



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

AC1200 Dual-Band Wireless LAN Repeater

Model: EW-7476RPC

Trade Name: EDIMAX

Issued to

EDIMAX TECHNOLOGY CO., LTD.

No.3,Wu-Chuan 3rd Road,Wu-Ku Industrial Park, New Taipei City, Taiwan

Issued by

Compliance Certification Services Inc.

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

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Issued Date: June 15, 2015



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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	June 15, 2015	Initial Issue	ALL	Kelly Cheng



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1. TEST RESULT CERTIFICATION

Applicant: EDIMAX TECHNOLOGY CO., LTD.
No.3,Wu-Chuan 3rd Road,Wu-Ku Industrial Park, New Taipei City,
Taiwan

Equipment Under Test: AC1200 Dual-Band Wireless LAN Repeater

Trade Name: EDIMAX

Model Number: EW-7476RPC

Date of Test: June 9 ~ 10, 2015

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:

Reviewed by:

Miller Lee
Manager
Compliance Certification Services Inc.

Angel Cheng
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	AC1200 Dual-Band Wireless LAN Repeater
Trade Name	EDIMAX
Model Number	EW-7476RPC
Model Discrepancy	N/A
Received Date	May 29, 2015
Power Supply	Power from host device
Frequency Range	2412 ~ 2462 MHz
Transmit Power	IEEE 802.11b mode: 21.55 dBm IEEE 802.11g mode: 26.57 dBm IEEE 802.11n HT 20 mode: 26.43 dBm IEEE 802.11n HT 40 mode: 26.24 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 1. LYN wave / ALA150-222031 / Gain: 3.35 dBi 2. LYN wave / ALA150-222030 / Gain: 2.05 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: **NDD9574761501** 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.

3.1 EUT 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.

3.2 EUT 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.

3.3 GENERAL 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 1.5 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.



3.4 FCC 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.



3.5 DESCRIPTION OF TEST MODES

The EUT (Model: EW-7476RPC) was found to emit the worst emissions and therefore had been tested under operating 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 lie-down position (Y axis) and the worst case was recorded.



4. INSTRUMENT CALIBRATION

4.1 MEASURING 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.

4.2 MEASUREMENT 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	US42510252	11/23/2015
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/07/2015
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	06/07/2016
Power Sensor	Anritsu	MA2411A	0917072	06/08/2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/09/2015

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	09/18/2015
EMI Test Receiver	R&S	ESCI	100064	06/04/2016
Bilog Antenna	Sunol Sciences	JB3	A030105	08/19/2015
Horn Antenna	EMCO	3117	00055165	01/26/2016
Horn Antenna	EMCO	3116	26370	12/25/2015
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
Pre-Amplifier	MITEQ	1652-3000	1490939	08/09/2016
Pre-Amplifier	EMC	EMC 01265	4035	08/09/2016
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	12/25/2015
Coaxial Cable	Huber+Suhner	102	29212/2	12/25/2015
Coaxial Cable	Huber+Suhner	102	29406/2	12/25/2015
Test S/W	EZ-EMC (CCS-3A1RE)			

Conducted Emission room # B				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	101073	09/18/2015
LISN	R&S	ENV216	101054	06/06/2016
LISN	SCHWARZBECK	NSLK 8127	8127-541	11/25/2015
Capacitive Voltage Probe	FCC	F-CVP-1	100185	03/12/2016
Test S/W	CCS-3A1-CE			



4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2575
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

5.1 FACILITIES

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

- ☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
- ☒ No.139, Wugong Rd., Wugu Dist., New Taipei City 24891, Taiwan (R.O.C.)
- ☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

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

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

5.2 EQUIPMENT

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.

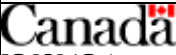
Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

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."



5.3 TABLE 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	 Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 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

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	TOSHIBA	Satellite M840	N/A	PPD-AR5B225	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.



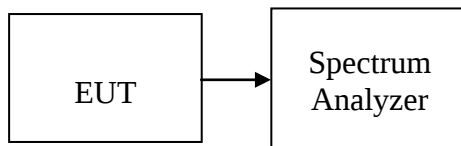
7. FCC PART 15.247 REQUIREMENTS

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 $\geq 3 \times$ 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 / Chain 0**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	9.75	>500	PASS
Mid	2437	10.3333		PASS
High	2462	9.3334		PASS

Test mode: IEEE 802.11b mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.3334	>500	PASS
Mid	2437	10.3334		PASS
High	2462	9.9167		PASS

Test mode: IEEE 802.11g mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.8333	>500	PASS
Mid	2437	16.9167		PASS
High	2462	16.8333		PASS

Test mode: IEEE 802.11g mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.5833	>500	PASS
Mid	2437	16.8334		PASS
High	2462	16.8334		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	17.8333		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.8334	>500	PASS
Mid	2437	17.9167		PASS
High	2462	17.8334		PASS

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

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.5834	>500	PASS
Mid	2437	36.75		PASS
High	2452	36.6667		PASS

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

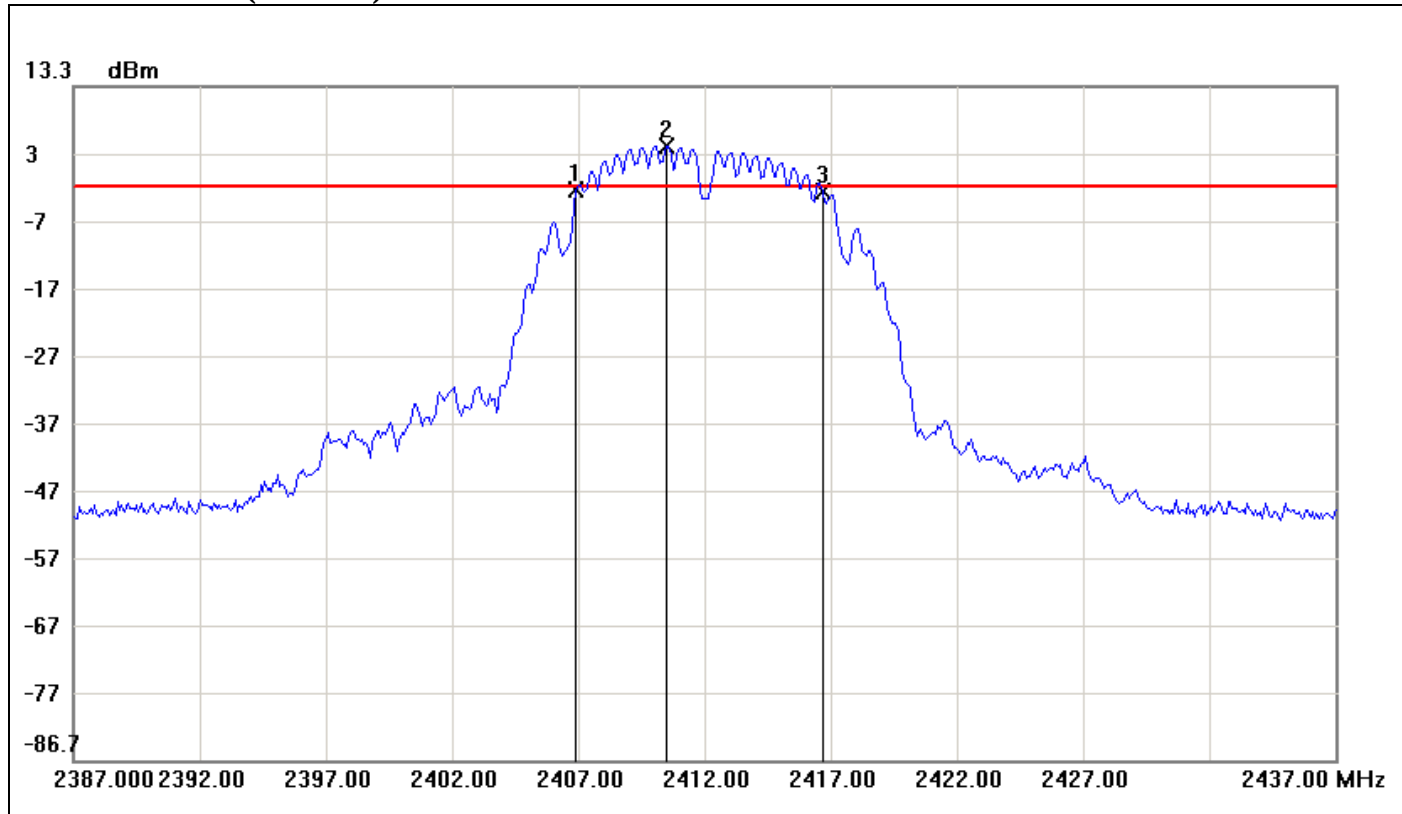
Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.5833	>500	PASS
Mid	2437	36.5833		PASS
High	2452	36.5833		PASS



Test Plot

IEEE 802.11b mode / Chain 0

6dB Bandwidth (CH Low)

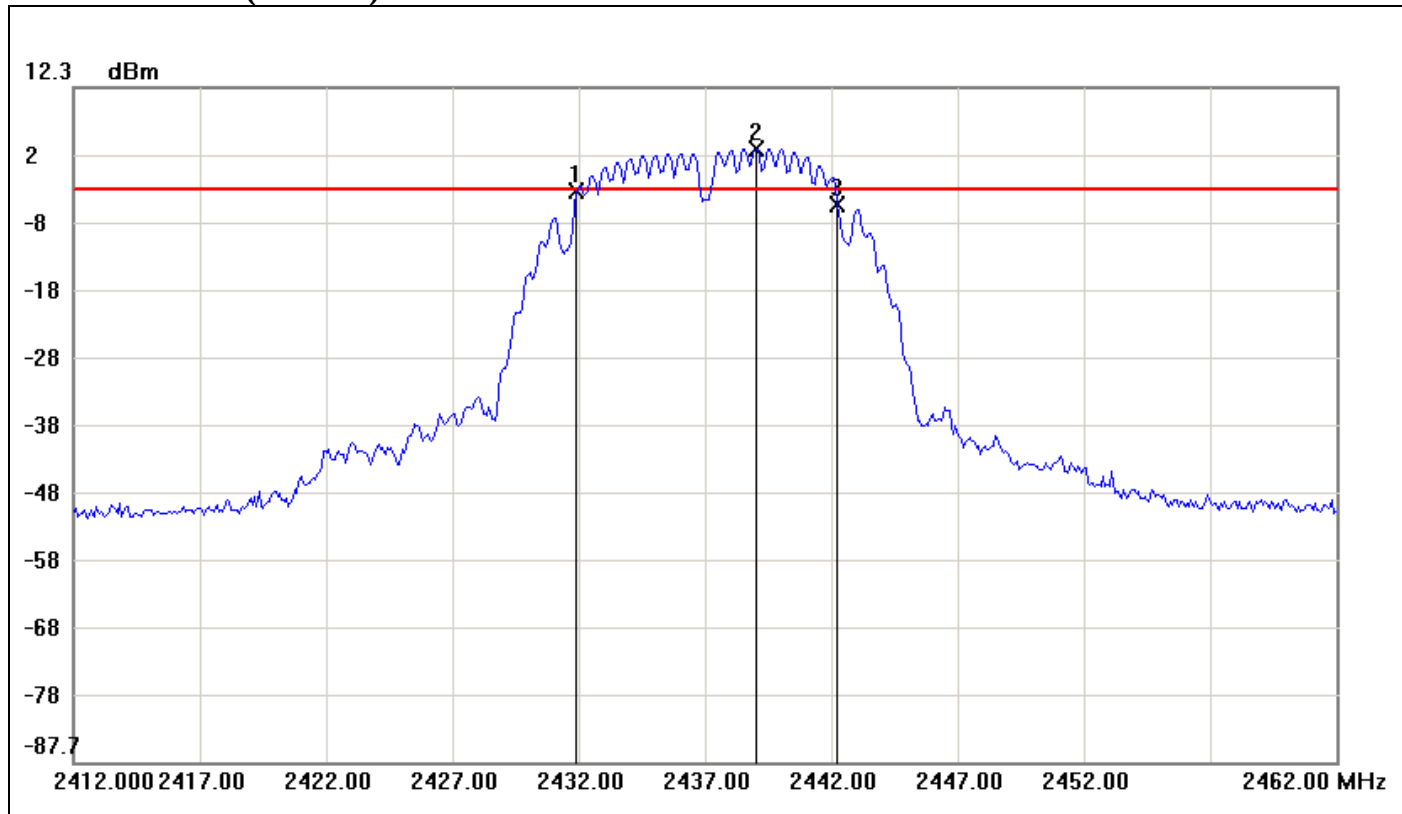


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2406.9167	-2.00	-1.57	-0.43
2	2410.5000	4.43	-1.57	6.00
3	2416.6667	-2.22	-1.57	-0.65

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	9.75	-0.22



6dB Bandwidth (CH Mid)

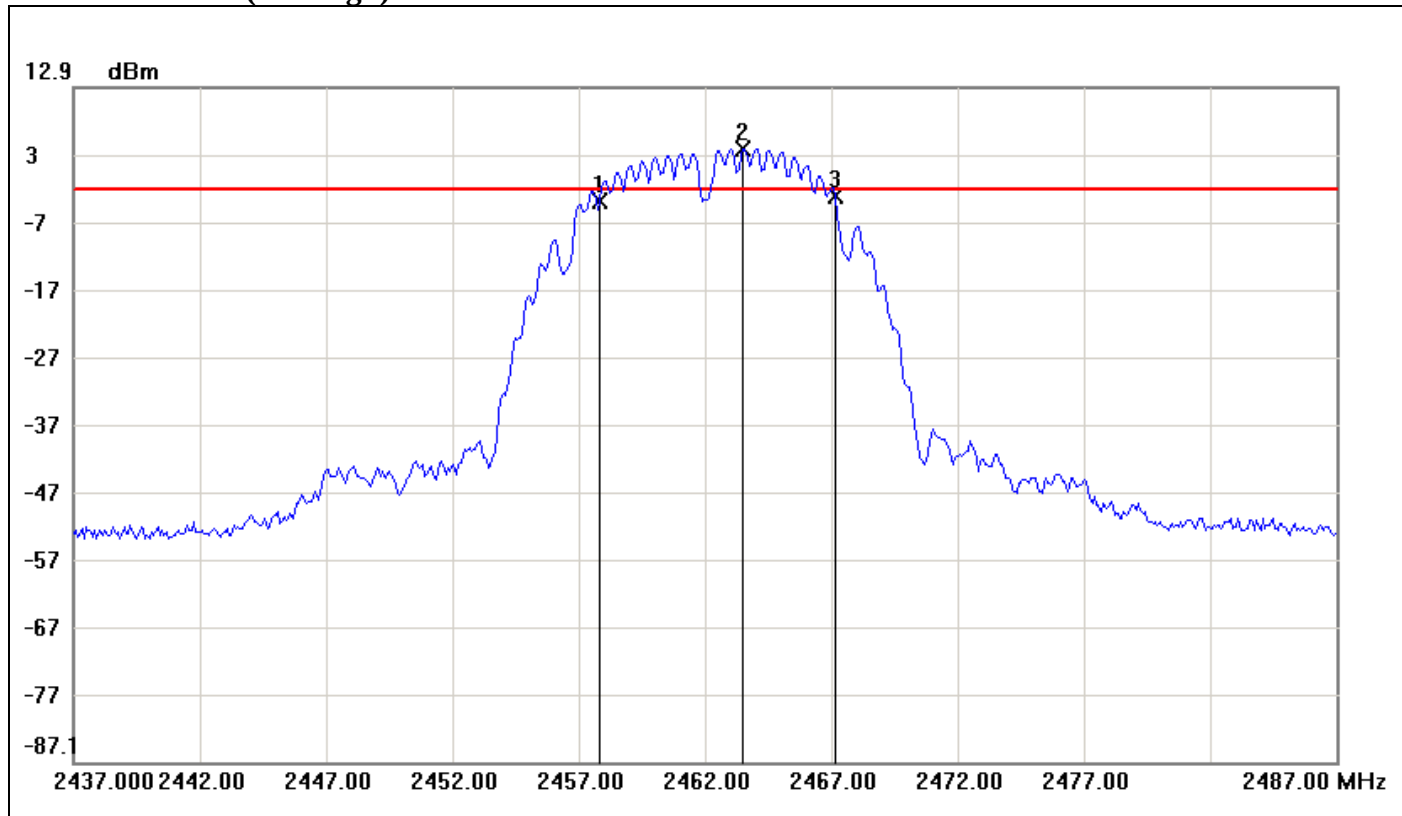


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2431.9167	-3.13	-2.71	-0.42
2	2439.0000	3.29	-2.71	6.00
3	2442.2500	-5.05	-2.71	-2.34

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	10.3333	-1.92



6dB Bandwidth (CH High)



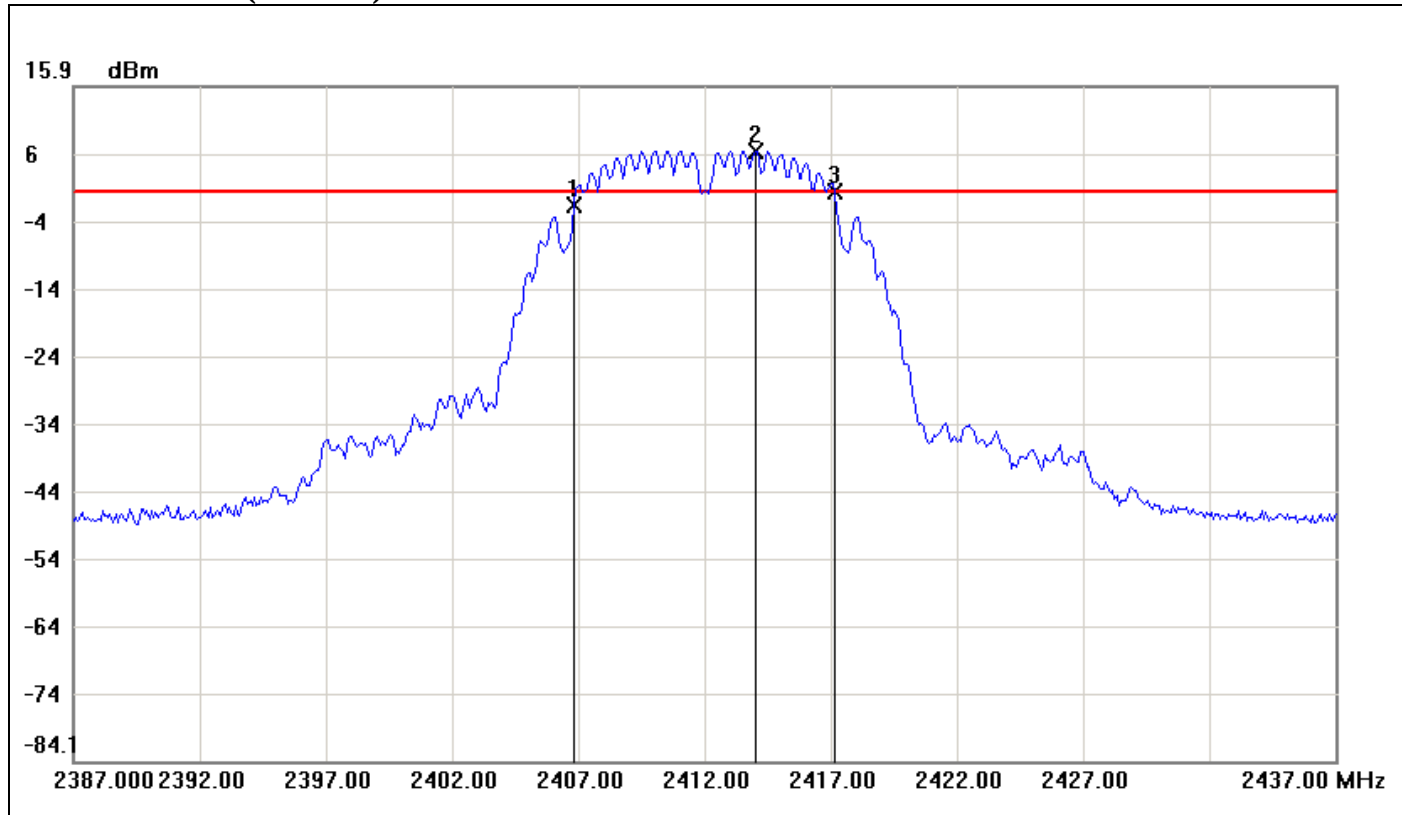
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2457.8333	-4.01	-2.17	-1.84
2	2463.5000	3.83	-2.17	6.00
3	2467.1667	-3.23	-2.17	-1.06

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	9.3334	0.78



IEEE 802.11b mode / Chain 1

6dB Bandwidth (CH Low)

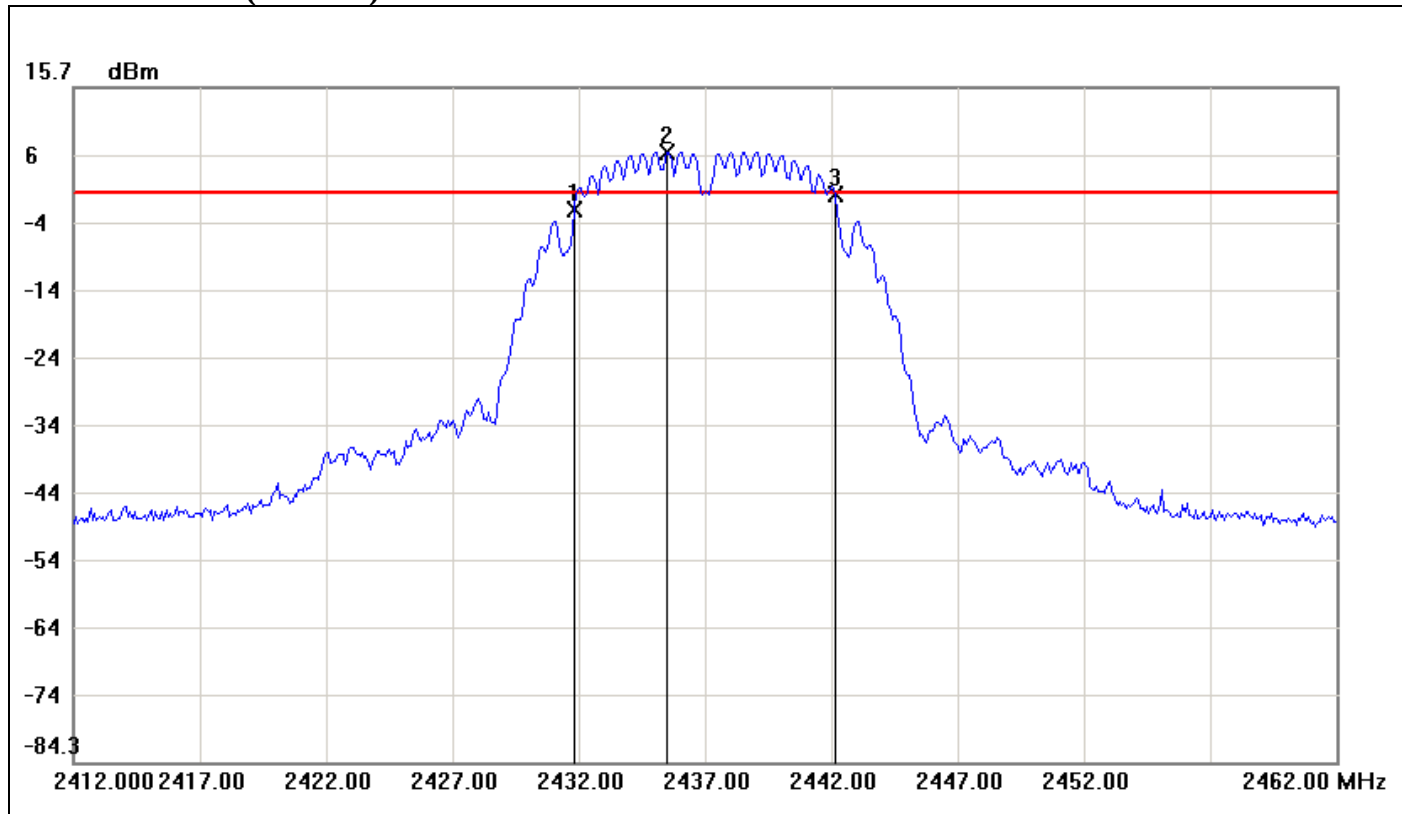


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2406.8333	-1.79	0.32	-2.11
2	2414.0000	6.32	0.32	6.00
3	2417.1667	0.29	0.32	-0.03

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	10.3334	2.08



6dB Bandwidth (CH Mid)

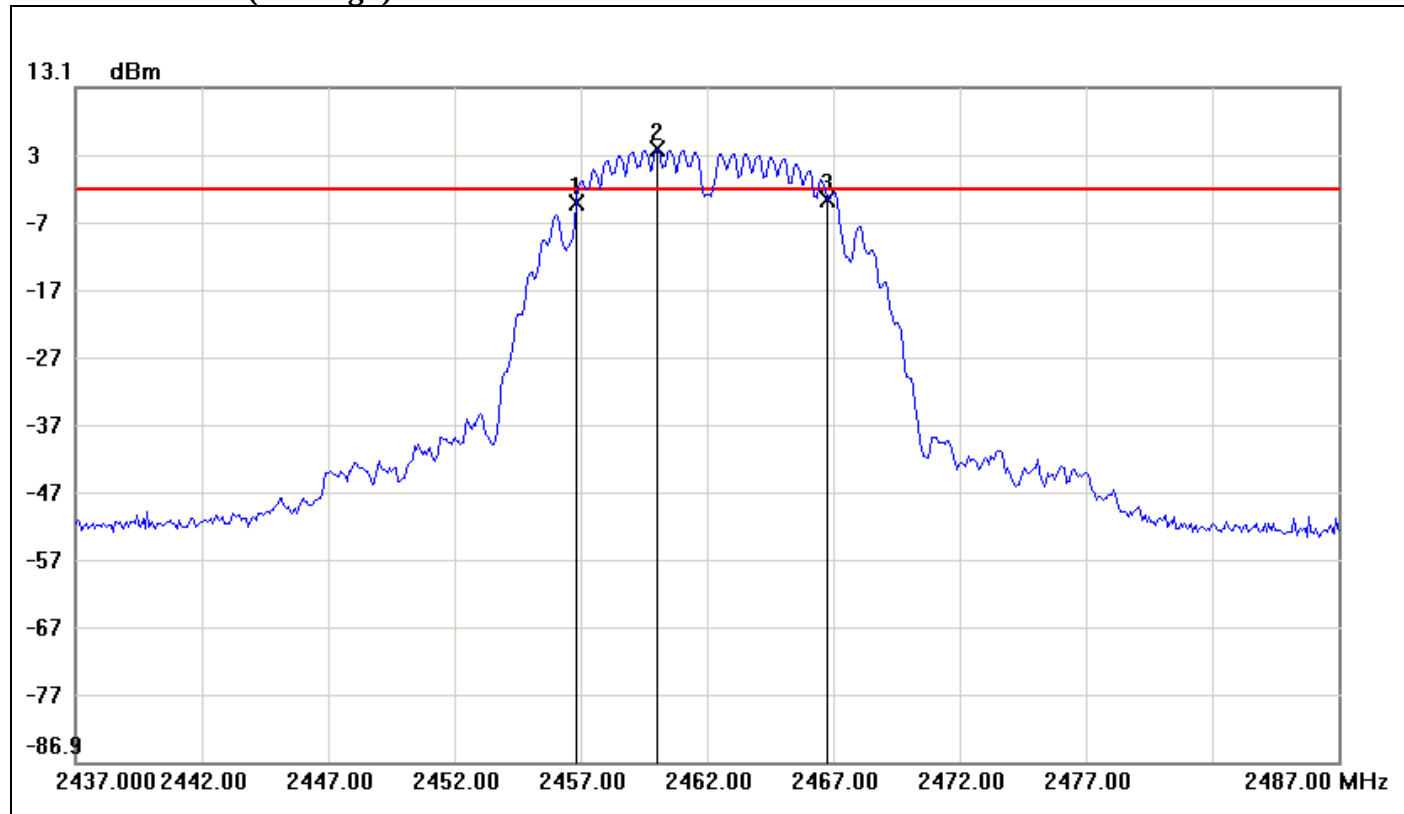


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2431.8333	-2.38	0.08	-2.46
2	2435.5000	6.08	0.08	6.00
3	2442.1667	-0.20	0.08	-0.28

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	10.3334	2.18



6dB Bandwidth (CH High)



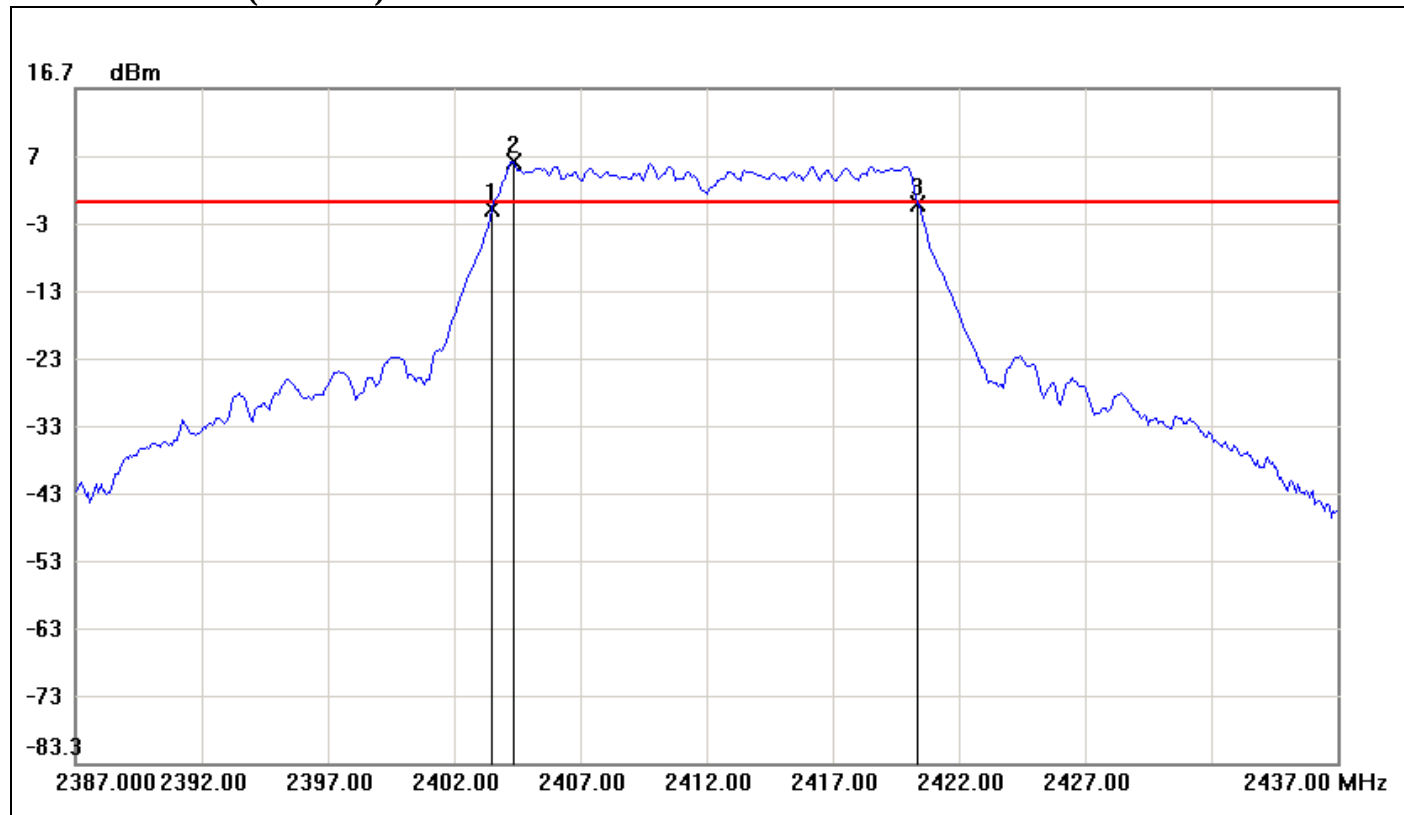
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2456.8333	-4.09	-2.11	-1.98
2	2460.0000	3.89	-2.11	6.00
3	2466.7500	-3.44	-2.11	-1.33

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	9.9167	0.65



IEEE 802.11g mode / Chain 0

6dB Bandwidth (CH Low)

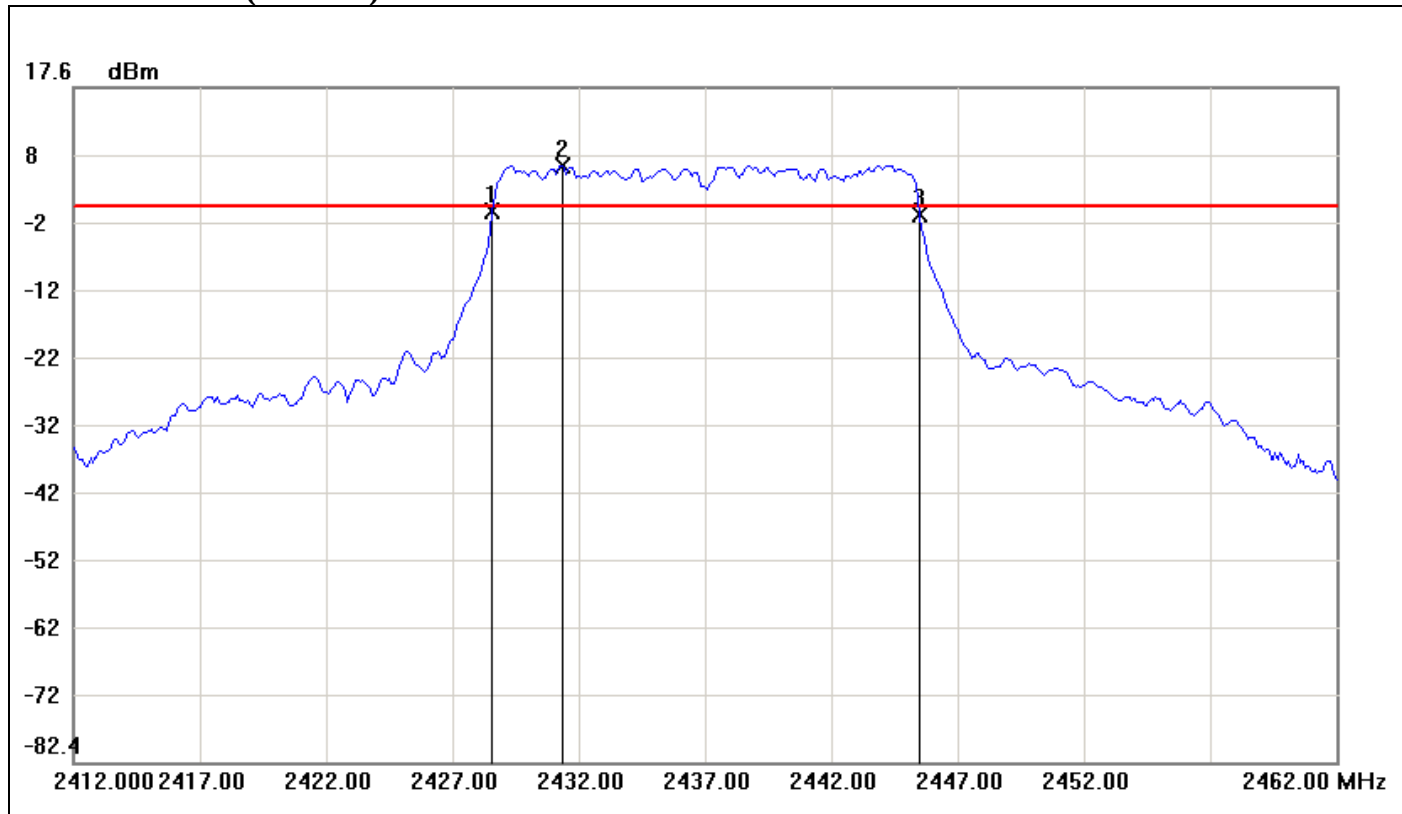


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.5000	-1.13	-0.14	-0.99
2	2404.3333	5.86	-0.14	6.00
3	2420.3333	-0.33	-0.14	-0.19

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.8333	0.8



6dB Bandwidth (CH Mid)

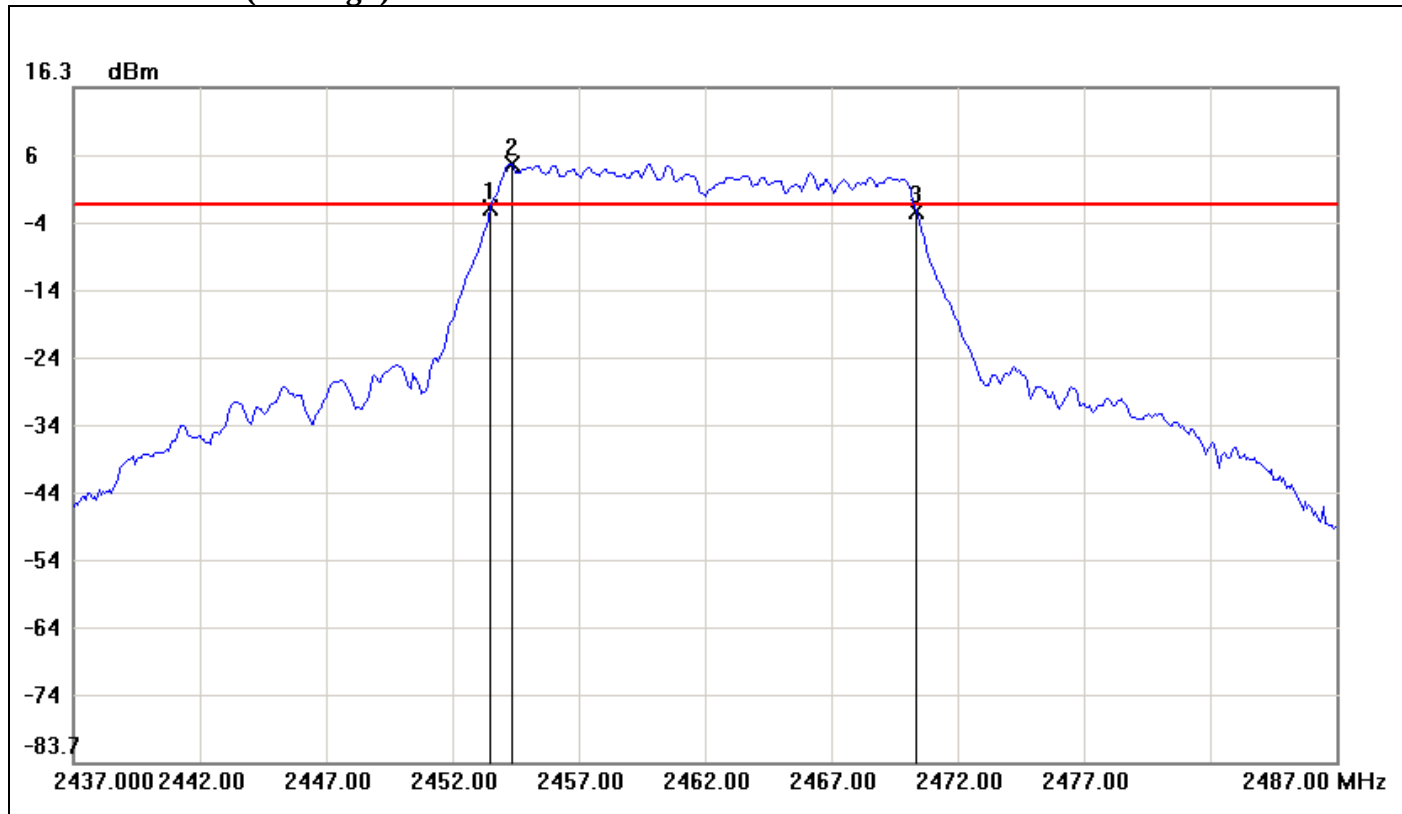


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.5833	-0.79	-0.04	-0.75
2	2431.3333	5.96	-0.04	6.00
3	2445.5000	-1.33	-0.04	-1.29

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.9167	-0.54



6dB Bandwidth (CH High)



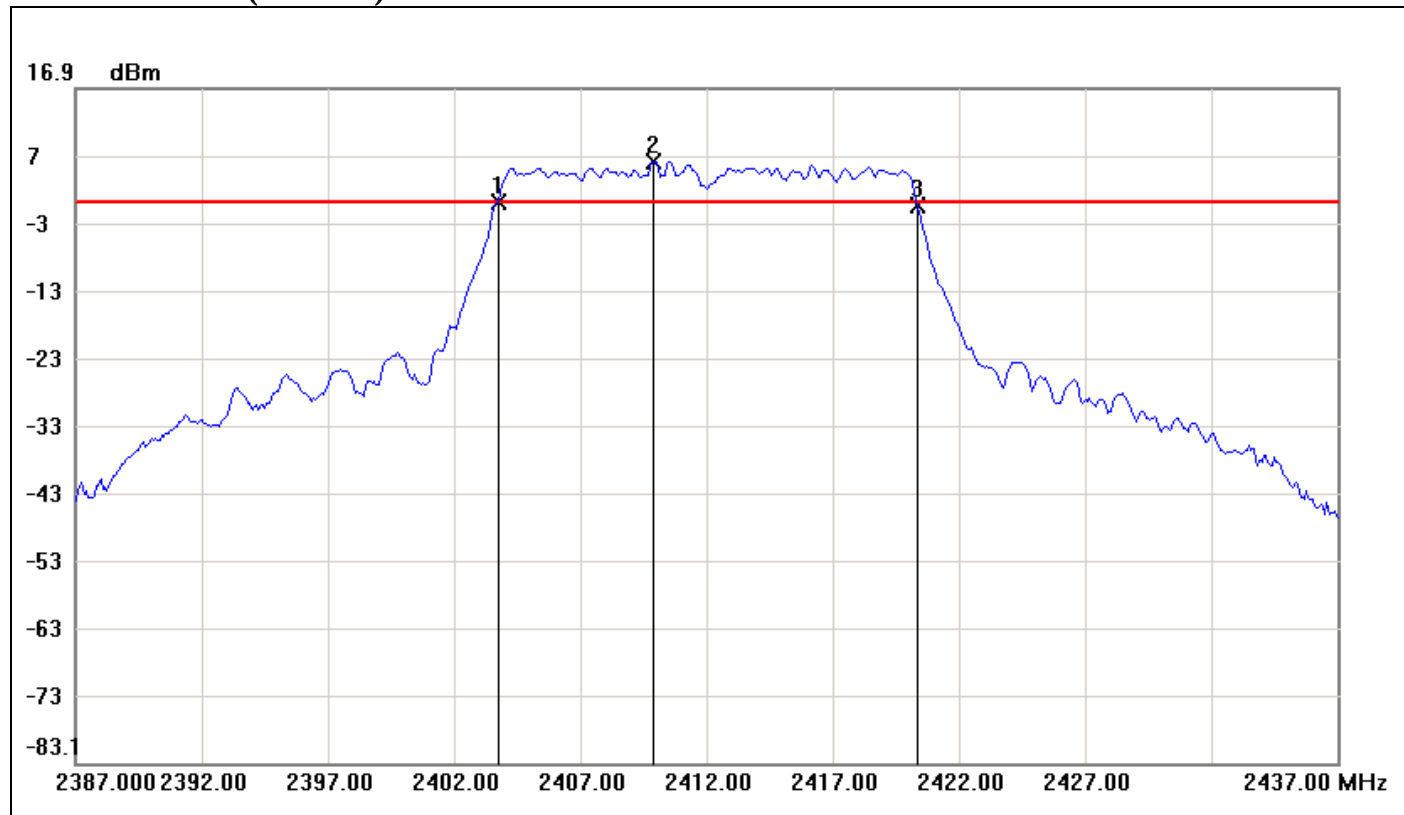
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.5000	-1.60	-1.03	-0.57
2	2454.3333	4.97	-1.03	6.00
3	2470.3333	-1.99	-1.03	-0.96

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.8333	-0.39



IEEE 802.11g mode / Chain 1

6dB Bandwidth (CH Low)

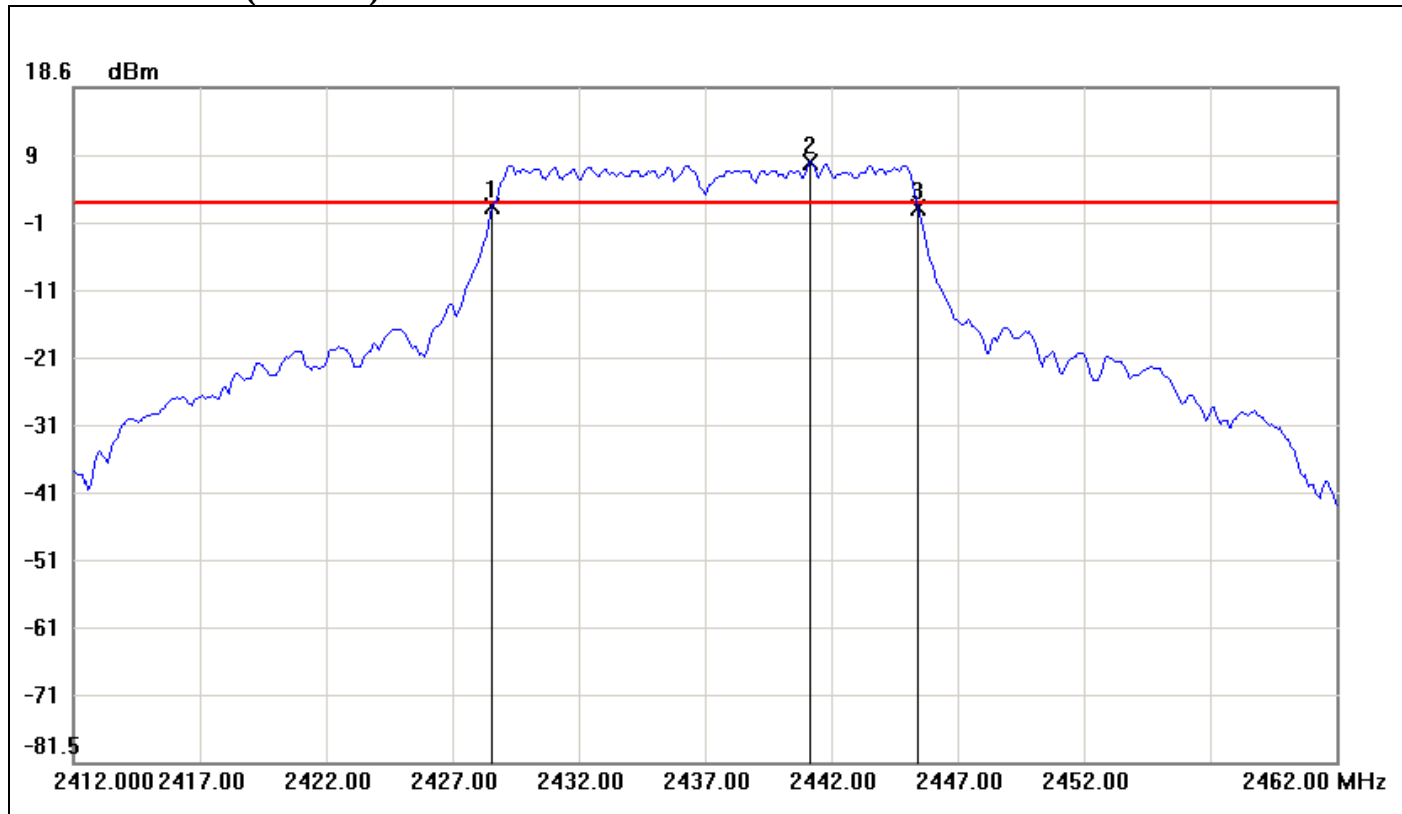


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-0.04	0.11	-0.15
2	2409.9167	6.11	0.11	6.00
3	2420.3333	-0.53	0.11	-0.64

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.5833	-0.49



6dB Bandwidth (CH Mid)

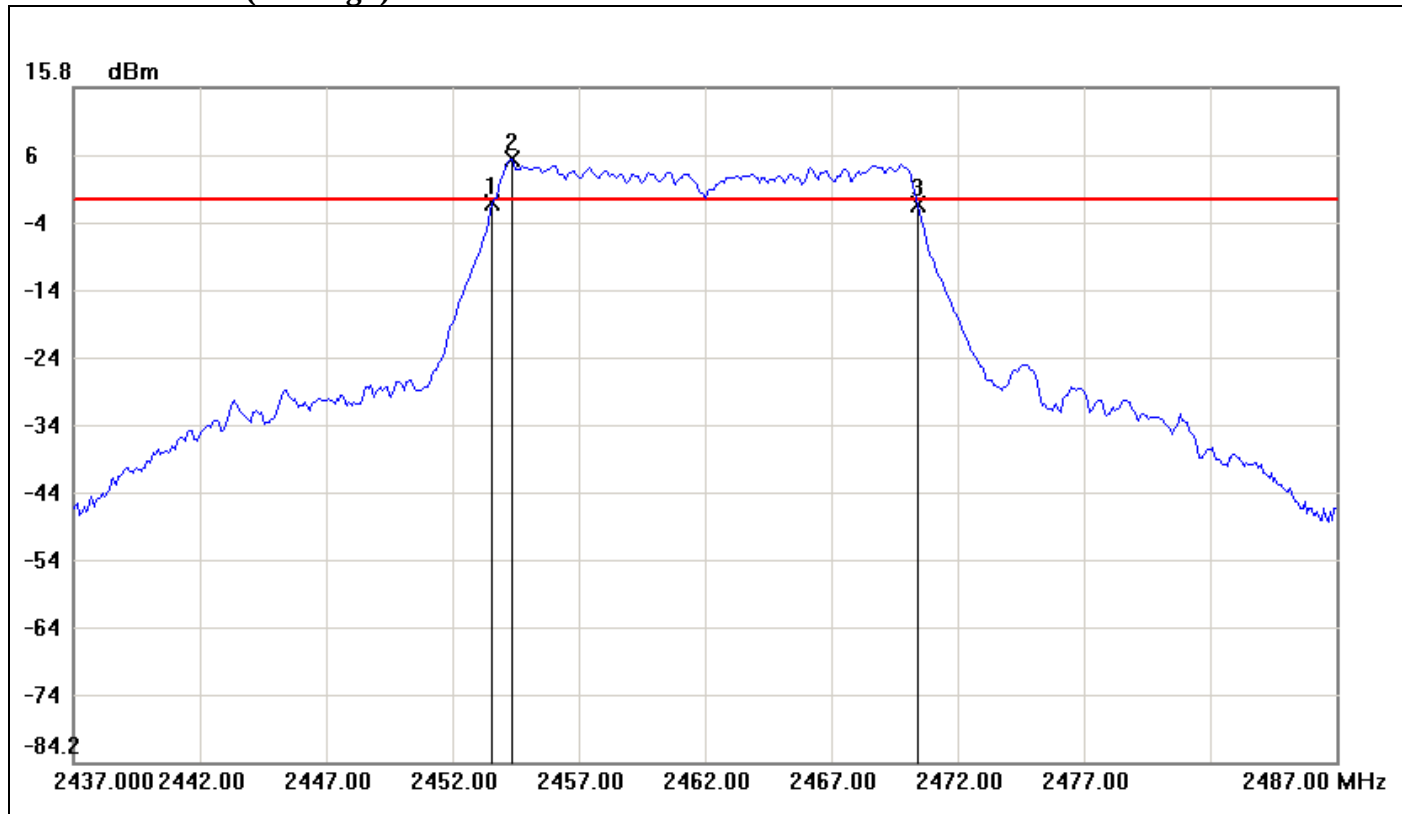


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.5833	0.92	1.55	-0.63
2	2441.1667	7.55	1.55	6.00
3	2445.4167	0.74	1.55	-0.81

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.8334	-0.18



6dB Bandwidth (CH High)



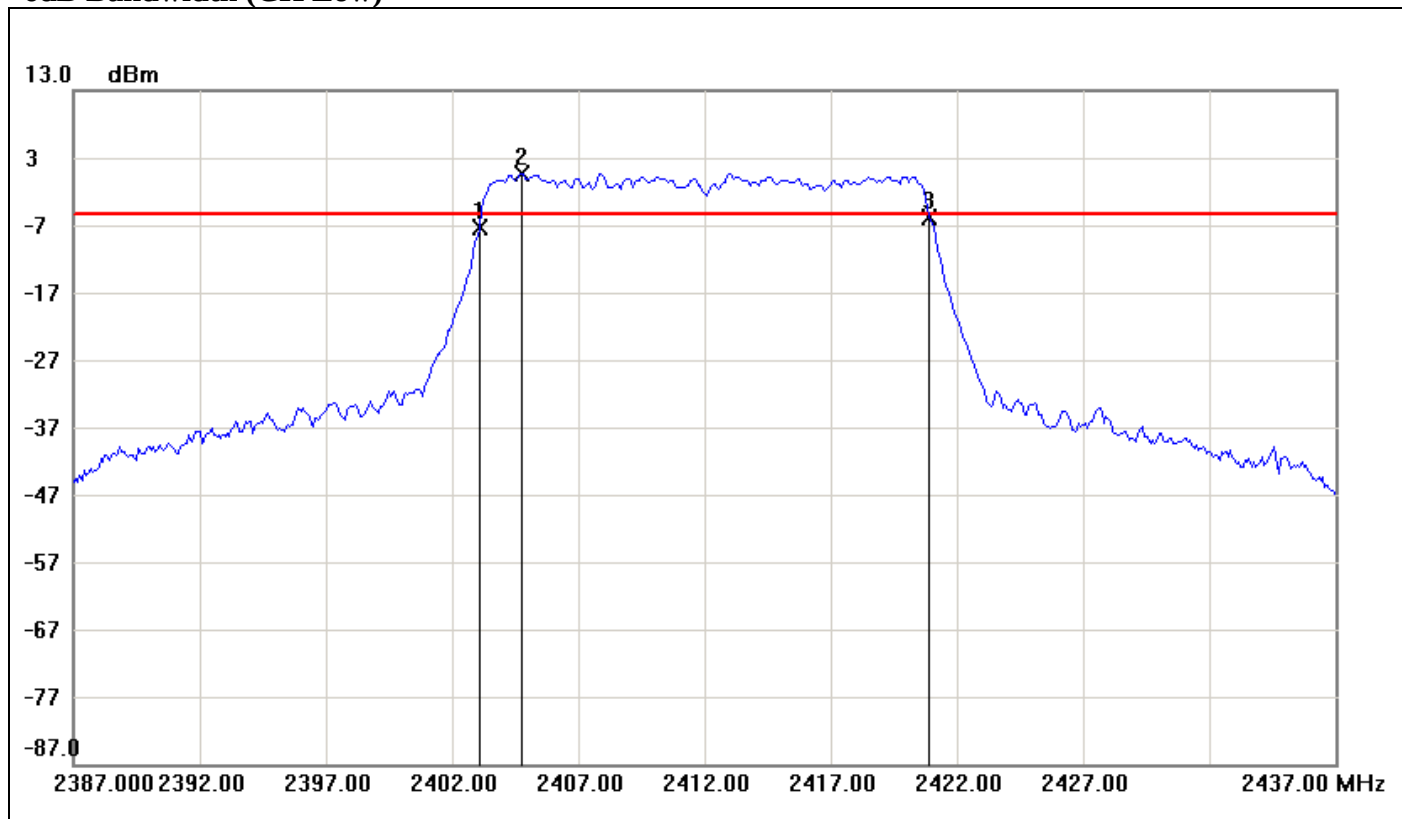
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.5833	-1.32	-0.93	-0.39
2	2454.3333	5.07	-0.93	6.00
3	2470.4167	-1.66	-0.93	-0.73

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.8334	-0.34



IEEE 802.11n HT 20 mode / Chain 0

6dB Bandwidth (CH Low)

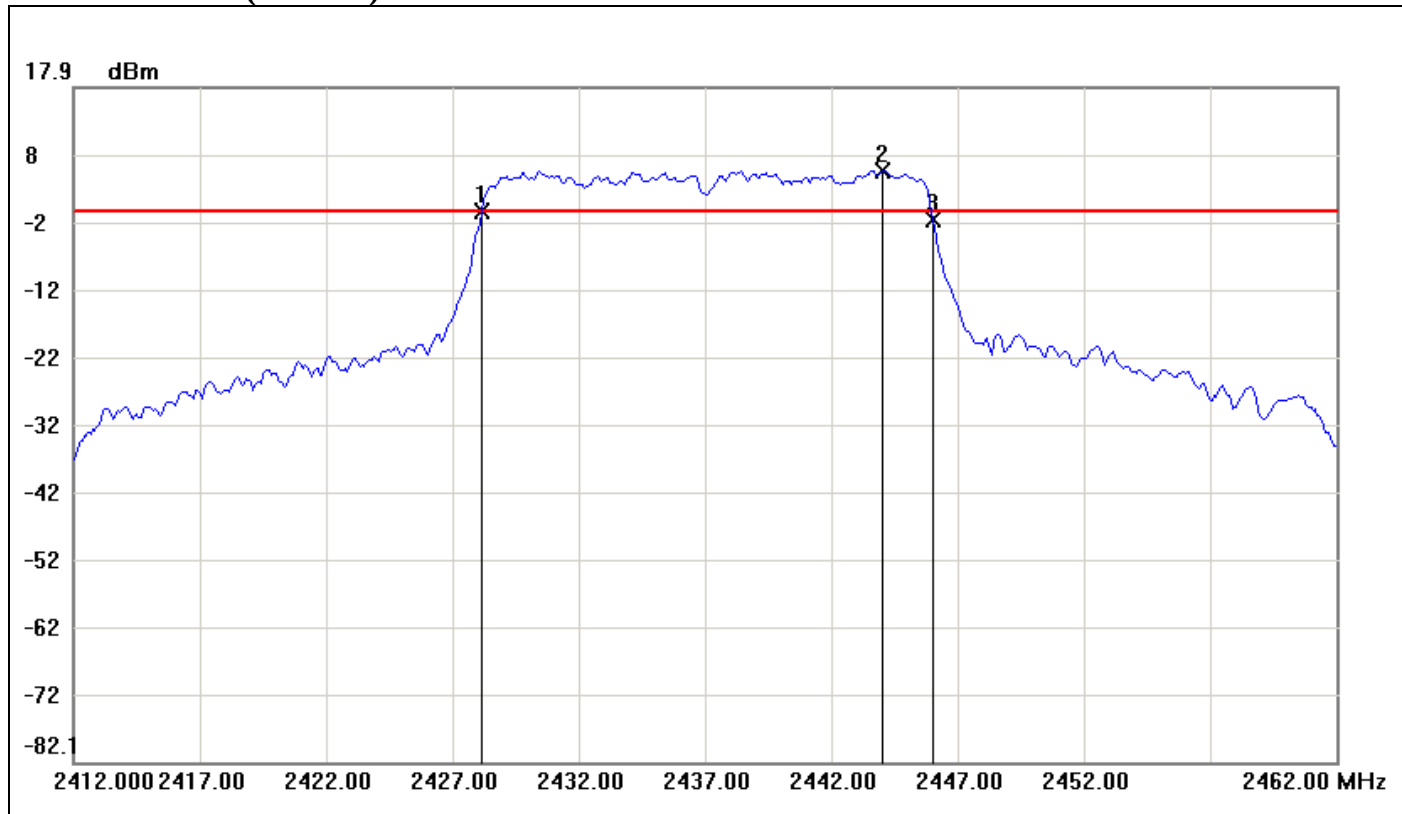


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-7.25	-5.27	-1.98
2	2404.7500	0.73	-5.27	6.00
3	2420.9167	-5.92	-5.27	-0.65

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.8334	1.33



6dB Bandwidth (CH Mid)

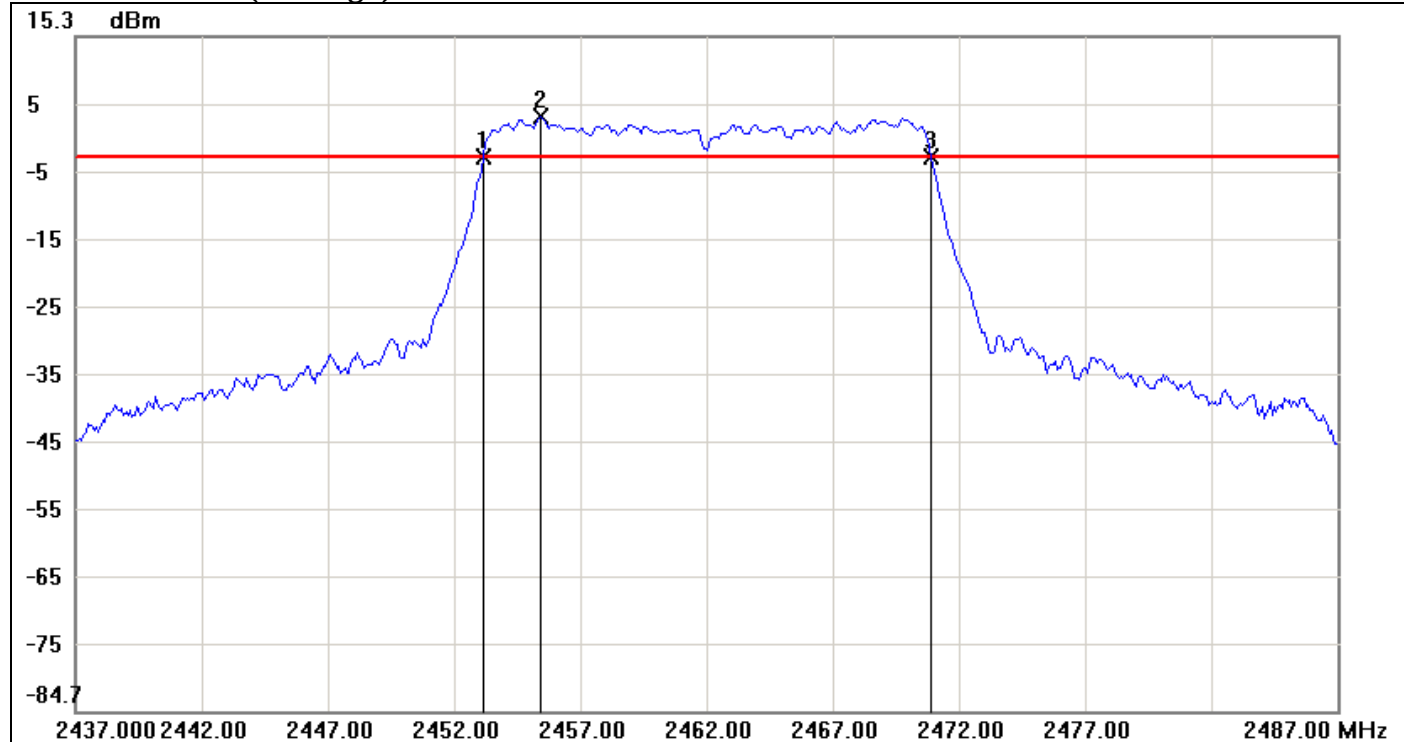


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.1667	-0.56	-0.34	-0.22
2	2444.0000	5.66	-0.34	6.00
3	2446.0000	-1.82	-0.34	-1.48

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.8333	-1.26



6dB Bandwidth (CH High)



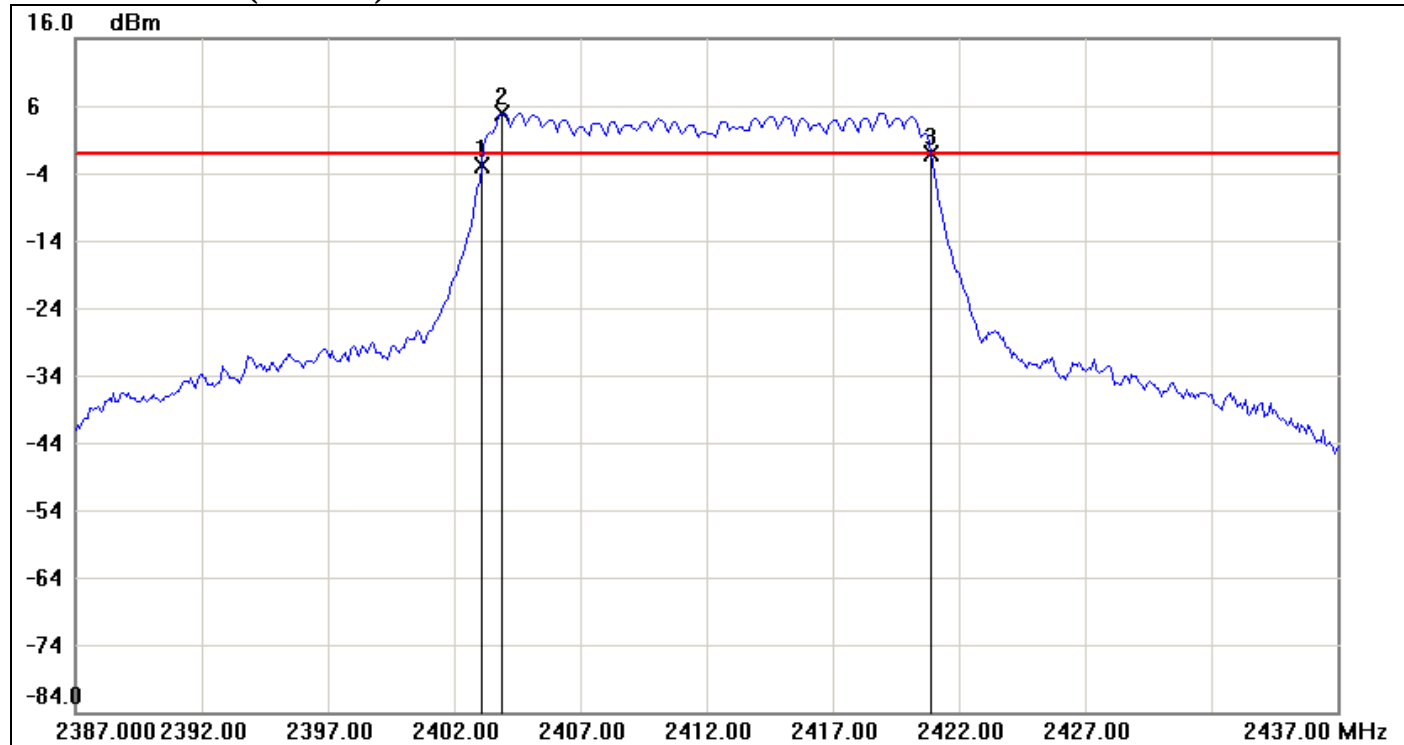
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.1667	-2.70	-2.61	-0.09
2	2455.4167	3.39	-2.61	6.00
3	2470.9167	-2.69	-2.61	-0.08

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	0.01



IEEE 802.11n HT 20 mode / Chain 1

6dB Bandwidth (CH Low)

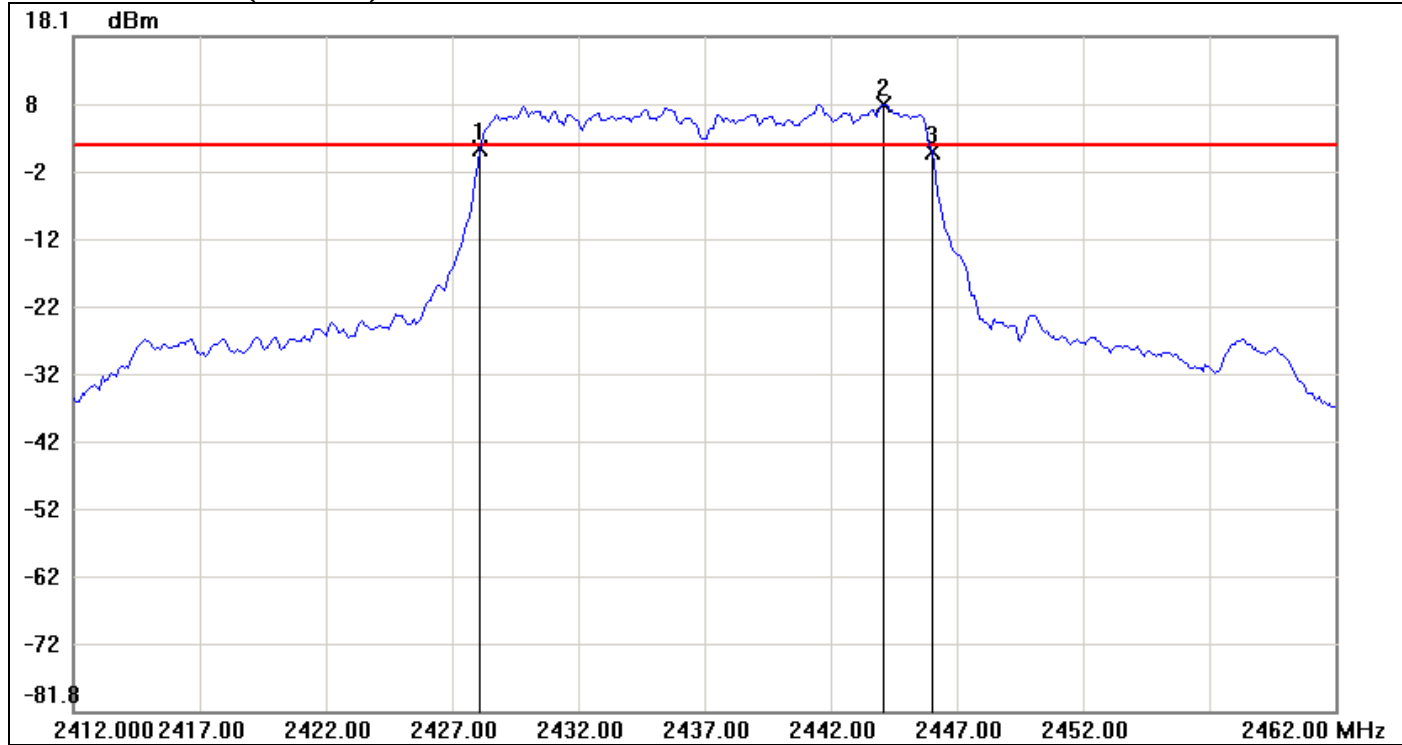


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-2.93	-1.03	-1.90
2	2403.9167	4.97	-1.03	6.00
3	2420.9167	-1.21	-1.03	-0.18

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.8334	1.72



6dB Bandwidth (CH Mid)

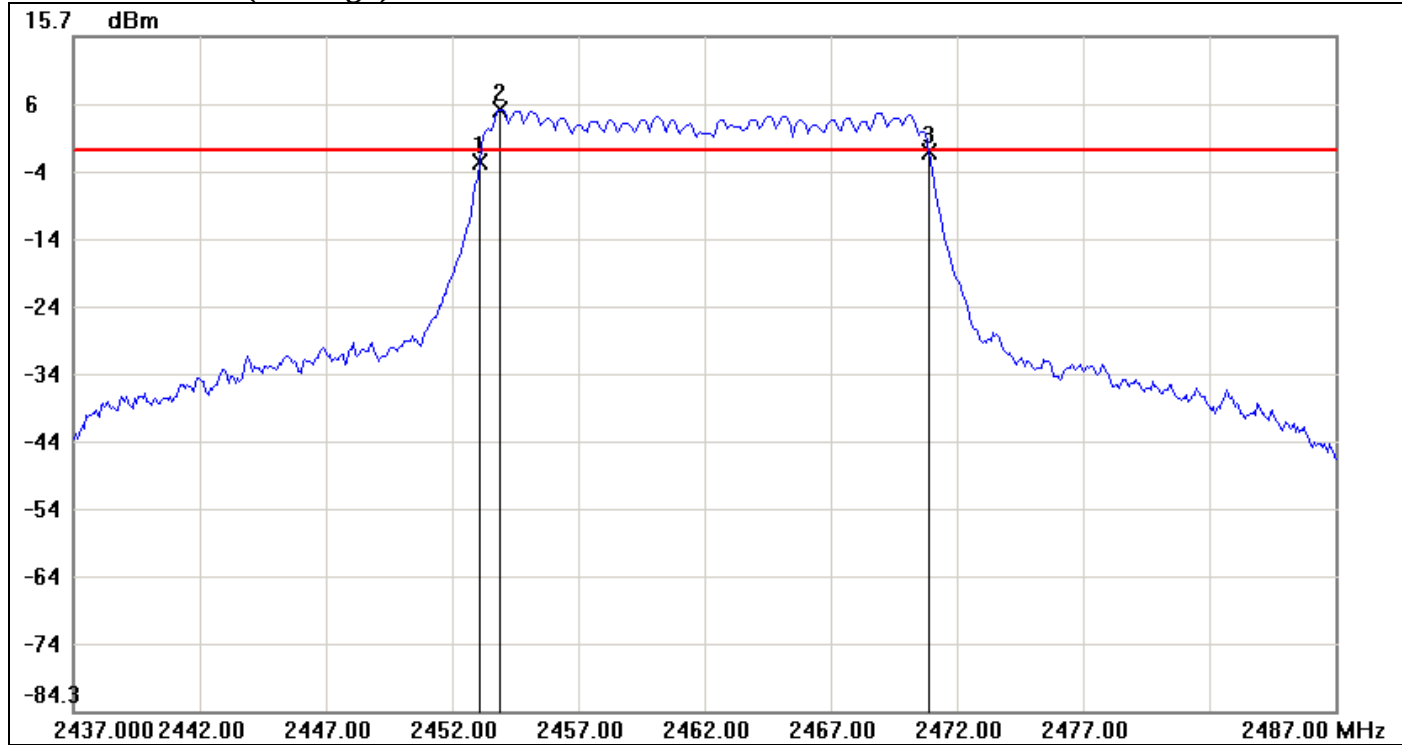


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0833	1.46	2.10	-0.64
2	2444.0833	8.10	2.10	6.00
3	2446.0000	0.97	2.10	-1.13

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.9167	-0.49

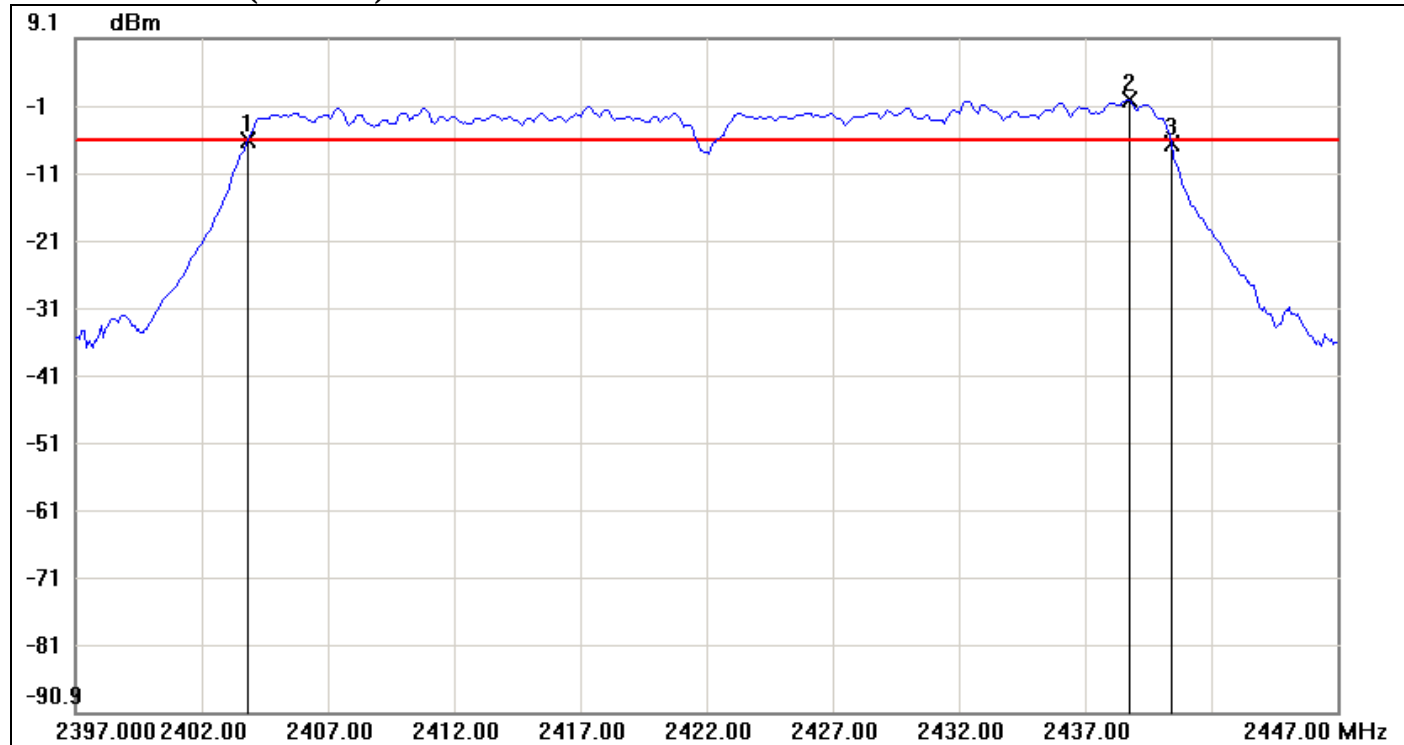


6dB Bandwidth (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-2.98	-1.08	-1.90
2	2453.9167	4.92	-1.08	6.00
3	2470.9167	-1.42	-1.08	-0.34

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.8334	1.56

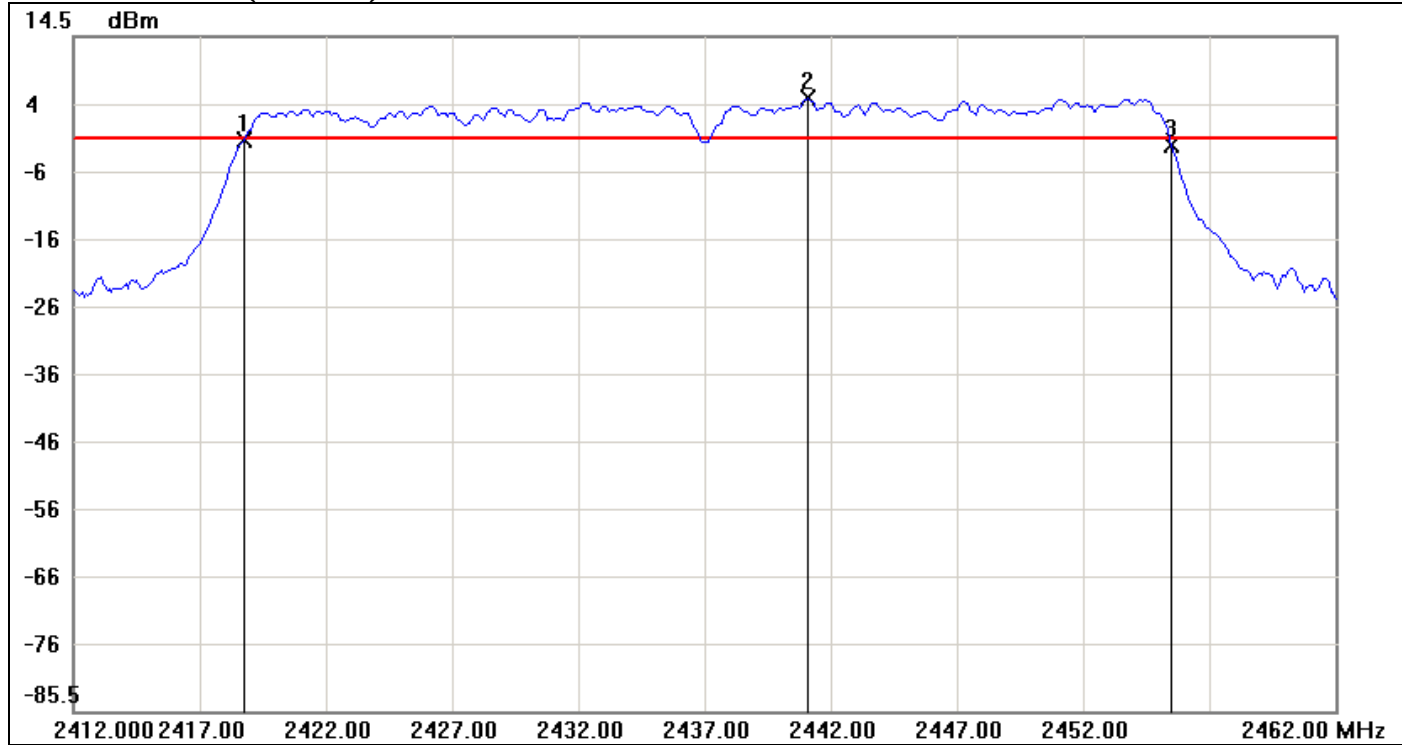
**IEEE 802.11n HT 40 mode / Chain 0****6dB Bandwidth (CH Low)**

No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.8333	-6.02	-6.01	-0.01
2	2438.7500	-0.01	-6.01	6.00
3	2440.4167	-6.51	-6.01	-0.50

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.5834	-0.49



6dB Bandwidth (CH Mid)

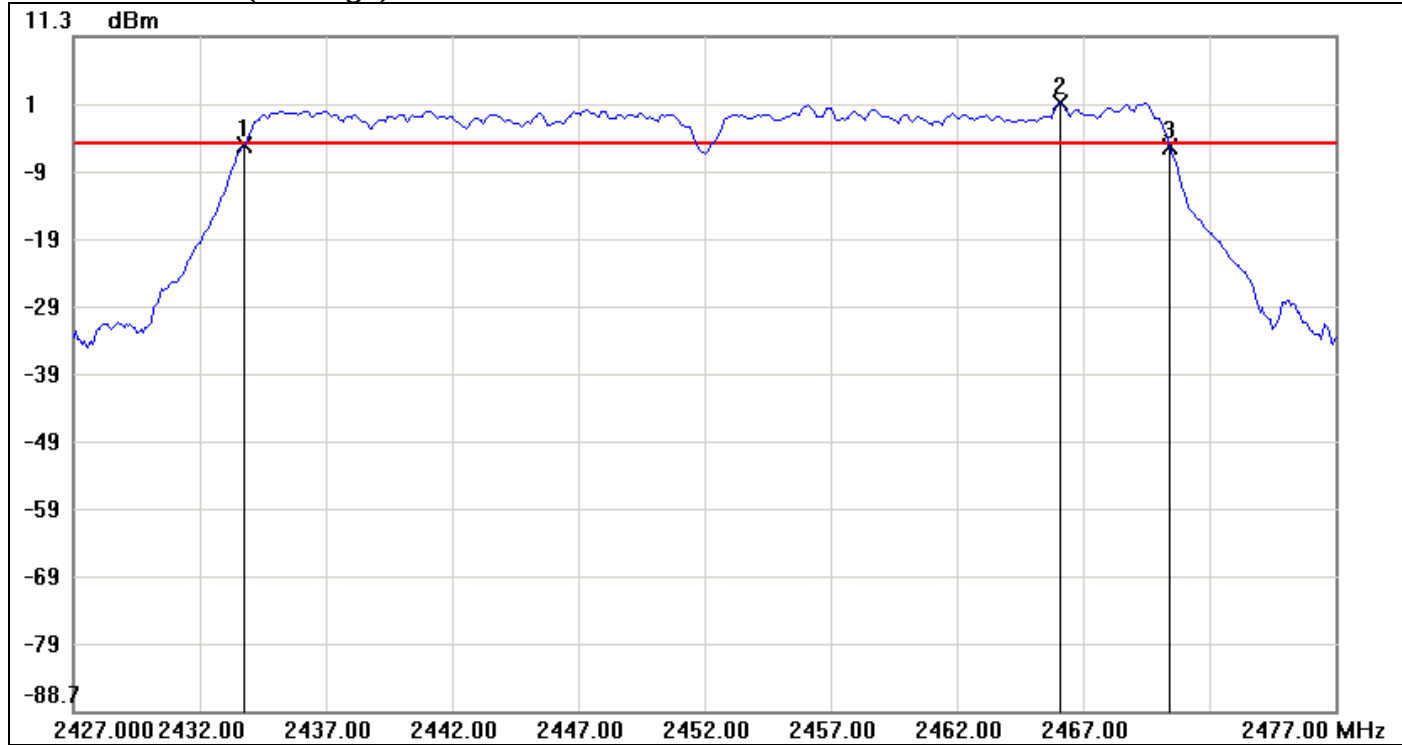


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.7500	-0.90	-0.74	-0.16
2	2441.0833	5.26	-0.74	6.00
3	2455.5000	-1.63	-0.74	-0.89

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.75	-0.73

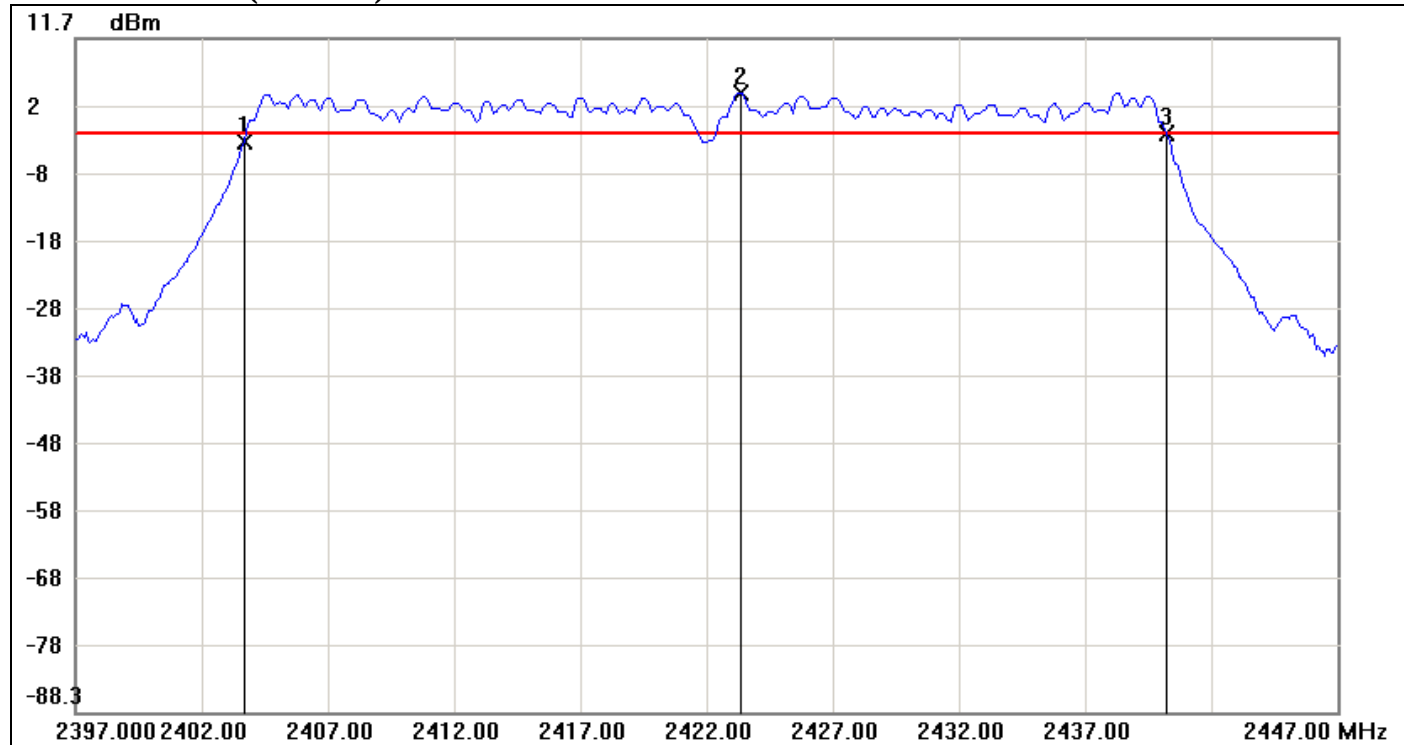


6dB Bandwidth (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7500	-4.74	-4.60	-0.14
2	2466.0833	1.40	-4.60	6.00
3	2470.4167	-5.16	-4.60	-0.56

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.6667	-0.42

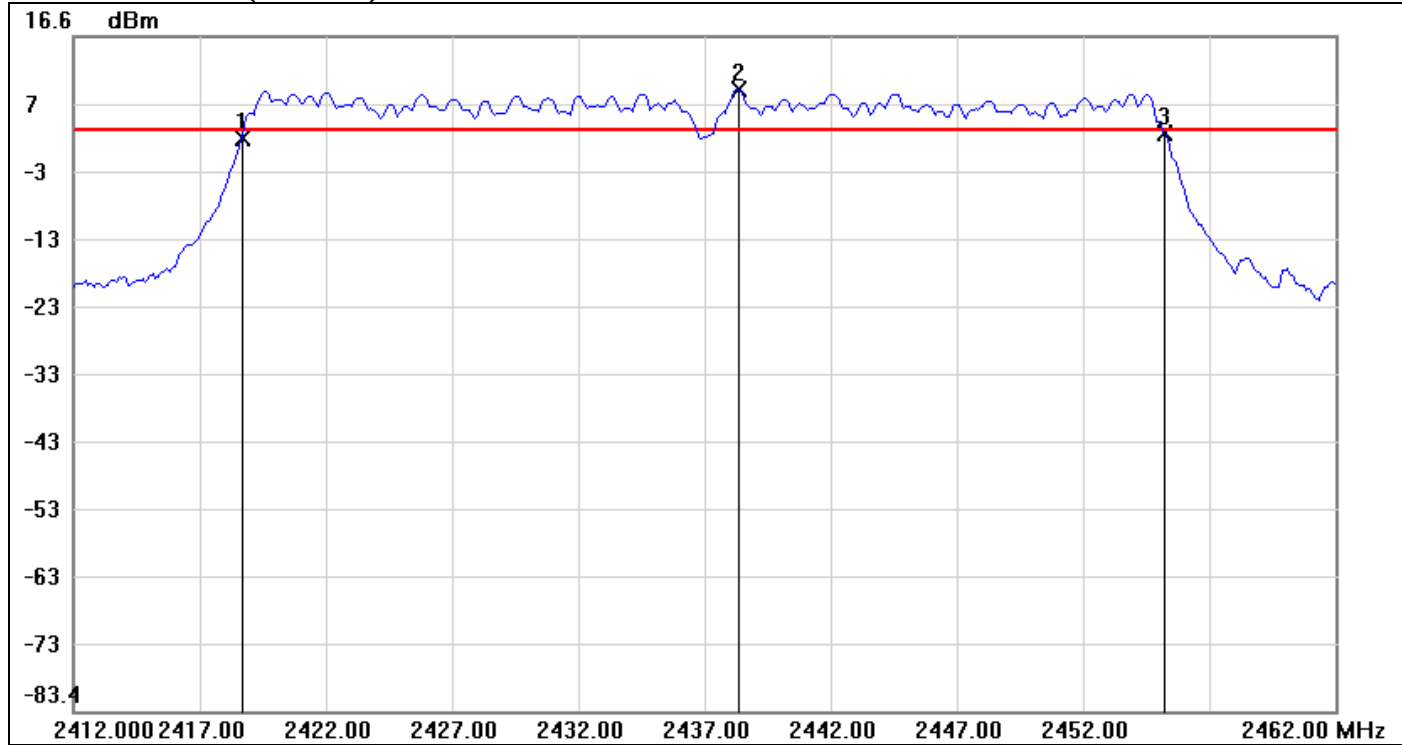
**IEEE 802.11n HT 40 mode / Chain 1****6dB Bandwidth (CH Low)**

No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.6667	-3.75	-2.41	-1.34
2	2423.3333	3.59	-2.41	6.00
3	2440.2500	-2.48	-2.41	-0.07

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.5833	1.27



6dB Bandwidth (CH Mid)

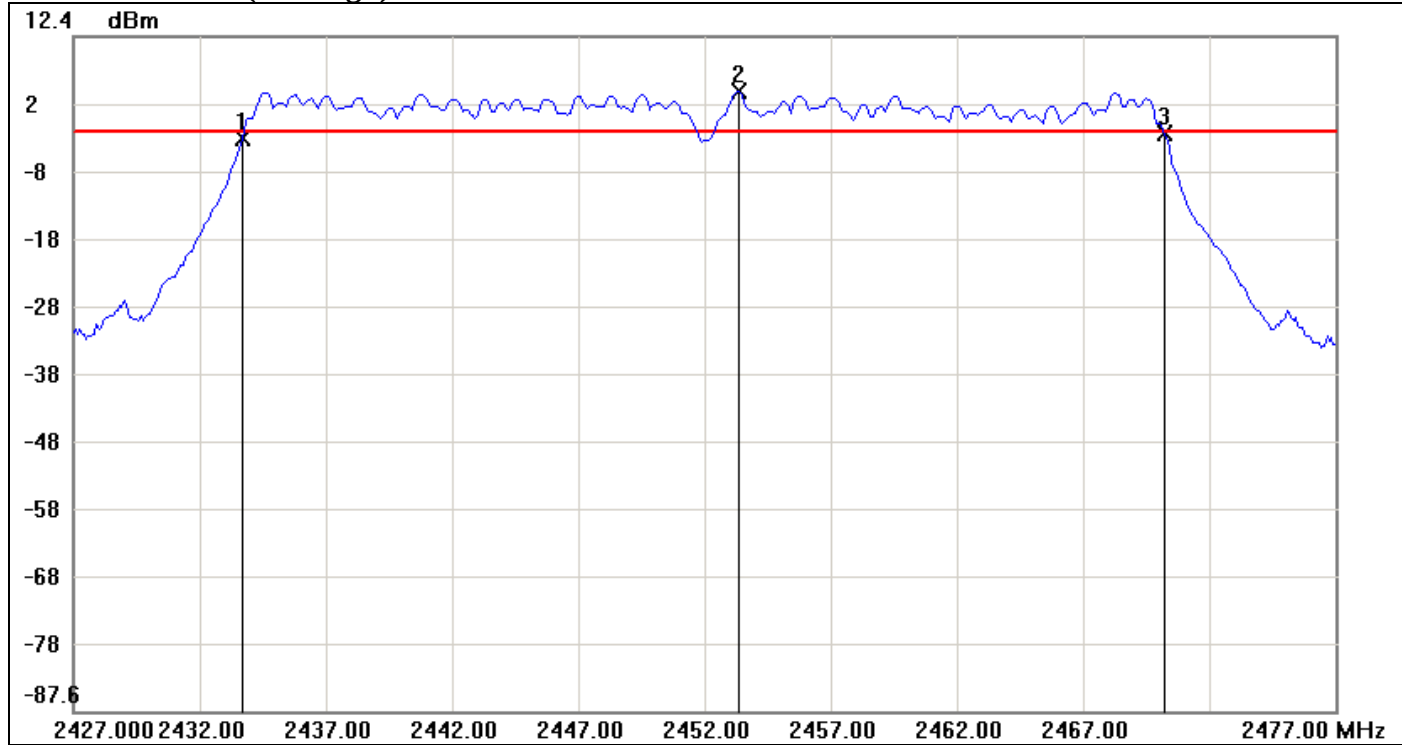


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.6667	1.60	2.73	-1.13
2	2438.3333	8.73	2.73	6.00
3	2455.2500	2.27	2.73	-0.46

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.5833	0.67



6dB Bandwidth (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.6667	-2.70	-1.78	-0.92
2	2453.3333	4.22	-1.78	6.00
3	2470.2500	-2.04	-1.78	-0.26

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.5833	0.66



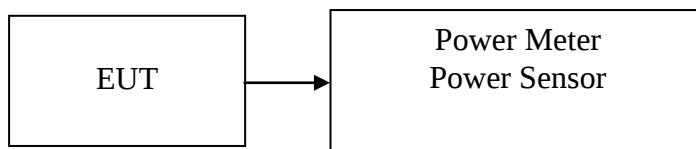
7.2 PEAK POWER

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)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	17.85	19.13	*21.55	0.1429	30	PASS
Mid	2437	17.44	18.62	21.08	0.1282		PASS
High	2462	16.70	16.77	19.75	0.0944		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	21.84	22.63	25.26	0.3357	30	PASS
Mid	2437	23.59	23.52	*26.57	0.4539		PASS
High	2462	21.05	20.13	23.62	0.2301		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 (dBm)	Result
Low	2412	21.19	21.81	24.52	0.2831	30	PASS
Mid	2437	23.51	23.33	*26.43	0.4395		PASS
High	2462	22.62	22.10	25.38	0.3451		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 (dBm)	Result
Low	2422	19.64	19.97	22.82	0.1914	30	PASS
Mid	2437	23.33	23.12	*26.24	0.4207		PASS
High	2452	21.38	20.68	24.05	0.2541		PASS

Remark: Total Output Power (w) = Chain 0 (10^{^(Output Power /10)}/1000)+ Chain 1 (10^{^(Output Power /10)}/1000)

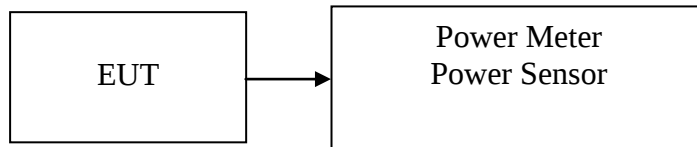


7.3 AVERAGE POWER

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)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	2412	14.57	15.72	18.19	0.0659
Mid	2437	14.10	15.21	17.70	0.0589
High	2462	13.83	13.40	16.63	0.0460

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	2412	14.23	14.32	17.28	0.0535
Mid	2437	16.70	17.17	19.95	0.0989
High	2462	12.77	11.57	15.22	0.0333

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)
Low	2412	13.62	14.43	17.05	0.0507
Mid	2437	18.15	18.60	21.39	0.1377
High	2462	15.09	14.33	17.74	0.0594

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)
Low	2422	12.82	13.32	16.09	0.0406
Mid	2437	18.41	18.78	21.61	0.1449
High	2452	14.60	14.14	17.39	0.0548

Remark: Total Output Power (w) = Chain 0 (10^{^(Output Power /10)}/1000)+ Chain 1 (10^{^(Output Power /10)}/1000)



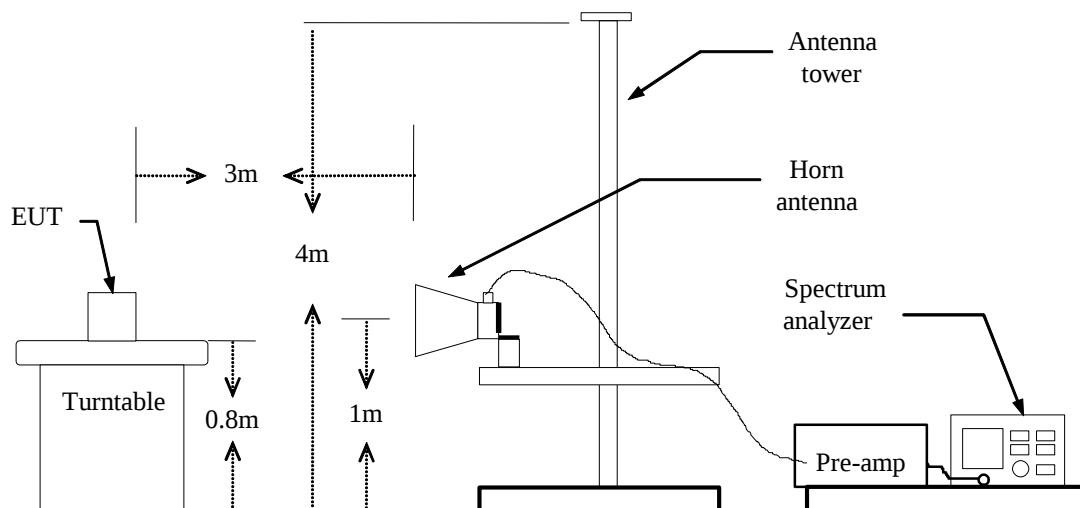
7.4 BAND EDGES MEASUREMENT

LIMIT

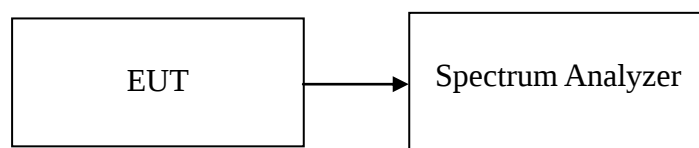
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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. 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 1m 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=VBW=3MHz / Sweep=AUTO**
 - (b) **AVERAGE: RBW=1MHz,**
if duty cycle $\geq 98\%$, VBW=10Hz.
if duty cycle $< 98\%$ VBW=1/T.
IEEE 802.11b mode: $\geq 98\%$, VBW=10Hz
IEEE 802.11g mode: $\approx 89\%$, VBW=750Hz
IEEE 802.11n HT 20 MHz mode: $\approx 78\%$, VBW=1.5kHz
IEEE 802.11n HT 40 MHz mode: $\approx 65\%$, VBW=3kHz
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.

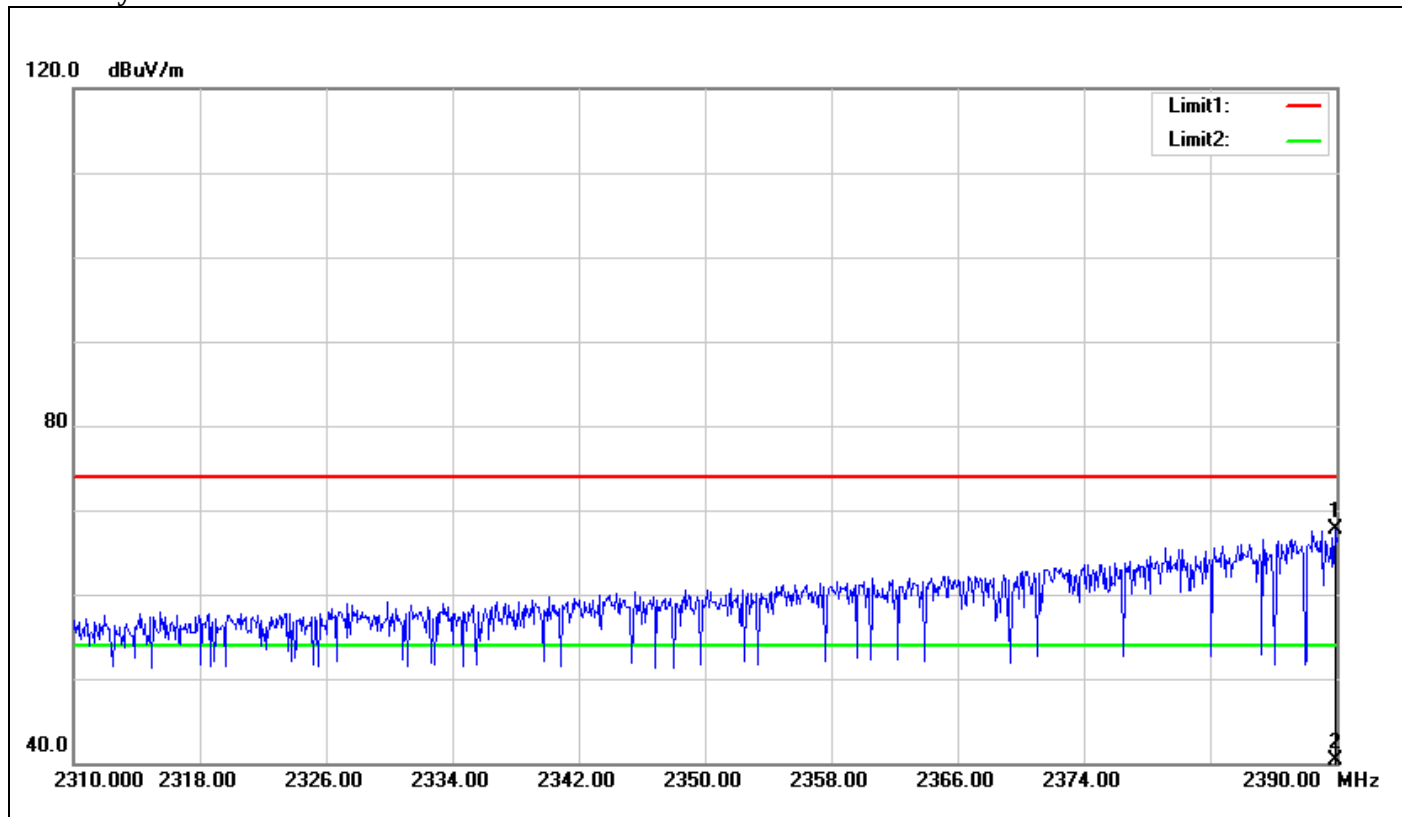
TEST RESULTS

Refer to attach spectrum analyzer data chart.



Band Edges (IEEE 802.11b mode / CH Low)

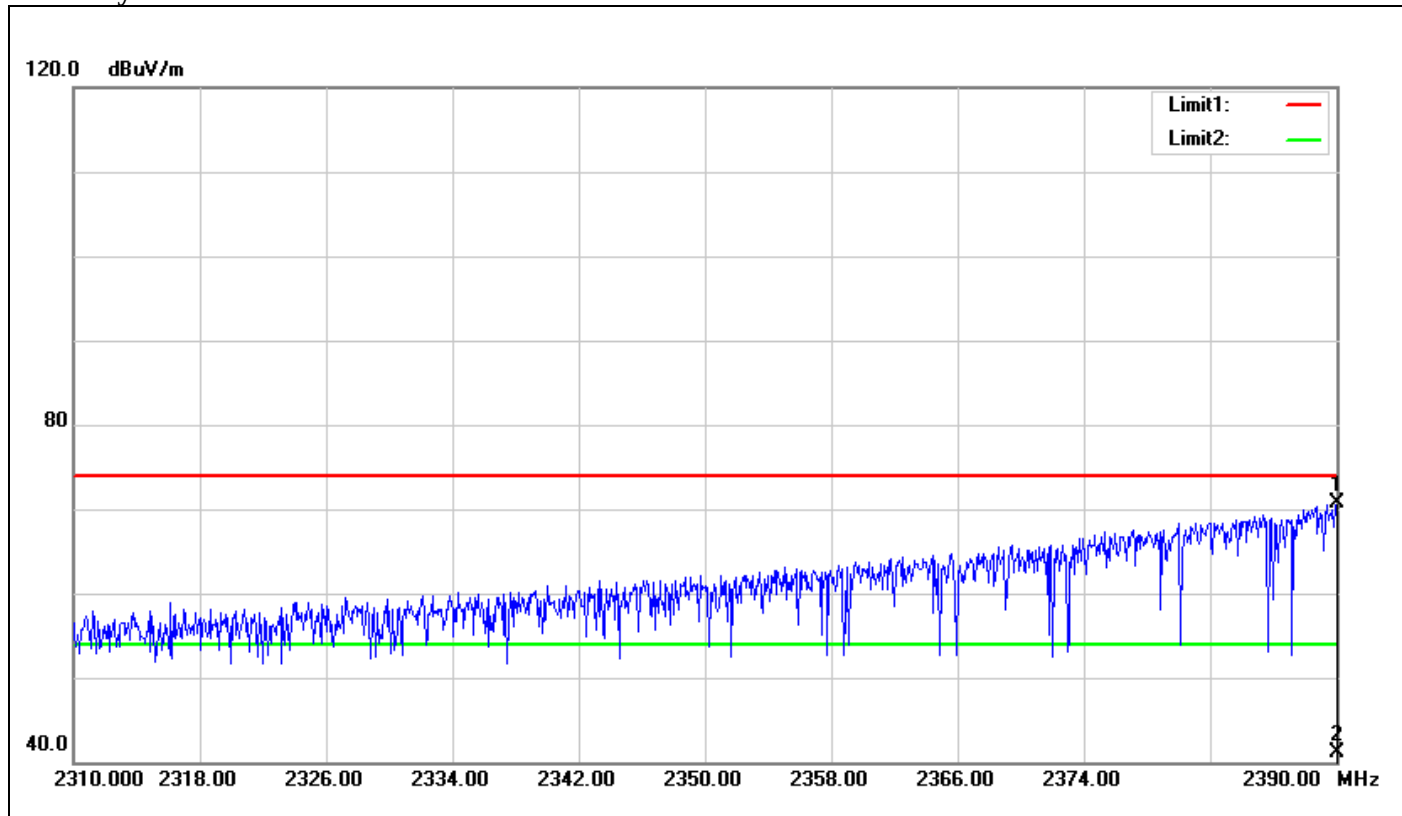
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.920	70.20	-2.49	67.71	74.00	-6.29	100	343	peak
2	2389.920	42.78	-2.49	40.29	54.00	-13.71	100	343	AVG



Polarity: Horizontal

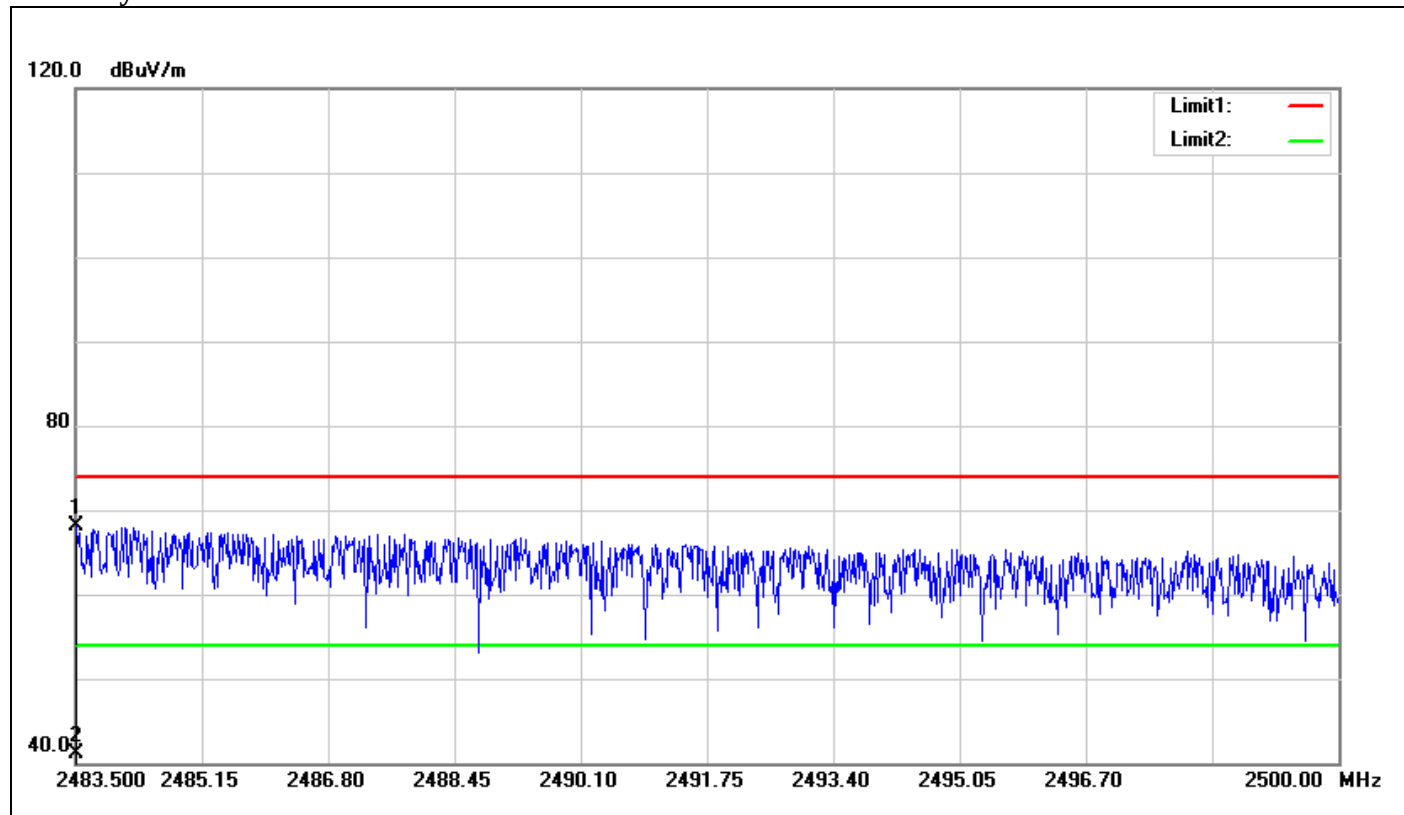


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2390.000	73.11	-2.49	70.62	74.00	-3.38	100	321	peak
2	2390.000	43.62	-2.49	41.13	54.00	-12.87	100	321	AVG



Band Edges (IEEE 802.11b mode / CH High)

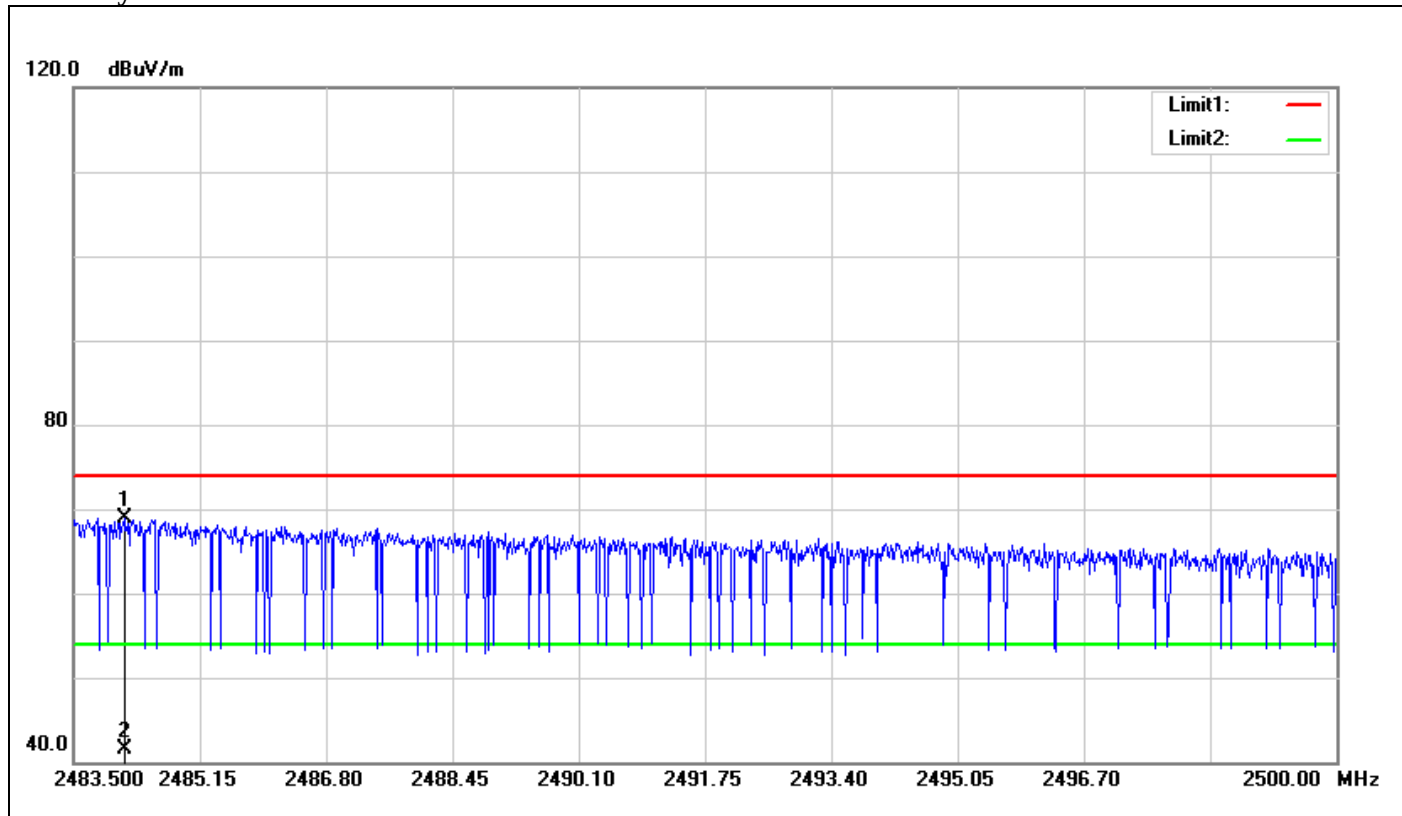
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.517	70.02	-1.99	68.03	74.00	-5.97	100	357	peak
2	2483.517	43.02	-1.99	41.03	54.00	-12.97	100	357	AVG



Polarity: Horizontal

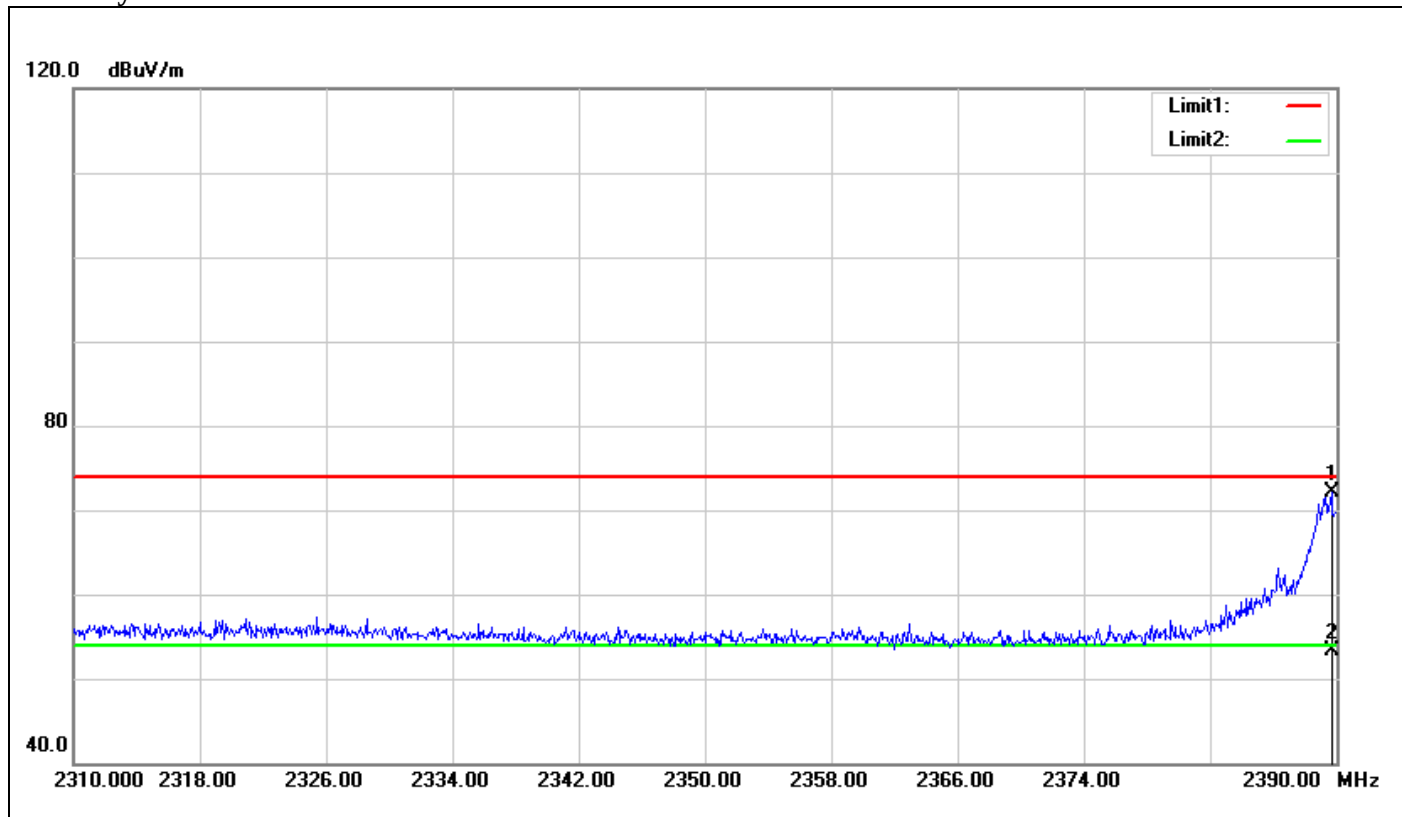


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2484.160	70.94	-1.99	68.95	74.00	-5.05	100	8	peak
2	2484.160	43.45	-1.99	41.46	54.00	-12.54	100	8	AVG



Band Edges (IEEE 802.11g mode / CH Low)

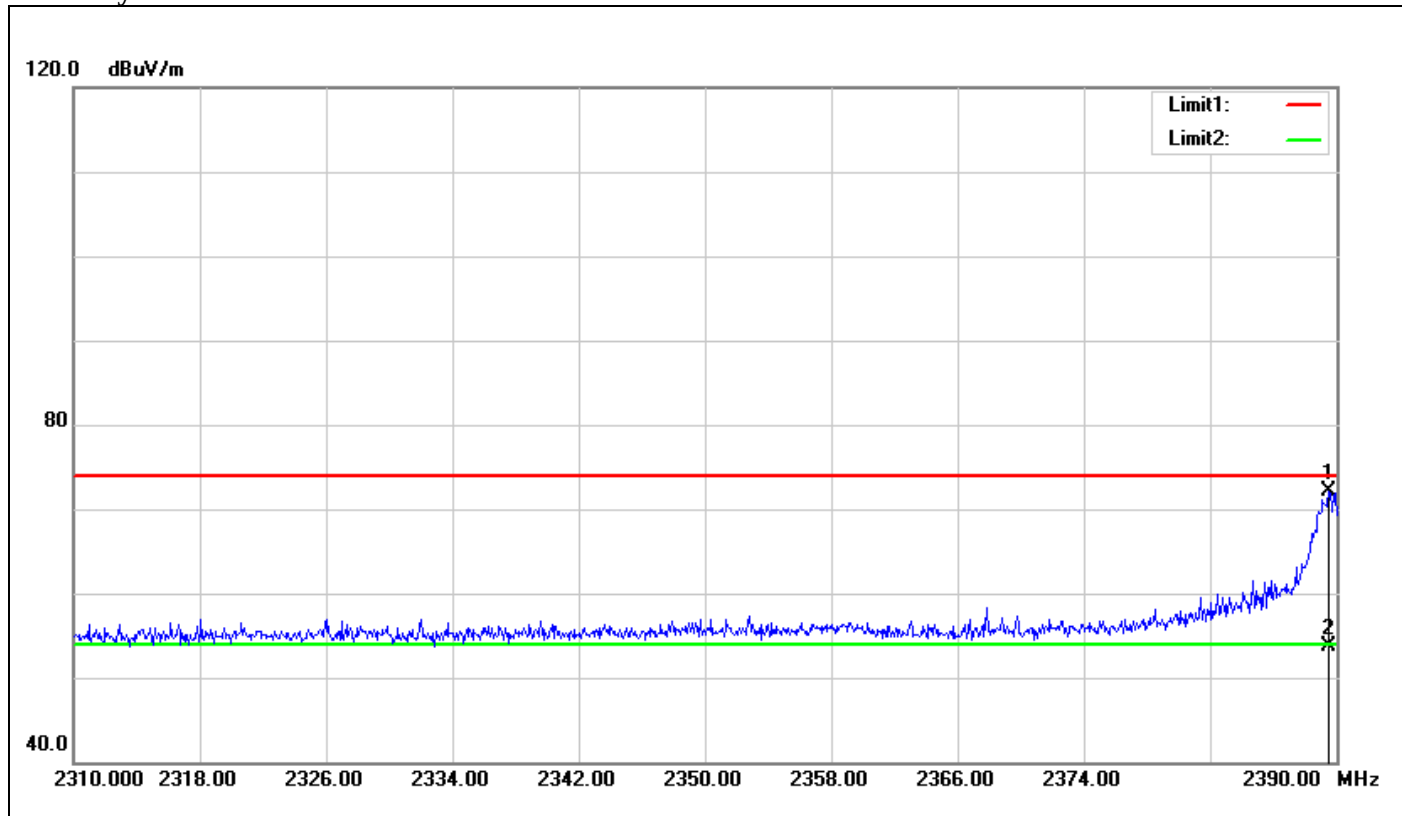
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.680	72.59	-2.49	70.10	74.00	-3.90	100	54	peak
2	2389.680	52.86	-2.49	50.37	54.00	-3.63	100	54	AVG



Polarity: Horizontal

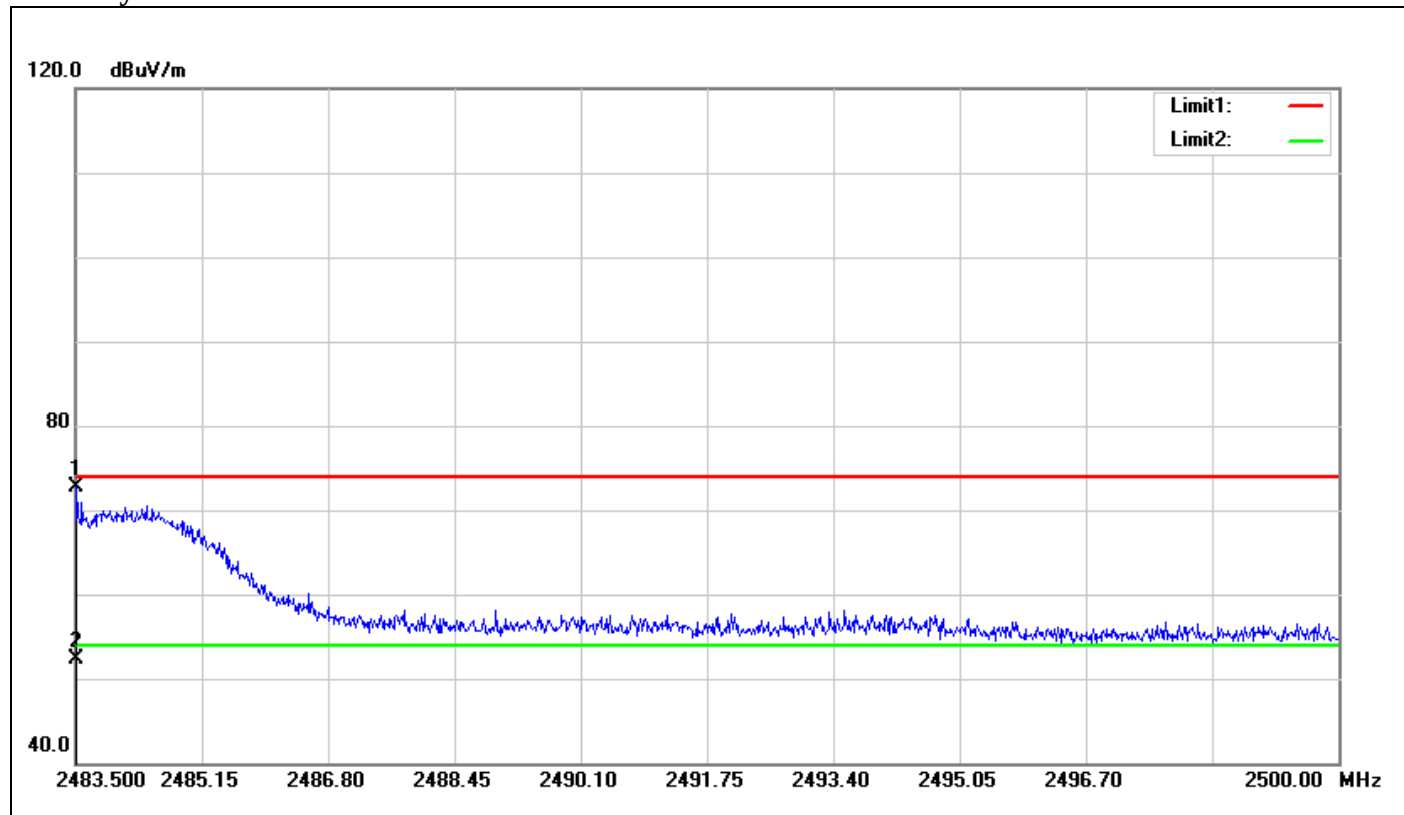


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.520	72.64	-2.49	70.15	74.00	-3.85	100	286	peak
2	2389.520	53.29	-2.49	50.80	54.00	-3.20	100	286	AVG



Band Edges (IEEE 802.11g mode / CH High)

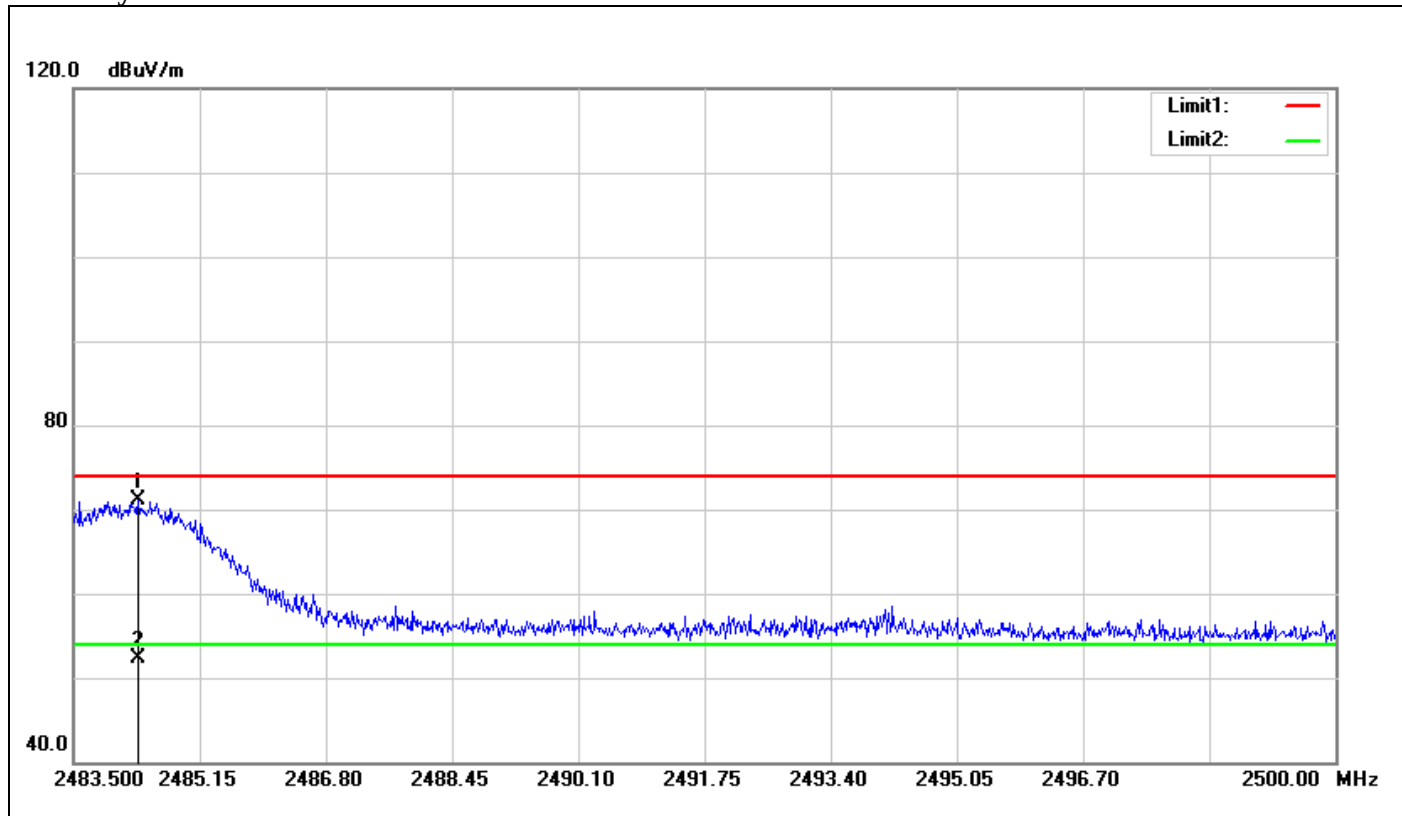
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.517	72.65	-1.99	70.66	74.00	-3.34	100	208	peak
2	2483.517	52.24	-1.99	50.25	54.00	-3.75	100	208	AVG



Polarity: Horizontal

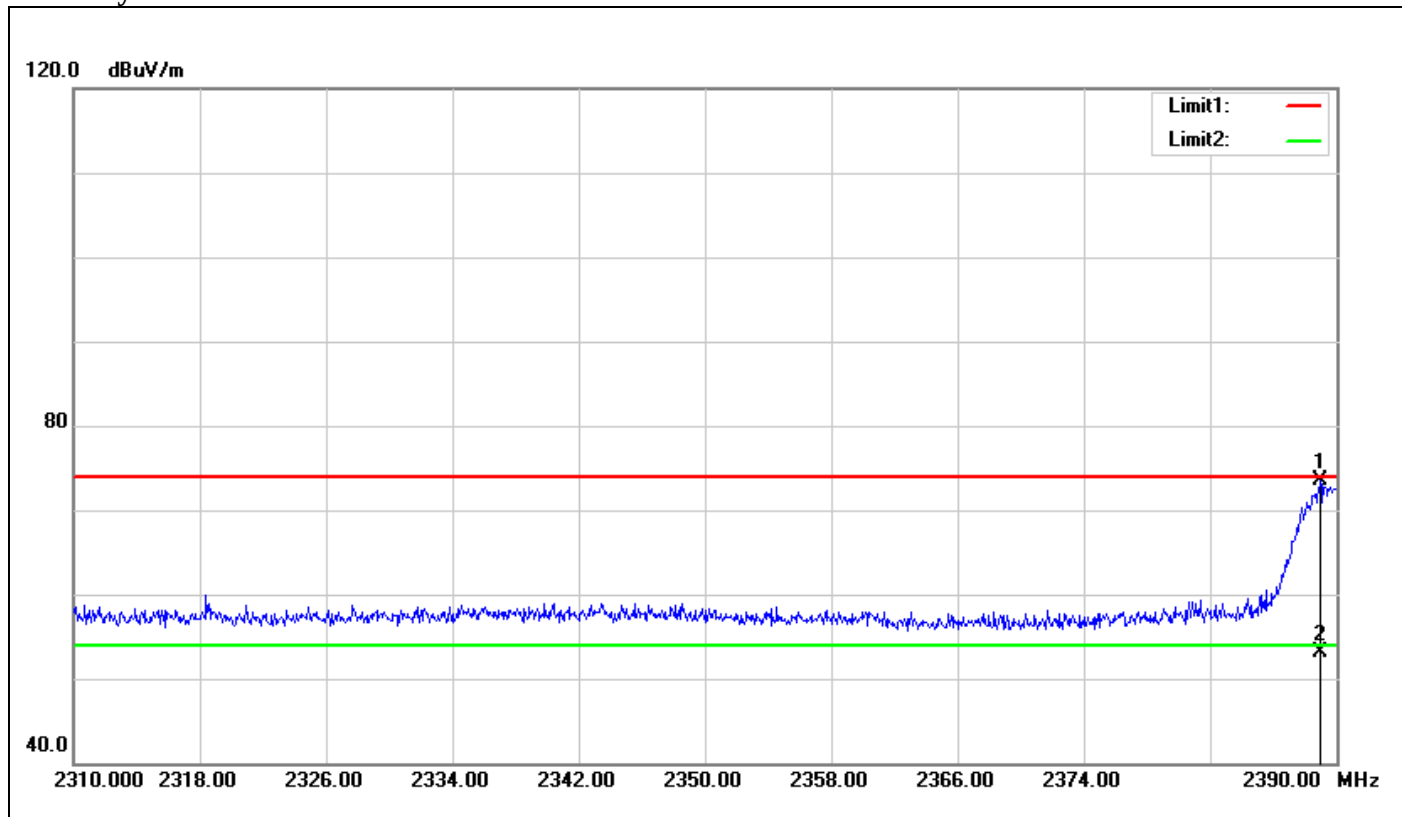


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2484.342	72.09	-1.99	70.10	74.00	-3.90	100	214	peak
2	2484.342	52.35	-1.99	50.36	54.00	-3.64	100	214	AVG



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

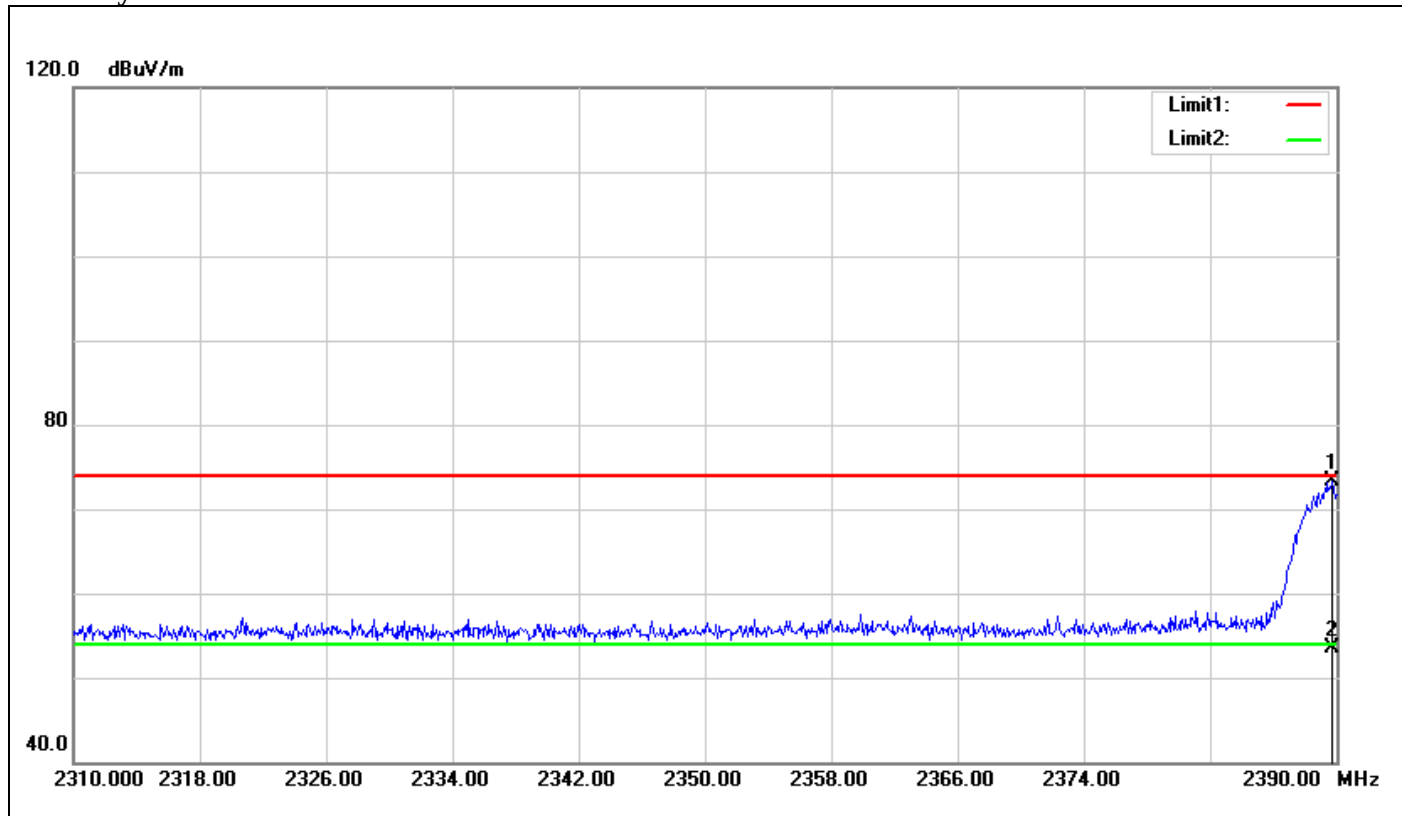
Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2388.960	72.93	-2.50	70.43	74.00	-3.57	100	90	peak
2	2388.960	52.67	-2.50	50.17	54.00	-3.83	100	90	AVG



Polarity: Horizontal

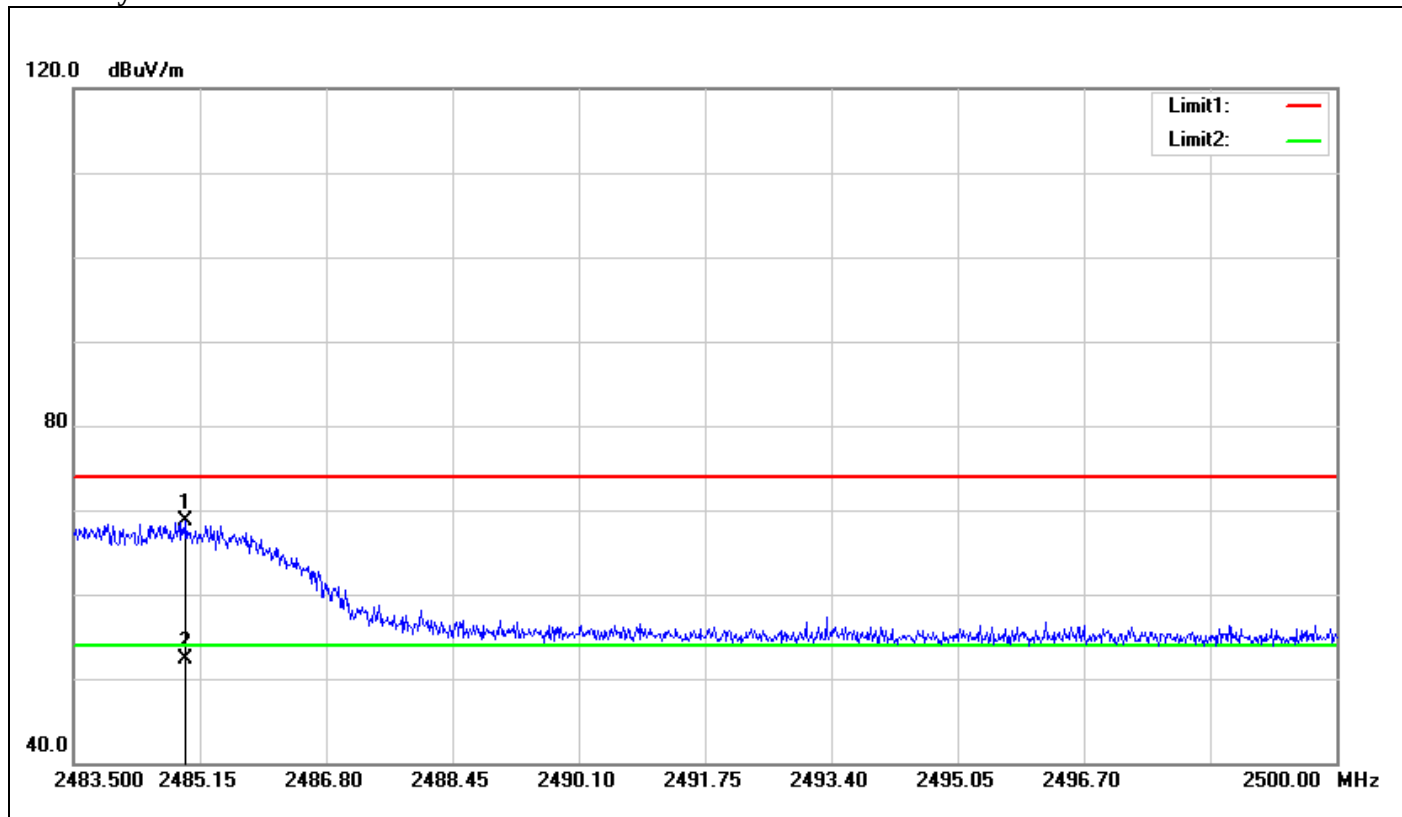


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2389.760	72.83	-2.49	70.34	74.00	-3.66	100	153	peak
2	2389.760	53.09	-2.49	50.60	54.00	-3.40	100	153	AVG



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

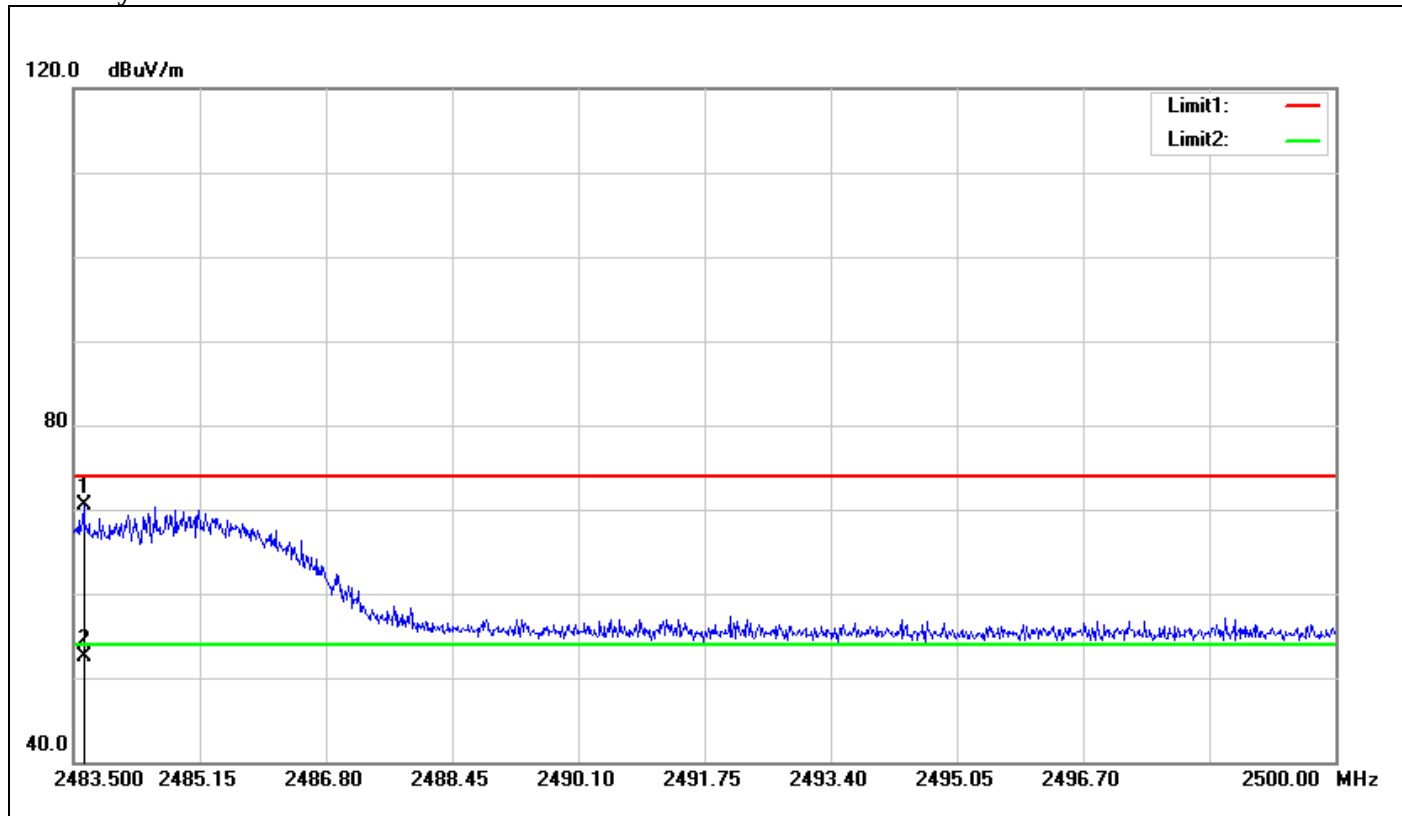
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2484.968	70.78	-1.98	68.80	74.00	-5.20	100	17	peak
2	2484.968	52.26	-1.98	50.28	54.00	-3.72	100	17	AVG



Polarity: Horizontal

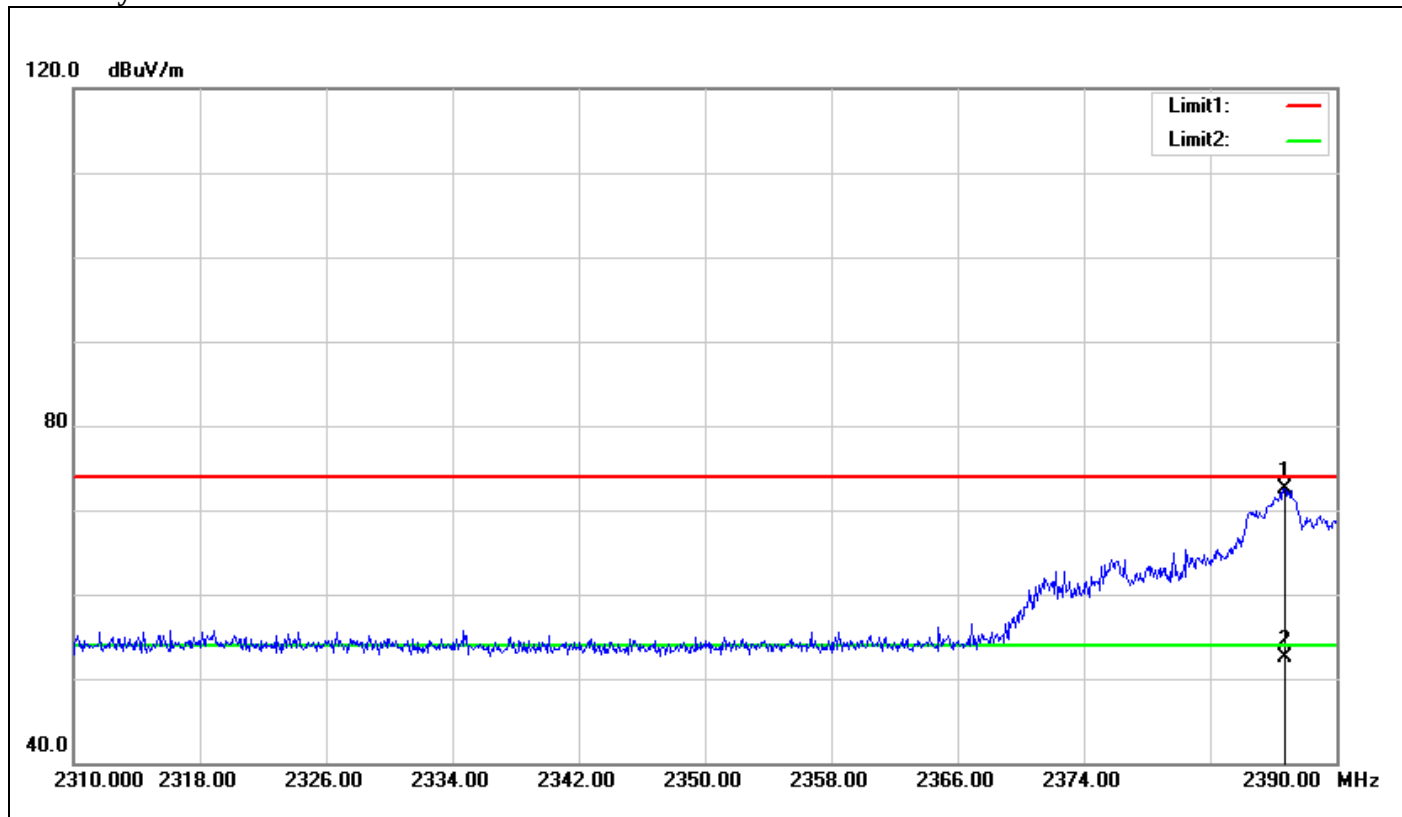


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	2483.632	72.47	-1.99	70.48	74.00	-3.52	100	93	peak
2	2483.632	52.48	-1.99	50.49	54.00	-3.51	100	93	AVG



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

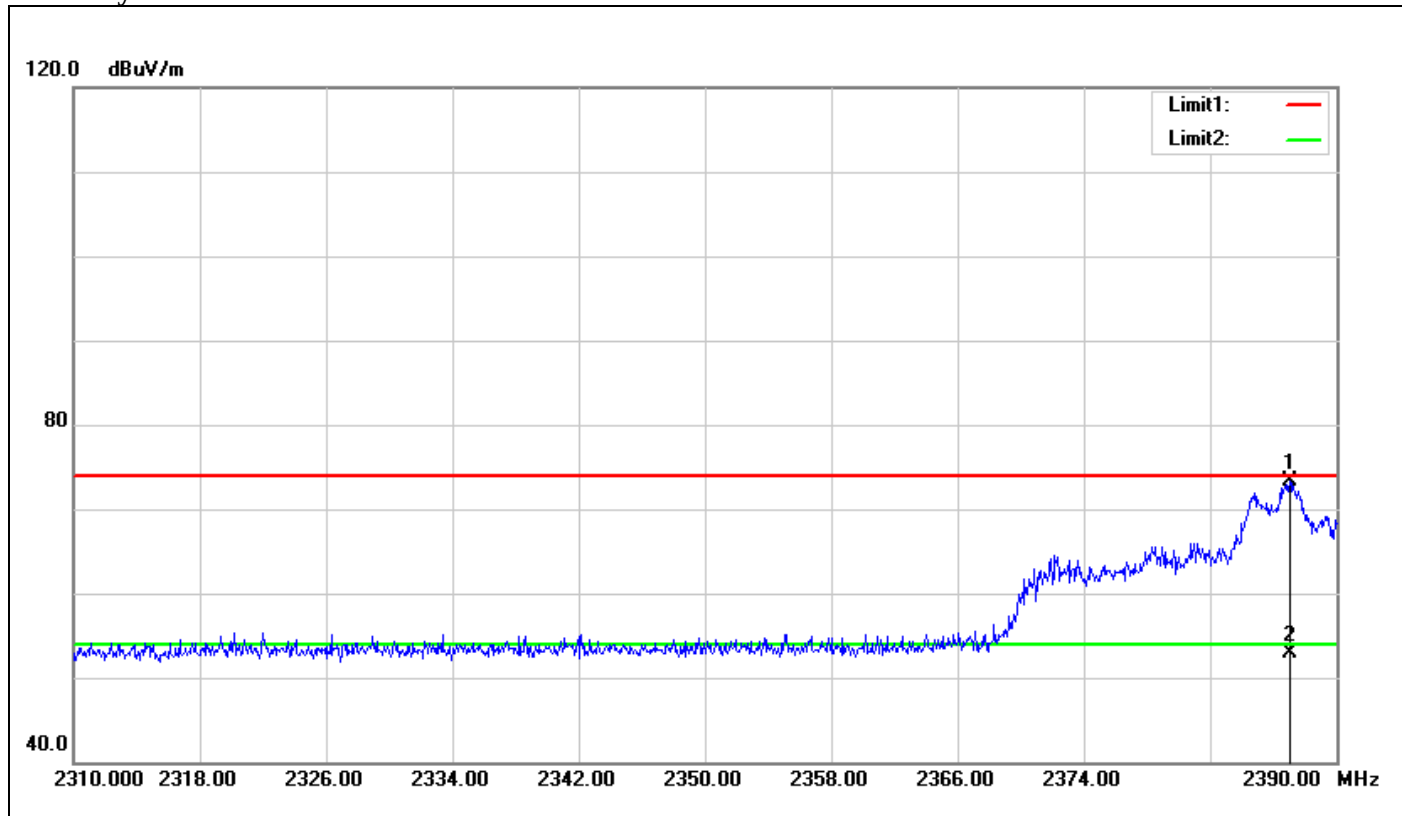
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2386.720	73.10	-2.52	70.58	74.00	-3.42	100	356	peak
2	2386.720	52.99	-2.52	50.47	54.00	-3.53	100	356	AVG



Polarity: Horizontal

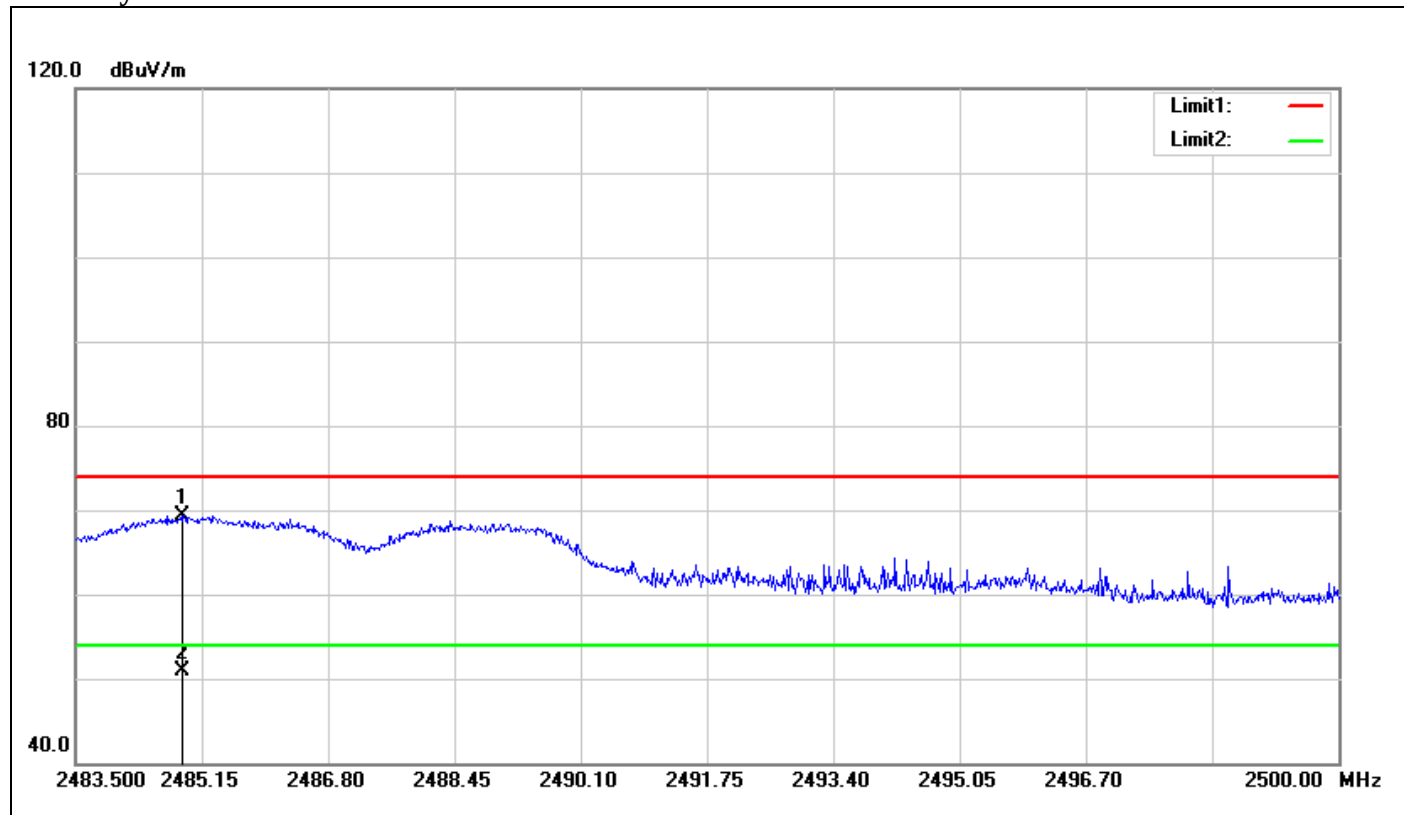


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2387.040	72.79	-2.52	70.27	74.00	-3.73	100	60	peak
2	2387.040	53.38	-2.52	50.86	54.00	-3.14	100	60	AVG



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

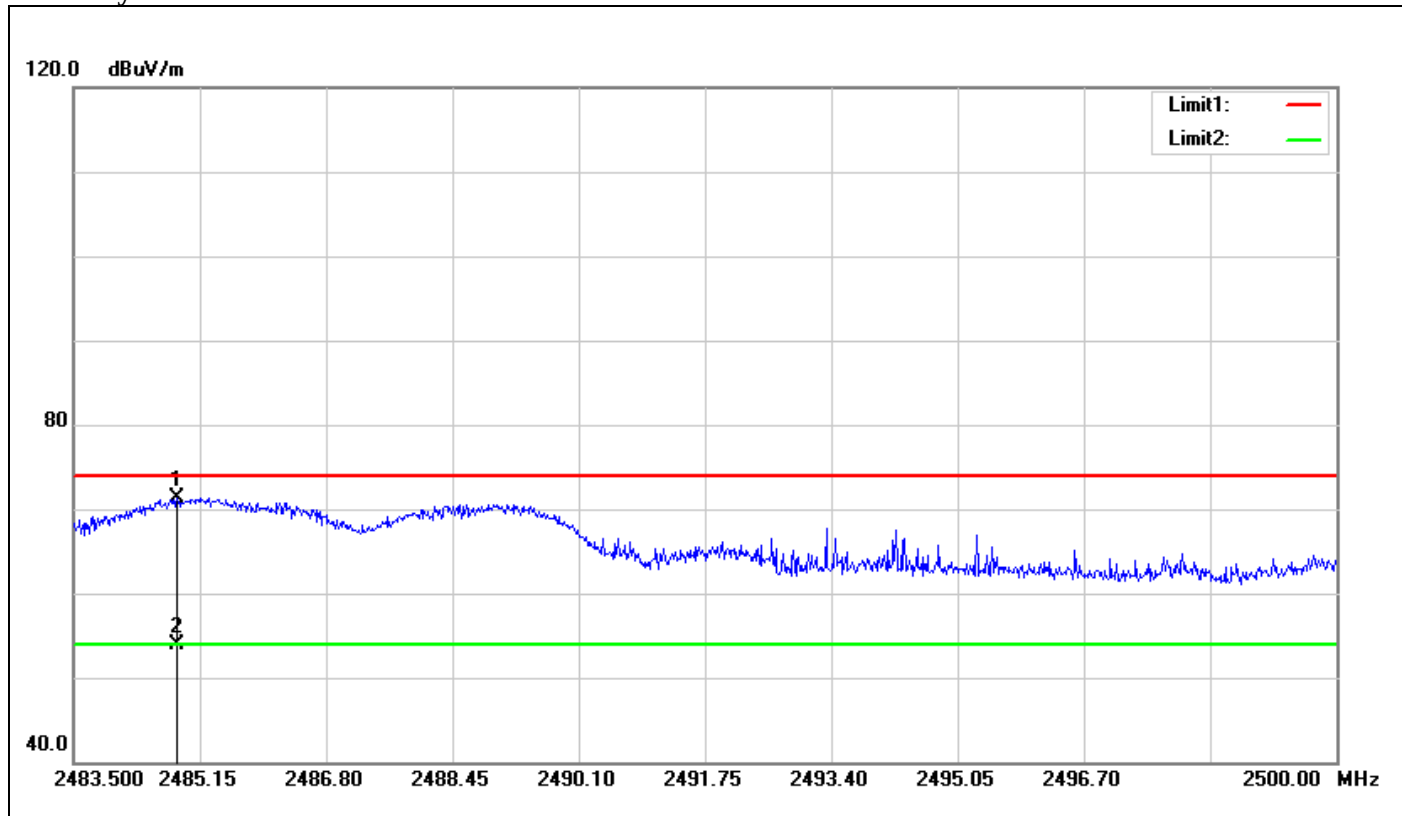
Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2484.886	71.29	-1.98	69.31	74.00	-4.69	100	232	peak
2	2484.886	52.85	-1.98	50.87	54.00	-3.13	100	232	AVG



Polarity: Horizontal

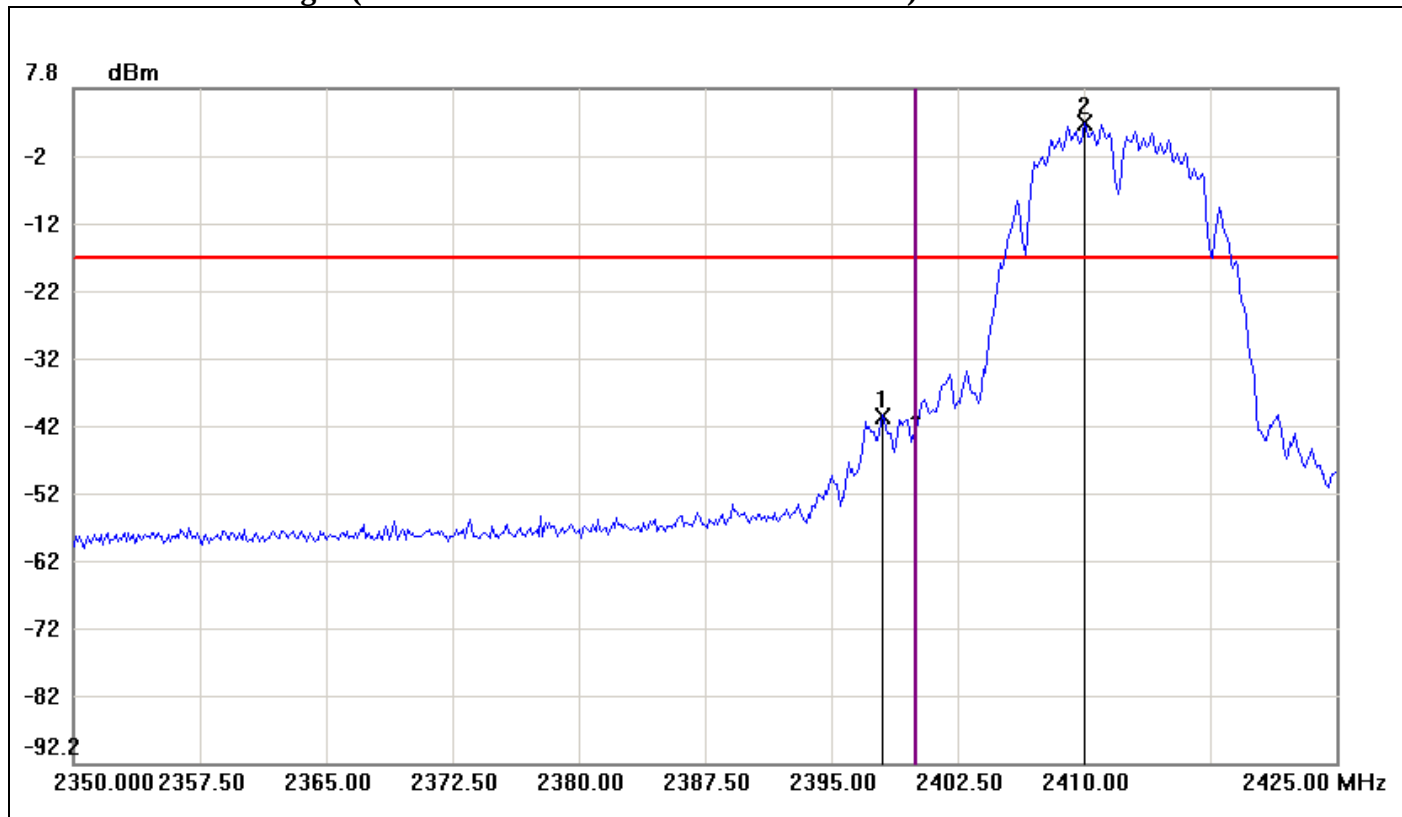


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	2484.853	72.36	-1.98	70.38	74.00	-3.62	100	47	peak
2	2484.853	52.94	-1.98	50.96	54.00	-3.04	100	47	AVG



Test Plot

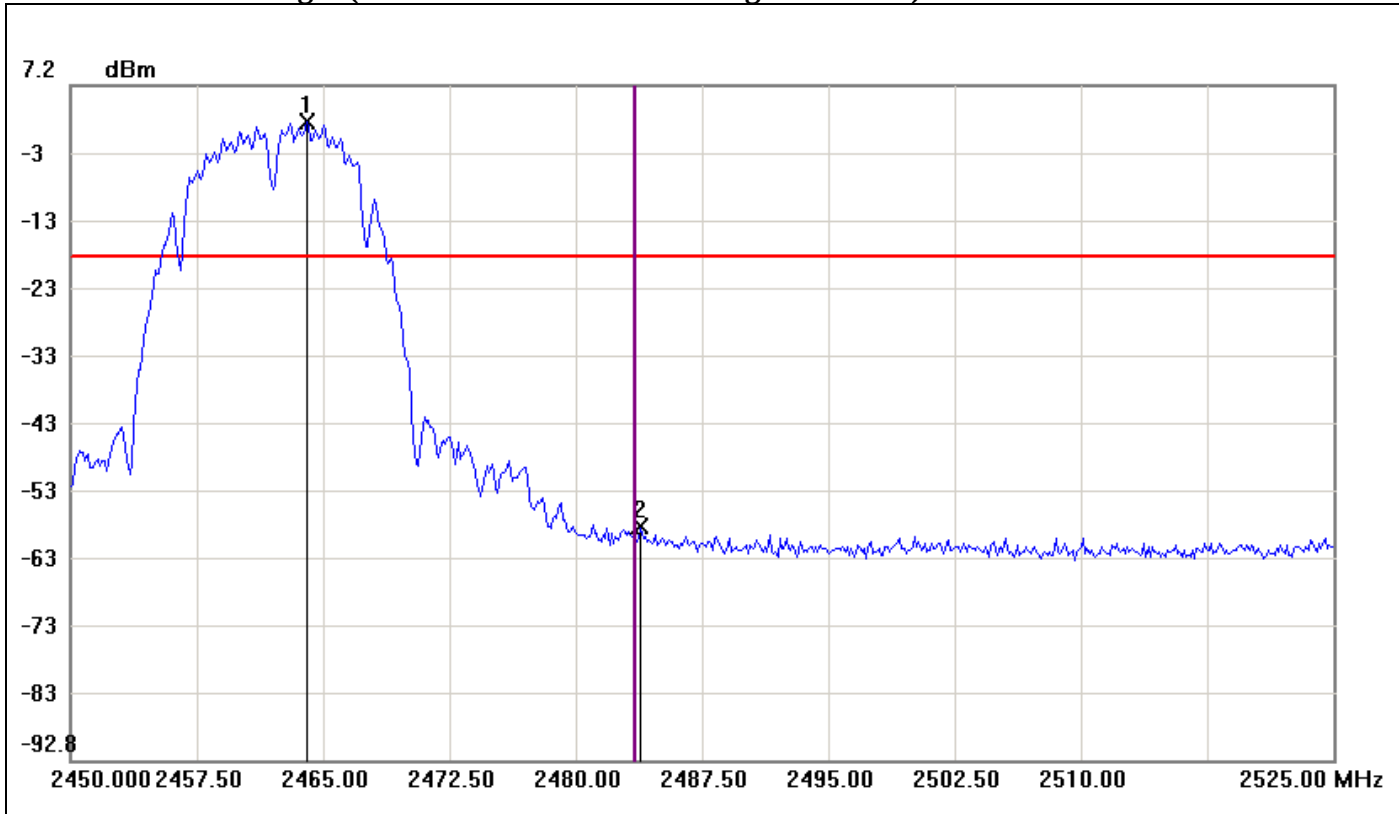
Conducted Band Edges (IEEE 802.11b mode / CH Low / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2398.0000	-40.72	-17.45	-23.27
2	2410.0000	2.55	-17.45	20.00



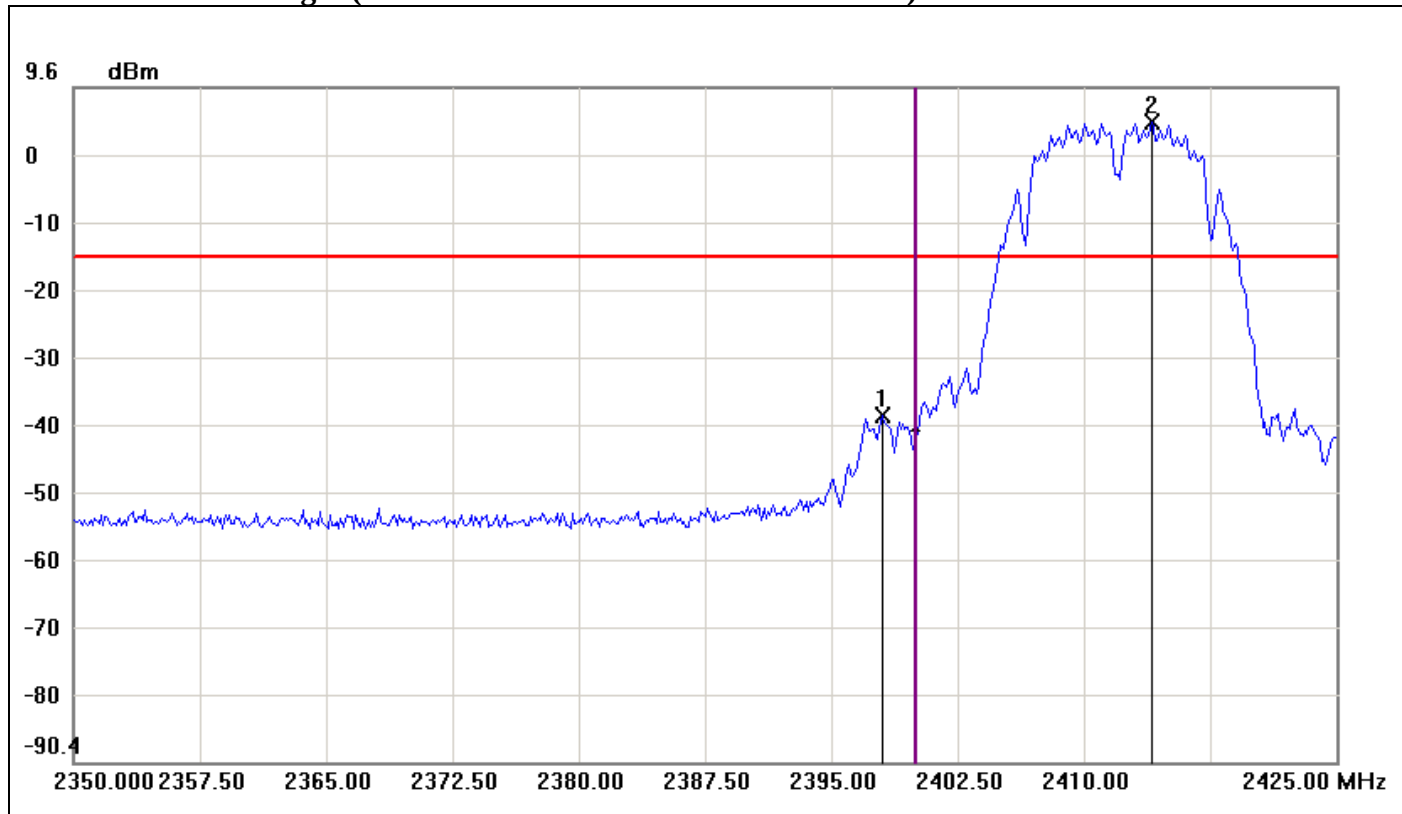
Conducted Band Edges (IEEE 802.11b mode / CH High / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2464.0000	1.84	-18.16	20.00
2	2483.8750	-58.29	-18.16	-40.13



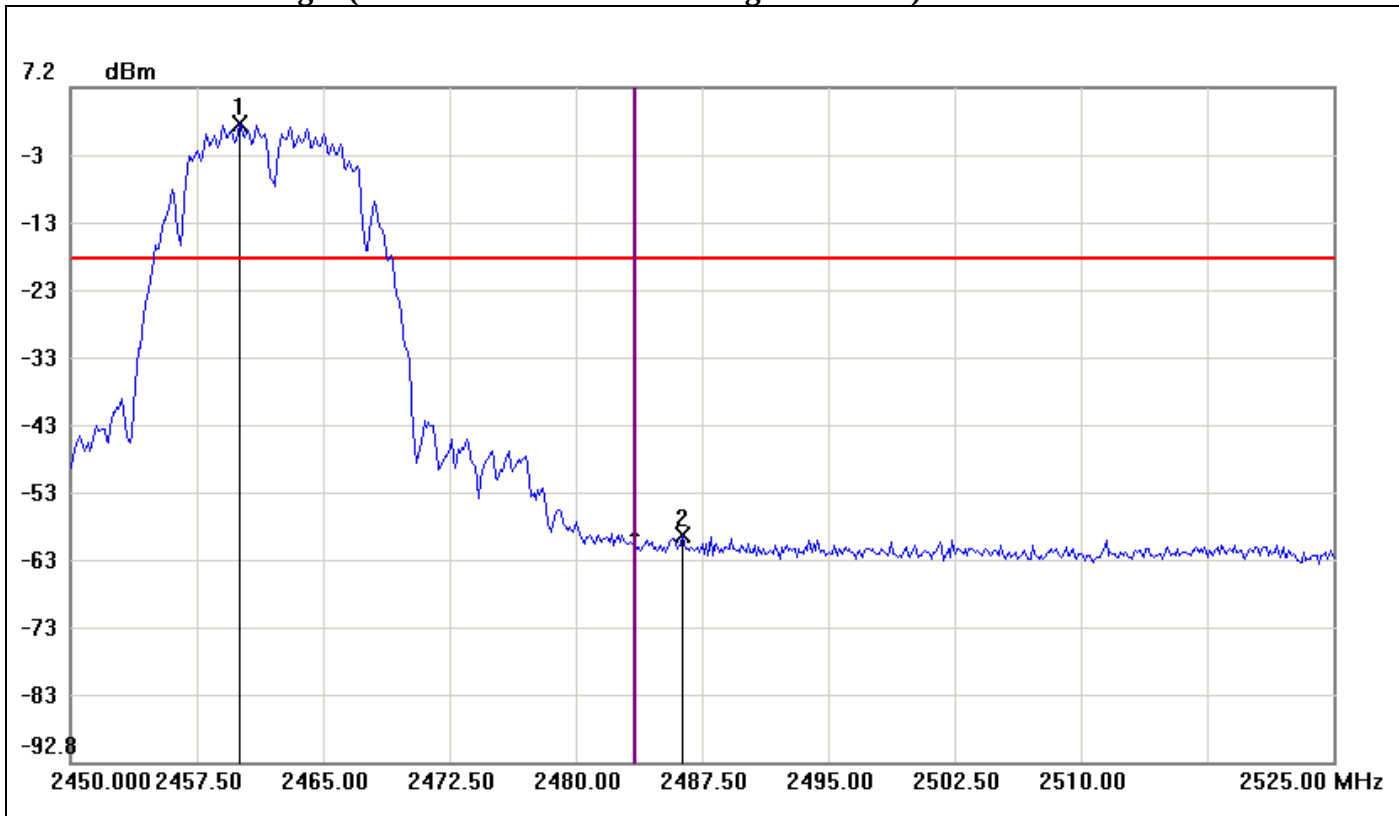
Conducted Band Edges (IEEE 802.11b mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2398.0000	-39.07	-15.66	-23.41
2	2414.0000	4.34	-15.66	20.00



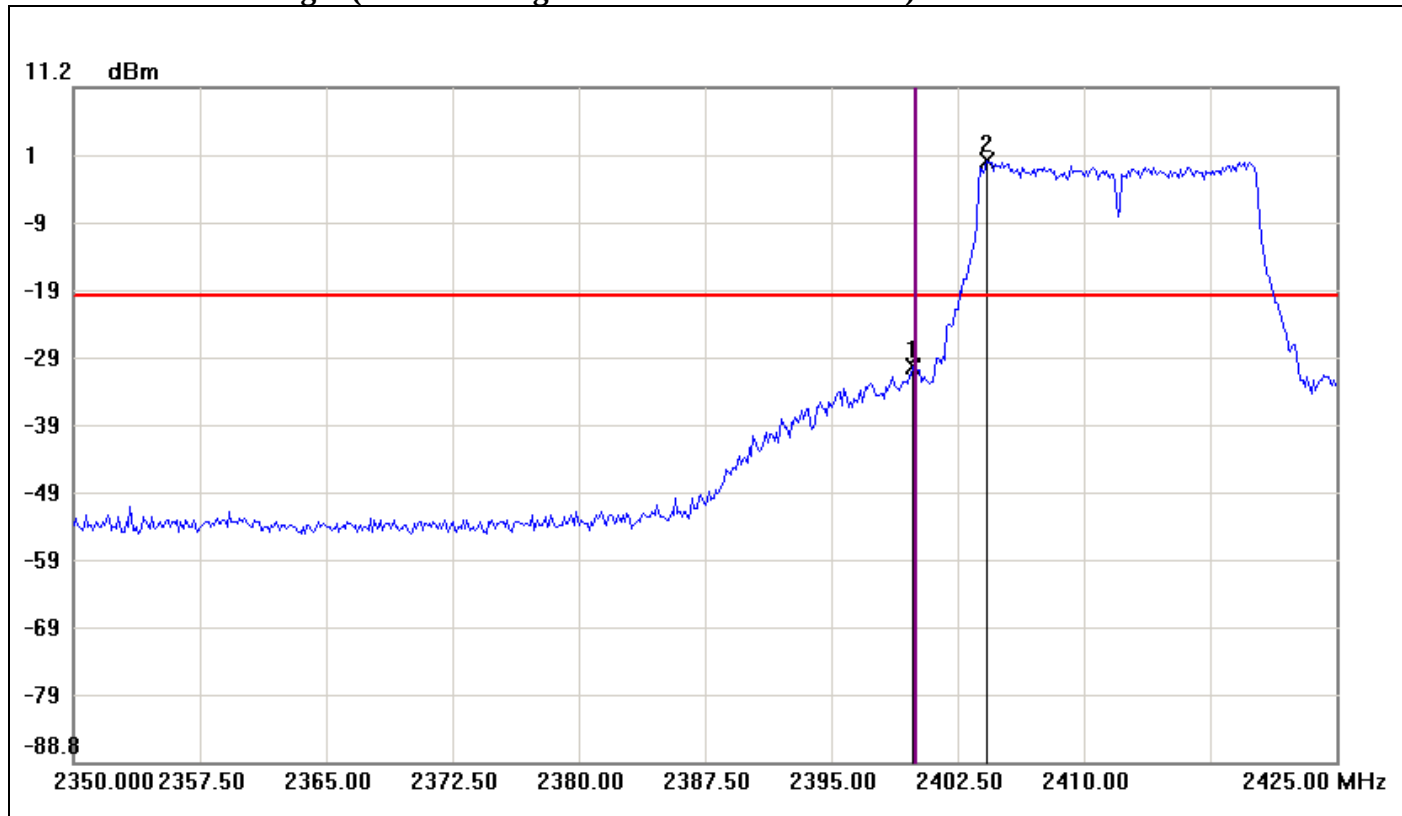
Conducted Band Edges (IEEE 802.11b mode / CH High / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2460.0000	1.90	-18.10	20.00
2	2486.3750	-59.12	-18.10	-41.02



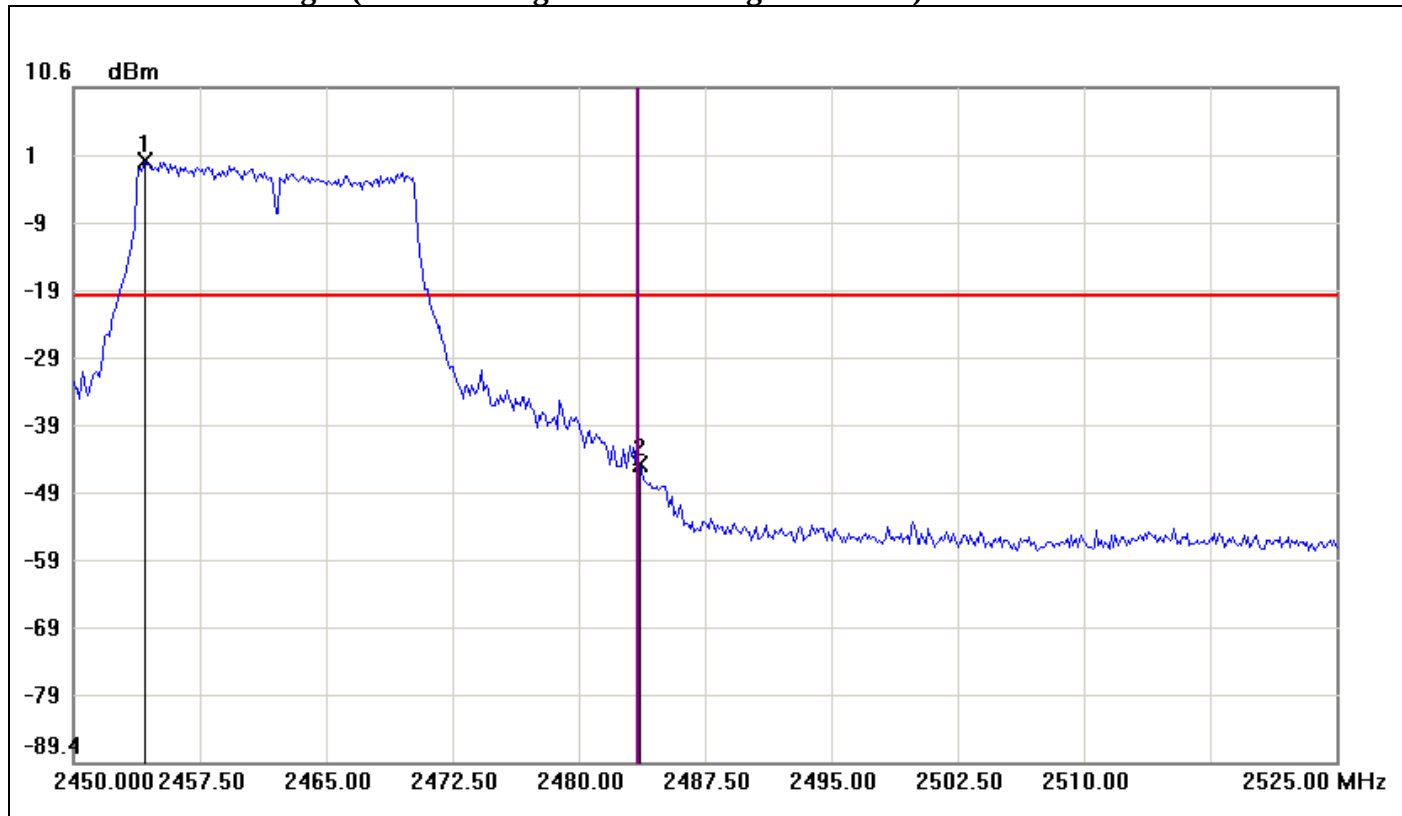
Conducted Band Edges (IEEE 802.11g mode / CH Low / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.8750	-30.25	-19.79	-10.46
2	2404.2500	0.21	-19.79	20.00



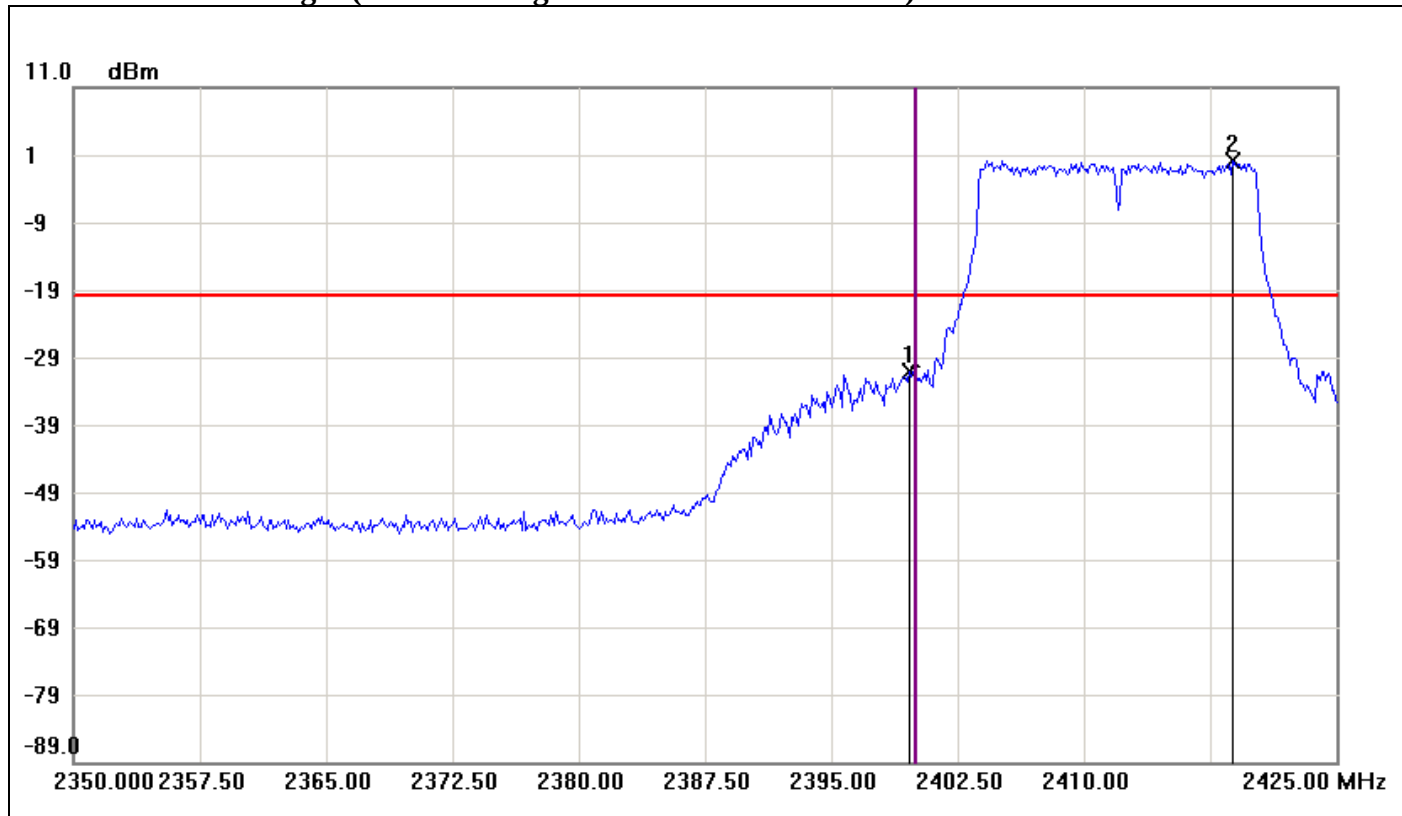
Conducted Band Edges (IEEE 802.11g mode / CH High / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2454.2500	-0.34	-20.34	20.00
2	2483.6250	-45.39	-20.34	-25.05



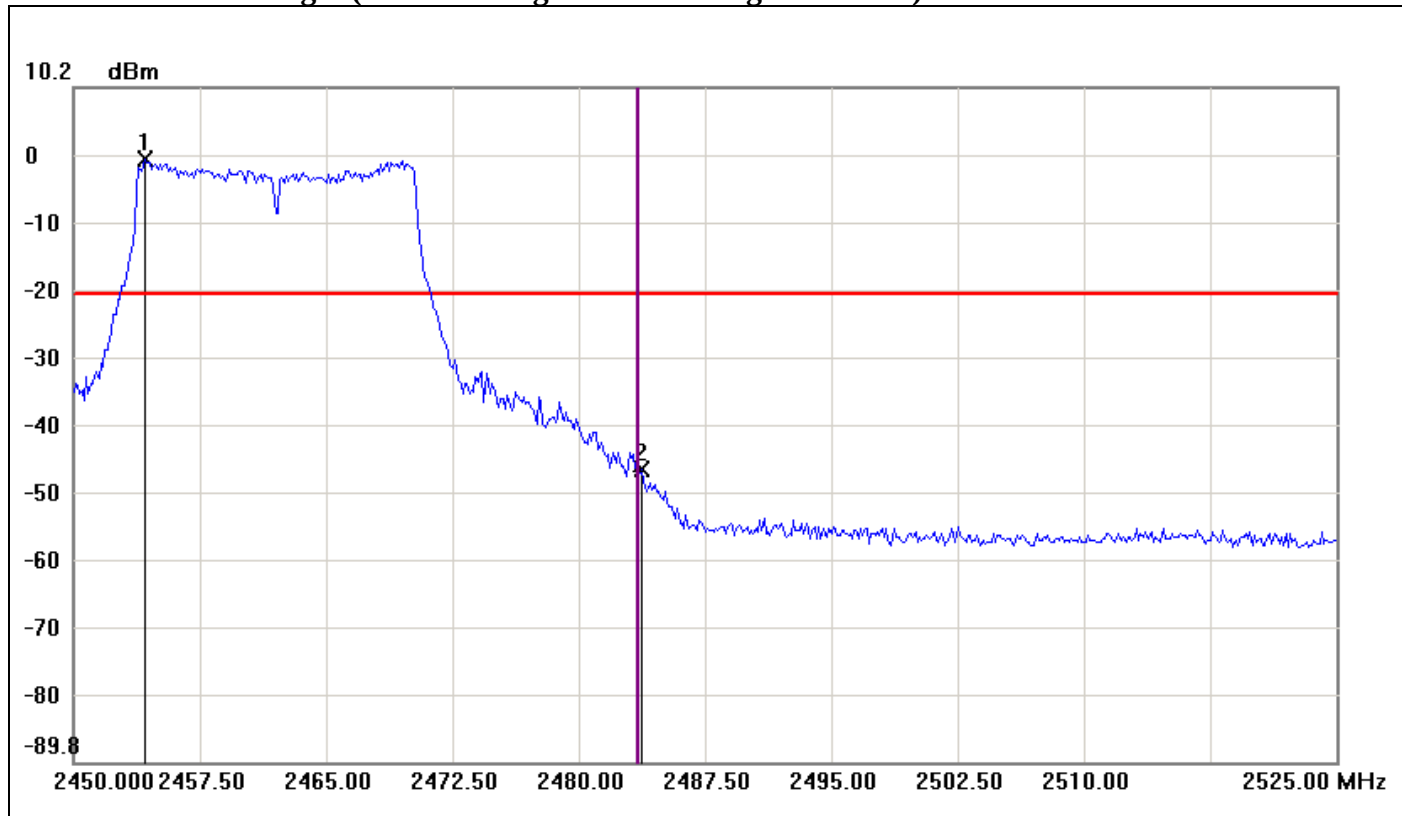
Conducted Band Edges (IEEE 802.11g mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.6250	-31.07	-19.86	-11.21
2	2418.8750	0.14	-19.86	20.00



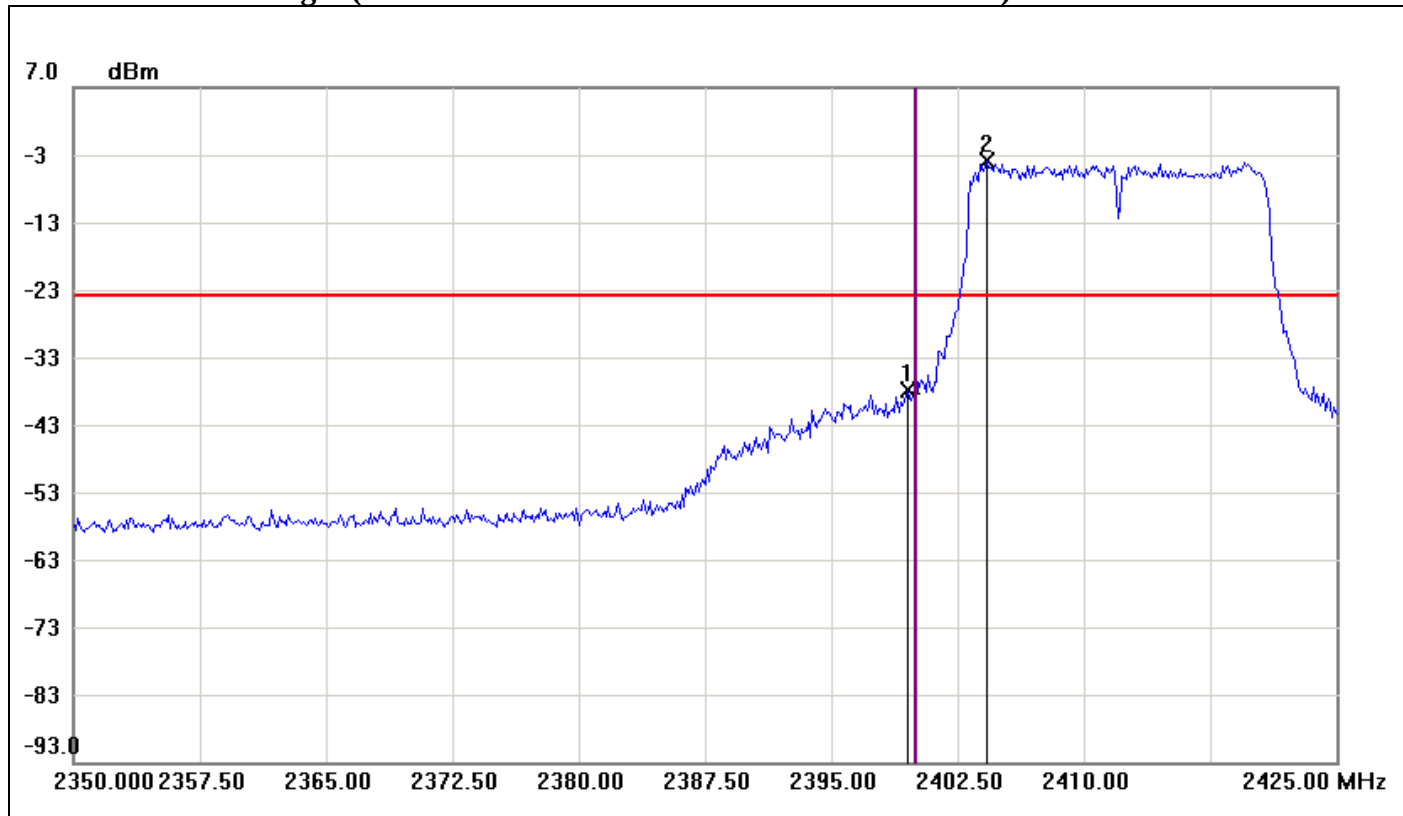
Conducted Band Edges (IEEE 802.11g mode / CH High / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2454.2500	-0.30	-20.30	20.00
2	2483.7500	-46.37	-20.30	-26.07



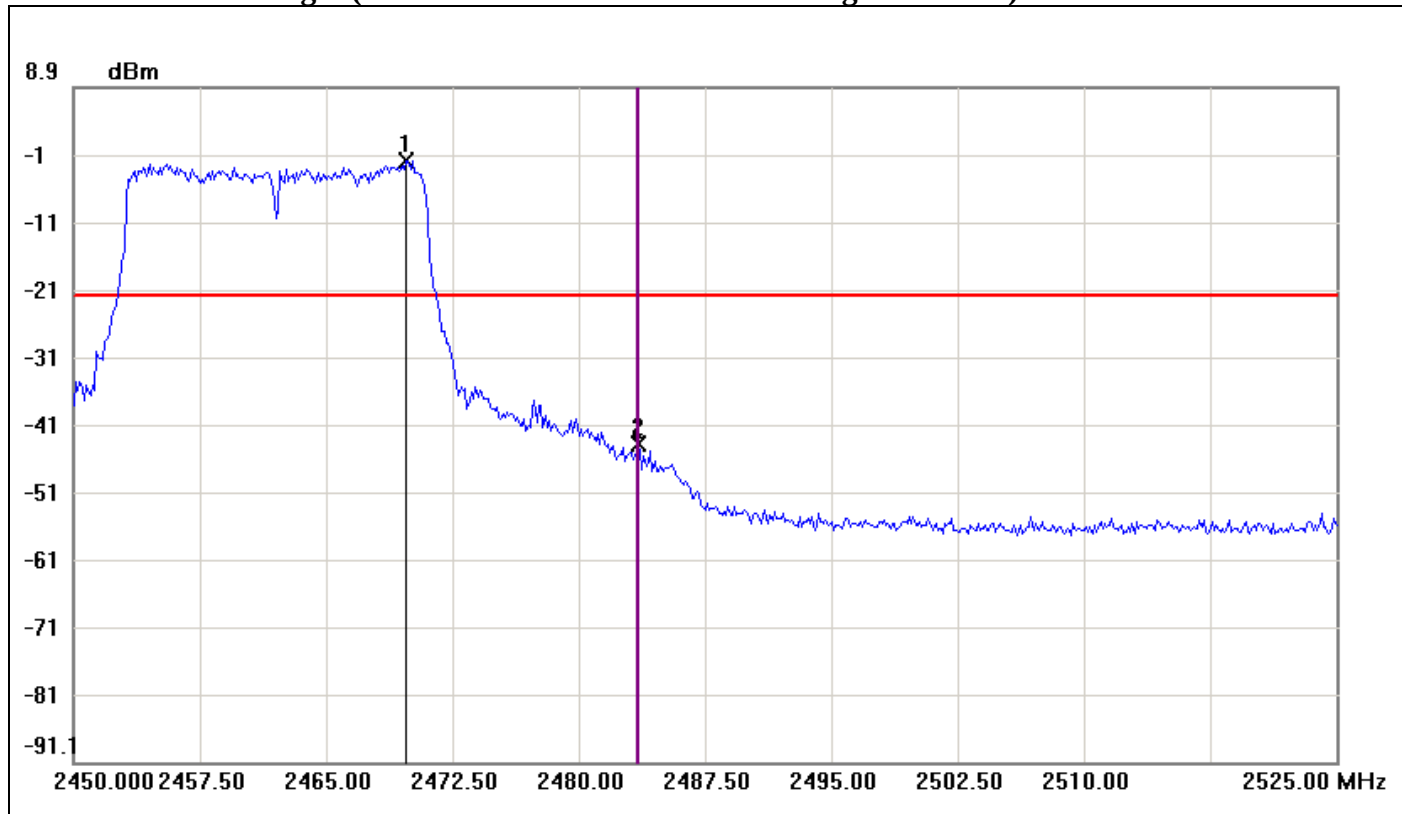
Conducted Band Edges (IEEE 802.11n HT 20 mode / CH Low / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.5000	-37.90	-23.79	-14.11
2	2404.2500	-3.79	-23.79	20.00



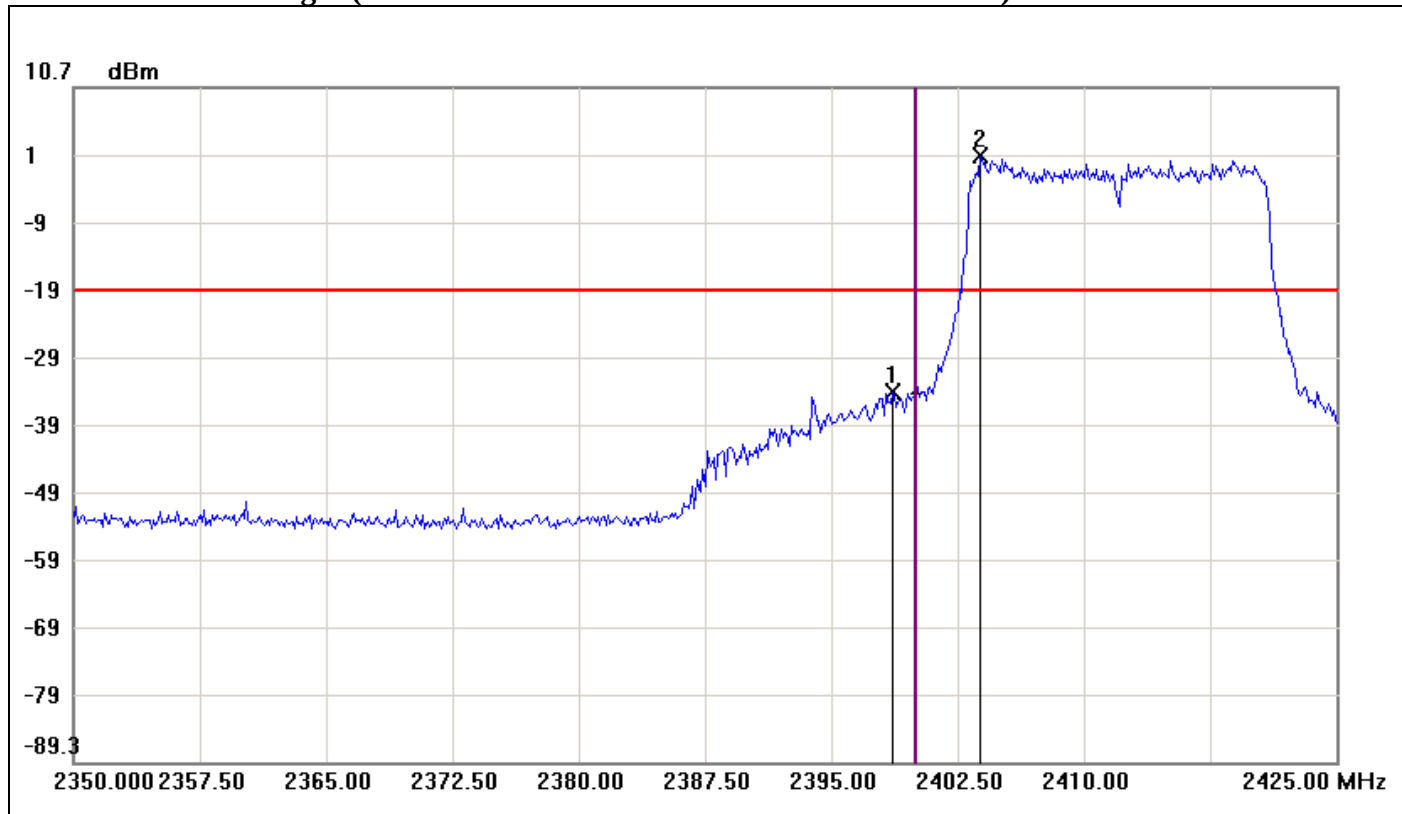
Conducted Band Edges (IEEE 802.11n HT 20 mode / CH High / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2469.7500	-2.04	-22.04	20.00
2	2483.5000	-43.86	-22.04	-21.82



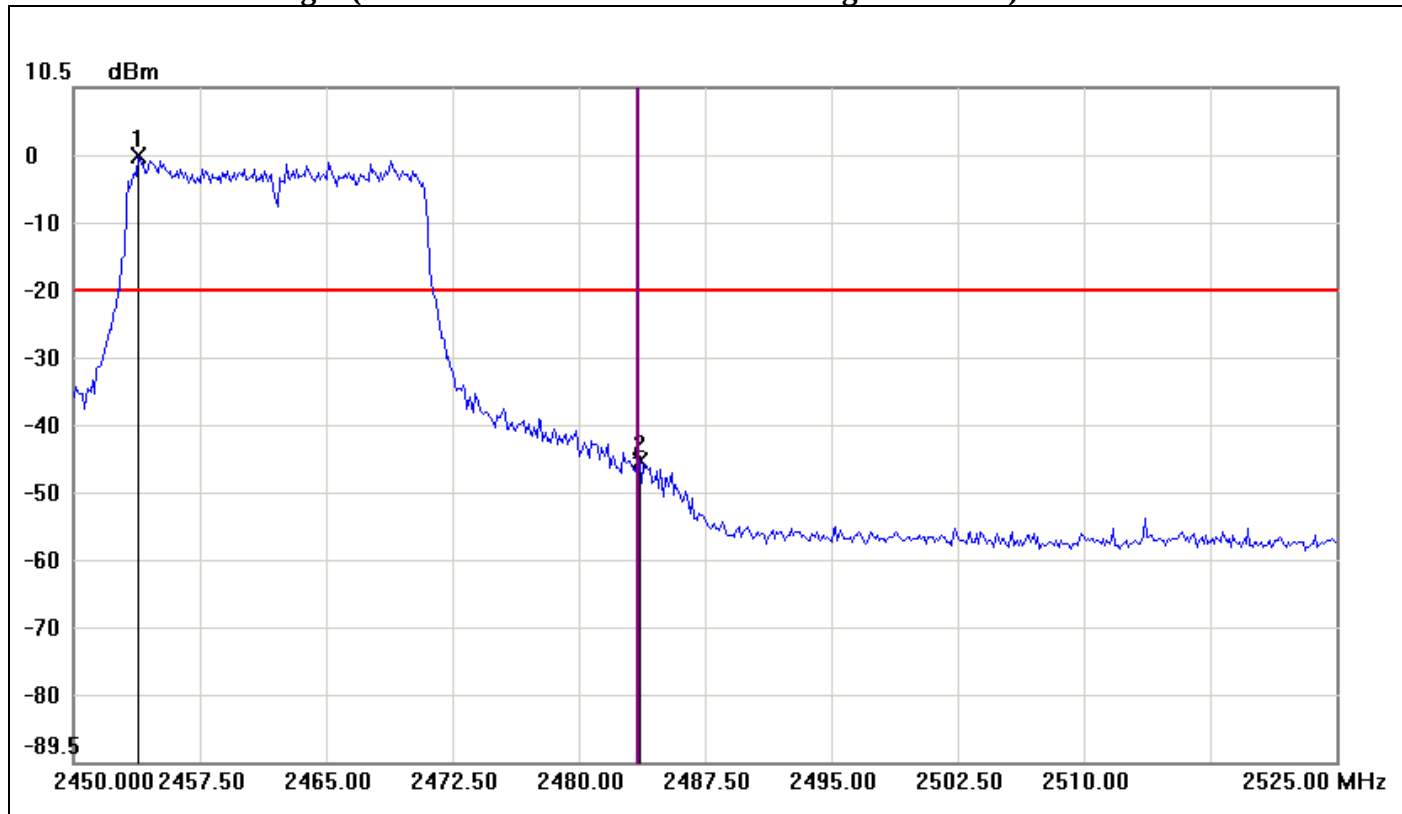
Conducted Band Edges (IEEE 802.11n HT 20 mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2398.6250	-34.52	-19.48	-15.04
2	2403.8750	0.52	-19.48	20.00



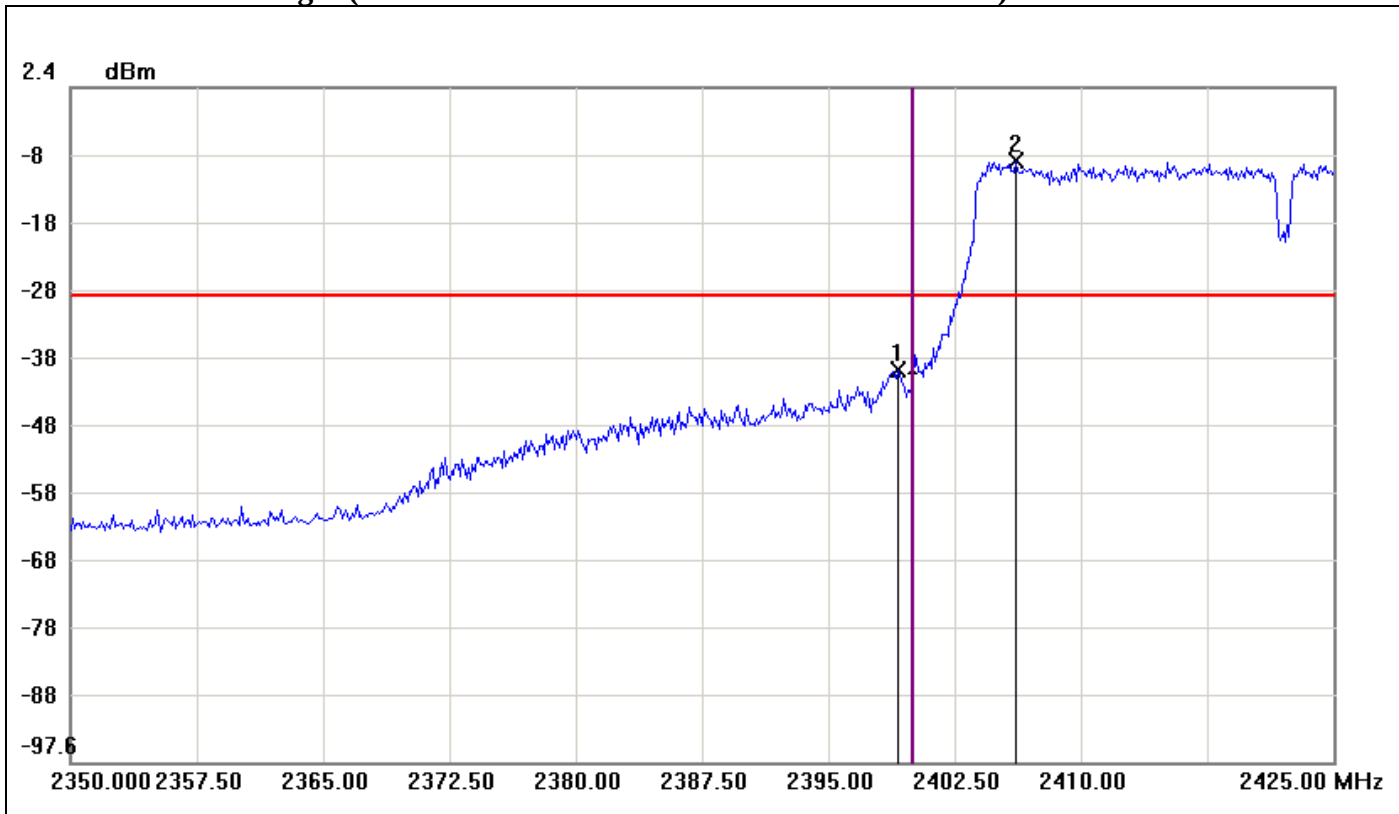
Conducted Band Edges (IEEE 802.11n HT 20 mode / CH High / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.8750	0.42	-19.58	20.00
2	2483.6250	-44.85	-19.58	-25.27



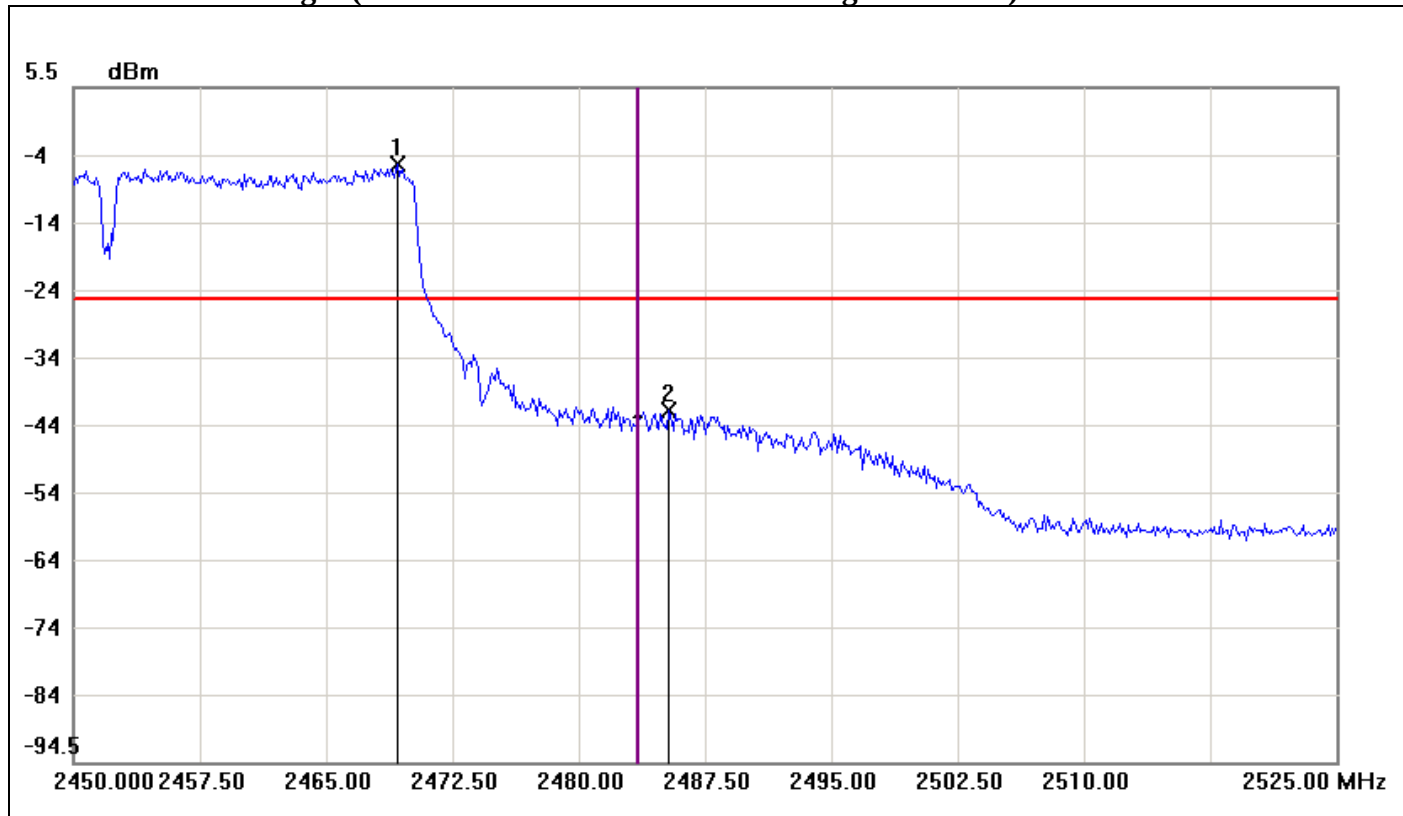
Conducted Band Edges (IEEE 802.11n HT 40 mode / CH Low / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.1250	-39.47	-28.49	-10.98
2	2406.1250	-8.49	-28.49	20.00



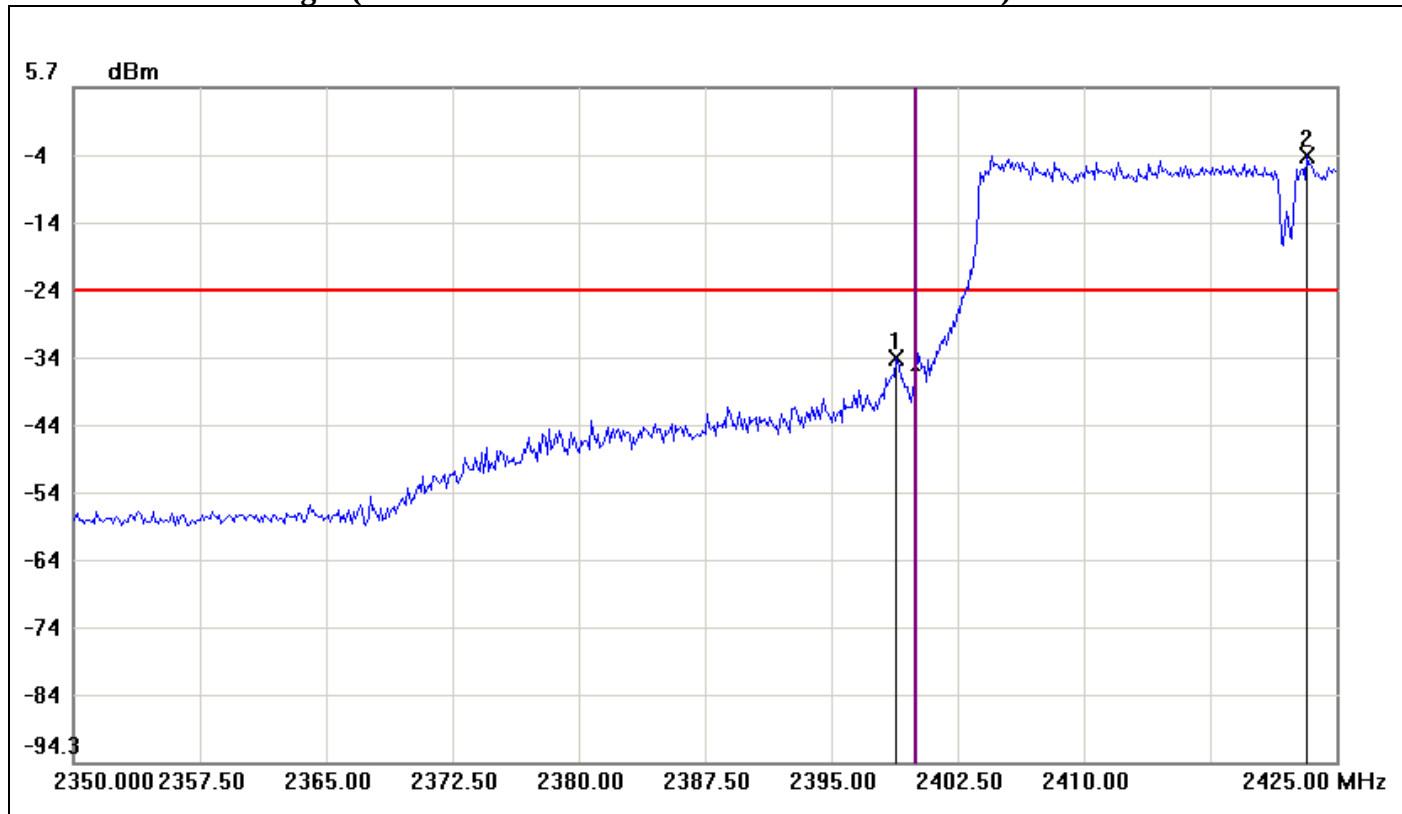
Conducted Band Edges (IEEE 802.11n HT 40 mode / CH High / Chain 0)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2469.2500	-5.79	-25.79	20.00
2	2485.3750	-42.46	-25.79	-16.67



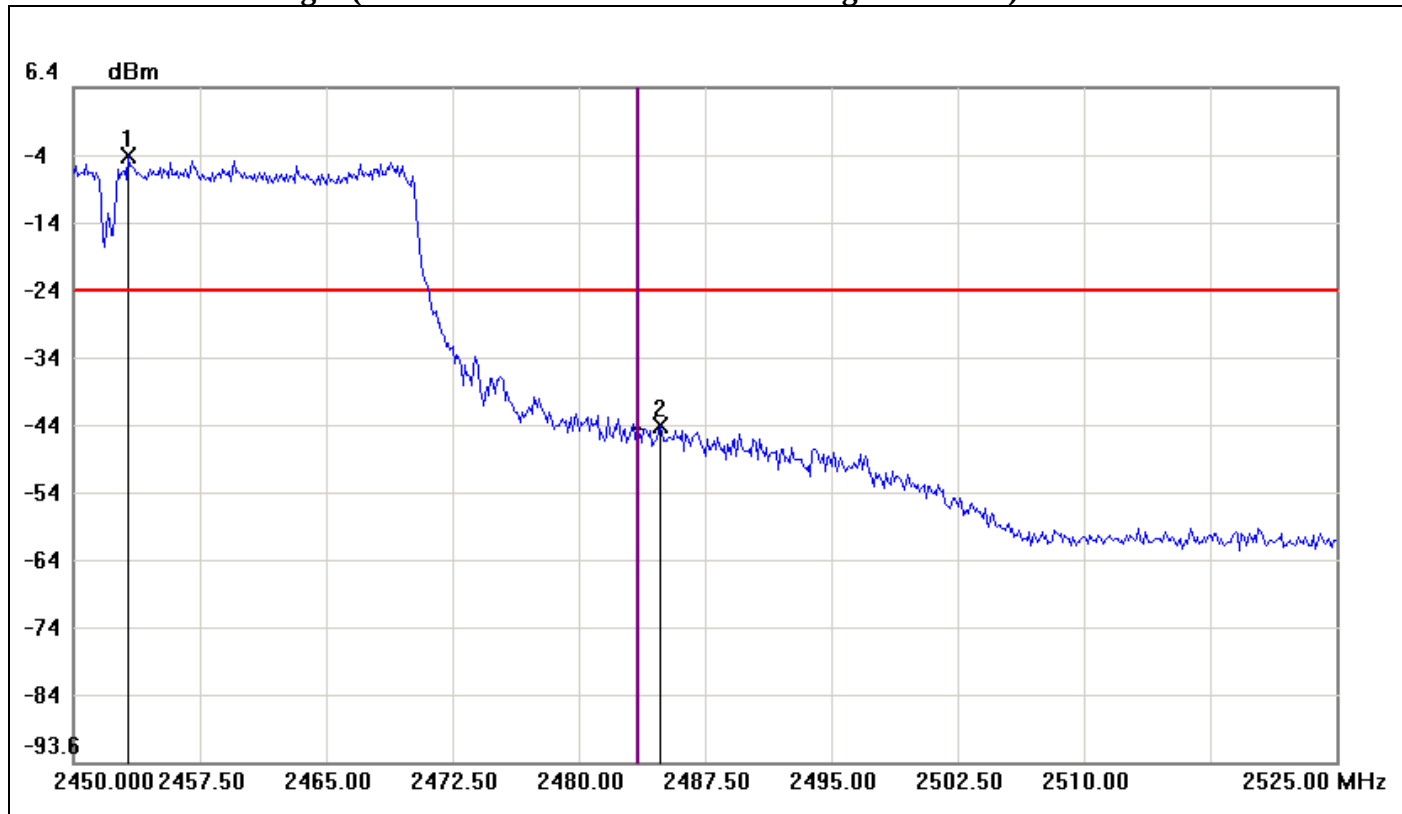
Conducted Band Edges (IEEE 802.11n HT 40 mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2398.8750	-34.48	-24.27	-10.21
2	2423.2500	-4.27	-24.27	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	-3.71	-23.71	20.00
2	2484.8750	-43.82	-23.71	-20.11

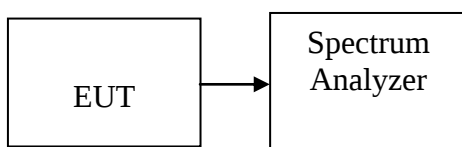


7.5 PEAK POWER SPECTRAL DENSITY

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 $\geq$ 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)	Chain 0 PPSD	Chain 1 PPSD	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-9.85	-7.83	-5.71	8	PASS
Mid	2437	-11.03	-8.09	-6.31		PASS
High	2462	-10.37	-10.47	-7.41		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 PPSD	Chain 1 PPSD	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-7.19	-6.84	-4.00	8	PASS
Mid	2437	-6.55	-5.40	-2.93		PASS
High	2462	-7.86	-7.89	-4.86		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	-11.20	-8.81	-6.83	8	PASS
Mid	2437	-6.29	-7.49	-3.84		PASS
High	2462	-9.10	-8.18	-5.61		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	-14.56	-12.44	-10.36	8	PASS
Mid	2437	-8.32	-6.67	-4.41		PASS
High	2462	-13.47	-11.19	-9.17		PASS

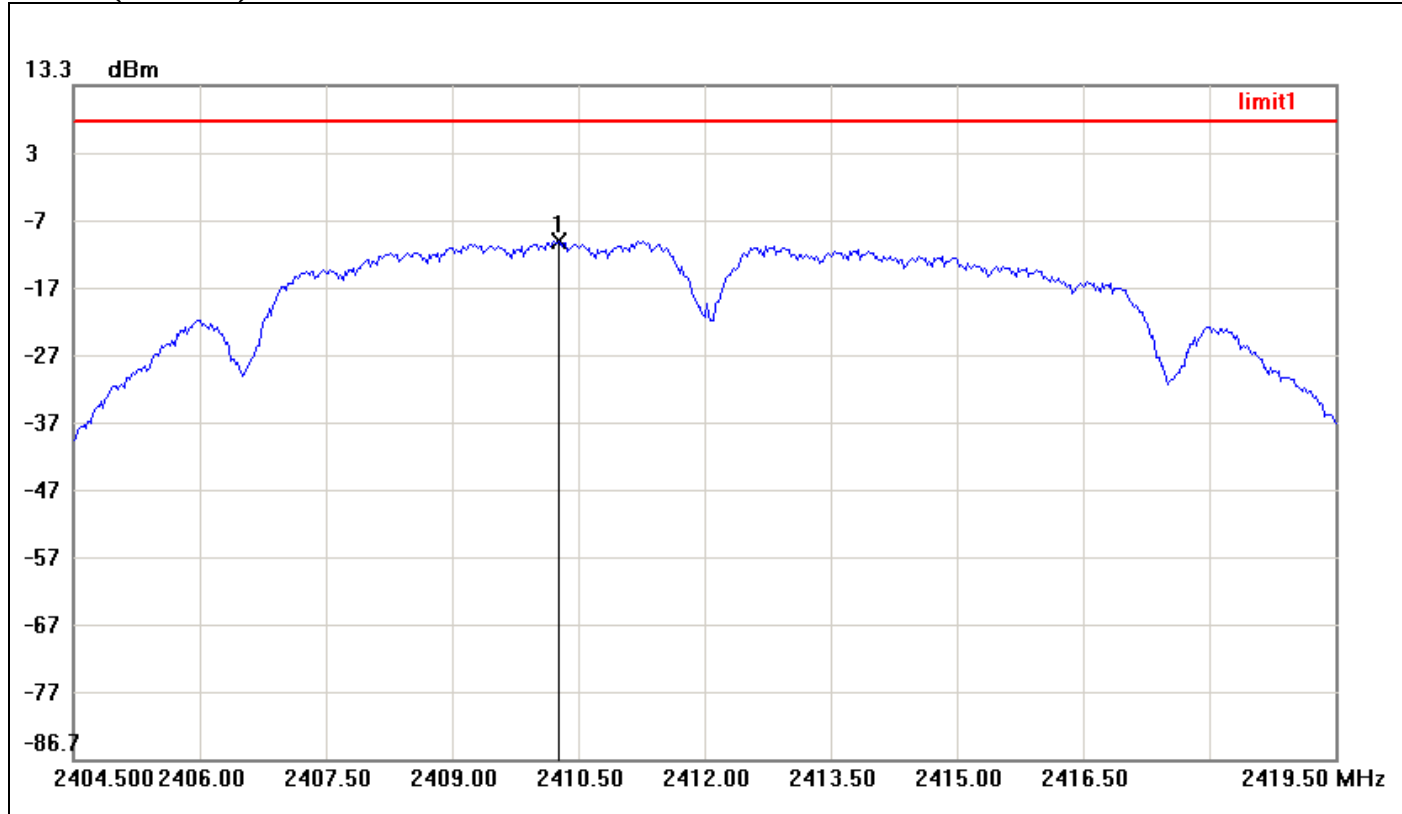
Remark: 1. Total PPSD (dBm) = $10 \cdot \log(10^{\text{Chain 0 PPSD} / 10} + 10^{\text{Chain 1 PPSD} / 10})$



Test Plot

IEEE 802.11b mode / Chain 0

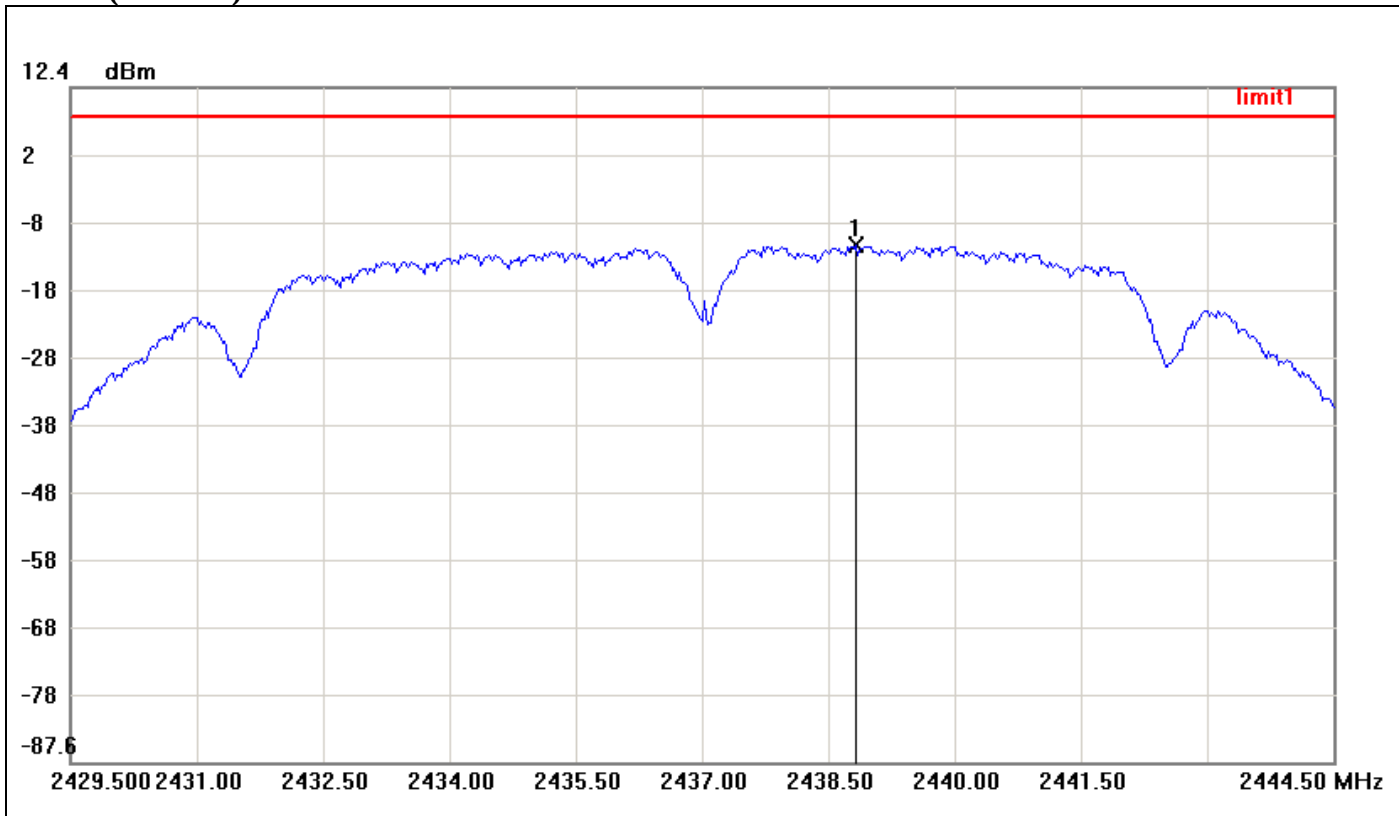
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2410.2750	-9.85	8.00	-17.85



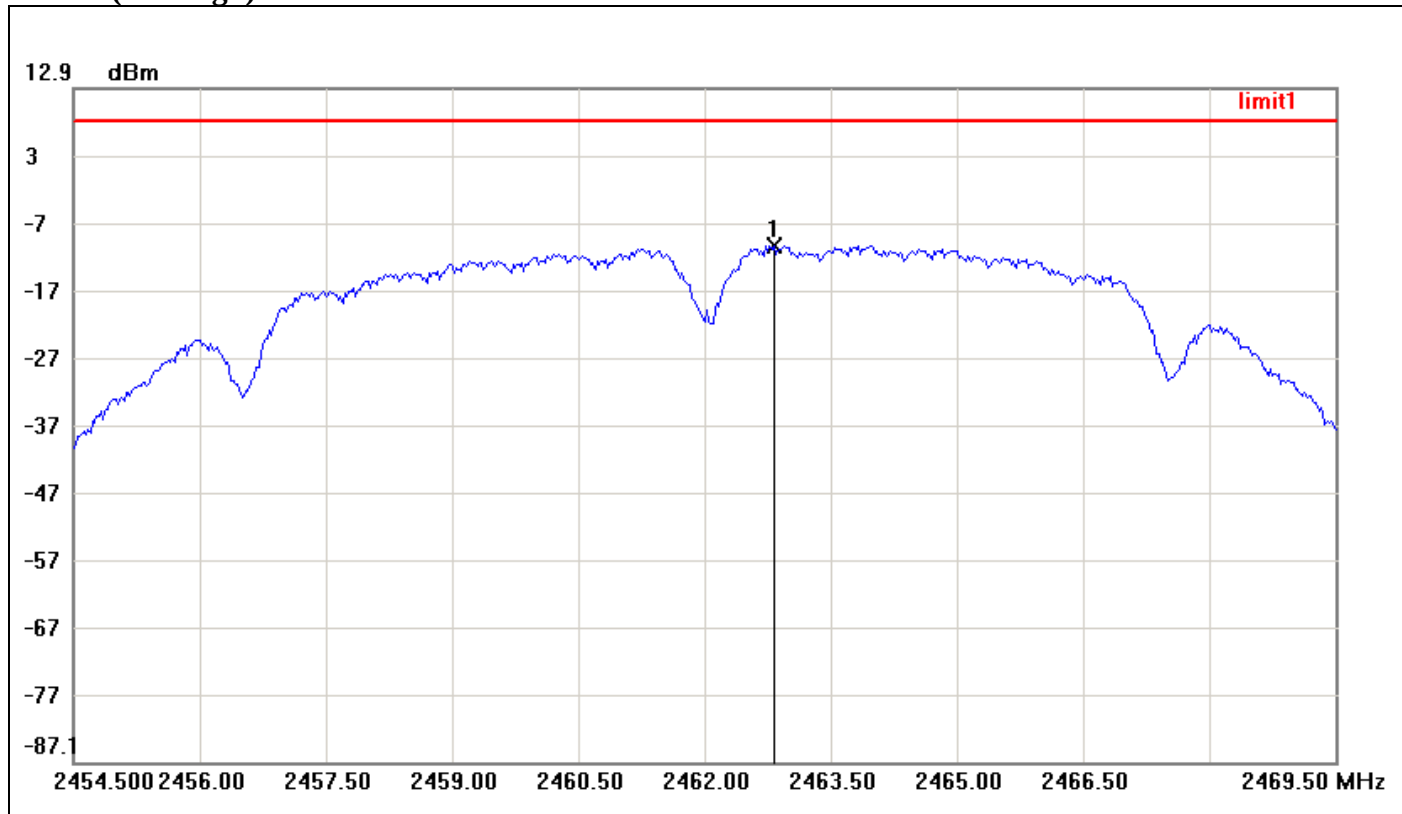
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2438.8250	-11.03	8.00	-19.03



PPSD (CH High)



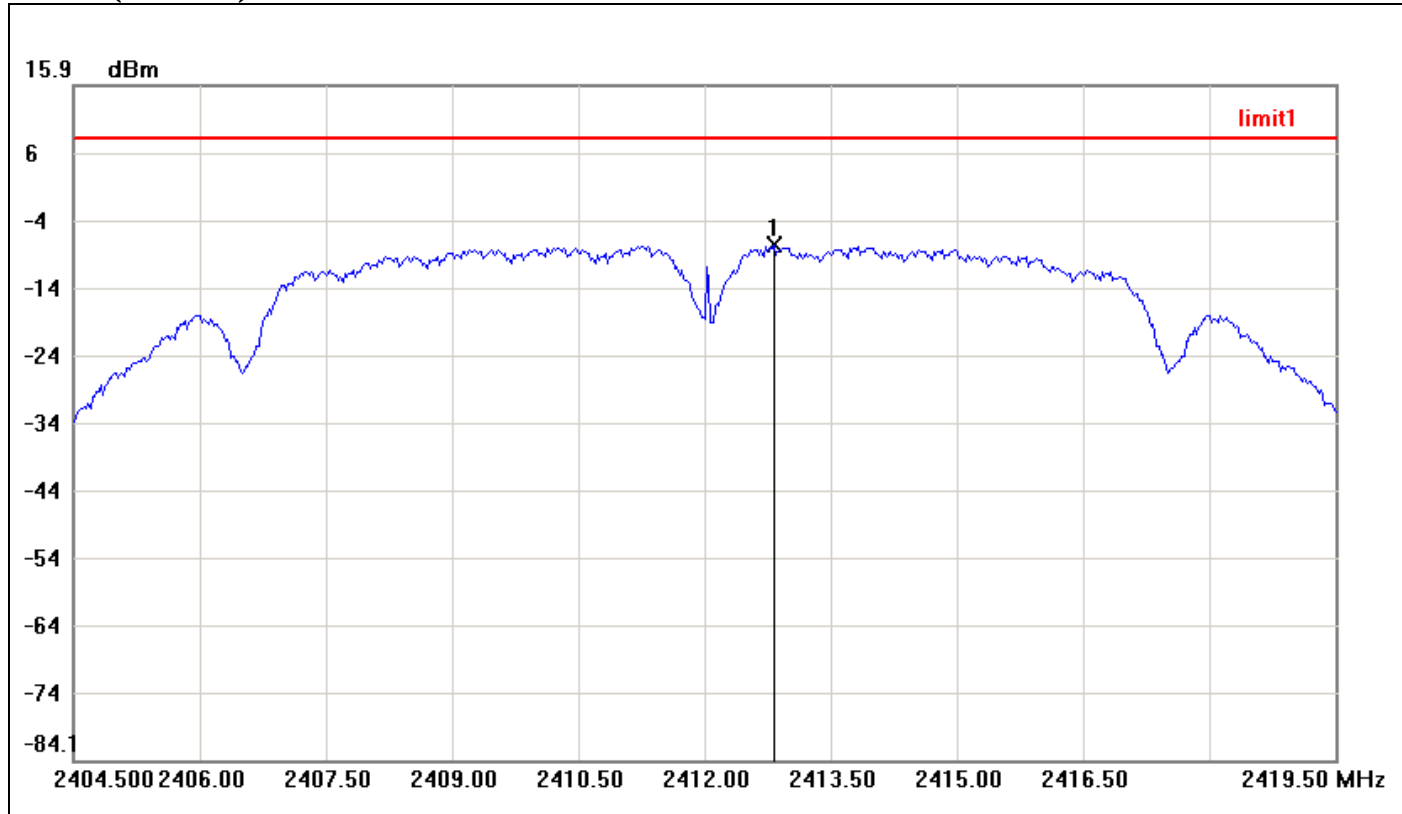
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2462.8250	-10.37	8.00	-18.37



Test Plot

IEEE 802.11b mode / Chain 1

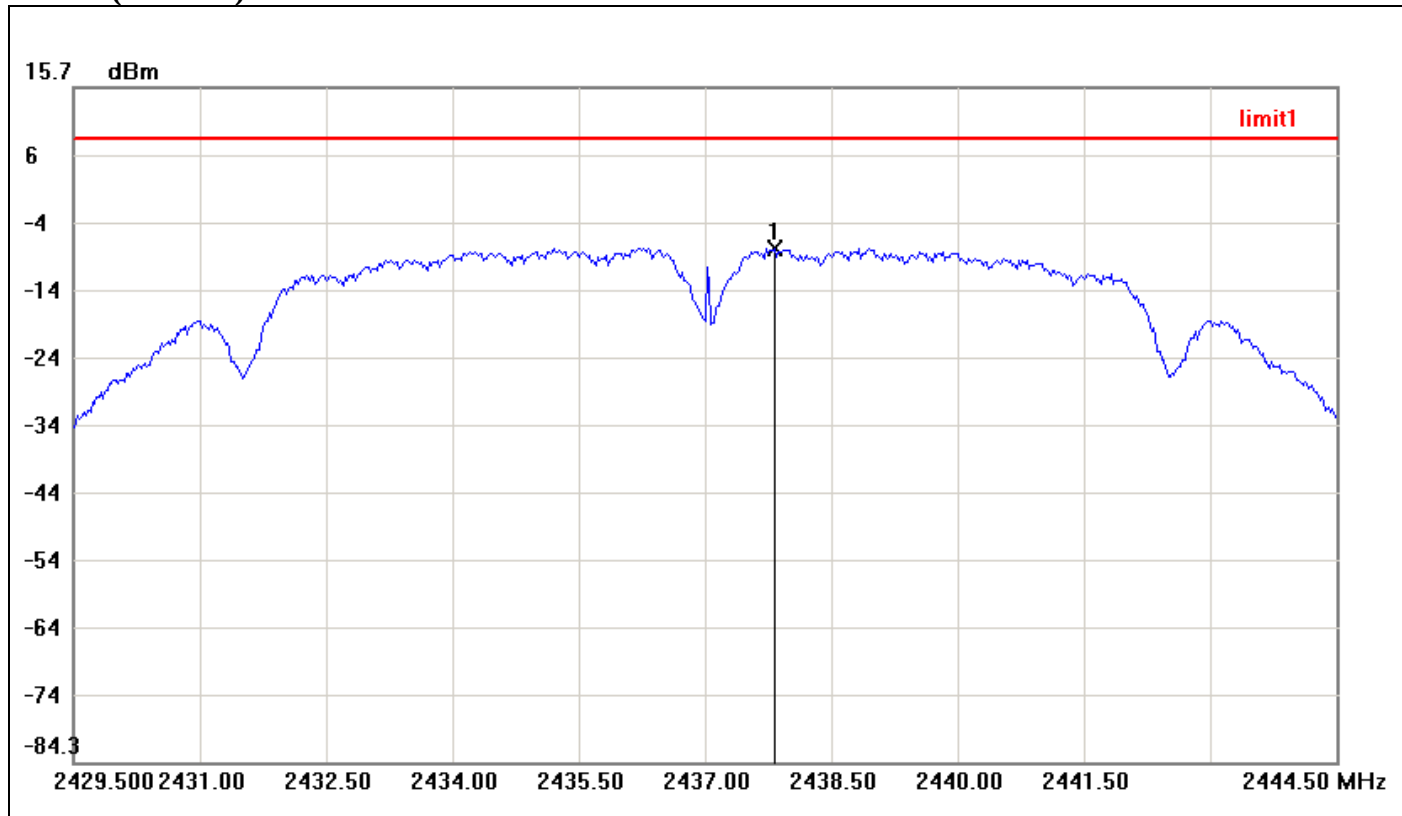
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2412.8250	-7.83	8.00	-15.83



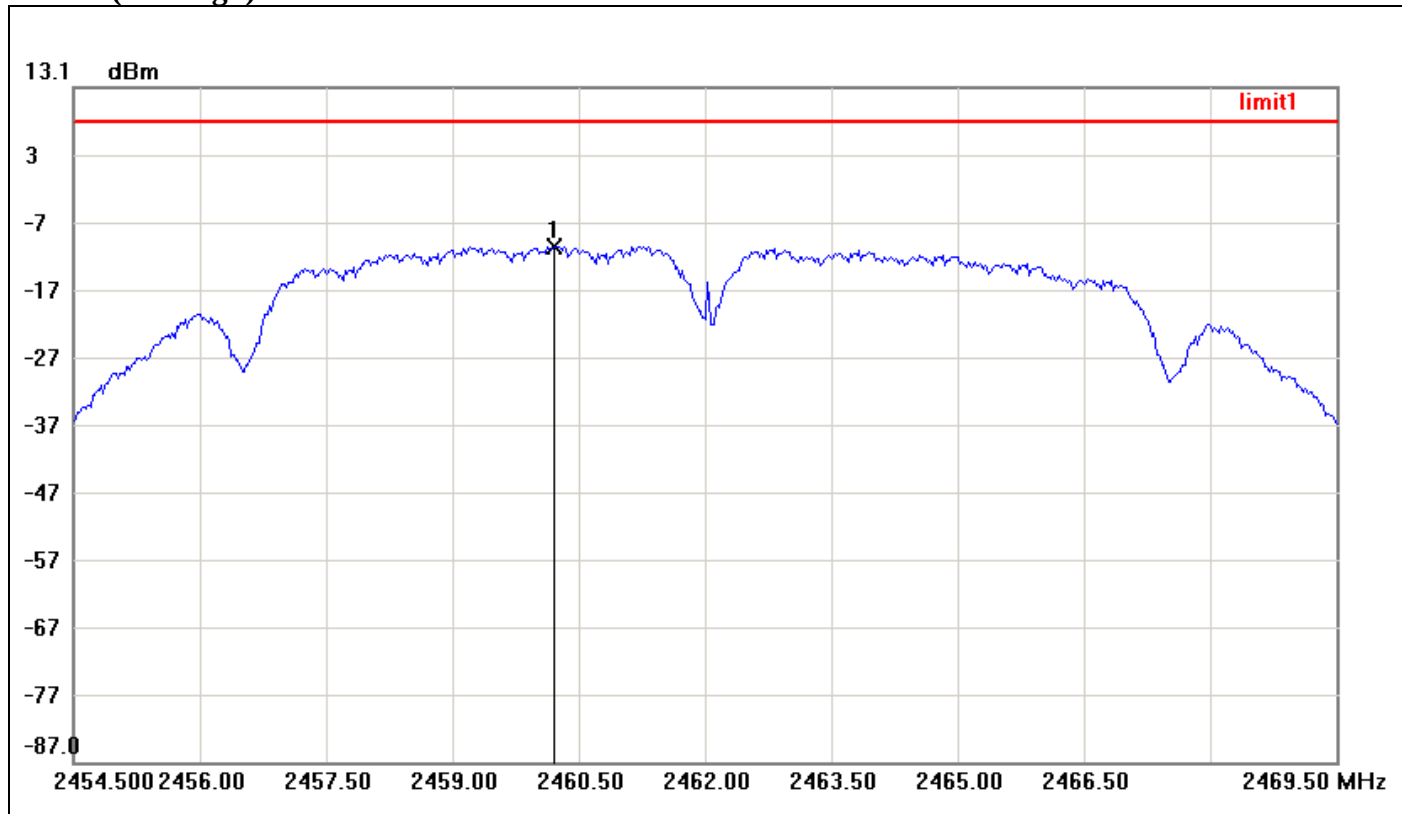
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2437.8250	-8.09	8.00	-16.09



PPSD (CH High)

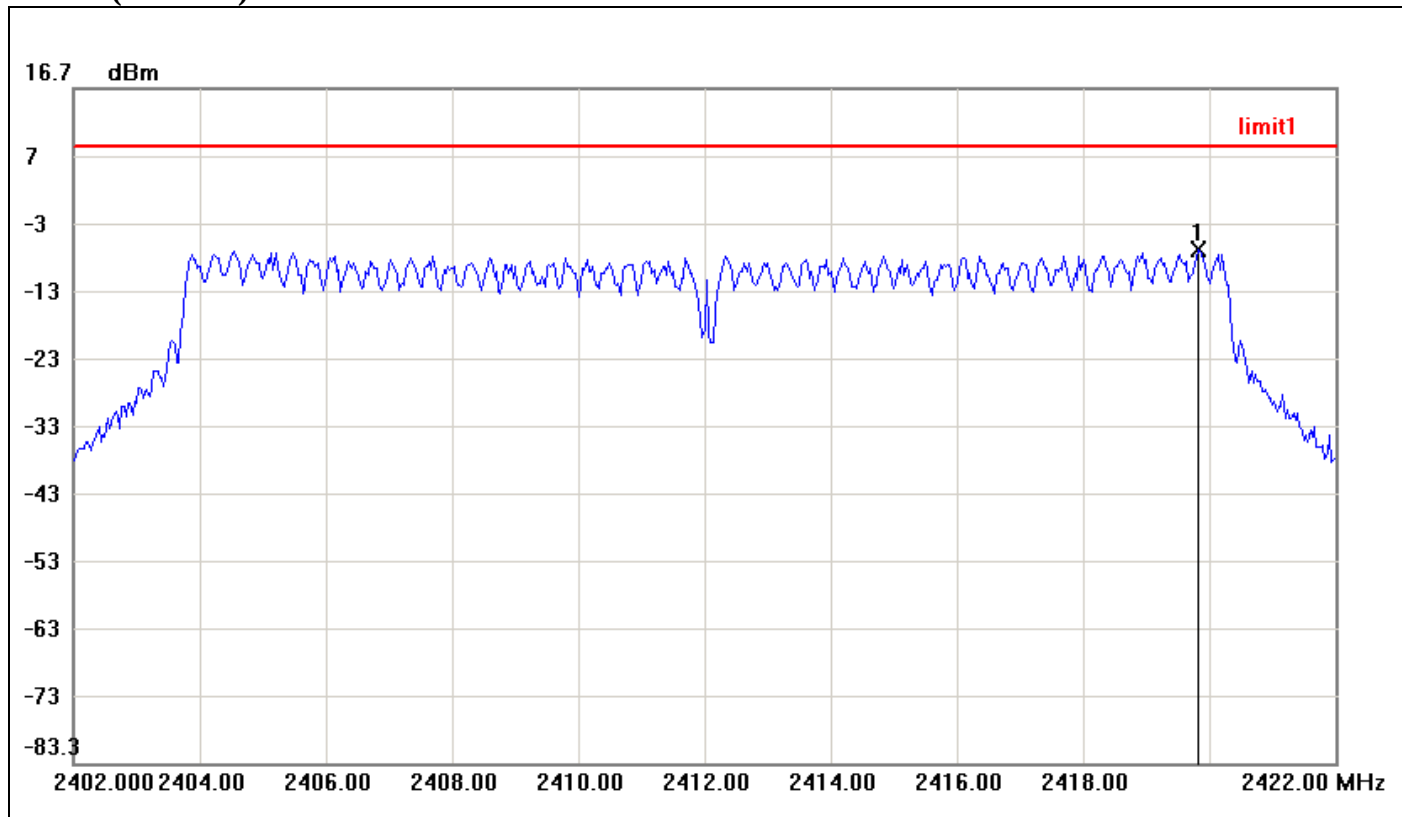


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2460.2000	-10.47	8.00	-18.47



IEEE 802.11g mode / Chain 0

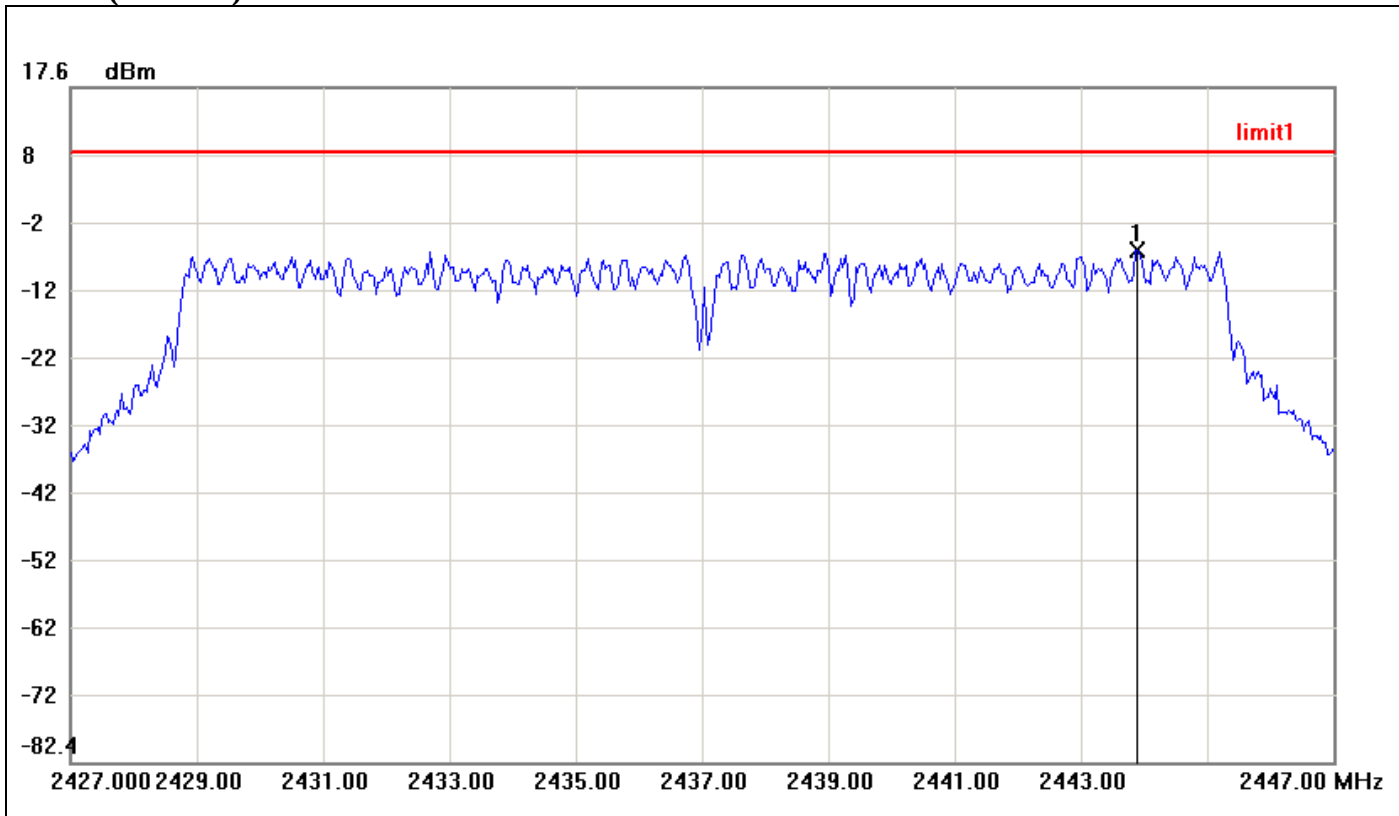
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2419.8333	-7.19	8.00	-15.19



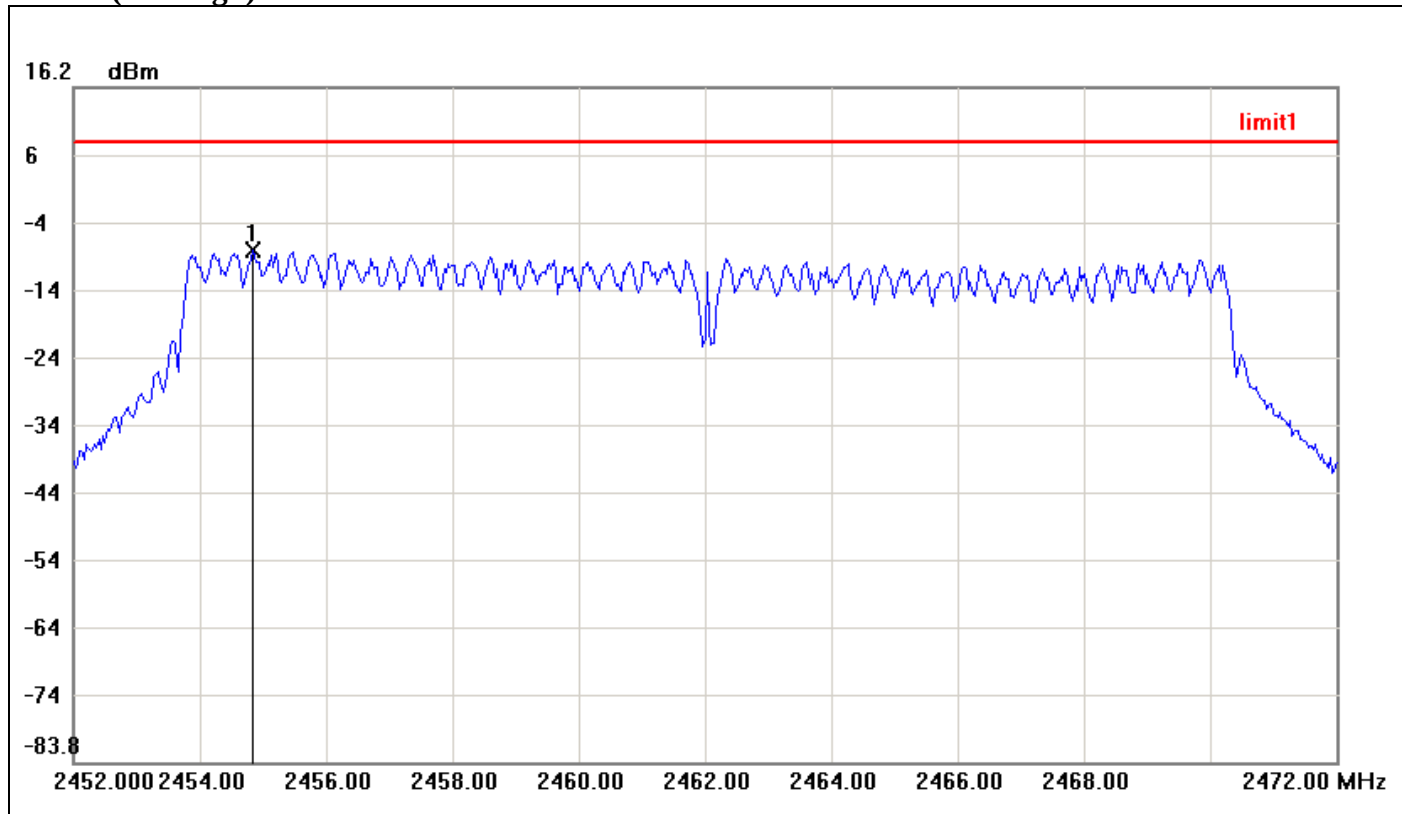
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2443.9000	-6.55	8.00	-14.55



PPSD (CH High)

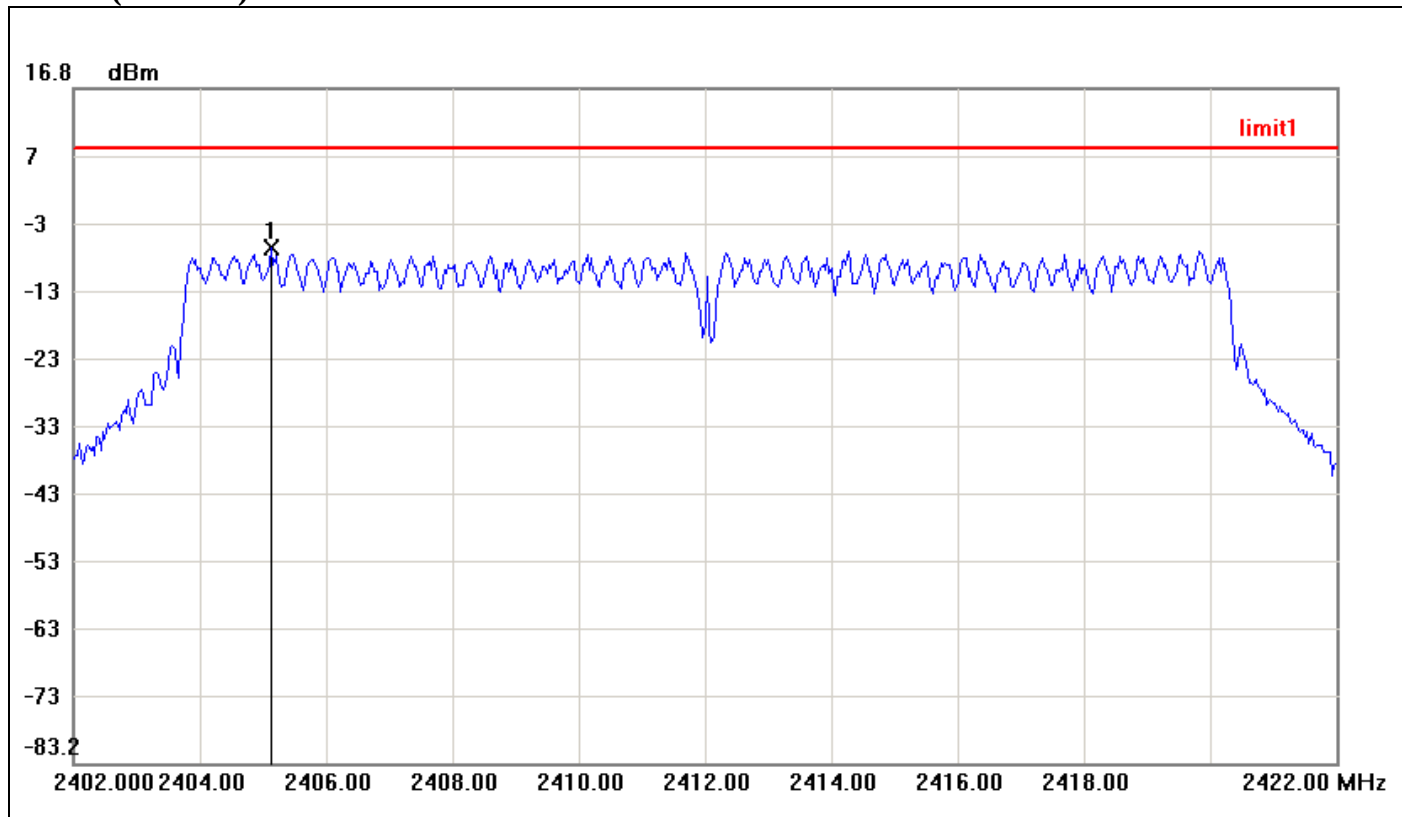


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2454.8333	-7.86	8.00	-15.86



IEEE 802.11g mode / Chain 1

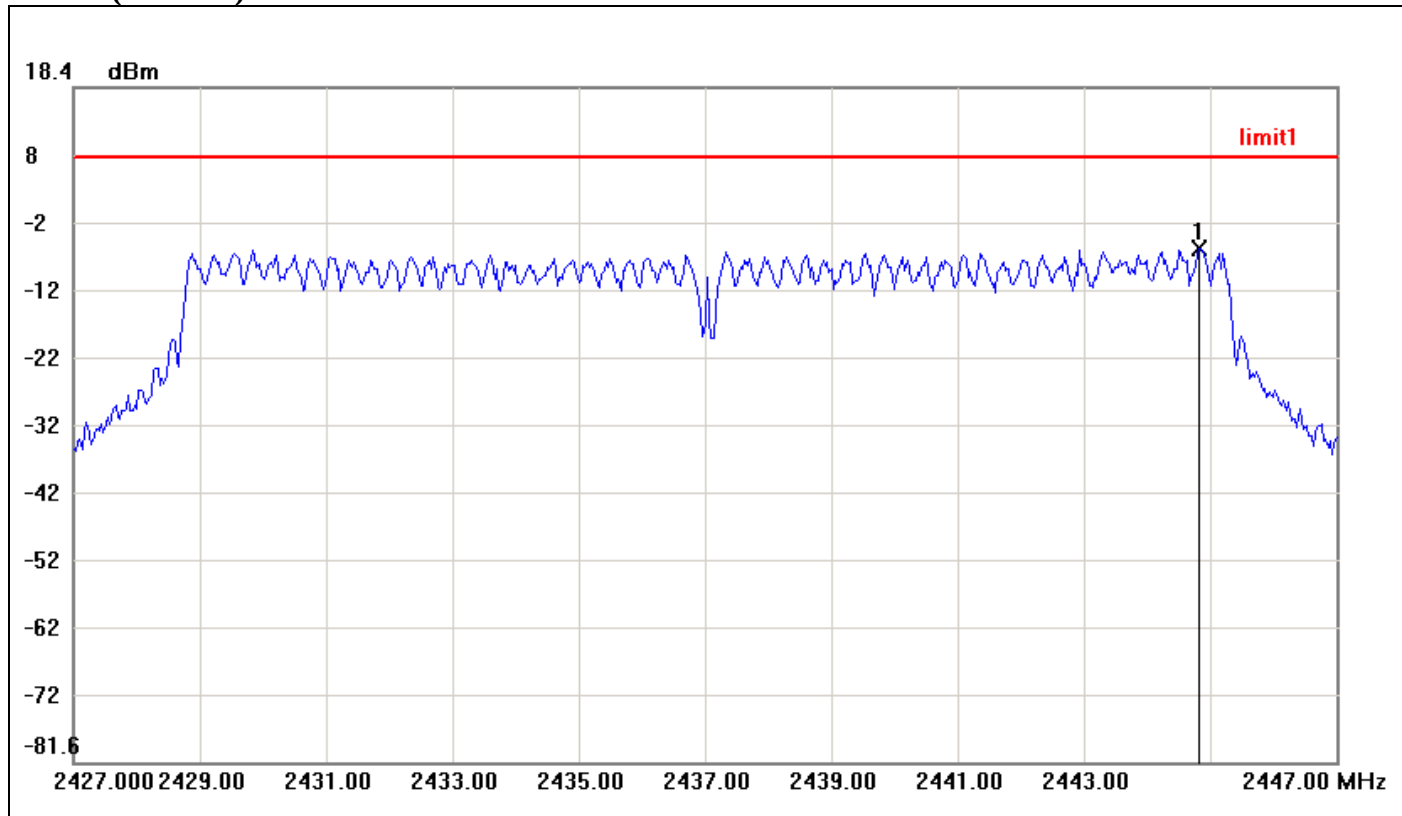
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2405.1333	-6.84	8.00	-14.84



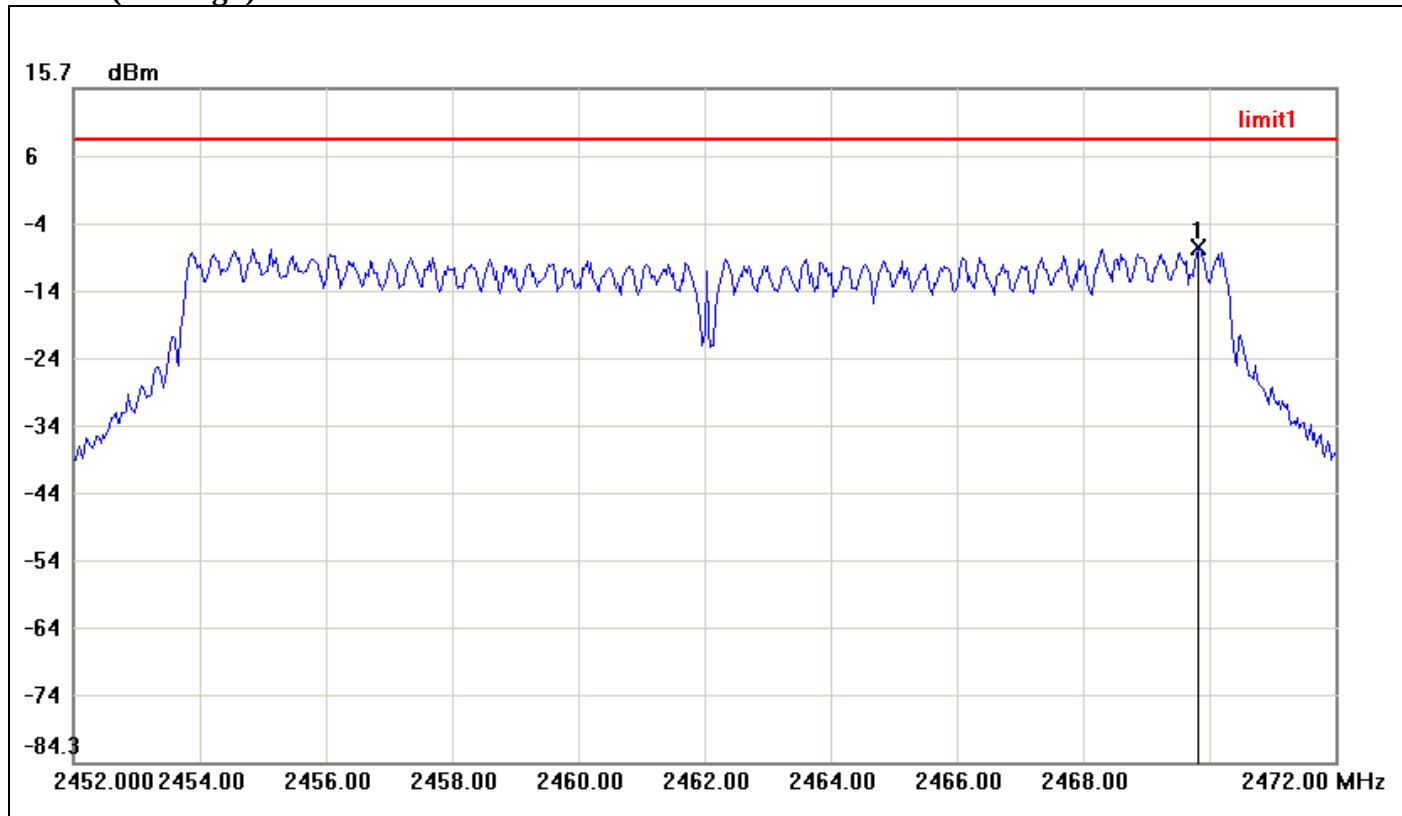
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2444.8333	-5.40	8.00	-13.40



PPSD (CH High)

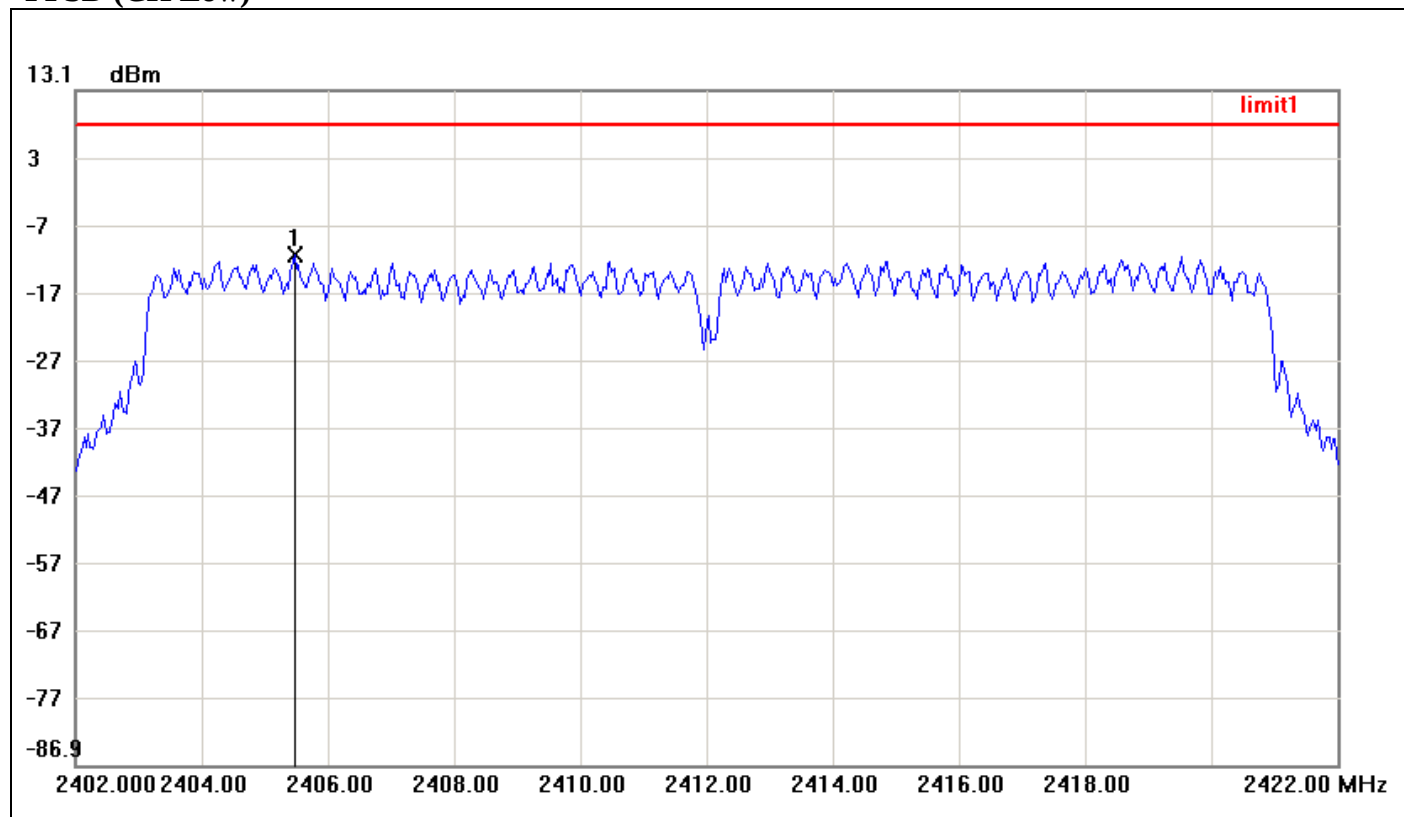


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2469.8333	-7.89	8.00	-15.89



IEEE 802.11n HT 20 mode / Chain 0

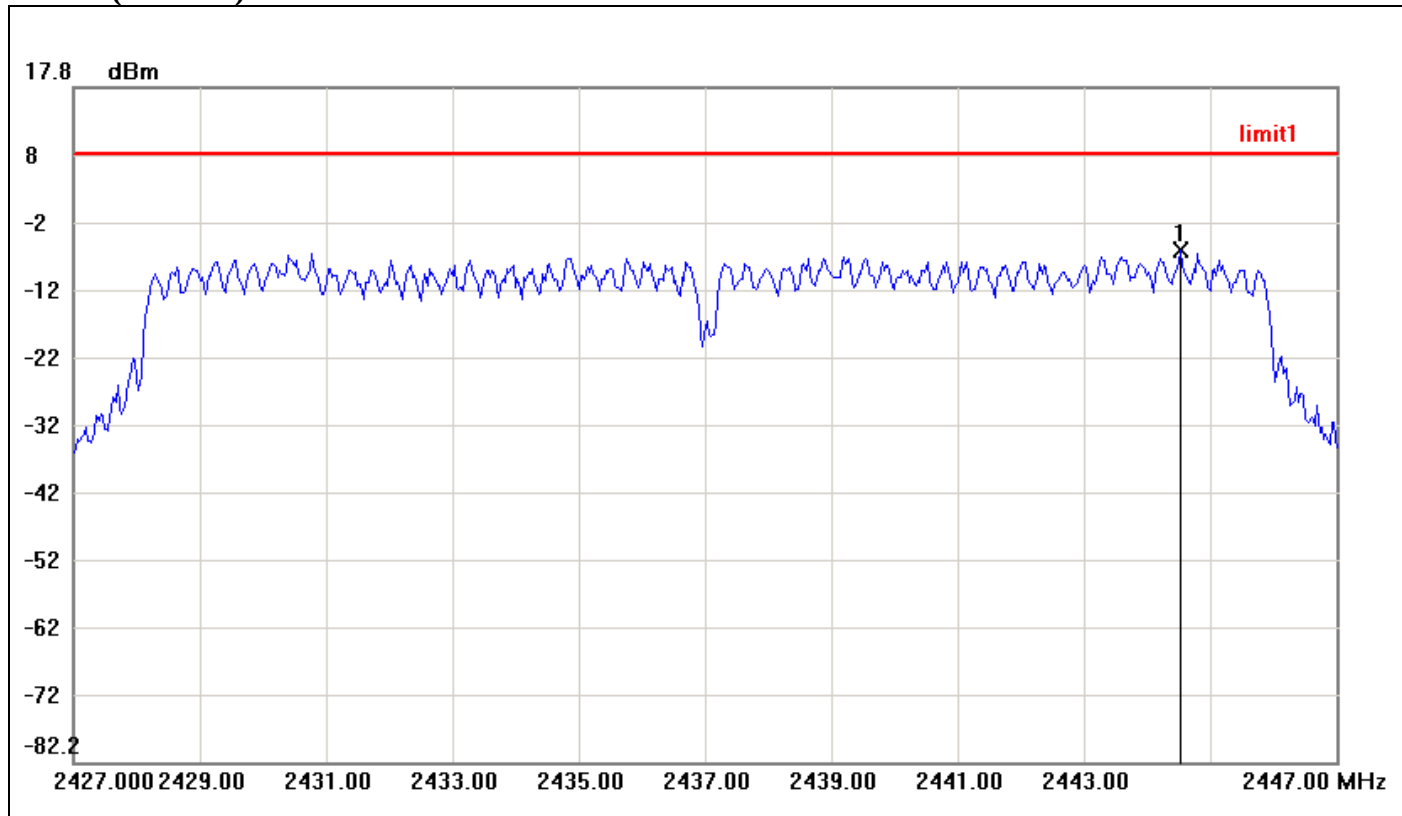
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2405.4667	-11.20	8.00	-19.20



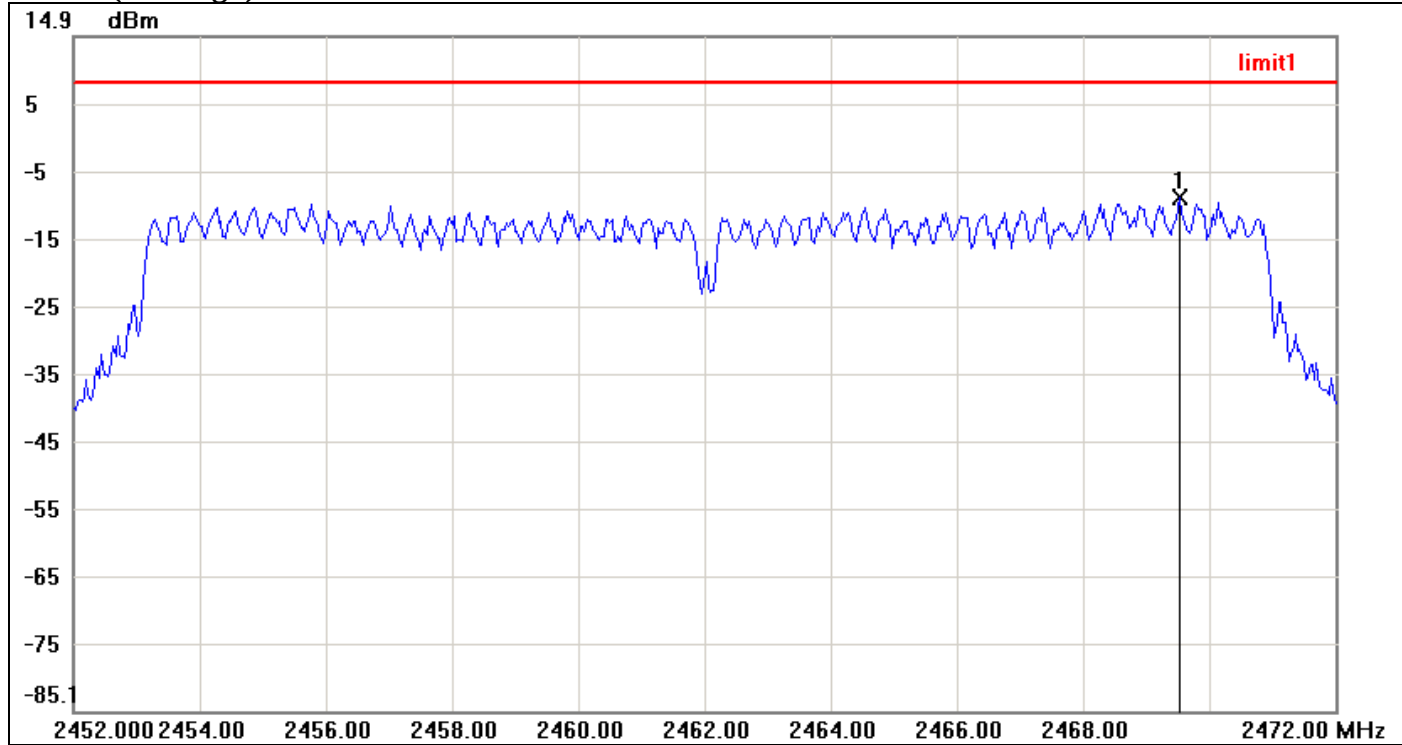
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2444.5333	-6.29	8.00	-14.29



PPSD (CH High)

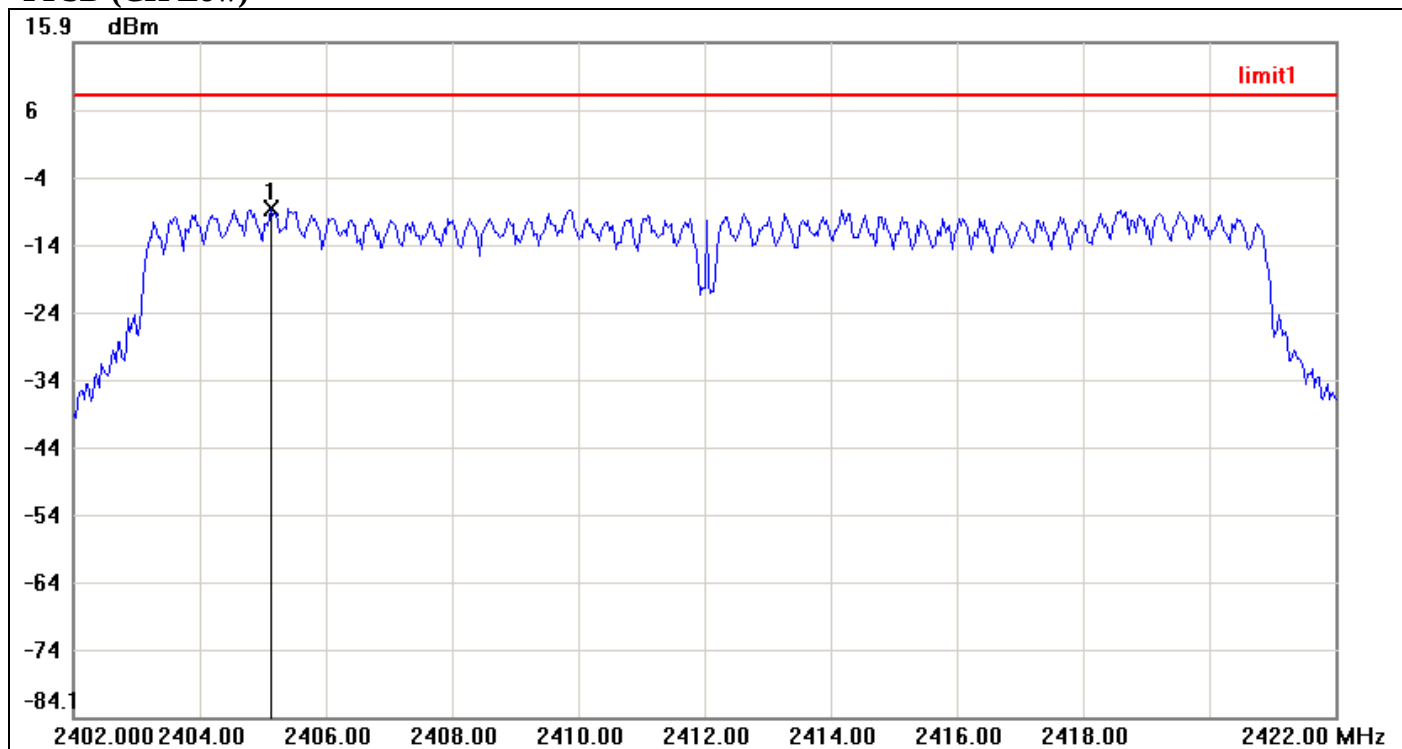


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2469.5333	-9.10	8.00	-17.10



IEEE 802.11n HT 20 mode / Chain 1

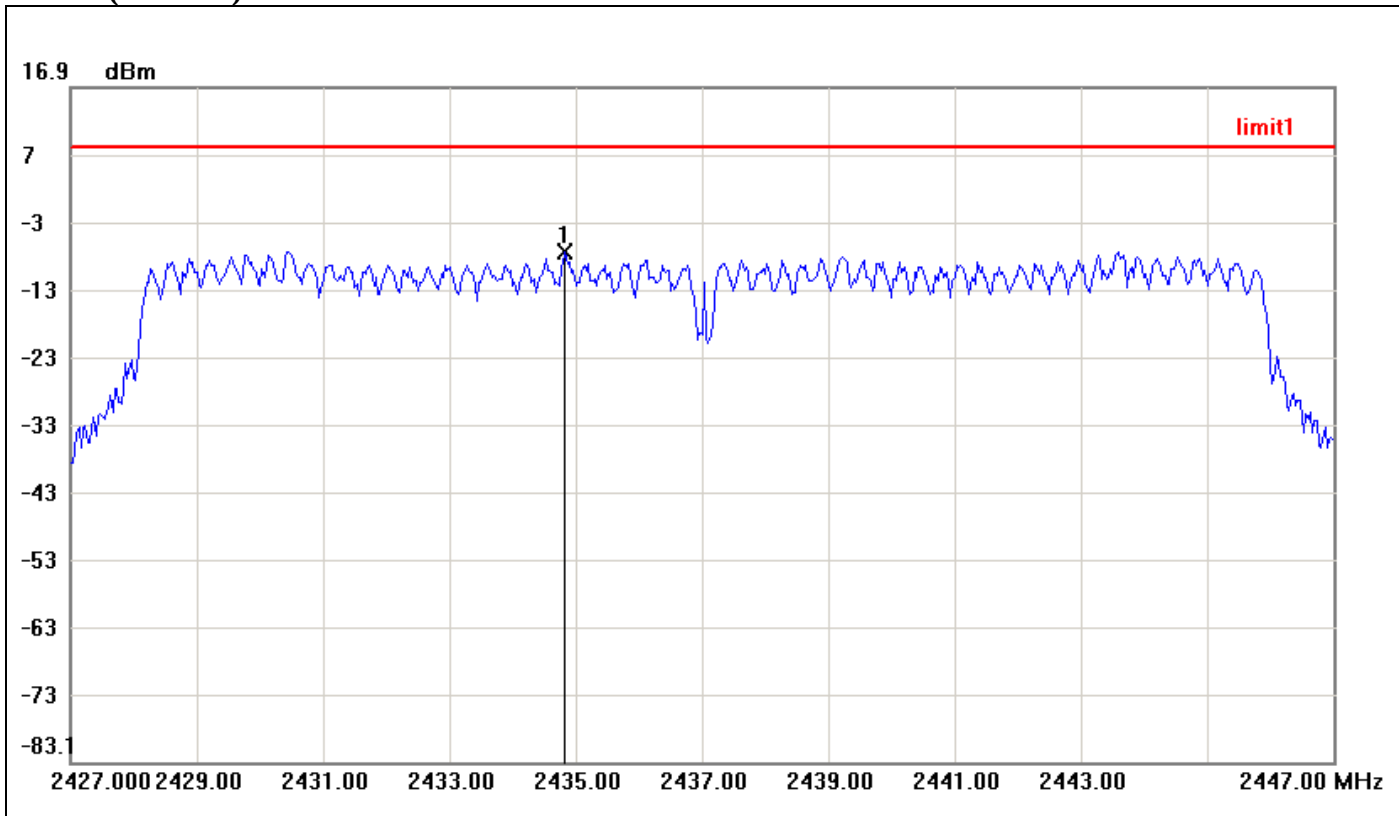
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2405.1333	-8.81	8.00	-16.81



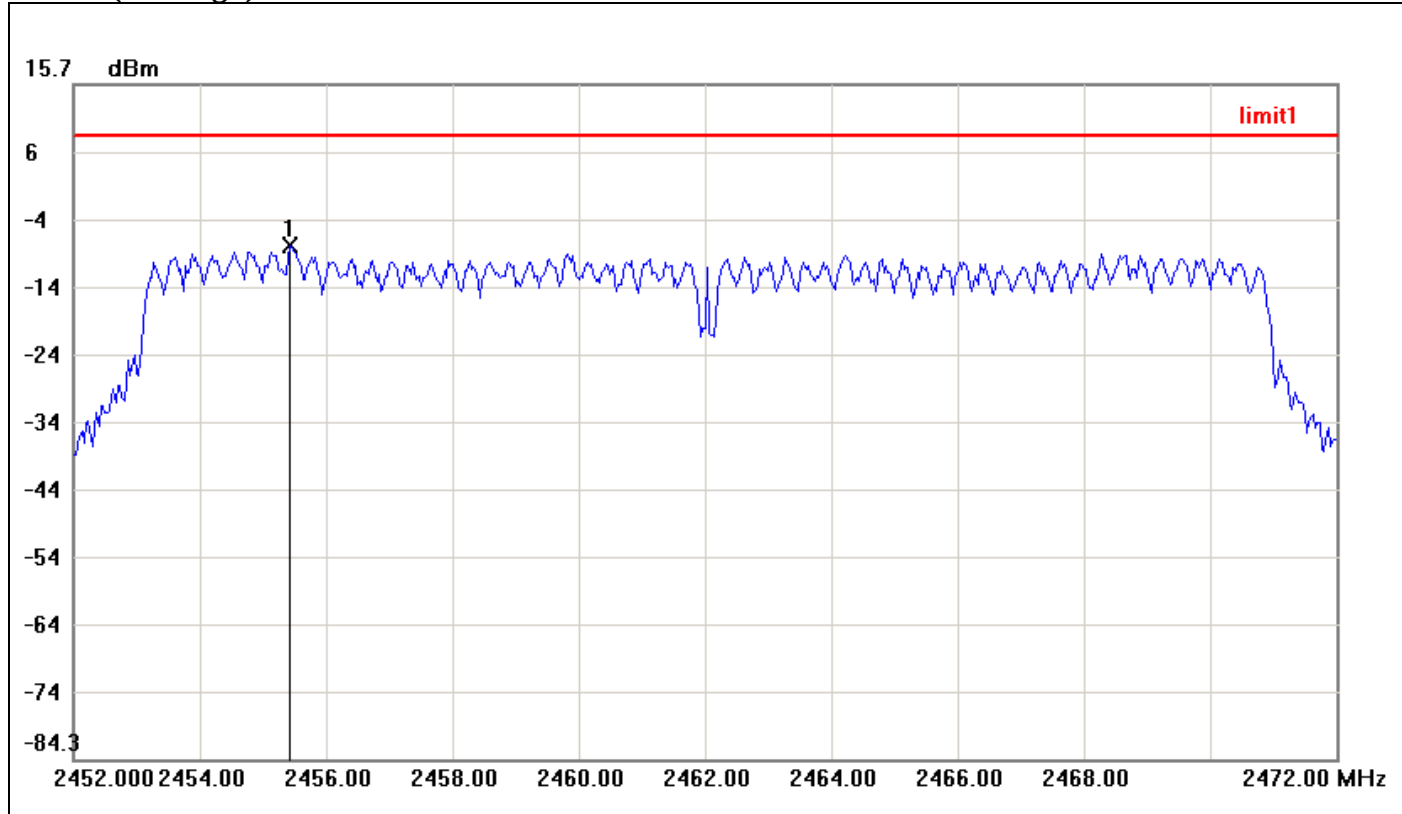
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2434.8333	-7.49	8.00	-15.49



PPSD (CH High)

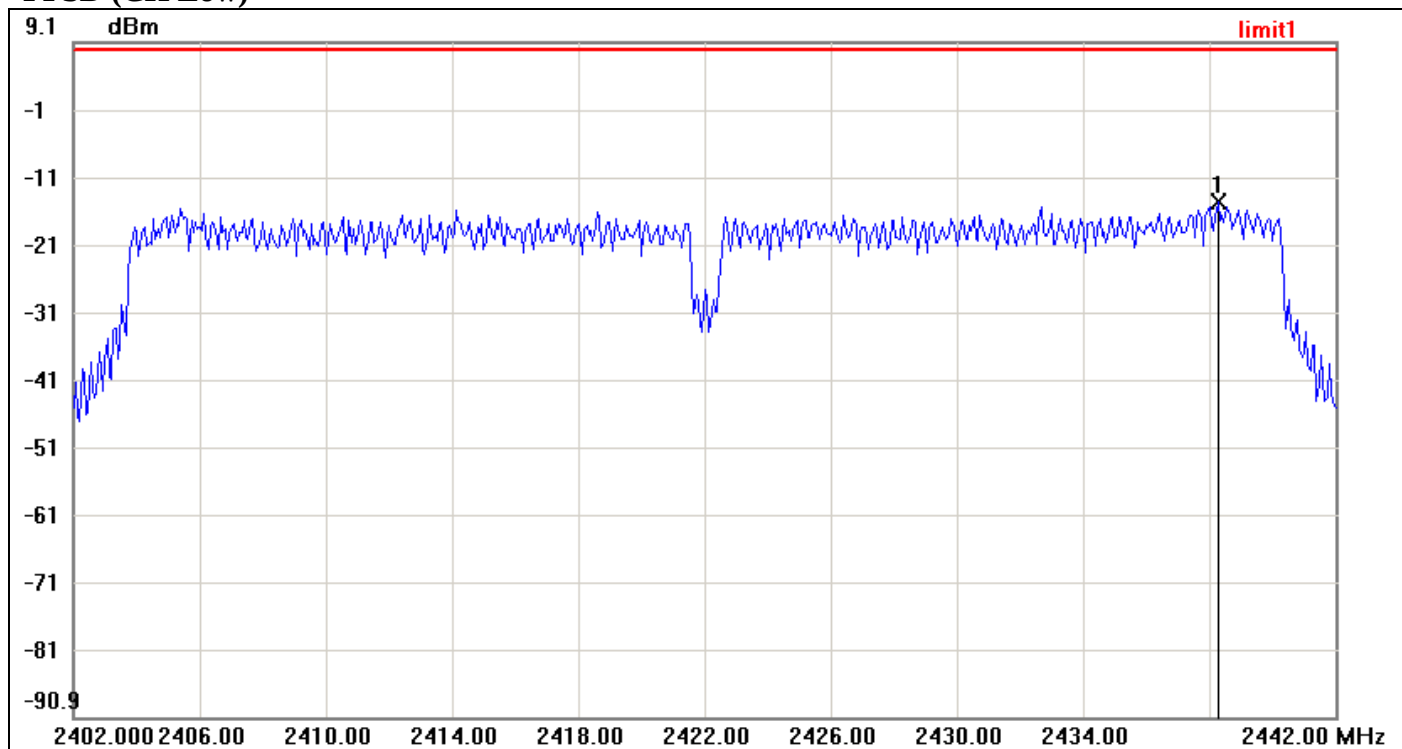


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2455.4333	-8.18	8.00	-16.18



IEEE 802.11n HT 40 mode / Chain 0

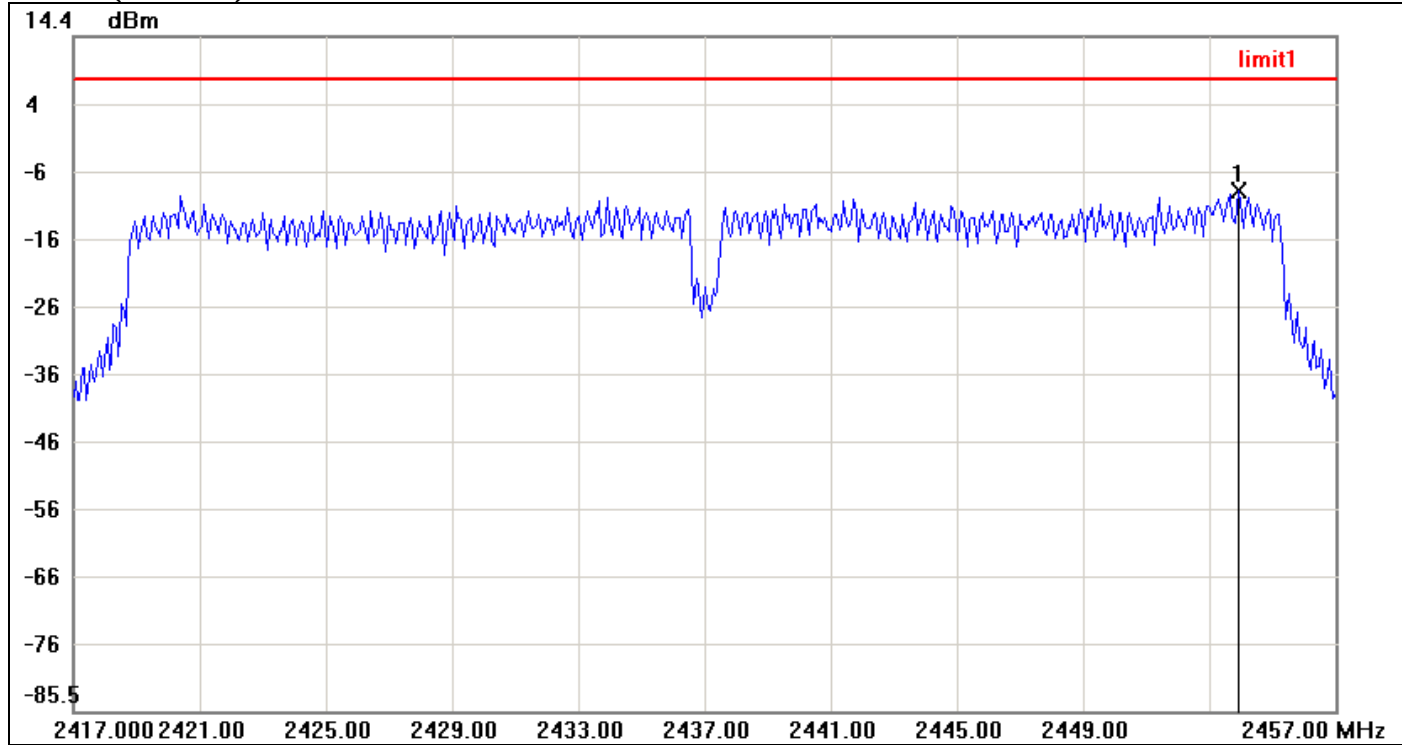
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2438.2667	-14.56	8.00	-22.56



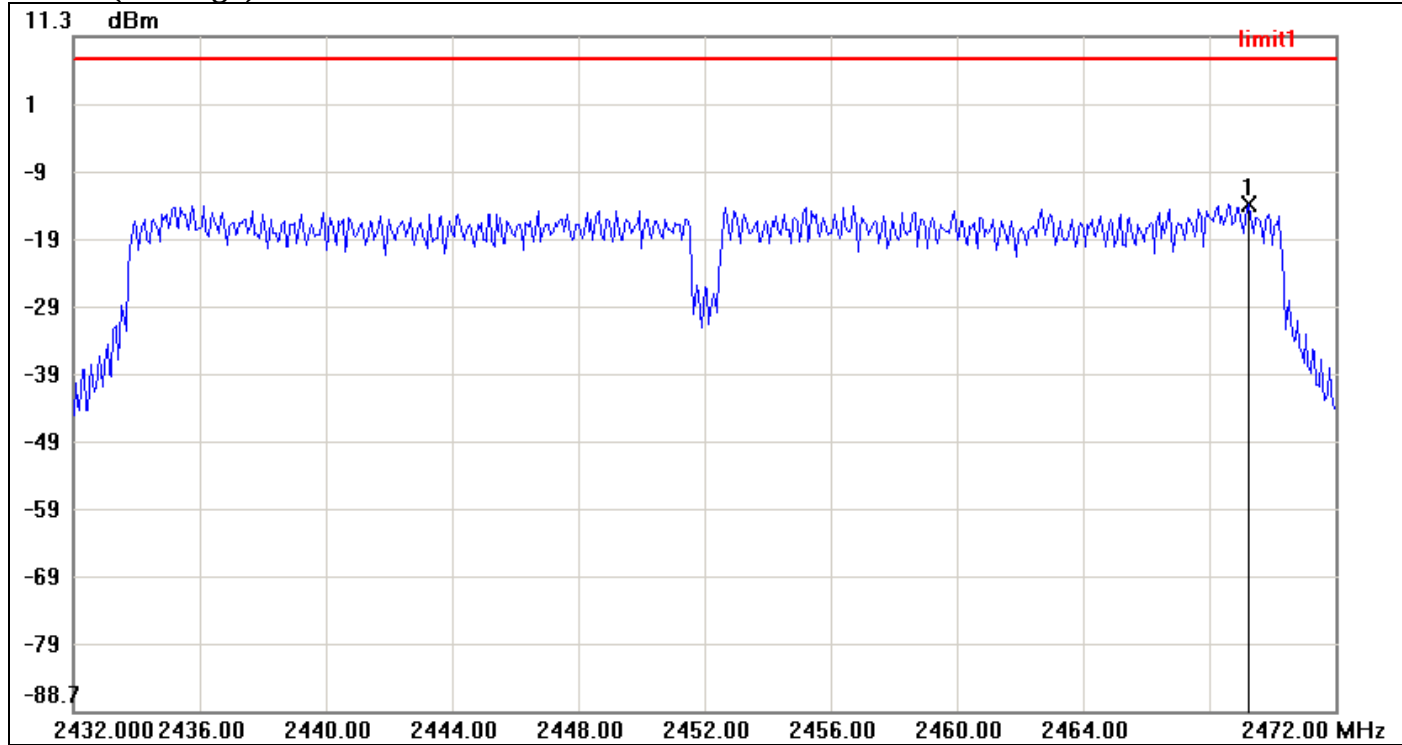
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.9333	-8.32	8.00	-16.32



PPSD (CH High)

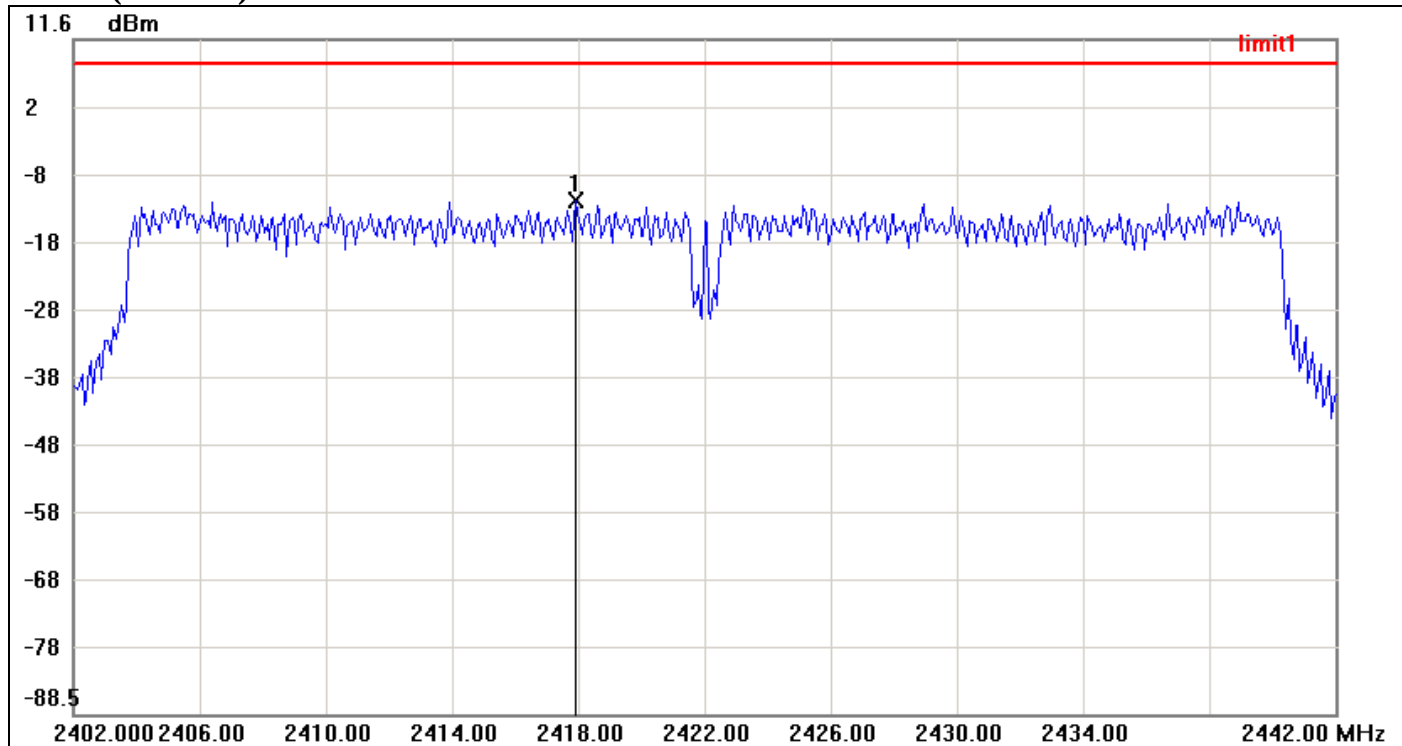


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2469.2667	-13.47	8.00	-21.47



IEEE 802.11n HT 40 mode / Chain 1

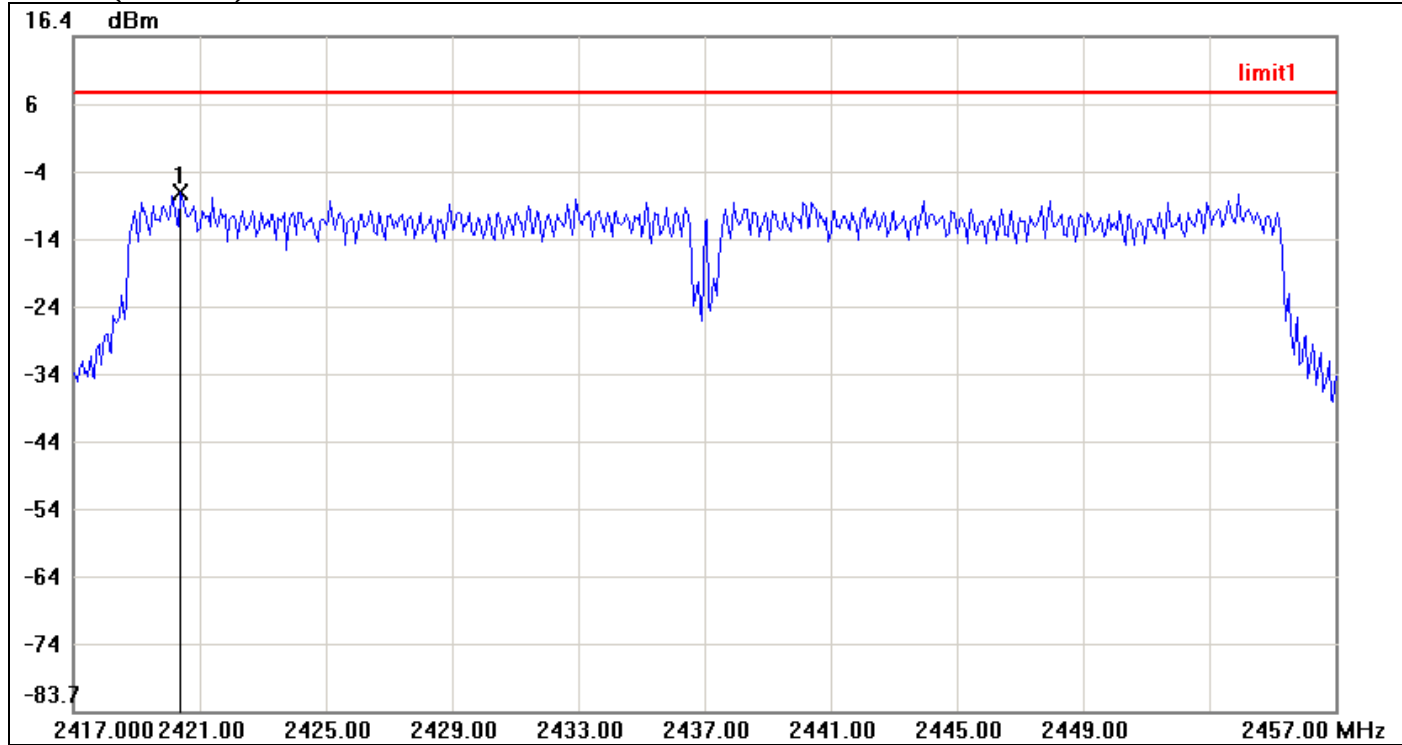
PPSD (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2417.9333	-12.44	8.00	-20.44



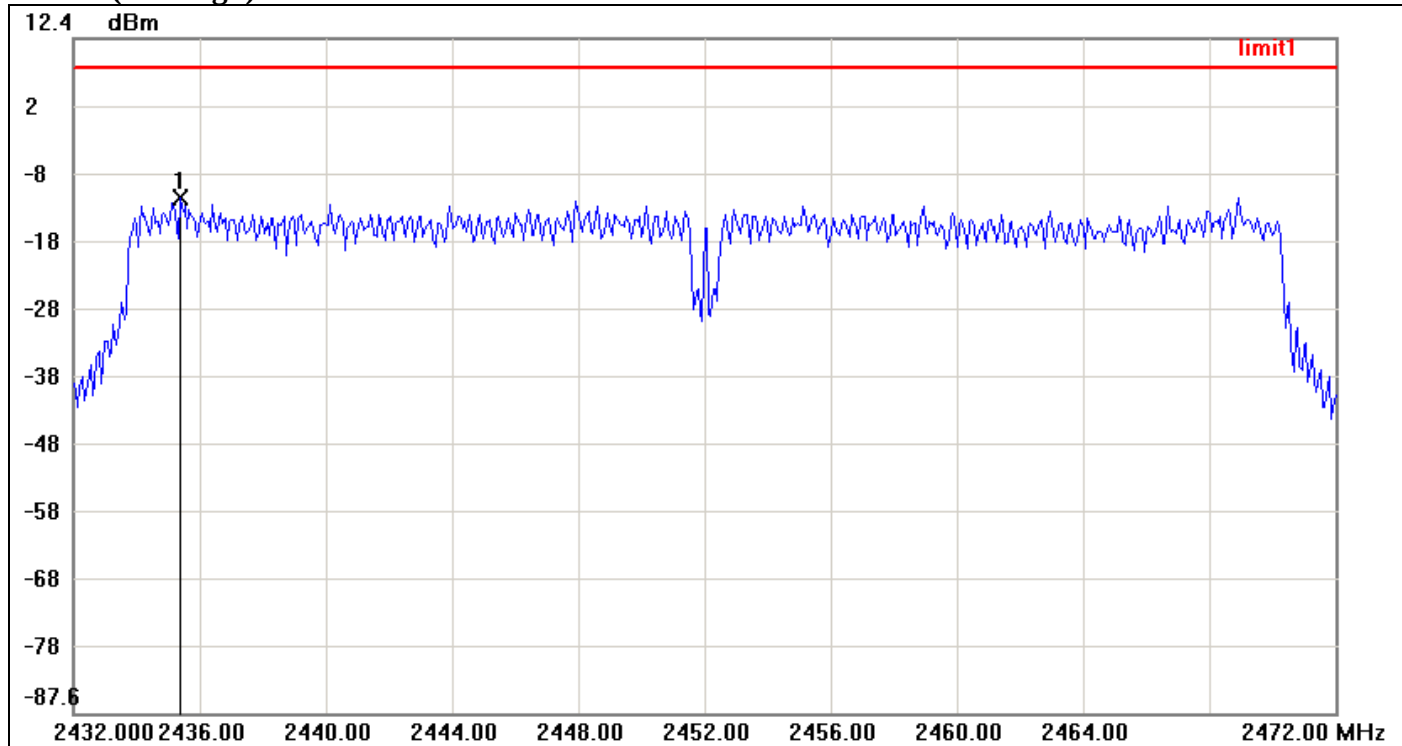
PPSD (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2420.4000	-6.67	8.00	-14.67



PPSD (CH High)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2435.4000	-11.19	8.00	-19.19