



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: WROC3000

Brand Name: New Rock

Model No.: WROC3000 REV2.0

Series Model: WROC3008, WROC3044, WROC3080
WROC3026, WROC3062, WROC3000

FCC ID: AJG-WROC3000V2

Test Report Number:
C140616R01-RPW

Issued for

New Rock Technologies, Inc.
2F of Building B, No.495 Shangzhong Road, Shanghai

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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TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION.....	3
2. EUT DESCRIPTION.....	4
3. TEST METHODOLOGY	5
3.1. EUT CONFIGURATION	5
3.2. EUT EXERCISE	5
3.3. GENERAL TEST PROCEDURES.....	5
3.4. FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS.....	6
3.5. DESCRIPTION OF TEST MODES.....	7
3.6. ANTENNA DESCRIPTION	8
4. INSTRUMENT CALIBRATION.....	8
4.1. MEASURING INSTRUMENT CALIBRATION	8
5. FACILITIES AND ACCREDITATIONS	10
5.1. FACILITIES	10
5.2. EQUIPMENT	10
5.3. LABORATORY ACCREDITATIONS AND LISTING	10
5.4. TABLE OF ACCREDITATIONS AND LISTINGS	11
6. SETUP OF EQUIPMENT UNDER TEST	12
6.1. SETUP CONFIGURATION OF EUT	12
6.2. SUPPORT EQUIPMENT	12
4. FCC PART 15.247 REQUIREMENTS.....	13
4.1. 6DB BANDWIDTH	13
4.2. PEAK POWER	27
4.3. PEAK POWER SPECTRAL DENSITY	41
4.4. SPURIOUS EMISSIONS	55
4.5. RADIATED EMISSIONS	104
4.6. POWERLINE CONDUCTED EMISSIONS	122



1. TEST RESULT CERTIFICATION

Product Name:	WROC3000
Trade Name:	New Rock
Model Name.:	WROC3000 REV2.0
Series Model:	WROC3008,WROC3044,WROC3080,WROC3026,WROC3062,WROC3000
Applicant Discrepancy:	Initial
Device Category:	Mobile Device
Date of Test:	July 4, 2014~ July 17, 2014
Applicant:	New Rock Technologies, Inc. 2F of Building B, No.495 Shangzhong Road, Shanghai
Manufacturer:	New Rock Technologies, Inc. 2F of Building B, No.495 Shangzhong Road, Shanghai
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:

James.Yan
Test Engineer
Compliance Certification Service Inc.



2. EUT DESCRIPTION

Product Name:	WROC3000
Brand Name:	New Rock
Model Name:	WROC3000 REV2.0
Series Model:	WROC3008,WROC3044,WROC3080,WROC3026,WROC3062,WROC3000
Model Discrepancy:	According to the different voice boards of collocation
Power Adapter Power Rating :	Power supply and ADP(rating): INPUT: AC 100~240V 50/60Hz 1.0A Max
Frequency Range:	2.4G:2412MHz-2462MHz
Transmit Power:	IEEE 802.11b mode: 20.36 dBm IEEE 802.11g mode: 17.54 dBm IEEE 802.11n HT20 mode: 20.35 dBm IEEE 802.11n HT40 mode: 19.13 dBm
Modulation Technique:	802.11b mode: DSSS (1,2,5.5 and 11 Mbps) 802.11g mode: DSSS /OFDM (6,9,12,18,24,36,48 and 54 Mbps) 802.11n HT20 mode: OFDM (6.5,13,19.5,26,39,52,58.5 and 65 Mbps) 802.11n HT40 mode: OFDM (13.5,27,40.5,54,81,108,121.5 and 135 Mbps)
Number of Channels:	IEEE 802.11b/g/n HT20 mode: 11 Channels IEEE 802.11n HT40 mode: 7 Channels
Antenna Specification:	Dipole antennas for 2.4GHz Gain 5.0 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: AJG-WROC3000V2 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

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

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 two antennas simultaneously working at b/g/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.

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.



3.6. ANTENNA DESCRIPTION

Antenna specifications meet the requirements of 15.203



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	2015-4-9
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2015-5-11
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-16
Power Sensor	Anritsu	MA2411A	0917072	2015-6-3
Power Meter	Agilent	U2021XA	MY53120005	2014-9-13
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-22
Test Software	EZ-EMC			

977 Chamber



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-11-13
EMI Test Receiver	R&S	ESCI	101378	2015-1-22
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	2015-1-22
Pre-Amplifier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22
Bilog Antenna	Sunol	JB1	A062604	2015-3-6
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2015-3-7
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		

Conducted Emission

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER	R&S	ESCI	100781	2015-3-16
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	N.C.R
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	05012	2015-3-16
Pulse LIMITER	R&S	ESH3-Z2	100524	2014-9-25
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.



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	 R-1600 C-1707 G-216

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



6. SETUP OF EQUIPMENT UNDER TEST

6.1. SETUP CONFIGURATION OF EUT

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

6.2. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	Notebook	DELL	E5430	CN8YYW1	N/A

Remark:

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



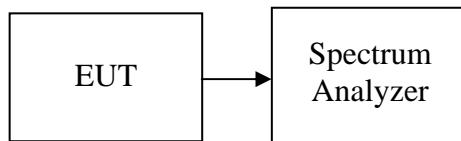
4. FCC PART 15.247 REQUIREMENTS

4.1.6DB BANDWIDTH

LIMIT

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

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 /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.17	>500	PASS
Mid	2437	10.15		PASS
High	2462	10.17		PASS

IEEE 802.11b mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.17	>500	PASS
Mid	2437	10.19		PASS
High	2462	10.19		PASS

IEEE 802.11g mode /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.34	>500	PASS
Mid	2437	16.35		PASS
High	2462	16.35		PASS

IEEE 802.11g mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.35	>500	PASS
Mid	2437	16.33		PASS
High	2462	16.33		PASS

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



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.08	>500	PASS
Mid	2437	17.07		PASS
High	2462	17.01		PASS

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

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.00	>500	PASS
Mid	2437	17.02		PASS
High	2462	16.90		PASS

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

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.24	>500	PASS
Mid	2437	35.39		PASS
High	2452	35.23		PASS

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

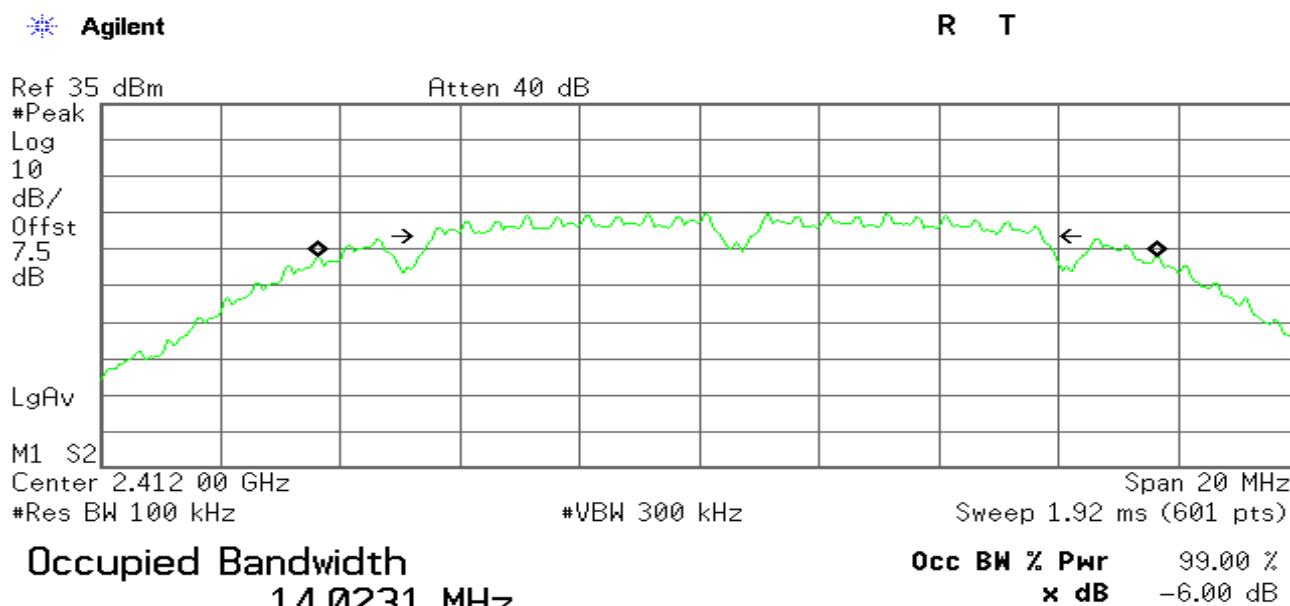
Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.25	>500	PASS
Mid	2437	35.24		PASS
High	2452	35.37		PASS



Test Plot

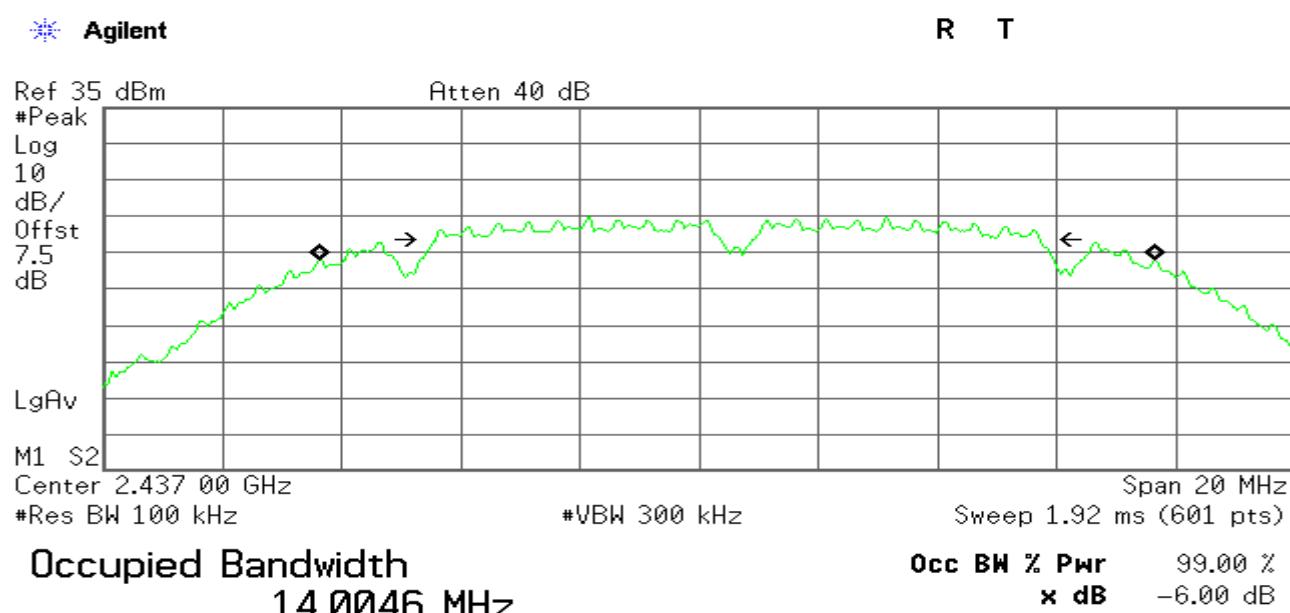
IEEE 802.11b MODE /Chain 0

6dB Bandwidth (CH Low)



Transmit Freq Error 631.515 kHz
x dB Bandwidth 10.170 MHz

6dB Bandwidth (CH Mid)



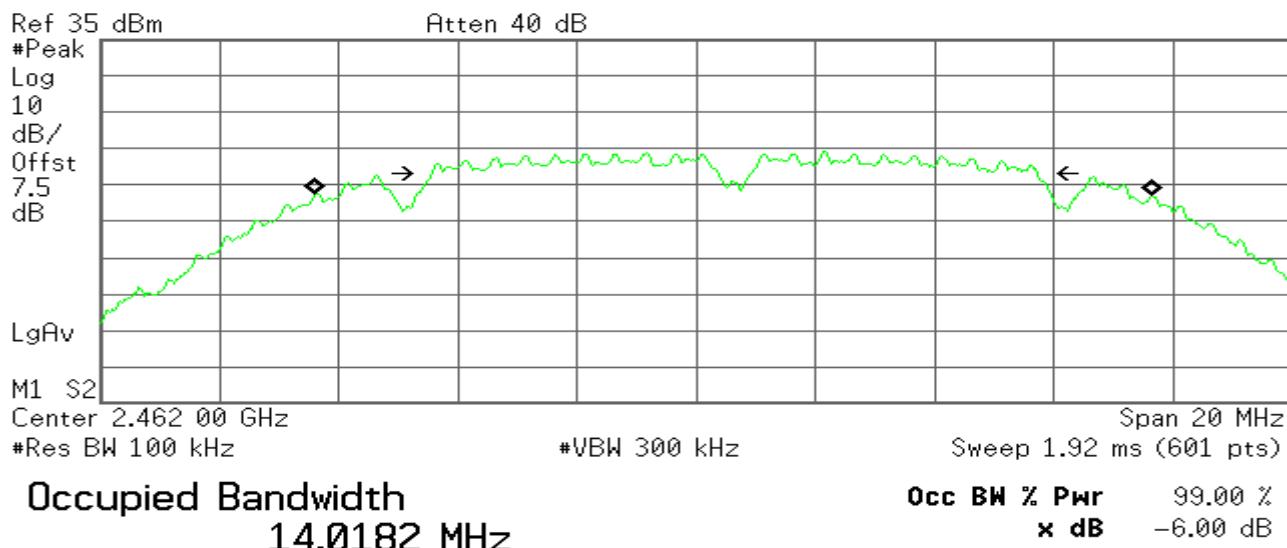
Transmit Freq Error 620.433 kHz
x dB Bandwidth 10.145 MHz



6dB Bandwidth (CH High)

* Agilent

R T



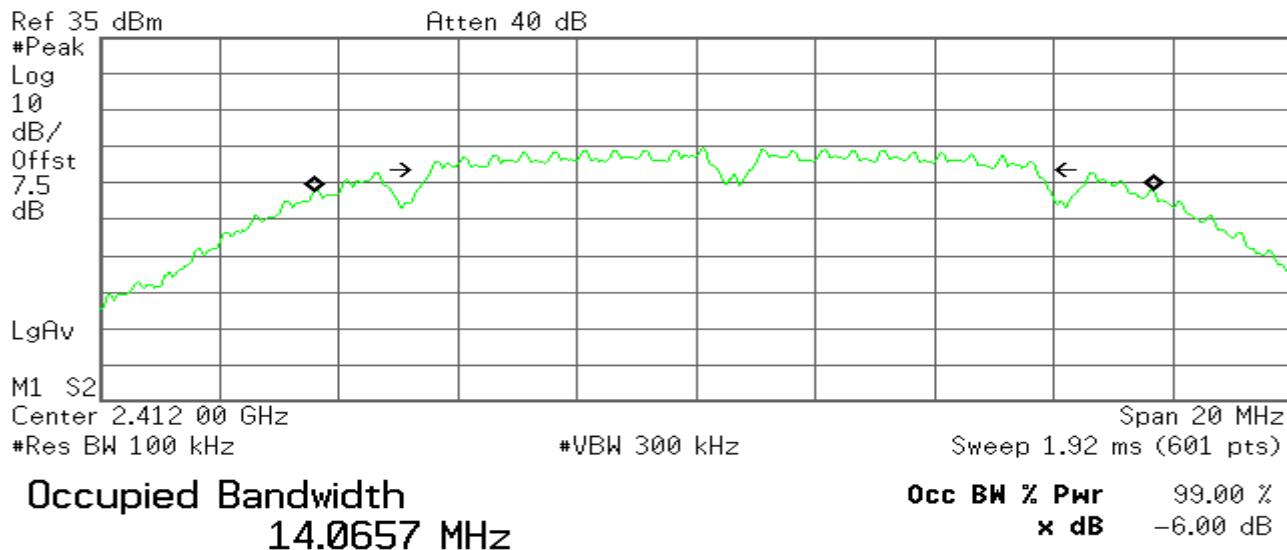
Transmit Freq Error 615.265 kHz
x dB Bandwidth 10.169 MHz

IEEE 802.11b MODE /Chain 1

6dB Bandwidth (CH Low)

* Agilent

R T



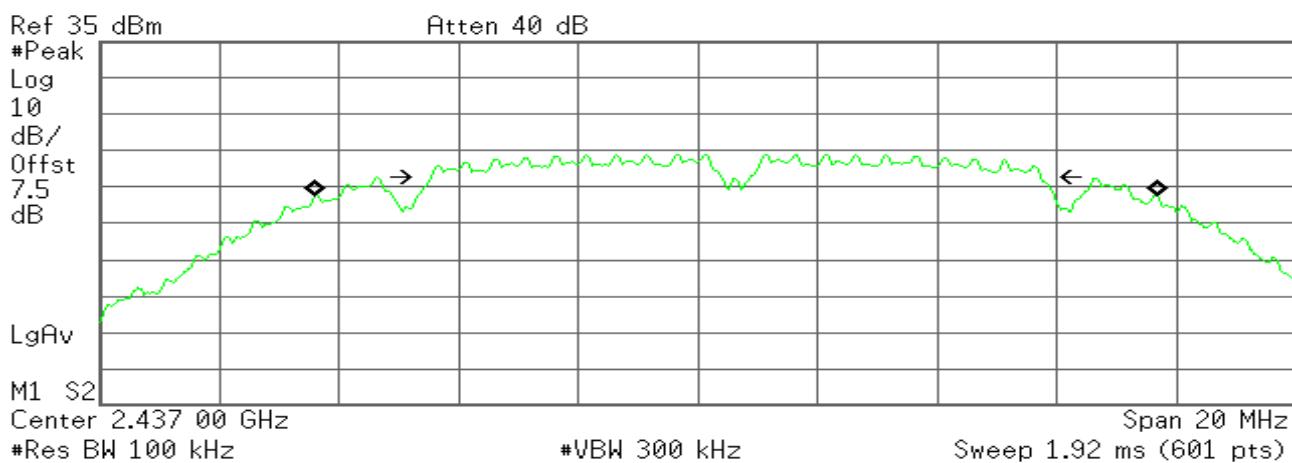
Transmit Freq Error 617.980 kHz
x dB Bandwidth 10.168 MHz



6dB Bandwidth (CH Mid)

Agilent

R T

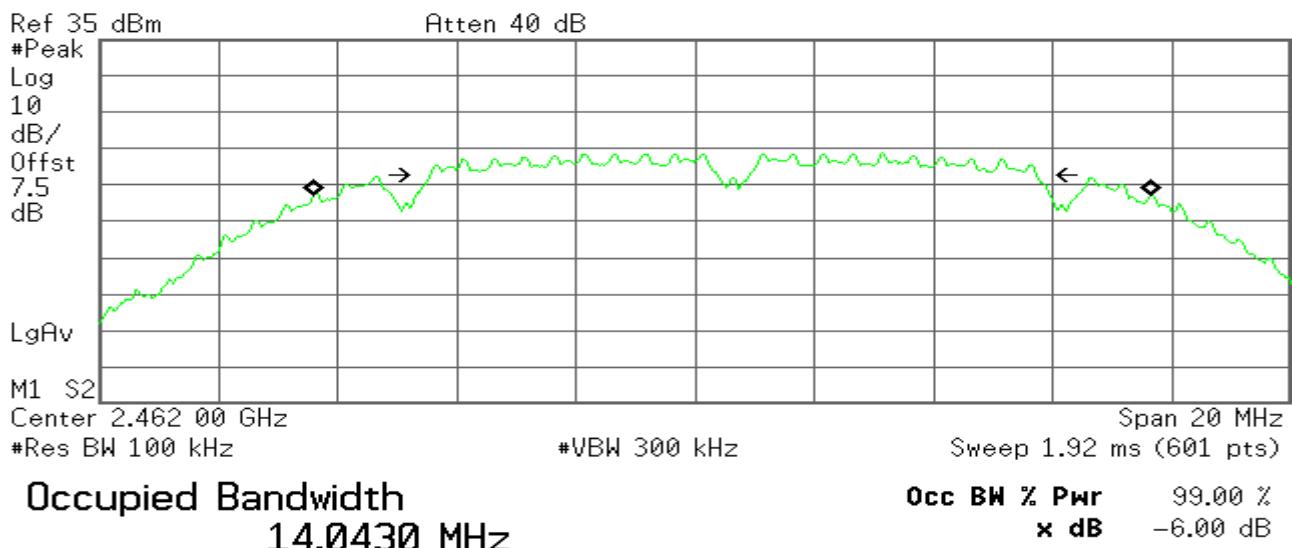


Transmit Freq Error 628.224 kHz
x dB Bandwidth 10.191 MHz

6dB Bandwidth (CH High)

Agilent

R T



Transmit Freq Error 628.150 kHz
x dB Bandwidth 10.190 MHz

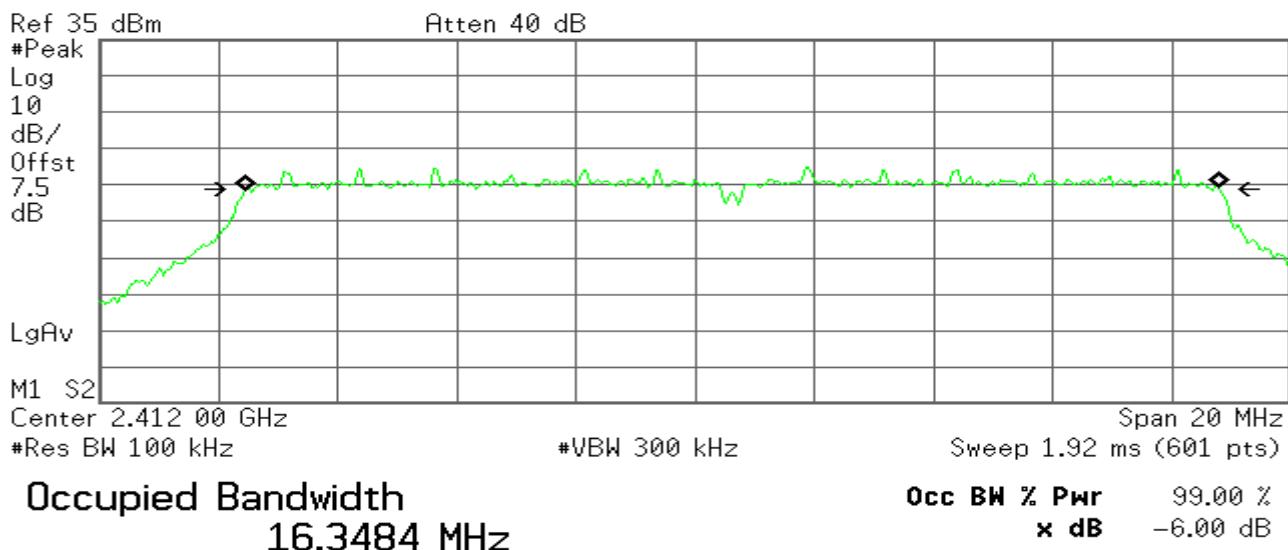


IEEE 802.11g MODE /Chain 0

6dB Bandwidth (CH Low)

Agilent

R T

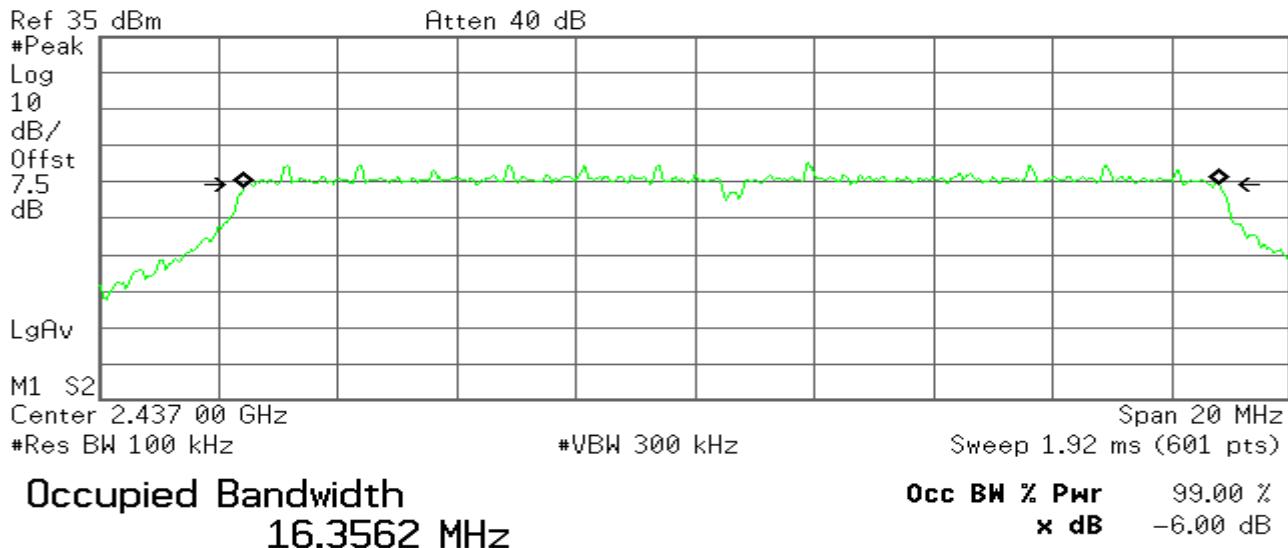


Transmit Freq Error 628.761 kHz
x dB Bandwidth 16.343 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



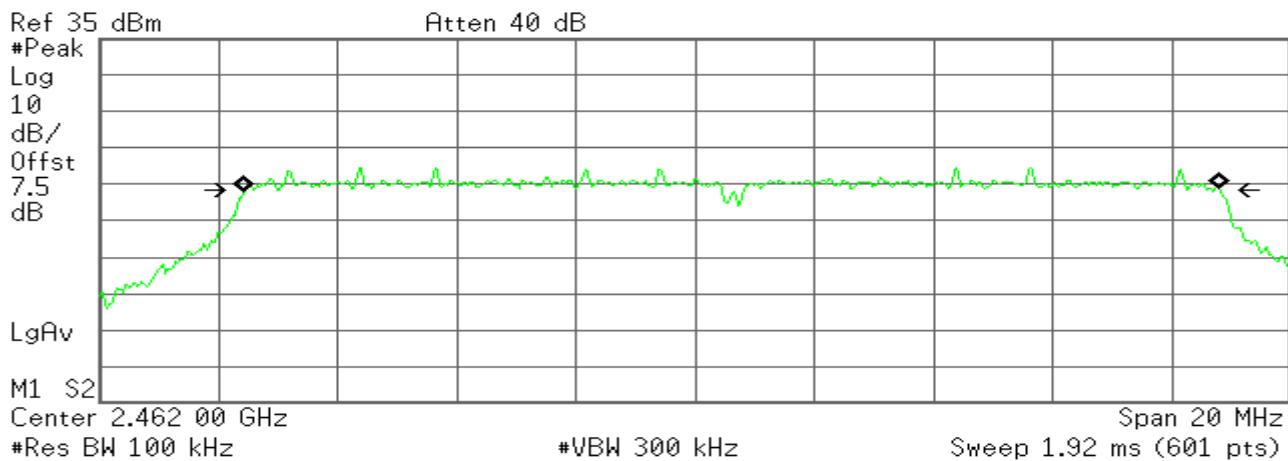
Transmit Freq Error 628.038 kHz
x dB Bandwidth 16.349 MHz



6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
16.3645

Occ BH % Pwr
x dB 99.00 %
-6.00 dB

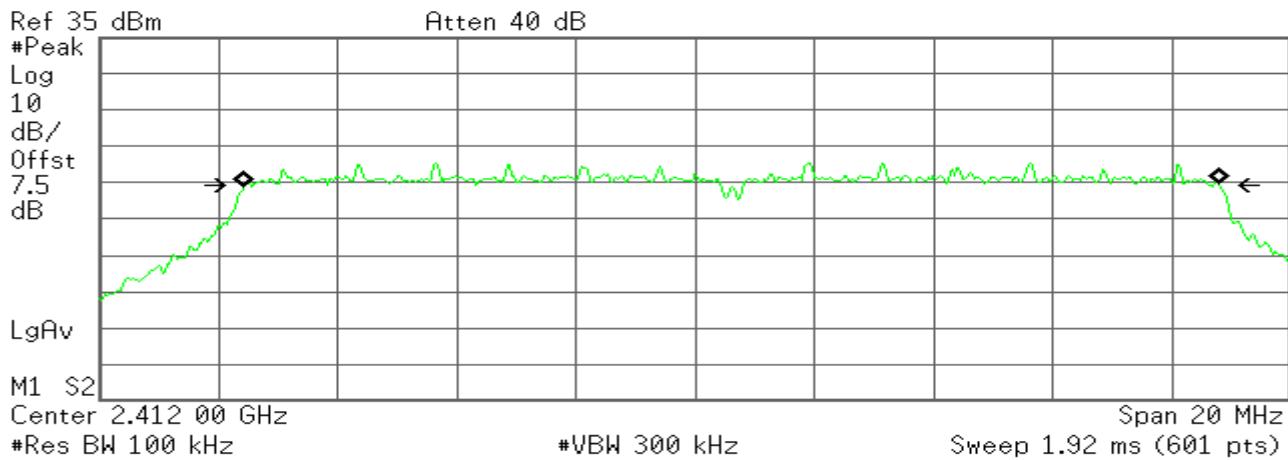
Transmit Freq Error x dB Bandwidth

IEEE 802.11g MODE /Chain 1

6dB Bandwidth (CH Low)

* Agilent

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Occupied Bandwidth
16.3533 MHz

Occ BW % Pwr 99.00 %
 x dB -6.00 dB

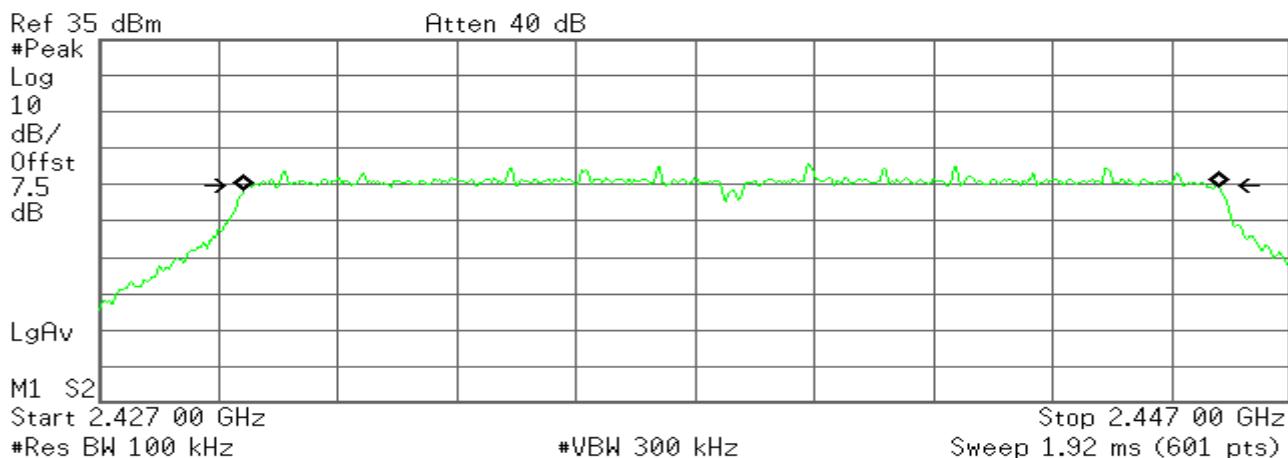
Transmit Freq Error 621.886 kHz
x dB Bandwidth 16.354 MHz



6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
16.3559

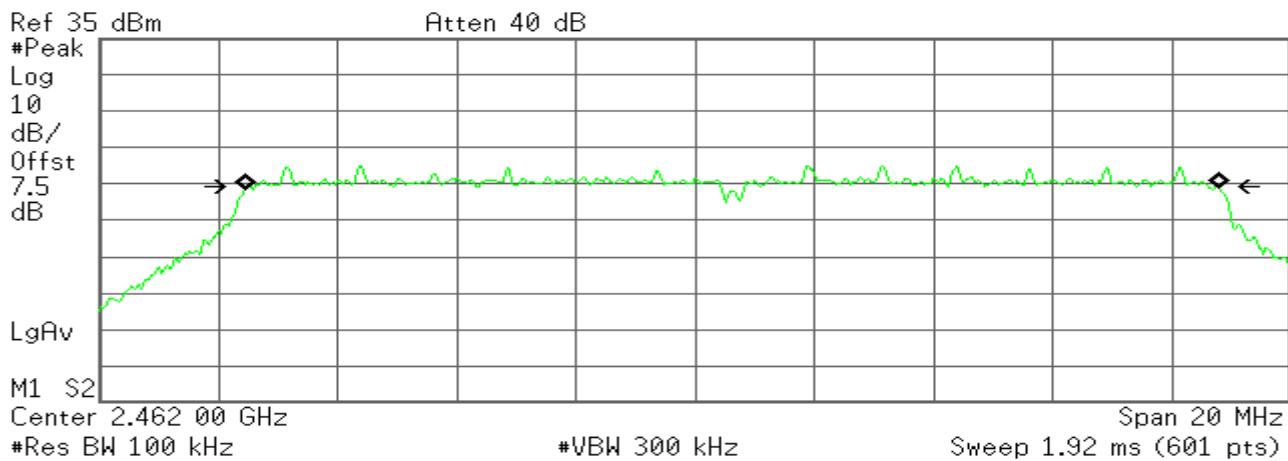
Occ BH % Pwr
x dB 99.00 %
-6.00 dB

Transmit Freq Error 625.439 kHz
x dB Bandwidth 16.327 MHz

6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
16.3524 MHz

Occ BW % Pwr 99.00 %
 x dB -6.00 dB

Transmit Freq Error x dB Bandwidth

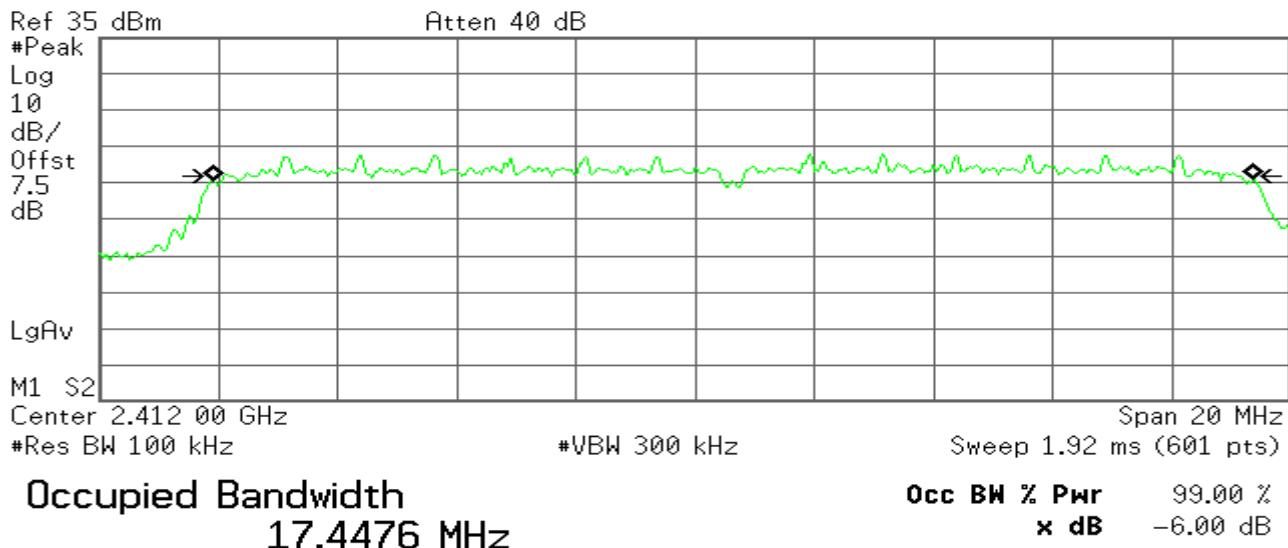


draft 802.11n Standard-20 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

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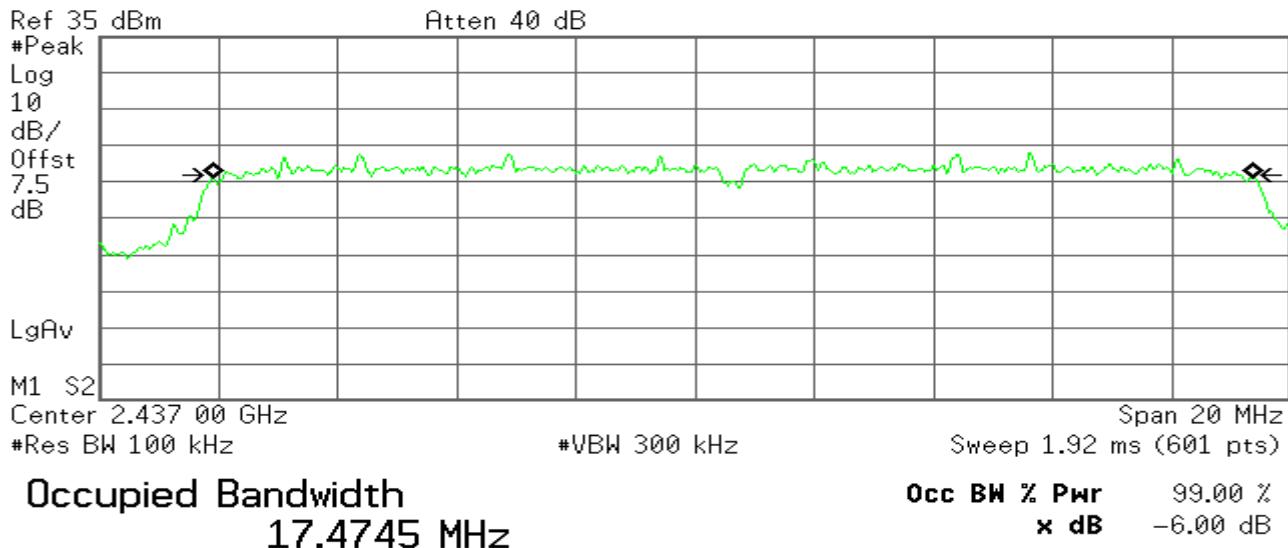


Transmit Freq Error 629.745 kHz
x dB Bandwidth 17.077 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



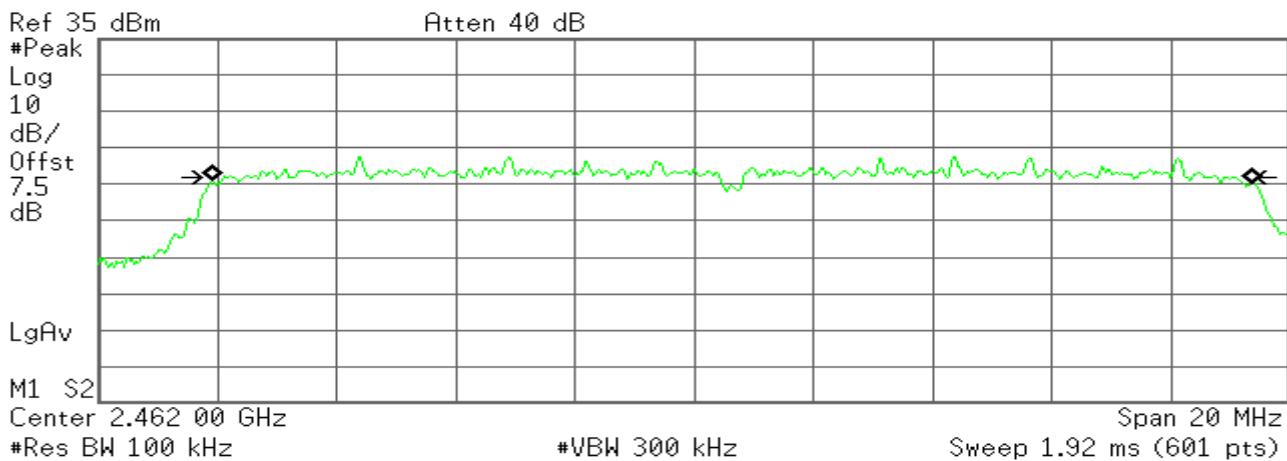
Transmit Freq Error 624.294 kHz
x dB Bandwidth 17.065 MHz



6dB Bandwidth (CH High)

Agilent

R T



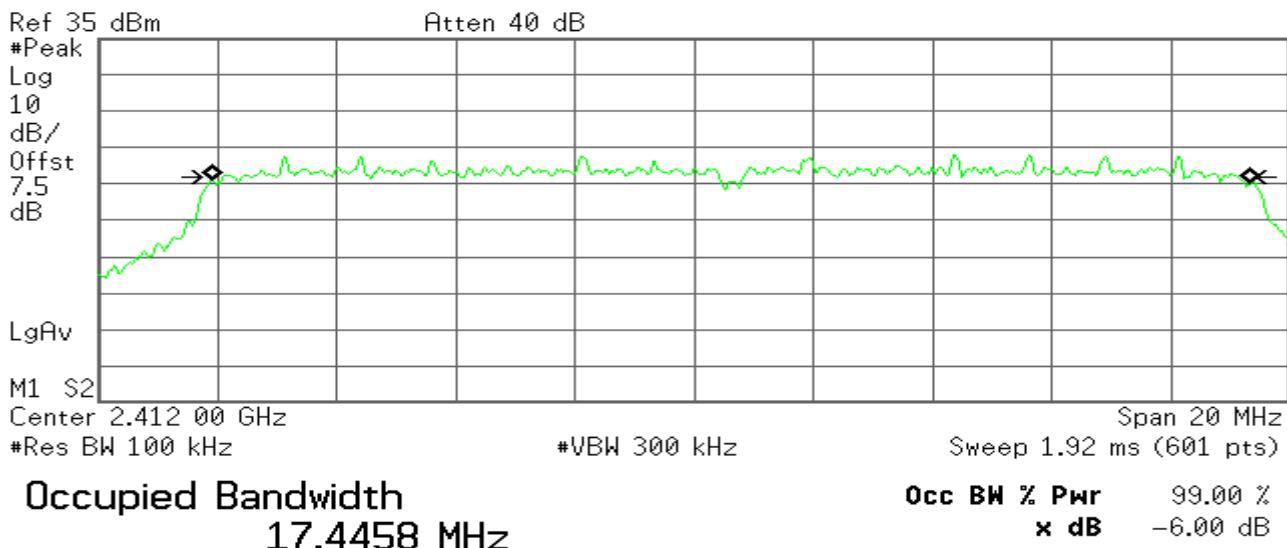
Transmit Freq Error 626.254 kHz
x dB Bandwidth 17.007 MHz

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

6dB Bandwidth (CH Low)

Agilent

R T



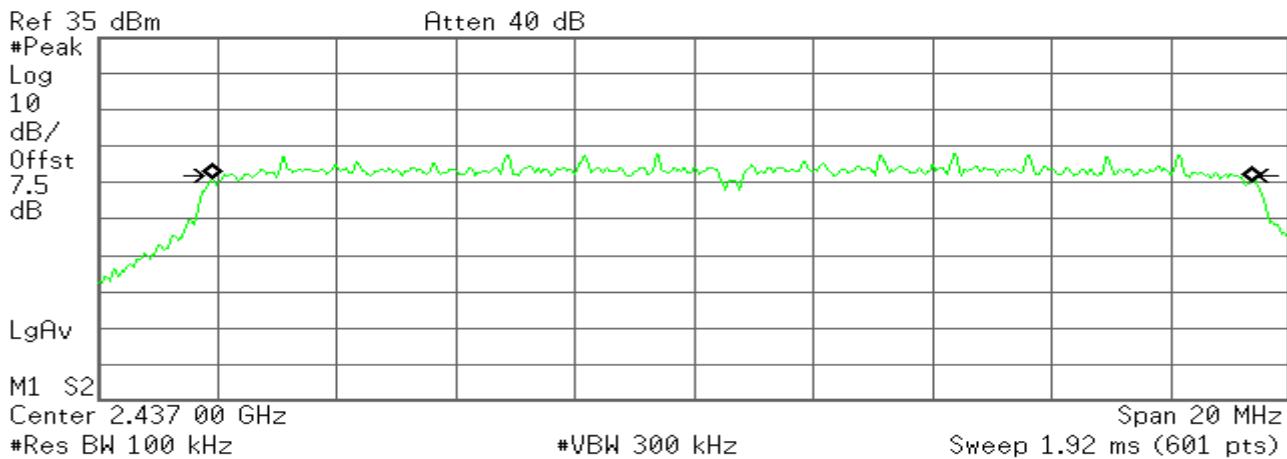
Transmit Freq Error 619.430 kHz
x dB Bandwidth 17.001 MHz



6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
17.4452

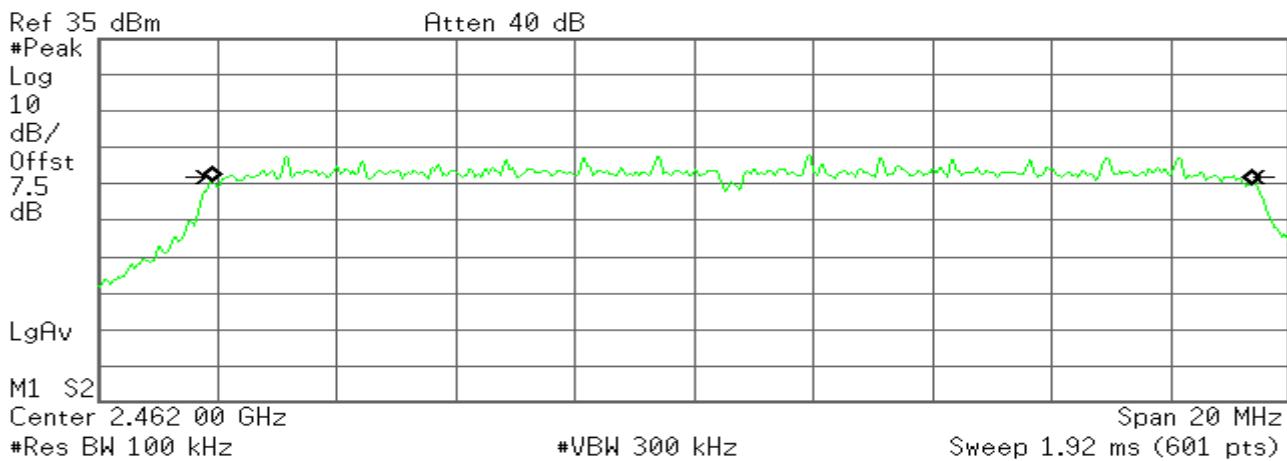
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 627.968 kHz
x dB Bandwidth 17.022 MHz

6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
17.4446 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 630.293 kHz
x dB Bandwidth 16.904 MHz

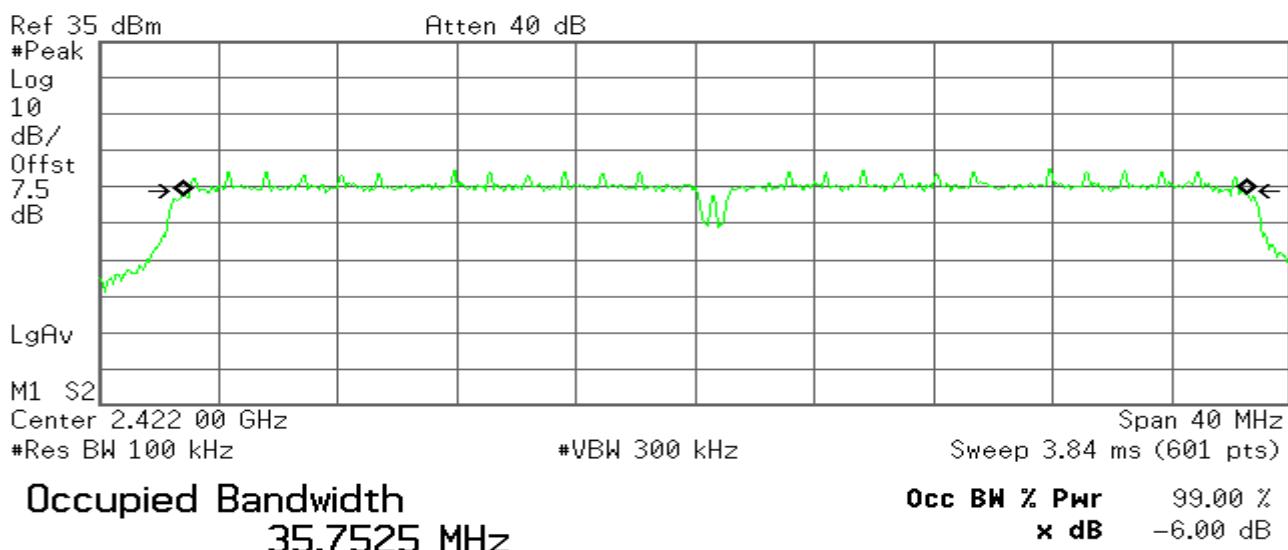


draft 802.11n Standard-40 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent

R T

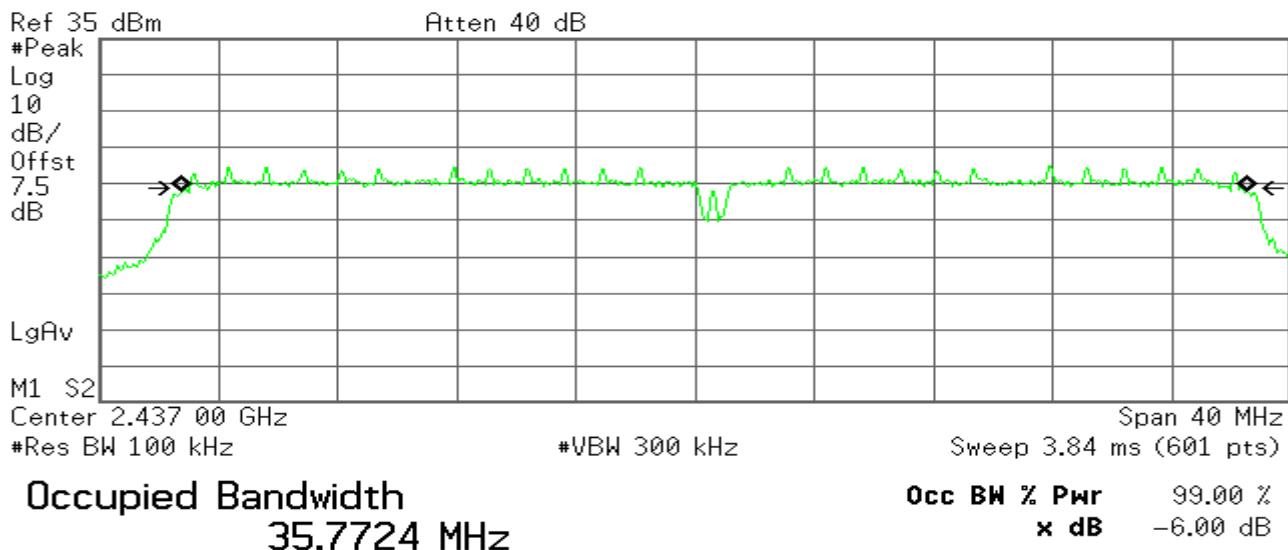


Transmit Freq Error 650.511 kHz
x dB Bandwidth 35.239 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



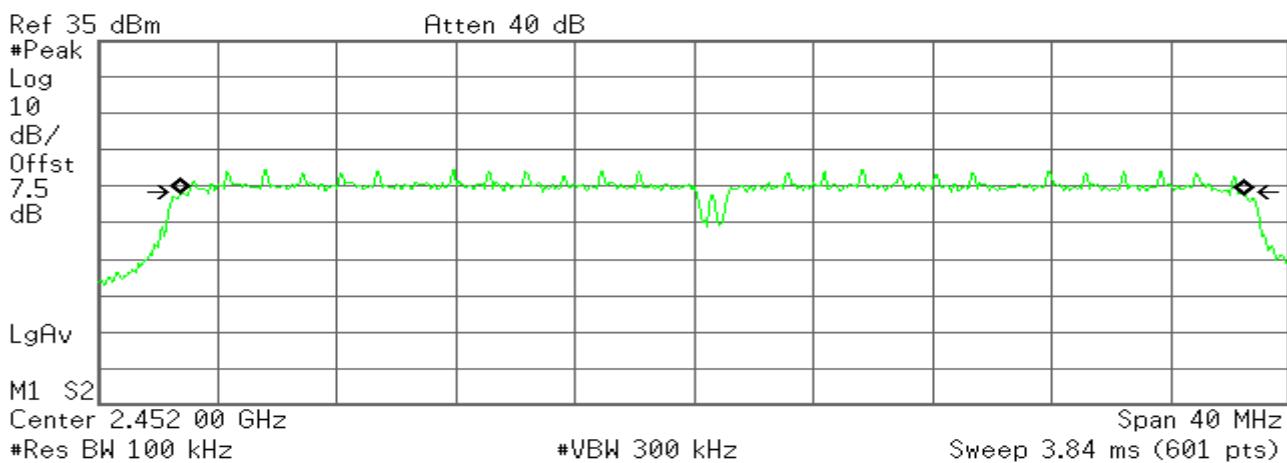
Transmit Freq Error 638.702 kHz
x dB Bandwidth 35.394 MHz



6dB Bandwidth (CH High)

Agilent

R T



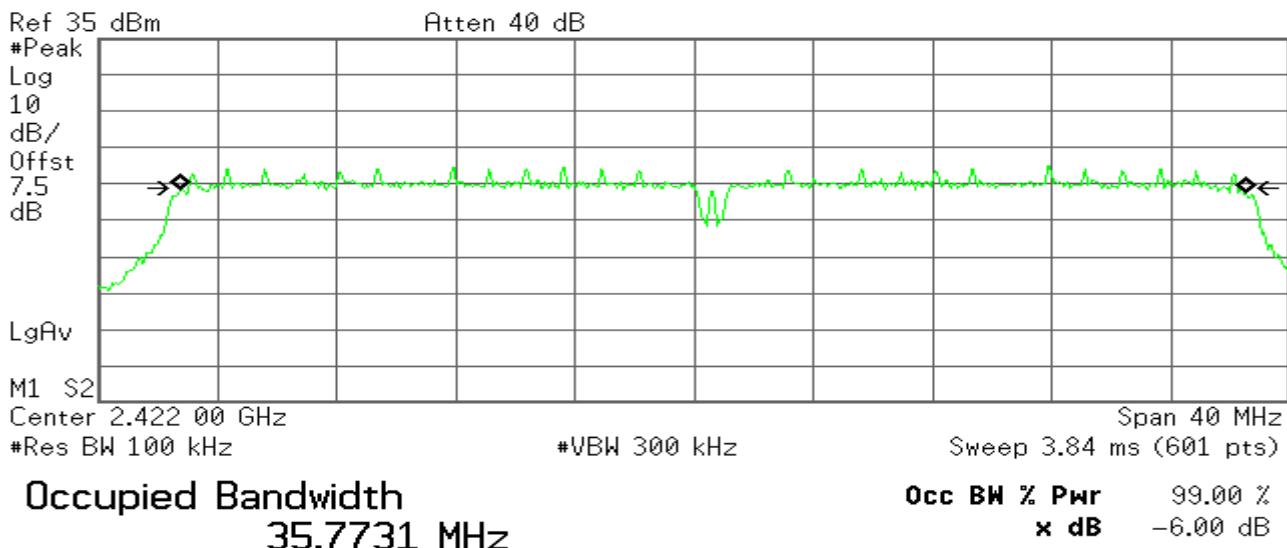
Transmit Freq Error 617.419 kHz
x dB Bandwidth 35.234 MHz

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

6dB Bandwidth (CH Low)

Agilent

R T



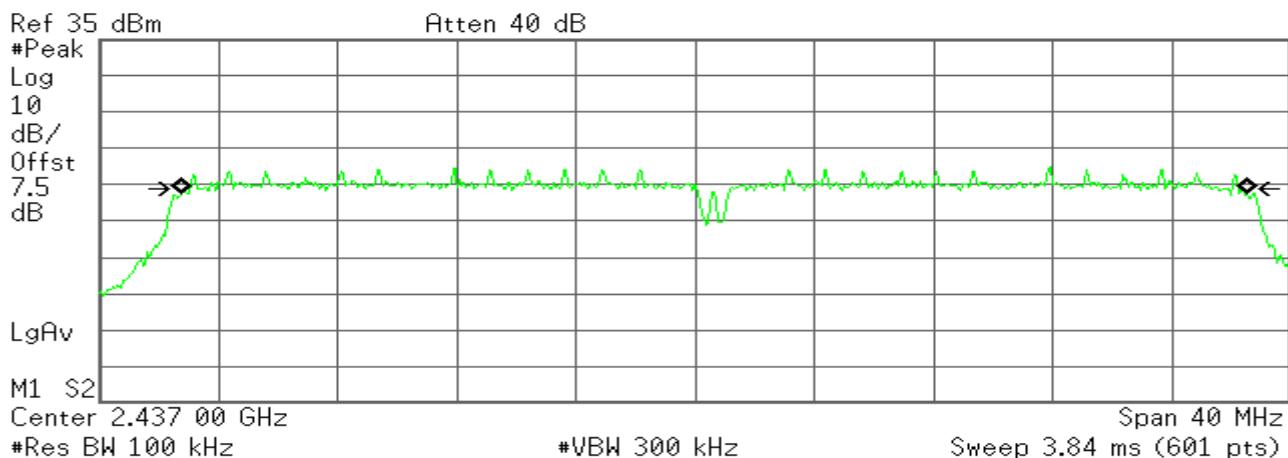
Transmit Freq Error 619.996 kHz
x dB Bandwidth 35.245 MHz



6dB Bandwidth (CH Mid)

* Agilent

R T



Occupied Bandwidth
35.7971

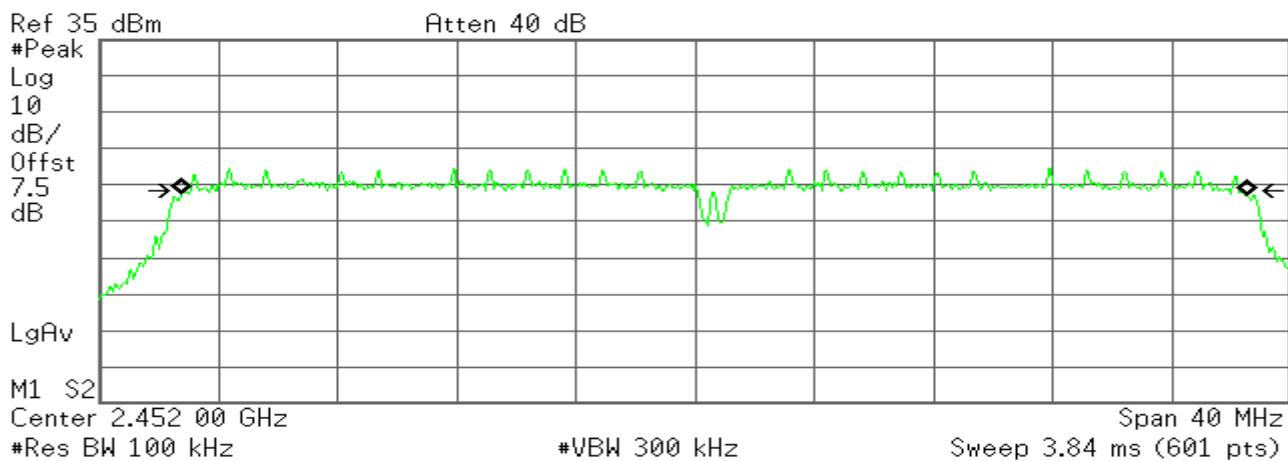
Occ BW % Pwr x dB -6.00 dB

Transmit Freq Error 634.951 kHz
x dB Bandwidth 35.238 MHz

6dB Bandwidth (CH High)

* Agilent

R T



Occupied Bandwidth
35.7488 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 637.707 kHz
x dB Bandwidth 35.368 MHz



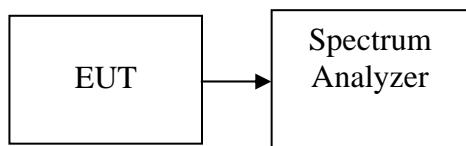
4.2. PEAK POWER

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, and 2400-2483.5 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

This procedure may be used when the maximum available RBW of the measurement instrument is less than the DTS bandwidth.

1. Set the RBW = 1 MHz.
2. Set the VBW \geq 3 RBW
3. Set the span \geq 1.5 x DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

TEST RESULTS

No non-compliance noted



Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	17.41	17.29	20.36	30
Mid	2437	17.46	17.08	20.28	30
High	2462	16.93	16.66	19.81	30

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	14.12	14.70	17.43	30
Mid	2437	14.45	14.61	17.54	30
High	2462	14.06	14.35	17.22	30

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	17.32	17.23	20.29	30
Mid	2437	17.45	17.23	20.35	30
High	2462	17.02	16.91	19.98	30

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2422	16.10	16.14	19.13	30
Mid	2437	16.22	16.02	19.13	30
High	2452	16.07	15.93	19.01	30

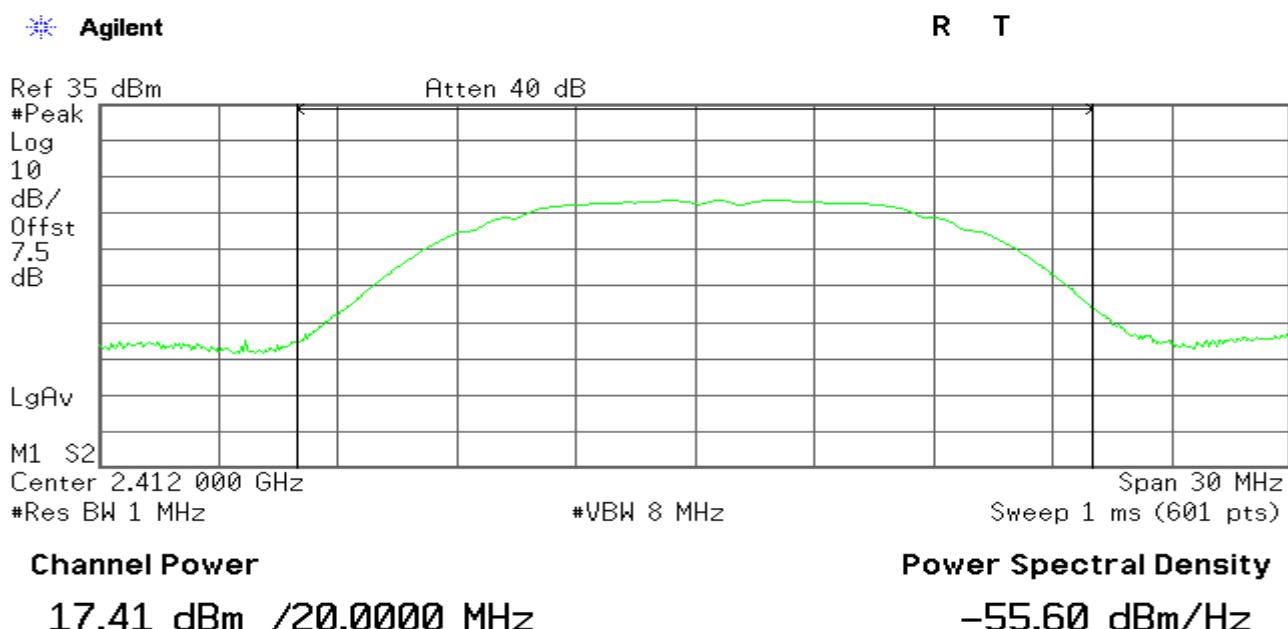
Remark: Total Output Power (dBm) = $10 * \log(10^{(Chain\ 0\ Output\ Power\ /10)} + 10^{(Chain\ 1\ Output\ Power\ /10)})$



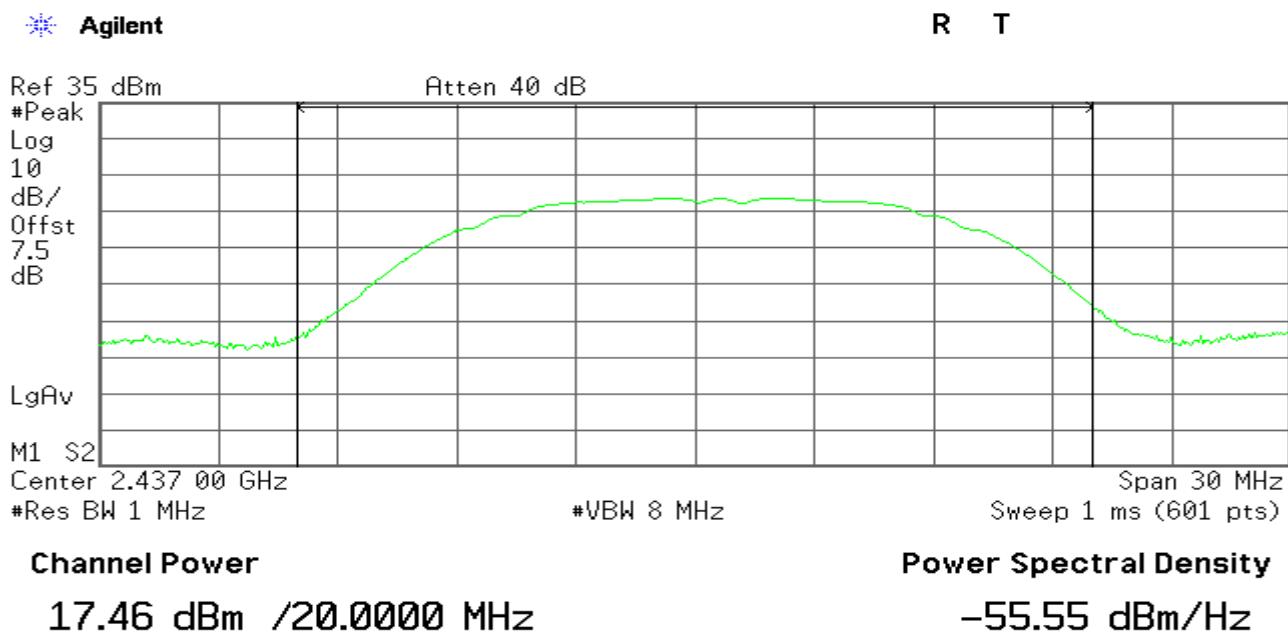
Test Plot

IEEE 802.11b mode/ Chain 0

Peak Power (CH Low)



Peak Power (CH Mid)

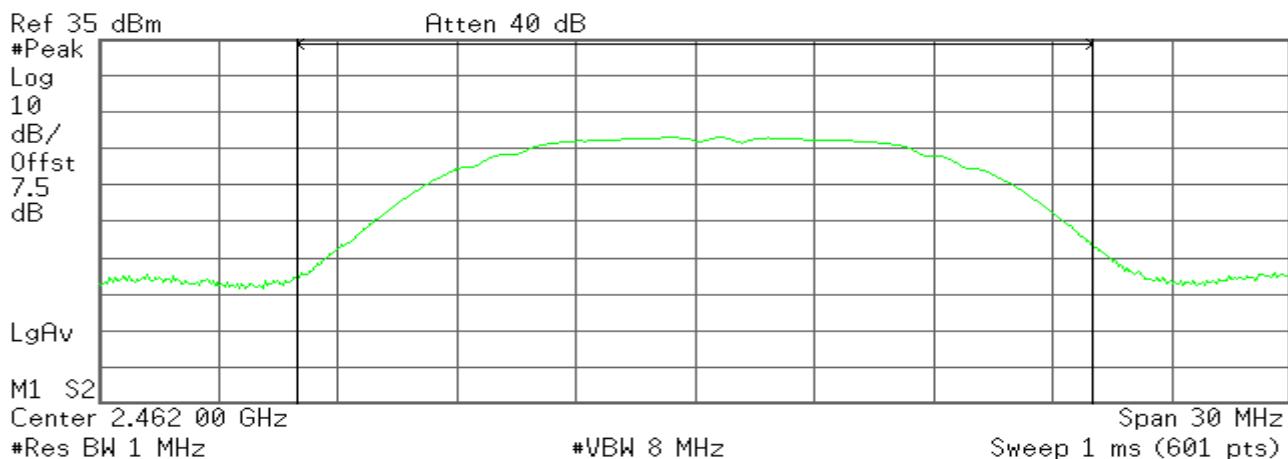




Peak Power (CH High)

Agilent

R T



Channel Power

16.93 dBm /20.0000 MHz

Power Spectral Density

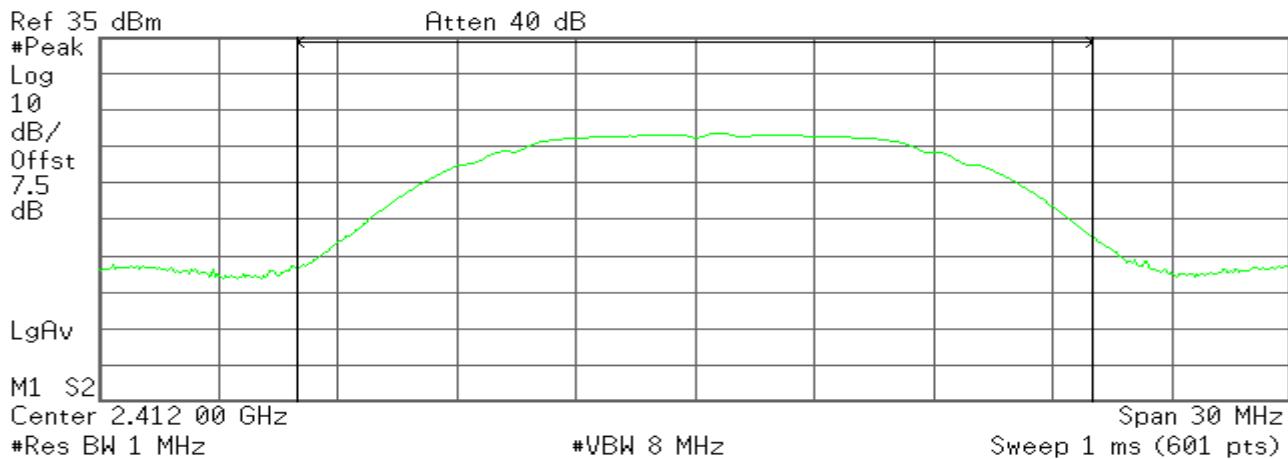
-56.08 dBm/Hz

IEEE 802.11b mode/ Chain 1

Peak Power (CH Low)

Agilent

R T



Channel Power

17.29 dBm /20.0000 MHz

Power Spectral Density

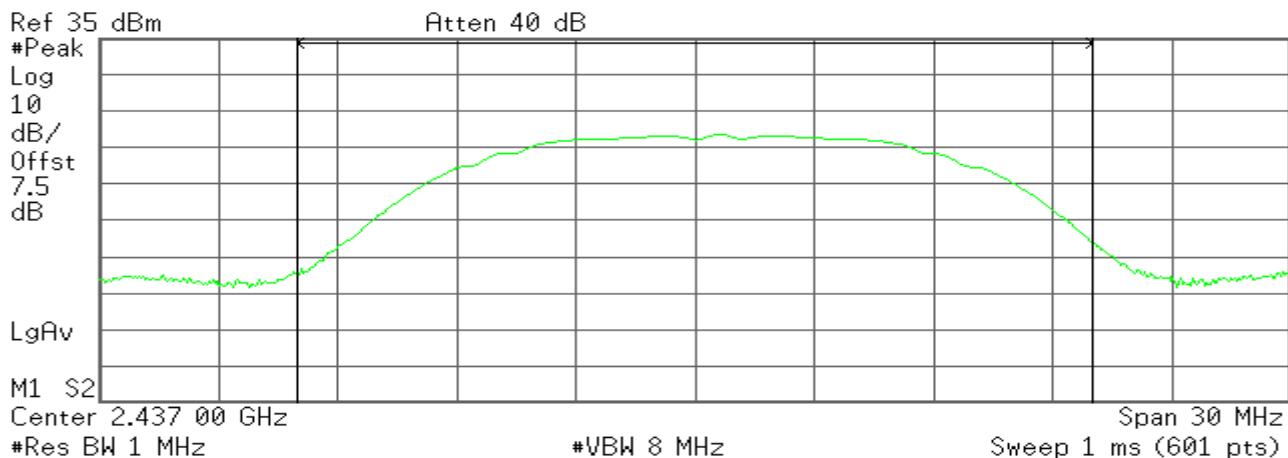
-55.72 dBm/Hz



Peak Power (CH Mid)

Agilent

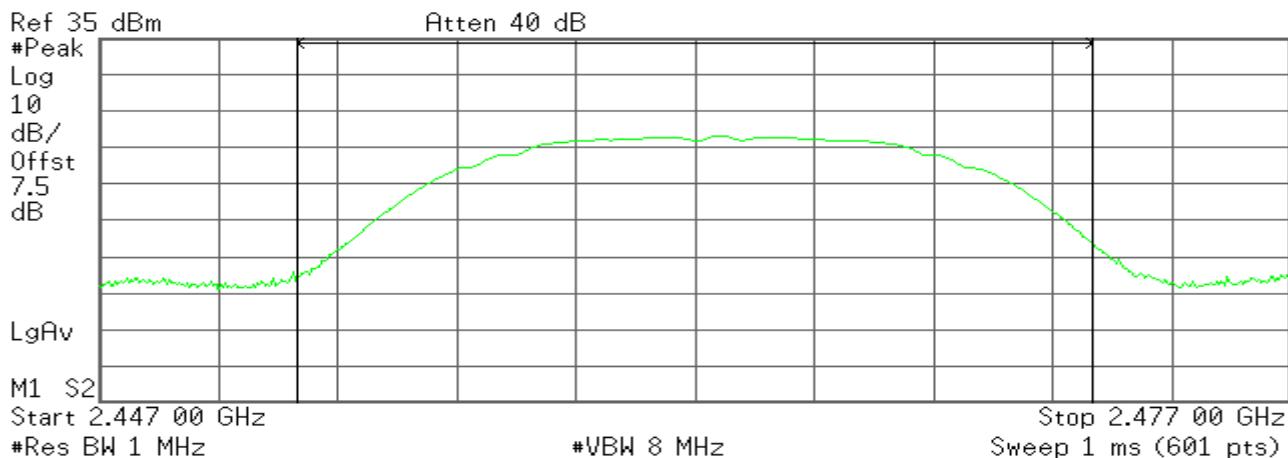
R T



Peak Power (CH High)

Agilent

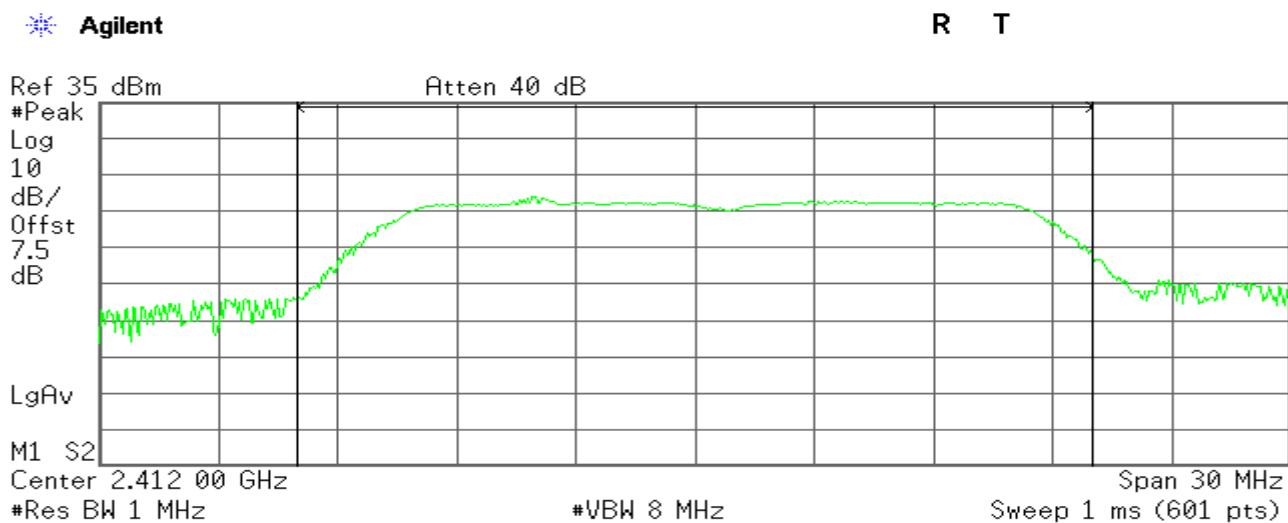
R T





IEEE 802.11g mode /Chain 0

Peak Power (CH Low)



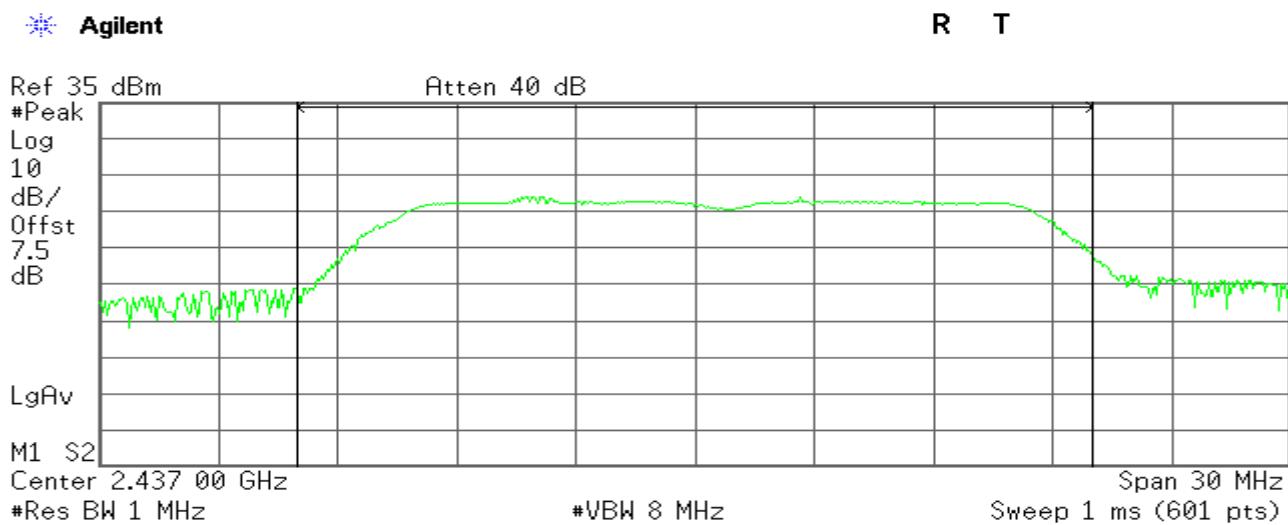
Channel Power

14.12 dBm /20.0000 MHz

Power Spectral Density

-58.89 dBm/Hz

Peak Power (CH Mid)



Channel Power

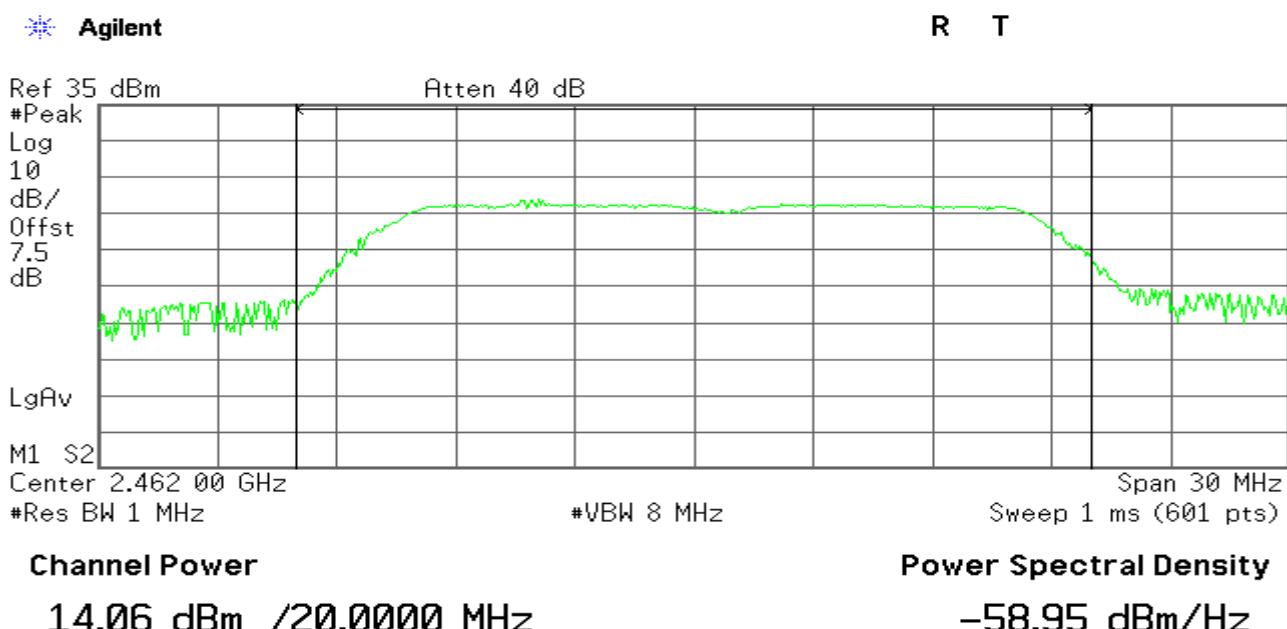
14.45 dBm /20.0000 MHz

Power Spectral Density

-58.56 dBm/Hz

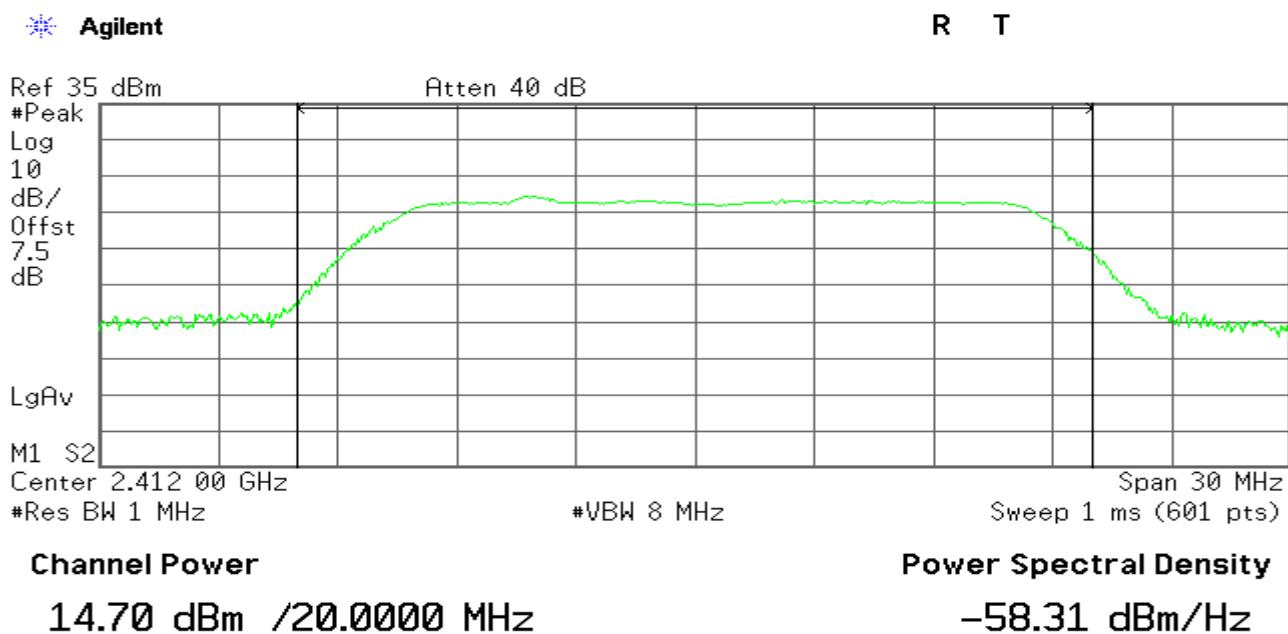


Peak Power (CH High)



IEEE 802.11g mode /Chain 1

Peak Power (CH Low)

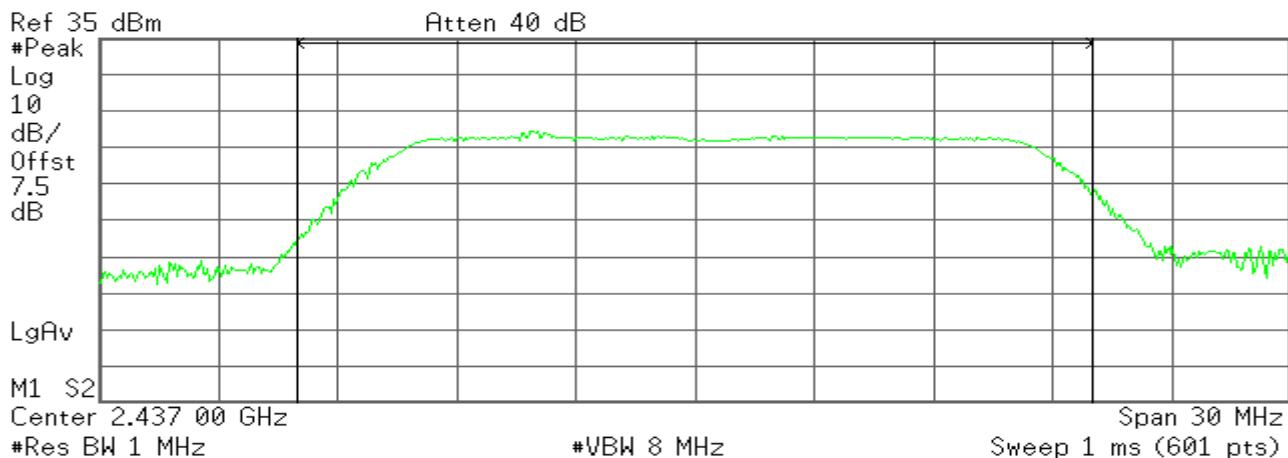




Peak Power (CH Mid)

Agilent

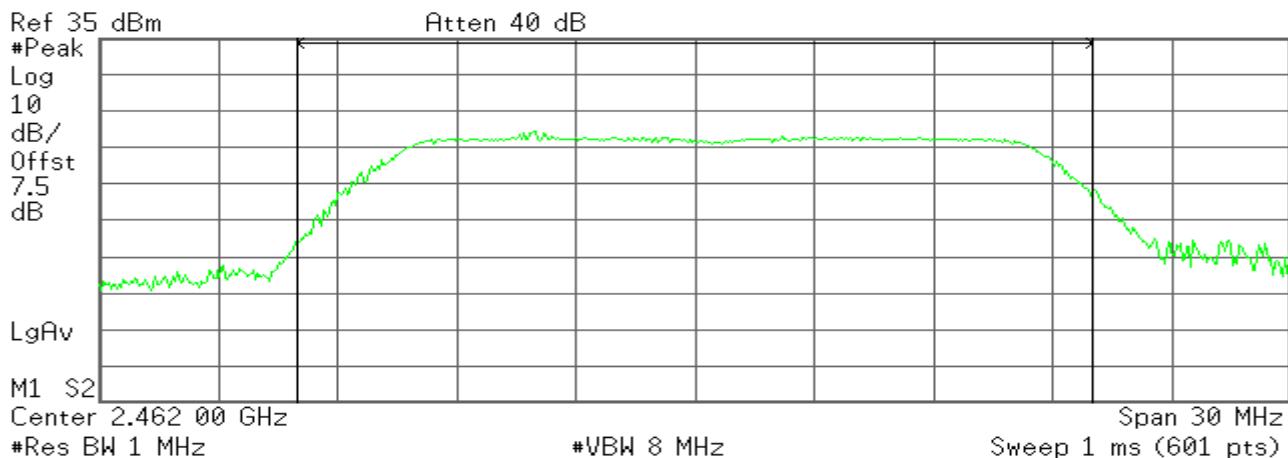
R T



Peak Power (CH High)

Agilent

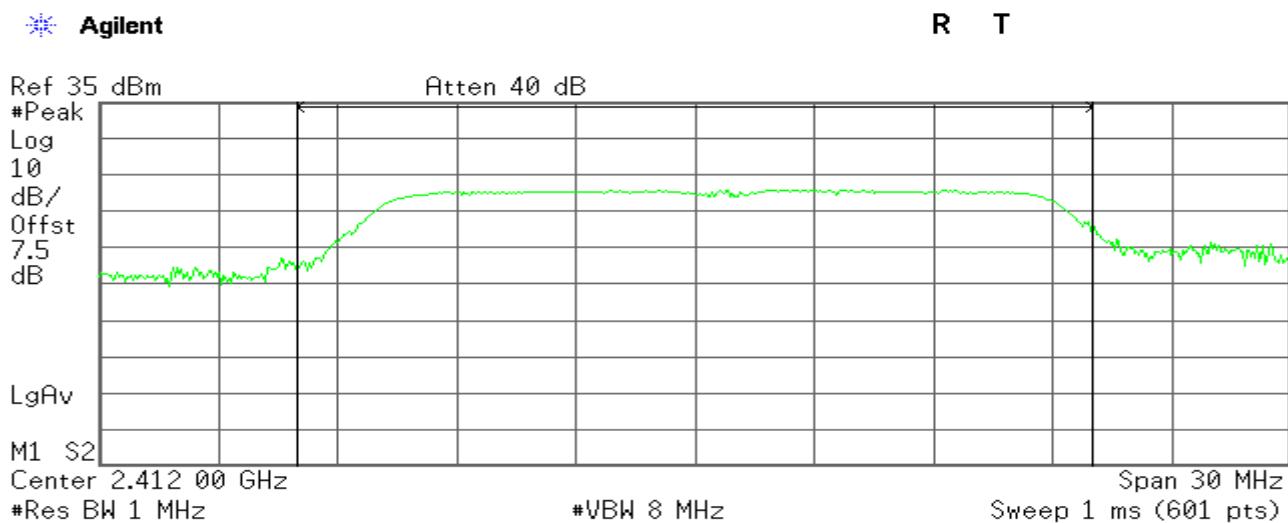
R T



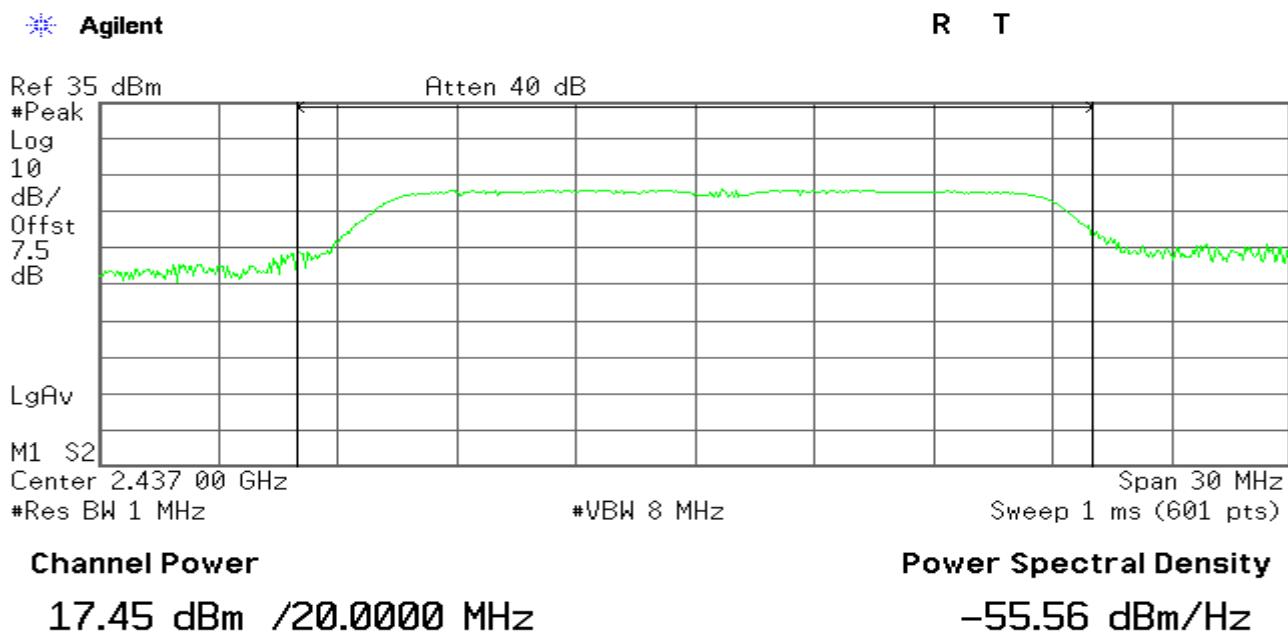


IEEE 802.11n HT20 mode / Chain 0

Peak Power (CH Low)



Peak Power (CH Mid)

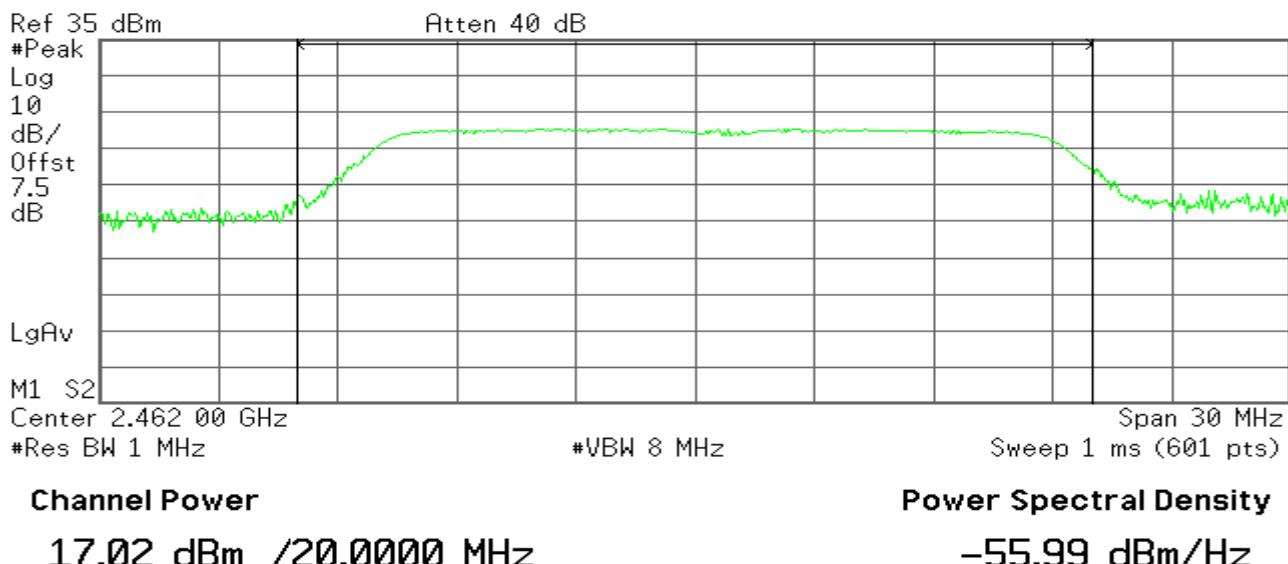




Peak Power (CH High)

Agilent

R T

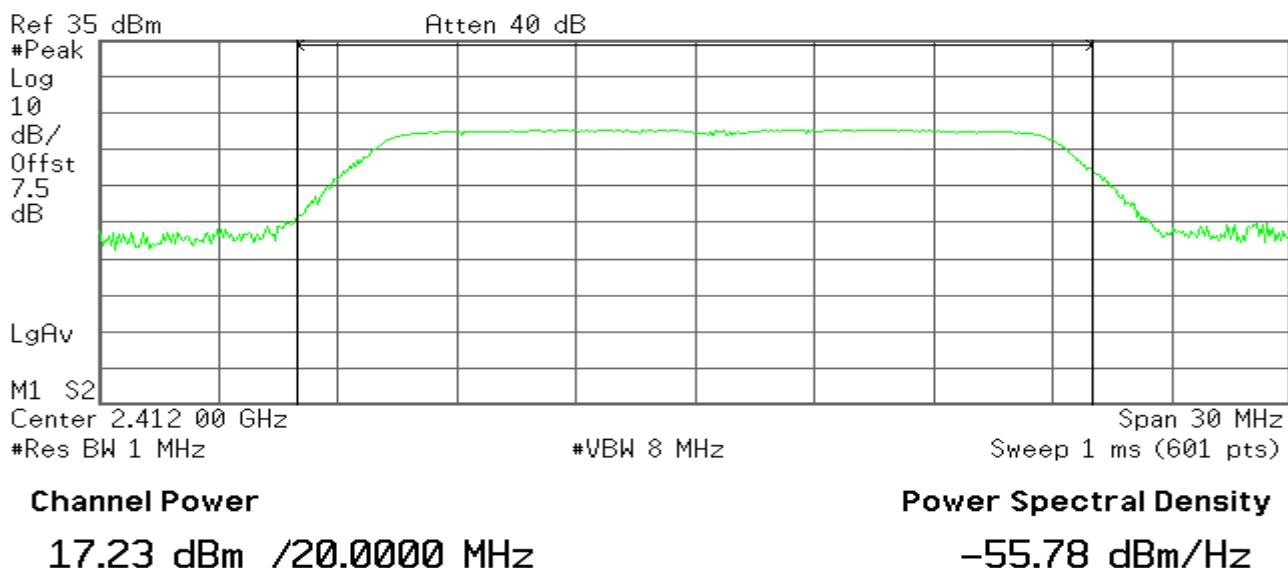


IEEE 802.11n HT20 mode / Chain 1

Peak Power (CH Low)

Agilent

R T

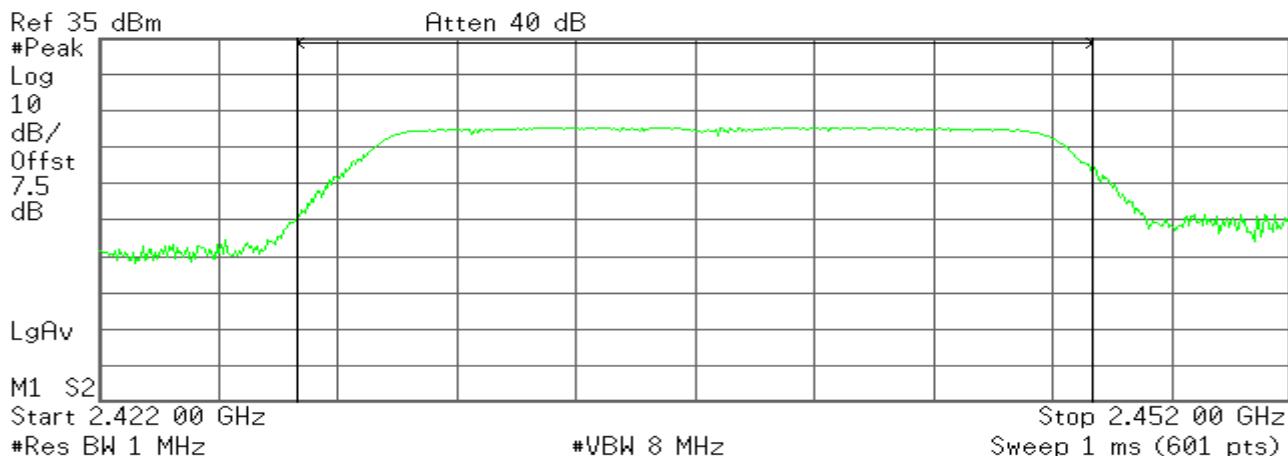




Peak Power (CH Mid)

Agilent

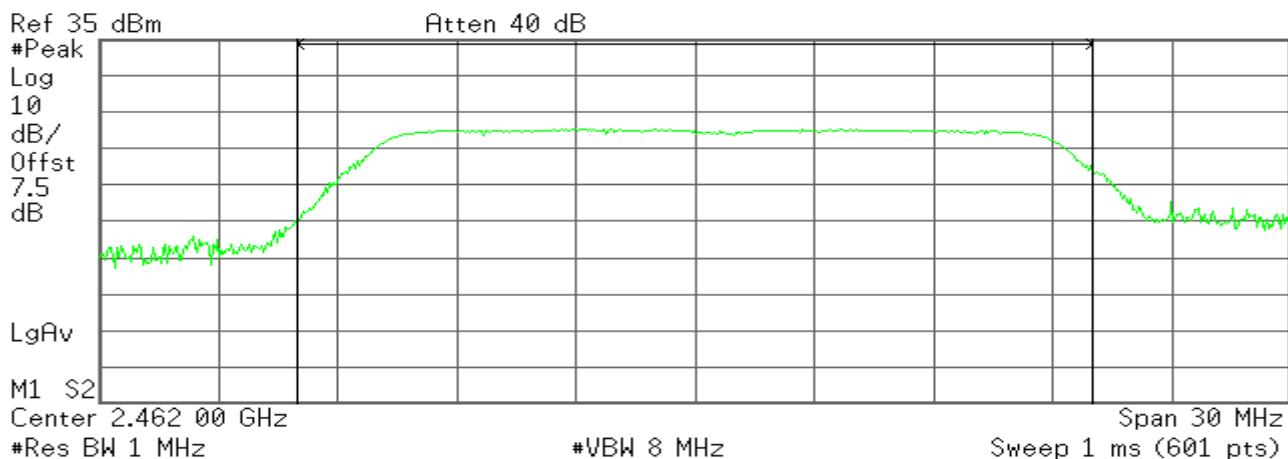
R T



Peak Power (CH High)

Agilent

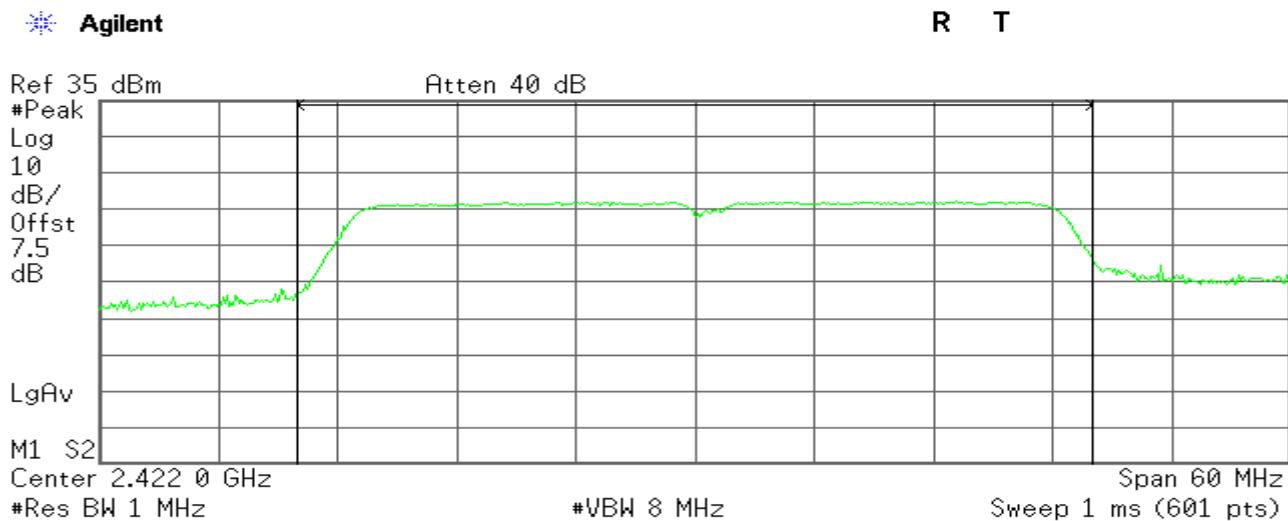
R T





IEEE 802.11n HT40 mode / Chain 0

Peak Power (CH Low)



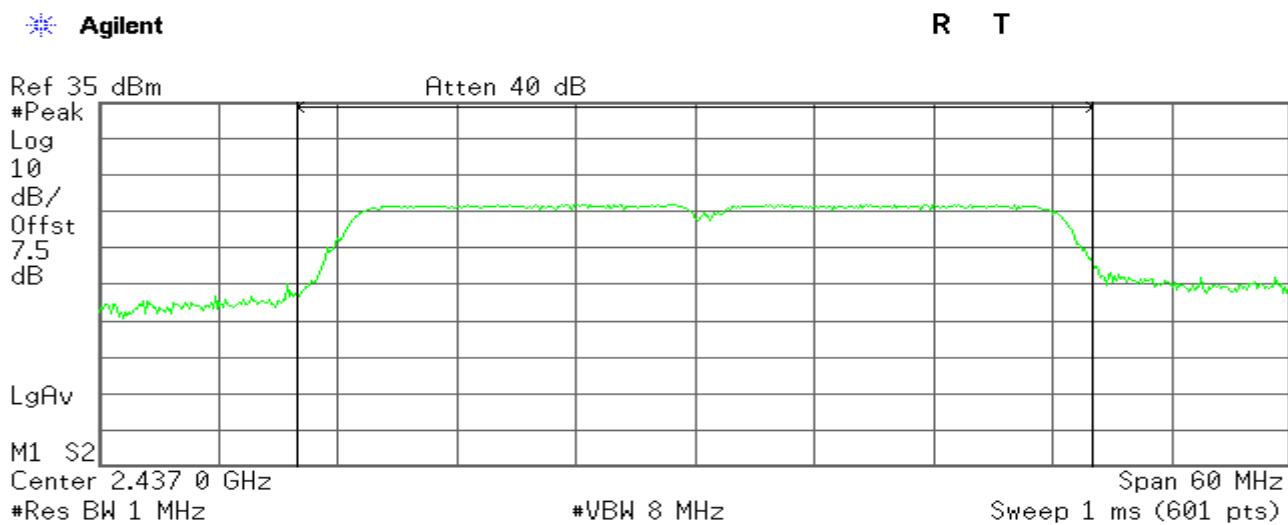
Channel Power

16.10 dBm / 40.0000 MHz

Power Spectral Density

-59.92 dBm/Hz

Peak Power (CH Mid)



Channel Power

16.22 dBm / 40.0000 MHz

Power Spectral Density

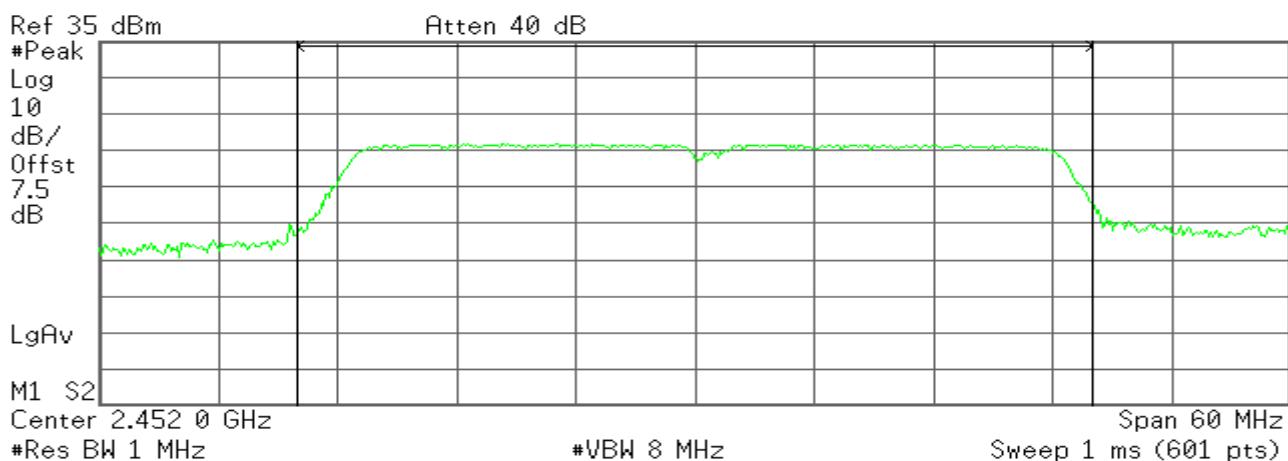
-59.80 dBm/Hz



Peak Power (CH High)

Agilent

R T



Channel Power

16.07 dBm /40.0000 MHz

Power Spectral Density

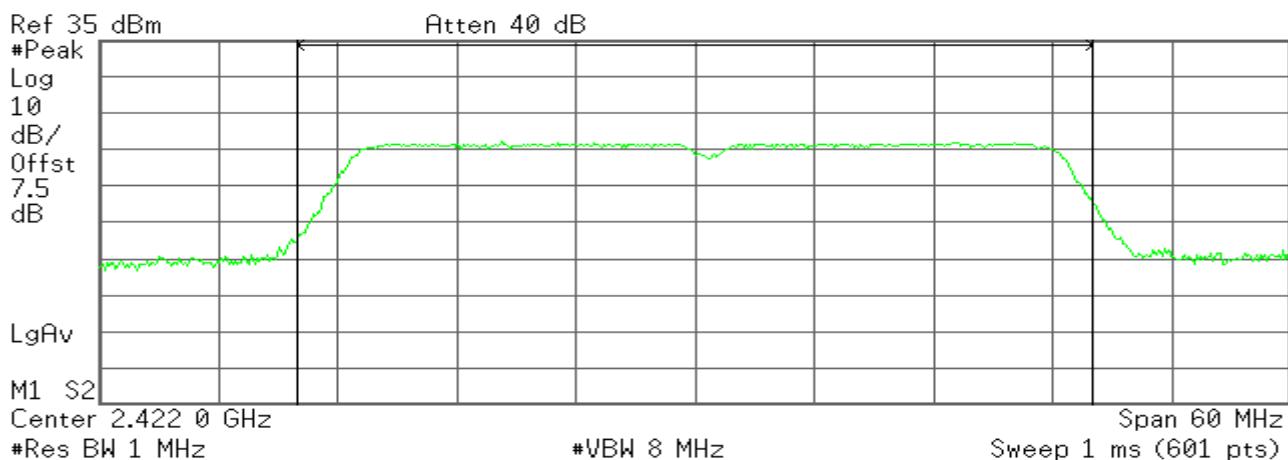
-59.95 dBm/Hz

IEEE 802.11n HT40 mode / Chain 1

Peak Power (CH Low)

Agilent

R T



Channel Power

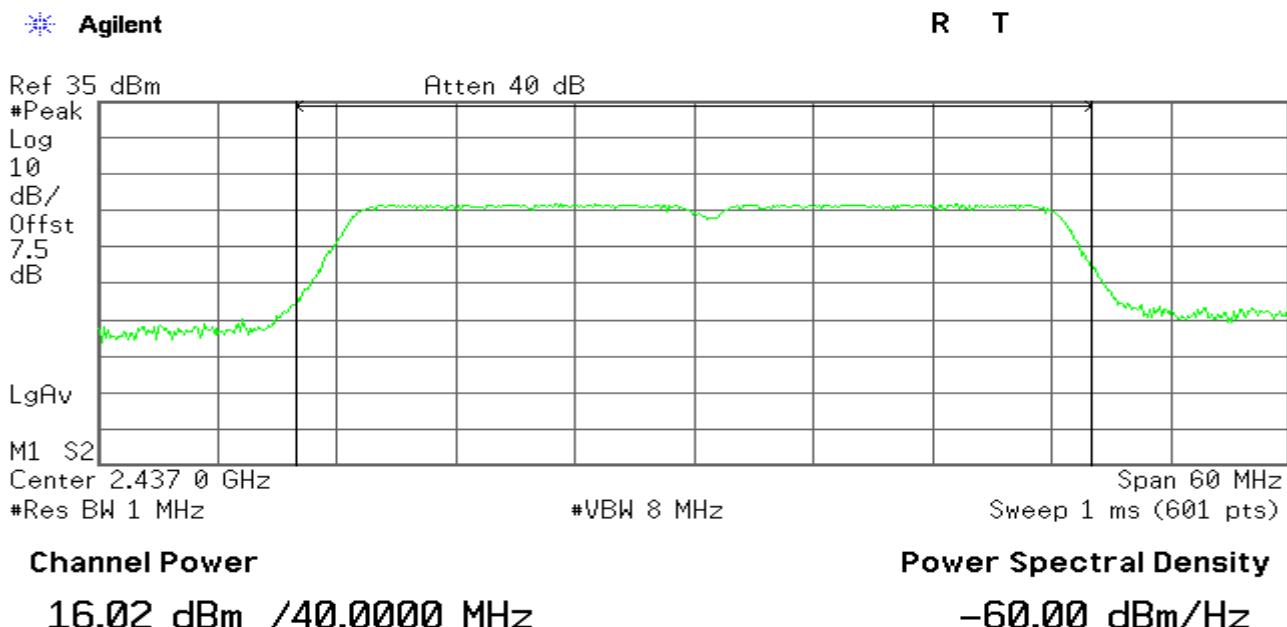
16.14 dBm /40.0000 MHz

Power Spectral Density

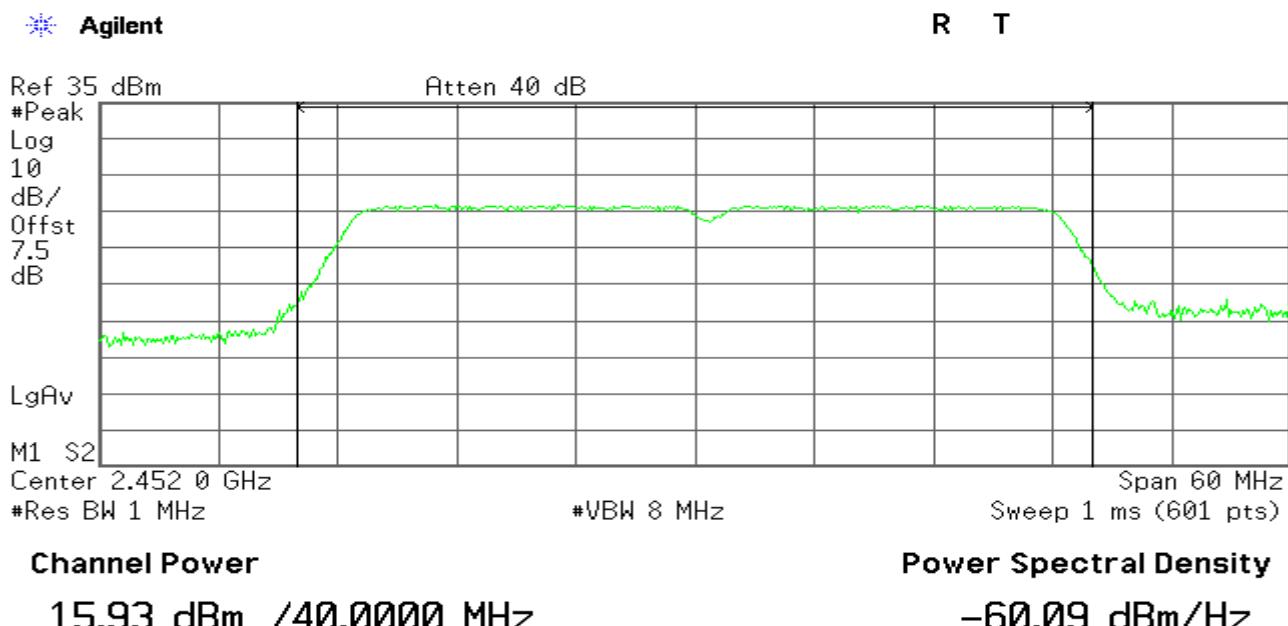
-59.88 dBm/Hz



Peak Power (CH Mid)



Peak Power (CH High)



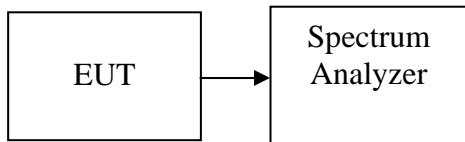


4.3. PEAK POWER SPECTRAL DENSITY

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 = 1.5 times the DTS bandwidth, Sweep = auto
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: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.16	-9.27	-7.10	8.00	PASS
Mid	2437	-11.03	-9.86	-7.40	8.00	PASS
High	2462	-11.71	-9.78	-7.63	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.13	-11.15	-9.02	8.00	PASS
Mid	2437	-13.26	-11.09	-9.03	8.00	PASS
High	2462	-13.55	-11.42	-9.35	8.00	PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.37	-9.79	-7.50	8.00	PASS
Mid	2437	-11.30	-8.98	-6.98	8.00	PASS
High	2462	-10.90	-9.11	-6.90	8.00	PASS

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2422	-10.88	-10.95	-7.90	8.00	PASS
Mid	2437	-12.02	-9.93	-7.84	8.00	PASS
High	2452	-10.93	-9.26	-7.00	8.00	PASS

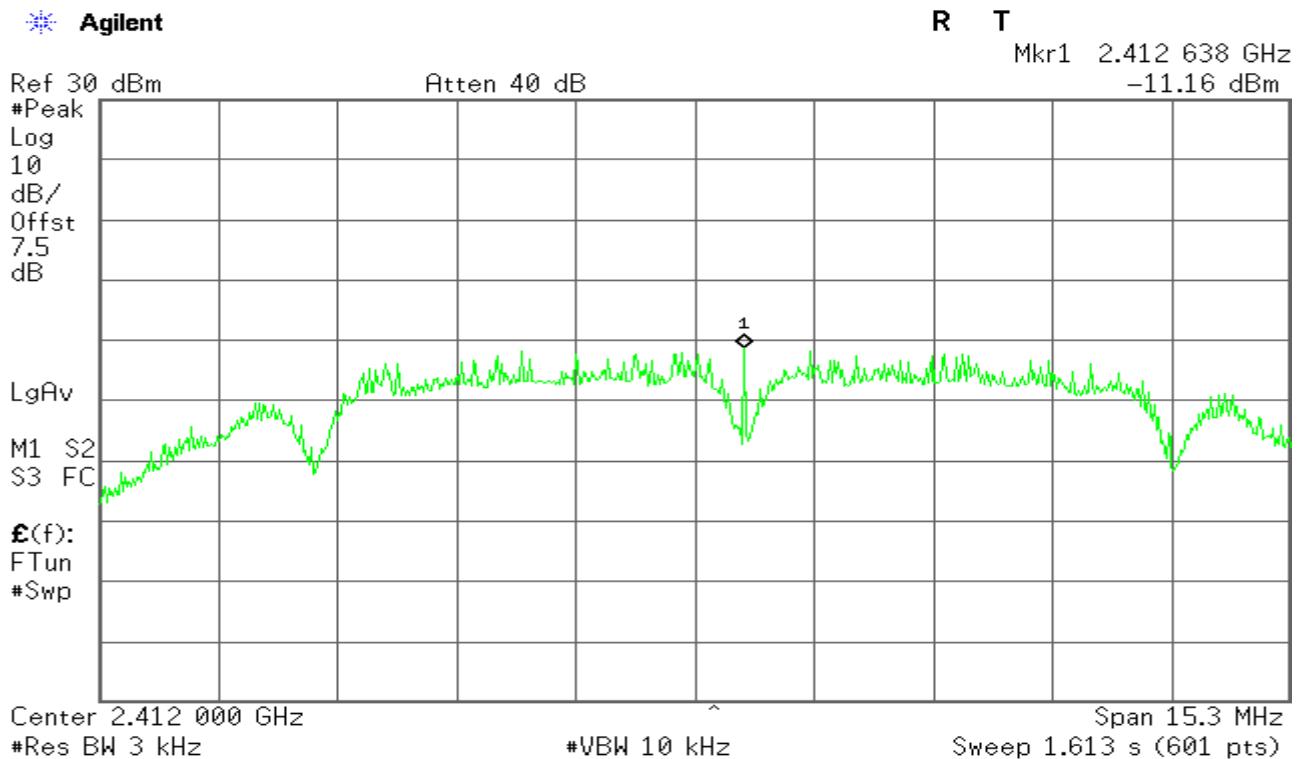
Remark: Total PPSD (dBm) = $10 * \log(10^{(Chain\ 0\ PPSD\ /10)} + 10^{(Chain\ 1\ PPSD\ /10)})$



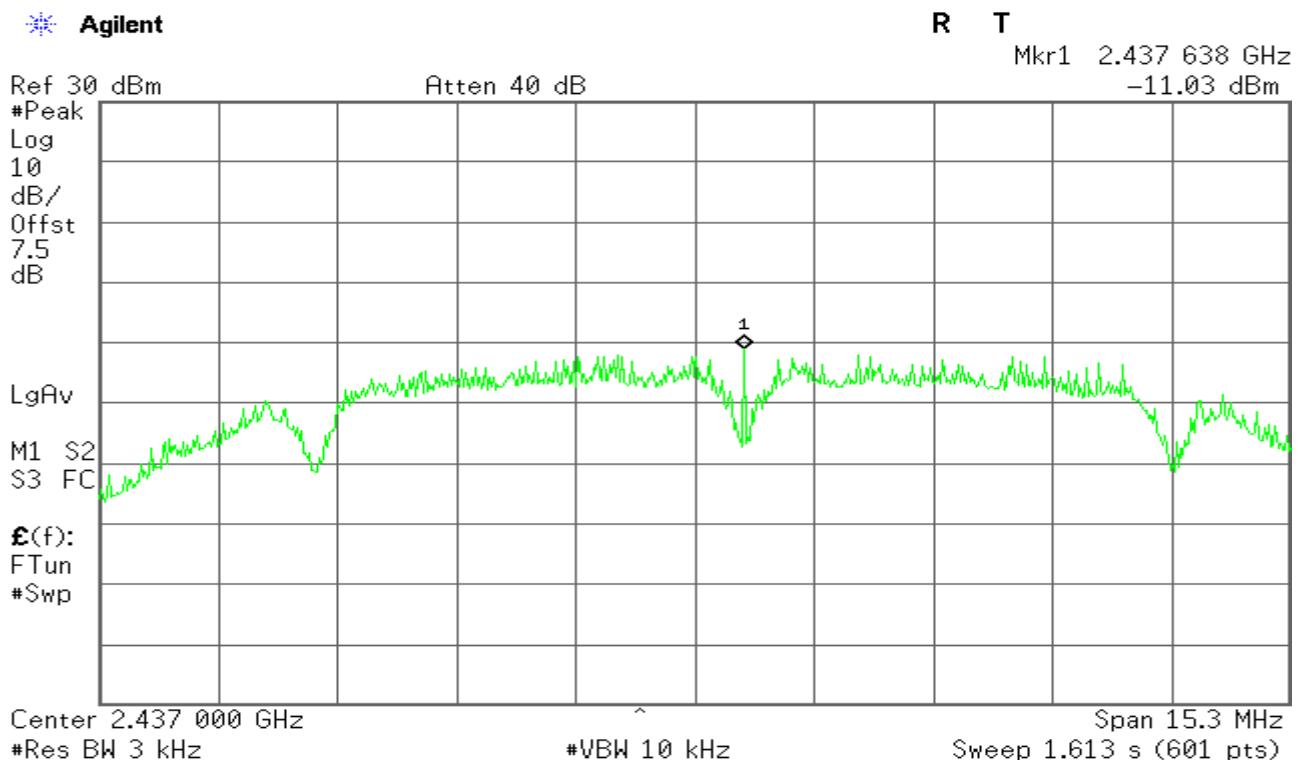
Test Plot

IEEE 802.11b mode/Chain 0

PPSD (CH Low)

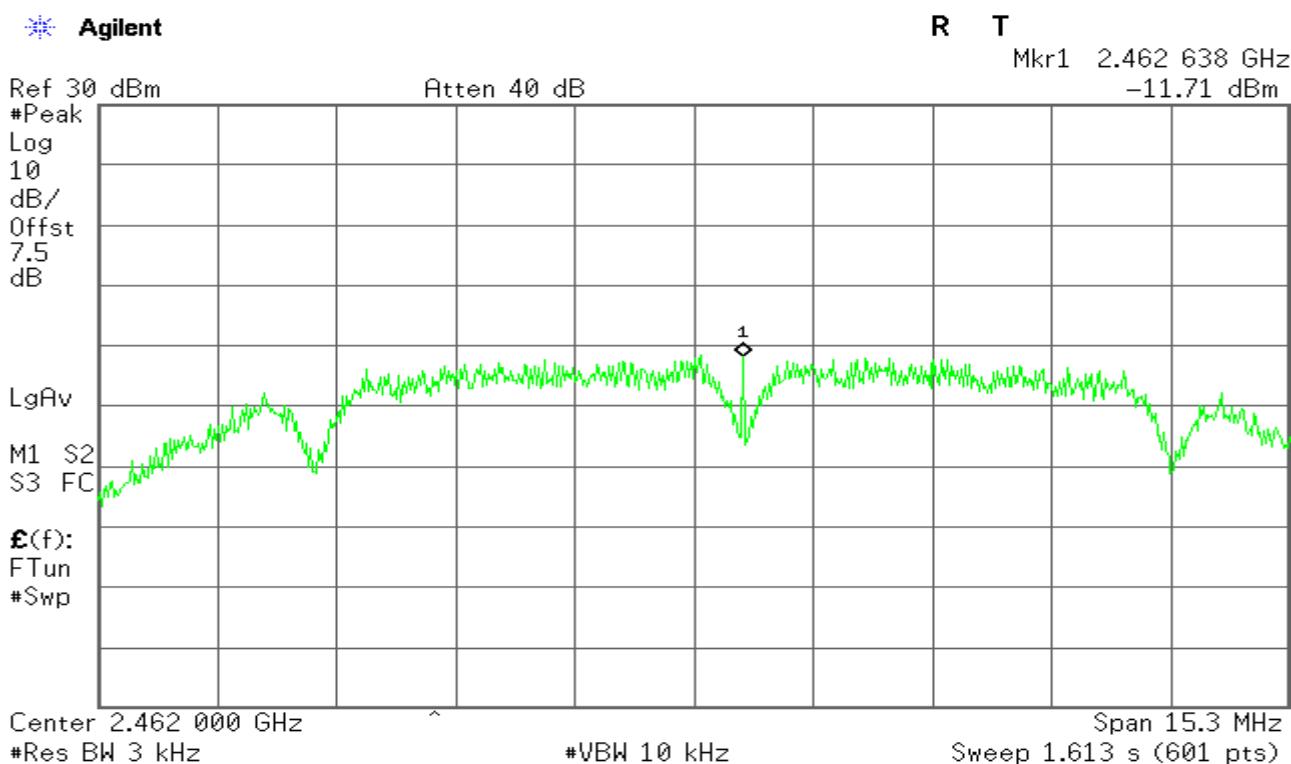


PPSD (CH Mid)



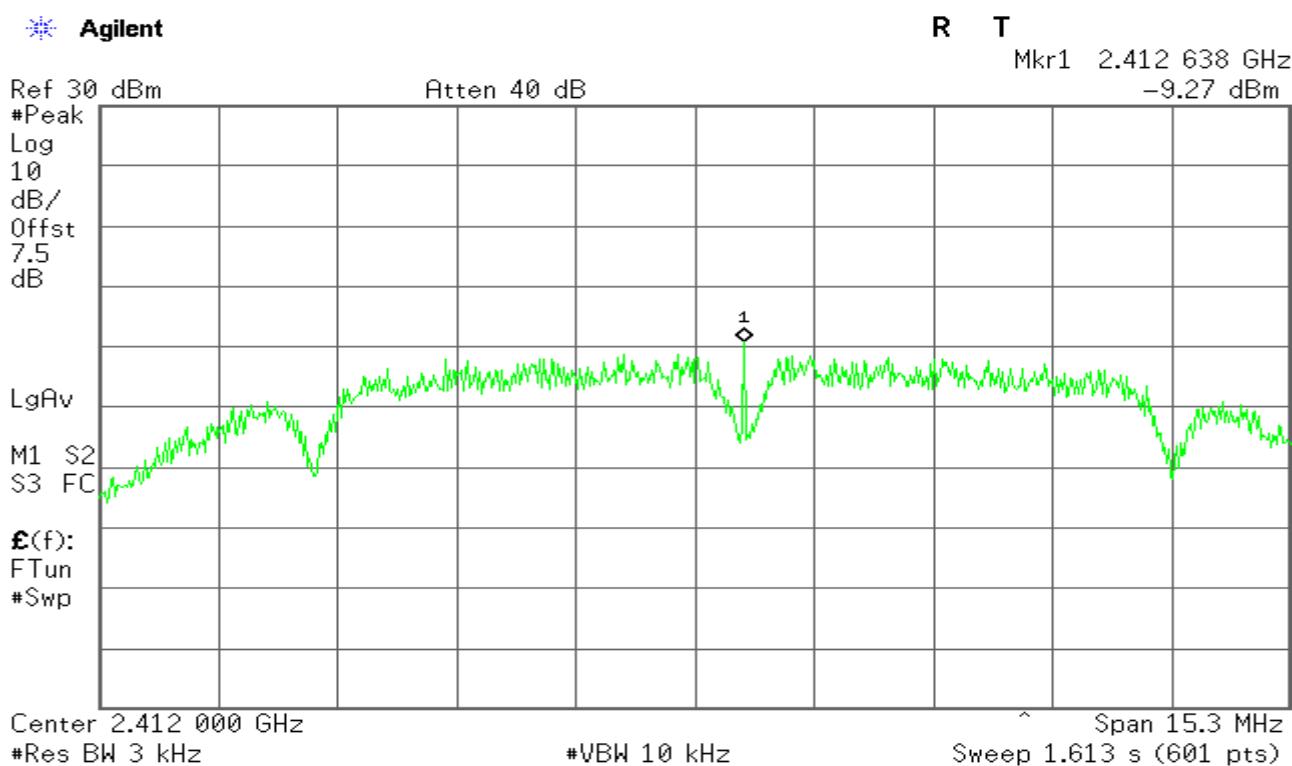


PPSD (CH High)



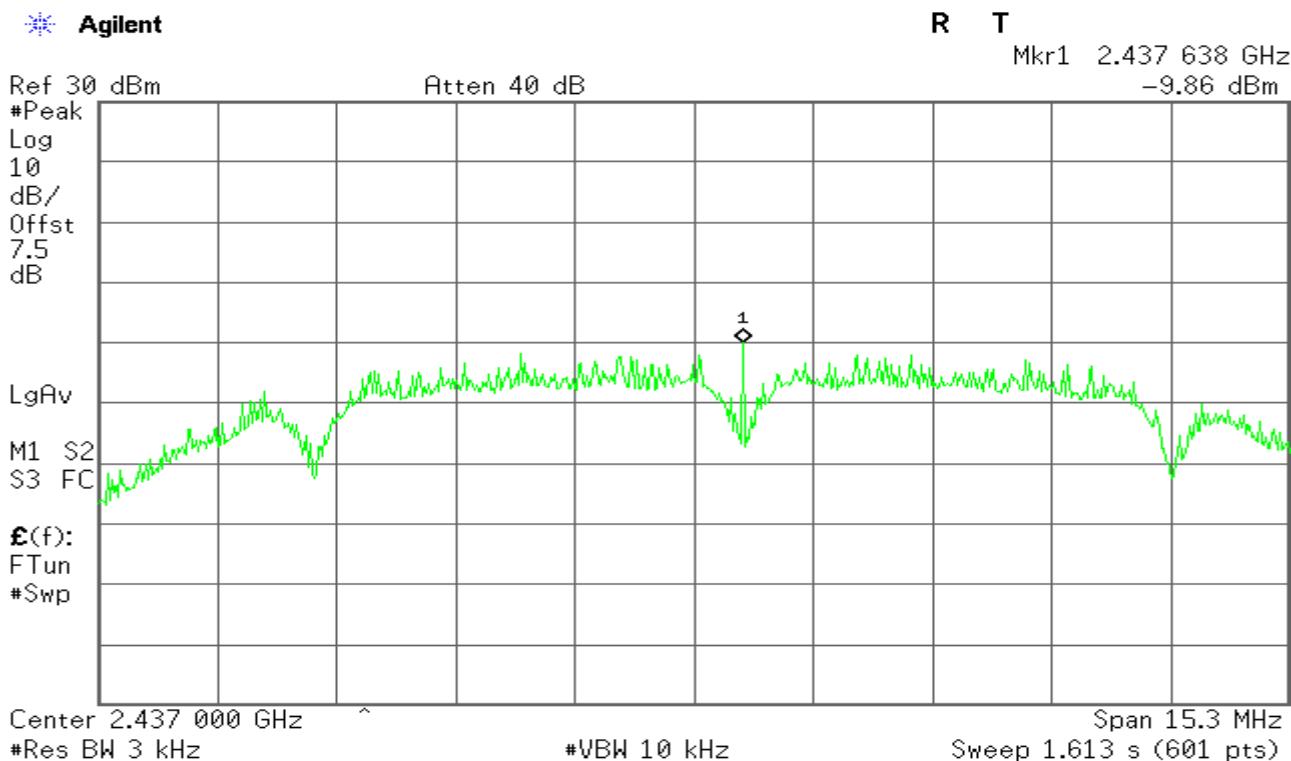
IEEE 802.11b mode/Chain 1

PPSD (CH Low)

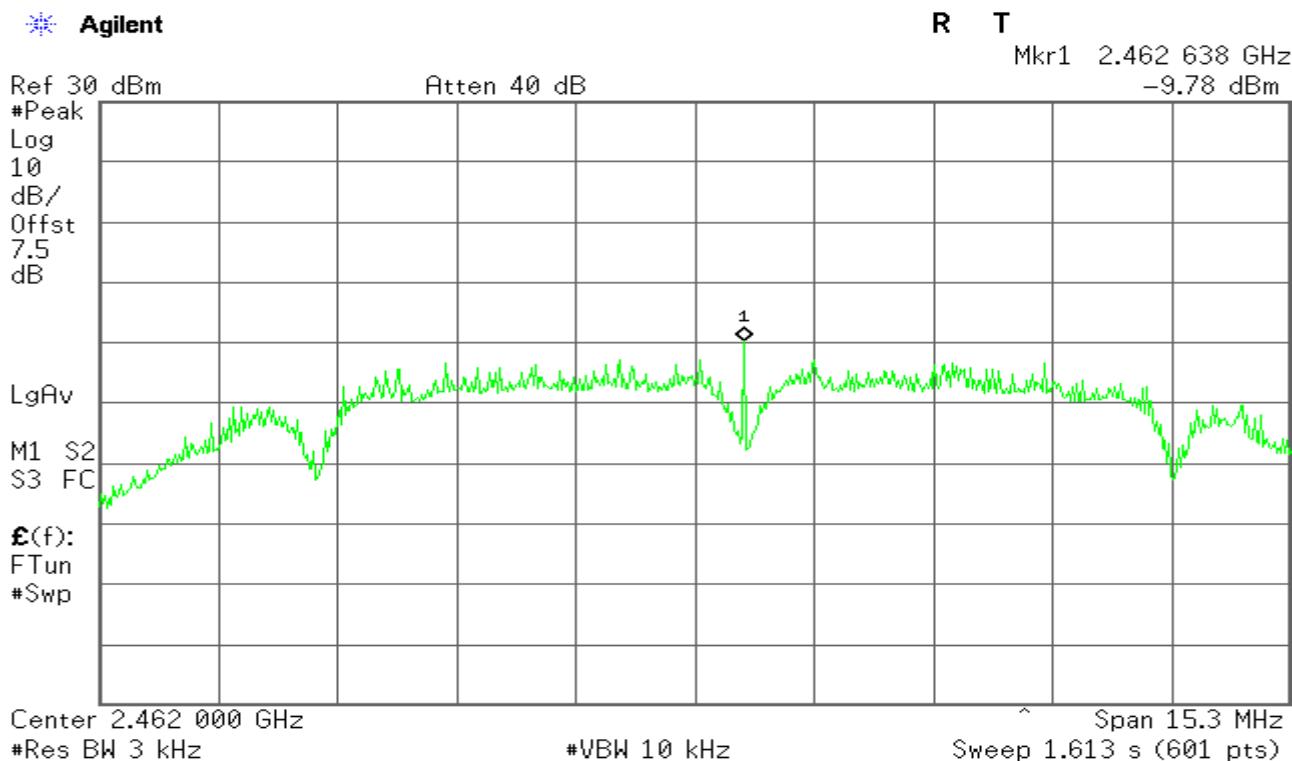




PPSD (CH Mid)



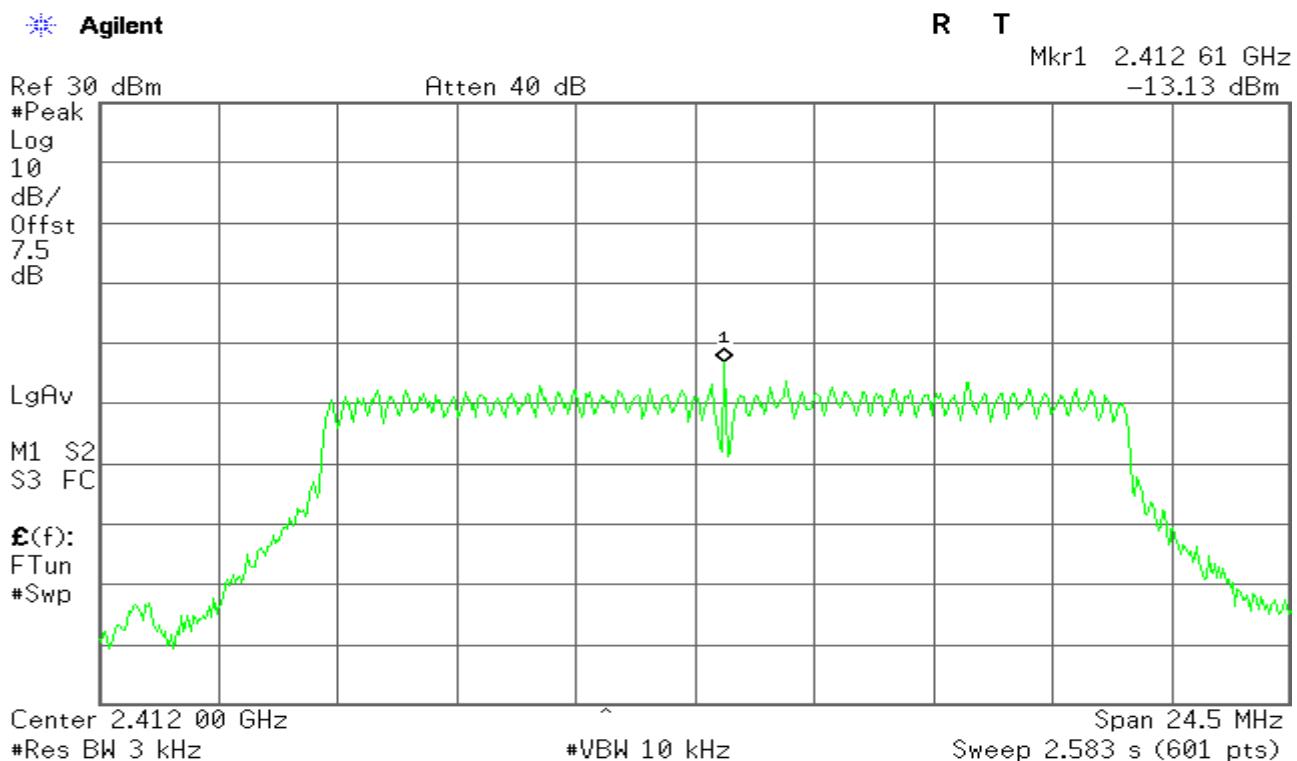
PPSD (CH High)



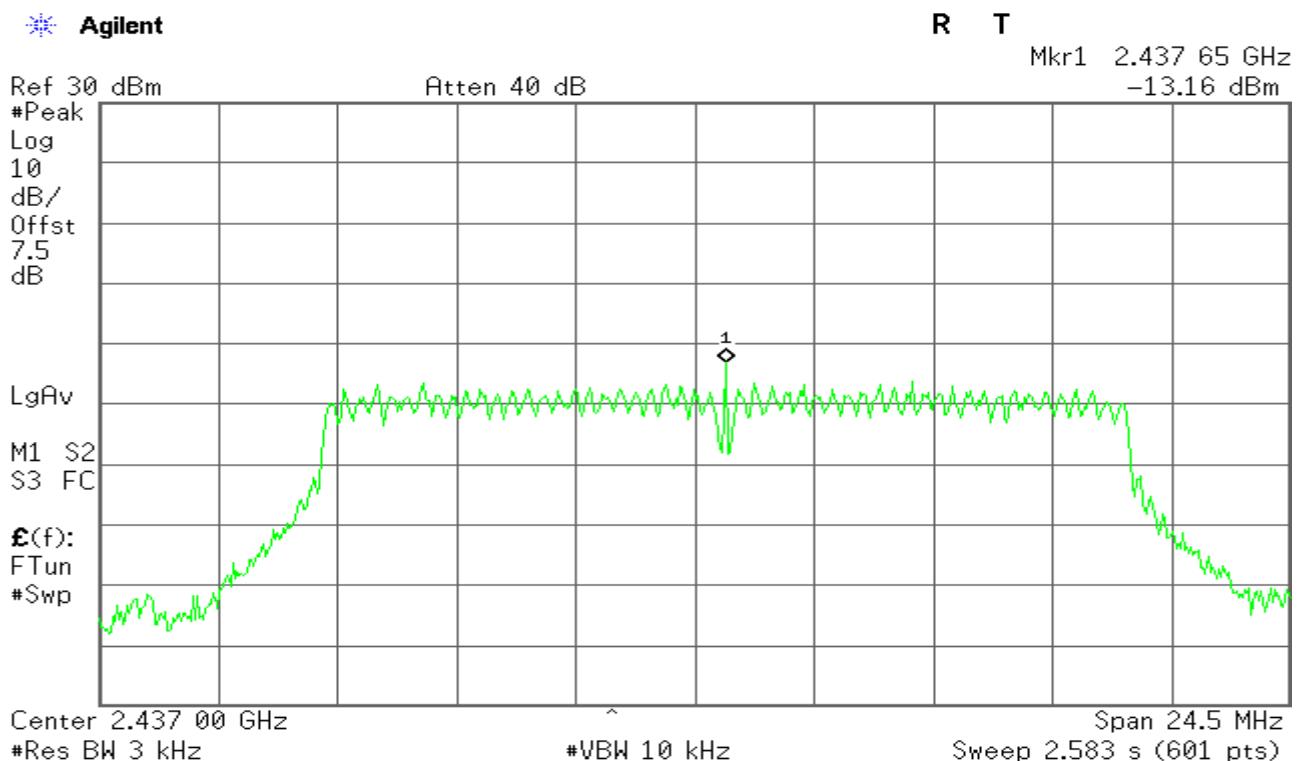


IEEE 802.11g mode/Chain 0

PPSD (CH Low)

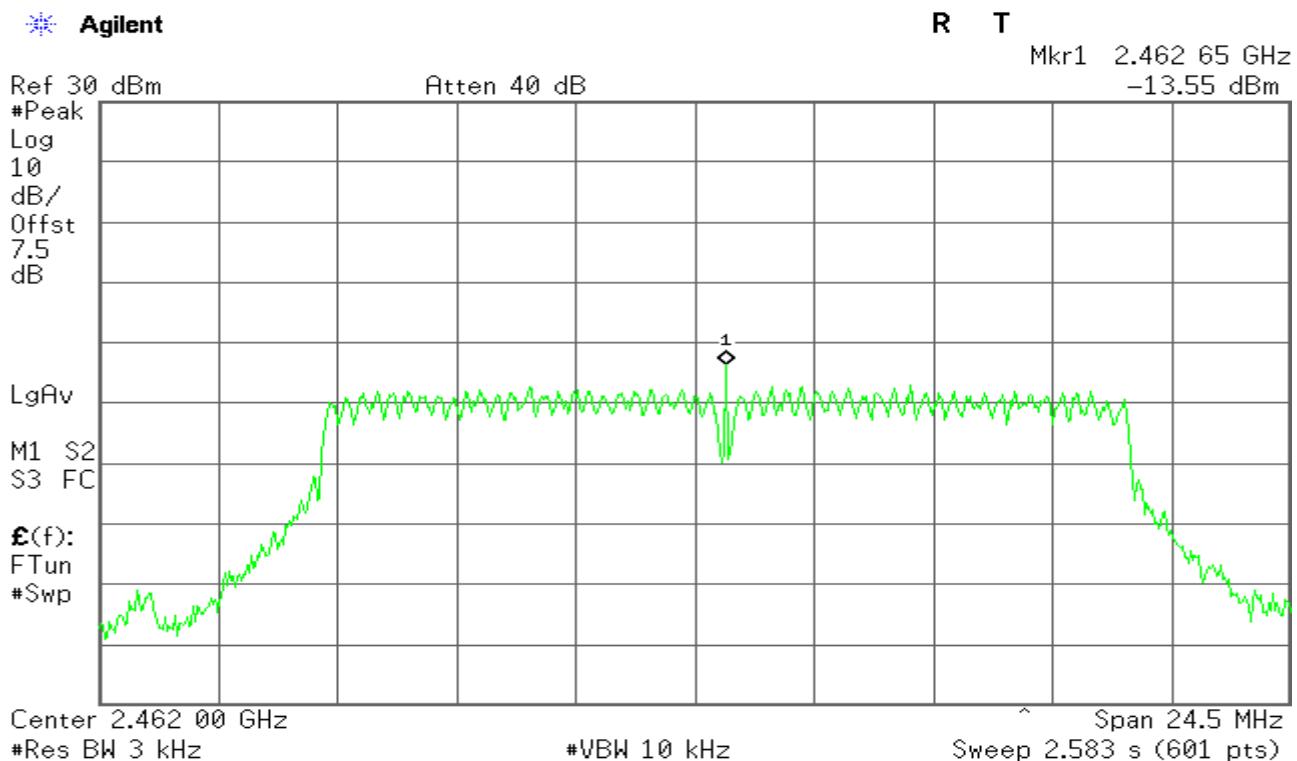


PPSD (CH Mid)



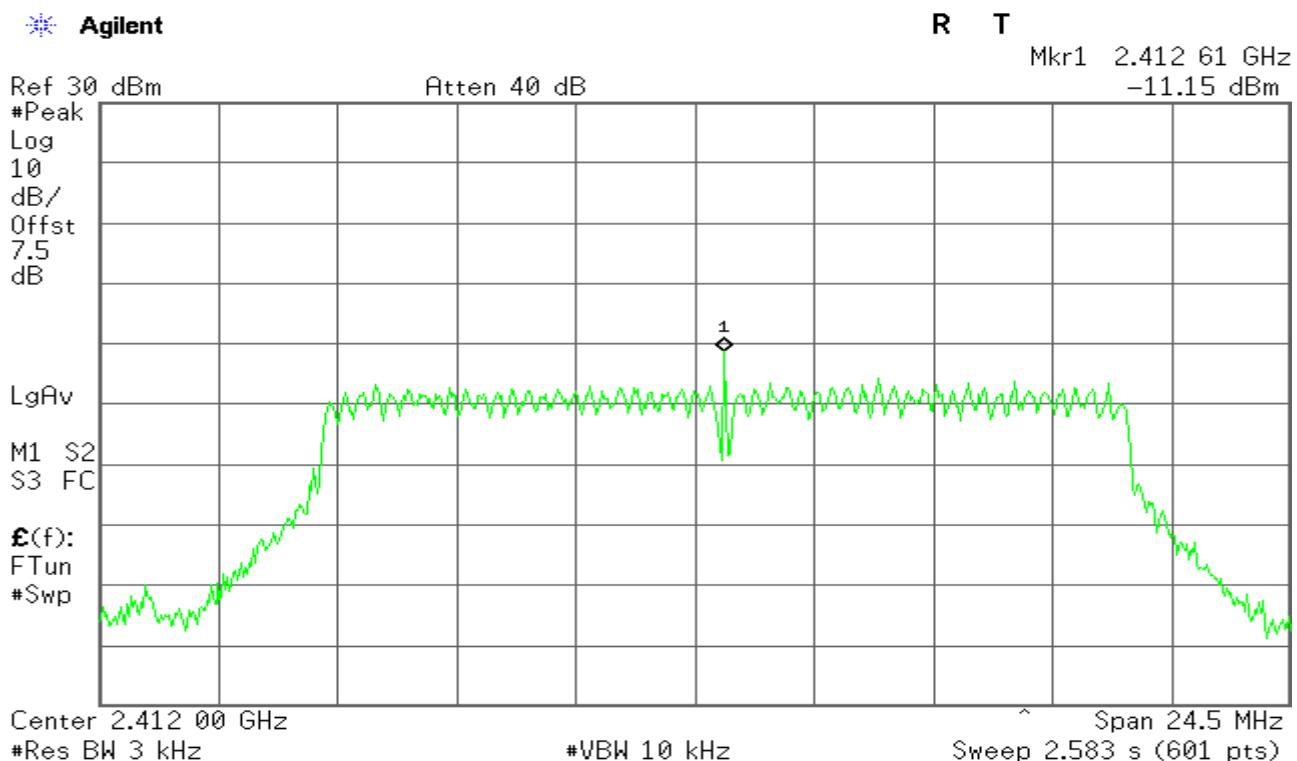


PPSD (CH High)



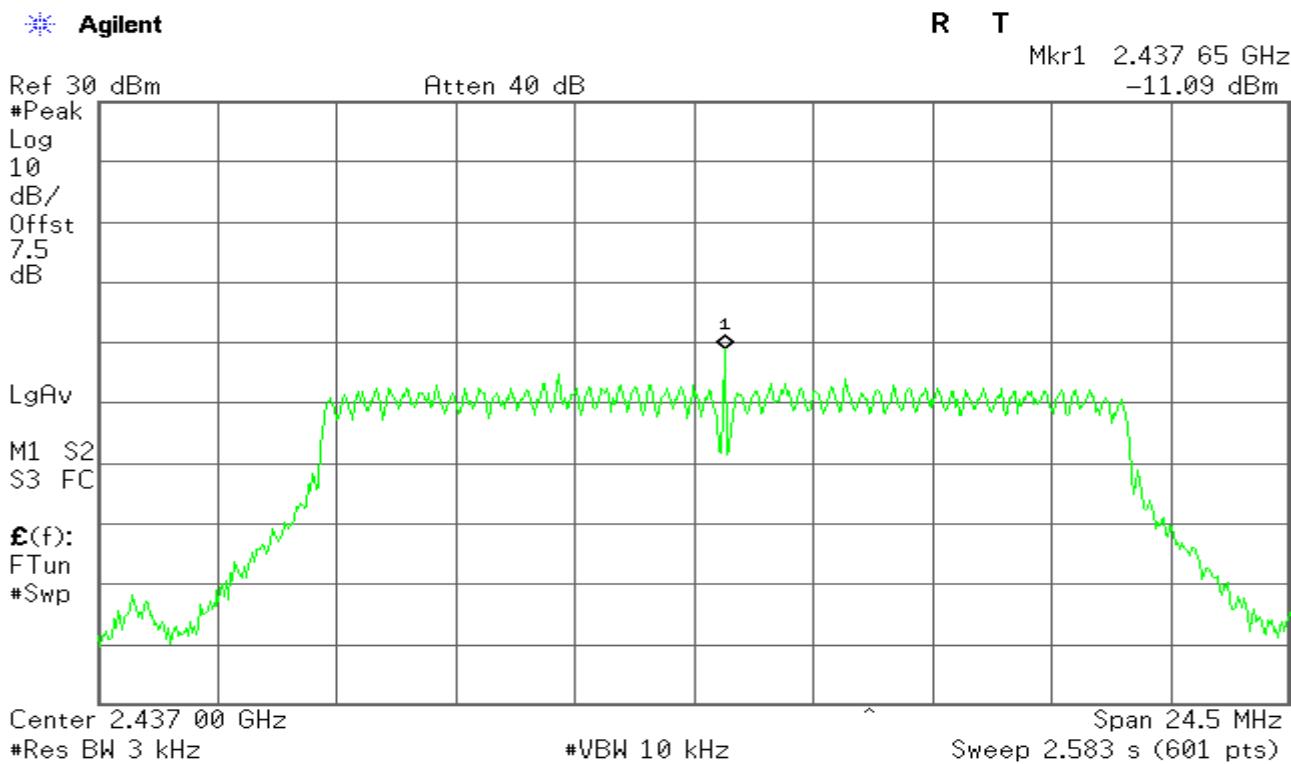
IEEE 802.11g mode/Chain 1

PPSD (CH Low)

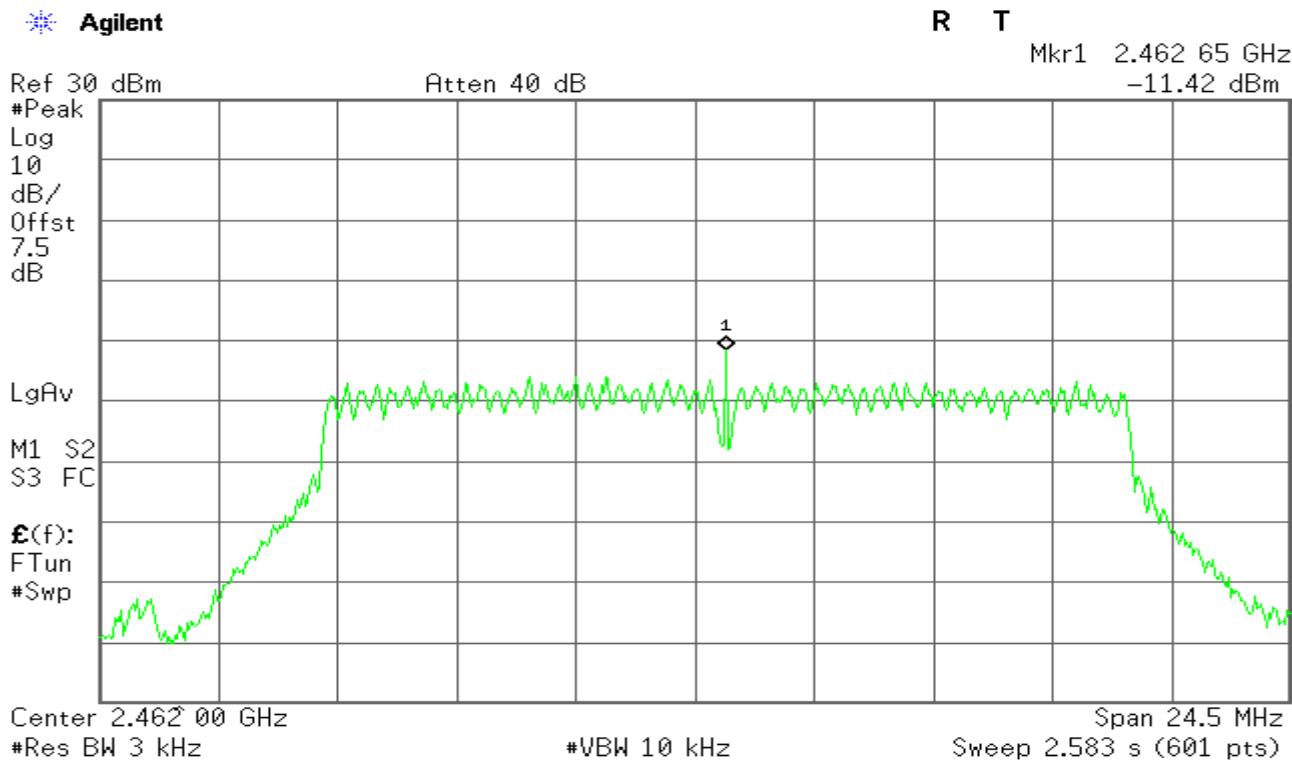




PPSD (CH Mid)



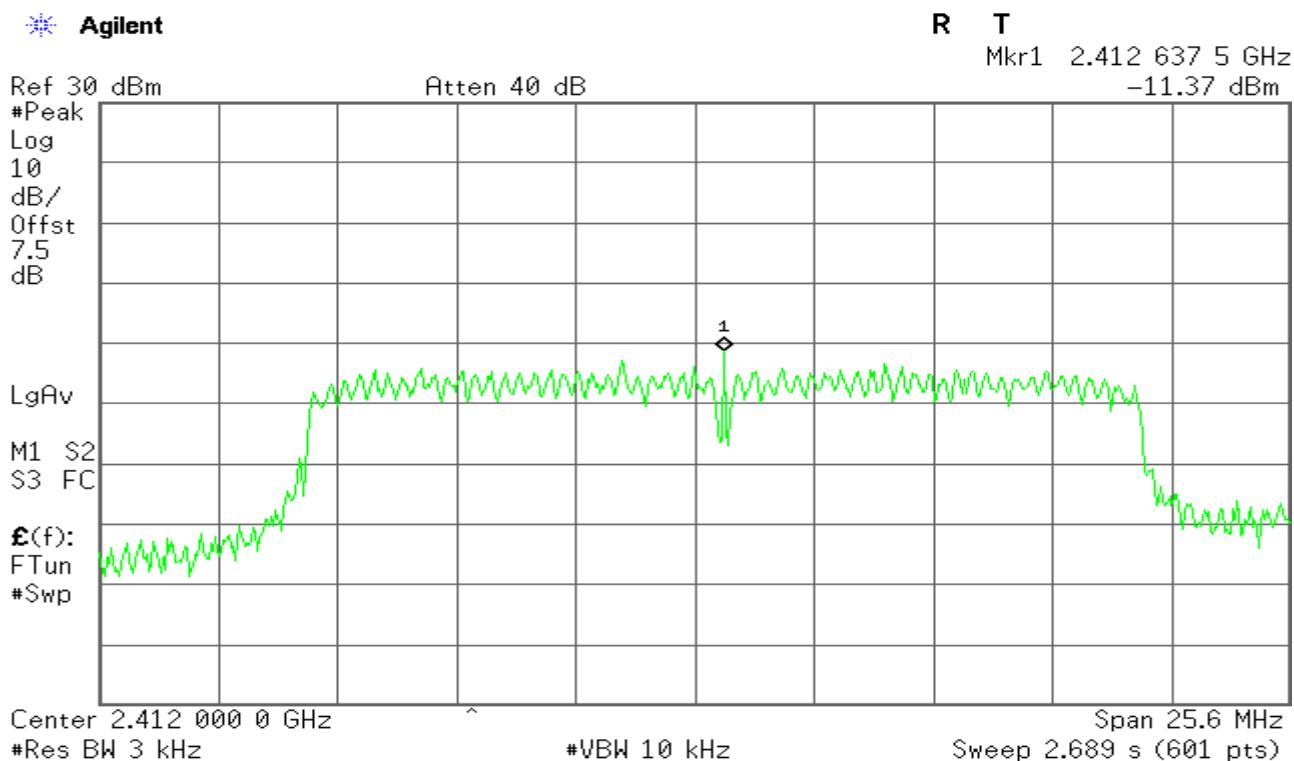
PPSD (CH High)



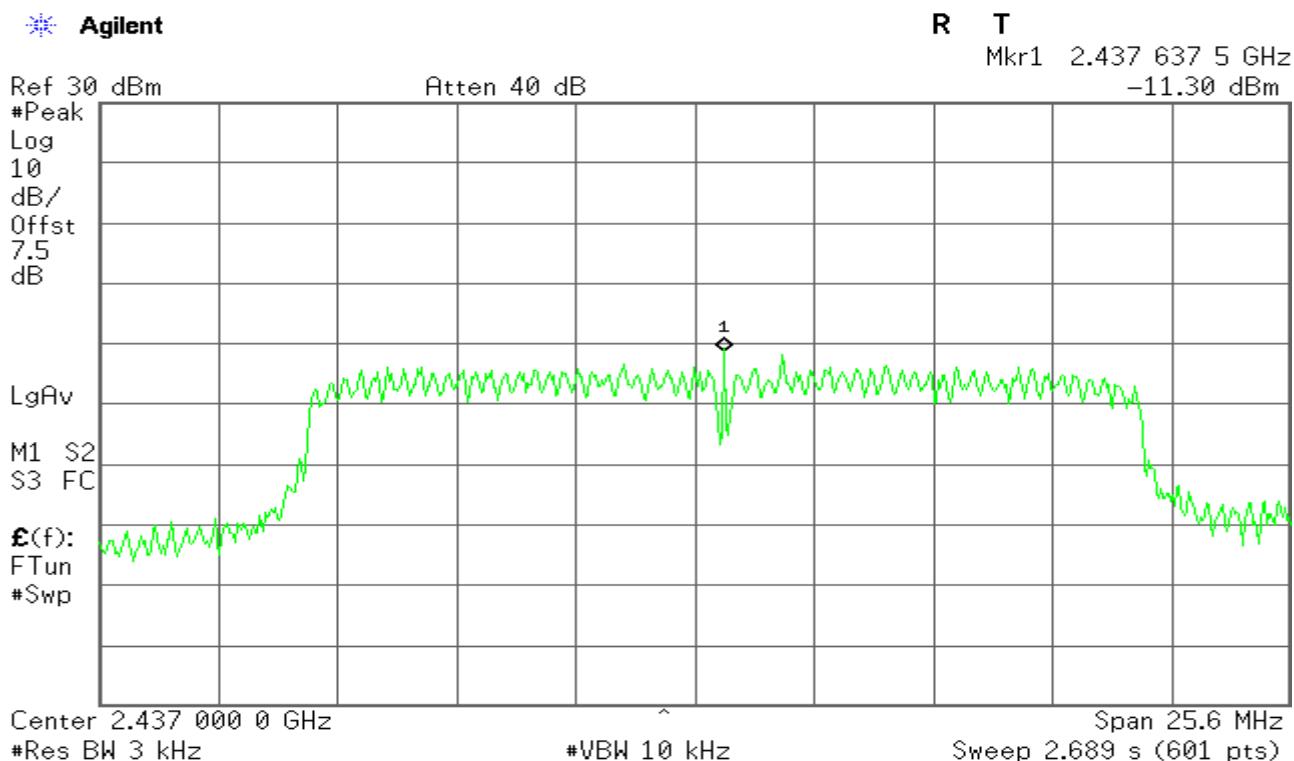


IEEE 802.11n HT20 mode / Chain 0

PPSD (CH Low)

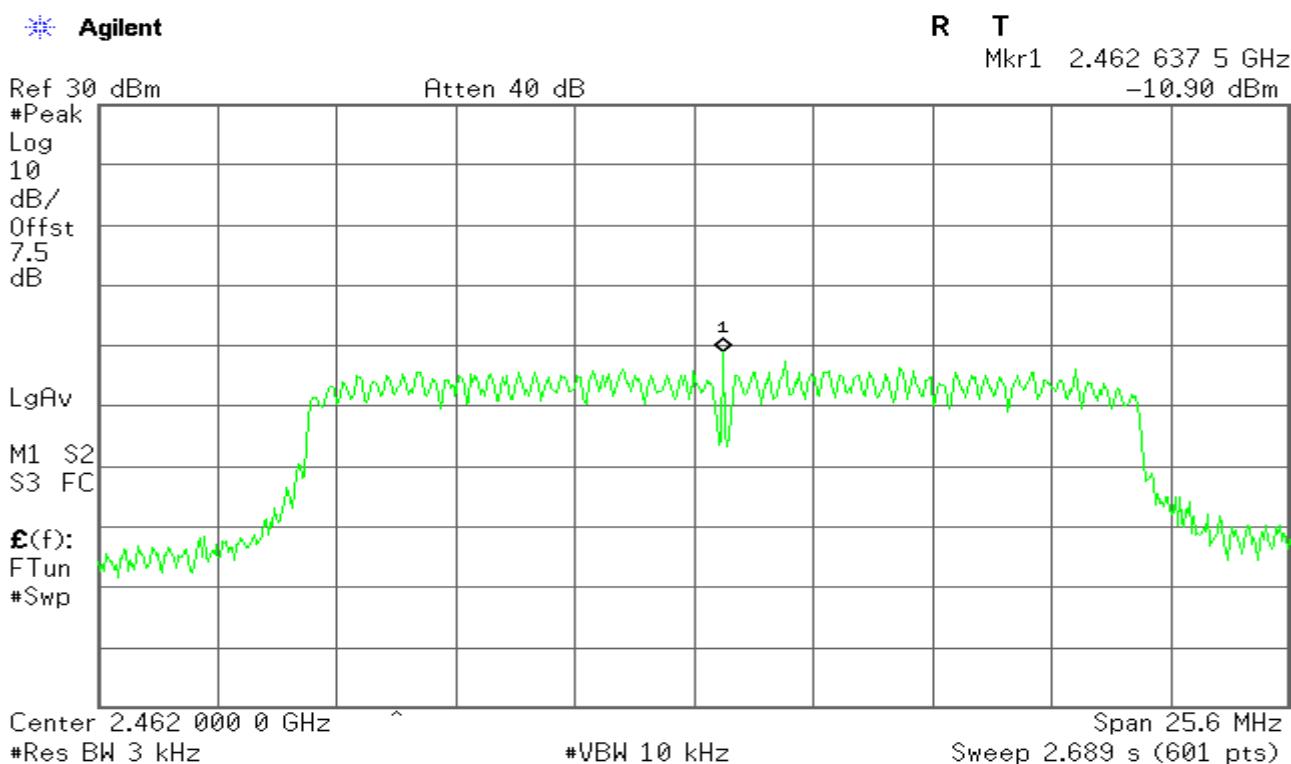


PPSD (CH Mid)



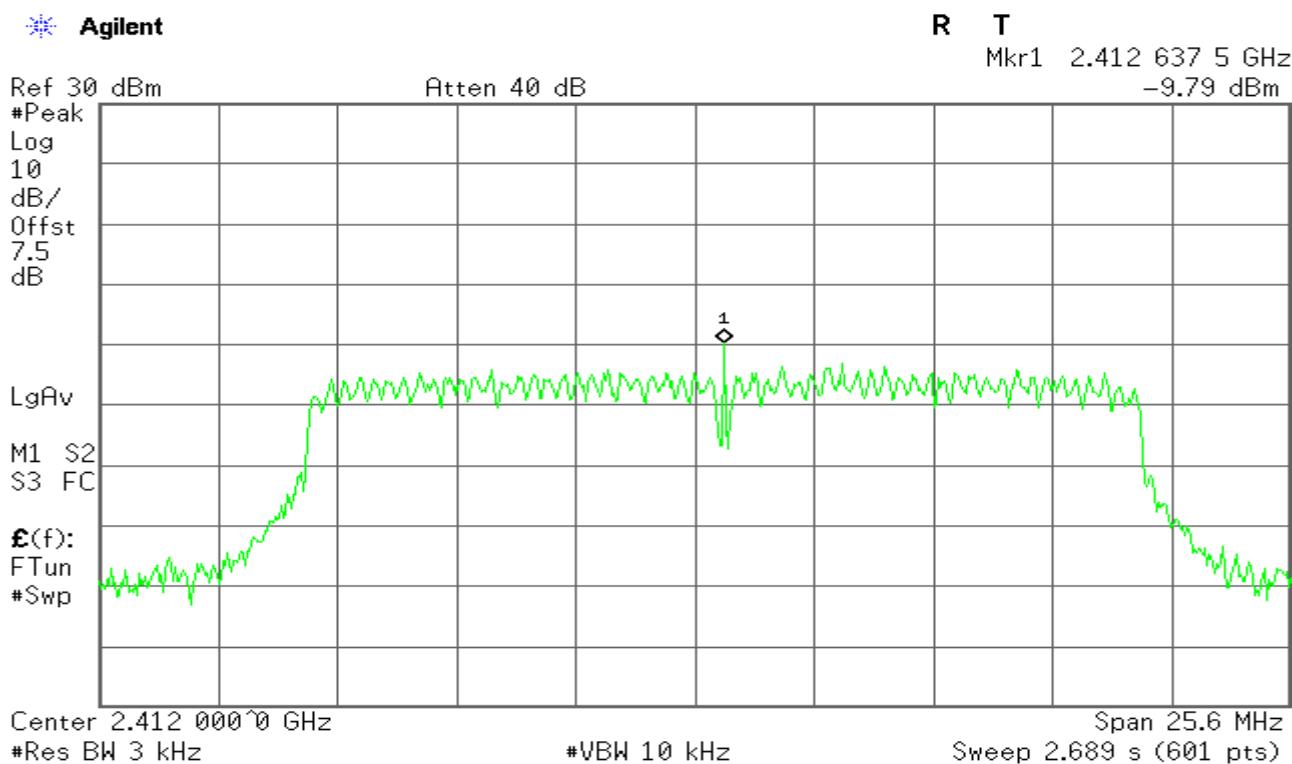


PPSD (CH High)



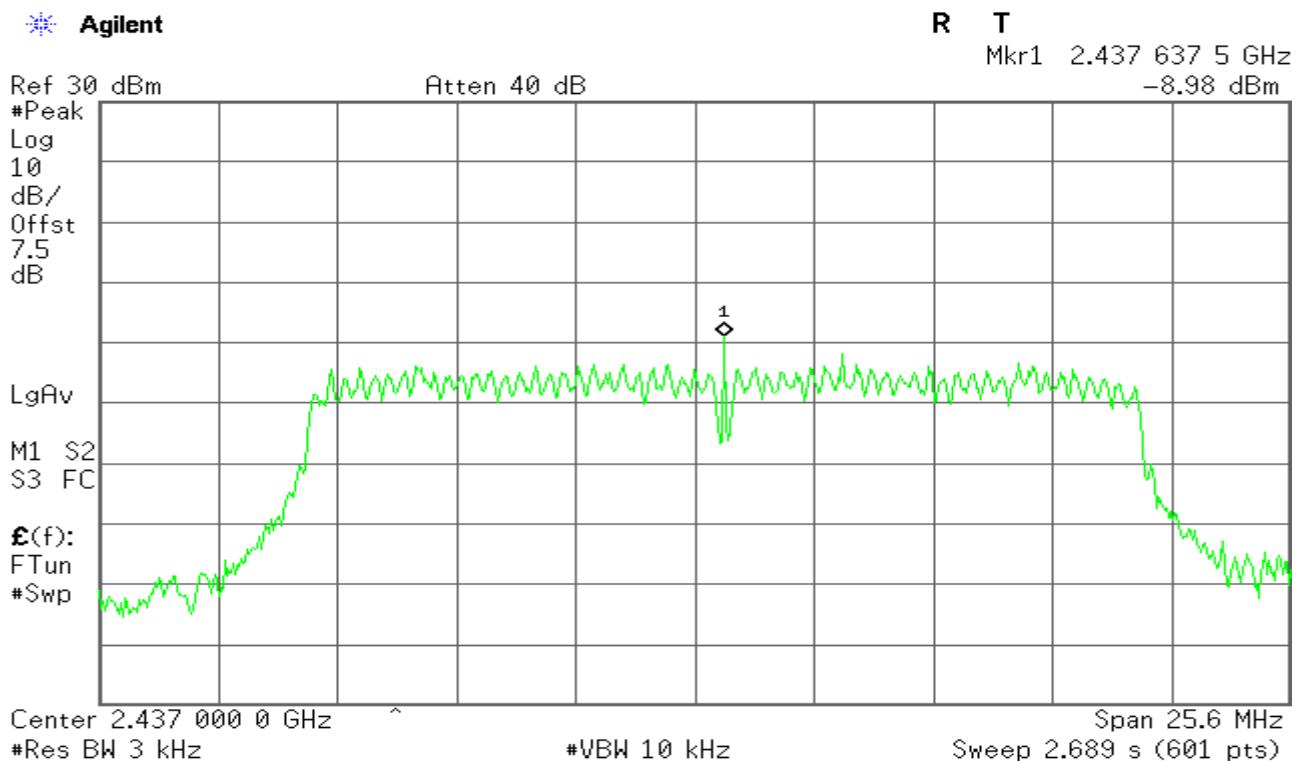
IEEE 802.11n HT20 mode / Chain 1

PPSD (CH Low)

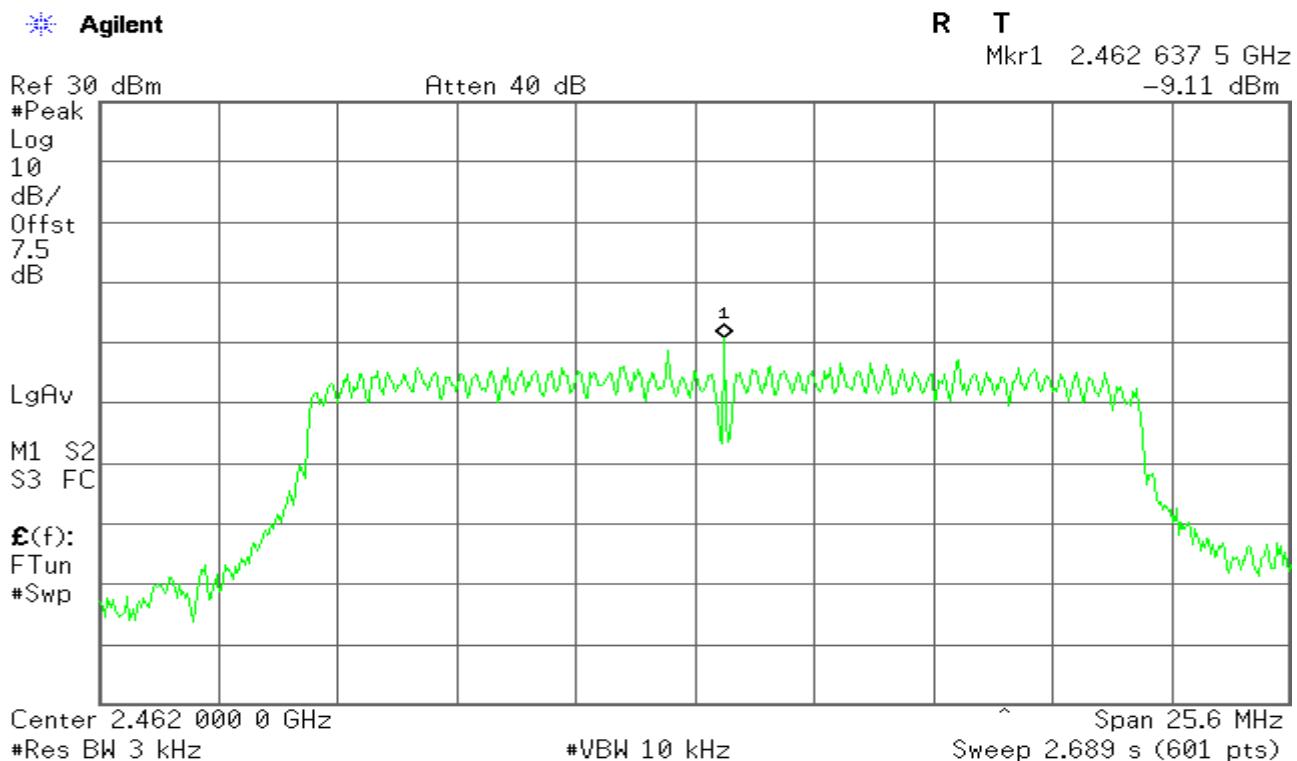




PPSD (CH Mid)



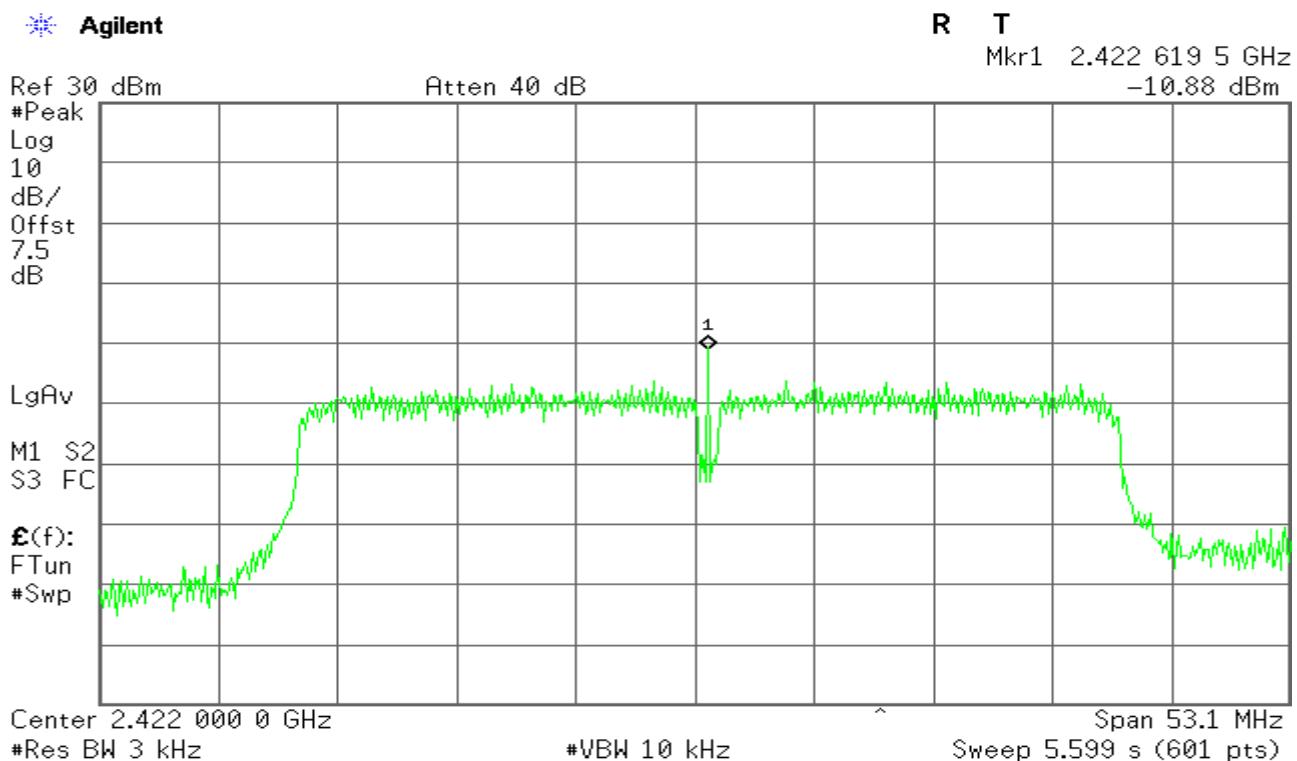
PPSD (CH High)



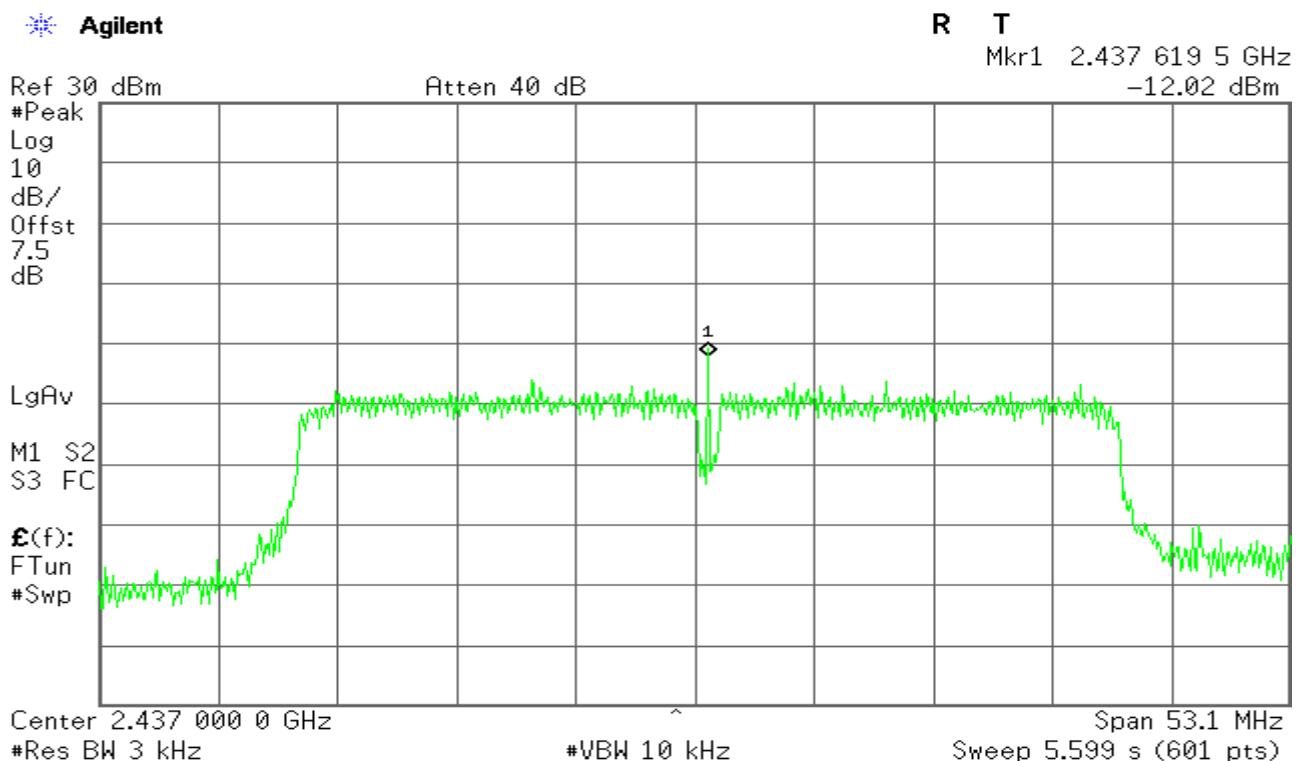


IEEE 802.11n HT40 mode / Chain 0

PPSD (CH Low)

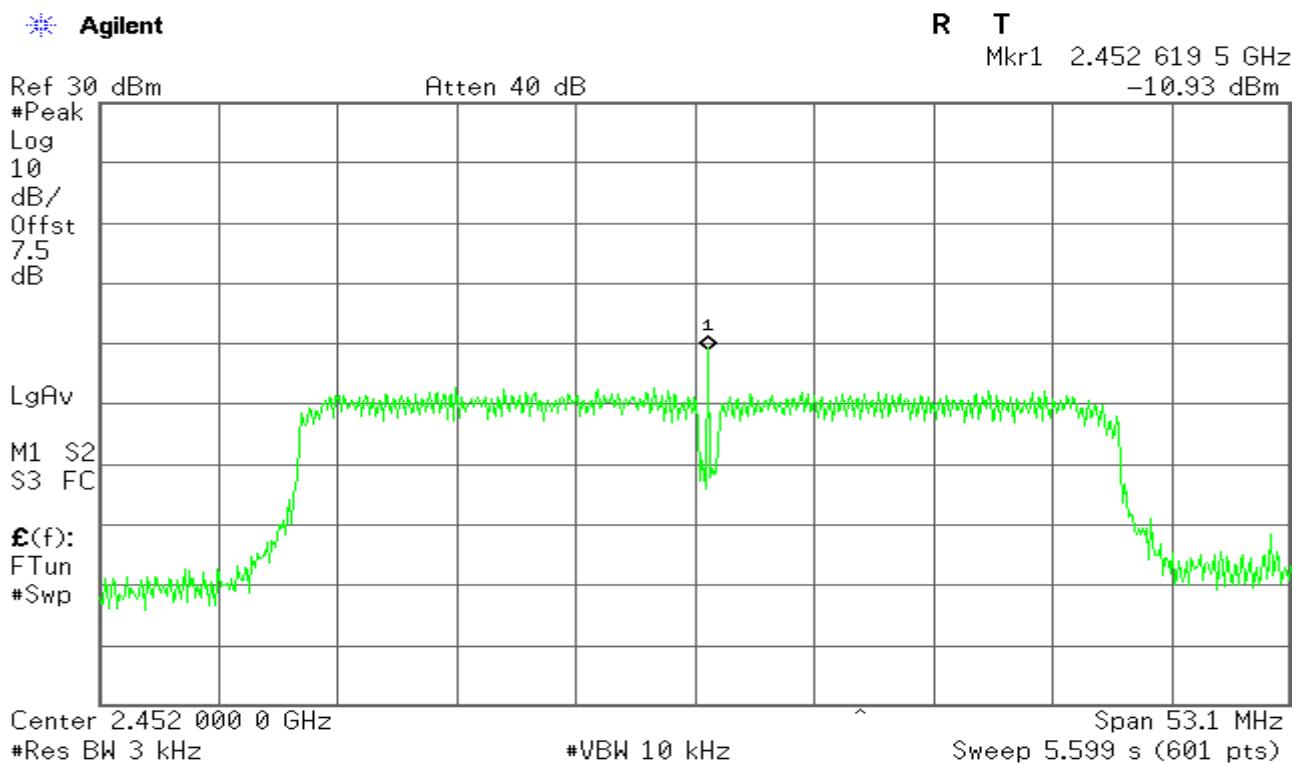


PPSD (CH Mid)



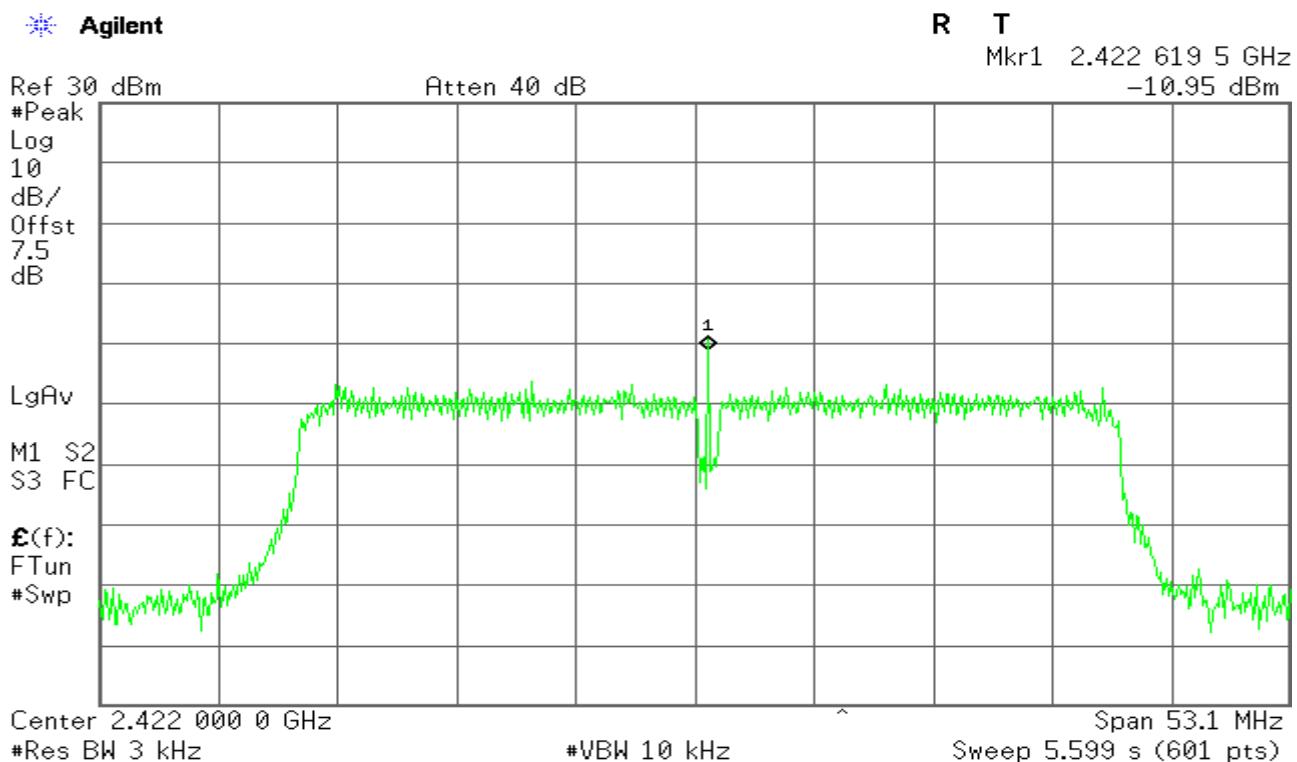


PPSD (CH High)



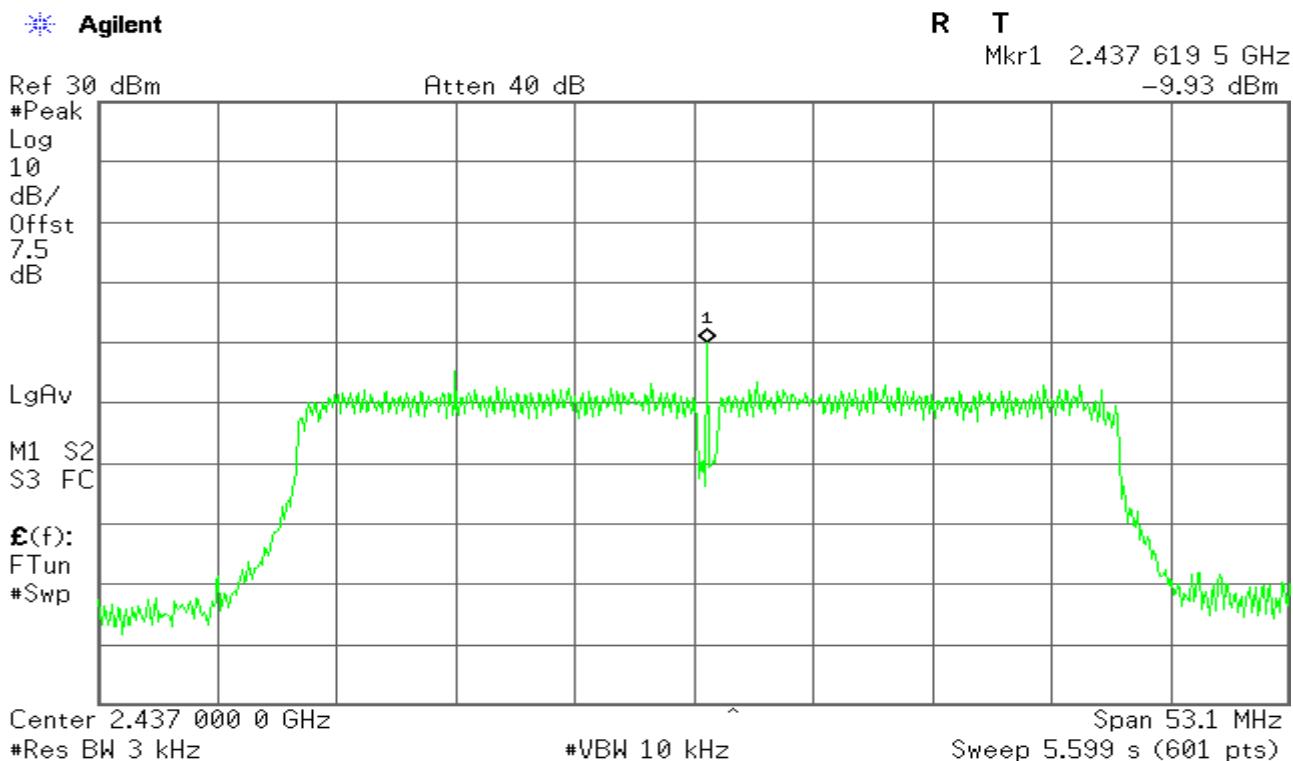
IEEE 802.11n HT40 mode / Chain 1

PPSD (CH Low)

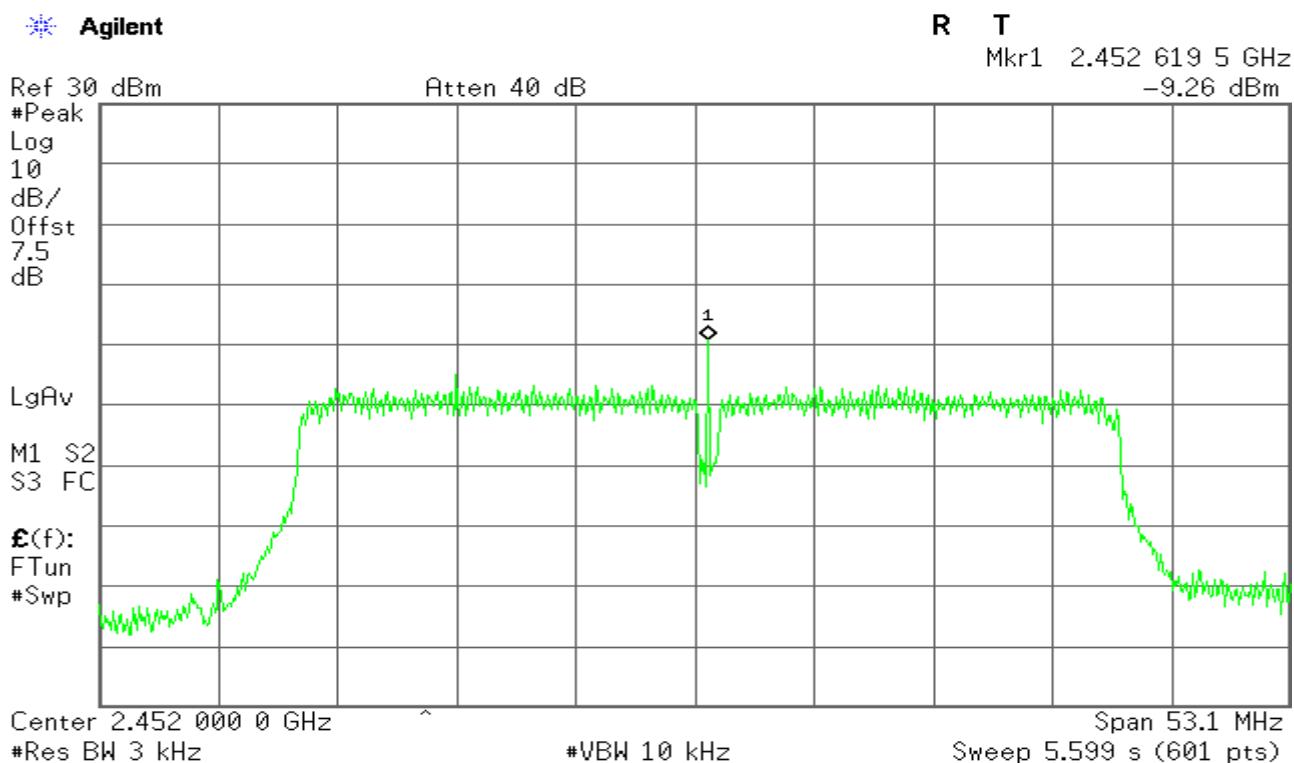




PPSD (CH Mid)



PPSD (CH High)





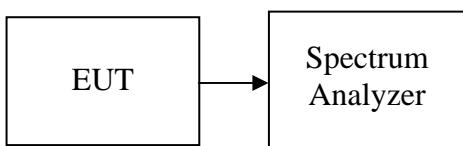
4.4. SPURIOUS EMISSIONS

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)).

Test Configuration



TEST PROCEDURE

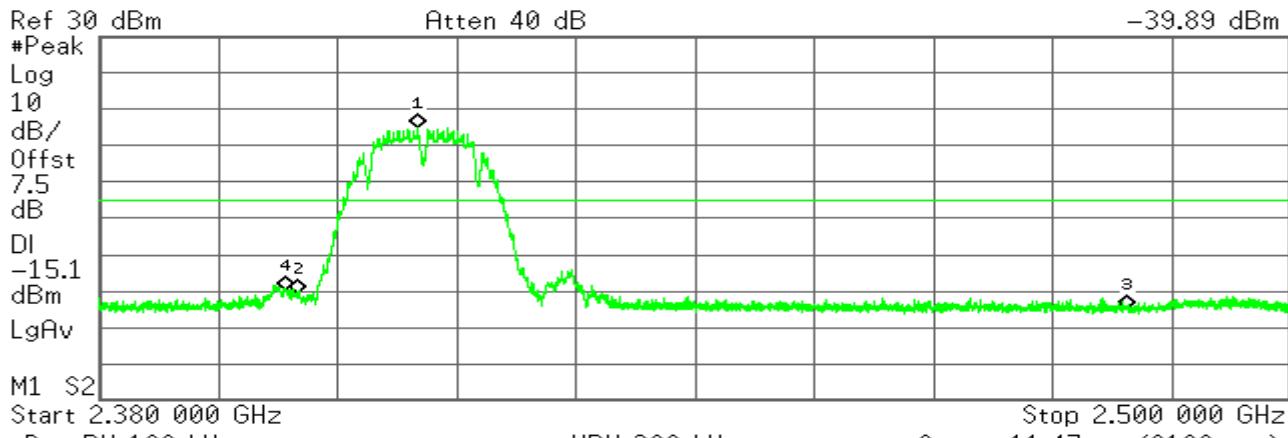
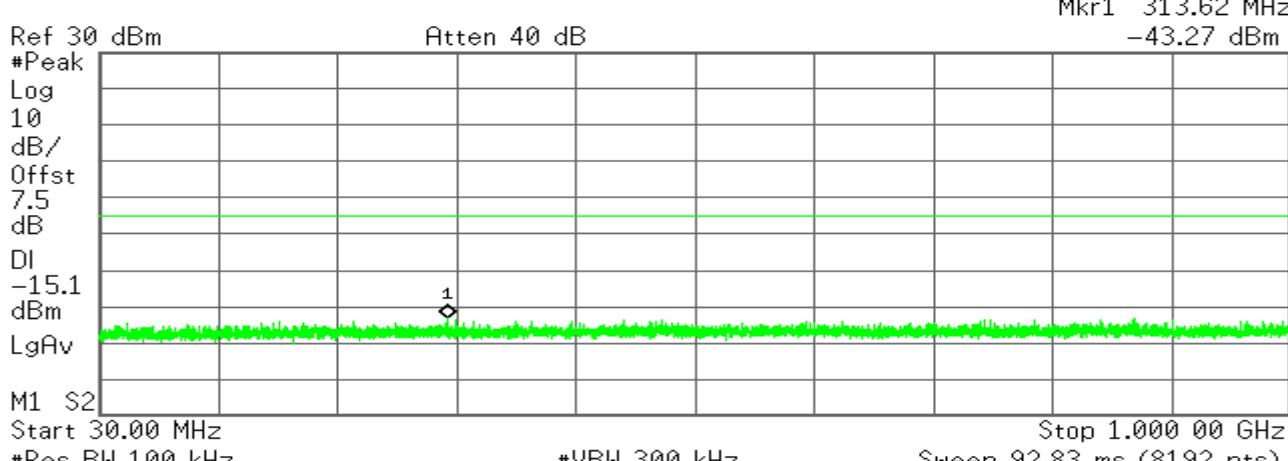
Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

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

**Test Plot****OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT****IEEE 802.11b mode/Chain 0****CH Low****Agilent****R T**Mkr4 2.398 738 GHz
-39.89 dBm**Agilent****R T**Mkr1 313.62 MHz
-43.27 dBm



Compliance Certification Services Inc.

Report No: C140616R01-RPW

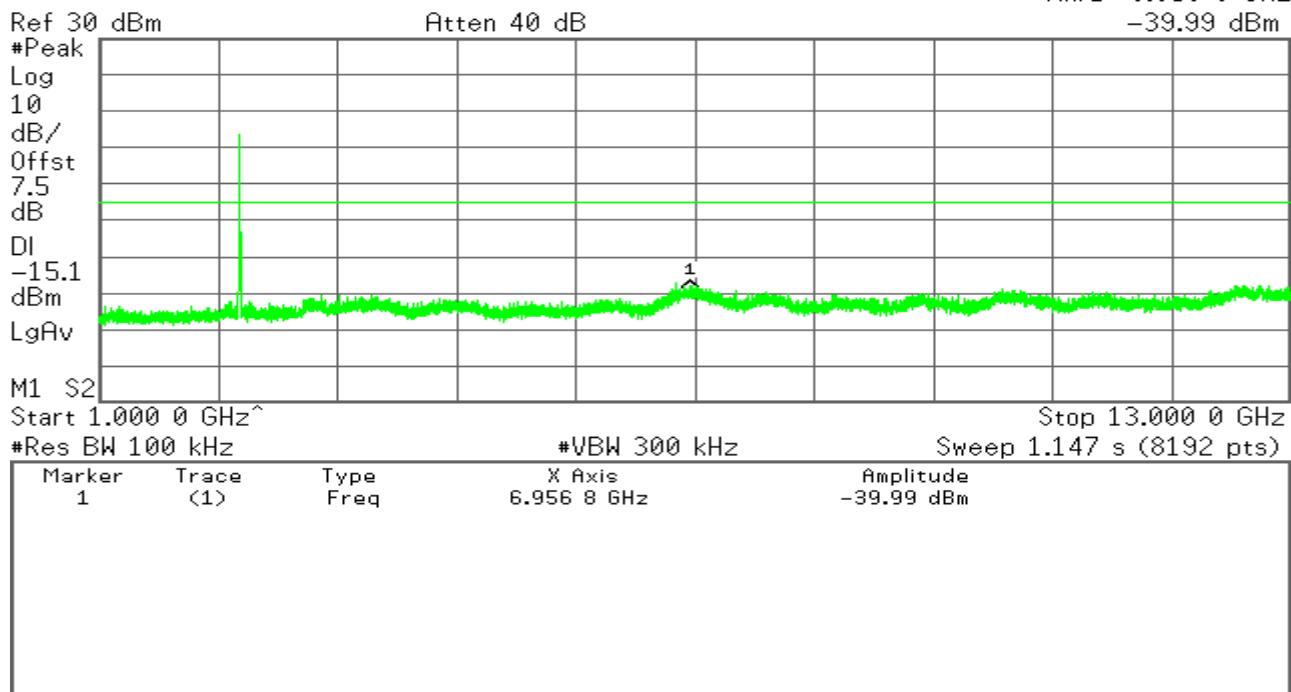
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

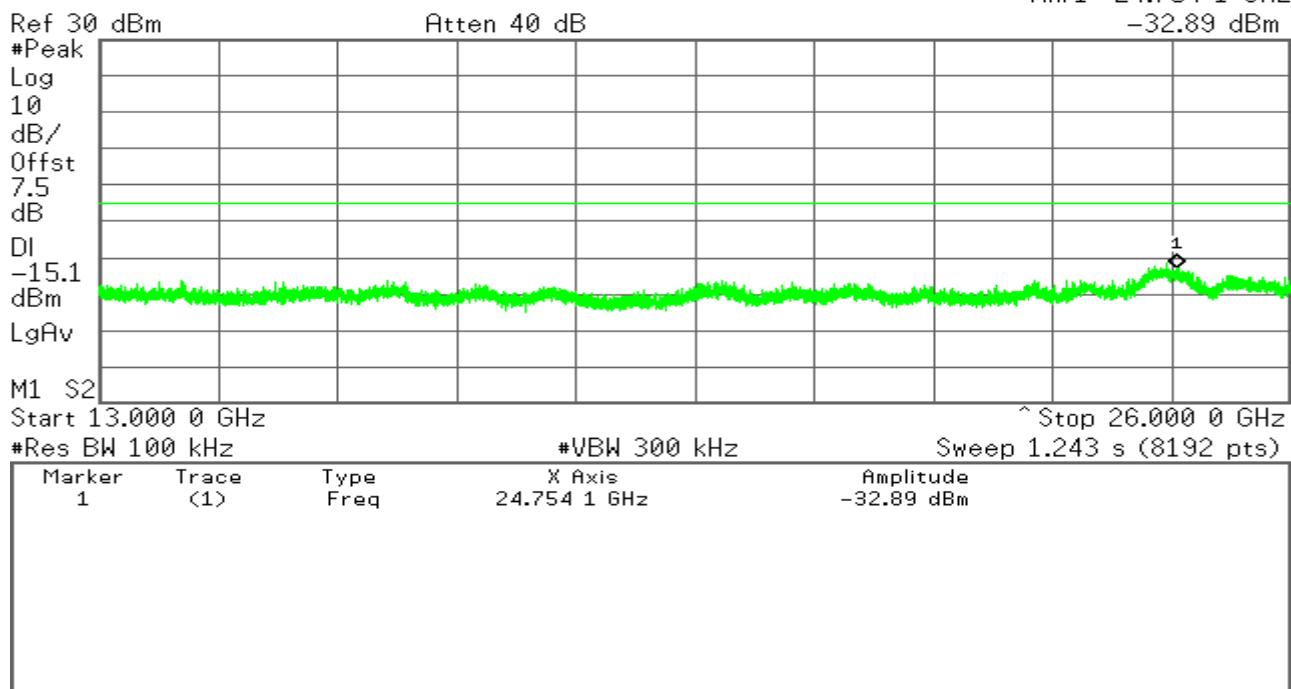
Mkr1 6.956 8 GHz
-39.99 dBm



Agilent

R T

Mkr1 24.754 1 GHz
-32.89 dBm



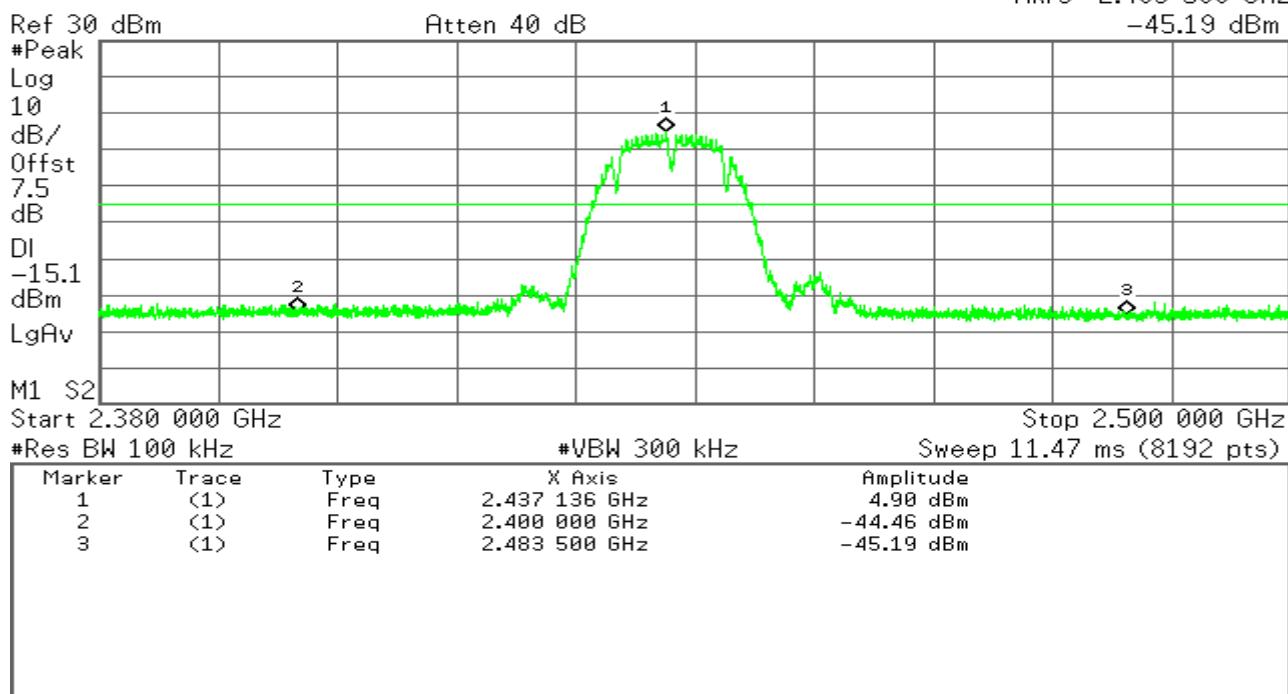


CH Mid

Agilent

R T

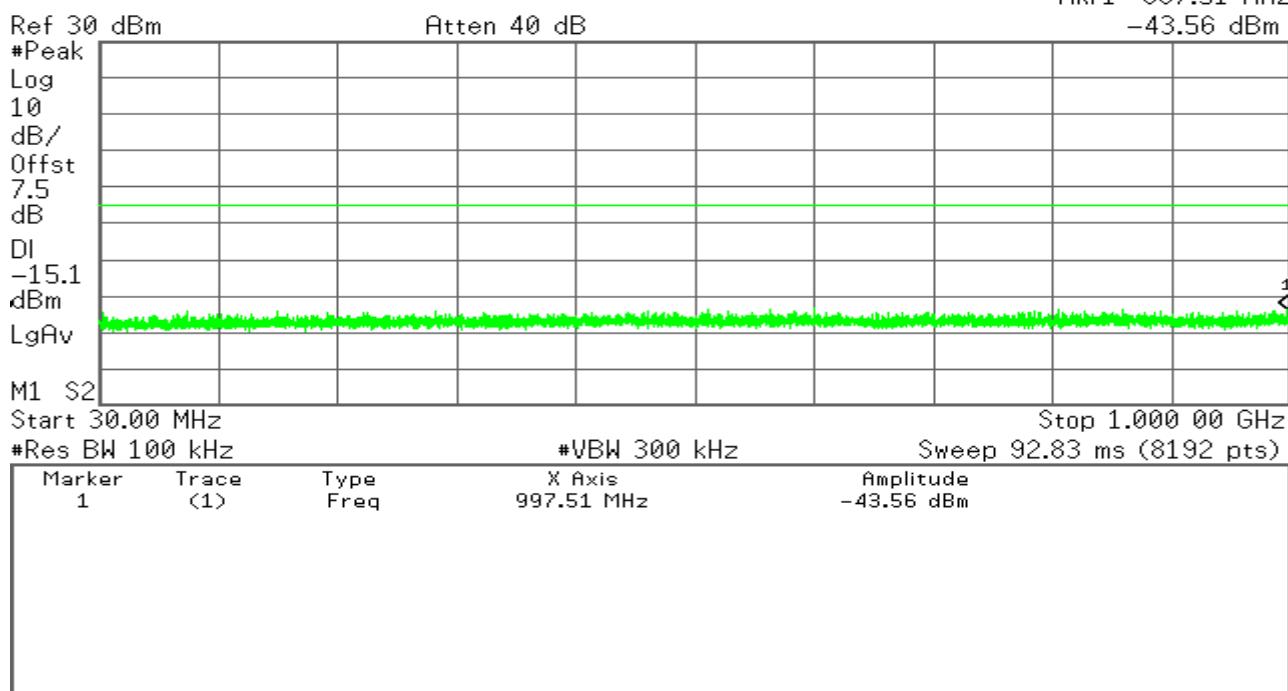
Mkr3 2.483 500 GHz
-45.19 dBm



Agilent

R T

Mkr1 997.51 MHz
-43.56 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 3.808 4 GHz
-41.05 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.1

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	3.808 4 GHz	-41.05 dBm

Agilent

R T

Mkr1 24.611 3 GHz
-31.14 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.1

dBm

LgAv

M1 S2

Center 19.500 0 GHz

Span 13 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.611 3 GHz	-31.14 dBm



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

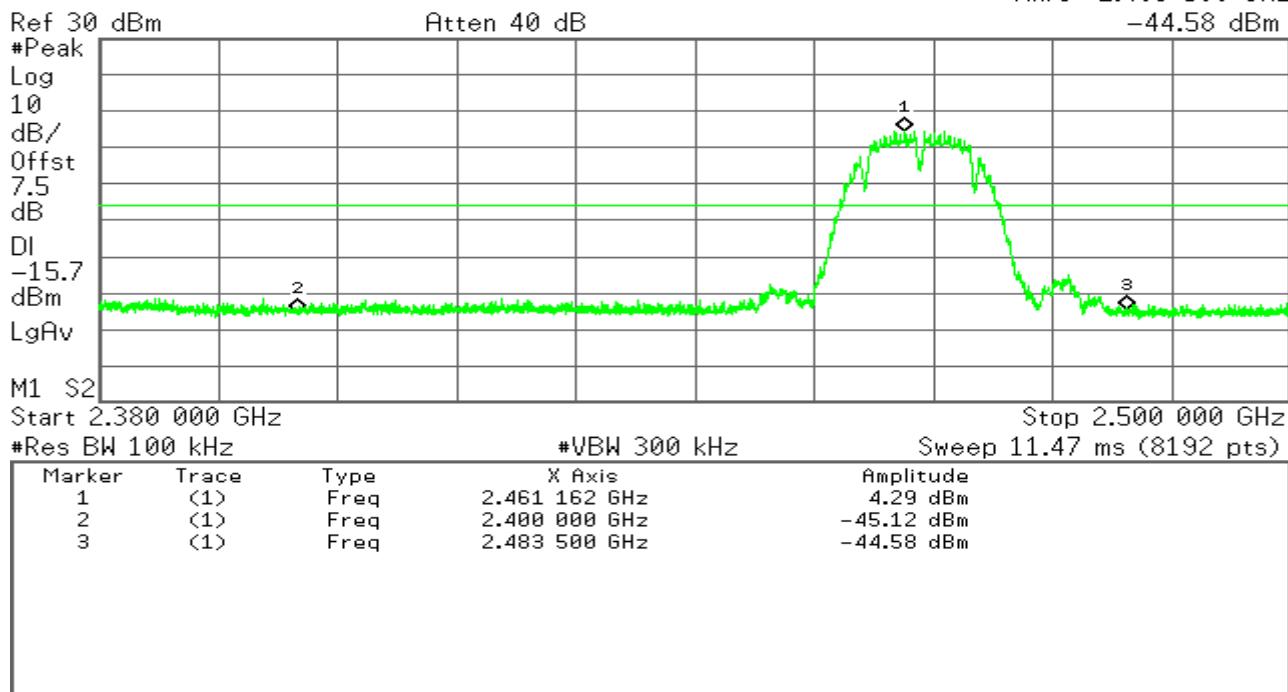
Date of Issue :July 22, 2014

CH High

Agilent

R T

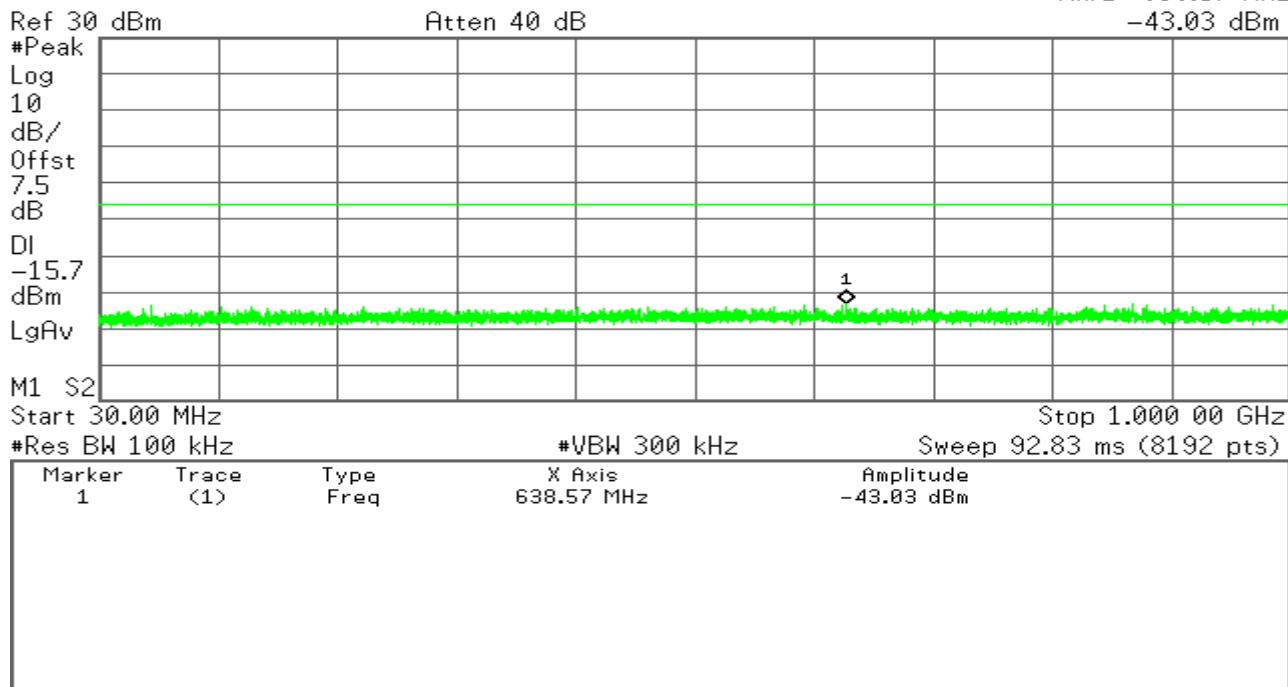
Mkr3 2.483 500 GHz
-44.58 dBm



Agilent

R T

Mkr1 638.57 MHz
-43.03 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

* Agilent

R T

Mkr1 8.524 4 GHz
-42.60 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.7

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	8.524 4 GHz	-42.60 dBm

* Agilent

R T

Mkr1 24.576 4 GHz
-31.92 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.7

dBm

LgAv

M1 S2

Center 19.500 0 GHz

Span 13 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.576 4 GHz	-31.92 dBm



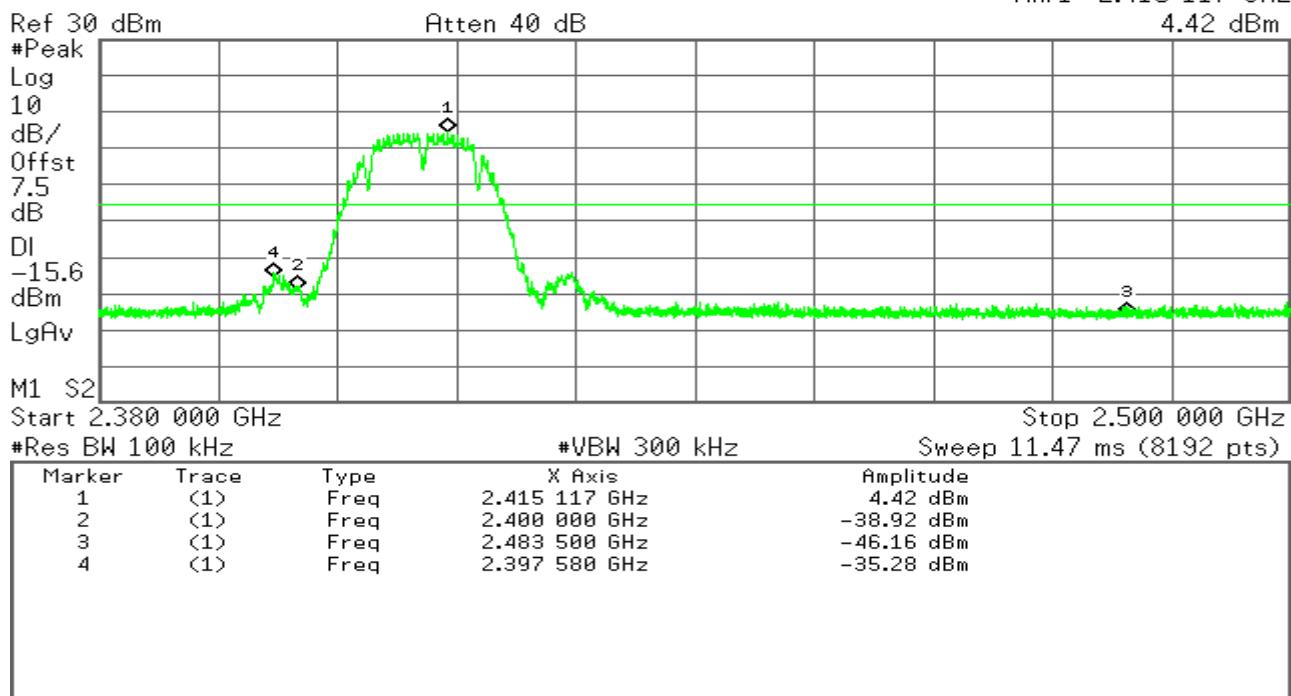
IEEE 802.11b mode/Chain 1

CH Low

Agilent

R T

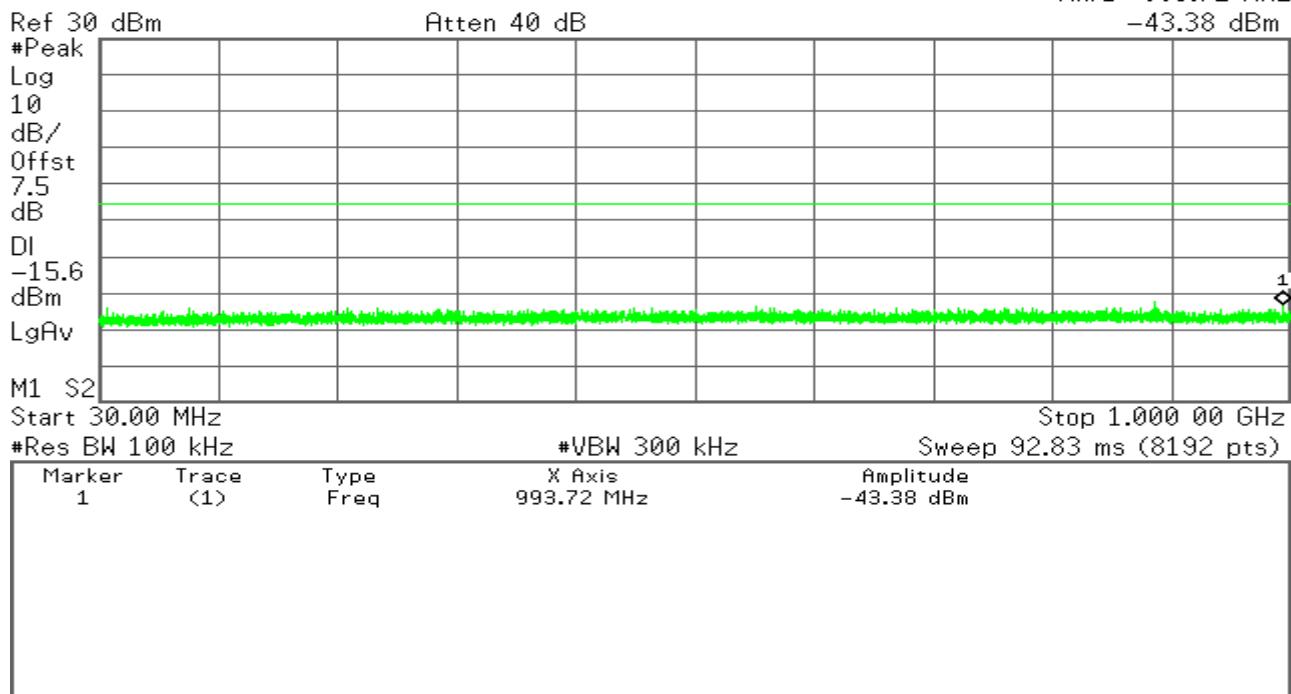
Mkr1 2.415 117 GHz
4.42 dBm



Agilent

R T

Mkr1 993.72 MHz
-43.38 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

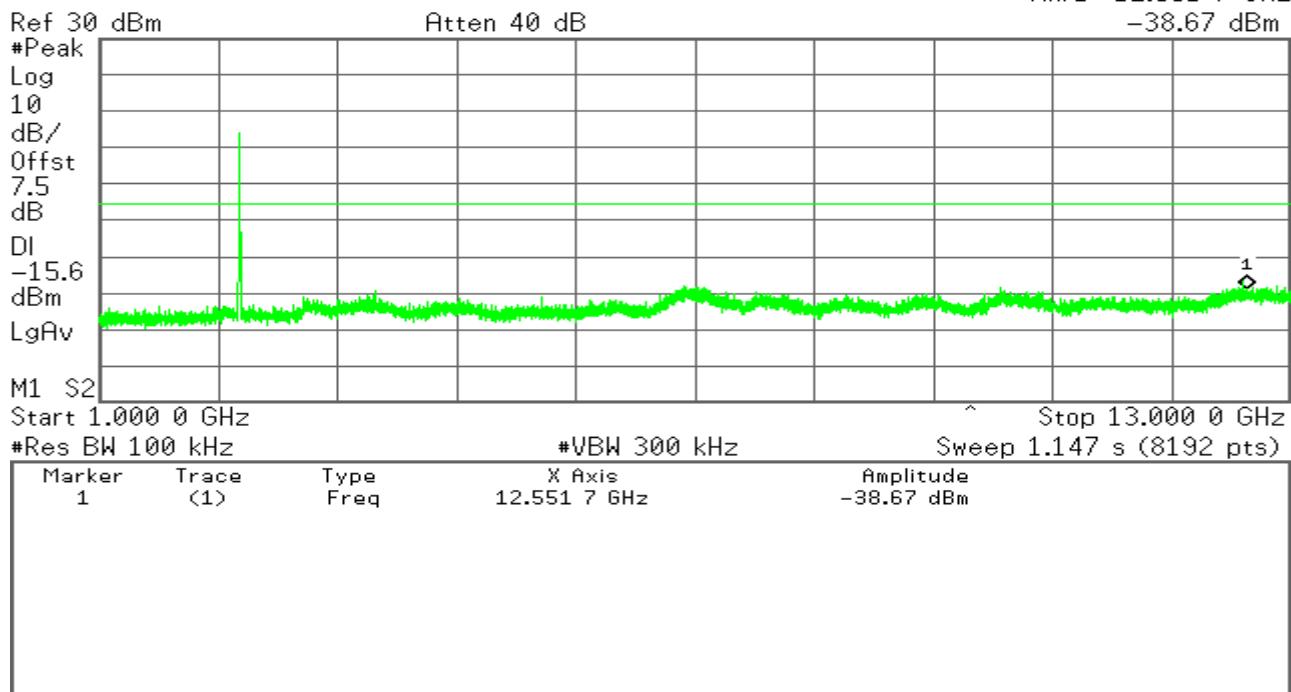
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

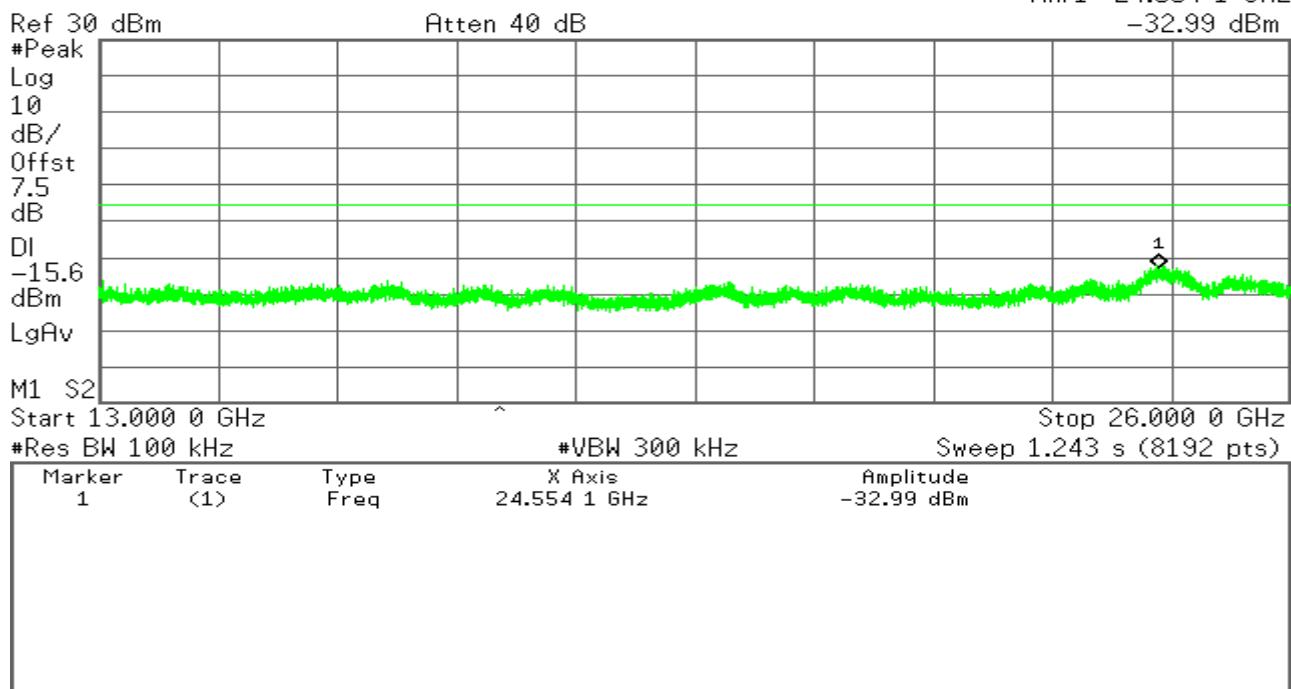
Mkr1 12.551 7 GHz
-38.67 dBm



Agilent

R T

Mkr1 24.554 1 GHz
-32.99 dBm



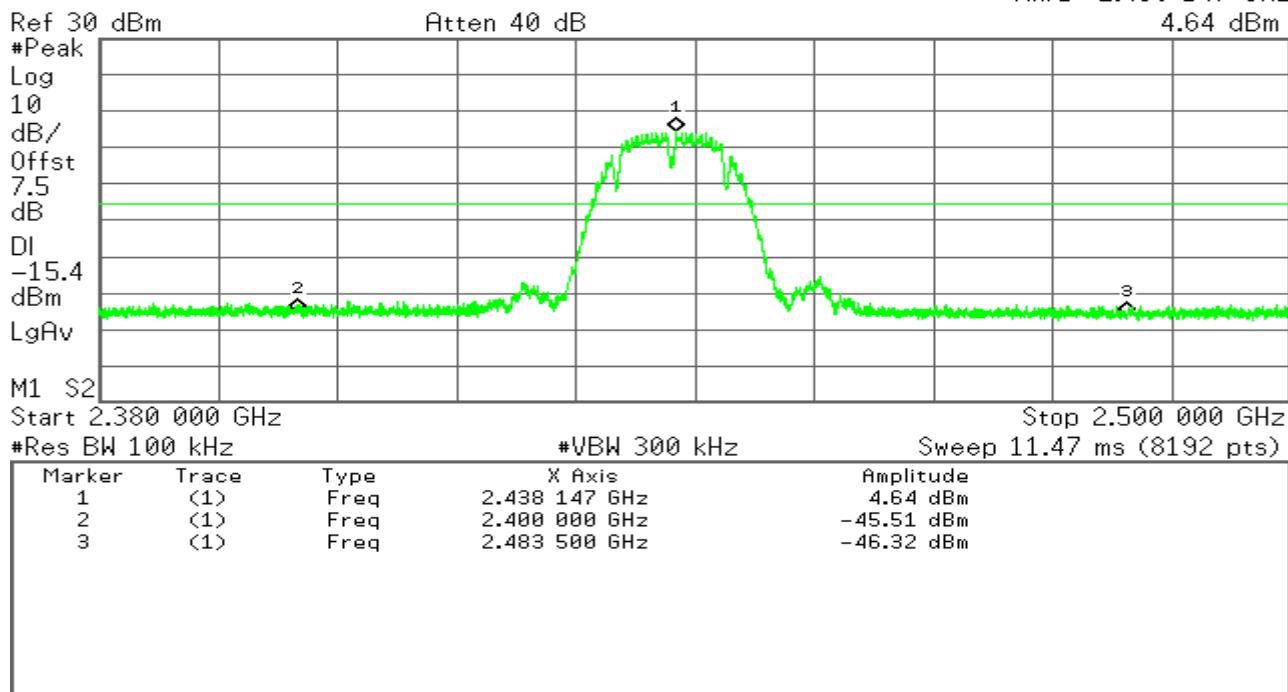


CH Mid

Agilent

R T

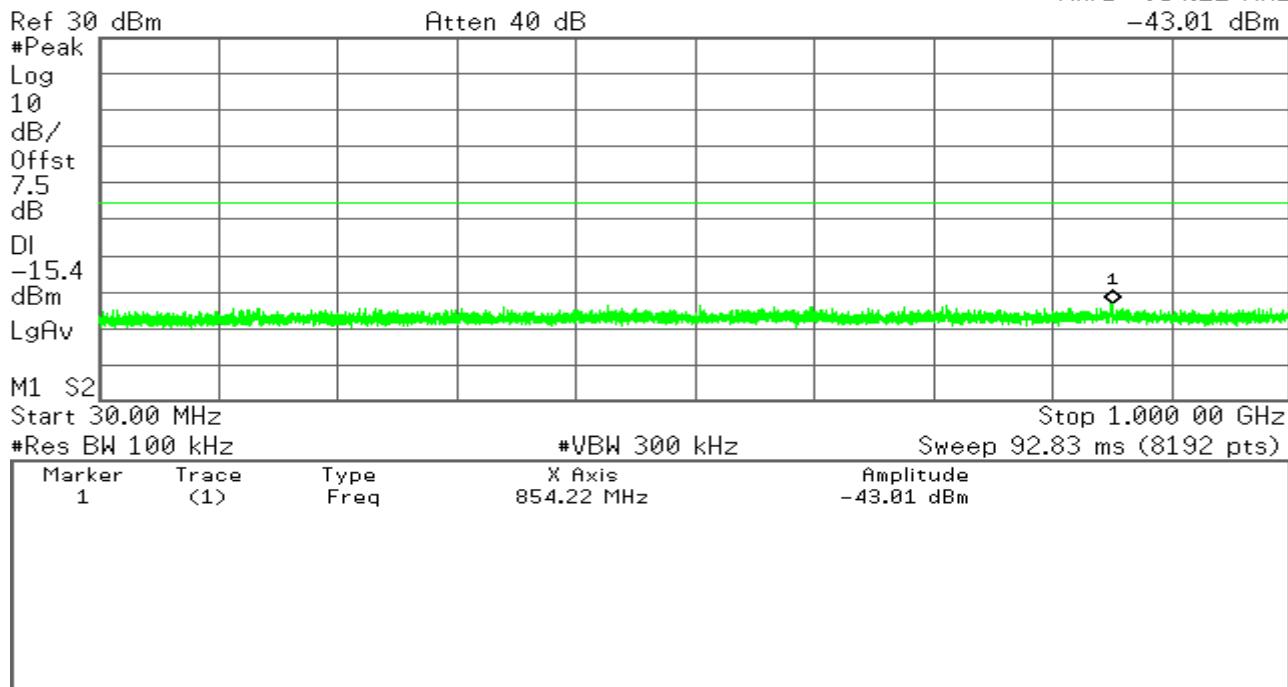
Mkr1 2.438 147 GHz
4.64 dBm



Agilent

R T

Mkr1 854.22 MHz
-43.01 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 10.134 4 GHz
-40.33 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.4

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	10.134 4 GHz	-40.33 dBm

Agilent

R T

Mkr1 24.716 0 GHz
-32.38 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.4

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.716 0 GHz	-32.38 dBm

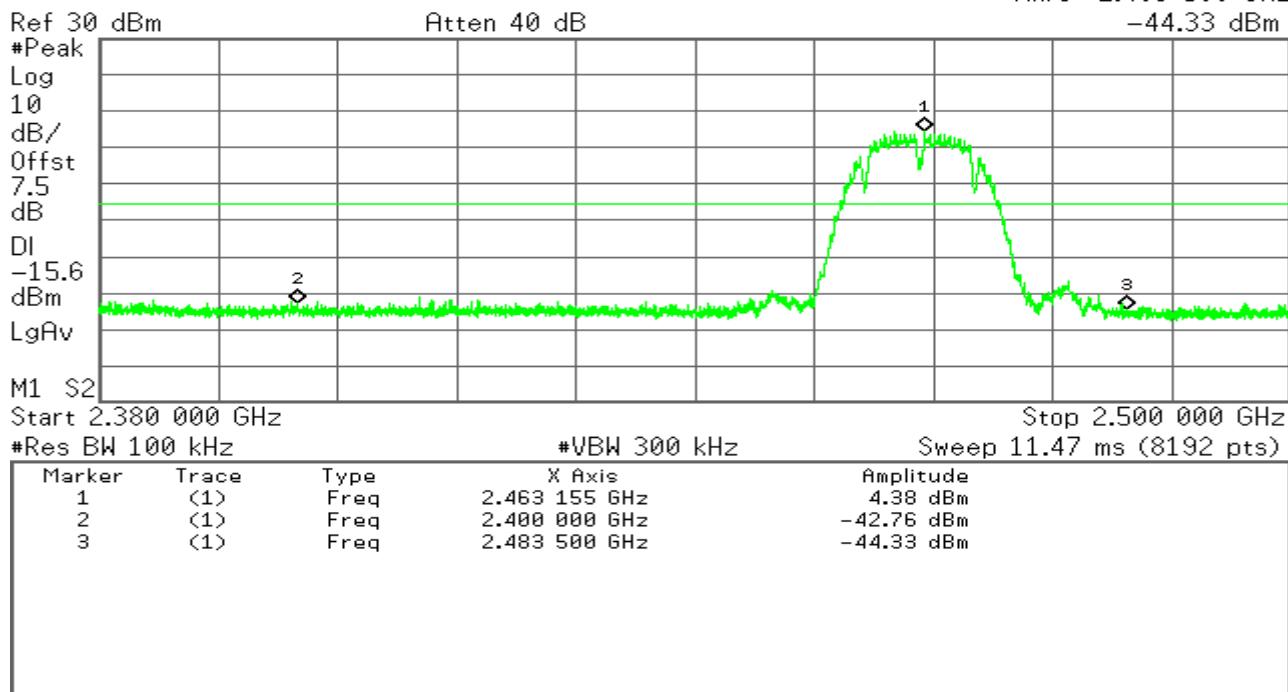


CH High

Agilent

R T

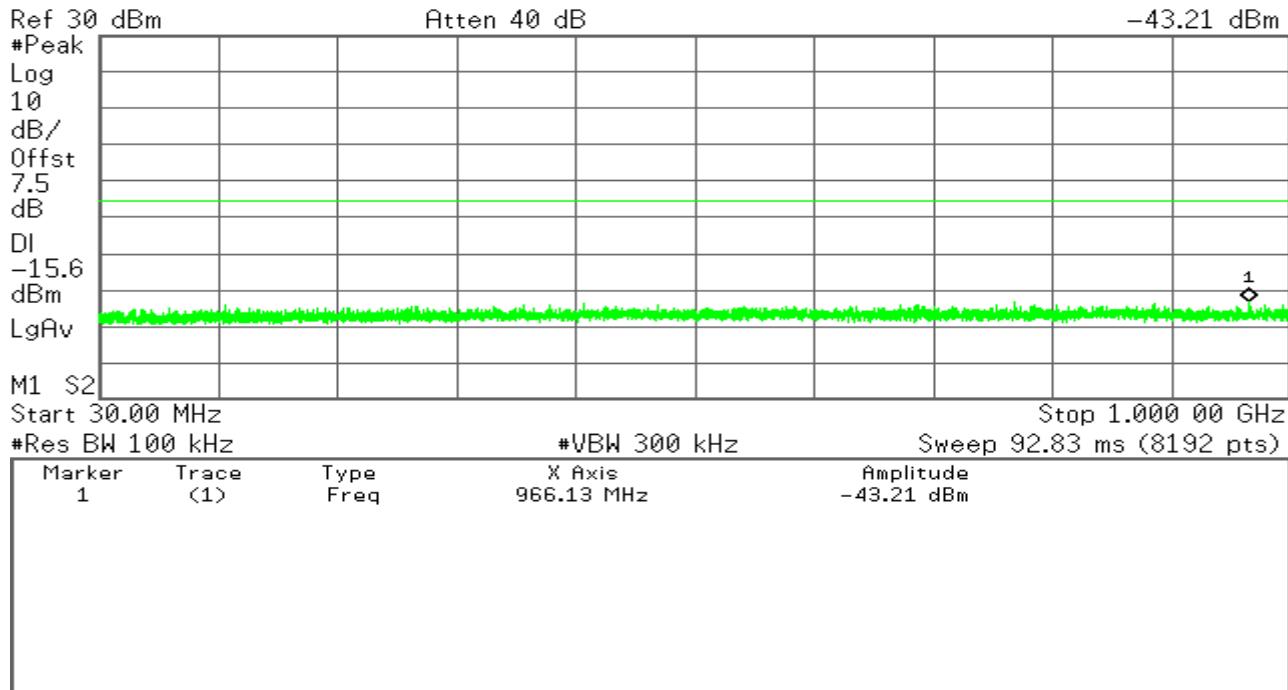
Mkr3 2.483 500 GHz
-44.33 dBm



Agilent

R T

Mkr1 966.13 MHz
-43.21 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 12.503 4 GHz
-37.36 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.6

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	12.503 4 GHz	-37.36 dBm

Agilent

R T

Mkr1 24.528 8 GHz
-30.99 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-15.6

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.528 8 GHz	-30.99 dBm



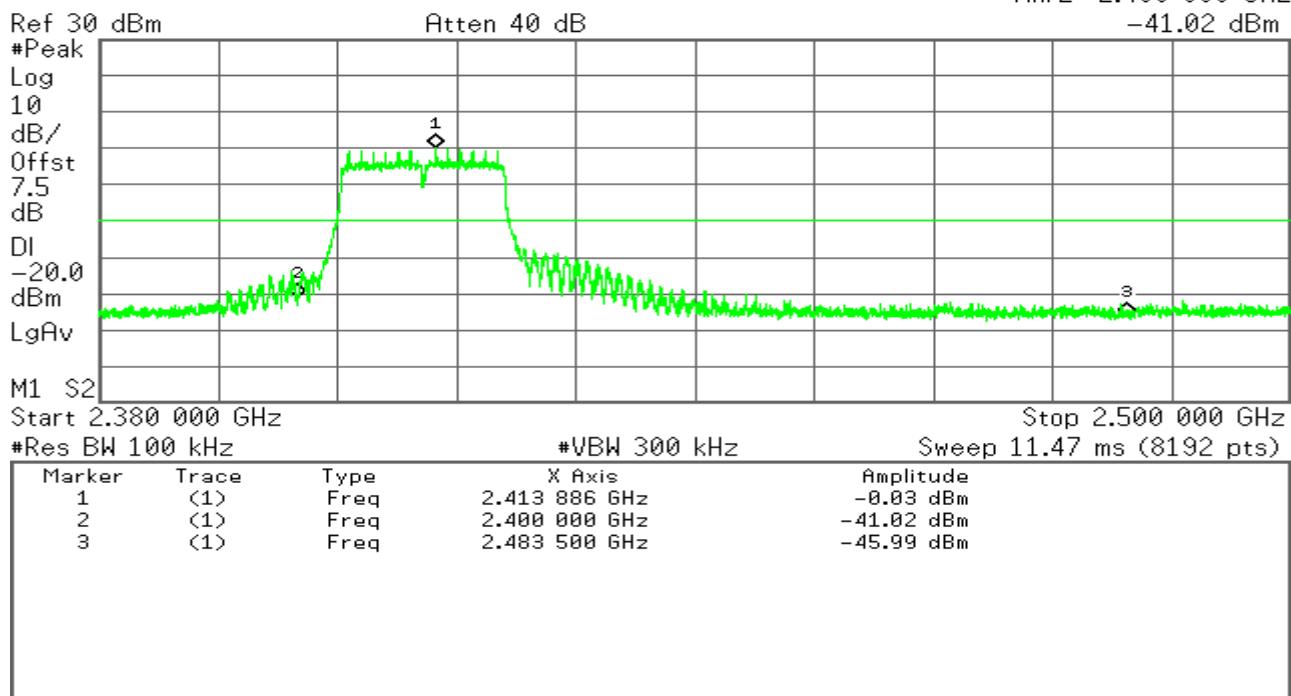
IEEE 802.11g mode/Chain 0

CH Low

Agilent

R T

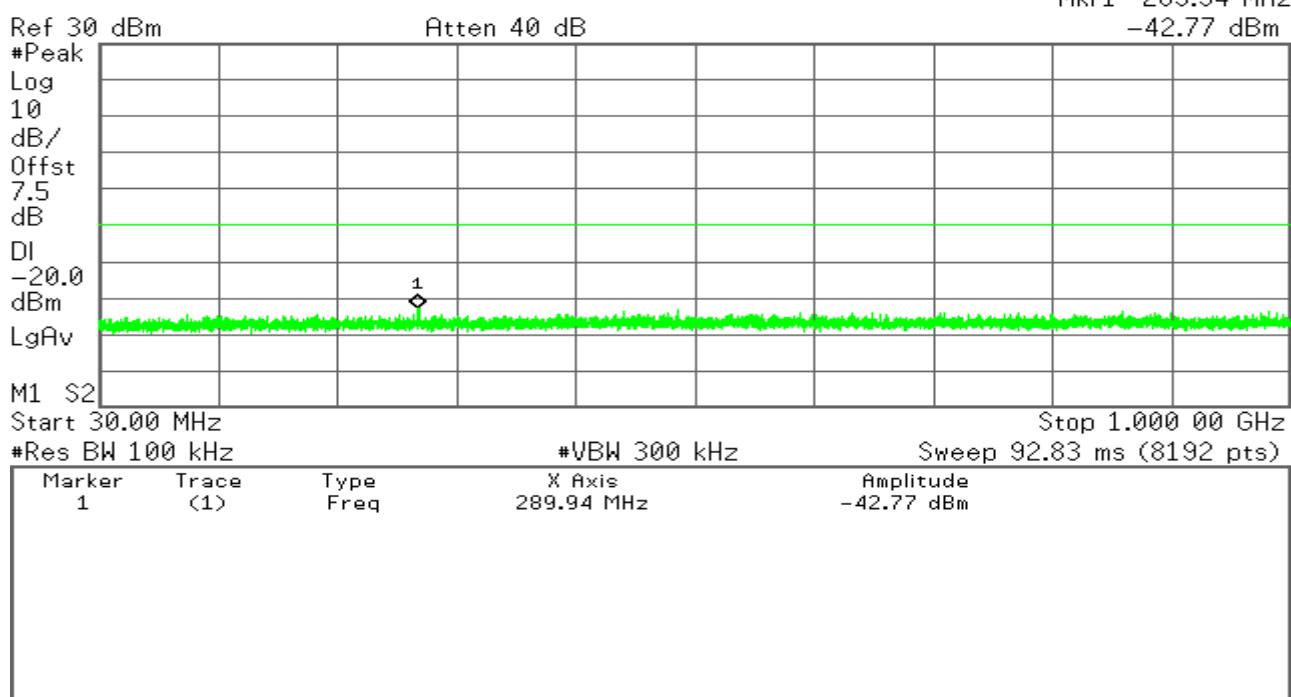
Mkr2 2.400 000 GHz
-41.02 dBm



Agilent

R T

Mkr1 289.94 MHz
-42.77 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

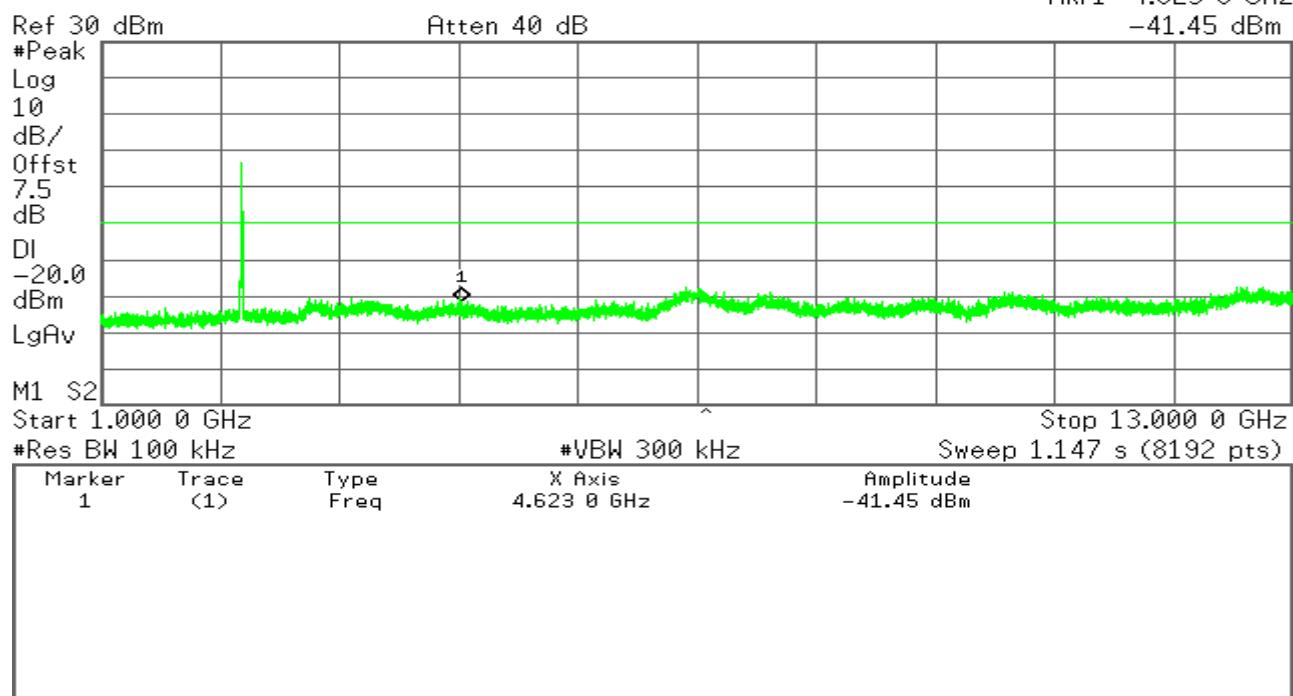
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

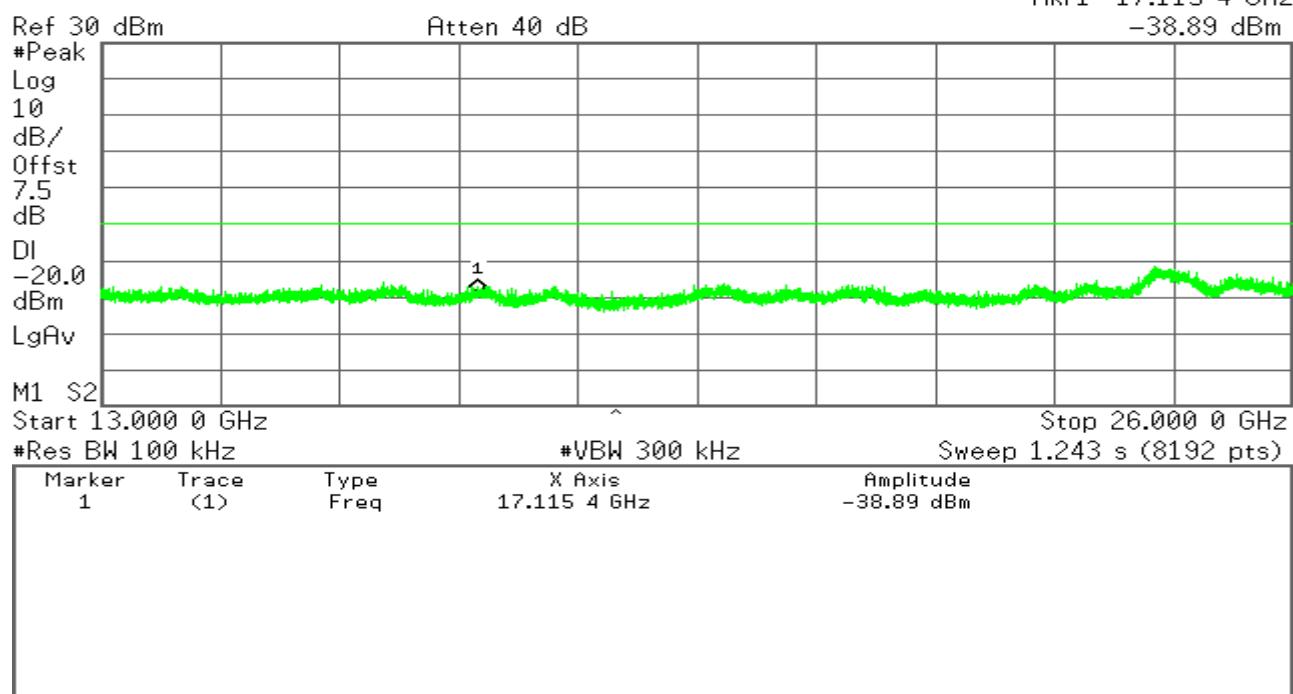
Mkr1 4.623 0 GHz
-41.45 dBm



Agilent

R T

Mkr1 17.115 4 GHz
-38.89 dBm



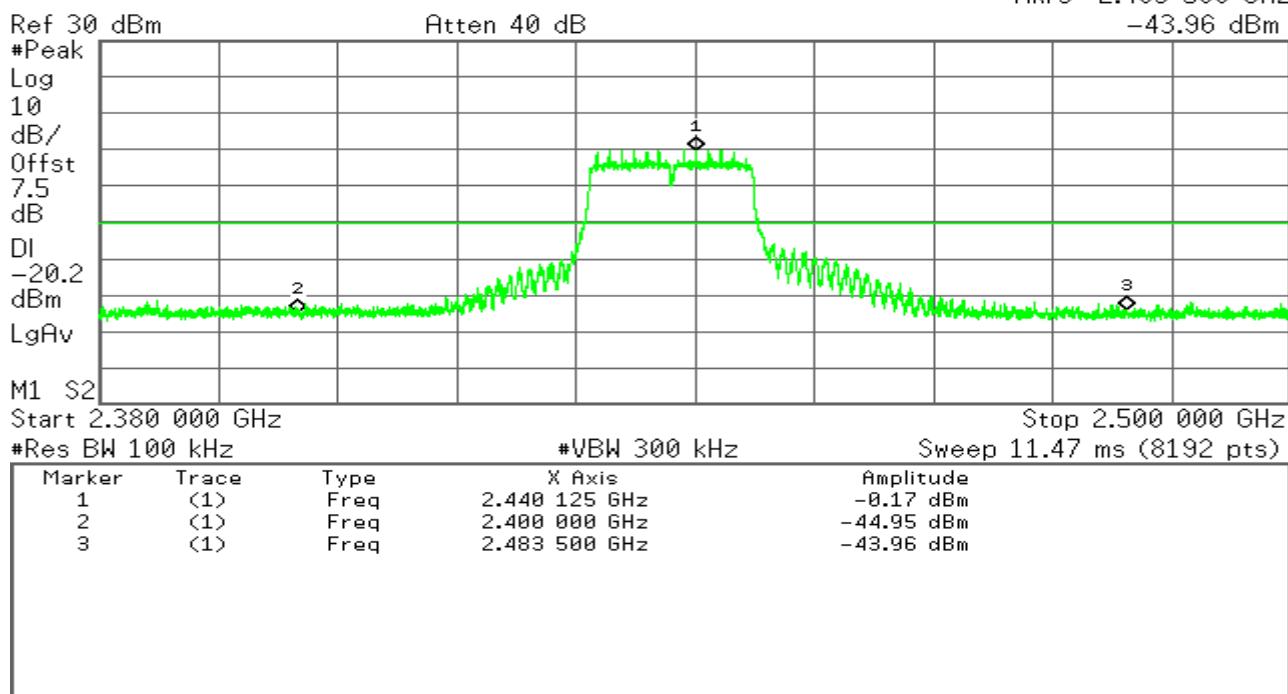


CH Mid

Agilent

R T

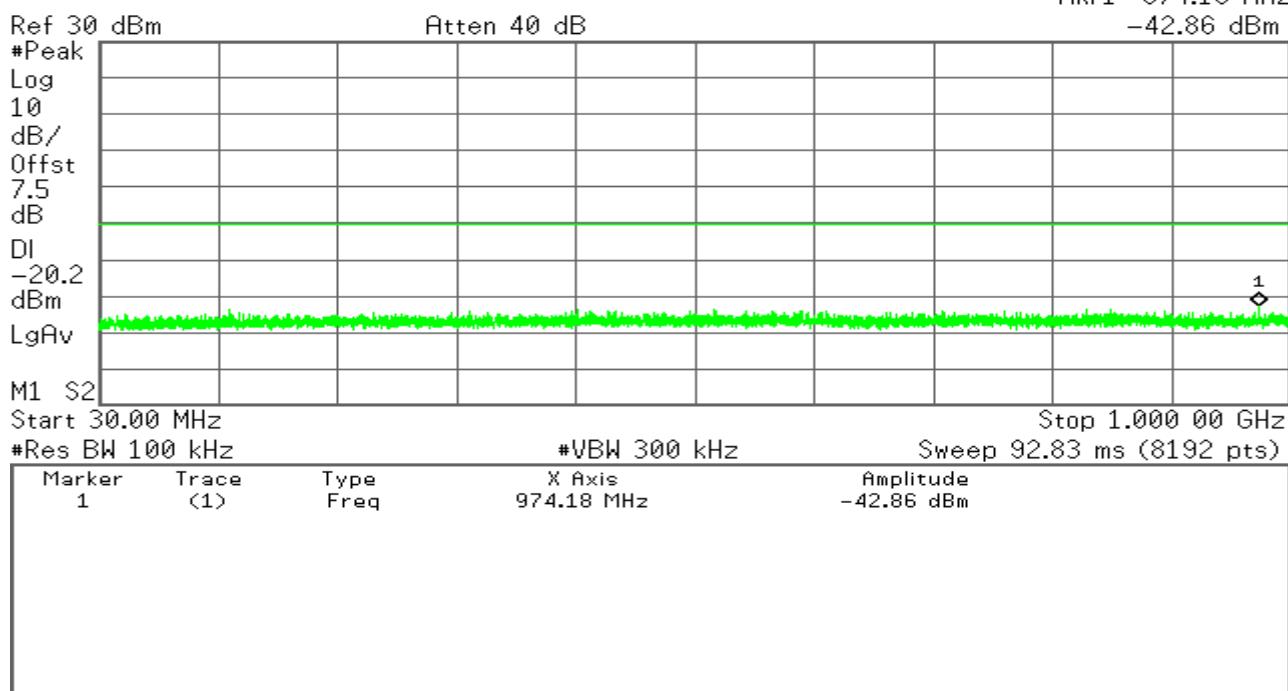
Mkr3 2.483 500 GHz
-43.96 dBm



Agilent

R T

Mkr1 974.18 MHz
-42.86 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 12.601 5 GHz
-40.98 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.2

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker

Trace
(1)

Type
Freq

X Axis
12.601 5 GHz

Amplitude
-40.98 dBm

Agilent

R T

Mkr1 24.754 1 GHz
-32.45 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.2

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker

Trace
(1)

Type
Freq

X Axis
24.754 1 GHz

Amplitude
-32.45 dBm

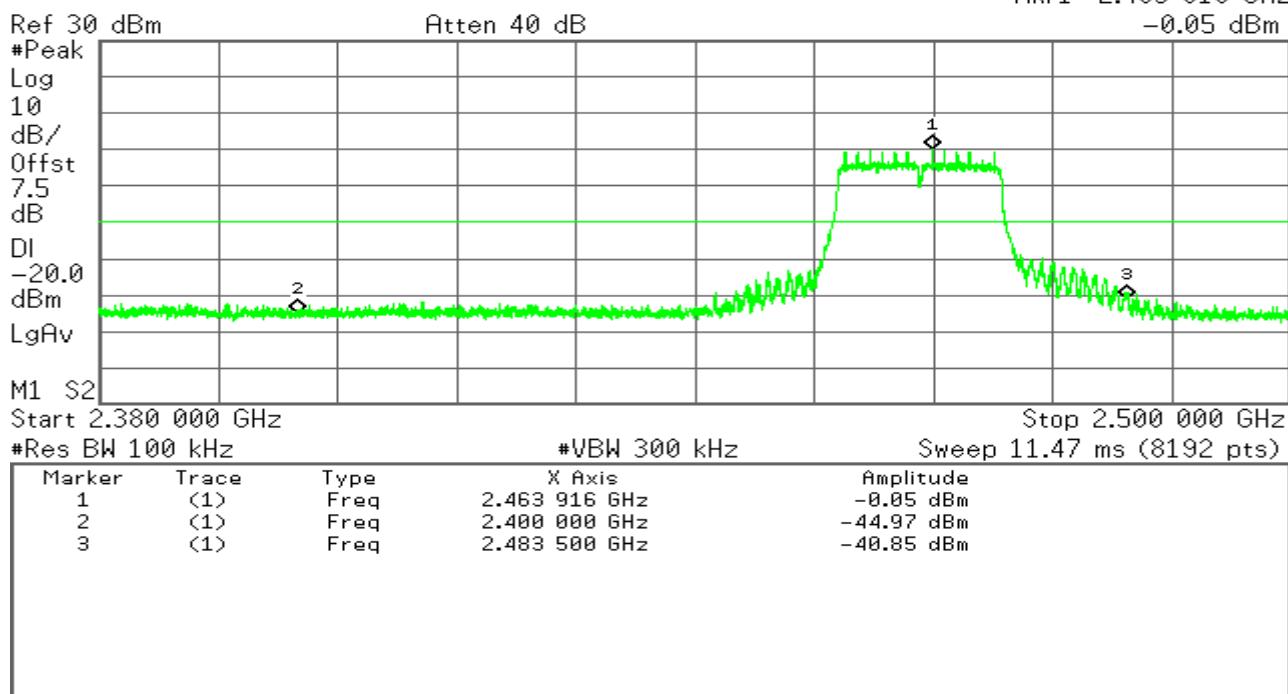


CH High

Agilent

R T

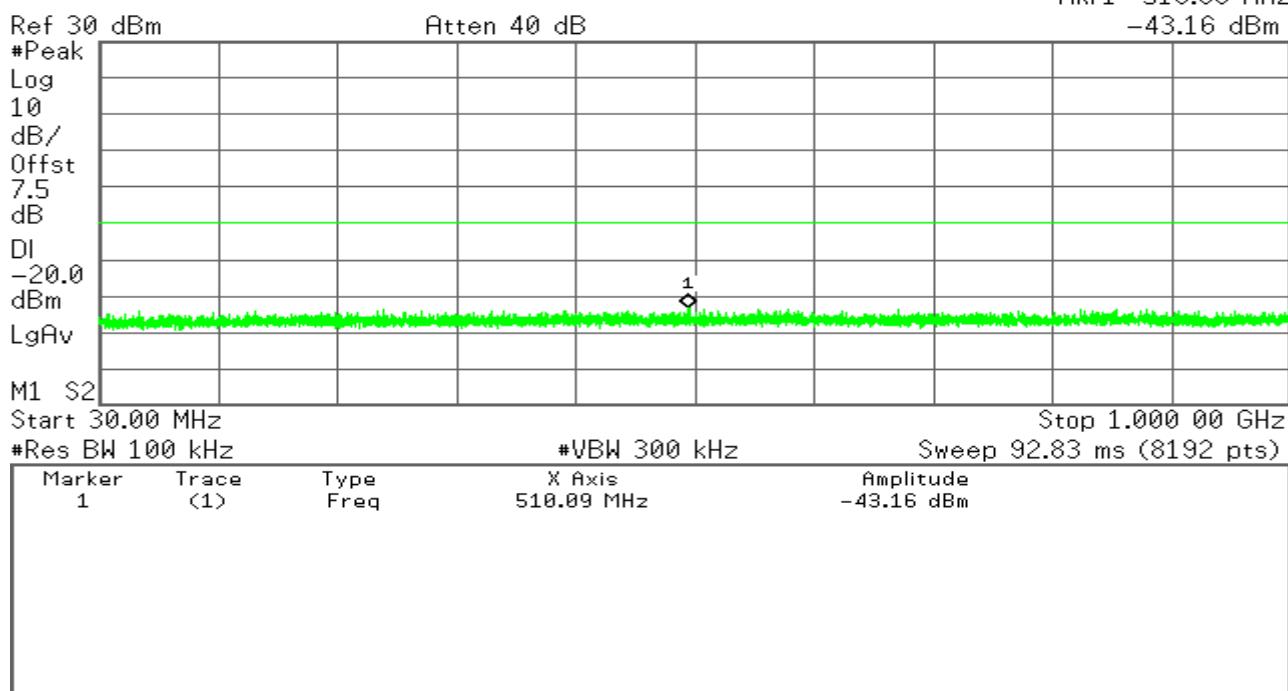
Mkr1 2.463 916 GHz
-0.05 dBm



Agilent

R T

Mkr1 510.09 MHz
-43.16 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 6.968 5 GHz
-39.04 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.0

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	6.968 5 GHz	-39.04 dBm

Agilent

R T

Mkr1 24.679 5 GHz
-32.33 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.0

dBm

LgAv

M1 S2

Center 19.500 0 GHz

Span 13 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.679 5 GHz	-32.33 dBm



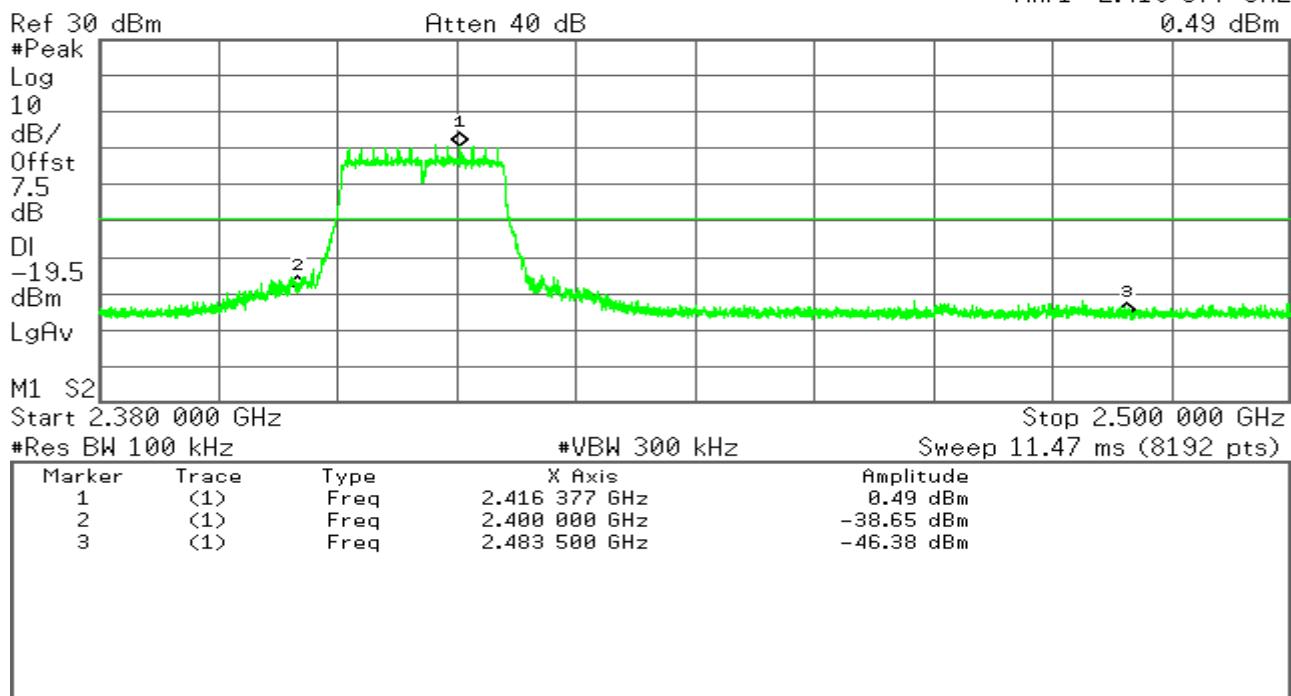
IEEE 802.11g mode/Chain 1

CH Low

Agilent

R T

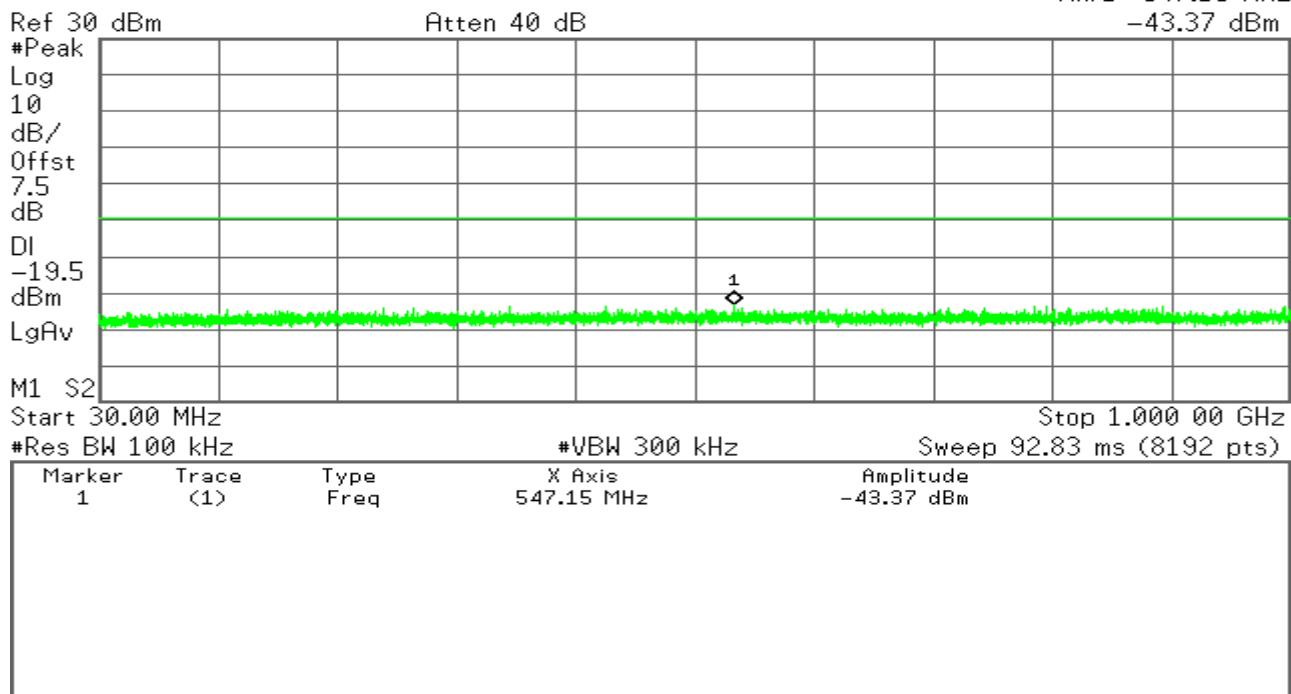
Mkr1 2.416 377 GHz
0.49 dBm



Agilent

R T

Mkr1 547.15 MHz
-43.37 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

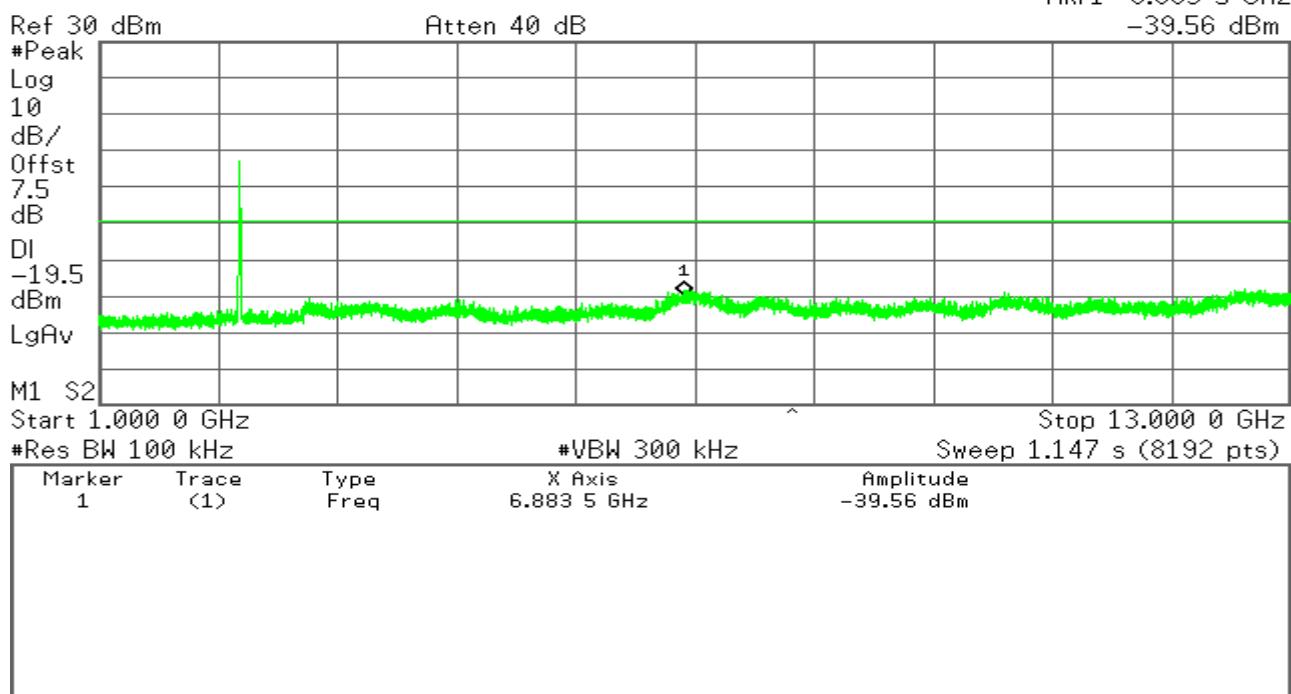
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

* Agilent

R T

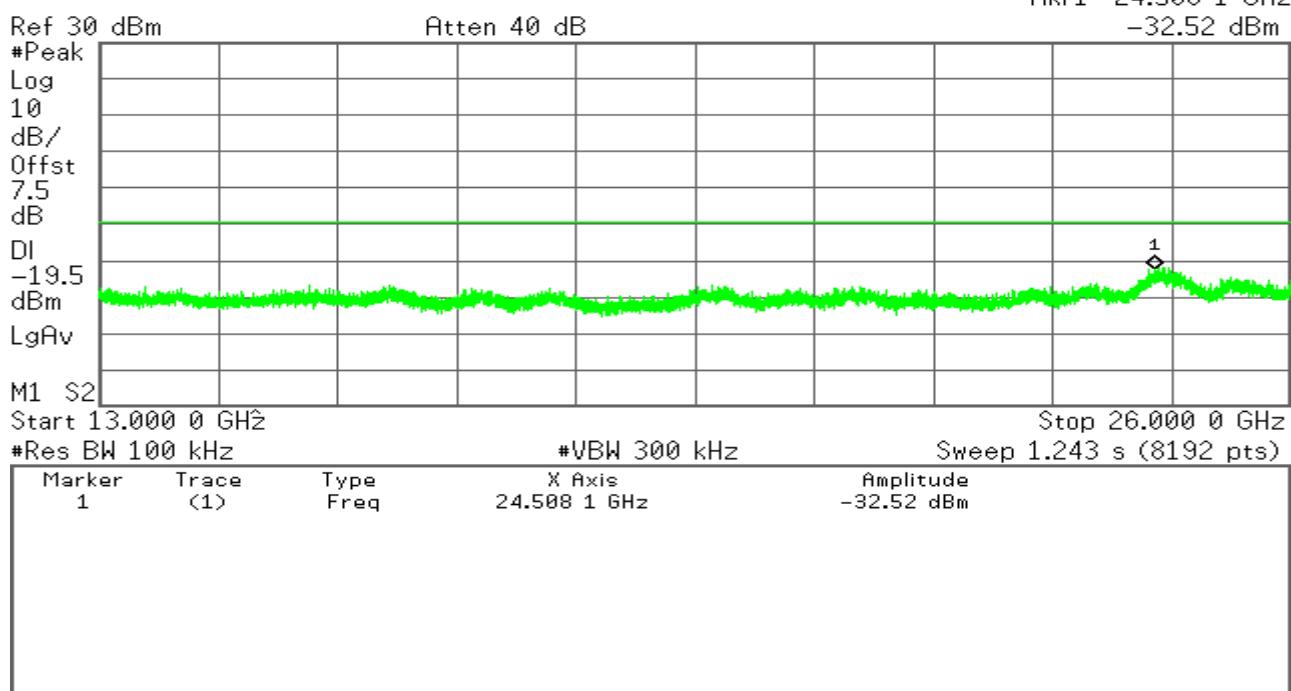
Mkr1 6.883 5 GHz
-39.56 dBm



* Agilent

R T

Mkr1 24.508 1 GHz
-32.52 dBm



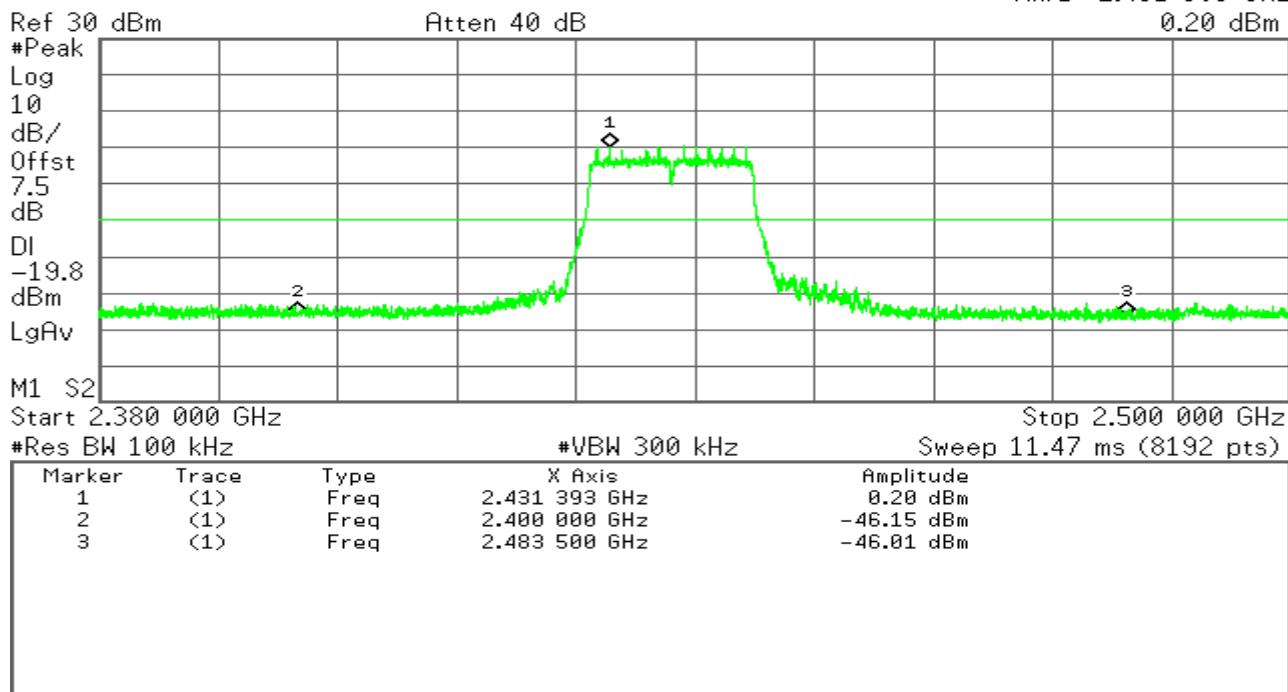


CH Mid

Agilent

R T

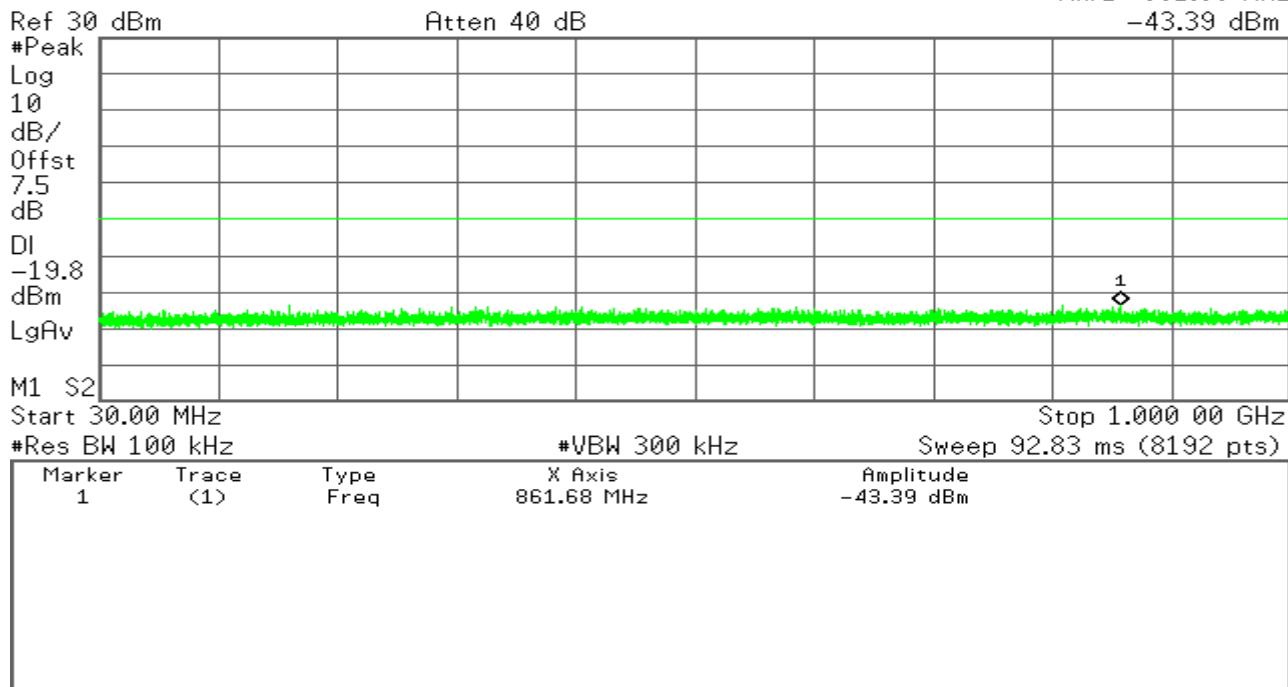
Mkr1 2.431 393 GHz
0.20 dBm



Agilent

R T

Mkr1 861.68 MHz
-43.39 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 10.216 5 GHz
-40.62 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-19.8

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	10.216 5 GHz	-40.62 dBm

Agilent

R T

Mkr1 24.666 8 GHz
-32.04 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-19.8

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	24.666 8 GHz	-32.04 dBm

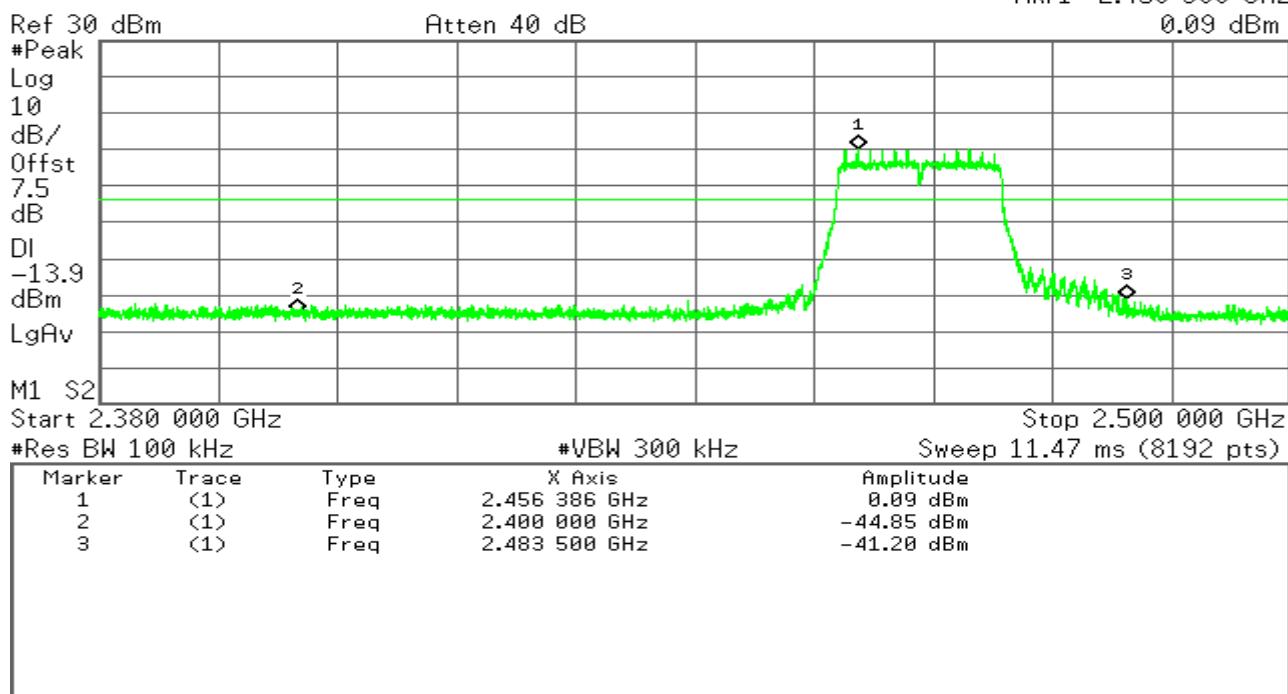


CH High

Agilent

R T

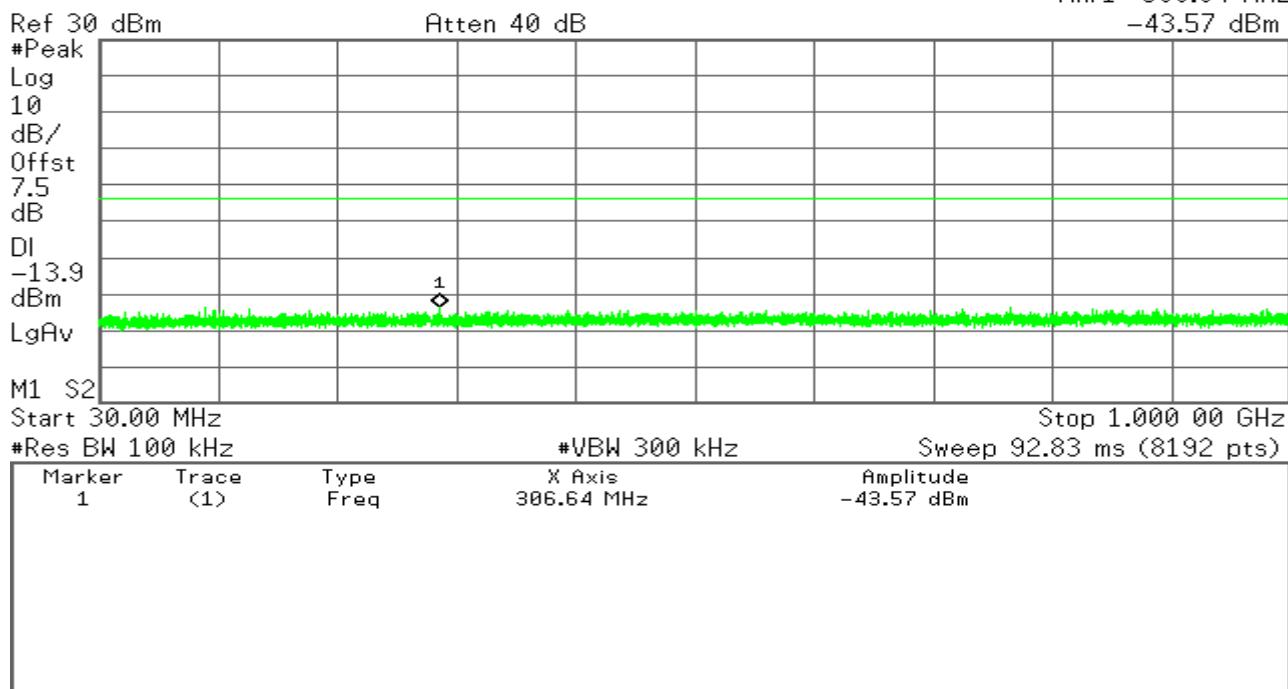
Mkr1 2.456 386 GHz
0.09 dBm



Agilent

R T

Mkr1 306.64 MHz
-43.57 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 6.902 6 GHz
-39.42 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-13.9

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	6.902 6 GHz	-39.42 dBm

Agilent

R T

Mkr1 24.570 0 GHz
-32.45 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-13.9

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

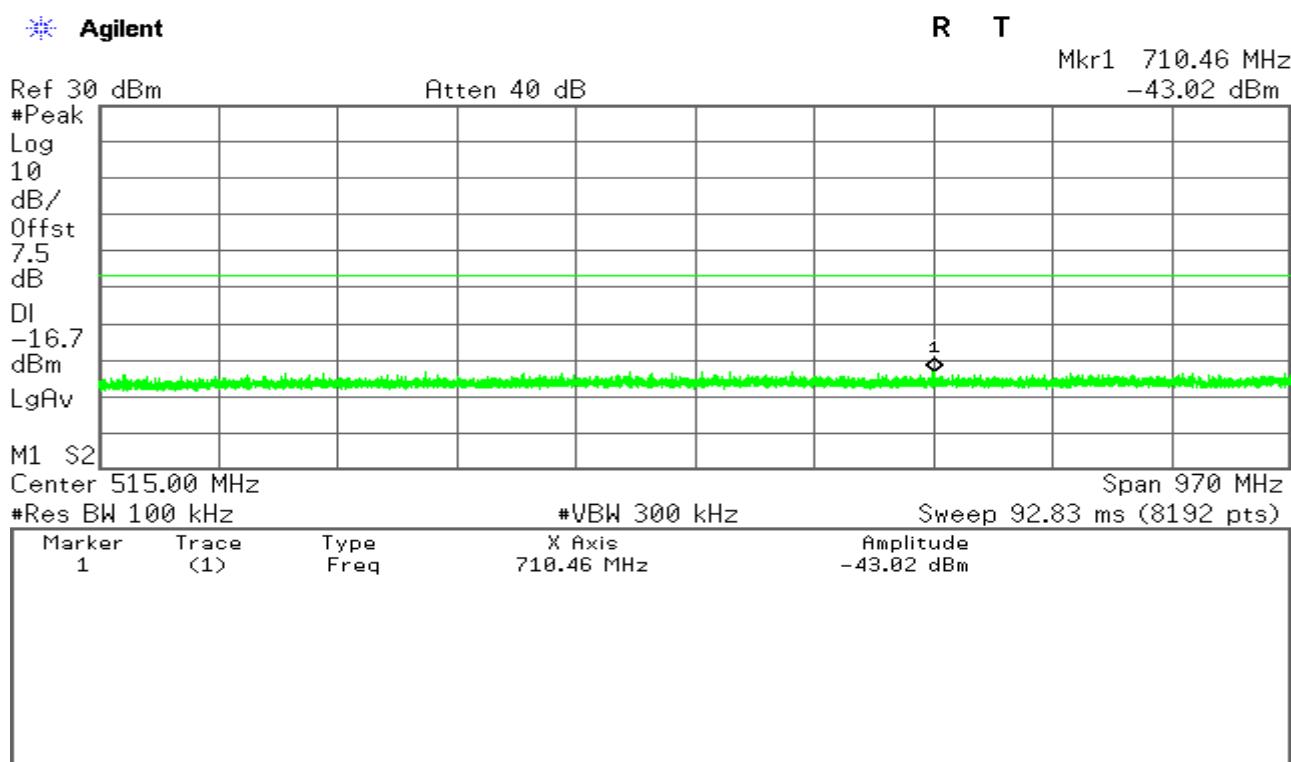
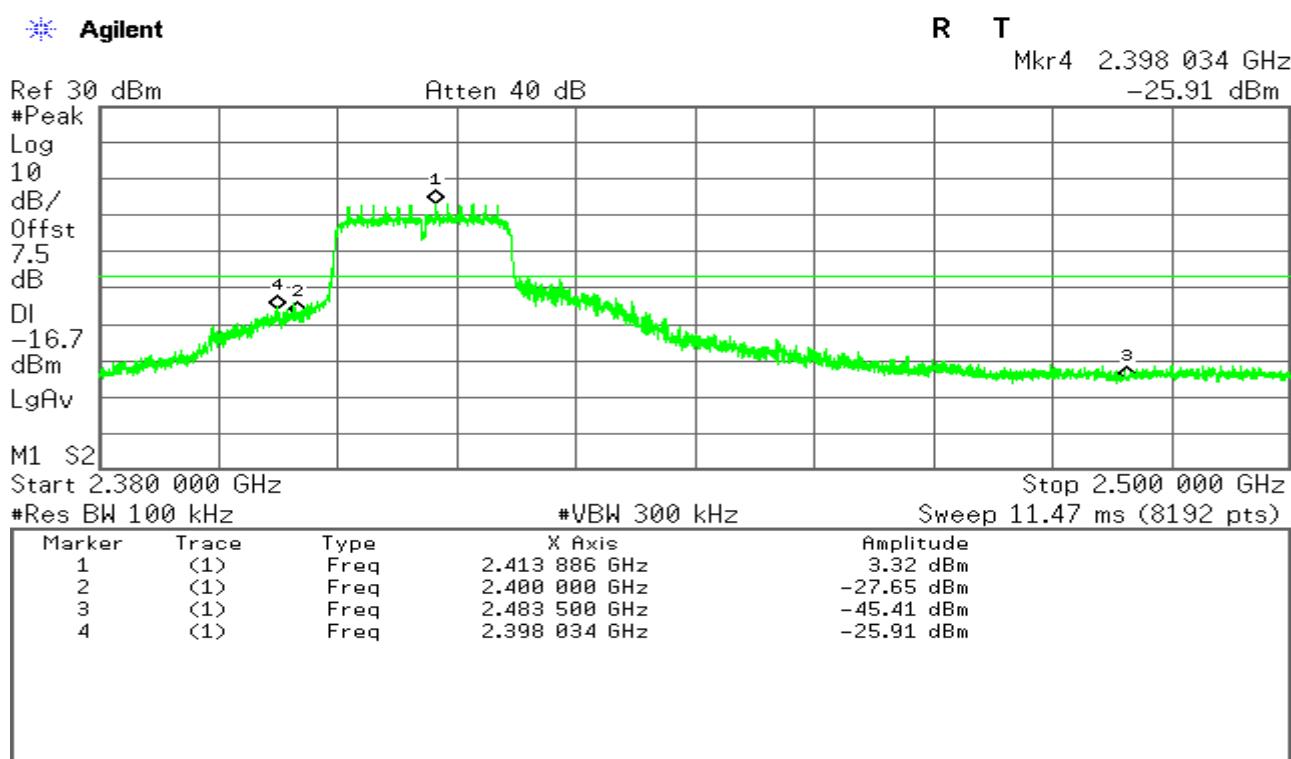
Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.570 0 GHz	-32.45 dBm



IEEE 802.11n HT20 mode / Chain 0

CH Low





Compliance Certification Services Inc.

Report No: C140616R01-RPW

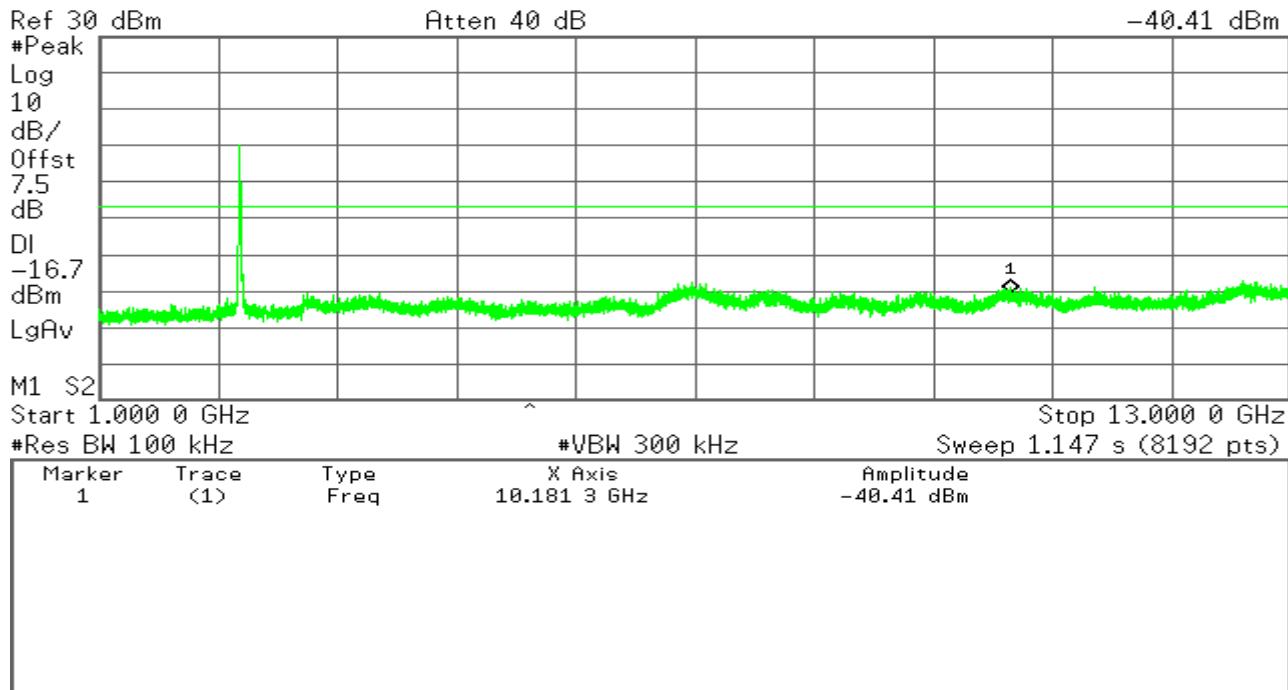
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

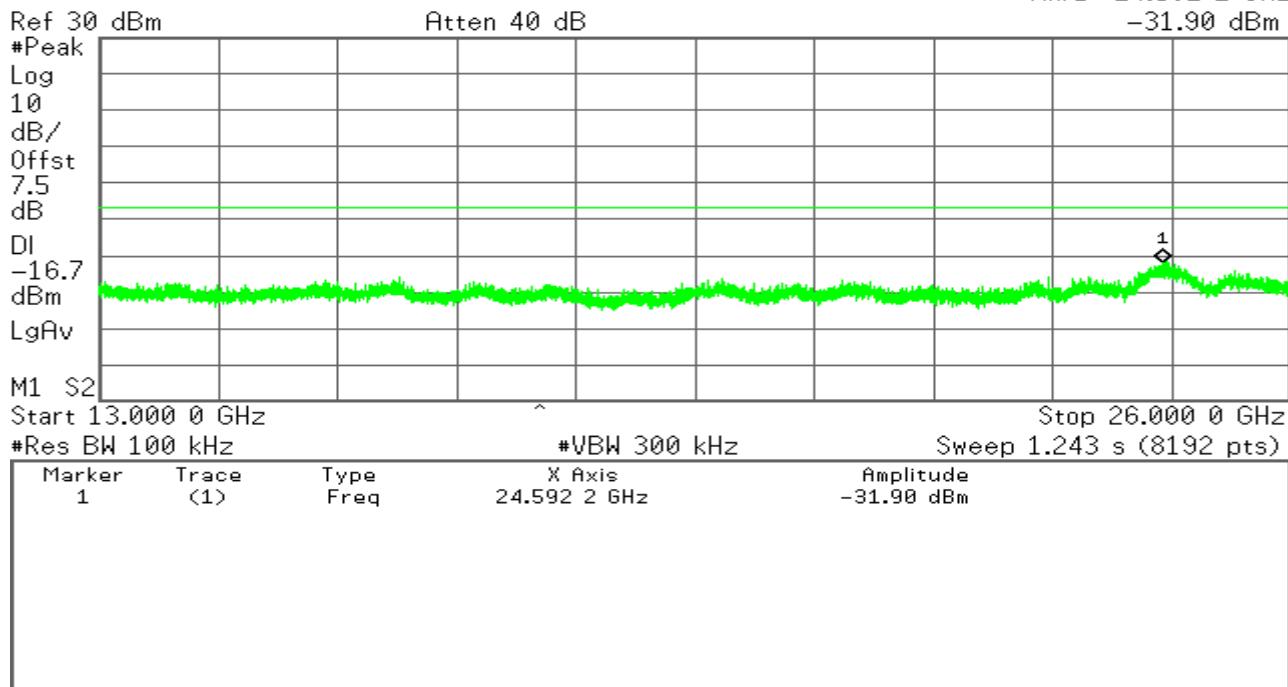
Mkr1 10.181 3 GHz
-40.41 dBm



Agilent

R T

Mkr1 24.592 2 GHz
-31.90 dBm



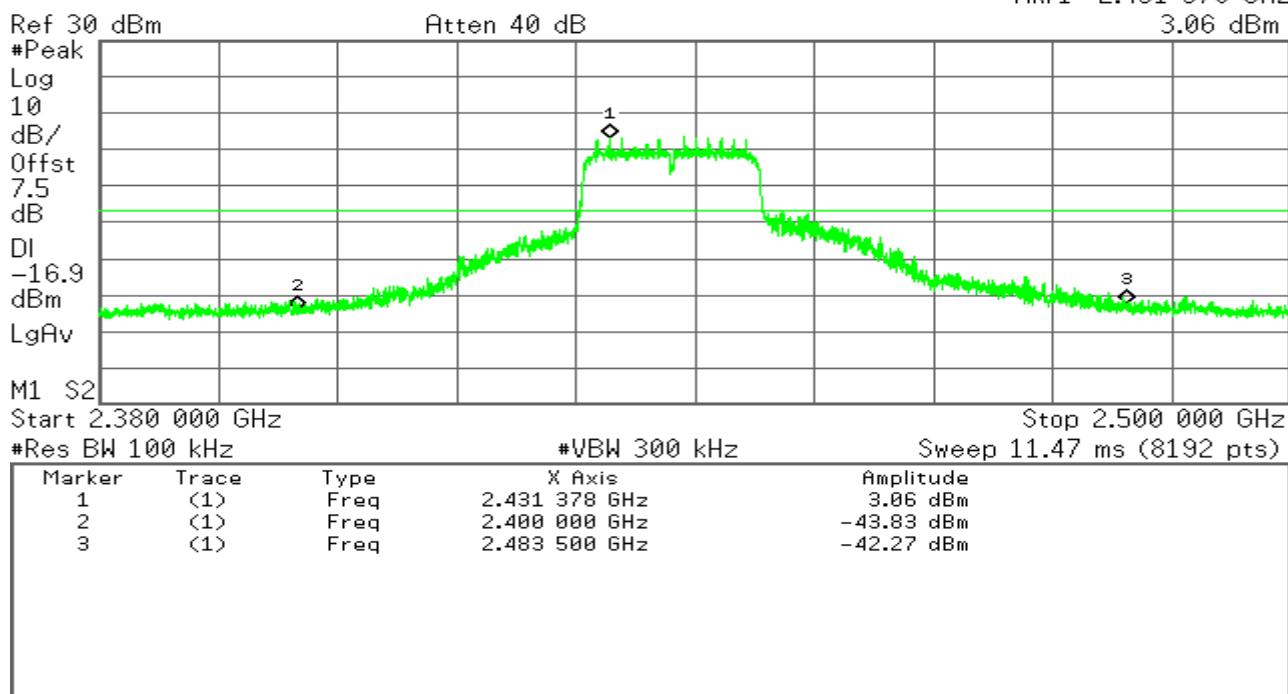


CH Mid

Agilent

R T

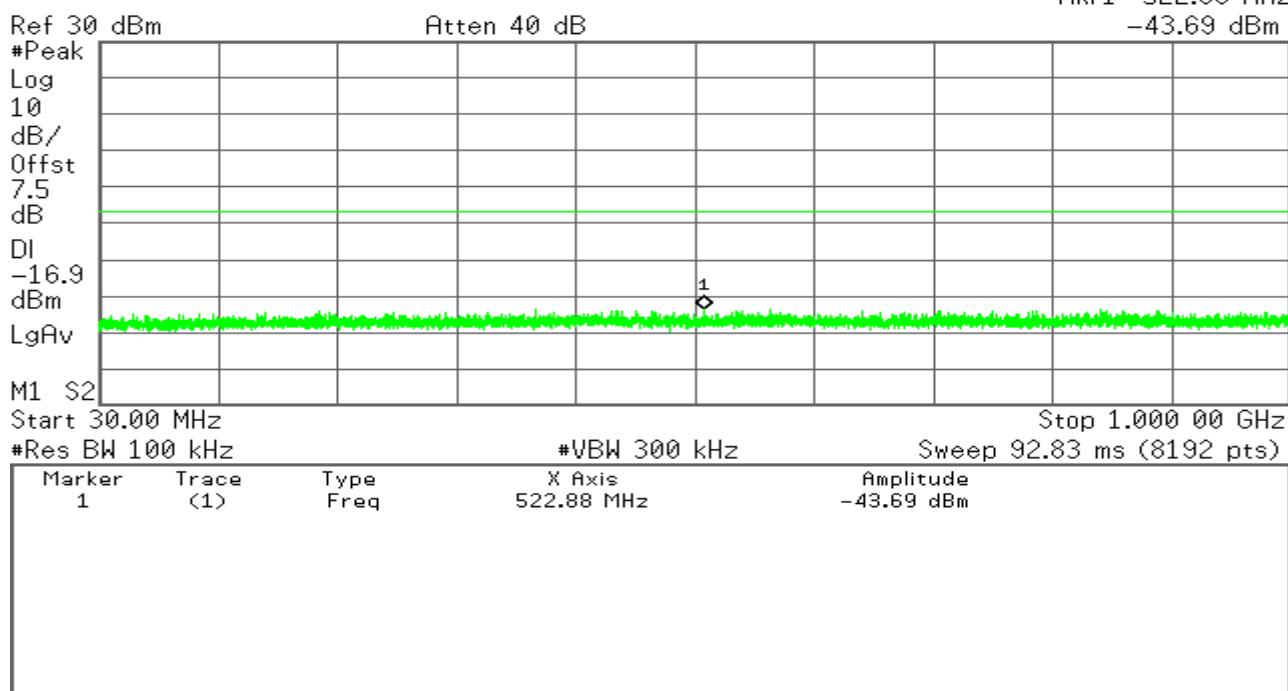
Mkr1 2.431 378 GHz
3.06 dBm



Agilent

R T

Mkr1 522.88 MHz
-43.69 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

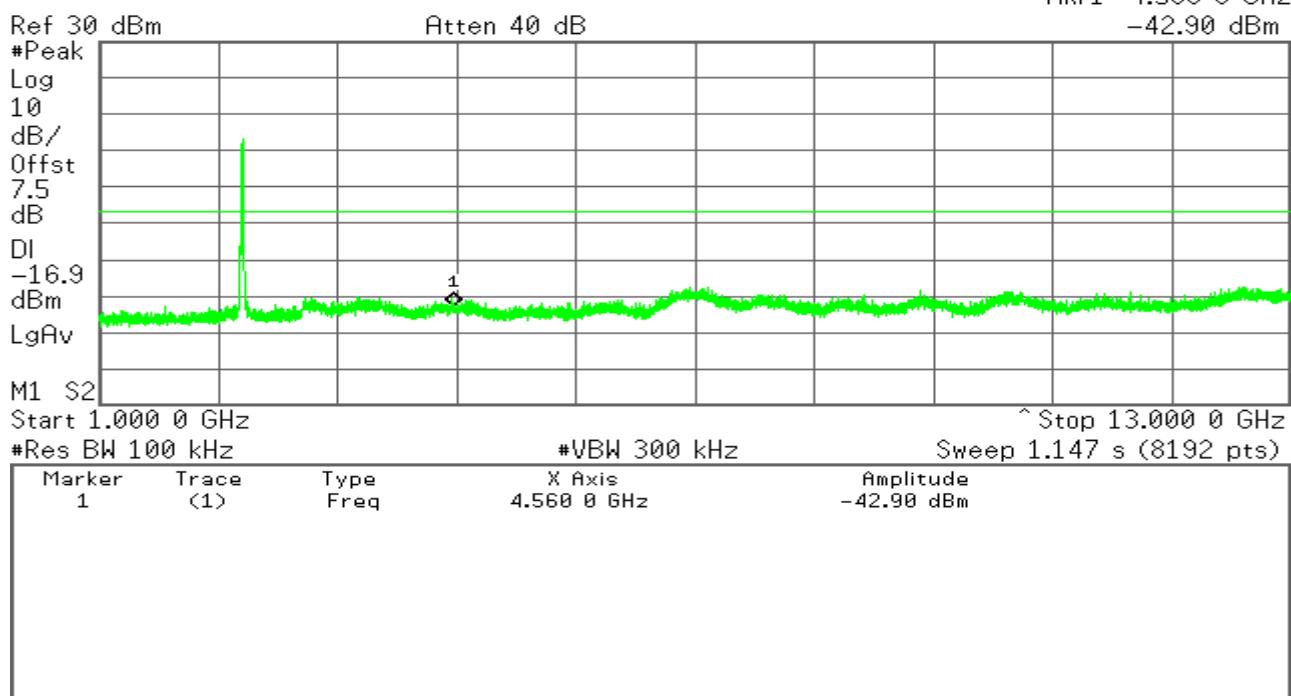
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

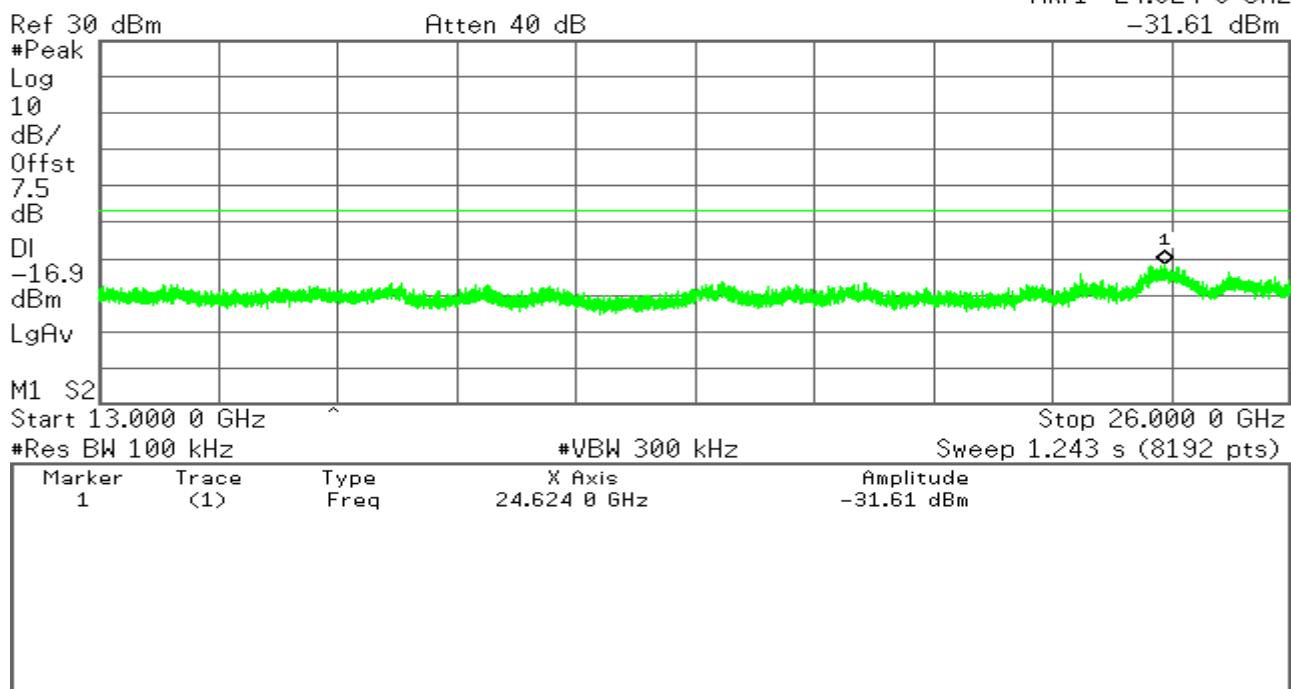
Mkr1 4.560 0 GHz
-42.90 dBm



Agilent

R T

Mkr1 24.624 0 GHz
-31.61 dBm



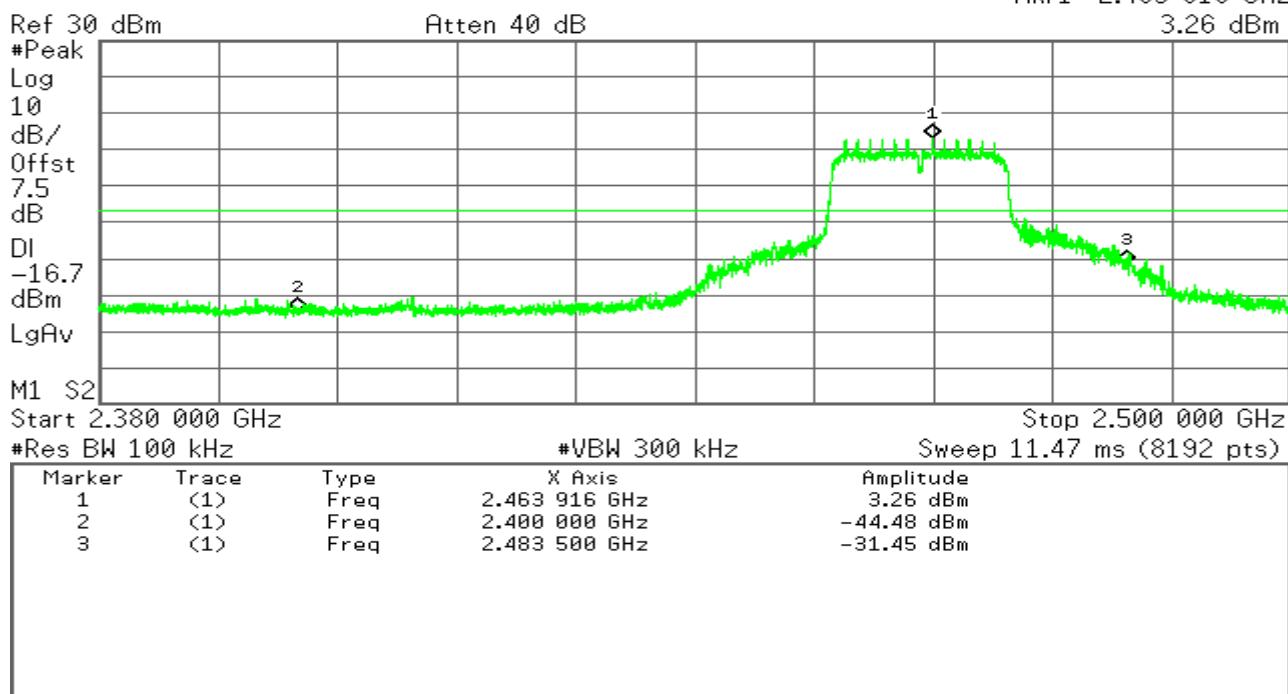


CH High

Agilent

R T

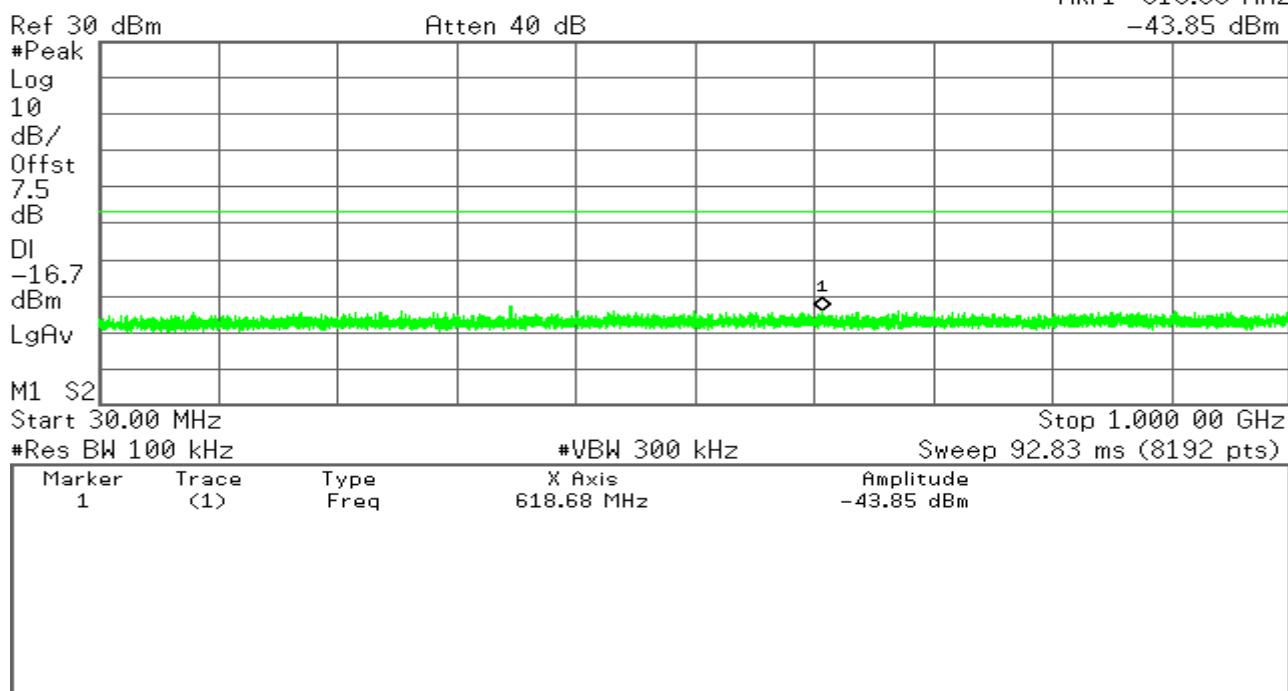
Mkr1 2.463 916 GHz
3.26 dBm



Agilent

R T

Mkr1 618.68 MHz
-43.85 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

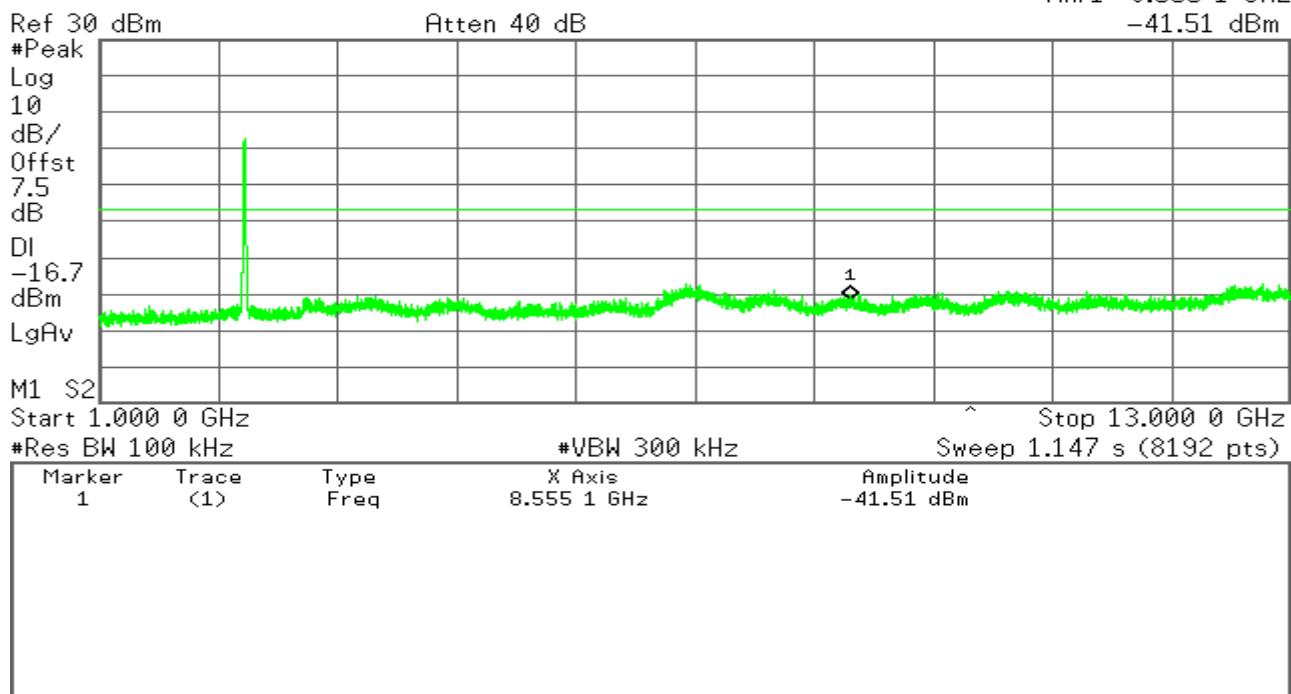
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

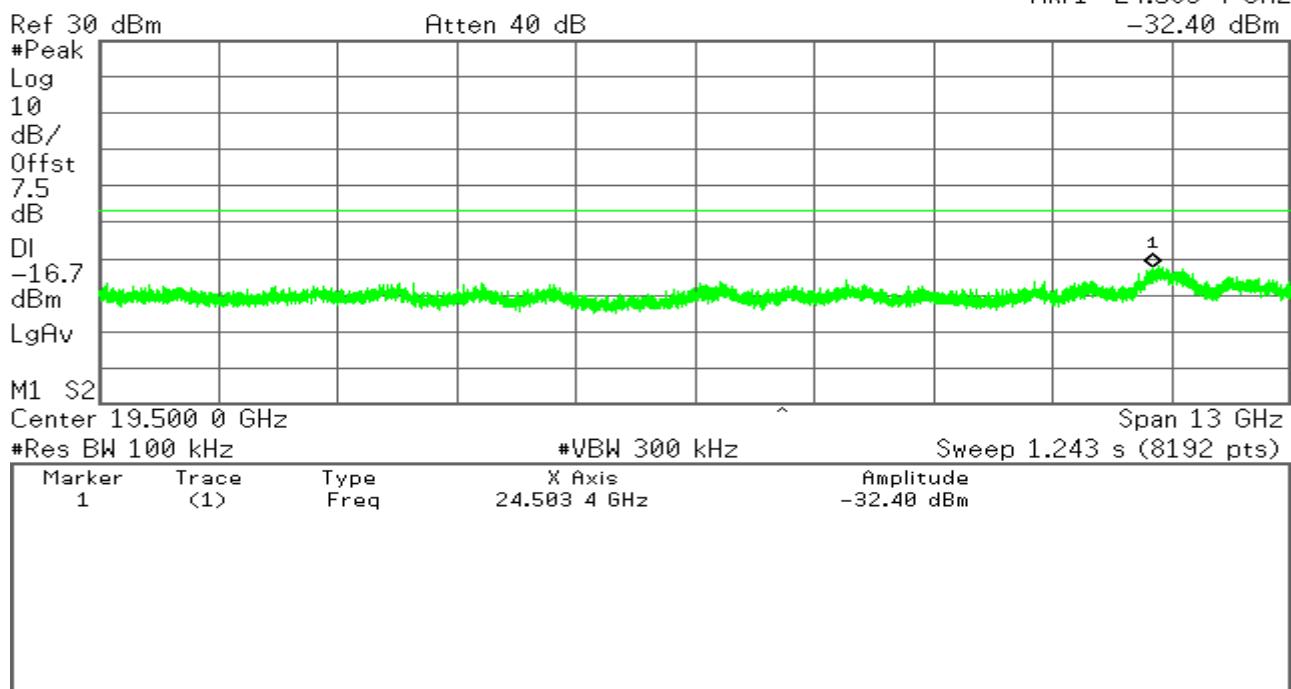
Mkr1 8.555 1 GHz
-41.51 dBm



Agilent

R T

Mkr1 24.503 4 GHz
-32.40 dBm





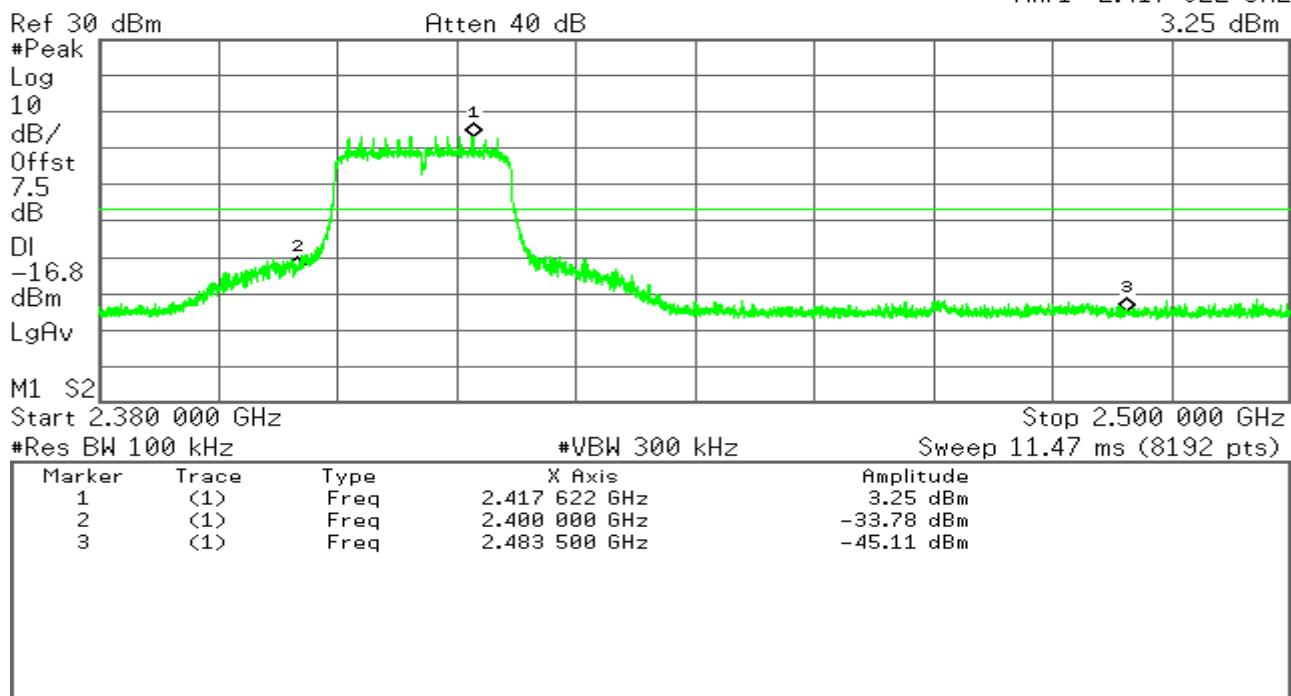
IEEE 802.11n HT20 mode / Chain 1

CH Low

Agilent

R T

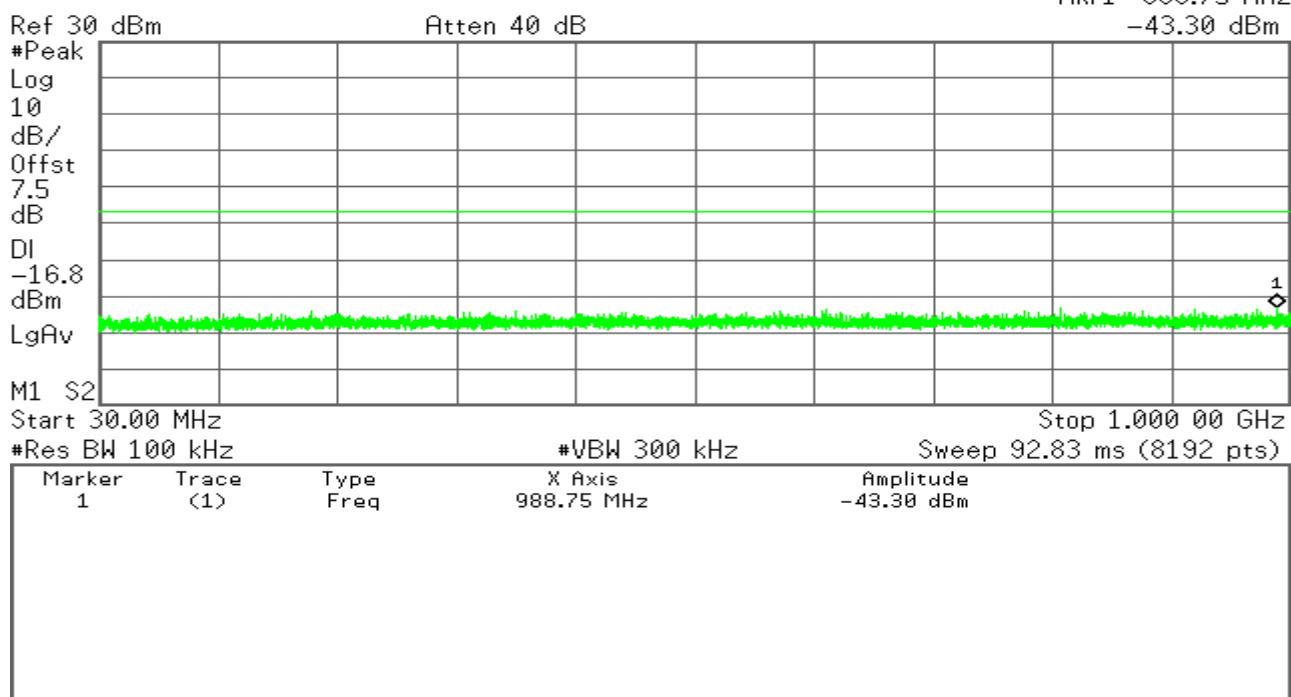
Mkr1 2.417 622 GHz
3.25 dBm



Agilent

R T

Mkr1 988.75 MHz
-43.30 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

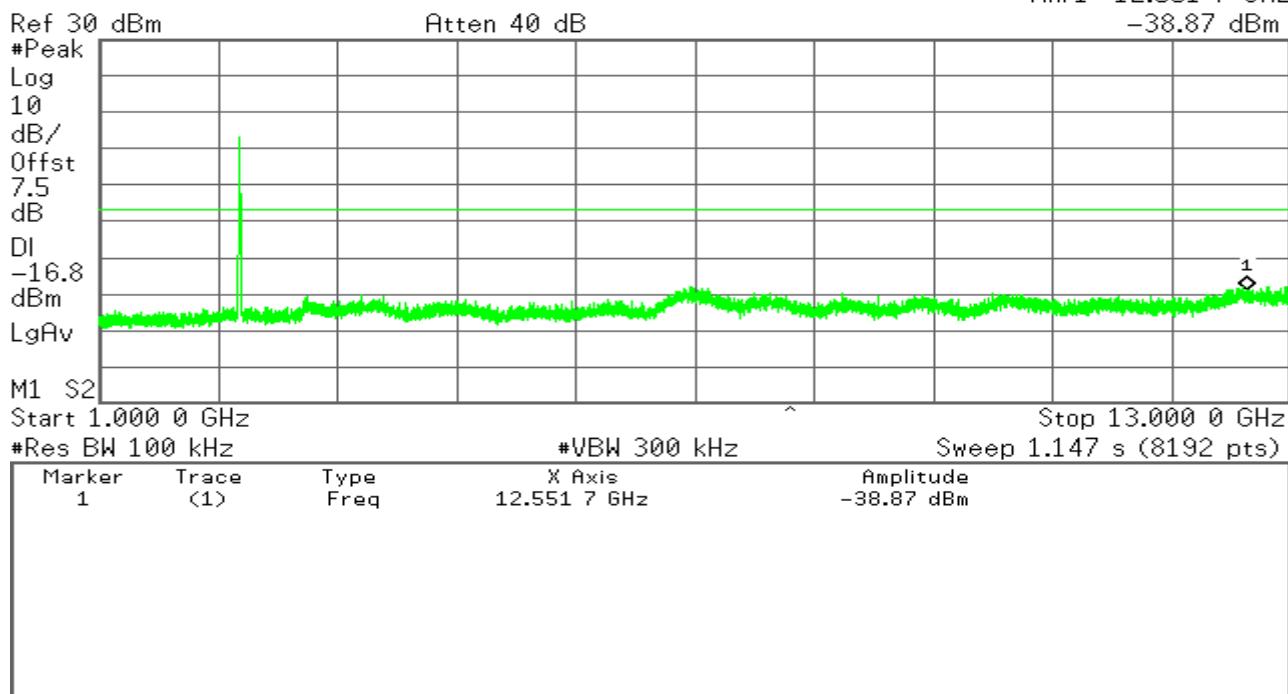
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

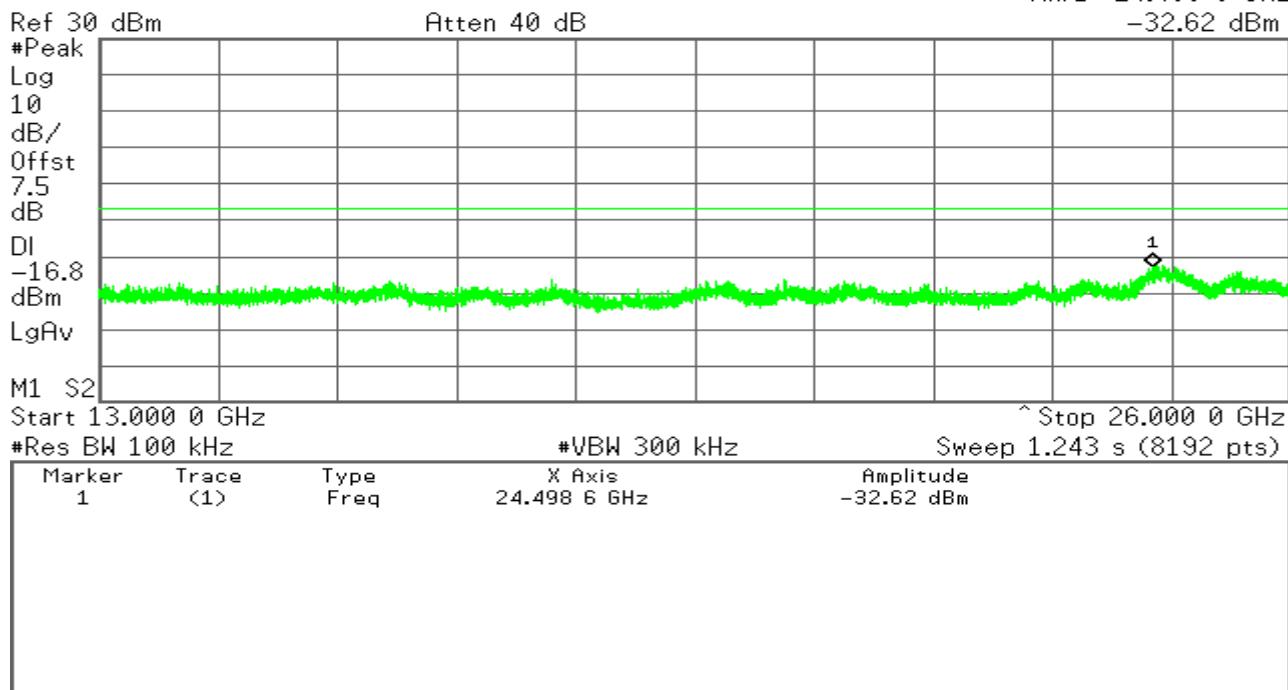
Mkr1 12.551 7 GHz
-38.87 dBm



Agilent

R T

Mkr1 24.498 6 GHz
-32.62 dBm



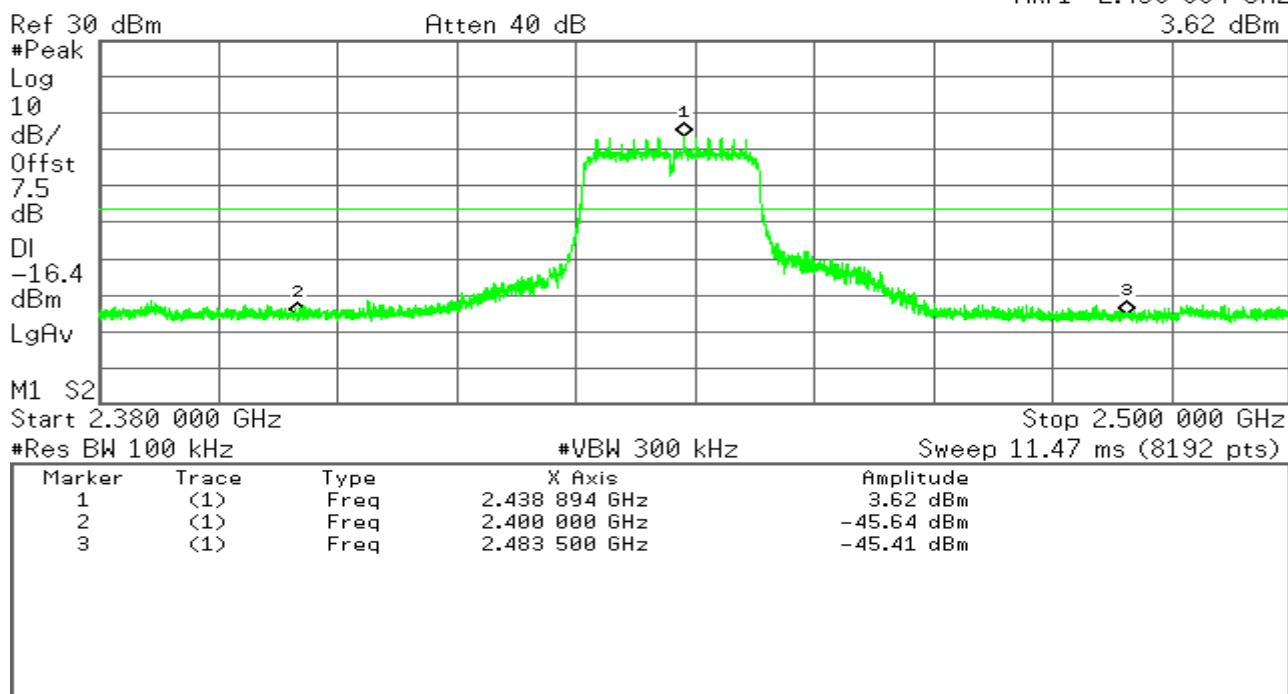


CH Mid

Agilent

R T

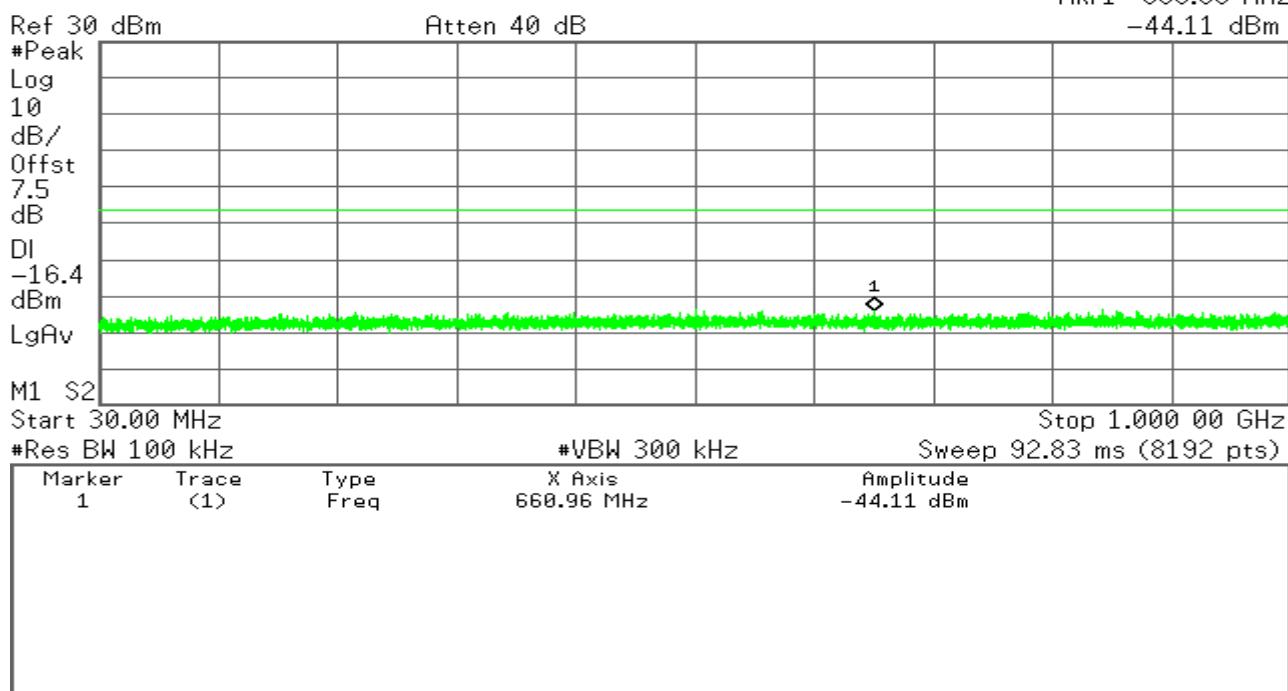
Mkr1 2.438 894 GHz
3.62 dBm



Agilent

R T

Mkr1 660.96 MHz
-44.11 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

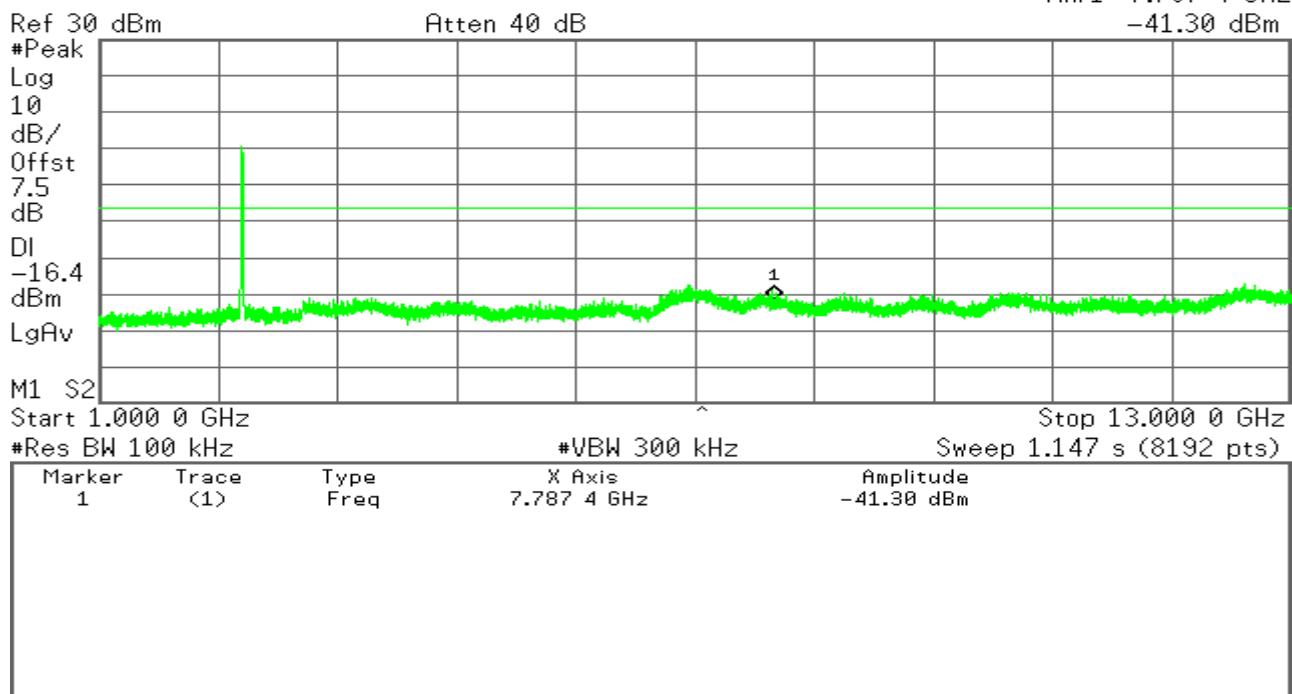
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

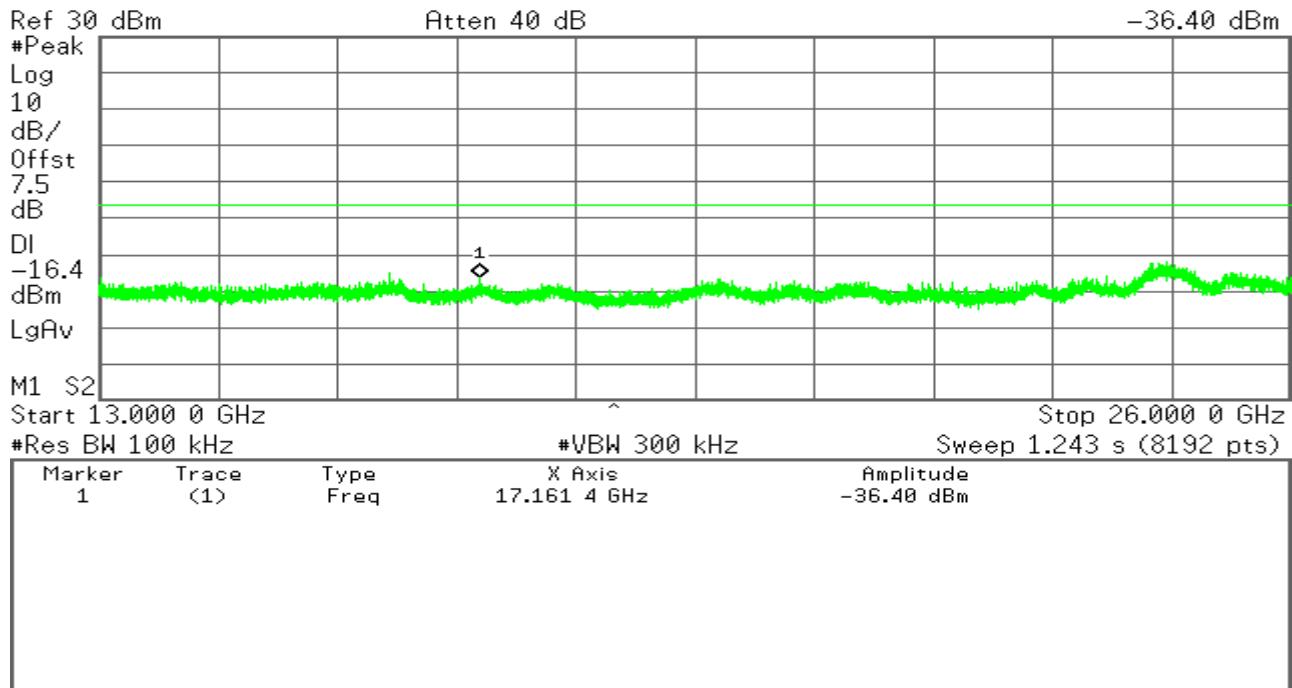
Mkr1 7.787 4 GHz
-41.30 dBm



Agilent

R T

Mkr1 17.161 4 GHz
-36.40 dBm



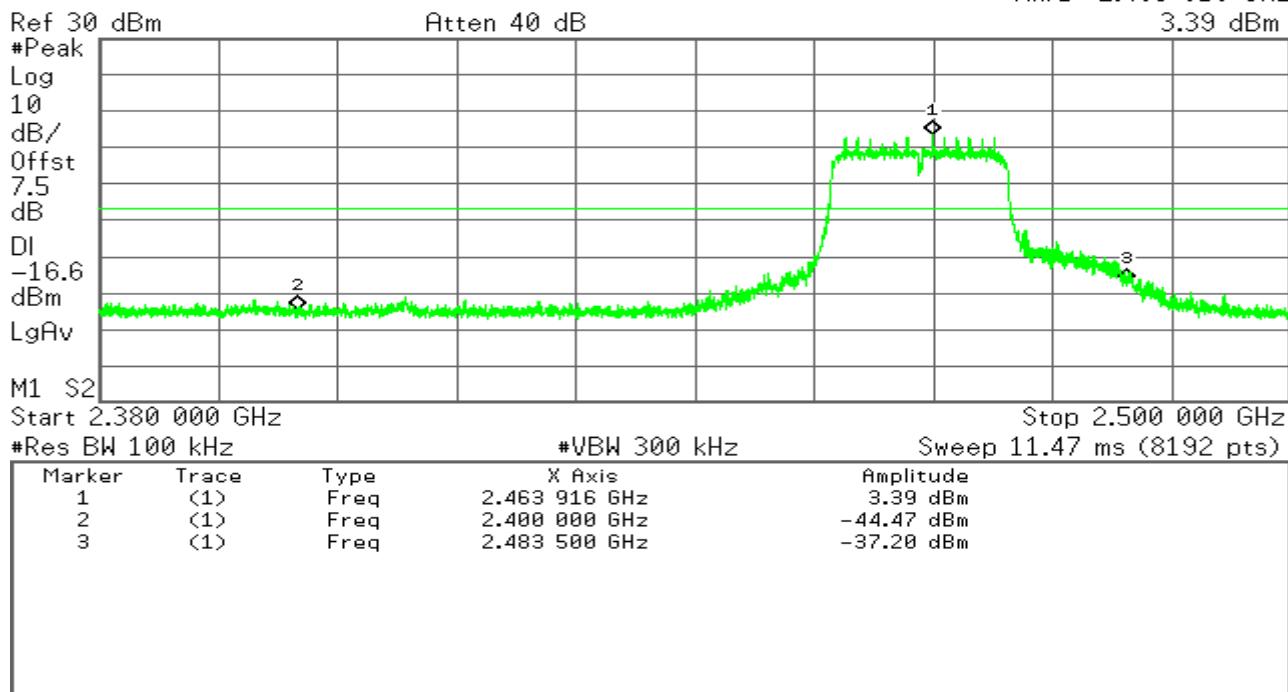


CH High

Agilent

R T

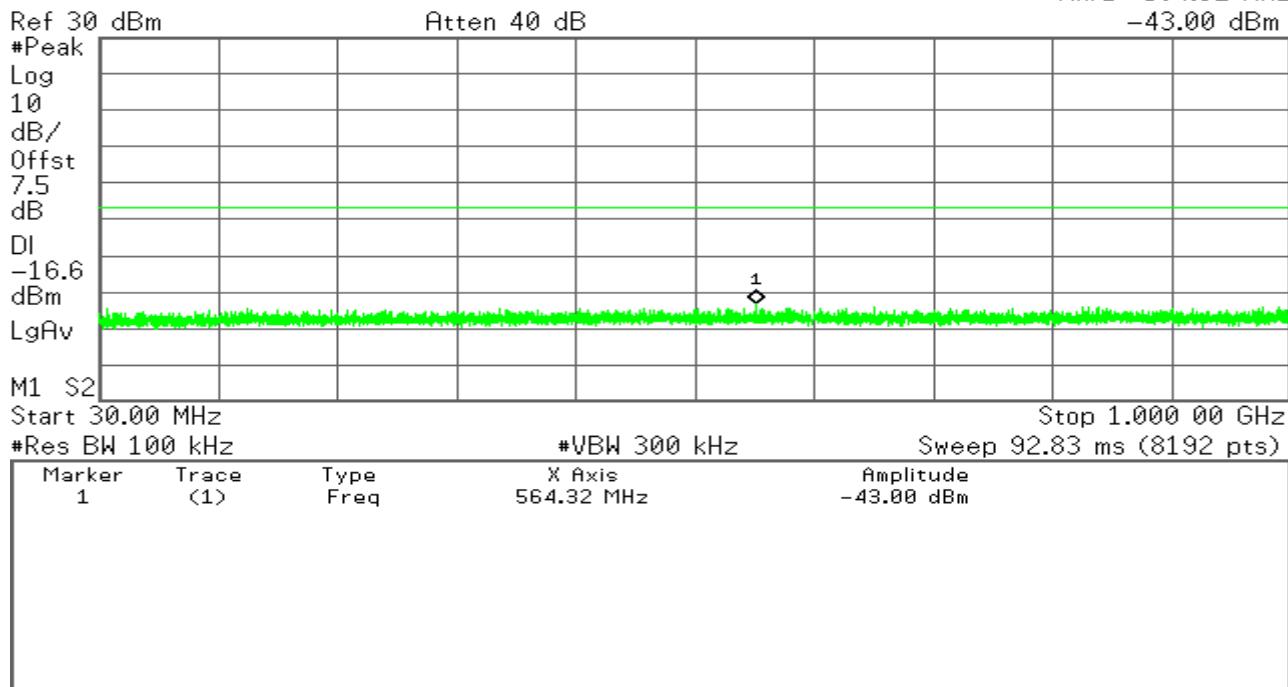
Mkr1 2.463 916 GHz
3.39 dBm



Agilent

R T

Mkr1 564.32 MHz
-43.00 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

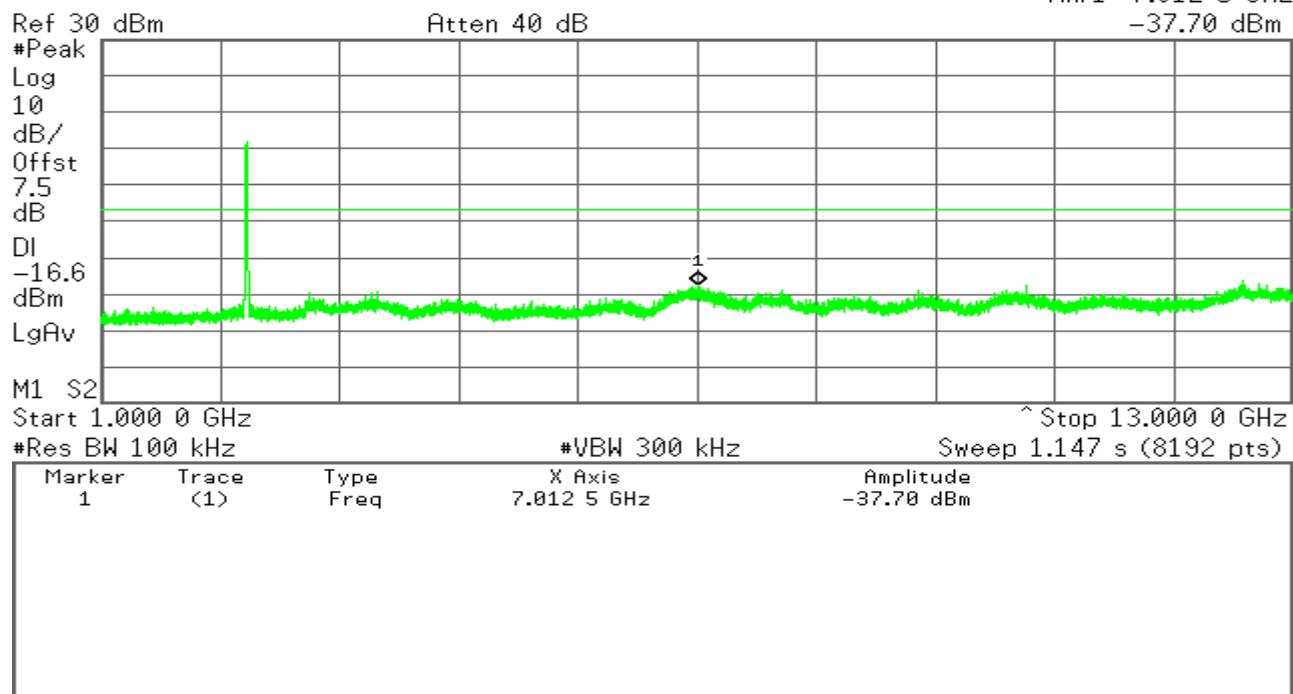
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

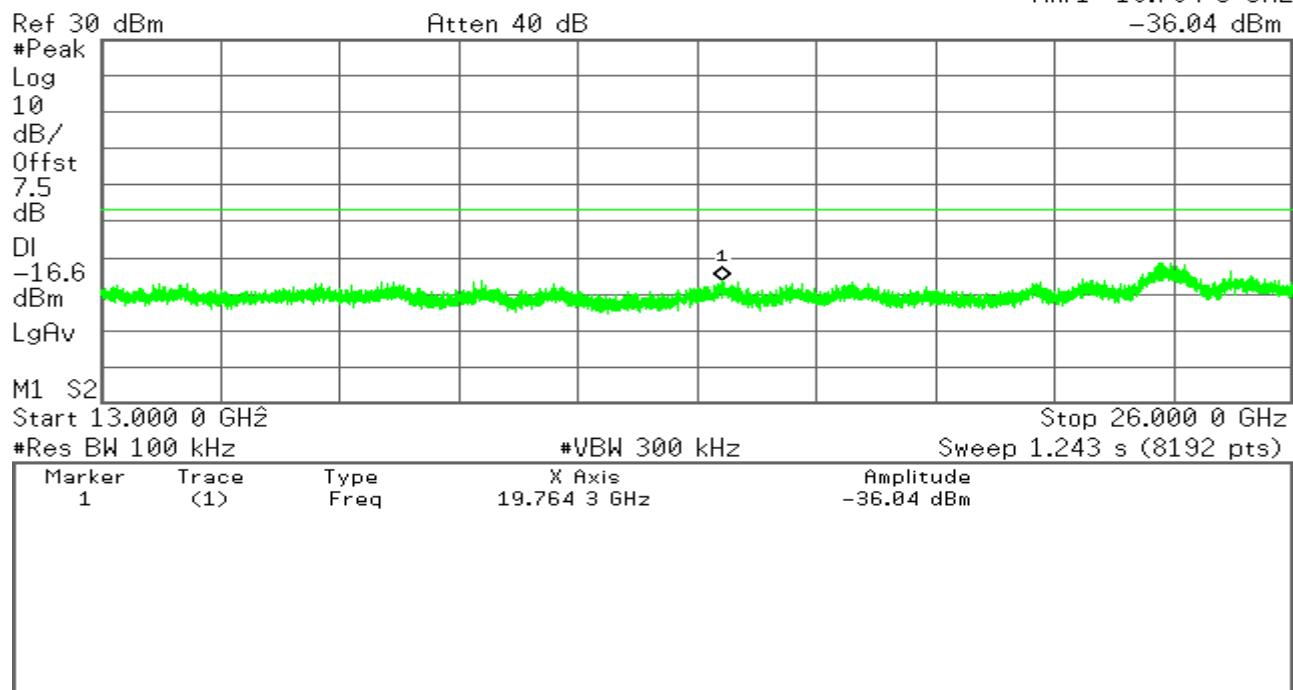
Mkr1 7.012 5 GHz
-37.70 dBm



Agilent

R T

Mkr1 19.764 3 GHz
-36.04 dBm





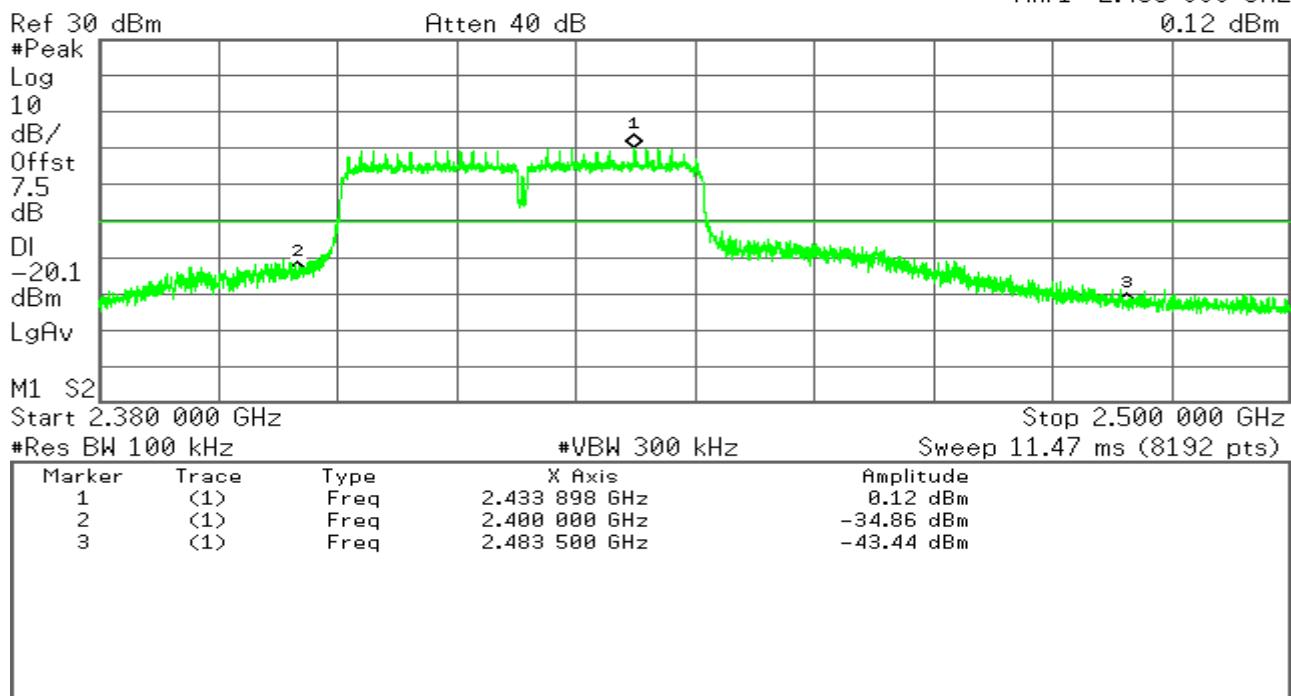
IEEE 802.11n HT40 mode / Chain 0

CH Low

Agilent

R T

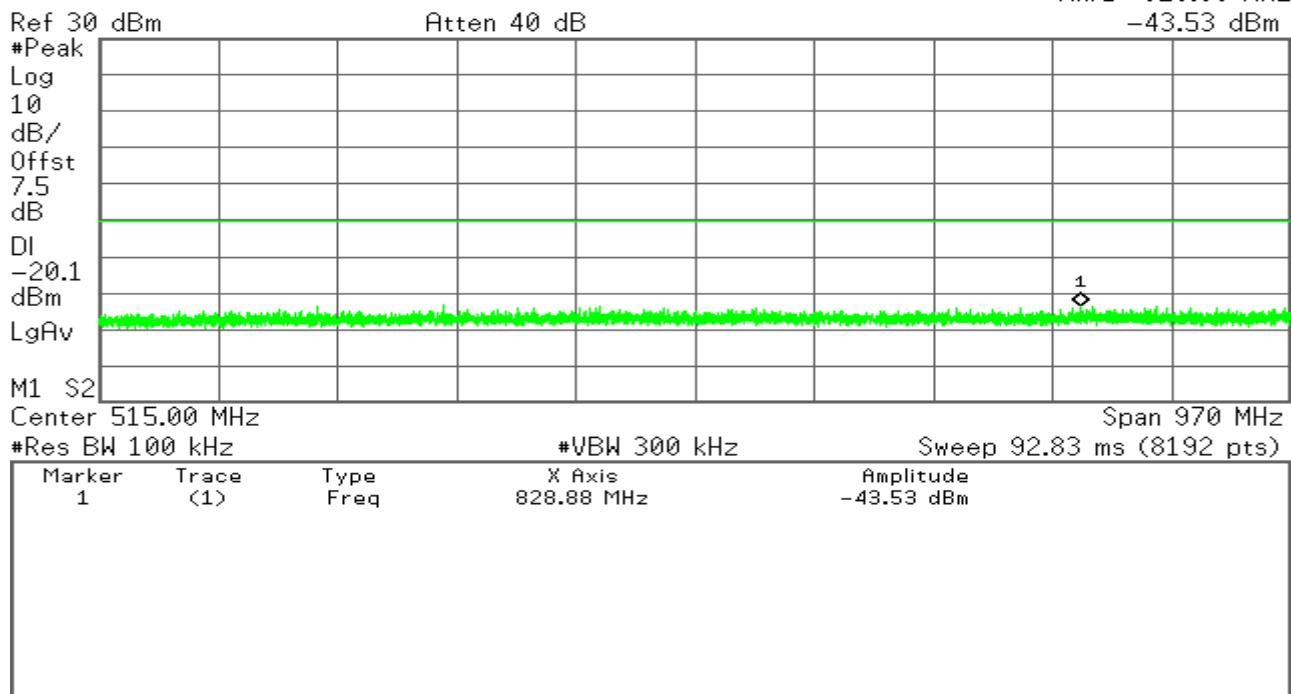
Mkr1 2.433 898 GHz
0.12 dBm



Agilent

R T

Mkr1 828.88 MHz
-43.53 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

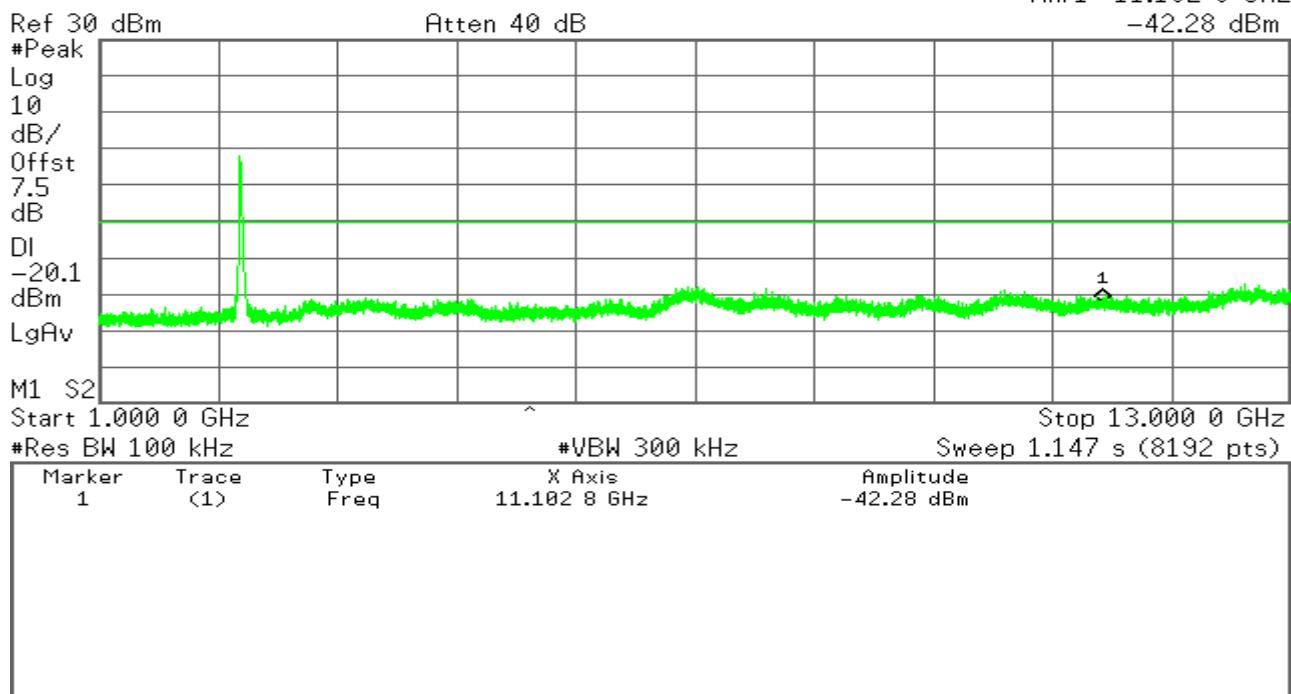
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

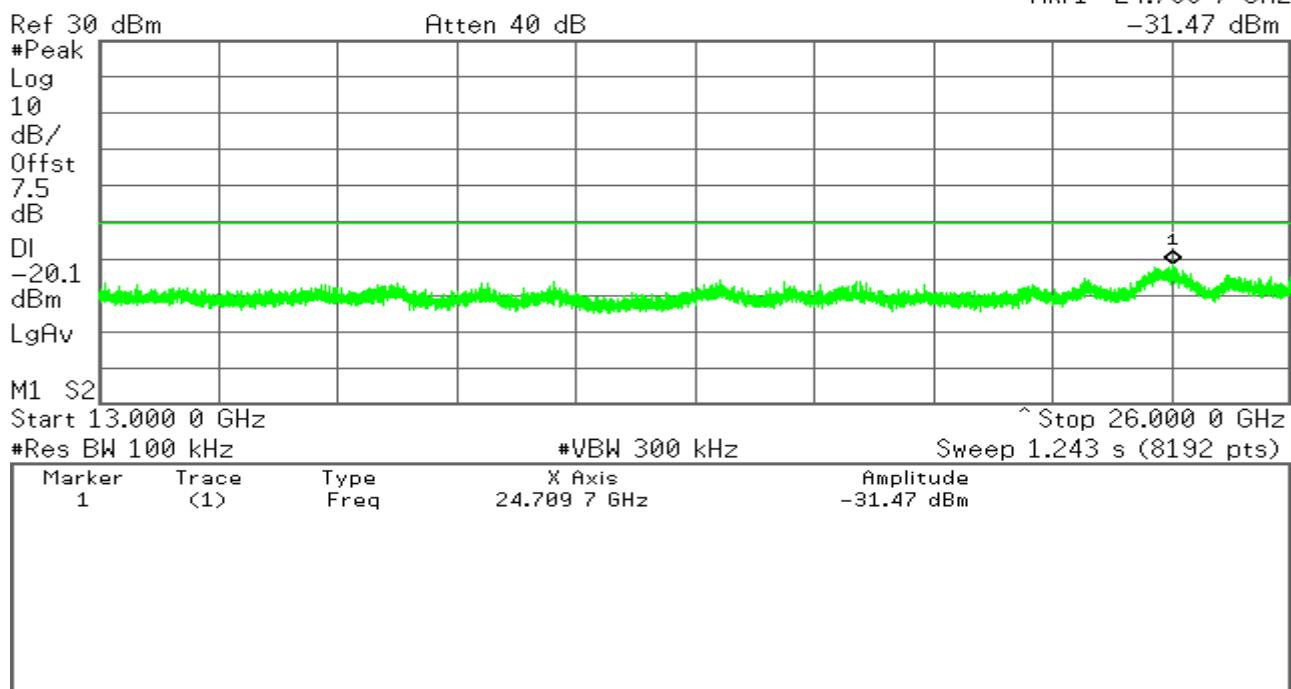
Mkr1 11.102 8 GHz
-42.28 dBm



Agilent

R T

Mkr1 24.709 7 GHz
-31.47 dBm



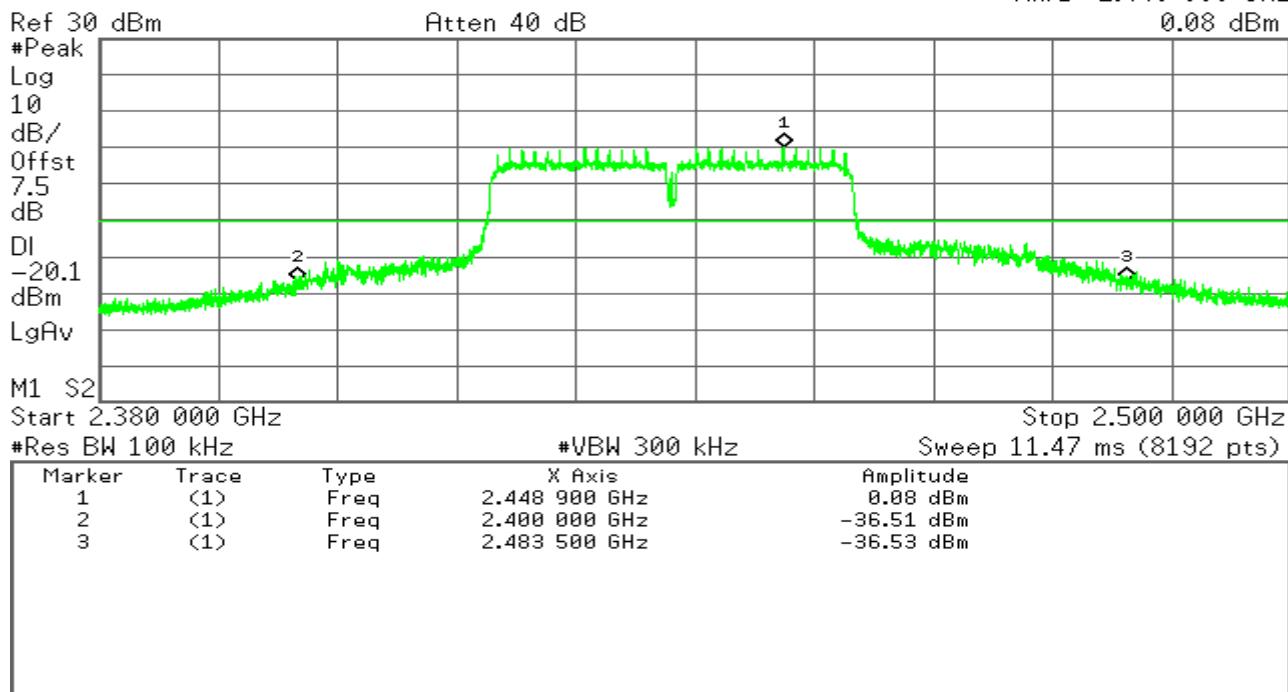


CH Mid

Agilent

R T

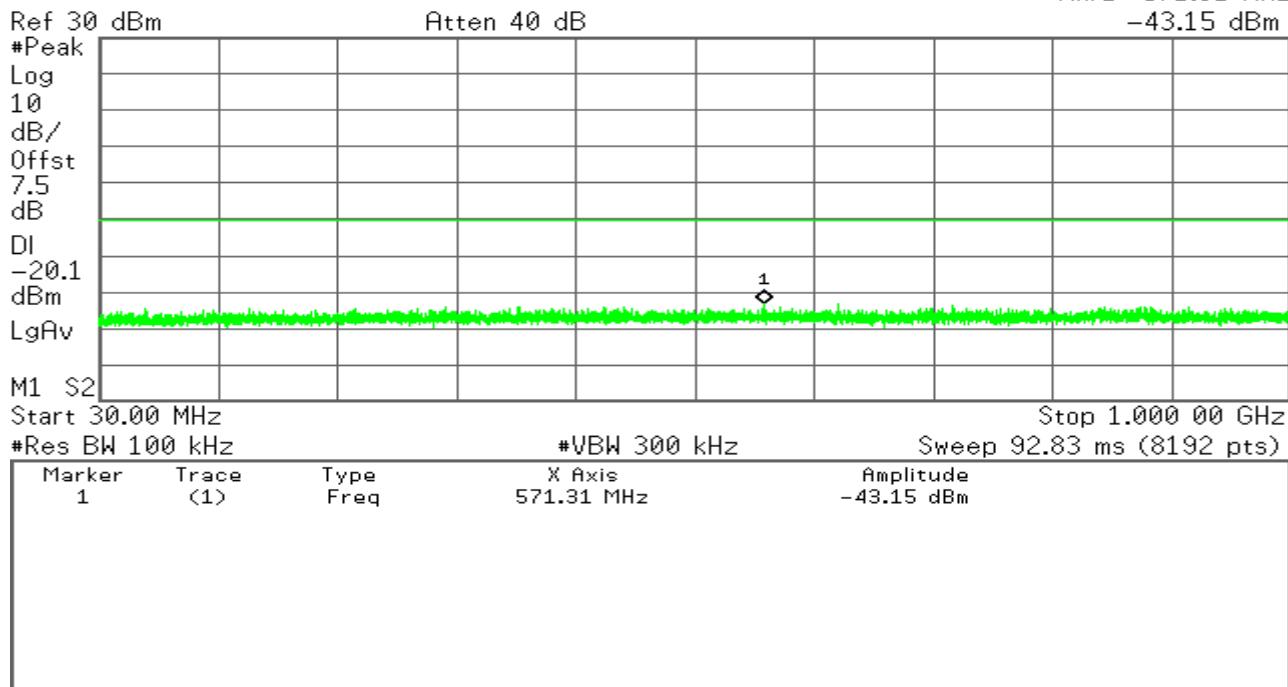
Mkr1 2.448 900 GHz
0.08 dBm



Agilent

R T

Mkr1 571.31 MHz
-43.15 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 6.912 8 GHz
-39.65 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.1

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	6.912 8 GHz	-39.65 dBm

Agilent

R T

Mkr1 24.552 6 GHz
-32.57 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.1

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.552 6 GHz	-32.57 dBm

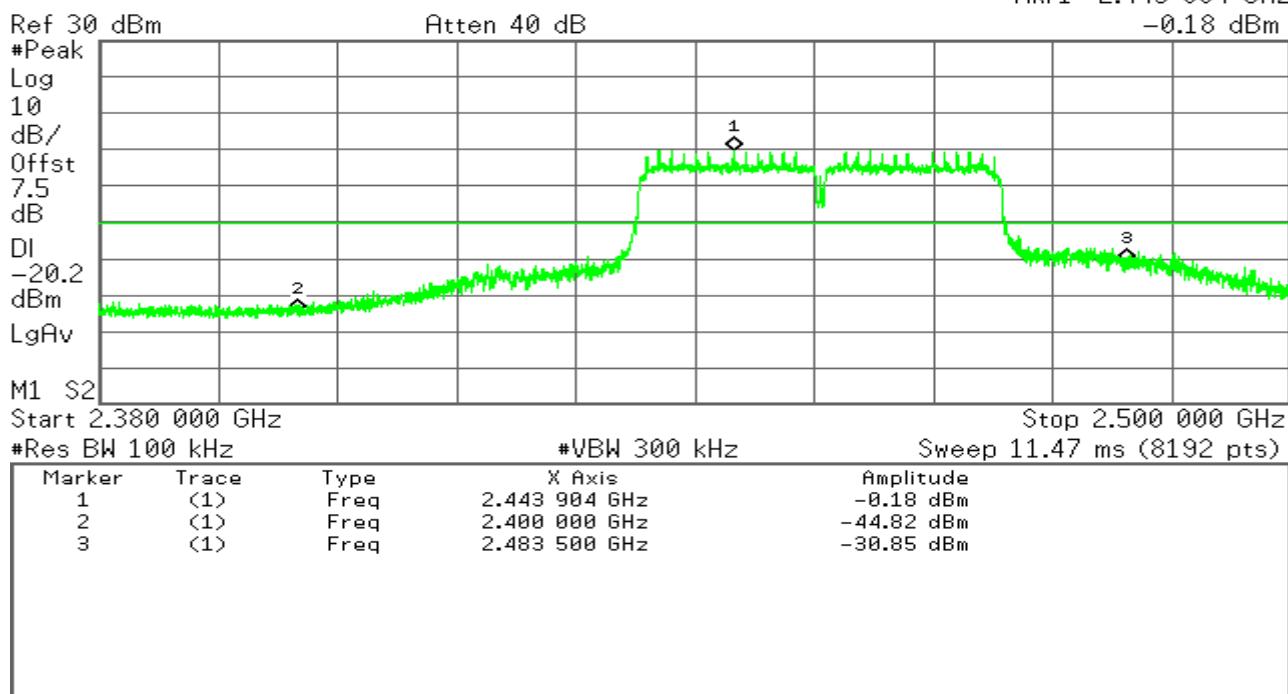


CH High

Agilent

R T

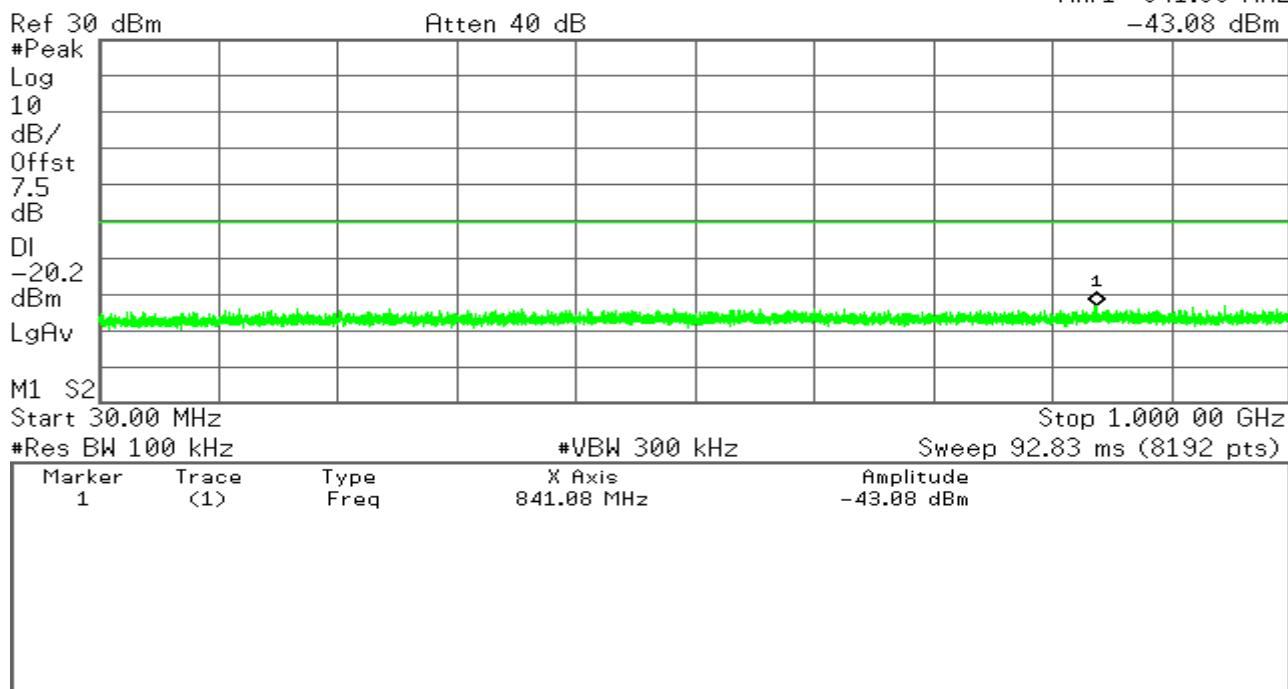
Mkr1 2.443 904 GHz
-0.18 dBm



Agilent

R T

Mkr1 841.08 MHz
-43.08 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

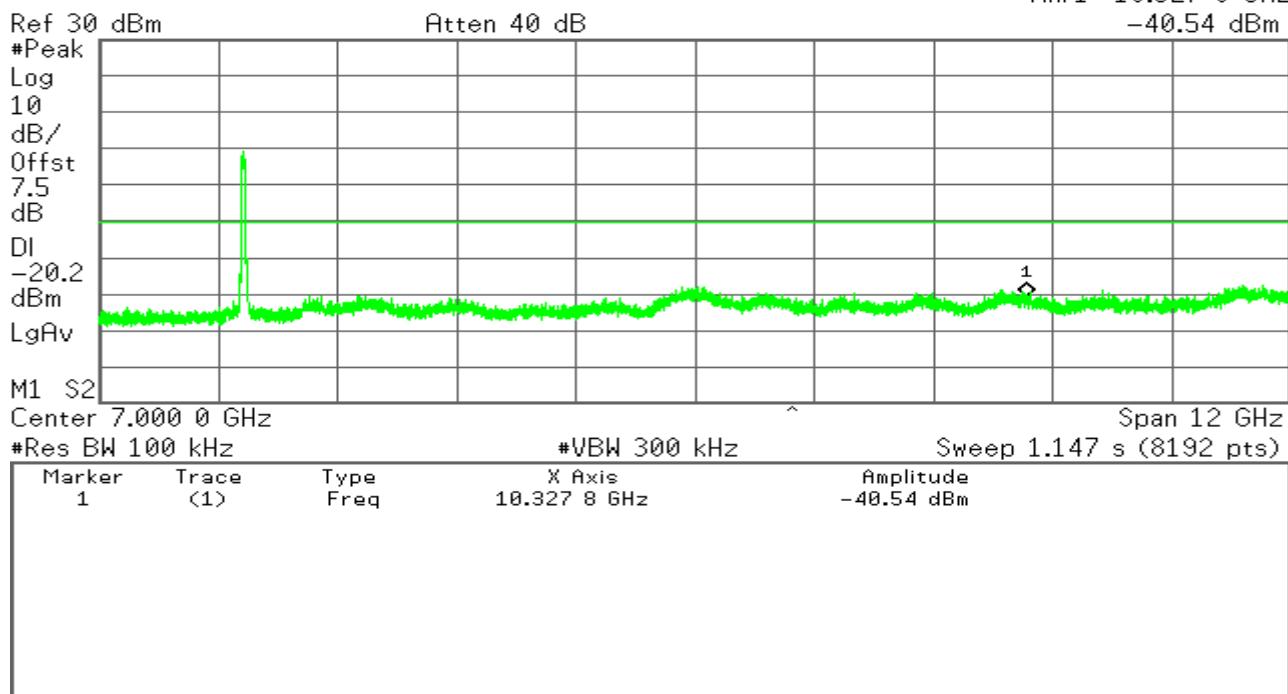
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

* Agilent

R T

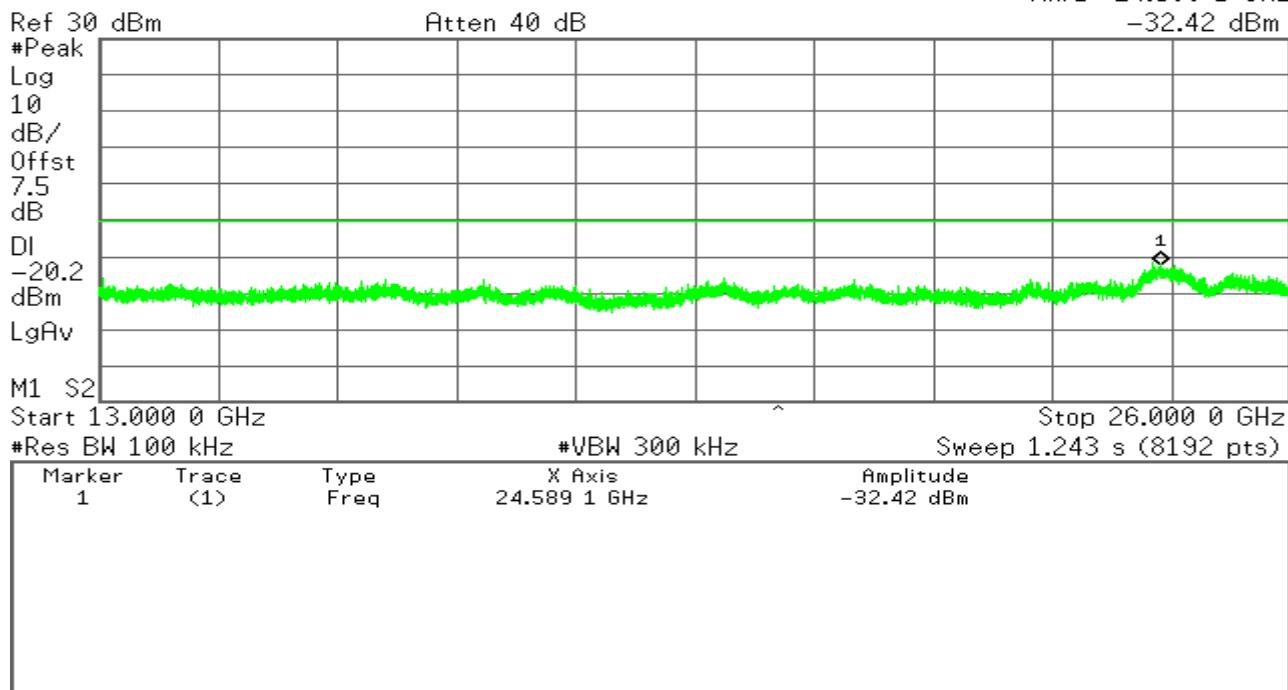
Mkr1 10.327 8 GHz
-40.54 dBm



* Agilent

R T

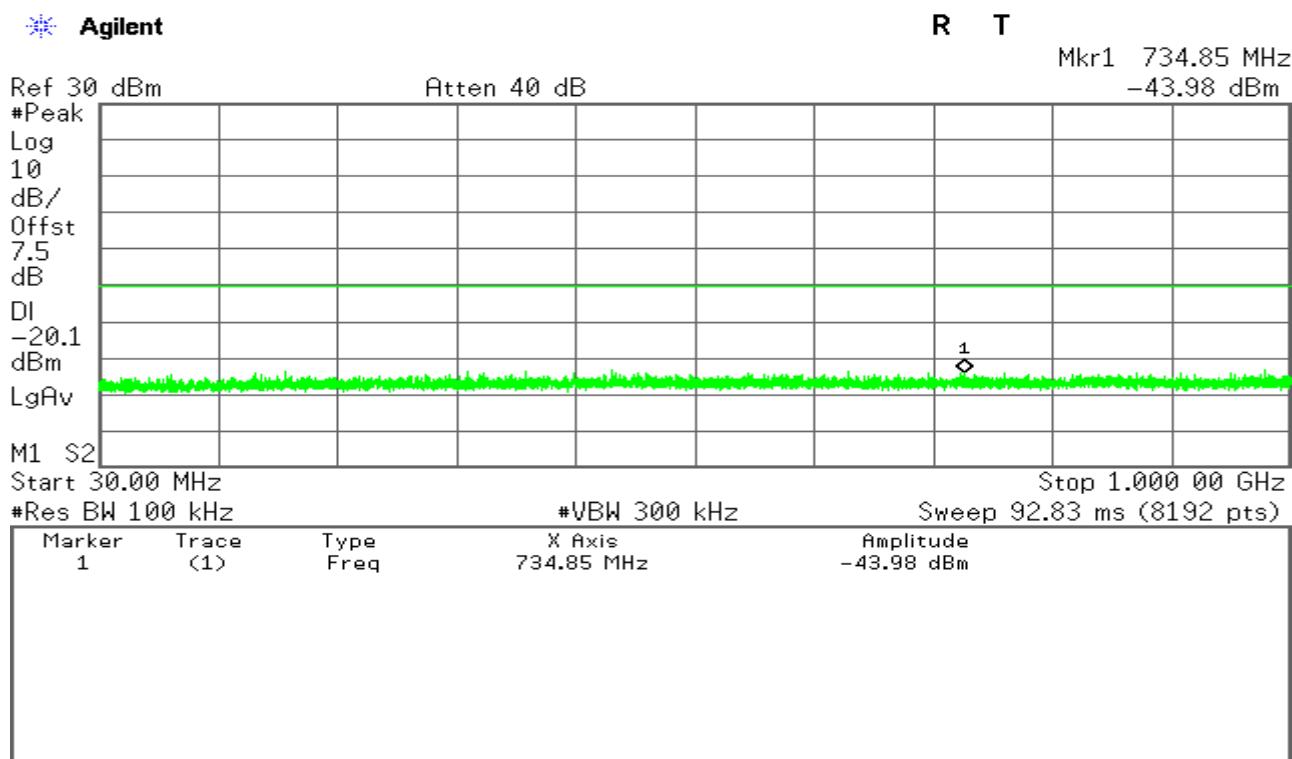
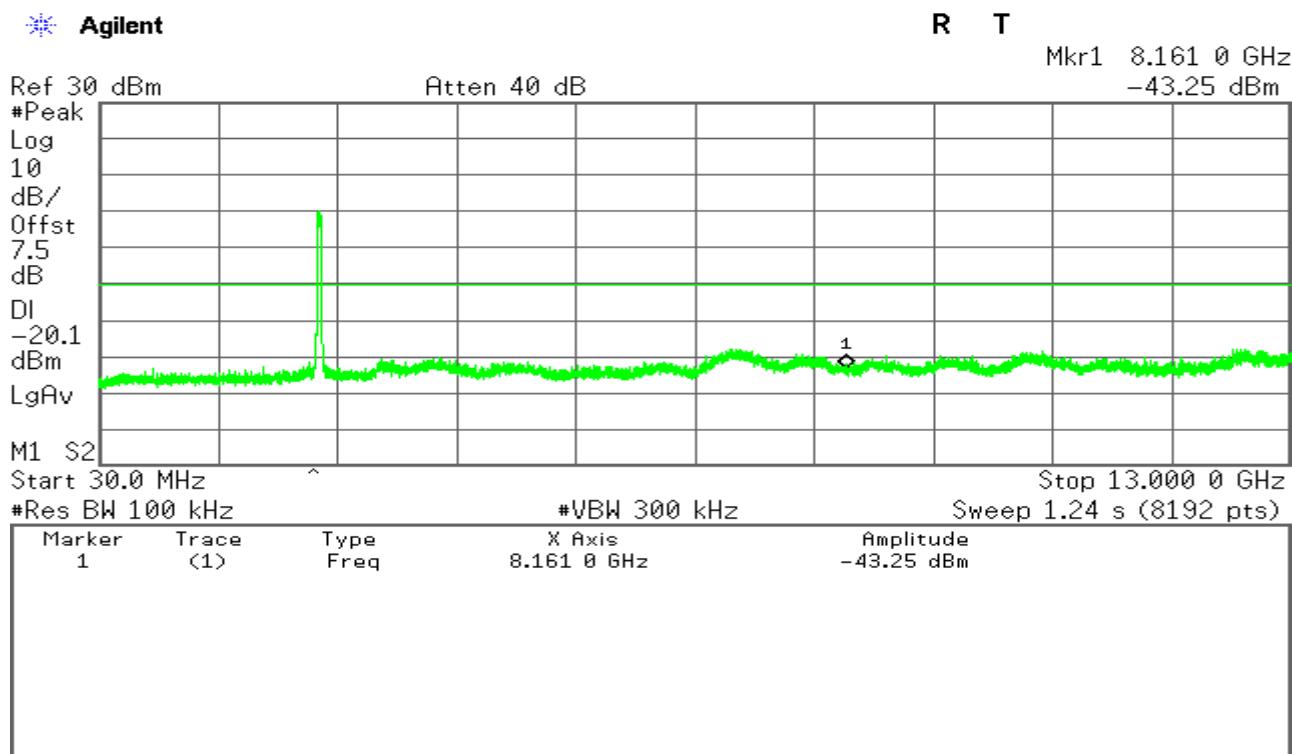
Mkr1 24.589 1 GHz
-32.42 dBm





IEEE 802.11n HT40 mode / Chain 1

CH Low





Compliance Certification Services Inc.

Report No: C140616R01-RPW

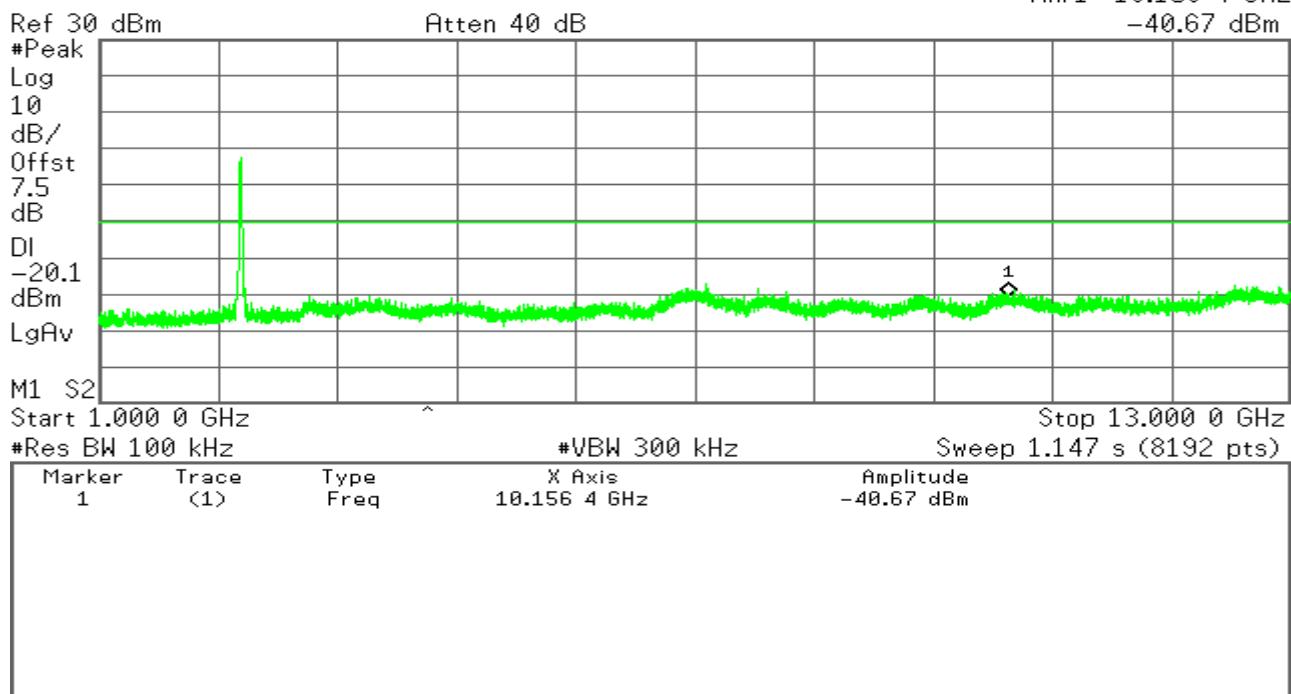
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

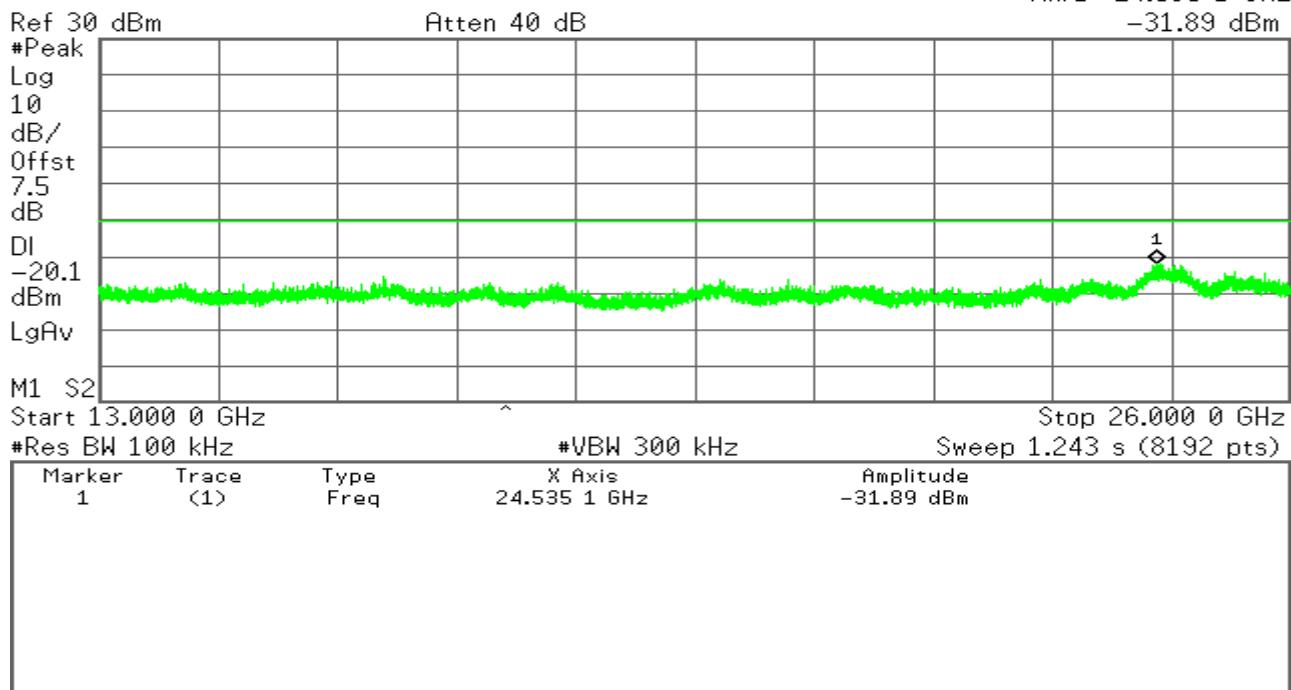
Mkr1 10.156 4 GHz
-40.67 dBm



Agilent

R T

Mkr1 24.535 1 GHz
-31.89 dBm



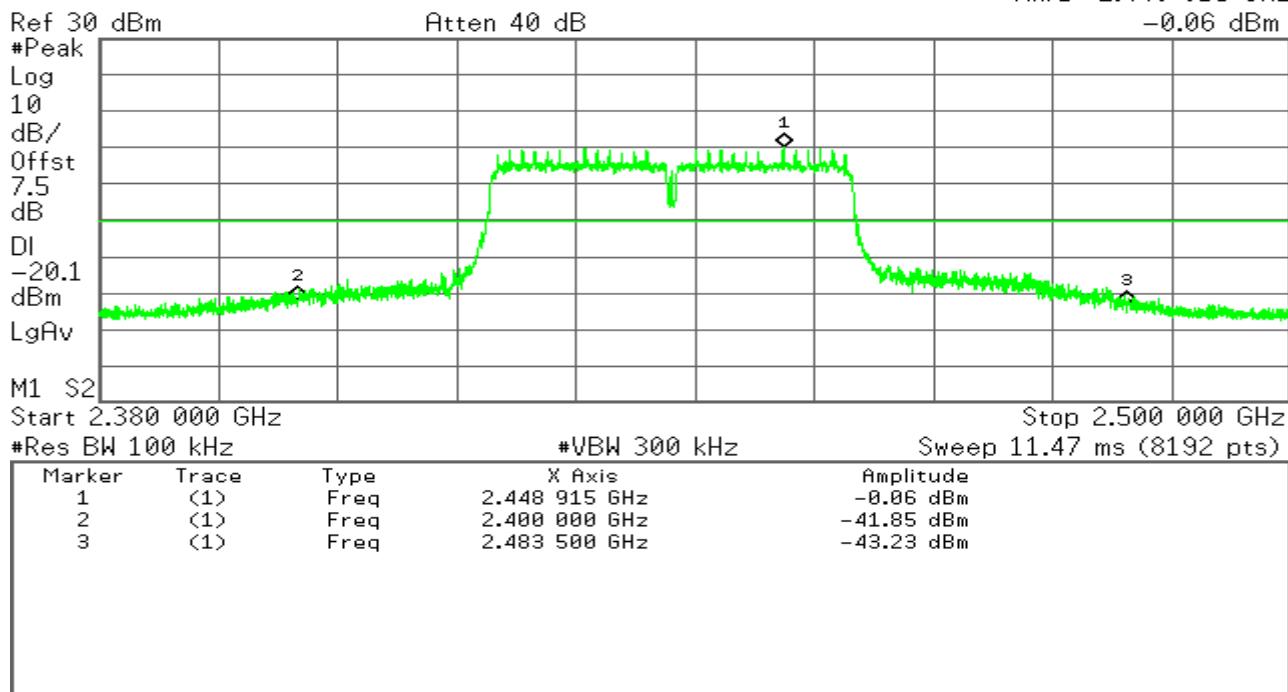


CH Mid

Agilent

R T

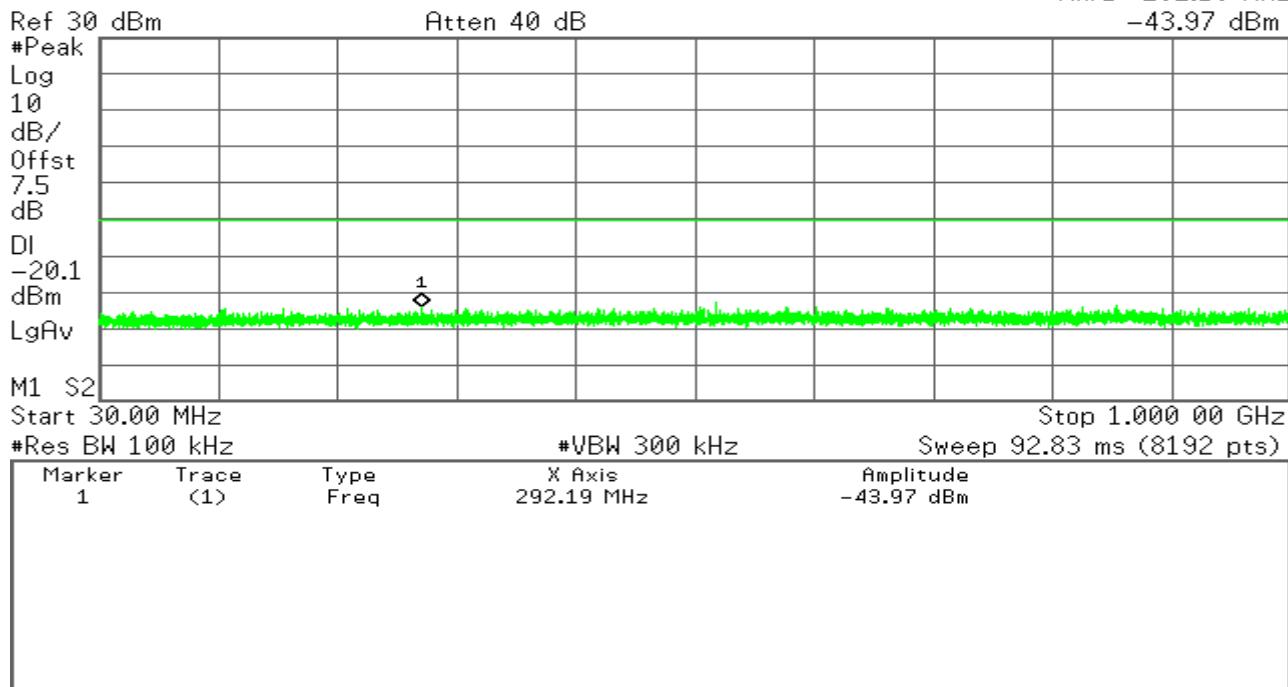
Mkr1 2.448 915 GHz
-0.06 dBm



Agilent

R T

Mkr1 292.19 MHz
-43.97 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

Mkr1 6.934 8 GHz
-40.03 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.1

dBm

LgAv

M1 S2

Start 1.000 0 GHz

Stop 13.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	6.934 8 GHz	-40.03 dBm

Agilent

R T

Mkr1 24.646 2 GHz
-32.08 dBm

Ref 30 dBm

Atten 40 dB

*Peak

Log

10

dB/

Offst

7.5

dB

DI

-20.1

dBm

LgAv

M1 S2

Start 13.000 0 GHz

Stop 26.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	<1>	Freq	24.646 2 GHz	-32.08 dBm

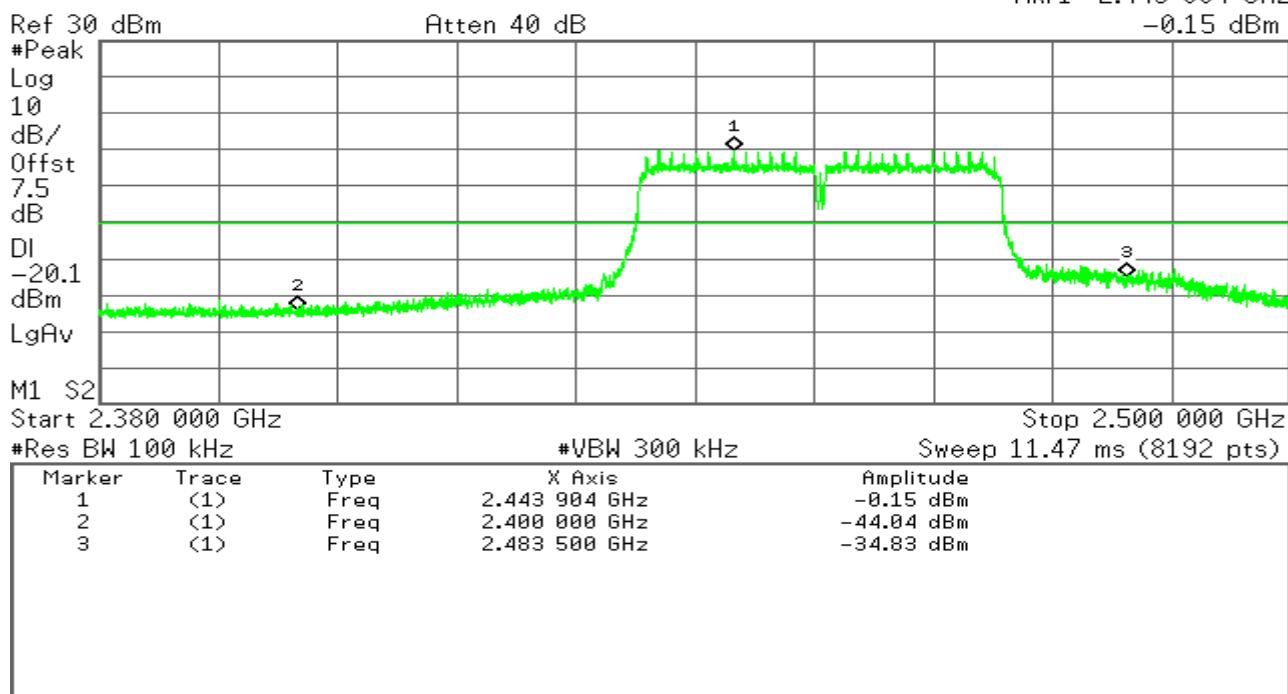


CH High

Agilent

R T

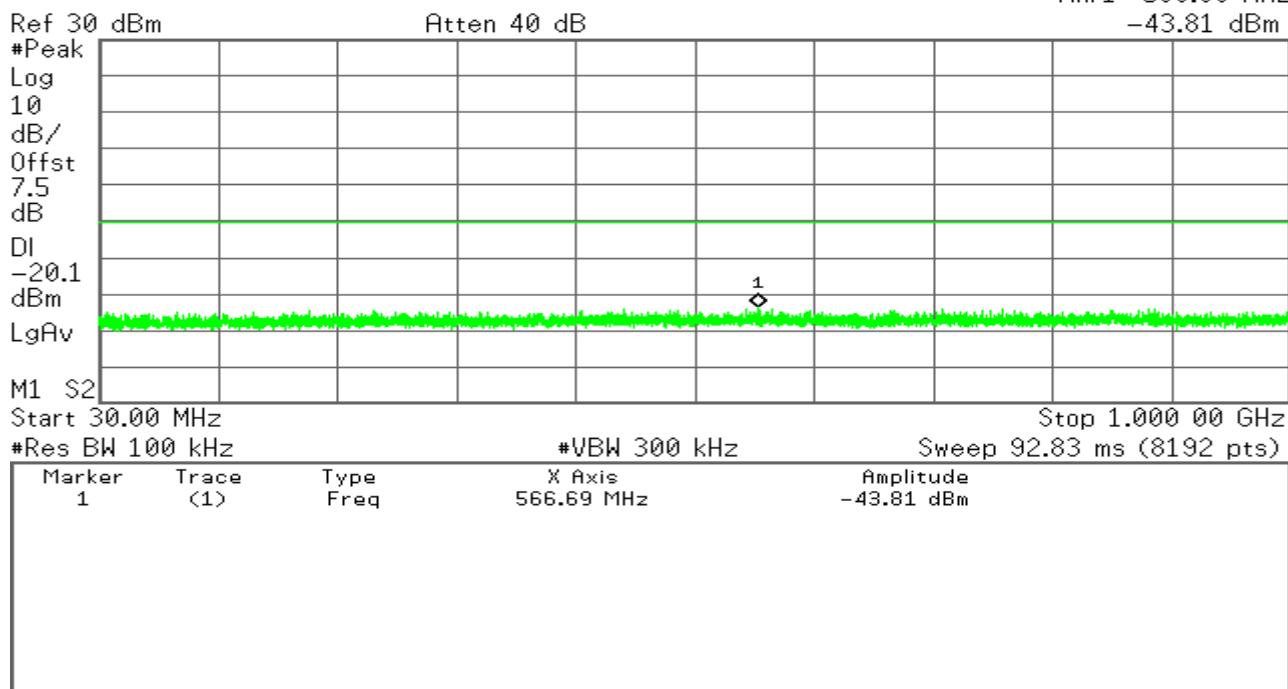
Mkr1 2.443 904 GHz
-0.15 dBm



Agilent

R T

Mkr1 566.69 MHz
-43.81 dBm





Compliance Certification Services Inc.

Report No: C140616R01-RPW

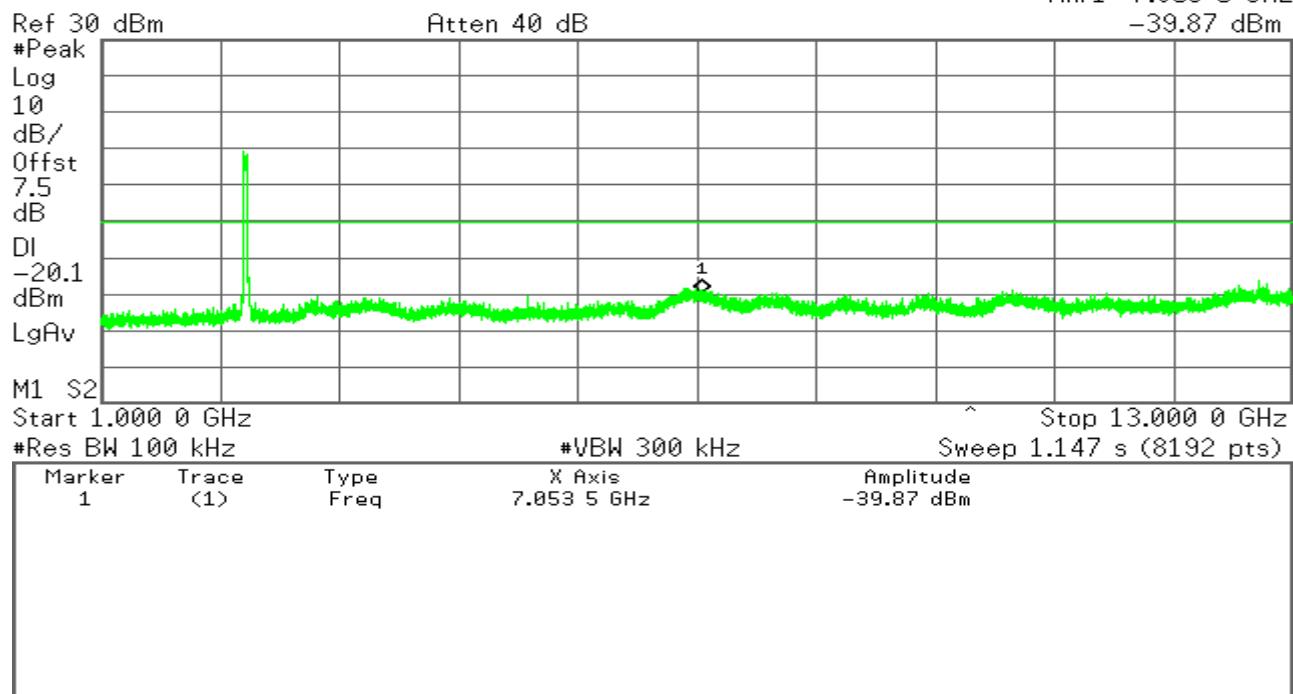
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Agilent

R T

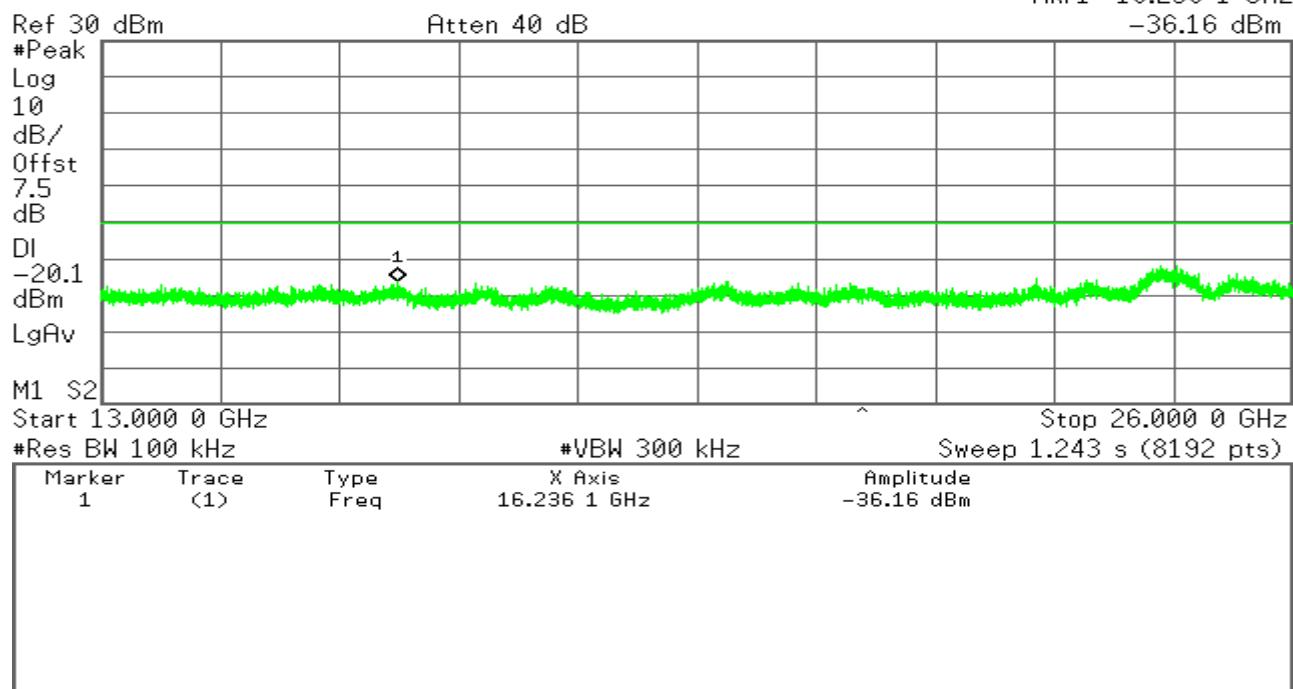
Mkr1 7.053 5 GHz
-39.87 dBm



Agilent

R T

Mkr1 16.236 1 GHz
-36.16 dBm





4.5.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.

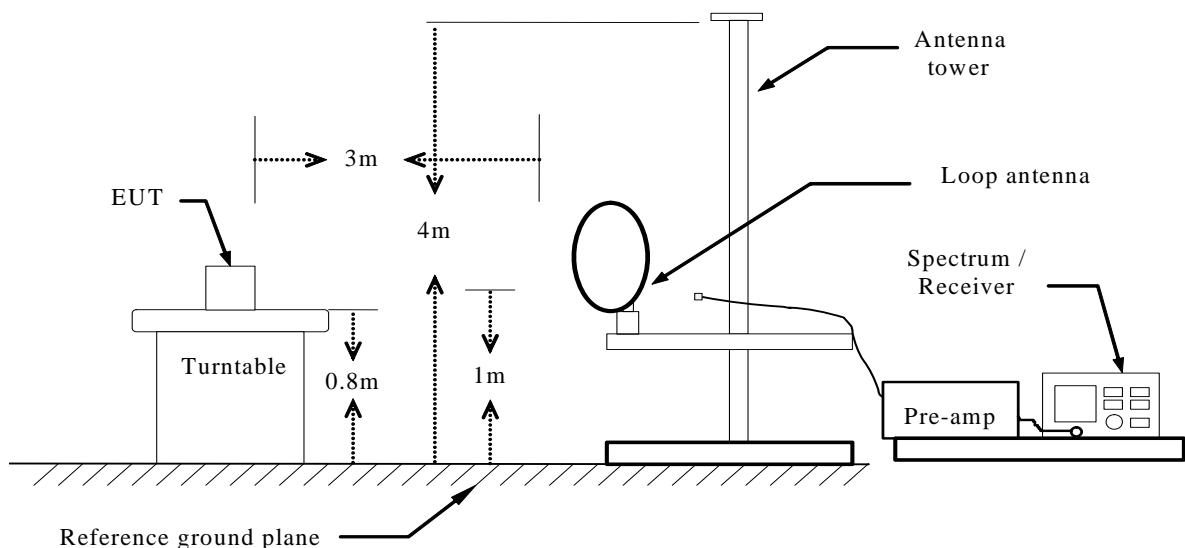
2. In the emission table above, the tighter limit applies at the band edges.

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

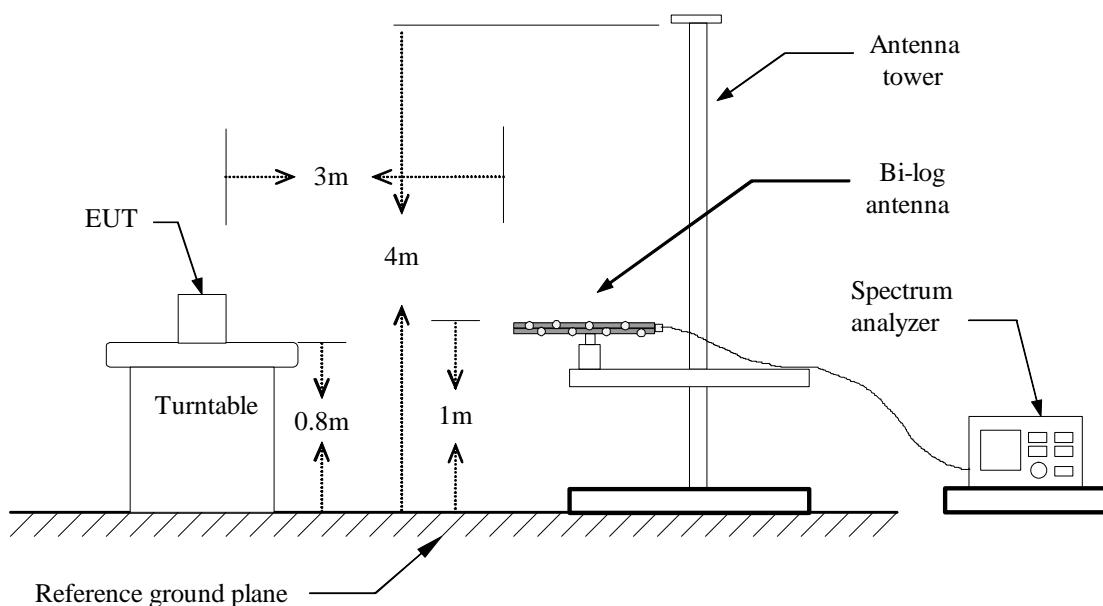
Test Configuration



Below 30MHz

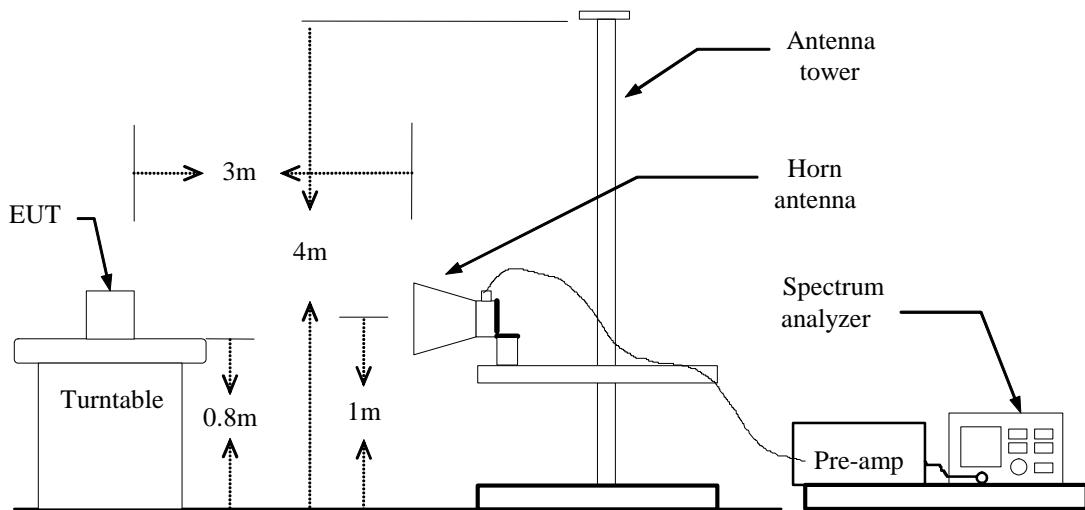


Below 1 GHz





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

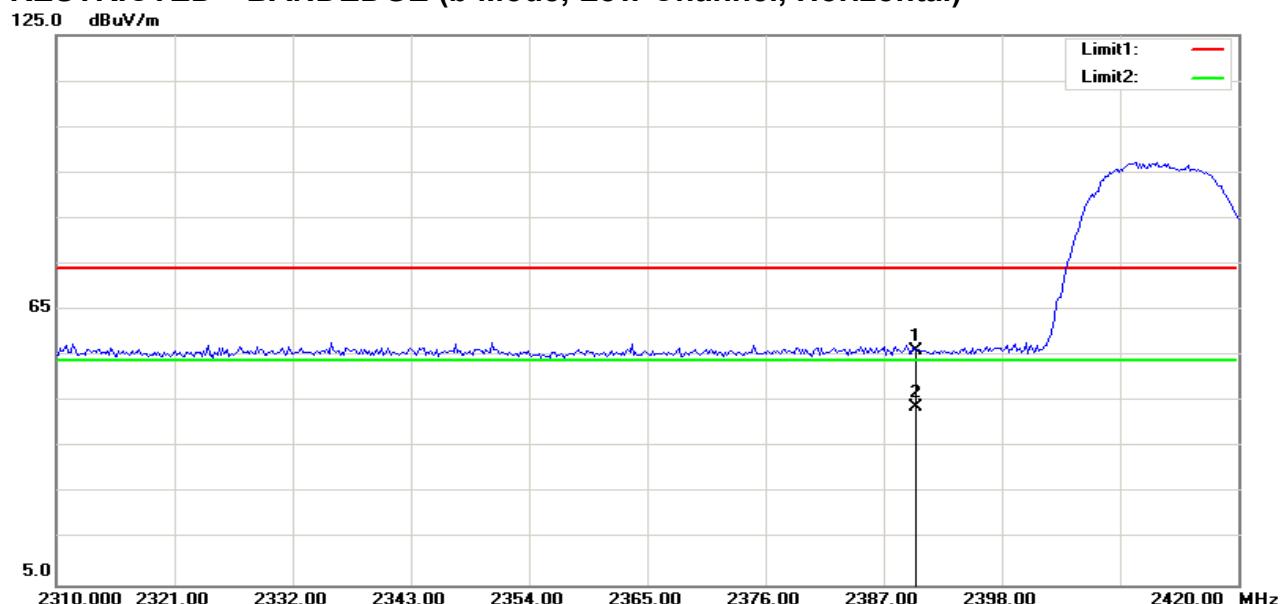
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

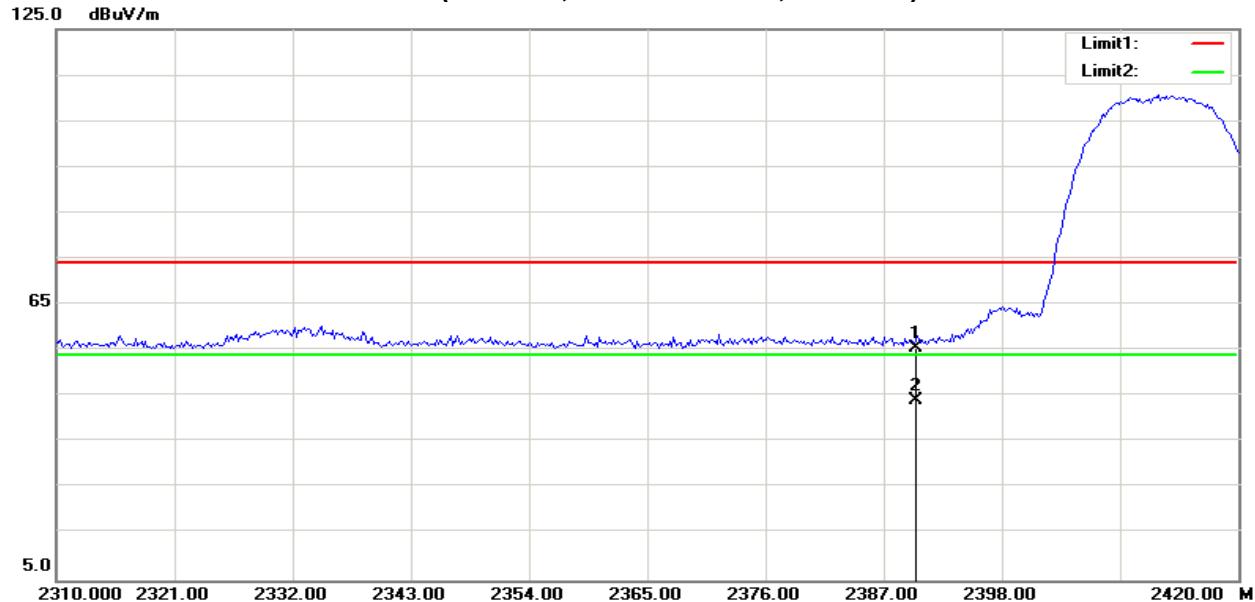


RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)



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	64.58	-8.45	56.13	74.00	-17.87	100	284	peak
2	2390.050	52.15	-8.45	43.70	54.00	-10.30	100	284	AVG

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)



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	63.90	-8.45	55.45	74.00	-18.55	100	25	peak
2	2390.000	52.59	-8.45	44.14	54.00	-9.86	100	25	AVG

RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

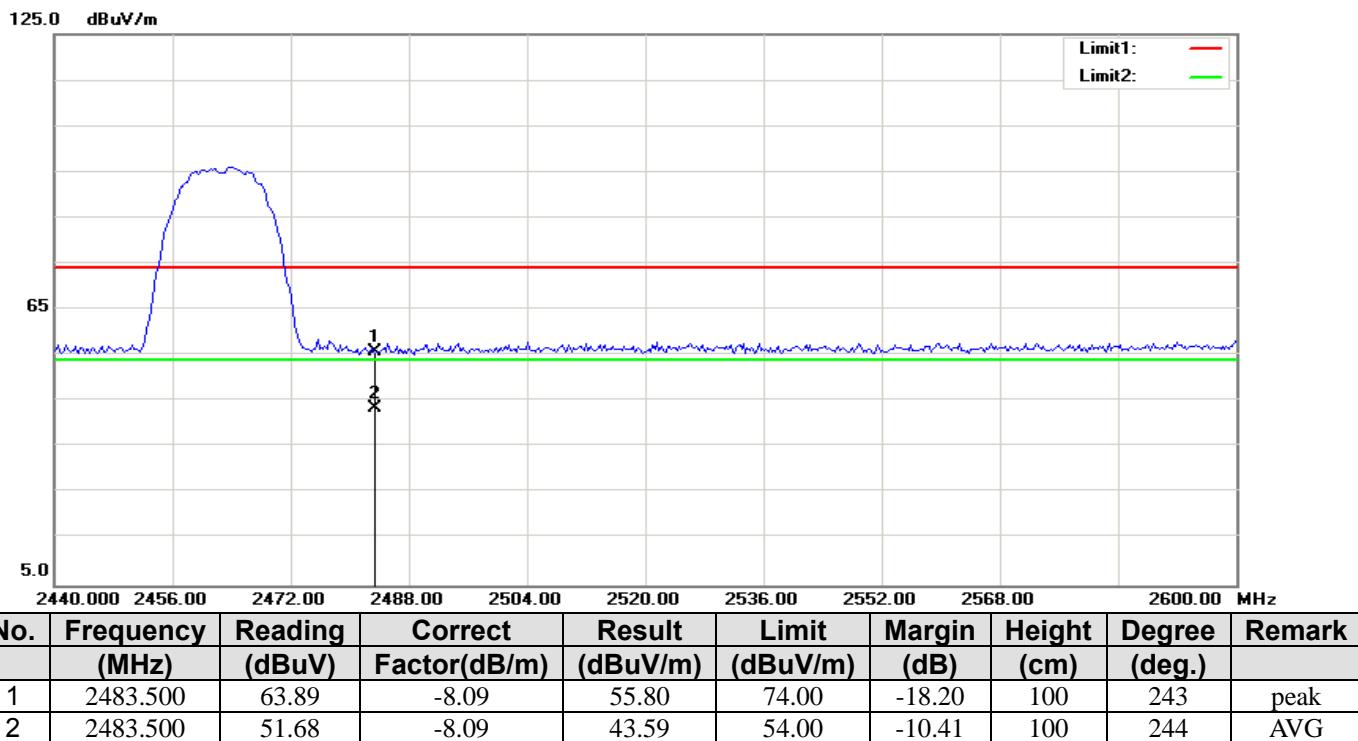


Compliance Certification Services Inc.

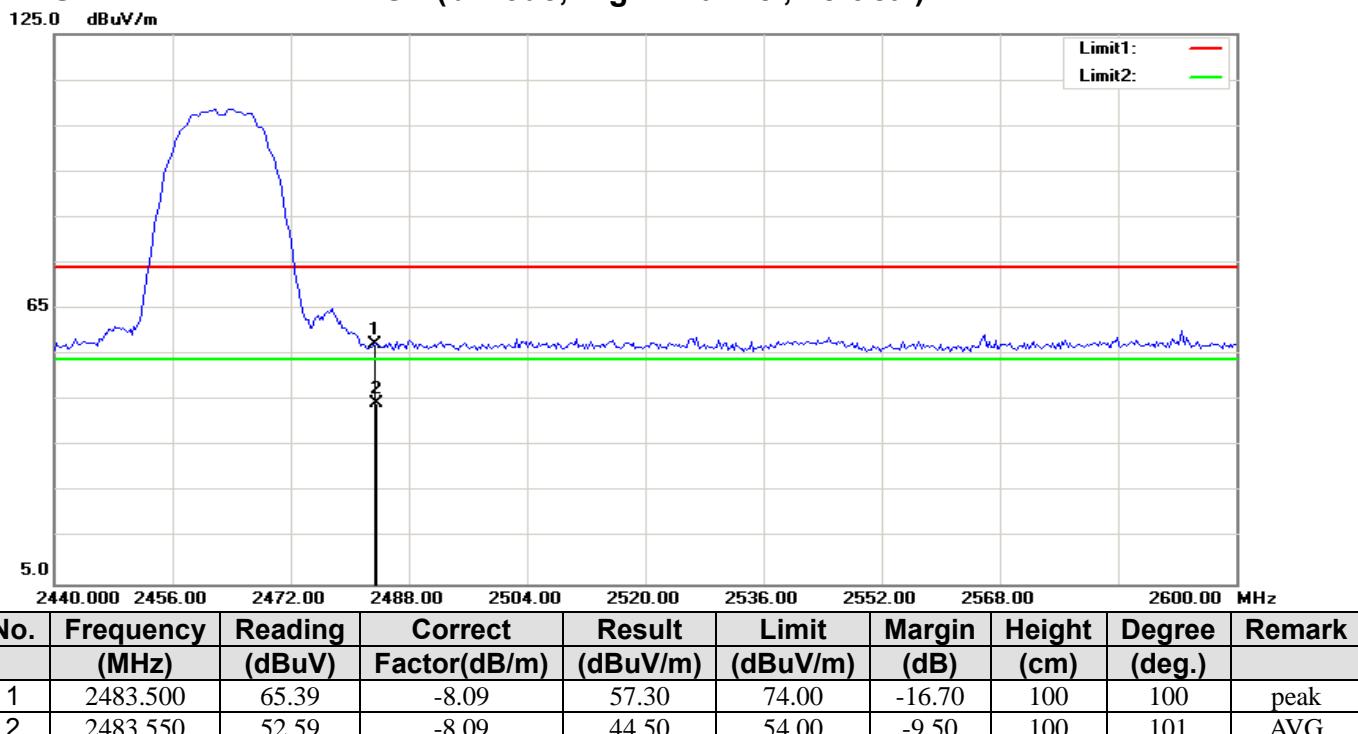
Report No: C140616R01-RPW

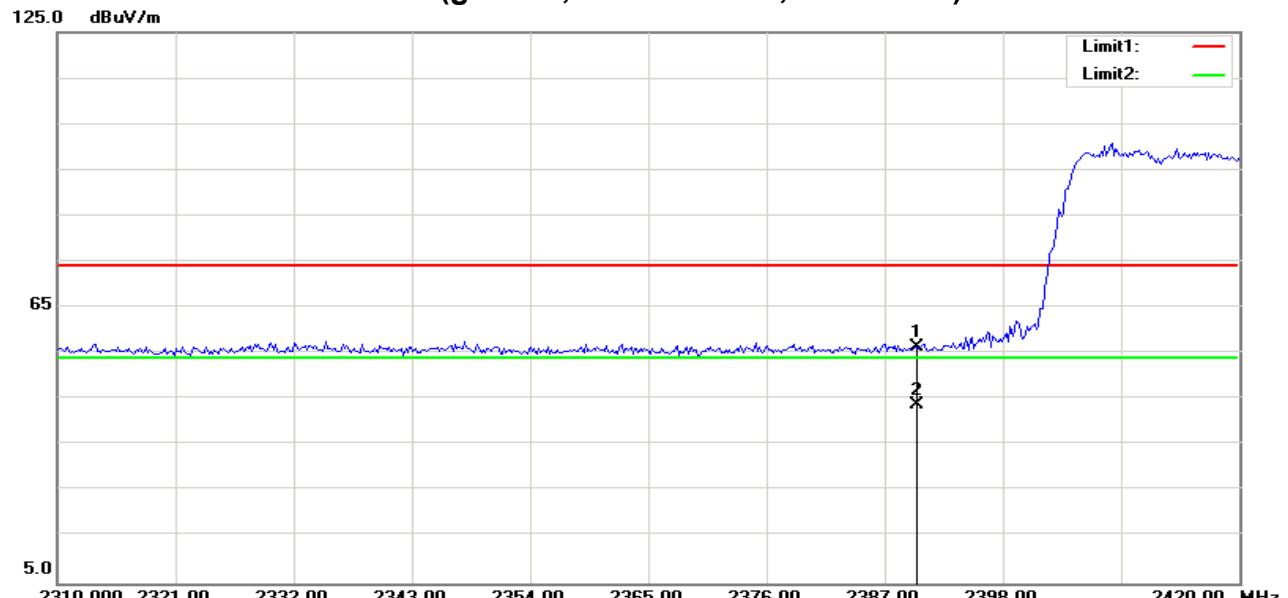
FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

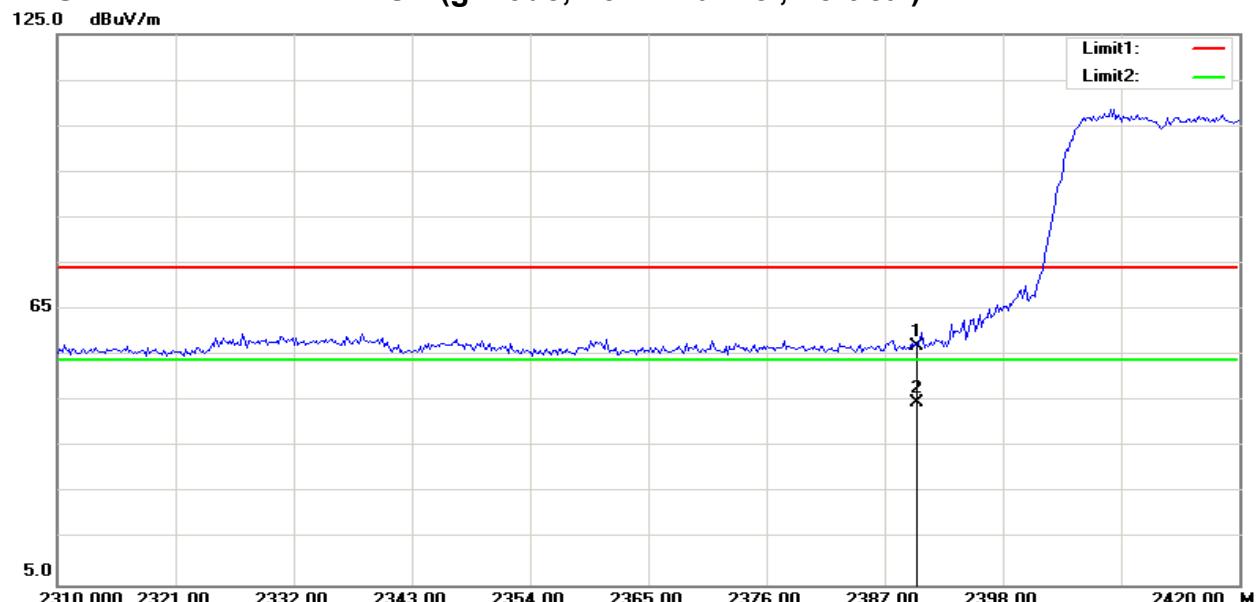


RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

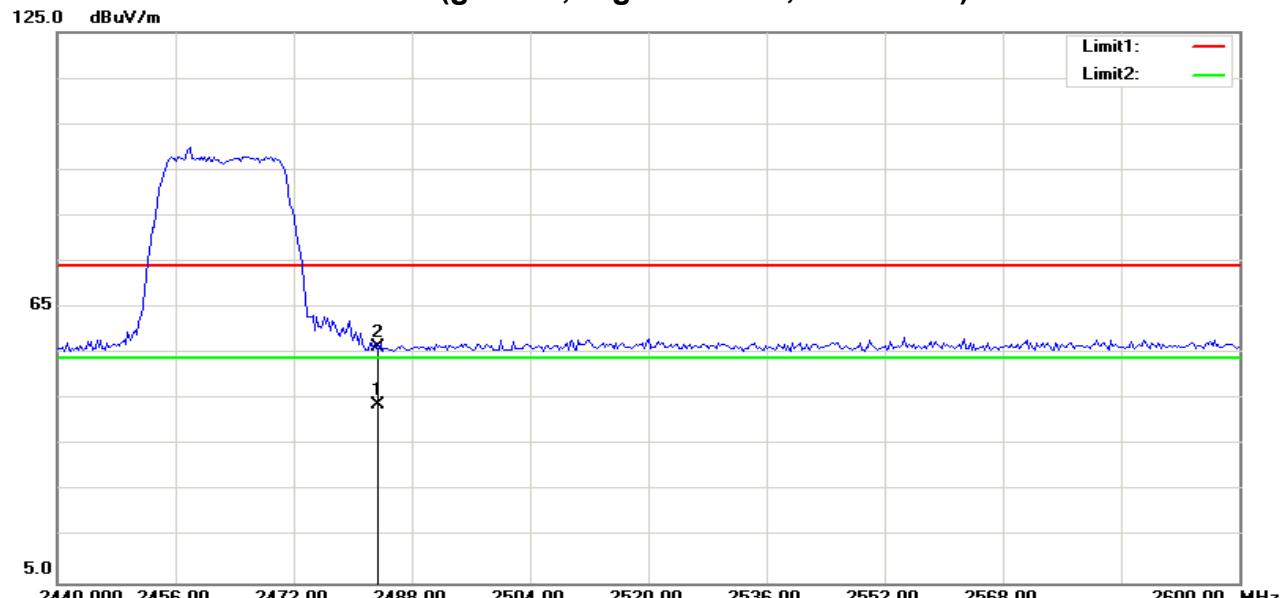


**RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)**

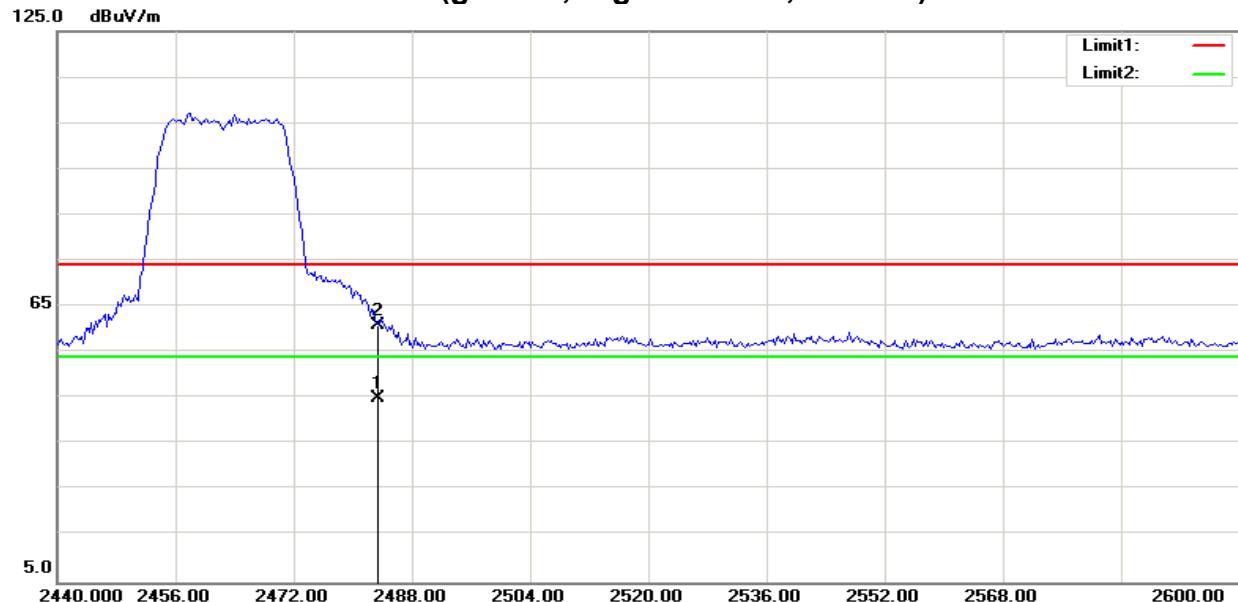
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	64.80	-8.45	56.35	74.00	-17.65	100	271	peak
2	2390.050	52.33	-8.45	43.88	54.00	-10.12	100	272	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

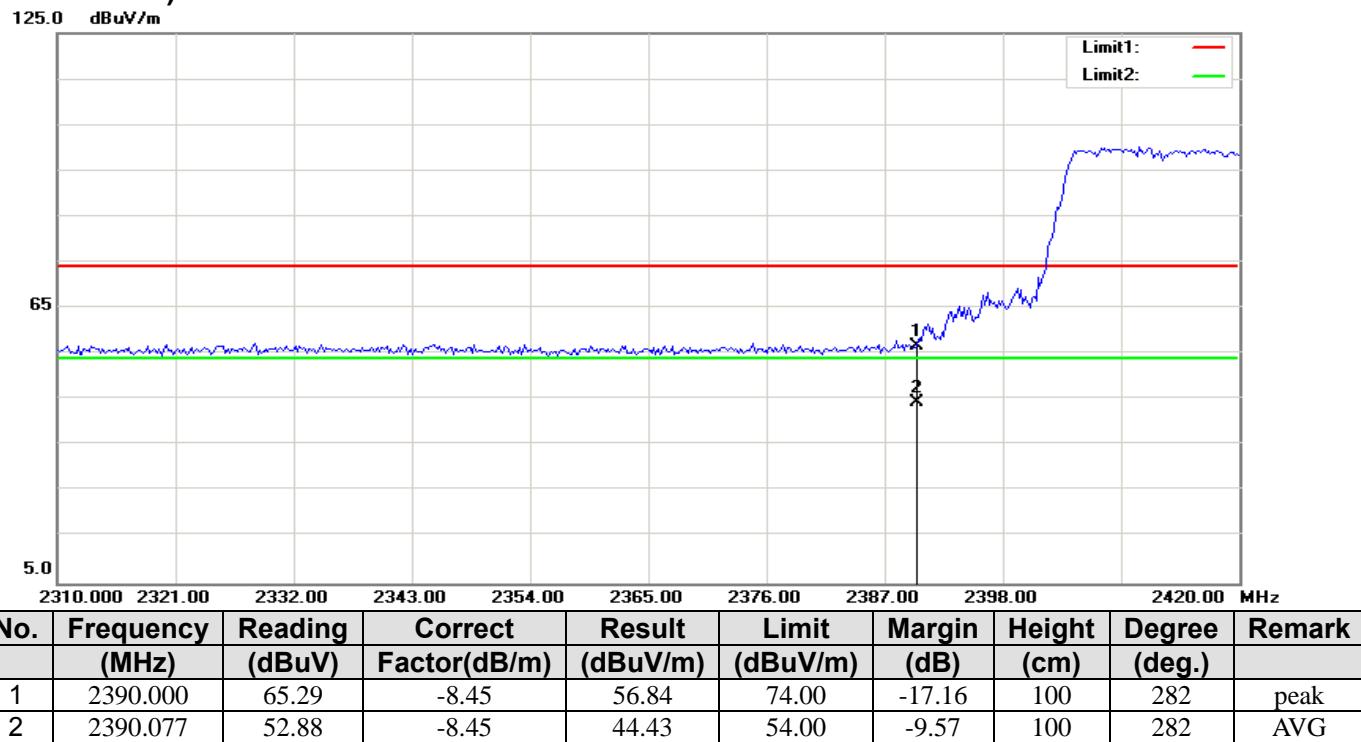
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	65.39	-8.45	56.94	74.00	-17.06	100	117	peak
2	2390.050	53.15	-8.45	44.70	54.00	-9.30	100	118	AVG

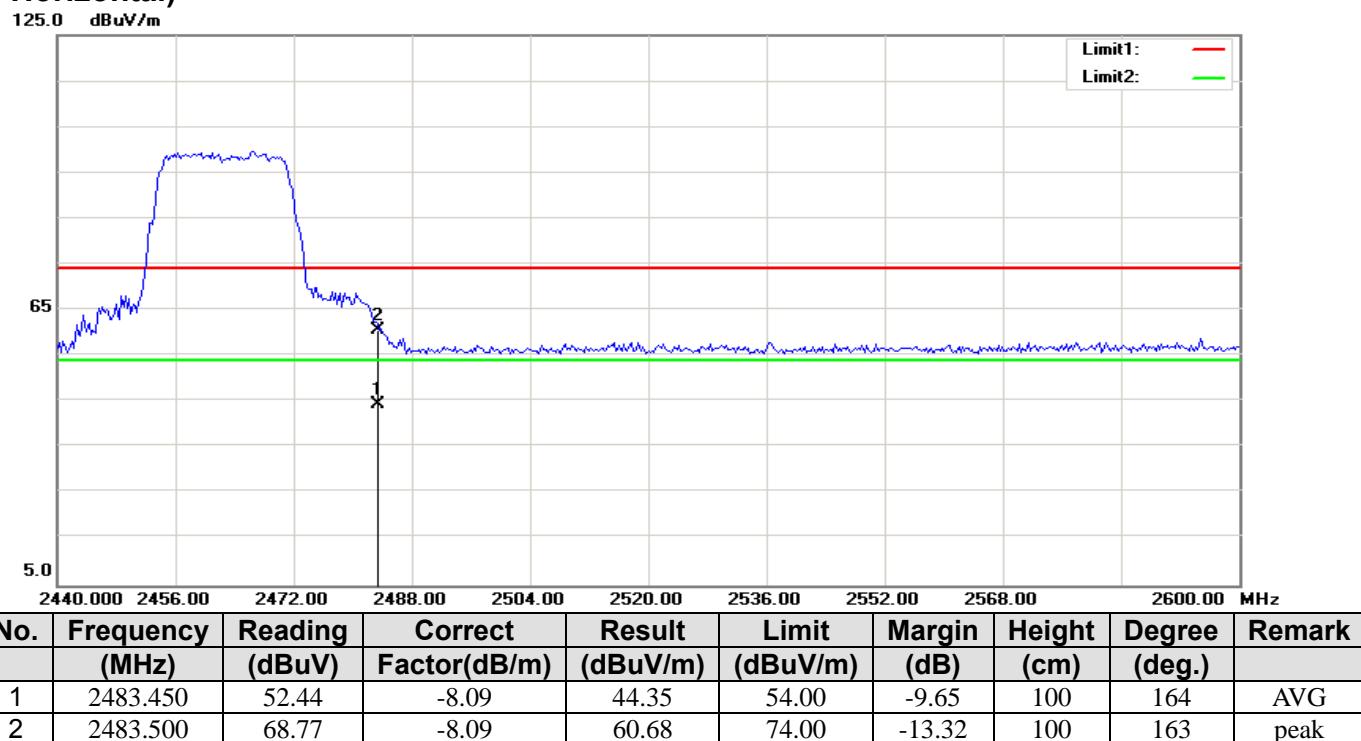
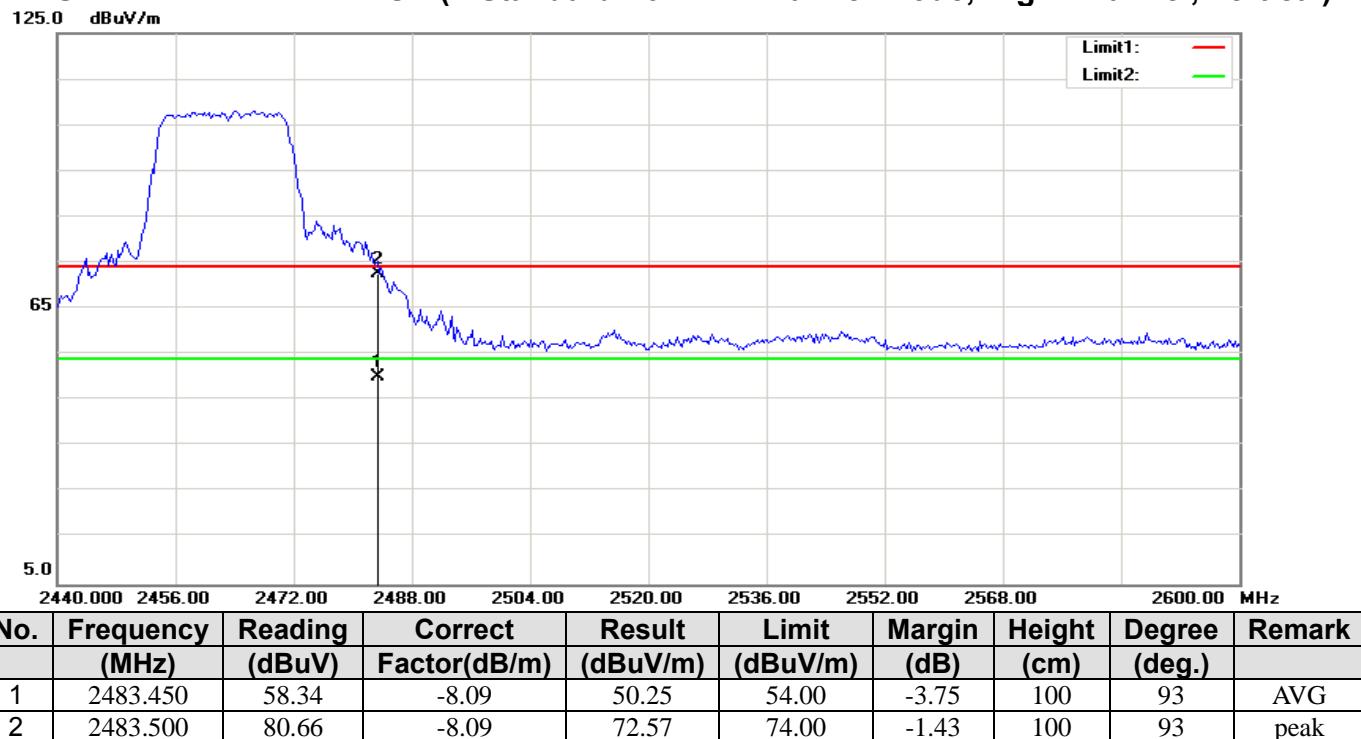
**RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.450	52.03	-8.09	43.94	54.00	-10.06	100	243	AVG
2	2483.500	64.63	-8.09	56.54	74.00	-17.46	100	242	peak

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

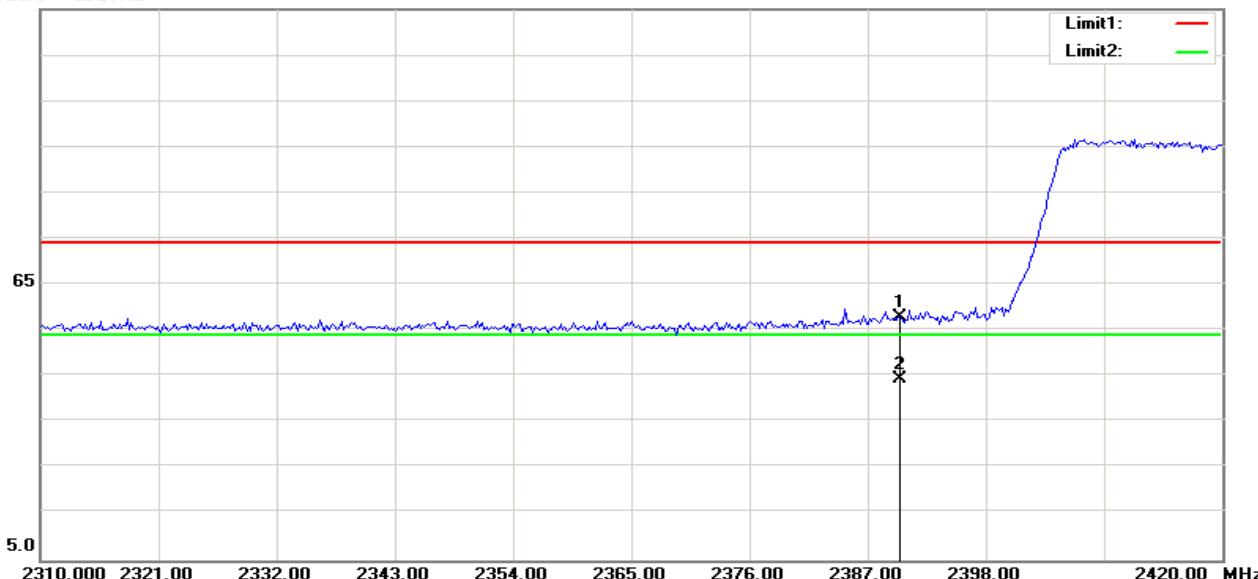
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.450	53.22	-8.09	45.13	54.00	-8.87	100	324	AVG
2	2483.500	68.94	-8.09	60.85	74.00	-13.15	100	325	peak

**RESTRICTED BANDEDGE (n Standard-20 MHz Channel mode, Low Channel, Horizontal)****RESTRICTED BANDEDGE (n Standard-20 MHz Channel mode, Low Channel, Vertical)**

**RESTRICTED BANDEDGE (n Standard-20 MHz Channel mode, High Channel, Horizontal)****RESTRICTED BANDEDGE (n Standard-20 MHz Channel mode, High Channel, Vertical)**

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

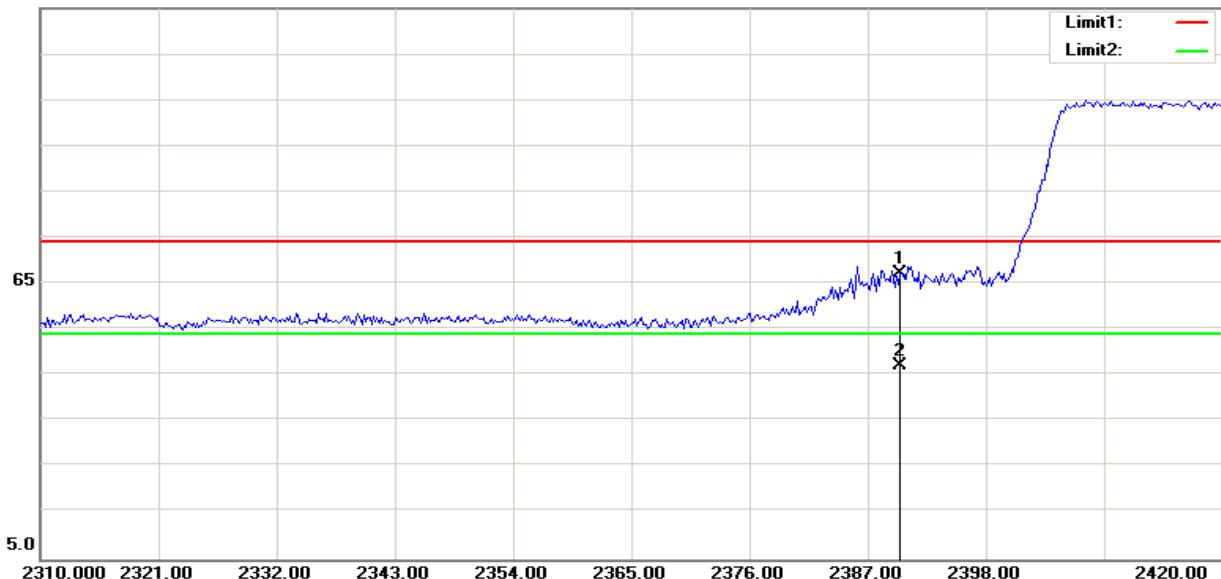
125.0 dBuV/m



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	66.27	-8.45	57.82	74.00	-16.18	100	69	peak
2	2390.050	52.84	-8.45	44.39	54.00	-9.61	100	69	AVG

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

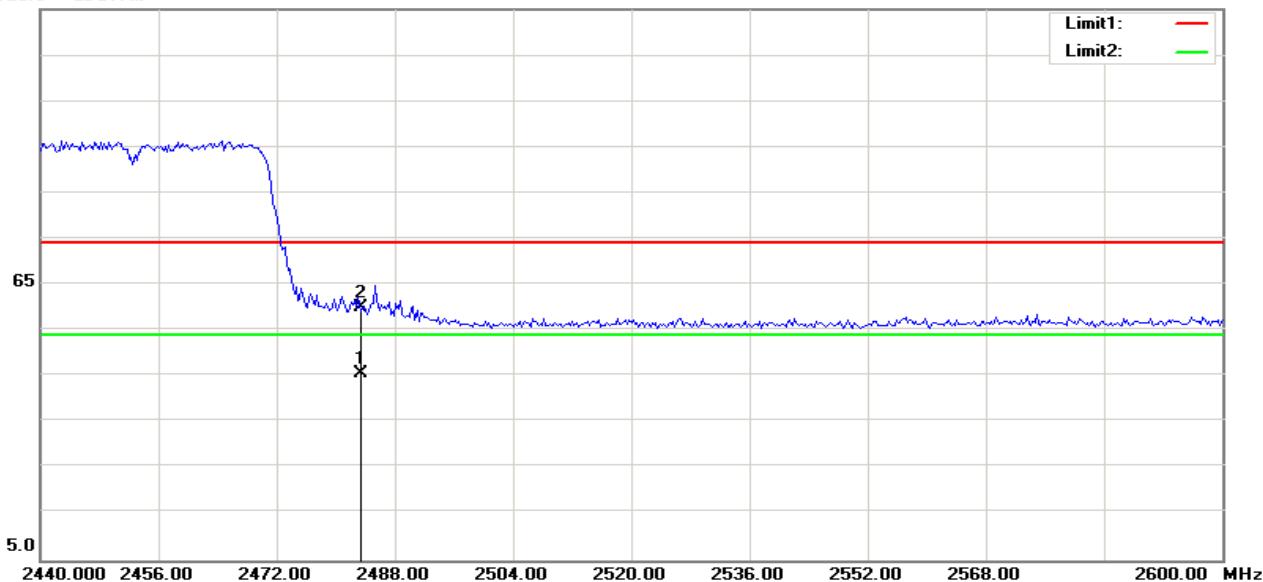
125.0 dBuV/m



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	75.69	-8.45	67.24	74.00	-6.76	100	269	peak
2	2390.050	55.73	-8.45	47.28	54.00	-6.72	100	268	AVG

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

125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.450	53.63	-8.09	45.54	54.00	-8.46	100	253	AVG
2	2483.500	68.26	-8.09	60.17	74.00	-13.83	100	252	peak

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

125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.475	58.40	-8.09	50.31	54.00	-3.69	100	201	AVG
2	2483.500	80.51	-8.09	72.42	74.00	-1.58	100	202	peak
3	2485.128	82.03	-8.08	73.95	74.00	-0.05	100	355	peak
4	2485.153	59.83	-8.08	51.75	54.00	-2.25	100	354	AVG



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Below 1GHz

Operation Mode: Normal Link

Test Date: 2014-7-12

Temperature: 24°C

Tested by: James.Yan

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
53.3102	V	25.69	8.34	34.03	40.00	-5.97	Peak
396.8590	V	19.60	18.02	37.62	46.00	-8.38	Peak
533.6538	V	18.83	20.31	39.14	46.00	-6.86	Peak
794.8077	V	19.57	23.36	42.93	46.00	-3.07	Peak
836.7788	V	19.09	23.20	42.29	46.00	-3.71	Peak
906.7308	V	18.42	24.34	42.76	46.00	-3.24	Peak
<hr/>							
60.8714	H	28.16	7.98	36.14	40.00	-3.86	Peak
153.1900	H	16.56	13.51	30.07	43.50	-13.43	Peak
217.2100	H	19.24	13.28	32.52	46.00	-13.48	Peak
310.3300	H	22.73	14.93	37.66	46.00	-8.34	Peak
675.0500	H	14.72	22.07	36.79	46.00	-9.21	Peak
838.0100	H	13.92	25.02	38.94	46.00	-7.06	Peak

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MH).
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: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: 2014-7-12

Temperature: 24°C

Tested by: James.Yan

Humidity: 48 % RH

Polarity: Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	59.76	-8.45	51.31	74.00	-22.69	100	286	peak
2	4814.103	41.92	-1.24	40.68	74.00	-33.32	100	68	peak
3	7238.782	41.43	4.23	45.66	74.00	-28.34	100	288	peak
4	9663.461	38.37	6.90	45.27	74.00	-28.73	100	286	peak
N/ A									

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	59.44	-8.45	50.99	74.00	-23.01	100	289	peak
2	4841.346	42.19	-1.26	40.93	74.00	-33.07	100	132	peak
3	7238.782	41.16	4.23	45.39	74.00	-28.61	100	235	peak
4	9636.218	38.70	7.04	45.74	74.00	-28.26	100	206	peak

Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: 2014-7-12

Temperature: 24°C

Tested by: James.Yan

Humidity: 48 % RH

Polarity: Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2334.936	55.55	-8.68	46.87	74.00	-27.13	100	356	peak
2	4923.077	39.82	-1.32	38.50	74.00	-35.50	100	344	peak
3	7238.782	40.78	4.23	45.01	74.00	-28.99	100	297	peak
4	9581.731	38.40	7.18	45.58	74.00	-28.42	100	104	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	56.05	-8.45	47.60	74.00	-26.40	100	13	peak
2	4895.833	40.02	-1.30	38.72	74.00	-35.28	100	270	peak
3	7347.756	39.63	4.02	43.65	74.00	-30.35	100	62	peak
4	9636.218	38.65	7.04	45.69	74.00	-28.31	100	193	peak



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Operation Mode: TX / IEEE 802.11b / CH High

Test Date: 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	58.87	-8.24	50.63	74.00	-23.37	100	289	peak
2	4923.077	41.12	-1.32	39.80	74.00	-34.20	100	194	peak
3	7375.000	39.83	3.97	43.80	74.00	-30.20	100	324	peak
4	9854.167	39.52	6.50	46.02	74.00	-27.98	100	262	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	58.38	-8.24	50.14	74.00	-23.86	100	288	peak
2	4950.320	41.05	-1.34	39.71	74.00	-34.29	100	60	peak
3	7375.000	40.19	3.97	44.16	74.00	-29.84	100	353	peak
4	9854.167	39.81	6.50	46.31	74.00	-27.69	100	2	peak

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	57.76	-8.45	49.31	74.00	-24.69	100	287	peak
2	4814.103	41.79	-1.24	40.55	74.00	-33.45	100	336	peak
3	7266.026	42.20	4.18	46.38	74.00	-27.62	100	271	peak
4	9648.254	38.24	6.98	45.22	74.00	-28.78	100	195	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2416.667	56.71	-8.35	48.36	74.00	-25.64	100	286	peak
2	4823.654	41.61	-1.25	40.36	74.00	-33.64	100	271	peak
3	7233.658	41.55	4.24	45.79	74.00	-28.21	100	91	peak
4	9641.215	37.57	7.01	44.58	74.00	-29.42	100	231	peak



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: 2014-7-12

Temperature: 24°C

Tested by: James.Yan

Humidity: 48 % RH

Polarity: Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	54.62	-8.45	46.17	74.00	-27.83	100	129	peak
2	4977.564	39.69	-1.36	38.33	74.00	-35.67	100	29	peak
3	7320.513	40.75	4.07	44.82	74.00	-29.18	100	289	peak
4	9636.218	37.64	7.04	44.68	74.00	-29.32	100	107	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2525.641	54.41	-7.93	46.48	74.00	-27.52	100	125	peak
2	4923.077	39.70	-1.32	38.38	74.00	-35.62	100	130	peak
3	7429.487	40.29	4.15	44.44	74.00	-29.56	100	148	peak
4	9745.192	38.58	6.49	45.07	74.00	-28.93	100	135	peak

Operation Mode: TX / IEEE 802.11g / CH High

Test Date: 2014-7-12

Temperature: 24°C

Tested by: James.Yan

Humidity: 48 % RH

Polarity: Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	56.90	-8.24	48.66	74.00	-25.34	100	288	peak
2	4925.658	39.99	-1.32	38.67	74.00	-35.33	100	310	peak
3	7383.625	40.51	3.95	44.46	74.00	-29.54	100	146	peak
4	9842.558	40.26	6.44	46.70	74.00	-27.30	100	179	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	57.00	-8.24	48.76	74.00	-25.24	100	288	peak
2	4923.336	40.30	-1.32	38.98	74.00	-35.02	100	230	peak
3	7385.528	39.24	3.95	43.19	74.00	-30.81	100	302	peak
4	9849.265	38.92	6.48	45.40	74.00	-28.60	100	119	peak



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low**Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	58.41	-8.45	49.96	74.00	-24.04	100	289	peak
2	4841.346	41.83	-1.26	40.57	74.00	-33.43	100	75	peak
3	7266.026	40.66	4.18	44.84	74.00	-29.16	100	41	peak
4	9636.218	38.29	7.04	45.33	74.00	-28.67	100	68	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	56.84	-8.45	48.39	74.00	-25.61	100	352	peak
2	4814.103	40.78	-1.24	39.54	74.00	-34.46	100	345	peak
3	7238.782	40.42	4.23	44.65	74.00	-29.35	100	338	peak
4	9663.461	37.69	6.90	44.59	74.00	-29.41	100	351	peak

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Mid**Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	58.86	-8.24	50.62	74.00	-23.38	100	304	peak
2	4868.590	40.61	-1.28	39.33	74.00	-34.67	100	229	peak
3	7320.513	40.75	4.07	44.82	74.00	-29.18	100	289	peak
4	9663.461	38.45	6.90	45.35	74.00	-28.65	100	45	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2416.667	58.67	-8.35	50.32	74.00	-23.68	100	80	peak
2	4895.833	40.02	-1.30	38.72	74.00	-35.28	100	270	peak
3	7375.000	38.81	3.97	42.78	74.00	-31.22	100	41	peak
4	9745.192	38.58	6.49	45.07	74.00	-28.93	100	135	peak



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / CH High **Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	57.97	-8.24	49.73	74.00	-24.27	100	287	peak
2	4923.665	40.33	-1.32	39.01	74.00	-34.99	100	326	peak
3	7388.325	40.15	3.94	44.09	74.00	-29.91	100	359	peak
4	9851.552	39.32	6.49	45.81	74.00	-28.19	100	357	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	58.48	-8.24	50.24	74.00	-23.76	100	287	peak
2	4923.077	41.29	-1.32	39.97	74.00	-34.03	100	213	peak
3	7347.756	39.91	4.02	43.93	74.00	-30.07	100	255	peak
4	9826.923	38.60	6.36	44.96	74.00	-29.04	100	343	peak

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Low **Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2416.667	53.97	-8.35	45.62	74.00	-28.38	100	170	peak
2	4841.346	41.69	-1.26	40.43	74.00	-33.57	100	92	peak
3	7238.782	41.12	4.23	45.35	74.00	-28.65	100	3	peak
4	9636.218	38.97	7.04	46.01	74.00	-27.99	100	172	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	54.75	-8.45	46.30	74.00	-27.70	100	5	peak
2	4841.346	42.30	-1.26	41.04	74.00	-32.96	100	7	peak
3	7238.782	40.00	4.23	44.23	74.00	-29.77	100	196	peak
4	9663.461	38.05	6.90	44.95	74.00	-29.05	100	268	peak



Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Mid**Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2498.397	55.23	-8.03	47.20	74.00	-26.80	100	172	peak
2	4923.077	39.82	-1.32	38.50	74.00	-35.50	100	344	peak
3	7238.782	40.78	4.23	45.01	74.00	-28.99	100	297	peak
4	9608.974	38.98	7.18	46.16	74.00	-27.84	100	112	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2471.154	57.46	-8.14	49.32	74.00	-24.68	100	142	peak
2	4841.346	42.30	-1.26	41.04	74.00	-32.96	100	301	peak
3	7347.756	39.63	4.02	43.65	74.00	-30.35	100	62	peak
4	9690.705	37.23	6.77	44.00	74.00	-30.00	100	245	peak

Operation Mode: TX / IEEE 802.11n HT40 mode / CH High**Test Date:** 2014-7-12**Temperature:** 24°C**Tested by:** James.Yan**Humidity:** 48 % RH**Polarity:** Ver. / Hor.**Horizontal**

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.423	64.26	-8.45	55.81	74.00	-18.19	100	281	peak
2	4923.077	42.17	-1.32	40.85	74.00	-33.15	100	159	peak
3	7375.000	40.89	3.97	44.86	74.00	-29.14	100	77	peak
4	9826.923	40.91	6.36	47.27	74.00	-26.73	100	22	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2443.910	54.14	-8.24	45.90	74.00	-28.10	100	196	peak
2	4923.077	40.88	-1.32	39.56	74.00	-34.44	100	304	peak
3	7375.000	39.23	3.97	43.20	74.00	-30.80	100	203	peak
4	9935.897	38.42	6.93	45.35	74.00	-28.65	100	250	peak



4.6. 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



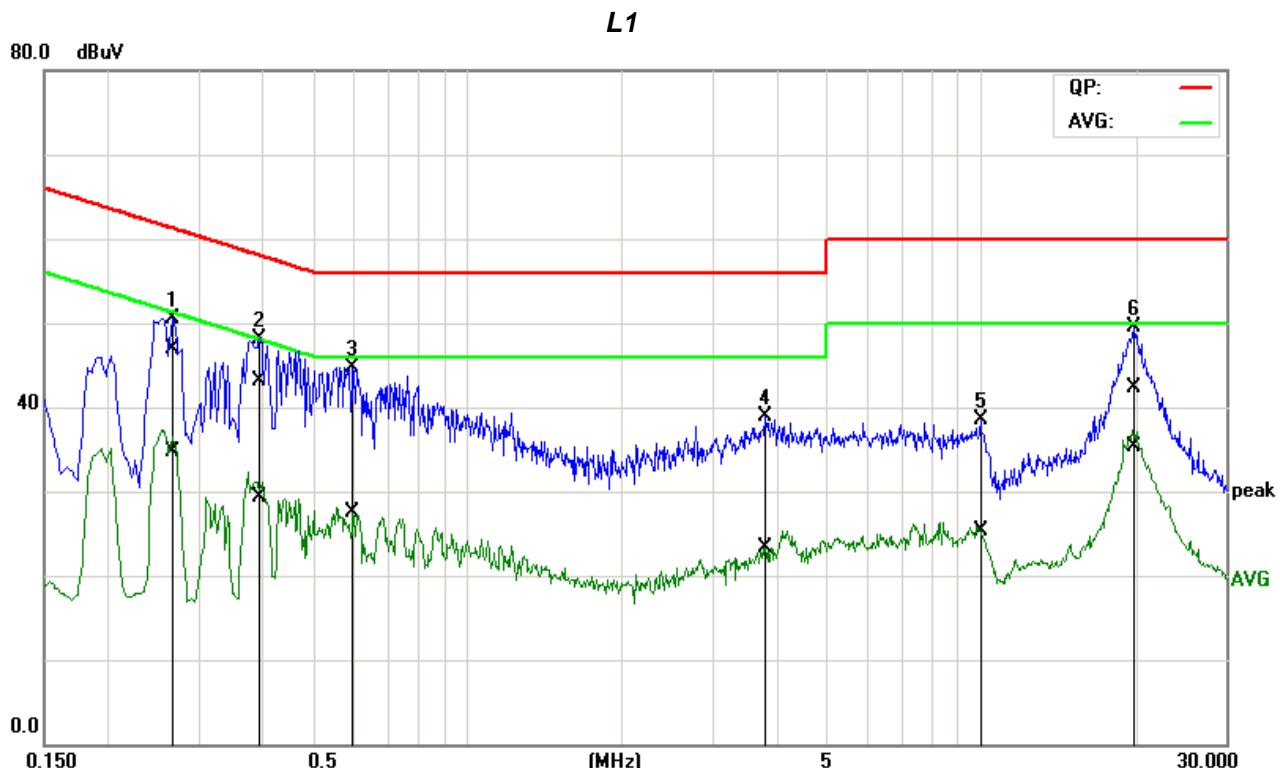
Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Job No.:	C140516R02	Date:	2014-7-15
Model:	WROC3000 REV2.0	Time:	11:28:21
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2683	27.35	15.03	19.65	47.00	34.68	61.17	51.17	-14.17	-16.49	Pass
2	0.3936	23.26	9.59	19.75	43.01	29.34	57.99	47.99	-14.98	-18.65	Pass
3*	0.5980	24.88	7.63	19.83	44.71	27.46	56.00	46.00	-11.29	-18.54	Pass
4	3.8200	18.70	3.15	20.15	38.85	23.30	56.00	46.00	-17.15	-22.70	Pass
5	10.0060	17.72	4.58	20.77	38.49	25.35	60.00	50.00	-21.51	-24.65	Pass
6	19.8850	21.27	14.28	21.12	42.39	35.40	60.00	50.00	-17.61	-14.60	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).



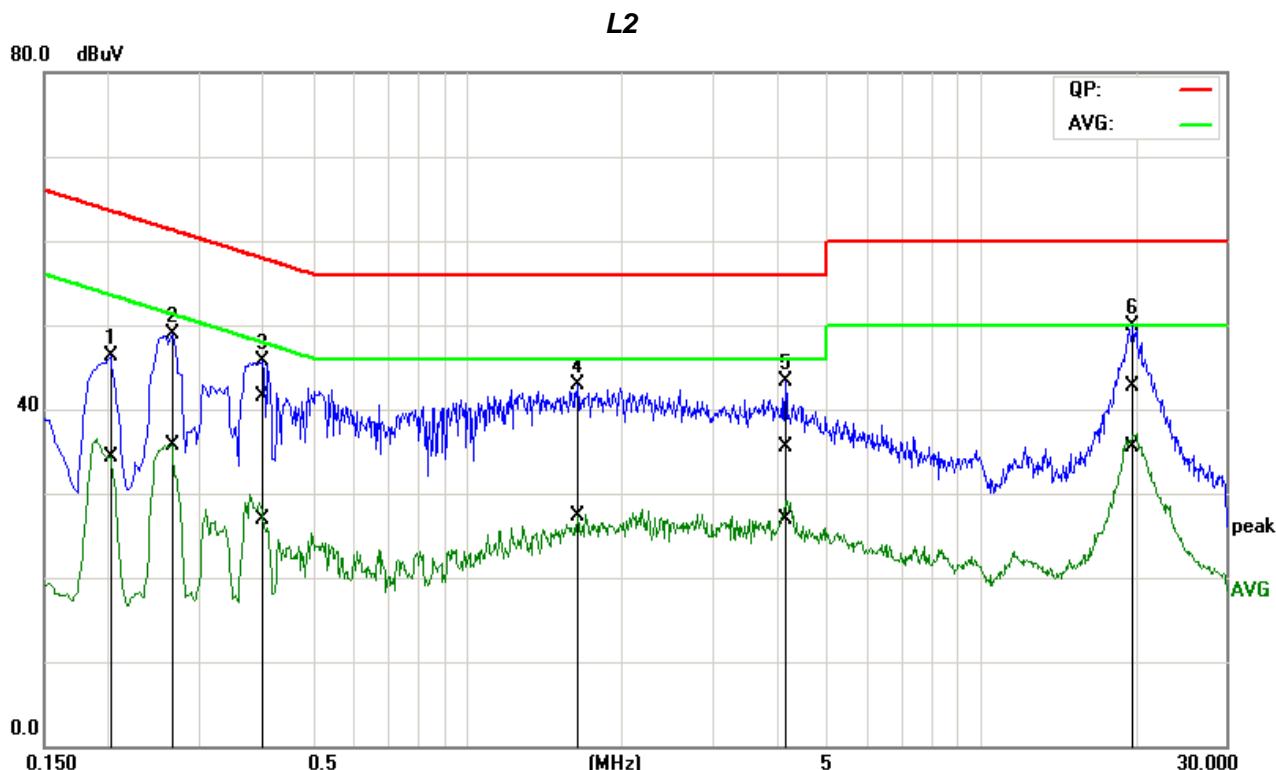
Compliance Certification Services Inc.

Report No: C140616R01-RPW

FCC ID: AJG-WROC3000V2

Date of Issue :July 22, 2014

Job No.:	C140516R02	Date:	2014-7-15
Model:	WROC3000 REV2.0	Time:	11:32:55
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	



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	0.2020	26.74	14.71	19.64	46.38	34.35	63.52	53.53	-17.14	-19.18	Pass
2	0.2660	29.29	16.05	19.69	48.98	35.74	61.24	51.24	-12.26	-15.50	Pass
3	0.3964	21.77	7.03	19.78	41.55	26.81	57.93	47.93	-16.38	-21.12	Pass
4	1.6420	22.97	7.31	19.92	42.89	27.23	56.00	46.00	-13.11	-18.77	Pass
5	4.1275	15.24	6.75	20.20	35.44	26.95	56.00	46.00	-20.56	-19.05	Pass
6	19.8162	21.59	14.37	21.07	42.66	35.44	60.00	50.00	-17.34	-14.56	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).