



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

802.11n Wireless ADSL2+ Gateway

MODEL: P-660N-T1A

Trade Name: ZyXEL

Test Report Number:
KS100623B02-RP

Issued to

ZyXEL Communications Corporation
No. 6, Innovation Rd.II Science Based Industrial
Park,Hsin-Chu,Taiwan

Prepared by

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Issued Date: July 14, 2010



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Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Revision History

Rev.	IssueDate	Revisions	Effect Page	Revised By
00	July 14, 2010	Initial Issue	ALL	Miro Chueh



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1. TEST RESULT CERTIFICATION

Product name: 802.11n Wireless ADSL2+ Gateway

Model Number: P-660N-T1A

Trade Name: ZyXEL

FCC ID: I88P660NT1A

Device Category: Production unit

Date of Test: June 23, 2010~July 14, 2010

Applicant: ZyXEL Communications Corporation
No. 6, Innovation Rd.II Science Based Industrial Park,Hsin-Chu,Taiwan

Manufacturer: ZyXEL Communications (WuXi) CO., Ltd
Wuxi 60#-E,Minshan Road,New District,Wuxi Jiangsu, PRC

APPLICABLE STANDARDS	
STANDARD	STANDARD
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:

Miro Chueh
RF Manager
Compliance Certification Service Inc.

Spring Zhou
RF Section Manager
Compliance Certification Service Inc.



2. EUT DESCRIPTION

Product name	802.11n Wireless ADSL2+ Gateway
Model Number	P-660N-T1A
Trade Name	ZyXEL
FCC ID	I88P660NT1A
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Maximum Output Power to Antenna	IEEE 802.11b mode: 14.38dBm(27.4mW) IEEE 802.11g mode: 15.12dBm(32.5mW) IEEE 802.11gn Standard-20 MHz Channel mode:14.92dBm(31.0mW) IEEE 802.11gn Wide-40 MHz Channel mode: 15.25dBm(33.5mW)
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) IEEE 802.11n Standard-20 MHz Channel mode: OFDM (MCS 0~15) IEEE 802.11n Wide-40 MHz Channel mode: OFDM (MCS 0~15)
Number of Channels	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n Standard-20 MHz Channel mode: 11 Channels IEEE 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification	Antenna for 2.4GHz Gain 3.5dBi

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: **I88P660NT1A** 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 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

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

3.2 EUT EXERCISE

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

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

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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



3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	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 transmitting and receiving with one (chain 0) antenna working at b/g/n mode, so one antenna working configuration was used for b/g/n mode testing in this report.

The EUT transmitting and receiving with one antenna simultaneously working at n mode, so 1x1 configuration was used for all testing in this report.

The worst-case data rates are determined to be as follows for each mode based on investigation by measuring the average power, peak power and PPSD across all data rates, bandwidths, and modulations.

The worst-case data rates:

IEEE802.11b mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE802.11g mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11gn Standard-20 MHz Channel mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with MCS7 data rate were chosen for full testing.

IEEE 802.11gn Wide-40 MHz Channel mode: Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with MCS7 data rate were chosen for full testing.

The following test mode was scanned during the preliminary test:

Mode 1: Set the EUT vertically on the table top.

Then, the EUT configuration and cable configuration of the above highest emission mode was recorded for all final test items.



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.

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	MY44020154	11/12/2010
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	09/11/2010
EPM-P Series Power Meter	Agilent	E4416A	QB41292714	09/11/2010

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	11/12/2010
Pre-Amplifier	Miteq	NSP4000-NF	870731	01/21/2011
Horn Antenna	Austriah	BBHA9120D	D267	05/09/2011
SHF-EHF Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170171	04/12/2011
Turn Table	CT	CT123	4162	N.C.R
Antenna Tower	CT	CTERG23	3253	N.C.R
Controller	CT	CT100	95635	N.C.R
Coax Switch	Anitsu	MP 598	M 80094	N/A
Site NSA	CCS Lab.	N/A	N/A	12/11/2010
ESPI3 EMI RECEIVER	R&S	ESPI3	101026	05/06/2022
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	02/28/2022
Bilog Antenna	Sunol Sciences	JB1	A110204-2	11/22/2010
Loop Antenna	ARA	PLA-1030/B	1029	02/24/2011

Remark: The measurement uncertainty is less than +/-2.0065dB (30MHz ~ 1GHz), +/-3.0958dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV. The measurement uncertainty is less than +/-2.50dB (30MHz ~ 1GHz), +/-3.169dB (Above 1GHz)

Power Line Conducted Emission Test Site A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	SCHAFFNER	SCR3501	343	04/22/2011
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	04/11/2011
LISN (EUT)	FCC	FCC-LISN-50/25 0-50-2-02	SN:05012	04/11/2011
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	04/06/2011

Remark: The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at
 No.10 Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

The sites are constructed in conformance with the requirements of ANSI C63.4:2003 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	A2LA, FCC
Japan	VCCI
Canada	INDUSTRY CANADA,
Taiwan	TAF
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccsrf.com>



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook pc	IBM	X31	NA	NA	NA	NA

Remark:

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



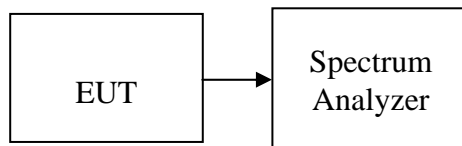
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

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

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the selected span. The VBW is set to 3 times the RBW. The sweep time is occupied.



TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.160	>500	PASS
Mid	2437	12.160		PASS
High	2462	12.154		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.627	>500	PASS
Mid	2437	16.575		PASS
High	2462	16.587		PASS

IEEE 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.782	>500	PASS
Mid	2437	17.791		PASS
High	2462	17.753		PASS

IEEE 802.11n Wide-40 MHz Channel mode

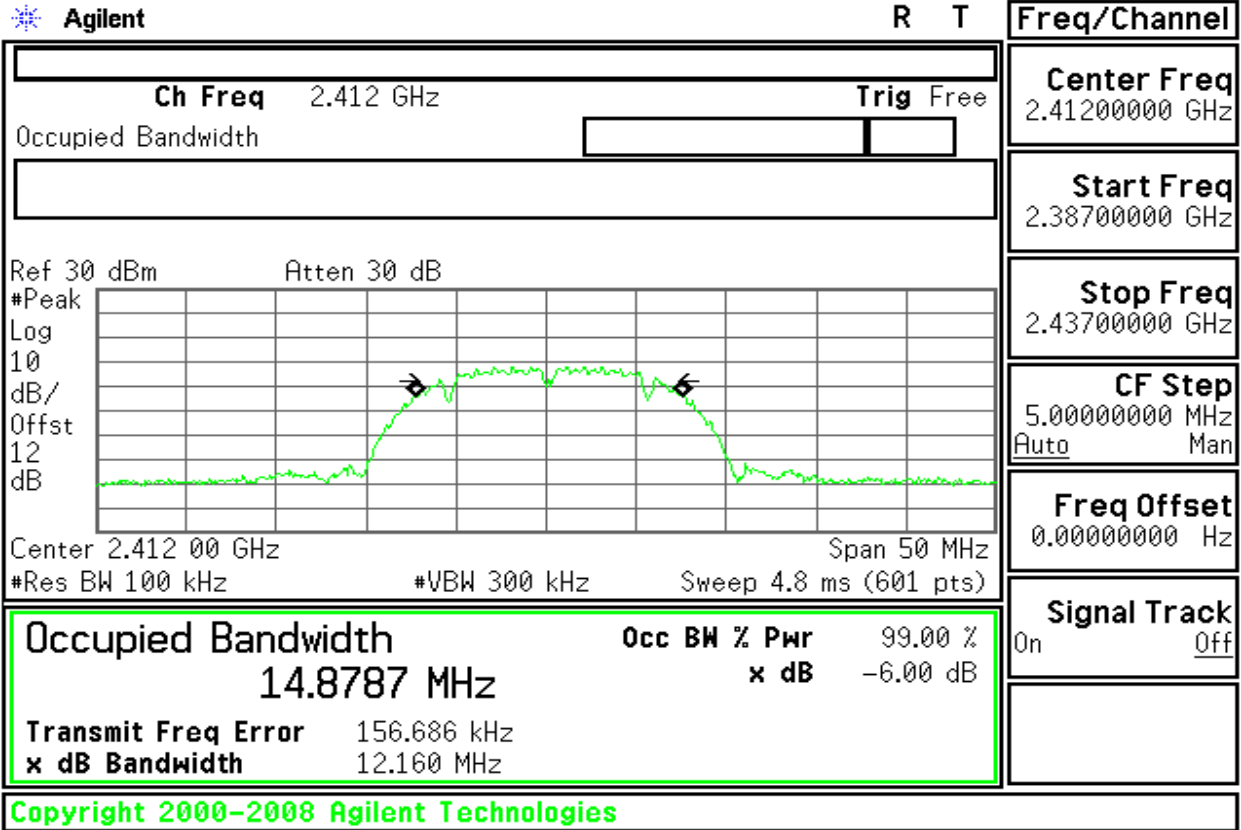
Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.465	>500	PASS
Mid	2437	36.463		PASS
High	2452	36.478		PASS



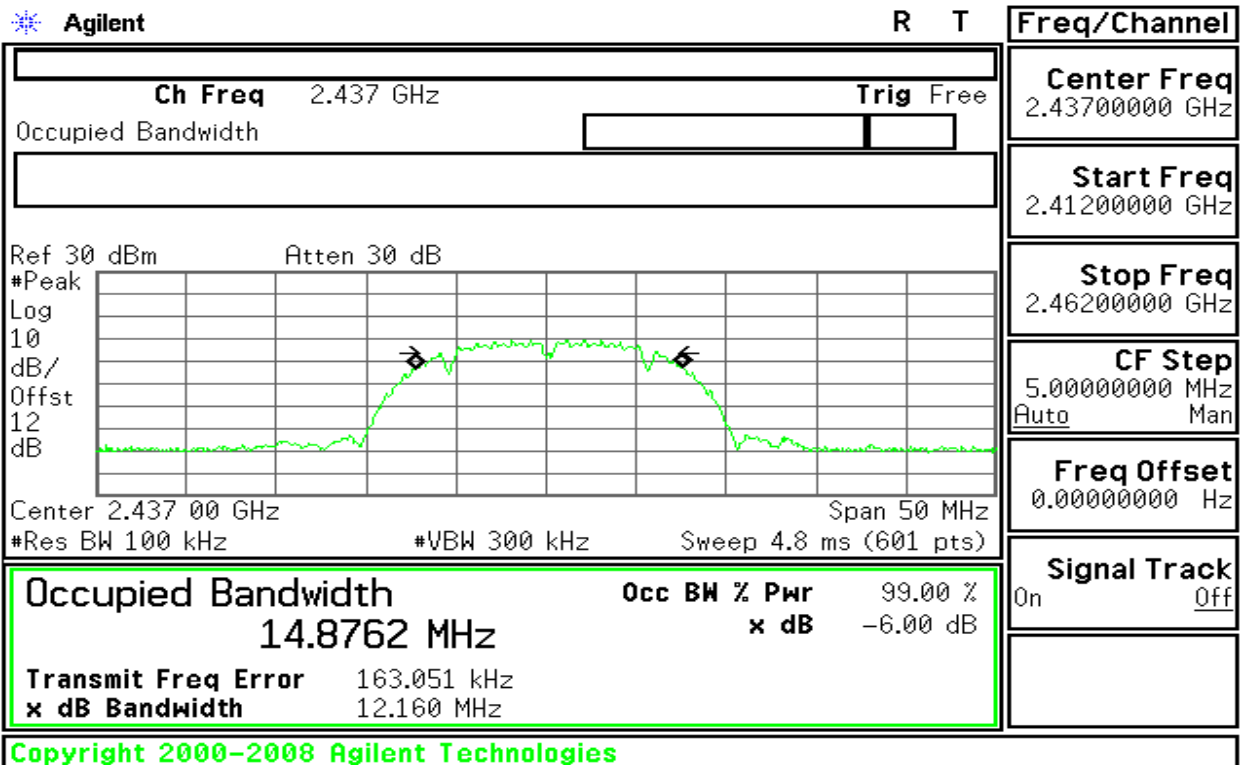
Test Plot

IEEE 802.11b MODE

6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)





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6dB Bandwidth (CH High)

Agilent

R T

Freq/Channel

Ch Freq 2.462 GHz	Trig Free
Occupied Bandwidth	

Center Freq
2.46200000 GHz

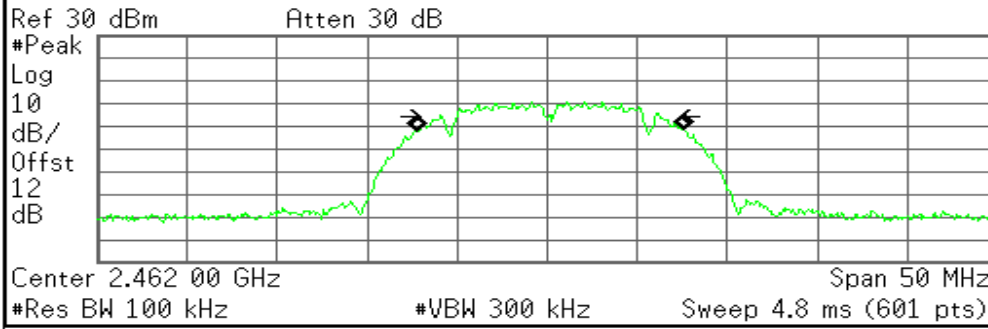
Start Freq
2.43700000 GHz

Stop Freq
2.48700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth	Occ BW % Pwr	99.00 %
14.8662 MHz	x dB	-6.00 dB
Transmit Freq Error	158.416 kHz	
x dB Bandwidth	12.154 MHz	

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IEEE 802.11g MODE

6dB Bandwidth (CH Low)

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Freq/Channel

Ch Freq 2.412 GHz	Trig Free
Occupied Bandwidth	

Center Freq
2.41200000 GHz

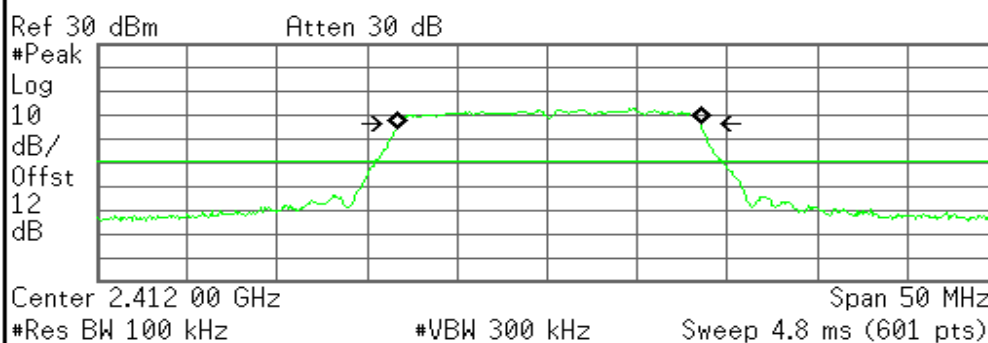
Start Freq
2.38700000 GHz

Stop Freq
2.43700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth	Occ BW % Pwr	99.00 %
16.8352 MHz	x dB	-6.00 dB
Transmit Freq Error	83.915 kHz	
x dB Bandwidth	16.627 MHz	

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6dB Bandwidth (CH Mid)

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Freq/Channel

Ch Freq 2.437 GHz	Trig Free
Occupied Bandwidth	

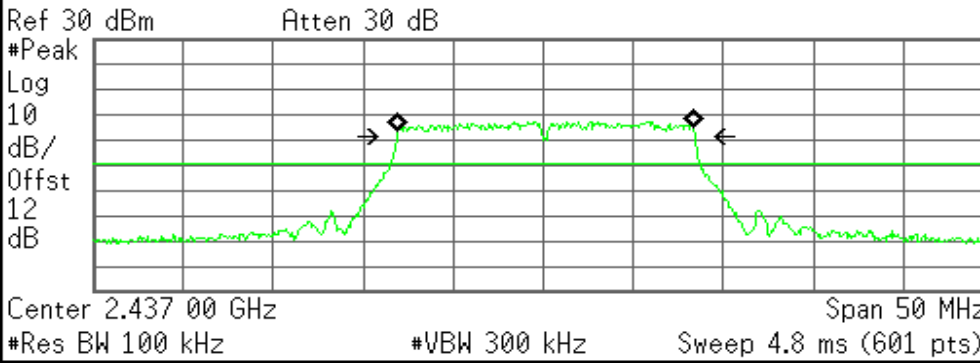
Center Freq
2.43700000 GHz

Start Freq
2.41200000 GHz

Stop Freq
2.46200000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz



Signal Track
On Off

Occupied Bandwidth 16.4136 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error 119.866 kHz	x dB -6.00 dB
x dB Bandwidth 16.575 MHz	

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6dB Bandwidth (CH High)

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Freq/Channel

Ch Freq 2.462 GHz	Trig Free
Occupied Bandwidth	

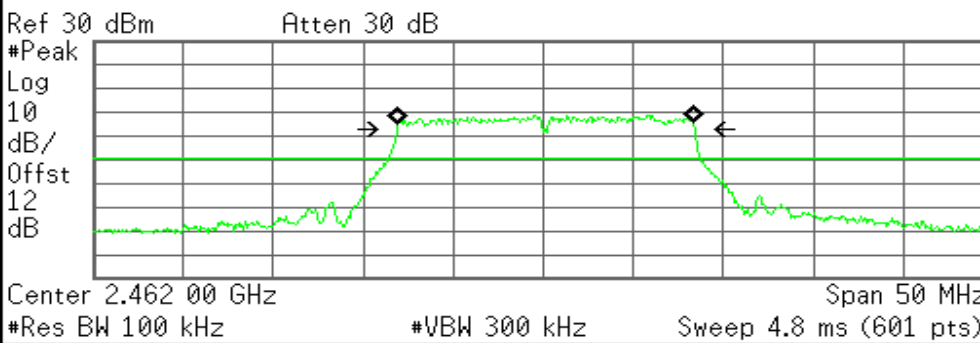
Center Freq
2.46200000 GHz

Start Freq
2.43700000 GHz

Stop Freq
2.48700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz



Signal Track
On Off

Occupied Bandwidth 16.4225 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error 111.073 kHz	x dB -6.00 dB
x dB Bandwidth 16.587 MHz	

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IEEE 802.11n Standard-20 MHz Channel mode

6dB Bandwidth (CH Low)

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Ch Freq	2.412 GHz	Trig	Free
Occupied Bandwidth			

Freq/Channel

Center Freq
2.41200000 GHz

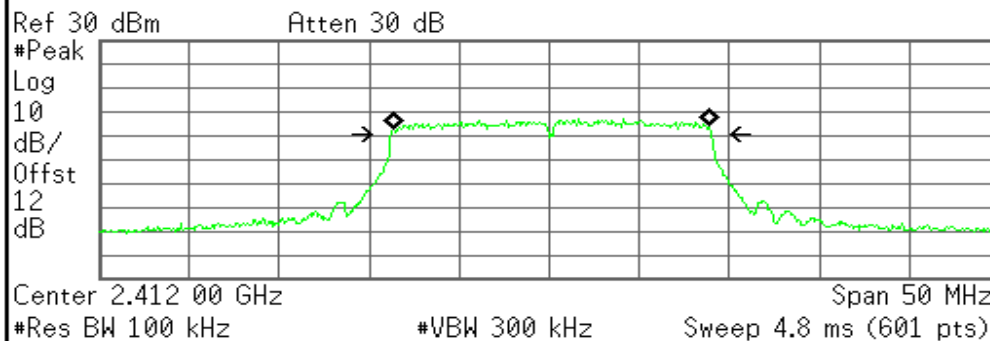
Start Freq
2.38700000 GHz

Stop Freq
2.43700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.5930 MHz	x dB	-6.00 dB
Transmit Freq Error	117.582 kHz	
x dB Bandwidth	17.782 MHz	

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6dB Bandwidth (CH Mid)

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Ch Freq	2.437 GHz	Trig	Free
Occupied Bandwidth			

Freq/Channel

Center Freq
2.43700000 GHz

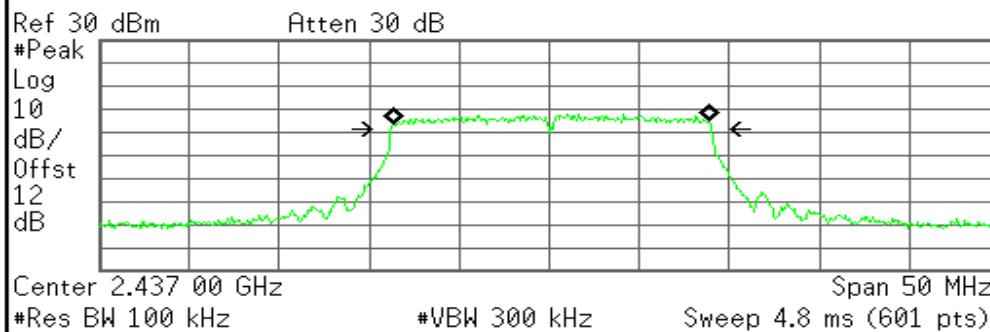
Start Freq
2.41200000 GHz

Stop Freq
2.46200000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.5930 MHz	x dB	-6.00 dB
Transmit Freq Error	118.710 kHz	
x dB Bandwidth	17.791 MHz	

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6dB Bandwidth (CH High)

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Ch Freq 2.462 GHz	Trig Free
Occupied Bandwidth	

Freq/Channel

Center Freq
2.46200000 GHz

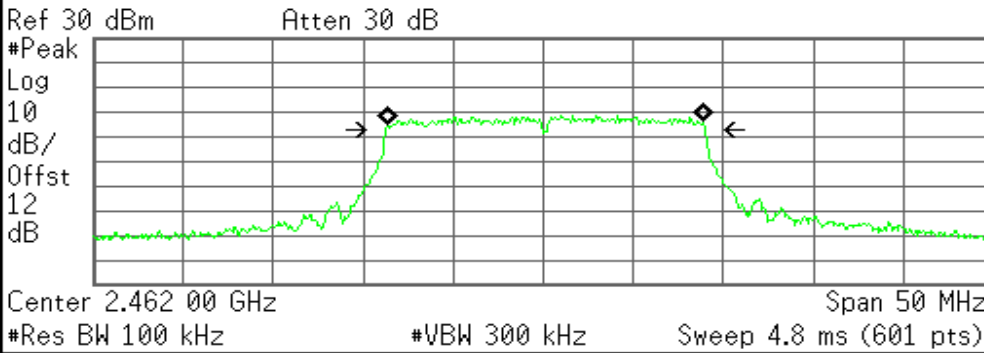
Start Freq
2.43700000 GHz

Stop Freq
2.48700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth 17.5722 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error 125.006 kHz	x dB -6.00 dB
x dB Bandwidth 17.753 MHz	

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IEEE 802.11n Wide-40 MHz Channel mode

6dB Bandwidth (CH Low)

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Ch Freq 2.422 GHz	Trig Free
Occupied Bandwidth	

Freq/Channel

Center Freq
2.42200000 GHz

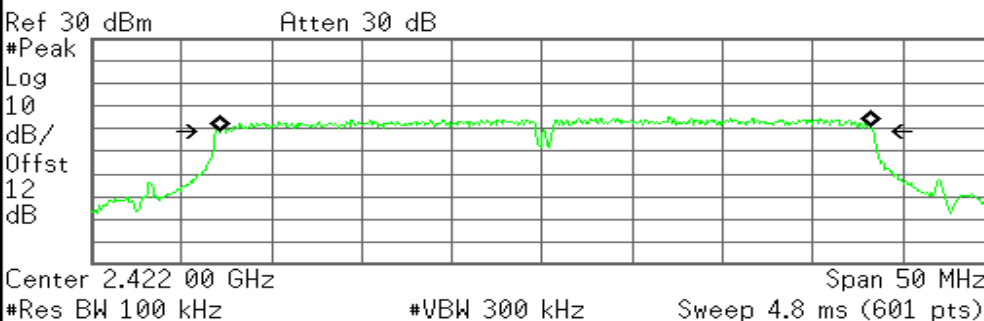
Start Freq
2.39700000 GHz

Stop Freq
2.44700000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Occupied Bandwidth 35.9911 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error 145.545 kHz	x dB -6.00 dB
x dB Bandwidth 36.465 MHz	

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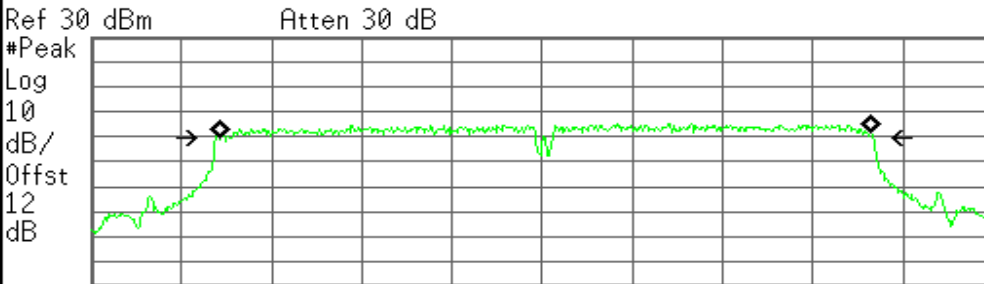
6dB Bandwidth (CH Mid)

Agilent

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Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth



Center 2.437 00 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth **Occ BW % Pwr** 99.00 %

36.0034 MHz **x dB** -6.00 dB

Transmit Freq Error 146.362 kHz

x dB Bandwidth 36.463 MHz

Freq/Channel

Center Freq 2.43700000 GHz

Start Freq 2.41200000 GHz

Stop Freq 2.46200000 GHz

CF Step 5.00000000 MHz Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

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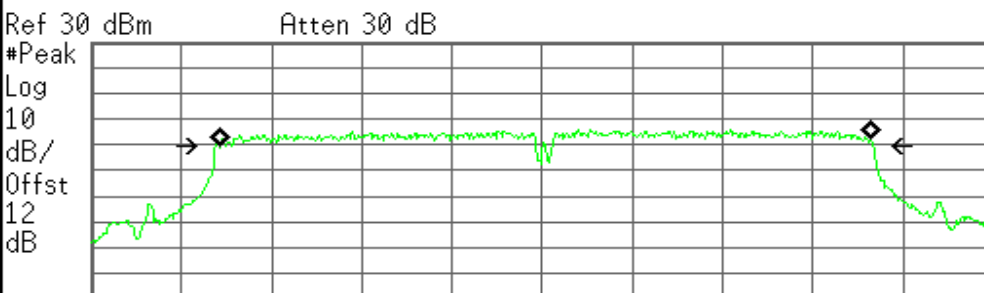
6dB Bandwidth (CH High)

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Ch Freq 2.452 GHz Trig Free

Occupied Bandwidth



Center 2.452 00 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth **Occ BW % Pwr** 99.00 %

35.9921 MHz **x dB** -6.00 dB

Transmit Freq Error 144.351 kHz

x dB Bandwidth 36.478 MHz

Freq/Channel

Center Freq 2.45200000 GHz

Start Freq 2.42700000 GHz

Stop Freq 2.47700000 GHz

CF Step 5.00000000 MHz Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

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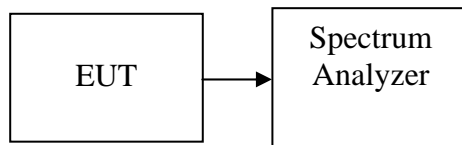
7.2 PEAK POWER

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 δ hichfree run δ hich.
- 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	11.96	0.0157	1.00	PASS
Mid	2437	13.14	0.0206		PASS
High	2462	14.38	0.0274		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	12.54	0.0179	1.00	PASS
Mid	2437	13.84	0.0242		PASS
High	2462	15.12	0.0325		PASS

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

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	12.97	0.0198	1.00	PASS
Mid	2437	13.96	0.0249		PASS
High	2462	14.92	0.0310		PASS

Test mode: IEEE 802.11gn Wide-40 MHz Channel mode

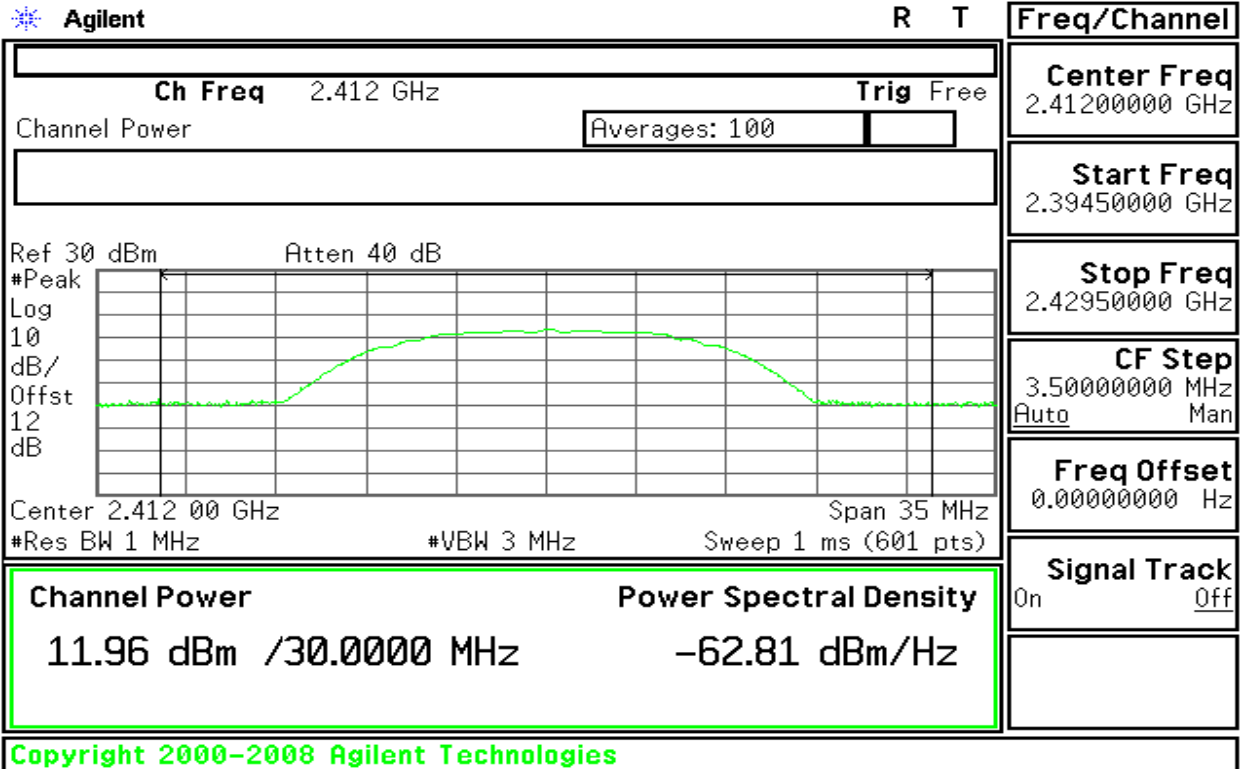
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	14.04	0.0254	1.00	PASS
Mid	2437	14.62	0.0290		PASS
High	2452	15.25	0.0335		PASS



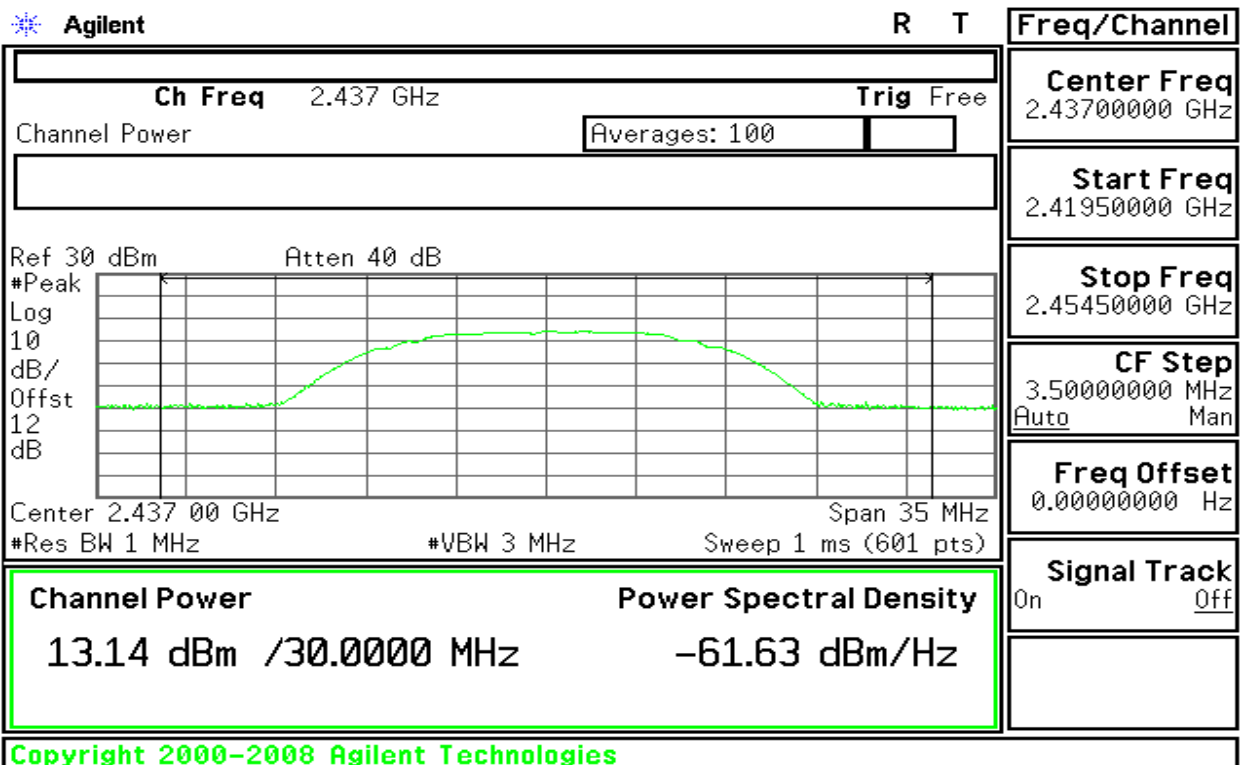
Test Plot

IEEE 802.11b mode

Peak Power (CH Low)



Peak Power (CH Mid)





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Peak Power (CH High)

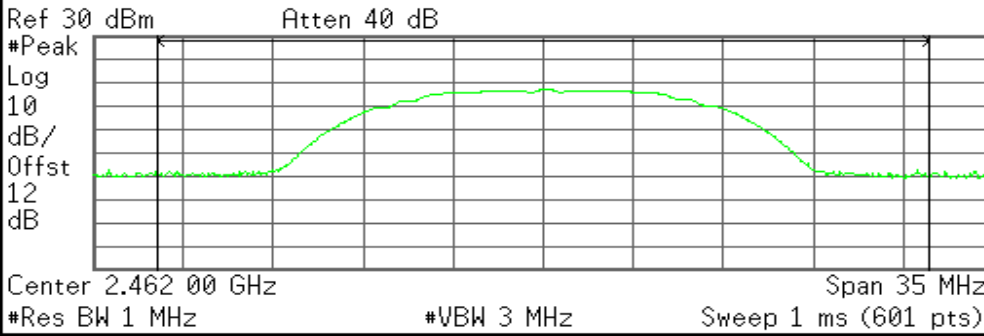
Agilent

R T

Freq/Channel

Ch Freq 2.462 GHz	Trig Free
Channel Power	Averages: 100

Center Freq 2.46200000 GHz
Start Freq 2.44450000 GHz
Stop Freq 2.47950000 GHz
CF Step 3.50000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off



Channel Power 14.38 dBm /30.0000 MHz	Power Spectral Density -60.39 dBm/Hz
--	--

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IEEE 802.11g mode

Peak Power (CH Low)

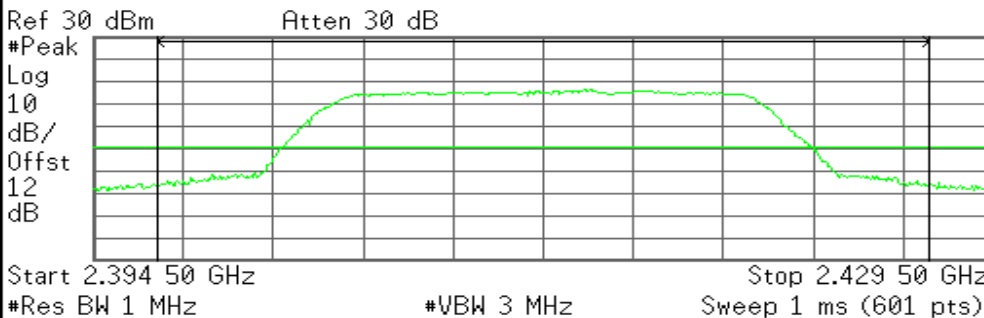
Agilent

R T

Freq/Channel

Ch Freq 2.412 GHz	Trig Free
Channel Power	Averages: 100

Center Freq 2.41200000 GHz
Start Freq 2.39450000 GHz
Stop Freq 2.42950000 GHz
CF Step 3.50000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off



Channel Power 12.54 dBm /30.0000 MHz	Power Spectral Density -62.23 dBm/Hz
--	--

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Peak Power (CH Mid)

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Freq/Channel

Ch Freq 2.437 GHz Trig Free

Channel Power

Averages: 100

Center Freq
2.43700000 GHz

Start Freq
2.41950000 GHz

Stop Freq
2.45450000 GHz

CF Step
3.50000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Ref 30 dBm

Atten 30 dB

#Peak

Log

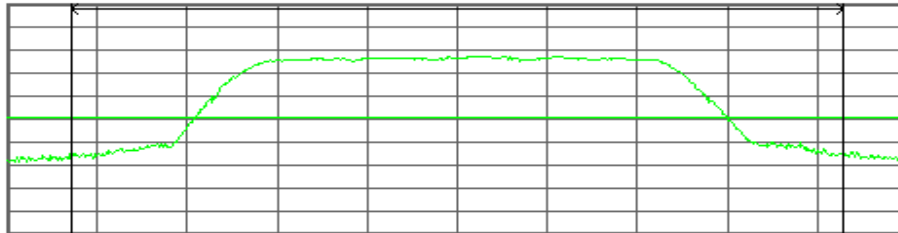
10

dB/

Offst

12

dB



Center 2.437 00 GHz

Span 35 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Signal Track
On Off

Channel Power

13.84 dBm /30.0000 MHz

Power Spectral Density

-60.94 dBm/Hz

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Peak Power (CH High)

Agilent

R T

Freq/Channel

Ch Freq 2.462 GHz Trig Free

Channel Power

Averages: 100

Center Freq
2.46200000 GHz

Start Freq
2.44450000 GHz

Stop Freq
2.47950000 GHz

CF Step
3.50000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Ref 30 dBm

Atten 30 dB

#Peak

Log

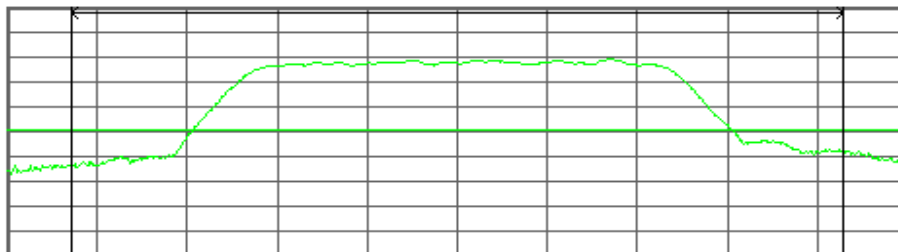
10

dB/

Offst

12

dB



Center 2.462 00 GHz

Span 35 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Signal Track
On Off

Channel Power

15.12 dBm /30.0000 MHz

Power Spectral Density

-59.66 dBm/Hz

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IEEE 802.11n Standard-20 MHz Channel mode

Peak Power (CH Low)

Agilent

R T

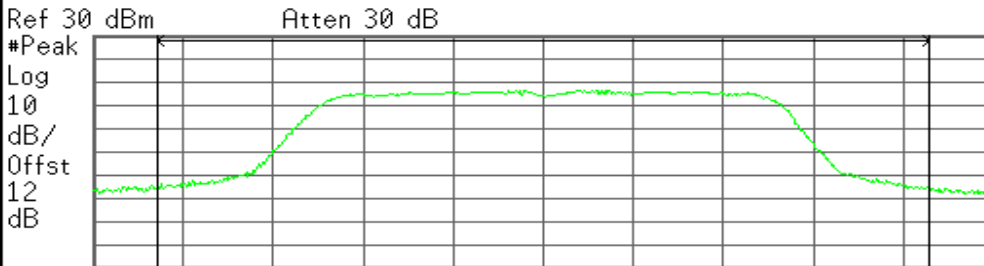
Freq/Channel

Ch Freq 2.412 GHz Trig Free

Center Freq
2.41200000 GHz

Channel Power Averages: 100

Start Freq
2.39450000 GHz



Stop Freq
2.42950000 GHz

CF Step
3.50000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Channel Power Power Spectral Density

12.97 dBm /30.0000 MHz -61.80 dBm/Hz

Signal Track
On Off

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Peak Power (CH Mid)

Agilent

R T

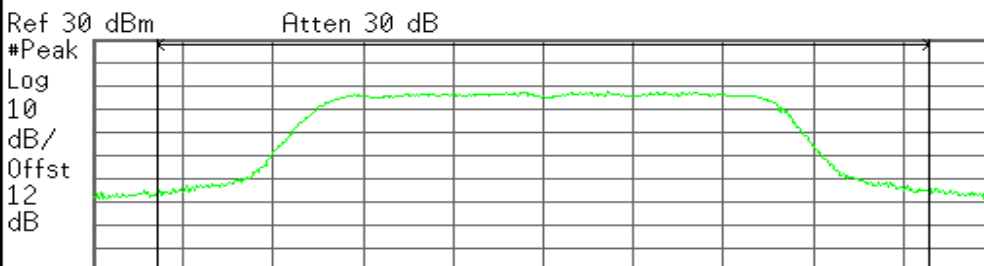
Freq/Channel

Ch Freq 2.437 GHz Trig Free

Center Freq
2.43700000 GHz

Channel Power Averages: 100

Start Freq
2.41950000 GHz



Stop Freq
2.45450000 GHz

CF Step
3.50000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Channel Power Power Spectral Density

13.96 dBm /30.0000 MHz -60.81 dBm/Hz

Signal Track
On Off

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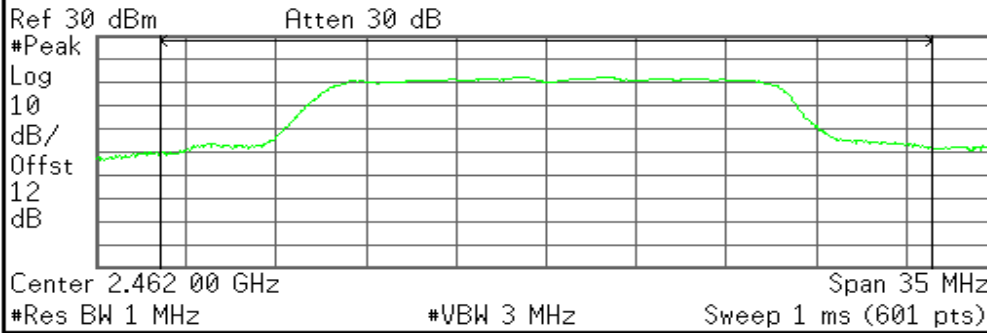
Peak Power (CH High)

Agilent

R T

Ch Freq 2.462 GHz Trig Free

Channel Power Averages: 100



Center 2.462 00 GHz Span 35 MHz

#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

Channel Power **Power Spectral Density**

14.92 dBm /30.0000 MHz -59.85 dBm/Hz

Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.44450000 GHz
Stop Freq	2.47950000 GHz
CF Step	3.50000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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IEEE 802.11n Wide-40 MHz Channel mode

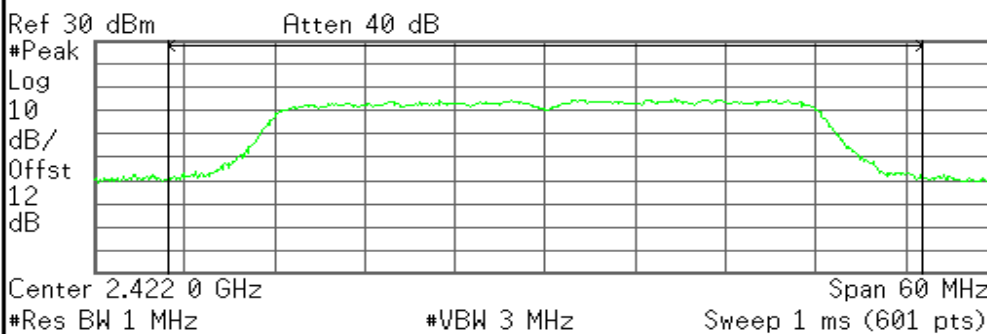
Peak Power (CH Low)

Agilent

R T

Ch Freq 2.422 GHz Trig Free

Channel Power Averages: 100



Center 2.422 0 GHz Span 60 MHz

#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

Channel Power **Power Spectral Density**

14.04 dBm /50.0000 MHz -62.95 dBm/Hz

Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.39200000 GHz
Stop Freq	2.45200000 GHz
CF Step	6.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Peak Power (CH Mid)

Agilent

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Ch Freq 2.437 GHz	Trig Free
Channel Power	Averages: 100

Freq/Channel

Center Freq
2.43700000 GHz

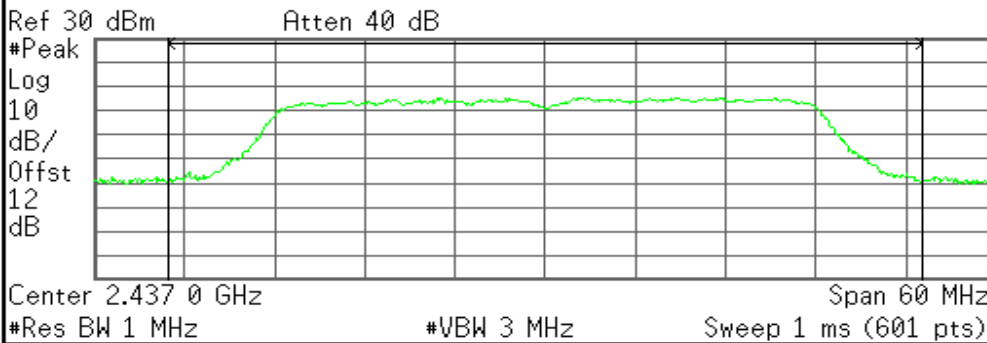
Start Freq
2.40700000 GHz

Stop Freq
2.46700000 GHz

CF Step
6.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Channel Power	Power Spectral Density
14.62 dBm /50.0000 MHz	-62.37 dBm/Hz

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Peak Power (CH High)

Agilent

R T

Ch Freq 2.452 GHz	Trig Free
Channel Power	Averages: 100

Freq/Channel

Center Freq
2.45200000 GHz

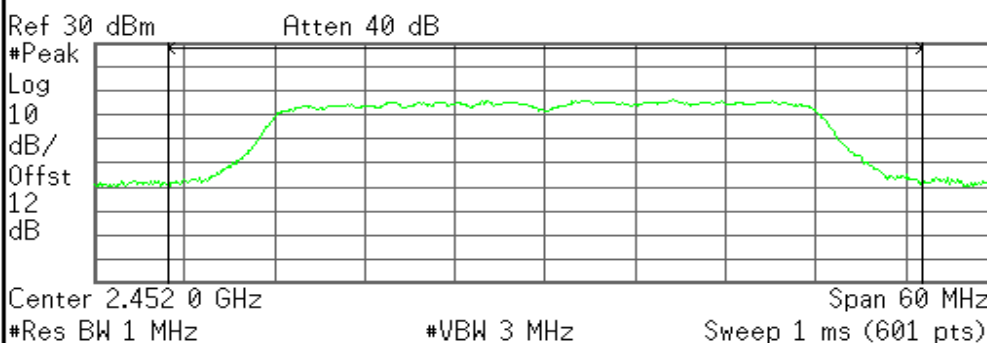
Start Freq
2.42200000 GHz

Stop Freq
2.48200000 GHz

CF Step
6.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



Channel Power	Power Spectral Density
15.25 dBm /50.0000 MHz	-61.74 dBm/Hz

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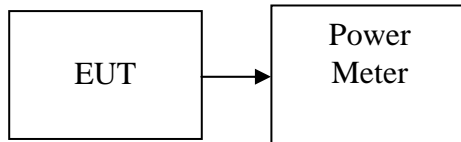


7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power meter.



TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	9.87
Mid	2437	11.47
High	2462	12.56

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	10.75
Mid	2437	11.68
High	2462	13.08

Test mode: IEEE 802.11gn Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	10.87
Mid	2437	11.75
High	2462	12.88

Test mode: IEEE 802.11gn Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2422	12.05
Mid	2437	12.87
High	2452	13.66

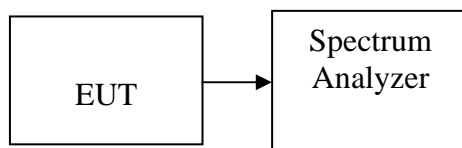


7.4 PEAK POWER SPECTRAL DENSITY

LIMIT

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

Test Configuration



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 = 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 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-14.92	8.00	PASS
Mid	2437	-13.62	8.00	PASS
High	2462	-12.41	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.98	8.00	PASS
Mid	2437	-12.83	8.00	PASS
High	2462	-11.98	8.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.72	8.00	PASS
Mid	2437	-12.69	8.00	PASS
High	2462	-11.75	8.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-13.60	8.00	PASS
Mid	2437	-12.91	8.00	PASS
High	2452	-12.19	8.00	PASS



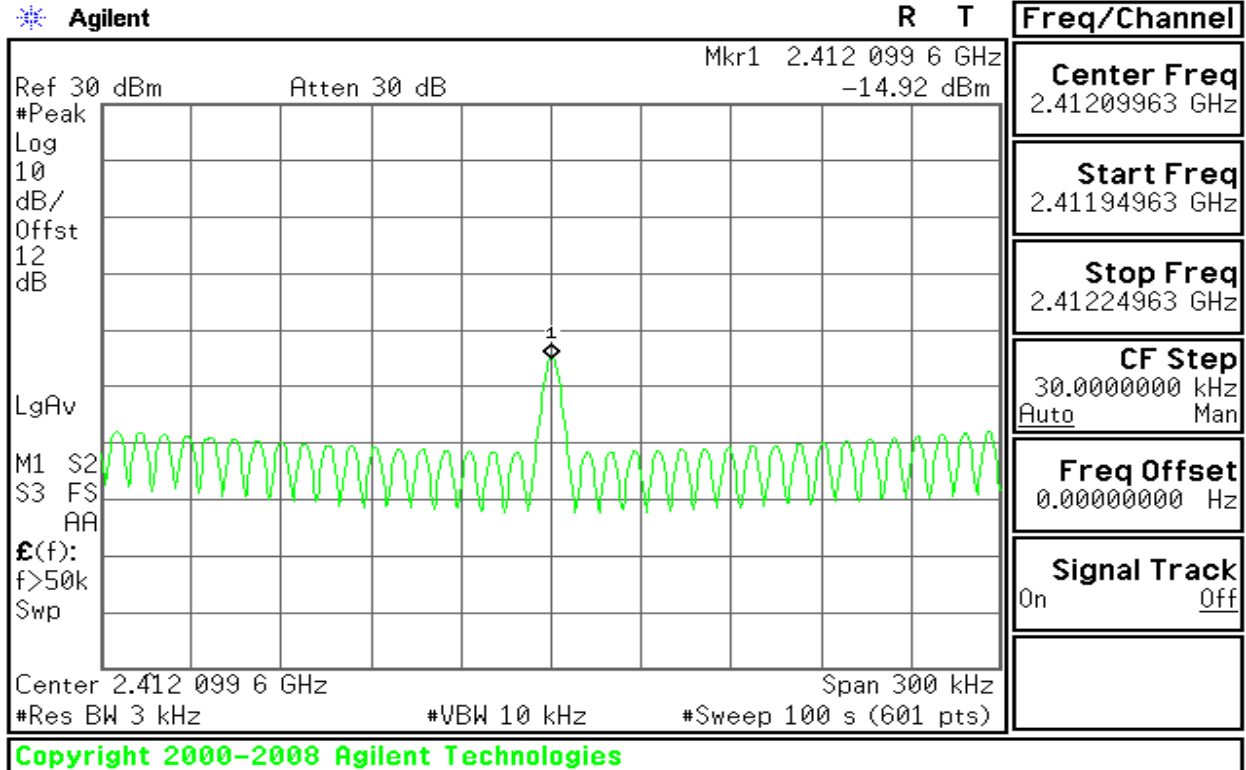
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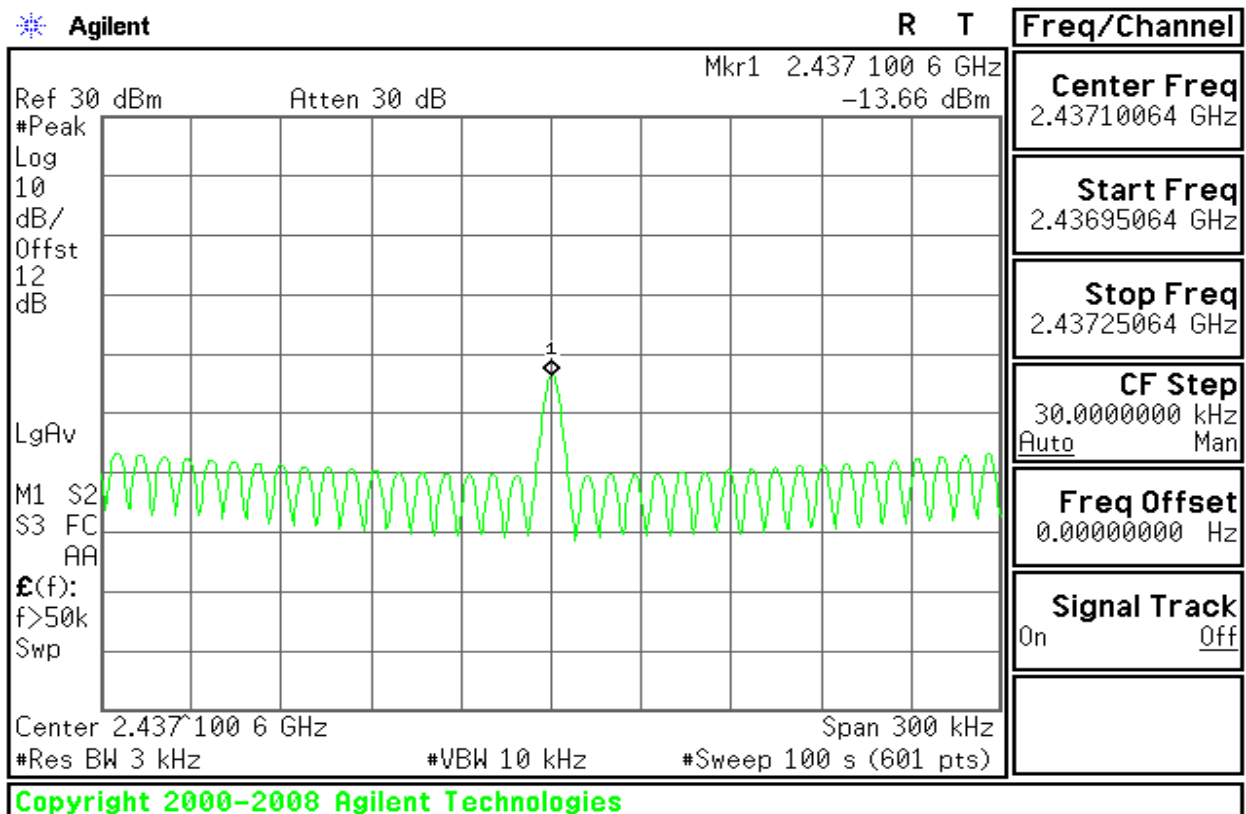
Test Plot

IEEE 802.11b mode

PPSD (CH Low)



PPSD (CH Mid)





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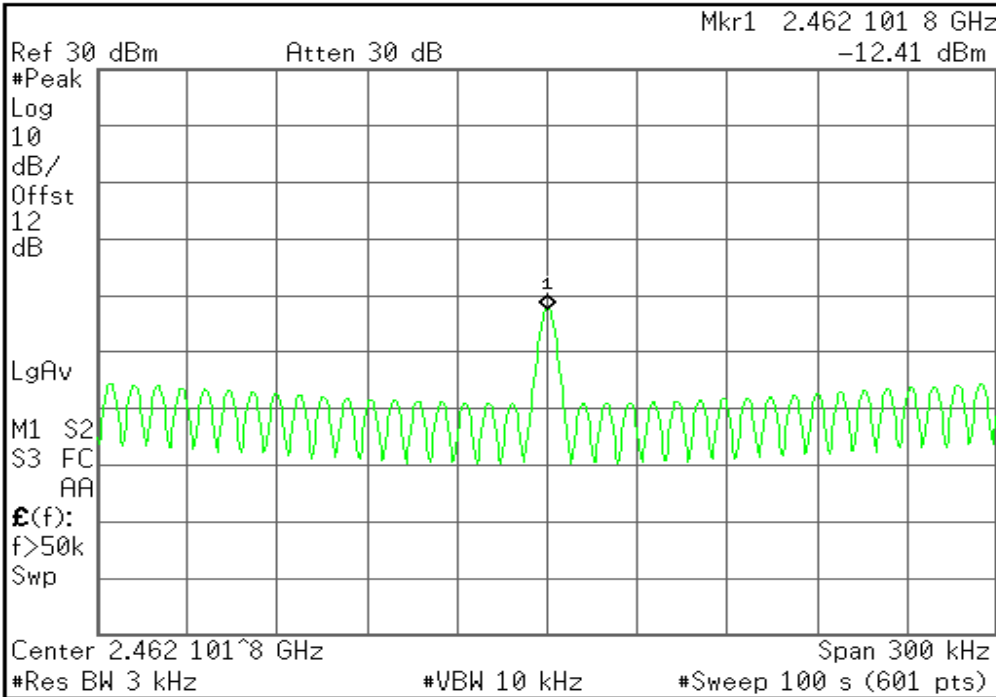
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

PPSD (CH High)

Agilent

R T

Freq/Channel



Center Freq
2.46210182 GHz

Start Freq
2.46195182 GHz

Stop Freq
2.46225182 GHz

CF Step
30.0000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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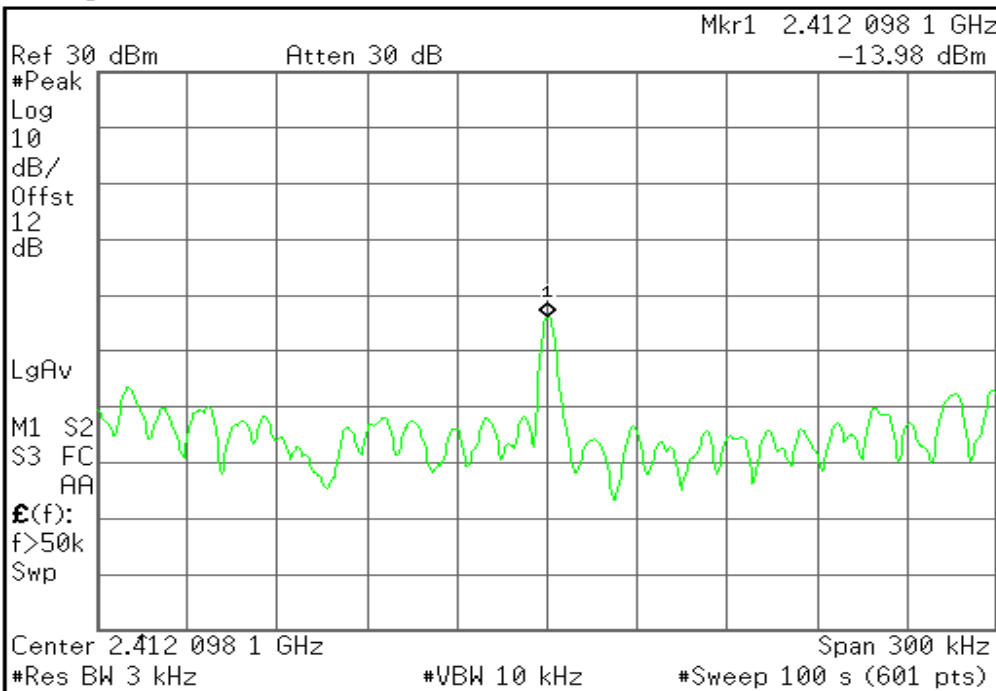
IEEE 802.11g mode

PPSD (CH Low)

Agilent

R T

Freq/Channel



Center Freq
2.41209813 GHz

Start Freq
2.41194813 GHz

Stop Freq
2.41224813 GHz

CF Step
30.0000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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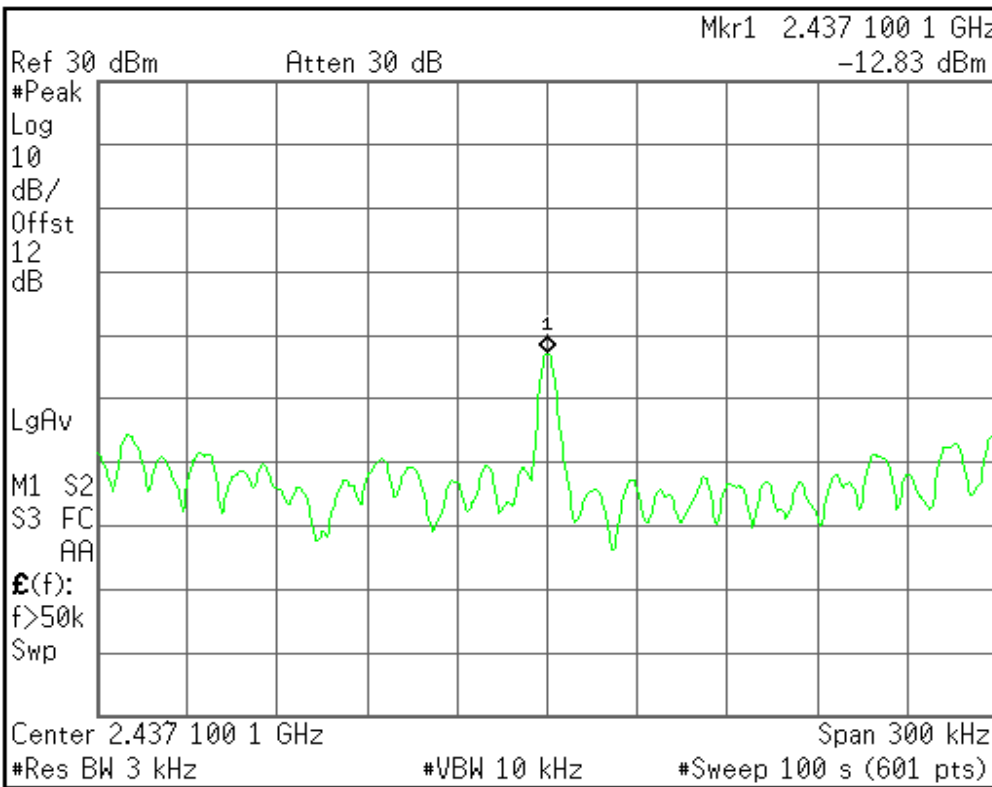
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

PPSD (CH Mid)

Agilent

R T

Freq/Channel



Center Freq 2.43710014 GHz
Start Freq 2.43695014 GHz
Stop Freq 2.43725014 GHz
CF Step 30.00000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

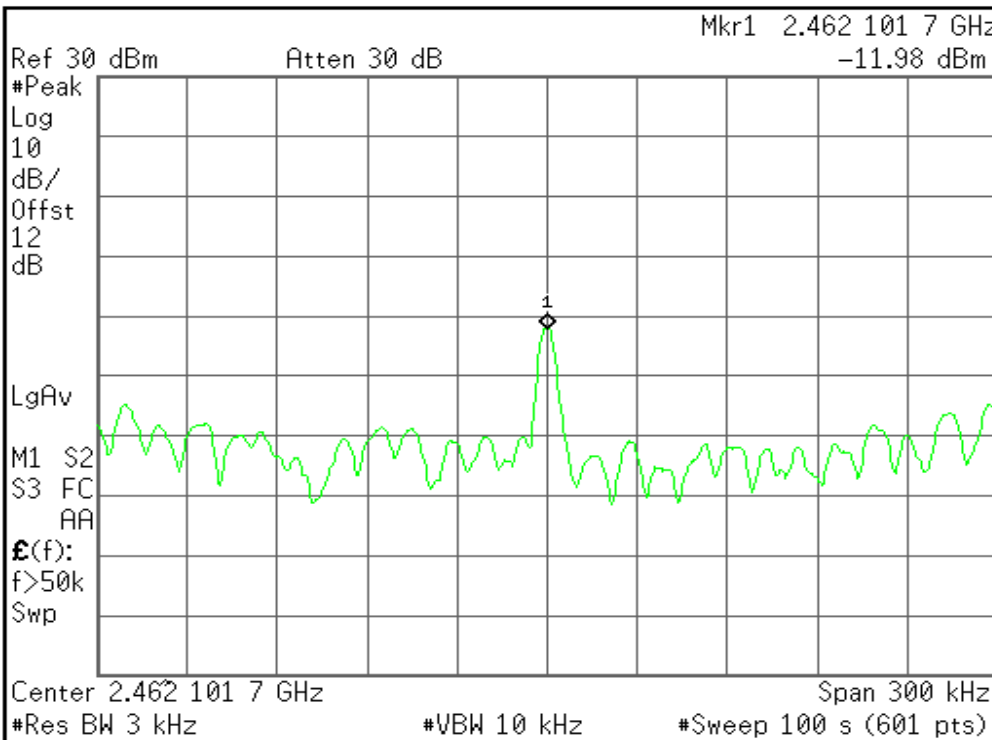
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PPSD (CH High)

Agilent

R T

Freq/Channel



Center Freq 2.46210169 GHz
Start Freq 2.46195169 GHz
Stop Freq 2.46225169 GHz
CF Step 30.00000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Copyright 2000-2008 Agilent Technologies



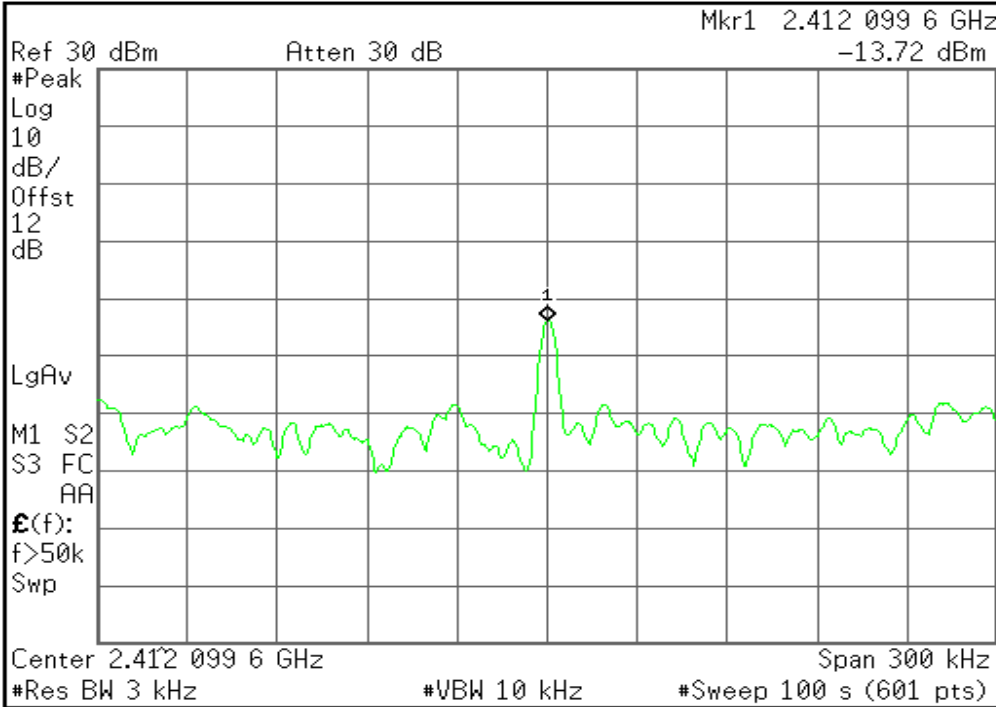
IEEE 802.11n Standard-20 MHz Channel mode

PPSD (CH Low)

Agilent

R T

Freq/Channel



Center Freq 2.41209963 GHz
Start Freq 2.41194963 GHz
Stop Freq 2.41224963 GHz
CF Step 30.0000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

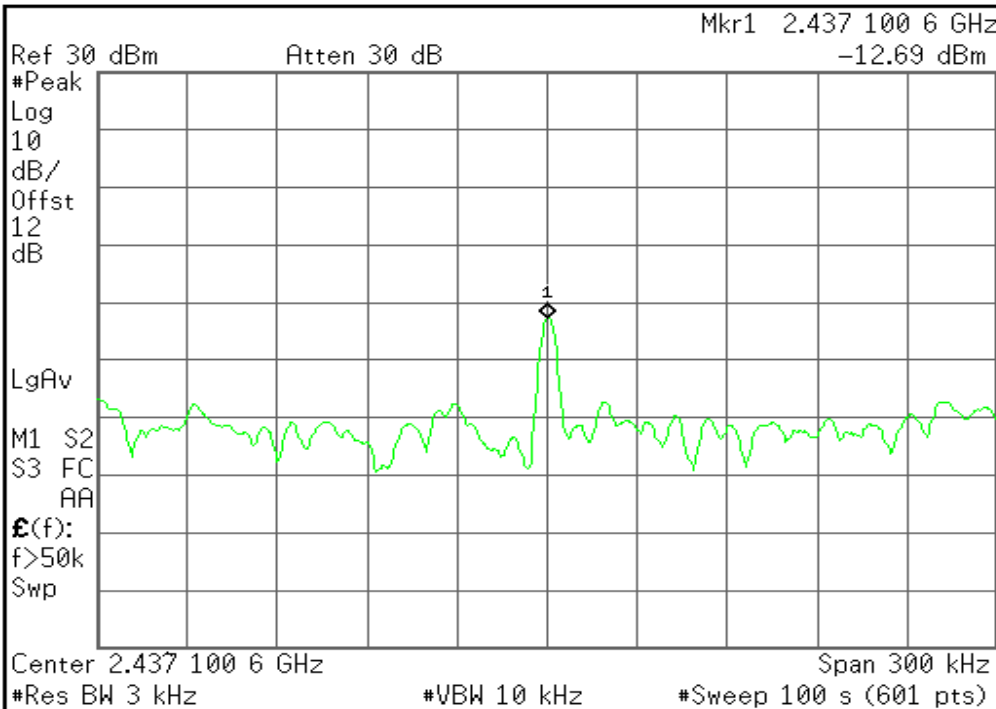
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PPSD (CH Mid)

Agilent

R T

Freq/Channel



Center Freq 2.43710064 GHz
Start Freq 2.43695064 GHz
Stop Freq 2.43725064 GHz
CF Step 30.0000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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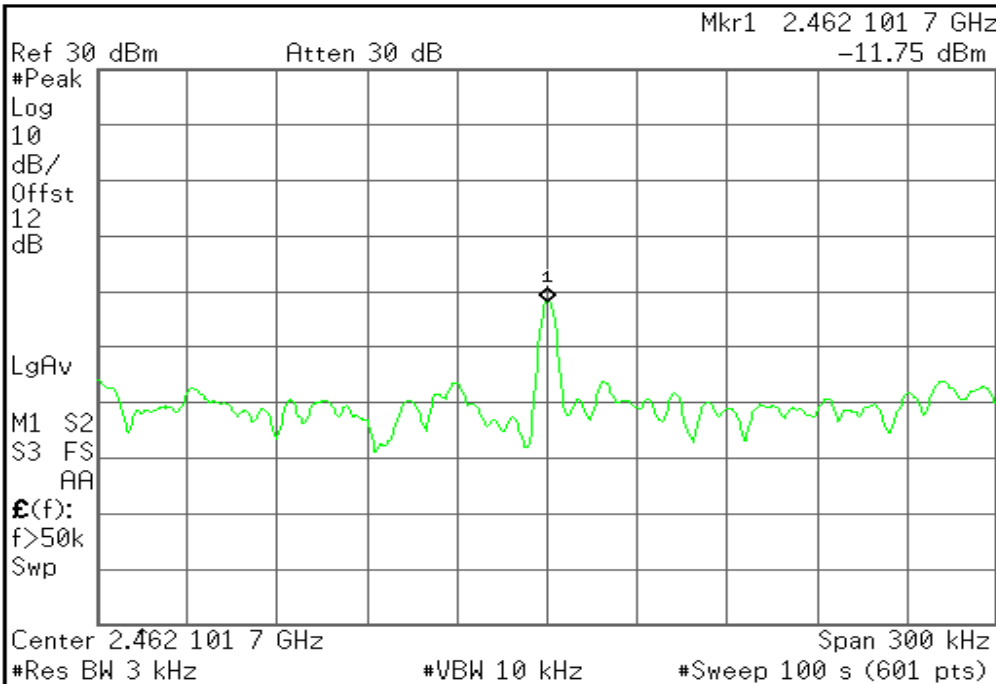


PPSD (CH High)

Agilent

R T

Freq/Channel



Center Freq 2.46210169 GHz
Start Freq 2.46195169 GHz
Stop Freq 2.46225169 GHz
CF Step 30.00000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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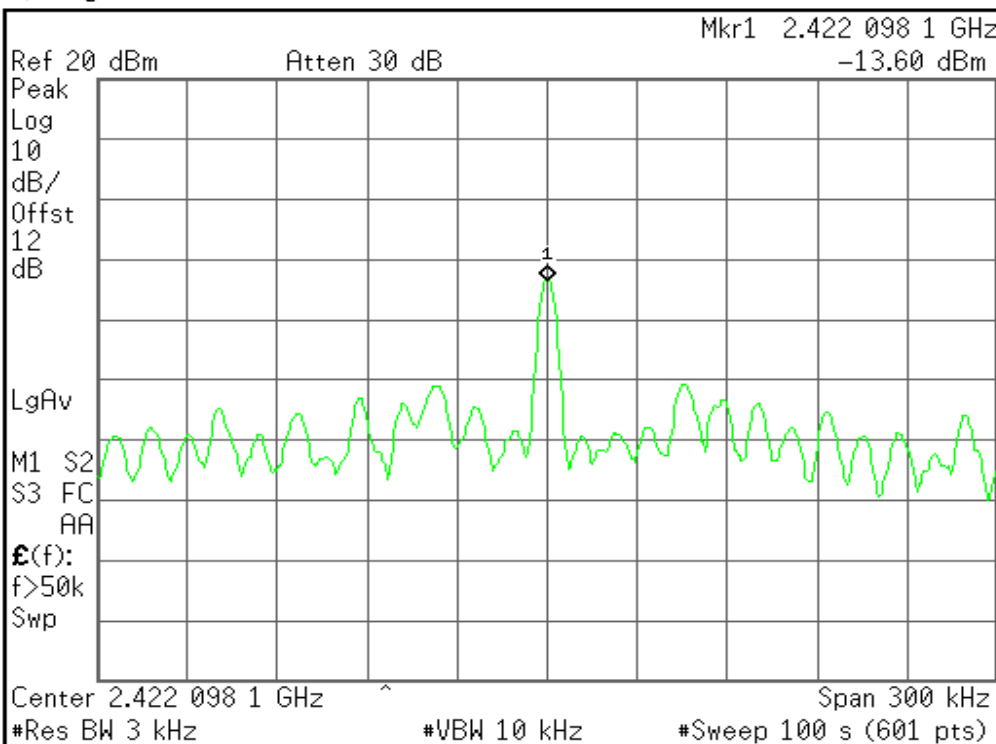
IEEE 802.11n Wide-40 MHz Channel mode

PPSD (CH Low)

Agilent

R T

Freq/Channel



Center Freq 2.42209813 GHz
Start Freq 2.42194813 GHz
Stop Freq 2.42224813 GHz
CF Step 30.00000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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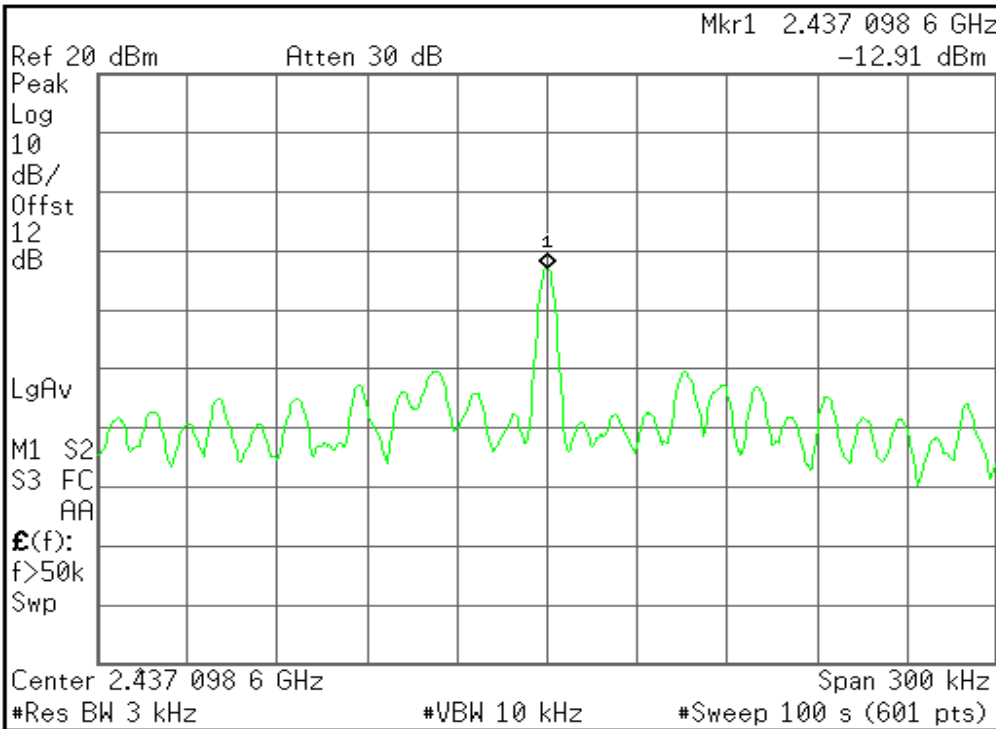
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

PPSD (CH Mid)

Agilent

R T

Freq/Channel



Center Freq	2.43709864 GHz
Start Freq	2.43694864 GHz
Stop Freq	2.43724864 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

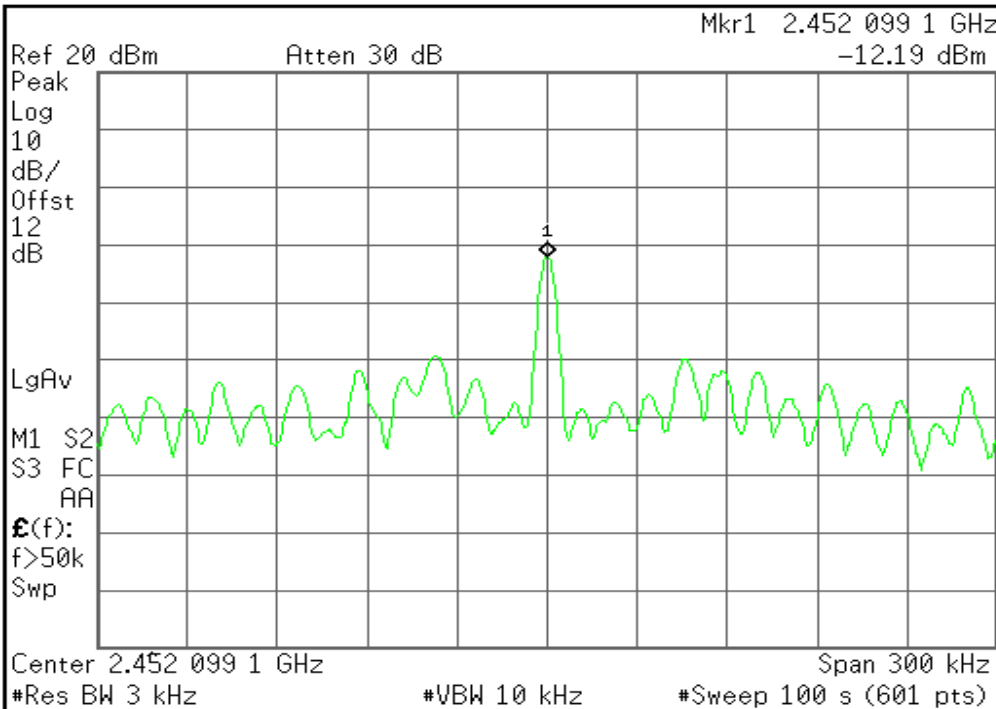
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PPSD (CH High)

Agilent

R T

Freq/Channel



Center Freq	2.45209913 GHz
Start Freq	2.45194913 GHz
Stop Freq	2.45224913 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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7.5 SPURIOUS EMISSIONS

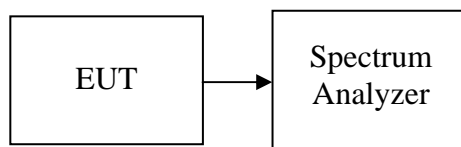
7.5.1 CONDUCTED MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator 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)).

Conducted power was measured based on the use of RMS averaging over a time interval, therefore the required attenuation is 30 dB.

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 300 kHz.

Measurements are made over the 30MHz to 40GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

No non-compliance noted



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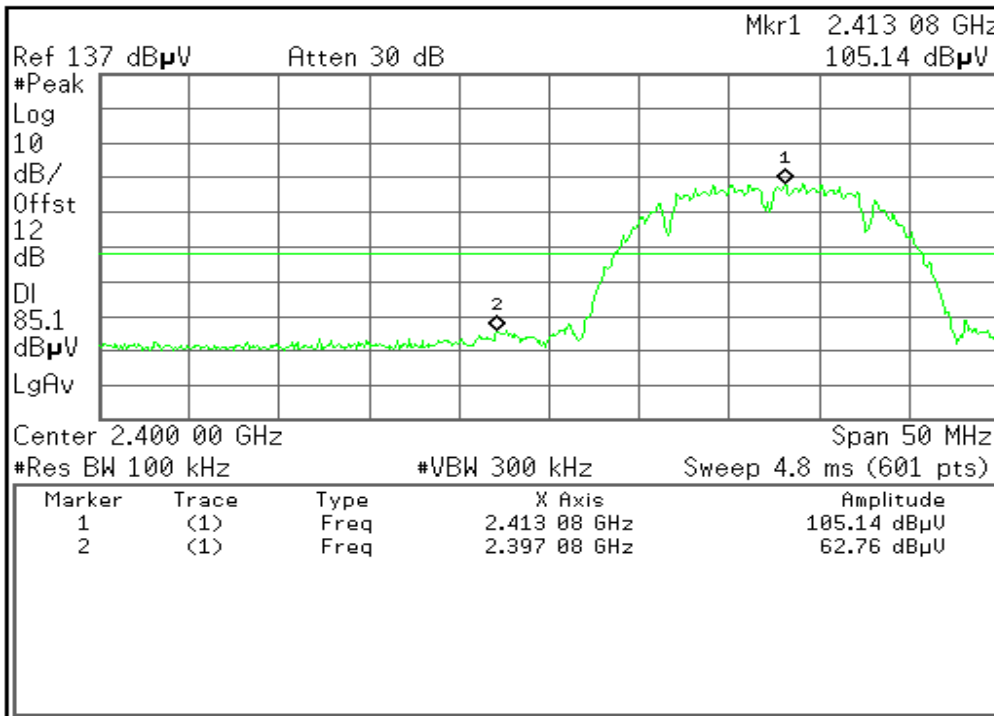
Test Plot

IEEE 802.11b mode

CH Low

Agilent

R T

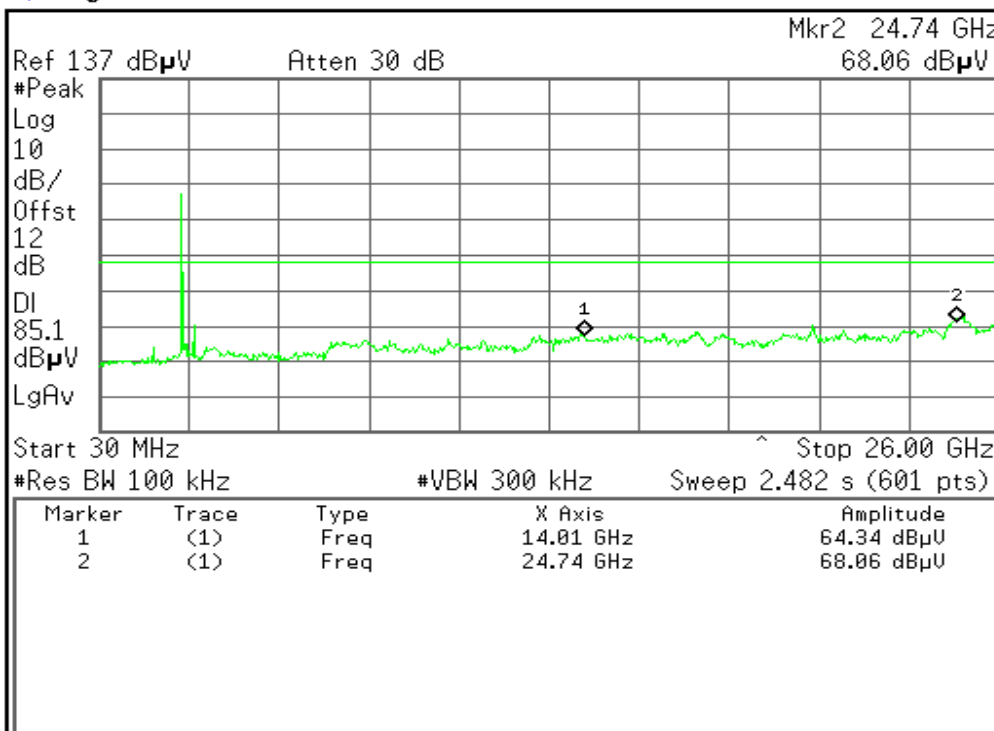


Freq/Channel
Center Freq 2.40000000 GHz
Start Freq 2.37500000 GHz
Stop Freq 2.42500000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Copyright 2000-2008 Agilent Technologies

Agilent

R T



Freq/Channel
Center Freq 13.01500000 GHz
Start Freq 30.00000000 MHz
Stop Freq 26.00000000 GHz
CF Step Auto Man 2.59700000 GHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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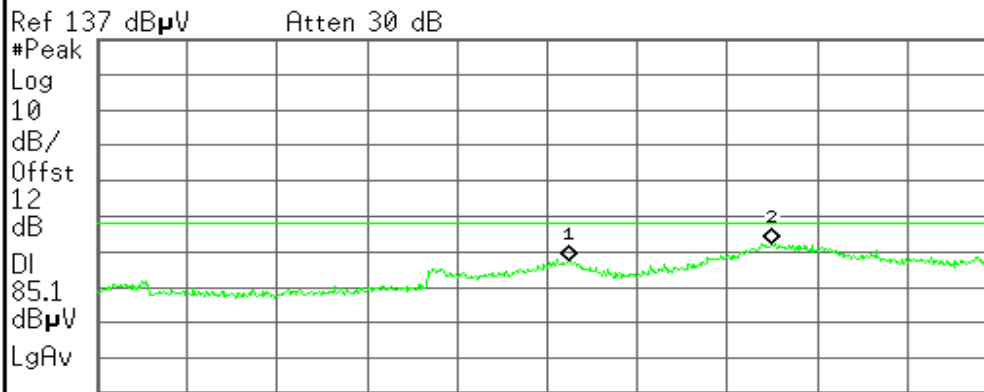
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Start 26.000 GHz Stop 40.000 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.338 s (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	33.327 GHz	74.28 dB μ U
2	(1)	Freq	36.477 GHz	79.52 dB μ U

Signal Track
On Off

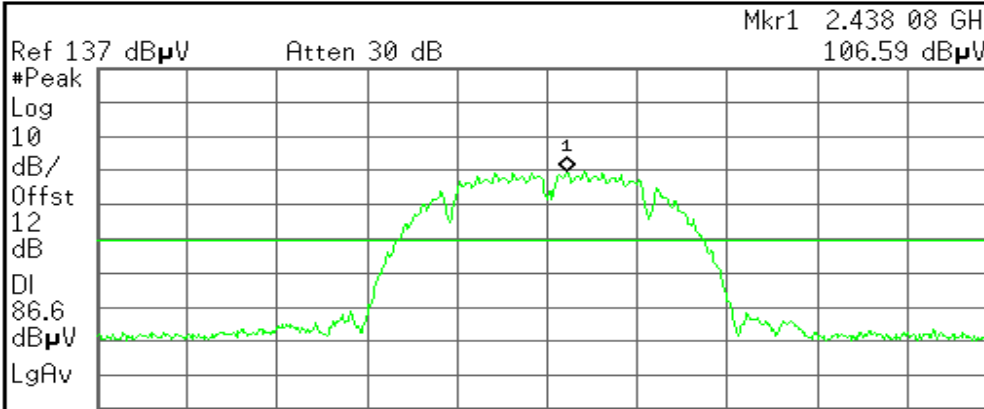
Copyright 2000-2008 Agilent Technologies

CH Mid

Agilent

R T

Freq/Channel



Center Freq
2.43700000 GHz

Start Freq
2.41200000 GHz

Stop Freq
2.46200000 GHz

CF Step
5.00000000 MHz
Auto Man

Center 2.437 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.438 08 GHz	106.59 dB μ U

Signal Track
On Off

Copyright 2000-2008 Agilent Technologies



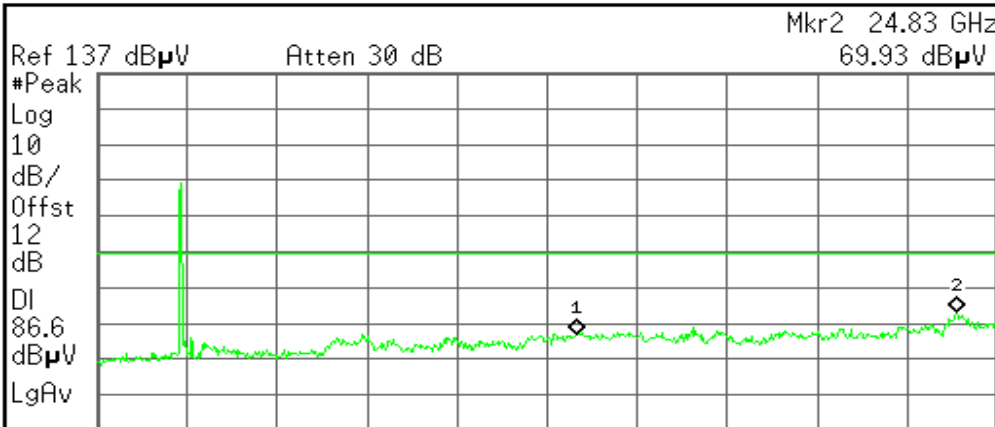
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Start 30 MHz Stop 26.00 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	13.84 GHz	63.75 dB μ U
2	(1)	Freq	24.83 GHz	69.93 dB μ U

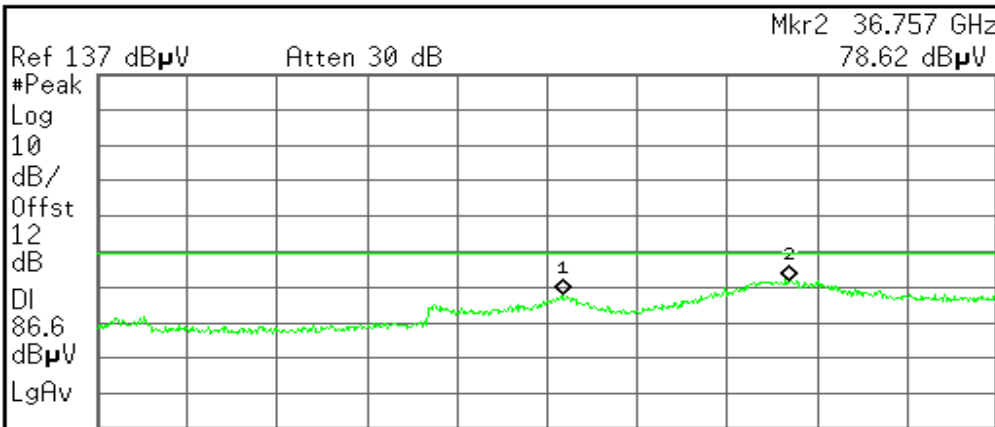
Signal Track
On Off

Copyright 2000-2008 Agilent Technologies

Agilent

R T

Freq/Channel



Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Start 26.000 GHz Stop 40.000 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.338 s (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	33.233 GHz	74.83 dB μ U
2	(1)	Freq	36.757 GHz	78.62 dB μ U

Signal Track
On Off

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Compliance Certification Services Inc.

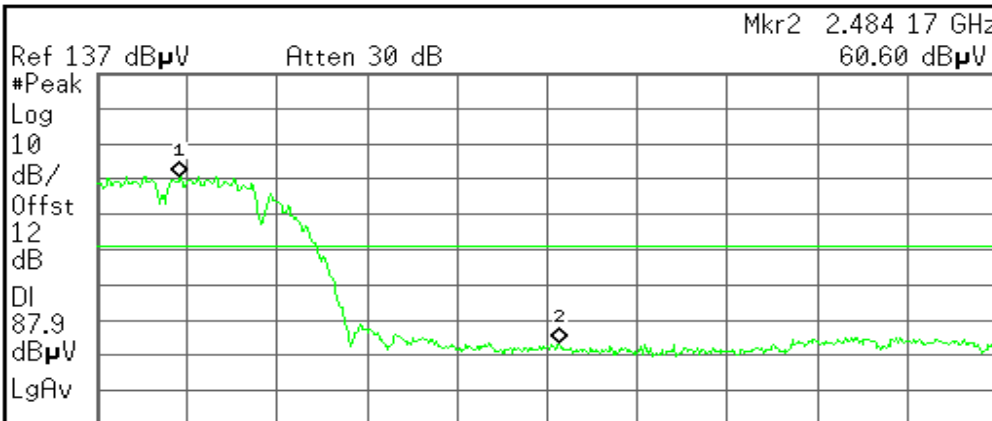
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

CH High

Agilent

R T

Freq/Channel



Center Freq
2.48350000 GHz

Start Freq
2.45850000 GHz

Stop Freq
2.50850000 GHz

CF Step
5.00000000 MHz
Auto Man

Center 2.483 50 GHz Span 50 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.463 08 GHz	107.87 dBµV
2	(1)	Freq	2.484 17 GHz	60.60 dBµV

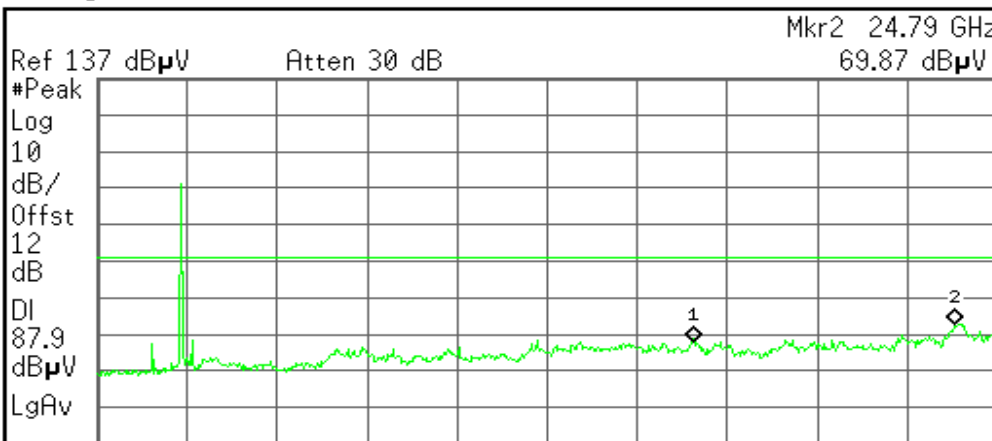
Signal Track
On Off

Copyright 2000-2008 Agilent Technologies

Agilent

R T

Freq/Channel



Center Freq
13.01500000 GHz

Start Freq
30.00000000 MHz

Stop Freq
26.00000000 GHz

CF Step
2.59700000 GHz
Auto Man

Start 30 MHz Stop 26.00 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (601 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	17.21 GHz	64.76 dBµV
2	(1)	Freq	24.79 GHz	69.87 dBµV

Signal Track
On Off

Copyright 2000-2008 Agilent Technologies

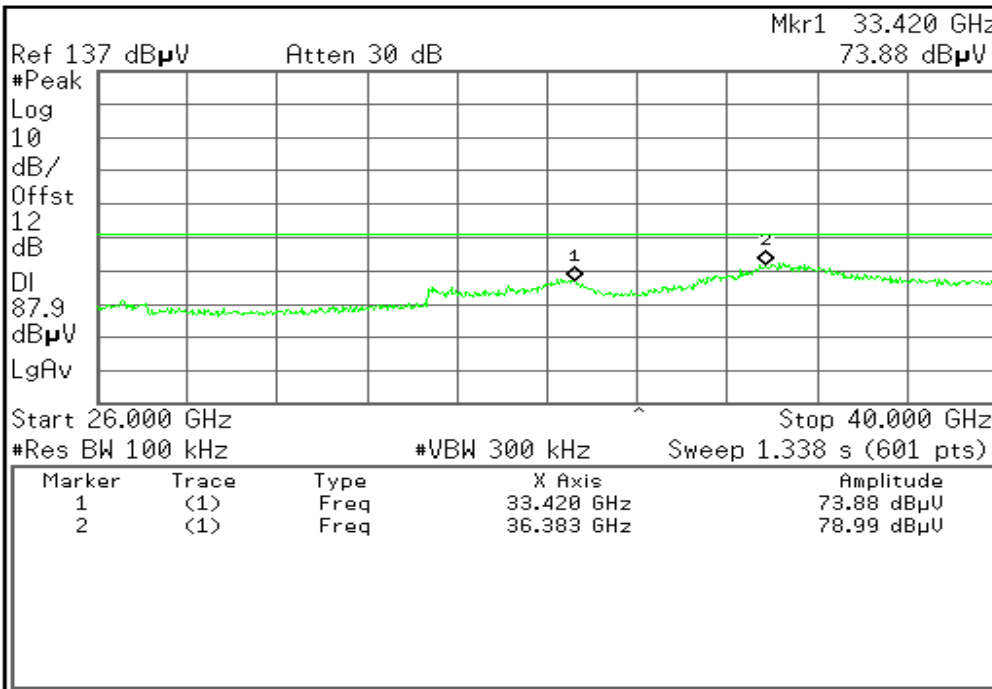


Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T



Freq/Channel
Center Freq 33.0000000 GHz
Start Freq 26.0000000 GHz
Stop Freq 40.0000000 GHz
CF Step 1.40000000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

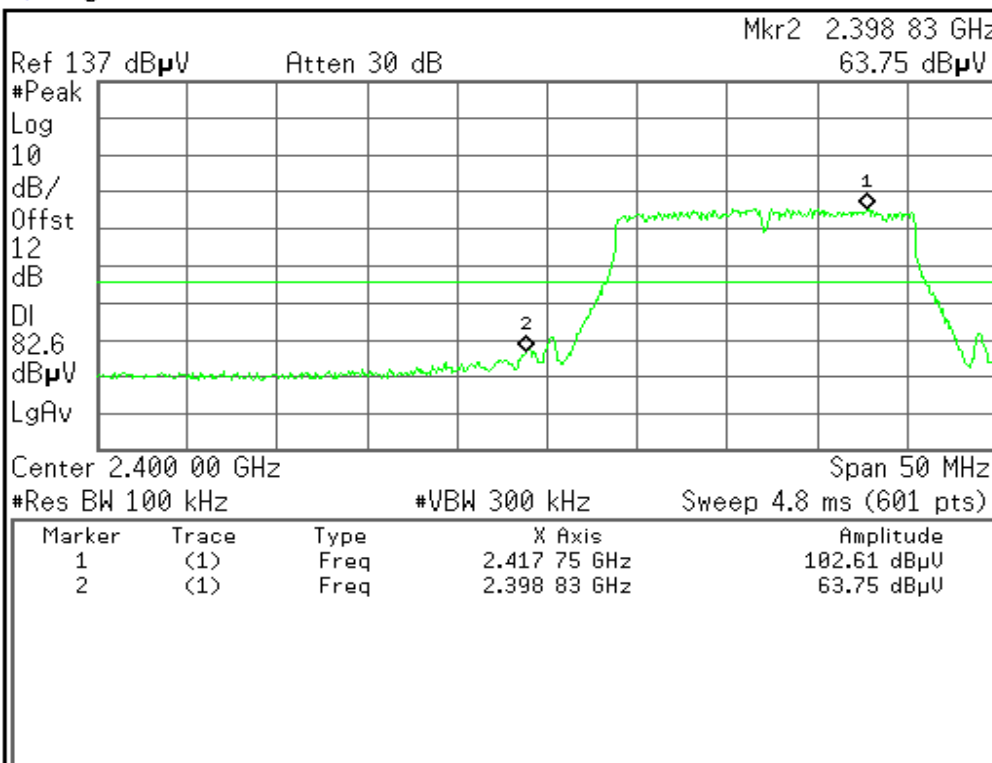
Copyright 2000-2008 Agilent Technologies

IEEE 802.11g mode

CH Low

Agilent

R T



Freq/Channel
Center Freq 2.40000000 GHz
Start Freq 2.37500000 GHz
Stop Freq 2.42500000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Copyright 2000-2008 Agilent Technologies



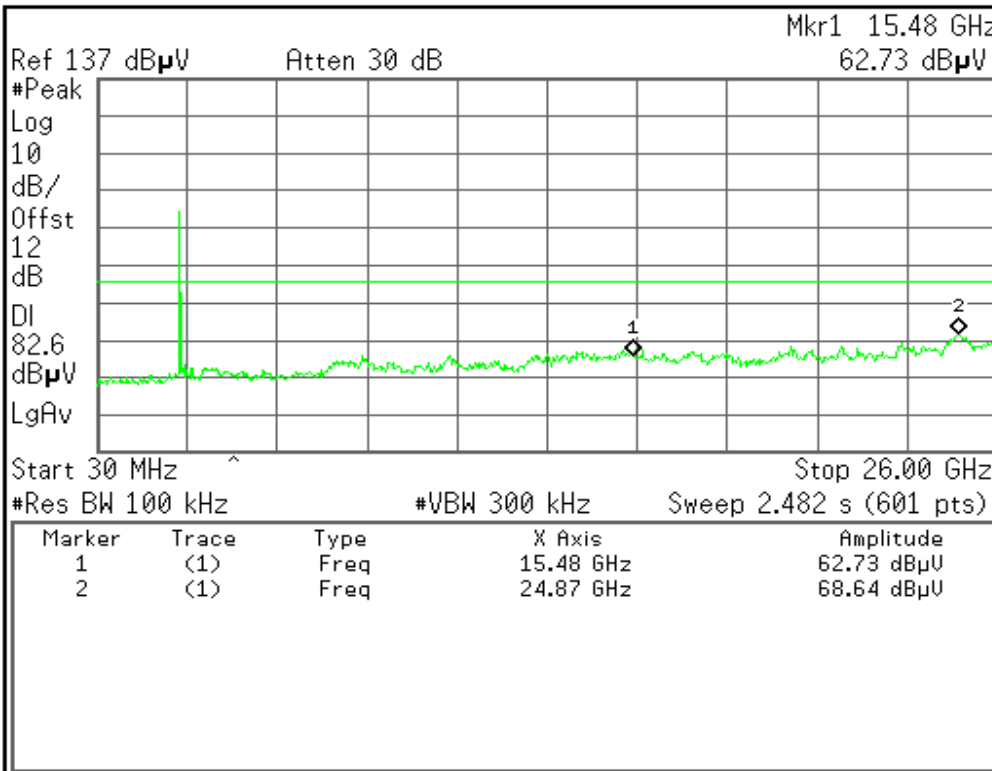
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

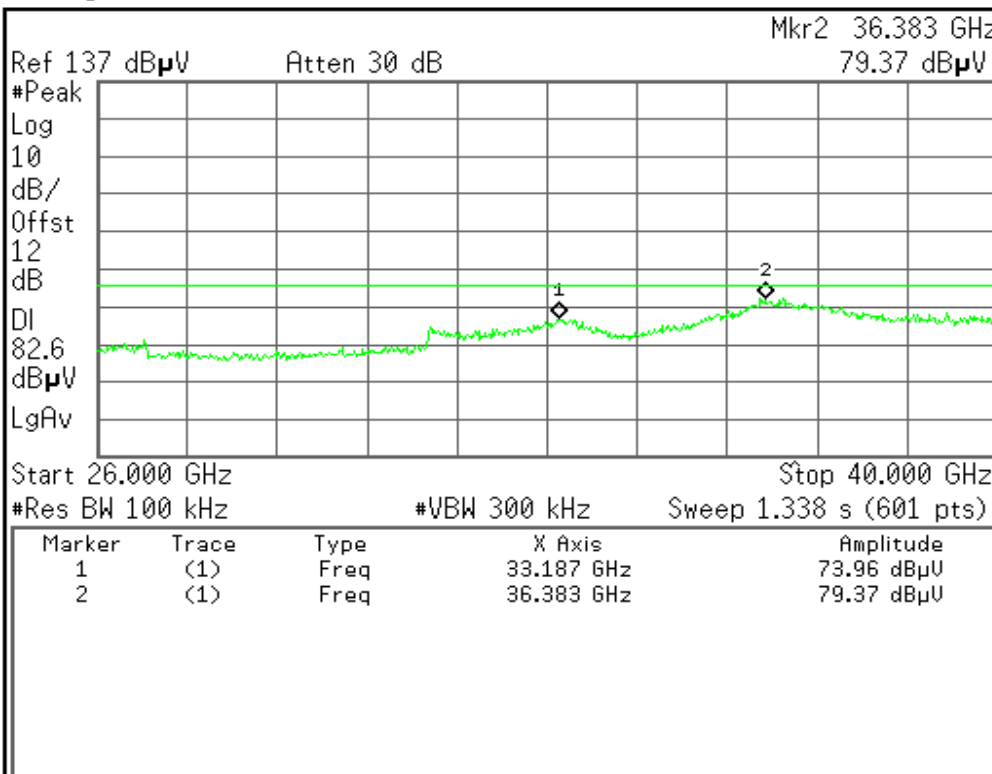
Signal Track
On Off

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Agilent

R T

Freq/Channel



Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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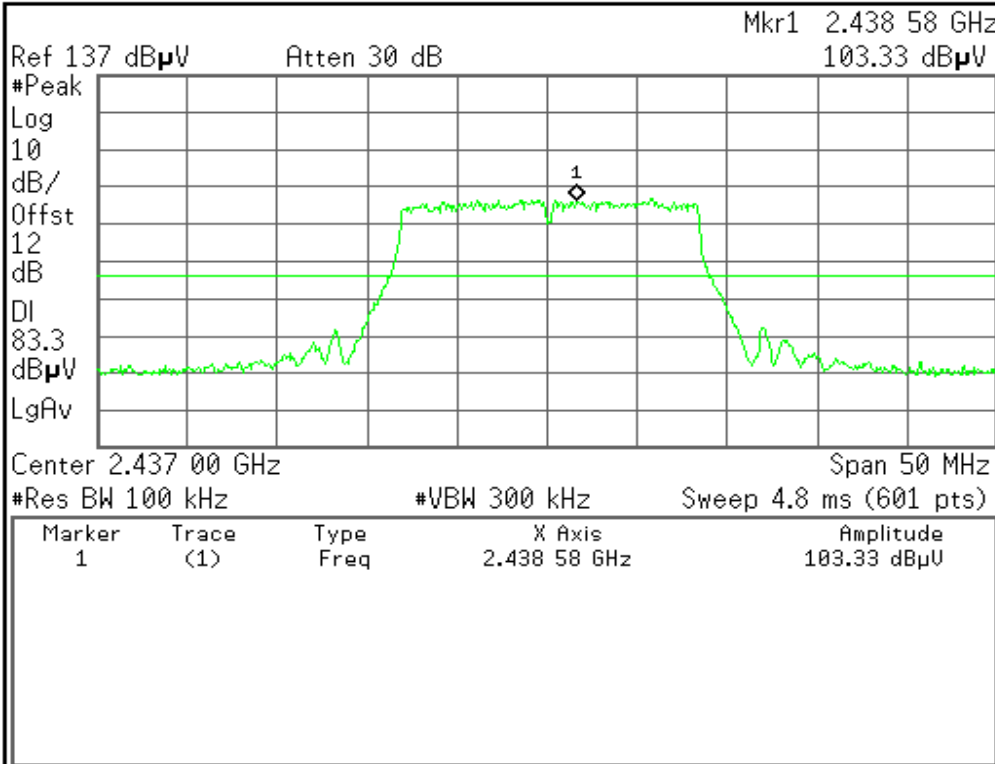
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

CH Mid

Agilent

R T

Freq/Channel



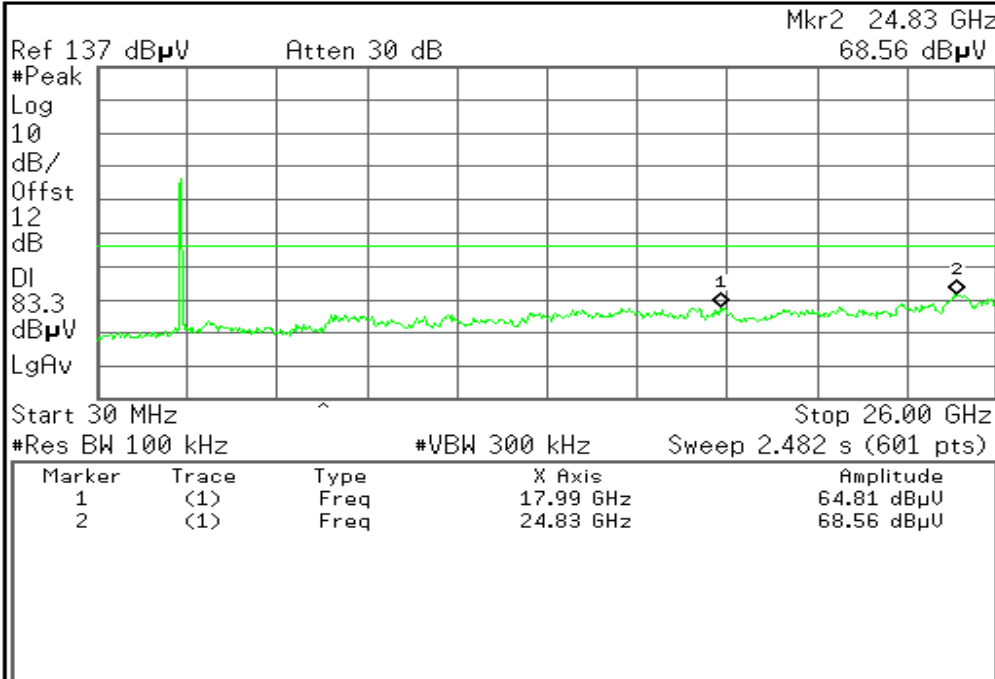
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Agilent

R T

Freq/Channel



Center Freq 13.0150000 GHz
Start Freq 30.0000000 MHz
Stop Freq 26.0000000 GHz
CF Step 2.59700000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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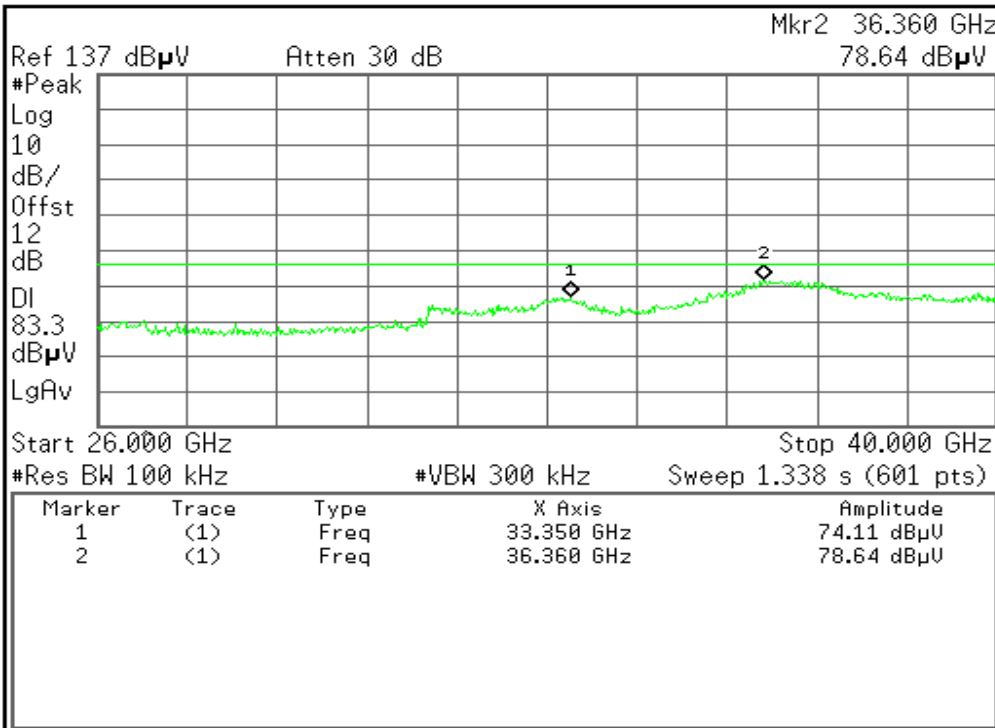


Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T



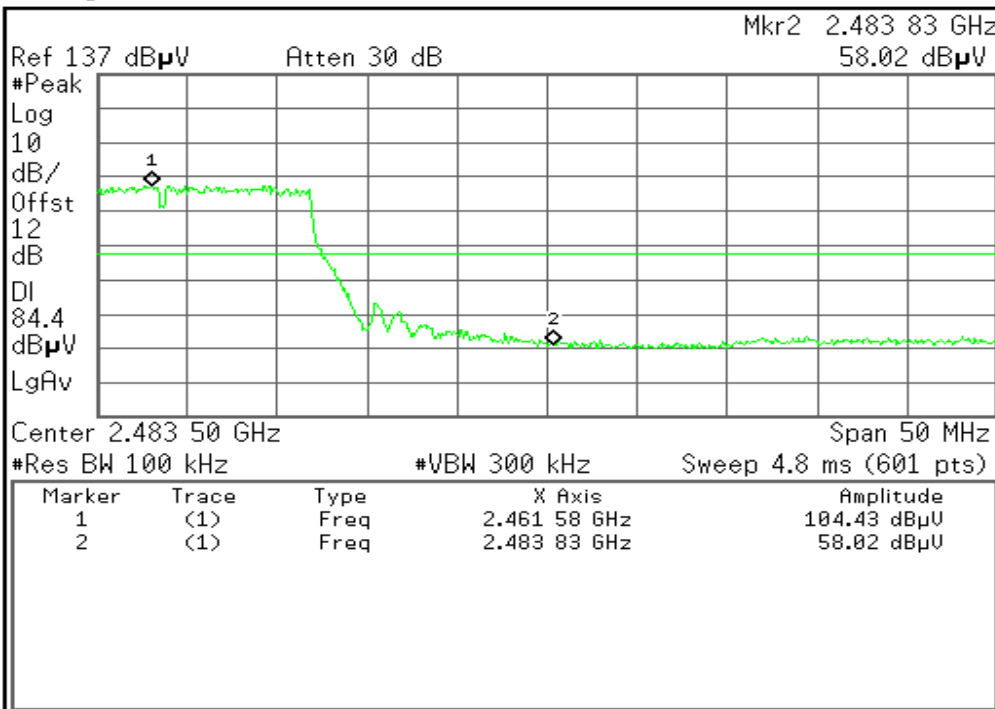
Freq/Channel
Center Freq 33.0000000 GHz
Start Freq 26.0000000 GHz
Stop Freq 40.0000000 GHz
CF Step Auto Man 1.40000000 GHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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CH High

Agilent

R T



Freq/Channel
Center Freq 2.48350000 GHz
Start Freq 2.45850000 GHz
Stop Freq 2.50850000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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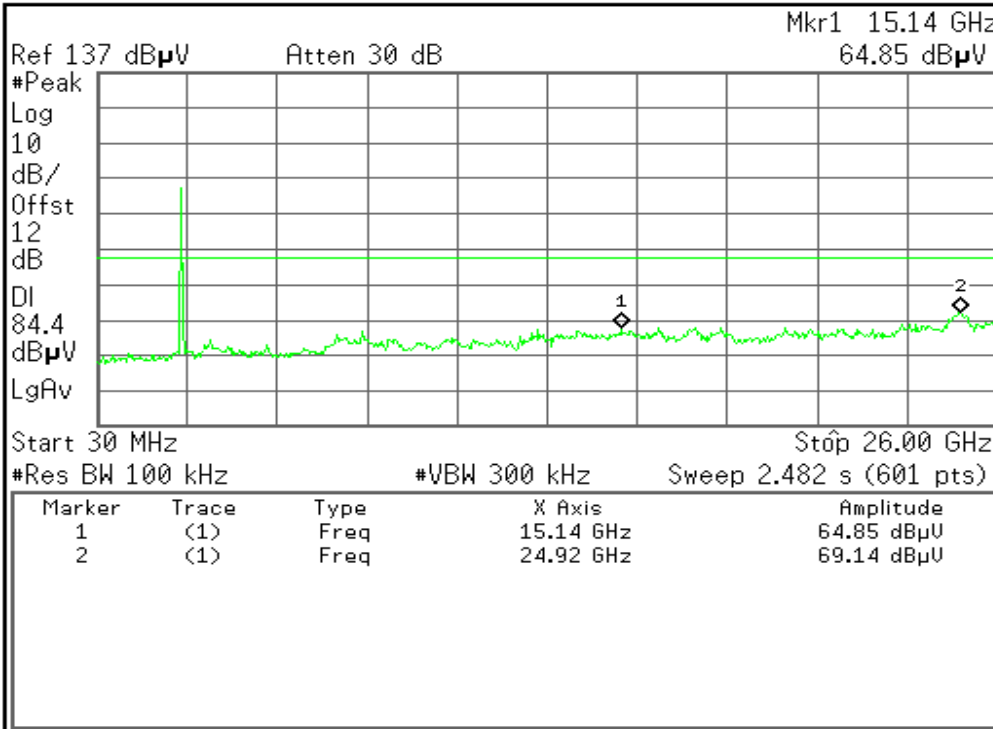
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

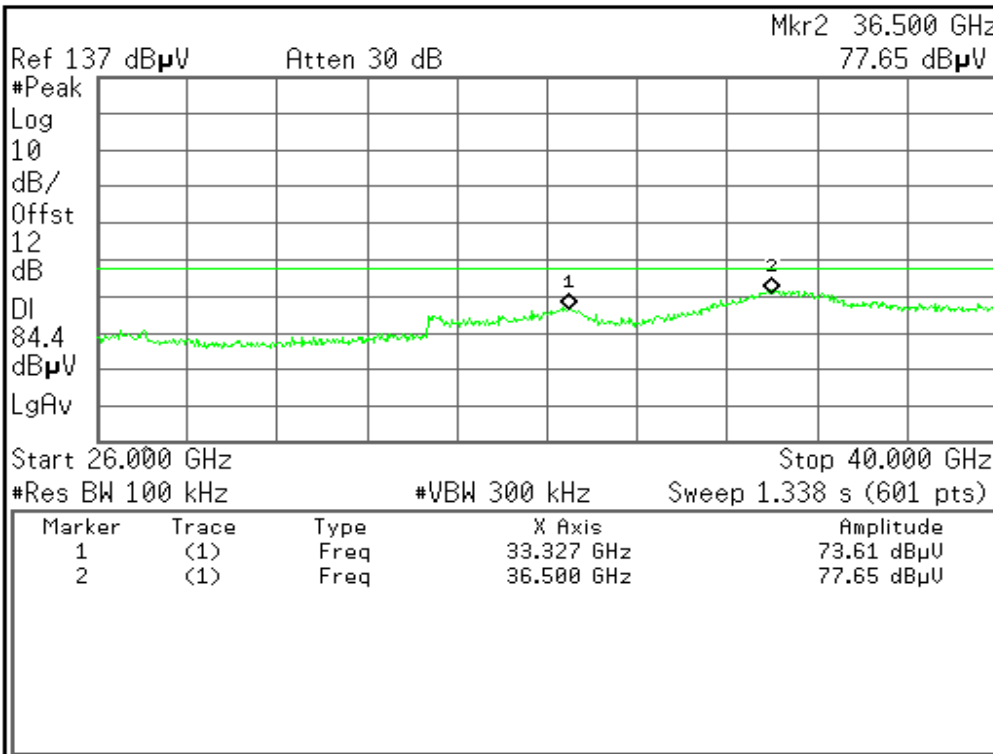
Signal Track
On Off

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Agilent

R T

Freq/Channel



Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

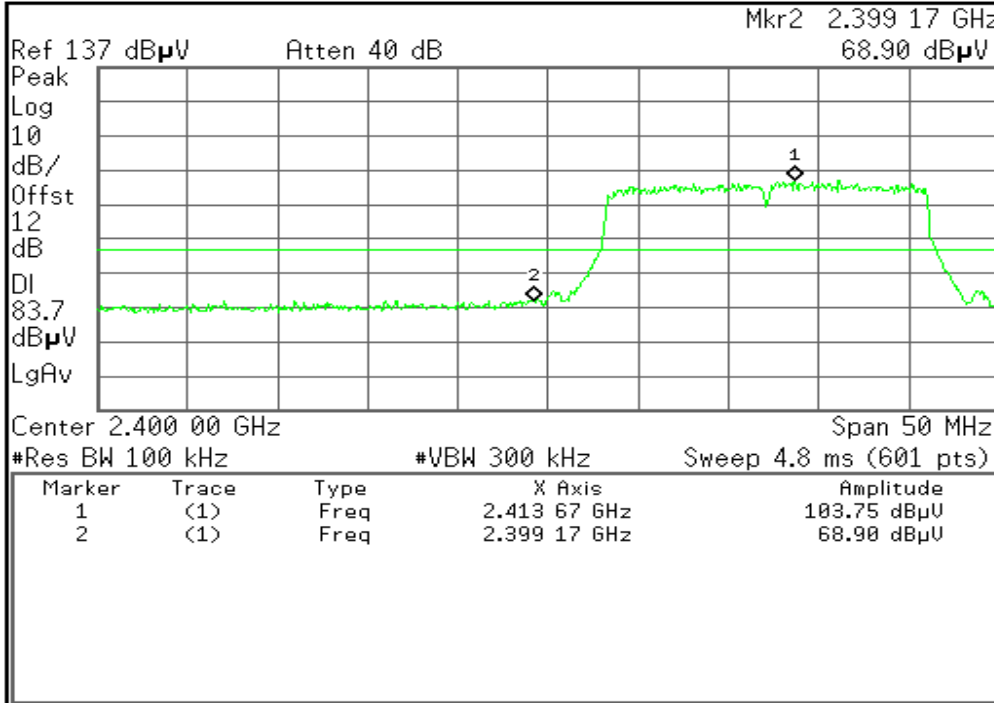
IEEE 802.11n Standard-20 MHz Channel mode

CH Low

Agilent

R T

Freq/Channel



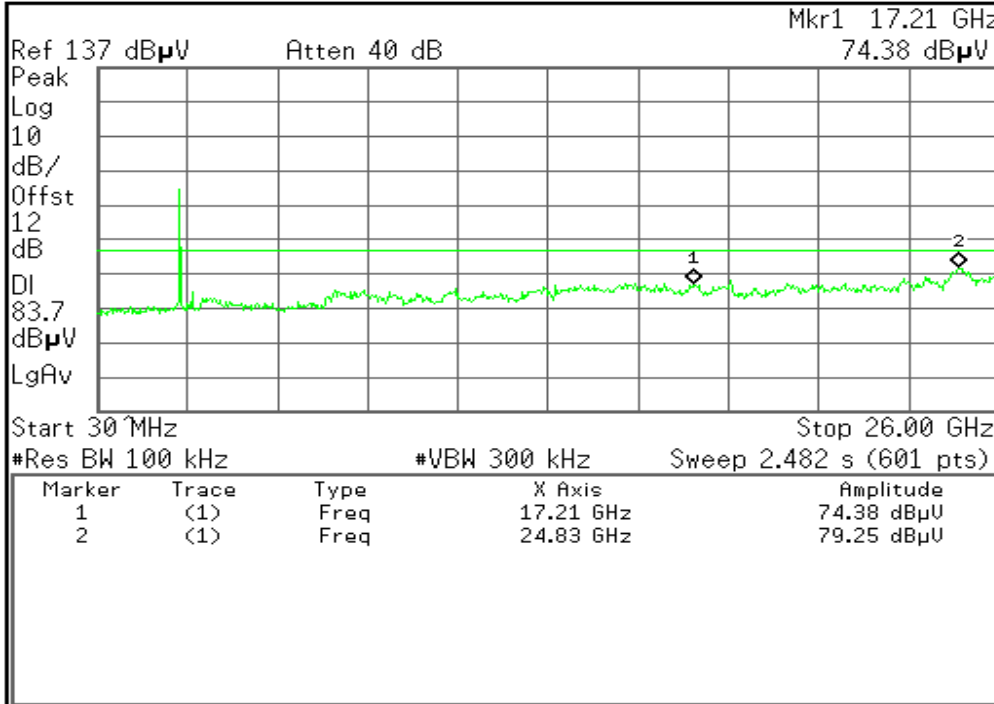
Center Freq	2.40000000 GHz
Start Freq	2.37500000 GHz
Stop Freq	2.42500000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent

R T

Freq/Channel



Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

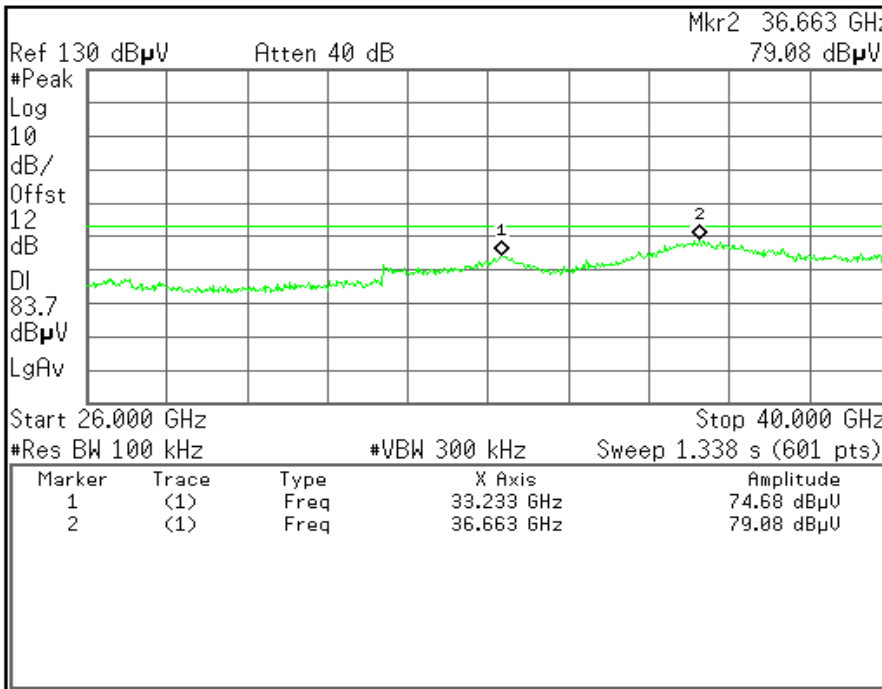
Copyright 2000-2008 Agilent Technologies



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent



Freq/Channel

Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

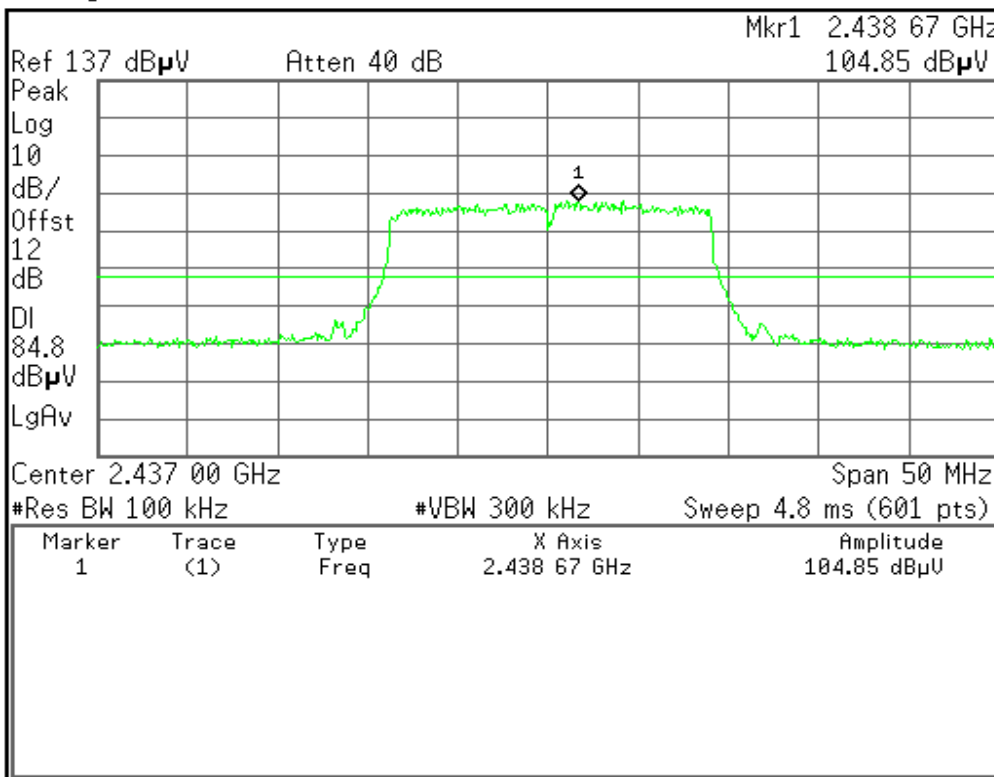
Freq Offset
0.00000000 Hz

Signal Track
On Off

File Operation Status, A:\SCREN067.GIF file saved

CH Mid

Agilent



R T

Freq/Channel

Center Freq
2.43700000 GHz

Start Freq
2.41200000 GHz

Stop Freq
2.46200000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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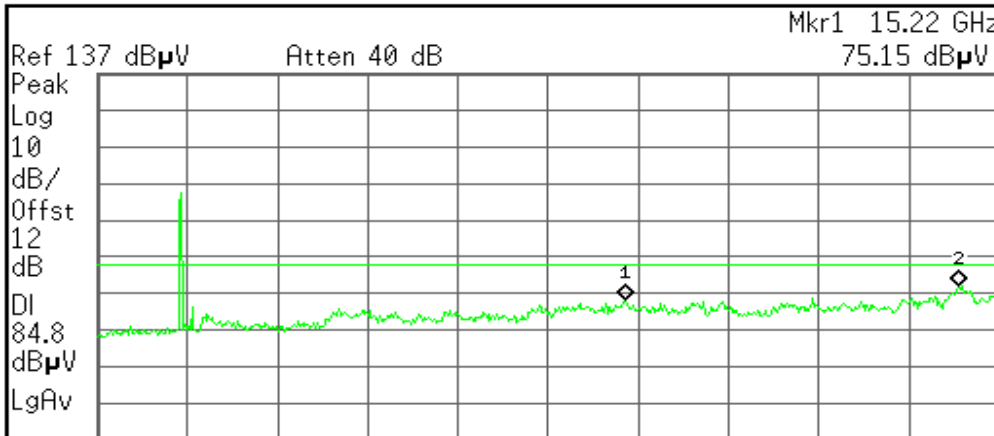


Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T



Start 30 MHz Stop 26.00 GHz²
#Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	15.22 GHz	75.15 dB μ V
2	(1)	Freq	24.83 GHz	78.97 dB μ V

Freq/Channel

Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

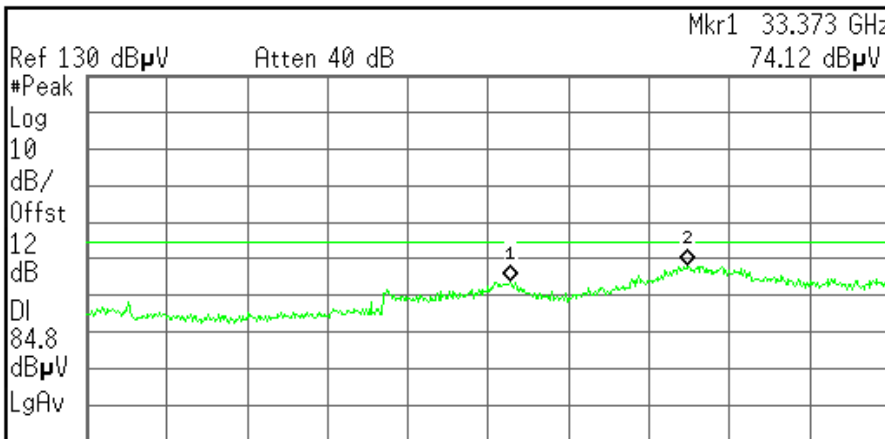
CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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Agilent



Start 26.000 GHz Stop 40.000 GHz²
#Res BW 100 kHz #VBW 300 kHz Sweep 1.338 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	33.373 GHz	74.12 dB μ V
2	(1)	Freq	36.453 GHz	78.51 dB μ V

Freq/Channel

Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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Compliance Certification Services Inc.

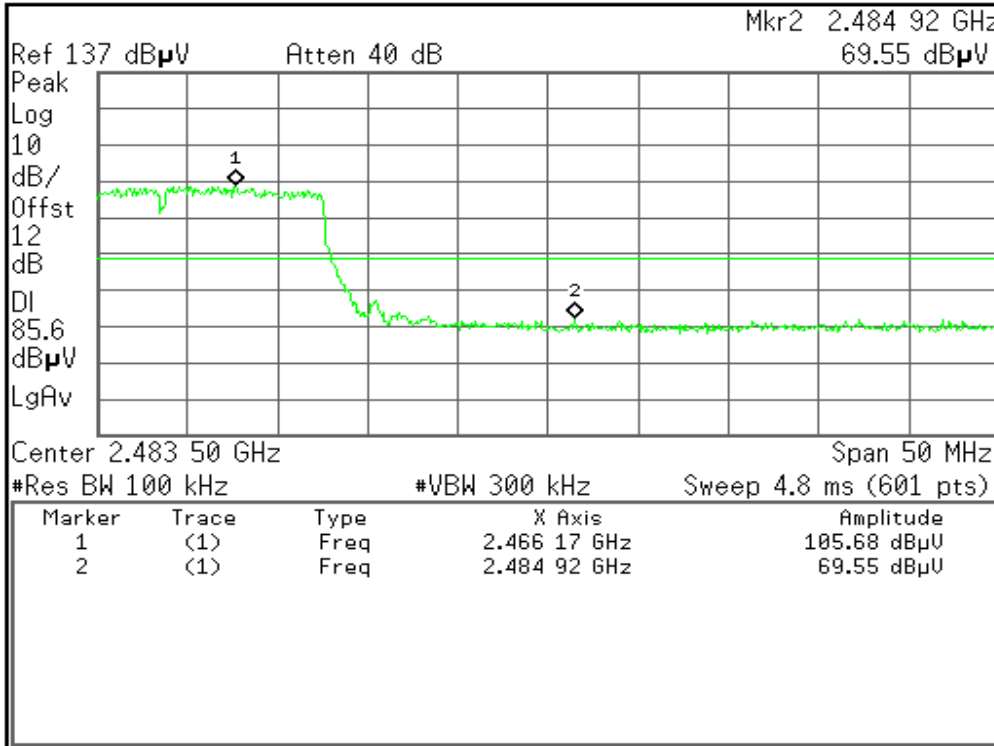
Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

CH High

Agilent

R T

Freq/Channel



Center Freq
2.48350000 GHz

Start Freq
2.45850000 GHz

Stop Freq
2.50850000 GHz

CF Step
5.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

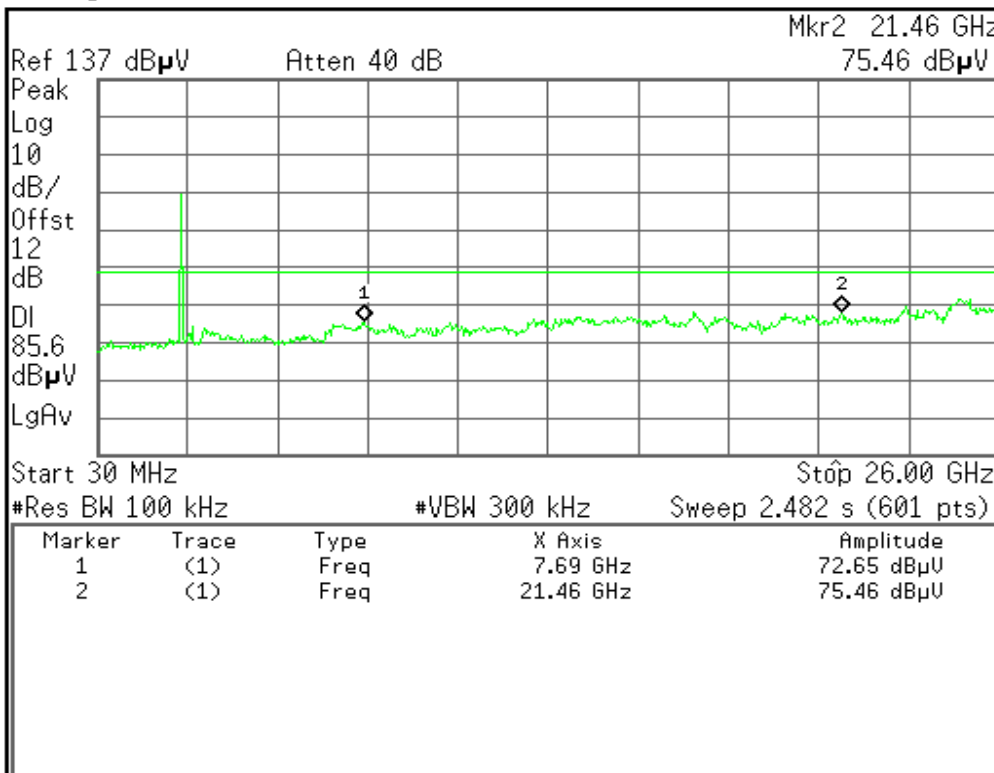
Signal Track
On Off

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Agilent

R T

Freq/Channel



Center Freq
13.01500000 GHz

Start Freq
30.00000000 MHz

Stop Freq
26.00000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

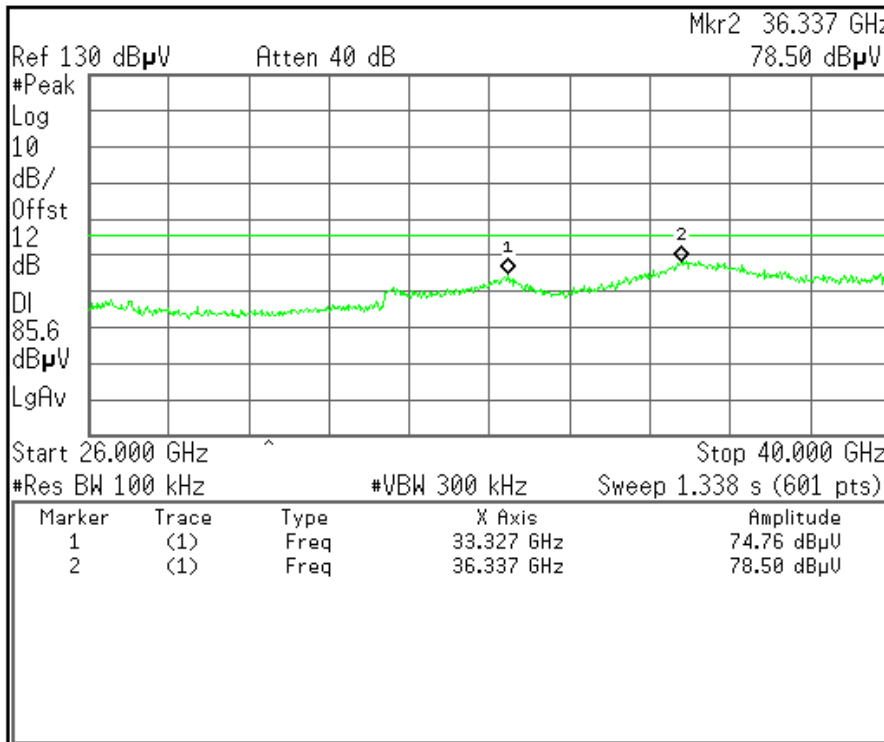
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Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent



Freq/Channel

Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

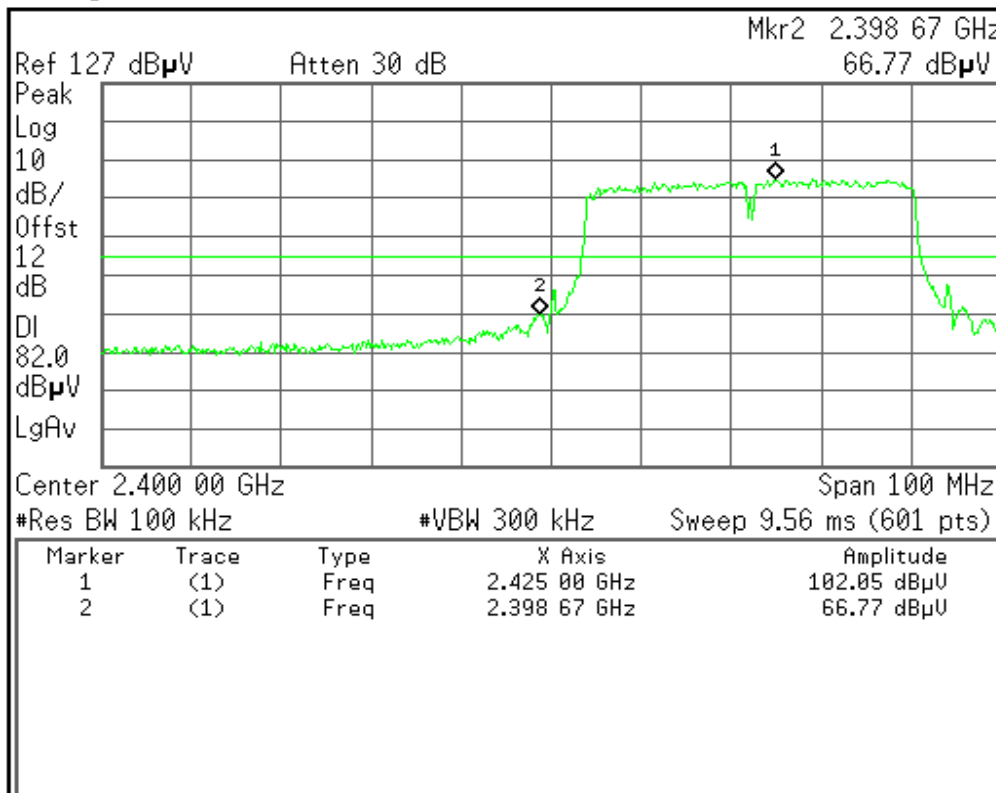
Signal Track
On Off

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IEEE 802.11n Wide-40 MHz Channel mode

CH Low

Agilent



R T

Freq/Channel

Center Freq
2.40000000 GHz

Start Freq
2.35000000 GHz

Stop Freq
2.45000000 GHz

CF Step
10.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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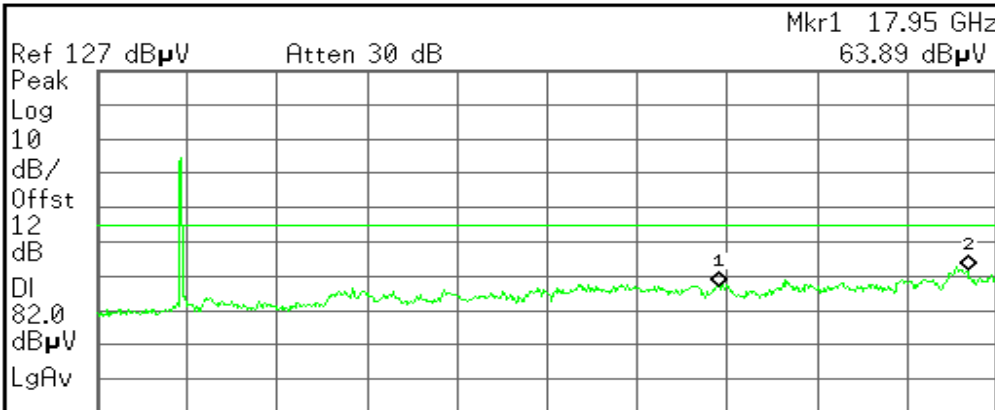
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Mkr1 17.95 GHz
63.89 dBμV

Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Ref 127 dBμV Atten 30 dB
Start 30 MHz Stop 26.00 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (601 pts)

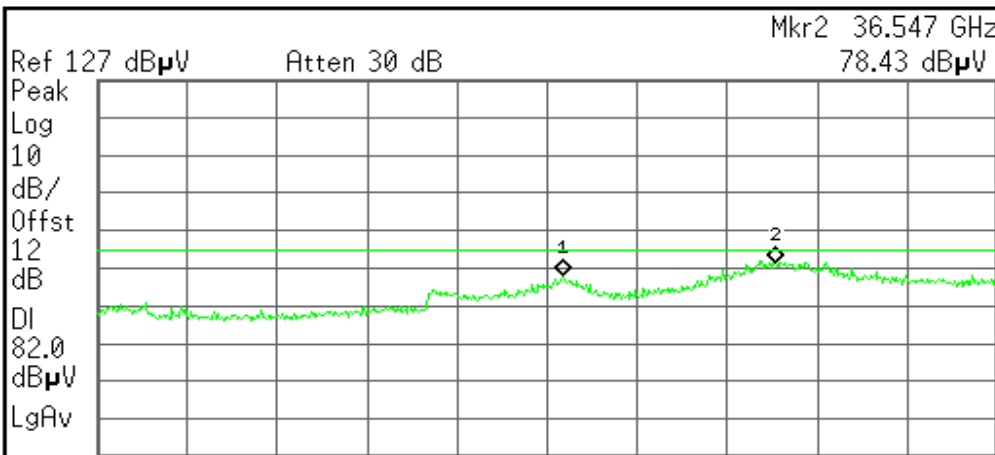
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	17.95 GHz	63.89 dBμU
2	(1)	Freq	25.13 GHz	68.72 dBμU

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Agilent

R T

Freq/Channel



Mkr2 36.547 GHz
78.43 dBμV

Center Freq
33.0000000 GHz

Start Freq
26.0000000 GHz

Stop Freq
40.0000000 GHz

CF Step
1.40000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Ref 127 dBμV Atten 30 dB
Start 26.000 GHz Stop 40.000 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.338 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	33.257 GHz	74.89 dBμU
2	(1)	Freq	36.547 GHz	78.43 dBμU

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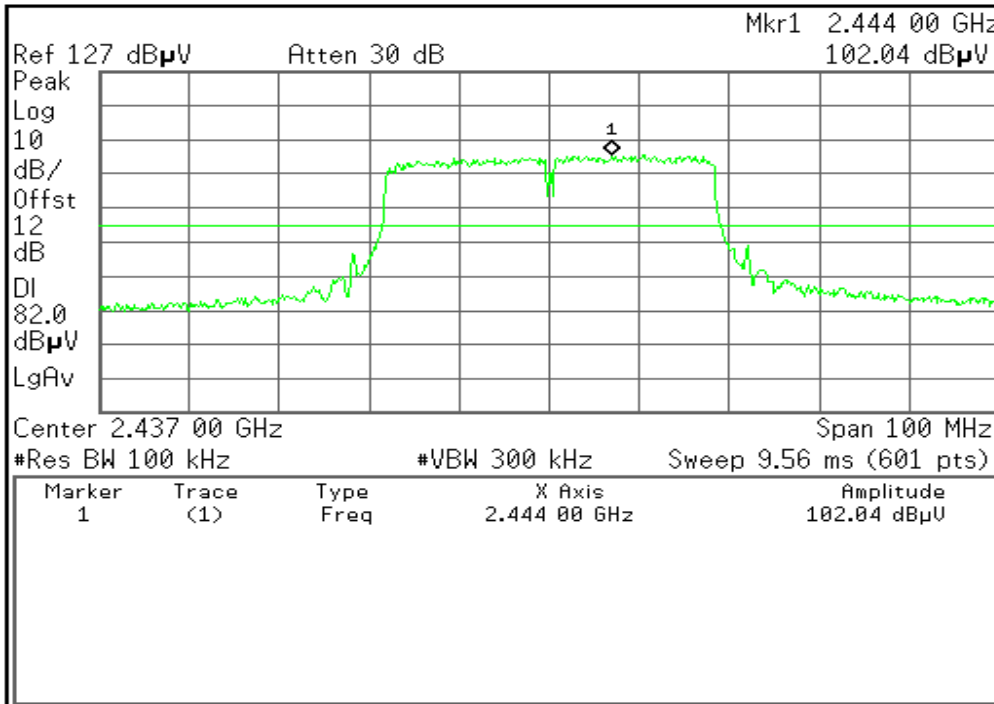
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

CH Mid

Agilent

R T

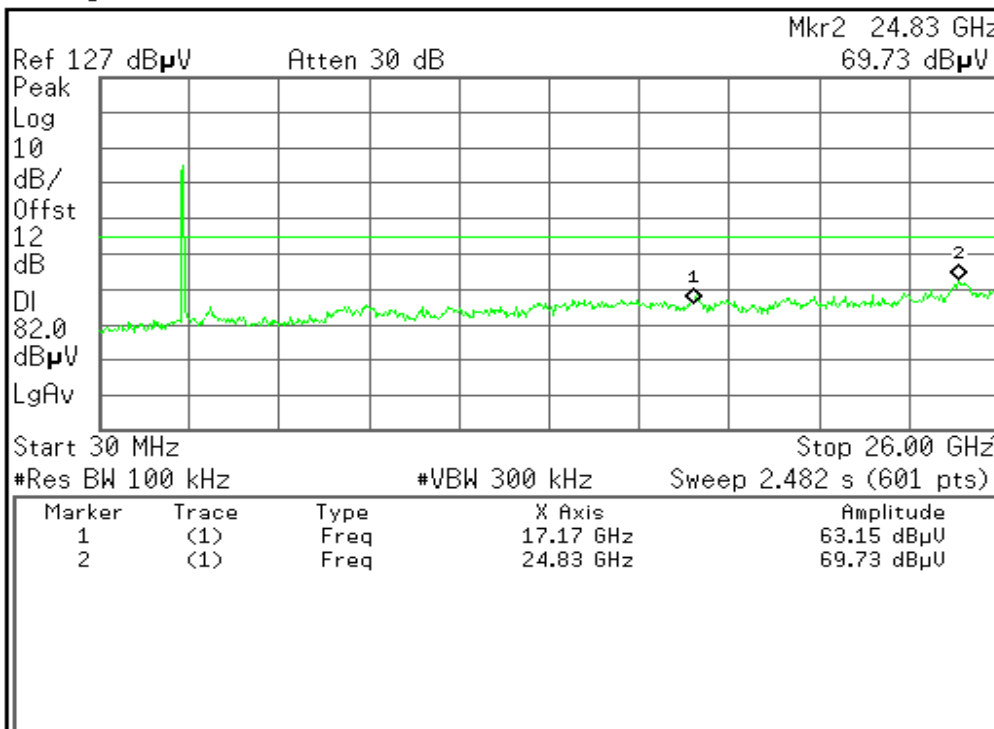


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.48700000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent

R T



Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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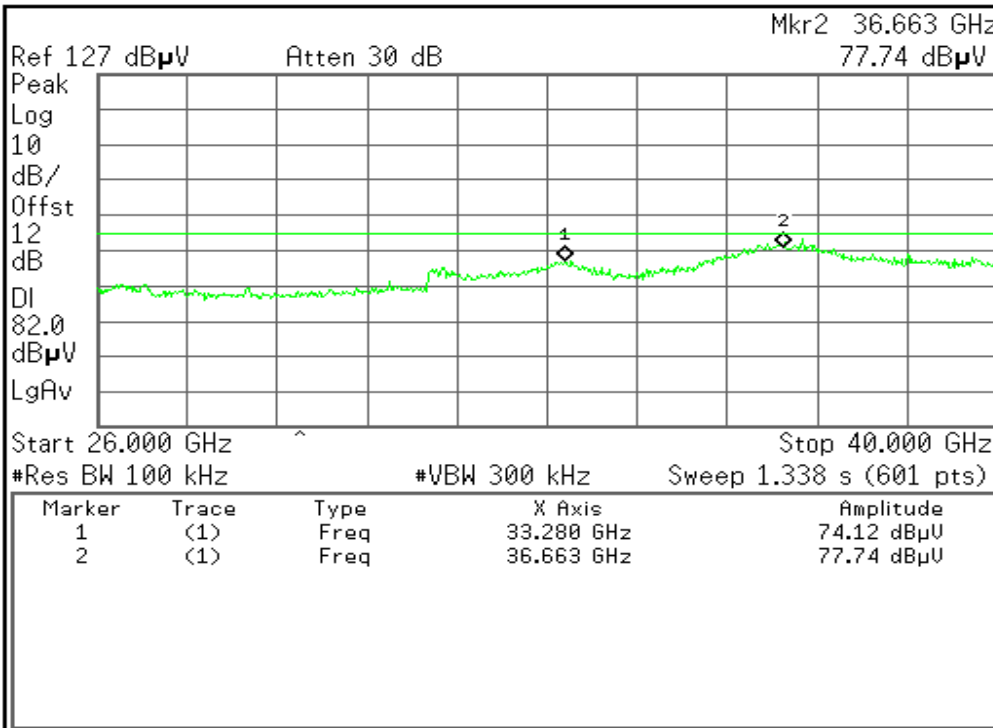
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



Center Freq 33.0000000 GHz

Start Freq 26.0000000 GHz

Stop Freq 40.0000000 GHz

CF Step 1.40000000 GHz
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

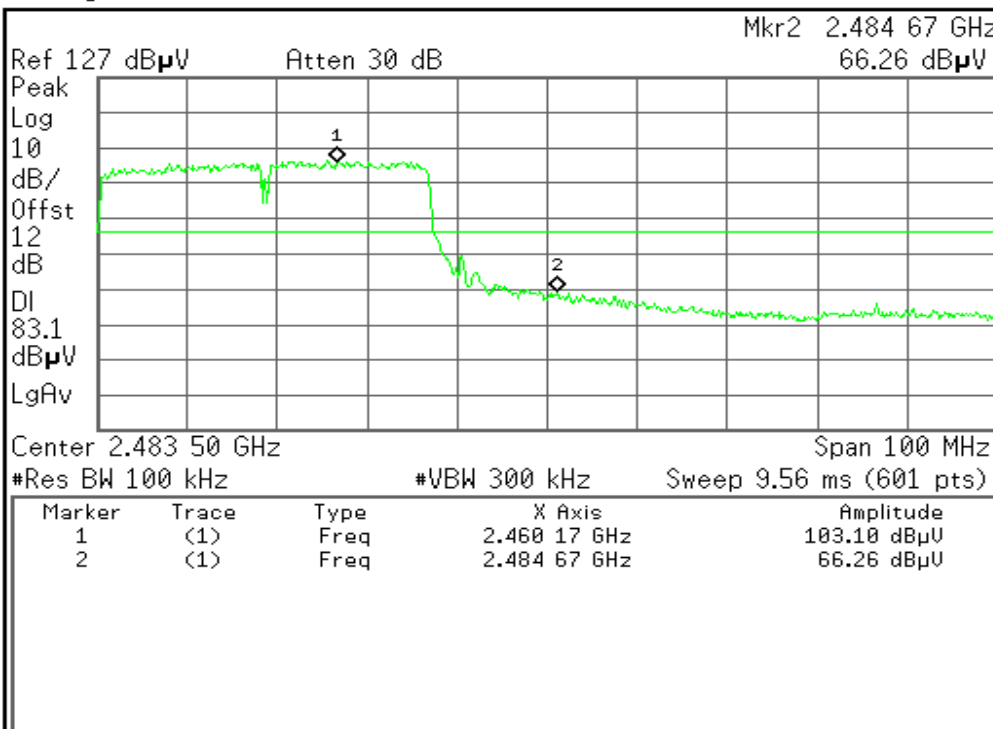
Copyright 2000-2008 Agilent Technologies

CH High

Agilent

R T

Freq/Channel



Center Freq 2.48350000 GHz

Start Freq 2.43350000 GHz

Stop Freq 2.53350000 GHz

CF Step 10.0000000 MHz
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

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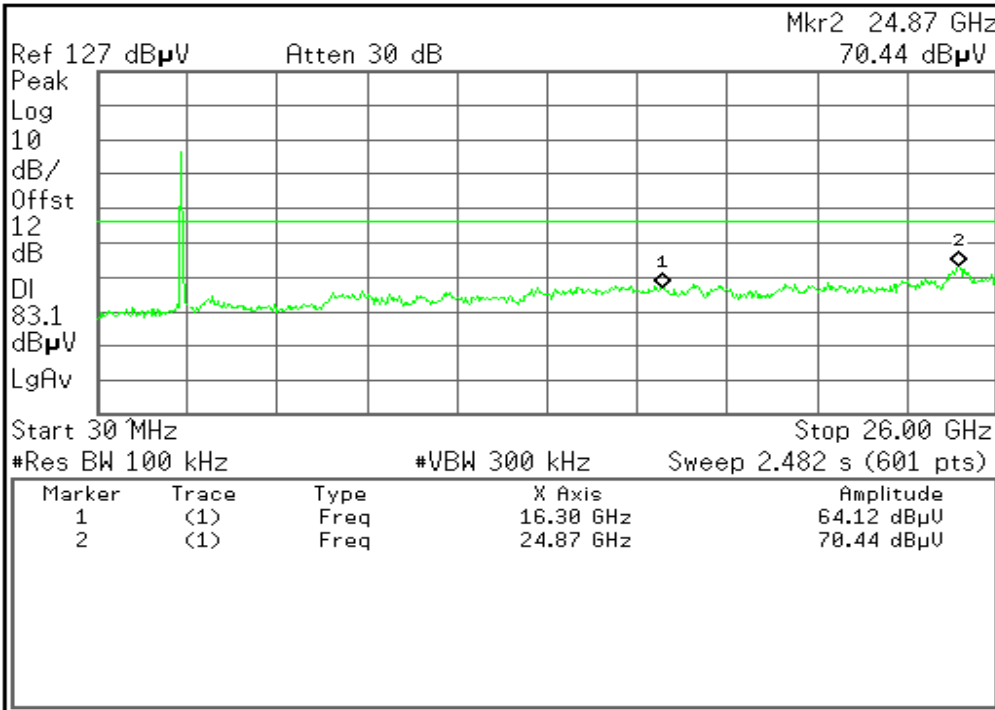
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Agilent

R T

Freq/Channel



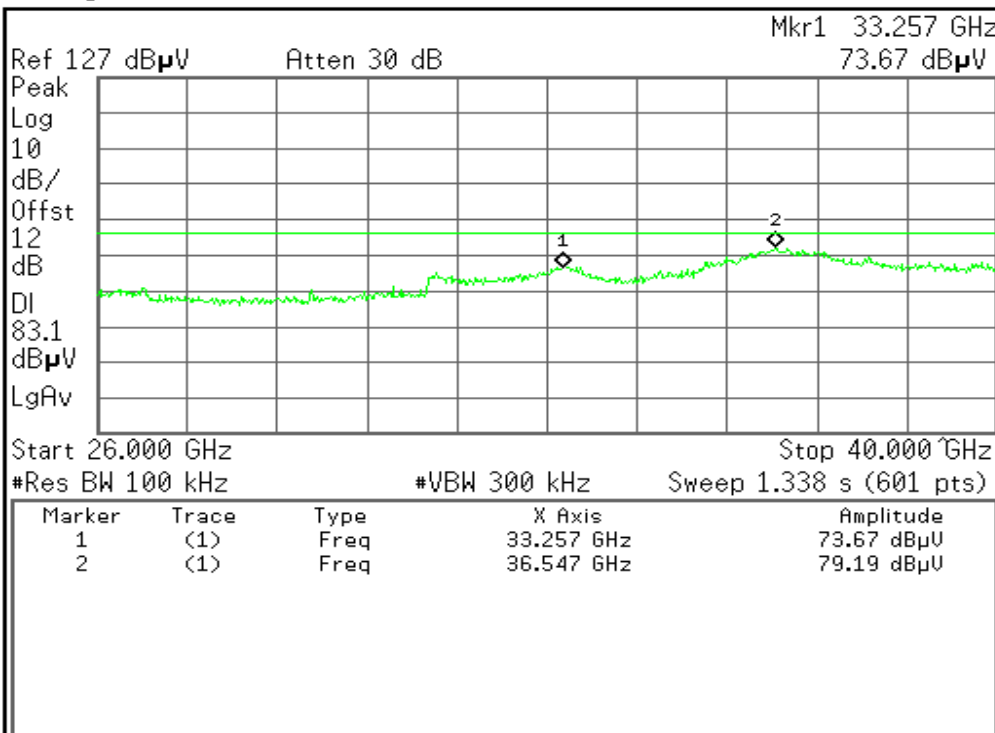
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent

R T

Freq/Channel



Center Freq	33.0000000 GHz
Start Freq	26.0000000 GHz
Stop Freq	40.0000000 GHz
CF Step	1.40000000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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7.5.2 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 ($\mu\text{V}/\text{m}$)	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.

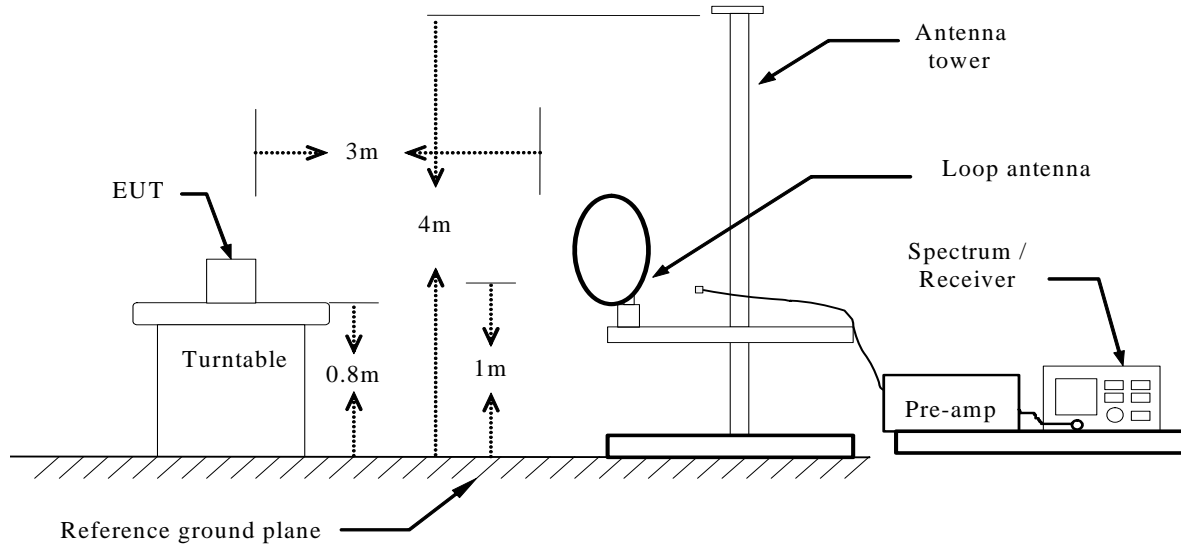
2. In the emission table above, the tighter limit applies at the band edges.

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

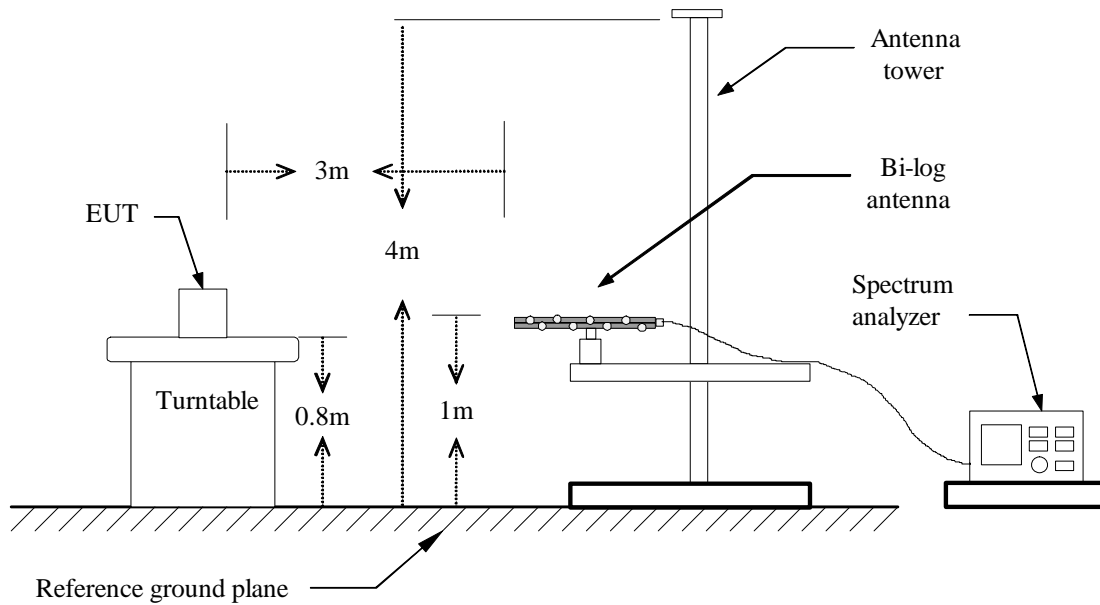


Test Configuration

Below 30MHz

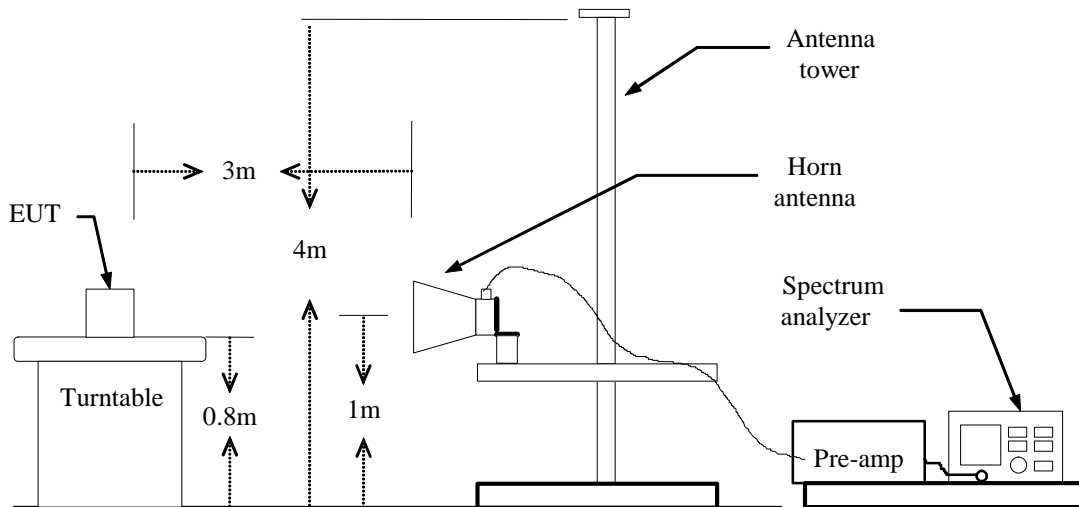


Below 1 GHz





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.

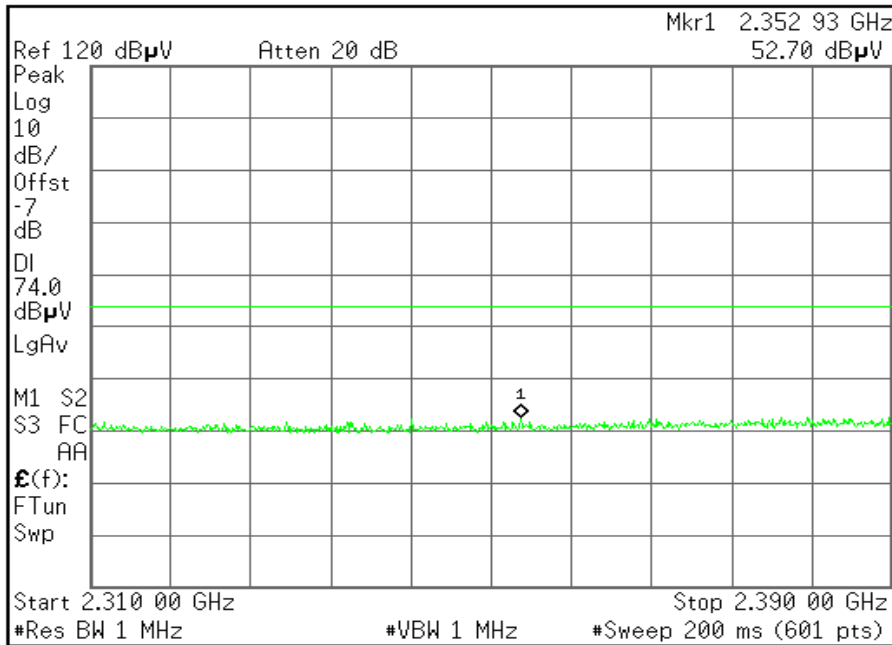


TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

PEAK

Agilent

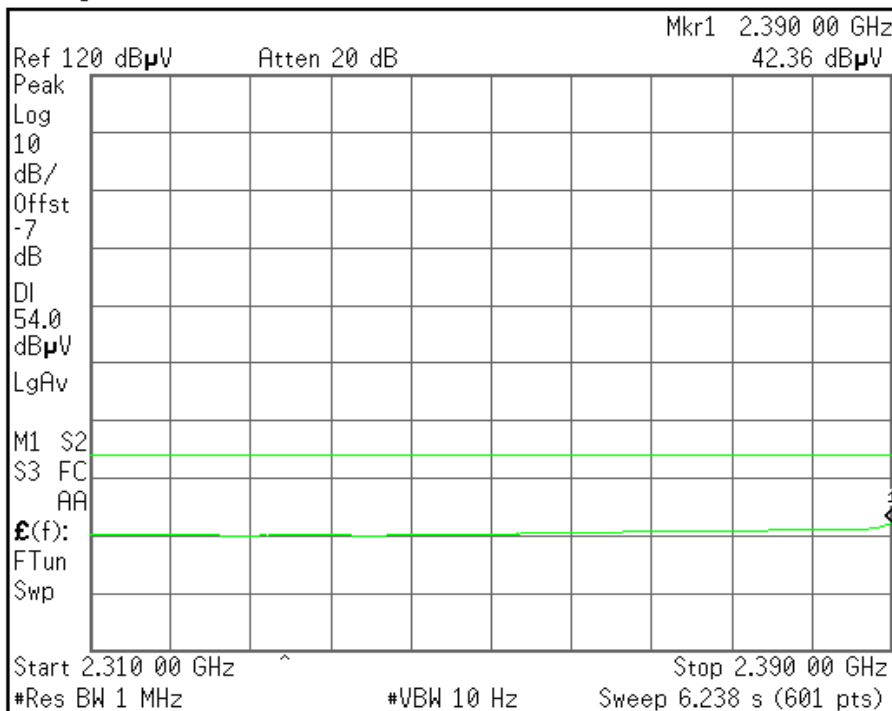


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

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AVG

Agilent



Freq/Channel
Center Freq 2.35000000 GHz
Start Freq 2.31000000 GHz
Stop Freq 2.39000000 GHz
CF Step 8.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Copyright 2000-2007 Agilent Technologies



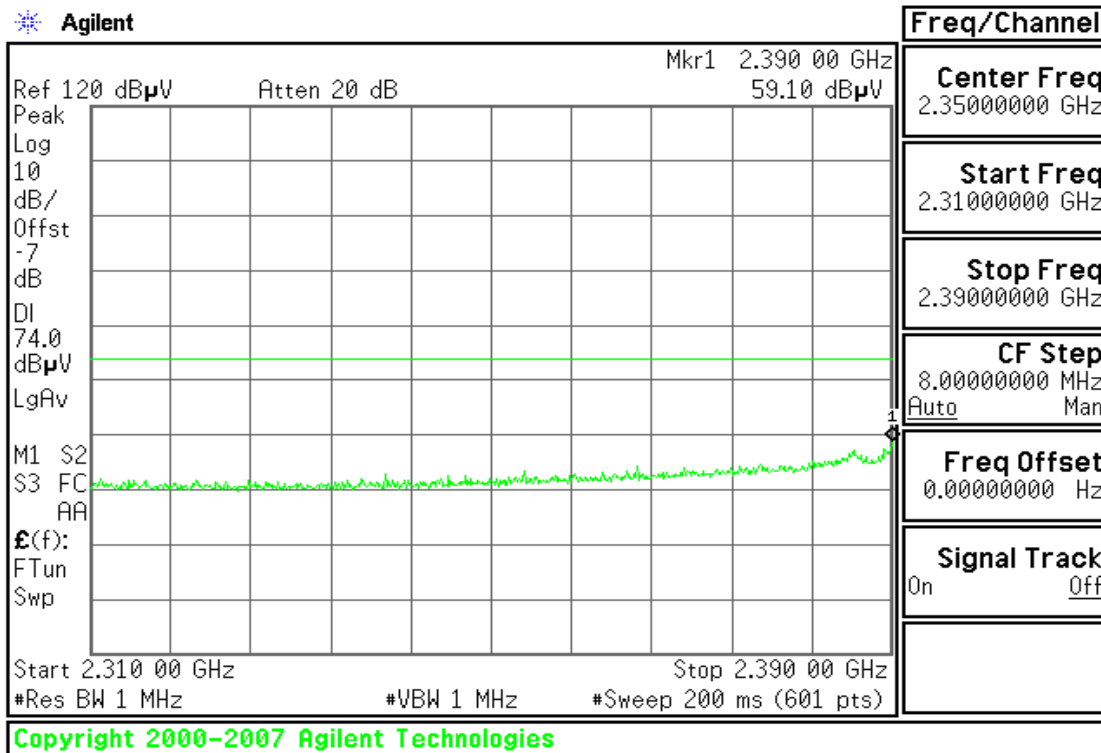
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

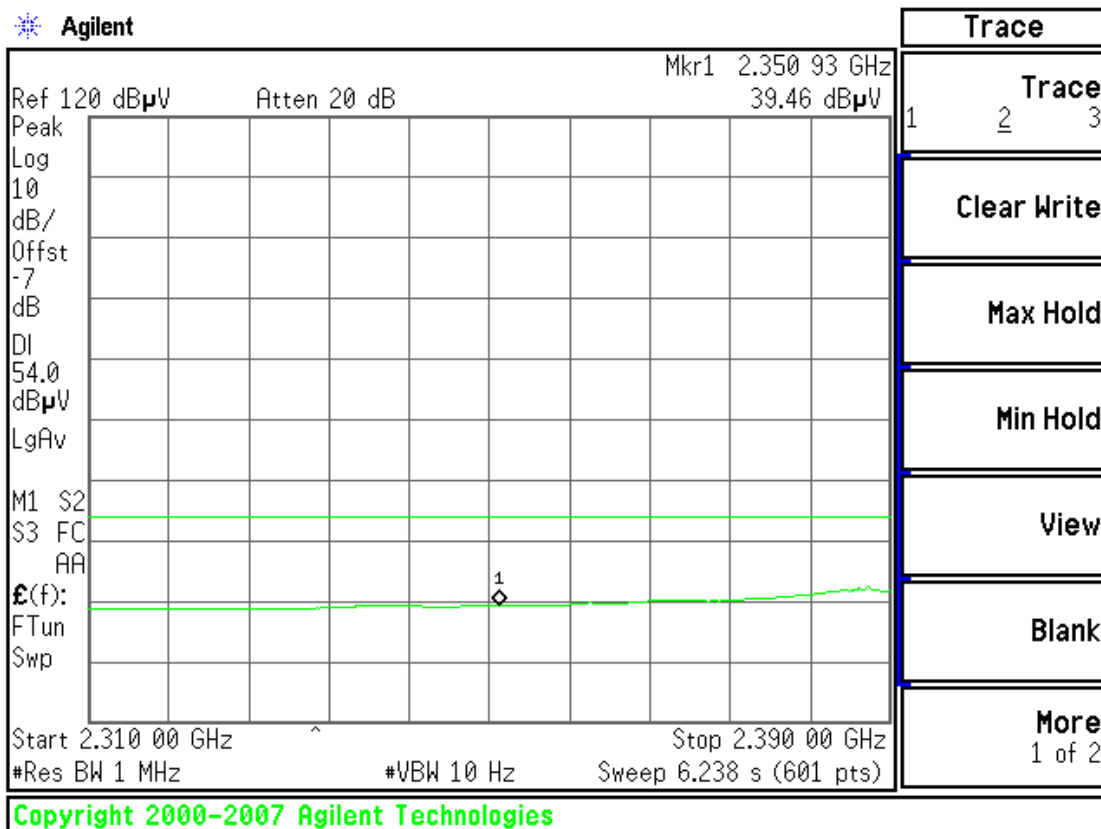
PEAK

Agilent



AVG

Agilent





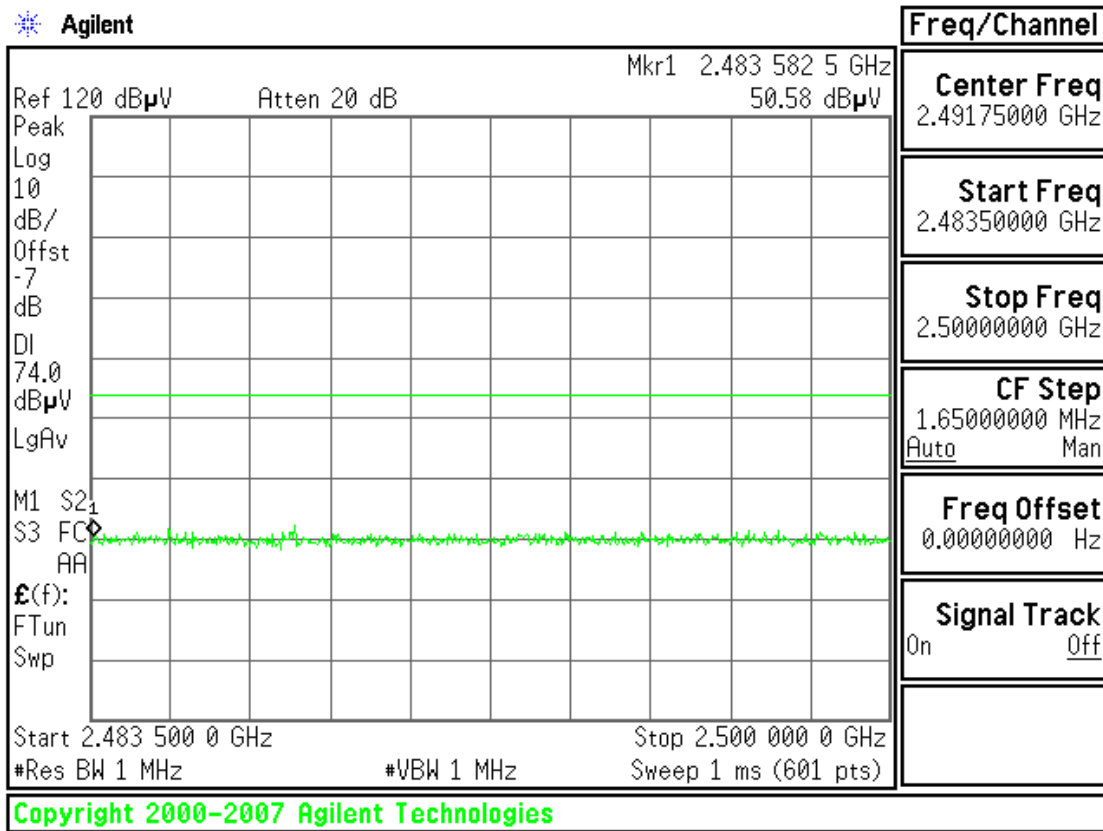
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

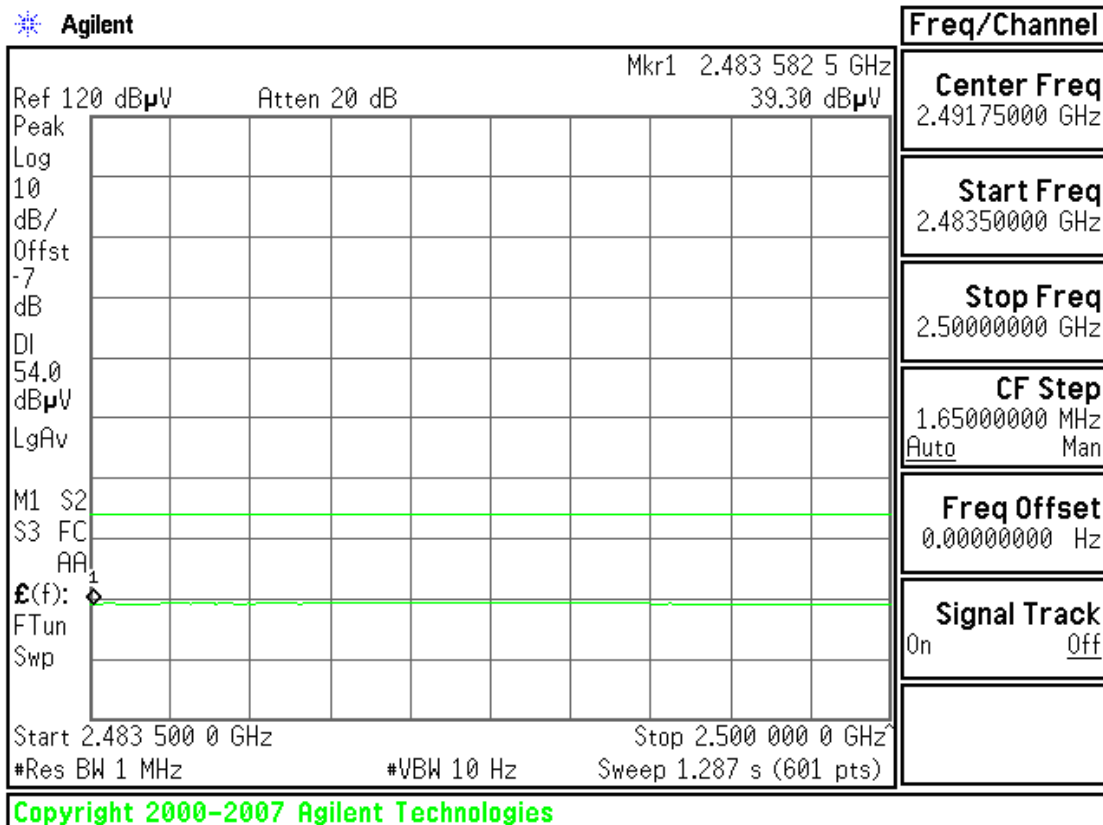
PEAK

Agilent



AVG

Agilent





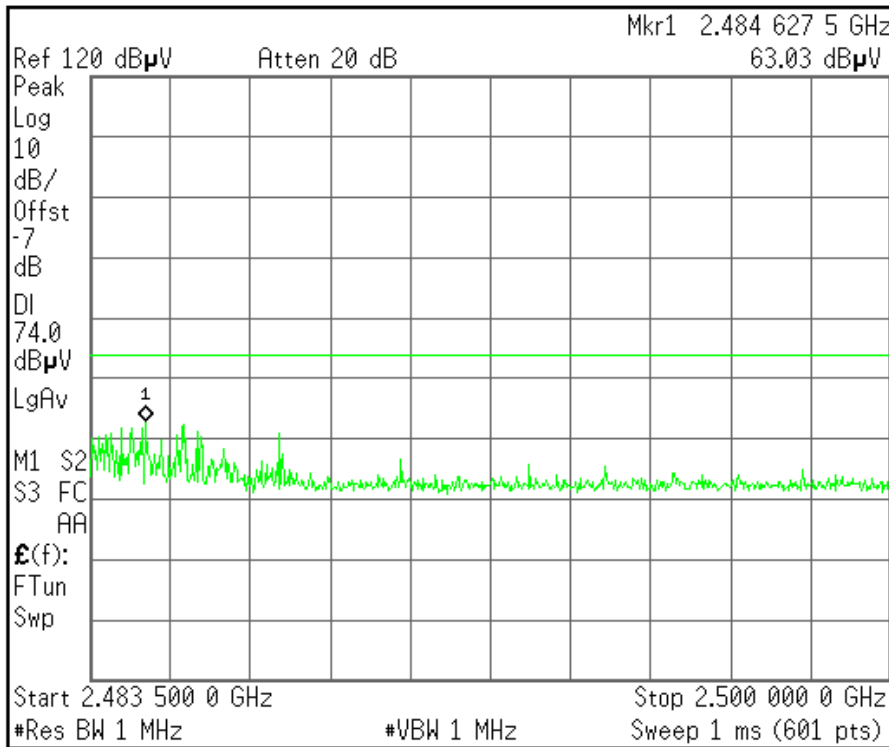
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

PEAK

Agilent



Freq/Channel

Center Freq
2.49175000 GHz

Start Freq
2.48350000 GHz

Stop Freq
2.50000000 GHz

CF Step
1.65000000 MHz
Auto Man

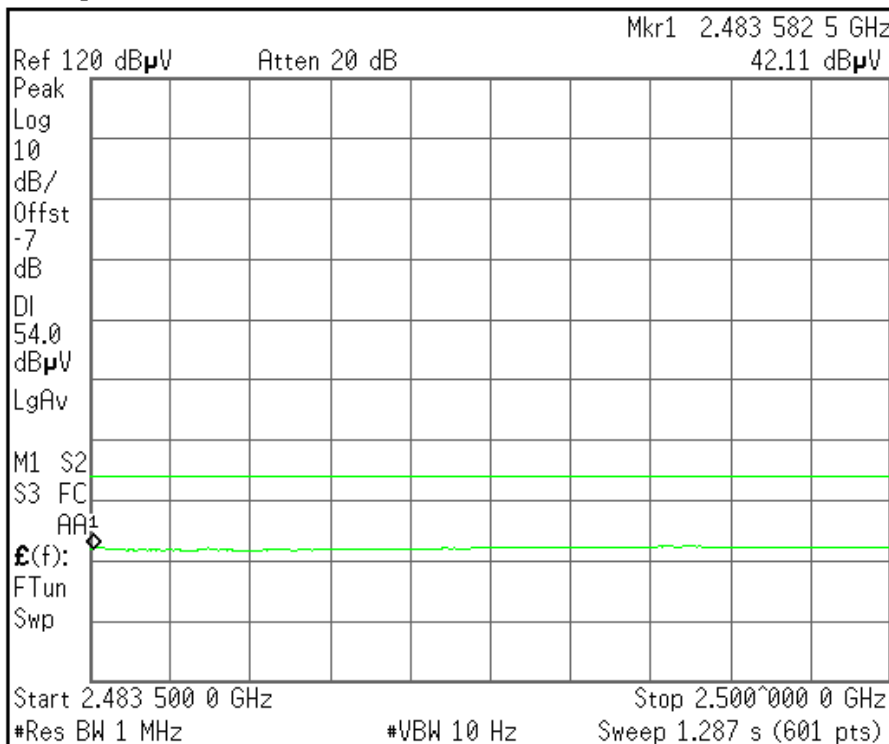
Freq Offset
0.00000000 Hz

Signal Track
On Off

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Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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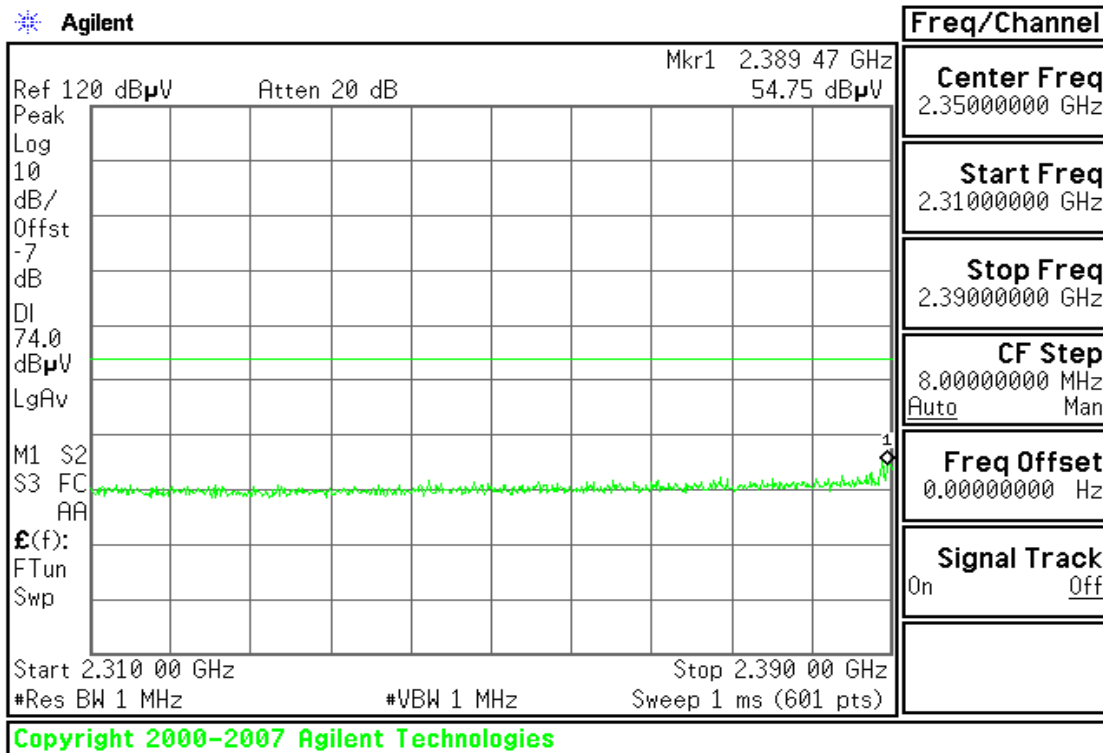
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)

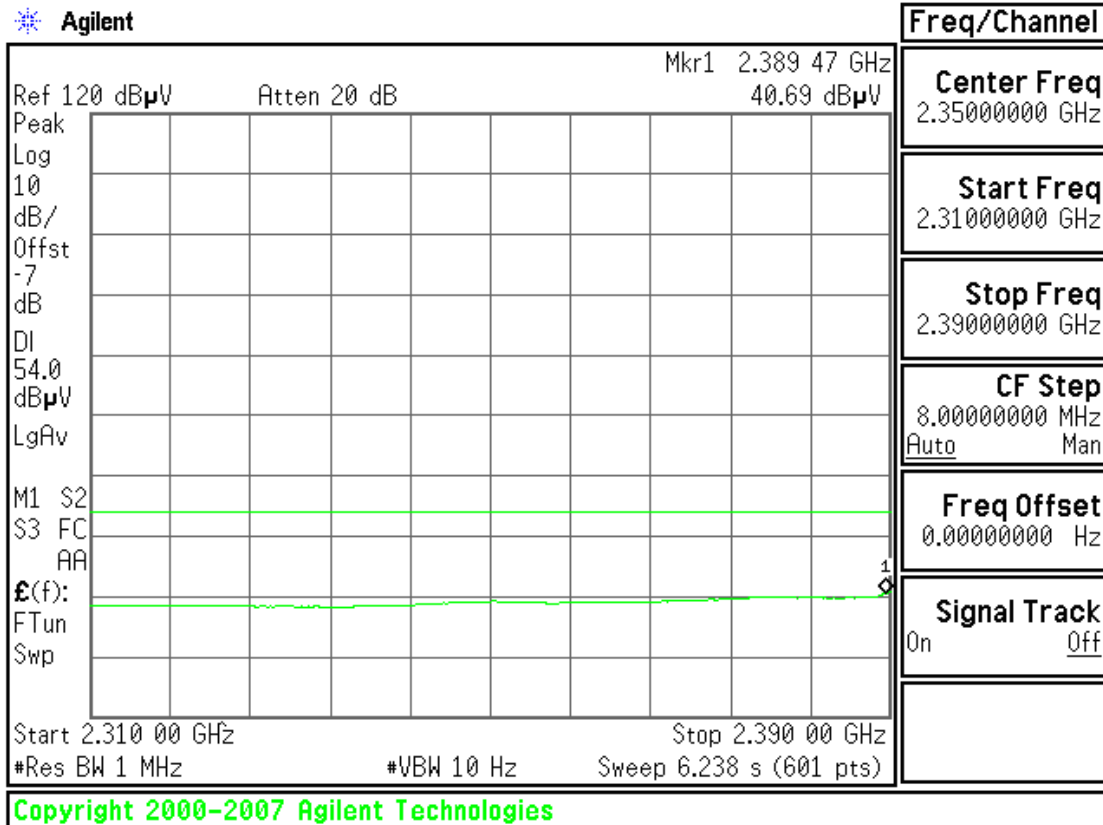
PEAK

Agilent



AVG

Agilent

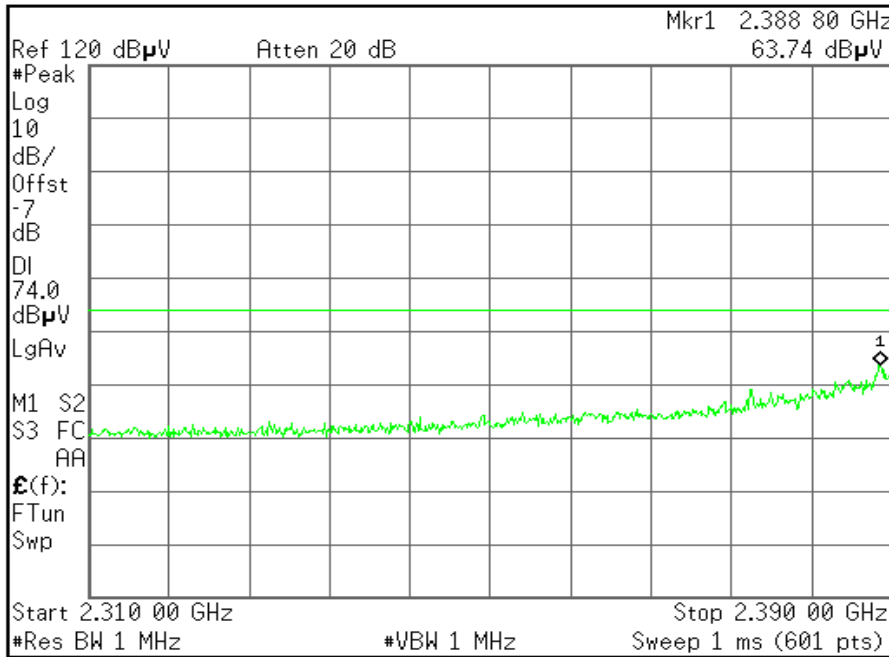




RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

PEAK

Agilent

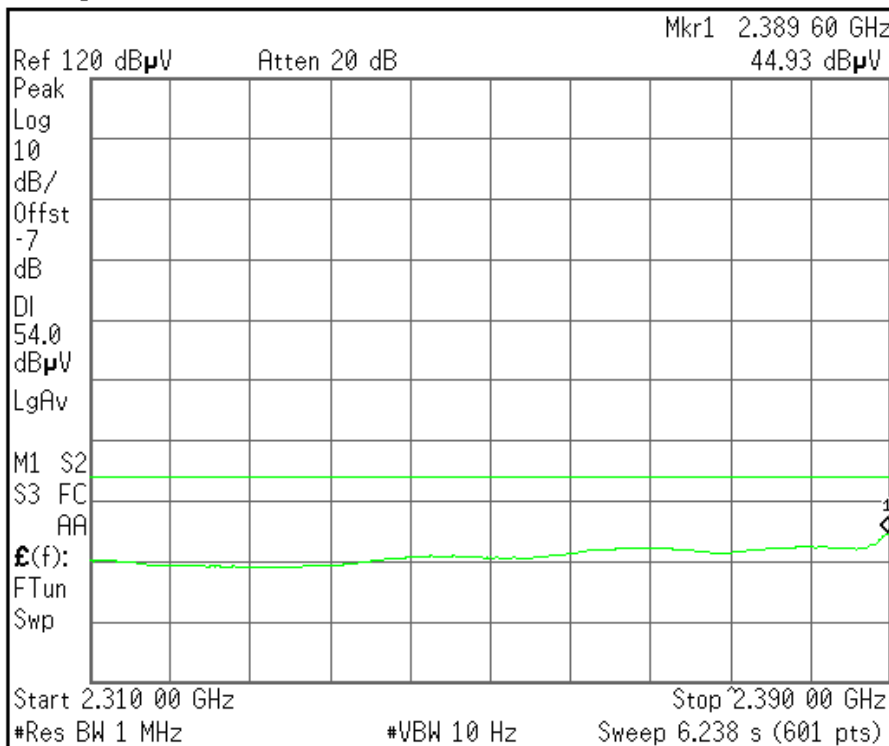


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

Unable to save file

AVG

Agilent



Freq/Channel
Center Freq 2.35000000 GHz
Start Freq 2.31000000 GHz
Stop Freq 2.39000000 GHz
CF Step 8.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

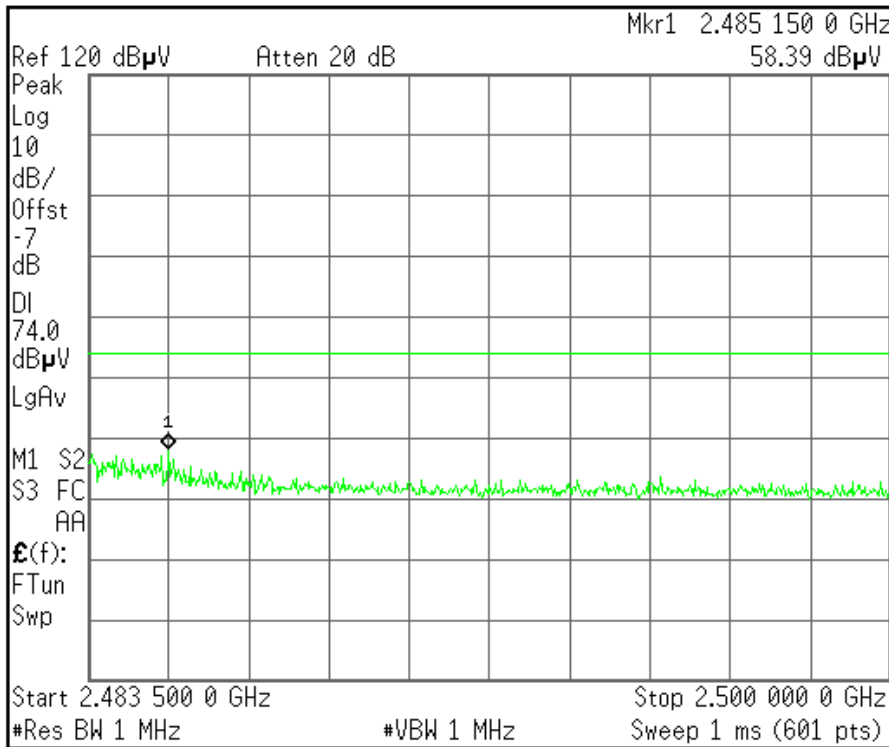
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RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

PEAK

Agilent

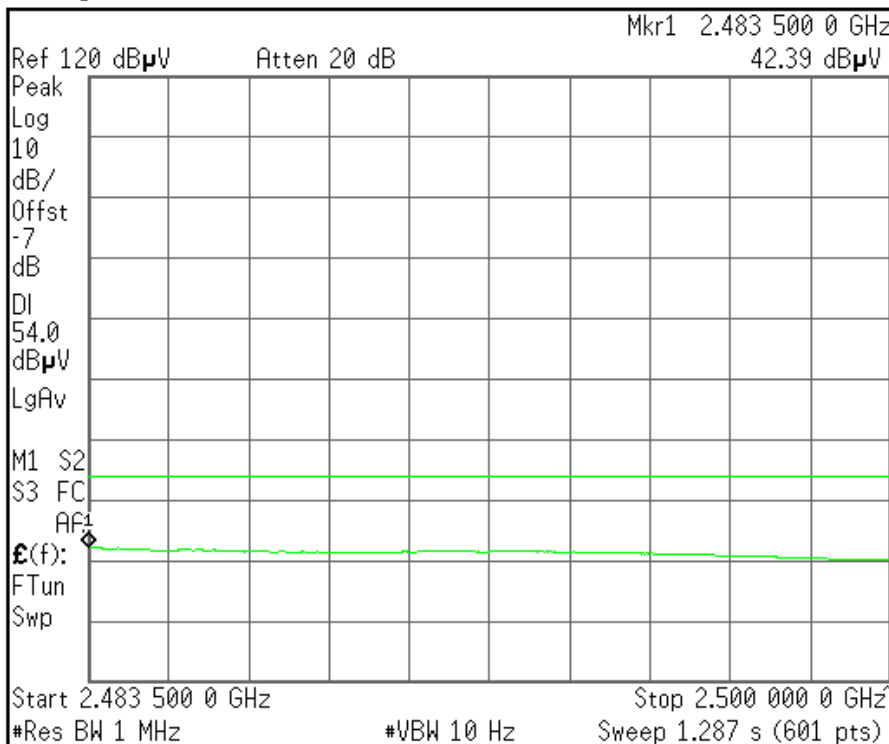


Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz
	Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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AVG

Agilent



Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz
	Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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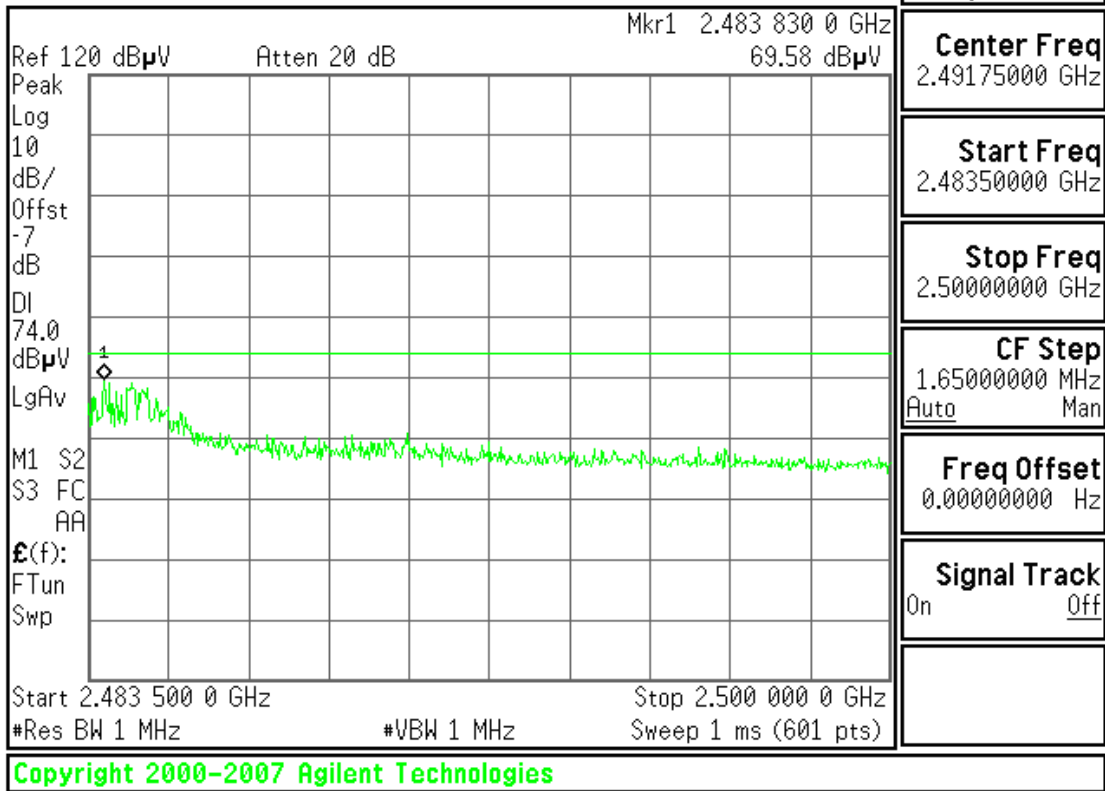
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

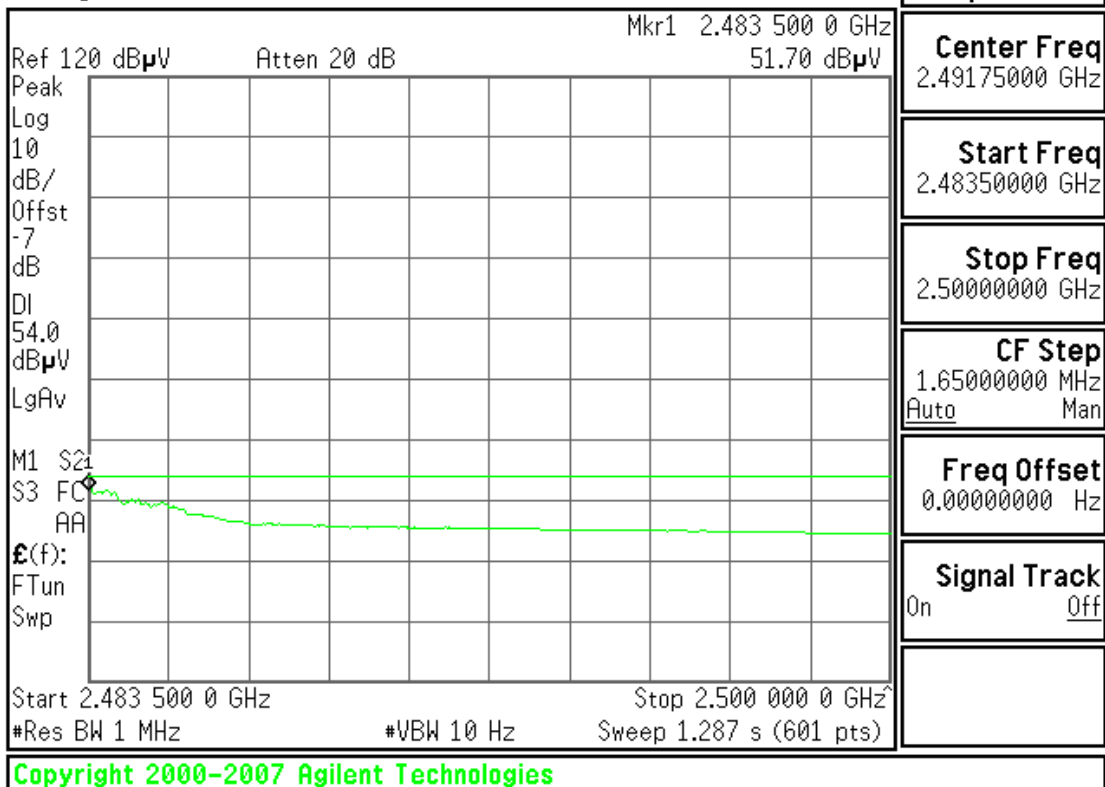
PEAK

Agilent



AVG

Agilent





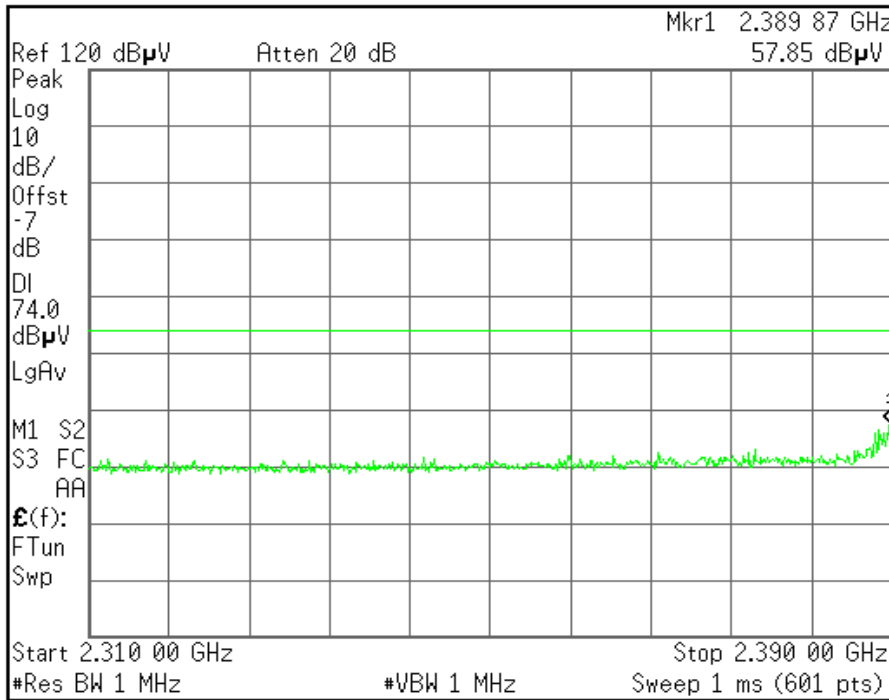
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Standard-20 MHz Channel mode, Low Channel, Horizontal)

PEAK

Agilent

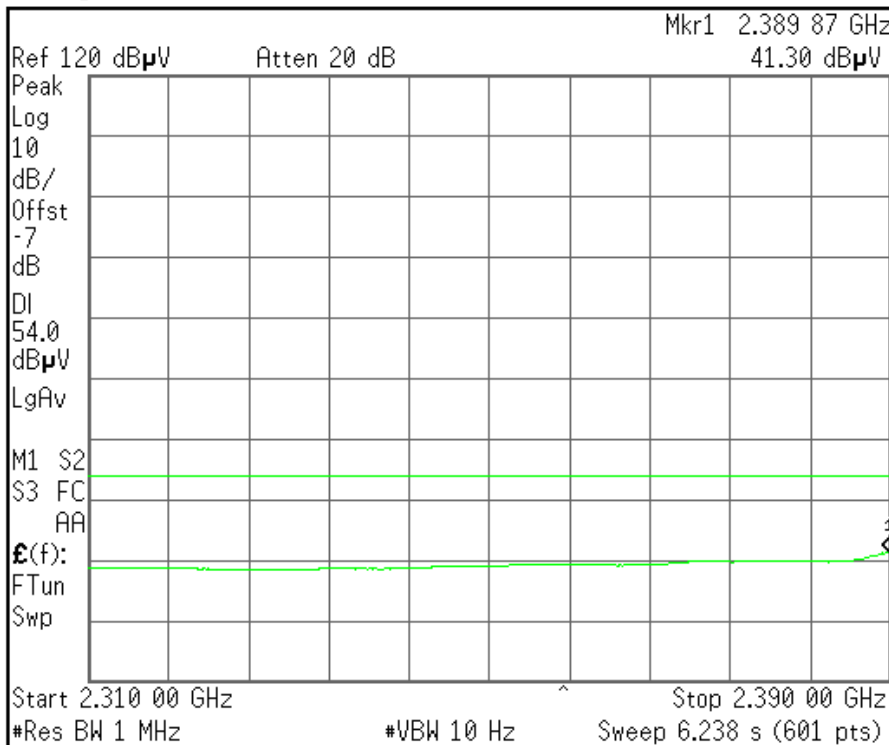


Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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AVG

Agilent



Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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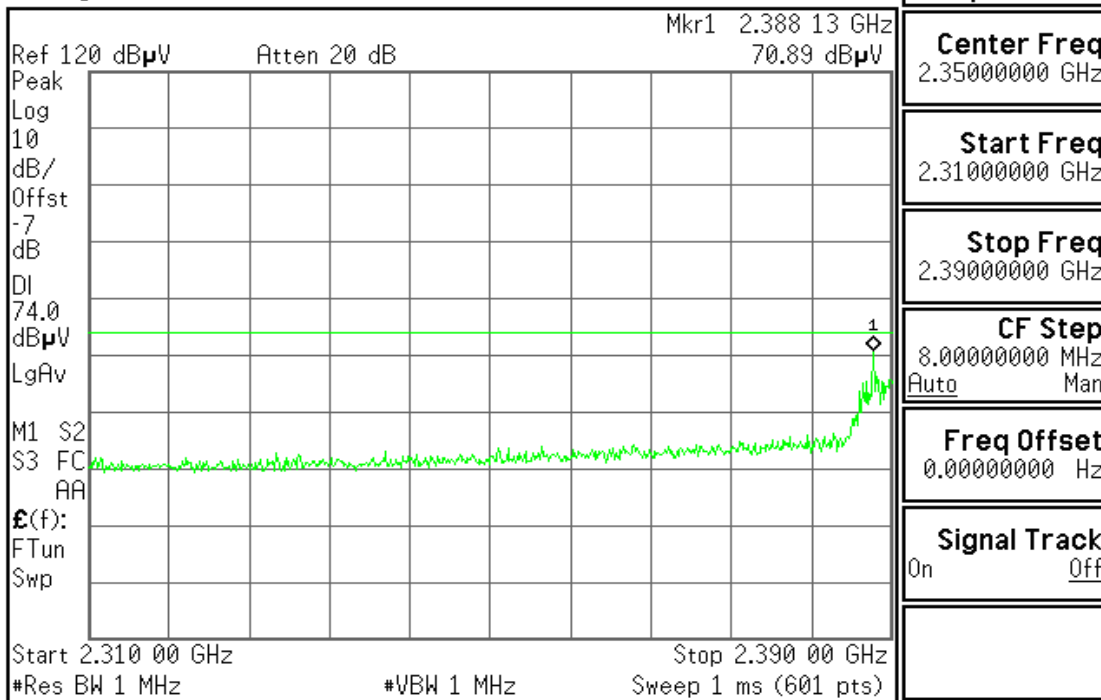
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Standard-20 MHz Channel mode, Low Channel, Vertical)

PEAK

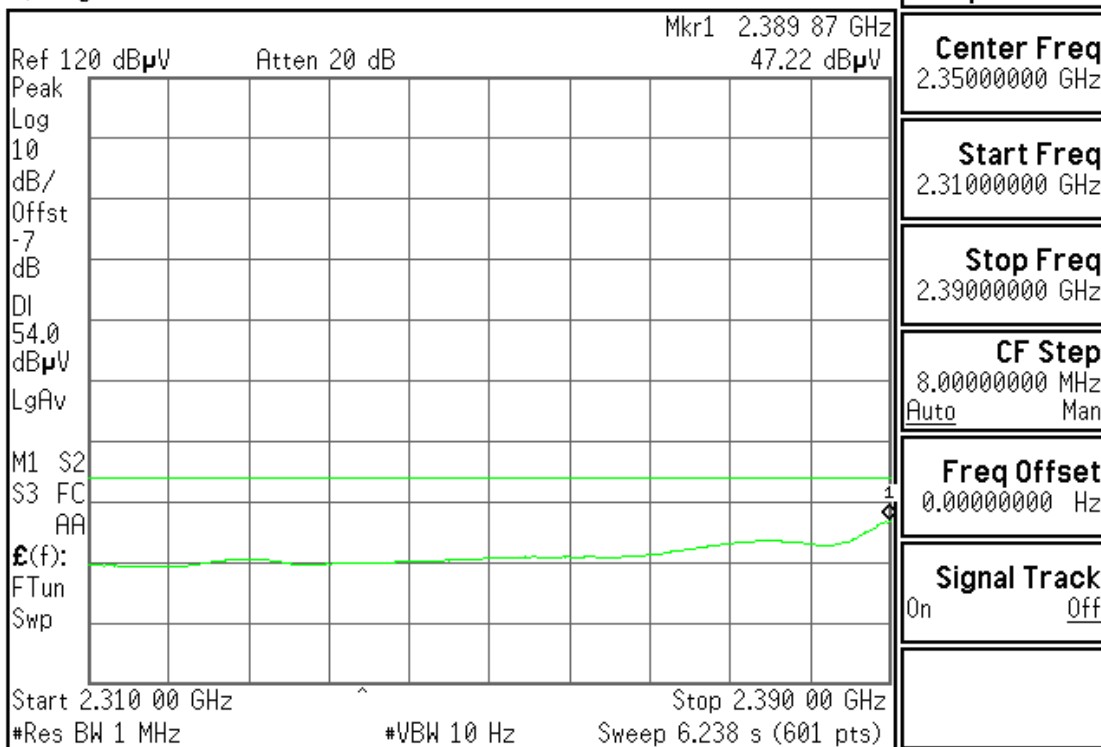
Agilent



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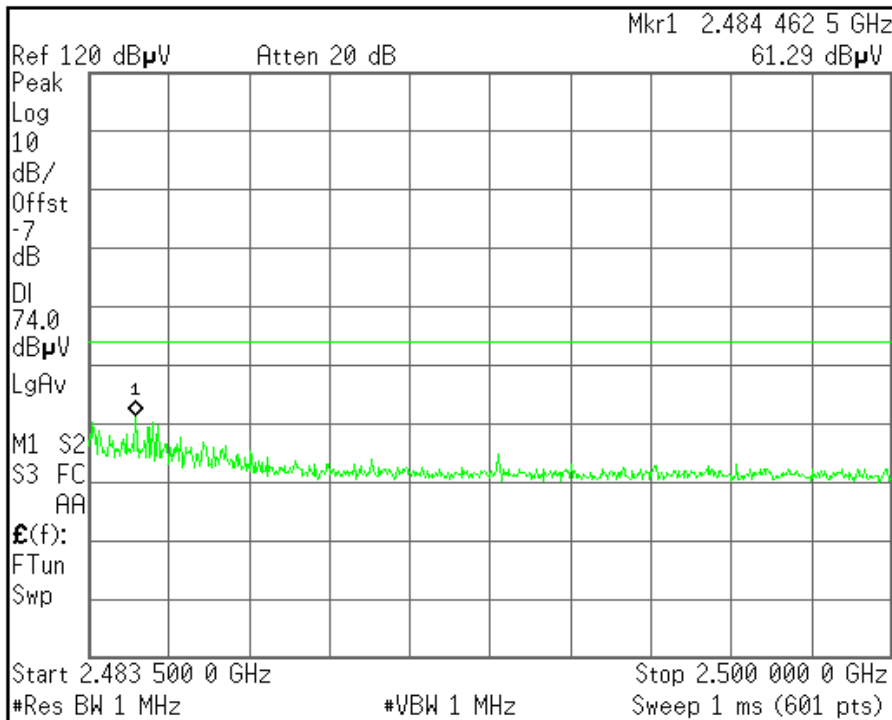
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Standard-20 MHz Channel mode, High Channel, Horizontal)

PEAK

Agilent

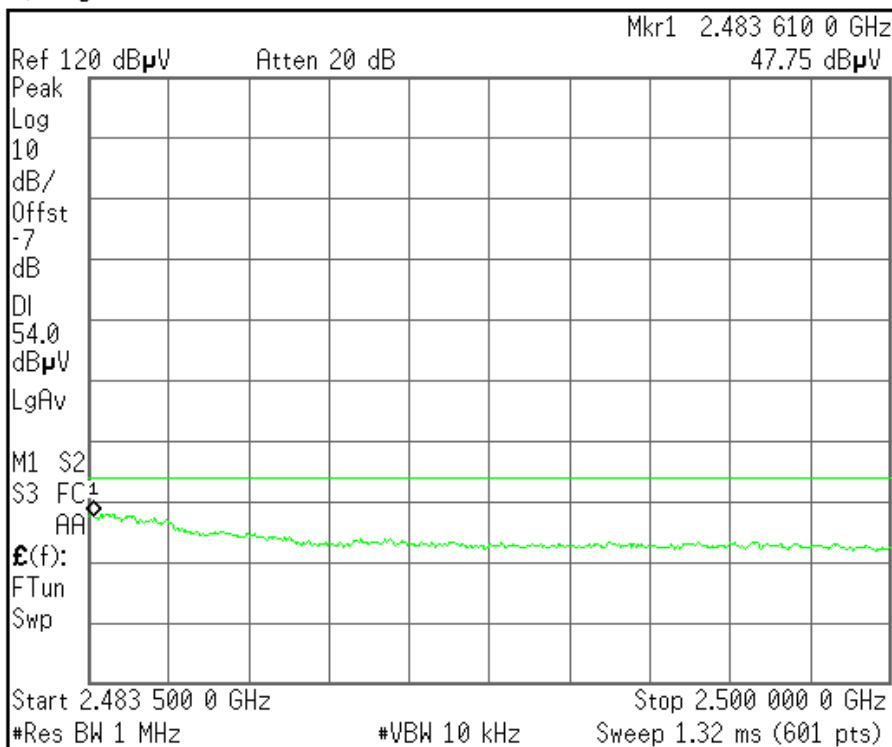


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
PK-PK Search
Mkr \rightarrow CF
More 1 of 2

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AVG

Agilent



Freq/Channel
Center Freq 2.49175000 GHz
Start Freq 2.48350000 GHz
Stop Freq 2.50000000 GHz
CF Step 1.65000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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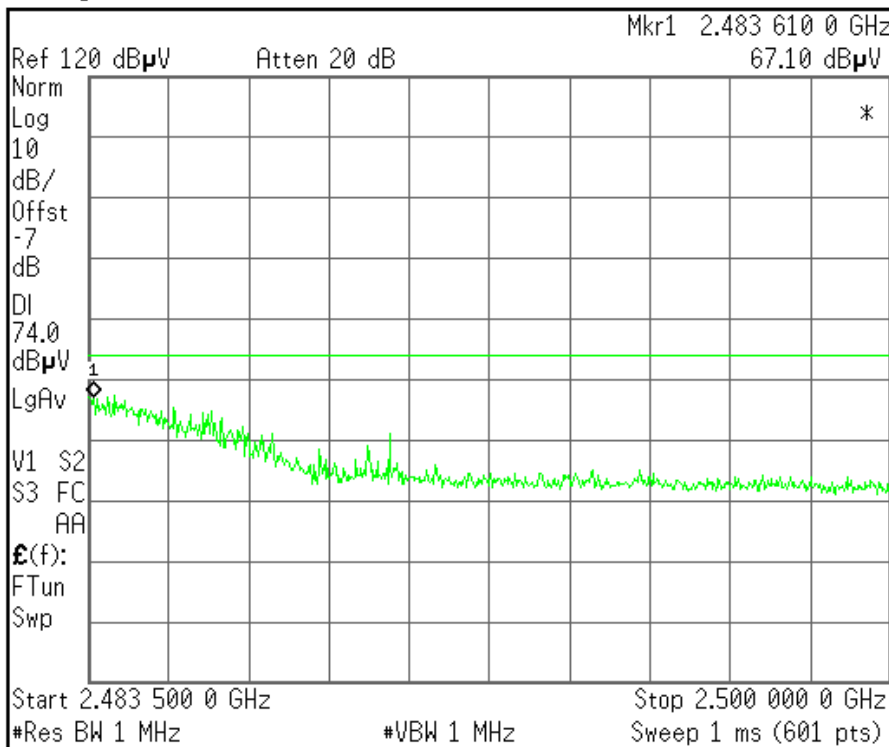
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Standard-20 MHz Channel mode, High Channel, Vertical)

PEAK

Agilent

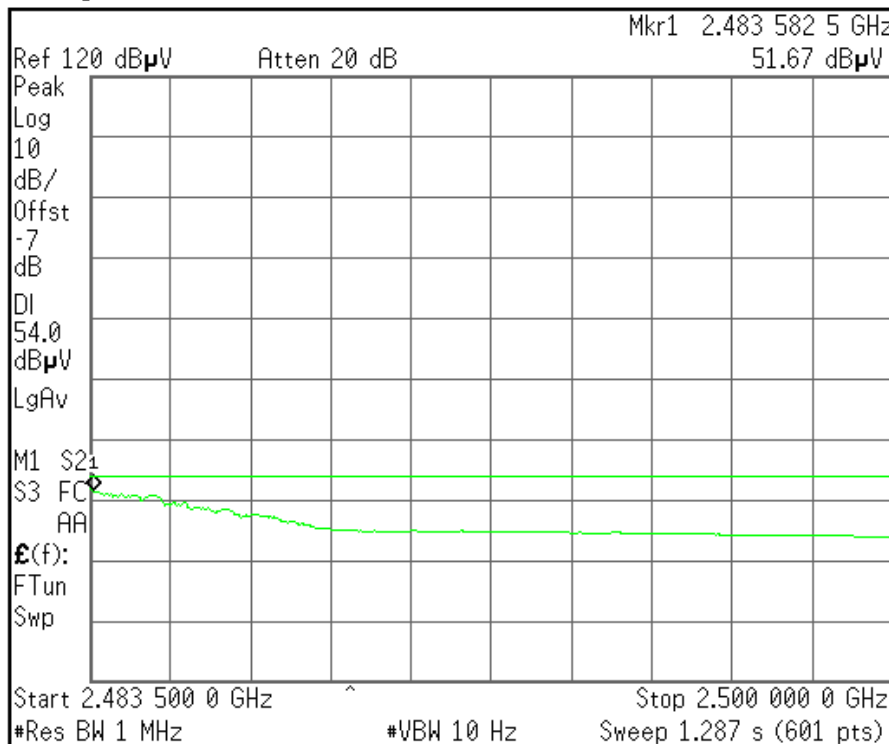


Trace		
1	2	3
Trace		
Clear Write		
Max Hold		
Min Hold		
View		
Blank		
More 1 of 2		

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Agilent



Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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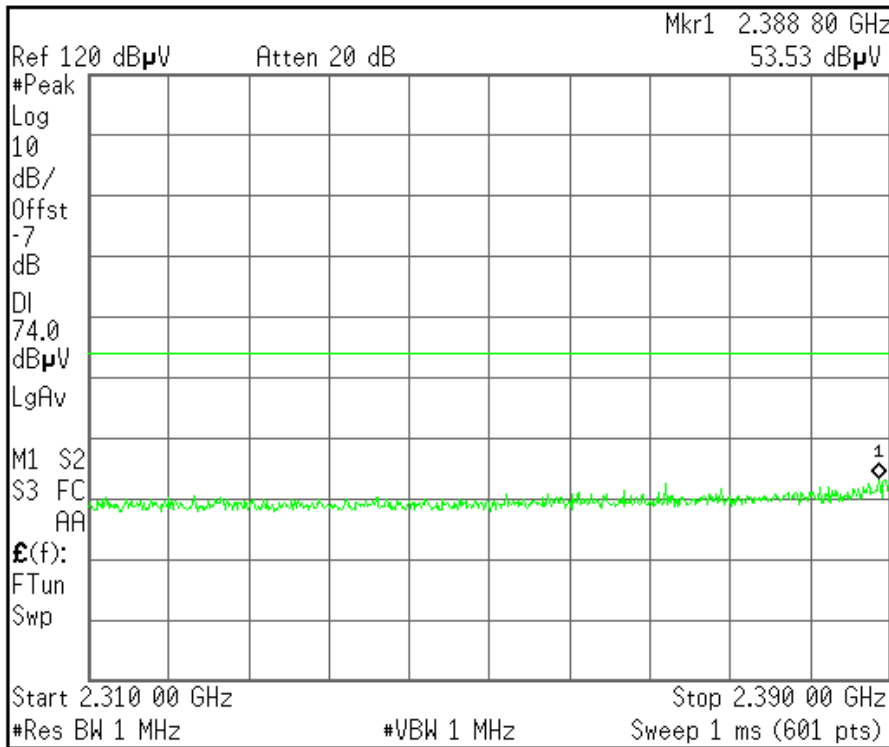
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Wide -40 MHz Channel mode, Low Channel, Horizontal)

PEAK

Agilent

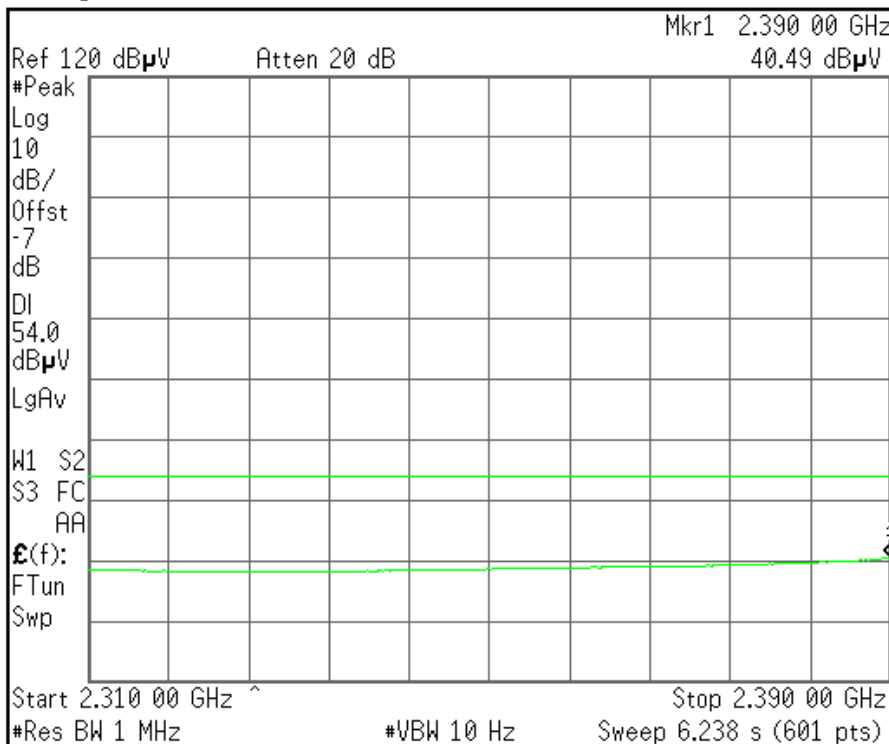


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

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AVG

Agilent



Display
Full Screen
Display Line 54.00 dB μ V On Off
Limits
Active Fctn Position Center
Title
Preferences

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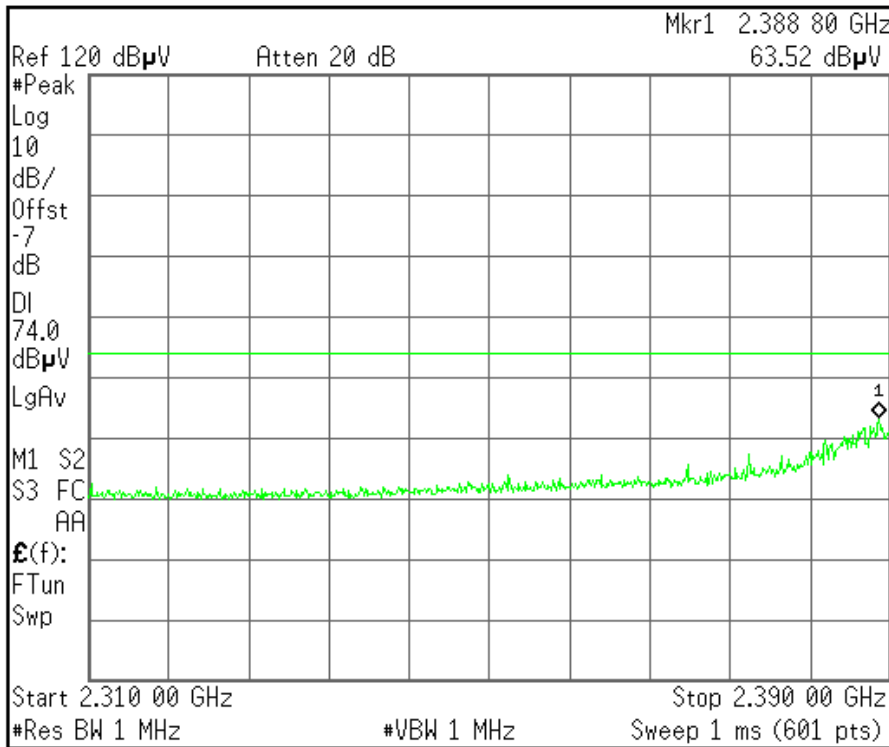
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Wide -40 MHz Channel mode, Low Channel, Vertical)

PEAK

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

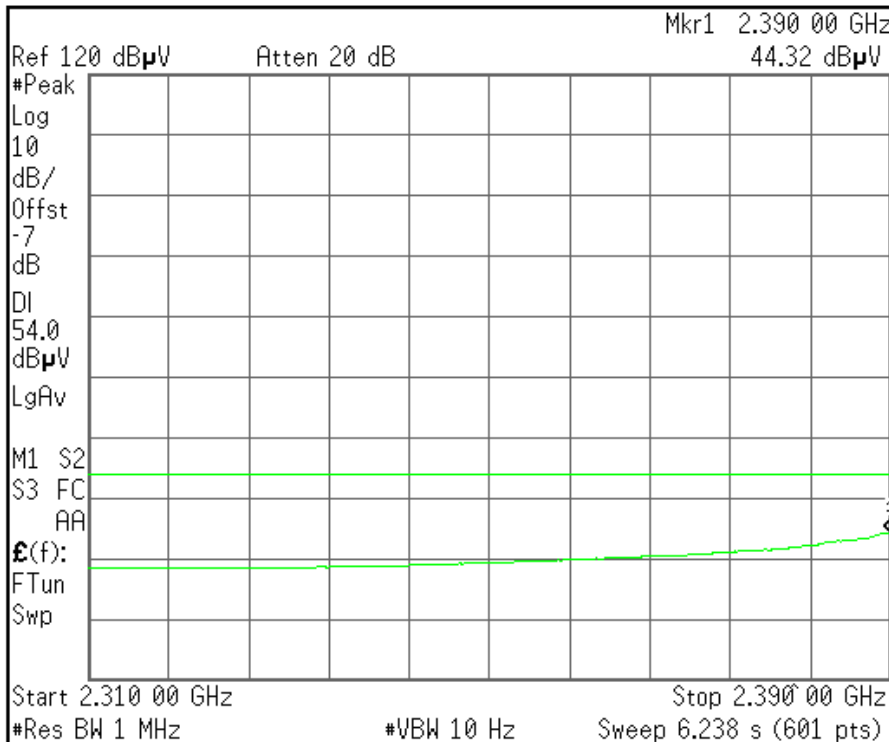
Mkr \rightarrow CF

More
1 of 2

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AVG

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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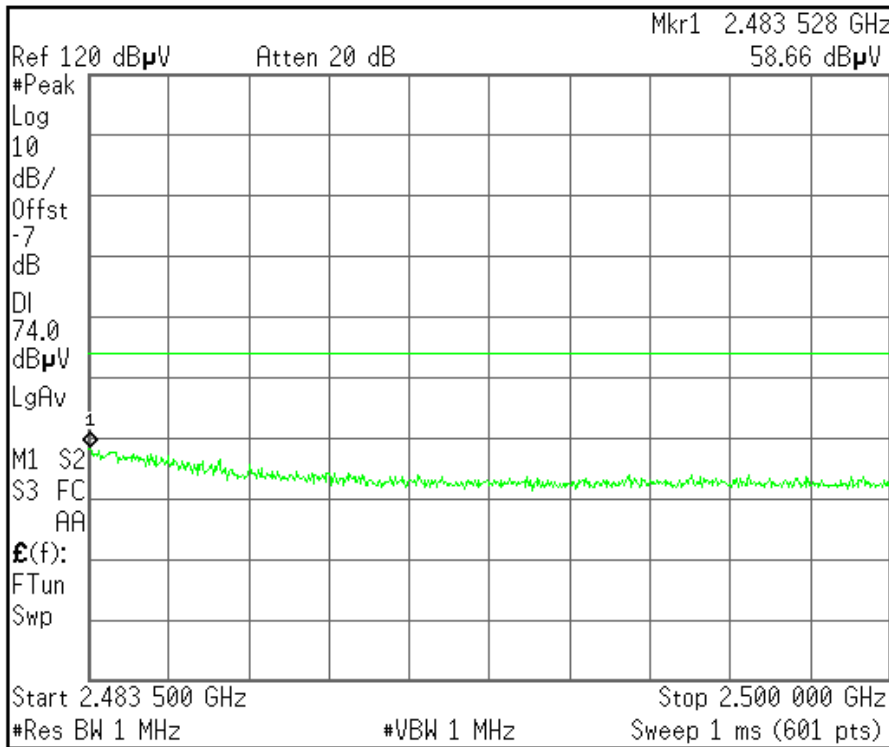
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Wide -40 MHz Channel mode, High Channel, Horizontal)

PEAK

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

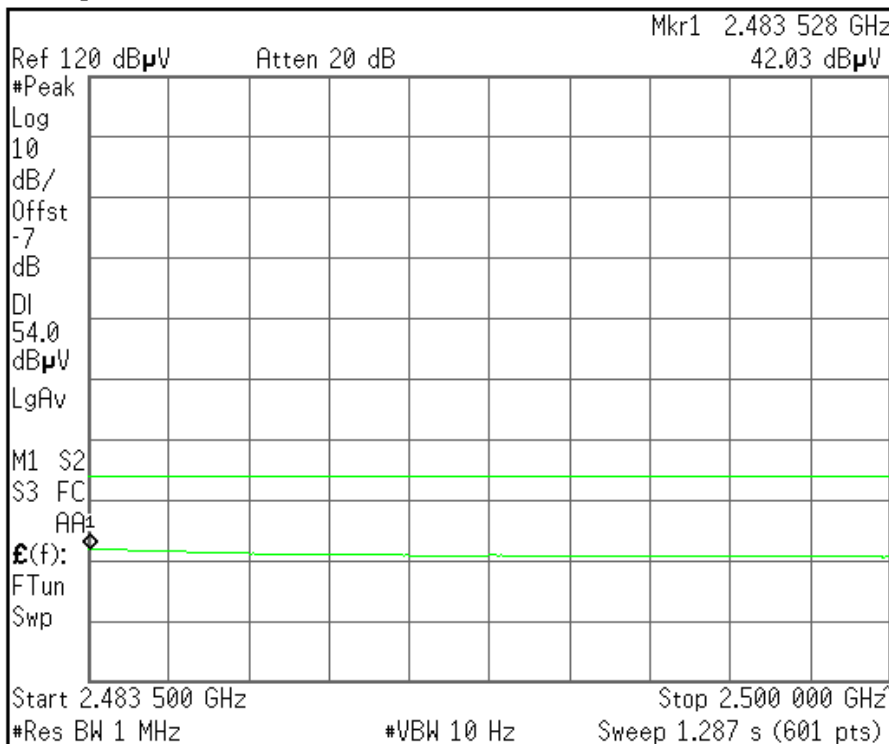
Mkr \rightarrow CF

More
1 of 2

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AVG

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

File Operation Status, A:\SCREEN074.GIF file saved



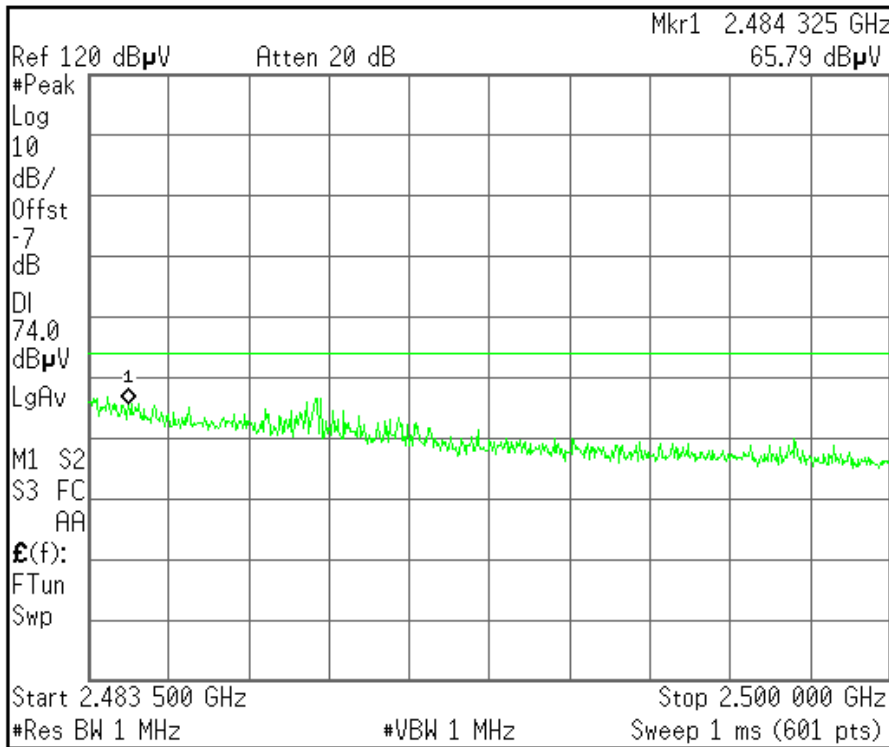
Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

RESTRICTED BANDEDGE (IEEE 802.11n Wide -40 MHz Channel mode, High Channel, Vertical)

PEAK

Agilent

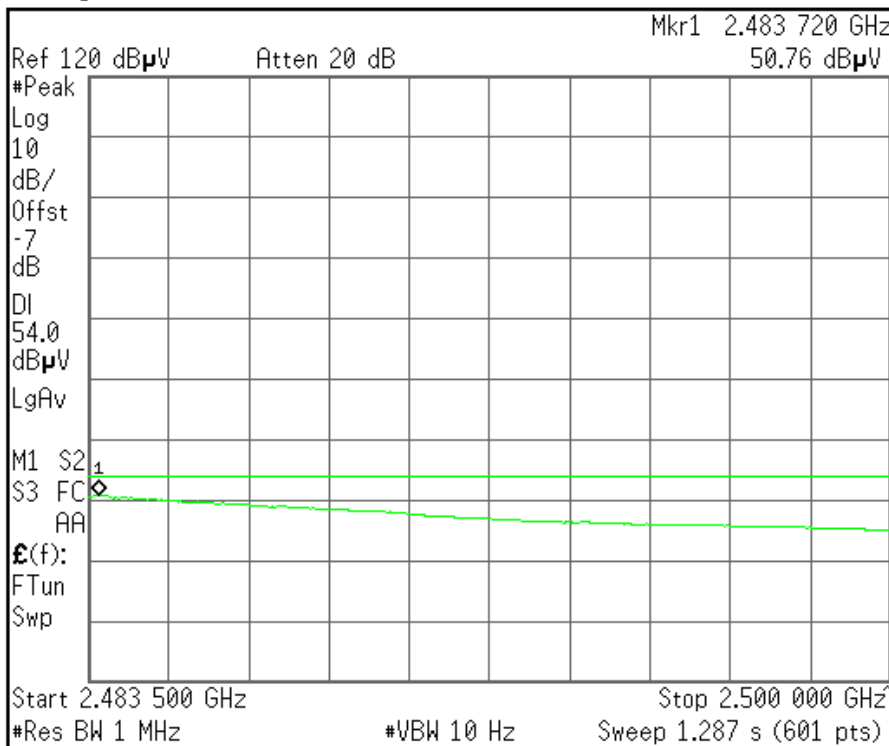


- Peak Search
- Next Peak
- Next Pk Right
- Next Pk Left
- Min Search
- Pk-Pk Search
- Mkr \rightarrow CF
- More
1 of 2

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AVG

Agilent



- Peak Search
- Next Peak
- Next Pk Right
- Next Pk Left
- Min Search
- Pk-Pk Search
- Mkr \rightarrow CF
- More
1 of 2

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Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Below 1GHz

Operation Mode:

Normal Link

Test Date: July 10,2010

Temperature: 22°C

Tested by: Star Yao

Humidity: 48% 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
60.3006	V	37.91	-11.54	26.37	40	-13.63	Peak
141.4629	V	30.92	-5.31	25.61	43.5	-17.89	Peak
166.8938	V	36.91	-7.32	29.59	43.5	-13.91	Peak
211.8036	V	33.02	-5.73	27.29	43.5	-16.21	Peak
499.997	V	33.27	-0.04	33.23	46	-12.77	Peak
807.8156	V	24.29	5.91	30.2	46	-15.8	Peak
32.7054	H	22.28	1.87	24.15	40	-15.85	Peak
166.8938	H	35.1	-7.32	27.78	43.5	-15.72	Peak
500.6012	H	32.17	1.19	33.36	46	-12.64	Peak
900.4008	H	24.4	7.31	31.71	46	-14.29	Peak
945.2906	H	23.04	7.31	30.35	46	-15.65	Peak
980.3607	H	23.46	7.89	31.35	54	-22.65	QP

Remark:

1. Measuring frequencies from 9 KHz to the 1GHz, No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.
3. 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.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: July 10,2010

Temperature: 22°C

Tested by: Star Yao

Humidity: 48 % 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
4183.33	V	31.51	27.66	-3.85	39.34	---	74.00	54.00	-5.74	Peak
7125.00	V	28.01	29.34	1.33	46.76	43.19	74.00	54.00	-10.81	Average
4083.00	H	34.36	---	12.41	46.77	---	74.00	54.00	-7.23	Peak
6558.33	H	38.35	27.48	15.47	53.82	42.95	74.00	54.00	-11.05	Average
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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: July 10,2010

Temperature: 22°C

Tested by: Star Yao

Humidity: 48 % 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
4185.33	V	36.43	---	12.68	49.11	---	74.00	54.00	-4.89	Peak
7128.00	V	37.74	26.17	15.72	53.46	41.89	74.00	54.00	-12.11	Average
4085.00	H	35.15	---	12.68	47.83	---	74.00	54.00	-6.17	Peak
6559.33	H	36.82	25.57	15.76	52.58	41.33	74.00	54.00	-12.67	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11b / CH High

Test Date: July 10,2010

Temperature: 22°C

Tested by: Star Yao

Humidity: 48 % 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
4180.33	V	35.63	---	12.93	48.56	---	74.00	54.00	-5.44	Peak
7128.00	V	39.64	27.89	15.82	55.46	43.71	74.00	54.00	-10.29	Average
4084.00	H	34.28	---	12.93	47.21	---	74.00	54.00	-6.79	Peak
6555.33	H	38.94	26.06	15.82	54.76	41.88	74.00	54.00	-12.12	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4181.33	V	35.14	---	12.41	47.55	---	74.00	54.00	-6.45	Peak
7129.00	V	36.85	27.28	15.48	52.33	42.76	74.00	54.00	-11.24	Average
4082.00	H	34.02	---	12.41	46.43	---	74.00	54.00	-7.57	Peak
6552.33	H	35.30	25.54	15.48	50.78	41.02	74.00	54.00	-12.98	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4188.33	V	33.61	---	12.68	46.29	---	74.00	54.00	-7.71	Peak
7122.00	V	37.35	25.06	15.76	53.11	40.82	74.00	54.00	-13.18	Average
4088.00	H	32.99	---	12.68	45.67	---	74.00	54.00	-8.33	Peak
6551.33	H	37.14	24.04	15.74	52.88	39.78	74.00	54.00	-14.22	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11g / CH High

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4181.33	V	33.60	---	12.94	46.54	---	74.00	54.00	-7.46	Peak
7122.00	V	37.38	26.35	15.82	53.20	42.17	74.00	54.00	-11.83	Average
4089.00	H	34.38	---	12.93	47.31	---	74.00	54.00	-6.69	Peak
6554.33	H	37.16	25.92	15.82	52.98	41.74	74.00	54.00	-12.26	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Standard-20 MHz
Channel mode CH Low

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4184.33	V	34.48	---	12.41	46.89	---	74.00	54.00	-7.11	Peak
7128.00	V	37.94	26.68	15.48	53.42	42.16	74.00	54.00	-11.84	Average
4082.00	H	33.32	---	12.41	45.73	---	74.00	54.00	-8.27	Peak
6551.33	H	36.30	23.17	15.48	51.78	38.65	74.00	54.00	-15.35	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Standard-20 MHz
Channel mode CH Mid

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4185.33	V	34.64	---	12.68	47.32	---	74.00	54.00	-6.68	Peak
7123.00	V	36.89	27.42	15.76	52.65	43.18	74.00	54.00	-10.82	Average
4081.00	H	35.00	---	11.02	46.02	---	74.00	54.00	-7.98	Peak
6549.33	H	39.74	27.50	15.72	55.46	43.22	74.00	54.00	-10.78	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Standard-20 MHz
Channel mode CH High

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4179.33	V	37.60	---	12.93	46.52	---	74.00	54.00	-7.48	Peak
7127.00	V	38.30	26.99	15.82	54.12	42.81	74.00	54.00	-11.19	Average
4081.00	H	32.74	---	12.93	45.67	---	74.00	54.00	-8.33	Peak
6548.33	H	39.64	28.09	15.82	55.46	43.91	74.00	54.00	-10.09	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Wide-40 MHz Channel mode CH Low

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4844.65	V	35.42	---	12.41	47.83	---	74.00	54.00	-6.17	Peak
7385.54	V	39.27	27.80	15.48	54.75	43.28	74.00	54.00	-10.72	Average
4844.65	H	34.38	---	12.41	46.79	---	74.00	54.00	-5.29	Peak
6547.62	H	38.55	26.67	15.48	54.03	42.15	74.00	54.00	-11.85	Average

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).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Wide-40 MHz Channel mode CH Mid

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4181.33	V	33.74	---	12.68	46.42	---	74.00	54.00	-7.58	Peak
7128.00	V	36.77	25.38	15.71	52.48	41.09	74.00	54.00	-12.91	Average
4084.00	H	32.75	---	12.68	45.43	---	74.00	54.00	-8.57	Peak
6565.33	H	36.26	24.11	15.71	51.97	39.82	74.00	54.00	-14.18	Average

Remark:

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. 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.
11. 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.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No: KS100623B02-RP FCC ID: I88P660NT1A Date of Issue: July 14, 2010

Operation Mode: TX / IEEE 802.11gn Wide-40 MHz Channel mode CH High

Test Date: July 10,2010

Temperature: 24°C

Tested by: Star Yao

Humidity: 48 % 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
4187.33	V	37.72	---	12.93	47.07	---	74.00	54.00	-6.93	Peak
7126.00	V	37.89	26.25	15.83	53.72	42.08	74.00	54.00	-11.92	Average
4082.00	H	33.58	---	12.93	46.51	---	74.00	54.00	-7.49	Peak
6559.33	H	36.35	24.57	15.82	52.17	40.39	74.00	54.00	-13.61	Average

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).



7.6 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 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

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



TEST RESULTS

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

Test Data

Operation Mode: Normal Link **Test Date:** June 23,2010
Temperature: 23°C **Tested by:** Star Yao
Humidity: 50% RH

Freq. (MHz)	PEAK. Raw (dBuV)	Q.P. Raw (dBuV)	AVG Raw (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Margin (dB)	Factor (dB)	Remark
2.216	39.95	35.64	27.80	56.00	46.00	-18.20	11.10	Line
3.432	39.75	35.04	27.54	56.00	46.00	-18.46	11.16	Line
7.856	43.92	37.64	30.39	60.00	50.00	-19.61	11.20	Line
9.584	42.44	36.80	30.38	60.00	50.00	-19.62	11.20	Line
23.120	39.29	35.22	29.03	60.00	50.00	-20.97	11.91	Line
26.496	40.41	35.93	29.57	60.00	50.00	-20.43	12.21	Line
2.240	41.65	35.43	25.02	56.00	46.00	-20.98	10.62	Neutral
3.344	40.87	34.43	27.50	56.00	46.00	-18.50	10.79	Neutral
7.600	45.19	37.26	30.21	60.00	50.00	-19.79	11.08	Neutral
9.504	43.34	36.89	30.02	60.00	50.00	-19.98	11.18	Neutral
24.352	38.66	43.98	38.26	60.00	50.00	-11.74	12.09	Neutral
26.496	40.38	51.29	44.36	60.00	50.00	-5.64	12.28	Neutral

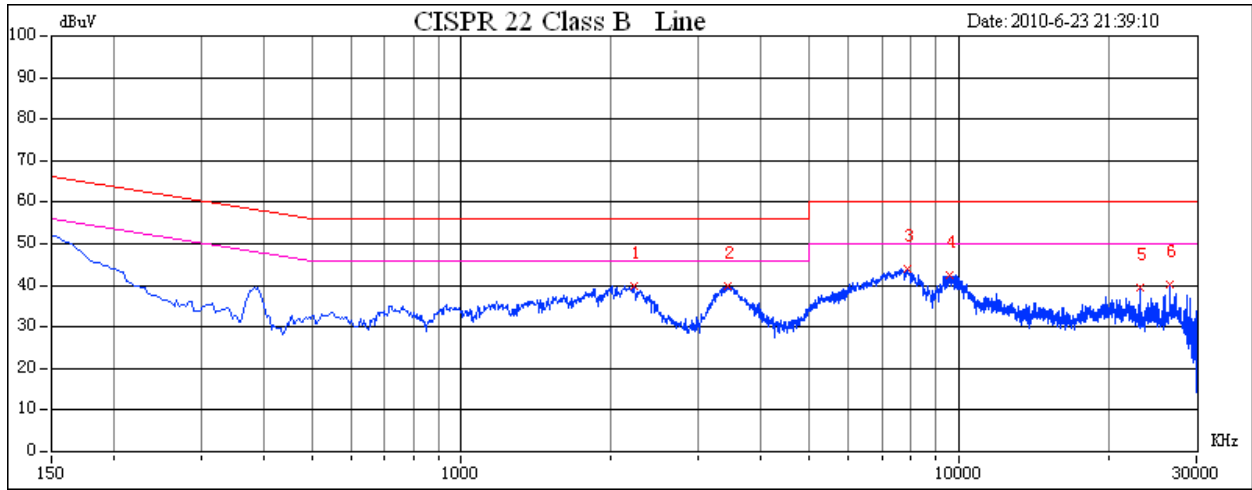
Remark:

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)

