FCC 47 CFR PART 15 SUBPART C

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.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: November 24, 2011**

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		November 24, 2011		Initial Issue	ALL	Angel Cheng

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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: November 1 ~ 18, 2011

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

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 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:*

Jason Lin   Gina Lo
Section Manager   Section Manager
Compliance Certification Services Inc. 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	October 28, 2011
Power Adapter	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 802.11a/ IEEE 802.11n HT 20 MHz: 5.725~5.850 GHz IEEE 802.11b/g/ IEEE 802.11n HT 20 MHz: 2.412~2.462 GHz IEEE 802.11n HT 40 MHz: 2.422~2.452 GHz
Transmit Power	**Mode 1:** 2.4GHz: IEEE 802.11n HT 20 MHz mode / MCS8 Chain 0: 22.18dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 1: 21.87dBm IEEE 802.11n HT 20 MHz mode / MCS8 Total : 25.04 dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 0: 22.47dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 1: 22.64dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 25.57dBm 5GHz: IEEE 802.11n HT 20 MHz mode / MCS8 Chain 1: 20.83dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 2: 20.51dBm IEEE 802.11n HT 20 MHz mode / MCS8 Total : 23.68 dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 1: 21.31dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 2: 21.49dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 24.34dBm **Mode 2:** 2.4GHz: IEEE 802.11n HT 20 MHz mode / MCS8 Chain 1: 21.74dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 2: 22.05dBm IEEE 802.11n HT 20 MHz mode / MCS8 Total : 24.91 dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 1: 21.69dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 2: 23.17dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 25.50 dBm 5GHz: IEEE 802.11n HT 20 MHz mode / MCS8 Chain 1: 20.39dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 2: 21.47dBm IEEE 802.11n HT 20 MHz mode / MCS8 Total : 23.97dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 1: 19.97dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 2: 21.58dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 23.79dBm **Mode 3:** IEEE 802.11b mode: 21.76 dBm IEEE 802.11g mode: 24.15 dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 0: 22.01dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 2: 22.17dBm

	IEEE 802.11n HT 20 MHz mode / MCS8 Total : 25.10dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 0: 22.01dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 2: 22.67dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 25.36dBm IEEE 802.11a mode: 22.45 dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 0: 20.94dBm IEEE 802.11n HT 20 MHz mode / MCS8 Chain 2: 21.32dBm IEEE 802.11n HT 20 MHz mode / MCS8 Total : 24.14dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 0: 21.26dBm IEEE 802.11n HT 40 MHz mode / MCS8 Chain 2: 21.67dBm IEEE 802.11n HT 40 MHz mode / MCS8 Total : 24.48dBm
Modulation Technique & Transmit Data Rate	IEEE 802.11a: OFDM (54, 48, 36, 24, 18, 12, 9, 6 Mbps) IEEE 802.11n HT 20 MHz mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 MHz mode:OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps) IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) IEEE 802.11n HT 20 MHz mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 MHz mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)
Number of Channels	IEEE 802.11a mode: 5 Channels IEEE 802.11n HT 20 MHz mode: 5 Channels IEEE 802.11n HT 40 MHz mode: 2 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
Enclosure Material Type	Plastic
Antenna Specification	Antenna Type: PIFA Antenna Antenna Gain: IEEE 802.11a: Antenna 1: 4.88 dBi Antenna 2: 4.97 dBi Antenna 3: 4.74 dBi 2TX MIMO: $10*LOG(((10^{(4.88/20)}+10^{(4.97/20)})^2)/2) = 7.94$ dBi (Numeric gain: 6.22) IEEE 802.11b/g mode: Antenna 1: 4.32 dBi Antenna 2: 4.67 dBi Antenna 3: 3.96 dBi 2TX MIMO: $10*LOG(((10^{(4.32/20)}+10^{(4.67/20)})^2)/2) = 7.51$ dBi (Numeric gain: 5.63)

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 C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

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

3.2 EUT EXERCISE

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

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

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

3.4 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 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[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" chain 0, chain 1
"Mode 2" chain 1, chain 2
"Mode 3" chain 0, 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 0 emits the highest output power.
Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with chain 0 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 0 emits the highest output power.
Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with chain 0 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.

IEEE 802.11a mode:
During the preliminary test, Chain 0,Chain 1,Chain 2 with IEEE 802.11a mode were pre-tested and found that Chain 0 emits the highest output power.
Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with chain 0 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(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) 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(5755MHz) and Channel High(5795MHz) 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 (X axis) and the worst case was recorded.

3.6 EUT SYSTEM OPERATION

1. EUT link to NB   (IP :192.168.1.XX)
2. EUT power ON，link to LAN cable (Area network settings: 192.168.1.XX)
3. ping 192.168.1.1 –t , check EUT has linked to NB
4. telnet 192.168.1.1
5. After entering the symbol can be seen">"
6. RF command 如下:

B/G
wl mpc 0
wl down
wl phy_watchdog 0
wl bi 65535
wl rateset 1b
wl down
wl band b
wl mimo_bw_cap 1
wl mimo_txbw 2
wl country ALL
wl chanspec 1 (channel:1~11)
wl rateset 1b
wl frameburst 1
wl ampdu 1
wl up
wl nrate -r 1 -s 0 (-r :B = 1~11、G = 6~54)
wl txant 0 (ant:0 1)
wl ssid ""
wl txpwr1 -o -d 13
wl interference 0
wl pkteng_start   00:90:4c:21:00:8e tx 30 1500 0

11g HT20
wl -i eth1 down
wl -i eth1 phy_antsel 0x20 0x20 0x20 0x20 (Chain0+Chain1)
wl -i eth1 phy_antsel 0x12 0x20 0x12 0x20 (Chain1+Chain2)
wl -i eth1 phy_watchdog 0 (Chain0+Chain2)
wl -i eth1 up
wl -i eth1 phy_antsel
wl -i eth1 mpc 0
wl -i eth1 down
wl -i eth1 phy_watchdog 0
wl -i eth1 bi 65535
wl -i eth1 down
wl -i eth1 mimo_bw_cap 1
wl -i eth1 mimo_txbw 2
wl -i eth1 country ALL
wl -i eth1 chanspec -c 1 -b 2 -w 20 -s -1 (-c=channel:1~11)
wl -i eth1 frameburst 1
wl -i eth1 ampdu 1
wl -i eth1 up

wl -i eth1 nrate -m 8 -s 3 (-m=mcs8)
wl -i eth1 ssid ""
wl -i eth1 txpwr1 -o -d 13
wl -i eth1 interference 0
wl -i eth1 pkteng_start   00:90:4c:21:00:8e tx 100 1500 0

11g HT40
wl -i eth1 down
wl -i eth1 phy_antsel 0x20 0x20 0x20 0x20 (Chain0+Chain1)
wl -i eth1 phy_antsel 0x12 0x20 0x12 0x20 (Chain1+Chain2)
wl -i eth1 phy_watchdog 0 (Chain0+Chain2)
wl -i eth1 up
wl -i eth1 phy_antsel
wl -i eth1 mpc 0
wl -i eth1 downwl
wl -i eth1 phy_watchdog 0
wl -i eth1 bi 65535
wl -i eth1 down
wl -i eth1 mimo_bw_cap 1
wl -i eth1 mimo_txbw 4
wl -i eth1 country ALL
wl -i eth1 chanspec -c 3 -b 2 -w 40 -s -1 (-c=channel:3~ 9)
wl -i eth1 frameburst 1
wl -i eth1 ampdu 1
wl -i eth1 up
wl -i eth1 nrate -m 8 -s 3
wl -i eth1 ssid ""
wl -i eth1 txpwr1 -o -d 13
wl -i eth1 interference 0
wl -i eth1 pkteng_start   00:90:4c:21:00:8e tx 100 1500 0

11a
wl mpc 0
wl down
wl phy_watchdog 0
wl bi 65535
wl mimo_bw_cap 1
wl mimo_txbw 2
wl country ALL
wl chanspec 36 (channel:36~165)
wl frameburst 1
wl band a
wl ampdu 1
wl up
wl nrate -r 6 -s 0(-r a= 6~54)
wl txant 1(ant:0 1)
wl antdiv 1
wl ssid ""
wl txpwr1 -o -d 13

11a HT20
wl -i eth1 down
wl -i eth1 phy_antsel 0x20 0x20 0x20 0x20 (Chain0+Chain1)
wl -i eth1 phy_antsel 0x12 0x20 0x12 0x20 (Chain1+Chain2)
wl -i eth1 phy_watchdog 0 (Chain0+Chain2)
wl -i eth1 up
wl -i eth1 phy_antsel
wl -i eth1 mpc 0
wl -i eth1 down
wl -i eth1 phy_watchdog 0
wl -i eth1 bi 65535
wl -i eth1 mimo_bw_cap 1
wl -i eth1 mimo_txbw 2
wl -i eth1 country ALL
wl -i eth1 chanspec -c 36 -b 5 -w 20 -s -1 (-c=channel:36~165)
wl -i eth1 frameburst 1
wl -i eth1 band a
wl -i eth1 ampdu 1
wl -i eth1 up
wl -i eth1 nrate -m 8 -s 3 (-m=mcs8)
wl -i eth1 ssid ""
wl -i eth1 txpwr1 -o -d 13
wl -i eth1 interference 0
wl -i eth1 pkteng_start   00:90:4c:21:00:8e tx 100 1500 0

11a HT40
wl -i eth1 down
wl -i eth1 phy_antsel 0x20 0x20 0x20 0x20 (Chain0+Chain1)
wl -i eth1 phy_antsel 0x12 0x20 0x12 0x20 (Chain1+Chain2)
wl -i eth1 phy_watchdog 0 (Chain0+Chain2)
wl -i eth1 up
wl -i eth1 phy_antsel
wl -i eth1 mpc 0
wl -i eth1 down
wl -i eth1 phy_watchdog 0
wl -i eth1 bi 65535
wl -i eth1 mimo_bw_cap 1
wl -i eth1 mimo_txbw 4
wl -i eth1 country ALL
wl-i eth1 chanspec -c 38 -b 5 -w 40 -s -1 (-c=channel: 38/45/54/62/102/134/151/159)
wl -i eth1 frameburst 1
wl -i eth1 band a
wl -i eth1 ampdu 1
wl -i eth1 up
wl -i eth1 nrate -m 8 -s 3 (-m=mcs8)
wl -i eth1 ssid ""
wl -i eth1 txpwr1 -o -d 13

wl -i eth1 interference 0
wl -i eth1 pkteng_start   00:90:4c:21:00:8e tx 100 1500 0

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	MY43360131	03/17/2012
Power Meter	Anritsu	ML2495A	1012009	04/27/2012
Power Sensor	Anritsu	MA2411B	0917072	04/27/2012

Wugu 966 Chamber A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510252	11/02/2012
EMI Test Receiver	R&S	ESCI	100064	02/17/2012
Pre-Amplifier	Mini-Circults	ZFL-1000LN	SF350700823	01/13/2012
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1415367	11/19/2012
Bilog Antenna	Sunol Sciences	JB3	A030105	10/03/2012
Horn Antenna	EMCO	3117	00055165	01/12/2012
Horn Antenna	EMCO	3116	00026370	10/12/2012
Loop Antenna	EMCO	6502	8905/2356	06/10/2013
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Site NSA	CCS	N/A	N/A	12/26/2011
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	06/13/2012
LISN (EUT)	FCC	FCC-LISN-50-32-2	08009	03/27/2012
LISN	SCHWARZBECK	NSLK 8127	8127382	01/02/2012
BNC CABLE	MIYAZAKI	5D-FB	BNC B3	08/07/2012
Pulse Limiter	R&S	ESH3-Z2	100374	01/09/2012
THERMO-HYGRO METER	WISEWIND	201A	1006	05/23/2012
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 14 and the test data, please refer page 215-216.*

☒　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 C63.4 and CISPR Publication 22.

5.2　EQUIPMENT

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

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

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

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

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

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

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

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 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 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration

```
┌─────────┐        ┌──────────────┐
│  EUT    │───────▶│   Spectrum   │
│         │        │   Analyzer   │
└─────────┘        └──────────────┘
```
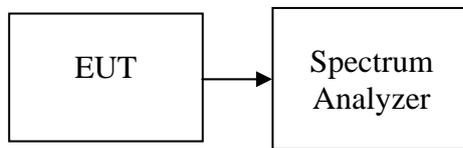
TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.

2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

3. Set the spectrum analyzer as RBW = 100kHz, VBW = RBW, Span = Base mode, Sweep = auto.

4. Mark the peak frequency and –6dB (upper and lower) frequency.

5. Repeat until all the rest channels are investigated.

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		PASS
Mid	2442	8.25	>500	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		PASS
Mid	2442	16.5	>500	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		PASS
Mid	2442	17.75	>500	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		PASS
Mid	2442	17.75	>500	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		PASS
Mid	2442	17.6666	>500	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		PASS
Mid	2442	35.75	>500	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		PASS
Mid	2442	36.4167	>500	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		PASS
Mid	2442	36.1667	>500	PASS
High	2452	36		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.42		PASS
Mid	5785	16.08	>500	PASS
High	5825	16.08		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.75		PASS
Mid	5785	17.75	>500	PASS
High	5825	17.58		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.67		PASS
Mid	5785	17.75	>500	PASS
High	5825	17.58		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.50		PASS
Mid	5785	17.17	>500	PASS
High	5825	17.33		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.67	>500	PASS
High	5795	35.67		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.33	>500	PASS
High	5795	35.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.92	>500	PASS
High	5795	35.42		PASS

Test Plot

For Mode 1

IEEE 802.11b mode

6dB Bandwidth (CH Low)
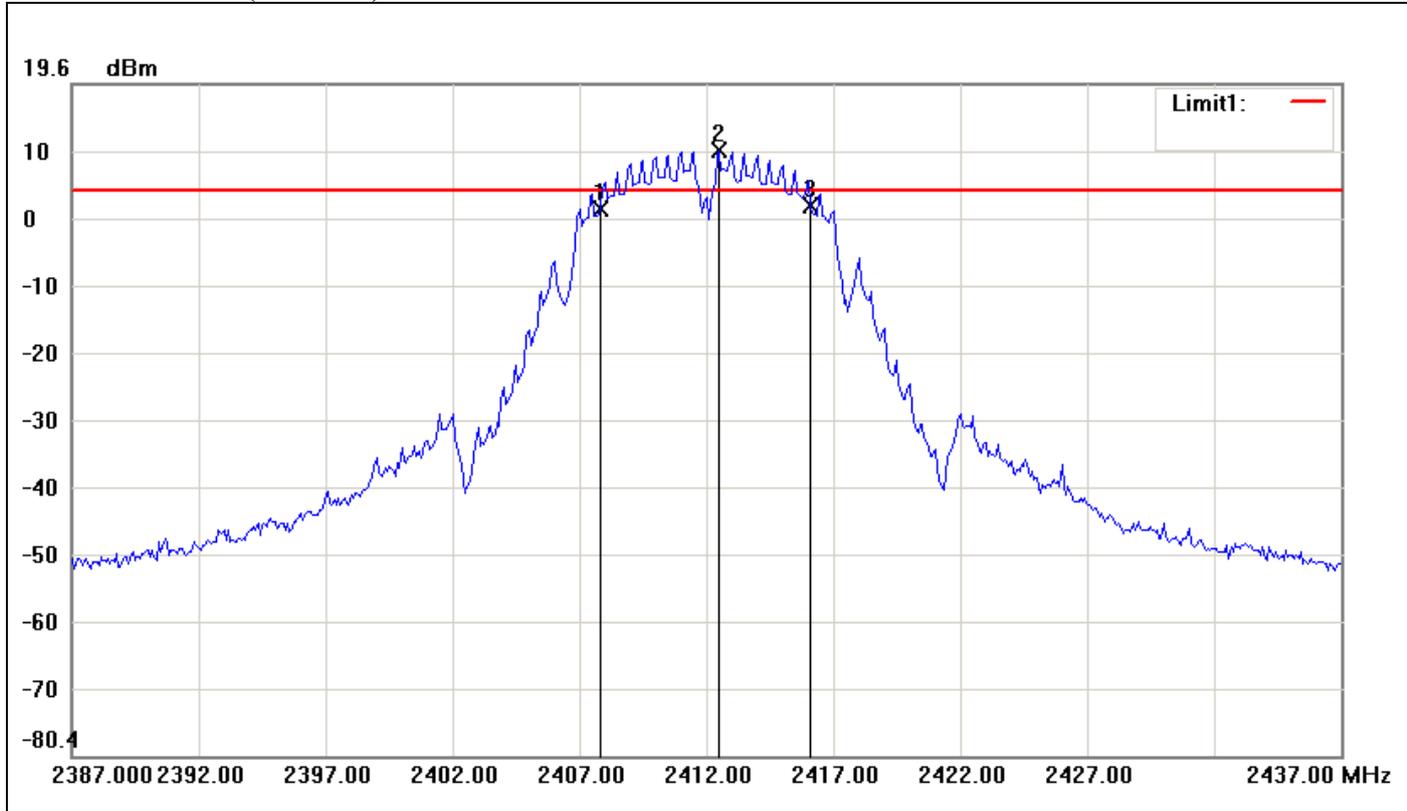
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2407.8333	0.83	3.59	-2.76
2	2412.5000	9.59	3.59	6.00
3	2416.0833	1.47	3.59	-2.12

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

6dB Bandwidth (CH Mid)
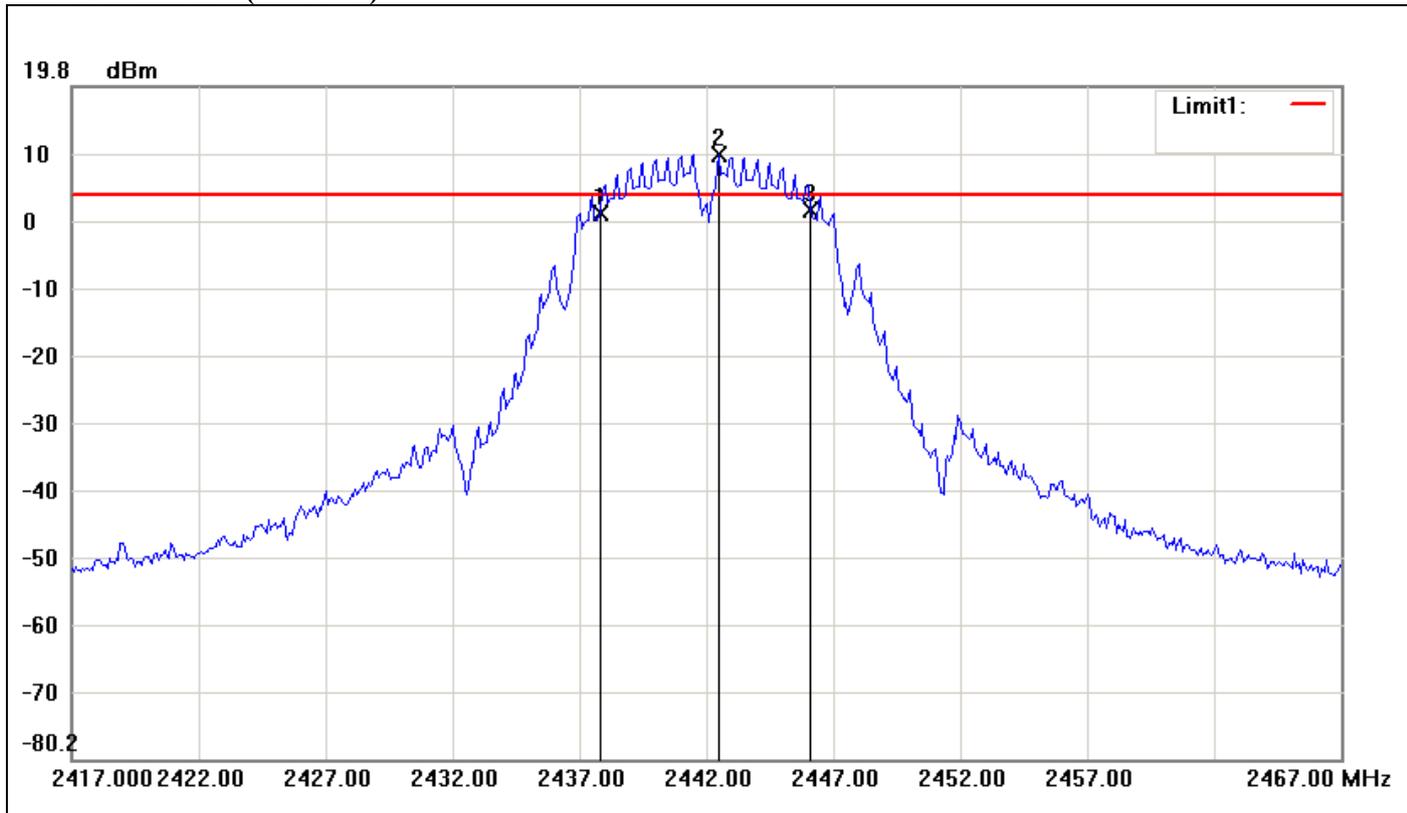
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2442.8333	0.91	3.65	-2.74
2	2442.5000	9.65	3.65	6.00
3	2446.0833	1.43	3.65	-2.22

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

6dB Bandwidth (CH High)
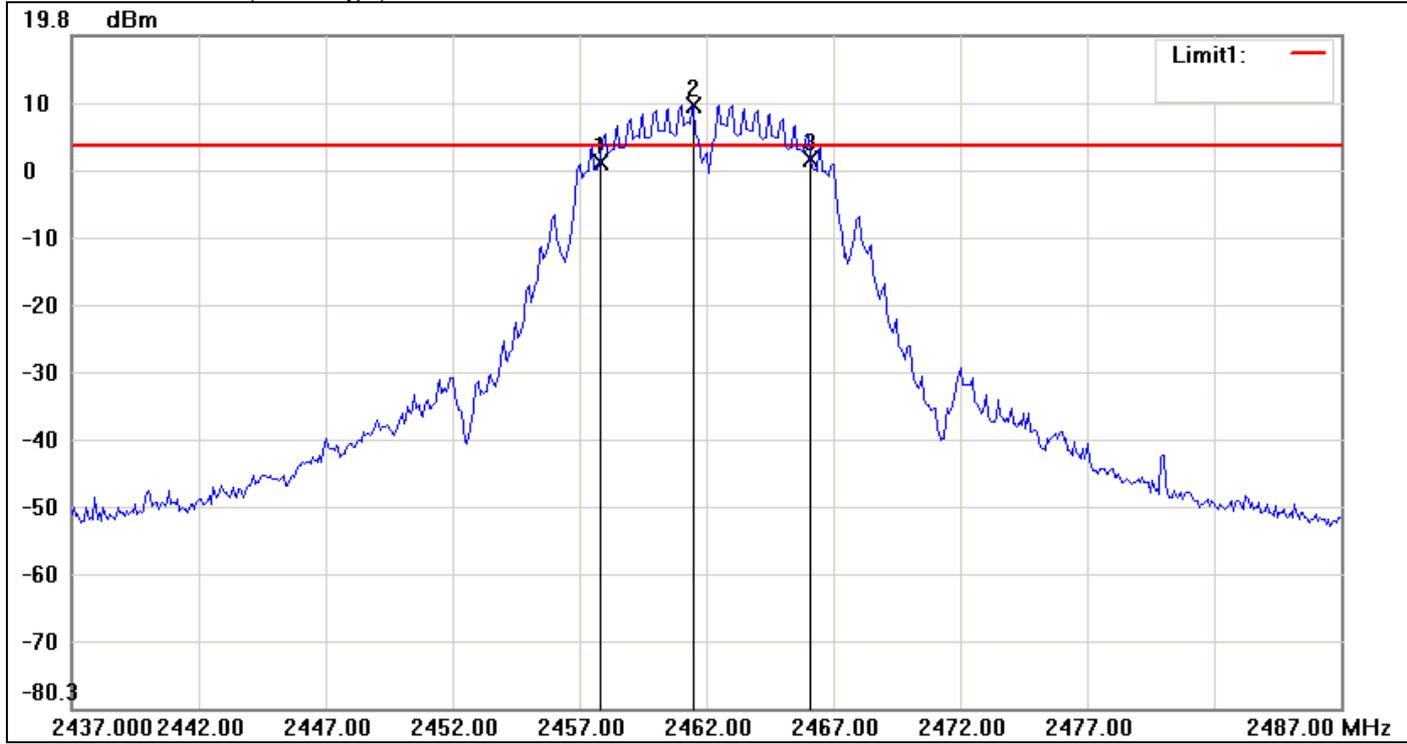
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2457.8333	0.76	3.47	-2.71
2	2461.5000	9.47	3.47	6.00
3	2466.0833	1.37	3.47	-2.10

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

IEEE 802.11g mode

6dB Bandwidth (CH Low)
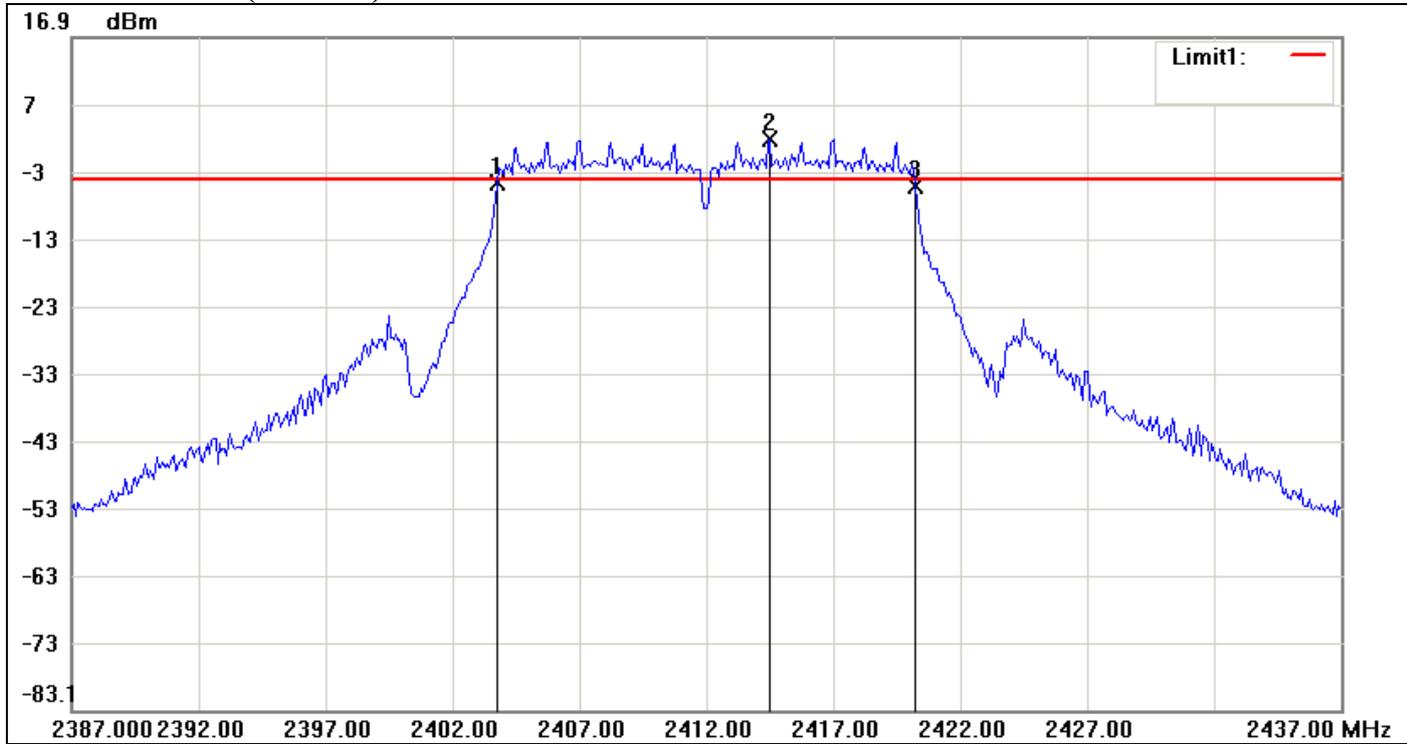
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-4.81	-4.23	-0.58
2	2414.5000	1.77	-4.23	6.00
3	2420.2500	-5.17	-4.23	-0.94

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

6dB Bandwidth (CH Mid)
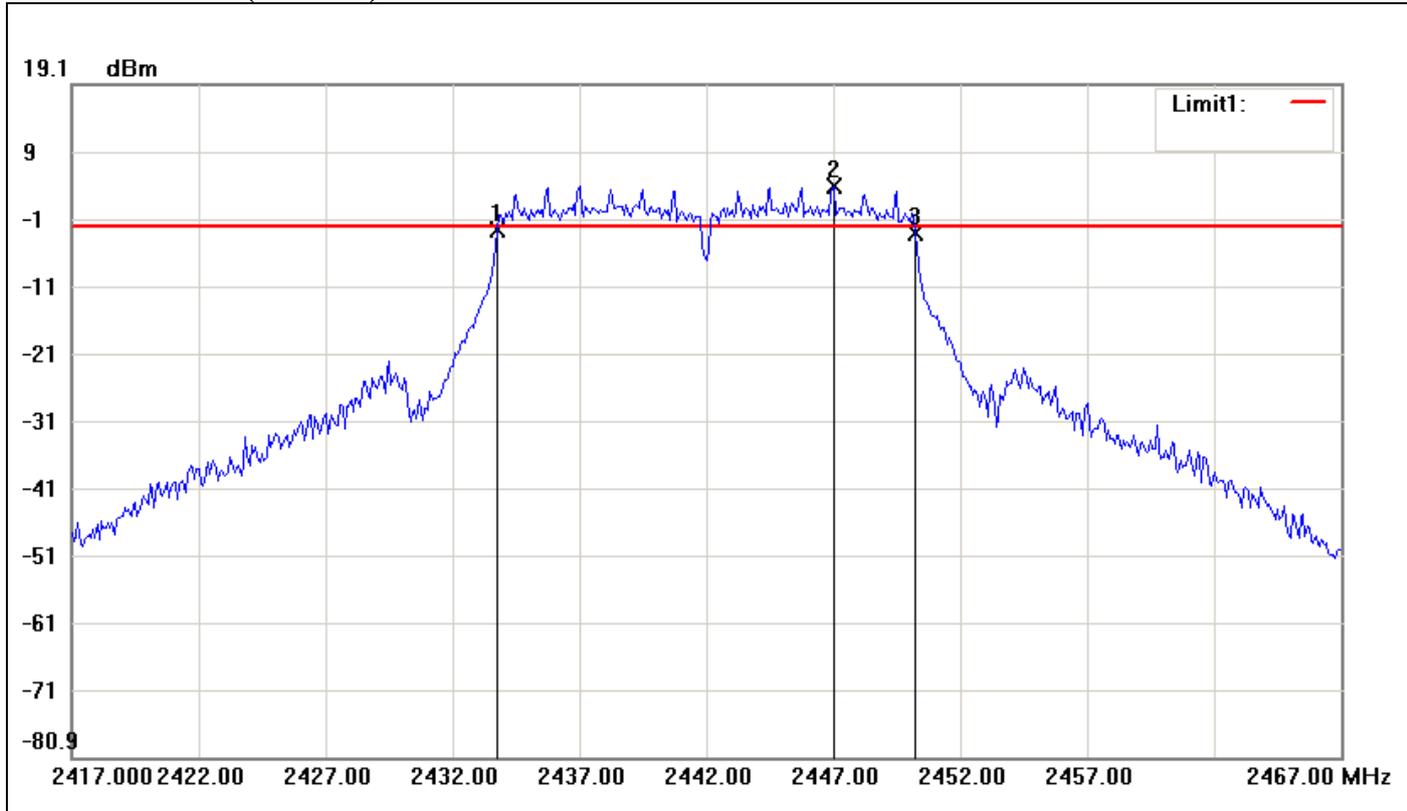
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7500	-2.62	-1.93	-0.69
2	2447.0000	4.07	-1.93	6.00
3	2450.2500	-3.08	-1.93	-1.15

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

6dB 6dB Bandwidth (CH High)
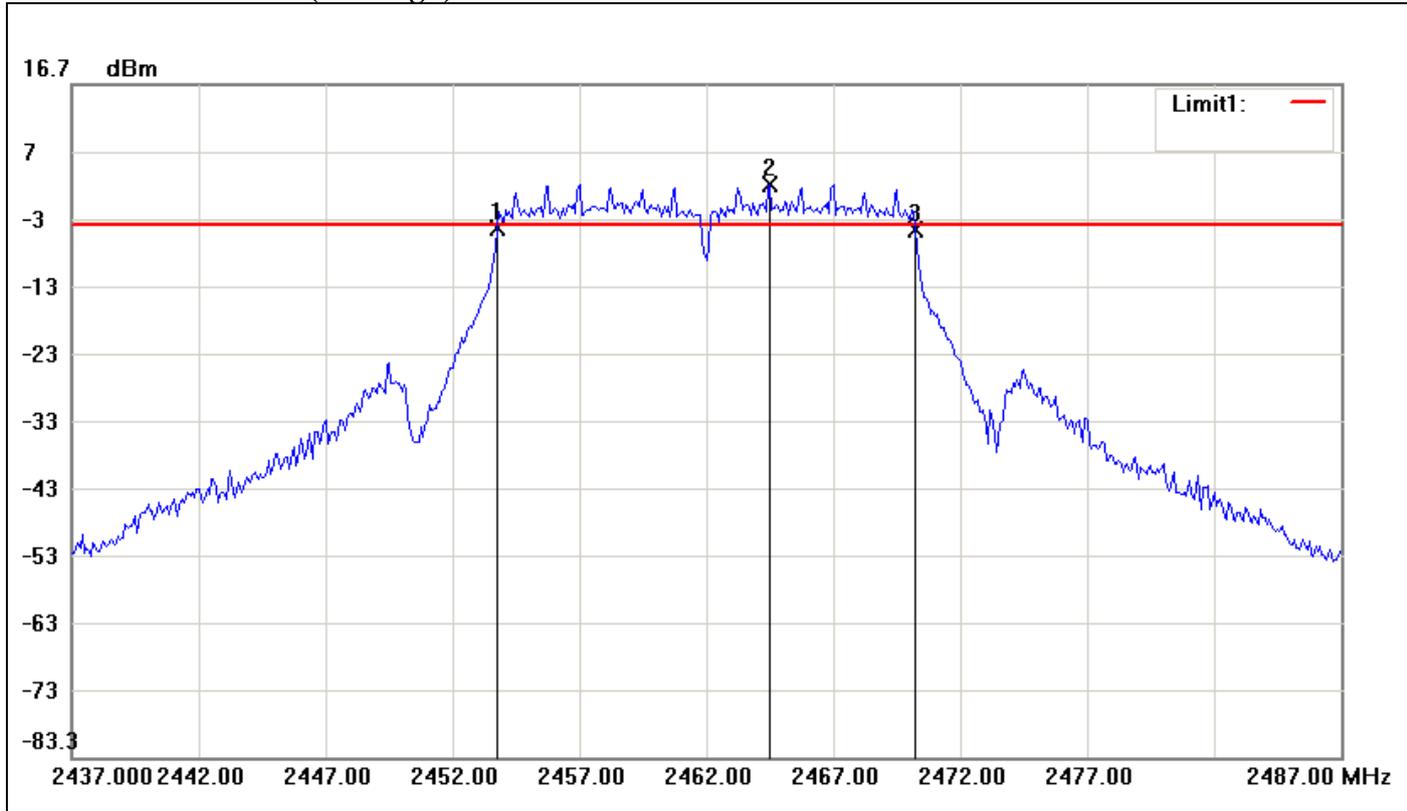
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.7500	-4.76	-4.07	-0.69
2	2464.5000	1.93	-4.07	6.00
3	2470.2500	-5.01	-4.07	-0.94

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

IEEE 802.11n HT 20 MHz mode / Chain 0

6dB Bandwidth (CH Low)
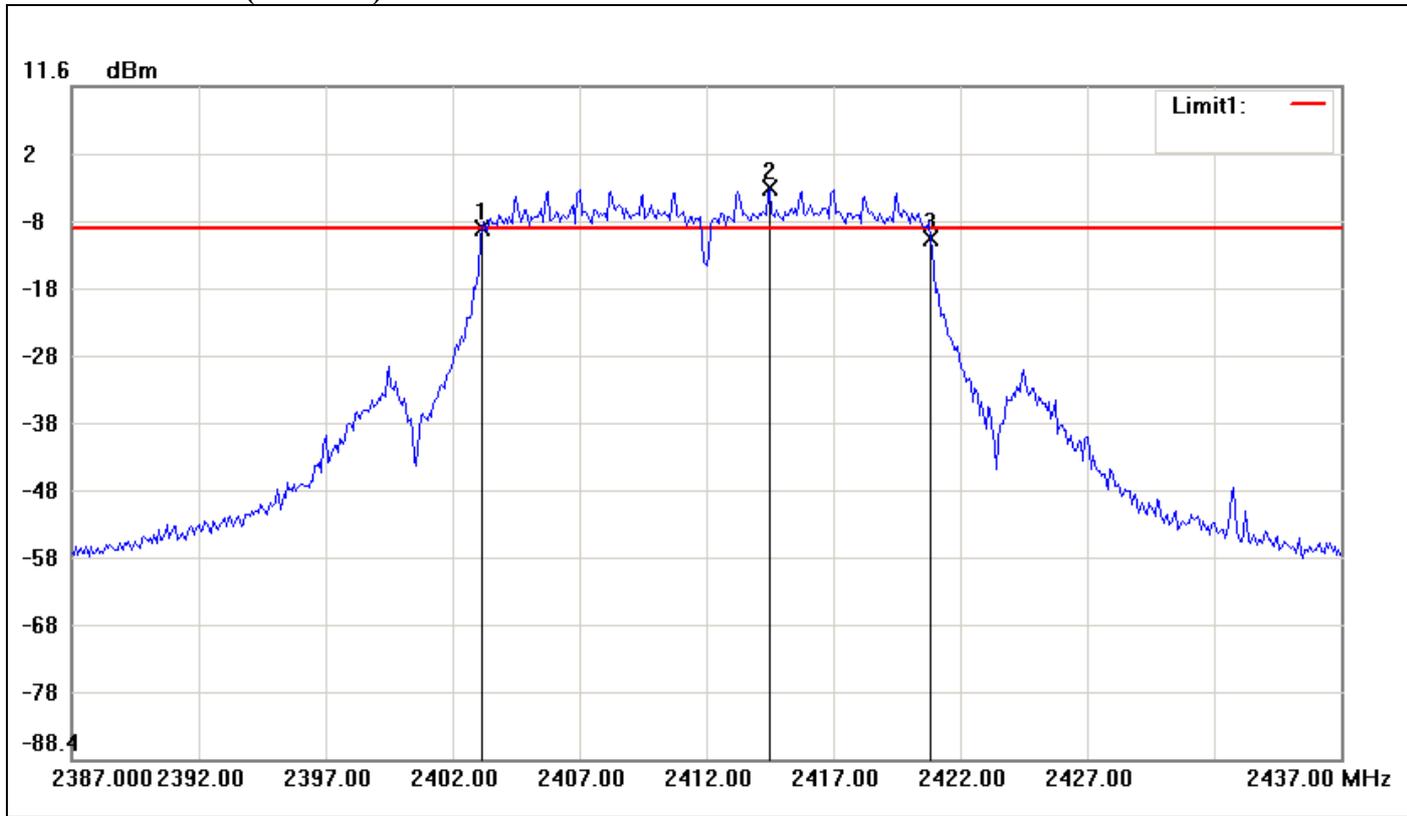
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.1667	-9.58	-9.49	-0.09
2	2414.5000	-3.49	-9.49	6.00
3	2420.8333	-11.02	-9.49	-1.53

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

6dB Bandwidth (CH Mid)
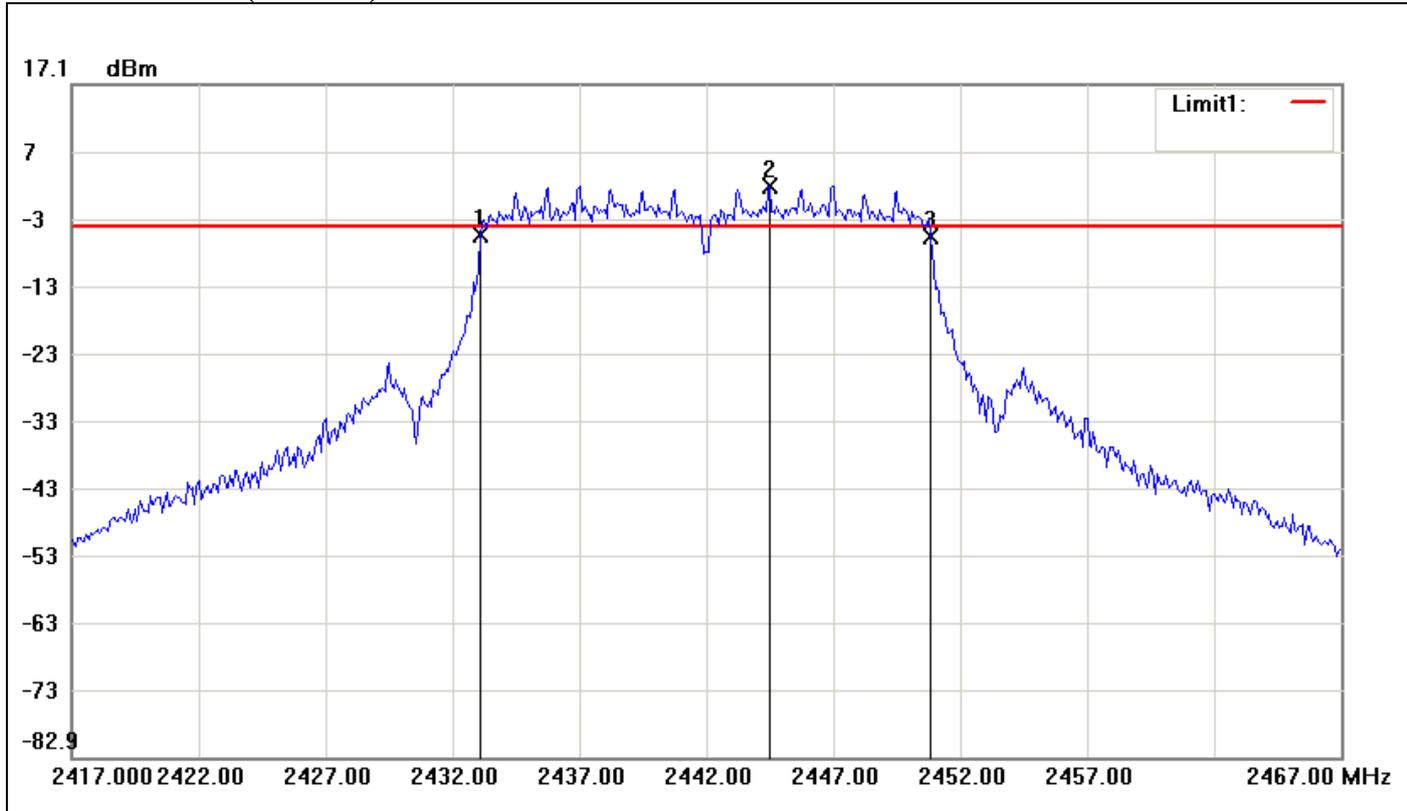
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.0833	-5.29	-3.93	-1.36
2	2444.5000	2.07	-3.93	6.00
3	2450.8333	-5.49	-3.93	-1.56

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	17.75	-0.2

6dB Bandwidth (CH High)
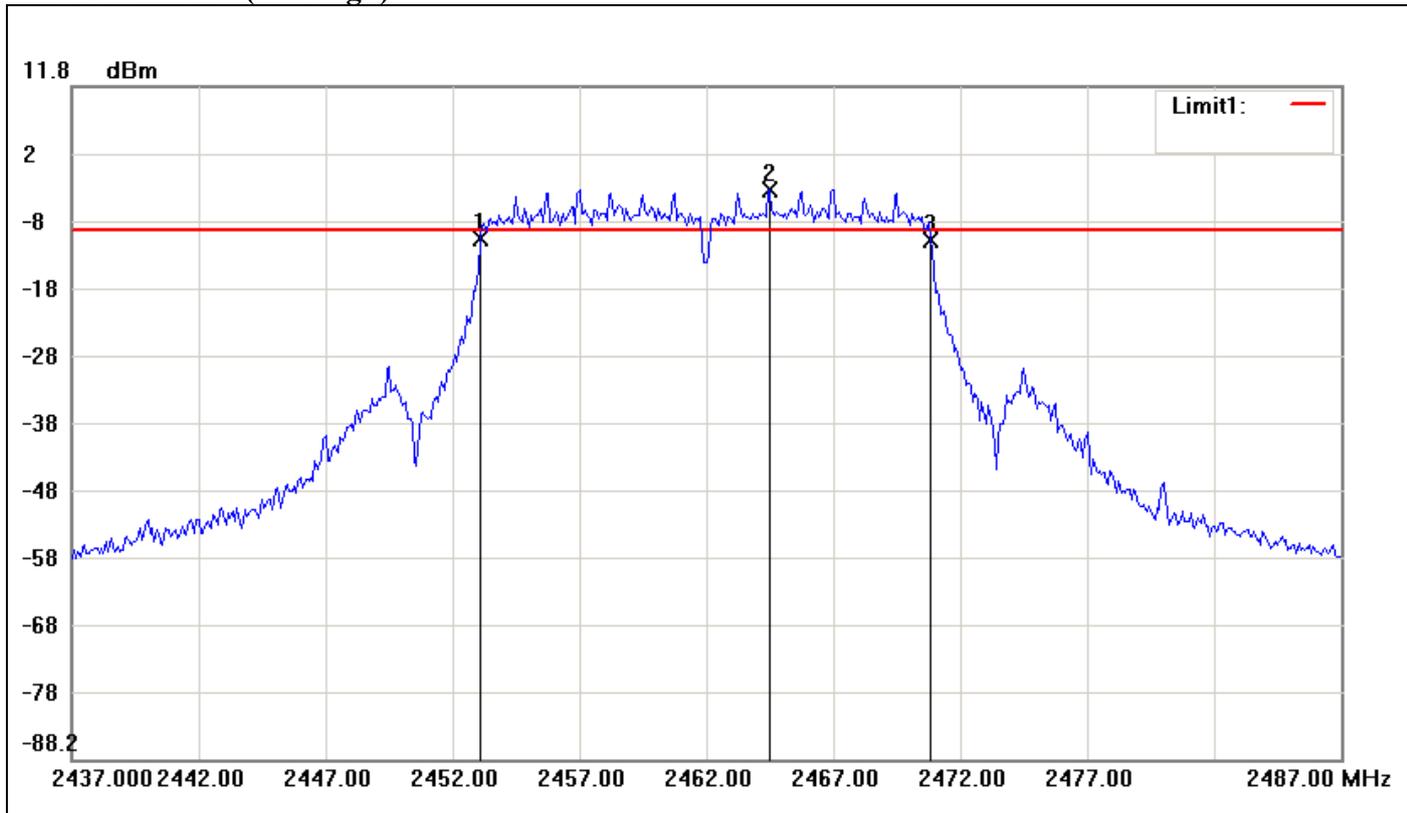
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-10.90	-9.52	-1.38
2	2464.5000	-3.52	-9.52	6.00
3	2470.8333	-11.11	-9.52	-1.59

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

IEEE 802.11n HT 20 MHz mode / Chain 1

6dB Bandwidth (CH Low)
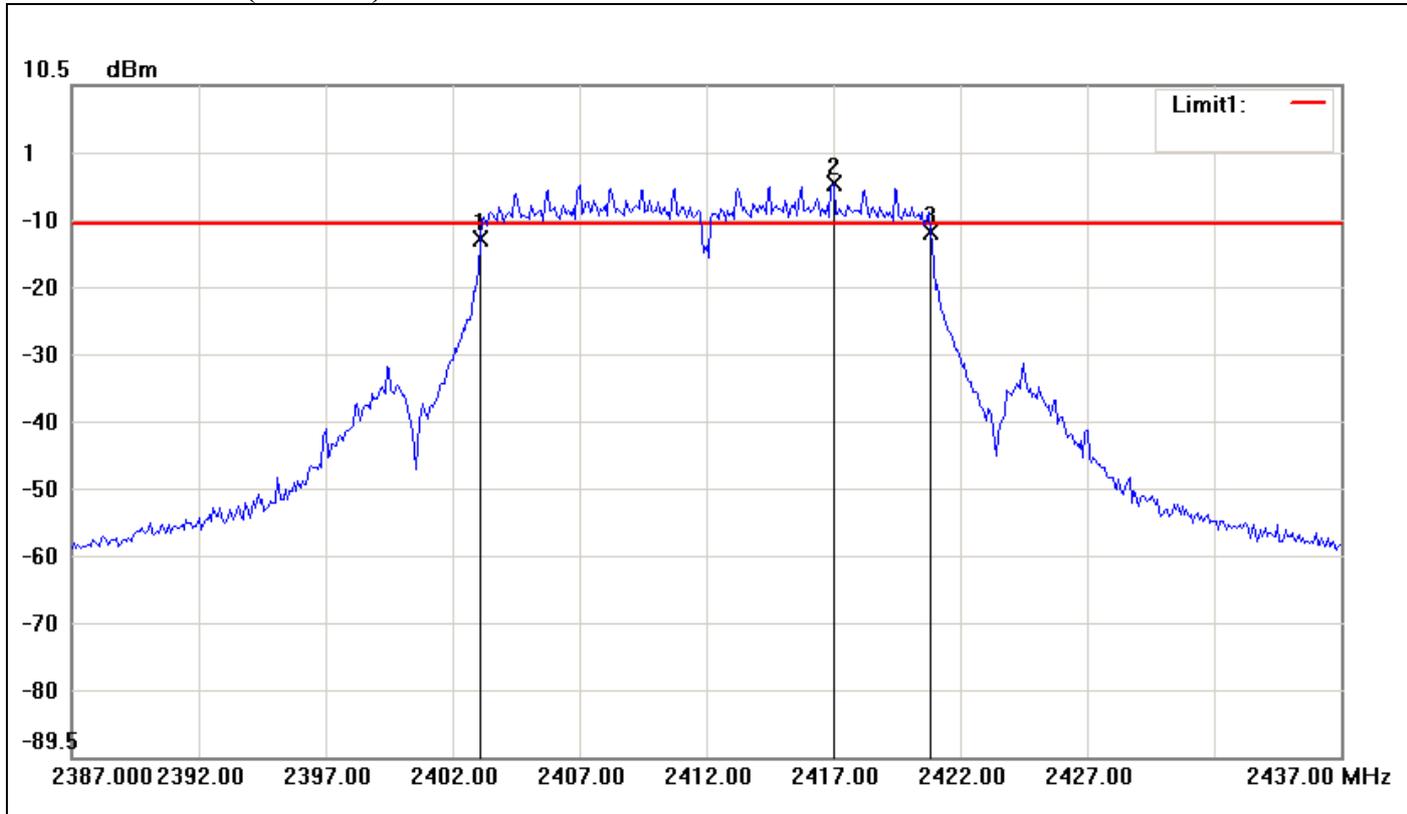
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-12.36	-10.03	-2.33
2	2417.0000	-4.03	-10.03	6.00
3	2420.8333	-11.34	-10.03	-1.31

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

6dB Bandwidth (CH Mid)
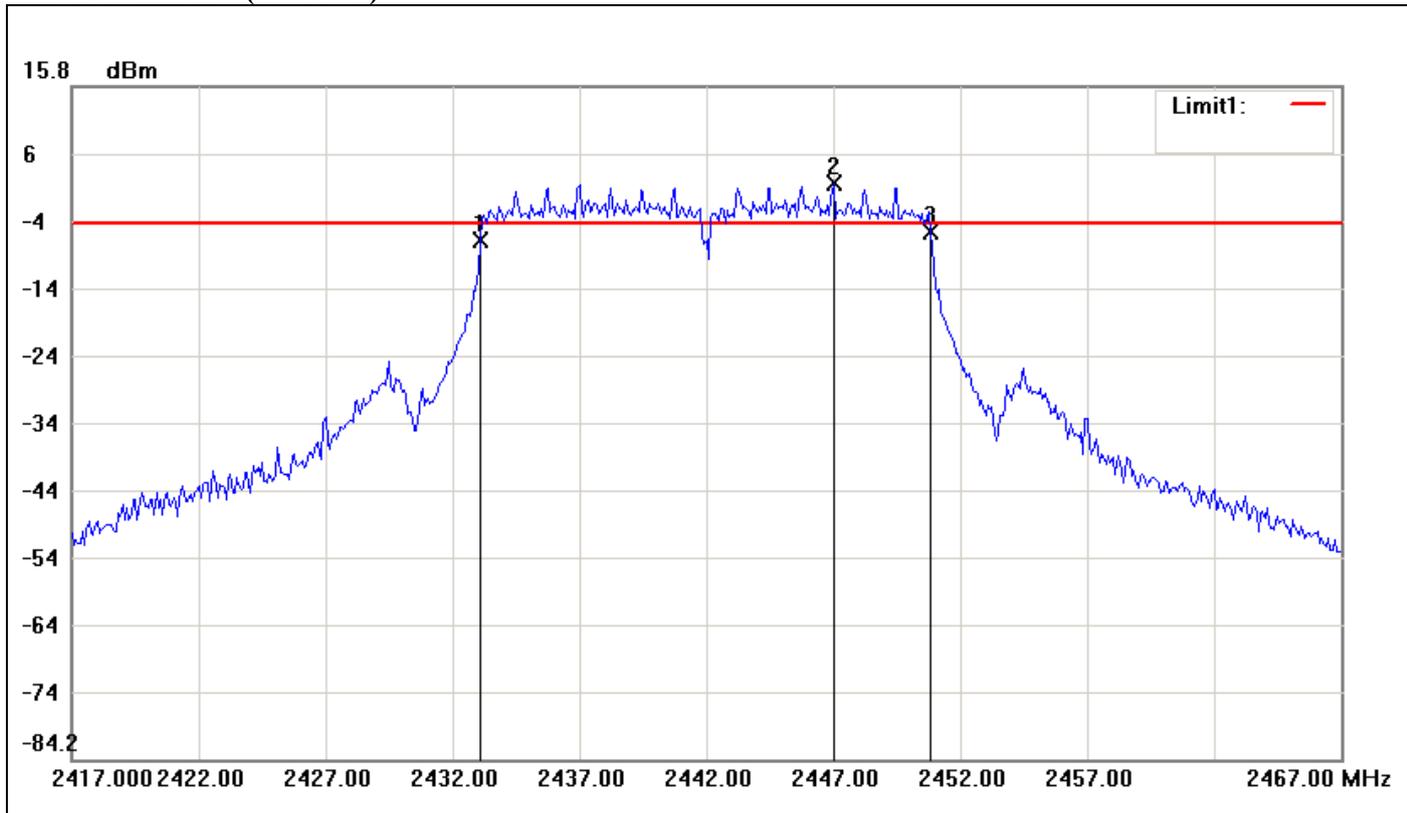
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.0833	-7.00	-4.53	-2.47
2	2447.0000	1.47	-4.53	6.00
3	2450.8333	-5.97	-4.53	-1.44

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

6dB Bandwidth (CH High)
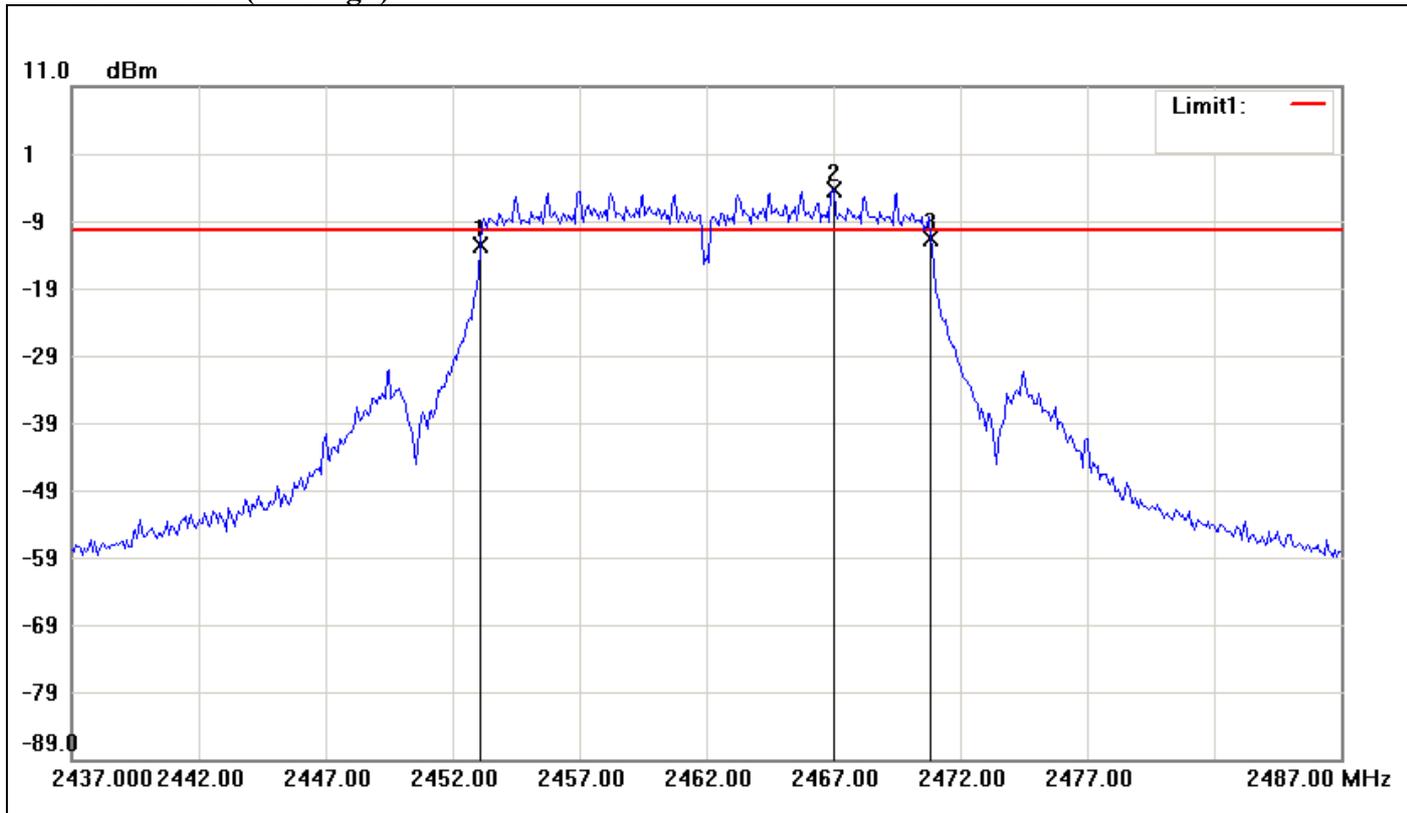
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-12.69	-10.25	-2.44
2	2467.0000	-4.25	-10.25	6.00
3	2470.8333	-11.68	-10.25	-1.43

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

IEEE 802.11n HT 20 MHz mode / Chain 2

6dB Bandwidth (CH Low)
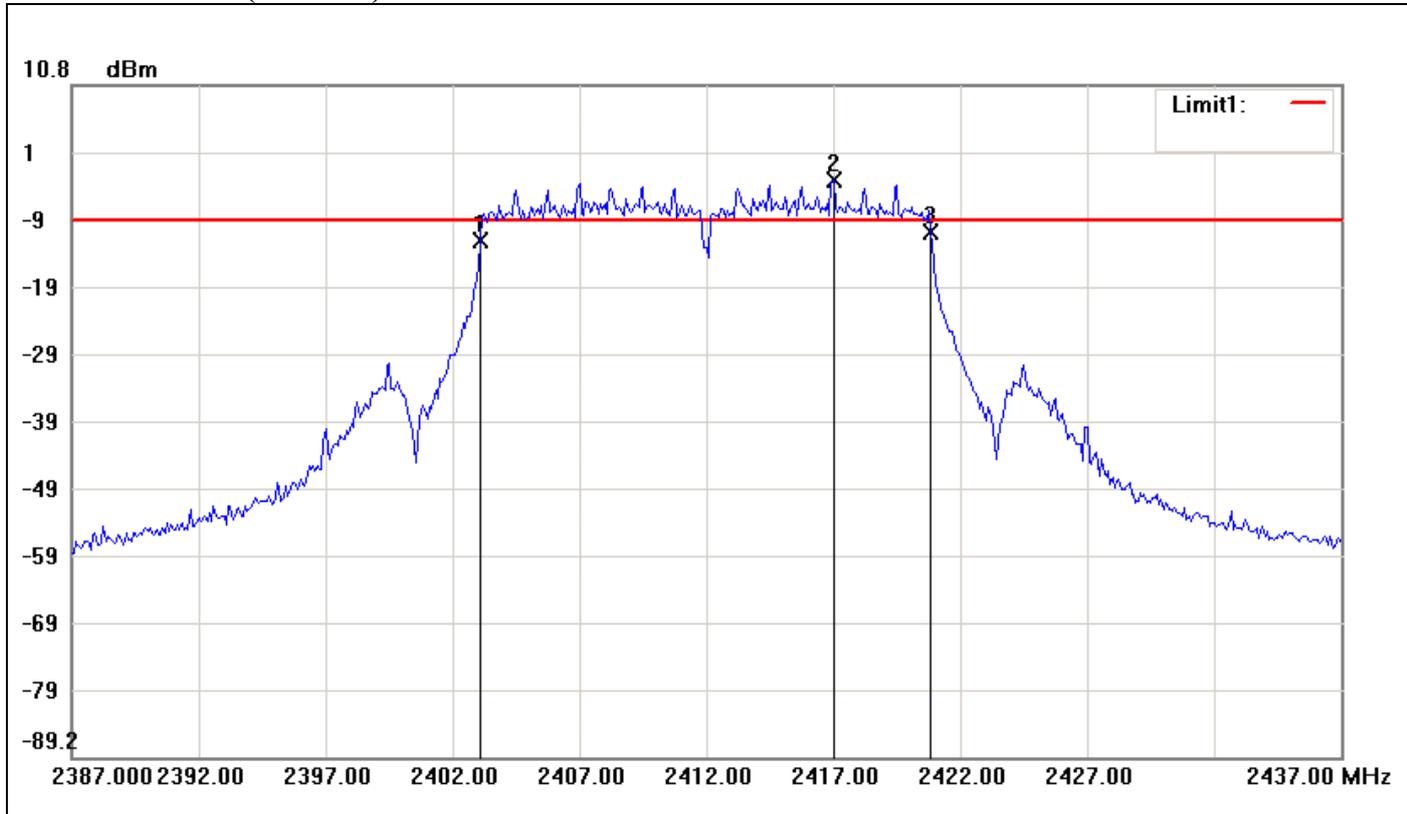
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-12.25	-9.42	-2.83
2	2417.0000	-3.42	-9.42	6.00
3	2420.8333	-11.05	-9.42	-1.63

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

6dB Bandwidth (CH Mid)
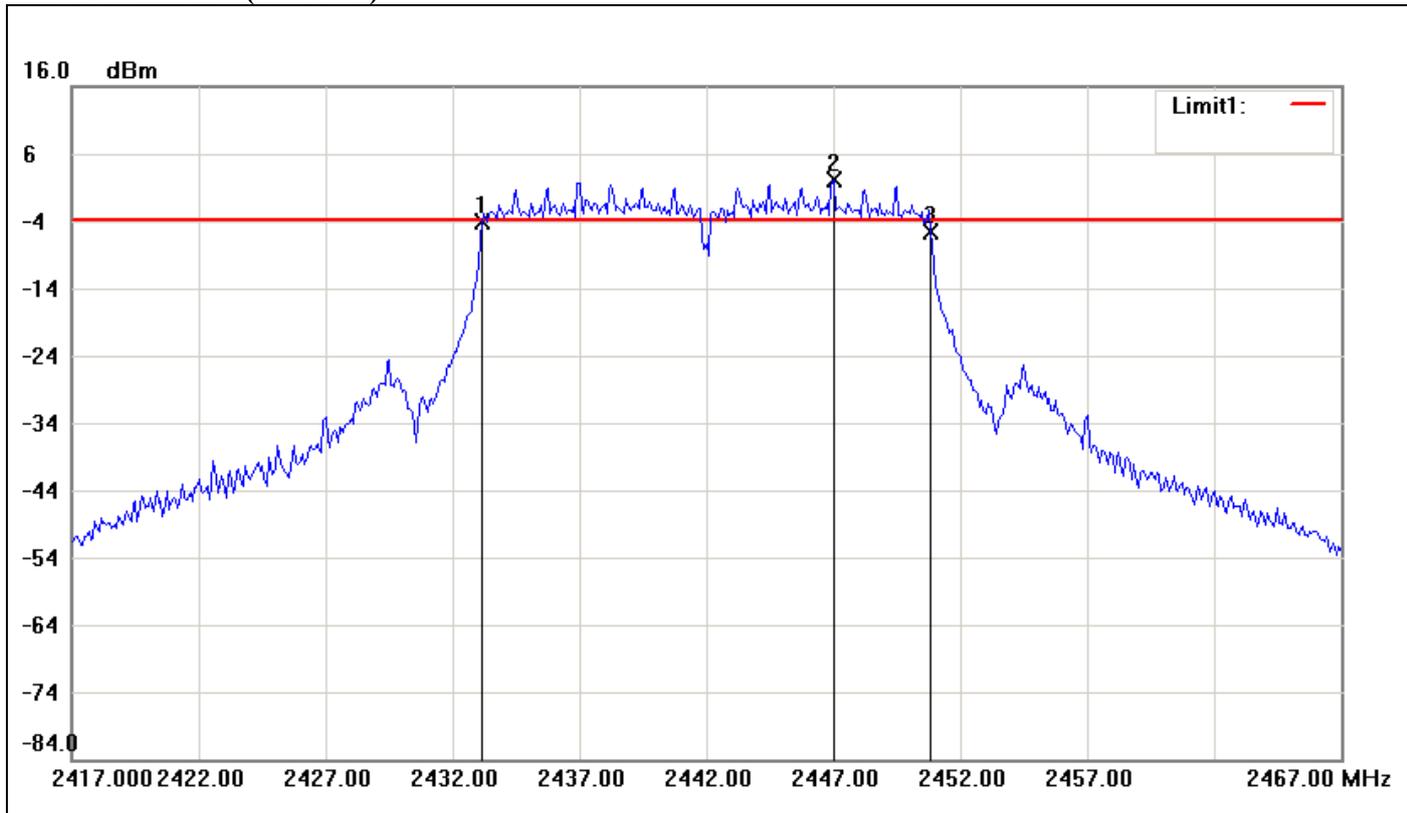
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.1667	-4.12	-3.97	-0.15
2	2447.0000	2.03	-3.97	6.00
3	2450.8333	-5.68	-3.97	-1.71

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

6dB Bandwidth (CH High)
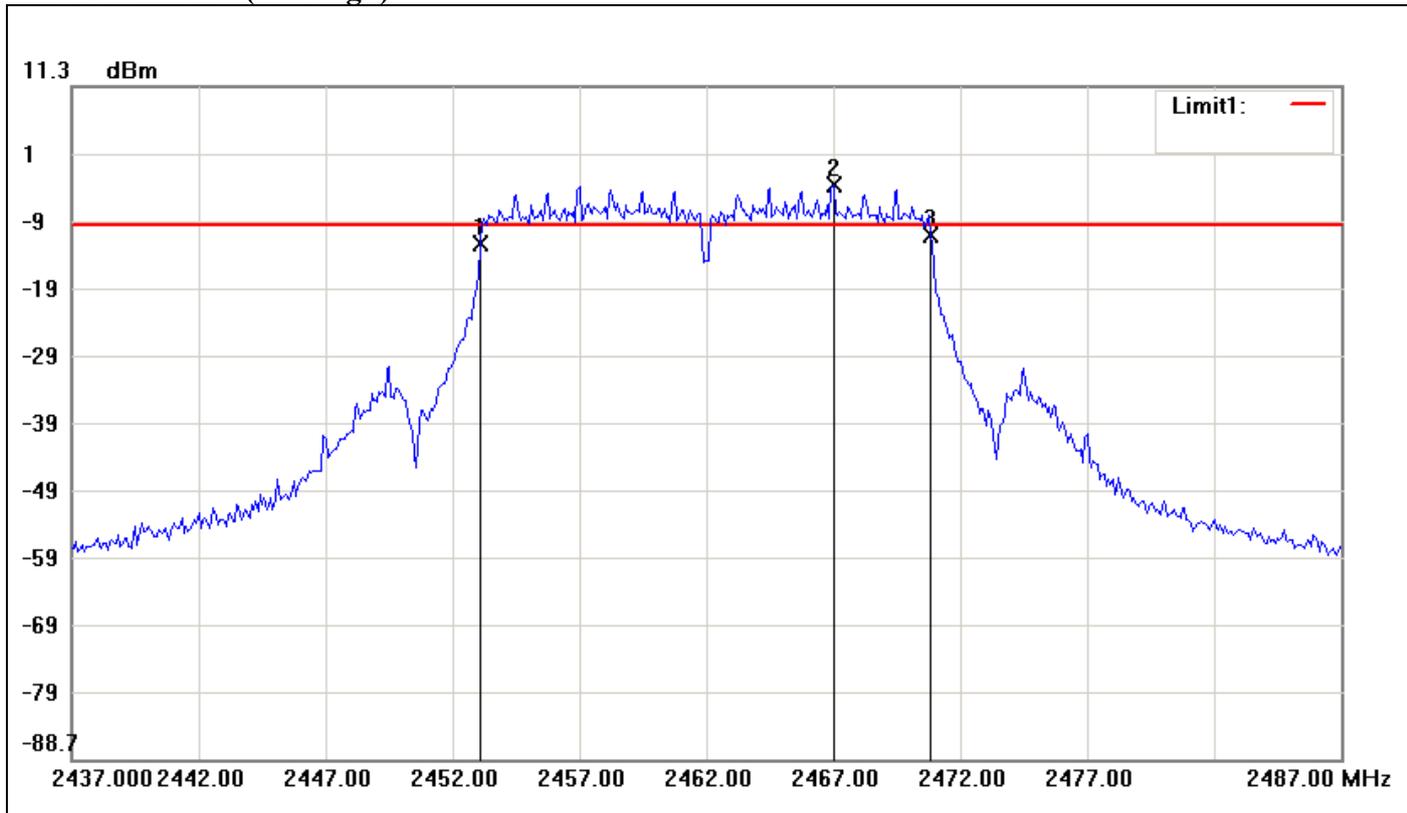
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-12.08	-9.43	-2.65
2	2467.0000	-3.43	-9.43	6.00
3	2470.8333	-10.84	-9.43	-1.41

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

IEEE 802.11n HT 40 MHz mode / Chain 0

6dB Bandwidth (CH Low)
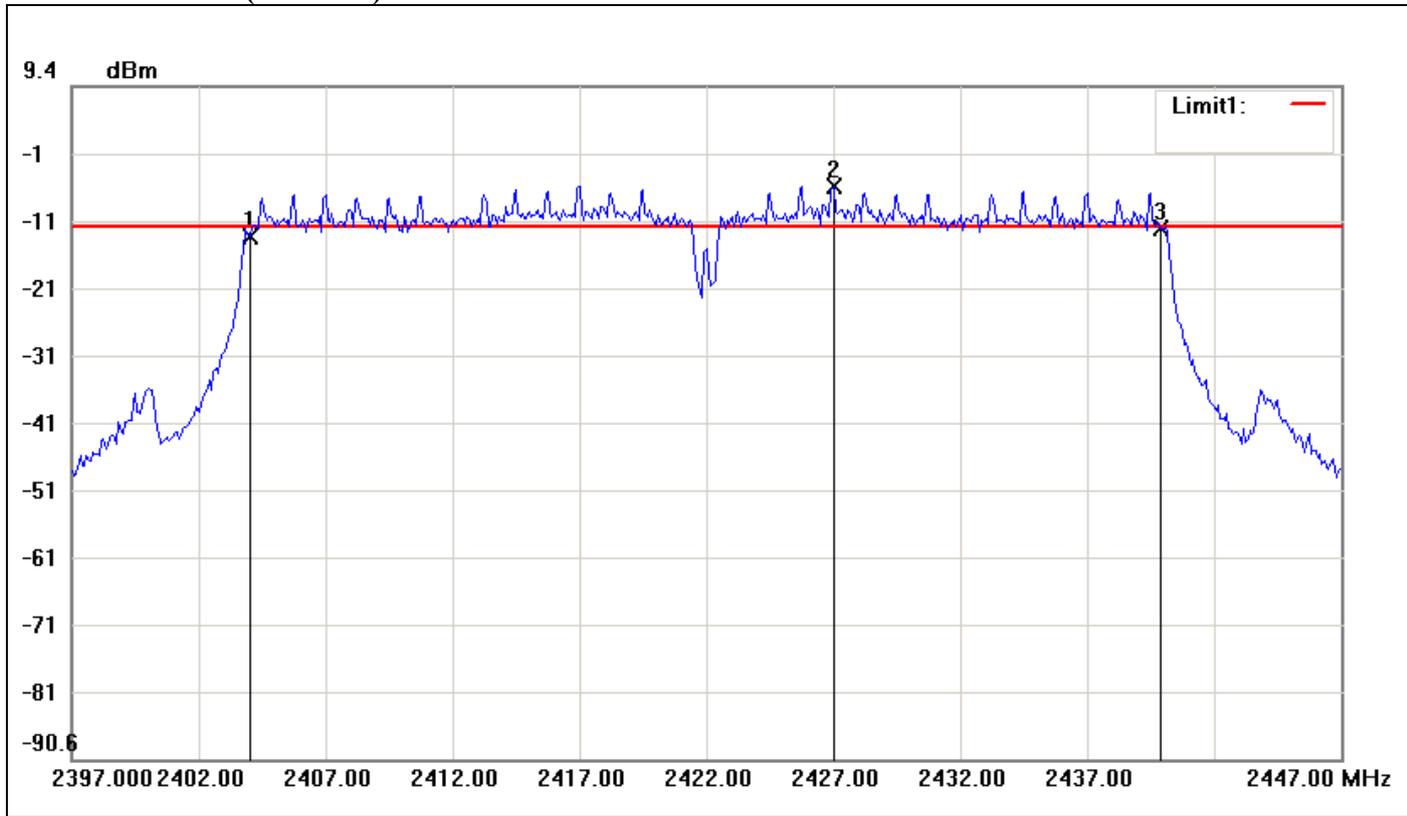
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2404.0000	-12.99	-11.34	-1.65
2	2427.0000	-5.34	-11.34	6.00
3	2439.9167	-11.62	-11.34	-0.28

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	35.9167	1.37

6dB Bandwidth (CH Mid)
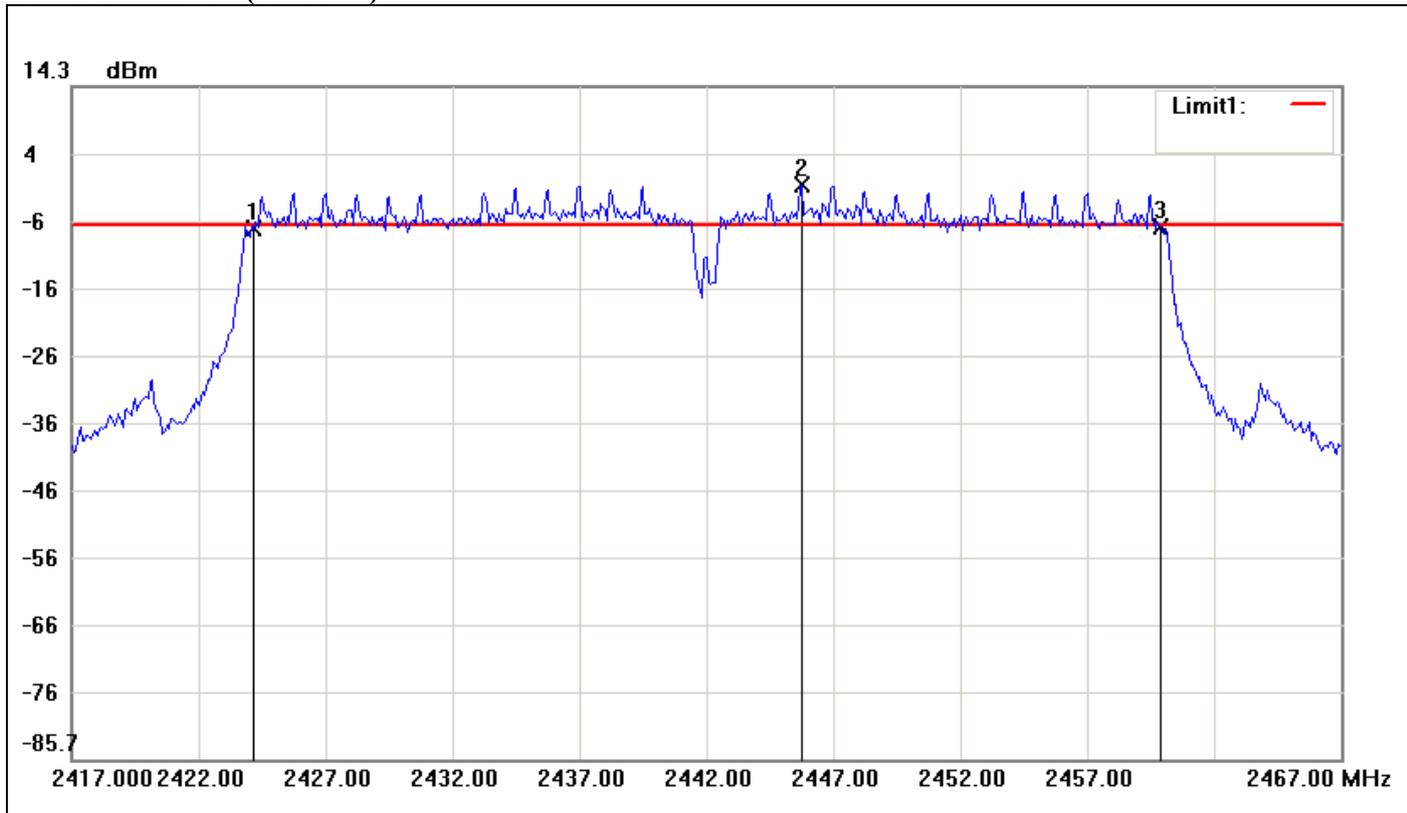
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2424.1667	-6.72	-6.39	-0.33
2	2445.7500	-0.39	-6.39	6.00
3	2459.9167	-6.65	-6.39	-0.26

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

6dB Bandwidth (CH High)
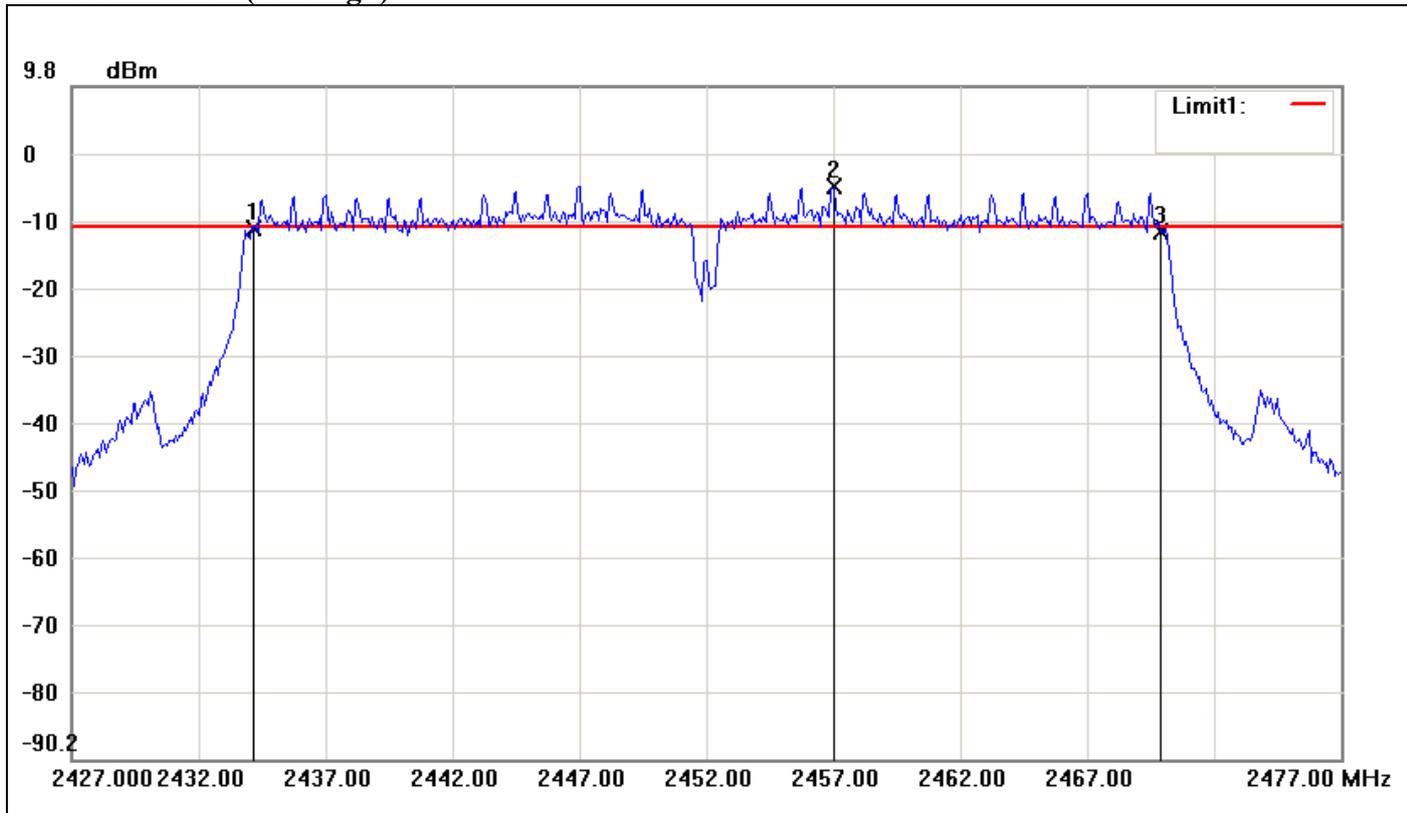
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2434.1667	-11.30	-11.03	-0.27
2	2457.0000	-5.03	-11.03	6.00
3	2469.9167	-11.90	-11.03	-0.87

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	35.75	-0.6

IEEE 802.11n HT 40 MHz mode / Chain 1

6dB Bandwidth (CH Low)
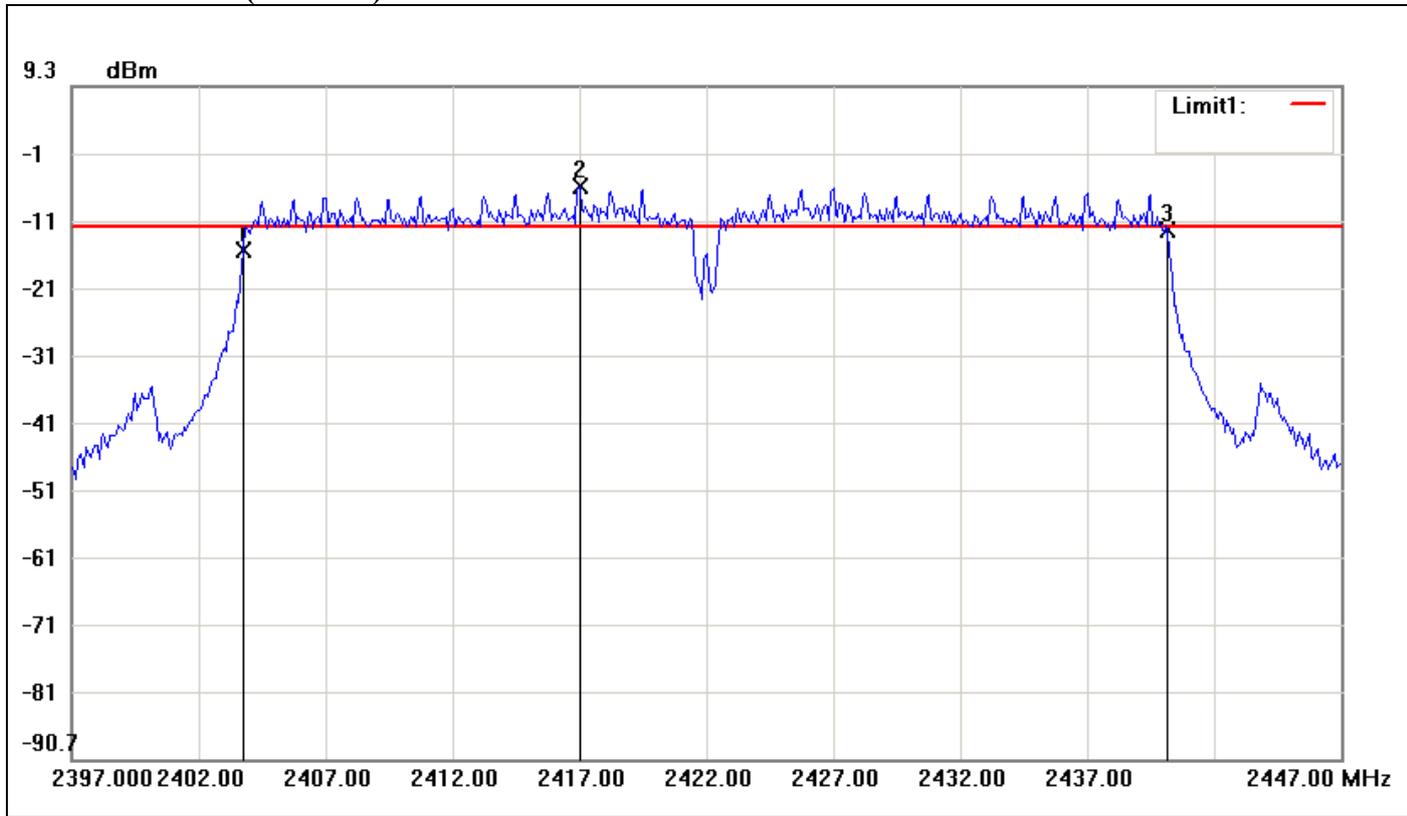
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2403.7500	-15.05	-11.52	-3.53
2	2417.0000	-5.52	-11.52	6.00
3	2440.1667	-12.02	-11.52	-0.50

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

6dB Bandwidth (CH Mid)
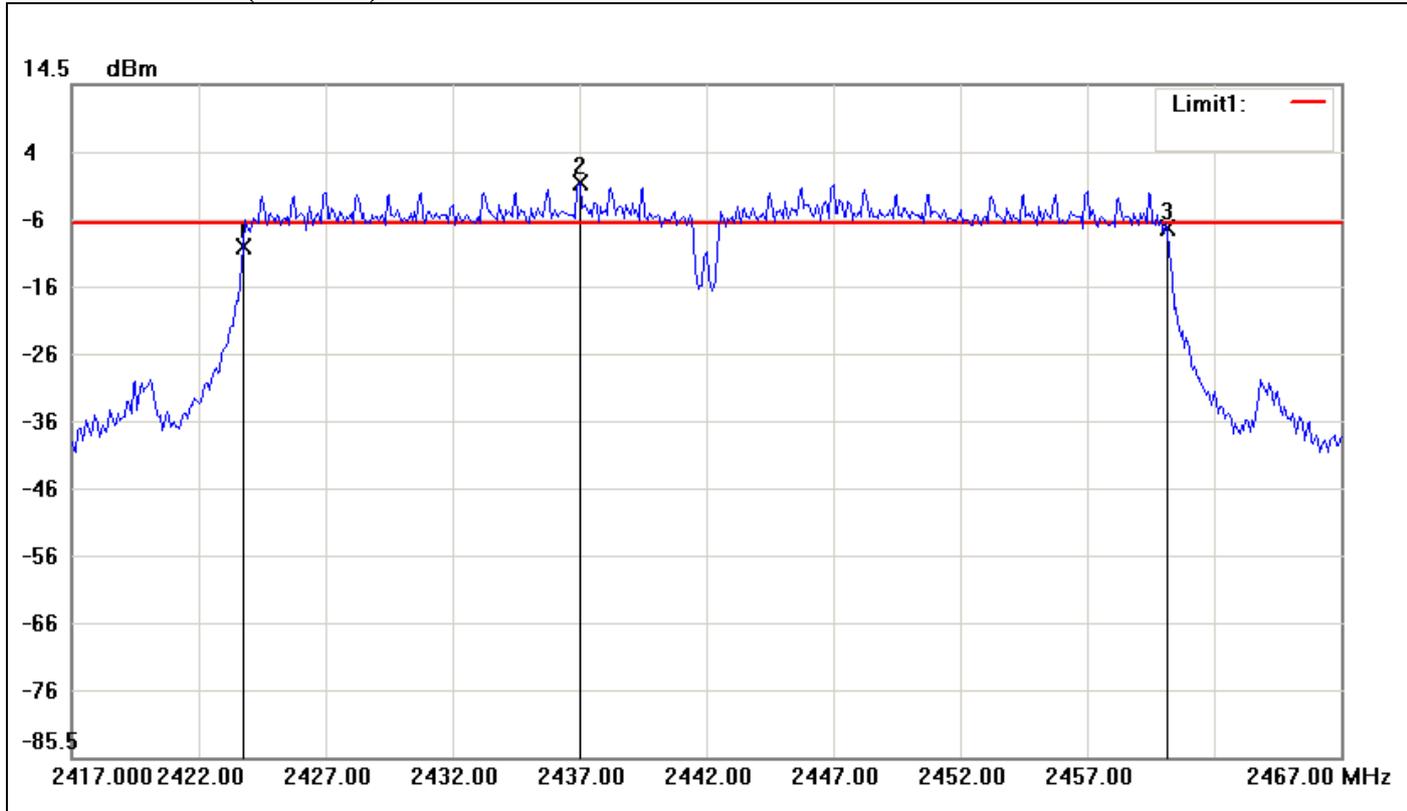
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2423.7500	-9.57	-6.12	-3.45
2	2442.0000	-0.12	-6.12	6.00
3	2460.1667	-7.00	-6.12	-0.88

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

6dB Bandwidth (CH High)
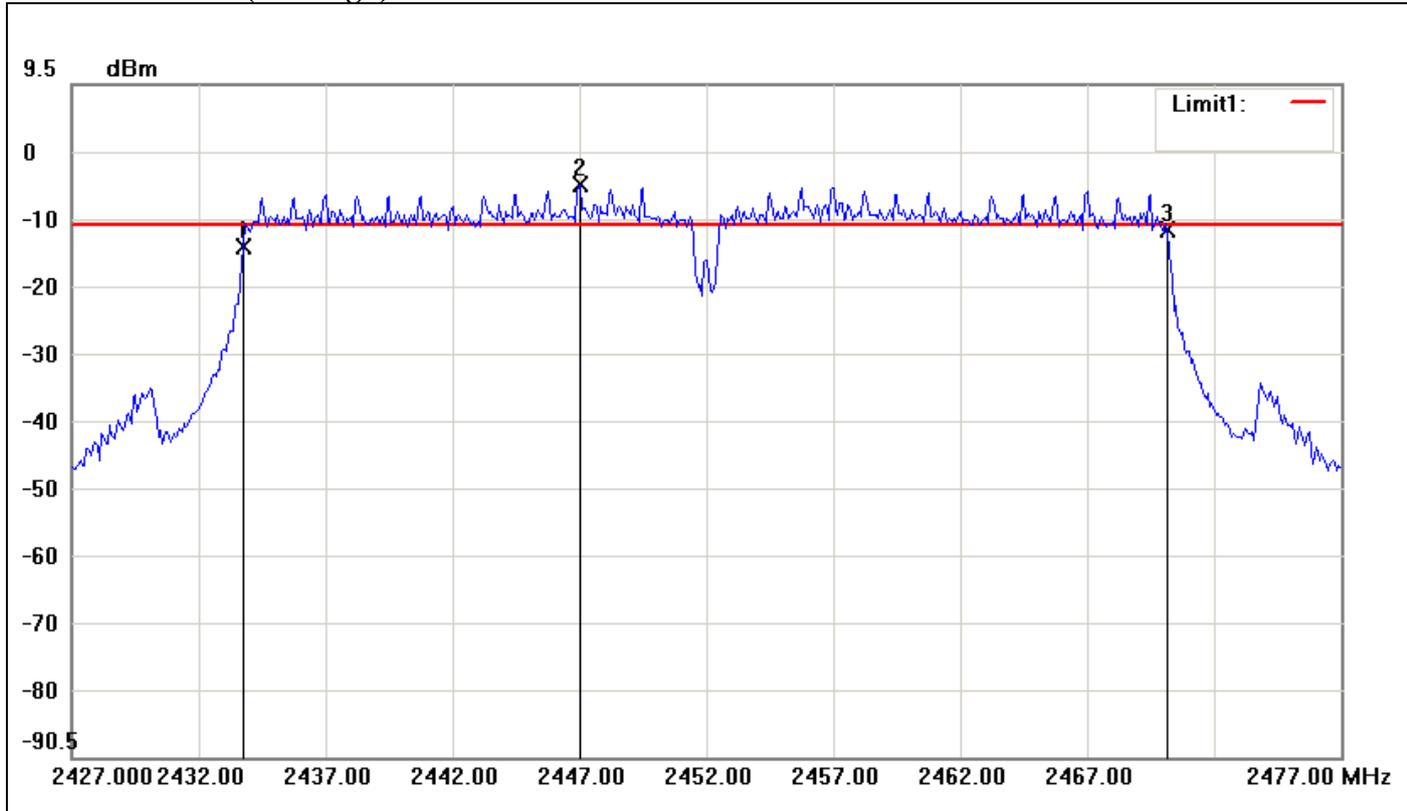
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2433.7500	-14.68	-11.25	-3.43
2	2447.0000	-5.25	-11.25	6.00
3	2470.1667	-12.18	-11.25	-0.93

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

IEEE 802.11n HT 40 MHz mode / Chain 2

6dB Bandwidth (CH Low)
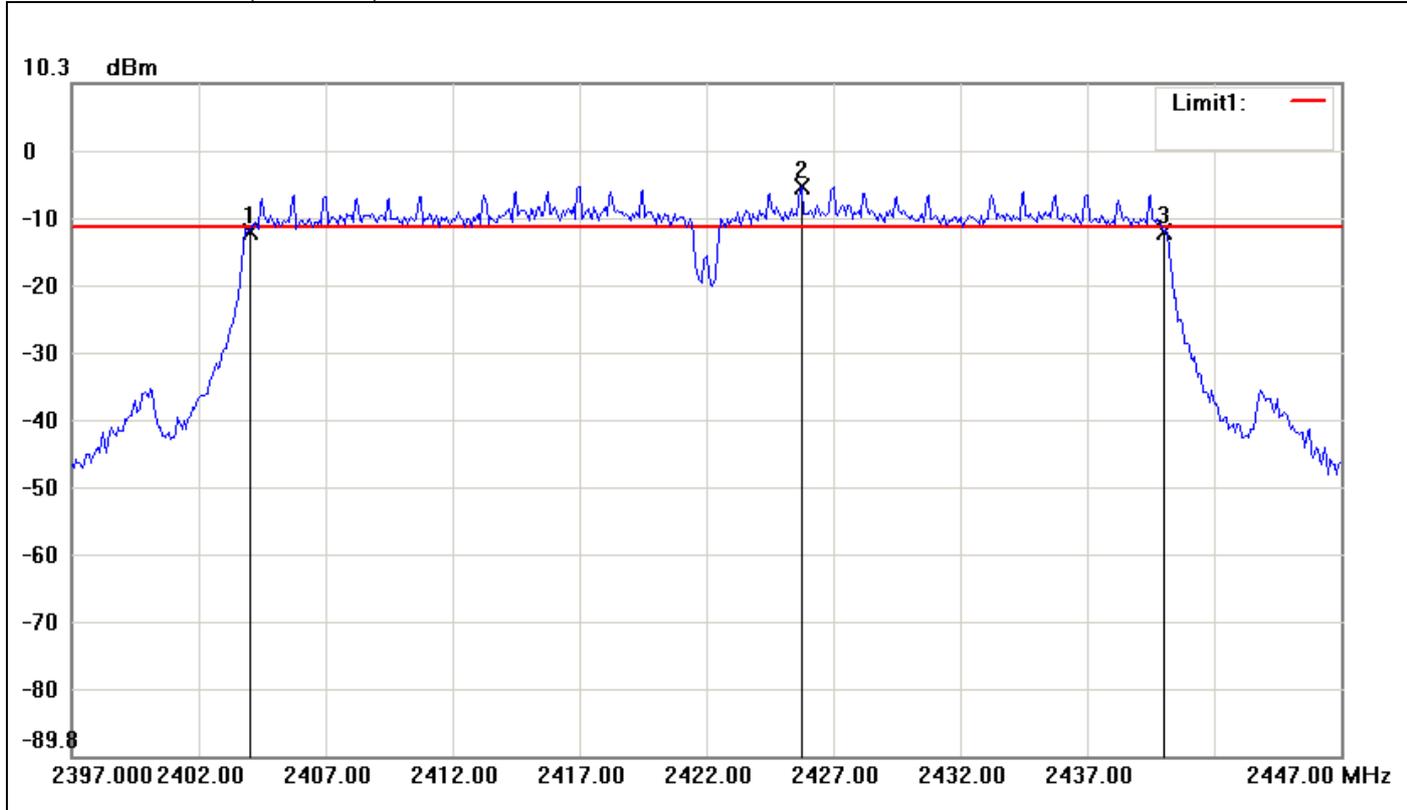
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2404.0000	-11.75	-11.14	-0.61
2	2425.7500	-5.14	-11.14	6.00
3	2440.0000	-11.95	-11.14	-0.81

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

6dB Bandwidth (CH Mid)
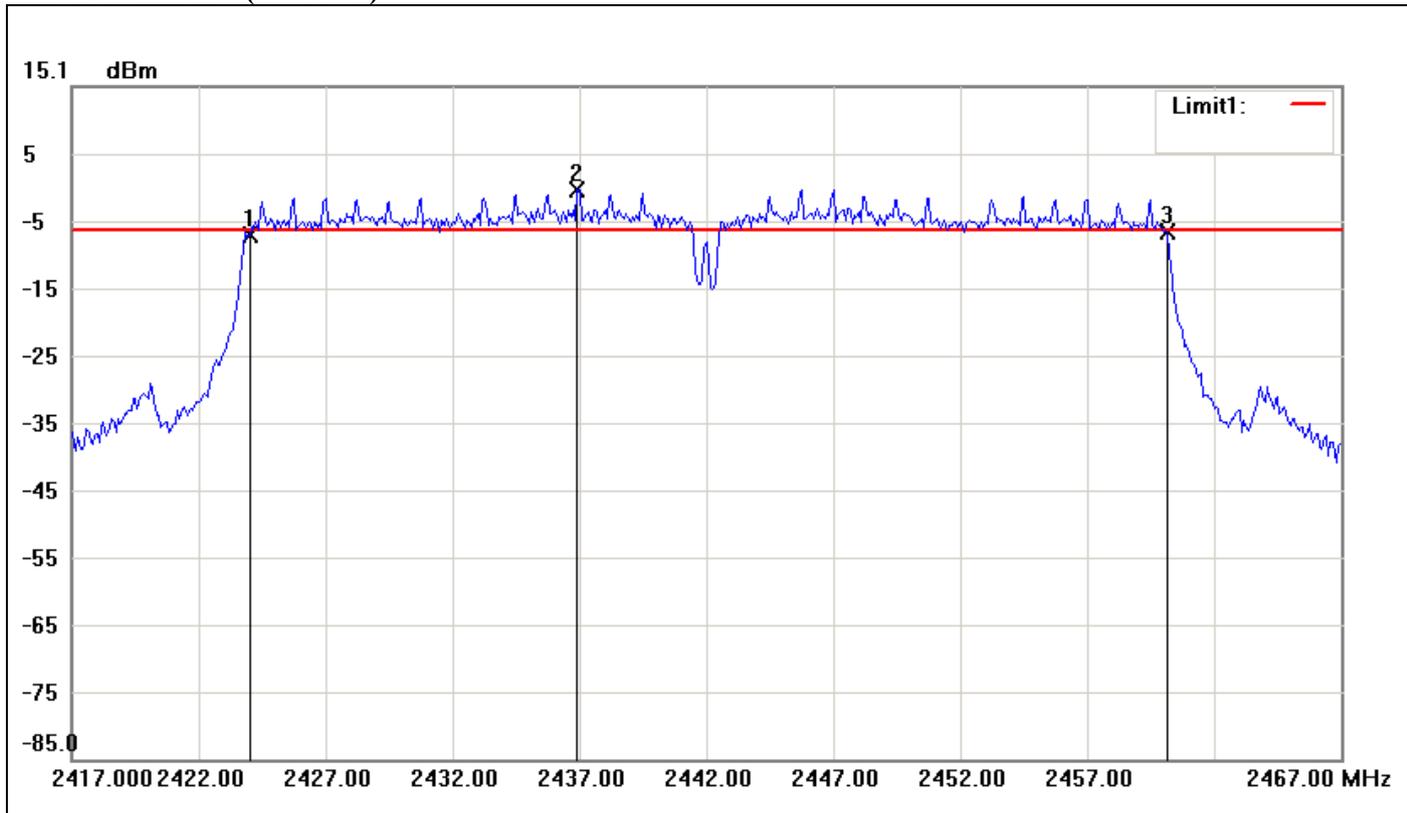
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2424.0000	-6.97	-6.32	-0.65
2	2436.9167	-0.32	-6.32	6.00
3	2460.1667	-6.68	-6.32	-0.36

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

6dB Bandwidth (CH High)
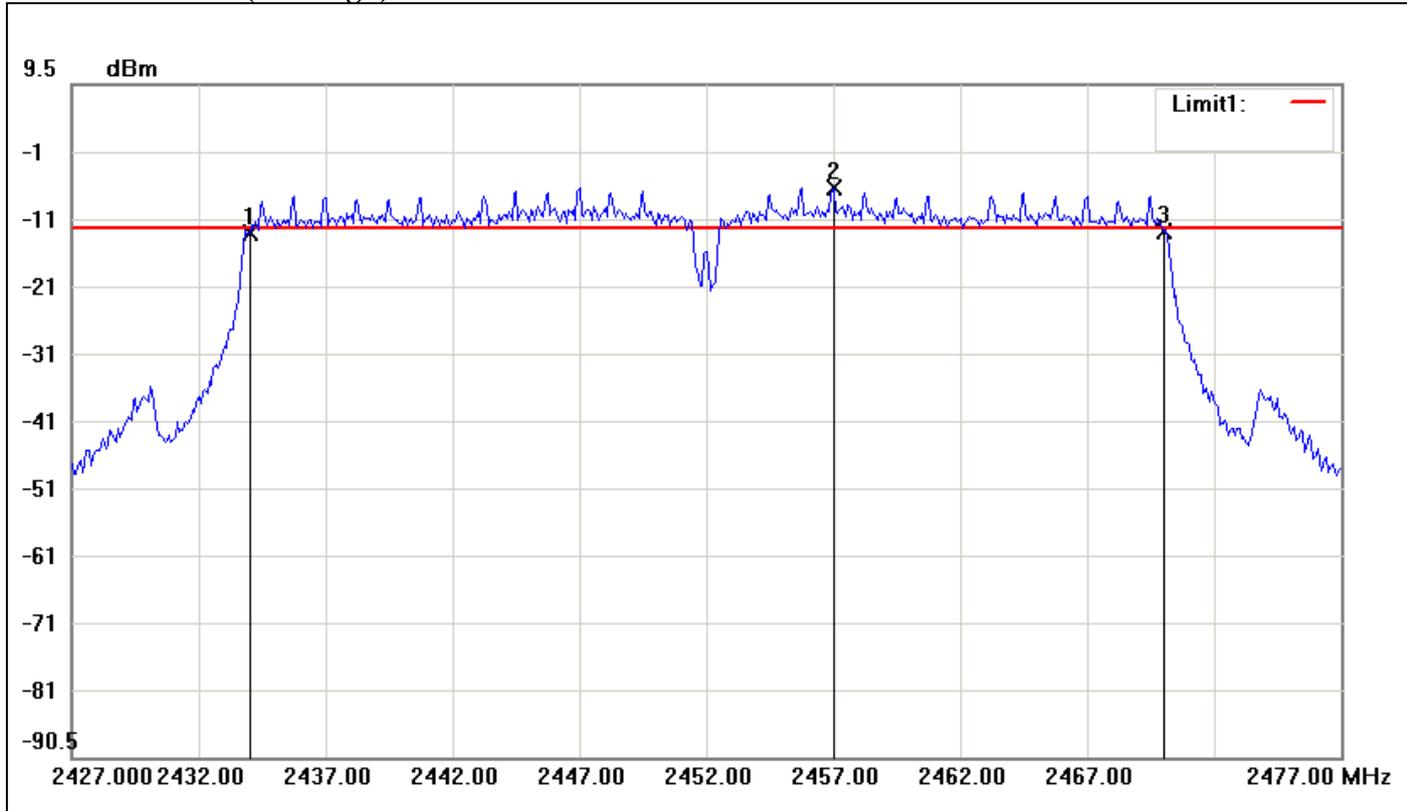
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2434.0000	-12.62	-11.86	-0.76
2	2457.0000	-5.86	-11.86	6.00
3	2470.0000	-12.33	-11.86	-0.47

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

IEEE 802.11a mode
6dB Bandwidth (CH Low)

6dB Bandwidth (CH Mid)

6dB Bandwidth (CH High)

IEEE 802.11n HT 20 MHz mode / Chain 0

6dB Bandwidth (CH Low)

6dB Bandwidth (CH Mid)

※ **Agilent** 10:26:50 Nov 14, 2011   R T

▲ Mkr1 17.75 MHz
2.55 dB

Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−10.4
dBm
LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Center 5.785 00 GHz   Span 50 MHz
#Res BW 100 kHz_____ #VBW 100 kHz_____ Sweep 6.04 ms (601 pts)_

6dB Bandwidth (CH High)

※ **Agilent** 10:31:26 Nov 14, 2011   R T

▲ Mkr1 17.58 MHz
1.08 dB

Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−10.1
dBm
LgAv

V1 S2
S3 FC

£(f):
FTun
Swp
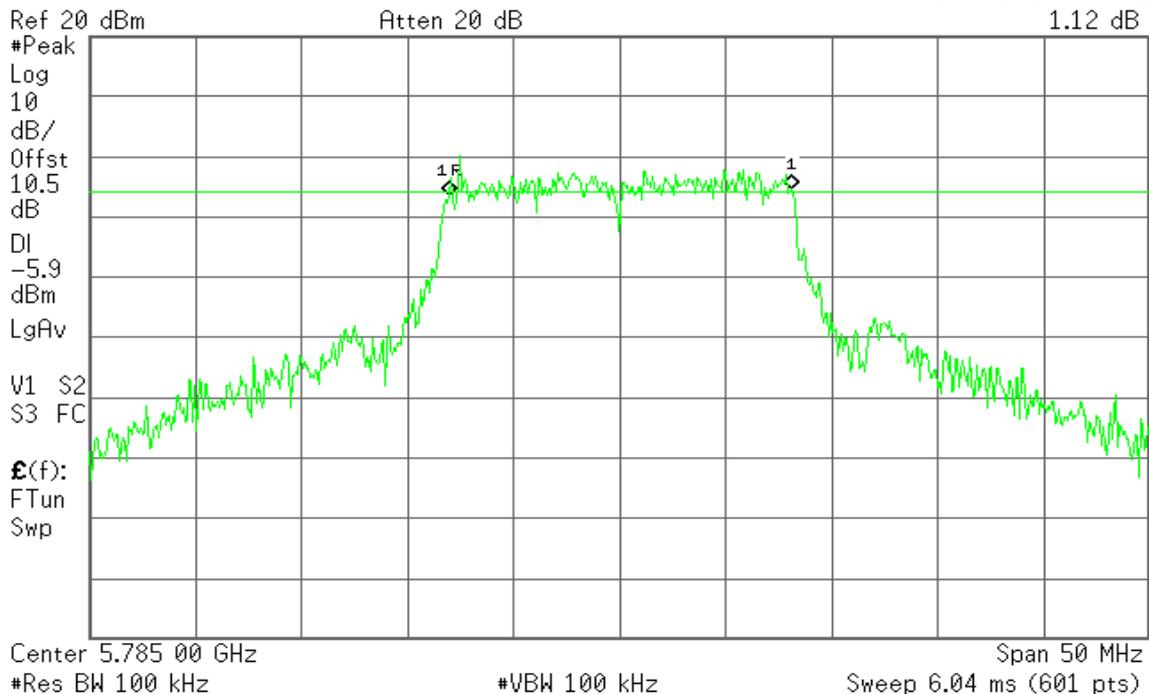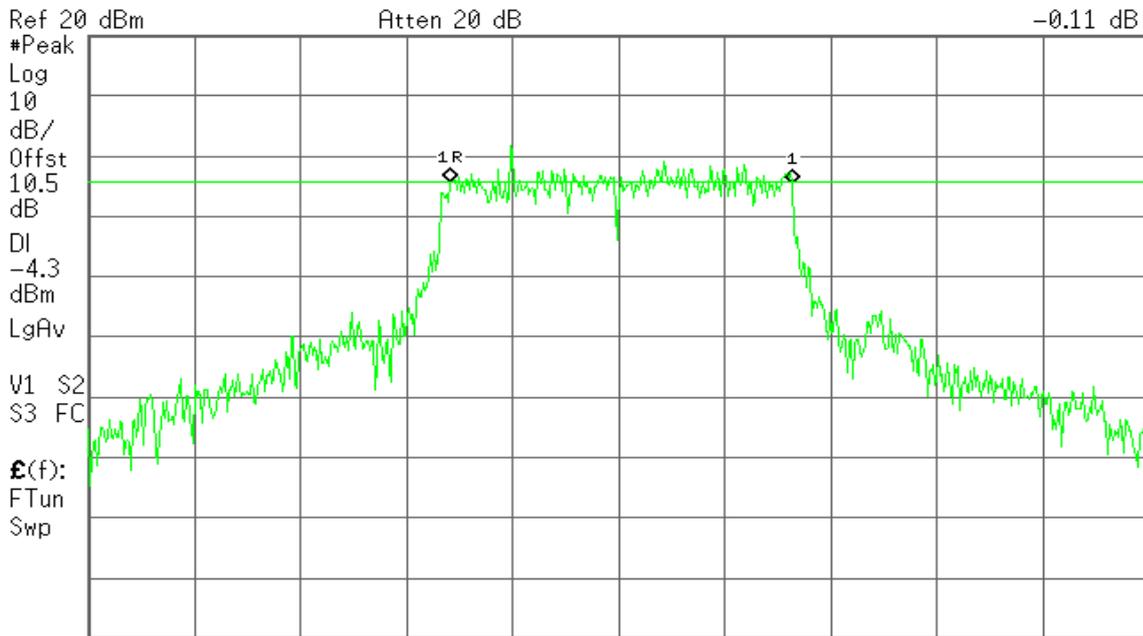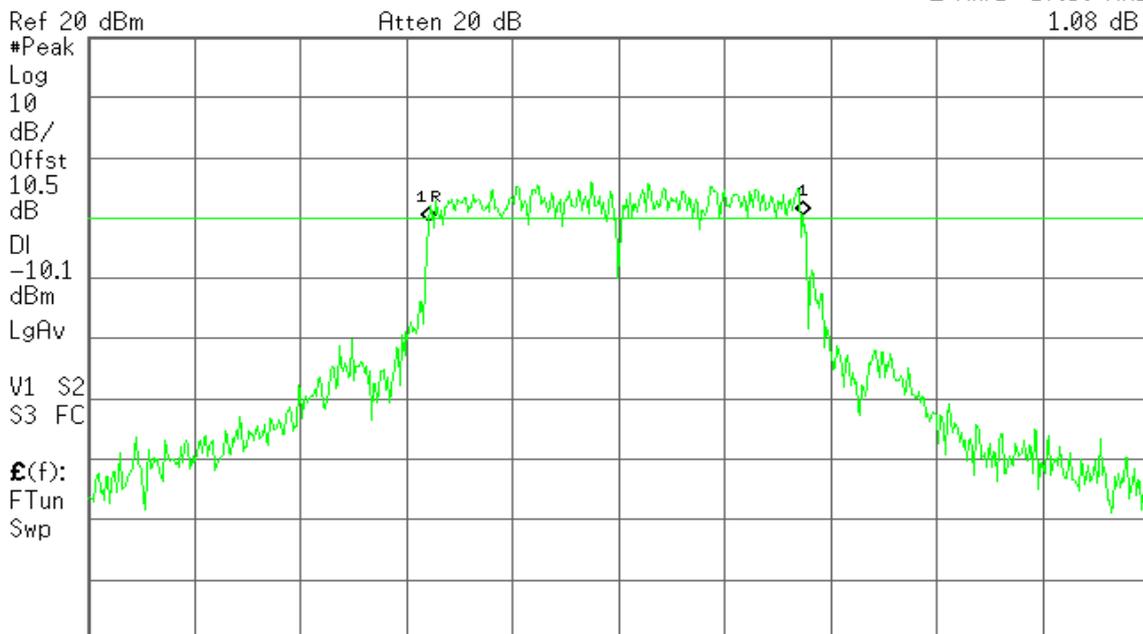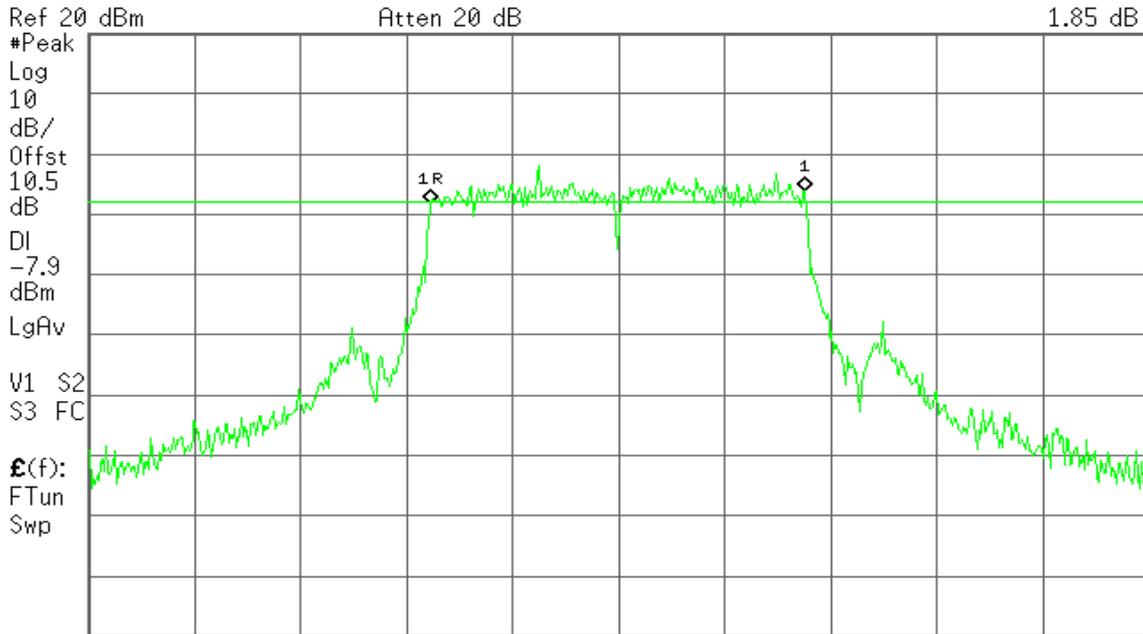
Center 5.825 00 GHz   Span 50 MHz
#Res BW 100 kHz_____ #VBW 100 kHz_____ Sweep 6.04 ms (601 pts)_

IEEE 802.11n HT 20 MHz mode / Chain 1

6dB Bandwidth (CH Low)

6dB Bandwidth (CH Mid)

6dB Bandwidth (CH High)

IEEE 802.11n HT 20 MHz mode / Chain 2

6dB Bandwidth (CH Low)

6dB Bandwidth (CH Mid)

6dB Bandwidth (CH High)

IEEE 802.11n HT 40 MHz mode / Chain 0

6dB Bandwidth (CH Low)

6dB Bandwidth (CH High)

IEEE 802.11n HT 40 MHz mode / Chain 1

6dB Bandwidth (CH Low)

Agilent 12:09:37 Nov 14, 2011   R T

Δ Mkr1 35.33 MHz
-0.20 dB

Ref 20 dBm   Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB

DI
-10.1
dBm
LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Center 5.755 00 GHz   Span 50 MHz
#Res BW 100 kHz_____#VBW 100 kHz_____ Sweep 6.04 ms (601 pts)_
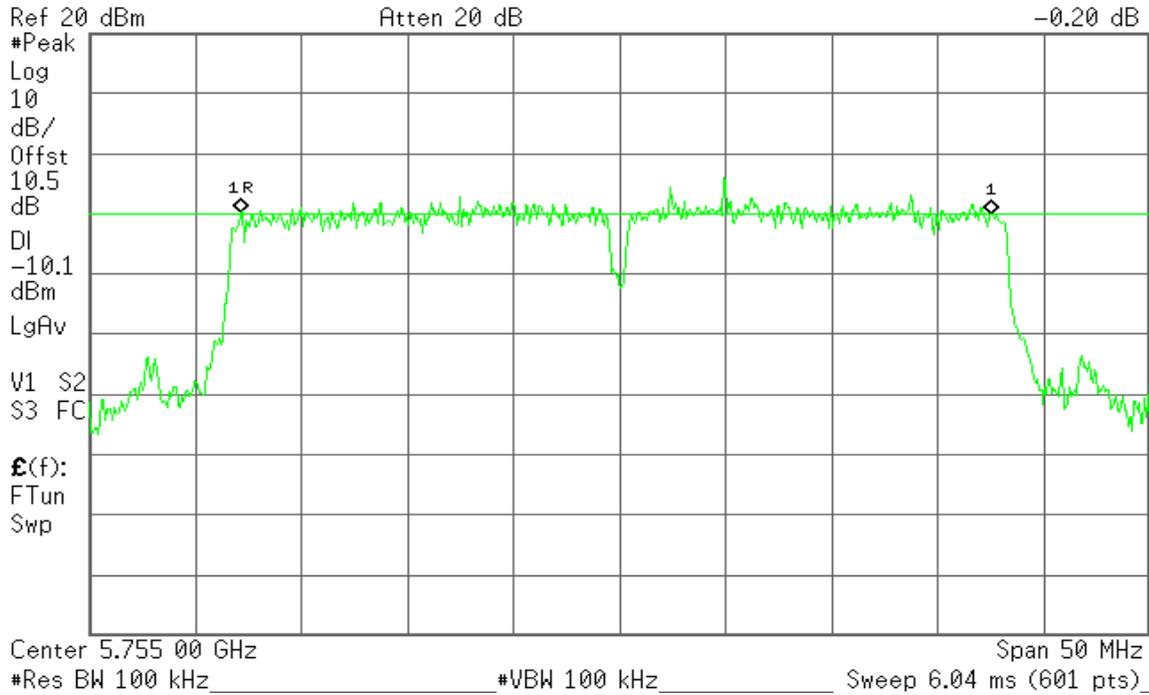
6dB Bandwidth (CH High)

Agilent 12:13:39 Nov 14, 2011   R T

Δ Mkr1 35.75 MHz
-3.08 dB

Ref 20 dBm   Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB

DI
-10.0
dBm
LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Center 5.795 00 GHz   Span 50 MHz
#Res BW 100 kHz_____#VBW 100 kHz_____ Sweep 6.04 ms (601 pts)_

IEEE 802.11n HT 40 MHz mode / Chain 2
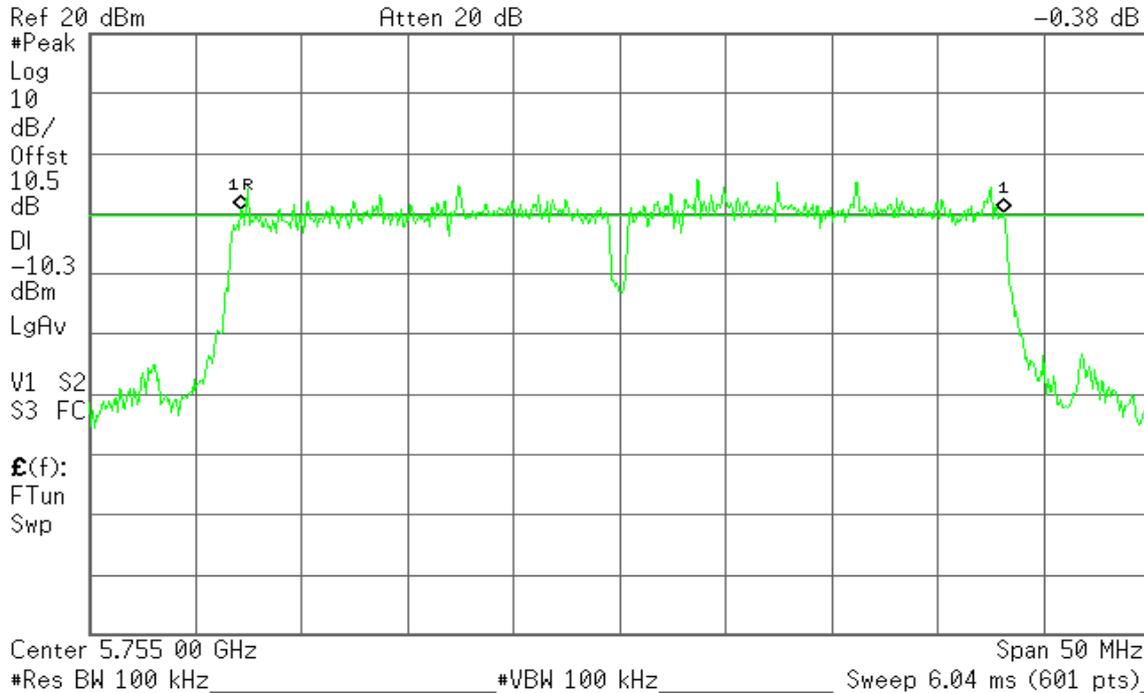
6dB Bandwidth (CH Low)

6dB Bandwidth (CH High)
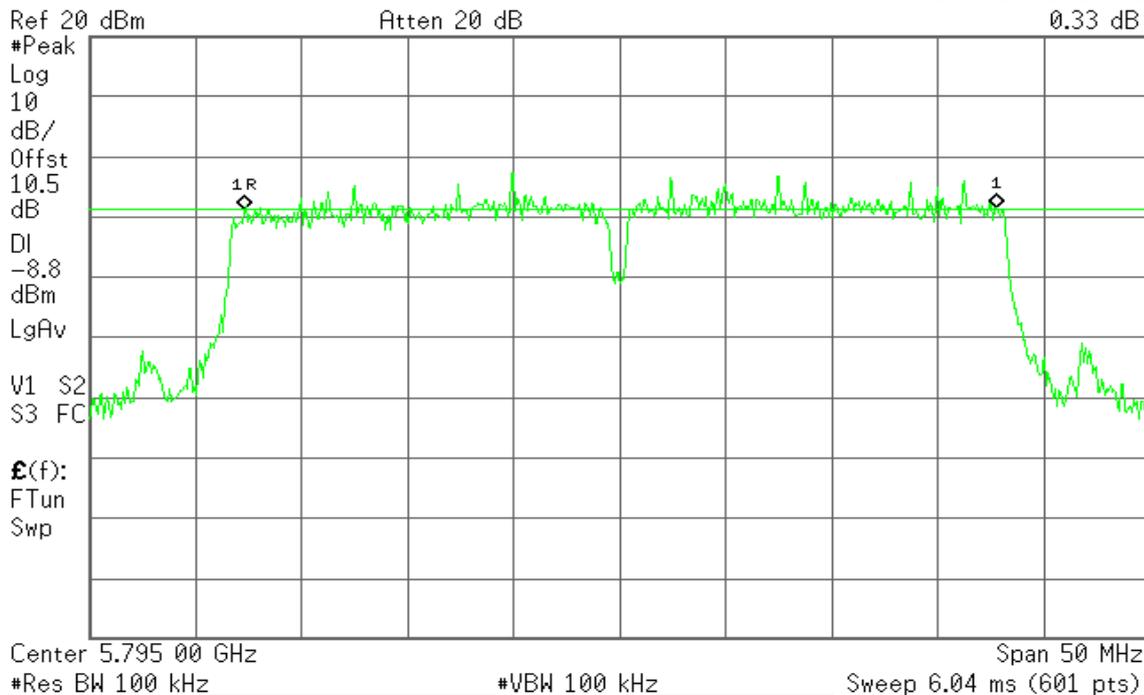
7.2 PEAK POWER

LIMIT

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

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

2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Configuration
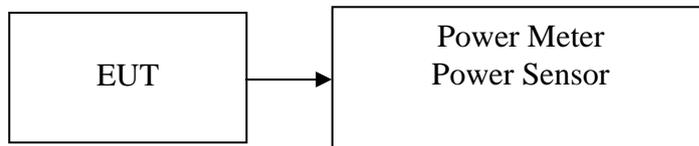
TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted.

Test Data

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 (W)	Result
Low	2412	17.38	16.88	20.15	0.1035		PASS
Mid	2442	22.18	21.87	25.04	0.3190	0.7063	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 (W)	Result
Low	2422	18.14	18.48	21.32	0.1356		PASS
Mid	2442	22.47	22.64	25.57	0.3603	0.7063	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.

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 (W)	Result
Low	5745	20.71	20.31	23.52	0.2252		PASS
Mid	5785	20.54	20.39	23.48	0.2226	0.6397	PASS
High	5825	20.83	20.51	23.68	0.2335		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 (W)	Result
Low	5755	20.97	21.49	24.25	0.2660	0.6397	PASS
High	5795	21.31	21.34	24.34	0.2714		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 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 28.06dBm.

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 (W)	Result
Low	2412	16.72	17.07	19.91	0.0979		PASS
Mid	2442	21.74	22.05	24.91	0.3096	0.7063	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 (W)	Result
Low	2422	17.24	18.95	21.19	0.1315		PASS
Mid	2442	21.69	23.17	25.50	0.3551	0.7063	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 7.51dBi; therefore the reduction due to antenna gain is 1.51dBi, so the limit is 28.49dBm.

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 (W)	Result
Low	5745	20.18	21.44	23.87	0.2435		PASS
Mid	5785	20.39	21.47	23.97	0.2497	0.6397	PASS
High	5825	20.25	21.29	23.81	0.2405		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 (W)	Result
Low	5755	19.81	21.58	23.79	0.2396	0.6397	PASS
High	5795	19.97	21.44	23.78	0.2386		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 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 28.06dBm.

For Mode 3

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	21.7	0.1479		PASS
Mid	2442	21.76	0.1500	1	PASS
High	2462	21.71	0.1483		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	22.56	0.1803		PASS
Mid	2442	24.15	0.2600	1	PASS
High	2462	22.49	0.1774		PASS

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 (W)	Result
Low	2412	17.25	16.88	20.08	0.1018		PASS
Mid	2442	22.01	22.17	25.10	0.3237	0.7063	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 (W)	Result
Low	2422	17.62	18.86	21.29	0.1347		PASS
Mid	2442	22.01	22.67	25.36	0.3438	0.7063	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 7.51dBi; therefore the reduction due to antenna gain is 1.51dBi, so the limit is 28.49dBm.

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	22.45	0.1758		PASS
Mid	5785	22.44	0.1754	1.00	PASS
High	5825	22.28	0.1690		PASS

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 (W)	Result
Low	5745	20.94	21.32	24.14	0.2597		PASS
Mid	5785	20.81	21.06	23.95	0.2481	0.6397	PASS
High	5825	20.84	20.98	23.92	0.2467		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 (W)	Result
Low	5755	21.26	21.67	24.48	0.2806	0.6397	PASS
High	5795	21.13	21.58	24.37	0.2736		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 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 28.06dBm.

7.3 BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration

TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=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.

TEST RESULTS

Refer to attach spectrum analyzer data chart.

For Mode 1

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

Detector mode: Peak   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	51.39 dBμV/m
2	(1)	Freq	2.400 0 GHz	68.29 dBμV/m
3	(1)	Freq	2.407 9 GHz	95.59 dBμV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	38.72 dBμV/m
2	(1)	Freq	2.400 0 GHz	55.46 dBμV/m
3	(1)	Freq	2.407 9 GHz	80.98 dBμV/m

Detector mode: Peak   **Polarity: Horizontal**

❄ **Agilent** 15:31:19 Nov 15, 2011   R T

Mkr3 2.406 6 GHz
104.83 dBµV/m

Ref 121 dBµV/m   #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBµV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	64.15 dBµV/m
2	(1)	Freq	2.400 0 GHz	77.39 dBµV/m
3	(1)	Freq	2.406 6 GHz	104.83 dBµV/m
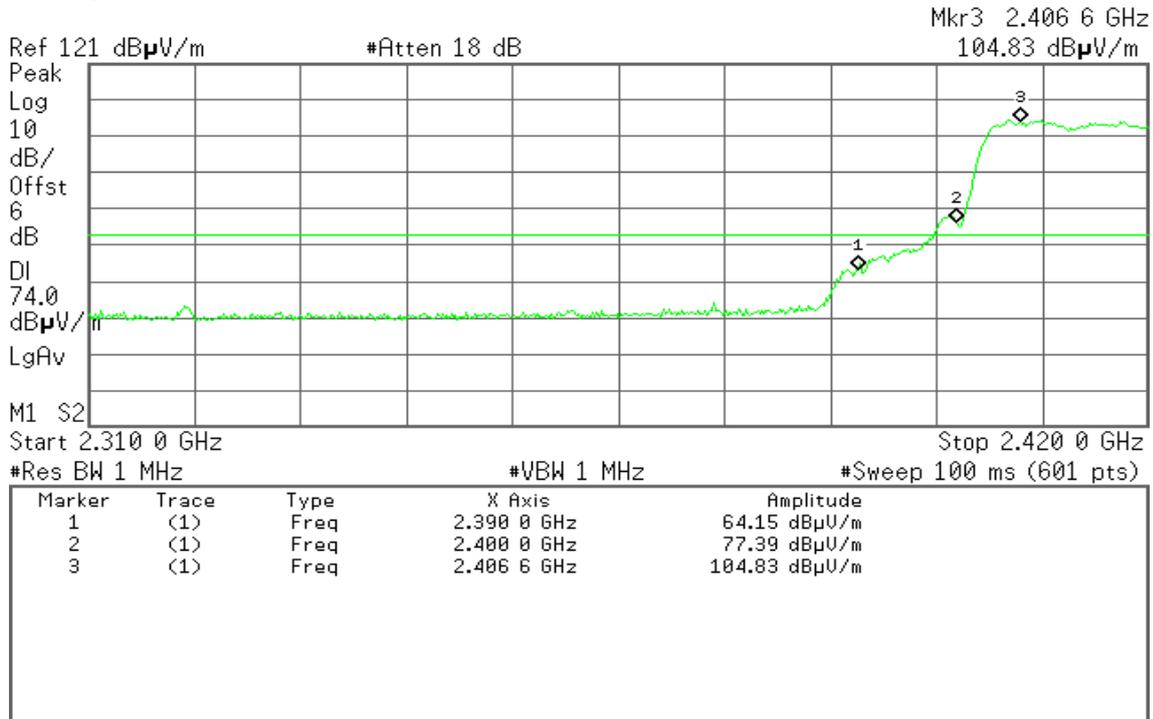
Detector mode: Average   **Polarity: Horizontal**

❄ **Agilent** 15:31:45 Nov 15, 2011   R T
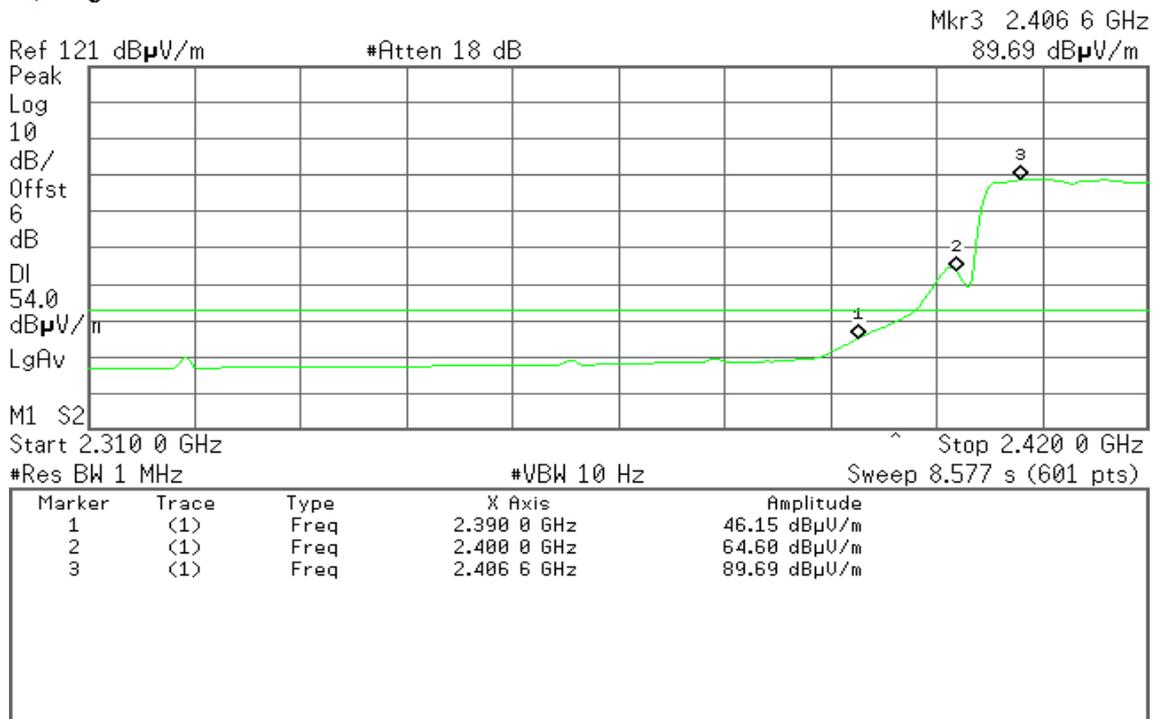
Mkr3 2.406 6 GHz
89.69 dBµV/m

Ref 121 dBµV/m   #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBµV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 8.577 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	46.15 dBµV/m
2	(1)	Freq	2.400 0 GHz	64.60 dBµV/m
3	(1)	Freq	2.406 6 GHz	89.69 dBµV/m

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
Ref 121 dBµV/m              #Atten 18 dB          50.88 dBµV/m
Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBµV/m
LgAv

M1 S2
S3 FC
A  AA
£(f):                                  1
FTun
Swp


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 15:49:14 Nov 15, 2011                        R  T
                                                Mkr1  2.483 50 GHz
Ref 121 dBµV/m              #Atten 18 dB          38.54 dBµV/m
Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBµV/m
LgAv

M1 S2
S3 FC
A  AA
£(f):                                  1
FTun
Swp


Start 2.455 00 GHz                         Stop 2.500 00 GHz
#Res BW 1 MHz_____#VBW 10 Hz_____Sweep 3.509 s (601 pts)_
```
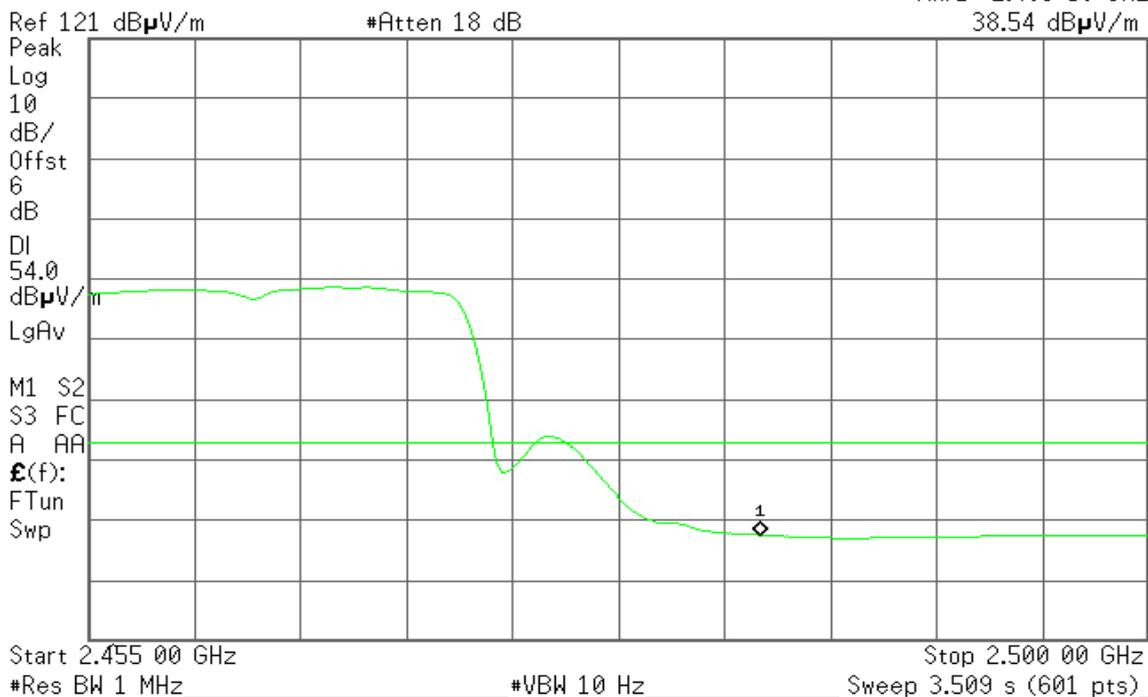
Detector mode: Peak　　　　　　　　**Polarity: Horizontal**

Agilent 15:53:31 Nov 15, 2011　　　　　　　　　R　T

Mkr1 2.483 50 GHz
62.80 dBµV/m

Ref 121 dBµV/m　　　　　#Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBµV/m
LgAv

M1 S2
S3 FC
A AA
£(f):
FTun
Swp

Start 2.455 00 GHz　　　　　　　　　　　　Stop 2.500 00 GHz
#Res BW 1 MHz＿＿＿＿＿＿＿＿＿＿＿＿#VBW 1 MHz＿＿＿＿＿＿＿#Sweep 100 ms (601 pts)＿
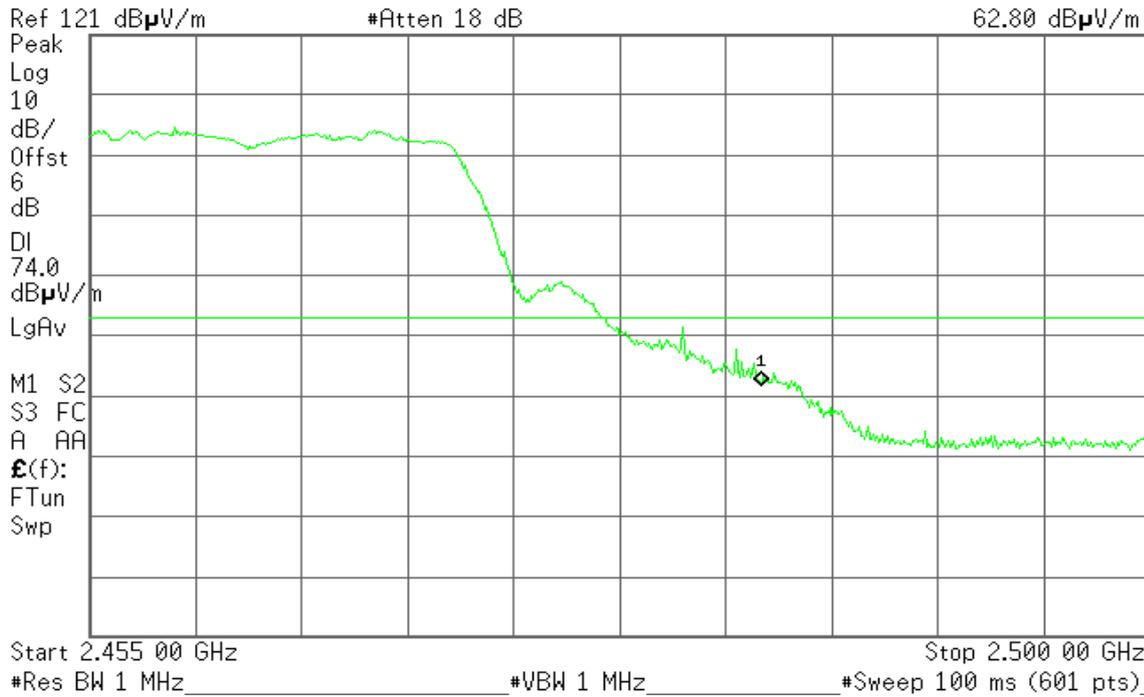
Detector mode: Average　　　　　　　　**Polarity: Horizontal**

Agilent 15:53:49 Nov 15, 2011　　　　　　　　　R　T

Mkr1 2.483 50 GHz
47.27 dBµV/m
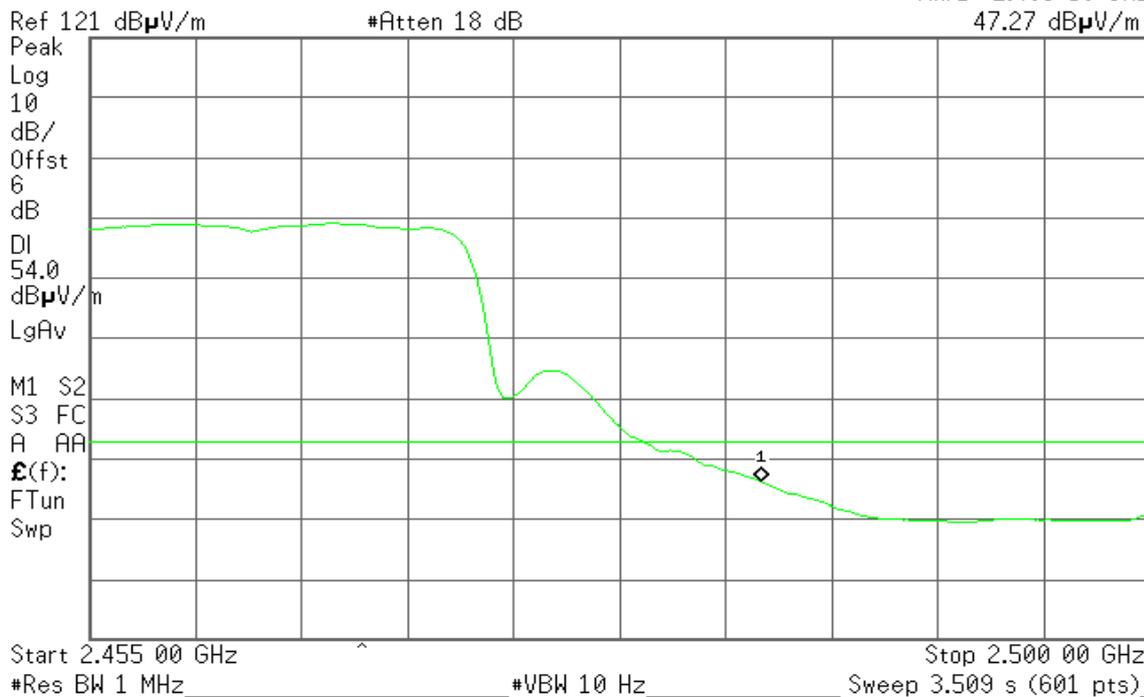
Ref 121 dBµV/m　　　　　#Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBµV/m
LgAv

M1 S2
S3 FC
A AA
£(f):
FTun
Swp

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

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

Detector mode: Peak   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	53.65 dBµV/m
2	(1)	Freq	2.400 0 GHz	67.13 dBµV/m
3	(1)	Freq	2.427 0 GHz	92.67 dBµV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	40.03 dBµV/m
2	(1)	Freq	2.400 0 GHz	53.11 dBµV/m
3	(1)	Freq	2.427 0 GHz	74.95 dBµV/m
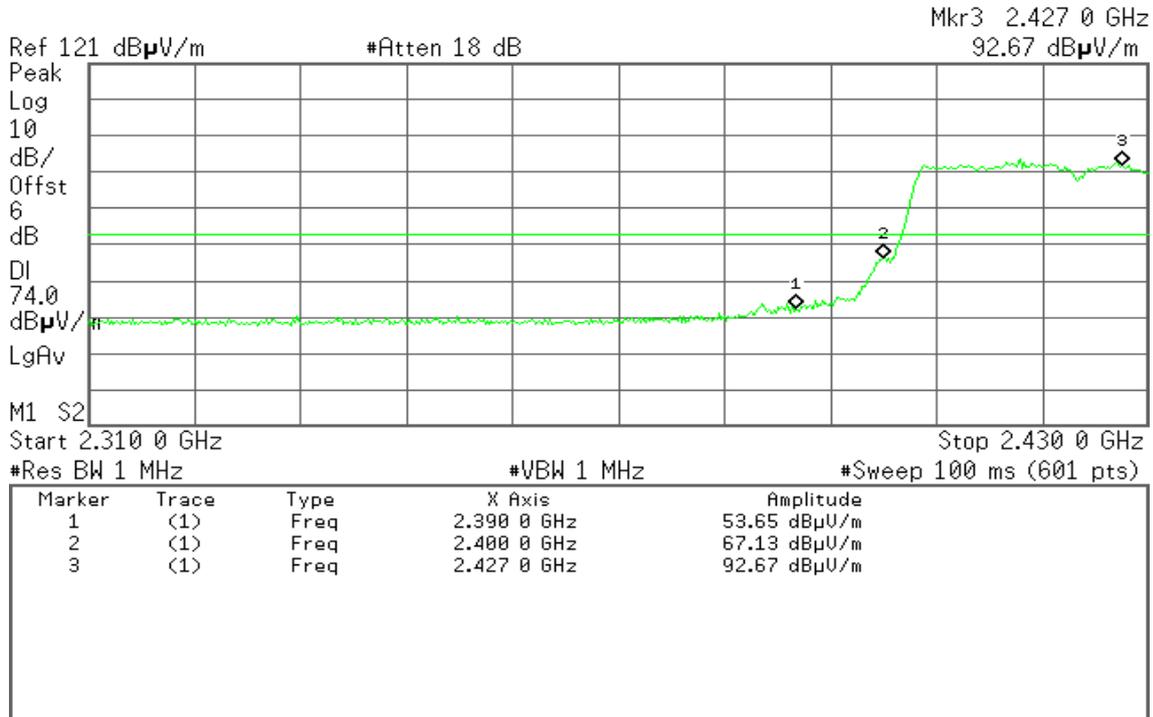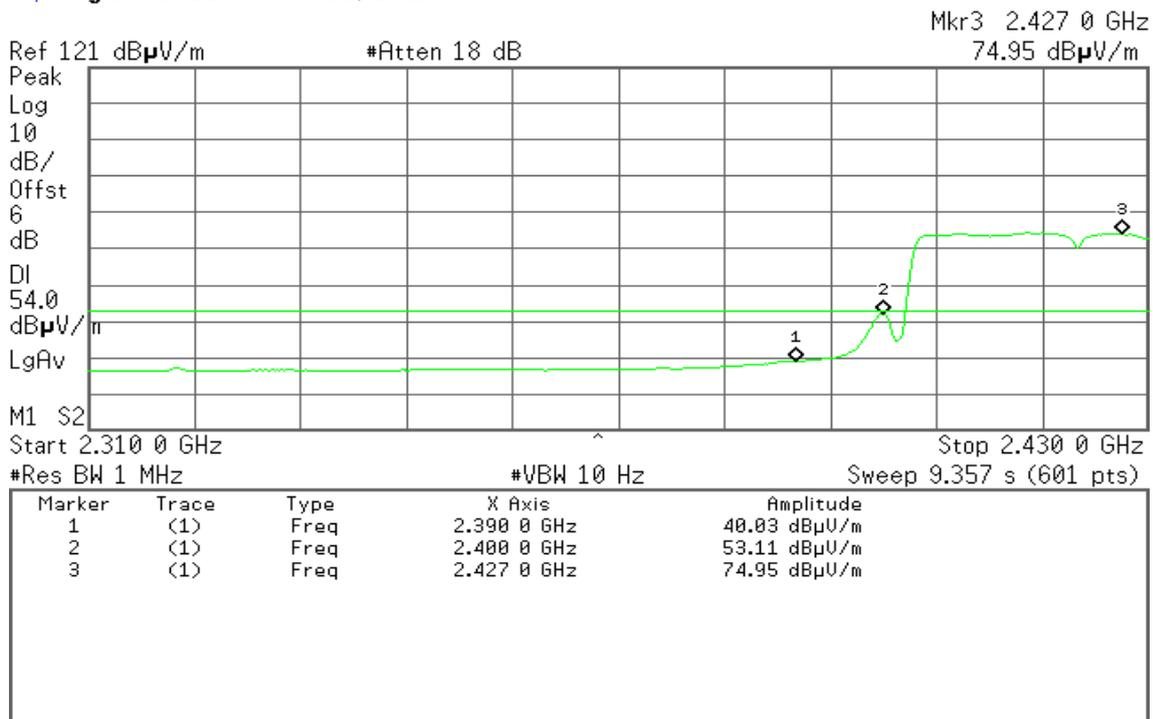
Detector mode: Peak   **Polarity: Horizontal**

☀ **Agilent** 15:25:48 Nov 15, 2011   R   T

Mkr3 2.427 2 GHz

Ref 121 dBµV/m   #Atten 18 dB   103.52 dBµV/m

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBµV/m

LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.430 0 GHz

#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	67.03 dBµV/m
2	(1)	Freq	2.400 0 GHz	76.22 dBµV/m
3	(1)	Freq	2.427 2 GHz	103.52 dBµV/m
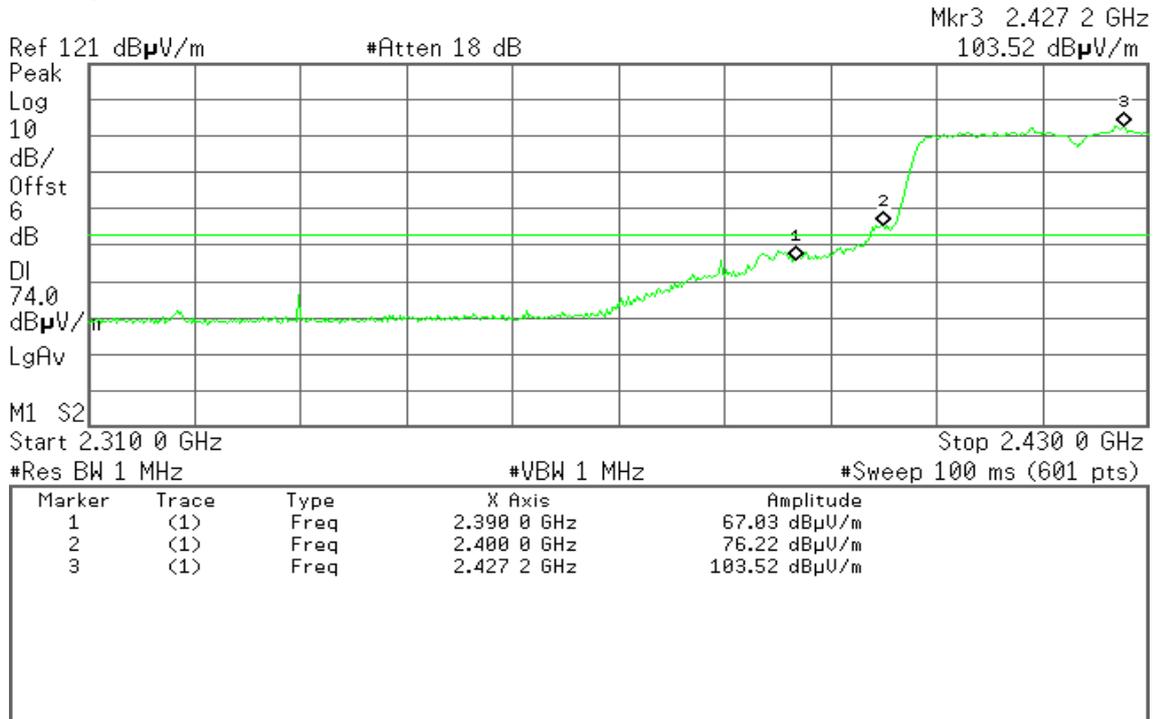
Detector mode: Average   **Polarity: Horizontal**

☀ **Agilent** 15:26:16 Nov 15, 2011   R   T
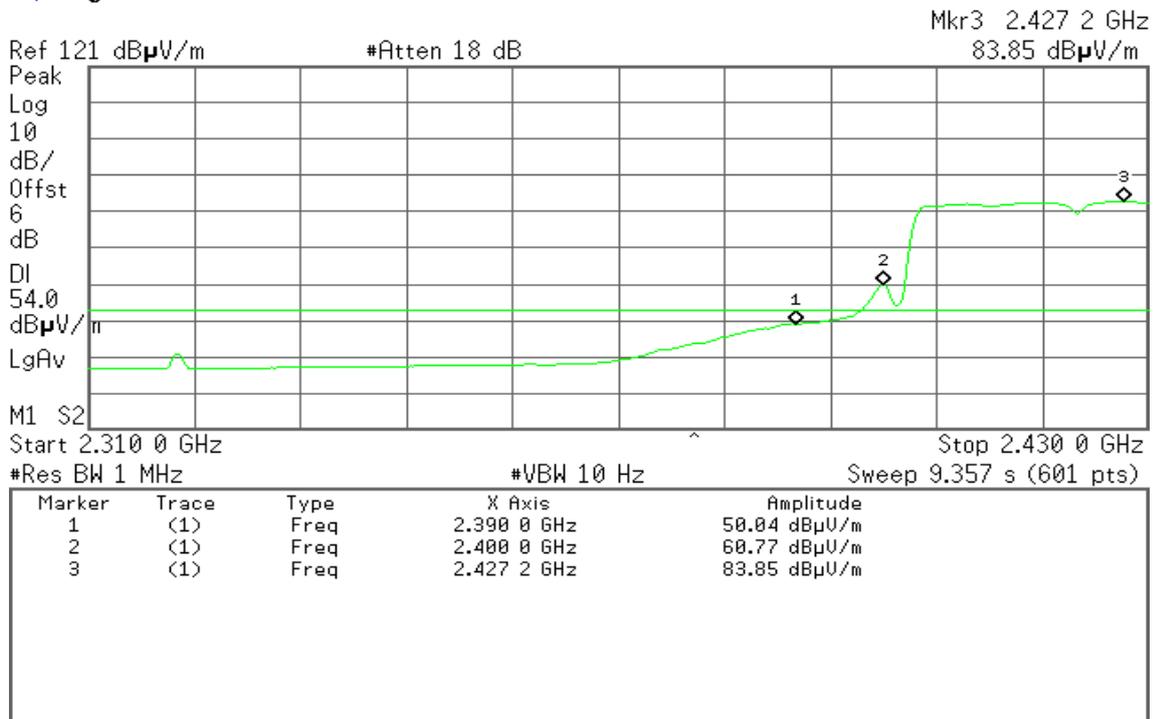
Mkr3 2.427 2 GHz

Ref 121 dBµV/m   #Atten 18 dB   83.85 dBµV/m

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBµV/m

LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.430 0 GHz

#Res BW 1 MHz   #VBW 10 Hz   Sweep 9.357 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	50.04 dBµV/m
2	(1)	Freq	2.400 0 GHz	60.77 dBµV/m
3	(1)	Freq	2.427 2 GHz	83.85 dBµV/m

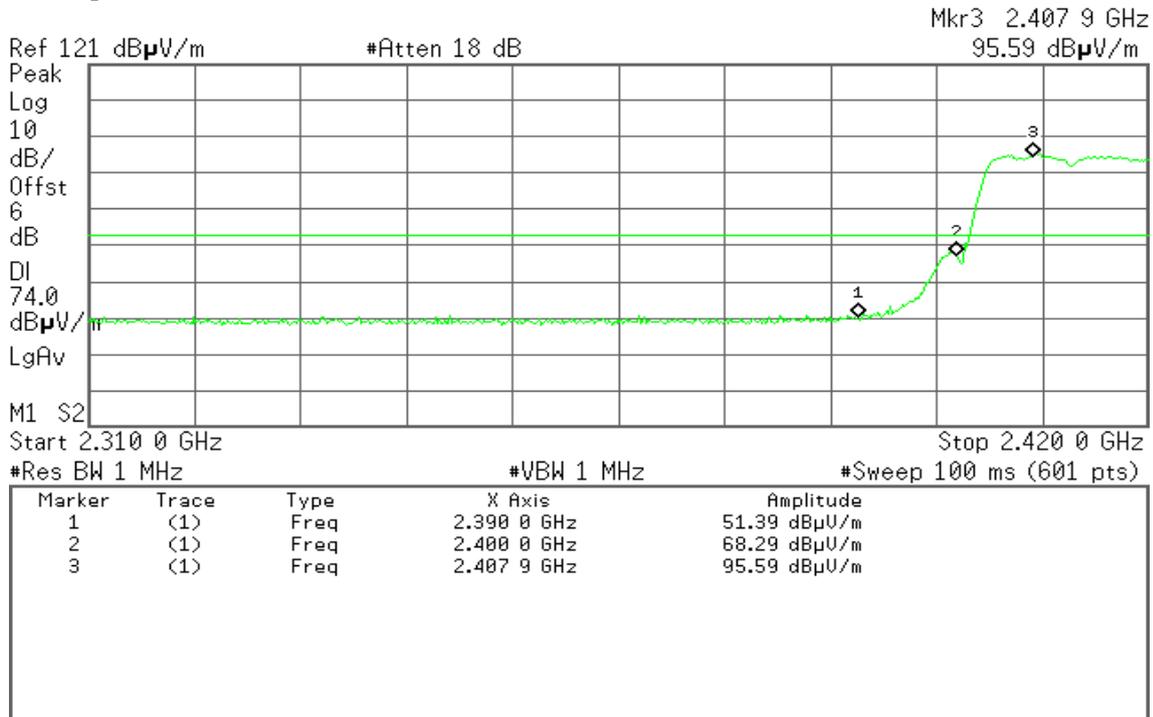## Band Edges (IEEE 802.11n HT 40 MHz mode / CH High)

Detector mode: Peak   **Polarity: Vertical**

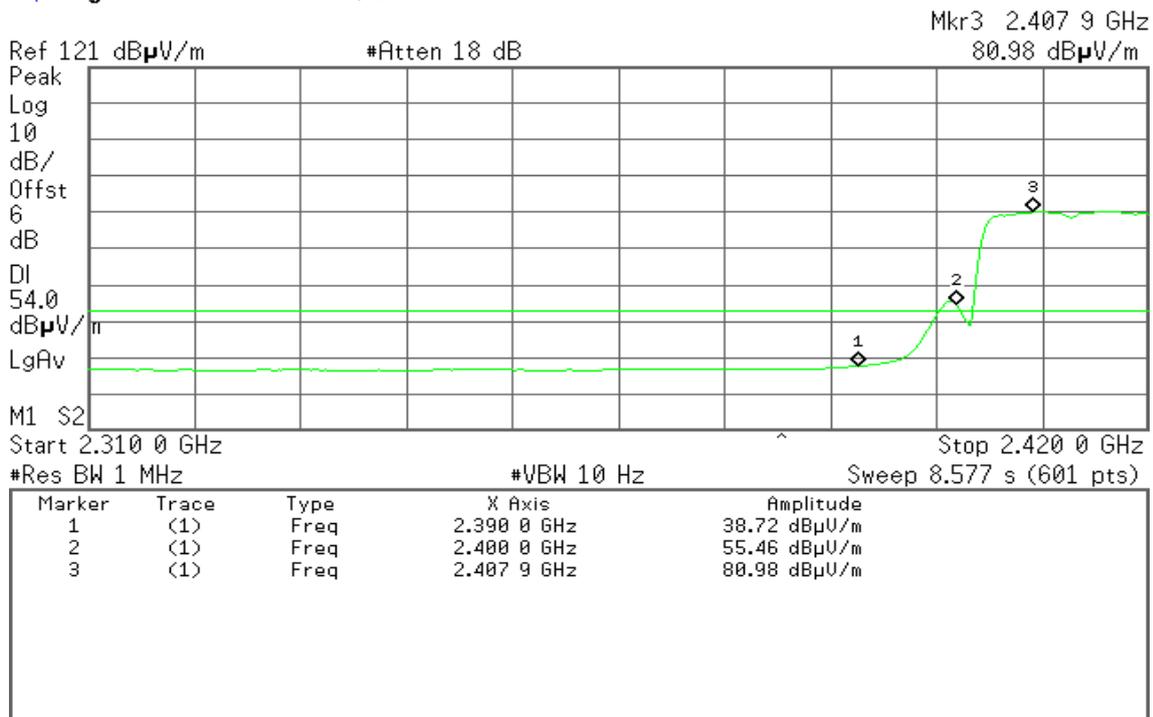Agilent 13:06:32 Nov 15, 2011   R T
                                                  Mkr1 2.483 50 GHz
Ref 121 dBμV/m   #Atten 18 dB   52.63 dBμV/m
Peak
Log
10
dB/
Offset
6
dB
DI
74.0
dBμV/m
LgAv
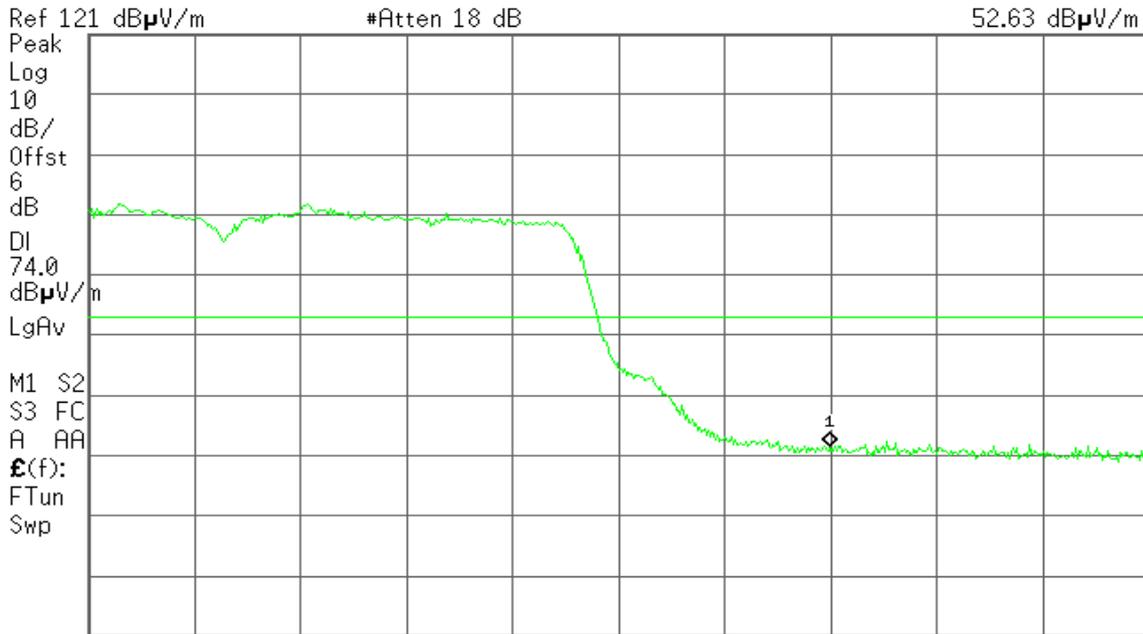
M1 S2
S3 FC
A AA
£(f):
FTun
Swp

Start 2.445 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 13:07:16 Nov 15, 2011   R T
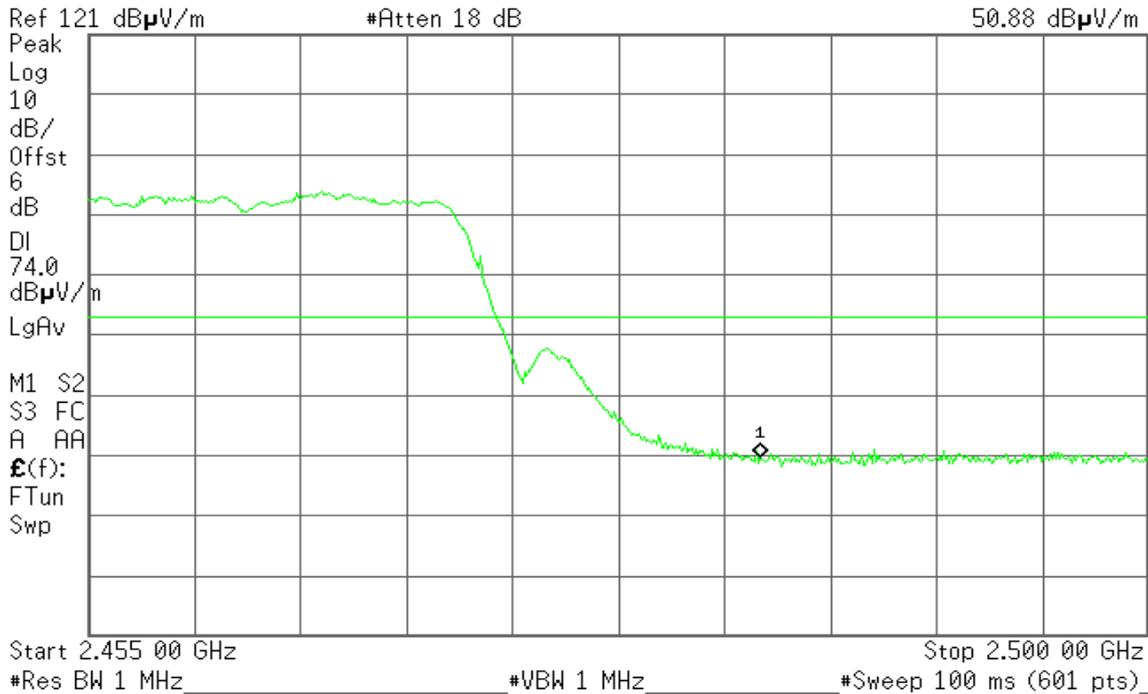   Mkr1 2.483 50 GHz
Ref 121 dBμV/m   #Atten 18 dB   39.31 dBμV/m
Peak
Log
10
dB/
Offset
6
dB
DI
54.0
dBμV/m
LgAv

M1 S2
S3 FC
A AA
£(f):
FTun
Swp
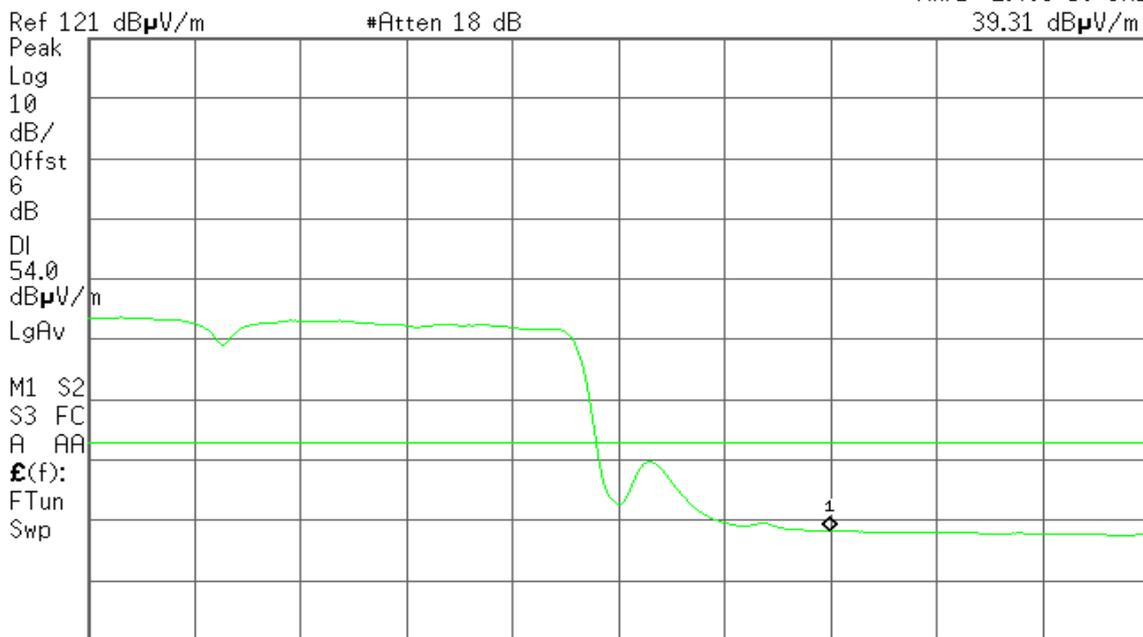
Start 2.445 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 4.289 s (601 pts)

Detector mode: Peak　　　　　　　　　　**Polarity: Horizontal**

❄ **Agilent** 14:57:08 Nov 15, 2011　　　　　　　　　**R   T**

Mkr1 2.483 50 GHz

Ref 121 dBµV/m　　　　　#Atten 18 dB　　　　　　　　　69.22 dBµV/m

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBµV/m
LgAv

M1 S2
S3 FC
A   AA
£(f):
FTun
Swp

Start 2.445 00 GHz　　　　　　　　　　　　　　Stop 2.500 00 GHz
#Res BW 1 MHz　　　　　　　#VBW 1 MHz　　　　　#Sweep 100 ms (601 pts)
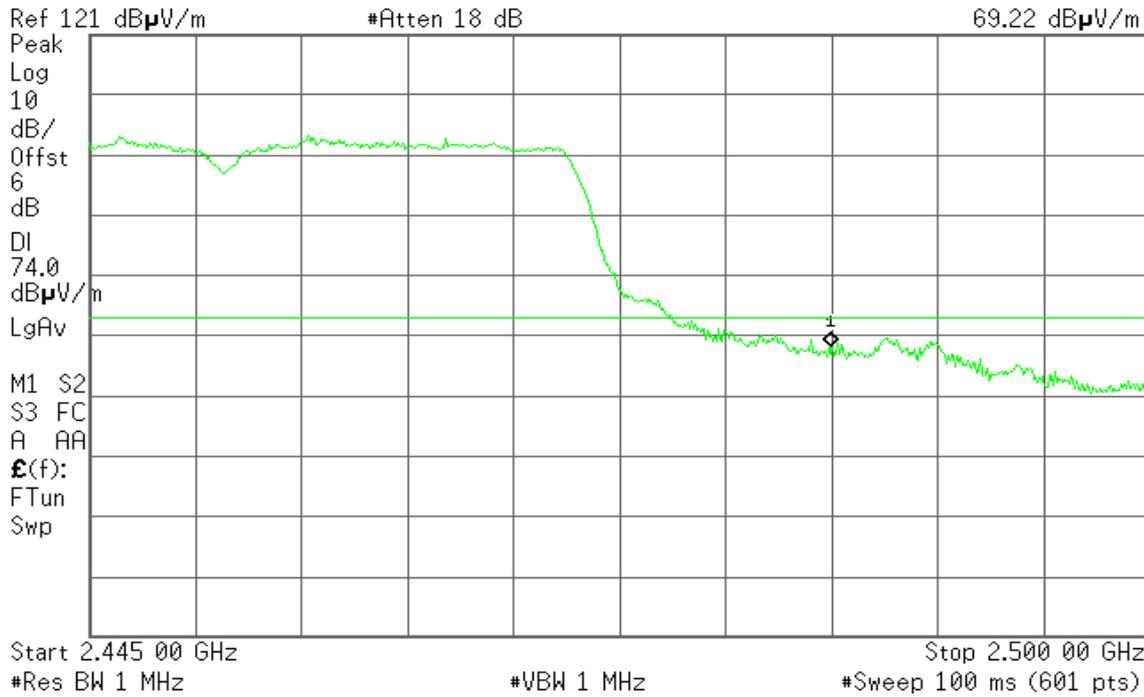
Detector mode: Average　　　　　　　　　**Polarity: Horizontal**

❄ **Agilent** 14:57:26 Nov 15, 2011　　　　　　　　　**R   T**

Mkr1 2.483 50 GHz

Ref 121 dBµV/m　　　　　#Atten 18 dB　　　　　　　　　51.63 dBµV/m

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBµV/m
LgAv

M1 S2
S3 FC
A   AA
£(f):
FTun
Swp

Start 2.445 00 GHz　　　　　^　　　　　　　　　Stop 2.500 00 GHz
#Res BW 1 MHz　　　　　　　#VBW 10 Hz　　　　　Sweep 4.289 s (601 pts)
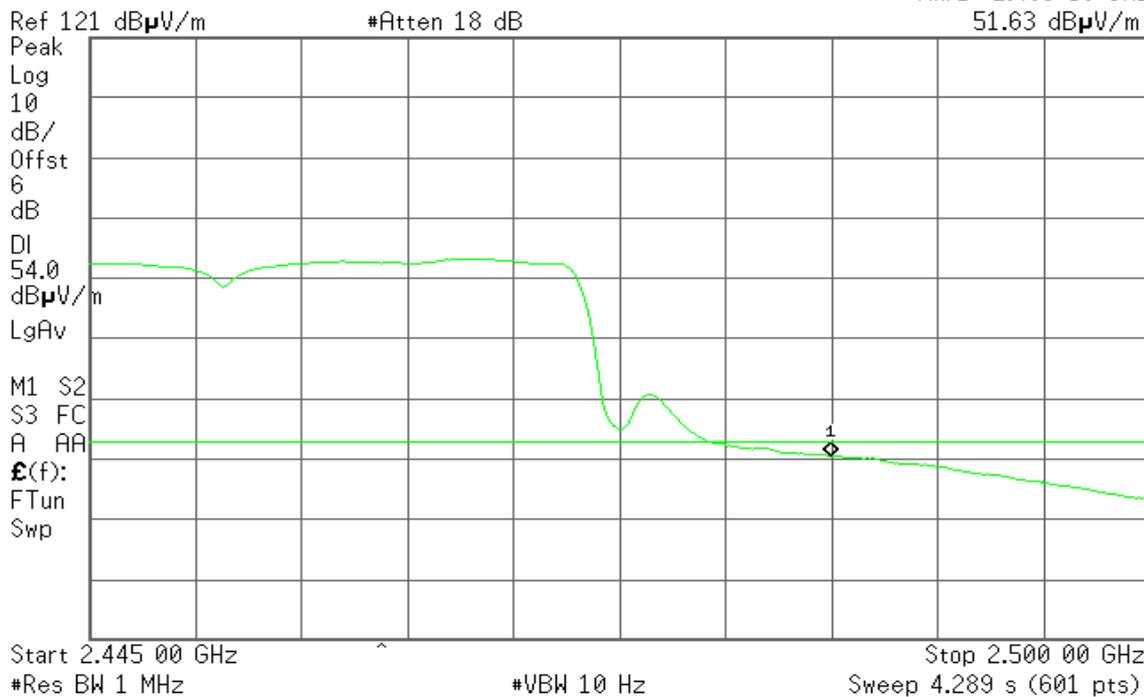
For Mode 2

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

Detector mode: Peak   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	51.43 dBµV/m
2	(1)	Freq	2.400 0 GHz	64.98 dBµV/m
3	(1)	Freq	2.410 6 GHz	92.69 dBµV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	38.20 dBµV/m
2	(1)	Freq	2.400 0 GHz	53.00 dBµV/m
3	(1)	Freq	2.410 6 GHz	78.89 dBµV/m

Detector mode: Peak **Polarity: Horizontal**

☼ **Agilent**   R   T

Mkr3 2.410 6 GHz

Ref 121 dBμV/m   #Atten 18 dB   103.78 dBμV/m

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBμV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	65.10 dBμV/m
2	(1)	Freq	2.400 0 GHz	79.78 dBμV/m
3	(1)	Freq	2.410 6 GHz	103.78 dBμV/m

Detector mode: Average **Polarity: Horizontal**

☼ **Agilent**   R   T

Mkr3 2.410 6 GHz

Ref 121 dBμV/m   #Atten 18 dB   89.37 dBμV/m

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBμV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 8.577 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	45.82 dBμV/m
2	(1)	Freq	2.400 0 GHz	64.04 dBμV/m
3	(1)	Freq	2.410 6 GHz	89.37 dBμV/m

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**

Detector mode: Average   **Polarity: Horizontal**

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

Detector mode: Peak   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	53.93 dBμV/m
2	(1)	Freq	2.400 0 GHz	65.08 dBμV/m
3	(1)	Freq	2.425 6 GHz	91.39 dBμV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	40.06 dBμV/m
2	(1)	Freq	2.400 0 GHz	51.32 dBμV/m
3	(1)	Freq	2.425 6 GHz	73.95 dBμV/m

Detector mode: Peak   **Polarity: Horizontal**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	68.14 dBµV/m
2	(1)	Freq	2.400 0 GHz	75.71 dBµV/m
3	(1)	Freq	2.427 8 GHz	102.99 dBµV/m

Detector mode: Average   **Polarity: Horizontal**

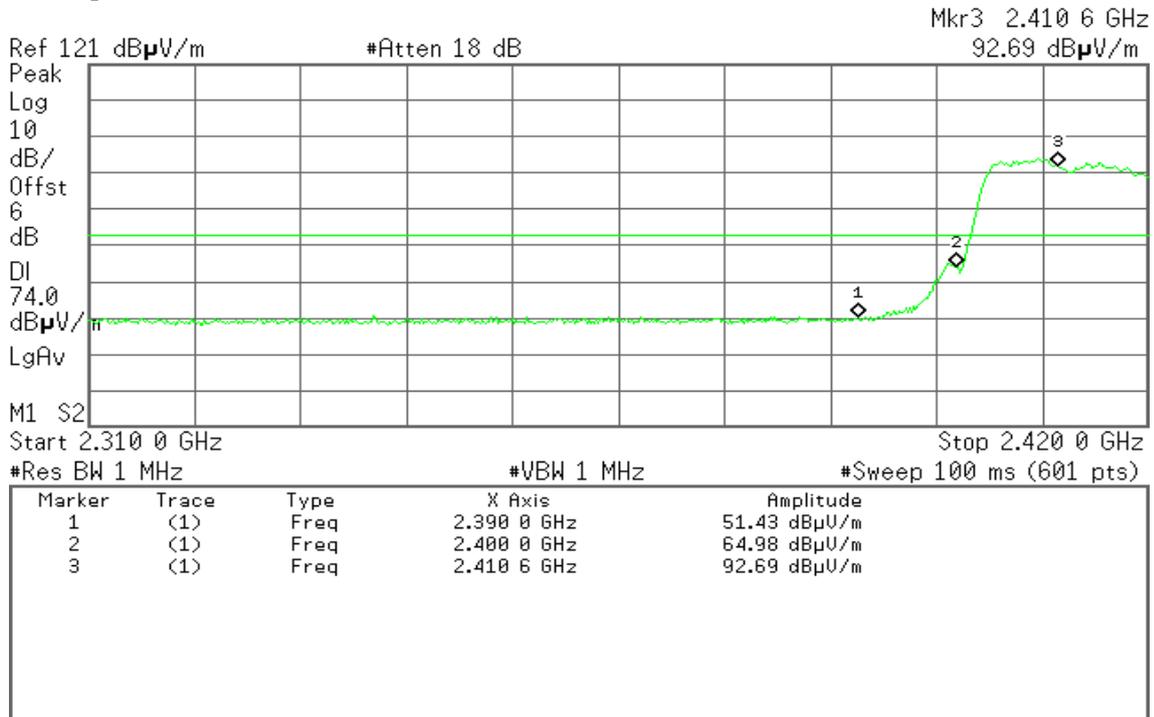| Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	49.96 dBµV/m
2	(1)	Freq	2.400 0 GHz	59.41 dBµV/m
3	(1)	Freq	2.427 8 GHz	83.93 dBµV/m

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

Detector mode: Peak   **Polarity: Vertical**

Detector mode: Average   **Polarity: Vertical**

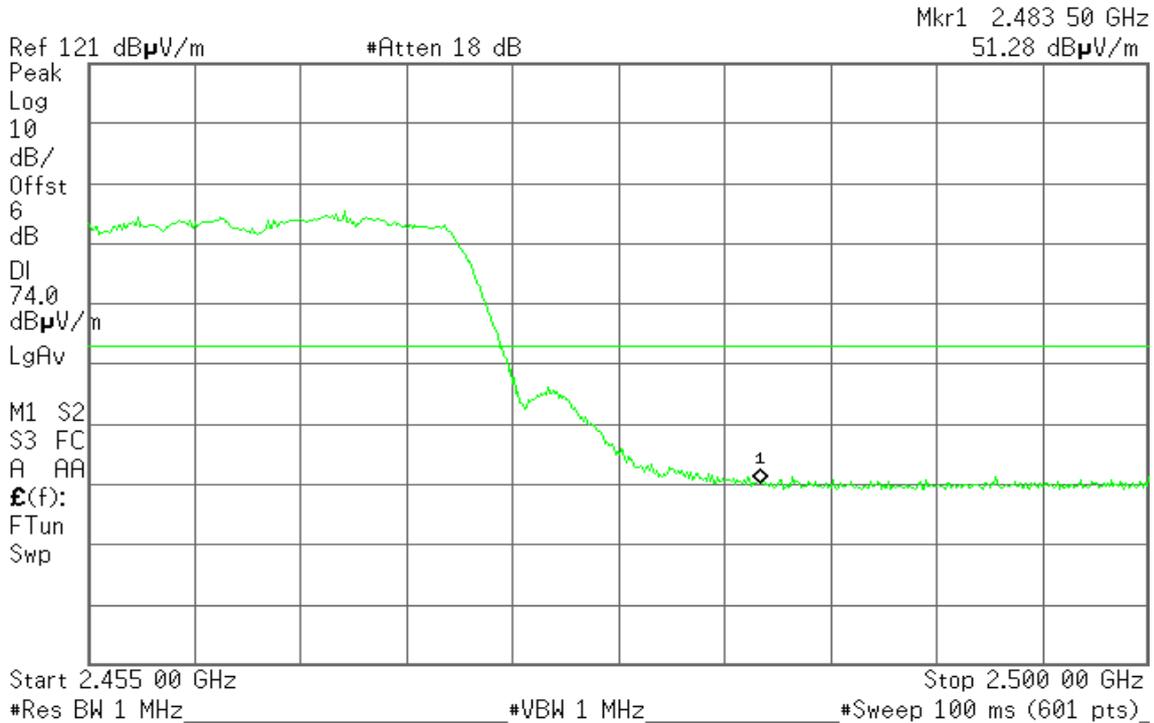**Detector mode: Peak**   **Polarity: Horizontal**

⁂ **Agilent** 09:17:57 Nov 14, 2011   R   T

Mkr1 2.483 50 GHz

Ref 121 dBμV/m   #Atten 18 dB   67.03 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBμV/m
LgAv

M1 S2
S3 FC
A AA
£(f):
FTun
Swp

Start 2.445 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)
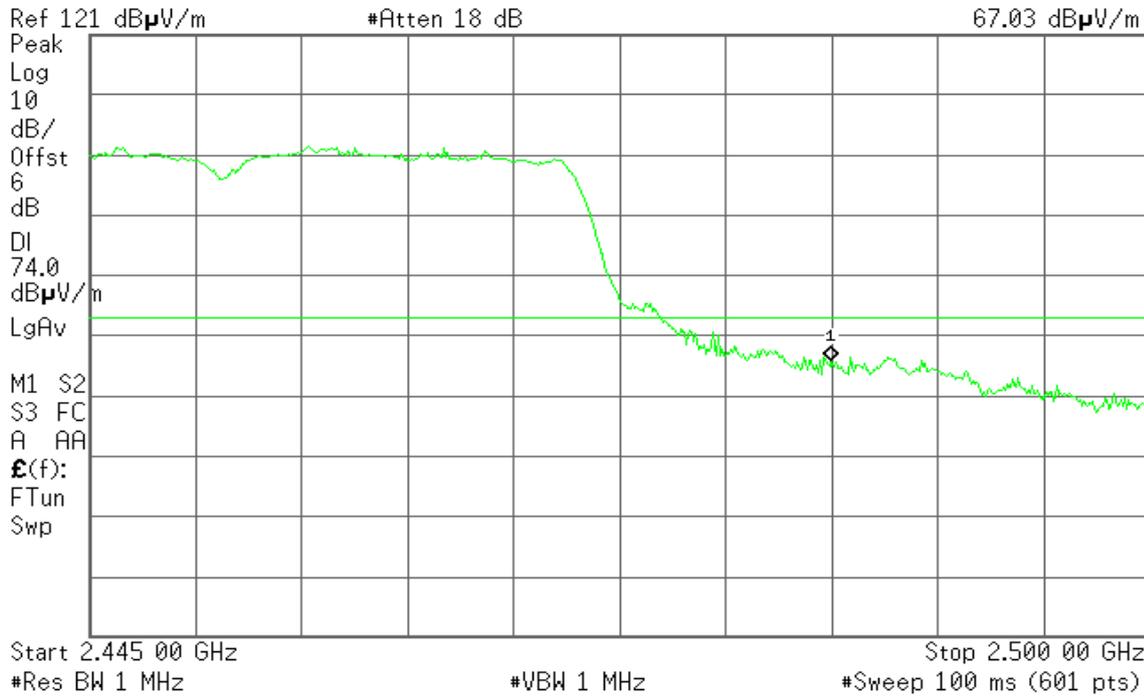
Detector mode: Average   Polarity: Horizontal

⁂ **Agilent** 09:18:16 Nov 14, 2011   R   T

Mkr1 2.483 50 GHz

Ref 121 dBμV/m   #Atten 18 dB   49.14 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBμV/m
LgAv

M1 S2
S3 FC
A AA
£(f):
FTun
Swp

Start 2.445 00 GHz   ^   Stop 2.500 00 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 4.289 s (601 pts)
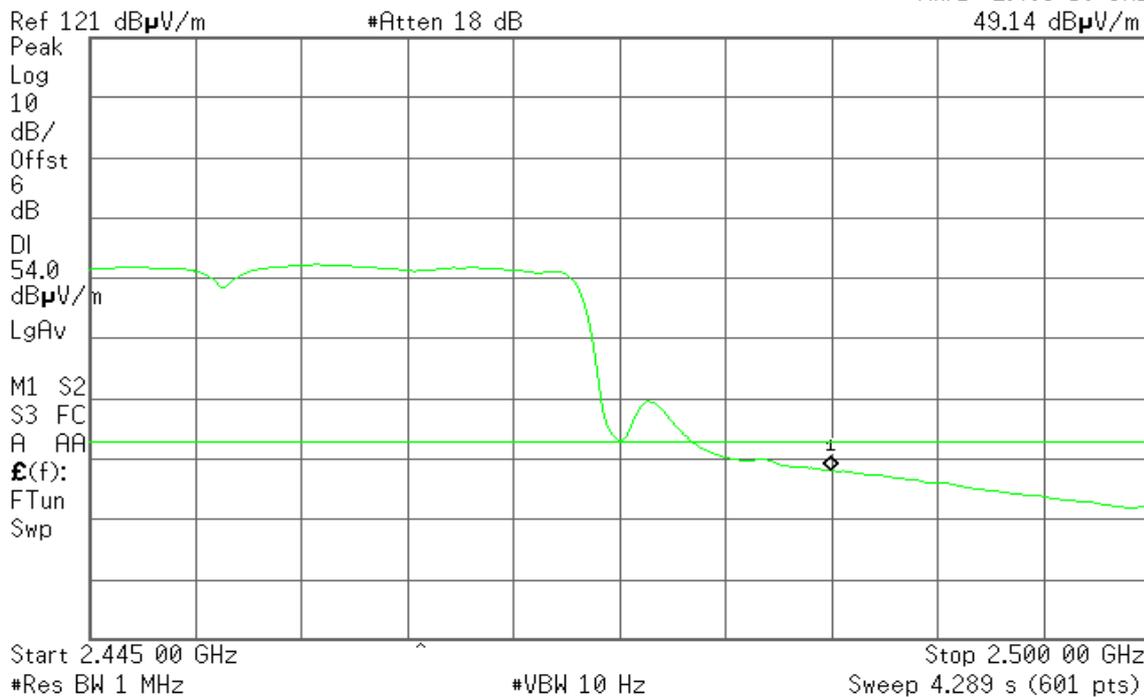
For Mode 3

Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak   **Polarity: Vertical**

❈ **Agilent** 21:25:59 17 Nov 2011   R T

Mkr3 2.411 9 GHz
106.13 dBµV/m

Ref 121 dBµV/m   #Atten 18 dB

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	53.23 dBµV/m
2	(1)	Freq	2.400 0 GHz	66.51 dBµV/m
3	(1)	Freq	2.411 9 GHz	106.13 dBµV/m

Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBµV/
LgAv

M1 S2
Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)
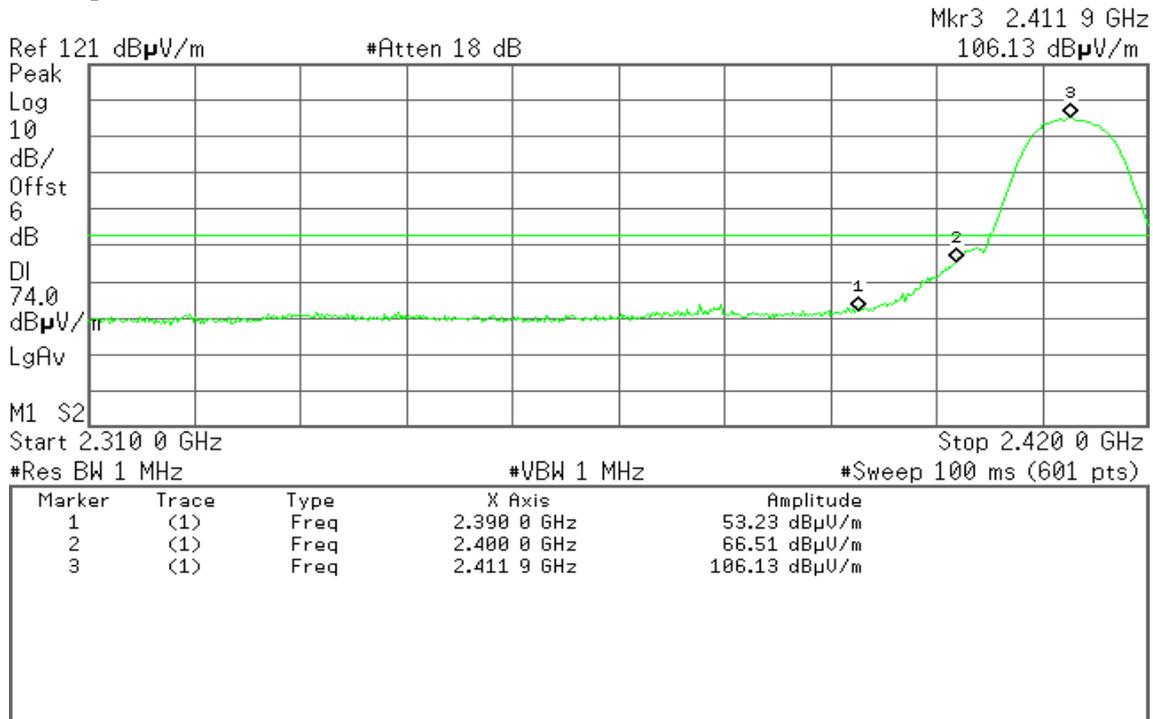
Detector mode: Average   **Polarity: Vertical**

❈ **Agilent** 21:26:21 17 Nov 2011   R T

Mkr3 2.411 9 GHz
98.32 dBµV/m

Ref 121 dBµV/m   #Atten 18 dB

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	41.21 dBµV/m
2	(1)	Freq	2.400 0 GHz	57.38 dBµV/m
3	(1)	Freq	2.411 9 GHz	98.32 dBµV/m

Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBµV/
LgAv

M1 S2
Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 8.577 s (601 pts)
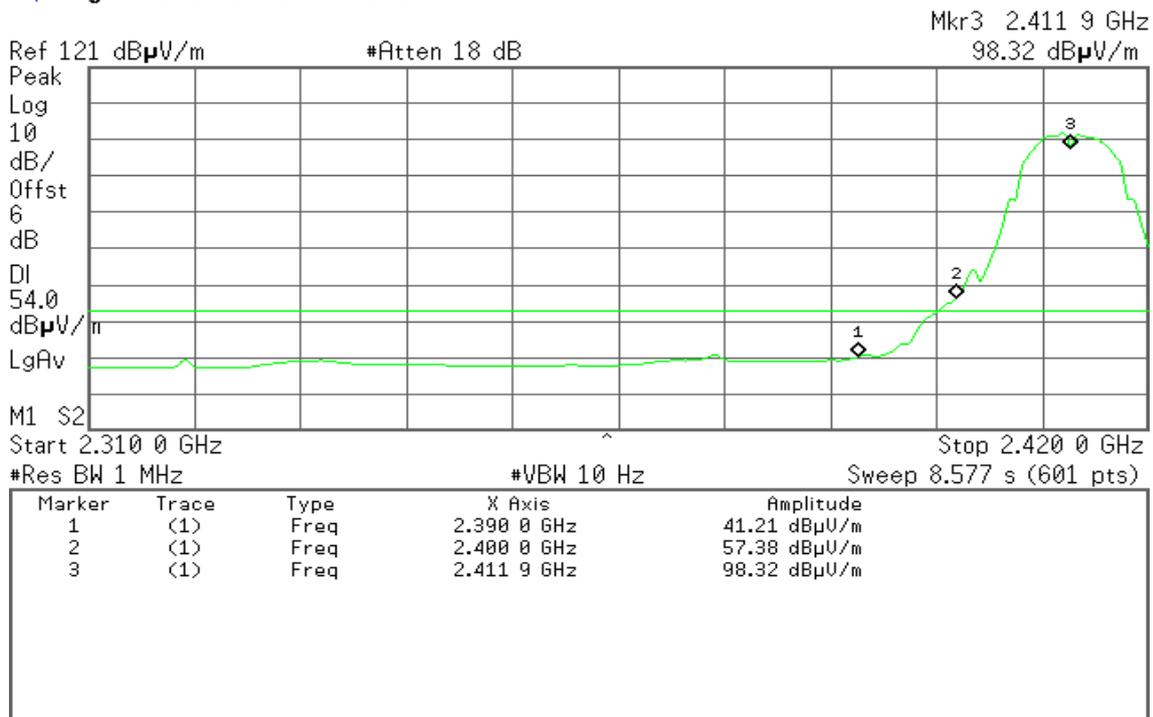
Detector mode: Peak   **Polarity: Horizontal**

✳ **Agilent** 21:21:33 17 Nov 2011   R   T

Mkr3 2.411 9 GHz

Ref 121 dBμV/m   #Atten 18 dB   111.55 dBμV/m

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	61.17 dBμV/m
2	(1)	Freq	2.400 0 GHz	77.86 dBμV/m
3	(1)	Freq	2.411 9 GHz	111.55 dBμV/m

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)
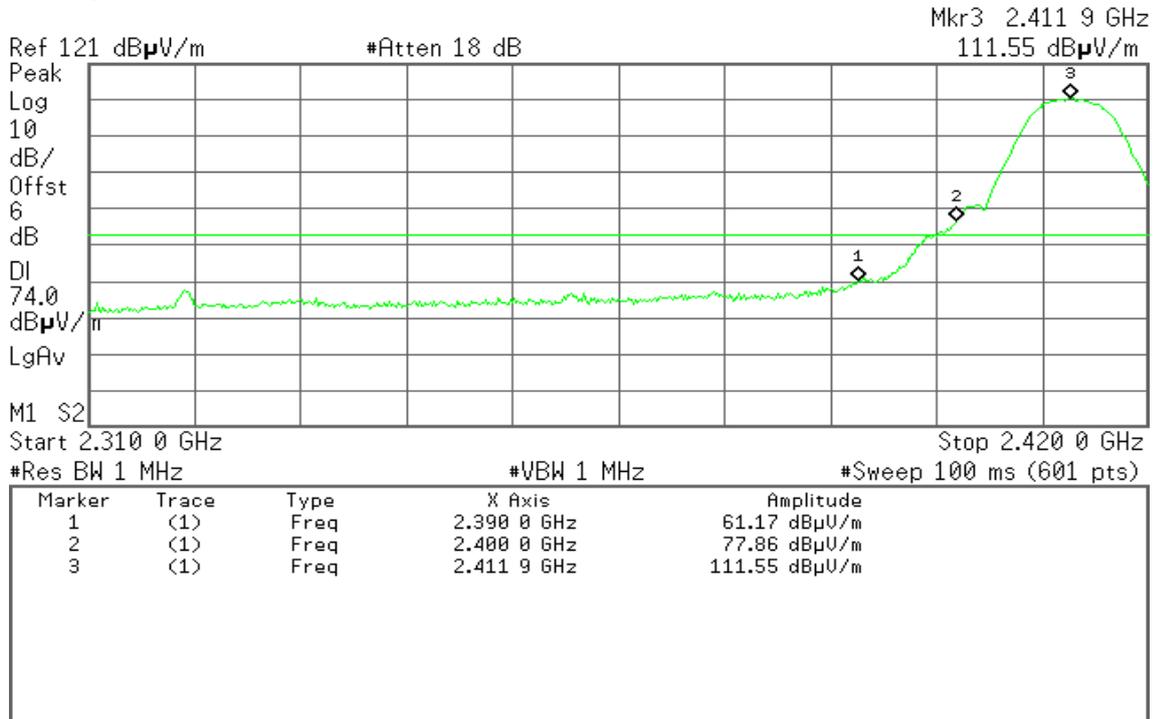
Detector mode: Average   **Polarity: Horizontal**

✳ **Agilent** 21:22:01 17 Nov 2011   R   T
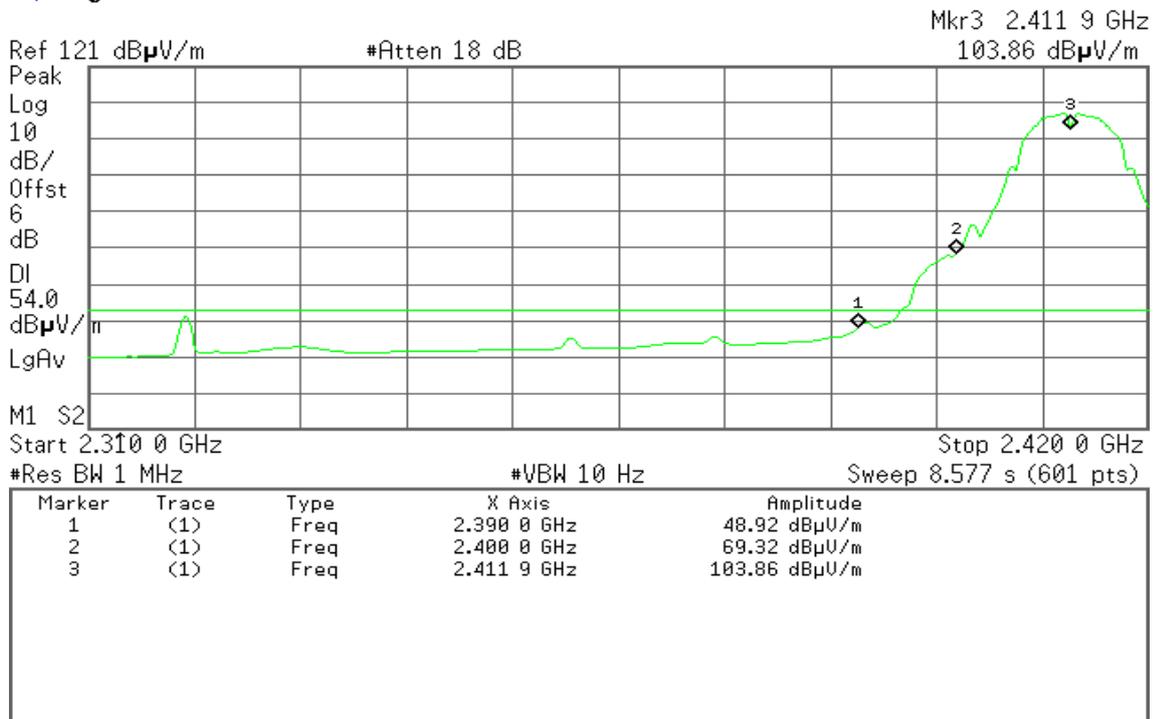
Mkr3 2.411 9 GHz

Ref 121 dBμV/m   #Atten 18 dB   103.86 dBμV/m

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	48.92 dBμV/m
2	(1)	Freq	2.400 0 GHz	69.32 dBμV/m
3	(1)	Freq	2.411 9 GHz	103.86 dBμV/m

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 8.577 s (601 pts)
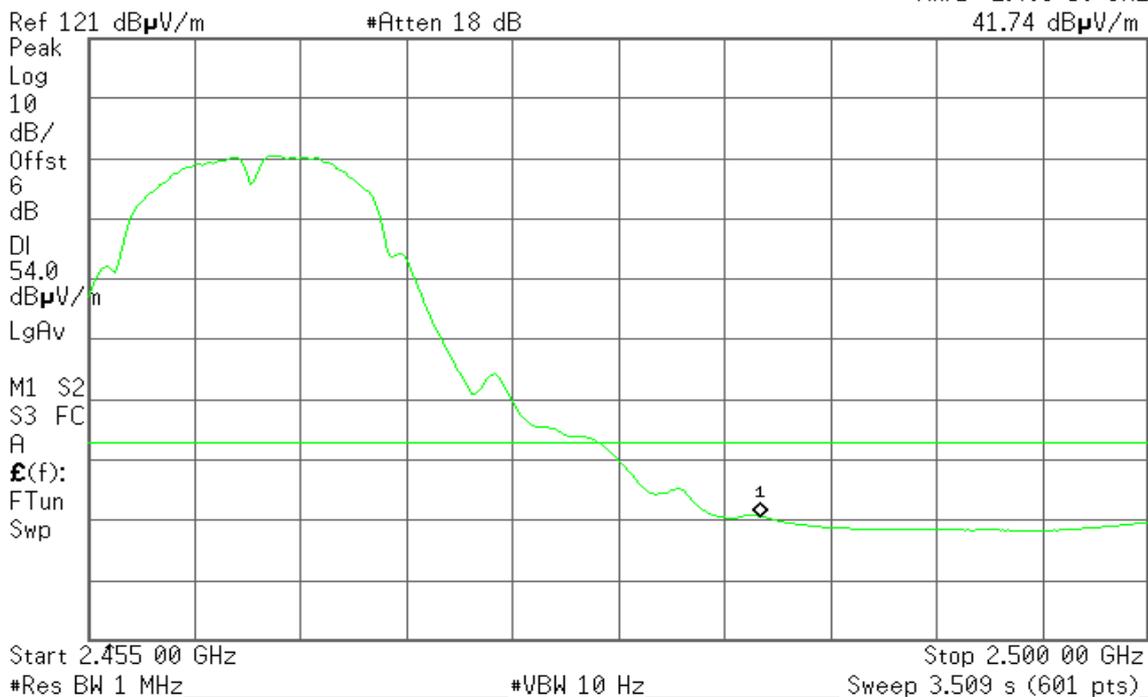
Band Edges (IEEE 802.11b mode / CH High)

Detector mode: Peak **Polarity: Vertical**
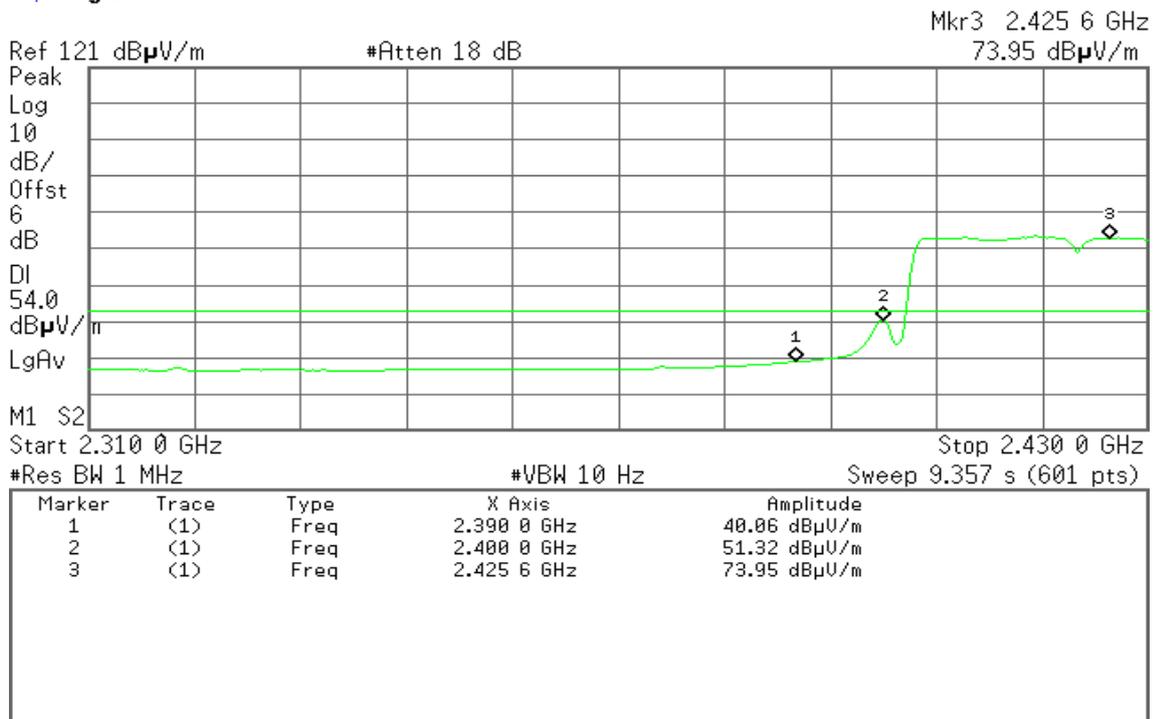

Detector mode: Average **Polarity: Vertical**
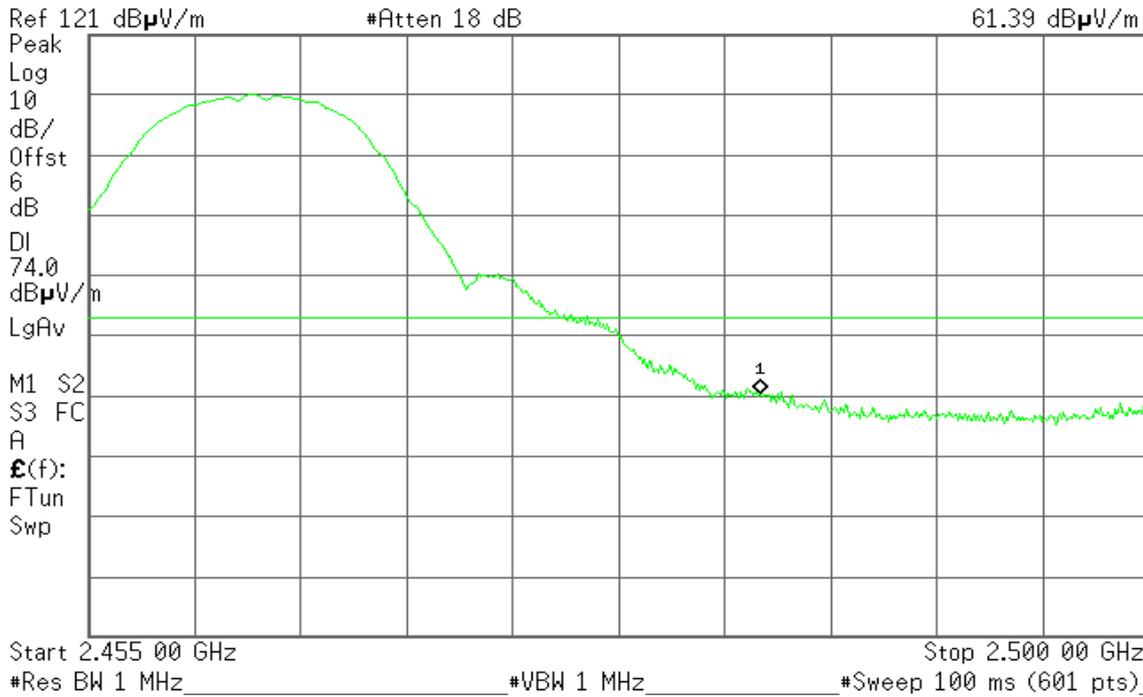
Detector mode: Peak   **Polarity: Horizontal**

Detector mode: Average   **Polarity: Horizontal**
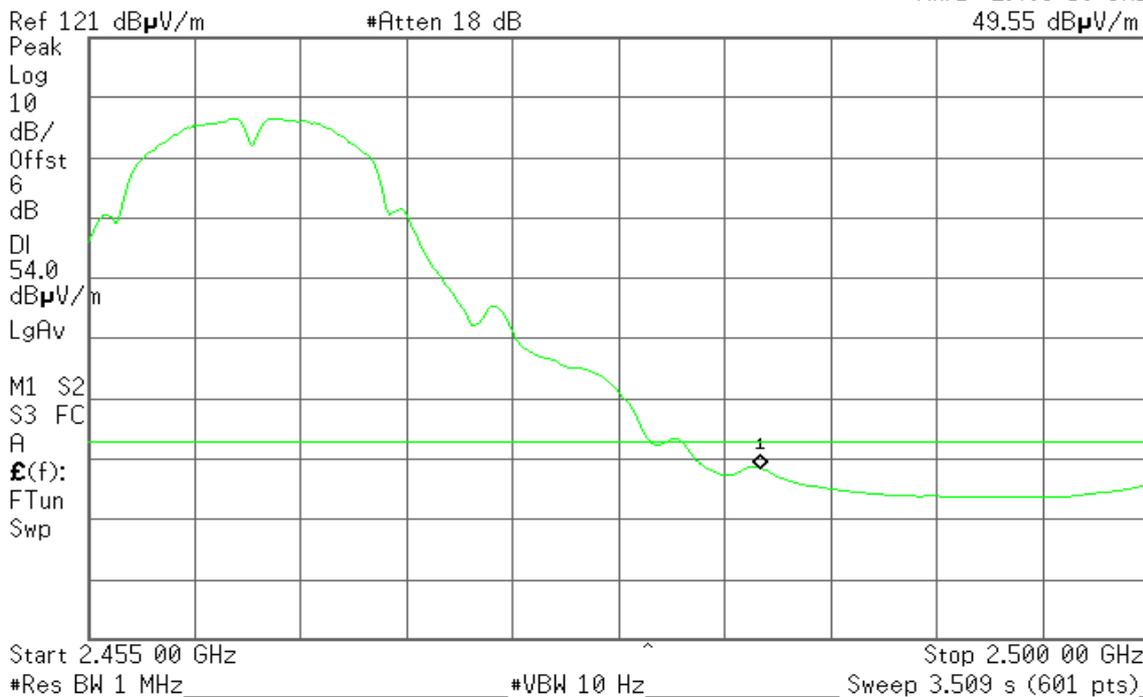
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak   **Polarity: Vertical**
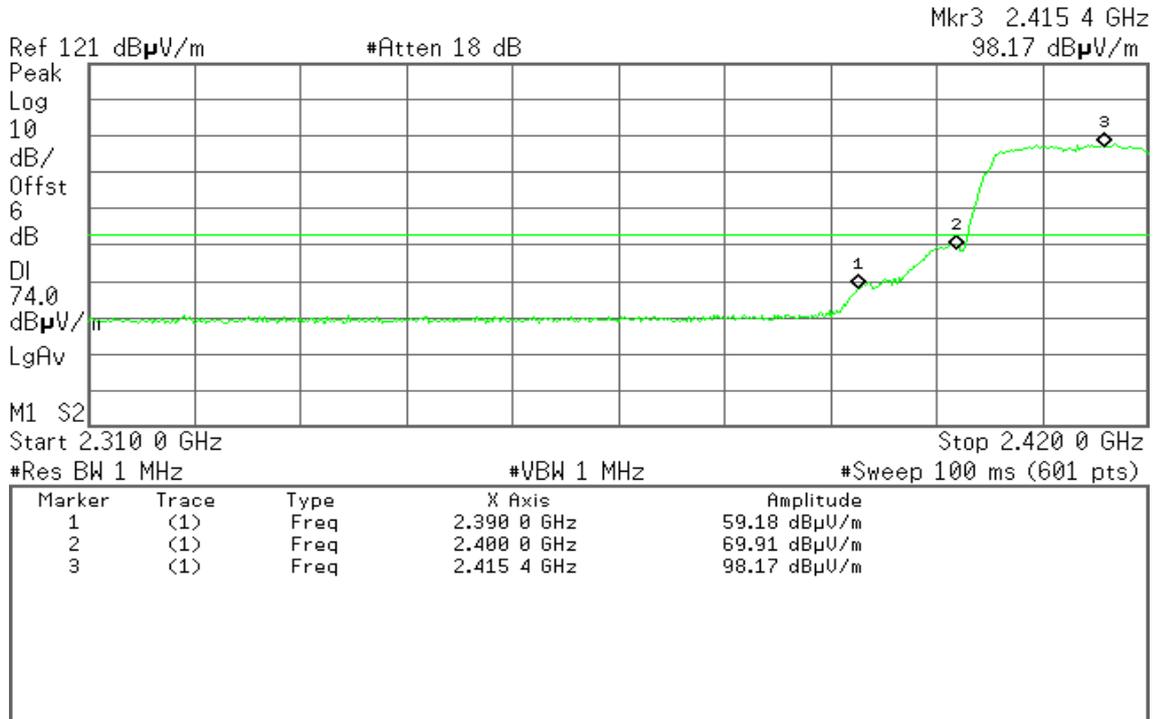
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	59.18 dBµV/m
2	(1)	Freq	2.400 0 GHz	69.91 dBµV/m
3	(1)	Freq	2.415 4 GHz	98.17 dBµV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	41.14 dBµV/m
2	(1)	Freq	2.400 0 GHz	58.60 dBµV/m
3	(1)	Freq	2.415 4 GHz	86.78 dBµV/m

Detector mode: Peak   **Polarity: Horizontal**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	70.41 dBμV/m
2	(1)	Freq	2.400 0 GHz	80.37 dBμV/m
3	(1)	Freq	2.408 3 GHz	106.55 dBμV/m

Detector mode: Average   **Polarity: Horizontal**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	49.05 dBμV/m
2	(1)	Freq	2.400 0 GHz	67.76 dBμV/m
3	(1)	Freq	2.408 3 GHz	94.04 dBμV/m
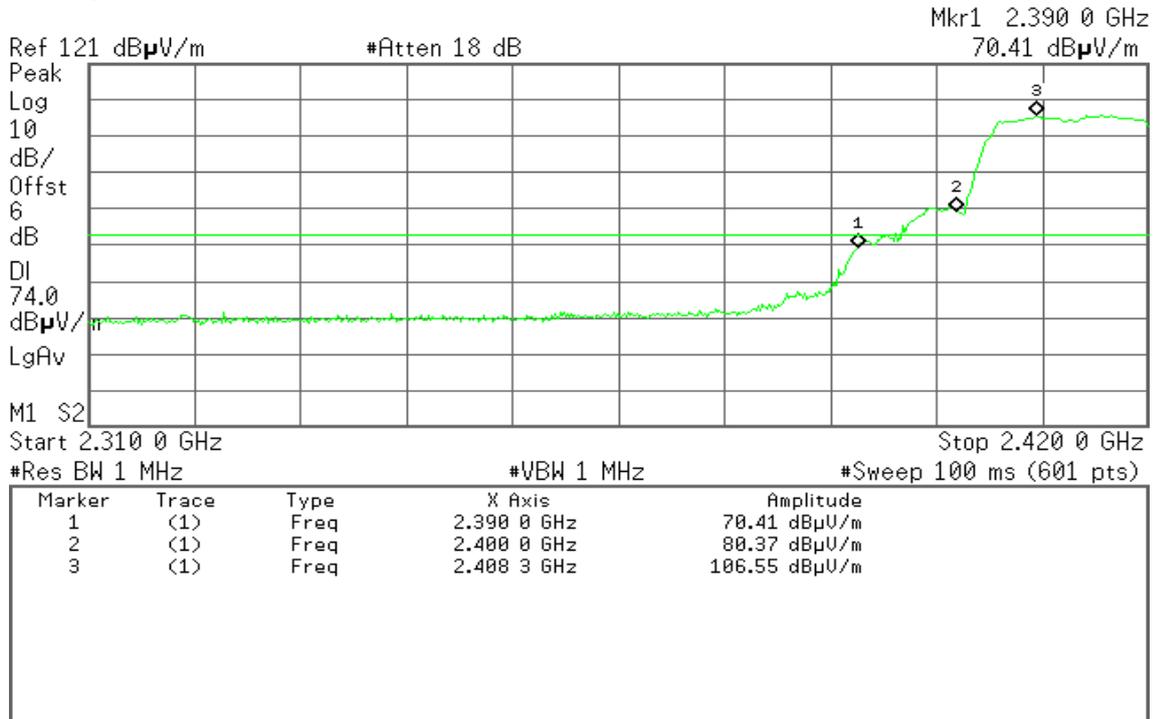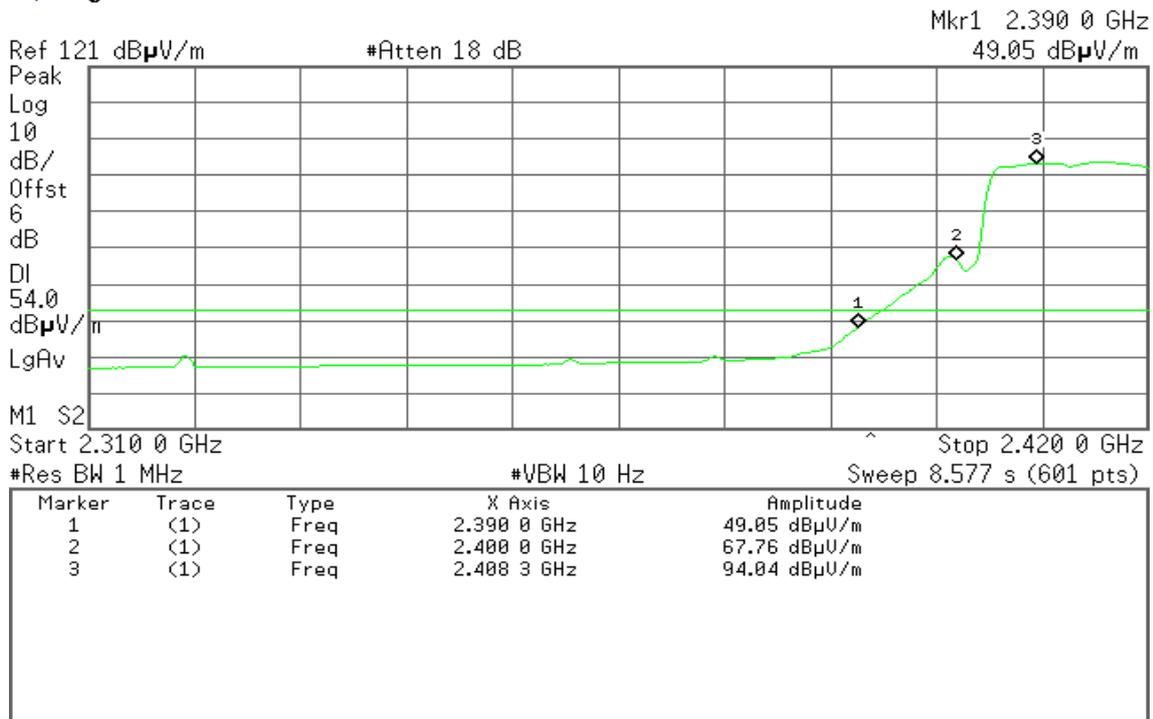
Band Edges (IEEE 802.11g mode / CH High)

Detector mode: Peak   **Polarity: Vertical**

Detector mode: Average   **Polarity: Vertical**
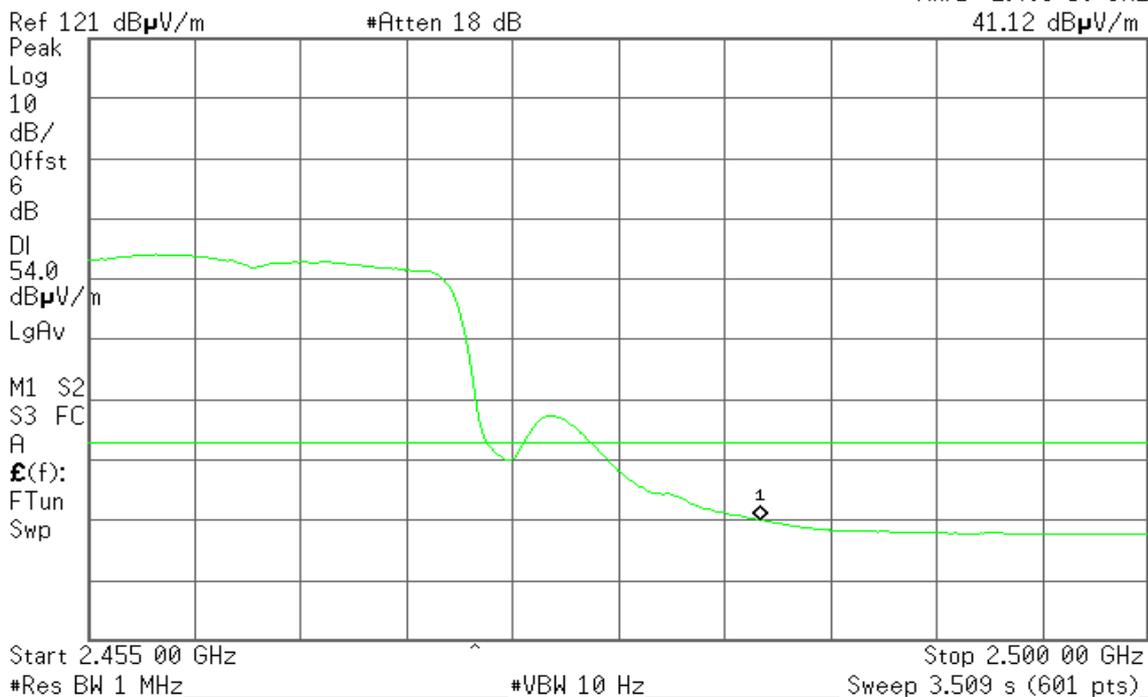
Detector mode: Peak   **Polarity: Horizontal**

❄ **Agilent** 20:55:07 17 Nov 2011   R   T

Mkr1 2.483 50 GHz

Ref 121 dBμV/m   #Atten 18 dB   73.17 dBμV/m

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBμV/m
LgAv

M1 S2
S3 FC
A
£(f):
FTun
Swp

Start 2.455 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz_____#VBW 1 MHz_____#Sweep 100 ms (601 pts)_
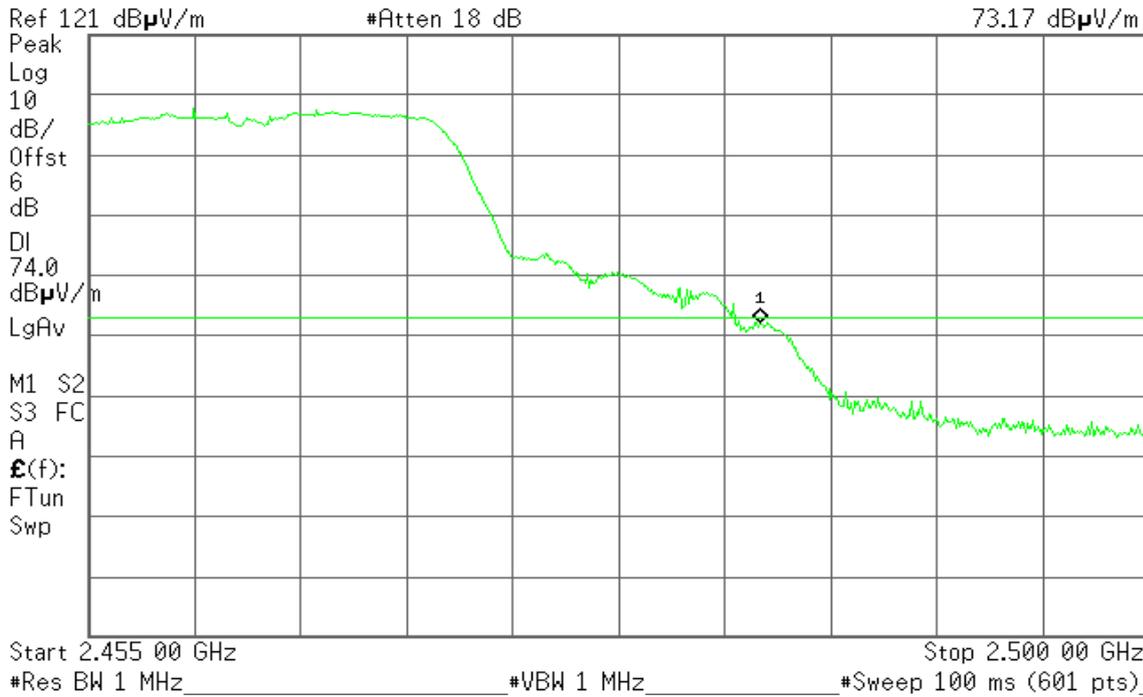
Detector mode: Average   **Polarity: Horizontal**

❄ **Agilent** 20:55:37 17 Nov 2011   R   T

Mkr1 2.483 50 GHz
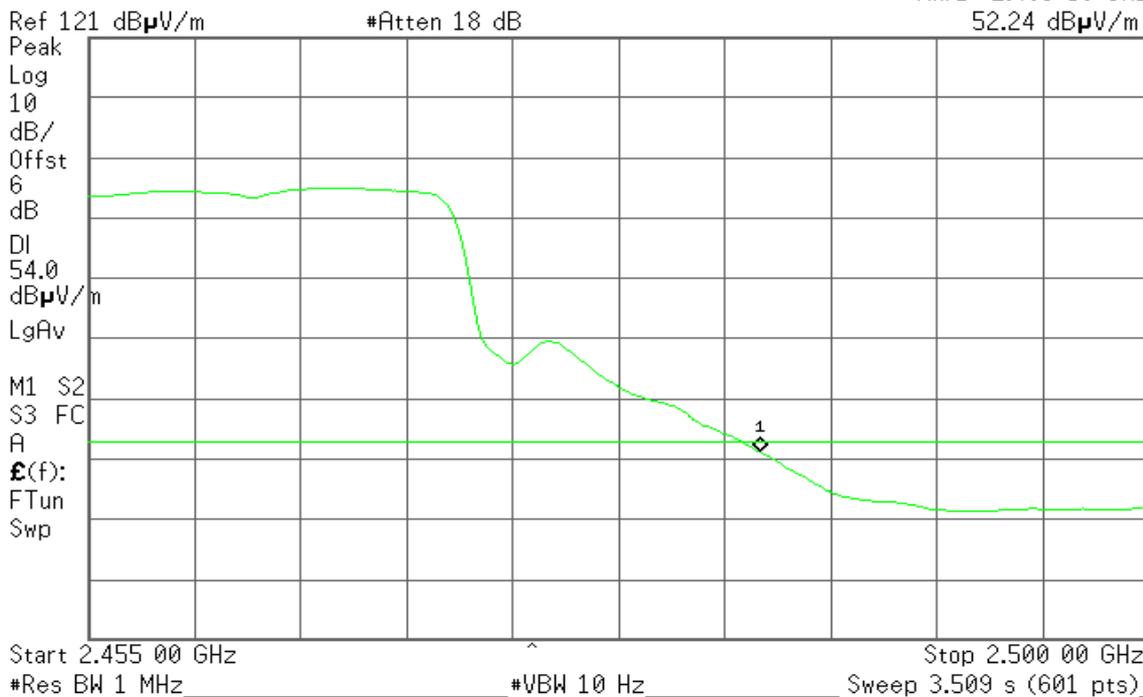
Ref 121 dBμV/m   #Atten 18 dB   52.24 dBμV/m

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBμV/m
LgAv

M1 S2
S3 FC
A
£(f):
FTun
Swp

Start 2.455 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz_____#VBW 10 Hz_____Sweep 3.509 s (601 pts)_

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

Detector mode: Peak   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	51.37 dBµV/m
2	(1)	Freq	2.400 0 GHz	67.50 dBµV/m
3	(1)	Freq	2.417 1 GHz	95.25 dBµV/m

Detector mode: Average   **Polarity: Vertical**

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	38.70 dBµV/m
2	(1)	Freq	2.400 0 GHz	54.75 dBµV/m
3	(1)	Freq	2.417 1 GHz	81.25 dBµV/m
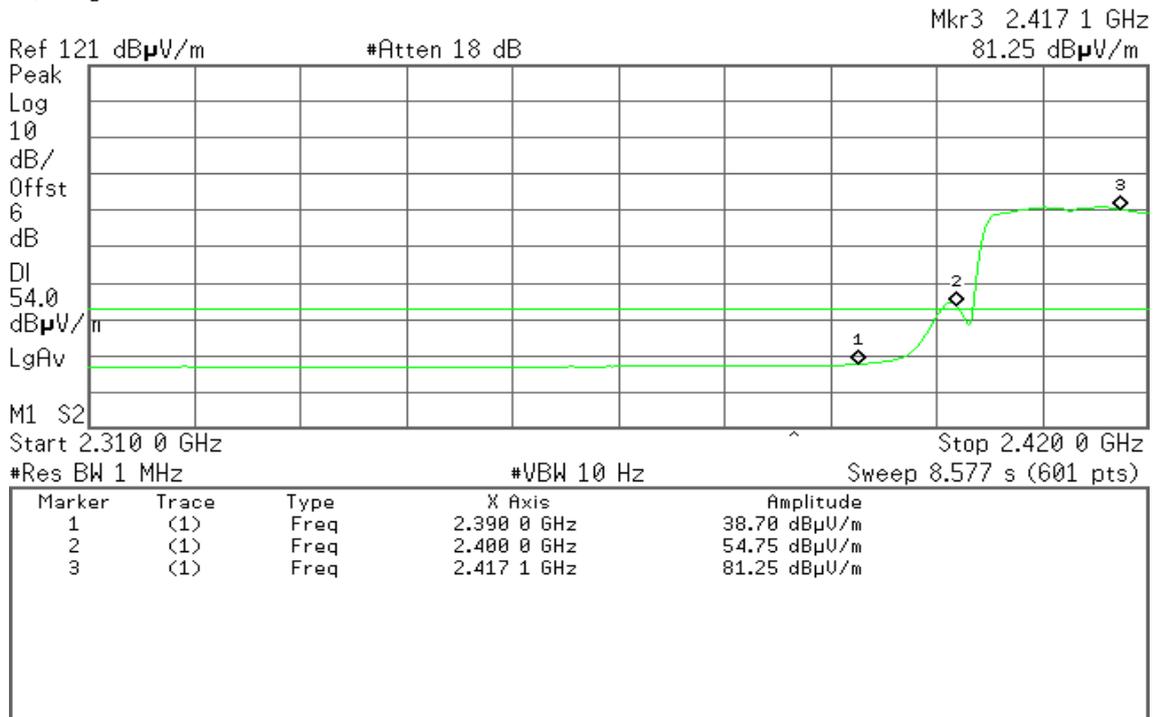
Detector mode: Peak   **Polarity: Horizontal**

※ **Agilent** 20:35:43 17 Nov 2011   R   T

Mkr3 2.416 0 GHz

Ref 121 dBμV/m   #Atten 18 dB   104.26 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBμV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	63.86 dBμV/m
2	(1)	Freq	2.400 0 GHz	77.91 dBμV/m
3	(1)	Freq	2.416 0 GHz	104.26 dBμV/m
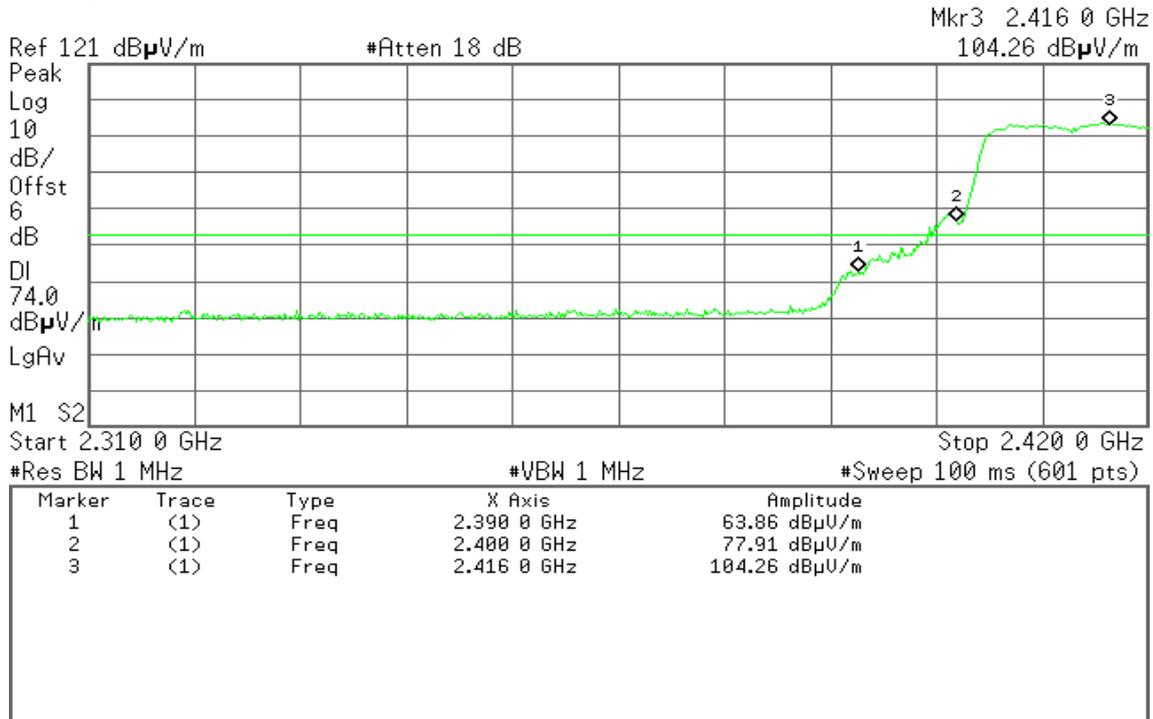
Detector mode: Average   **Polarity: Horizontal**

※ **Agilent** 20:36:10 17 Nov 2011   R   T
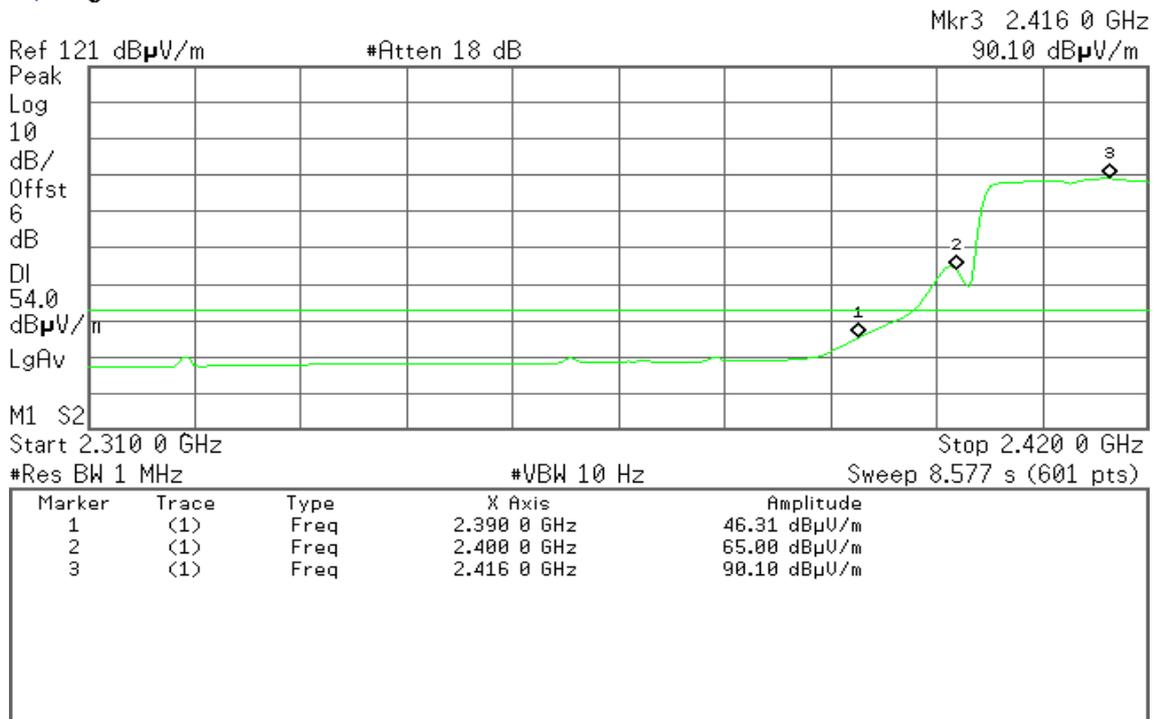
Mkr3 2.416 0 GHz

Ref 121 dBμV/m   #Atten 18 dB   90.10 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBμV/m
LgAv

M1 S2

Start 2.310 0 GHz   Stop 2.420 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 8.577 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	46.31 dBμV/m
2	(1)	Freq	2.400 0 GHz	65.00 dBμV/m
3	(1)	Freq	2.416 0 GHz	90.10 dBμV/m

Band Edges (IEEE 802.11n HT 20 MHz mode / CH High)
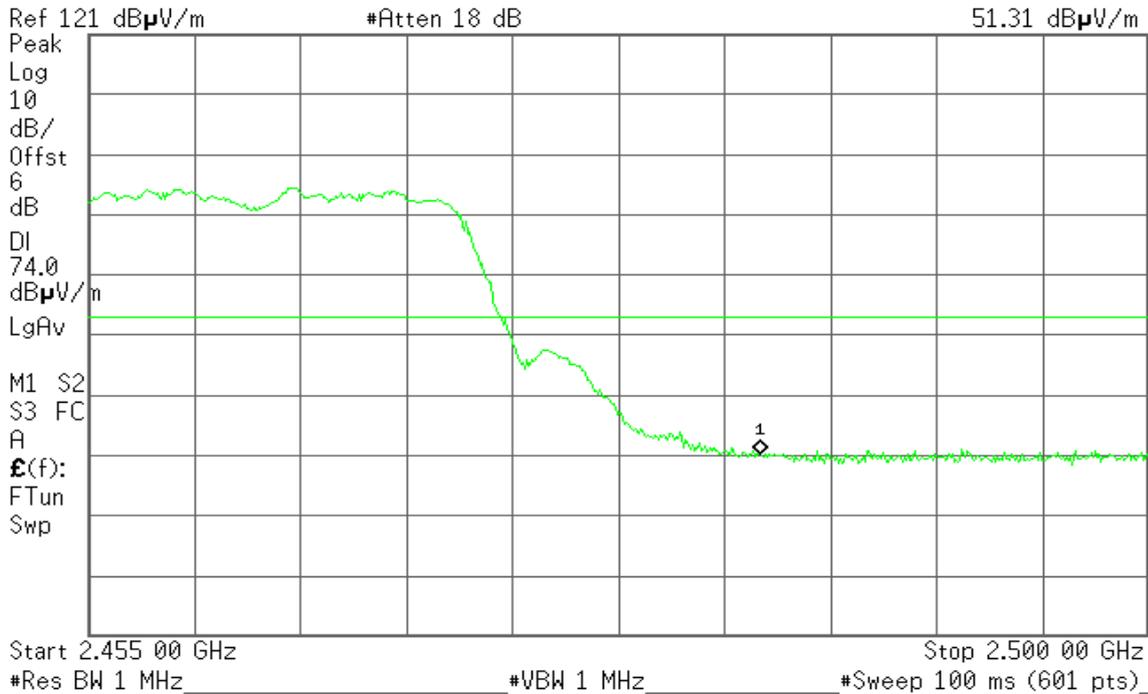
Detector mode: Peak   **Polarity: Vertical**

Detector mode: Average   **Polarity: Vertical**
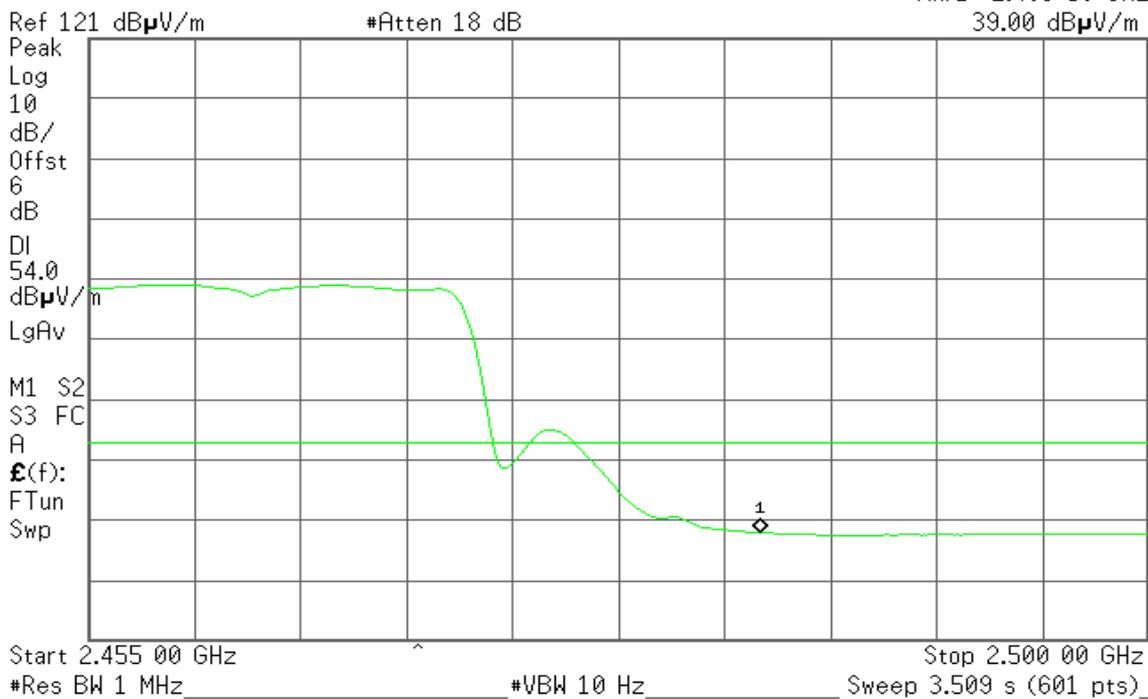
Detector mode: Peak **Polarity: Horizontal**

❋ **Agilent** 20:30:51 17 Nov 2011   R T

Mkr1 2.483 50 GHz

Ref 121 dBμV/m   #Atten 18 dB   62.44 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
74.0
dBμV/m
LgAv

M1 S2
S3 FC
A
£(f):
FTun
Swp

Start 2.455 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz_____#VBW 1 MHz_____#Sweep 100 ms (601 pts)_
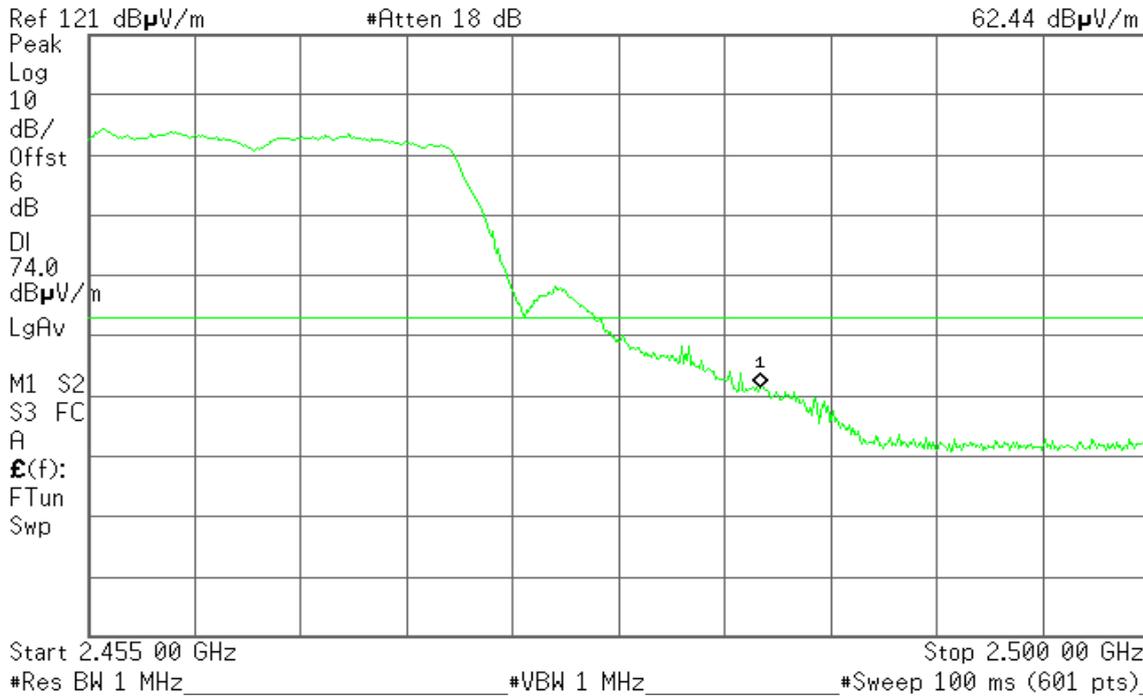
Detector mode: Average **Polarity: Horizontal**

❋ **Agilent** 20:31:18 17 Nov 2011   R T

Mkr1 2.483 50 GHz
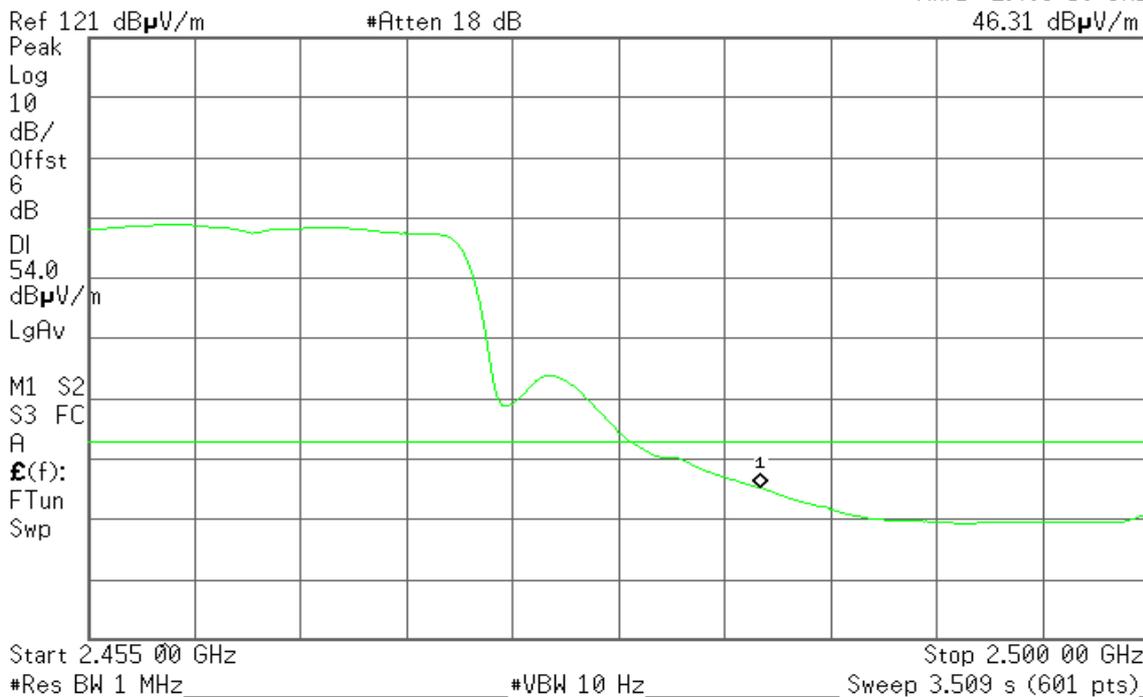
Ref 121 dBμV/m   #Atten 18 dB   46.31 dBμV/m

Peak
Log
10
dB/
Offst
6
dB
DI
54.0
dBμV/m
LgAv

M1 S2
S3 FC
A
£(f):
FTun
Swp

Start 2.455 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz_____#VBW 10 Hz_____Sweep 3.509 s (601 pts)_

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

Mkr3 2.427 4 GHz
Ref 121 dBµV/m   #Atten 18 dB   92.10 dBµV/m

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	55.88 dBµV/m
2	(1)	Freq	2.400 0 GHz	66.00 dBµV/m
3	(1)	Freq	2.427 4 GHz	92.10 dBµV/m

Start 2.310 0 GHz   Stop 2.430 0 GHz
#Res BW 1 MHz   #VBW 1 MHz   #Sweep 100 ms (601 pts)
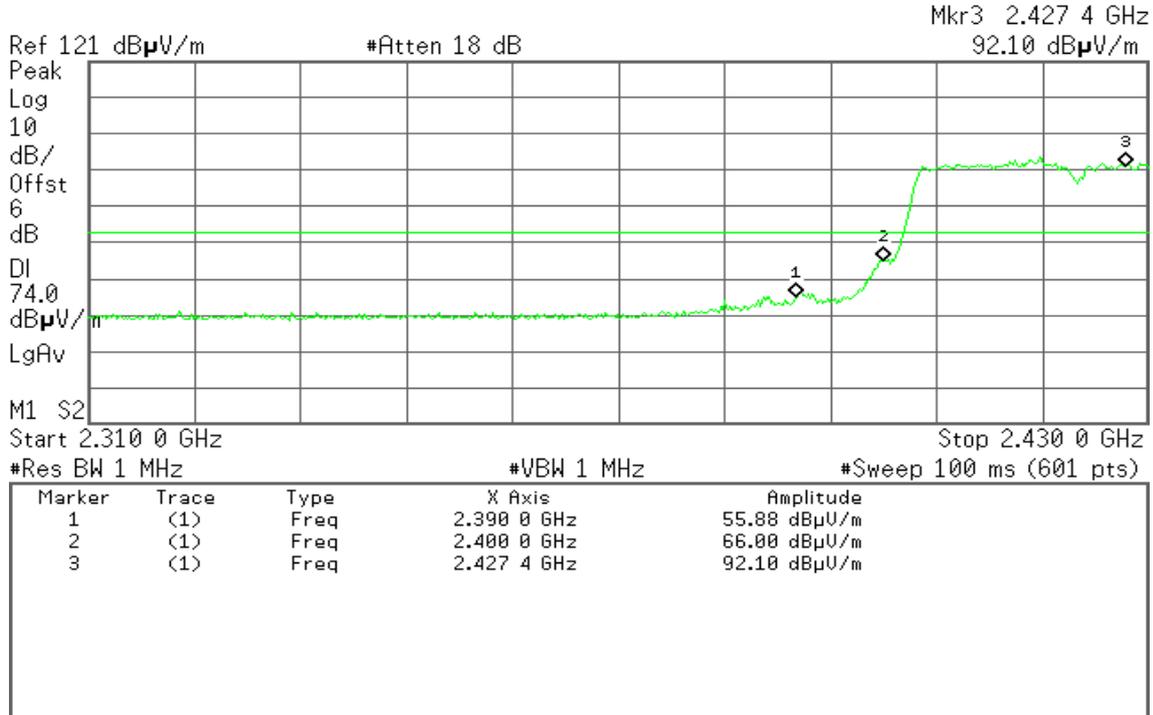
Detector mode: Average   **Polarity: Vertical**

※ **Agilent** 20:20:08 17 Nov 2011   R   T

Mkr3 2.427 4 GHz
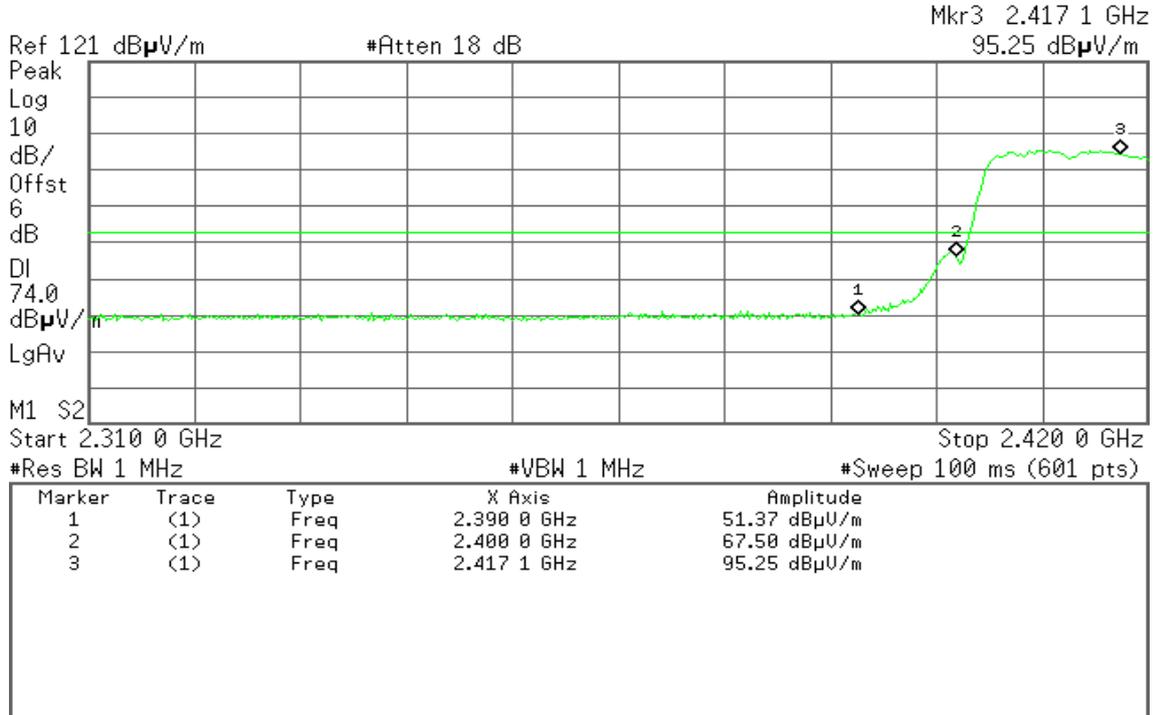Ref 121 dBµV/m   #Atten 18 dB   74.02 dBµV/m

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	39.86 dBµV/m
2	(1)	Freq	2.400 0 GHz	51.95 dBµV/m
3	(1)	Freq	2.427 4 GHz	74.02 dBµV/m

Start 2.310 0 GHz   Stop 2.430 0 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 9.357 s (601 pts)
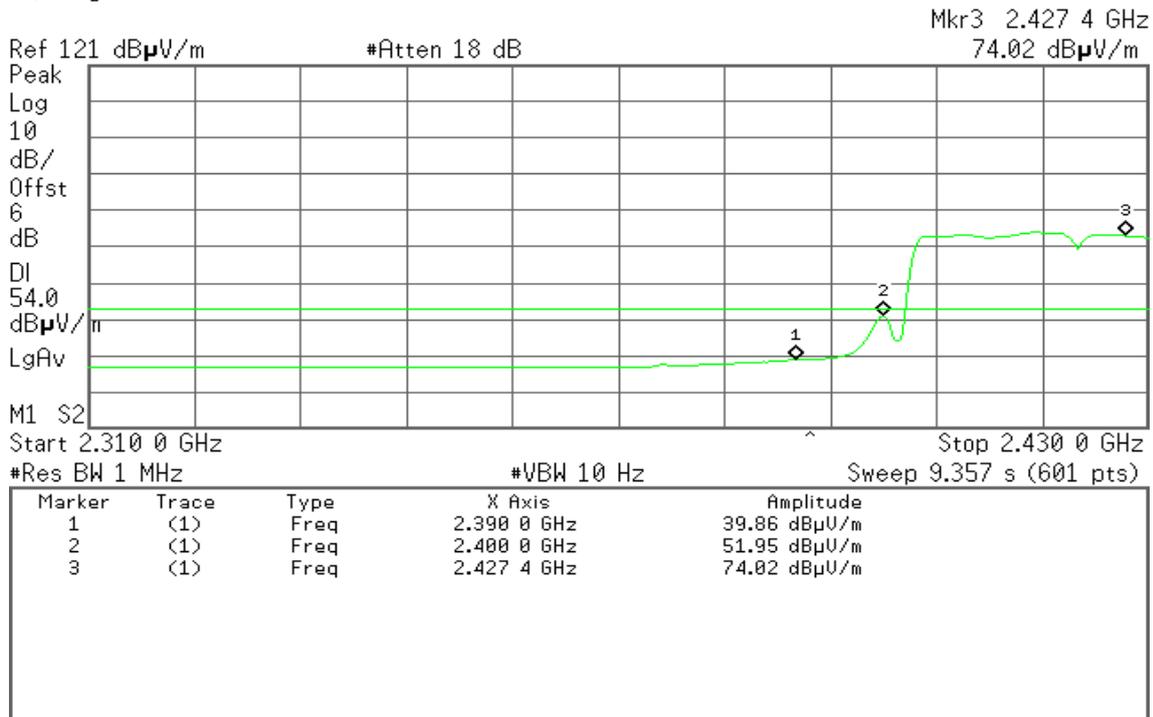
Detector mode: Peak **Polarity: Horizontal**

❋ **Agilent** 20:13:56 17 Nov 2011 R T

Mkr3 2.426 6 GHz
103.13 dBµV/m

Ref 121 dBµV/m #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBµV/m

LgAv

M1 S2

Start 2.310 0 GHz Stop 2.430 0 GHz
#Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	64.57 dBµV/m
2	(1)	Freq	2.400 0 GHz	75.50 dBµV/m
3	(1)	Freq	2.426 6 GHz	103.13 dBµV/m
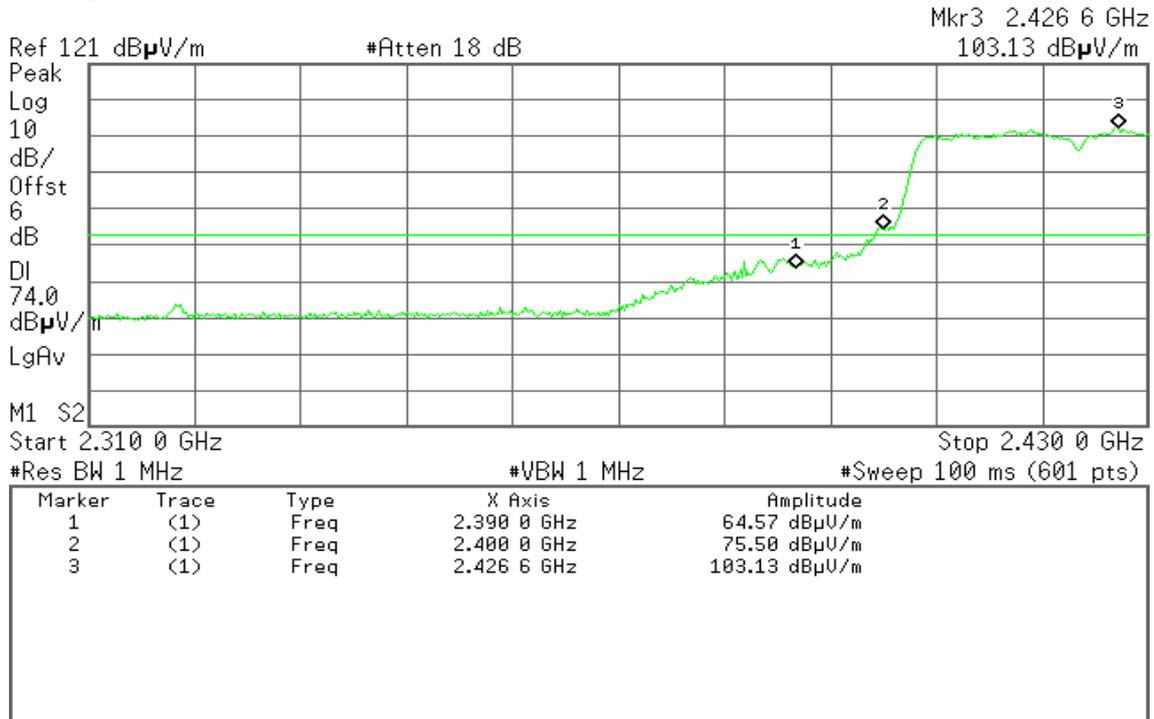
Detector mode: Average **Polarity: Horizontal**

❋ **Agilent** 20:14:20 17 Nov 2011 R T
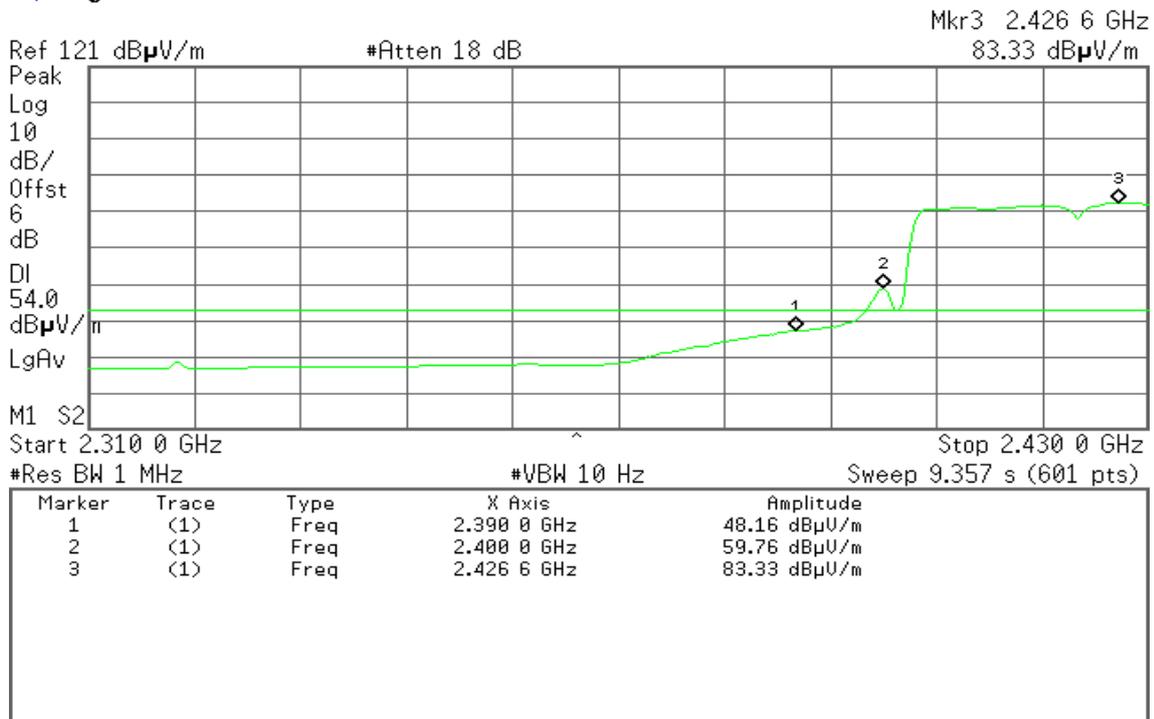
Mkr3 2.426 6 GHz
83.33 dBµV/m

Ref 121 dBµV/m #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBµV/m

LgAv

M1 S2

Start 2.310 0 GHz Stop 2.430 0 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 9.357 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.390 0 GHz	48.16 dBµV/m
2	(1)	Freq	2.400 0 GHz	59.76 dBµV/m
3	(1)	Freq	2.426 6 GHz	83.33 dBµV/m

Band Edges (IEEE 802.11n HT 40 MHz mode / CH High)
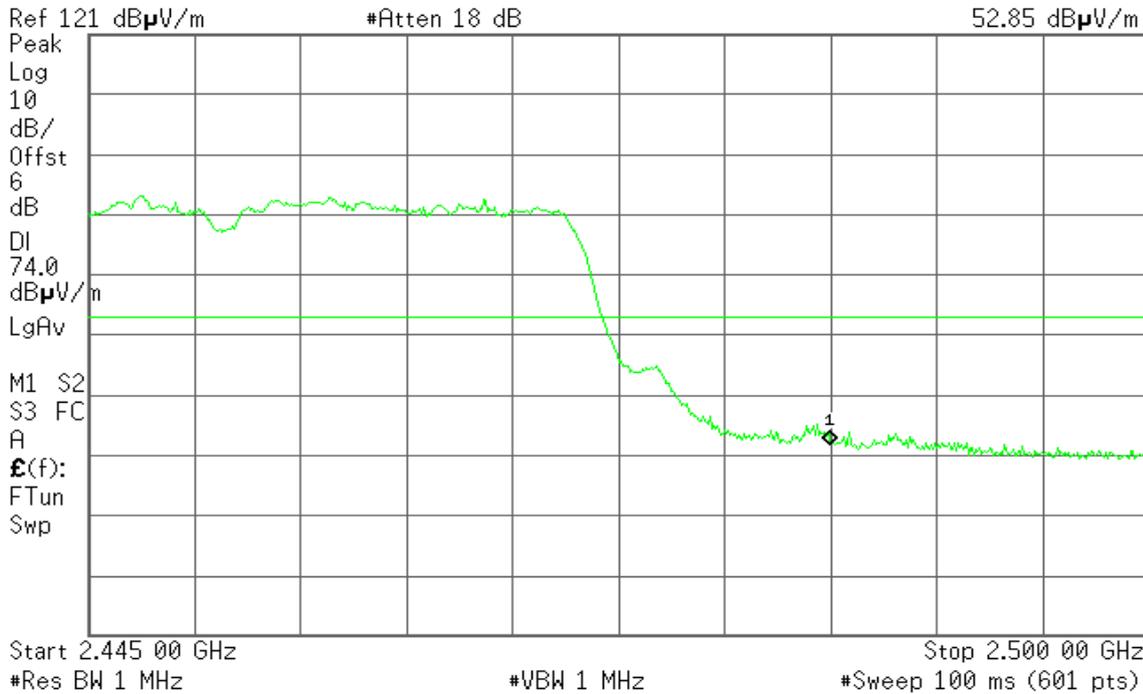
Detector mode: Peak   **Polarity: Vertical**

Detector mode: Average   **Polarity: Vertical**
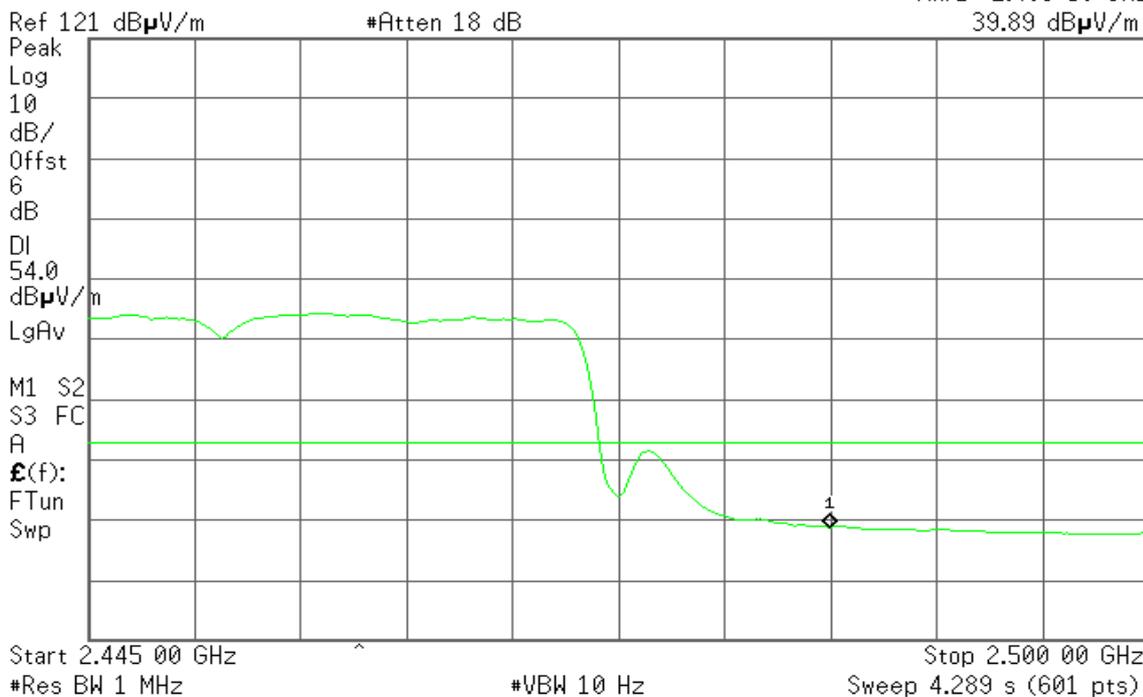
Detector mode: Peak   **Polarity: Horizontal**

⁂ **Agilent** 20:08:07 17 Nov 2011   R   T

Mkr1 2.483 50 GHz
69.29 dBμV/m
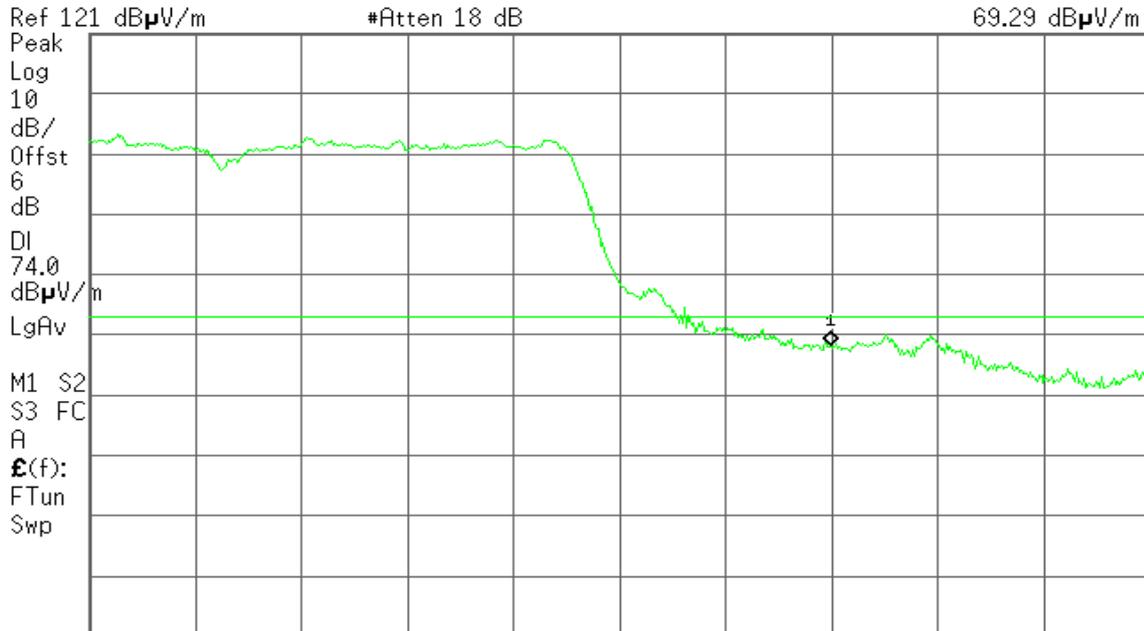
Ref 121 dBμV/m   #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
74.0
dBμV/m

LgAv

M1 S2
S3 FC
A

£(f):
FTun
Swp

Start 2.445 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz   #VBW 1 MHz   #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 dBμV/m

Ref 121 dBμV/m   #Atten 18 dB

Peak
Log
10
dB/
Offst
6
dB

DI
54.0
dBμV/m

LgAv

M1 S2
S3 FC
A

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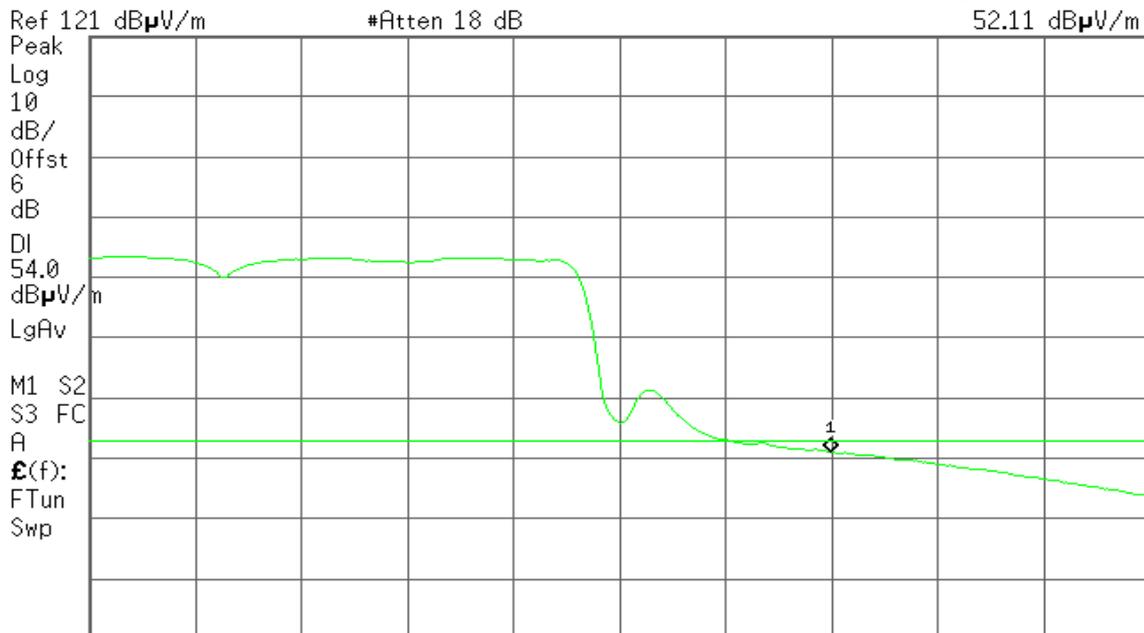
Start 2.445 00 GHz   Stop 2.500 00 GHz
#Res BW 1 MHz   #VBW 10 Hz   Sweep 4.289 s (601 pts)

7.4 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

```
┌──────────┐      ┌──────────────┐
│          │      │   Spectrum   │
│   EUT    │─────▶│   Analyzer   │
│          │      │              │
└──────────┘      └──────────────┘
```
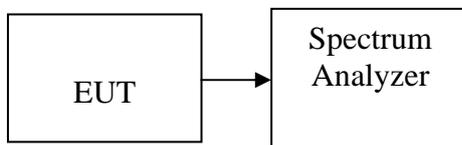
TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s.

3. Record the max. reading.

4. Repeat the above procedure until the measurements for all frequencies are completed.

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		PASS
Mid	2442	-1.16	8.00	PASS
High	2462	-4.87		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.66		PASS
Mid	2442	-10.75	8.00	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		PASS
Mid	2442	-13.92	-14.63	-11.25	6.49	PASS
High	2462	-16.89	-19.56	-15.01		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(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		PASS
Mid	2442	-14.63	-12.83	-10.63	6.49	PASS
High	2462	-19.56	-18.81	-16.16		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 1 PPSD /10)+10^(Chain 2 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 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		PASS
Mid	2442	-13.92	-12.83	-10.33	6.49	PASS
High	2462	-16.89	-18.81	-14.73		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10) +10^(Chain 2 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.

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		PASS
Mid	2442	-15.18	-15.86	-12.50	6.49	PASS
High	2452	-20.63	-22.26	-18.36		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(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		PASS
Mid	2442	-15.86	-15.43	-12.63	6.49	PASS
High	2452	-22.26	-21.24	-18.71		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 1 PPSD /10)+10^(Chain 2 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 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		PASS
Mid	2442	-15.18	-15.43	-12.29	6.49	PASS
High	2452	-20.63	-21.24	-17.91		PASS

Remark:
1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10) +10^(Chain 2 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.

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-14.77		PASS
Mid	5785	-14.45	8.00	PASS
High	5825	-13.21		PASS

Test mode: IEEE 802.11n HT 20 MHz Channel mode

Mode 1

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-16.71	-19.90	-15.01		PASS
Mid	5785	-15.73	-17.19	-13.39	6.06	PASS
High	5825	-16.51	-16.33	-13.41		PASS

Remark:

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

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

Mode 2

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-19.90	-17.20	-15.33		PASS
Mid	5785	-17.19	-16.22	-13.67	6.06	PASS
High	5825	-16.33	-16.21	-13.26		PASS

Remark:

1. Total PPSD (dBm) = 10*LOG(10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10))

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

Mode 3

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-16.71	-17.20	-13.94		PASS
Mid	5785	-15.73	-16.22	-12.96	6.06	PASS
High	5825	-16.51	-16.21	-13.35		PASS

Remark:

1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10) +10^(Chain 2 PPSD /10))

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

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	5755	-19.94	-20.28	-17.10	6.06	PASS
High	5795	-18.77	-18.73	-15.74		PASS

Remark:

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

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

Mode 2

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-20.28	-20.09	-17.17	6.06	PASS
High	5795	-18.73	-18.56	-15.63		PASS

Remark:

*1. Total PPSD (dBm) = 10*LOG(10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10))*

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

Mode 3

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 2 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-19.94	-20.09	-17.00	6.06	PASS
High	5795	-18.77	-18.56	-15.65		PASS

Remark:

*1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10) +10^(Chain 2 PPSD /10))*

2. The maximum antenna gain is 7.94dBi; therefore the reduction due to antenna gain is 1.94dBi, so the limit is 6.06dBm.

Test Plot

IEEE 802.11b mode

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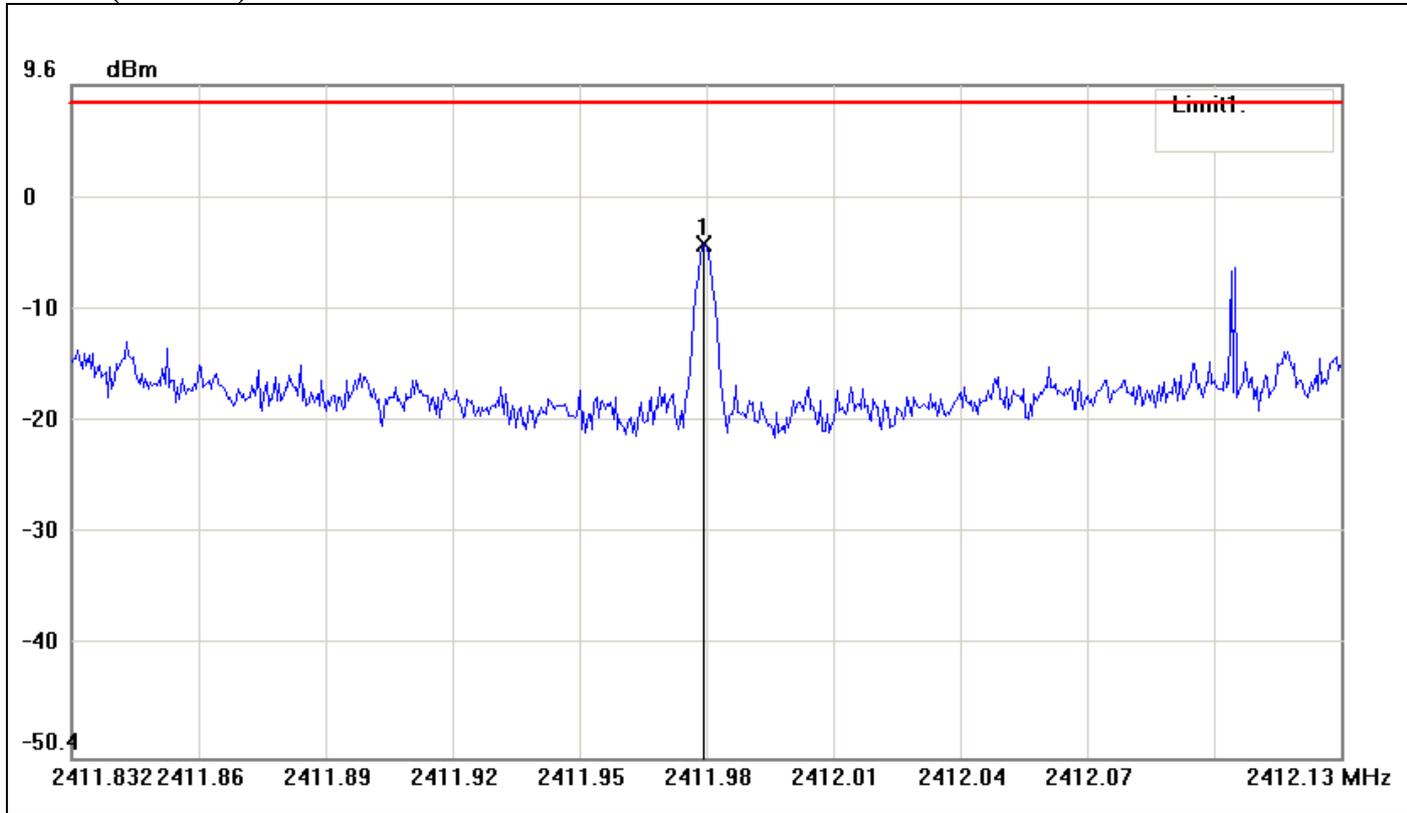
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2411.9811	-4.61	8.00	-12.61

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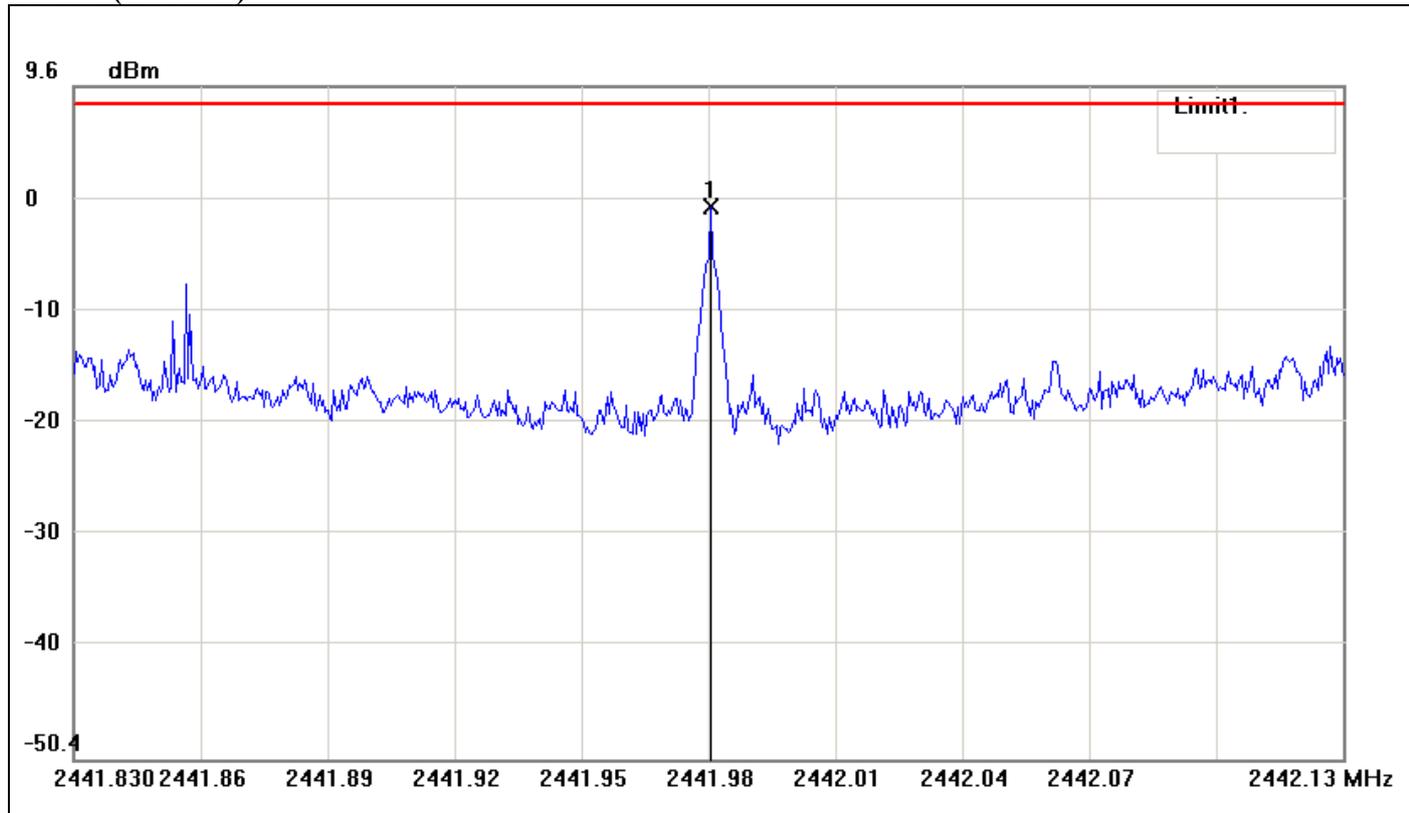
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2441.9806	-1.16	8.00	-9.16

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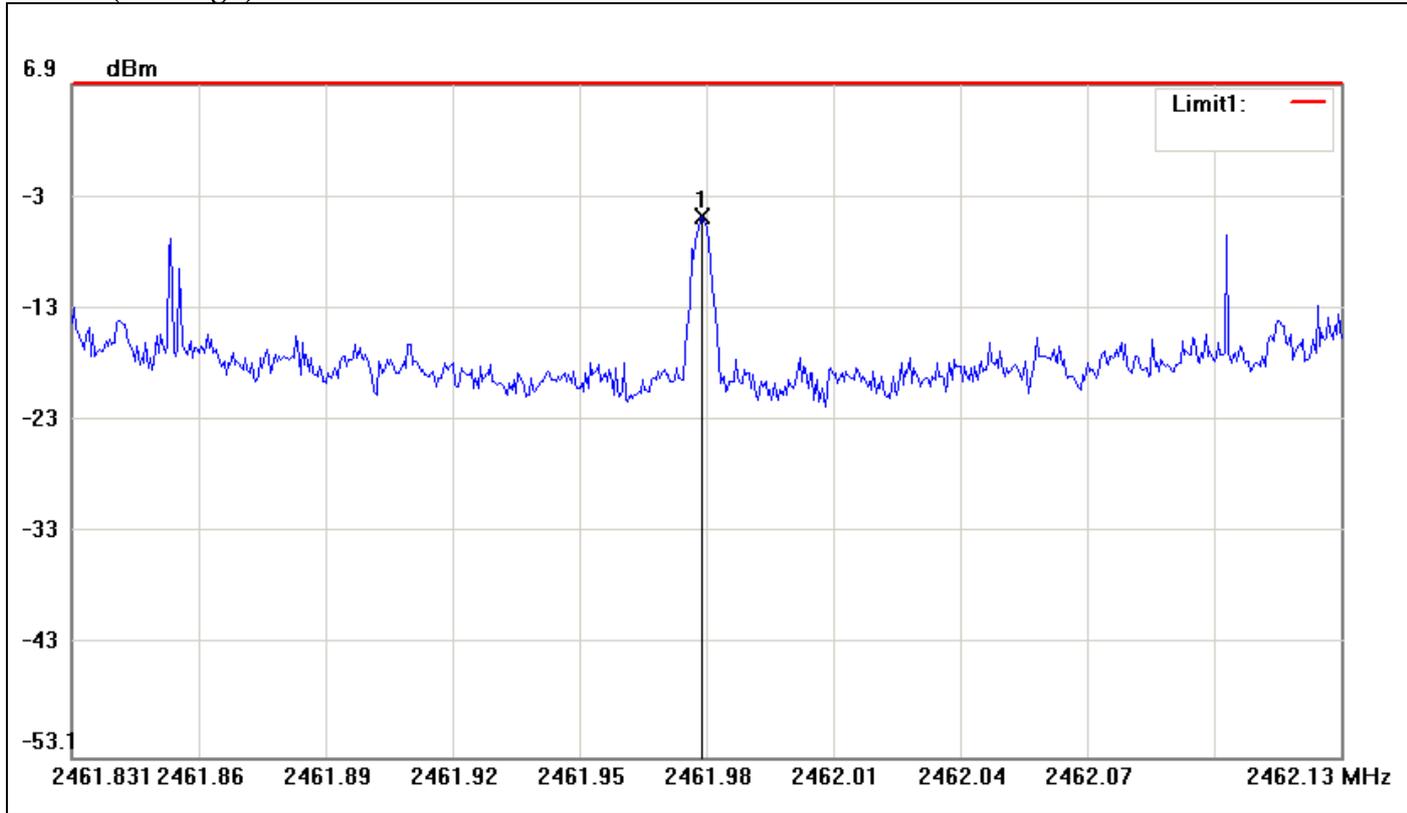
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2461.9803	-4.87	8.00	-12.87

IEEE 802.11g mode

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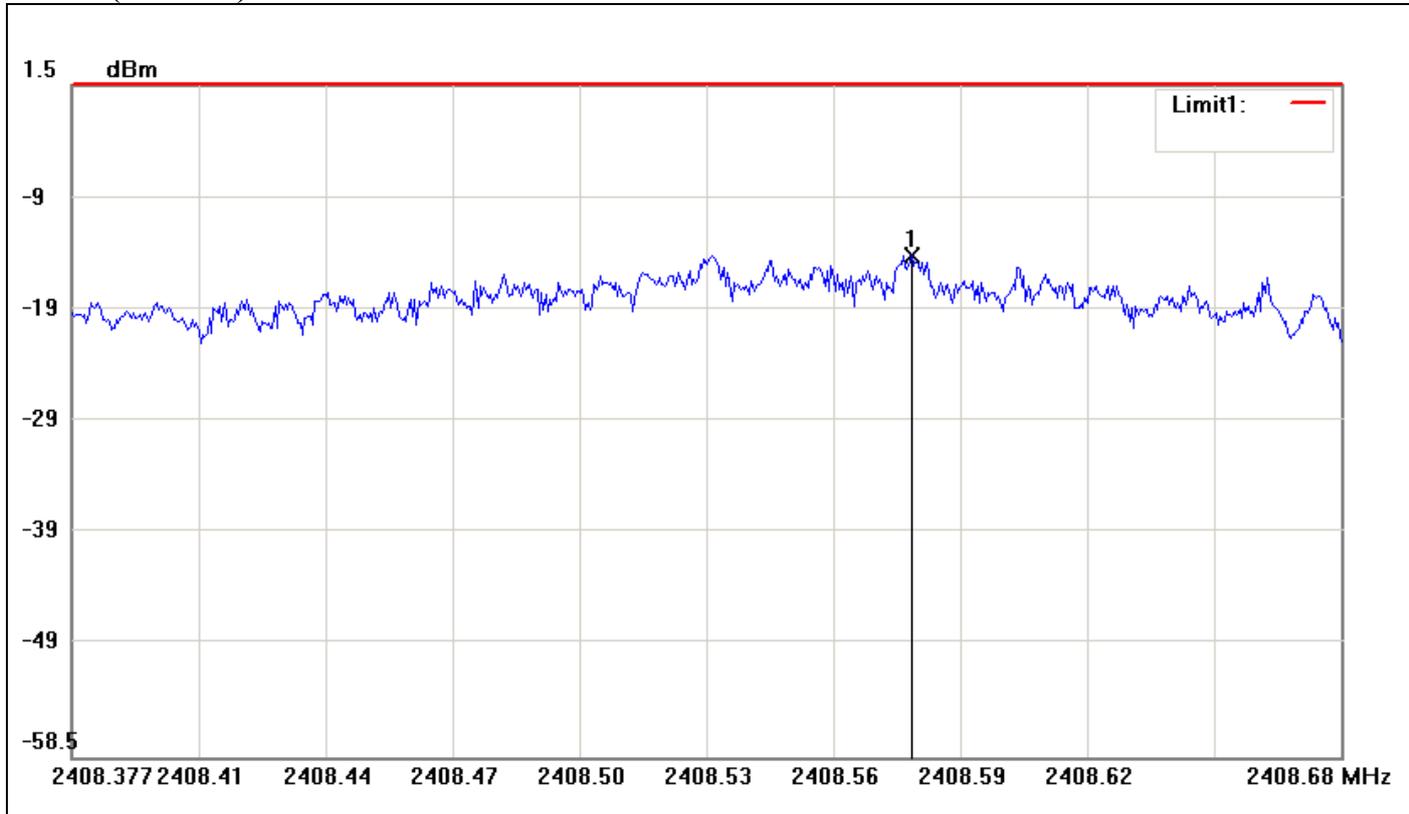
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2408.5755	-13.66	8.00	-21.66

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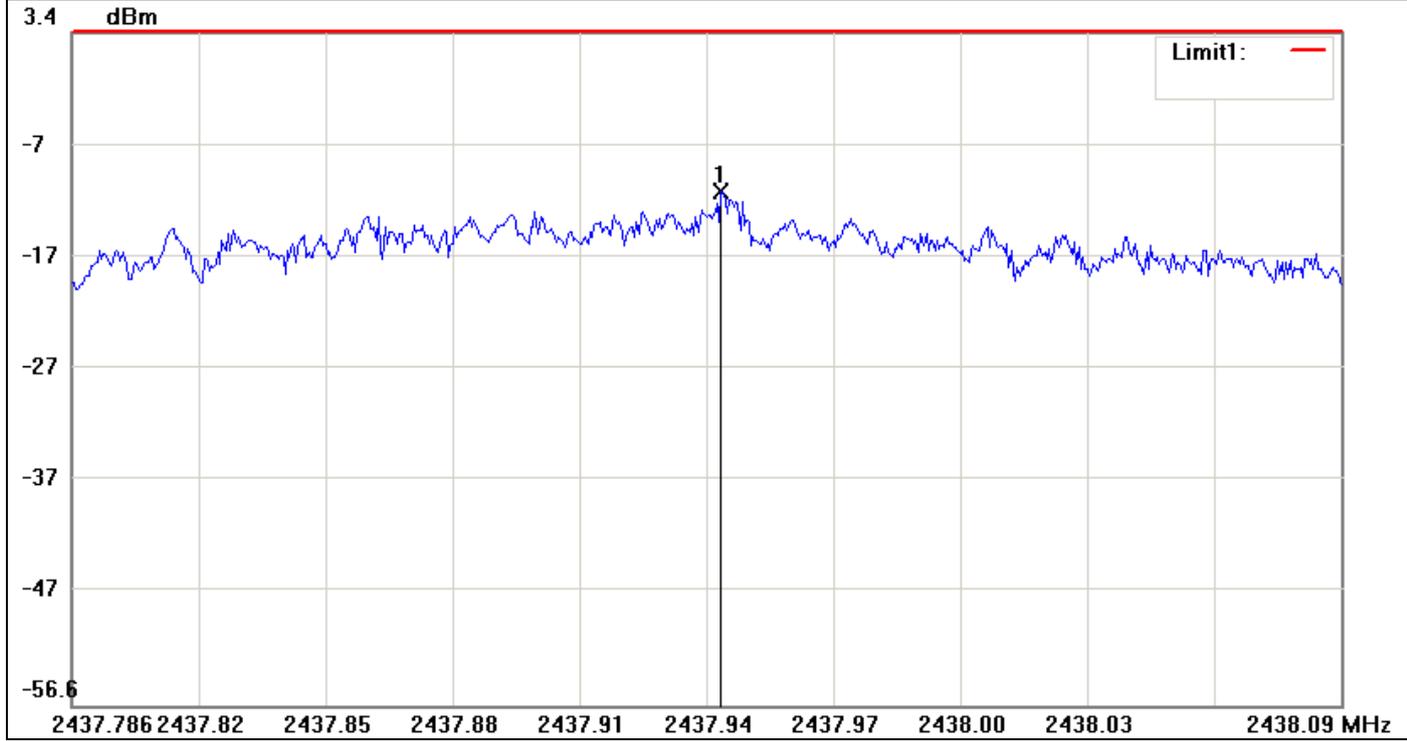
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2442.9399	-10.75	8.00	-18.75

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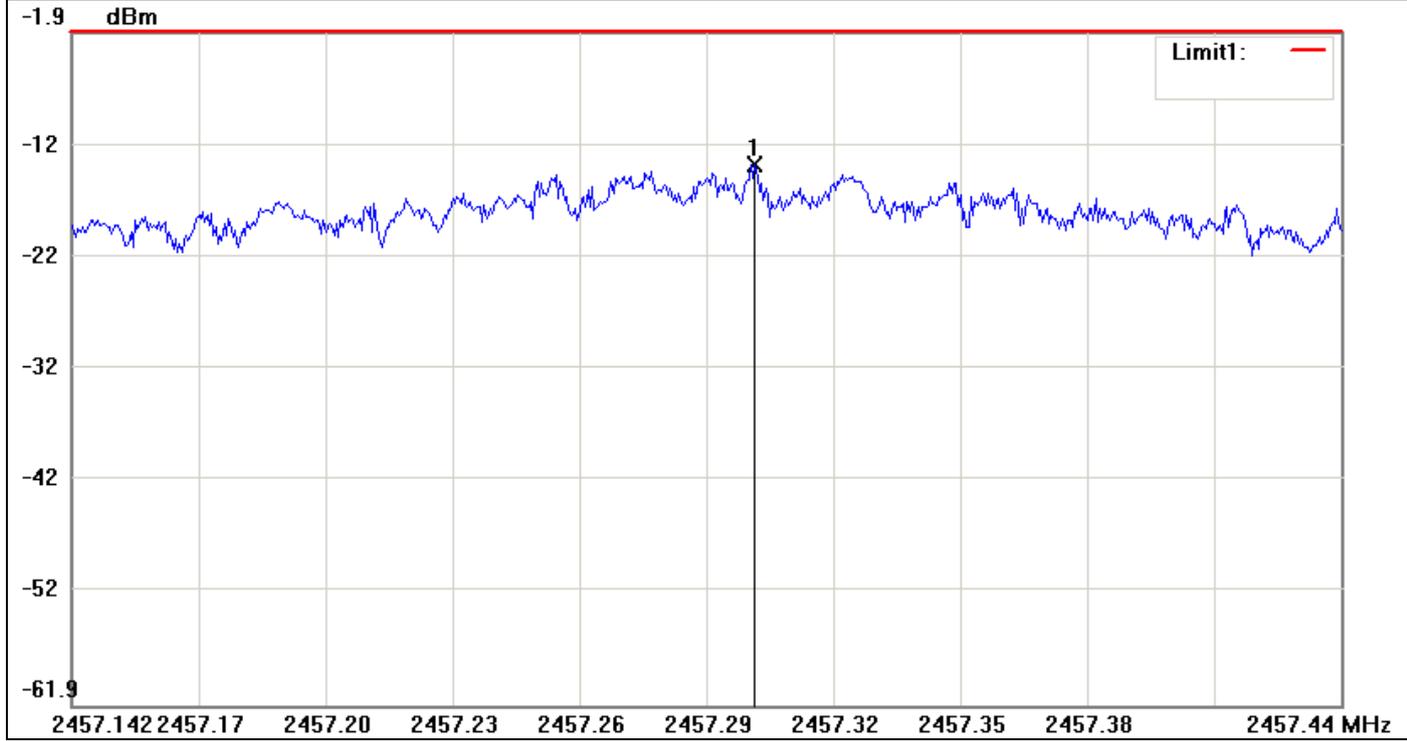
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2457.3035	-13.65	8.00	-21.65

IEEE 802.11n HT 20 MHz mode / Chain 0

PPSD (CH Low)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2406.9520	-17.23	8.00	-25.23

PPSD (CH Mid)
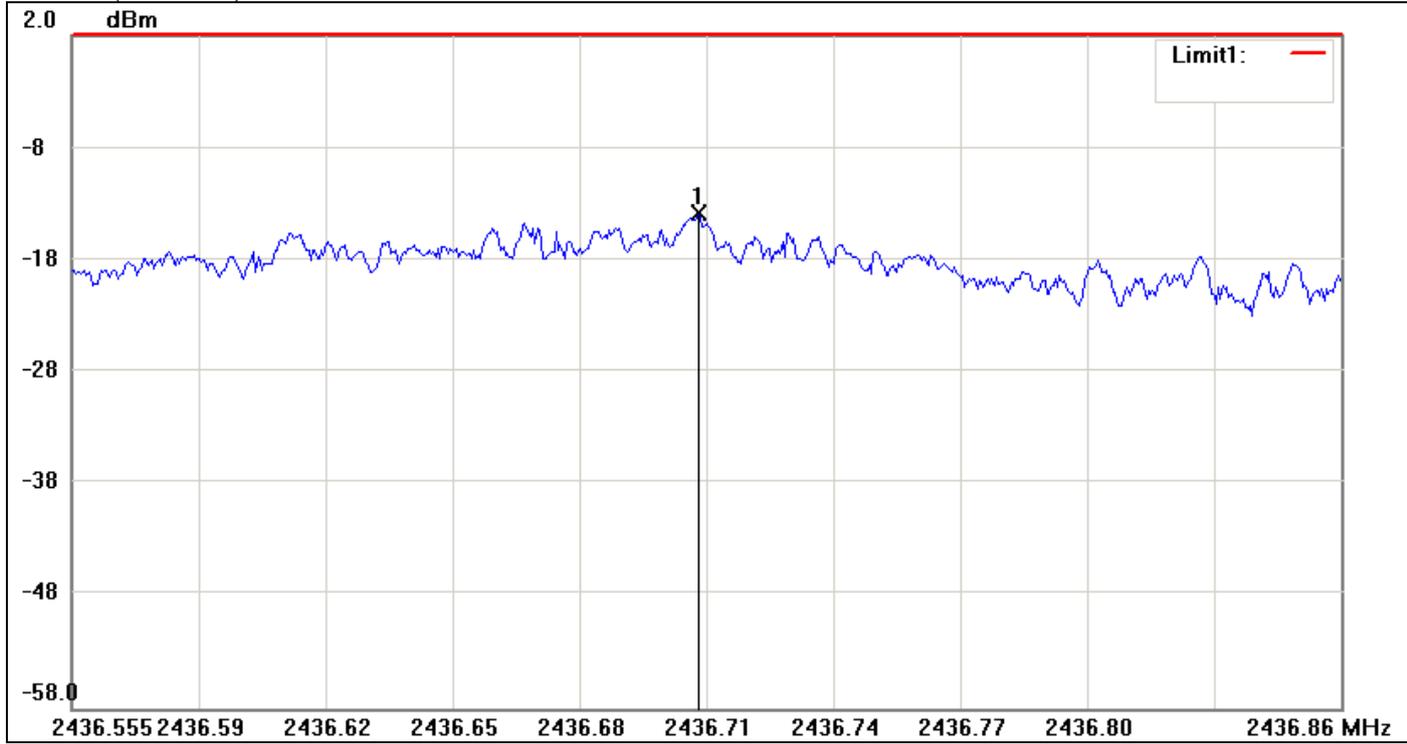
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2436.7031	-13.92	8.00	-21.92

PPSD (CH High)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2456.9512	-16.89	8.00	-24.89

IEEE 802.11n HT 20 MHz mode / Chain 1

PPSD (CH Low)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2415.7378	-18.89	8.00	-26.89

PPSD (CH Mid)
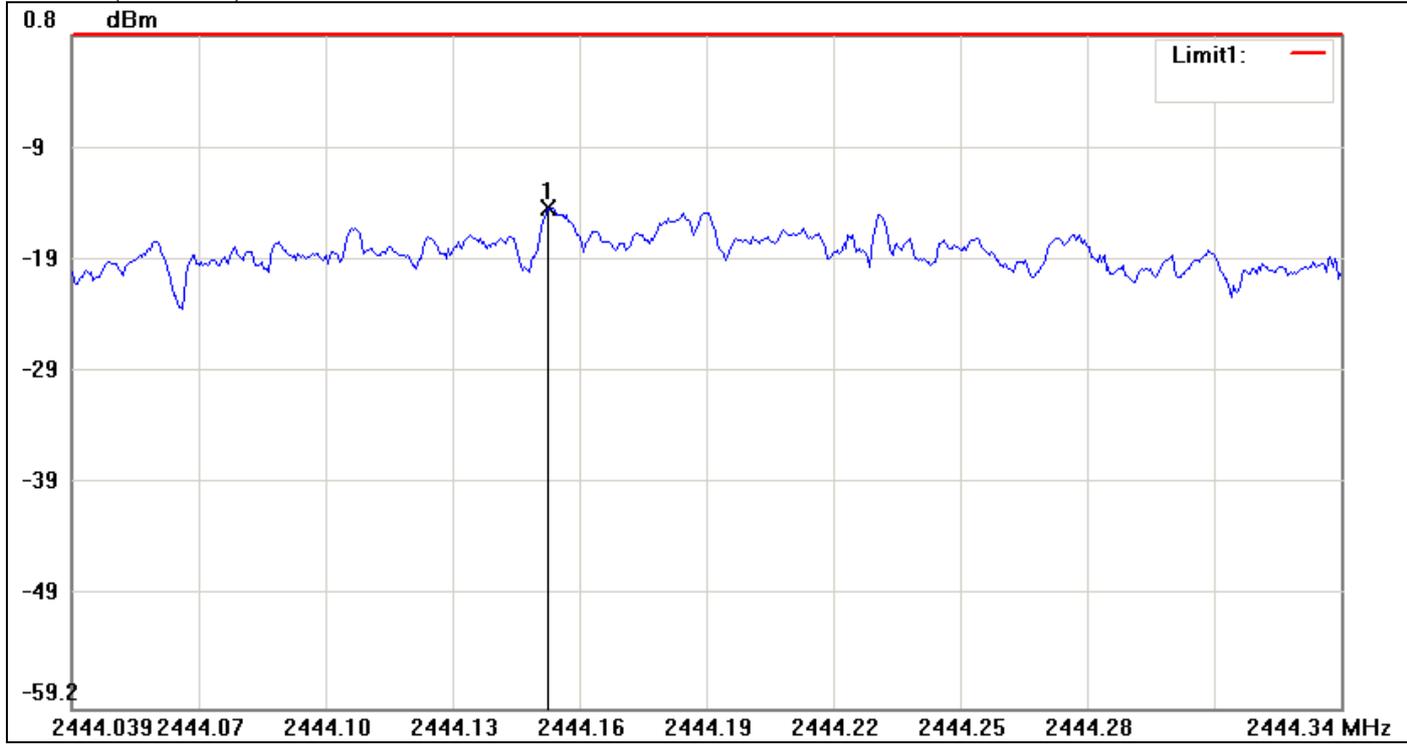
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2444.1519	-14.63	8.00	-22.63

PPSD (CH High)
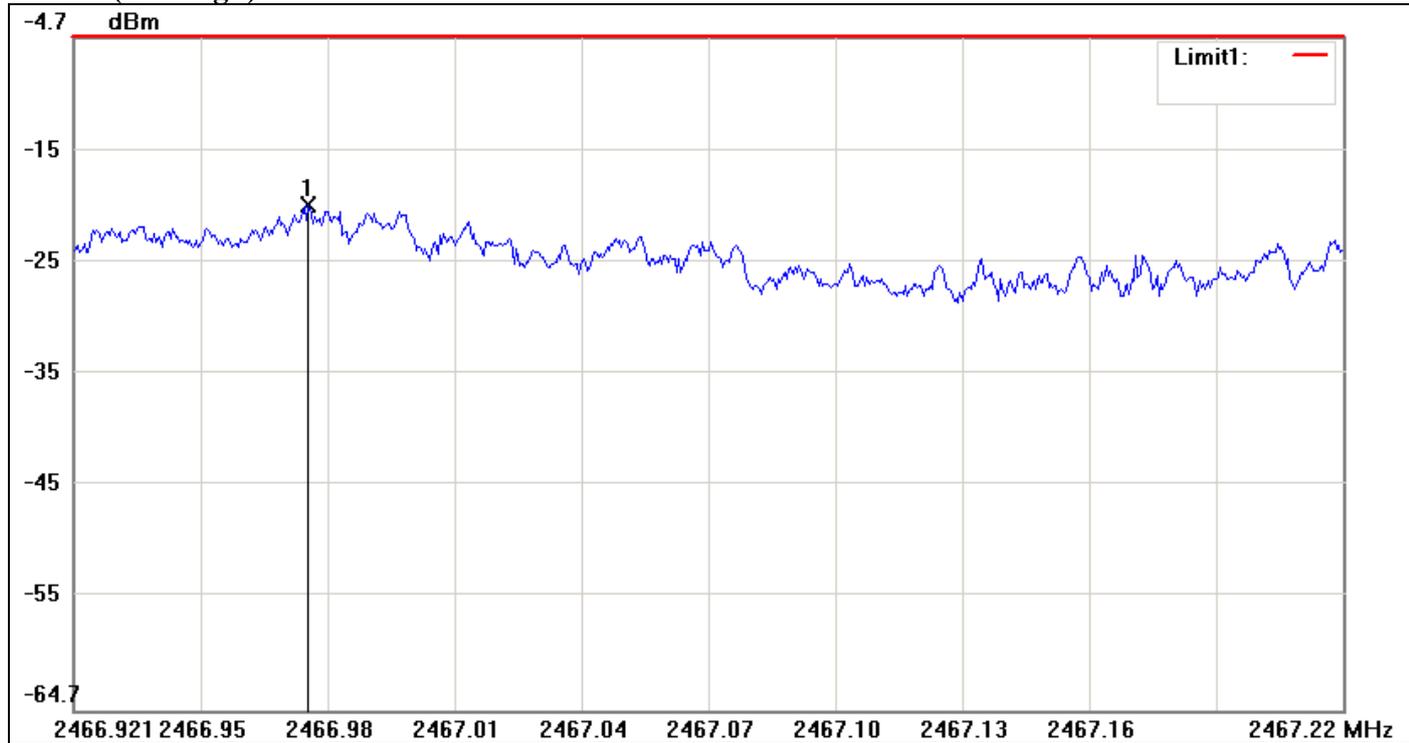
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2466.9761	-19.56	8.00	-27.56

IEEE 802.11n HT 20 MHz mode / Chain 2

PPSD (CH Low)
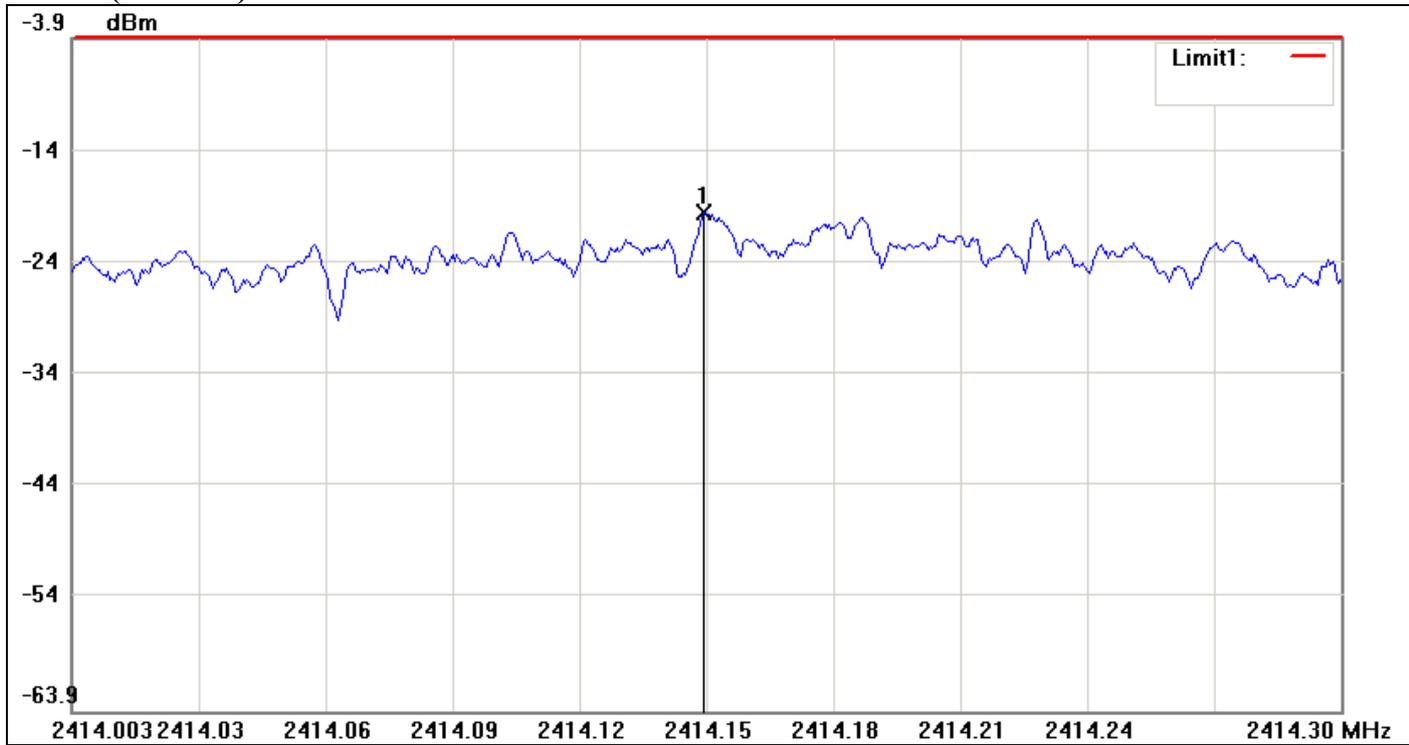
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2414.1522	-19.40	8.00	-27.40

PPSD (CH Mid)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2445.7368	-12.83	8.00	-20.83

PPSD (CH High)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2456.9634	-18.81	8.00	-26.81

IEEE 802.11n HT 40 MHz mode / Chain 0

PPSD (CH Low)
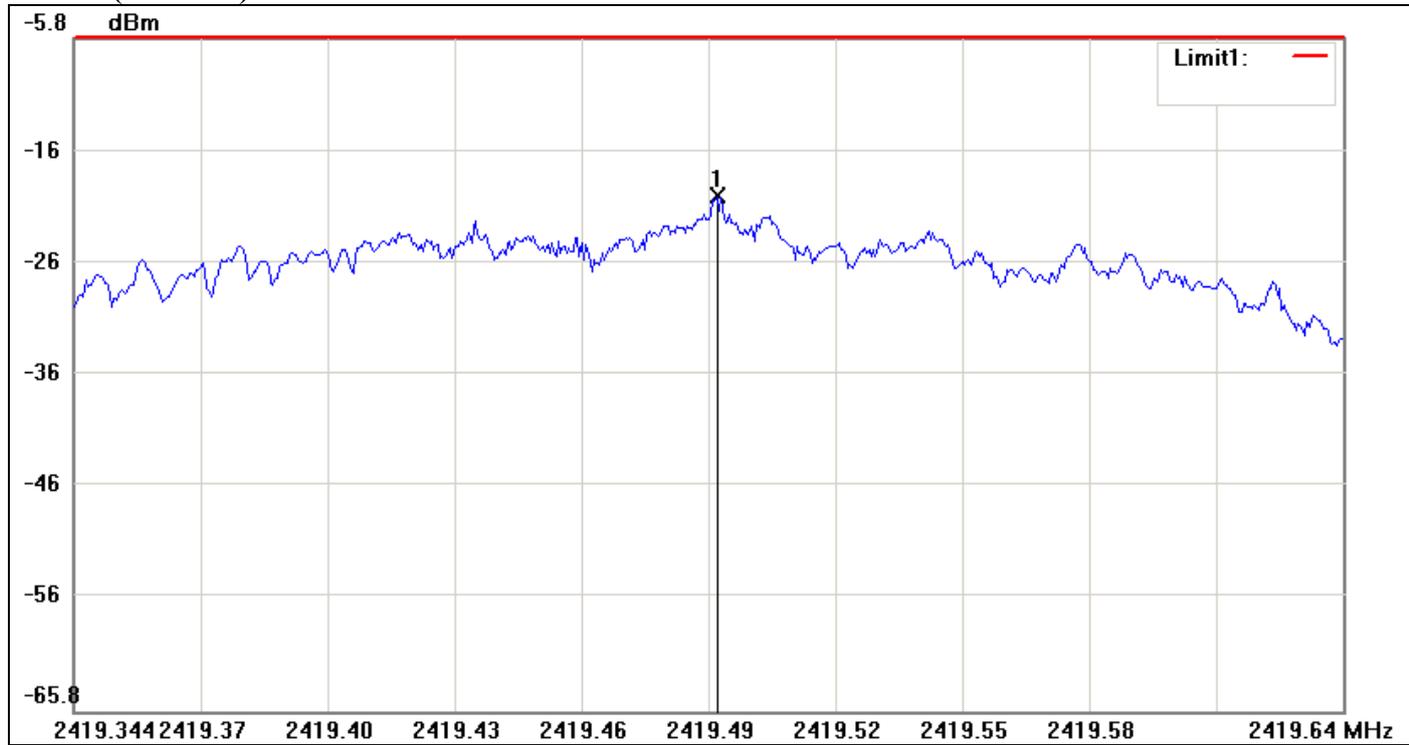
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2419.4961	-19.89	8.00	-27.89

PPSD (CH Mid)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2439.4967	-15.18	8.00	-23.18

PPSD (CH High)
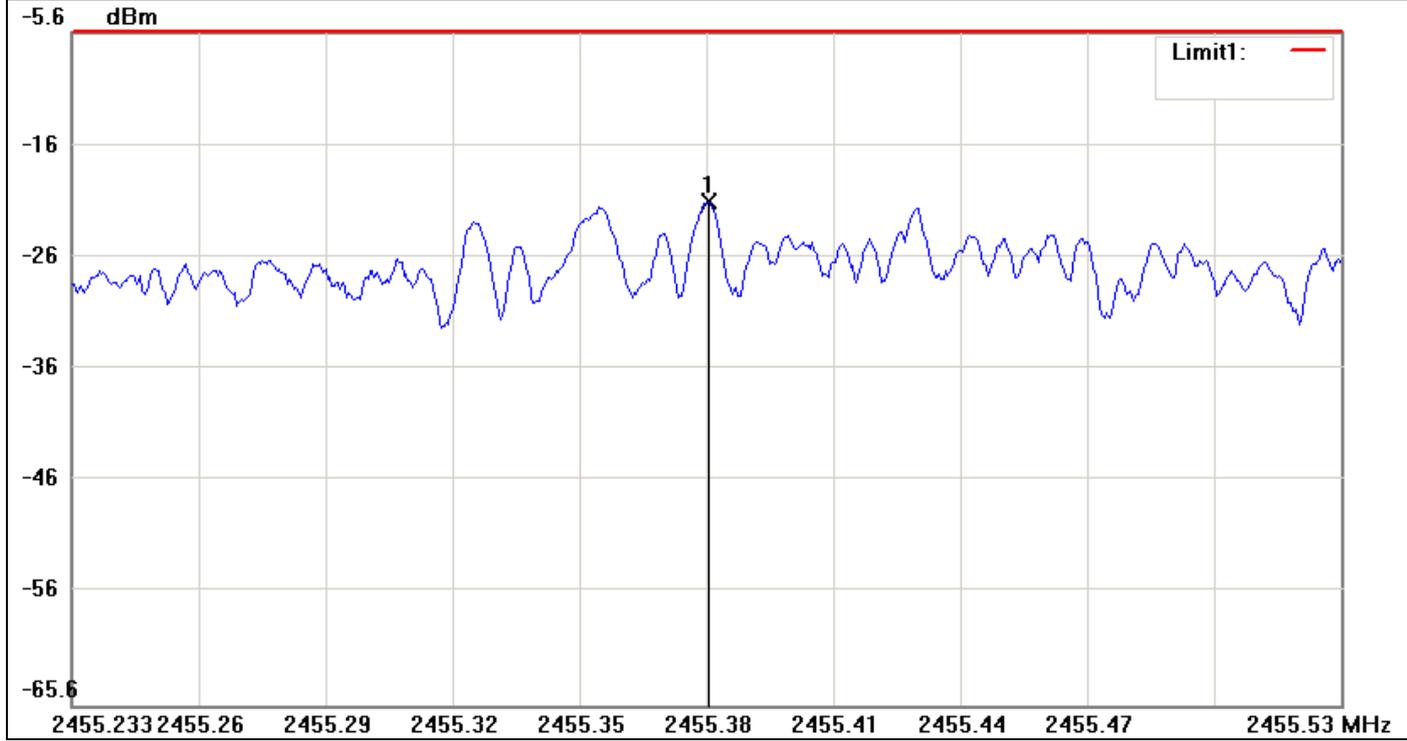
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2455.3836	-20.63	8.00	-28.63

IEEE 802.11n HT 40 MHz mode / Chain 1

PPSD (CH Low)
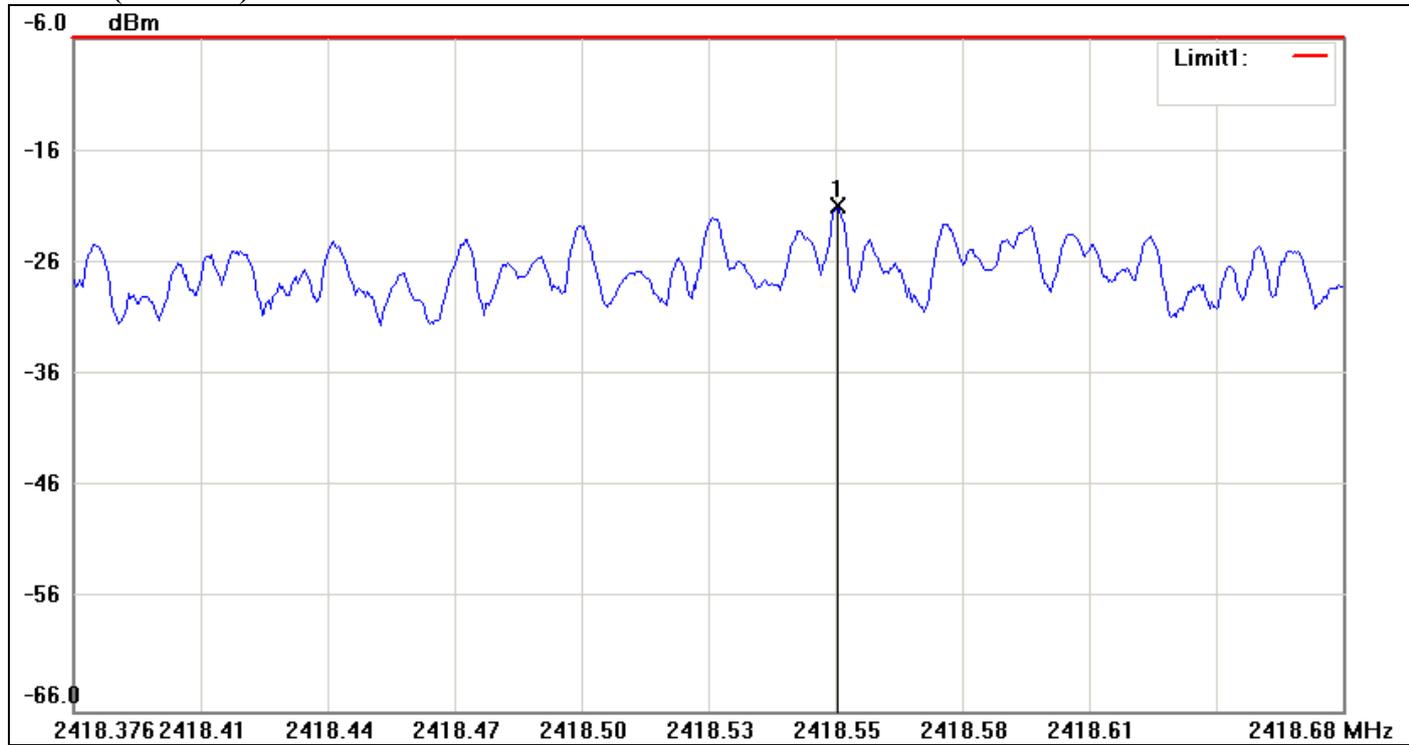
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2418.5560	-20.95	8.00	-28.95

PPSD (CH Mid)
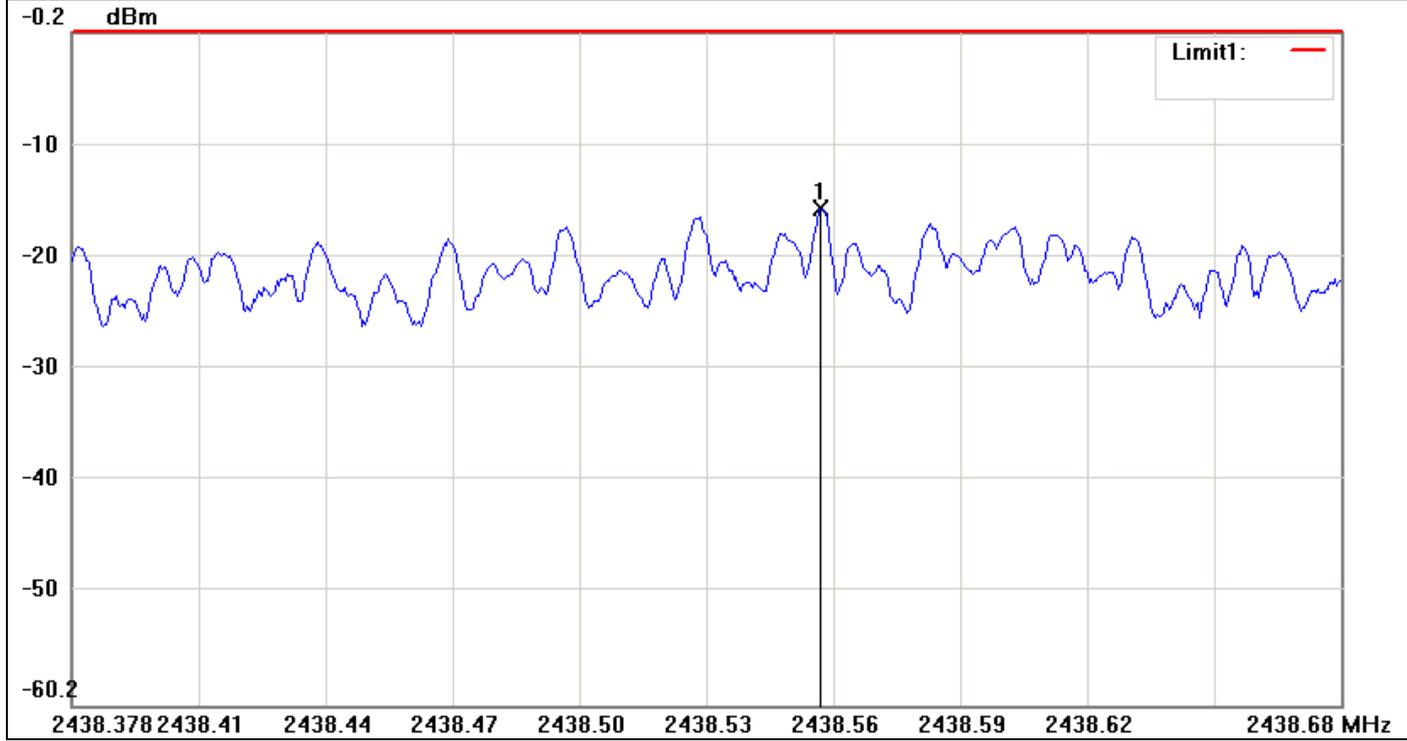
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2438.5551	-15.86	8.00	-23.86

PPSD (CH High)
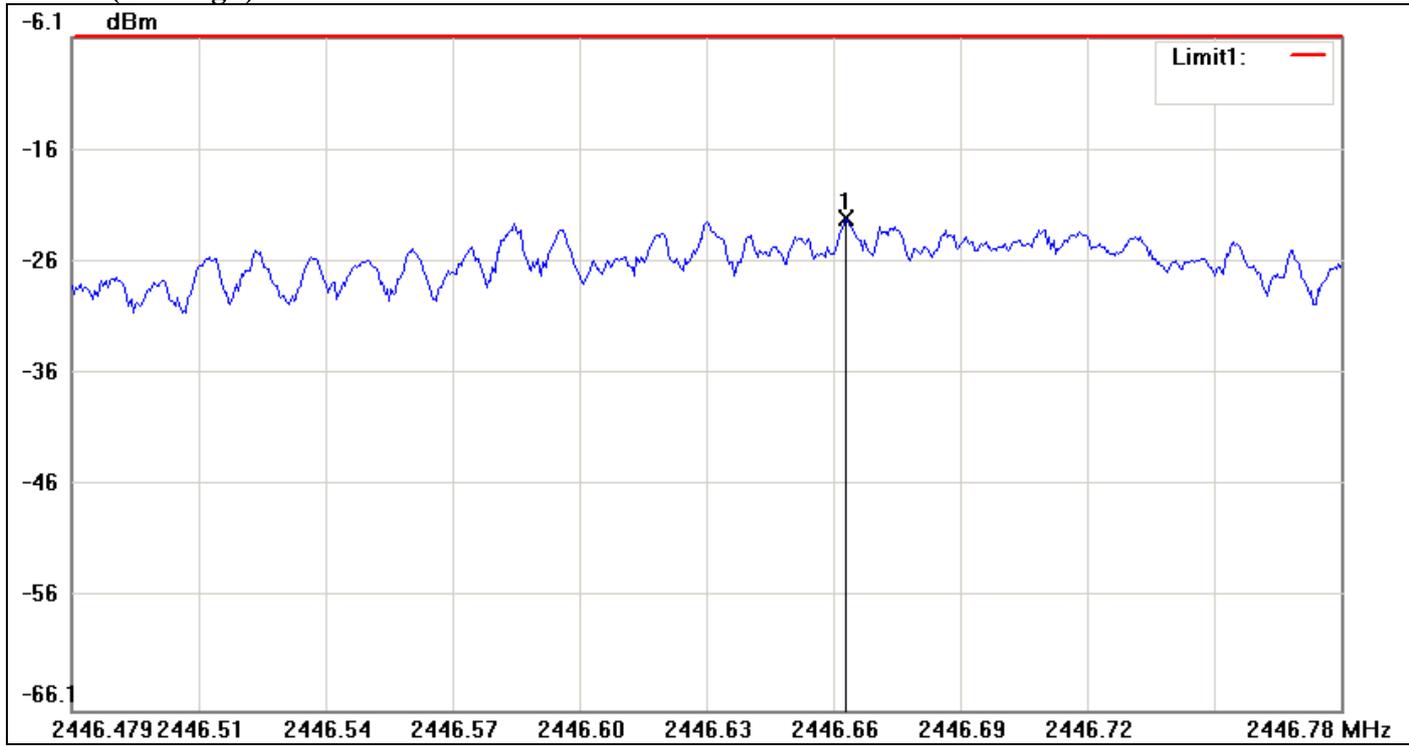
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2446.6616	-22.26	8.00	-30.26

IEEE 802.11n HT 40 MHz mode / Chain 2

PPSD (CH Low)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2415.7627	-20.20	8.00	-28.20

PPSD (CH Mid)

No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2435.7621	-15.43	8.00	-23.43

PPSD (CH High)
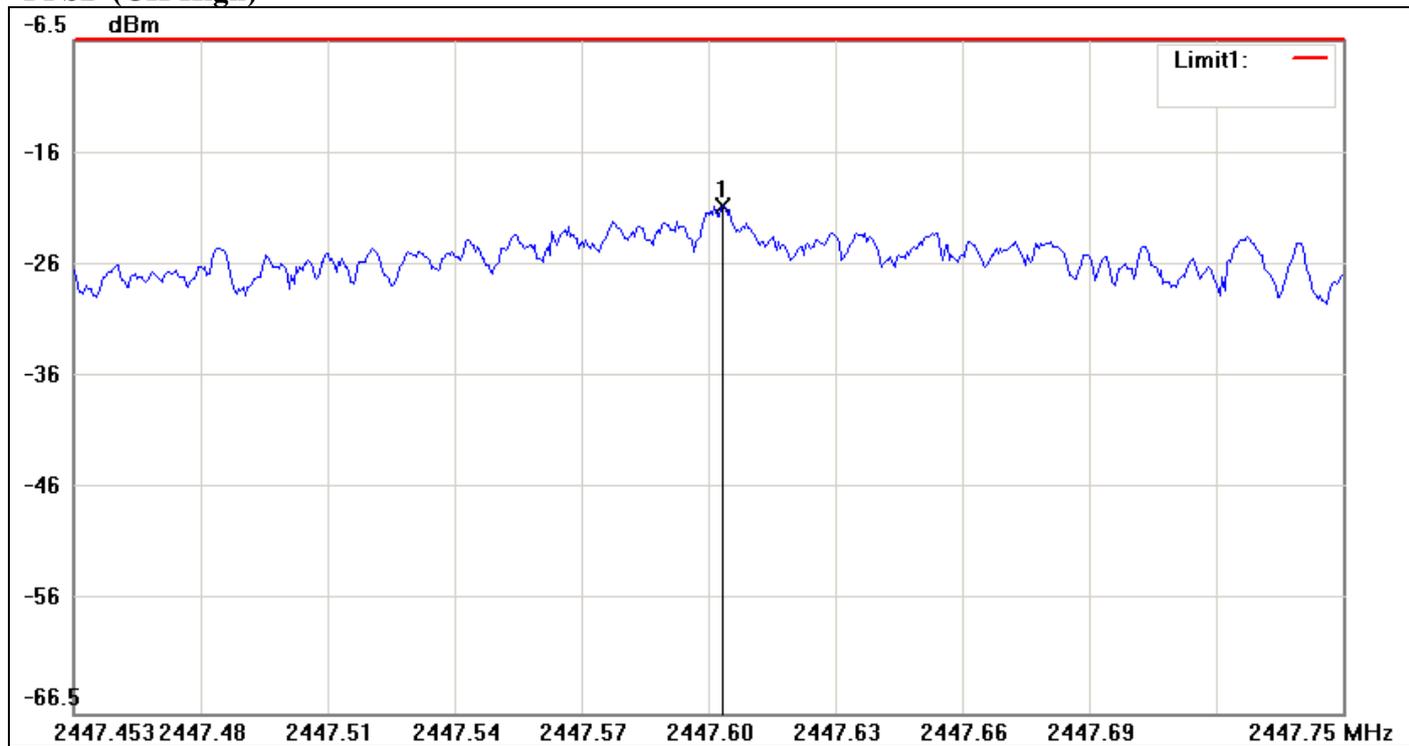
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2447.6069	-21.24	8.00	-29.24

IEEE 802.11a mode

PPSD (CH Low)

PPSD (CH Mid)

PPSD (CH High)

❈ **Agilent** 10:05:00 Nov 14, 2011   R   T

Mkr1 5.827 743 9 GHz

Ref 20 dBm   Atten 20 dB   −13.21 dBm

#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1 S2
S3 FS

£(f):
f>50k
Swp

Center 5.827 800 0 GHz   Span 300 kHz

#Res BW 3 kHz   #VBW 10 kHz   #Sweep 100 s (601 pts)
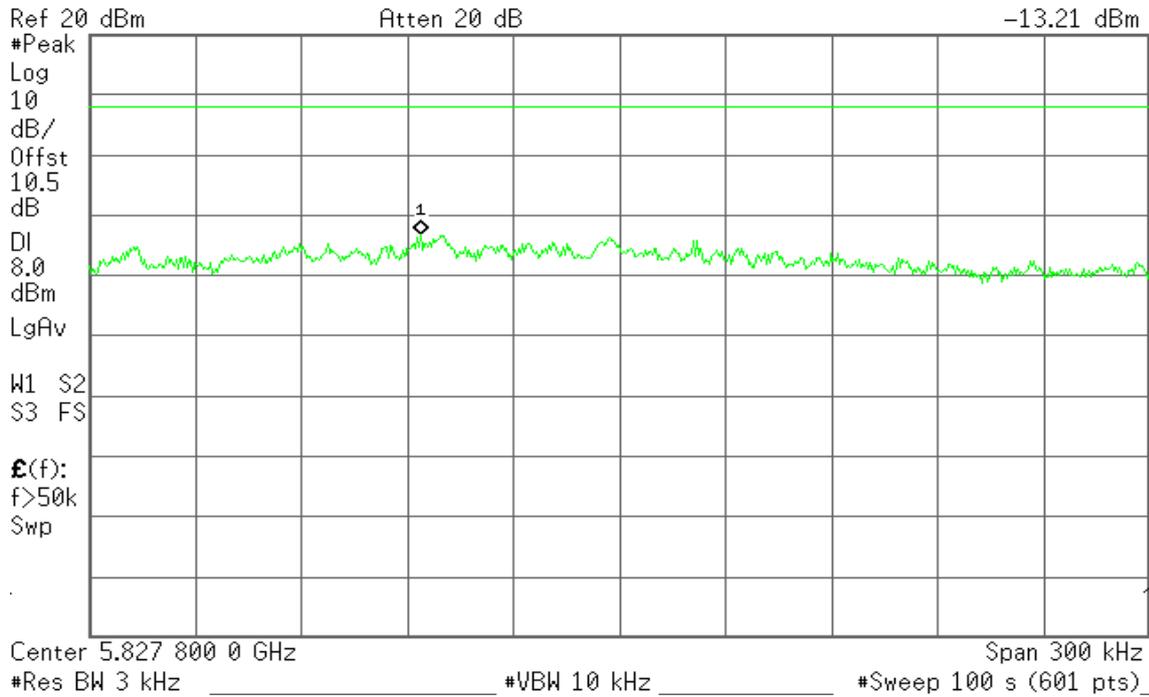
IEEE 802.11n HT 20 MHz mode / Chain 0

PPSD (CH Low)

❈ **Agilent** 10:11:43 Nov 14, 2011   R   T

Mkr1 5.748 981 9 GHz

Ref 20 dBm   Atten 20 dB   −16.71 dBm

#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1 S2
S3 FS

£(f):
f>50k
Swp

Center 5.749 000 0 GHz   Span 300 kHz

#Res BW 3 kHz   #VBW 10 kHz   #Sweep 100 s (601 pts)
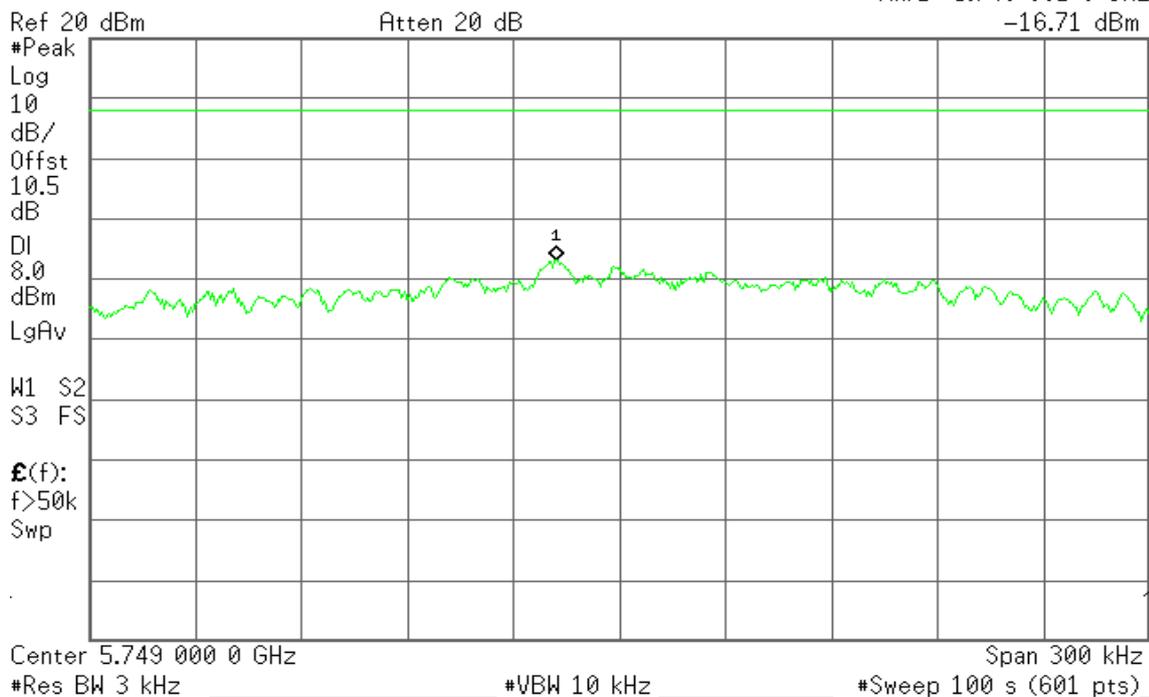
PPSD (CH Mid)


```
☀  Agilent 10:29:57  Nov 14, 2011              R   T
                                               Mkr1  5.788 727 9 GHz
Ref 20 dBm                 Atten 20 dB                -15.73 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1  S2
S3  FS

£(f):
f>50k
Swp

.
Center 5.788 750 0 GHz                          Span 300 kHz
#Res BW 3 kHz _____ #VBW 10 kHz _____ #Sweep 100 s (601 pts)_
```
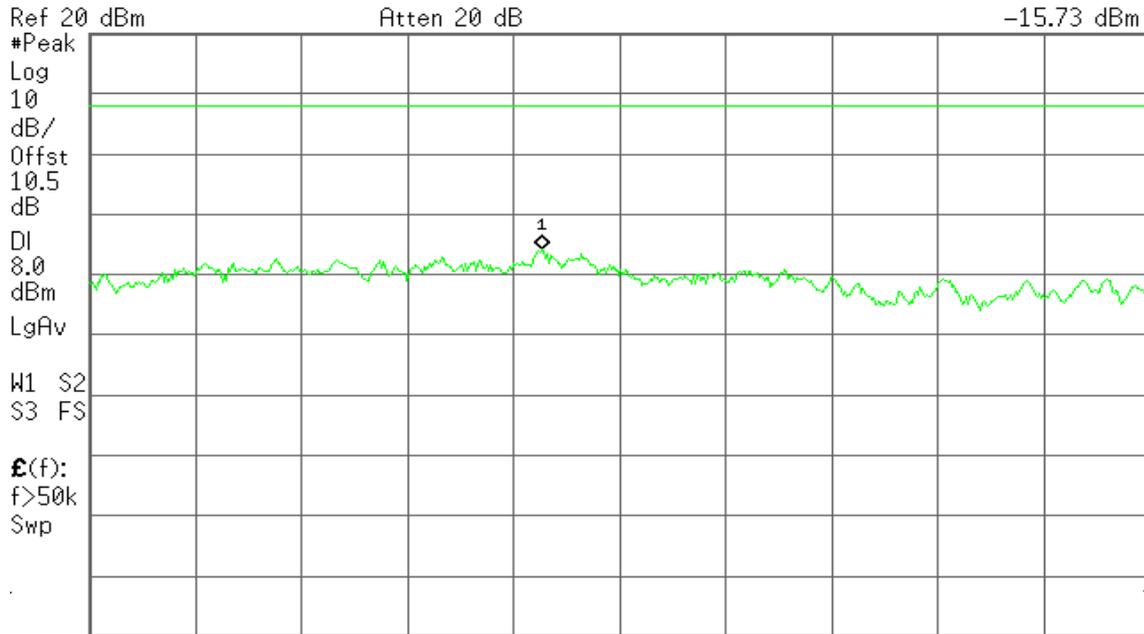
PPSD (CH High)


```
☀  Agilent 10:34:43  Nov 14, 2011              R   T
                                               Mkr1  5.826 231 6 GHz
Ref 20 dBm                 Atten 20 dB                -16.51 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1  S2
S3  FS

£(f):
f>50k
Swp

.
Center 5.826 200 0 GHz                          Span 300 kHz
#Res BW 3 kHz _____ #VBW 10 kHz _____ #Sweep 100 s (601 pts)_
```
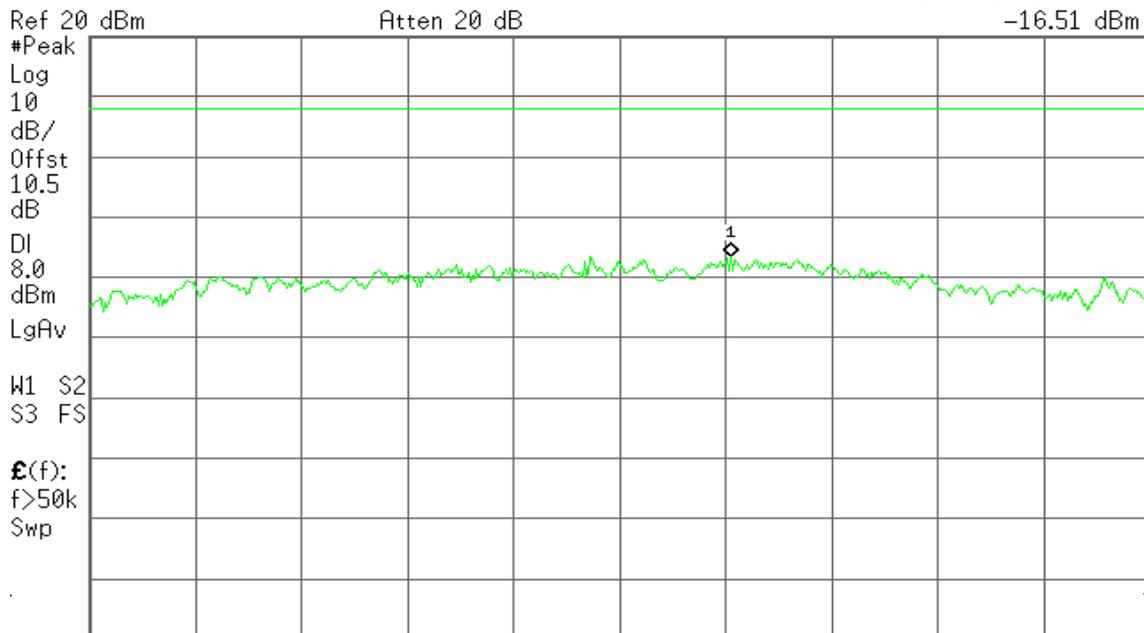
IEEE 802.11n HT 20 MHz mode / Chain 1

PPSD (CH Low)

PPSD (CH Mid)

PPSD (CH High)

IEEE 802.11n HT 20 MHz mode / Chain 1

PPSD (CH Low)
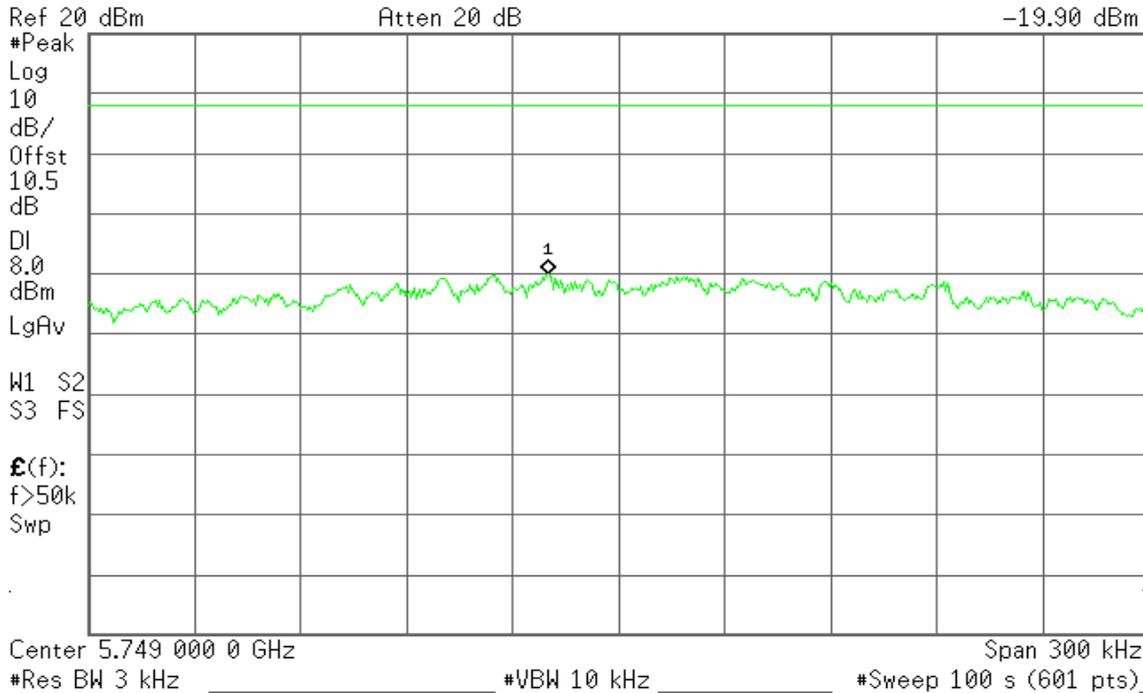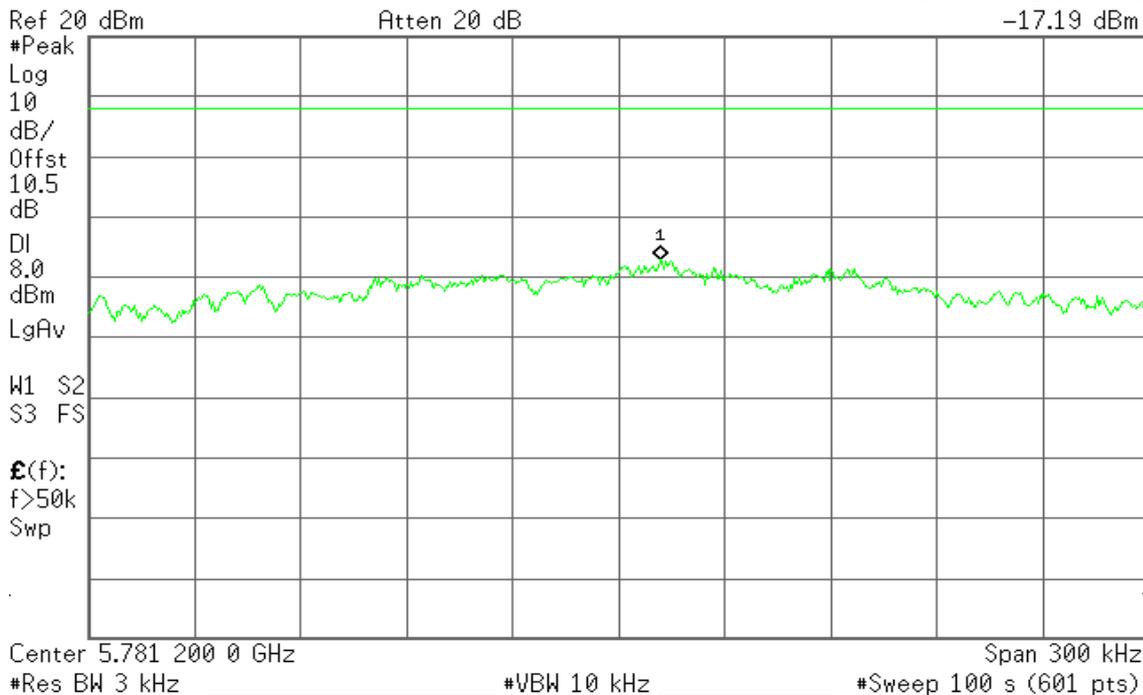
PPSD (CH Mid)


```
 ※ Agilent 10:25:46  Nov 14, 2011                          R  T
                                                    Mkr1  5.789 944 0 GHz
Ref 20 dBm                    Atten 20 dB                    -16.22 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1 S2
S3 FS

£(f):
f>50k
Swp

Center 5.789 950 0 GHz                              Span 300 kHz
#Res BW 3 kHz                    #VBW 10 kHz        #Sweep 100 s (601 pts)
```
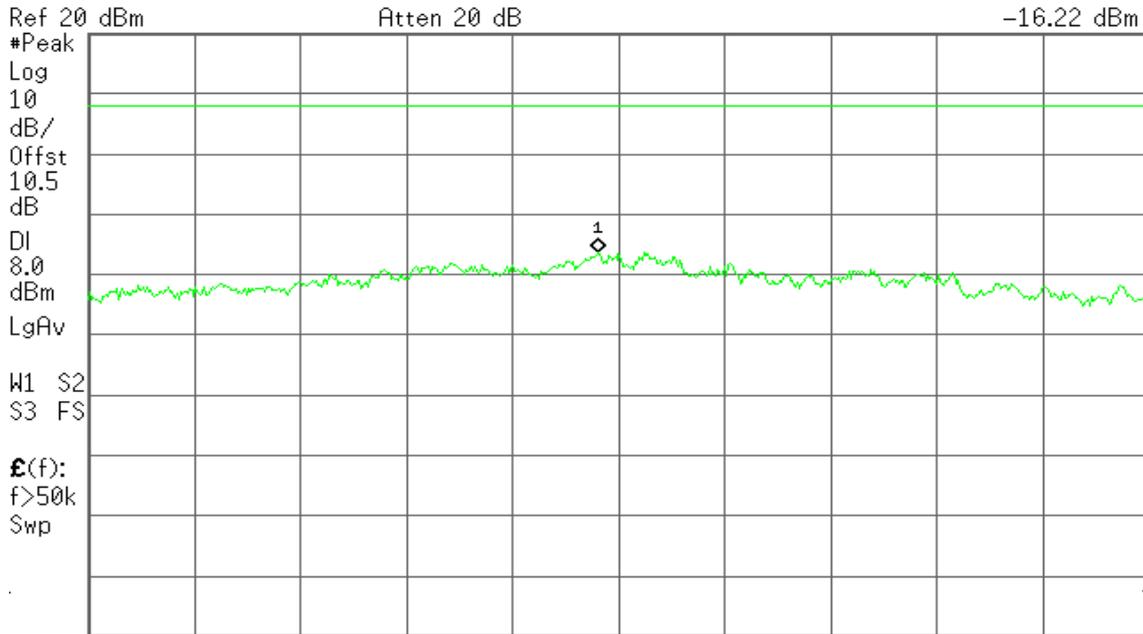
PPSD (CH High)


```
 ※ Agilent 10:40:09  Nov 14, 2011                          R  T
                                                    Mkr1  5.827 121 9 GHz
Ref 20 dBm                    Atten 20 dB                    -16.21 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
8.0
dBm
LgAv

W1 S2
S3 FS

£(f):
f>50k
Swp

Center 5.827 150 0 GHz                              Span 300 kHz
#Res BW 3 kHz                    #VBW 10 kHz        #Sweep 100 s (601 pts)
```
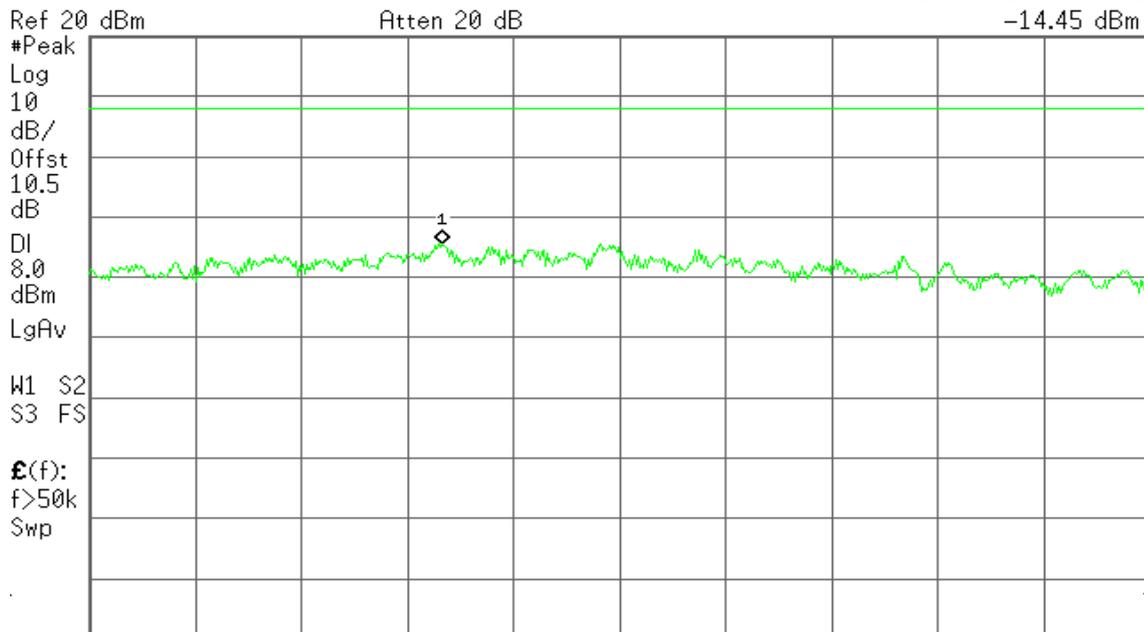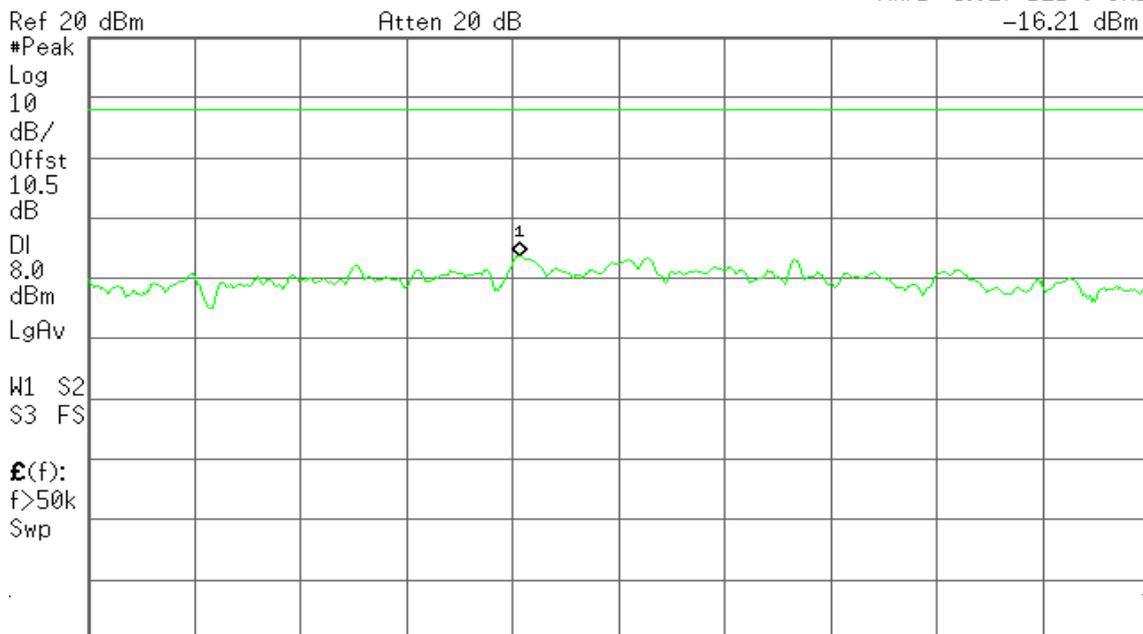
IEEE 802.11n HT 40 MHz mode / Chain 0

PPSD (CH Low)

PPSD (CH High)

IEEE 802.11n HT 40 MHz mode / Chain 1

PPSD (CH Low)

PPSD (CH High)

IEEE 802.11n HT 40 MHz mode / Chain 2

PPSD (CH Low)

PPSD (CH High)

7.5 SPURIOUS EMISSIONS

7.5.1 Conducted Measurement

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration

```
┌──────────┐        ┌──────────────┐
│          │        │   Spectrum   │
│   EUT    │───────▶│   Analyzer   │
│          │        │              │
└──────────┘        └──────────────┘
```

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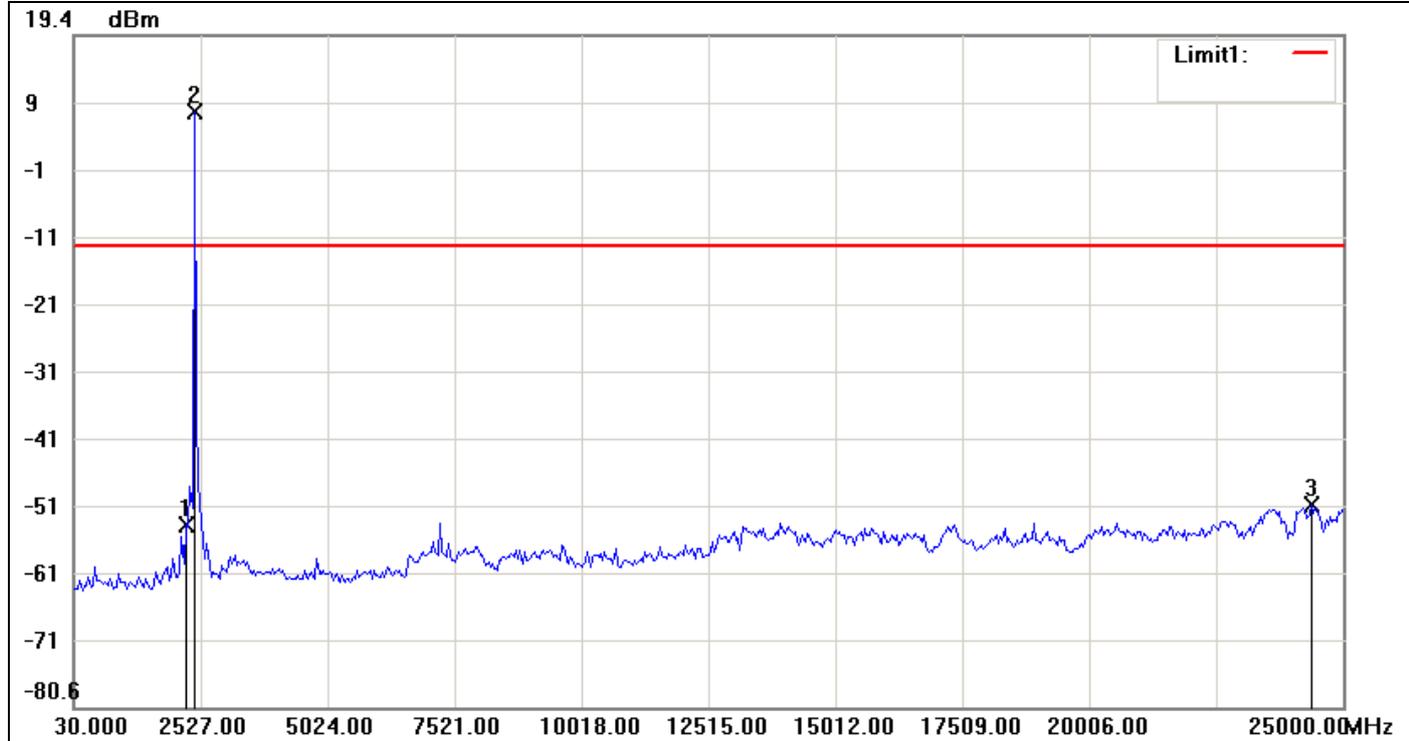
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	2235.6833	-53.56	-12.05	-41.51
2	2402.1500	7.95	-12.05	20.00
3	24425.7500	-50.40	-12.05	-38.35

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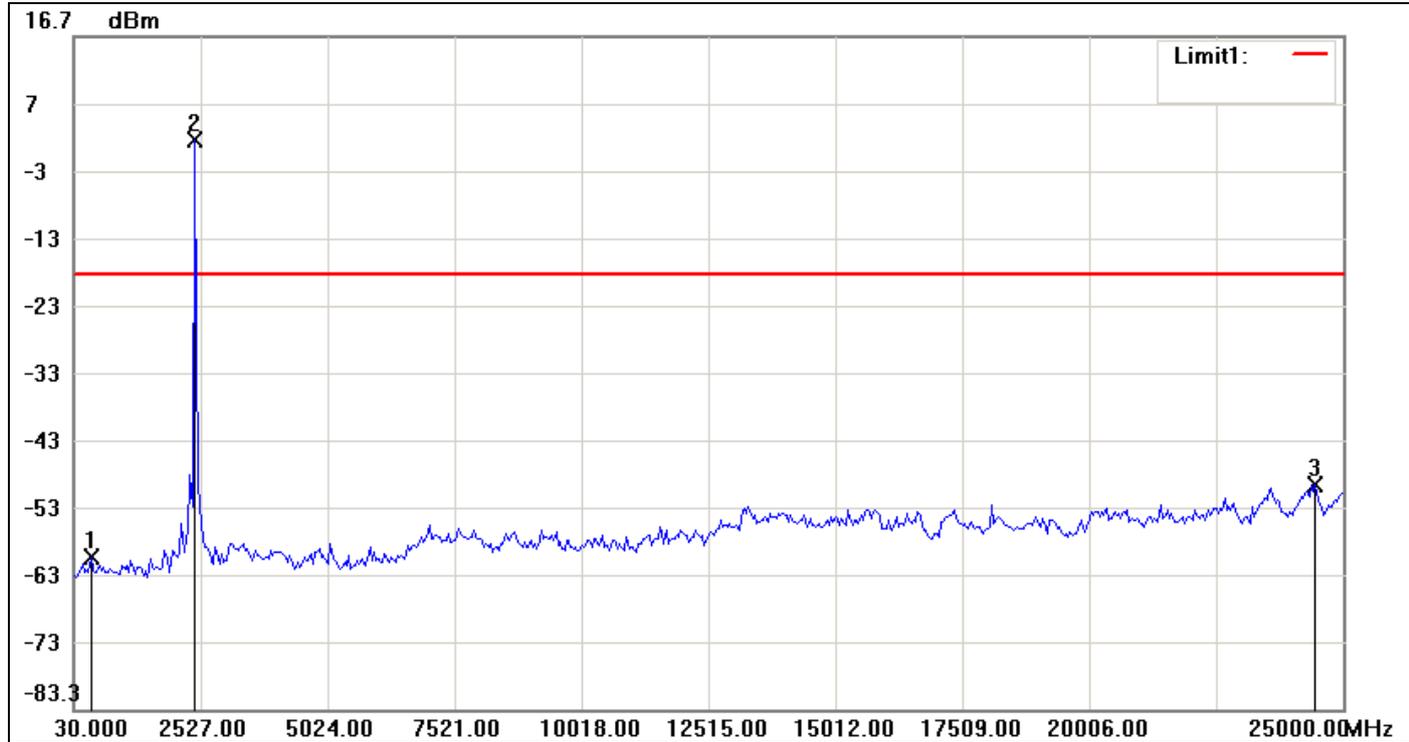
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	362.9333	-60.74	-18.74	-42.00
2	2402.1500	1.26	-18.74	20.00
3	24458.9833	-49.82	-18.74	-31.08

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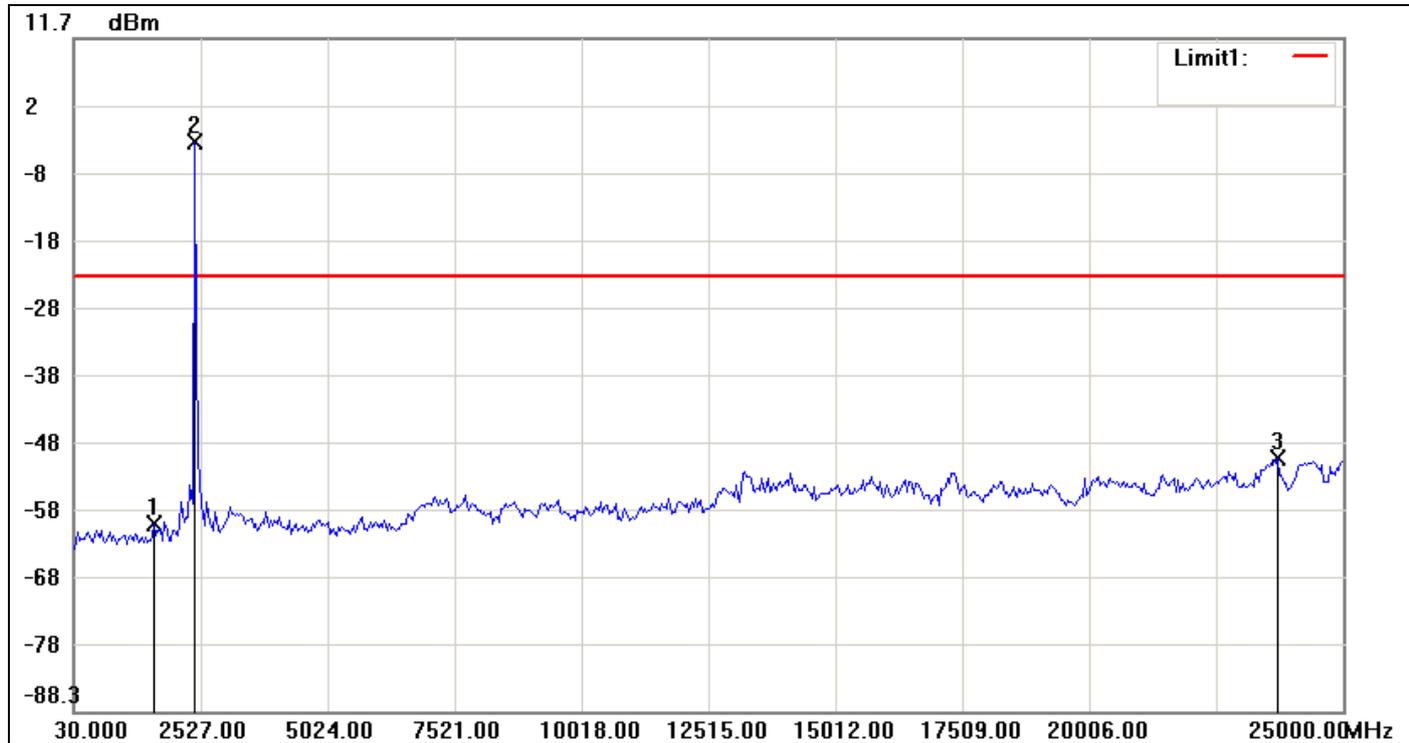
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1611.4333	-60.54	-23.78	-36.76
2	2402.1500	-3.78	-23.78	20.00
3	23709.8833	-50.65	-23.78	-26.87

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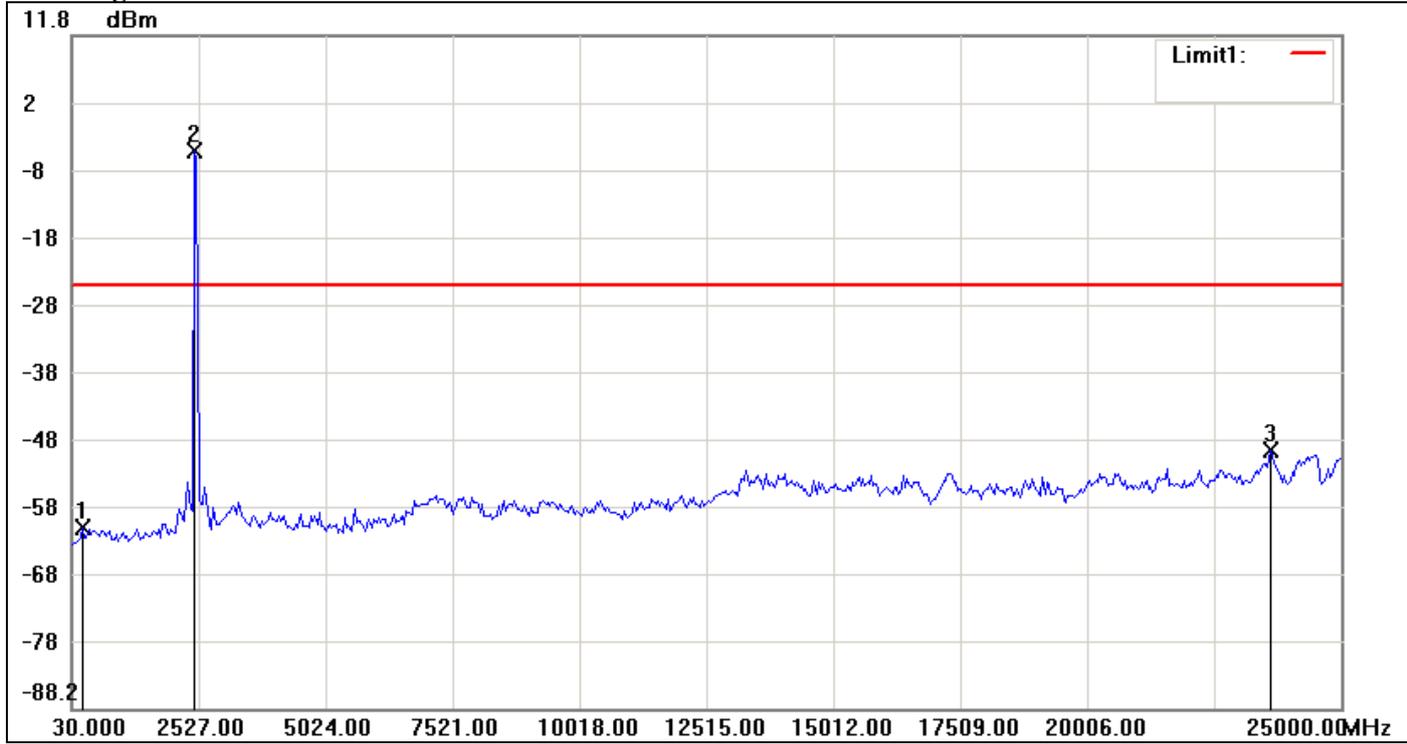
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	238.0833	-61.46	-25.29	-36.17
2	2443.7667	-5.29	-25.29	20.00
3	23626.6500	-49.85	-25.29	-24.56

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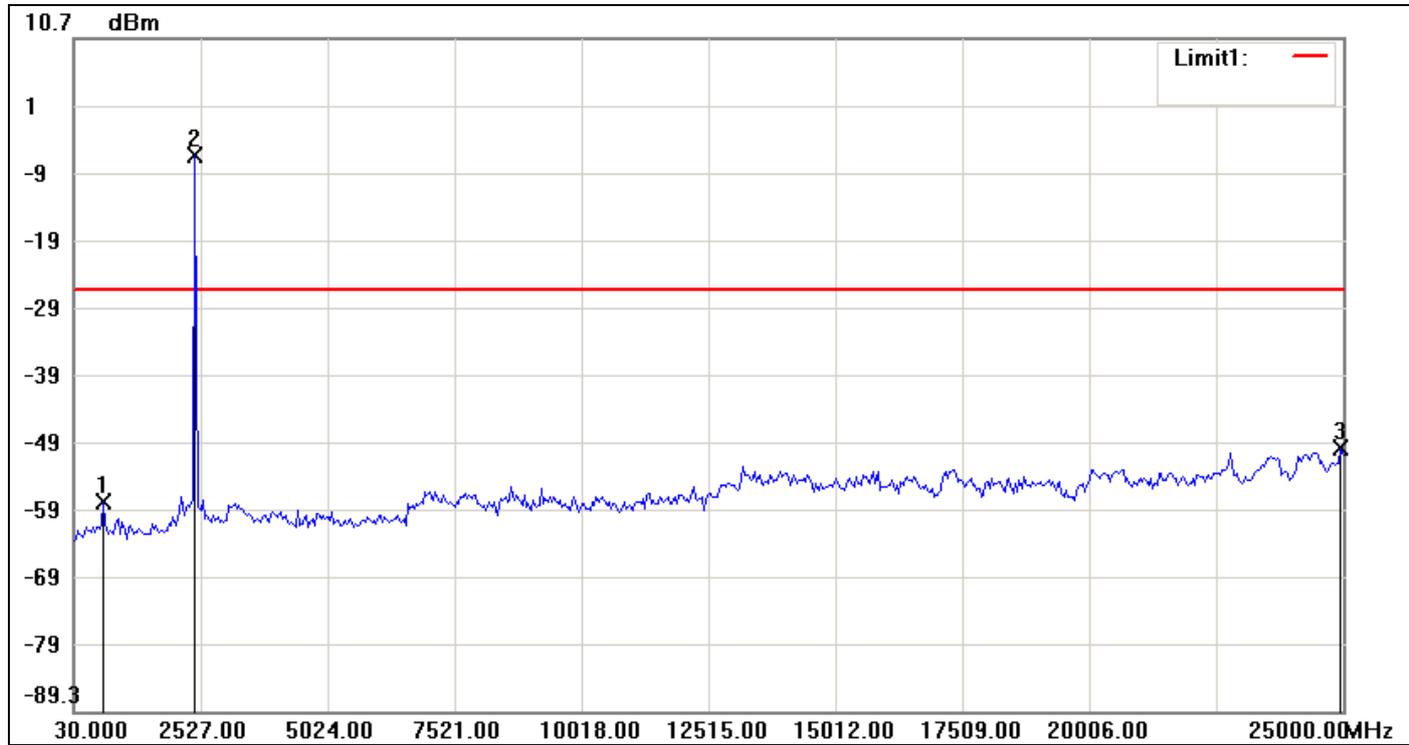
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.19	-26.72	-31.47
2	2402.1500	-6.72	-26.72	20.00
3	24958.3833	-50.21	-26.72	-23.49

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

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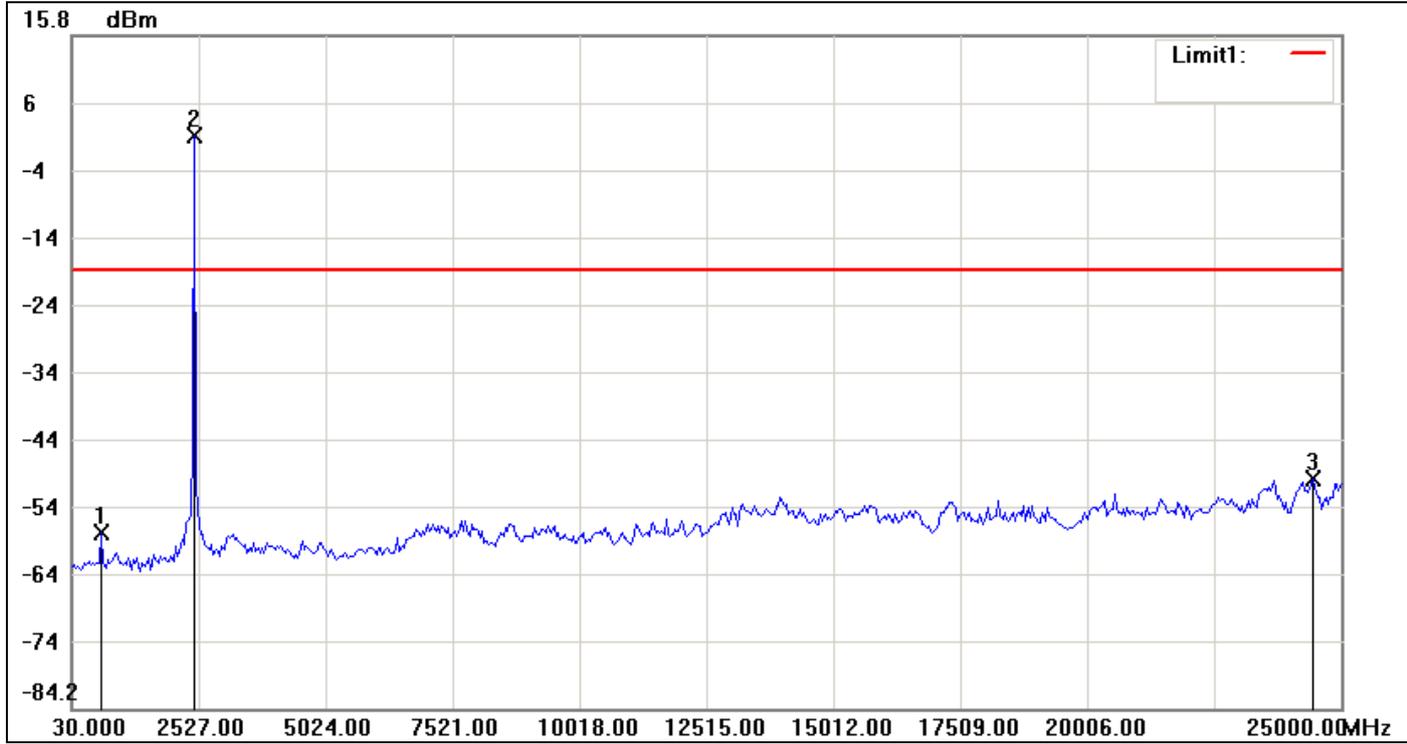
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.06	-18.96	-39.10
2	2443.7667	1.04	-18.96	20.00
3	24458.9833	-50.12	-18.96	-31.16

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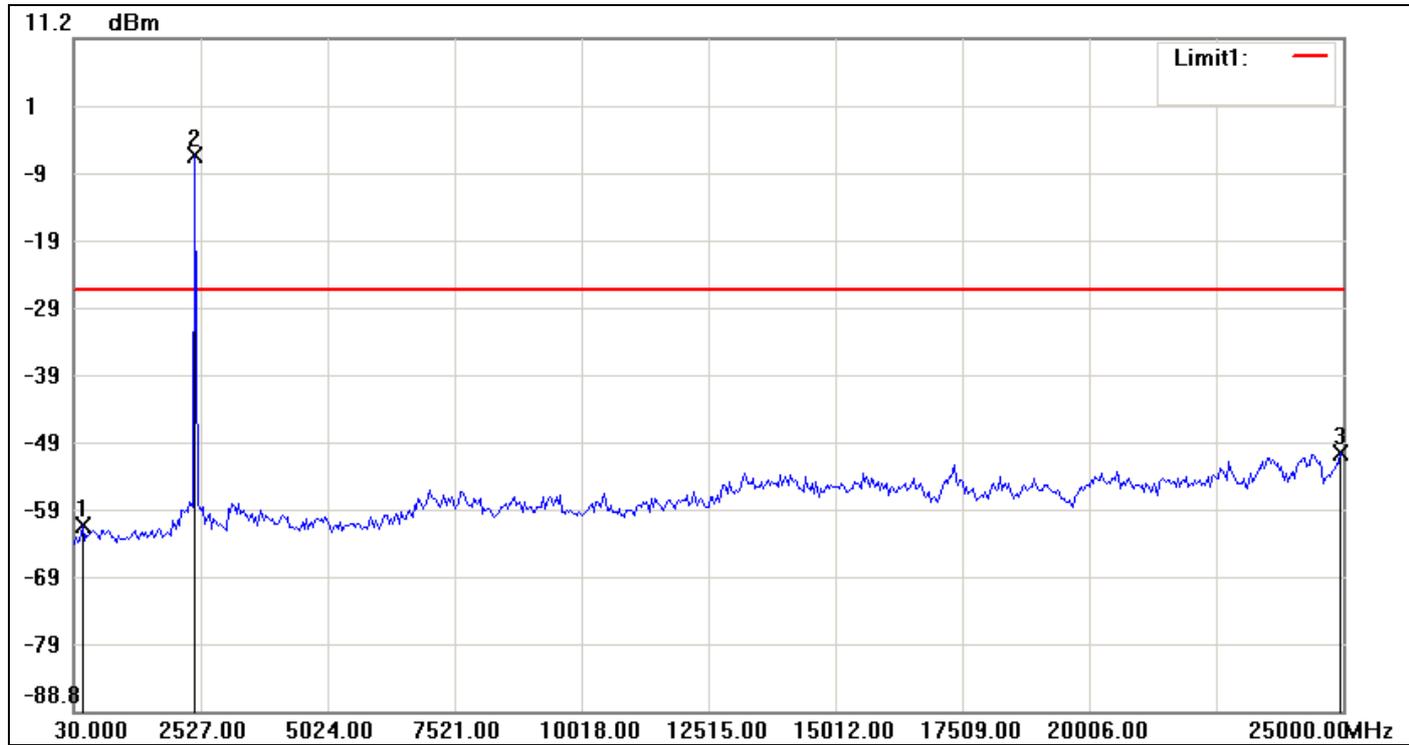
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	196.4667	-61.18	-26.24	-34.94
2	2402.1500	-6.24	-26.24	20.00
3	24958.3833	-50.42	-26.24	-24.18

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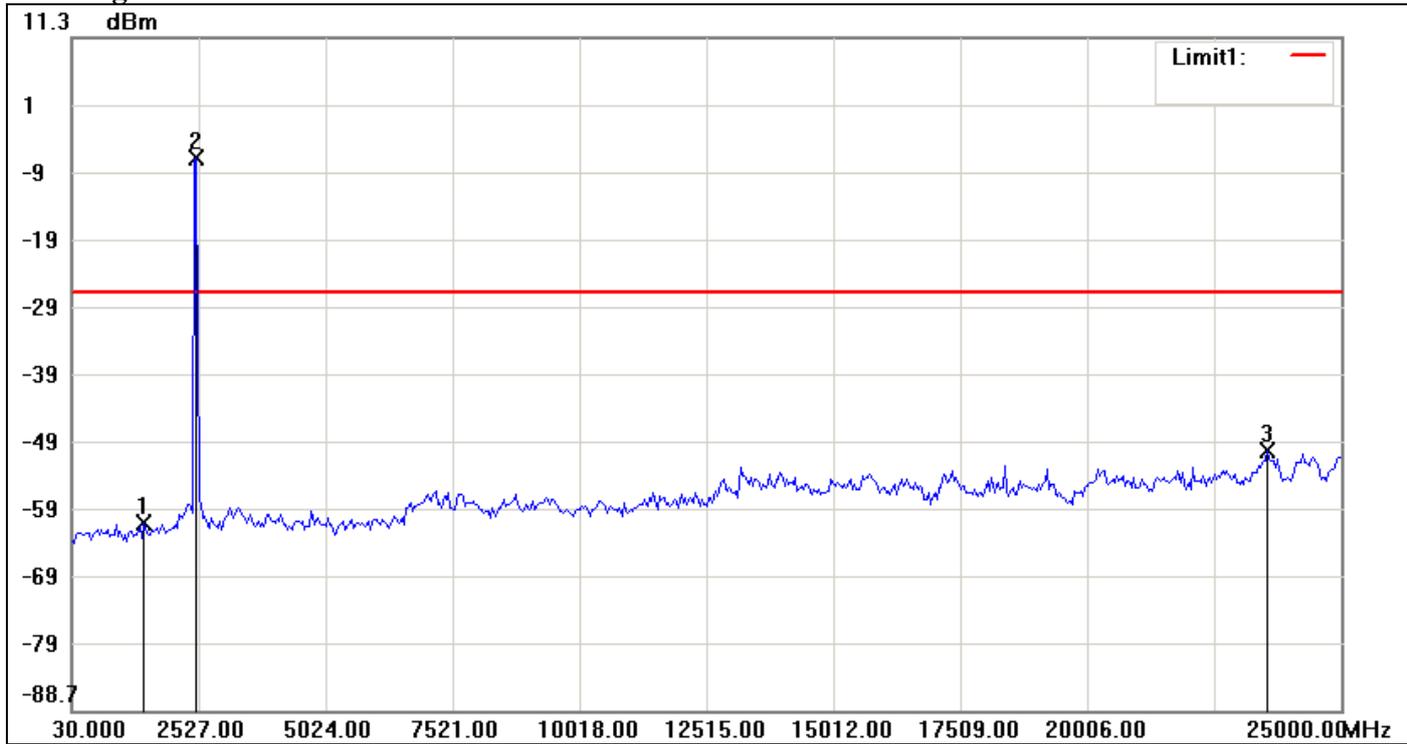
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1444.9667	-60.79	-26.68	-34.11
2	2485.3833	-6.68	-26.68	20.00
3	23543.4167	-49.98	-26.68	-23.30

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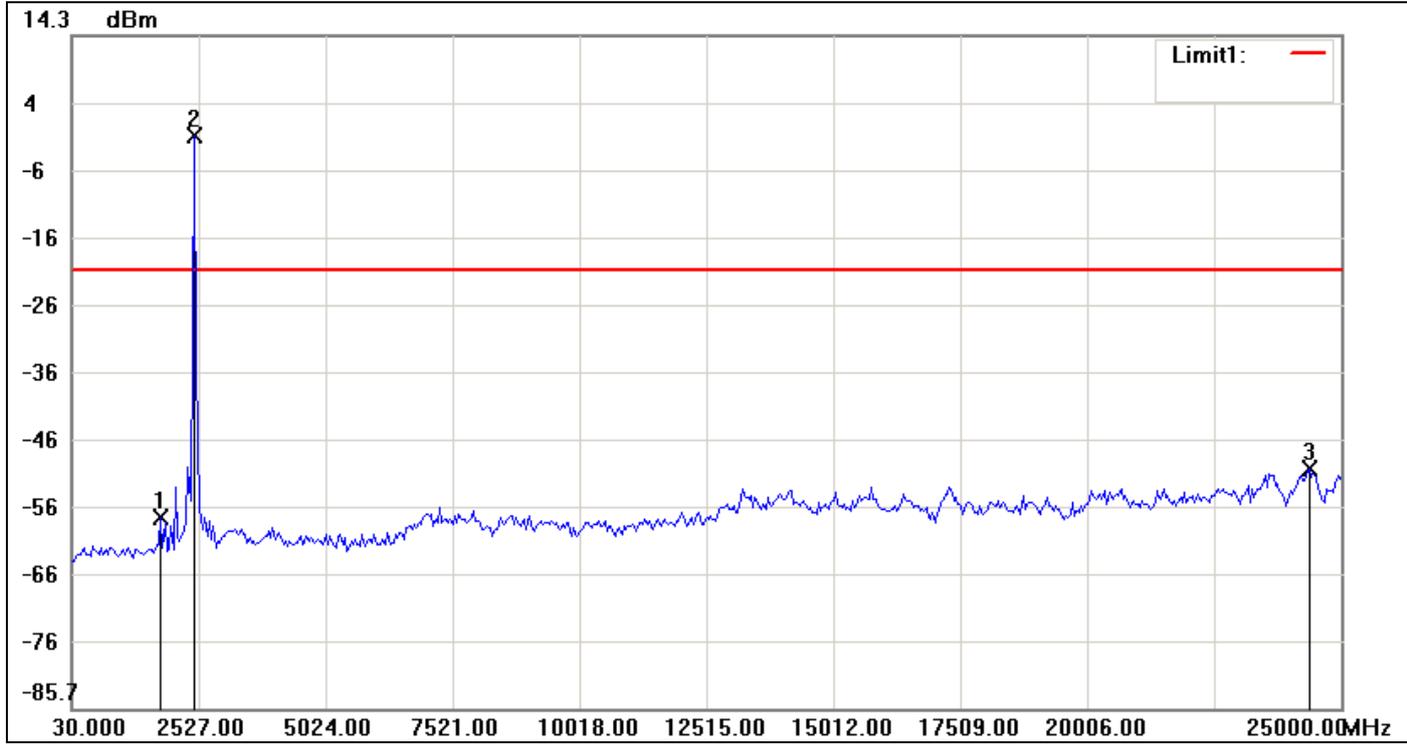
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-57.25	-20.64	-36.61
2	2443.7667	-0.64	-20.64	20.00
3	24425.7500	-50.13	-20.64	-29.49

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

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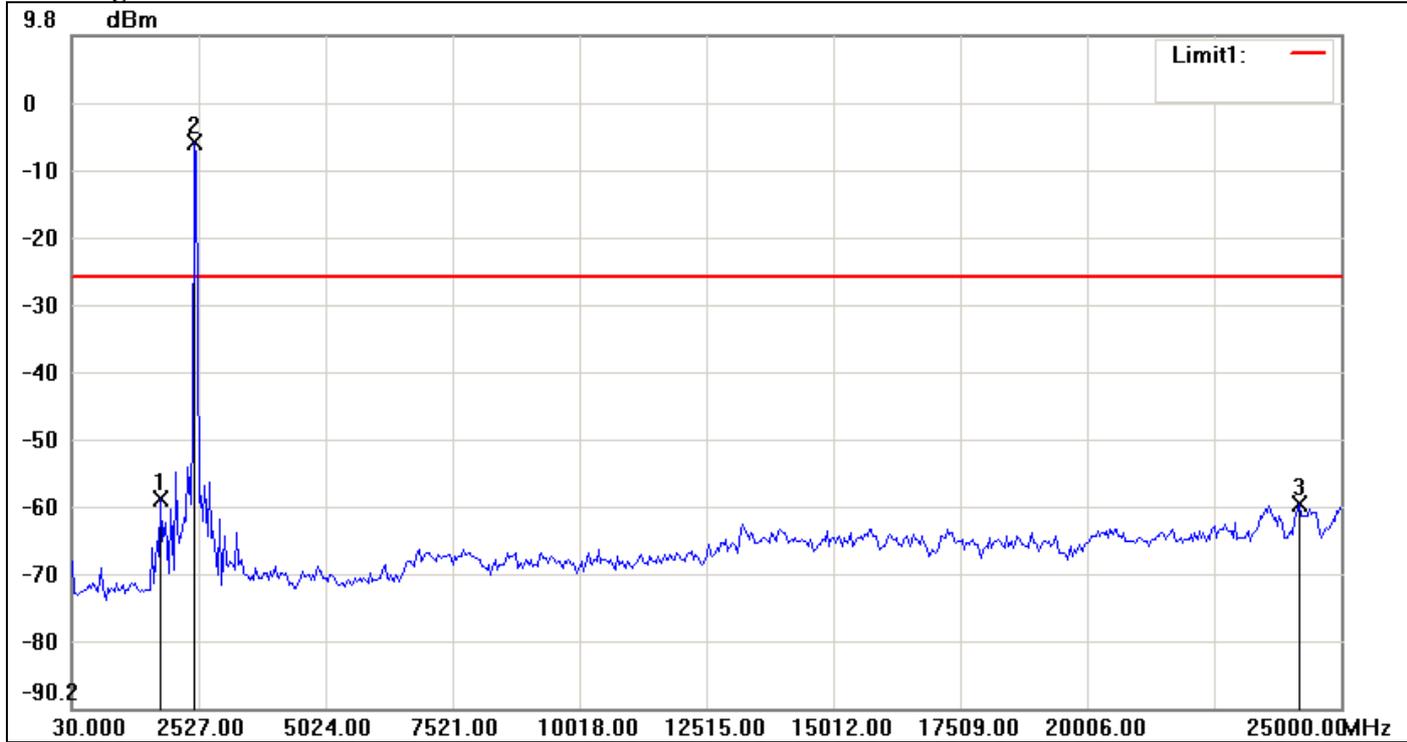
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-58.93	-26.08	-32.85
2	2443.7667	-6.08	-26.08	20.00
3	24167.6667	-59.77	-26.08	-33.69

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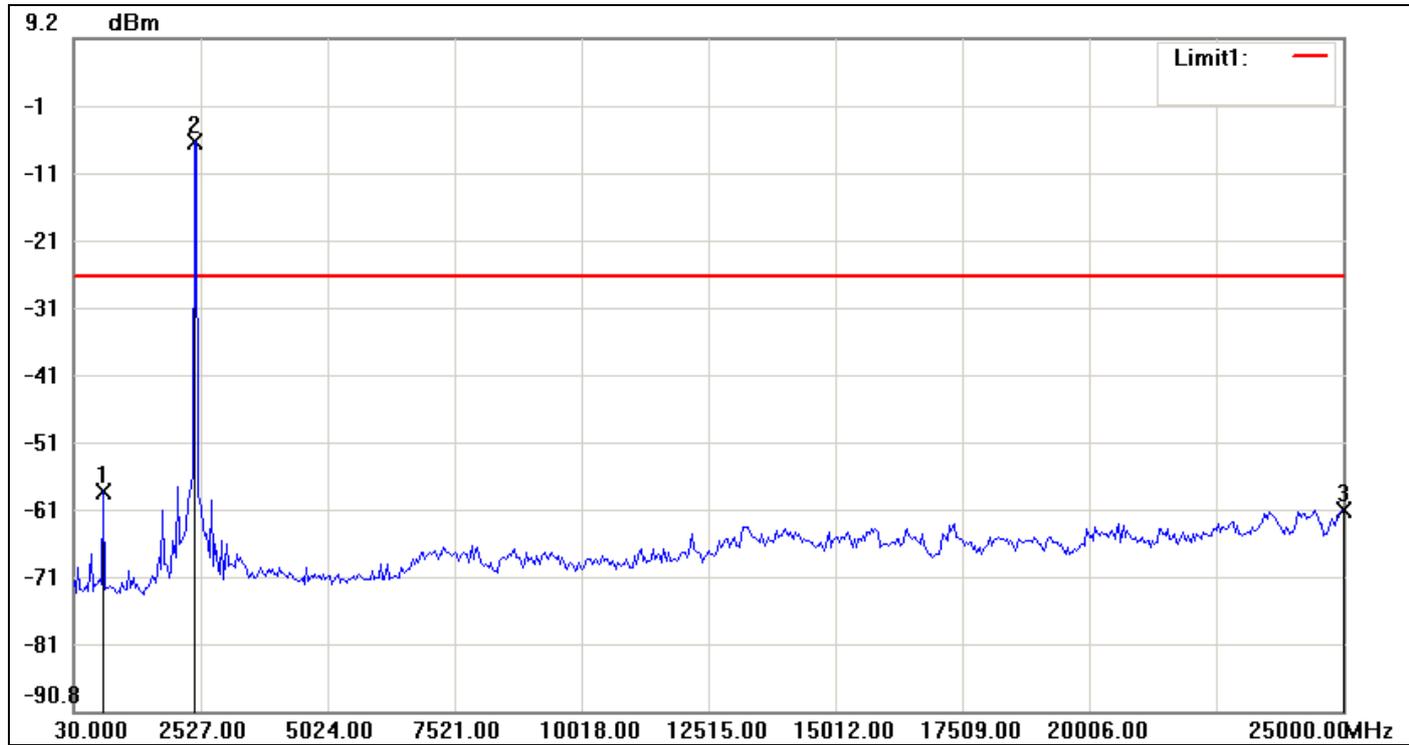
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	612.6333	-58.19	-26.04	-32.15
2	2402.1500	-6.04	-26.04	20.00
3	25000.0000	-60.81	-26.04	-34.77

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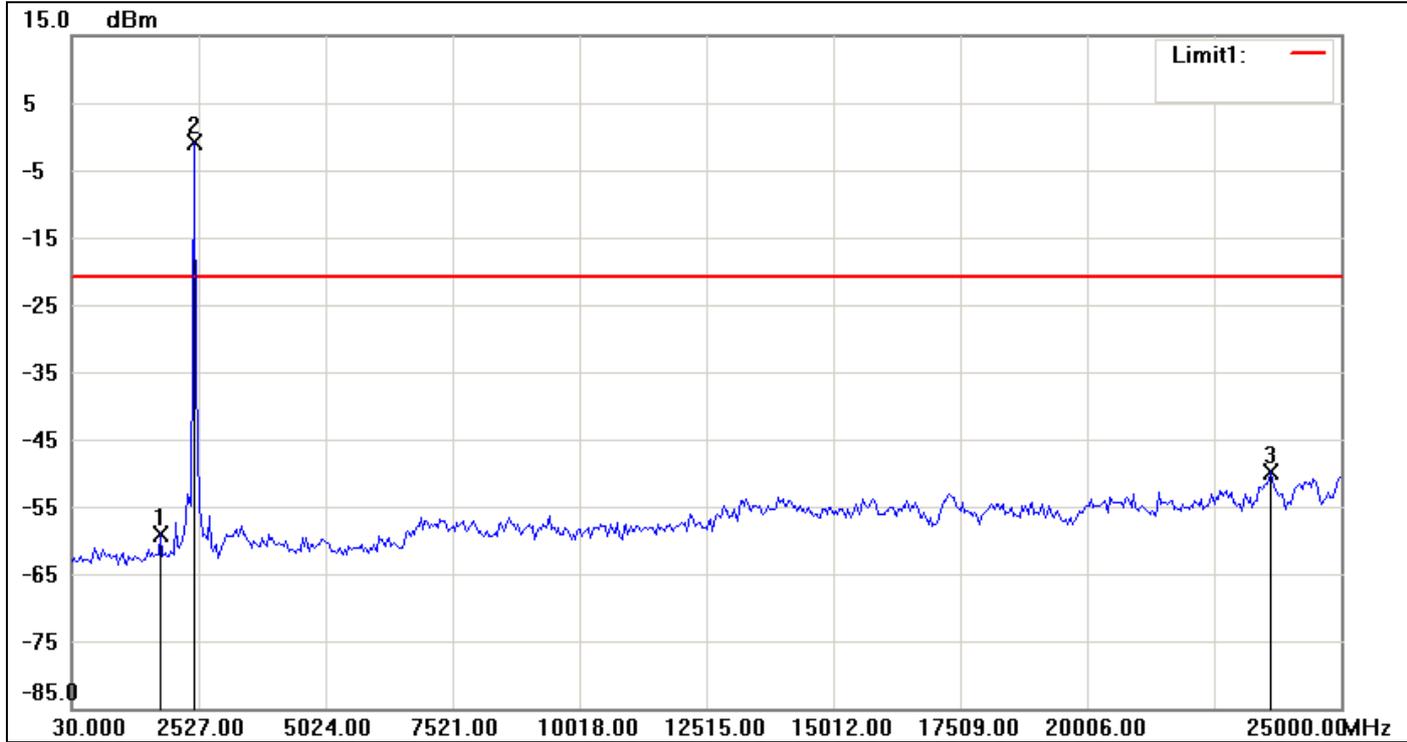
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-59.10	-20.80	-38.30
2	2443.7667	-0.80	-20.80	20.00
3	23626.6500	-49.83	-20.80	-29.03

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

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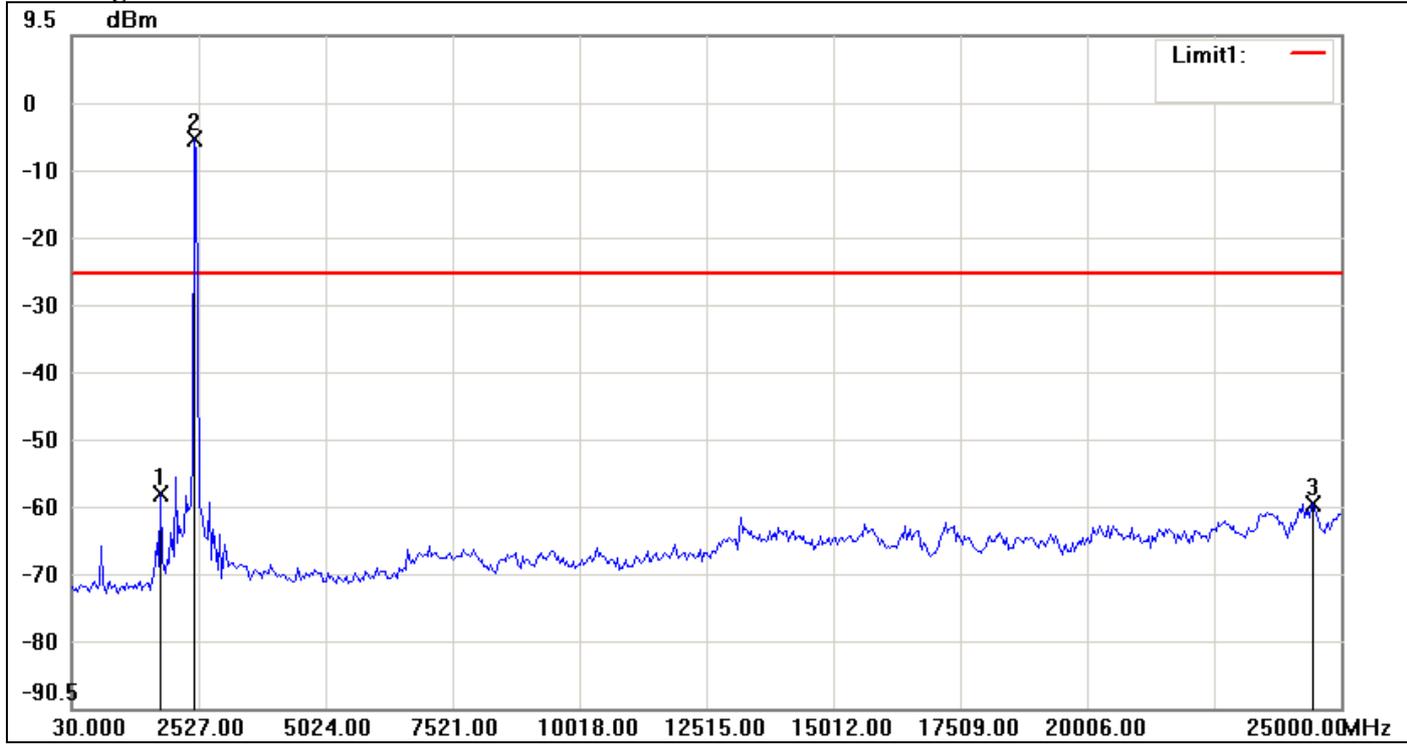
No.	Frequency(MHz)	Level(dBm)	Limit(dBm)	Margin(dBm)
1	1777.9000	-58.56	-25.84	-32.72
2	2443.7667	-5.84	-25.84	20.00
3	24458.9833	-60.08	-25.84	-34.24

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:

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

IEEE 802.11a mode
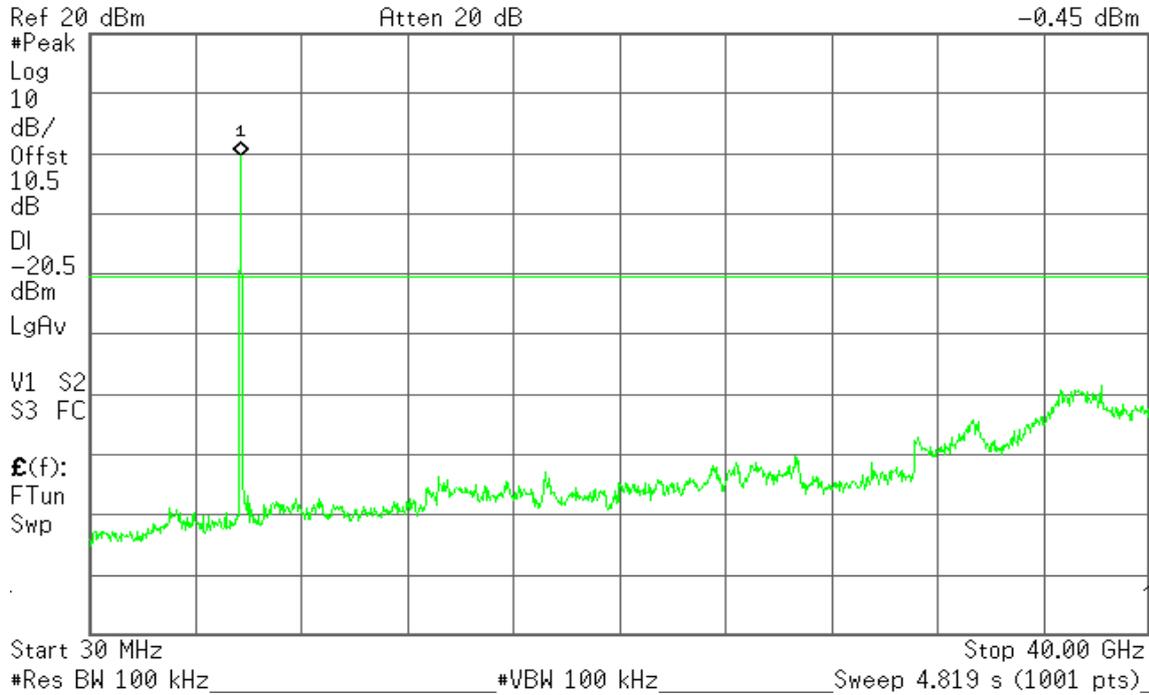
CH Low

CH Mid
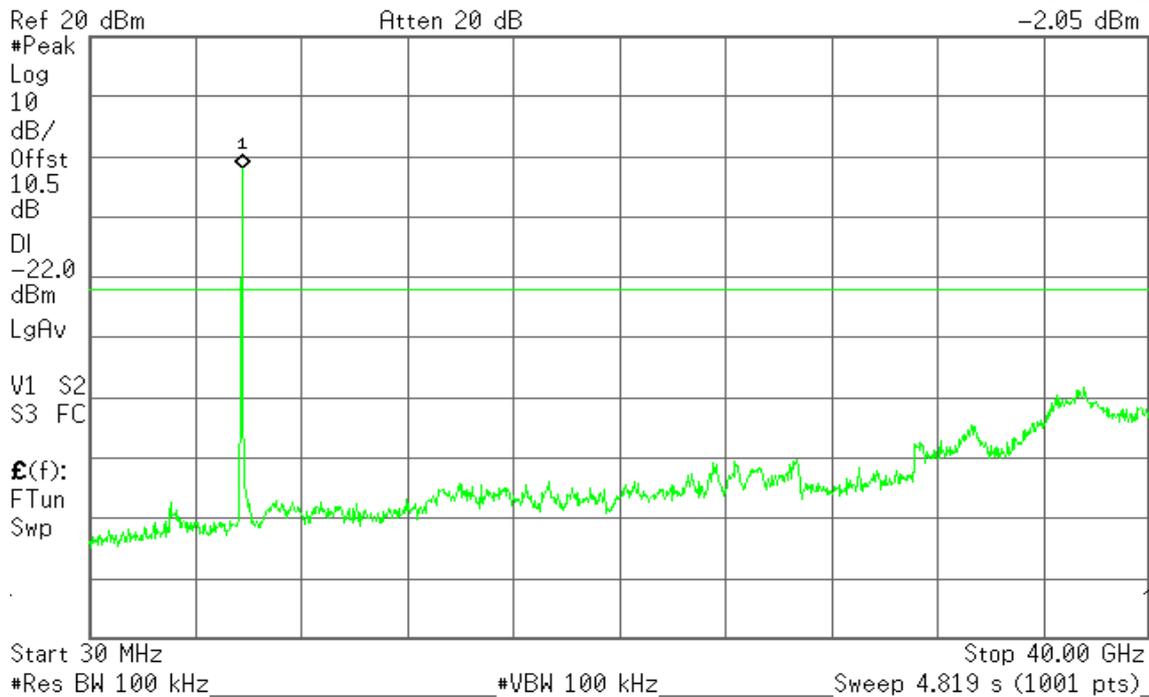
CH High


```
Agilent 10:05:44 Nov 14, 2011          R   T
                                              Mkr1  5.83 GHz
Ref 20 dBm              Atten 20 dB             0.50 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
-19.5
dBm
LgAv

V1  S2
S3  FC

£(f):
FTun
Swp

Start 30 MHz                          Stop 40.00 GHz
#Res BW 100 kHz        #VBW 100 kHz    Sweep 4.819 s (1001 pts)
```
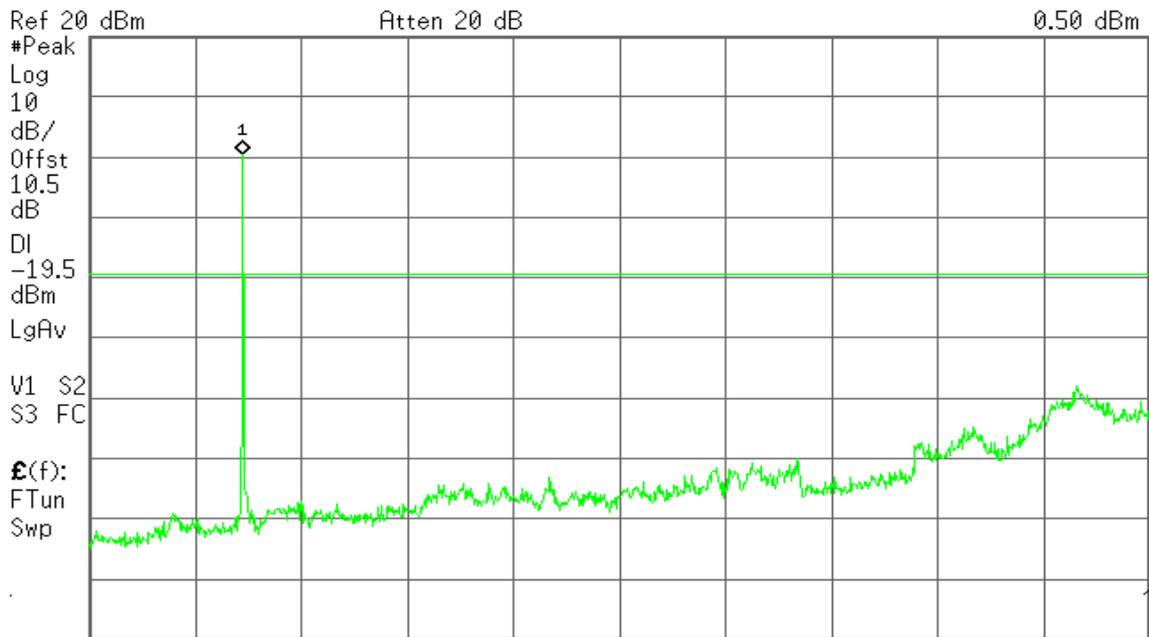
IEEE 802.11n HT 20 MHz Channel mode / Chain 0

CH Low


```
Agilent 10:12:30 Nov 14, 2011          R   T
                                              Mkr1  5.75 GHz
Ref 20 dBm              Atten 20 dB            -6.40 dBm
#Peak
Log
10
dB/
Offst
10.5
dB
DI
-26.4
dBm
LgAv

V1  S2
S3  FC

£(f):
FTun
Swp

Start 30 MHz                          Stop 40.00 GHz
#Res BW 100 kHz        #VBW 100 kHz    Sweep 4.819 s (1001 pts)
```
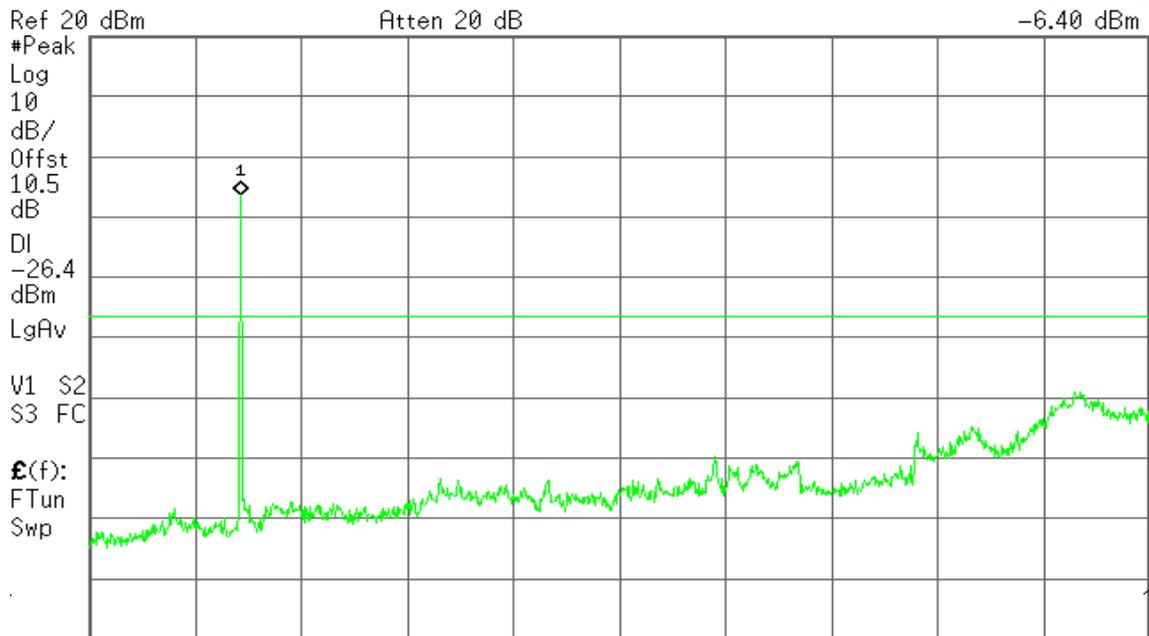
CH Mid

❄ **Agilent** 10:30:36 Nov 14, 2011   R   T

Mkr1 5.79 GHz
−2.75 dBm

Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−22.8
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp
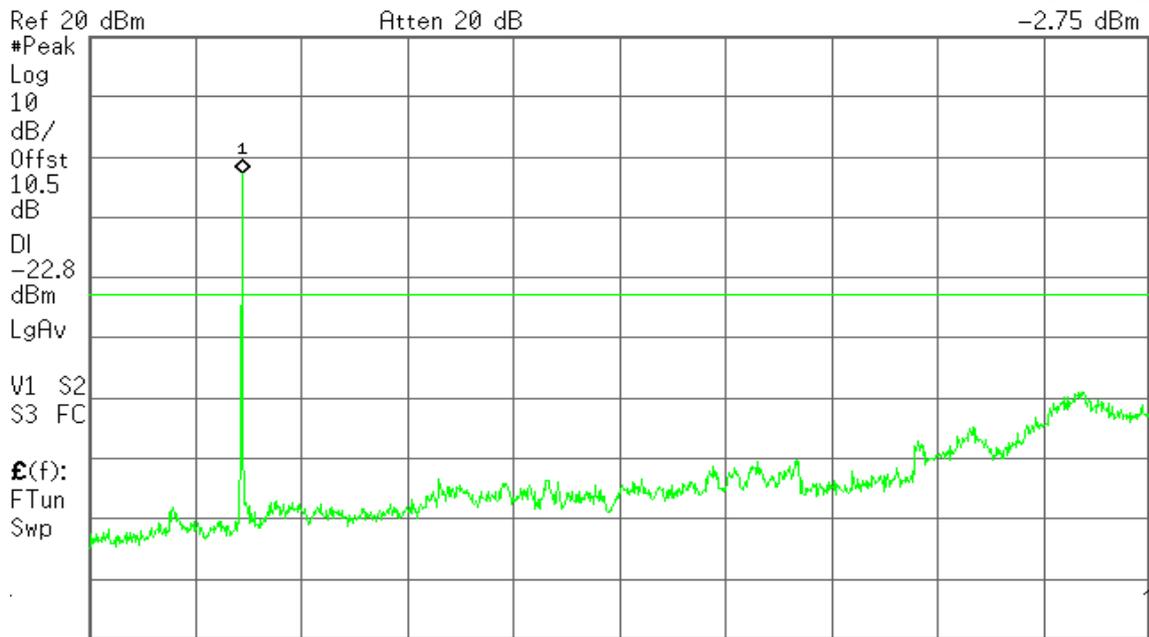
Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz_____#VBW 100 kHz_____Sweep 4.819 s (1001 pts)_

CH High

❄ **Agilent** 10:35:13 Nov 14, 2011   R   T

Mkr1 5.83 GHz
−4.29 dBm
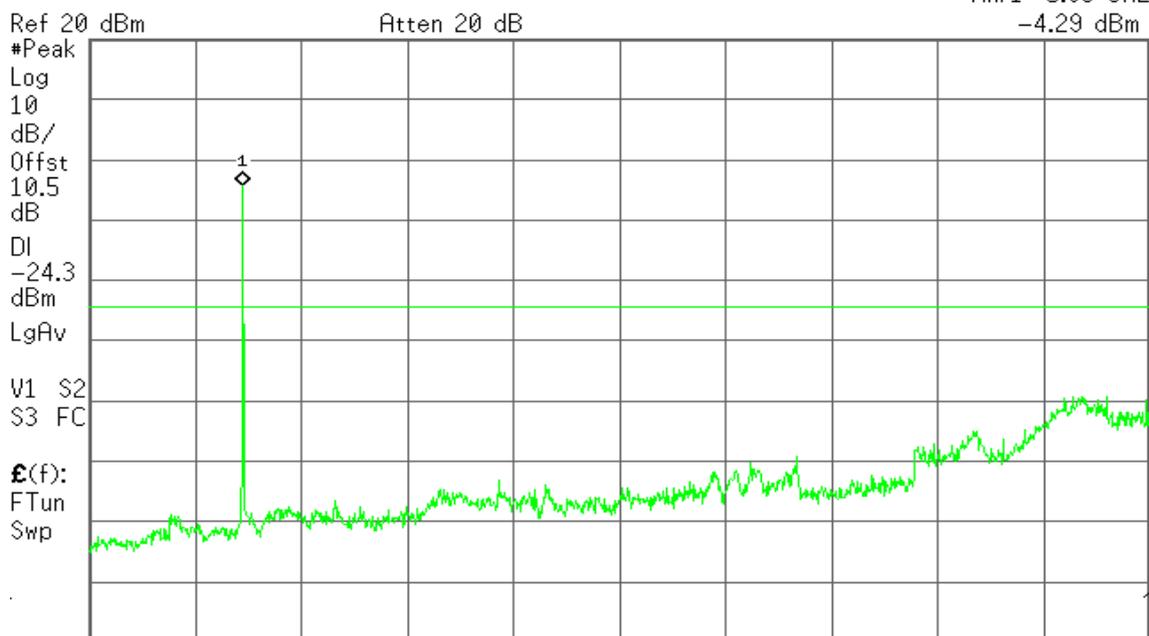
Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−24.3
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz_____#VBW 100 kHz_____Sweep 4.819 s (1001 pts)_

IEEE 802.11n HT 20 MHz Channel mode / Chain 1

CH Low
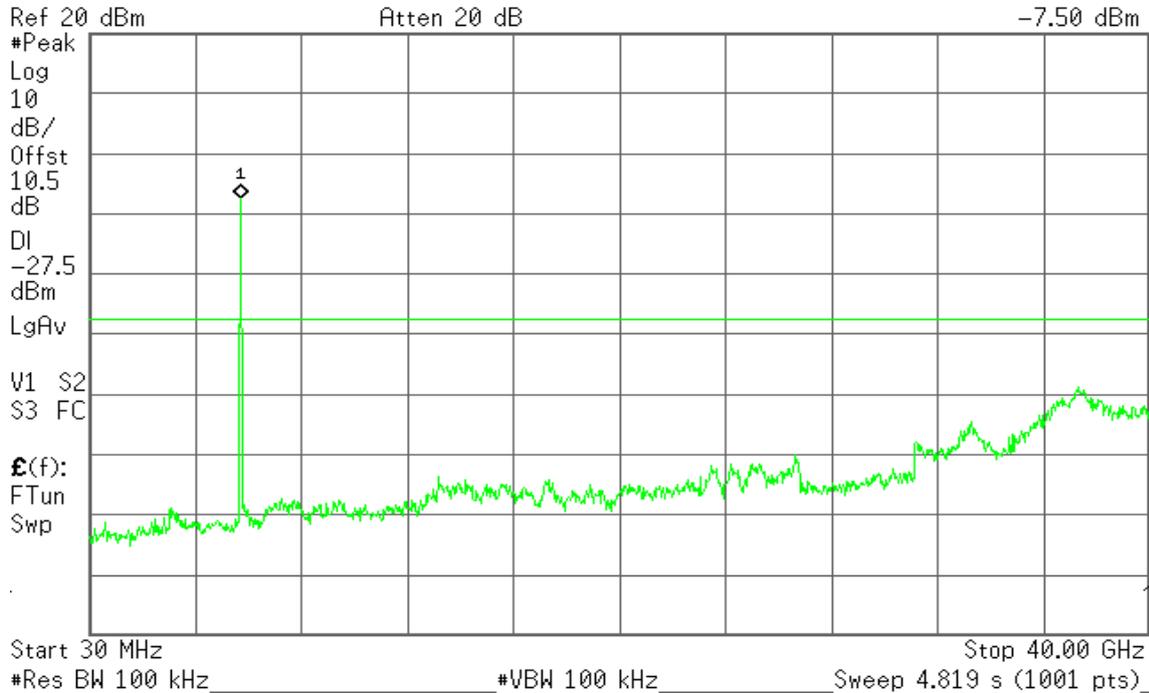
CH Mid
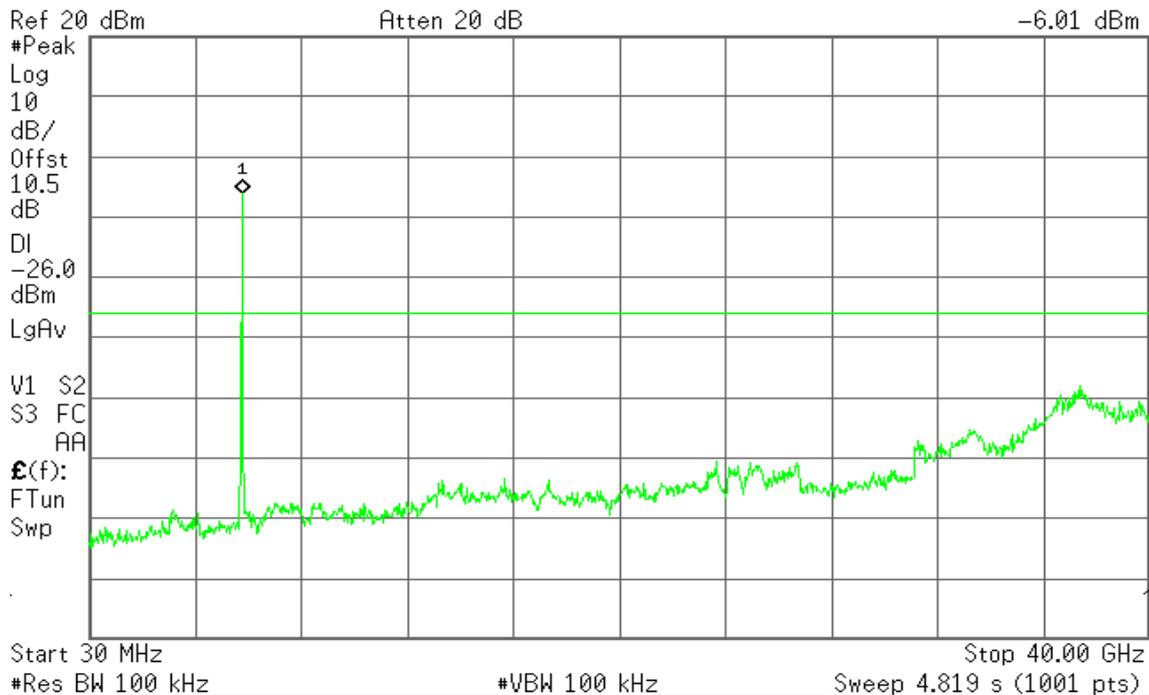
CH High

Agilent 12:41:22 Nov 14, 2011   R T

Mkr1 5.83 GHz
         −5.26 dBm
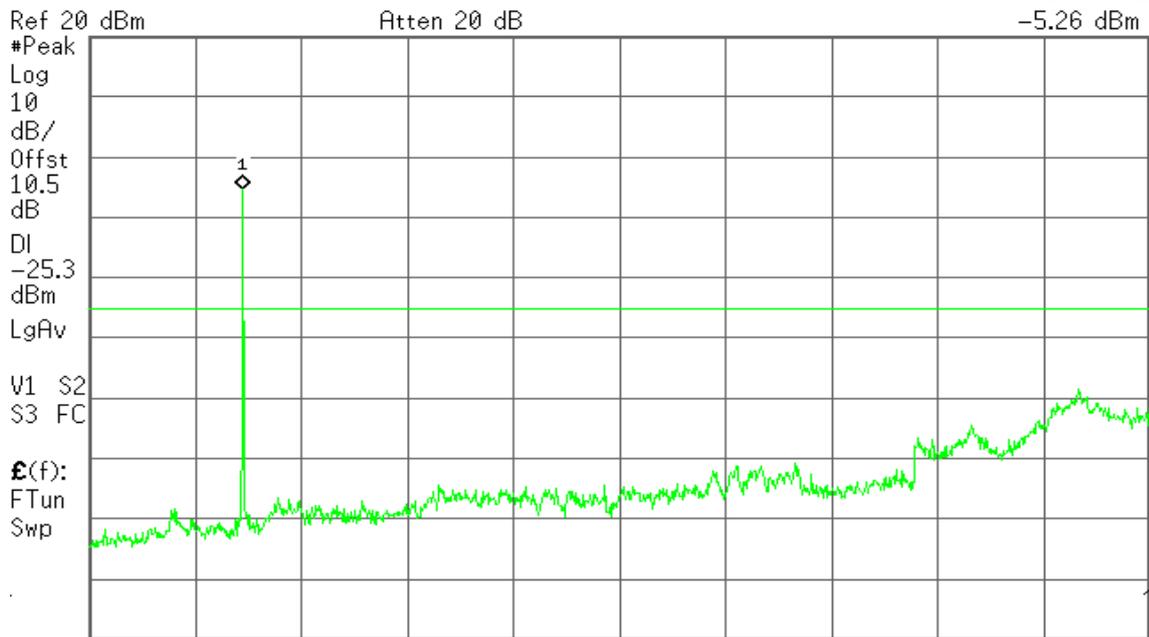
Ref 20 dBm   Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB

DI
−25.3
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz   #VBW 100 kHz   Sweep 4.819 s (1001 pts)

IEEE 802.11n HT 20 MHz Channel mode / Chain 2

CH Low

Agilent 10:22:06 Nov 14, 2011   R T

Mkr1 5.75 GHz
         −5.60 dBm

Ref 20 dBm   Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB

DI
−25.6
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp
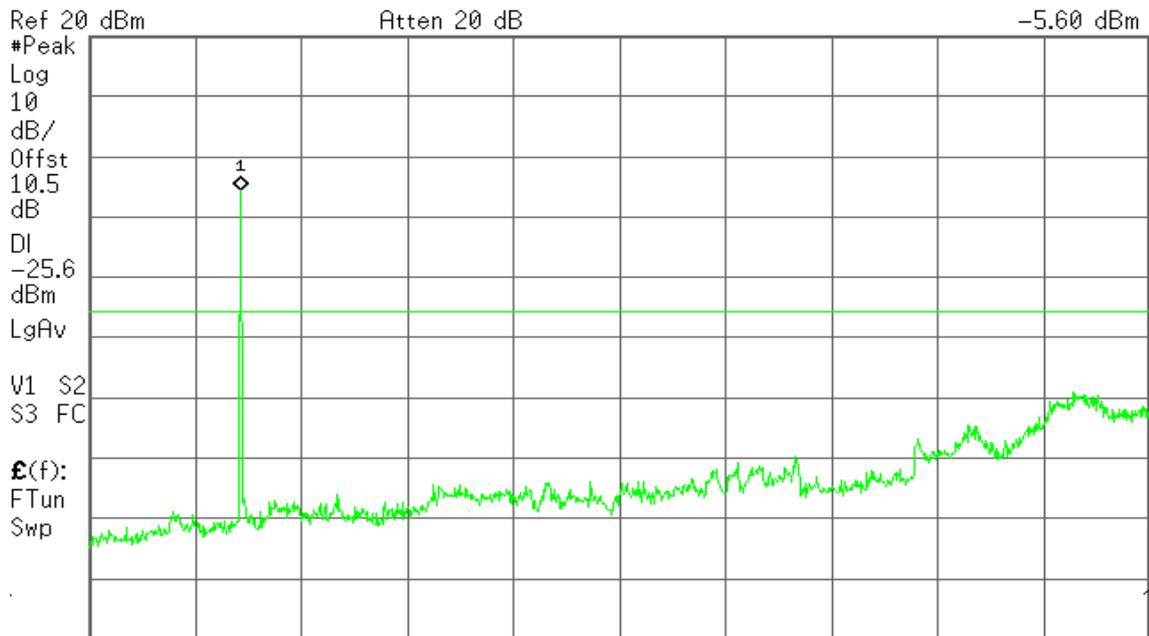
Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz   #VBW 100 kHz   Sweep 4.819 s (1001 pts)

CH Mid

Agilent 10:26:22 Nov 14, 2011   R T

Mkr1 5.79 GHz
−5.53 dBm

Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−25.5
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp
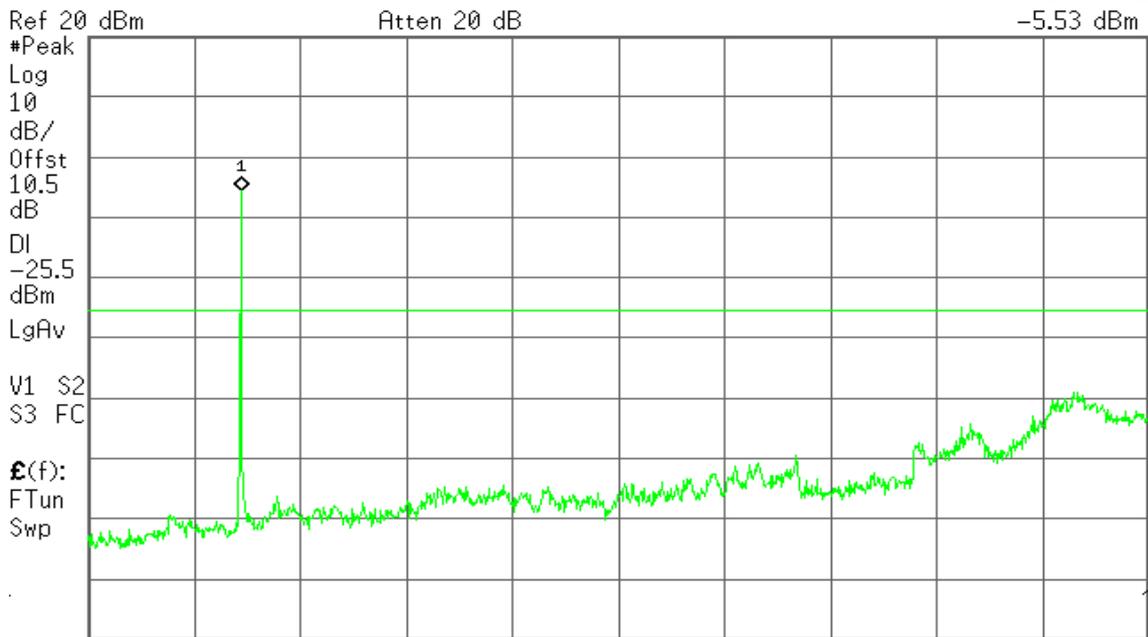
Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz   #VBW 100 kHz   Sweep 4.819 s (1001 pts)

CH High

Agilent 10:40:51 Nov 14, 2011   R T

Mkr1 5.83 GHz
−1.03 dBm

Ref 20 dBm   Atten 20 dB

#Peak
Log
10
dB/
Offst
10.5
dB

DI
−21.0
dBm

LgAv

V1 S2
S3 FC

£(f):
FTun
Swp

Start 30 MHz   Stop 40.00 GHz
#Res BW 100 kHz   #VBW 100 kHz   Sweep 4.819 s (1001 pts)

IEEE 802.11n HT 40 MHz mode / Chain 0

CH Low

CH High

IEEE 802.11n HT 40 MHz mode / Chain 1

CH Low

CH High

IEEE 802.11n HT 40 MHz mode / Chain 2

CH Low

CH High

7.6 RADIATED EMISSIONS

<u>LIMIT</u>

1. 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)
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 above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

9kHz ~ 30MHz
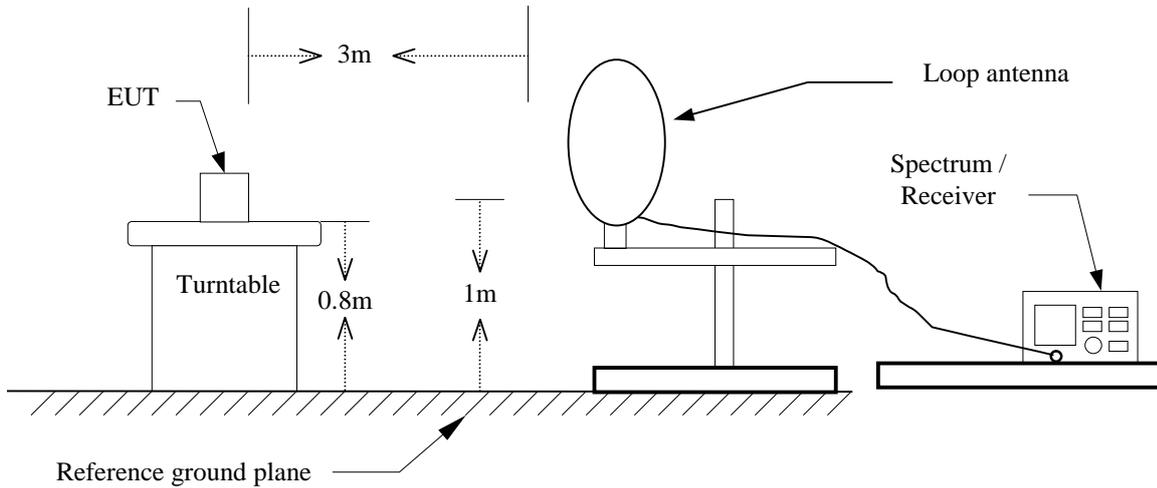
30MHz ~ 1 GHz
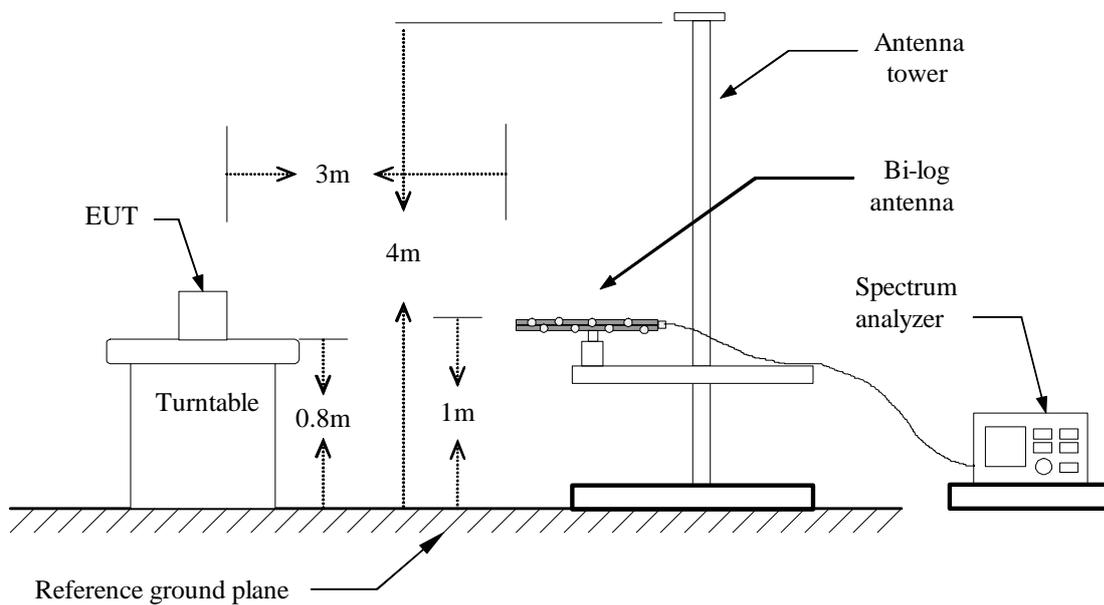
Above 1 GHz
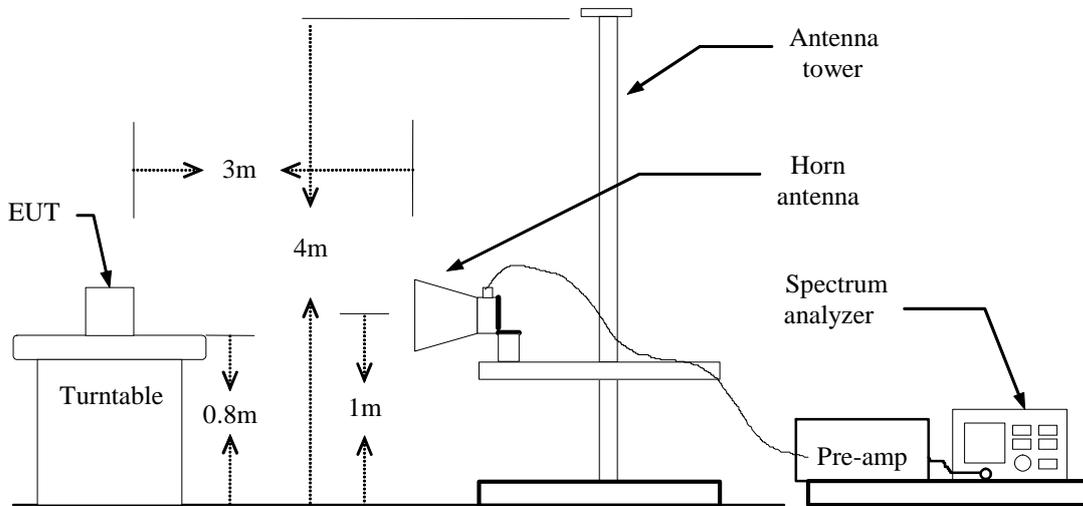
TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.

4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

6. Set the spectrum analyzer in the following setting as:

    Below 1GHz:

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

    Above 1GHz:

    > (a) PEAK: RBW=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:** November 18, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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
Mode 1
2.4GHz

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:**	November 10, 2011
Temperature:	25°C	**Tested by:**	Sehni Hu
Humidity:	50% 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:** November 10, 2011

Temperature: 25°C **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:**	November 10, 2011		
Temperature:	25°C						**Tested by:**	Sehni Hu		
Humidity:	50% 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:** November 10, 2011
Temperature:	25°C	**Tested by:** Sehni Hu
Humidity:	50% 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).*

5GHz

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
2038.33	56.85	---	-5.37	51.48	---	74.00	54.00	-2.52	Peak	V
N/A										
2143.33	57.07	---	-5.10	51.97	---	74.00	54.00	-2.03	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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
2003.33	57.29	---	-5.46	51.83	---	74.00	54.00	-2.17	Peak	V
N/A										
1956.67	57.63	---	-5.91	51.72	---	74.00	54.00	-2.28	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 High **Test Date:** November 10, 2011

Temperature: 25°C **Tested by:** Sehni Hu

Humidity: 50% 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)
2178.33	56.53	---	-5.01	51.52	---	74.00	54.00	-2.48	Peak	V
N/A										
2120.00	56.26	---	-5.16	51.10	---	74.00	54.00	-2.90	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

Temperature: 25°C

Humidity: 50% RH

Test Date: November 10, 2011

Tested by: Sehni Hu

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)
2645.00	54.93	---	-3.38	51.55	---	74.00	54.00	-2.45	Peak	V
N/A										
2785.00	54.52	---	-2.90	51.62	---	74.00	54.00	-2.38	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 High					**Test Date:** November 10, 2011				
Temperature:	25°C					**Tested by:** Sehni Hu				
Humidity:	50% 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)
2248.33	55.54	---	-4.82	50.72	---	74.00	54.00	-3.28	Peak	V
N/A										
2540.00	55.01	---	-3.73	51.28	---	74.00	54.00	-2.72	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).*

Mode 2

2.4GHz

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** November 10, 2011

Temperature: 25°C **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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

Temperature: 25°C

Humidity: 50% RH

Test Date: November 10, 2011

Tested by: Sehni Hu

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: November 10, 2011

Temperature: 25°C

Tested by: Sehni Hu

Humidity: 50% 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
Temperature:	25°C
Humidity:	50% RH

Test Date:	November 10, 2011
Tested by:	Sehni Hu
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).*

5GHz

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH High   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
2575.00	53.98	---	-3.62	50.36	---	74.00	54.00	-3.64	Peak	V
N/A										
2435.00	55.25	---	-4.14	51.11	---	74.00	54.00	-2.89	Peak	H
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*

3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*

4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*

5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT 40 MHz mode / CH Low	**Test Date:**	November 10, 2011
Temperature:	25°C	**Tested by:**	Sehni Hu
Humidity:	50% 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)
2785.00	54.56	---	-2.90	51.66	---	74.00	54.00	-2.34	Peak	V
N/A										
2866.67	53.78	---	-2.62	51.16	---	74.00	54.00	-2.84	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 High	**Test Date:** November 10, 2011
Temperature:	25°C	**Tested by:** Sehni Hu
Humidity:	50% 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)
2225.00	56.25	---	-4.88	51.36	---	74.00	54.00	-2.64	Peak	V
N/A										
2575.00	55.36	---	-3.62	51.75	---	74.00	54.00	-2.25	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 802.11b mode / CH Low   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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 **Test Date:** November 10, 2011

Temperature: 25°C **Tested by:** Sehni Hu

Humidity: 50% 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)
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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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).*

Operation Mode:　TX / IEEE 802.11n HT 20 MHz mode / CH Low　**Test Date:** November 10, 2011

Temperature:　　25°C　　　　　　　　　　　　　　　　**Tested by:** Sehni Hu

Humidity:　　　50% 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:** November 10, 2011

Temperature: 25°C

Tested by: Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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: November 10, 2011

Temperature: 25°C

Tested by: Sehni Hu

Humidity: 50% 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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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
Temperature:	25°C
Humidity:	50% RH

Test Date:	November 10, 2011
Tested by:	Sehni Hu
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).

Operation Mode: Tx / IEEE 802.11a mode/ CH Low   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
1968.33	56.22	---	-5.79	50.43	---	74.00	54.00	-3.57	Peak	V
N/A										
2201.67	56.92	---	-4.95	51.98	---	74.00	54.00	-2.02	Peak	H
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*

3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*

4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*

5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: Tx / IEEE 802.11a mode/ CH Mid   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
1128.33	60.21	---	-10.94	49.27	---	74.00	54.00	-4.73	Peak	V
N/A										
1828.33	57.55	---	-7.21	50.34	---	74.00	54.00	-3.66	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 802.11a mode/ CH High   **Test Date:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
1991.67	56.82	---	-5.55	51.27	---	74.00	54.00	-2.73	Peak	V
N/A										
1933.33	56.55	---	-6.15	50.40	---	74.00	54.00	-3.60	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 Low   **Test Date:** November 10, 2011

Temperature: 25°C

Tested by: Sehni Hu

Humidity: 50% 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)
2096.67	57.23	---	-5.22	52.01	---	74.00	54.00	-1.99	Peak	V
N/A										
2236.67	56.56	---	-4.85	51.70	---	74.00	54.00	-2.30	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:** November 10, 2011

Temperature: 25°C   **Tested by:** Sehni Hu

Humidity: 50% 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)
2003.33	56.70	---	-5.46	51.24	---	74.00	54.00	-2.76	Peak	V
N/A										
2061.67	56.85	---	-5.31	51.55	---	74.00	54.00	-2.45	Peak	H
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*

3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*

4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*

5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH High   **Test Date:** November 10, 2011

Temperature: 25°C

Tested by: Sehni Hu

Humidity: 50% 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)
2026.67	56.15	---	-5.40	50.75	---	74.00	54.00	-3.25	Peak	V
N/A										
2003.33	57.19	---	-5.46	51.73	---	74.00	54.00	-2.27	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:**	November 10, 2011
Temperature:	25°C	**Tested by:**	Sehni Hu
Humidity:	50% 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)
2668.33	55.10	---	-3.30	51.80	---	74.00	54.00	-2.20	Peak	V
N/A										
2680.00	55.18	---	-3.26	51.92	---	74.00	54.00	-2.08	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 High	**Test Date:**	November 10, 2011
Temperature:	25°C	**Tested by:**	Sehni Hu
Humidity:	50% 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)
2831.67	53.98	---	-2.74	51.24	---	74.00	54.00	-2.76	Peak	V
N/A										
2423.33	54.50	---	-4.18	50.32	---	74.00	54.00	-3.68	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).*

7.7 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:**	November 1, 2011
Temperature:	24°C	**Tested by:**	Frank Liao
Humidity:	60% RH	**Line**	L1
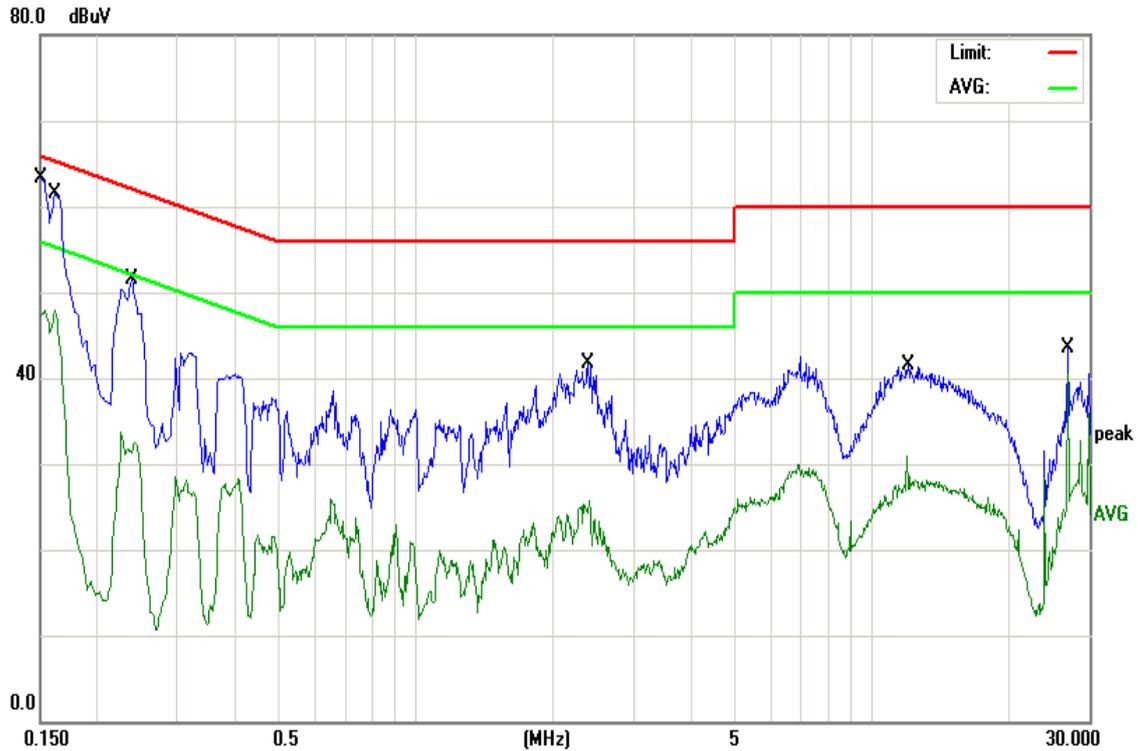
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	47.87	10.26	58.13	65.99	-7.86	QP
2	0.1500	36.96	10.26	47.22	55.99	-8.77	AVG
3	0.1620	36.29	10.23	46.52	65.36	-18.84	QP
4	0.1620	14.62	10.23	24.85	55.36	-30.51	AVG
5	0.2380	21.76	10.12	31.88	62.16	-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:**	November 1, 2011
Temperature:	24°C	**Tested by:**	Frank Liao
Humidity:	60% RH	**Line**	L2
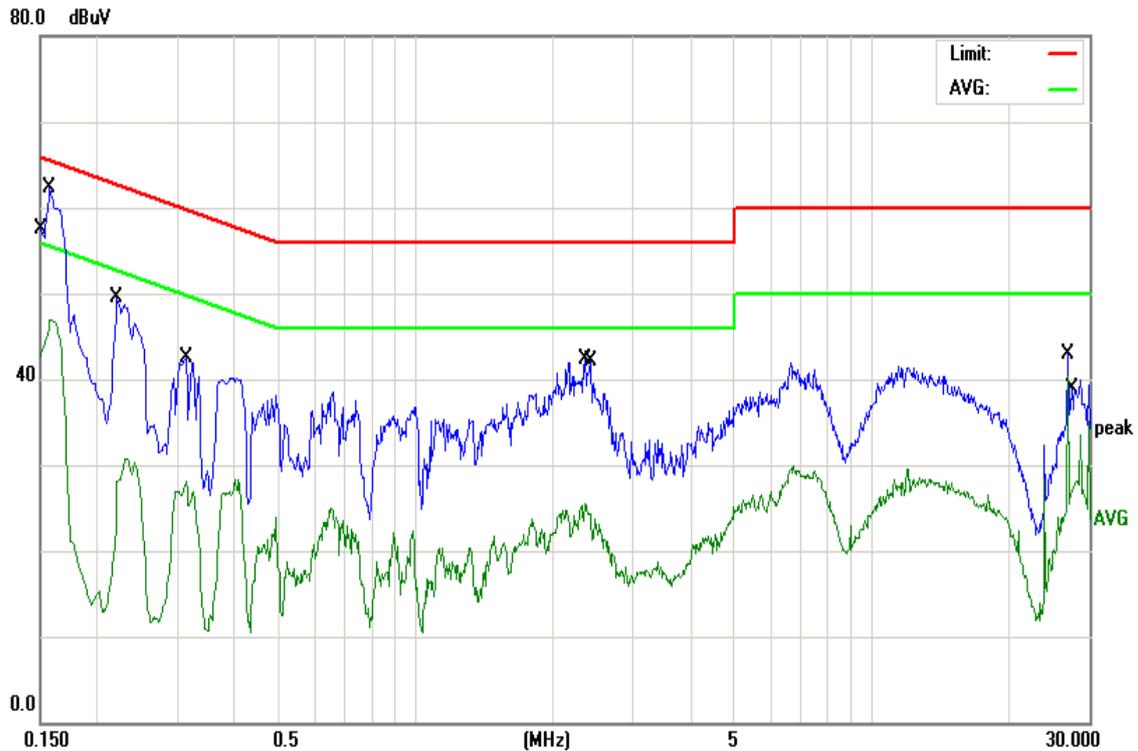
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	47.44	10.09	57.53	65.99	-8.46	QP
2	0.1500	32.59	10.09	42.68	55.99	-13.31	AVG
3	0.1580	42.18	10.07	52.25	65.56	-13.31	QP
4	0.1580	36.76	10.07	46.83	55.56	-8.73	AVG
5	0.2220	30.56	10.00	40.56	62.74	-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)*