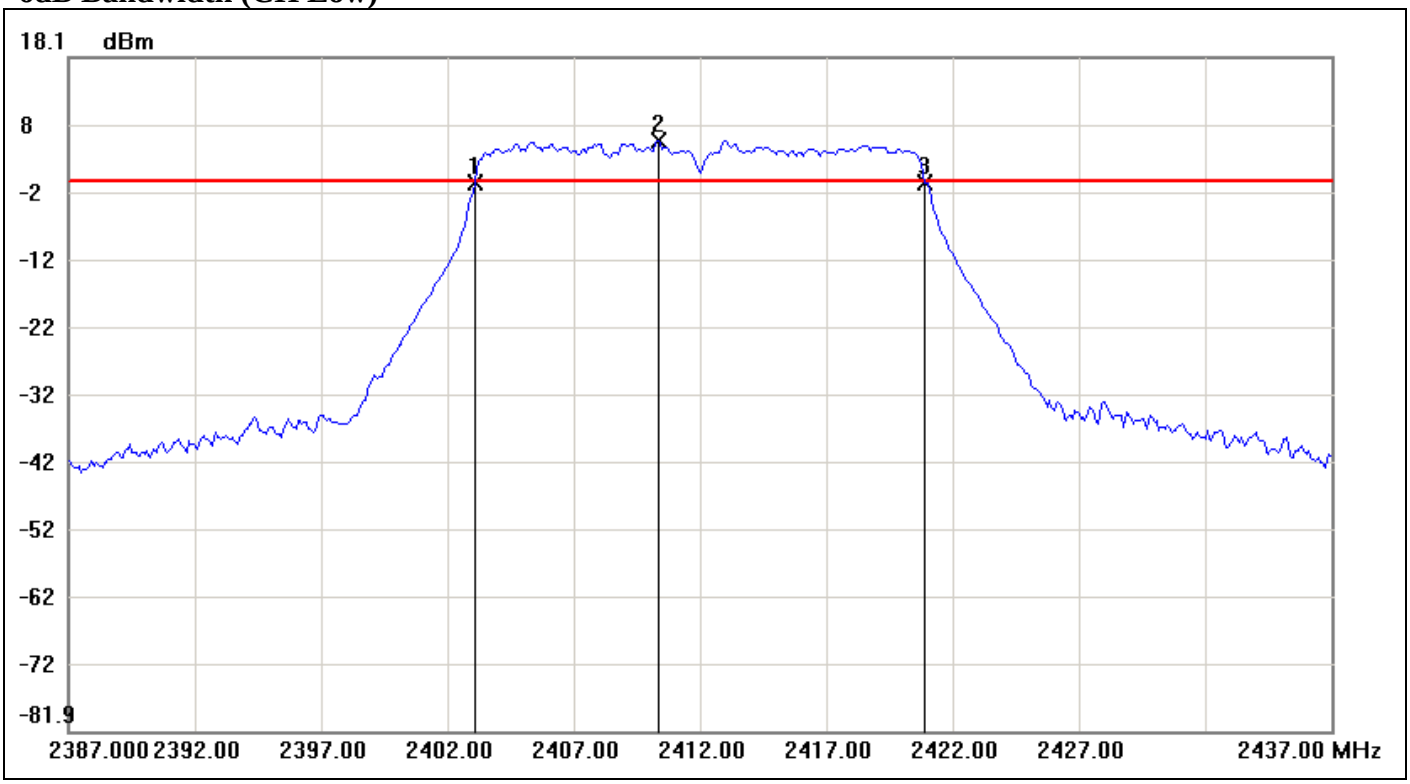


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.5000	0.14	0.57	-0.43
2	2454.2500	6.57	0.57	6.00
3	2470.3333	-1.00	0.57	-1.57

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.8333	-1.14

IEEE 802.11n HT 20 mode / Chain 0

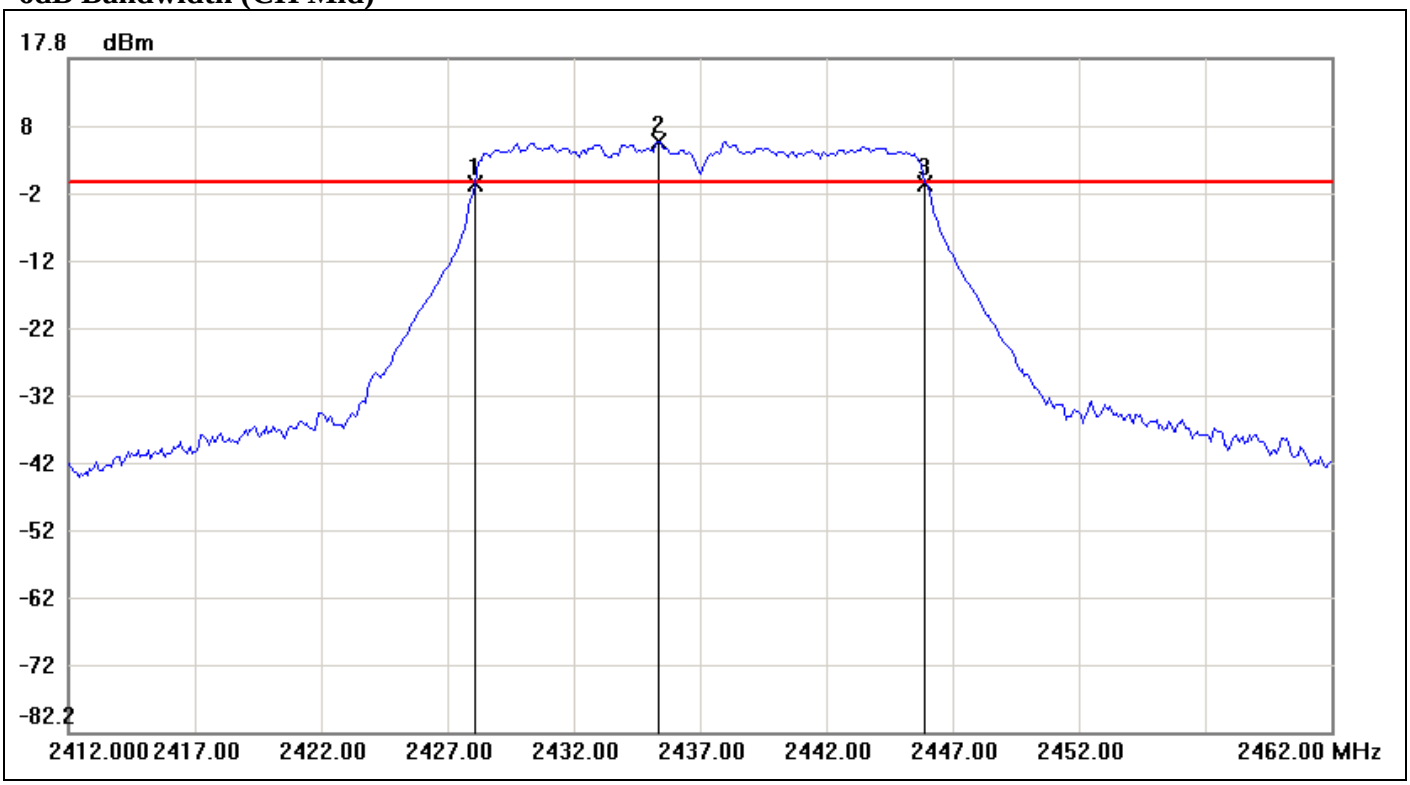
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-0.56	-0.40	-0.16
2	2410.3333	5.60	-0.40	6.00
3	2420.9167	-0.46	-0.40	-0.06

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	0.1

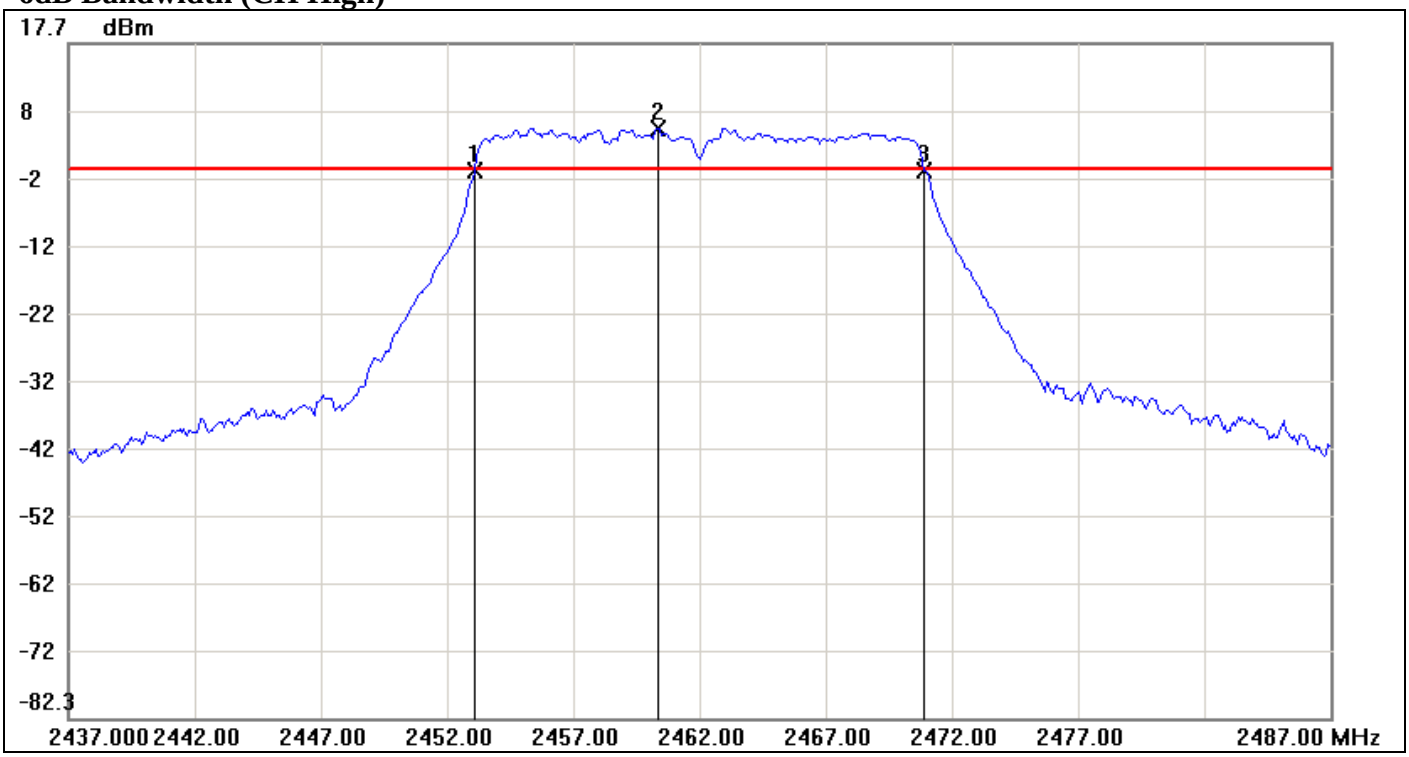
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0833	-0.83	-0.52	-0.31
2	2435.3333	5.48	-0.52	6.00
3	2445.9167	-0.69	-0.52	-0.17

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	0.14

6dB Bandwidth (CH High)

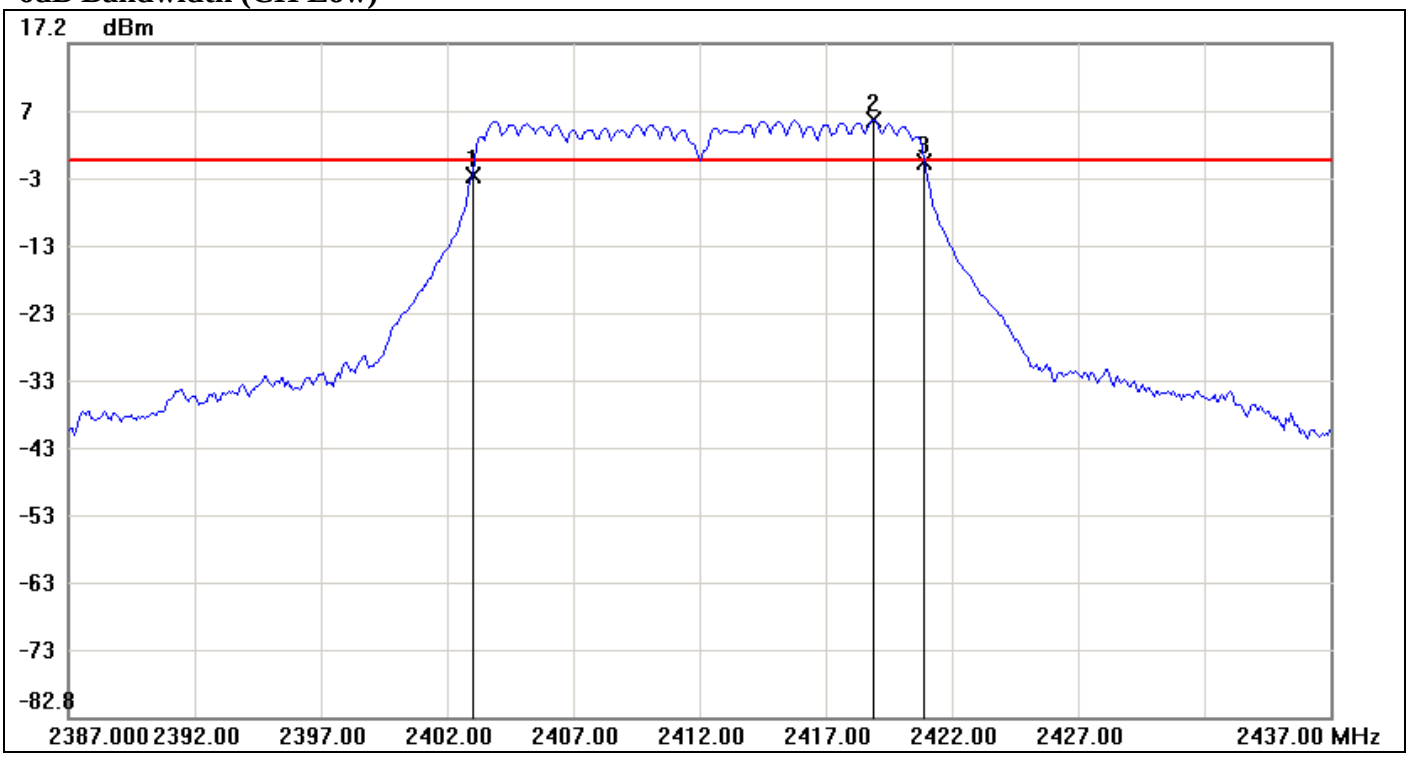


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-1.14	-0.84	-0.30
2	2460.3333	5.16	-0.84	6.00
3	2470.9167	-1.10	-0.84	-0.26

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	0.04

IEEE 802.11n HT 20 mode / Chain 1

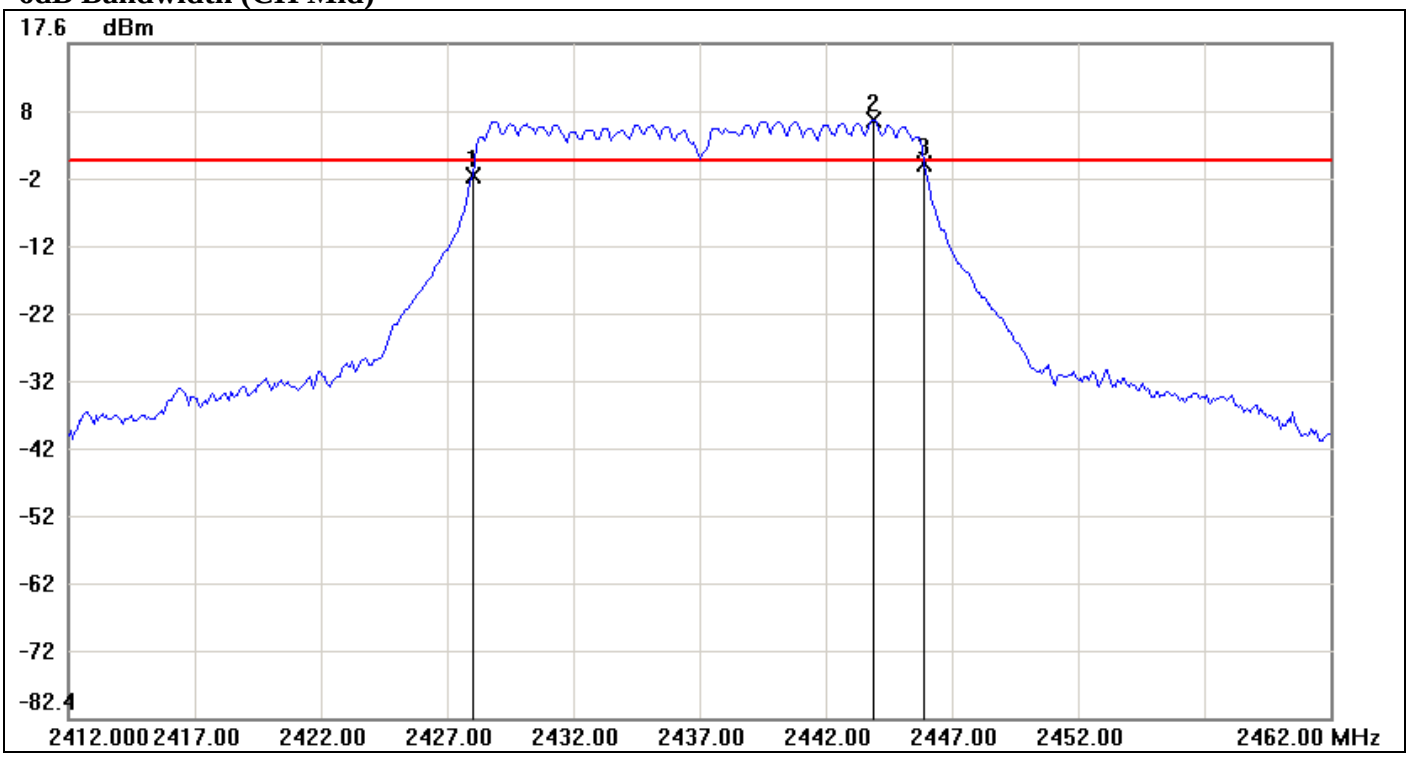
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0000	-2.55	-0.16	-2.39
2	2418.9167	5.84	-0.16	6.00
3	2420.9167	-0.34	-0.16	-0.18

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.9167	2.21

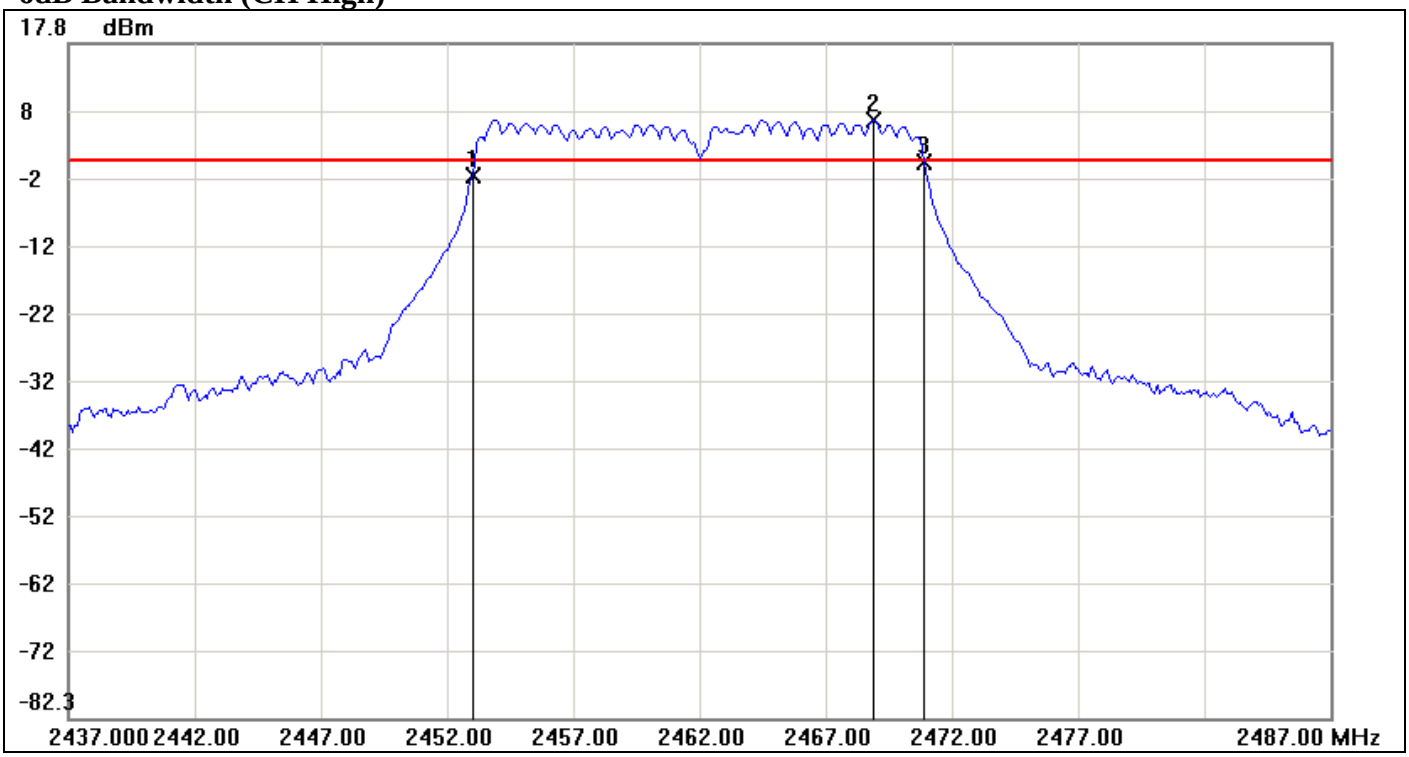
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0000	-2.17	0.18	-2.35
2	2443.9167	6.18	0.18	6.00
3	2445.9167	-0.34	0.18	-0.52

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.9167	1.83

6dB Bandwidth (CH High)

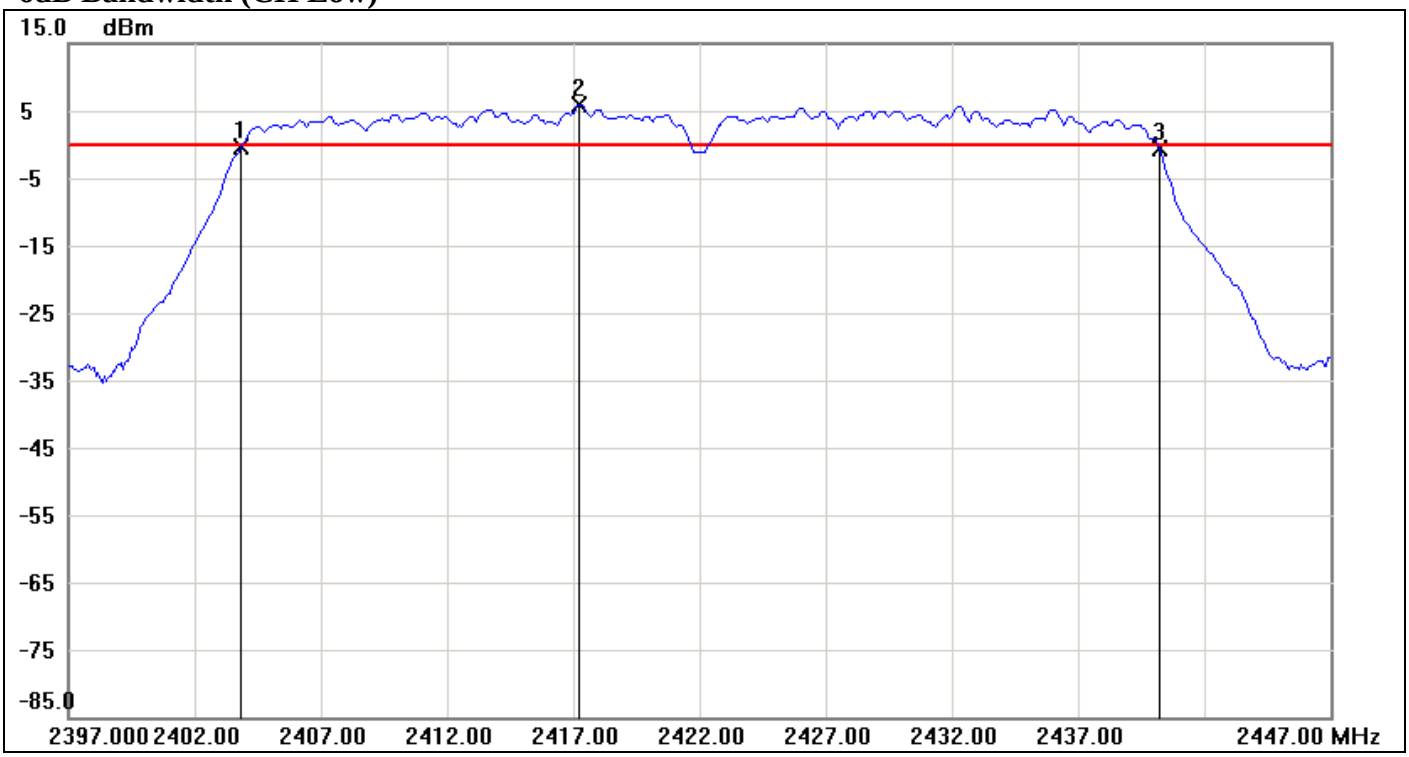


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0000	-1.97	0.40	-2.37
2	2468.9167	6.40	0.40	6.00
3	2470.9167	0.03	0.40	-0.37

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.9167	2

IEEE 802.11n HT 40 mode / Chain 0

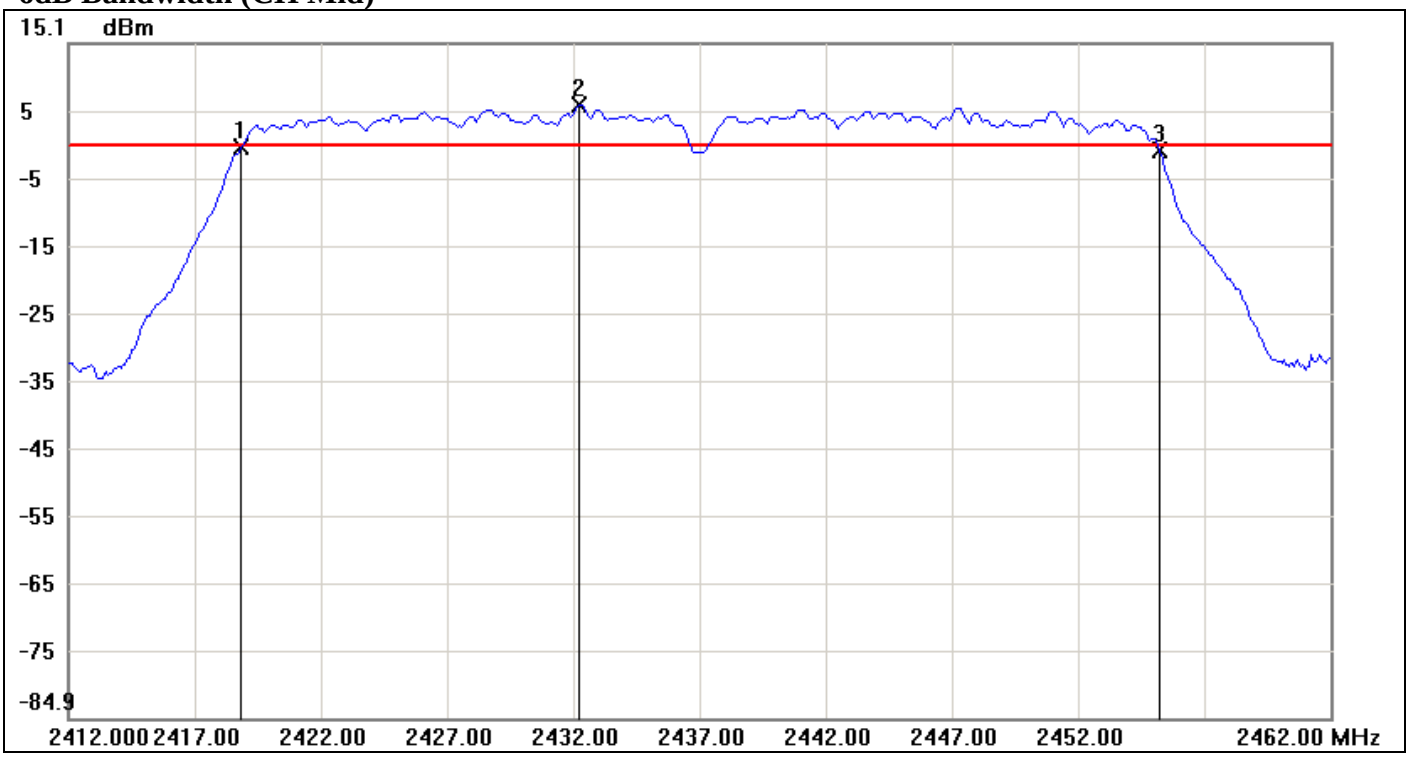
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.8333	-0.38	-0.06	-0.32
2	2417.2500	5.94	-0.06	6.00
3	2440.2500	-0.75	-0.06	-0.69

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	-0.37

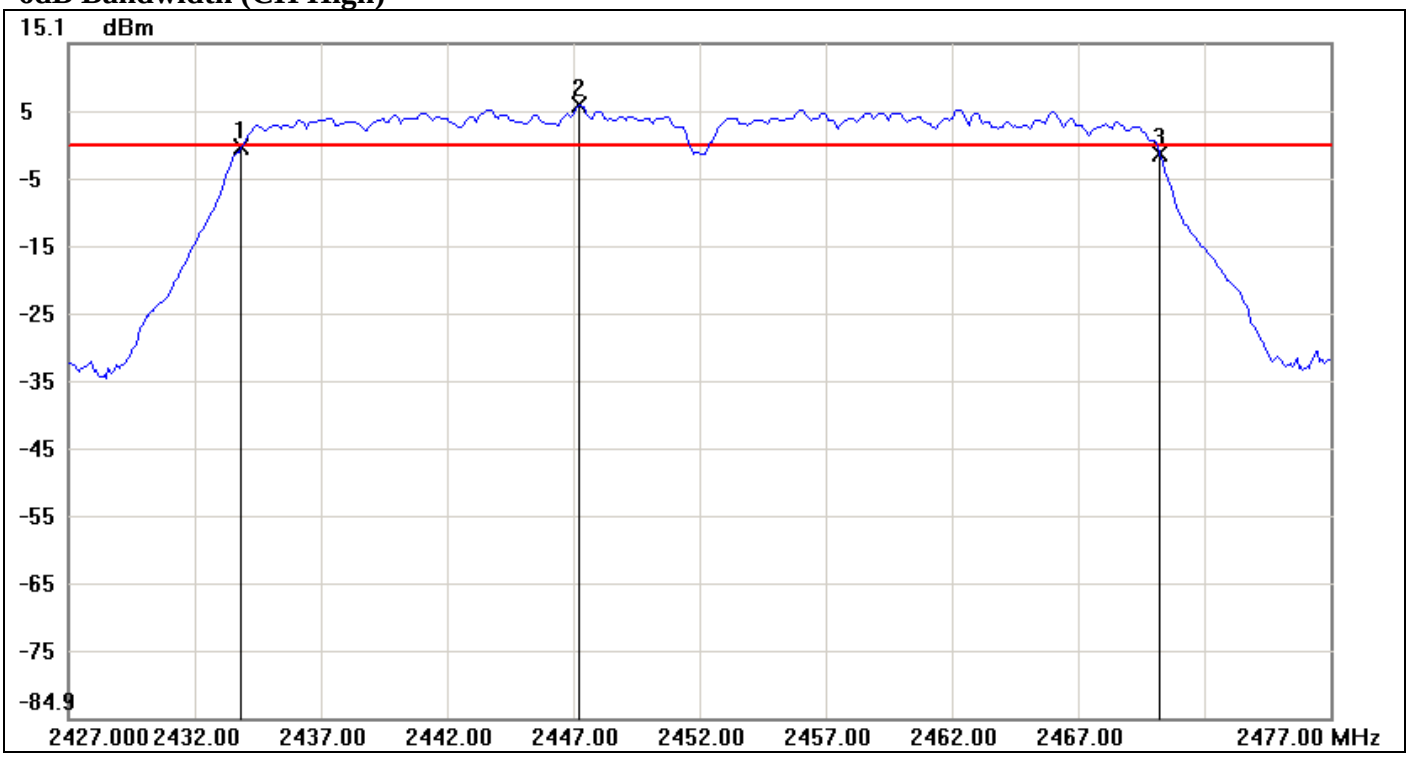
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.8333	-0.31	-0.06	-0.25
2	2432.2500	5.94	-0.06	6.00
3	2455.2500	-0.90	-0.06	-0.84

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	-0.59

6dB Bandwidth (CH High)

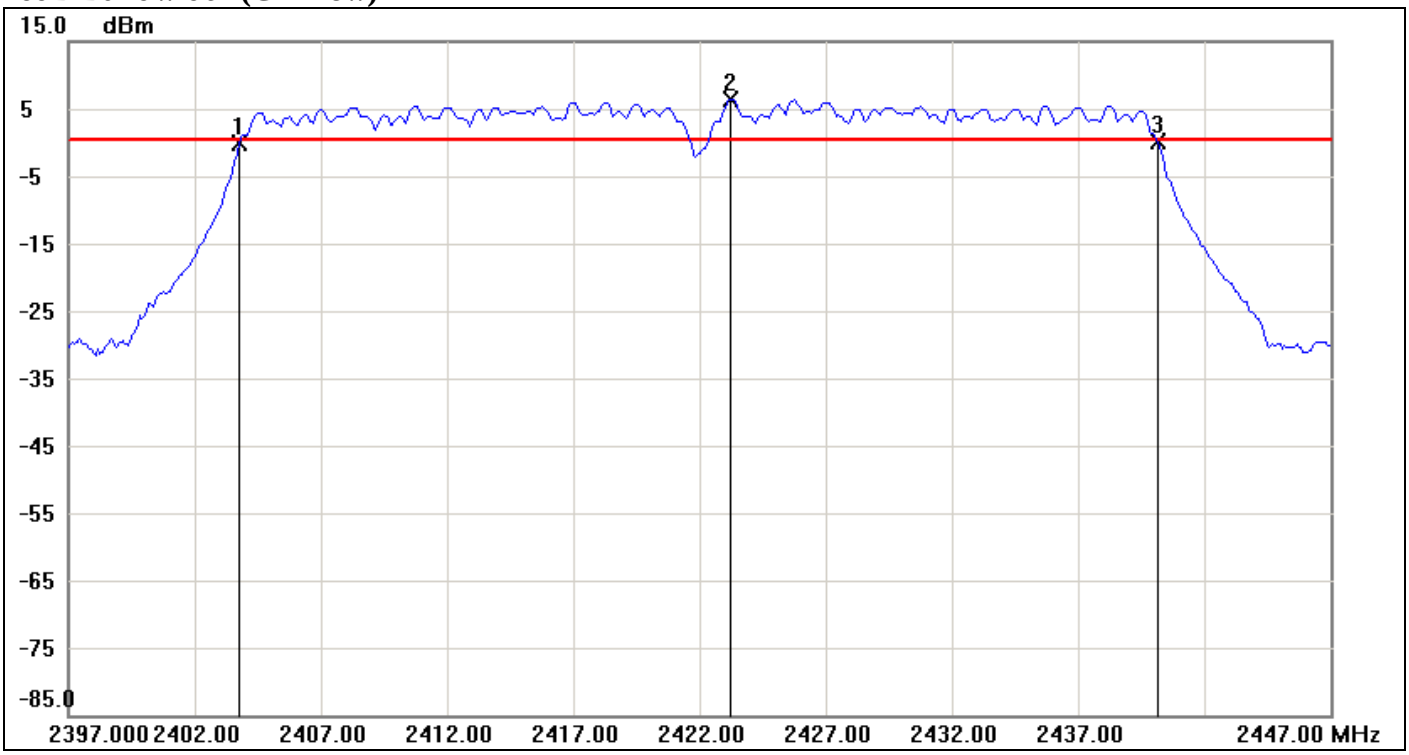


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.8333	-0.28	-0.11	-0.17
2	2447.2500	5.89	-0.11	6.00
3	2470.2500	-1.16	-0.11	-1.05

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	-0.88

IEEE 802.11n HT 40 mode / Chain 1

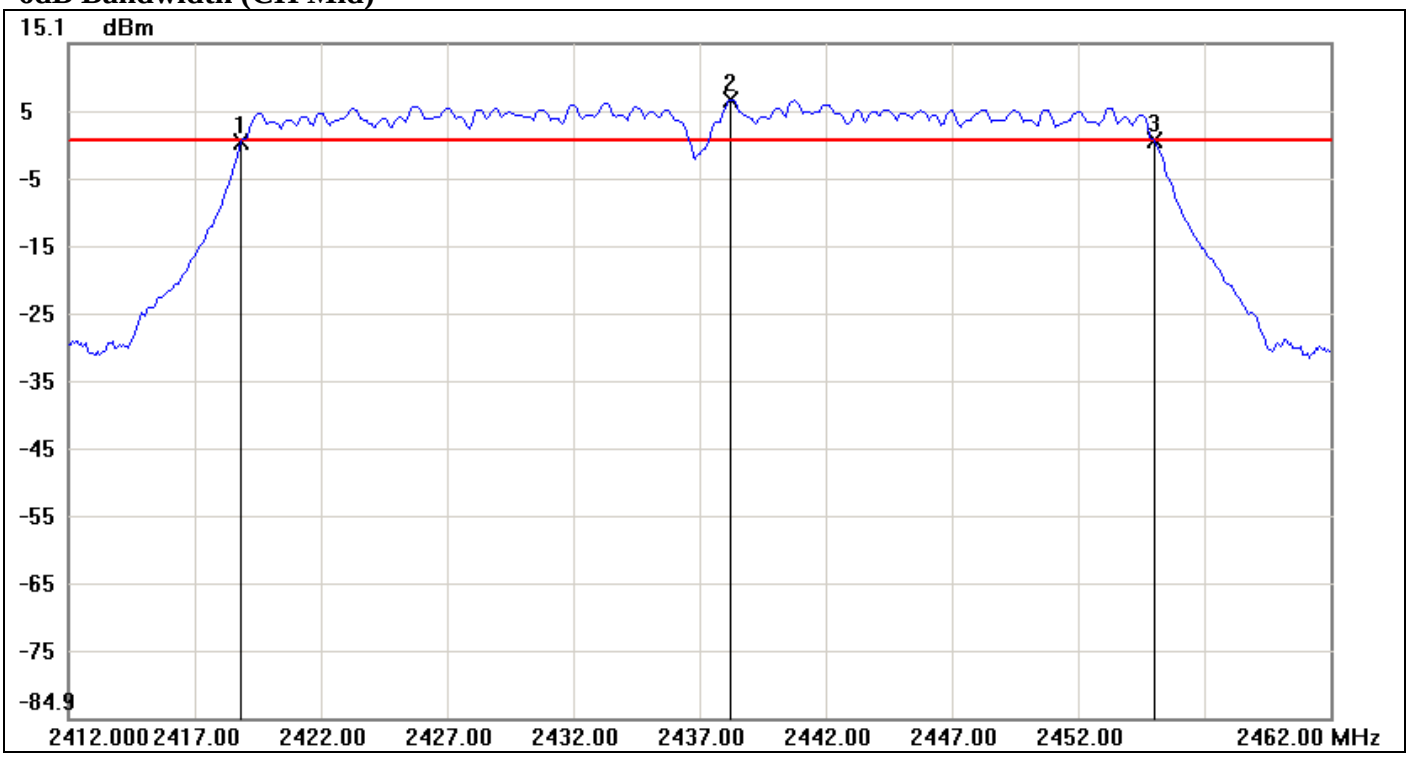
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-0.20	0.47	-0.67
2	2423.2500	6.47	0.47	6.00
3	2440.1667	0.05	0.47	-0.42

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	0.25

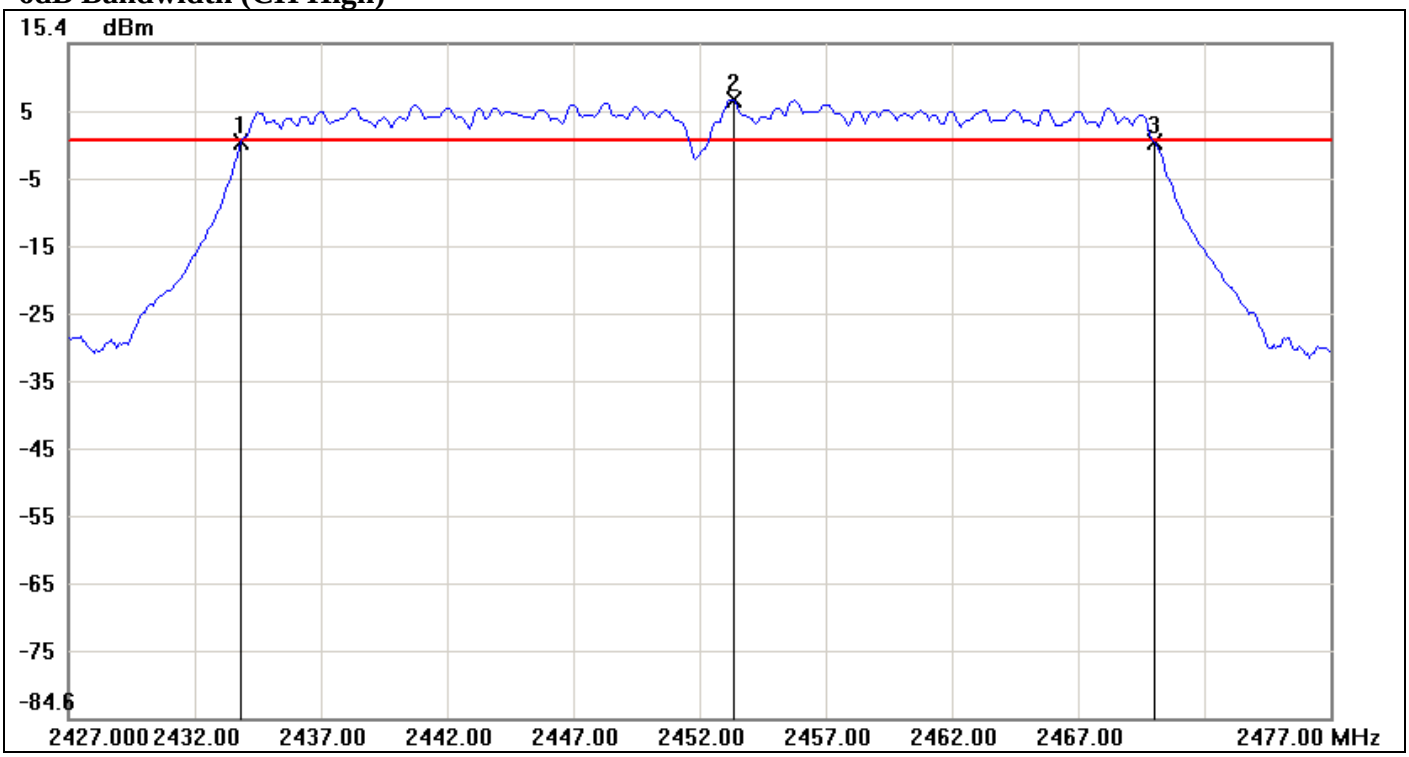
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.8333	0.54	0.85	-0.31
2	2438.2500	6.85	0.85	6.00
3	2455.0000	0.77	0.85	-0.08

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.1667	0.23

6dB Bandwidth (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.8333	0.87	1.07	-0.20
2	2453.3333	7.07	1.07	6.00
3	2470.0000	0.86	1.07	-0.21

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.1667	-0.01

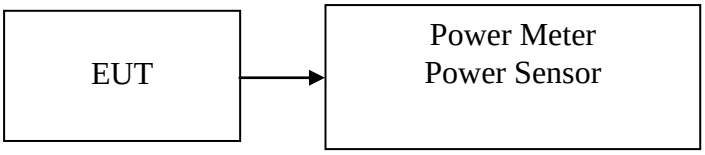
7.2 PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), 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.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power Meter. The Power Meter is set to the peak power detection.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.65	0.0923	1.00	PASS
Mid	2437	19.63	0.0918		PASS
High	2462	**19.81**	0.0957		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	24.81	0.3027	1.00	PASS
Mid	2437	24.71	0.2958		PASS
High	2462	**24.95**	0.3126		PASS

Test mode: IEEE 802.11n HT 20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	24.03	23.71	26.88	0.4879	1.00	PASS
Mid	2437	24.15	23.83	**27.00**	0.5016		PASS
High	2462	24.07	23.77	26.93	0.4935		PASS

Test mode: IEEE 802.11n HT 40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	23.78	24.07	**26.94**	0.4941	1.00	PASS
Mid	2437	23.82	23.88	26.86	0.4853		PASS
High	2452	23.69	23.96	26.84	0.4828		PASS

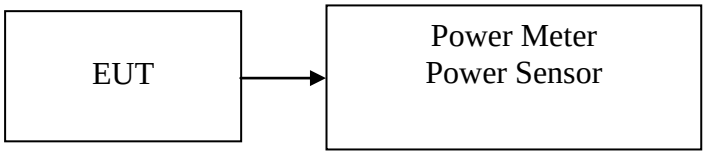
*)

7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power Meter. The Power Meter is set to the avg power detection.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.59	0.0574
Mid	2437	17.56	0.0570
High	2462	**17.71**	0.0590

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	15.61	0.0364
Mid	2437	15.54	0.0358
High	2462	**15.66**	0.0368

Test mode: IEEE 802.11n HT 20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	14.61	14.52	17.58	0.0572	1.00	PASS
Mid	2437	14.73	14.82	**17.79**	0.0601		PASS
High	2462	14.64	14.65	17.66	0.0583		PASS

Test mode: IEEE 802.11n HT 40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	14.66	14.77	**17.73**	0.0592	1.00	PASS
Mid	2437	14.69	14.52	17.62	0.0578		PASS
High	2452	14.51	14.66	17.60	0.0575		PASS

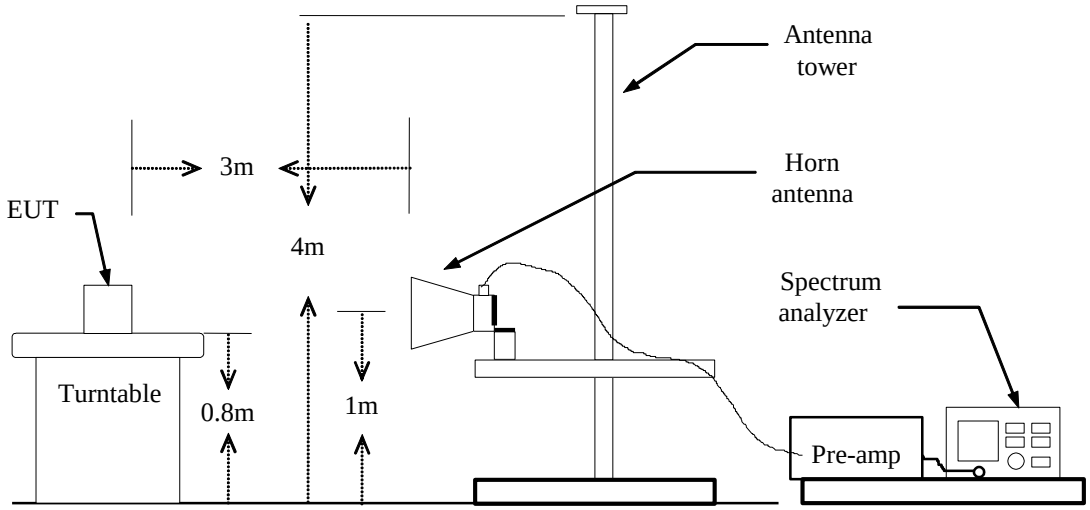
7.4 BAND EDGES MEASUREMENT

LIMIT

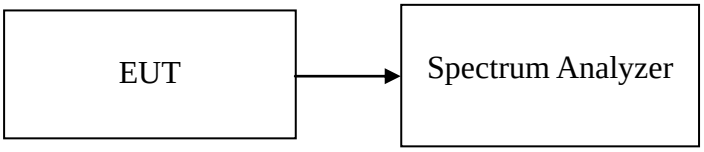
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration

For Radiated



For Conducted



TEST PROCEDURE

For Radiated

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / 10Hz = 300Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

For Conducted

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

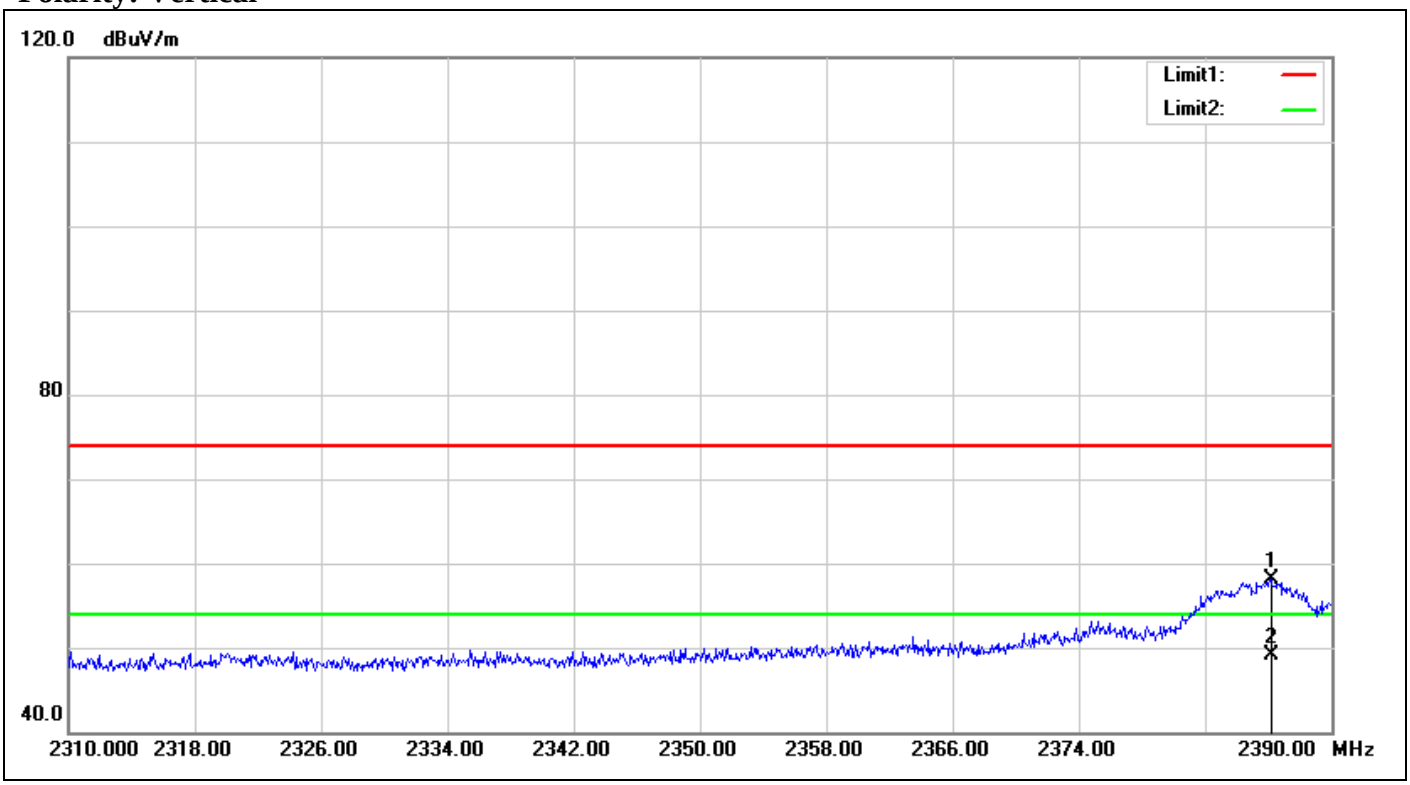
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

TEST RESULTS

Refer to attach spectrum analyzer data chart.

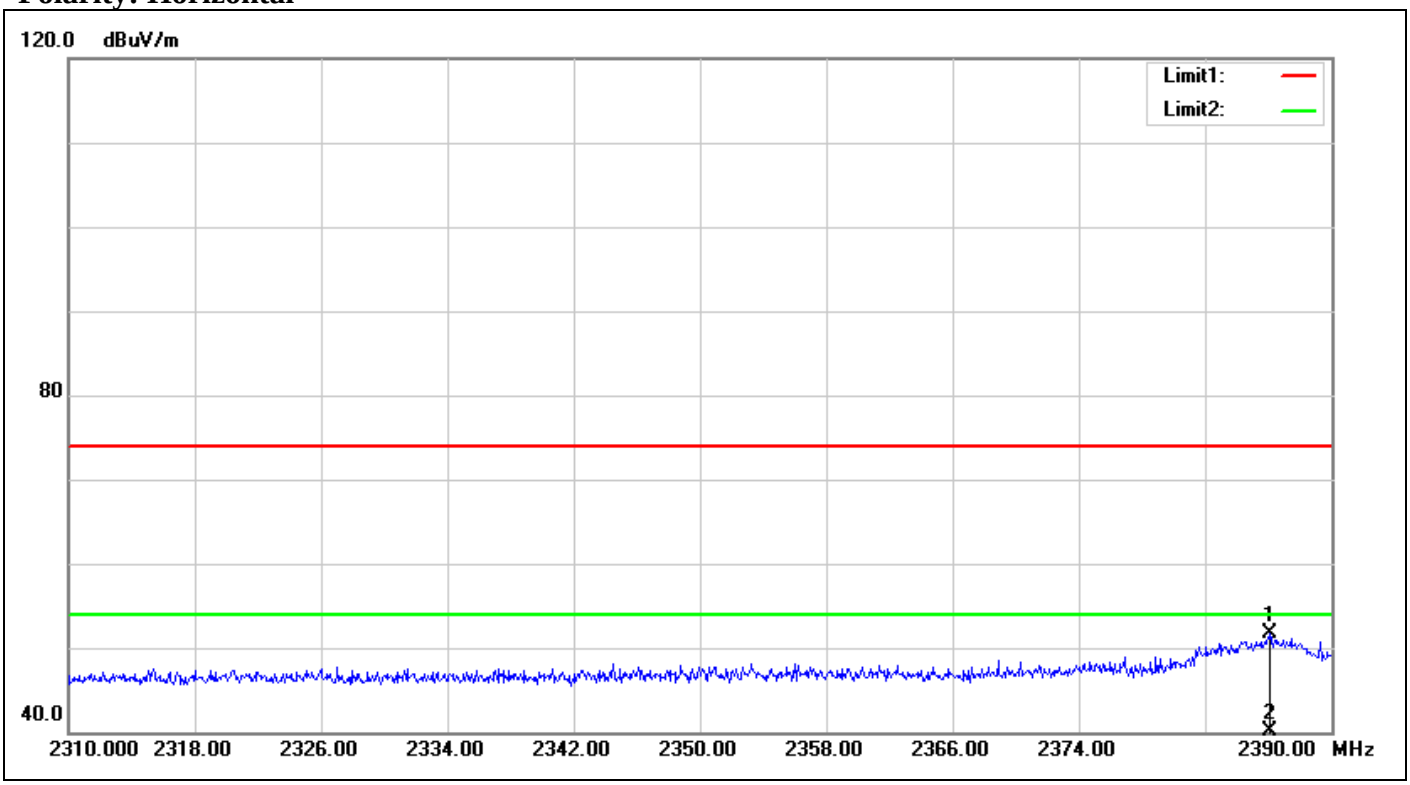
Band Edges (IEEE 802.11b mode / CH Low)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2386.160	61.96	-3.80	58.16	74.00	-15.84	100	174	peak
2	2386.160	52.85	-3.80	49.05	54.00	-4.95	100	174	AVG

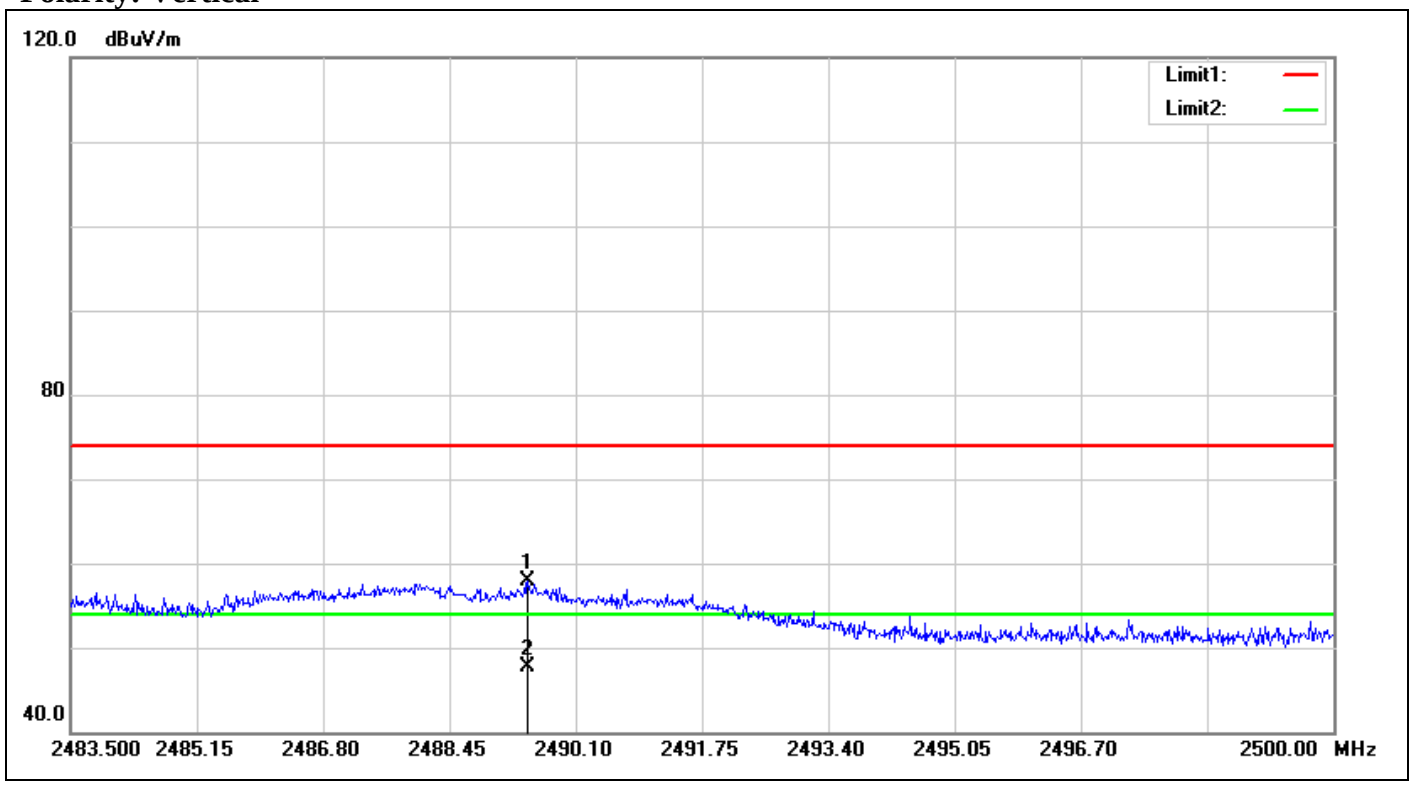
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2386.080	55.58	-3.81	51.77	74.00	-22.23	100	119	peak
2	2386.080	43.97	-3.81	40.16	54.00	-13.84	100	119	AVG

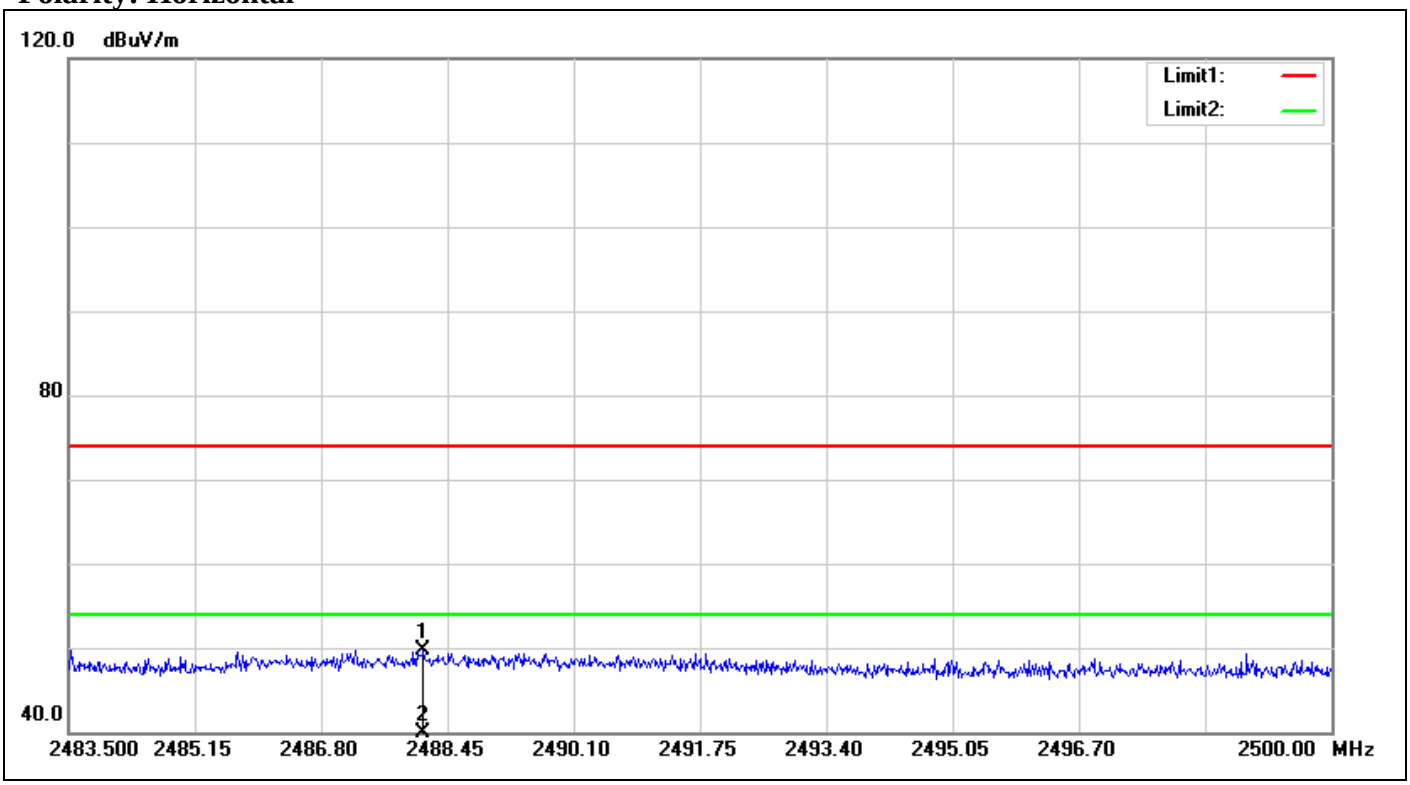
Band Edges (IEEE 802.11b mode / CH High)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2489.473	61.11	-3.22	57.89	74.00	-16.11	100	82	peak
2	2489.473	50.82	-3.22	47.60	54.00	-6.40	100	82	AVG

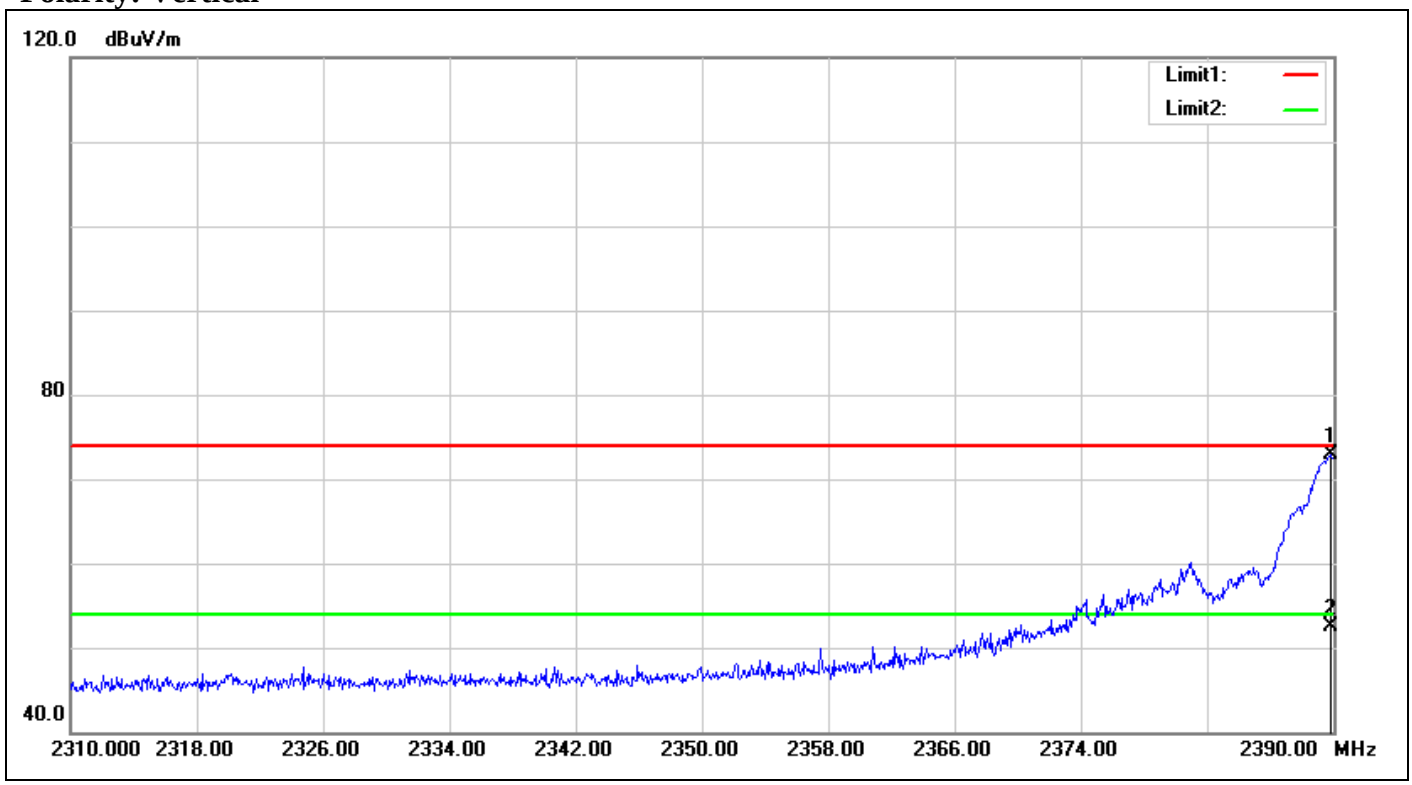
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2488.137	53.01	-3.23	49.78	74.00	-24.22	100	0	peak
2	2488.137	40.33	-3.23	37.10	54.00	-16.90	100	0	AVG

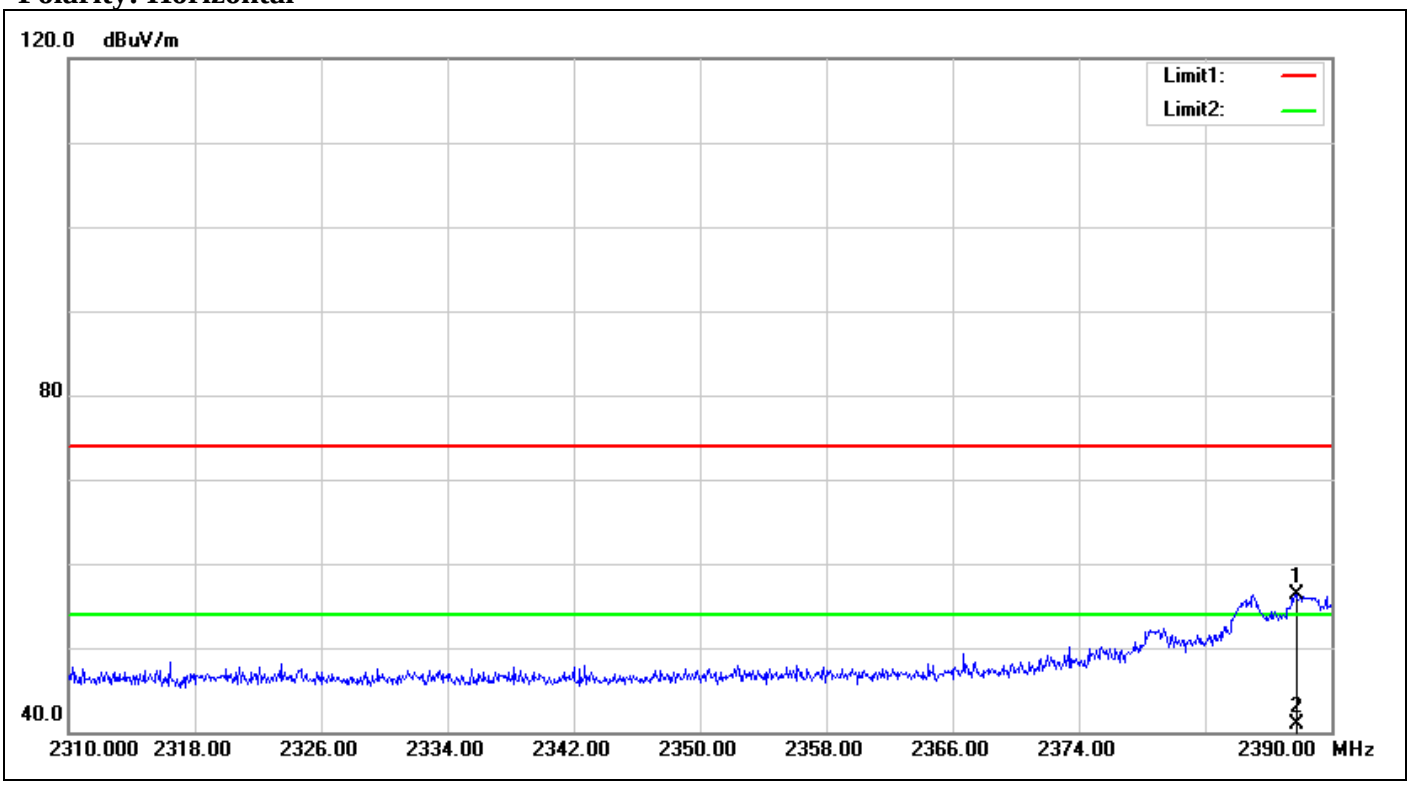
Band Edges (IEEE 802.11g mode / CH Low)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.840	76.62	-3.77	72.85	74.00	-1.15	100	114	peak
2	2389.840	56.36	-3.77	52.59	54.00	-1.41	100	114	AVG

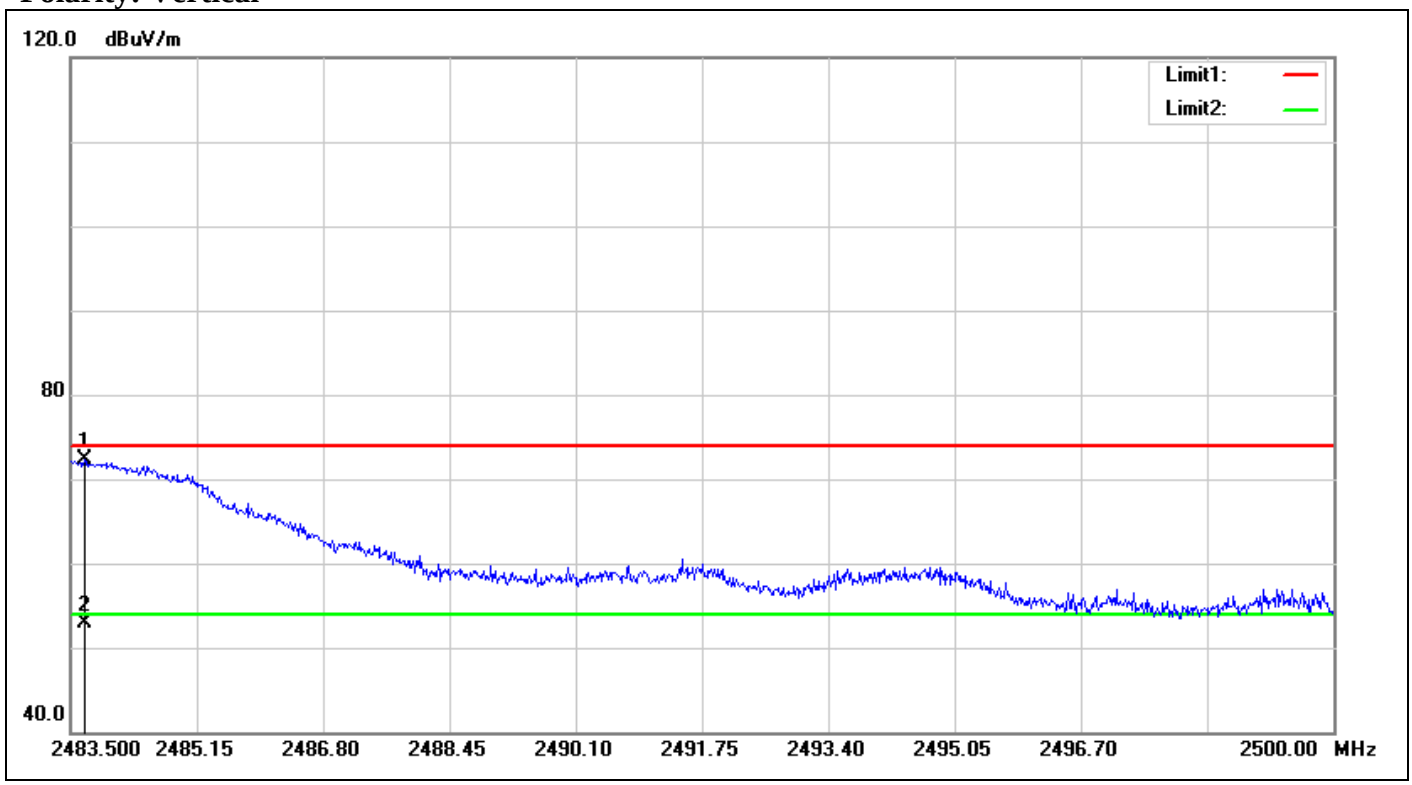
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2387.760	60.12	-3.79	56.33	74.00	-17.67	100	83	peak
2	2387.760	44.66	-3.79	40.87	54.00	-13.13	100	83	AVG

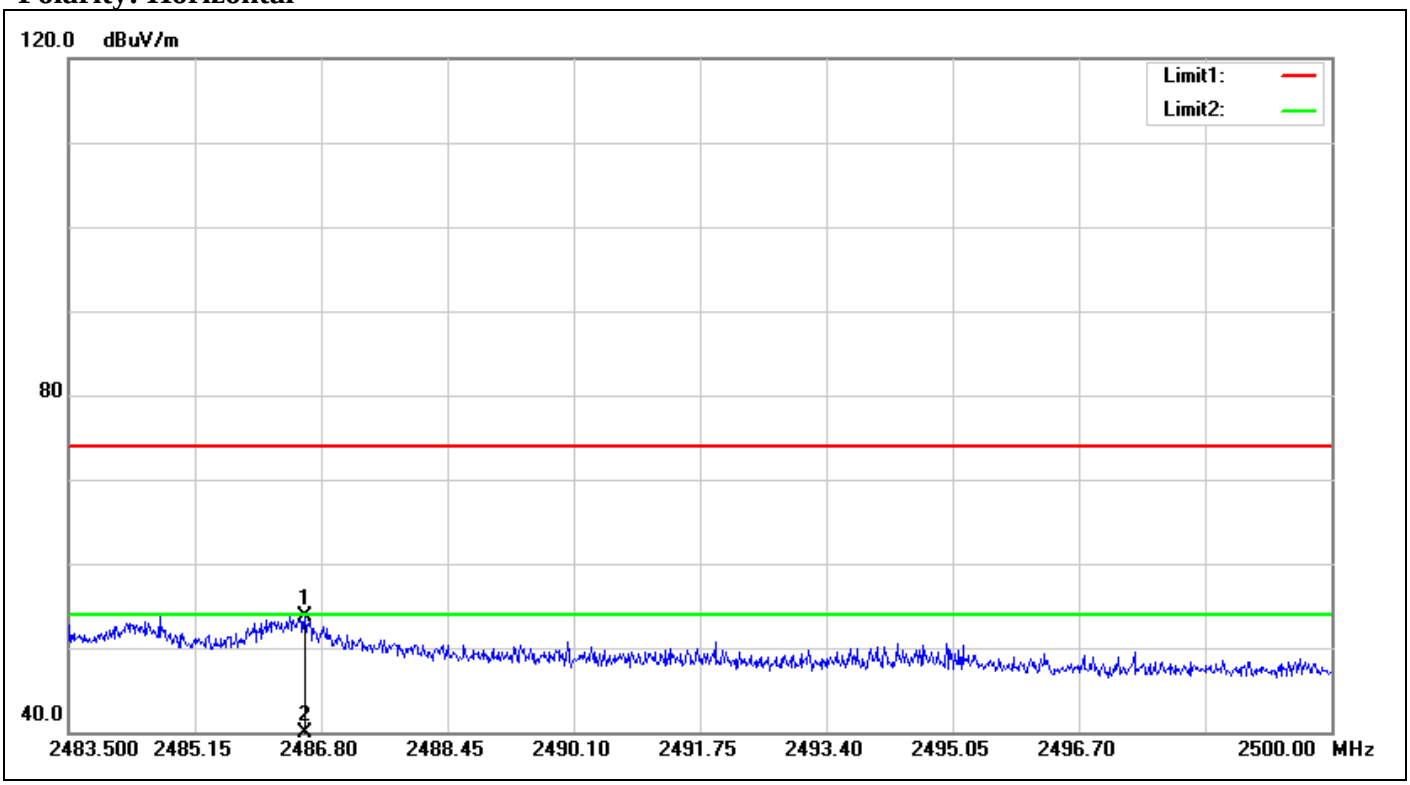
Band Edges (IEEE 802.11g mode / CH High)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.682	75.49	-3.27	72.22	74.00	-1.78	100	178	peak
2	2483.682	56.16	-3.27	52.89	54.00	-1.11	100	178	AVG

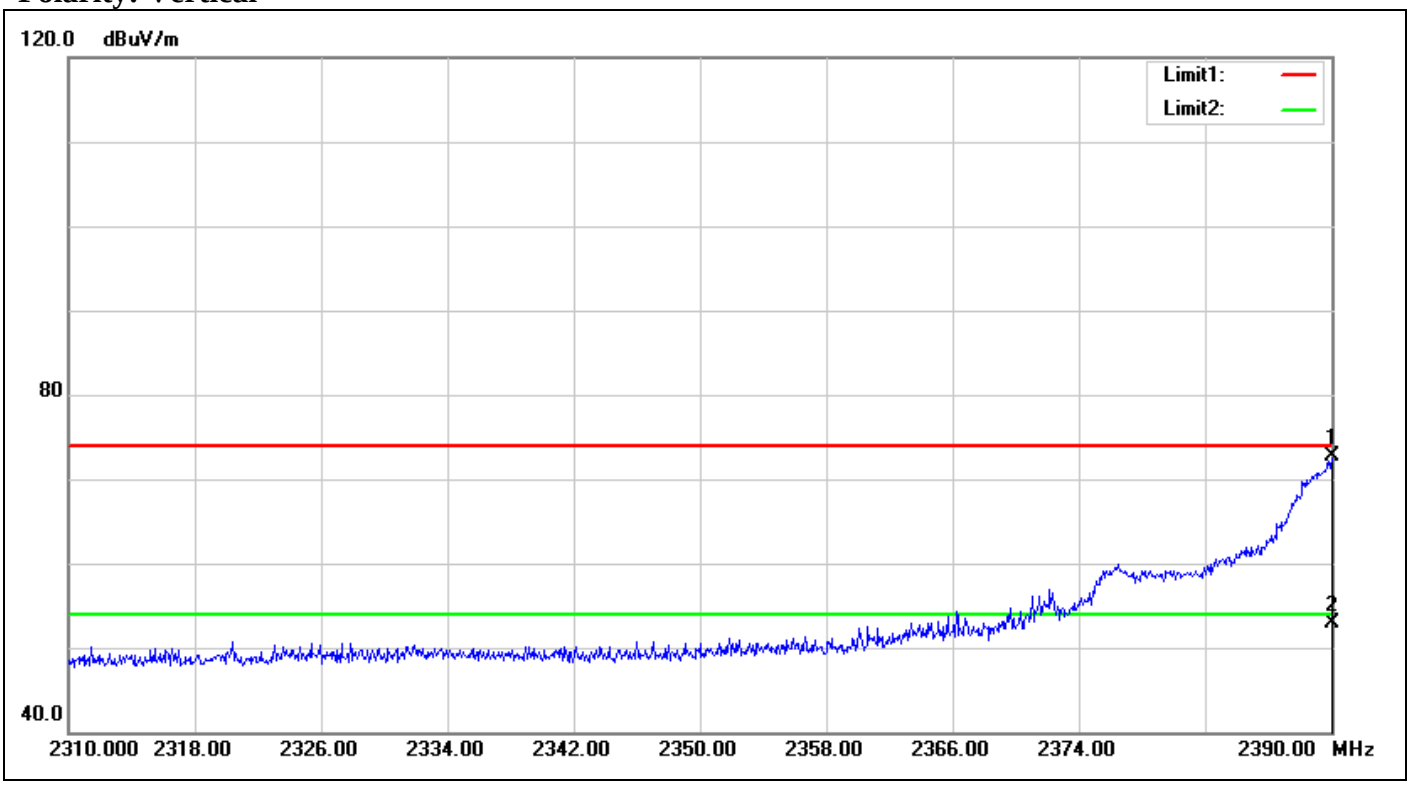
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2486.586	57.02	-3.24	53.78	74.00	-20.22	100	229	peak
2	2486.586	41.68	-3.24	38.44	54.00	-15.56	100	229	AVG

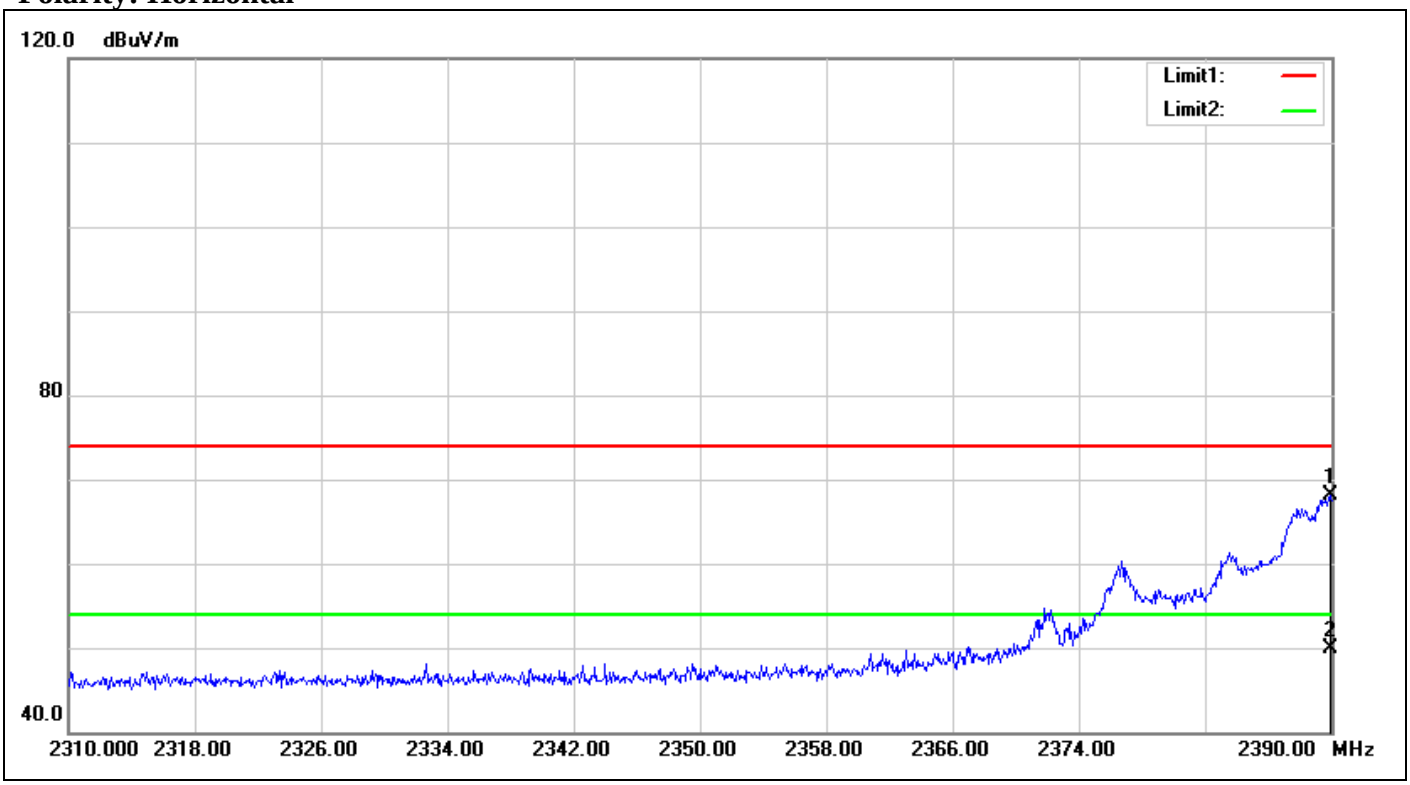
Band Edges (IEEE 802.11n HT 20 mode / CH Low)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2390.000	76.39	-3.77	72.62	74.00	-1.38	100	31	peak
2	2390.000	56.71	-3.77	52.94	54.00	-1.06	100	31	AVG

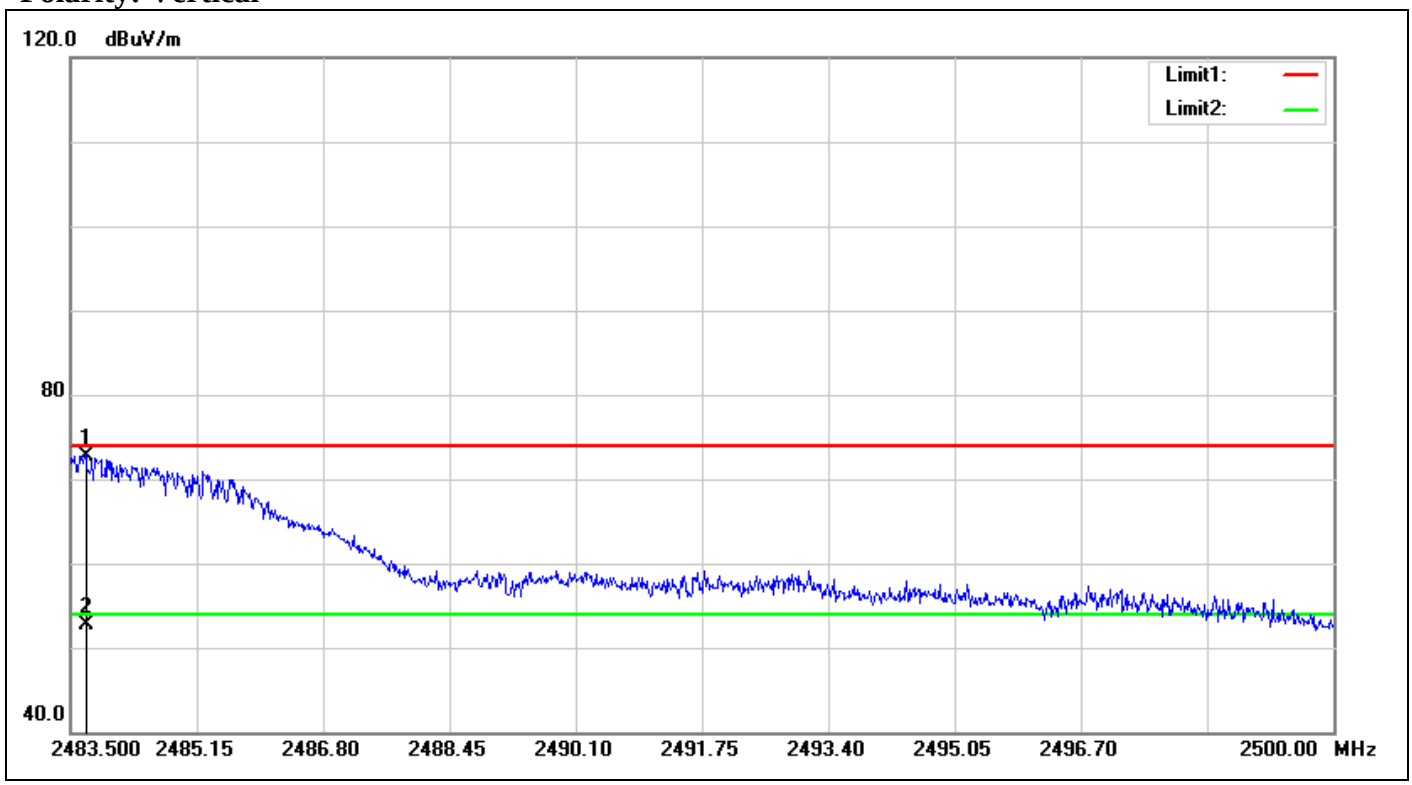
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.920	71.80	-3.77	68.03	74.00	-5.97	100	182	peak
2	2389.920	53.66	-3.77	49.89	54.00	-4.11	100	182	AVG

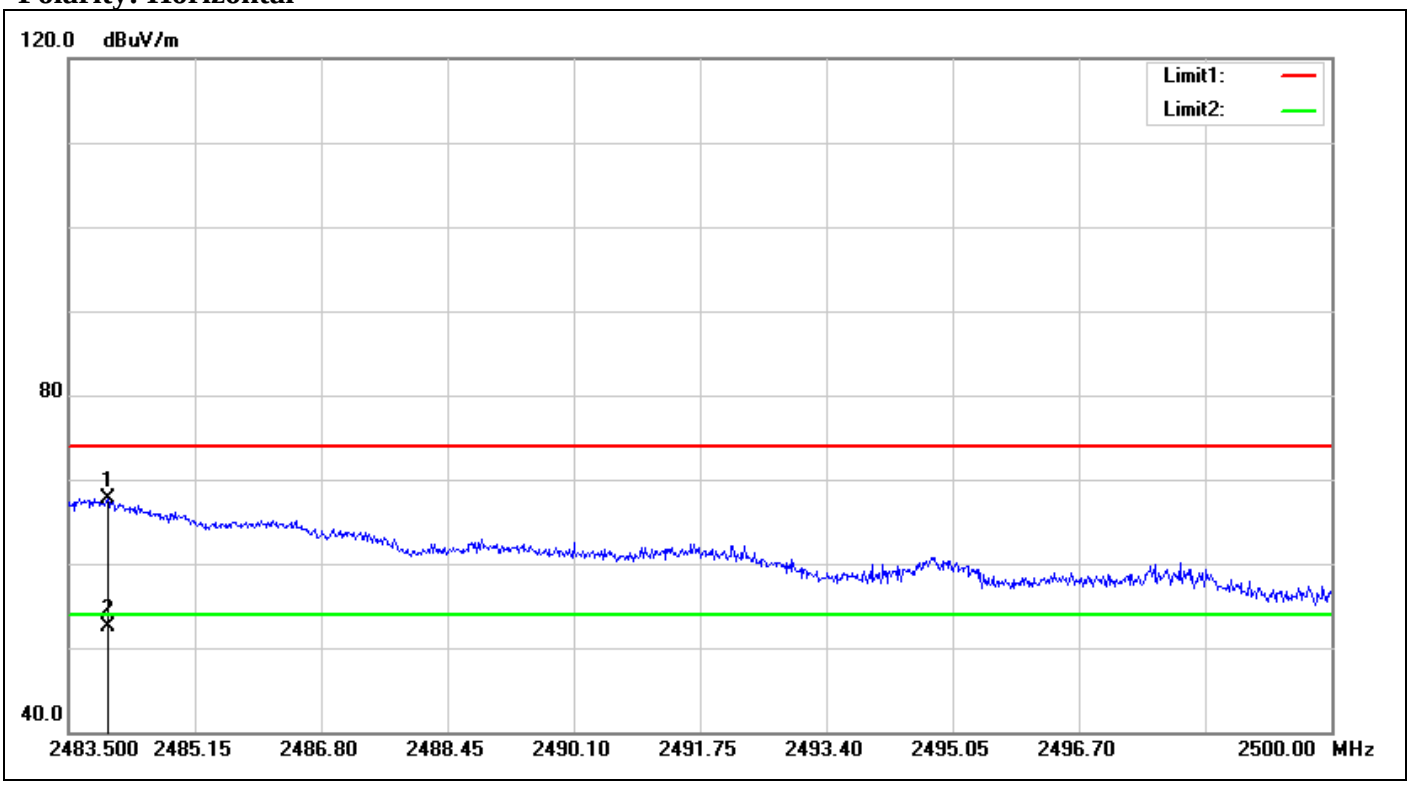
Band Edges (IEEE 802.11n HT 20 mode / CH High)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.698	76.07	-3.27	72.80	74.00	-1.20	100	296	peak
2	2483.698	55.95	-3.27	52.68	54.00	-1.32	100	296	AVG

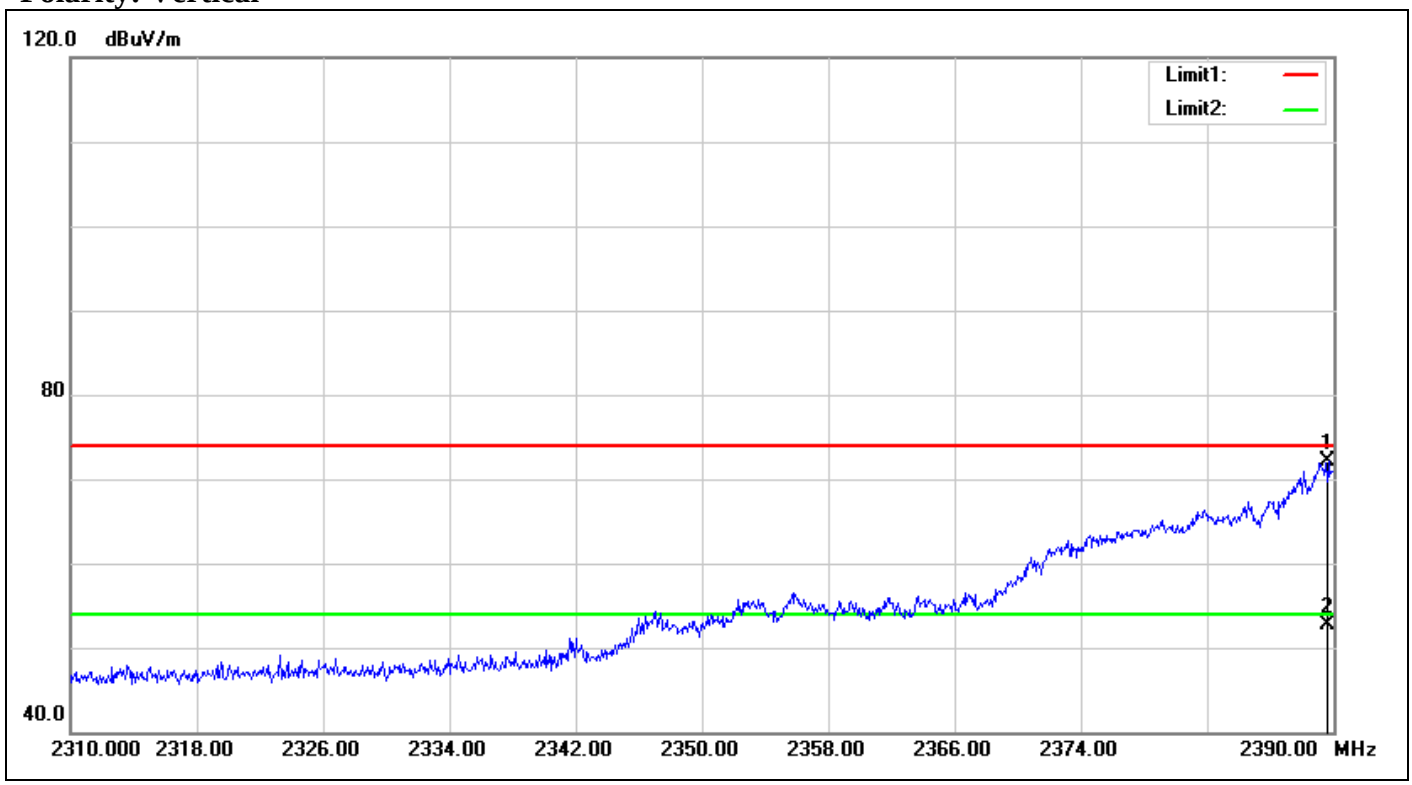
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2484.012	71.03	-3.27	67.76	74.00	-6.24	100	135	peak
2	2484.012	55.69	-3.27	52.42	54.00	-1.58	100	135	AVG

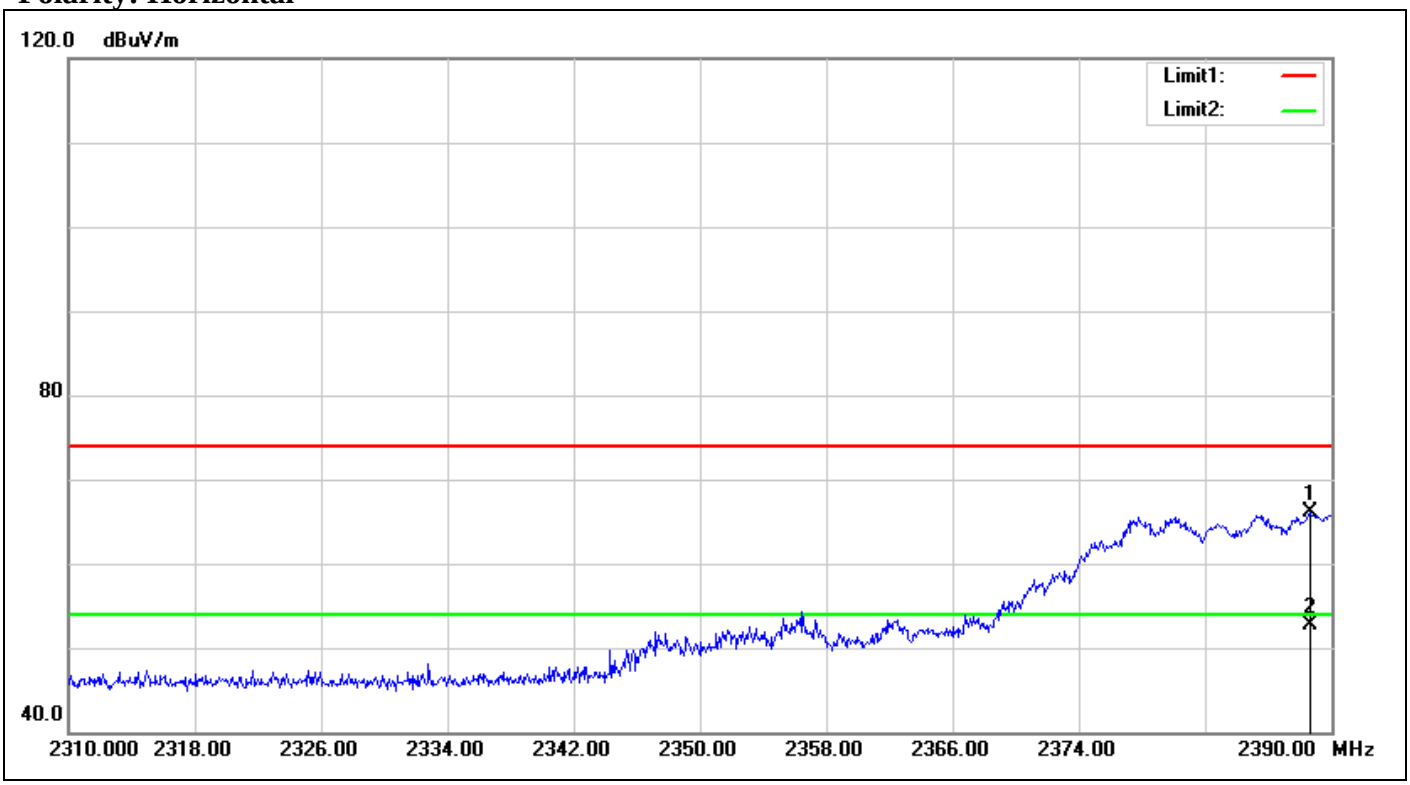
Band Edges (IEEE 802.11n HT 40 mode / CH Low)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.680	75.82	-3.77	72.05	74.00	-1.95	100	318	peak
2	2389.680	56.44	-3.77	52.67	54.00	-1.33	100	318	AVG

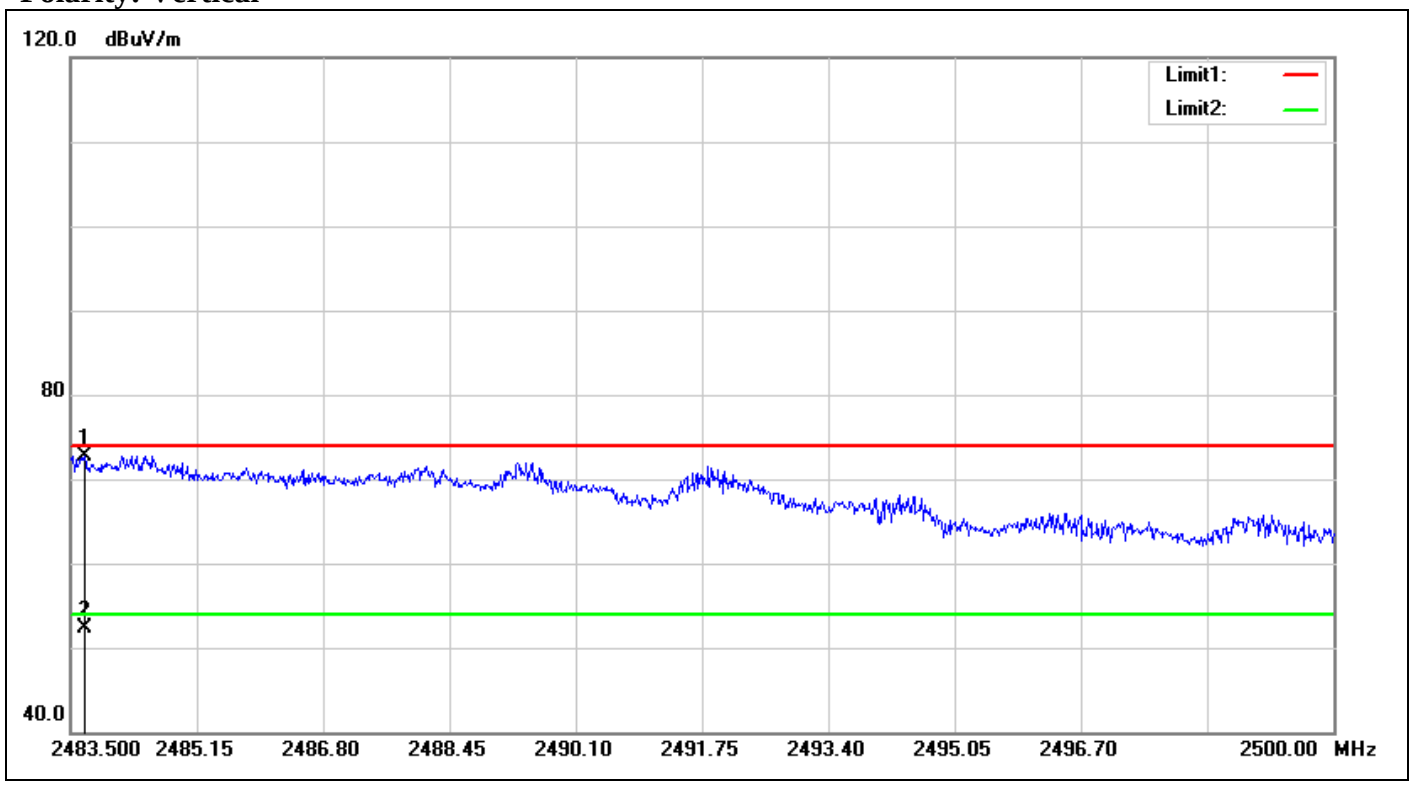
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2388.640	69.87	-3.78	66.09	74.00	-7.91	100	197	peak
2	2388.640	56.47	-3.78	52.69	54.00	-1.31	100	197	AVG

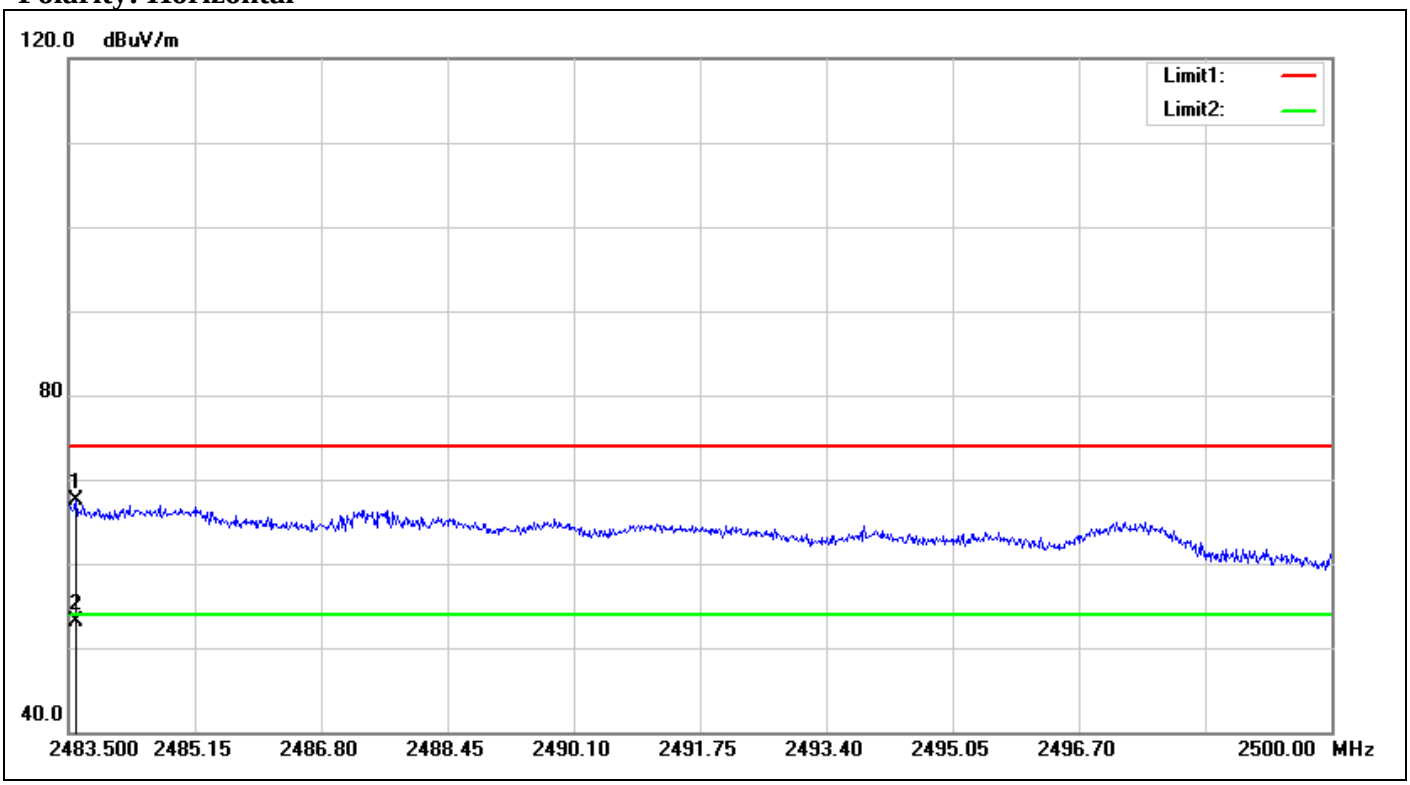
Band Edges (IEEE 802.11n HT 40 mode / CH High)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.682	76.00	-3.27	72.73	74.00	-1.27	100	68	peak
2	2483.682	55.66	-3.27	52.39	54.00	-1.61	100	68	AVG

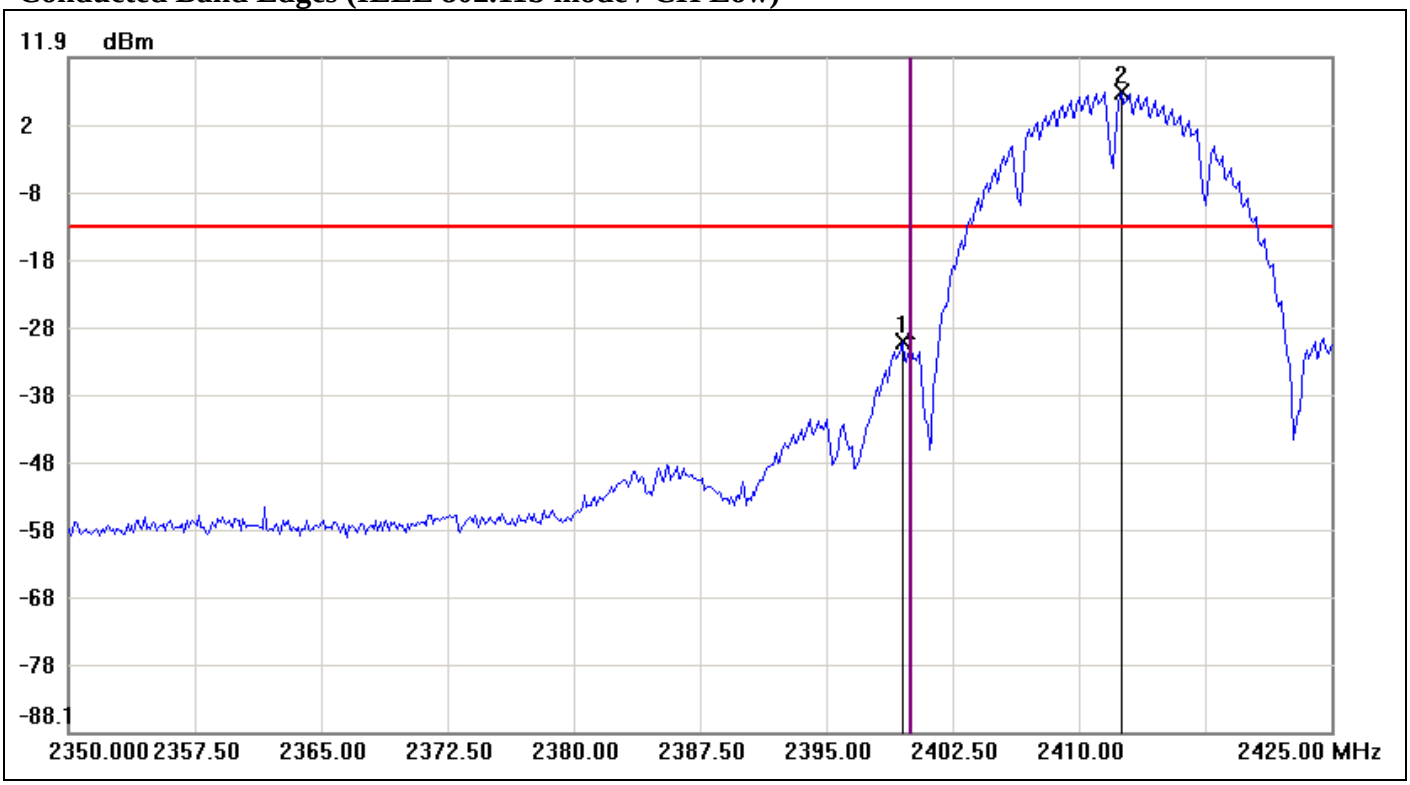
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.599	70.70	-3.27	67.43	74.00	-6.57	100	244	peak
2	2483.599	56.32	-3.27	53.05	54.00	-0.95	100	244	AVG

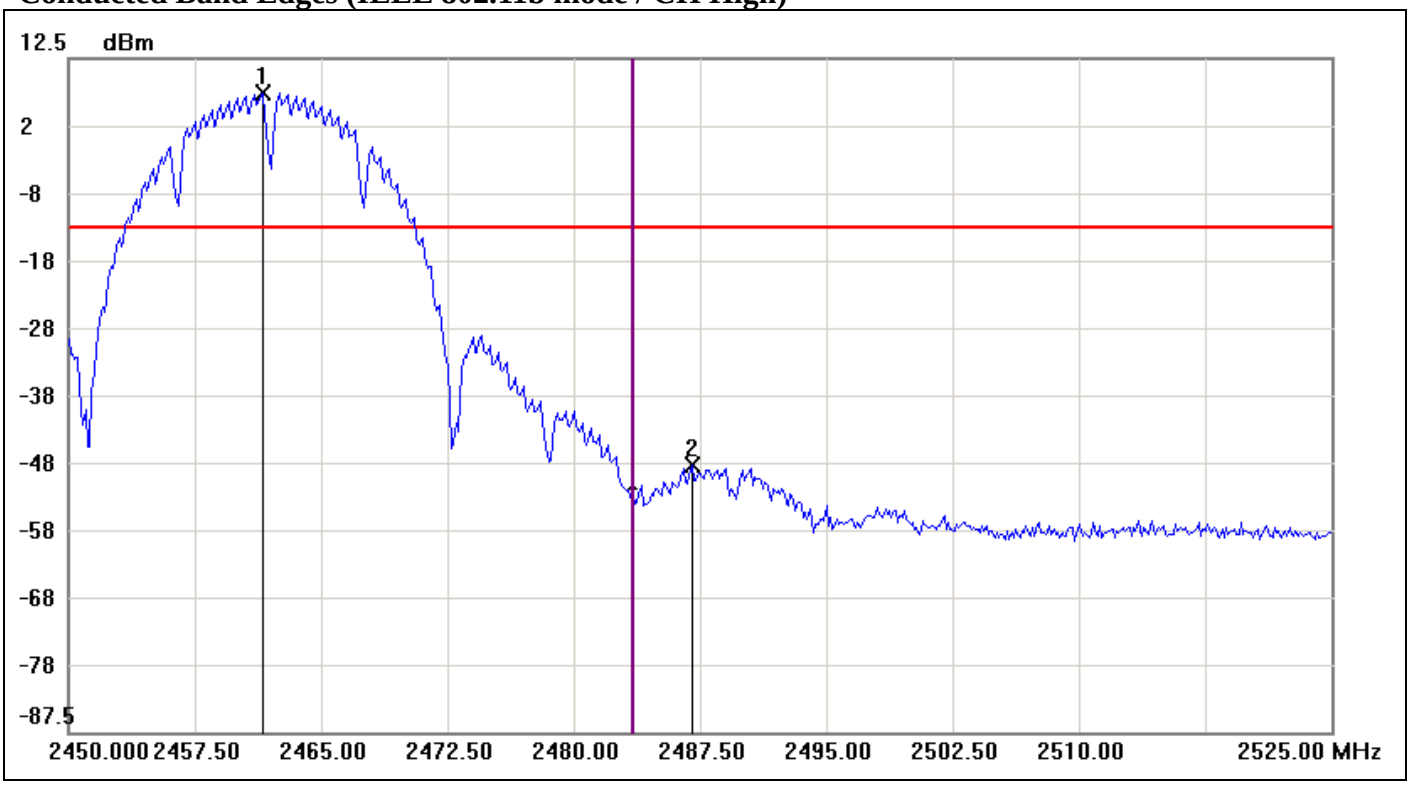
Test Plot

Conducted Band Edges (IEEE 802.11b mode / CH Low)



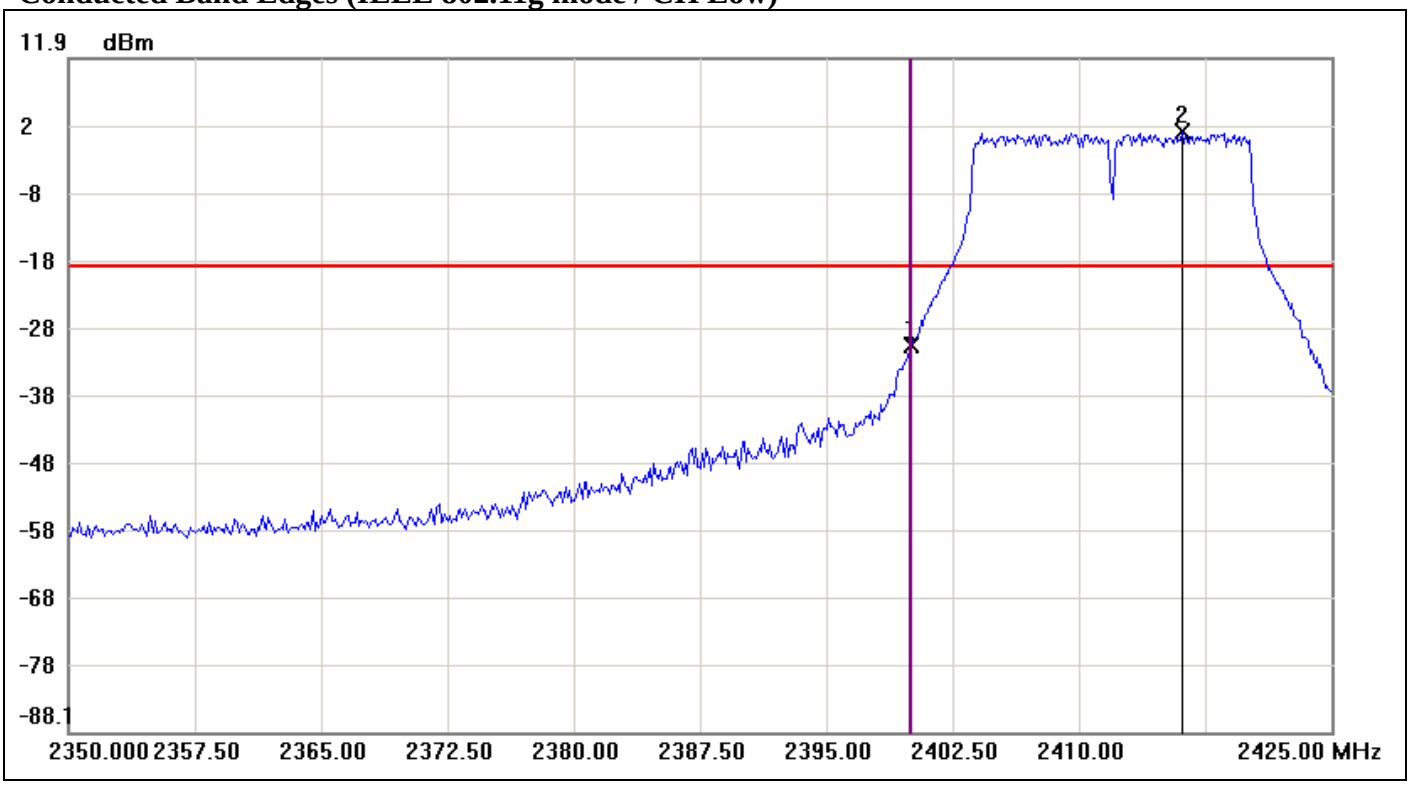
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.5000	-30.33	-13.34	-16.99
2	2412.5000	6.66	-13.34	20.00

Conducted Band Edges (IEEE 802.11b mode / CH High)



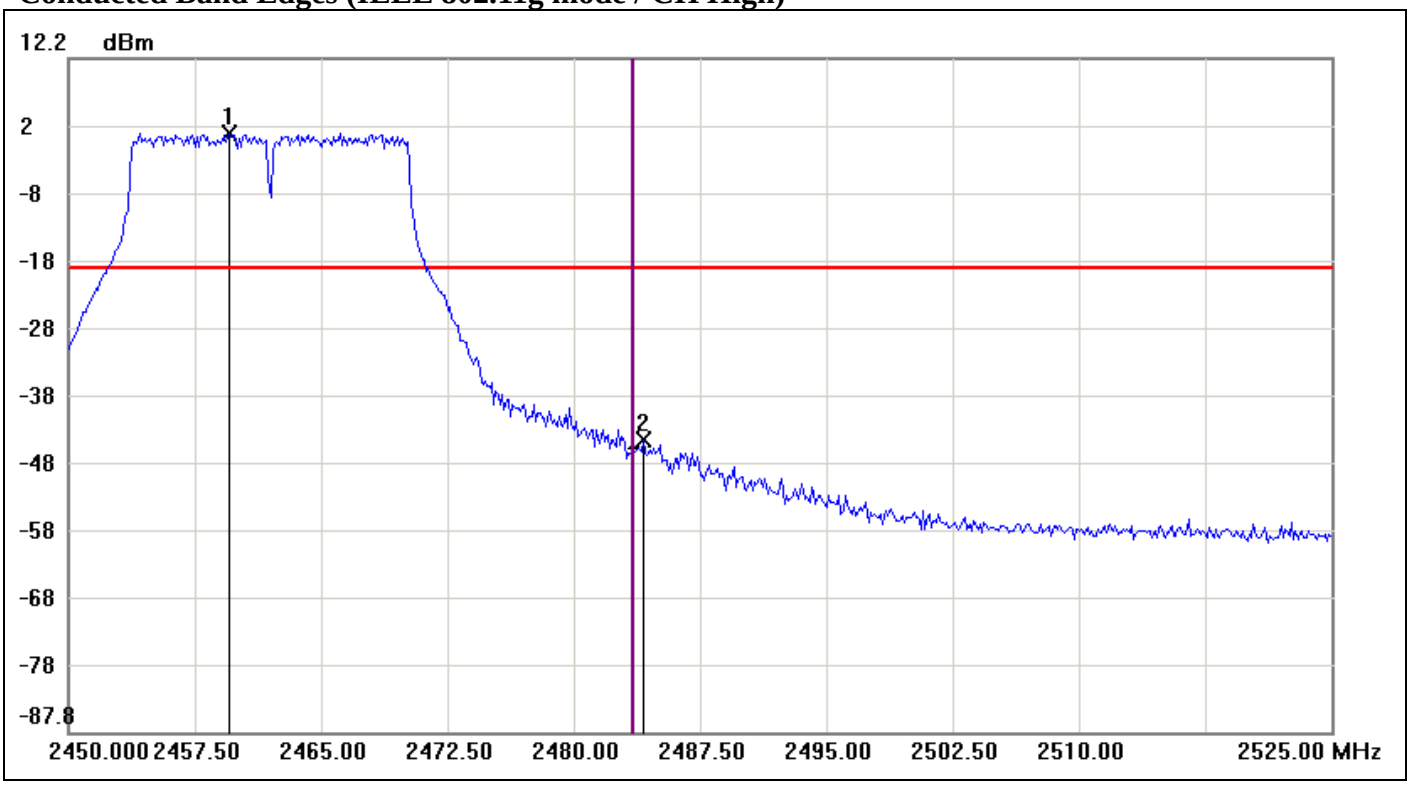
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2461.5000	7.28	-12.72	20.00
2	2487.0000	-48.00	-12.72	-35.28

Conducted Band Edges (IEEE 802.11g mode / CH Low)



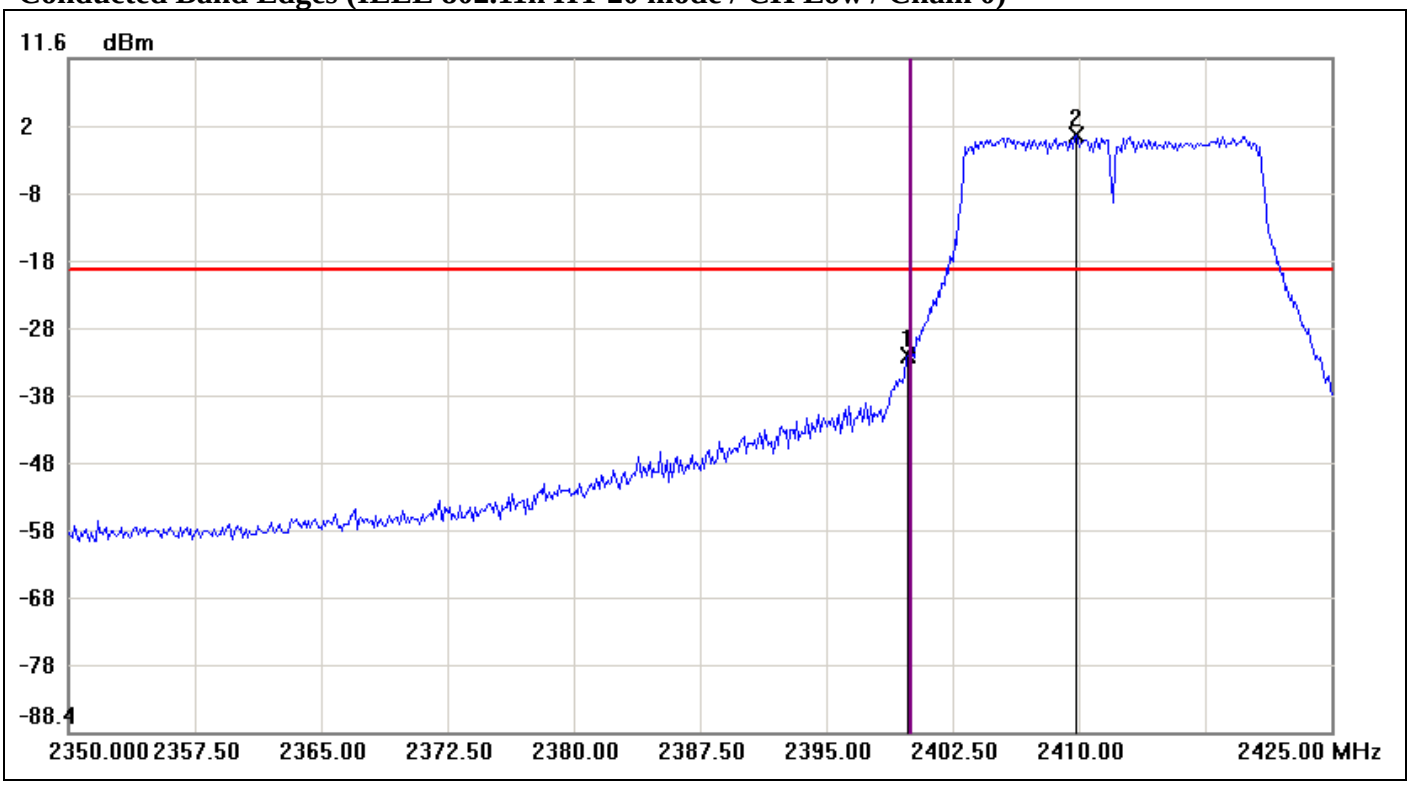
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-30.62	-19.08	-11.54
2	2416.1250	0.92	-19.08	20.00

Conducted Band Edges (IEEE 802.11g mode / CH High)



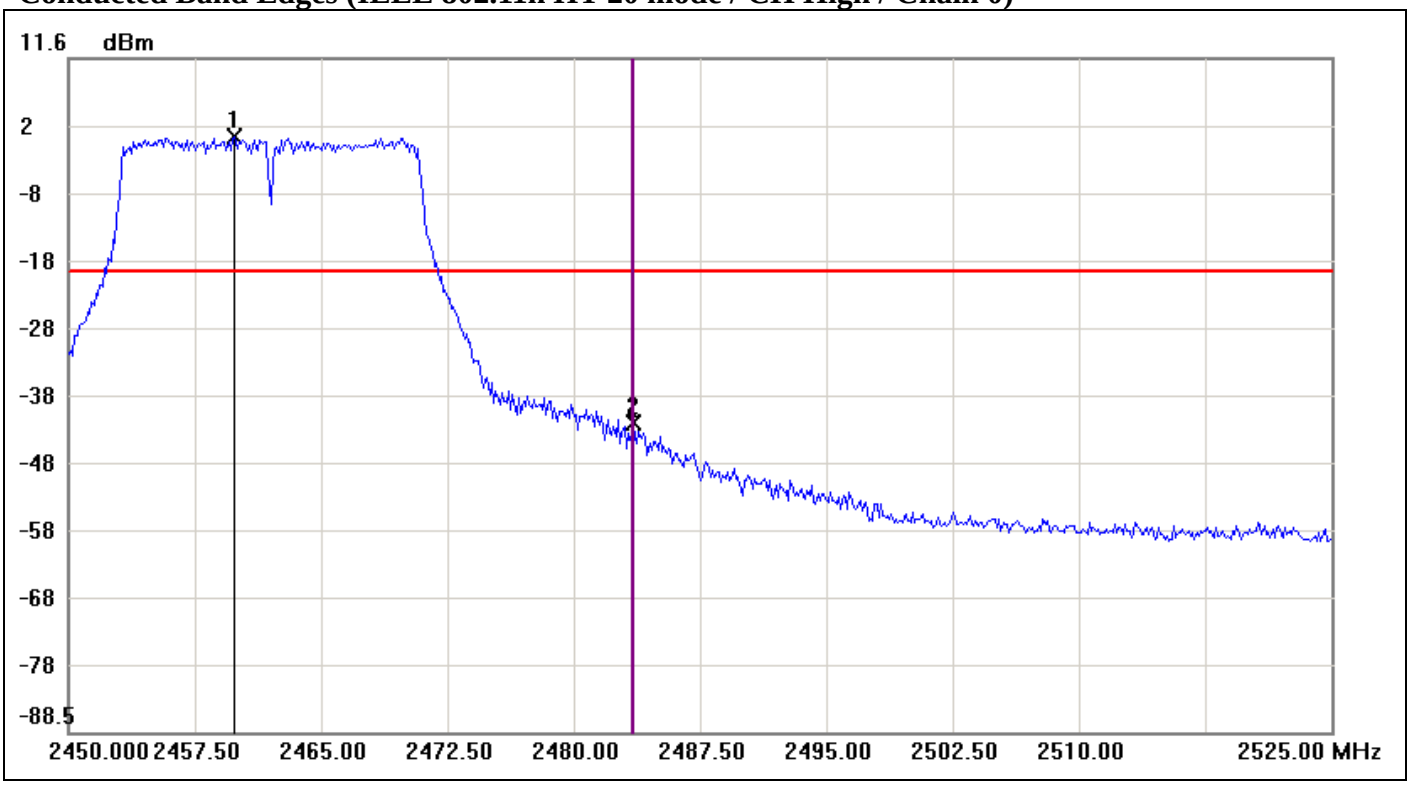
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2459.5000	1.10	-18.90	20.00
2	2484.1250	-44.51	-18.90	-25.61

Conducted Band Edges (IEEE 802.11n HT 20 mode / CH Low / Chain 0)



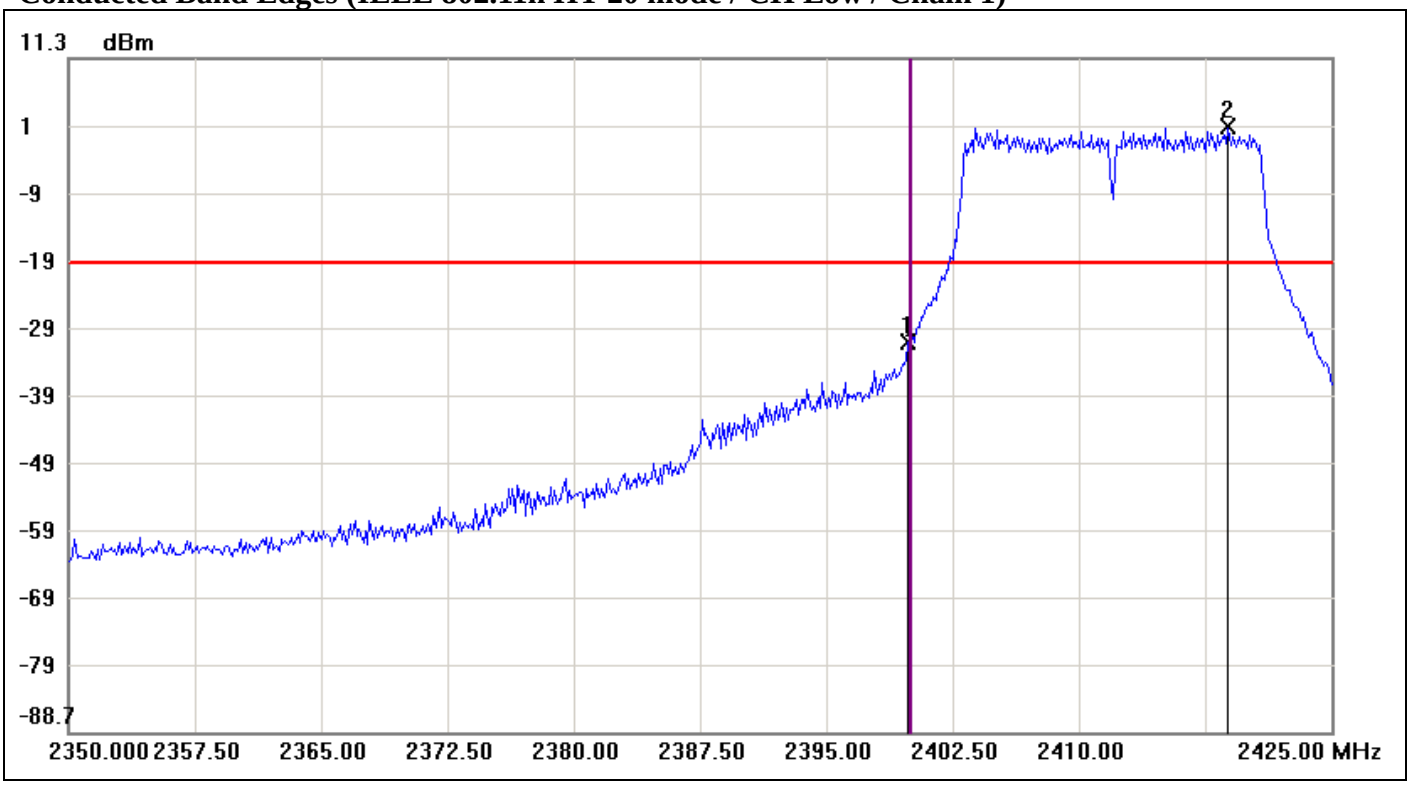
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.8750	-32.64	-19.88	-12.76
2	2409.8750	0.12	-19.88	20.00

Conducted Band Edges (IEEE 802.11n HT 20 mode / CH High / Chain 0)



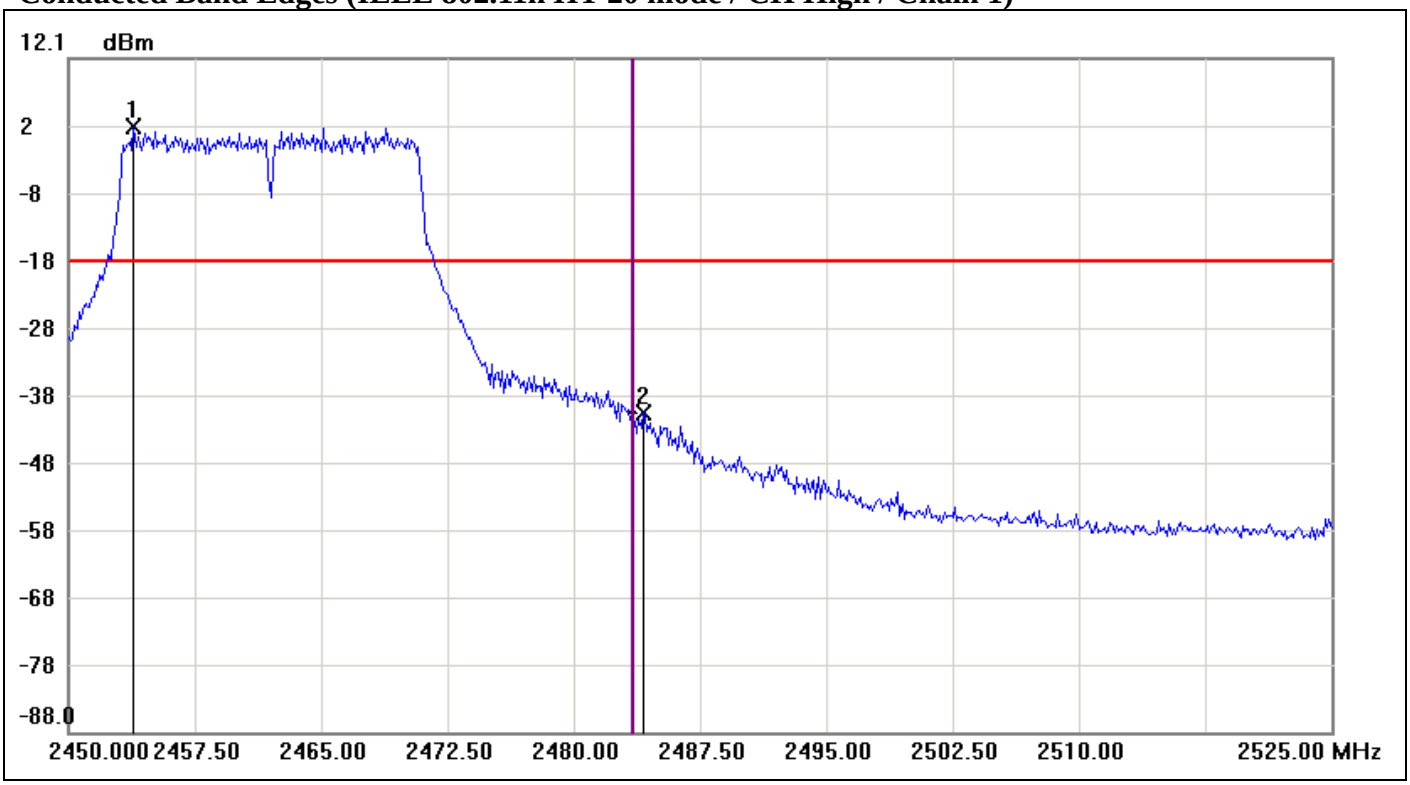
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2459.8750	-0.03	-20.03	20.00
2	2483.5000	-42.66	-20.03	-22.63

Conducted Band Edges (IEEE 802.11n HT 20 mode / CH Low / Chain 1)



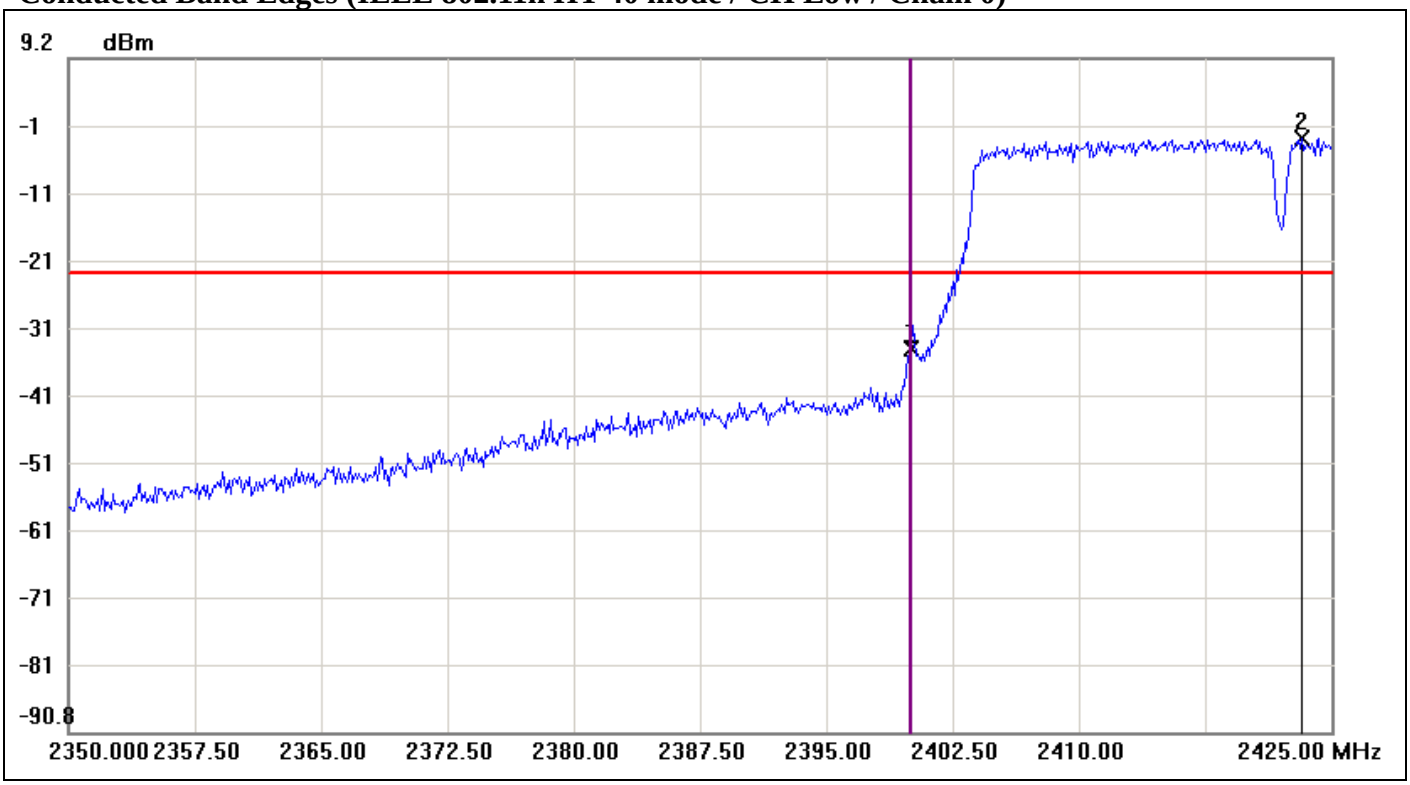
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.8750	-30.80	-18.96	-11.84
2	2418.8750	1.04	-18.96	20.00

Conducted Band Edges (IEEE 802.11n HT 20 mode / CH High / Chain 1)



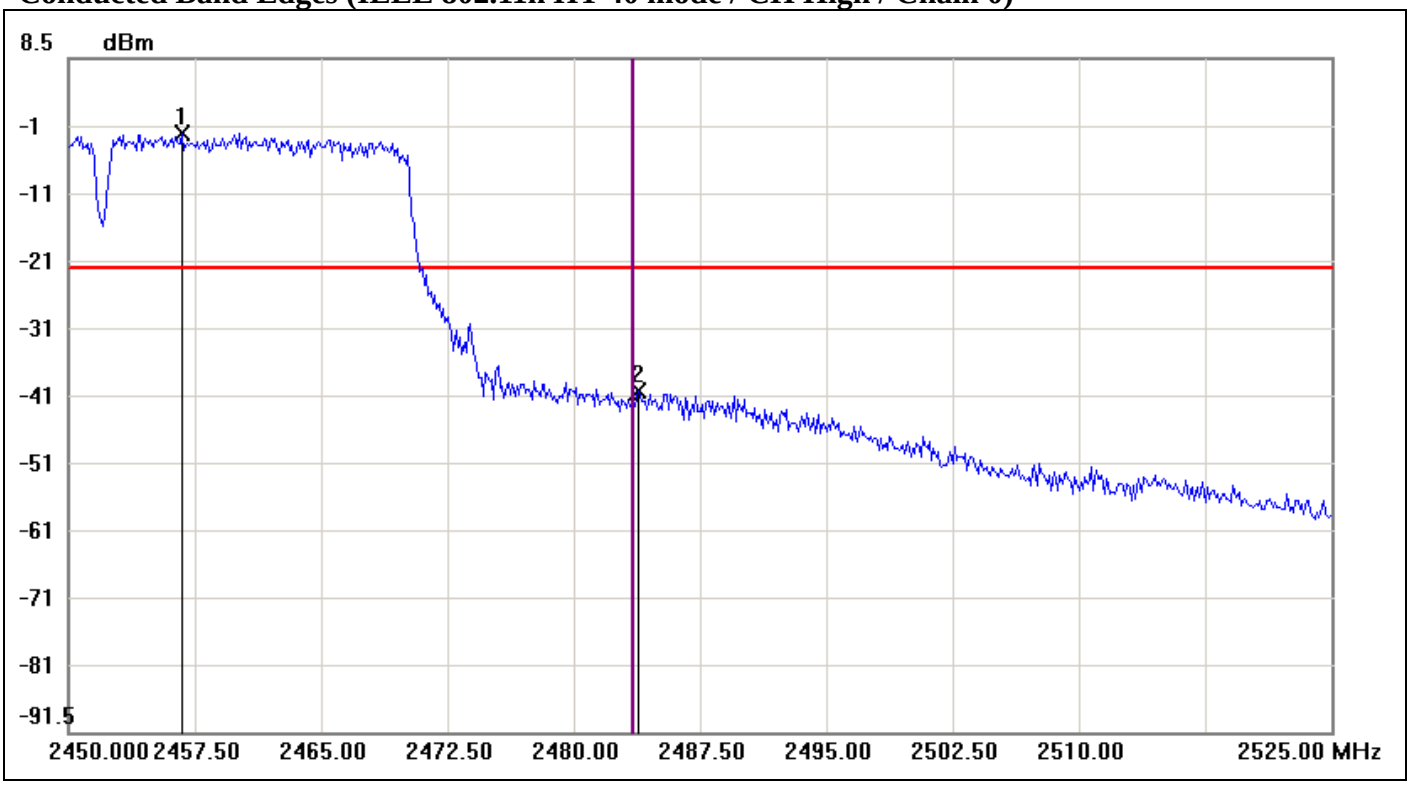
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.8750	1.92	-18.08	20.00
2	2484.1250	-40.45	-18.08	-22.37

Conducted Band Edges (IEEE 802.11n HT 40 mode / CH Low / Chain 0)



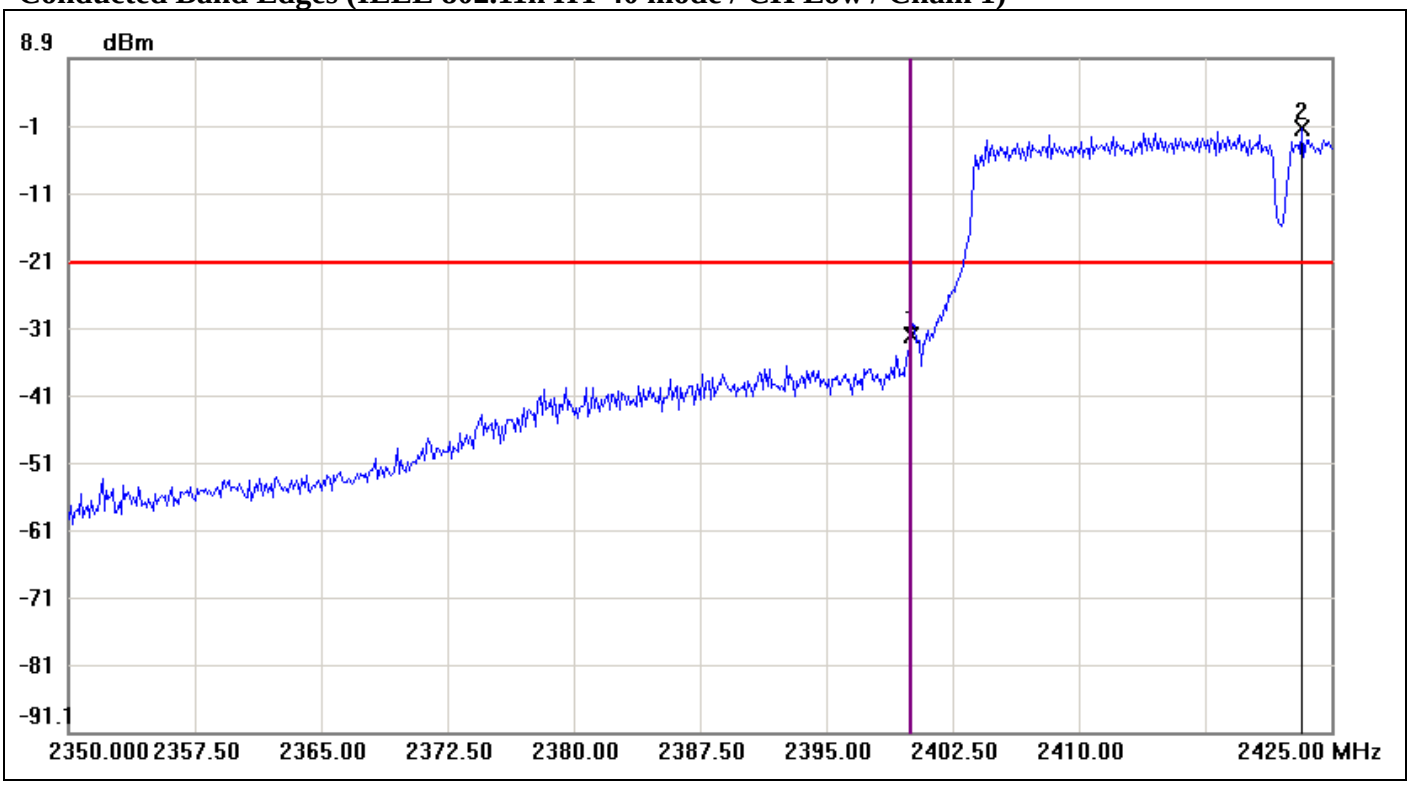
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-33.94	-22.62	-11.32
2	2423.2500	-2.62	-22.62	20.00

Conducted Band Edges (IEEE 802.11n HT 40 mode / CH High / Chain 0)



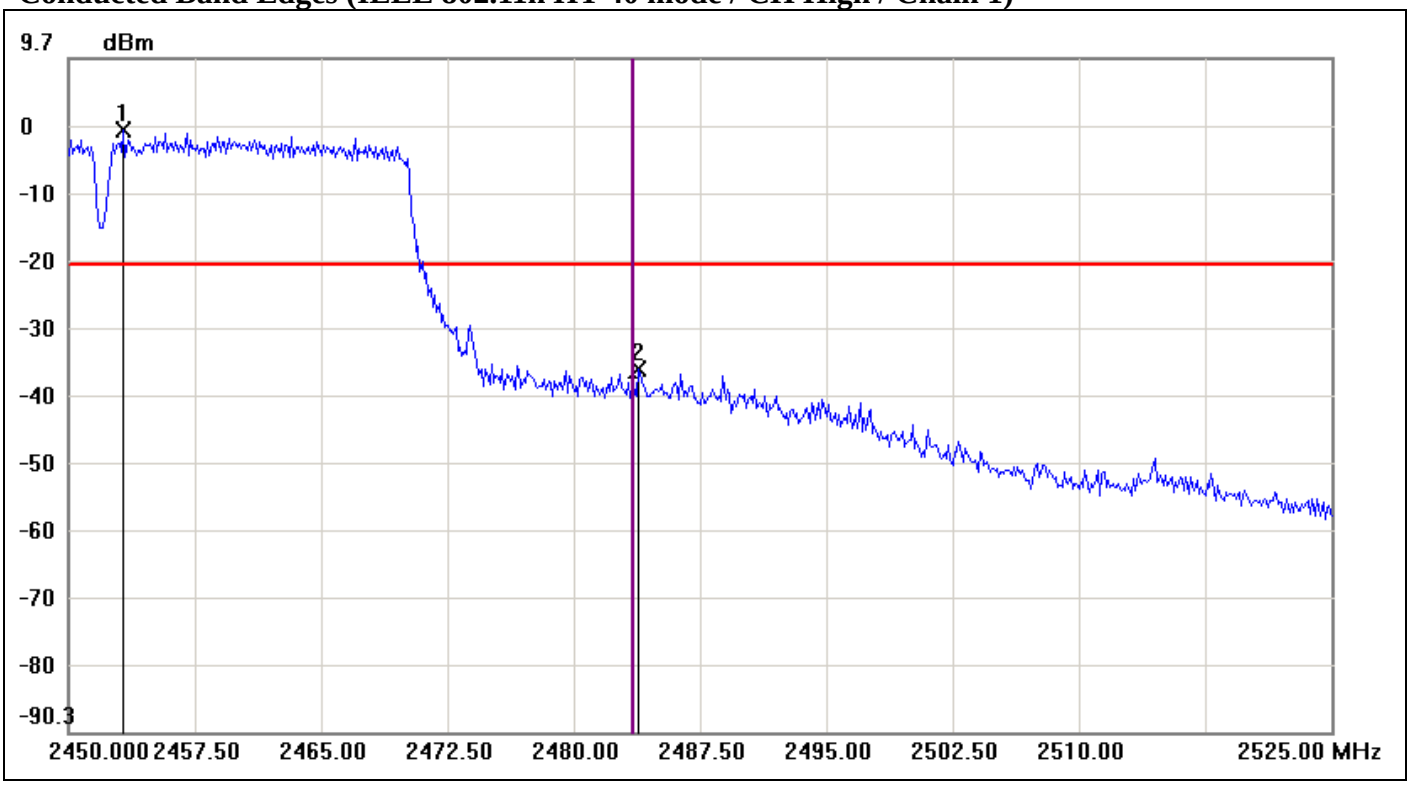
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2456.7500	-2.55	-22.55	20.00
2	2483.8750	-40.84	-22.55	-18.29

Conducted Band Edges (IEEE 802.11n HT 40 mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-32.18	-21.32	-10.86
2	2423.2500	-1.32	-21.32	20.00

Conducted Band Edges (IEEE 802.11n HT 40 mode / CH High / Chain 1)



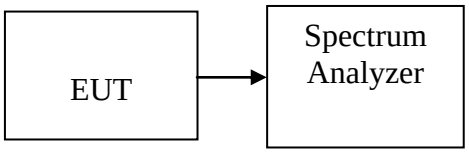
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.2500	-0.80	-20.80	20.00
2	2483.8750	-36.31	-20.80	-15.51

7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §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.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. Set the RBW = 100 kHz, VBW ≥ 300 kHz, span to 1.5 times the DTS bandwidth, Detector = peak, Trace mode = max hold, Sweep = auto couple. Use the peak marker function to determine the maximum amplitude level within the RBW，If measured value exceeds limit, reduce RBW (no less than 3 kHz).

TEST RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-3.11	8.00	PASS
Mid	2437	-2.60		PASS
High	2462	-2.46		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-6.51	8.00	PASS
Mid	2437	-6.67		PASS
High	2462	-6.38		PASS

Test mode: IEEE 802.11n HT 20 mode

Channel	Frequency (MHz)	Chain 0 PPSD	Chain 1 PPSD	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-6.23	-6.95	-3.56	8.00	PASS
Mid	2437	-6.18	-6.53	-3.34		PASS
High	2462	-6.35	-6.49	-3.41		PASS

Test mode: IEEE 802.11n HT 40 mode

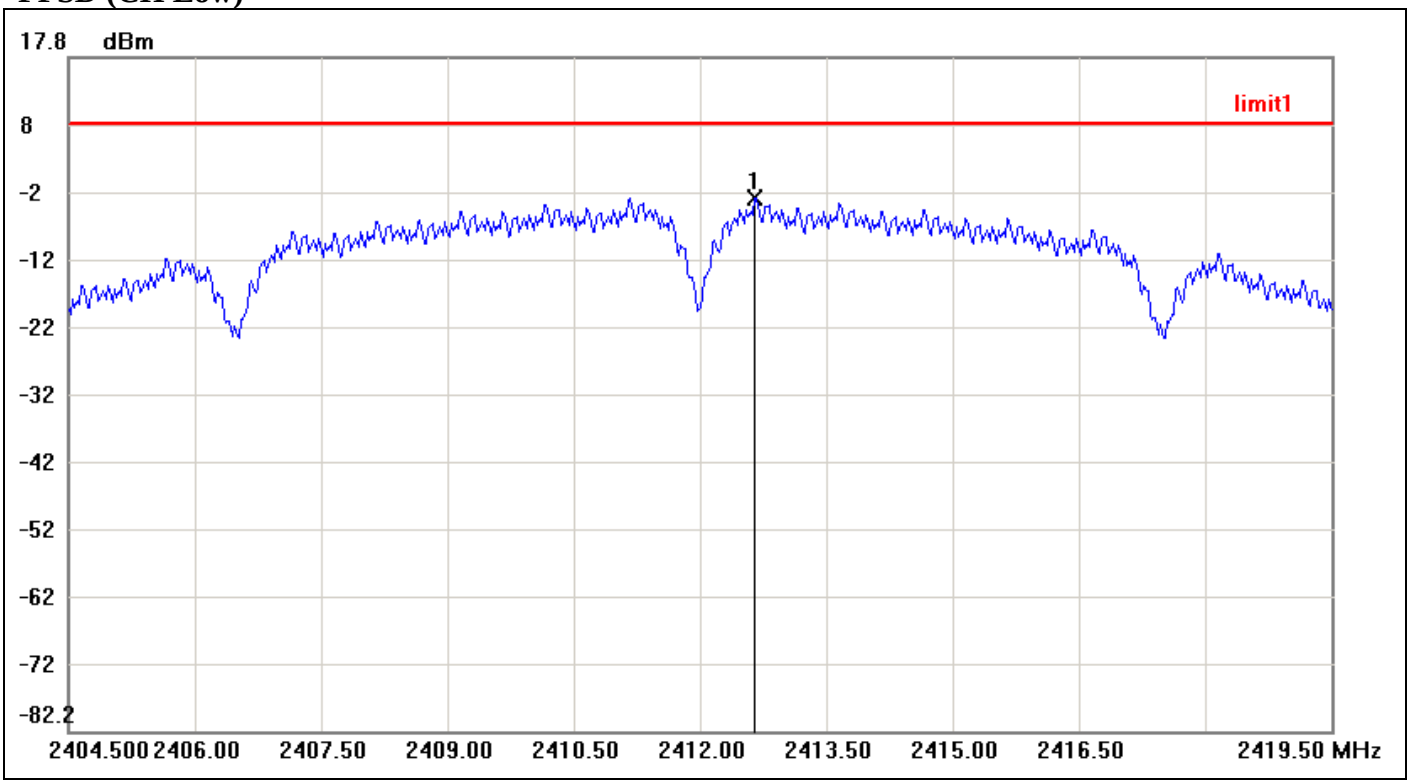
Channel	Frequency (MHz)	Chain 0 PPSD	Chain 1 PPSD	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-8.80	-8.96	-5.87	8.00	PASS
Mid	2437	-8.91	-8.83	-5.86		PASS
High	2462	-8.69	-8.38	-5.52		PASS

Remark: *Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10))*

Test Plot

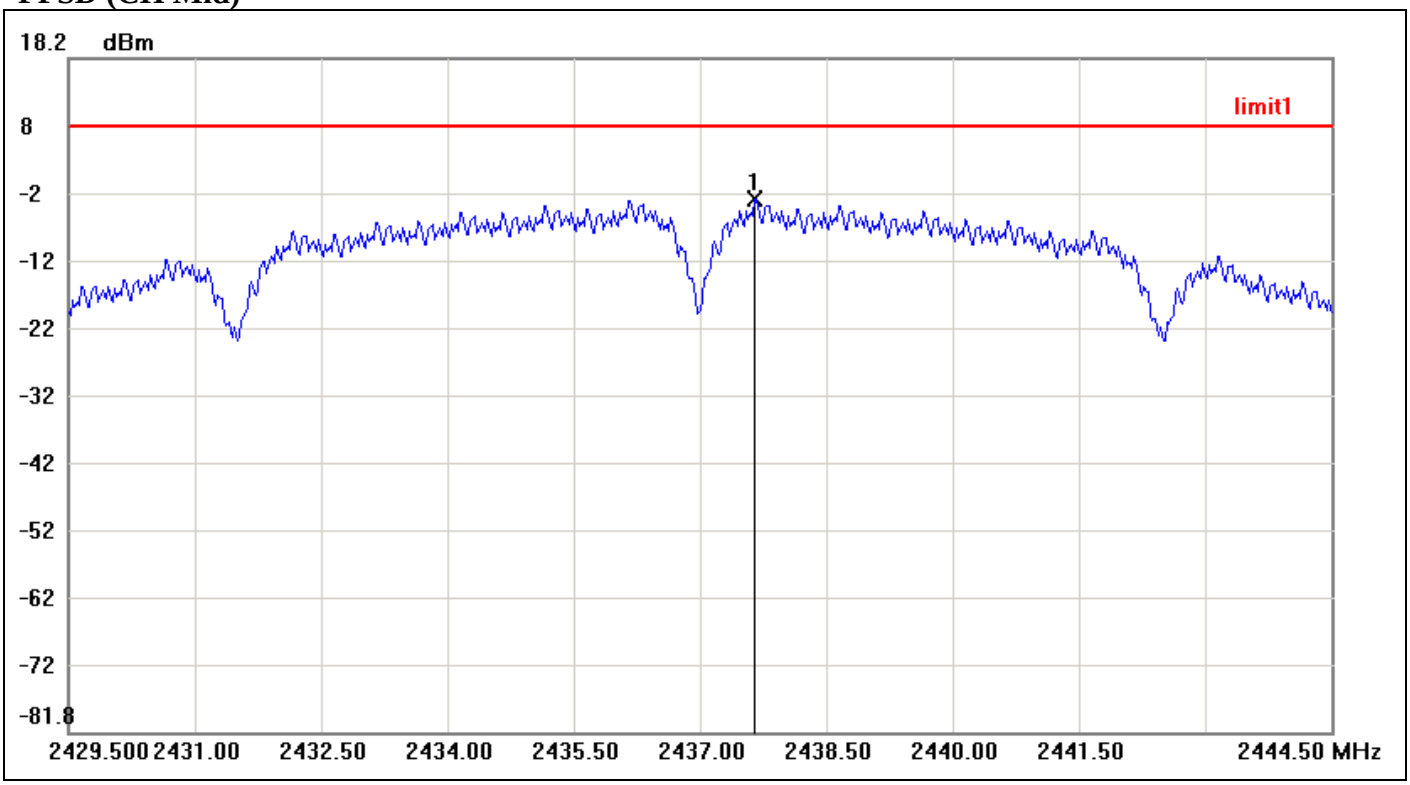
IEEE 802.11b mode

PPSD (CH Low)



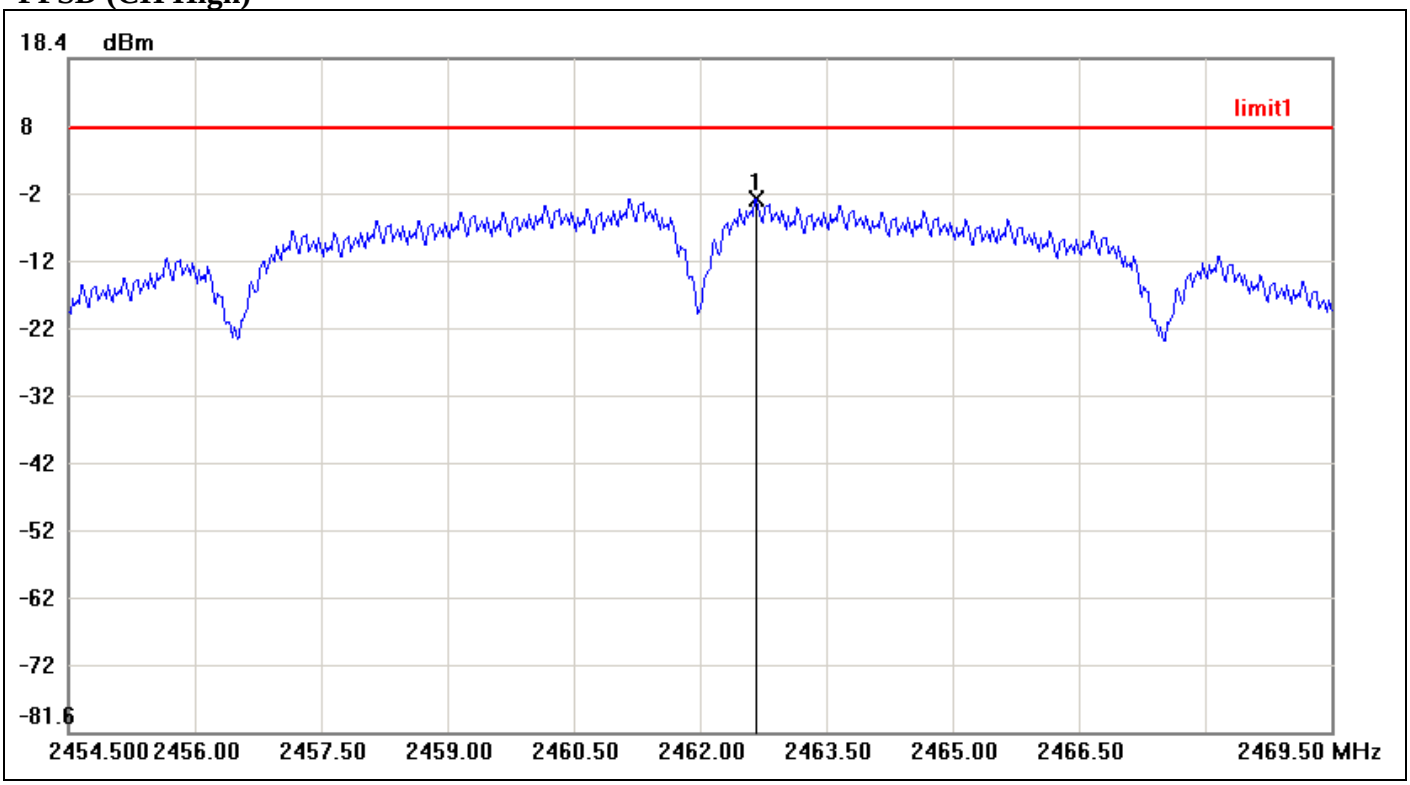
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2412.6500	-3.11	8.00	-11.11

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2437.6500	-2.60	8.00	-10.60

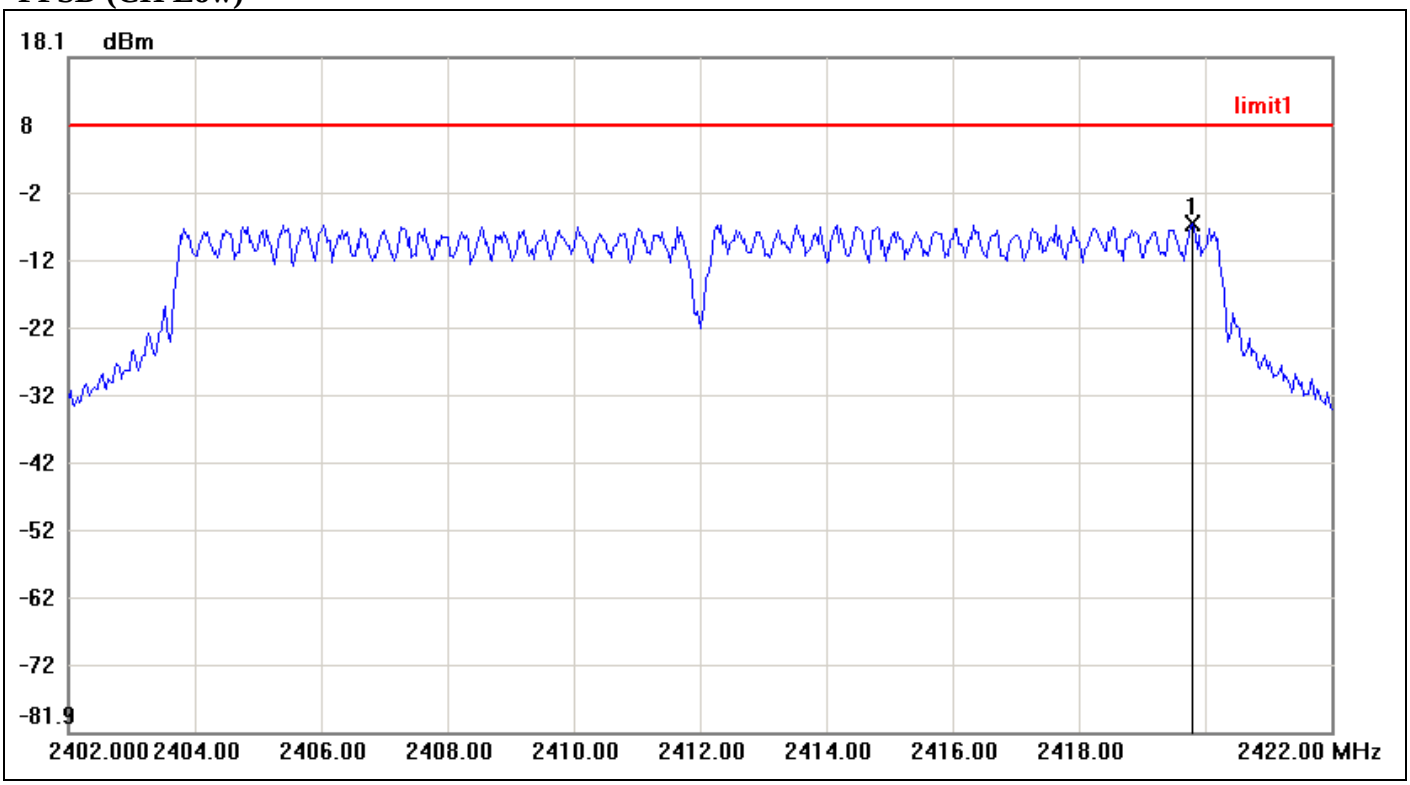
PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2462.6750	-2.46	8.00	-10.46

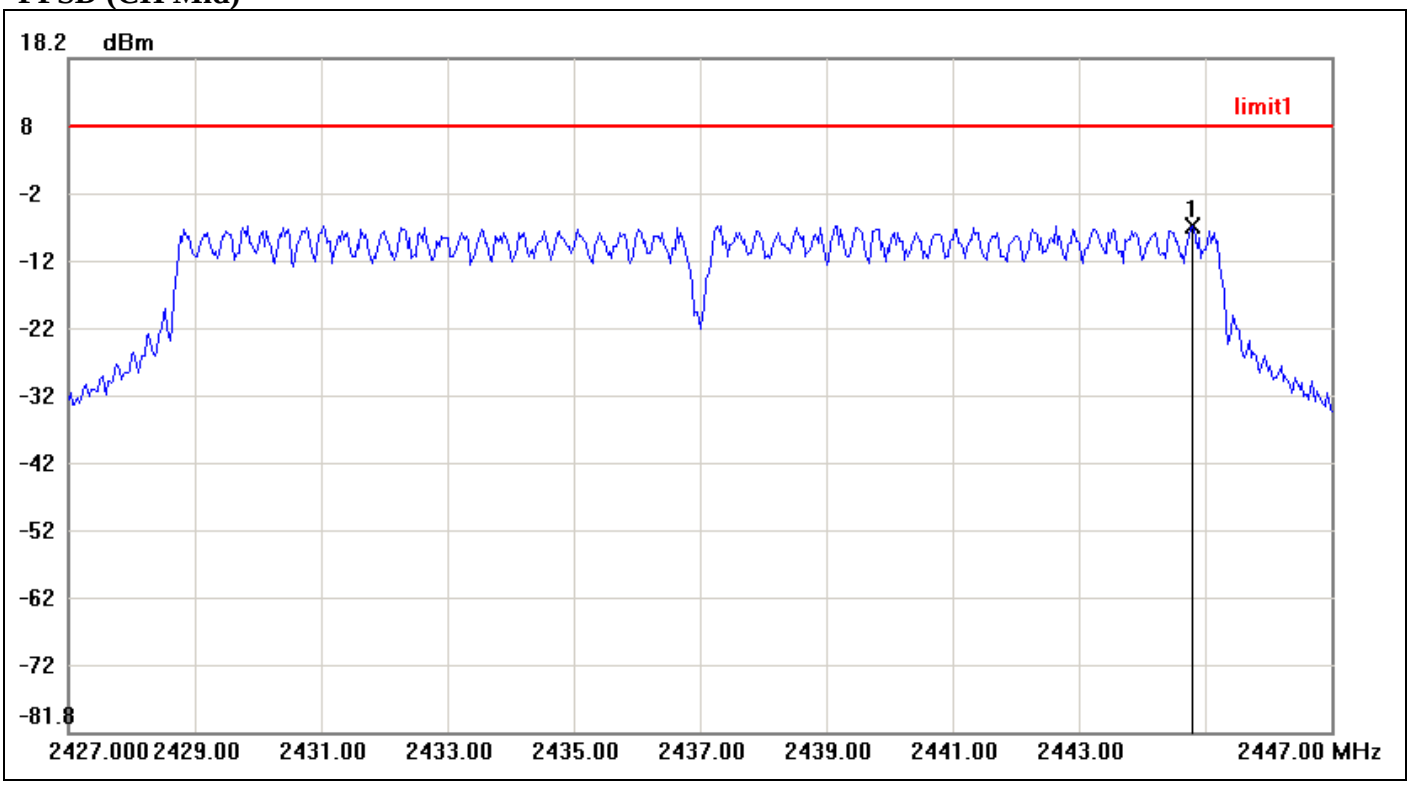
IEEE 802.11g mode

PPSD (CH Low)



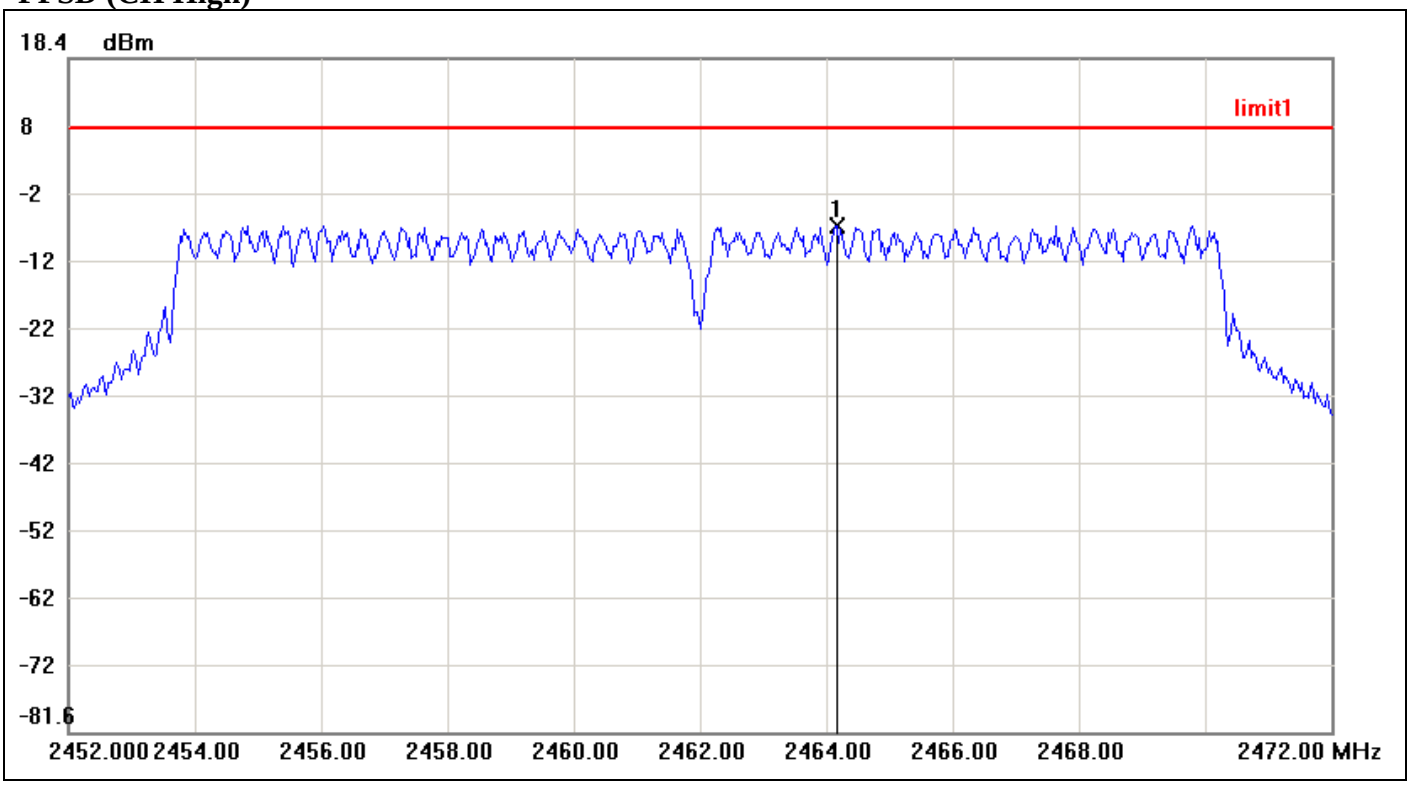
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2419.8000	-6.51	8.00	-14.51

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2444.8000	-6.67	8.00	-14.67

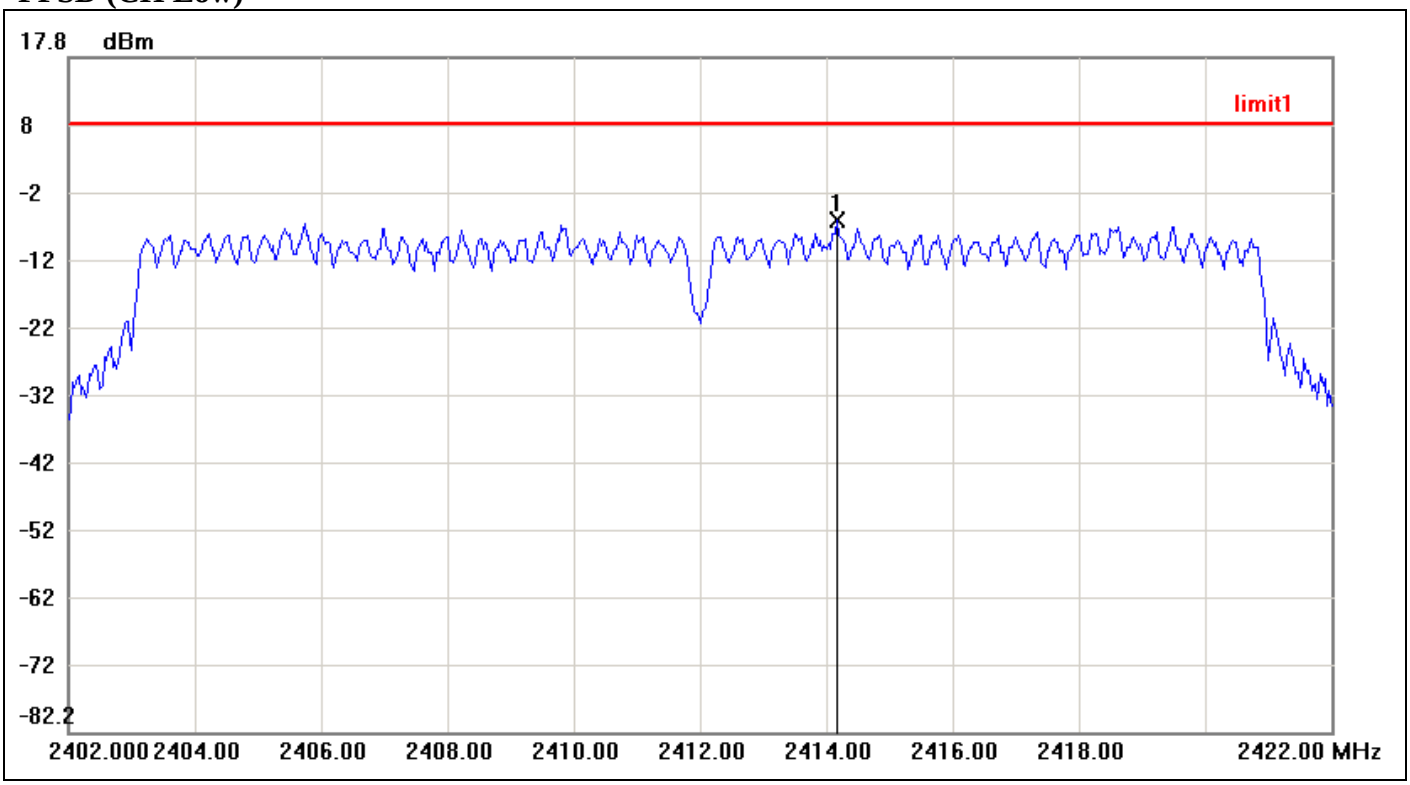
PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2464.1667	-6.38	8.00	-14.38

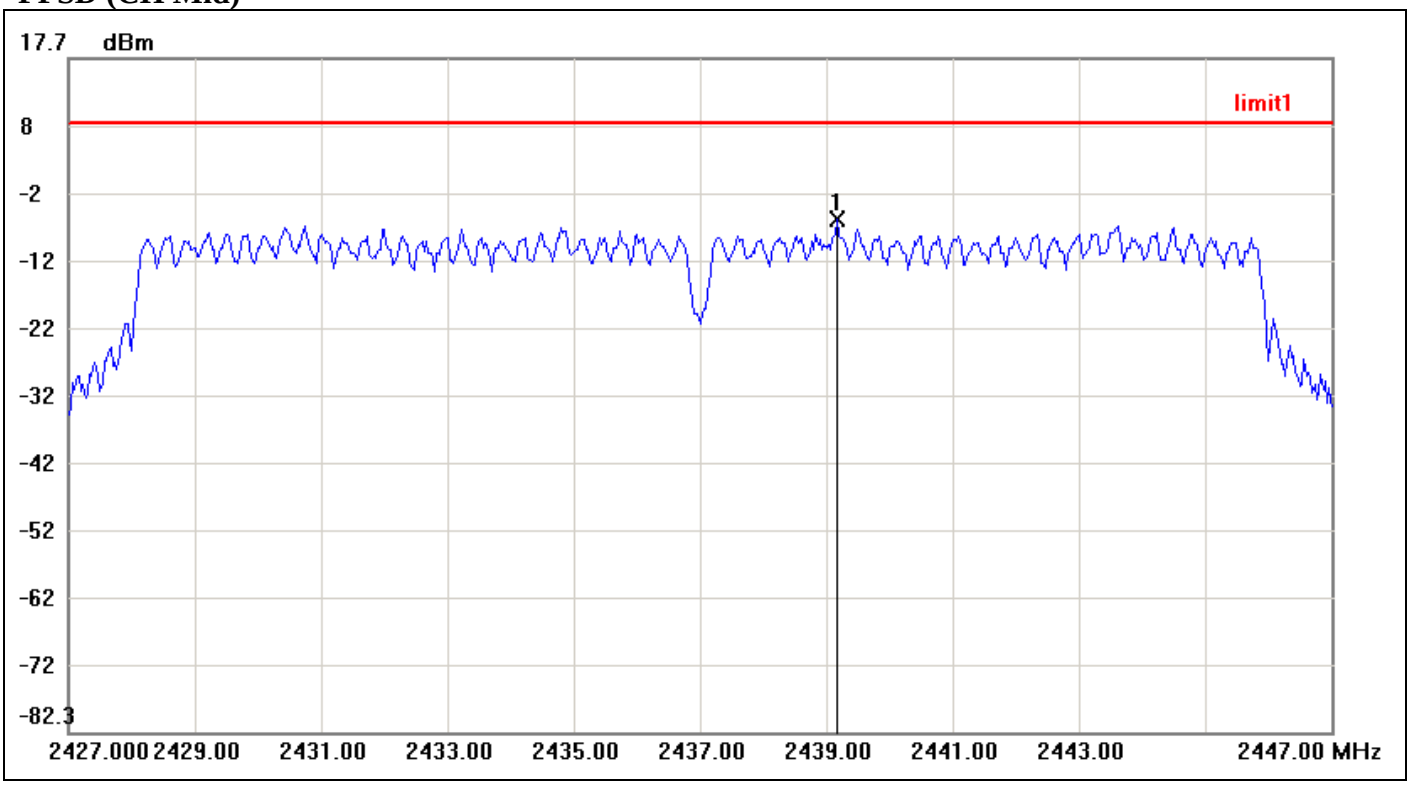
IEEE 802.11n HT 20 mode / Chain 0

PPSD (CH Low)



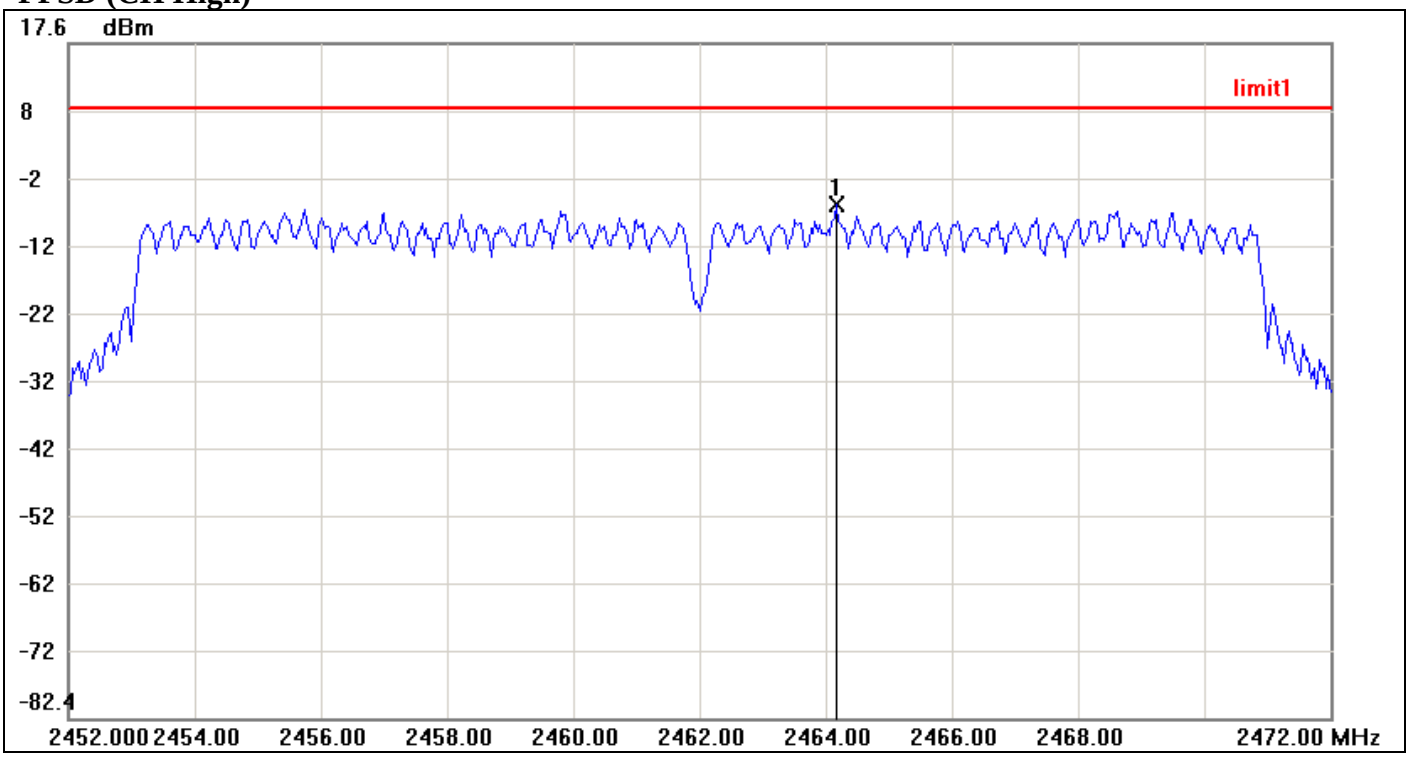
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2414.1667	-6.23	8.00	-14.23

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2439.1667	-6.18	8.00	-14.18

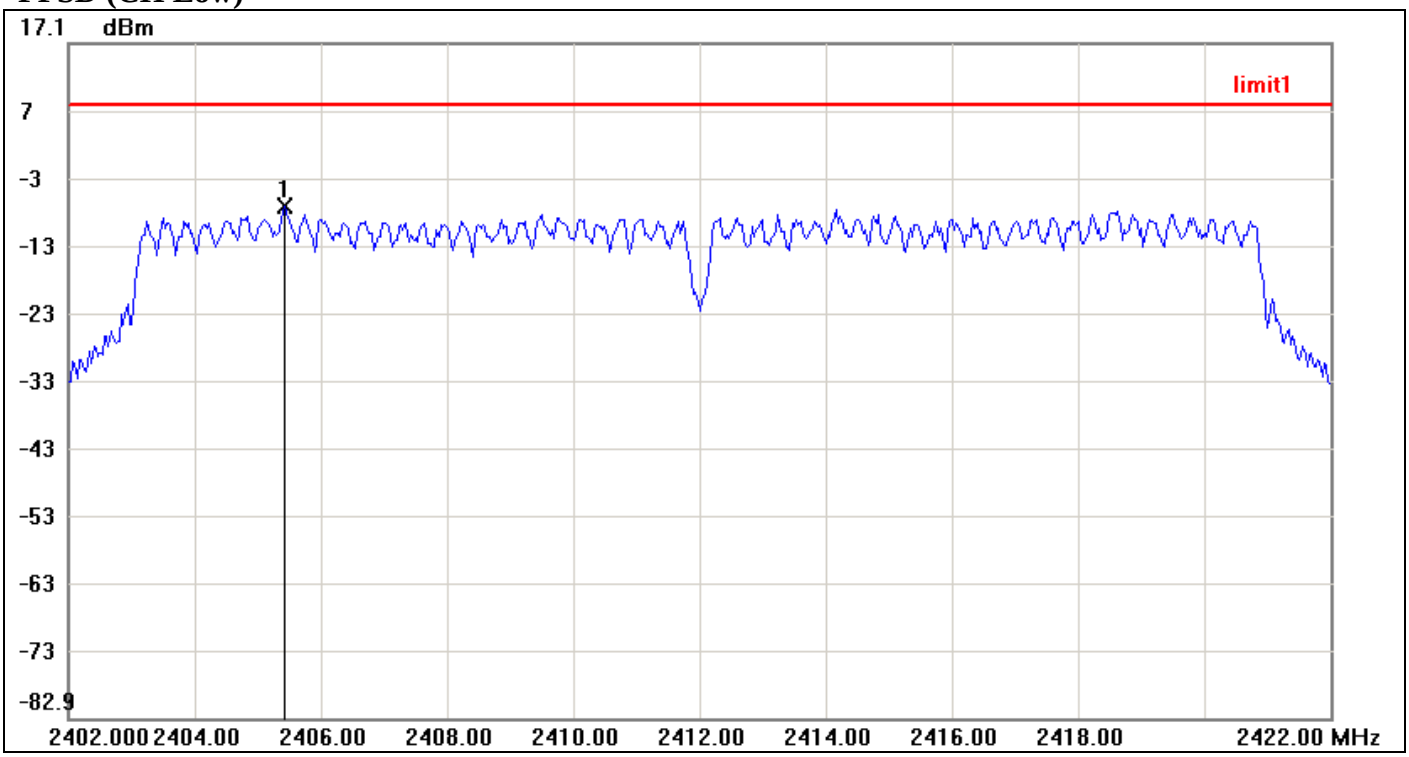
PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2464.1667	-6.35	8.00	-14.35

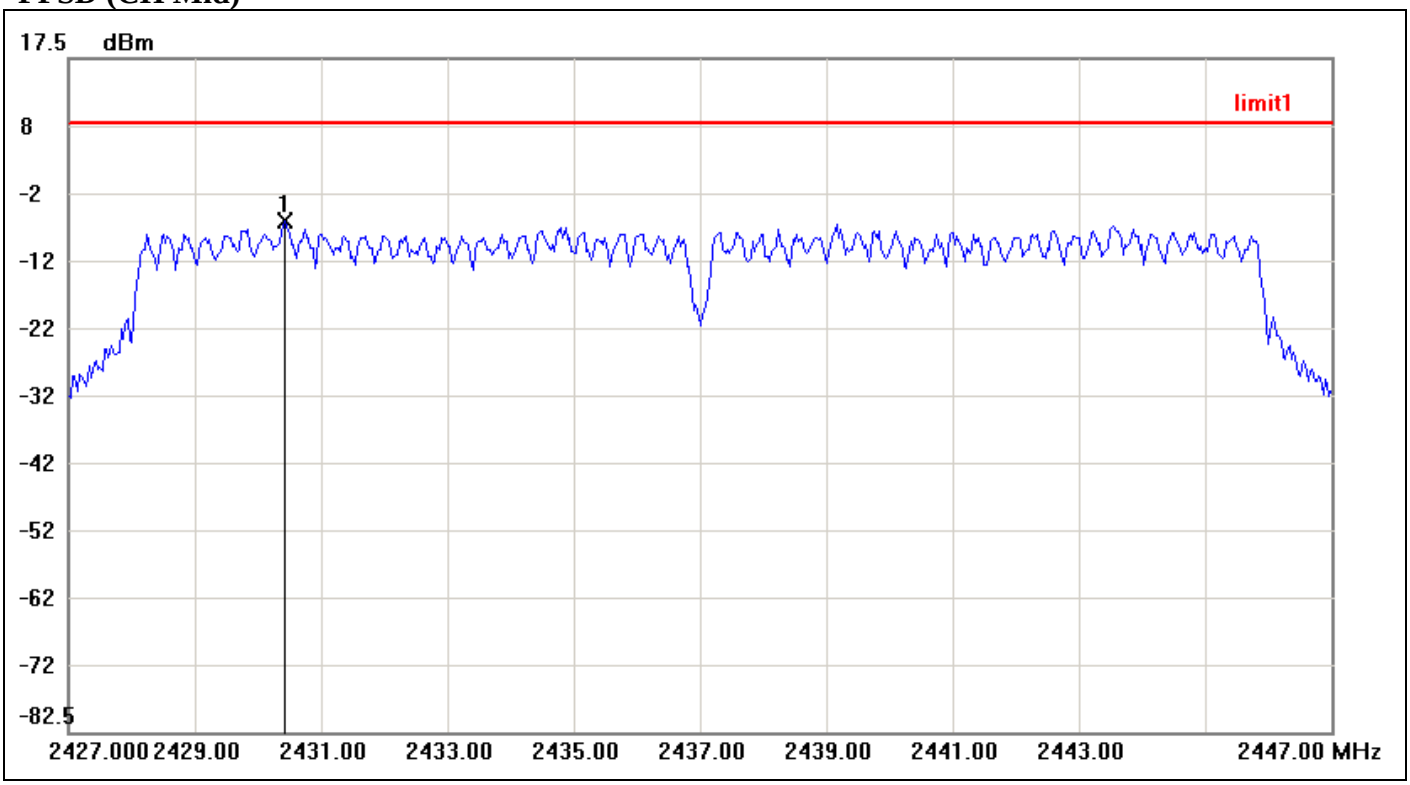
IEEE 802.11n HT 20 mode / Chain 1

PPSD (CH Low)



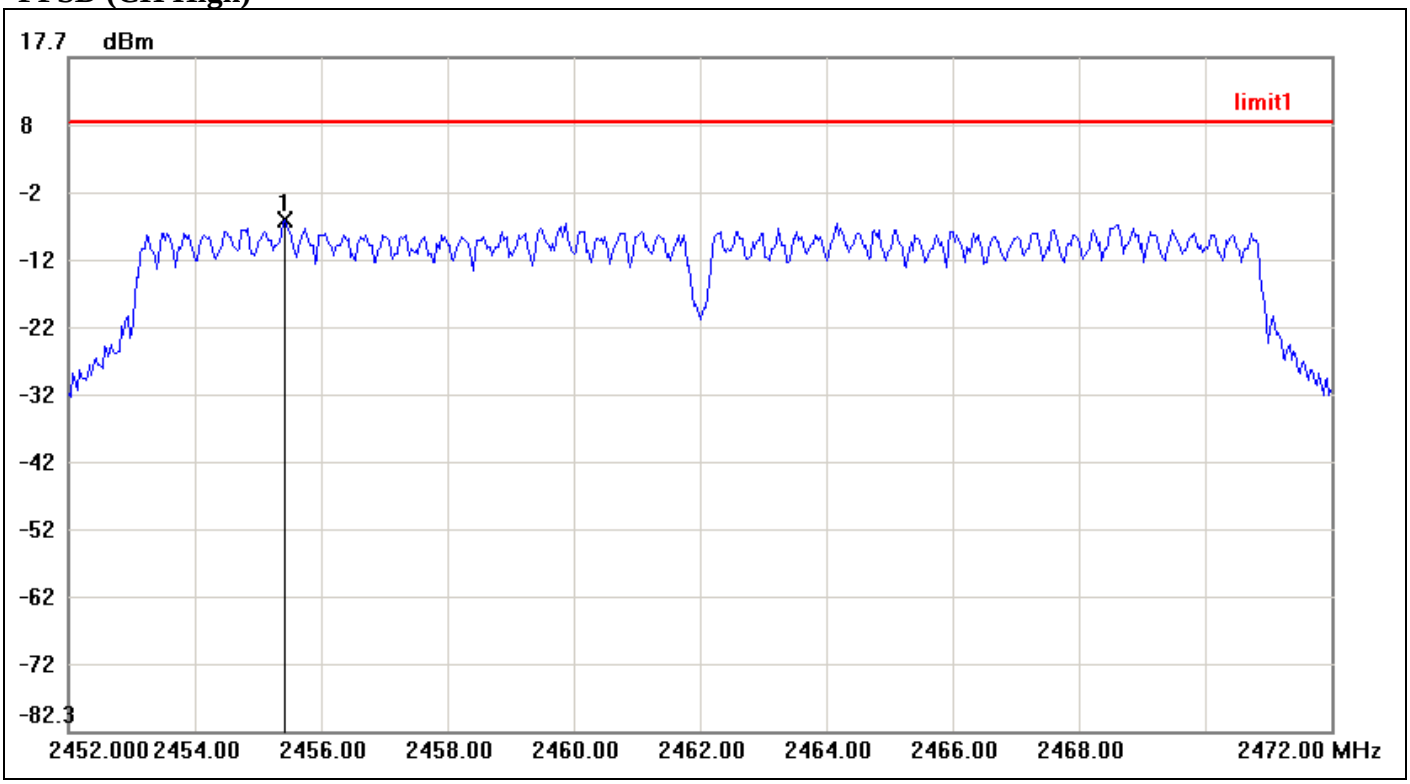
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2405.4333	-6.95	8.00	-14.95

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2430.4333	-6.53	8.00	-14.53

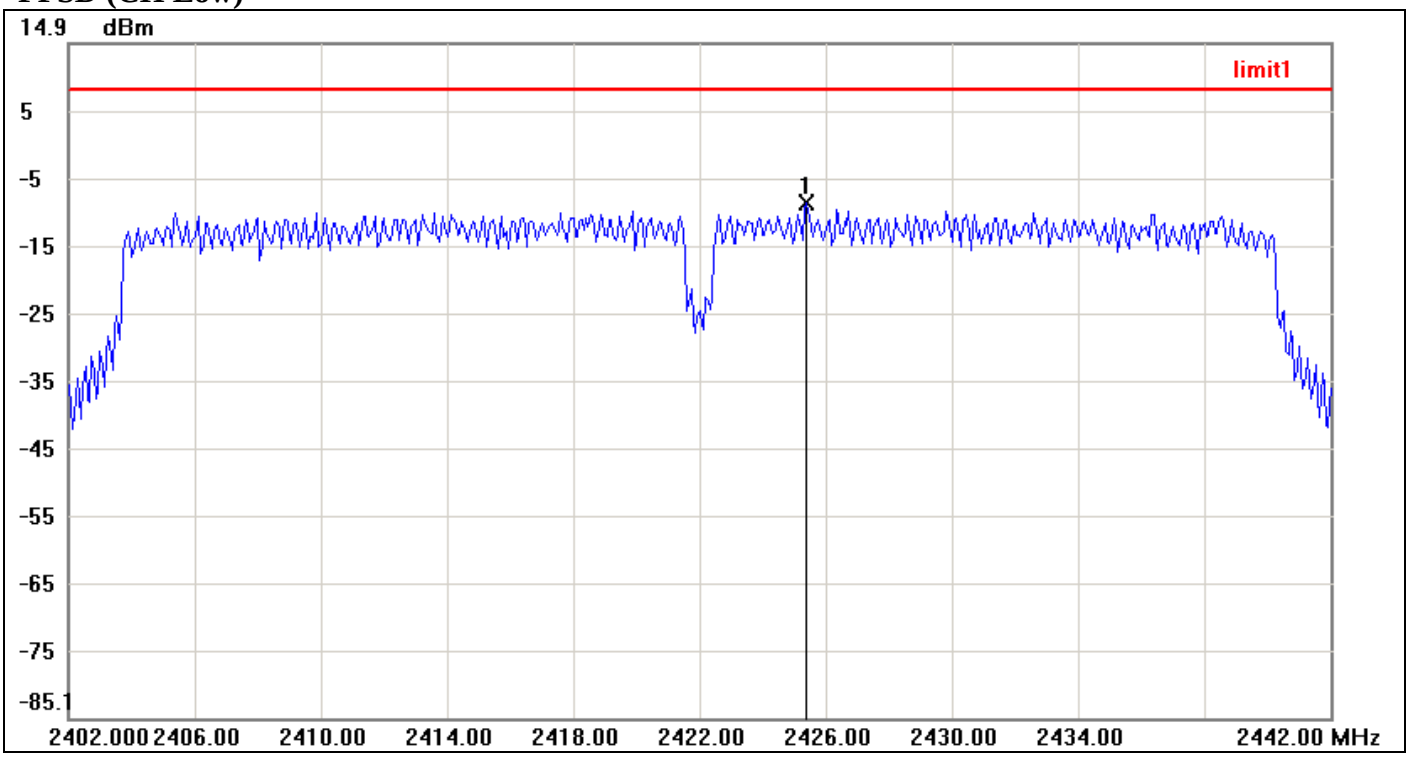
PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2455.4333	-6.49	8.00	-14.49

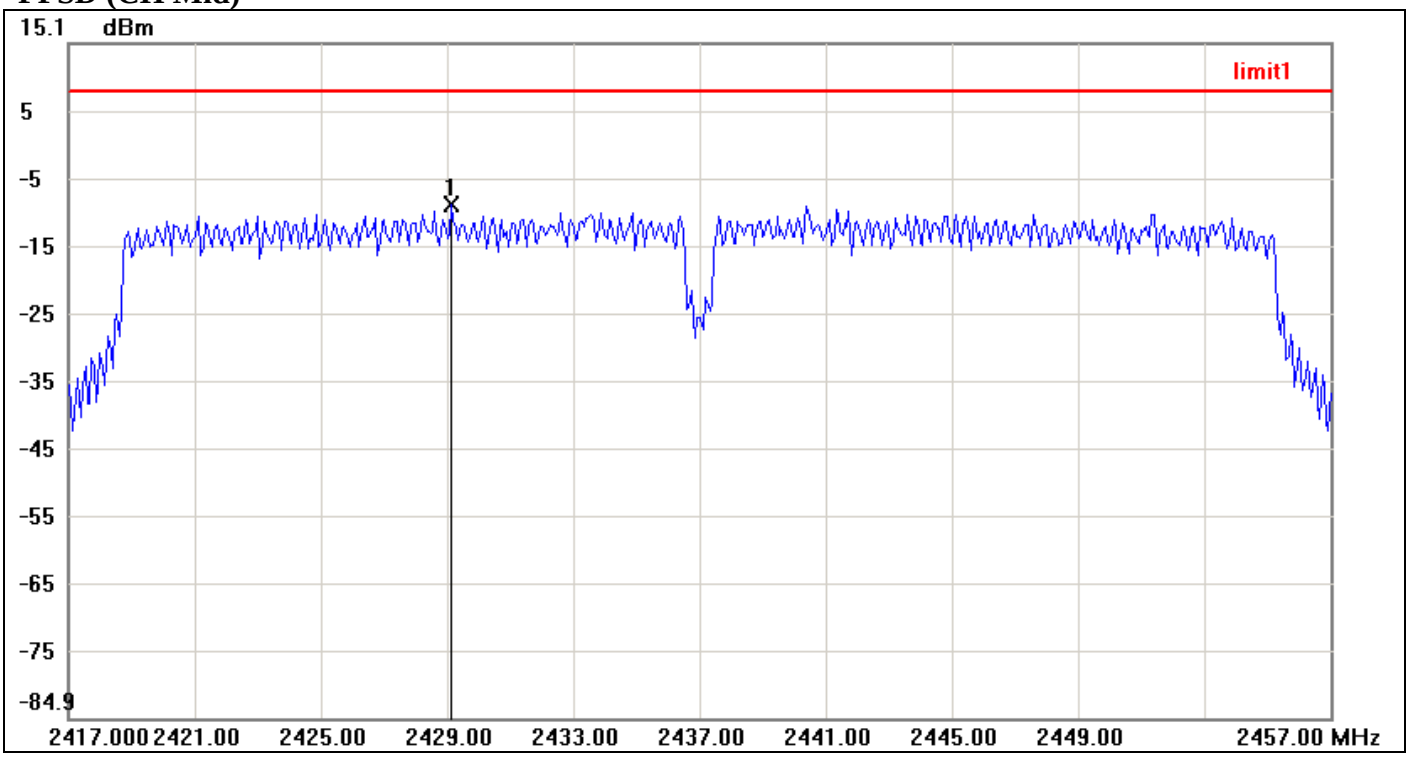
IEEE 802.11n HT 40 mode / Chain 0

PPSD (CH Low)



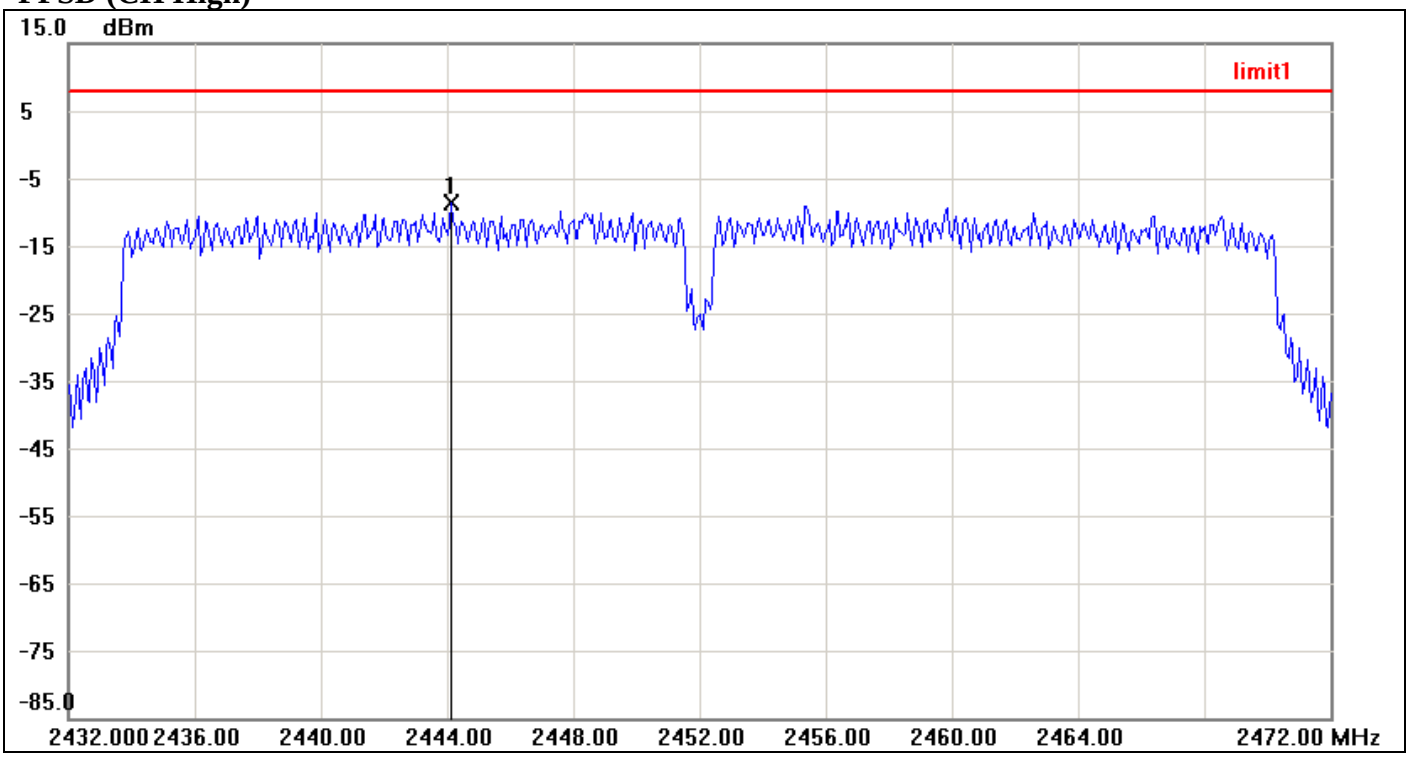
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2425.4000	-8.80	8.00	-16.80

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2429.1333	-8.91	8.00	-16.91

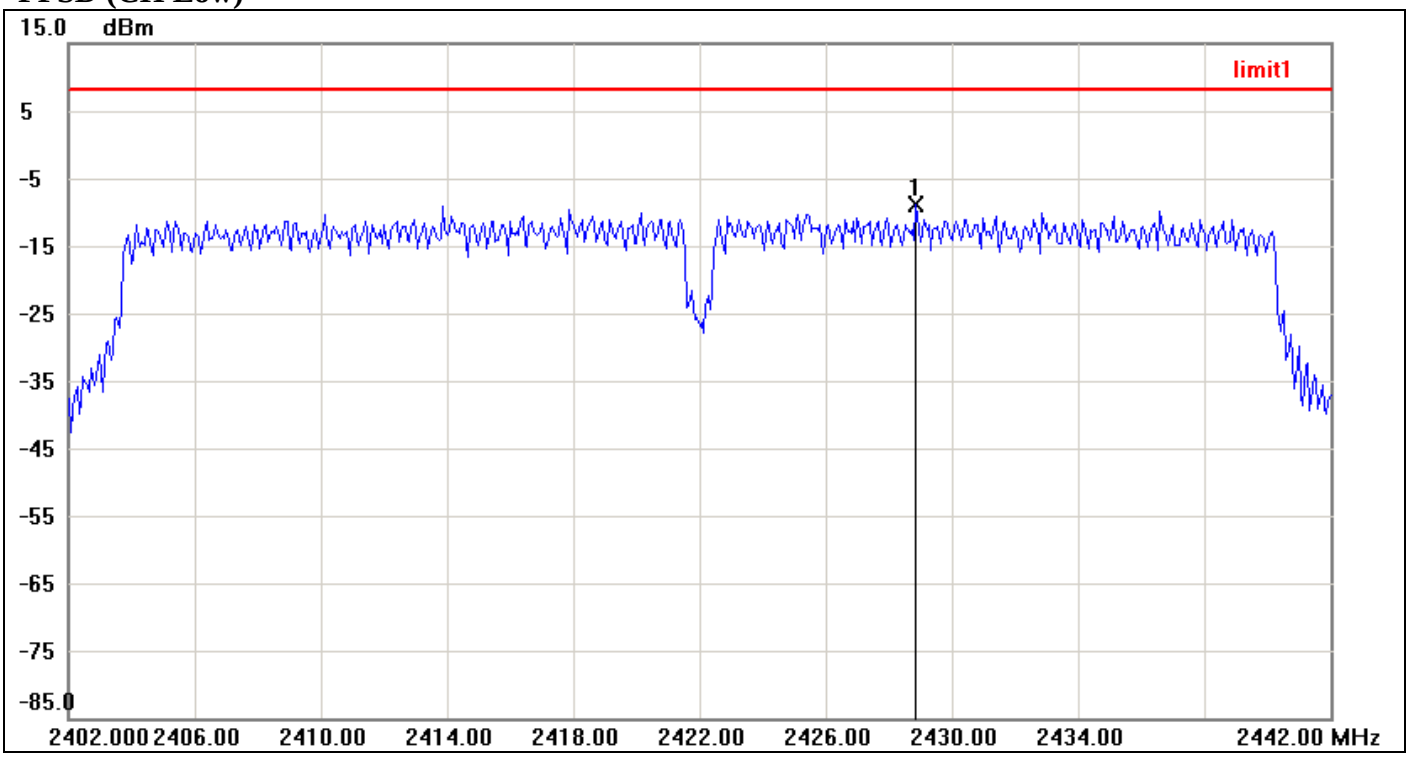
PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2444.1333	-8.69	8.00	-16.69

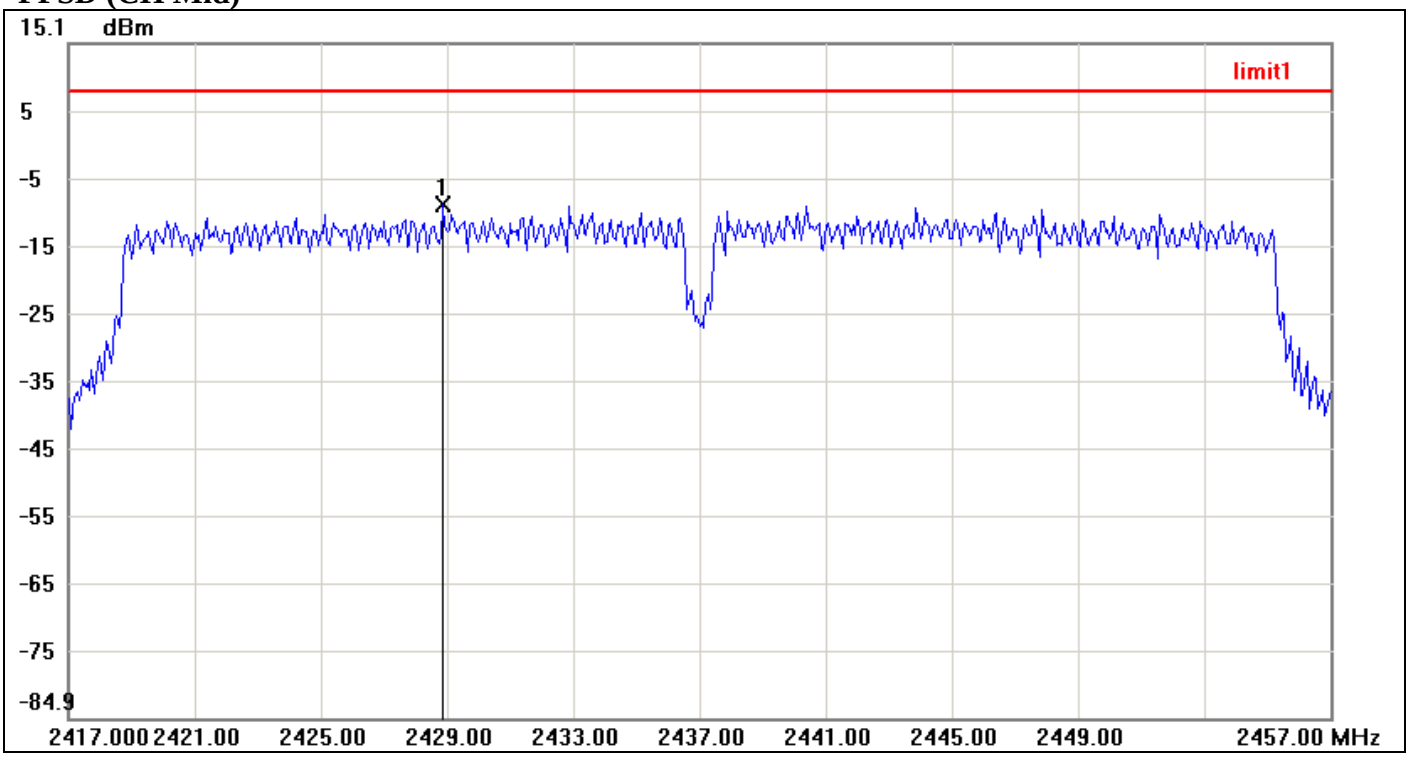
IEEE 802.11n HT 40 mode / Chain 1

PPSD (CH Low)



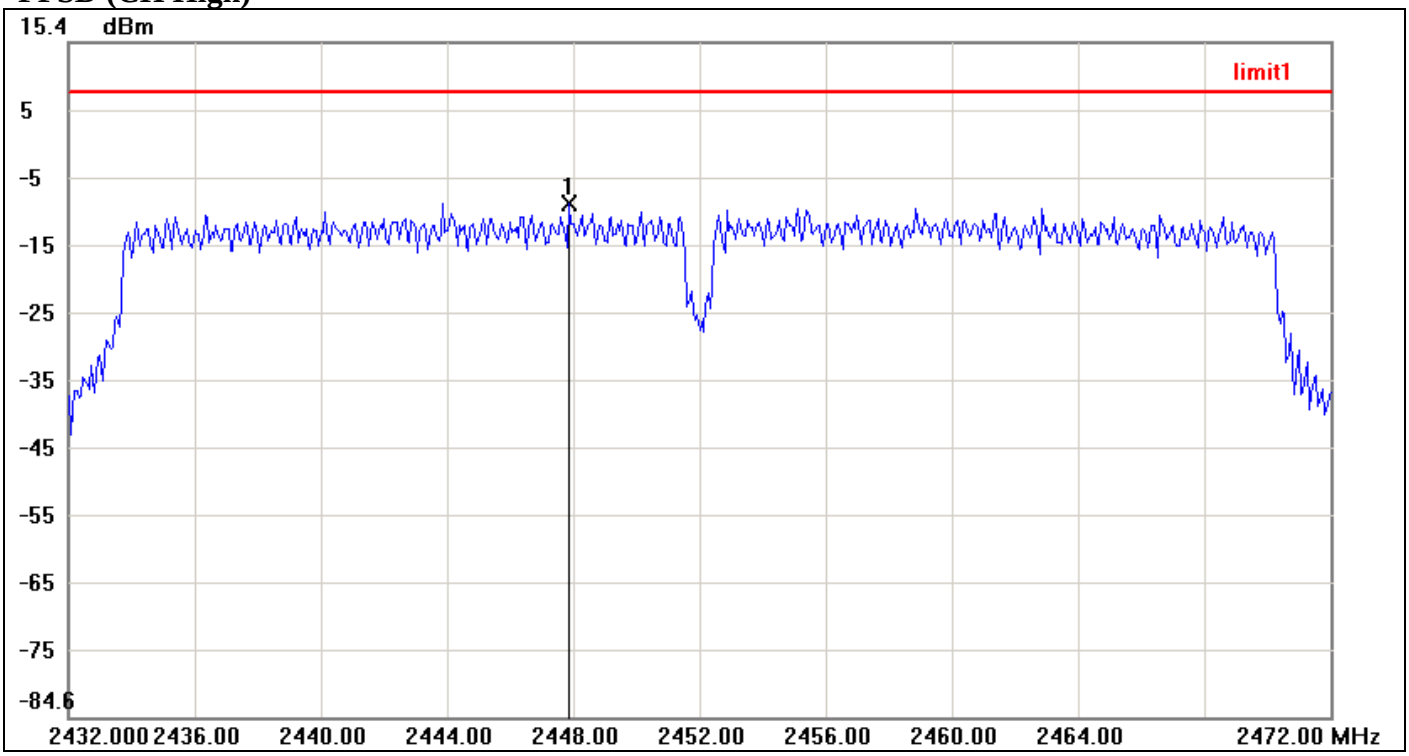
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.8667	-8.96	8.00	-16.96

PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.8667	-8.83	8.00	-16.83

PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2447.8667	-8.38	8.00	-16.38

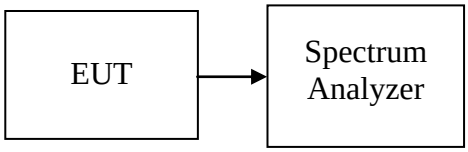
7.6SPURIOUS EMISSIONS

Conducted Measurement

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. Set the RBW=100 kHz and VBW= 300 kHz. Investigate the frequency from 30 MHz to 26 GHz with L, M and H channels separately.

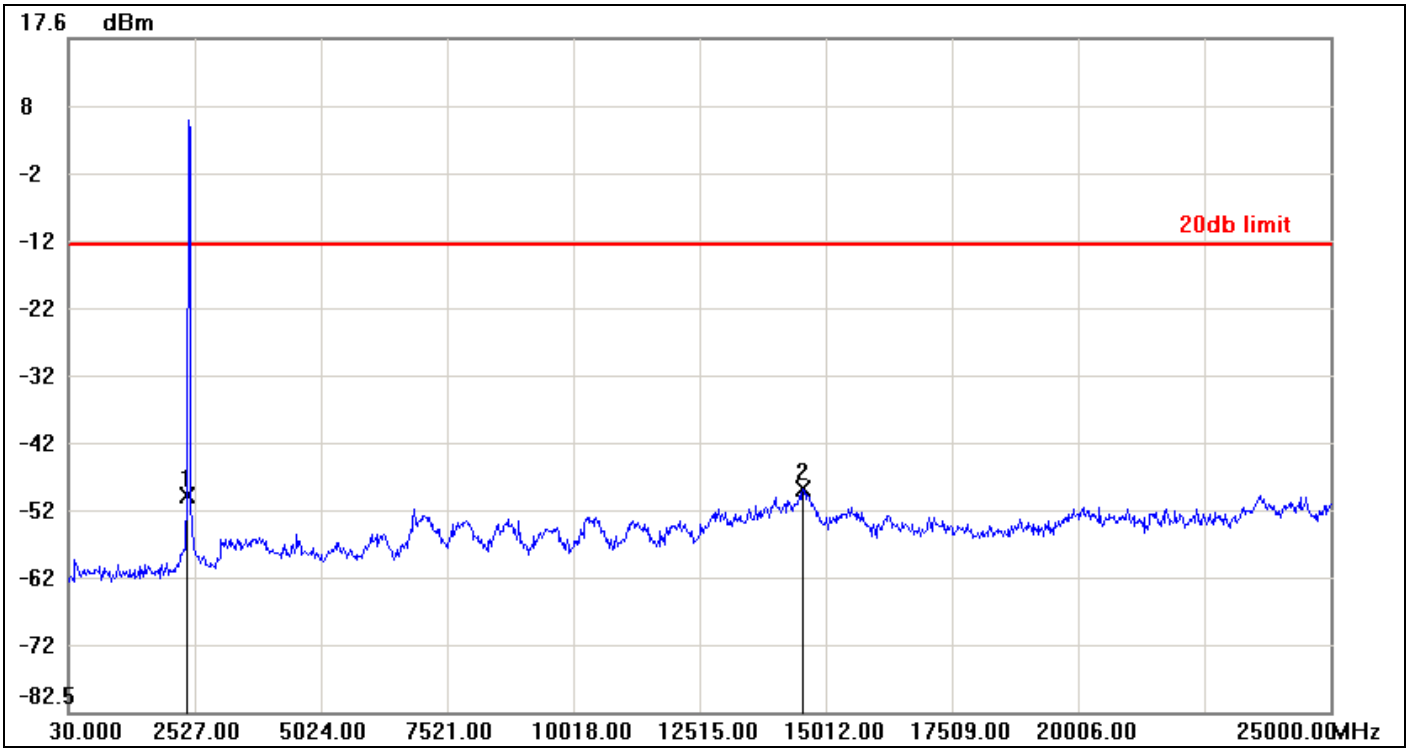
TEST RESULTS

No non-compliance noted.

Test Plot

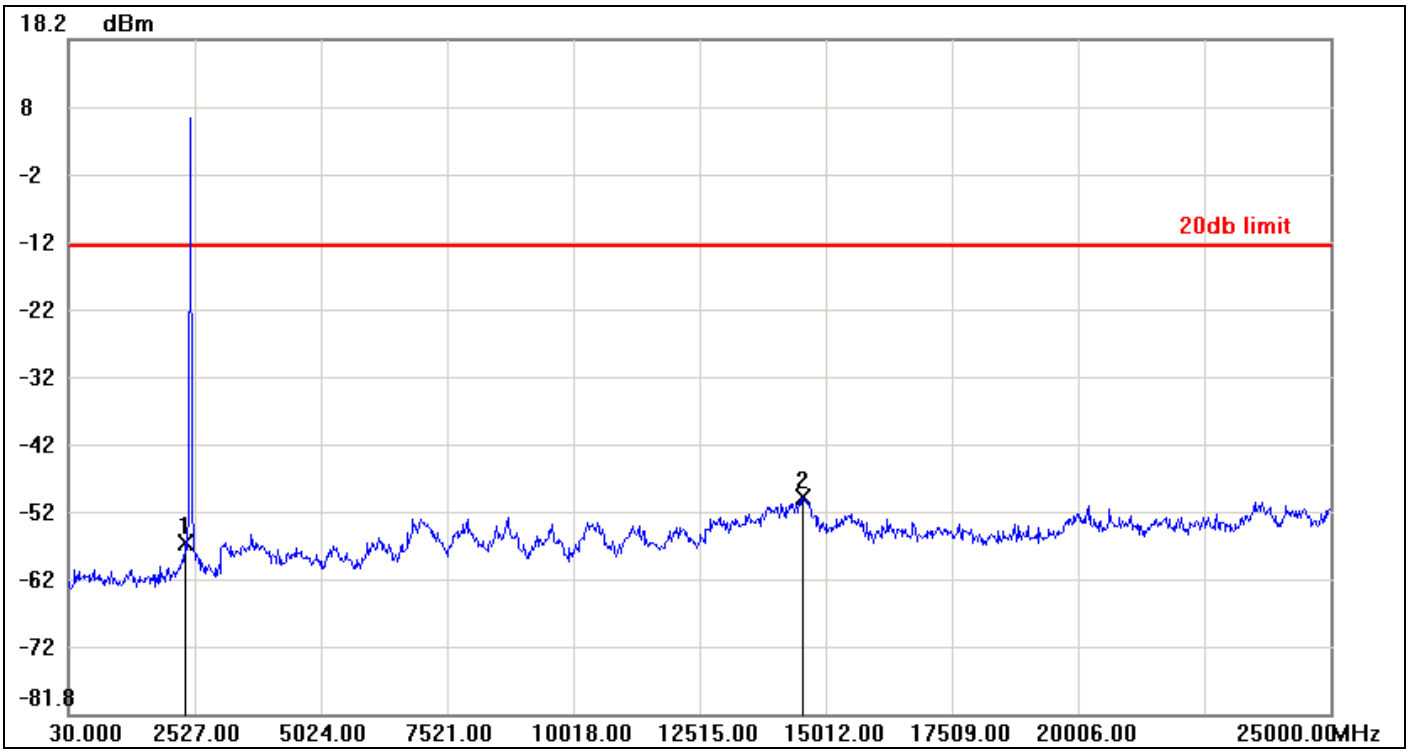
IEEE 802.11b mode

CH Low



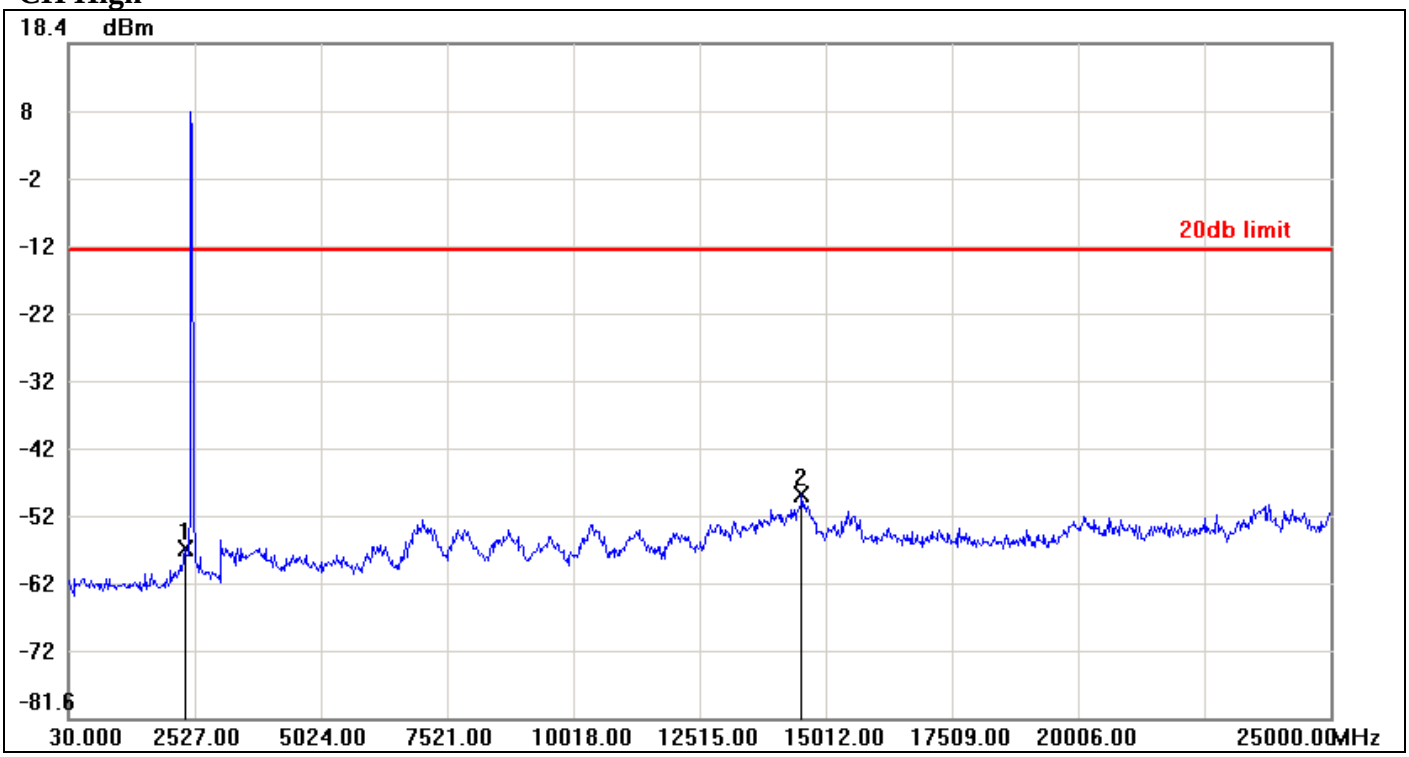
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-50.25	-13.08	-37.17
2	14562.5400	-49.31	-13.08	-36.23

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2352.2100	-56.37	-12.51	-43.86
2	14562.5400	-49.66	-12.51	-37.15

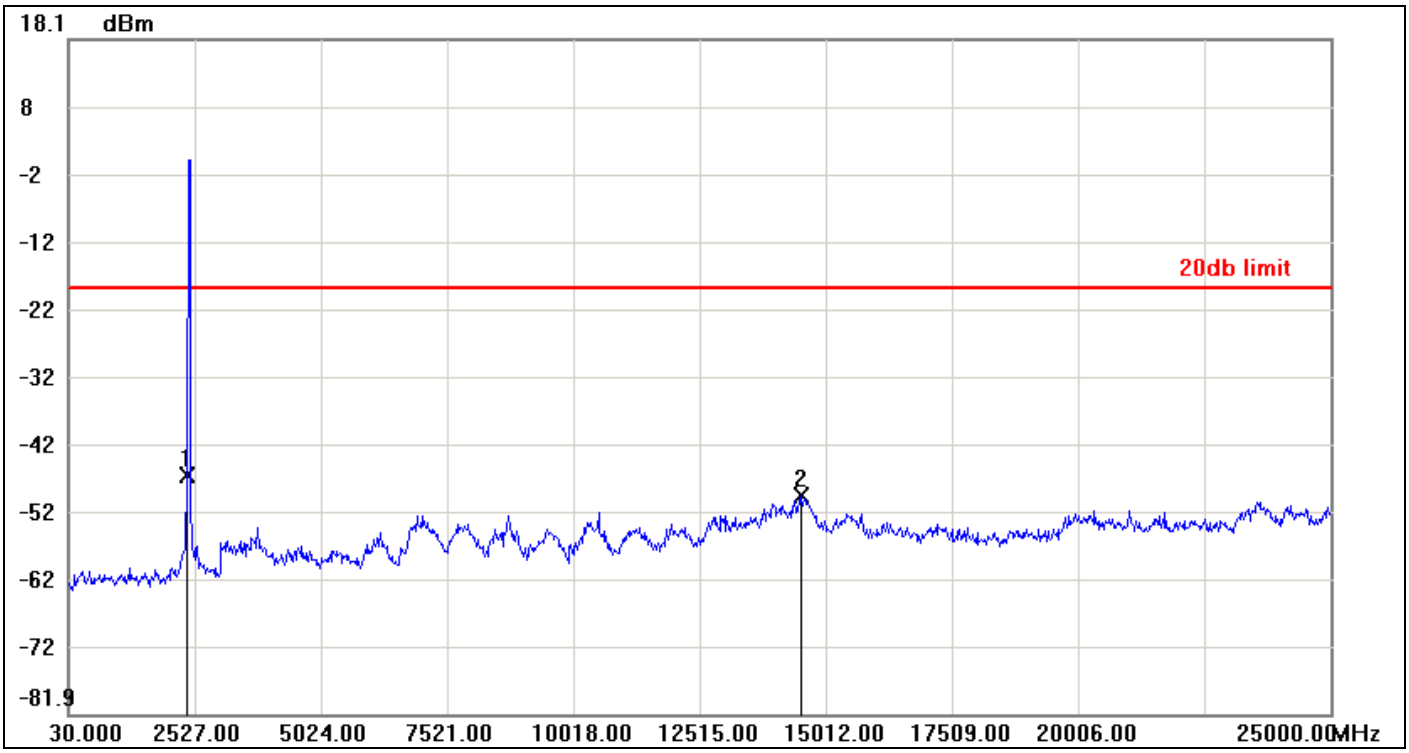
CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2327.2400	-56.61	-12.27	-44.34
2	14537.5700	-48.53	-12.27	-36.26

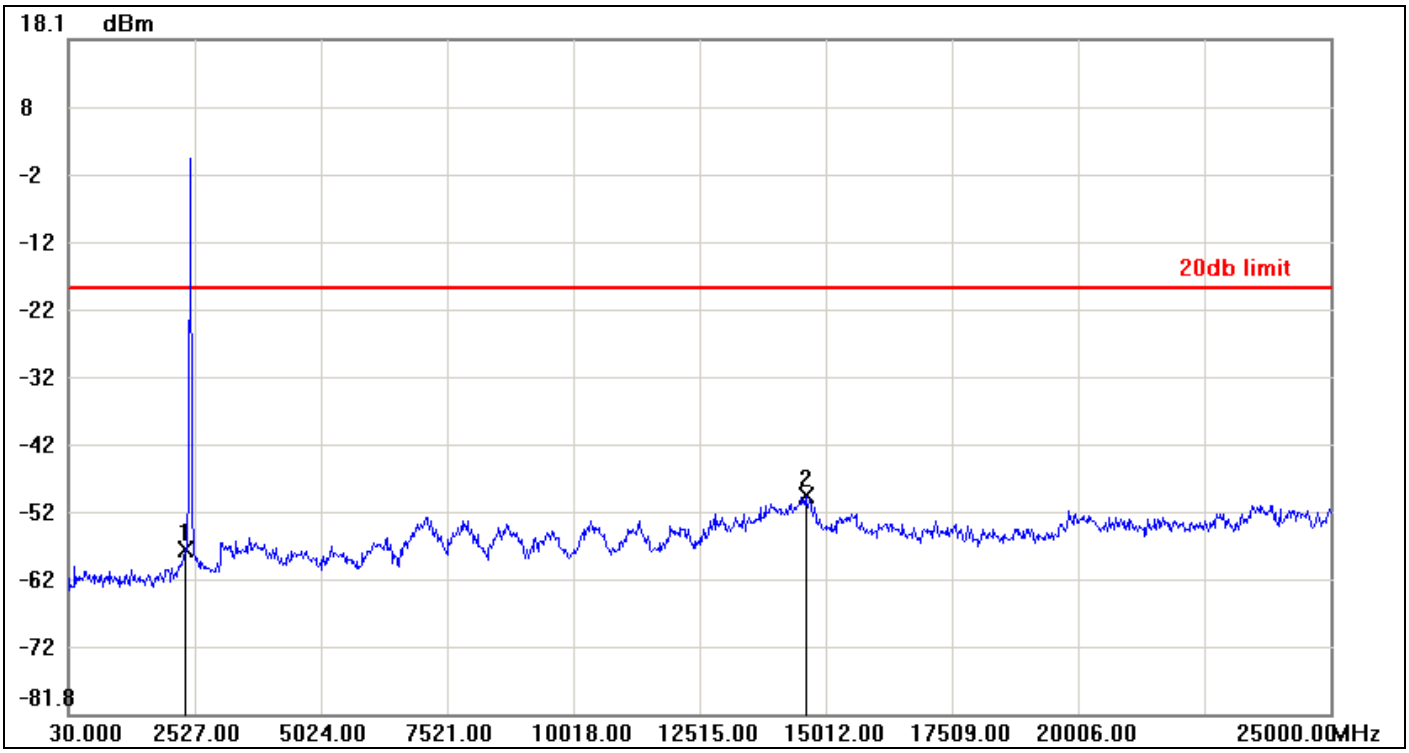
IEEE 802.11g mode

CH Low



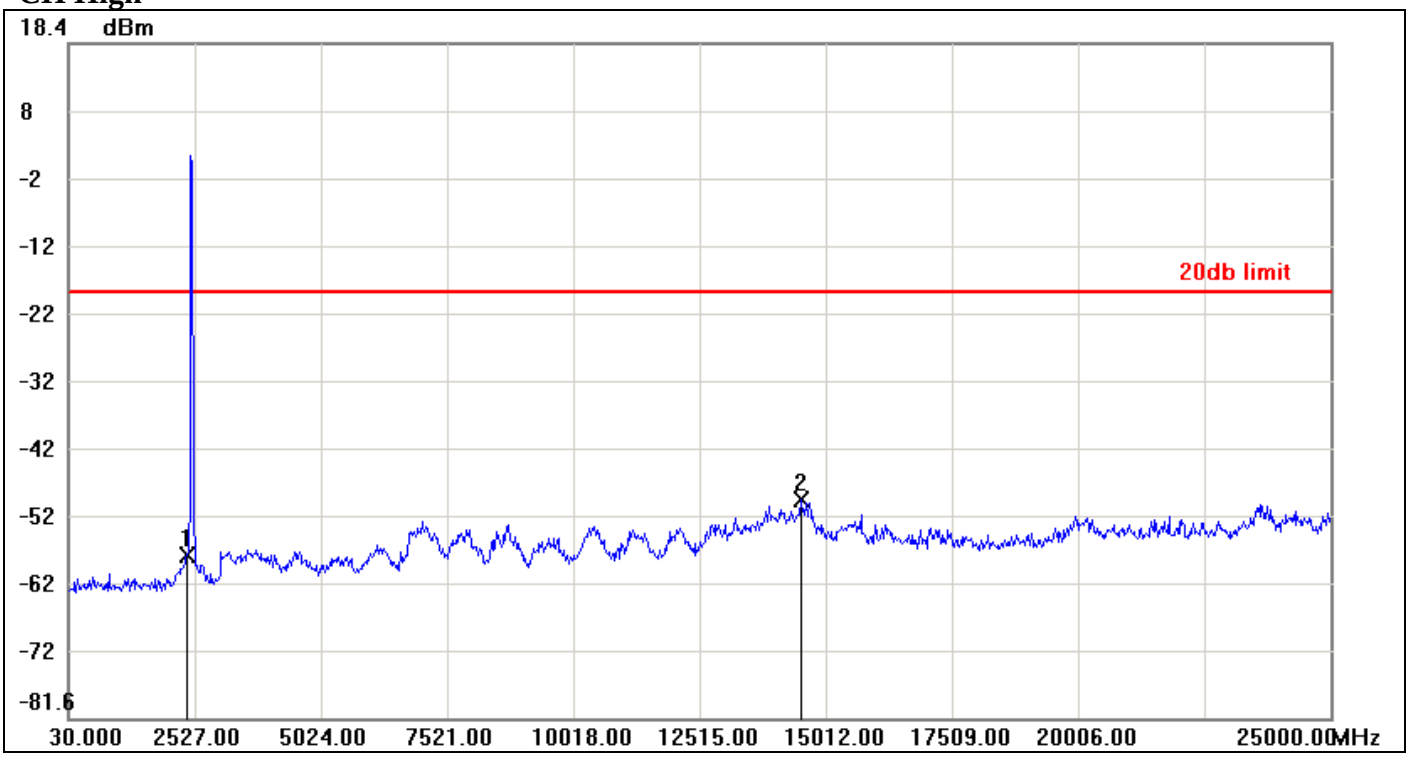
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-46.56	-18.87	-27.69
2	14512.6000	-49.56	-18.87	-30.69

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2327.2400	-57.40	-18.83	-38.57
2	14612.4800	-49.52	-18.83	-30.69

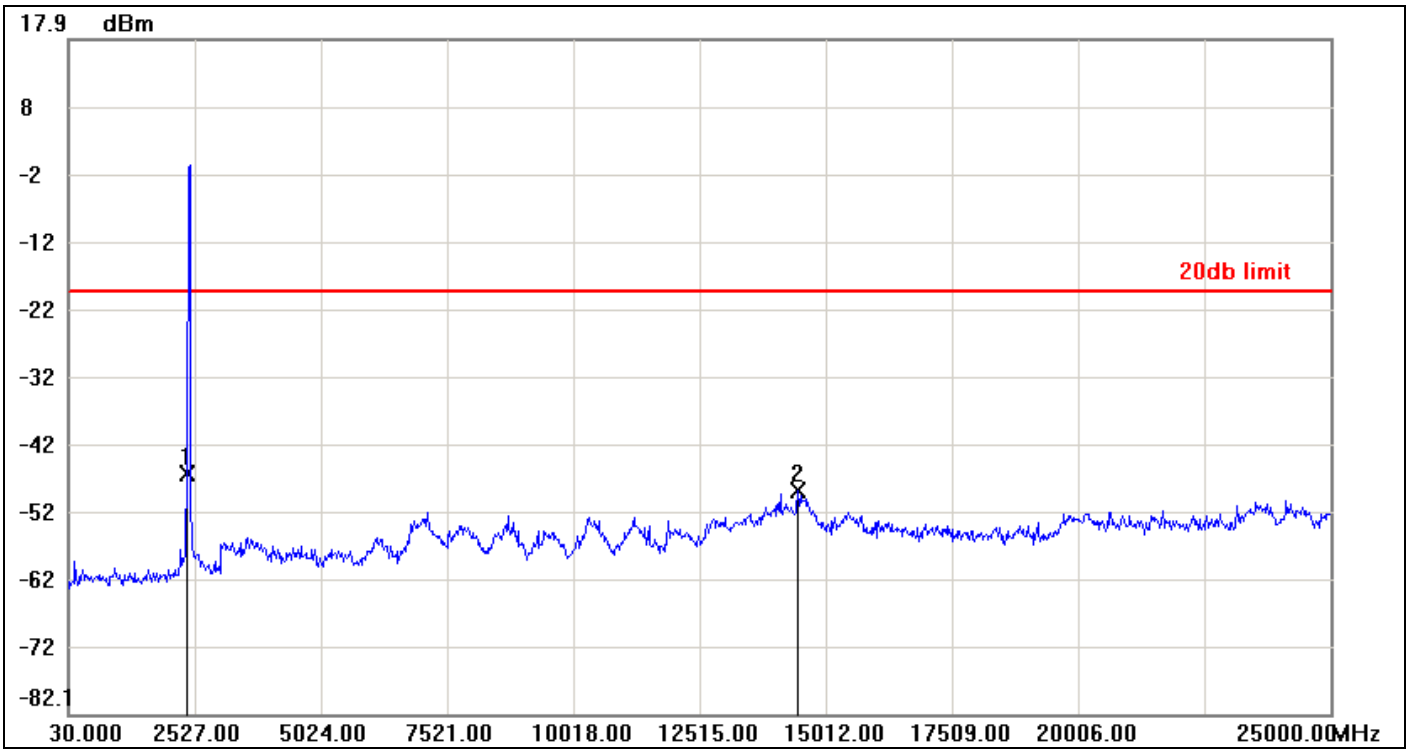
CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-57.41	-18.52	-38.89
2	14512.6000	-49.17	-18.52	-30.65

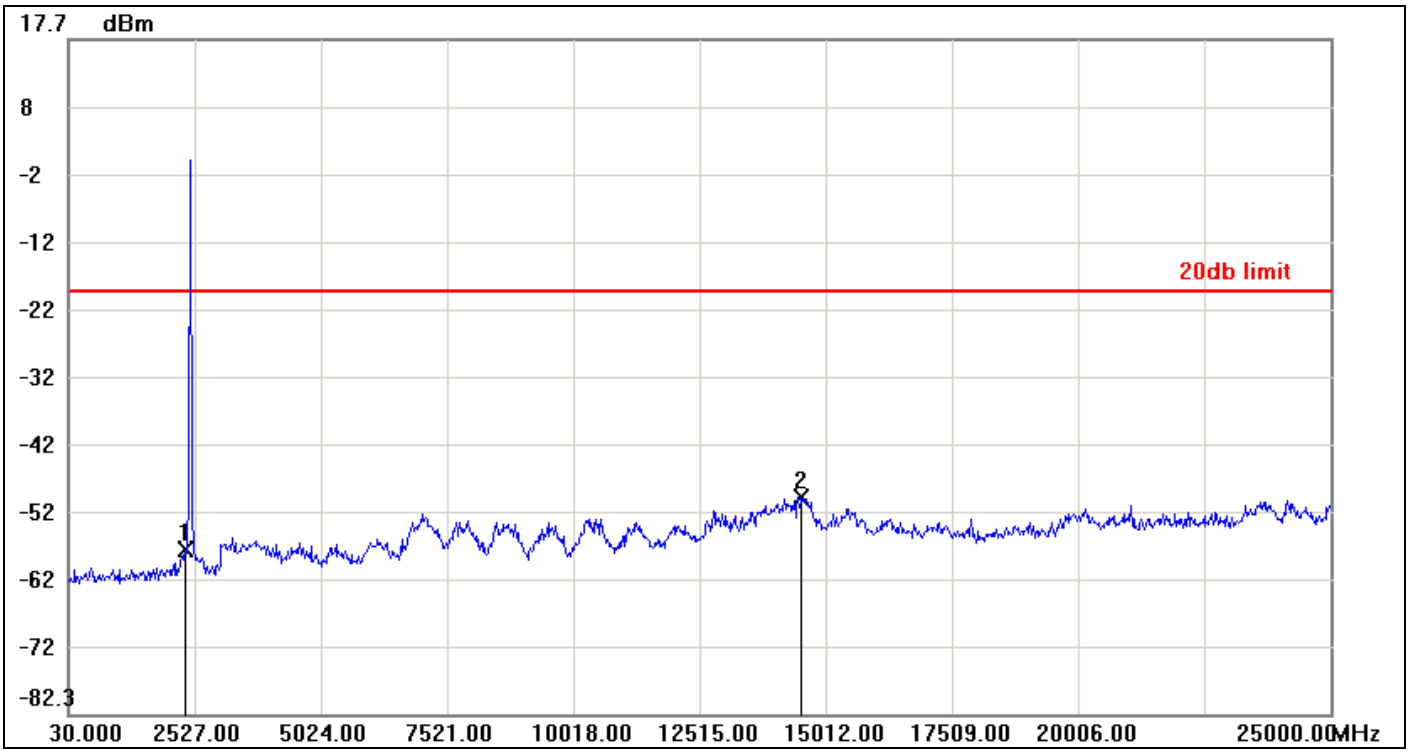
IEEE 802.11n HT 20 mode / Chain 0

CH Low



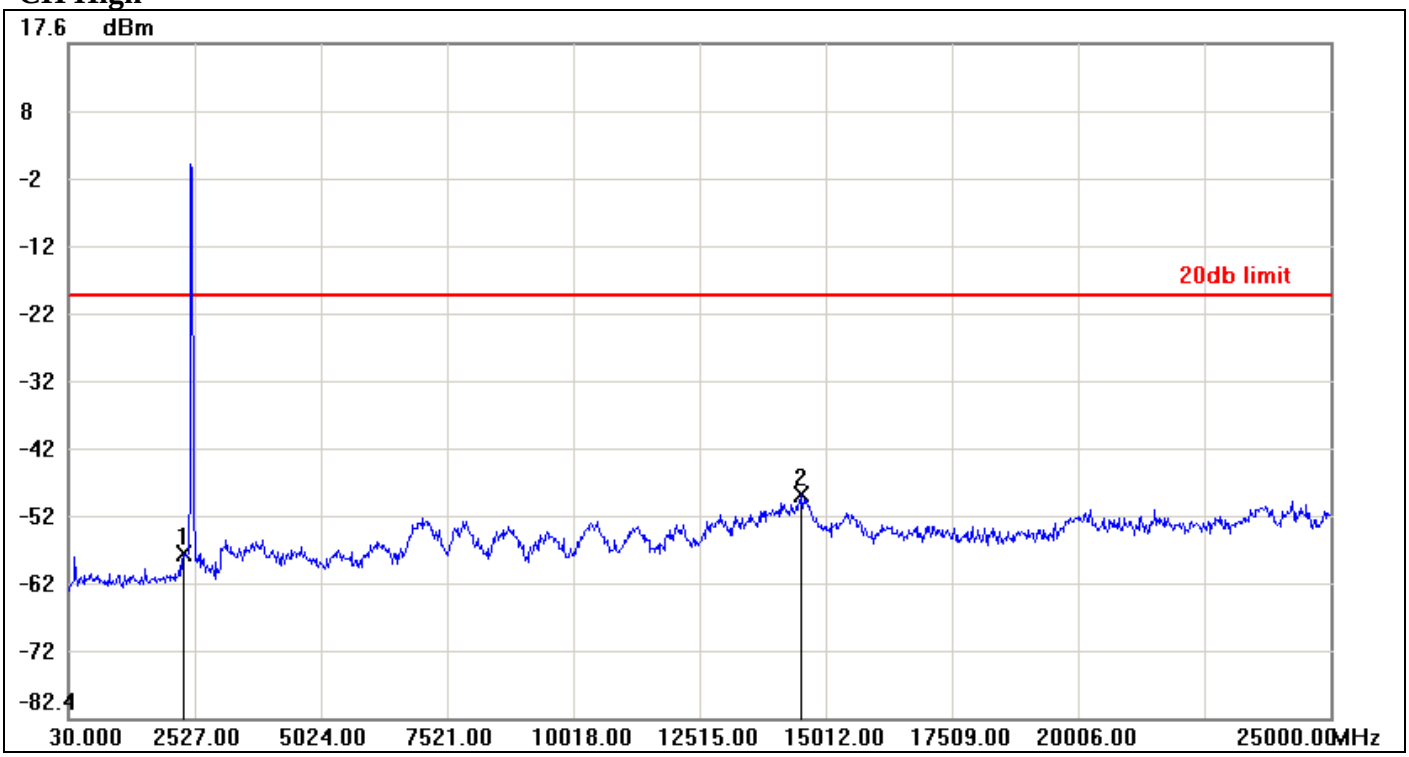
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-46.37	-19.58	-26.79
2	14462.6600	-48.87	-19.58	-29.29

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2352.2100	-57.78	-19.71	-38.07
2	14537.5700	-50.13	-19.71	-30.42

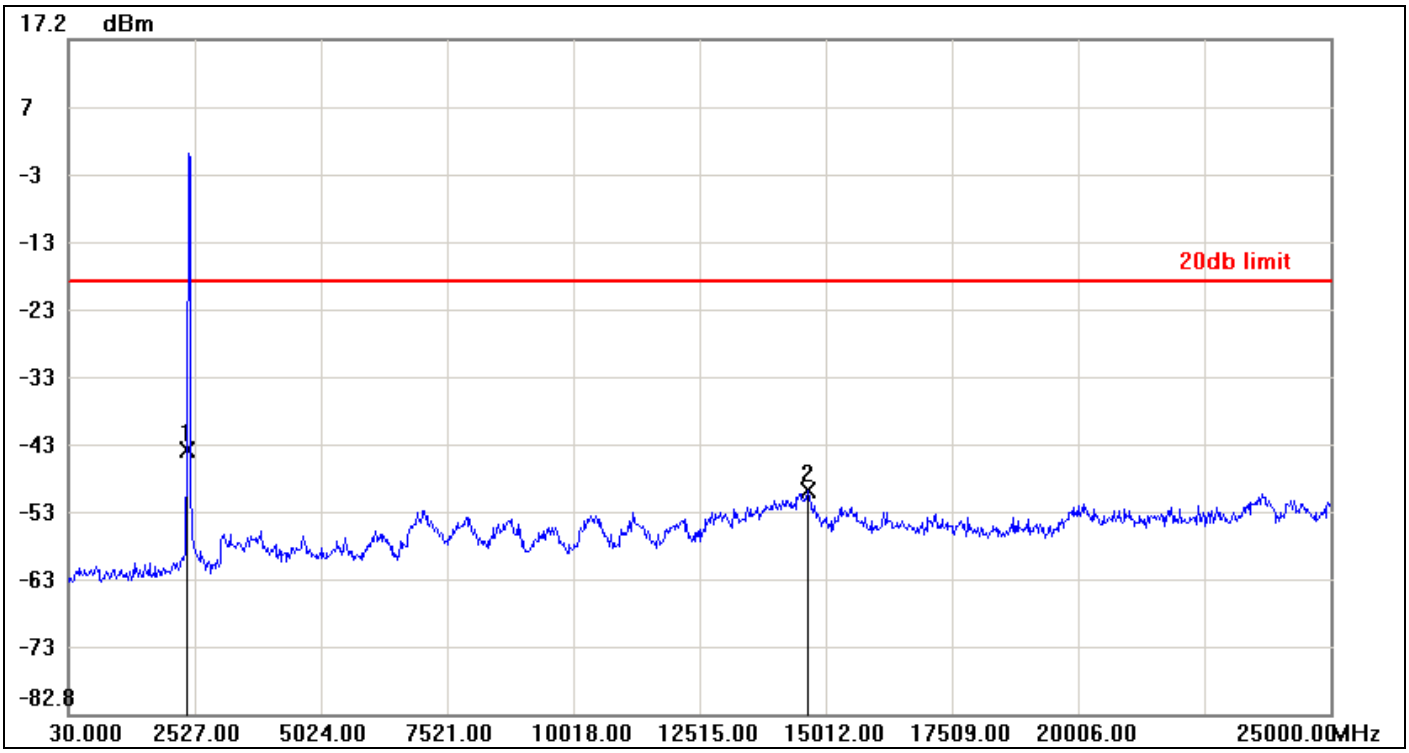
CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2302.2700	-58.00	-19.72	-38.28
2	14537.5700	-49.14	-19.72	-29.42

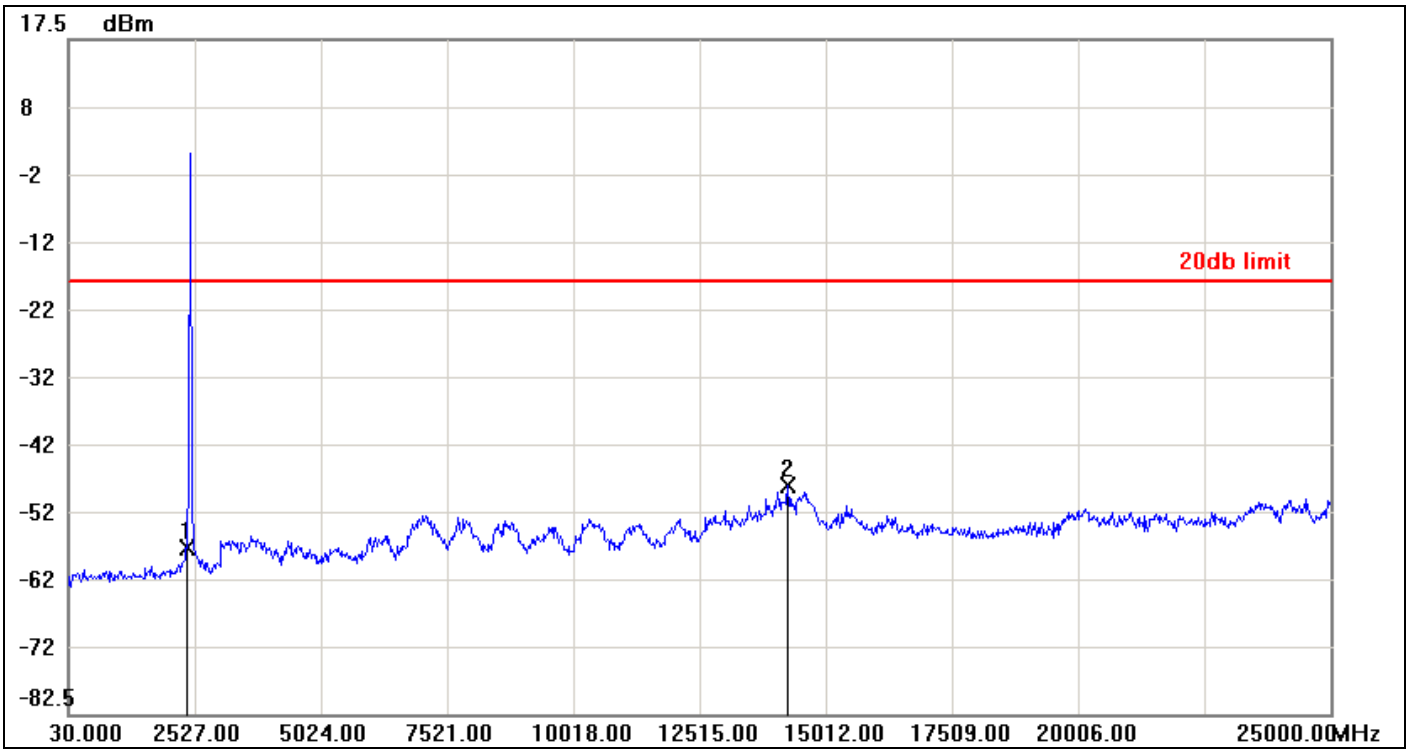
IEEE 802.11n HT 20 mode / Chain 1

CH Low



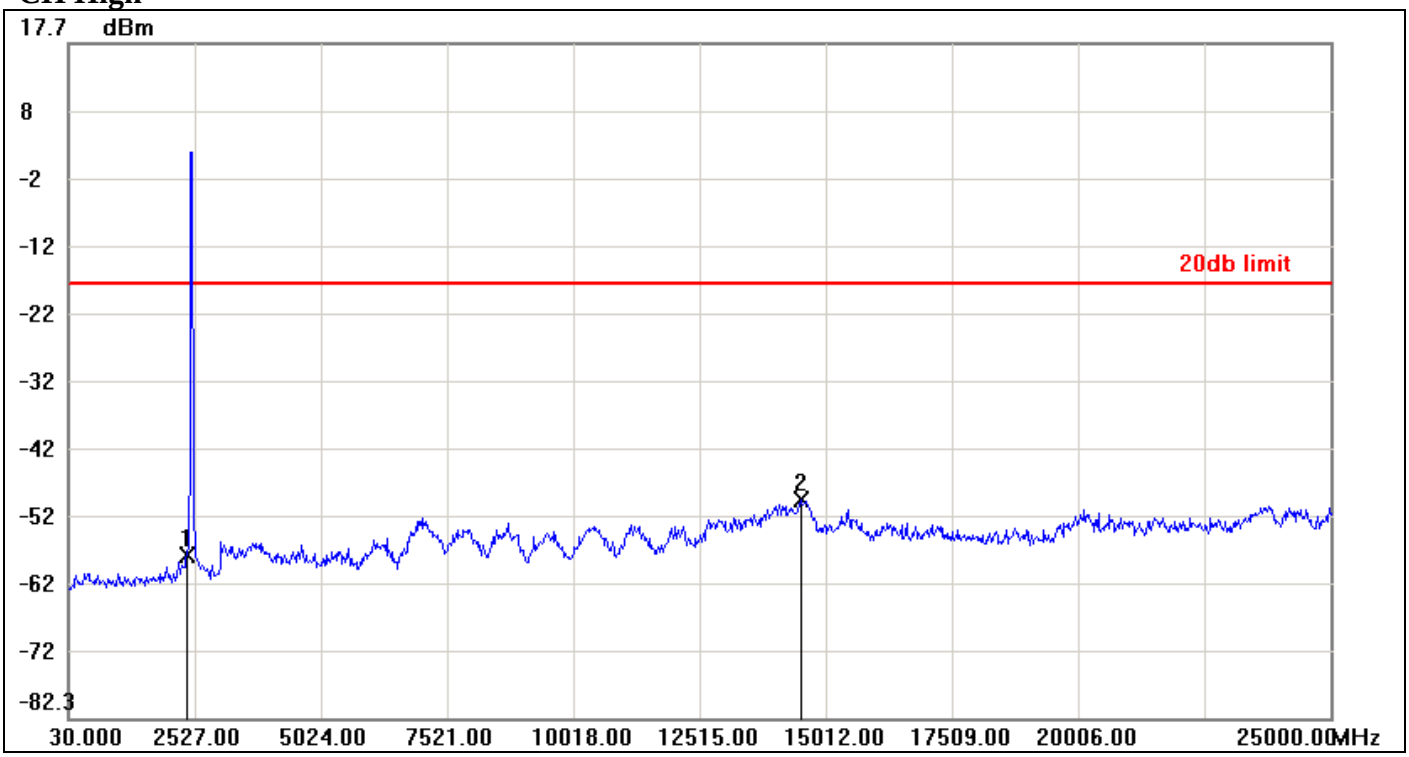
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-43.75	-18.69	-25.06
2	14662.4200	-49.74	-18.69	-31.05

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-57.77	-18.35	-39.42
2	14262.9000	-48.63	-18.35	-30.28

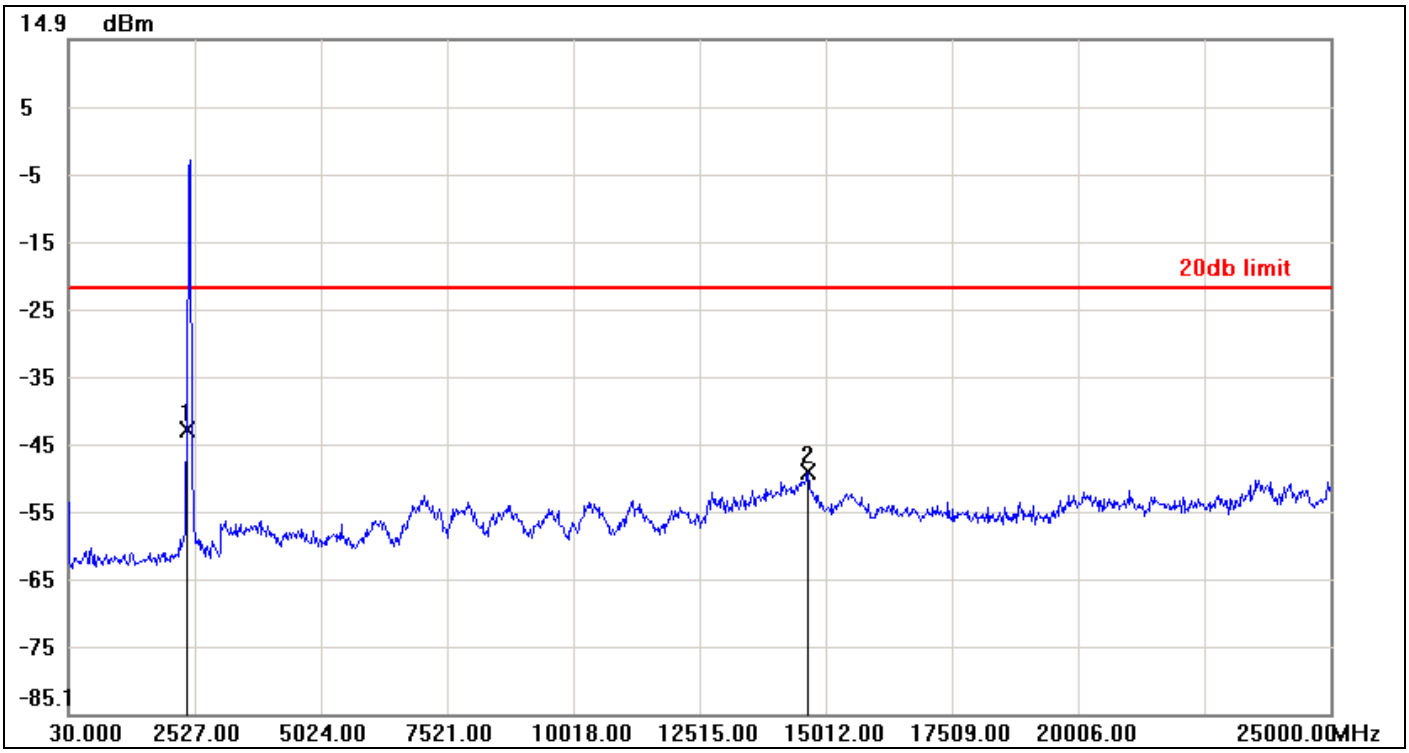
CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-58.22	-18.01	-40.21
2	14512.6000	-49.81	-18.01	-31.80

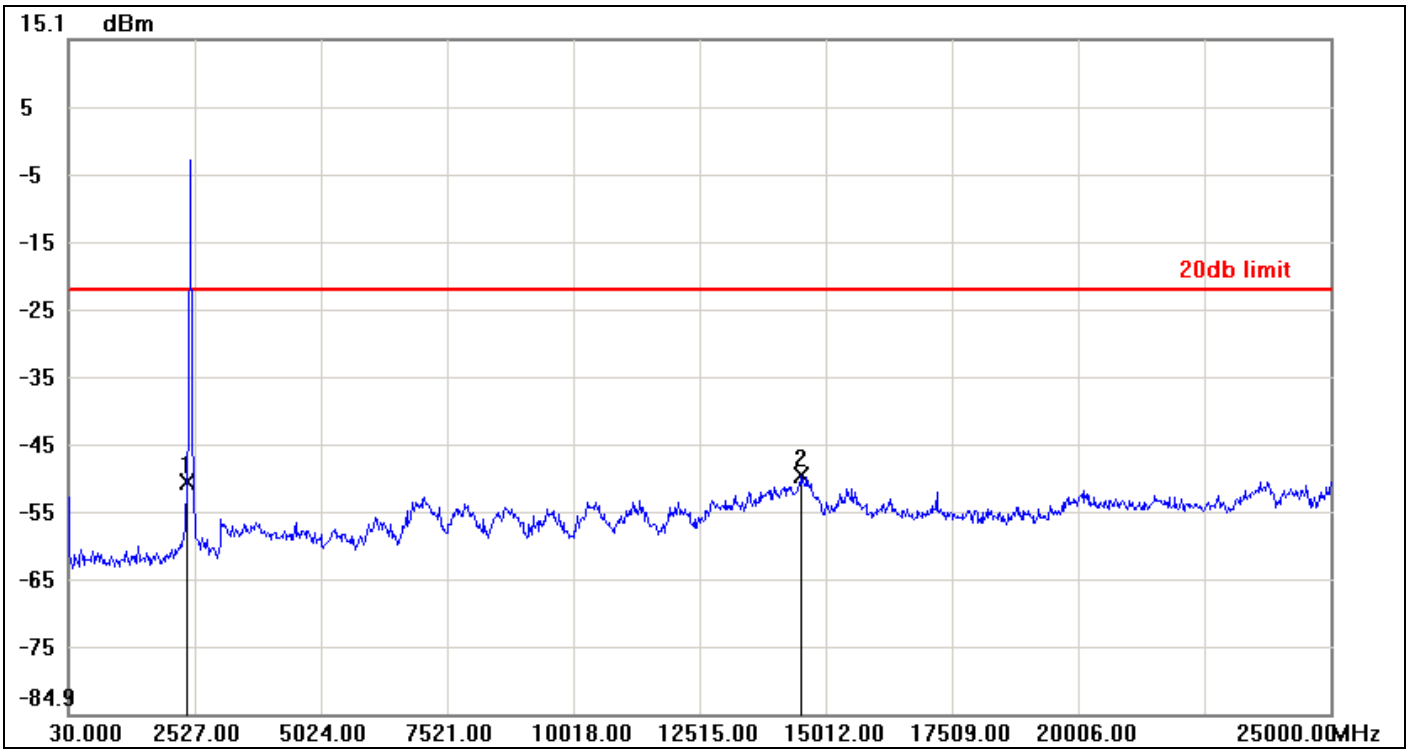
IEEE 802.11n HT 40 mode / Chain 0

CH Low



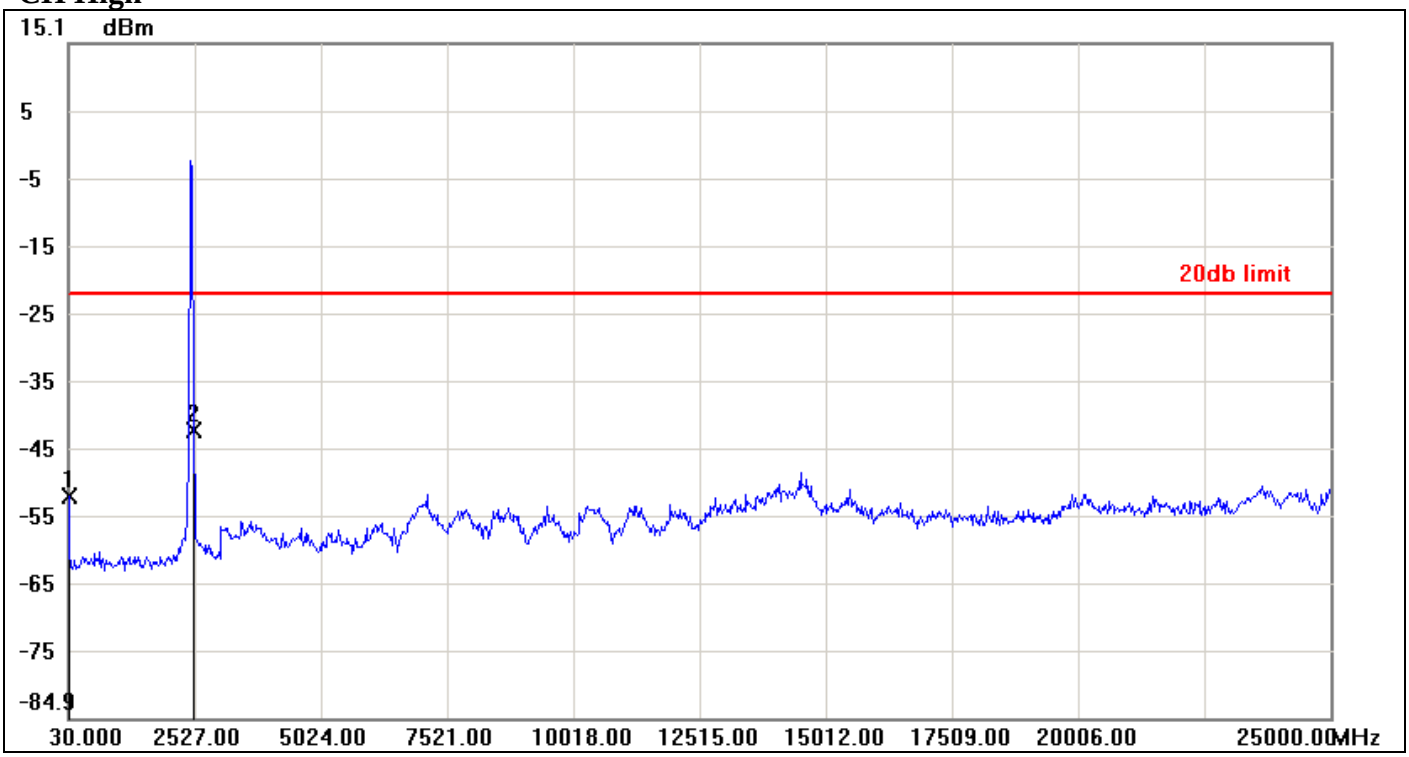
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-42.83	-21.95	-20.88
2	14662.4200	-49.26	-21.95	-27.31

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-50.60	-21.89	-28.71
2	14537.5700	-49.53	-21.89	-27.64

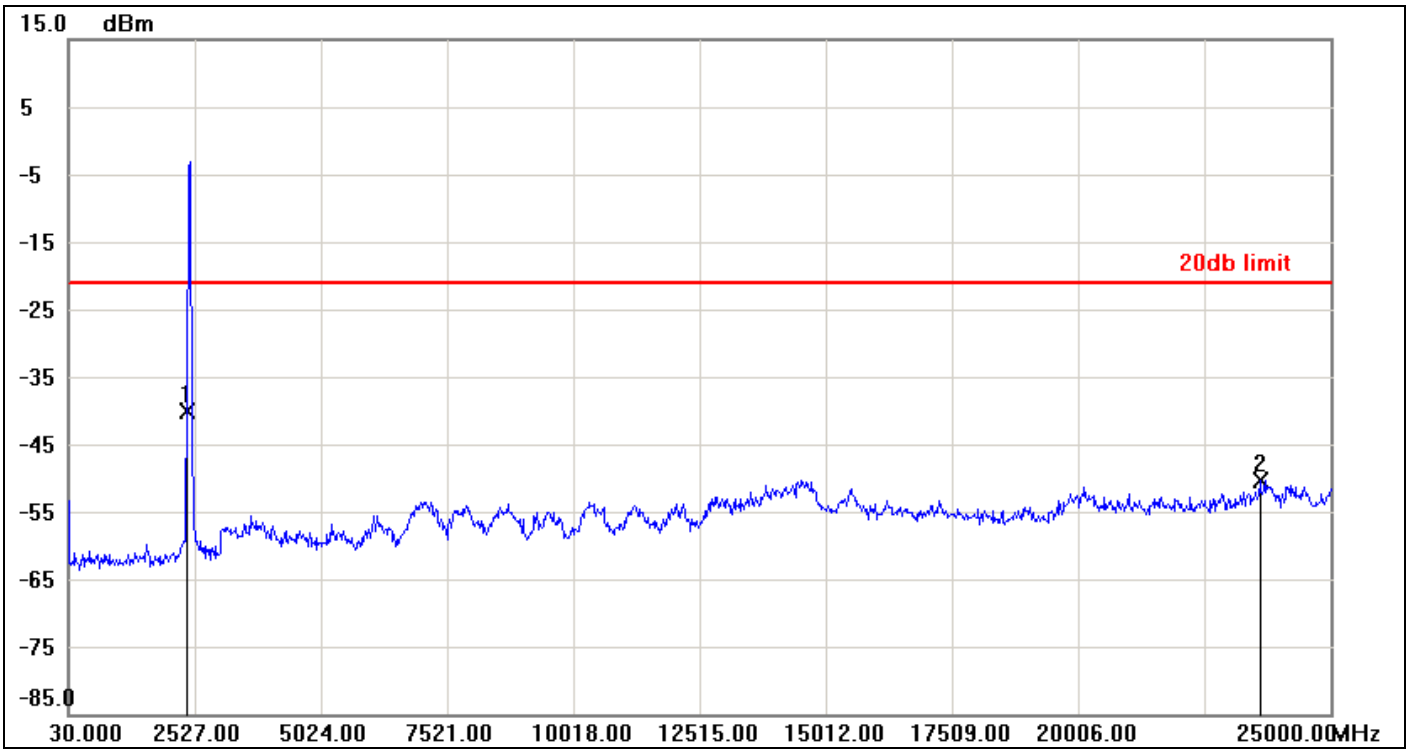
CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	30.0000	-52.04	-22.01	-30.03
2	2502.0300	-42.28	-22.01	-20.27

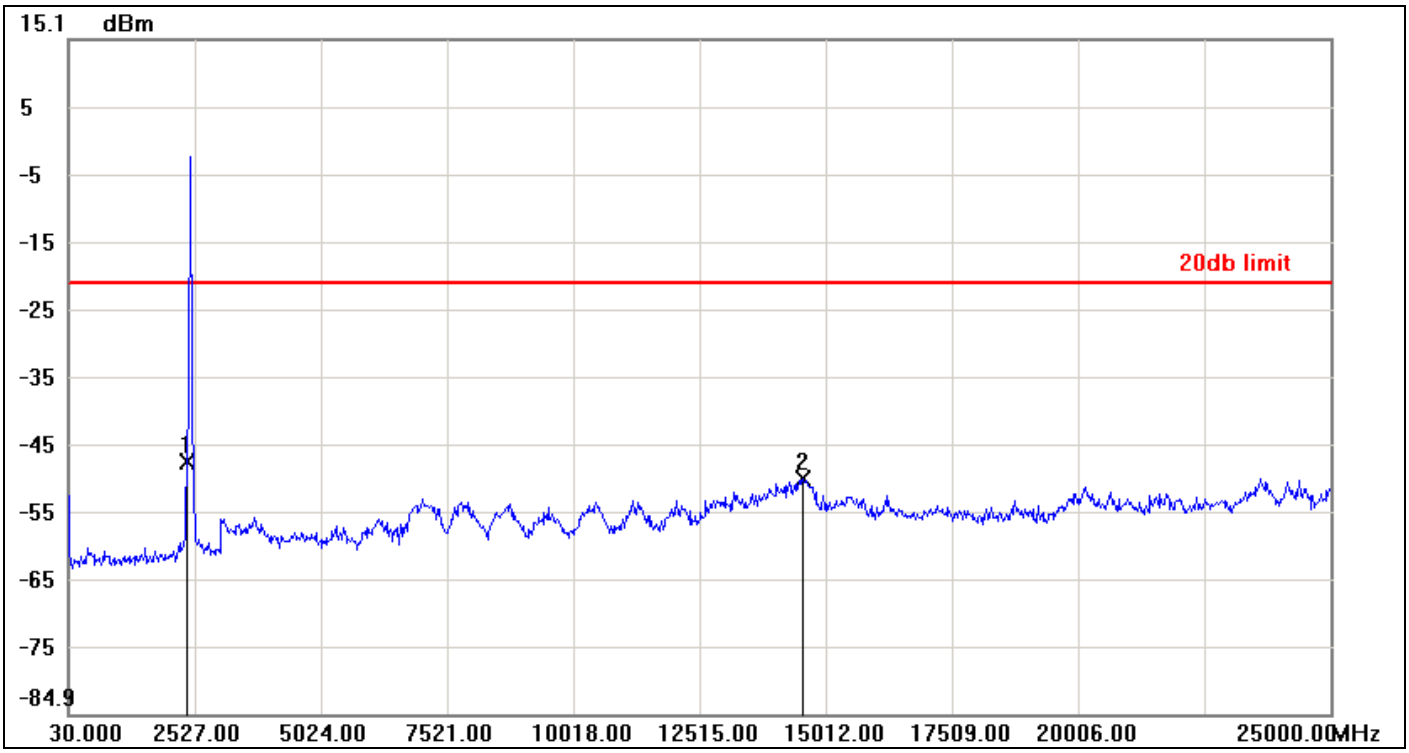
IEEE 802.11n HT 40 mode / Chain 1

CH Low



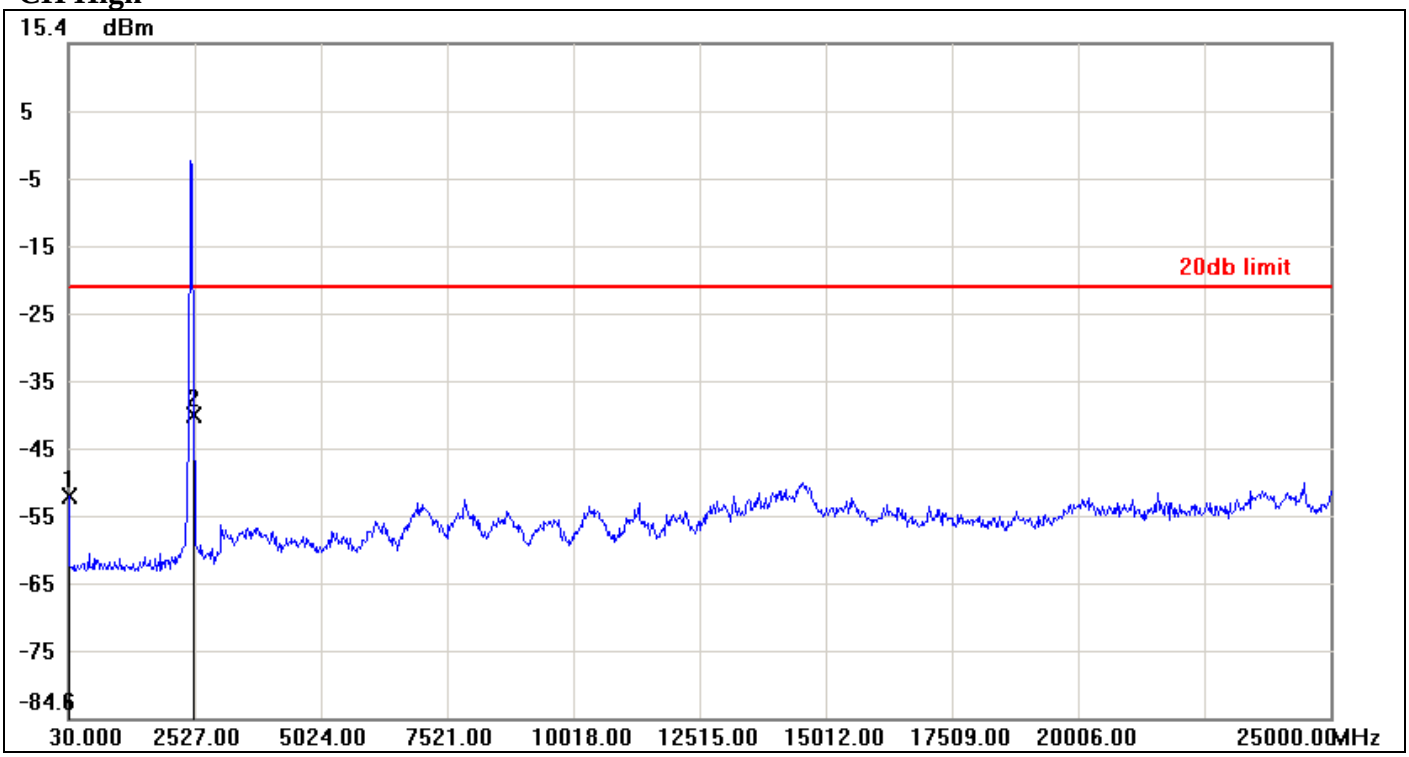
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-40.21	-21.20	-19.01
2	23601.6800	-50.30	-21.20	-29.10

CH Mid



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2377.1800	-47.58	-20.98	-26.60
2	14562.5400	-49.98	-20.98	-29.00

CH High



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	30.0000	-51.74	-20.71	-31.03
2	2502.0300	-39.72	-20.71	-19.01

7.7RADIATED EMISSIONS

LIMIT

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

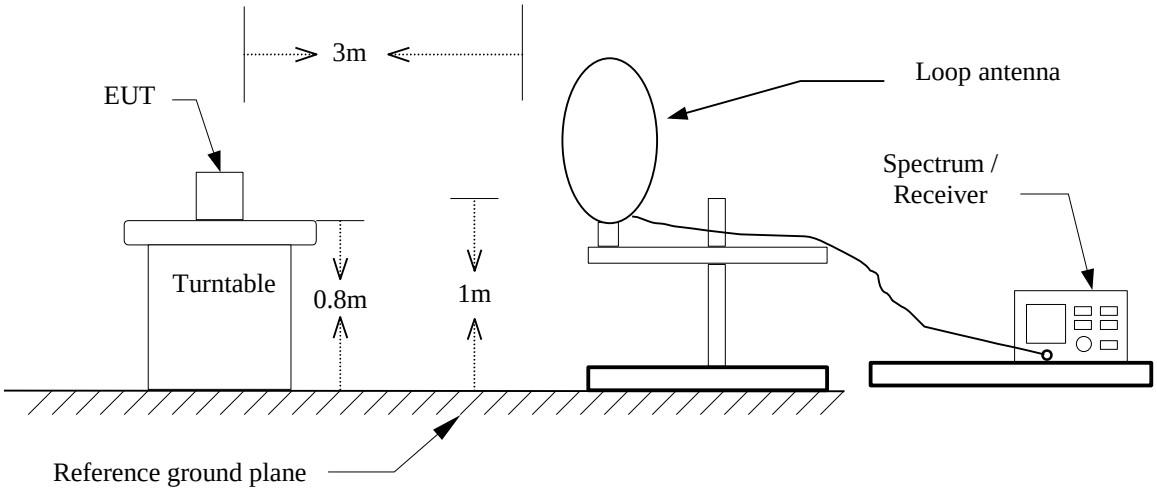
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the emission table above, the tighter limit applies at the band edges.

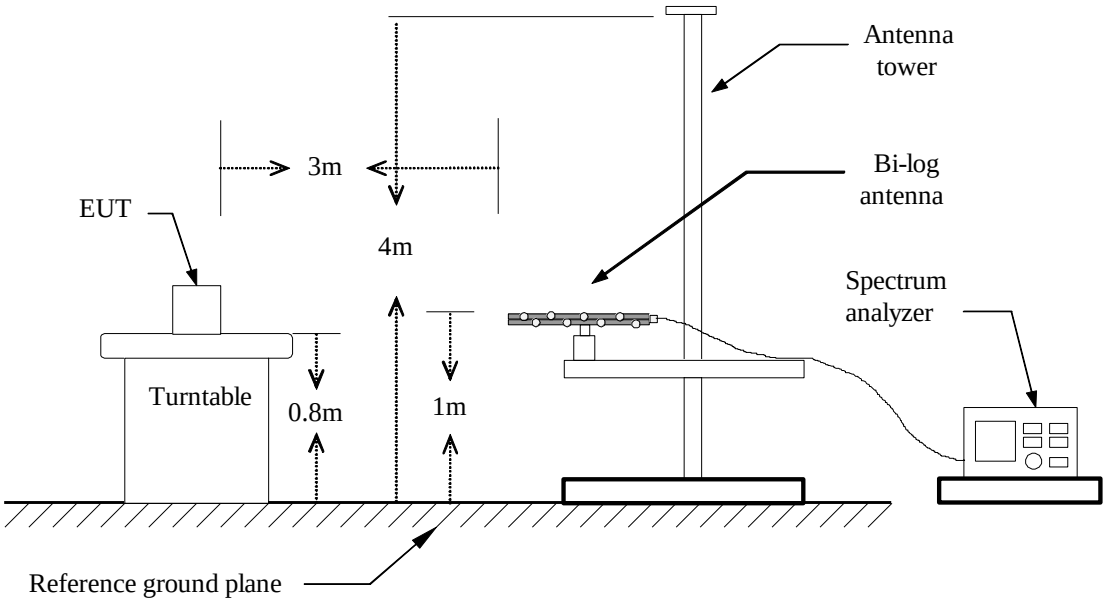
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
0.009 - 0.490	2400/F(kHz) +80	20LOG((2400/F(kHz))+80)
0.490 - 1.705	24000/F(kHz) +40	20LOG((24000/F(kHz))+40)
1.705 – 30.0	30	69.54
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

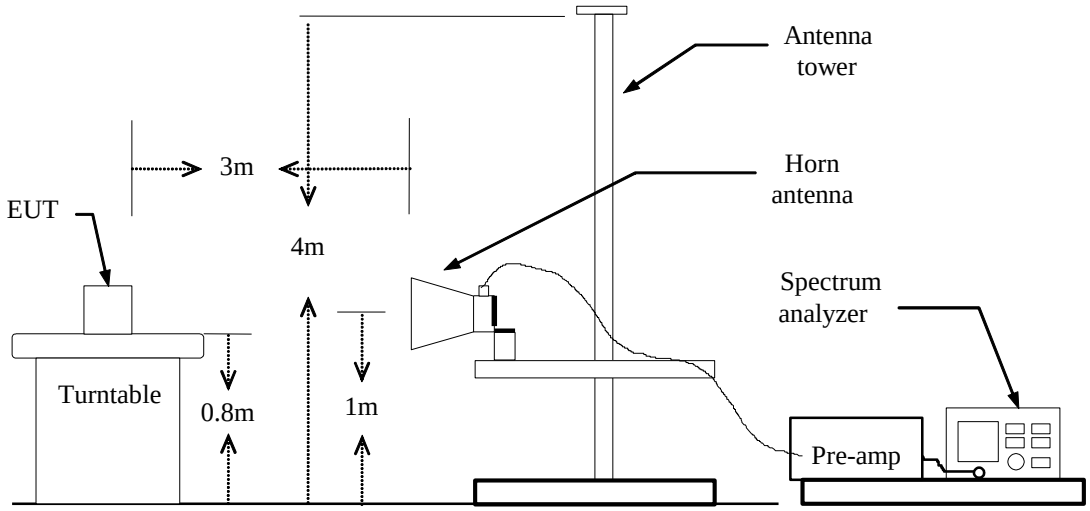
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz


Antenna
tower
3m
Horn
antenna
EUT
4m
Spectrum
analyzer
Turntable
0.8m
1m
Pre-amp

TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

   Above 1GHz:

   (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO

   (b) AVERAGE: RBW=1MHz / 10Hz =300Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

No non-compliance noted.

Below 1GHz

Operation Mode:	Normal Link	**Test Date:**	November 22, 2014
Temperature:	27℃	**Tested by:**	Andy Shi
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
66.8600	52.75	-22.99	29.76	40.00	-10.24	peak	V
165.8000	54.92	-18.58	36.34	43.50	-7.16	peak	V
298.6900	54.24	-16.43	37.81	46.00	-8.19	peak	V
429.6400	52.47	-13.21	39.26	46.00	-6.74	peak	V
549.9200	49.97	-11.00	38.97	46.00	-7.03	peak	V
749.7400	45.19	-7.88	37.31	46.00	-8.69	peak	V
150.2800	54.71	-17.99	36.72	43.50	-6.78	peak	H
298.6900	55.68	-16.43	39.25	46.00	-6.75	peak	H
429.6400	52.49	-13.21	39.28	46.00	-6.72	peak	H
600.3600	49.03	-10.50	38.53	46.00	-7.47	peak	H
749.7400	46.59	-7.88	38.71	46.00	-7.29	peak	H
847.7100	43.15	-6.81	36.34	46.00	-9.66	peak	H

Remark:

1. *No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	52.88	-5.16	47.72	74.00	-26.28	peak	V
3310.000	42.43	-1.37	41.06	74.00	-32.94	peak	V
4825.000	41.91	4.01	45.92	74.00	-28.08	peak	V
N/A							
1952.000	52.05	-5.13	46.92	74.00	-27.08	peak	H
4825.000	45.97	4.01	49.98	74.00	-24.02	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11b / CH Mid **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1770.000	50.07	-6.10	43.97	74.00	-30.03	peak	V
4875.000	41.96	3.92	45.88	74.00	-28.12	peak	V
N/A							
1368.000	53.50	-8.11	45.39	74.00	-28.61	peak	H
4875.000	47.27	3.92	51.19	74.00	-22.81	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11b / CH High **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1704.000	50.12	-6.45	43.67	74.00	-30.33	peak	V
3310.000	44.07	-1.37	42.70	74.00	-31.30	peak	V
4925.000	41.80	3.90	45.70	74.00	-28.30	peak	V
N/A							
1636.000	51.11	-6.81	44.30	74.00	-29.70	peak	H
4925.000	45.87	3.90	49.77	74.00	-24.23	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g / CH Low **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1142.000	53.00	-9.11	43.89	74.00	-30.11	peak	V
N/A							
1368.000	52.33	-8.11	44.22	74.00	-29.78	peak	H
4830.000	41.60	4.00	45.60	74.00	-28.40	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g / CH Mid **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.000	52.86	-9.11	43.75	74.00	-30.25	peak	V
N/A							
1368.000	53.04	-8.11	44.93	74.00	-29.07	peak	H
4875.000	42.30	3.92	46.22	74.00	-27.78	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g / CH High **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.000	53.03	-9.11	43.92	74.00	-30.08	peak	V
3315.000	42.06	-1.35	40.71	74.00	-33.29	peak	V
N/A							
1368.000	52.27	-8.11	44.16	74.00	-29.84	peak	H
4915.000	40.61	3.89	44.50	74.00	-29.50	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT 20 mode / CH Low **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1998.000	50.02	-4.89	45.13	74.00	-28.87	peak	V
4825.000	40.14	4.01	44.15	74.00	-29.85	peak	V
N/A							
1946.000	50.99	-5.17	45.82	74.00	-28.18	peak	H
4825.000	43.23	4.01	47.24	74.00	-26.76	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT 20 mode / CH Mid **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	53.18	-5.16	48.02	74.00	-25.98	peak	V
N/A							
1368.000	52.56	-8.11	44.45	74.00	-29.55	peak	H
4875.000	44.56	3.92	48.48	74.00	-25.52	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT 20 mode / CH High **Test Date:** November 22, 2014

Temperature: 27C **Tested by:** Andy Shi

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	50.00	-5.16	44.84	74.00	-29.16	peak	V
3315.000	41.93	-1.35	40.58	74.00	-33.42	peak	V
N/A							
1946.000	49.72	-5.17	44.55	74.00	-29.45	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT 40 mode / CH Low	**Test Date:**	November 22, 2014
Temperature:	27C	**Tested by:**	Andy Shi
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.000	52.57	-9.11	43.46	74.00	-30.54	peak	V
3315.000	42.46	-1.35	41.11	74.00	-32.89	peak	V
4840.000	39.42	3.98	43.40	74.00	-30.60	peak	V
N/A							
1952.000	52.86	-5.13	47.73	74.00	-26.27	peak	H
4840.000	42.98	3.98	46.96	74.00	-27.04	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT 40 mode / CH Mid	**Test Date:**	November 22, 2014
Temperature:	27C	**Tested by:**	Andy Shi
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1534.000	51.18	-7.35	43.83	74.00	-30.17	peak	V
N/A							
1368.000	52.95	-8.11	44.84	74.00	-29.16	peak	H
4860.000	42.16	3.95	46.11	74.00	-27.89	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT 40 mode / CH High	**Test Date:**	November 22, 2014
Temperature:	27C	**Tested by:**	Andy Shi
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.000	53.36	-9.11	44.25	74.00	-29.75	peak	V
N/A							
1368.000	52.26	-8.11	44.15	74.00	-29.85	peak	H
4905.000	42.17	3.88	46.05	74.00	-27.95	peak	H
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

7.8POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	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

** Decreases with the logarithm of the frequency.*

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode:	Normal Link	**Test Date:**	November 26, 2014
Temperature:	26℃	**Tested by:**	Dennis Li
Humidity:	60% RH		

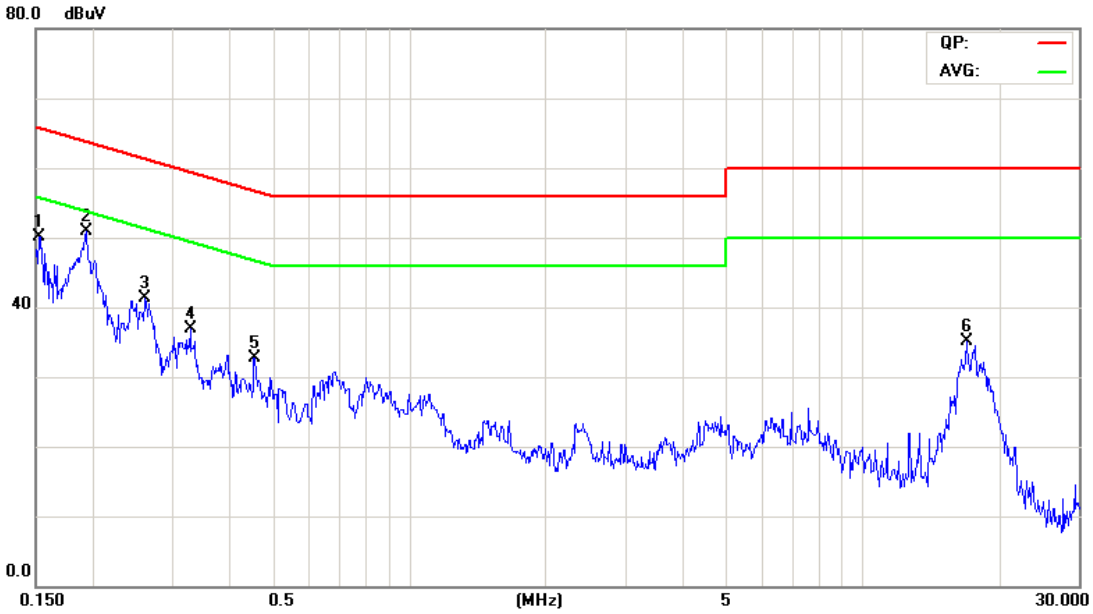
Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Note
(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
0.1502	41.62	28.46	0.07	41.69	28.53	65.99	55.99	-24.30	-27.46	L1
0.1949	47.33	35.83	0.06	47.39	35.89	63.83	53.83	-16.44	-17.94	L1
0.2600	36.93	27.74	0.06	36.99	27.80	61.43	51.43	-24.44	-23.63	L1
0.3260	33.14	22.94	0.07	33.21	23.01	59.55	49.55	-26.34	-26.54	L1
0.4544	26.83	19.27	0.07	26.90	19.34	56.79	46.79	-29.89	-27.45	L1
16.9751	28.79	22.41	0.29	29.08	22.70	60.00	50.00	-30.92	-27.30	L1
0.1947	47.75	38.30	0.03	47.78	38.33	63.83	53.83	-16.05	-15.50	L2
0.3246	38.89	30.55	0.02	38.91	30.57	59.59	49.59	-20.68	-19.02	L2
0.4551	34.73	27.18	0.02	34.75	27.20	56.78	46.78	-22.03	-19.58	L2
0.6583	32.31	26.30	0.02	32.33	26.32	56.00	46.00	-23.67	-19.68	L2
1.1031	27.61	22.05	0.03	27.64	22.08	56.00	46.00	-28.36	-23.92	L2
16.6374	31.38	23.86	0.22	31.60	24.08	60.00	50.00	-28.40	-25.92	L2

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)