



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: 802.11 abgn Dual Band Dual Radio Enterprise Access point with plastic shell and internal antenna

Brand Name: DCN

Model No.: DCWL-7962AP

Series Model: N/A

FCC ID:DCN00 DCWL7962AP50

Test Report Number:

C130809R03-RPB

Issued for

Digital China Networks (Beijing) Limited

Digital Technology Plaza ,No.9 shangdi 9th street, Haidian District Beijing China

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China

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Compliance Certification Services Inc.

Report No:C130809R03-RPB

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2ABKCDCWL7962AP50

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1. TEST RESULT CERTIFICATION

Product Name:	802.11 abgn Dual Band Dual Radio Enterprise Access point with plastic shell and internal antenna
Trade Name:	DCN
Model Name.:	DCWL-7962AP
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Production unit
Date of Test:	August 31, 2013
Applicant:	Digital China Networks (Beijing) Limited Digital Technology Plaza ,No.9 shangdi 9th street, Haidian District Beijing China
Manufacturer:	Digital China Networks (Beijing) Limited Digital Technology Plaza ,No.9 shangdi 9th street, Haidian District Beijing China
Application Type:	Certification

APPLICABLE STANDARDS

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

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Service Inc.

Tested by:

Blent.Wang
Test Engineer
Compliance Certification Service Inc.



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2. EUT DESCRIPTION

Product Name:	802.11 abgn Dual Band Dual Radio Enterprise Access point with plastic shell and internal antenna
Brand Name:	DCN
Model Name:	DCWL-7962AP
Series Model:	N/A
Model Discrepancy:	N/A
Power Adapter Power Rating :	Brand Name: Model No.:CPS024014 Input: AC 100-240V/50/60HZ 0.55A Output: DC 12V/2A
Frequency Range:	WIFI b/g Mode:2412 ~ 2462 MHz a Mode:5745 ~ 5825 MHz gn(-20MHz): 2412 ~ 2462 MHz gn(-40MHz): 2422 ~ 2452 MHz an(-20MHz):5745 ~ 5825 MHz an(-40MHz):5755~ 5795 MHz
Transmit Power:	IEEE 802.11b mode: 18.51dBm (71.0mW) IEEE 802.11g mode: 16.60dBm (45.7mW) draft 802.11n Standard-20 MHz Channel mode: 16.42 dBm (43.9mW) draft 802.11n Wide-40 MHz Channel mode: 15.90 dBm (38.9mW) IEEE 802.11a mode: 17.31dBm (53.8 mW) draft 802.11an Standard-20 MHz Channel mode:16.14 dBm(41.1mW) draft 802.11an Wide-40 MHz Channel mode: 15.68 dBm (37.0mW) (the EUT transmitting and receiving with two antennas simultaneously working at n mode)
Modulation Technique:	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: DSSS /OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) IEEE 802.11a mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel mode: OFDM (MCS 0~15) draft 802.11n Wide-40 MHz Channel mode: OFDM (MCS 0~15)
Number of Channels:	IEEE 802.11b/g mode: 11 Channels IEEE 802.11a mode: 5 Channels draft 802.11gn Standard-20 MHz Channel mode: 11 Channels draft 802.11gn Wide-40 MHz Channel mode: 7 Channels draft 802.11an Standard-20 MHz Channel mode: 5 Channels draft 802.11an Wide-40 MHz Channel mode: 3 Channels
Antenna Specification:	PIFA antennas for 2.4GHz Gain 3.00 dBi and PIFA antennas for 5 GHz Gain 4.00 dBi

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:DCN00 DCWL7962AP50** 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 2009 and FCC CFR 47 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 2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 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 2009.



3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

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

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

² Above 38.6

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



3.5.DESCRIPTION OF TEST MODES

The EUT transmitting and receiving with one (chain 0) antenna working at a/b/g mode, so one antenna working configuration was used for a/b/g mode testing in this report.

The EUT transmitting and receiving with two antennas simultaneously working at n mode, so 2x2 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)

Channel High (2462MHz) with 11Mbps data rate was chosen for full testing.

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 54Mbps data rate was chosen for full testing.

IEEE802.11a mode:

Channel low(5745MHz),

Channel middle(5785MHz)

Channel high(5825MHz) with 54Mbps data rate was chosen for full testing.

Draft 802.11gn Standard-20 MHz Channel mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 65Mbps data rate was chosen for full testing.

Draft 802.11gn Wide-40 MHz Channel mode:

Channel Low (2422MHz)

Channel Mid (2437MHz)

Channel High (2452MHz) with 135Mbps data rate was chosen for full testing.

Draft 802.11an Wide-20 MHz Channel mode:

Channel low(5745MHz),

Channel middle(5785MHz)

Channel high(5825MHz) with 65Mbps data rate was chosen for full testing.

Draft 802.11an Wide-40 MHz Channel mode:

Channel Low (5755MHz),

Channel High (5795MHz) with 135Mbps data rate was chosen for full testing.



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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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-5-12
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2014-5-12
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2014-3-24
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2014-3-24
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2014-5-12
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	2014-5-12
DC POWER SUPPLY	GW instek	GPS-3303C	E903131	2014-5-12
Temp. / Humidity Chamber	Kingson	THS-M1	242	2014-3-12
Test Software			EZ-EMC	

977 Chamber

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-5-12
EMI Test Receiver	R&S	ESPI3	101026	2014-3-15
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	2014-5-12
Pre-Amplifier	Miteq	NSP4000-NF	870629	2014-5-12
Bilog Antenna	Sunol	JB1	A110204-2	2014-5-12
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2014-6-7
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT100	95637	N.C.R
Test Software			EZ-EMC	



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Conducted Emission				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER	R&S	ESCI3	100781	2014-3-15
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2014-3-15
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2014-3-15
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2014-4-7
Test Software	EZ-EMC			

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

Expanded Uncertainty (95% CONFIDENCE INTERVAL): K=2



5. FACILITIES AND ACCREDITATIONS

5.1.FACILITIES

All measurement facilities used to collect the measurement data are located at CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 2009 and CISPR Publication 22.

5.2.EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, 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.LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC5743 for 10m chamber 10m, IC5743 for 10m chamber 3m.



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5.4. TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	47 CFR FCC Part 15/18 (using ANSI C63.4 :2009); VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002; EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003; EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 61000-3-2; EN 61000-3-3; EN550024; EN 61000-4-2; EN 61000-4-3; EN61000-4-4; EN 61000-4-5; EN 61000-4-6; IEC 61000-4-8; EN 61000-4-11; IEC61000-3-2; IEC61000-3-3; IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-11; EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17; 47 CFR FCC Part 15, 22, 24	 TESTING CERT #2541.01
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	 93105, 90471
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-1600 C-1707 G-216

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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
1.	Notebook	DELL	E5430	CN8YYW1	N/A

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.



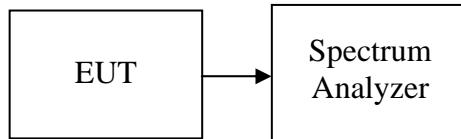
7. FCC PART 15.247 REQUIREMENTS

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	9.612	>500	PASS
Mid	2437	9.408		PASS
High	2462	9.742		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.510	>500	PASS
Mid	2437	16.521		PASS
High	2462	16.519		PASS

TRANSMIT CHAIN 0

Draft 802.11gn Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.691	>500	PASS
Mid	2437	17.745		PASS
High	2462	17.637		PASS

Draft 802.11gn Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.505	>500	PASS
Mid	2437	36.463		PASS
High	2452	36.446		PASS



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TRANSMIT CHAIN 1

draft 802.11gn Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.358	>500	PASS
Mid	2437	17.745		PASS
High	2462	17.719		PASS

Draft 802.11gn Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.453	>500	PASS
Mid	2437	36.487		PASS
High	2452	36.535		PASS

IEEE 802.11a mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.526	>500	PASS
Mid	5785	16.549		PASS
High	5825	16.544		PASS

TRANSMIT CHAIN 0

draft 802.11an Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.757	>500	PASS
Mid	5785	17.754		PASS
High	5825	17.782		PASS



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Draft 802.11an Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.546	>500	PASS
High	5795	36.579		PASS

TRANSMIT CHAIN 1

Draft 802.11an Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.771	>500	PASS
Mid	5785	17.713		PASS
High	5825	17.743		PASS

Draft 802.11an Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.537	>500	PASS
High	5795	36.537		PASS



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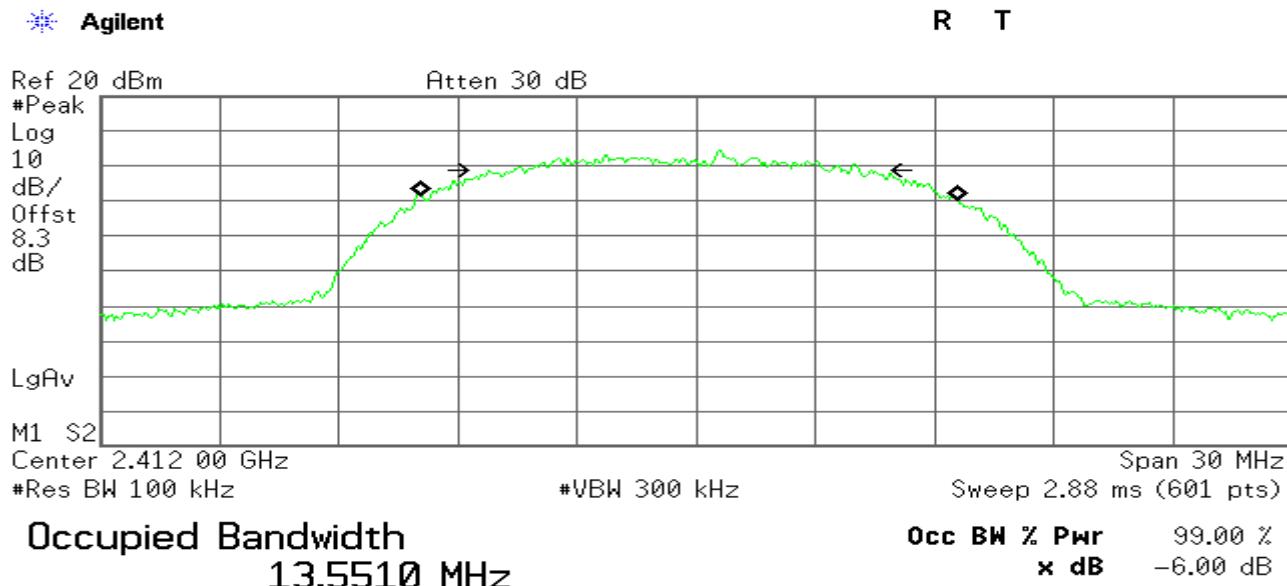
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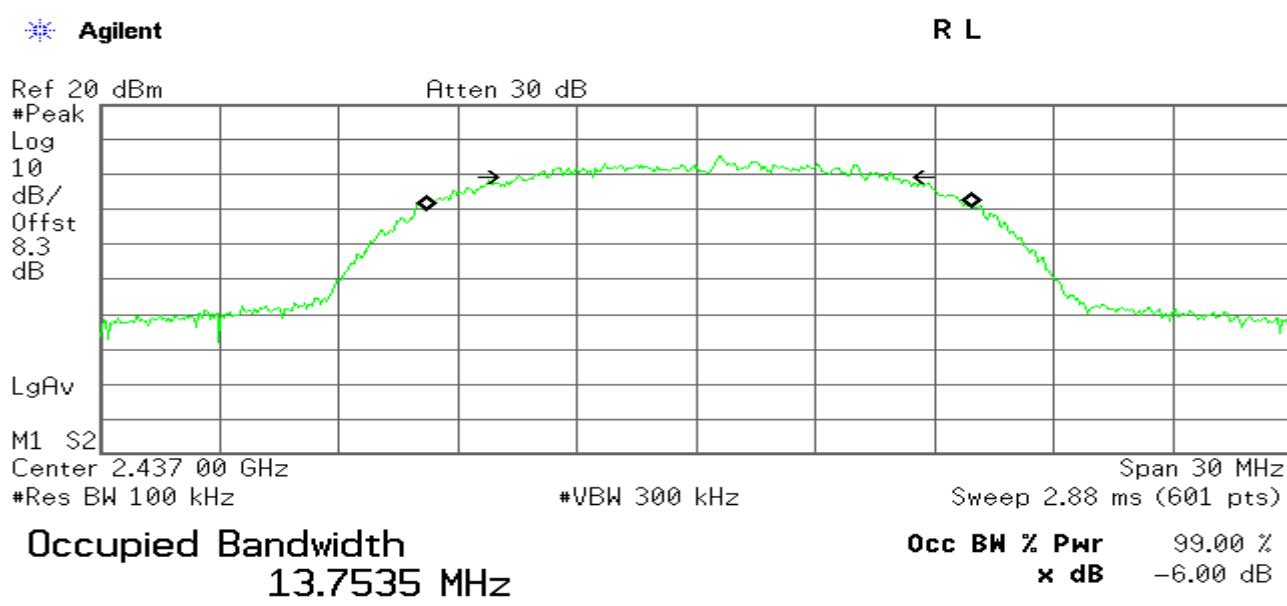
Test Plot

IEEE 802.11b MODE

6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)





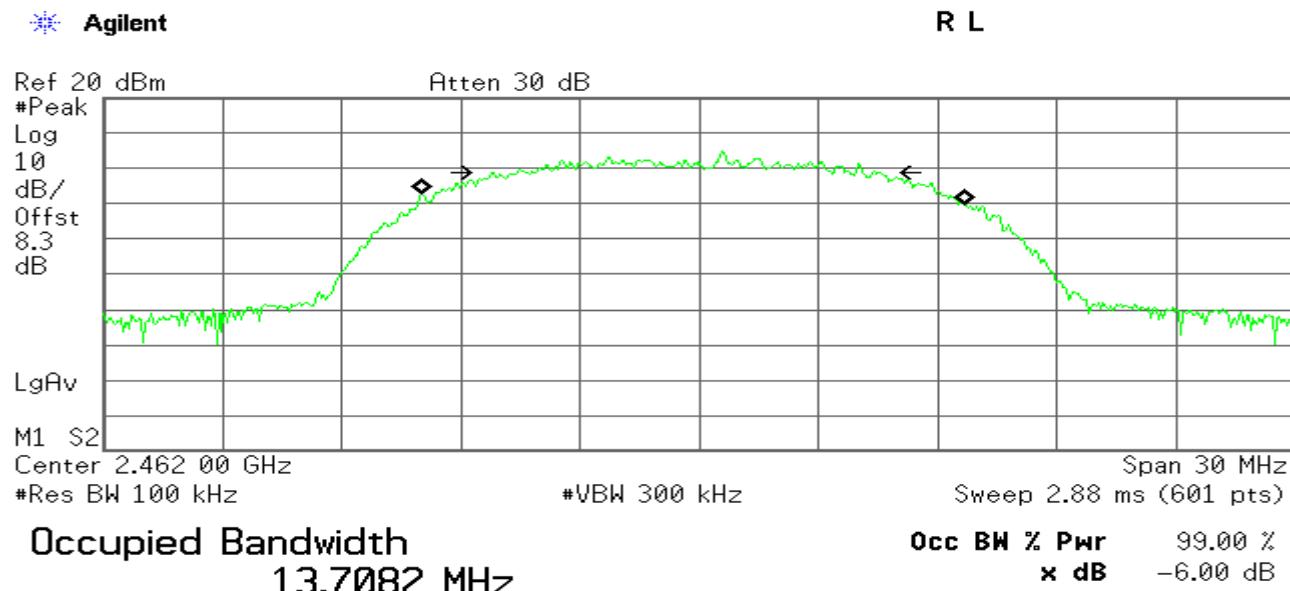
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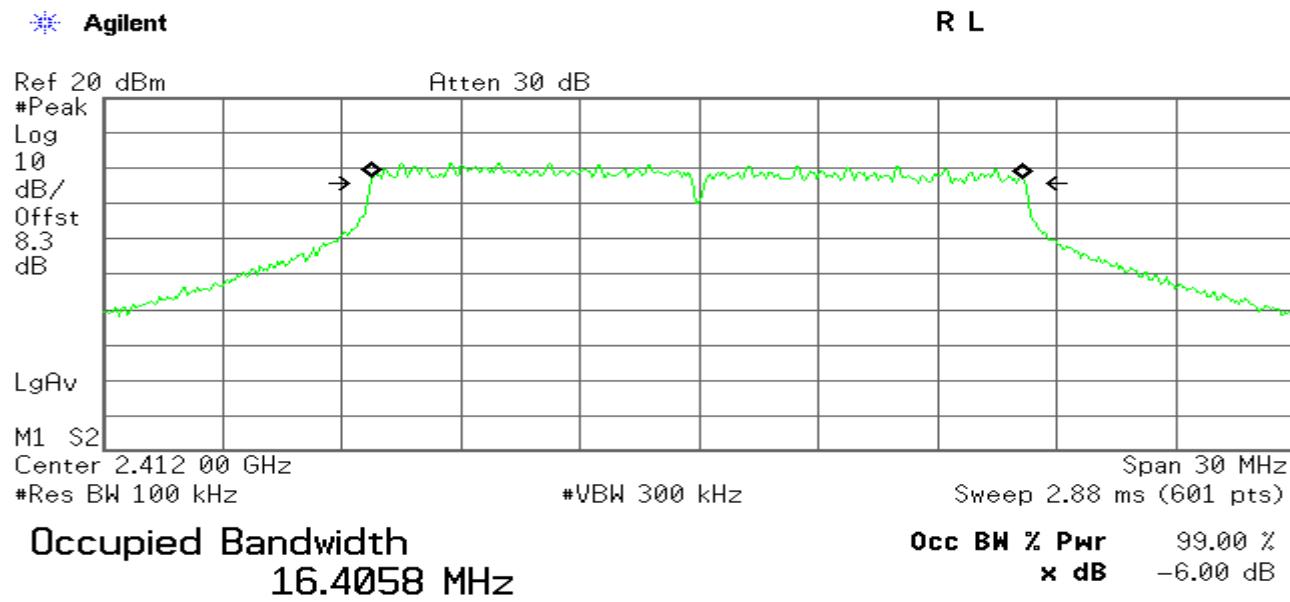
6dB Bandwidth (CH High)



Transmit Freq Error -129.088 kHz
x dB Bandwidth 9.742 MHz

IEEE 802.11q MODE

6dB Bandwidth (CH Low)



Transmit Freq Error -33.239 kHz
x dB Bandwidth 16.510 MHz



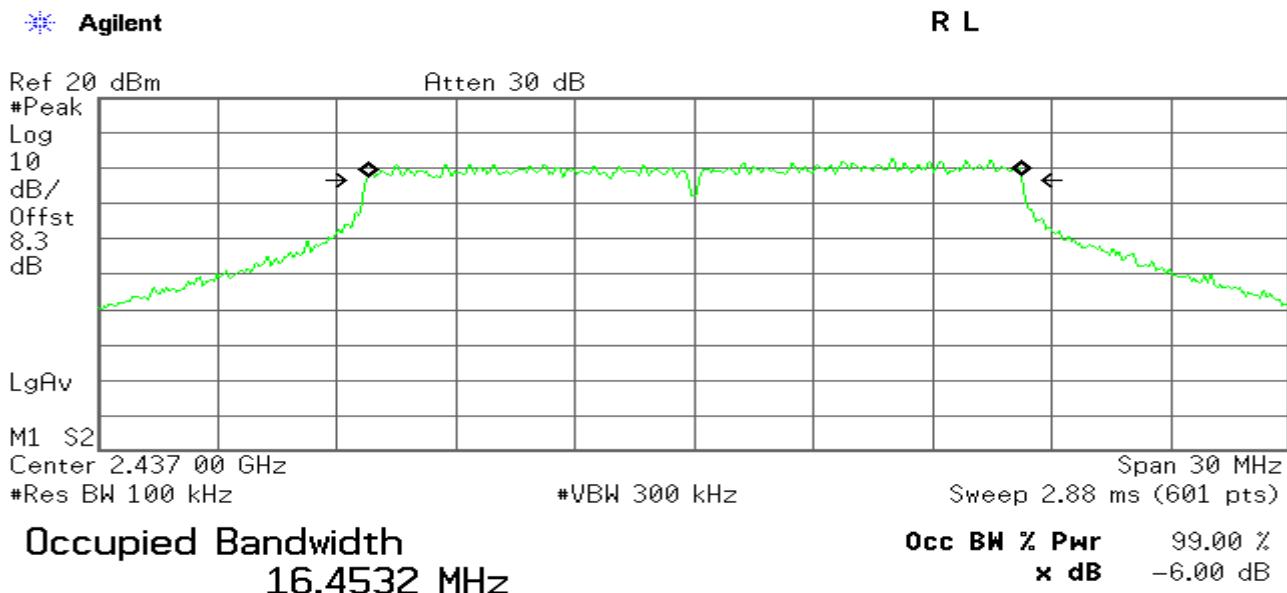
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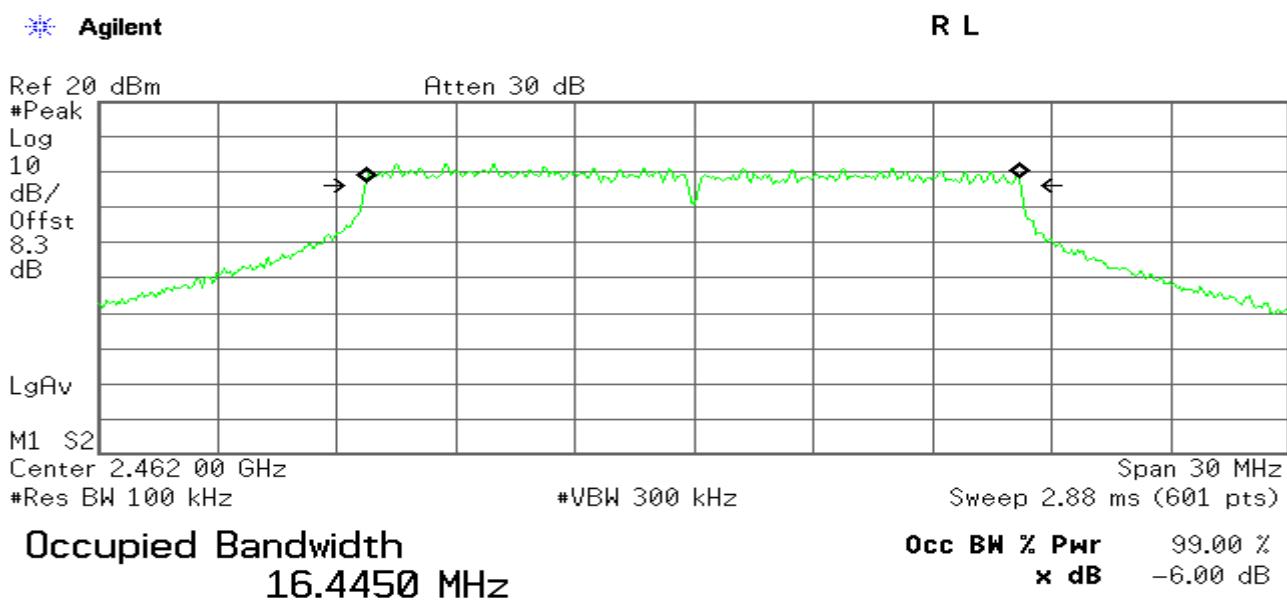
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6dB Bandwidth (CH Mid)

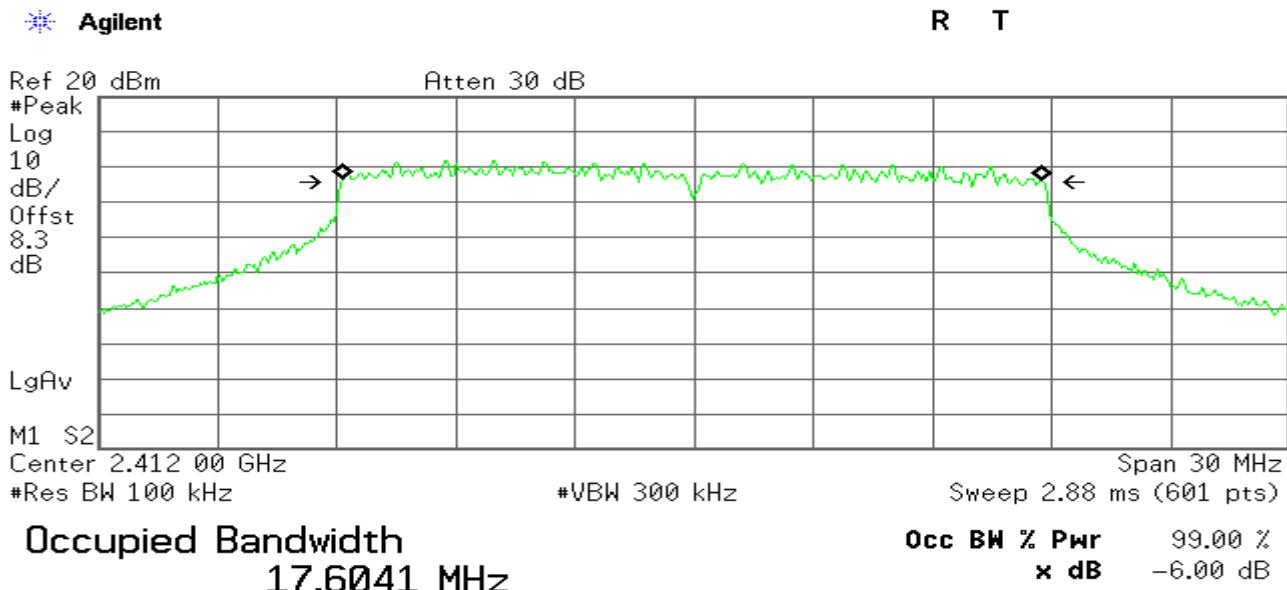


Transmit Freq Error 7.252 kHz
x dB Bandwidth 16.521 MHz

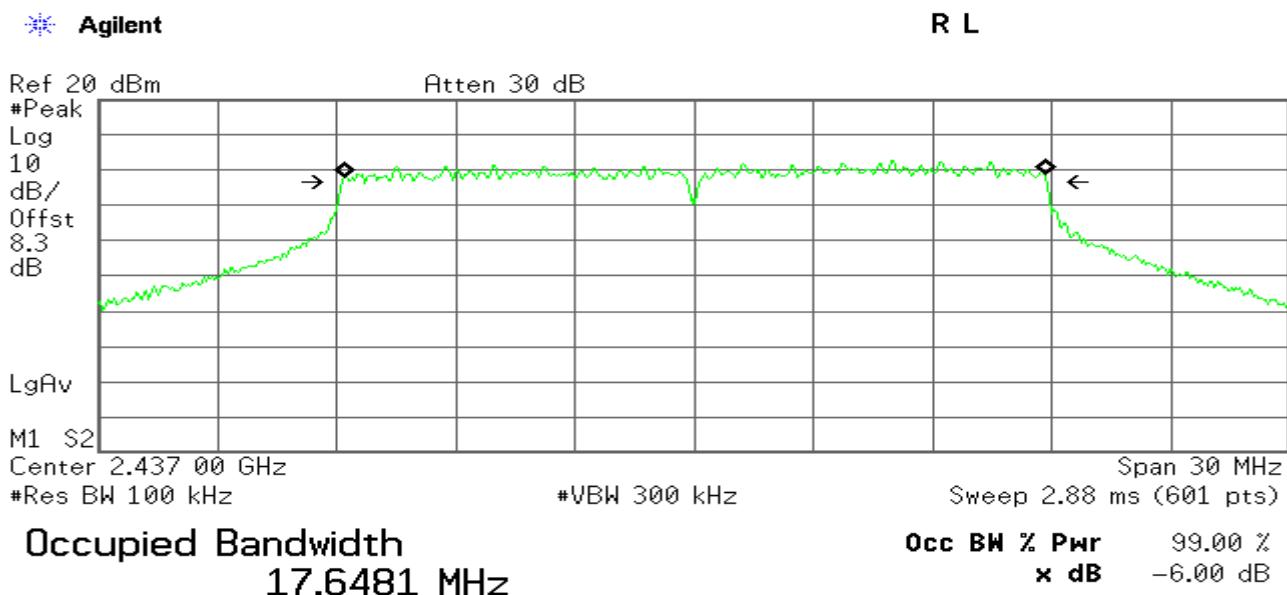
6dB Bandwidth (CH High)



Transmit Freq Error -40.337 kHz
x dB Bandwidth 16.519 MHz

**draft 802.11gn Standard-20 MHz Channel mode / Chain 0****6dB Bandwidth (CH Low)**

Transmit Freq Error -36.845 kHz
x dB Bandwidth 17.691 MHz

6dB Bandwidth (CH Mid)

Transmit Freq Error 10.901 kHz
x dB Bandwidth 17.745 MHz



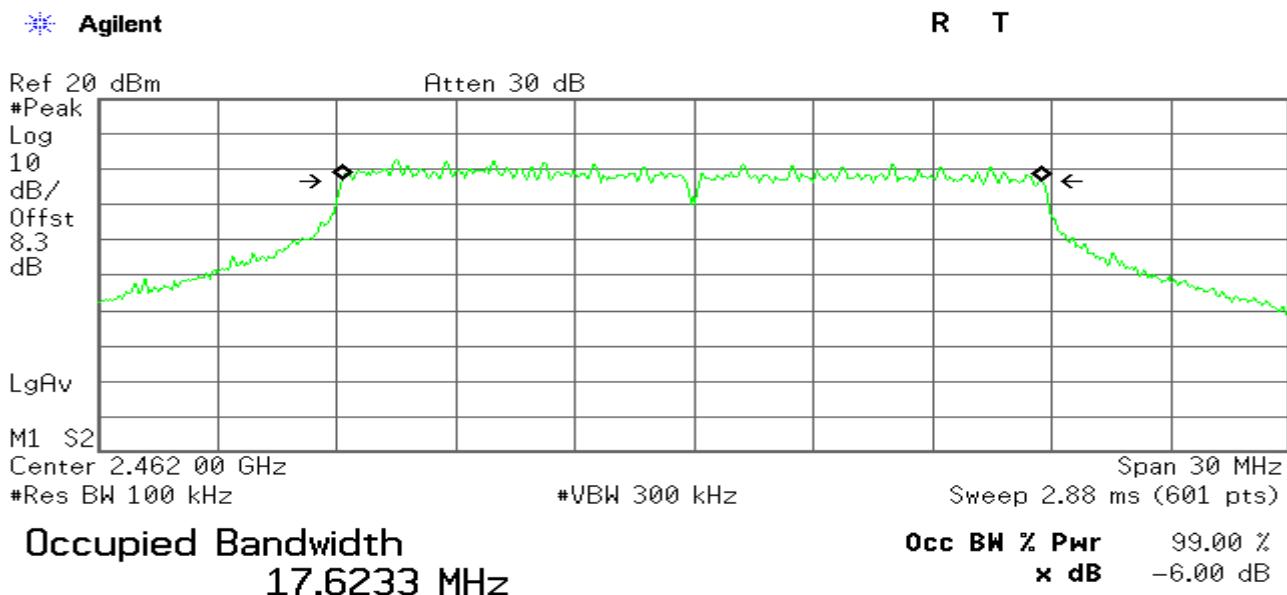
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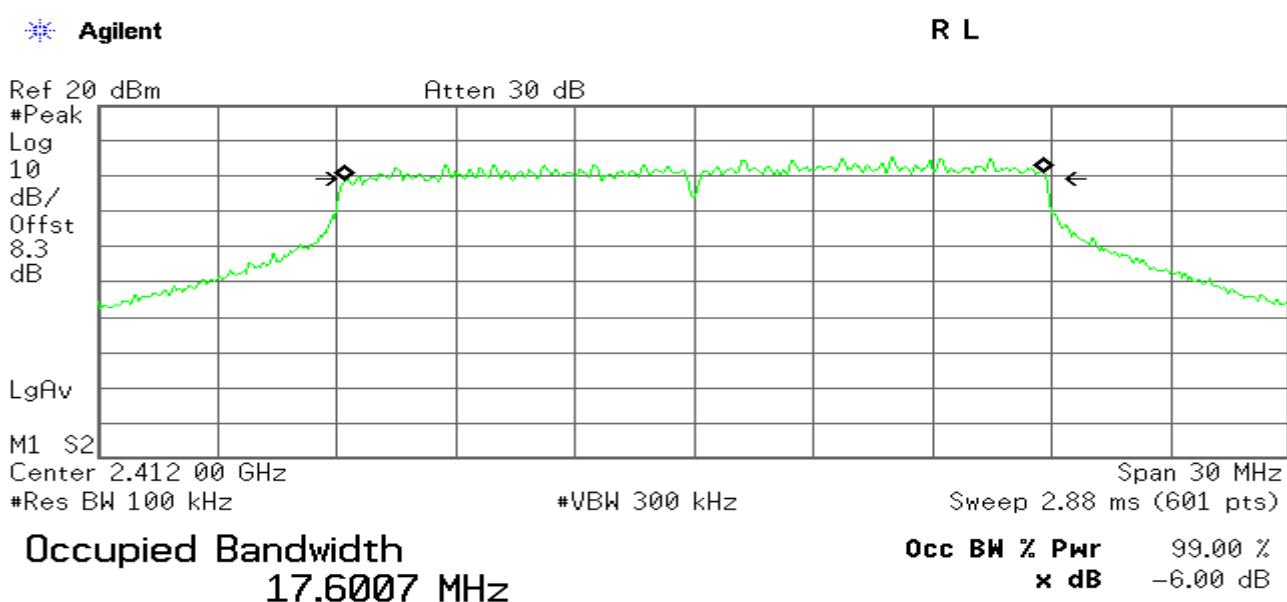
6dB Bandwidth (CH High)



Transmit Freq Error -53.694 kHz
x dB Bandwidth 17.637 MHz

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

6dB Bandwidth (CH Low)



Transmit Freq Error 18.971 kHz
x dB Bandwidth 17.358 MHz



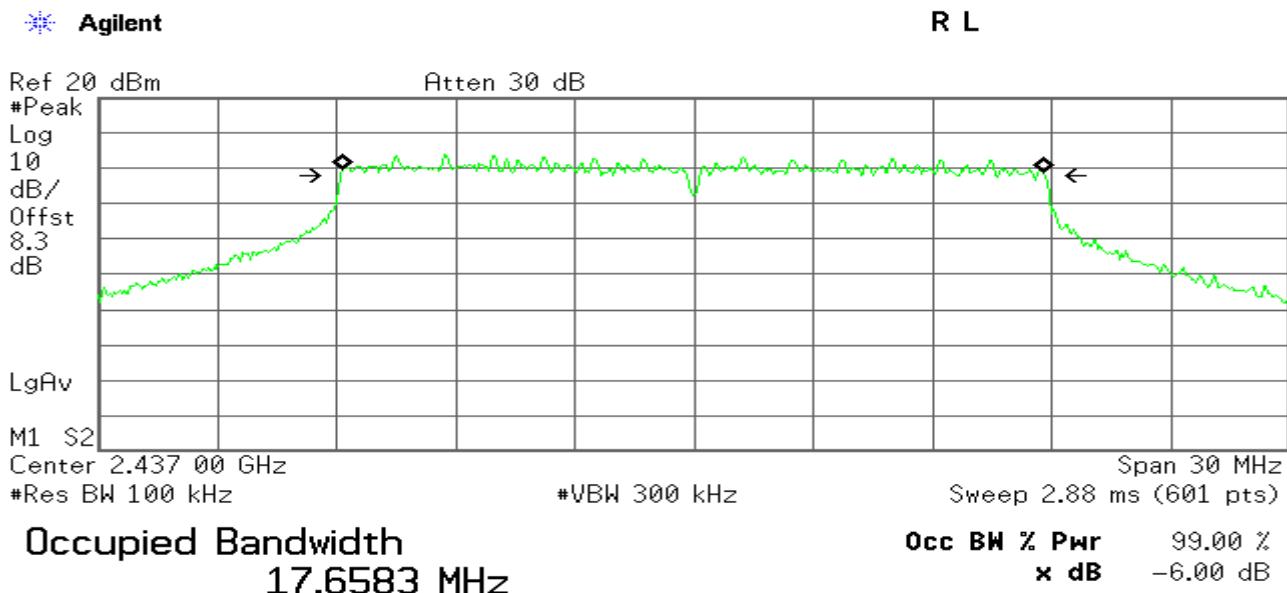
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

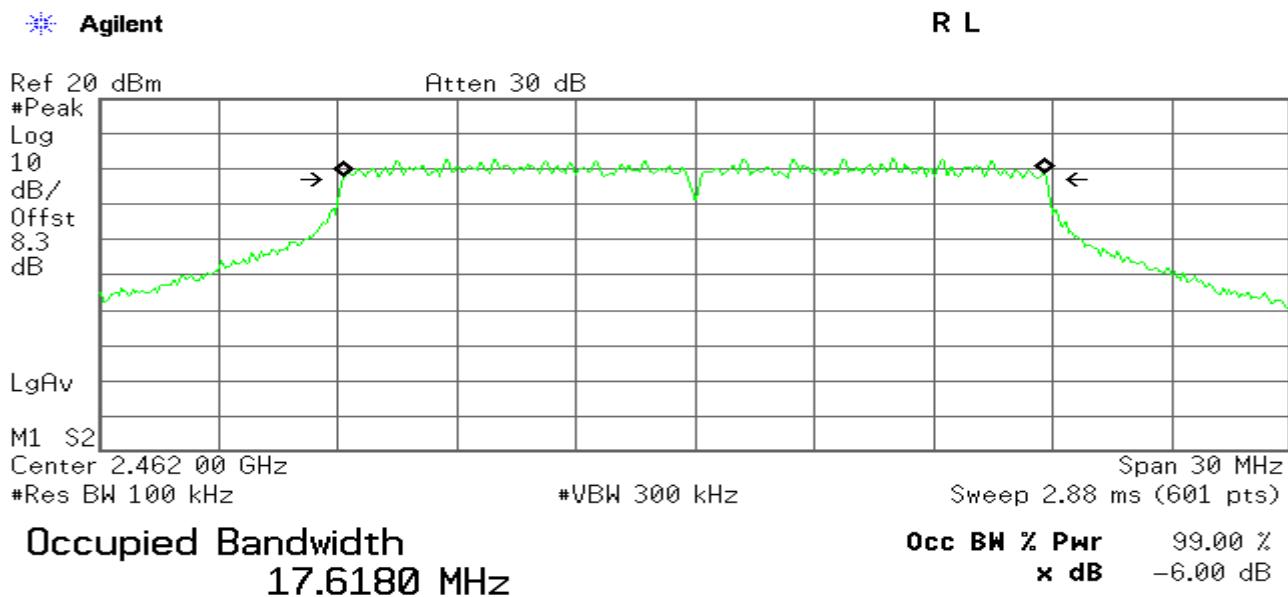
Date of Issue :September 2, 2013

6dB Bandwidth (CH Mid)



Transmit Freq Error -27.439 kHz
x dB Bandwidth 17.745 MHz

6dB Bandwidth (CH High)



Transmit Freq Error -20.294 kHz
x dB Bandwidth 17.719 MHz



Compliance Certification Services Inc.

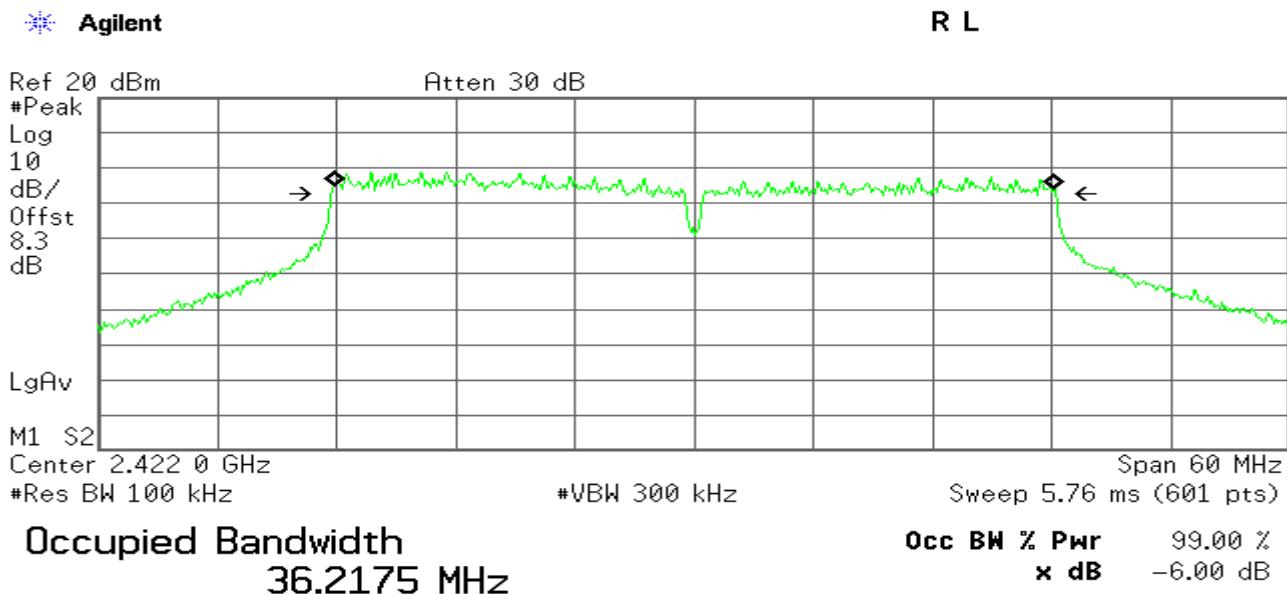
Report No:C130809R03-RPB

FCC ID:
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Date of Issue :September 2, 2013

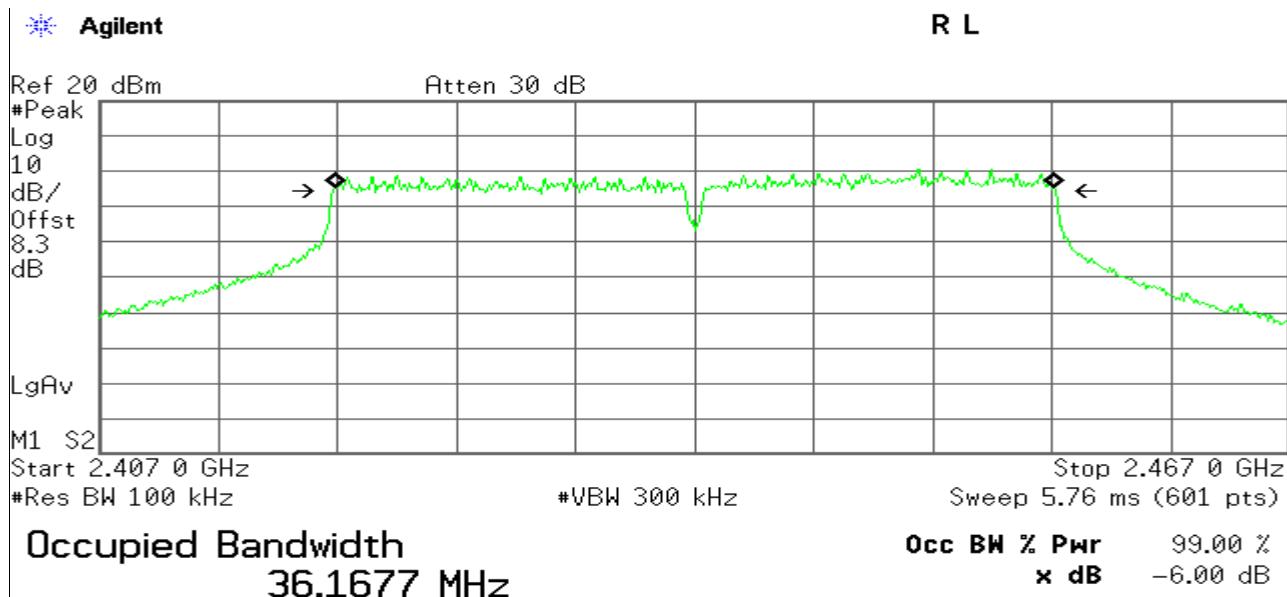
draft 802.11gn Wide-40 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)



Transmit Freq Error -24.347 kHz
x dB Bandwidth 36.505 MHz

6dB Bandwidth (CH Mid)



Transmit Freq Error -19.713 kHz
x dB Bandwidth 36.463 MHz



Compliance Certification Services Inc.

Report No:C130809R03-RPB

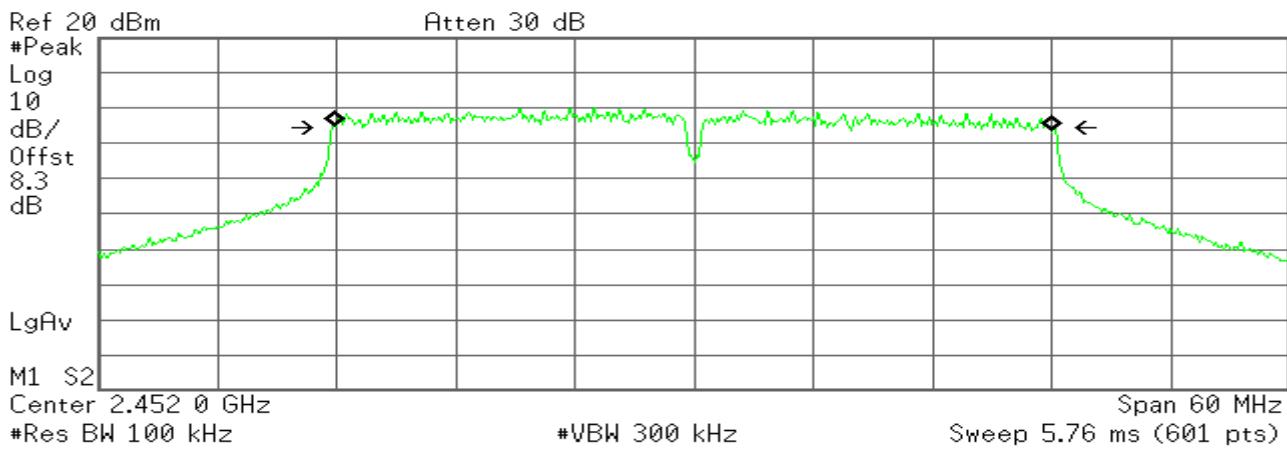
FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

6dB Bandwidth (CH High)

Agilent

R L



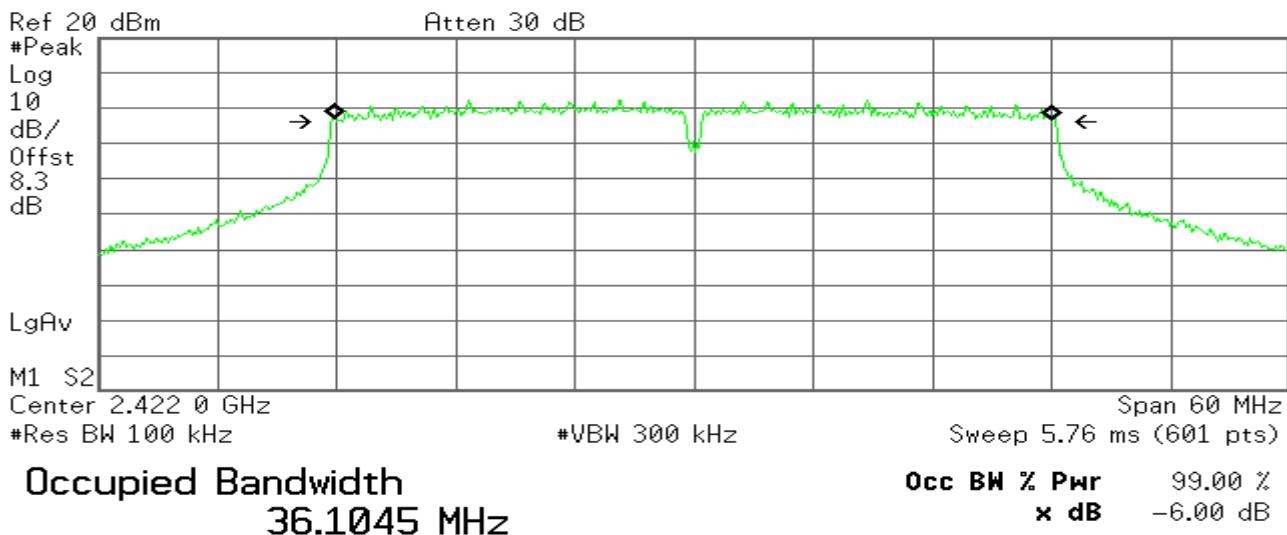
Transmit Freq Error -40.371 kHz
x dB Bandwidth 36.446 MHz

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

6dB Bandwidth (CH Low)

Agilent

R L



Transmit Freq Error -19.641 kHz
x dB Bandwidth 36.453 MHz



Compliance Certification Services Inc.

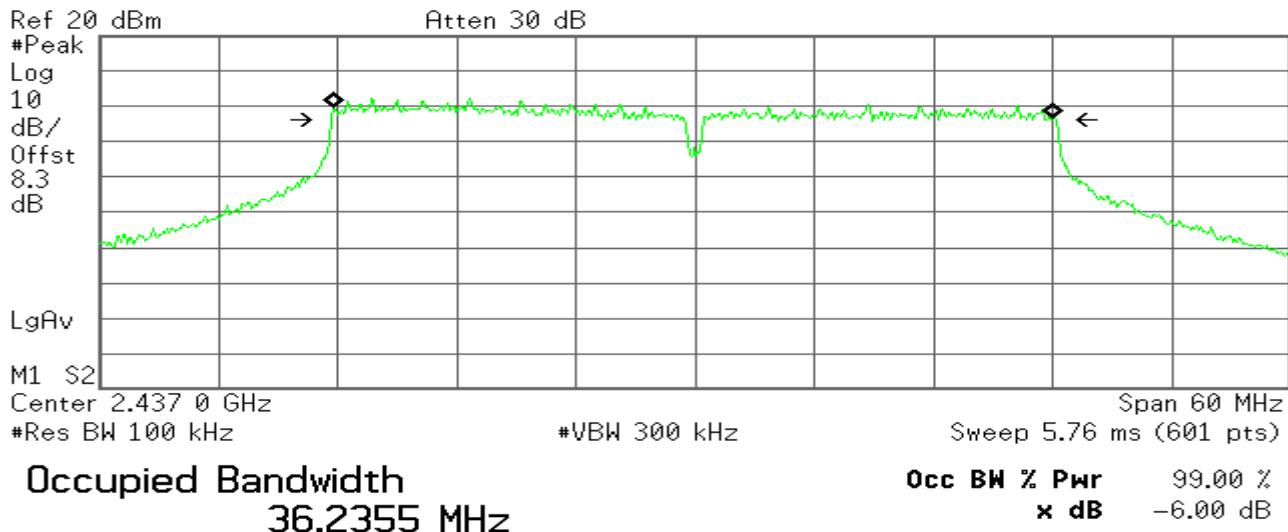
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

6dB Bandwidth (CH Mid)

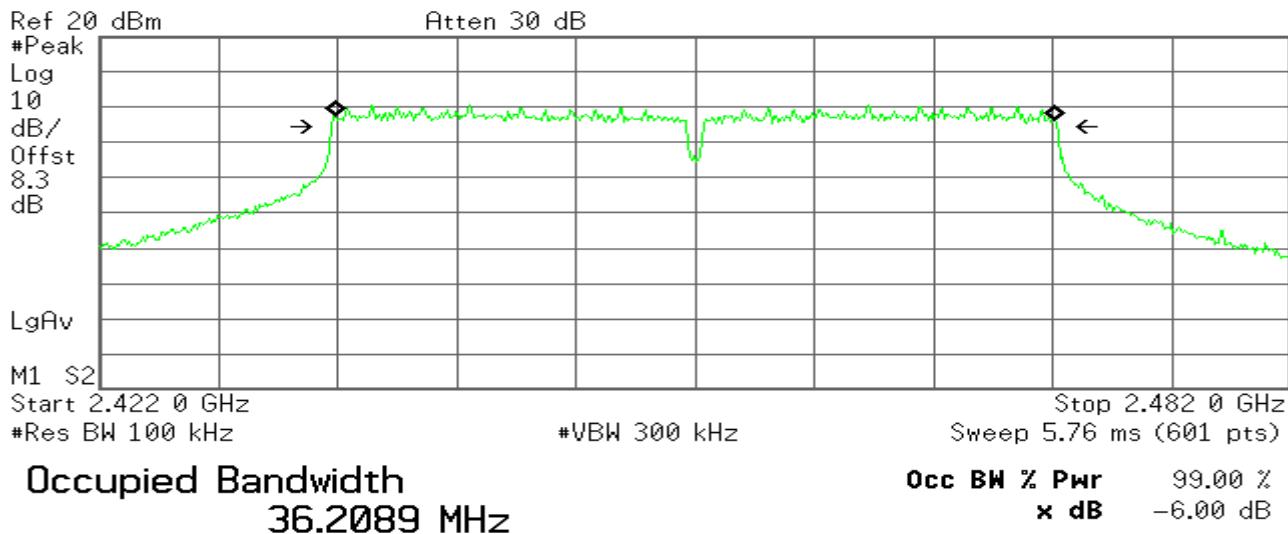
Agilent



Transmit Freq Error -73.143 kHz
x dB Bandwidth 36.487 MHz

6dB Bandwidth (CH High)

Agilent



Transmit Freq Error -47.346 kHz
x dB Bandwidth 36.535 MHz



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

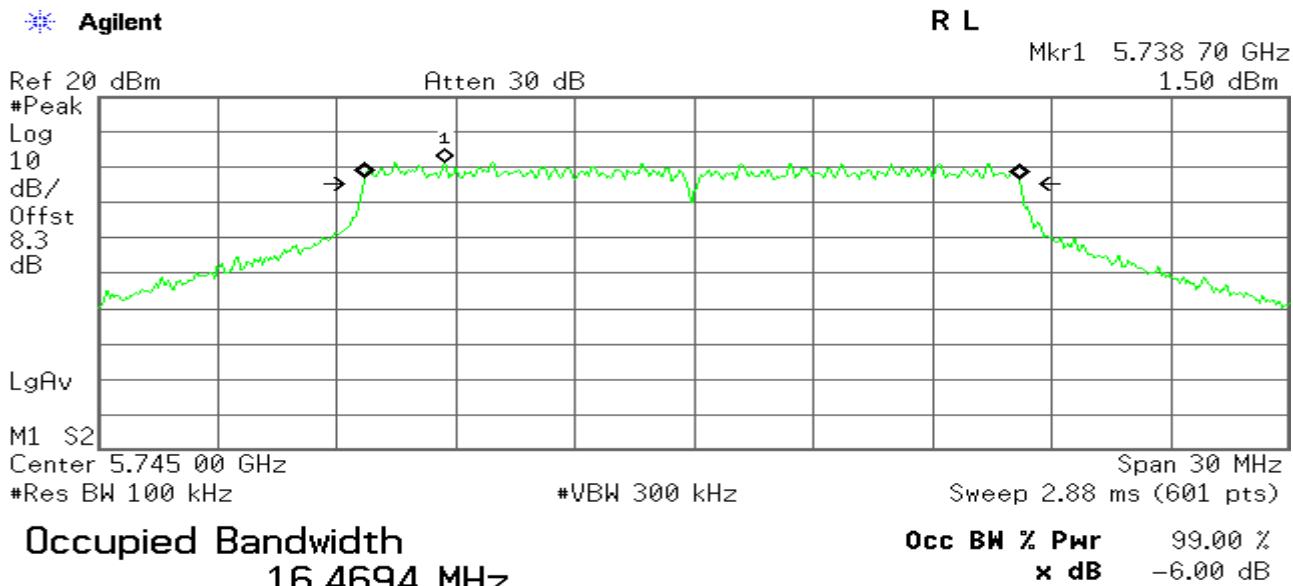
Date of Issue :September 2, 2013

5725MHz-5825MHz

IEEE 802.11a mode

6dB Bandwidth (CH Low)

Agilent

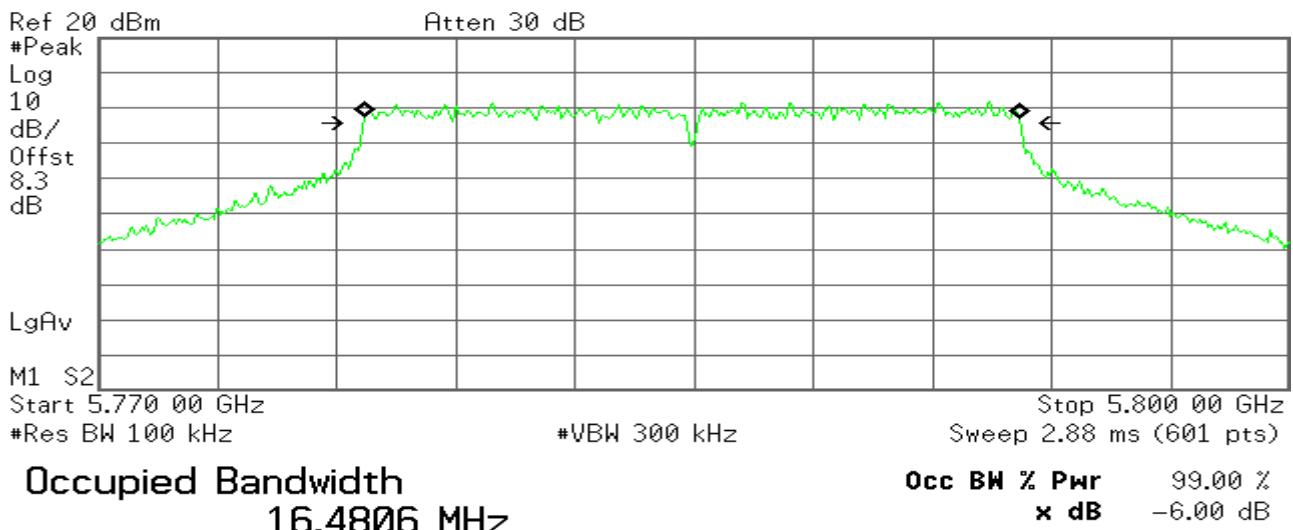


Transmit Freq Error -48.797 kHz
x dB Bandwidth 16.526 MHz

6dB Bandwidth (CH Mid)

Agilent

R L



Transmit Freq Error -58.277 kHz
x dB Bandwidth 16.547 MHz



Compliance Certification Services Inc.

Report No:C130809R03-RPB

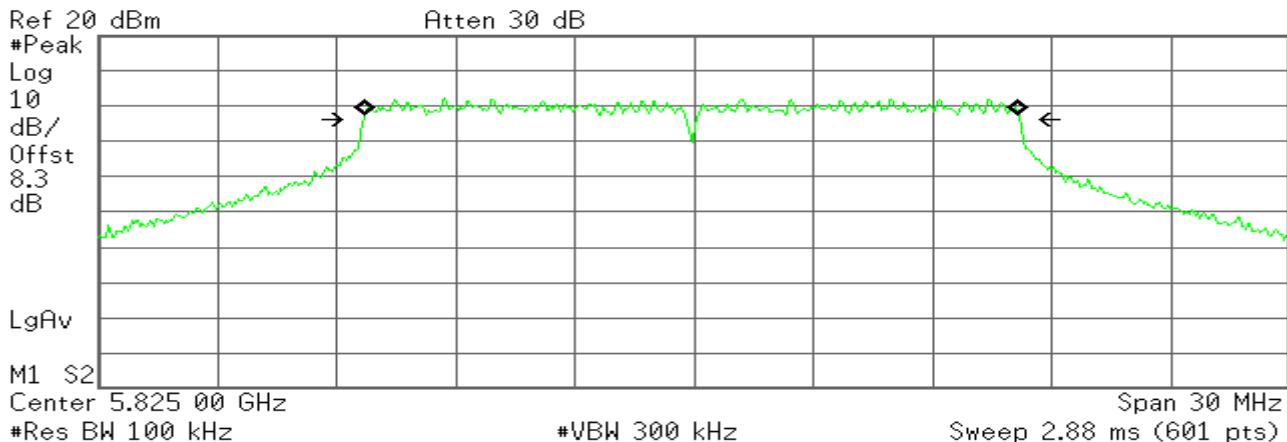
FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

6dB Bandwidth (CH High)

Agilent

R L



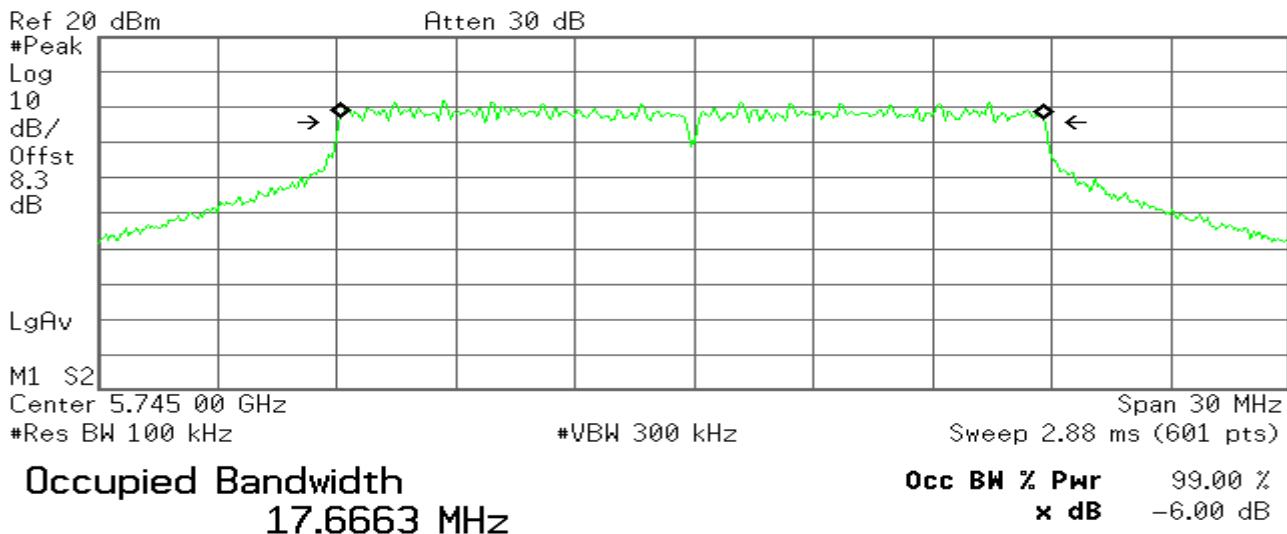
Transmit Freq Error -60.174 kHz
x dB Bandwidth 16.544 MHz

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

6dB Bandwidth (CH Low)

Agilent

R L



Transmit Freq Error -62.789 kHz
x dB Bandwidth 17.757 MHz



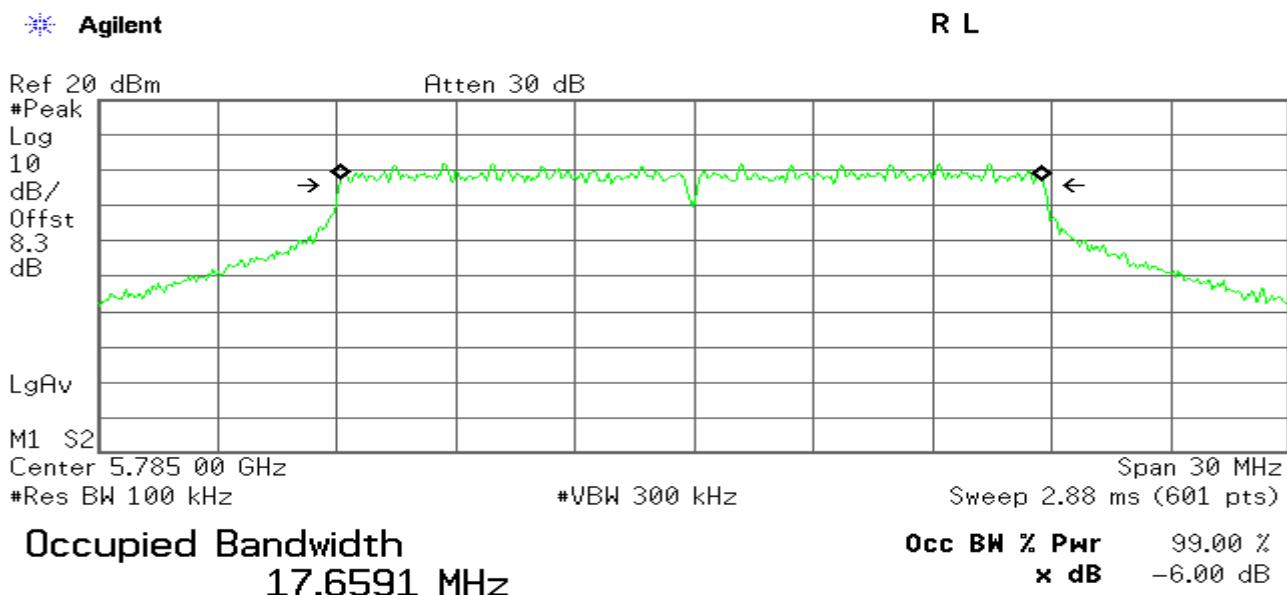
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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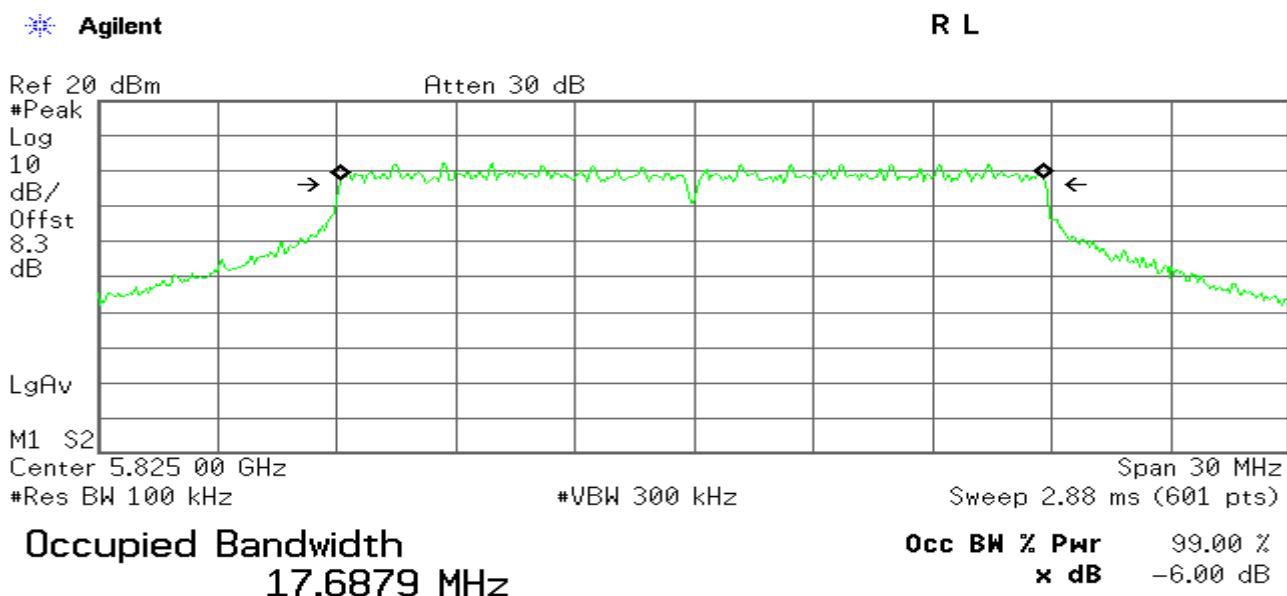
Date of Issue :September 2, 2013

6dB Bandwidth (CH Mid)



Transmit Freq Error -61.038 kHz
x dB Bandwidth 17.754 MHz

6dB Bandwidth (CH High)



Transmit Freq Error -42.575 kHz
x dB Bandwidth 17.782 MHz



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

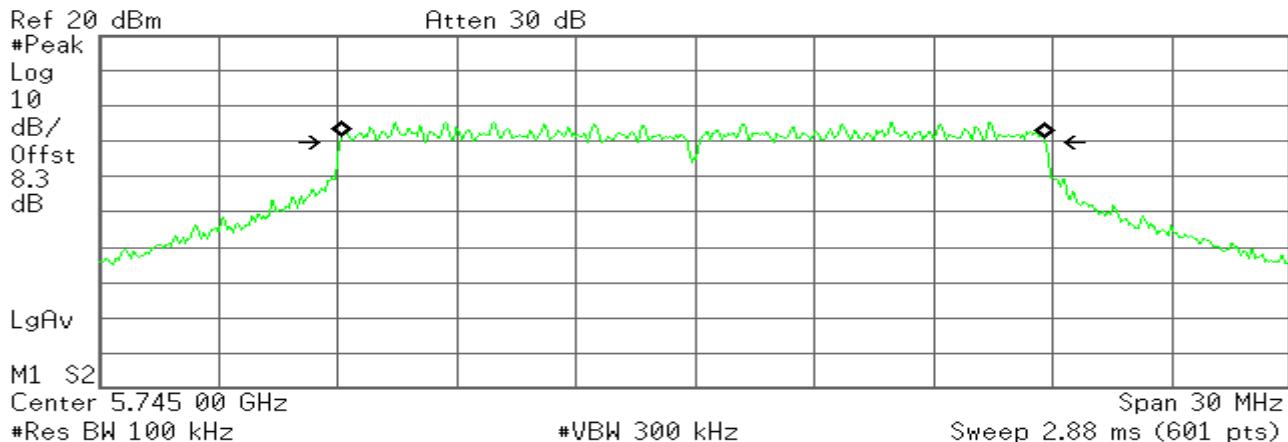
Date of Issue :September 2, 2013

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

6dB Bandwidth (CH Low)

Agilent

R L

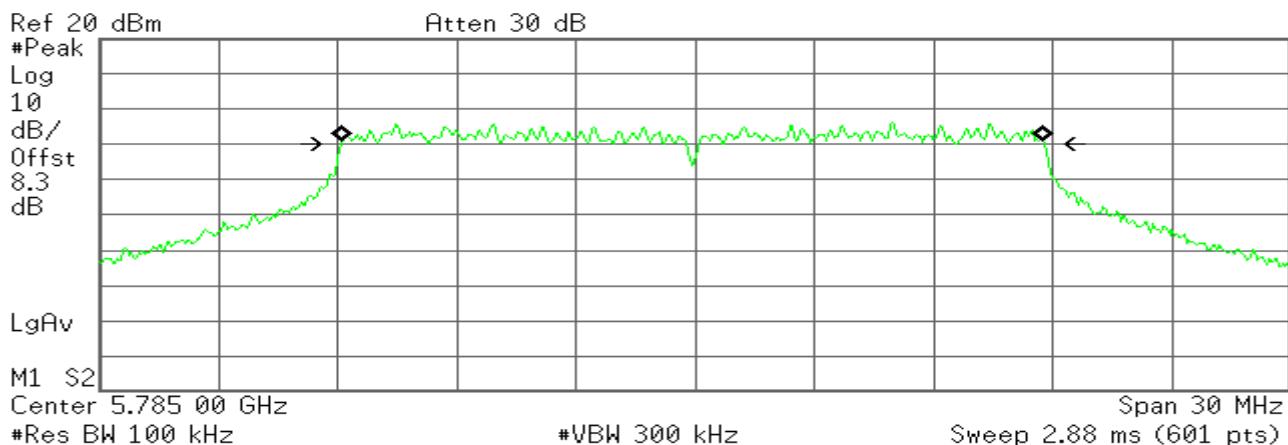


Transmit Freq Error -61.655 kHz
x dB Bandwidth 17.771 MHz

6dB Bandwidth (CH Mid)

Agilent

R L



Transmit Freq Error -59.273 kHz
x dB Bandwidth 17.713 MHz



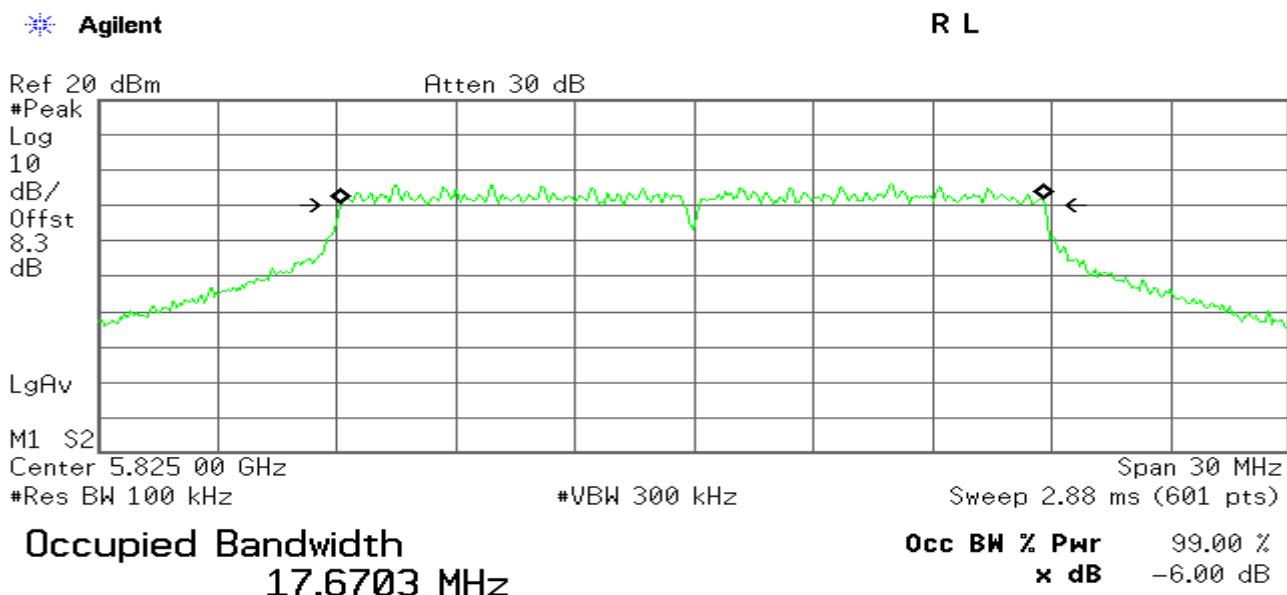
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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Date of Issue :September 2, 2013

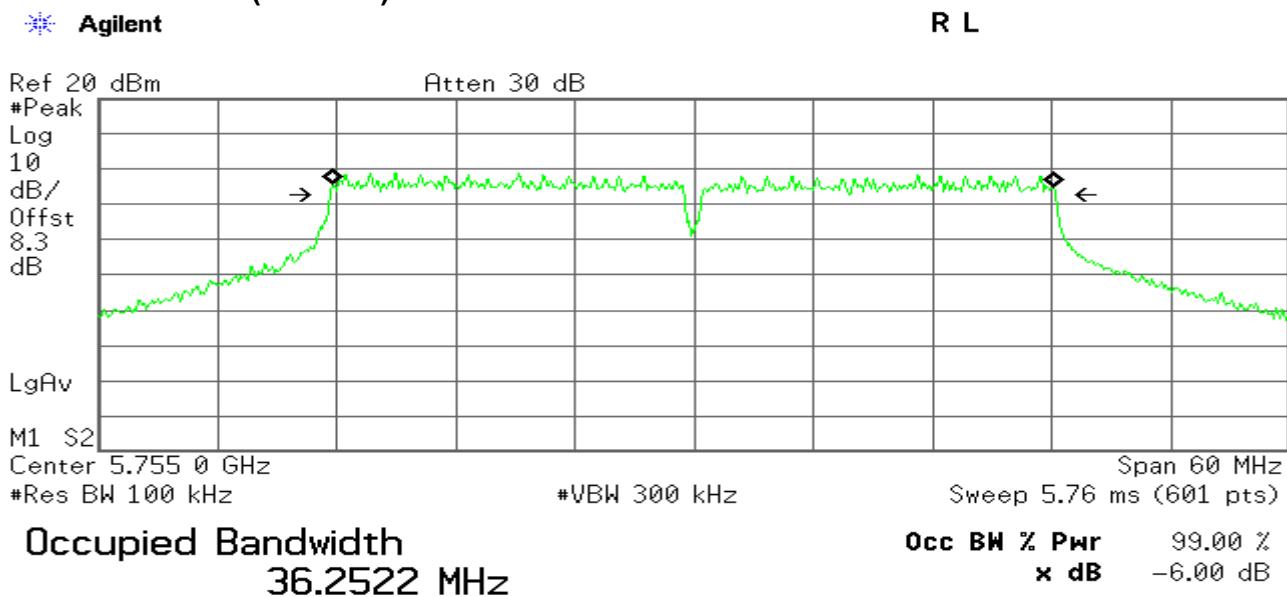
6dB Bandwidth (CH High)



Transmit Freq Error -45.852 kHz
x dB Bandwidth 17.743 MHz

draft 802.11an Standard-40 MHz Channel mode / Chain 0

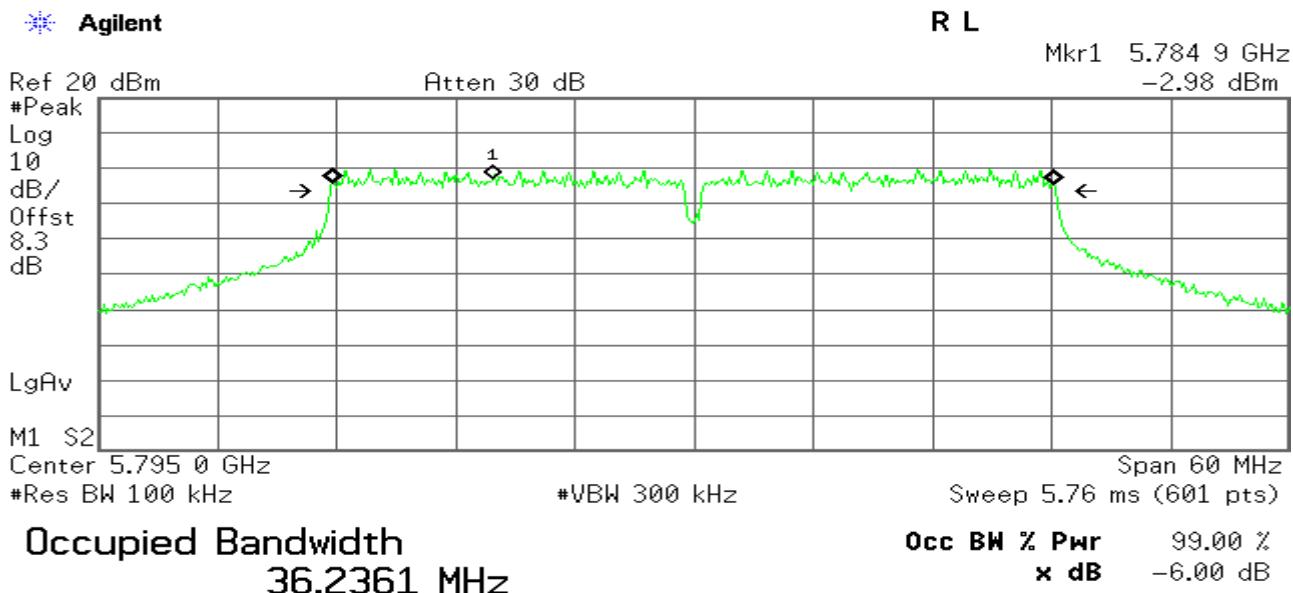
6dB Bandwidth (CH Low)



Transmit Freq Error -71.022 kHz
x dB Bandwidth 36.546 MHz



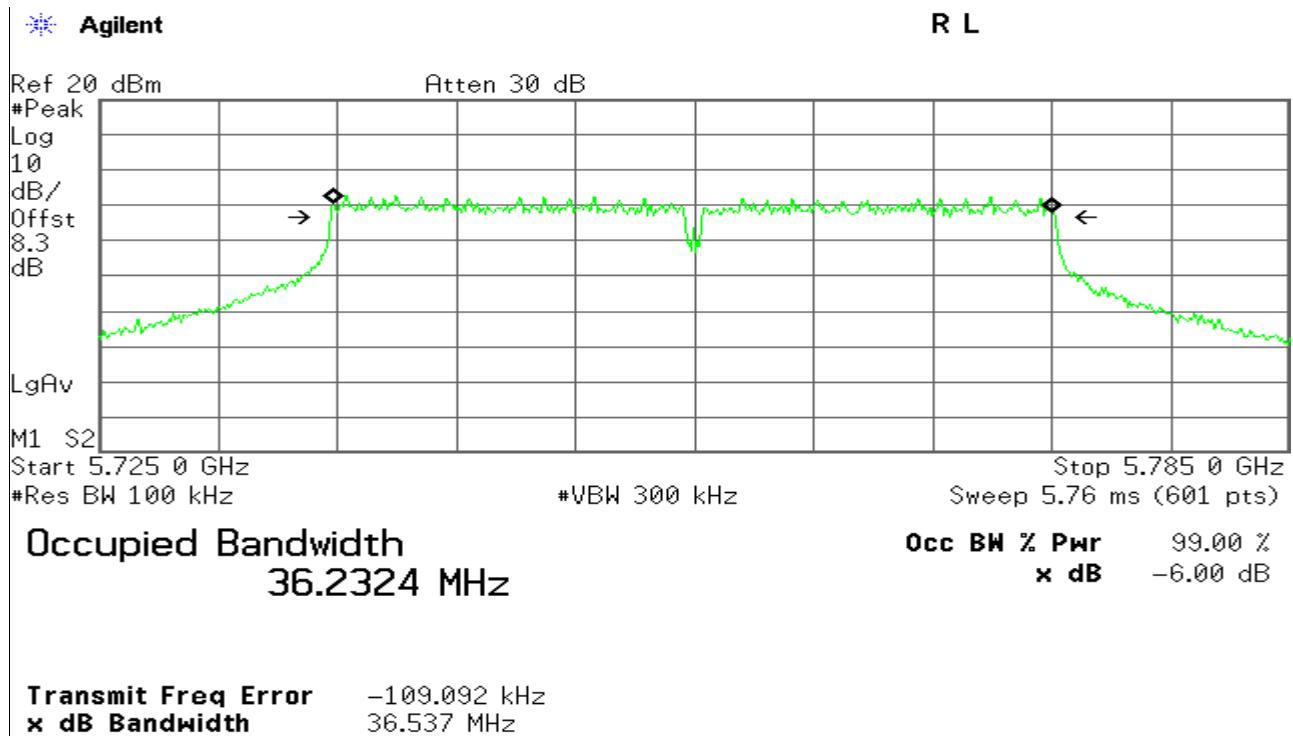
6dB Bandwidth (CH High)



Transmit Freq Error -57.566 kHz
x dB Bandwidth 36.576 MHz

draft 802.11an Standard-40 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)





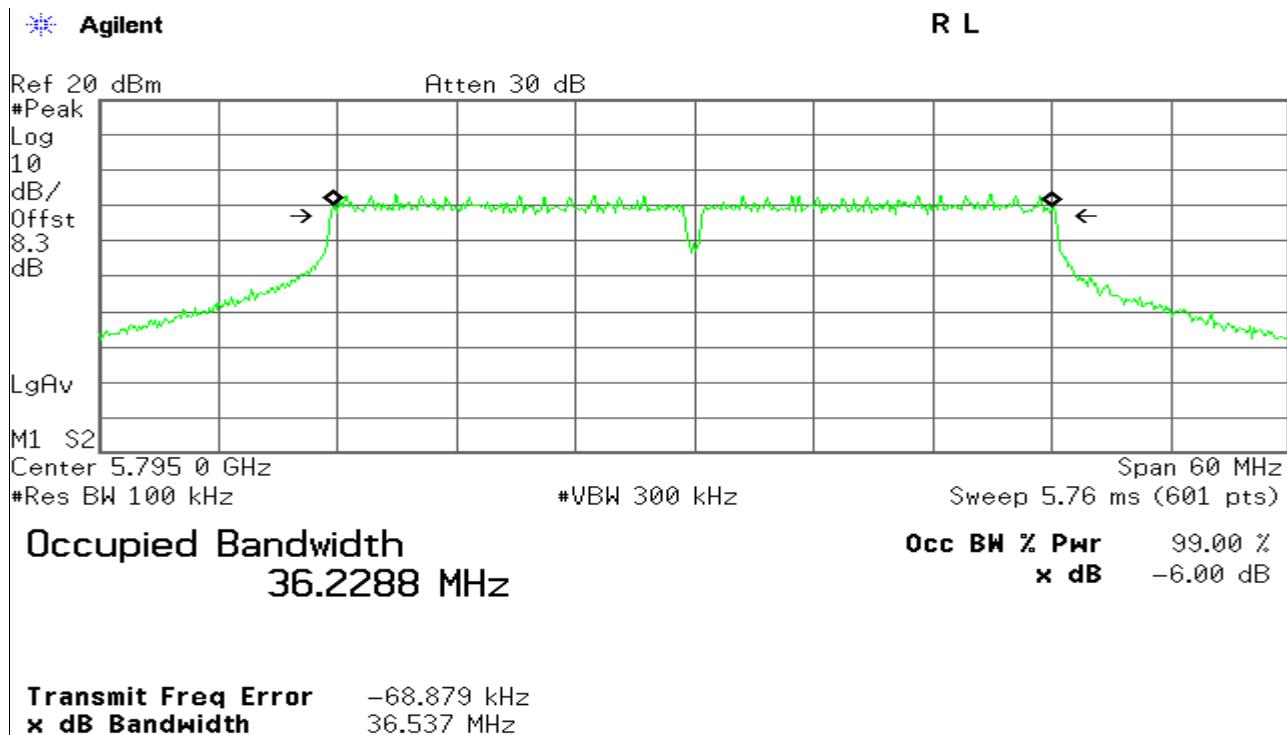
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

6dB Bandwidth (CH High)





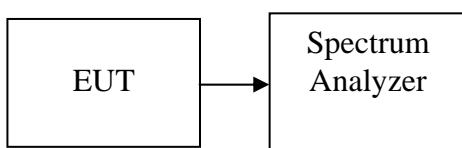
7.2. PEAK POWER

LIMIT

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

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Configuration



TEST PROCEDURE

- 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 *high*free run*high*.
- 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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.51	0.0710	1.00	PASS
Mid	2437	16.92	0.0492		PASS
High	2462	16.67	0.0464		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.60	0.0457	1.00	PASS
Mid	2437	15.16	0.0328		PASS
High	2462	14.80	0.0302		PASS

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	14.54	11.89	16.42	0.0439	1.00	PASS
Mid	2437	13.28	12.26	15.81	0.0381		PASS
High	2462	12.97	11.69	15.39	0.0346		PASS

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	14.29	10.82	15.90	0.0389	1.00	PASS
Mid	2437	13.49	12.12	15.87	0.0386		PASS
High	2452	12.83	11.93	15.41	0.0348		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	17.31	0.0538	1.00	PASS
Mid	5785	16.73	0.0471		PASS
High	5825	16.91	0.0491		PASS



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	14.62	8.10	15.49	0.0354	1.00	PASS
Mid	5785	15.01	8.37	15.86	0.0386		PASS
High	5825	15.26	8.78	16.14	0.0411		PASS

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5755	14.37	7.58	15.20	0.0331	1.00	PASS
Mid	5795	14.81	8.25	15.68	0.0370		PASS



Compliance Certification Services Inc.

Report No:C130809R03-RPB

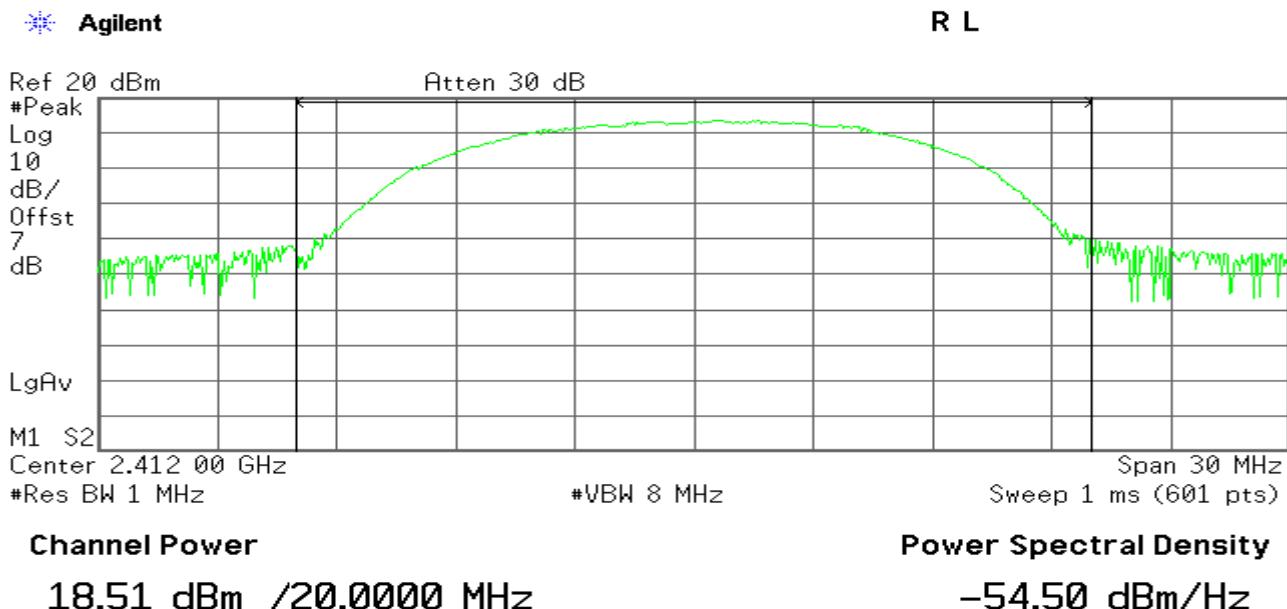
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Date of Issue :September 2, 2013

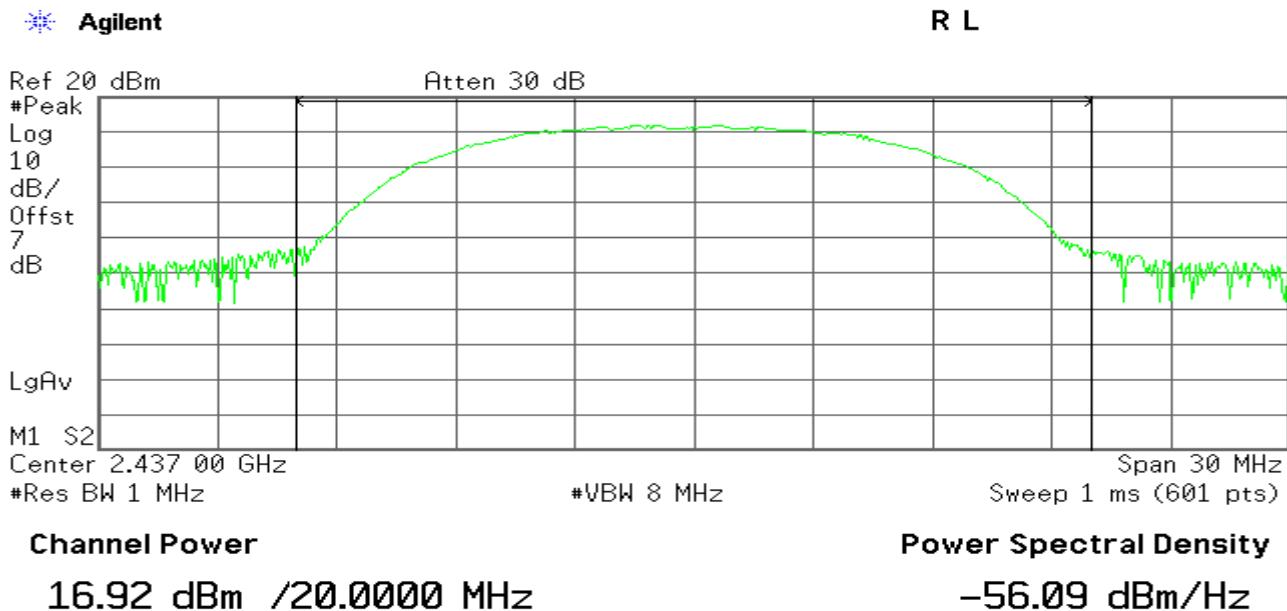
Test Plot

IEEE 802.11b mode

Peak Power (CH Low)



Peak Power (CH Mid)





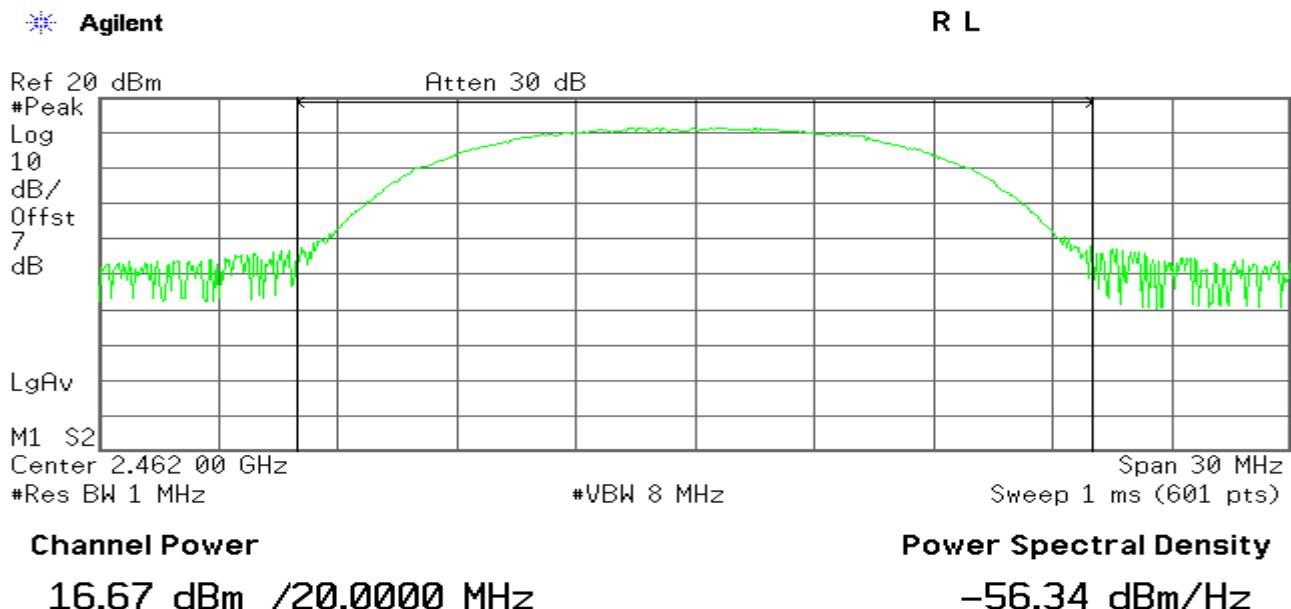
Compliance Certification Services Inc.

Report No:C130809R03-RPB

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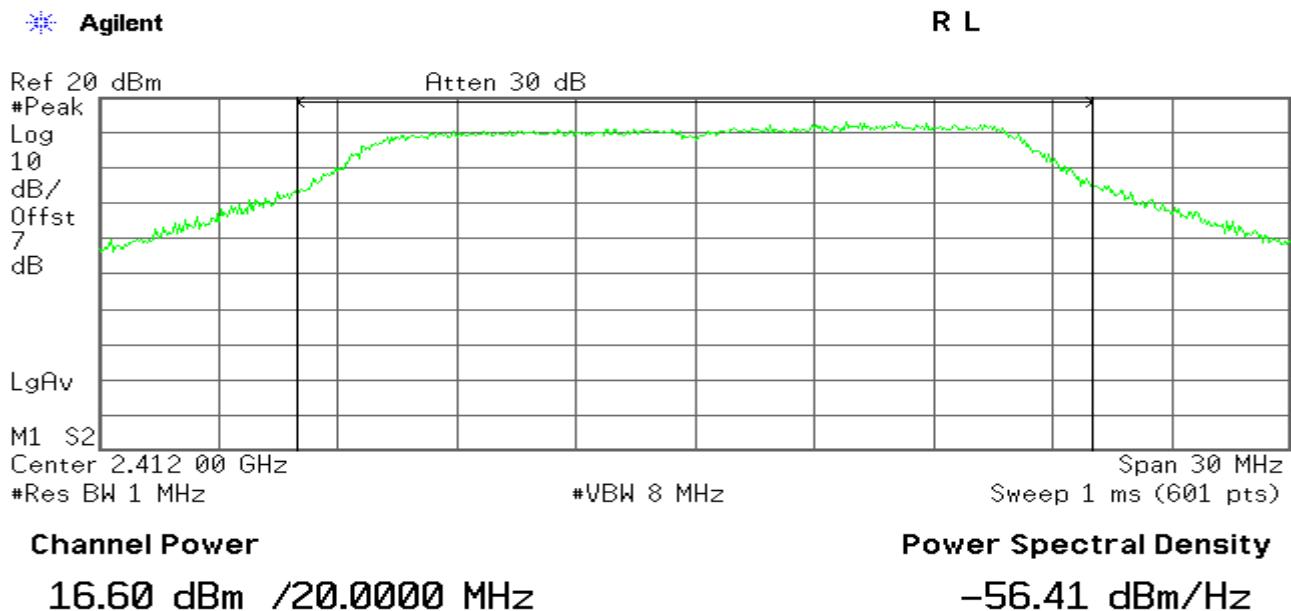
Date of Issue :September 2, 2013

Peak Power (CH High)



IEEE 802.11g mode

Peak Power (CH Low)





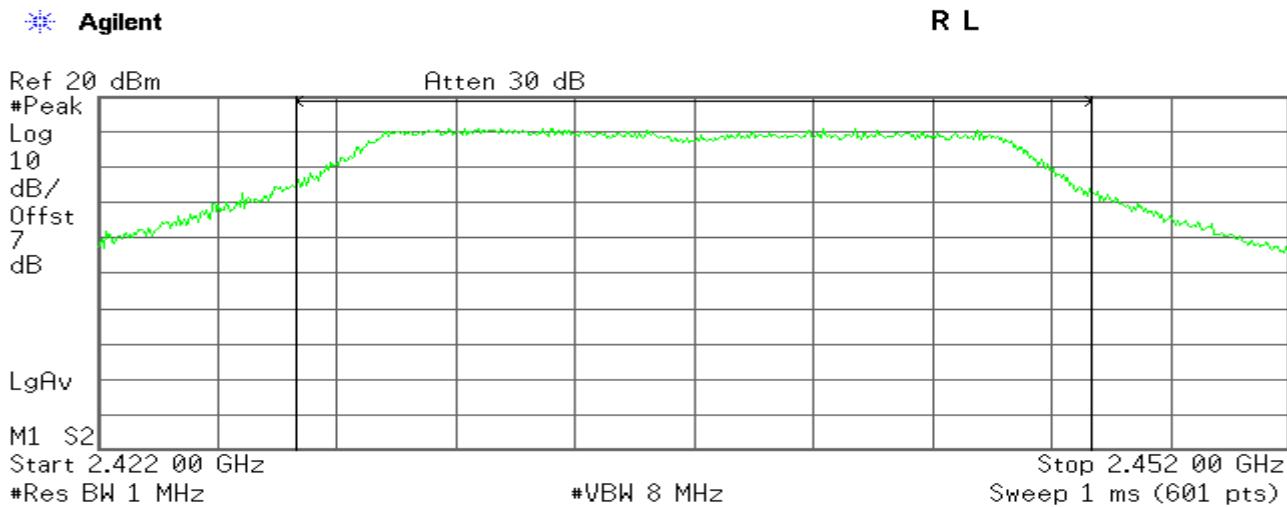
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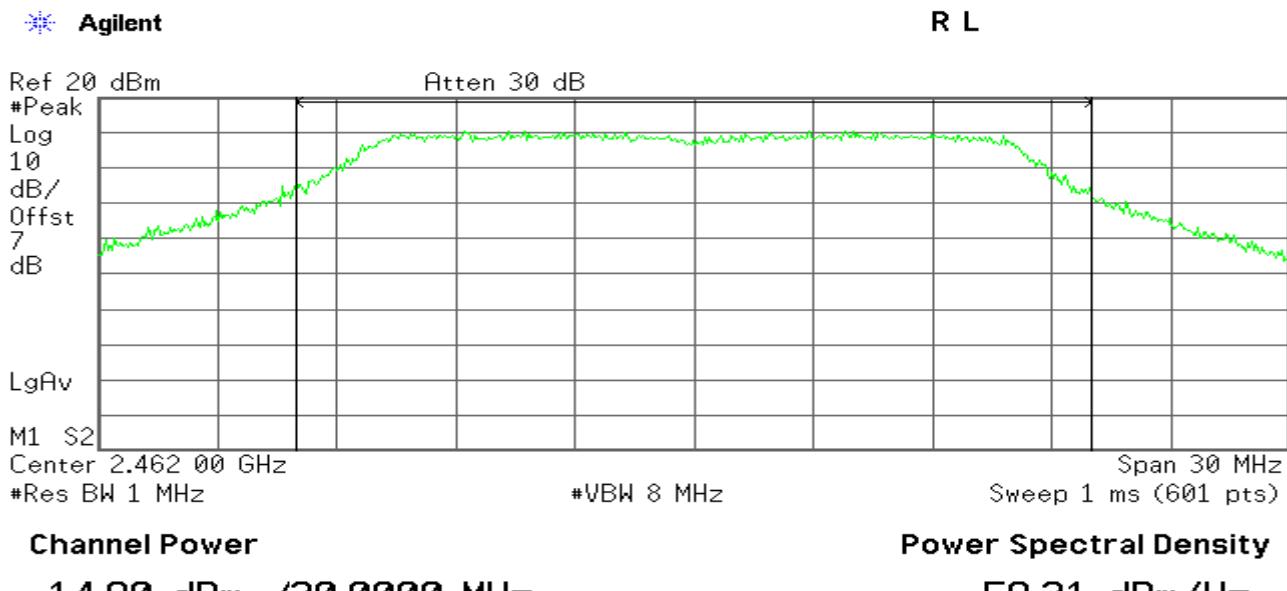
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Date of Issue :September 2, 2013

Peak Power (CH Mid)



Peak Power (CH High)





Compliance Certification Services Inc.

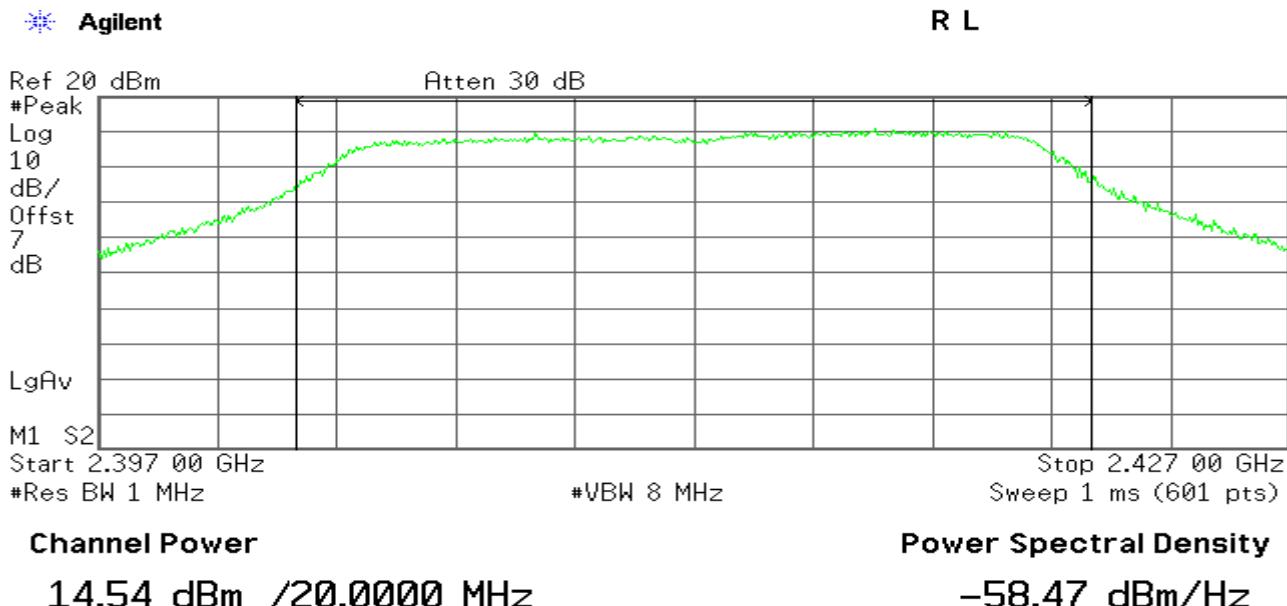
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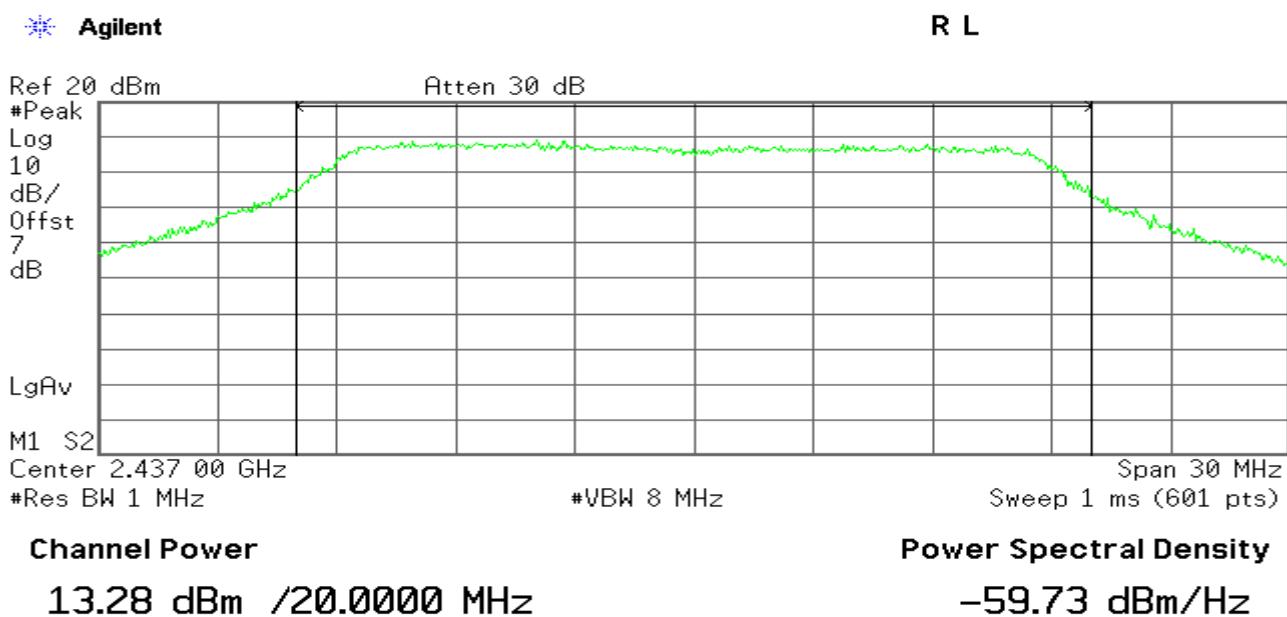
Date of Issue :September 2, 2013

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

Peak Power (CH Low)



Peak Power (CH Mid)





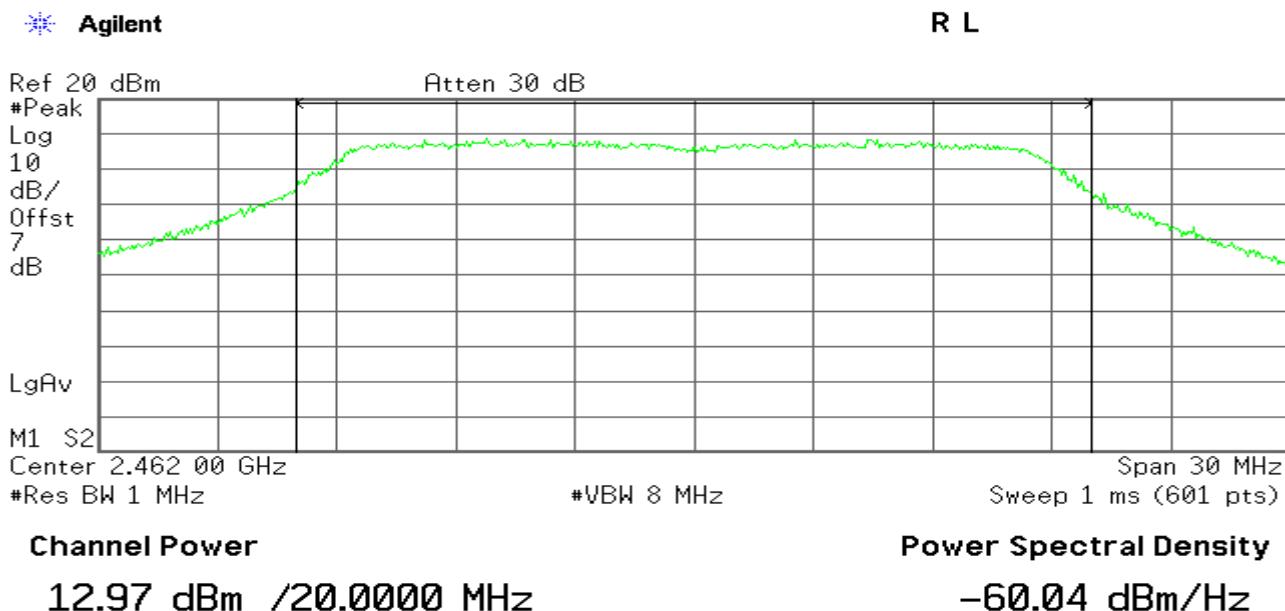
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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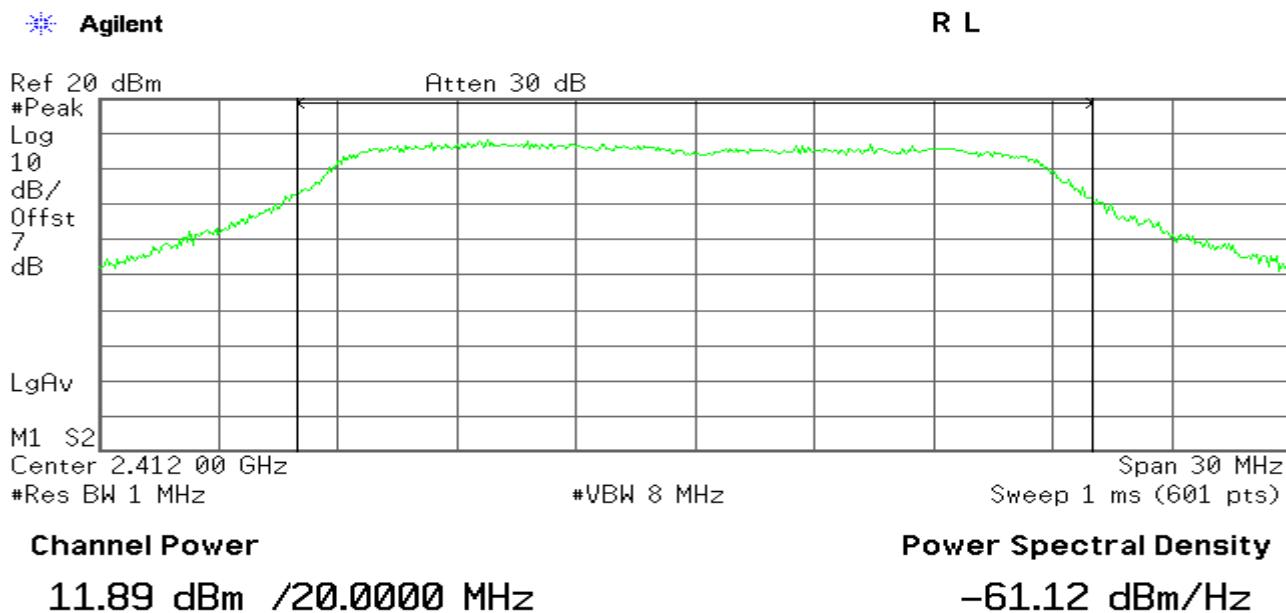
Date of Issue :September 2, 2013

Peak Power (CH High)



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

Peak Power (CH Low)





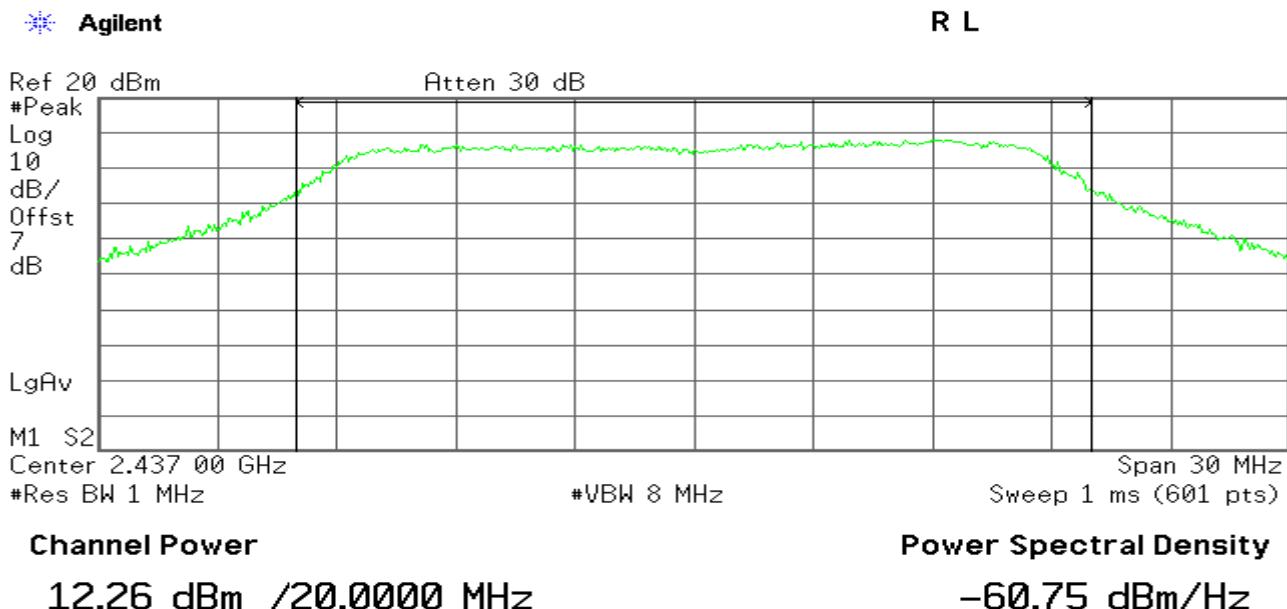
Compliance Certification Services Inc.

Report No:C130809R03-RPB

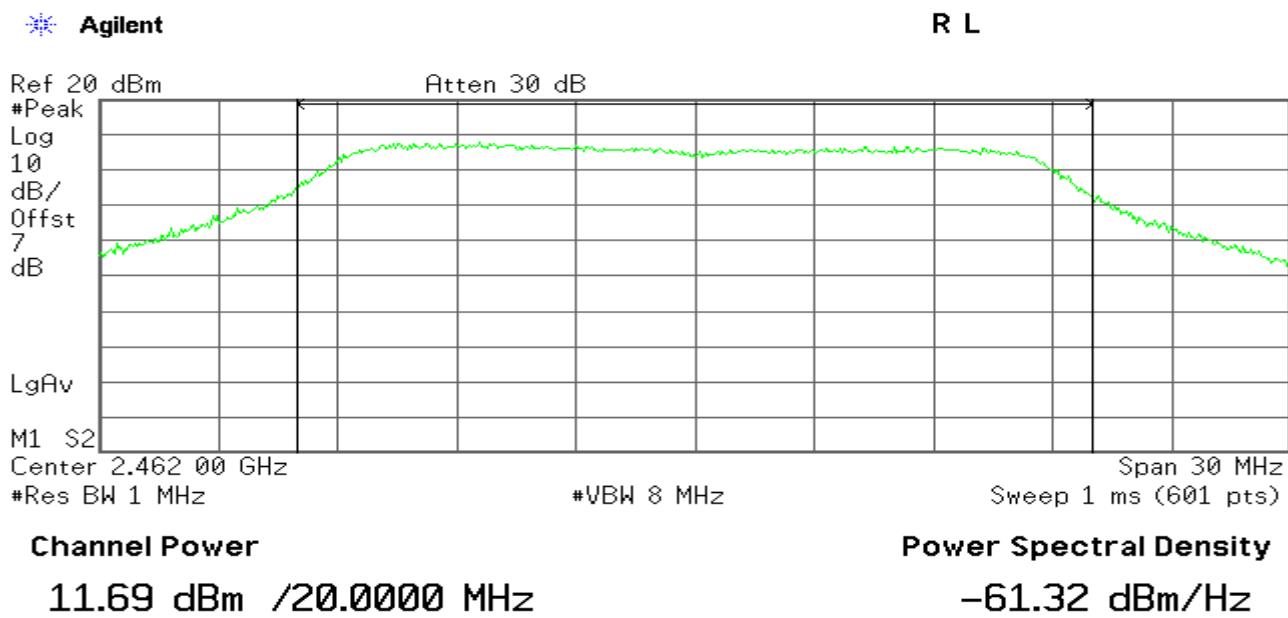
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Date of Issue :September 2, 2013

Peak Power (CH Mid)



Peak Power (CH High)





Compliance Certification Services Inc.

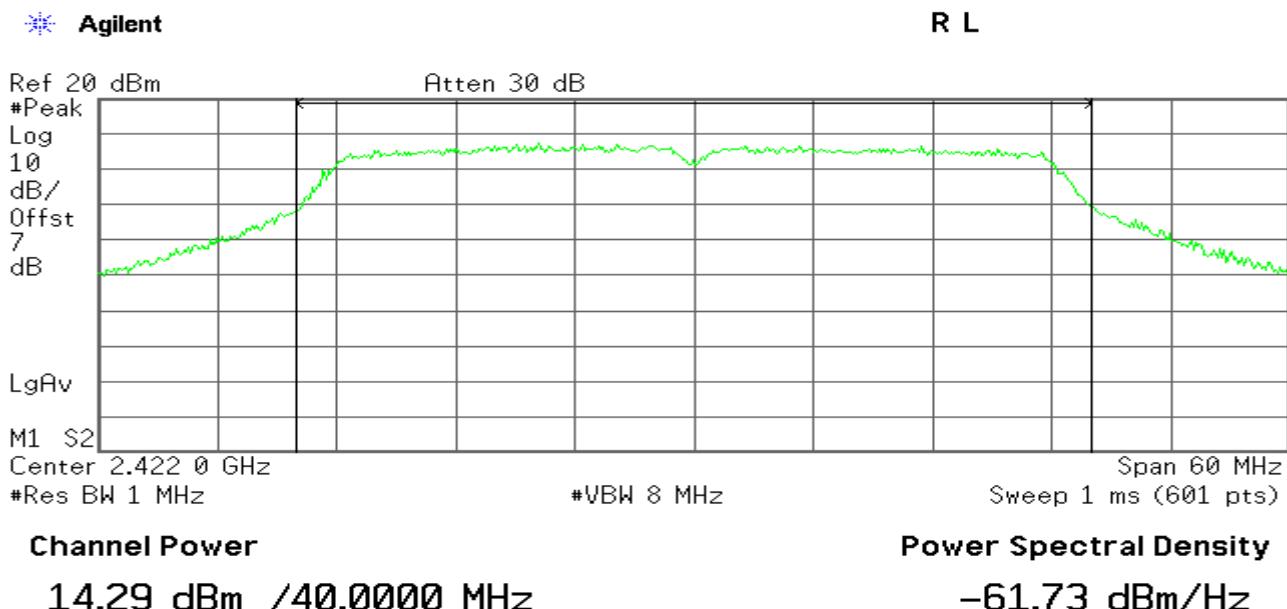
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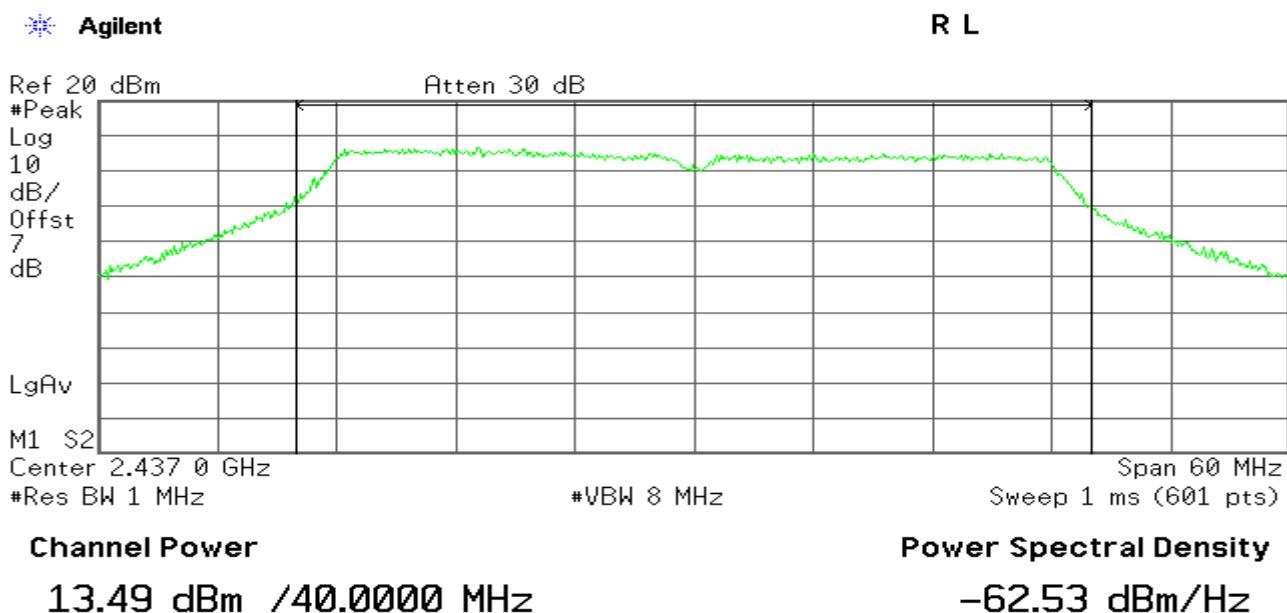
Date of Issue :September 2, 2013

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

Peak Power (CH Low)



Peak Power (CH Mid)





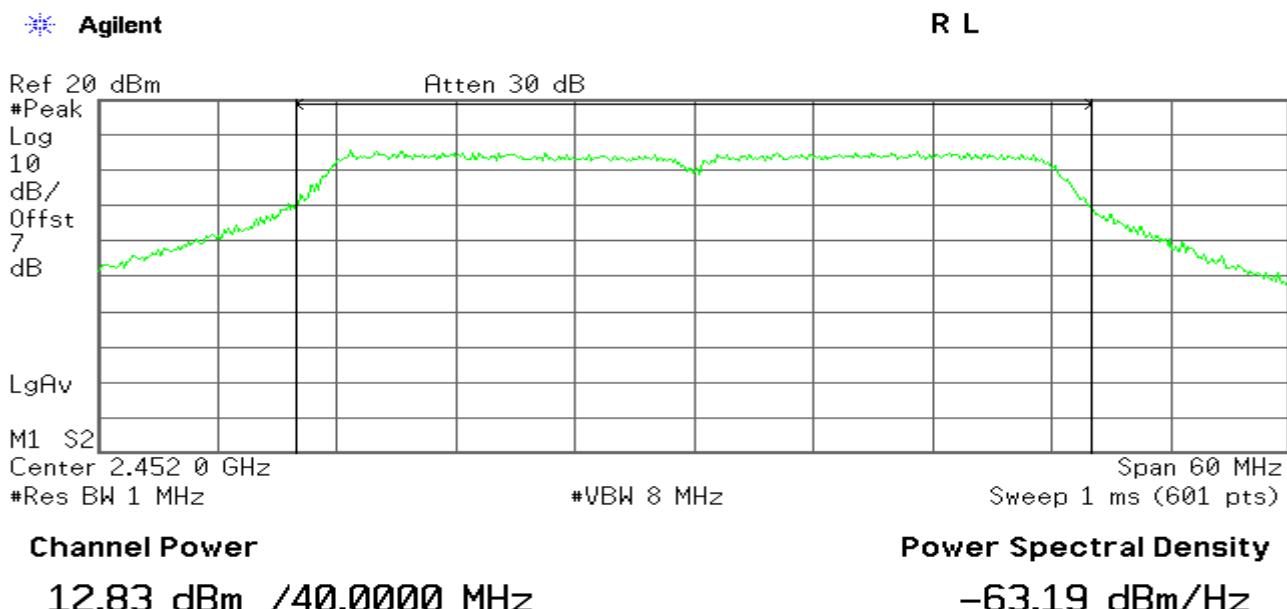
Compliance Certification Services Inc.

Report No:C130809R03-RPB

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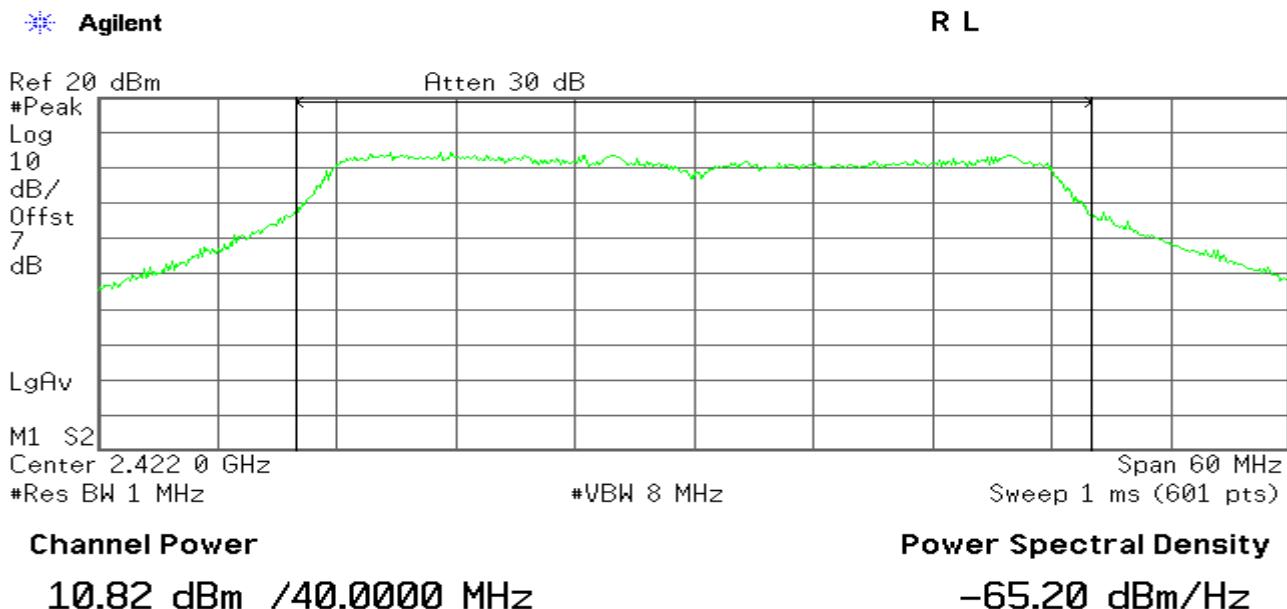
Date of Issue :September 2, 2013

Peak Power (CH High)



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

Peak Power (CH Low)





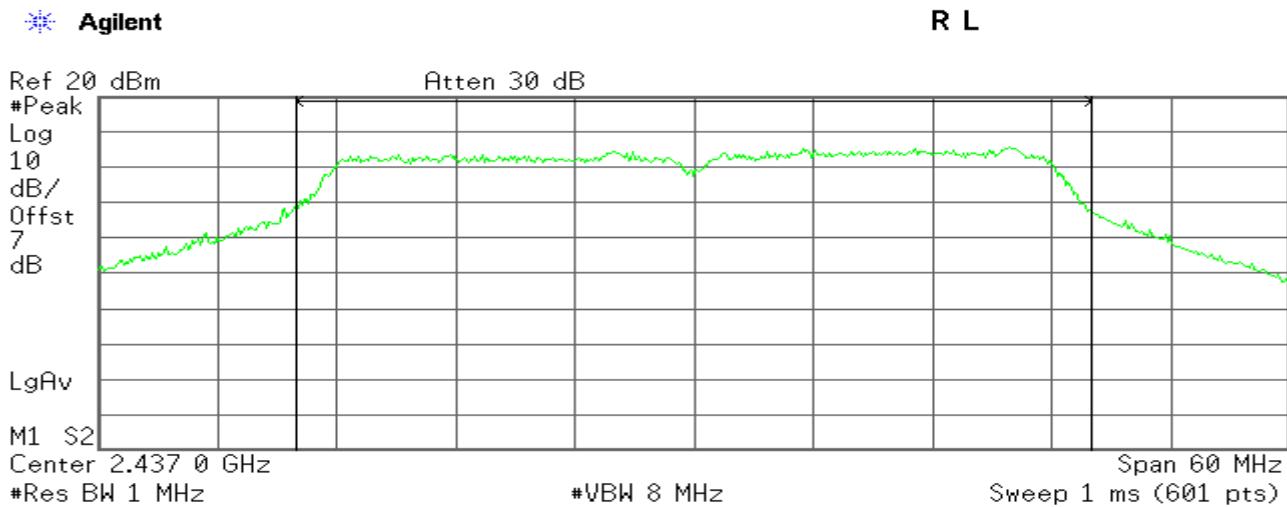
Compliance Certification Services Inc.

Report No:C130809R03-RPB

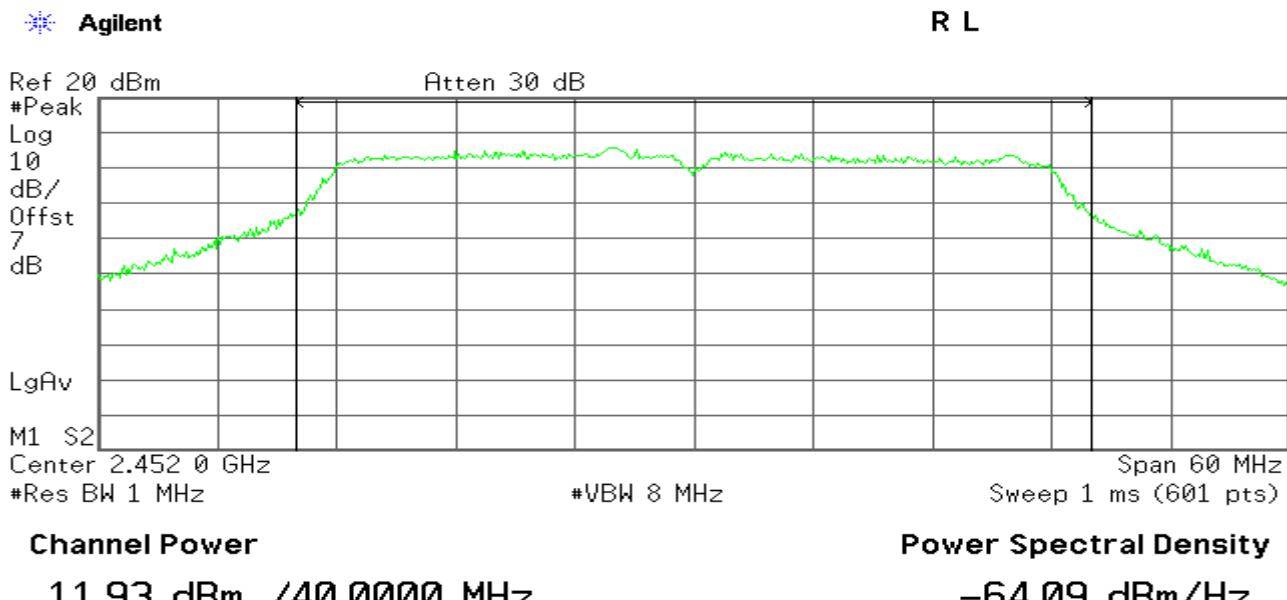
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Date of Issue :September 2, 2013

Peak Power (CH Mid)



Peak Power (CH High)





Compliance Certification Services Inc.

Report No:C130809R03-RPB

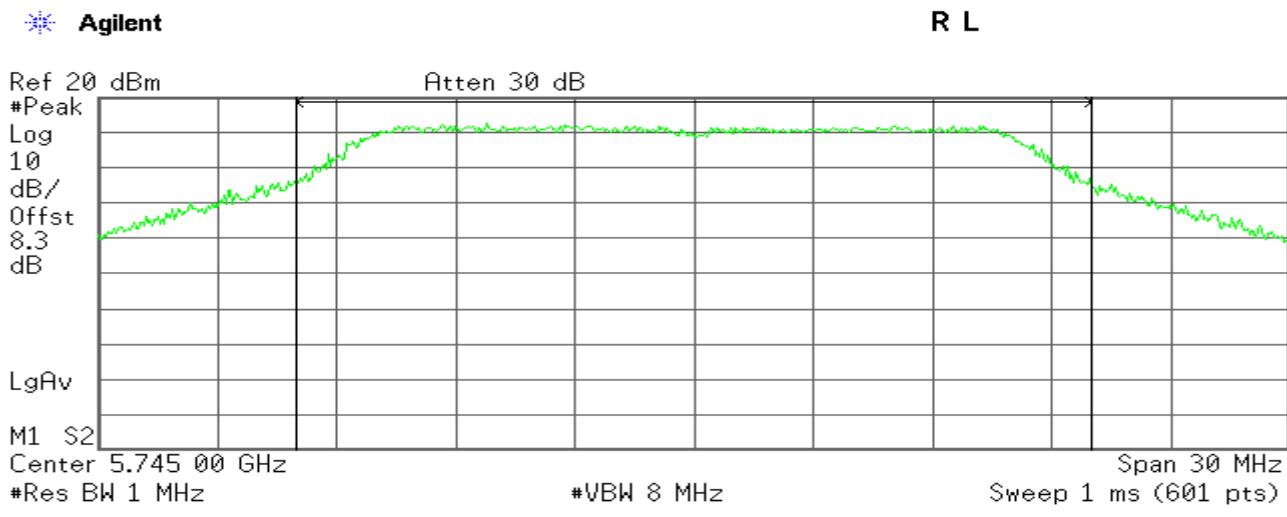
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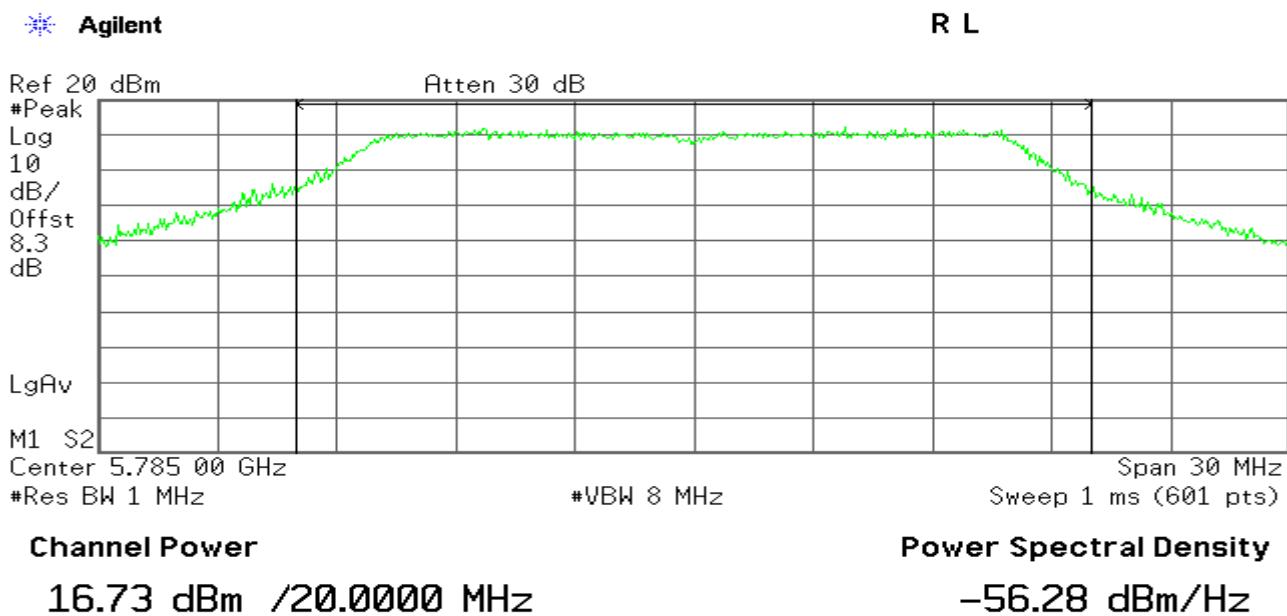
5725-5850

IEEE 802.11a mode

Peak Power (CH Low)



Peak Power (CH Mid)





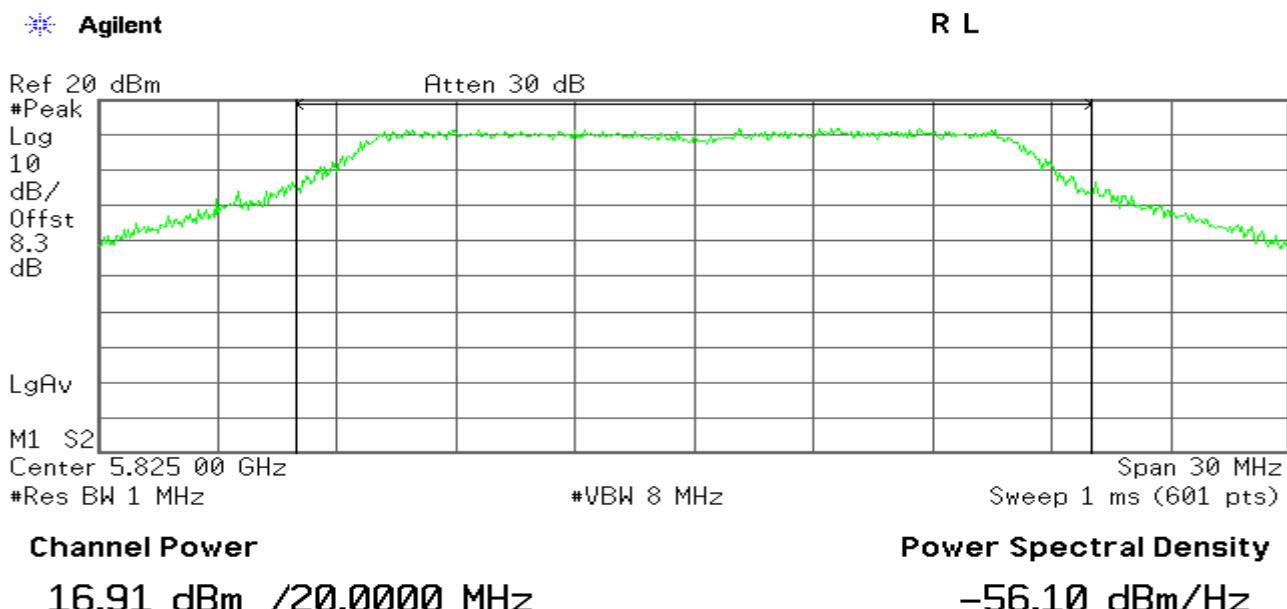
Compliance Certification Services Inc.

Report No:C130809R03-RPB

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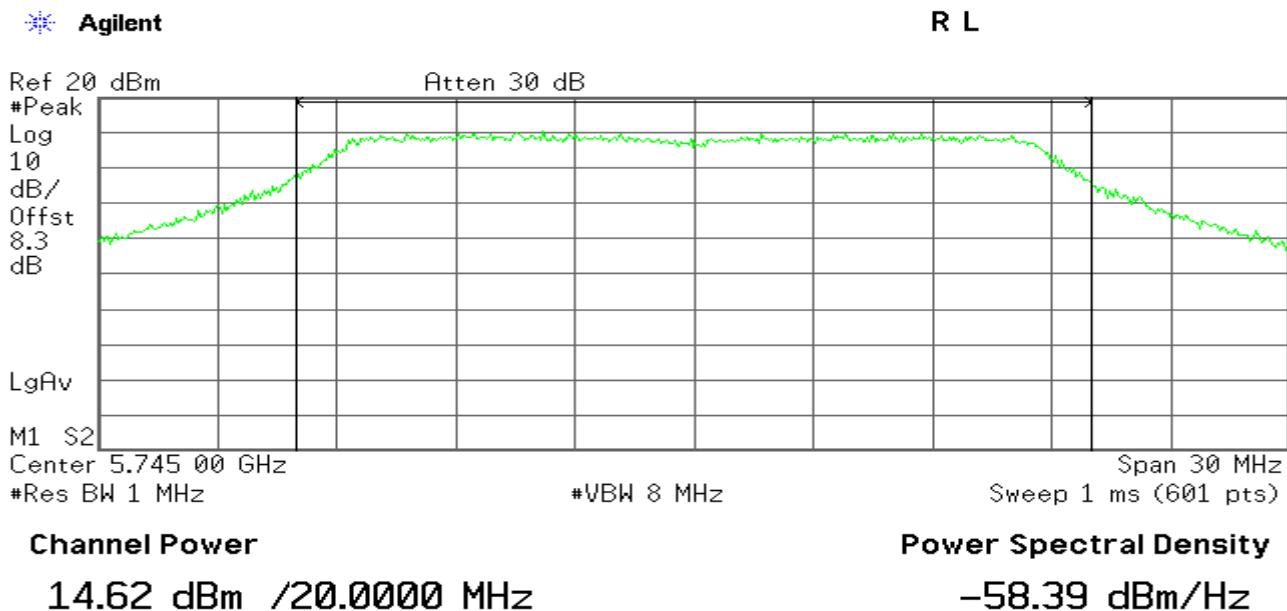
Date of Issue :September 2, 2013

Peak Power (CH Hgh)



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

Peak Power (CH Low)





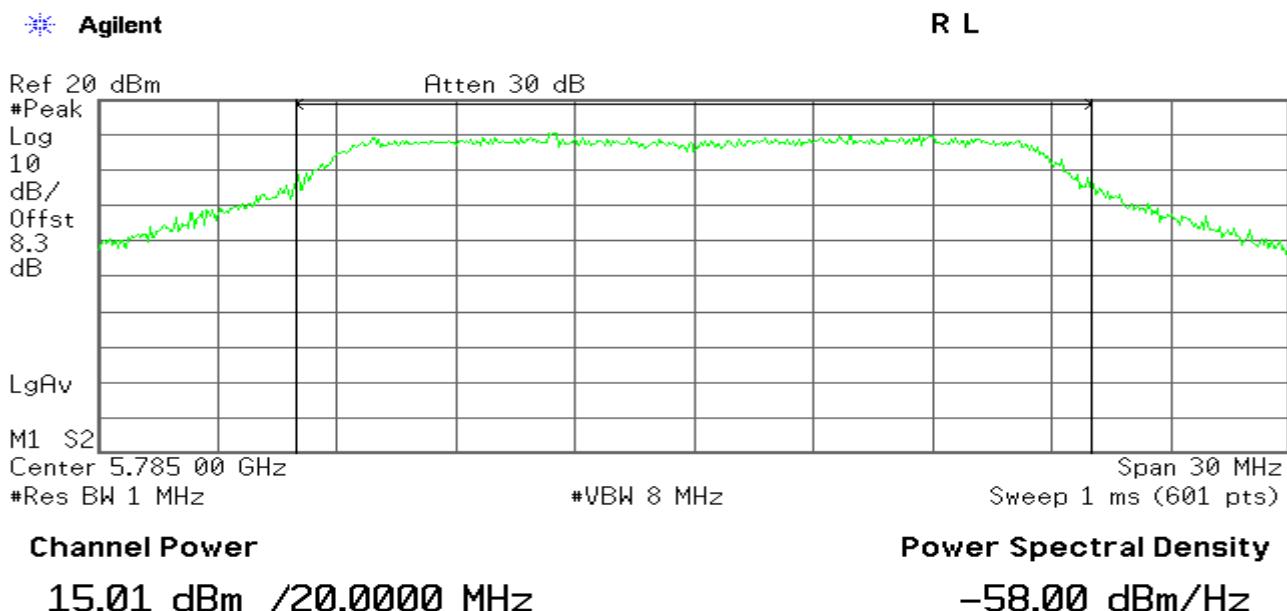
Compliance Certification Services Inc.

Report No:C130809R03-RPB

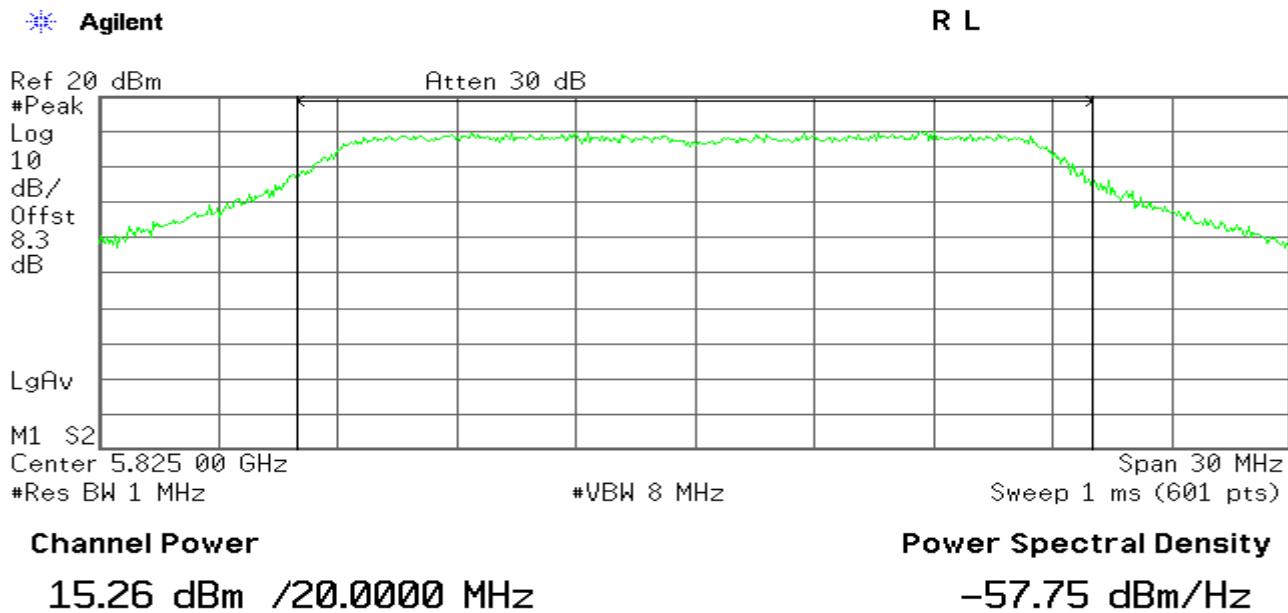
FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Peak Power (CH Mid)



Peak Power (CH High)





Compliance Certification Services Inc.

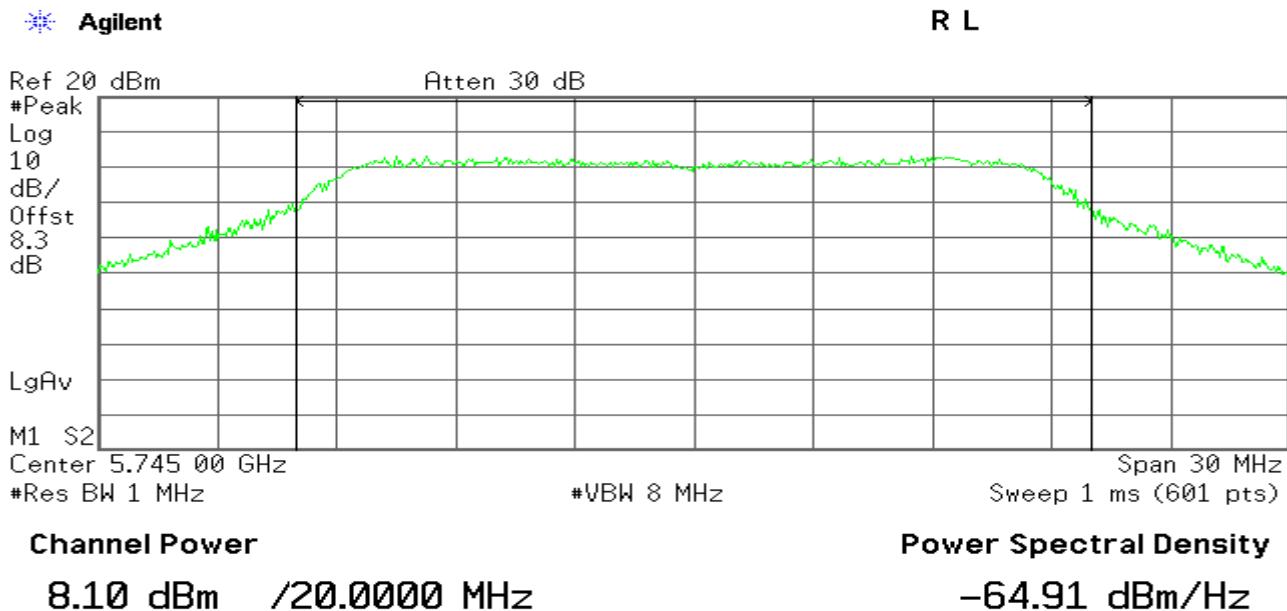
Report No:C130809R03-RPB

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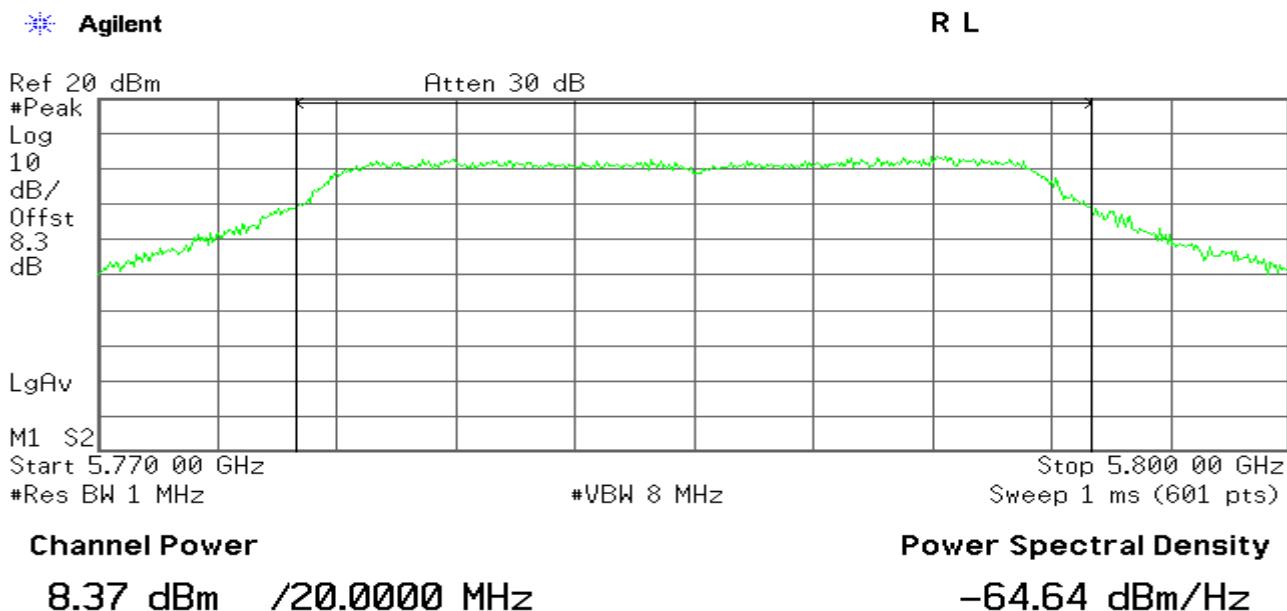
Date of Issue :September 2, 2013

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

Peak Power (CH Low)



Peak Power (CH Mid)





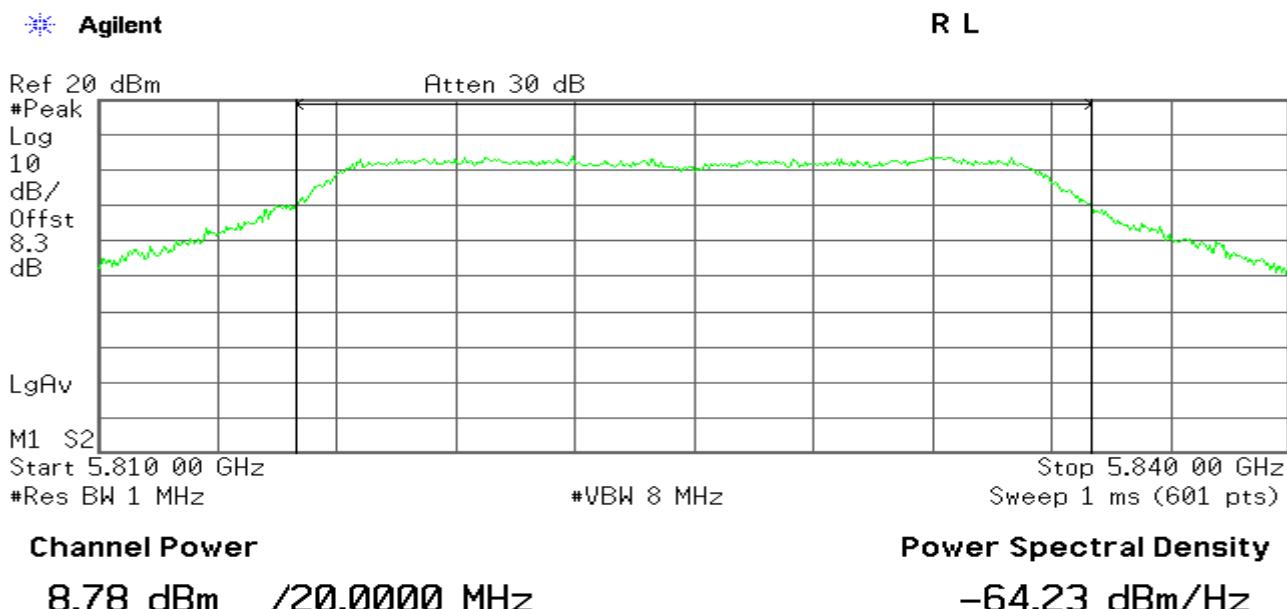
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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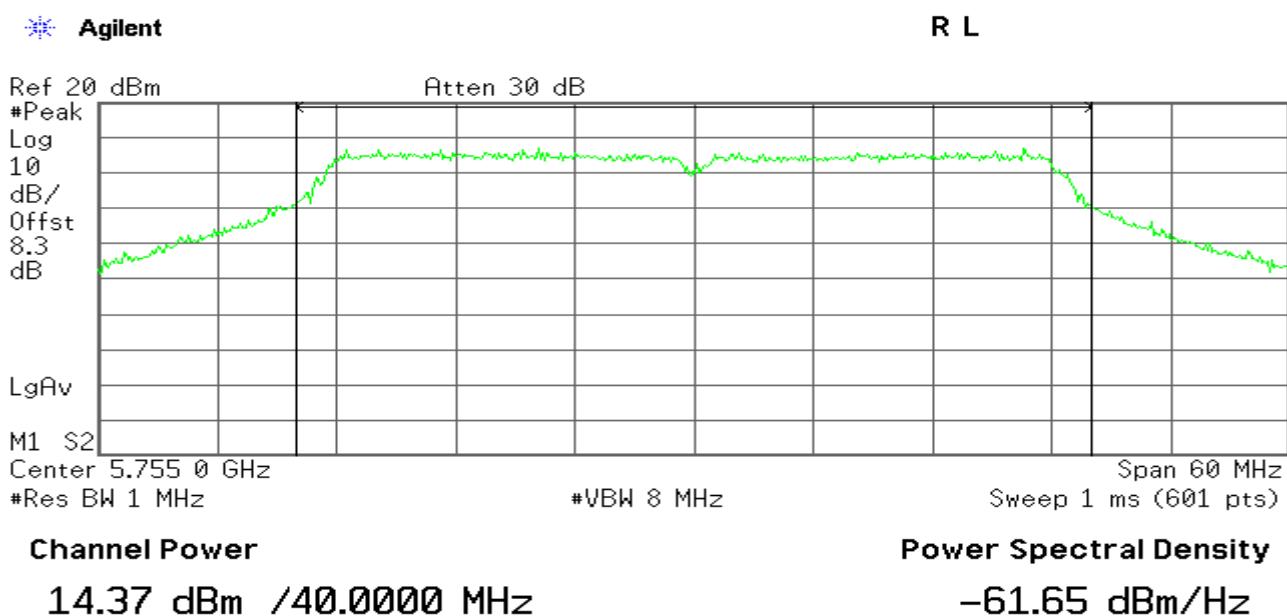
Date of Issue :September 2, 2013

Peak Power (CH High)



draft 802.11an Standard-40 MHz Channel mode / Chain 0

Peak Power (CH Low)





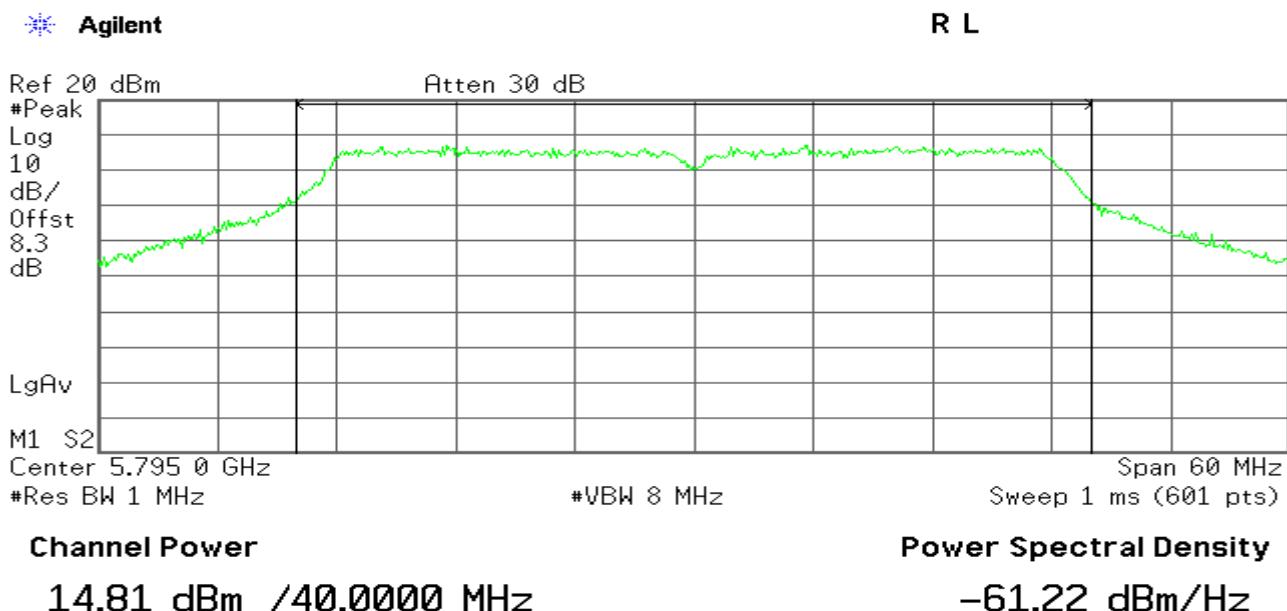
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

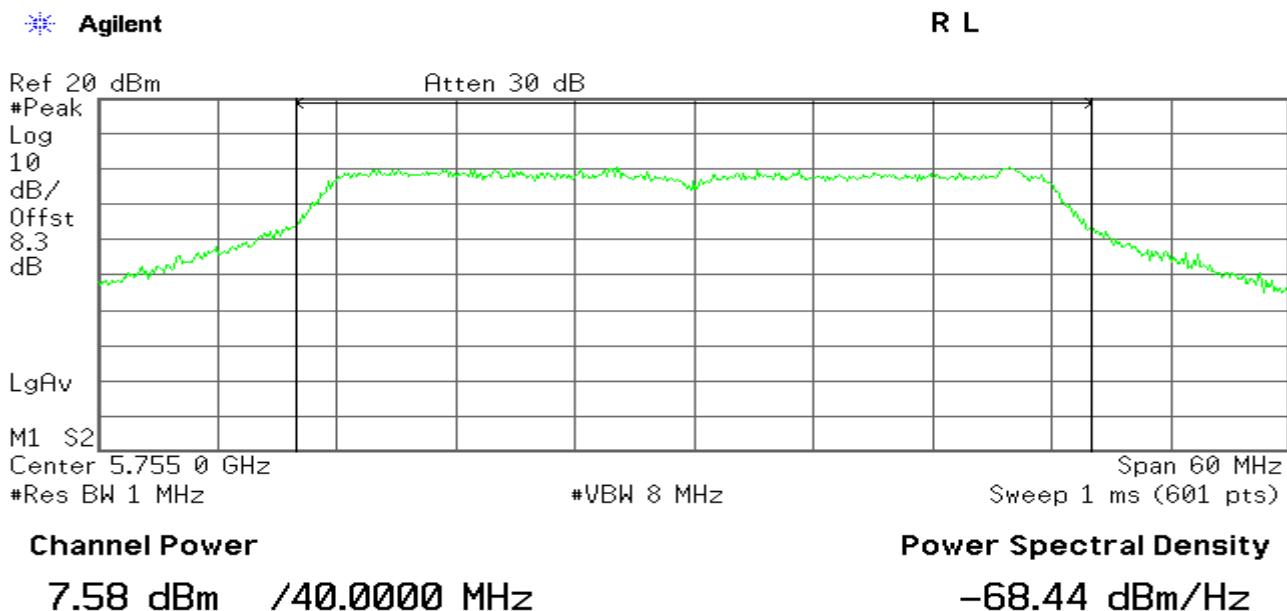
Date of Issue :September 2, 2013

Peak Power (CH High)



draft 802.11an Standard-40 MHz Channel mode / Chain 1

Peak Power (CH Low)





Compliance Certification Services Inc.

Report No:C130809R03-RPB

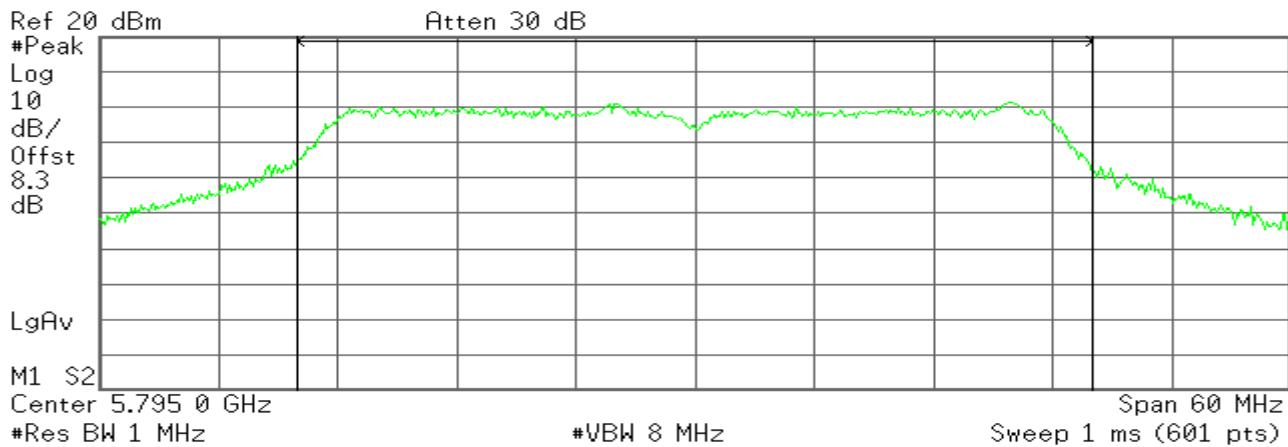
FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Peak Power (CH High)

Agilent

R L



Channel Power

8.25 dBm /40.0000 MHz

Power Spectral Density

-67.78 dBm/Hz

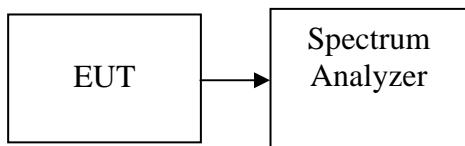


7.3. PEAK POWER SPECTRAL DENSITY

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-8.25	8.00	PASS
Mid	2437	-10.09	8.00	PASS
High	2462	-10.48	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-9.60	8.00	PASS
Mid	2437	-13.08	8.00	PASS
High	2462	-12.75	8.00	PASS

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

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2412	-13.67	-16.13	-11.72	8.00	PASS
Mid	2437	-14.82	-15.82	-12.28	8.00	PASS
High	2462	-15.39	-16.18	-12.76	8.00	PASS

Remark: Total PPSD (dBm) = $10 \cdot \log(10^{(Chain\ 0\ PPSD\ /10)} + 10^{(Chain\ 1\ PPSD\ /10)})$

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

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2422	-14.85	-18.36	-13.25	8.00	PASS
Mid	2437	-14.84	-17.67	-13.02	8.00	PASS
High	2452	-16.22	-16.75	-13.47	8.00	PASS

Remark: Total PPSD (dBm) = $10 \cdot \log(10^{(Chain\ 0\ PPSD\ /10)} + 10^{(Chain\ 1\ PPSD\ /10)})$

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5745	-12.23	8.00	PASS
Mid	5785	-12.51	8.00	PASS
High	5825	-11.64	8.00	PASS



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

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

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5745	-14.69	-19.73	-13.51	8.00	PASS
Mid	5785	-13.85	-19.85	-12.88	8.00	PASS
High	5825	-14.45	-19.89	-13.36	8.00	PASS

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

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

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5755	-16.66	-21.76	-15.49	8.00	PASS
Mid	5795	-14.30	-20.84	-13.43	8.00	PASS

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

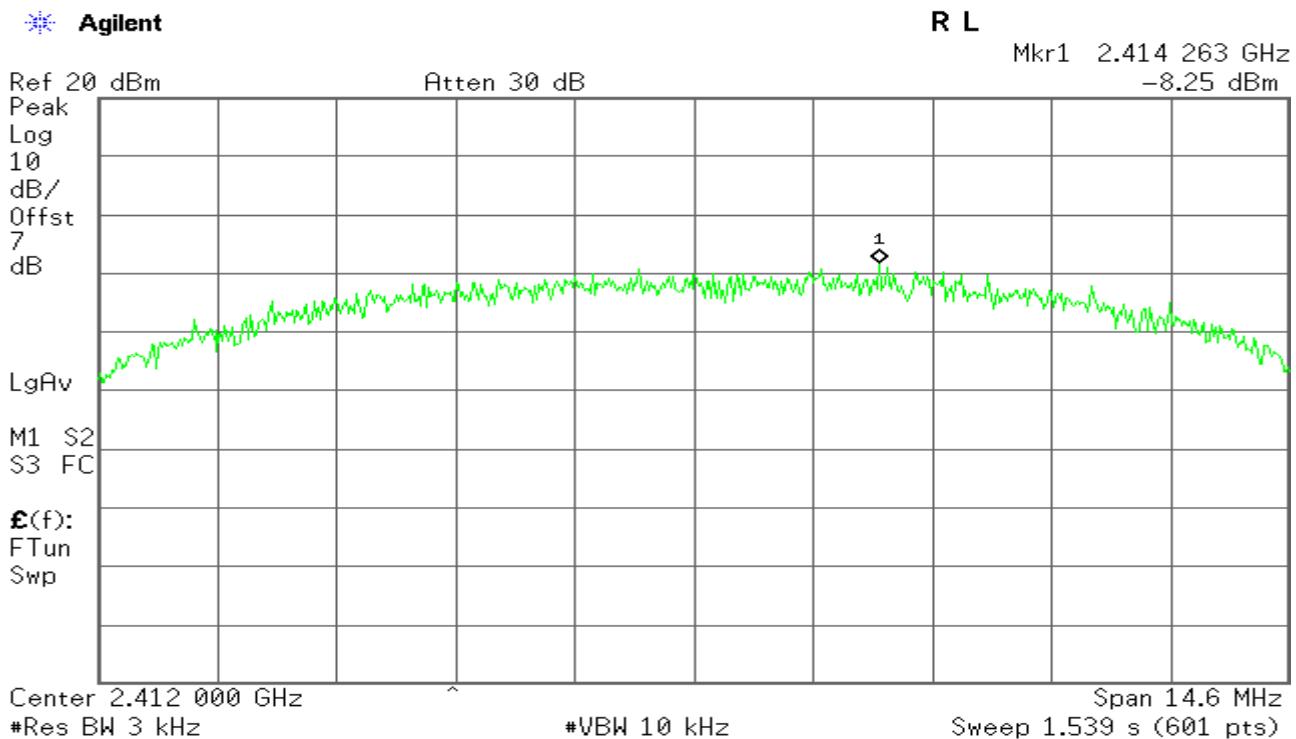
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Date of Issue :September 2, 2013

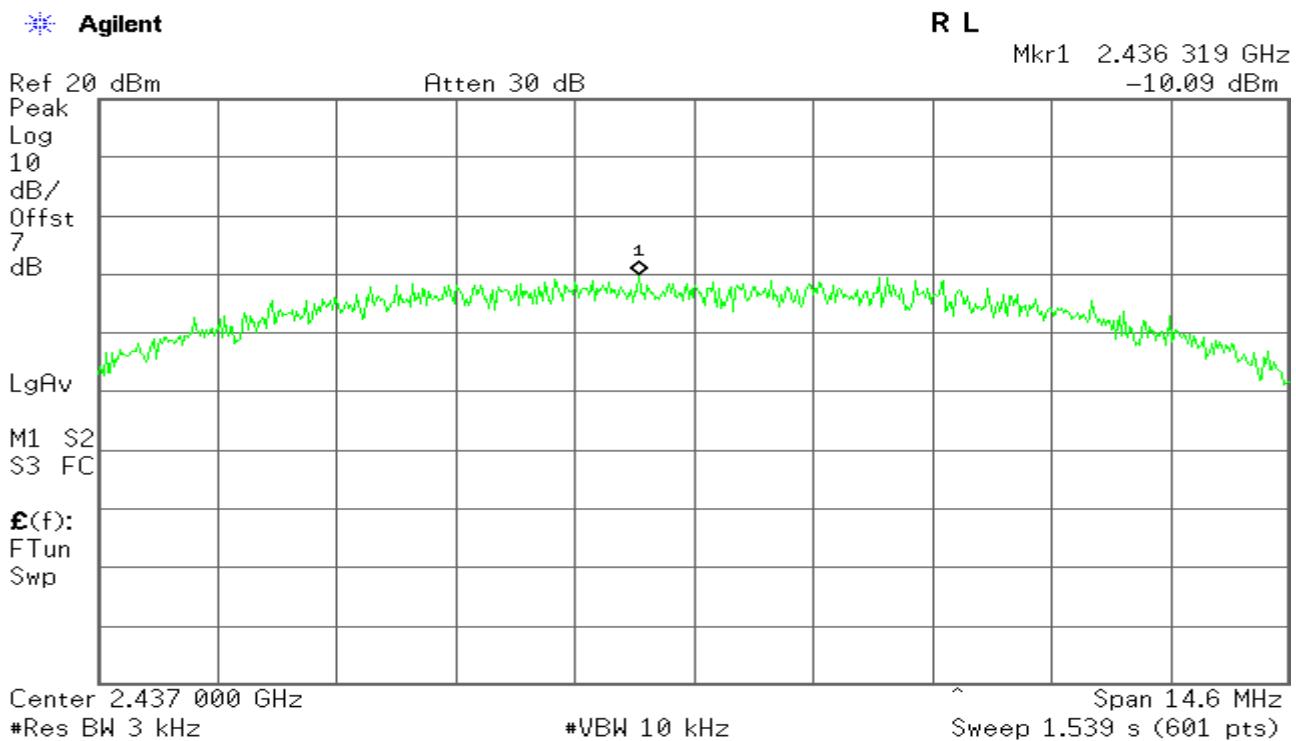
Test Plot

IEEE 802.11b mode

PPSD (CH Low)



PPSD (CH Mid)





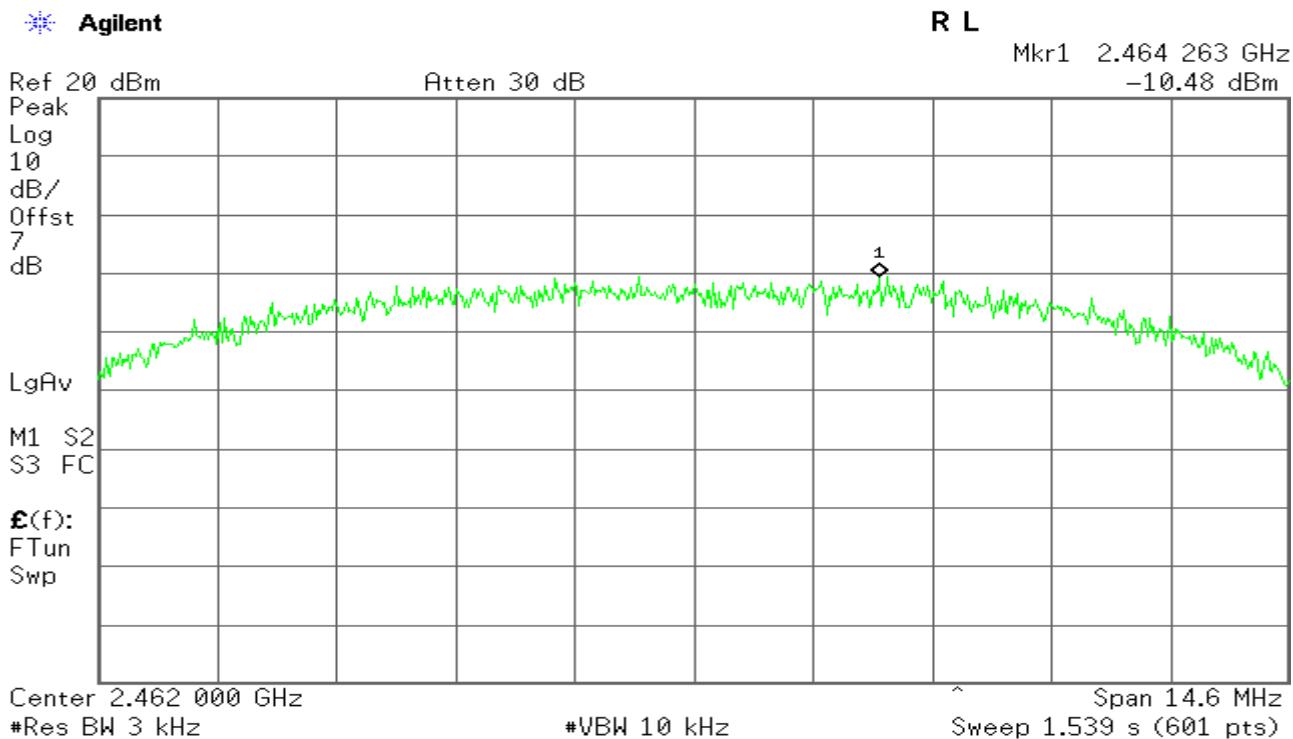
Compliance Certification Services Inc.

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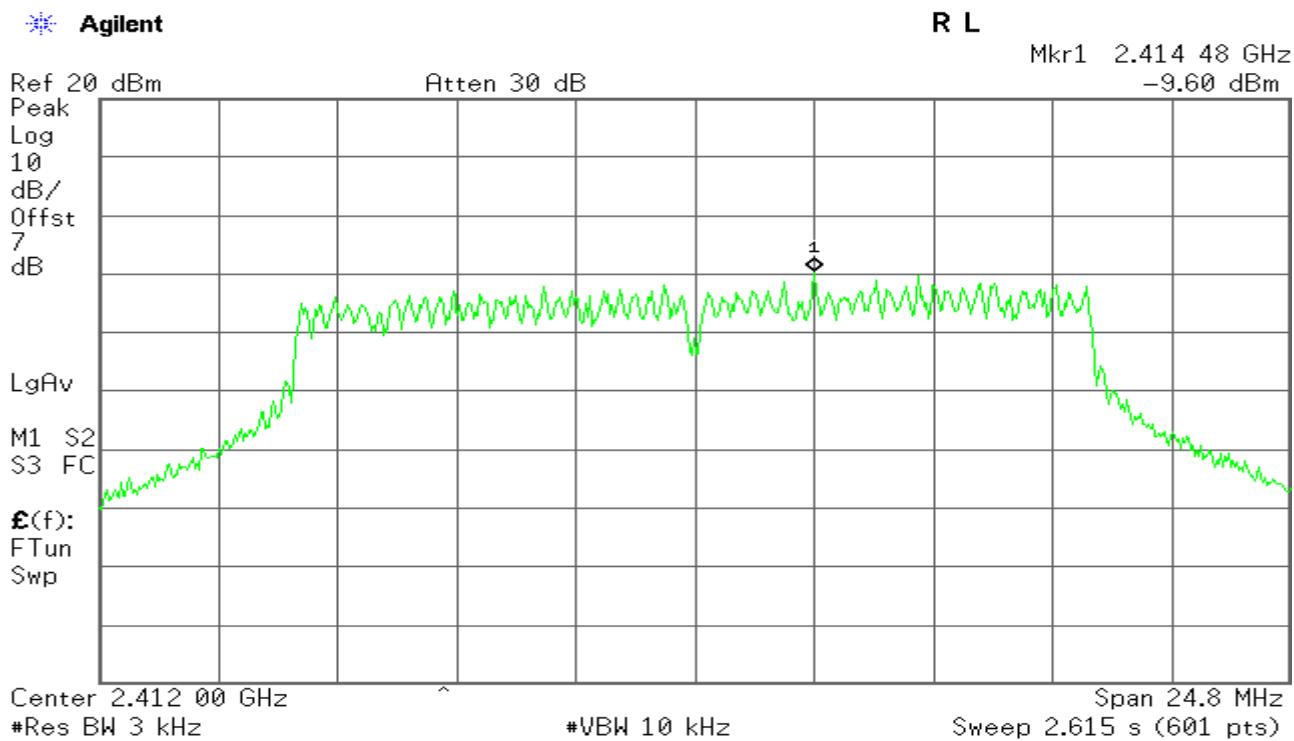
Date of Issue :September 2, 2013

PPSD (CH High)



IEEE 802.11g mode

PPSD (CH Low)





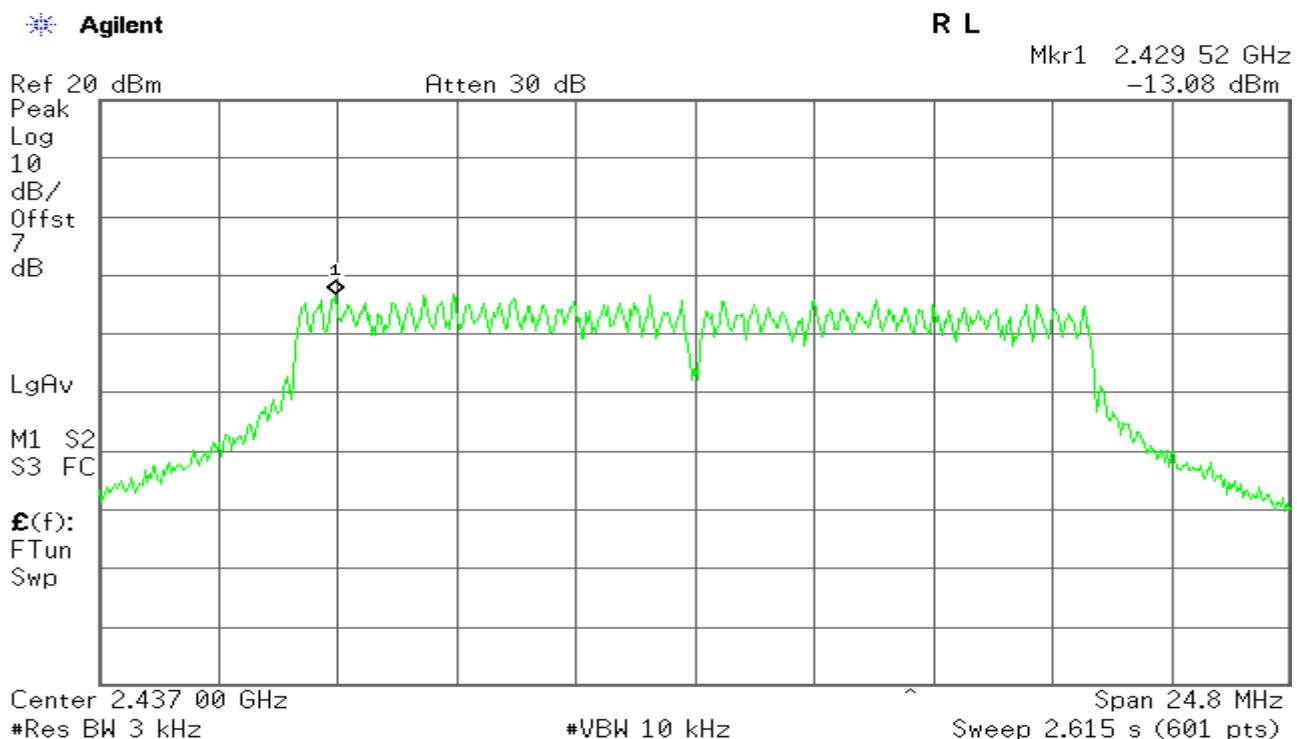
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Report No:C130809R03-RPB

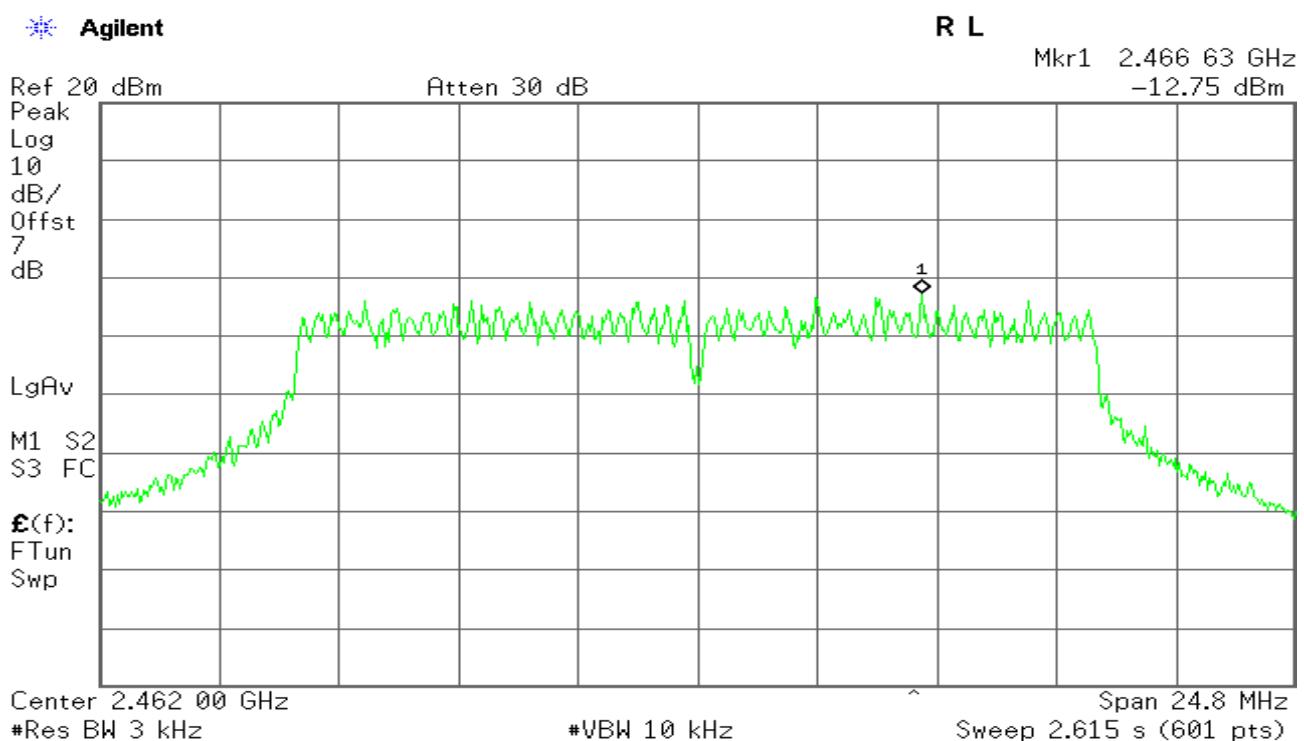
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Date of Issue :September 2, 2013

PPSD (CH Mid)



PPSD (CH High)





Compliance Certification Services Inc.

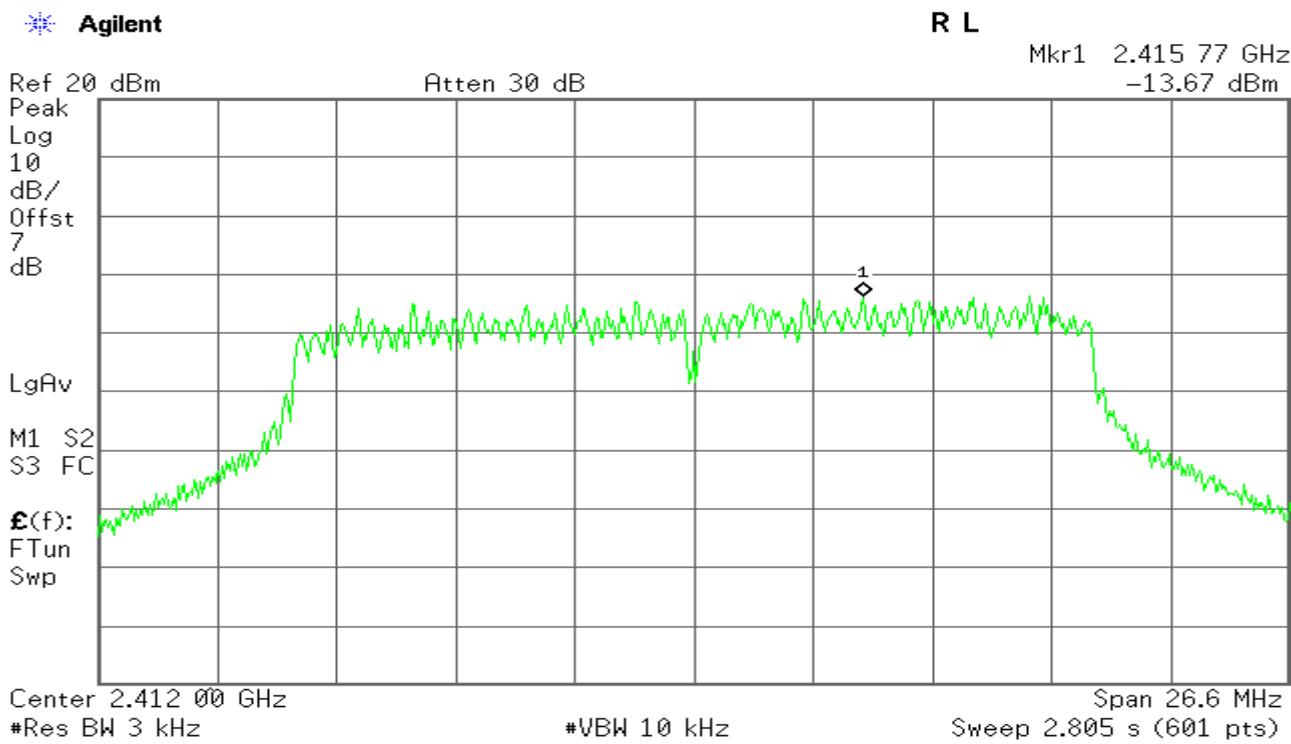
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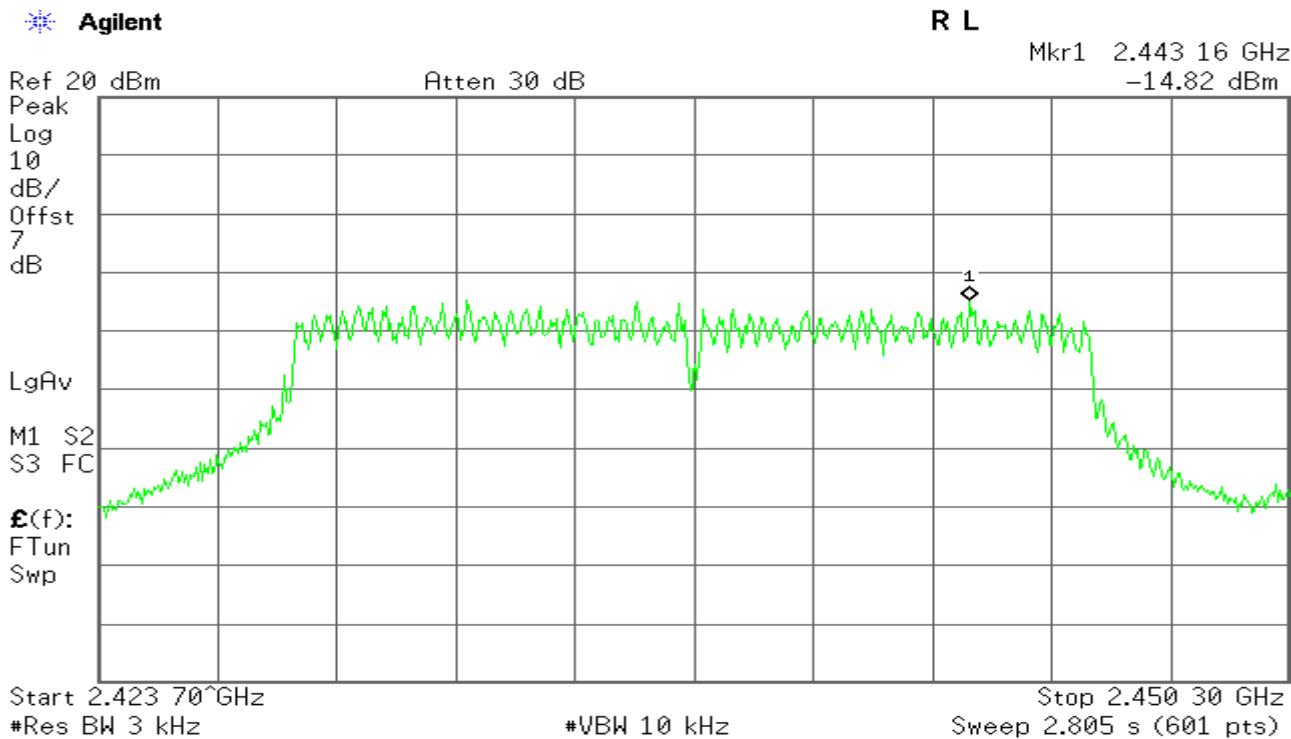
Date of Issue :September 2, 2013

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

PPSD (CH Low)



PPSD (CH Mid)





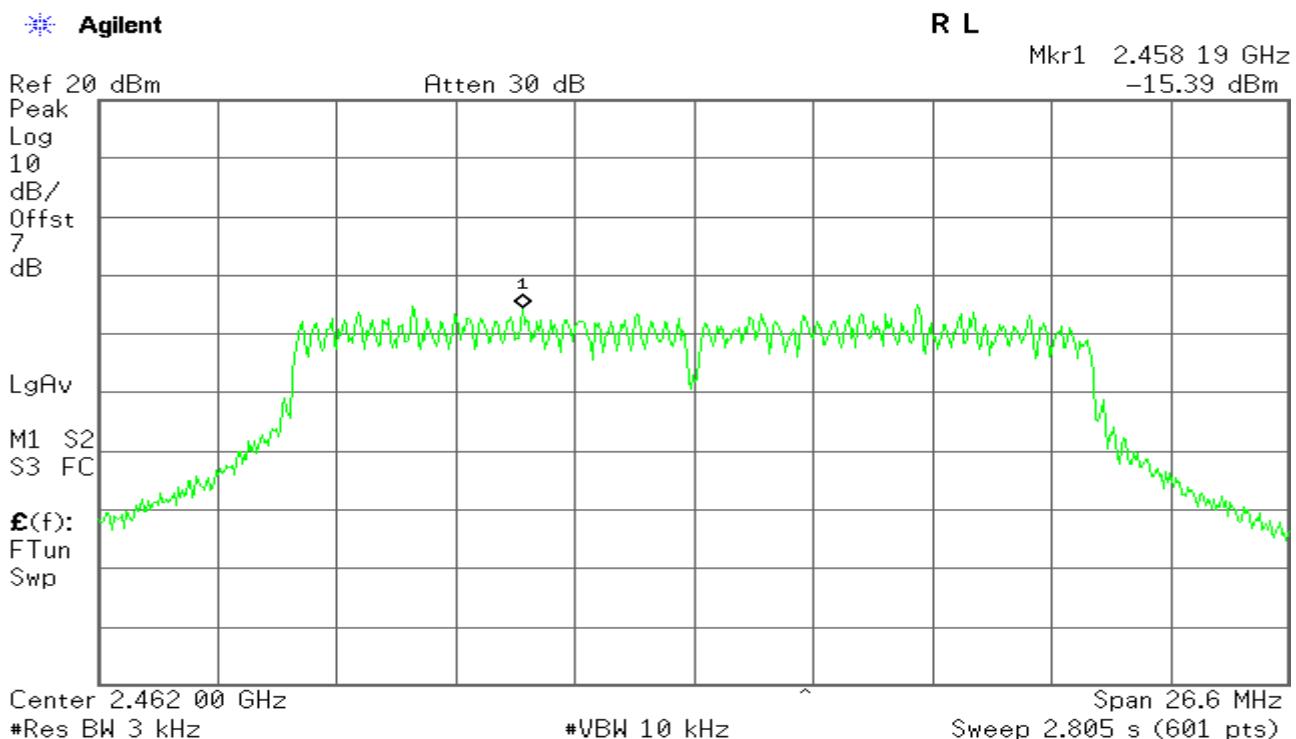
Compliance Certification Services Inc.

Report No:C130809R03-RPB

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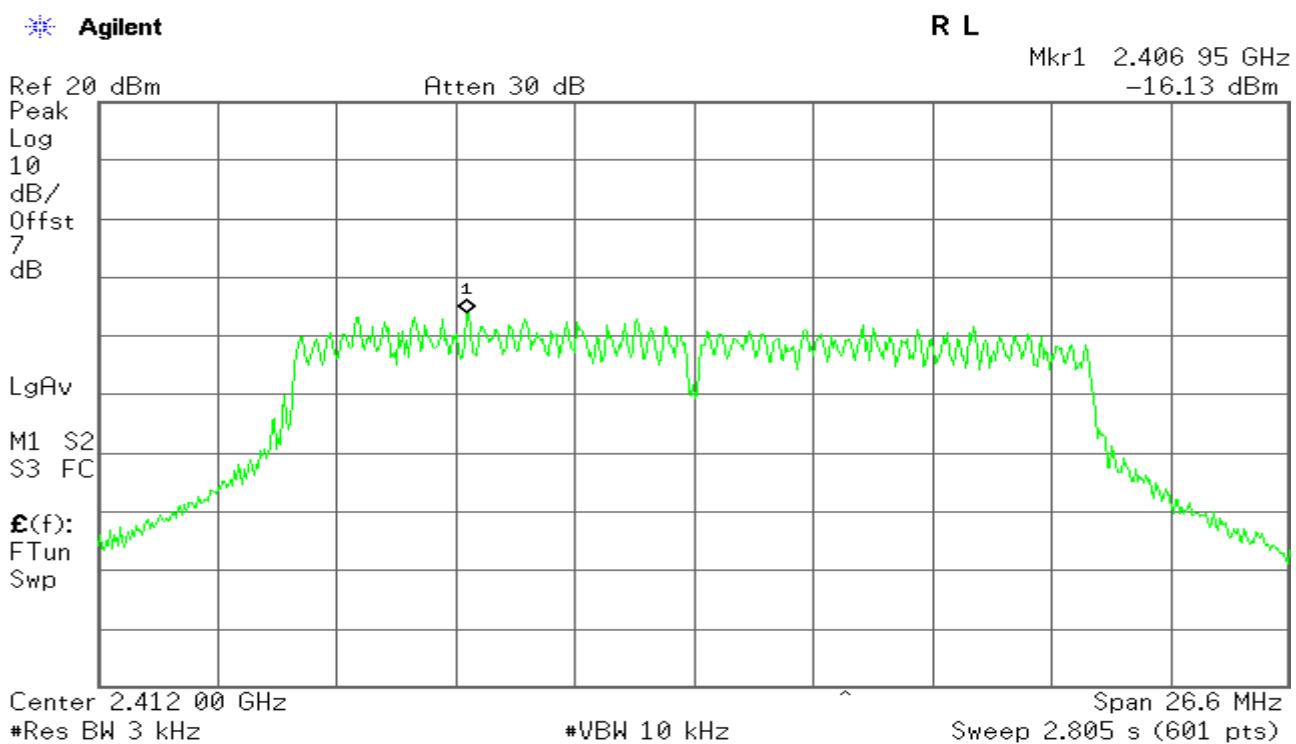
Date of Issue :September 2, 2013

PPSD (CH High)



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

PPSD (CH Low)





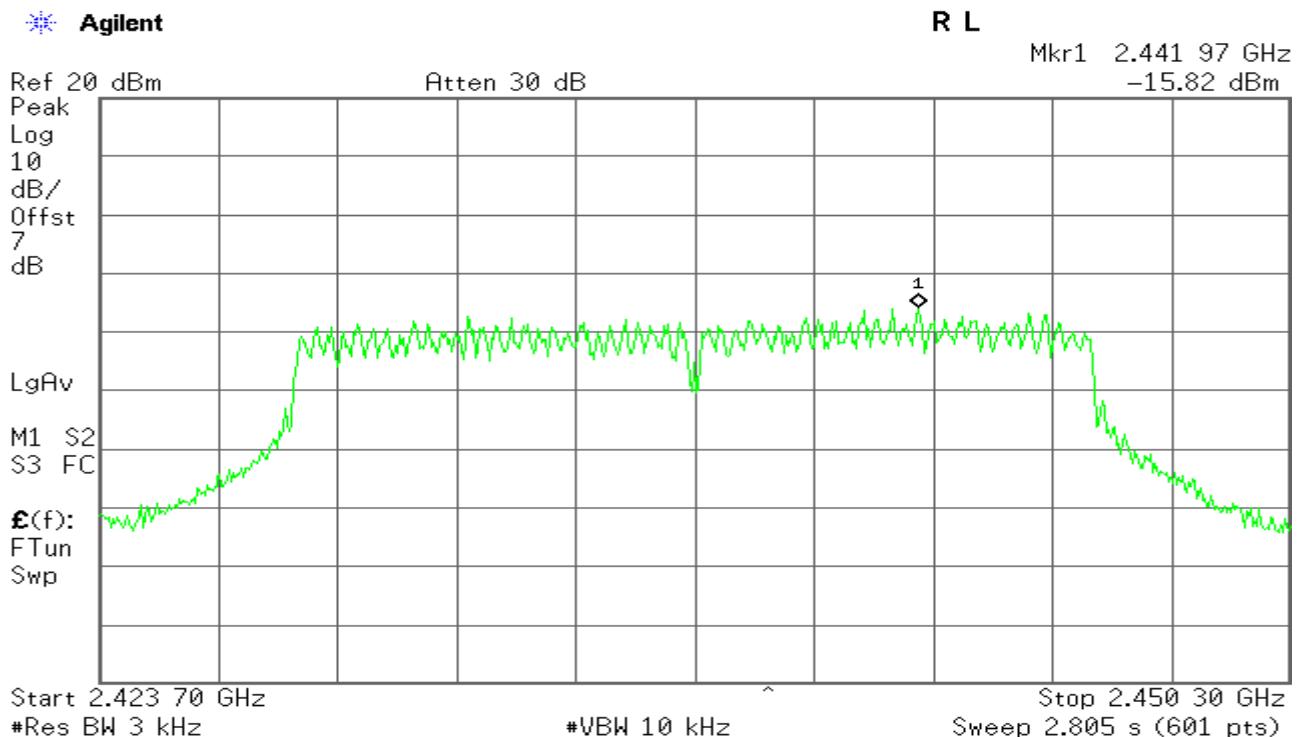
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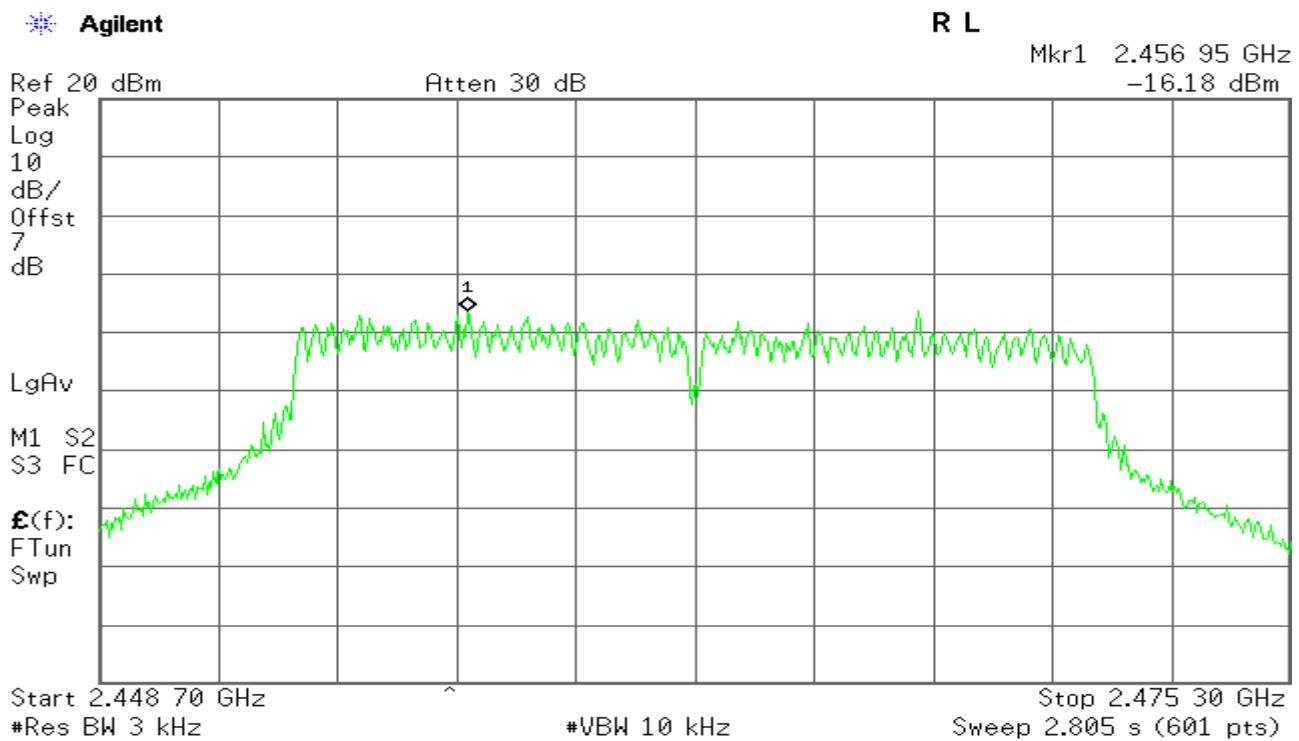
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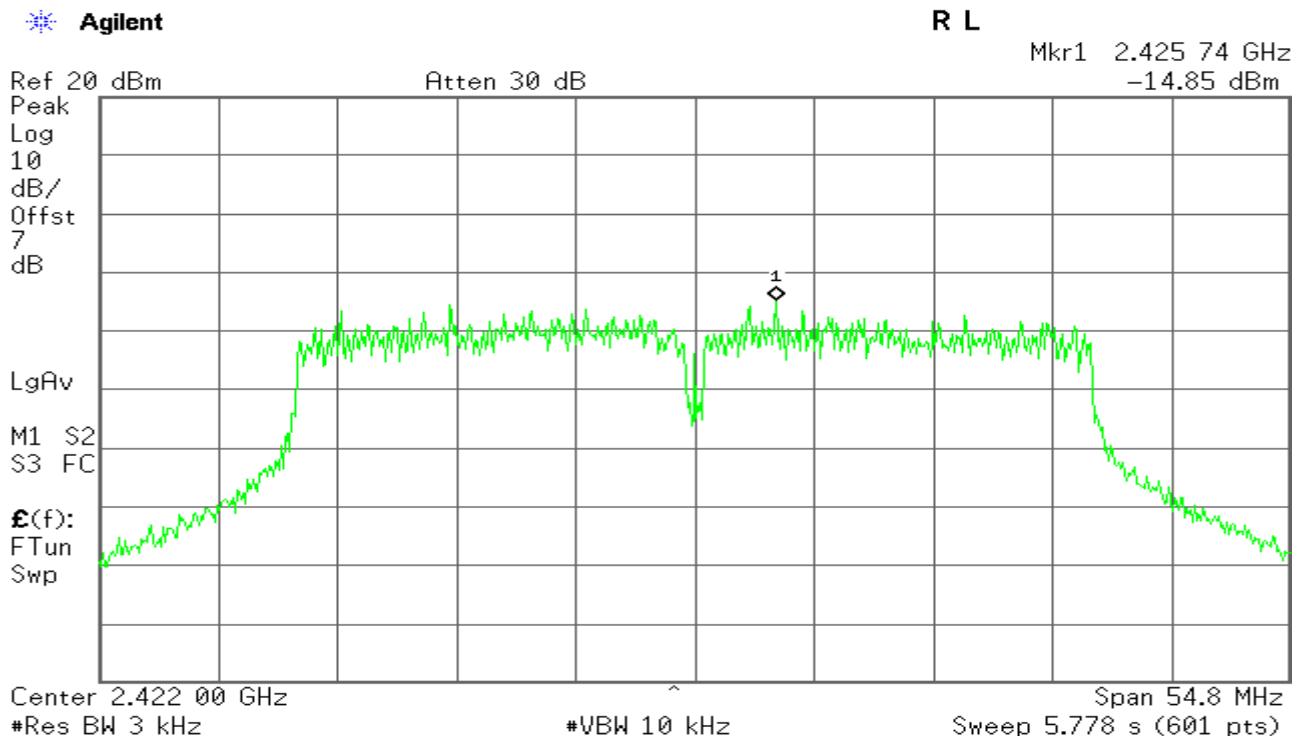
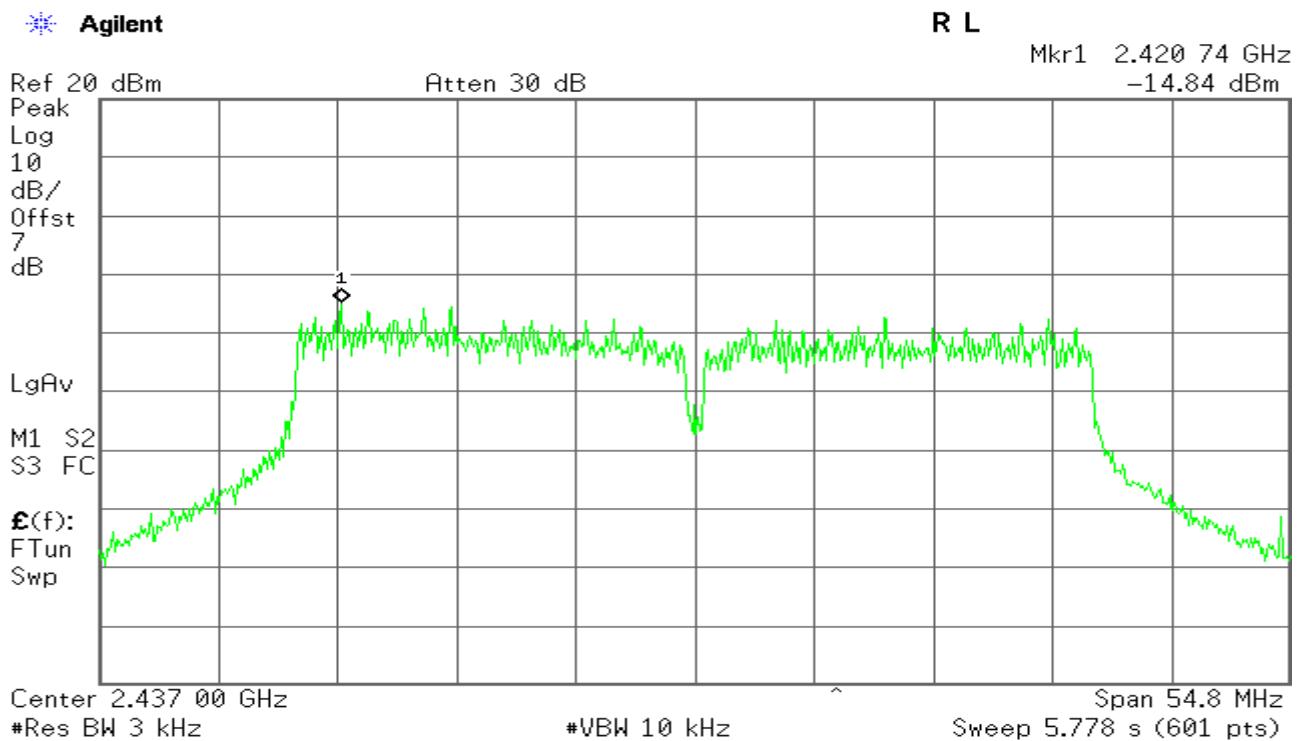
Date of Issue :September 2, 2013

PPSD (CH Mid)



PPSD (CH High)



**draft 802.11gn Wide-40 MHz Channel mode / Chain 0****PPSD (CH Low)****PPSD (CH Mid)**



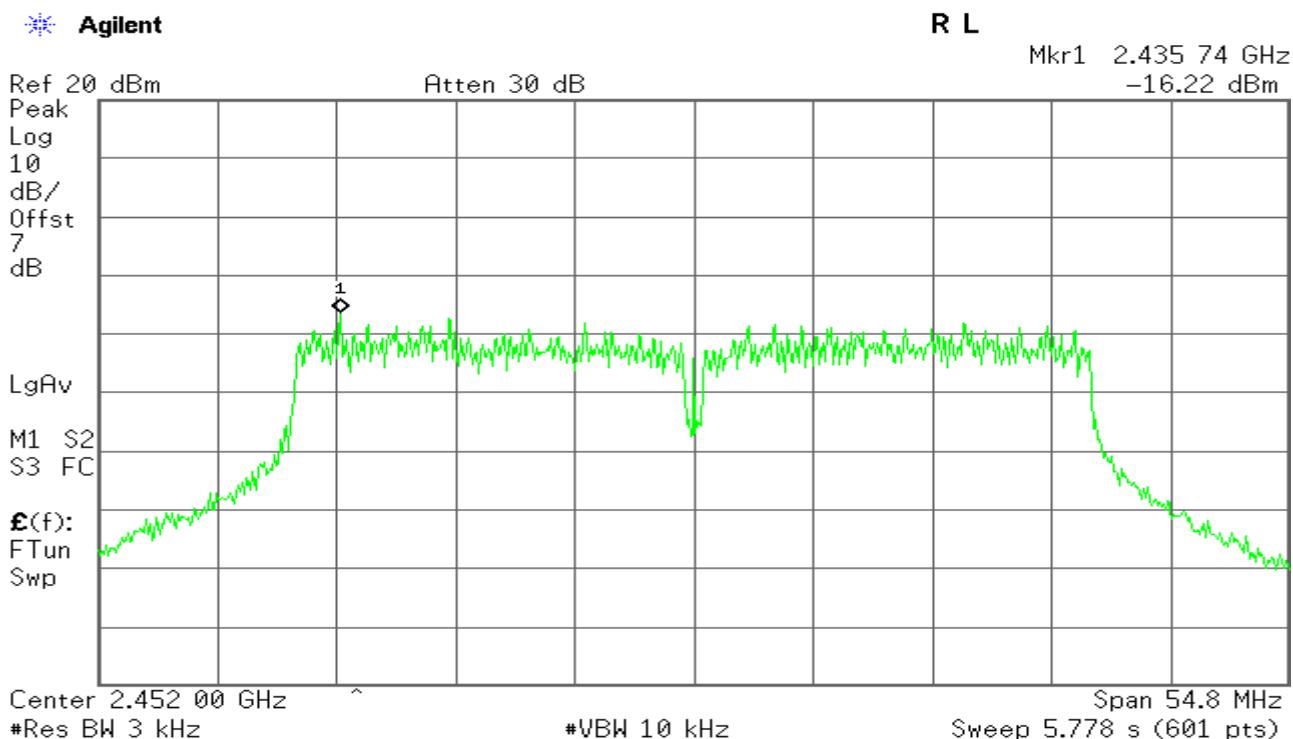
Compliance Certification Services Inc.

Report No:C130809R03-RPB

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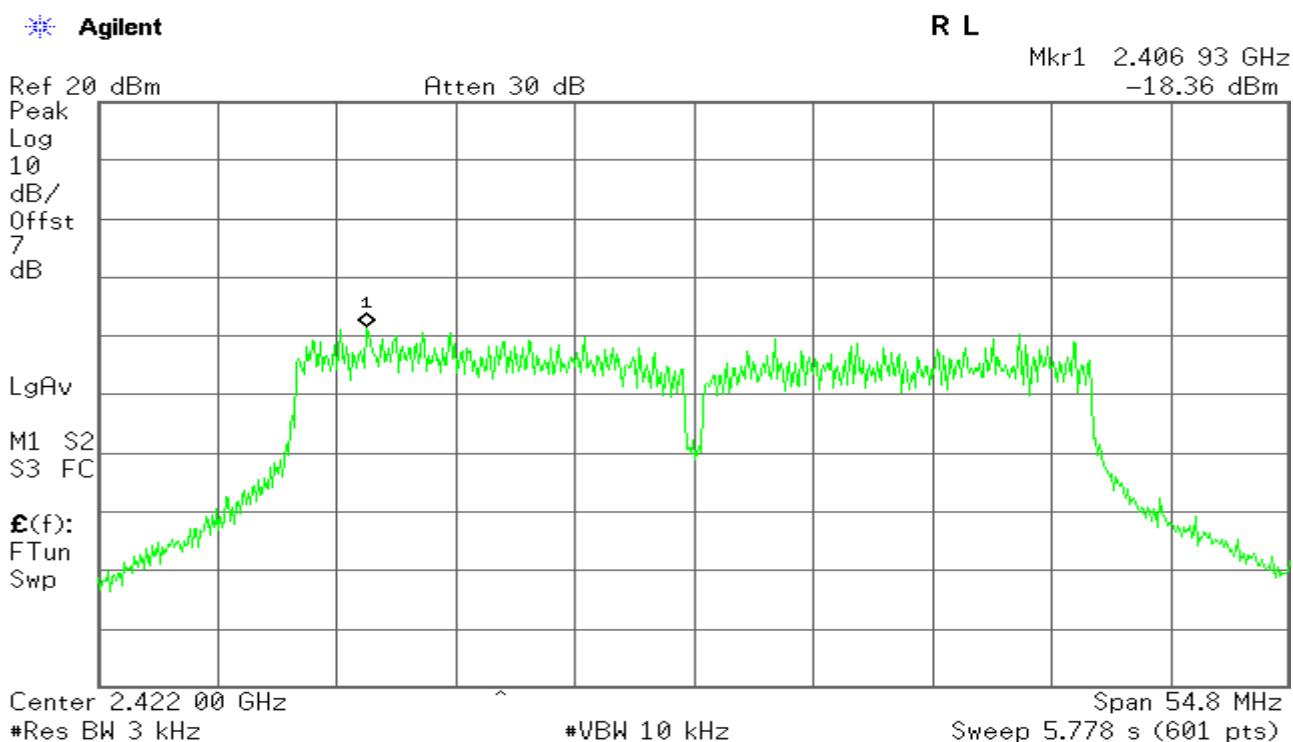
Date of Issue :September 2, 2013

PPSD (CH High)



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

PPSD (CH Low)



PPSD (CH Mid)



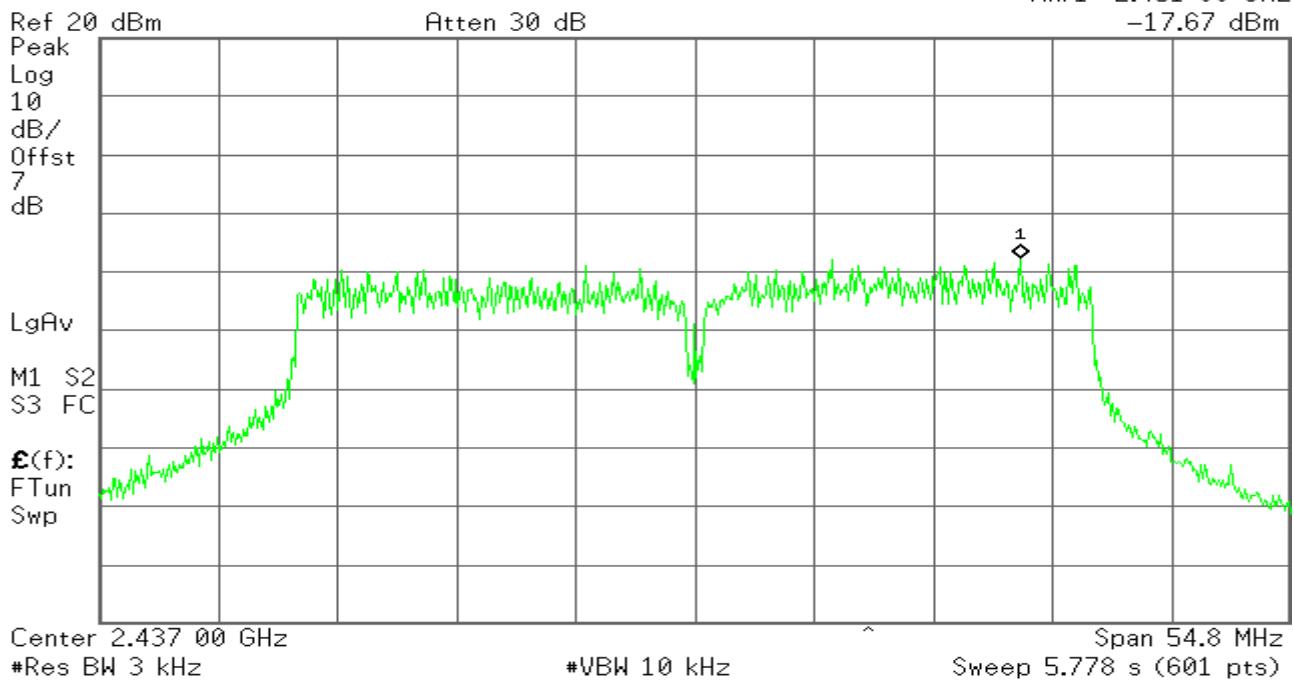
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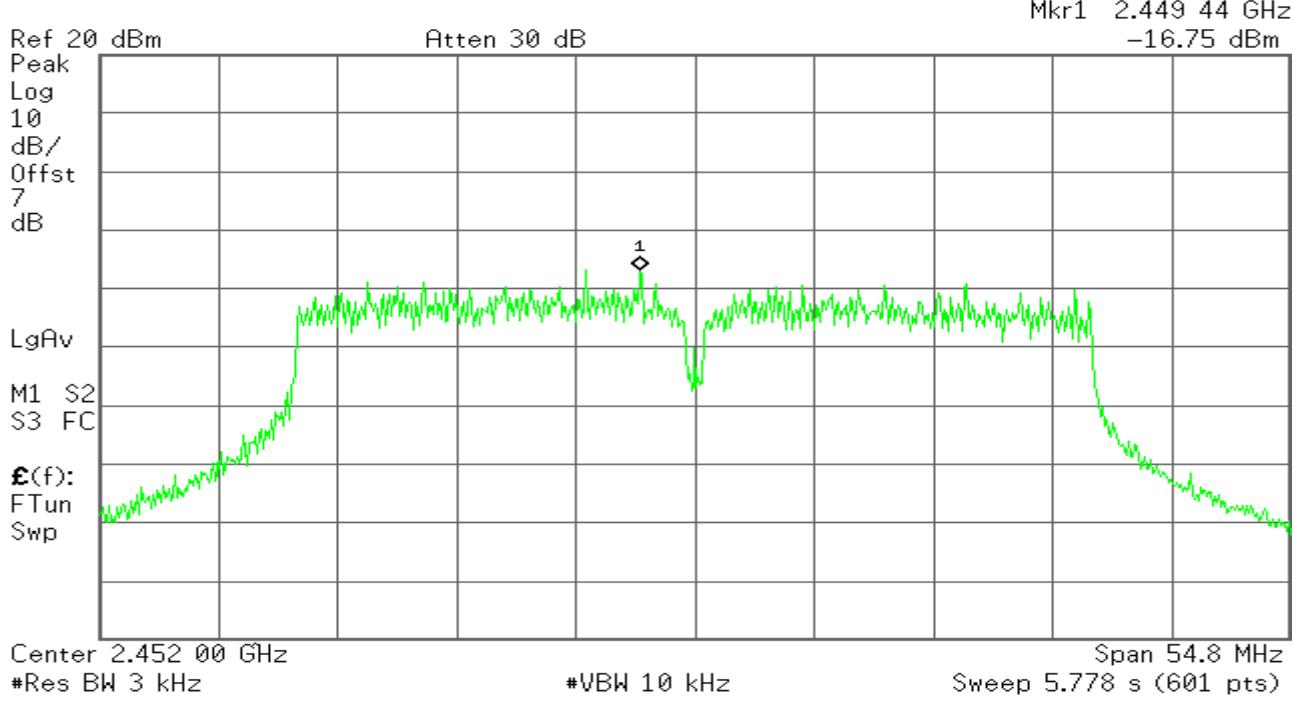
Date of Issue :September 2, 2013

Agilent



PPSD (CH High)

Agilent



5725-5825



Compliance Certification Services Inc.

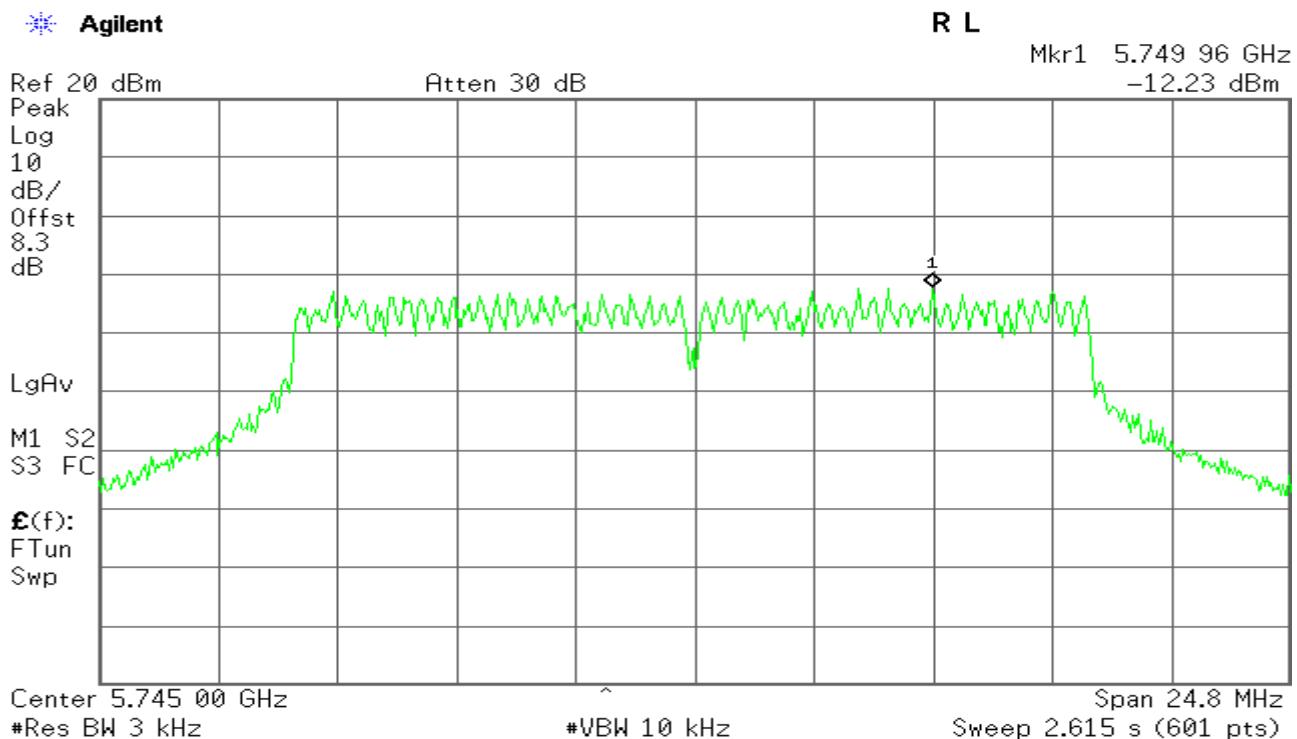
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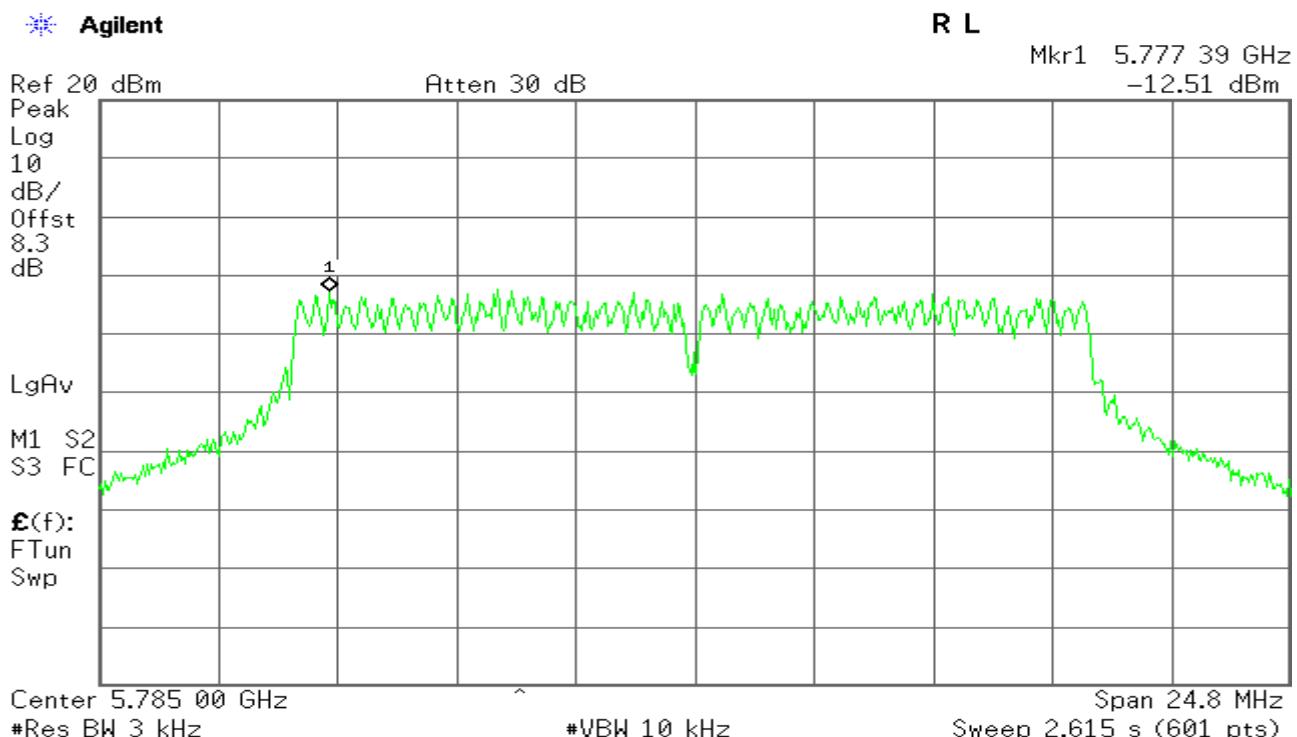
Date of Issue :September 2, 2013

IEEE 802.11a mode

PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)



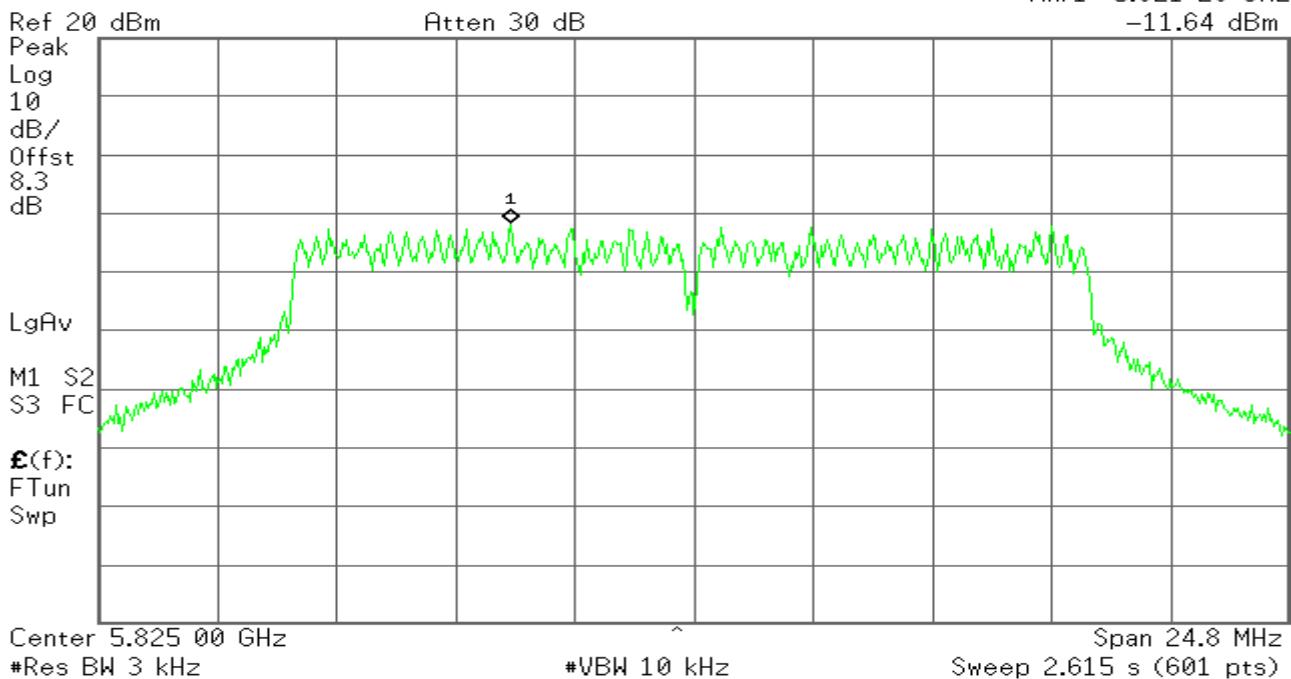
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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Date of Issue :September 2, 2013

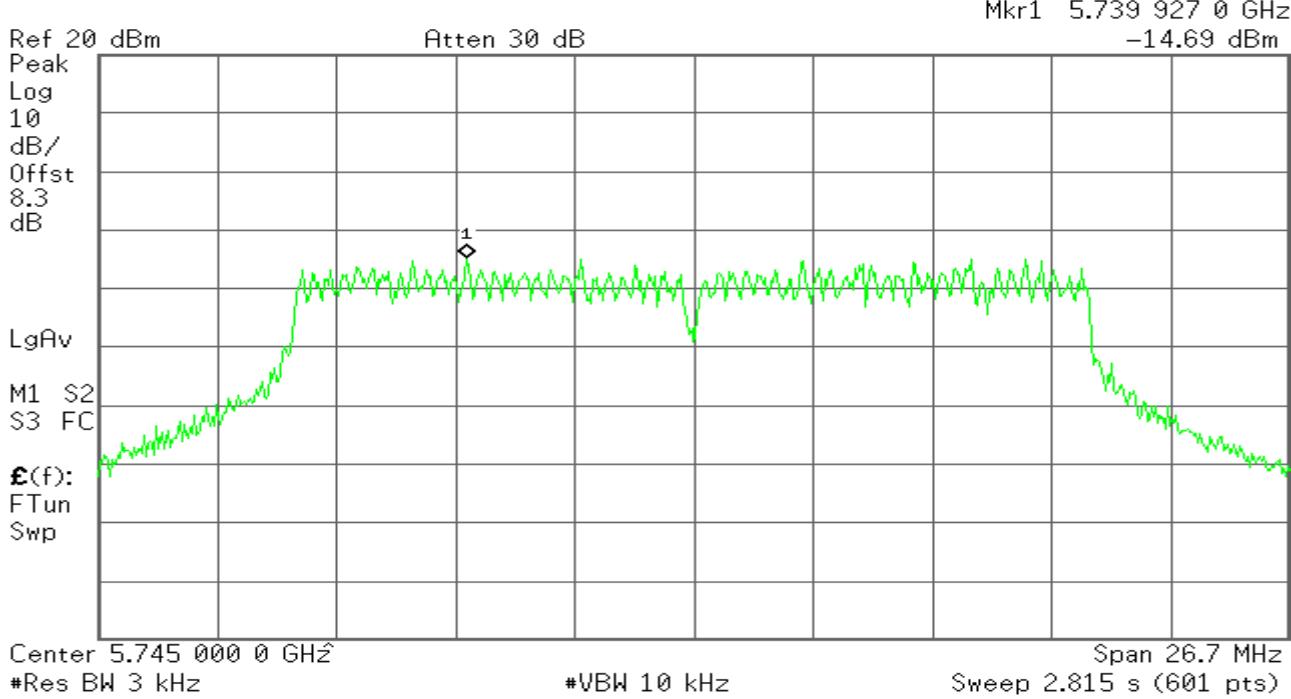
Agilent



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

PPSD (CH Low)

Agilent





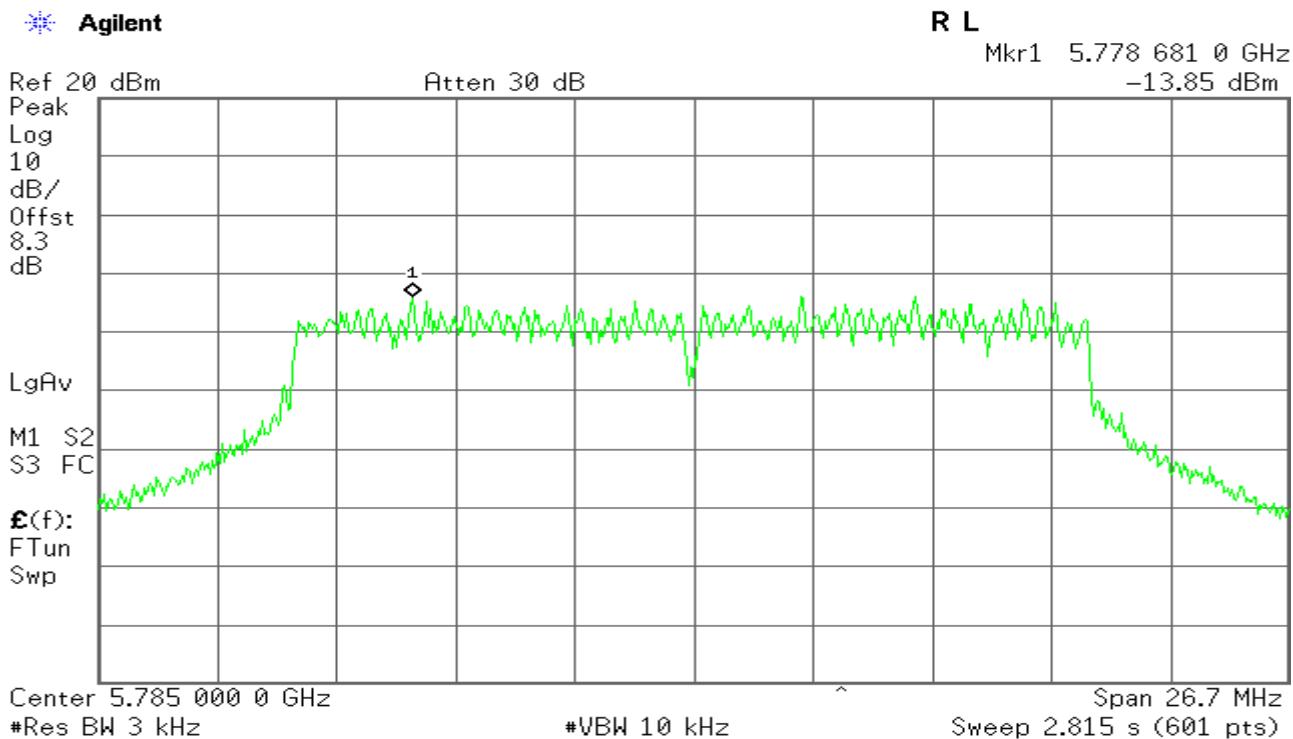
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Report No:C130809R03-RPB

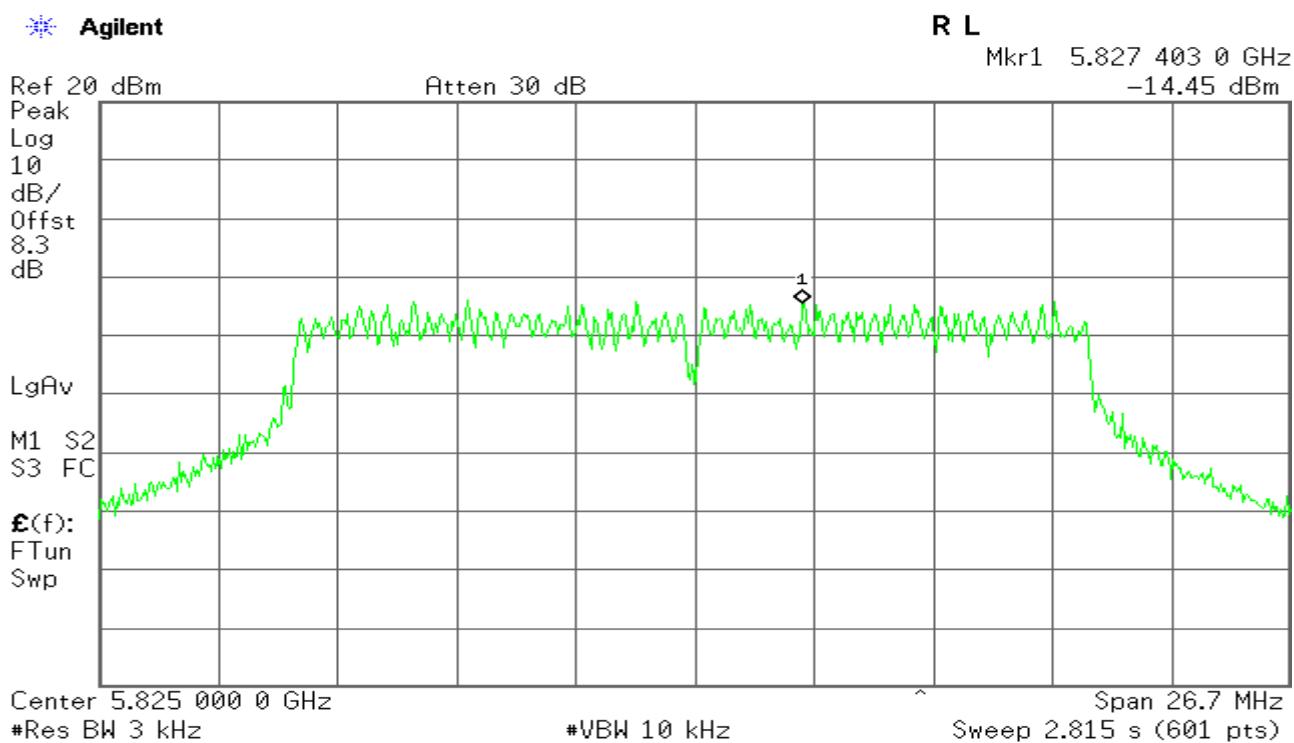
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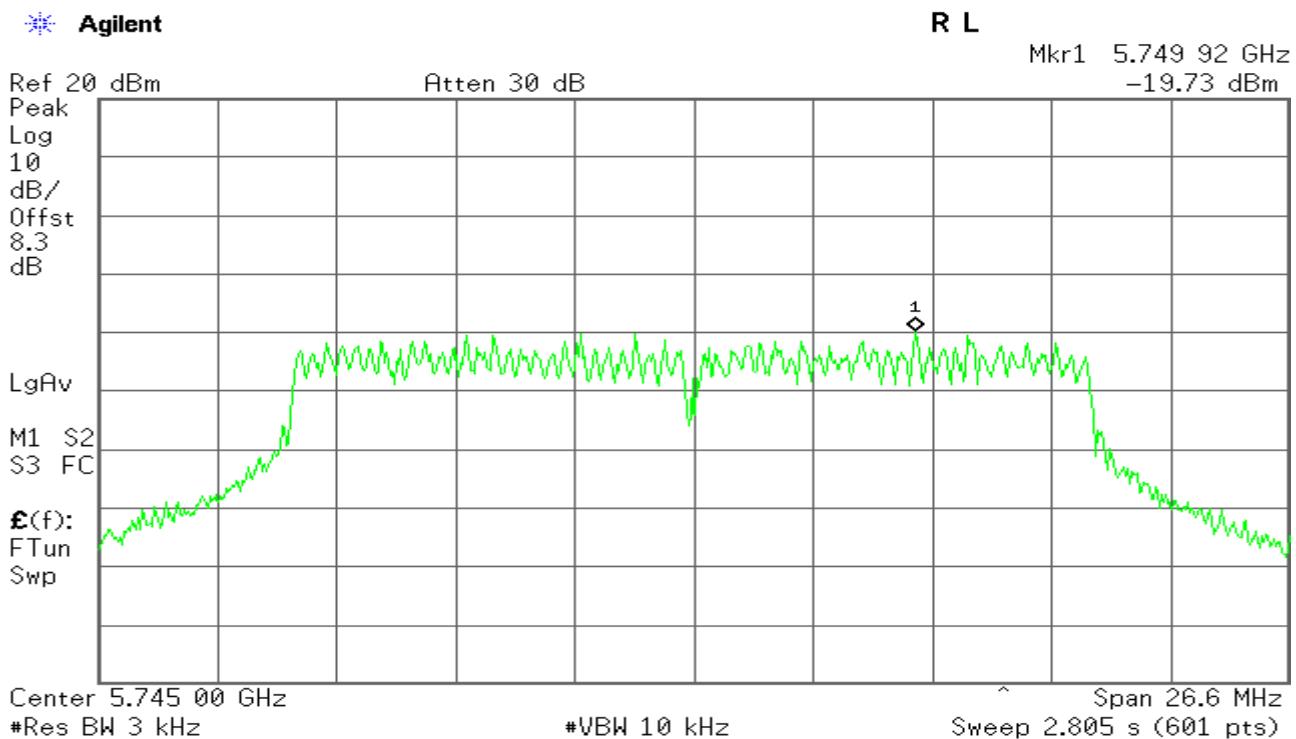
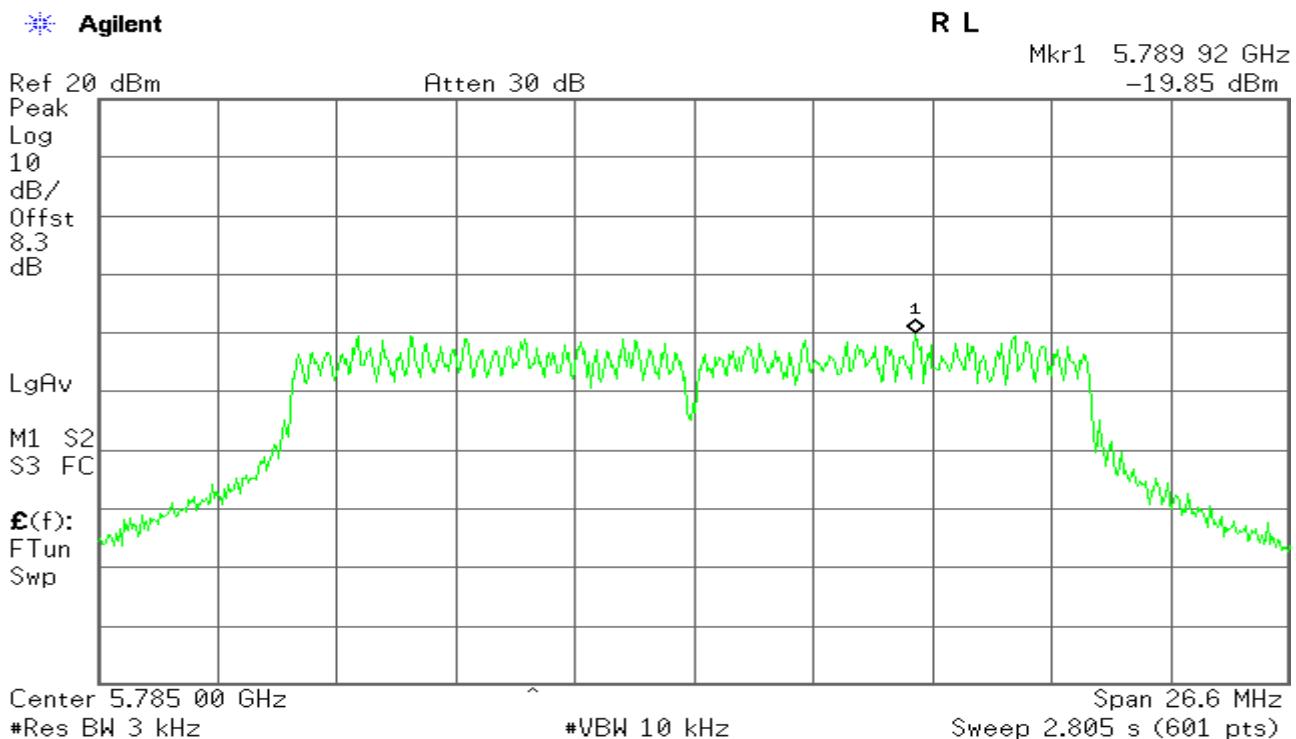
Date of Issue :September 2, 2013

PPSD (CH Mid)



PPSD (CH High)



**draft 802.11an Standard-20 MHz Channel mode / Chain 1****PPSD (CH Low)****PPSD (CH Mid)**



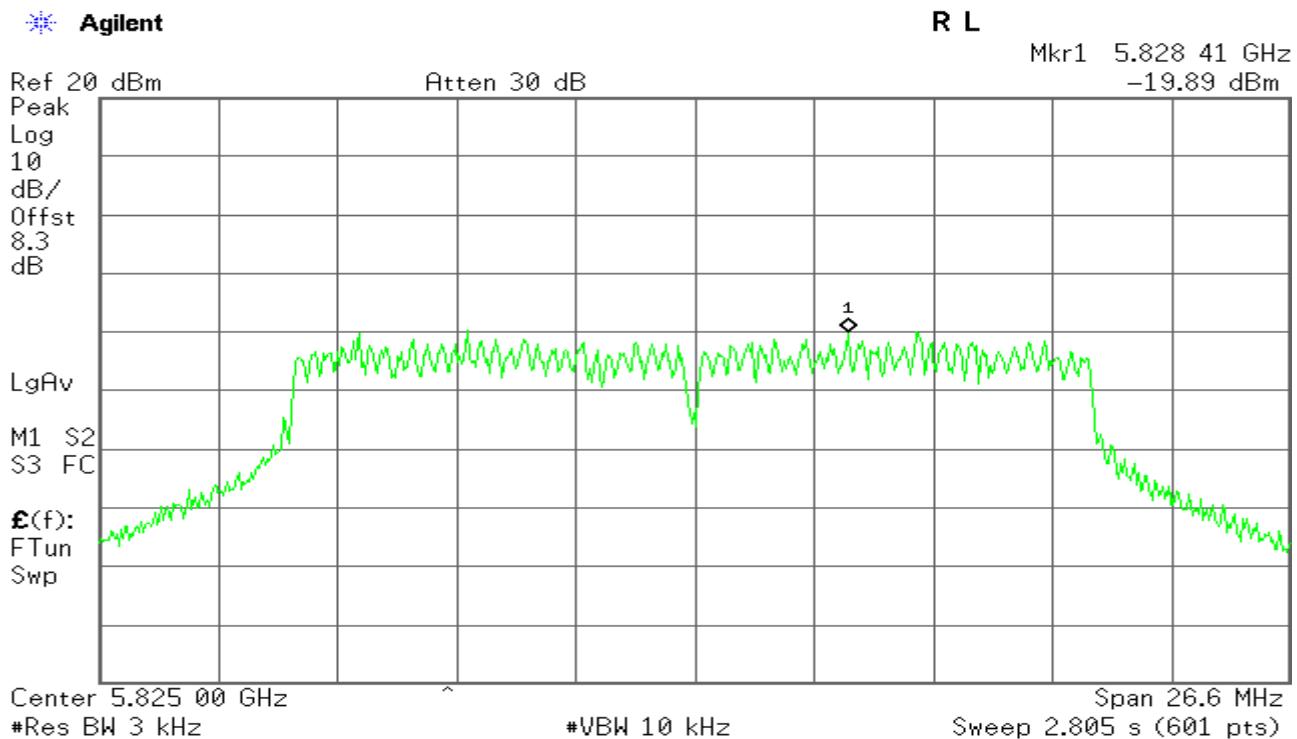
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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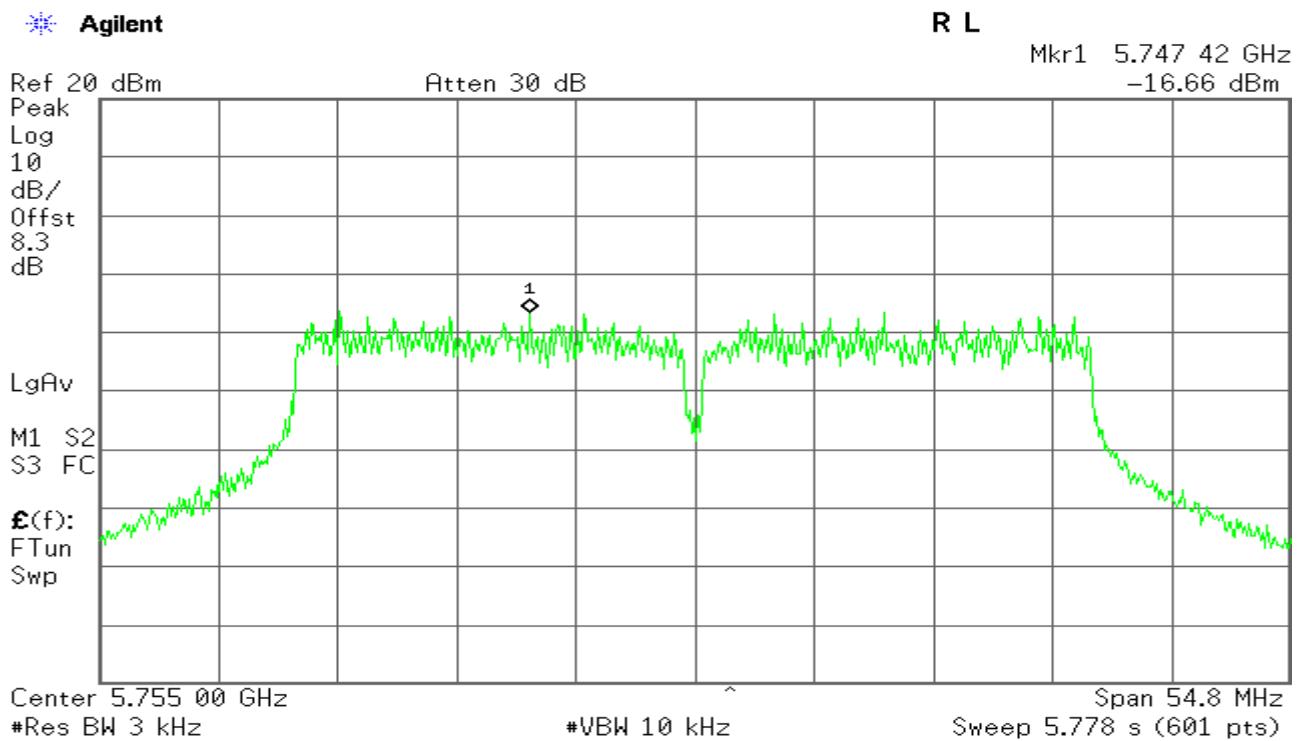
Date of Issue :September 2, 2013

PPSD (CH High)



draft 802.11an Standard-40 MHz Channel mode / Chain 0

PPSD (CH Low)





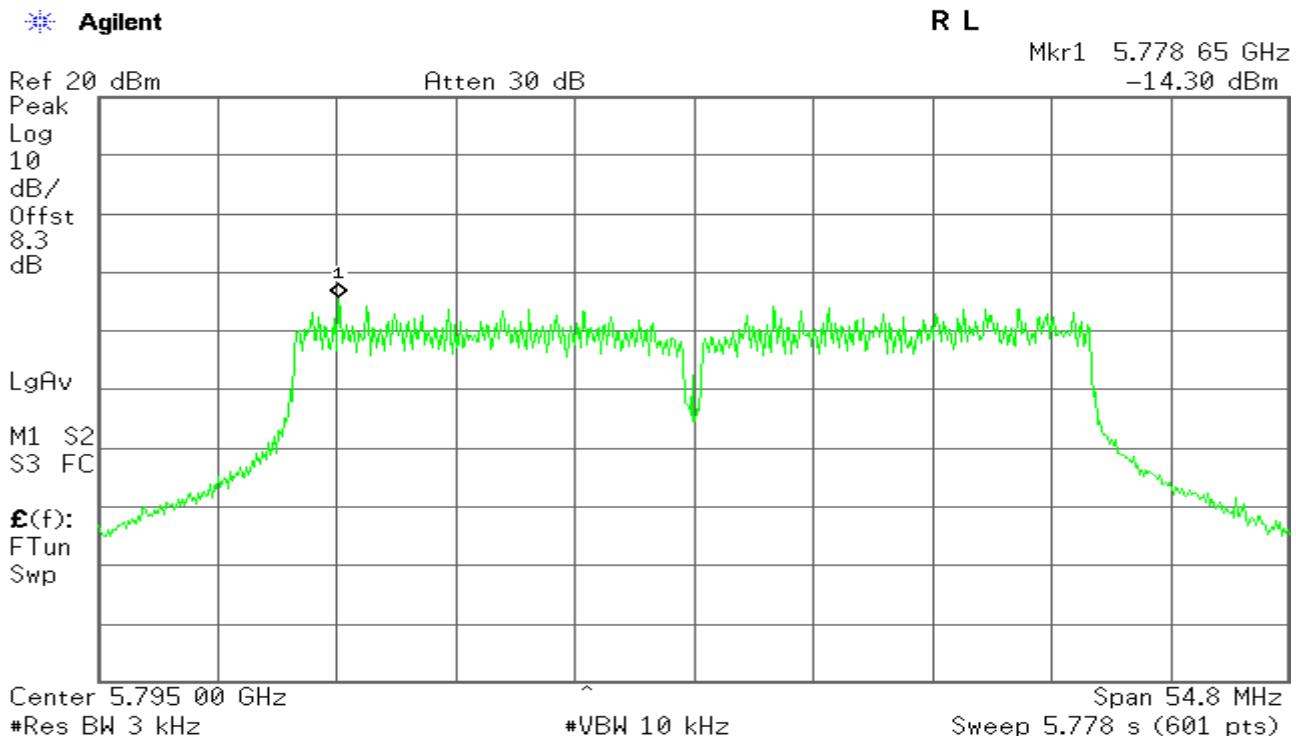
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
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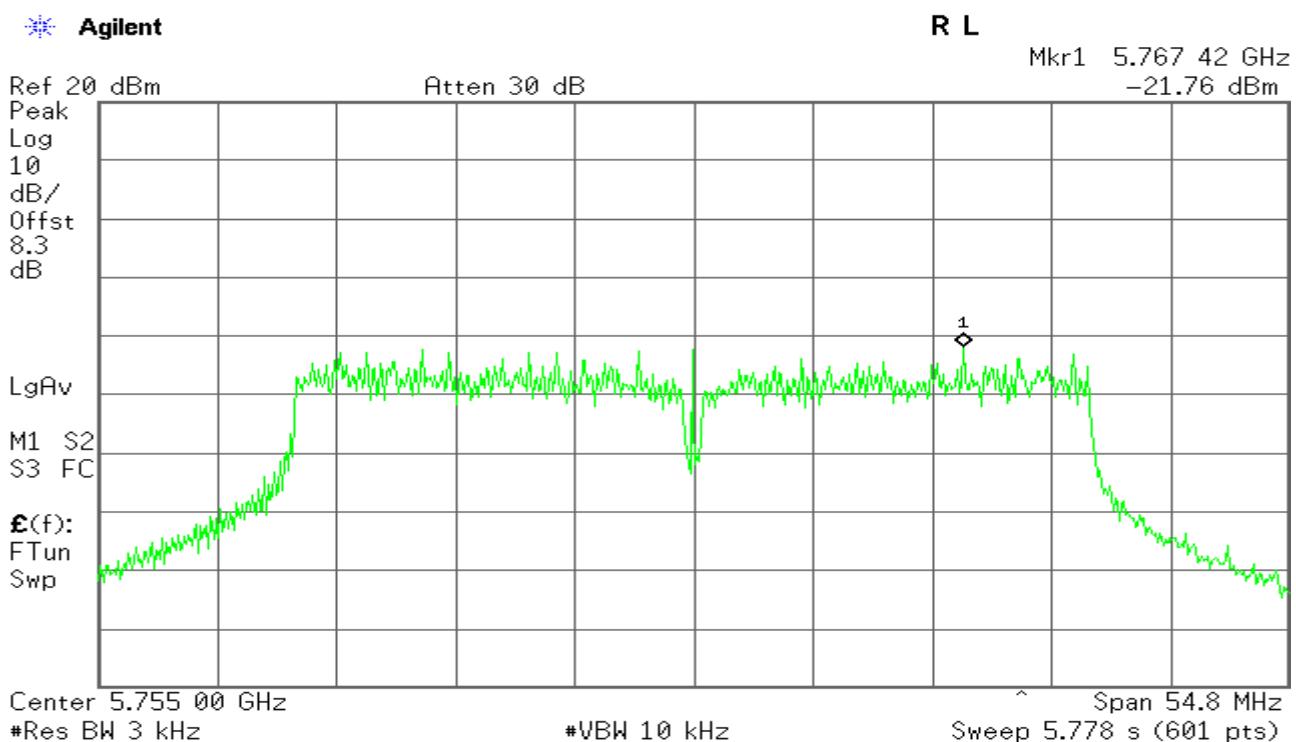
Date of Issue :September 2, 2013

PPSD (CH High)



draft 802.11an Standard-40 MHz Channel mode / Chain 1

PPSD (CH Low)



PPSD (CH High)



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 5.812 44 GHz
-20.84 dBm





7.4.SPURIOUS EMISSIONS

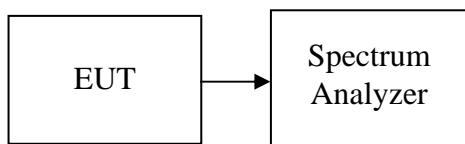
Conducted Measurement

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

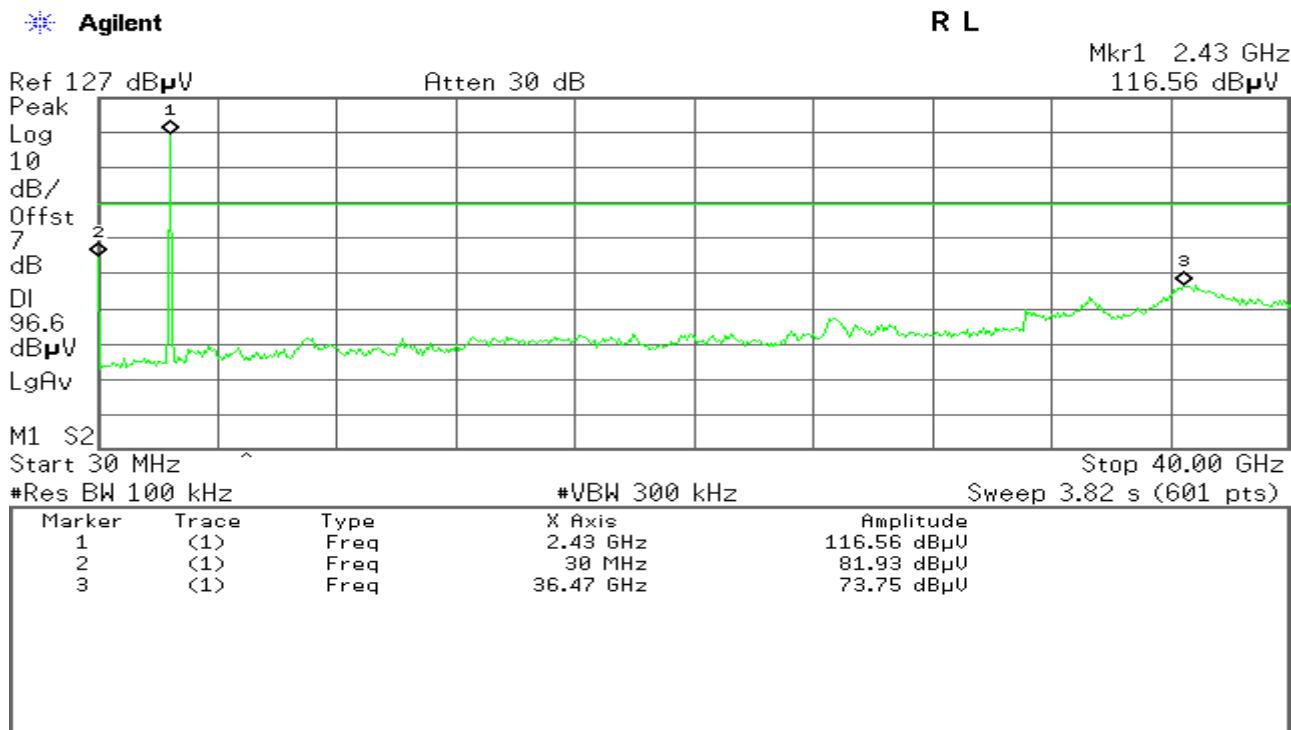
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Date of Issue :September 2, 2013

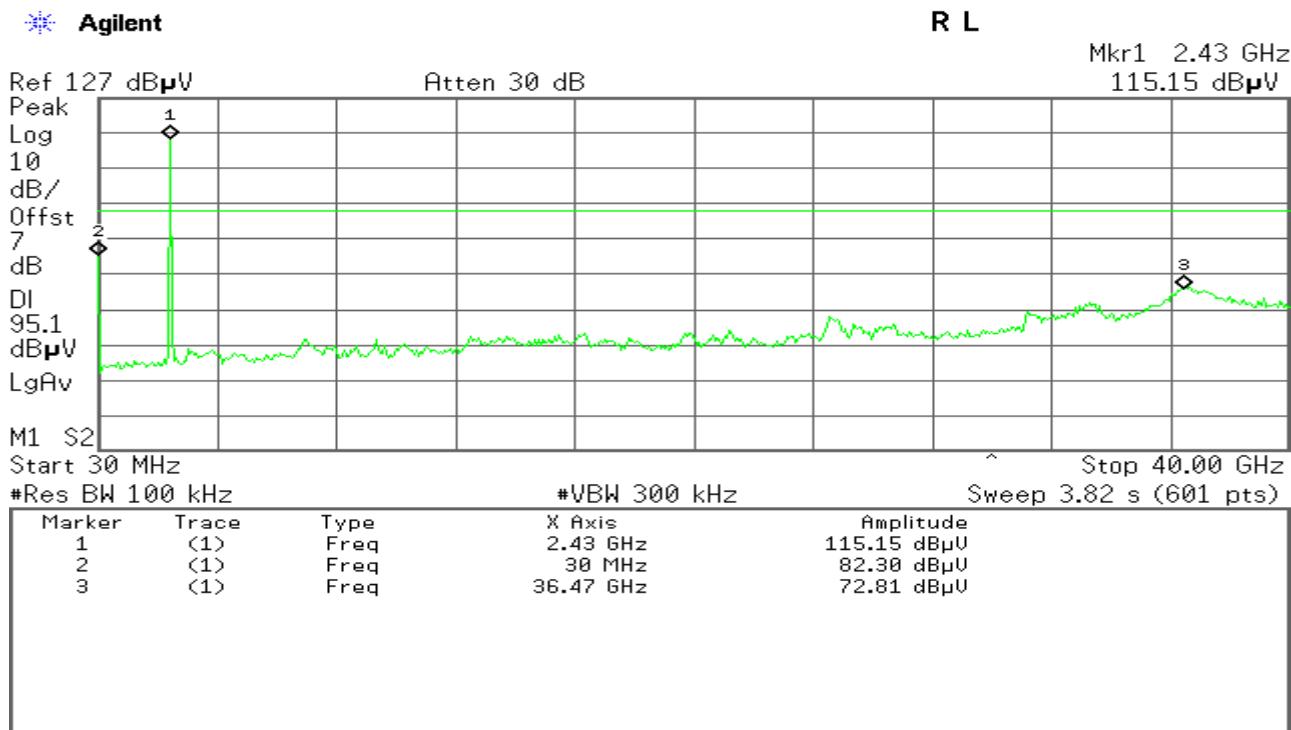
Test Plot

IEEE 802.11b mode

CH Low



CH Mid



CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 2.49 GHz
114.23 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak
Log
10
dB/
Offst

7

dB

DI

94.2

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.49 GHz	114.23 dB μ V
2	(1)	Freq	30 MHz	82.64 dB μ V
3	(1)	Freq	36.47 GHz	72.54 dB μ V

IEEE 802.11g mode

CH Low

Agilent

R L

Mkr1 2.43 GHz
113.65 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak
Log
10
dB/
Offst

7

dB

DI

93.6

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	113.65 dB μ V
2	(1)	Freq	30 MHz	81.54 dB μ V
3	(1)	Freq	36.54 GHz	73.62 dB μ V

CH Mid



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 2.43 GHz
112.78 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

92.8

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	112.78 dB μ V
2	(1)	Freq	30 MHz	81.32 dB μ V
3	(1)	Freq	36.54 GHz	72.16 dB μ V

CH High

Agilent

R L

Mkr1 2.49 GHz
112.73 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

92.7

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.49 GHz	112.73 dB μ V
2	(1)	Freq	30 MHz	82.17 dB μ V
3	(1)	Freq	36.54 GHz	73.55 dB μ V



Compliance Certification Services Inc.

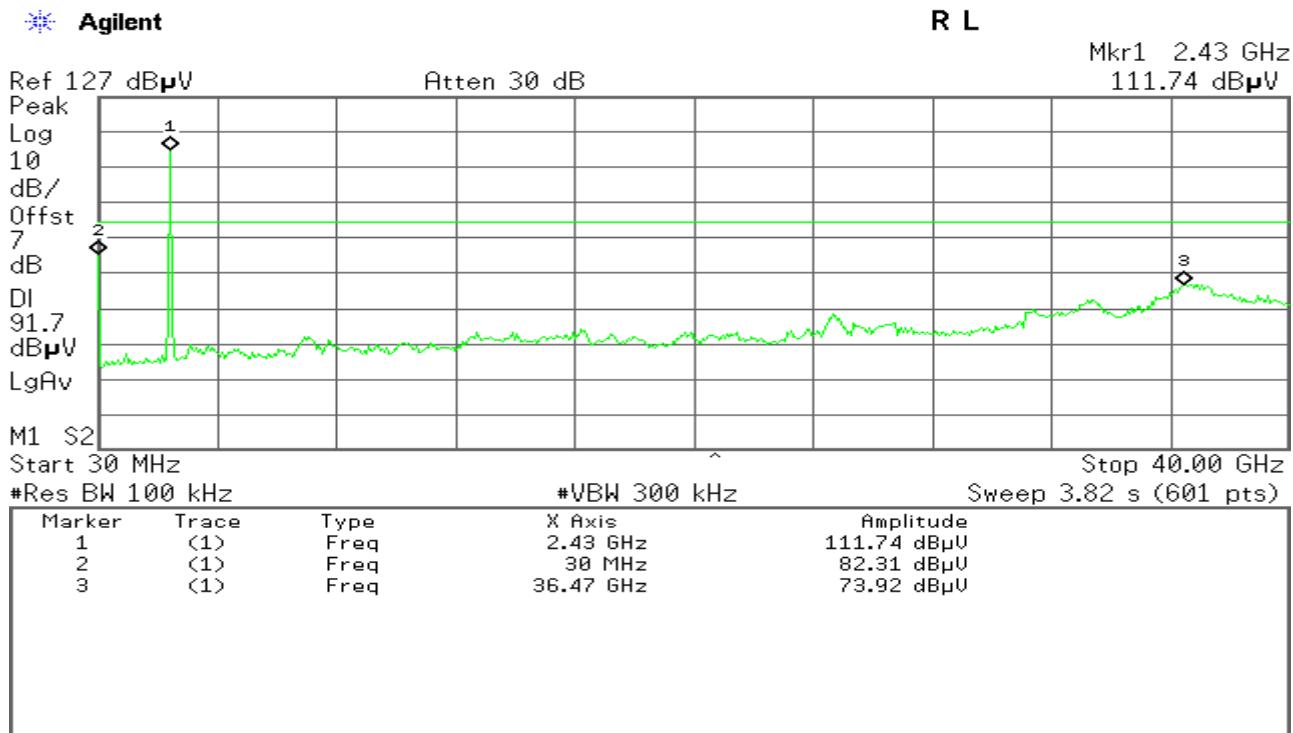
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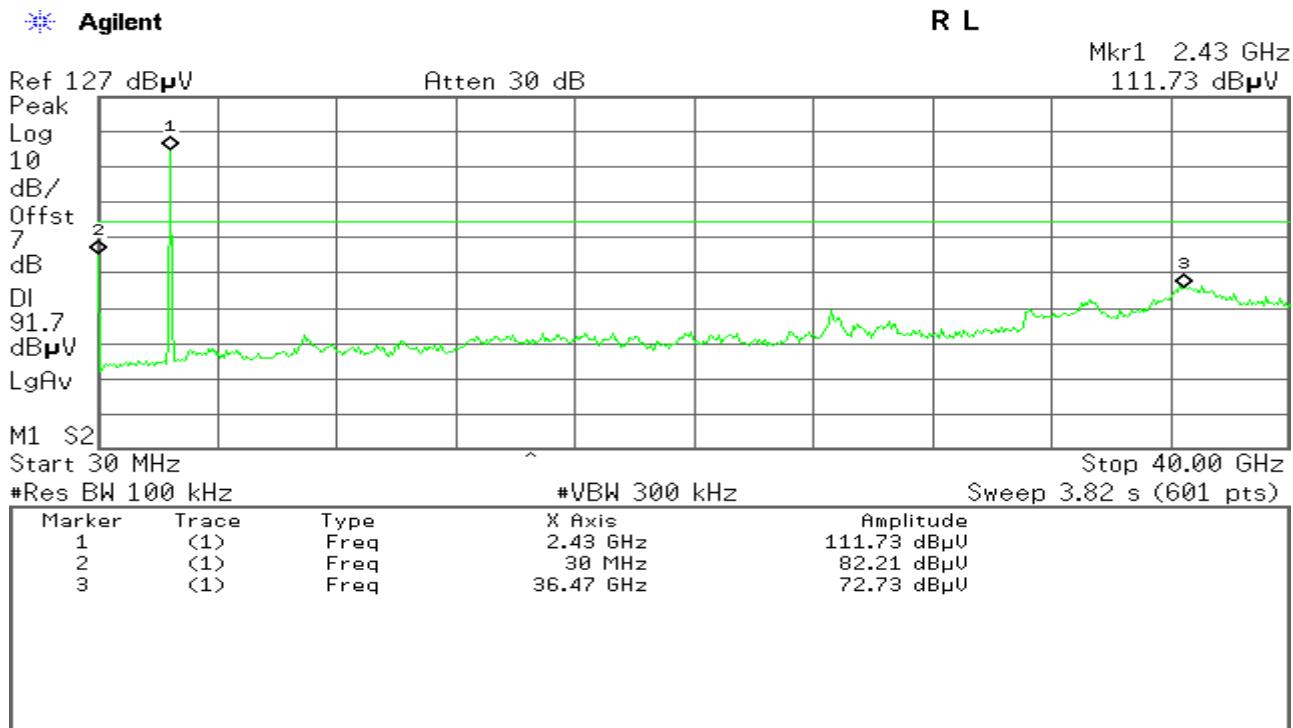
Date of Issue :September 2, 2013

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

CH Low



CH Mid





Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

CH High

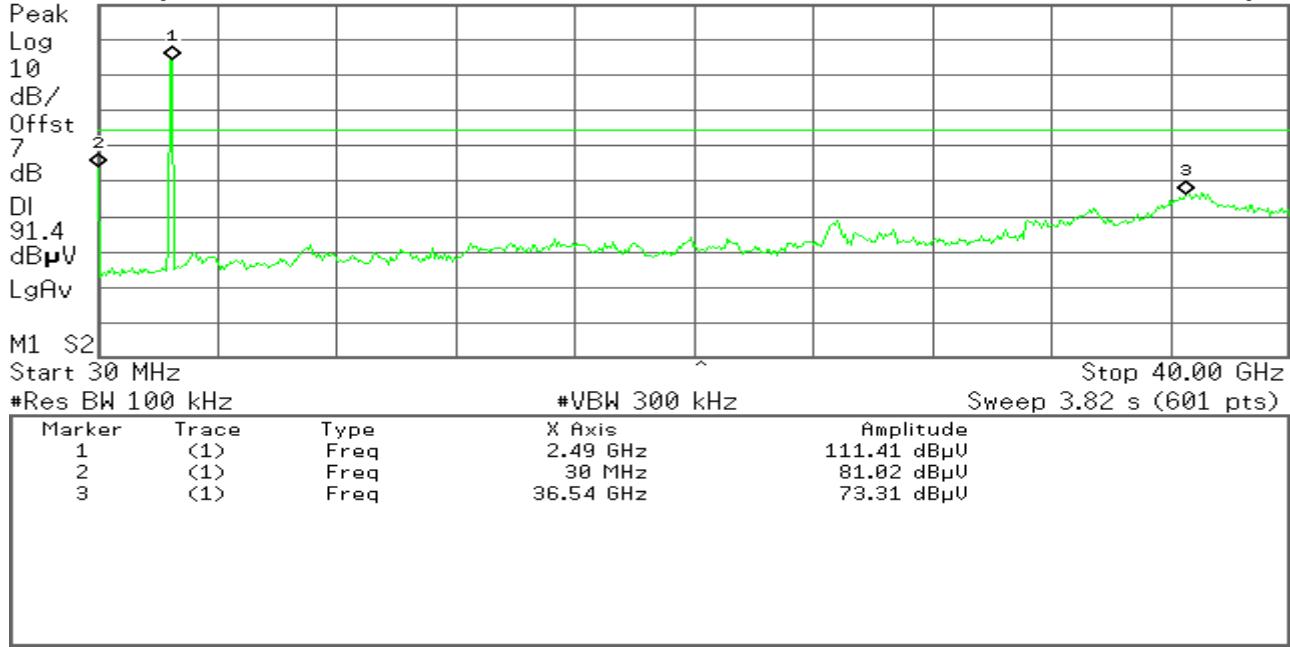
Agilent

Ref 127 dB μ V

Atten 30 dB

R L

Mkr1 2.49 GHz
111.41 dB μ V



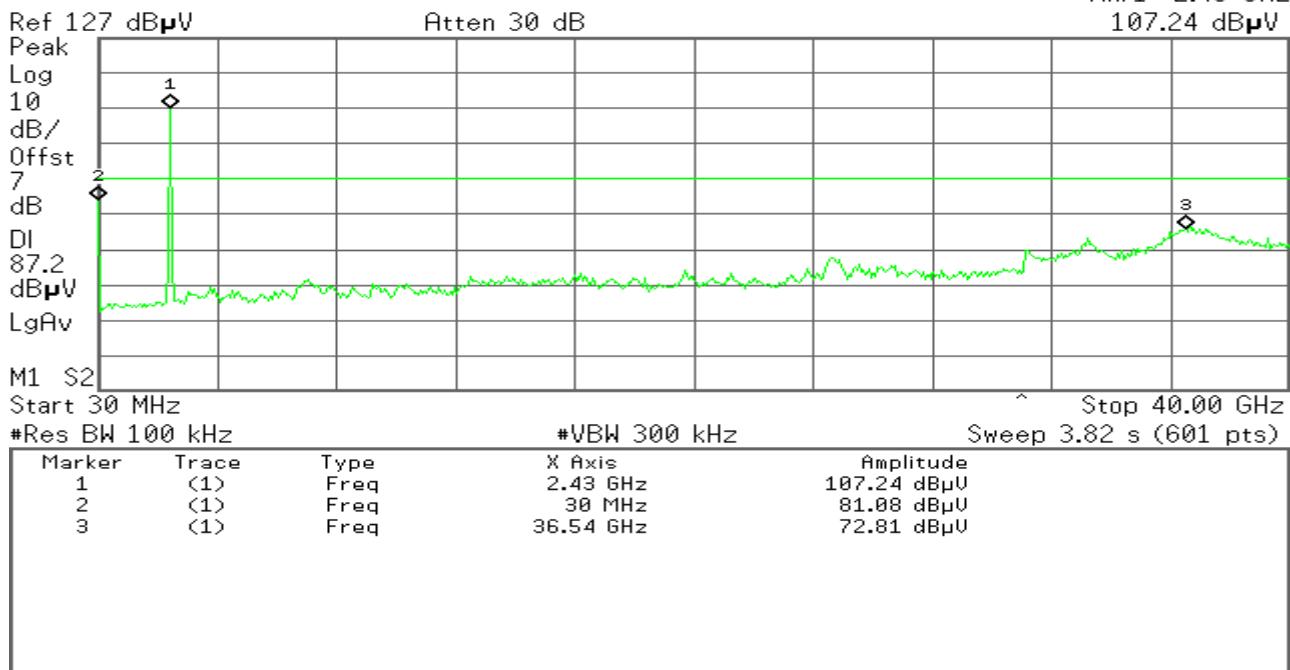
draft 802.11gn Standard-20 MHz Channel mode / Chain 1

CH Low

Agilent

R L

Mkr1 2.43 GHz
107.24 dB μ V





Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

CH Mid

Agilent

Ref 127 dB μ V

Atten 30 dB

R L

Mkr1 2.43 GHz
109.66 dB μ V

Peak
Log
10
dB/
0ffst

7
dB
DI
89.7
dB μ V
LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz

Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	109.66 dB μ V
2	(1)	Freq	30 MHz	81.78 dB μ V
3	(1)	Freq	36.54 GHz	73.45 dB μ V

CH High

Agilent

R L

Mkr1 2.43 GHz
110.17 dB μ V

Peak
Log
10
dB/
0ffst

7
dB
DI
90.2
dB μ V
LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz

Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	110.17 dB μ V
2	(1)	Freq	30 MHz	81.58 dB μ V
3	(1)	Freq	36.54 GHz	72.62 dB μ V



Compliance Certification Services Inc.

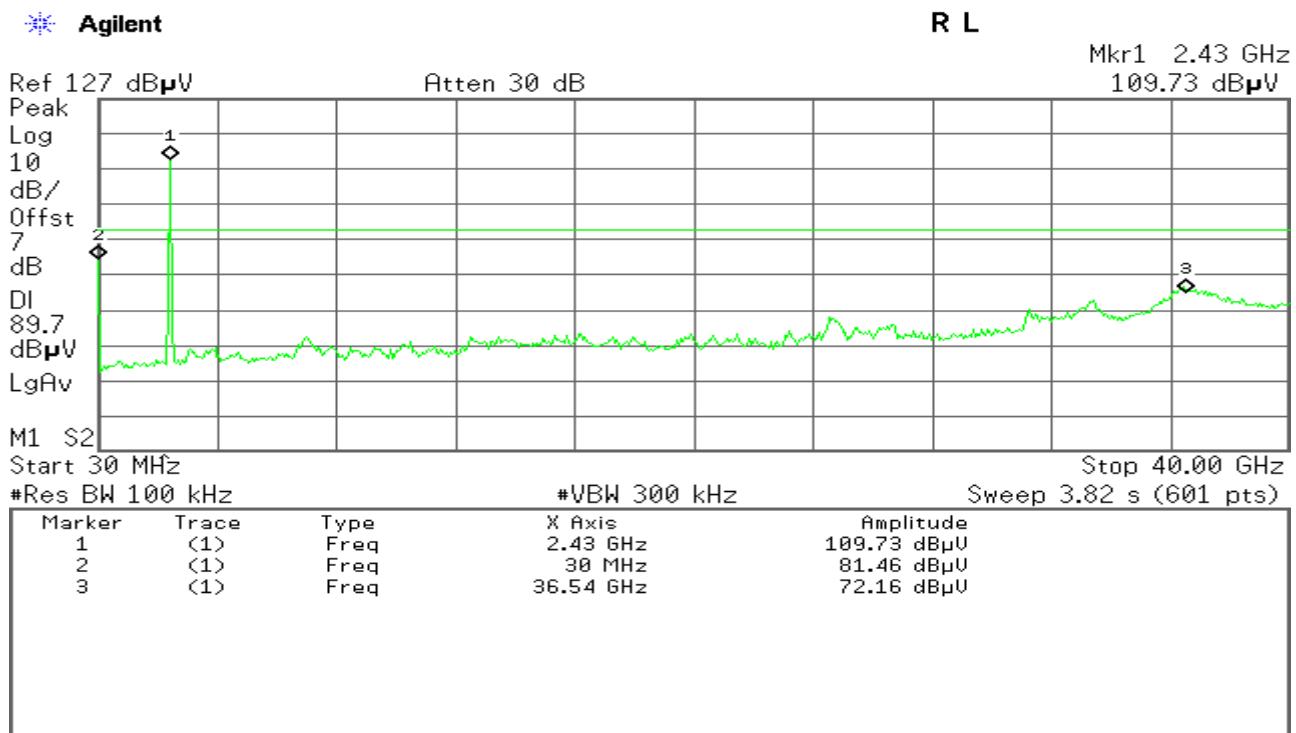
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

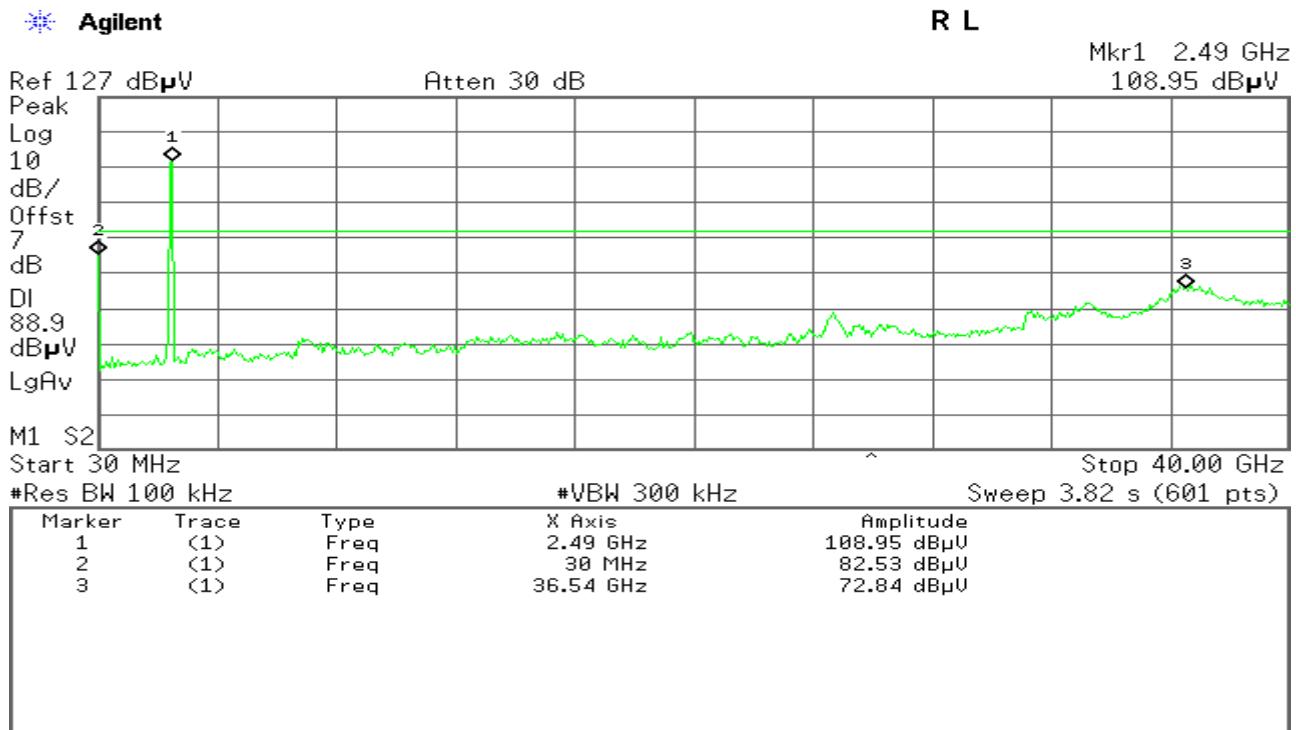
Date of Issue :September 2, 2013

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

CH Low



CH Mid



CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 2.49 GHz
108.92 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

88.9

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.49 GHz	108.92 dB μ V
2	(1)	Freq	30 MHz	81.89 dB μ V
3	(1)	Freq	36.54 GHz	74.31 dB μ V

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

CH Low

Agilent

R L

Mkr1 2.43 GHz
106.68 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

86.7

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	106.68 dB μ V
2	(1)	Freq	30 MHz	82.17 dB μ V
3	(1)	Freq	36.54 GHz	72.91 dB μ V

CH Mid



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 2.43 GHz
107.74 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

87.7

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	107.74 dB μ V
2	(1)	Freq	30 MHz	81.88 dB μ V
3	(1)	Freq	36.54 GHz	72.53 dB μ V

CH High

Agilent

R L

Mkr1 2.43 GHz
107.14 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

7

dB

DI

87.1

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.43 GHz	107.14 dB μ V
2	(1)	Freq	30 MHz	81.52 dB μ V
3	(1)	Freq	36.54 GHz	72.78 dB μ V

5725-5825



Compliance Certification Services Inc.

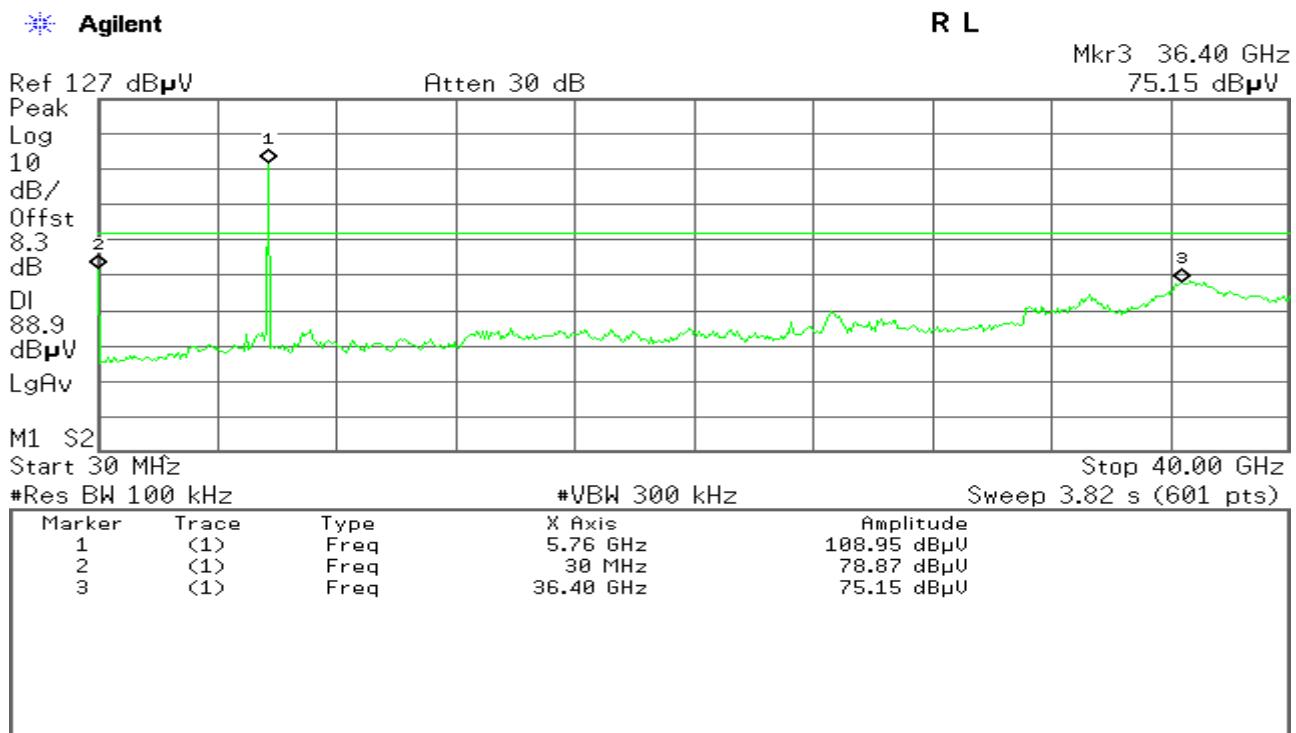
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FCC ID:
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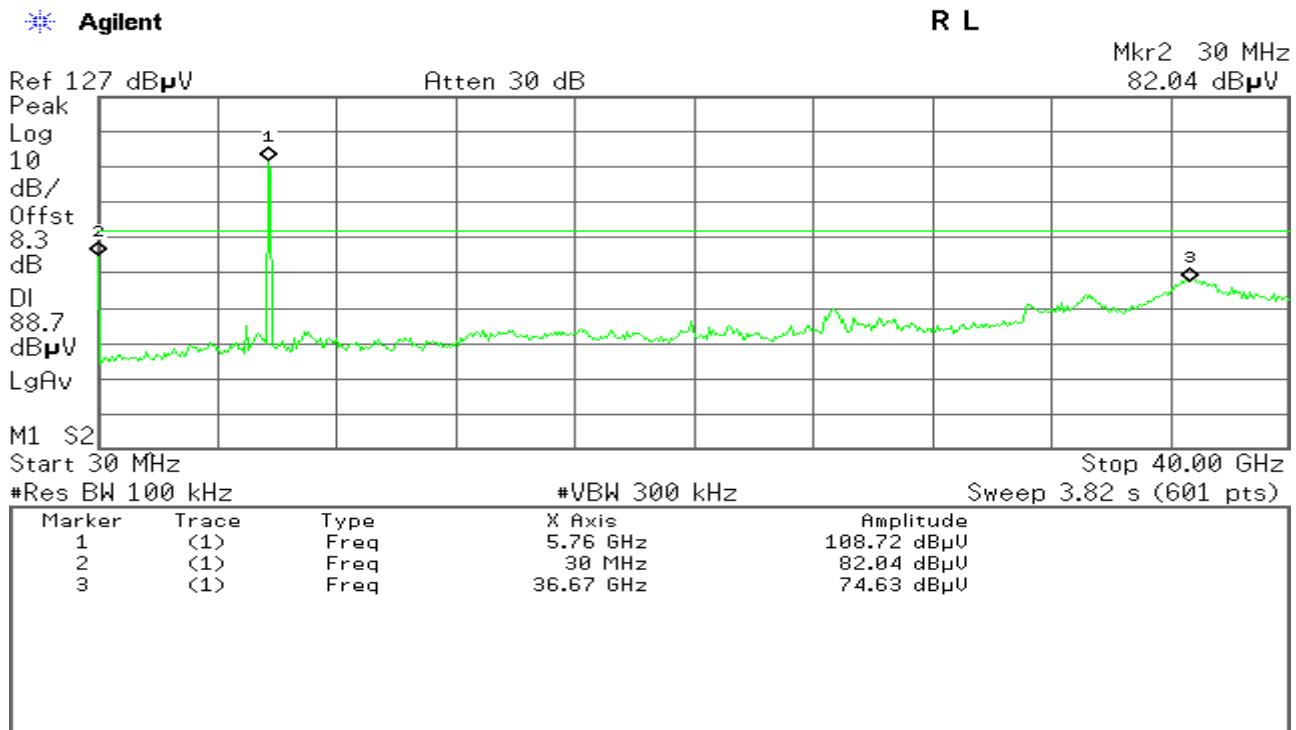
Date of Issue :September 2, 2013

IEEE 802.11a mode

CH Low



CH Mid



CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

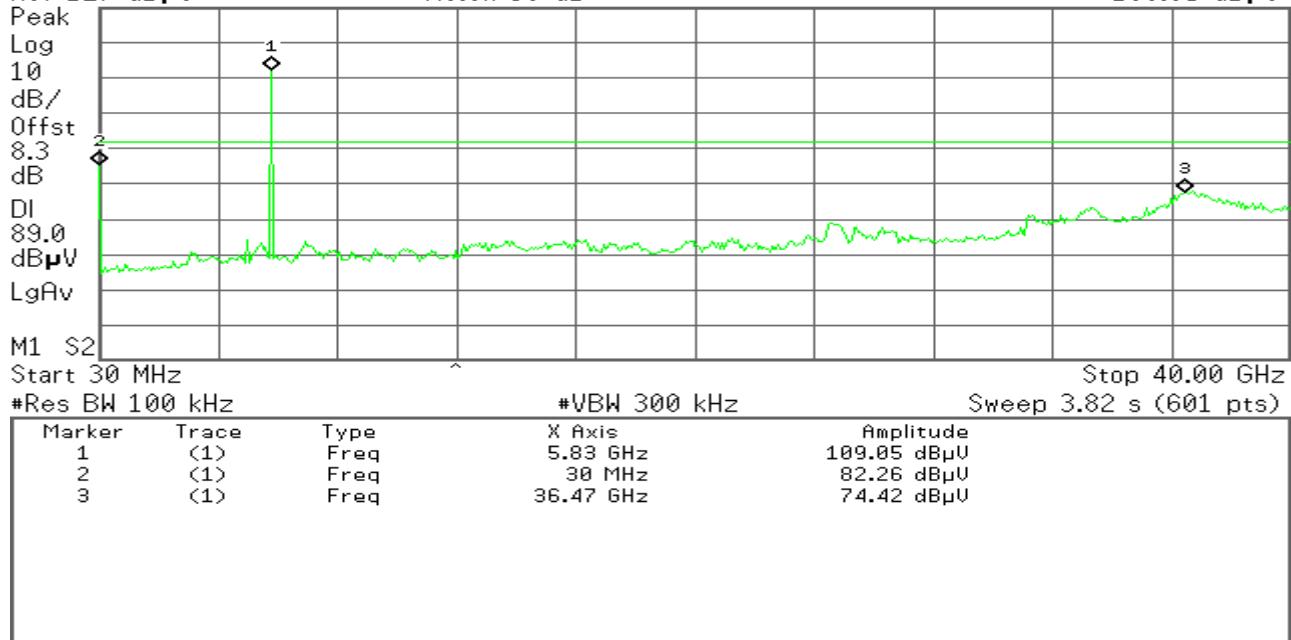
Agilent

R L

Mkr1 5.83 GHz
109.05 dB μ V

Ref 127 dB μ V

Atten 30 dB



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

CH Low

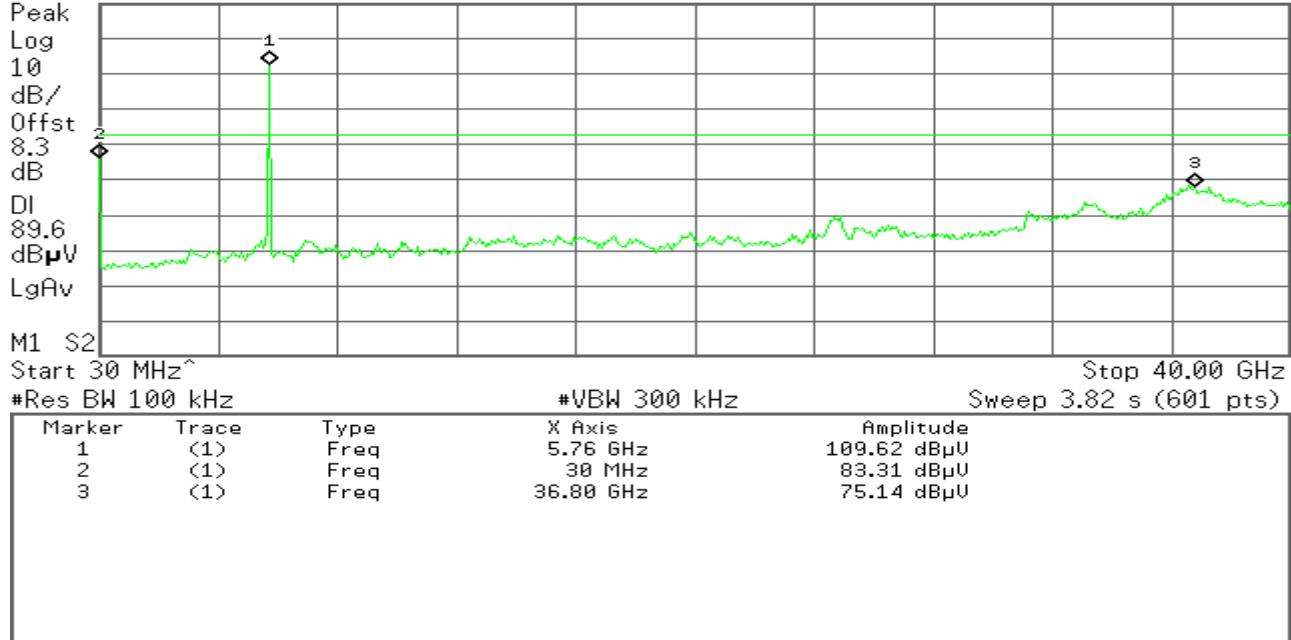
Agilent

R L

Mkr1 5.76 GHz
109.62 dB μ V

Ref 127 dB μ V

Atten 30 dB



CH Mid



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 5.76 GHz
109.90 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

8.3

dB

DI

89.9

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.76 GHz	109.90 dB μ V
2	(1)	Freq	30 MHz	80.49 dB μ V
3	(1)	Freq	36.47 GHz	73.86 dB μ V

CH High

Agilent

R T

Mkr1 5.83 GHz
109.34 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

8.3

dB

DI

89.3

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.83 GHz	109.34 dB μ V
2	(1)	Freq	30 MHz	84.07 dB μ V
3	(1)	Freq	36.74 GHz	74.62 dB μ V

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

CH Low



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

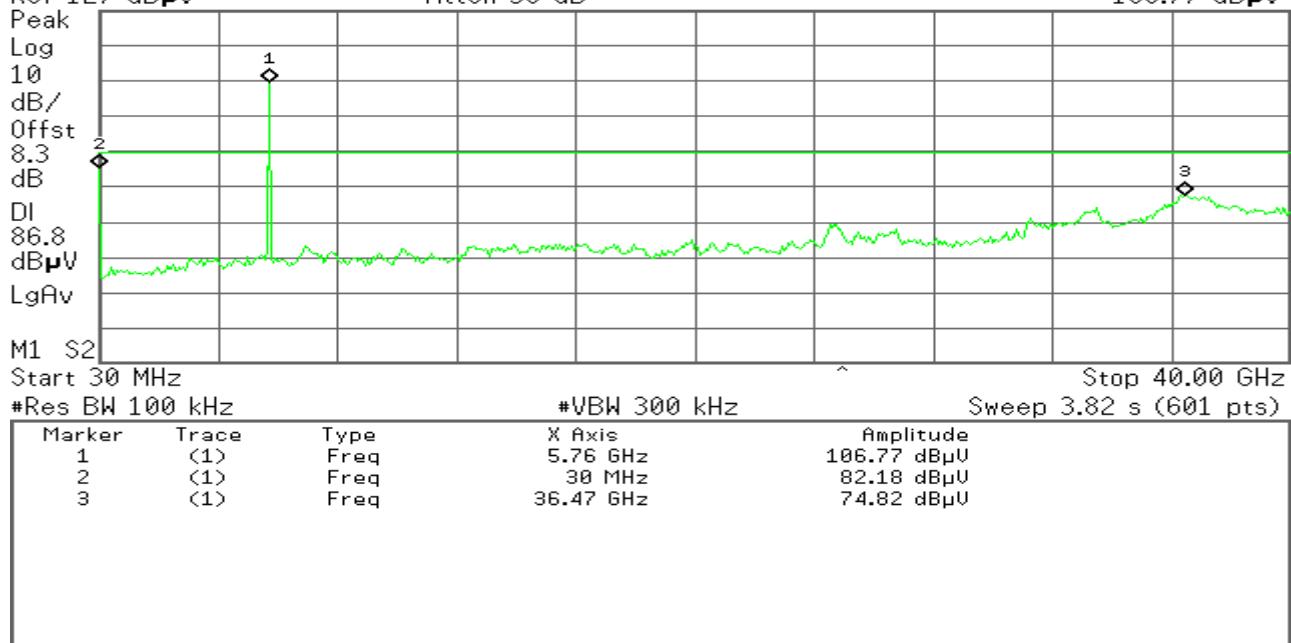
Agilent

R L

Mkr1 5.76 GHz
106.77 dB μ V

Ref 127 dB μ V

Atten 30 dB



CH Mid

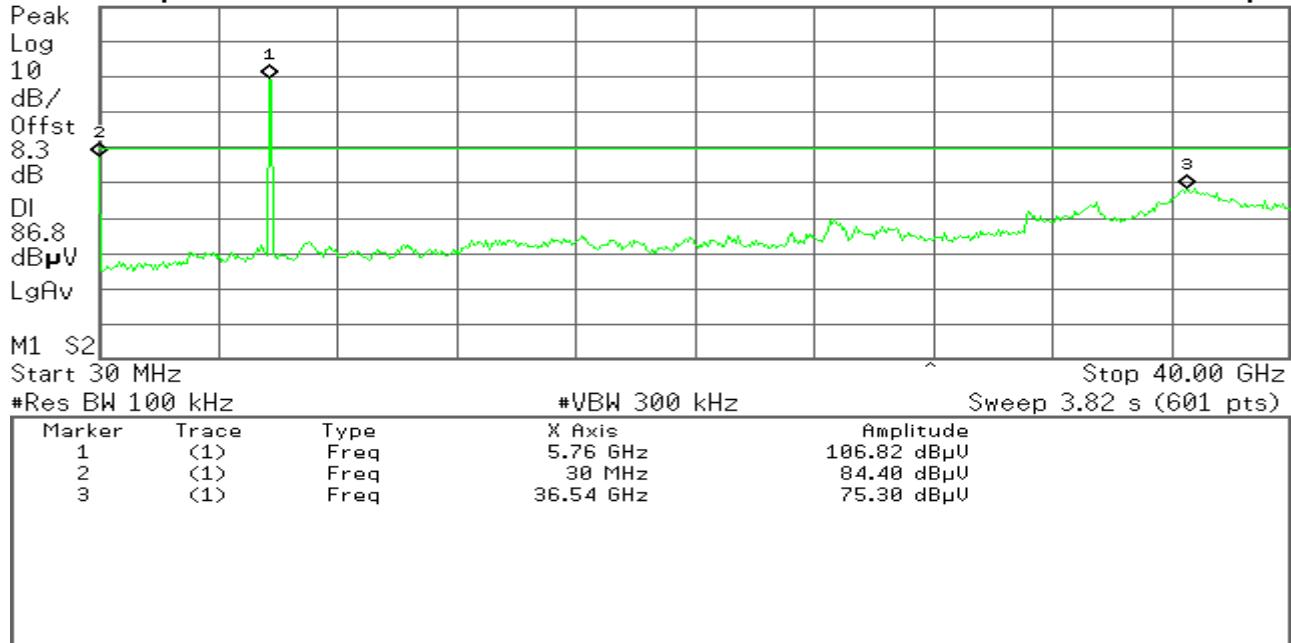
Agilent

R L

Mkr1 5.76 GHz
106.82 dB μ V

Ref 127 dB μ V

Atten 30 dB



CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 5.83 GHz
107.33 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

Offst

8.3

dB

DI

87.3

dB μ V

LgAv

M1 S2

Start 30 MHz

Stop 40.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.83 GHz	107.33 dB μ V
2	(1)	Freq	30 MHz	82.79 dB μ V
3	(1)	Freq	36.47 GHz	75.02 dB μ V

draft 802.11an Standard-40 MHz Channel mode / Chain 0

CH Low

Agilent

R L

Mkr1 5.76 GHz
106.70 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

Offst

8.3

dB

DI

86.5

dB μ V

LgAv

M1 S2

Start 30 MHz

Stop 40.00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.76 GHz	106.70 dB μ V
2	(1)	Freq	30 MHz	82.86 dB μ V
3	(1)	Freq	36.47 GHz	74.17 dB μ V

CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

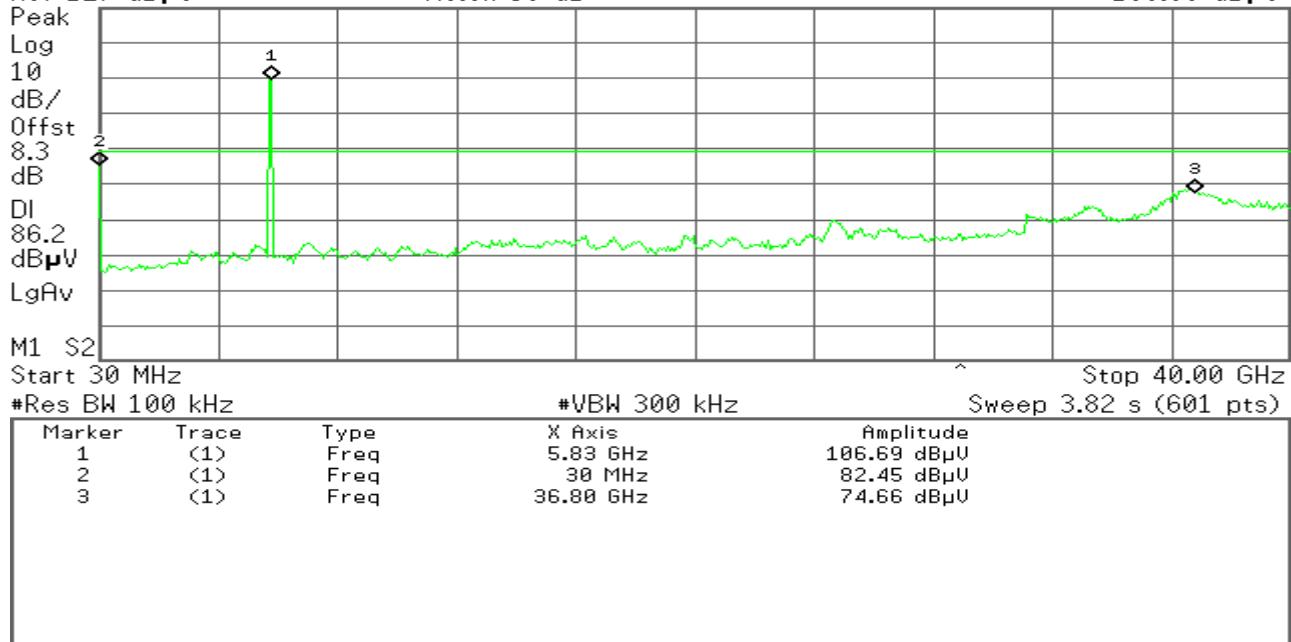
Agilent

R L

Mkr1 5.83 GHz
106.69 dB μ V

Ref 127 dB μ V

Atten 30 dB



draft 802.11an Standard-40 MHz Channel mode / Chain 1

CH Low

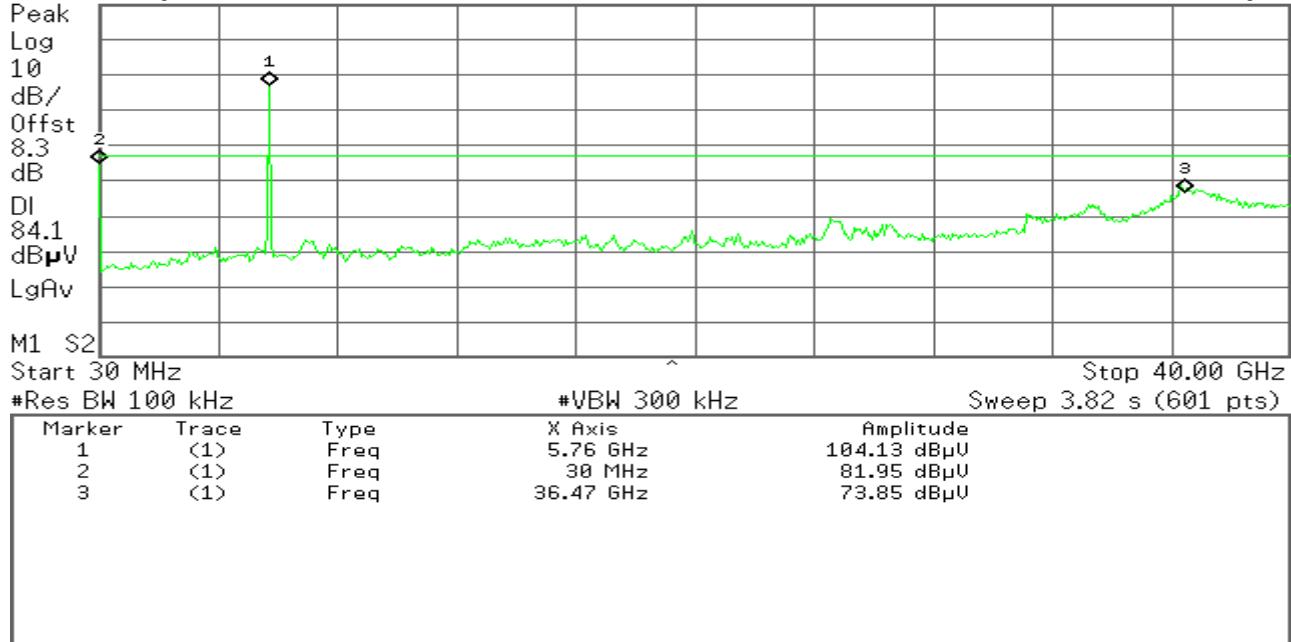
Agilent

R L

Mkr1 5.76 GHz
104.13 dB μ V

Ref 127 dB μ V

Atten 30 dB



CH High



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Agilent

R L

Mkr1 5.76 GHz
104.31 dB μ V

Ref 127 dB μ V

Atten 30 dB

Peak

Log

10

dB/

0ffst

8.3

dB

DI

84.3

dB μ V

LgAv

M1 S2

Start 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 40.00 GHz
Sweep 3.82 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	5.76 GHz	104.31 dB μ V
2	<1>	Freq	30 MHz	82.68 dB μ V
3	<1>	Freq	36.80 GHz	75.25 dB μ V



7.5.RADIATED EMISSIONS

LIMIT

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2009. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

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:

FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

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

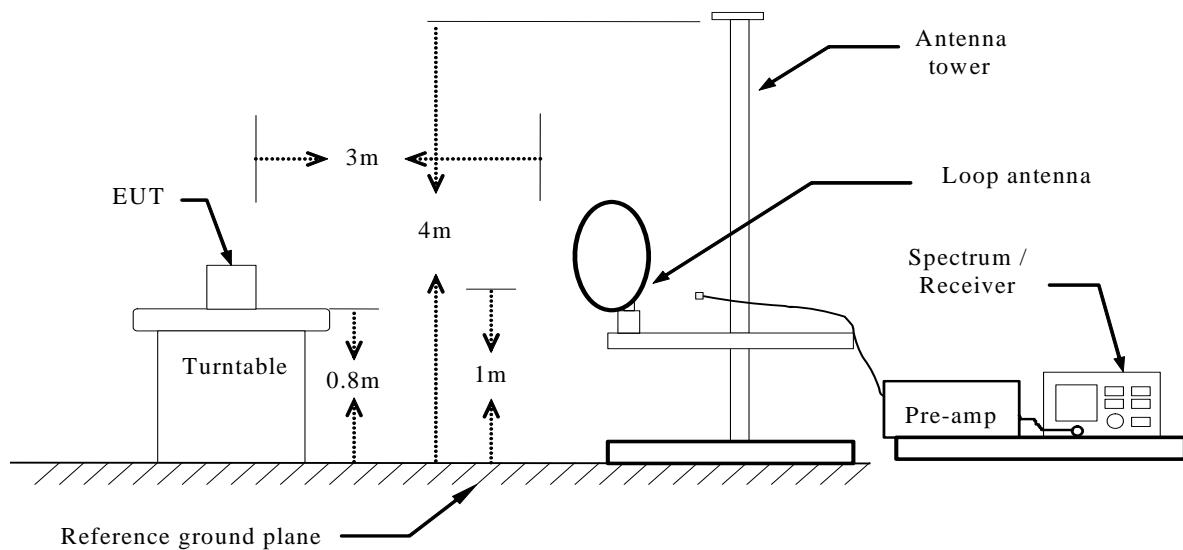
2. In the emission table above, the tighter limit applies at the band edges.

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

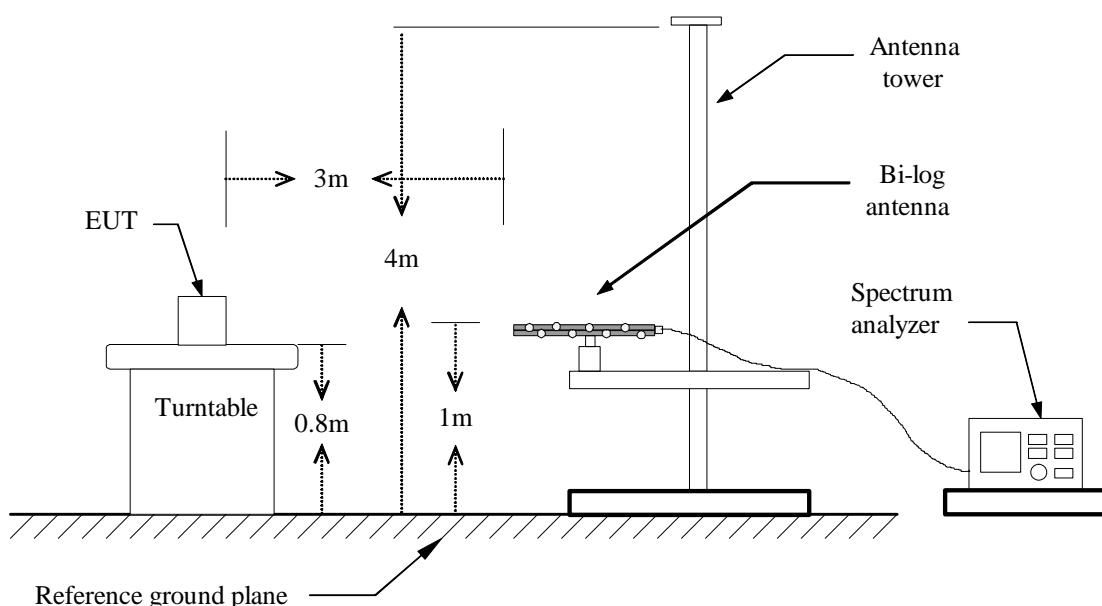
Test Configuration



Below 30MHz

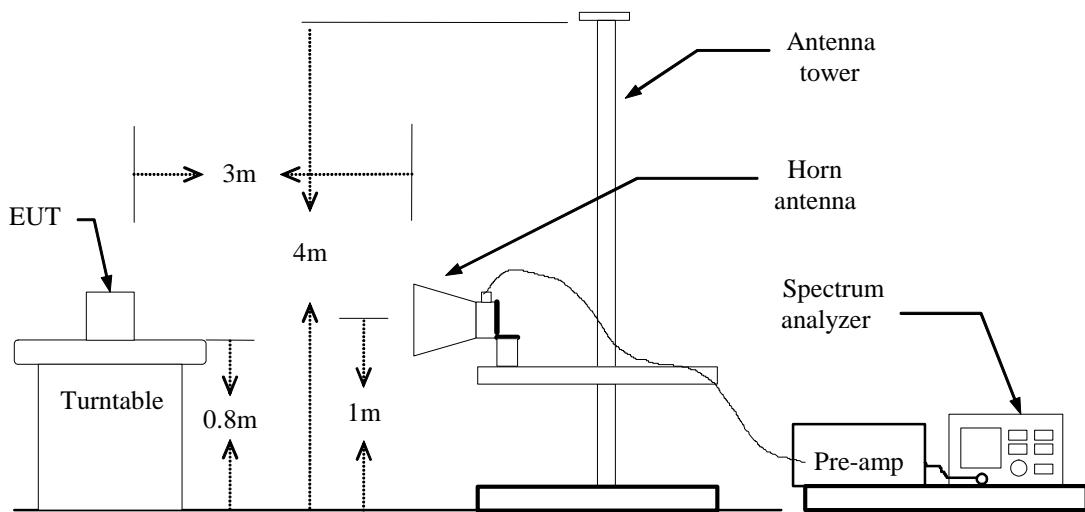


Below 1 GHz





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



Compliance Certification Services Inc.

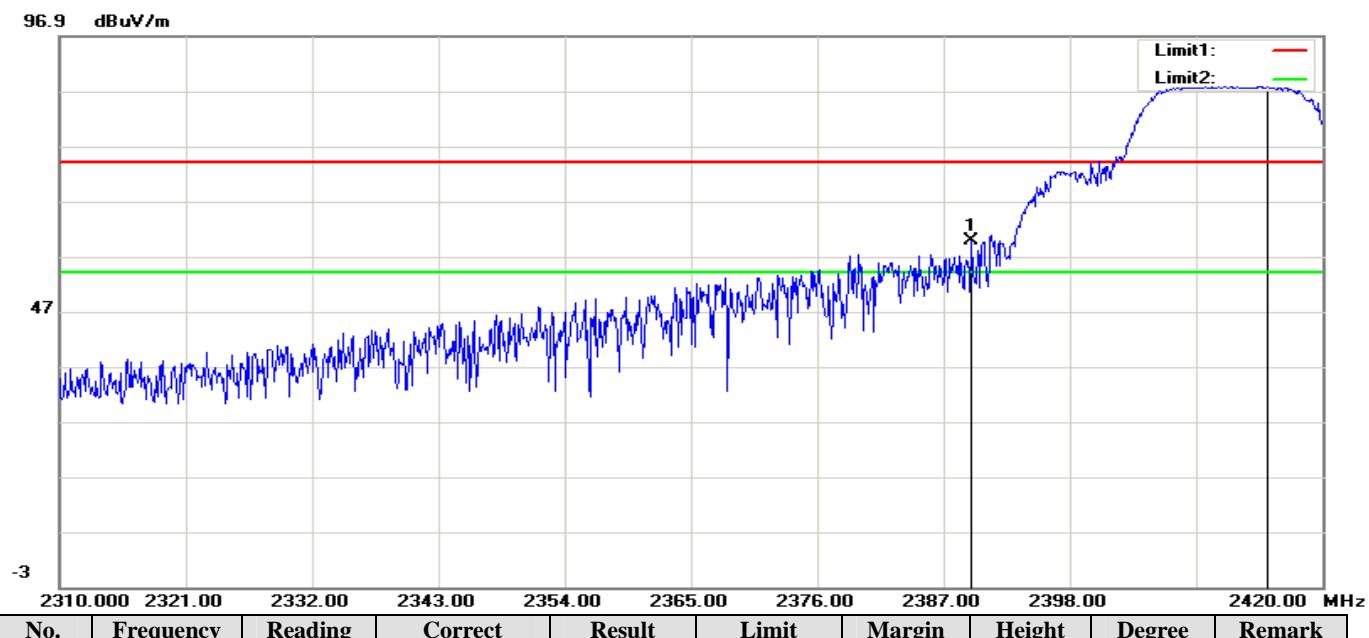
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FCC ID:
2ABKCDCWL7962AP50

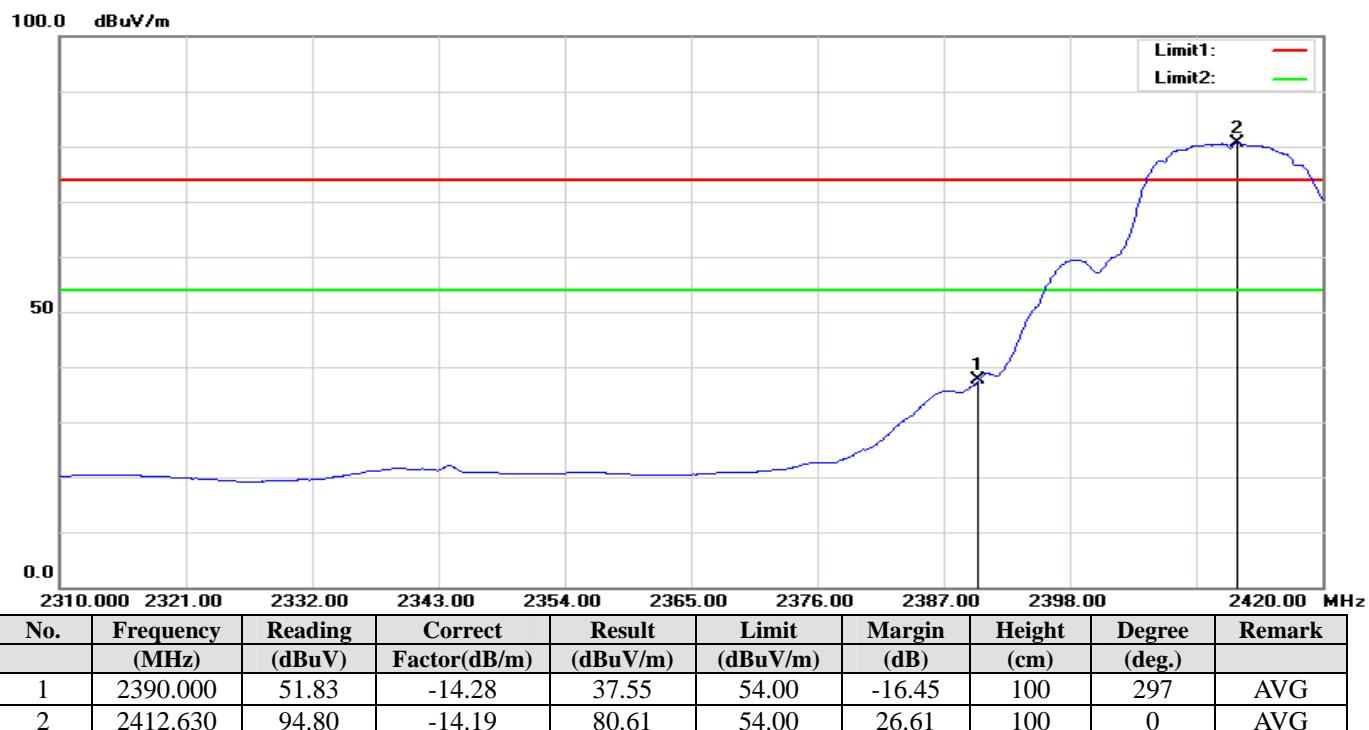
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

PEAK



AVG





Compliance Certification Services Inc.

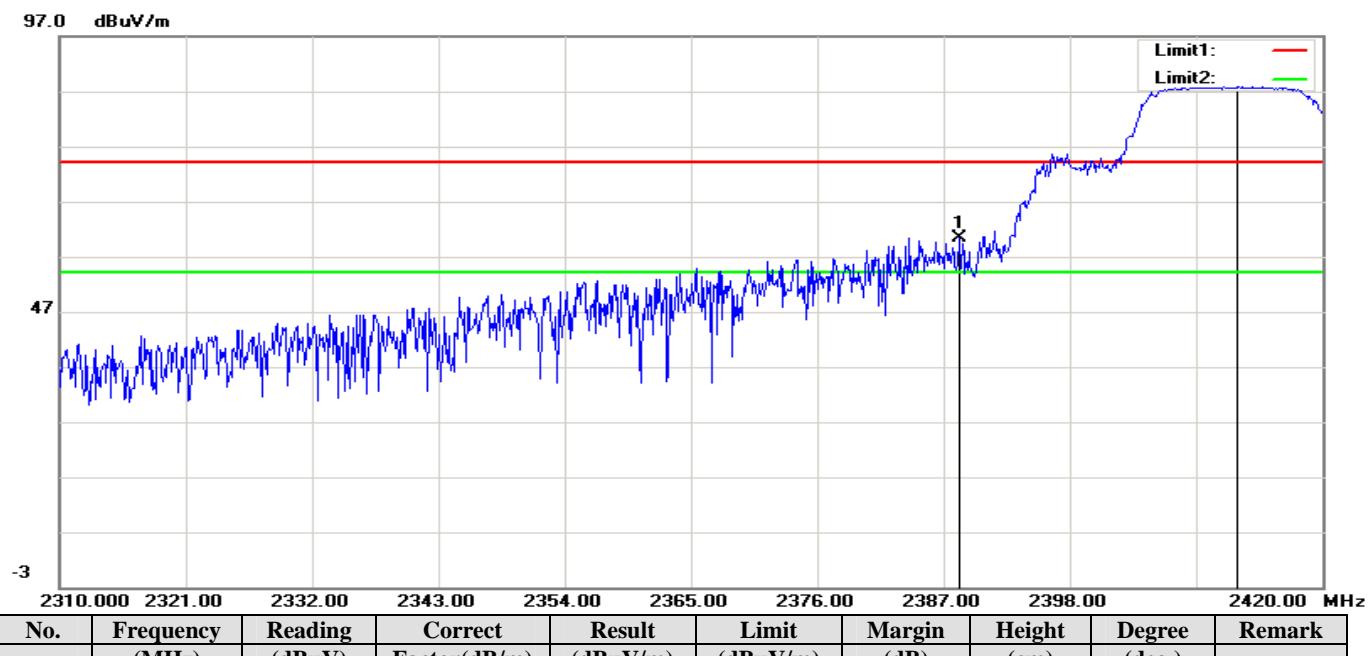
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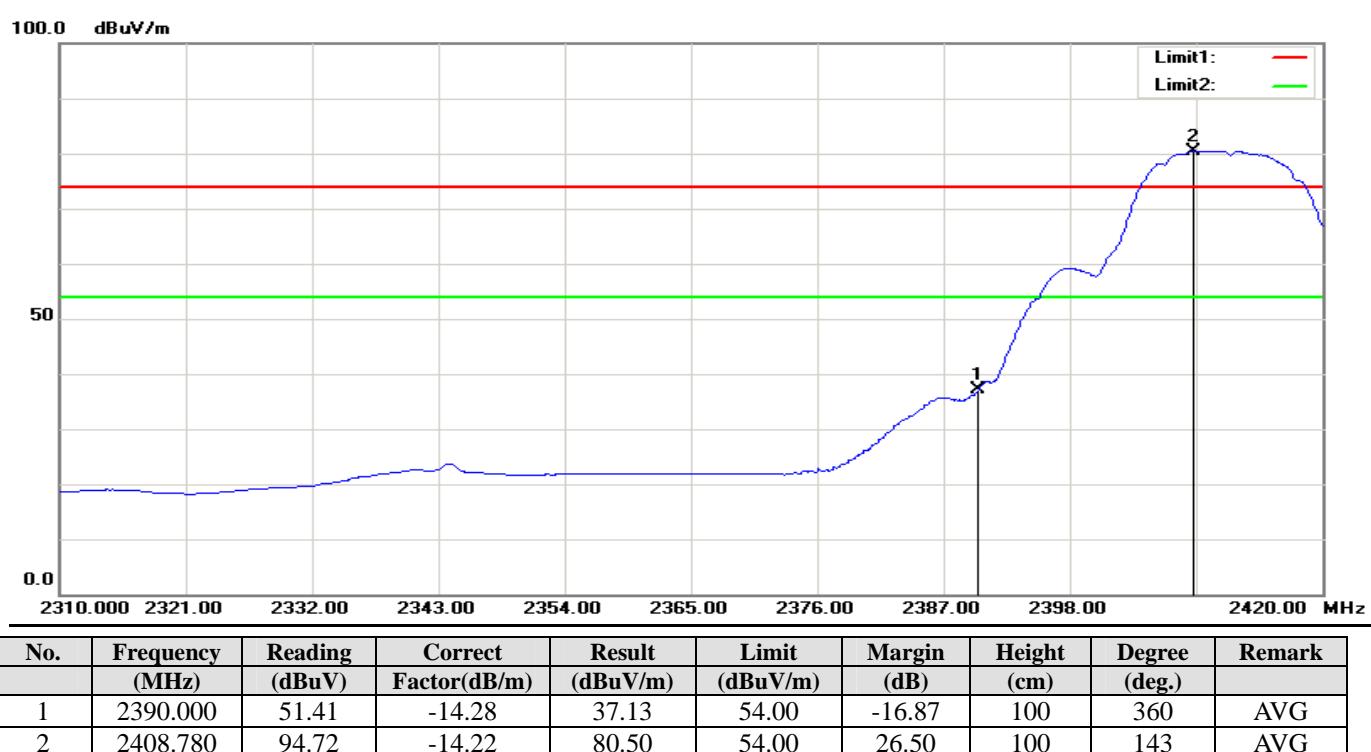
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

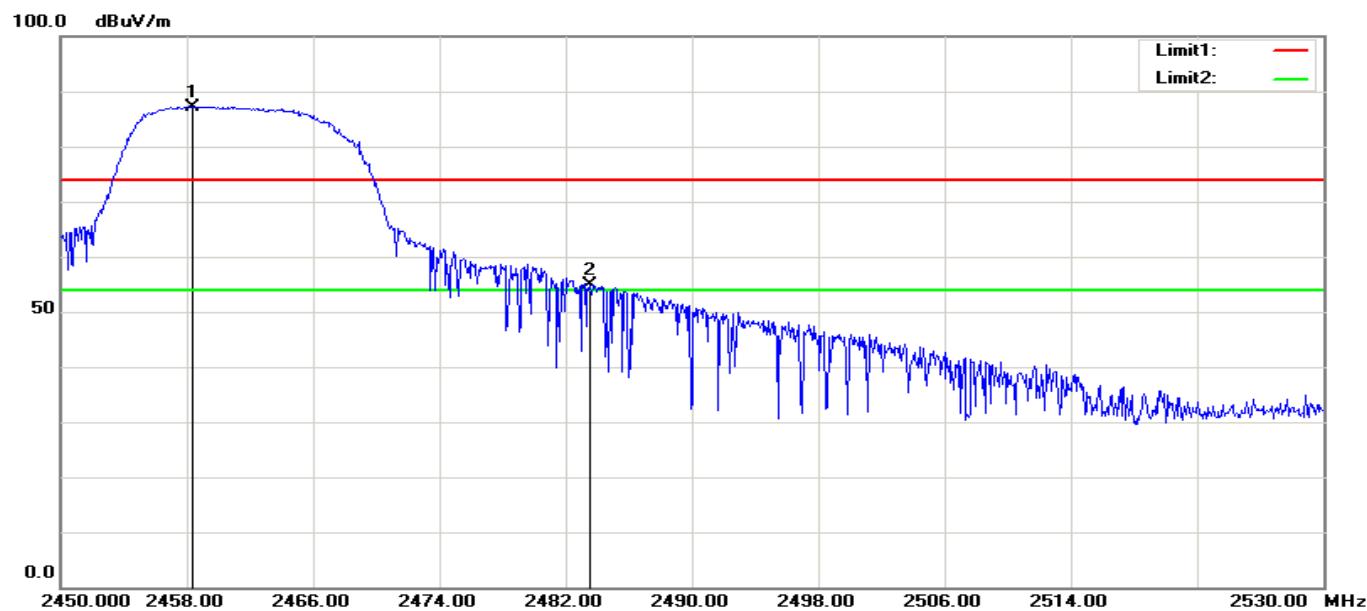
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

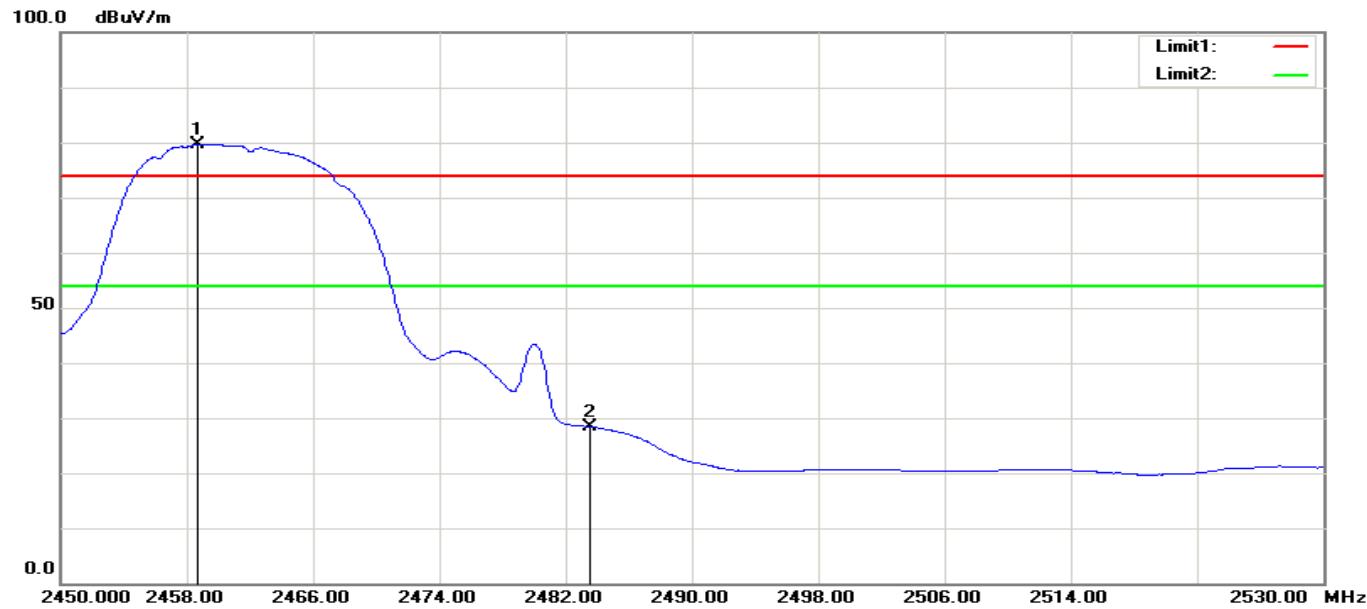
RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2458.400	101.04	-13.84	87.20	74.00	13.20	100	30	peak
2	2483.500	68.55	-13.65	54.90	74.00	-19.10	100	22	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2458.720	93.57	-13.83	79.74	54.00	25.74	100	30	AVG
2	2483.500	42.03	-13.65	28.38	54.00	-25.62	100	22	AVG



Compliance Certification Services Inc.

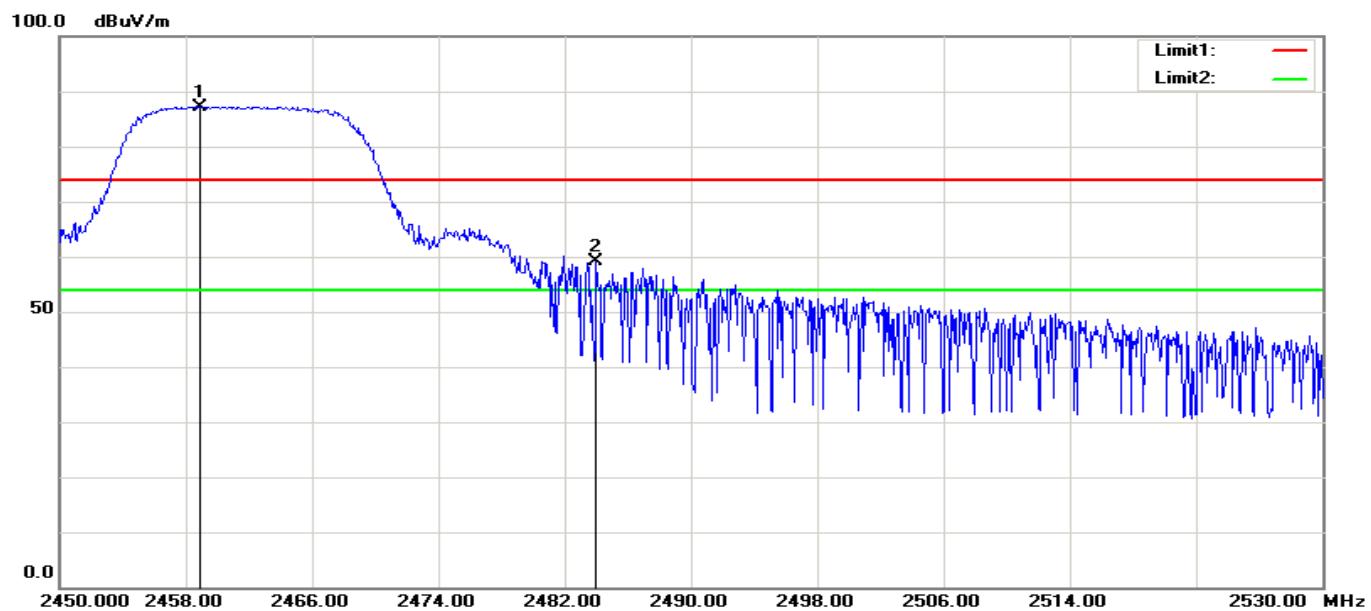
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Date of Issue :September 2, 2013

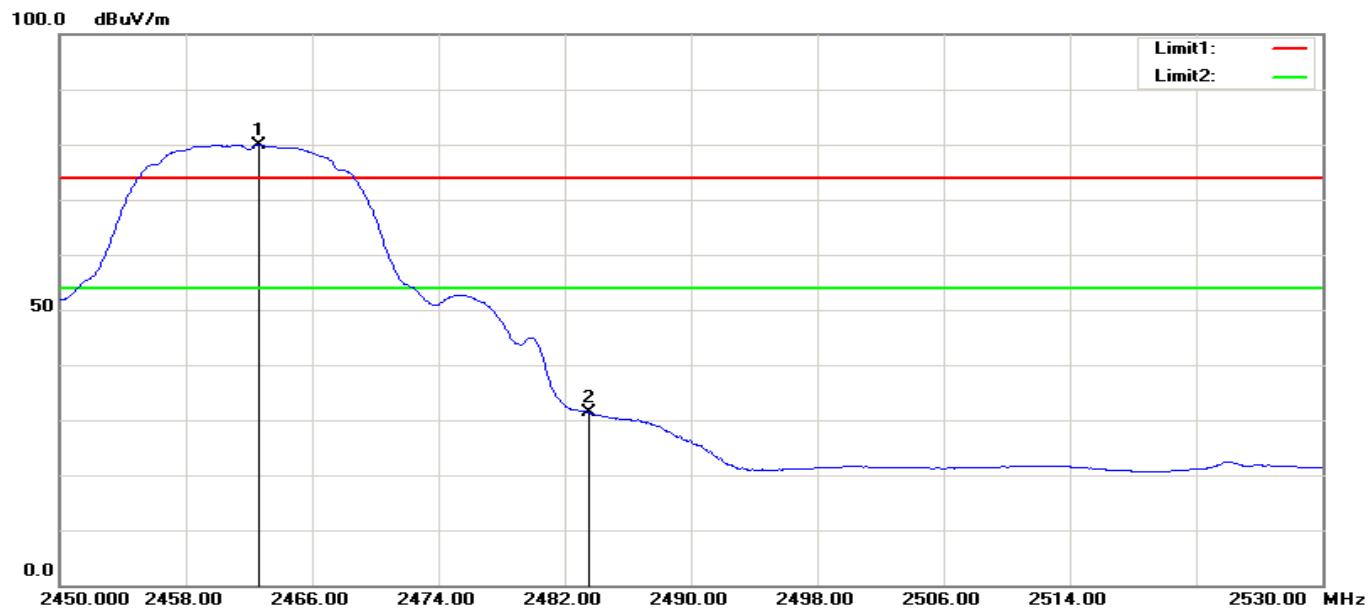
RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2458.880	101.06	-13.83	87.23	74.00	13.23	100	30	peak
2	2484.000	72.81	-13.65	59.16	74.00	-14.84	100	22	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2462.640	93.79	-13.81	79.98	54.00	25.98	100	22	AVG
2	2483.500	45.02	-13.65	31.37	54.00	-22.63	100	22	AVG



Compliance Certification Services Inc.

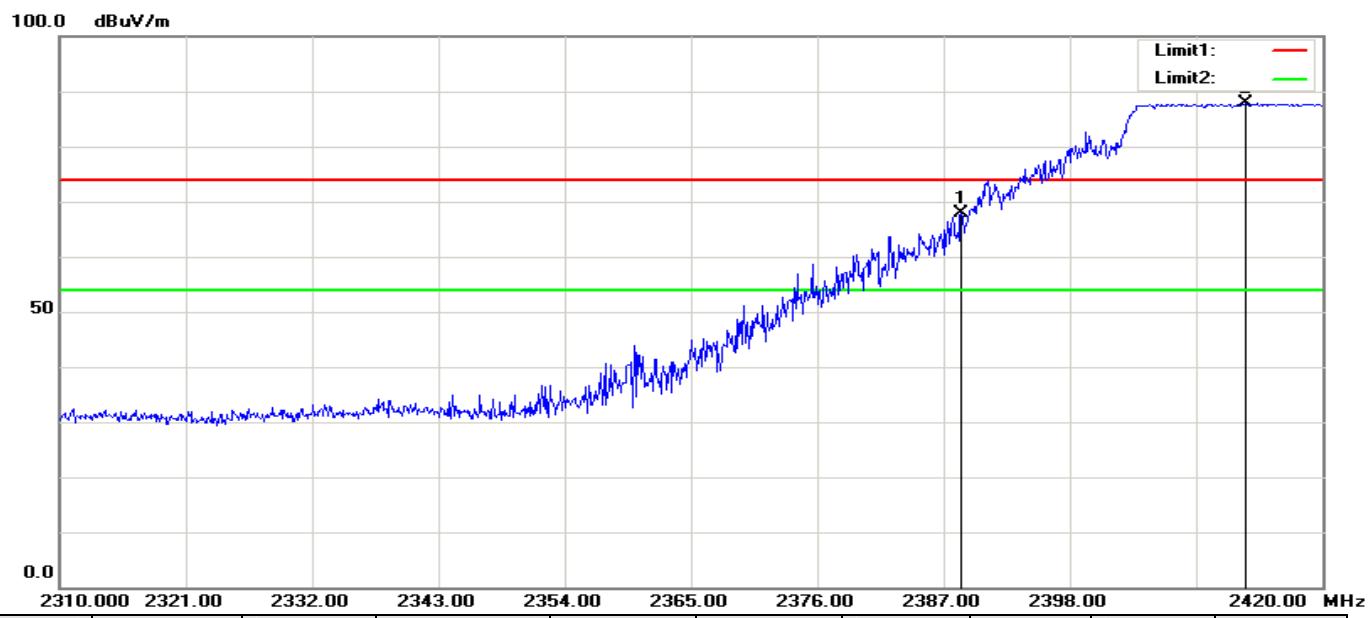
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Date of Issue :September 2, 2013

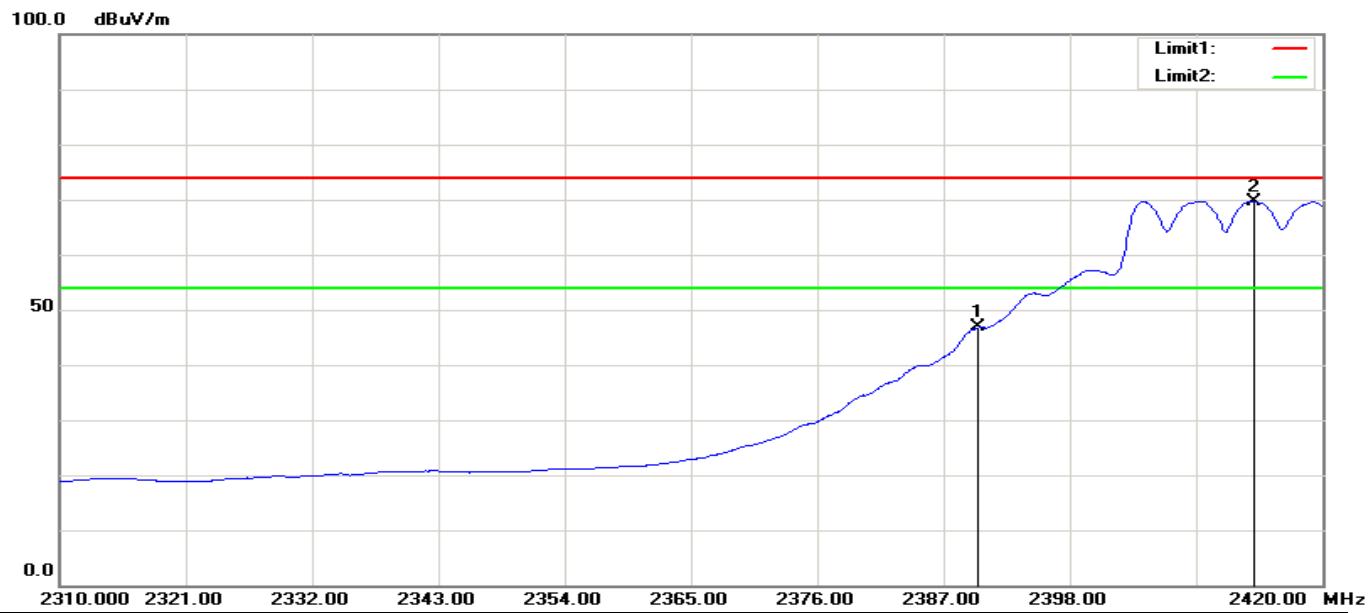
RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)

PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2388.540	82.04	-14.28	67.76	74.00	-6.24	100	193	peak
2	2413.290	101.95	-14.19	87.76	74.00	13.76	100	336	peak

AVG



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2390.000	61.06	-14.28	46.78	54.00	-7.22	100	360	AVG
2	2414.060	83.89	-14.18	69.71	54.00	15.71	100	178	AVG



Compliance Certification Services Inc.

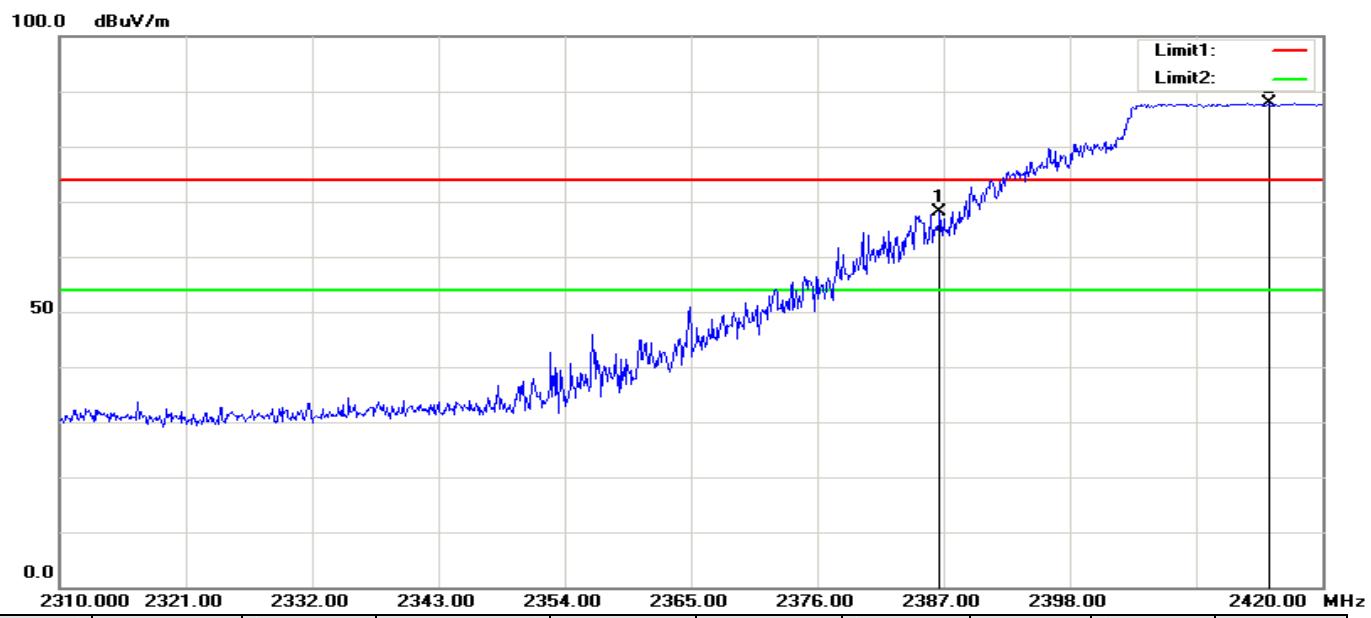
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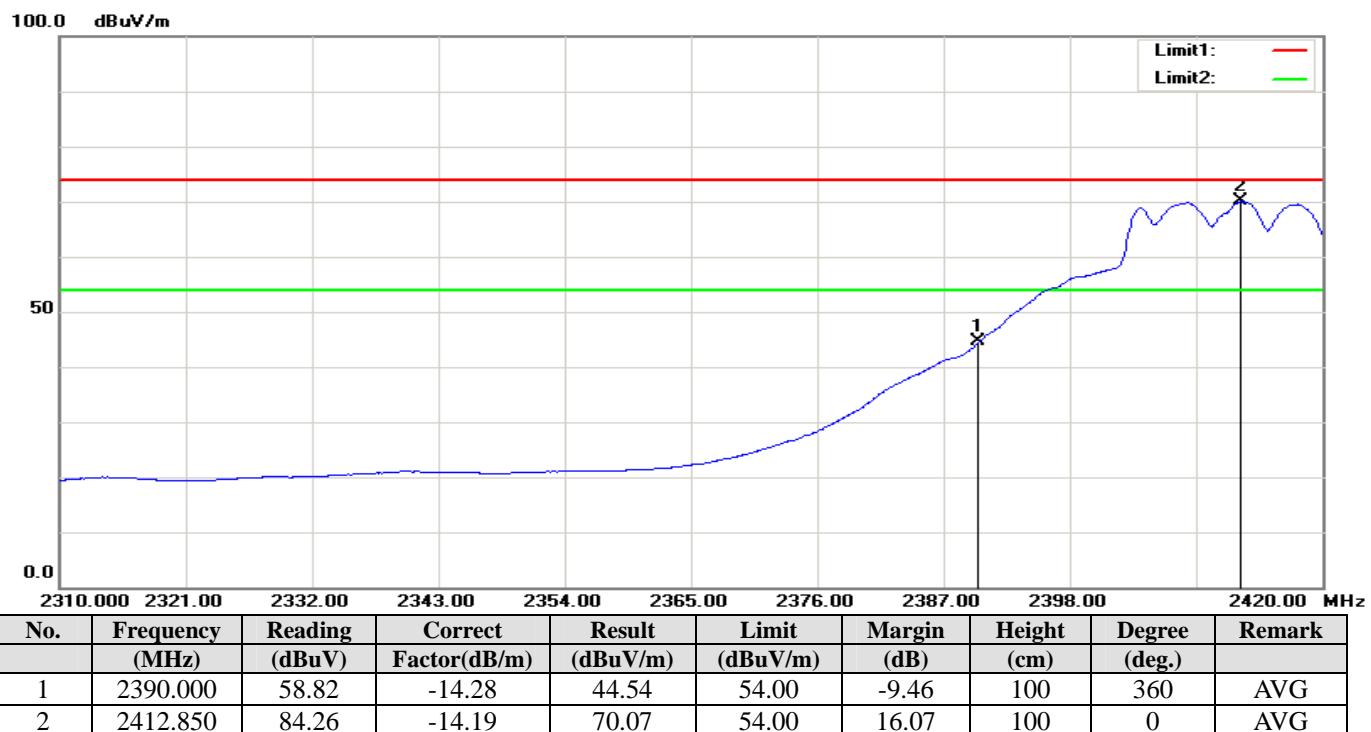
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

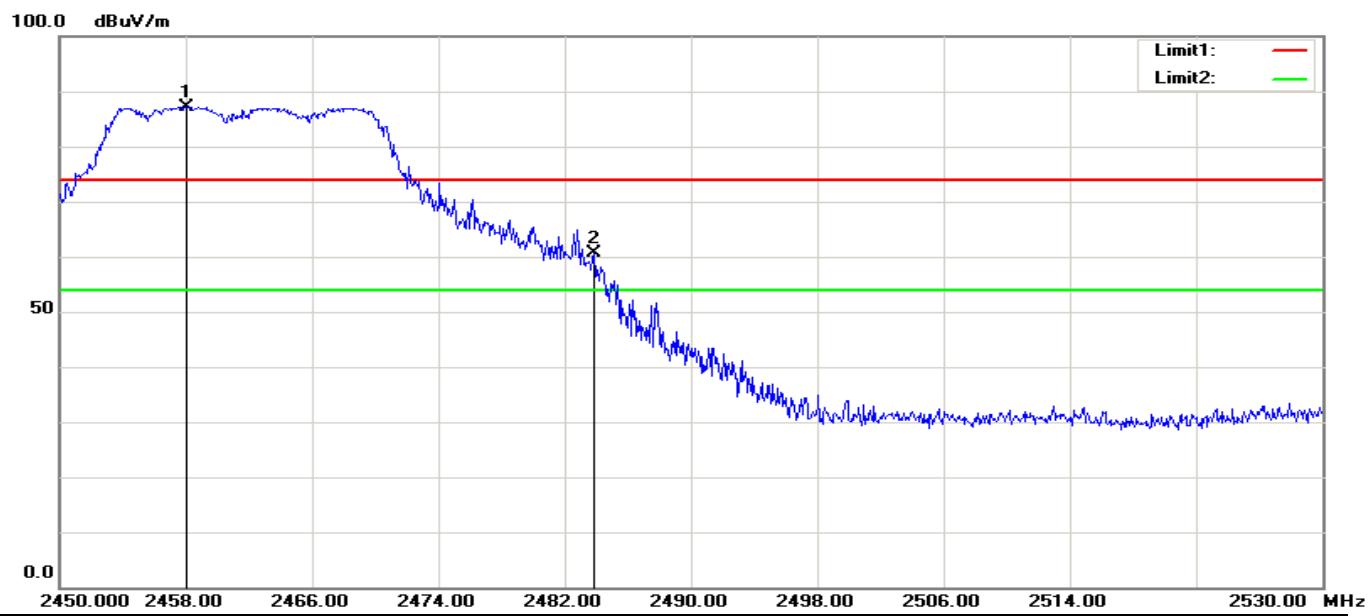
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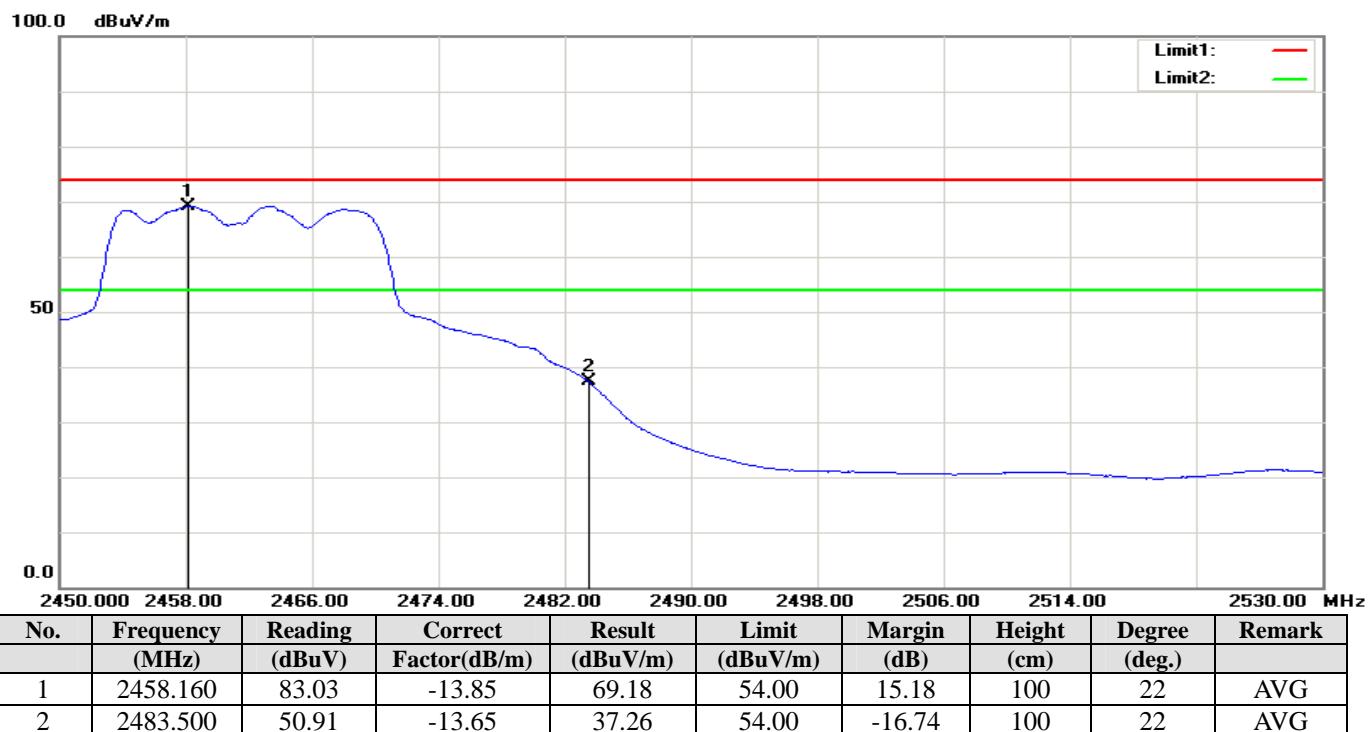
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

PEAK



AVG





Compliance Certification Services Inc.

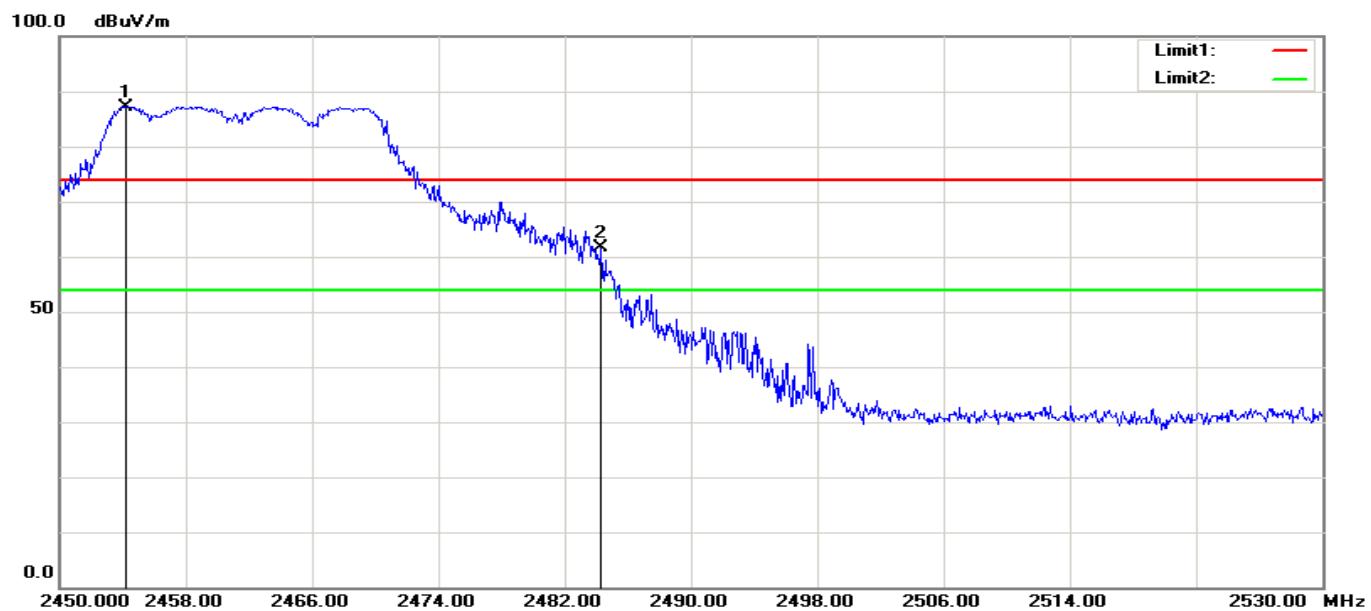
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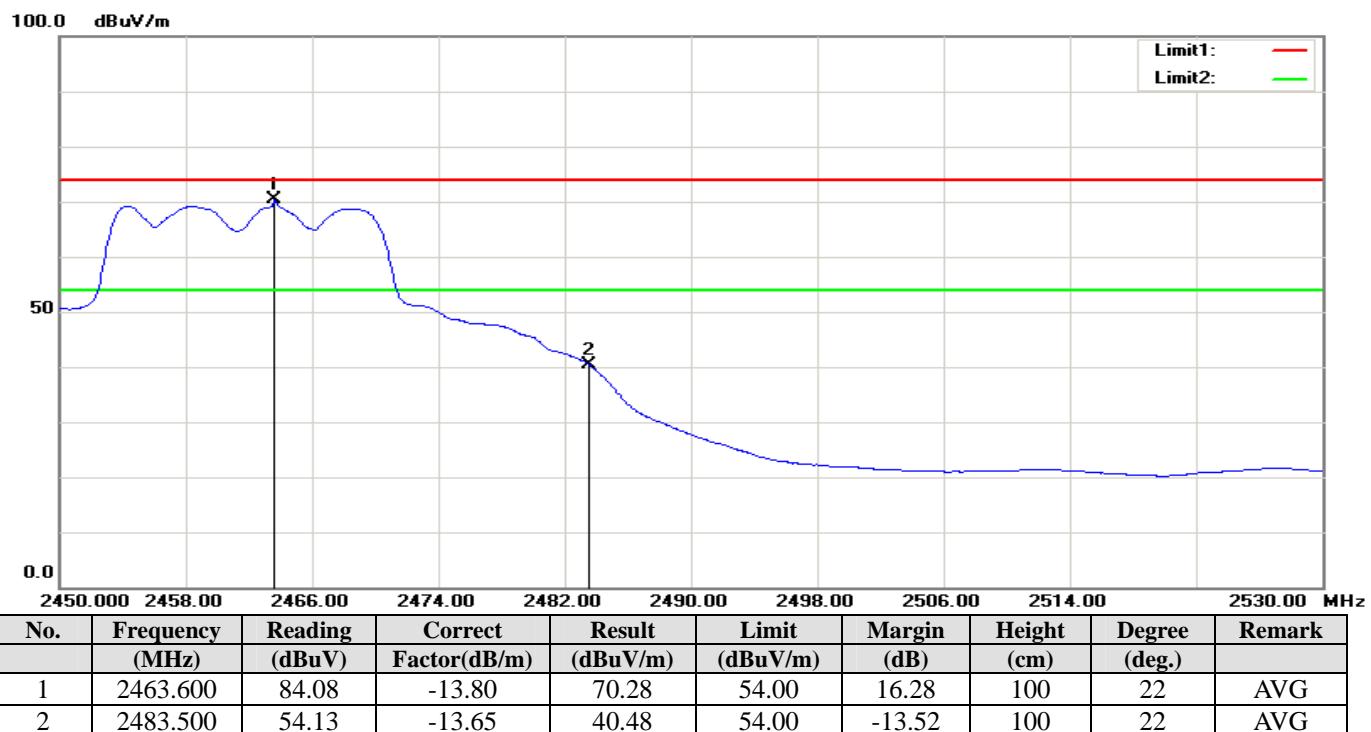
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

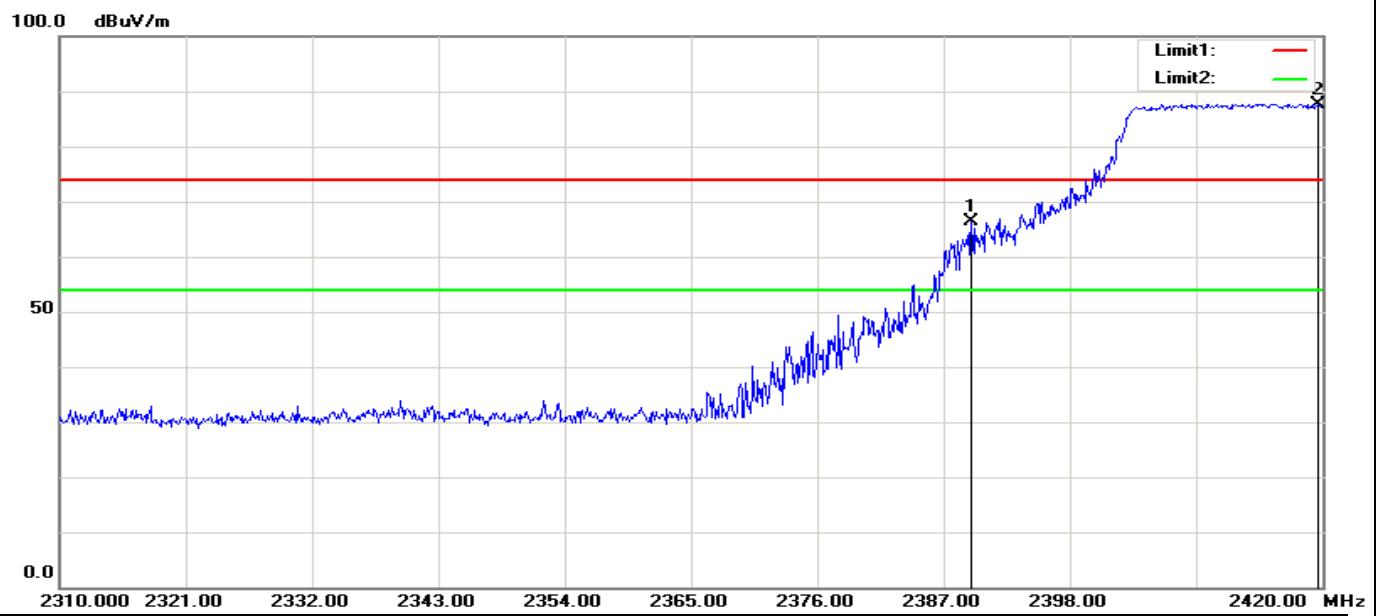
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Date of Issue :September 2, 2013

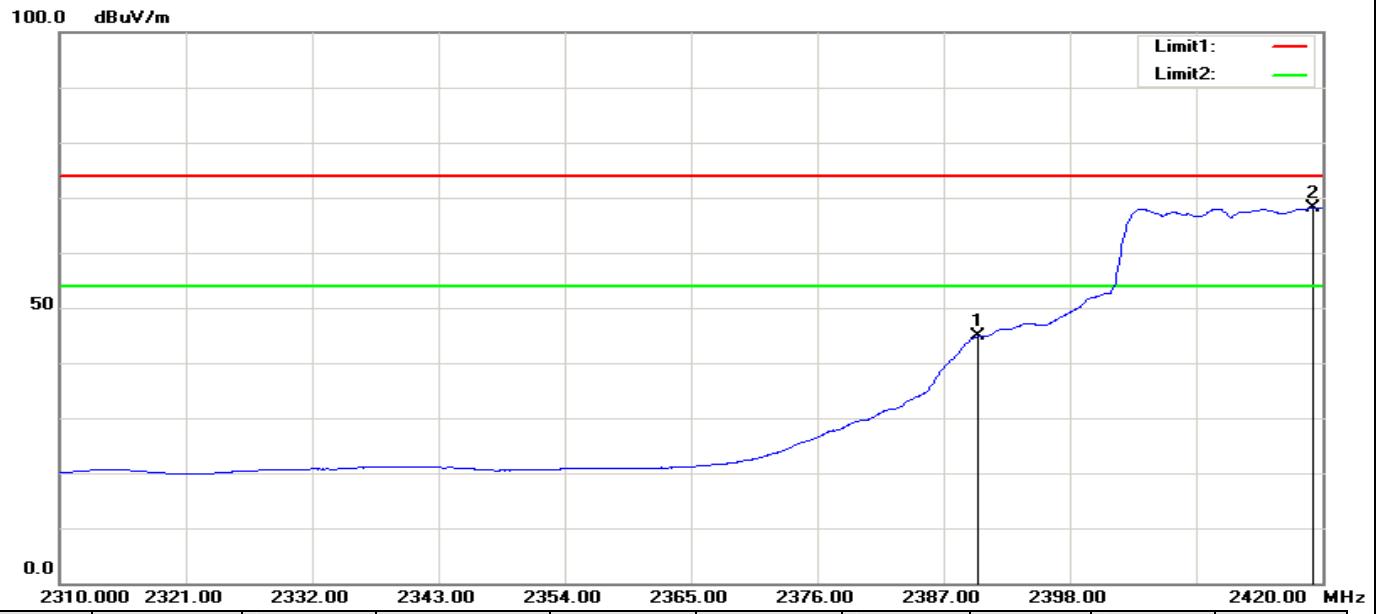
RESTRICTED BANDEDGE (draft 802.11gn Standard-20 MHz Channel mode, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.420	80.56	-14.28	66.28	74.00	-7.72	100	97	peak
2	2419.670	101.86	-14.14	87.72	74.00	13.72	100	184	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	59.13	-14.28	44.85	54.00	-9.15	100	360	AVG
2	2419.230	82.35	-14.14	68.21	54.00	14.21	100	66	AVG



Compliance Certification Services Inc.

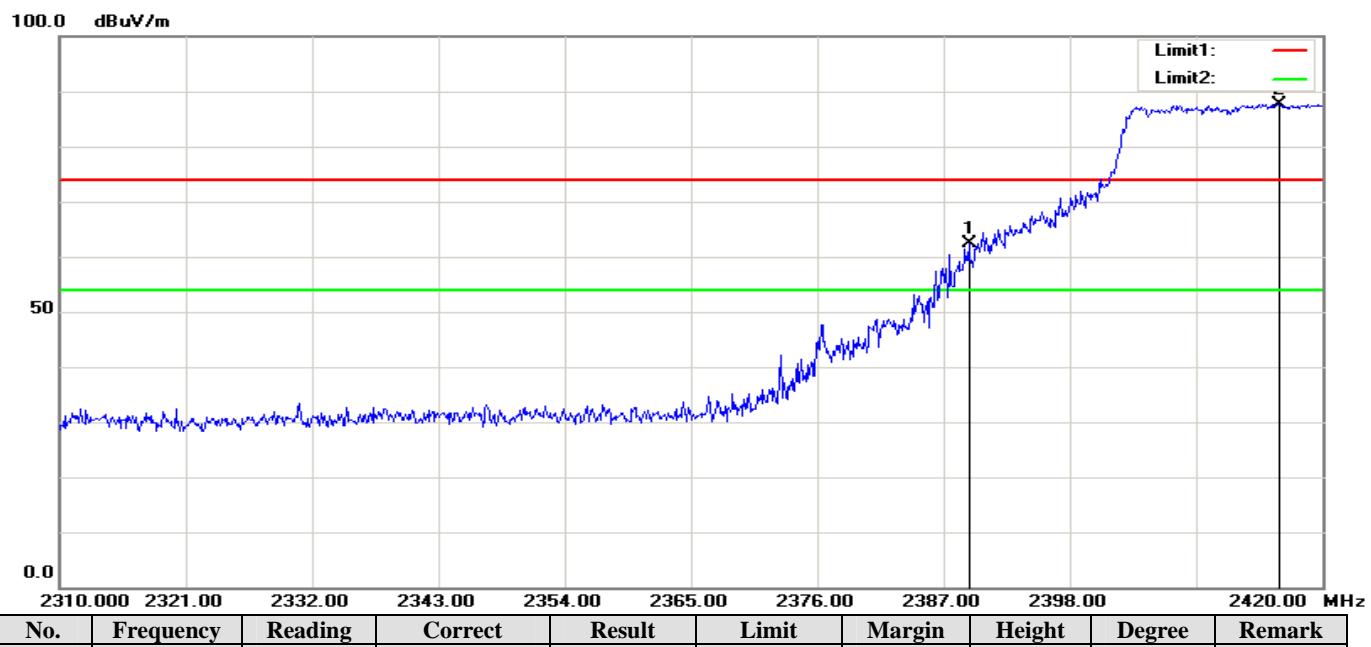
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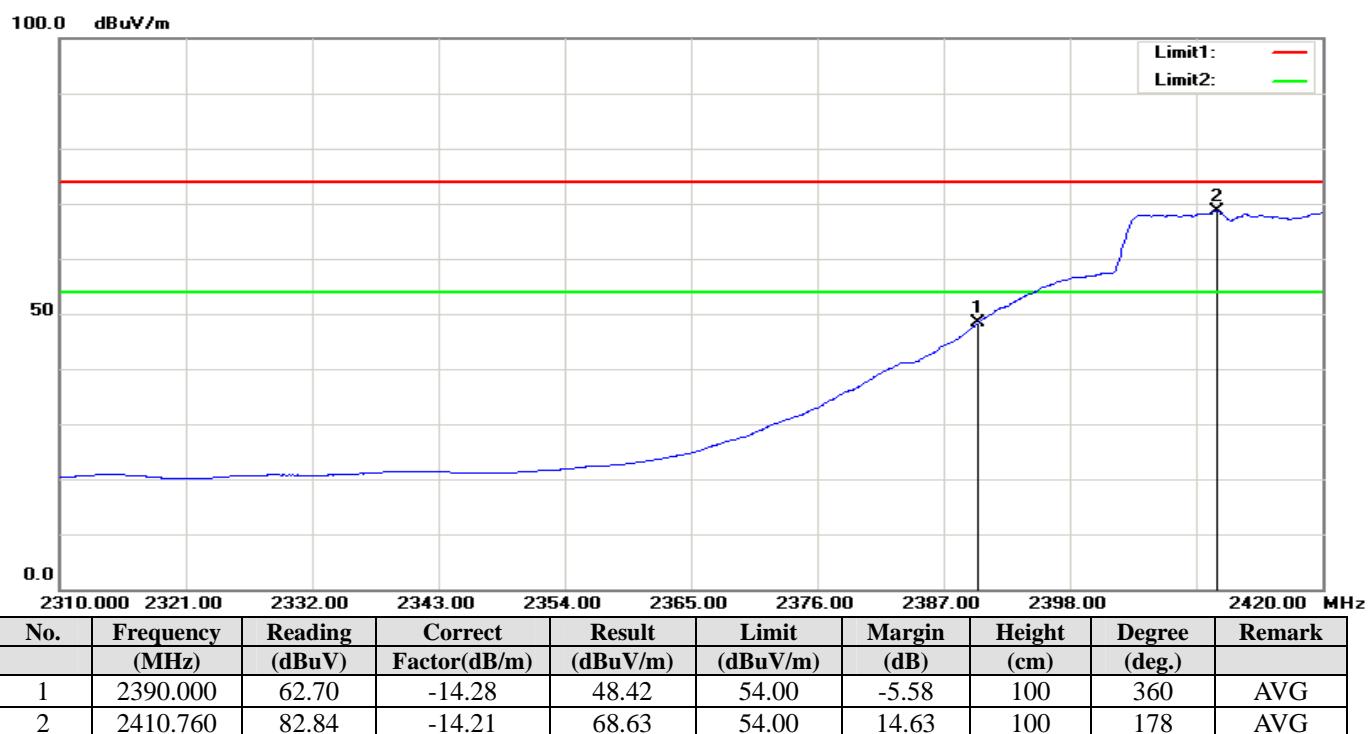
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (draft 802.11gn Standard-20 MHz Channel mode, Low Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

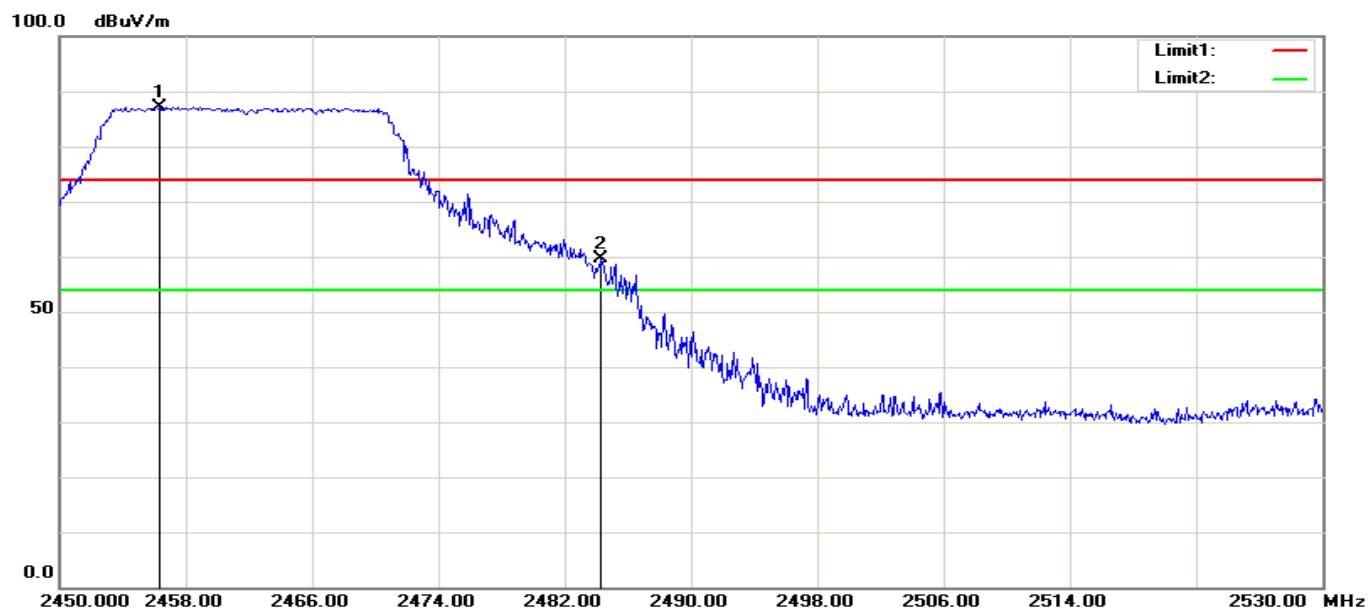
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2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

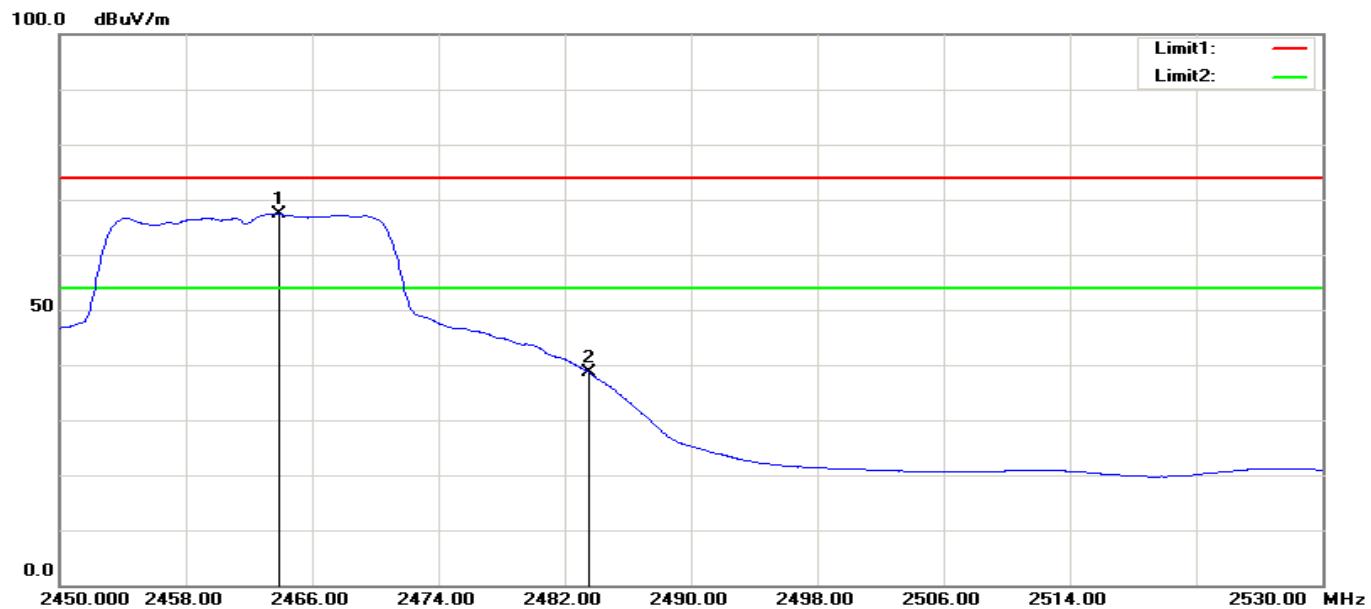
RESTRICTED BANDEDGE (draft 802.11gn Standard-20 MHz Channel mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2456.320	100.97	-13.86	87.11	74.00	13.11	100	22	peak
2	2484.320	73.17	-13.64	59.53	74.00	-14.47	100	22	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2463.920	81.28	-13.80	67.48	54.00	13.48	100	22	AVG
2	2483.500	52.30	-13.65	38.65	54.00	-15.35	100	22	AVG



Compliance Certification Services Inc.

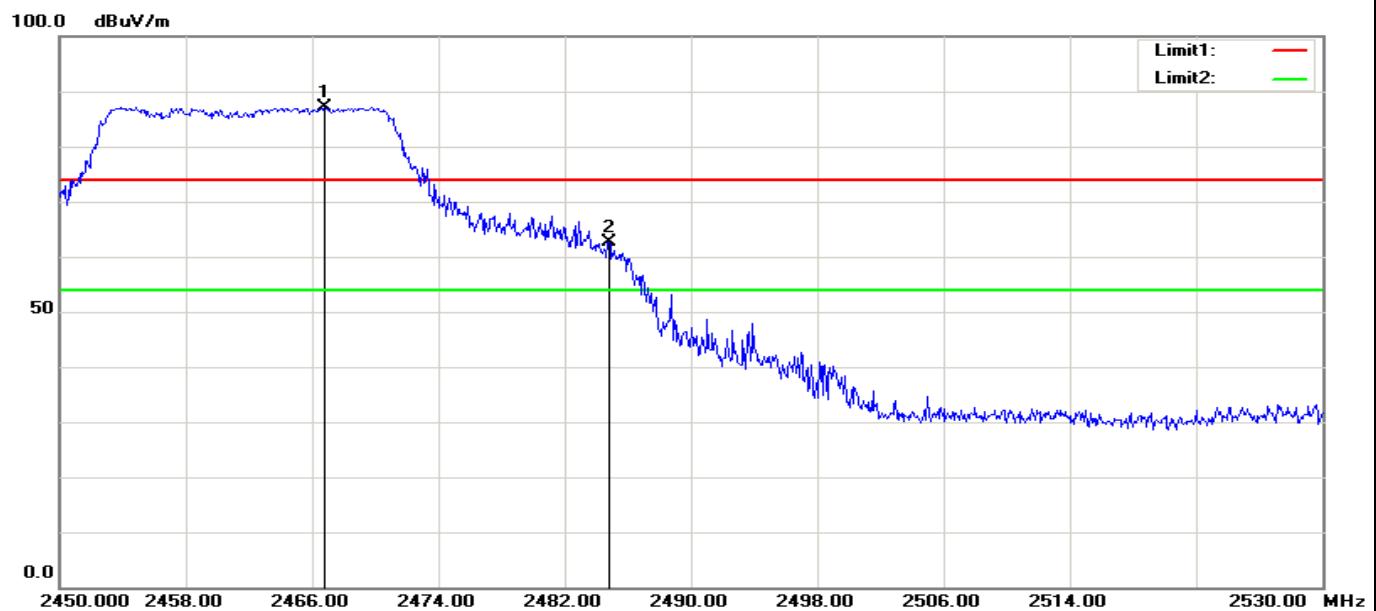
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

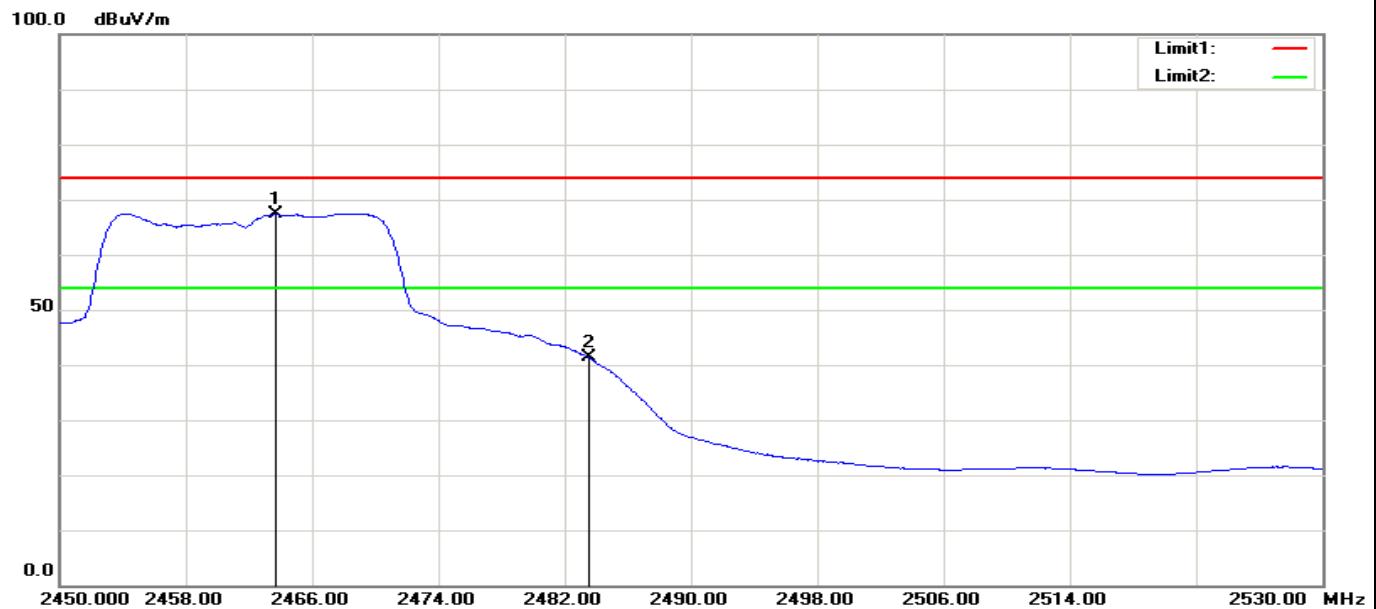
RESTRICTED BANDEDGE (draft 802.11gn Standard-20 MHz Channel mode, High Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2466.800	100.83	-13.78	87.05	74.00	13.05	100	27	peak
2	2484.800	76.25	-13.64	62.61	74.00	-11.39	100	22	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2463.680	81.27	-13.80	67.47	54.00	13.47	100	22	AVG
2	2483.500	54.96	-13.65	41.31	54.00	-12.69	100	22	AVG



Compliance Certification Services Inc.

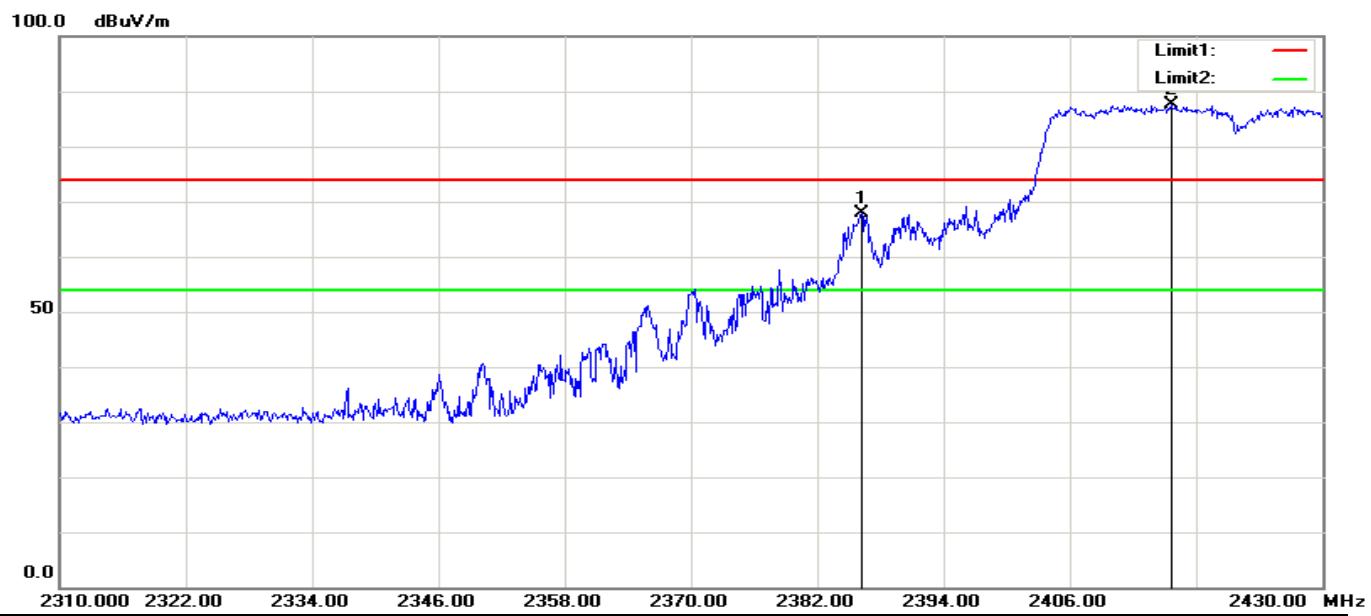
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

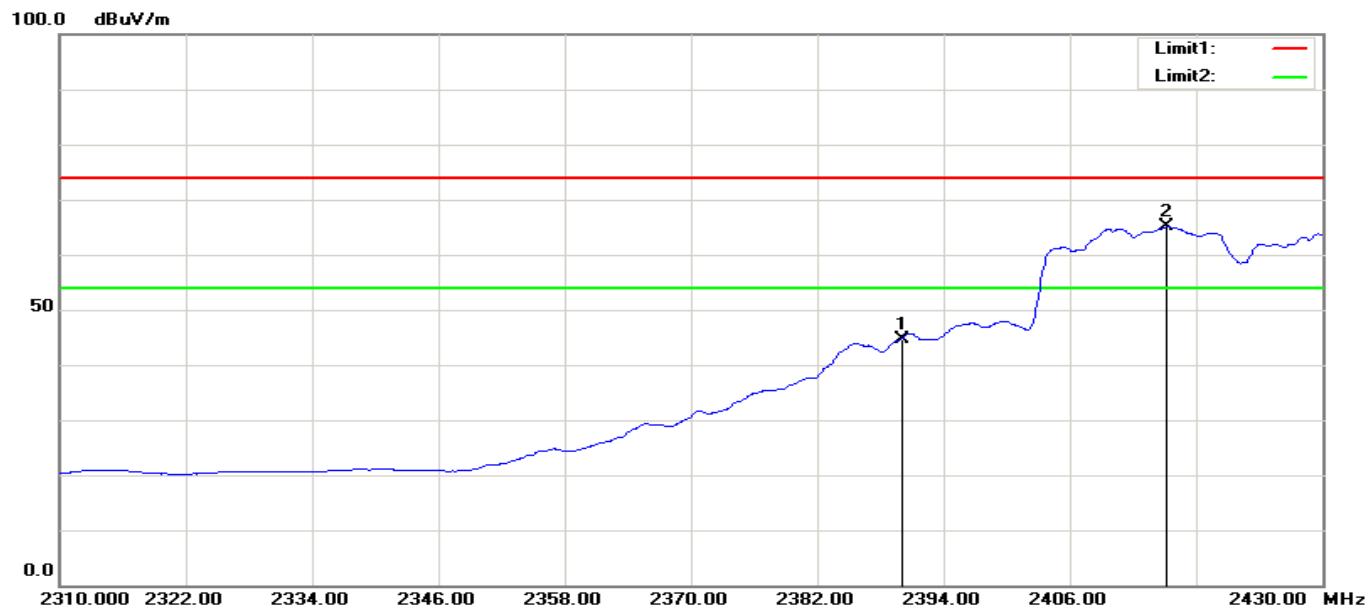
RESTRICTED BANDEDGE (draft 802.11gn Wide -40 MHz Channel mode, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.200	82.17	-14.28	67.89	74.00	-6.11	100	51	peak
2	2415.600	101.72	-14.17	87.55	74.00	13.55	100	326	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	59.03	-14.28	44.75	54.00	-9.25	100	270	AVG
2	2415.240	79.28	-14.17	65.11	54.00	11.11	100	280	AVG



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

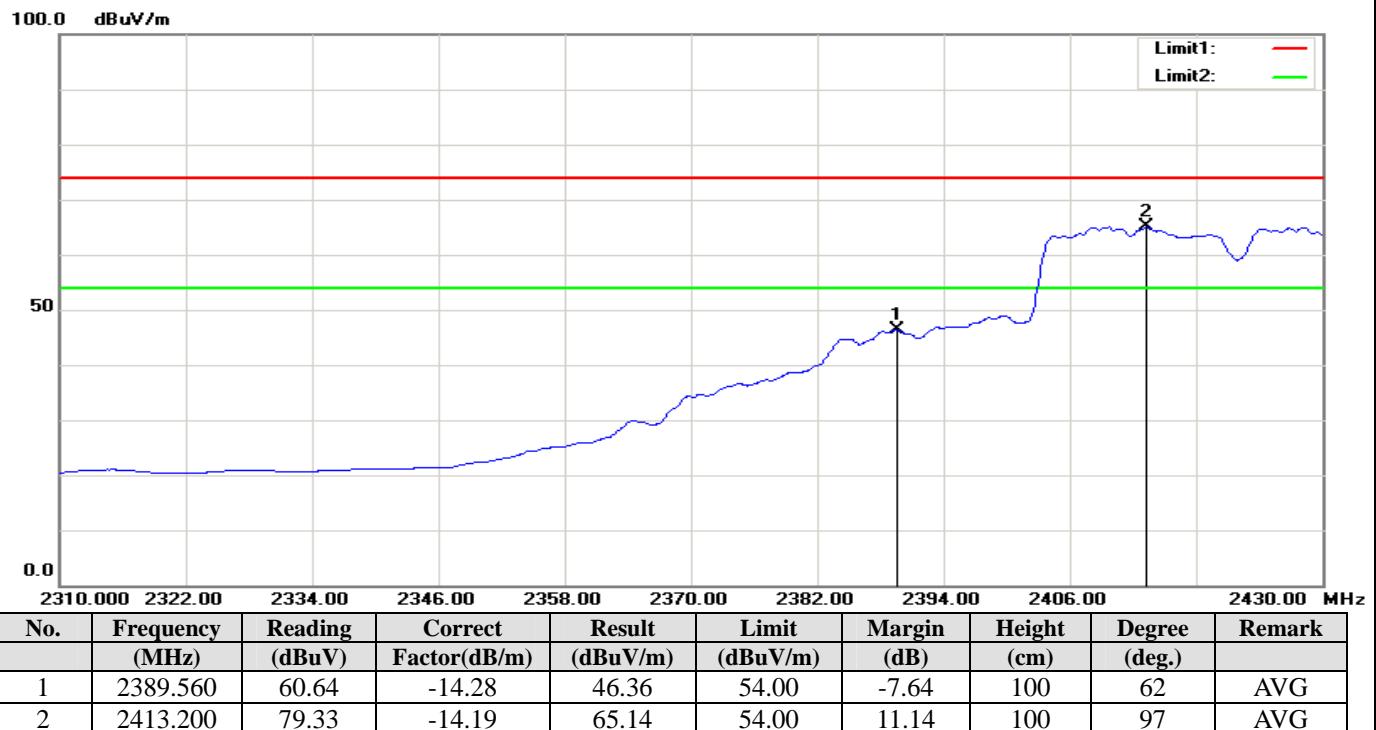
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (draft 802.11gn Wide -40 MHz Channel mode, Low Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

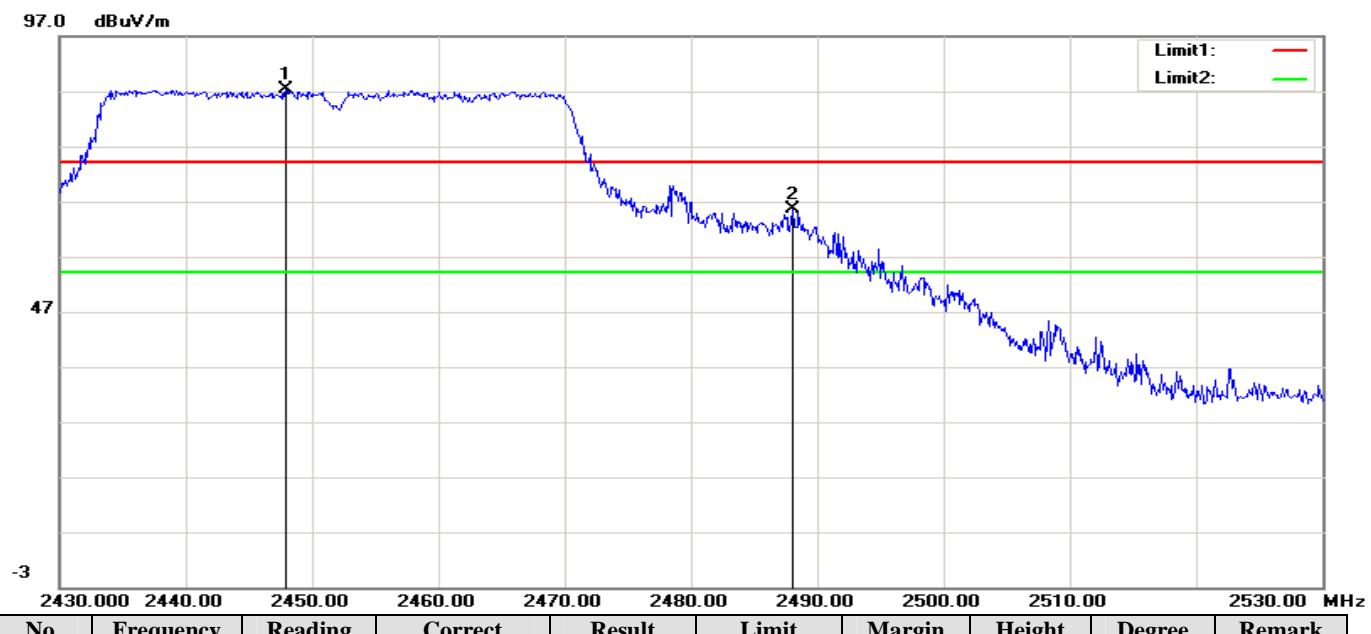
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

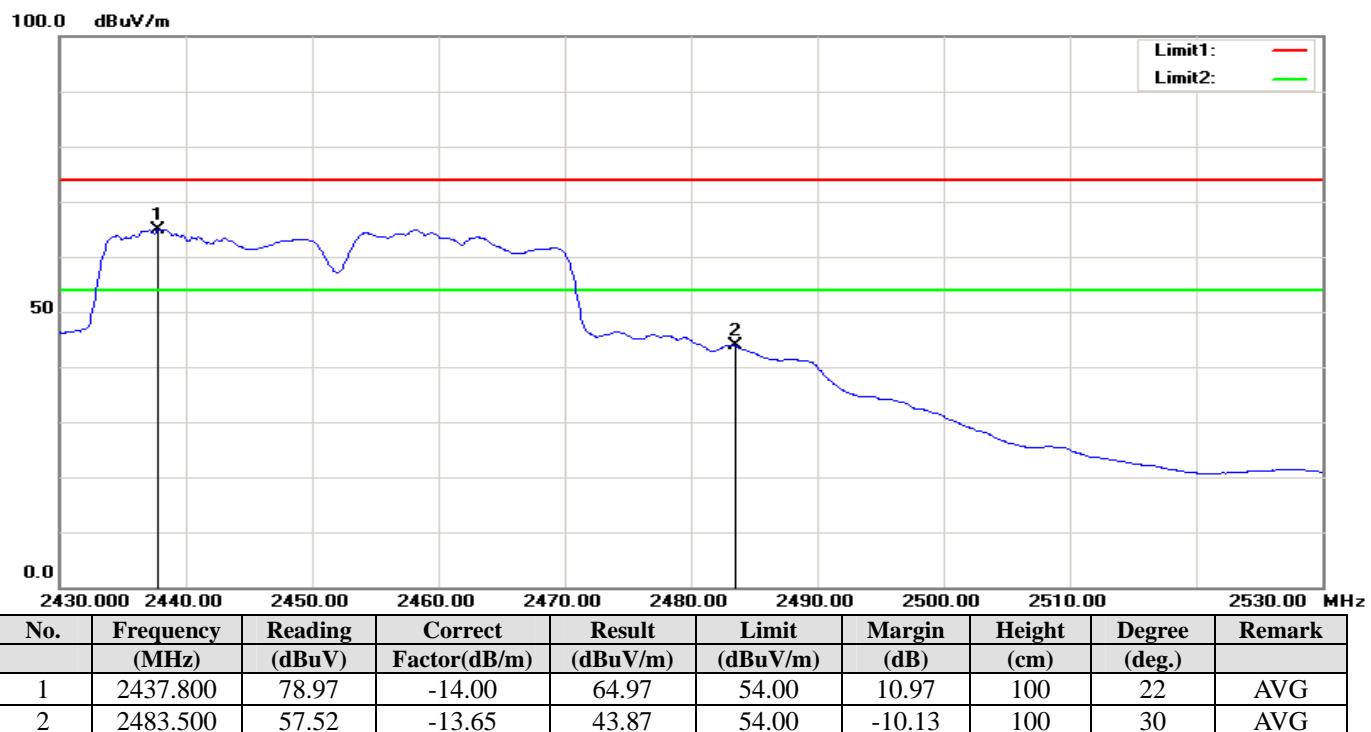
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (draft 802.11gn Wide -40 MHz Channel mode, High Channel, Horizontal)

PEAK



AVG





Compliance Certification Services Inc.

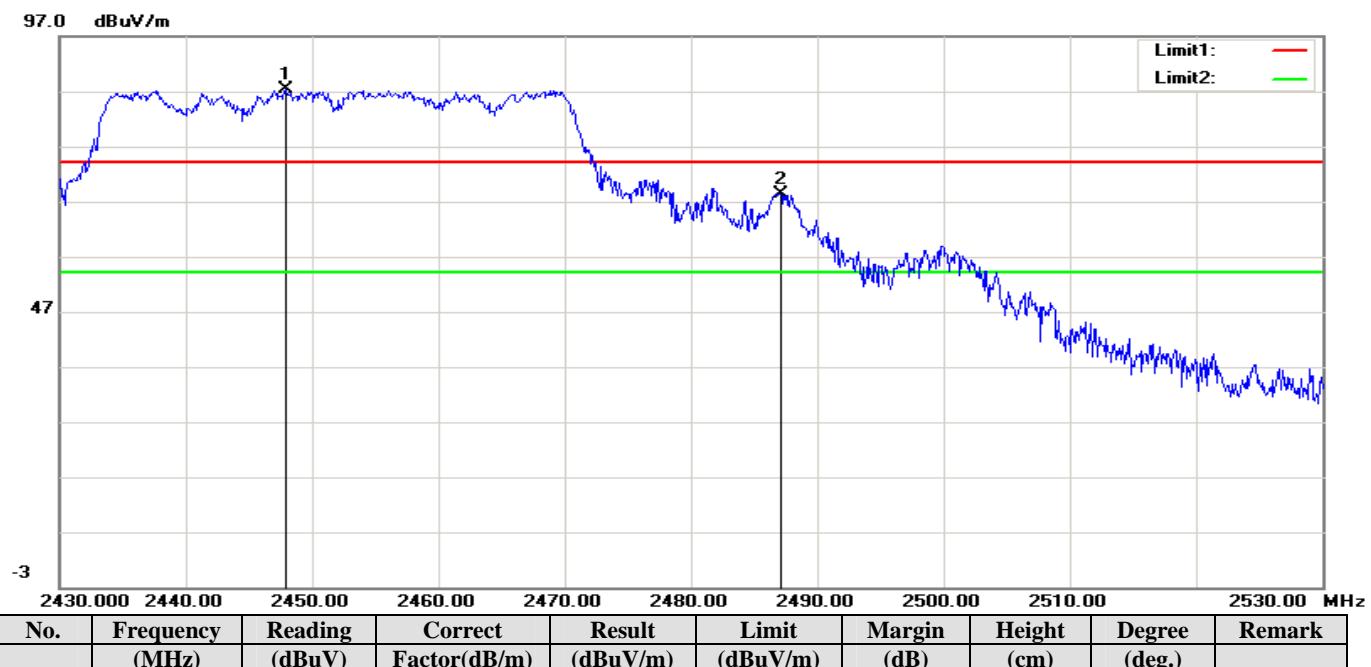
Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

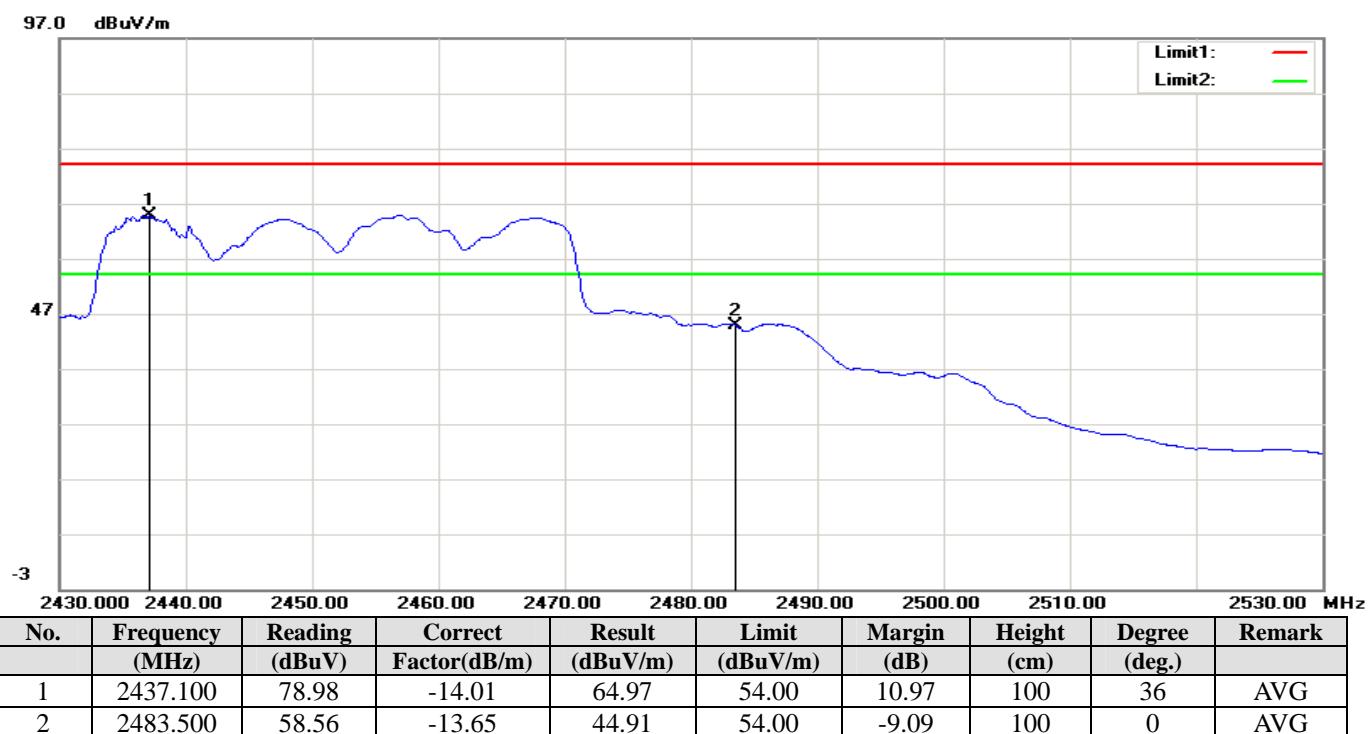
Date of Issue :September 2, 2013

RESTRICTED BANDEDGE (draft 802.11gn Wide -40 MHz Channel mode, High Channel, Vertical)

PEAK



AVG





Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Below 1GHz

Operation Mode: Normal Link

Test Date: August 31, 2013

Temperature: 22°C

Tested by: Blent.Wang

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
65.32	V	49.17	-12.22	36.95	40.00	-3.05	Peak
71.60	V	42.79	-14.41	28.38	40.00	-11.62	Peak
199.57	V	34.53	-9.49	25.04	43.50	-18.46	Peak
399.46	V	31.90	1.44	33.34	46.00	-12.66	Peak
760.32	V	30.50	2.38	32.88	46.00	-13.12	Peak
765.36	V	35.90	3.27	39.17	46.00	-6.83	Peak
<hr/>							
66.25	H	33.96	-5.87	28.09	40.00	-11.91	Peak
70.64	H	42.67	-14.45	28.22	46.00	-11.78	Peak
198.36	H	38.03	-9.01	29.02	46.00	-14.48	Peak
398.25	H	35.63	1.44	37.07	46.00	-8.93	Peak
755.14	H	34.24	2.38	36.62	46.00	-9.38	Peak
796.25	H	39.96	3.24	43.20	46.00	-2.80	QP

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MHz).
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. 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.
4. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: August 31, 2013

Temperature: 22°C

Tested by: Blent.Wang

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
4825.71	V	36.18	---	12.41	48.59	---	74.00	54.00	-5.74	Peak
7236.58	V	38.85	27.71	15.48	54.33	43.19	74.00	54.00	-10.81	Average
4824.54	H	34.36	---	12.41	46.77	---	74.00	54.00	-7.23	Peak
7233.23	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: August 31, 2013

Temperature: 22°C

Tested by: Blent.Wang

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
4865.44	V	36.43	---	12.68	49.11	---	74.00	54.00	-4.89	Peak
7307.67	V	37.74	26.17	15.72	53.46	41.89	74.00	54.00	-12.11	Average
N/A										
4866.57	H	35.15	---	12.68	47.83	---	74.00	54.00	-6.17	Peak
7321.25	H	36.82	25.57	15.76	52.58	41.33	74.00	54.00	-12.67	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11b / CH High

Test Date: August 31, 2013

Temperature: 22°C

Tested by: Blent.Wang

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
4921.54	V	35.63	---	12.93	48.56	---	74.00	54.00	-5.44	Peak
7378.33	V	39.64	27.89	15.82	55.46	43.71	74.00	54.00	-10.29	Average
N/A										
4923.33	H	34.28	---	12.93	47.21	---	74.00	54.00	-6.79	Peak
7380.67	H	38.94	26.06	15.82	54.76	41.88	74.00	54.00	-12.12	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4819.00	V	35.14	---	12.41	47.55	---	74.00	54.00	-6.45	Peak
7233.82	V	36.85	27.28	15.48	52.33	42.76	74.00	54.00	-11.24	Average
N/A										
4823.67	H	34.02	---	12.41	46.43	---	74.00	54.00	-7.57	Peak
7238.45	H	35.30	25.54	15.48	50.78	41.02	74.00	54.00	-12.98	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4876.54	V	33.61	---	12.68	46.29	---	74.00	54.00	-7.71	Peak
7320.75	V	37.35	25.06	15.76	53.11	40.82	74.00	54.00	-13.18	Average
N/A										
4875.65	H	32.99	---	12.68	45.67	---	74.00	54.00	-8.33	Peak
7318.44	H	37.14	24.04	15.74	52.88	39.78	74.00	54.00	-14.22	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11g / CH High

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4935.33	V	33.60	---	12.94	46.54	---	74.00	54.00	-7.46	Peak
7391.67	V	37.38	26.35	15.82	53.20	42.17	74.00	54.00	-11.83	Average
N/A										
4925.67	H	34.38	---	12.93	47.31	---	74.00	54.00	-6.69	Peak
7389.33	H	37.16	25.92	15.82	52.98	41.74	74.00	54.00	-12.26	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11a / CH low

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11490.66	V	44.01	35.74	3.56	47.57	39.3	74	54	-14.7	AVG
N/A										
11491.67	H	43.25	35.01	3.56	46.81	38.57	74	54	-15.43	AVG
N/A										

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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11a / CH mid

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11570.87	V	43.36	36.58	2.40	45.76	38.98	74.00	54.00	-19.02	AVG
N/A										
11570.65	H	43.05	37.21	2.40	45.4	39.61	74.00	54.00	-14.39	AVG
N/A										

Remark:

13. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
14. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
15. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
16. 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.
17. 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.
18. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / IEEE 802.11a / CH high

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11611.54	V	42.01	34.02	3.56	45.57	37.58	74	54	-16.42	AVG
N/A										
11615.68	H	41.23	34.14	3.56	44.79	37.7	74	54	-16.30	AVG
N/A										

Remark:

19. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
20. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
21. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
22. 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.
23. 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.
24. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH Low

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4832.66	V	34.48	---	12.41	46.89	---	74.00	54.00	-7.11	Peak
7230.43	V	37.94	26.68	15.48	53.42	42.16	74.00	54.00	-11.84	Average
N/A										
4824.54	H	33.32	---	12.41	45.73	---	74.00	54.00	-8.27	Peak
7212.56	H	36.30	23.17	15.48	51.78	38.65	74.00	54.00	-15.35	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH Mid

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4876.54	V	34.64	---	12.68	47.32	---	74.00	54.00	-6.68	Peak
7321.54	V	36.89	27.42	15.76	52.65	43.18	74.00	54.00	-10.82	Average
N/A										
4875.65	H	35.00	---	11.02	46.02	---	74.00	54.00	-7.98	Peak
7316.32	H	39.74	27.50	15.72	55.46	43.22	74.00	54.00	-10.78	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH High

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
4930.66	V	37.60	---	12.93	46.52	---	74.00	54.00	-7.48	Peak
7387.67	V	38.30	26.99	15.82	54.12	42.81	74.00	54.00	-11.19	Average
N/A										
4924.67	H	32.74	---	12.93	45.67	---	74.00	54.00	-8.33	Peak
7384.78	H	39.64	28.09	15.82	55.46	43.91	74.00	54.00	-10.09	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1) / CH Low **Test Date:** August 31, 2013

Temperature: 24°C **Tested by:** Blent.Wang

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
4844.67	V	35.42	---	12.41	47.83	---	74.00	54.00	-6.17	Peak
7382.54	V	39.27	27.80	15.48	54.75	43.28	74.00	54.00	-10.72	Average
N/A										
4850.67	H	34.38	---	12.41	46.79	---	74.00	54.00	-5.29	Peak
7382.67	H	38.55	26.67	15.48	54.03	42.15	74.00	54.00	-11.85	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1) / CH Mid **Test Date:** August 31, 2013

Temperature: 24°C **Tested by:** Blent.Wang

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
4874.42	V	33.74	---	12.68	46.42	---	74.00	54.00	-7.58	Peak
7313.34	V	36.77	25.38	15.71	52.48	41.09	74.00	54.00	-12.91	Average
N/A										
4874.24	H	32.75	---	12.68	45.43	---	74.00	54.00	-8.57	Peak
7314.56	H	36.26	24.11	15.71	51.97	39.82	74.00	54.00	-14.18	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1) / CH High **Test Date:** August 31, 2013
Temperature: 24°C **Tested by:** Blent.Wang
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
4915.33	V	37.72	---	12.93	47.07	---	74.00	54.00	-6.93	Peak
7360.67	V	37.89	26.25	15.83	53.72	42.08	74.00	54.00	-11.92	Average
N/A										
4915.67	H	33.58	---	12.93	46.51	---	74.00	54.00	-7.49	Peak
7359.33	H	36.35	24.57	15.82	52.17	40.39	74.00	54.00	-13.61	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:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH Low

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11495.33	V	42.36	35.14	3.56	45.92	38.7	74	54	-15.3	AVG
N/A										
11495.00	H	41.85	34.75	3.56	45.41	38.31	74	54	-15.69	AVG
N/A										

Remark:

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH Mid

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11572.67	V	40.69	34.96	3.56	44.25	38.52	74	54	-15.48	AVG
N/A										
11571.33	H	40.24	34.12	3.56	43.80	37.68	74	54	-16.32	AVG
N/A										

Remark:

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1) / CH High

Test Date: August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11611.00	V	41.02	35.11	3.56	44.58	38.67	74	54	-15.33	AVG
N/A										
11612.67	H	40.79	34.74	3.56	44.35	38.3	74	54	-15.7	AVG
N/A										

Remark:

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11an Wide-40 MHz Channel mode
(Chain 0 + Chain 1) / CH Low **Test Date:** August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11515.00	V	42.55	35.41	3.56	46.11	38.97	74	54	-15.03	AVG
N/A										
11515.67	H	42.35	34.96	3.56	45.91	38.52	74	54	-15.48	AVG
N/A										

Remark:

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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: TX / draft 802.11an Wide-40 MHz Channel mode
(Chain 0 + Chain 1) / CH High **Test Date:** August 31, 2013

Temperature: 24°C

Tested by: Blent.Wang

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
11590.00	V	42.36	35.17	3.56	45.92	38.73	74	54	-15.27	AVG
N/A										
11591.00	H	42.11	34.47	3.56	45.67	38.03	74	54	-15.97	AVG
N/A										

Remark:

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



7.6. 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



Compliance Certification Services Inc.

Report No:C130809R03-RPB

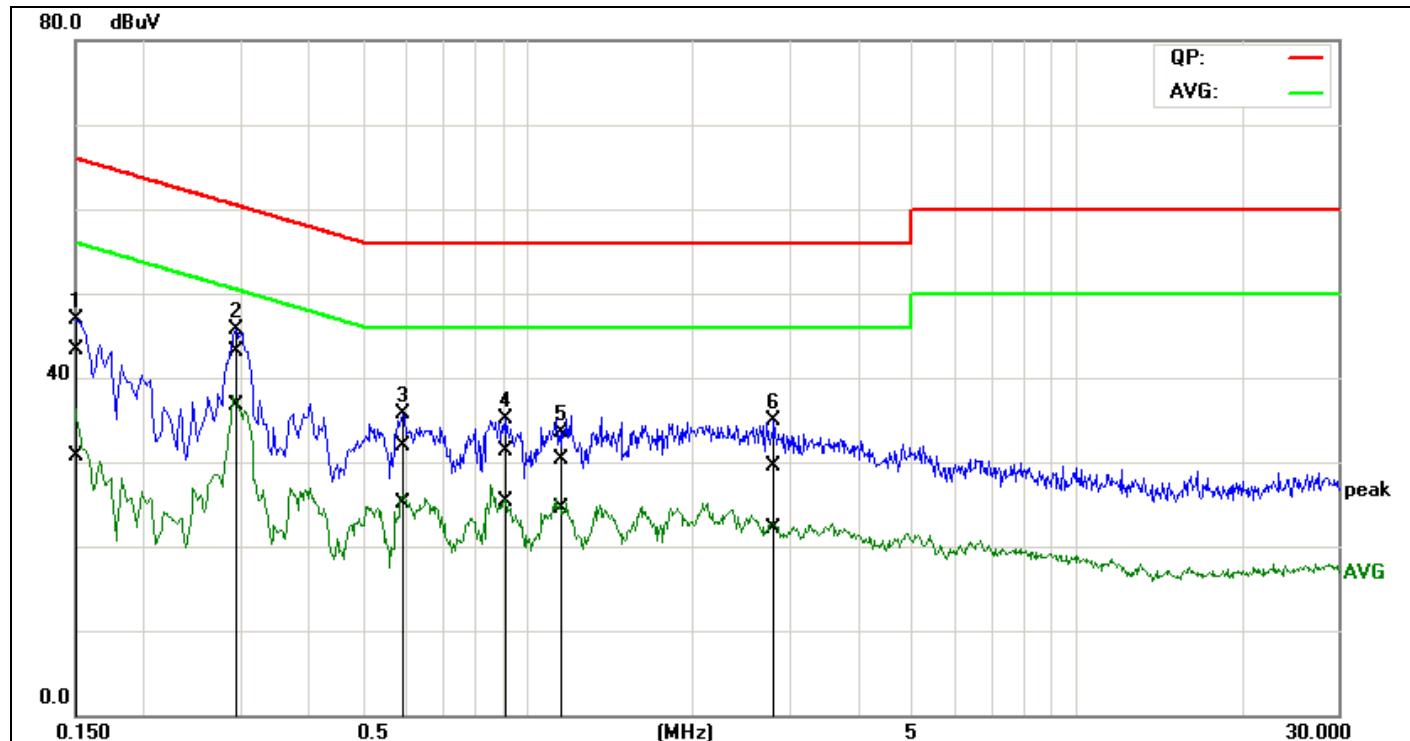
FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

Operation Mode: Normal Link
Temperature: 23°C
Humidity: 50% RH

Test Date: August 31, 2013
Tested by: Blent.Wang
Test AC 120V/60Hz
Voltage:

L1



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1512	23.48	10.90	19.80	43.28	30.70	65.93	55.93	-22.65	-25.23	Pass
2	0.2949	23.48	16.99	19.67	43.15	36.66	60.39	50.39	-17.24	-13.73	Pass
3	0.5875	11.98	5.28	19.83	31.81	25.11	56.00	46.00	-24.19	-20.89	Pass
4	0.9108	11.46	5.55	19.84	31.30	25.39	56.00	46.00	-24.70	-20.61	Pass
5	1.1461	10.50	4.59	19.85	30.35	24.44	56.00	46.00	-25.65	-21.56	Pass
6	2.8046	9.54	2.08	20.03	29.57	22.11	56.00	46.00	-26.43	-23.89	Pass



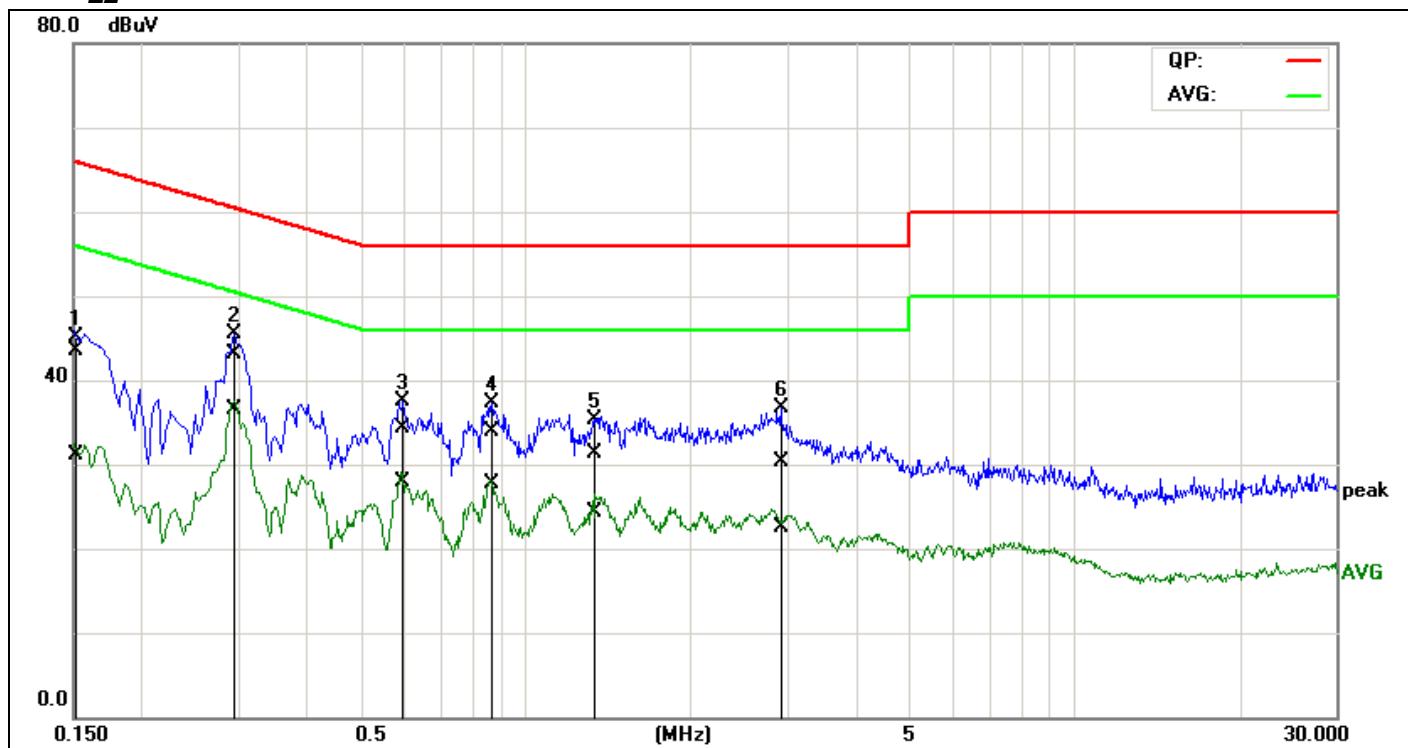
Compliance Certification Services Inc.

Report No:C130809R03-RPB

FCC ID:
2ABKCDCWL7962AP50

Date of Issue :September 2, 2013

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1536	23.69	11.32	19.72	43.41	31.04	65.80	55.80	-22.39	-24.76	Pass
2*	0.2952	23.32	16.76	19.71	43.03	36.47	60.38	50.38	-17.35	-13.91	Pass
3	0.5903	14.50	8.15	19.84	34.34	27.99	56.00	46.00	-21.66	-18.01	Pass
4	0.8643	14.00	7.97	19.83	33.83	27.80	56.00	46.00	-22.17	-18.20	Pass
5	1.3287	11.44	4.53	19.87	31.31	24.40	56.00	46.00	-24.69	-21.60	Pass
6	2.9308	10.29	2.38	20.07	30.36	22.45	56.00	46.00	-25.64	-23.55	Pass

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)

END OF REPORT