FCC 47 CFR PART 15 SUBPART C: 2009 AND ANSI C63.4: 2003

TEST REPORT

For

802.11 b/g/n Mini Card

Model Number: GN-WS53HN1

Brand Name: GIGABYTE

Issued for

GIGA-BYTE TECHNOLOGY CO., LTD.

No. 6, Bao Chiang Road, Hsin-Tien Dist., New Taipei City 231, Taiwan

Issued by

Compliance Certification Services Inc.
Tainan Lab.
No. 8, Jiu Ceng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan (R.O.C.)
TEL: 886-6-580-2201
FAX: 886-6-580-2202

Date of Issue: May 30, 2011

REVISION HISTORY

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	May 30, 2011	Initial Issue	ALL	Sunny Chang

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1. TEST REPORT CERTIFICATION

Applicant ：GIGA-BYTE TECHNOLOGY CO., LTD.

Address ：No. 6, Bao Chiang Road, Hsin-Tien Dist., New Taipei City 231, Taiwan

Equipment Under Test ：802.11 b/g/n Mini Card

Model Number ：GN-WS53HN1

Brand Name ：GIGABYTE

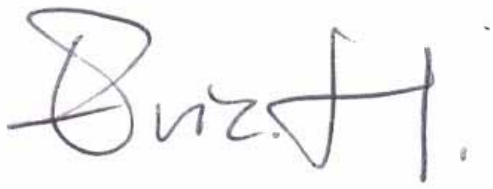
Date of Test ：May 18, 2011 ~ May 30, 2011

APPLICABLE STANDARD	
STANDARD	**TEST RESULT**
FCC Part 15 Subpart C : 2009 AND ANSI C63.4 : 2003	No non-compliance noted

Approved by:

Jeter Wu
Assistant Manager

Reviewed by:



Eric Huang
Assistant Section Manager

2. EUT DESCRIPTION

2.1 DESCRIPTION OF EUT & POWER

Product Name	802.11 b/g/n Mini Card
Model Number	GN-WS53HN1
Brand Name	GIGABYTE
Identify Number	T110505401
Received Date	May 05, 2011
Frequency Range	IEEE 802.11b/g,802.11n HT20 (DTS Band):2412MHz～2462MHz IEEE 802.11n HT40 (DTS Band):2422MHz～2452MHz
Transmit Power	IEEE 802.11b Mode : 22.86dBm (DTS Band) (193.2 mW) IEEE 802.11g Mode : 26.91dBm (DTS Band) (490.91 mW) IEEE 802.11n HT20 Mode : 29.22dBm (DTS Band) (835.89 mW) IEEE 802.11n HT40 Mode : 27.94dBm (DTS Band) (622.4 mW)
Channel Spacing	IEEE 802.11b/g, 802.11n HT20/HT40: 5MHz
Channel Number	IEEE 802.11b/g, 802.11n HT20:11 Channels IEEE 802.11n HT40 :7 Channels
Transmit Data Rate	IEEE 802.11b : 11, 5.5, 2, 1 Mbps
	IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps
	IEEE 802.11n HT20 : 130, 117, 104, 78, 52, 39, 26, 13 Mbps
	IEEE 802.11n HT40 : 300, 270, 243, 216, 162, 108, 81, 54, 27 Mbps
Type of Modulation	IEEE 802.11b：DSSS (CCK, DQPSK, DBPSK)
	IEEE 802.11g：OFDM (64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11n HT20/40：OFDM (64QAM, 16QAM, QPSK, BPSK)
Frequency Selection	By software / firmware

Antenna Type	**Replace two antennas (2T2R)** Manufacture: FVC Model: X40 Type: Embedded Antenna Gain: 2.58dB Manufacture: Well Green Technology Co., Ltd. Model: R13M Type: PIFA Antenna Gain: 1.85 dB
Power Source	5Vdc
Temperature Range	0 ~ +40°C

REMARK:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **JCK-GN-WS53HN1** filing to comply with Section 15.207,15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
3. This device does not support the CDD mode.

3. DESCRIPTION OF TEST MODES

The EUT is a 11n router. It has two transmitter chains and two receive chains (2x2 configurations). The 2x2 configuration is implemented with two outside chains (Chain 0 and Chain 1).

The RF chipset is manufactured by Atheros Communications

The antenna peak gain 2.58 dBi (highest gain) were chosen for full testing.

IEEE 802.11 b ,802.11g ,802.11n HT20 mode (DTS Band)

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 11Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11g mode: 6Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT20 mode: 13Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT40 mode (DTS Band)

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n HT40 mode: 27Mbps data rate (worst case) were chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD, peak power and average power across all the data rates, bandwidths, modulations and spatial stream modes.

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2462 MHz.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

No. 8, Jiu Ceng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan (R.O.C.)

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

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors 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 LABORATORY ACCREDITATIONS LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by Taiwan Accreditation Foundation for the specific scope of accreditation under Lab Code: 1109 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by TAF or any agency of the Government. In addition, the test facilities are listed with Federal Communications Commission (registration no: TW-1037).

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	TW-1037
Taiwan	TAF	CISPR 11, FCC METHOD-47 CFR Part 18, EN 55011, EN 60601-1-2, CISPR 22, CNS 13438, EN 55022, EN 55024, AS/NZS CISPR 22 CISPR 14, EN 55014-1, EN 55014-2, CNS 13783-1, CISPR 22, CNS 13439, EN 55013, FCC Method-47 CFR Part 15 Subpart B, IC ICES-003, VCCI V-3 & V-4 FCC Method-47 CFR Part 15 Subpart C and ANSI C63.4, LP 0002 EN / IEC 61000-4-2 / -3 / -4 / -5 / -6 / -8 / -11 EN 61000-3-2, EN 61000-3-3 EN 61000-6-3, EN 61000-6-1, AS/NZS 4251.1, EN 61000-6-4, EN 61000-6-2, AS/NZS 4251.2, EN 61204-3, EN 50130-4, EN 62040-2, EN 50371, EN 50385, AS/NZS 4268, ETSI EN 300 386 ETSI EN 300 328, ETSI EN 301 489-1/-3/-9/-17 ETSI EN 301 893, ETSI EN 300 220-2/-1 ETSI EN 300 440-2/-1 ETSI EN 301 357-2/-1 RSS-310, RSS-210 Issue 7, RSS-Gen Issue 2	ilac-MRA TAF Testing Laboratory 1109
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS13439	商檢 SL2-IN-E-0039 SL2-R1/R2-0039 SL2-A1-E-0039
Canada	Industry Canada	RSS210, Issue 8	Canada IC 2324H-1

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

6. CALIBRATION AND UNCERTAINTY

6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

6.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

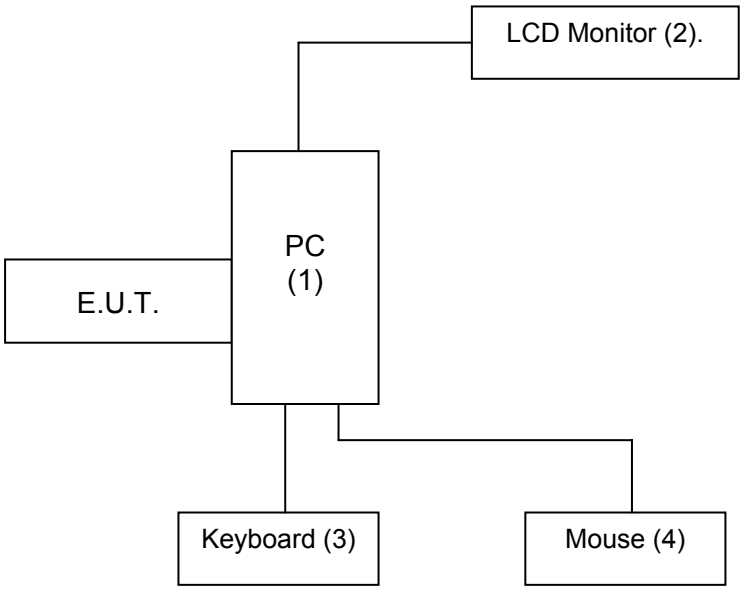
PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz Test Site : OATS-6	±3.59dB
Radiated Emission, 200 to 1000 MHz Test Site : OATS-6	±3.27dB
Radiated Emission, 1 to 26.5 GHz	± 3.20dB
Power Line Conducted Emission	± 2.90dB

Uncertainty figures are valid to a confidence level of 95%, K=2

7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

For RF test



7.2 SUPPORT EQUIPMENT

For RF test

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	PC	HP	D330uT	R33001	Power cable, unshd, 1.5m
2	LCD Monitor	BenQ	FP731	R43002	VGA cable, shd, 1.8m
3	Keyboard (USB)	DETROIS	KB-2181	T33097	Keyboard cable, shd, 1.4m
4	Mouse(USB)	I-DRIVER	P002	R35569	Mouse cable, shd, 1.4m

No.	Signal cable description	
A	N/A	---

REMARK:

1. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7.3 EUT OPERATING CONDITION

RF Setup

1. Set up all computers like the setup diagram.
2. Turn on the computer power.
3. The software “Art” was used for testing.

TX Mode:

⇨ **Tx Mode:CCK 、OFDM、 HT MixMode** (Bandwidth: 20、40)

⇨ **Tx Data Rate: 11Mbps long** (IEEE 802.11b mode , TX)

6Mbps (IEEE 802.11g mode , TX)

13Mbps (IEEE 802.11n HT20 mode ,chain 0, chain 1 TX)

27Mbps (IEEE 802.11n HT40 mode, chain 0, chain 1 TX**)**

Power control mode

Target Power: IEEE 802.11b Channel Low (2412MHz) = **20**
IEEE 802.11b Channel Middle (2437MHz) = **20**
IEEE 802.11b Channel High (2462MHz) = **19.5**

Target Power: IEEE 802.11g Channel Low (2412MHz) = **18**
IEEE 802.11g Channel Middle (2437MHz) = **16.5**
IEEE 802.11g Channel High (2462MHz) = **15**

Target Power: IEEE 802.11n HT20 Channel Low (2412MHz) = **16.5 (Chain 0)**
IEEE 802.11 n HT20 Channel Middle (2437MHz) = **15 (Chain 0)**
IEEE 802.11 n HT20 Channel High (2462MHz) = **13 (Chain 0)**
IEEE 802.11n HT20 Channel Low (2412MHz) = **16.5 (Chain 1)**
IEEE 802.11 n HT20 Channel Middle (2437MHz) = **15 (Chain 1)**
IEEE 802.11 n HT20 Channel High (2462MHz) = **13 (Chain 1)**

Target Power: IEEE 802.11n HT40 Channel Low (2422MHz) = **13 (Chain 0)**
IEEE 802.11 n HT40 Channel Middle (2437MHz) = **12 (Chain 0)**
IEEE 802.11 n HT40 Channel High (2452MHz) = **11 (Chain 0)**
IEEE 802.11n HT40 Channel Low (2422MHz) = **13 (Chain 1)**
IEEE 802.11 n HT40 Channel Middle (2437MHz) = **12 (Chain 1)**
IEEE 802.11 n HT40 Channel High (2452MHz) = **11 (Chain 1)**

(2) **RX Mode：**

Start RX

4. All of the function are under run.
5. Start test.

Normal Link Setup

1. Set up all computers like the setup diagram.
2. All of the function are under run.
3. Notebook PC (2) ping 192.168.0.10 –t to Notebook PC (1).
4. Notebook PC (1) ping 192.168.0.20 –t to Notebook PC (2).
5. Notebook PC (1) ping 192.168.0.50 –t to Wireless Access Point (3).

Start test.

8. APPLICABLE LIMITS AND TEST RESULTS

8.1 6DB BANDWIDTH

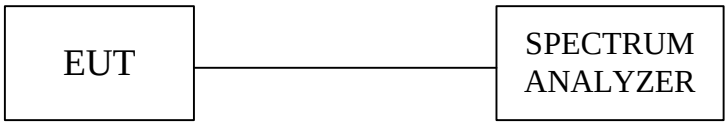
LIMIT

§ 15.247(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	JUL. 14, 2011

TEST SETUP



TEST PROCEDURE

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

TEST RESULTS

No non-compliance noted.

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	12425	500	PASS
Middle	2437	12625	500	PASS
High	2462	12024	500	PASS

NOTE : 1. At finial test to get the worst-case emission at11Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	16533	500	PASS
Middle	2437	16533	500	PASS
High	2462	16533	500	PASS

NOTE : 1. At finial test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT20 mode (Two TX)

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 0	Chain1		
Low	2412	17735	17735	500	PASS
Middle	2437	17735	17735	500	PASS
High	2462	17735	17735	500	PASS

NOTE : 1. At finial test to get the worst-case emission at 13Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

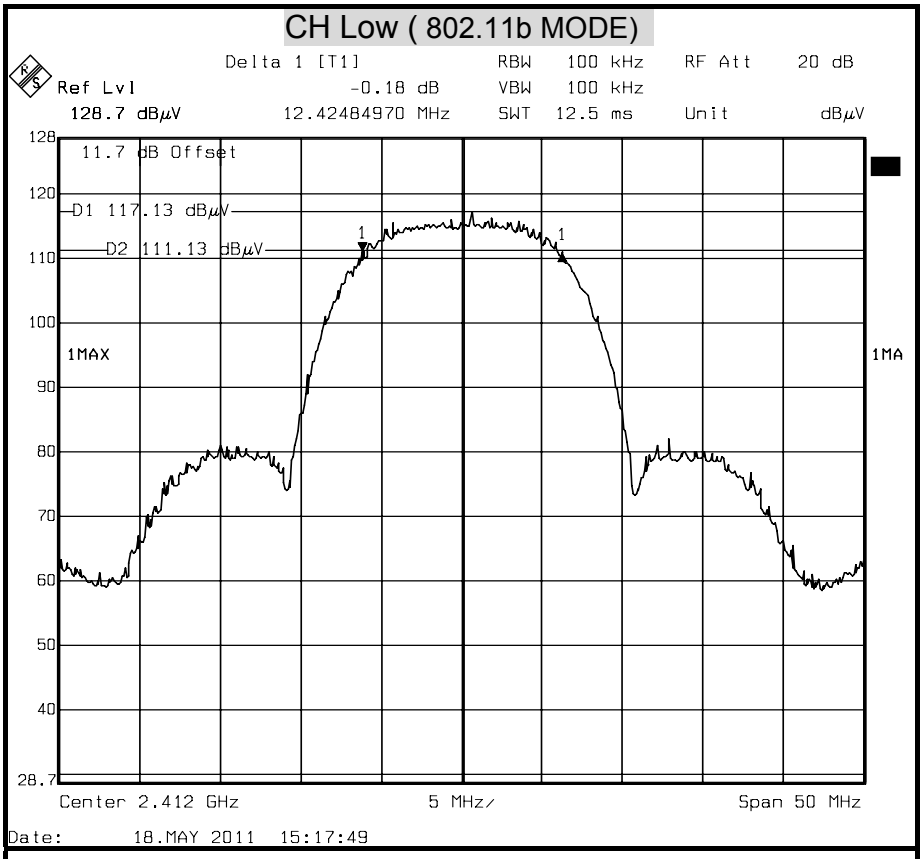
IEEE 802.11n HT40 mode (Two TX)

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 0	Chain1		
Low	2422	36673	36072	500	PASS
Middle	2437	36473	36473	500	PASS
High	2452	36473	36273	500	PASS

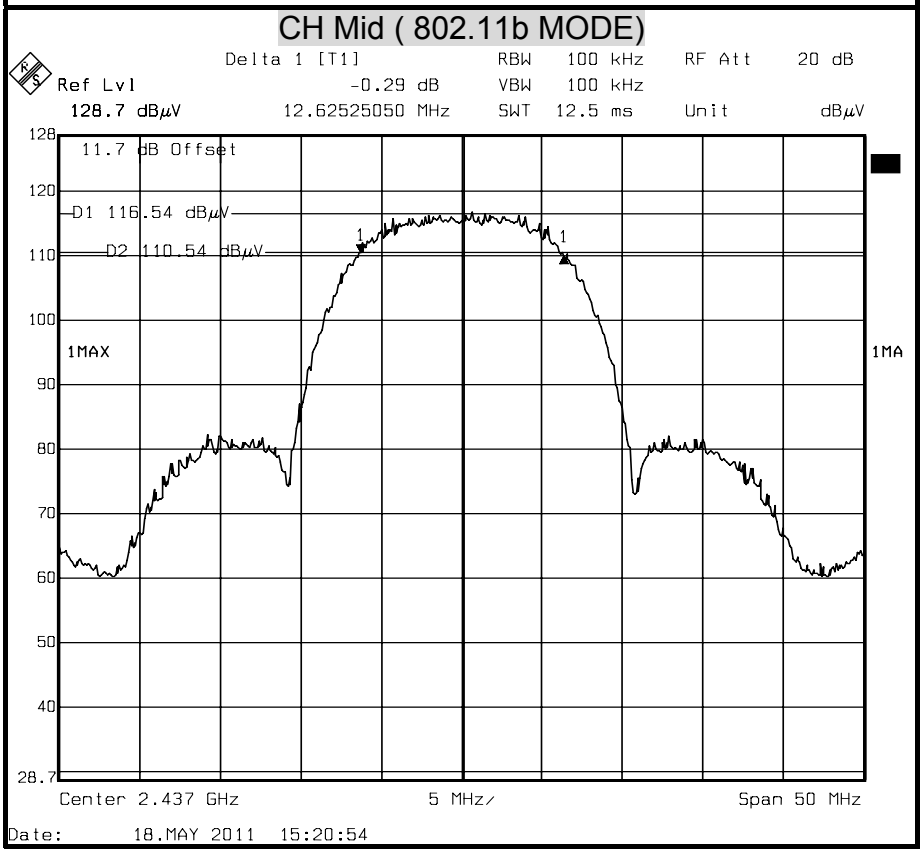
NOTE : 1. At finial test to get the worst-case emission at 27Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

6dB BANDWIDTH (802.11b MODE)

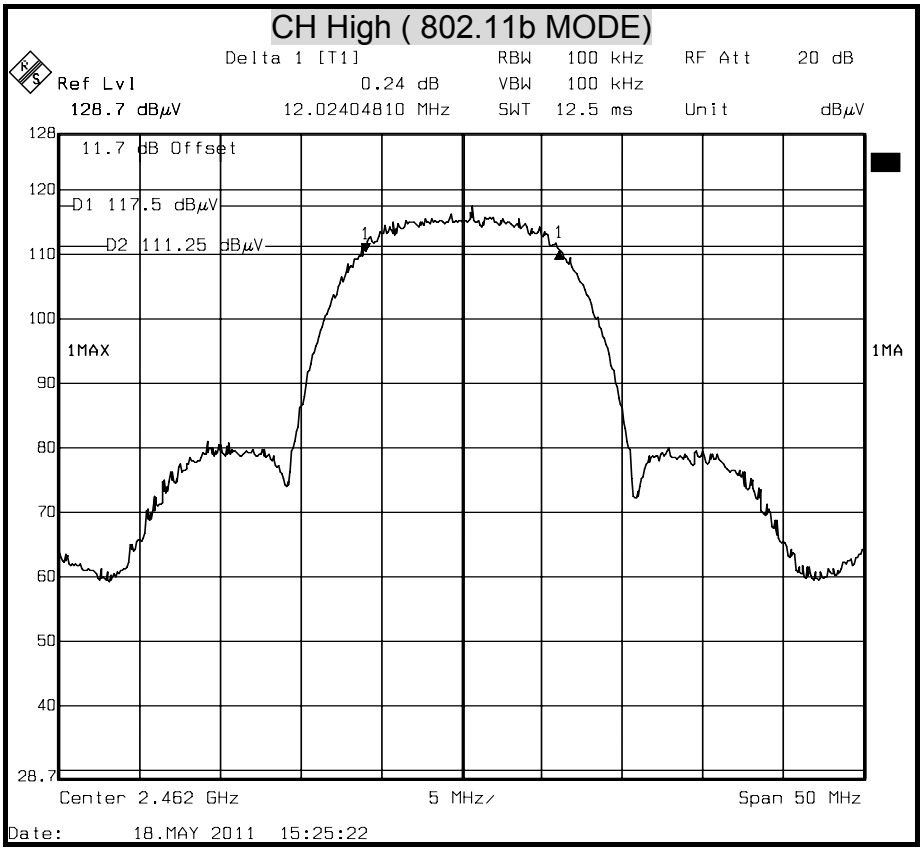
CH Low (802.11b MODE)



CH Mid (802.11b MODE)

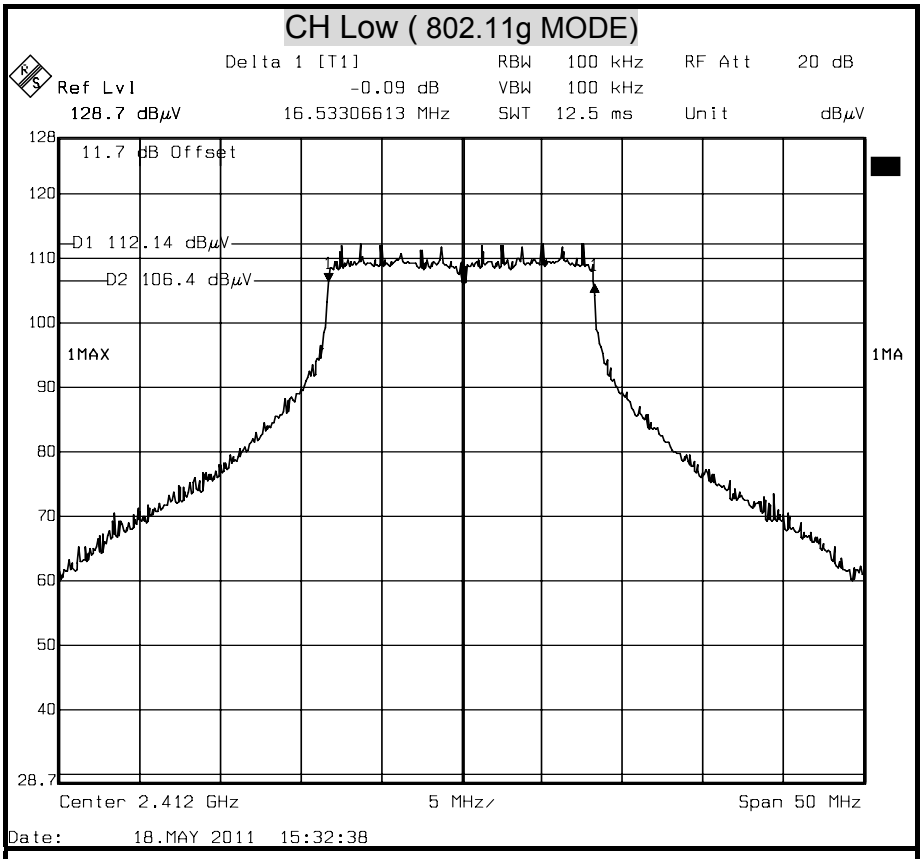


CH High (802.11b MODE)

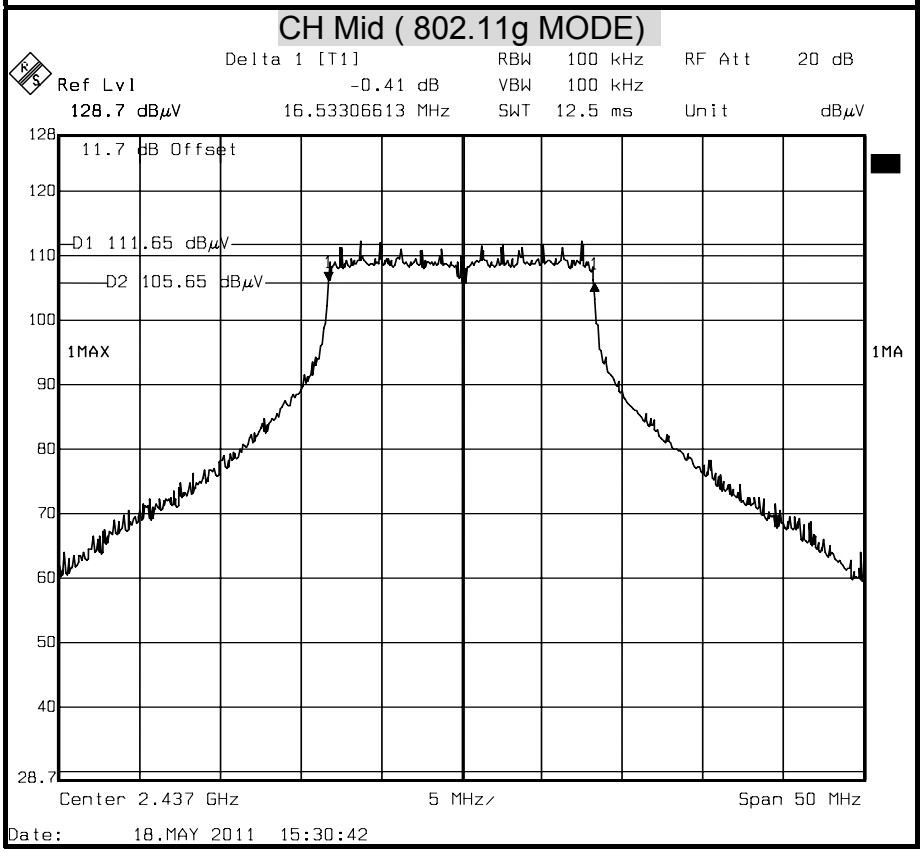


6dB BANDWIDTH (802.11g MODE)

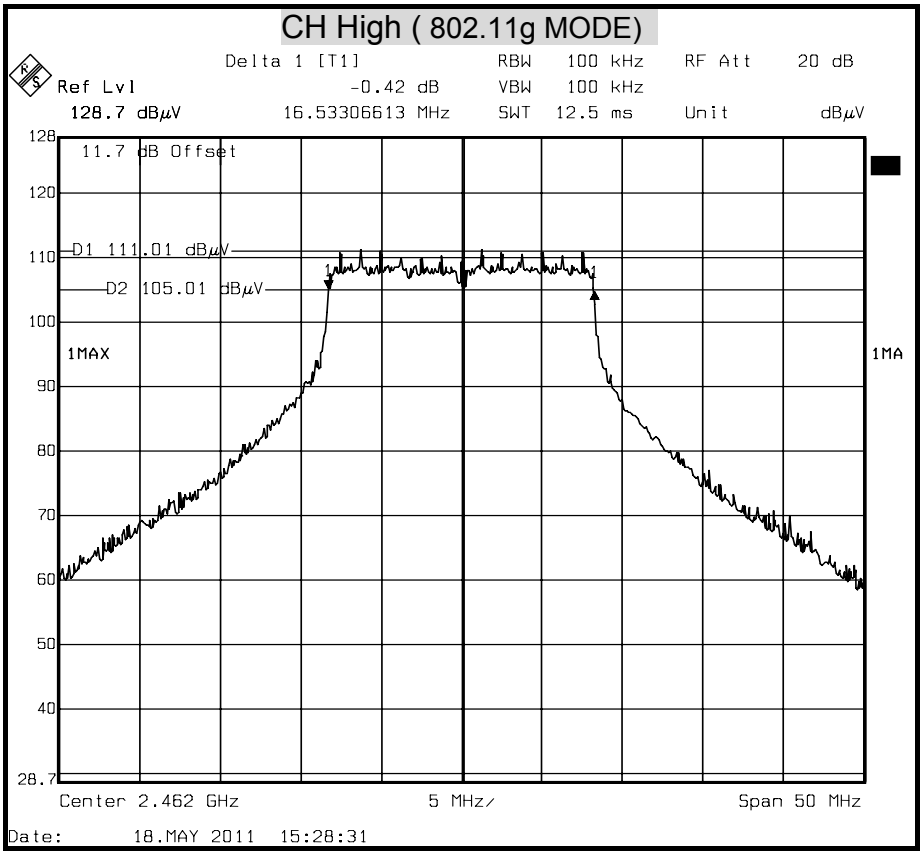
CH Low (802.11g MODE)



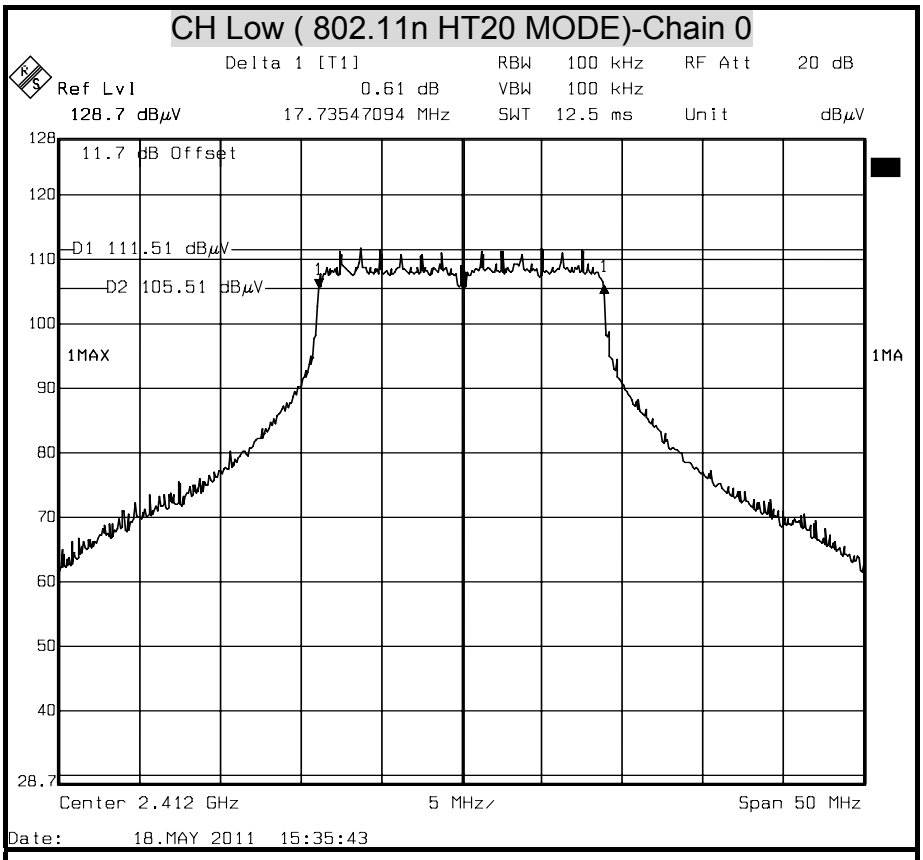
CH Mid (802.11g MODE)

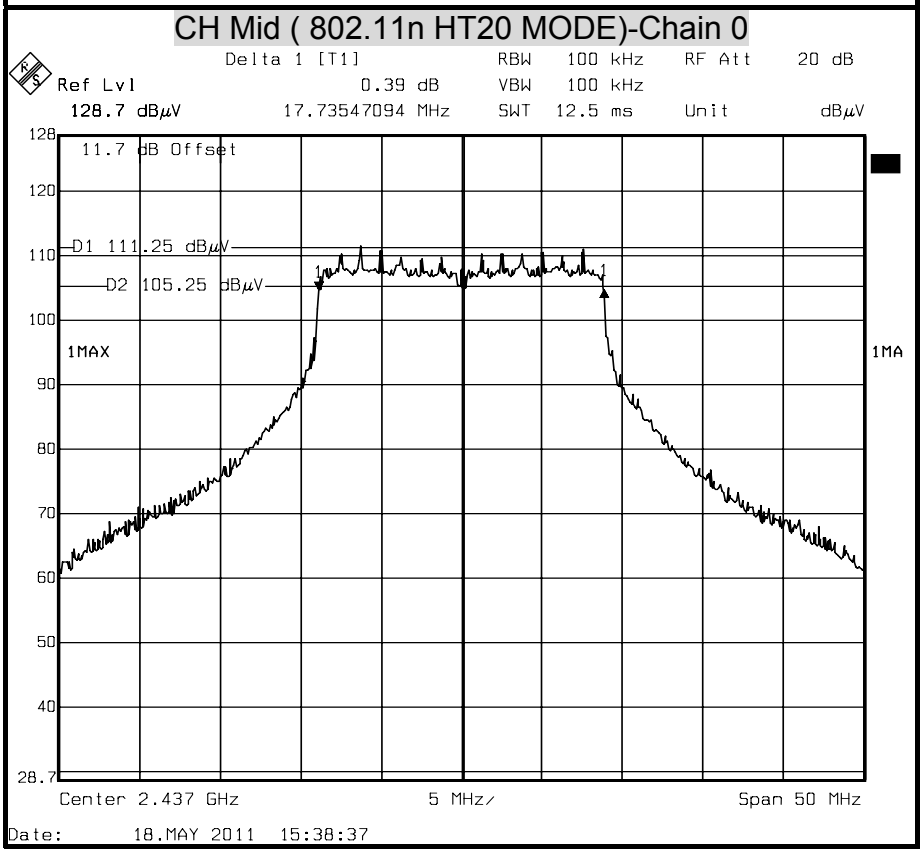


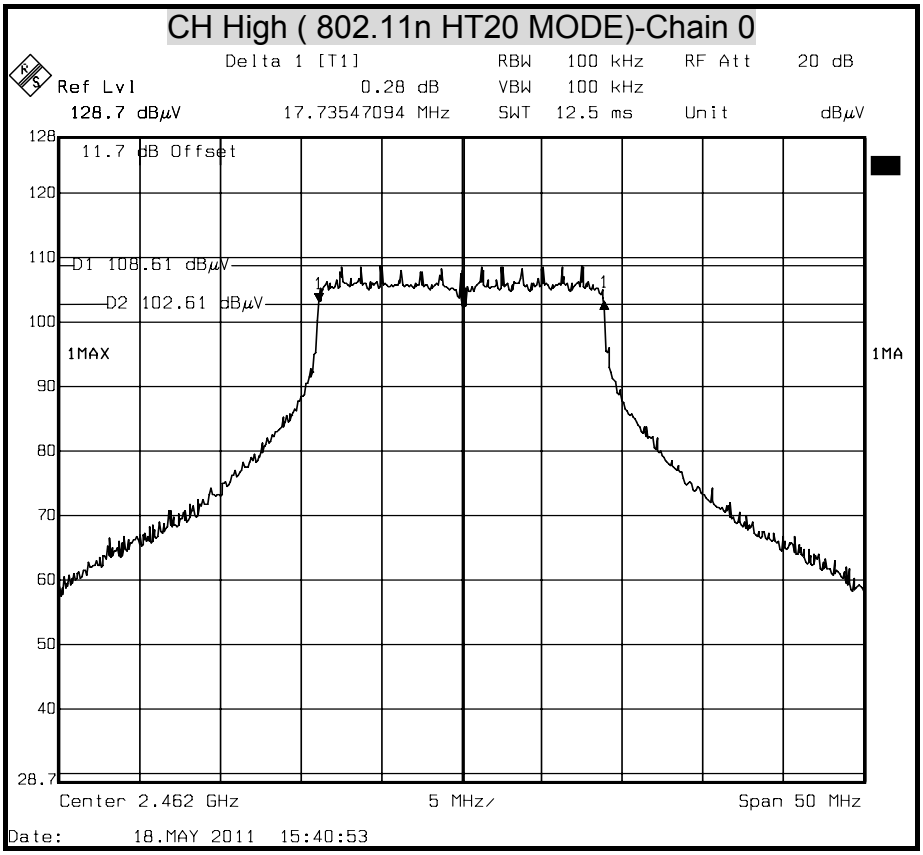
CH High (802.11g MODE)



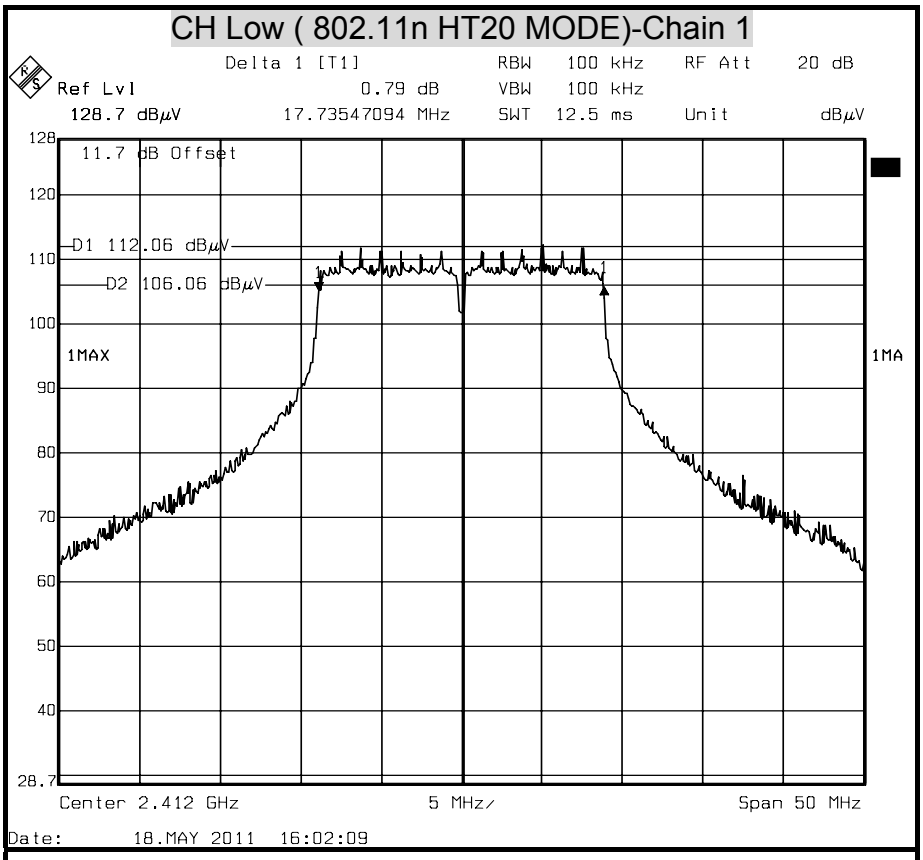
6dB BANDWIDTH (802.11n HT20 MODE) Chain 0

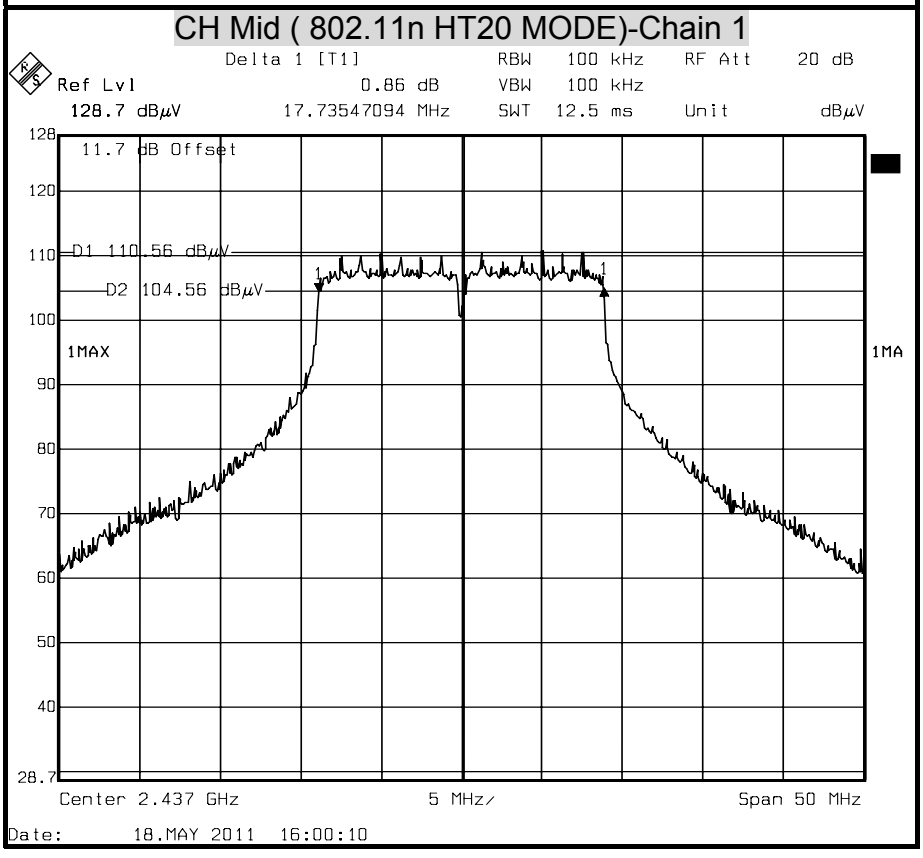


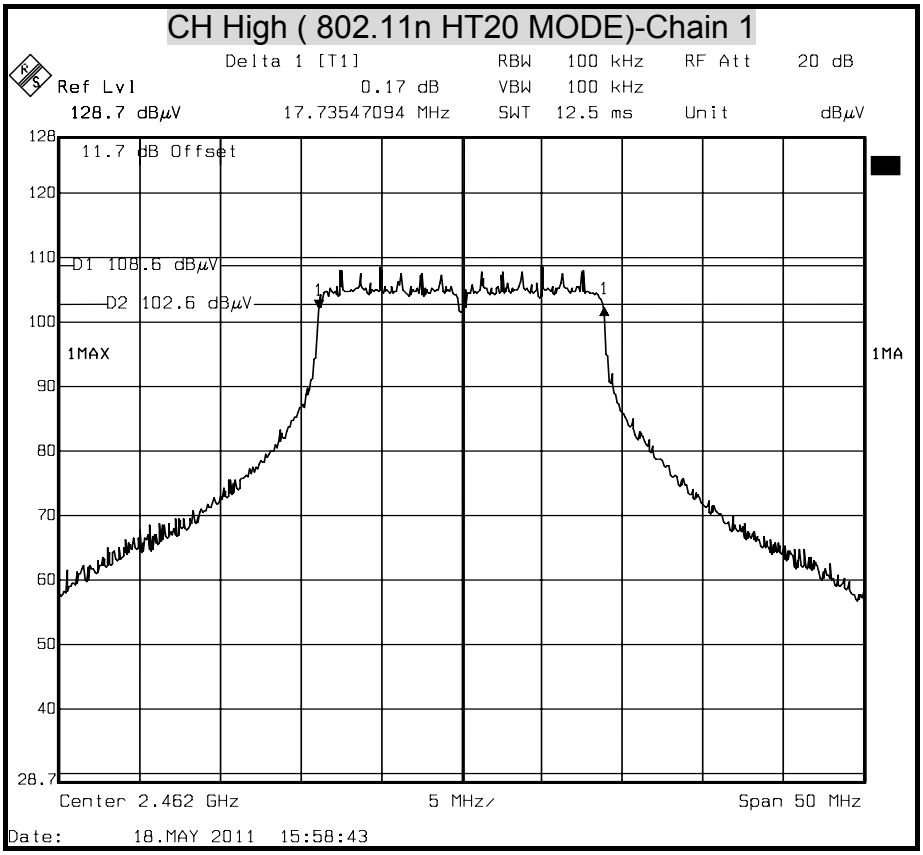



CH High (802.11n HT20 MODE)-Chain 0
Delta 1 [T1]
0.28 dB
17.73547094 MHz
RBW 100 kHz
VBW 100 kHz
SWT 12.5 ms
RF Att 20 dB
Unit dBµV
Ref Lvl
128.7 dBµV
11.7 dB Offset
D1 108.61 dBµV
D2 102.61 dBµV
1MAX
1MA
128
120
110
100
90
80
70
60
50
40
28.7
Center 2.462 GHz
5 MHz/
Span 50 MHz
Date: 18.MAY 2011 15:40:53

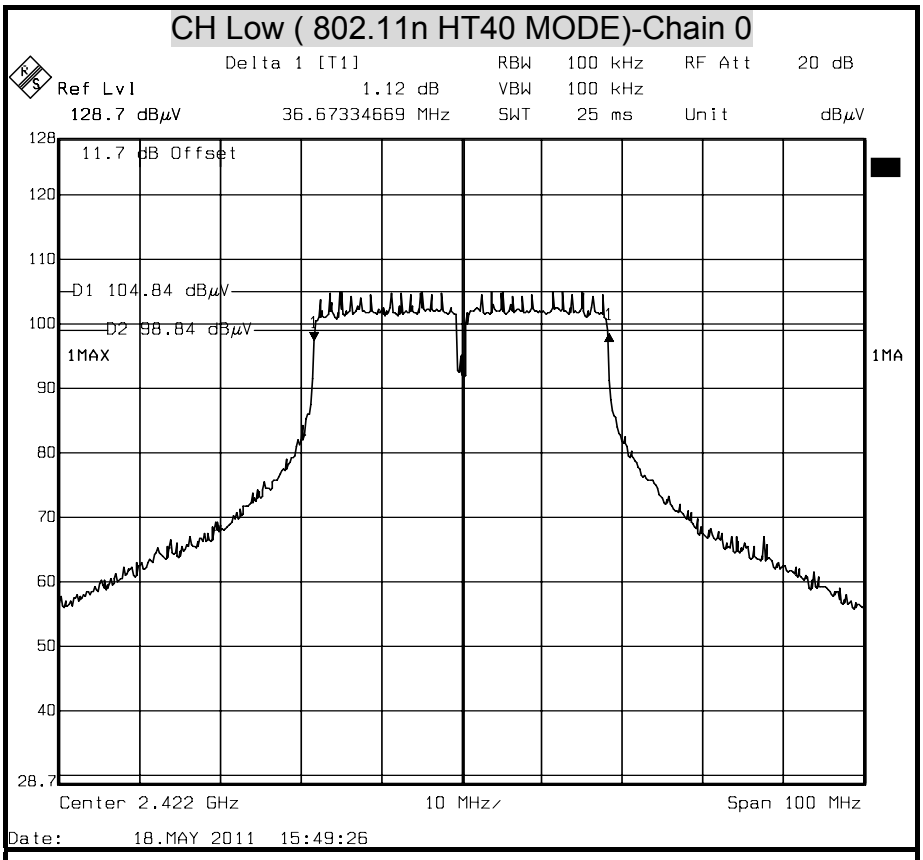
6dB BANDWIDTH (802.11n HT20 MODE) Chain 1

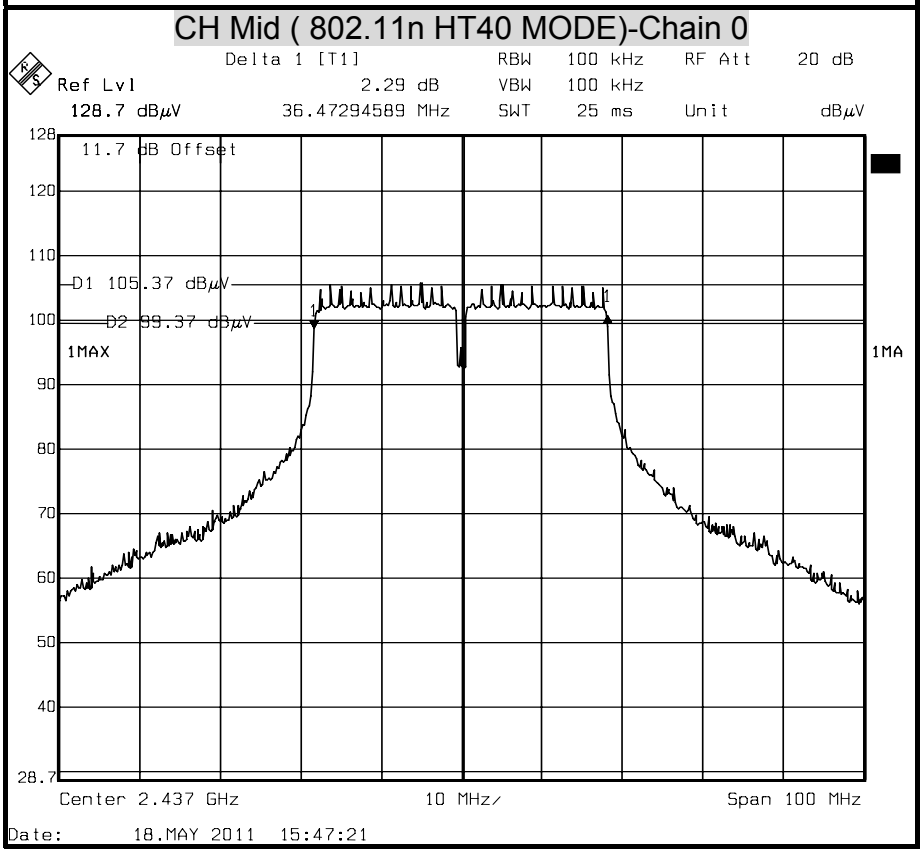


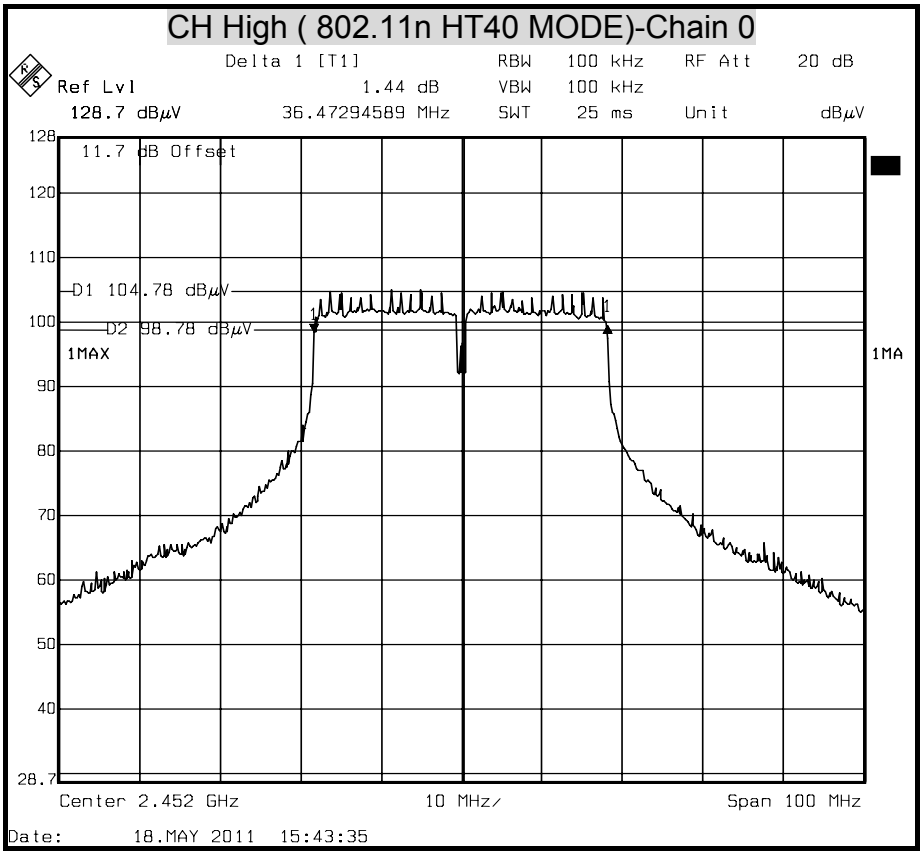



CH High (802.11n HT20 MODE)-Chain 1
Delta 1 [T1]
RBW 100 kHz
RF Att 20 dB
Ref Lvl
0.17 dB
VBW 100 kHz
128.7 dBµV
17.73547094 MHz
SWT 12.5 ms
Unit dBµV
11.7 dB Offset
D1 108.6 dBµV
D2 102.6 dBµV
1MAX
1MA
128
120
110
100
90
80
70
60
50
40
28.7
Center 2.462 GHz
5 MHz/
Span 50 MHz
Date: 18.MAY 2011 15:58:43

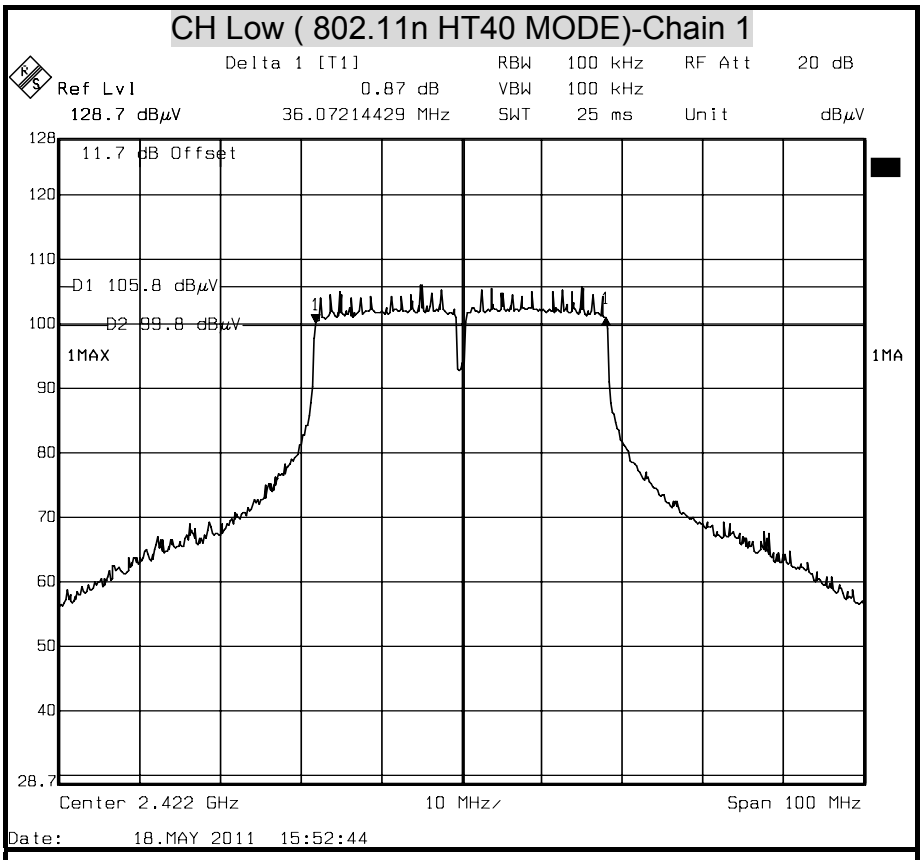
6dB BANDWIDTH (802.11n HT40 MODE) Chain 0

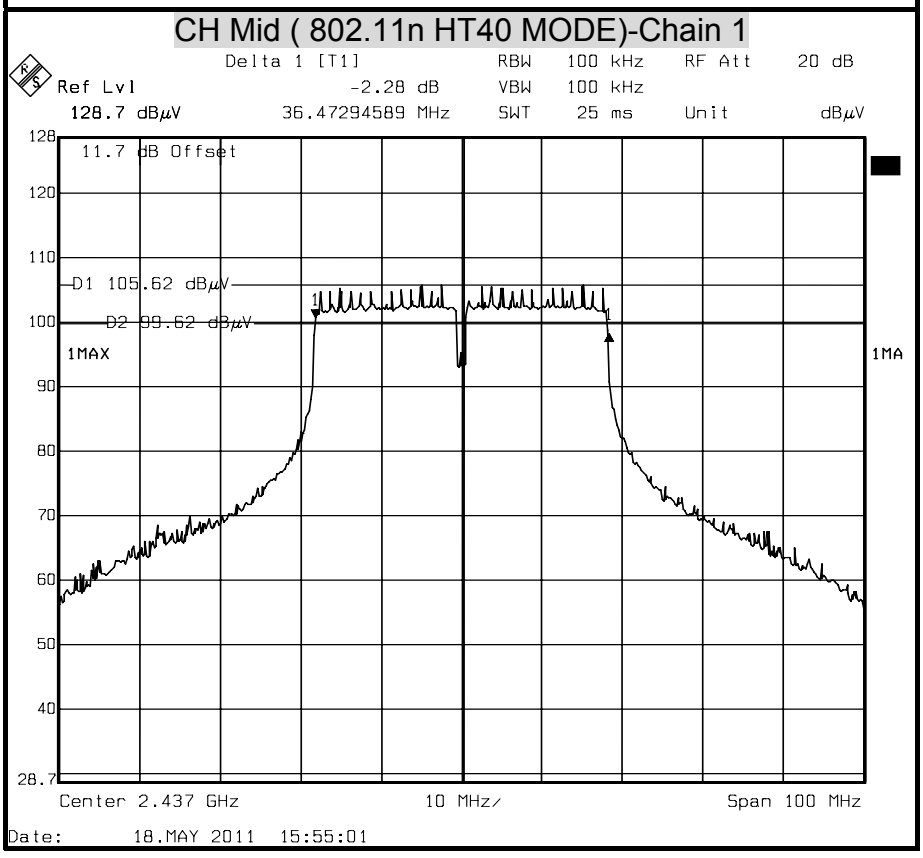


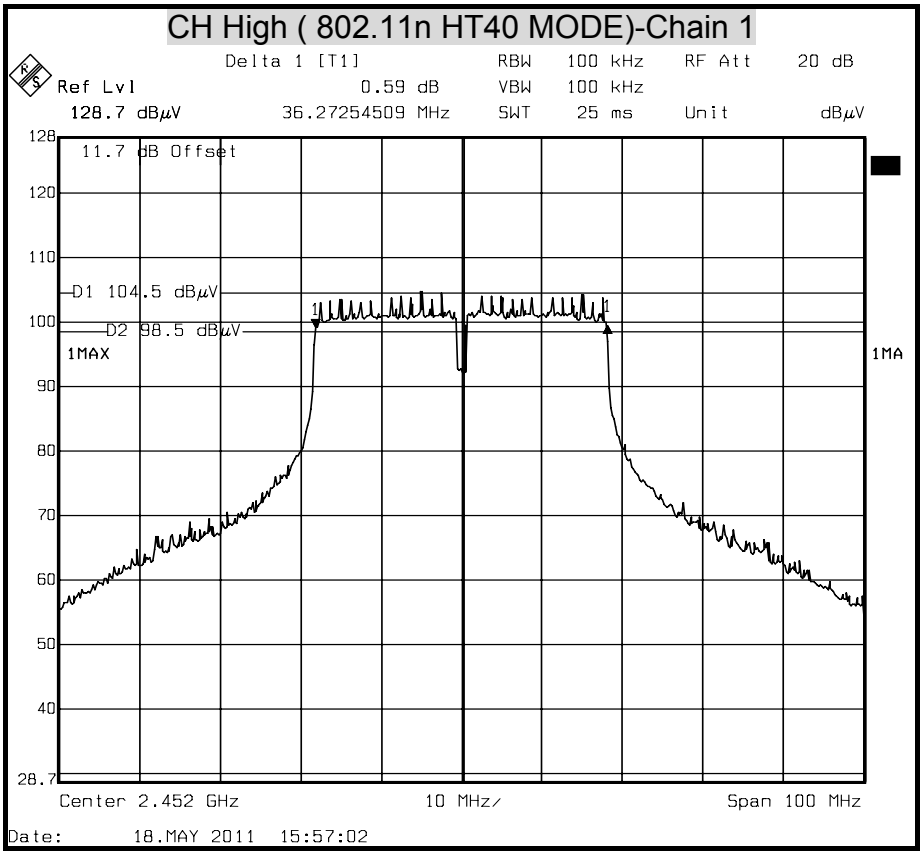



CH High (802.11n HT40 MODE)-Chain 0
Delta 1 [T1]
1.44 dB
36.47294589 MHz
RBW 100 kHz
VBW 100 kHz
SWT 25 ms
RF Att 20 dB
Unit dBµV
Ref Lvl
128.7 dBµV
11.7 dB Offset
D1 104.78 dBµV
D2 98.78 dBµV
1MAX
1MA
128
120
110
100
90
80
70
60
50
40
28.7
Center 2.452 GHz
10 MHz/
Span 100 MHz
Date: 18.MAY 2011 15:43:35

6dB BANDWIDTH (802.11n HT40 MODE) Chain 1






CH High (802.11n HT40 MODE)-Chain 1
Delta 1 [T1]
RBW 100 kHz
RF Att 20 dB
Ref Lvl
0.59 dB
VBW 100 kHz
128.7 dBµV
36.27254509 MHz
SWT 25 ms
Unit dBµV
11.7 dB Offset
D1 104.5 dBµV
D2 98.5 dBµV
1MAX
1MA
128
120
110
100
90
80
70
60
50
40
28.7
Center 2.452 GHz
10 MHz/
Span 100 MHz
Date: 18.MAY 2011 15:57:02

8.2 MAXIMUM PEAK OUTPUT POWER

LIMIT

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :

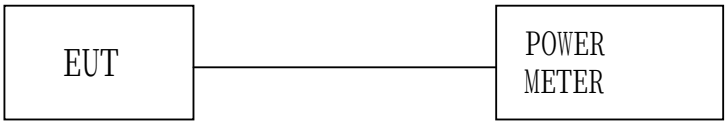
§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands : 1 watt.

§ 15.247(b) (4) Except as shown in paragraphs (c) of this section , if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (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 EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2487A	6K00003888	MAY 11, 2012

TEST SETUP



TEST PROCEDURE

Connect the EUT to power Meter, set the center frequency of the power Meter to the channel center frequency. Set the RBW to 1MHz and VBW to 3MHz.

Set sweep time=auto

Use detector max peak mode

Measurement of Digital Transmission Systems Operating under Section 15.247

TEST RESULTS

No non-compliance noted

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	22.86	30.00	PASS
Middle	2437	22.61	30.00	PASS
High	2462	22.24	30.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 11Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	26.91	30.00	PASS
Middle	2437	26.51	30.00	PASS
High	2462	25.31	30.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11n HT20 mode(Two TX)

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power Total (dBm)	Peak Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
Low	2412	25.82	26.57	29.22	30	PASS
Middle	2437	25.24	26.08	28.69	30	PASS
High	2462	23.08	23.23	26.17	30	PASS

NOTE : 1. At finial test to get the worst-case emission at 13Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.
3. Measure each individual power for each antenna port and then sum the powers.

IEEE 802.11n HT40 mode (Two TX)

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power Total (dBm)	Peak Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
Low	2422	25.02	24.22	27.65	30	PASS
Middle	2437	24.99	24.87	27.94	30	PASS
High	2452	24.52	23.85	27.21	30	PASS

NOTE : 1. At finial test to get the worst-case emission at 27Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.
3. Measure each individual power for each antenna port and then sum the powers.

8.3 AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2487A	6K00003888	MAY 11, 2012

TEST SETUP

TEST PROCEDURE

Connect the EUT to power Meter, set the center frequency of the power Meter to the channel center frequency. Set the RBW to 1MHz and VBW to 3MHz.

Set sweep time=auto

Use detector max peak mode

Measurement of Digital Transmission Systems Operating under Section 15.247

TEST RESULTS

No non-compliance noted

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	20.31
Middle	2437	20.07
High	2462	19.55

NOTE : 1. At finial test to get the worst-case emission at 11Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	17.8
Middle	2437	17.54
High	2462	16.52

NOTE : 1.At finial test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11n HT20 mode(Two TX)

hannel	Channel Frequency (MHz)	Average Power (dBm)	
		Chain 0	Chain 1
Low	2412	16.72	16.83
Middle	2437	16.42	15.89
High	2462	14.37	13.04

NOTE : 1. At finial test to get the worst-case emission at 13Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11n HT40 mode (Two TX)

hannel	Channel Frequency (MHz)	Average Power (dBm)	
		Chain 0	Chain 1
Low	2422	14.05	13.69
Middle	2437	13.72	13.21
High	2452	12.81	12.03

NOTE : 1. At finial test to get the worst-case emission at 27Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

8.4 MAXIMUM PERMISSIBLE EXPOSURE

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

CALCULATIONS

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where *E = Field strength in Volts / meter*

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

Where *d = Distance in cm*

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

LIMIT

Power Density Limit, S=1.0mW/cm^2

TEST RESULTS

No non-compliance noted.

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

G=2.58dBi=1.8113401mW

IEEE 802.11b	0.0796	*	193.1968	*	1.81134009	÷	400	=	0.06964
IEEE 802.11g	0.0796	*	490.9079	*	1.81134009	÷	400	=	0.17695
IEEE 802.11n HT20	0.0796	*	835.8859	*	1.81134009	÷	400	=	0.3013
IEEE 802.11n HT40	0.0796	*	622.4027	*	1.81134009	÷	400	=	0.22435

Mode	Minimum separation distance (cm)	Output Power (dBm)	Output Power (mw)	Antenna Gain (dBi)	Power Density Limit (mW/cm^2)	Power Density at 20cm (mW/cm^2)
B MODE	20	22.86	193.20	2.58	1.00	0.069639
G MODE	20	26.91	490.91	2.58	1.00	0.176951
HT-20 Mode	20	29.22	835.89	2.58	1.00	0.301301
HT-40 Mode	20	27.94	622.40	2.58	1.00	0.224349

REMARK: For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.

8.5 POWER SPECTRAL DENSITY

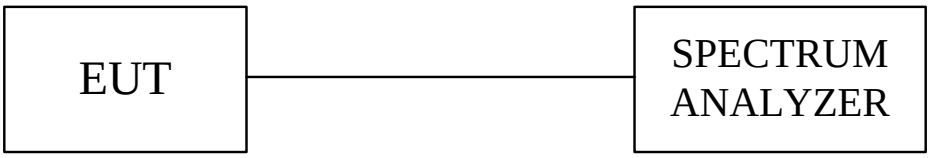
LIMIT

§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	JUL. 14, 2011

TEST SETUP



TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW=3KHz and VBW≧RBW, set sweep time=span / 3KHz.

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

TEST RESULTS

Total peak power calculation formula:
10 log (10^ (Chain 0 PPSD / 10)).

No non-compliance noted.

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	PPSD Chain 0 (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-5.62	8.00	PASS
Middle	2437	-4.93	8.00	PASS
High	2462	-3.07	8.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 11Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	PPSD Chain 0 (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-1.12	8.00	PASS
Middle	2437	-0.80	8.00	PASS
High	2462	-0.70	8.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT20 mode

Channel	Channel Frequency (MHz)	PPSD(dBm)			Maximum Limit	Pass / Fail
		Chain 0	Chain 1	Total	(dBm)	
Low	2412	-2.65	-12.39	-2.21	8.00	PASS
Middle	2437	-2.03	-10.84	-1.49	8.00	PASS
High	2462	-8.12	-10.90	-6.28	8.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 13Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT40 mode

Channel	Channel Frequency (MHz)	PPSD(dBm)			Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Total		
Low	2422	-18.13	-15.78	-13.77	8.00	PASS
Middle	2437	-17.70	-18.90	-14.27	8.00	PASS
High	2452	-16.03	-22.59	-15.16	8.00	PASS

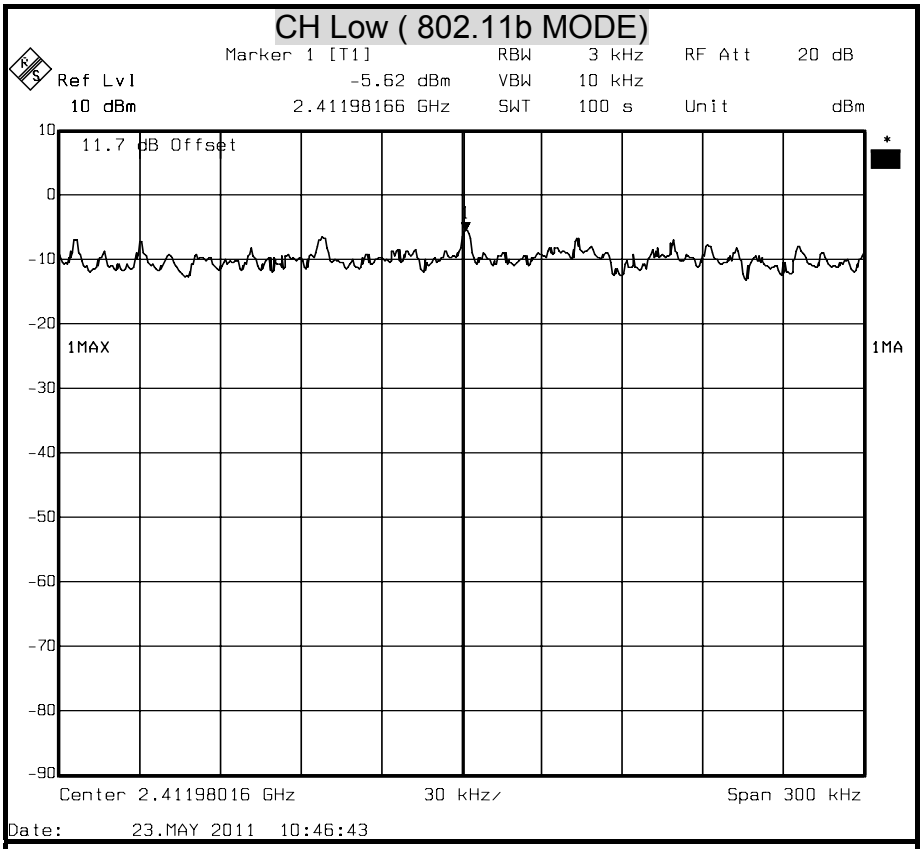
NOTE : 1. At finial test to get the worst-case emission at 27Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

Combined mode

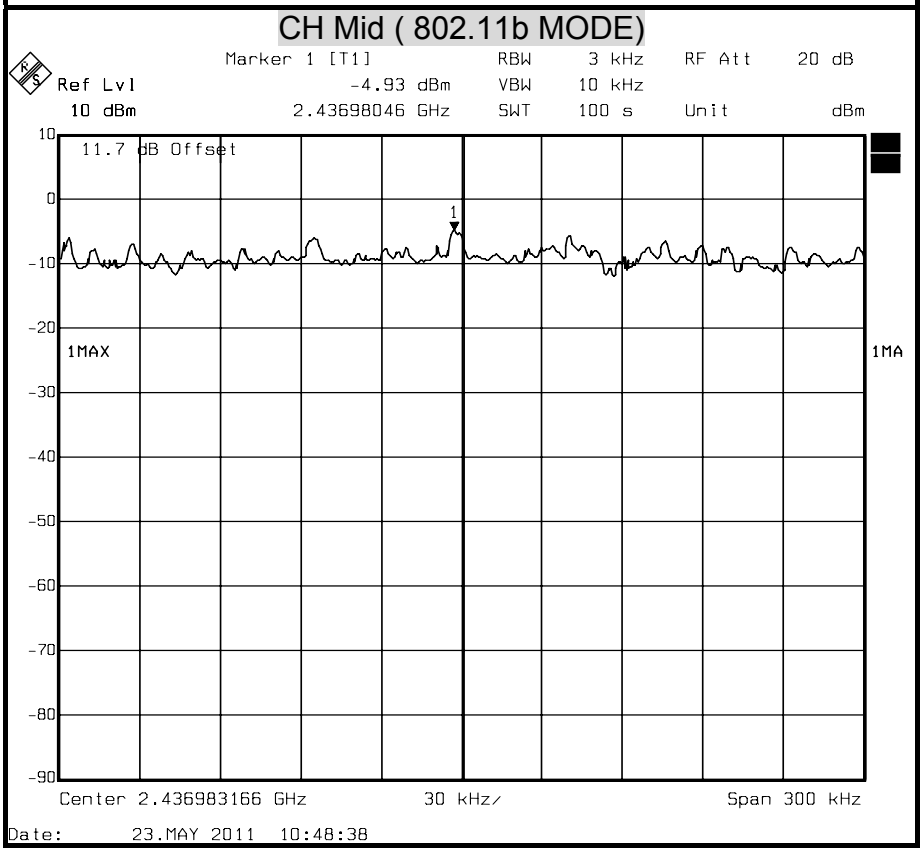
Channel		Channel Frequency (MHz)	PPSD(dBm)	Maximum Limit (dBm)	Pass / Fail
802.11n HT20 Combined mode	CH Low	2412	-3.08	8.00	PASS
	CH Middle	2437	-2.33		
	CH High	2462	-1.51		
802.11n HT40 Combined mode	CH Low	2422	-14.10	8.00	PASS
	CH Middle	2437	-14.43		
	CH High	2452	-14.56		

POWER SPECTRAL DENSITY (IEEE 802.11b MODE)

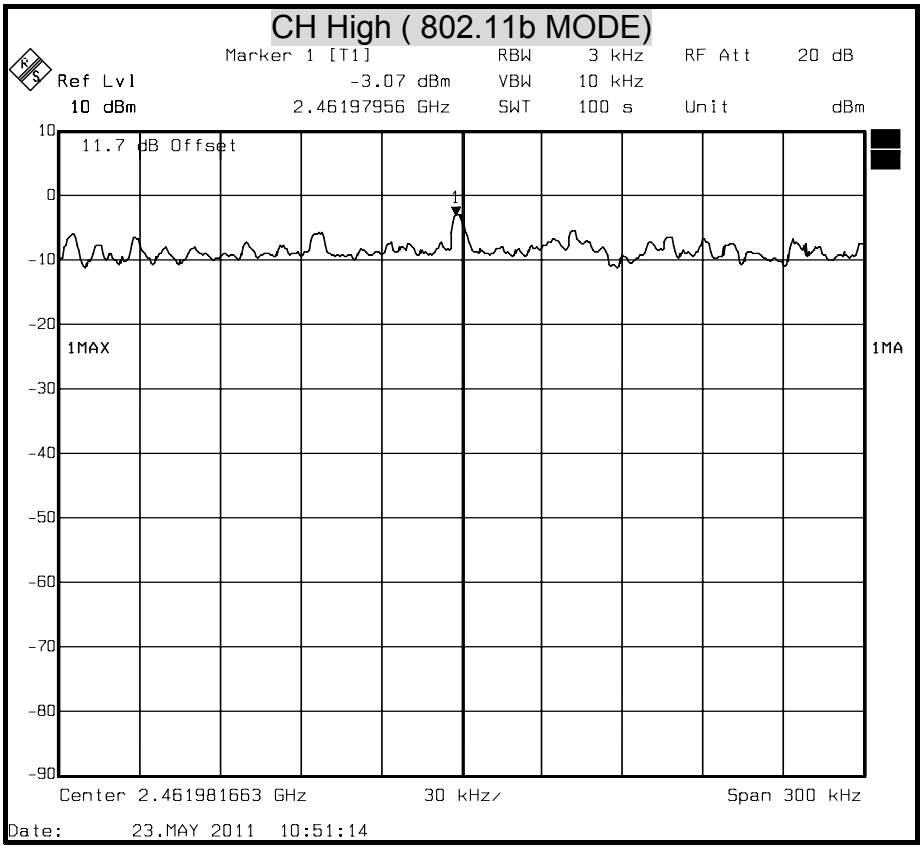
CH Low (802.11b MODE)



CH Mid (802.11b MODE)

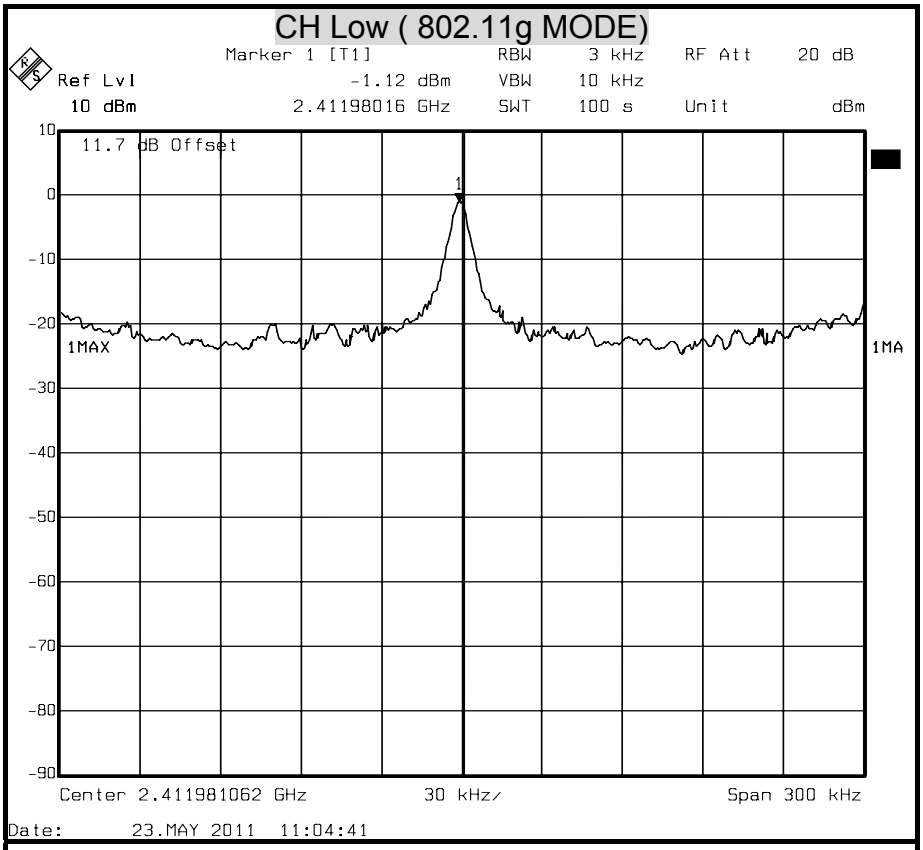


CH High (802.11b MODE)

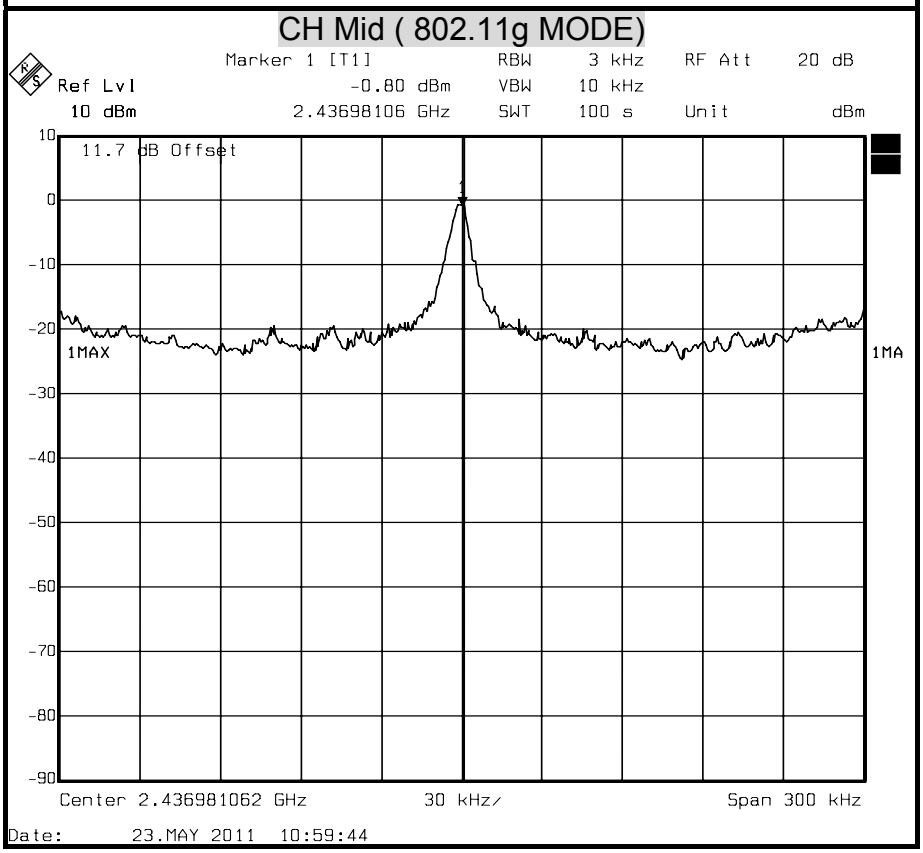


POWER SPECTRAL DENSITY (IEEE 802.11g MODE)

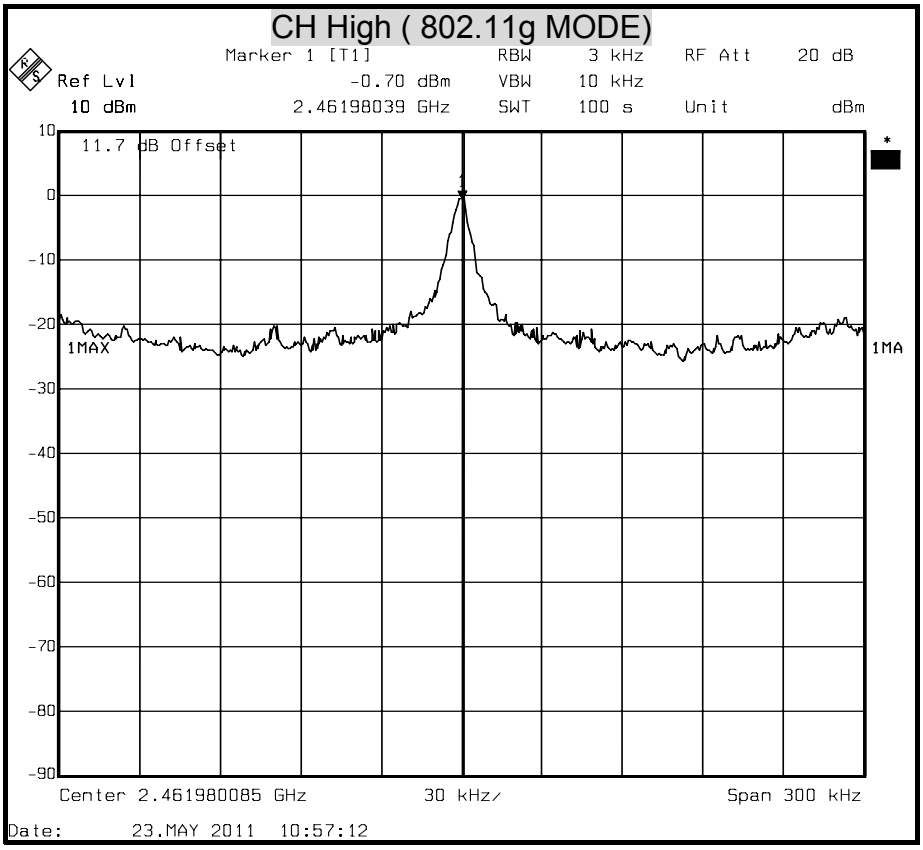
CH Low (802.11g MODE)



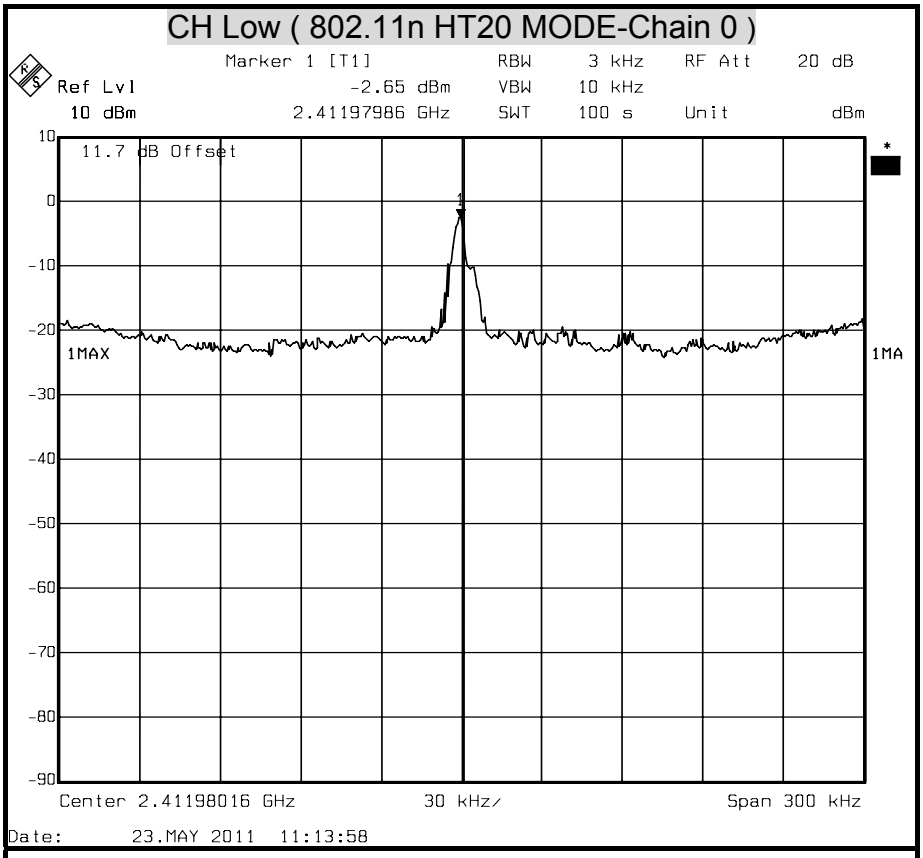
CH Mid (802.11g MODE)

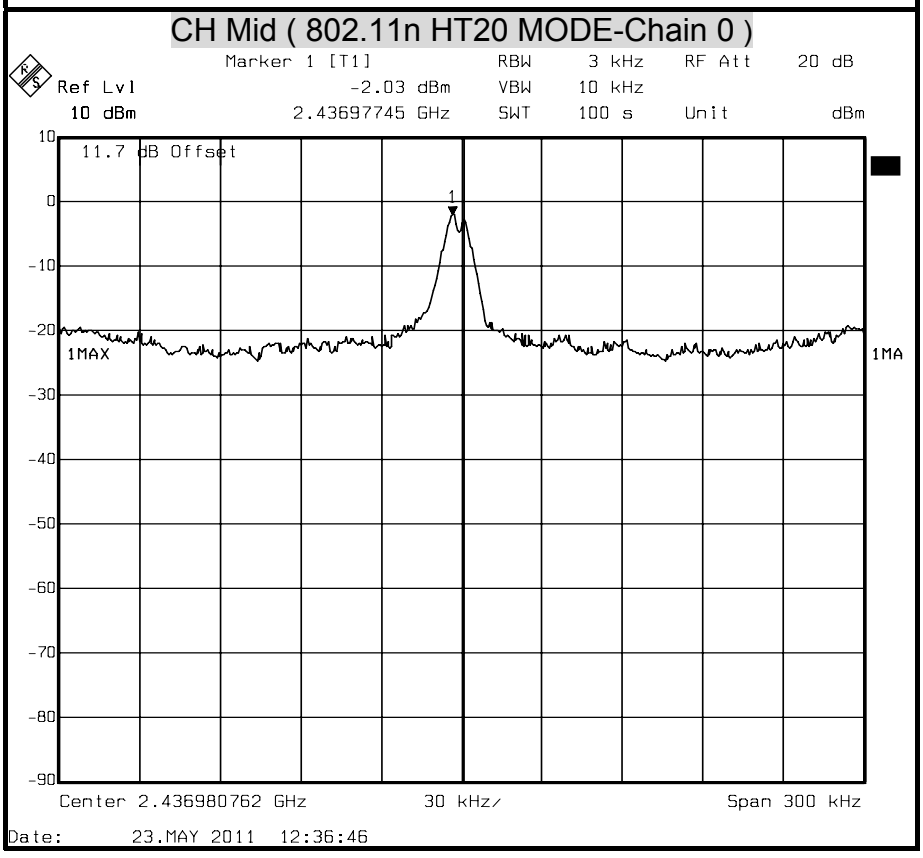


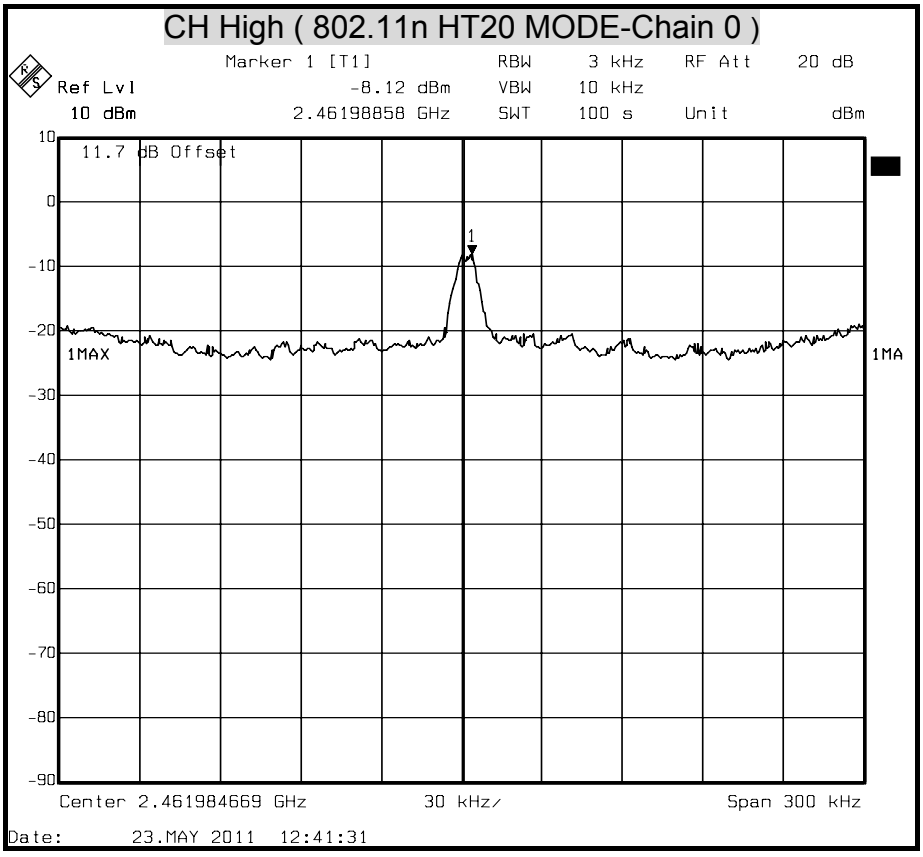
CH High (802.11g MODE)



POWER SPECTRAL DENSITY (802.11n HT20 MODE)

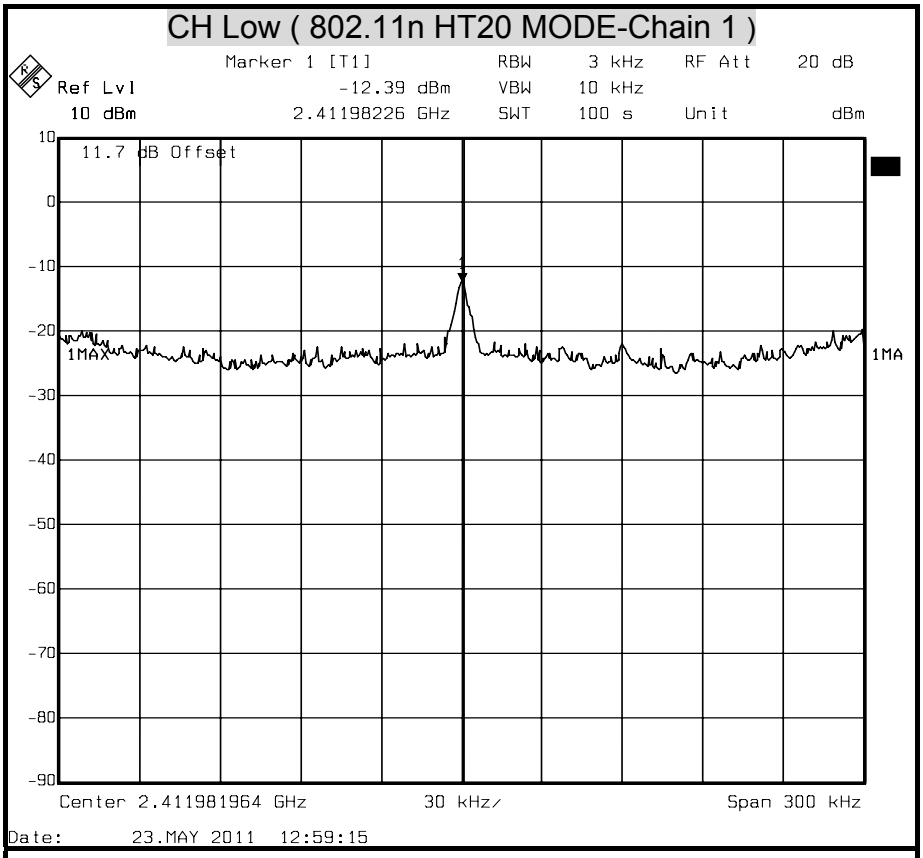




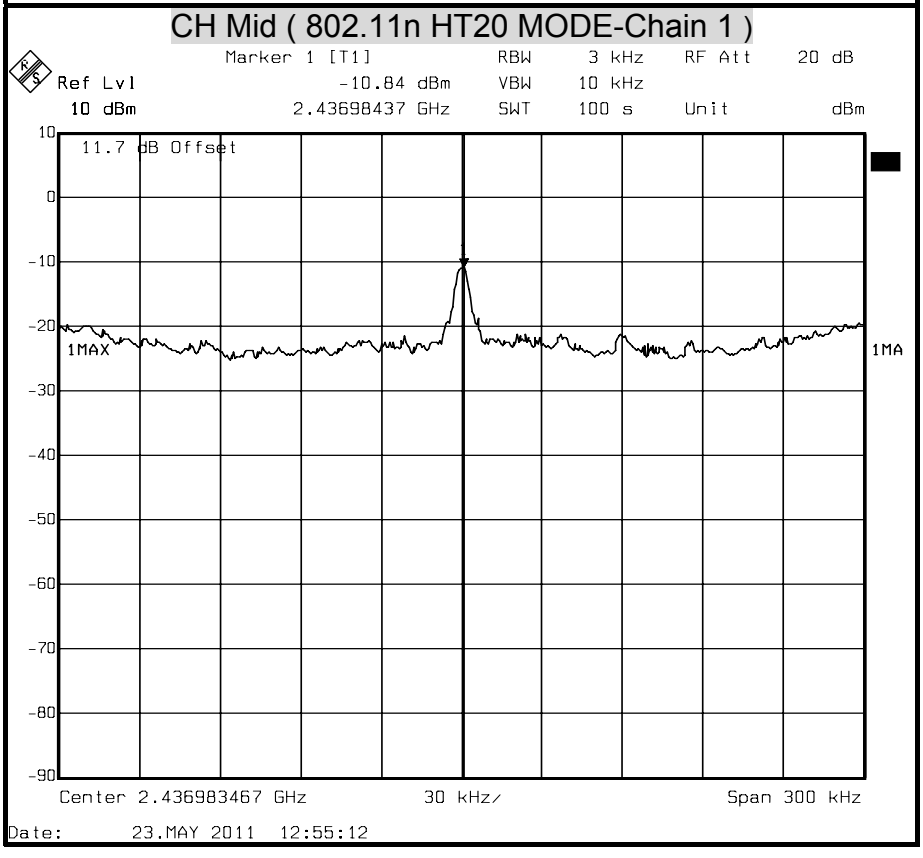

CH High (802.11n HT20 MODE-Chain 0)
Marker 1 [T1]
RBW 3 kHz
RF Att 20 dB
Ref Lvl
-8.12 dBm
VBW 10 kHz
10 dBm
2.46198858 GHz
SWT 100 s
Unit dBm
11.7 dB Offset
1MAX
1MA
Center 2.461984669 GHz
30 kHz/
Span 300 kHz
Date: 23.MAY 2011 12:41:31

POWER SPECTRAL DENSITY (802.11n HT20 MODE)

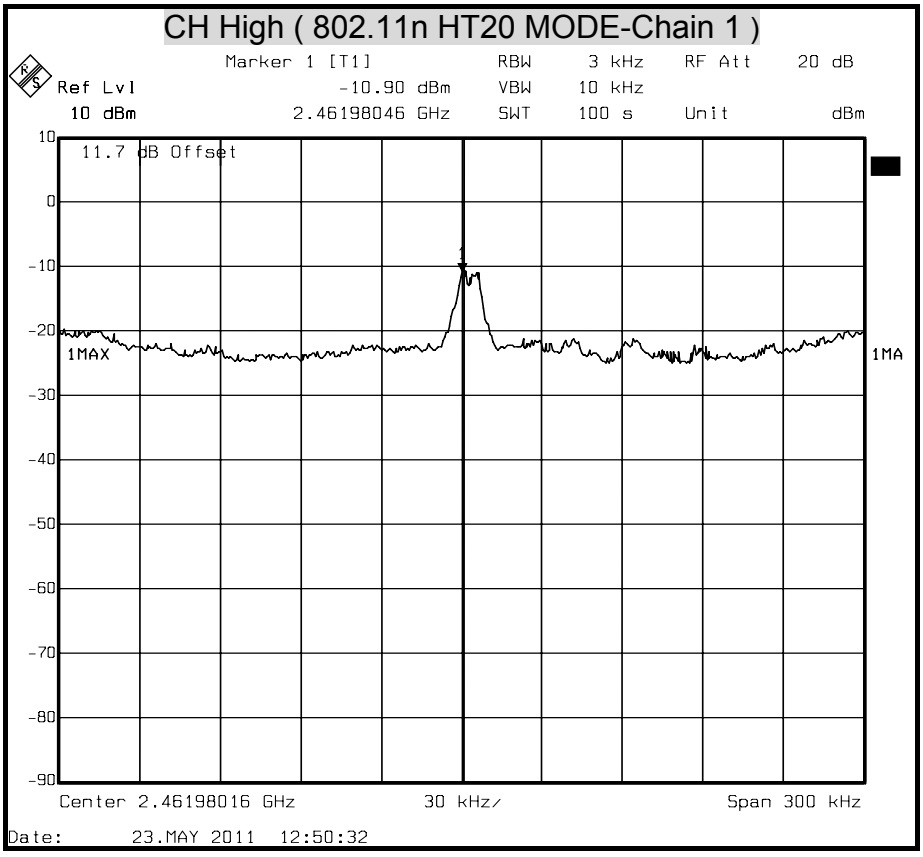
CH Low (802.11n HT20 MODE-Chain 1)



CH Mid (802.11n HT20 MODE-Chain 1)

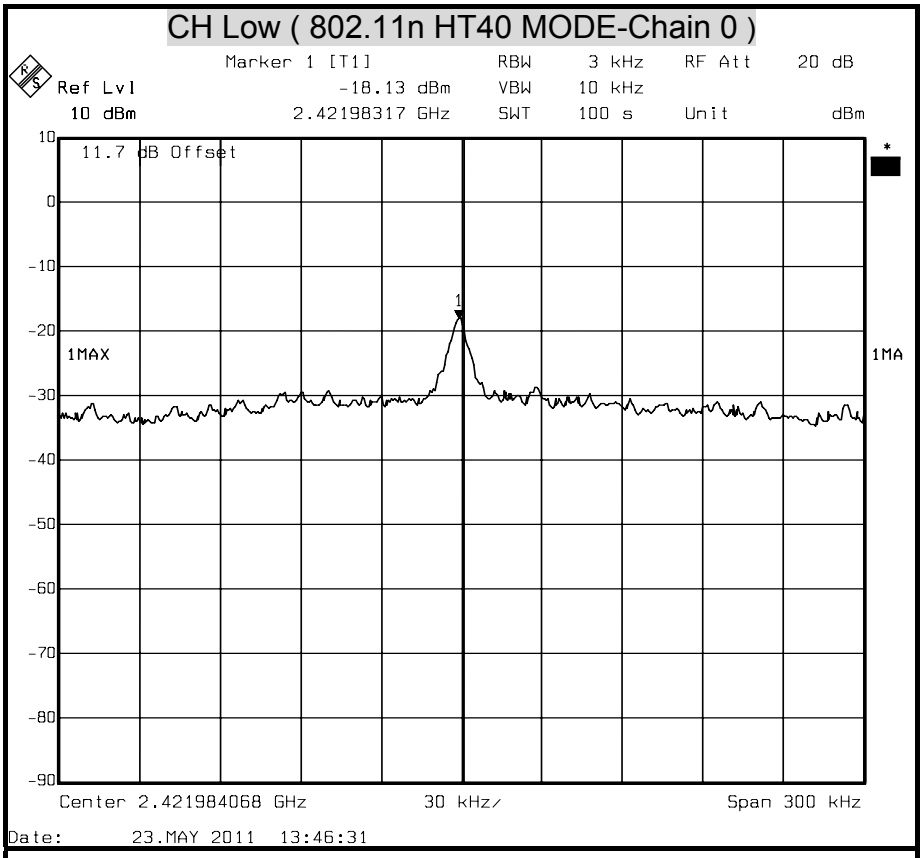


CH High (802.11n HT20 MODE-Chain 1)

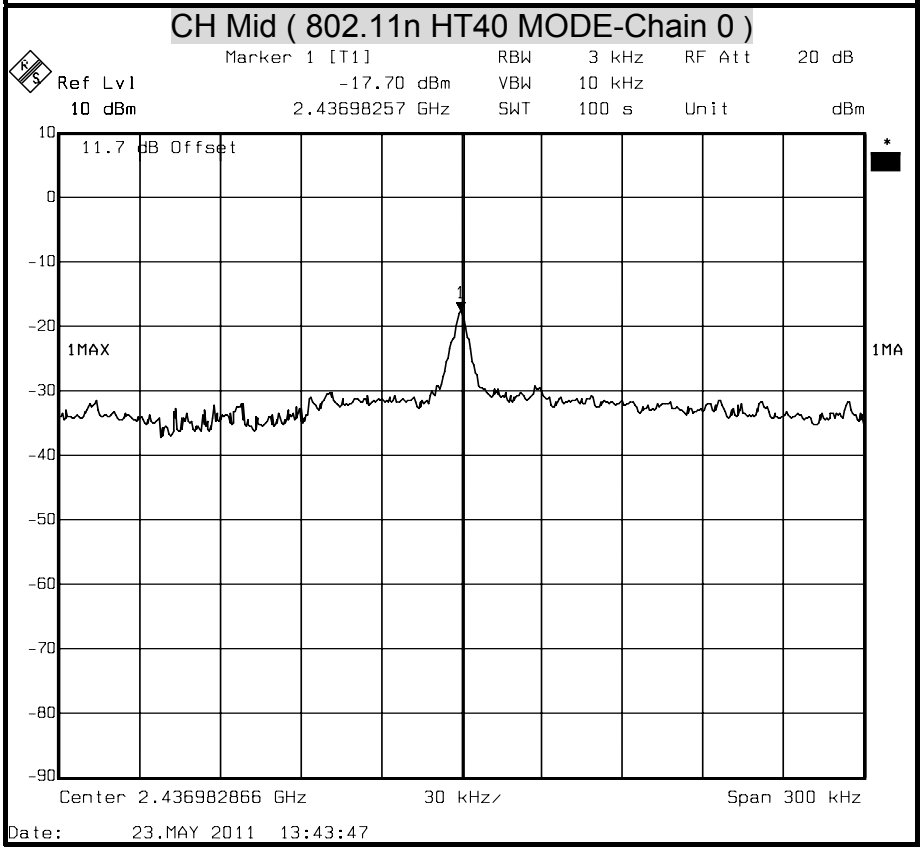


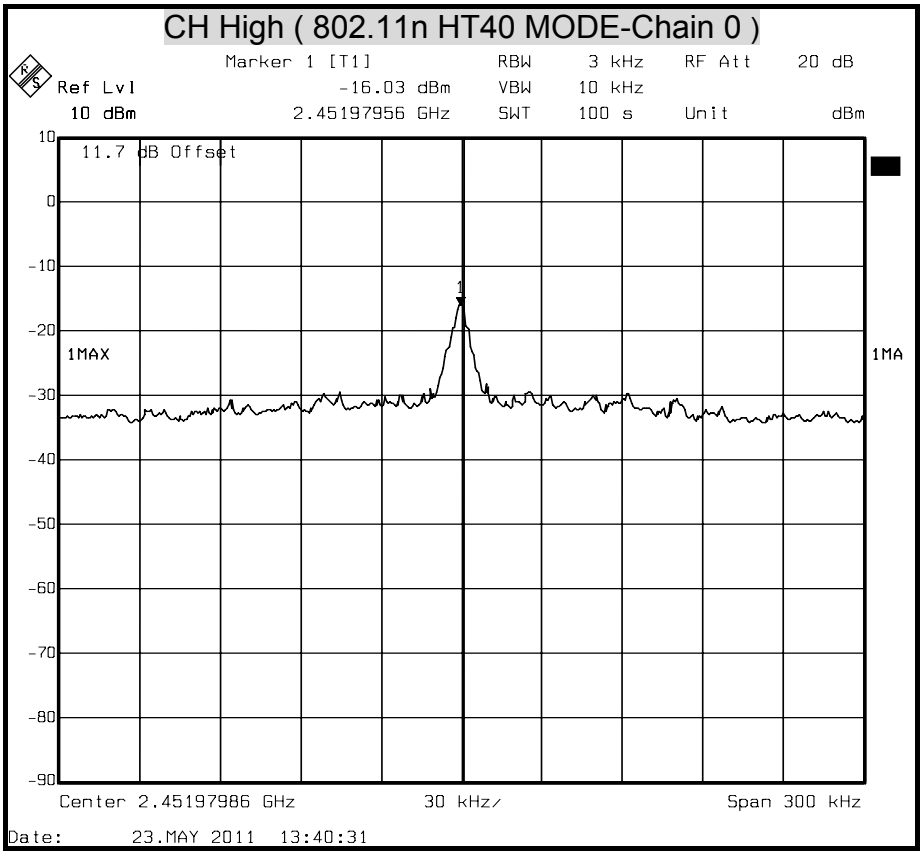
POWER SPECTRAL DENSITY (802.11n HT40 MODE)

CH Low (802.11n HT40 MODE-Chain 0)



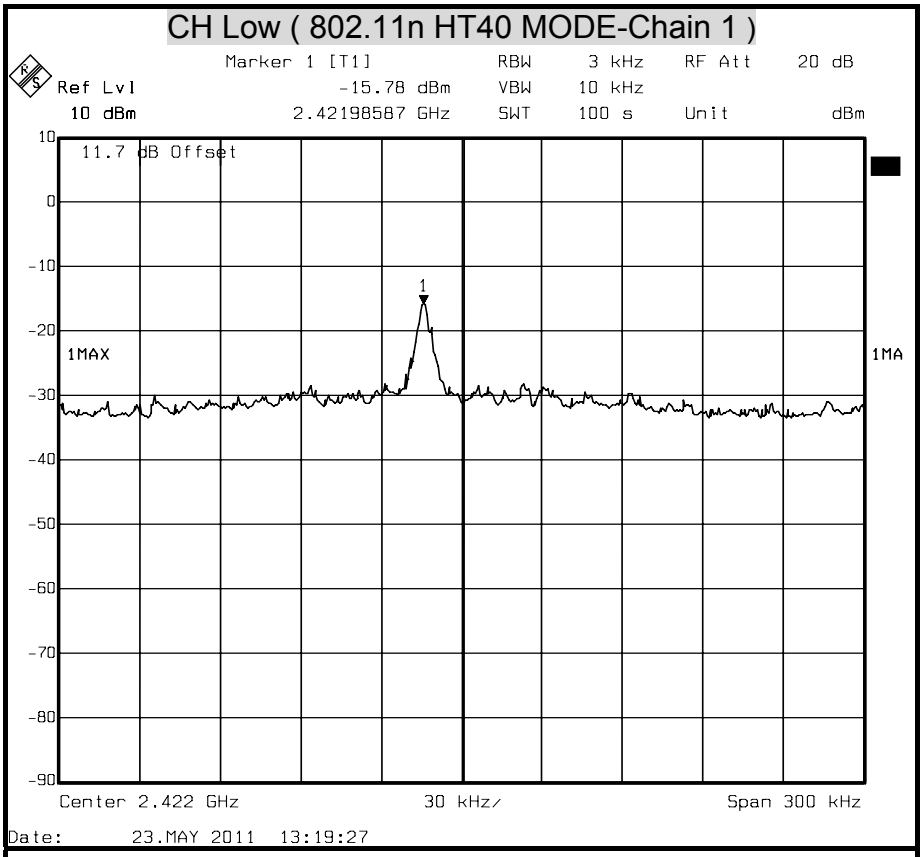
CH Mid (802.11n HT40 MODE-Chain 0)



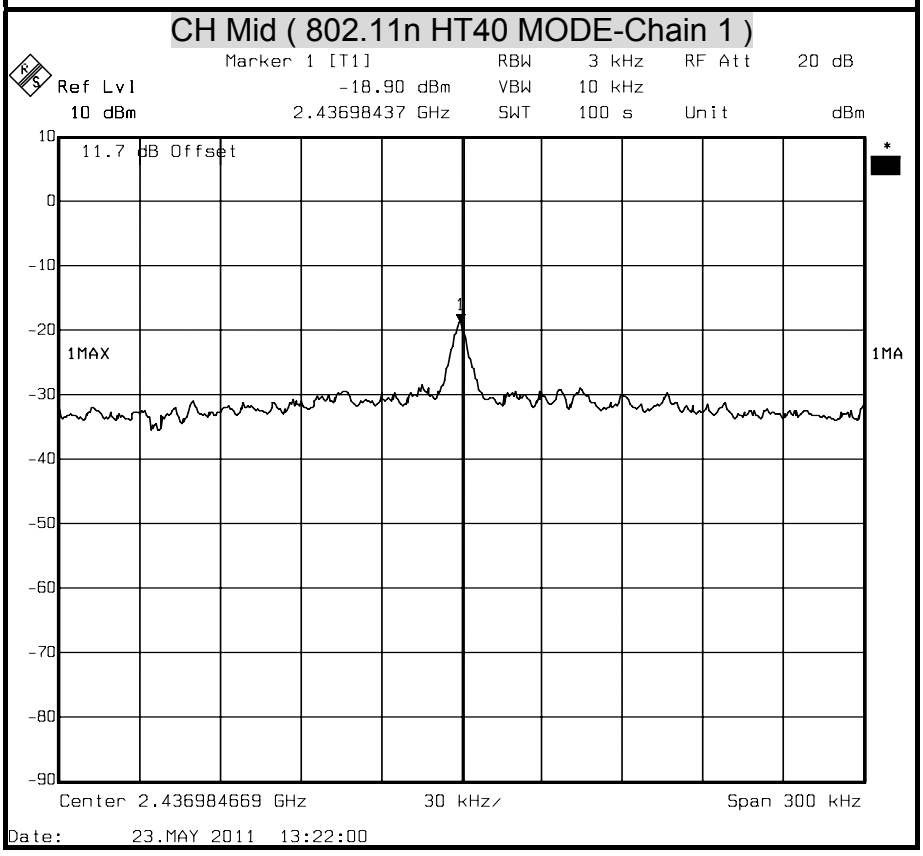

CH High (802.11n HT40 MODE-Chain 0)
Marker 1 [T1]
Ref Lvl
10 dBm
-16.03 dBm
2.45197956 GHz
RBW 3 kHz
VBW 10 kHz
SWT 100 s
RF Att 20 dB
Unit dBm
11.7 dB Offset
1MAX
1MA
Center 2.45197986 GHz
30 kHz/
Span 300 kHz
Date: 23.MAY 2011 13:40:31

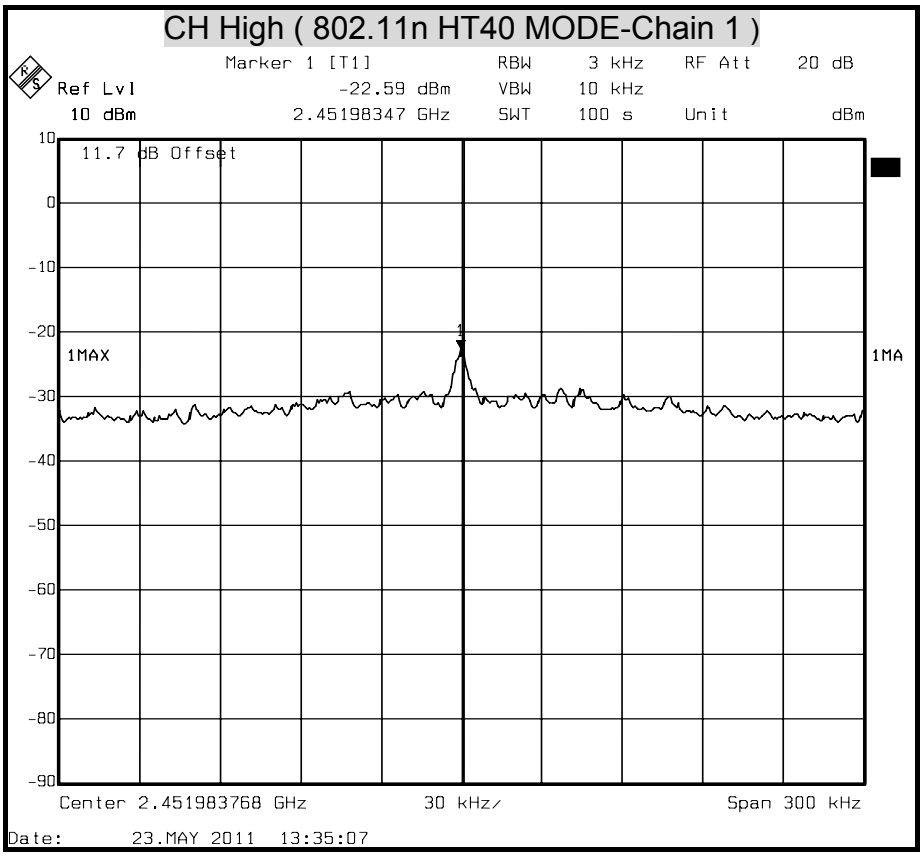
POWER SPECTRAL DENSITY (802.11n HT40 MODE)

CH Low (802.11n HT40 MODE-Chain 1)



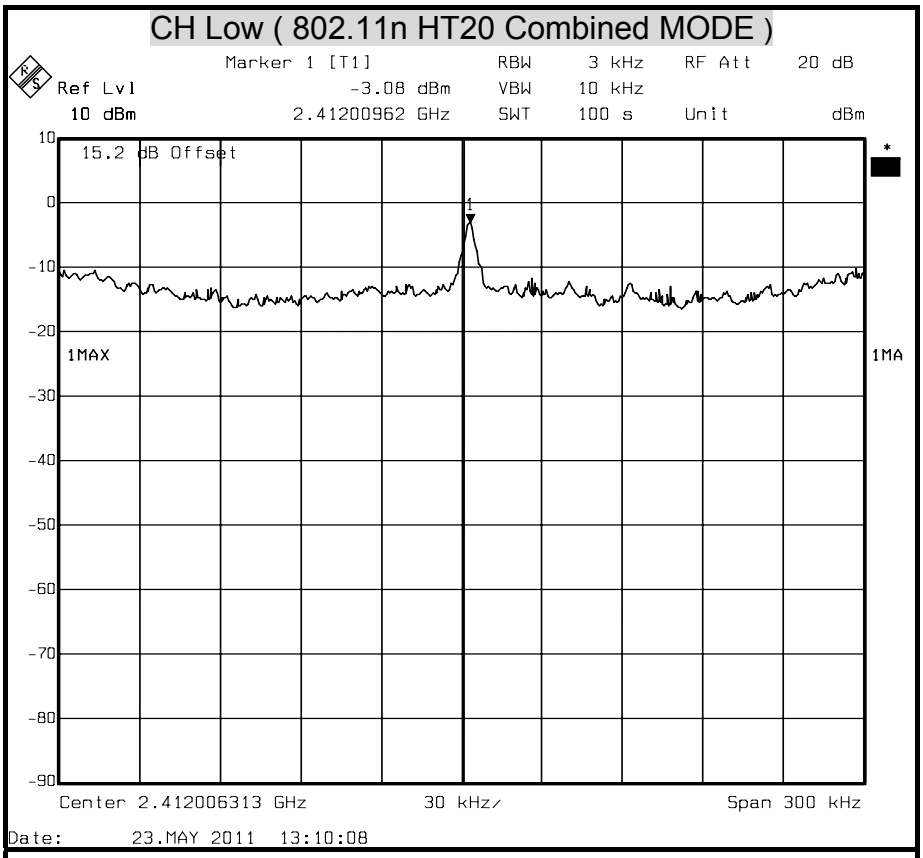
CH Mid (802.11n HT40 MODE-Chain 1)



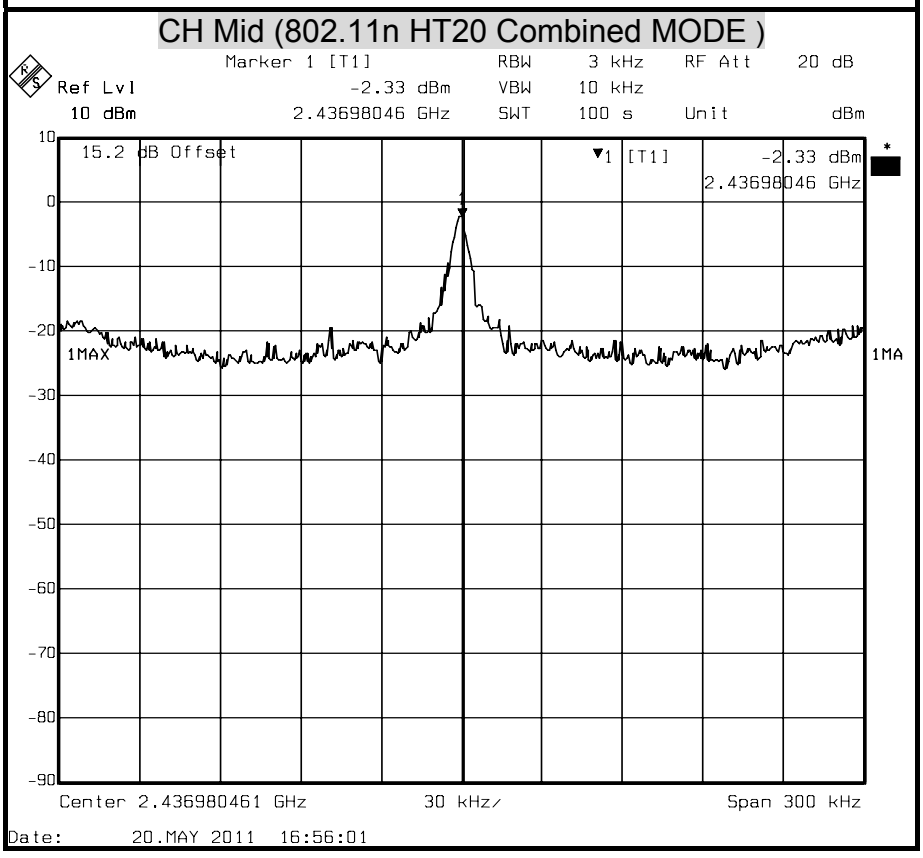

CH High (802.11n HT40 MODE-Chain 1)
Marker 1 [T1]
Ref Lvl
10 dBm
-22.59 dBm
2.45198347 GHz
RBW 3 kHz
VBW 10 kHz
SWT 100 s
RF Att 20 dB
Unit dBm
11.7 dB Offset
1MAX
1MA
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 2.451983768 GHz
30 kHz/
Span 300 kHz
Date: 23.MAY 2011 13:35:07

POWER SPECTRAL DENSITY (802.11n HT20 Combined MODE)

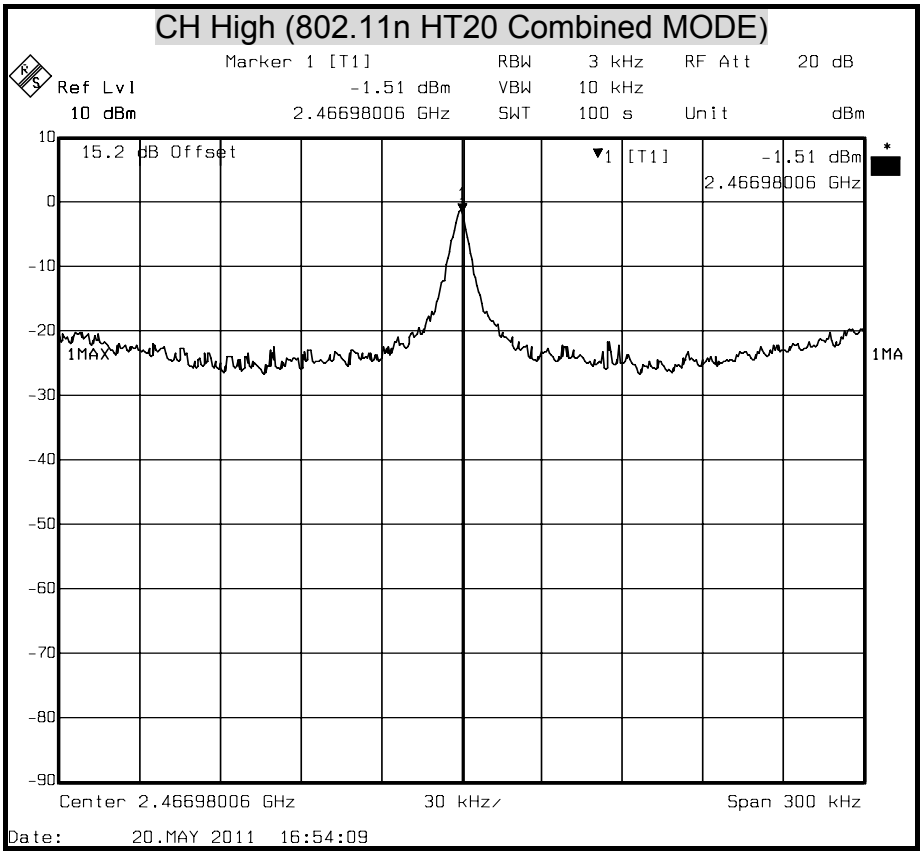
CH Low (802.11n HT20 Combined MODE)



CH Mid (802.11n HT20 Combined MODE)

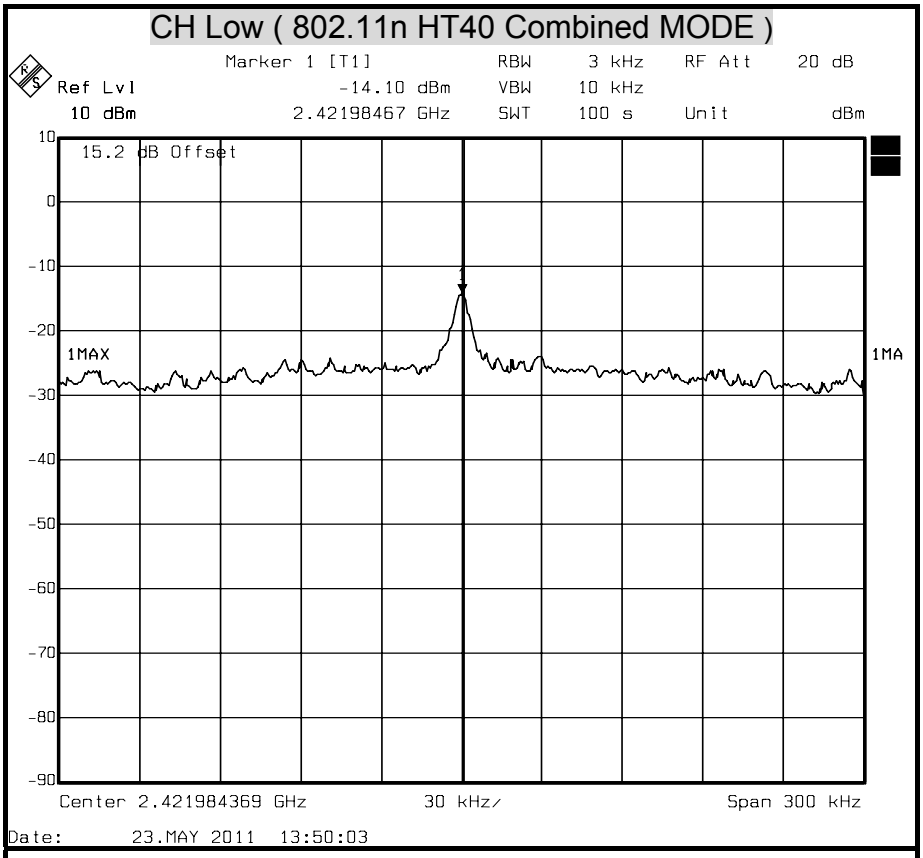


CH High (802.11n HT20 Combined MODE)

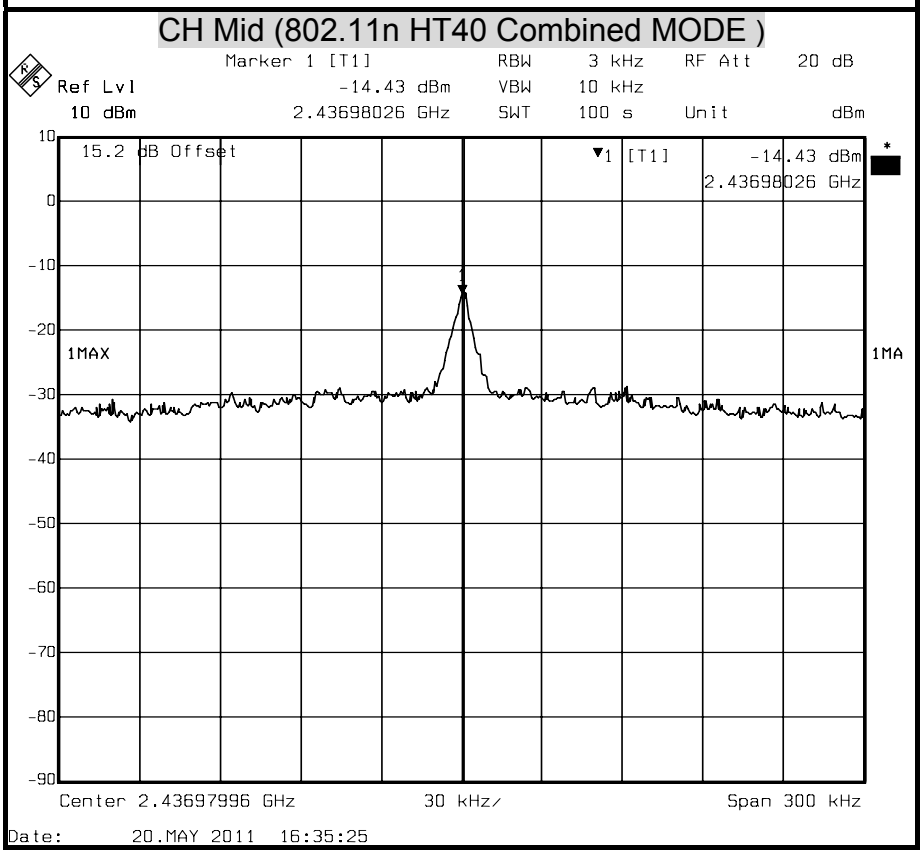


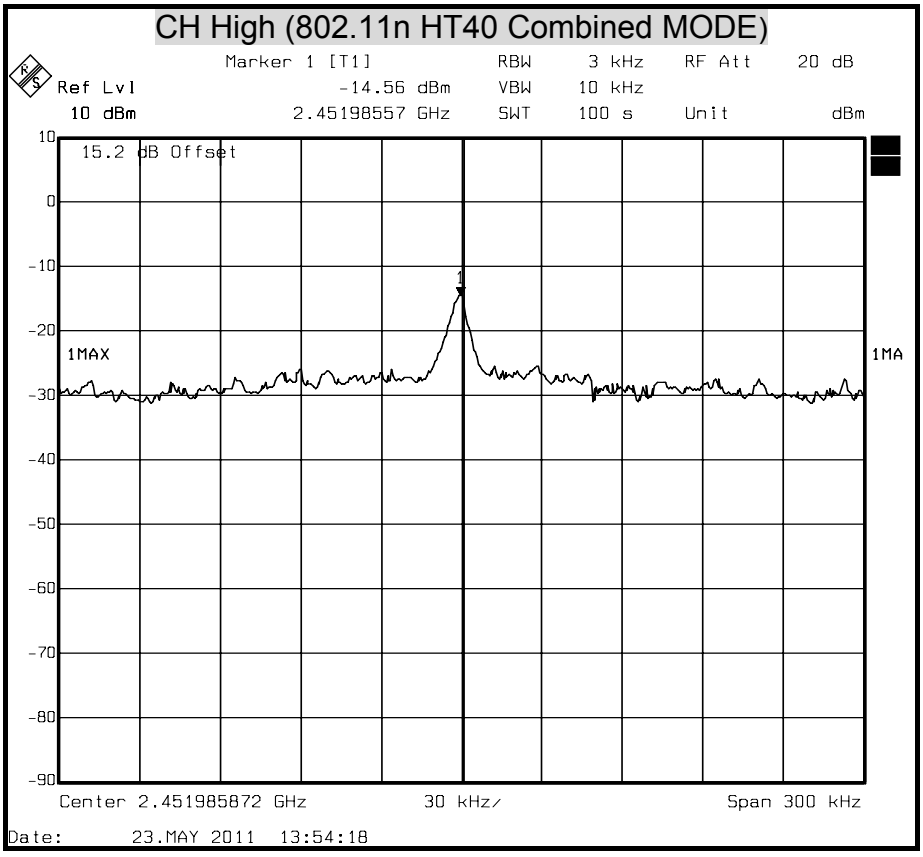
POWER SPECTRAL DENSITY (802.11n HT40 Combined MODE)

CH Low (802.11n HT40 Combined MODE)



CH Mid (802.11n HT40 Combined MODE)




CH High (802.11n HT40 Combined MODE)
Marker 1 [T1]
Ref Lvl
10 dBm
-14.56 dBm
2.45198557 GHz
RBW 3 kHz
VBW 10 kHz
SWT 100 s
RF Att 20 dB
Unit dBm
15.2 dB Offset
1MAX
1MA
Center 2.451985872 GHz
30 kHz/
Span 300 kHz
Date: 23.MAY 2011 13:54:18

8.6 CONDUCTED SPURIOUS EMISSION

LIMITS

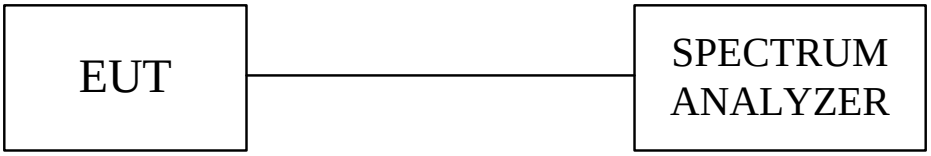
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. 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 § 15.205(c)).

TEST PROCEDURE

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

The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

TEST SETUP



TEST RESULTS

No non-compliance noted.

802.11b Mode

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2412.00	11.7	103.42	115.12	N/A	N/A
2400.00	11.7	68.58	80.28	95.12	-14.84
2071.50	11.7	41.24	52.84	95.12	-42.28
9828.65	11.7	45.99	57.69	95.12	-37.43

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	102.42	114.12	N/A	N/A
2400.00	11.7	42.90	54.6	94.12	-39.52
1512.02	11.7	40.95	52.65	94.12	-41.47
6955.91	11.7	44.83	56.53	94.12	-37.59

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2462.00	11.7	102.27	113.97	N/A	N/A
2400.00	11.7	41.09	52.79	93.97	-41.18
1922.70	11.7	42.14	53.84	93.97	-40.13
9828.65	11.7	45.99	57.69	93.97	-36.28

802.11g Mode

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2412.00	11.7	97.31	109.01	N/A	N/A
2400.00	11.7	68.58	80.28	89.01	-8.73
1744.14	11.7	41.53	53.23	89.01	-35.78
6908.81	11.7	44.51	56.21	89.01	-32.80

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	96.74	108.44	N/A	N/A
2400.00	11.7	44.85	56.55	88.44	-31.89
2202.44	11.7	45.22	56.92	88.44	-31.52
6955.91	11.7	44.95	56.65	88.44	-31.79

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2462.00	11.7	100.26	111.96	N/A	N/A
2400.00	11.7	45.51	57.21	91.96	-34.75
2291.72	11.7	46.20	57.9	91.96	-34.06
13784.56	11.7	46.09	57.79	91.96	-34.17

802.11n HT20 Mode Chain 0

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2412.00	11.7	97.28	108.98	N/A	N/A
2400.00	11.7	69.85	81.55	88.98	-7.43
2202.44	11.7	44.63	56.33	88.98	-32.65
6673.34	11.7	45.05	56.75	88.98	-32.23

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	94.65	106.35	N/A	N/A
2400.00	11.7	44.65	56.35	86.35	-30.00
2226.25	11.7	42.01	53.71	86.35	-32.64
6955.91	11.7	46.41	58.11	86.35	-28.24

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2462.00	11.7	94.97	106.67	N/A	N/A
2400.00	11.7	40.75	52.45	86.67	-34.22
2976.19	11.7	41.34	53.04	86.67	-33.63
6673.34	11.7	45.27	56.97	86.67	-29.70

802.11n HT20 Mode Chain 1

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2412.00	11.7	98.17	109.87	N/A	N/A
2400.00	11.7	70.50	82.2	89.87	-7.67
2291.72	11.7	45.73	57.43	89.87	-32.44
6908.81	11.7	45.00	56.7	89.87	-33.17

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	94.29	105.99	N/A	N/A
2400.00	11.7	43.46	55.16	85.99	-30.83
2202.44	11.7	45.37	57.07	85.99	-28.92
6955.91	11.7	44.69	56.39	85.99	-29.60

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2462.00	11.7	92.04	103.74	N/A	N/A
2400.00	11.7	40.07	51.77	83.74	-31.97
2202.44	11.7	41.51	53.21	83.74	-30.53
6720.44	11.7	45.15	56.85	83.74	-26.89

802.11n HT40 Mode Chain 0

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2422.00	11.7	90.01	101.71	N/A	N/A
2400.00	11.7	64.74	76.44	81.71	-5.27
2178.63	11.7	41.33	53.03	81.71	-28.68
6955.91	11.7	45.12	56.82	81.71	-24.89

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	92.24	103.94	N/A	N/A
2400.00	11.7	52.75	64.45	83.94	-19.49
2202.44	11.7	42.03	53.73	83.94	-30.21
6955.91	11.7	44.44	56.14	83.94	-27.80

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2452.00	11.7	90.66	102.36	N/A	N/A
2400.00	11.7	41.97	53.67	82.36	-28.69
2541.17	11.7	42.27	53.97	82.36	-28.39
6908.81	11.7	45.11	56.81	82.36	-25.55

802.11n HT40 Mode Chain 1

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2422.00	11.7	92.82	104.52	N/A	N/A
2400.00	11.7	67.13	78.83	84.52	-5.69
2202.44	11.7	42.04	53.74	84.52	-30.78
6814.62	11.7	45.96	57.66	84.52	-26.86

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	92.29	103.99	N/A	N/A
2400.00	11.7	53.34	65.04	83.99	-18.95
2160.78	11.7	41.74	53.44	83.99	-30.55
6955.91	11.7	44.90	56.6	83.99	-27.39

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2452.00	11.7	91.45	103.15	N/A	N/A
2400.00	11.7	43.75	55.45	83.15	-27.70
1767.95	11.7	42.09	53.79	83.15	-29.36
6955.91	11.7	45.12	56.82	83.15	-26.33

802.11n HT20 Combined Mode

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2422.00	11.7	90.01	101.71	N/A	N/A
2400.00	11.7	64.74	76.44	81.71	-5.27
2178.63	11.7	41.33	53.03	81.71	-28.68
6955.91	11.7	45.12	56.82	81.71	-24.89

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	11.7	92.24	103.94	N/A	N/A
2400.00	11.7	52.75	64.45	83.94	-19.49
2202.44	11.7	42.03	53.73	83.94	-30.21
6955.91	11.7	44.44	56.14	83.94	-27.80

CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2452.00	11.7	90.66	102.36	N/A	N/A
2400.00	11.7	41.97	53.67	82.36	-28.69
2541.17	11.7	42.27	53.97	82.36	-28.39
6908.81	11.7	45.11	56.81	82.36	-25.55

802.11n HT40 Combined Mode

CH Low

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2422.00	15.2	88.26	103.46	N/A	N/A
2400.00	15.2	61.99	77.19	83.46	-6.27
2547.65	15.2	41.19	56.39	83.46	-27.07
6955.91	15.2	44.34	59.54	83.46	-23.92

CH Mid

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2437.00	15.2	89.86	105.06	N/A	N/A
2400.00	15.2	48.06	63.26	85.06	-21.80
1690.58	15.2	40.64	55.84	85.06	-29.22
6955.91	15.2	44.15	59.35	85.06	-25.71

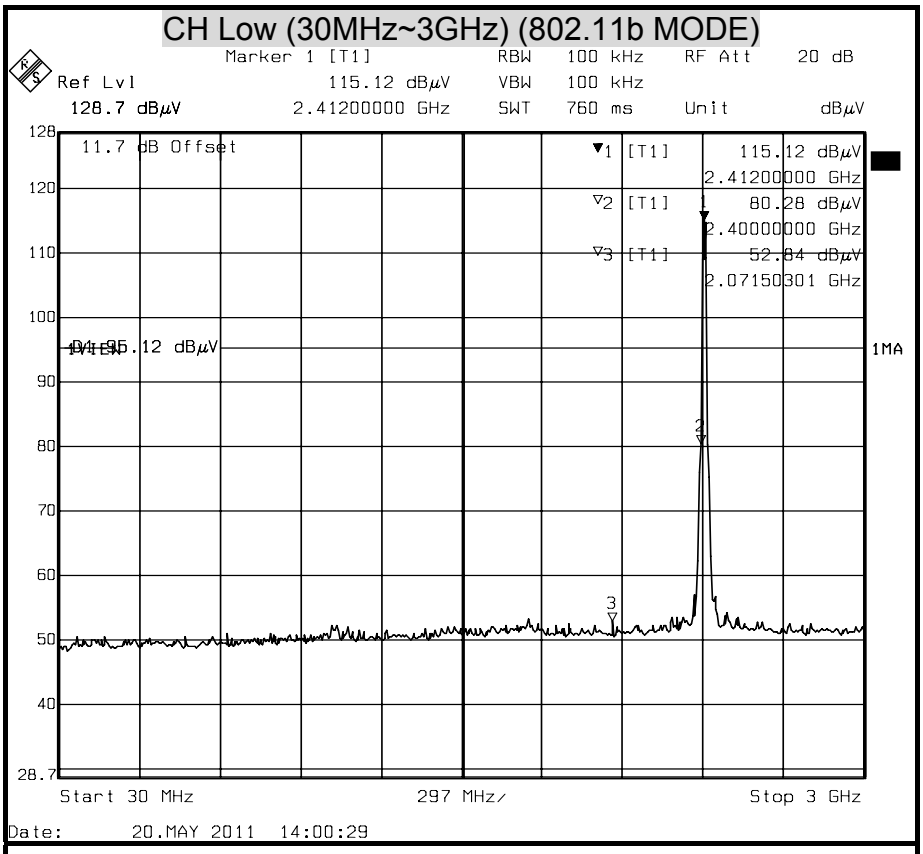
CH High

Frequency (MHz)	Offset (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)
2452.00	15.2	89.17	104.37	N/A	N/A
2400.00	15.2	40.64	55.84	84.37	-28.53
1488.21	15.2	40.63	55.83	84.37	-28.54
6955.91	15.2	44.55	59.75	84.37	-24.62

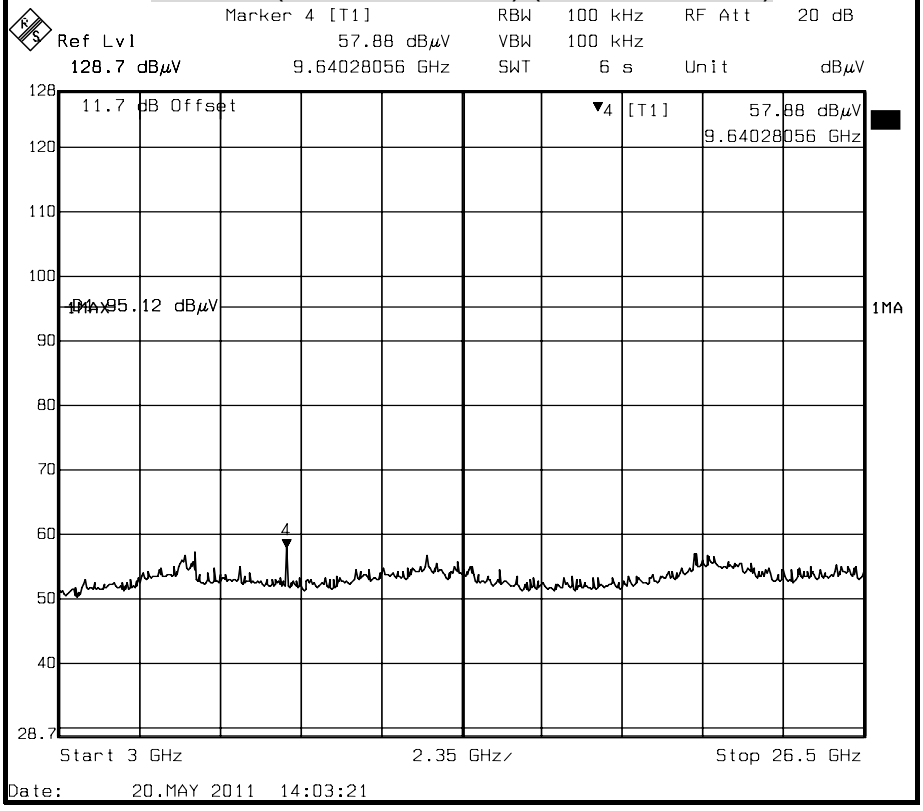
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

(IEEE 802.11b MODE)

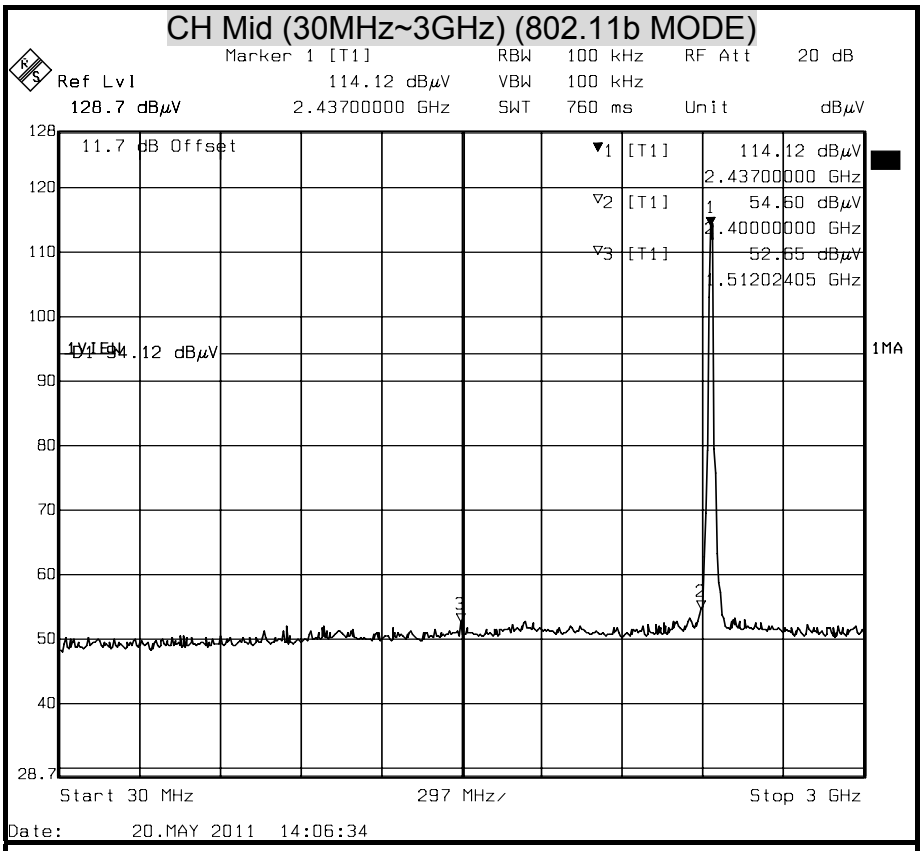
CH Low (30MHz~3GHz) (802.11b MODE)



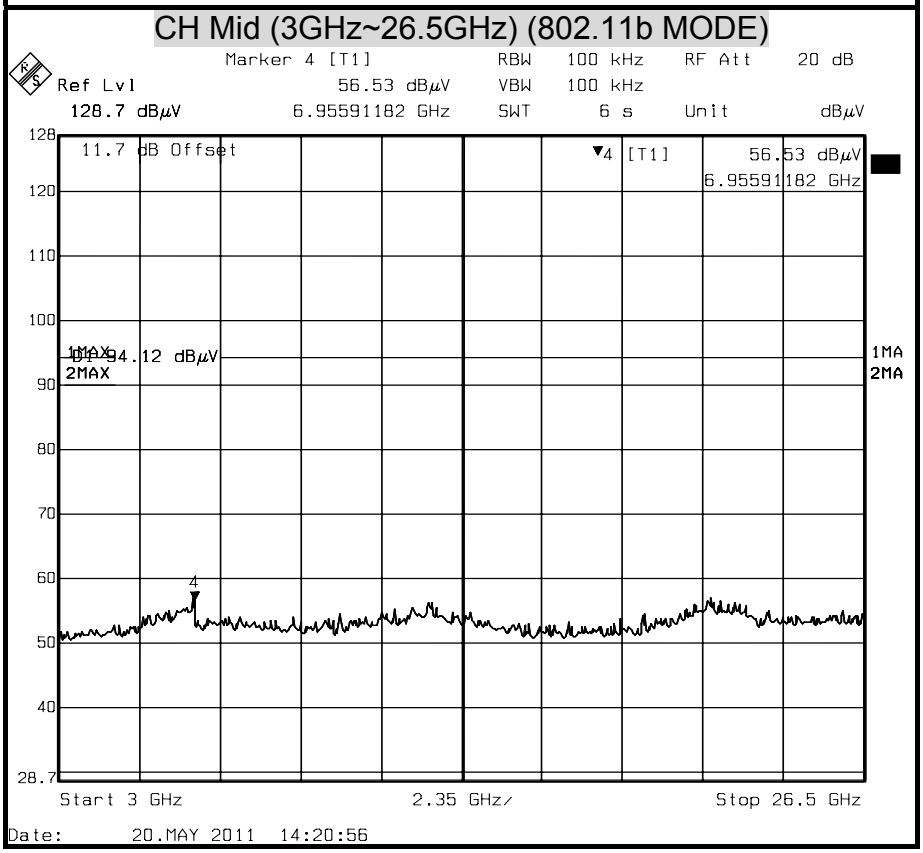
CH Low (3GHz~26.5GHz) (802.11b MODE)



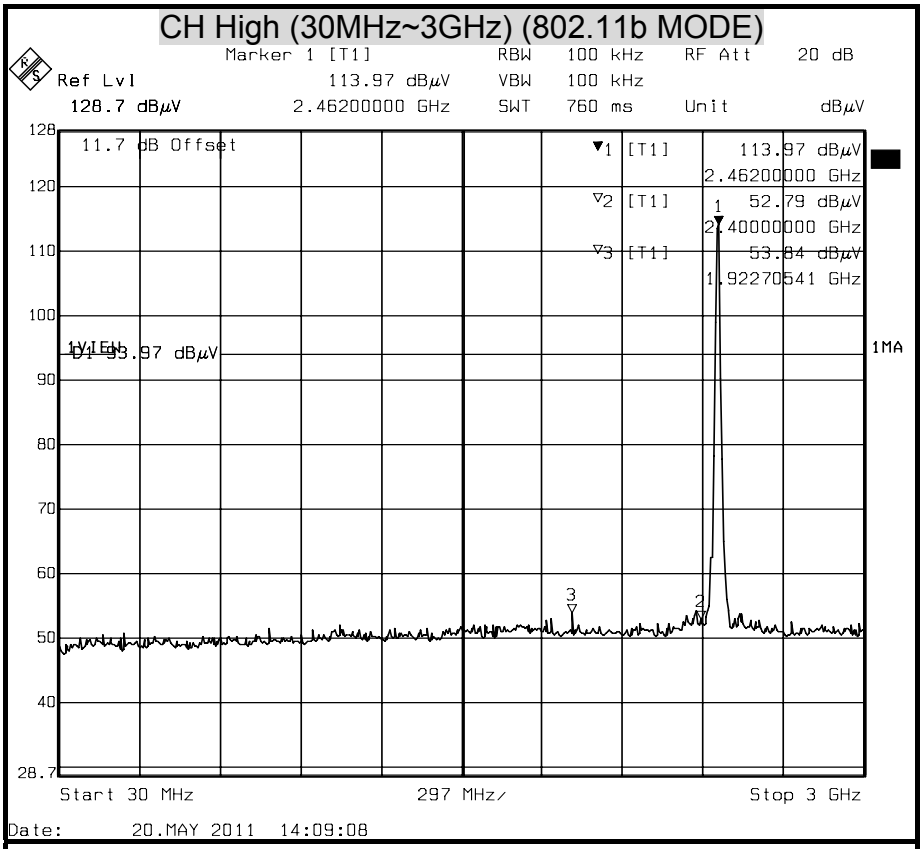
CH Mid (30MHz~3GHz) (802.11b MODE)



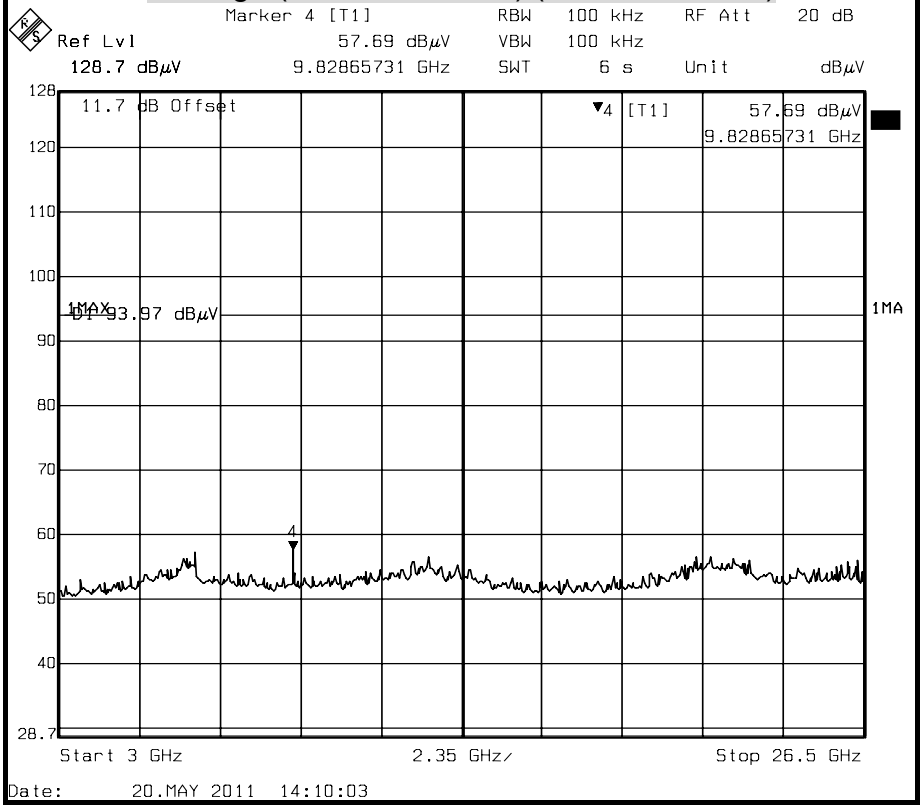
CH Mid (3GHz~26.5GHz) (802.11b MODE)



CH High (30MHz~3GHz) (802.11b MODE)



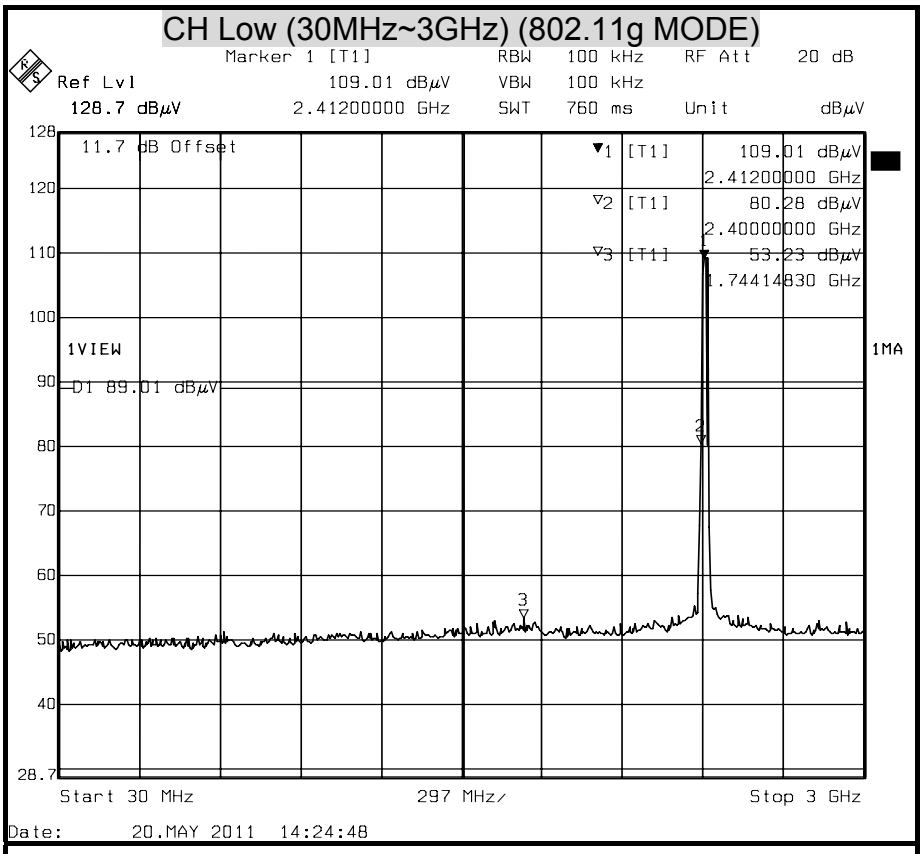
CH High (3GHz~26.5GHz) (802.11b MODE)



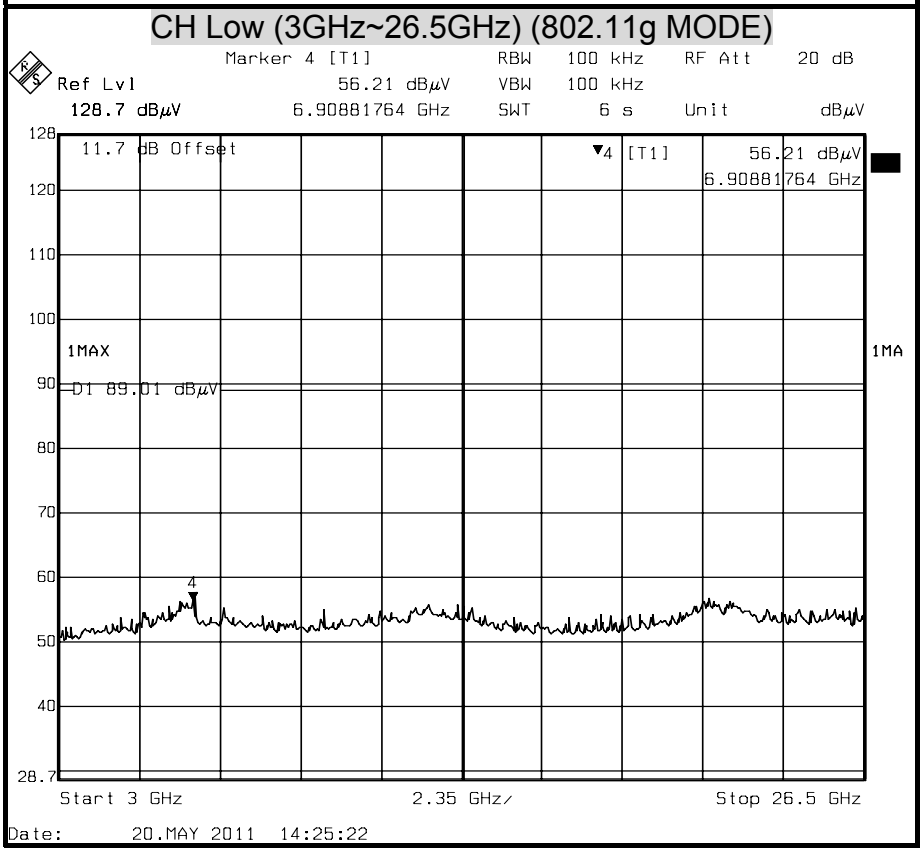
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

(802.11g MODE)

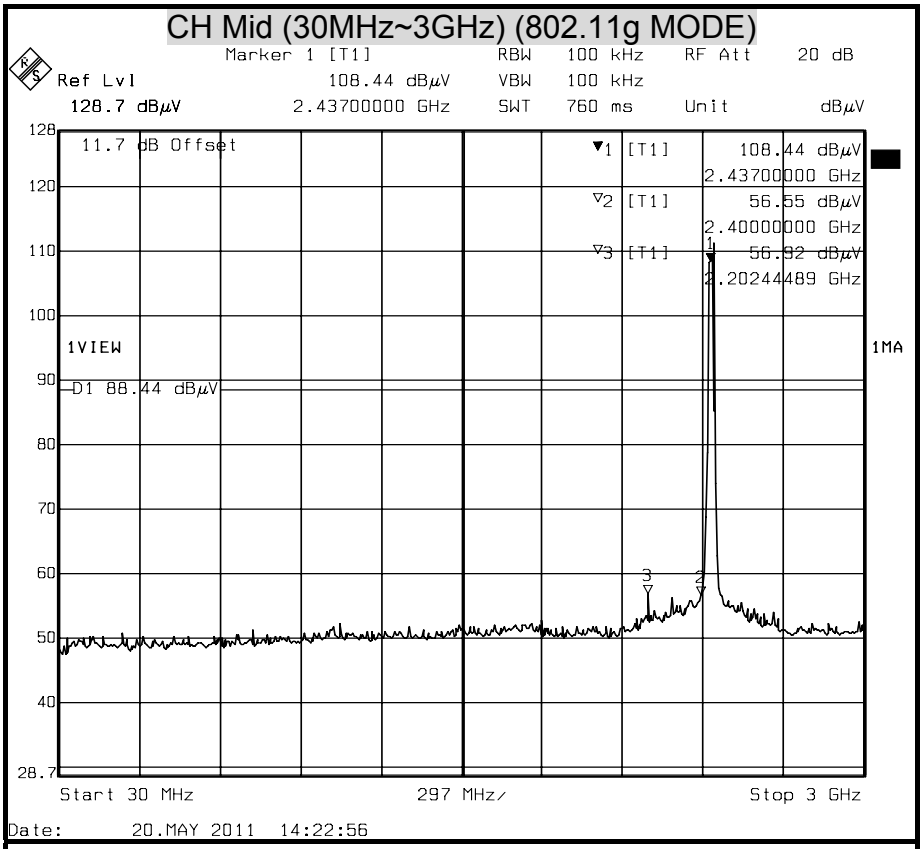
CH Low (30MHz~3GHz) (802.11g MODE)



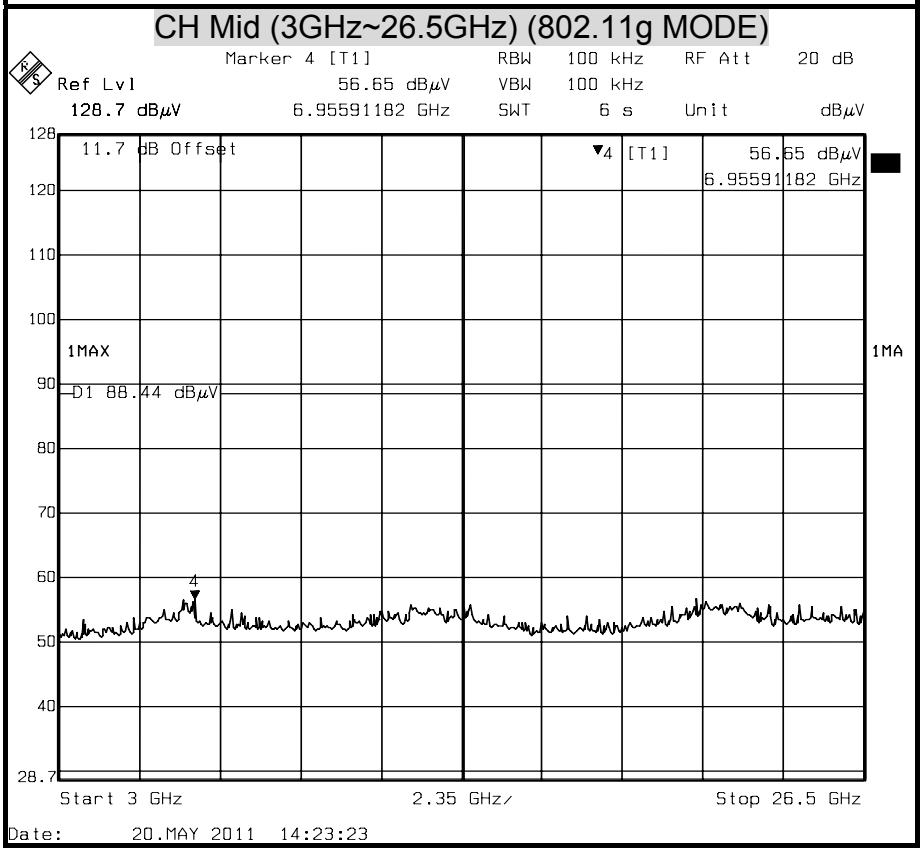
CH Low (3GHz~26.5GHz) (802.11g MODE)



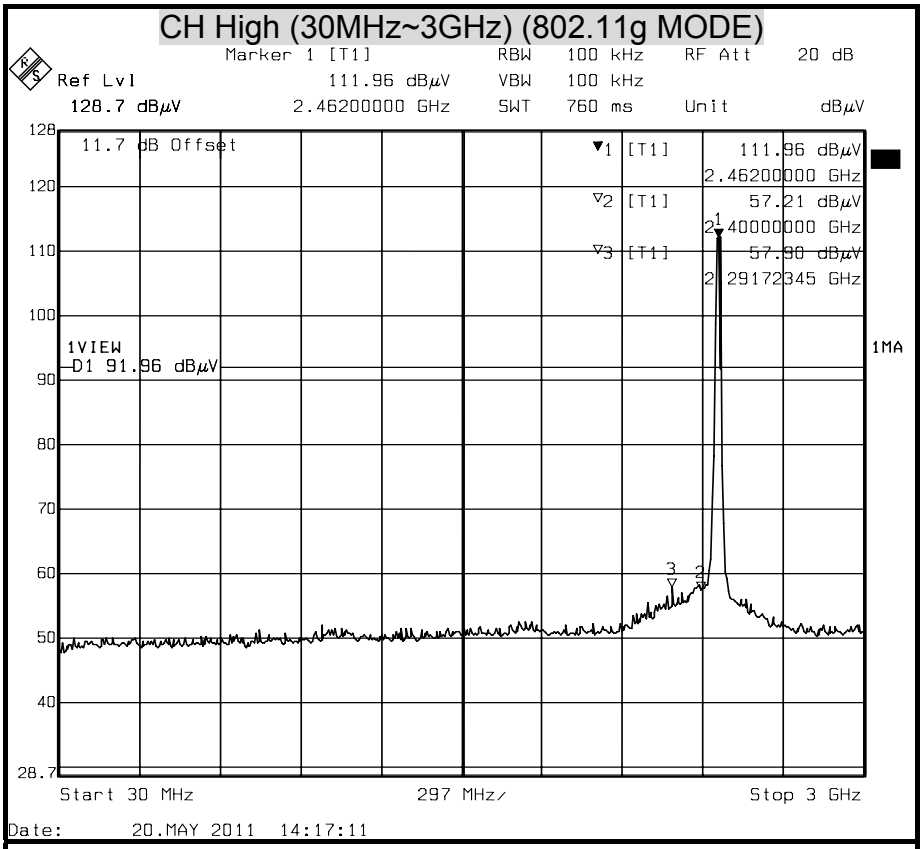
CH Mid (30MHz~3GHz) (802.11g MODE)



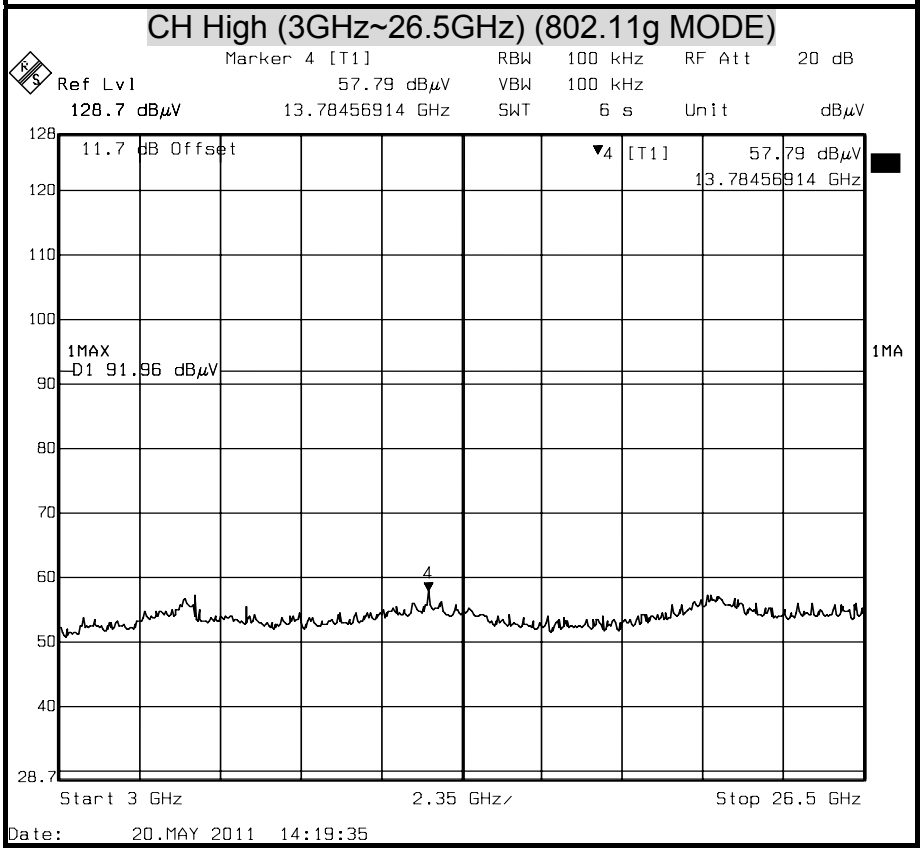
CH Mid (3GHz~26.5GHz) (802.11g MODE)



CH High (30MHz~3GHz) (802.11g MODE)



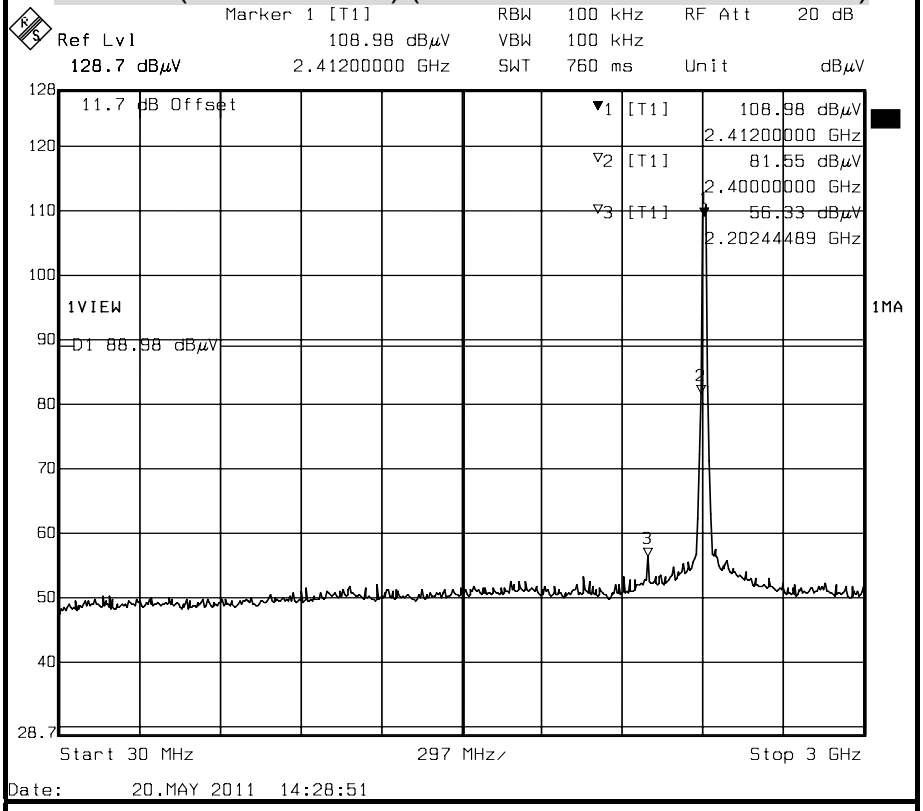
CH High (3GHz~26.5GHz) (802.11g MODE)



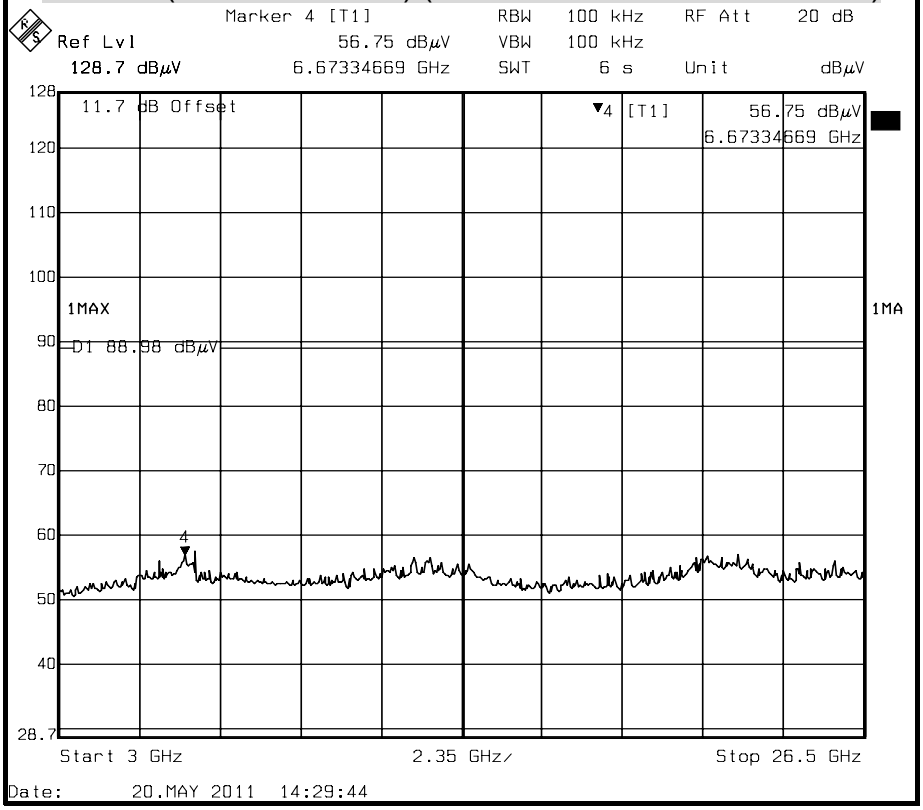
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

(802.11n HT20 MODE)

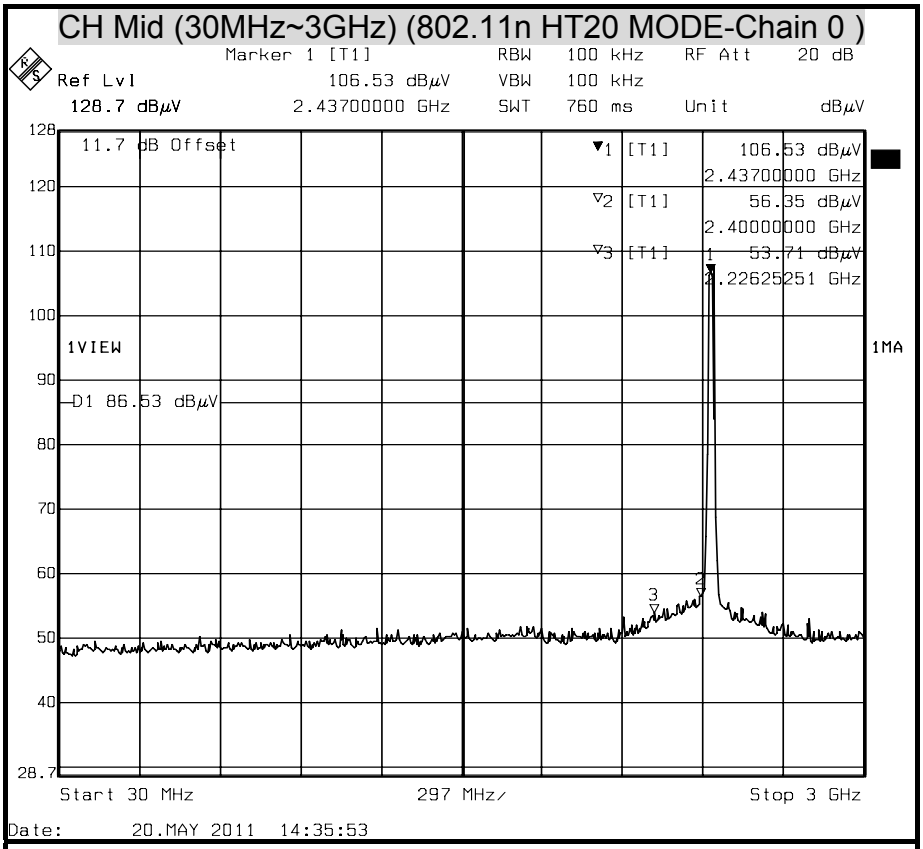
CH Low (30MHz~3GHz) (802.11n HT20 MODE-Chain 0)



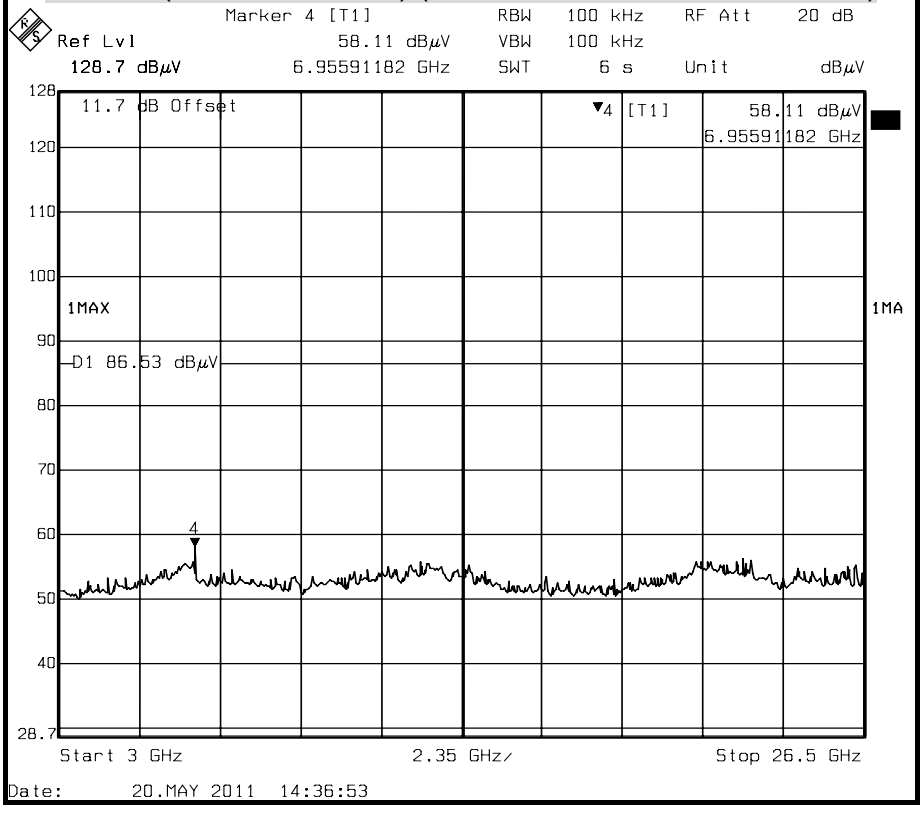
CH Low (3GHz~26.5GHz) (802.11n HT20 MODE-Chain 0)



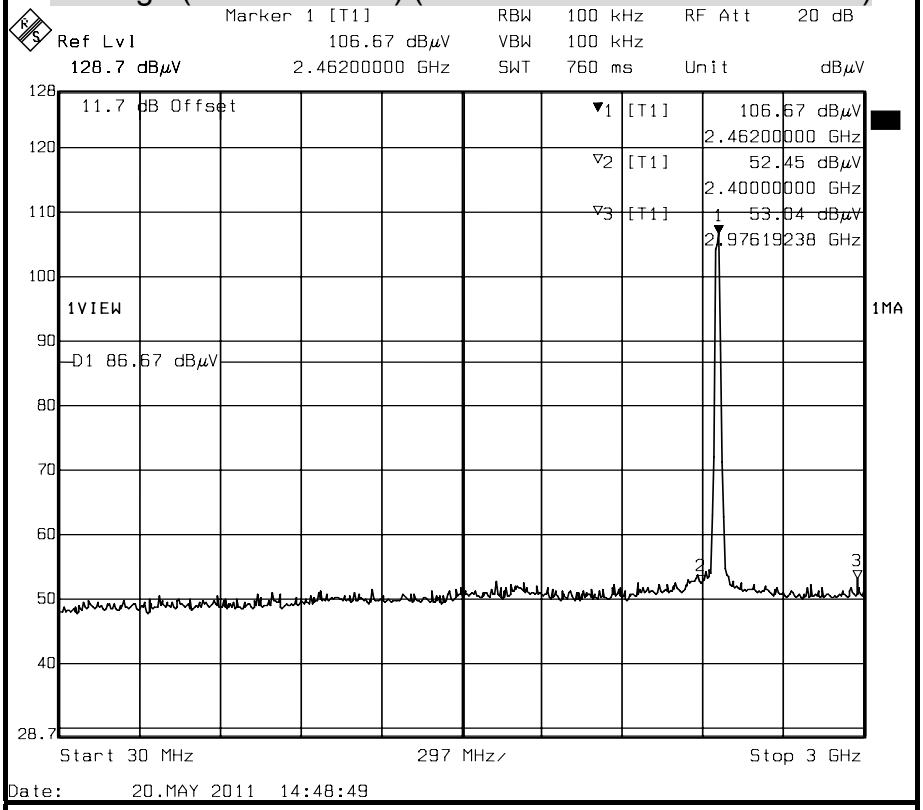
CH Mid (30MHz~3GHz) (802.11n HT20 MODE-Chain 0)



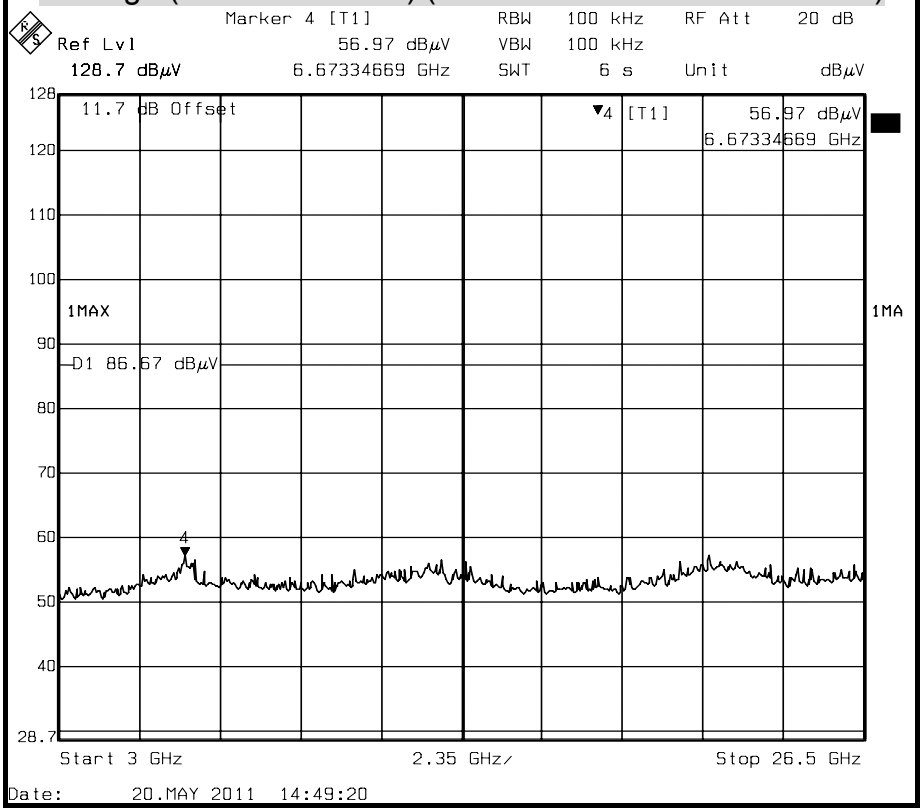
CH Mid (3GHz~26.5GHz) (802.11n HT20 MODE-Chain 0)



CH High (30MHz~3GHz) (802.11n HT20 MODE-Chain 0)



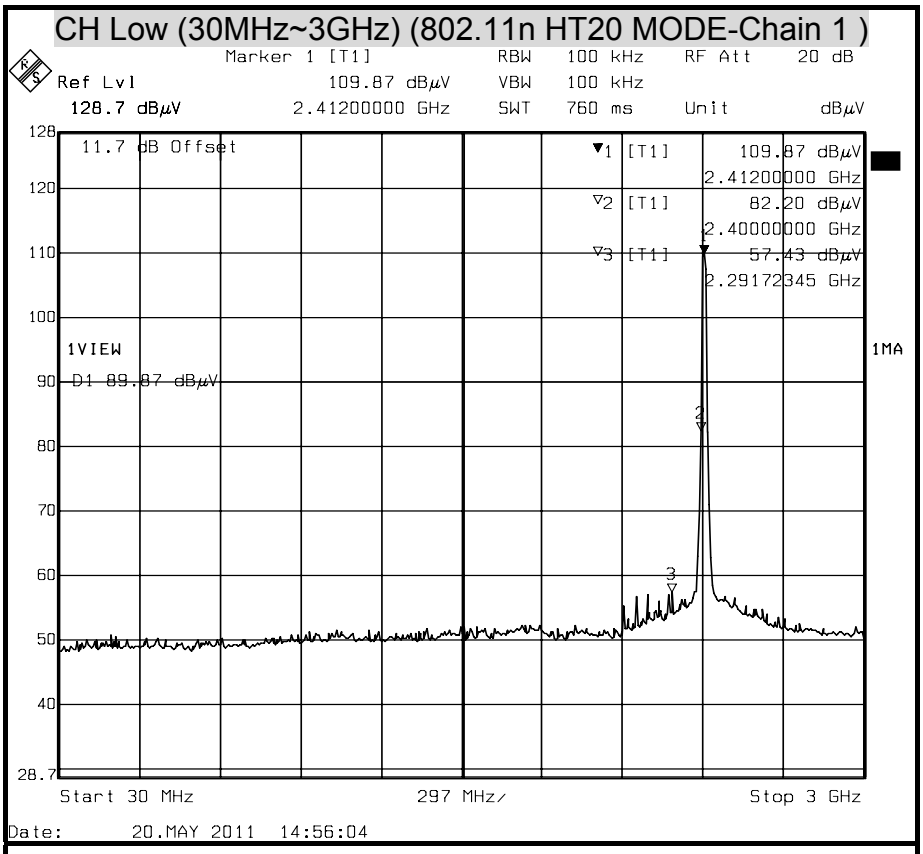
CH High (3GHz~26.5GHz) (802.11n HT20 MODE-Chain 0)



OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

(802.11n HT20 MODE)

CH Low (30MHz~3GHz) (802.11n HT20 MODE-Chain 1)



CH Low (3GHz~26.5GHz) (802.11n HT20 MODE-Chain 1)