



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

10.4" Fanless Mobile Clinical Assistant

Model:

MICA-101XXXXXXXXXXXX

("x" can be 0-9 or A-Z or blank or any alphanumeric character)

Trade Name: Advantech

Issued to

Advantech Co. Ltd.

**No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.**

Issued by

Compliance Certification Services Inc.

No. 11, Wu-Gong 6th Rd., Wugu Industrial Park,

Taipei Hsien 248, Taiwan (R.O.C.)

<http://www.ccsemc.com.tw>

service@ccsrf.com



***Note:** This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document.*



TABLE OF CONTENTS

- 1. TEST RESULT CERTIFICATION.....3**
- 2. EUT DESCRIPTION4**
- 3. TEST METHODOLOGY6**
 - 3.1 EUT CONFIGURATION6
 - 3.2 EUT EXERCISE.....6
 - 3.3 GENERAL TEST PROCEDURES.....6
 - 3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS7
 - 3.5 DESCRIPTION OF TEST MODES8
- 4. INSTRUMENT CALIBRATION.....9**
 - 4.1 MEASURING INSTRUMENT CALIBRATION9
 - 4.2 MEASUREMENT EQUIPMENT USED9
 - 4.3 MEASUREMENT UNCERTAINTY10
- 5. FACILITIES AND ACCREDITATIONS11**
 - 5.1 FACILITIES11
 - 5.2 EQUIPMENT.....11
 - 5.3 TABLE OF ACCREDITATIONS AND LISTINGS.....12
- 6. SETUP OF EQUIPMENT UNDER TEST13**
 - 6.1 SETUP CONFIGURATION OF EUT.....13
 - 6.2 SUPPORT EQUIPMENT13
- 7. FCC PART 15.247 REQUIREMENTS.....14**
 - 7.1 6DB BANDWIDTH14
 - 7.2 PEAK POWER.....34
 - 7.3 AVERAGE POWER54
 - 7.4 BAND EDGES MEASUREMENT74
 - 7.5 PEAK POWER SPECTRAL DENSITY92
 - 7.6 SPURIOUS EMISSIONS.....119
 - 7.7 RADIATED EMISSIONS143
 - 7.8 POWERLINE CONDUCTED EMISSIONS.....168
- APPENDIX I RADIO FREQUENCY EXPOSURE.....171**
- APPENDIX II PHOTOGRAPHS OF TEST SETUP173**



1. TEST RESULT CERTIFICATION

Applicant: Advantech Co. Ltd.
 No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
 Taipei 114, Taiwan, R.O.C.

Equipment Under Test: 10.4" Fanless Mobile Clinical Assistant

Trade Name: Advantech

Model Number: MICA-101XXXXXXXXXXXX ("x" can be 0-9 or A-Z or blank
 or any alphanumeric character)

Date of Test: January 21 ~ May 12, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted
Deviation from Applicable Standard	
None	

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:

Rex Lai
 Section Manager
 Compliance Certification Services Inc.

Gina Lo
 Section Manager
 Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	10.4" Fanless Mobile Clinical Assistant		
Trade Name	Advantech		
Model Number	MICA-101XXXXXXXXXXXX ("x" can be 0-9 or A-Z or blank or any alphanumeric character)		
Model Discrepancy	All the specification and layout are identical except they come with different model numbers for marketing purposes.		
Power Supply	1. VDC from Power Adapter 2. VDC from Battery Rating: 11.1V, 3760mAh		
Power Adapter Manufacturer	SINPRO	Model	MPU63-106
Power Adapter Power Rating	For MPU63-106 I/P: 100-240V, 47-63Hz, 1.62-0.72A O/P: 15V, 4.2A		
Frequency Range	IEEE 802.11a mode: 5.745~5.825 GHz draft 802.11n Standard-20 MHz Channel mode: 5.745~5.825 GHz draft 802.11n Wide-40 MHz Channel mode: 5.755~5.815 GHz IEEE 802.11b/g mode: 2.412~2.462 GHz draft 802.11n Standard-20 MHz Channel mode: 2.412~2.462 GHz draft 802.11n Wide-40 MHz Channel mode: 2.422~2.452 GHz		
Transmit Power	IEEE 802.11a mode: 17.53 dBm draft 802.11n Standard-20 MHz Channel mode: 21.20 dBm draft 802.11n Wide-40 MHz Channel mode: 20.22 dBm IEEE 802.11b mode: 20.27 dBm IEEE 802.11g mode: 17.72 dBm draft 802.11n Standard-20 MHz Channel mode: 19.09 dBm draft 802.11n Wide-40 MHz Channel mode: 16.41 dBm		
Modulation Technique	IEEE 802.11a: OFDM (QPSK, BPSK, 16-QAM, 64-QAM) (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel 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) draft 802.11n Wide-40 MHz Channel 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 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel 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) draft 802.11n Wide-40 MHz Channel 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 draft 802.11n Standard-20 MHz Channel mode : 5 Channels draft 802.11n Wide-40 MHz Channel mode: 3 Channels IEEE 802.11b/g mode: 11 Channels draft 802.11n Standard-20 MHz Channel mode: 11 Channels draft 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification	Antenna Gain: IEEE 802.11a: 4.09 dBi MIMO: $4.09 \text{ dBi} + 10 \log (2) = 7.09 \text{ dBi}$ (Numeric gain: 5.12) IEEE 802.11b/g mode: 2.90dBi MIMO: $2.90 \text{ dBi} + 10 \log (2) = 5.90 \text{ dBi}$ (Numeric gain: 3.89)
Antenna Designation	PIFA Antenna

Remark:

1. *The sample selected for test was production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: **M82-MICA-101** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*



3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2003 and FCC CFR 47 Part 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: 2003 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: 2003.



3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

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

² Above 38.6

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



3.5 DESCRIPTION OF TEST MODES

The EUT (model: MICA-101) had been tested under operating condition.

The EUT comes with one battery and one power adapter for sale. After the preliminary test, the EUT with power adapter was found to emit the worst emissions and therefore had been tested under standby condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and Chain1). Software used to control the EUT for staying in continuous transmitting mode was programmed.

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

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

IEEE 802.11a mode:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6Mbps data rate were chosen for full testing.

draft 802.11n Standard-20 MHz Channel mode:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode:

Channel Low(5755MHz), Channel Mid(5795MHz) and Channel High(5815MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11b mode:

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

IEEE 802.11g mode:

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

draft 802.11n Standard-20 MHz Channel mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode:

Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/05/2010

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	09/10/2009
Test Receiver	Rohde&Schwarz	ESCI	100064	11/29/2009
Switch Controller	TRC	Switch Controller	SC94050010	05/02/2010
4 Port Switch	TRC	4 Port Switch	SC94050020	05/02/2010
Loop Antenna	EMCO	6502	8905/2356	05/28/2010
Horn-Antenna	TRC	HA-0502	06	06/03/2010
Horn-Antenna	TRC	HA-0801	04	06/18/2009
Horn-Antenna	TRC	HA-1201A	01	08/11/2009
Horn-Antenna	TRC	HA-1301A	01	08/11/2009
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/27/2010
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC MRA: TW1039 IC: 2324G-1/-2	10/17/2010 11/04/2010
Test S/W	LABVIEW (V 6.1)			

Powerline Conducted Emissions Test Site # 4				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100782	05/31/2010
LISN	R&S	ENV216	100066	05/10/2010
LISN	R&S	ENV 4200	830326/016	04/09/2010
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			



4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/-1.7983
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	+/-3.7046
3M Semi Anechoic Chamber / Above 1GHz	+/-3.0958

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

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

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

No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

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

Remark: The powerline conducted emission test items was tested at Compliance Certification Services Inc. (Linkou Lab.) The test equipments were listed in page 9 and the test data, please refer page 170-171.

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

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

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



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	USB Mouse	Logitech	M-UE58	LZA10752880	FCC DoC	Shielded, 1.8m	N/A
2.	LCD Monitor	DELL	2407WFPb	CN-0FC255-46633-675-25THS	FCC DoC	D-sub Cable: Shielded, 1.8m with two cores	Unshielded, 1.8m
3.	USB Mouse	HP	MO19UCA	020509284	FCC DoC	USB Cable: Unshielded, 1.8m	N/A
4.	Notebook PC (Remote)	HP	COMPAQ NC 4010	CNU5191L58	FCC DOC	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
5.	AP (Remote)	LEMEL	LM-RT210W	12442028770	H8N-RT210W	N/A	Unshielded, 1.8m

Remark:

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

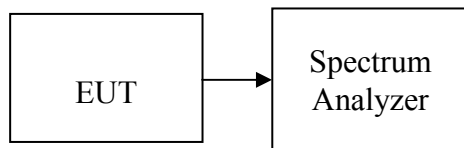
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

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

Test Configuration



TEST PROCEDURE

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 = 100 kHz, VBW = RBW, Span = 50 MHz, 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)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.58	>500	PASS
Mid	2437	12.08		PASS
High	2462	12.00		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.50	>500	PASS
Mid	2437	16.50		PASS
High	2462	16.50		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2412	17.83	>500	PASS
Mid	2437	17.67		PASS
High	2462	17.83		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2412	17.83	>500	PASS
Mid	2437	17.75		PASS
High	2462	17.75		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2422	35.58	>500	PASS
Mid	2437	35.58		PASS
High	2452	35.47		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2422	36.05	>500	PASS
Mid	2437	35.70		PASS
High	2452	36.17		PASS



Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Test Result
Low	5745	16.50	>500	PASS
Mid	5785	16.58		PASS
High	5825	16.58		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.33	>500	PASS
Mid	5785	17.75		PASS
High	5825	17.67		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.67	>500	PASS
Mid	5785	17.83		PASS
High	5825	17.67		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.28	>500	PASS
Mid	5795	35.00		PASS
High	5815	36.17		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.70	>500	PASS
Mid	5795	36.52		PASS
High	5815	36.17		PASS



Test Plot

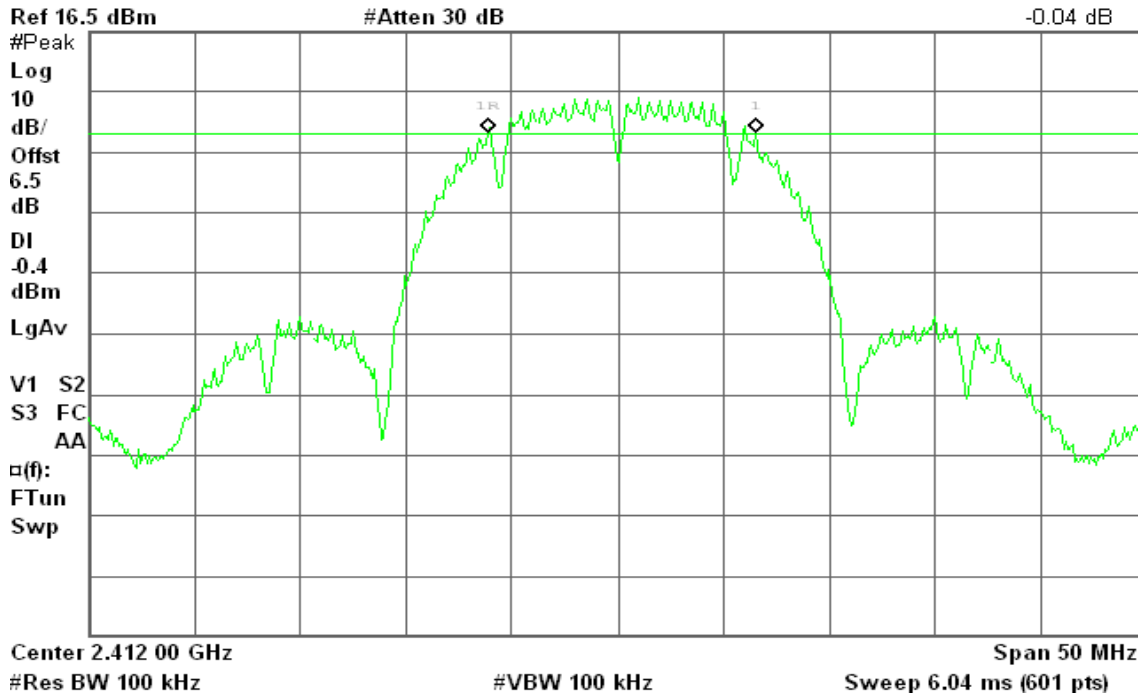
IEEE 802.11b mode

6dB Bandwidth (CH Low)

Agilent 14:51:48 Mar 9, 2009

R T

Δ Mkr1 12.58 MHz
-0.04 dB

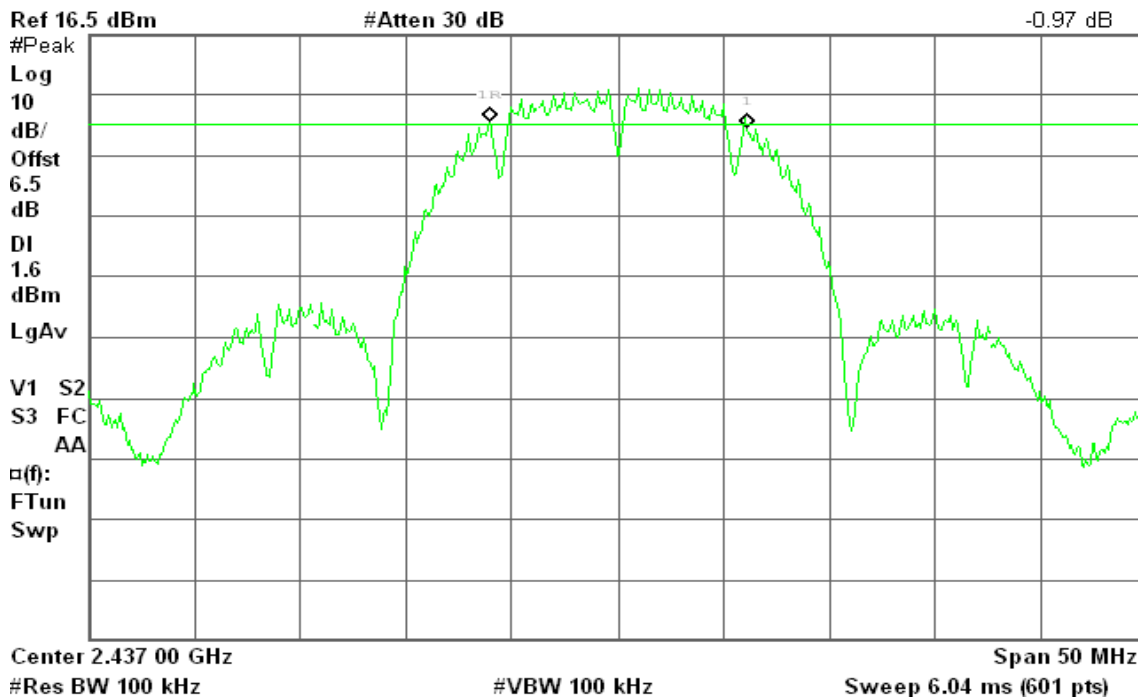


6dB Bandwidth (CH Mid)

Agilent 14:51:03 Mar 9, 2009

R T

Δ Mkr1 12.08 MHz
-0.97 dB



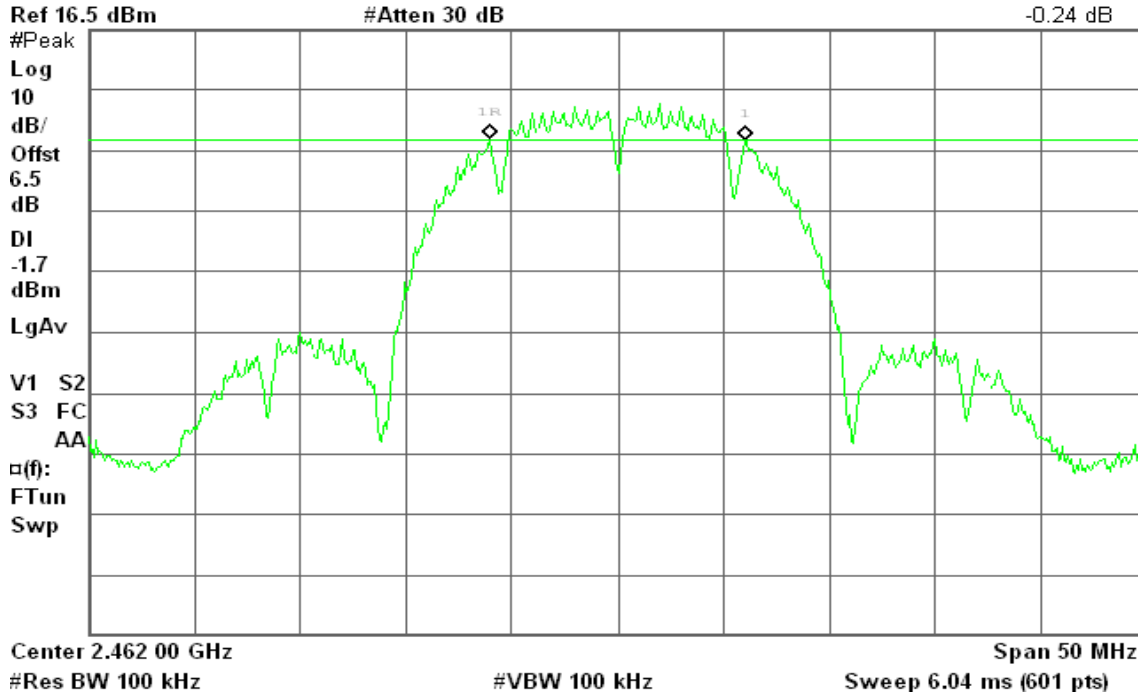


6dB Bandwidth (CH High)

Agilent 14:50:18 Mar 9, 2009

R T

Δ Mkr1 12.00 MHz
-0.24 dB



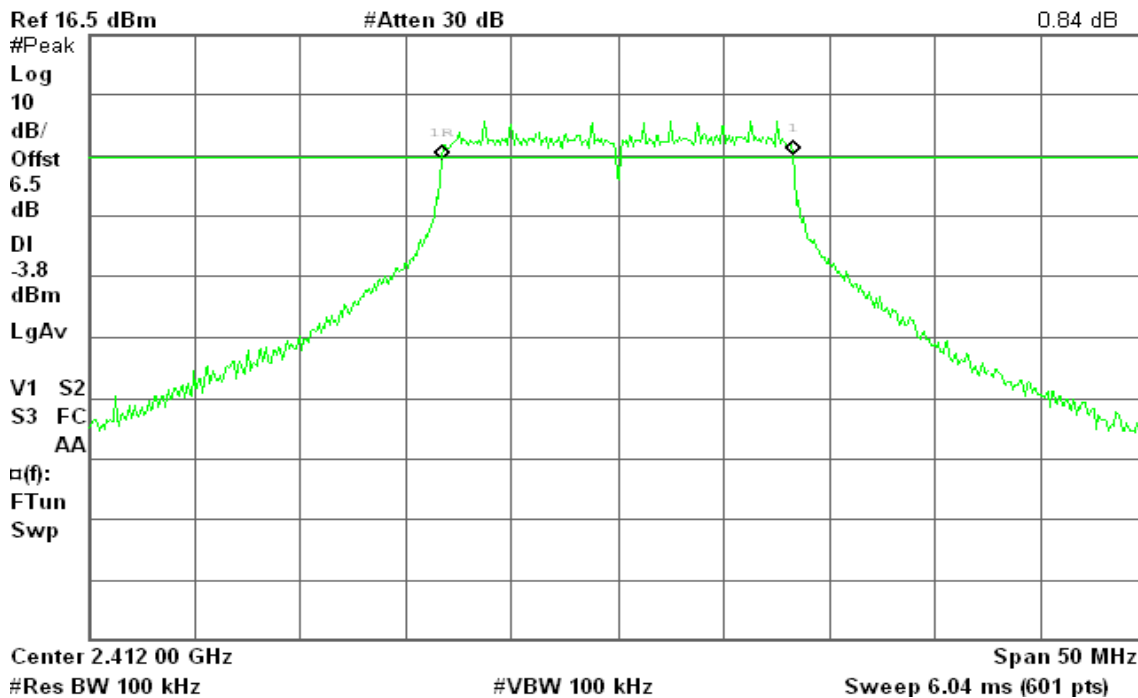
IEEE 802.11g mode

6dB Bandwidth (CH Low)

Agilent 14:47:24 Mar 9, 2009

R T

Δ Mkr1 16.50 MHz
0.84 dB



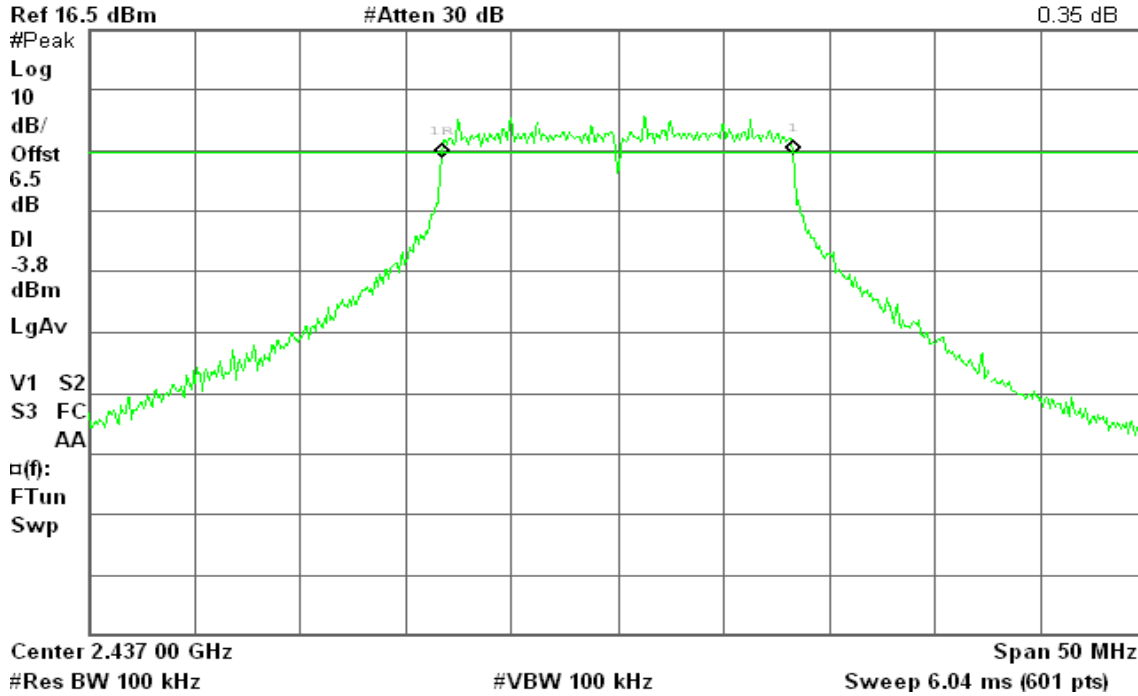


6dB Bandwidth (CH Mid)

Agilent 14:48:36 Mar 9, 2009

R T

Δ Mkr1 16.50 MHz
0.35 dB

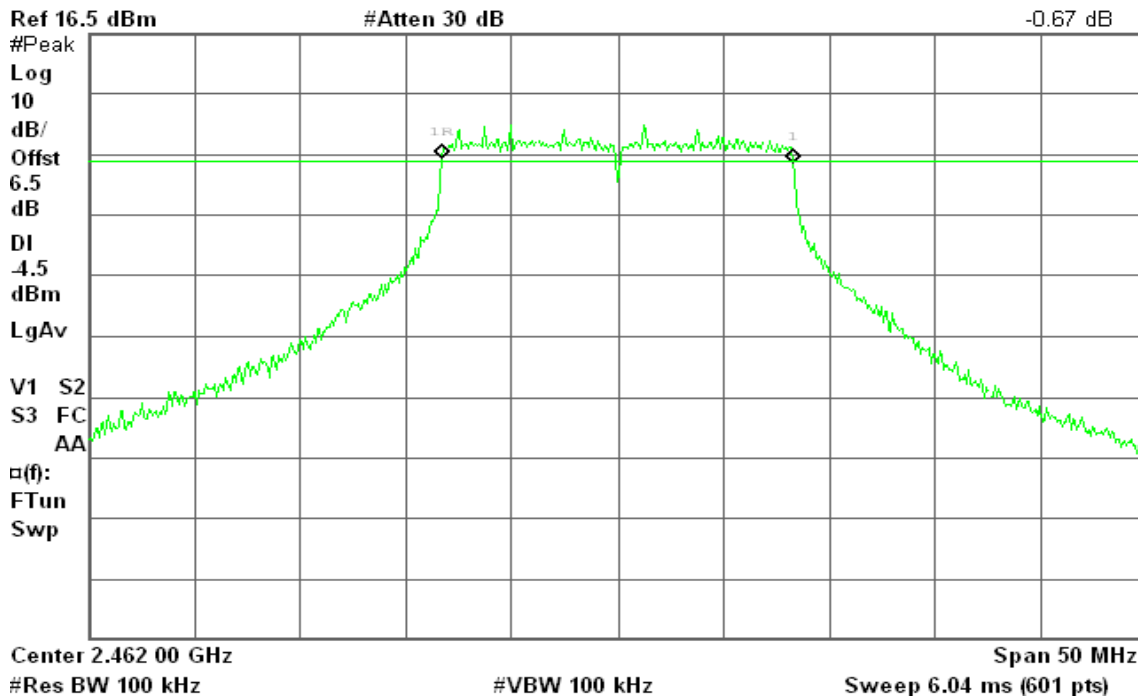


6dB Bandwidth (CH High)

Agilent 14:49:24 Mar 9, 2009

R T

Δ Mkr1 16.50 MHz
-0.67 dB





draft 802.11n Standard-20 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent 09:42:00 May 8, 2009

R T

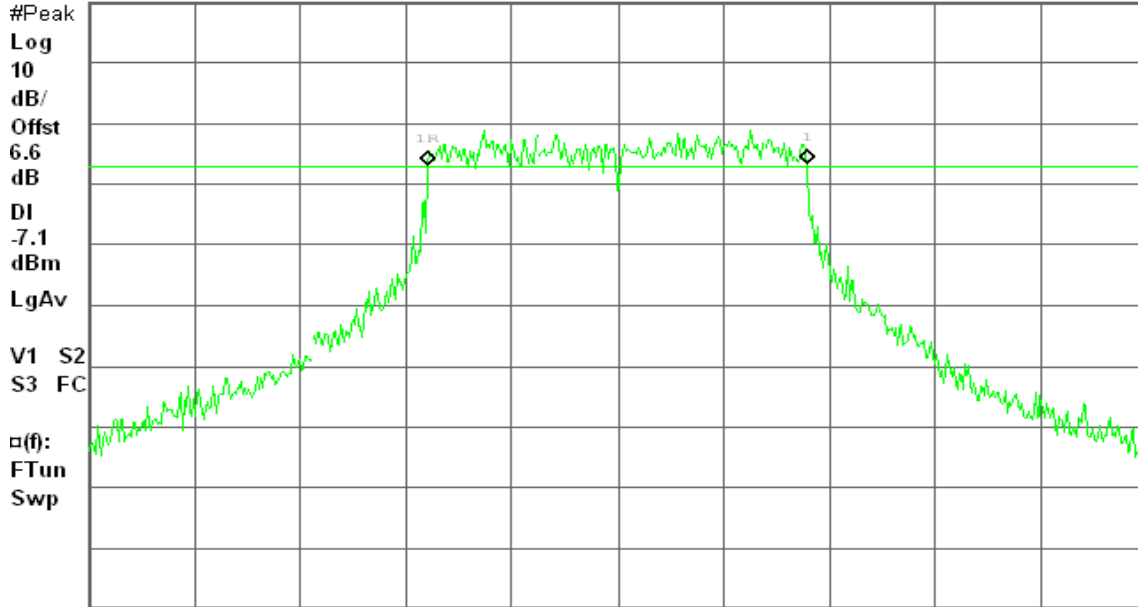
6dB BW, g Mode Low Ch.

Δ Mkr1 17.83 MHz

Ref 20 dBm

Atten 30 dB

0.13 dB



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 09:43:13 May 8, 2009

R T

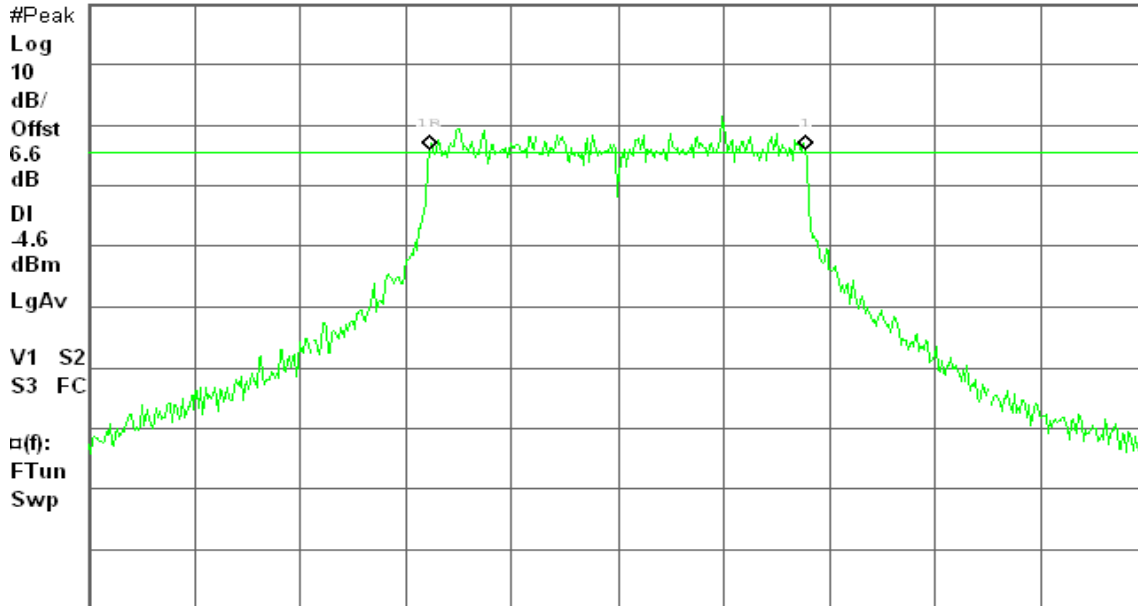
6dB BW, g Mode Mid Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 30 dB

0.10 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



6dB Bandwidth (CH High)

Agilent 09:45:00 May 8, 2009

R T

6dB BW, g Mode High Ch.

Δ Mkr1 17.83 MHz

Ref 20 dBm

Atten 30 dB

0.61 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-5.8

dBm

LgAv

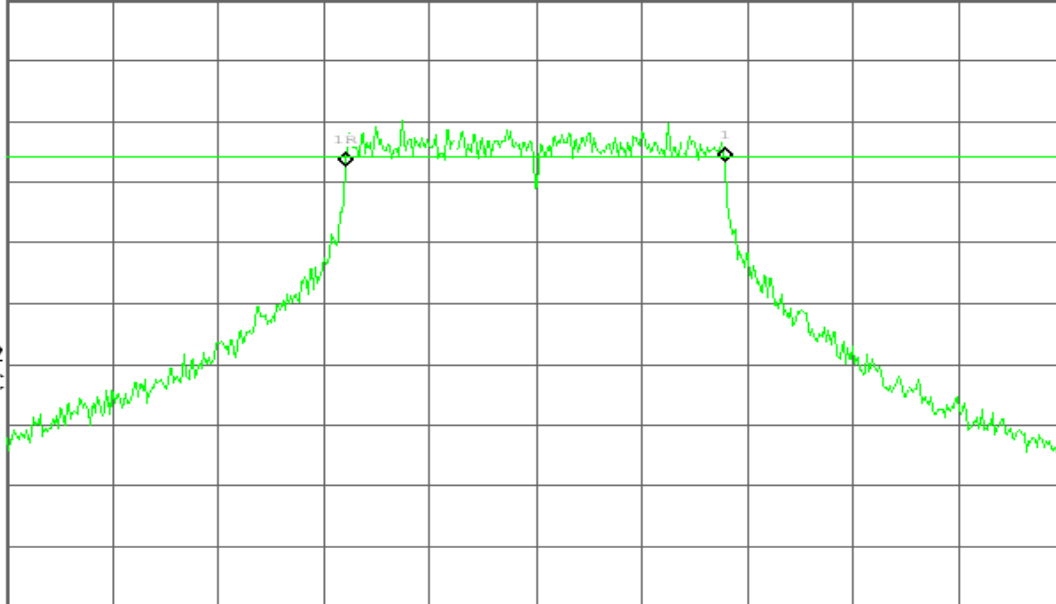
V1 S2

S3 FC

α(f):

FTun

Swp



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

draft 802.11n Standard-20 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent 09:52:44 May 8, 2009

R T

6dB BW, g Mode Low Ch.

Δ Mkr1 17.83 MHz

Ref 20 dBm

Atten 30 dB

0.03 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-6.6

dBm

LgAv

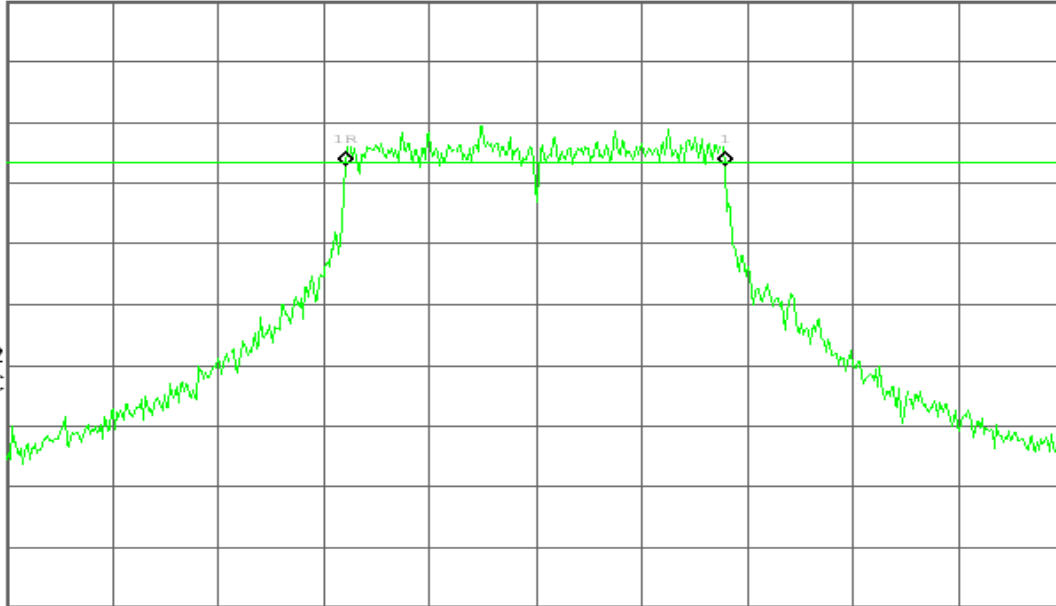
V1 S2

S3 FC

α(f):

FTun

Swp



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 09:51:40 May 8, 2009

R L

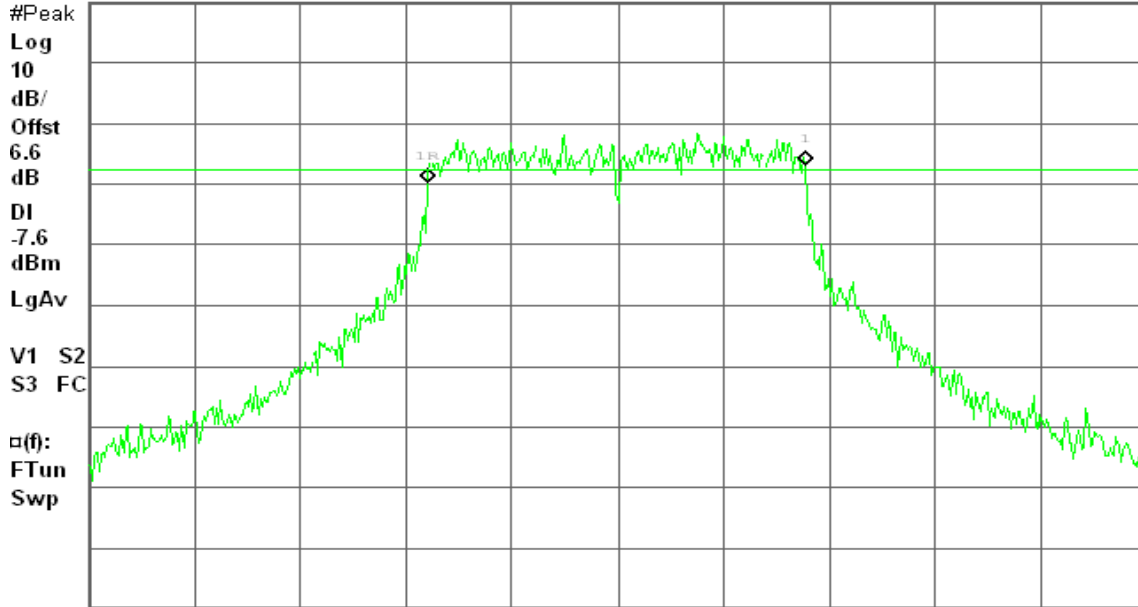
6dB BW, g Mode Mid Ch.

Δ Mkr1 17.75 MHz

Ref 20 dBm

Atten 30 dB

2.99 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 09:48:45 May 8, 2009

R T

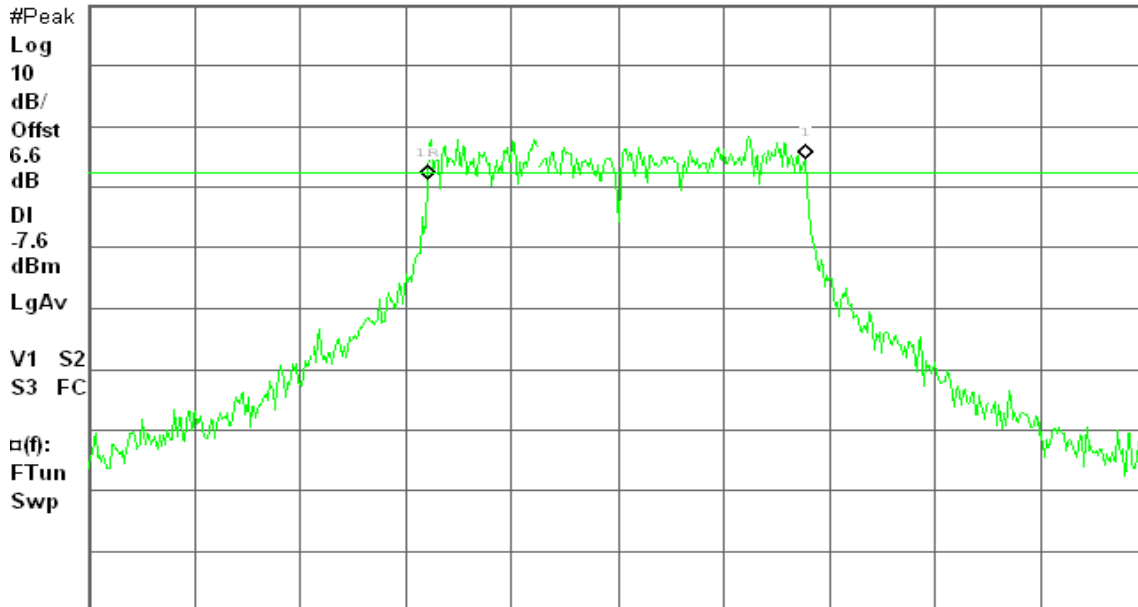
6dB BW, g Mode High Ch.

Δ Mkr1 17.75 MHz

Ref 20 dBm

Atten 30 dB

3.37 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



draft 802.11n Wide-40 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent 10:01:43 May 8, 2009

R L

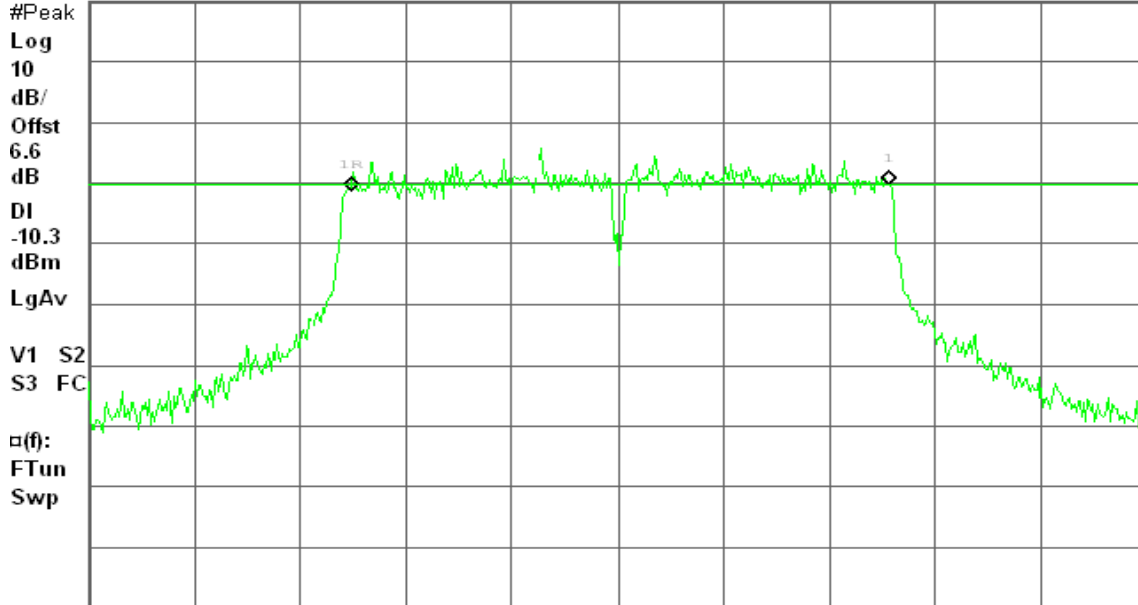
6dB BW, g Mode Low Ch.

Δ Mkr1 35.58 MHz

Ref 20 dBm

Atten 30 dB

1.15 dB



Center 2.422 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 10:00:49 May 8, 2009

R T

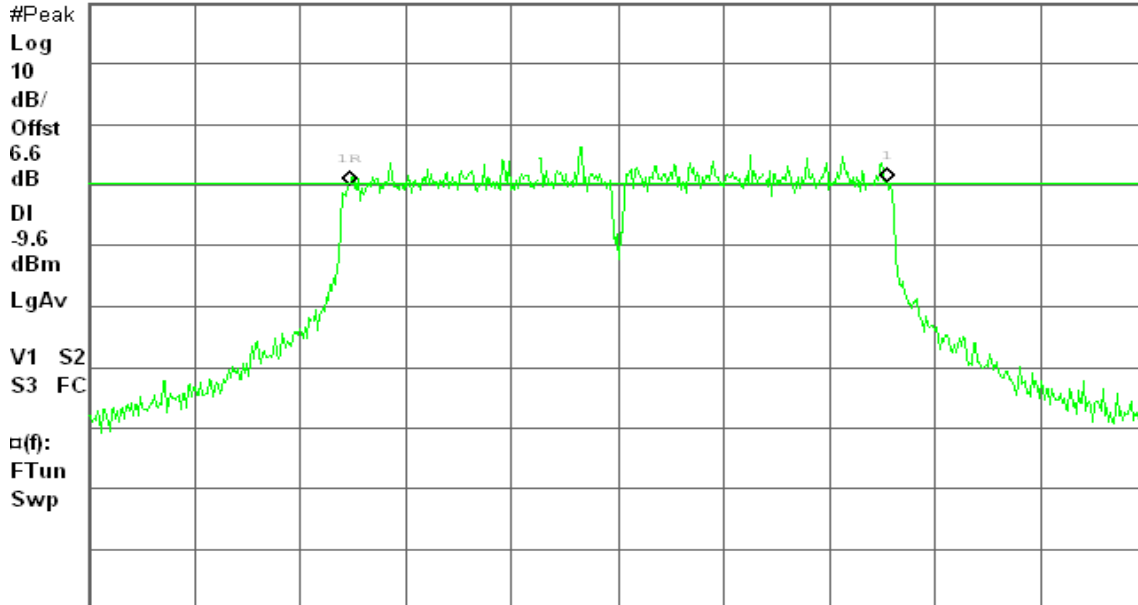
6dB BW, g Mode Mid Ch.

Δ Mkr1 35.58 MHz

Ref 20 dBm

Atten 30 dB

0.51 dB



Center 2.437 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)



6dB Bandwidth (CH High)

Agilent 09:59:50 May 8, 2009

R T

6dB BW, g Mode High Ch.

Δ Mkr1 35.47 MHz

Ref 20 dBm

Atten 30 dB

-0.81 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-11.1

dBm

LgAv

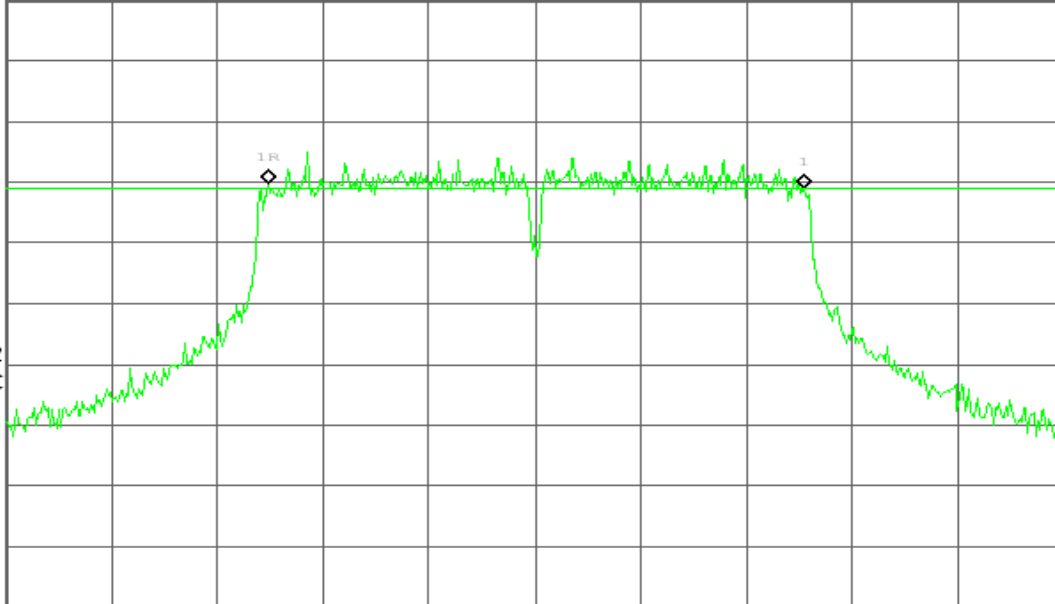
V1 S2

S3 FC

$\alpha(f)$:

FTun

Swp



Center 2.452 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

draft 802.11n Wide-40 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent 09:55:16 May 8, 2009

R T

6dB BW, g Mode Low Ch.

Δ Mkr1 36.05 MHz

Ref 20 dBm

Atten 30 dB

-0.19 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-11.8

dBm

LgAv

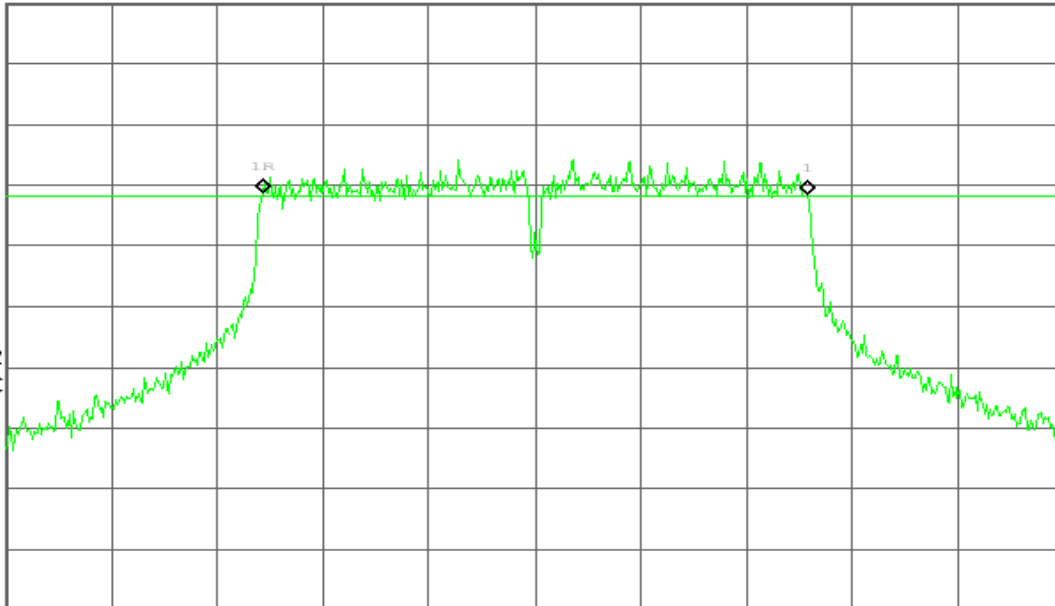
V1 S2

S3 FC

$\alpha(f)$:

FTun

Swp



Center 2.422 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 09:56:18 May 8, 2009

R T

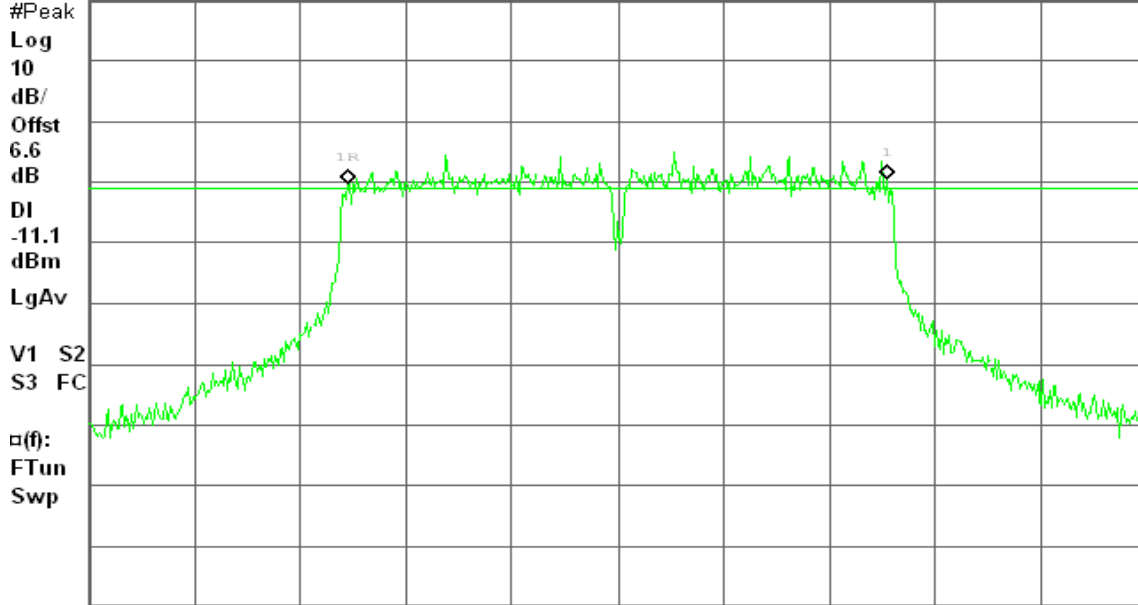
6dB BW, g Mode Mid Ch.

Δ Mkr1 35.70 MHz

Ref 20 dBm

Atten 30 dB

0.90 dB



Center 2.437 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 09:57:12 May 8, 2009

R T

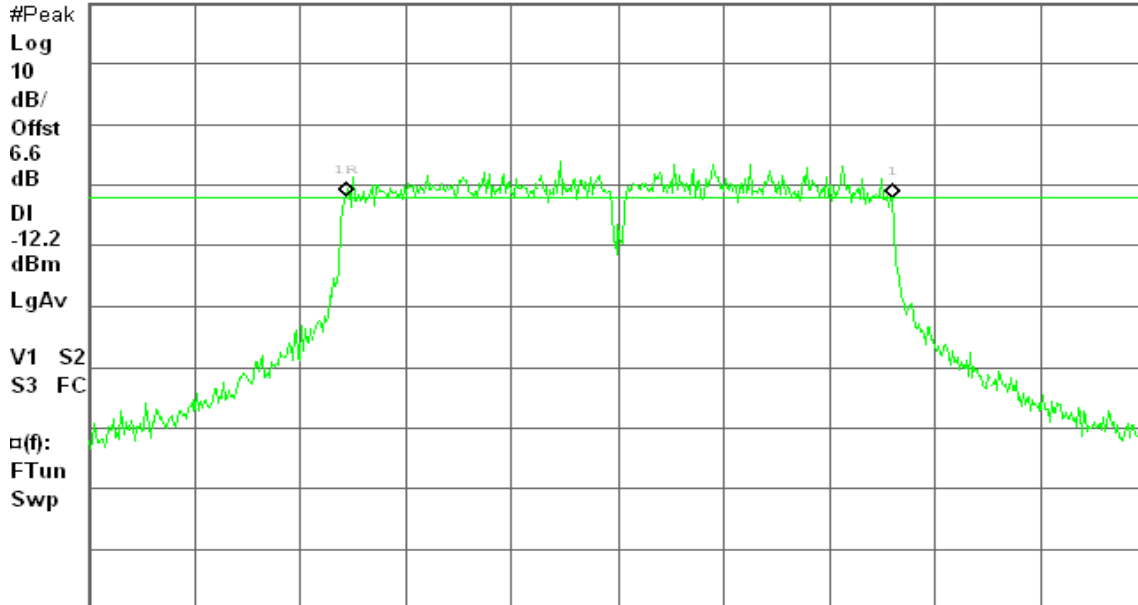
6dB BW, g Mode High Ch.

Δ Mkr1 36.17 MHz

Ref 20 dBm

Atten 30 dB

-0.34 dB



Center 2.452 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)



IEEE 802.11a mode / 5745 ~ 5825MHz

6dB Bandwidth (CH Low)

Agilent 20:02:18 Mar 10, 2009

R T

6dB BW, a Mode Low Ch.

Δ Mkr1 16.50 MHz

Ref 20 dBm

Atten 10 dB

-0.73 dB

#Peak

Log

10

dB/

Offst

20.5

dB

DI

-7.3

dBm

LgAv

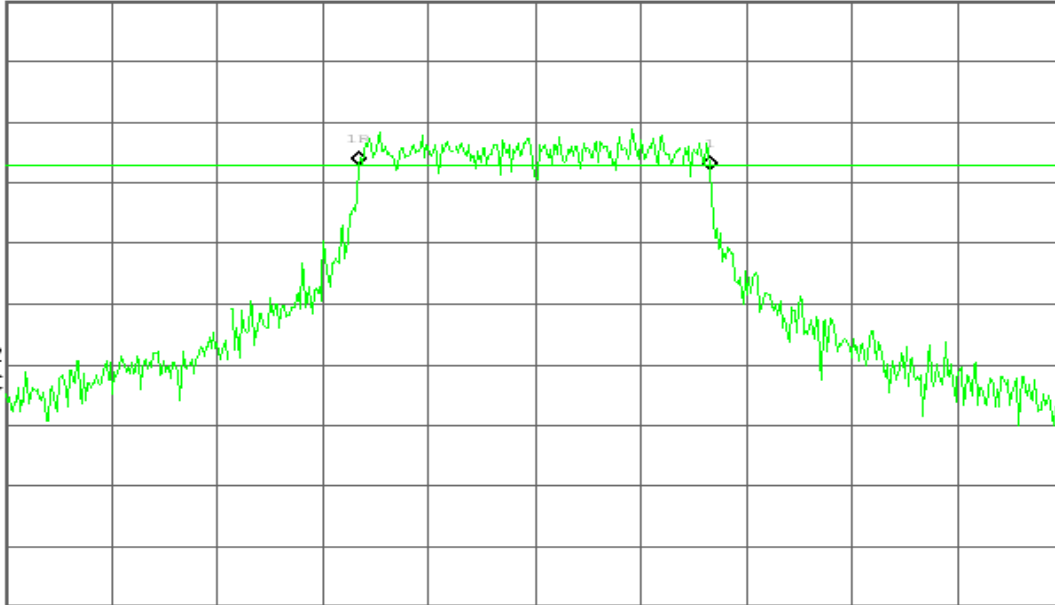
V1 S2

S3 FC

□(f):

FTun

Swp



Center 5.745 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 20:19:24 Mar 10, 2009

R T

6dB BW, a Mode Mid Ch.

Δ Mkr1 16.58 MHz

Ref 20 dBm

Atten 10 dB

0.90 dB

#Peak

Log

10

dB/

Offst

20.5

dB

DI

-7.5

dBm

LgAv

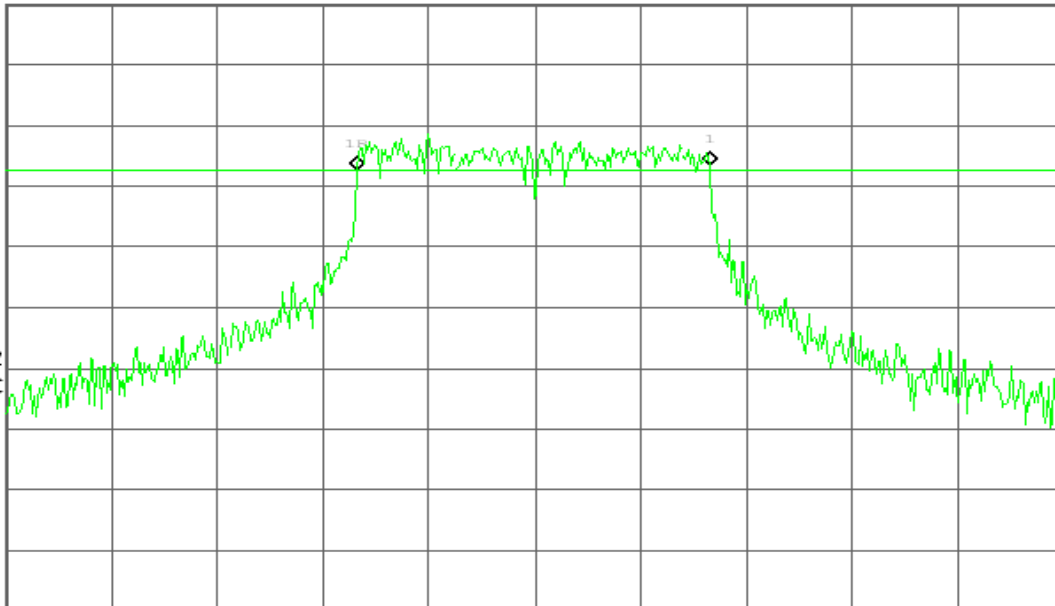
V1 S2

S3 FC

□(f):

FTun

Swp



Center 5.785 00 GHz

Span 50 MHz

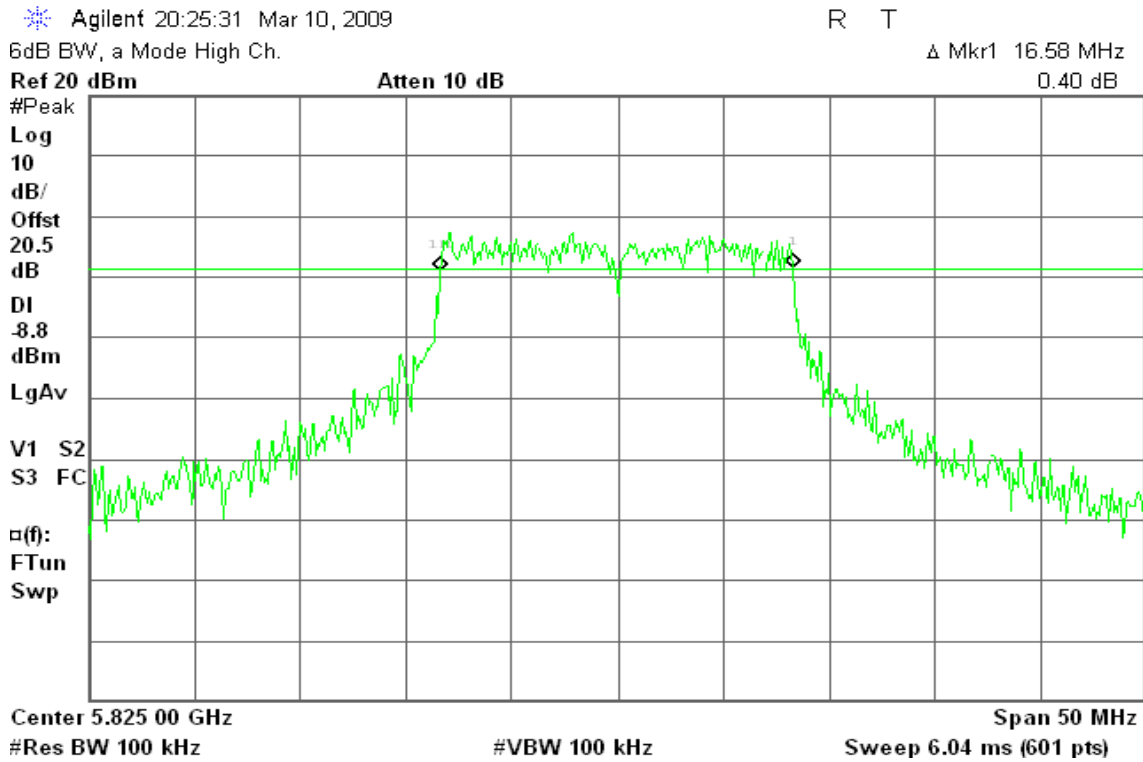
#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

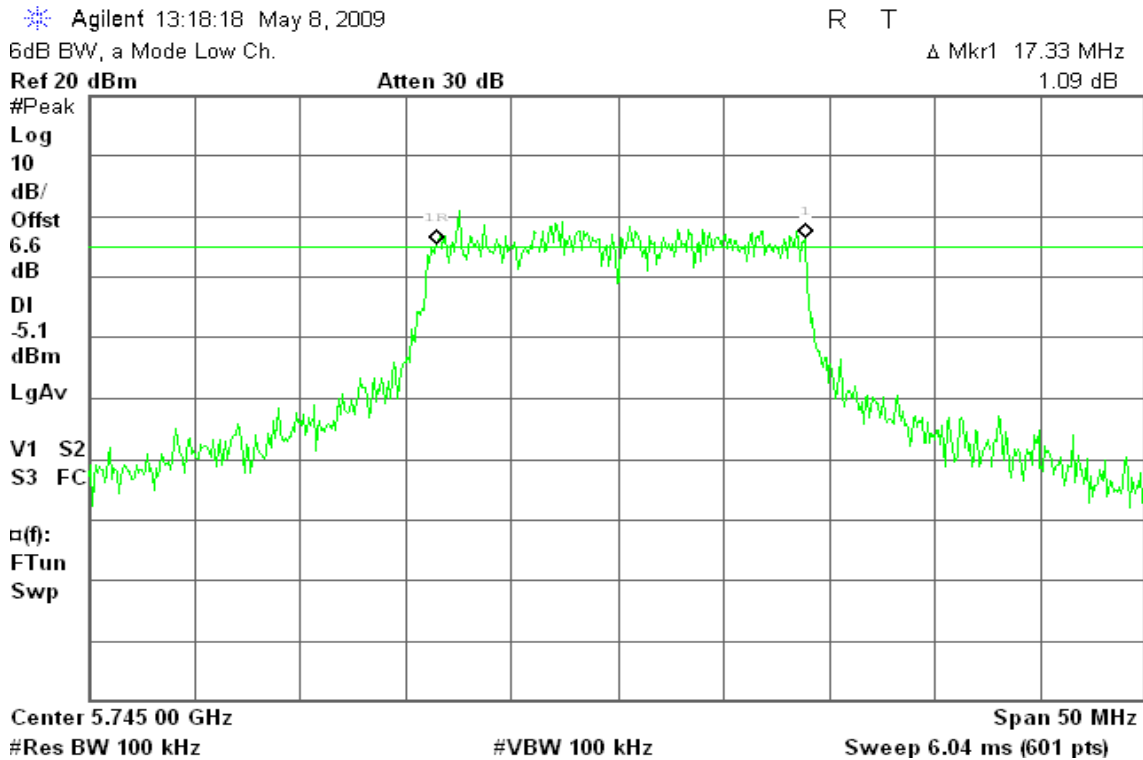


6dB Bandwidth (CH High)



draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

6dB Bandwidth (CH Low)





6dB Bandwidth (CH Mid)

Agilent 13:17:28 May 8, 2009

R T

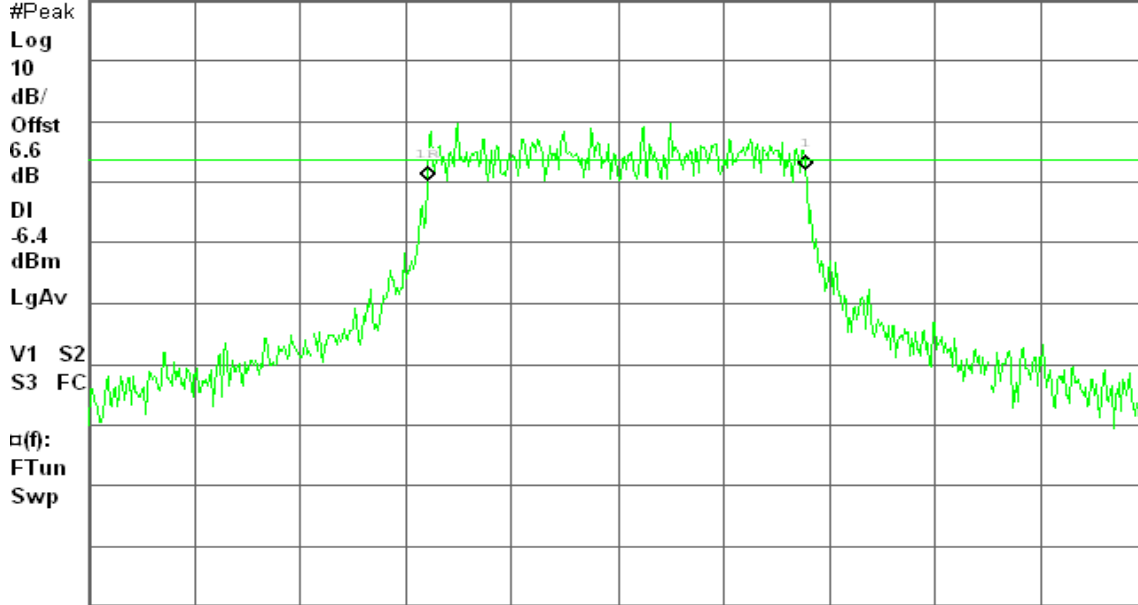
6dB BW, a Mode Mid Ch.

Δ Mkr1 17.75 MHz

Ref 20 dBm

Atten 30 dB

1.83 dB



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 13:16:33 May 8, 2009

R T

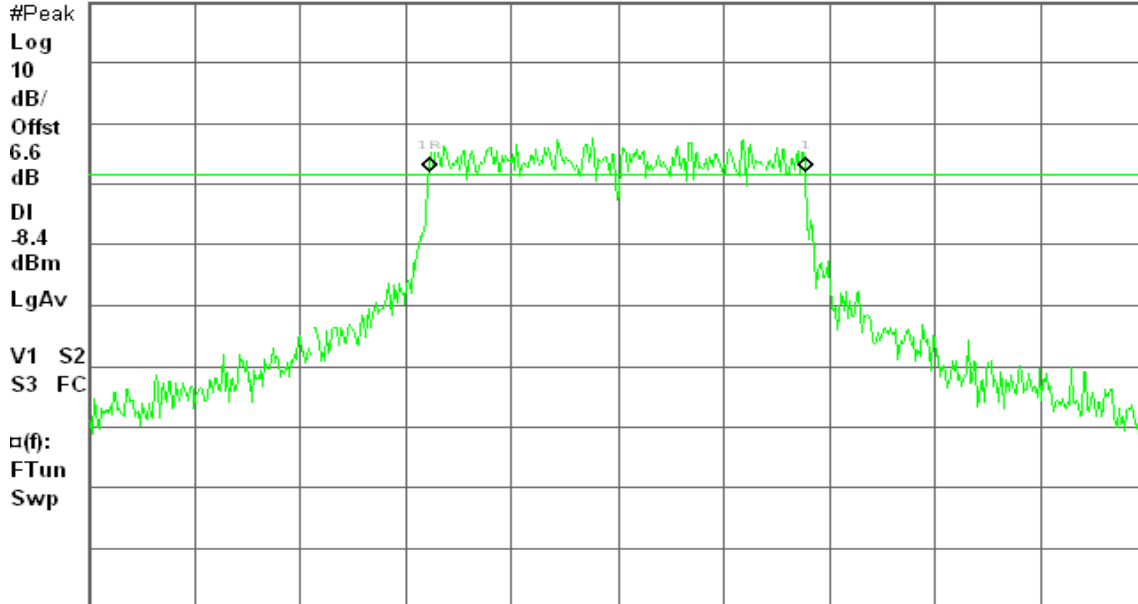
6dB BW, a Mode High Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 30 dB

-0.06 dB



Center 5.825 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

6dB Bandwidth (CH Low)

Agilent 13:13:29 May 8, 2009

R T

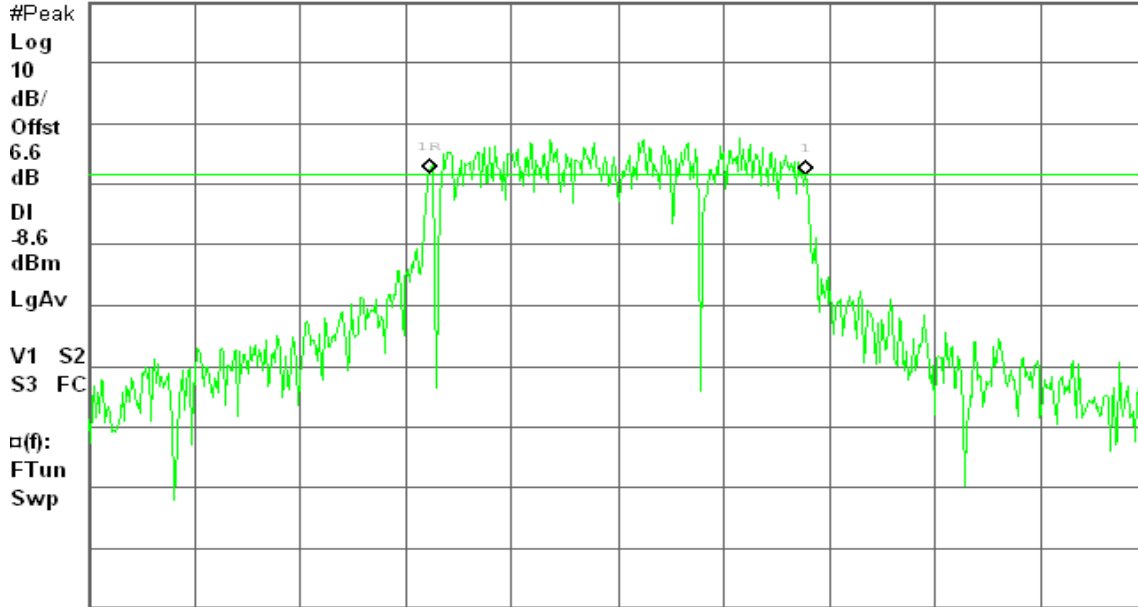
6dB BW, a Mode Low Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 30 dB

-0.31 dB



Center 5.745 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 13:14:23 May 8, 2009

R L

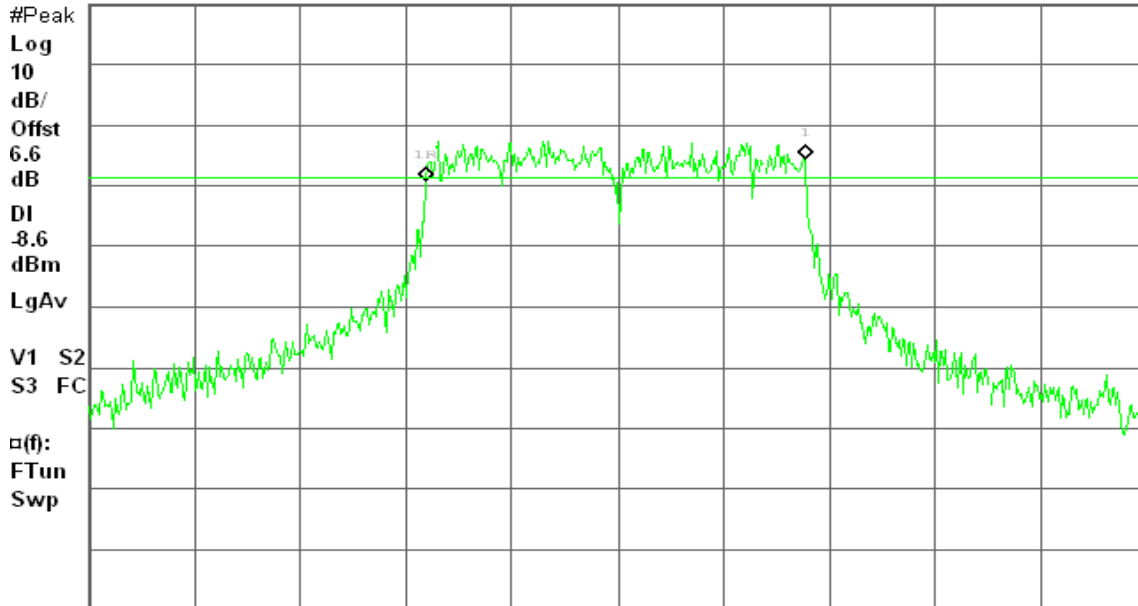
6dB BW, a Mode Mid Ch.

Δ Mkr1 17.83 MHz

Ref 20 dBm

Atten 30 dB

3.70 dB



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 13:15:16 May 8, 2009

R T

6dB BW, a Mode High Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 30 dB

-1.07 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-9.3

dBm

LgAv

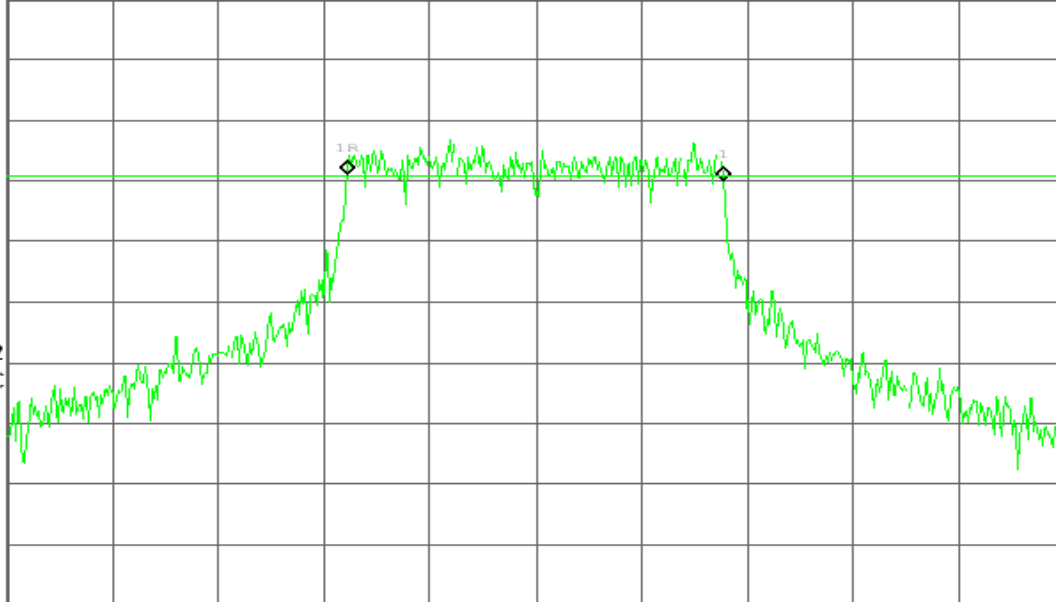
V1 S2

S3 FC

α(f):

FTun

Swp



Center 5.825 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

6dB Bandwidth (CH Low)

Agilent 13:07:27 May 8, 2009

R T

6dB BW, a Mode Low Ch.

Δ Mkr1 36.28 MHz

Ref 20 dBm

Atten 30 dB

-1.22 dB

#Peak

Log

10

dB/

Offst

6.6

dB

DI

-10.3

dBm

LgAv

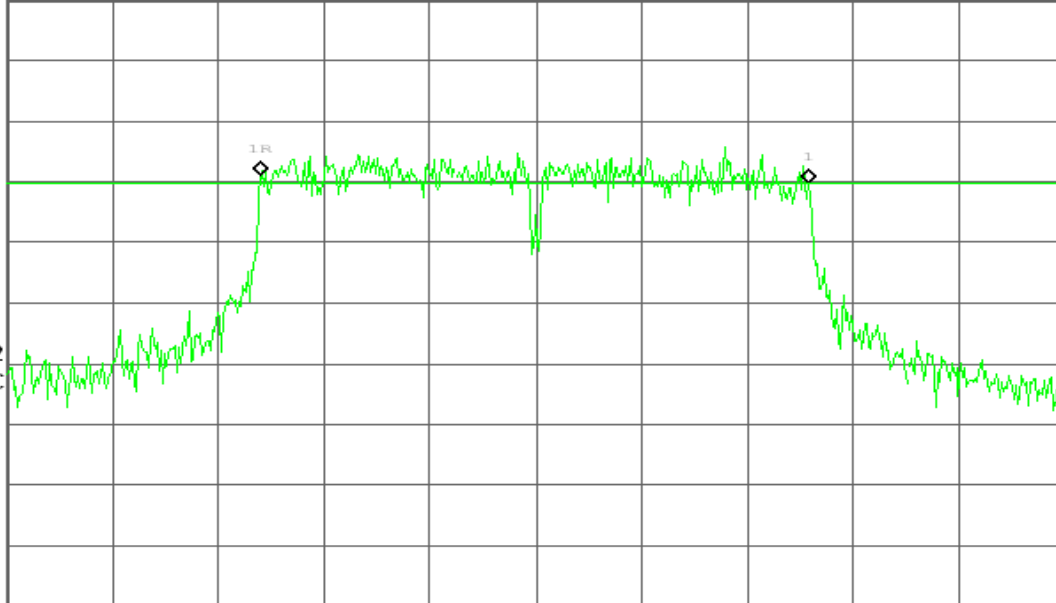
V1 S2

S3 FC

α(f):

FTun

Swp



Center 5.755 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 13:08:30 May 8, 2009

R T

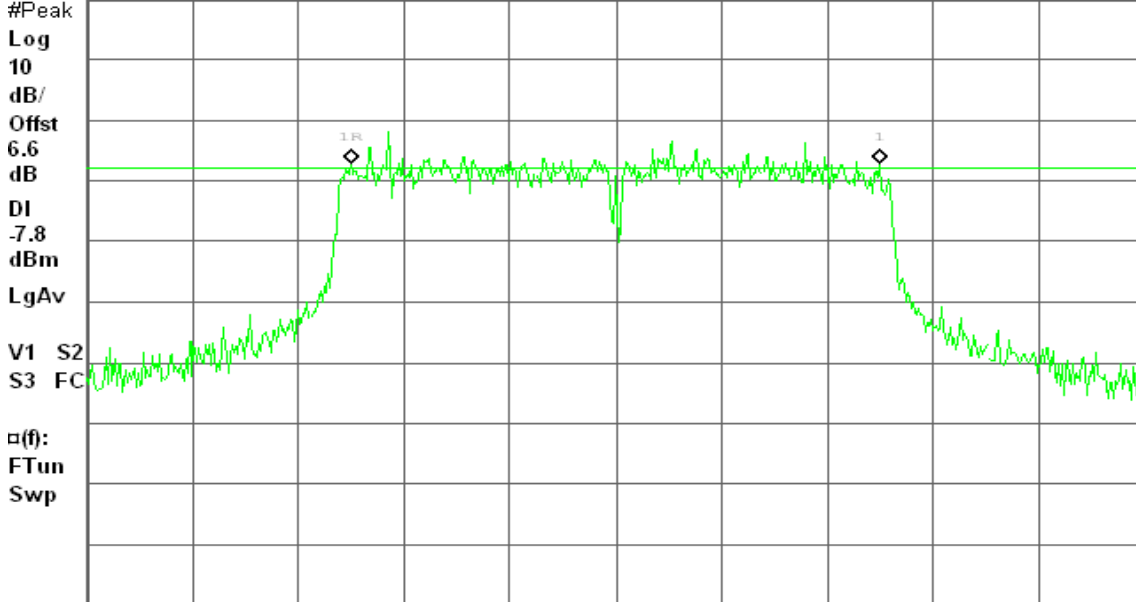
6dB BW, a Mode High Ch.

Δ Mkr1 35.00 MHz

Ref 20 dBm

Atten 30 dB

0.01 dB



Center 5.795 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 14:34:02 May 18, 2009

R T

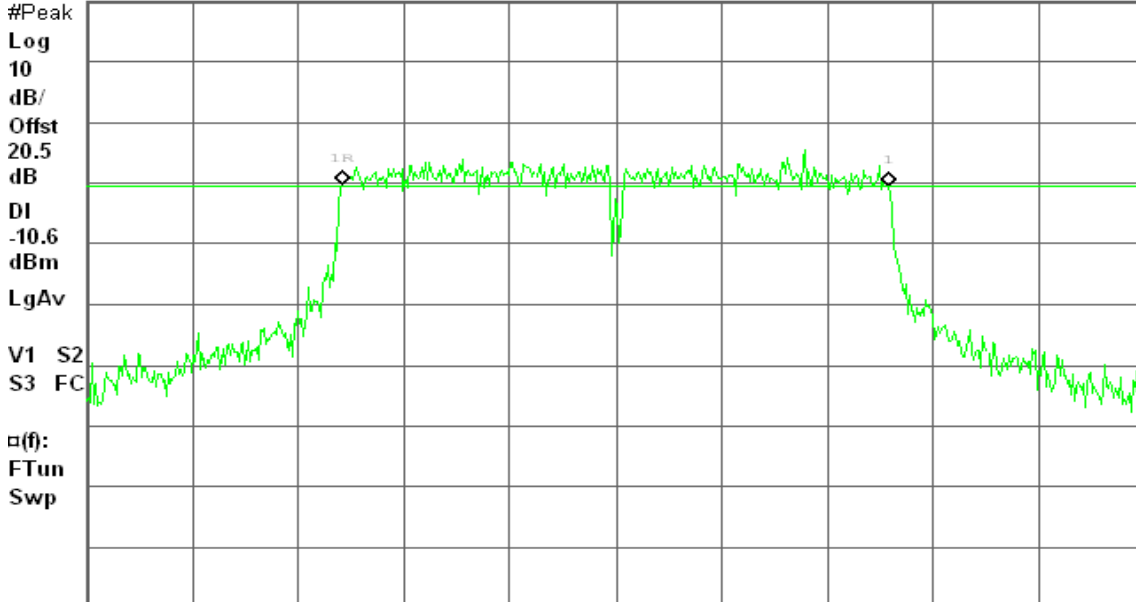
6dB BW, a Mode High Ch.

Δ Mkr1 36.17 MHz

Ref 20 dBm

Atten 10 dB

-0.24 dB



Center 5.815 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)



draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

6dB Bandwidth (CH Low)

Agilent 13:10:52 May 8, 2009

R T

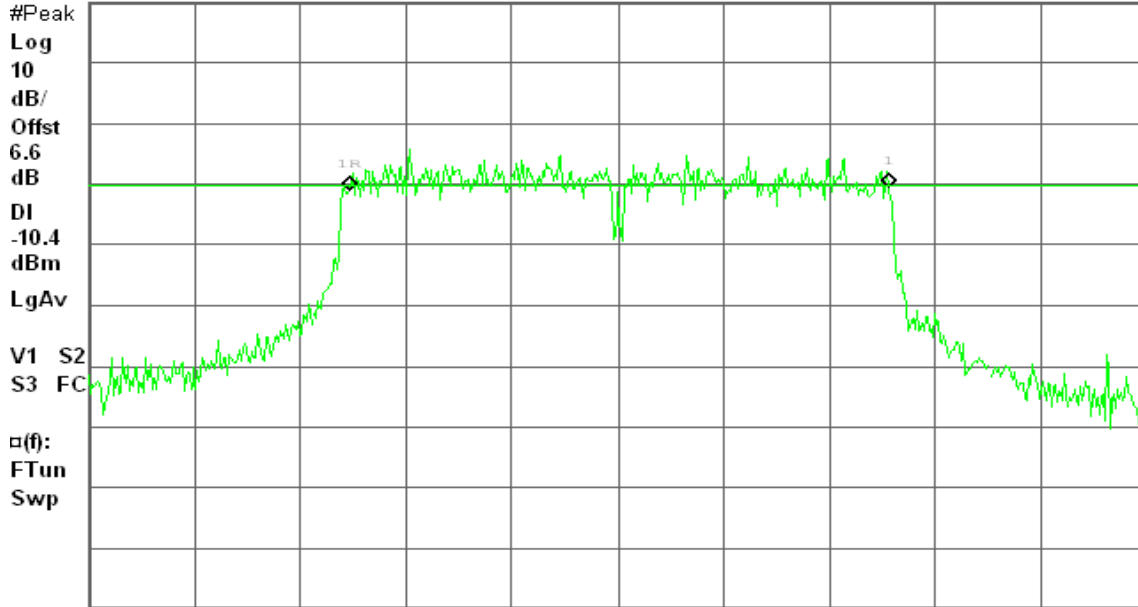
6dB BW, a Mode Low Ch.

Δ Mkr1 35.70 MHz

Ref 20 dBm

Atten 30 dB

0.65 dB



Center 5.755 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 13:09:51 May 8, 2009

R T

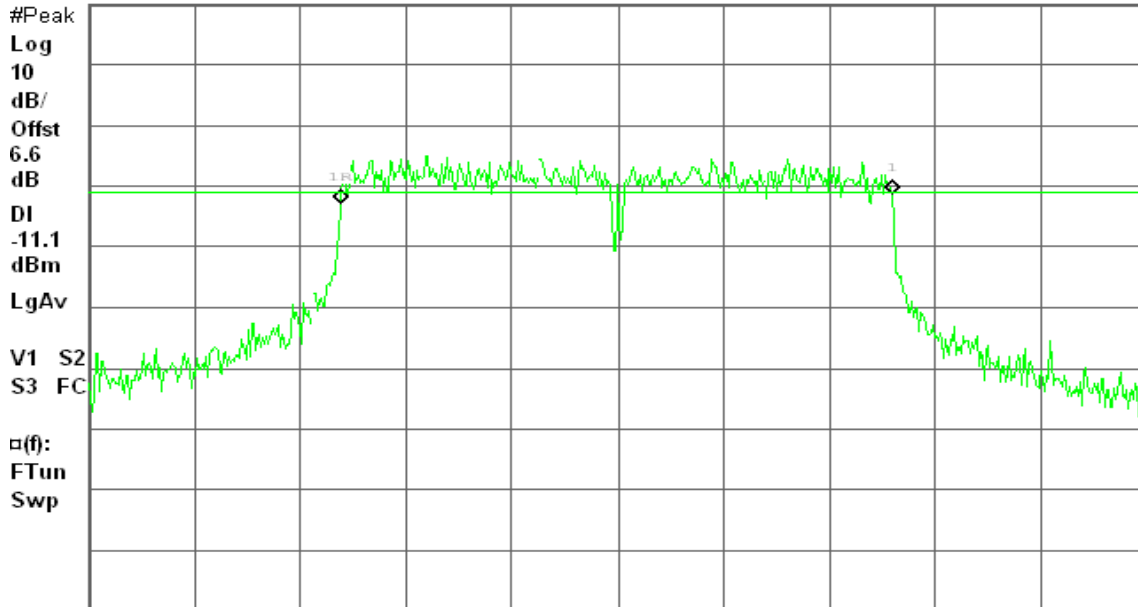
6dB BW, a Mode High Ch.

Δ Mkr1 36.52 MHz

Ref 20 dBm

Atten 30 dB

1.67 dB



Center 5.795 00 GHz

Span 70 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 8.44 ms (601 pts)

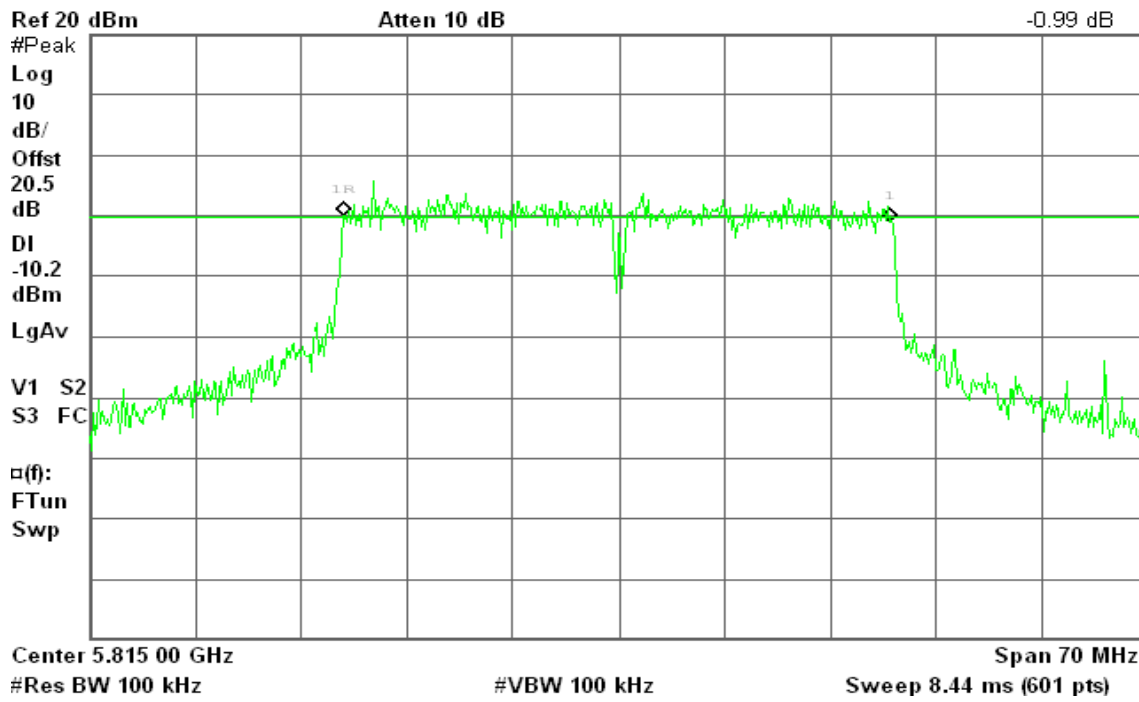


6dB Bandwidth (CH High)

Agilent 14:50:15 May 18, 2009

R T

Δ Mkr1 36.17 MHz
-0.99 dB



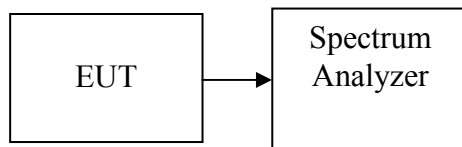
7.2 PEAK POWER

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

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW \geq 3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) $<$ 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to free run.
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

TEST RESULTS

No non-compliance noted.

**Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.48	0.0705	1.00	PASS
Mid	2437	20.27	0.1064		PASS
High	2462	17.17	0.0521		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.72	0.0592	1.00	PASS
Mid	2437	17.68	0.0586		PASS
High	2462	16.91	0.0491		PASS

Test mode: draft 802.11n Standard-20 MHz Channel 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	16.18	15.97	19.09	0.0810	1.00	PASS
Mid	2437	16.57	15.20	18.95	0.0785		PASS
High	2462	15.46	14.66	18.09	0.0644		PASS

Test mode: draft 802.11n Wide-40 MHz Channel 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	13.70	13.08	16.41	0.0438	1.00	PASS
Mid	2437	12.95	12.57	15.77	0.0378		PASS
High	2452	12.31	12.45	15.39	0.0346		PASS

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

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	17.53	0.0566	1.00	PASS
Mid	5785	16.56	0.0462		PASS
High	5825	16.05	0.0403		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

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	18.40	17.97	21.20	0.1318	0.794	PASS
Mid	5785	17.11	16.54	19.84	0.0965		PASS
High	5825	16.78	15.48	19.19	0.0830		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz

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	18.09	16.10	20.22	0.1052	0.794	PASS
Mid	5795	17.27	16.15	19.76	0.0945		PASS
High	5815	16.24	15.54	18.91	0.0779		PASS

Remark:

- Total Output Power (w) = Chain 0 ($10^{(Output\ Power / 10) / 1000}$) + Chain 1 ($10^{(Output\ Power / 10) / 1000}$)
- The maximum antenna gain is 7.09dBi; therefore the reduction due to antenna gain is 1dB, so the limit is 29dBm.



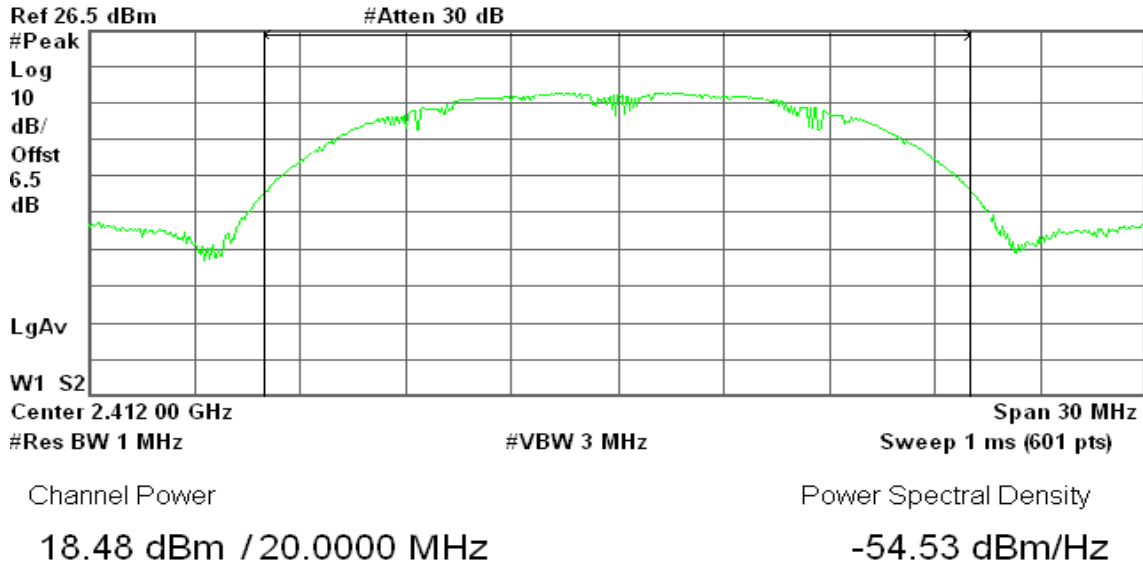
Test Plot

IEEE 802.11b mode

Peak Power (CH Low)

Agilent 15:37:02 Mar 9, 2009

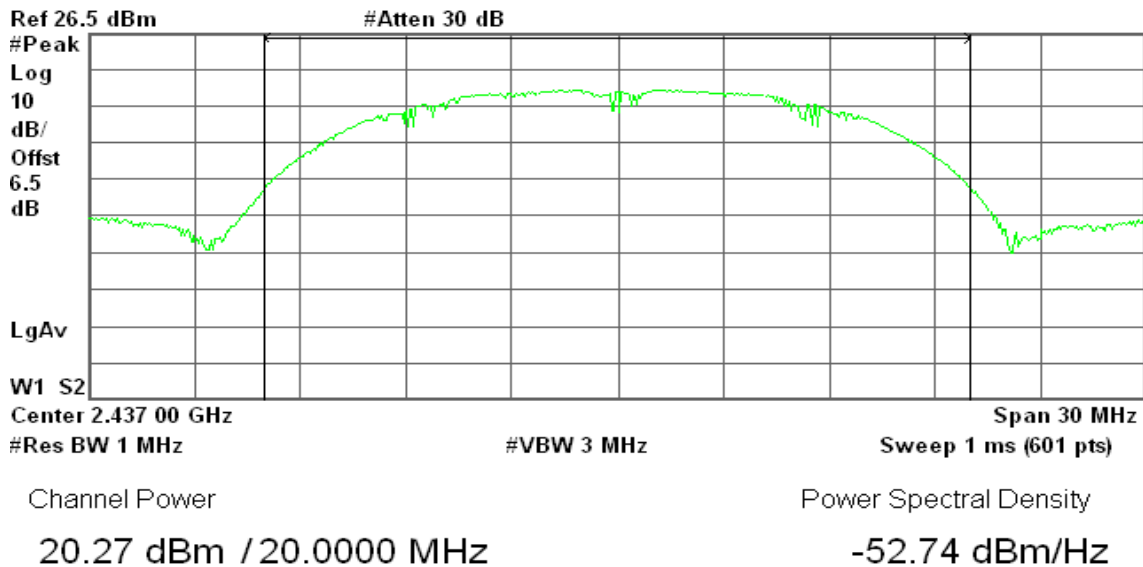
R T



Peak Power (CH Mid)

Agilent 15:37:58 Mar 9, 2009

R T

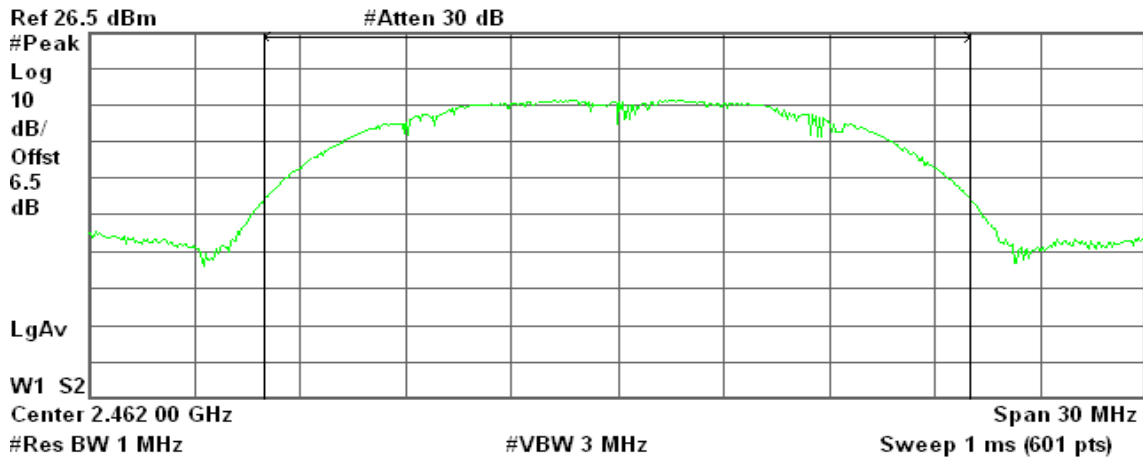




Peak Power (CH High)

Agilent 15:38:31 Mar 9, 2009

R T



Channel Power

17.17 dBm / 20.0000 MHz

Power Spectral Density

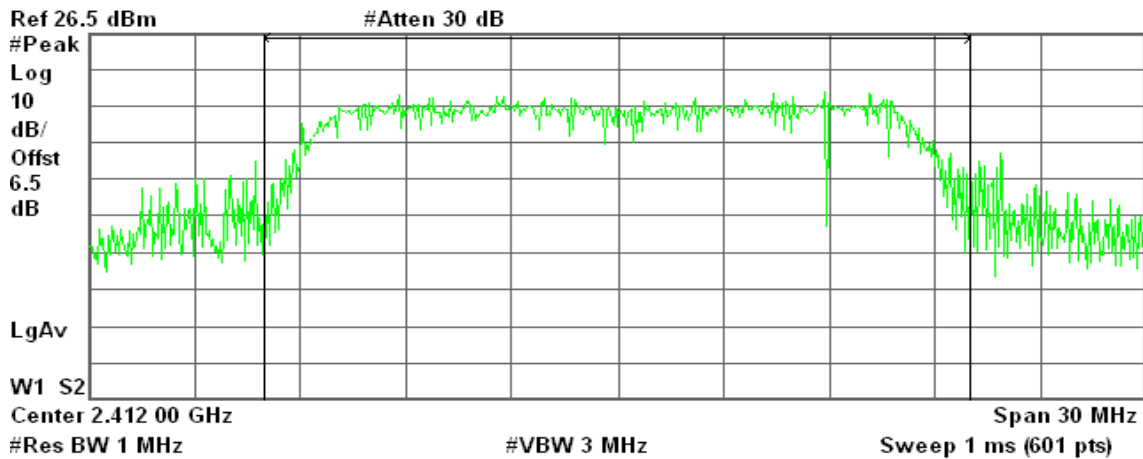
-55.84 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

Agilent 15:36:26 Mar 9, 2009

R T



Channel Power

17.72 dBm / 20.0000 MHz

Power Spectral Density

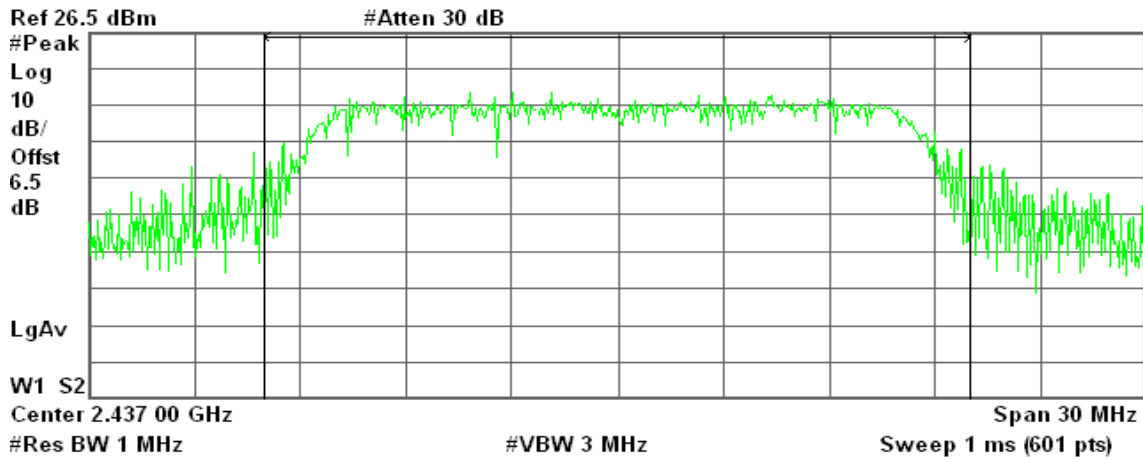
-55.29 dBm/Hz



Peak Power (CH Mid)

Agilent 15:35:21 Mar 9, 2009

R T



Channel Power

17.68 dBm / 20.0000 MHz

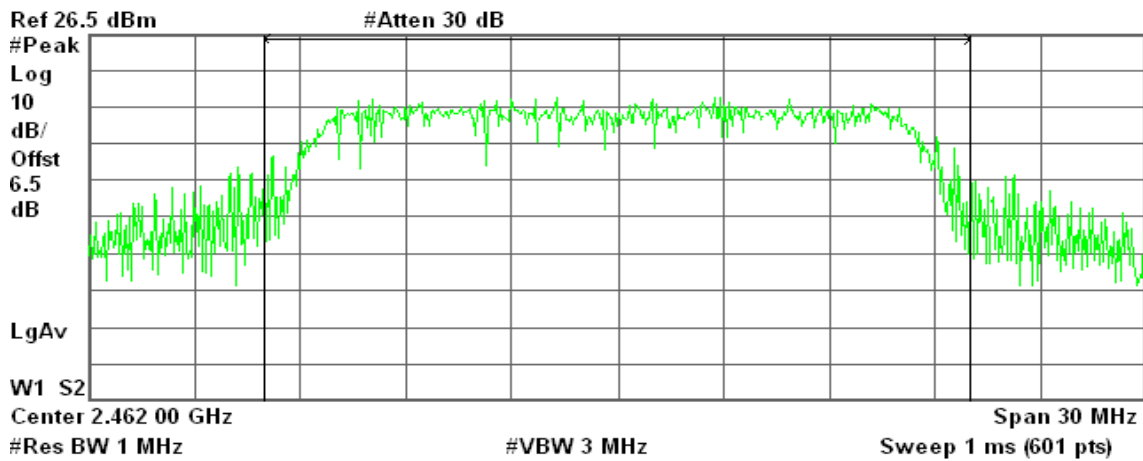
Power Spectral Density

-55.33 dBm/Hz

Peak Power (CH High)

Agilent 15:34:52 Mar 9, 2009

R T



Channel Power

16.91 dBm / 20.0000 MHz

Power Spectral Density

-56.10 dBm/Hz

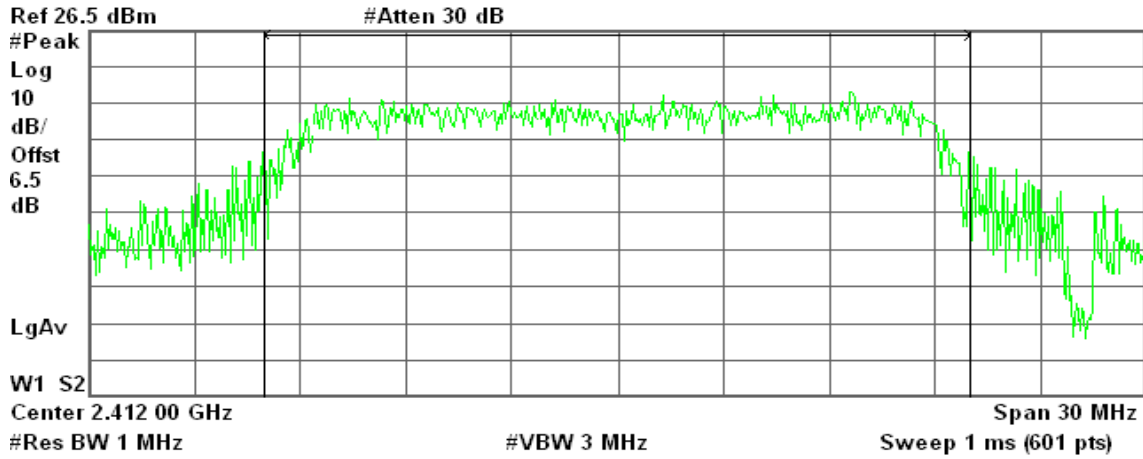


draft 802.11n Standard-20 MHz Channel mode / Chain 0

Peak Power (CH Low)

Agilent 16:23:27 Mar 9, 2009

R T



Channel Power

16.18 dBm / 20.0000 MHz

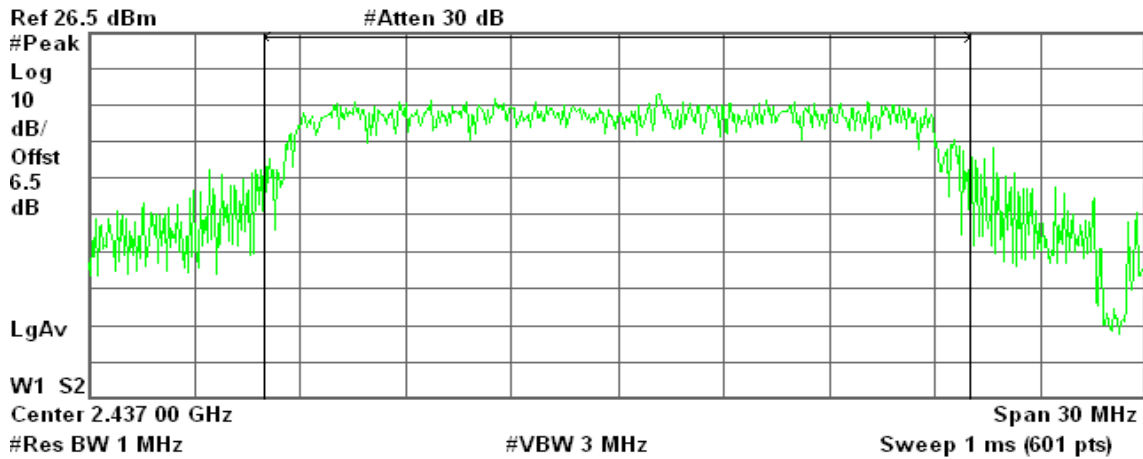
Power Spectral Density

-56.83 dBm/Hz

Peak Power (CH Mid)

Agilent 16:41:27 Mar 9, 2009

R T



Channel Power

16.57 dBm / 20.0000 MHz

Power Spectral Density

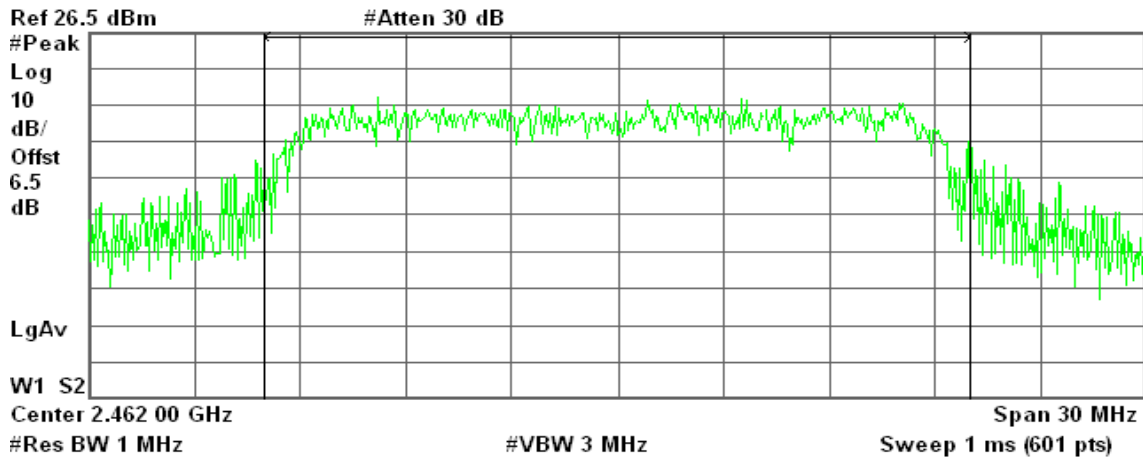
-56.44 dBm/Hz



Peak Power (CH High)

Agilent 16:41:59 Mar 9, 2009

R T



Channel Power

15.46 dBm / 20.0000 MHz

Power Spectral Density

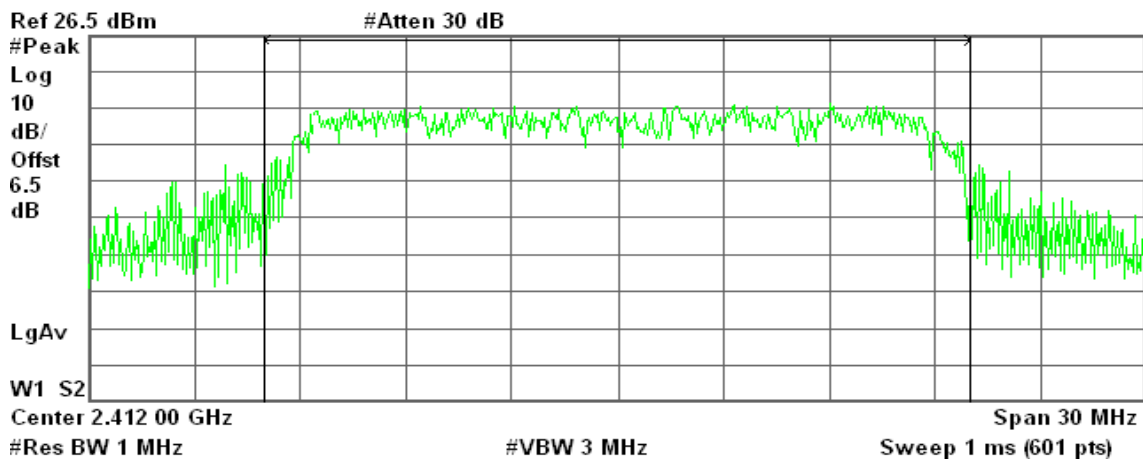
-57.55 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent 16:45:16 Mar 9, 2009

R T



Channel Power

15.97 dBm / 20.0000 MHz

Power Spectral Density

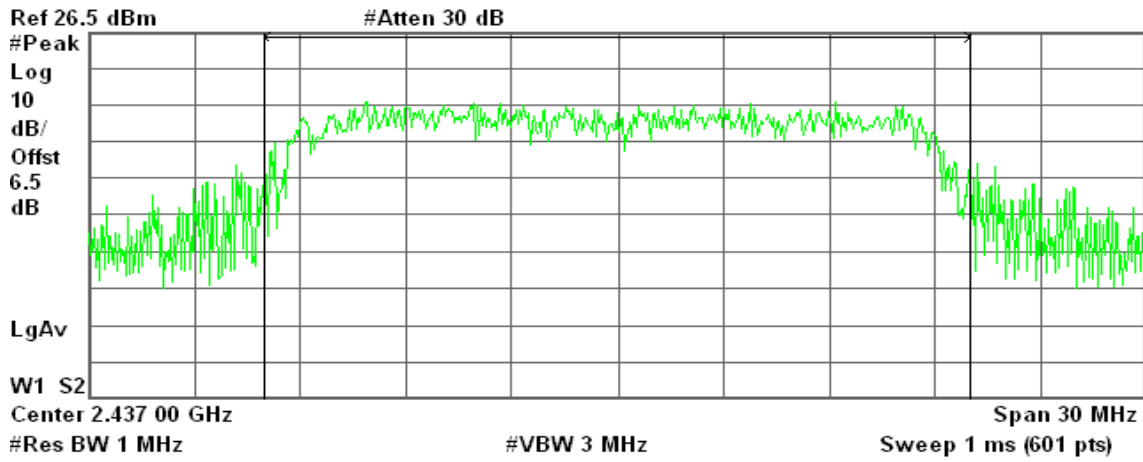
-57.04 dBm/Hz



Peak Power (CH Mid)

Agilent 16:44:08 Mar 9, 2009

R T



Channel Power

15.20 dBm / 20.0000 MHz

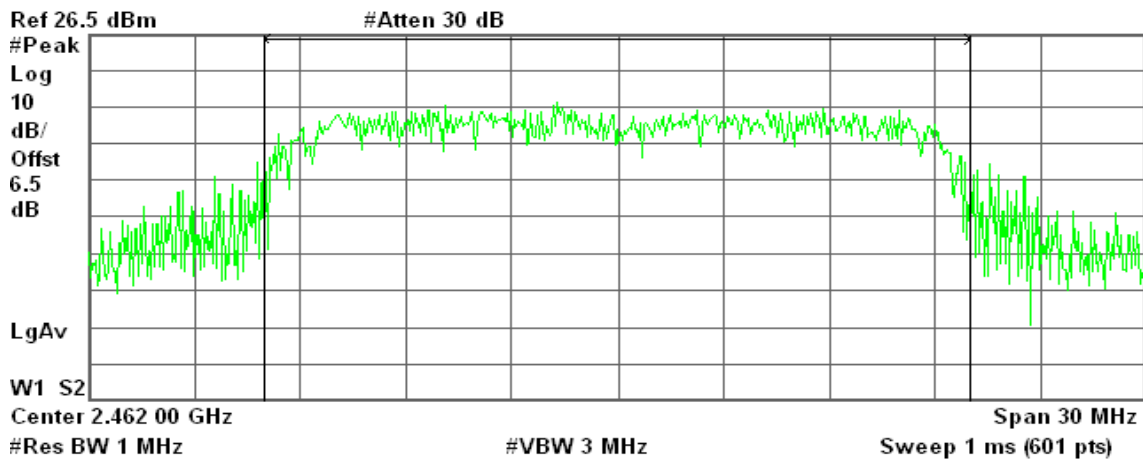
Power Spectral Density

-57.81 dBm/Hz

Peak Power (CH High)

Agilent 16:43:38 Mar 9, 2009

R T



Channel Power

14.66 dBm / 20.0000 MHz

Power Spectral Density

-58.35 dBm/Hz

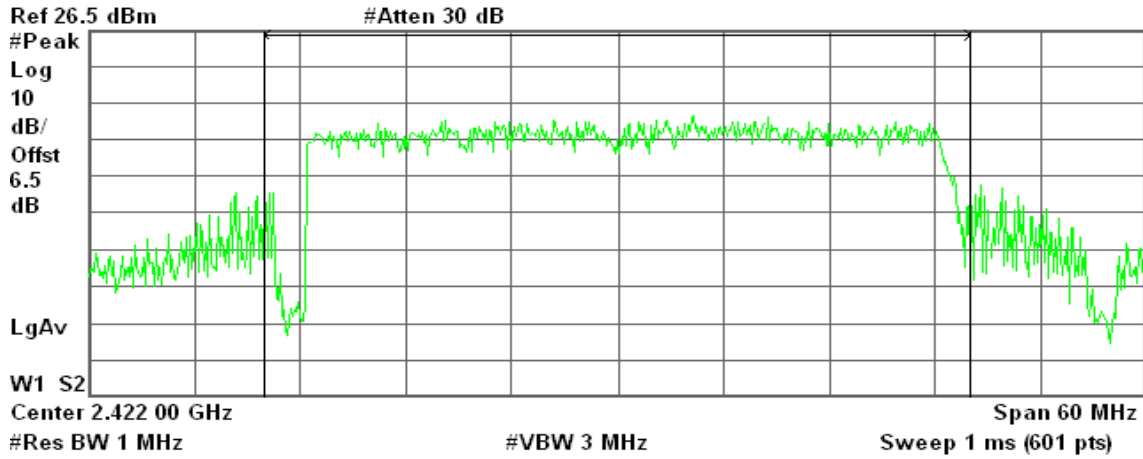


draft 802.11n Wide-40 MHz Channel mode / Chain 0

Peak Power (CH Low)

Agilent 16:53:06 Mar 9, 2009

R T



Channel Power

13.70 dBm / 40.0000 MHz

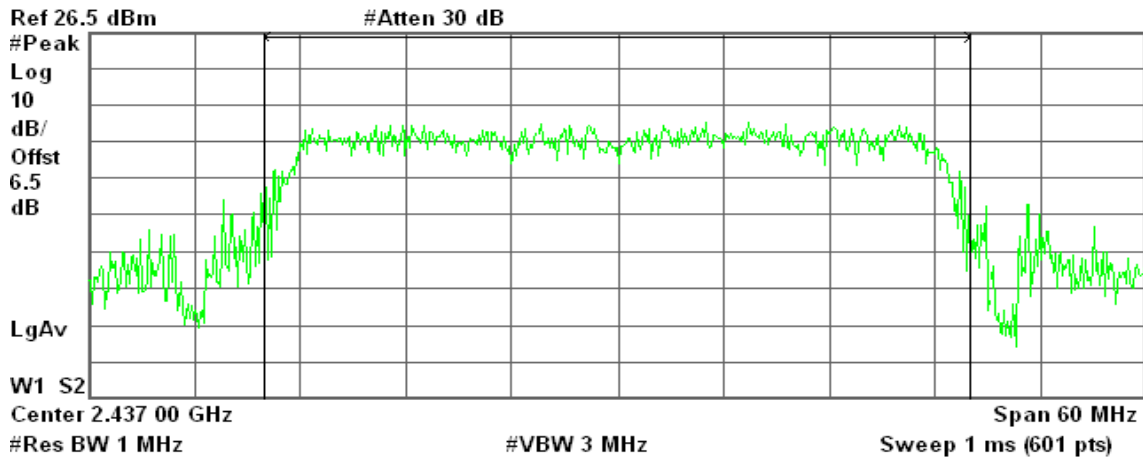
Power Spectral Density

-62.32 dBm/Hz

Peak Power (CH Mid)

Agilent 16:51:51 Mar 9, 2009

R T



Channel Power

12.95 dBm / 40.0000 MHz

Power Spectral Density

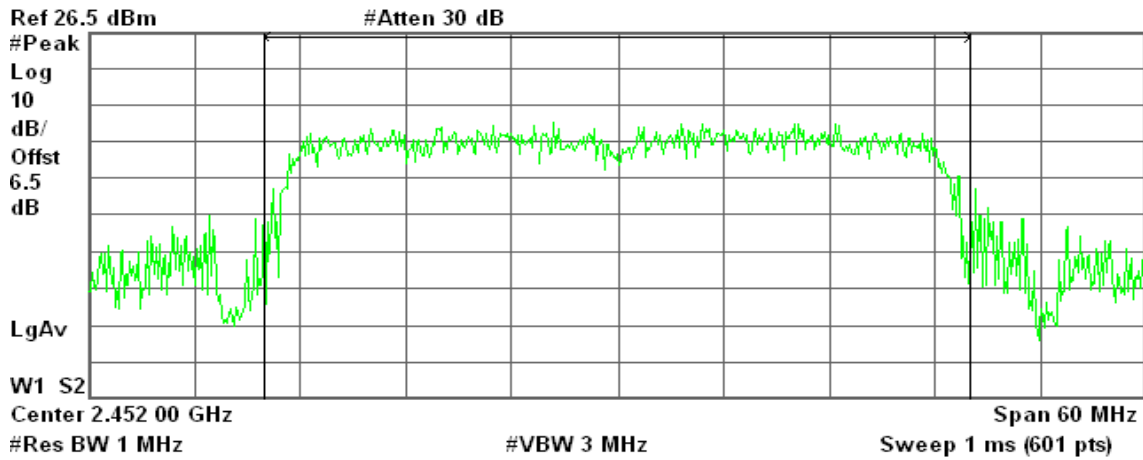
-63.07 dBm/Hz



Peak Power (CH High)

Agilent 16:51:23 Mar 9, 2009

R T



Channel Power

12.31 dBm / 40.0000 MHz

Power Spectral Density

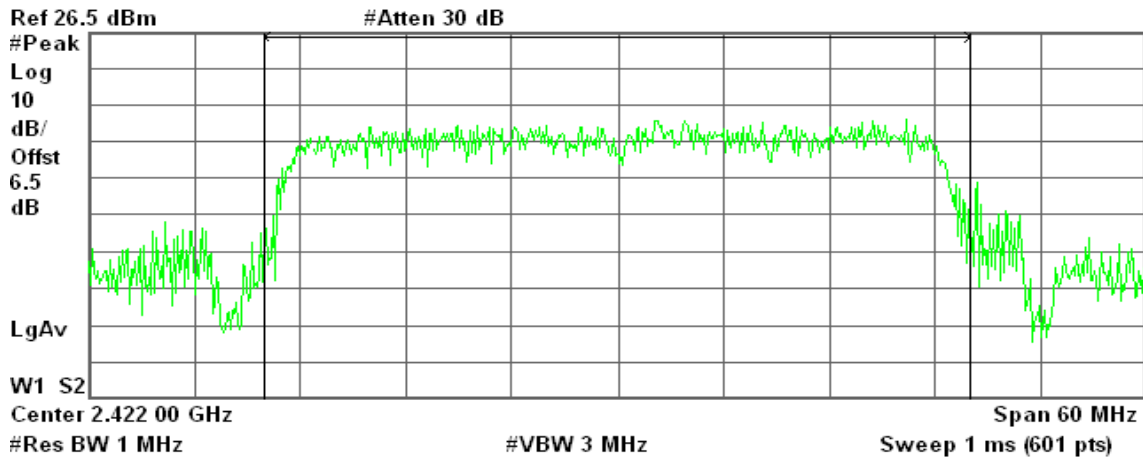
-63.71 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent 16:47:40 Mar 9, 2009

R T



Channel Power

13.08 dBm / 40.0000 MHz

Power Spectral Density

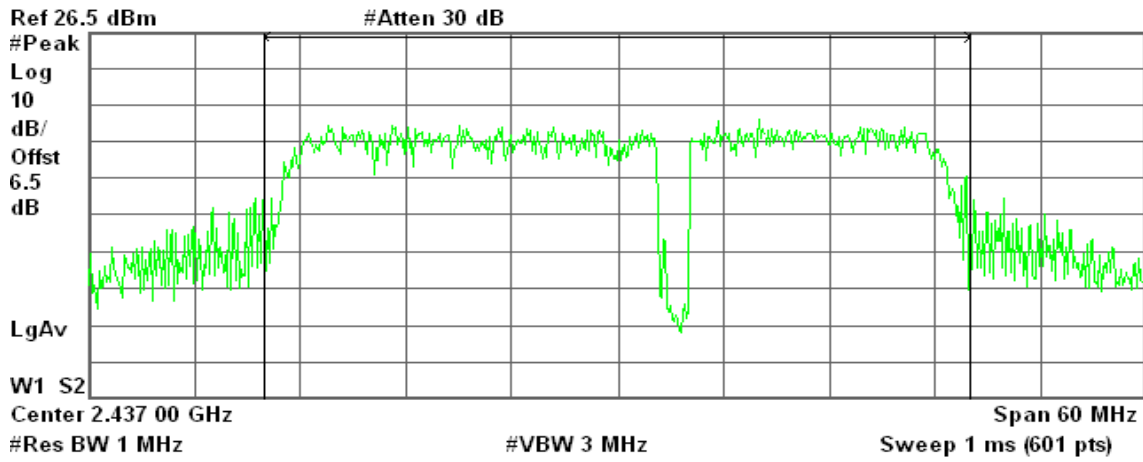
-62.94 dBm/Hz



Peak Power (CH Mid)

Agilent 16:49:01 Mar 9, 2009

R T



Channel Power

12.57 dBm / 40.0000 MHz

Power Spectral Density

-63.45 dBm/Hz

Peak Power (CH High)

Agilent 16:49:31 Mar 9, 2009

R T



Channel Power

12.45 dBm / 40.0000 MHz

Power Spectral Density

-63.57 dBm/Hz



IEEE 802.11a mode / 5745 ~ 5825MHz

Peak Power (CH Low)

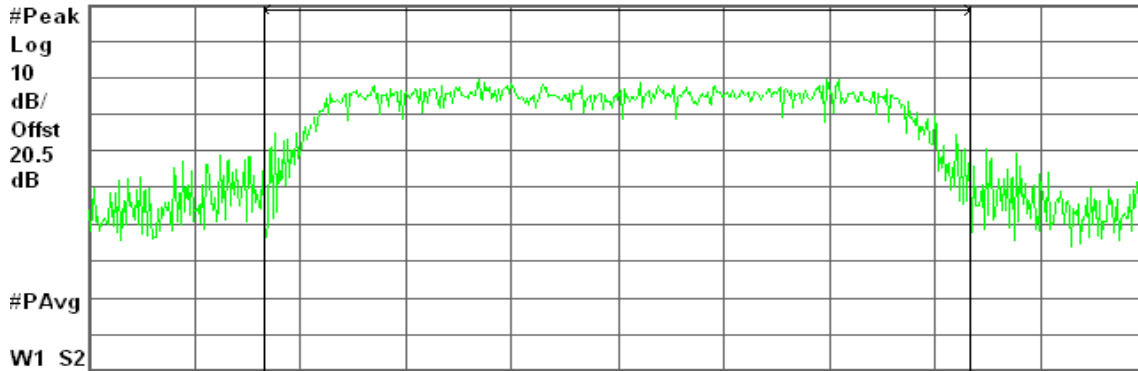
Agilent 20:05:30 Mar 10, 2009

R T

AVG Output Power, a Mode Low Ch.

Ref 30 dBm

Atten 20 dB



Center 5.745 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.53 dBm / 20.0000 MHz

-55.48 dBm/Hz

Peak Power (CH Mid)

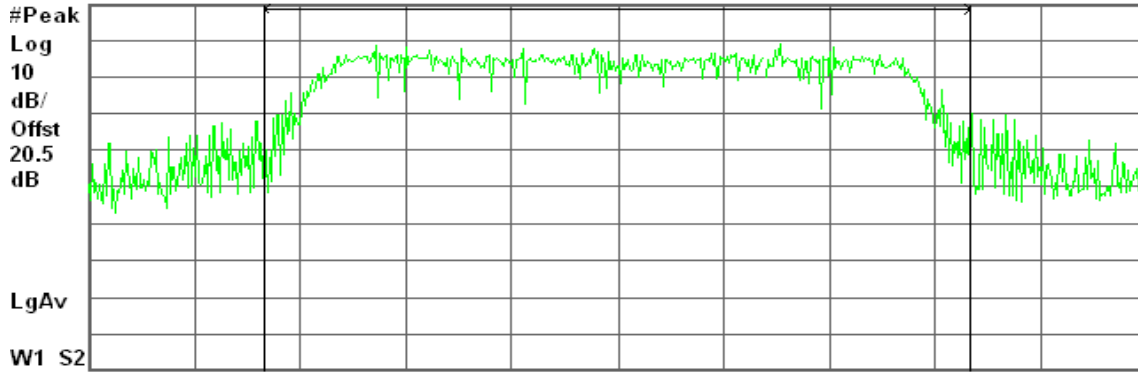
Agilent 20:20:40 Mar 10, 2009

R T

Peak Output Power, a Mode Mid Ch.

Ref 20 dBm

Atten 10 dB



Center 5.785 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.56 dBm / 20.0000 MHz

-56.45 dBm/Hz



Peak Power (CH High)

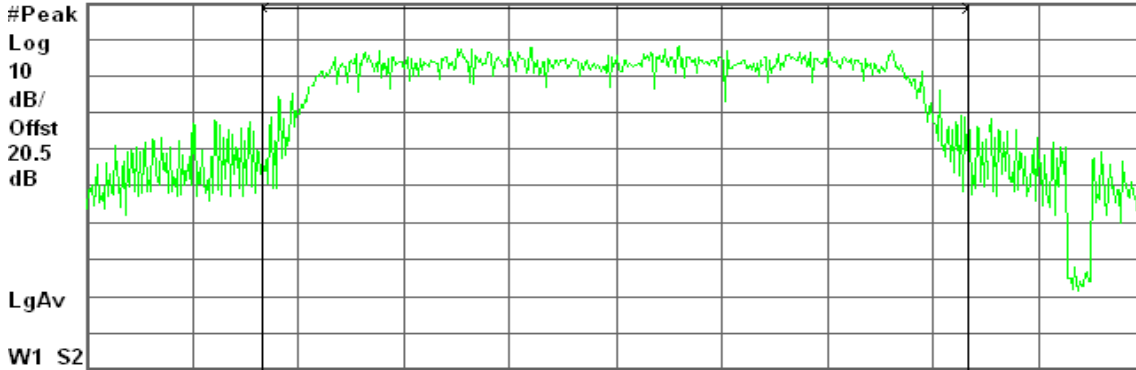
Agilent 20:26:52 Mar 10, 2009

R T

Peak Output Power, a Mode High Ch.

Ref 20 dBm

Atten 10 dB



Center 5.825 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.05 dBm / 20.0000 MHz

-56.96 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

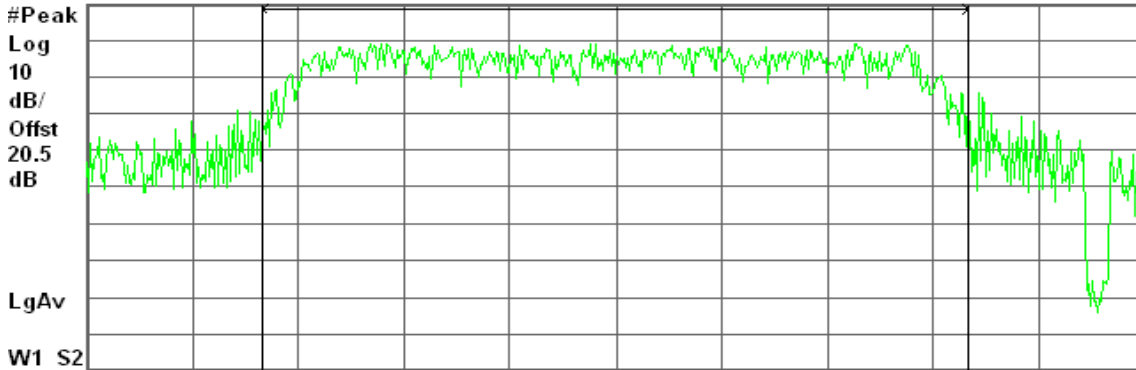
Peak Power (CH Low)

Agilent 02:06:33 Mar 11, 2009

R T

Ref 20.5 dBm

#Atten 10 dB



Center 5.745 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

18.40 dBm / 20.0000 MHz

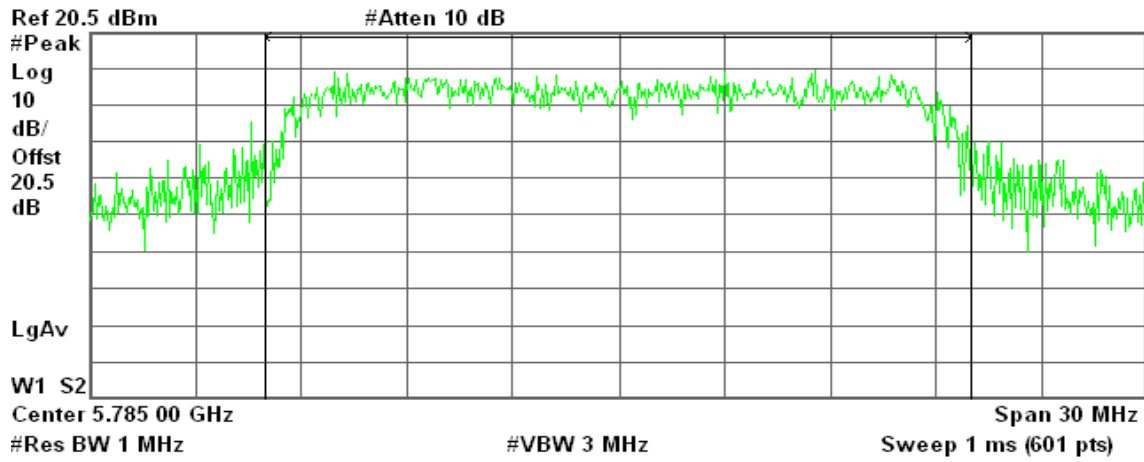
-54.61 dBm/Hz



Peak Power (CH Mid)

Agilent 02:06:13 Mar 11, 2009

R T



Channel Power

17.11 dBm / 20.0000 MHz

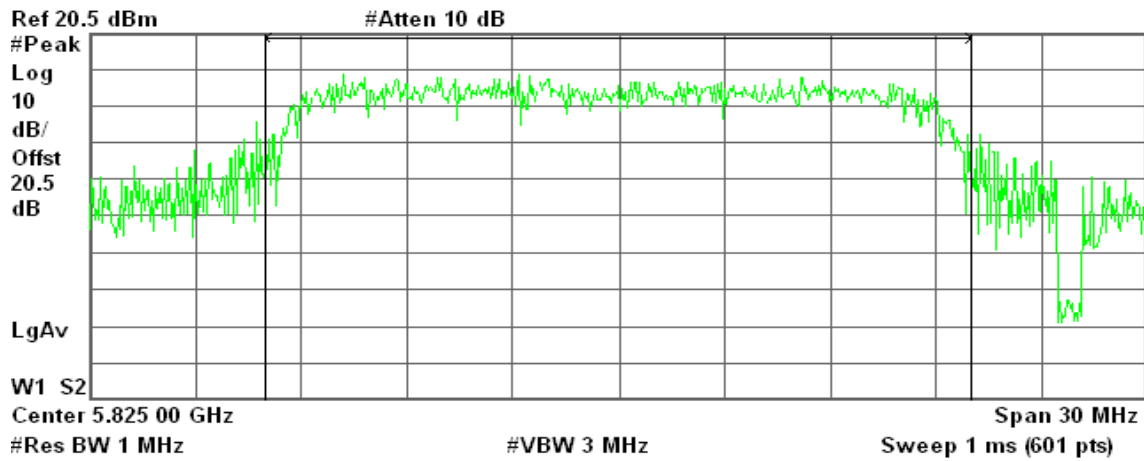
Power Spectral Density

-55.90 dBm/Hz

Peak Power (CH High)

Agilent 02:05:40 Mar 11, 2009

R T



Channel Power

16.78 dBm / 20.0000 MHz

Power Spectral Density

-56.23 dBm/Hz

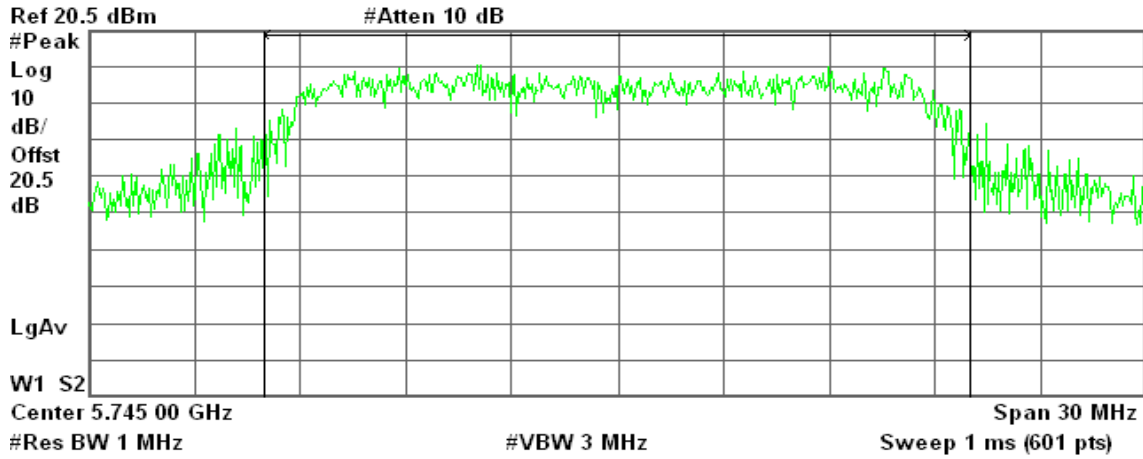


draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

Peak Power (CH Low)

Agilent 02:01:25 Mar 11, 2009

R T



Channel Power

17.97 dBm / 20.0000 MHz

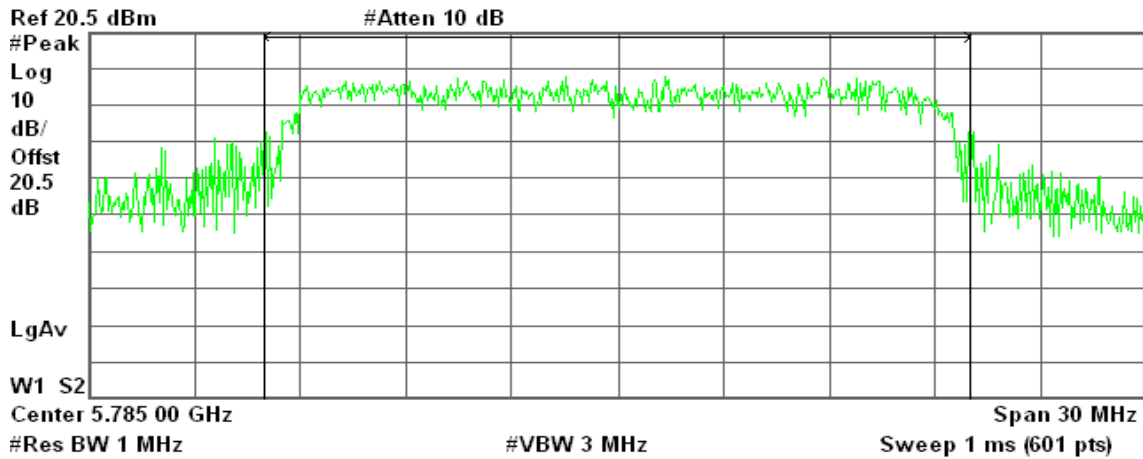
Power Spectral Density

-55.04 dBm/Hz

Peak Power (CH Mid)

Agilent 02:02:04 Mar 11, 2009

R T



Channel Power

16.54 dBm / 20.0000 MHz

Power Spectral Density

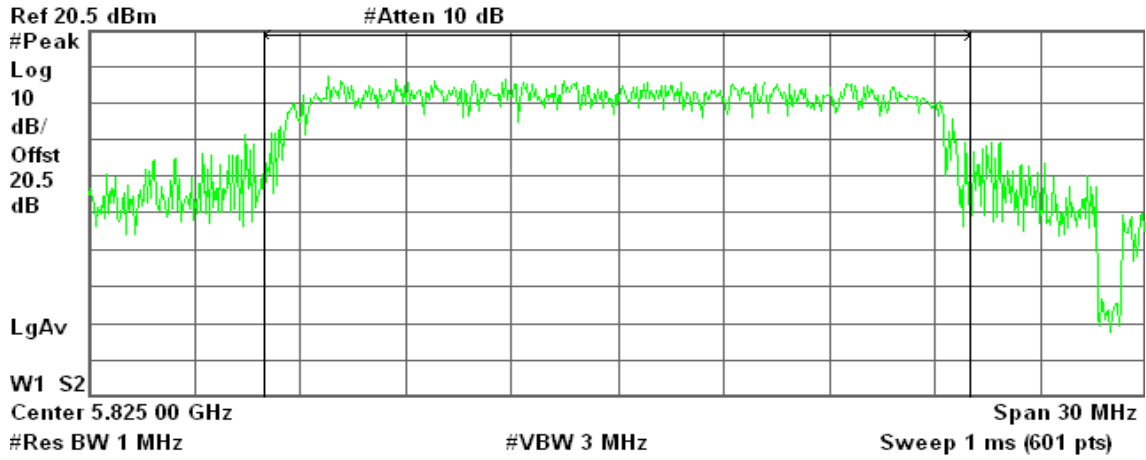
-56.47 dBm/Hz



Peak Power (CH High)

Agilent 02:02:25 Mar 11, 2009

R T



Channel Power

15.48 dBm / 20.0000 MHz

Power Spectral Density

-57.53 dBm/Hz

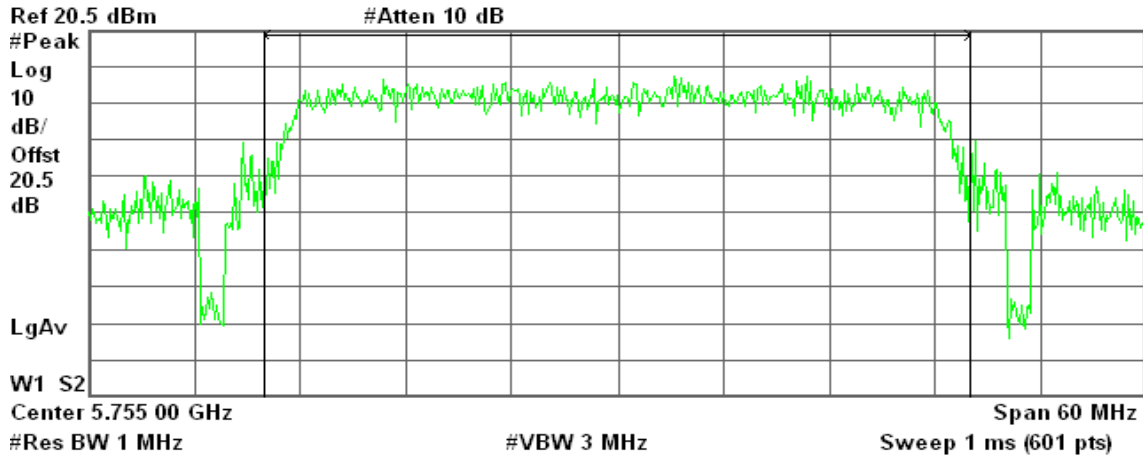


draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

Peak Power (CH Low)

Agilent 02:10:38 Mar 11, 2009

R T



Channel Power

18.09 dBm / 40.0000 MHz

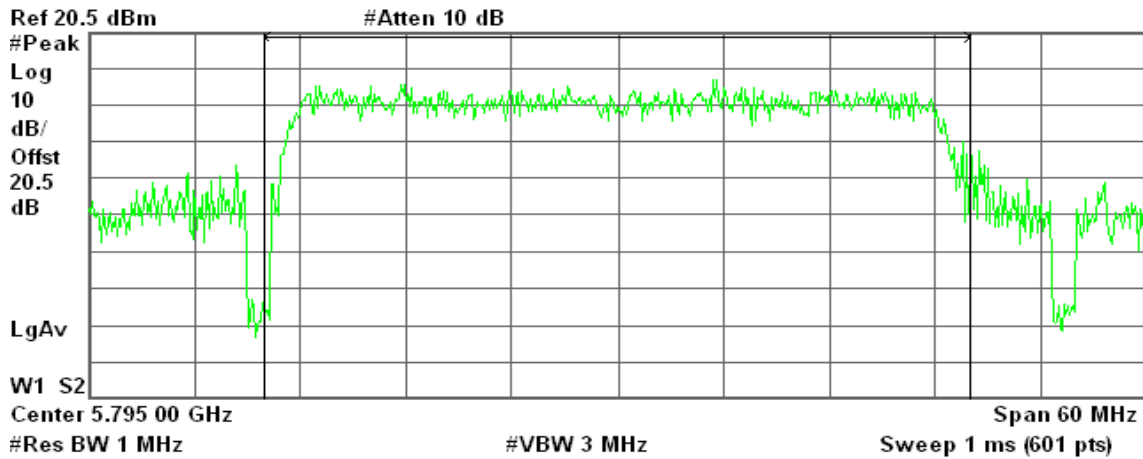
Power Spectral Density

-57.93 dBm/Hz

Peak Power (CH Mid)

Agilent 02:10:05 Mar 11, 2009

R T



Channel Power

17.27 dBm / 40.0000 MHz

Power Spectral Density

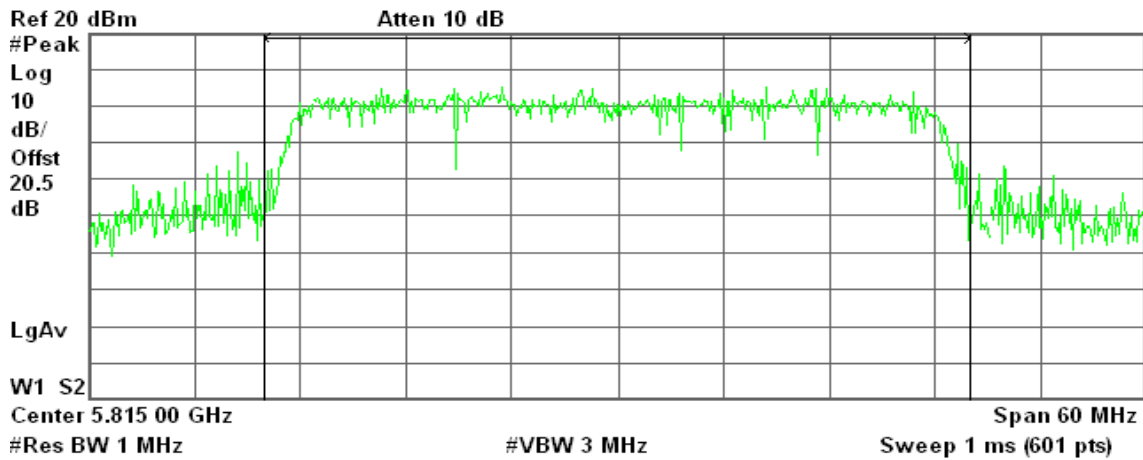
-58.75 dBm/Hz



Peak Power (CH High)

Agilent 14:46:23 May 18, 2009

R T



Channel Power

16.24 dBm / 40.0000 MHz

Power Spectral Density

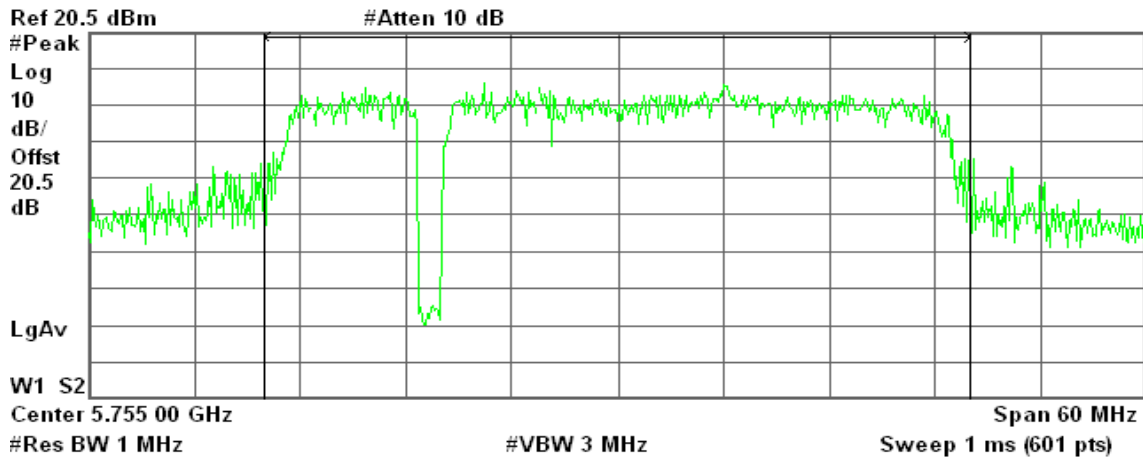
-59.78 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

Peak Power (CH Low)

Agilent 02:14:15 Mar 11, 2009

R T



Channel Power

16.10 dBm / 40.0000 MHz

Power Spectral Density

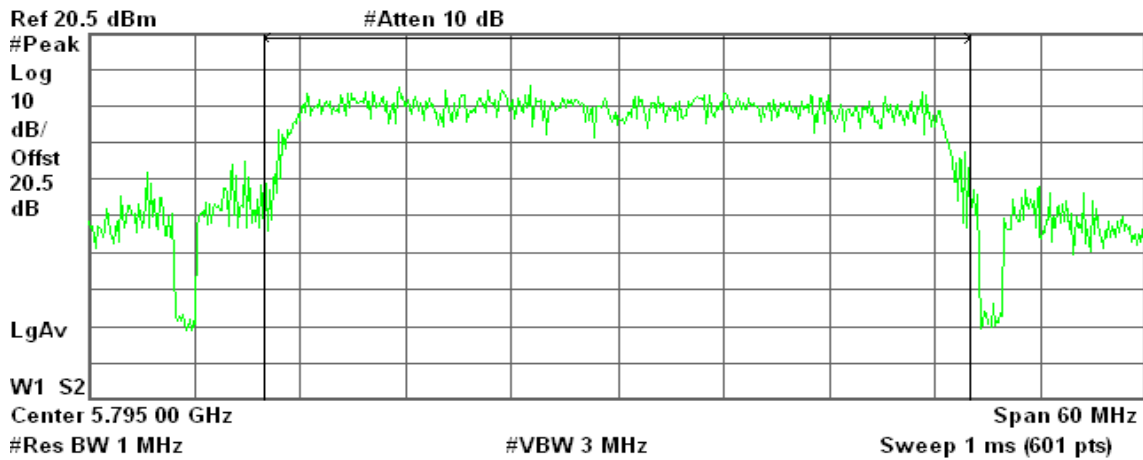
-59.92 dBm/Hz



Peak Power (CH Mid)

Agilent 02:14:35 Mar 11, 2009

R T



Channel Power

16.15 dBm / 40.0000 MHz

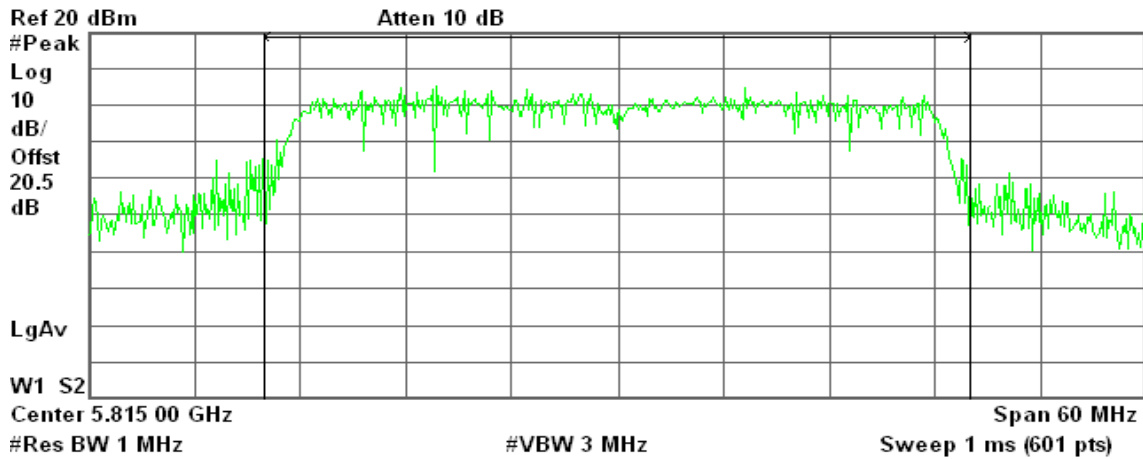
Power Spectral Density

-59.87 dBm/Hz

Peak Power (CH High)

Agilent 15:05:48 May 18, 2009

R T



Channel Power

15.54 dBm / 40.0000 MHz

Power Spectral Density

-60.48 dBm/Hz

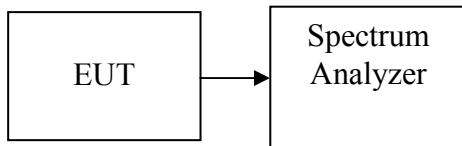


7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the average power detection.

TEST RESULTS

No non-compliance noted

**Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	15.89
Mid	2437	17.74
High	2462	14.00

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	15.12
Mid	2437	14.55
High	2462	13.45

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2412	12.51	12.20	15.37
Mid	2437	12.32	11.67	15.02
High	2462	12.87	11.22	15.13

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2422	9.95	8.77	12.41
Mid	2437	9.70	9.16	12.45
High	2452	8.52	8.87	11.71

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



Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Output Power (dBm)
Low	5745	14.01
Mid	5785	12.95
High	5825	12.34

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	5745	14.70	15.14	17.94
Mid	5785	14.05	12.92	16.53
High	5825	13.01	11.59	15.37

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	5755	14.43	13.04	16.80
Mid	5795	13.25	12.01	15.68
High	5815	12.28	12.22	15.26

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



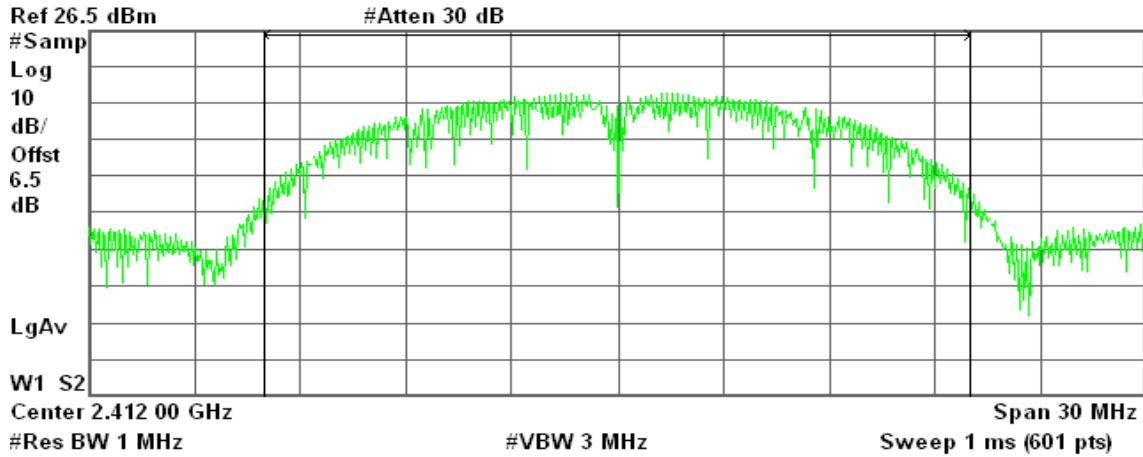
Test Plot

IEEE 802.11b mode

Average Power (CH Low)

Agilent 15:37:16 Mar 9, 2009

R T



Channel Power

15.89 dBm / 20.0000 MHz

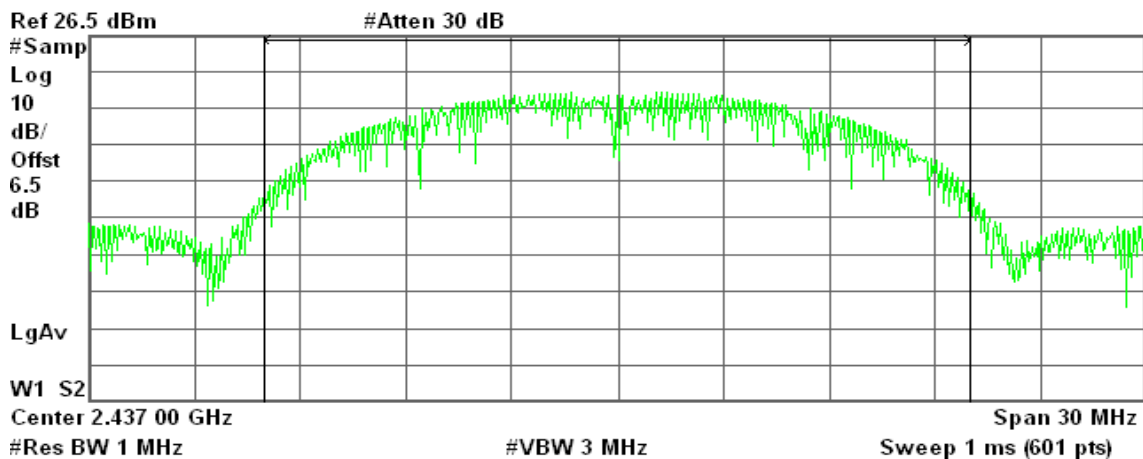
Power Spectral Density

-57.12 dBm/Hz

Average Power (CH Mid)

Agilent 15:37:37 Mar 9, 2009

R T



Channel Power

17.74 dBm / 20.0000 MHz

Power Spectral Density

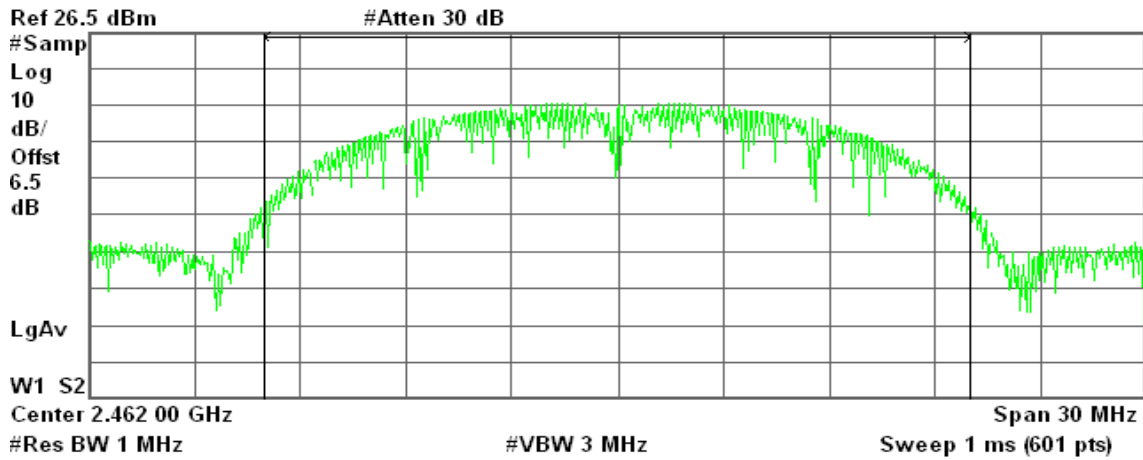
-55.28 dBm/Hz



Average Power (CH High)

Agilent 15:38:48 Mar 9, 2009

R T



Channel Power

14.00 dBm / 20.0000 MHz

Power Spectral Density

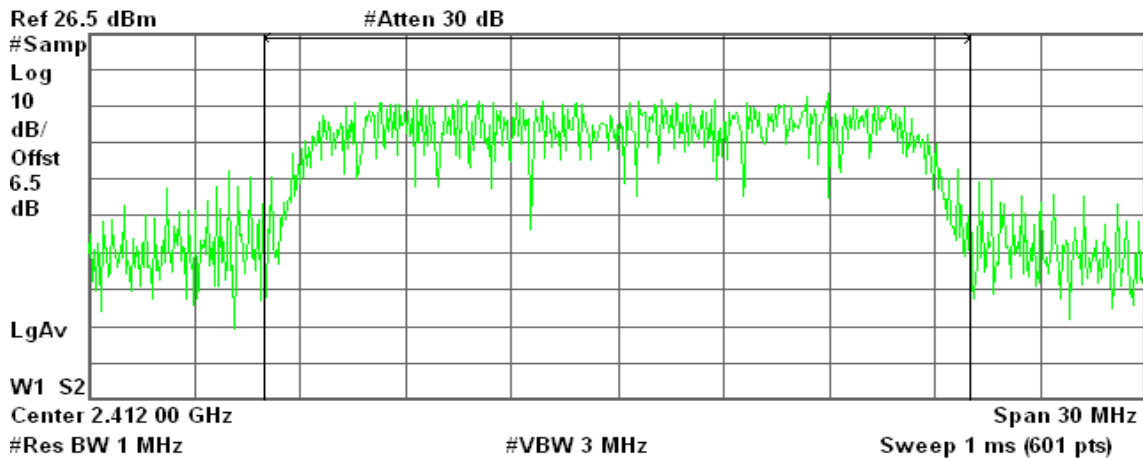
-59.01 dBm/Hz

IEEE 802.11g mode

Average Power (CH Low)

Agilent 15:36:06 Mar 9, 2009

R T



Channel Power

15.12 dBm / 20.0000 MHz

Power Spectral Density

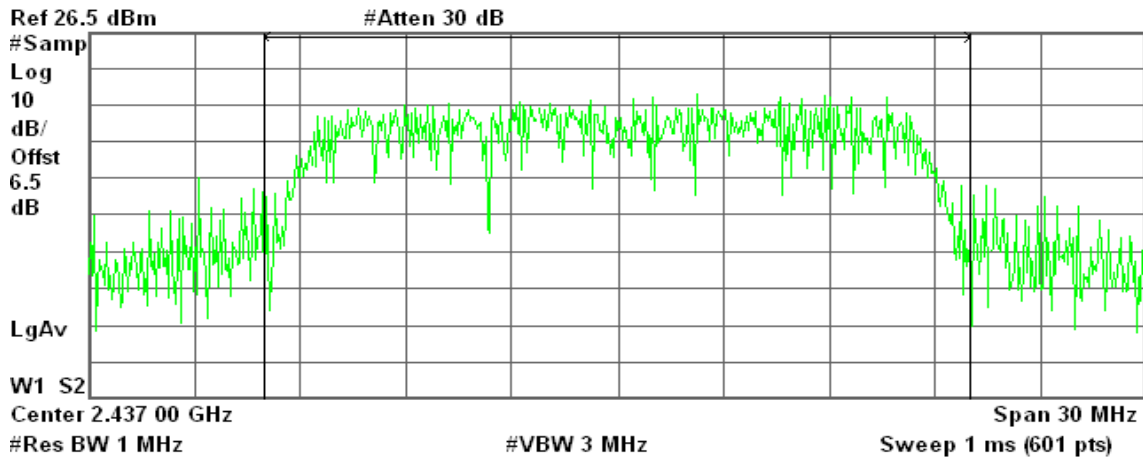
-57.89 dBm/Hz



Average Power (CH Mid)

Agilent 15:35:38 Mar 9, 2009

R T



Channel Power

14.55 dBm / 20.0000 MHz

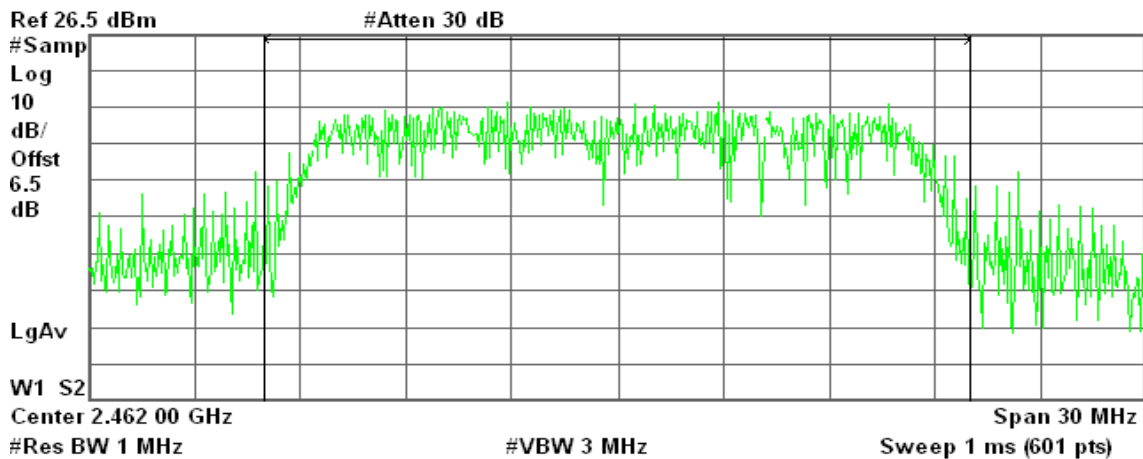
Power Spectral Density

-58.46 dBm/Hz

Average Power (CH High)

Agilent 15:34:35 Mar 9, 2009

R T



Channel Power

13.45 dBm / 20.0000 MHz

Power Spectral Density

-59.56 dBm/Hz

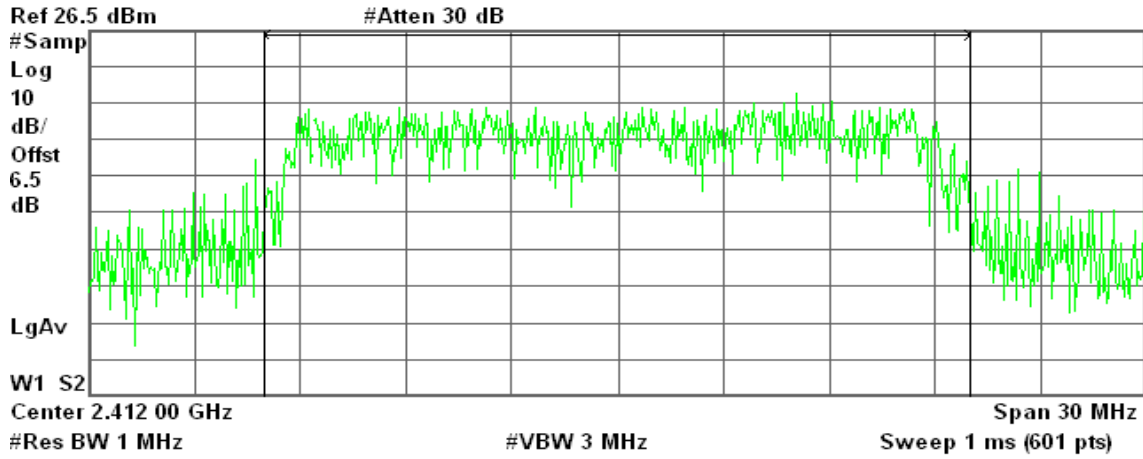


draft 802.11n Standard-20 MHz Channel mode / Chain 0

Average Power (CH Low)

Agilent 16:40:00 Mar 9, 2009

R T



Channel Power

12.51 dBm / 20.0000 MHz

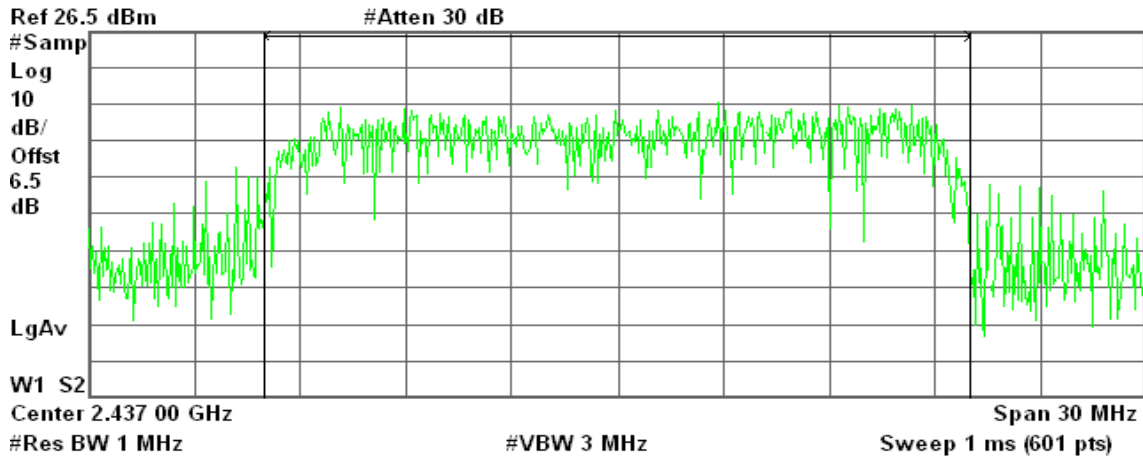
Power Spectral Density

-60.50 dBm/Hz

Average Power (CH Mid)

Agilent 16:41:10 Mar 9, 2009

R T



Channel Power

12.32 dBm / 20.0000 MHz

Power Spectral Density

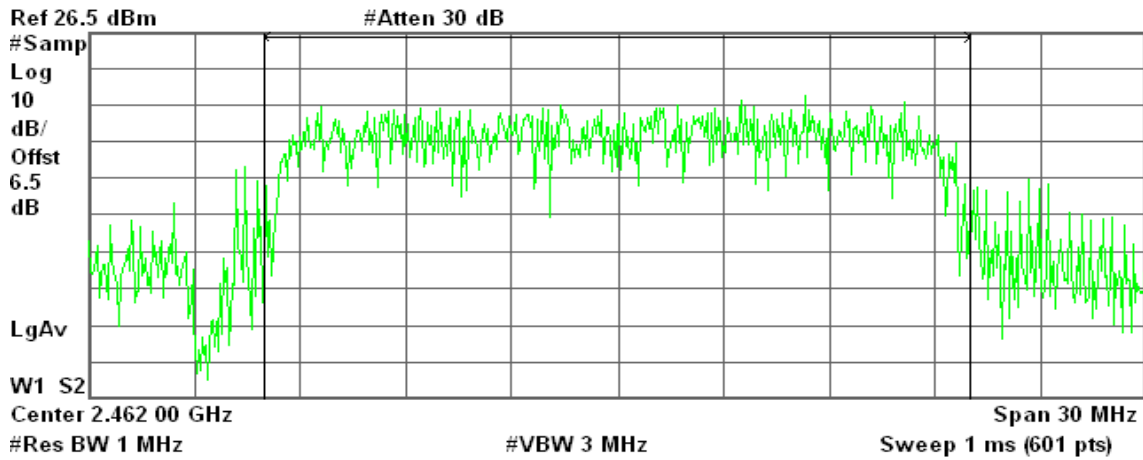
-60.69 dBm/Hz



Average Power (CH High)

Agilent 16:42:19 Mar 9, 2009

R T



Channel Power

12.87 dBm / 20.0000 MHz

Power Spectral Density

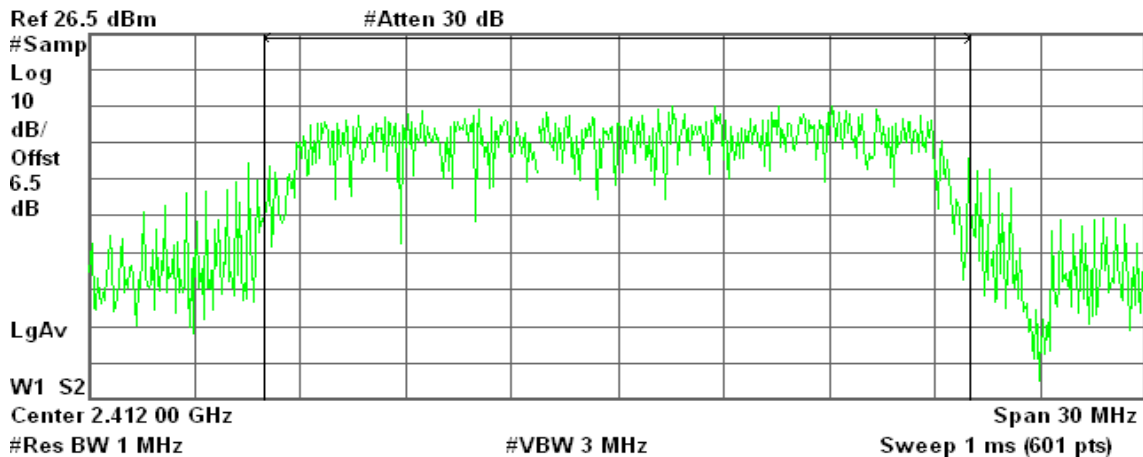
-60.14 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / Chain 1

Average Power (CH Low)

Agilent 16:44:56 Mar 9, 2009

R T



Channel Power

12.20 dBm / 20.0000 MHz

Power Spectral Density

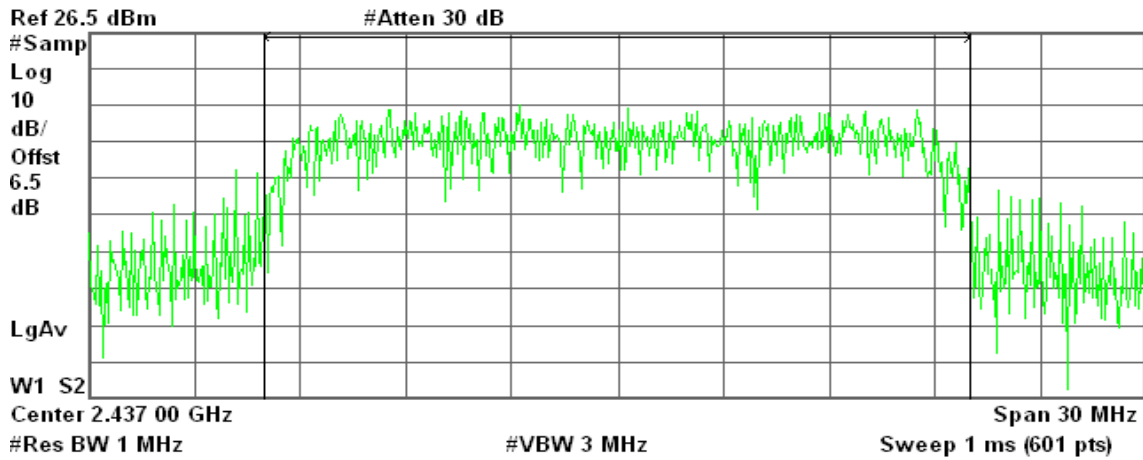
-60.81 dBm/Hz



Average Power (CH Mid)

Agilent 16:44:27 Mar 9, 2009

R T



Channel Power

11.67 dBm / 20.0000 MHz

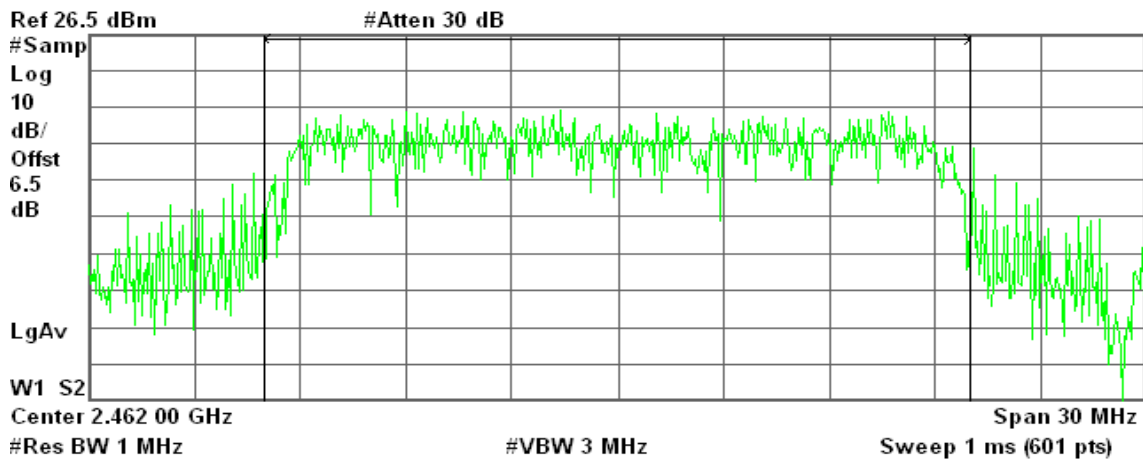
Power Spectral Density

-61.34 dBm/Hz

Average Power (CH High)

Agilent 16:43:21 Mar 9, 2009

R T



Channel Power

11.22 dBm / 20.0000 MHz

Power Spectral Density

-61.79 dBm/Hz

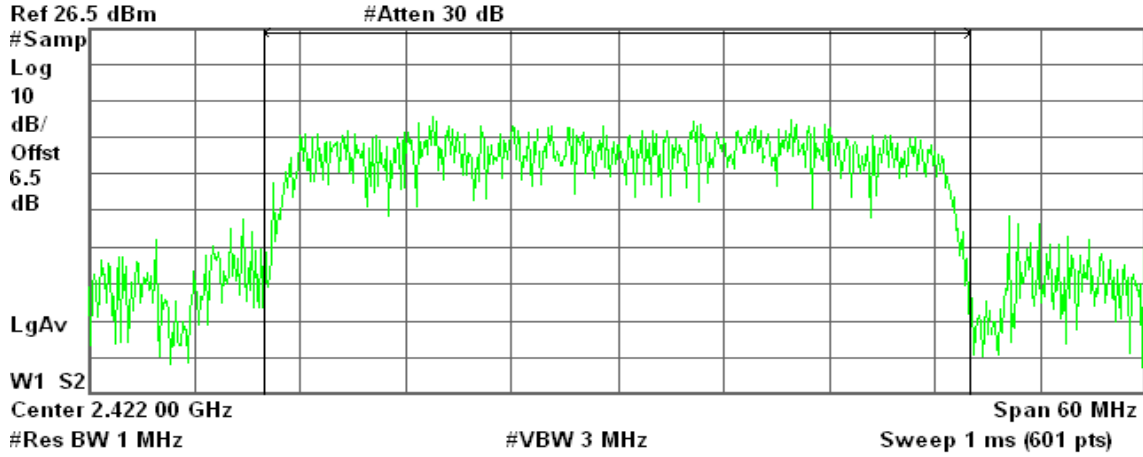


draft 802.11n Wide-40 MHz Channel mode / Chain 0

Average Power (CH Low)

Agilent 16:52:42 Mar 9, 2009

R T



Channel Power

9.95 dBm / 40.0000 MHz

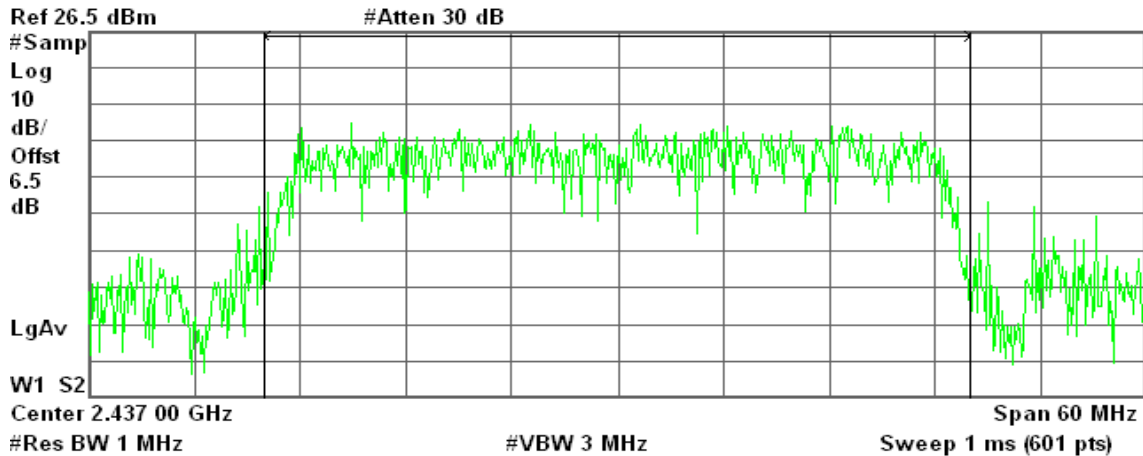
Power Spectral Density

-66.07 dBm/Hz

Average Power (CH Mid)

Agilent 16:52:09 Mar 9, 2009

R T



Channel Power

9.70 dBm / 40.0000 MHz

Power Spectral Density

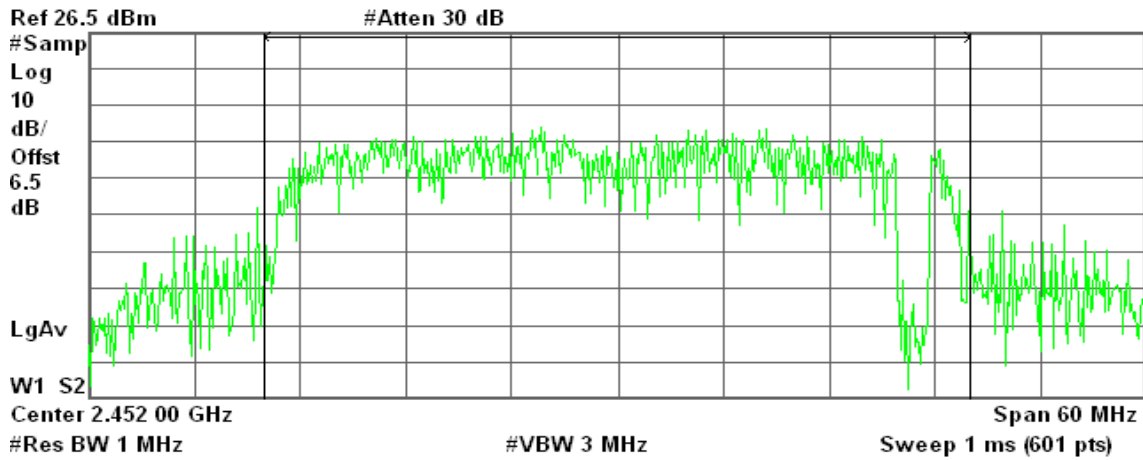
-66.32 dBm/Hz



Average Power (CH High)

Agilent 16:50:58 Mar 9, 2009

R T



Channel Power

8.52 dBm / 40.0000 MHz

Power Spectral Density

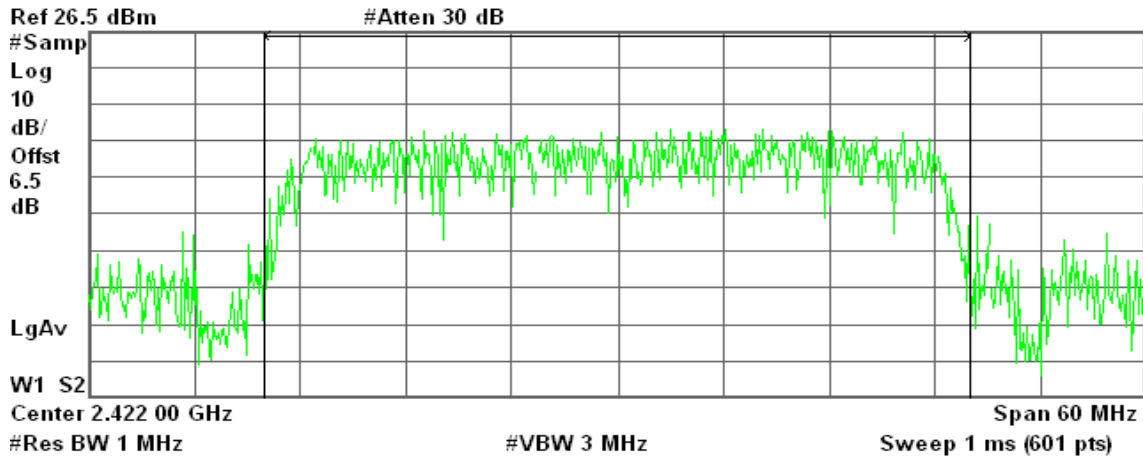
-67.50 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / Chain 1

Average Power (CH Low)

Agilent 16:48:01 Mar 9, 2009

R T



Channel Power

8.77 dBm / 40.0000 MHz

Power Spectral Density

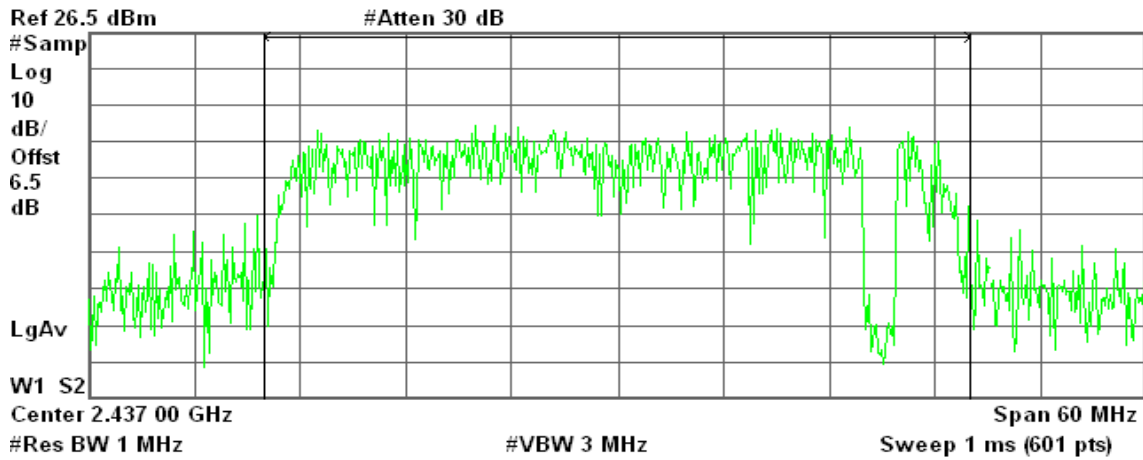
-67.25 dBm/Hz



Average Power (CH Mid)

Agilent 16:48:40 Mar 9, 2009

R T



Channel Power

9.16 dBm / 40.0000 MHz

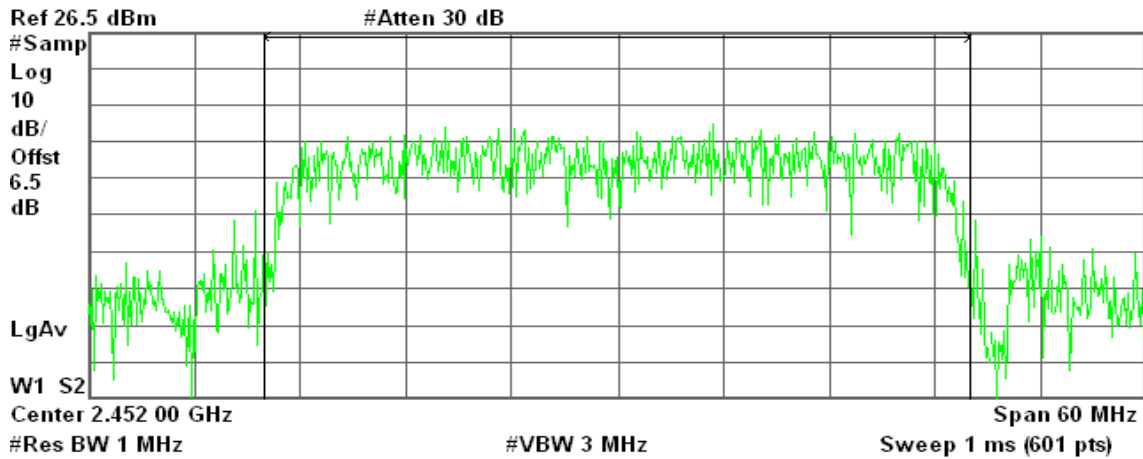
Power Spectral Density

-66.86 dBm/Hz

Average Power (CH High)

Agilent 16:49:51 Mar 9, 2009

R T



Channel Power

8.87 dBm / 40.0000 MHz

Power Spectral Density

-67.15 dBm/Hz



IEEE 802.11a mode / 5745 ~ 5825MHz

Average Power (CH Low)

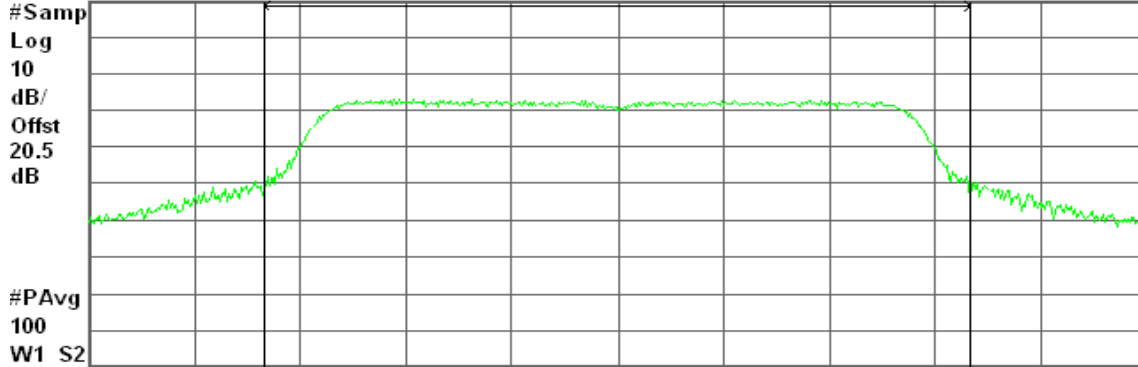
Agilent 20:04:44 Mar 10, 2009

R T

AVG Output Power, a Mode Low Ch.

Ref 30 dBm

Atten 20 dB



Center 5.745 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.01 dBm / 20.0000 MHz

-59.01 dBm/Hz

Average Power (CH Mid)

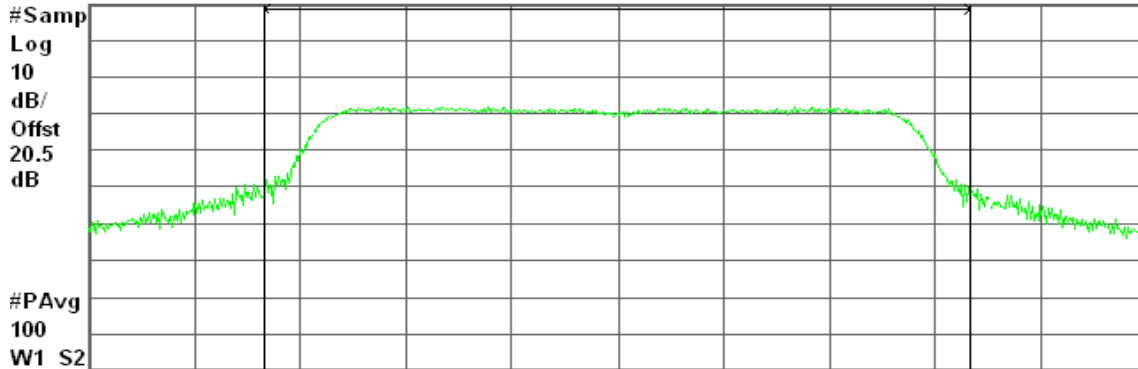
Agilent 20:21:44 Mar 10, 2009

R T

AVG Output Power, a Mode Mid Ch.

Ref 30 dBm

Atten 20 dB



Center 5.785 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.95 dBm / 20.0000 MHz

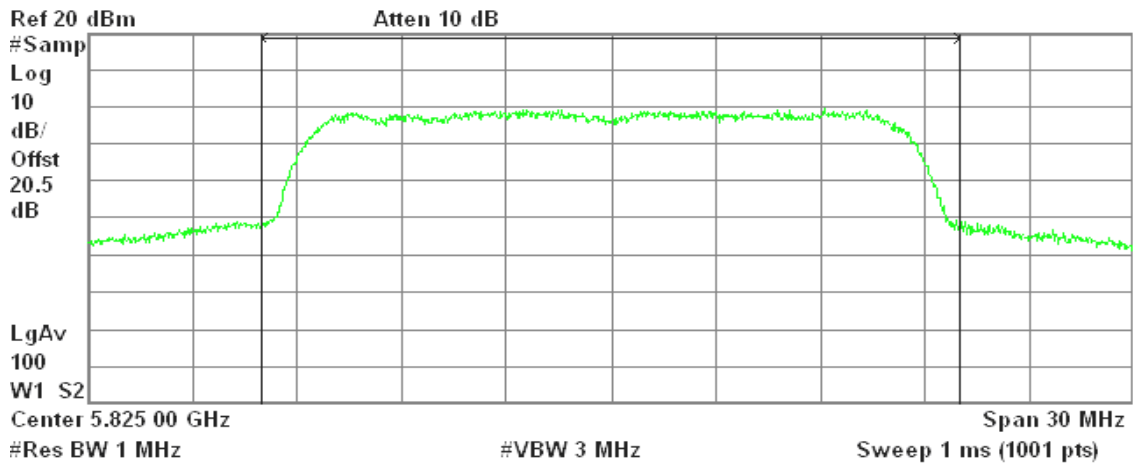
-60.06 dBm/Hz



Average Power (CH High)

Agilent 20:32:09 Mar 10, 2009

R T



Channel Power

12.34 dBm / 20.0000 MHz

Power Spectral Density

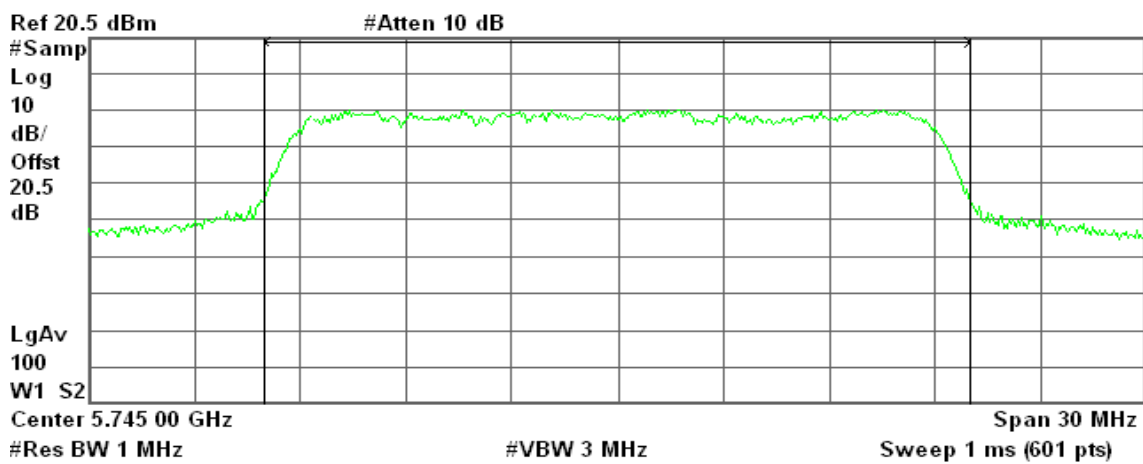
-60.67 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

Average Power (CH Low)

Agilent 02:04:23 Mar 11, 2009

R T



Channel Power

14.70 dBm / 20.0000 MHz

Power Spectral Density

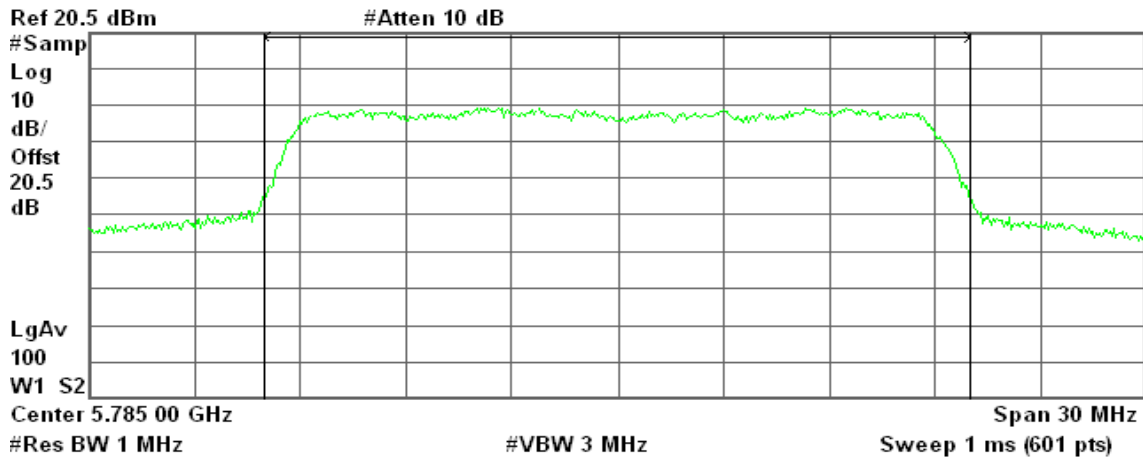
-58.31 dBm/Hz



Average Power (CH Mid)

Agilent 02:04:50 Mar 11, 2009

R T



Channel Power

14.05 dBm / 20.0000 MHz

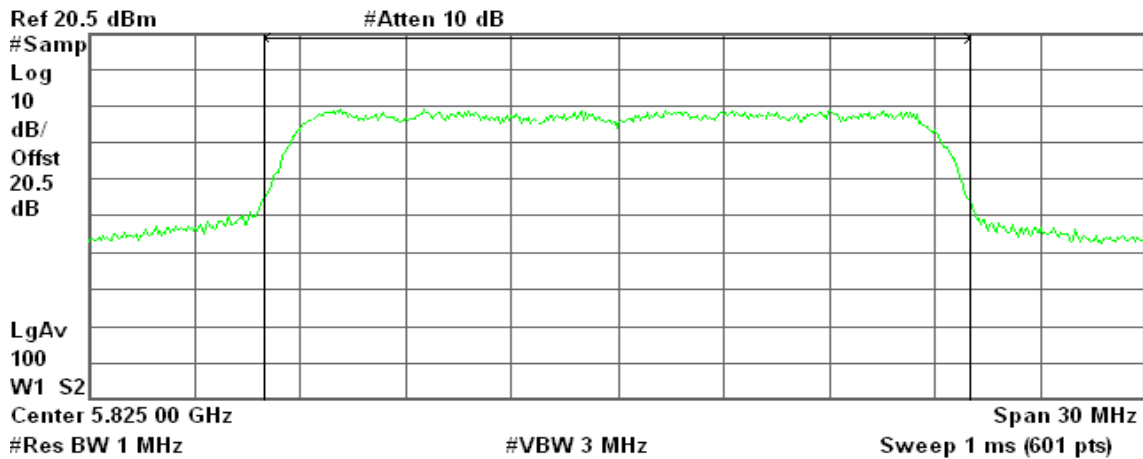
Power Spectral Density

-58.96 dBm/Hz

Average Power (CH High)

Agilent 02:05:18 Mar 11, 2009

R T



Channel Power

13.01 dBm / 20.0000 MHz

Power Spectral Density

-60.00 dBm/Hz

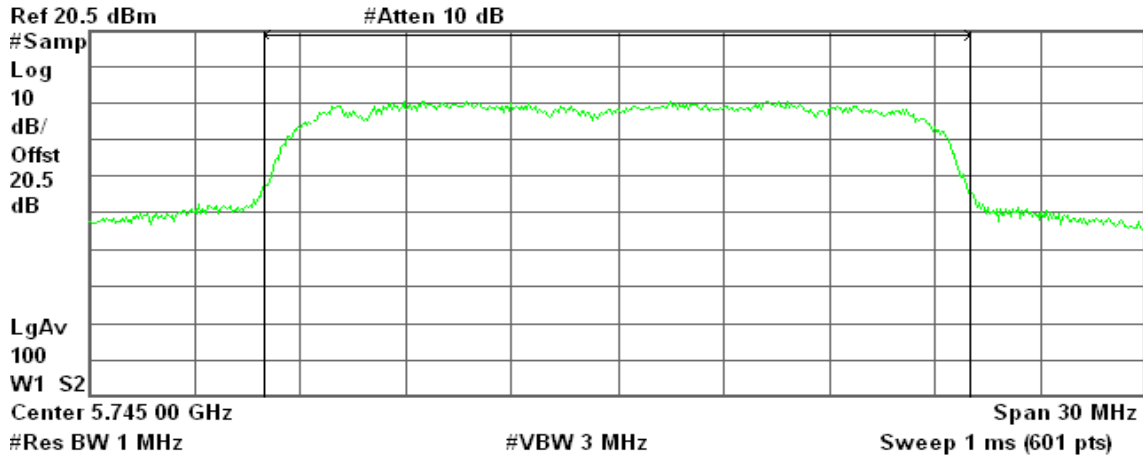


draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

Average Power (CH Low)

Agilent 02:03:47 Mar 11, 2009

R T



Channel Power

15.14 dBm / 20.0000 MHz

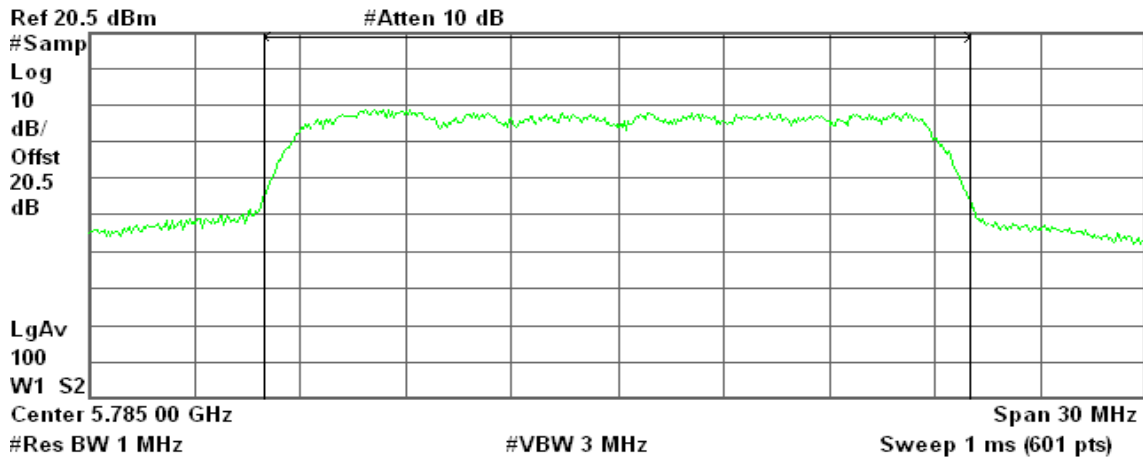
Power Spectral Density

-57.87 dBm/Hz

Average Power (CH Mid)

Agilent 02:03:22 Mar 11, 2009

R T



Channel Power

12.92 dBm / 20.0000 MHz

Power Spectral Density

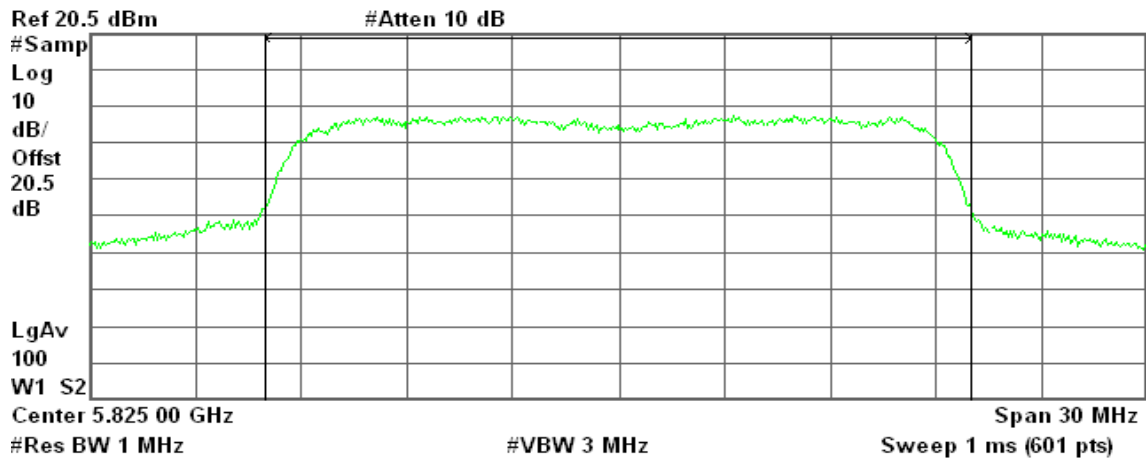
-60.09 dBm/Hz



Average Power (CH High)

Agilent 02:02:54 Mar 11, 2009

R T



Channel Power

11.59 dBm / 20.0000 MHz

Power Spectral Density

-61.42 dBm/Hz

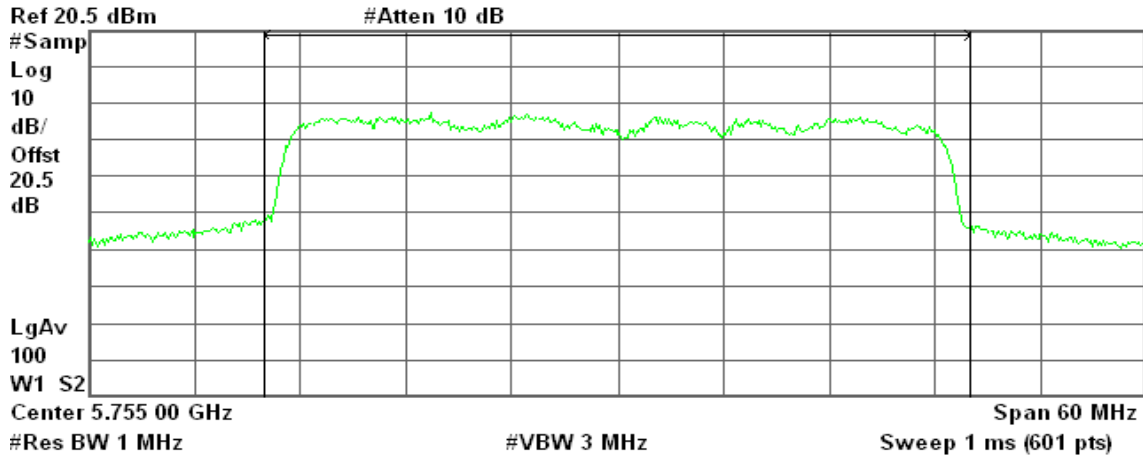


draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

Average Power (CH Low)

Agilent 02:11:10 Mar 11, 2009

R T



Channel Power

14.43 dBm / 40.0000 MHz

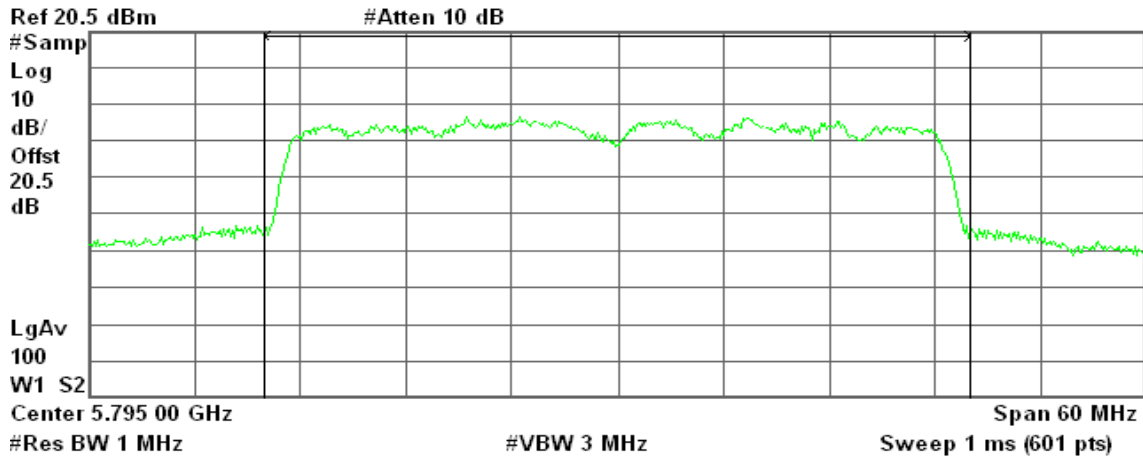
Power Spectral Density

-61.59 dBm/Hz

Average Power (CH Mid)

Agilent 02:11:35 Mar 11, 2009

R T



Channel Power

13.25 dBm / 40.0000 MHz

Power Spectral Density

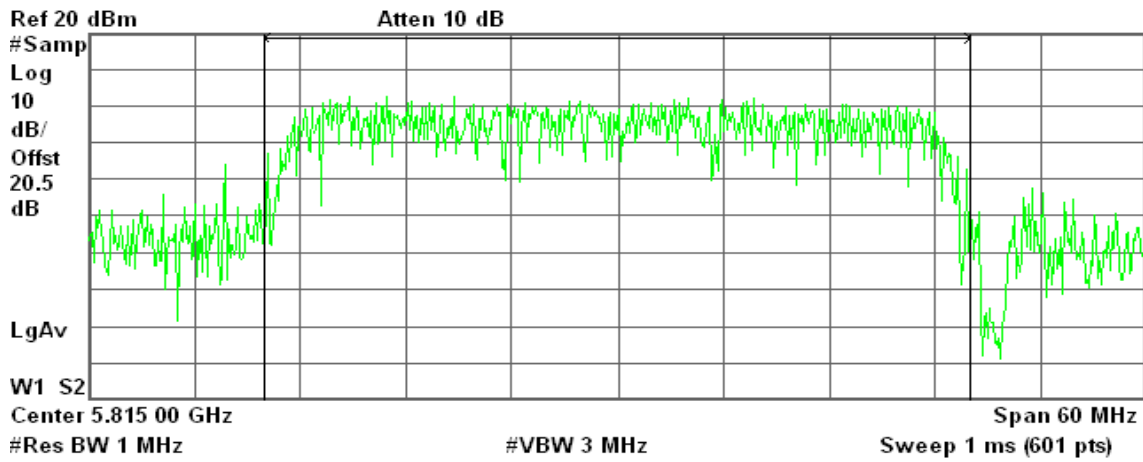
-62.77 dBm/Hz



Average Power (CH High)

Agilent 14:47:15 May 18, 2009

R T



Channel Power

12.28 dBm / 40.0000 MHz

Power Spectral Density

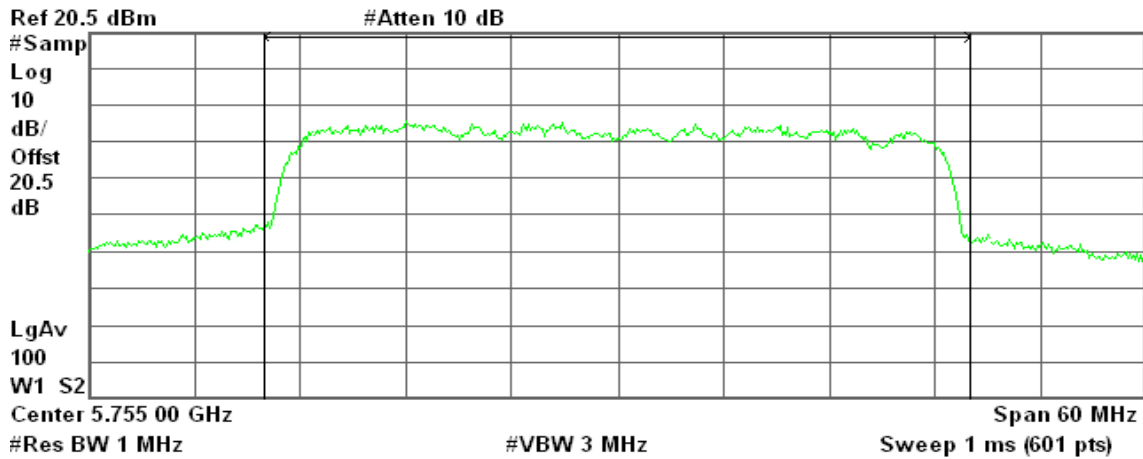
-63.74 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

Average Power (CH Low)

Agilent 02:13:40 Mar 11, 2009

R T



Channel Power

13.04 dBm / 40.0000 MHz

Power Spectral Density

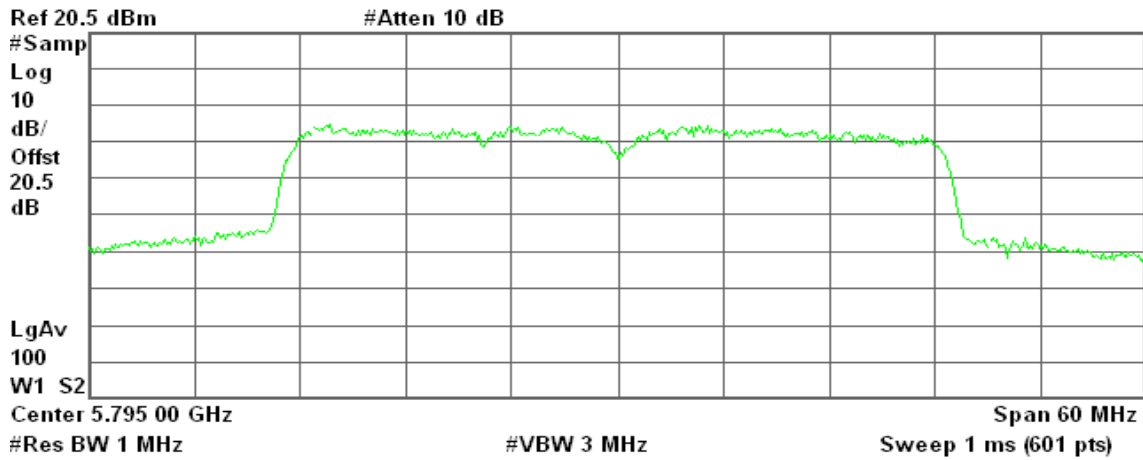
-62.98 dBm/Hz



Average Power (CH Mid)

Agilent 02:12:13 Mar 11, 2009

R T



Channel Power

12.01 dBm / 40.0000 MHz

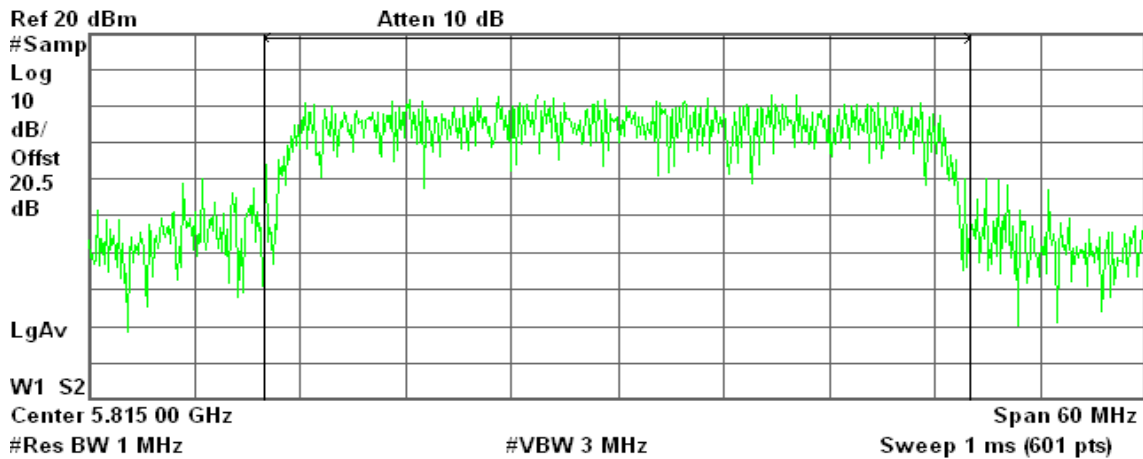
Power Spectral Density

-64.01 dBm/Hz

Average Power (CH High)

Agilent 15:06:39 May 18, 2009

R T



Channel Power

12.22 dBm / 40.0000 MHz

Power Spectral Density

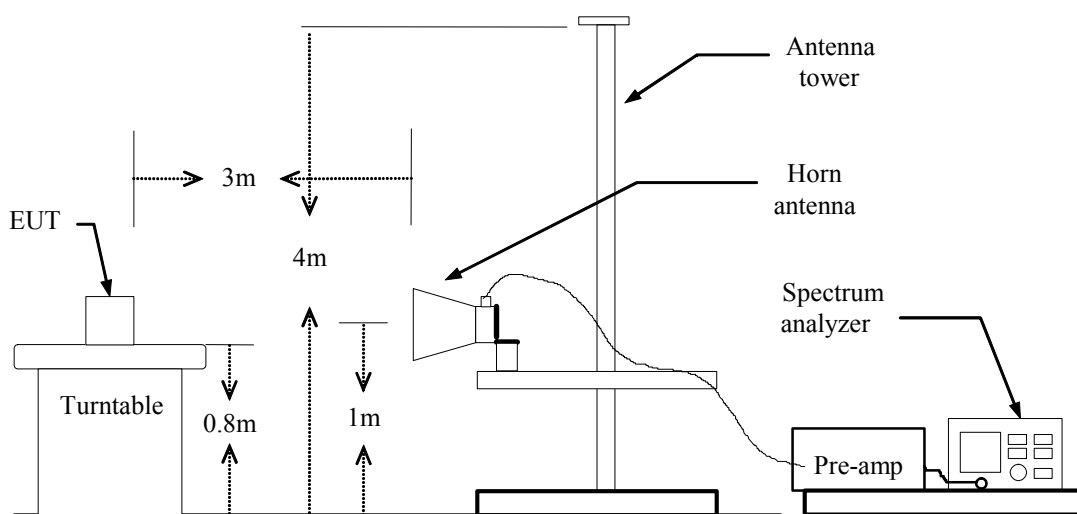
-63.80 dBm/Hz

7.4 BAND EDGES MEASUREMENT

LIMIT

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

Test Configuration



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.



802.11a Mode

1. Operating Frequency: 5725-5875MHz
2. CH Low: 5745MHz, CH High: 5825MHz
3. 6dB bandwidth: CH Low: 16.50MHz, CH High: 16.58MHz

Because the mentioned conditions, the test is not applicable.



Band Edges (IEEE 802.11b mode / CH Low)

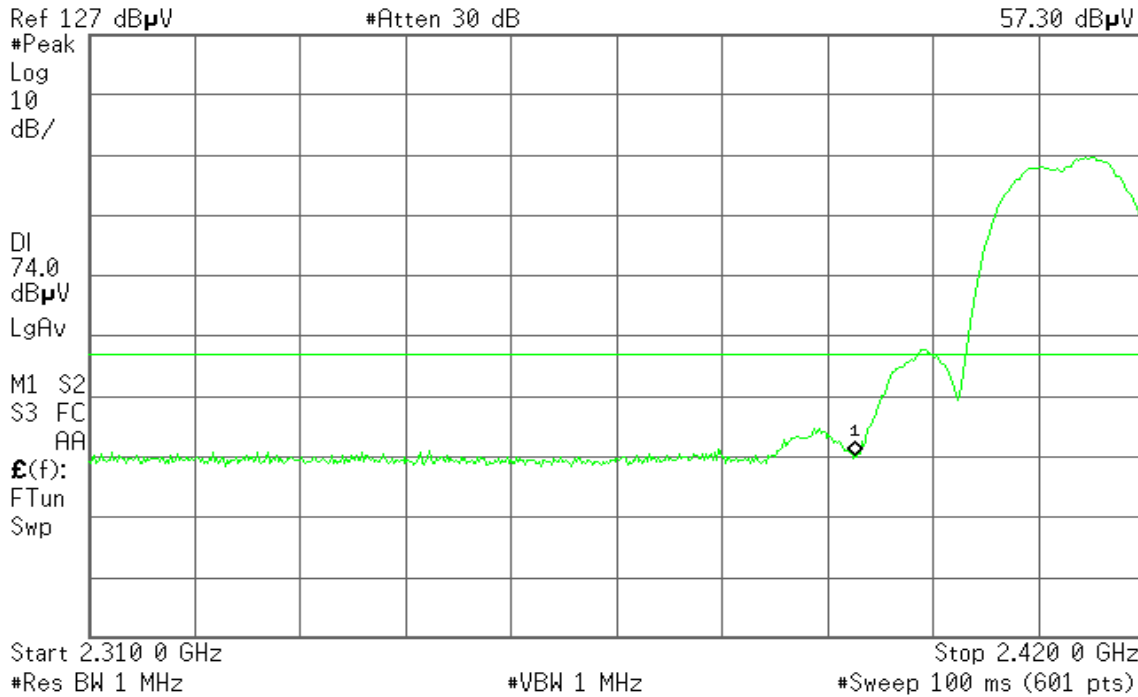
Detector mode: Peak

Polarity: Vertical

Agilent 19:04:23 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
57.30 dBμV



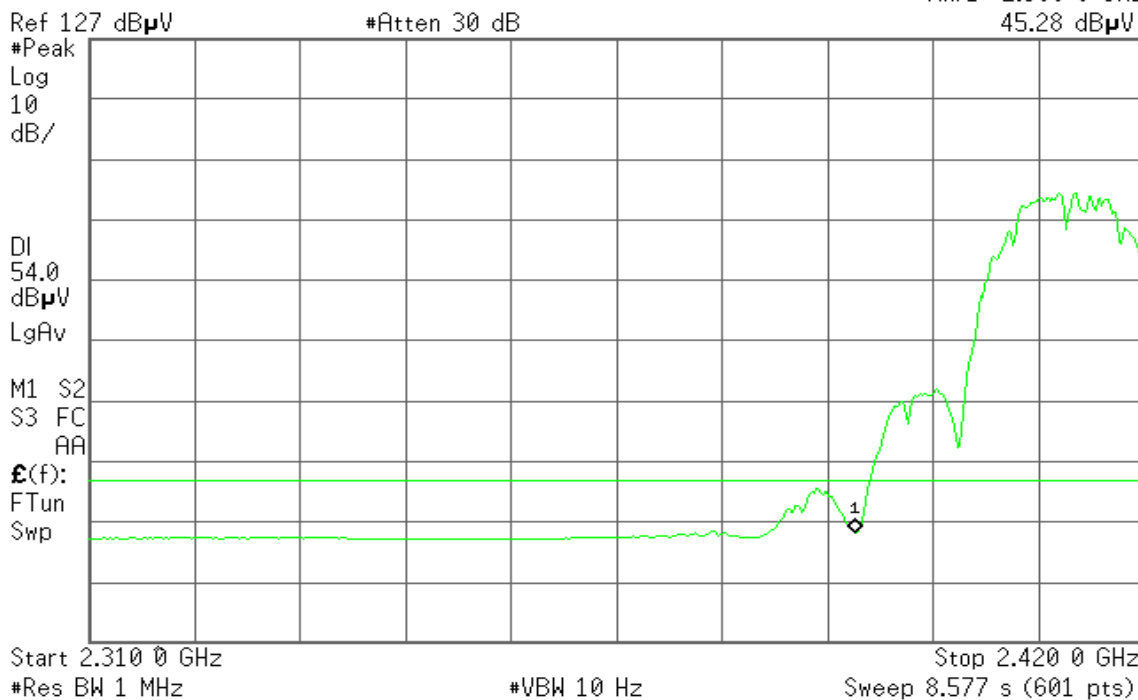
Detector mode: Average

Polarity: Vertical

Agilent 19:05:30 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
45.28 dBμV





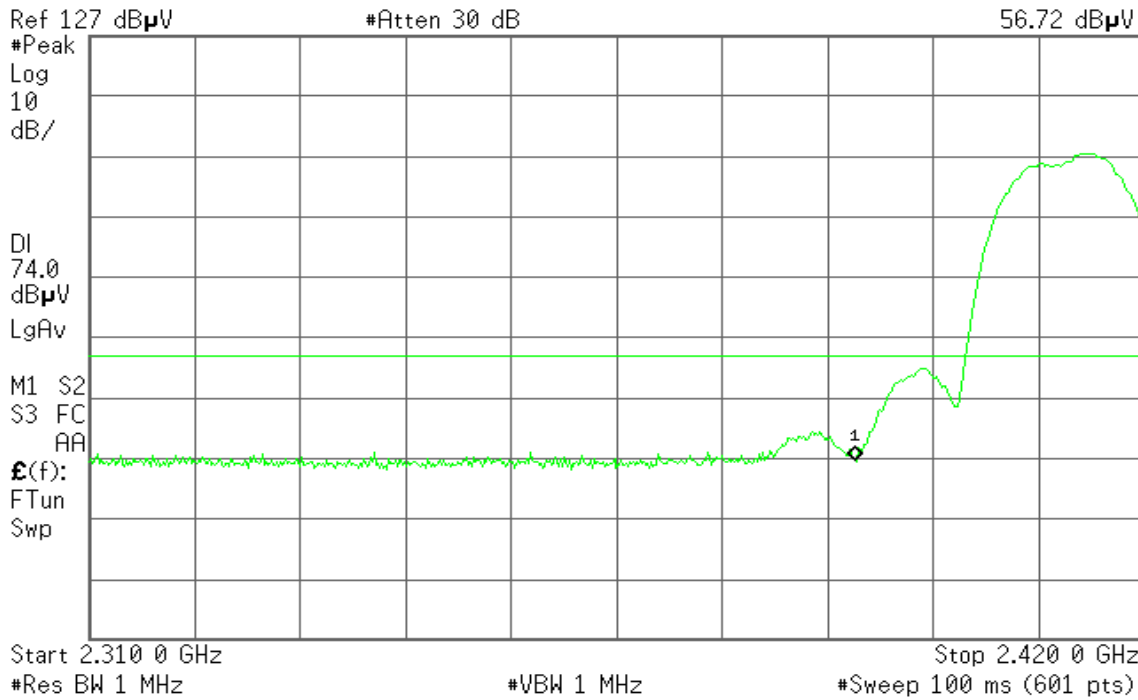
Detector mode: Peak

Polarity: Horizontal

Agilent 19:02:49 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
56.72 dBμV



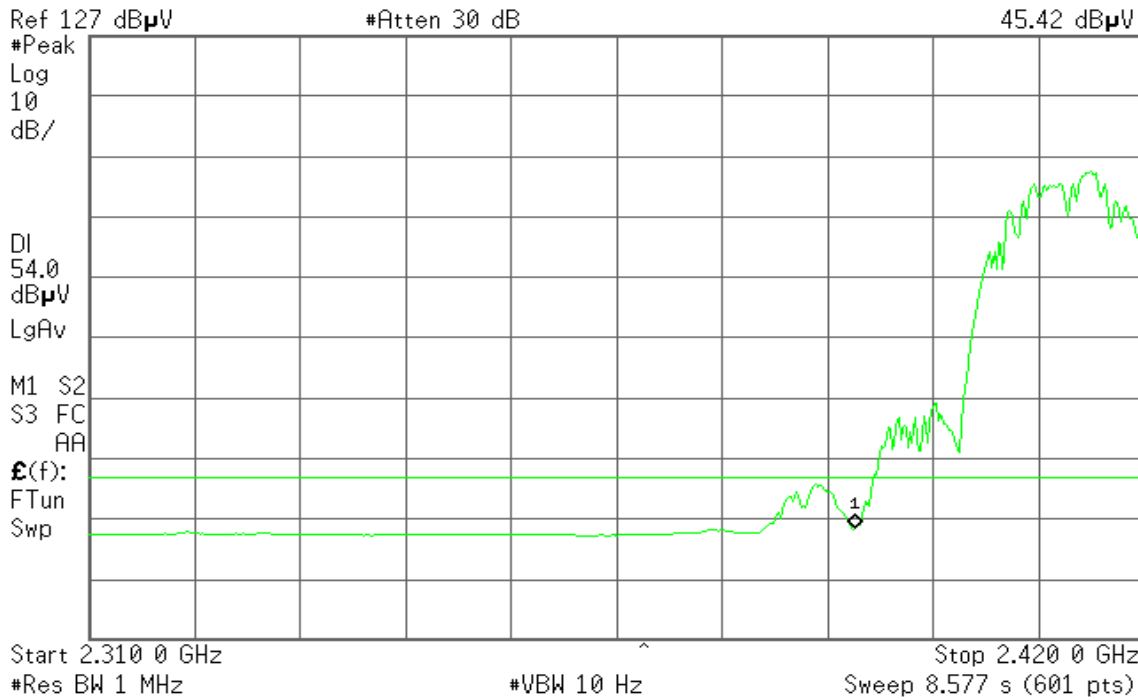
Detector mode: Average

Polarity: Horizontal

Agilent 19:02:17 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
45.42 dBμV





Band Edges (IEEE 802.11b mode / CH High)

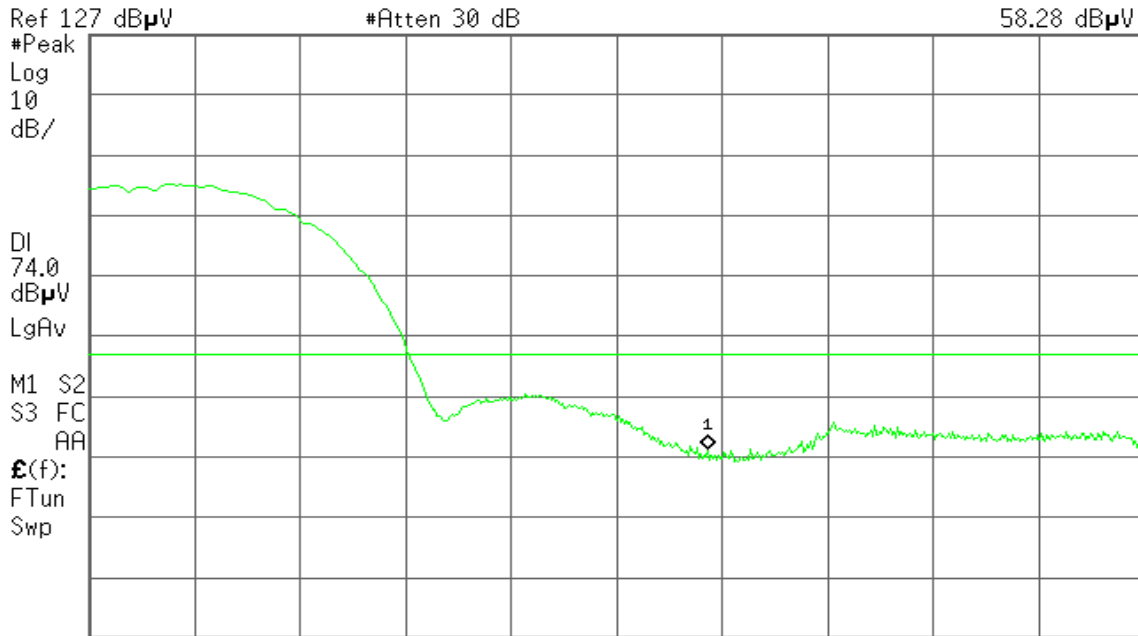
Detector mode: Peak

Polarity: Vertical

Agilent 19:00:00 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
58.28 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

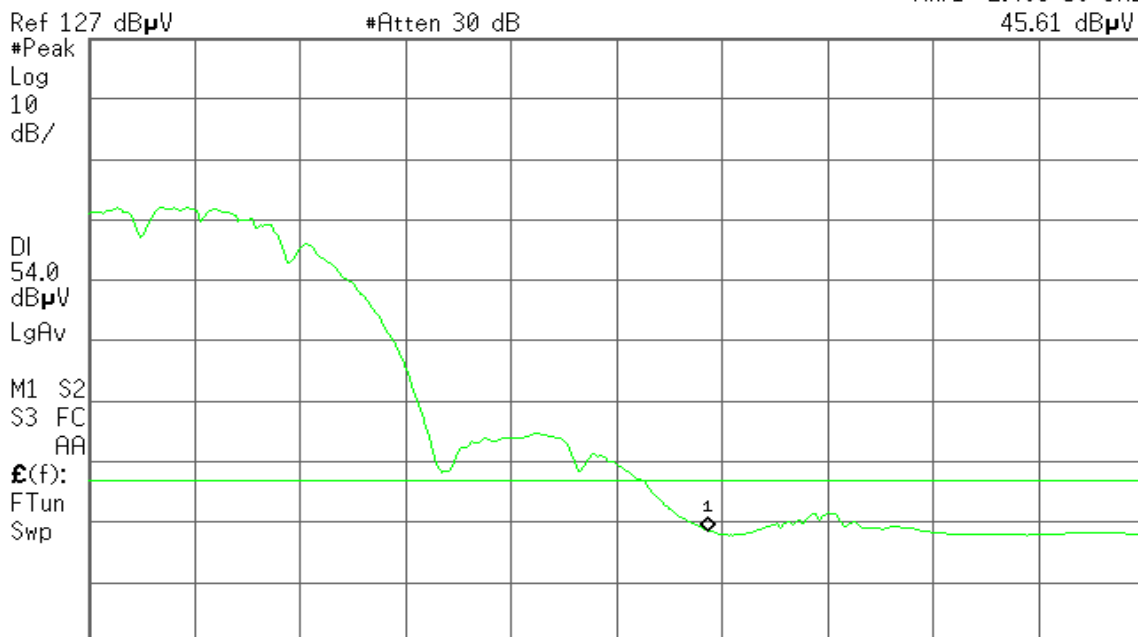
Detector mode: Average

Polarity: Vertical

Agilent 19:00:18 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
45.61 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



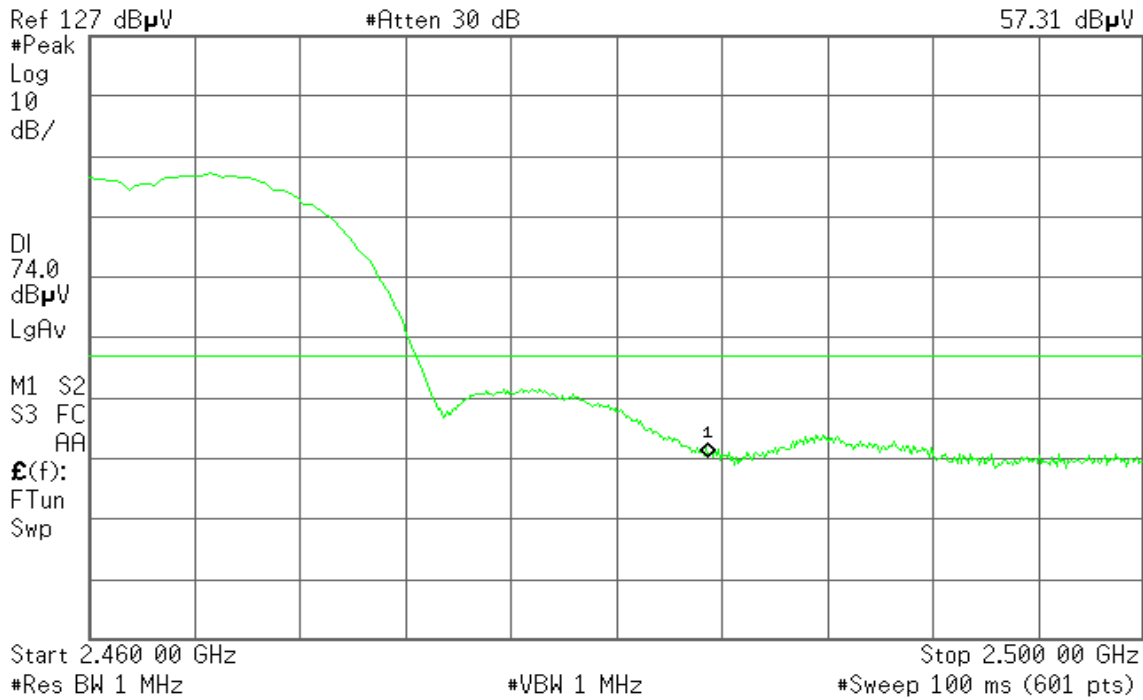
Detector mode: Peak

Polarity: Horizontal

Agilent 18:59:14 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
57.31 dBμV



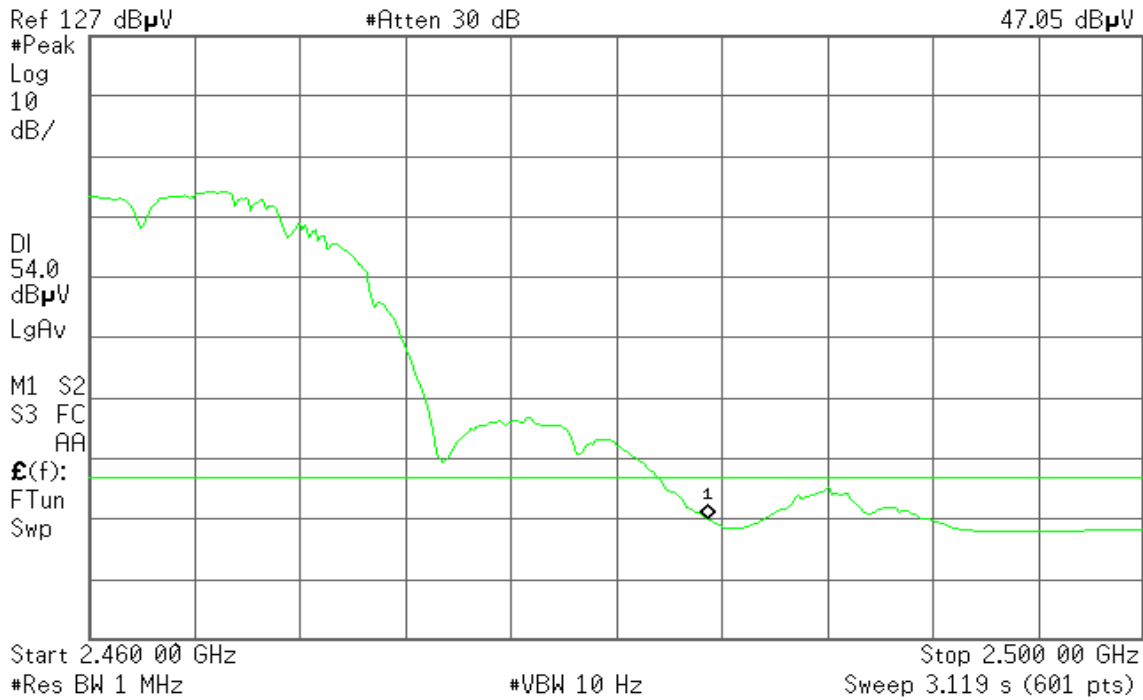
Detector mode: Average

Polarity: Horizontal

Agilent 18:58:58 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
47.05 dBμV





Band Edges (IEEE 802.11g mode / CH Low)

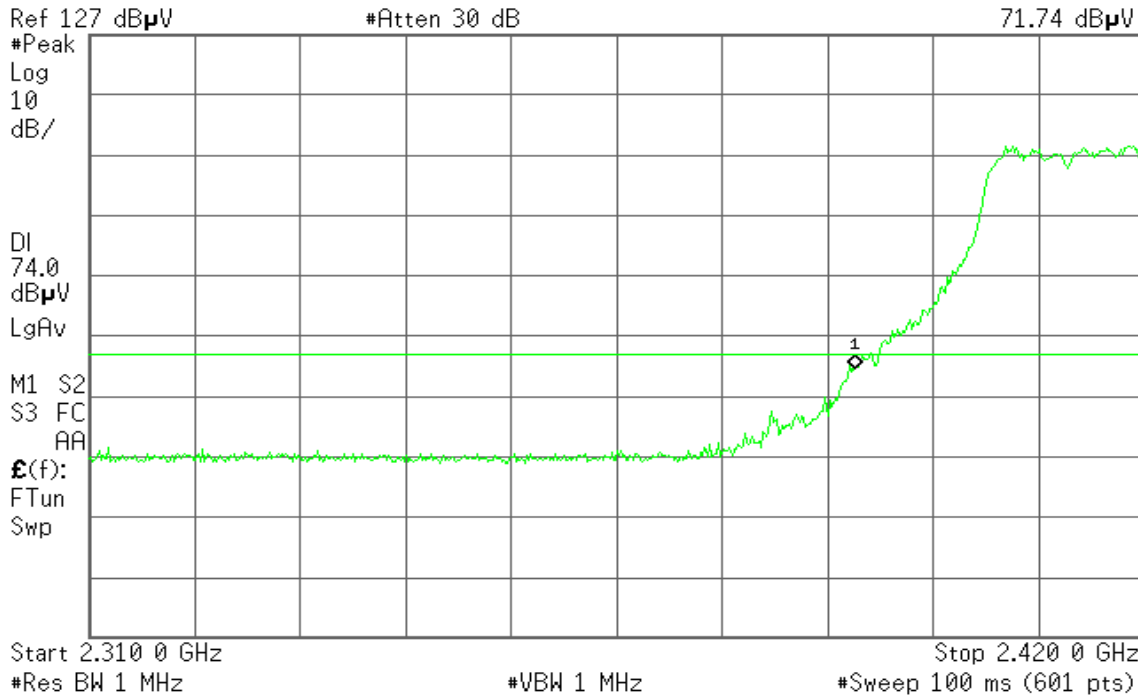
Detector mode: Peak

Polarity: Vertical

Agilent 18:39:23 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
71.74 dBμV



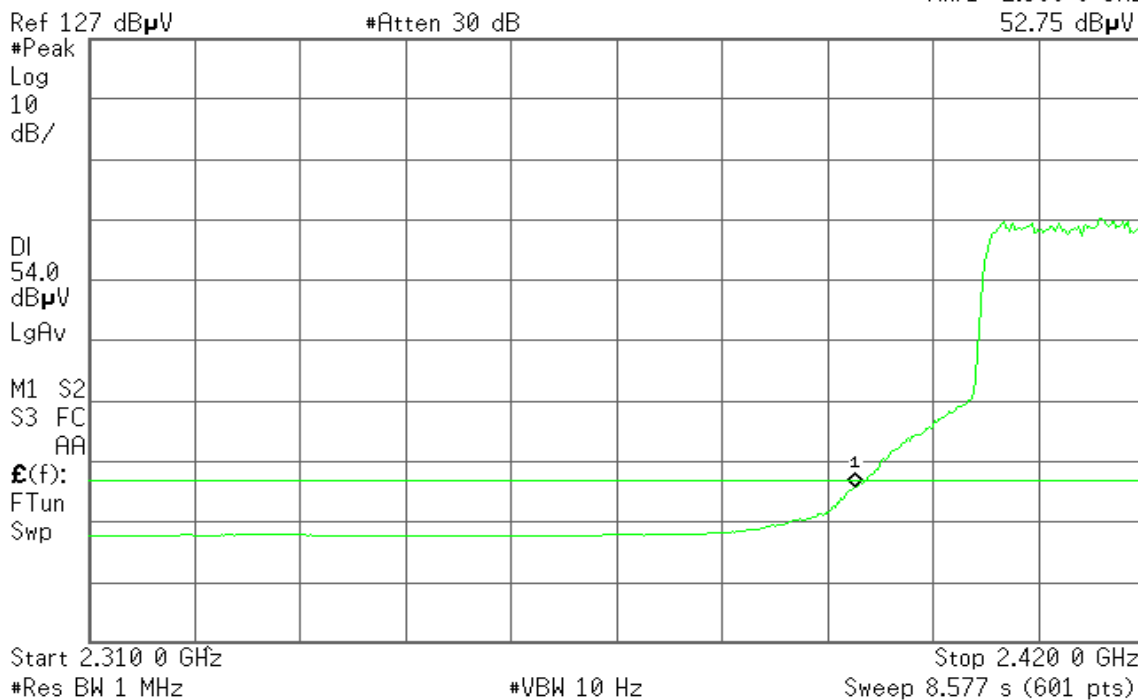
Detector mode: Average

Polarity: Vertical

Agilent 18:38:45 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
52.75 dBμV





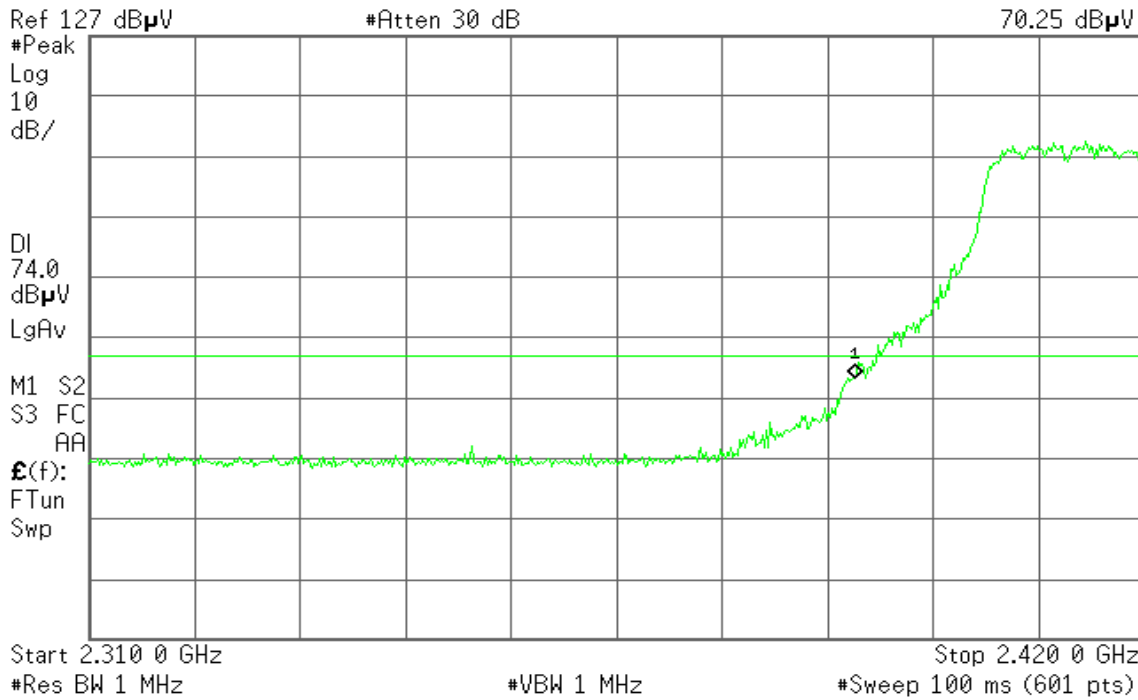
Detector mode: Peak

Polarity: Horizontal

Agilent 18:42:34 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
70.25 dB μ V



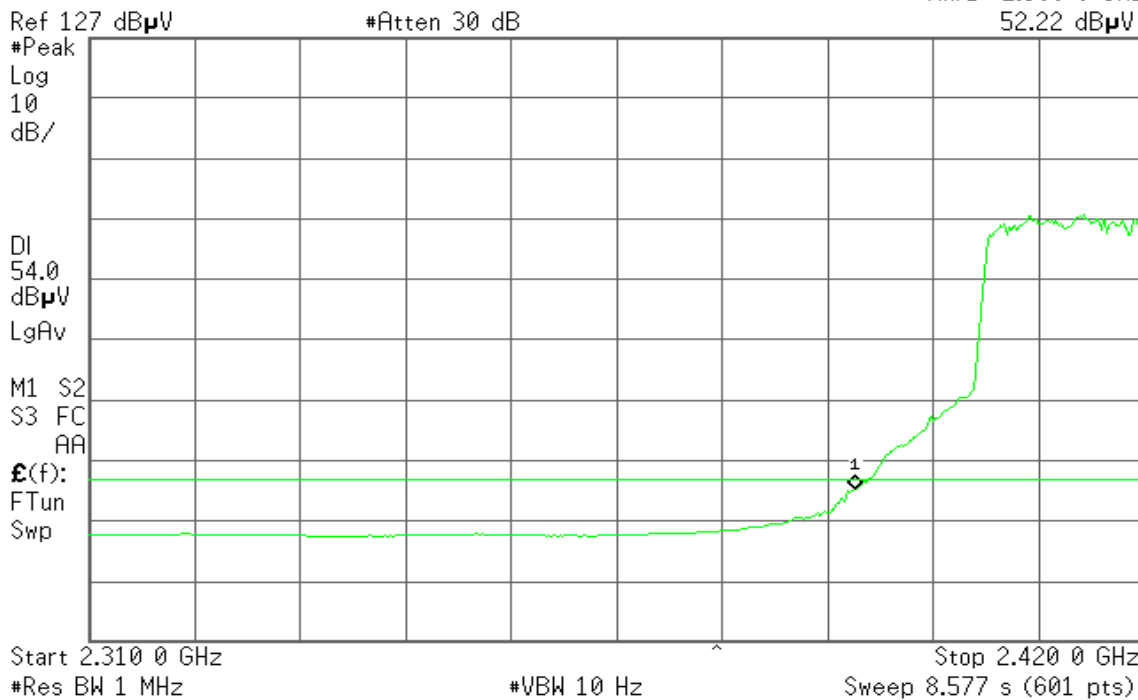
Detector mode: Average

Polarity: Horizontal

Agilent 18:43:13 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
52.22 dB μ V





Band Edges (IEEE 802.11g mode / CH High)

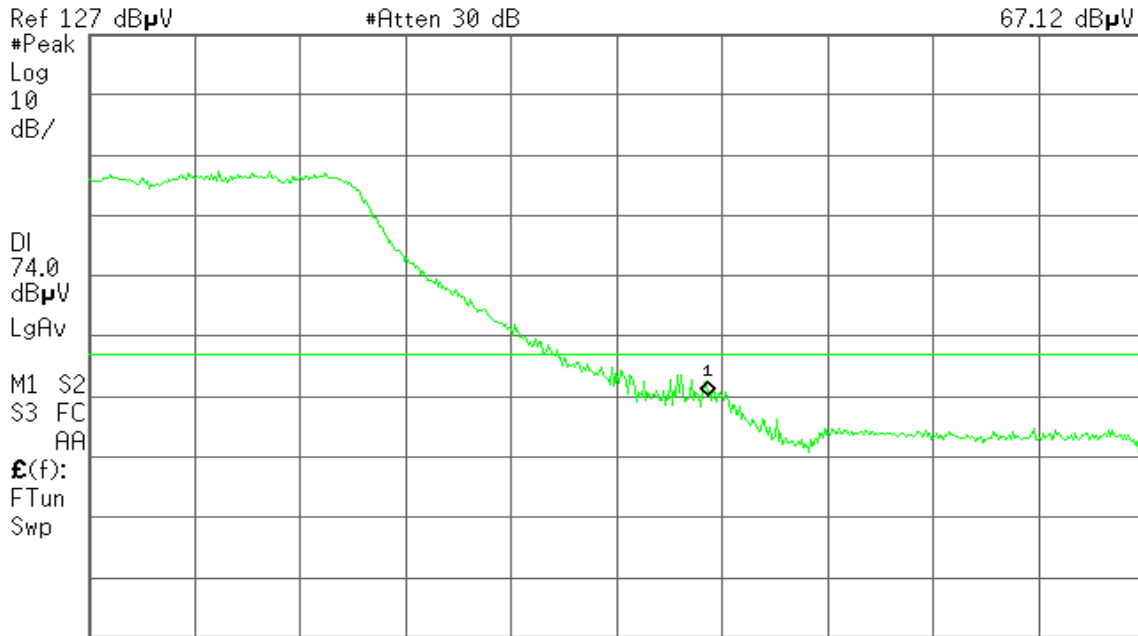
Detector mode: Peak

Polarity: Vertical

Agilent 18:54:16 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
67.12 dBμV



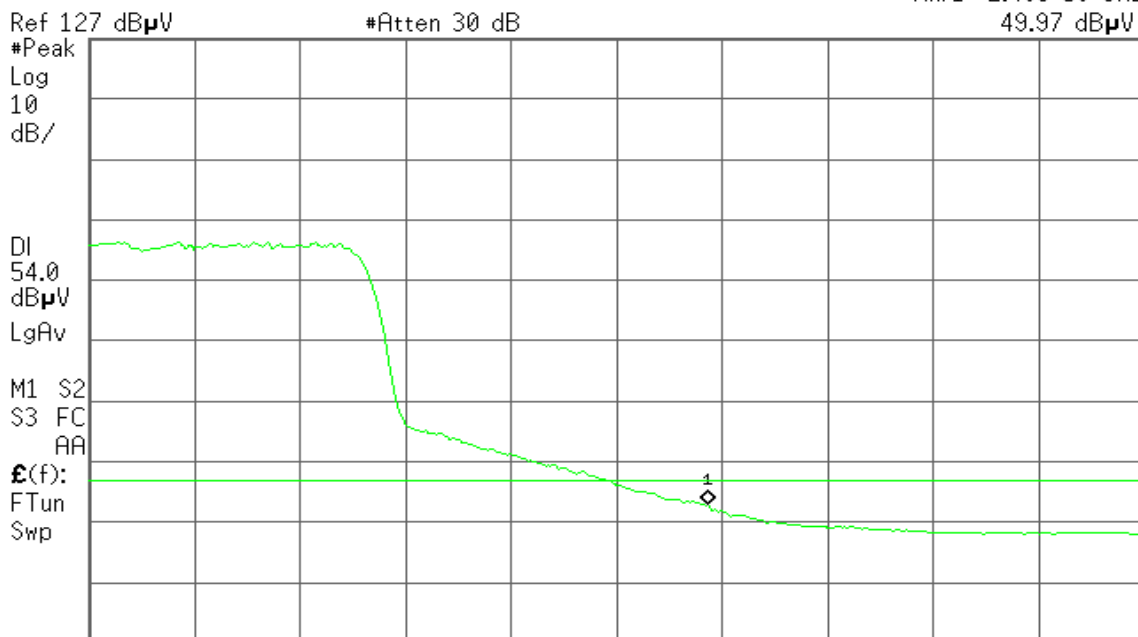
Detector mode: Average

Polarity: Vertical

Agilent 18:54:32 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
49.97 dBμV





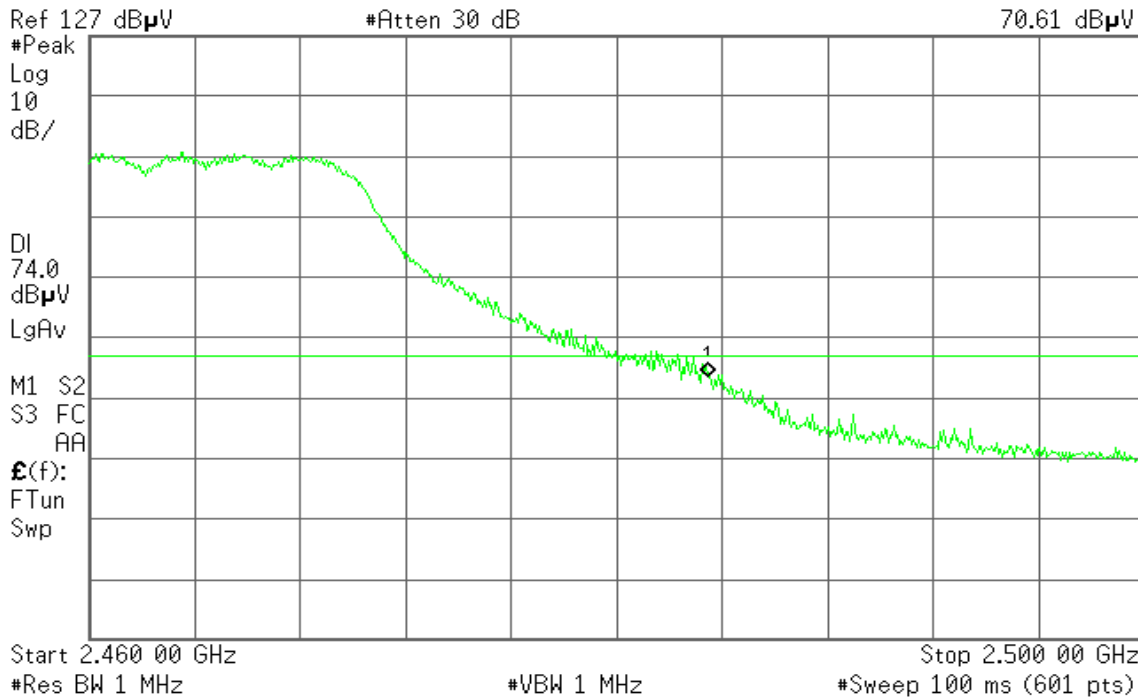
Detector mode: Peak

Polarity: Horizontal

Agilent 18:53:31 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
70.61 dBμV



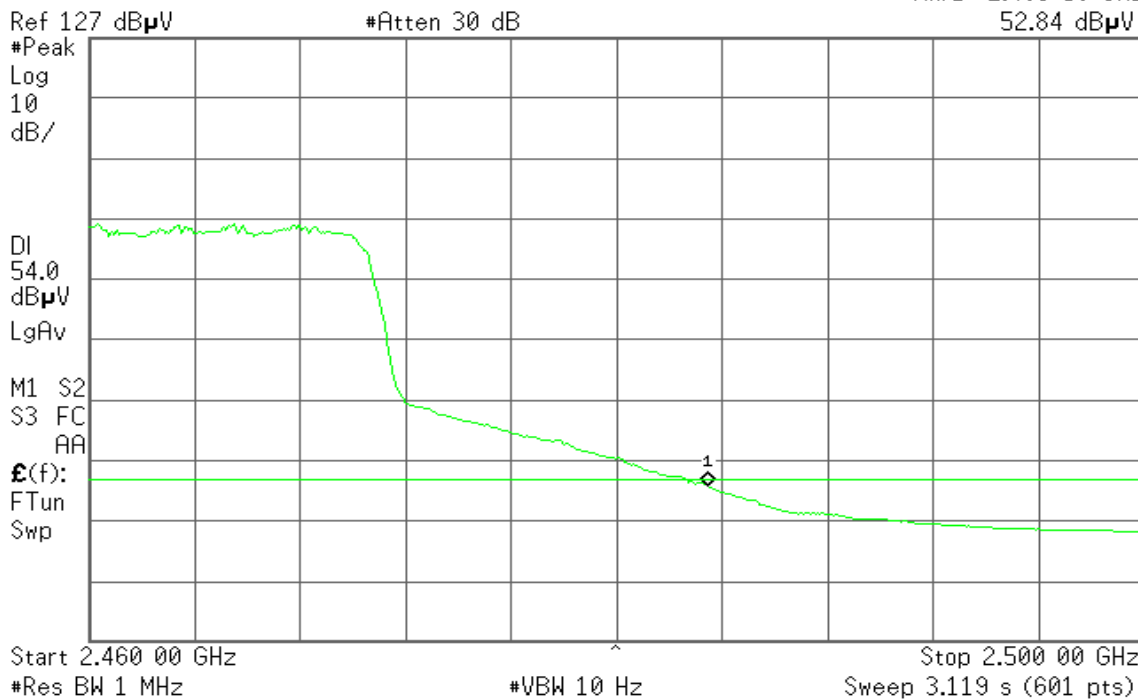
Detector mode: Average

Polarity: Horizontal

Agilent 18:53:03 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
52.84 dBμV





Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

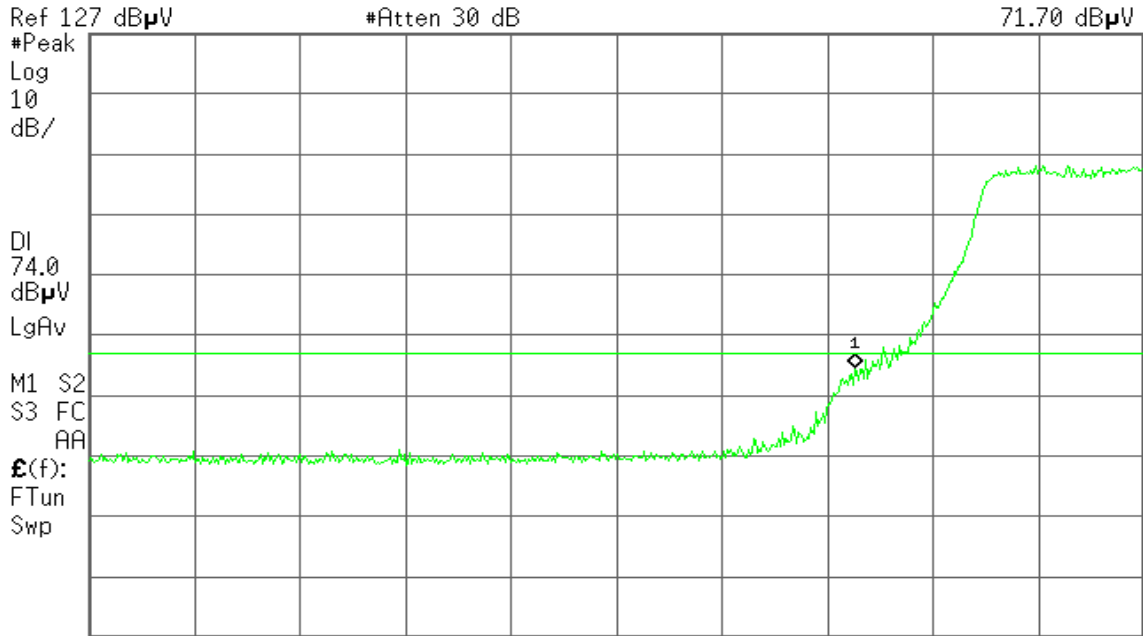
Detector mode: Peak

Polarity: Vertical

Agilent 19:08:29 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
71.70 dBμV



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 19:08:02 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
52.30 dBμV



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



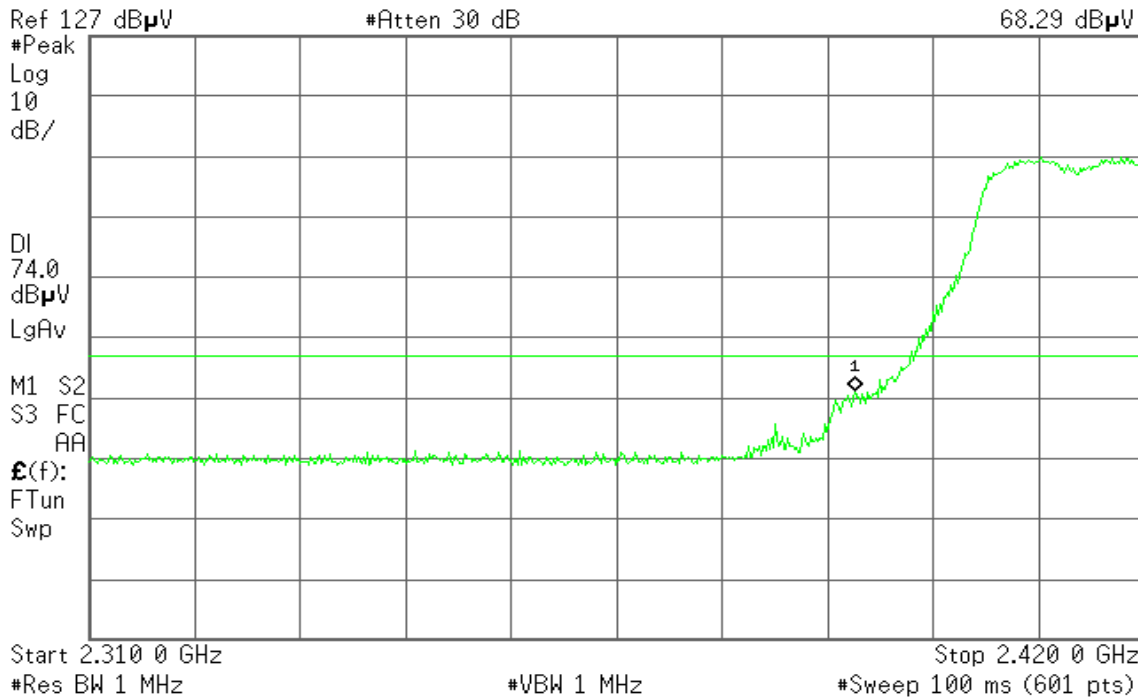
Detector mode: Peak

Polarity: Horizontal

Agilent 19:09:14 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
68.29 dBμV



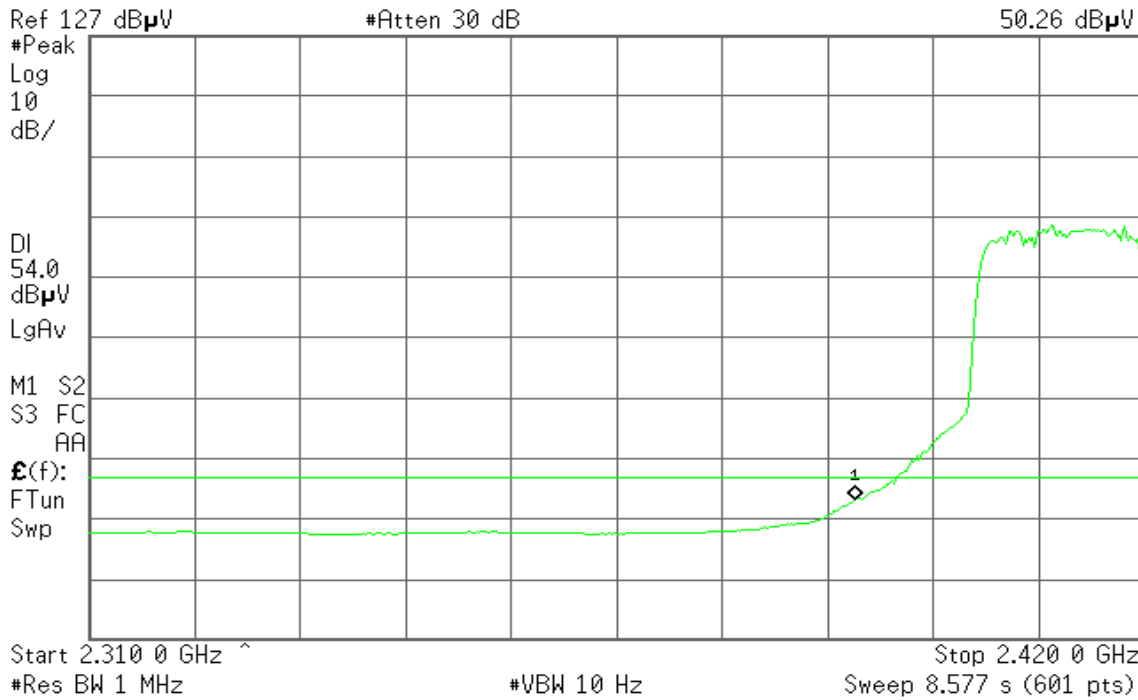
Detector mode: Average

Polarity: Horizontal

Agilent 19:09:41 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
50.26 dBμV





Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)

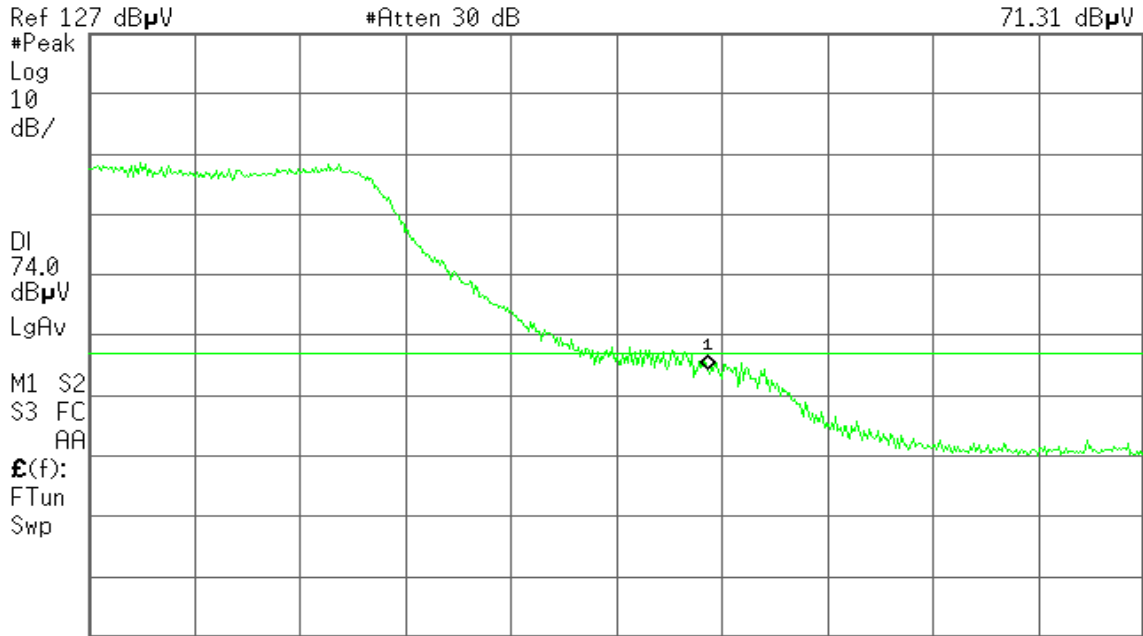
Detector mode: Peak

Polarity: Vertical

Agilent 19:11:53 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
71.31 dBμV



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

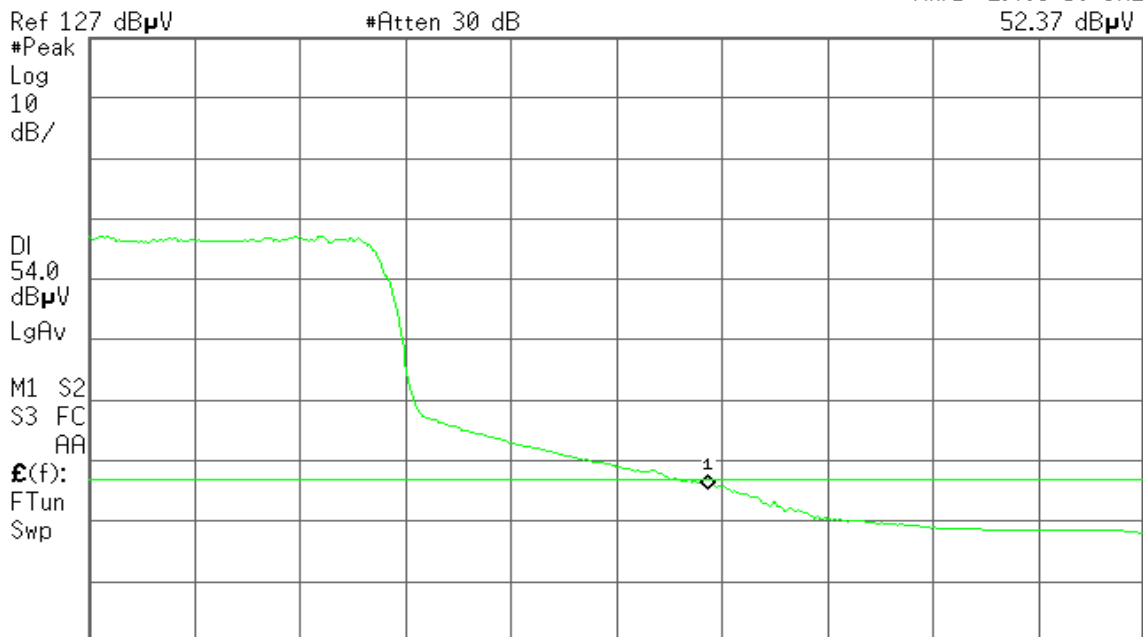
Detector mode: Average

Polarity: Vertical

Agilent 19:11:30 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
52.37 dBμV



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 3.119 s (601 pts)



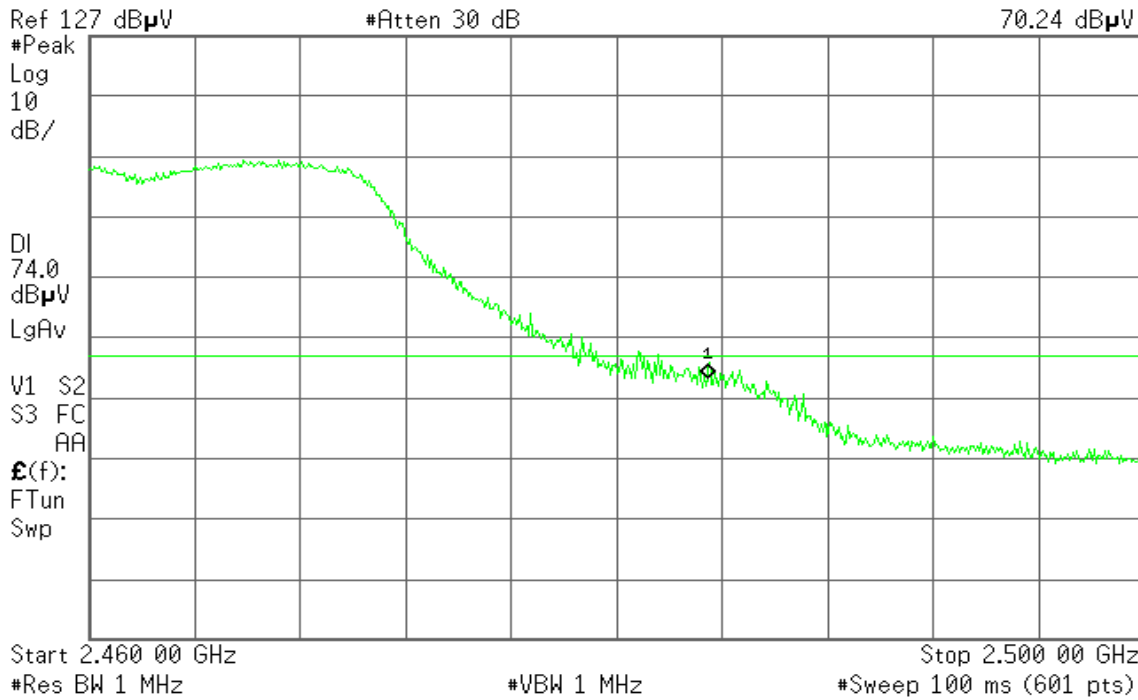
Detector mode: Peak

Polarity: Horizontal

Agilent 19:14:54 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
70.24 dB μ V



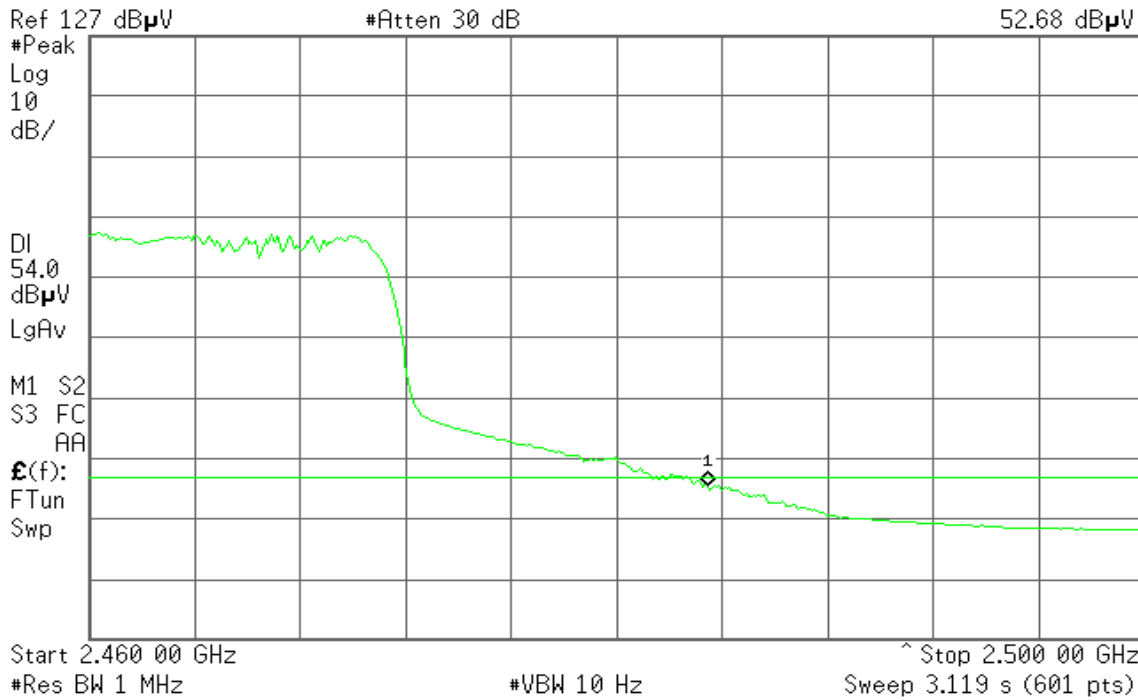
Detector mode: Average

Polarity: Horizontal

Agilent 19:13:54 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
52.68 dB μ V





Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

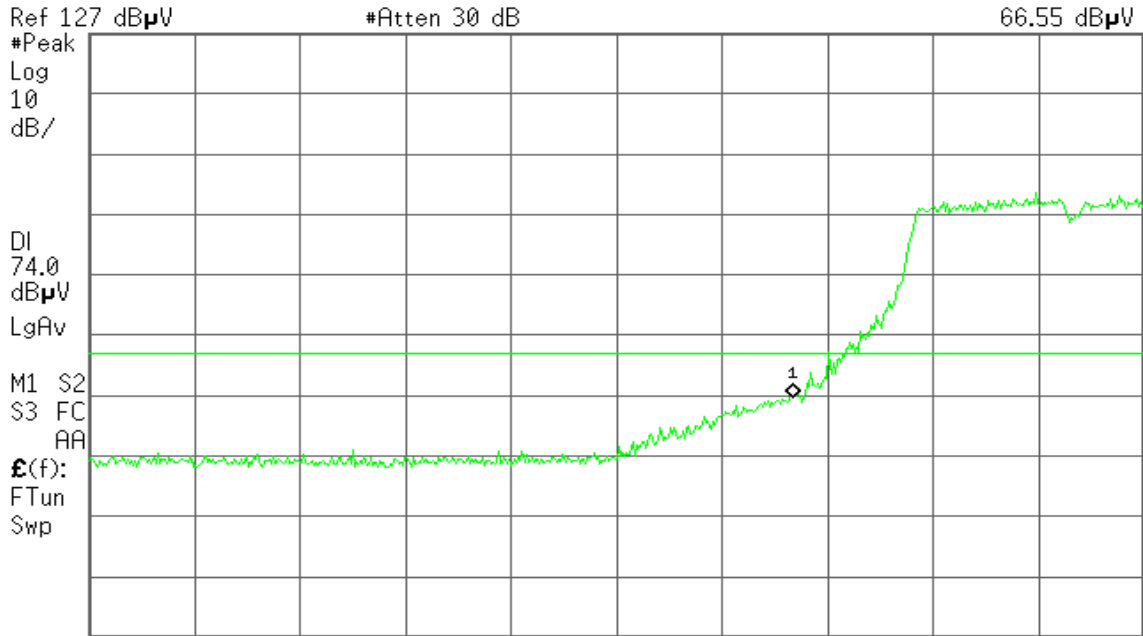
Detector mode: Peak

Polarity: Vertical

Agilent 19:24:07 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
66.55 dBμV



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

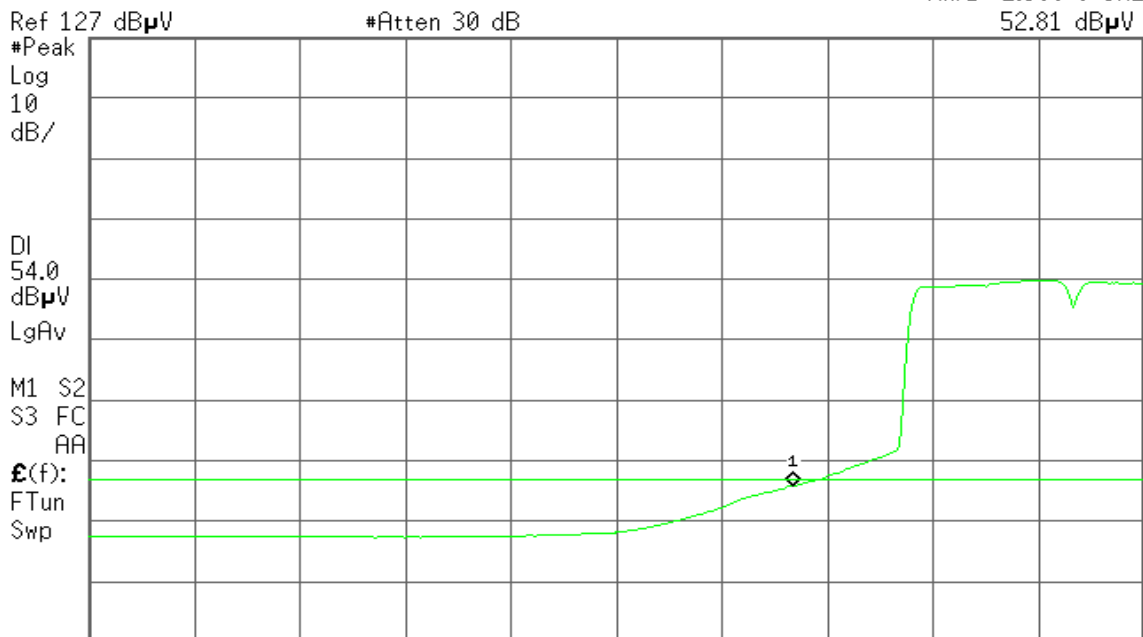
Detector mode: Average

Polarity: Vertical

Agilent 19:23:52 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
52.81 dBμV



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



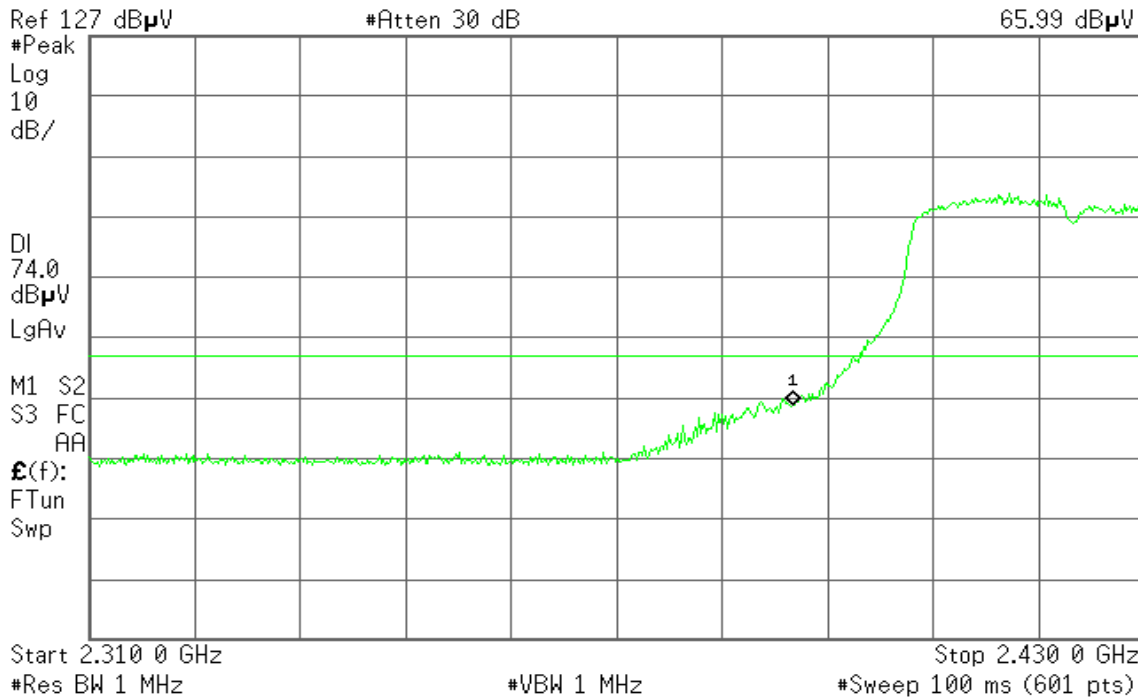
Detector mode: Peak

Polarity: Horizontal

Agilent 19:24:45 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
65.99 dBµV



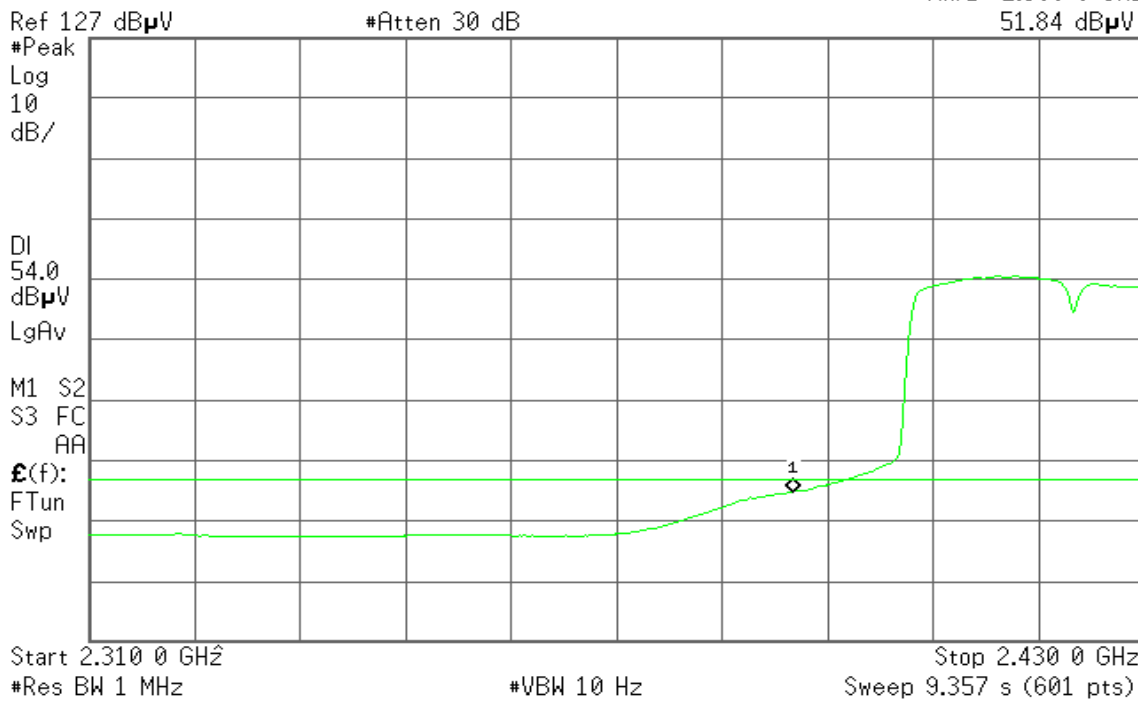
Detector mode: Average

Polarity: Horizontal

Agilent 19:25:04 Mar 4, 2009

R T

Mkr1 2.390 0 GHz
51.84 dBµV





Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH High)

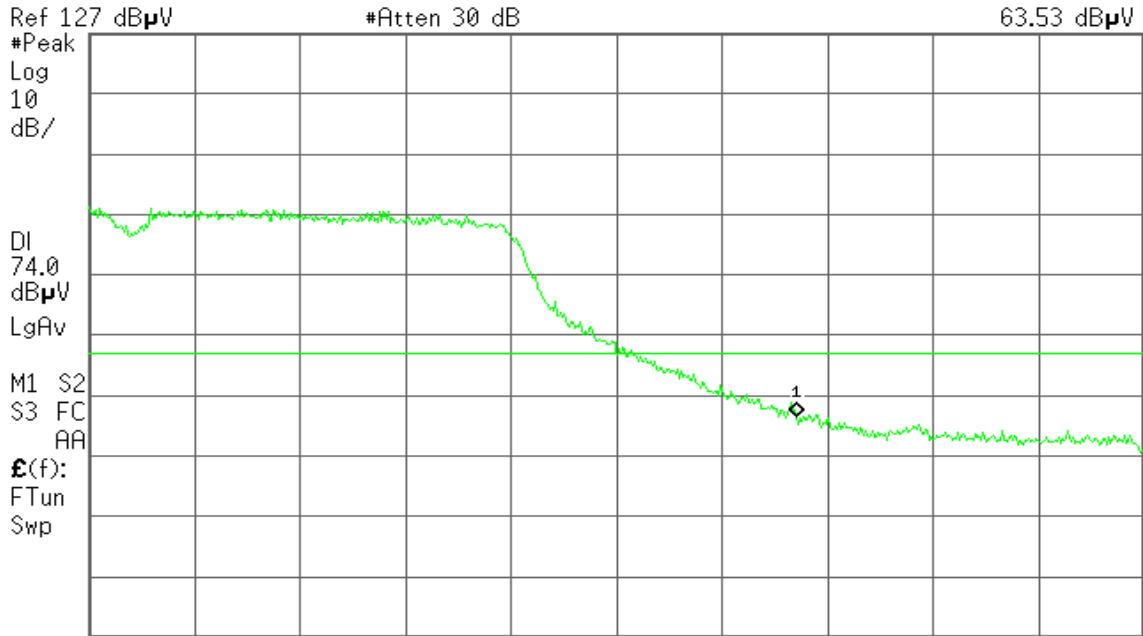
Detector mode: Peak

Polarity: Vertical

Agilent 19:21:24 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
63.53 dB μ V



Start 2.450 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

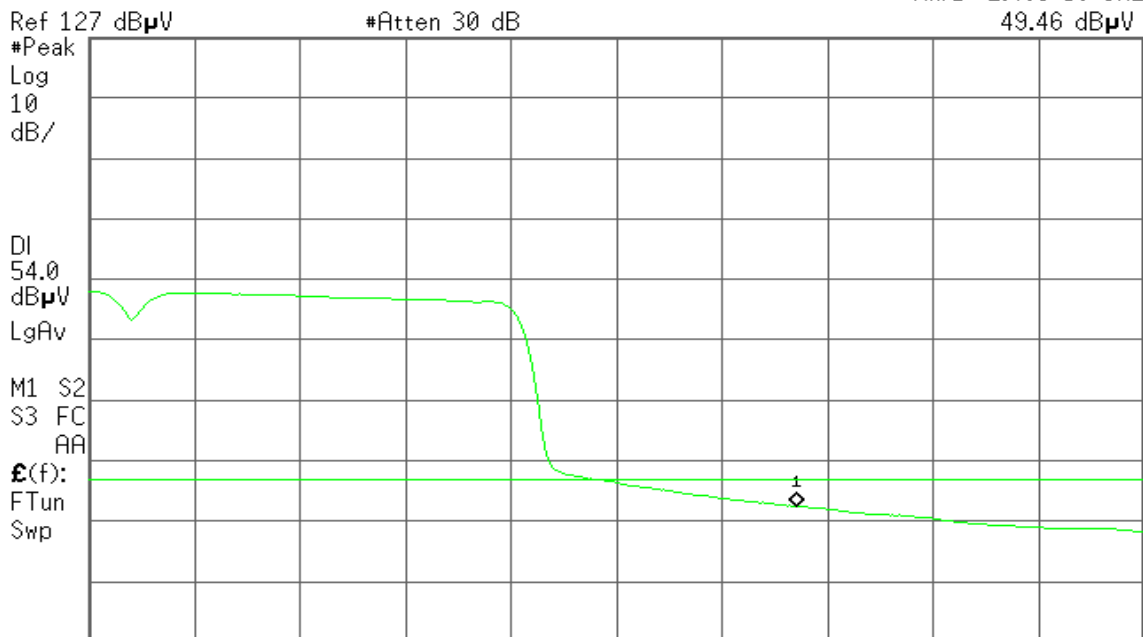
Detector mode: Average

Polarity: Vertical

Agilent 19:22:04 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
49.46 dB μ V



Start 2.450 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.899 s (601 pts)



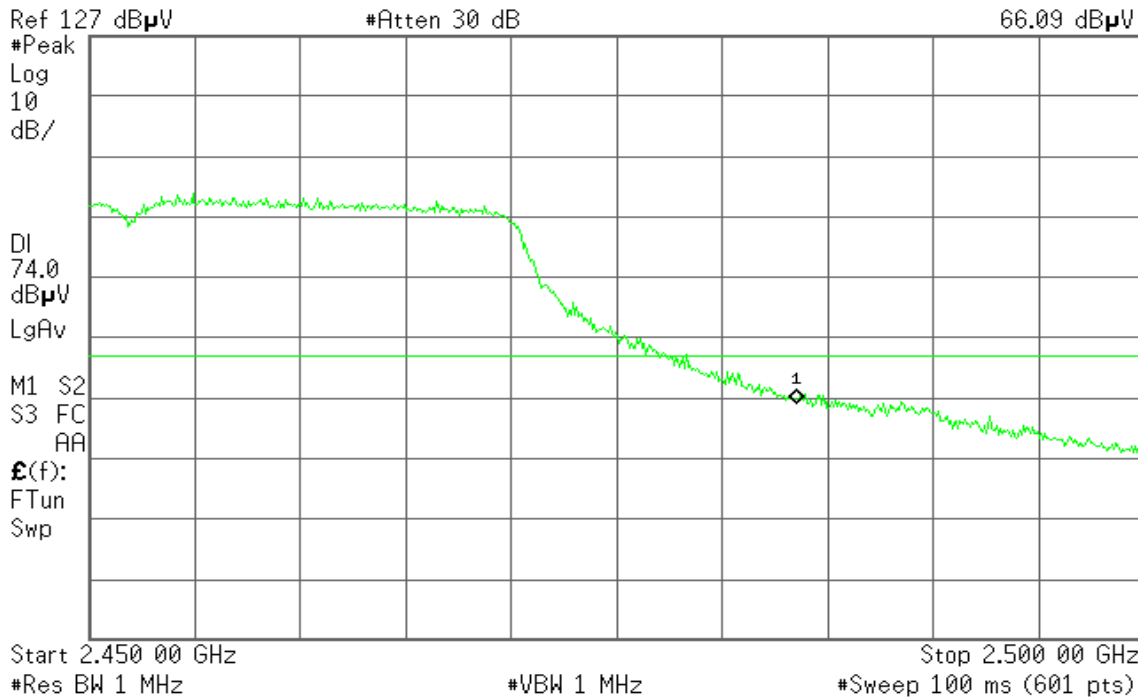
Detector mode: Peak

Polarity: Horizontal

Agilent 19:20:46 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
66.09 dBμV



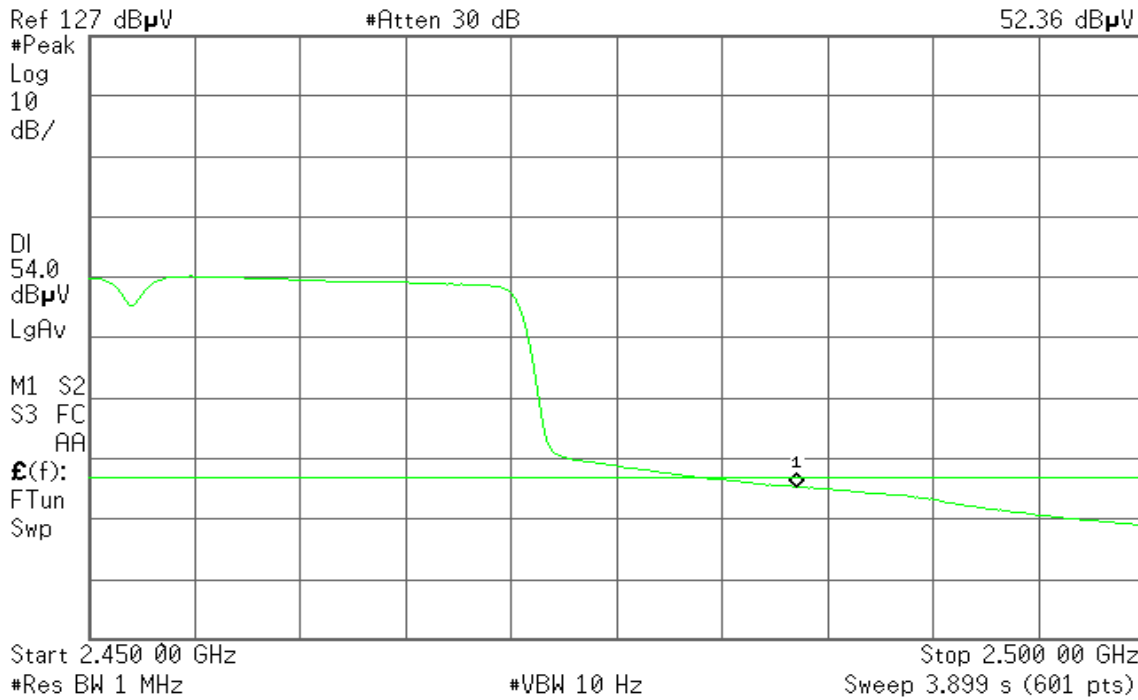
Detector mode: Average

Polarity: Horizontal

Agilent 19:20:26 Mar 4, 2009

R T

Mkr1 2.483 50 GHz
52.36 dBμV

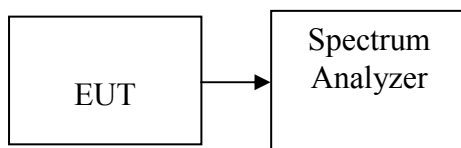


7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

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 = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep time = 100 s
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**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-7.43	8.00	PASS
Mid	2437	-4.99		PASS
High	2462	-10.15		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-10.84	8.00	PASS
Mid	2437	-10.95		PASS
High	2462	-10.21		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-10.72	-10.68	-7.69	8.00	PASS
Mid	2437	-12.64	-11.39	-8.96		PASS
High	2462	-11.80	-10.86	-8.29		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-21.00	-20.15	-17.54	8.00	PASS
Mid	2437	-20.68	-19.39	-16.98		PASS
High	2452	-21.97	-23.01	-19.45		PASS

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

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-9.88	8.00	PASS
Mid	5785	-12.00		PASS
High	5825	-12.40		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-12.56	-9.34	-7.65	7.00	PASS
Mid	5785	-4.89	-14.20	-4.41		PASS
High	5825	-11.63	-9.83	-7.63		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-6.55	-12.24	-5.51	7.00	PASS
Mid	5795	-12.88	-10.94	-8.79		PASS
High	5815	-13.27	-12.67	-9.95		PASS

Remark:

1. Total PPSD (dBm) = $10 * \text{LOG}(10^{(\text{Chain 0 PPSD} / 10)} + 10^{(\text{Chain 1 PPSD} / 10)})$

2. The maximum antenna gain is 7.09dBi; therefore the reduction due to antenna gain is 1dB, so the limit is 7dBm.

**Test mode: draft 802.11n Standard-20 MHz Channel mode with combiner**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-6.15	8.00	PASS
Mid	2437	-6.37		PASS
High	2462	-6.87		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-14.43	8.00	PASS
Mid	2437	-15.44		PASS
High	2452	-17.74		PASS

Test mode: draft 802.11n Standard-20 MHz Channel / 5745 ~ 5825MHz / mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-2.78	7.00	PASS
Mid	5785	-2.75		PASS
High	5825	-8.46		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-2.67	7.00	PASS
Mid	5795	-5.90		PASS
High	5815	-7.79		PASS

Remark:

1. Total PPSD (dBm) = $10 * \text{LOG}(10^{(\text{Chain 0 PPSD} / 10)} + 10^{(\text{Chain 1 PPSD} / 10)})$

2. The maximum antenna gain is 7.09dBi; therefore the reduction due to antenna gain is 1dB, so the limit is 7dBm.



Test Plot

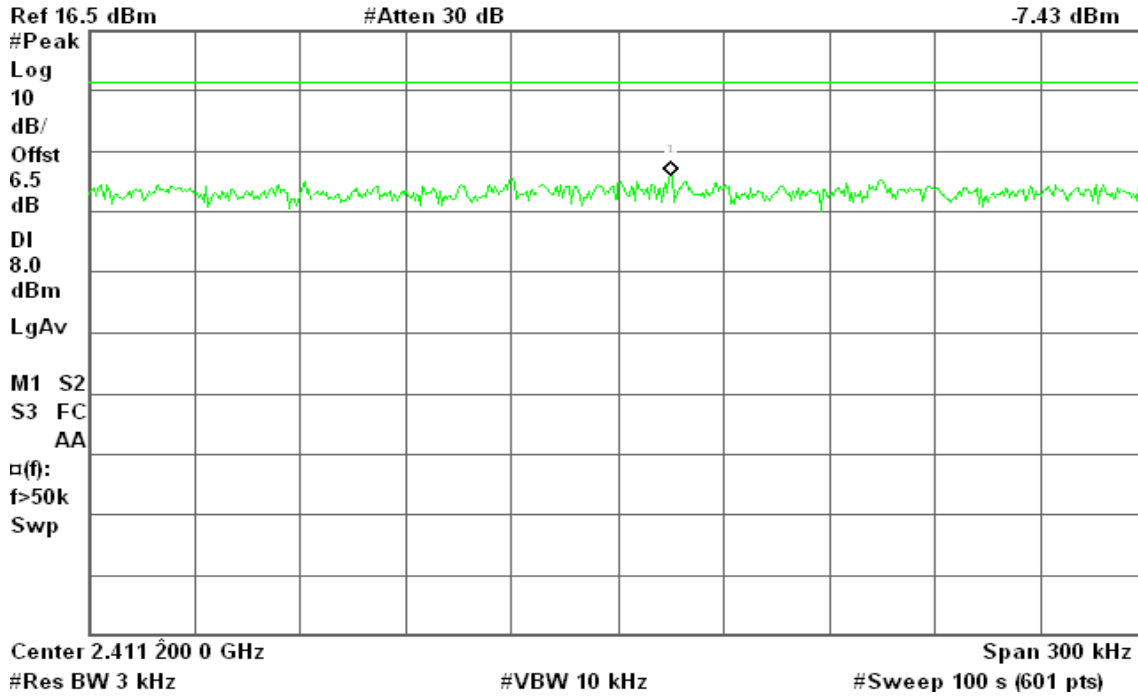
IEEE 802.11b mode

PPSD (CH Low)

Agilent 16:09:30 Mar 9, 2009

R T

Mkr1 2.411 215 1 GHz
-7.43 dBm

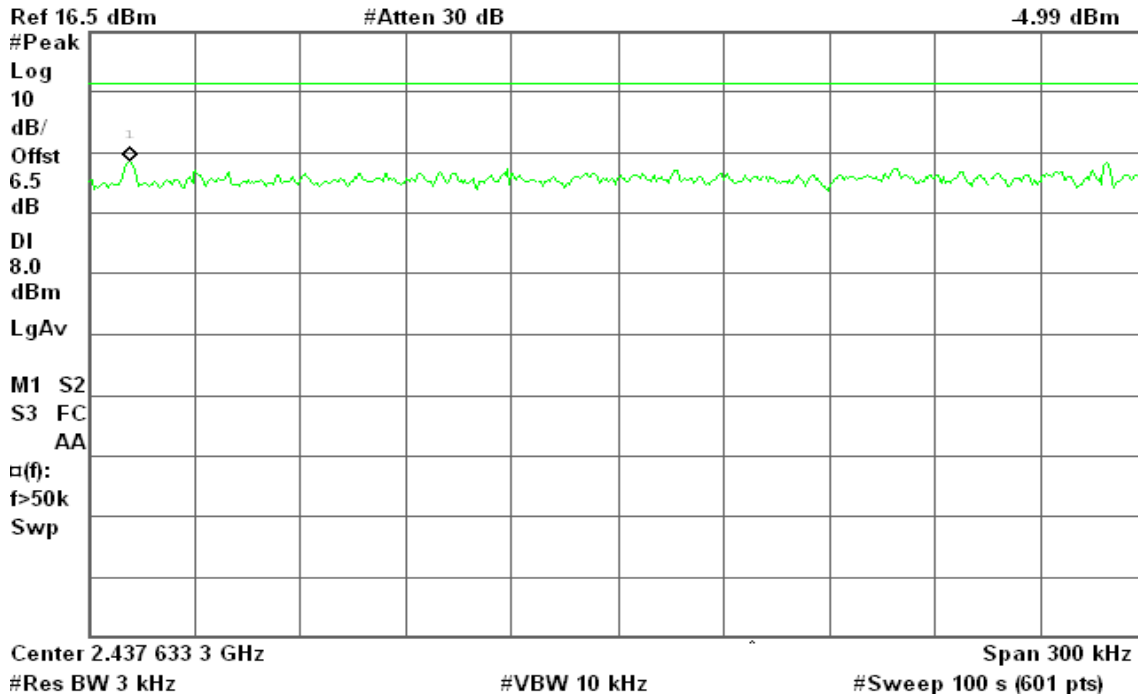


PPSD (CH Mid)

Agilent 16:06:56 Mar 9, 2009

R T

Mkr1 2.437 493 7 GHz
-4.99 dBm



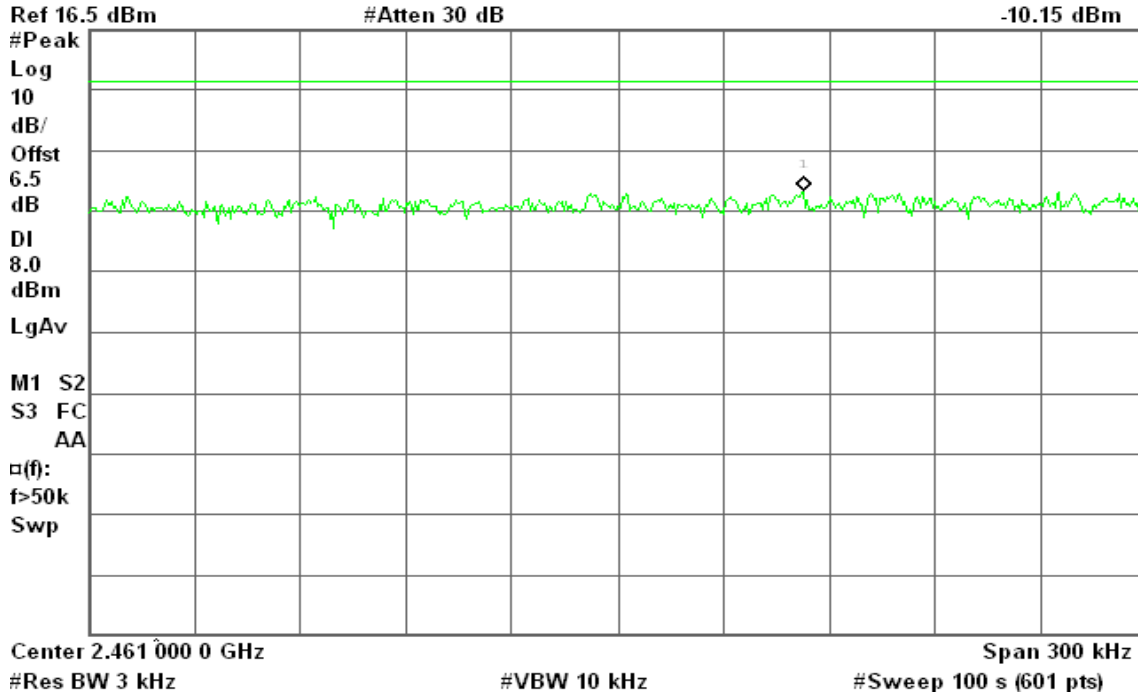


PPSD (CH High)

Agilent 15:59:48 Mar 9, 2009

R T

Mkr1 2.461 052 8 GHz
-10.15 dBm



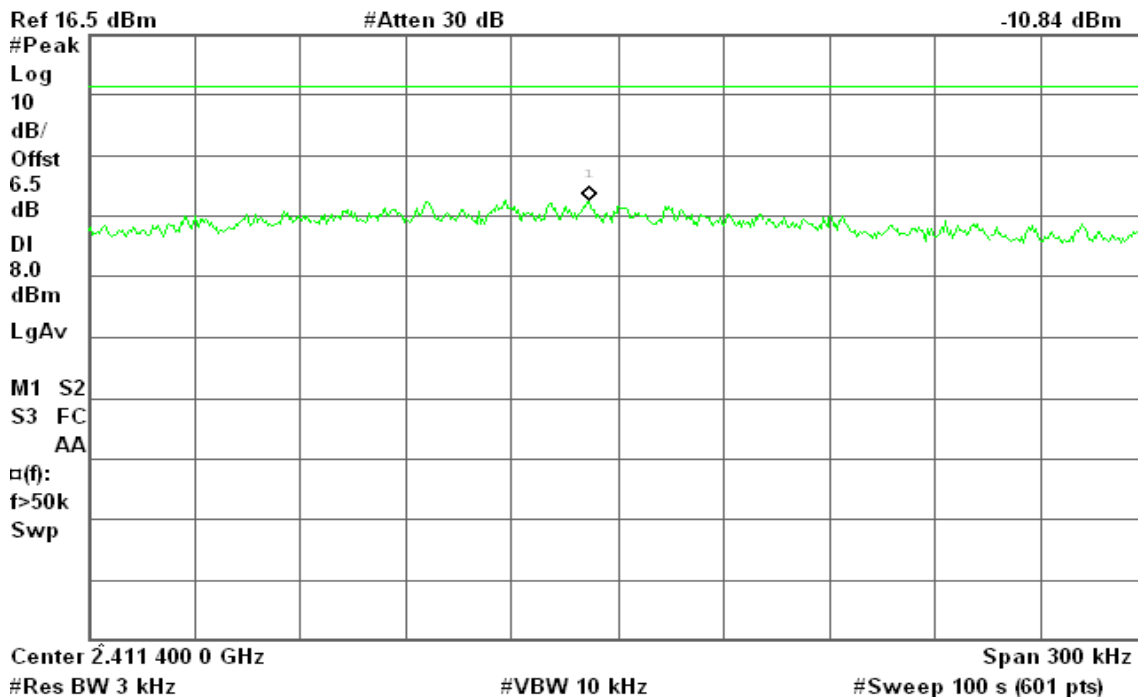
IEEE 802.11g mode

PPSD (CH Low)

Agilent 15:47:30 Mar 9, 2009

R T

Mkr1 2.411 391 5 GHz
-10.84 dBm



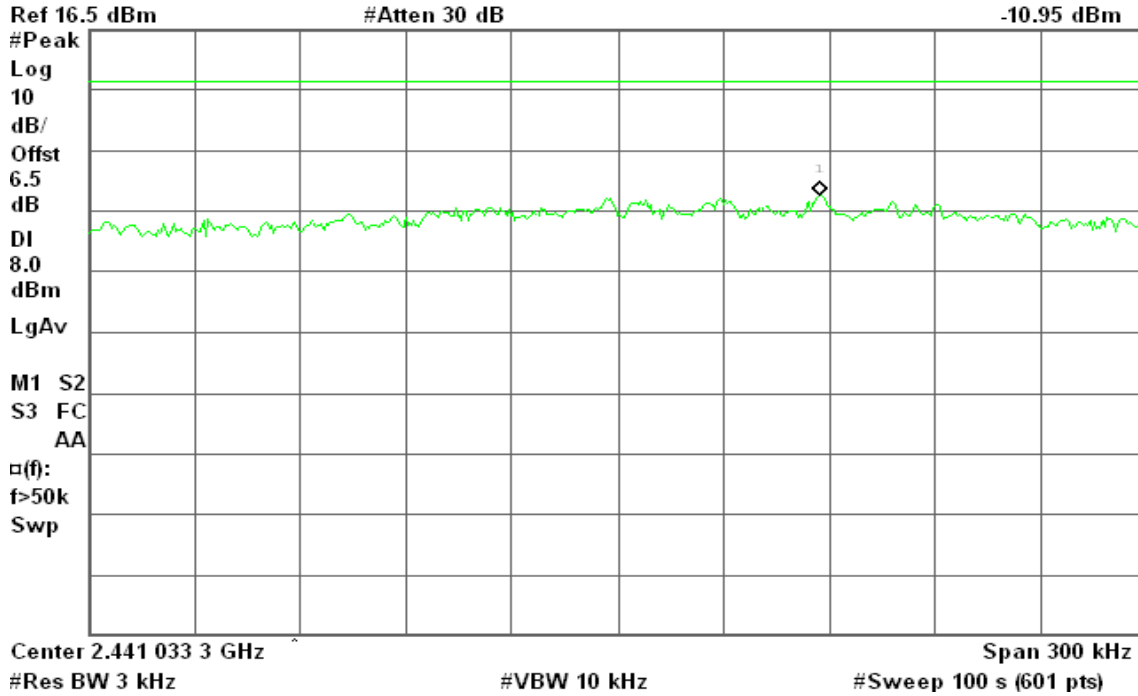


PPSD (CH Mid)

Agilent 15:55:00 Mar 9, 2009

R T

Mkr1 2.441 090 7 GHz
-10.95 dBm

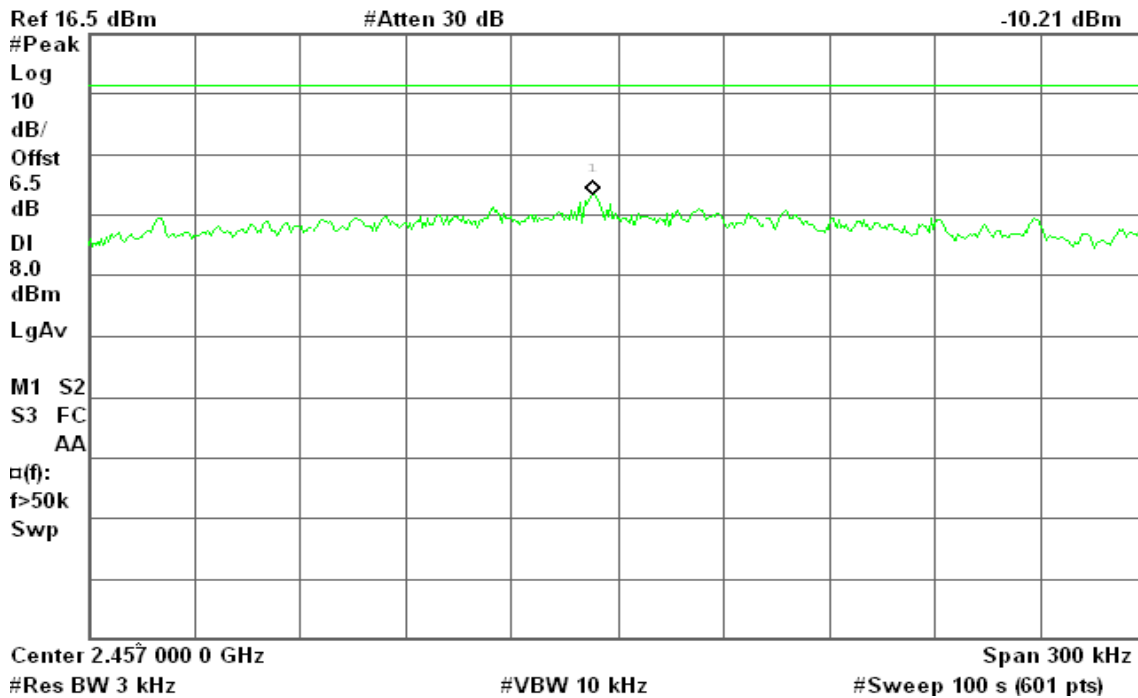


PPSD (CH High)

Agilent 15:57:26 Mar 9, 2009

R T

Mkr1 2.456 992 5 GHz
-10.21 dBm





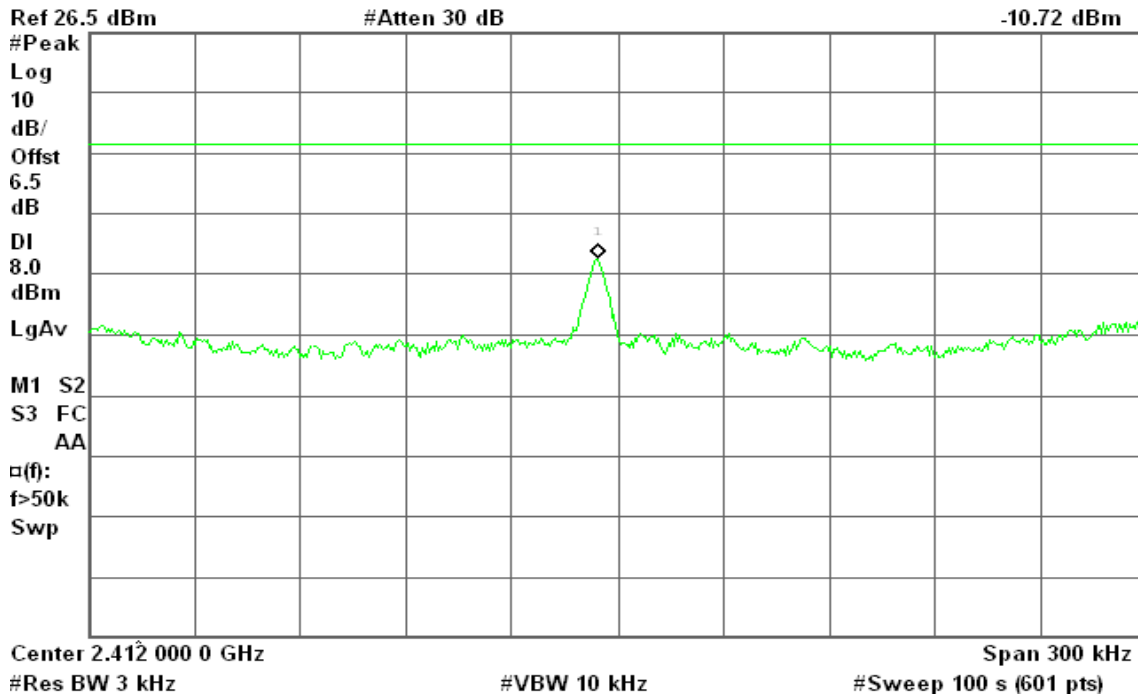
draft 802.11n Standard-20 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent 10:46:18 Mar 10, 2009

R T

Mkr1 2.411 994 0 GHz
-10.72 dBm

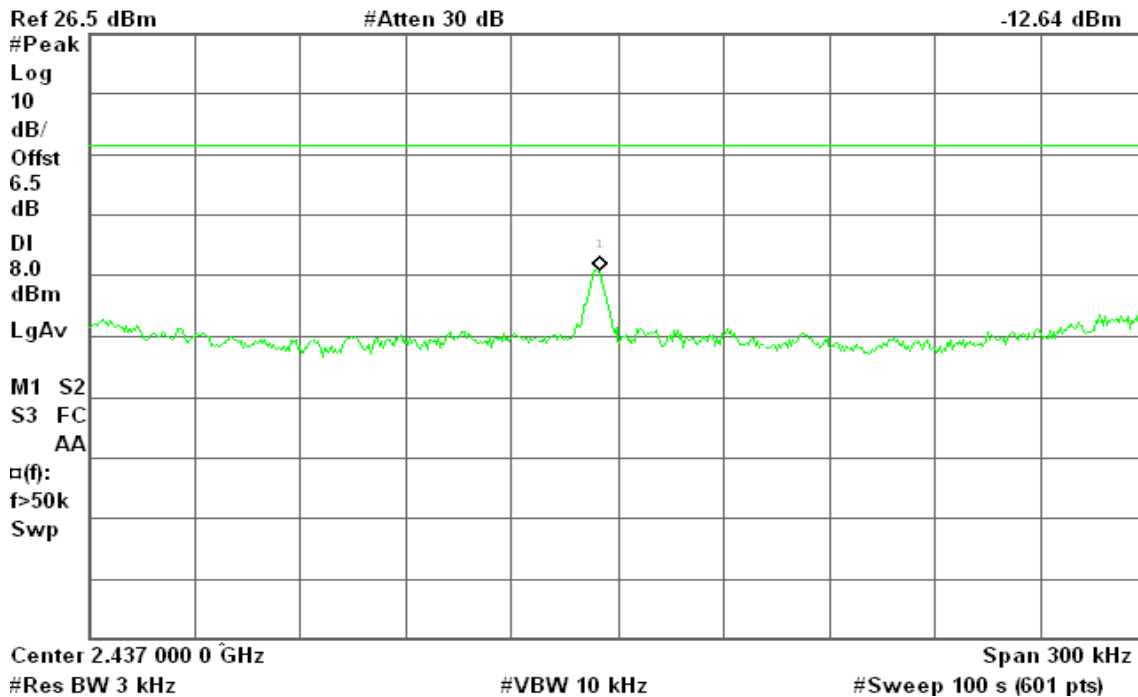


PPSD (CH Mid)

Agilent 10:49:07 Mar 10, 2009

R T

Mkr1 2.436 994 5 GHz
-12.64 dBm



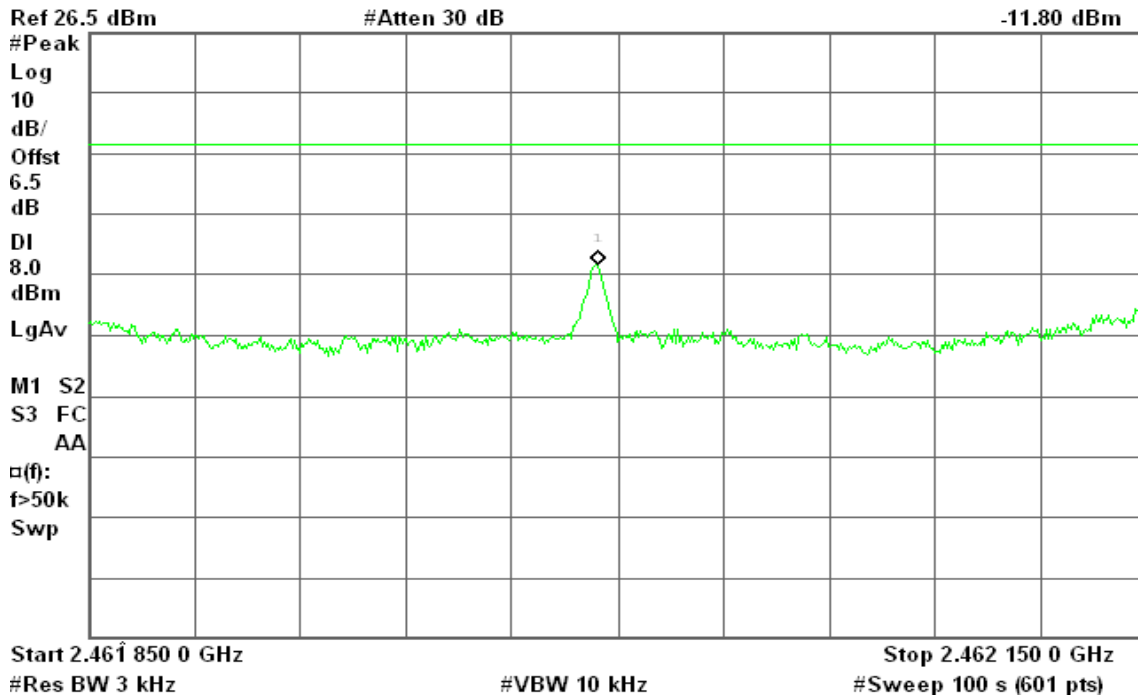


PPSD (CH High)

Agilent 10:51:15 Mar 10, 2009

R T

Mkr1 2.461 994 0 GHz
-11.80 dBm



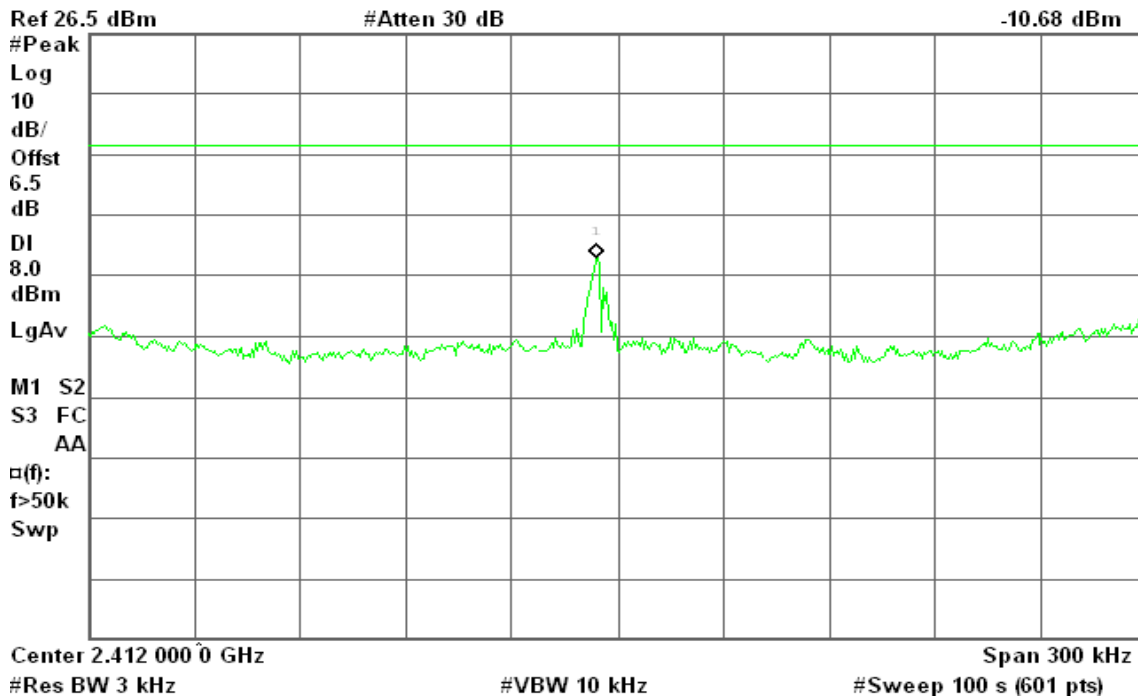
draft 802.11n Standard-20 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent 09:54:58 Mar 10, 2009

R T

Mkr1 2.411 993 5 GHz
-10.68 dBm



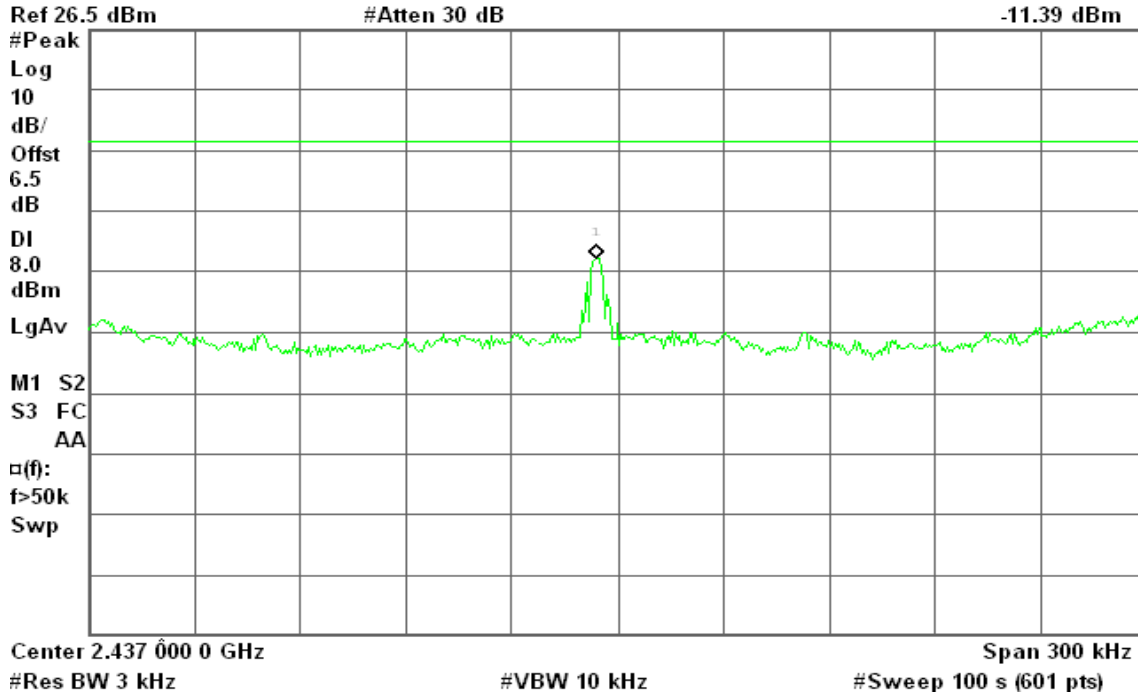


PPSD (CH Mid)

Agilent 10:09:38 Mar 10, 2009

R T

Mkr1 2.436 993 5 GHz
-11.39 dBm

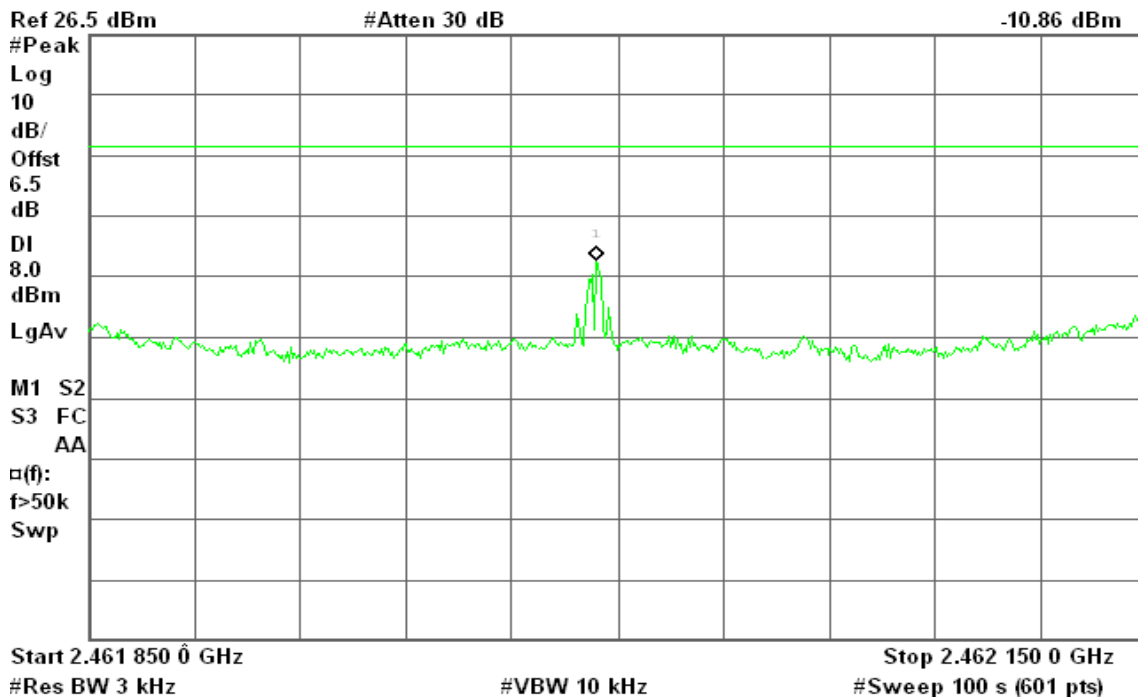


PPSD (CH High)

Agilent 10:12:35 Mar 10, 2009

R T

Mkr1 2.461 993 5 GHz
-10.86 dBm





draft 802.11n Wide-40 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent 10:42:14 Mar 10, 2009

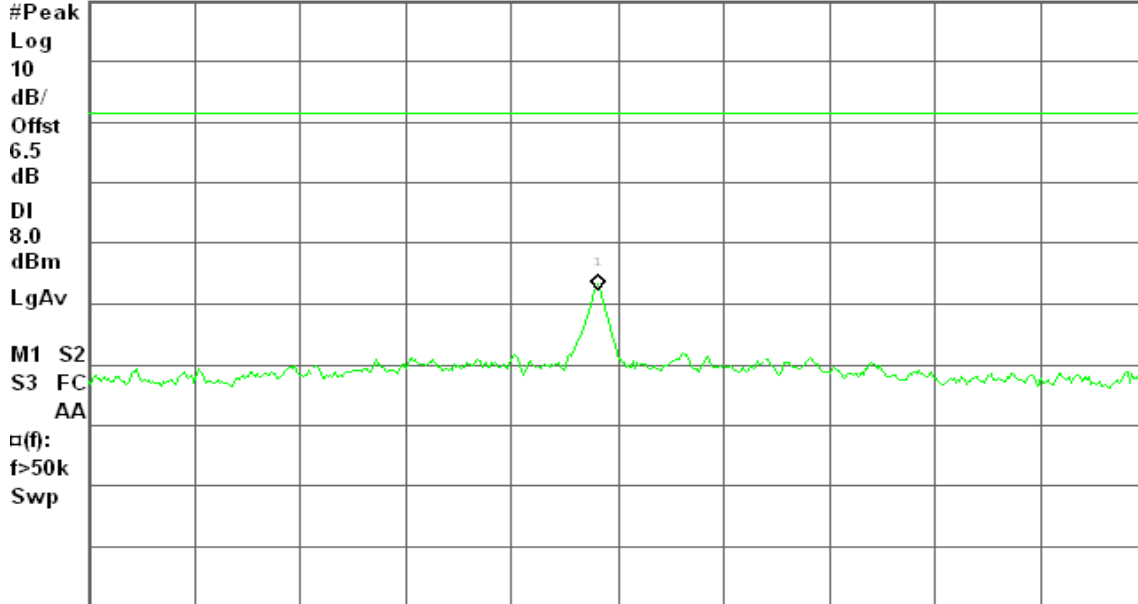
R T

Mkr1 2.421 994 0 GHz

-21.00 dBm

Ref 26.5 dBm

#Atten 30 dB



Center 2.422 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH Mid)

Agilent 10:38:07 Mar 10, 2009

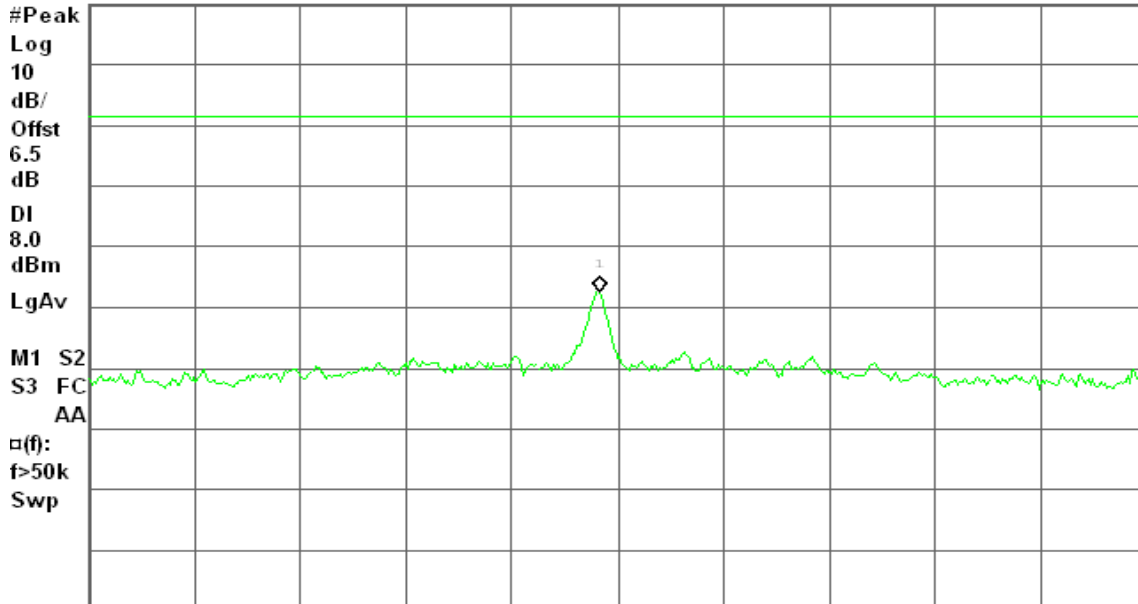
R T

Mkr1 2.436 994 5 GHz

-20.68 dBm

Ref 26.5 dBm

#Atten 30 dB



Center 2.437 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

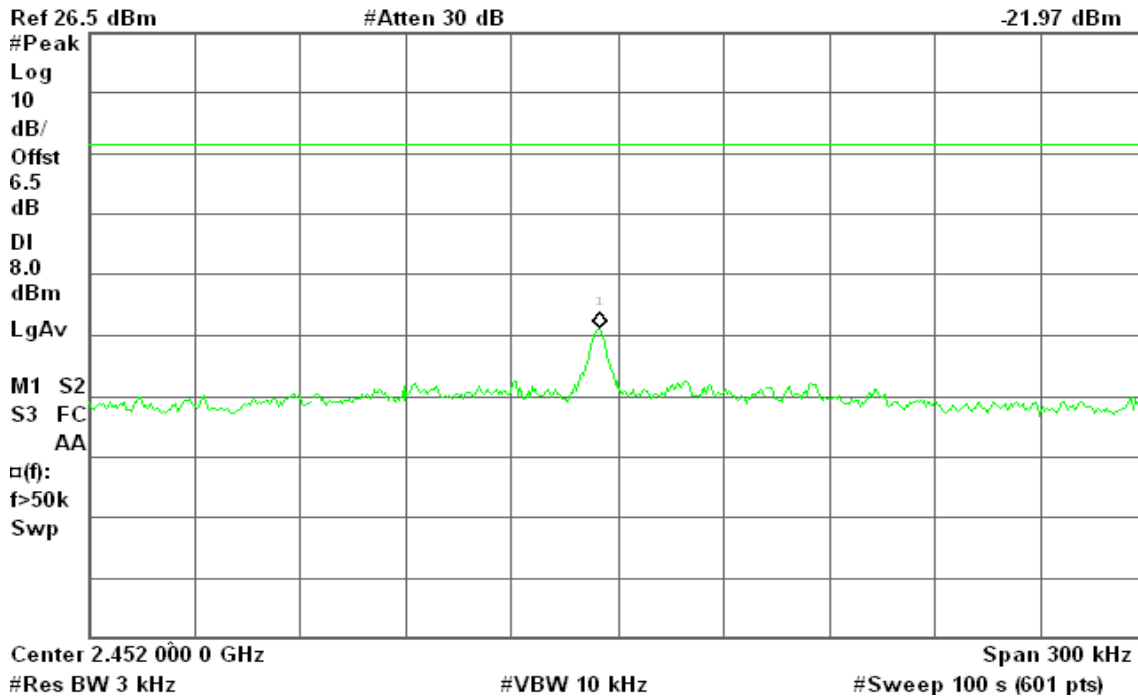


PPSD (CH High)

Agilent 10:33:38 Mar 10, 2009

R T

Mkr1 2.451 994 5 GHz
-21.97 dBm



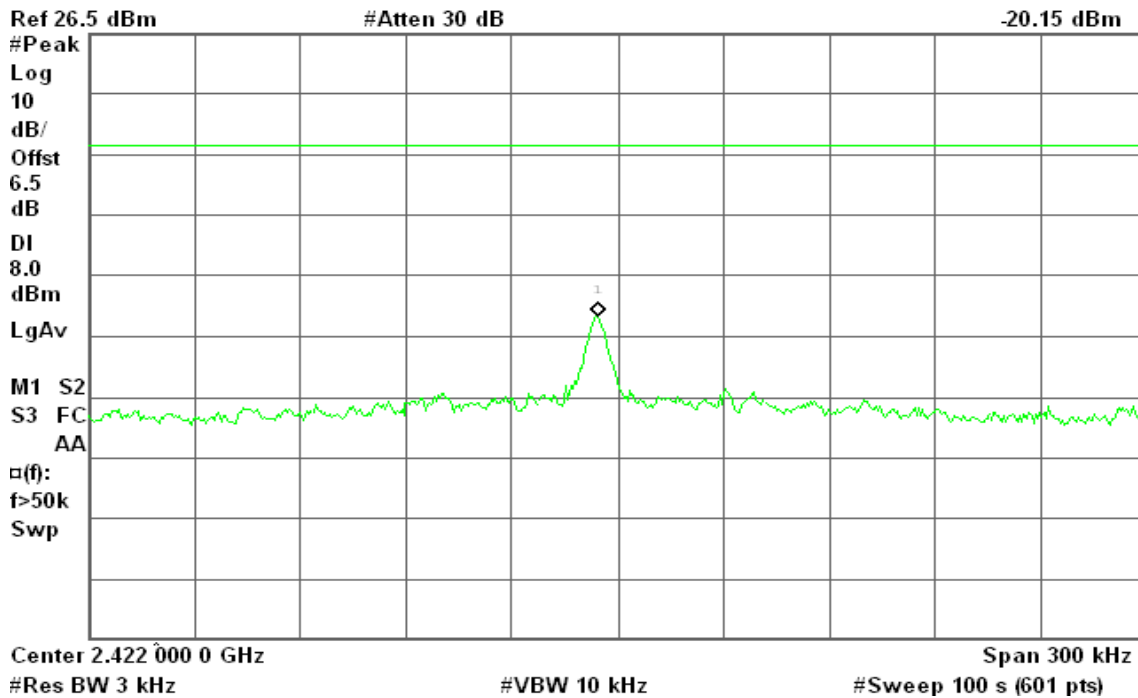
draft 802.11n Wide-40 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent 10:15:38 Mar 10, 2009

R T

Mkr1 2.421 994 0 GHz
-20.15 dBm



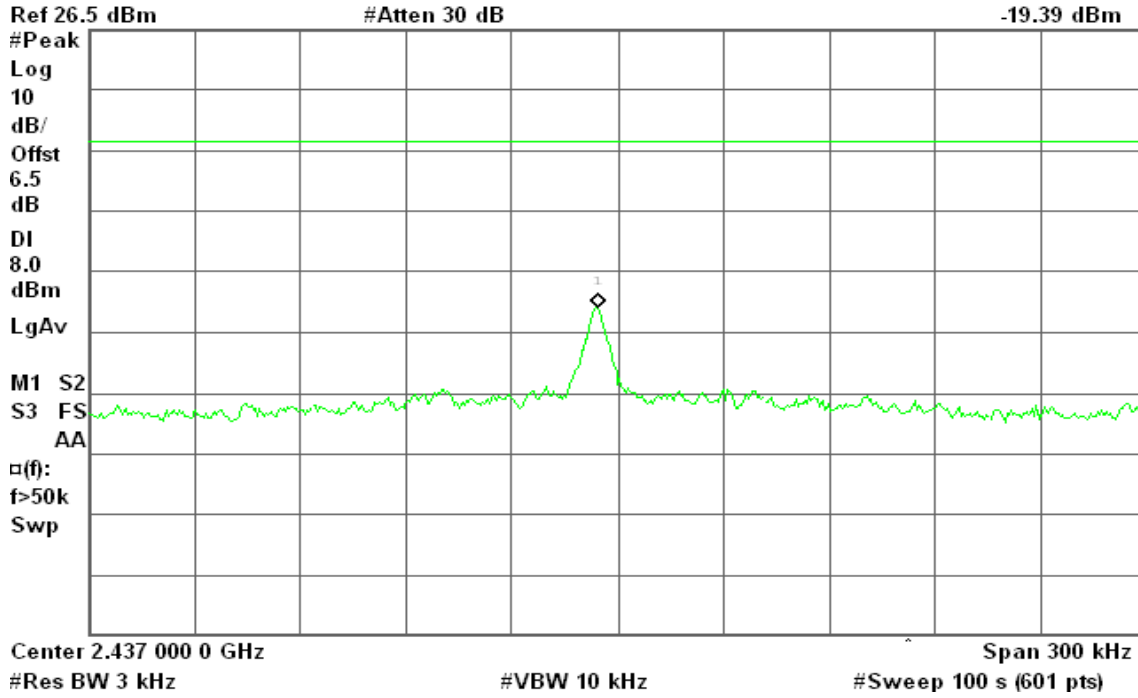


PPSD (CH Mid)

Agilent 10:19:27 Mar 10, 2009

R T

Mkr1 2.436 994 0 GHz
-19.39 dBm



PPSD (CH High)

Agilent 10:23:20 Mar 10, 2009

R T

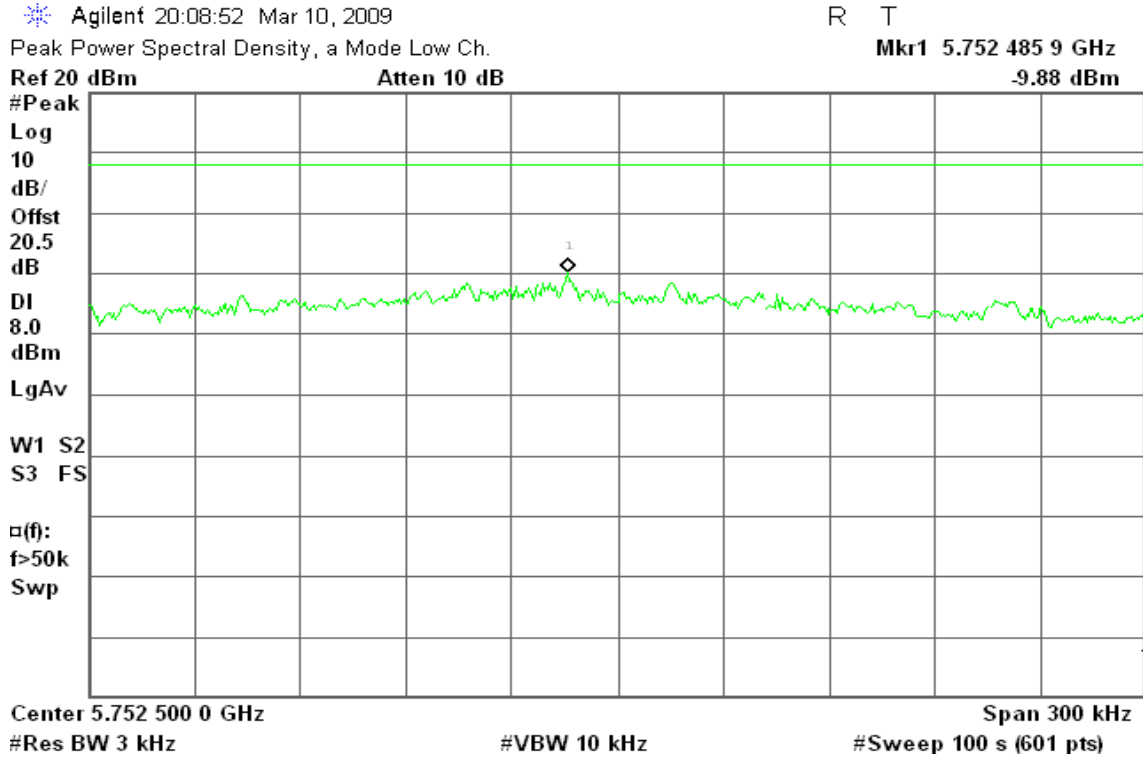
Mkr1 2.451 993 5 GHz
-23.01 dBm



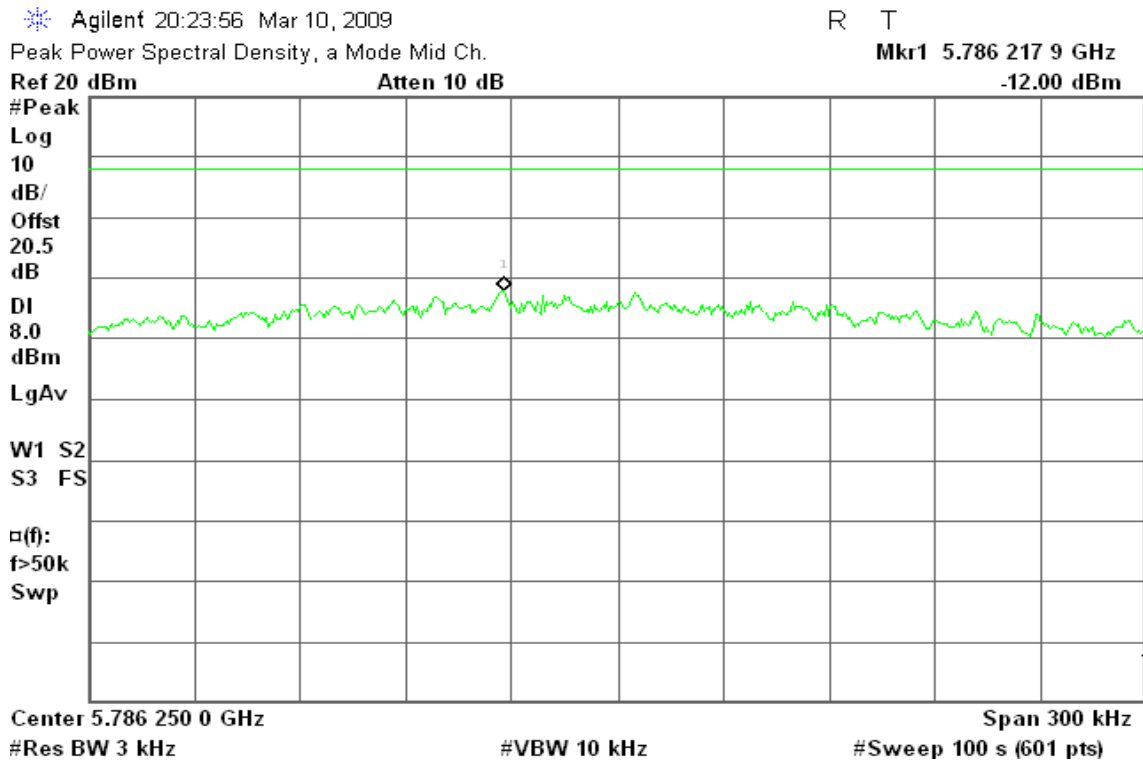


Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent 20:30:05 Mar 10, 2009

R L T

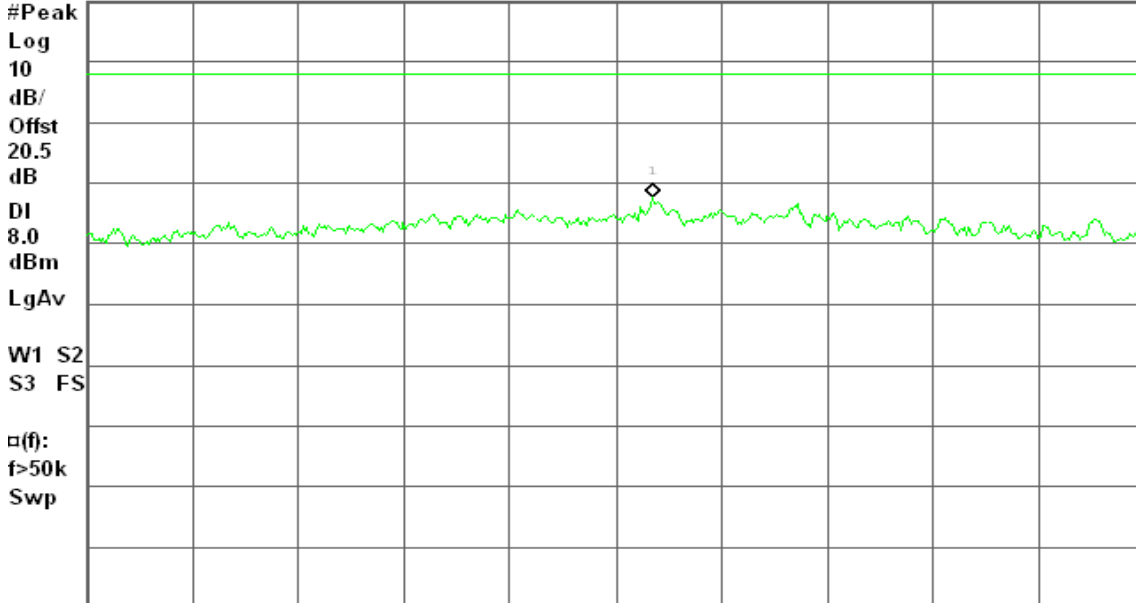
Peak Power Spectral Density, a Mode High Ch.

Mkr1 5.821 860 5 GHz

Ref 20 dBm

Atten 10 dB

-12.40 dBm



Center 5.821 850 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

PPSD (CH Low)

Agilent 01:44:46 Mar 11, 2009

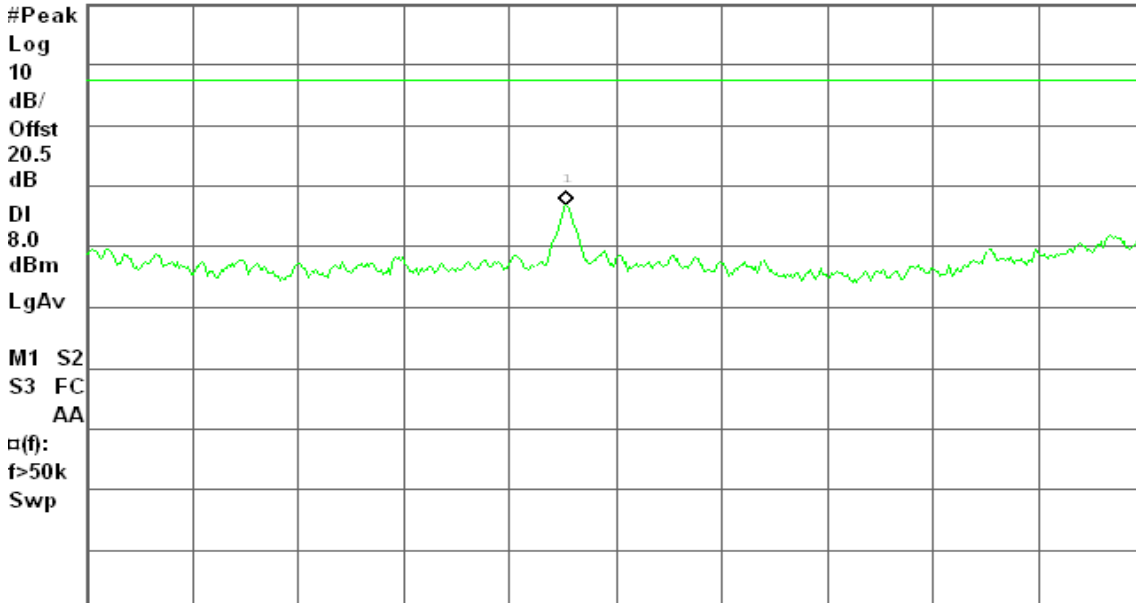
R T

Ref 20.5 dBm

#Atten 10 dB

Mkr1 5.744 985 9 GHz

-12.56 dBm



Center 5.745 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

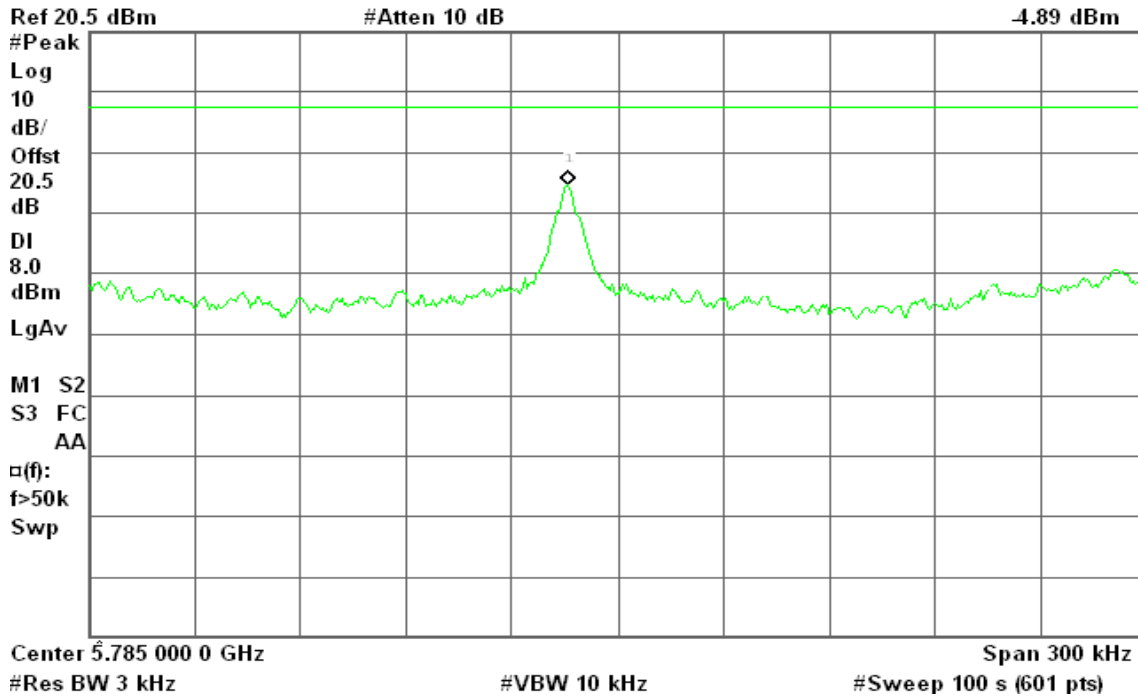


PPSD (CH Mid)

Agilent 01:46:46 Mar 11, 2009

R T

Mkr1 5.784 985 9 GHz
-4.89 dBm

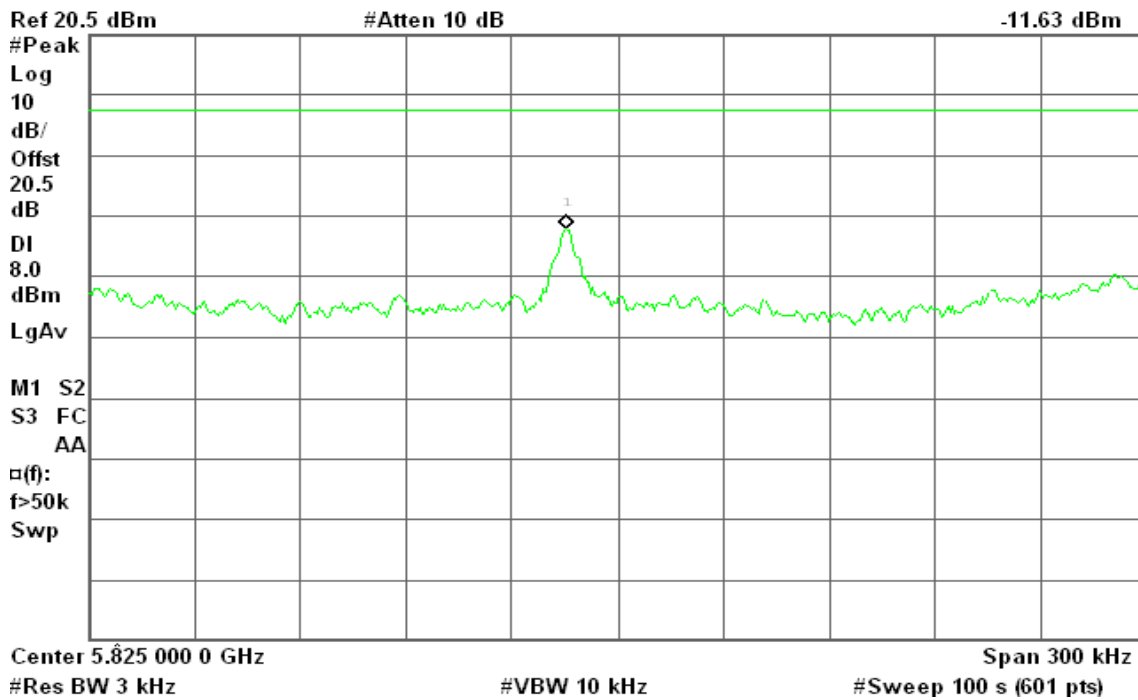


PPSD (CH High)

Agilent 01:48:38 Mar 11, 2009

R T

Mkr1 5.824 985 4 GHz
-11.63 dBm





draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

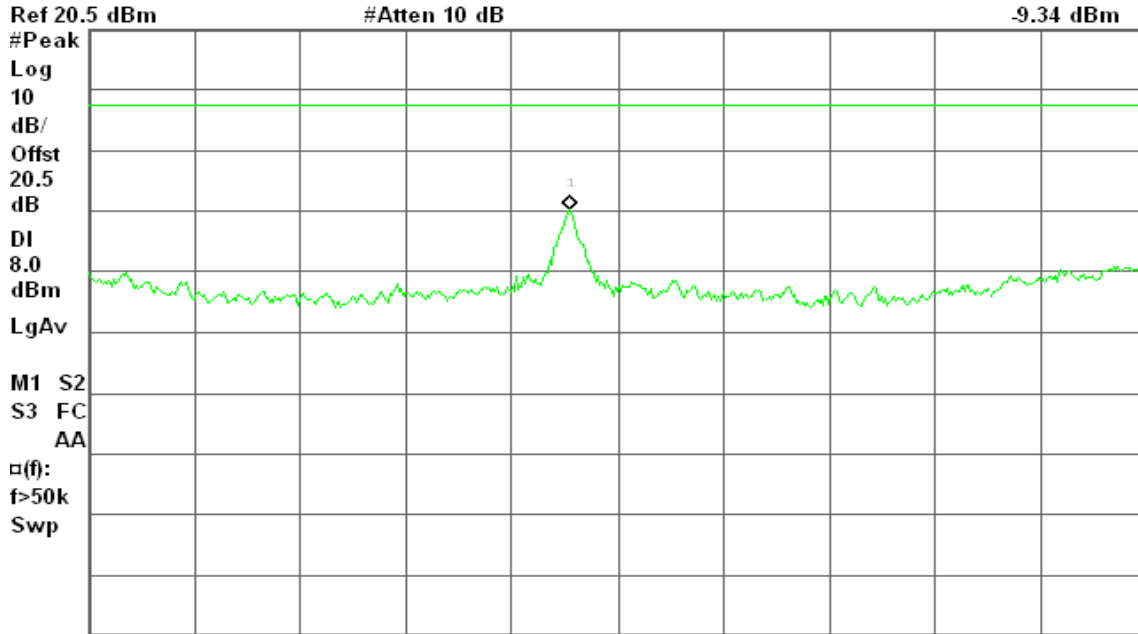
PPSD (CH Low)

Agilent 01:55:21 Mar 11, 2009

R T

Mkr1 5.744 986 4 GHz

-9.34 dBm



Center 5.745 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

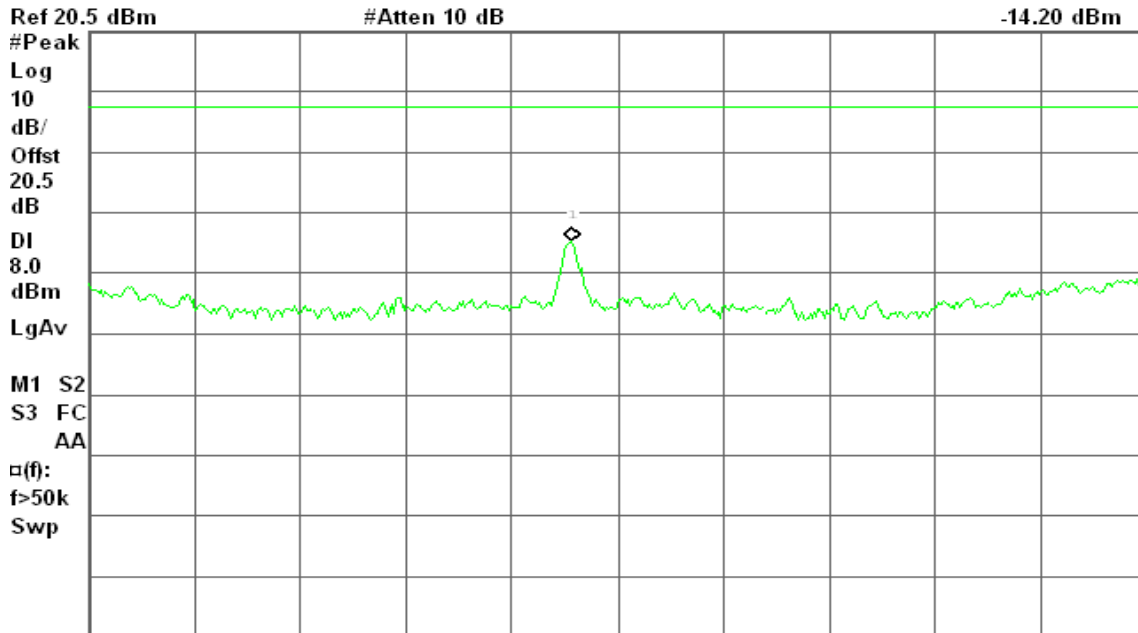
PPSD (CH Mid)

Agilent 01:53:16 Mar 11, 2009

R T

Mkr1 5.784 986 9 GHz

-14.20 dBm



Center 5.785 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



PPSD (CH High)

Agilent 01:51:10 Mar 11, 2009

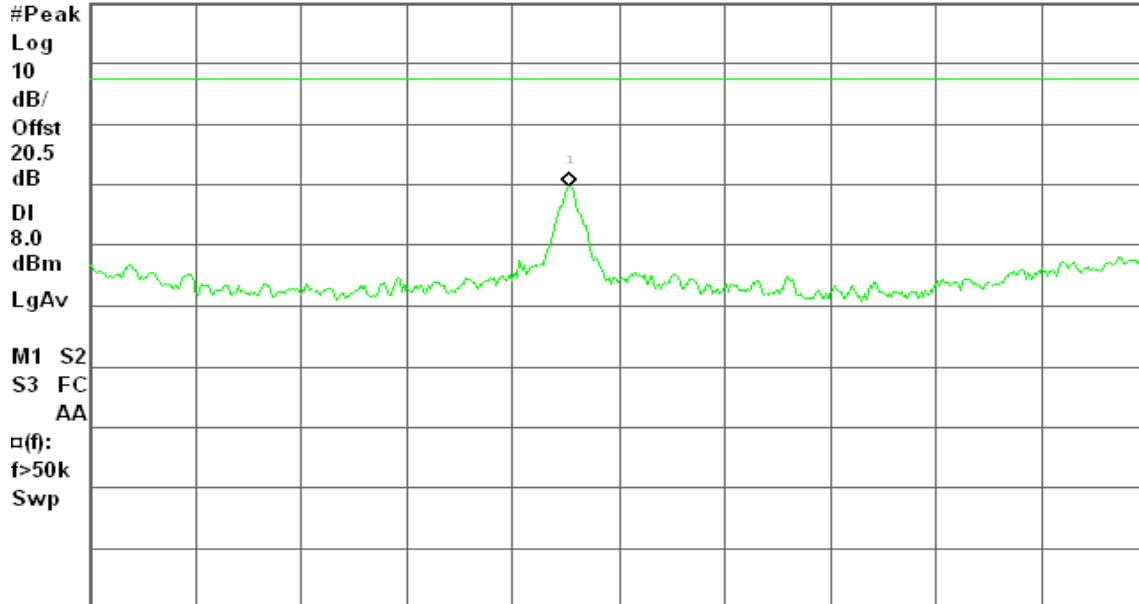
R T

Mkr1 5.824 985 9 GHz

-9.83 dBm

Ref 20.5 dBm

#Atten 10 dB



Center 5.825 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

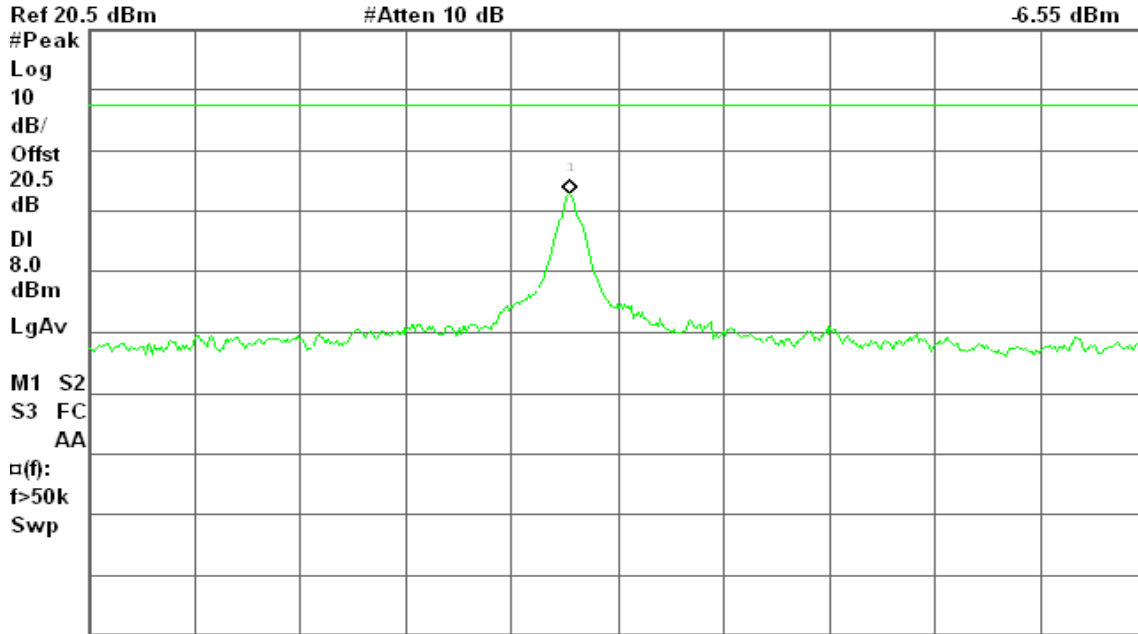
PPSD (CH Low)

Agilent 02:22:32 Mar 11, 2009

R T

Mkr1 5.754 986 4 GHz

-6.55 dBm



Center 5.755 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

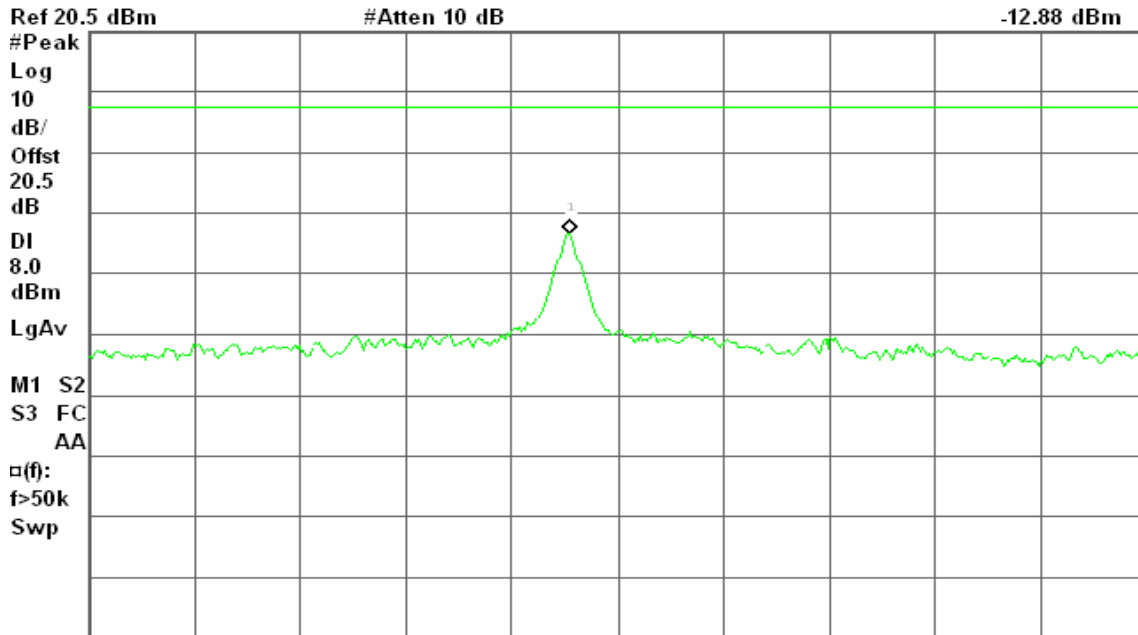
PPSD (CH Mid)

Agilent 02:24:44 Mar 11, 2009

R T

Mkr1 5.794 986 4 GHz

-12.88 dBm



Center 5.795 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

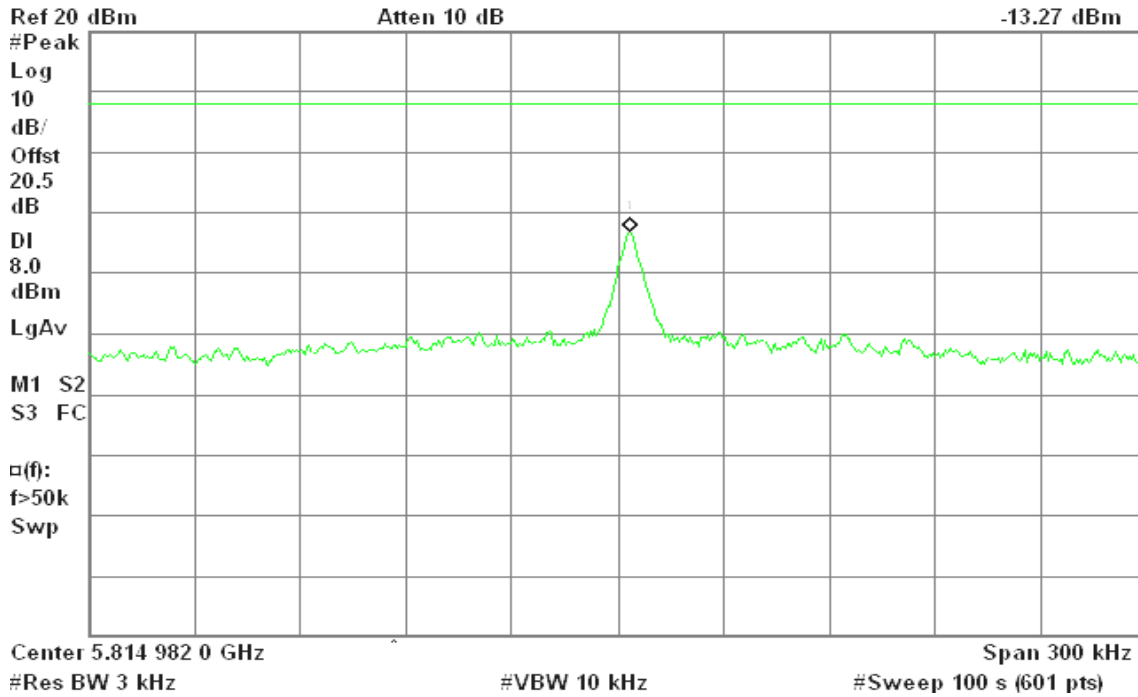


PPSD (CH High)

Agilent 14:40:41 May 18, 2009

R T

Mkr1 5.814 985 5 GHz
-13.27 dBm



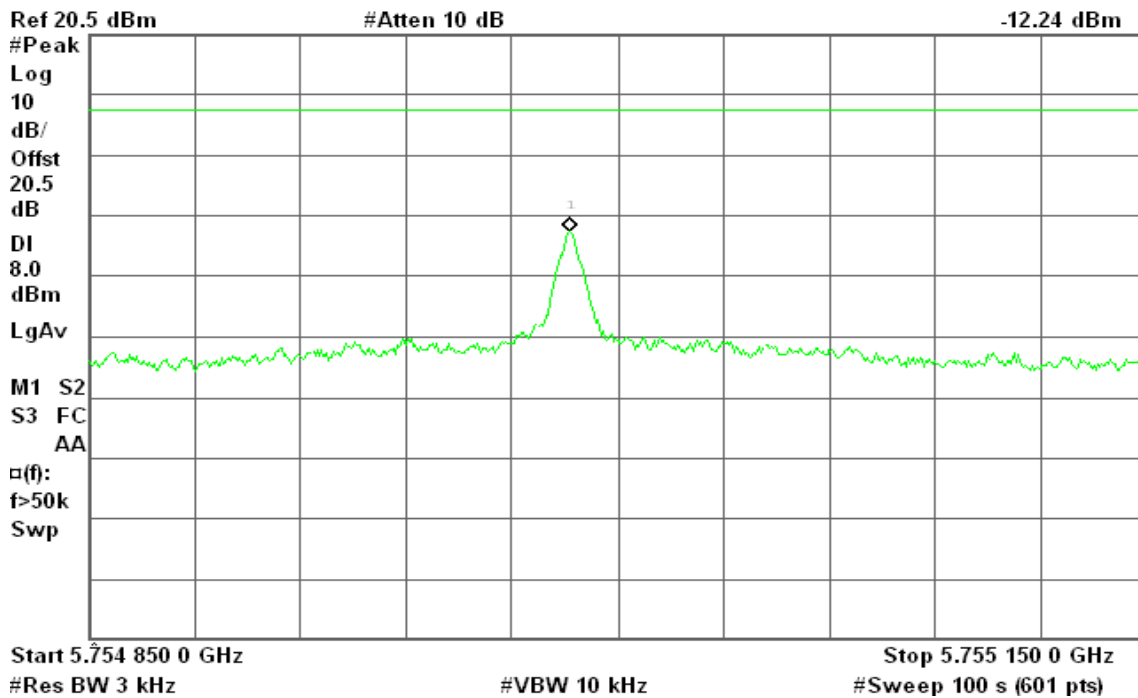
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

PPSD (CH Low)

Agilent 02:20:12 Mar 11, 2009

R T

Mkr1 5.754 986 4 GHz
-12.24 dBm



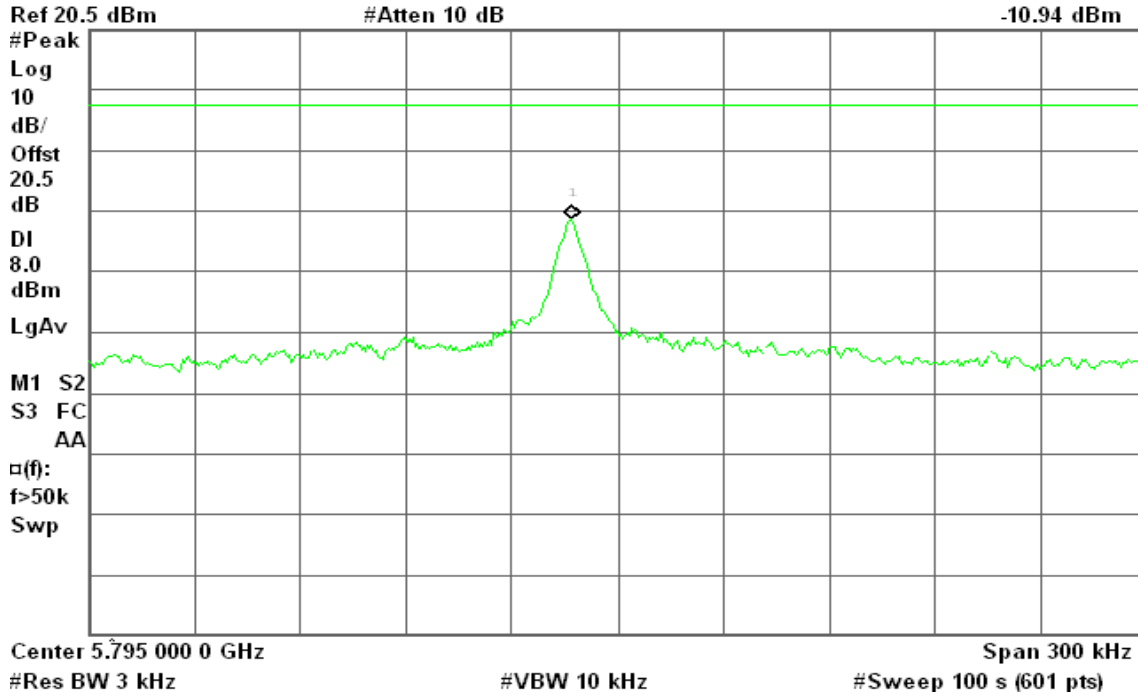


PPSD (CH Mid)

Agilent 02:18:08 Mar 11, 2009

R T

Mkr1 5.794 987 0 GHz
-10.94 dBm

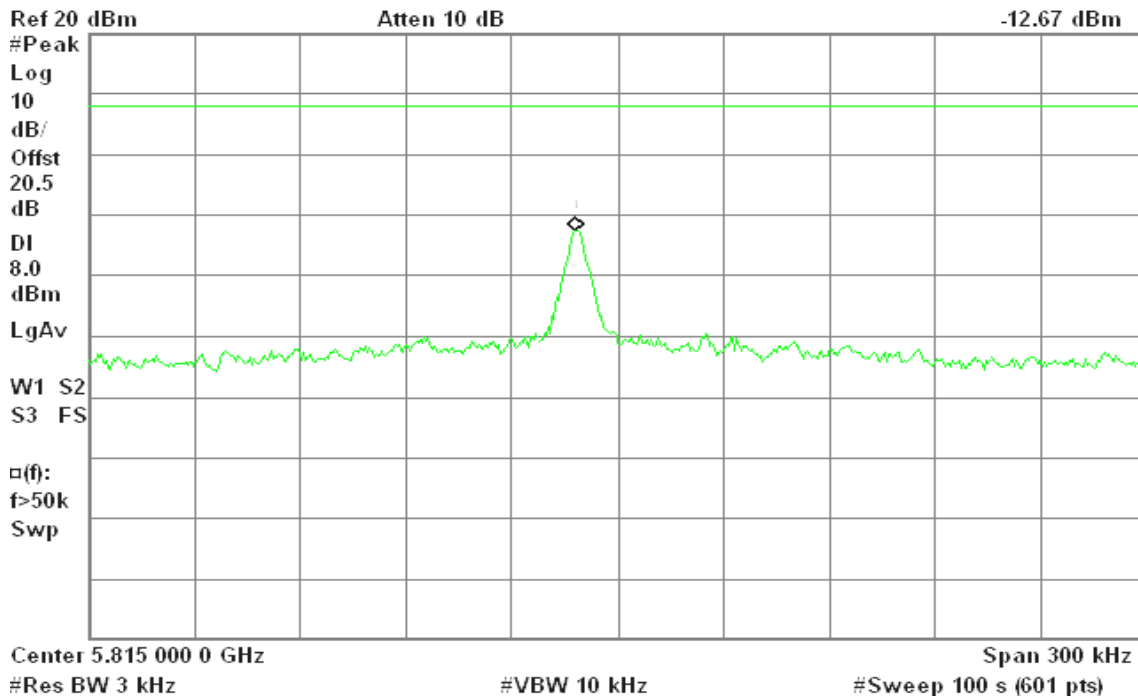


PPSD (CH High)

Agilent 15:02:04 May 18, 2009

R T

Mkr1 5.814 988 0 GHz
-12.67 dBm





draft 802.11n Standard-20 MHz Channel mode with combiner

PPSD (CH Low)

Agilent 11:01:31 Mar 10, 2009

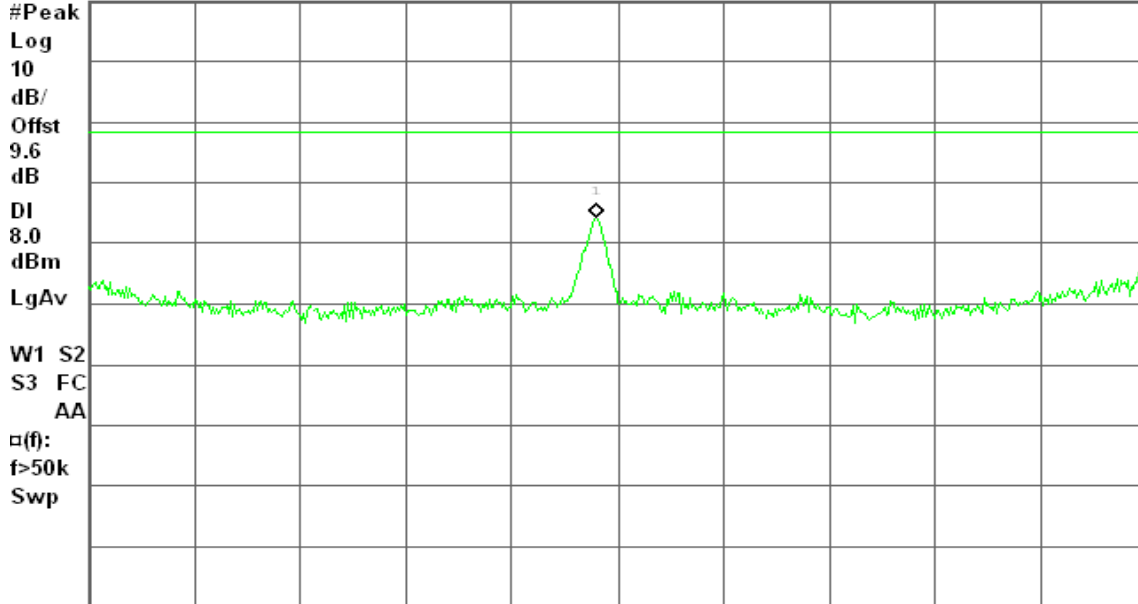
R T

Mkr1 2.411 993 5 GHz

-6.15 dBm

Ref 29.6 dBm

#Atten 30 dB



Center 2.412 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH Mid)

Agilent 12:24:40 Mar 10, 2009

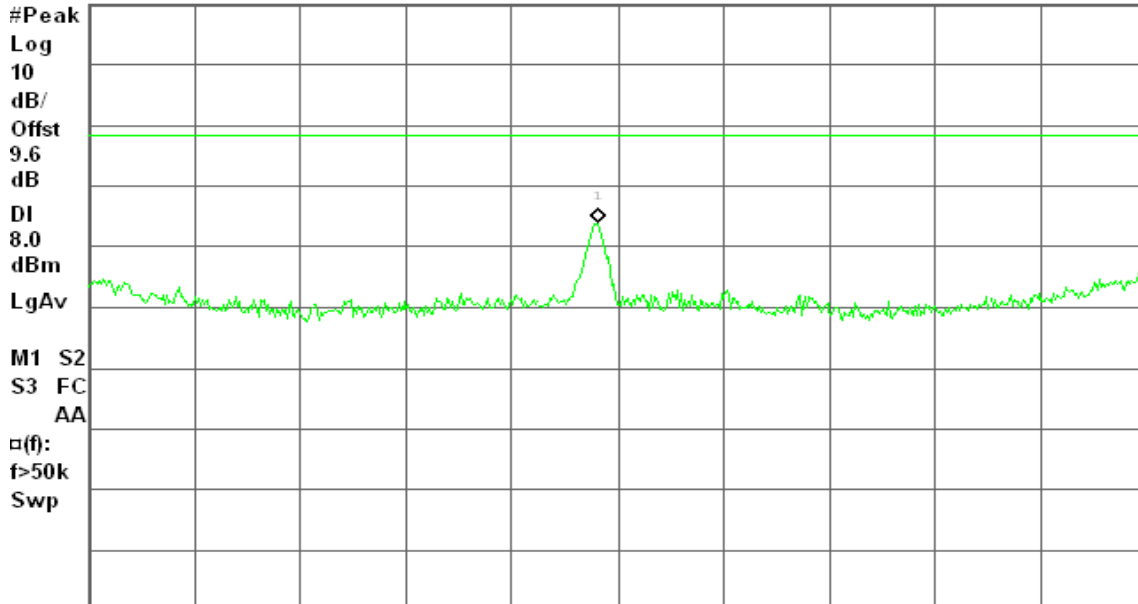
R T

Mkr1 2.436 994 0 GHz

-6.37 dBm

Ref 29.6 dBm

#Atten 30 dB



Center 2.437 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



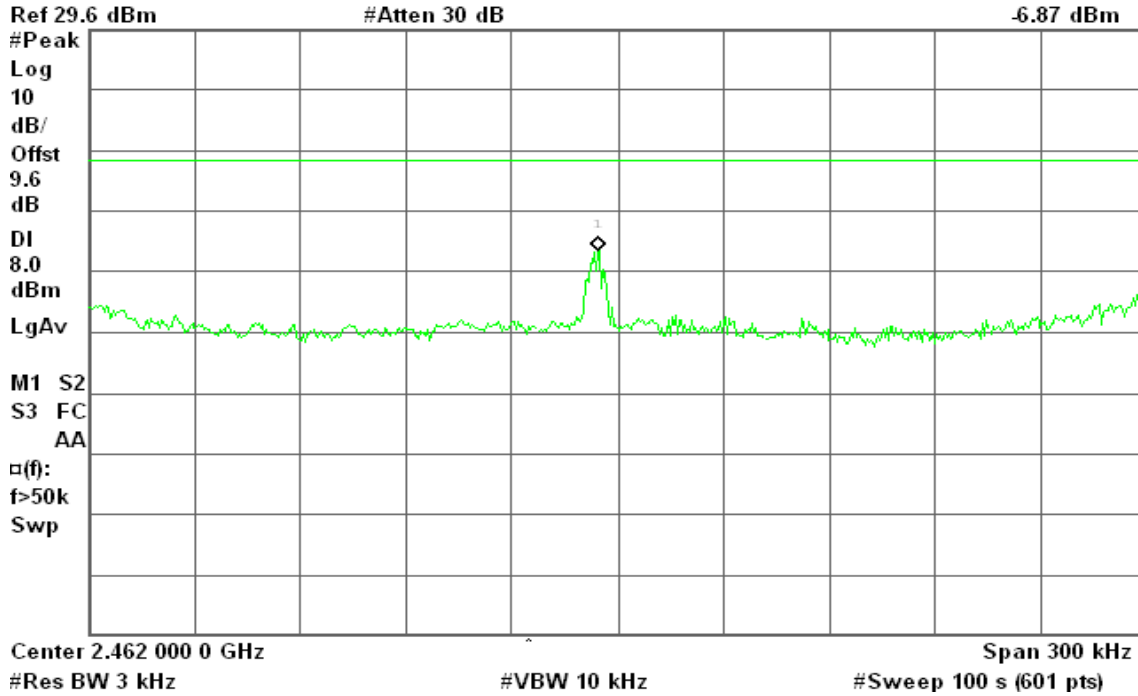
PPSD (CH High)

Agilent 12:18:46 Mar 10, 2009

R T

Mkr1 2.461 994 0 GHz

-6.87 dBm



draft 802.11n Wide-40 MHz Channel mode with combiner

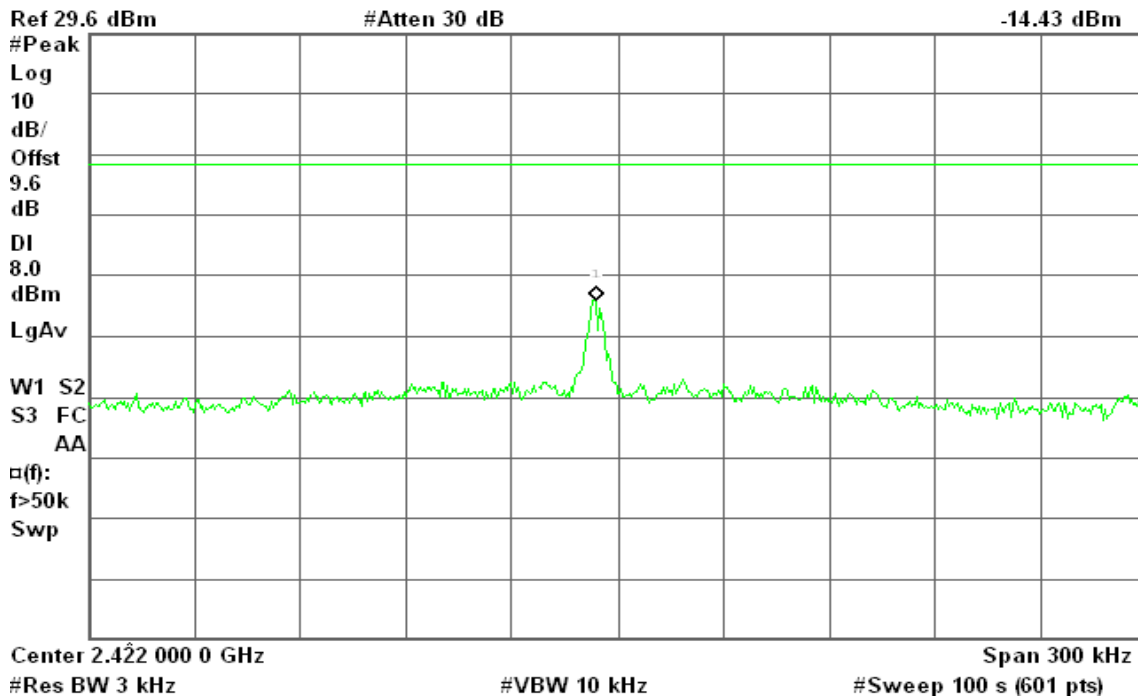
PPSD (CH Low)

Agilent 12:31:40 Mar 10, 2009

R T

Mkr1 2.421 993 5 GHz

-14.43 dBm





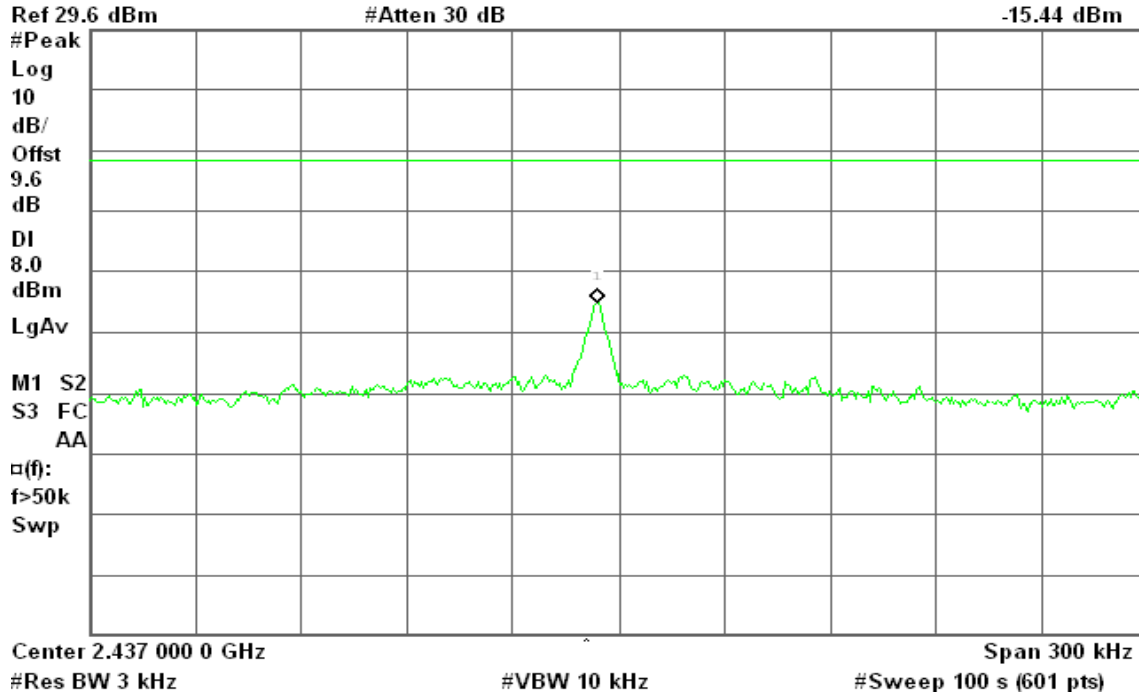
PPSD (CH Mid)

Agilent 12:36:57 Mar 10, 2009

R T

Mkr1 2.436 993 5 GHz

-15.44 dBm



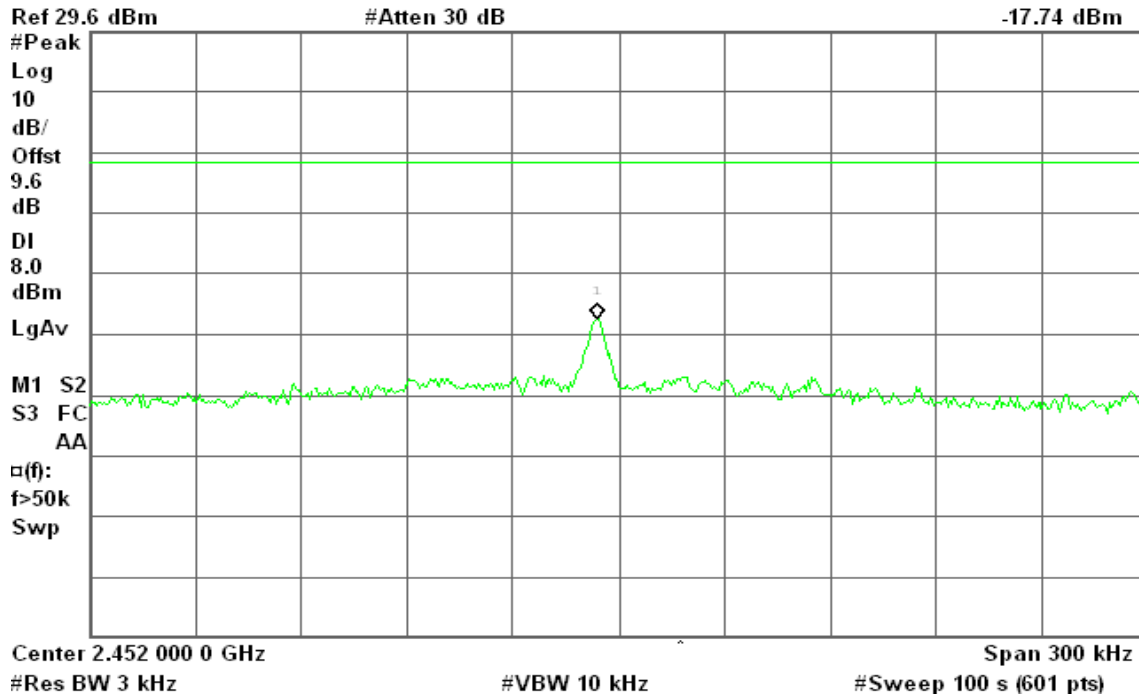
PPSD (CH High)

Agilent 12:41:45 Mar 10, 2009

R T

Mkr1 2.451 993 5 GHz

-17.74 dBm

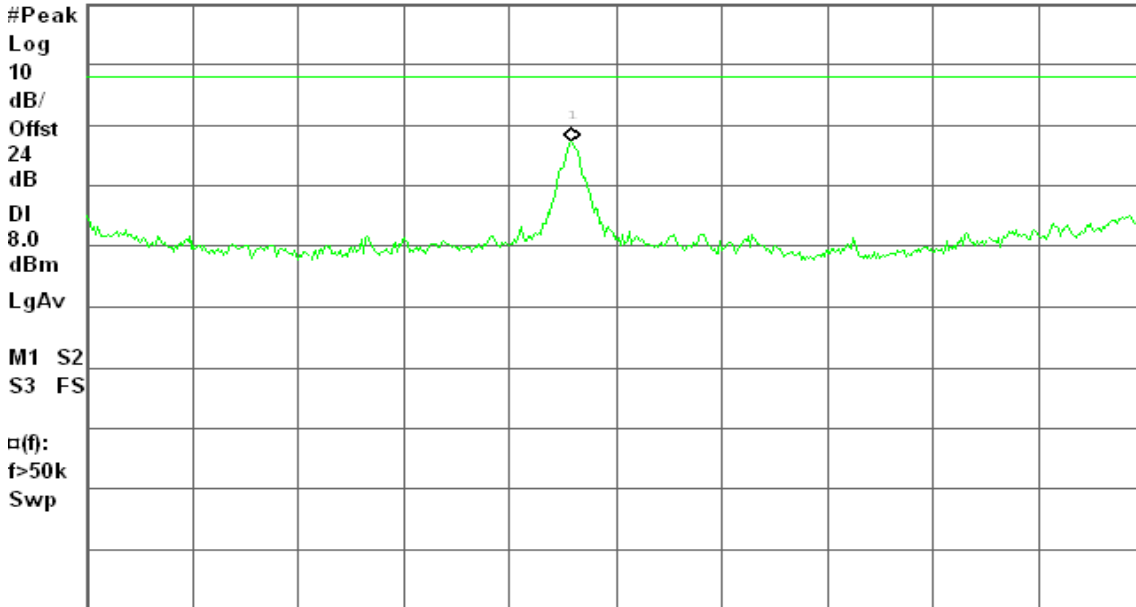




draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz with combiner

PPSD (CH Low)

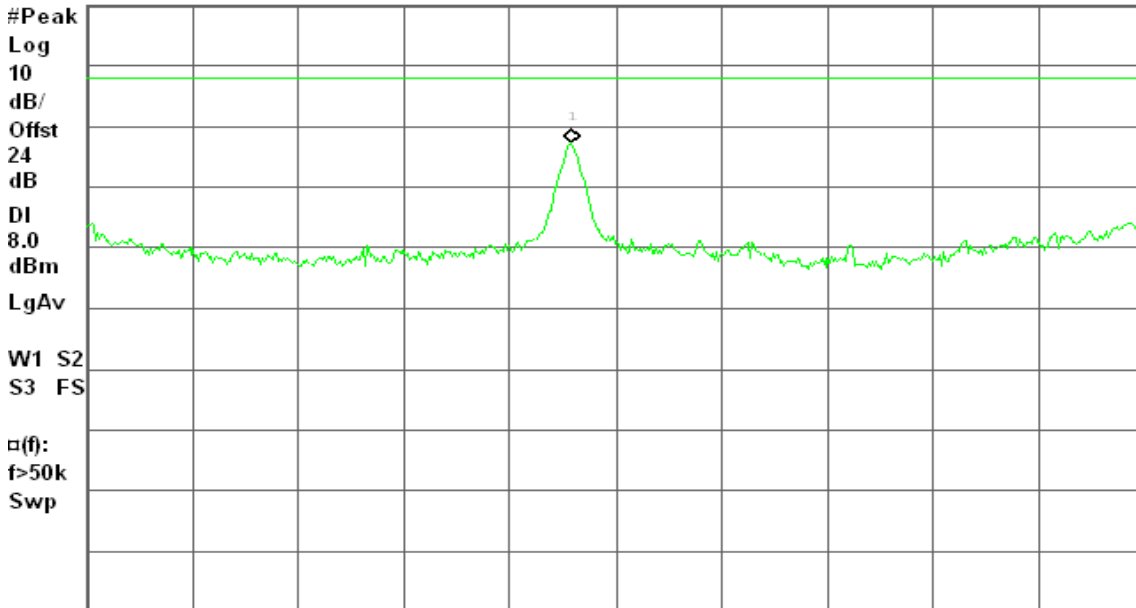
Agilent 21:47:35 Mar 10, 2009 R T
Peak Power Spectral Density, a Mode Mid Ch. Mkr1 5.744 987 5 GHz
Ref 20 dBm Atten 10 dB -2.78 dBm



Center 5.745 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

PPSD (CH Mid)

Agilent 21:45:15 Mar 10, 2009 R T
Peak Power Spectral Density, a Mode Mid Ch. Mkr1 5.784 987 4 GHz
Ref 20 dBm Atten 10 dB -2.75 dBm



Center 5.785 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)



PPSD (CH High)

Agilent 21:49:47 Mar 10, 2009

R T

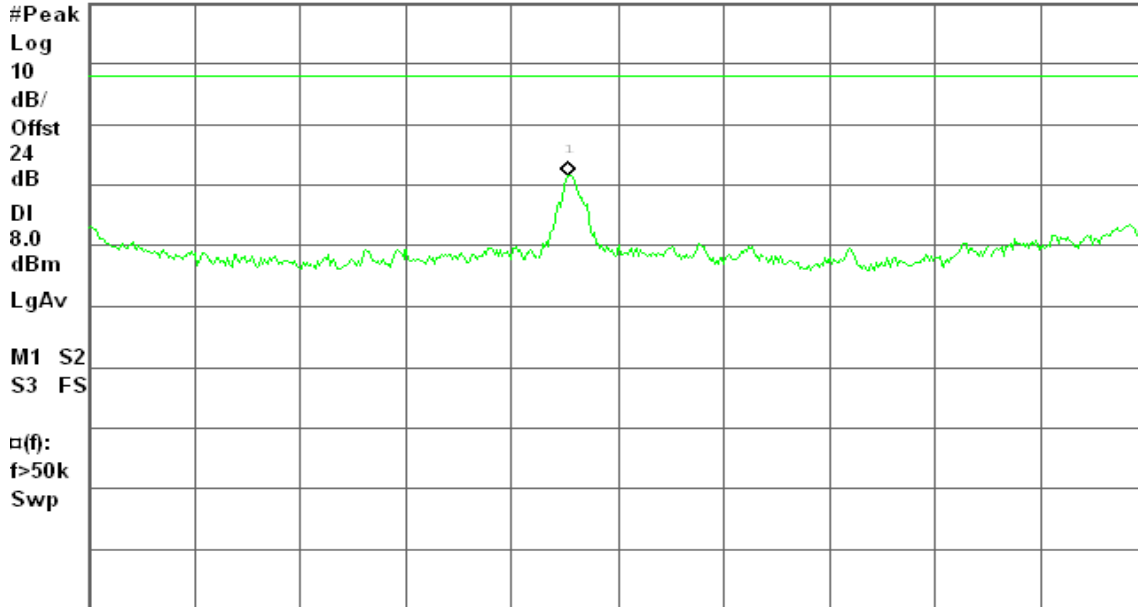
Peak Power Spectral Density, a Mode Mid Ch.

Mkr1 5.824 985 9 GHz

Ref 20 dBm

Atten 10 dB

-8.46 dBm



Center 5.825 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

draft 802.11n Wide-40 MHz Channel mode with combiner

PPSD (CH Low)

Agilent 23:33:03 Mar 10, 2009

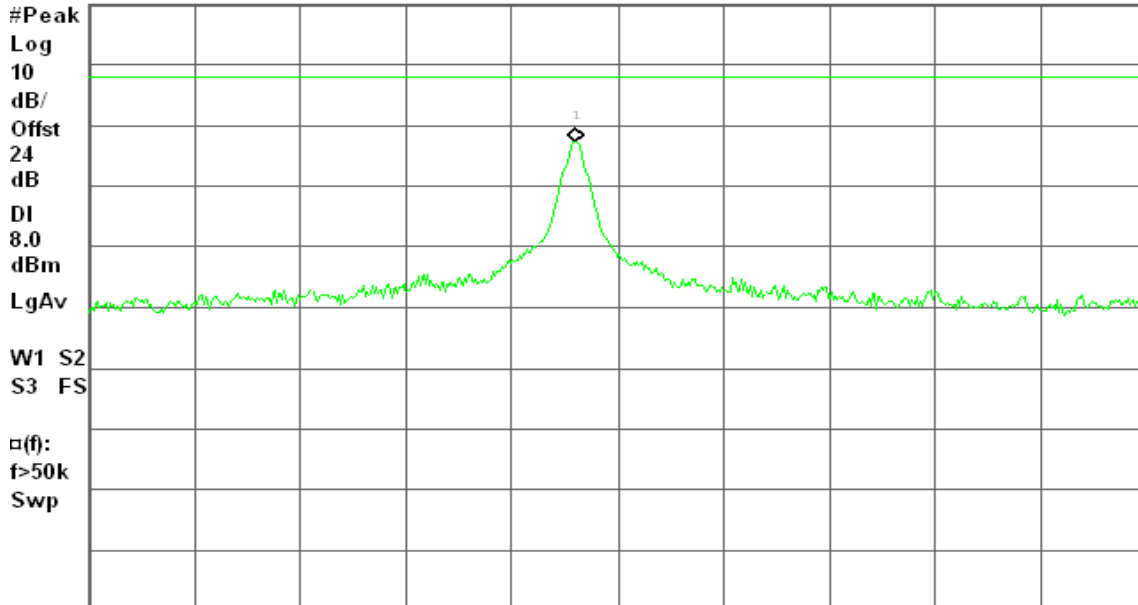
R T

Ref 20 dBm

Atten 10 dB

Mkr1 5.754 988 0 GHz

-2.67 dBm



Center 5.755 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



PPSD (CH Mid)

Agilent 23:36:52 Mar 10, 2009

R T

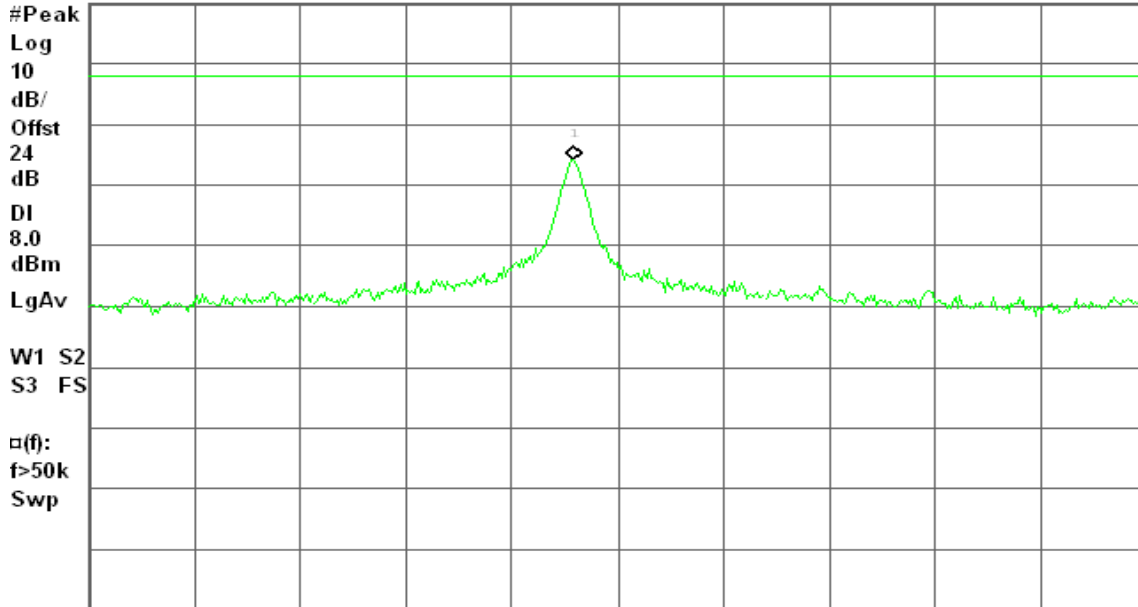
Peak Power Spectral Density, a Mode High Ch.

Mkr1 5.794 987 5 GHz

Ref 20 dBm

Atten 10 dB

-5.90 dBm



Center 5.795 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH High)

Agilent 15:16:39 May 18, 2009

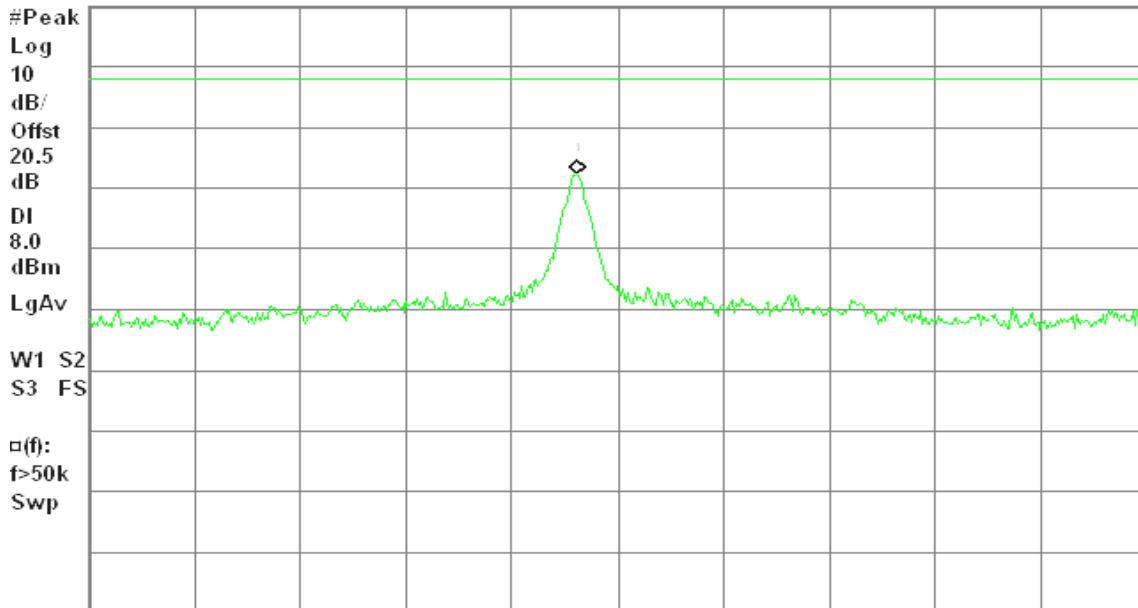
R T

Ref 20 dBm

Atten 10 dB

Mkr1 5.814 988 5 GHz

-7.79 dBm



Center 5.815 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

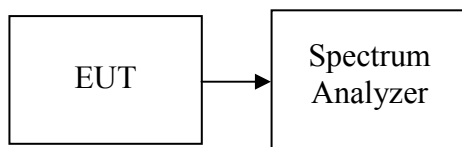
7.6 SPURIOUS EMISSIONS

7.6.1 Conducted Measurement

LIMIT

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

Test Configuration



TEST PROCEDURE

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

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

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

TEST RESULTS

No non-compliance noted



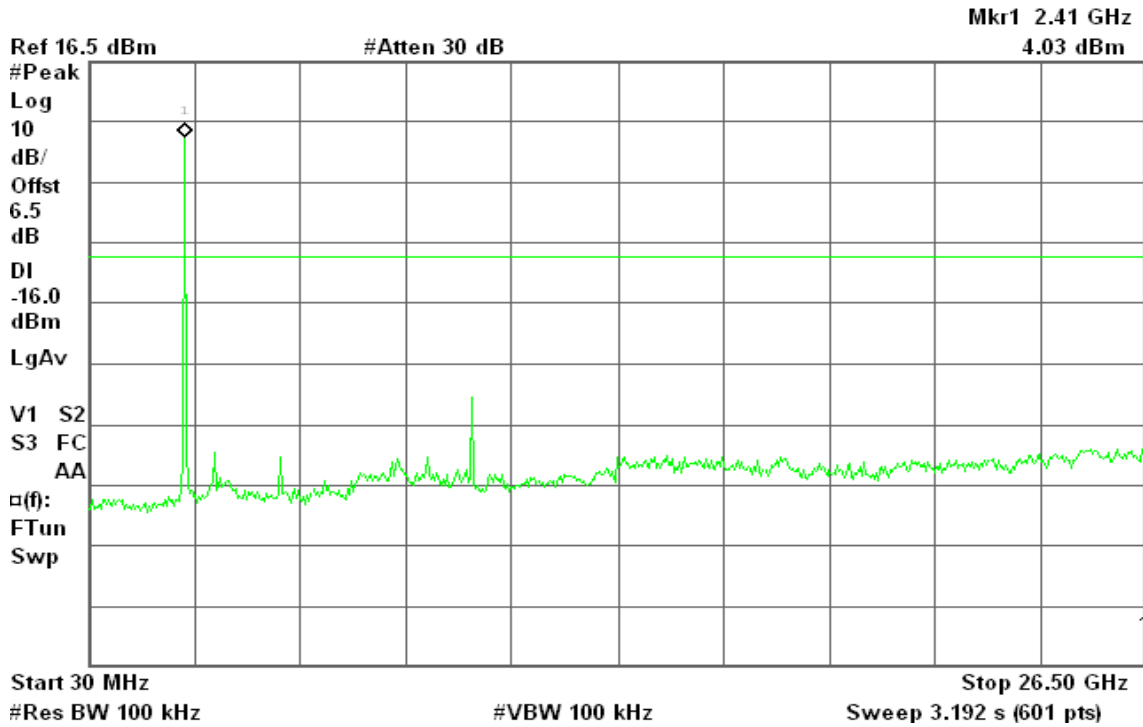
Test Plot

IEEE 802.11b mode

CH Low

Agilent 16:11:26 Mar 9, 2009

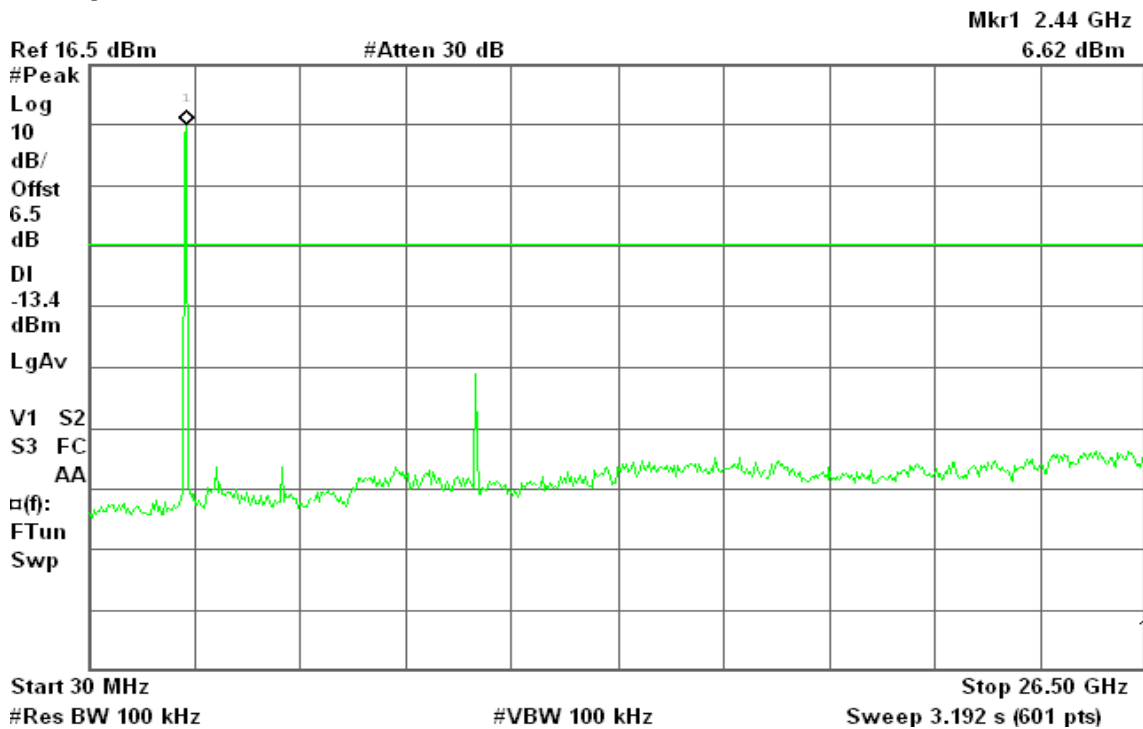
R T



CH Mid

Agilent 16:12:14 Mar 9, 2009

R T



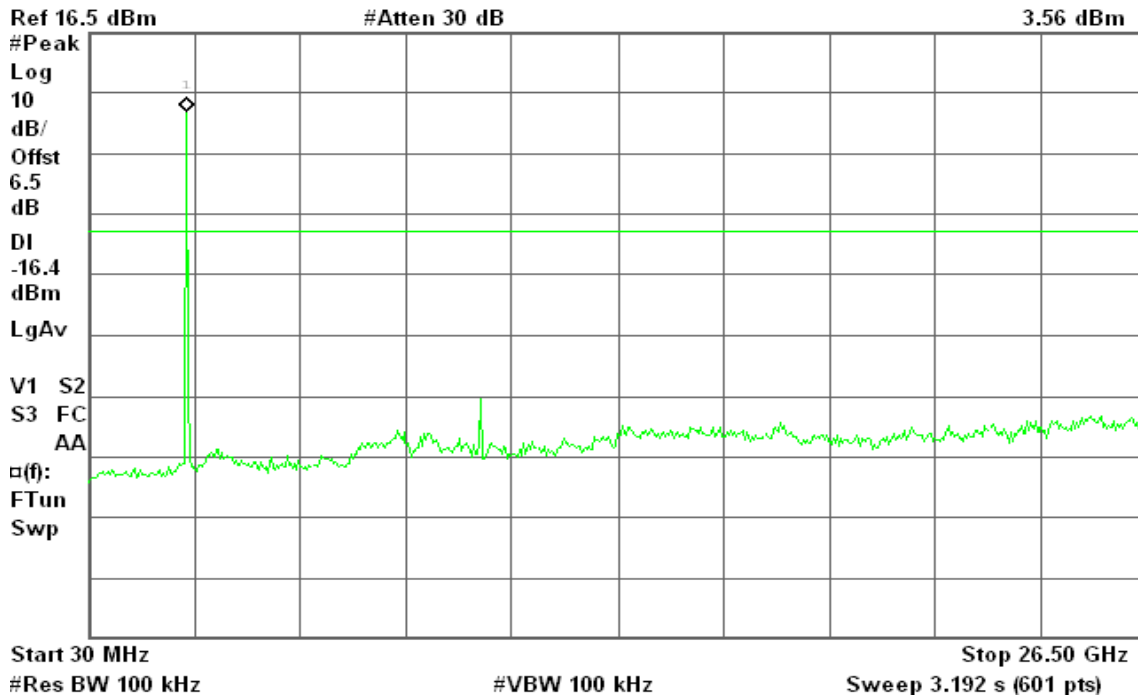


CH High

Agilent 16:13:52 Mar 9, 2009

R T

Mkr1 2.46 GHz
3.56 dBm



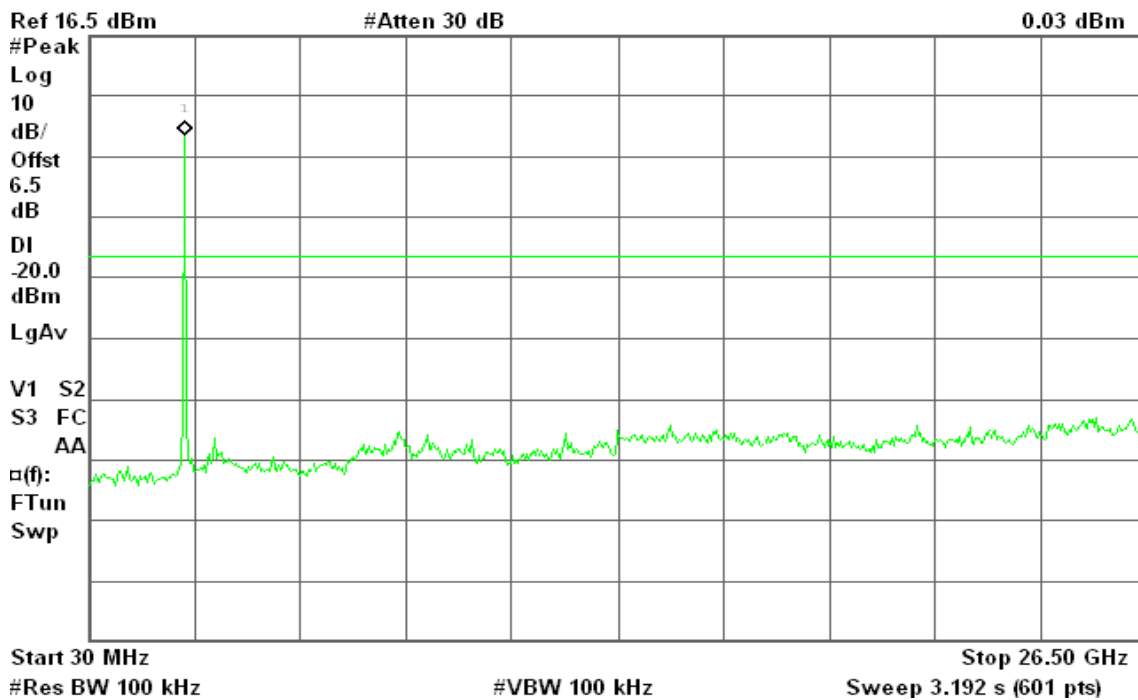
IEEE 802.11g mode

CH Low

Agilent 16:18:11 Mar 9, 2009

R T

Mkr1 2.41 GHz
0.03 dBm

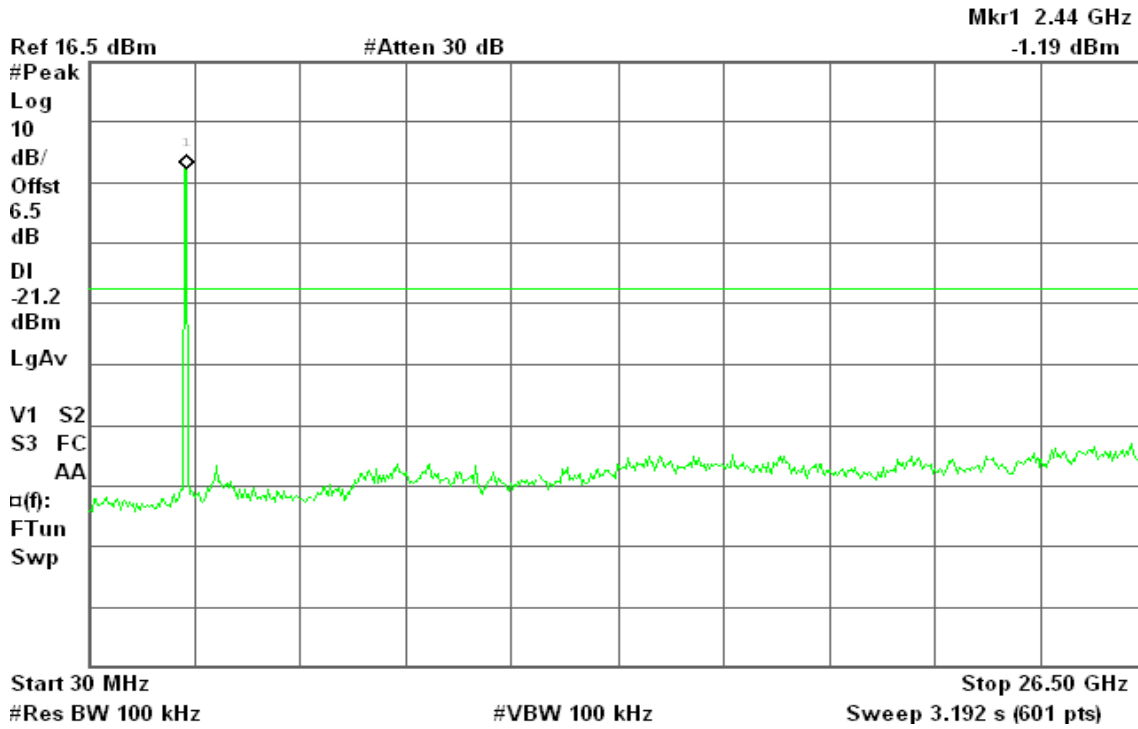




CH Mid

Agilent 16:17:05 Mar 9, 2009

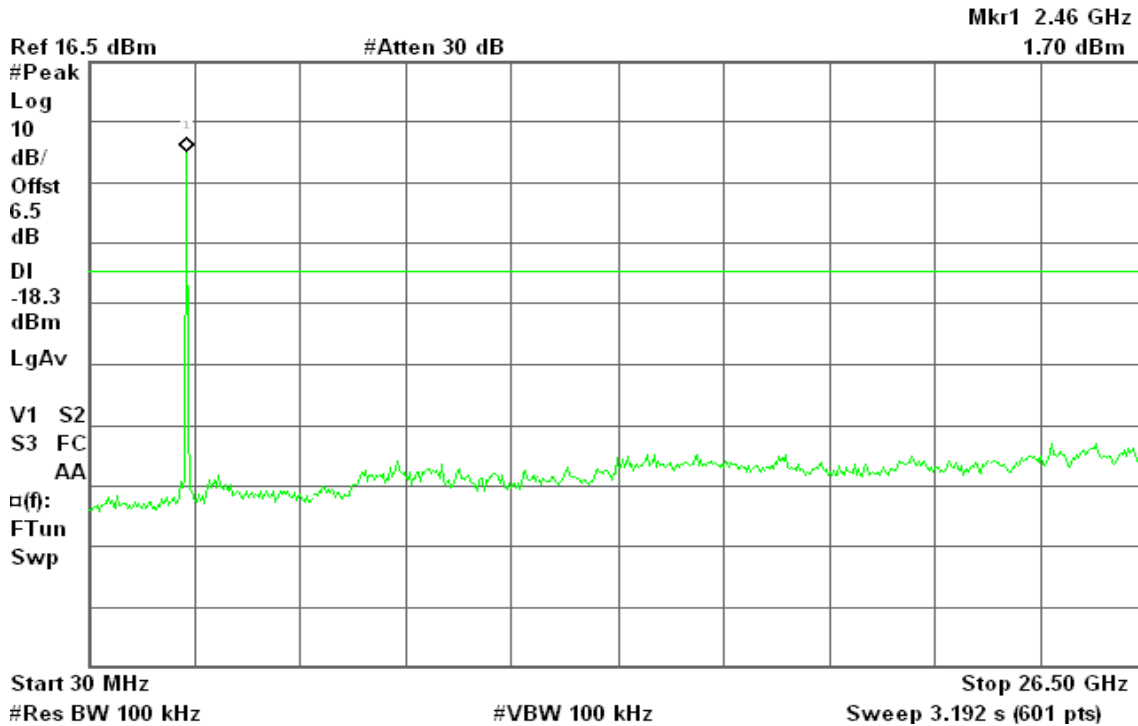
R T



CH High

Agilent 16:15:27 Mar 9, 2009

R T



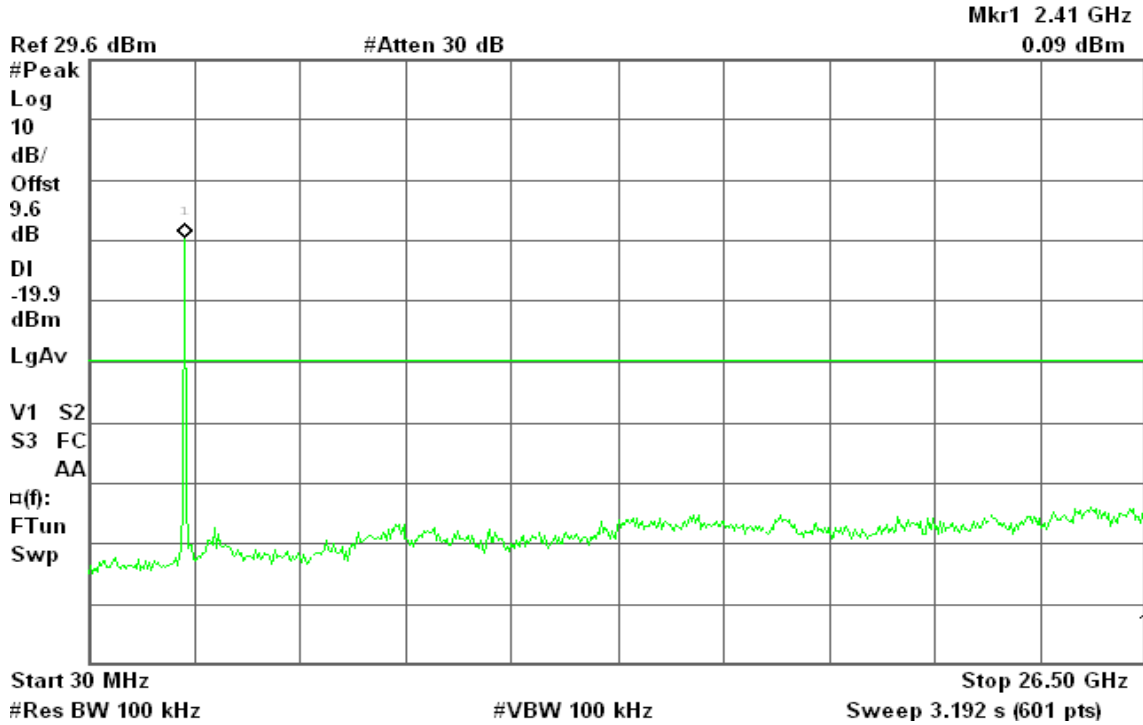


draft 802.11n Standard-20 MHz Channel mode / Chain 0

CH Low

Agilent 12:57:10 Mar 10, 2009

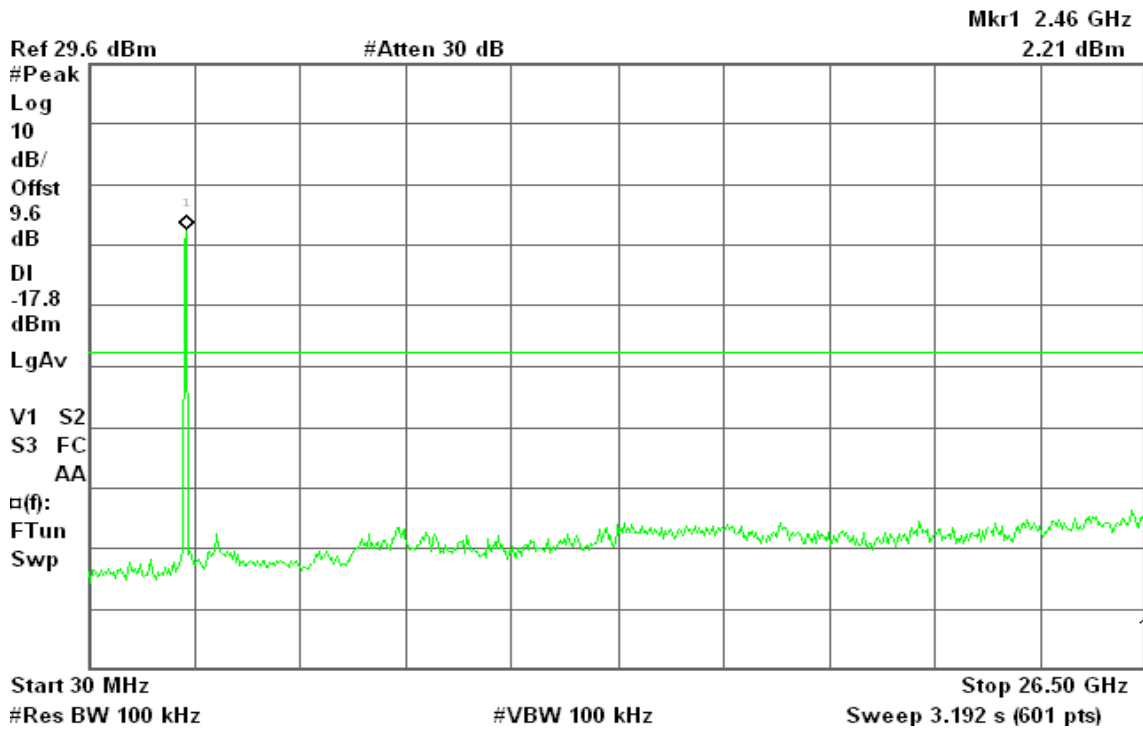
R T



CH Mid

Agilent 12:56:17 Mar 10, 2009

R T



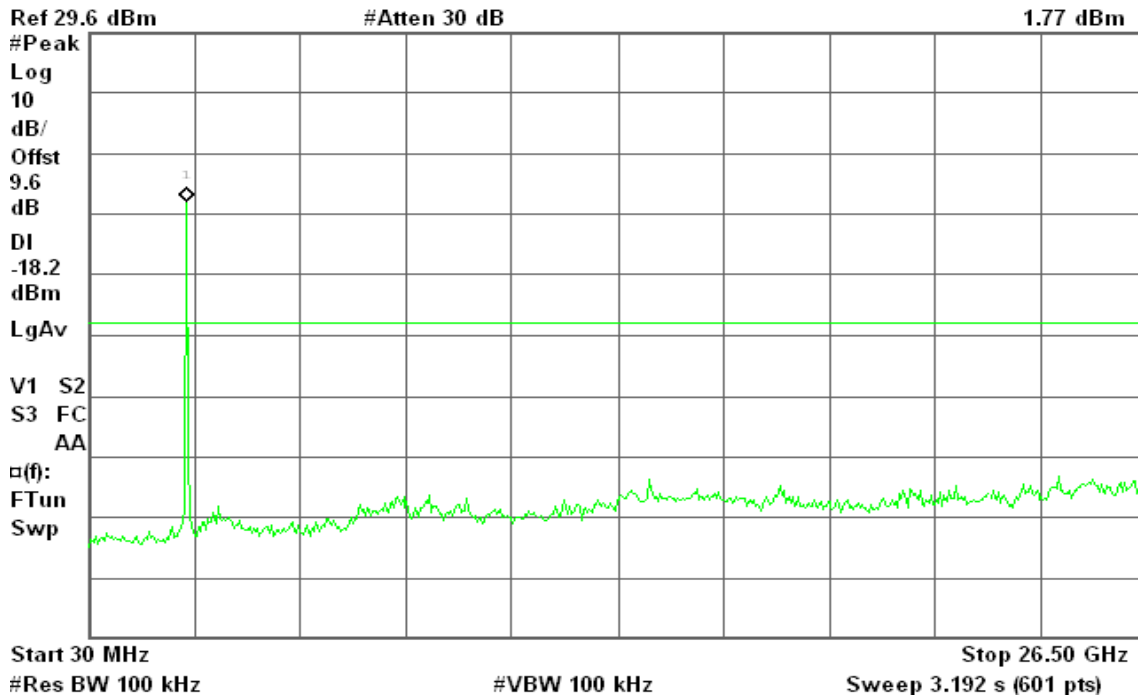


CH High

Agilent 12:54:59 Mar 10, 2009

R T

Mkr1 2.46 GHz
1.77 dBm



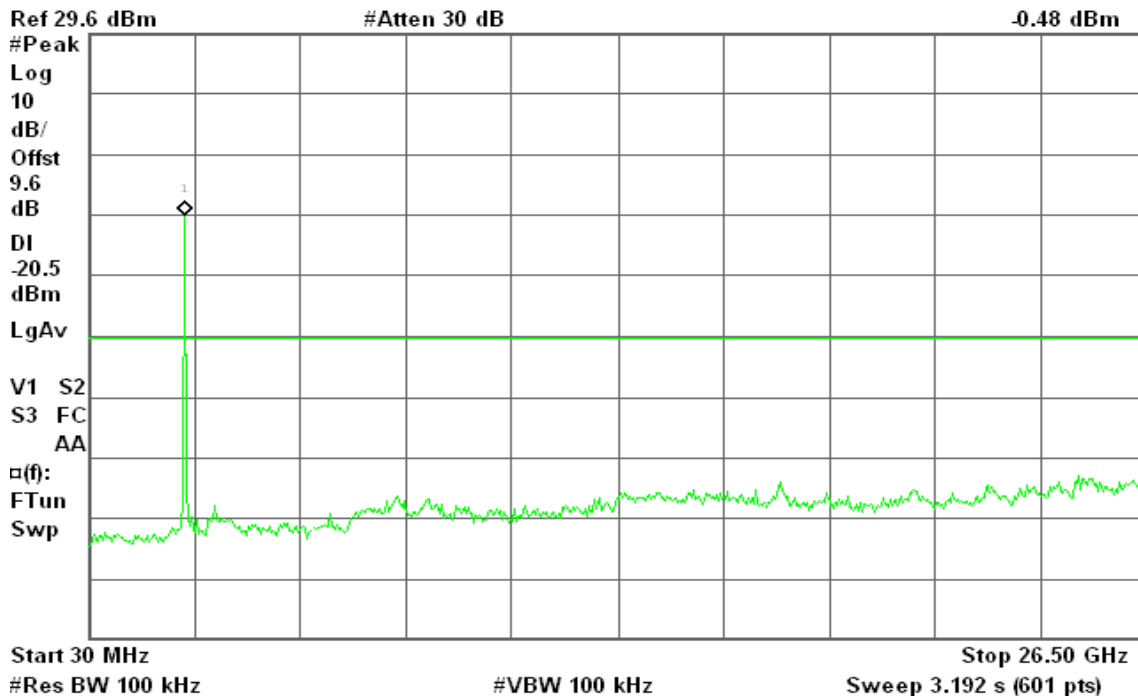
draft 802.11n Standard-20 MHz Channel mode / Chain 1

CH Low

Agilent 12:59:17 Mar 10, 2009

R T

Mkr1 2.41 GHz
-0.48 dBm



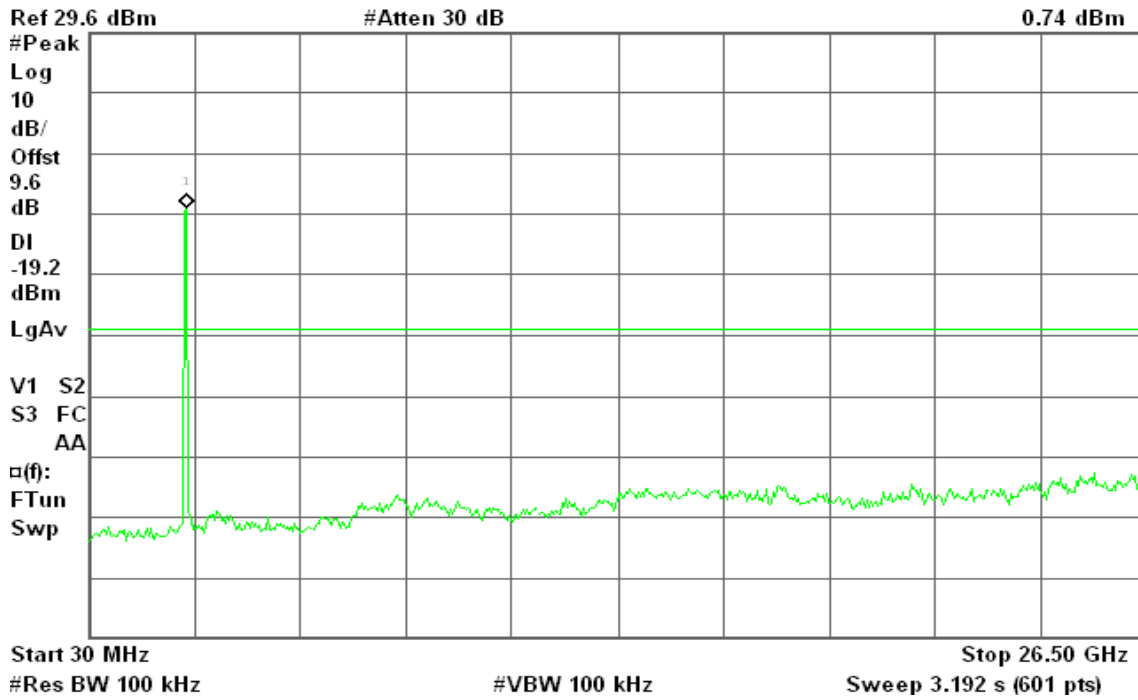


CH Mid

Agilent 13:00:44 Mar 10, 2009

R T

Mkr1 2.46 GHz
0.74 dBm

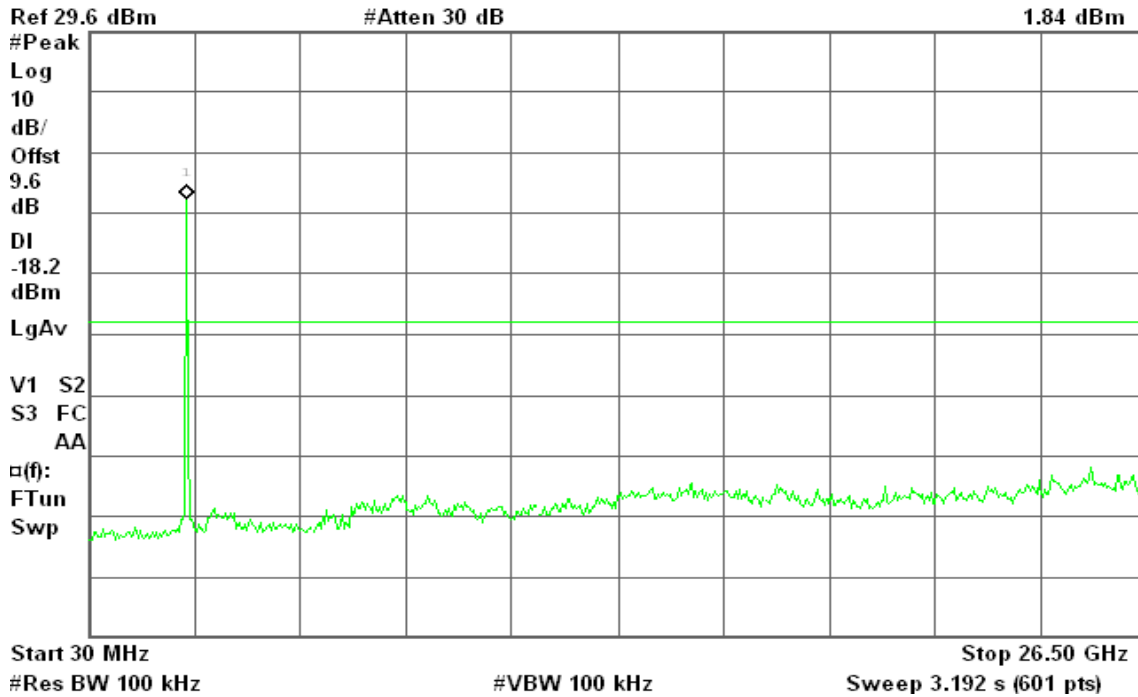


CH High

Agilent 13:02:26 Mar 10, 2009

R T

Mkr1 2.46 GHz
1.84 dBm





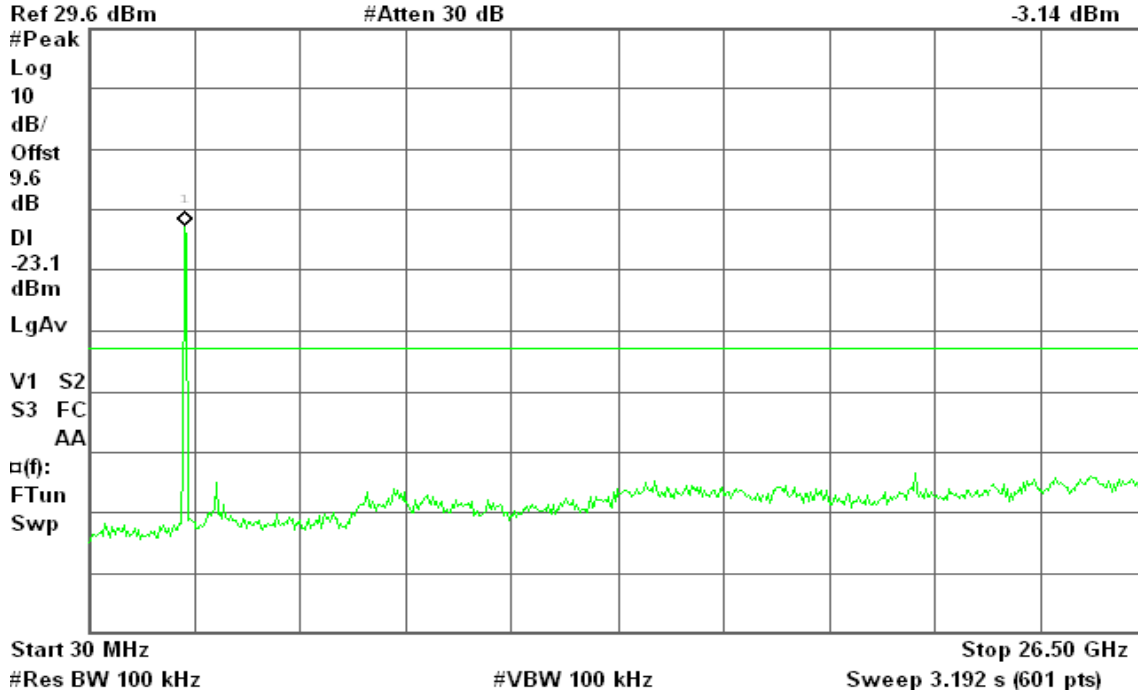
draft 802.11n Wide-40 MHz Channel mode / Chain 0

CH Low

Agilent 13:09:01 Mar 10, 2009

R T

Mkr1 2.41 GHz
-3.14 dBm

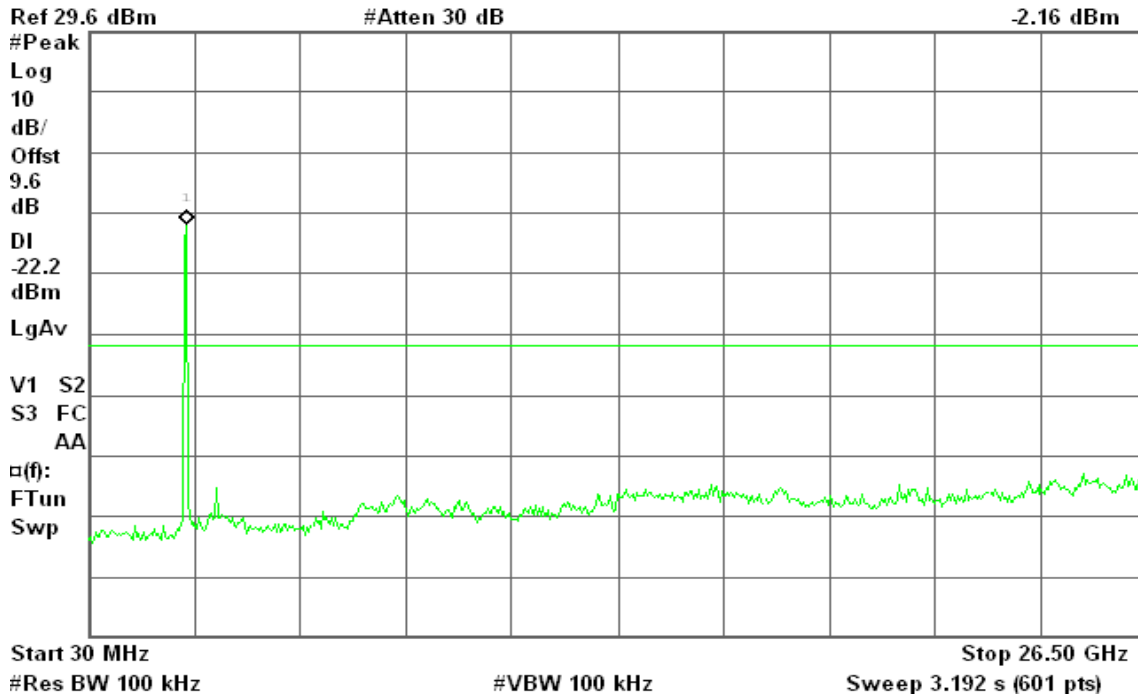


CH Mid

Agilent 13:11:04 Mar 10, 2009

R T

Mkr1 2.46 GHz
-2.16 dBm



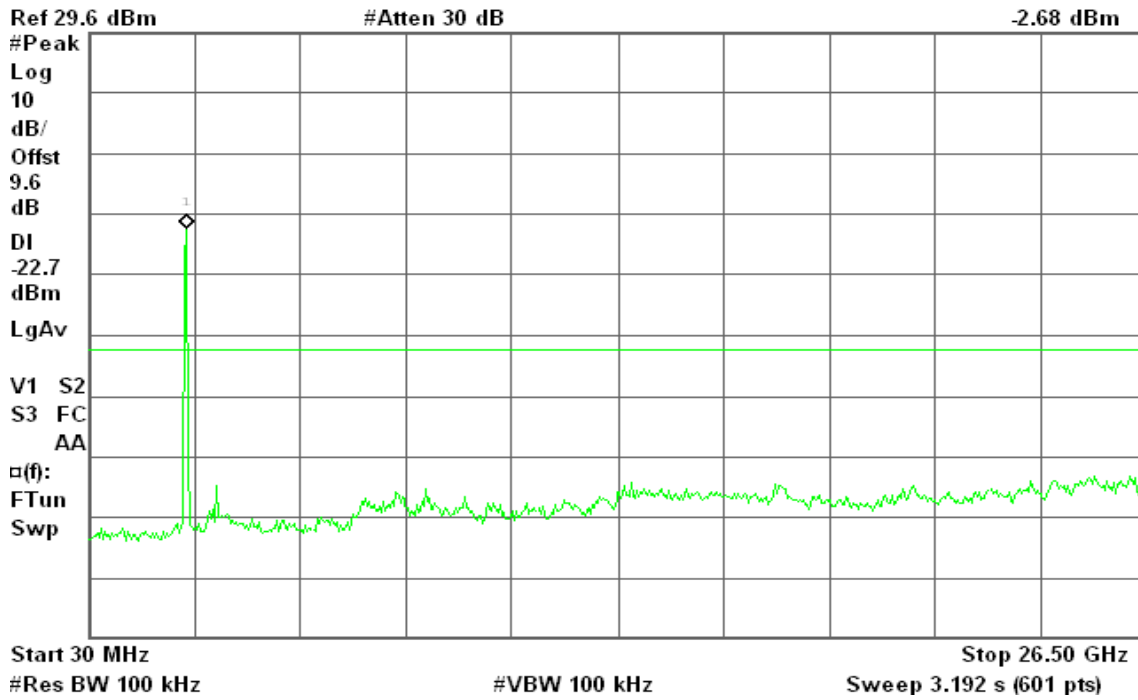


CH High

Agilent 13:12:30 Mar 10, 2009

R T

Mkr1 2.46 GHz
-2.68 dBm



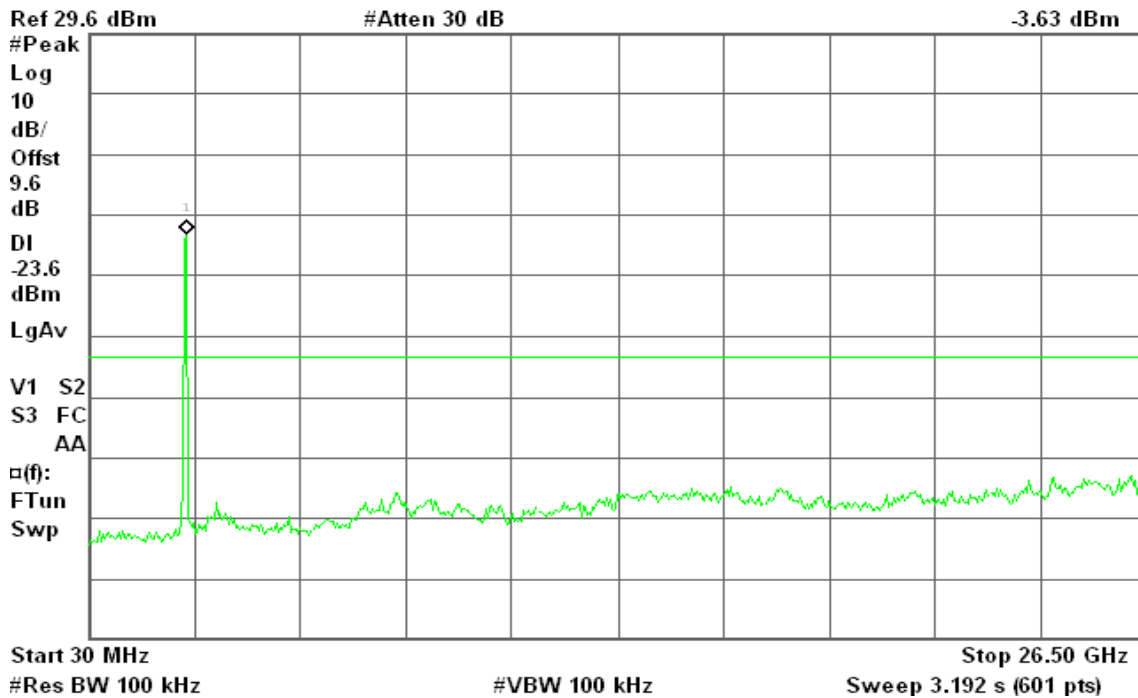
draft 802.11n Wide-40 MHz Channel mode / Chain 1

CH Low

Agilent 13:07:55 Mar 10, 2009

R T

Mkr1 2.46 GHz
-3.63 dBm

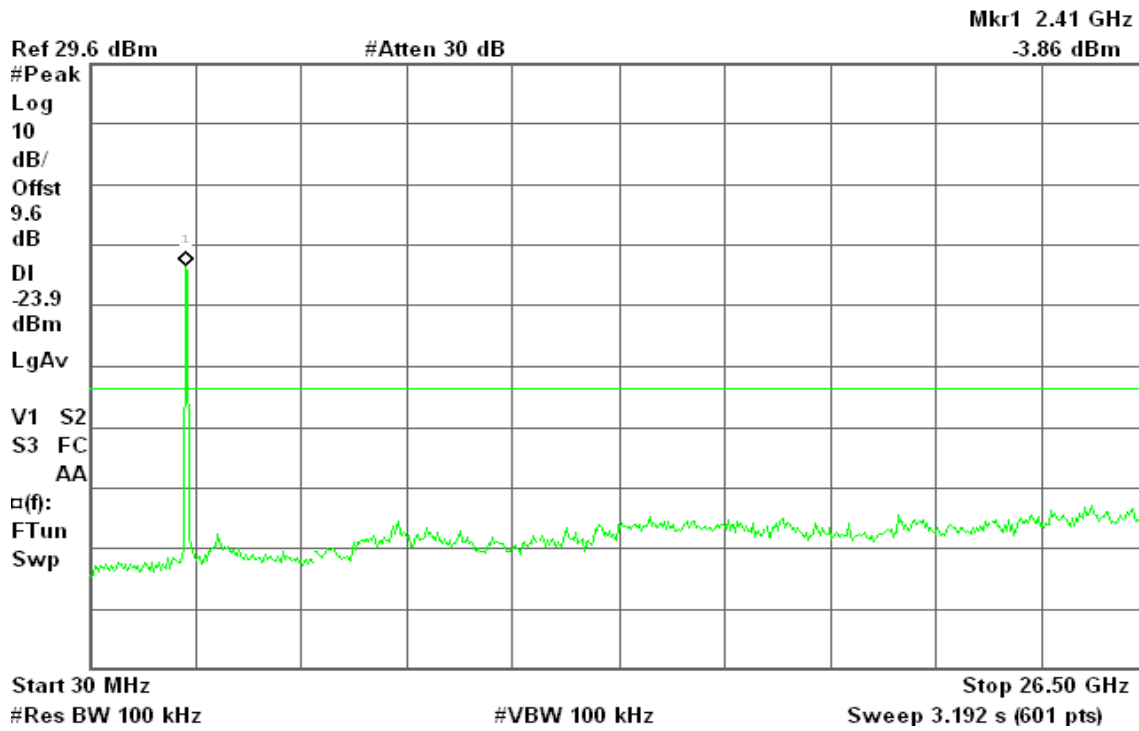




CH Mid

Agilent 13:06:36 Mar 10, 2009

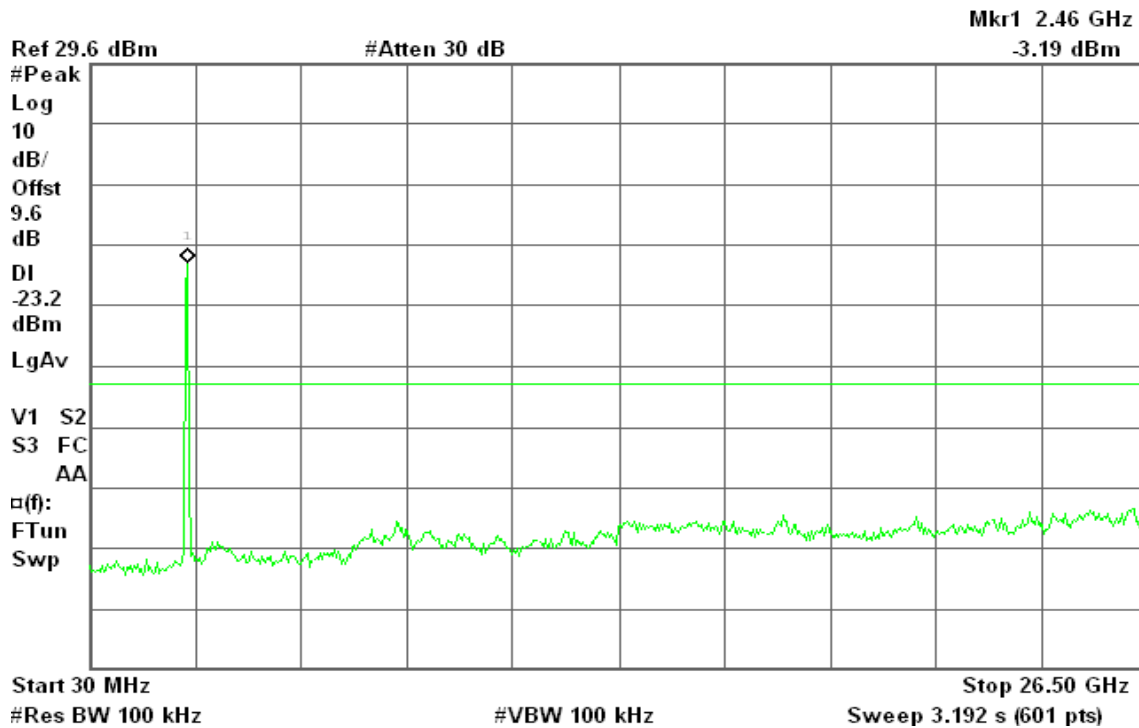
R T



CH High

Agilent 13:04:26 Mar 10, 2009

R T





IEEE 802.11a mode / 5745 ~ 5825MHz

CH Low

Agilent 20:18:41 Mar 10, 2009

R T

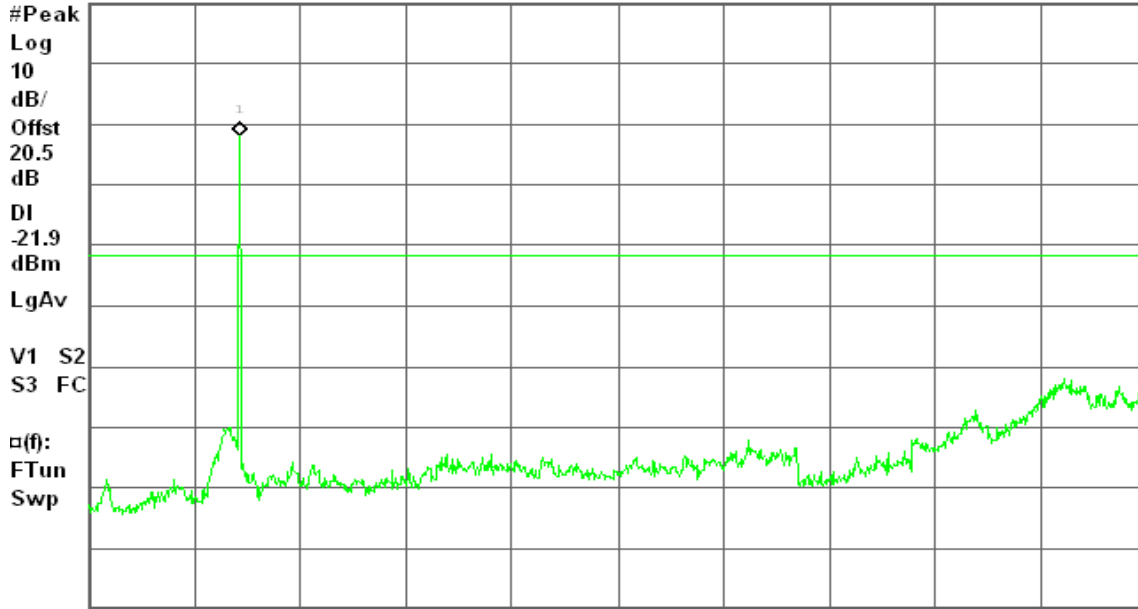
Spurious, a Mode Low Ch.

Mkr1 5.75 GHz

Ref 20 dBm

Atten 10 dB

-1.89 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)

CH Mid

Agilent 20:24:48 Mar 10, 2009

R T

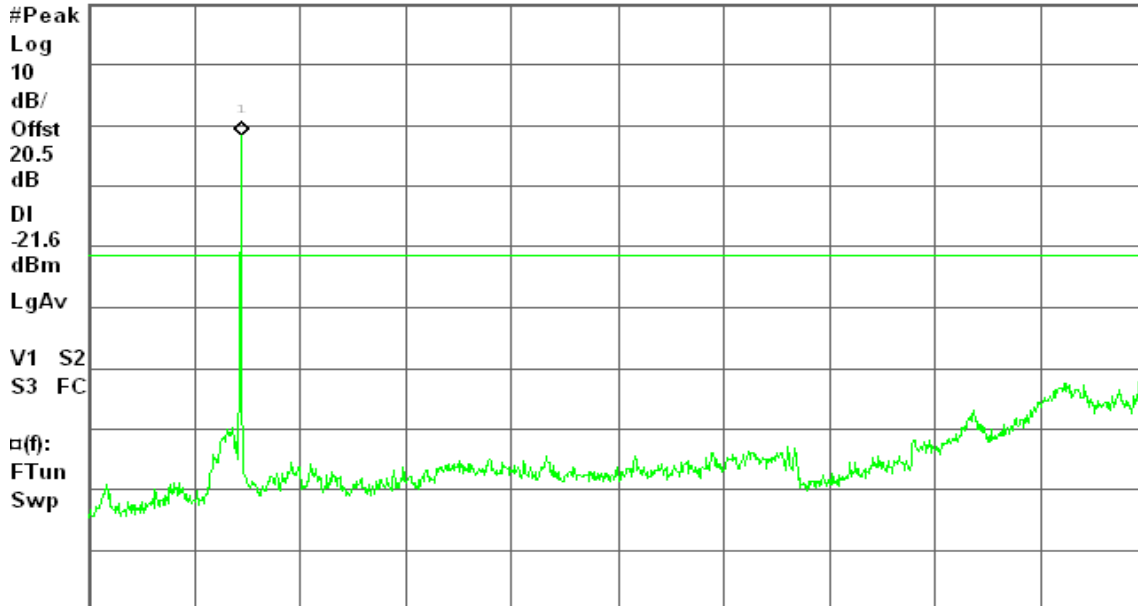
Spurious, a Mode Mid Ch.

Mkr1 5.79 GHz

Ref 20 dBm

Atten 10 dB

-1.59 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)



CH High

Agilent 20:30:57 Mar 10, 2009

R T

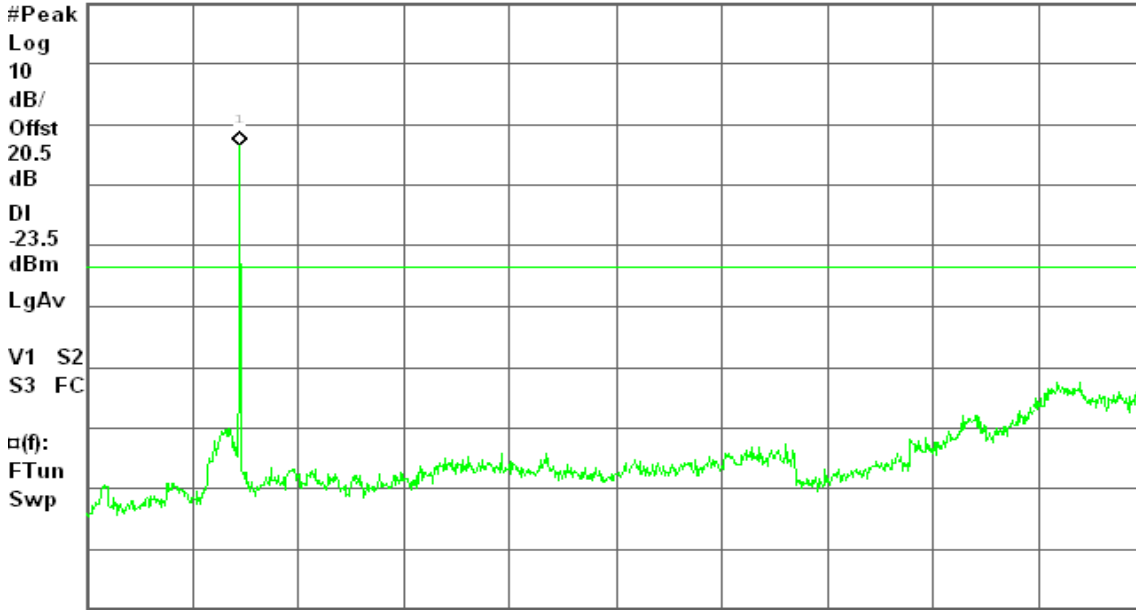
Spurious, a Mode High Ch.

Mkr1 5.83 GHz

Ref 20 dBm

Atten 10 dB

-3.53 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

CH Low

Agilent 01:42:07 Mar 11, 2009

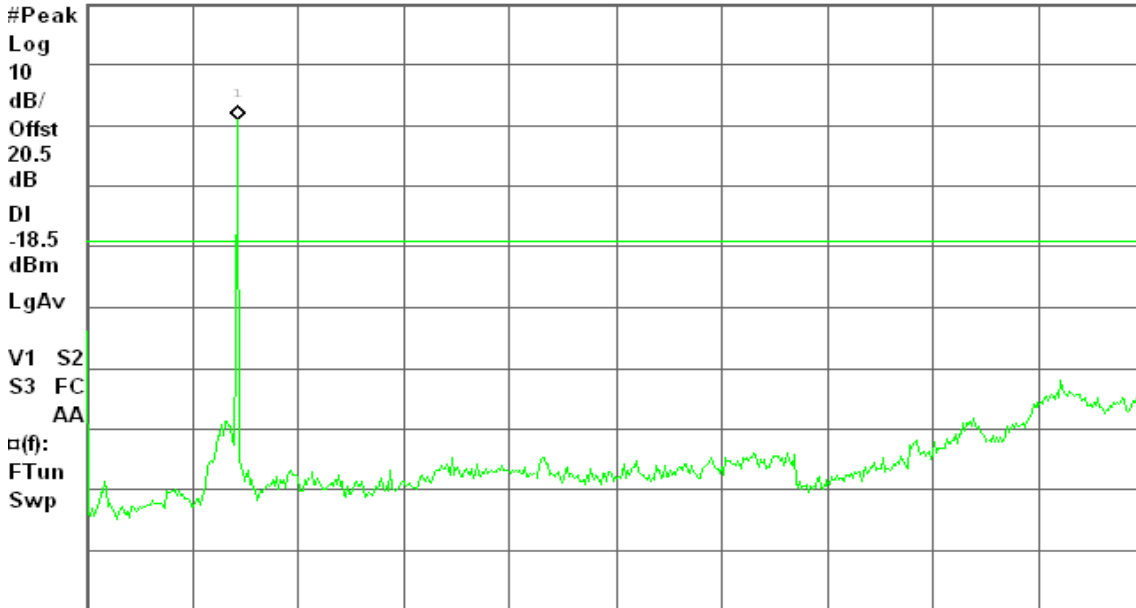
R T

Mkr1 5.76 GHz

Ref 20.5 dBm

#Atten 10 dB

1.46 dBm



Start 30 MHz

Stop 40.00 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (601 pts)



CH Mid

Agilent 01:41:16 Mar 11, 2009

R T

Mkr1 5.76 GHz
-1.27 dBm

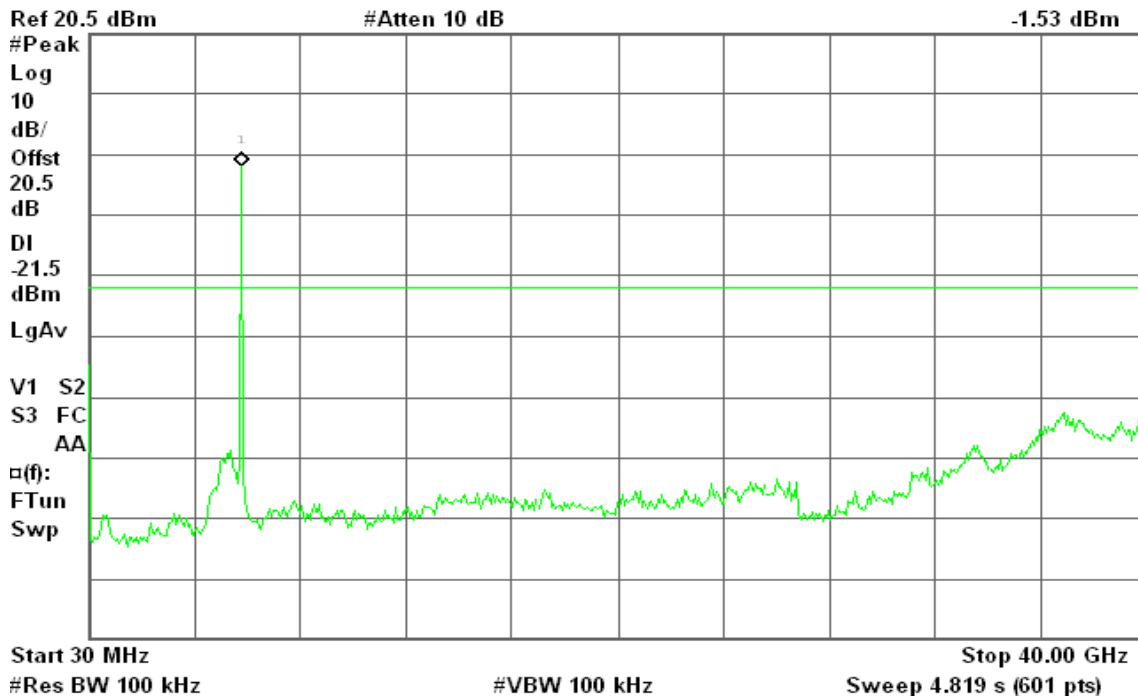


CH High

Agilent 01:40:38 Mar 11, 2009

R T

Mkr1 5.83 GHz
-1.53 dBm





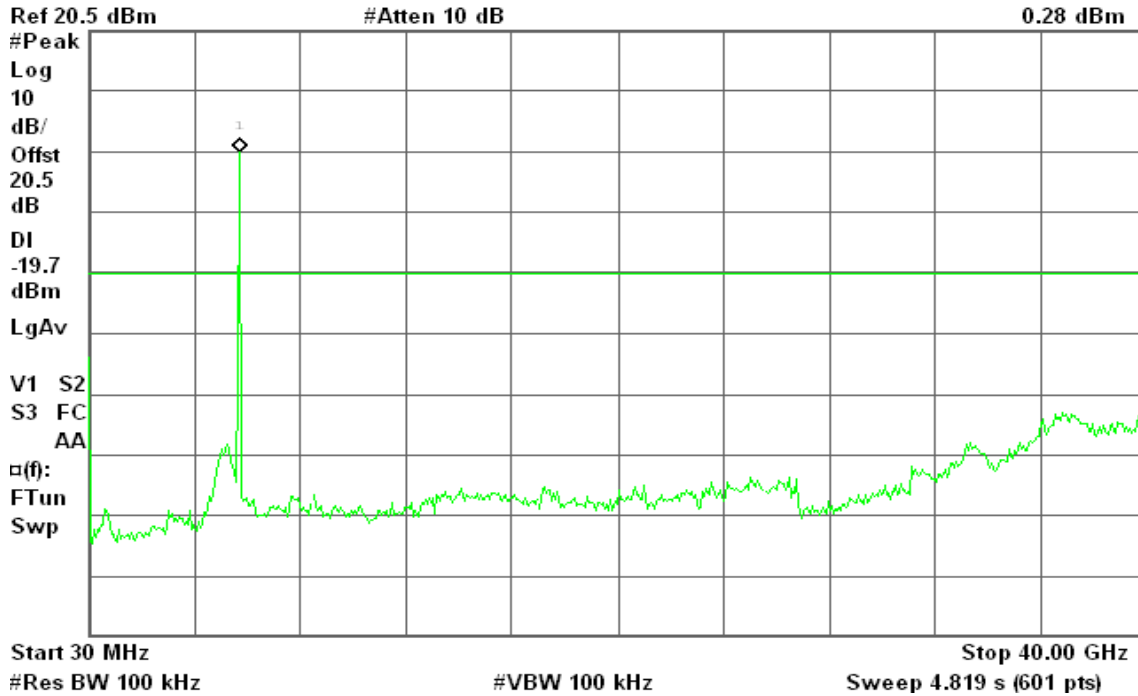
draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

CH Low

Agilent 01:38:10 Mar 11, 2009

R T

Mkr1 5.76 GHz
0.28 dBm



CH Mid

Agilent 01:38:52 Mar 11, 2009

R T

Mkr1 5.76 GHz
-0.46 dBm





CH High

Agilent 01:39:30 Mar 11, 2009

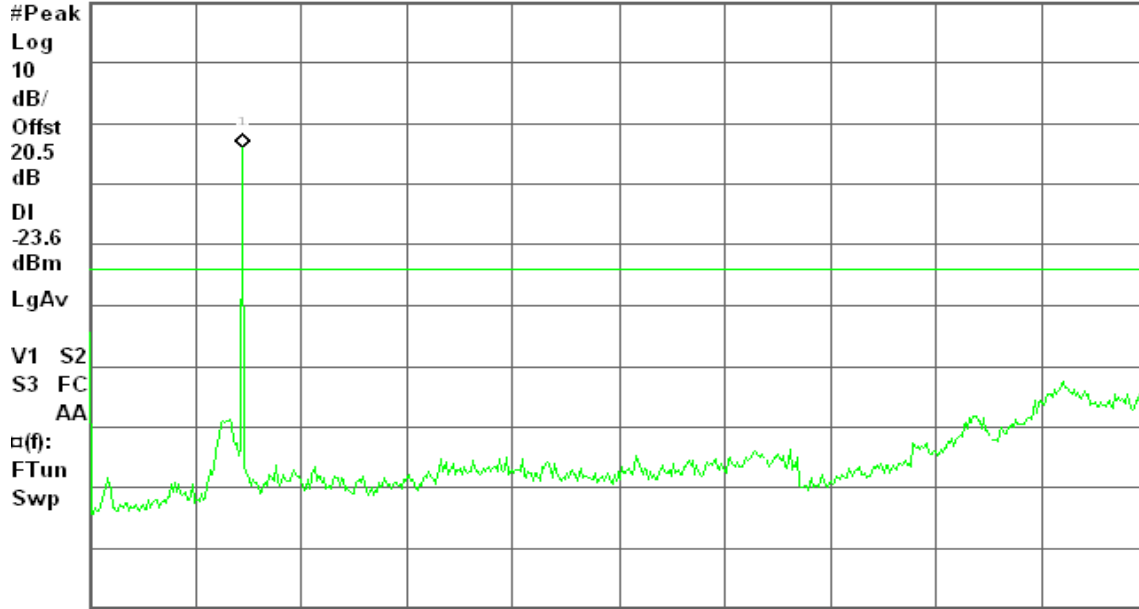
R T

Mkr1 5.83 GHz

-3.57 dBm

Ref 20.5 dBm

#Atten 10 dB



Start 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Stop 40.00 GHz

Sweep 4.819 s (601 pts)

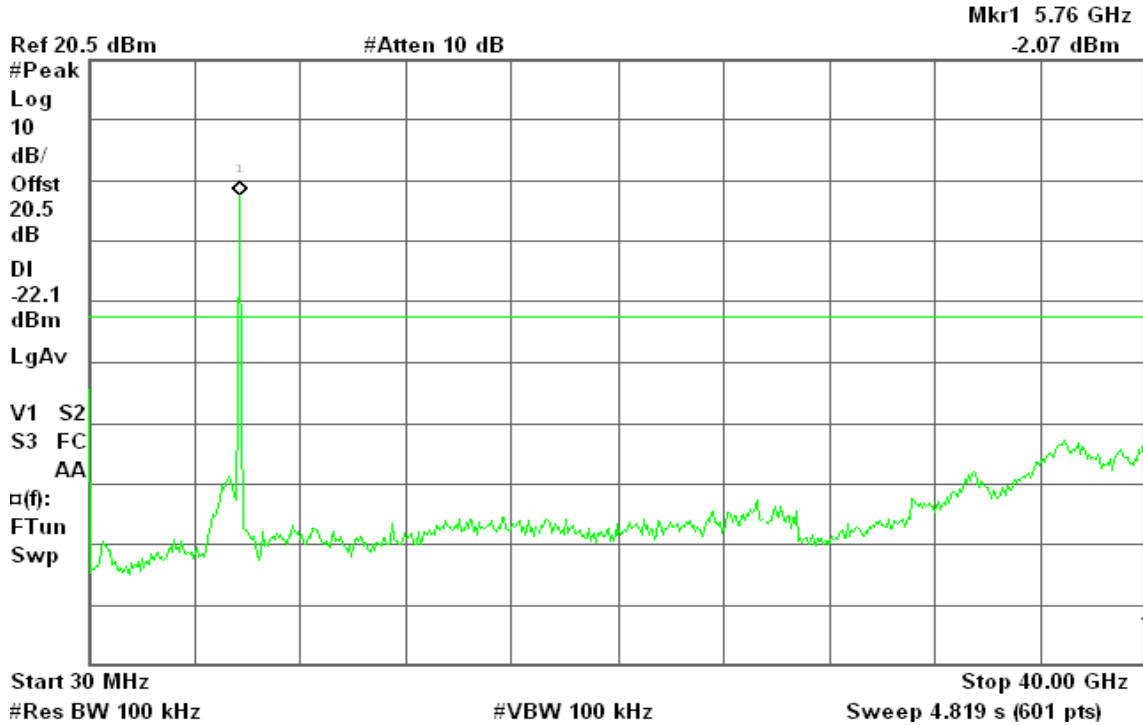


draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 0

CH Low

Agilent 02:26:54 Mar 11, 2009

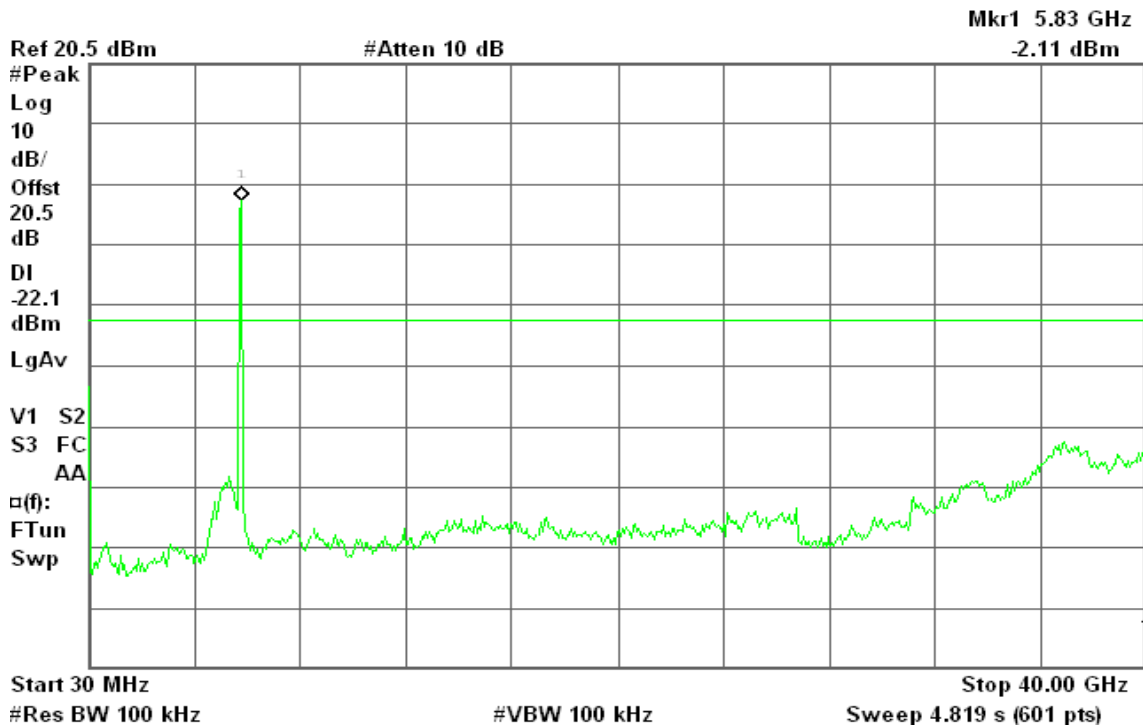
R T



CH Mid

Agilent 02:26:19 Mar 11, 2009

R T



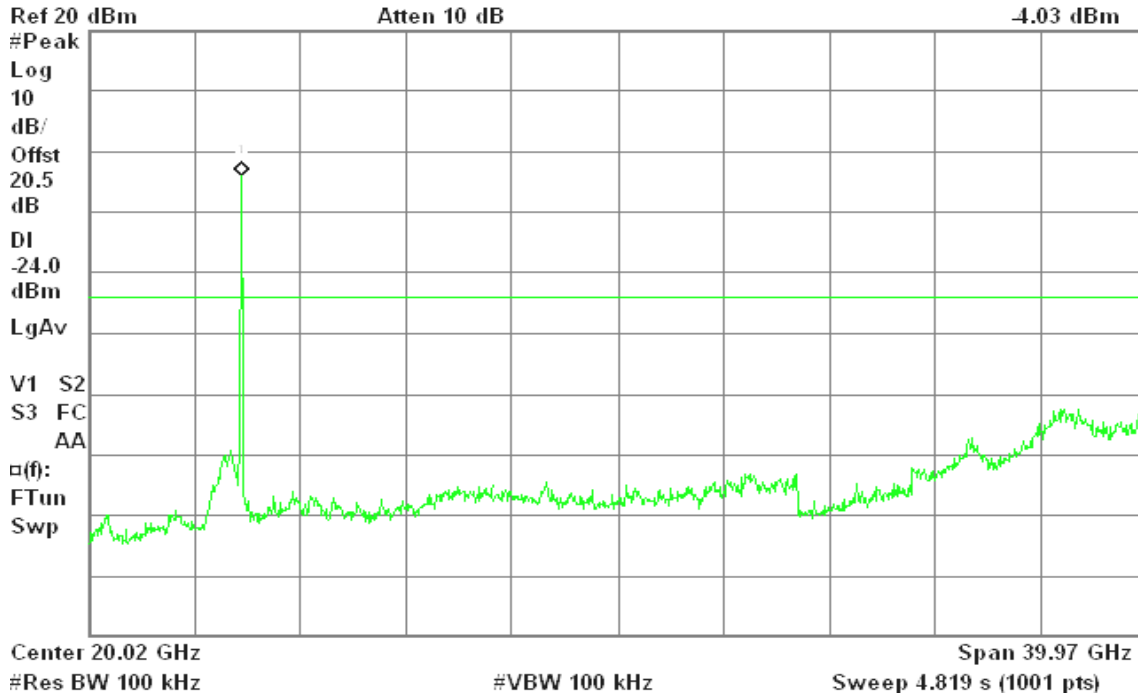


CH High

Agilent 14:41:51 May 18, 2009

R T

Mkr1 5.79 GHz
-4.03 dBm



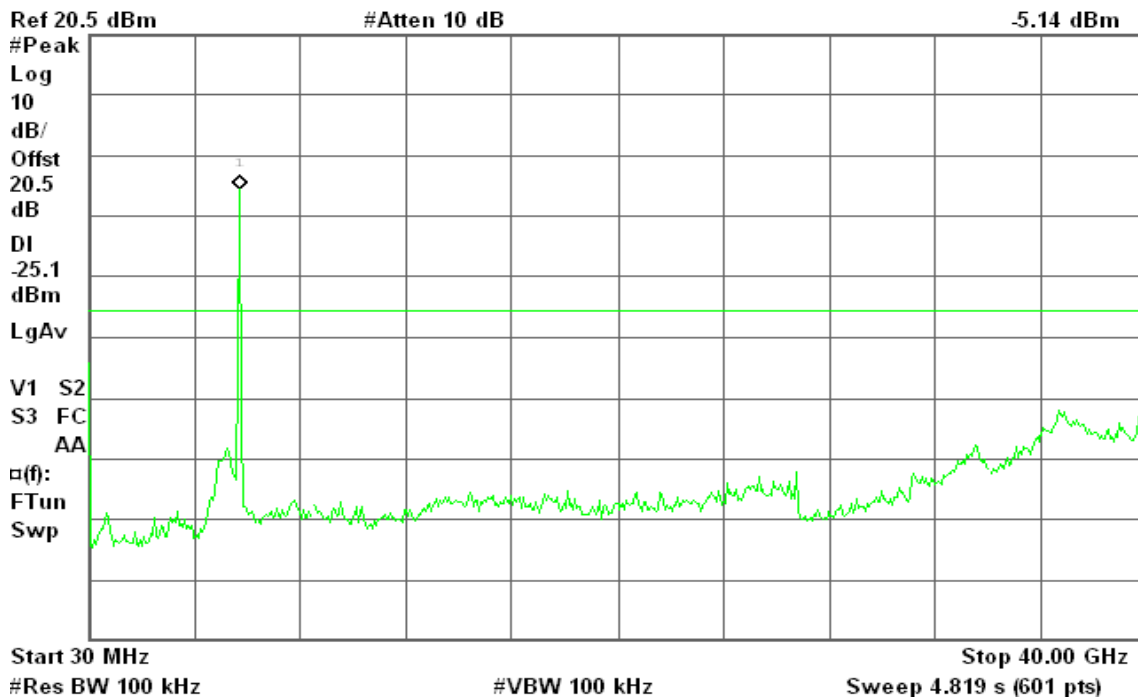
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / Chain 1

CH Low

Agilent 02:27:32 Mar 11, 2009

R T

Mkr1 5.76 GHz
-5.14 dBm





CH Mid

Agilent 02:28:15 Mar 11, 2009

R T

Mkr1 5.76 GHz
-4.76 dBm



CH High

Agilent 15:03:27 May 18, 2009

R T

Mkr1 5.83 GHz
-6.57 dBm



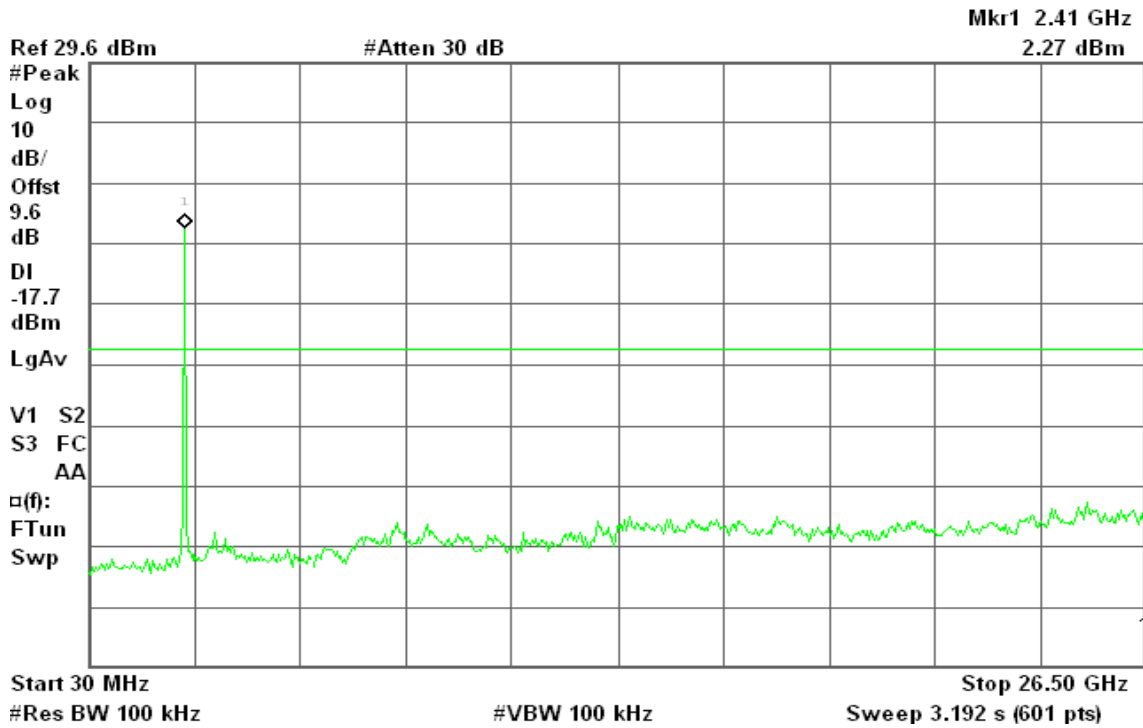


draft 802.11n Standard-20 MHz Channel mode with combiner

CH Low

Agilent 12:51:59 Mar 10, 2009

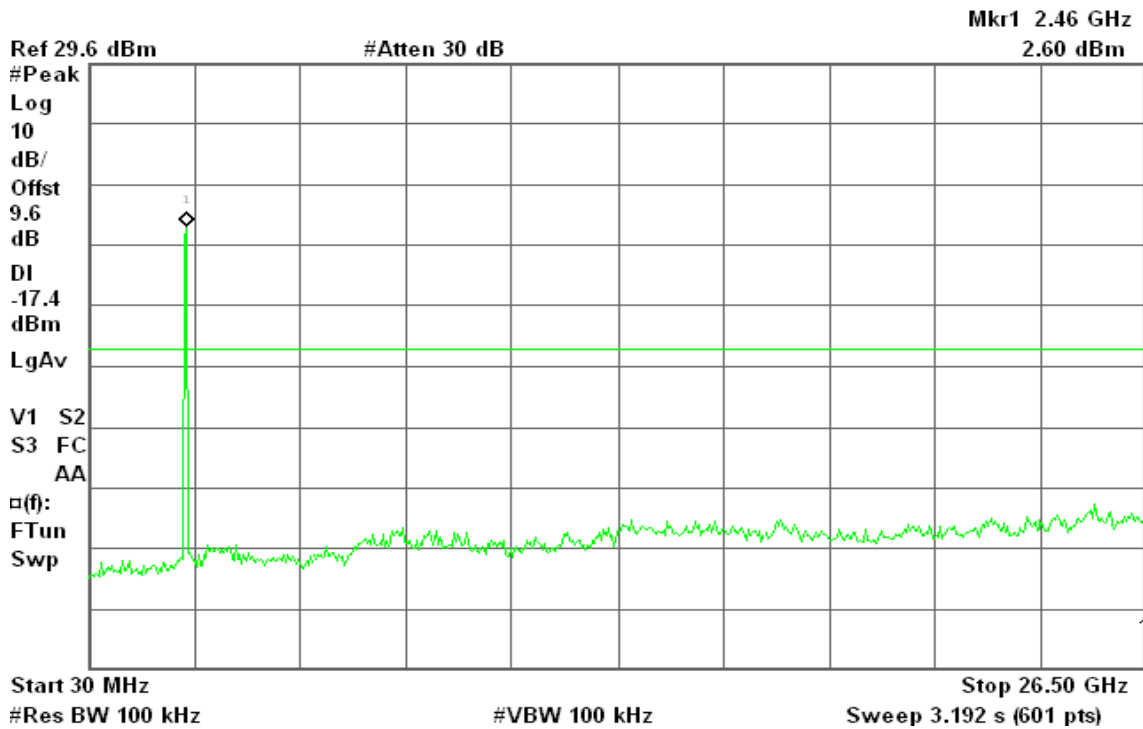
R T



CH Mid

Agilent 12:52:45 Mar 10, 2009

R T



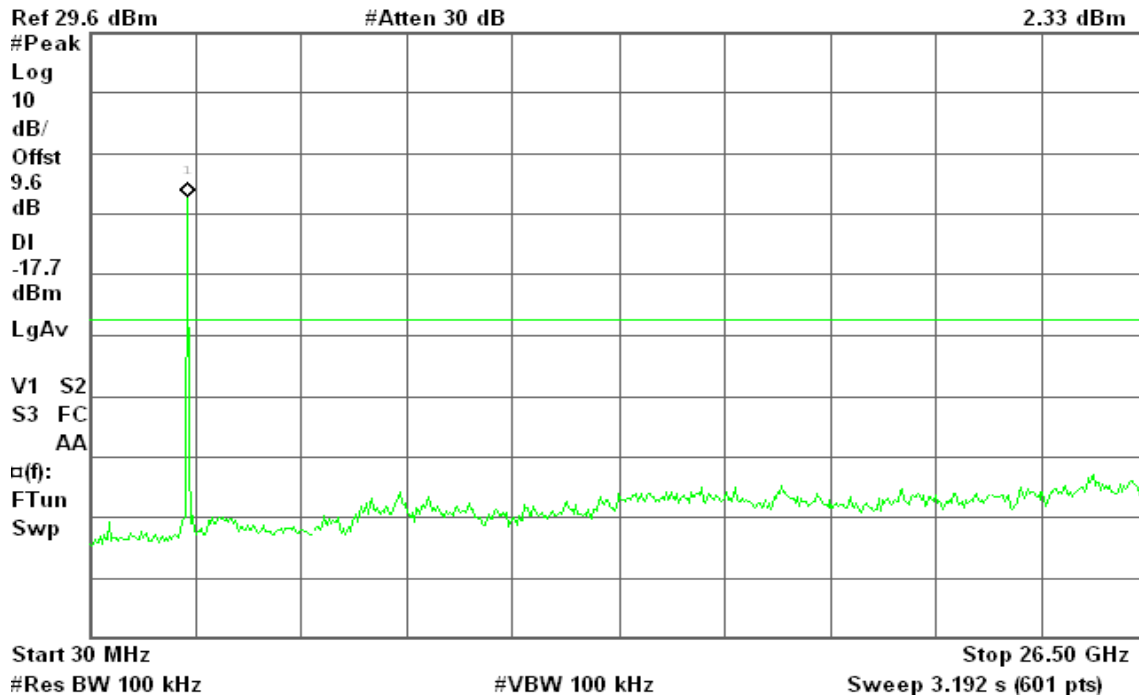


CH High

Agilent 12:53:31 Mar 10, 2009

R T

Mkr1 2.46 GHz
2.33 dBm



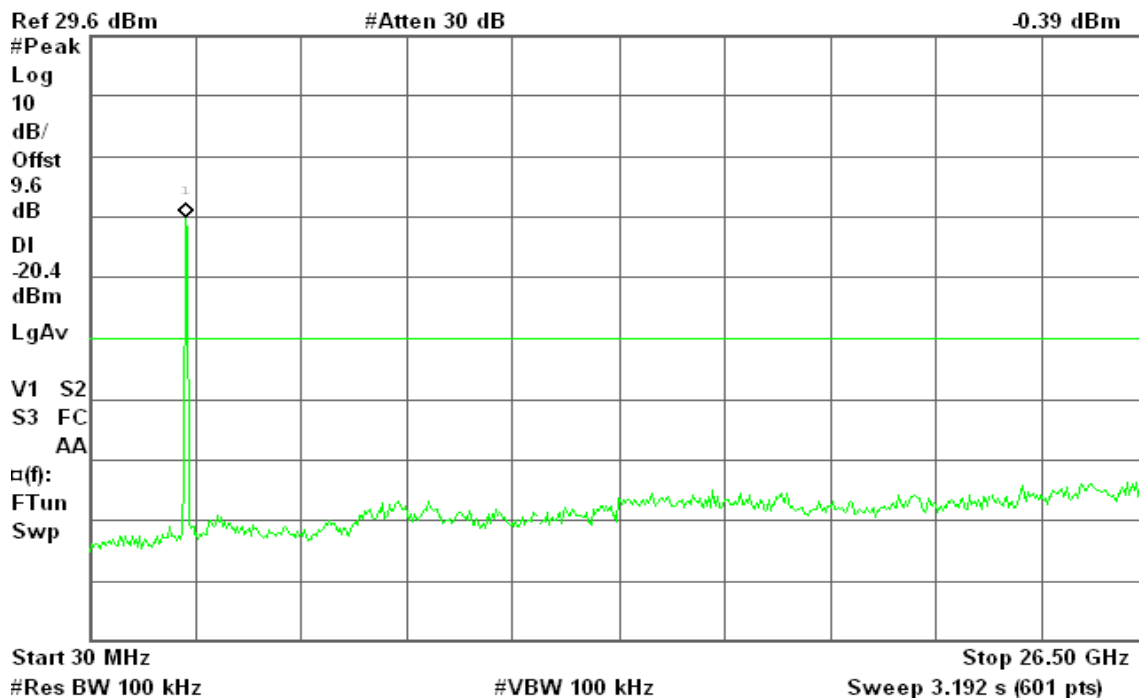
draft 802.11n Wide-40 MHz Channel mode with combiner

CH Low

Agilent 12:49:37 Mar 10, 2009

R T

Mkr1 2.41 GHz
-0.39 dBm

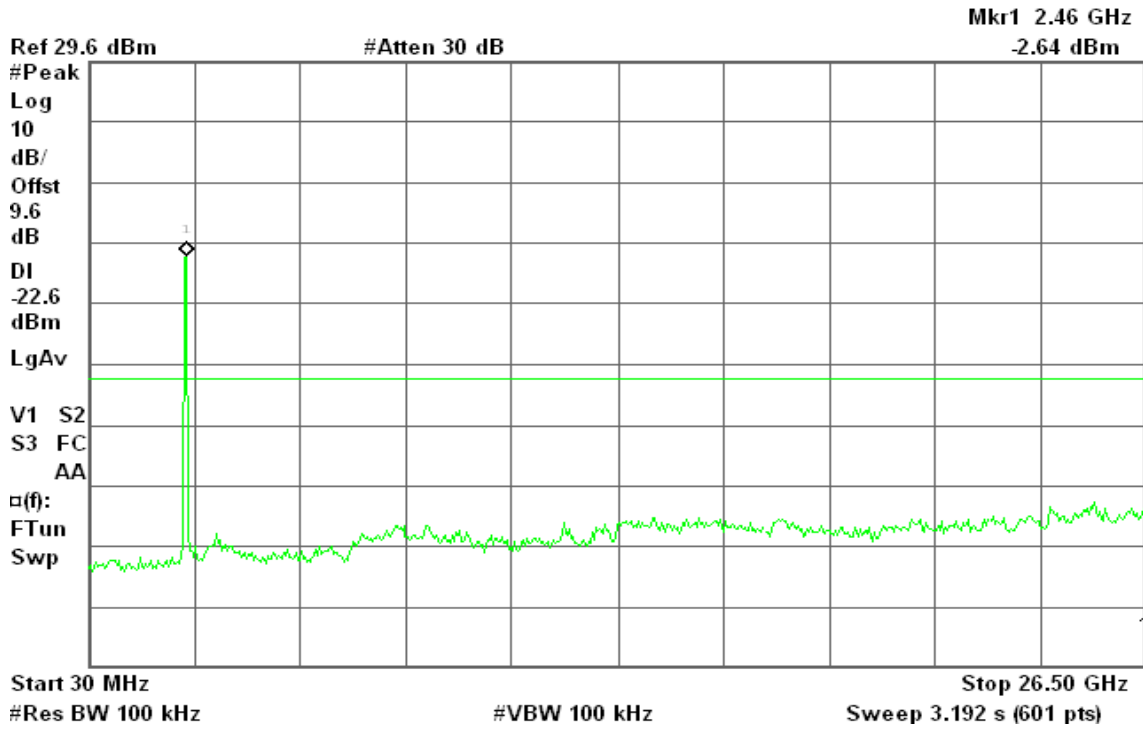




CH Mid

Agilent 12:48:48 Mar 10, 2009

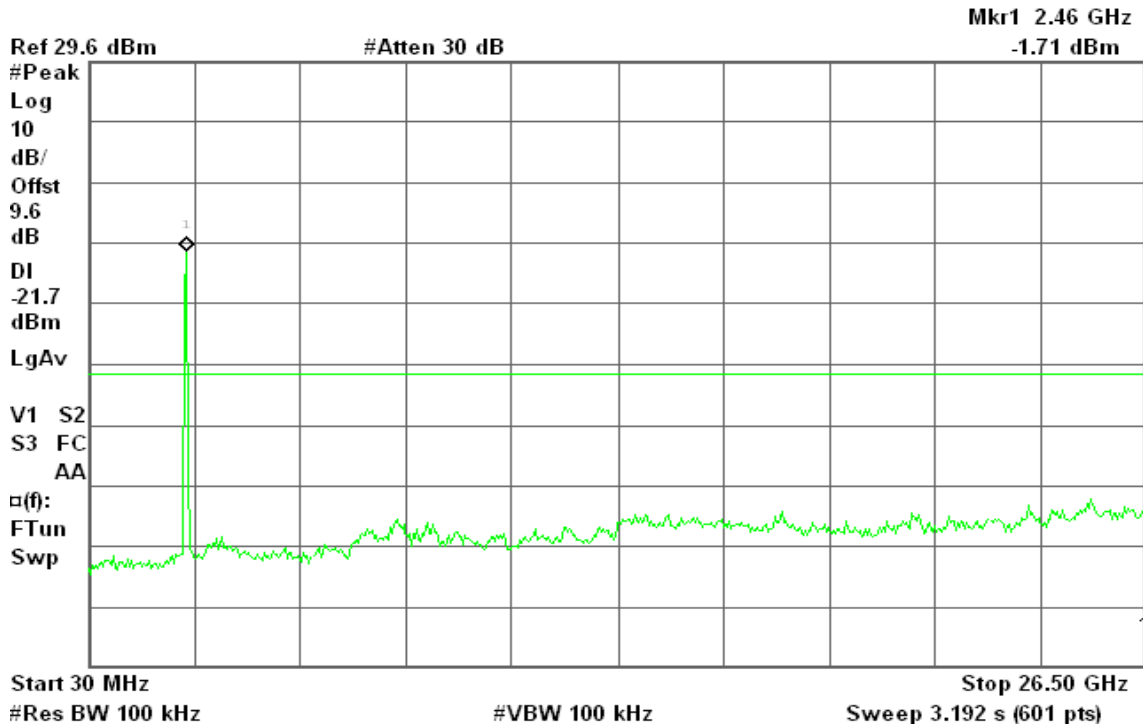
R T



CH High

Agilent 12:47:25 Mar 10, 2009

R T





draft 802.11n Standard-20 MHz Channel mode with combiner / 5745 ~ 5825MHz

CH Low

Agilent 21:41:35 Mar 10, 2009

R T

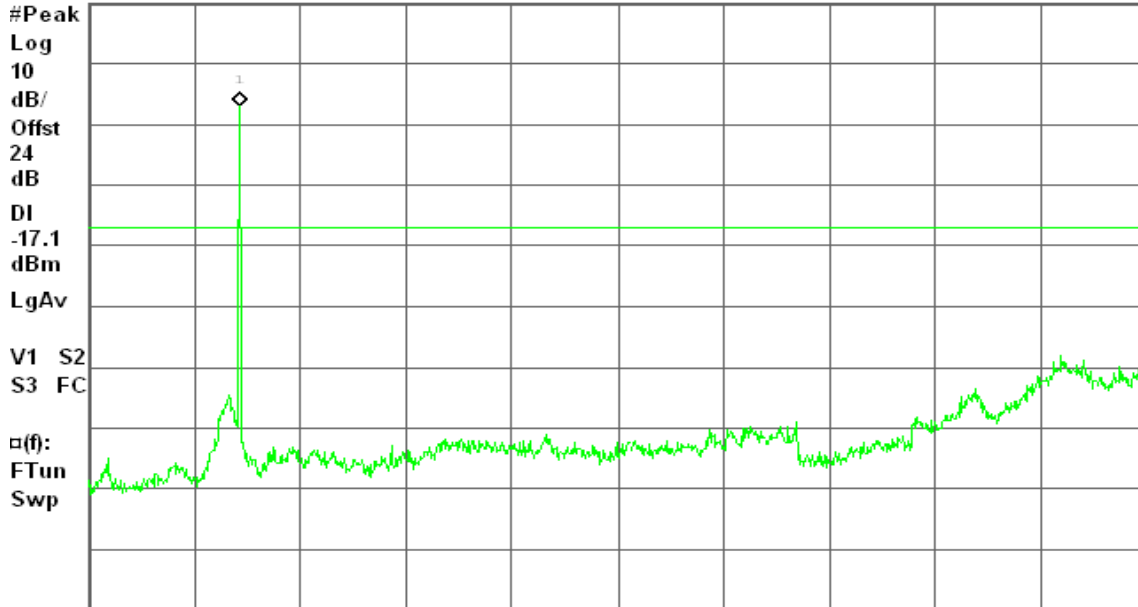
Spurious, a Mode Low Ch.

Mkr1 5.75 GHz

Ref 20 dBm

Atten 10 dB

2.90 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)

CH Mid

Agilent 21:51:01 Mar 10, 2009

R T

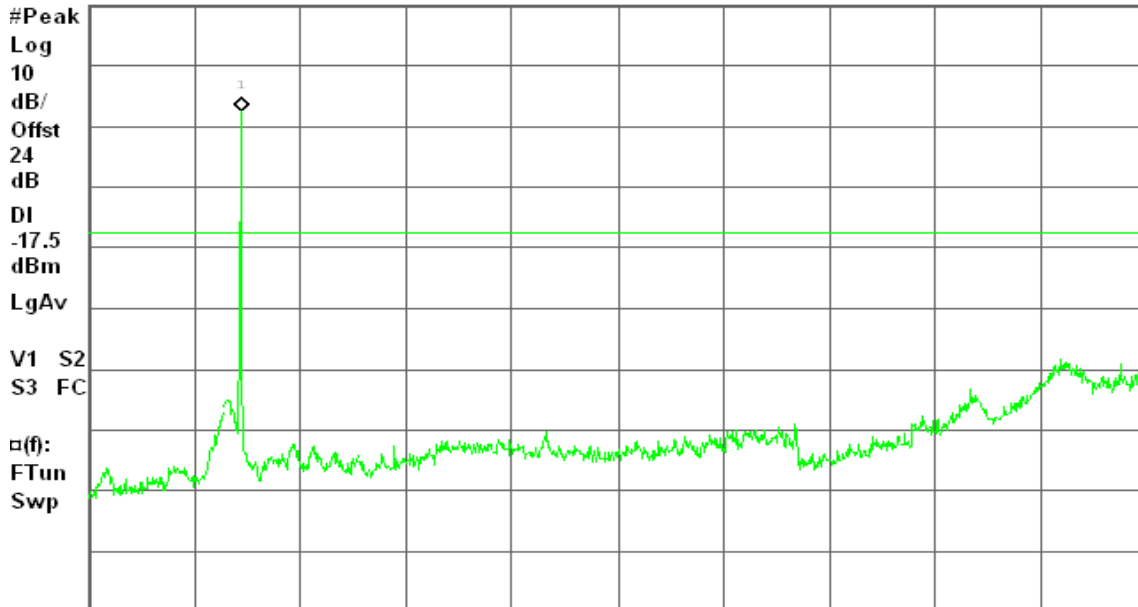
Spurious, a Mode Mid Ch.

Mkr1 5.79 GHz

Ref 20 dBm

Atten 10 dB

2.51 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)



CH High

Agilent 21:53:35 Mar 10, 2009

R T

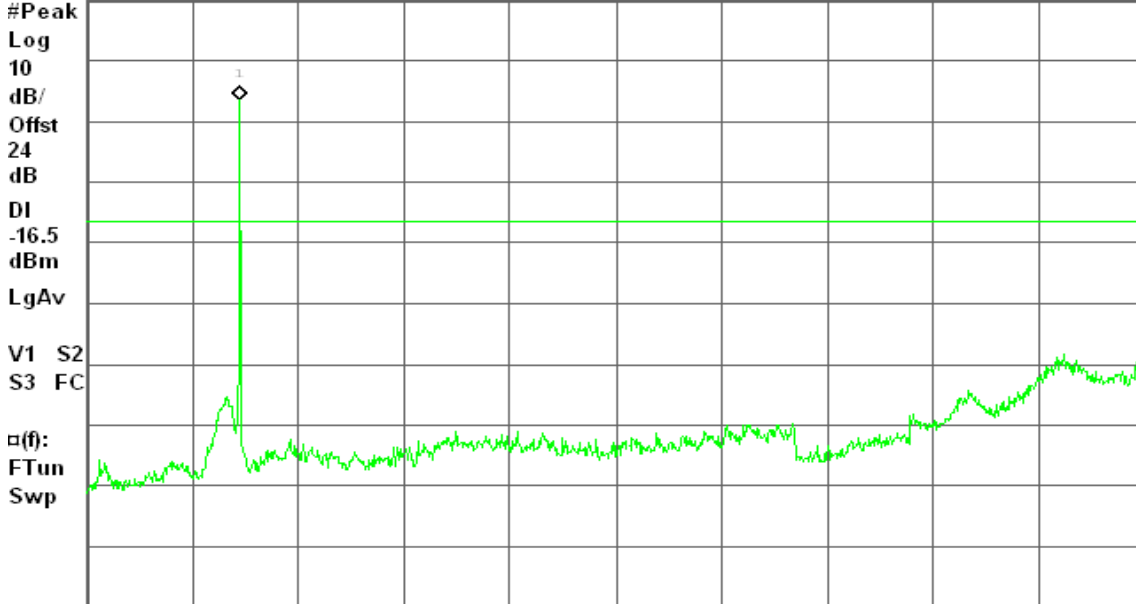
Spurious, a Mode High Ch.

Mkr1 5.83 GHz

Ref 20 dBm

Atten 10 dB

3.55 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)

draft 802.11n Wide-40 MHz Channel mode with combiner / 5755 ~ 5815MHz

CH Low

Agilent 23:27:25 Mar 10, 2009

R T

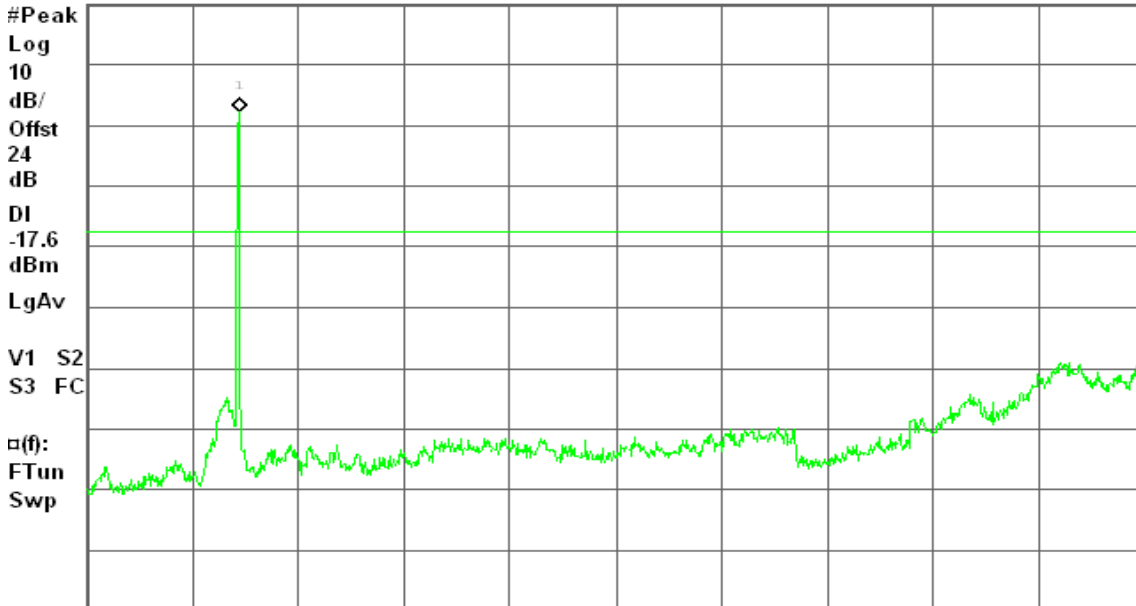
Spurious, a Mode Low Ch.

Mkr1 5.79 GHz

Ref 20 dBm

Atten 10 dB

2.35 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)



CH Mid

Agilent 23:37:48 Mar 10, 2009

R T

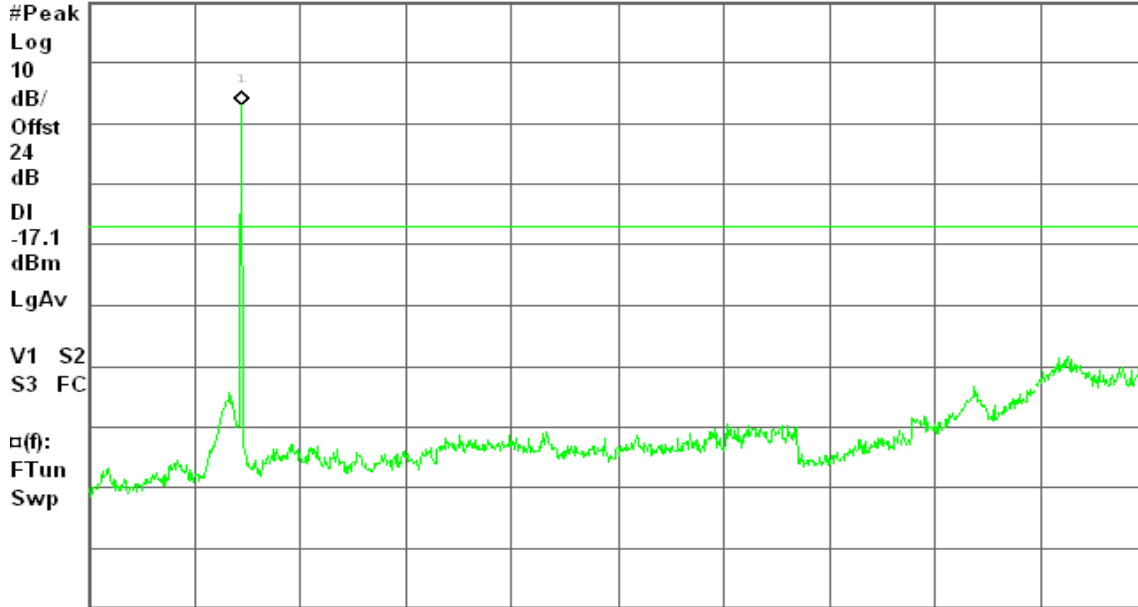
Spurious, a Mode High Ch.

Mkr1 5.79 GHz

Ref 20 dBm

Atten 10 dB

2.94 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)

CH High

Agilent 15:18:45 May 18, 2009

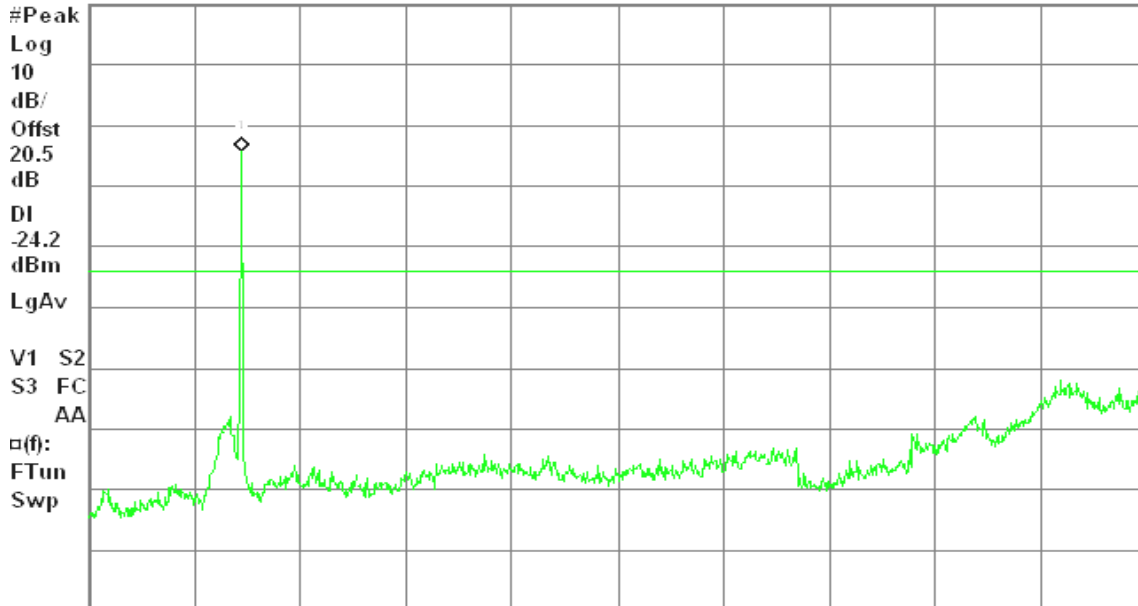
R T

Mkr1 5.83 GHz

Ref 20 dBm

Atten 10 dB

-4.32 dBm



Center 20.02 GHz

Span 39.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.819 s (1001 pts)



7.7 RADIATED EMISSIONS

LIMIT

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

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

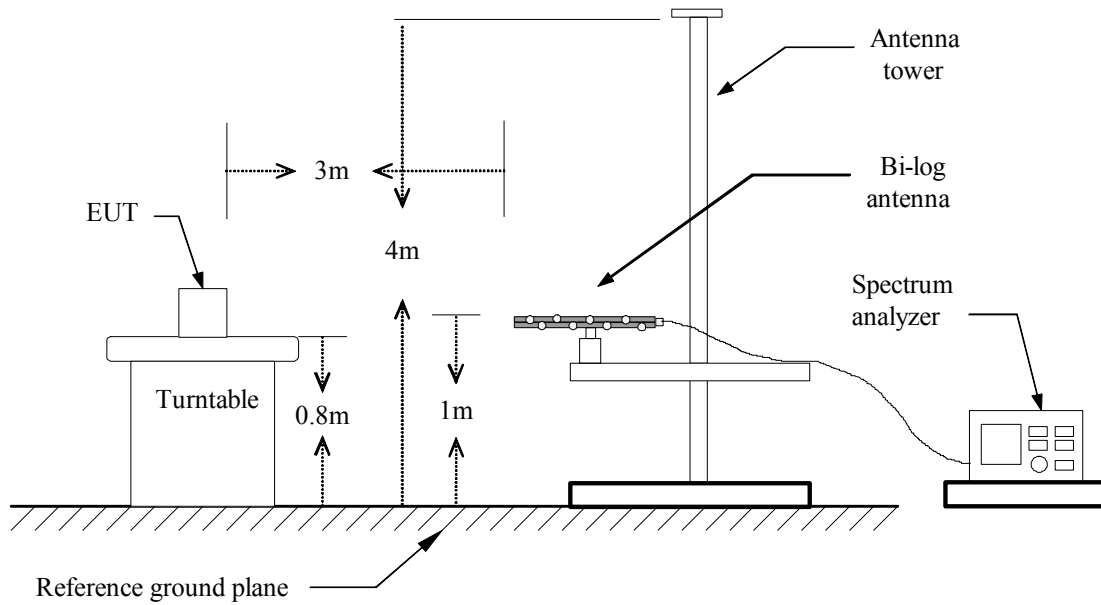
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

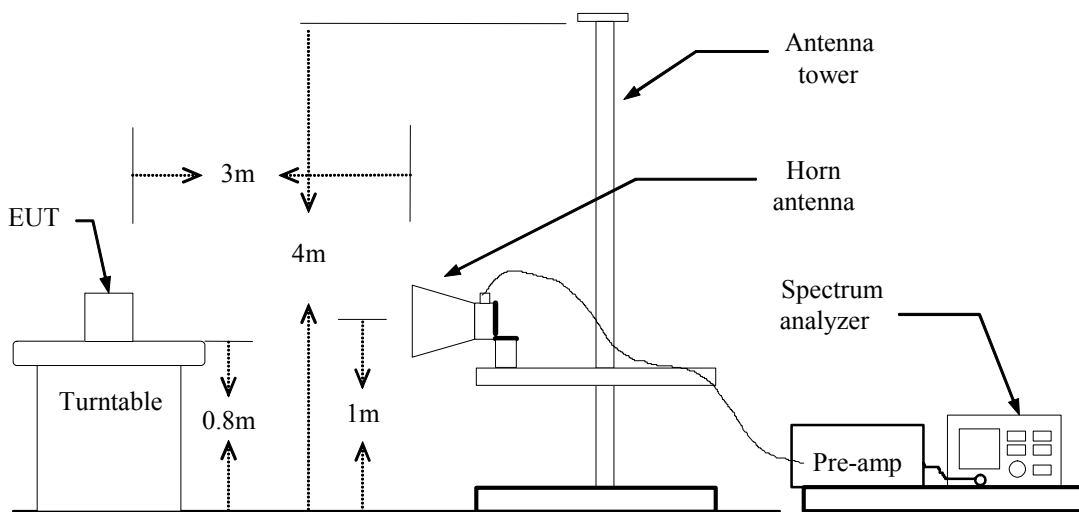
Frequency (MHz)	Field Strength ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

Below 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 1GHz****Operation Mode:** Normal Link**Test Date:** March 6, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
59.10	V	48.65	-14.75	33.91	40.00	-6.09	Peak
432.55	V	46.54	-5.84	40.70	46.00	-5.30	Peak
527.93	V	44.95	-3.36	41.59	46.00	-4.41	Peak
623.32	V	41.22	-2.42	38.80	46.00	-7.20	Peak
671.82	V	38.90	-2.18	36.73	46.00	-9.27	Peak
720.32	V	34.37	-1.33	33.04	46.00	-12.96	Peak
114.07	H	39.35	-10.21	29.14	43.50	-14.36	Peak
274.12	H	44.36	-8.98	35.38	46.00	-10.62	Peak
367.88	H	46.44	-7.20	39.25	46.00	-6.75	Peak
432.55	H	44.46	-5.84	38.62	46.00	-7.38	Peak
720.32	H	33.95	-1.33	32.62	46.00	-13.38	Peak
796.30	H	35.93	0.17	36.10	46.00	-9.90	Peak

Remark:

1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).
2. Radiated emissions measured 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. 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.
5. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

**Above 1 GHz****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1990.00	V	61.09	47.50	-2.35	58.74	45.15	74.00	54.00	-8.85	AVG
2716.67	V	57.05	39.07	-0.99	56.06	38.08	74.00	54.00	-15.92	AVG
3175.00	V	50.50	---	-0.23	50.26	---	74.00	54.00	-3.74	Peak
3625.00	V	49.44	---	0.23	49.67	---	74.00	54.00	-4.33	Peak
4825.00	V	57.22	51.61	1.04	58.26	52.65	74.00	54.00	-1.35	AVG
7233.33	V	52.38	42.89	4.07	56.45	46.96	74.00	54.00	-7.04	AVG
1596.67	H	55.51	---	-6.11	49.41	---	74.00	54.00	-4.59	Peak
1990.00	H	56.73	41.07	-2.35	54.39	38.72	74.00	54.00	-15.28	AVG
2496.67	H	56.60	40.99	-1.43	55.17	39.56	74.00	54.00	-14.44	AVG
3175.00	H	51.12	---	-0.23	50.88	---	74.00	54.00	-3.12	Peak
4825.00	H	54.90	49.90	1.04	55.94	50.94	74.00	54.00	-3.06	AVG
7241.67	H	52.54	43.92	4.07	56.61	47.99	74.00	54.00	-6.01	AVG

Remark:

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

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** March 4, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	56.44	---	-6.11	50.34	---	74.00	54.00	-3.66	Peak
1993.33	V	61.97	43.13	-2.31	59.65	40.82	74.00	54.00	-13.18	AVG
2493.33	V	58.19	41.70	-1.43	56.76	40.27	74.00	54.00	-13.73	AVG
3625.00	V	49.44	---	0.23	49.67	---	74.00	54.00	-4.33	Peak
4875.00	V	55.83	50.87	1.02	56.85	51.89	74.00	54.00	-2.11	AVG
7308.33	V	51.07	42.60	4.03	55.10	46.63	74.00	54.00	-7.37	AVG
1990.00	H	56.01	40.78	-2.35	53.66	38.43	74.00	54.00	-15.57	AVG
3175.00	H	51.06	---	-0.23	50.83	---	74.00	54.00	-3.17	Peak
3625.00	H	57.04	36.35	0.23	57.27	36.58	74.00	54.00	-17.42	AVG
4875.00	H	56.74	51.34	1.02	57.76	52.36	74.00	54.00	-1.64	AVG
4991.67	H	50.93	---	0.99	51.93	---	74.00	54.00	-2.07	Peak
7308.33	H	52.37	42.89	4.03	56.40	46.92	74.00	54.00	-7.08	AVG

Remark:

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

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	57.43	---	-6.11	51.33	---	74.00	54.00	-2.67	Peak
2000.00	V	60.20	44.14	-2.25	57.95	41.89	74.00	54.00	-12.11	AVG
2730.00	V	57.02	38.98	-0.96	56.06	38.02	74.00	54.00	-15.98	AVG
3625.00	V	50.85	---	0.23	51.08	---	74.00	54.00	-2.92	Peak
4925.00	V	56.89	51.38	1.01	57.90	52.39	74.00	54.00	-1.61	AVG
4991.67	V	54.85	37.22	0.99	55.84	38.21	74.00	54.00	-15.79	AVG
2456.67	H	104.09	101.30	-1.49	102.60	99.81	Fundamental			
1990.00	H	57.05	40.77	-2.35	54.70	38.42	74.00	54.00	-15.58	AVG
2723.33	H	52.60	---	-0.98	51.62	---	74.00	54.00	-2.38	Peak
3625.00	H	58.30	36.77	0.23	58.53	37.00	74.00	54.00	-17.00	AVG
4925.00	H	55.17	51.39	1.01	56.18	52.40	74.00	54.00	-1.60	AVG
4991.67	H	54.07	36.89	0.99	55.06	37.88	74.00	54.00	-16.12	AVG
9850.00	H	51.03	48.04	11.09	62.12	59.13	81.12	78.15	-19.02	20dBc AVG Fundamental

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. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
2000.00	V	62.13	43.85	-2.25	59.88	41.60	74.00	54.00	-12.40	AVG
2020.00	V	58.86	38.94	-2.22	56.64	36.72	74.00	54.00	-17.28	AVG
2490.00	V	58.79	39.35	-1.44	57.35	37.91	74.00	54.00	-16.09	AVG
2723.33	V	55.96	38.36	-0.98	54.98	37.38	74.00	54.00	-16.62	AVG
3633.33	V	48.93	---	0.23	49.16	---	74.00	54.00	-4.84	Peak
4983.33	V	52.56	36.86	0.99	53.55	37.85	74.00	54.00	-16.15	AVG
1400.00	H	57.50	---	-7.22	50.29	---	74.00	54.00	-3.71	Peak
1993.33	H	56.58	40.90	-2.31	54.26	38.59	74.00	54.00	-15.41	AVG
2496.67	H	56.32	41.11	-1.43	54.89	39.68	74.00	54.00	-14.32	AVG
2716.67	H	54.06	38.36	-0.99	53.07	37.37	74.00	54.00	-16.63	AVG
3633.33	H	52.98	36.69	0.23	53.21	36.92	74.00	54.00	-17.08	AVG
5000.00	H	51.40	36.65	0.99	52.39	37.64	74.00	54.00	-16.36	AVG

Remark:

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

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	56.10	---	-6.11	49.99	---	74.00	54.00	-4.01	Peak
1990.00	V	61.10	41.41	-2.35	58.75	39.06	74.00	54.00	-14.94	AVG
2500.00	V	58.18	41.33	-1.42	56.76	39.91	74.00	54.00	-14.09	AVG
2723.33	V	56.21	38.36	-0.98	55.24	37.38	74.00	54.00	-16.62	AVG
4991.67	V	52.77	36.94	0.99	53.76	37.93	74.00	54.00	-16.07	AVG
N/A										
1996.67	H	56.91	40.78	-2.28	54.63	38.50	74.00	54.00	-15.50	AVG
2720.00	H	54.52	38.40	-0.98	53.53	37.42	74.00	54.00	-16.58	AVG
2793.33	H	53.41	37.65	-0.84	52.57	36.81	74.00	54.00	-17.19	AVG
4091.67	H	49.80	---	0.63	50.43	---	74.00	54.00	-3.57	Peak
4441.67	H	49.29	---	1.05	50.34	---	74.00	54.00	-3.66	Peak
4983.33	H	49.70	---	0.99	50.69	---	74.00	54.00	-3.31	Peak

Remark:

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

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** March 4, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1593.33	V	56.91	---	-6.14	50.77	---	74.00	54.00	-3.23	Peak
1996.67	V	60.07	43.70	-2.28	57.78	41.42	74.00	54.00	-12.58	AVG
2726.67	V	56.74	38.35	-0.97	55.77	37.38	74.00	54.00	-16.62	AVG
3633.33	V	50.71	---	0.23	50.95	---	74.00	54.00	-3.05	Peak
4975.00	V	52.64	37.11	1.00	53.64	38.11	74.00	54.00	-15.89	AVG
N/A										
1496.67	H	55.91	---	-7.04	48.87	---	74.00	54.00	-5.13	Peak
1993.33	H	55.55	40.89	-2.31	53.24	38.58	74.00	54.00	-15.42	AVG
2720.00	H	53.54	38.41	-0.98	52.56	37.43	74.00	54.00	-16.57	AVG
3633.33	H	53.87	36.51	0.23	54.10	36.74	74.00	54.00	-17.26	AVG
4091.67	H	49.83	---	0.63	50.46	---	74.00	54.00	-3.54	Peak
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 / draft 802.11n Standard-20 MHz Channel mode / CH Low

Test Date: March 4, 2009

Temperature: 25°C

Tested by: Nan Tsai

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	56.74	---	-6.11	50.63	---	74.00	54.00	-3.37	Peak
2000.00	V	60.81	43.84	-2.25	58.56	41.59	74.00	54.00	-12.41	AVG
2490.00	V	59.14	39.33	-1.44	57.71	37.89	74.00	54.00	-16.11	AVG
2726.67	V	56.43	38.35	-0.97	55.45	37.38	74.00	54.00	-16.62	AVG
4991.67	V	53.02	36.91	0.99	54.01	37.90	74.00	54.00	-16.10	AVG
N/A										
1400.00	H	56.62	---	-7.22	49.41	---	74.00	54.00	-4.59	Peak
1990.00	H	55.44	40.81	-2.35	53.09	38.46	74.00	54.00	-15.54	AVG
2490.00	H	57.54	41.06	-1.44	56.10	39.62	74.00	54.00	-14.38	AVG
2720.00	H	53.35	38.42	-0.98	52.36	37.44	74.00	54.00	-16.56	AVG
2786.67	H	53.12	38.78	-0.85	52.27	37.93	74.00	54.00	-16.07	AVG
4991.67	H	50.43	---	0.99	51.42	---	74.00	54.00	-2.58	Peak

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 / draft 802.11n Standard-20 MHz Channel mode / CH Mid**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	55.66	---	-6.11	49.56	---	74.00	54.00	-4.44	Peak
2000.00	V	61.34	43.89	-2.25	59.09	41.64	74.00	54.00	-12.36	AVG
2493.33	V	58.59	39.37	-1.43	57.16	37.94	74.00	54.00	-16.06	AVG
2730.00	V	56.10	38.33	-0.96	55.14	37.37	74.00	54.00	-16.63	AVG
4991.67	V	52.66	36.88	0.99	53.65	37.87	74.00	54.00	-16.13	AVG
N/A										
1346.67	H	56.10	---	-7.32	48.78	---	74.00	54.00	-5.22	Peak
1993.33	H	56.19	40.91	-2.31	53.88	38.60	74.00	54.00	-15.40	AVG
2486.67	H	57.32	41.08	-1.44	55.87	39.64	74.00	54.00	-14.36	AVG
2716.67	H	52.85	---	-0.99	51.86	---	74.00	54.00	-2.14	Peak
3625.00	H	54.33	36.70	0.23	54.55	36.93	74.00	54.00	-17.07	AVG
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 / draft 802.11n Standard-20 MHz Channel mode / CH High**Test Date:** March 4, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	55.82	---	-6.11	49.72	---	74.00	54.00	-4.28	Peak
1996.67	V	59.91	41.44	-2.28	57.63	39.16	74.00	54.00	-14.84	AVG
2723.33	V	56.21	38.39	-0.98	55.23	37.41	74.00	54.00	-16.59	AVG
5000.00	V	53.36	36.92	0.99	54.35	37.91	74.00	54.00	-16.09	AVG
N/A										
1393.33	H	55.29	---	-7.23	48.07	---	74.00	54.00	-5.93	Peak
1806.67	H	55.15	---	-4.10	51.05	---	74.00	54.00	-2.95	Peak
1996.67	H	56.40	40.89	-2.28	54.11	38.61	74.00	54.00	-15.39	AVG
2730.00	H	54.50	38.40	-0.96	53.53	37.44	74.00	54.00	-16.56	AVG
3633.33	H	53.06	36.72	0.23	53.30	36.95	74.00	54.00	-17.05	AVG
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 / draft 802.11n Wide-40 MHz Channel mode
/ CH Low

Test Date: March 5, 2009

Temperature: 25°C

Tested by: Nan Tsai

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1593.33	V	52.04	---	-6.14	45.90	---	74.00	54.00	-8.10	Peak
2000.00	V	56.81	43.84	-2.25	54.56	41.59	74.00	54.00	-12.41	AVG
2490.00	V	54.96	39.41	-1.44	53.52	37.97	74.00	54.00	-16.03	AVG
2720.00	V	53.17	38.35	-0.98	52.19	37.37	74.00	54.00	-16.63	AVG
3625.00	V	44.45	---	0.23	44.68	---	74.00	54.00	-9.32	Peak
4975.00	V	49.69	---	1.00	50.69	---	74.00	54.00	-3.31	Peak
1493.33	H	52.17	---	-7.04	45.13	---	74.00	54.00	-8.87	Peak
2000.00	H	52.06	---	-2.25	49.81	---	74.00	54.00	-4.19	Peak
2720.00	H	50.28	---	-0.98	49.29	---	74.00	54.00	-4.71	Peak
3641.67	H	50.19	---	0.24	50.43	---	74.00	54.00	-3.57	Peak
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 / draft 802.11n Wide-40 MHz Channel mode / CH Mid**Test Date:** March 5, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	55.98	---	-6.11	49.88	---	74.00	54.00	-4.12	Peak
1990.00	V	60.09	41.50	-2.35	57.75	39.15	74.00	54.00	-14.85	AVG
2723.33	V	56.61	38.40	-0.98	55.64	37.42	74.00	54.00	-16.58	AVG
4991.67	V	53.31	36.90	0.99	54.30	37.89	74.00	54.00	-16.11	AVG
N/A										
1393.33	H	55.53	---	-7.23	48.30	---	74.00	54.00	-5.70	Peak
1493.33	H	55.29	---	-7.04	48.25	---	74.00	54.00	-5.75	Peak
1990.00	H	55.61	40.87	-2.35	53.26	38.52	74.00	54.00	-15.48	AVG
2720.00	H	54.69	38.43	-0.98	53.70	37.45	74.00	54.00	-16.55	AVG
3625.00	H	53.16	36.70	0.23	53.39	36.93	74.00	54.00	-17.07	AVG
5000.00	H	50.07	---	0.99	51.06	---	74.00	54.00	-2.94	Peak

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 / draft 802.11n Wide-40 MHz Channel mode / CH High**Test Date:** March 5, 2009**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1596.67	V	55.41	---	-6.11	49.31	---	74.00	54.00	-4.69	Peak
1996.67	V	61.76	41.41	-2.28	59.47	39.13	74.00	54.00	-14.87	AVG
2726.67	V	56.09	38.33	-0.97	55.11	37.36	74.00	54.00	-16.64	AVG
3633.33	V	49.52	---	0.23	49.75	---	74.00	54.00	-4.25	Peak
4991.67	V	52.41	36.94	0.99	53.40	37.93	74.00	54.00	-16.07	AVG
N/A										
1443.33	H	55.96	---	-7.14	48.82	---	74.00	54.00	-5.18	Peak
1996.67	H	55.71	40.88	-2.28	53.43	38.60	74.00	54.00	-15.40	AVG
2723.33	H	53.77	38.45	-0.98	52.79	37.47	74.00	54.00	-16.53	AVG
3633.33	H	51.68	36.78	0.23	51.91	37.01	74.00	54.00	-16.99	AVG
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 / 5745 ~ 5825MHz / CH Low **Test Date:** March 5, 2009

Temperature: 25°C **Tested by:** Nan Tsai

Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	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
1600.00	V	54.22	---	-6.07	48.14	---	74.00	54.00	-5.86	Peak
1996.67	V	59.31	40.41	-2.28	57.03	38.13	74.00	54.00	-15.87	AVG
2063.33	V	52.84	---	-2.14	50.70	---	74.00	54.00	-3.30	Peak
N/A										
5750.00	H	107.88	98.05	1.91	109.79	99.96	Fundamental			
1596.67	H	53.58	---	-6.11	47.48	---	74.00	54.00	-6.52	Peak
1990.00	H	55.23	41.97	-2.35	52.88	39.62	74.00	54.00	-14.38	AVG
3633.33	H	52.39	38.47	0.23	52.63	38.70	74.00	54.00	-15.30	AVG
17233.33	H	46.81	35.43	19.62	66.42	55.05	88.20	68.20	-13.15	AVG
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. This may be converted to a peak field strength level at 3 meters using $E(\text{dBuV/m}) = P(\text{dBmEIRP}) + 95.2$
Limit: AVG = 95.2 + (-27) = 68.2, Peak = 95.2 + (-27) + 20 = 88.2



Operation Mode: Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / CH Mid **Test Date:** March 4, 2009
Temperature: 25°C **Tested by:** Nan Tsai
Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1596.67	V	54.93	---	-6.11	48.82	---	74.00	54.00	-5.18	Peak
1993.33	V	59.05	40.42	-2.31	56.73	38.11	74.00	54.00	-15.89	AVG
N/A										
1600.00	H	53.62	---	-6.07	47.55	---	74.00	54.00	-6.45	Peak
1993.33	H	55.74	42.00	-2.31	53.42	39.69	74.00	54.00	-14.31	AVG
3633.33	H	52.94	38.47	0.23	53.17	38.70	74.00	54.00	-15.30	AVG
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 / 5745 ~ 5825MHz / CH High **Test Date:** March 4, 2009
Temperature: 25°C **Tested by:** Nan Tsai
Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1500.00	V	54.61	---	-7.03	47.58	---	74.00	54.00	-6.42	Peak
1593.33	V	54.48	---	-6.14	48.34	---	74.00	54.00	-5.66	Peak
1996.67	V	58.76	40.45	-2.28	56.48	38.17	74.00	54.00	-15.83	AVG
2020.00	V	55.47	37.29	-2.22	53.26	35.07	74.00	54.00	-18.93	AVG
11650.00	V	46.47	32.88	14.35	60.81	47.23	74.00	54.00	-6.77	AVG
N/A										
1993.33	H	55.65	41.92	-2.31	53.34	39.61	74.00	54.00	-14.39	AVG
3633.33	H	53.40	38.50	0.23	53.64	38.73	74.00	54.00	-15.27	AVG
5433.33	H	59.21	45.90	1.49	60.70	47.39	74.00	54.00	-6.61	AVG
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 / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH Low **Test Date:** March 5, 2009
Temperature: 25°C **Tested by:** Nan Tsai
Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1593.33	V	53.57	---	-6.14	47.43	---	74.00	54.00	-6.57	Peak
1990.00	V	59.56	40.39	-2.35	57.21	38.04	74.00	54.00	-15.96	AVG
N/A										
1993.33	H	55.37	41.86	-2.31	53.06	39.55	74.00	54.00	-14.45	AVG
3633.33	H	54.05	38.42	0.23	54.29	38.65	74.00	54.00	-15.35	AVG
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 / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH Mid **Test Date:** March 5, 2009
Temperature: 25°C **Tested by:** Nan Tsai
Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1600.00	V	56.37	---	-6.07	50.30	---	74.00	54.00	-3.70	Peak
1996.67	V	59.27	40.42	-2.28	56.99	38.14	74.00	54.00	-15.86	AVG
2026.67	V	54.53	37.29	-2.21	52.33	35.08	74.00	54.00	-18.92	AVG
N/A										
1993.33	H	55.19	41.96	-2.31	52.87	39.65	74.00	54.00	-14.35	AVG
3175.00	H	53.27	38.82	-0.23	53.04	38.59	74.00	54.00	-15.41	AVG
3633.33	H	52.98	38.47	0.23	53.21	38.70	74.00	54.00	-15.30	AVG
4750.00	H	56.03	39.55	1.06	57.09	40.61	74.00	54.00	-13.39	AVG
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 / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH High **Test Date:** March 5, 2009
Temperature: 25°C **Tested by:** Nan Tsai
Humidity: 50% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1593.33	V	55.06	---	-6.14	48.92	---	74.00	54.00	-5.08	Peak
1990.00	V	59.22	40.45	-2.35	56.87	38.10	74.00	54.00	-15.90	AVG
N/A										
1596.67	H	55.18	---	-6.11	49.08	---	74.00	54.00	-4.92	Peak
1996.67	H	55.37	41.97	-2.28	53.09	39.69	74.00	54.00	-14.31	AVG
3625.00	H	52.63	38.40	0.23	52.85	38.63	74.00	54.00	-15.37	AVG
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 / draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / CH Low

Test Date: March 5, 2009

Temperature: 25°C

Tested by: Nan Tsai

Humidity: 50% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1496.67	V	53.74	---	-7.04	46.70	---	74.00	54.00	-7.30	Peak
1593.33	V	53.97	---	-6.14	47.83	---	74.00	54.00	-6.17	Peak
2000.00	V	59.04	41.94	-2.25	56.79	39.69	74.00	54.00	-14.31	AVG
N/A										
1393.33	H	55.09	---	-7.23	47.86	---	74.00	54.00	-6.14	Peak
1596.67	H	53.03	---	-6.11	46.93	---	74.00	54.00	-7.07	Peak
1816.67	H	52.18	---	-4.00	48.18	---	74.00	54.00	-5.82	Peak
1993.33	H	56.09	41.99	-2.31	53.78	39.68	74.00	54.00	-14.32	AVG
3633.33	H	54.72	38.39	0.23	54.95	38.62	74.00	54.00	-15.38	AVG
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 / draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / CH Mid

Test Date: March 5, 2009

Temperature: 25°C

Tested by: Nan Tsai

Humidity: 50% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1600.00	V	54.84	---	-6.07	48.77	---	74.00	54.00	-5.23	Peak
1990.00	V	58.64	40.41	-2.35	56.30	38.06	74.00	54.00	-15.94	AVG
N/A										
1600.00	H	53.08	---	-6.07	47.00	---	74.00	54.00	-7.00	Peak
1990.00	H	55.40	41.99	-2.35	53.06	39.64	74.00	54.00	-14.36	AVG
3633.33	H	53.68	38.40	0.23	53.91	38.63	74.00	54.00	-15.37	AVG
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 / draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5815MHz / CH High

Test Date: May 12, 2009

Temperature: 23°C

Tested by: Mimic Yang

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	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
1400.00	V	58.76	---	-7.22	51.54	---	74.00	54.00	-2.46	Peak
1996.67	V	59.37	39.82	-2.28	57.09	37.54	74.00	54.00	-16.46	AVG
2500.00	V	57.59	40.39	-1.42	56.17	38.97	74.00	54.00	-15.03	AVG
2596.67	V	52.60	---	-1.23	51.38	---	74.00	54.00	-2.62	Peak
2796.67	V	55.33	39.43	-0.83	54.50	38.60	74.00	54.00	-15.40	AVG
5350.00	V	61.77	51.10	1.40	63.17	52.50	74.00	54.00	-1.50	AVG
1396.67	H	62.31	44.71	-7.22	55.09	37.49	74.00	54.00	-16.51	AVG
1996.67	H	62.31	40.40	-2.28	60.03	38.12	74.00	54.00	-15.88	AVG
2193.33	H	53.60	---	-1.93	51.67	---	74.00	54.00	-2.33	Peak
2400.00	H	55.64	40.90	-1.59	54.05	39.31	74.00	54.00	-14.69	AVG
2496.67	H	55.87	38.15	-1.43	54.44	36.72	74.00	54.00	-17.28	AVG
2723.33	H	52.89	---	-0.98	51.91	---	74.00	54.00	-2.09	Peak

Remark:

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



7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/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 (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration

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

TEST PROCEDURE

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



TEST RESULTS

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

Test Data

Operation Mode: Normal Link

Test Date: January 21, 2009

Temperature: 20°C

Tested by: Alex Tsai

Humidity: 58% RH

Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.151	15.41	10.69	9.65	25.06	20.34	66.05	56.05	-40.99	-35.71	L1
0.2036	34.86	25.59	9.60	44.46	35.19	63.46	53.46	-19.00	-18.27	L1
0.2719	25.94	17.61	9.60	35.54	27.21	61.06	51.06	-25.52	-23.85	L1
0.3413	21.98	16.77	9.60	31.58	26.37	59.17	49.17	-27.59	-22.80	L1
1.6236	5.32	0.14	9.66	14.98	9.80	56.00	46.00	-41.02	-36.20	L1
22.5614	21.61	15.97	10.45	32.06	26.42	60.00	50.00	-27.94	-23.58	L1
0.151	0.01	-3.47	9.65	9.66	6.18	66.00	56.01	-56.34	-49.83	L2
0.2048	35.23	25.61	9.60	44.83	35.21	63.41	53.41	-18.58	-18.20	L2
0.2727	25.97	17.96	9.60	35.57	27.56	61.03	51.04	-25.46	-23.48	L2
0.4087	21.05	12.88	9.59	30.64	22.47	57.67	47.67	-27.03	-25.20	L2
21.6734	16.97	10.10	10.50	27.47	20.60	60.00	50.00	-32.53	-29.40	L2
26.5182	19.39	14.02	10.73	30.12	24.75	60.00	50.00	-29.88	-25.25	L2

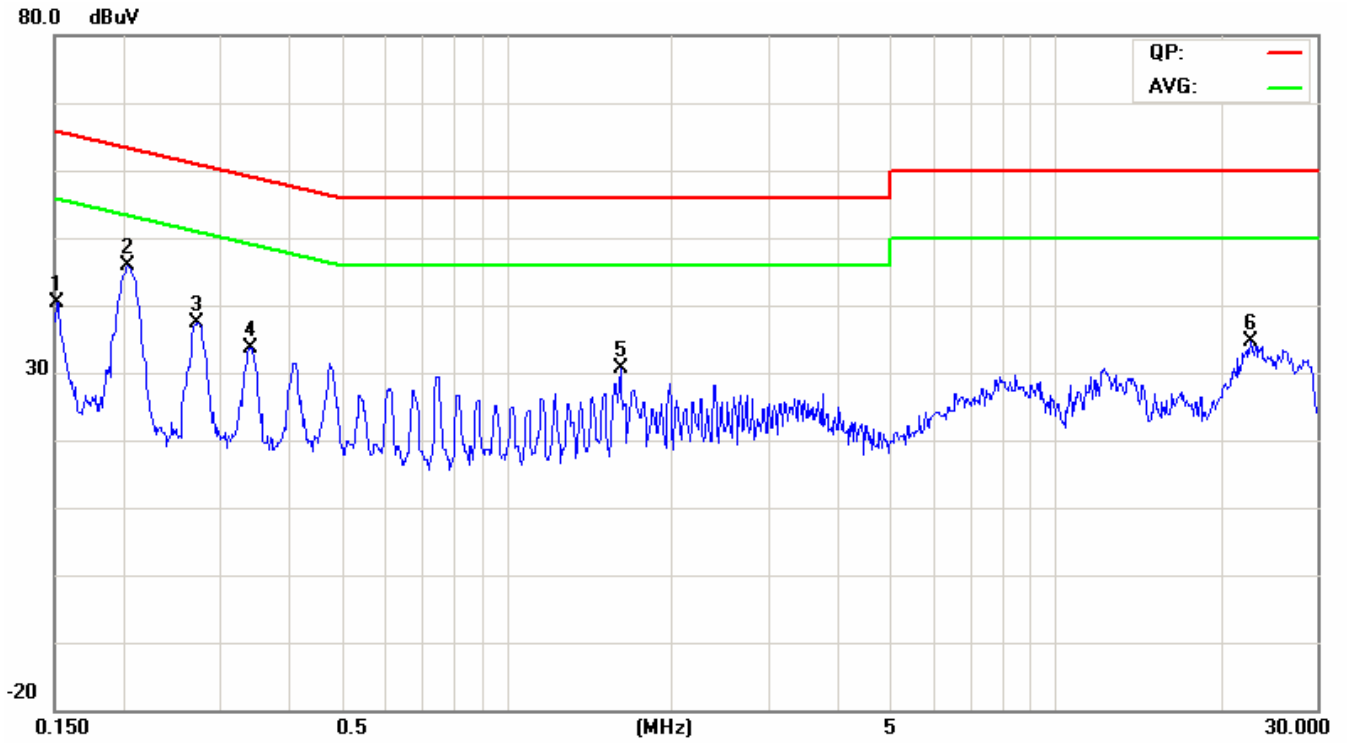
Remark:

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

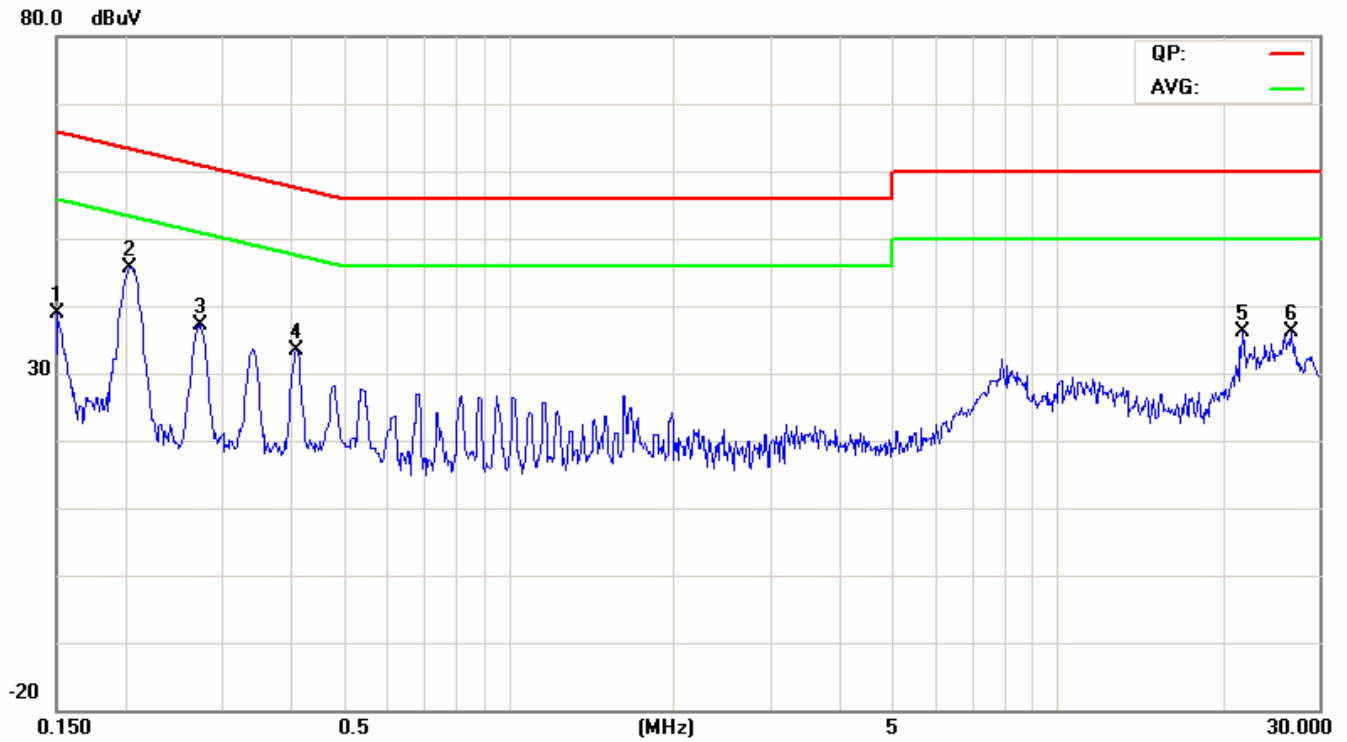


Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)





APPENDIX I RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	10.4" Fanless Mobile Clinical Assistant
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure ($S = 5\text{mW}/\text{cm}^2$) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure ($S=1\text{mW}/\text{cm}^2$)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 20.27 dBm(106.41 mW) IEEE 802.11g mode: 17.72 dBm(59.16 mW) draft 802.11n Standard-20 MHz Channel mode: 19.09dBm(81.10 mW) draft 802.11n Wide-40 MHz Channel mode: 16.41 dBm(43.75 mW)
Antenna gain (Max)	Gain: IEEE 802.11b/g mode:2.90 dBi (Numeric gain: 1.95) Gain: MIMO: 2.90 dBi + 10 log (2) = 5.90 dBi (Numeric gain: 3.89)
Evaluation applied	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation* <input type="checkbox"/> N/A

Remark:

1. The maximum output power is 20.27dBm (106.41mW) at 2437MHz (with 1.95 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.

TEST RESULTS

No non-compliance noted.

Remark:

Please refer to the separated SAR report.



EUT	10.4" Fanless Mobile Clinical Assistant
Frequency band (Operating)	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others: <u>Bluetooth: 2.402GHz ~ 2.480GHz</u>
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Max. output power	IEEE 802.11a mode / 5745 ~ 5825MHz: 17.53 dBm (56.62mW) draft 802.11n Standard-20 MHz Channel mode: 21.20 dBm (131.83mW) draft 802.11n Wide-40 MHz Channel mode: 20.22 dBm (105.20mW)
Antenna gain (Max)	Gain: IEEE 802.11a: 4.09 dBi (Numeric gain: 2.56) Gain: MIMO:4.09 dBi + 10 log (2) = 7.09 dBi (Numeric gain: 5.12)
Evaluation applied	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation* <input type="checkbox"/> N/A

Remark:

1. The maximum output power is 21.20dBm (131.83mW) at 5745MHz (with 5.12 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.

TEST RESULTS

No non-compliance noted.

Remark:

Please refer to the separated SAR report.