

**FCC 47 CFR PART 15 SUBPART C
(Class II Permissive Change)**

TEST REPORT

For

Wireless-N Selectable-Band Access Point with PoE

Model: WAP321

Trade Name: Cisco

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, Wu-Gong 6th Rd., Wugu Industrial Park,
New Taipei City 248, Taiwan (R.O.C.)
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Issued Date: July 20, 2015



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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	November 24, 2011	Initial Issue	ALL	Angel Cheng
01	July 20, 2015	Leverage FCC 5G new standard Rev. (01)	ALL	Doris Chu

Rev. (01)

1. Applicant updates standard.

2. Other information, please refer to the T111028201 and this test report.

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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-N Selectable-Band Access Point with PoE

Trade Name: Cisco

Model: WAP321

Date of Test: July 12 ~ 14, 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 C63.10: 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	Wireless-N Selectable-Band Access Point with PoE
Trade Name	Cisco
Model Number	WAP321
Model Discrepancy	N/A
Received Date	June 22, 2015
Power Adapter	<ol style="list-style-type: none"> 1. Sunny/ SYS1381-121-W2C I/P: 100-240V~, 0.5A MAX, 50-60Hz O/P: 12V, 1.0A 2. LEADER / MU12-G120100-A2 I/P: 100-240V~, 50-60Hz, 0.5A O/P: 12V, 1A 3. Sunny/ SYS1381-1212-W2 I/P: 100-240V~, 0.5A MAX, 50-60Hz O/P: 12V, 1.0A 4. LEADER / MU12-G120100-A1 I/P: 100-240V~, 50-60Hz, 0.5A O/P: 12V, 1A
Frequency Range	IEEE 802.11b/g/ IEEE 802.11n HT 20 MHz: 2412 ~ 2462 MHz IEEE 802.11n HT 40 MHz: 2422 ~ 2452 MHz
Transmit Power	IEEE 802.11b mode: 21.76 dBm IEEE 802.11g mode: 24.15 dBm Mode 1: IEEE 802.11n HT 20 MHz mode: 25.04 dBm IEEE 802.11n HT 40 MHz mode: 25.57dBm Mode 2: IEEE 802.11n HT 20 MHz mode: 24.91 dBm IEEE 802.11n HT 40 MHz mode: 25.50 dBm Mode 3: IEEE 802.11n HT 20 MHz mode: 25.10dBm IEEE 802.11n HT 40 MHz mode: 25.36dBm
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) IEEE 802.11n HT 20 MHz mode: OFDM (6.5, 13, 19.5, 26, 39, 52, 58.5, 65.0Mbps) IEEE 802.11n HT 40 MHz mode: OFDM (13.5, 27, 40.5, 54, 81, 108, 121.5, 135Mbps)
Number of Channels	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT 20 MHz mode: 11 Channels IEEE 802.11n HT 40 MHz mode: 7 Channels
Antenna Specification	Antenna 1 (chain 0): 4.32 dBi Antenna 2 (chain 1): 4.67 dBi Antenna 3 (chain 2): 3.96 dBi
Antenna Designation	PIFA Antenna

Remark:

1. The sample selected for test was production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **P27-WAP321** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
3. The conducted test is using largest mimo gain to test, because it Stringent than the limit value.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 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 ANSI C63.10: 2009 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 ANSI C63.10: 2009.

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: WAP321) comes with four types of power adapter (SYS1381-121-W2C, MU12-G120100-A2, SYS1381-1212-W2, MU12-G120100-A1) for sale. After the preliminary test, the EUT with power adapter (Model: MU12-G120100-A1) was found to emit the worst emissions and therefore had been tested under operating condition.

The EUT comes with three modes: mode 1 & mode 2 & mode 3.

“Mode 1” antenna 1 (chain 0), antenna 2 (chain 1)

“Mode 2” antenna 2 (chain 1), antenna 3 (chain 2)

“Mode 3” antenna 1 (chain 0), antenna 3 (chain 2)

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 Chain 1)(Chain 1 and Chain 2)(Chain 0 and Chain 2)

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

After verification, all tests carried out are 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 and receiving radiated spurious emission above 1GHz, which worst case was in CH Mid mode only.

IEEE 802.11b mode:

During the preliminary test, Chain 0, Chain 1, Chain 2 with IEEE 802.11b mode were pre-tested and found that Chain 1 emits the highest output power.

Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with chain 1 at 1Mbps data rate were chosen for full testing

IEEE 802.11g mode:

During the preliminary test, Chain 0, Chain 1, Chain 2 with IEEE 802.11g mode were pre-tested and found that Chain 1 emits the highest output power.

Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with chain 1 at 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz mode:

During the preliminary test, MCS0 : Chain 0,Chain 1,Chain 2 and MCS8 : Chain 0+Chain 1,Chain 1 +Chain 2,Chain 0 + chain 2 with IEEE 802.11n HT 20 MHz were pre-tested and found that Chain 0+Chain 1,Chain 1 +Chain 2,Chain 0 + chain 2 emits the highest output power.

Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with chain 0 + chain 1 and chain 1 + chain 2 and chain 0 + chain 2 at MCS 8 data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz mode:

During the preliminary test, MCS0 : Chain 0,Chain 1,Chain 2 and MCS8 : Chain 0+Chain 1,Chain 1 +Chain 2,Chain 0 + chain 2 with IEEE 802.11n HT 40 MHz were pre-tested and found that Chain 0+Chain 1,Chain 1 +Chain 2,Chain 0 + chain 2 emits the highest output power.

Channel Low (2422MHz), Channel Mid (2442MHz) and Channel High (2452MHz) with chain 0 + chain 1 and chain 1 + chain 2 and chain 0 + chain 2 at MCS 8 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 and Loop Antenna is scheduled for calibration once three years.

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	07/08/2016

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	06/04/2016
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
TEST RECEIVER	R&S	ESCI	100234	06/09/2016
LISN (EUT)	FCC	FCC-LISN-50-32-2	08009	03/23/2016
LISN	SCHWARZBECK	NSLK 8127	8127382	12/30/2015
BNC CABLE	MIYAZAKI	5D-FB	BNC B3	08/04/2015
Pulse Limiter	R&S	ESH3-Z2	100374	01/05/2016
THERMO-HYGRO METER	WISEWIND	201A	1006	05/19/2016
Test S/W	CCS-3A1-CE			

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/-1.1089
3M Semi Anechoic Chamber / 30M~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.

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

Remark: The powerline conducted emissions test items was tested at Compliance Certification Services Inc. (Sindian Lab.) The test equipments were listed in page 10 and the test data, please refer page 166-167.

No.11, Wu-Gong 6th Rd., Wugu Industrial Park, New Taipei City 248, 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 C63.10: 2009 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, ridged waveguide, horn and/or Loop. 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-247, 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	
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 I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Equipment	Model No.	Serial No.	FCC ID	Brand Name	Data Cable	Power Cord
1	USB Mouse	M-UAE96	F93A90A5BU90L20	FCC DOC	HP	Shielded, 1.8m	N/A
2	USB Keyboard	KU-0316	BC3870FVBWH079	FCC DOC	HP	Shielded, 1.8m	N/A
3	Printer	Deskjet D2360	TH73C1492F	FCC DOC	HP	Shielded, 1.8m	Unshielded, 1.8m
4	Monitor	933SN+	CM19HVKSB00002	FCC DOC	SAMSUNG	Shielded, 1.8m with two cores	Unshielded, 1.8m
5	Host PC	T3500	8X36VBX	FCC DOC	DELL	Unshielded, 1.5m	Unshielded, 1.8m
6	Modem	AL-56ERM	0MERM04A0224	FCC DOC	GALILEO	Shielded, 1.0m	Unshielded, 1.8m
7	Server PC	xw4400	N/A	FCC DOC	HP	N/A	Unshielded, 1.8m
8.	Notebook PC	dv6-1332TX	CNF9491GM9	PD9112BNHU	HP	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.

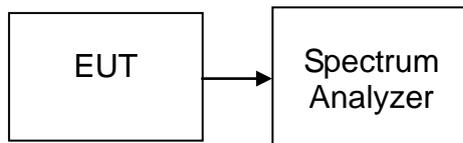
7. FCC PART 15.247 REQUIREMENTS

7.1 6dB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 2400 - 2483.5 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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	8.25	>500	PASS
Mid	2442	8.25		PASS
High	2462	8.25		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.5	>500	PASS
Mid	2442	16.5		PASS
High	2462	16.5		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.6666	>500	PASS
Mid	2442	17.75		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.75	>500	PASS
Mid	2442	17.75		PASS
High	2462	17.75		PASS

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 2

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.75	>500	PASS
Mid	2442	17.6666		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.9167	>500	PASS
Mid	2442	35.75		PASS
High	2452	35.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.4167	>500	PASS
Mid	2442	36.4167		PASS
High	2452	36.4167		PASS

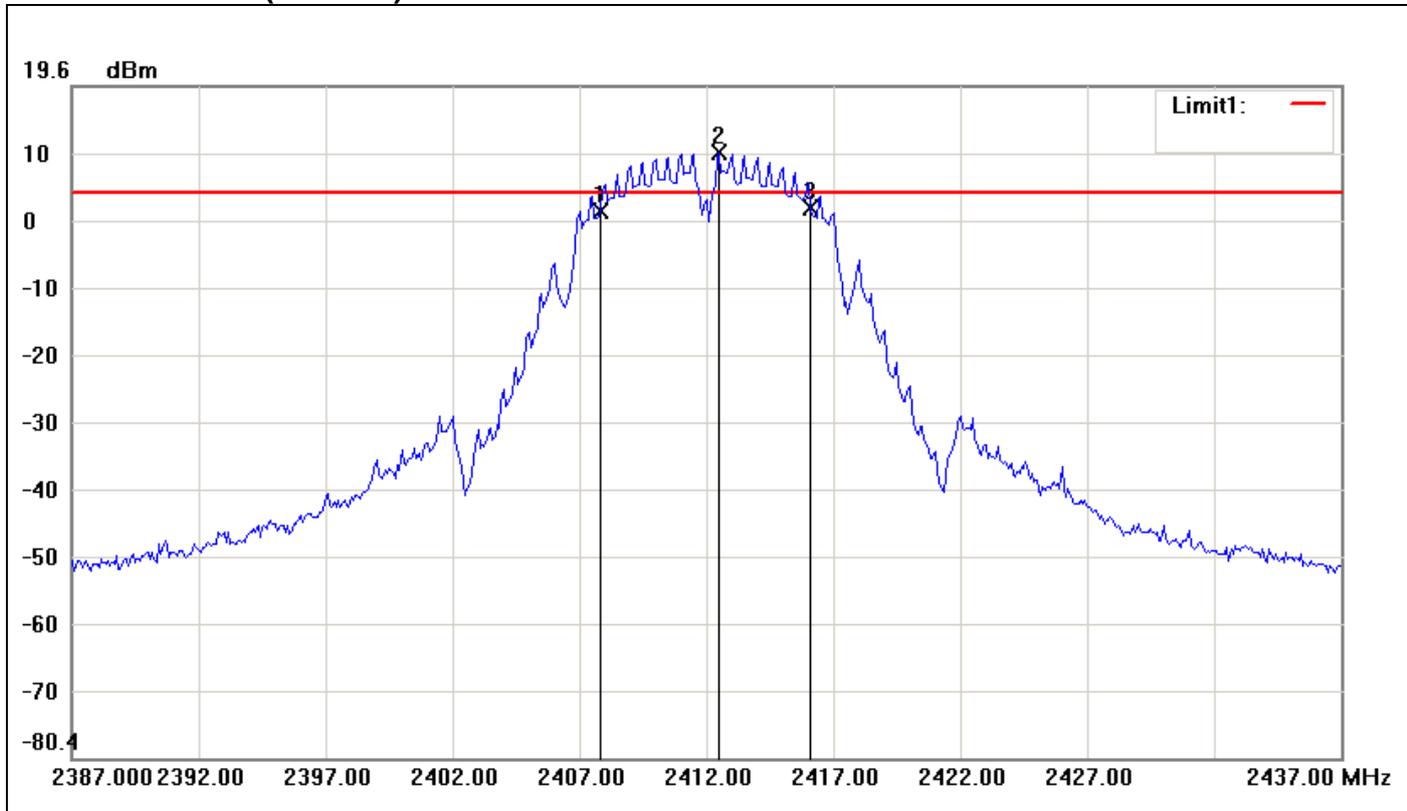
Test mode: IEEE 802.11n HT 40 MHz mode / Chain 2

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36	>500	PASS
Mid	2442	36.1667		PASS
High	2452	36		PASS

Test Plot

IEEE 802.11b mode

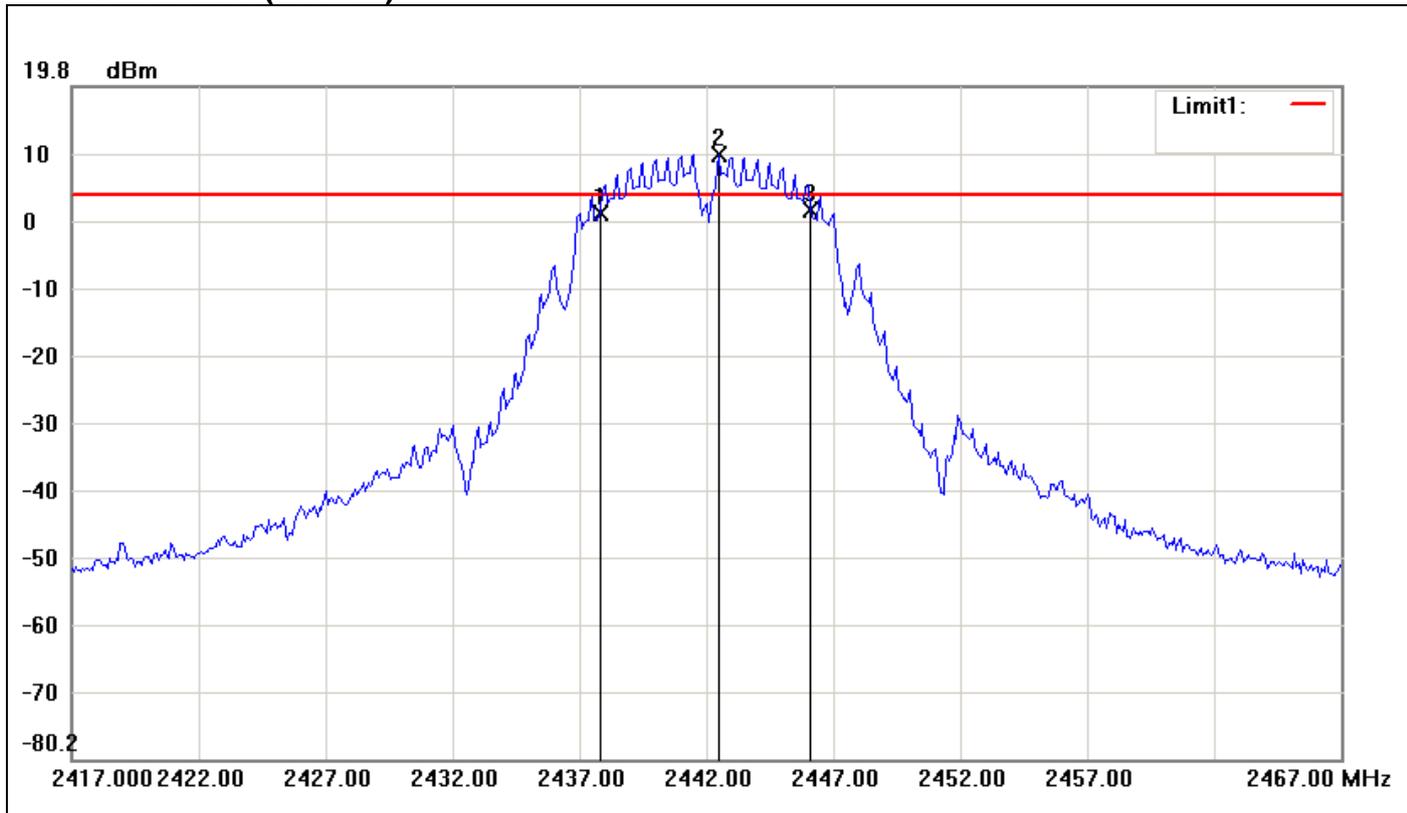
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2407.8333	0.83	3.59	-2.76
2	2412.5000	9.59	3.59	6.00
3	2416.0833	1.47	3.59	-2.12

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	8.25	0.64

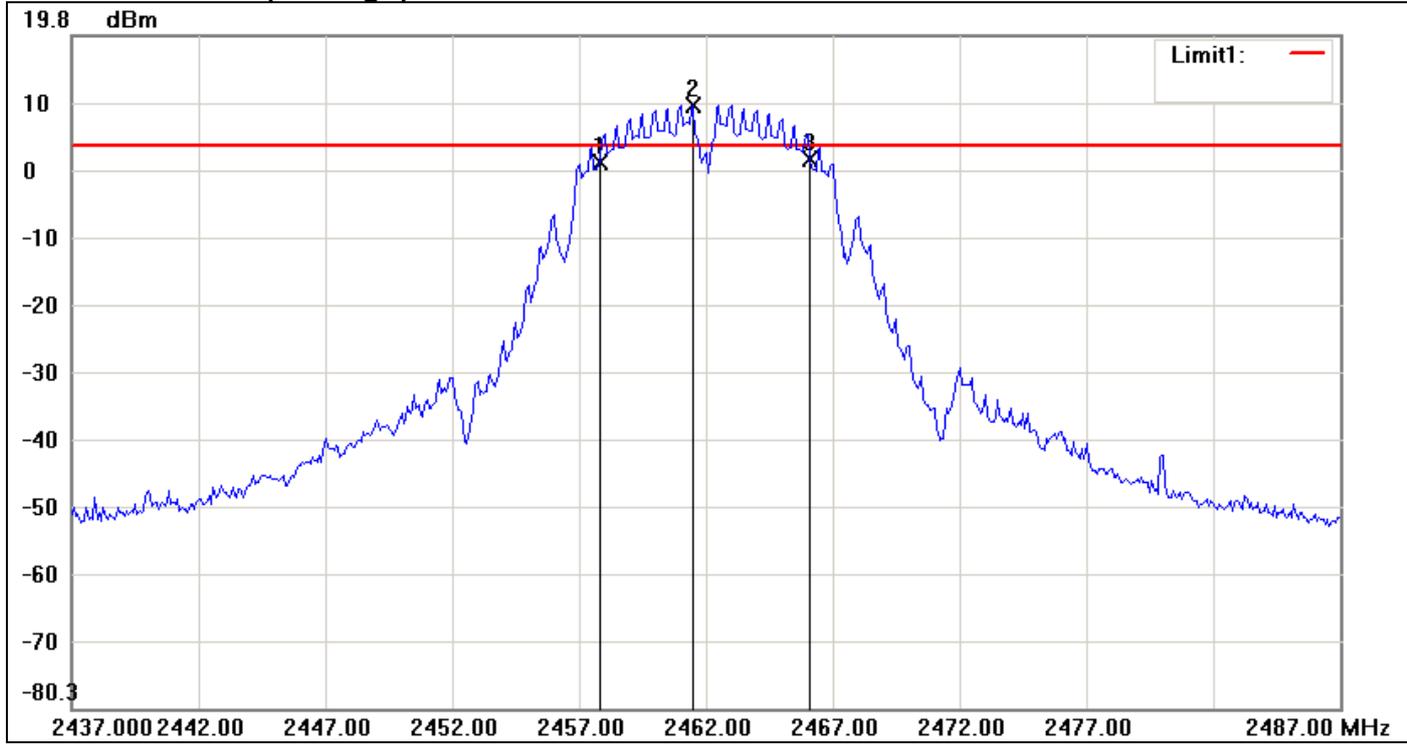
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2442.8333	0.91	3.65	-2.74
2	2442.5000	9.65	3.65	6.00
3	2446.0833	1.43	3.65	-2.22

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	8.25	0.52

6dB Bandwidth (CH High)

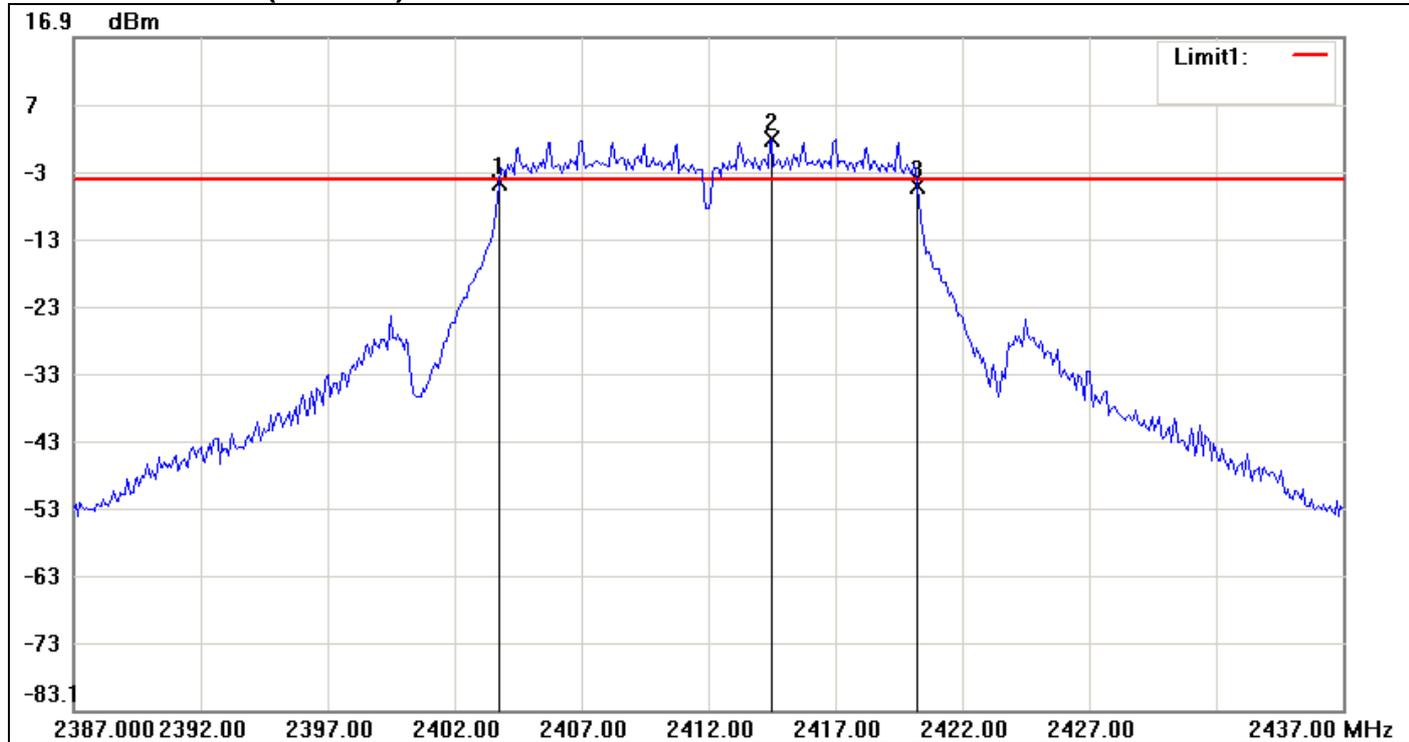


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2457.8333	0.76	3.47	-2.71
2	2461.5000	9.47	3.47	6.00
3	2466.0833	1.37	3.47	-2.10

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	8.25	0.61

IEEE 802.11g mode

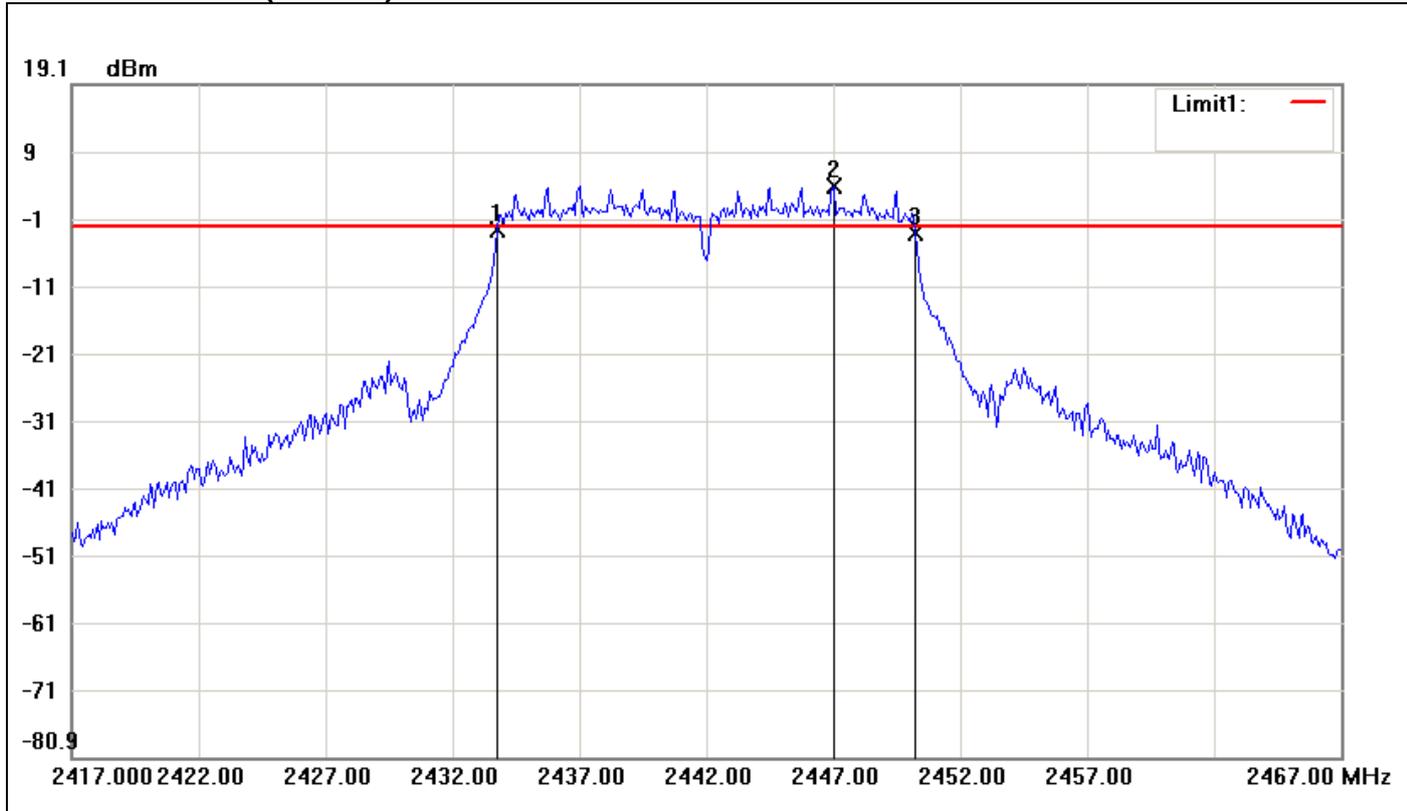
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-4.81	-4.23	-0.58
2	2414.5000	1.77	-4.23	6.00
3	2420.2500	-5.17	-4.23	-0.94

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.5	-0.36

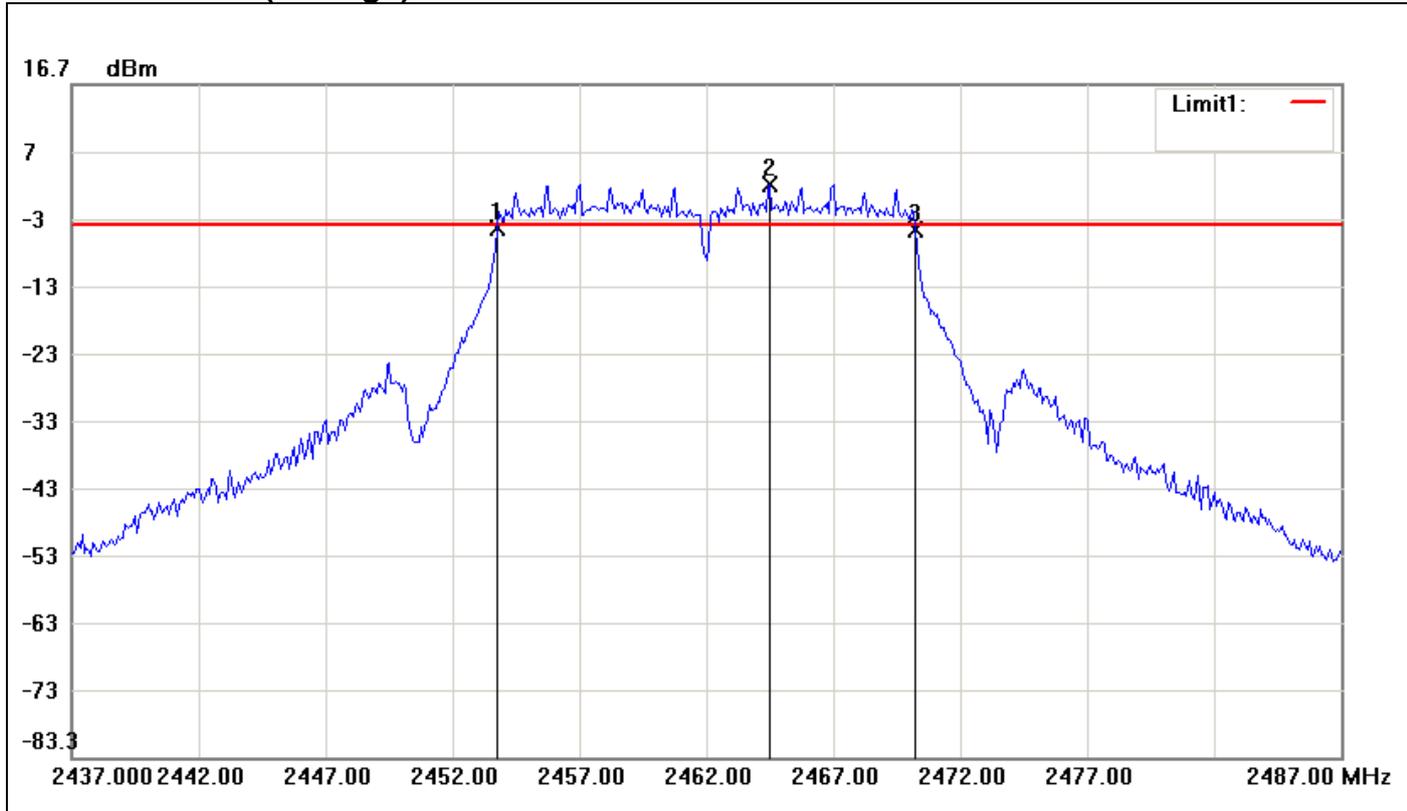
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7500	-2.62	-1.93	-0.69
2	2447.0000	4.07	-1.93	6.00
3	2450.2500	-3.08	-1.93	-1.15

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.5	-0.46

6dB Bandwidth (CH High)

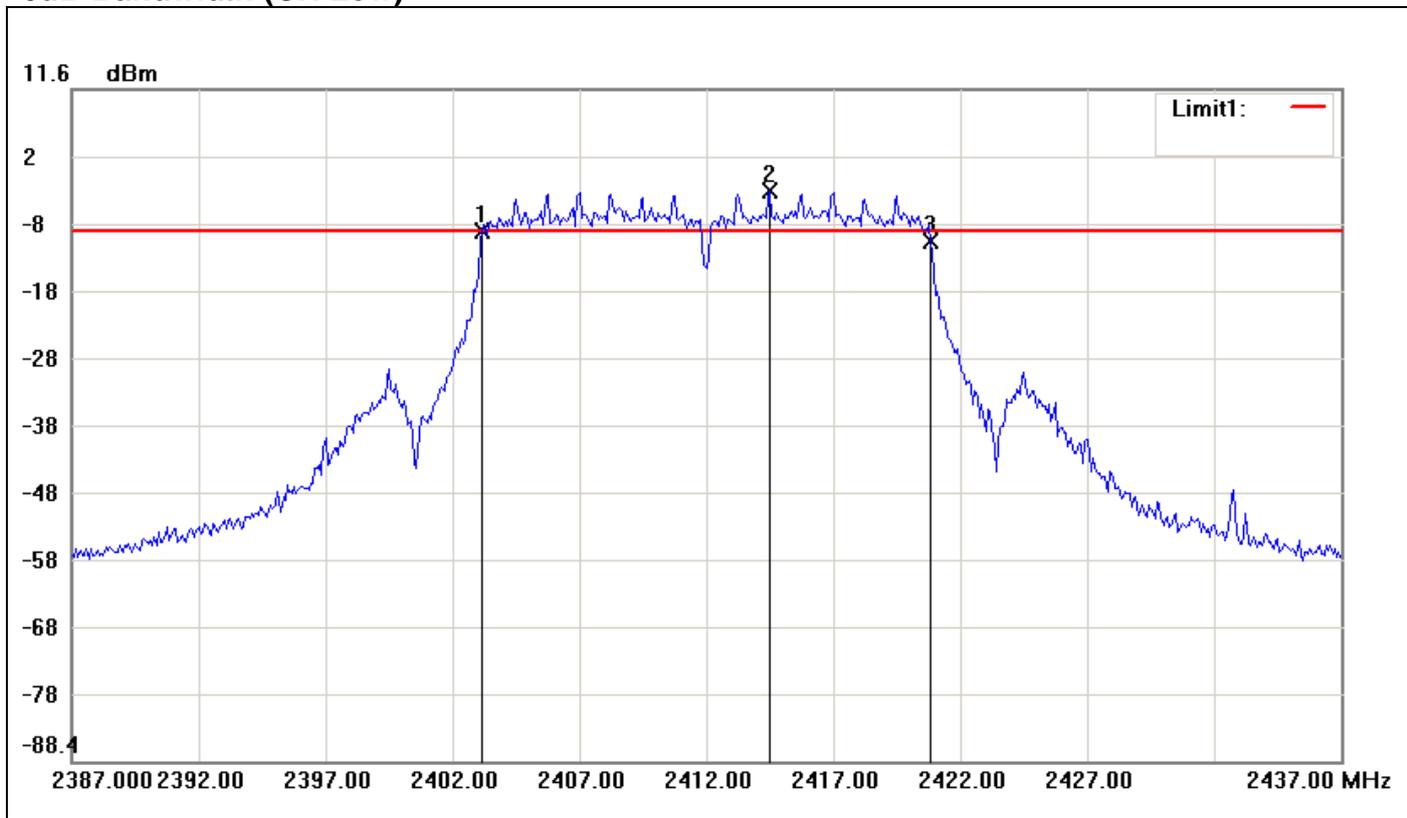


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.7500	-4.76	-4.07	-0.69
2	2464.5000	1.93	-4.07	6.00
3	2470.2500	-5.01	-4.07	-0.94

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	16.5	-0.25

IEEE 802.11n HT 20 MHz mode / Chain 0

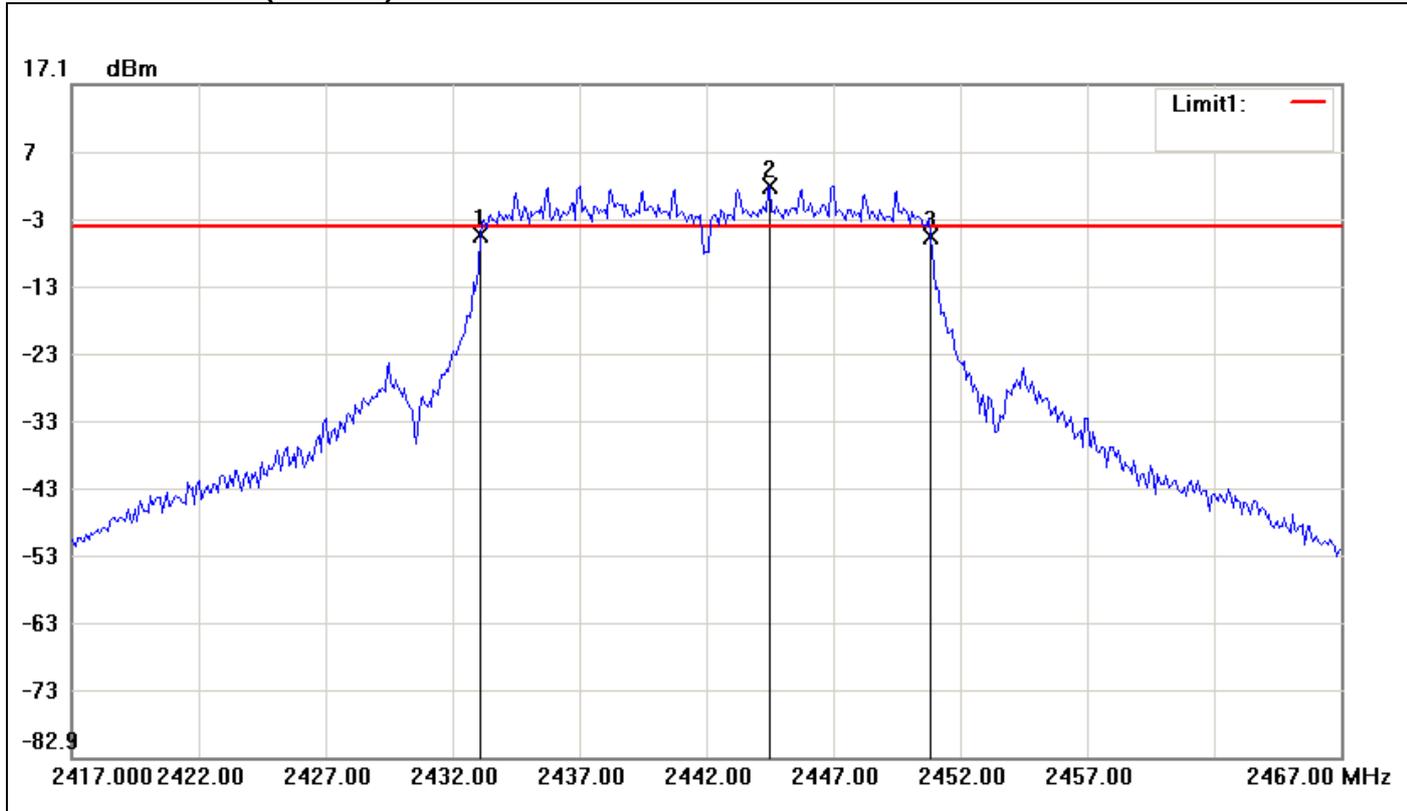
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.1667	-9.58	-9.49	-0.09
2	2414.5000	-3.49	-9.49	6.00
3	2420.8333	-11.02	-9.49	-1.53

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.6666	-1.44

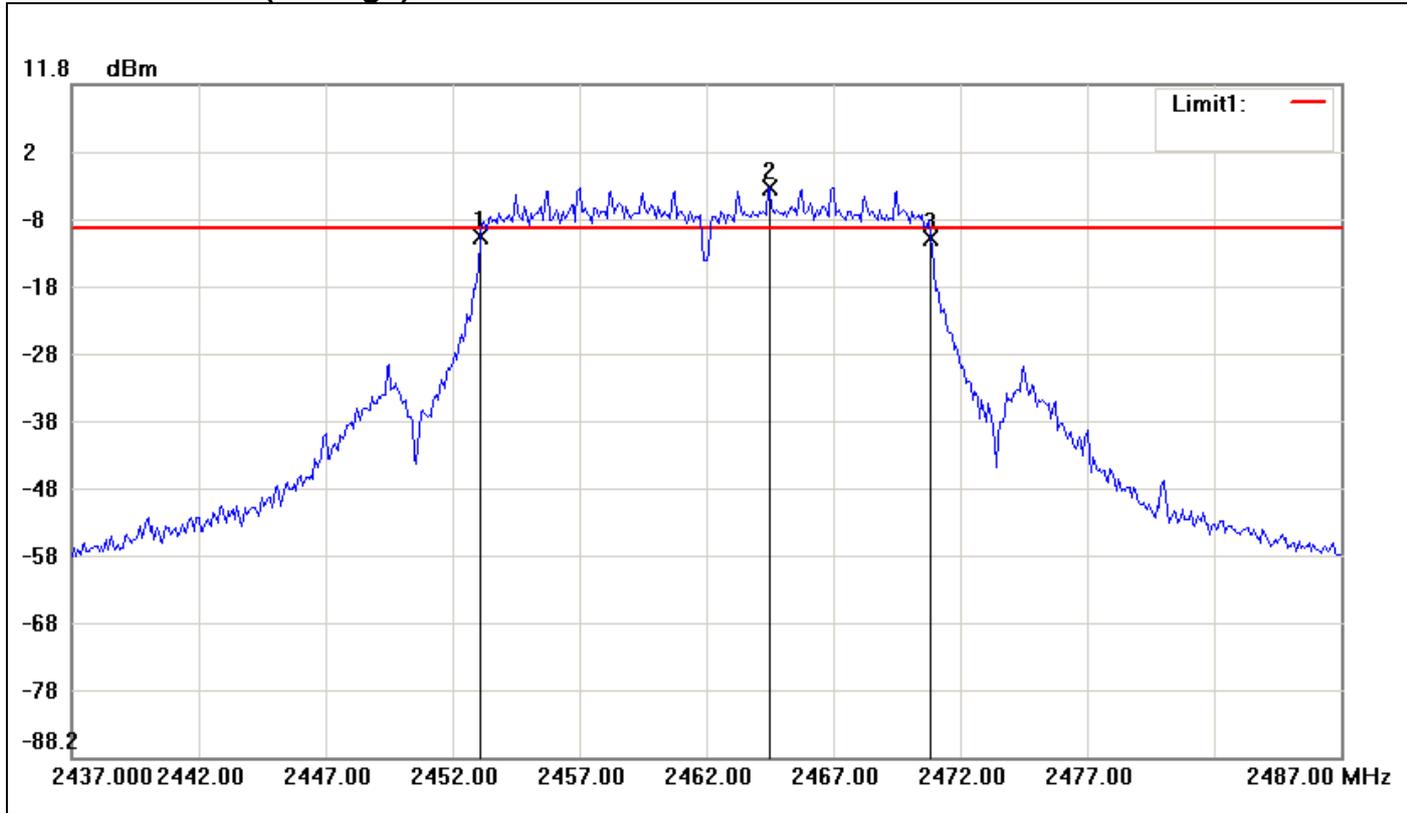
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.0833	-5.29	-3.93	-1.36
2	2444.5000	2.07	-3.93	6.00
3	2450.8333	-5.49	-3.93	-1.56

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

6dB Bandwidth (CH High)

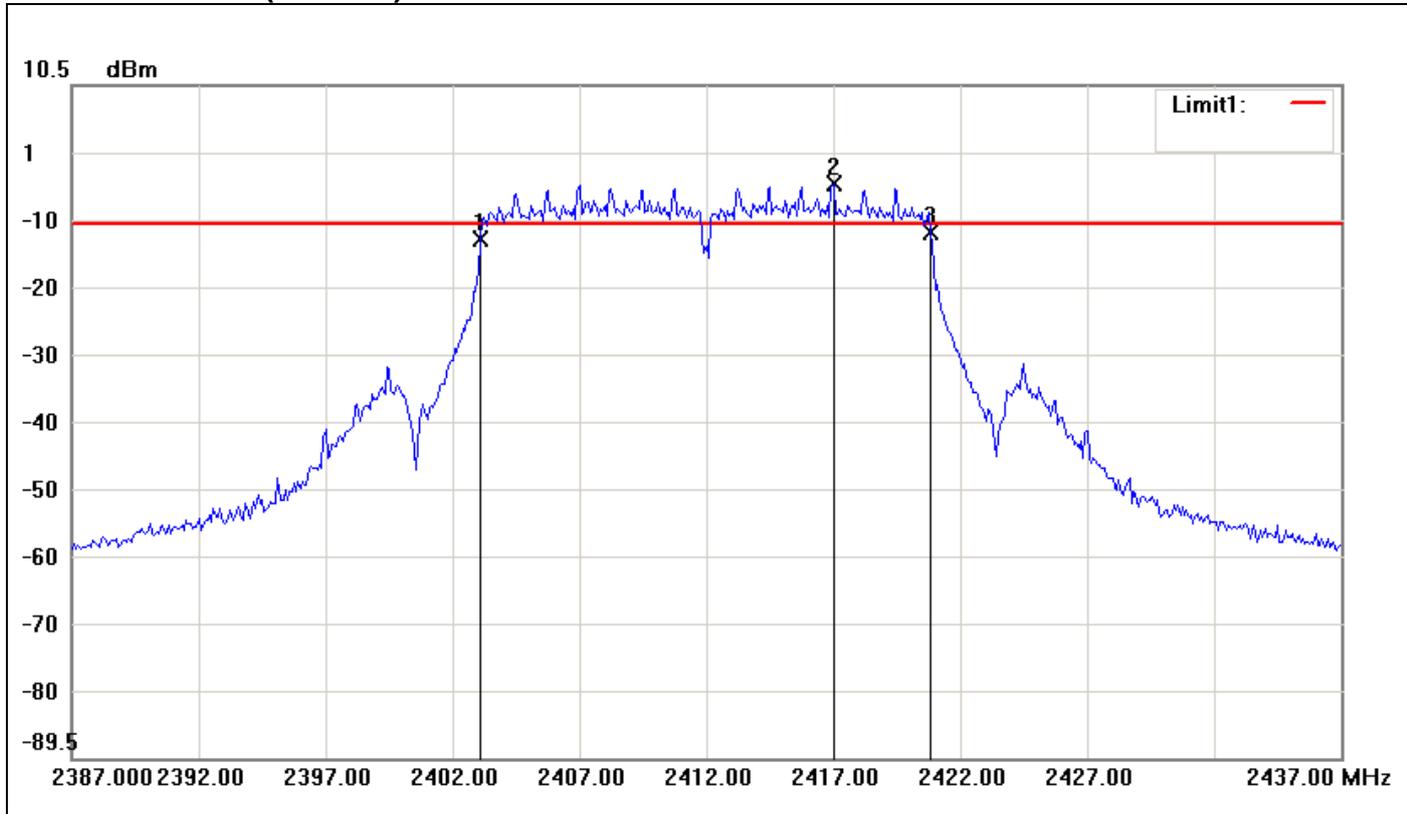


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-10.90	-9.52	-1.38
2	2464.5000	-3.52	-9.52	6.00
3	2470.8333	-11.11	-9.52	-1.59

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	-0.21

IEEE 802.11n HT 20 MHz mode / Chain 1

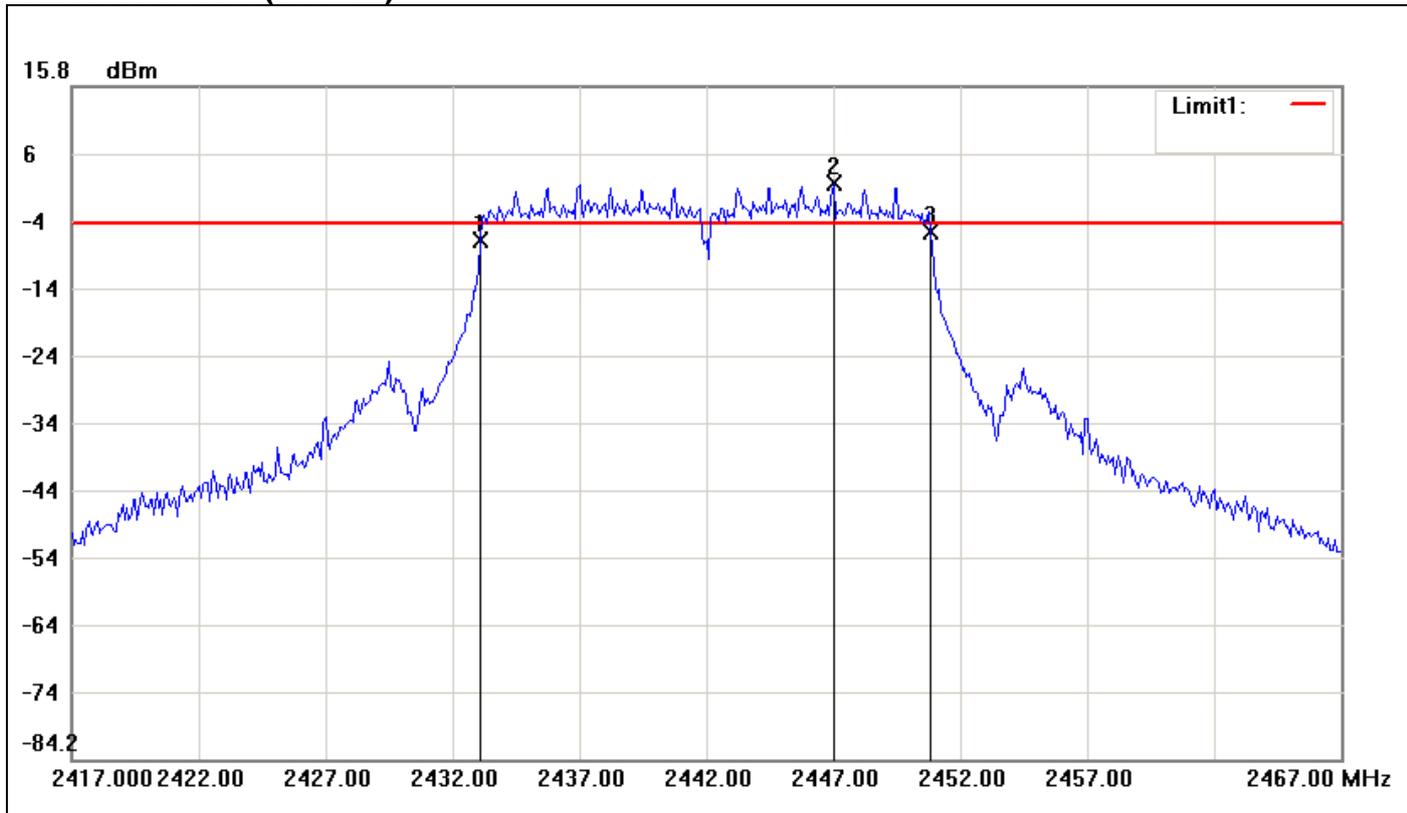
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-12.36	-10.03	-2.33
2	2417.0000	-4.03	-10.03	6.00
3	2420.8333	-11.34	-10.03	-1.31

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	1.02

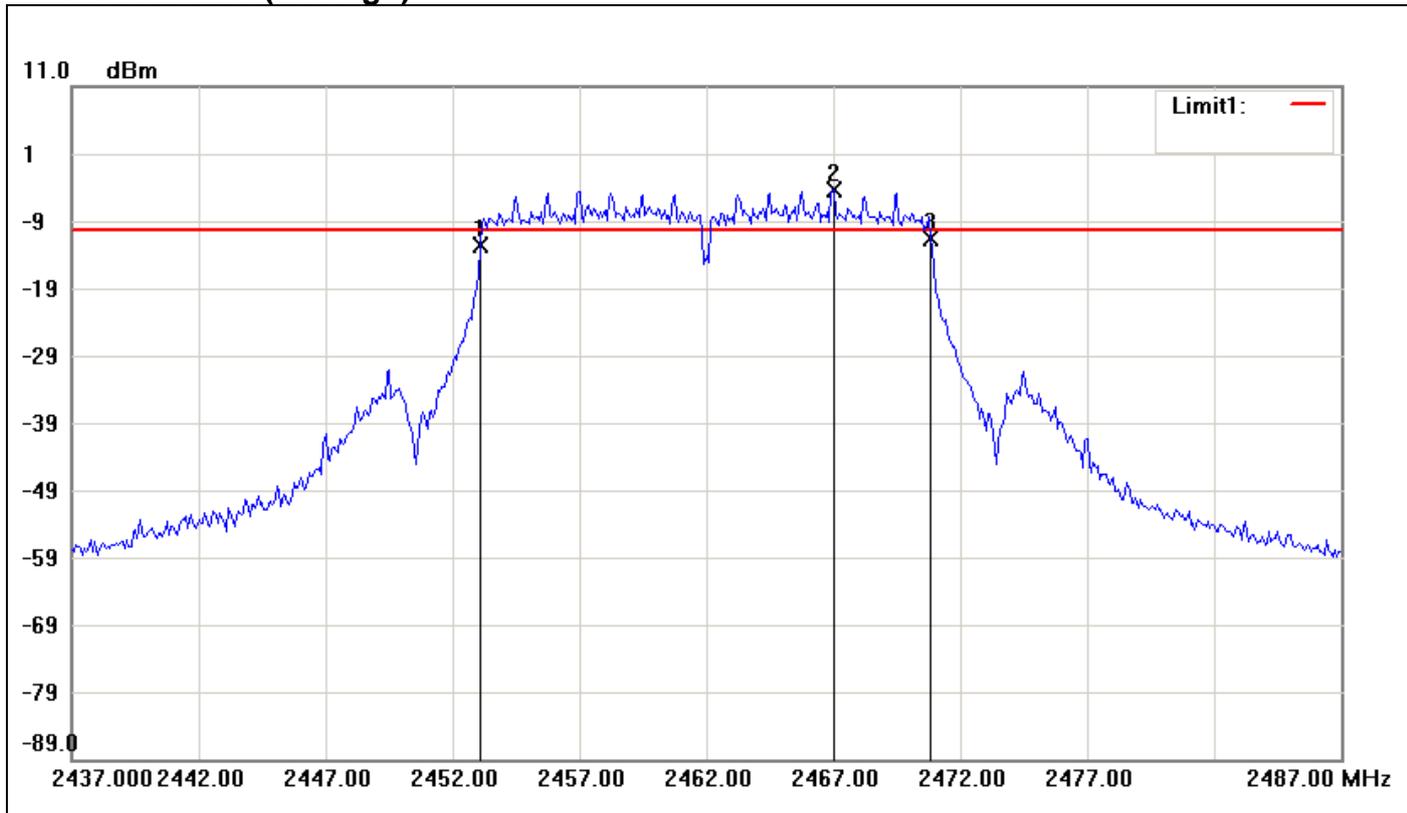
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.0833	-7.00	-4.53	-2.47
2	2447.0000	1.47	-4.53	6.00
3	2450.8333	-5.97	-4.53	-1.44

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	1.03

6dB Bandwidth (CH High)

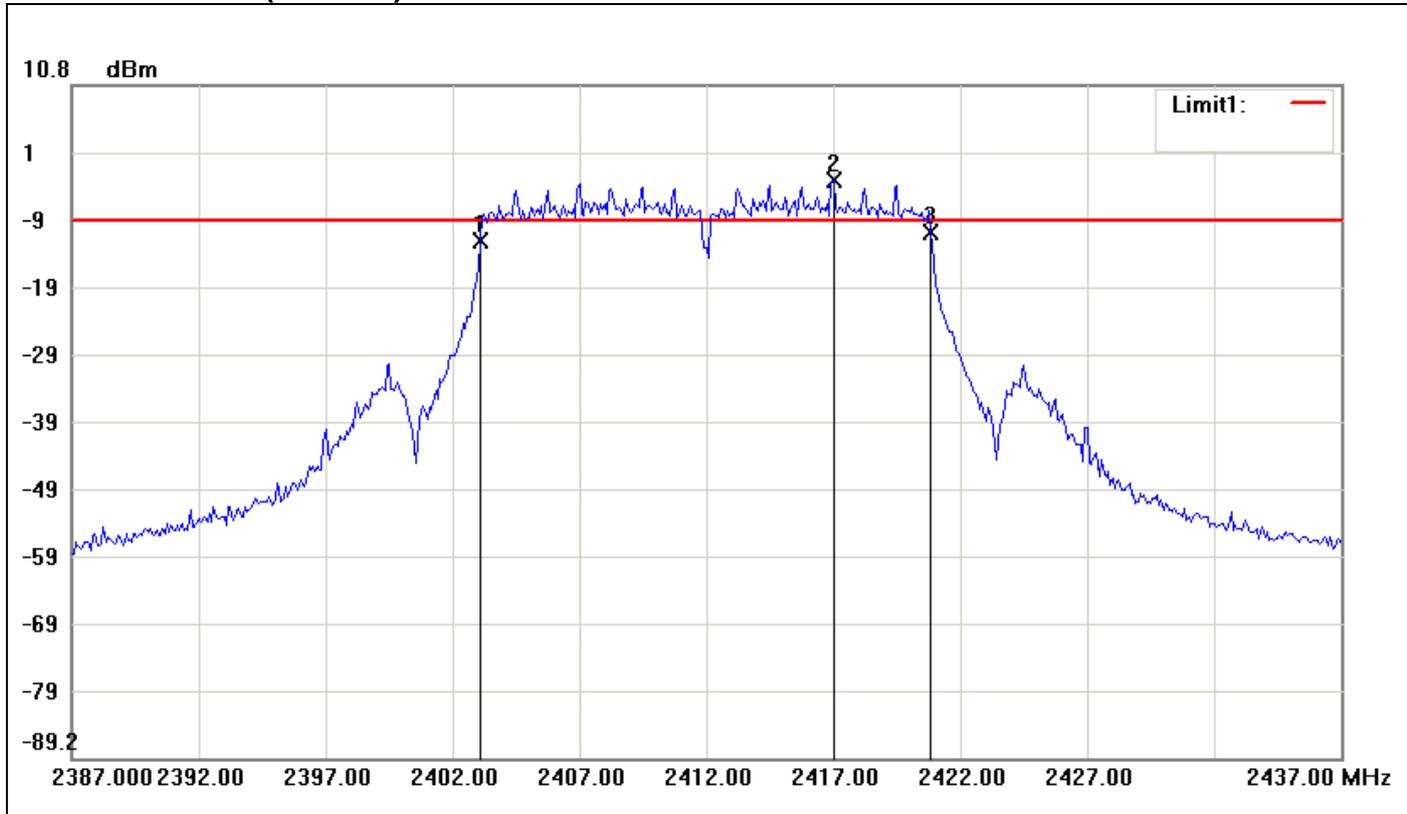


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-12.69	-10.25	-2.44
2	2467.0000	-4.25	-10.25	6.00
3	2470.8333	-11.68	-10.25	-1.43

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	1.01

IEEE 802.11n HT 20 MHz mode / Chain 2

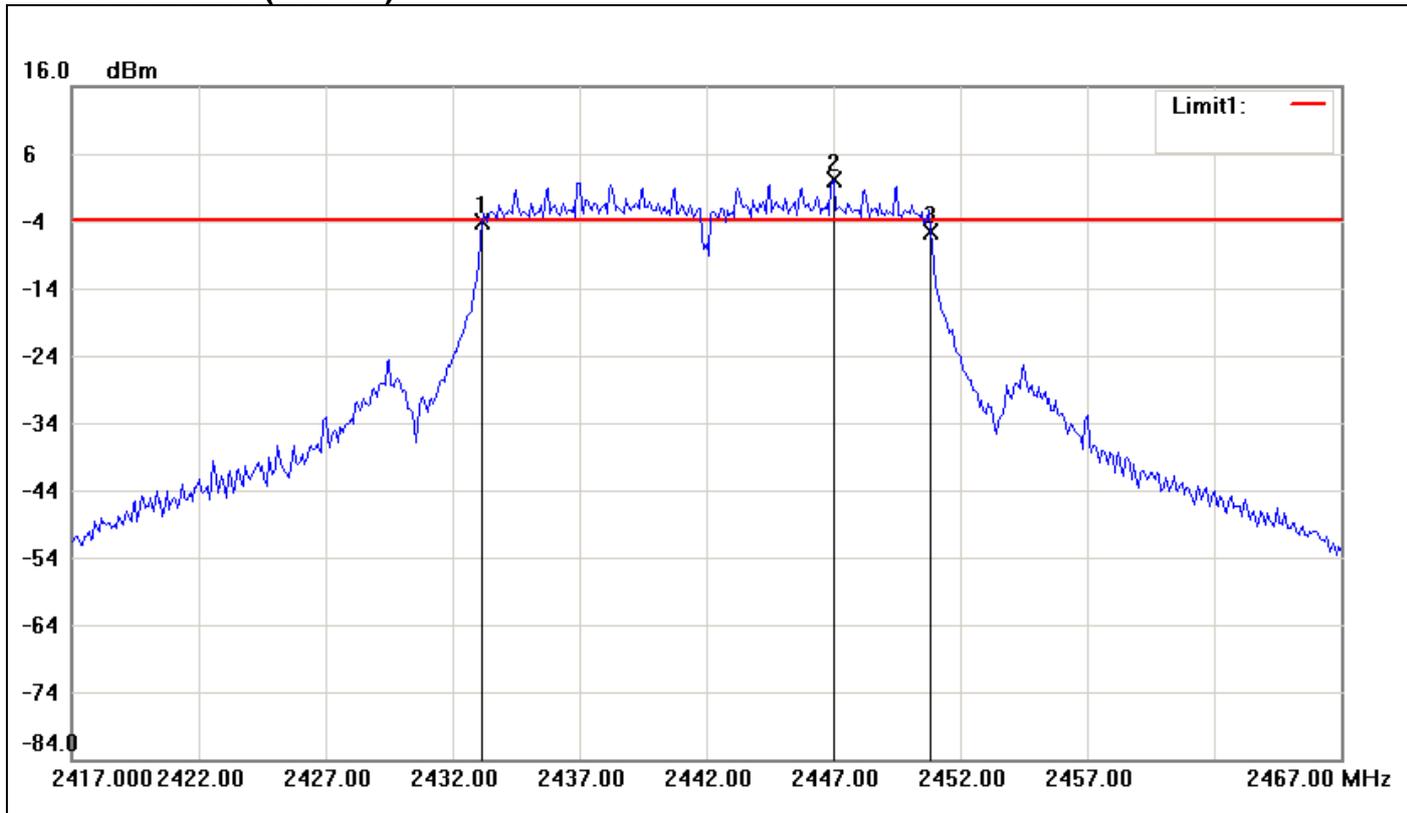
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-12.25	-9.42	-2.83
2	2417.0000	-3.42	-9.42	6.00
3	2420.8333	-11.05	-9.42	-1.63

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	1.2

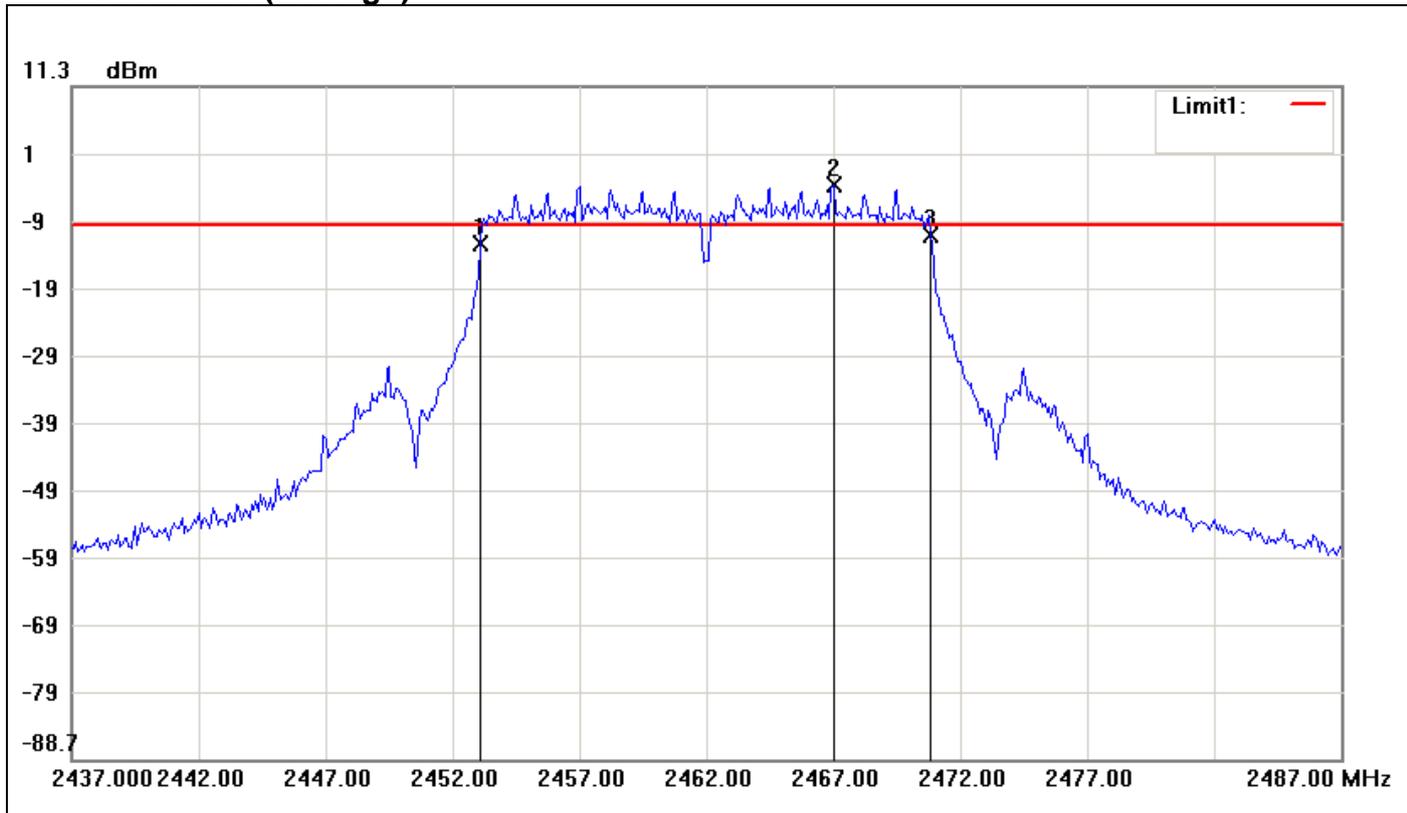
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.1667	-4.12	-3.97	-0.15
2	2447.0000	2.03	-3.97	6.00
3	2450.8333	-5.68	-3.97	-1.71

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.6666	-1.56

6dB Bandwidth (CH High)

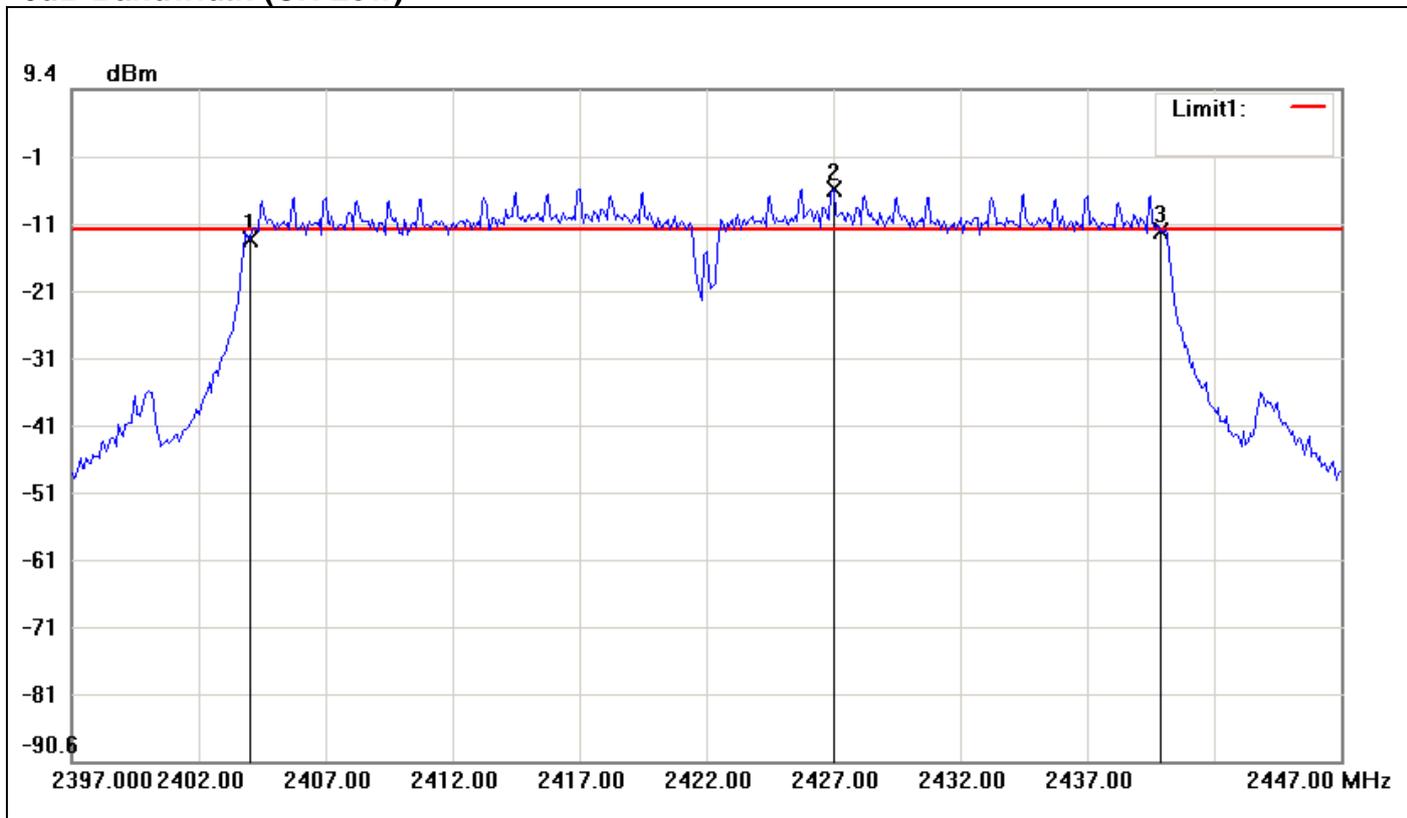


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-12.08	-9.43	-2.65
2	2467.0000	-3.43	-9.43	6.00
3	2470.8333	-10.84	-9.43	-1.41

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	17.75	1.24

IEEE 802.11n HT 40 MHz mode / Chain 0

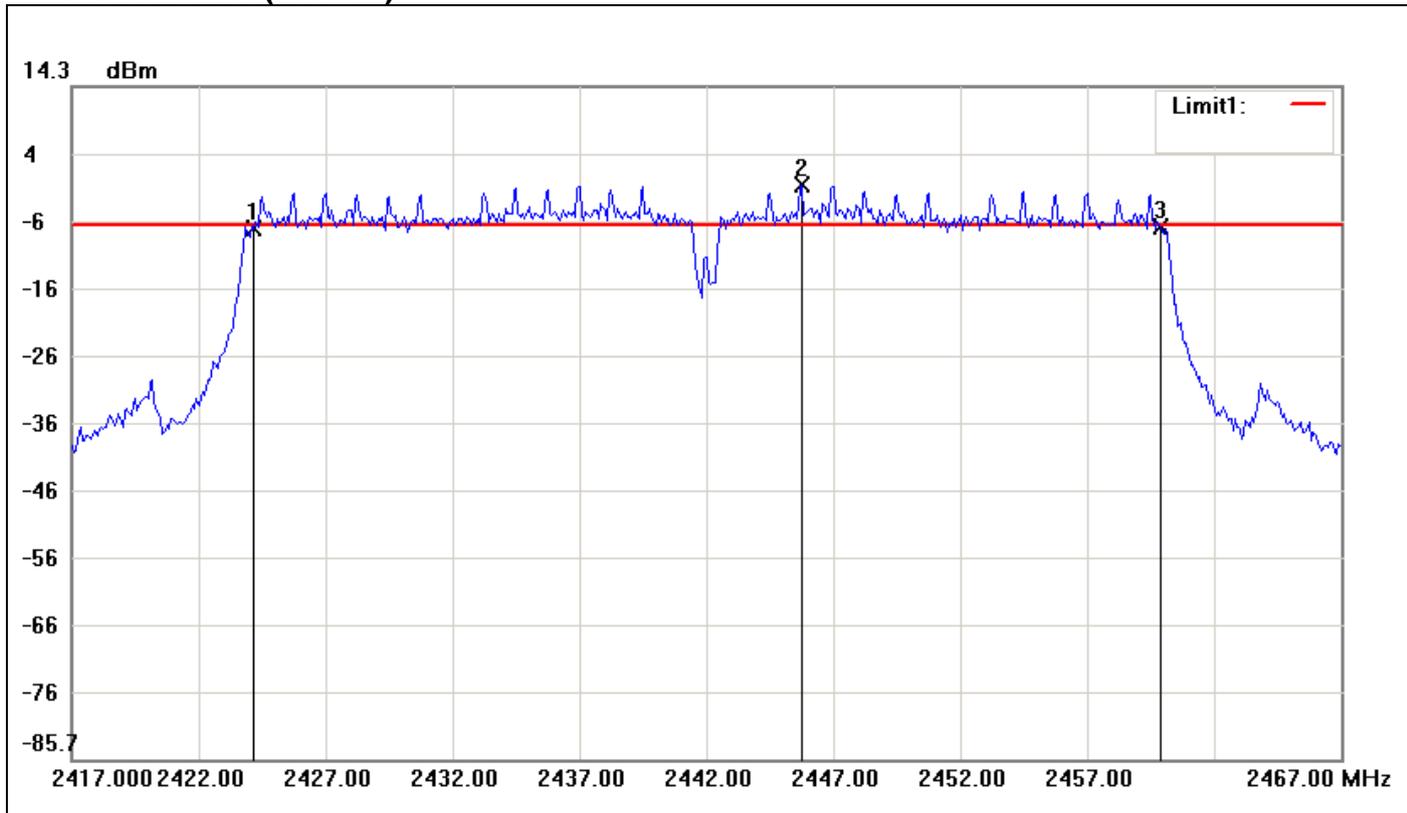
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2404.0000	-12.99	-11.34	-1.65
2	2427.0000	-5.34	-11.34	6.00
3	2439.9167	-11.62	-11.34	-0.28

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	35.9167	1.37

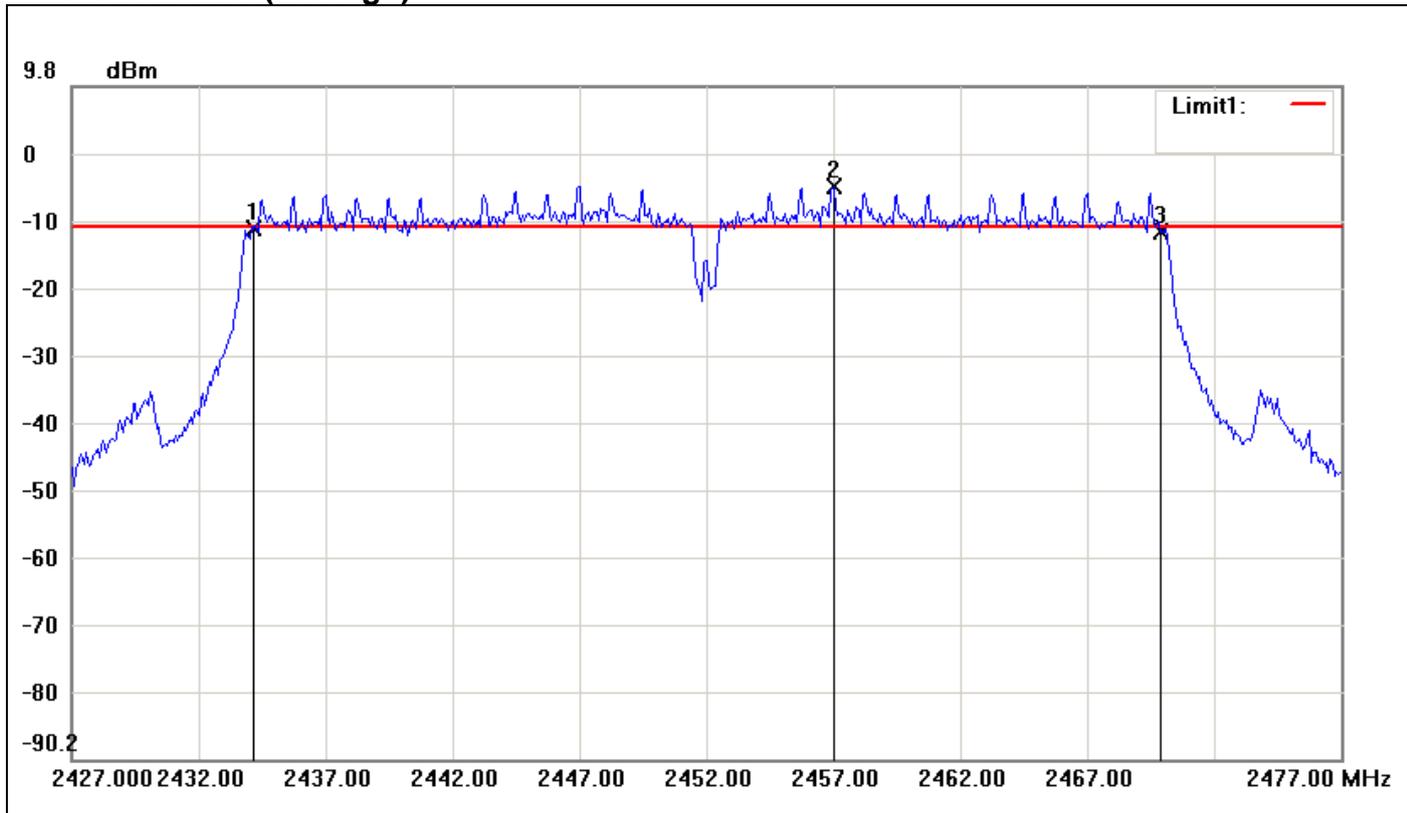
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2424.1667	-6.72	-6.39	-0.33
2	2445.7500	-0.39	-6.39	6.00
3	2459.9167	-6.65	-6.39	-0.26

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	35.75	0.07

6dB Bandwidth (CH High)

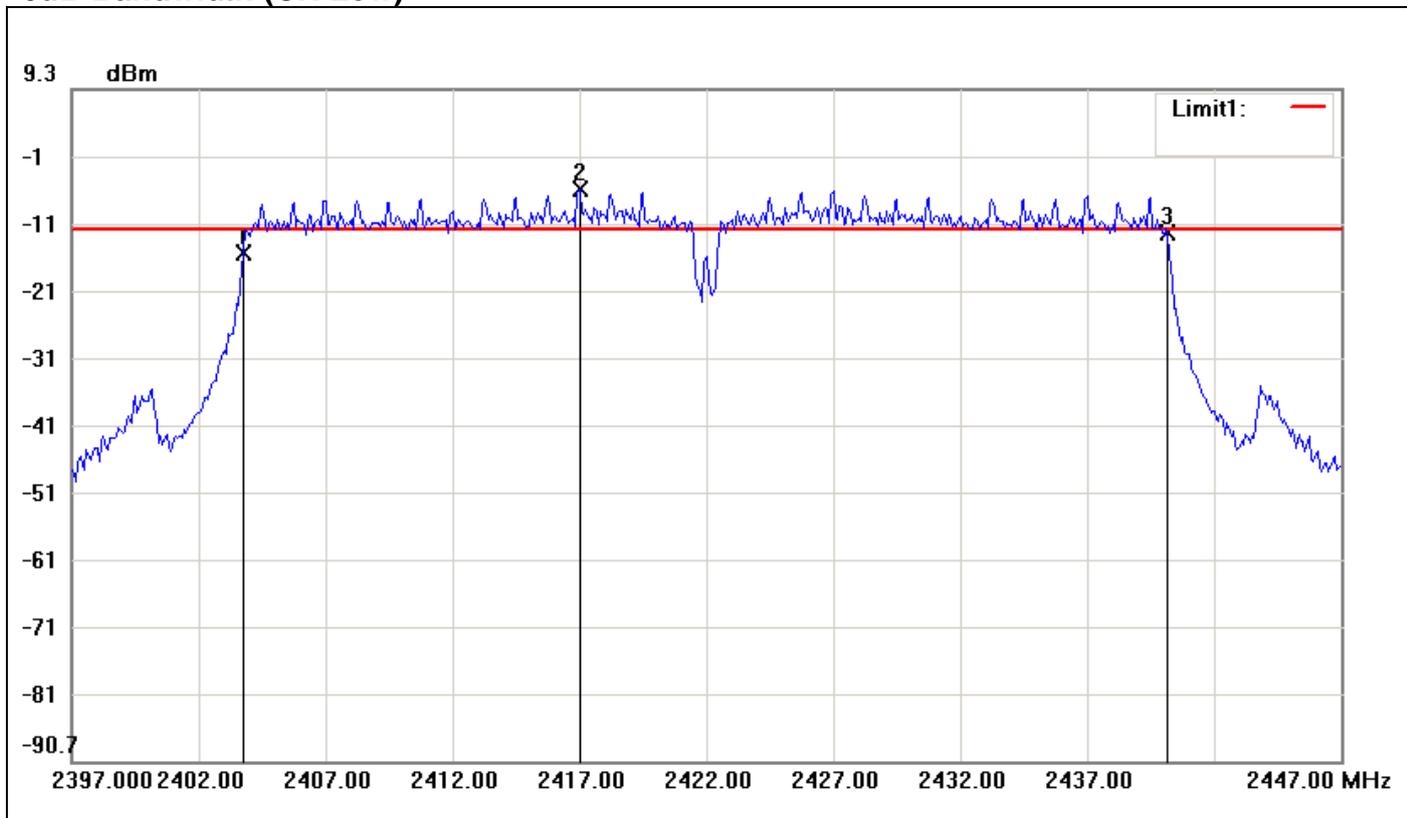


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2434.1667	-11.30	-11.03	-0.27
2	2457.0000	-5.03	-11.03	6.00
3	2469.9167	-11.90	-11.03	-0.87

No.	Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	35.75

IEEE 802.11n HT 40 MHz mode / Chain 1

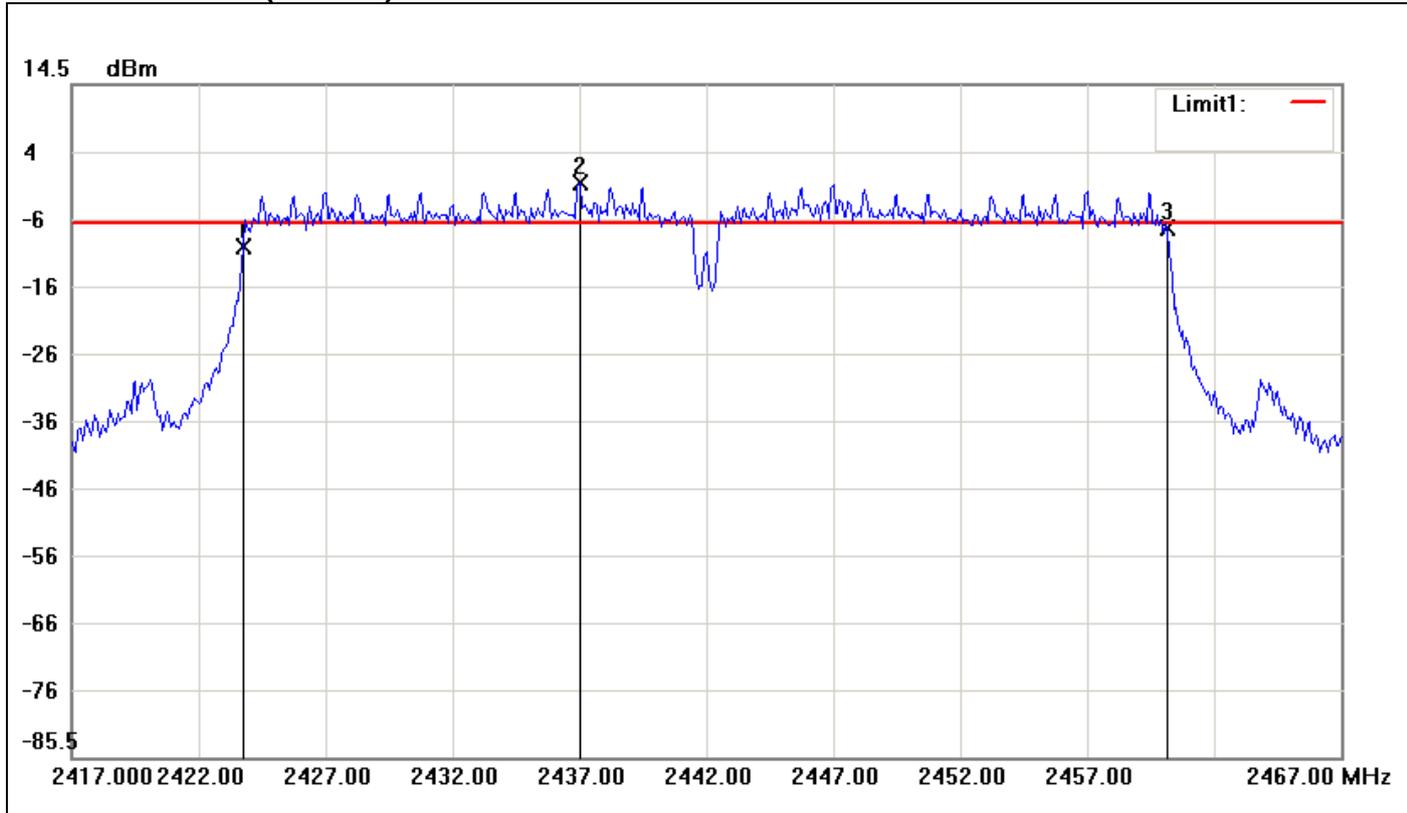
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-15.05	-11.52	-3.53
2	2417.0000	-5.52	-11.52	6.00
3	2440.1667	-12.02	-11.52	-0.50

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.4167	3.03

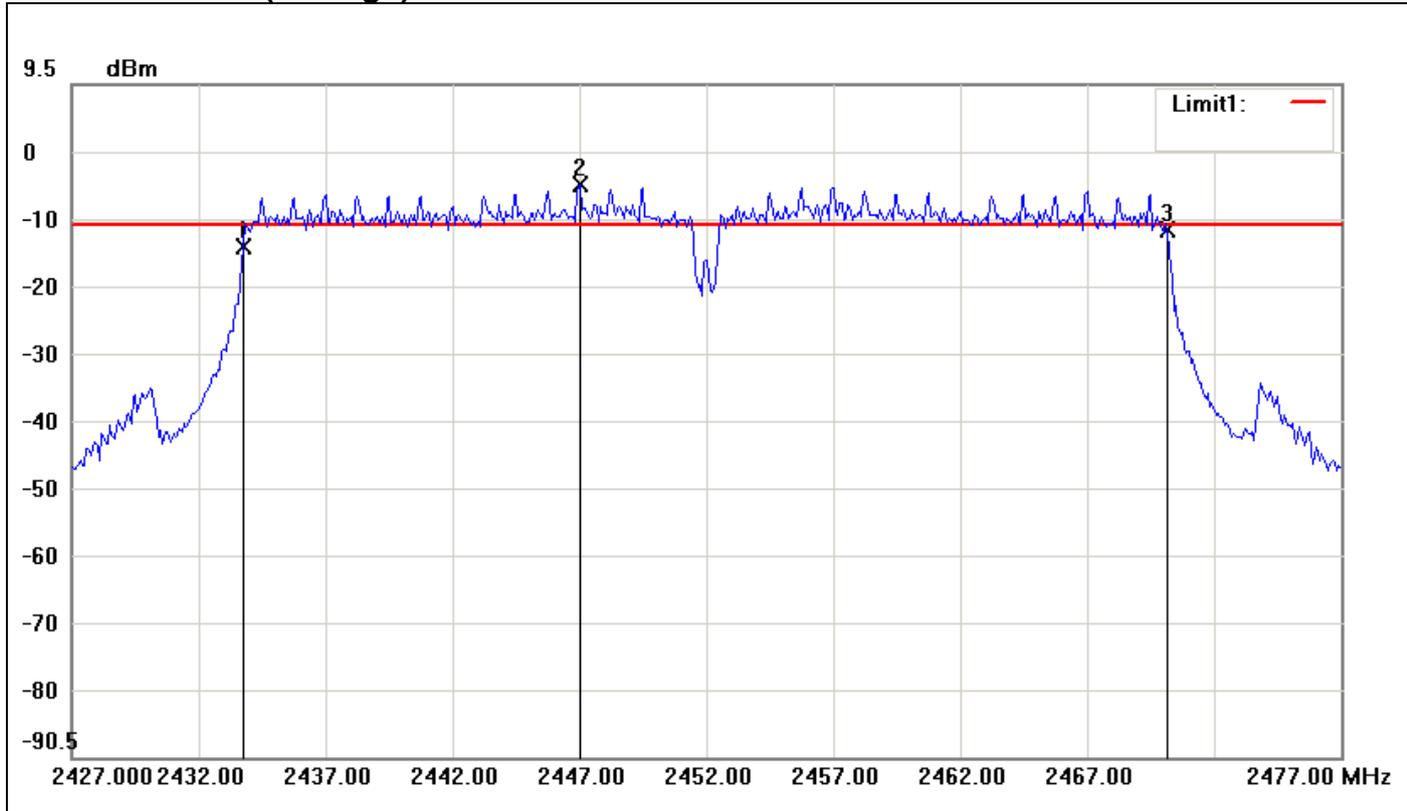
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2423.7500	-9.57	-6.12	-3.45
2	2442.0000	-0.12	-6.12	6.00
3	2460.1667	-7.00	-6.12	-0.88

No.	Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.4167
		2.57

6dB Bandwidth (CH High)

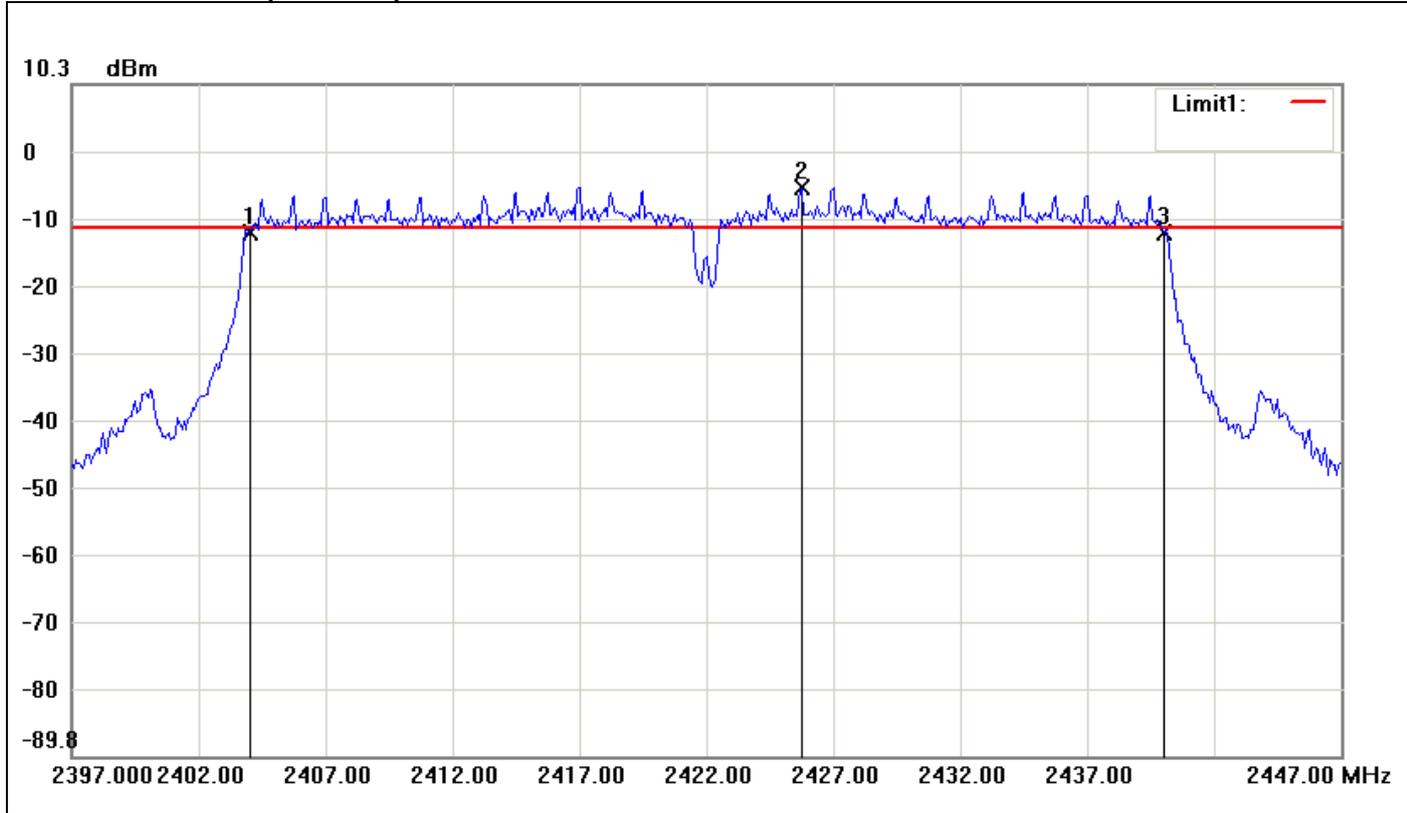


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7500	-14.68	-11.25	-3.43
2	2447.0000	-5.25	-11.25	6.00
3	2470.1667	-12.18	-11.25	-0.93

No.	Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.4167
		2.5

IEEE 802.11n HT 40 MHz mode / Chain 2

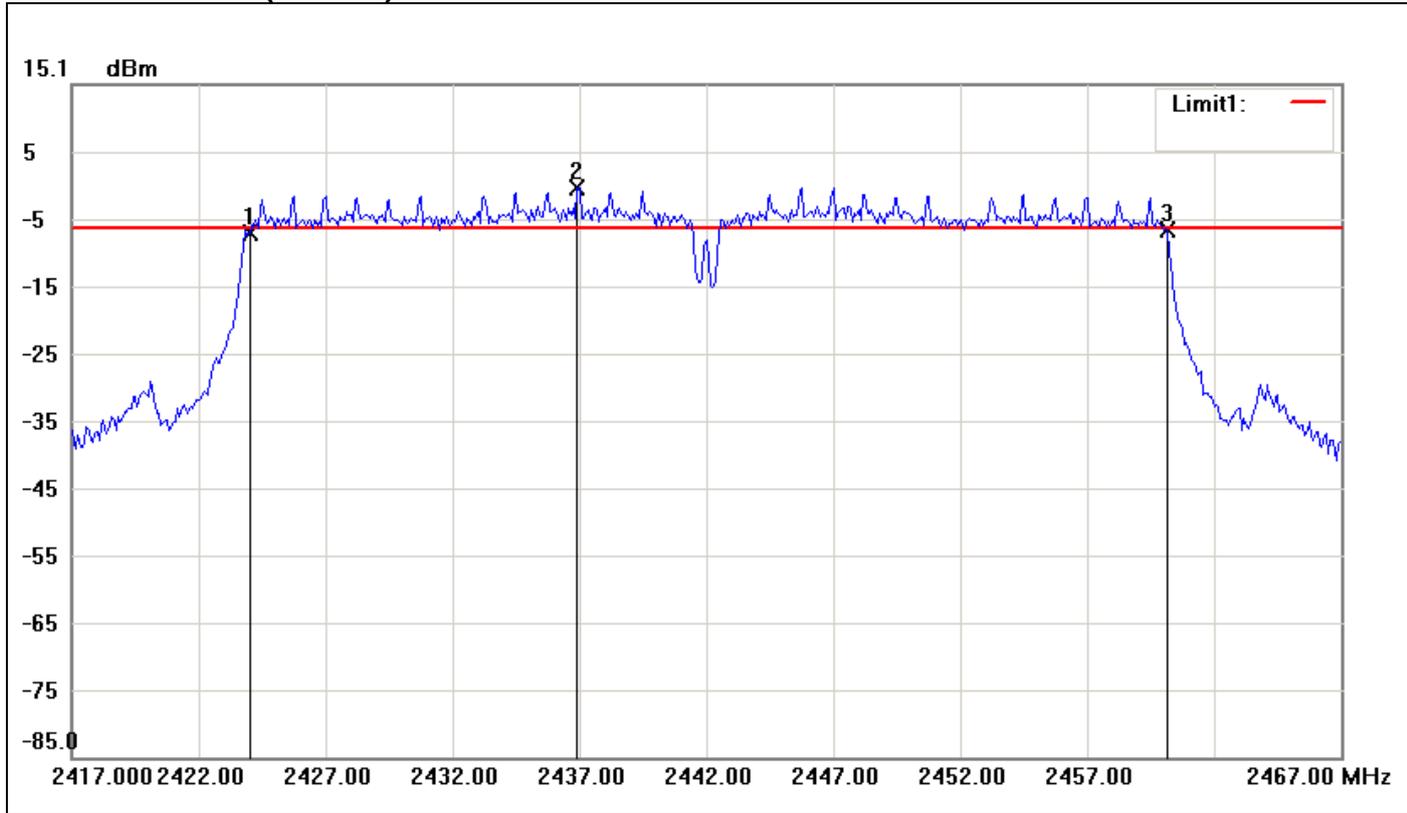
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2404.0000	-11.75	-11.14	-0.61
2	2425.7500	-5.14	-11.14	6.00
3	2440.0000	-11.95	-11.14	-0.81

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36	-0.2

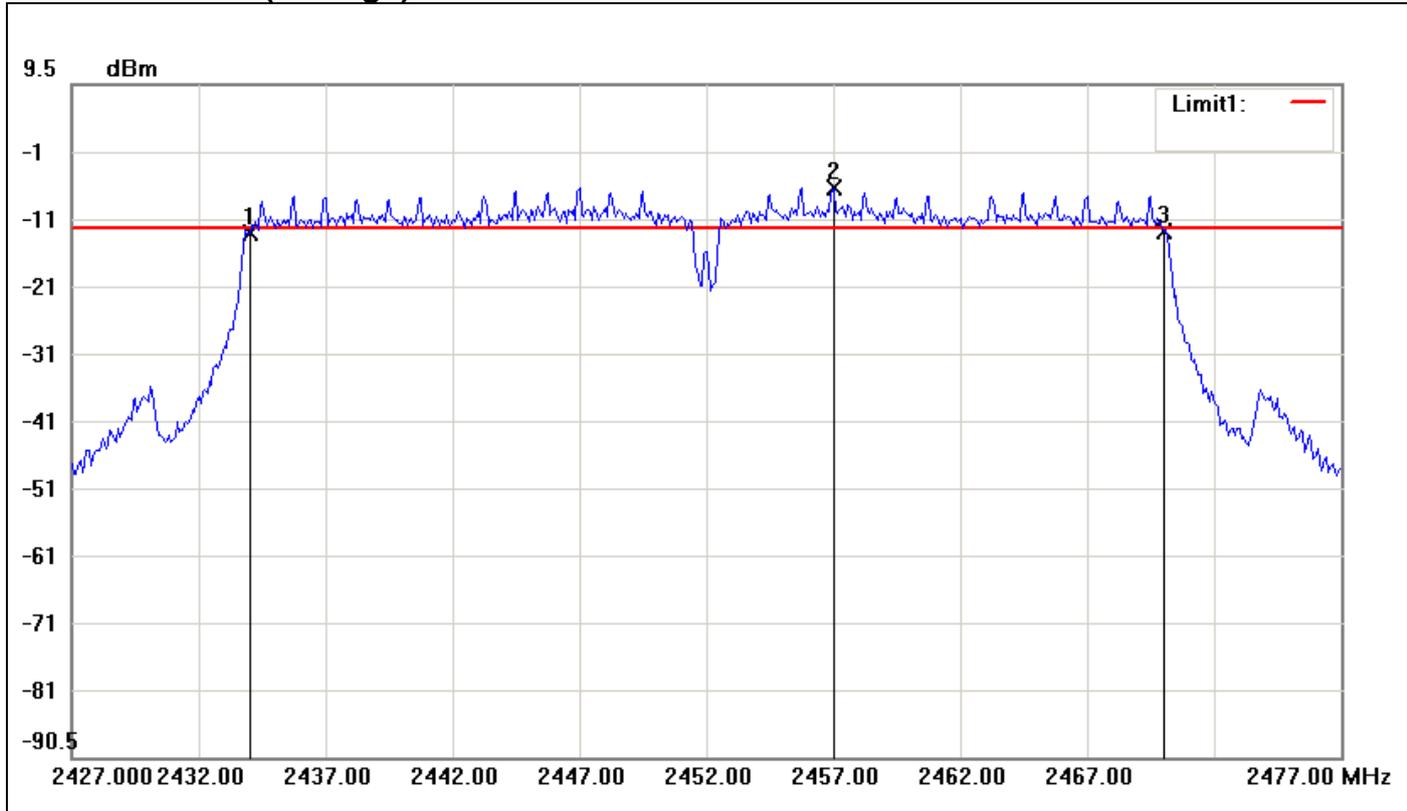
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2424.0000	-6.97	-6.32	-0.65
2	2436.9167	-0.32	-6.32	6.00
3	2460.1667	-6.68	-6.32	-0.36

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36.1667	0.29

6dB Bandwidth (CH High)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2434.0000	-12.62	-11.86	-0.76
2	2457.0000	-5.86	-11.86	6.00
3	2470.0000	-12.33	-11.86	-0.47

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	36	0.29

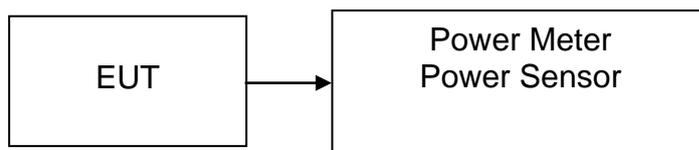
7.2 PEAK POWER

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 2400-2483.5 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 RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	21.7	0.1479	30	PASS
Mid	2442	*21.76	0.1500		PASS
High	2462	21.71	0.1483		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	22.56	0.1803	30	PASS
Mid	2442	*24.15	0.2600		PASS
High	2462	22.49	0.1774		PASS

For Mode 1

Test mode: IEEE 802.11n HT 20 MHz 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	17.38	16.88	20.15	0.1035	28.49	PASS
Mid	2442	22.18	21.87	*25.04	0.3190		PASS
High	2462	17.16	16.38	19.80	0.0955		PASS

Test mode: IEEE 802.11n HT 40 MHz 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	18.14	18.48	21.32	0.1356	28.49	PASS
Mid	2442	22.47	22.64	*25.57	0.3603		PASS
High	2452	17.51	18.39	20.98	0.1254		PASS

Remark:

1. Total Output Power (w) = Chain 0 (10^{^(Output Power /10)}/1000)+ Chain 1 (10^{^(Output Power /10)}/1000)
2. The maximum antenna gain is 7.51dBi; therefore the reduction due to antenna gain is 1.51dBi, so the limit is 28.49dBm.

For Mode 2

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	16.72	17.07	19.91	0.0979	28.67	PASS
Mid	2442	21.74	22.05	*24.91	0.3096		PASS
High	2462	17.12	16.96	20.05	0.1012		PASS

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2422	17.24	18.95	21.19	0.1315	28.67	PASS
Mid	2442	21.69	23.17	*25.50	0.3551		PASS
High	2452	17.22	18.63	20.99	0.1257		PASS

Remark:

1. Total Output Power (w) = Chain 1 (10^(Output Power /10)/1000)+ Chain 2 (10^(Output Power /10)/1000)
2. The maximum antenna gain is 7.33dBi; therefore the reduction due to antenna gain is 1.33dBi, so the limit is 28.67dBm.

For Mode 3

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2412	17.25	16.88	20.08	0.1018	28.85	PASS
Mid	2442	22.01	22.17	*25.10	0.3237		PASS
High	2462	17.41	17.18	20.31	0.1073		PASS

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
Low	2422	17.62	18.86	21.29	0.1347	28.85	PASS
Mid	2442	22.01	22.67	*25.36	0.3438		PASS
High	2452	17.64	19.17	21.48	0.1407		PASS

Remark:

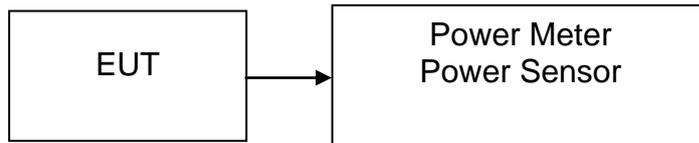
1. Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000)+ Chain 2 (10^(Output Power /10)/1000)
2. The maximum antenna gain is 7.15dBi; therefore the reduction due to antenna gain is 1.15dBi, so the limit is 28.85dBm.

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)
Low	2412	17.89
Mid	2442	17.71
High	2462	17.86

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	13.01
Mid	2442	15.17
High	2462	12.86

For Mode 1

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2412	7.78	6.59	10.24
Mid	2442	12.83	12.11	15.50
High	2462	7.37	6.54	9.99

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2422	7.71	7.26	10.50
Mid	2442	12.46	12.49	15.49
High	2452	7.53	7.39	10.47

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

For Mode 2

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)
Low	2412	7.07	6.95	10.02
Mid	2442	12.64	12.38	15.52
High	2462	7.2	6.99	10.11

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)
Low	2422	7.12	7.78	10.47
Mid	2442	11.98	12.66	15.34
High	2452	7.05	7.58	10.33

Remark: Total Output Power (w) = Chain 1 (10^(Output Power /10)/1000) + Chain 2 (10^(Output Power /10)/1000)

For Mode 3

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)
Low	2412	7.49	6.88	10.21
Mid	2442	12.82	12.22	15.54
High	2462	7.51	7.51	10.52

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 2 Output Power (dBm)	Total Output Power (dBm)
Low	2422	7.45	7.64	10.56
Mid	2442	12.19	12.69	15.46
High	2452	7.28	7.46	10.38

Remark: Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 2 (10^(Output Power /10)/1000)

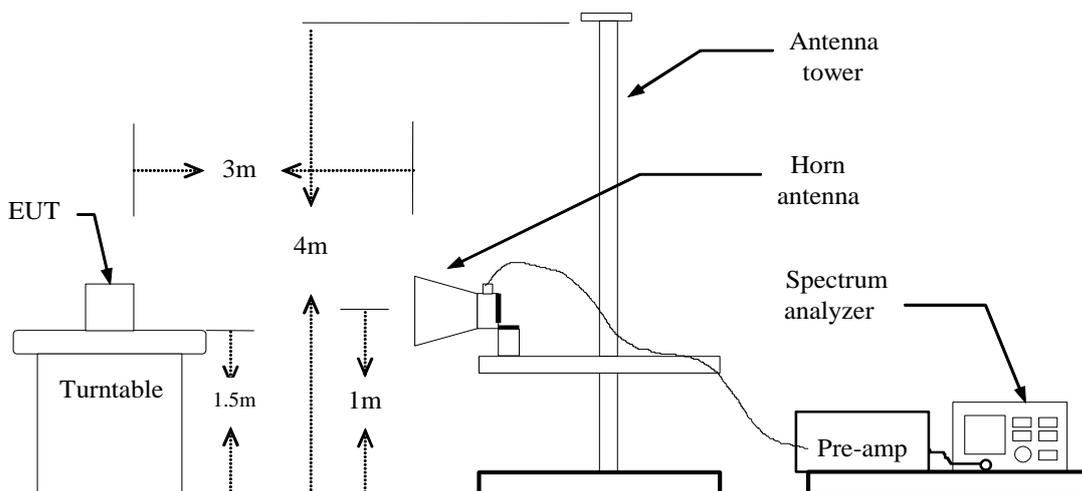
7.4 BAND EDGES MEASUREMENT

LIMIT

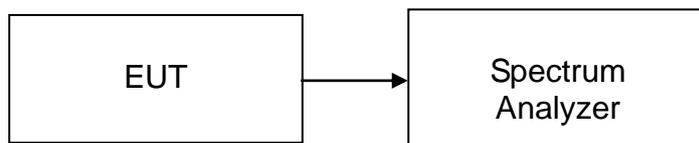
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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

1. The EUT is placed on a turntable, which is 1.5m 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=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / 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.

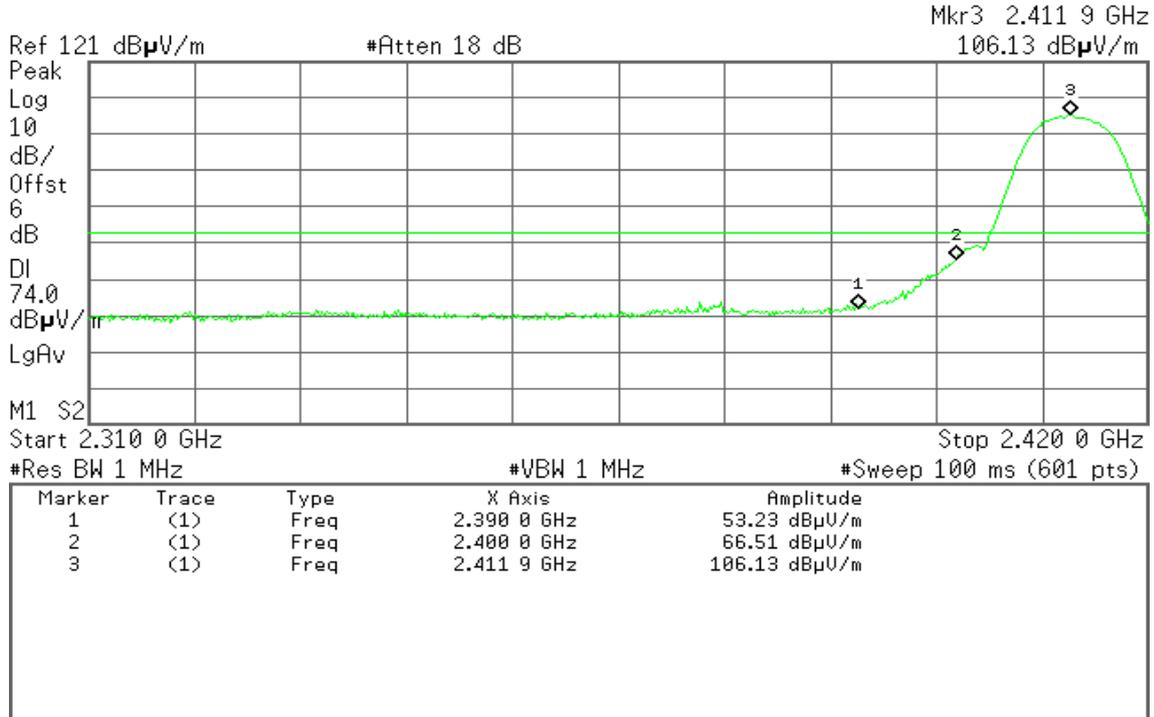
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 21:25:59 17 Nov 2011

R T

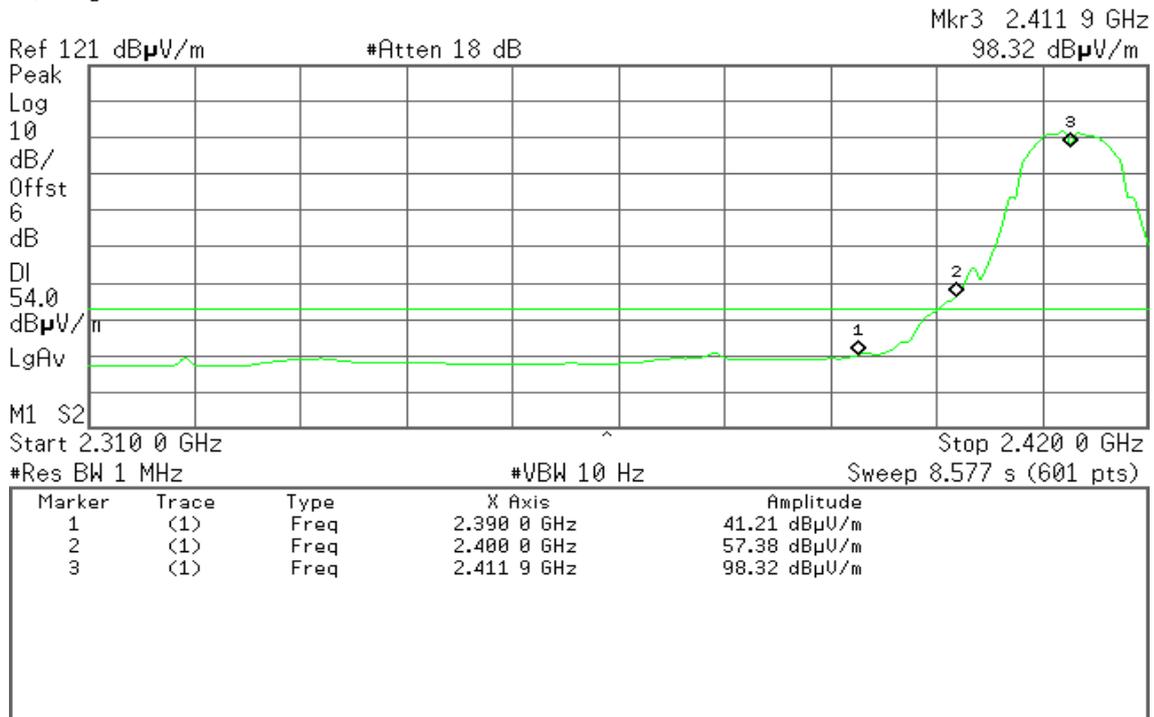


Detector mode: Average

Polarity: Vertical

Agilent 21:26:21 17 Nov 2011

R T

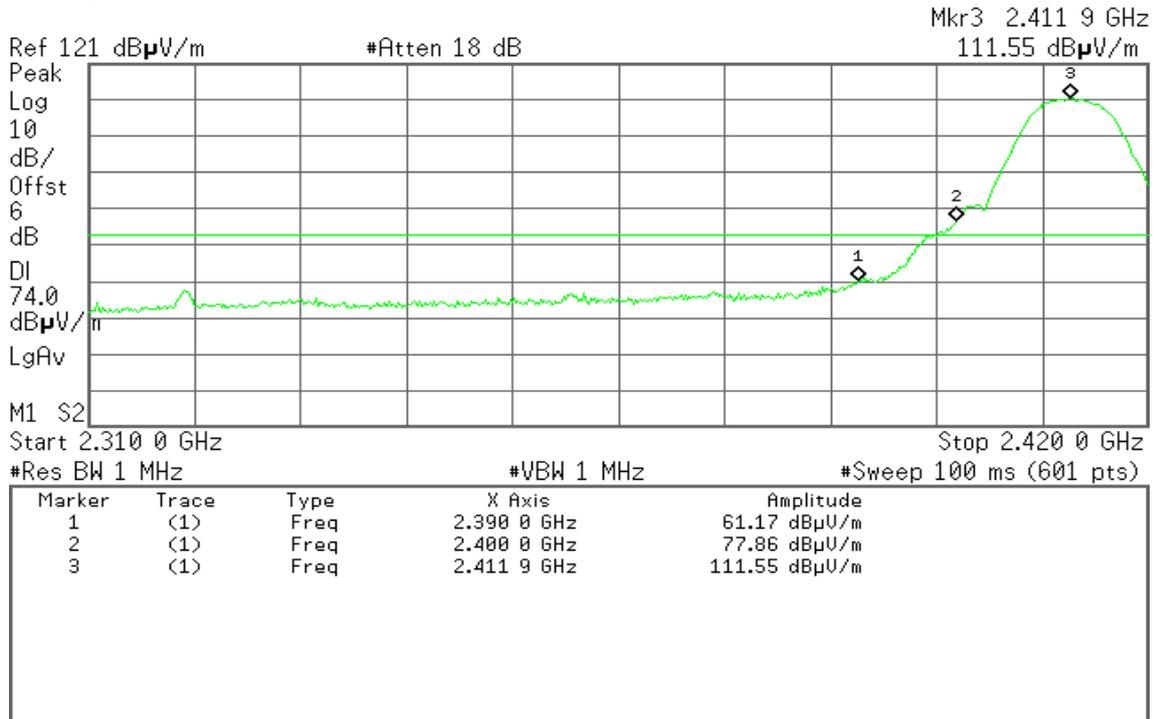


Detector mode: Peak

Polarity: Horizontal

Agilent 21:21:33 17 Nov 2011

R T

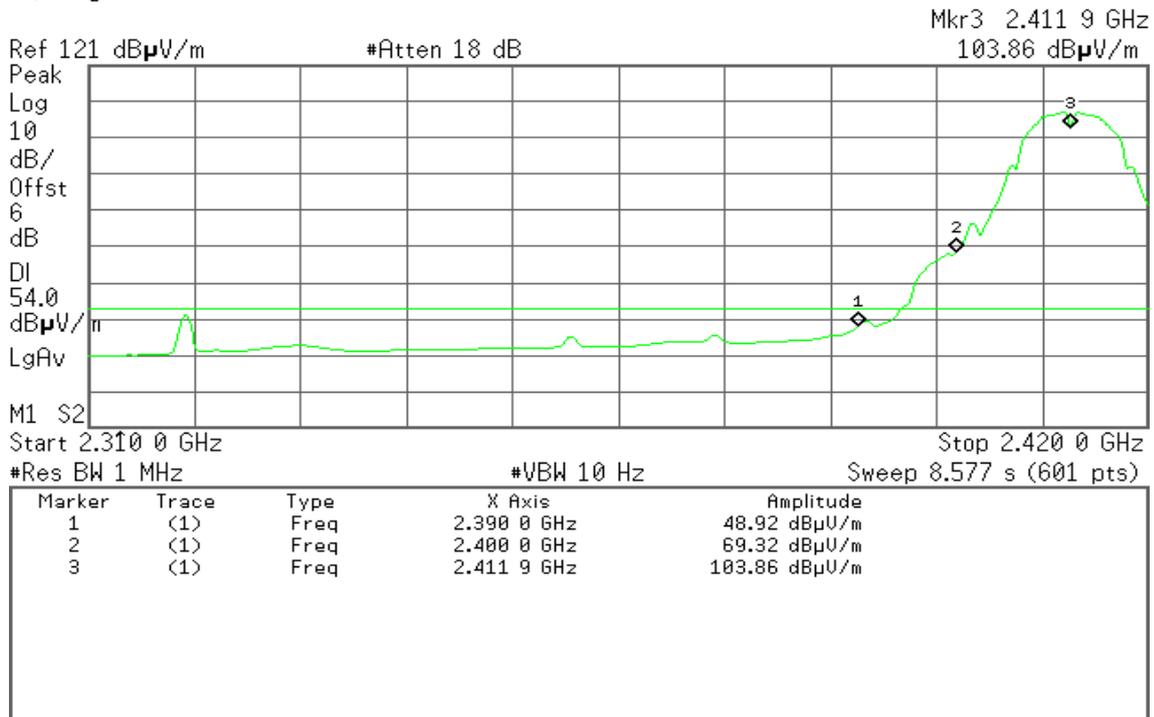


Detector mode: Average

Polarity: Horizontal

Agilent 21:22:01 17 Nov 2011

R T



Band Edges (IEEE 802.11b mode / CH High)

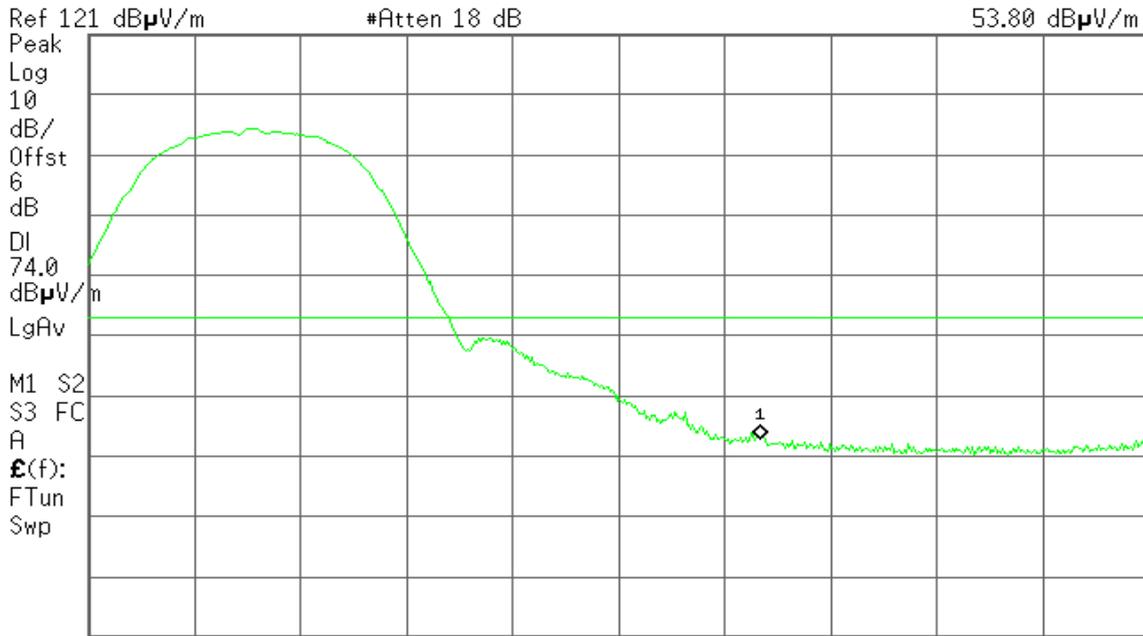
Detector mode: Peak

Polarity: Vertical

Agilent 21:12:13 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 53.80 dB μ V/m



Start 2.455 00 GHz Stop 2.500 00 GHz
 #Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

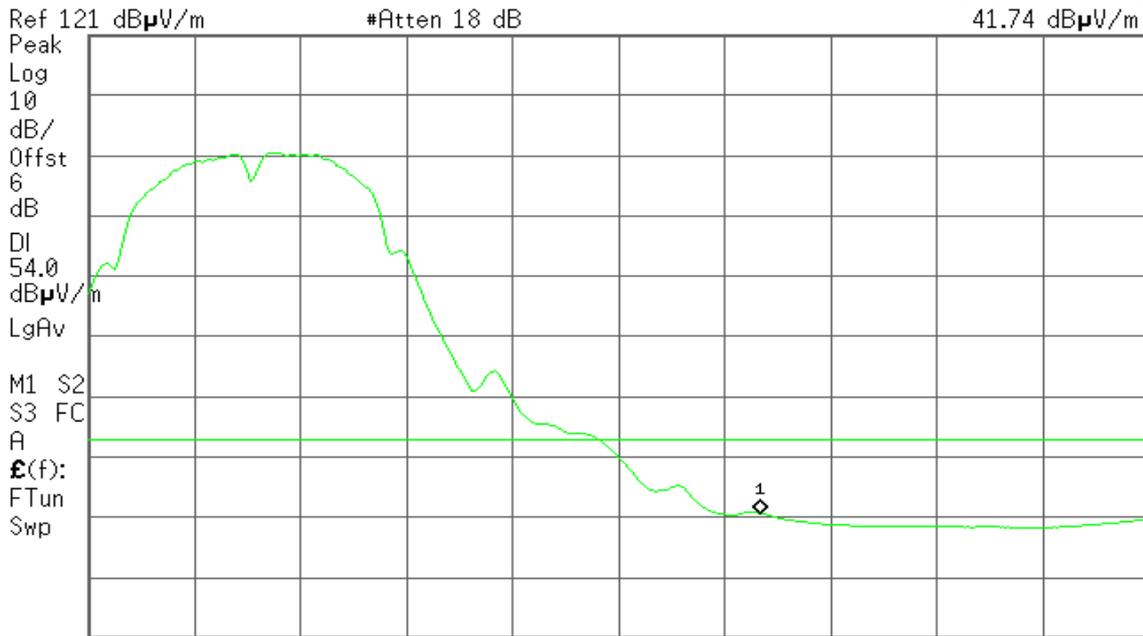
Detector mode: Average

Polarity: Vertical

Agilent 21:12:36 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 41.74 dB μ V/m



Start 2.455 00 GHz Stop 2.500 00 GHz
 #Res BW 1 MHz #VBW 10 Hz Sweep 3.509 s (601 pts)

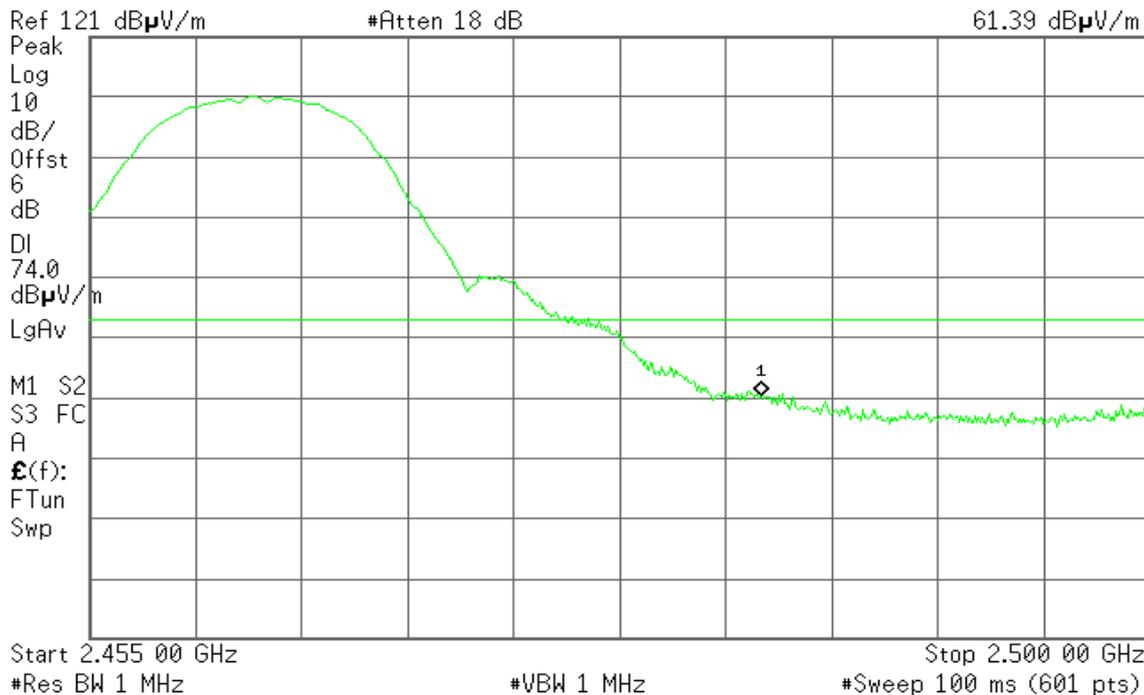
Detector mode: Peak

Polarity: Horizontal

Agilent 21:16:11 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 61.39 dB μ V/m



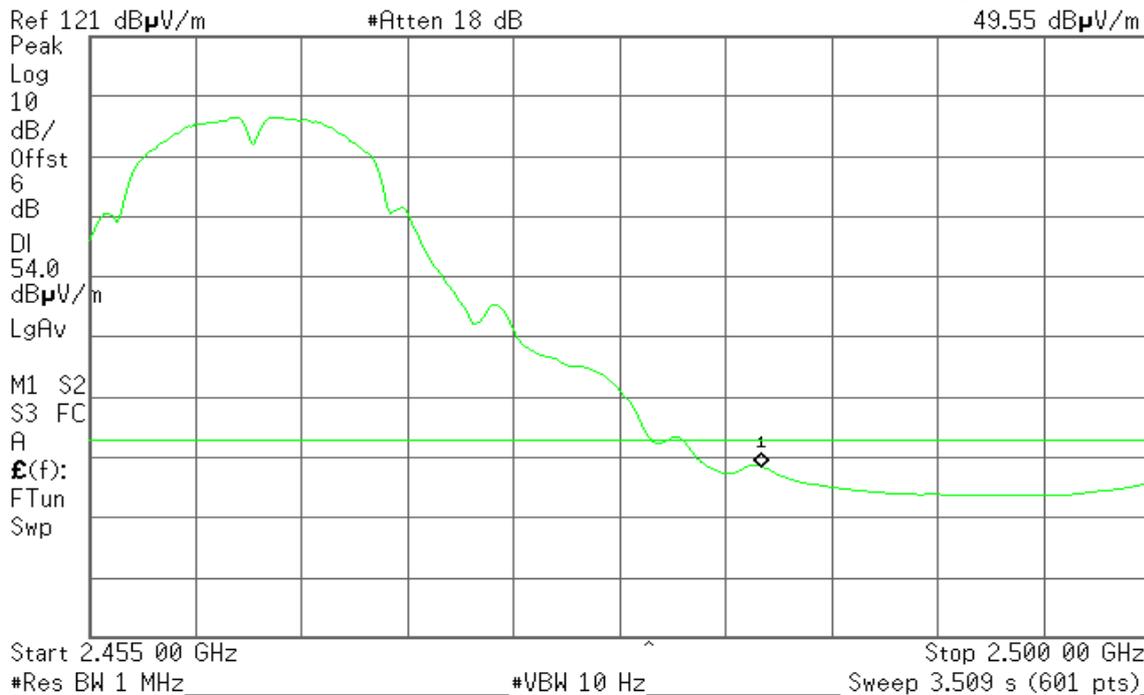
Detector mode: Average

Polarity: Horizontal

Agilent 21:16:31 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 49.55 dB μ V/m



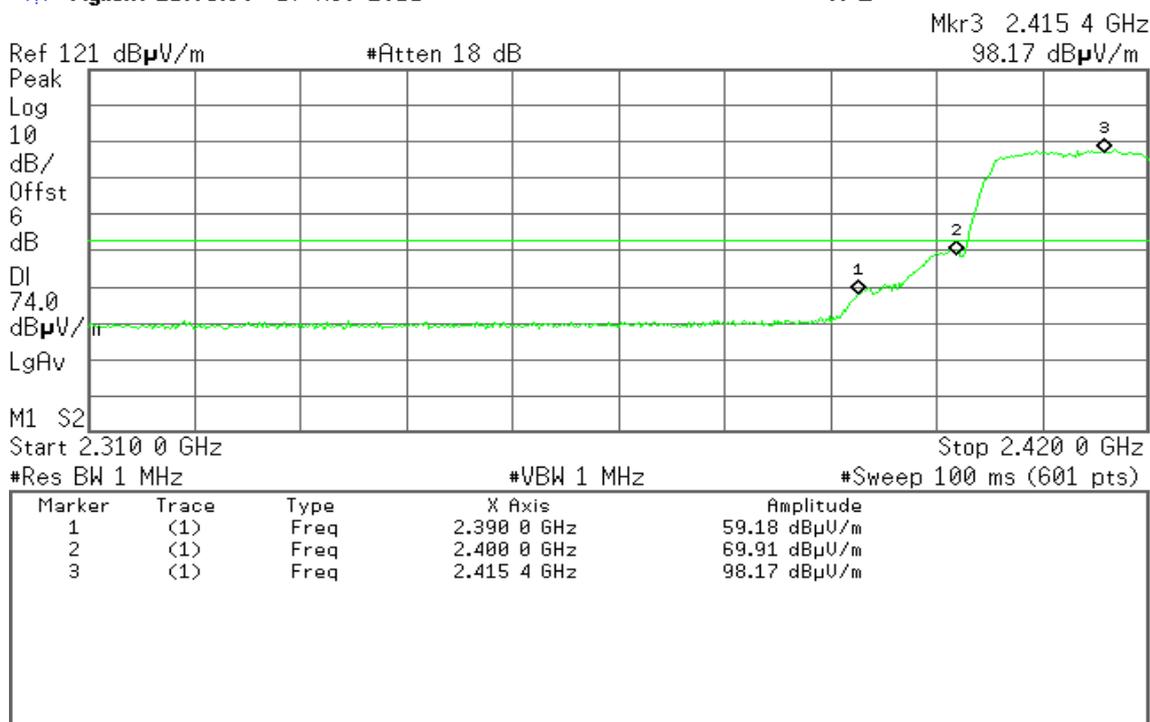
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 21:05:30 17 Nov 2011

R L

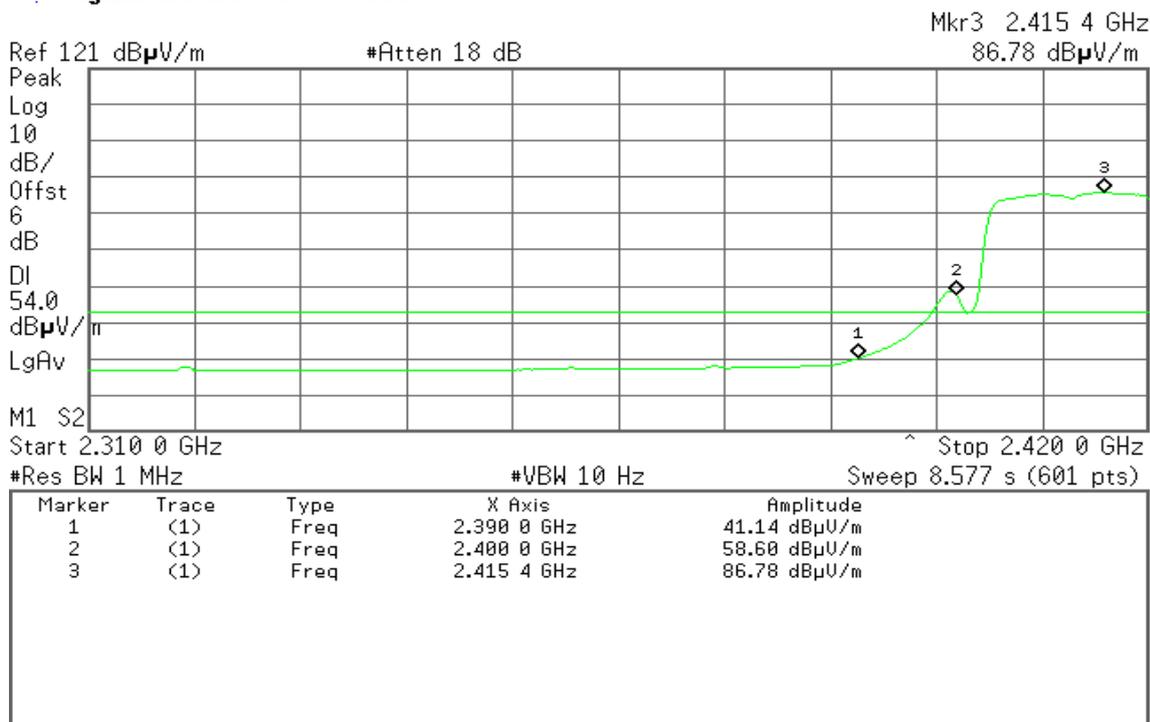


Detector mode: Average

Polarity: Vertical

Agilent 21:05:59 17 Nov 2011

R T

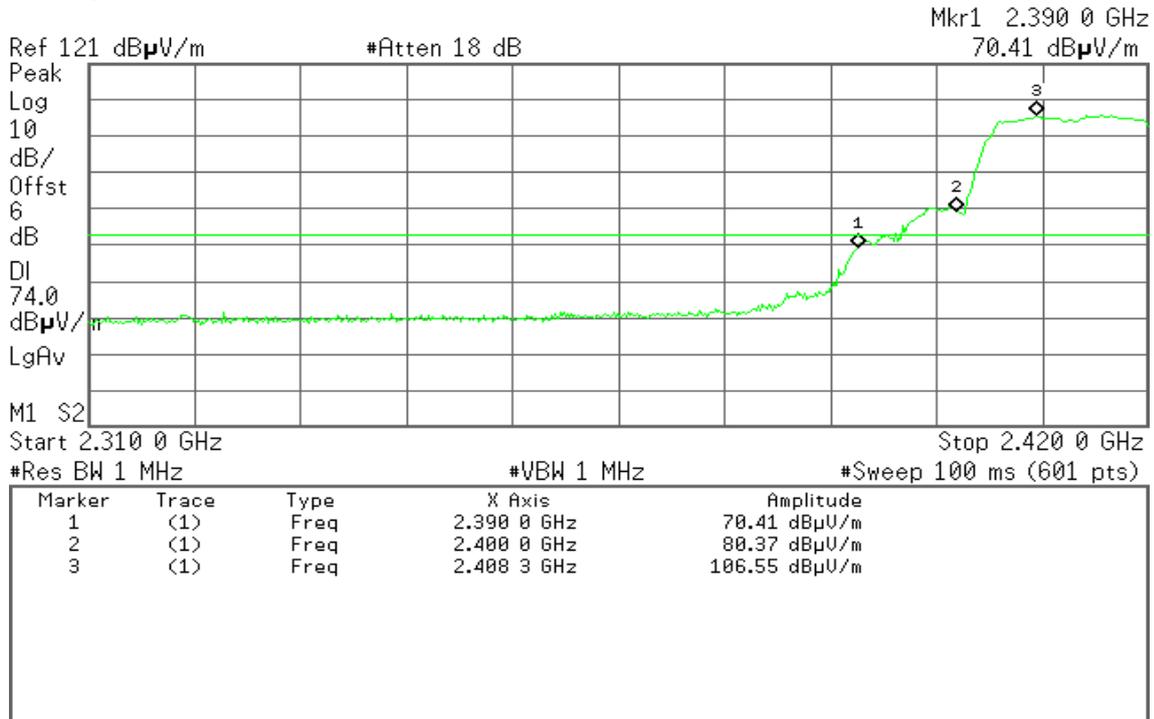


Detector mode: Peak

Polarity: Horizontal

Agilent 21:01:02 17 Nov 2011

R T

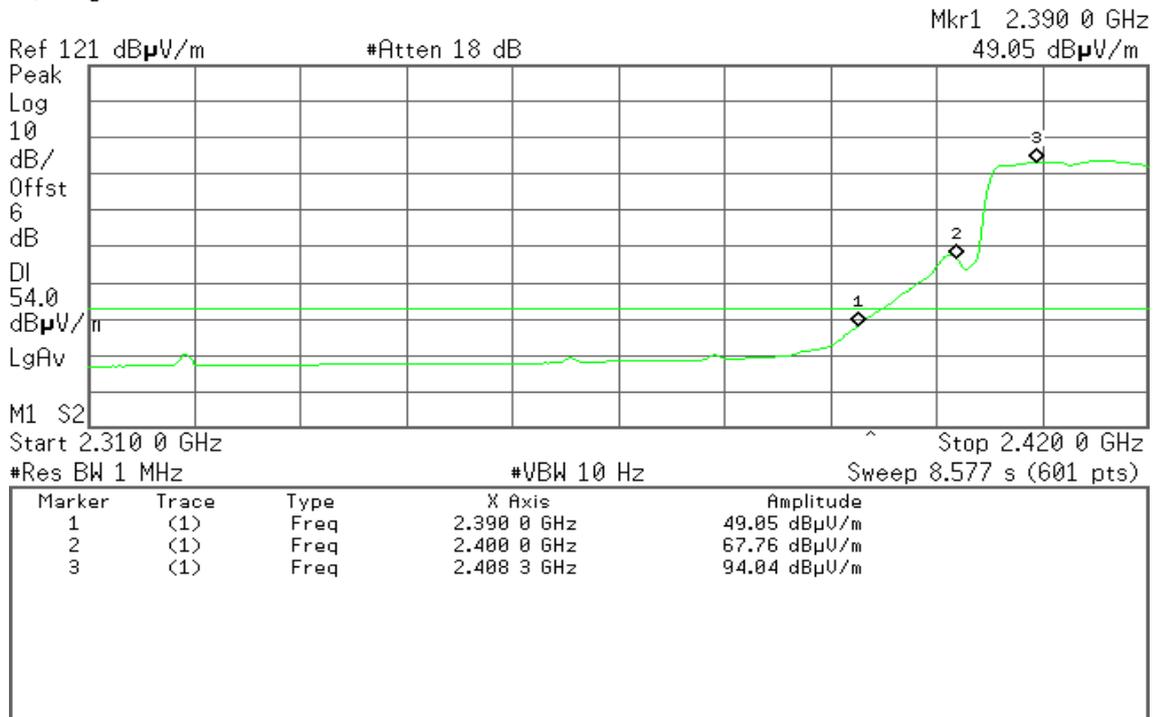


Detector mode: Average

Polarity: Horizontal

Agilent 21:01:28 17 Nov 2011

R T



Band Edges (IEEE 802.11g mode / CH High)

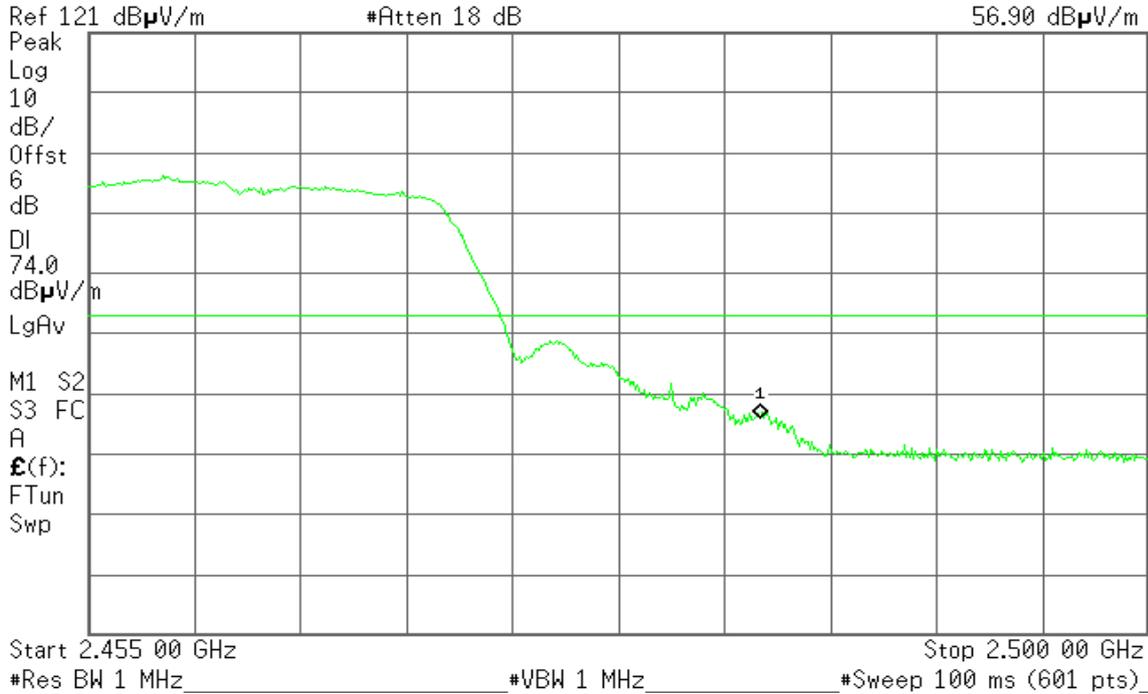
Detector mode: Peak

Polarity: Vertical

Agilent 20:48:29 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 56.90 dB μ V/m



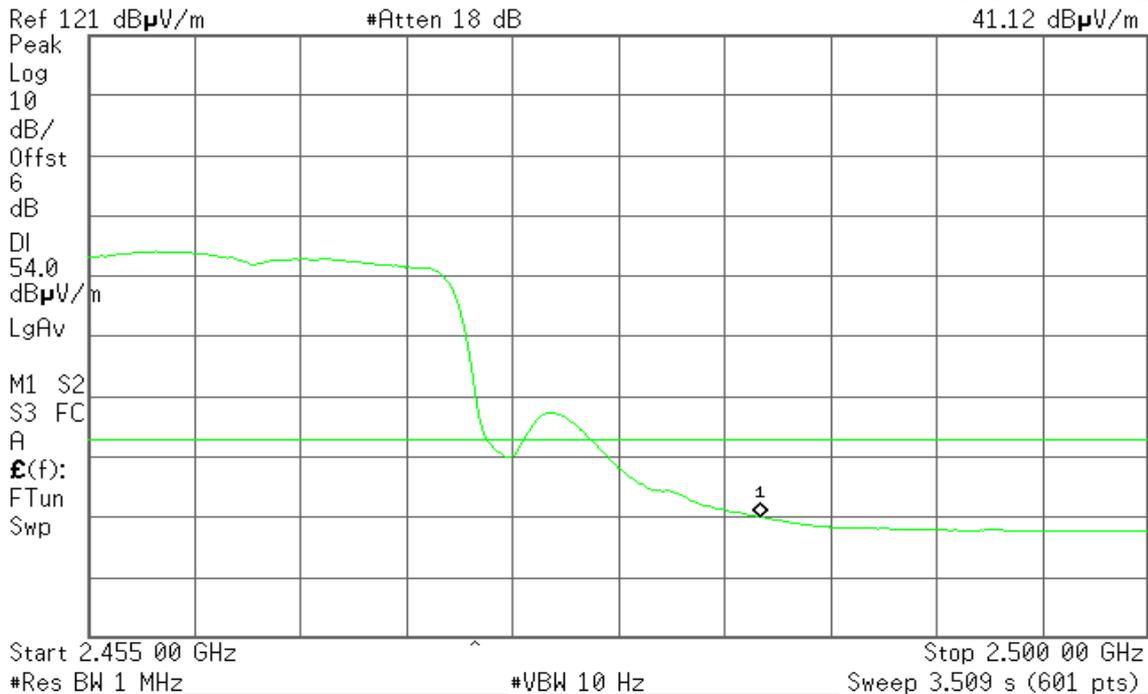
Detector mode: Average

Polarity: Vertical

Agilent 20:48:52 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 41.12 dB μ V/m



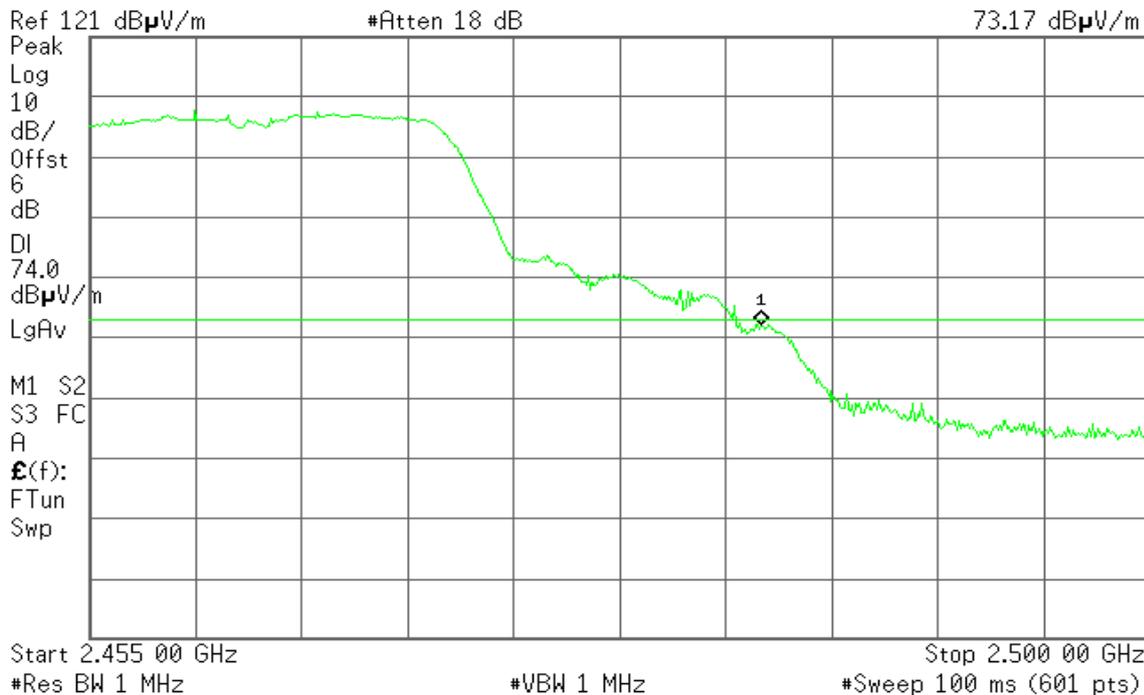
Detector mode: Peak

Polarity: Horizontal

Agilent 20:55:07 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 73.17 dB μ V/m



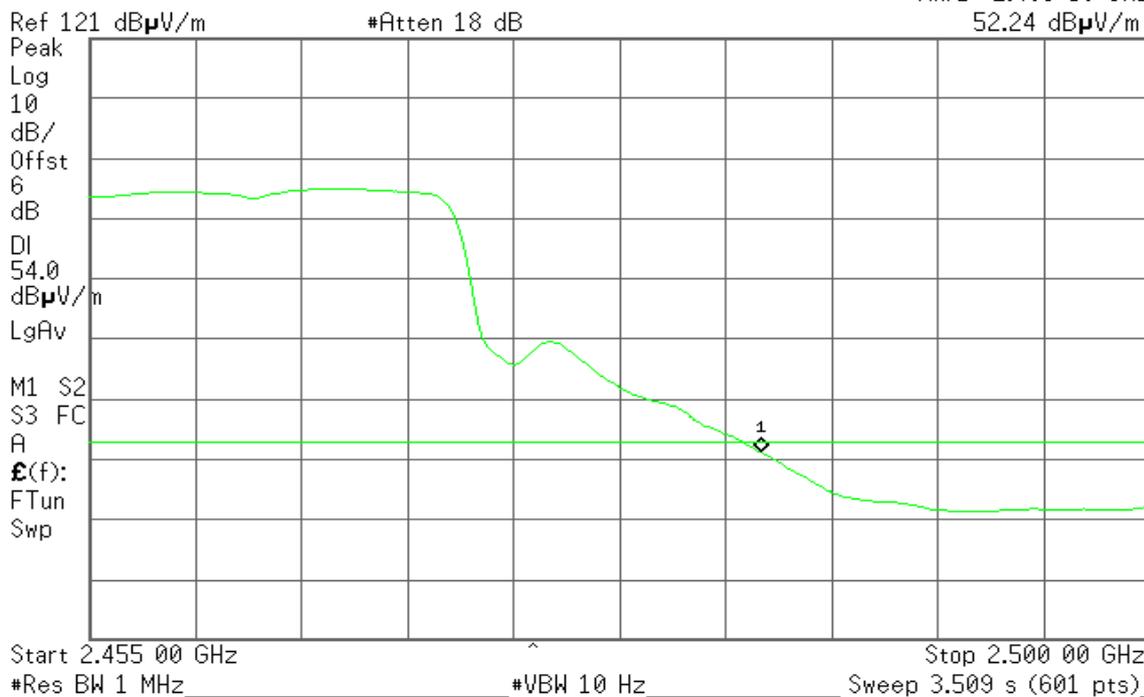
Detector mode: Average

Polarity: Horizontal

Agilent 20:55:37 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 52.24 dB μ V/m



For Mode 1

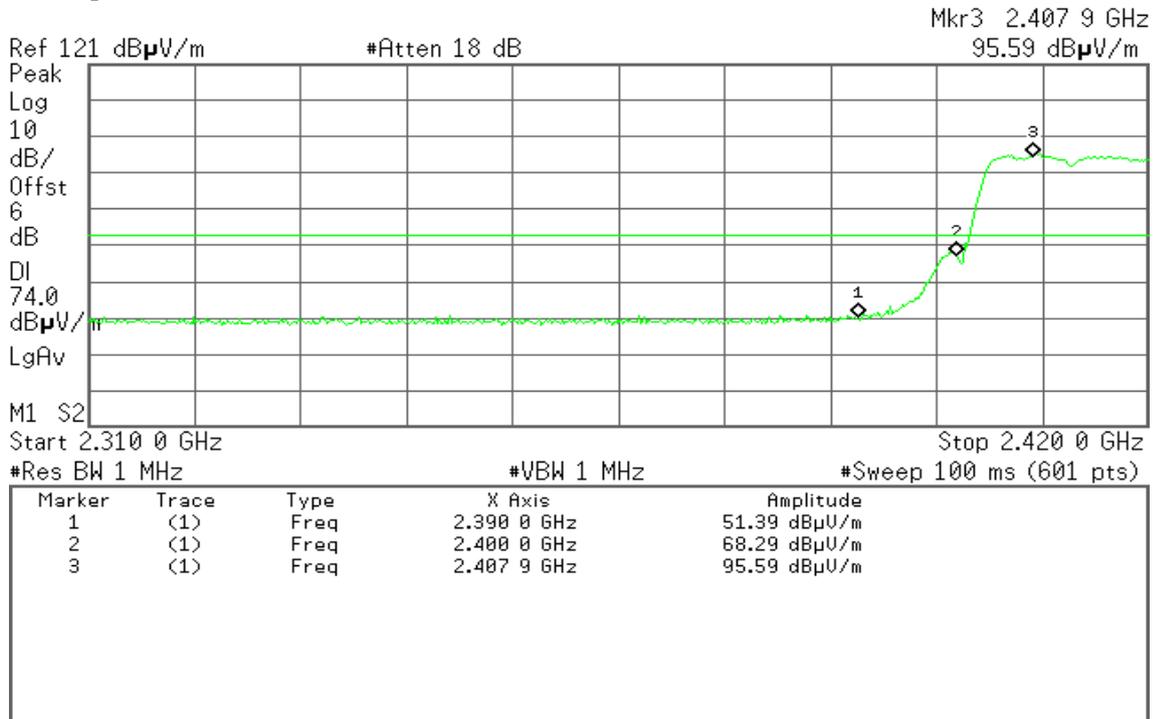
Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 15:35:42 Nov 15, 2011

R T

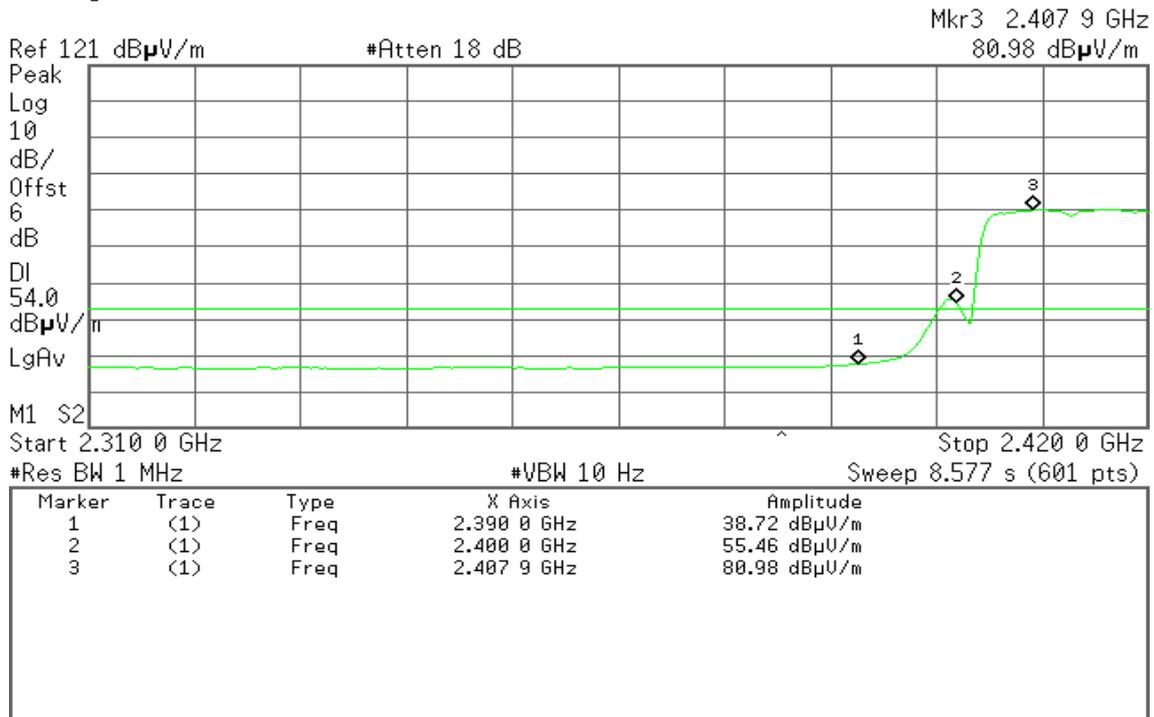


Detector mode: Average

Polarity: Vertical

Agilent 15:44:07 Nov 15, 2011

R T

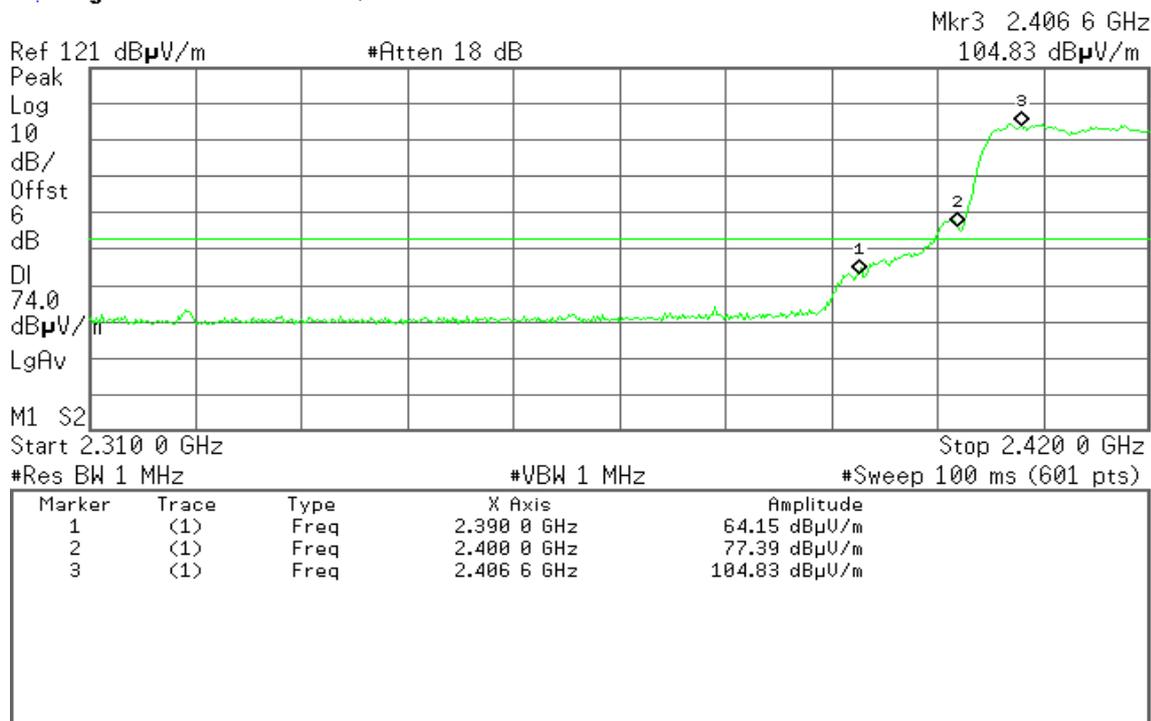


Detector mode: Peak

Polarity: Horizontal

Agilent 15:31:19 Nov 15, 2011

R T

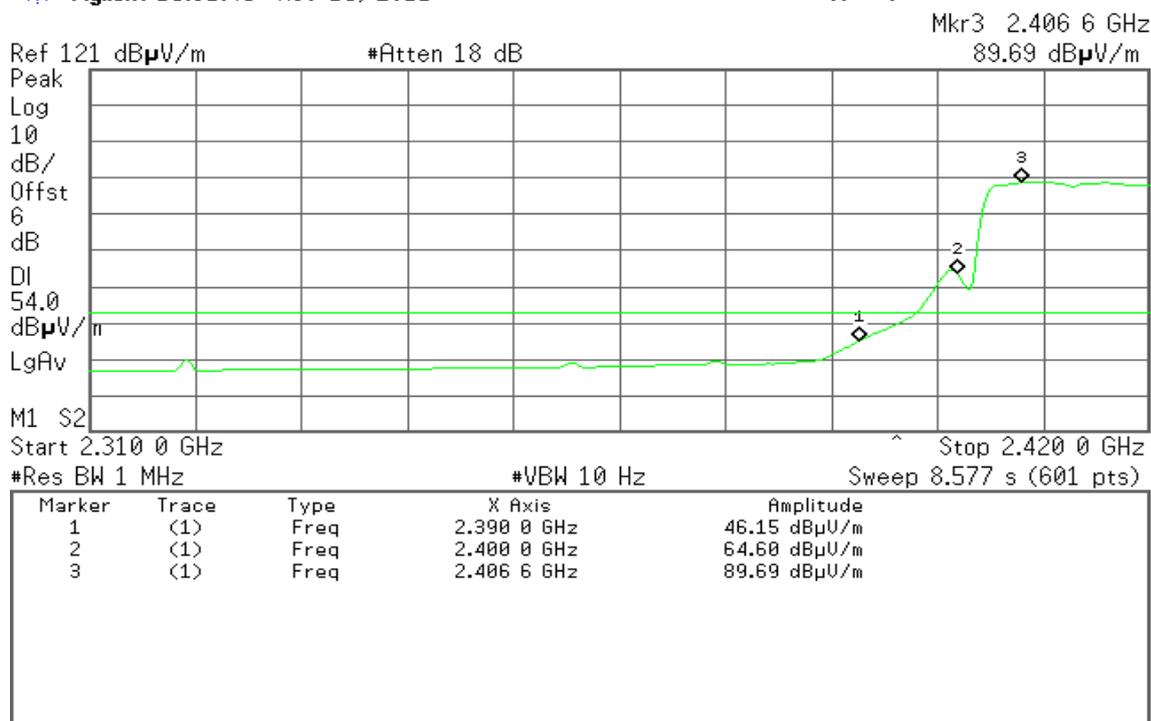


Detector mode: Average

Polarity: Horizontal

Agilent 15:31:45 Nov 15, 2011

R T



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

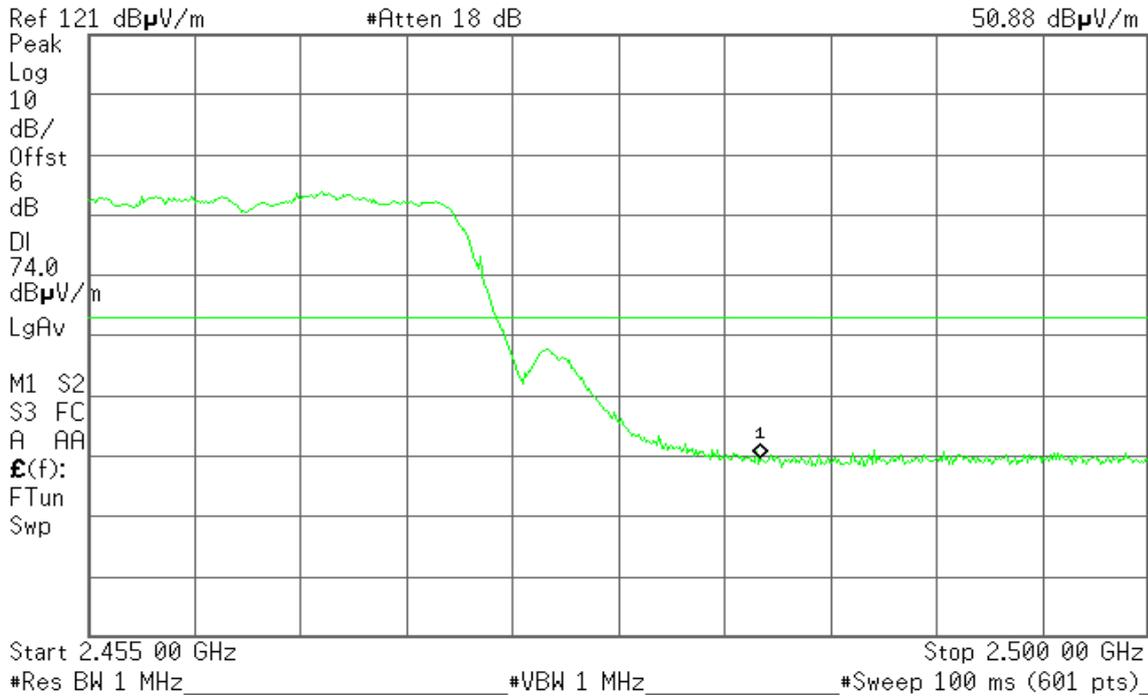
Detector mode: Peak

Polarity: Vertical

Agilent 15:48:53 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 50.88 dB μ V/m



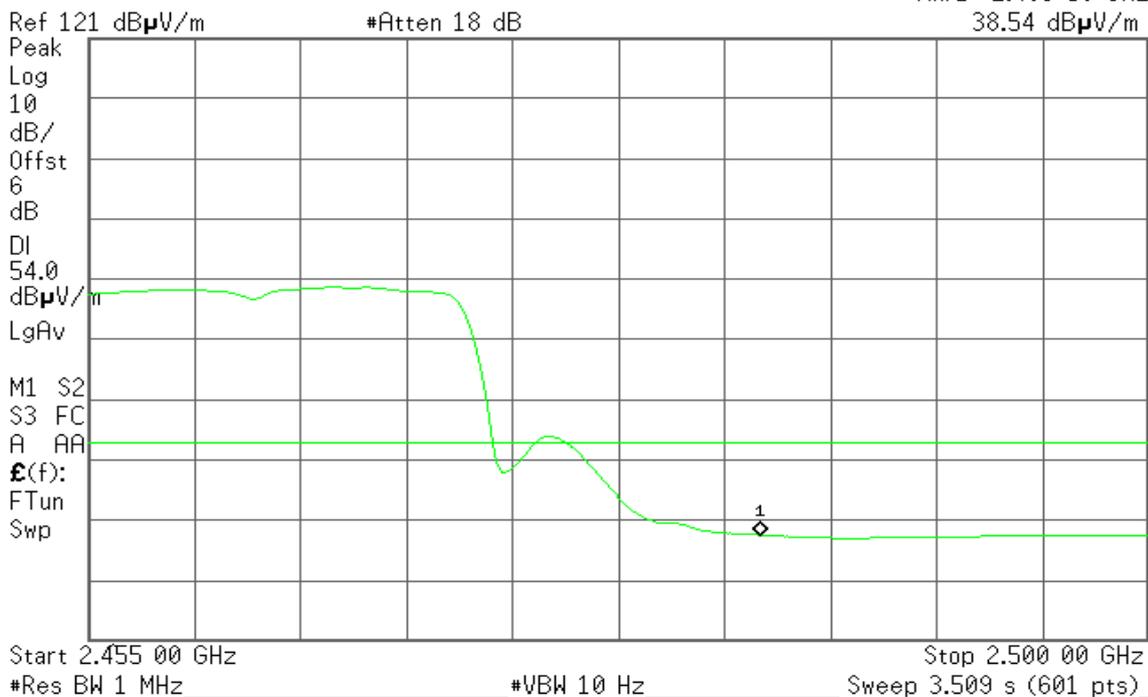
Detector mode: Average

Polarity: Vertical

Agilent 15:49:14 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 38.54 dB μ V/m



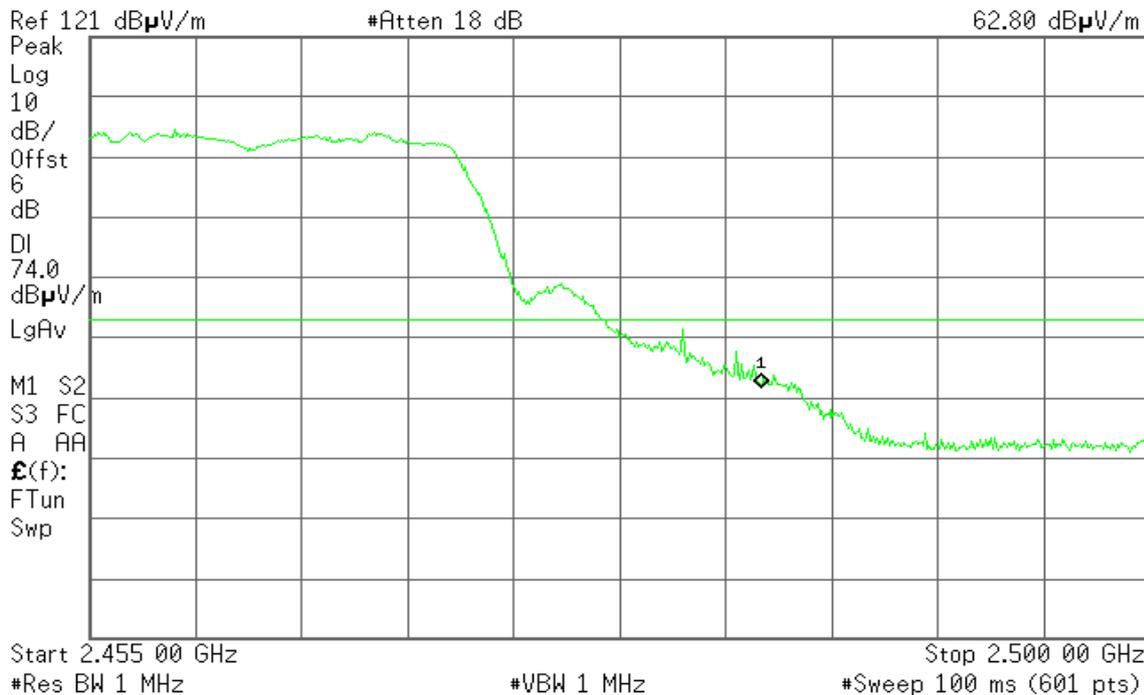
Detector mode: Peak

Polarity: Horizontal

Agilent 15:53:31 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 62.80 dB μ V/m



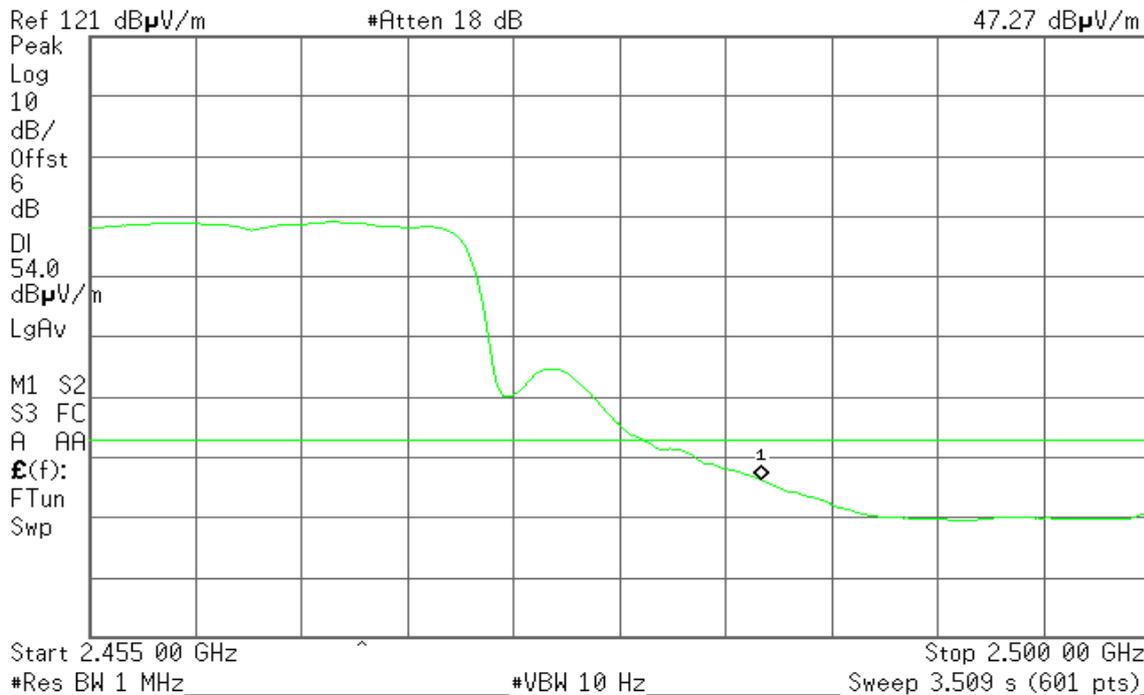
Detector mode: Average

Polarity: Horizontal

Agilent 15:53:49 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 47.27 dB μ V/m



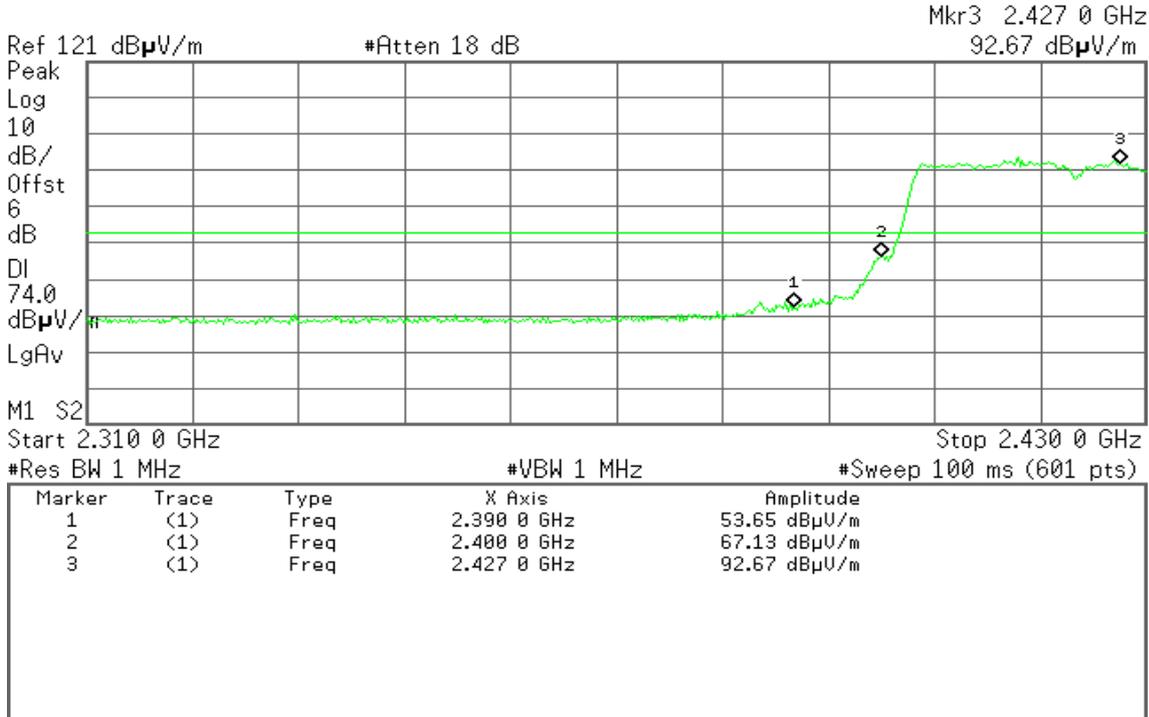
Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 15:21:20 Nov 15, 2011

R T

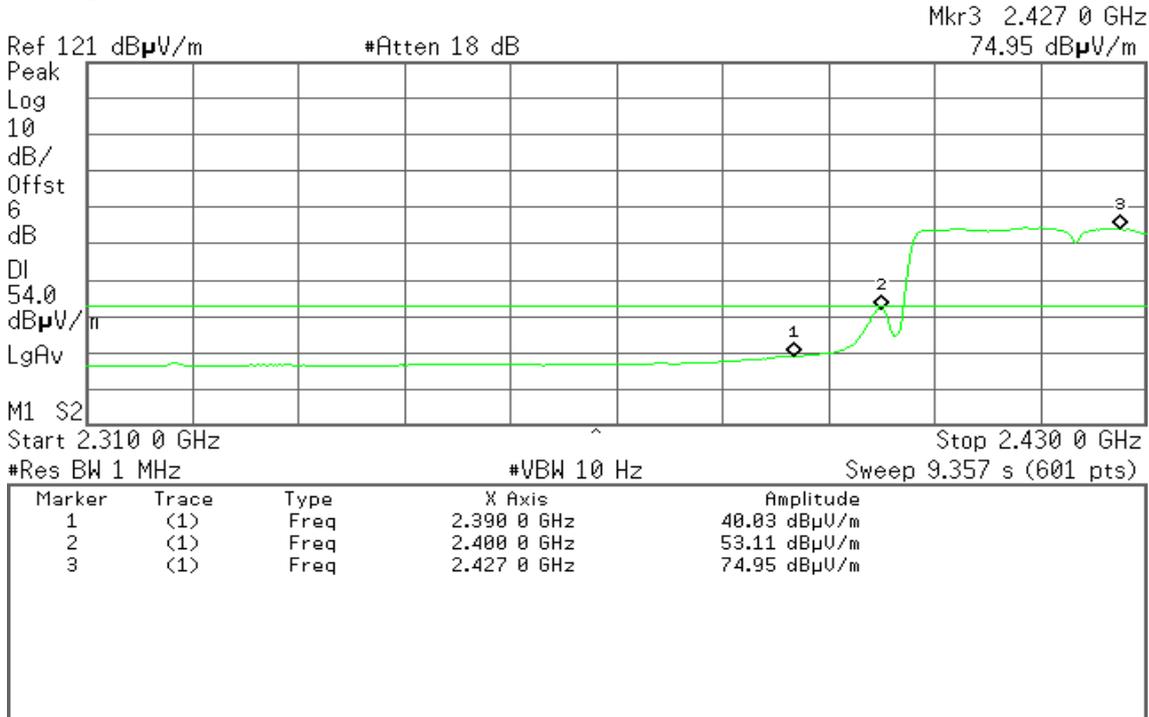


Detector mode: Average

Polarity: Vertical

Agilent 15:21:43 Nov 15, 2011

R T



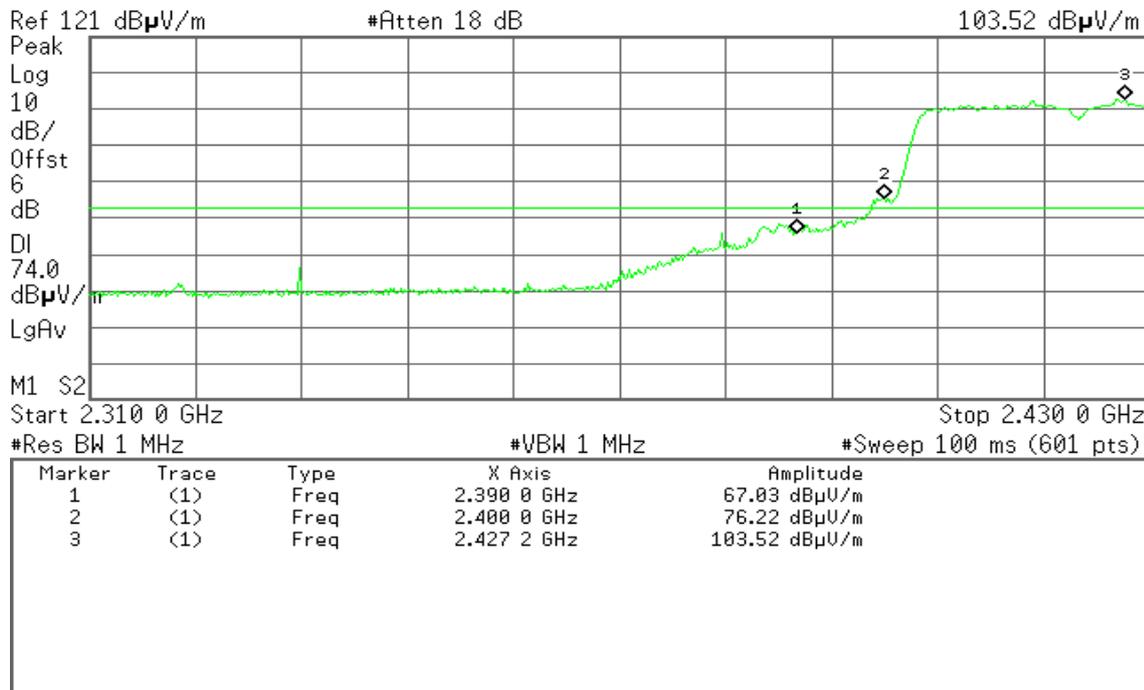
Detector mode: Peak

Polarity: Horizontal

Agilent 15:25:48 Nov 15, 2011

R T

Mkr3 2.427 2 GHz
 103.52 dB μ V/m



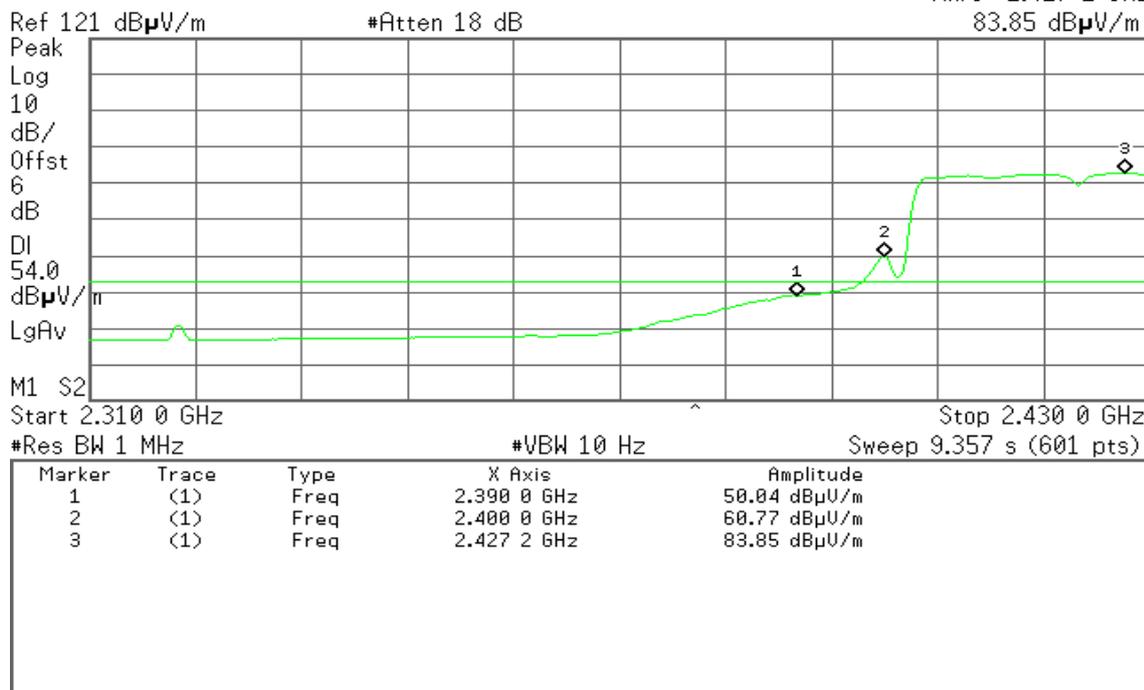
Detector mode: Average

Polarity: Horizontal

Agilent 15:26:16 Nov 15, 2011

R T

Mkr3 2.427 2 GHz
 83.85 dB μ V/m



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

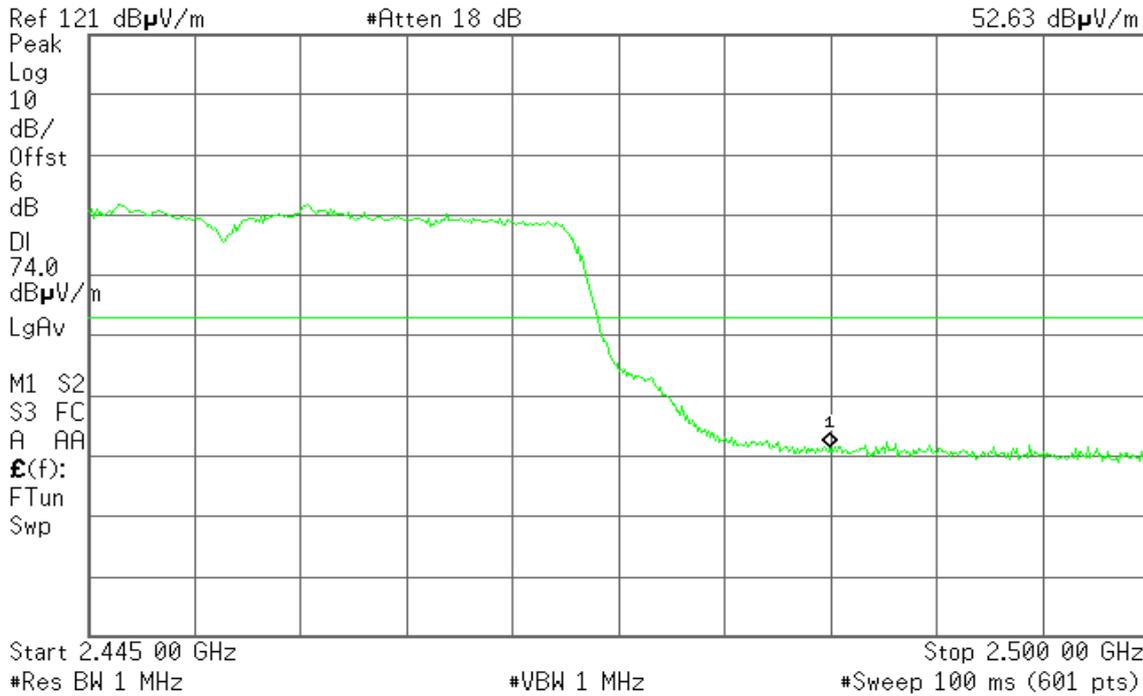
Detector mode: Peak

Polarity: Vertical

Agilent 13:06:32 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 52.63 dB μ V/m



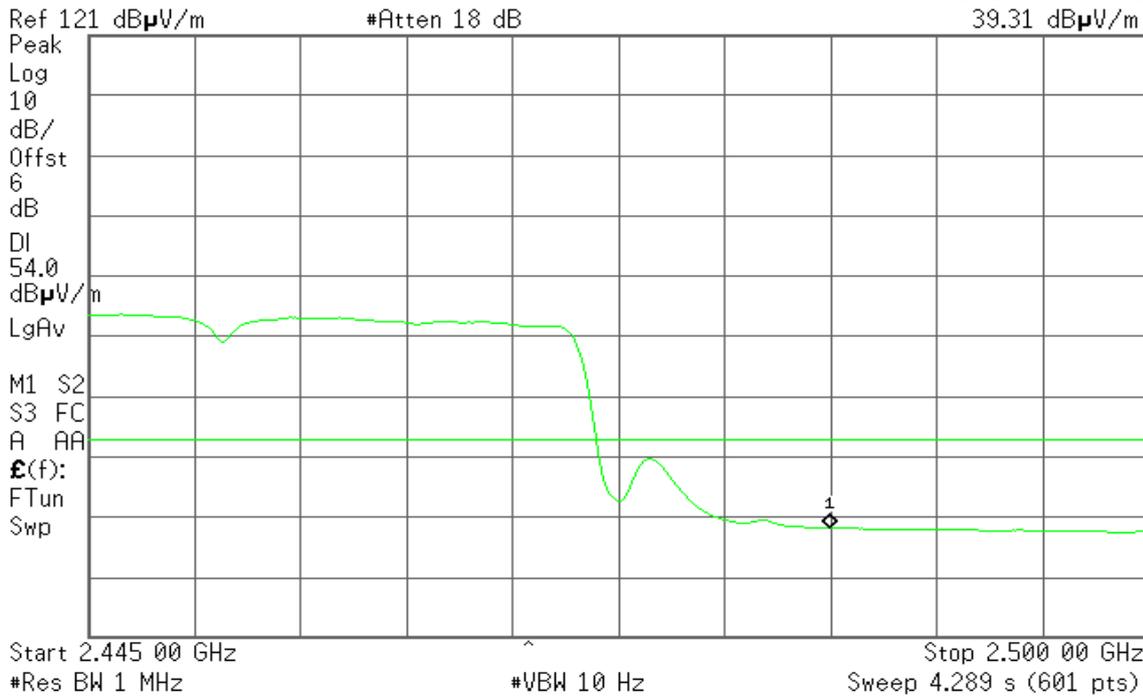
Detector mode: Average

Polarity: Vertical

Agilent 13:07:16 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 39.31 dB μ V/m



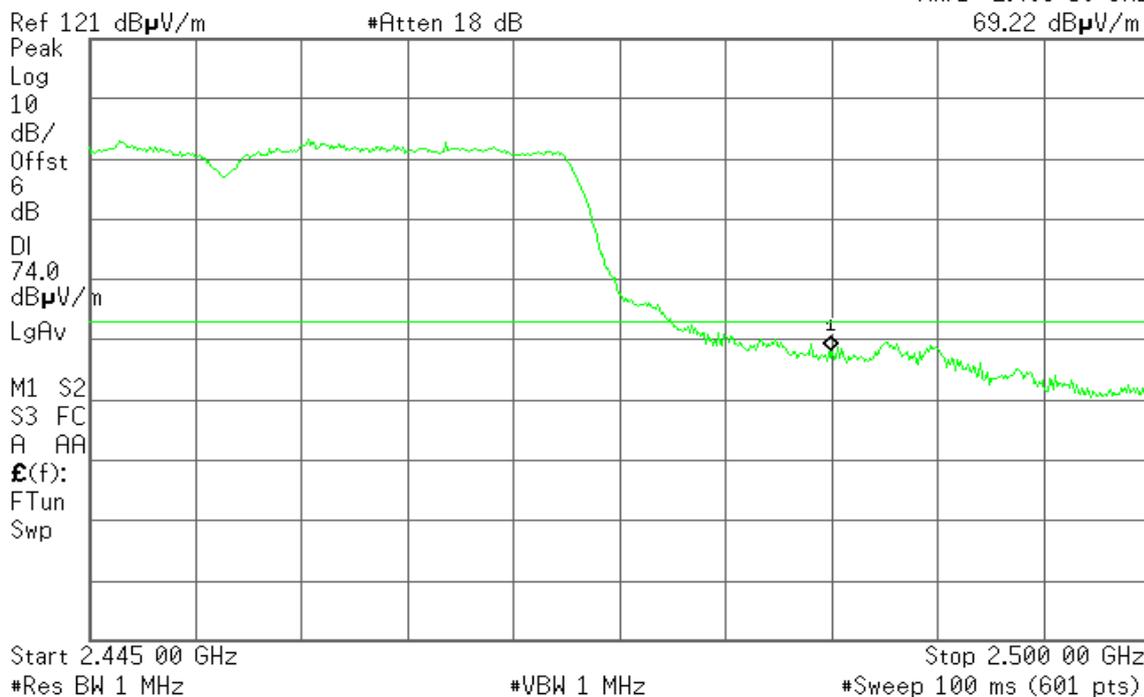
Detector mode: Peak

Polarity: Horizontal

Agilent 14:57:08 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 69.22 dB μ V/m



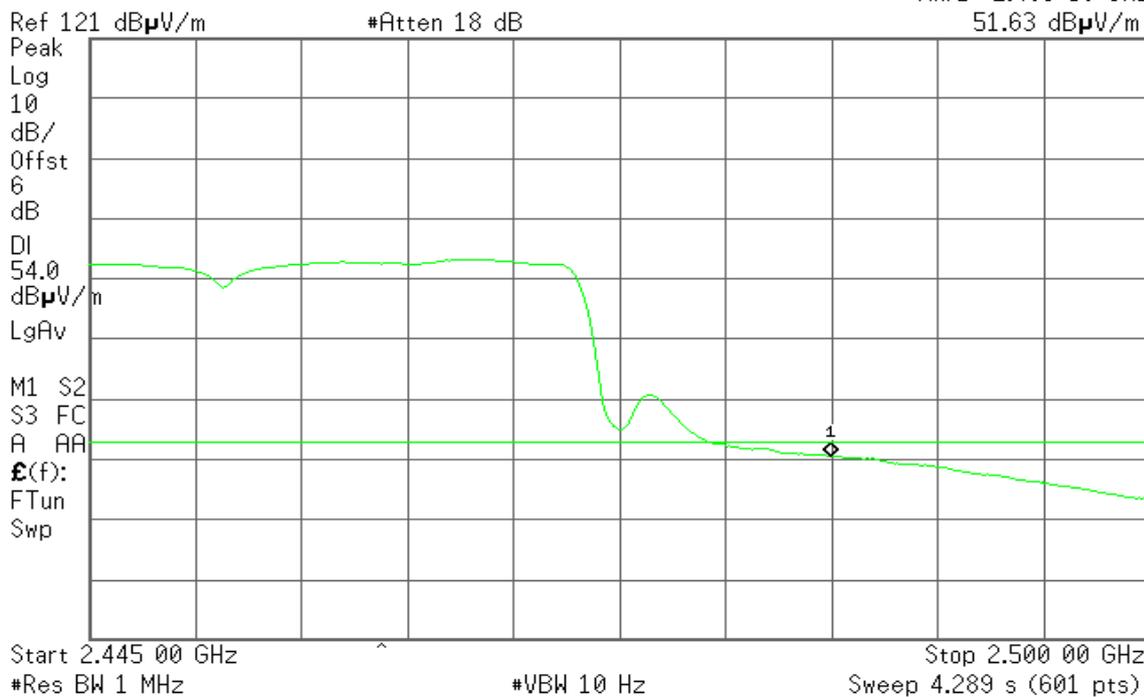
Detector mode: Average

Polarity: Horizontal

Agilent 14:57:26 Nov 15, 2011

R T

Mkr1 2.483 50 GHz
 51.63 dB μ V/m



For Mode 2

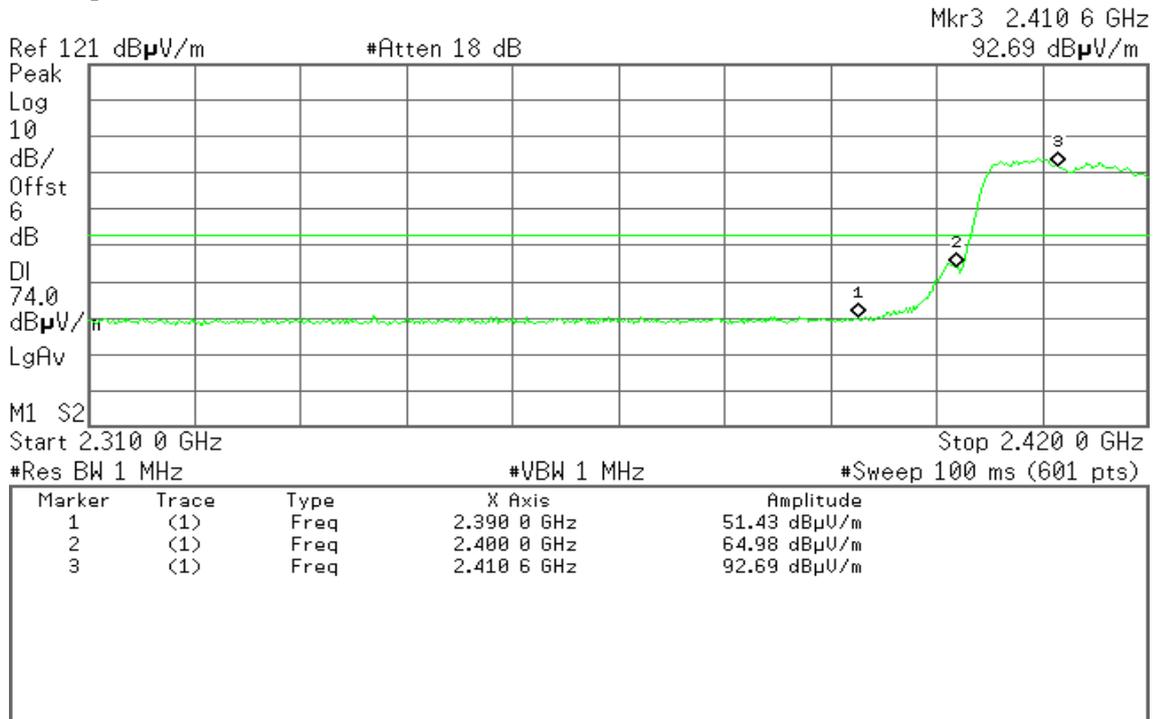
Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

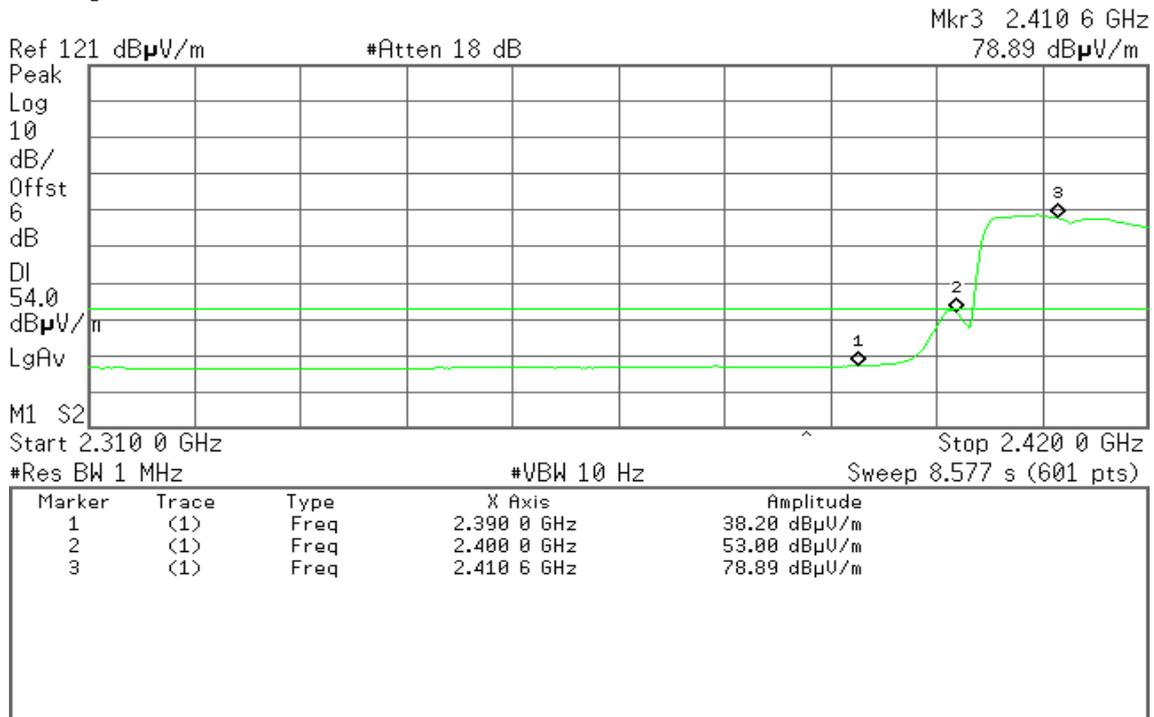


Detector mode: Average

Polarity: Vertical

Agilent

R T

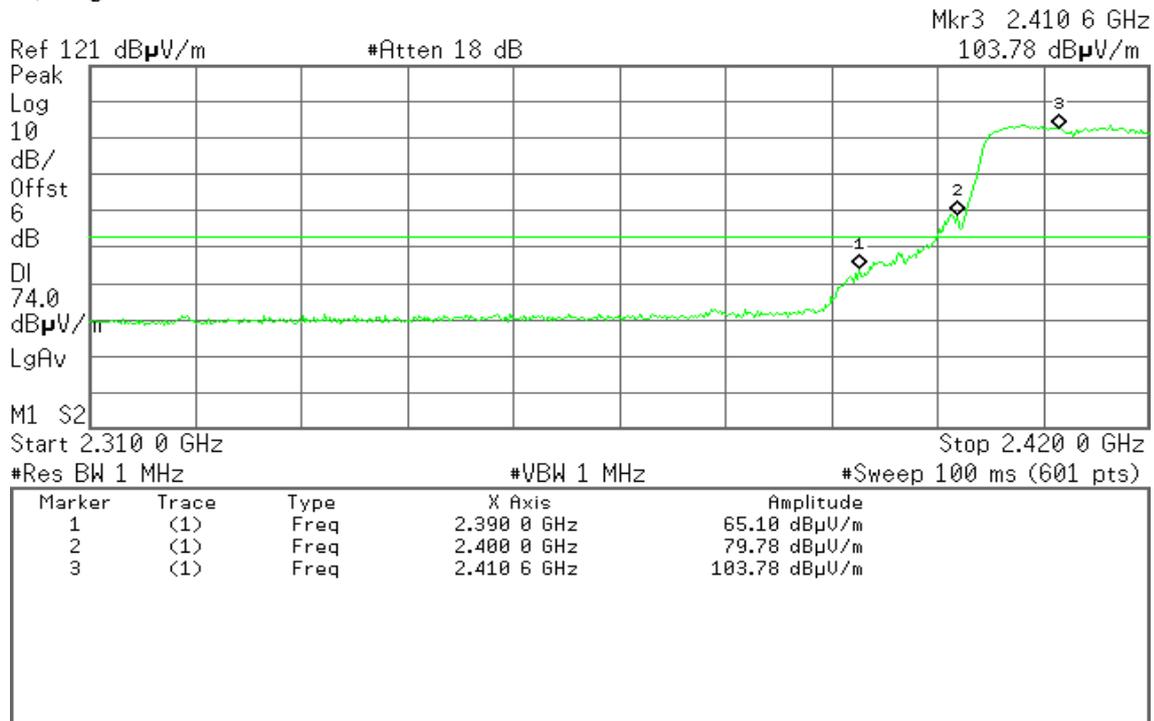


Detector mode: Peak

Polarity: Horizontal

Agilent

R T

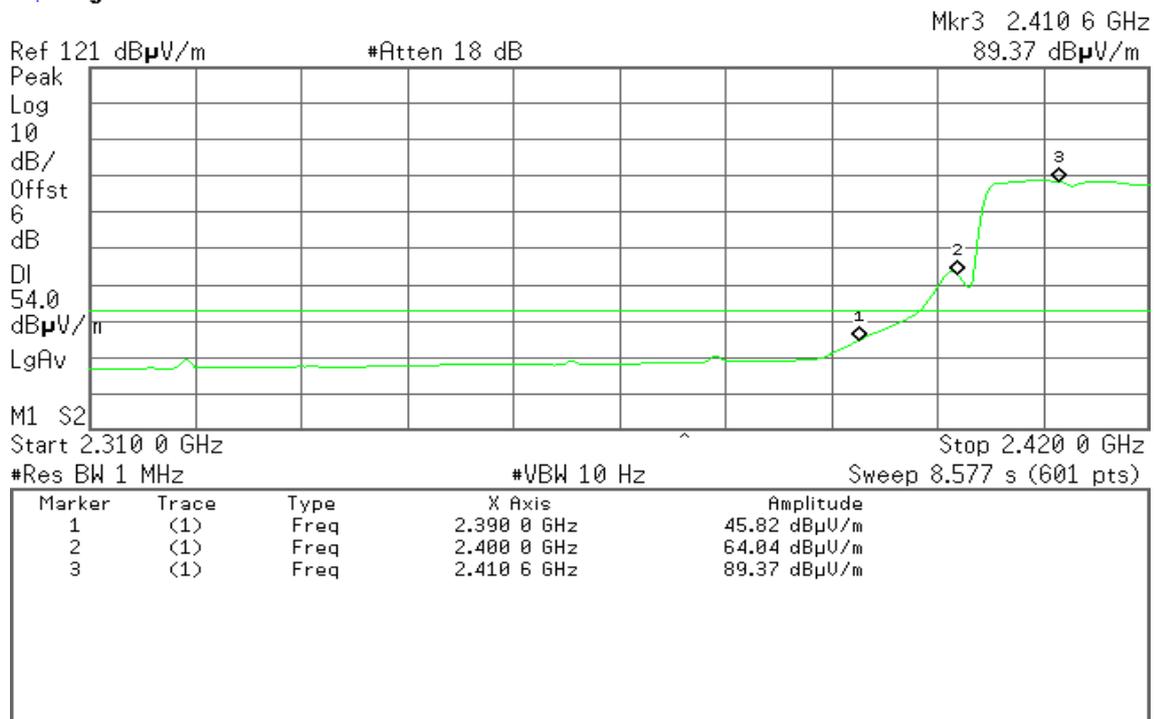


Detector mode: Average

Polarity: Horizontal

Agilent

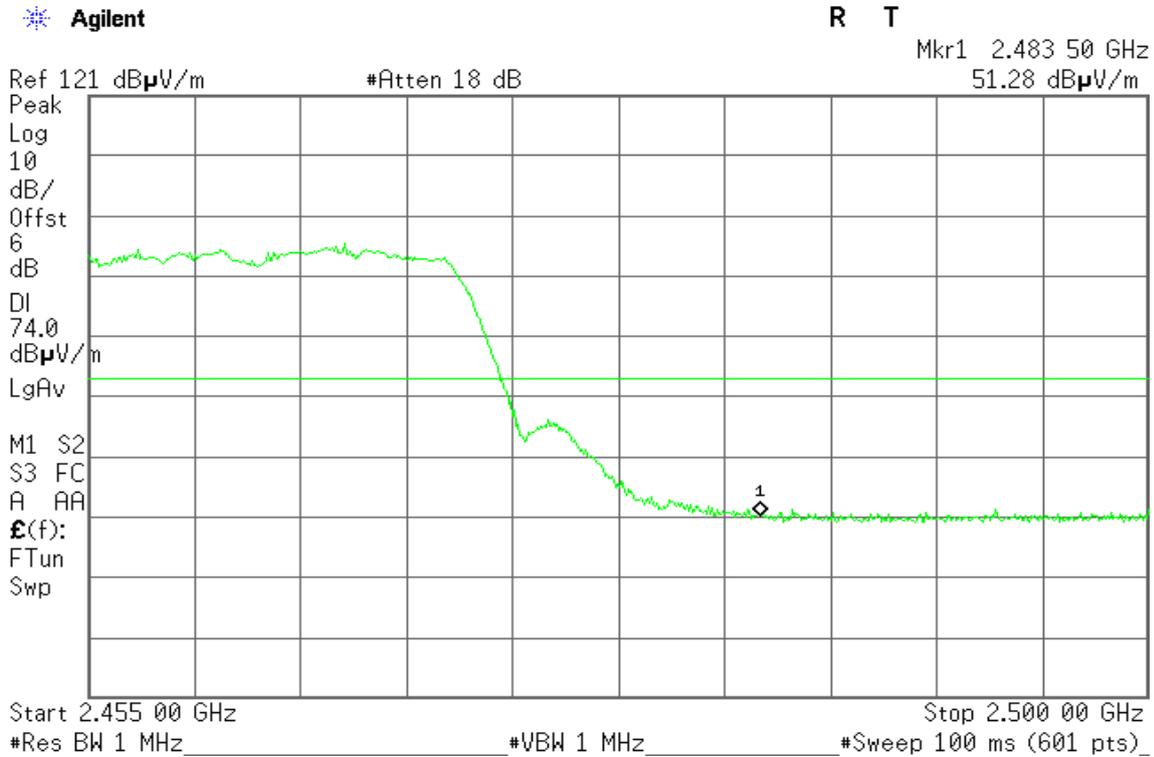
R T



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

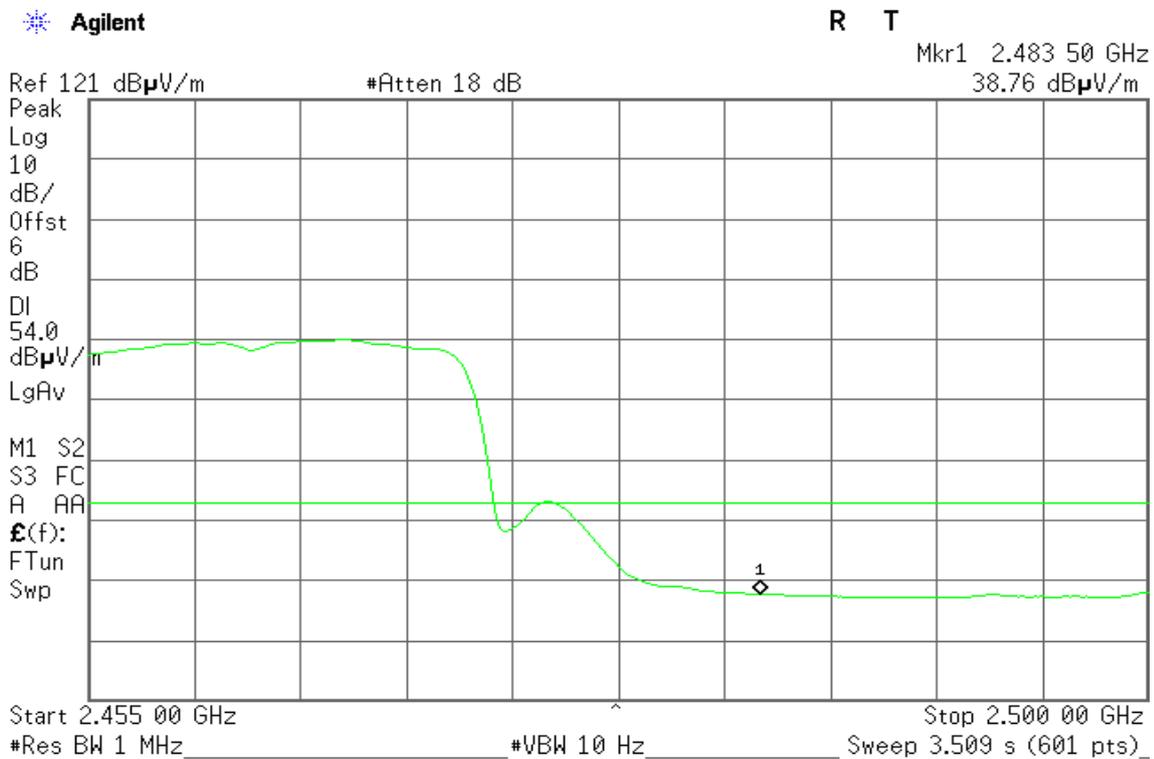
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical



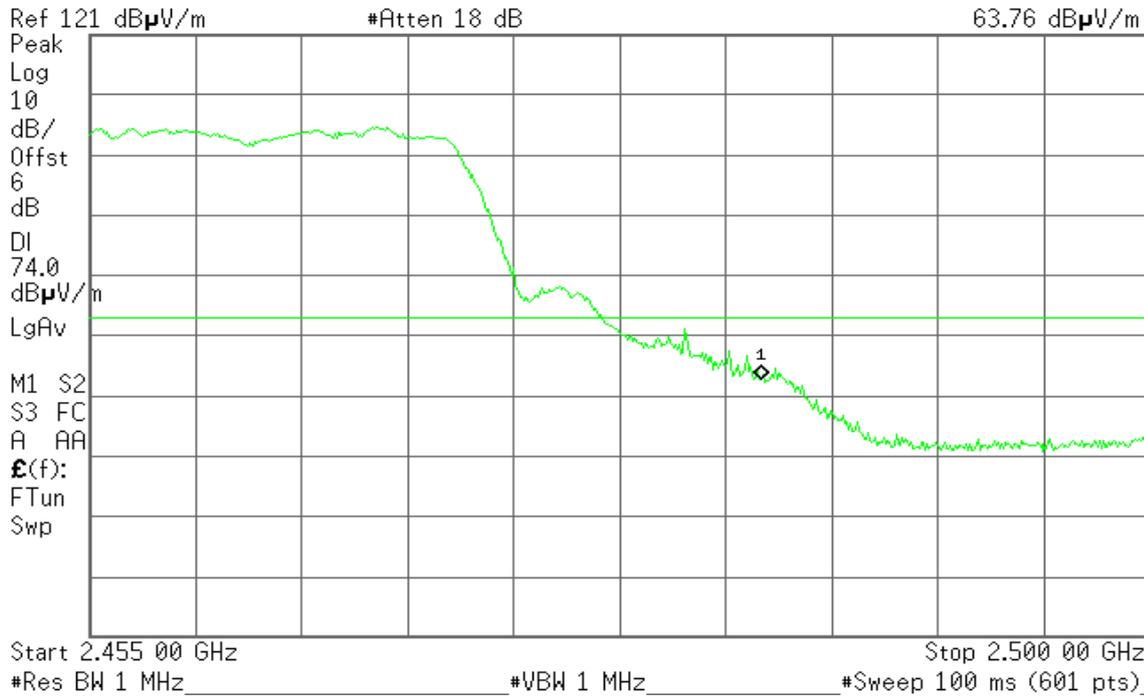
Detector mode: Peak

Polarity: Horizontal

Agilent

T

Mkr1 2.483 50 GHz
 63.76 dB μ V/m



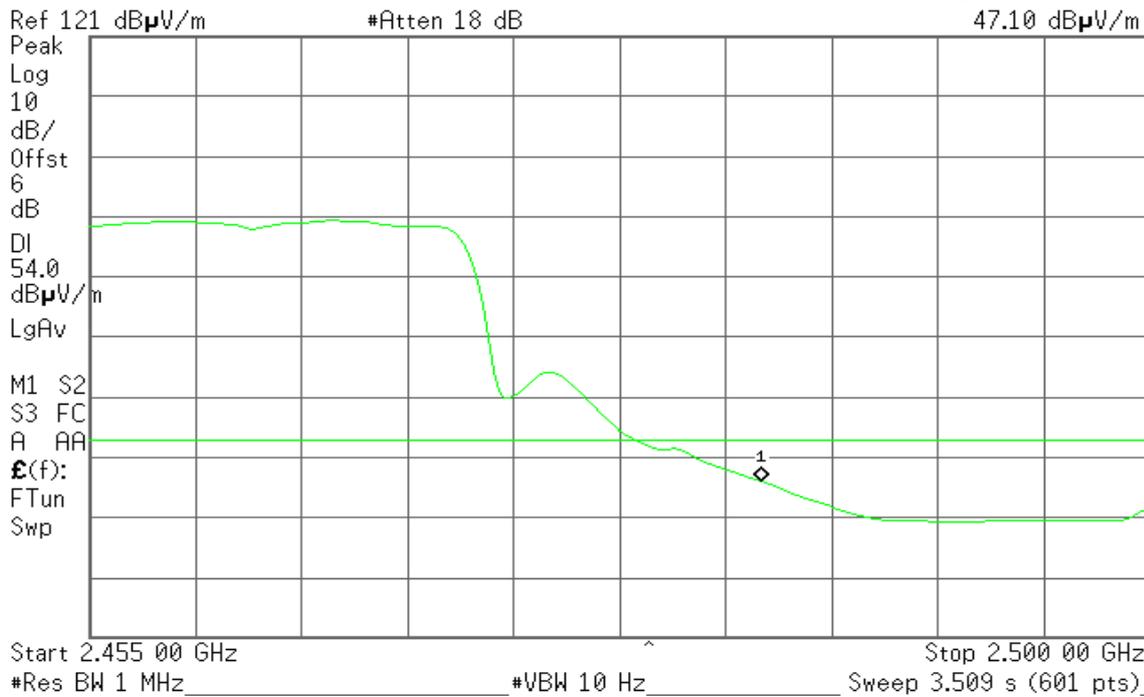
Detector mode: Average

Polarity: Horizontal

Agilent

T

Mkr1 2.483 50 GHz
 47.10 dB μ V/m



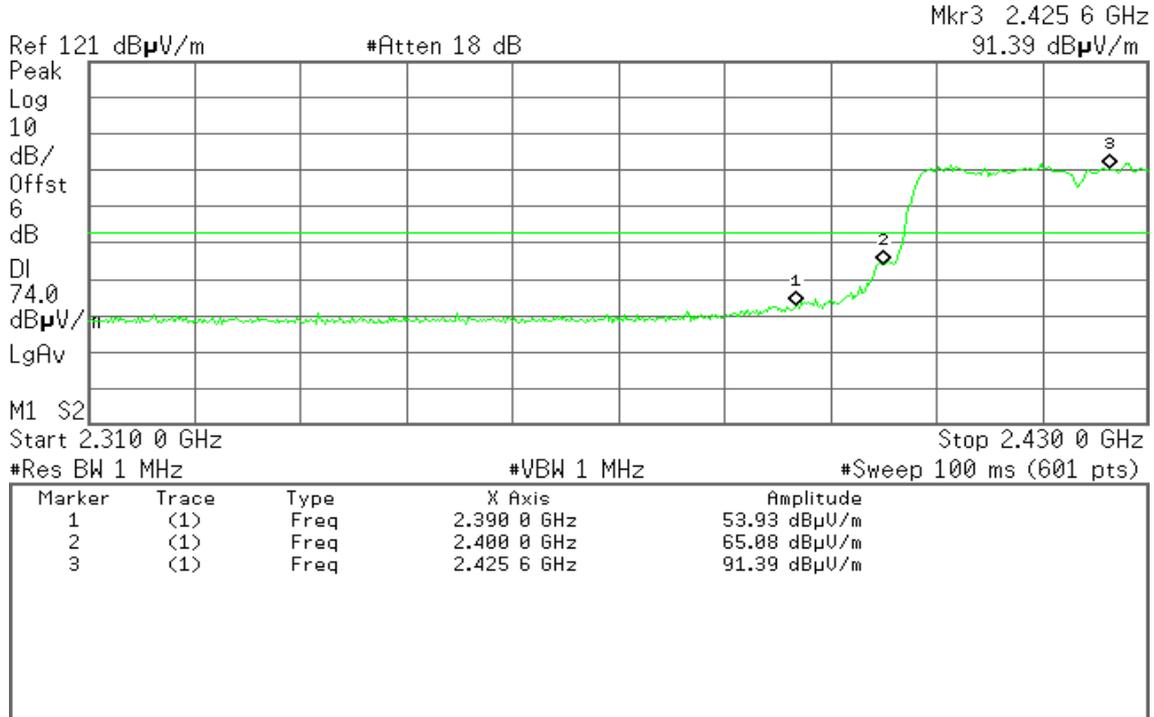
Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

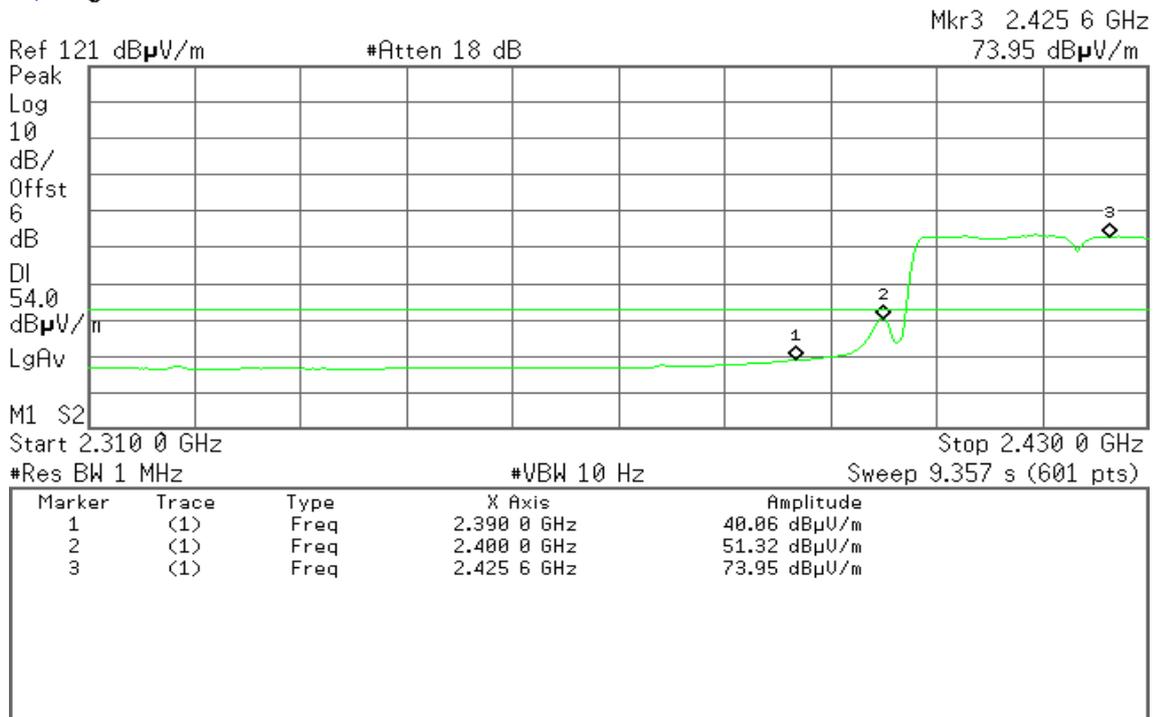


Detector mode: Average

Polarity: Vertical

Agilent

R T

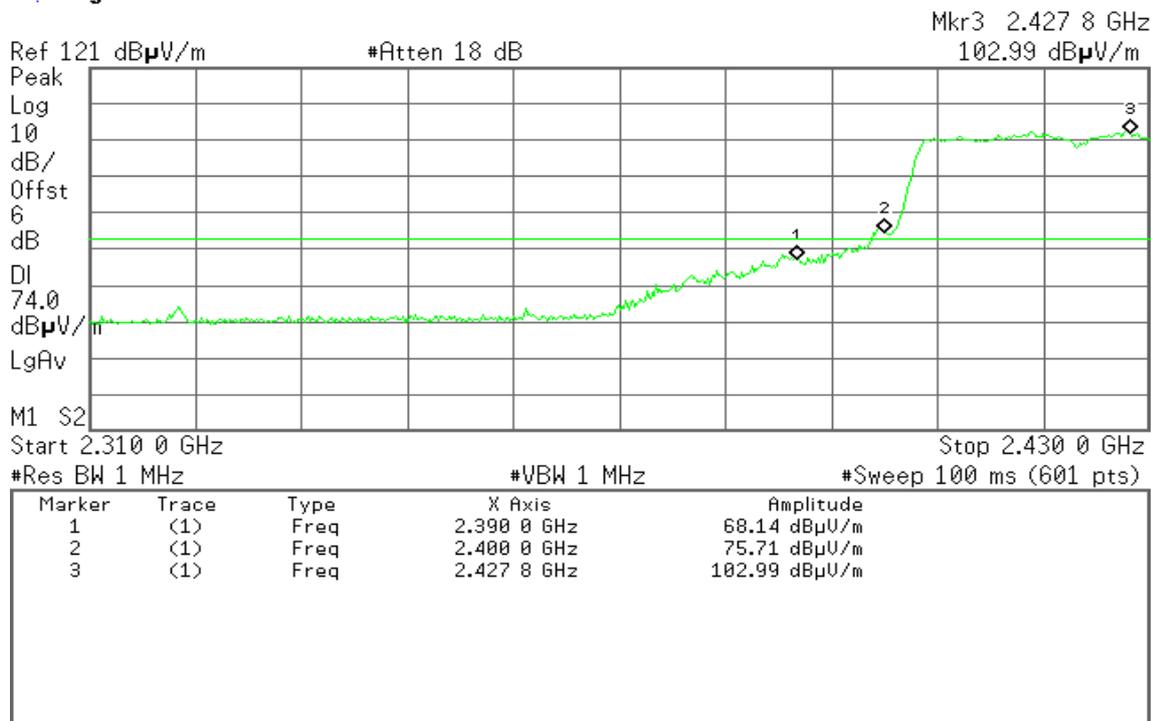


Detector mode: Peak

Polarity: Horizontal

Agilent

R T

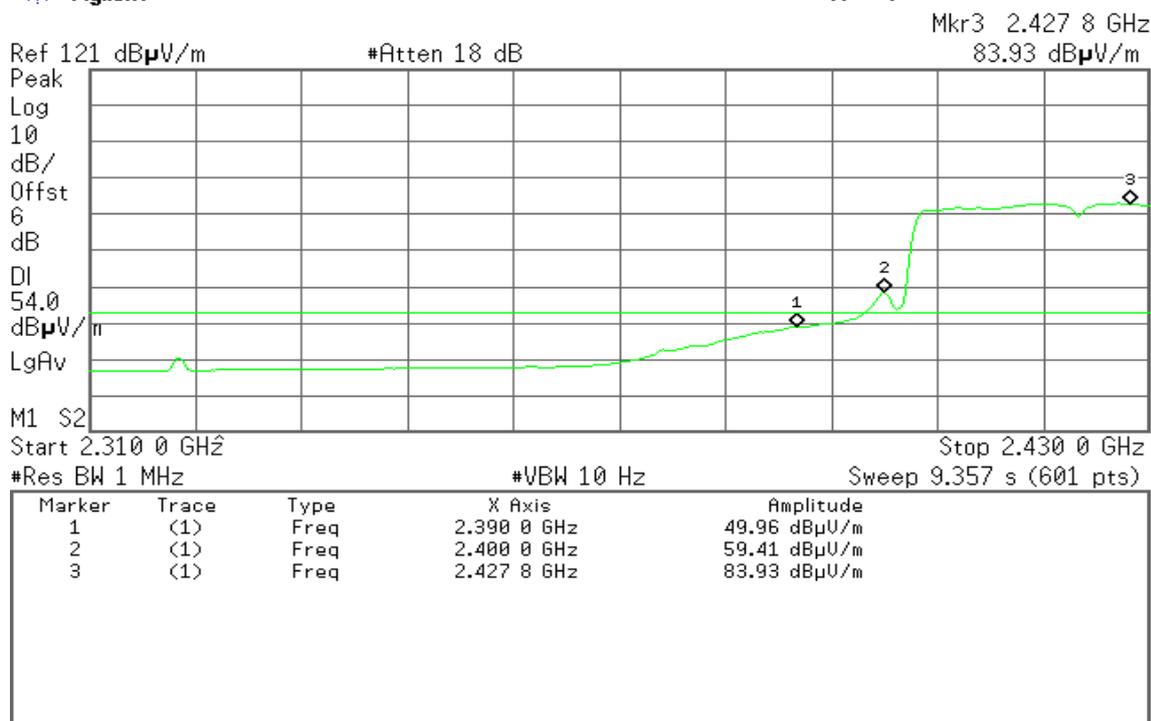


Detector mode: Average

Polarity: Horizontal

Agilent

R T



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

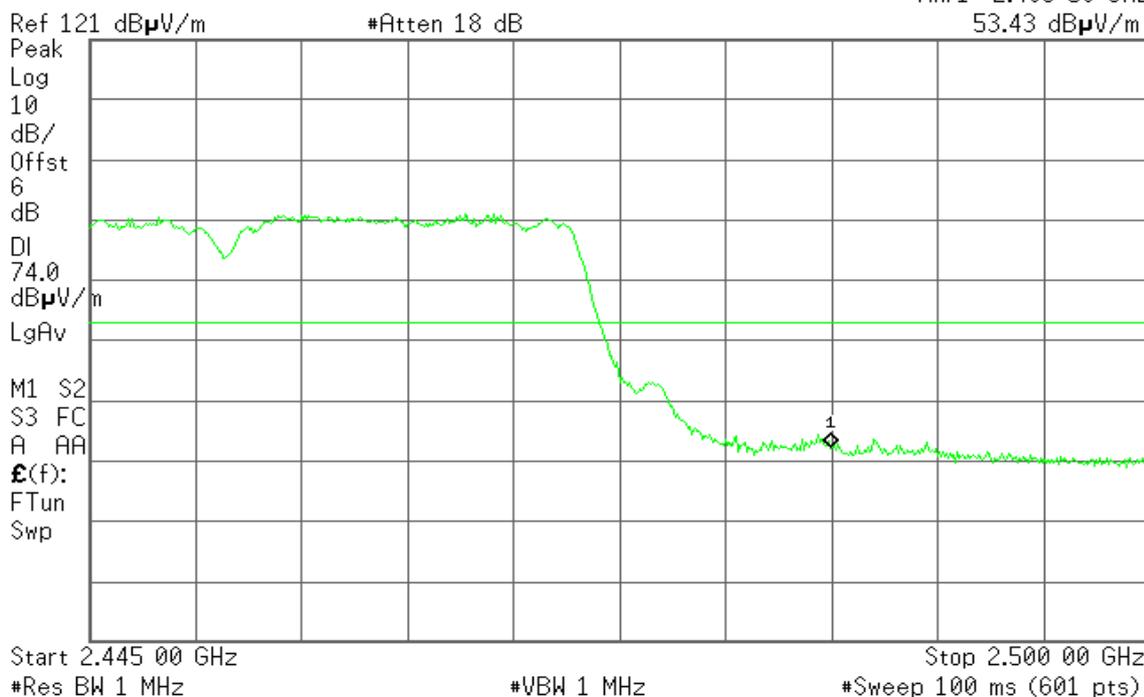
Detector mode: Peak

Polarity: Vertical

Agilent 09:11:56 Nov 14, 2011

R T

Mkr1 2.483 50 GHz
 53.43 dB μ V/m



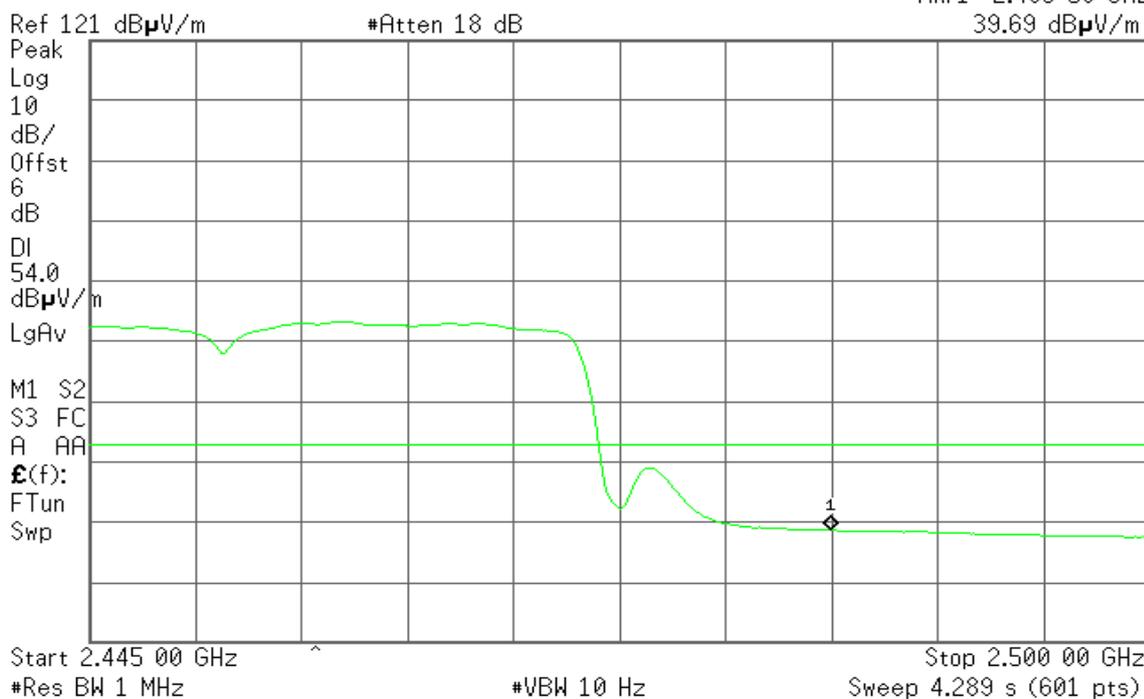
Detector mode: Average

Polarity: Vertical

Agilent 09:12:20 Nov 14, 2011

R T

Mkr1 2.483 50 GHz
 39.69 dB μ V/m



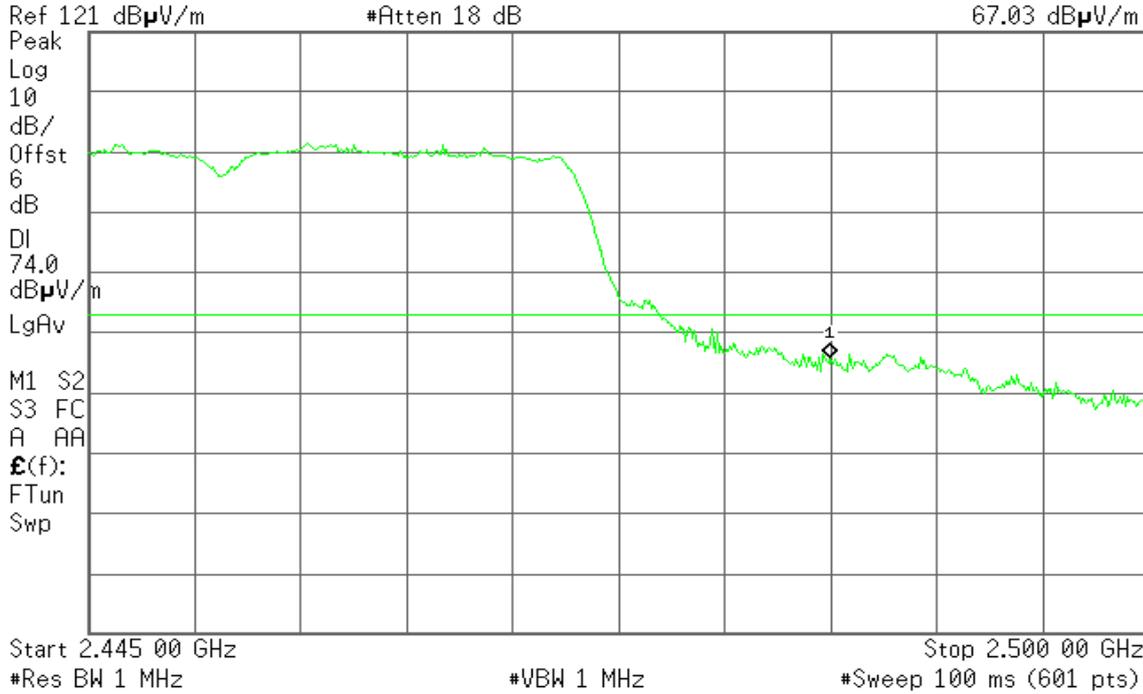
Detector mode: Peak

Polarity: Horizontal

Agilent 09:17:57 Nov 14, 2011

R T

Mkr1 2.483 50 GHz
 67.03 dB μ V/m

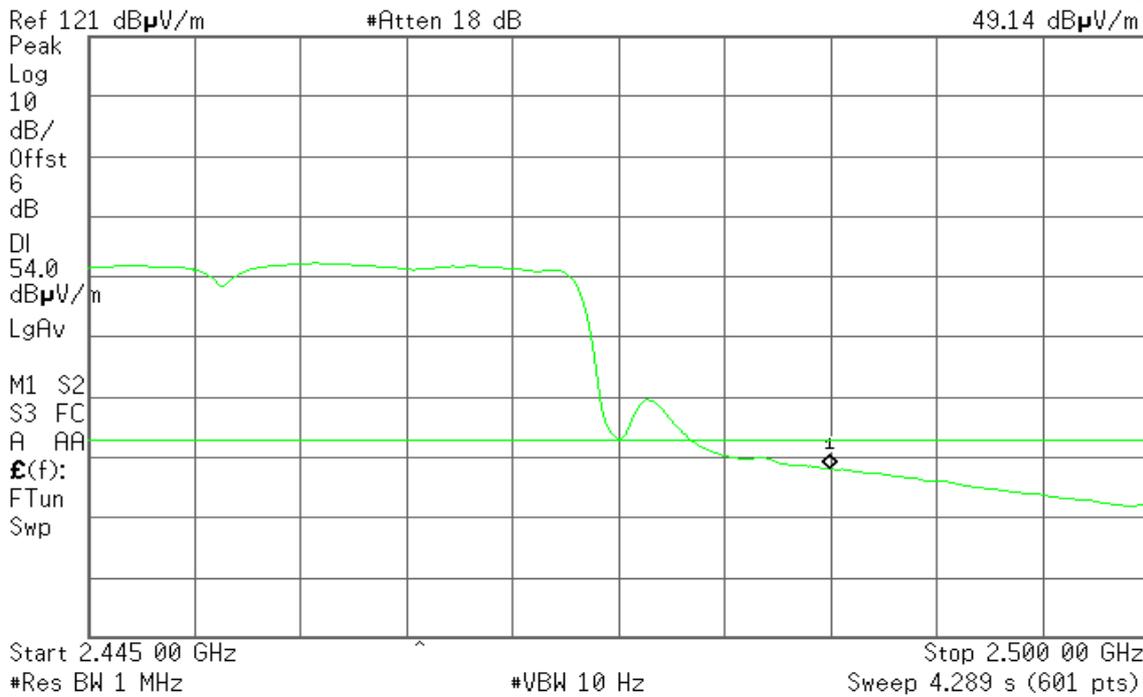


Detector mode: Average Polarity: Horizontal

Agilent 09:18:16 Nov 14, 2011

R T

Mkr1 2.483 50 GHz
 49.14 dB μ V/m



For Mode 3

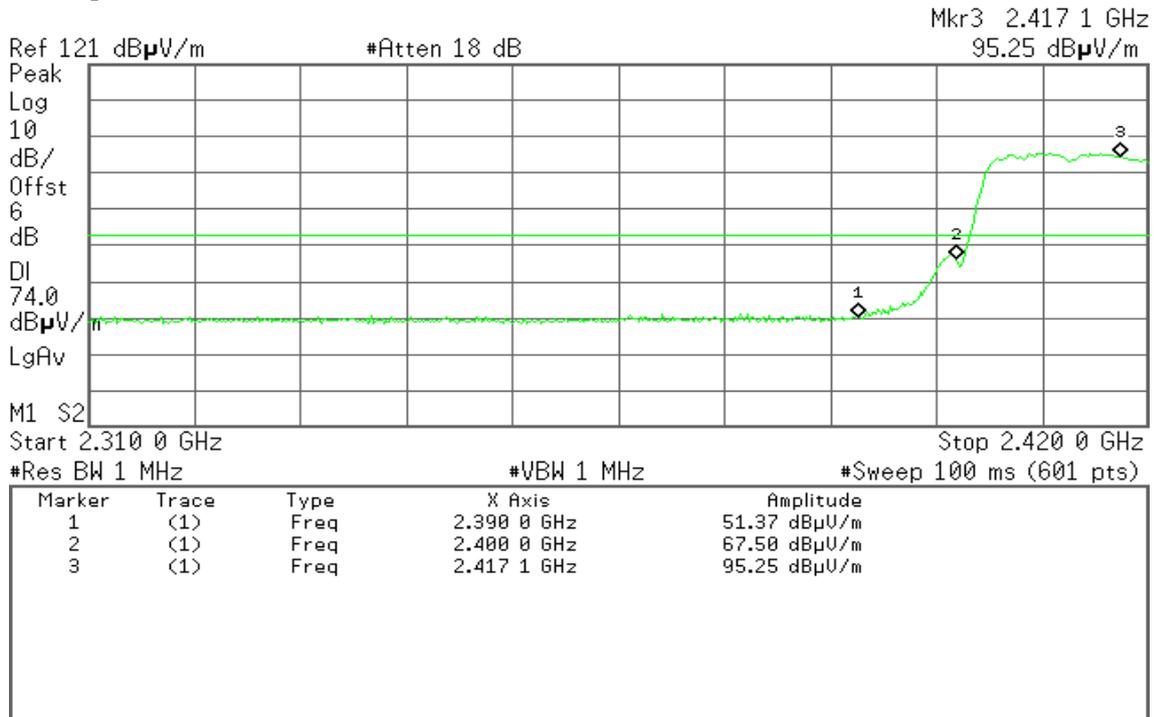
Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 20:40:34 17 Nov 2011

R T

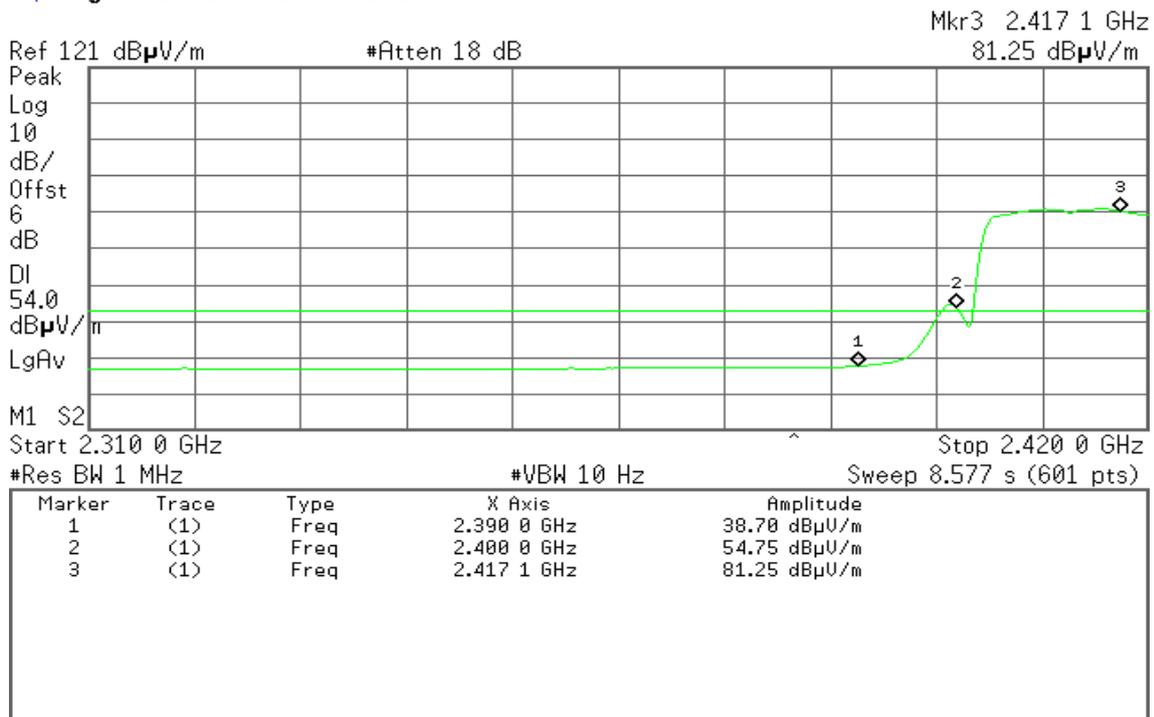


Detector mode: Average

Polarity: Vertical

Agilent 20:41:09 17 Nov 2011

R T

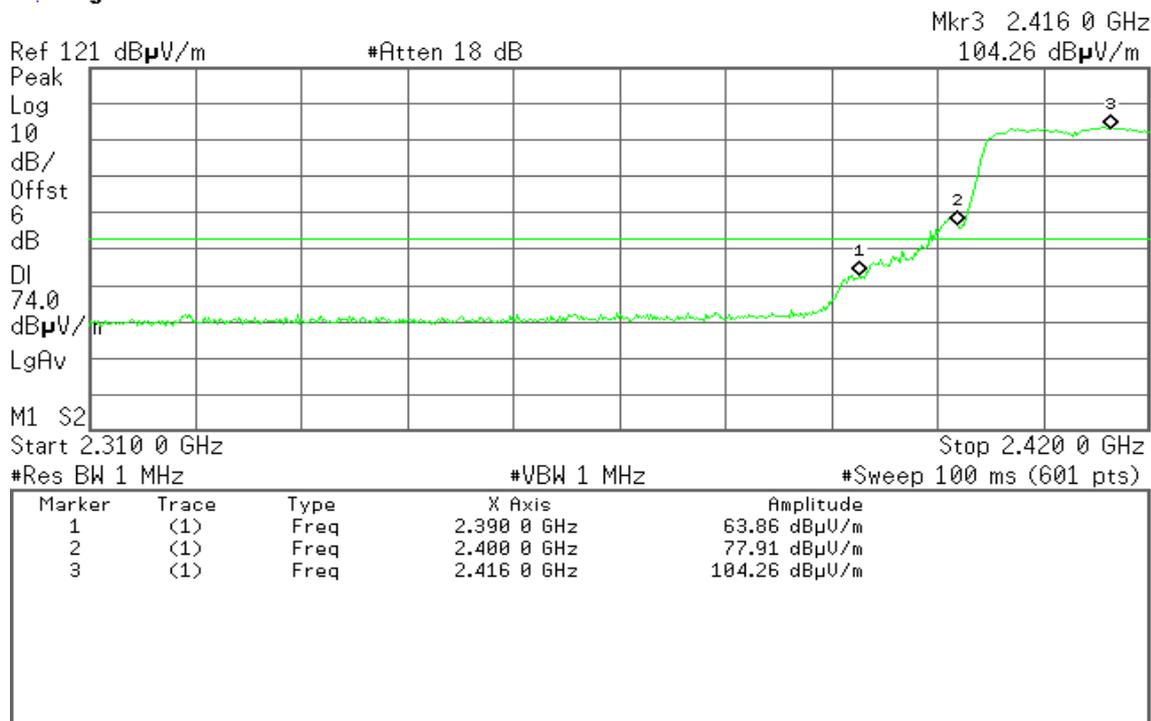


Detector mode: Peak

Polarity: Horizontal

Agilent 20:35:43 17 Nov 2011

R T

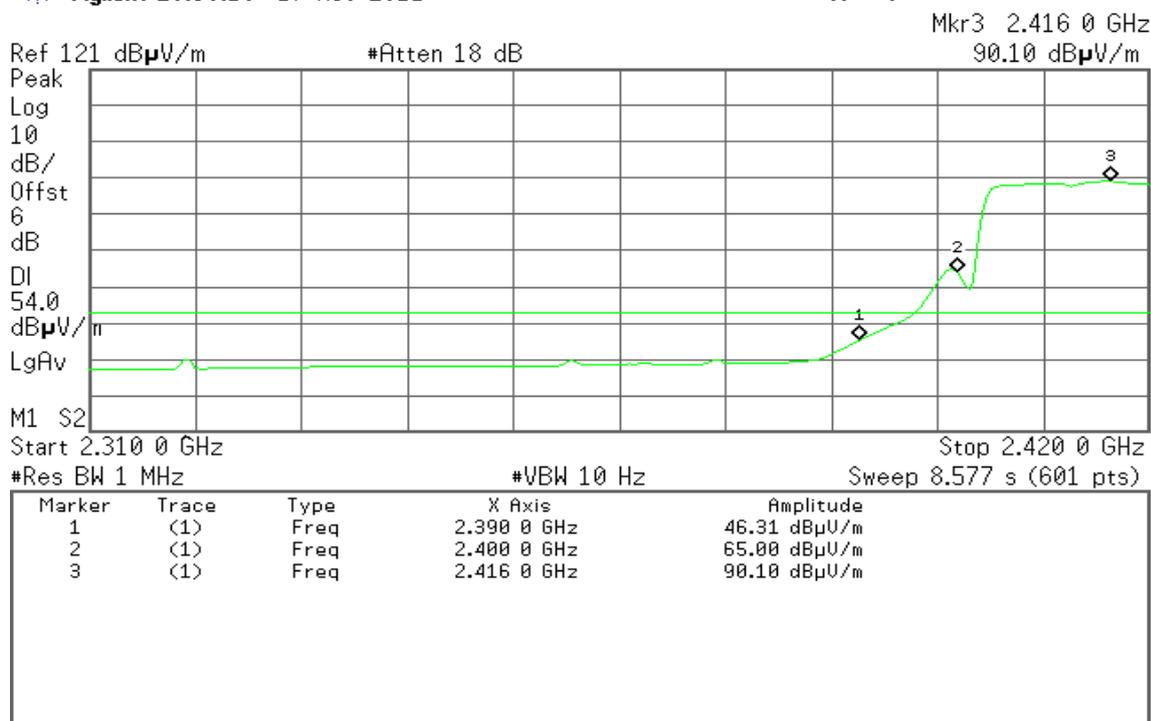


Detector mode: Average

Polarity: Horizontal

Agilent 20:36:10 17 Nov 2011

R T



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

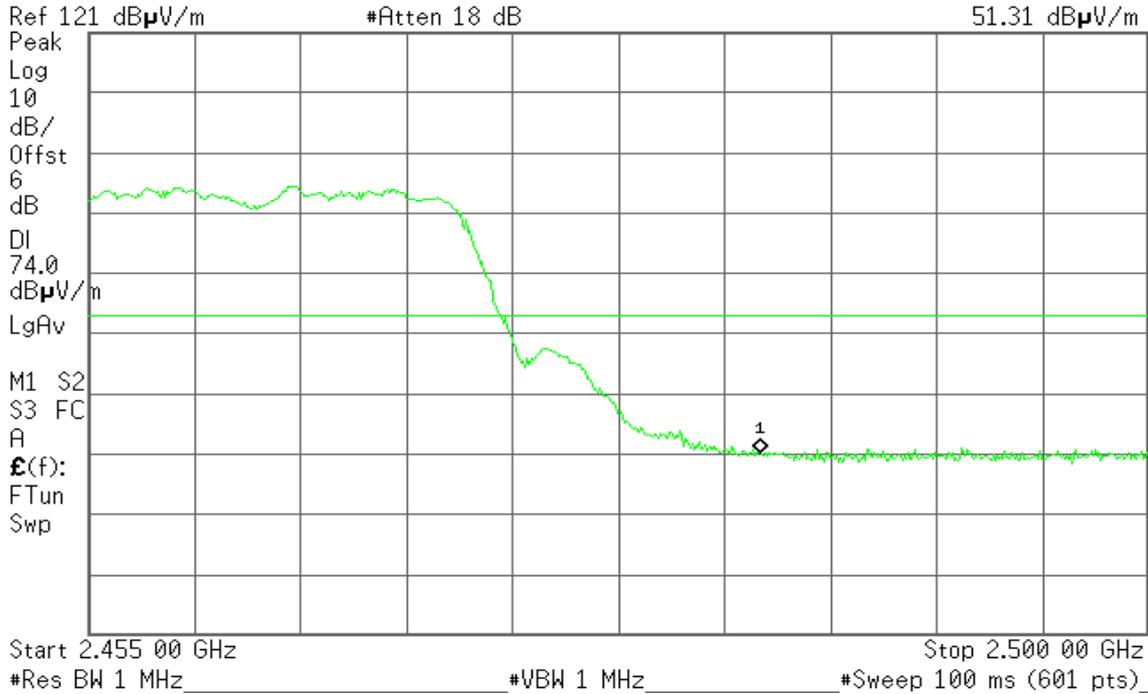
Detector mode: Peak

Polarity: Vertical

Agilent 20:25:38 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 51.31 dB μ V/m



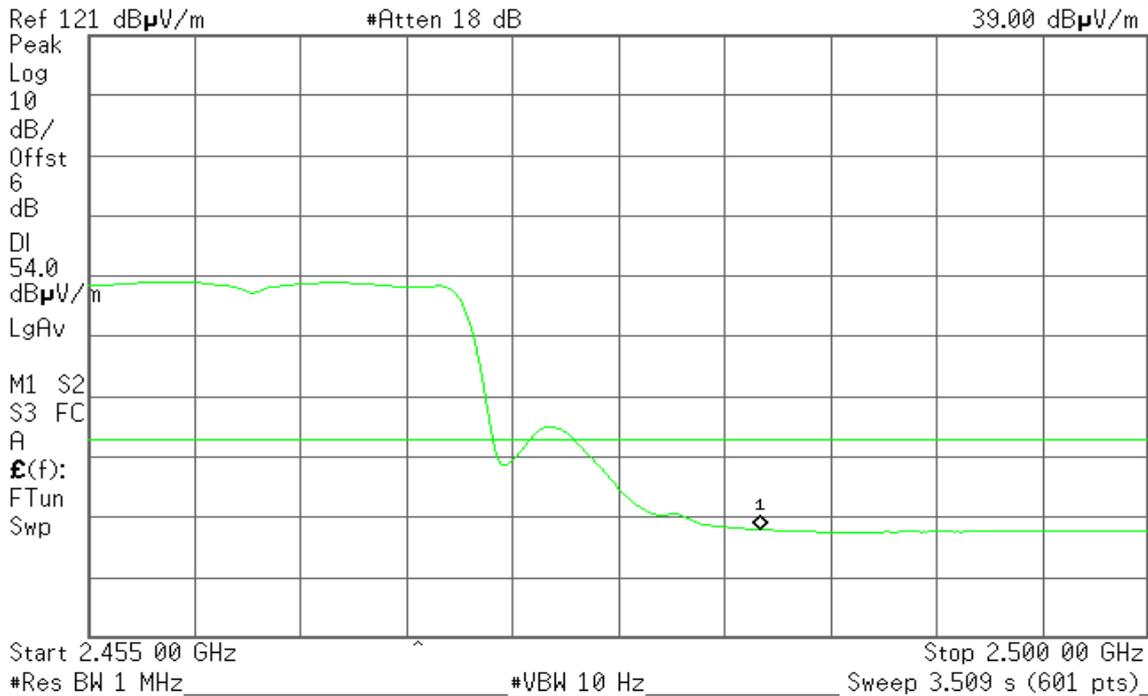
Detector mode: Average

Polarity: Vertical

Agilent 20:26:47 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 39.00 dB μ V/m



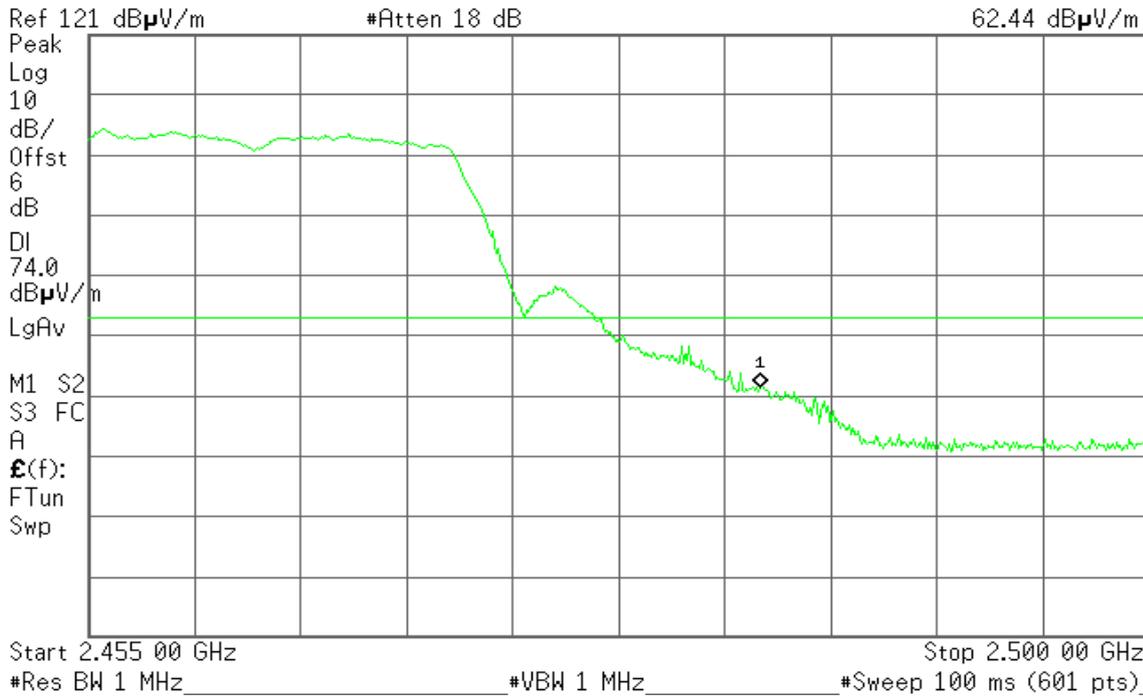
Detector mode: Peak

Polarity: Horizontal

Agilent 20:30:51 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 62.44 dB μ V/m



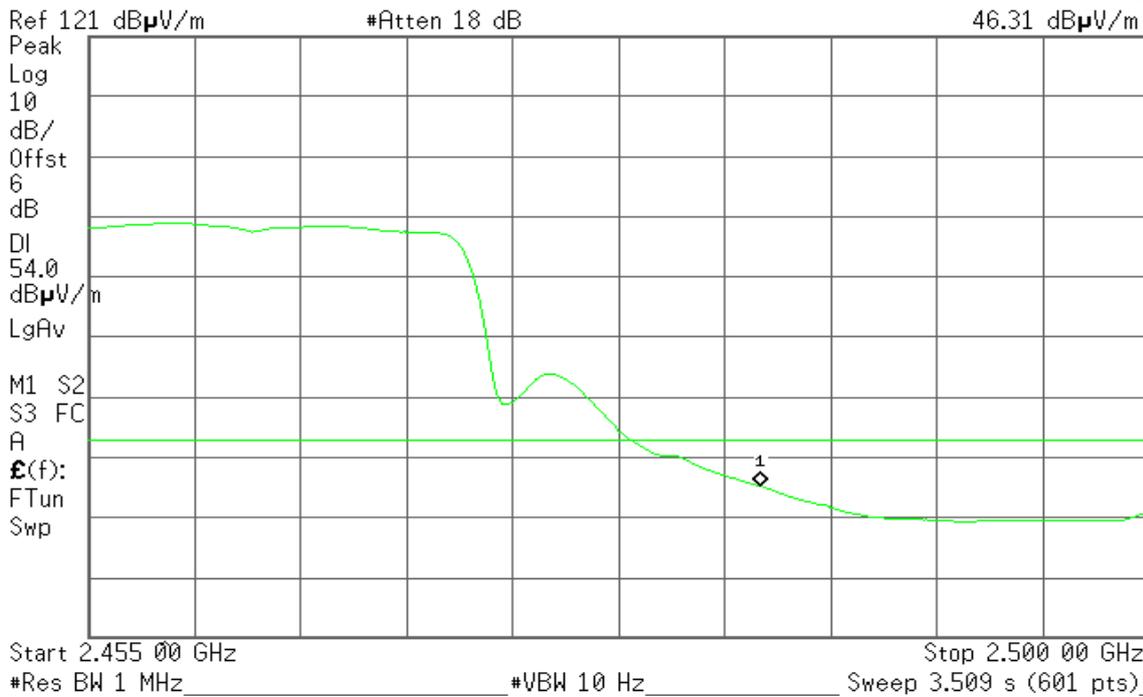
Detector mode: Average

Polarity: Horizontal

Agilent 20:31:18 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 46.31 dB μ V/m



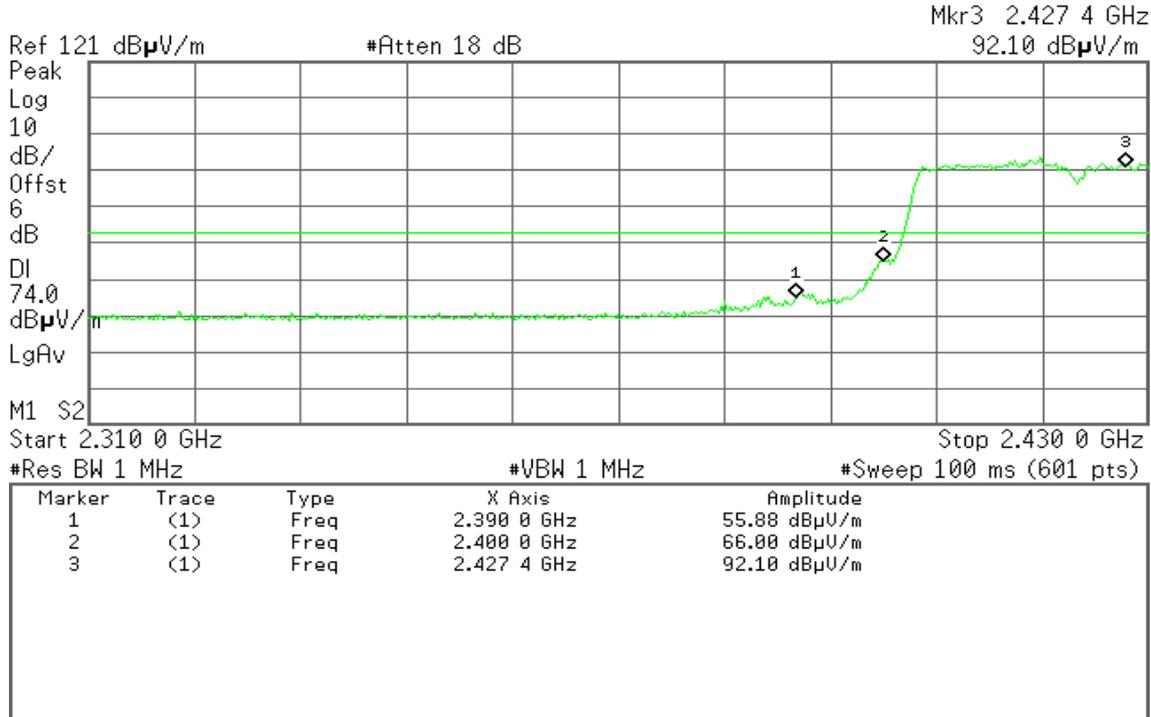
Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 20:19:32 17 Nov 2011

R T

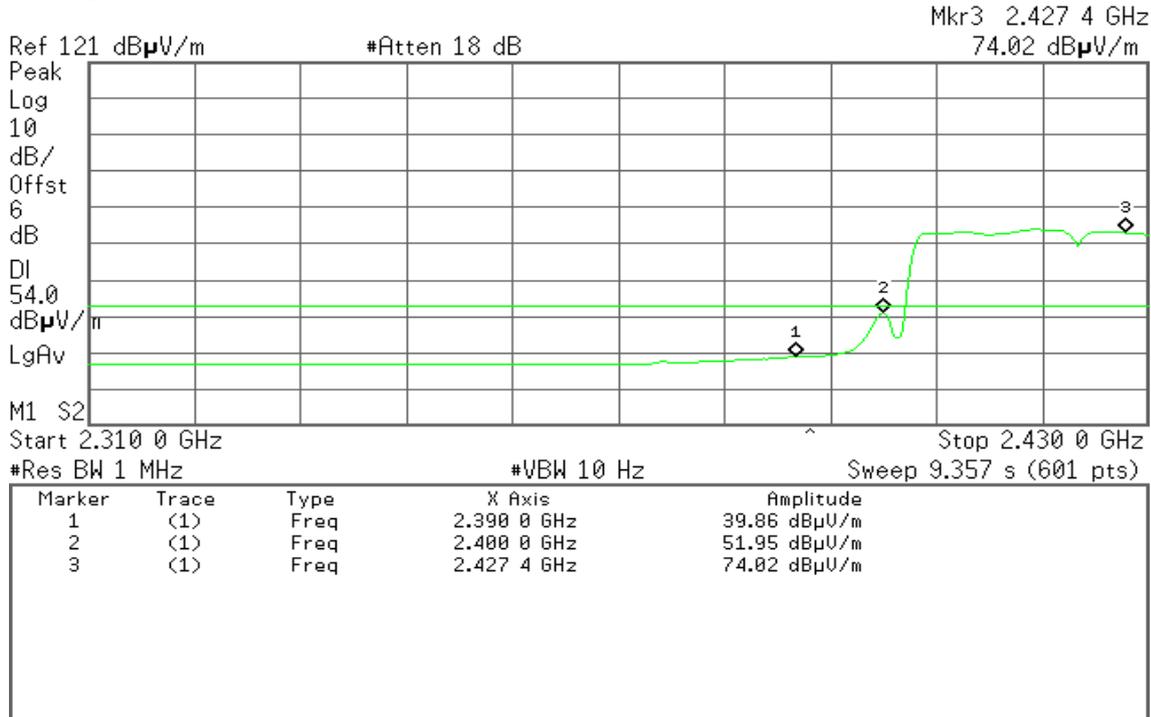


Detector mode: Average

Polarity: Vertical

Agilent 20:20:08 17 Nov 2011

R T

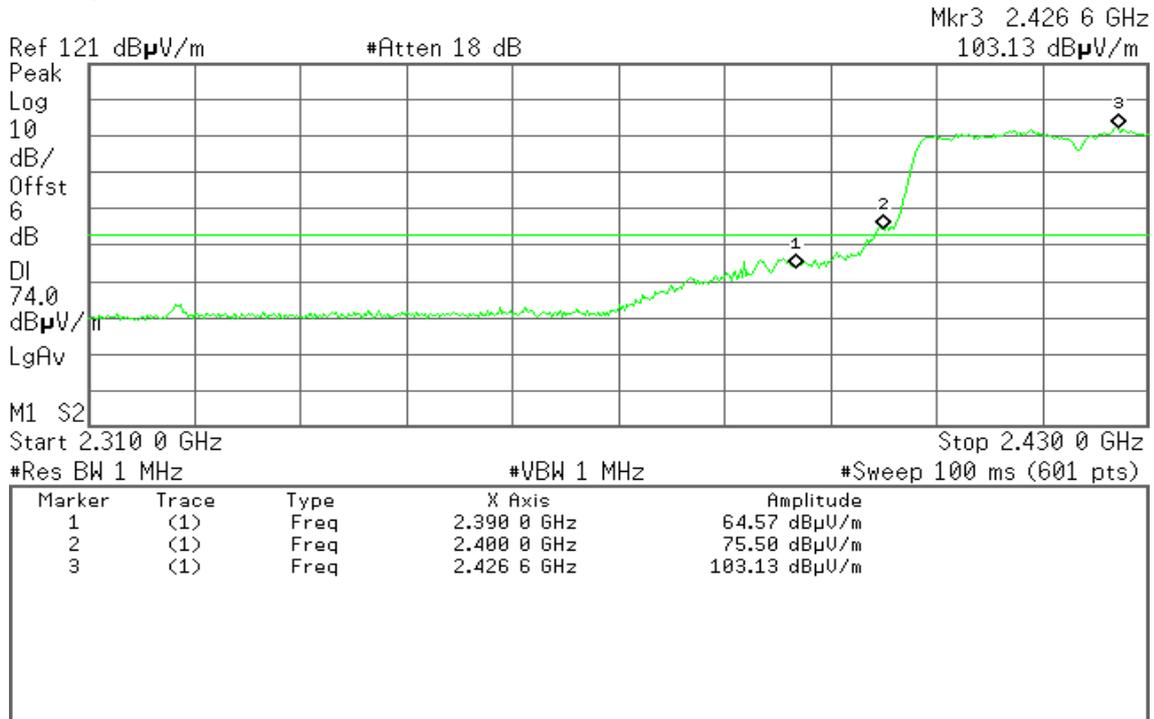


Detector mode: Peak

Polarity: Horizontal

Agilent 20:13:56 17 Nov 2011

R T

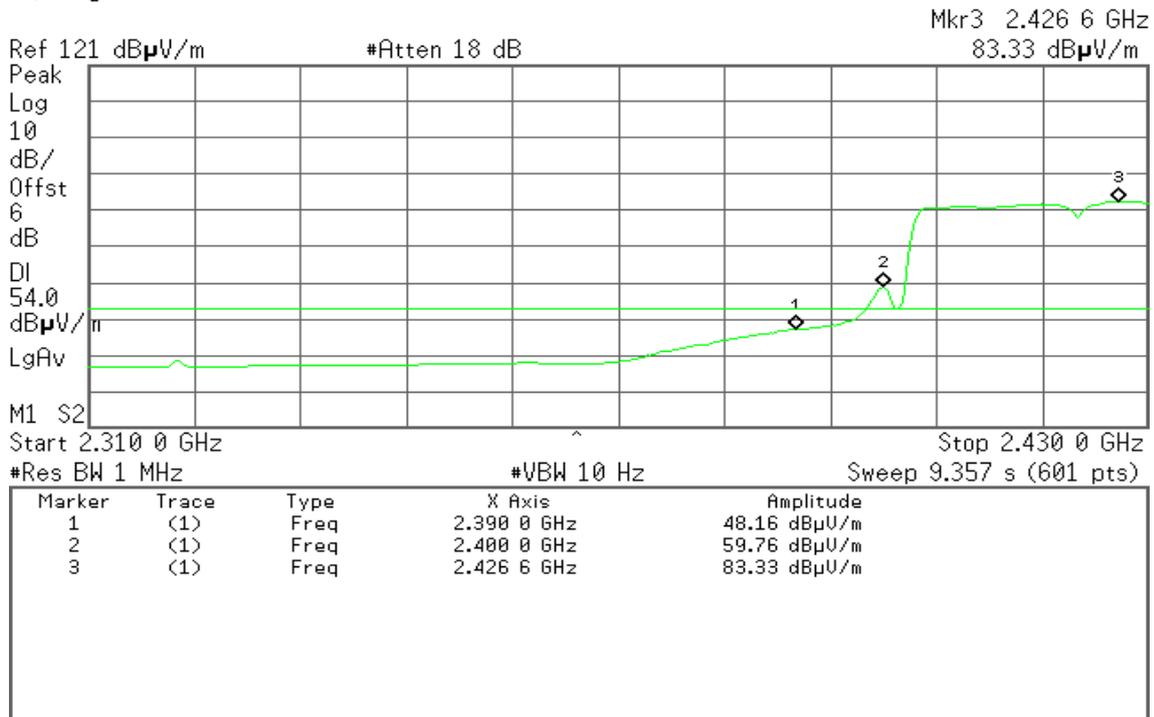


Detector mode: Average

Polarity: Horizontal

Agilent 20:14:20 17 Nov 2011

R T



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

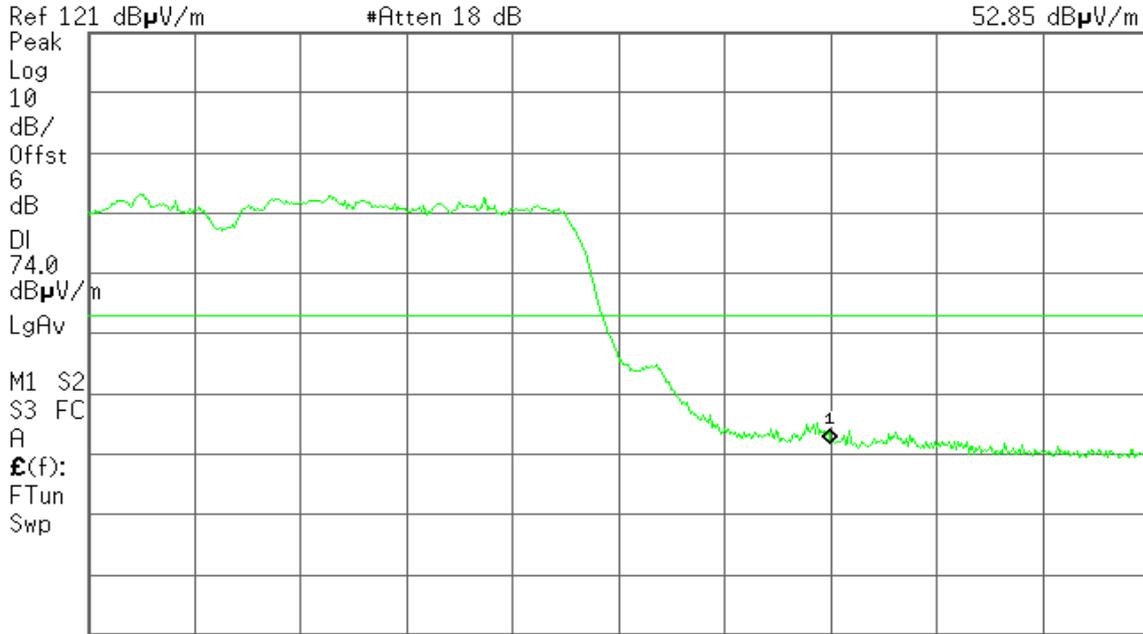
Detector mode: Peak

Polarity: Vertical

Agilent 20:03:20 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 52.85 dB μ V/m



Start 2.445 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

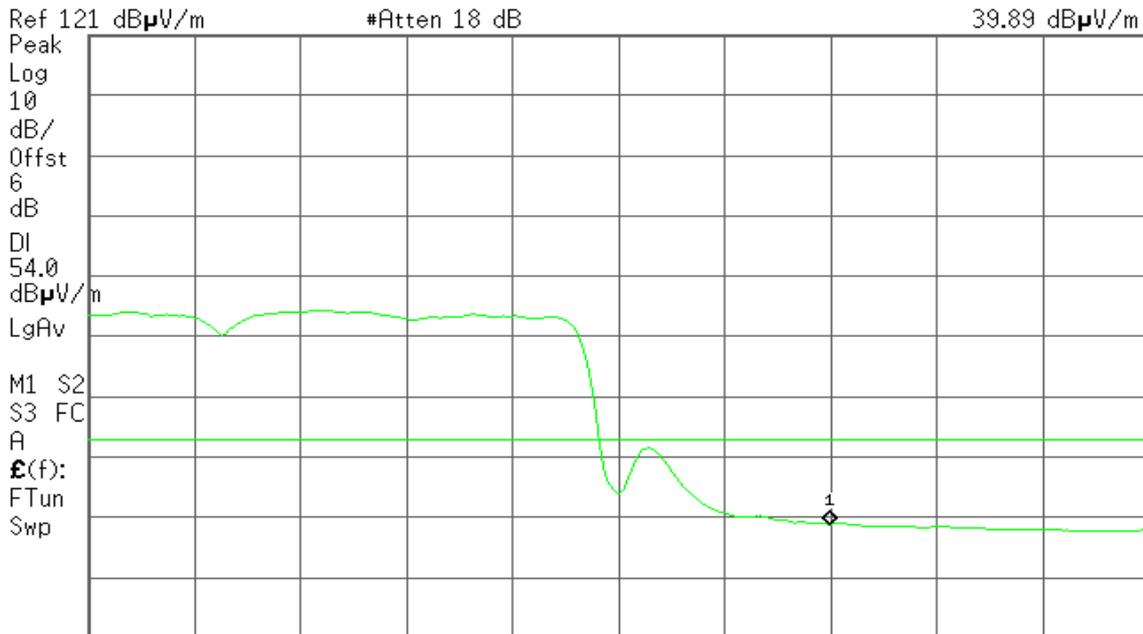
Detector mode: Average

Polarity: Vertical

Agilent 20:03:38 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 39.89 dB μ V/m



Start 2.445 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 4.289 s (601 pts)

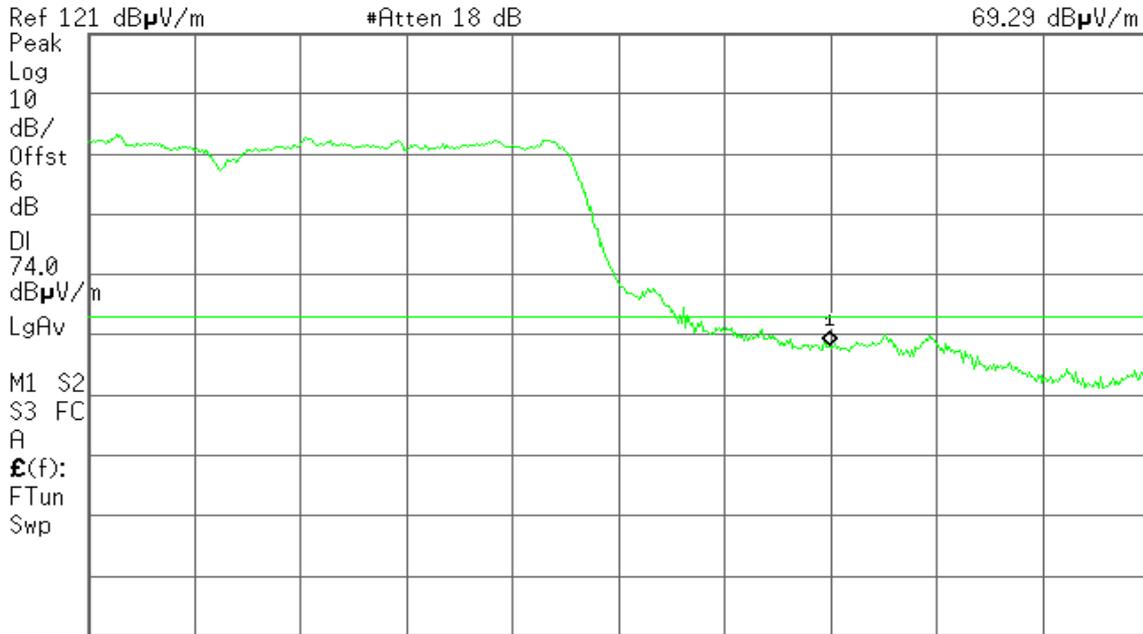
Detector mode: Peak

Polarity: Horizontal

Agilent 20:08:07 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 69.29 dB μ V/m



Start 2.445 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

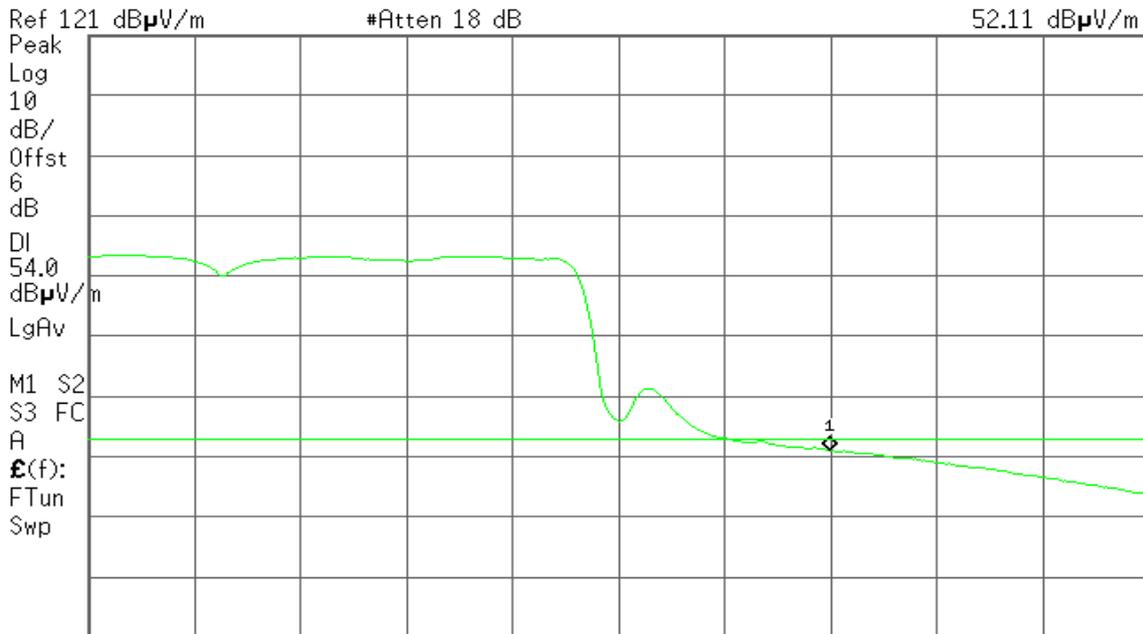
Detector mode: Average

Polarity: Horizontal

Agilent 20:08:27 17 Nov 2011

R T

Mkr1 2.483 50 GHz
 52.11 dB μ V/m



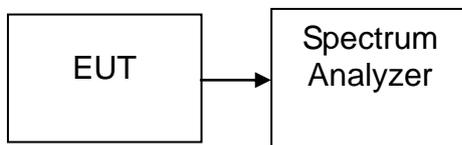
Start 2.445 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 4.289 s (601 pts)

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 = 3 kHz, VBW = 10 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.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-4.61	8.00	PASS
Mid	2442	-1.16		PASS
High	2462	-4.87		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.66	8.00	PASS
Mid	2442	-10.75		PASS
High	2462	-13.65		PASS

Test mode: IEEE 802.11n HT 20 MHz mode

Mode 1

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-17.23	-18.89	-14.97	6.49	PASS
Mid	2442	-13.92	-14.63	-11.25		PASS
High	2462	-16.89	-19.56	-15.01		PASS

Remark:

1. Total PPSD (dBm) = $10 \cdot \text{LOG}(10^{\text{Chain 0 PPSD} / 10} + 10^{\text{Chain 1 PPSD} / 10})$
2. The maximum antenna gain is 7.51dBi; therefore the reduction due to antenna gain is 1.51dBi, so the limit is 6.49dBm.

Mode 2

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-18.89	-19.40	-16.13	6.67	PASS
Mid	2442	-14.63	-12.83	-10.63		PASS
High	2462	-19.56	-18.81	-16.16		PASS

Remark:

1. Total PPSD (dBm) = $10 \cdot \text{LOG}(10^{\text{Chain 1 PPSD} / 10} + 10^{\text{Chain 2 PPSD} / 10})$
2. The maximum antenna gain is 7.33dBi; therefore the reduction due to antenna gain is 1.33dBi, so the limit is 6.67dBm.

Mode 3

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-17.23	-19.40	-15.17	6.85	PASS
Mid	2442	-13.92	-12.83	-10.33		PASS
High	2462	-16.89	-18.81	-14.73		PASS

Remark:

1. Total PPSD (dBm) = $10 \cdot \text{LOG}(10^{\text{Chain 0 PPSD} / 10} + 10^{\text{Chain 2 PPSD} / 10})$
2. The maximum antenna gain is 7.15dBi; therefore the reduction due to antenna gain is 1.15dBi, so the limit is 6.85dBm.

Test mode: IEEE 802.11n HT 40 MHz mode

Mode 1

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-19.89	-20.95	-17.38	6.49	PASS
Mid	2442	-15.18	-15.86	-12.50		PASS
High	2452	-20.63	-22.26	-18.36		PASS

Remark:

1. Total PPSD (dBm) = $10 * \text{LOG}(10^{\text{Chain 0 PPSD} / 10} + 10^{\text{Chain 1 PPSD} / 10})$
2. The maximum antenna gain is 7.51dBi; therefore the reduction due to antenna gain is 1.51dBi, so the limit is 6.49dBm.

Mode 2

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-20.95	-20.20	-17.55	6.67	PASS
Mid	2442	-15.86	-15.43	-12.63		PASS
High	2452	-22.26	-21.24	-18.71		PASS

Remark:

1. Total PPSD (dBm) = $10 * \text{LOG}(10^{\text{Chain 1 PPSD} / 10} + 10^{\text{Chain 2 PPSD} / 10})$
2. The maximum antenna gain is 7.33dBi; therefore the reduction due to antenna gain is 1.33dBi, so the limit is 6.679dBm.

Mode 3

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-19.89	-20.20	-17.03	6.85	PASS
Mid	2442	-15.18	-15.43	-12.29		PASS
High	2452	-20.63	-21.24	-17.91		PASS

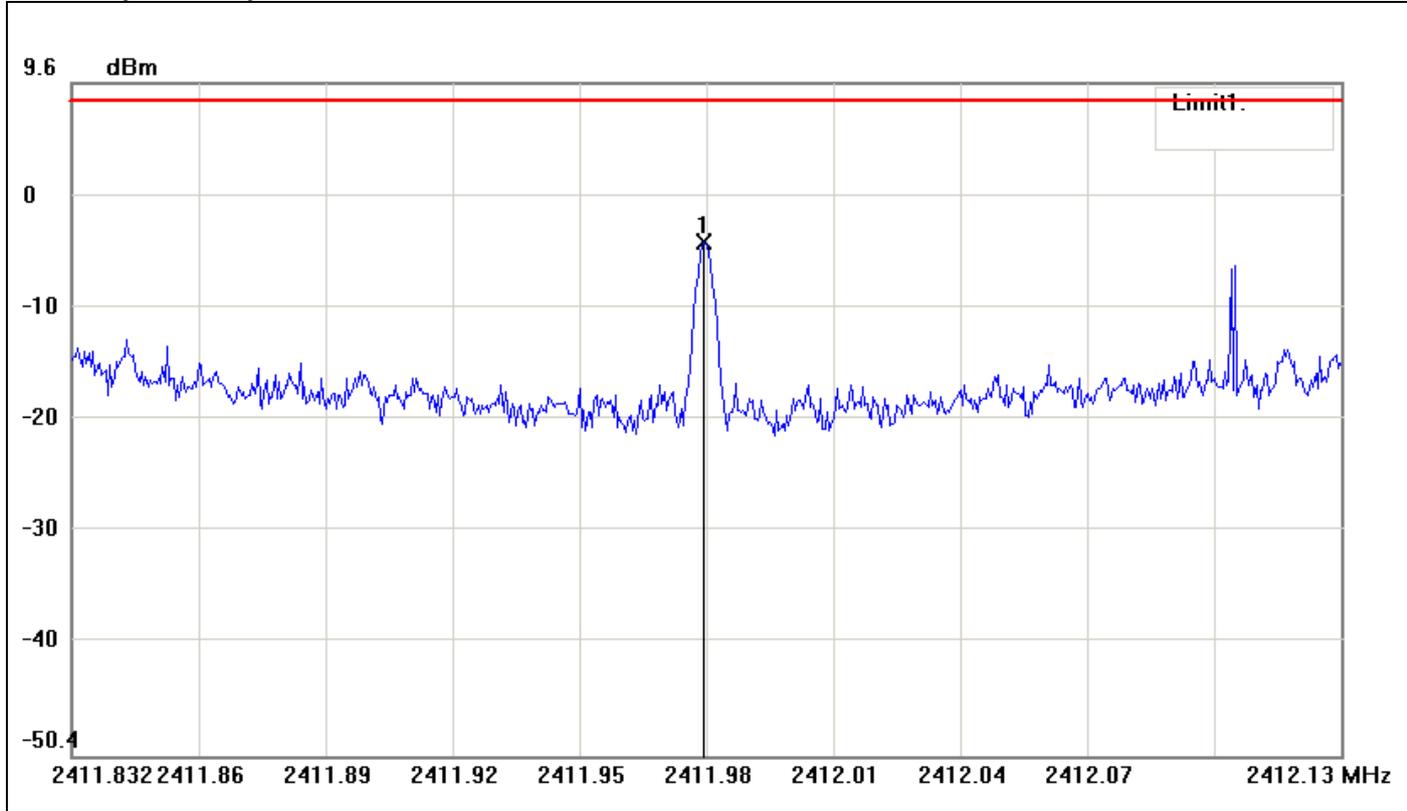
Remark:

1. Total PPSD (dBm) = $10 * \text{LOG}(10^{\text{Chain 0 PPSD} / 10} + 10^{\text{Chain 2 PPSD} / 10})$
2. The maximum antenna gain is 7.15dBi; therefore the reduction due to antenna gain is 1.15dBi, so the limit is 6.85dBm.

Test Plot

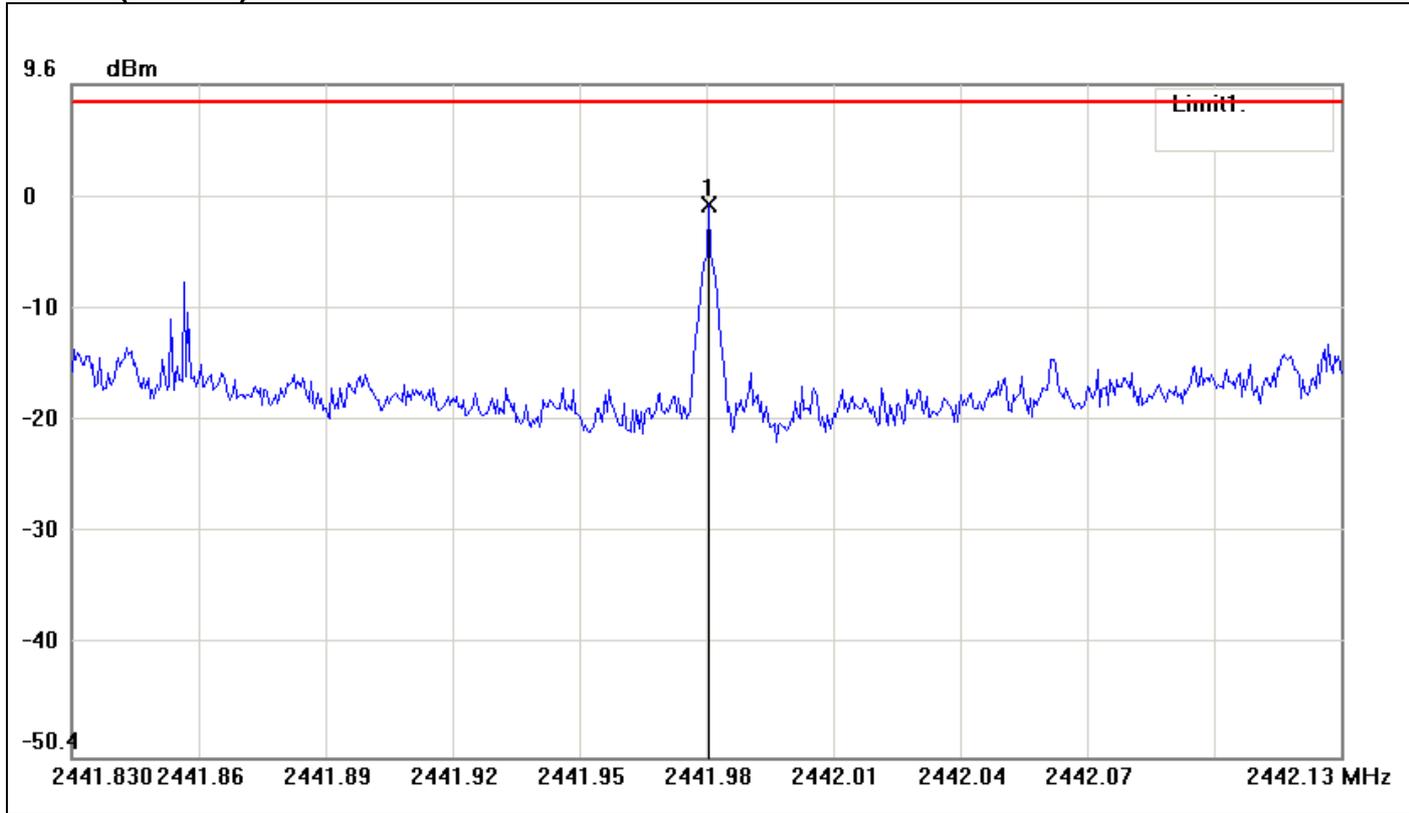
IEEE 802.11b mode

PPSD (CH Low)



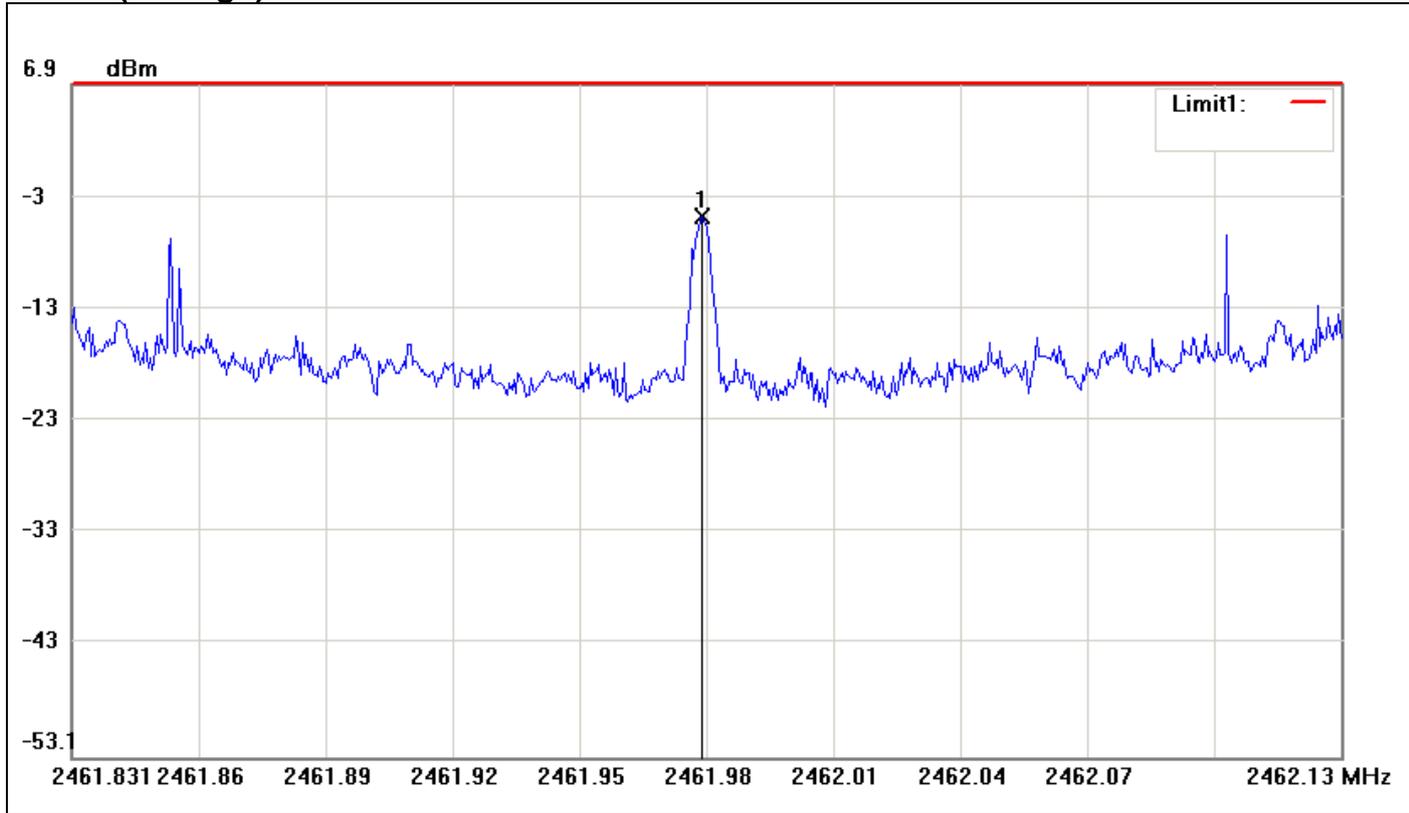
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2411.9811	-4.61	8.00	-12.61

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2441.9806	-1.16	8.00	-9.16

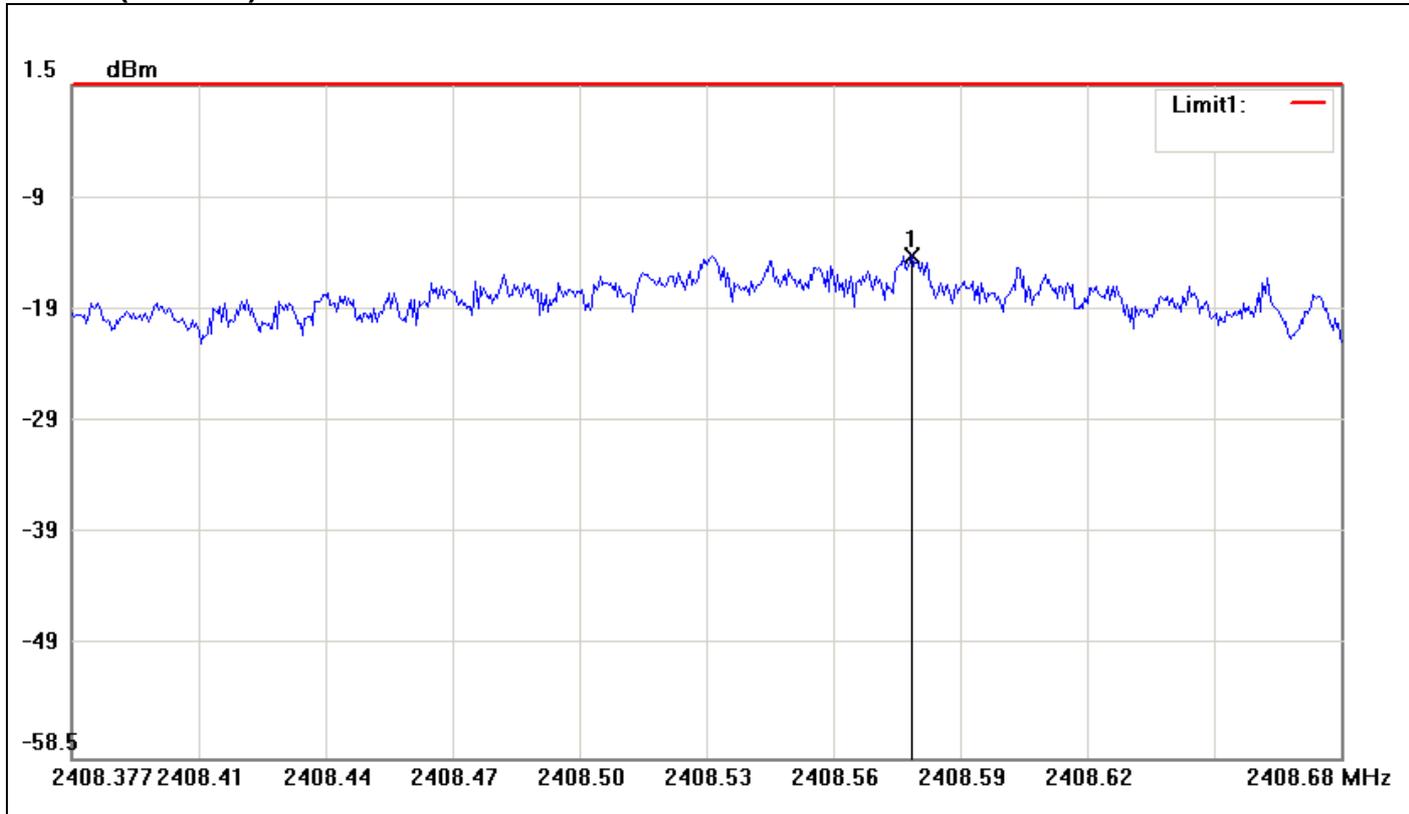
PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2461.9803	-4.87	8.00	-12.87

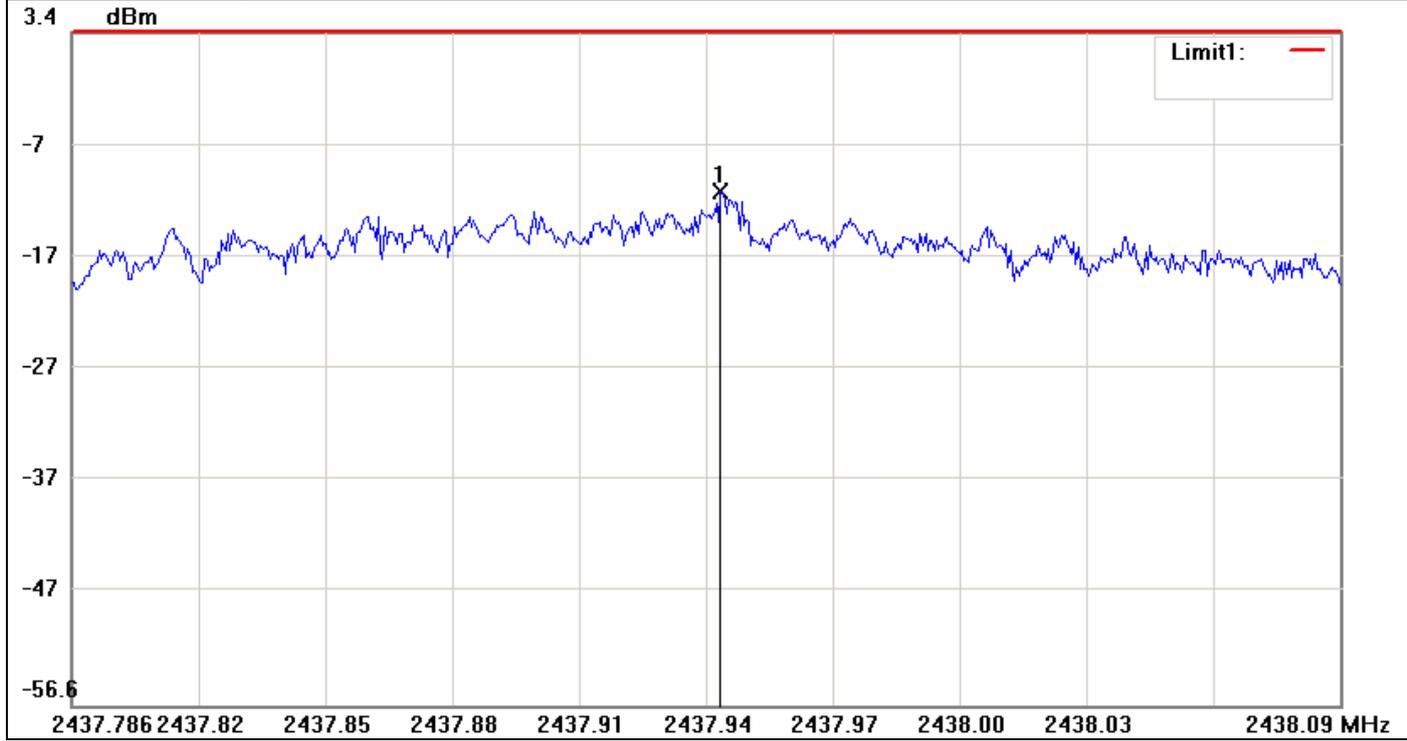
IEEE 802.11g mode

PPSD (CH Low)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2408.5755	-13.66	8.00	-21.66

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2442.9399	-10.75	8.00	-18.75

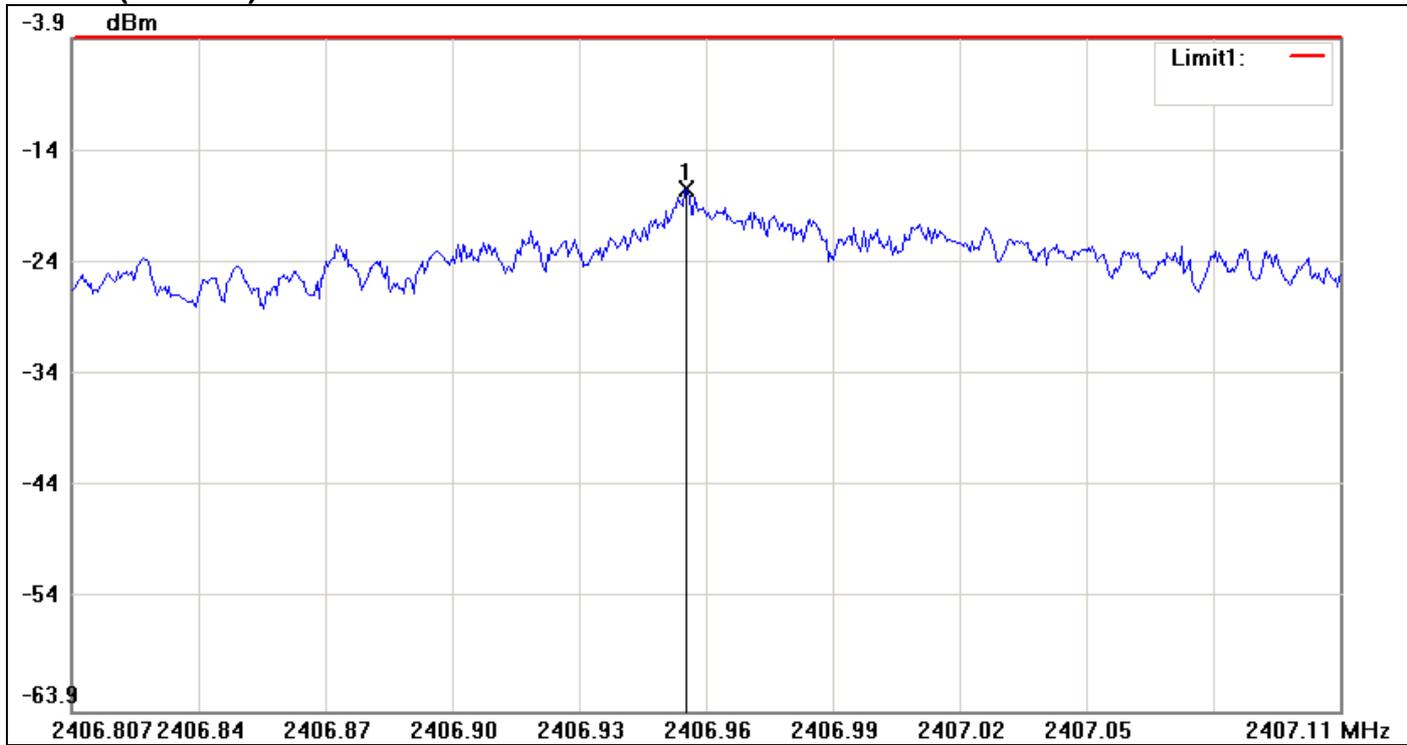
PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2457.3035	-13.65	8.00	-21.65

IEEE 802.11n HT 20 MHz mode / Chain 0

PPSD (CH Low)



No.	Frequency(MHz)	Level(dBm)
1	2406.9520	-17.23

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2436.7031	-13.92

PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2456.9512	-16.89

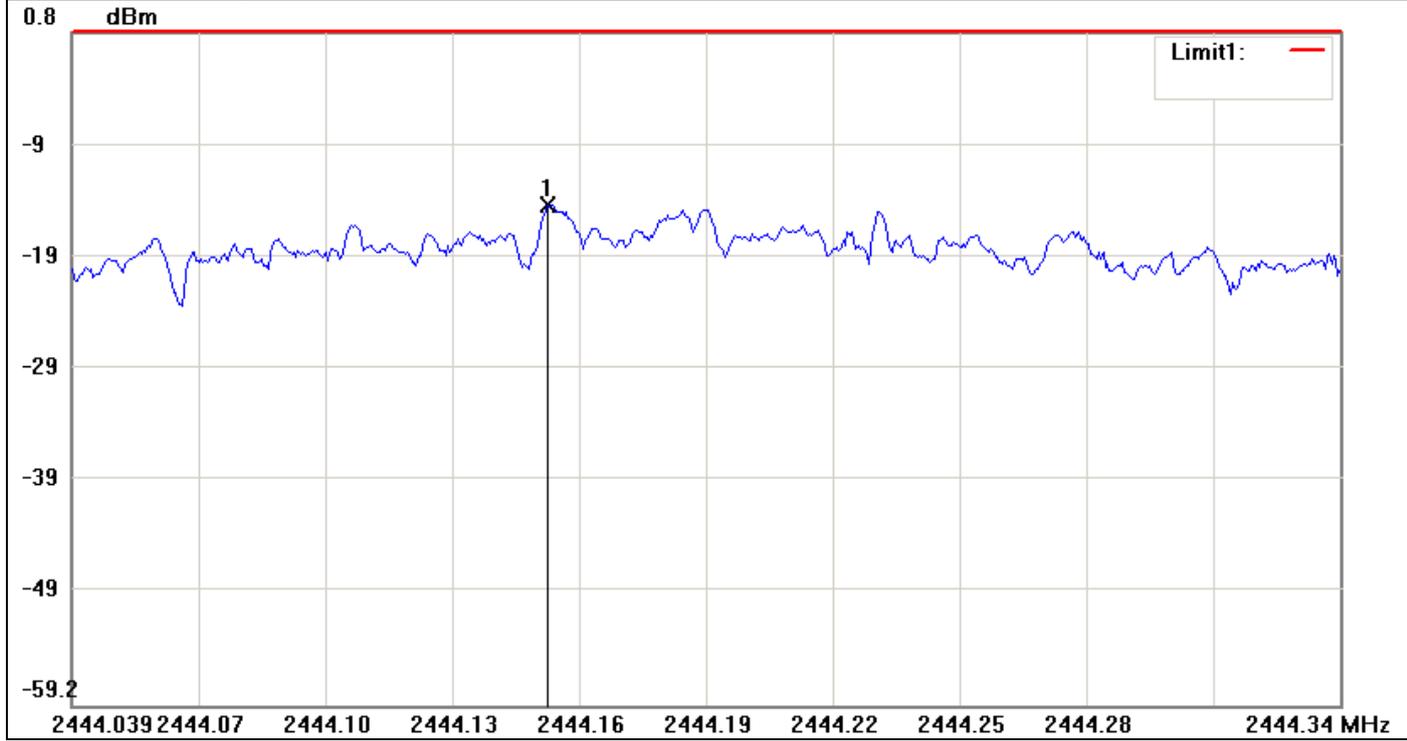
IEEE 802.11n HT 20 MHz mode / Chain 1

PPSD (CH Low)



No.	Frequency(MHz)	Level(dBm)
1	2415.7378	-18.89

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2444.1519	-14.63

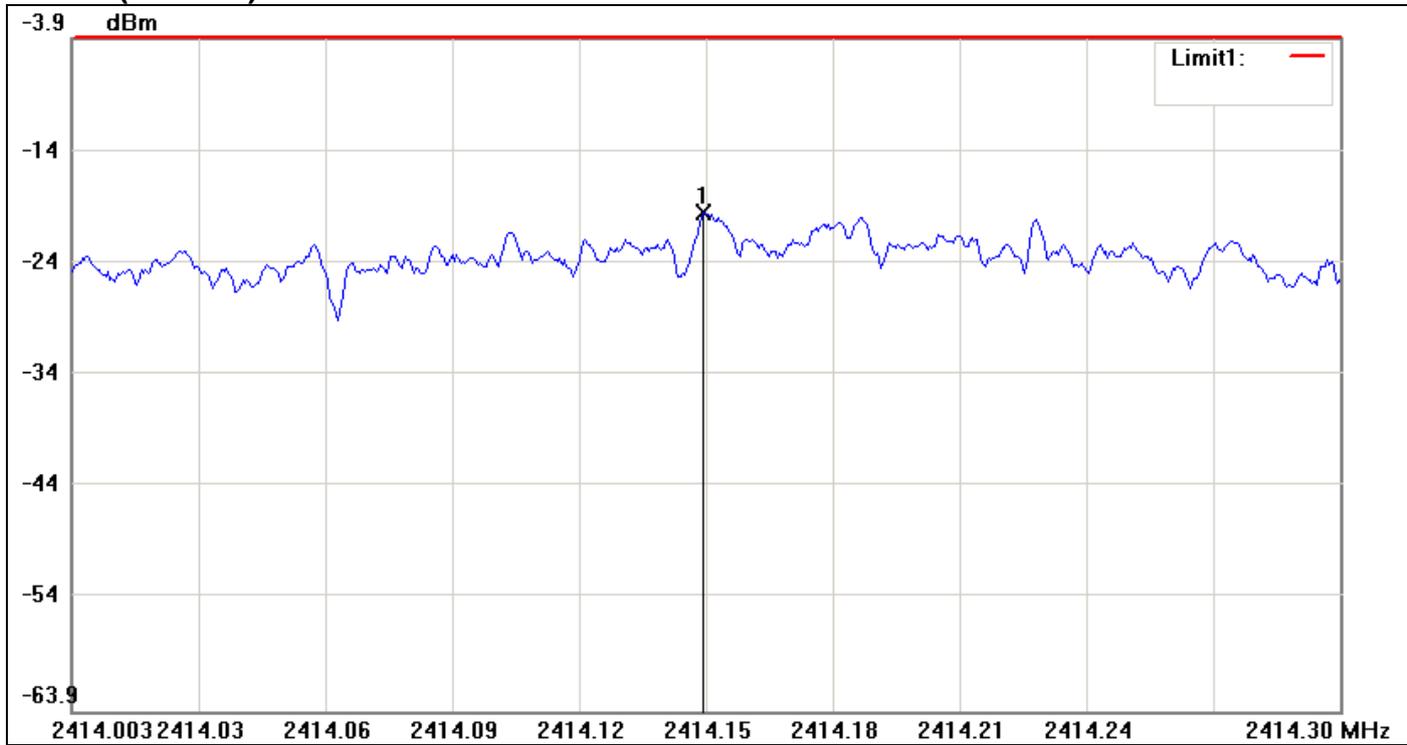
PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2466.9761	-19.56

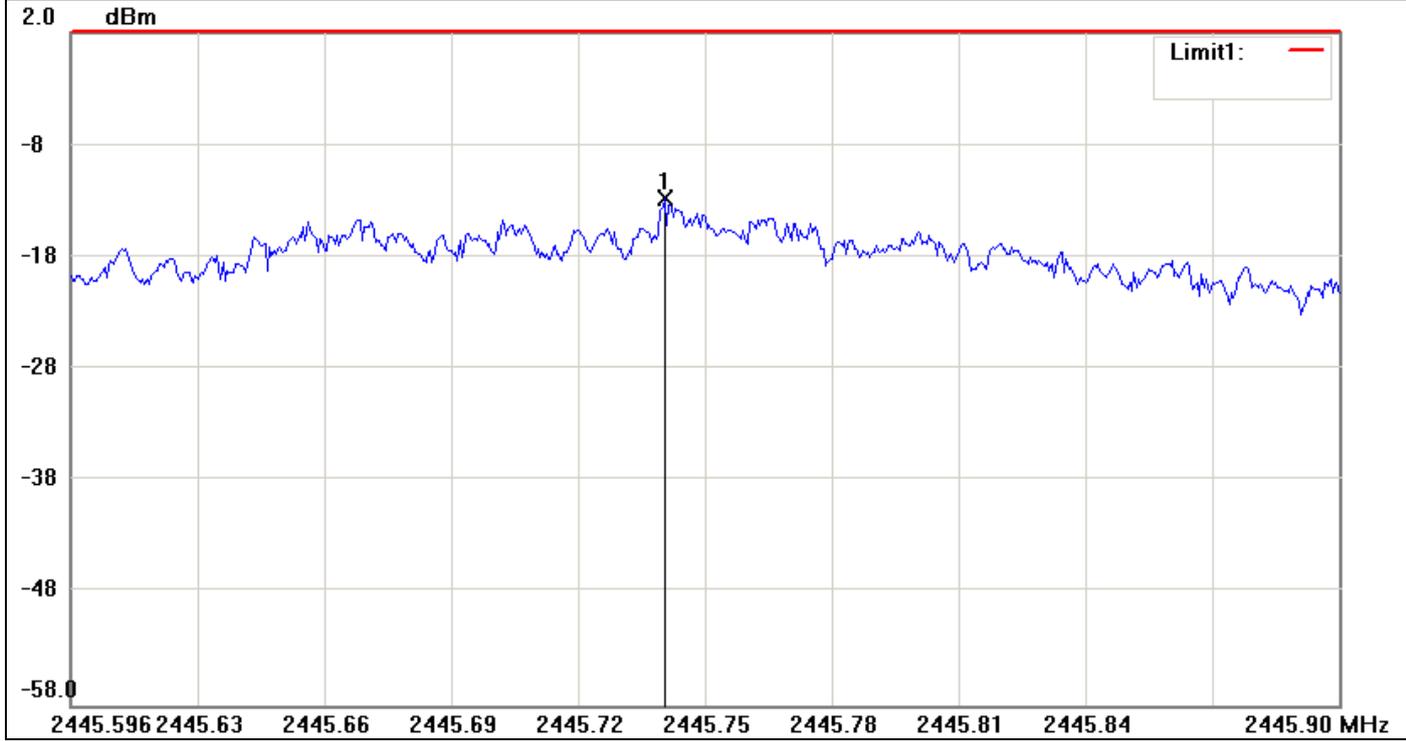
IEEE 802.11n HT 20 MHz mode / Chain 2

PPSD (CH Low)



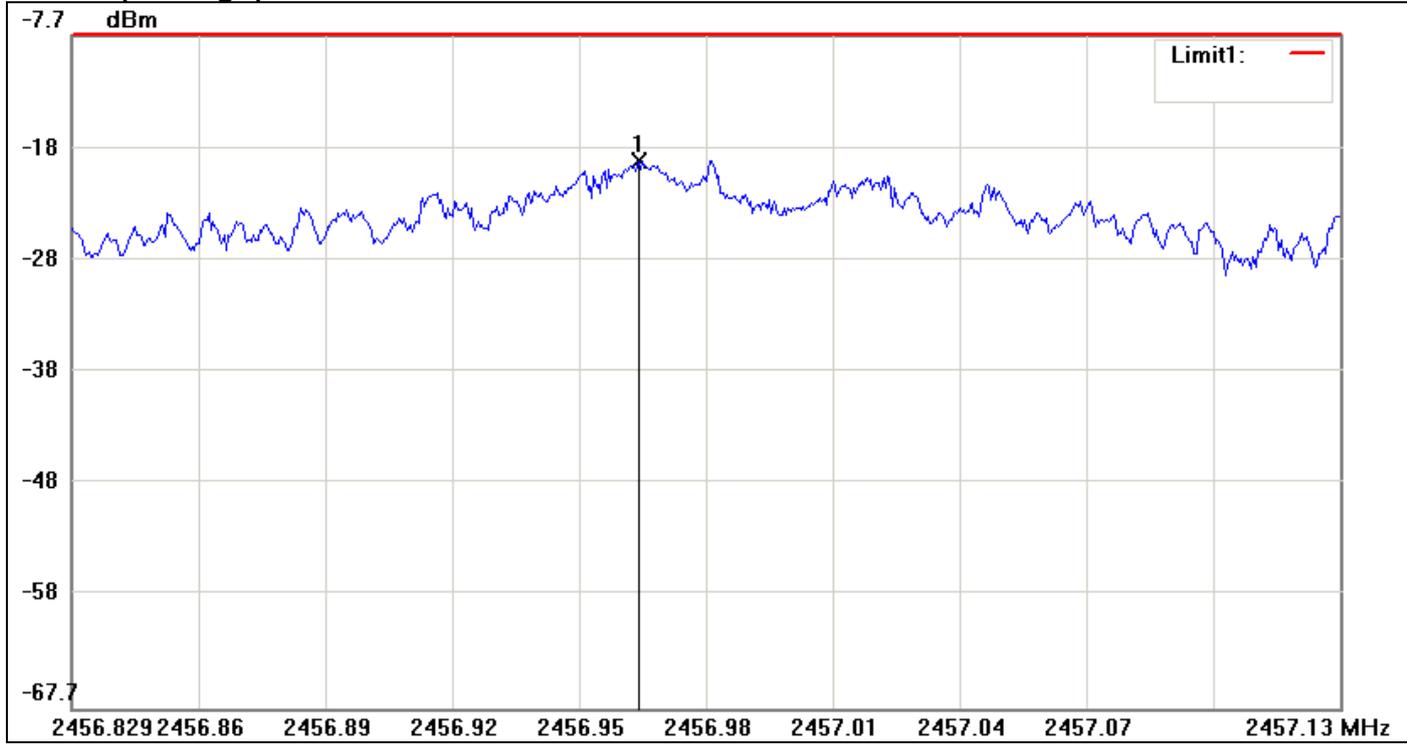
No.	Frequency(MHz)	Level(dBm)
1	2414.1522	-19.40

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2445.7368	-12.83

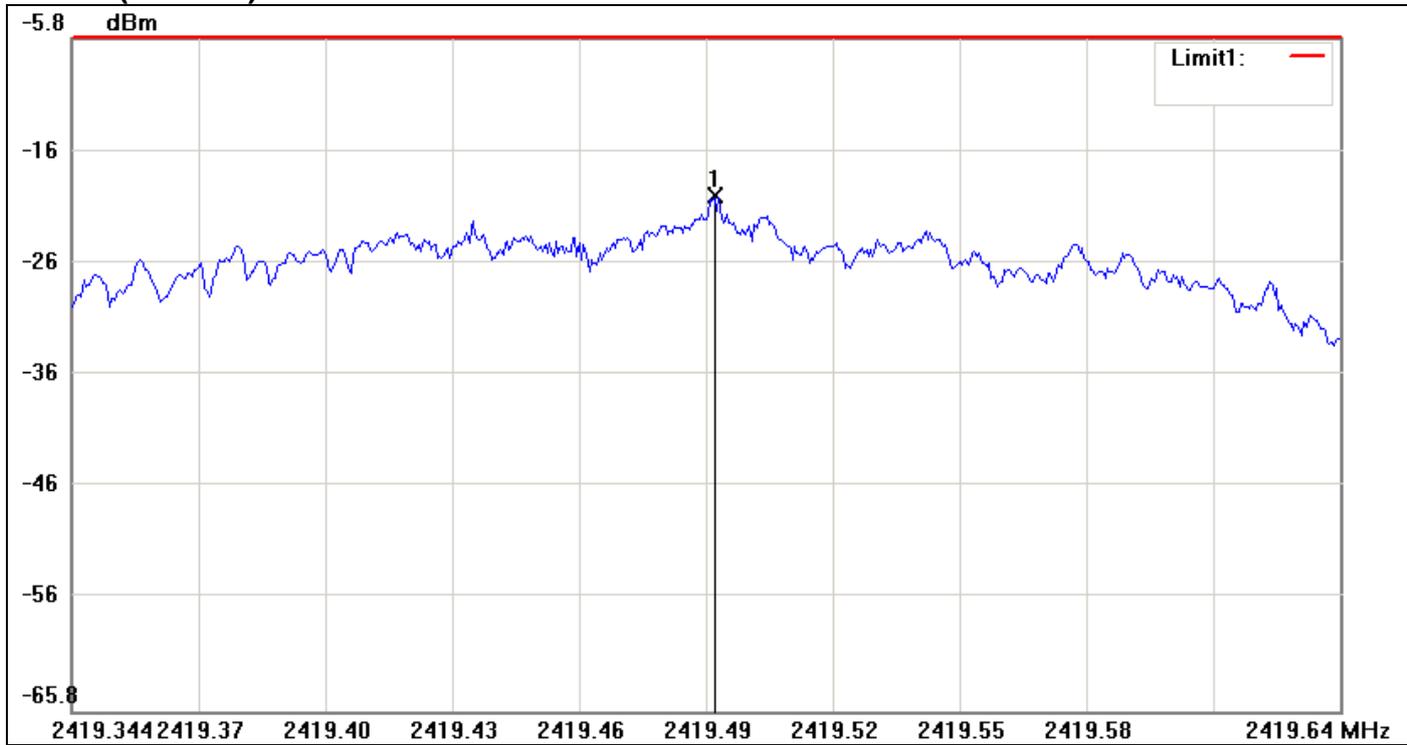
PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2456.9634	-18.81

IEEE 802.11n HT 40 MHz mode / Chain 0

PPSD (CH Low)



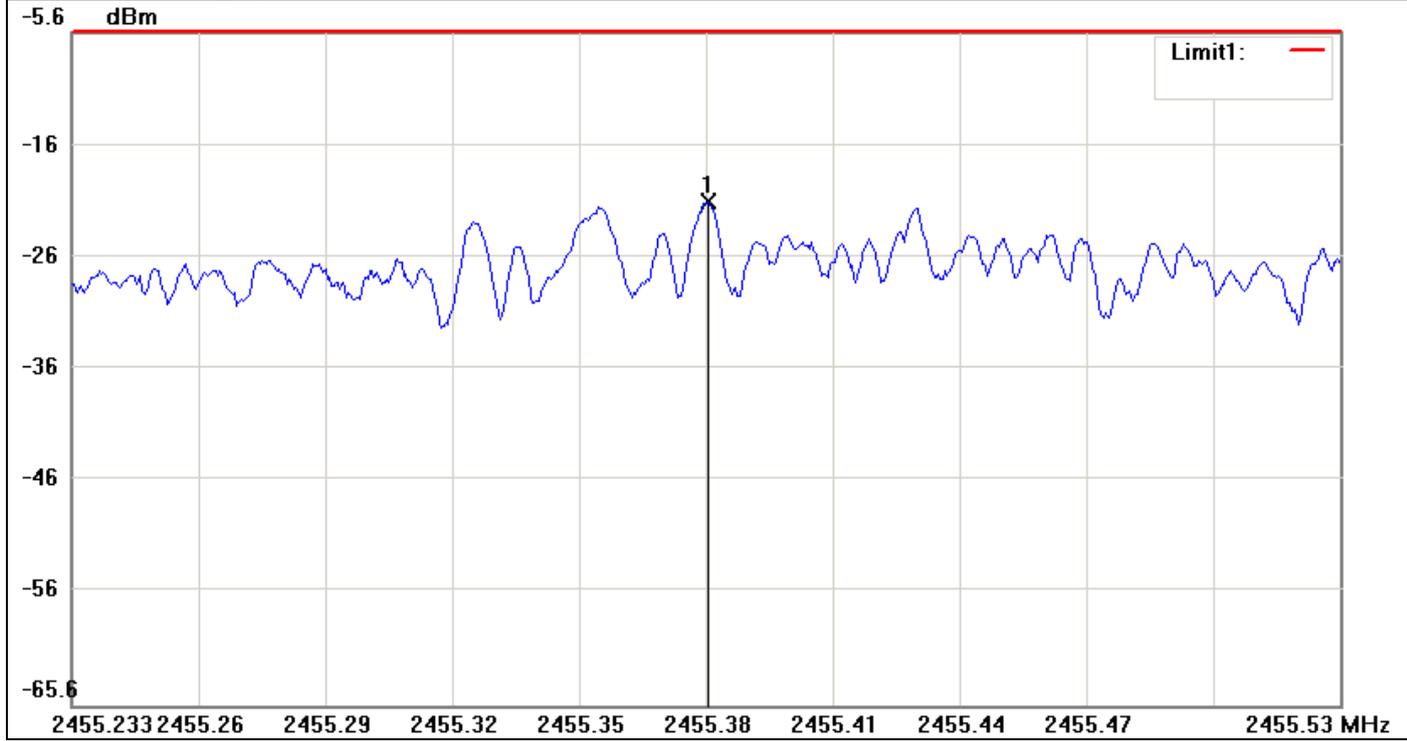
No.	Frequency(MHz)	Level(dBm)
1	2419.4961	-19.89

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2439.4967	-15.18

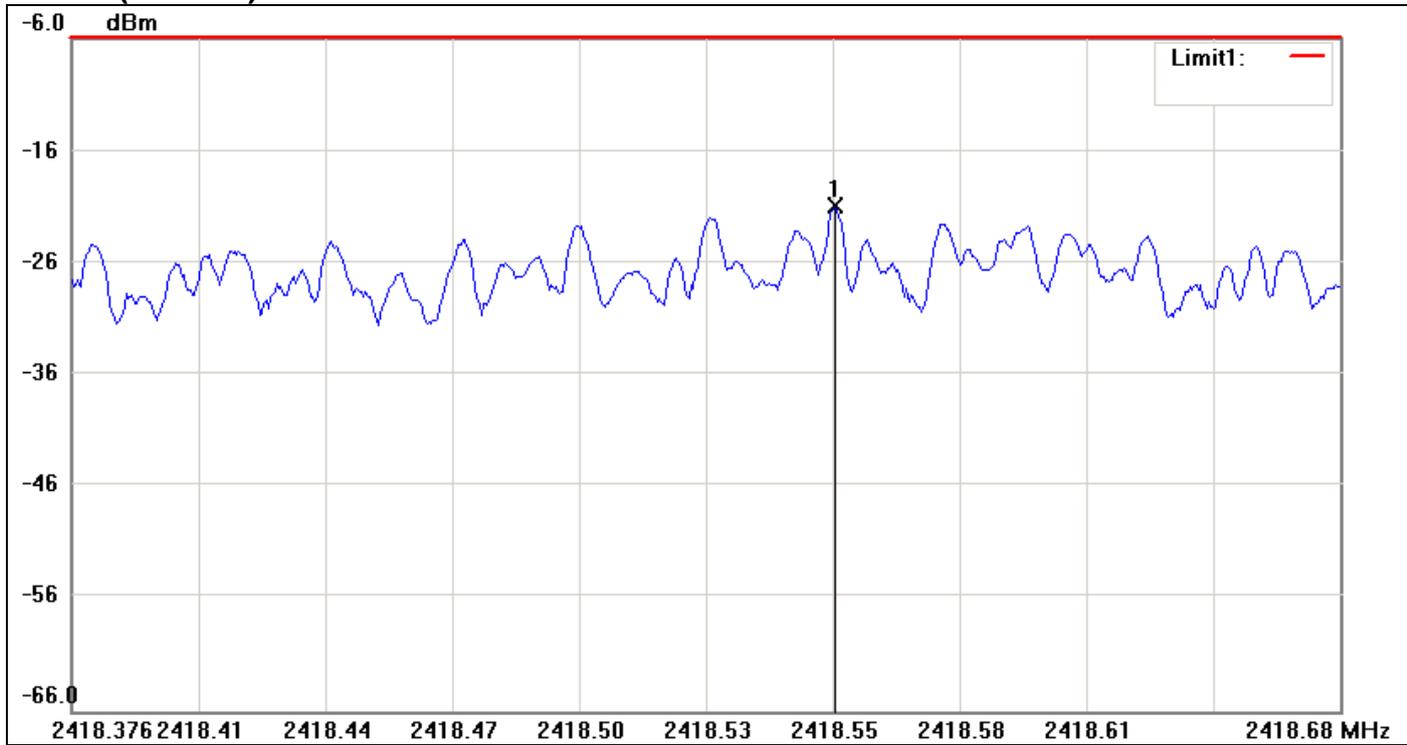
PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2455.3836	-20.63

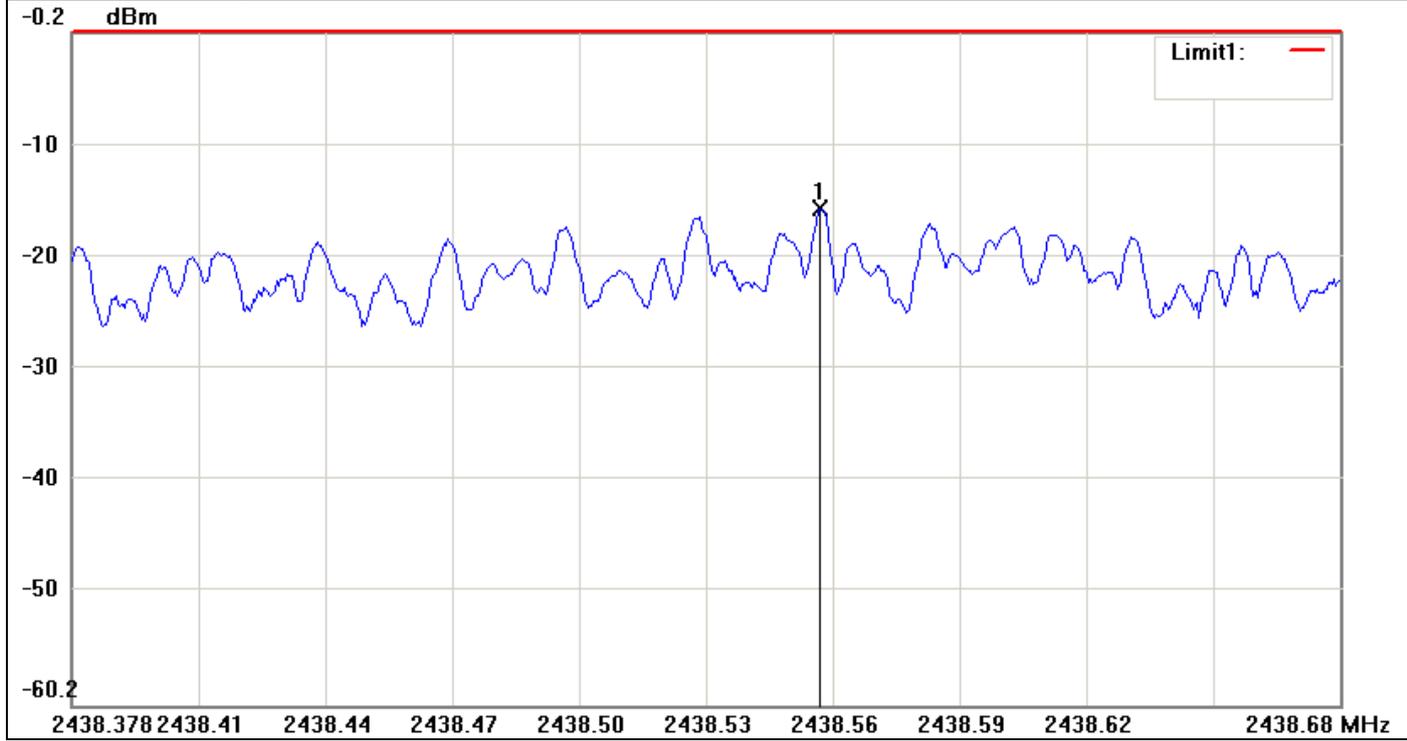
IEEE 802.11n HT 40 MHz mode / Chain 1

PPSD (CH Low)



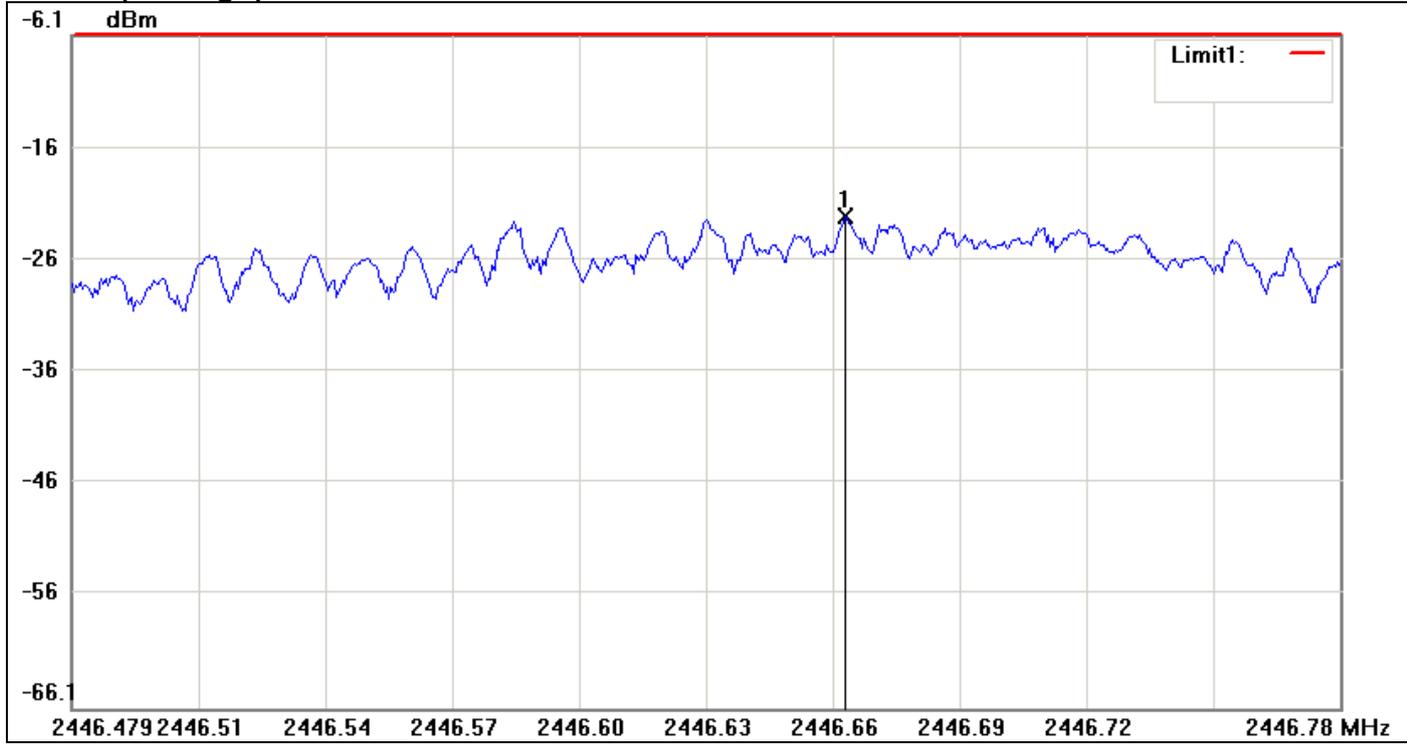
No.	Frequency(MHz)	Level(dBm)
1	2418.5560	-20.95

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2438.5551	-15.86

PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2446.6616	-22.26

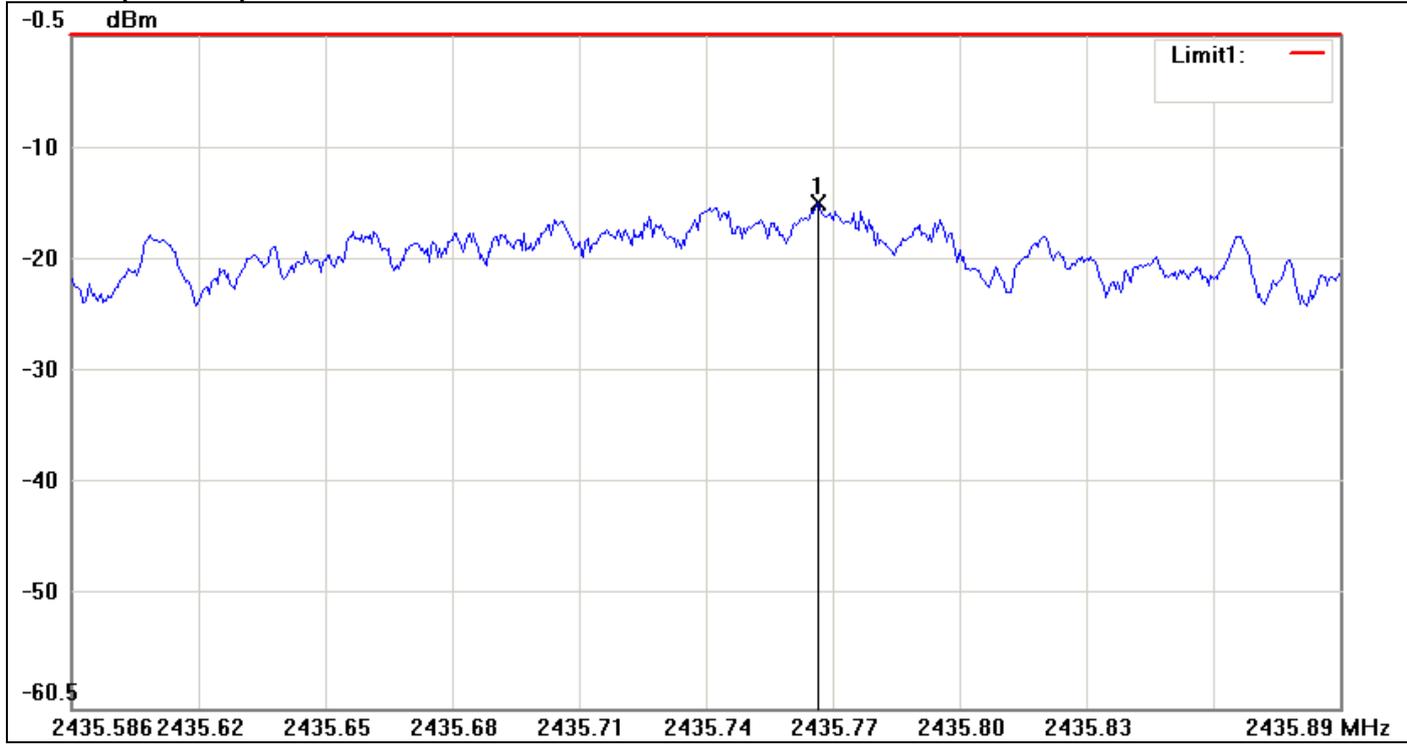
IEEE 802.11n HT 40 MHz mode / Chain 2

PPSD (CH Low)



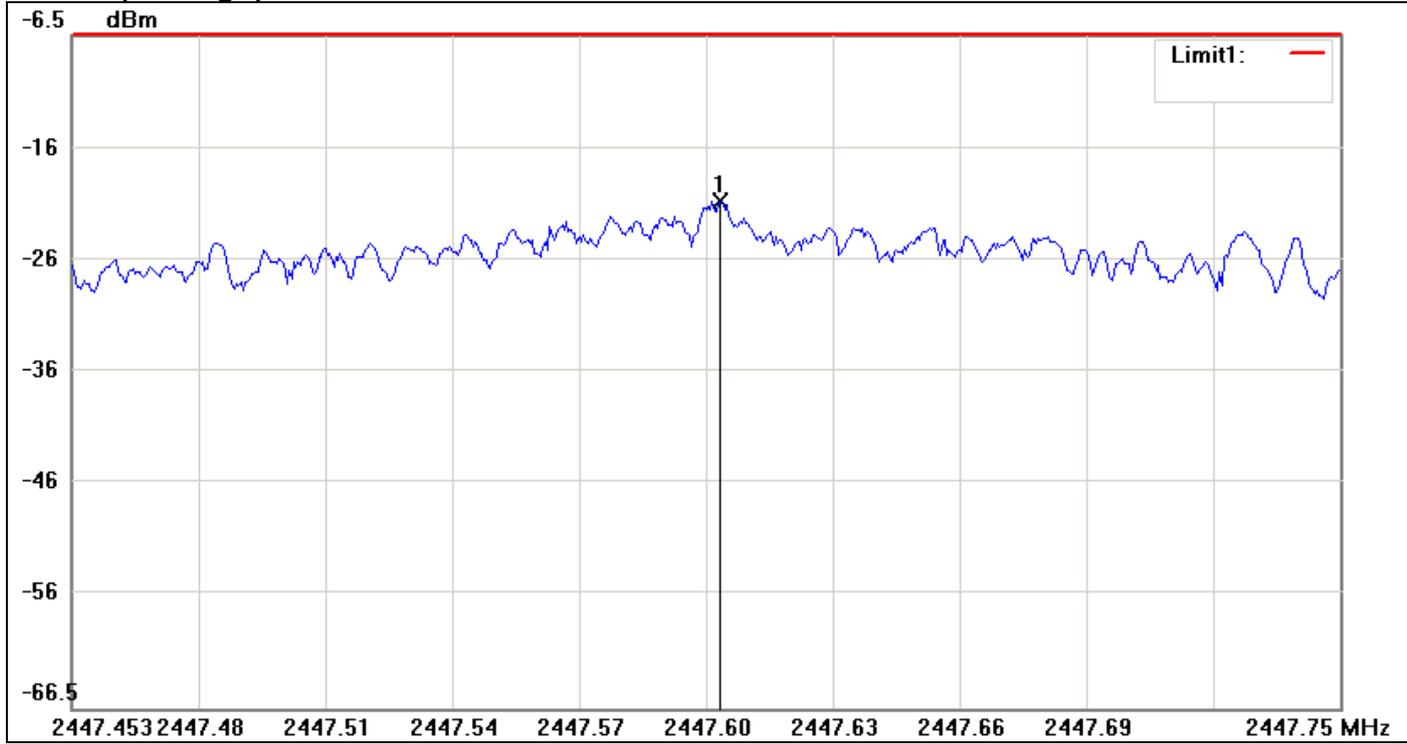
No.	Frequency(MHz)	Level(dBm)
1	2415.7627	-20.20

PPSD (CH Mid)



No.	Frequency(MHz)	Level(dBm)
1	2435.7621	-15.43

PPSD (CH High)



No.	Frequency(MHz)	Level(dBm)
1	2447.6069	-21.24

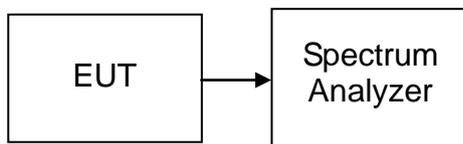
7.6 SPURIOUS EMISSIONS

7.6.1 Conducted 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



TEST PROCEDURE

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.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

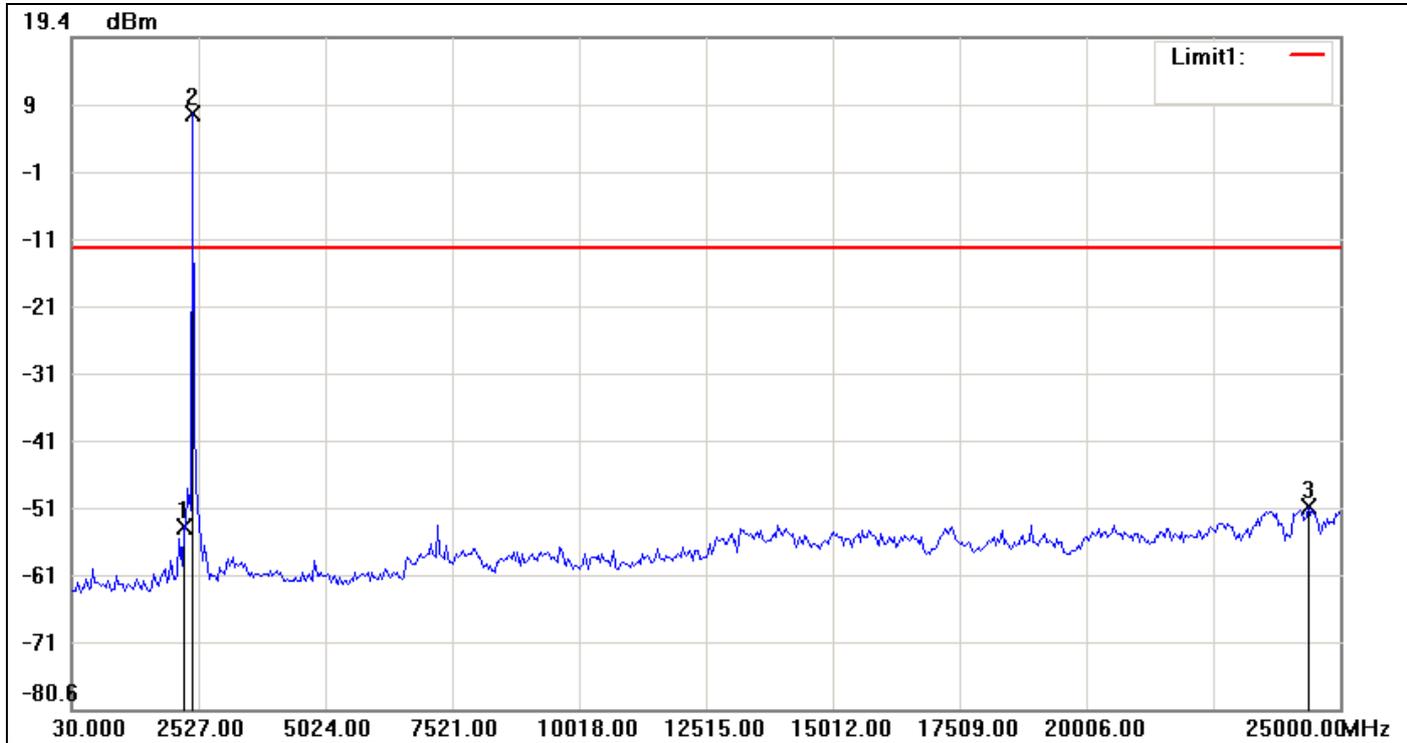
TEST RESULTS

No non-compliance noted

Test Plot

IEEE 802.11b mode

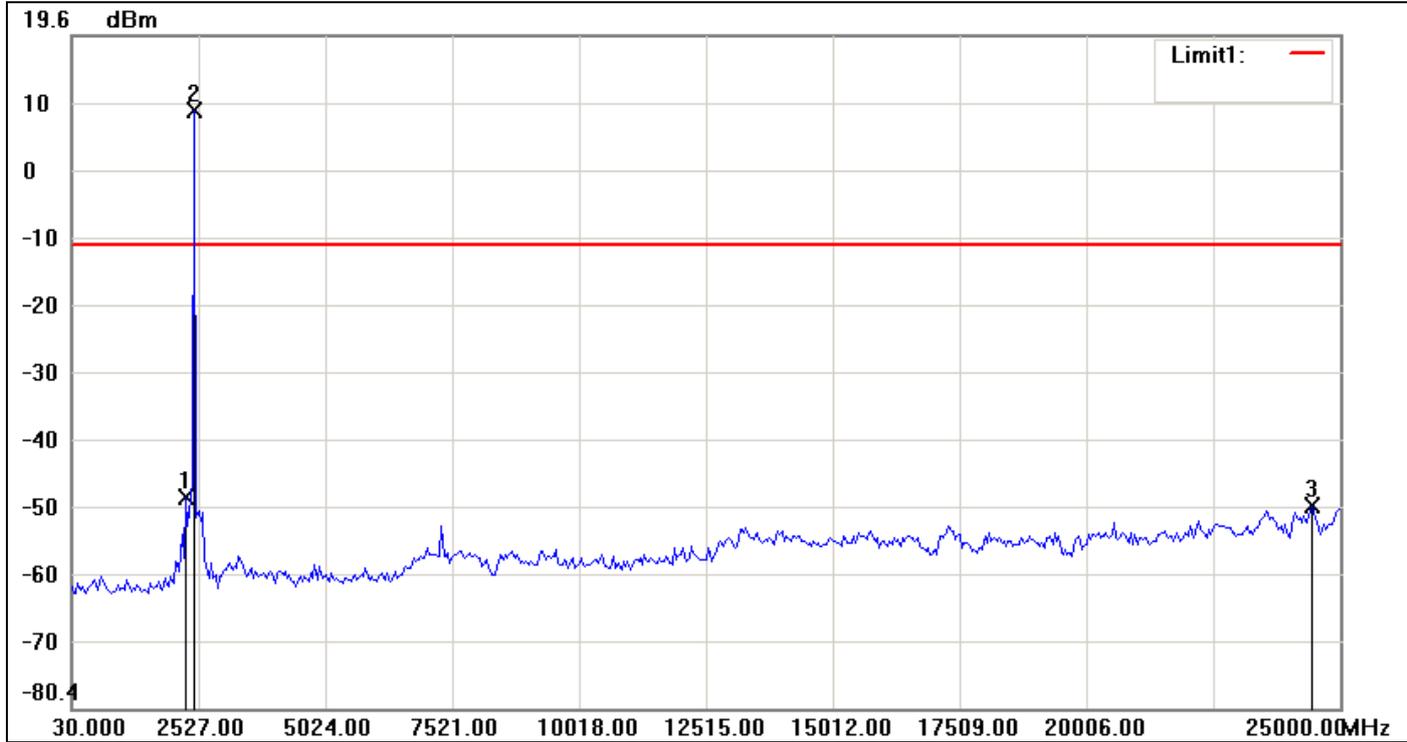
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2235.6833	-53.56	-12.05	-41.51
2	2402.1500	7.95	-12.05	20.00
3	24425.7500	-50.40	-12.05	-38.35

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

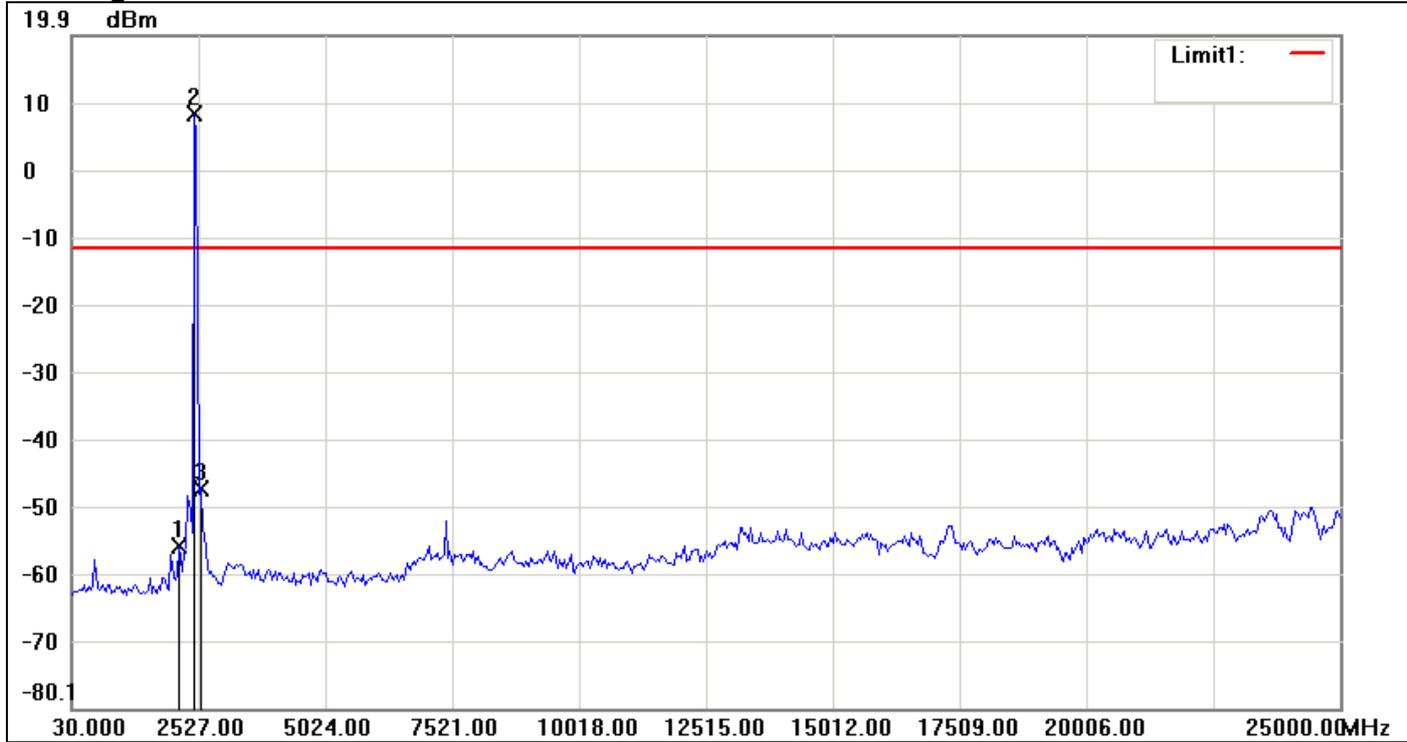
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2277.3000	-49.05	-11.59	-37.46
2	2443.7667	8.41	-11.59	20.00
3	24458.9833	-50.35	-11.59	-38.76

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2152.4500	-55.96	-11.69	-44.27
2	2443.7667	8.31	-11.69	20.00
3	2568.6167	-47.38	-11.69	-35.69

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

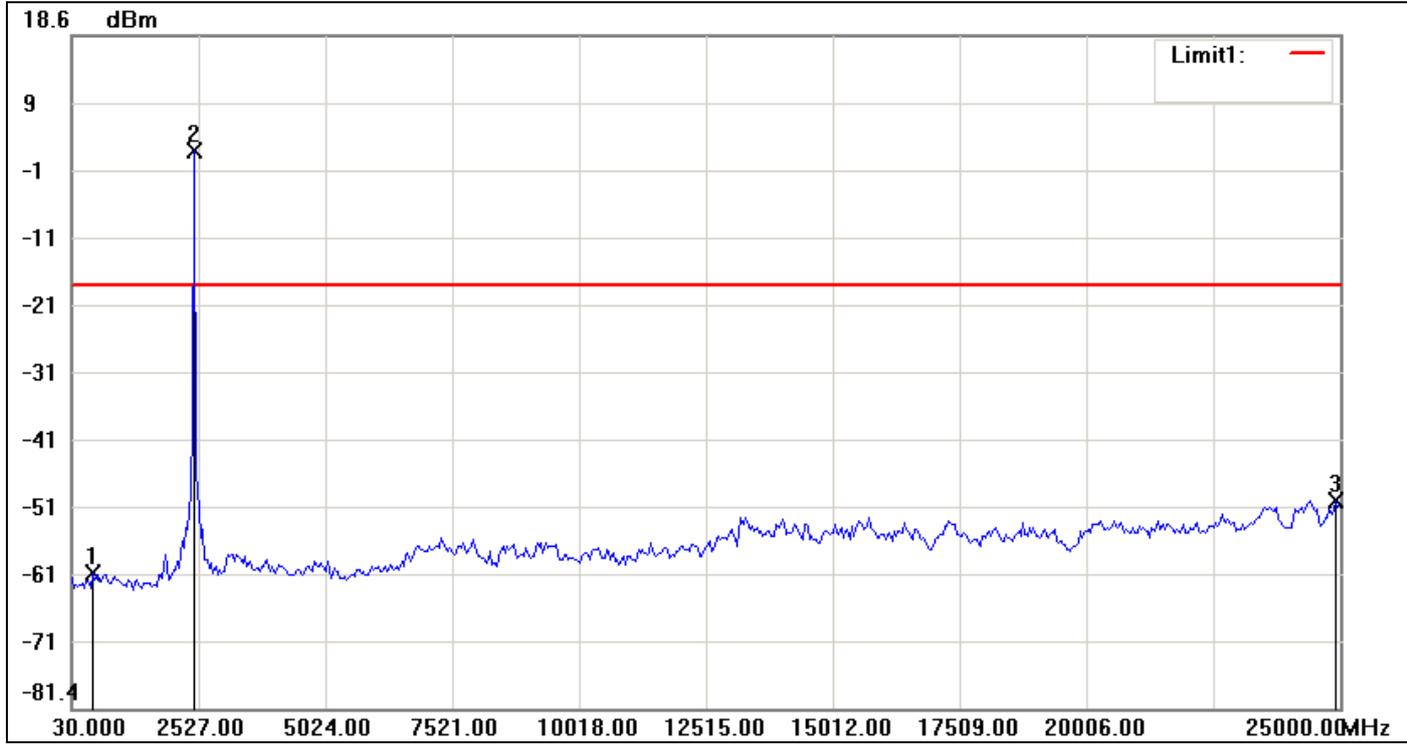
IEEE 802.11g mode
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	362.9333	-60.74	-18.74	-42.00
2	2402.1500	1.26	-18.74	20.00
3	24458.9833	-49.82	-18.74	-31.08

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	446.1667	-61.17	-18.58	-42.59
2	2443.7667	1.42	-18.58	20.00
3	24916.7667	-50.47	-18.58	-31.89

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High

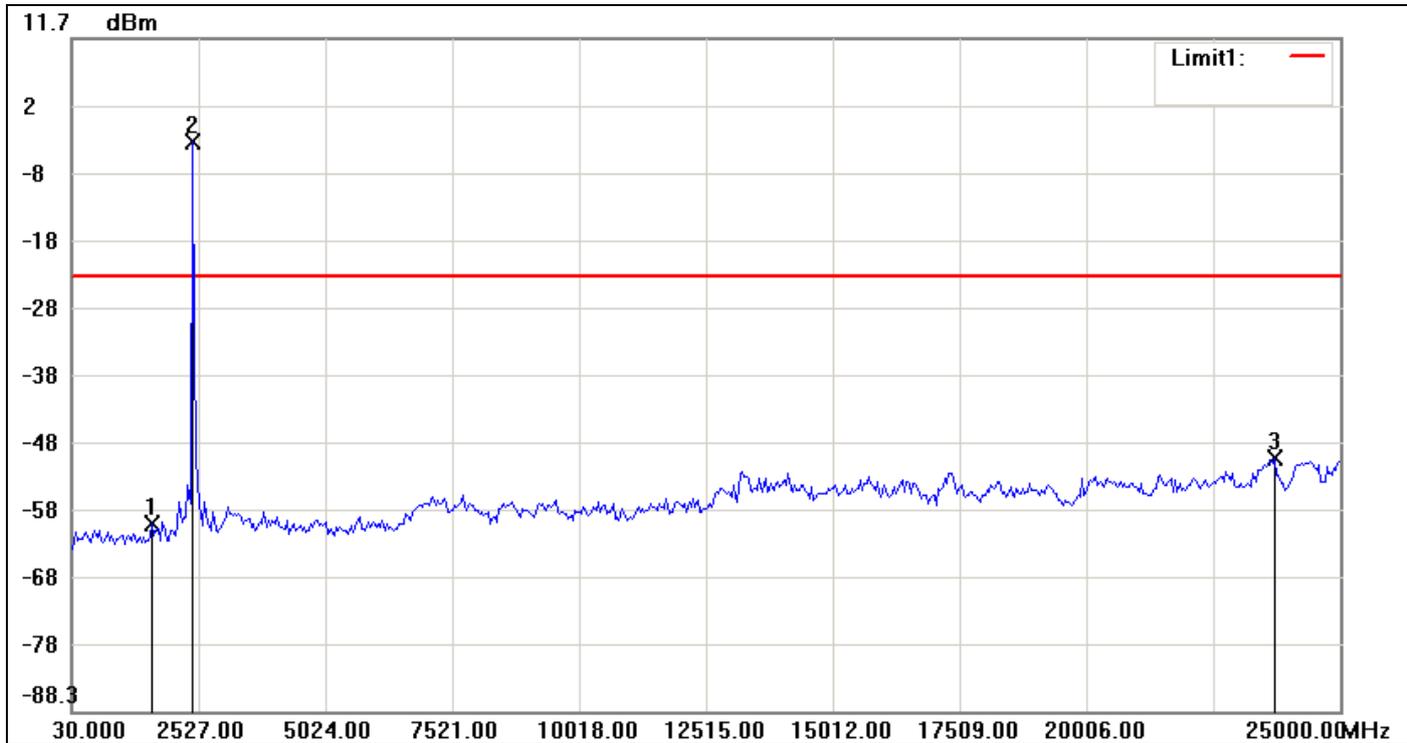


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	779.1000	-61.20	-20.69	-40.51
2	2485.3833	-0.69	-20.69	20.00
3	24958.3833	-49.92	-20.69	-29.23

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 20 MHz mode / Chain 0

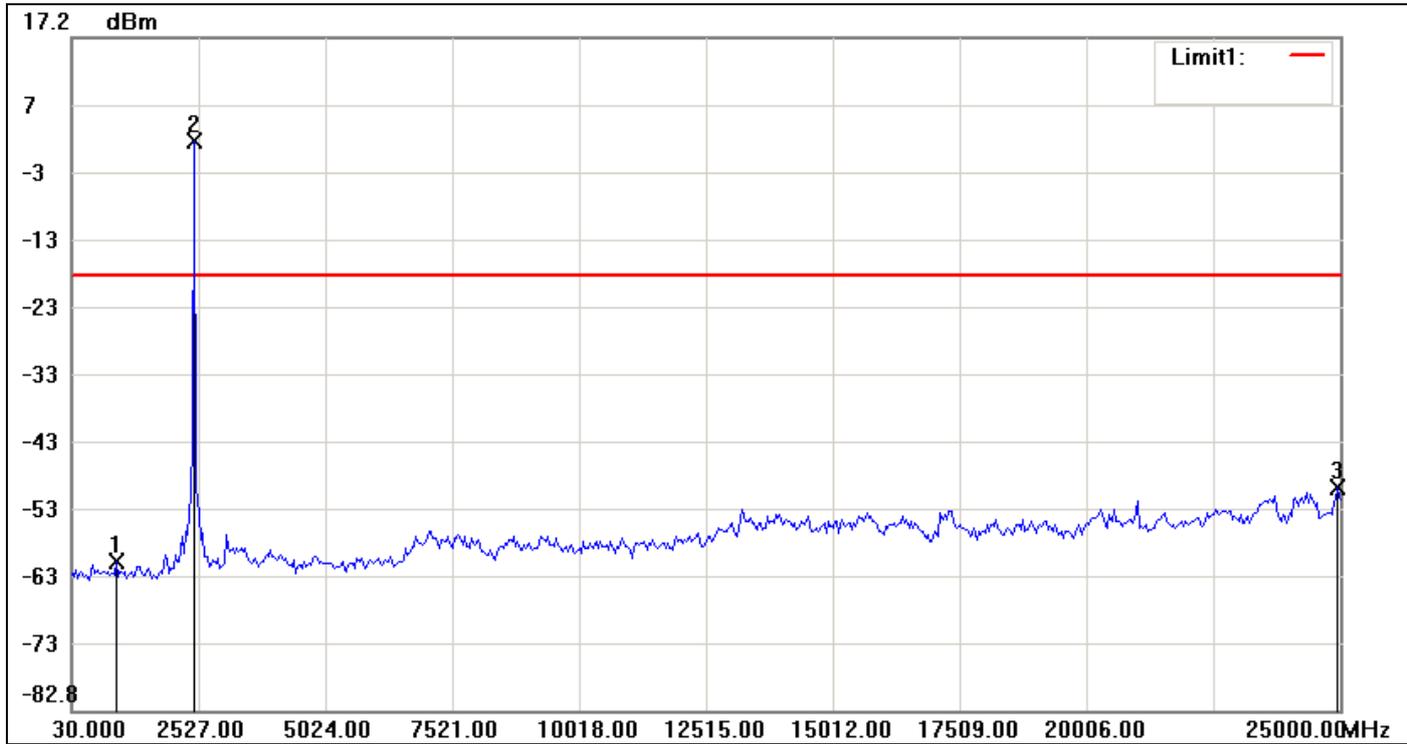
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1611.4333	-60.54	-23.78	-36.76
2	2402.1500	-3.78	-23.78	20.00
3	23709.8833	-50.65	-23.78	-26.87

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

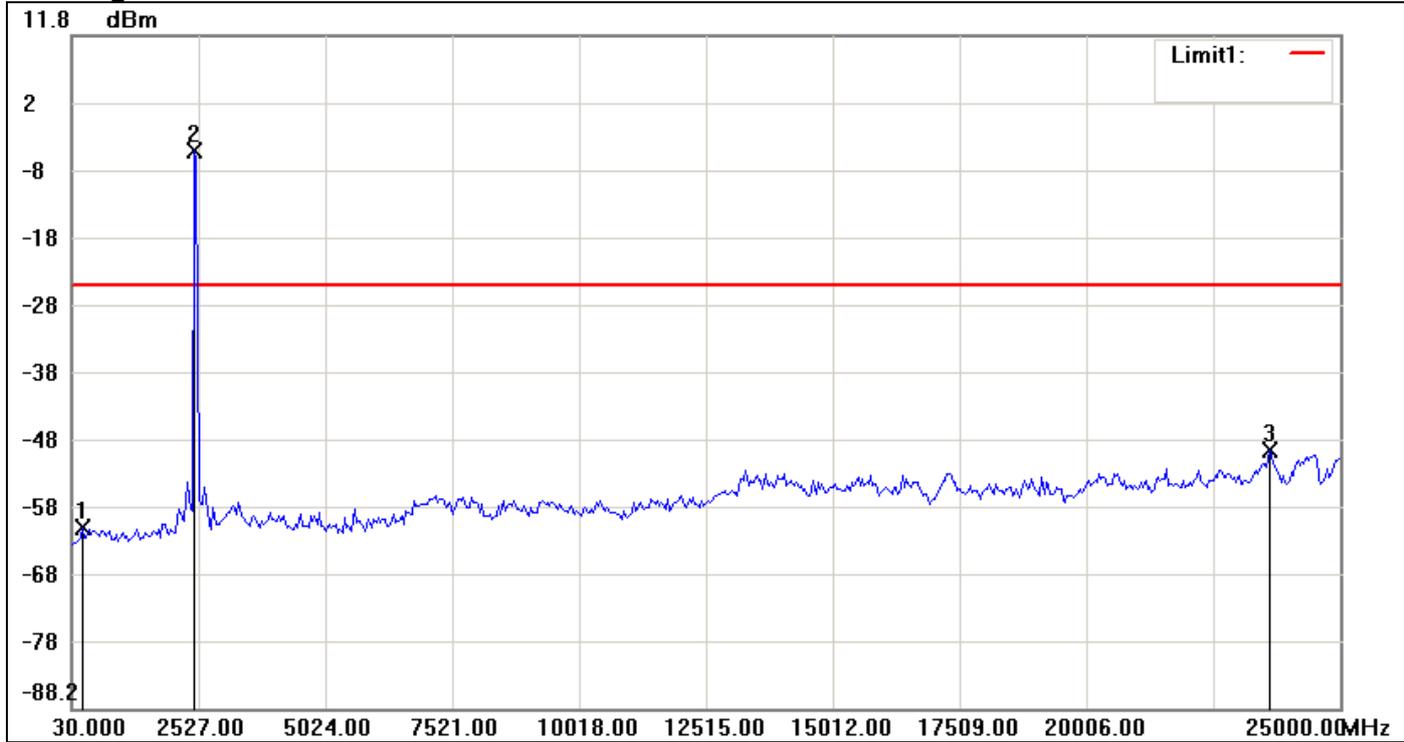
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	903.9500	-60.67	-18.21	-42.46
2	2443.7667	1.79	-18.21	20.00
3	24958.3833	-49.72	-18.21	-31.51

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High

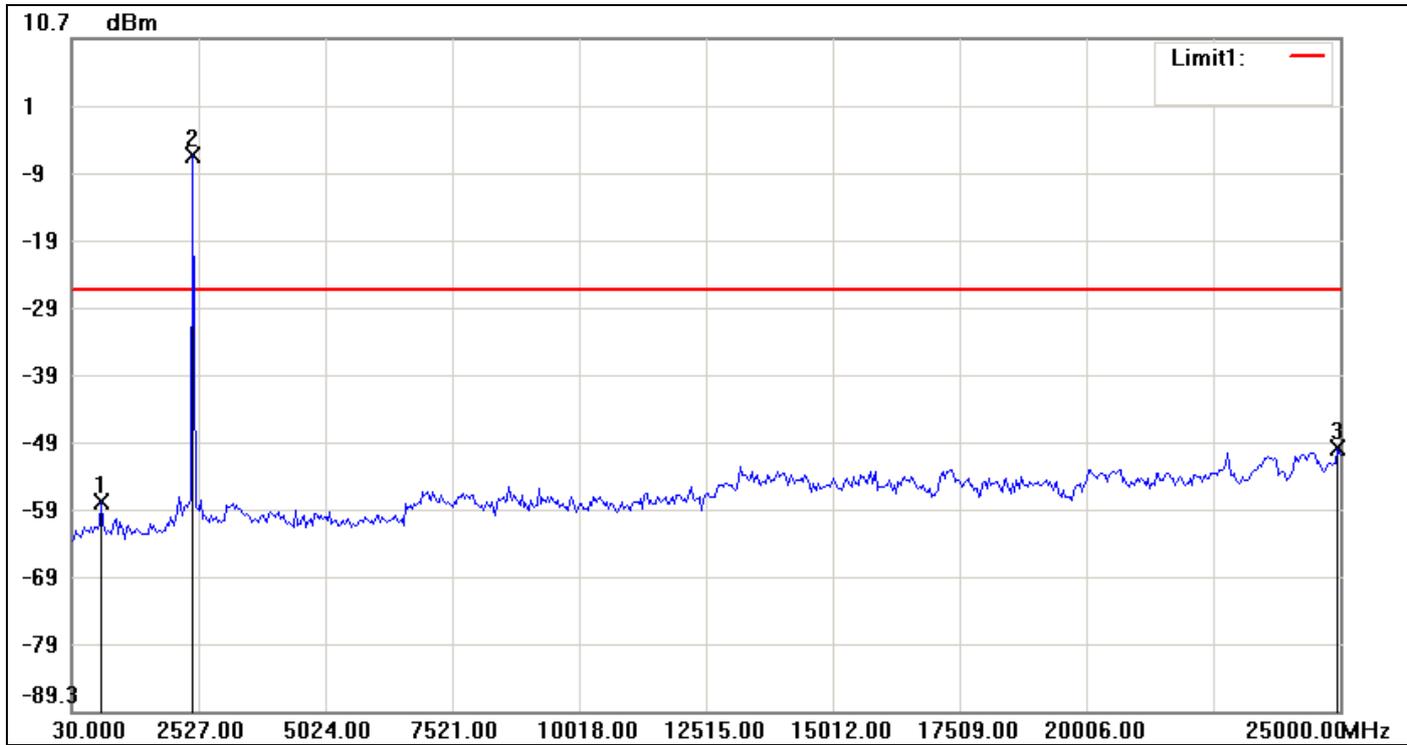


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	238.0833	-61.46	-25.29	-36.17
2	2443.7667	-5.29	-25.29	20.00
3	23626.6500	-49.85	-25.29	-24.56

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 20 MHz mode / Chain 1

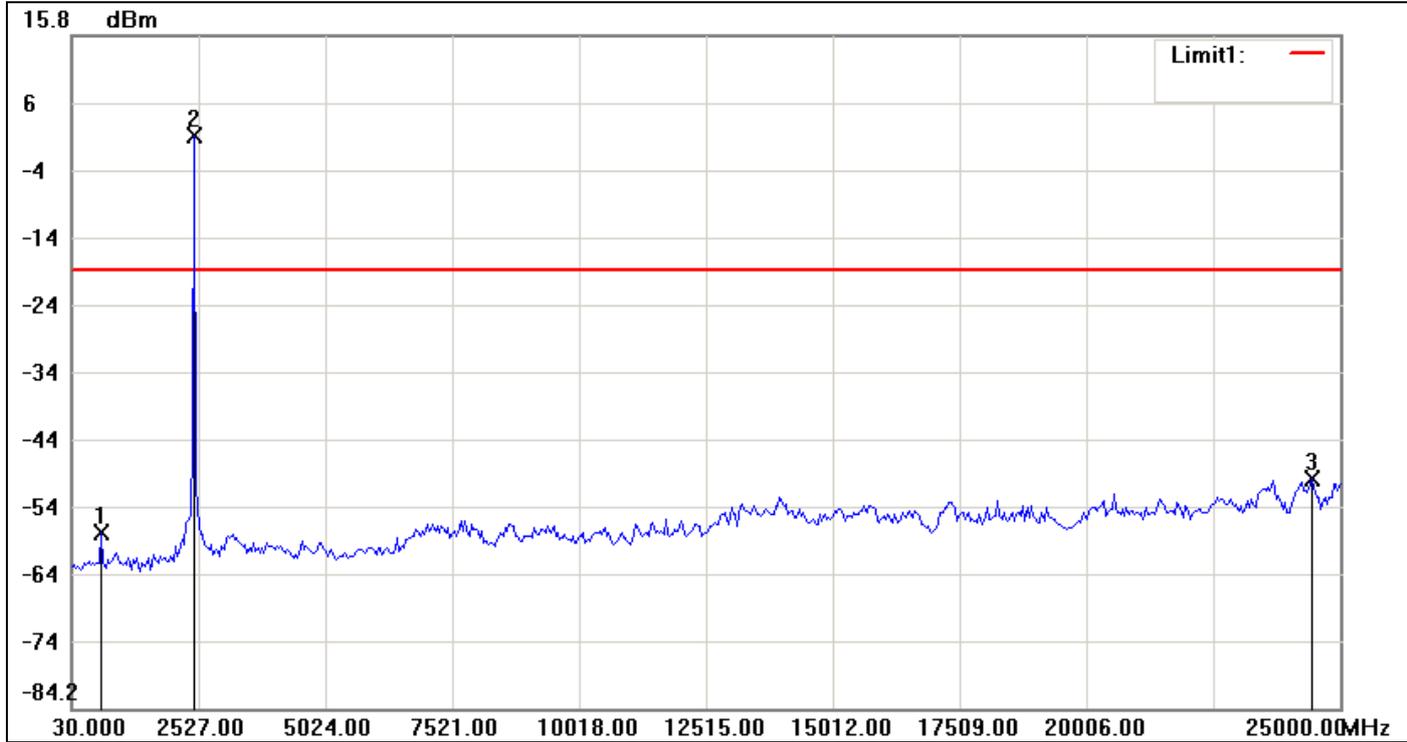
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.19	-26.72	-31.47
2	2402.1500	-6.72	-26.72	20.00
3	24958.3833	-50.21	-26.72	-23.49

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

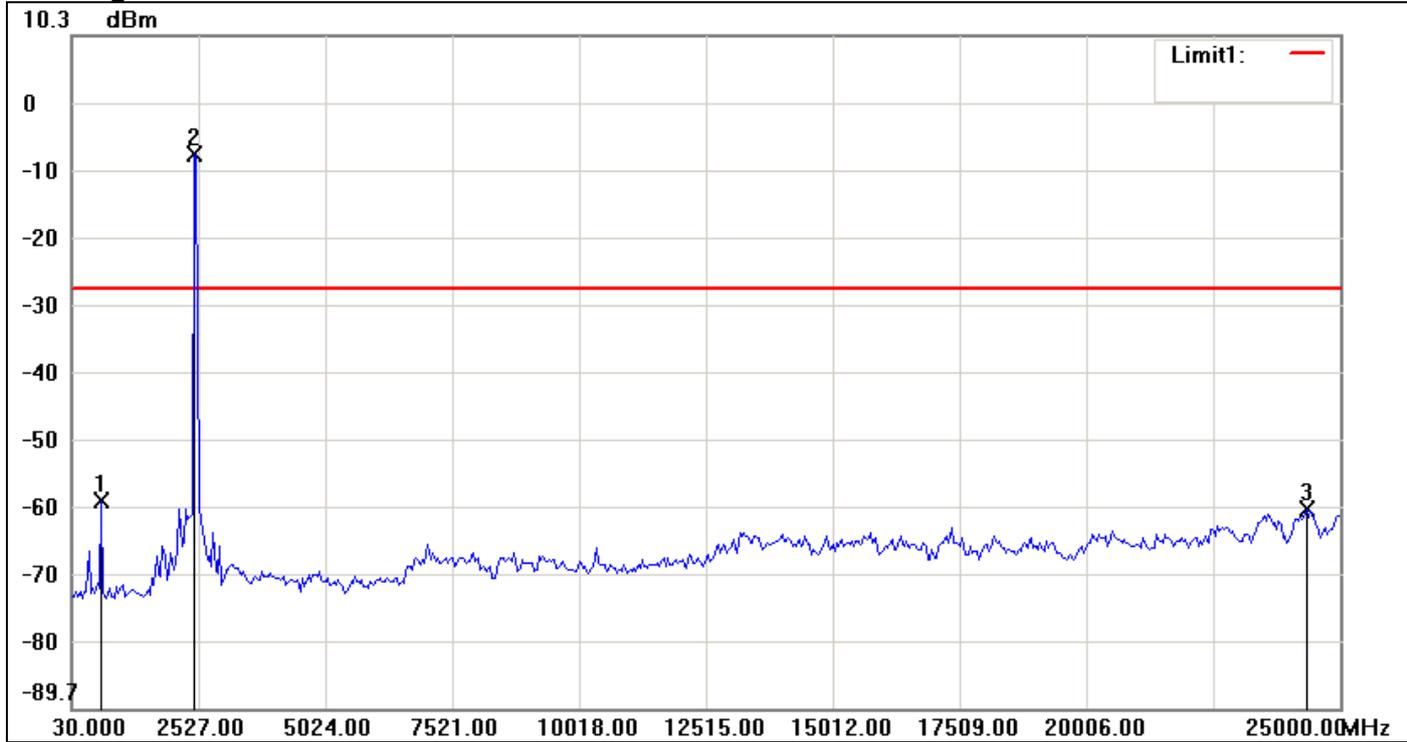
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.06	-18.96	-39.10
2	2443.7667	1.04	-18.96	20.00
3	24458.9833	-50.12	-18.96	-31.16

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High

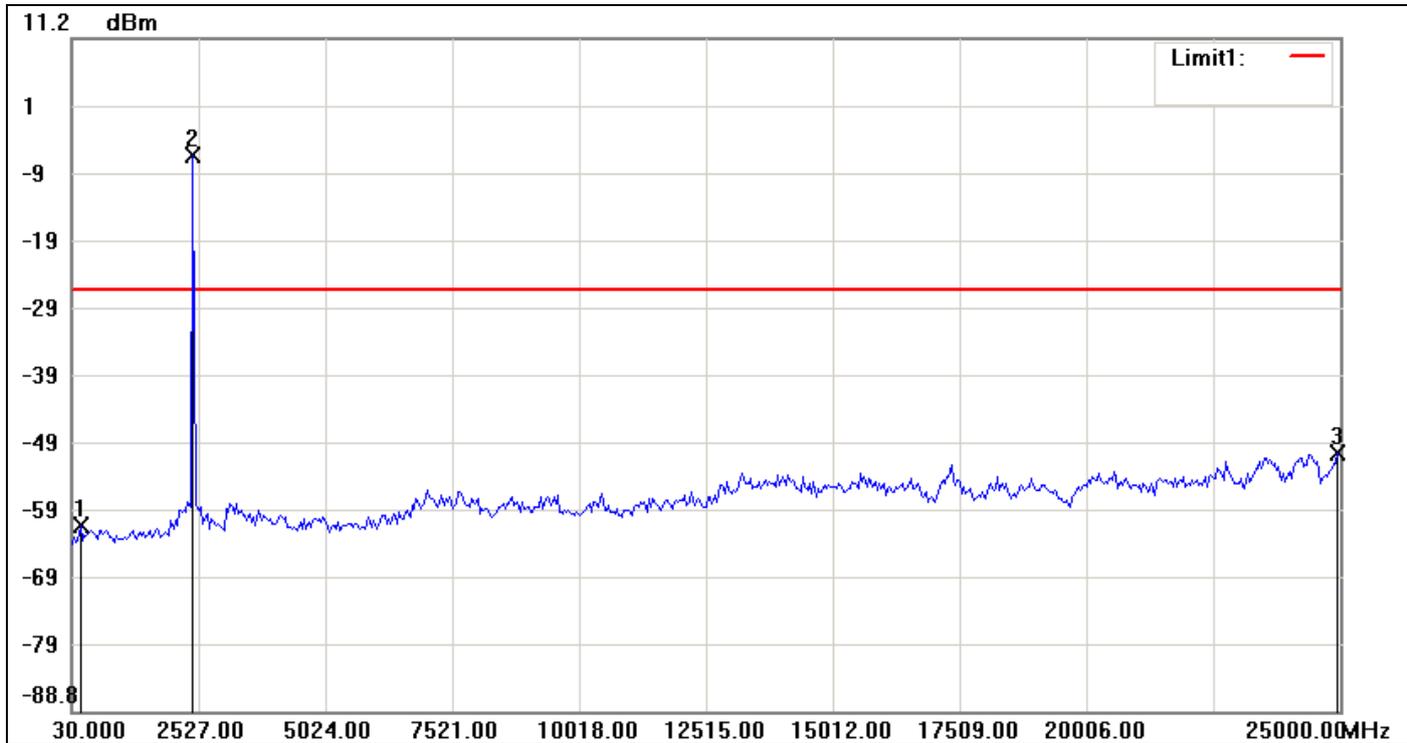


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.87	-27.19	-31.68
2	2443.7667	-7.19	-27.19	20.00
3	24334.1333	-60.13	-27.19	-32.94

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 20 MHz mode / Chain 2

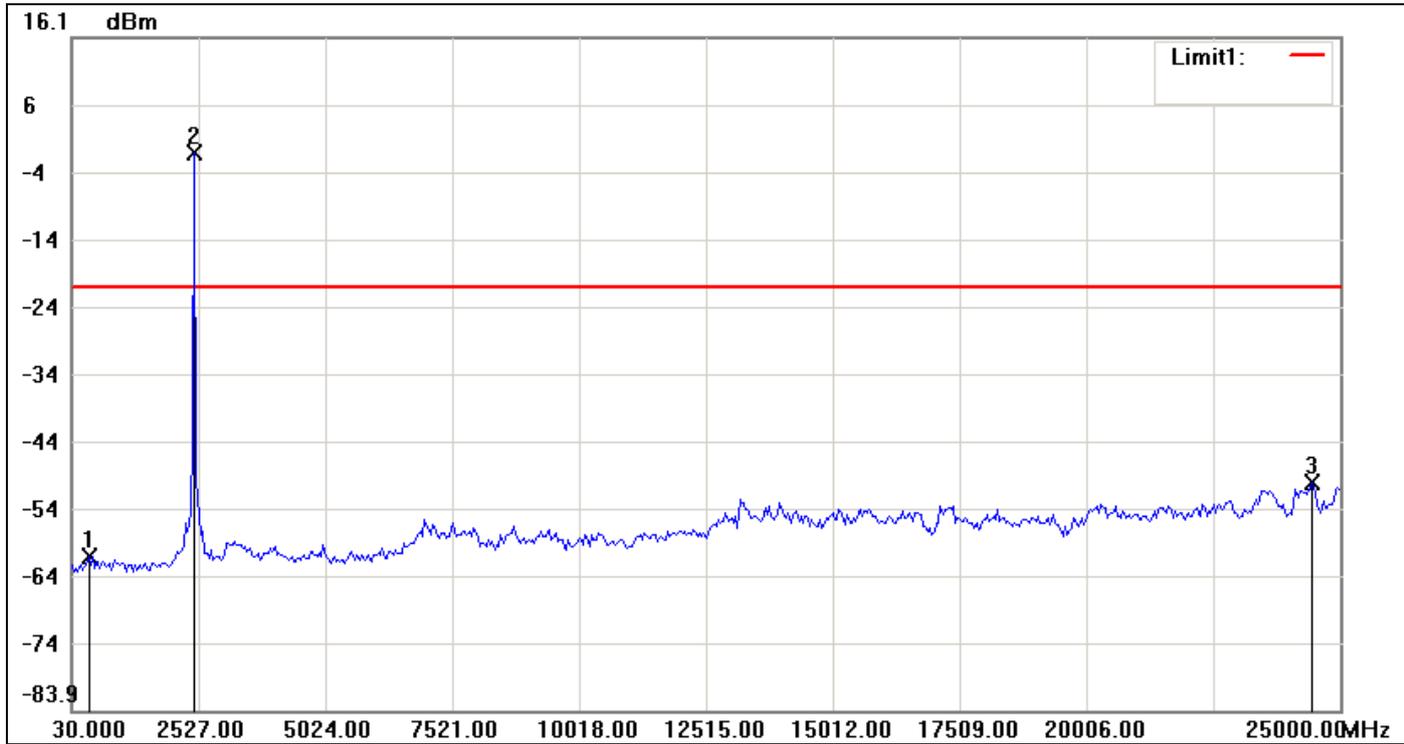
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	196.4667	-61.18	-26.24	-34.94
2	2402.1500	-6.24	-26.24	20.00
3	24958.3833	-50.42	-26.24	-24.18

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

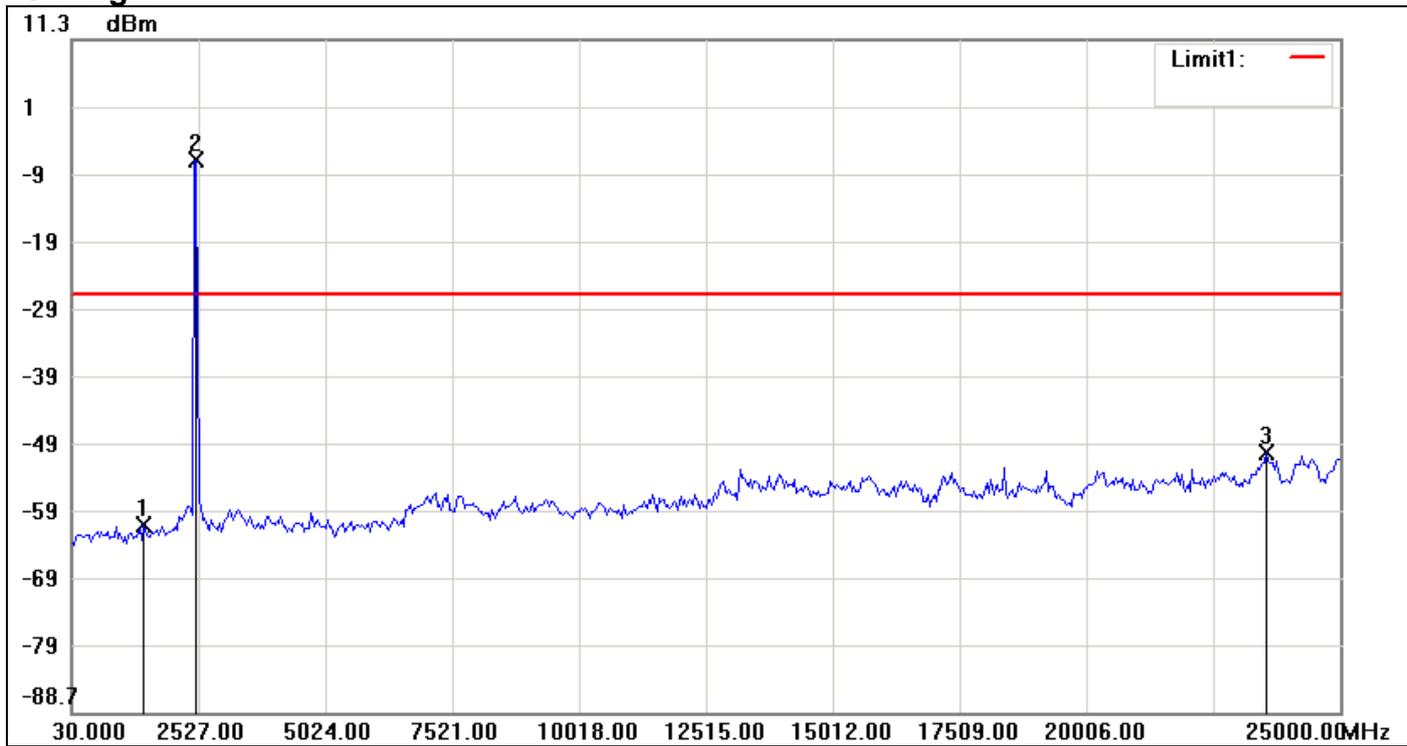
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	362.9333	-61.07	-20.97	-40.10
2	2443.7667	-0.97	-20.97	20.00
3	24458.9833	-50.12	-20.97	-29.15

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1444.9667	-60.79	-26.68	-34.11
2	2485.3833	-6.68	-26.68	20.00
3	23543.4167	-49.98	-26.68	-23.30

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 20 MHz mode

Low Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
1611.4333	-60.54	---	---	-57.53	-26.72	-30.81
23709.8833	-50.65	---	---	-47.64	-26.72	-20.92
612.6333	---	-58.19	---	-55.18	-26.72	-28.46
24958.3833	---	-50.21	-50.42	-47.20	-26.72	-20.48
196.4667	---	---	-61.18	-58.17	-26.72	-31.45
Fundamental limi	-23.78	-26.72	-26.24	---		

Mid Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
903.95	-60.67	---	---	-57.66	-20.97	-36.69
24958.3833	-49.72	---	---	-46.71	-20.97	-25.74
612.6333	---	-58.06	---	-55.05	-20.97	-34.08
24458.9833	---	-50.12	-50.12	-47.11	-20.97	-26.14
362.9333	---	---	-61.07	-58.06	-20.97	-37.09
Fundamental limi	-18.21	-18.96	-20.97	---		

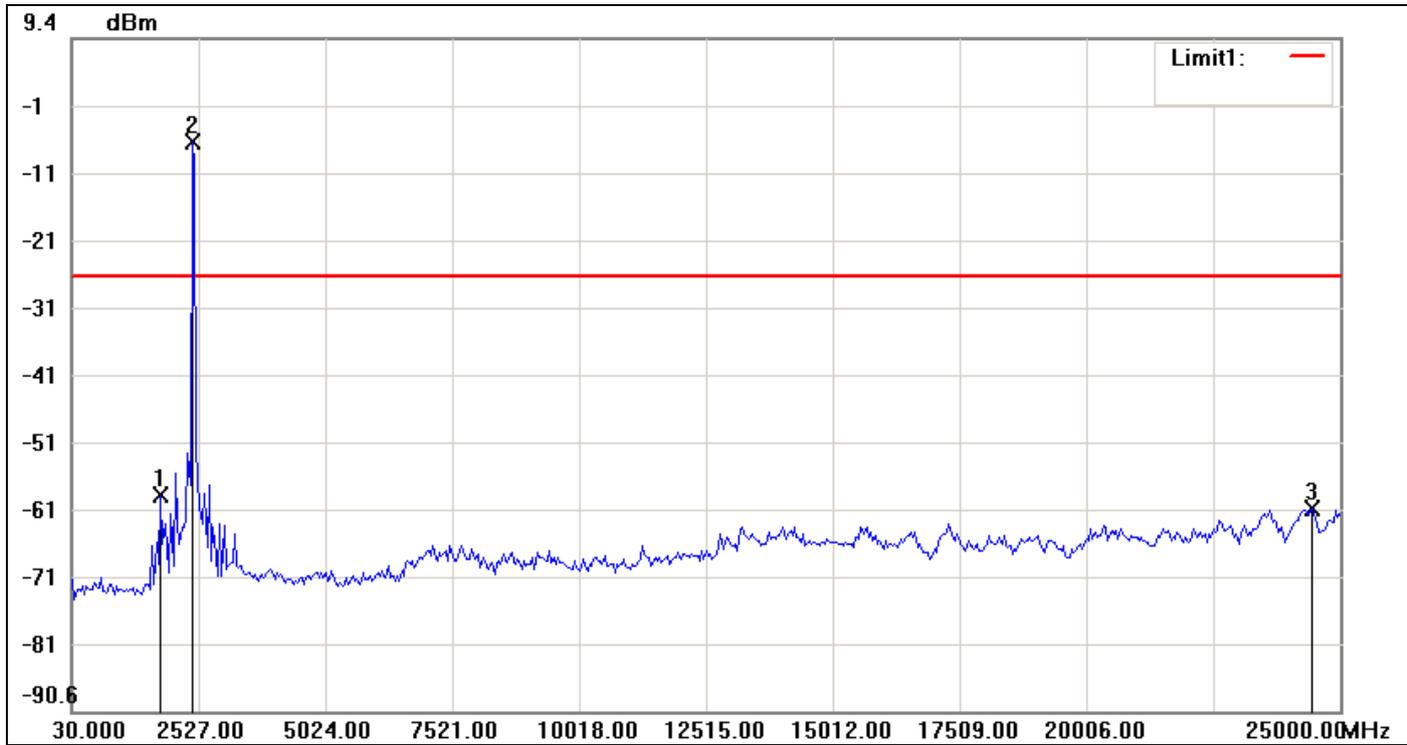
High Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
238.0833	-61.46	---	---	-58.45	-27.19	-31.26
23626.65	-49.85	---	---	-46.84	-27.19	-19.65
612.6333	---	-58.87	---	-55.86	-27.19	-28.67
24334.1333	---	-60.13	---	-57.12	-27.19	-29.93
1444.9667	---	---	-60.79	-57.78	-27.19	-30.59
23543.4167	---	---	-49.98	-46.97	-27.19	-19.78
Fundamental limi	-25.29	-27.19	-26.68	---		

Remark:

1. Total (dBm) = Measure + 10 log(3) dB,
 Measure=Choose the max chain value

IEEE 802.11n HT 40 MHz mode / Chain 0

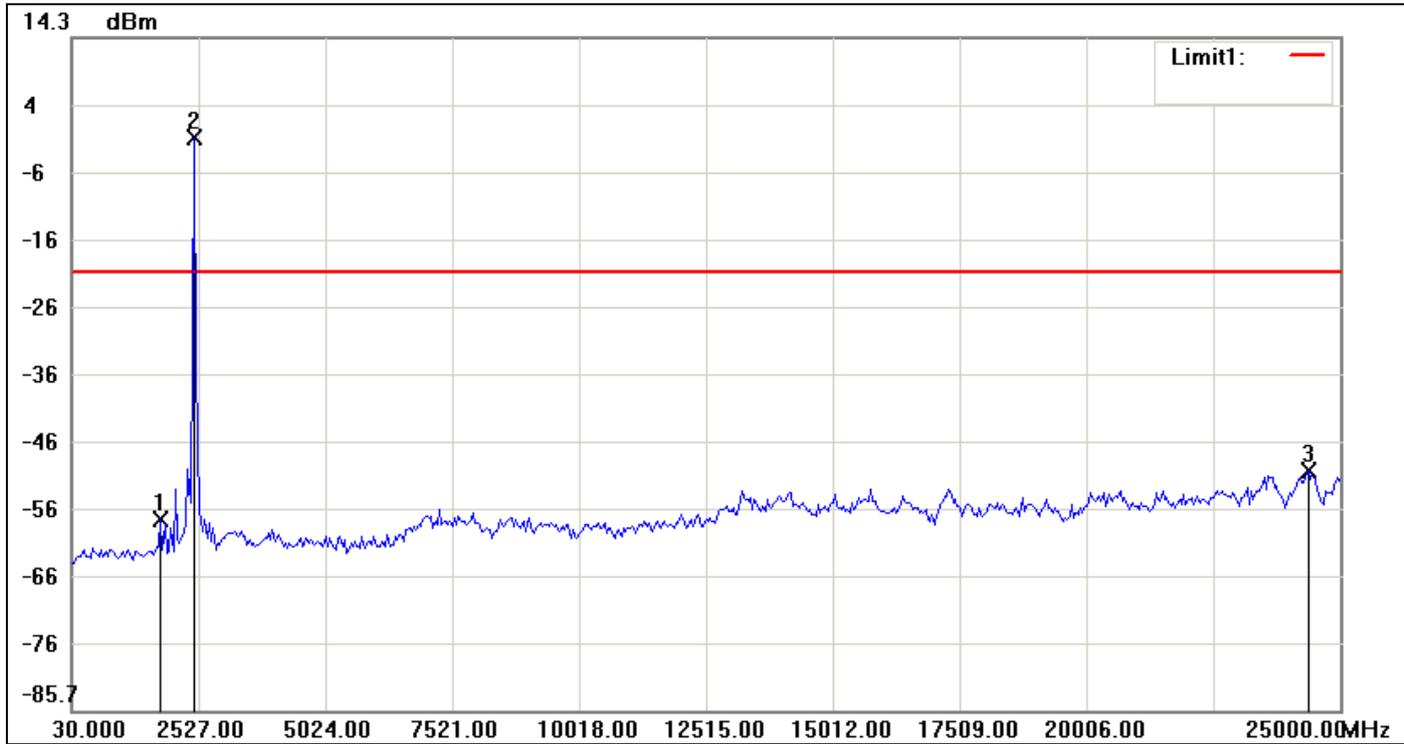
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-58.53	-26.00	-32.53
2	2402.1500	-6.00	-26.00	20.00
3	24458.9833	-60.34	-26.00	-34.34

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

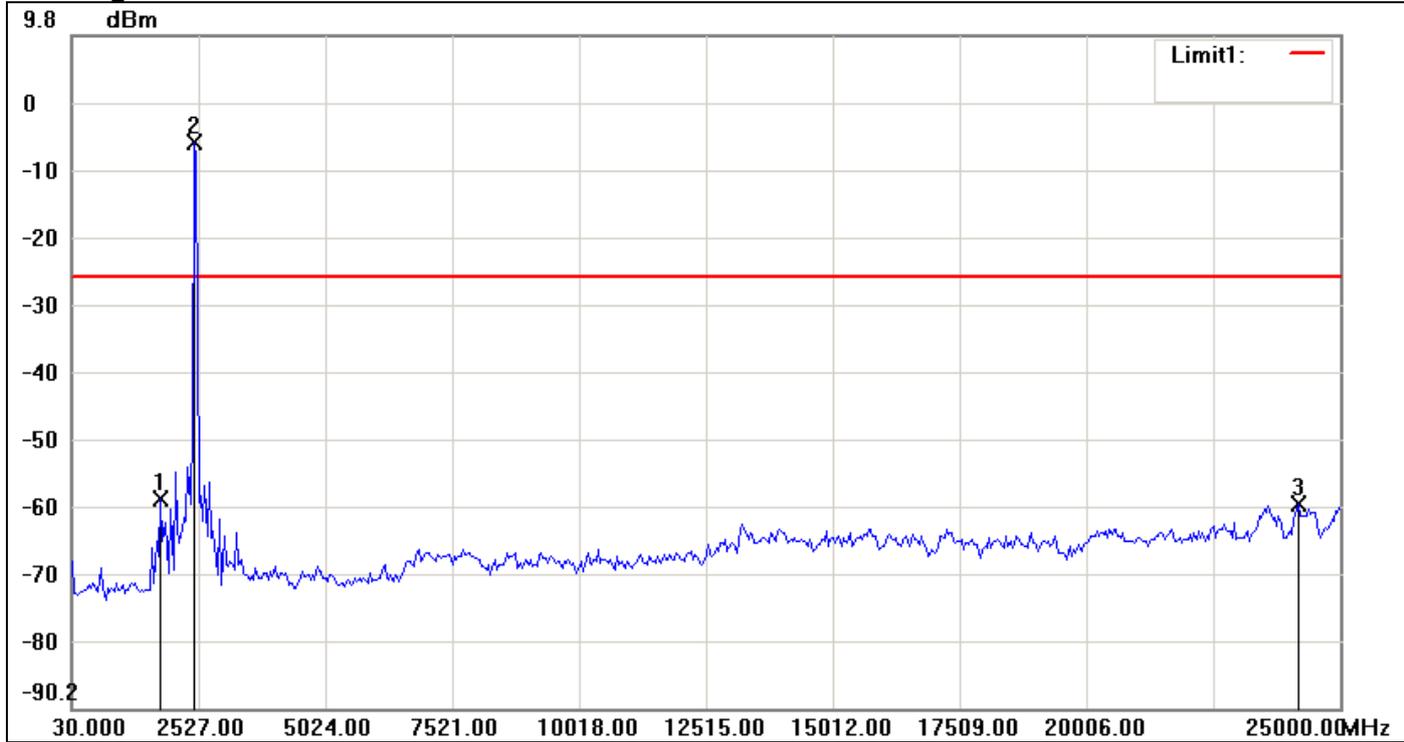
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-57.25	-20.64	-36.61
2	2443.7667	-0.64	-20.64	20.00
3	24425.7500	-50.13	-20.64	-29.49

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High

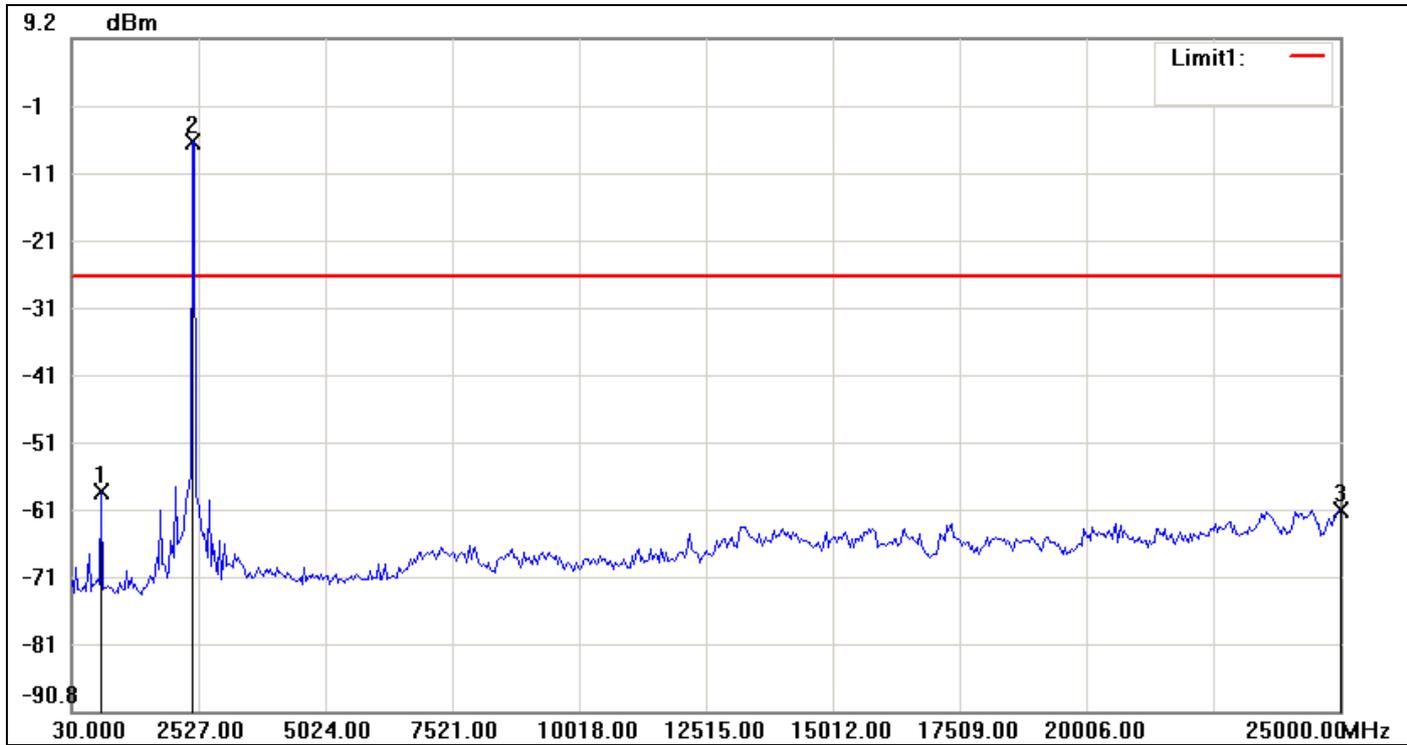


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-58.93	-26.08	-32.85
2	2443.7667	-6.08	-26.08	20.00
3	24167.6667	-59.77	-26.08	-33.69

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 40 MHz mode / Chain 1

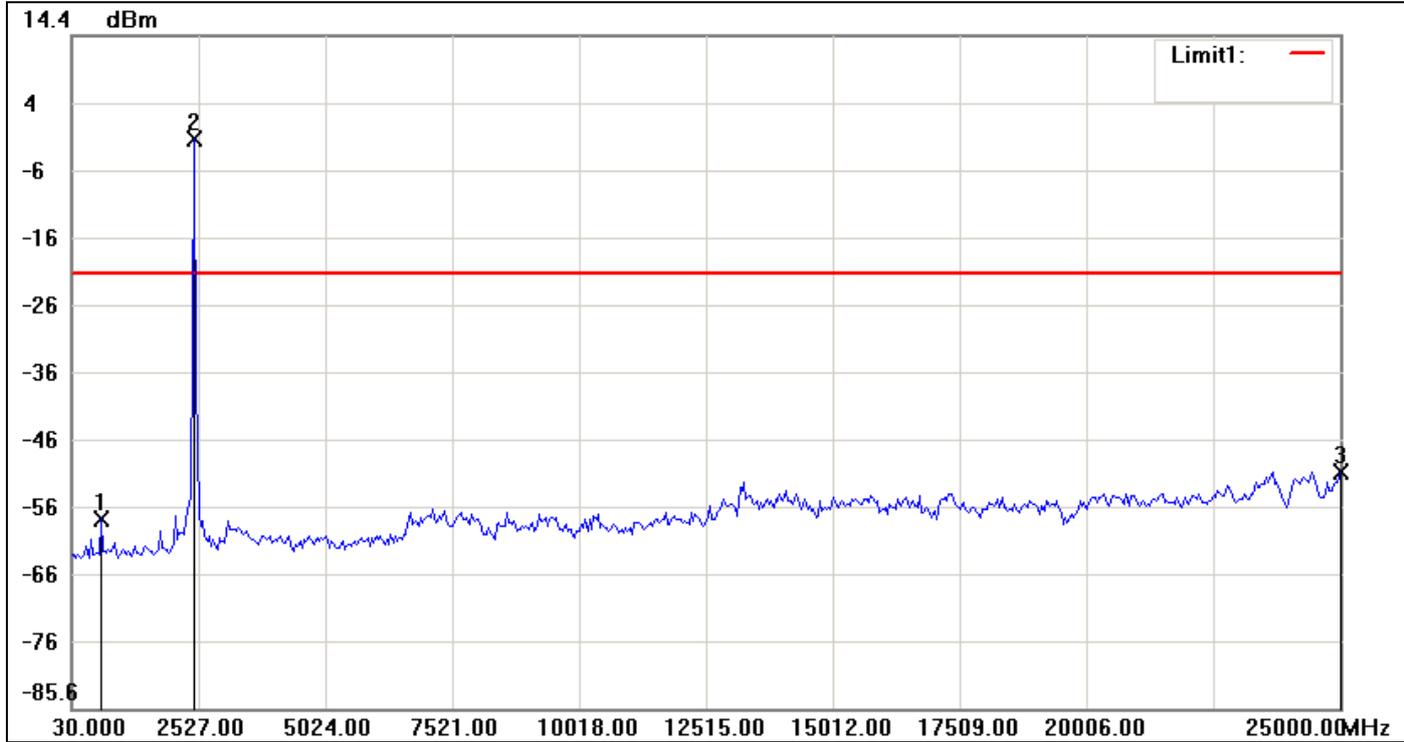
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.19	-26.04	-32.15
2	2402.1500	-6.04	-26.04	20.00
3	25000.0000	-60.81	-26.04	-34.77

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-57.60	-21.04	-36.56
2	2443.7667	-1.04	-21.04	20.00
3	25000.0000	-50.39	-21.04	-29.35

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High

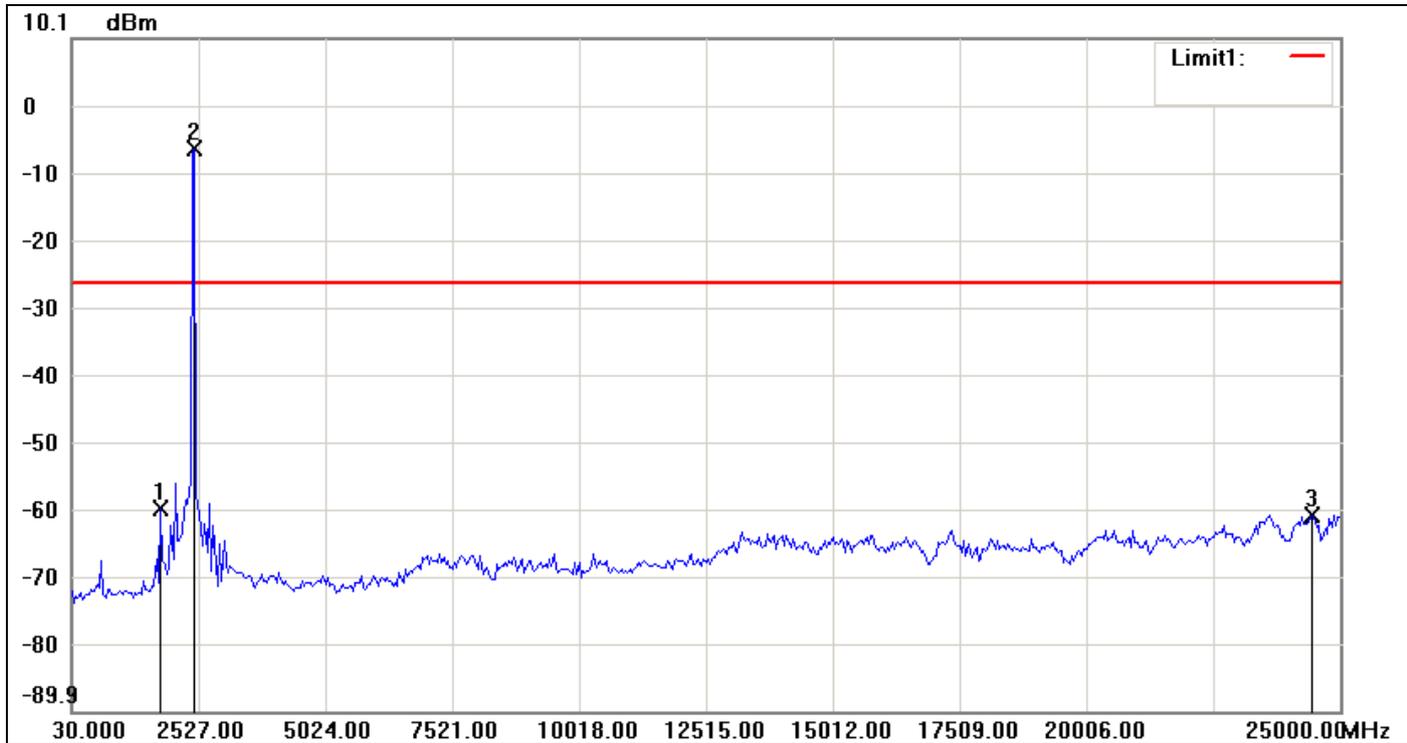


No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.59	-25.47	-33.12
2	2443.7667	-5.47	-25.47	20.00
3	24417.3667	-59.85	-25.47	-34.38

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 40 MHz mode / Chain 2

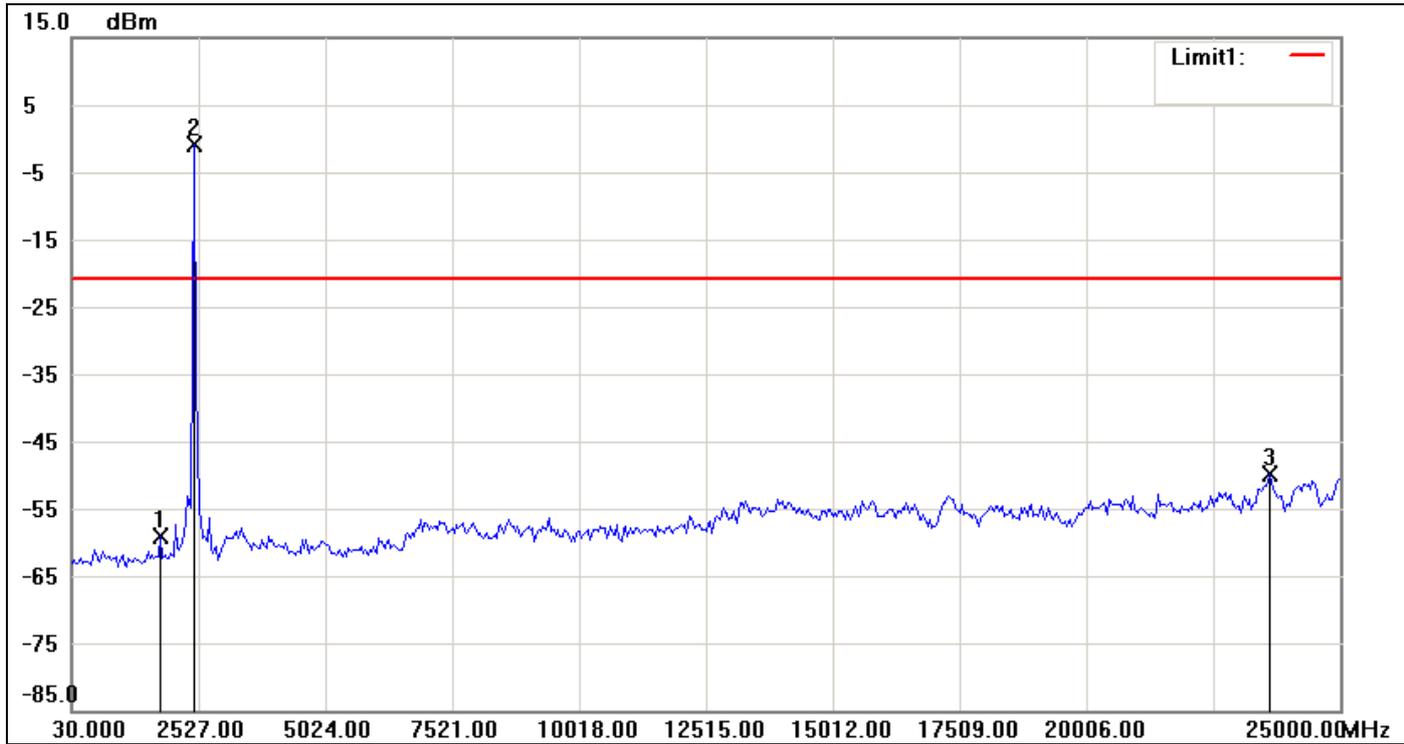
CH Low



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-59.84	-26.32	-33.52
2	2443.7667	-6.32	-26.32	20.00
3	24458.9833	-60.66	-26.32	-34.34

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

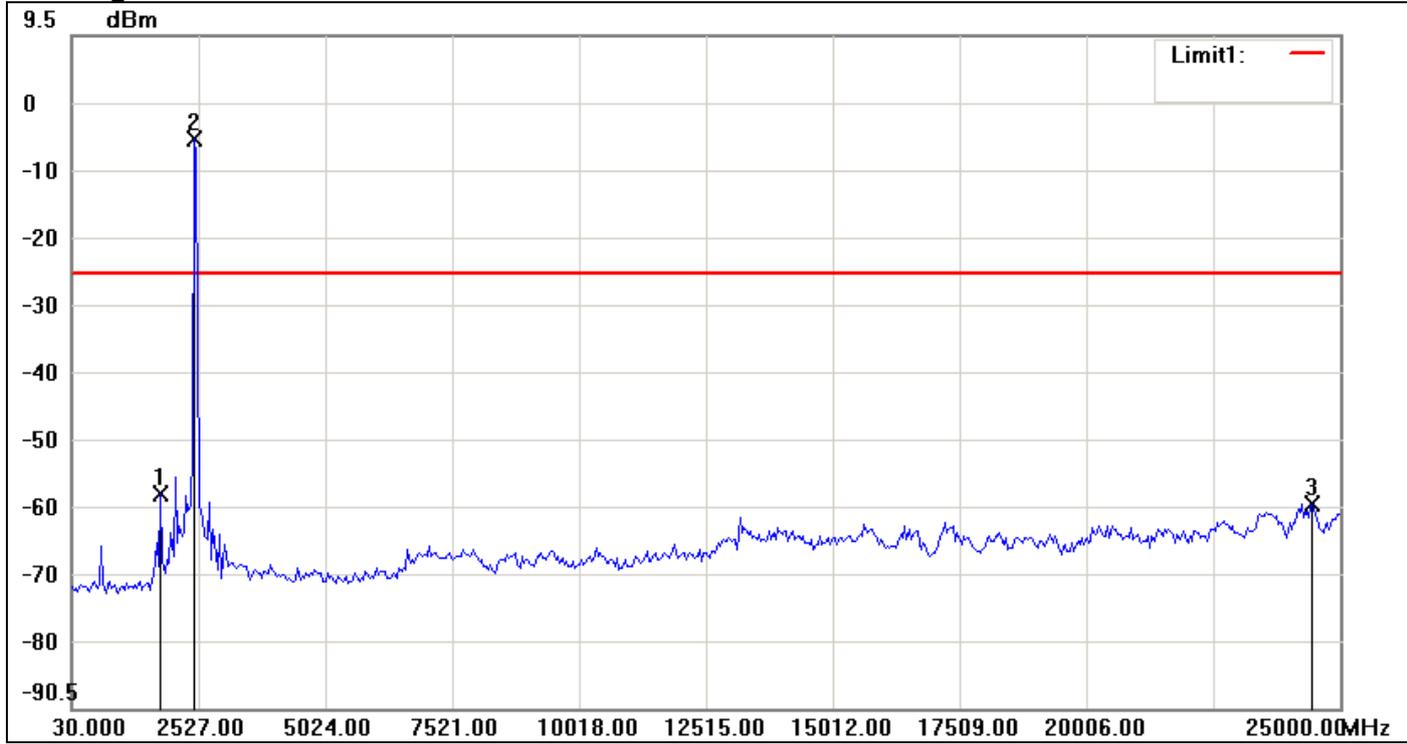
CH Mid



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-59.10	-20.80	-38.30
2	2443.7667	-0.80	-20.80	20.00
3	23626.6500	-49.83	-20.80	-29.03

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

CH High



No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-58.56	-25.84	-32.72
2	2443.7667	-5.84	-25.84	20.00
3	24458.9833	-60.08	-25.84	-34.24

Remark: The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

IEEE 802.11n HT 40 MHz mode

Low Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
1777.9	-58.53	---	-59.84	-55.52	-26.32	-29.20
24458.9833	-60.34	---	-60.66	-57.33	-26.32	-31.01
612.6333	---	-58.19	---	-55.18	-26.32	-28.86
25000	---	-60.81	---	-57.80	-26.32	-31.48
Fundamental limit	-26	-26.04	-26.32	---		

Mid Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
1777.9	-57.25	---	-59.1	-54.24	-21.04	-33.20
24425.75	-50.13	---	---	-47.12	-21.04	-26.08
612.6333	---	-57.6	---	-54.59	-21.04	-33.55
25000	---	-50.39	---	-47.38	-21.04	-26.34
23626.65	---	---	-49.83	-46.82	-21.04	-25.78
Fundamental limit	-20.64	-21.04	-20.8	---		

High Channel						
Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Total (dBm)	Limit (dBm)	Margin (dBm)
1777.9	-58.93	---	-58.56	-55.55	-26.08	-29.47
24167.6667	-59.77	---	---	-56.76	-26.08	-30.68
612.6333	---	-58.59	---	-55.58	-26.08	-29.50
24417.3667	---	-59.85	---	-56.84	-26.08	-30.76
24458.9833	---	---	-60.08	-57.07	-26.08	-30.99
Fundamental limit	-26.08	-25.47	-25.84	---		

Remark:

- Total (dBm) = Measure + 10 log(3) dB,
 Measure=Choose the max chain value

7.7 RADIATED 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

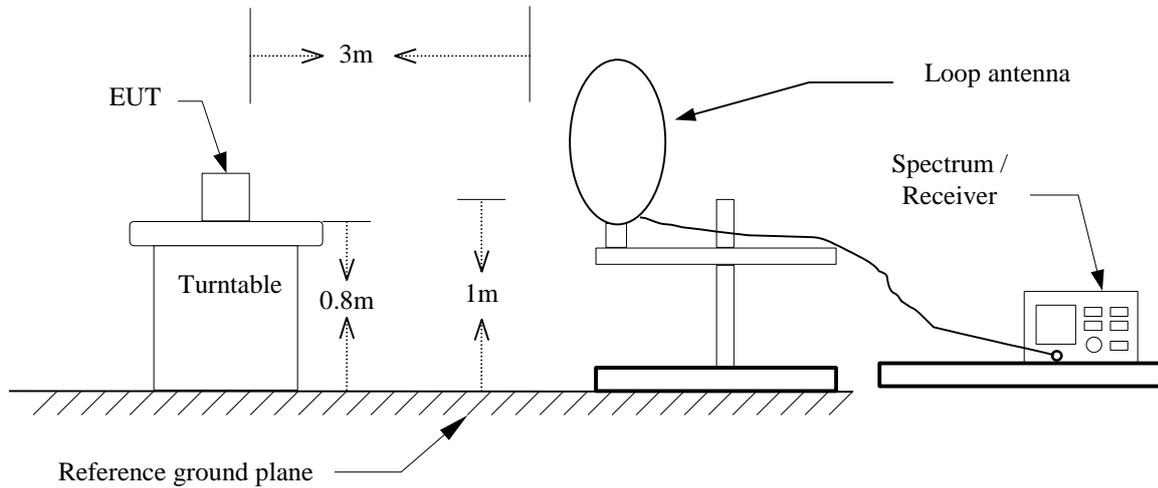
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

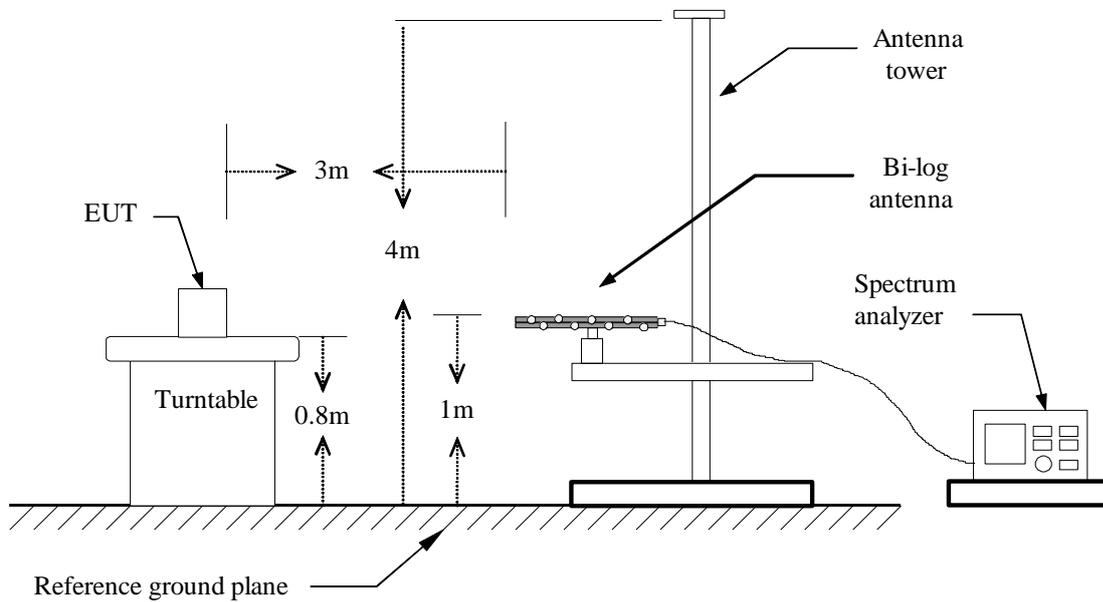
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
0.009 - 0.490	2400/F(kHz) +80	20LOG((2400/F(kHz))+80)
0.490 - 1.705	24000/F(kHz) +40	20LOG((24000/F(kHz))+40)
1.705 – 30.0	30	69.54
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

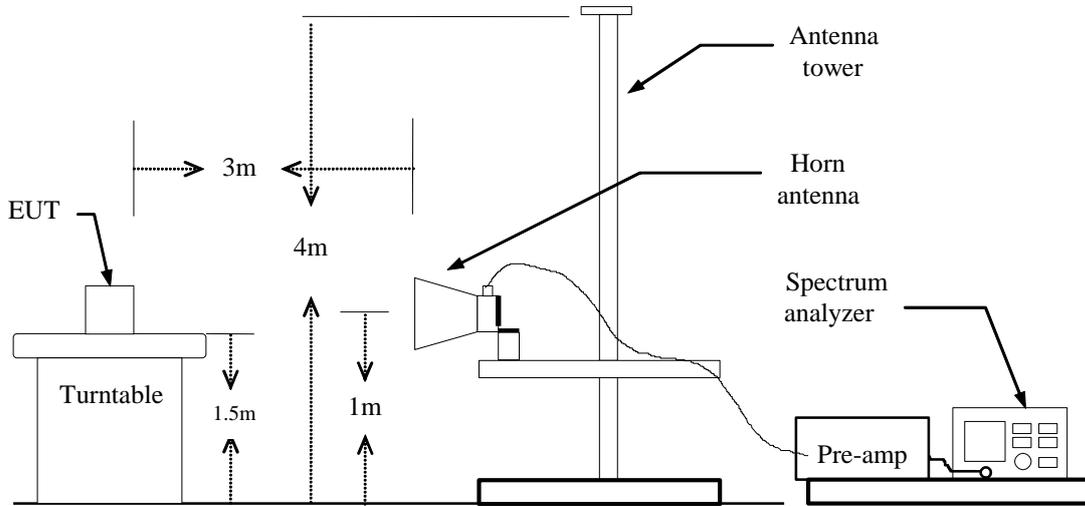
9kHz ~ 30MHz



30MHz ~ 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 1.5m 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=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

Below 1 GHz

Operation Mode: Normal Link

Test Date: July 14, 2015

Temperature: 27°C

Tested by: Jason Lu

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)
65.57	51.92	-16.97	34.95	40.00	-5.05	Peak	V
144.78	49.05	-12.28	36.77	43.50	-6.73	Peak	V
308.07	52.56	-10.71	41.85	46.00	-4.15	Peak	V
374.35	45.67	-9.75	35.92	46.00	-10.08	Peak	V
453.57	43.77	-8.55	35.22	46.00	-10.78	Peak	V
624.93	43.50	-6.30	37.19	46.00	-8.81	Peak	V
110.83	51.30	-12.90	38.40	43.50	-5.10	Peak	H
144.78	46.93	-12.28	34.64	43.50	-8.86	Peak	H
191.67	51.86	-12.69	39.17	43.50	-4.33	Peak	H
277.35	49.00	-11.29	37.71	46.00	-8.29	Peak	H
624.93	44.62	-6.30	38.31	46.00	-7.69	Peak	H
875.52	41.38	-2.54	38.84	46.00	-7.16	Peak	H

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak 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) – Quasi-peak limit (dBuV/m).

Above 1 GHz

Operation Mode: Tx / IEEE 802.11b mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2270.00	56.56	---	-4.77	51.79	---	74.00	54.00	-2.21	Peak	V
4825.00	47.94	---	2.61	50.55	---	74.00	54.00	-3.45	Peak	V
7233.33	46.76	40.95	7.26	54.02	48.21	74.00	54.00	-5.79	AVG	v
N/A										
2253.33	58.83	51.28	-4.81	54.01	46.47	74.00	54.00	-7.53	AVG	H
2493.33	62.82	54.77	-3.90	58.92	50.87	74.00	54.00	-3.13	AVG	H
2530.00	58.88	50.22	-3.77	55.11	46.45	74.00	54.00	-7.55	AVG	H
4825.00	48.32	---	2.61	50.93	---	74.00	54.00	-3.07	Peak	H
N/										

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 mode / CH Mid
Temperature: 27°C
Humidity: 53% RH

Test Date: July 12, 2015
Tested by: Jason Lu
Polarity: Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1133.33	59.04	---	-10.93	48.11	---	74.00	54.00	-5.89	Peak	V
4883.33	49.20	---	2.73	51.93	---	74.00	54.00	-2.07	Peak	V
N/A										
2380.00	60.54	57.09	-4.36	56.18	52.73	74.00	54.00	-1.27	AVG	H
2493.33	60.28	51.88	-3.90	56.38	47.98	74.00	54.00	-6.02	AVG	H
2606.67	59.32	52.23	-3.51	55.81	48.72	74.00	54.00	-5.28	AVG	H
4883.33	46.64	---	2.73	49.37	---	74.00	54.00	-4.63	Peak	H
7325.00	47.01	41.63	7.23	54.24	48.86	74.00	54.00	-5.14	AVG	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 mode / CH High

Test Date: July 12, 2015

Temperature: 27°C

Tested by: Jason Lu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2360.00	56.11	---	-4.44	51.67	---	74.00	54.00	-2.33	Peak	V
4925.00	48.92	---	2.81	51.73	---	74.00	54.00	-2.27	Peak	V
7383.33	46.72	41.76	7.20	53.92	48.96	74.00	54.00	-5.04	AVG	v
N/A										
2543.33	63.72	54.30	-3.72	60.00	50.58	74.00	54.00	-3.42	AVG	H
4925.00	47.59	---	2.81	50.40	---	74.00	54.00	-3.60	Peak	H
7383.33	48.52	42.91	7.20	55.72	50.11	74.00	54.00	-3.89	AVG	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 mode / CH Low

Test Date: July 12, 2015

Temperature: 27°C

Tested by: Jason Lu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2143.33	56.46	---	-5.10	51.37	---	74.00	54.00	-2.63	Peak	V
4825.00	47.36	---	2.61	49.97	---	74.00	54.00	-4.03	Peak	V
N/A										
2490.00	60.52	54.63	-3.91	56.61	50.72	74.00	54.00	-3.28	AVG	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 mode/ CH Mid

Test Date: July 12, 2015

Temperature: 27°C

Tested by: Jason Lu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.00	61.08	---	-10.92	50.16	---	74.00	54.00	-3.84	Peak	V
N/A										
2380.00	58.59	51.44	-4.36	54.23	47.08	74.00	54.00	-6.92	AVG	H
2523.33	59.70	50.57	-3.79	55.91	46.78	74.00	54.00	-7.22	AVG	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 mode/ CH High

Test Date: July 12, 2015

Temperature: 27°C

Tested by: Jason Lu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2153.33	57.05	---	-5.07	51.98	---	74.00	54.00	-2.02	Peak	V
N/A										
2540.00	59.51	50.66	-3.73	55.78	46.93	74.00	54.00	-7.07	AVG	H
2620.00	58.79	51.20	-3.46	55.33	47.74	74.00	54.00	-6.26	AVG	H
7191.67	46.60	34.69	7.28	53.88	41.97	74.00	54.00	-12.03	AVG	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).

Mode 1

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2076.67	56.81	---	-5.27	51.54	---	74.00	54.00	-2.46	Peak	V
N/A										
1946.67	57.14	---	-6.01	51.13	---	74.00	54.00	-2.87	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2103.33	56.32	---	-5.20	51.12	---	74.00	54.00	-2.88	Peak	V
N/A										
2596.67	59.65	45.30	13.54	56.11	41.76	74.00	54.00	-12.24	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2040.00	56.76	---	-5.37	51.40	---	74.00	54.00	-2.60	Peak	V
N/A										
2033.33	57.24	---	-5.38	51.86	---	74.00	54.00	-2.14	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 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2016.67	56.96	---	-5.43	51.53	---	74.00	54.00	-2.47	Peak	V
N/A										
2126.67	57.13	---	-5.14	51.99	---	74.00	54.00	-2.01	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2266.67	56.10	---	-4.78	51.33	---	74.00	54.00	-2.67	Peak	V
N/A										
2390.00	67.37	47.44	-4.32	63.05	43.12	74.00	54.00	-10.88	AVG	H
2483.33	77.86	55.43	-3.94	73.92	51.49	74.00	54.00	-2.51	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1990.00	57.56	---	-5.57	51.99	---	74.00	54.00	-2.01	Peak	V
N/A										
2483.33	68.17	56.51	-3.94	64.23	52.57	74.00	54.00	-1.43	AVG	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).

Mode 2

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.00	59.44	---	-10.92	48.52	---	74.00	54.00	-5.48	Peak	V
N/A										
2500.00	57.11	49.88	-3.87	53.24	46.01	74.00	54.00	-0.76	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.00	59.36	---	-10.92	48.44	---	74.00	54.00	-5.56	Peak	V
N/A										
2526.67	57.95	47.95	-3.78	54.17	44.17	74.00	54.00	-9.83	AVG	H
2613.33	57.32	45.62	-3.48	53.83	42.14	74.00	54.00	-11.46	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1126.67	59.67	---	-10.94	48.73	---	74.00	54.00	-5.27	Peak	V
N/A										
2550.00	56.53	46.01	-3.70	52.83	42.31	74.00	54.00	-11.69	AVG	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 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1140.00	60.07	---	-10.92	49.15	---	74.00	54.00	-4.85	Peak	V
N/A										
2113.33	55.84	---	-5.18	50.66	---	74.00	54.00	-3.34	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1123.33	59.33	---	-10.94	48.39	---	74.00	54.00	-5.61	Peak	V
N/A										
2483.33	73.63	56.45	-3.94	69.69	52.51	74.00	54.00	-1.49	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1176.67	58.86	---	-10.89	47.97	---	74.00	54.00	-6.03	Peak	V
N/A										
1940.00	56.69	---	-6.08	50.61	---	74.00	54.00	-3.39	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).

For Mode 3

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2123.33	56.72	---	-5.15	51.57	---	74.00	54.00	-2.43	Peak	V
N/A										
2480.00	58.42	52.22	-3.95	54.47	48.27	74.00	54.00	-5.73	AVG	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2123.33	55.24	---	-5.15	50.09	---	74.00	54.00	-3.91	Peak	V
N/A										
2543.33	57.66	49.87	-3.72	53.94	46.15	74.00	54.00	-7.85	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1146.67	58.61	---	-10.92	47.70	---	74.00	54.00	-6.30	Peak	V
N/A										
2620.00	57.93	50.44	-3.46	54.47	46.98	74.00	54.00	-7.02	AVG	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 MHz mode / CH Low **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1126.67	59.39	---	-10.94	48.45	---	74.00	54.00	-5.55	Peak	V
N/A										
2090.00	56.88	---	-5.24	51.65	---	74.00	54.00	-2.35	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 MHz mode / CH Mid **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1963.33	57.77	---	-5.84	51.93	---	74.00	54.00	-2.07	Peak	V
N/A										
2390.00	64.53	45.21	-4.32	60.21	40.89	74.00	54.00	-13.11	AVG	H
2483.33	76.93	55.44	-3.94	72.99	51.50	74.00	54.00	-2.50	AVG	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 MHz mode / CH High **Test Date:** July 12, 2015
Temperature: 27°C **Tested by:** Jason Lu
Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
2133.33	56.74	---	-5.12	51.62	---	74.00	54.00	-2.38	Peak	V
N/A										
2080.00	57.17	---	-5.26	51.91	---	74.00	54.00	-2.09	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).

7.8 POWERLINE 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 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

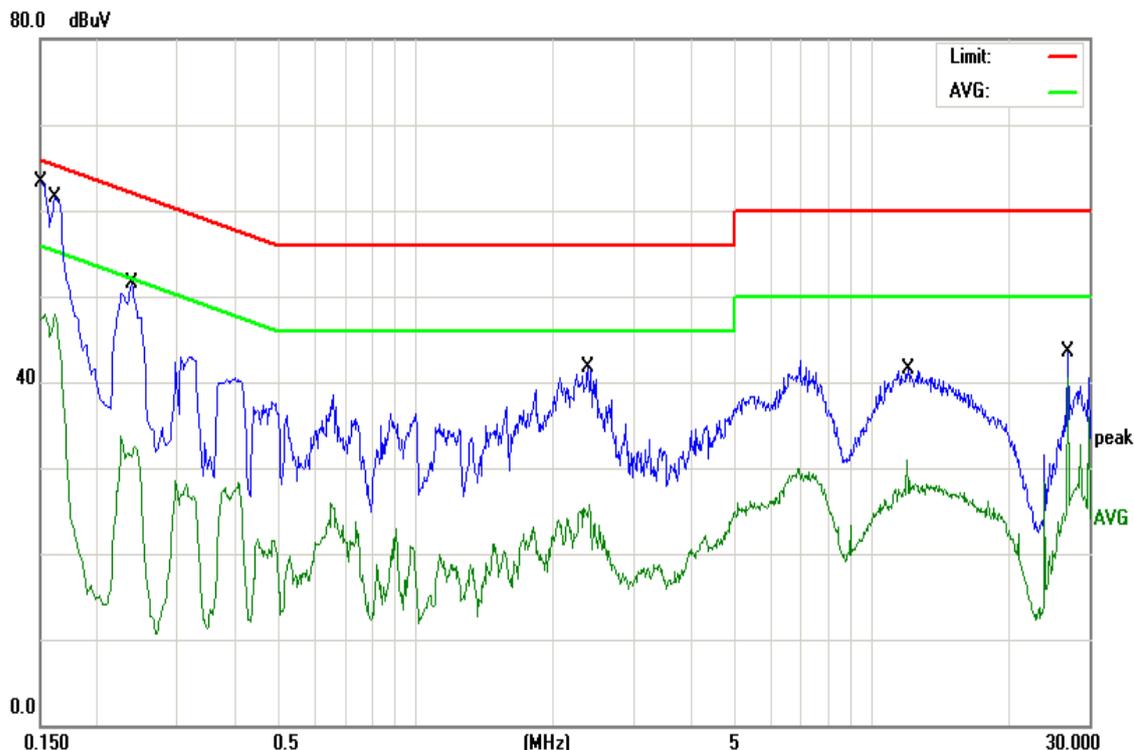
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

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:** July 14, 2015
Temperature: 24°C **Tested by:** Frank Liao
Humidity: 60% RH **Line** L1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	47.87	10.26	58.13	65.99	-7.86	QP
2	0.1500	36.96	10.26	47.22	55.99	-8.77	AVG
3	0.1620	36.29	10.23	46.52	65.36	-18.84	QP
4	0.1620	14.62	10.23	24.85	55.36	-30.51	AVG
5	0.2380	21.76	10.12	31.88	62.16	-30.28	QP
6	0.2380	3.11	10.12	13.23	52.16	-38.93	AVG
7	2.3900	27.55	10.03	37.58	56.00	-18.42	QP
8	2.3900	15.24	10.03	25.27	46.00	-20.73	AVG
9	12.0580	20.21	10.21	30.42	60.00	-29.58	QP
10	12.0580	16.97	10.21	27.18	50.00	-22.82	AVG
11	26.9340	30.21	10.56	40.77	60.00	-19.23	QP
12	26.9340	15.48	10.56	26.04	50.00	-23.96	AVG

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 to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz.
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

Operation Mode: Normal Link **Test Date:** July 14, 2015
Temperature: 24°C **Tested by:** Frank Liao
Humidity: 60% RH **Line** L2



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	47.44	10.09	57.53	65.99	-8.46	QP
2	0.1500	32.59	10.09	42.68	55.99	-13.31	AVG
3	0.1580	42.18	10.07	52.25	65.56	-13.31	QP
4	0.1580	36.76	10.07	46.83	55.56	-8.73	AVG
5	0.2220	30.56	10.00	40.56	62.74	-22.18	QP
6	0.2220	18.11	10.00	28.11	52.74	-24.63	AVG
7	0.3140	32.60	9.94	42.54	59.86	-17.32	QP
8	0.3140	18.11	9.94	28.05	49.86	-21.81	AVG
9	2.3580	32.36	9.94	42.30	56.00	-13.70	QP
10	2.3900	14.33	9.94	24.27	46.00	-21.73	AVG
11	26.9340	32.42	10.50	42.92	60.00	-17.08	QP
12	27.3780	15.96	10.50	26.46	50.00	-23.54	AVG

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 to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz.
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)