



## FCC 47 CFR PART 15 SUBPART C

# TEST REPORT

For

Product Name: Wireless Router

Brand Name: UTT

Model No.: AC650W

Series Model: A650W, AC651W, AC652W, AC653W, AC655W, AC656W

FCC ID: XPF-REG03-UTT

Test Report Number:  
C140516R01-RPW

Issued for

Shanghai UTT Technologies Co.,Ltd

Room 301, No.9 Building, No.518, Xinzhuan Rd, Songjiang District, Shanghai, China

Issued by

Compliance Certification Services Inc.

Kunshan Laboratory

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

TEL: 86-512-57355888

FAX: 86-512-57370818



TESTING CERT #2541.01

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## 1. TEST RESULT CERTIFICATION

<b>Product Name:</b>	Wireless Router
<b>Trade Name:</b>	UTT
<b>Model Name.:</b>	AC650W
<b>Series Model:</b>	A650W, AC651W,AC652W, AC653W, AC655W, AC656W
<b>Applicant Discrepancy:</b>	Initial
<b>Device Category:</b>	Mobile Device
<b>Date of Test:</b>	June 4, 2014 ~ June 25, 2014
<b>Applicant:</b>	<b>Shanghai UTT Technologies Co.,Ltd</b> Room 301, No.9 Building, No.518, Xinzhuan Rd, Songjiang District, Shanghai, China
<b>Manufacturer:</b>	<b>Shanghai UTT Technologies Co.,Ltd</b> Room 301, No.9 Building, No.518, Xinzhuan Rd, Songjiang District, Shanghai, China
<b>Application Type:</b>	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:**

**Tested by:**

Jeff.Fang  
RF Manager  
Compliance Certification Service Inc.

James.Yan  
Test Engineer  
Compliance Certification Service Inc.



## 2. EUT DESCRIPTION

<b>Product Name:</b>	Wireless Router
<b>Brand Name:</b>	UTT
<b>Model Name:</b>	AC650W
<b>Series Model:</b>	A650W, AC651W, AC652W, AC653W, AC655W, AC656W
<b>Model Discrepancy:</b>	Only for market segment
<b>Power Adapter Power Rating :</b>	Model:FJ-SW1201000DC Input: AC 100V~240V 50/60Hz 0.35A Output: DC 12V 1000mA
<b>Frequency Range:</b>	2.4G:2412MHz-2462MHz 5 G:5725MHz-5850MHz
<b>Transmit Power:</b>	IEEE 802.11b mode: 24.51 dBm IEEE 802.11g mode: 20.79 dBm IEEE 802.11n HT20 mode: 21.14 dBm IEEE 802.11n HT40 mode: 19.74 dBm IEEE 802.11a mode: 20.65 dBm IEEE 802.11an HT20 mode: 20.09 dBm IEEE 802.11an HT40 mode: 18.01 dBm
<b>Modulation Technique:</b>	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) 802.11a mode: OFDM (6,9,12,18,24,36,48 and 54 Mbps) 802.11an Standard-20 MHz Channel mode: OFDM (6.5,13,19.5,26,39,52,58.5 and 65 Mbps) 802.11an Wide-40 MHz Channel mode: OFDM (13.5,27,40.5,54,81,108,121.5 and 135 Mbps)
<b>Number of Channels:</b>	IEEE 802.11b/g/n HT20 mode: 11 Channels IEEE 802.11n HT40 mode: 7 Channels IEEE 802.11a mode: 5 Channels 802.11an 20MHz/ac 20MHz mode: 5 Channels 802.11an 40MHz/ac 40MHz mode: 3 Channels
<b>Antenna Specification:</b>	Dipole antennas for 2.4GHz Gain 5 dBi and Dipole antennas for 5 GHz Gain 5 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: XPF-REG03-UTT** 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 Commission's 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 30 MHz 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
<sup>1</sup> 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	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> 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.

Draft 802.11a mode:

Channel Low (5745MHz)

Channel Mid (5785MHz)

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

Draft 802.11an Standard-20 MHz Channel mode:

Channel Low (5745MHz)

Channel Mid (5785MHz)

Channel High (5825MHz) with MCS9 data rate was chosen for full testing.

Draft 802.11gan Wide-40 MHz Channel mode:

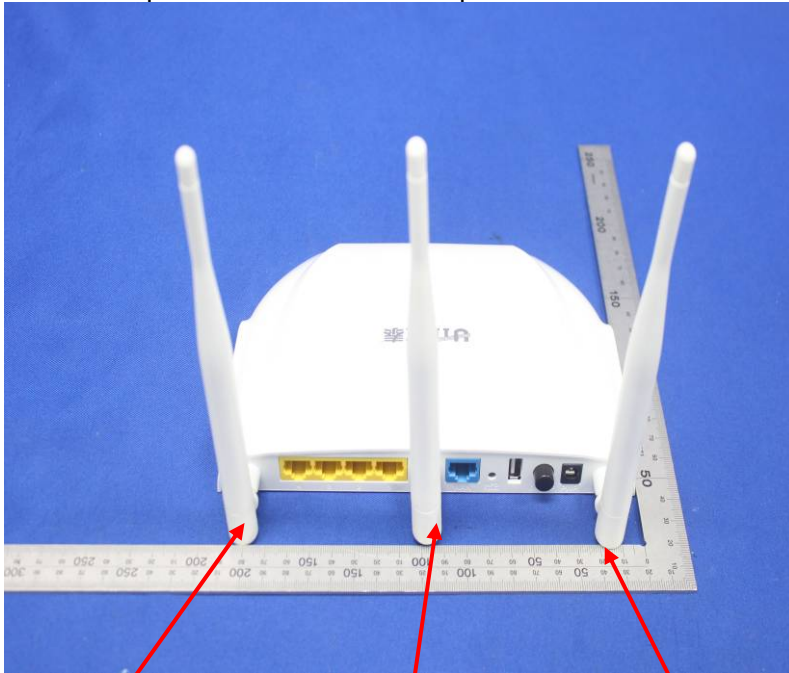
Channel Low (5755MHz)

Channel High (5795MHz) with MCS9 data rate was chosen for full testing.



### 3.6. ANTENNA DESCRIPTION

Antenna specifications meet the requirements of 15.203



2.4G Antenna 0

5G Antenna

2.4G Antenna 1

### 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			





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

977 Chamber				
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	
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	

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## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1.SETUP CONFIGURATION OF EUT

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

### 6.2.SUPPORT EQUIPMENT

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

**Remark:**

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.



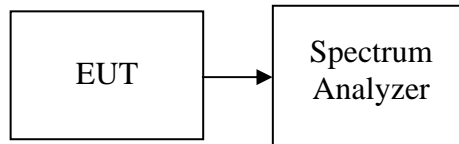
## 4. FCC PART 15.247 REQUIREMENTS

### 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	10.090	>500	PASS
Mid	2437	10.083		PASS
High	2462	10.123		PASS

##### IEEE 802.11b mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.098	>500	PASS
Mid	2437	9.639		PASS
High	2462	10.077		PASS

##### IEEE 802.11g mode /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.370	>500	PASS
Mid	2437	16.399		PASS
High	2462	16.442		PASS

##### IEEE 802.11g mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.392	>500	PASS
Mid	2437	16.447		PASS
High	2462	16.415		PASS

##### IEEE 802.11n Standard-20 MHz Channel mode / Chain 0



Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.600	>500	PASS
Mid	2437	17.632		PASS
High	2462	17.630		PASS

### IEEE 802.11n Standard-20 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.601	>500	PASS
Mid	2437	16.967		PASS
High	2462	17.236		PASS

### IEEE 802.11n wide-40 MHz Channel mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.161	>500	PASS
Mid	2437	36.087		PASS
High	2452	35.855		PASS

### IEEE 802.11n wide-40 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.157	>500	PASS
Mid	2437	35.816		PASS
High	2452	35.825		PASS

### IEEE 802.11a mode

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	Limit (kHz)	Result
Low	5745	16.398	500	PASS
Mid	5785	16.421		PASS
High	5825	16.509		PASS

### IEEE 802.11an Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.585	>500	PASS
Mid	5785	17.702		PASS
High	5825	17.736		PASS



## IEEE 802.11an Standard -40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.342	>500	PASS
High	5795	36.458		PASS



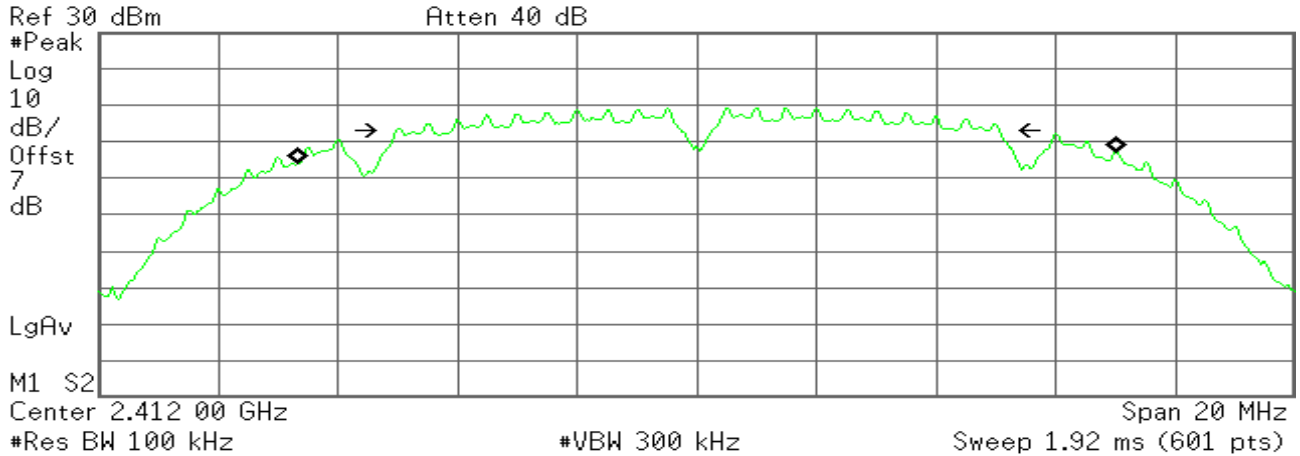
## Test Plot

### IEEE 802.11b MODE /Chain 0

#### 6dB Bandwidth (CH Low)

Agilent

R T



**Occupied Bandwidth**  
**13.6666 MHz**

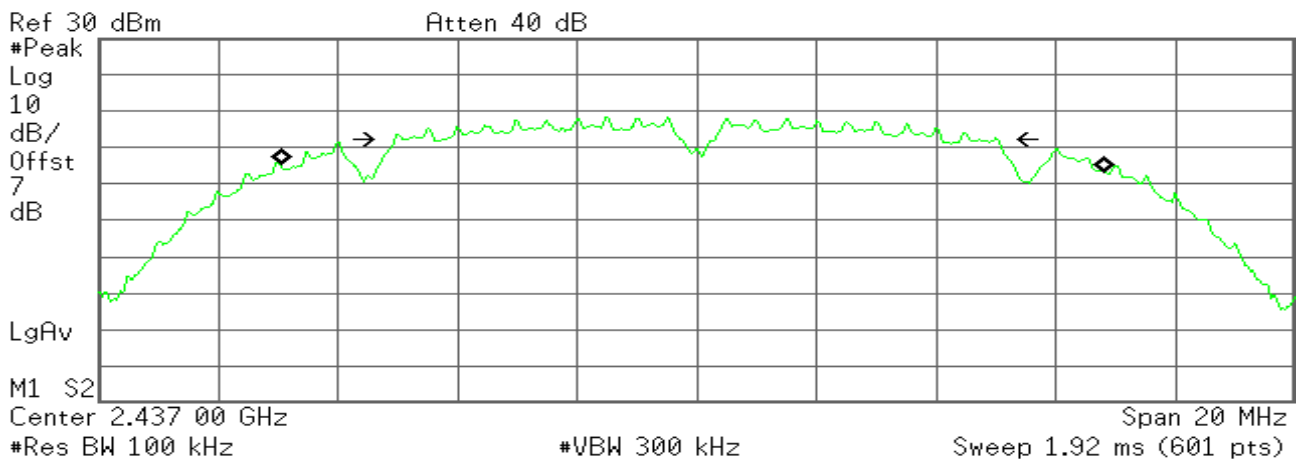
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    158.749 kHz  
**x dB Bandwidth**        10.090 MHz

#### 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
**13.7527 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -71.612 kHz  
**x dB Bandwidth**        10.083 MHz

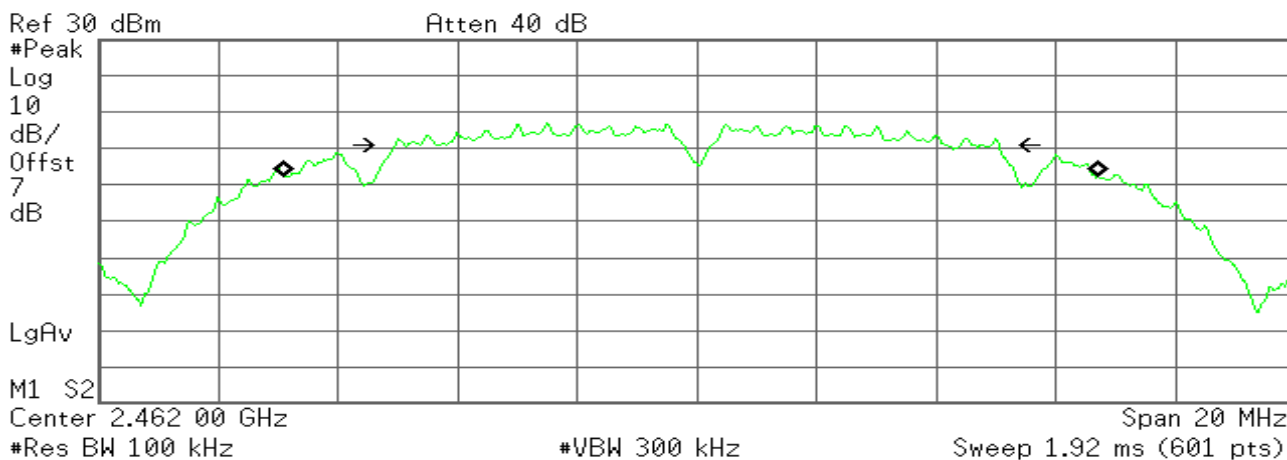




## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**13.6131 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

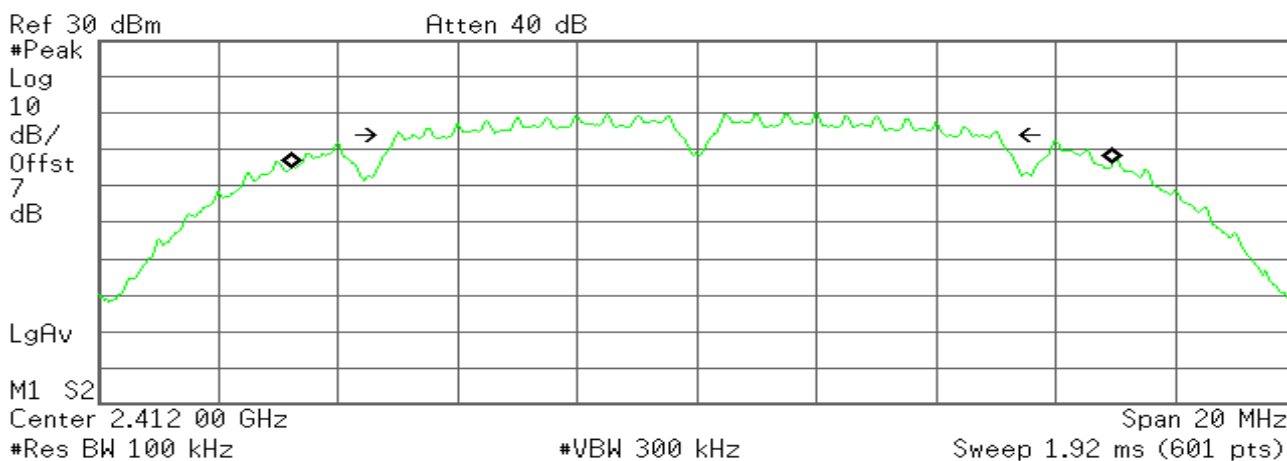
**Transmit Freq Error**    -92.591 kHz  
**x dB Bandwidth**        10.123 MHz

## IEEE 802.11b MODE /Chain 1

### 6dB Bandwidth (CH Low)

Agilent

R T



**Occupied Bandwidth**  
**13.7222 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

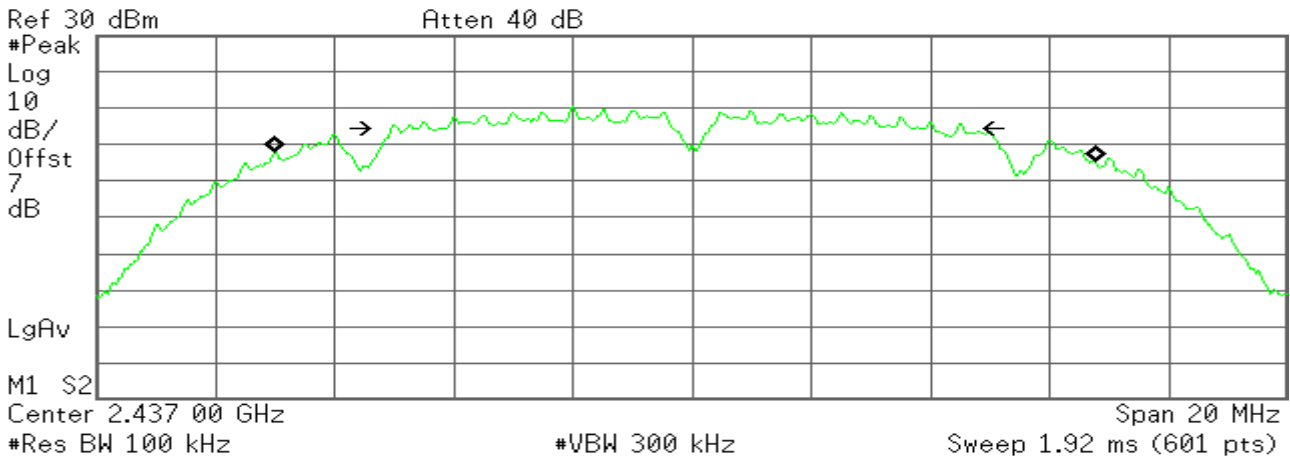
**Transmit Freq Error**    82.328 kHz  
**x dB Bandwidth**        10.098 MHz



## 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
**13.7503 MHz**

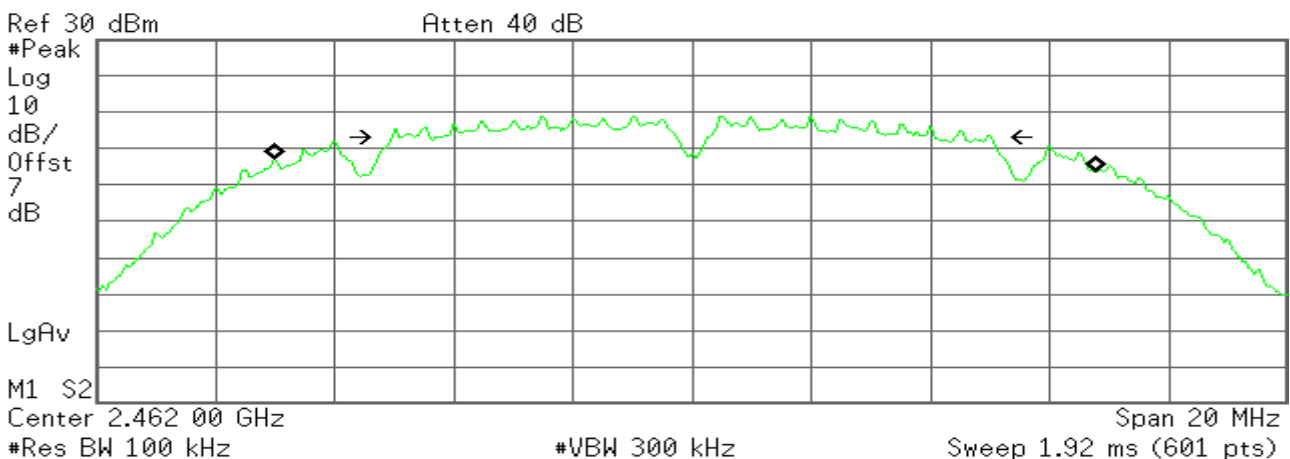
**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

**Transmit Freq Error**    -122.279 kHz  
**x dB Bandwidth**        9.639 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**13.7764 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

**Transmit Freq Error**    -121.140 kHz  
**x dB Bandwidth**        10.077 MHz



# Compliance Certification Services Inc.

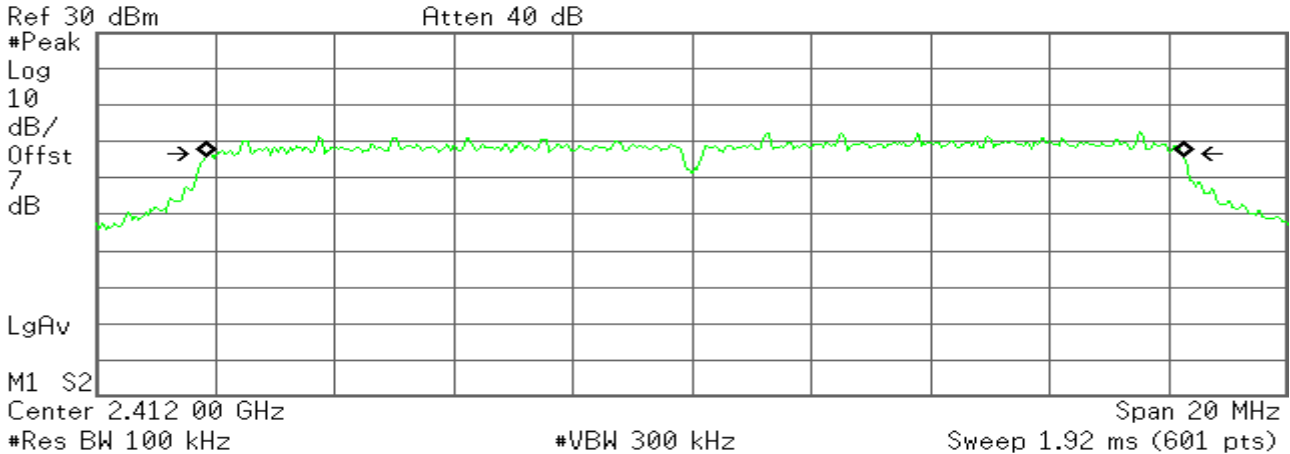
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## IEEE 802.11g MODE /Chain 0

### 6dB Bandwidth (CH Low)

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**Occupied Bandwidth**  
**16.4273 MHz**

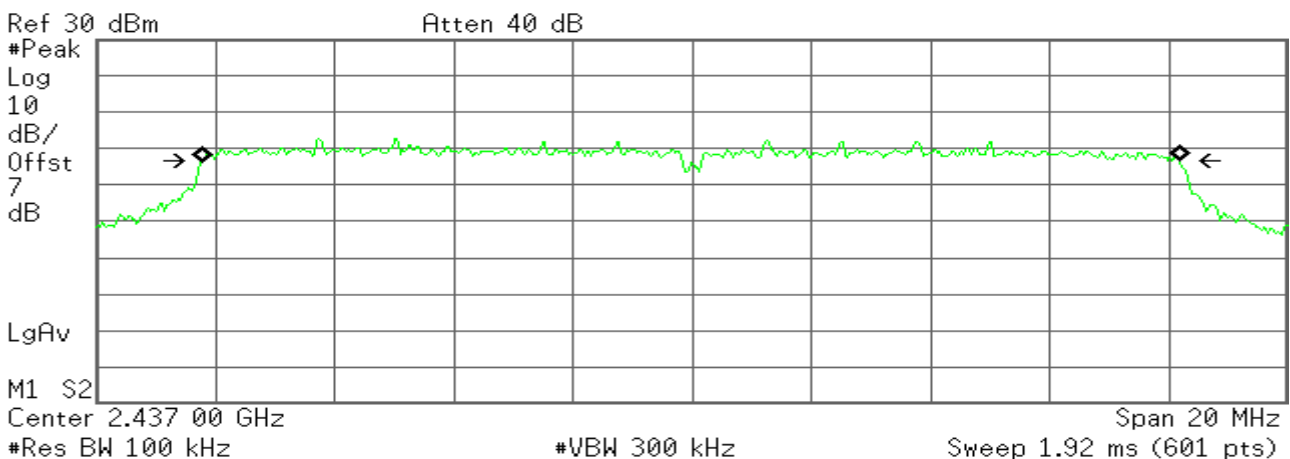
**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

**Transmit Freq Error**    40.223 kHz  
**x dB Bandwidth**        16.370 MHz

### 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
**16.4421 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

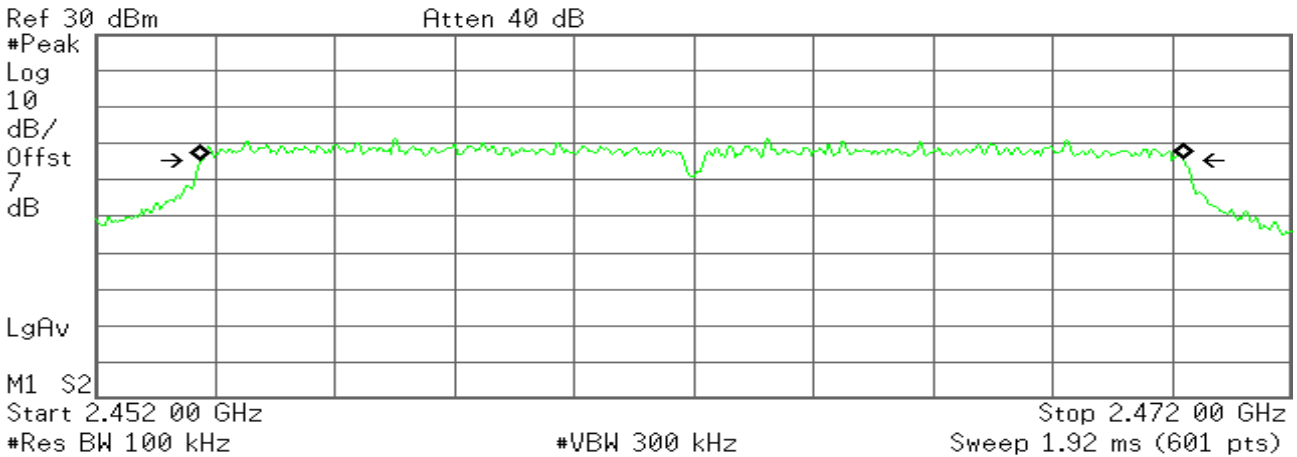
**Transmit Freq Error**    -24.110 kHz  
**x dB Bandwidth**        16.399 MHz



## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**16.4482 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

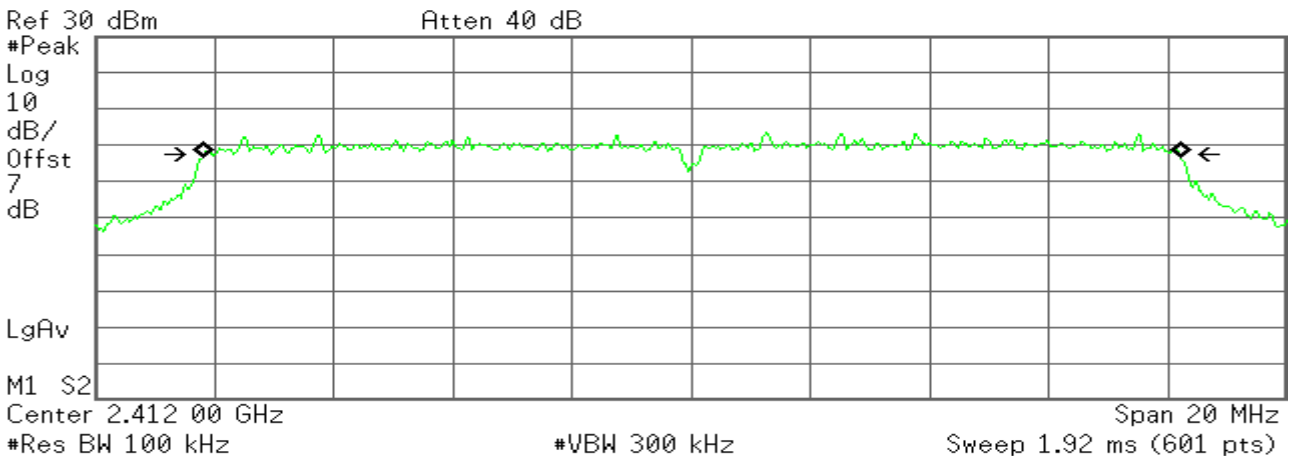
**Transmit Freq Error**    -27.734 kHz  
**x dB Bandwidth**        16.442 MHz

## IEEE 802.11g MODE /Chain 1

### 6dB Bandwidth (CH Low)

Agilent

R T



**Occupied Bandwidth**  
**16.4259 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

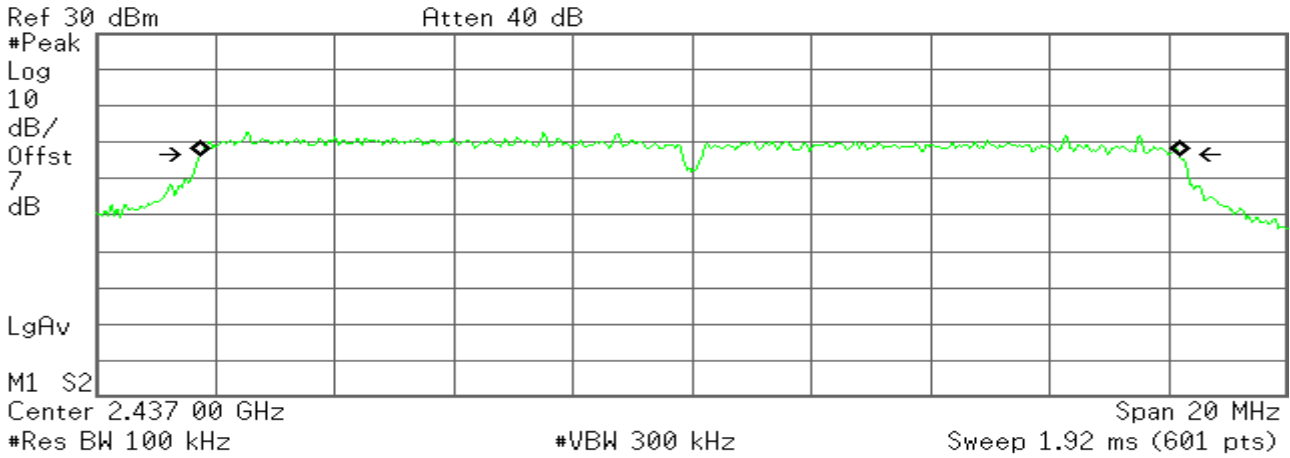
**Transmit Freq Error**    11.042 kHz  
**x dB Bandwidth**        16.392 MHz



## 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
**16.4710 MHz**

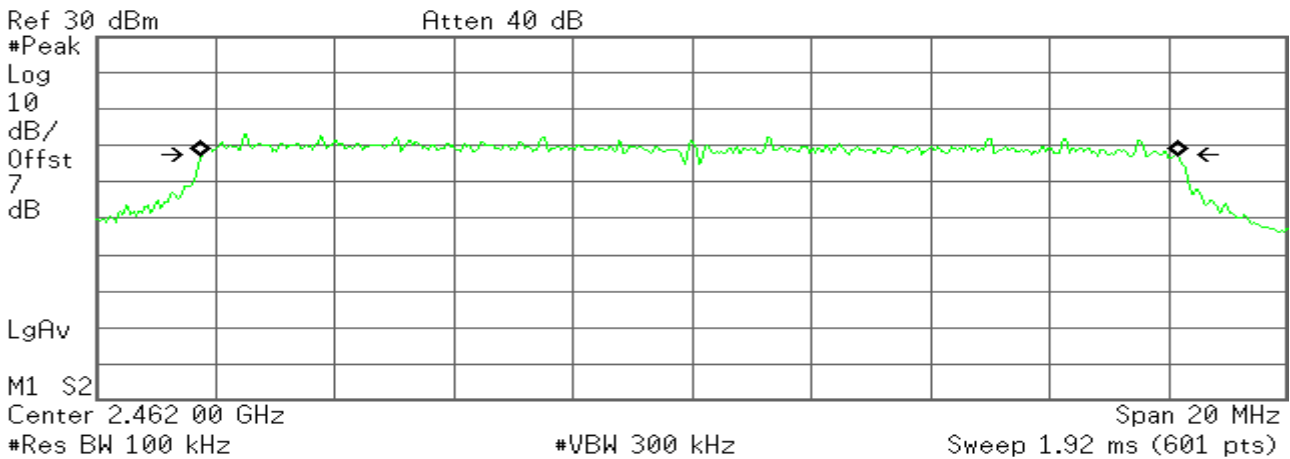
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -41.865 kHz  
**x dB Bandwidth**        16.447 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**16.4279 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -37.707 kHz  
**x dB Bandwidth**        16.415 MHz

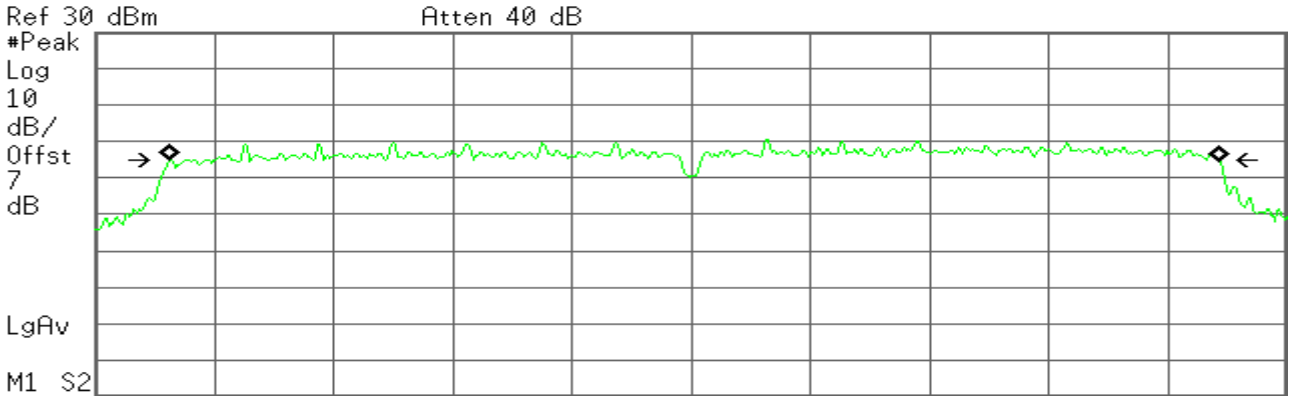


## IEEE 802.11n Standard-20 MHz Channel mode / Chain 0

### 6dB Bandwidth (CH Low)

Agilent

R T



Ref 30 dBm    Atten 40 dB  
#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
LgAv  
M1 S2  
Center 2.412 00 GHz    Span 20 MHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**17.6070 MHz**

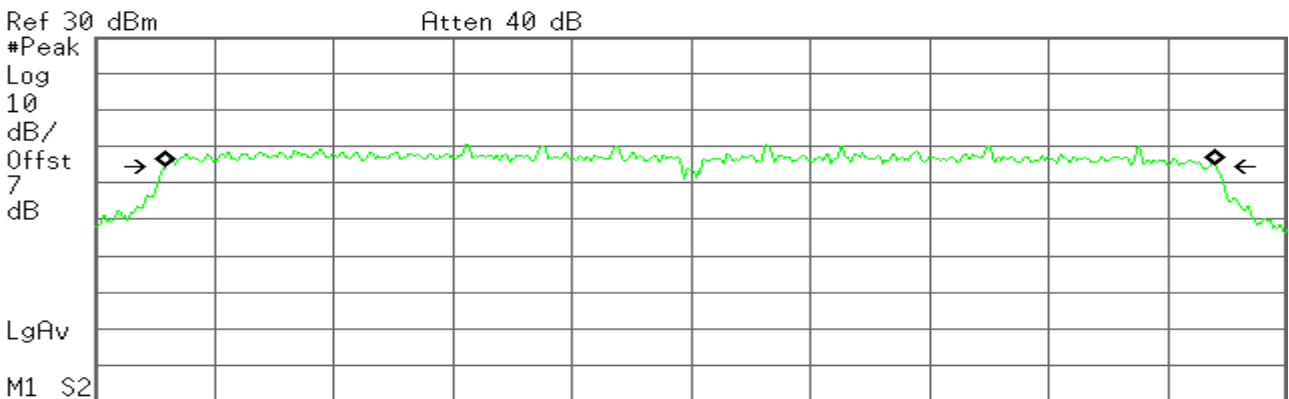
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    49.532 kHz  
**x dB Bandwidth**        17.600 MHz

### 6dB Bandwidth (CH Mid)

Agilent

R T



Ref 30 dBm    Atten 40 dB  
#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
LgAv  
M1 S2  
Center 2.437 00 GHz    Span 20 MHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**17.6159 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -16.524 kHz  
**x dB Bandwidth**        17.632 MHz

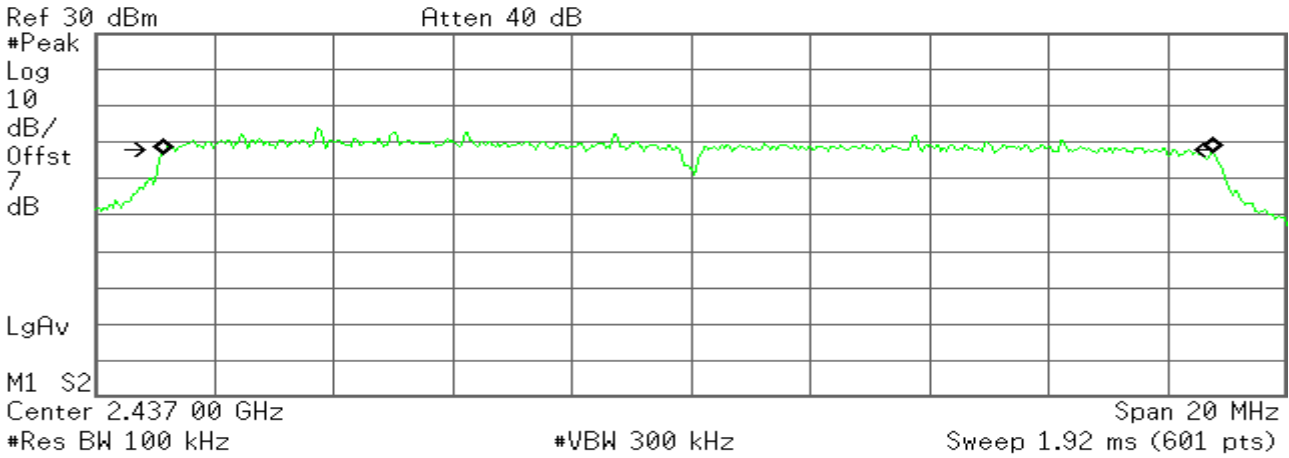




## 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
**17.6364 MHz**

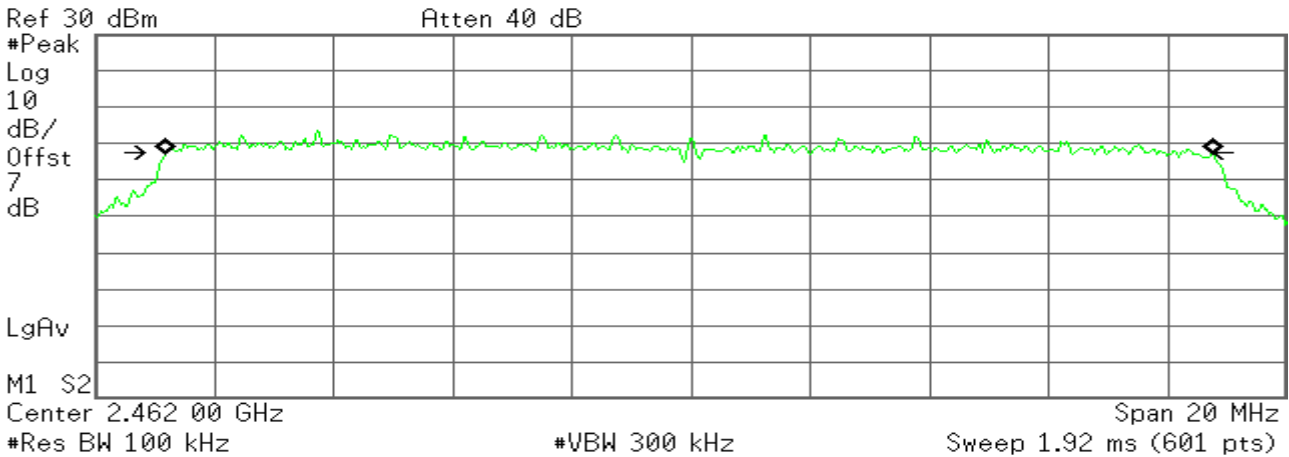
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -48.025 kHz  
**x dB Bandwidth**        16.967 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**17.6126 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -28.668 kHz  
**x dB Bandwidth**        17.236 MHz



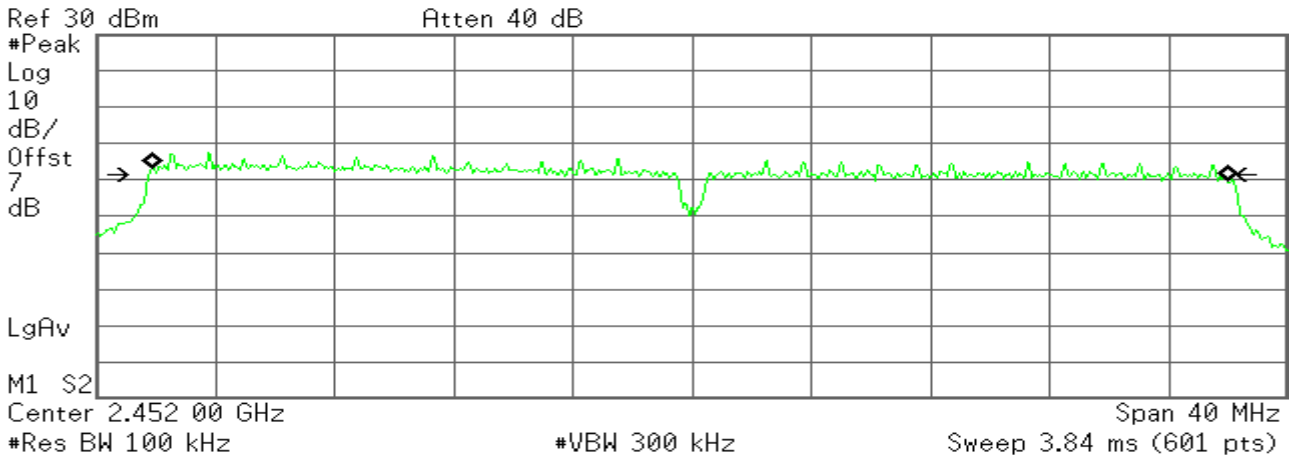




## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
**36.1507 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

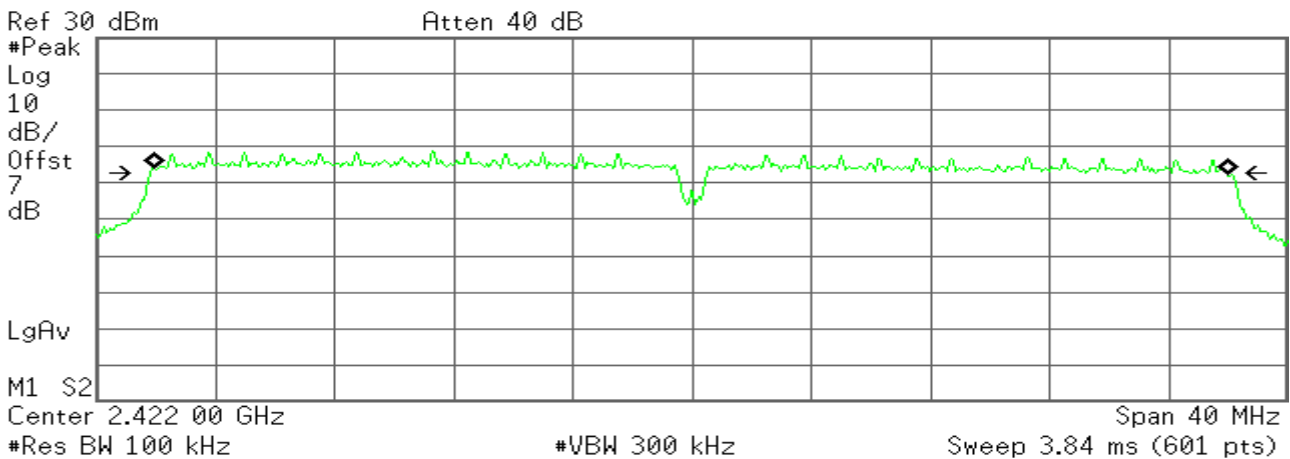
**Transmit Freq Error**    -88.096 kHz  
**x dB Bandwidth**        35.855 MHz

## IEEE 802.11n Standard-40 MHz Channel mode / Chain 1

### 6dB Bandwidth (CH Low)

Agilent

R T



**Occupied Bandwidth**  
**36.0637 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

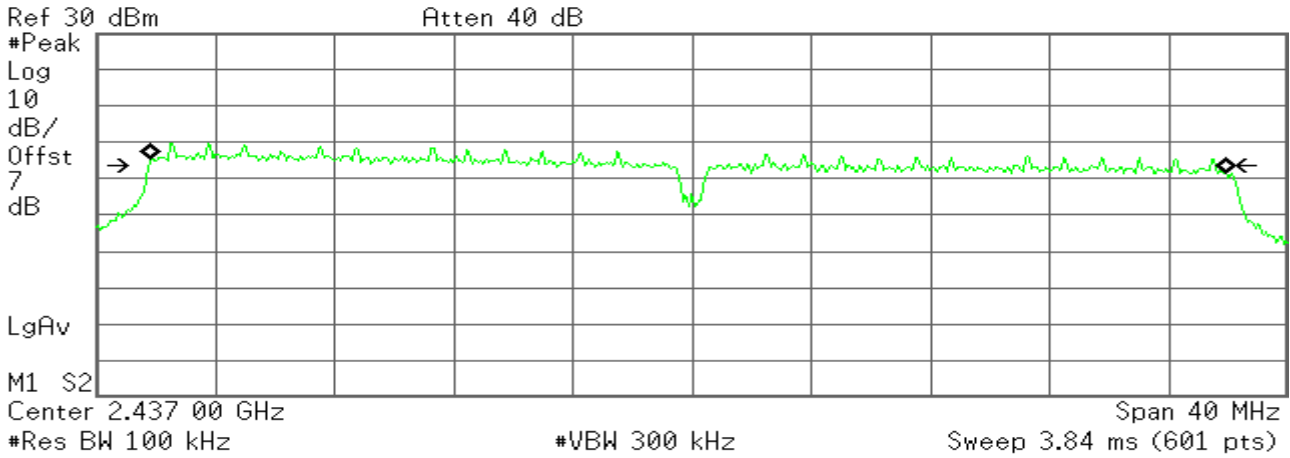
**Transmit Freq Error**    -52.998 kHz  
**x dB Bandwidth**        36.157 MHz



## 6dB Bandwidth (CH Mid)

Agilent

R T



**Occupied Bandwidth**  
36.0919 MHz

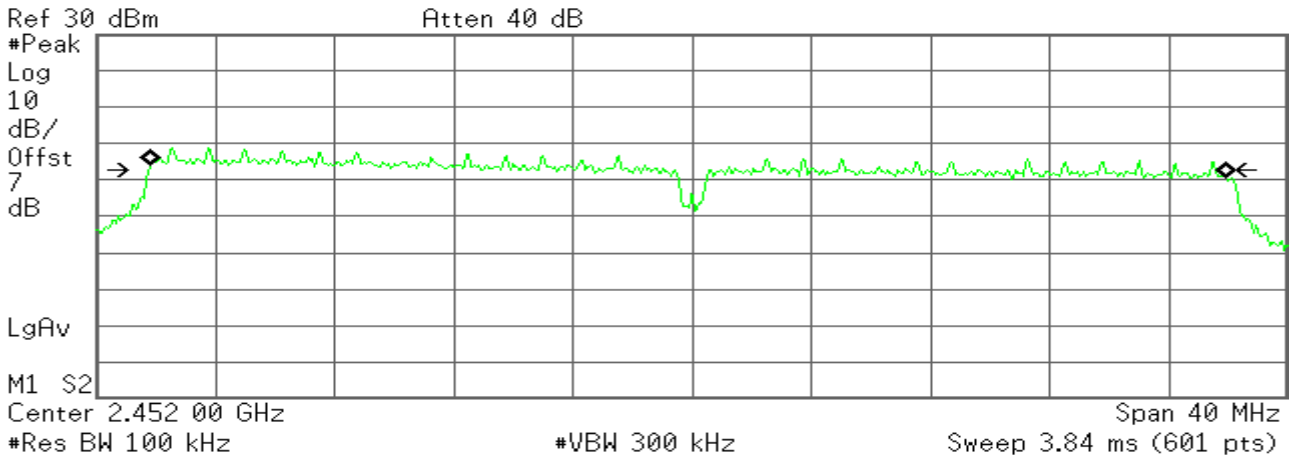
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -125.968 kHz  
**x dB Bandwidth**        35.816 MHz

## 6dB Bandwidth (CH High)

Agilent

R T



**Occupied Bandwidth**  
36.1302 MHz

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -127.775 kHz  
**x dB Bandwidth**        35.825 MHz



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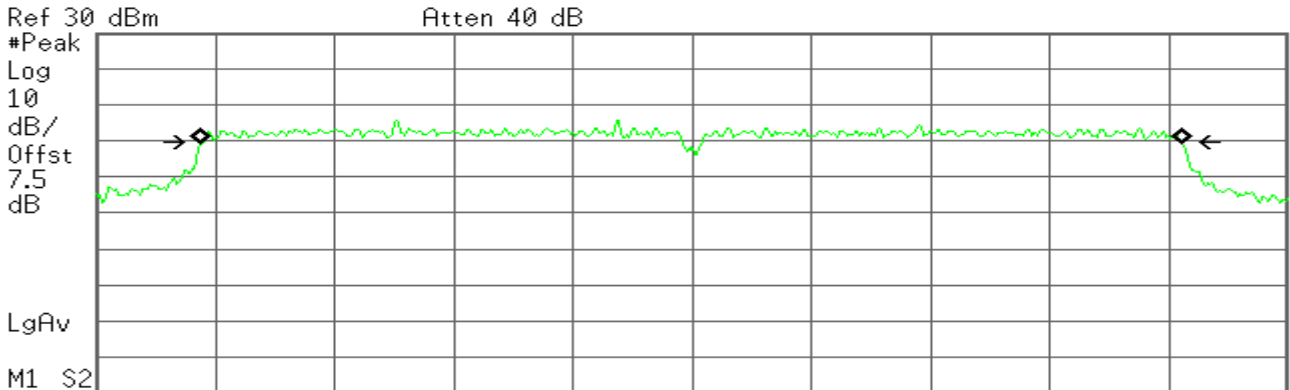
## IEEE 802.11a mode:

5725~5825MHz

### CH Low

Agilent

R T



Center 5.745 00 GHz

Span 20 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**16.5006 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

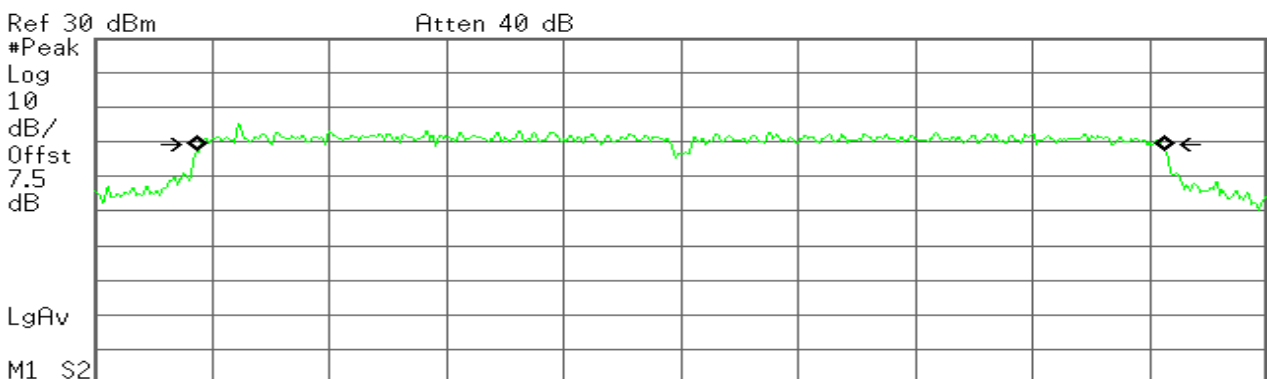
**Transmit Freq Error**    -13.022 kHz

**x dB Bandwidth**        16.398 MHz

### CH Mid

Agilent

R T



Center 5.785 00 GHz

Span 20 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**16.5270 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -2.145 kHz

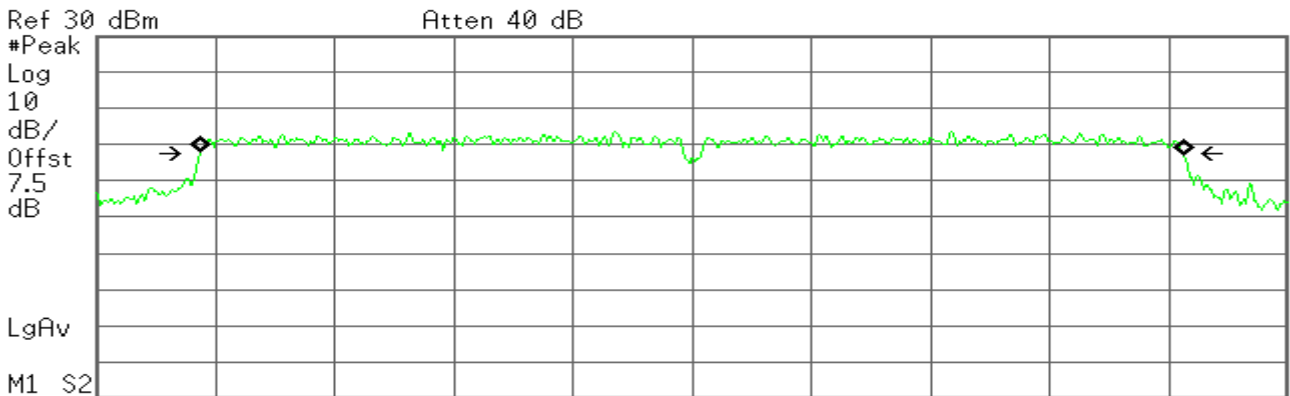
**x dB Bandwidth**        16.421 MHz



## CH High

Agilent

R T



Center 5.825 00 GHz    Span 20 MHz  
 #Res BW 100 kHz    #VBW 300 kHz    Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**16.5200 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**    -6.00 dB

**Transmit Freq Error**    -228.343 Hz  
**x dB Bandwidth**    16.509 MHz

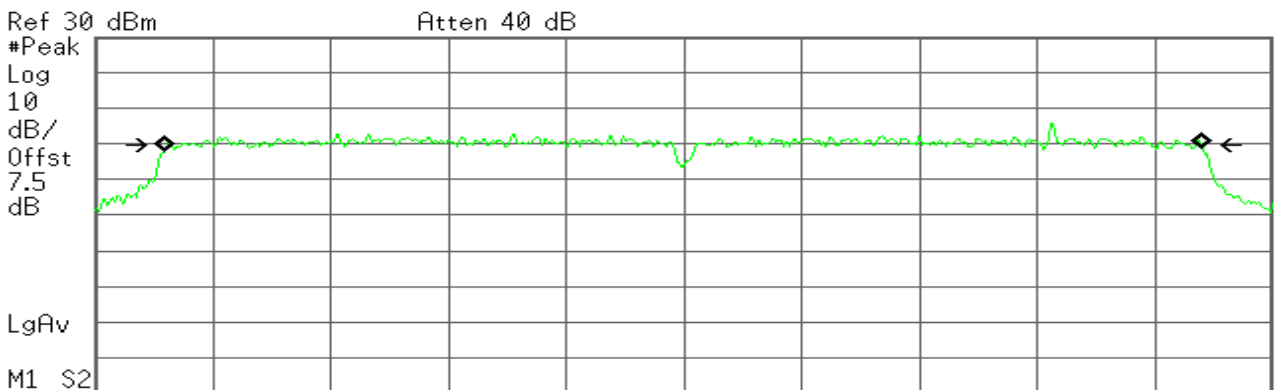
## IEEE 802.11an HT20 mode

5725~5825MHz

## CH Low

Agilent

R T



Center 5.745 00 GHz    Span 20 MHz  
 #Res BW 100 kHz    #VBW 300 kHz    Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**17.6359 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**    -6.00 dB

**Transmit Freq Error**    -6.301 kHz  
**x dB Bandwidth**    17.585 MHz



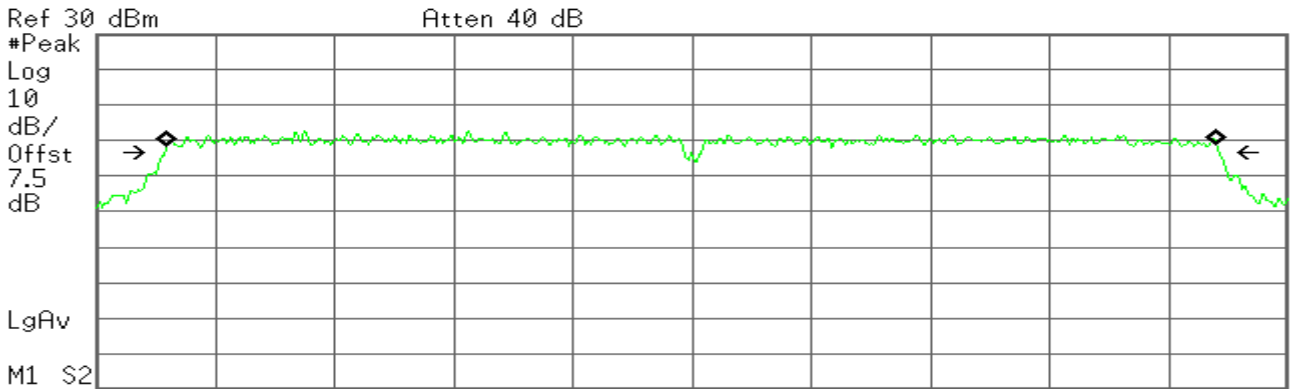
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

Agilent

R T



Center 5.785 00 GHz                      Span 20 MHz  
 #Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**17.6455 MHz**

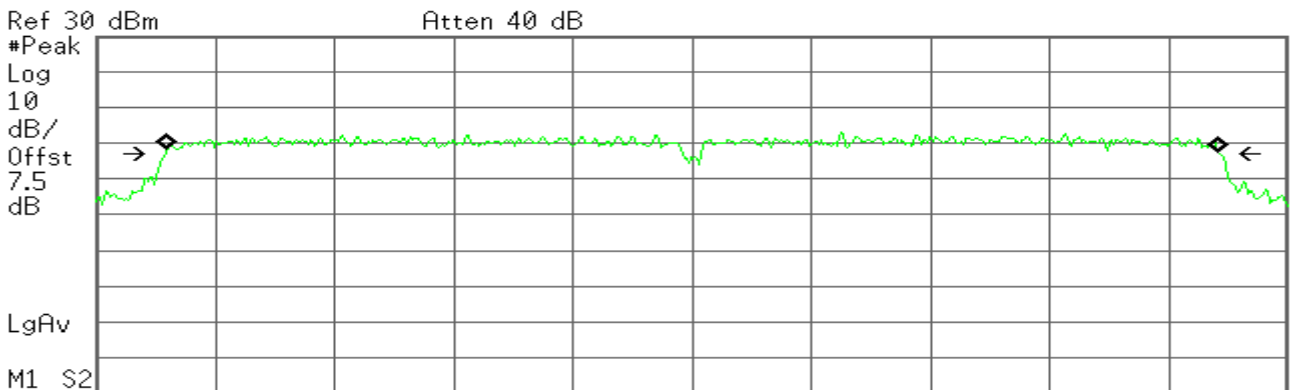
**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

**Transmit Freq Error**    -7.115 kHz  
**x dB Bandwidth**        17.702 MHz

## CH High

Agilent

R T



Center 5.825 00 GHz                      Span 20 MHz  
 #Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.92 ms (601 pts)

**Occupied Bandwidth**  
**17.6650 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**                -6.00 dB

**Transmit Freq Error**    5.307 kHz  
**x dB Bandwidth**        17.736 MHz



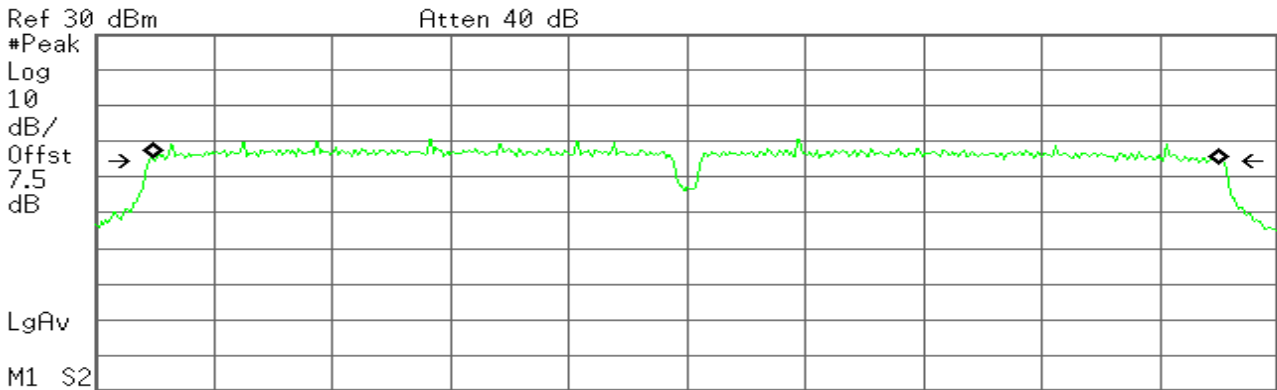
## IEEE 802.11an HT40 mode

5725~5825MHz

CH Low

Agilent

R T



Center 5.755 00 GHz

Span 40 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.84 ms (601 pts)

**Occupied Bandwidth**  
**36.0942 MHz**

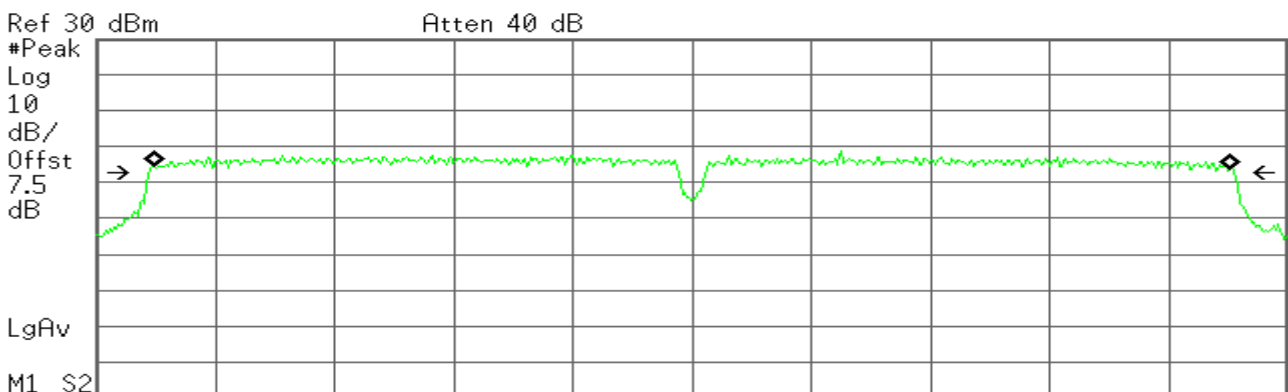
**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -36.867 kHz  
**x dB Bandwidth**        36.342 MHz

## CH High

Agilent

R T



Center 5.795 00 GHz

Span 40 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 3.84 ms (601 pts)

**Occupied Bandwidth**  
**36.1075 MHz**

**Occ BW % Pwr**    99.00 %  
**x dB**            -6.00 dB

**Transmit Freq Error**    -20.427 kHz  
**x dB Bandwidth**        36.458 MHz



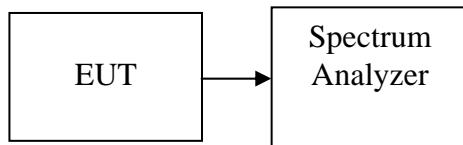
## 4.2. PEAK POWER

### 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	21.20	21.76	24.51	30
Mid	2437	21.08	21.36	24.25	30
High	2462	20.14	21.10	23.68	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	16.86	18.42	20.76	30
Mid	2437	17.10	18.30	20.79	30
High	2462	17.32	17.99	20.72	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	17.47	18.64	21.14	30
Mid	2437	17.43	18.21	20.88	30
High	2462	17.05	16.84	20.00	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	17.34	15.92	19.74	30
Mid	2437	16.41	16.03	19.29	30
High	2452	15.20	14.63	18.00	30

### Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	5745	20.65	30.00
Mid	5785	19.74	30.00
High	5825	19.85	30.00

### Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	20.09	30.00
Mid	5785	19.27	30.00
High	5825	19.95	30.00



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5755	18.01	30.00
High	5795	17.86	30.00

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



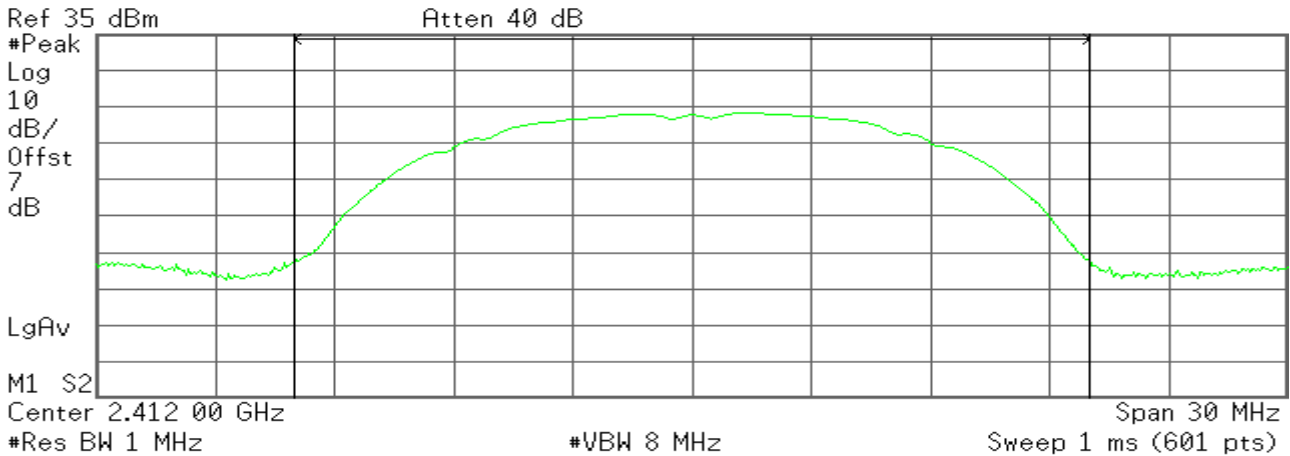
## Test Plot

### IEEE 802.11b mode/ Chain 0

#### Peak Power (CH Low)

Agilent

R T



Channel Power

21.20 dBm /20.0000 MHz

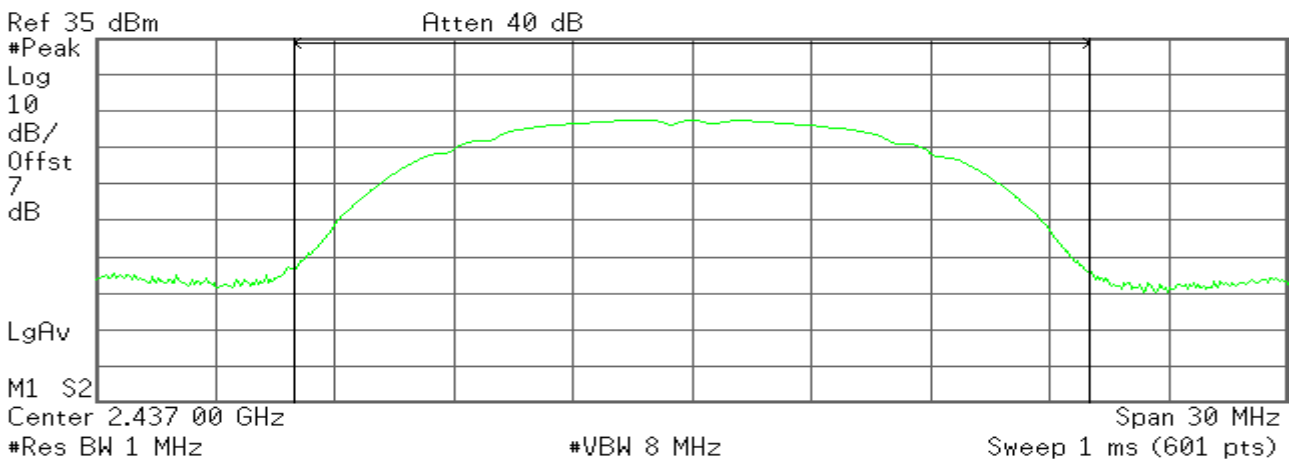
Power Spectral Density

-51.81 dBm/Hz

#### Peak Power (CH Mid)

Agilent

R T



Channel Power

21.08 dBm /20.0000 MHz

Power Spectral Density

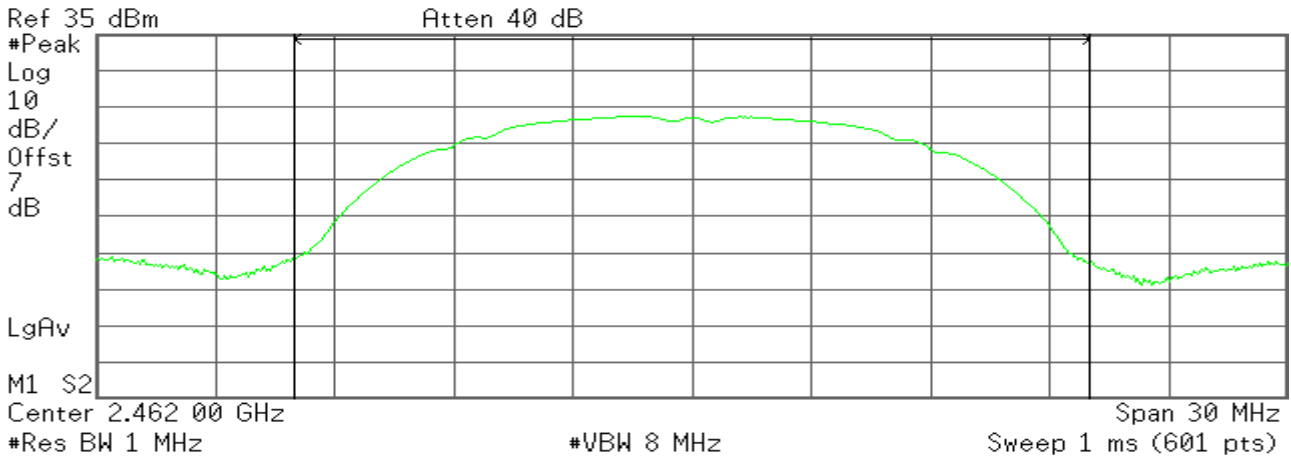
-51.93 dBm/Hz



## Peak Power (CH High)

Agilent

R T



**Channel Power**

20.14 dBm /20.0000 MHz

**Power Spectral Density**

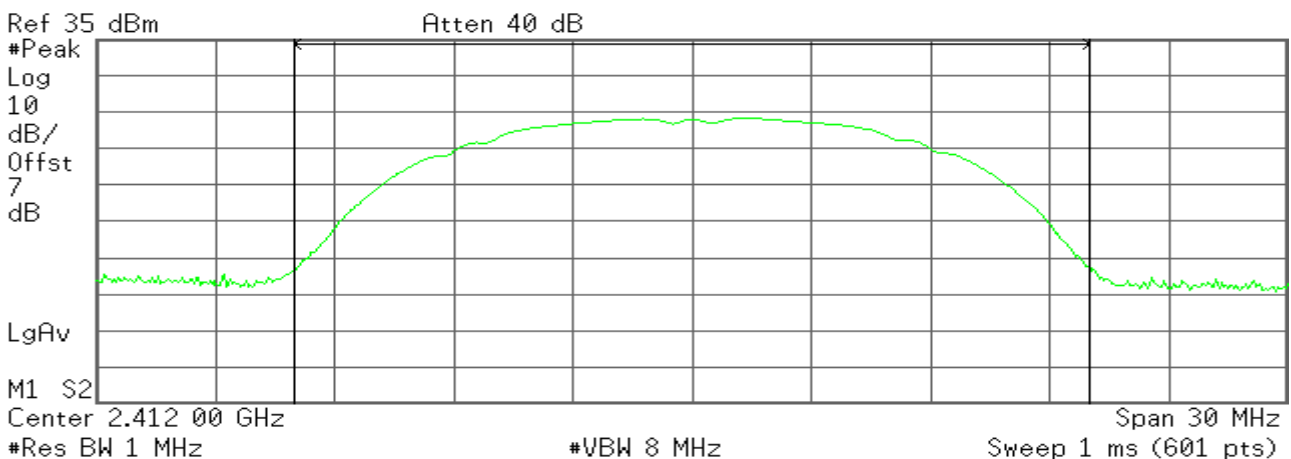
-52.87 dBm/Hz

## IEEE 802.11b mode/ Chain 1

### Peak Power (CH Low)

Agilent

R T



**Channel Power**

21.76 dBm /20.0000 MHz

**Power Spectral Density**

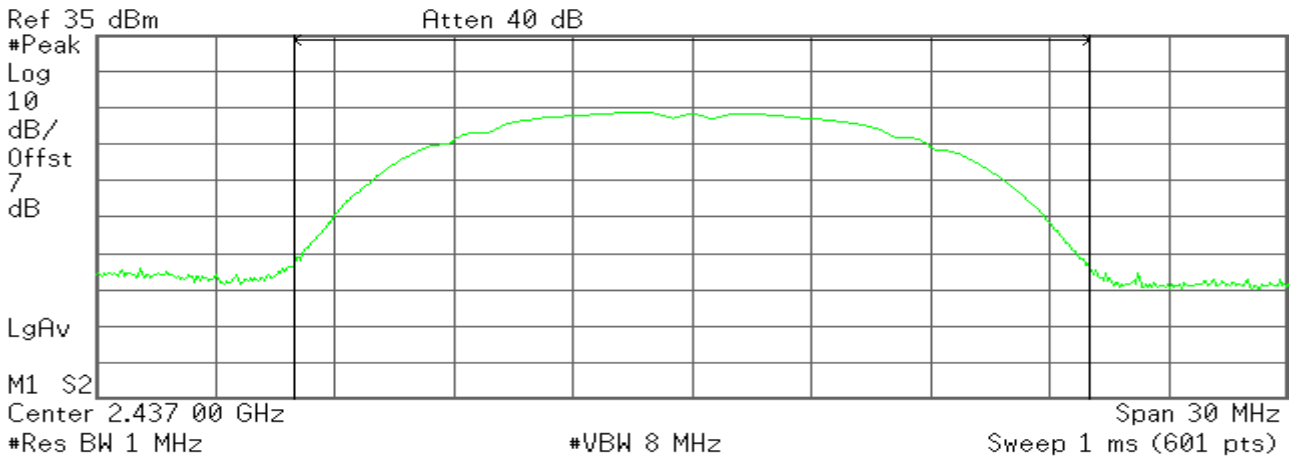
-51.25 dBm/Hz



## Peak Power (CH Mid)

Agilent

R T



**Channel Power**

21.36 dBm /20.0000 MHz

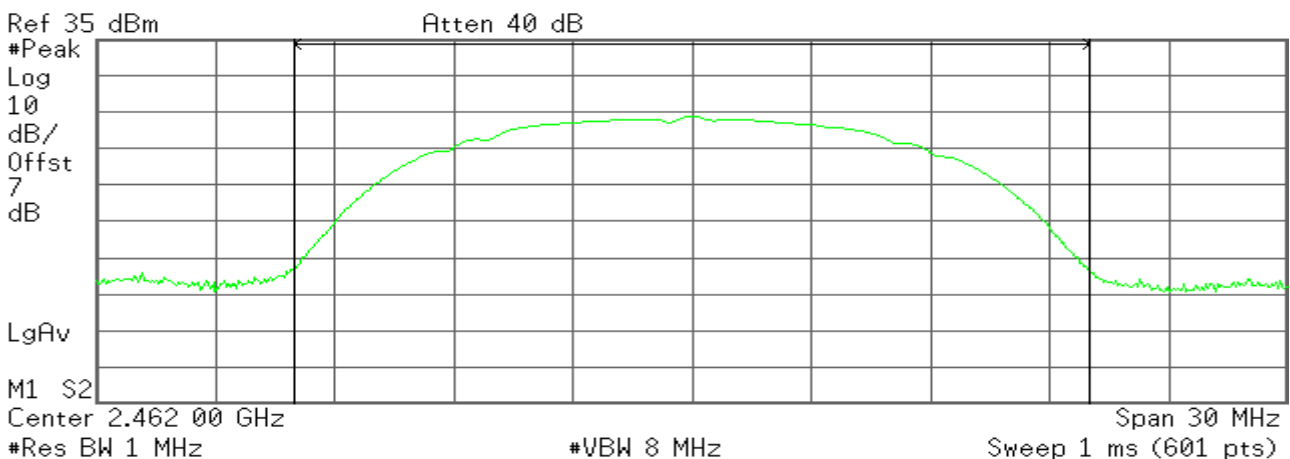
**Power Spectral Density**

-51.65 dBm/Hz

## Peak Power (CH High)

Agilent

R T



**Channel Power**

21.10 dBm /20.0000 MHz

**Power Spectral Density**

-51.91 dBm/Hz

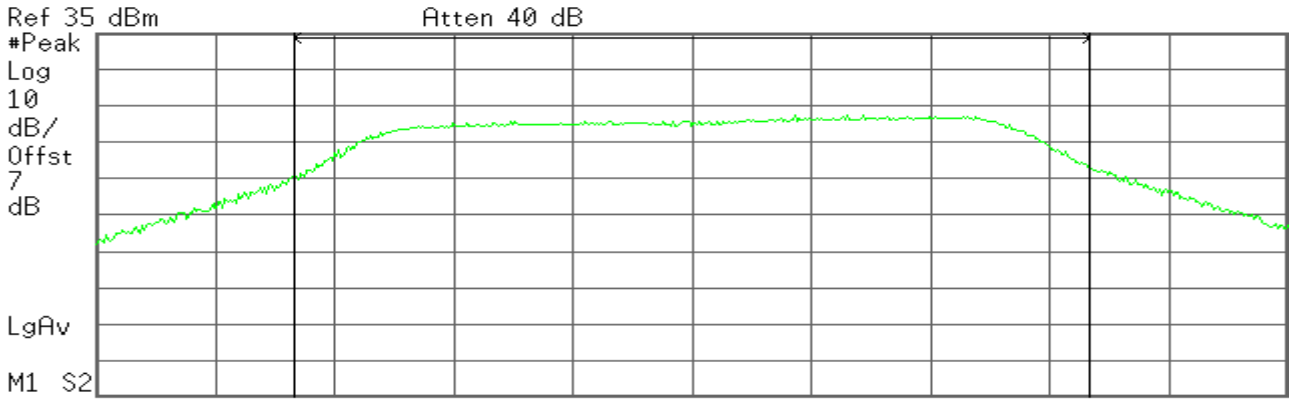


## IEEE 802.11g mode /Chain 0

### Peak Power (CH Low)

Agilent

R T



Center 2.412 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 8 MHz

Sweep 1 ms (601 pts)

**Channel Power**

**16.86 dBm /20.0000 MHz**

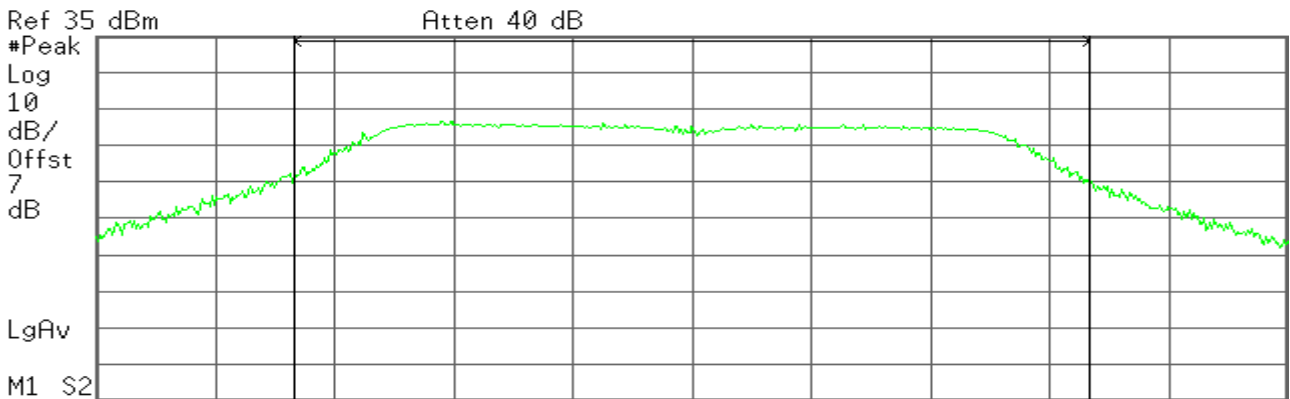
**Power Spectral Density**

**-56.15 dBm/Hz**

### Peak Power (CH Mid)

Agilent

R T



Center 2.437 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 8 MHz

Sweep 1 ms (601 pts)

**Channel Power**

**17.10 dBm /20.0000 MHz**

**Power Spectral Density**

**-55.91 dBm/Hz**

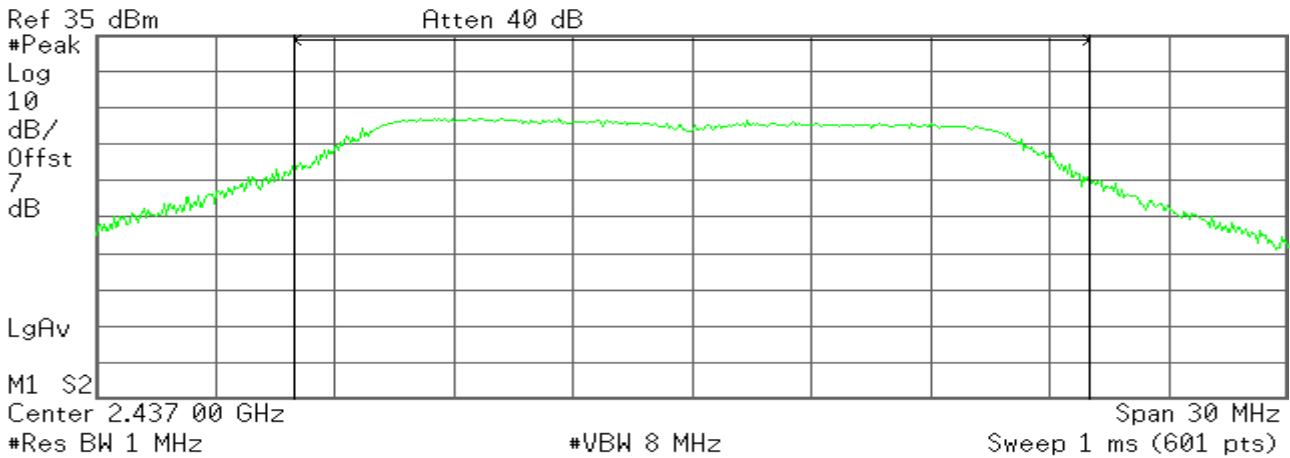




## Peak Power (CH Mid)

Agilent

R T



**Channel Power**

18.30 dBm /20.0000 MHz

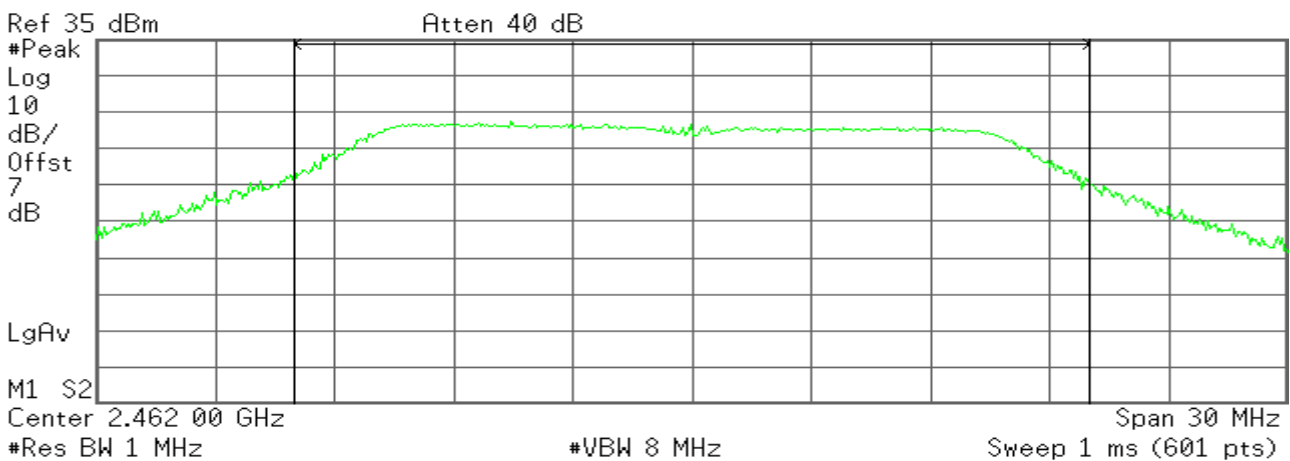
**Power Spectral Density**

-54.71 dBm/Hz

## Peak Power (CH High)

Agilent

R T



**Channel Power**

17.99 dBm /20.0000 MHz

**Power Spectral Density**

-55.02 dBm/Hz



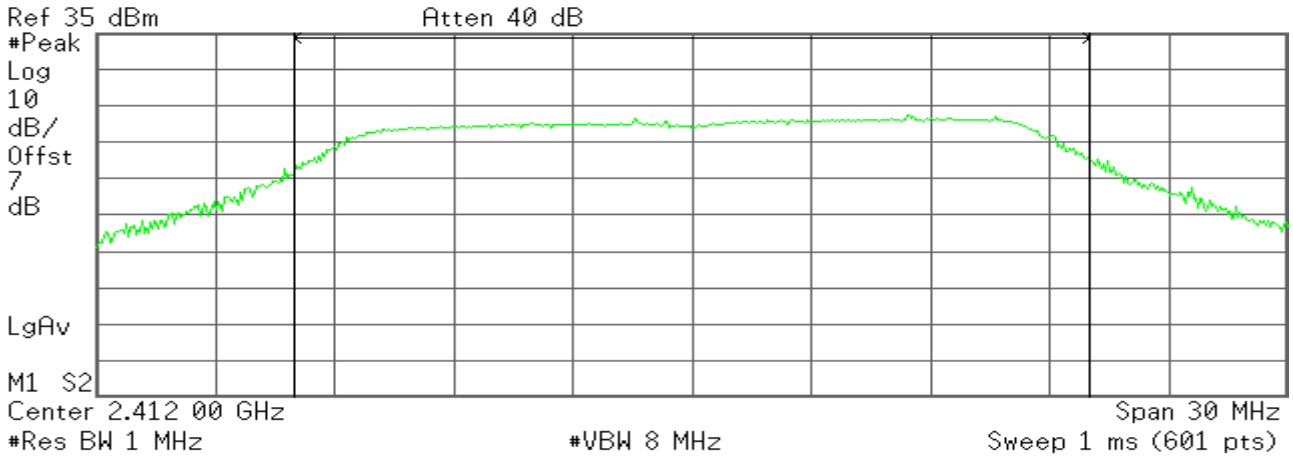


## IEEE 802.11n HT20 mode / Chain 0

### Peak Power (CH Low)

Agilent

R T



**Channel Power**

17.47 dBm /20.0000 MHz

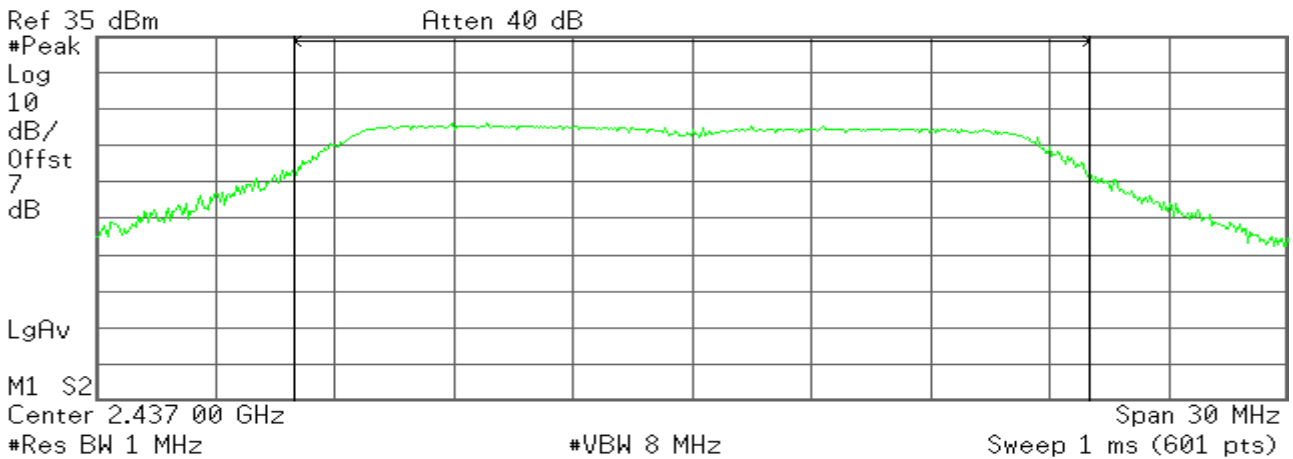
**Power Spectral Density**

-55.54 dBm/Hz

### Peak Power (CH Mid)

Agilent

R T



**Channel Power**

17.43 dBm /20.0000 MHz

**Power Spectral Density**

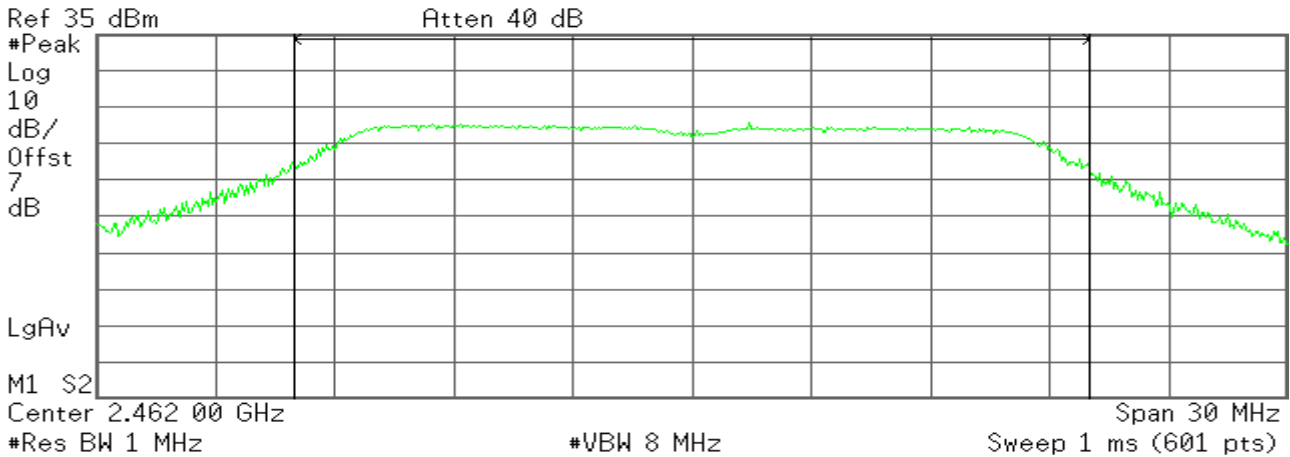
-55.58 dBm/Hz



## Peak Power (CH High)

Agilent

R T



**Channel Power**

17.05 dBm /20.0000 MHz

**Power Spectral Density**

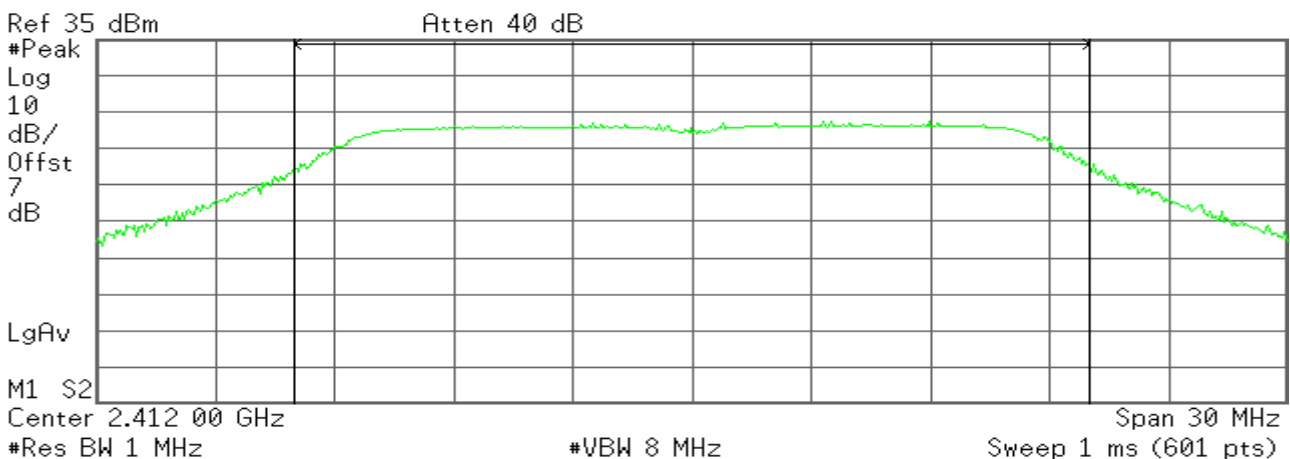
-55.96 dBm/Hz

## IEEE 802.11n HT20 mode / Chain 1

### Peak Power (CH Low)

Agilent

R T



**Channel Power**

18.64 dBm /20.0000 MHz

**Power Spectral Density**

-54.37 dBm/Hz



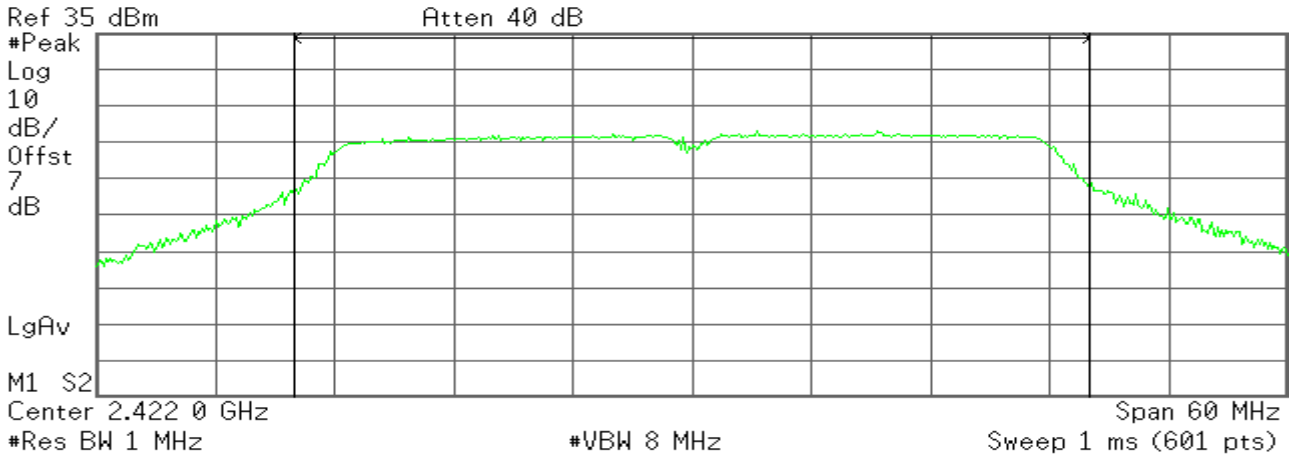


## IEEE 802.11n HT40 mode / Chain 0

### Peak Power (CH Low)

Agilent

R T



Channel Power

17.34 dBm /40.0000 MHz

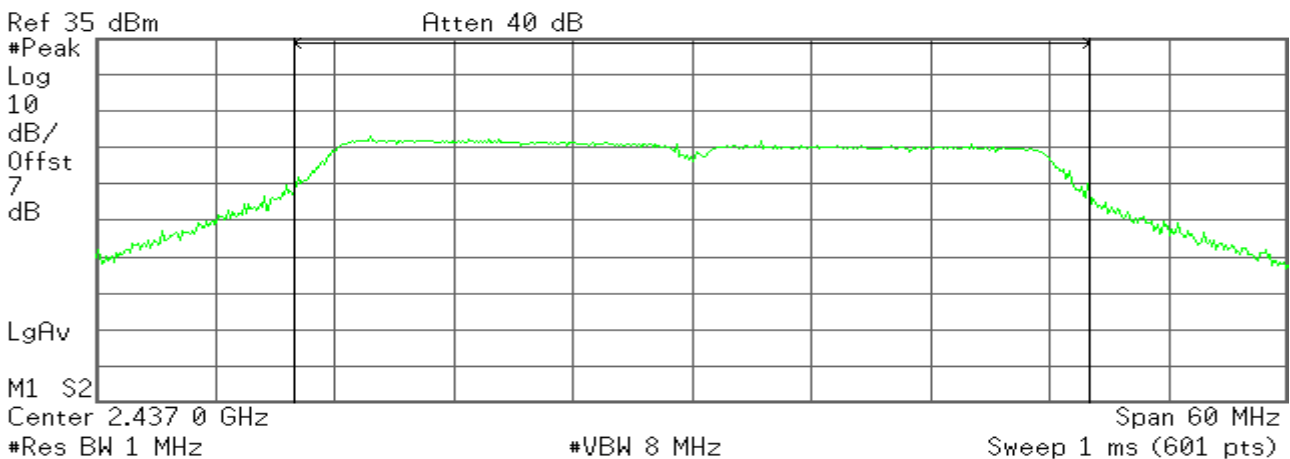
Power Spectral Density

-58.68 dBm/Hz

### Peak Power (CH Mid)

Agilent

R T



Channel Power

16.41 dBm /40.0000 MHz

Power Spectral Density

-59.61 dBm/Hz







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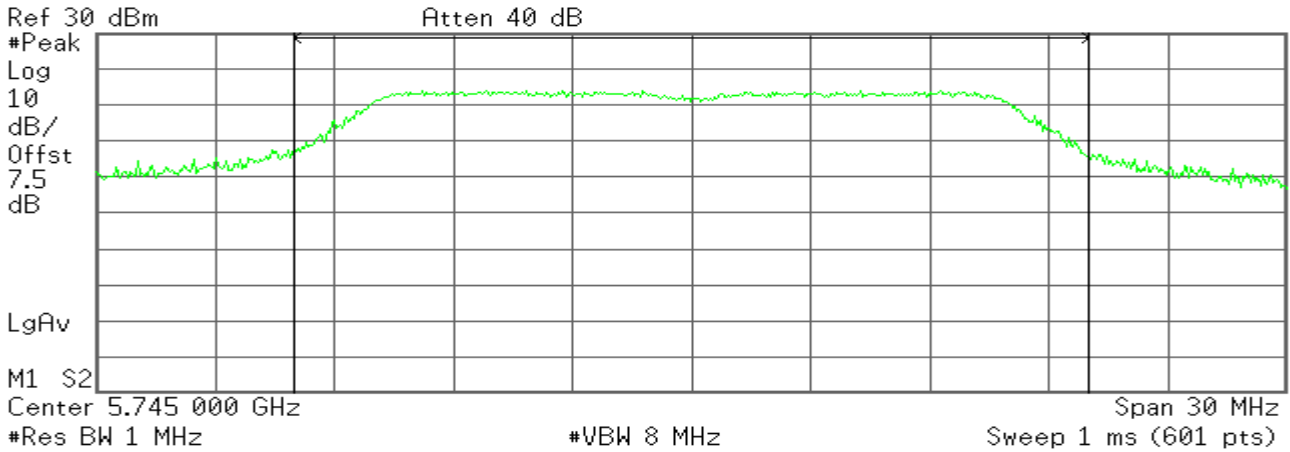
## IEEE 802.11a mode:

5725~5785MHz

### CH Low

Agilent

R T



**Channel Power**

20.65 dBm /20.0000 MHz

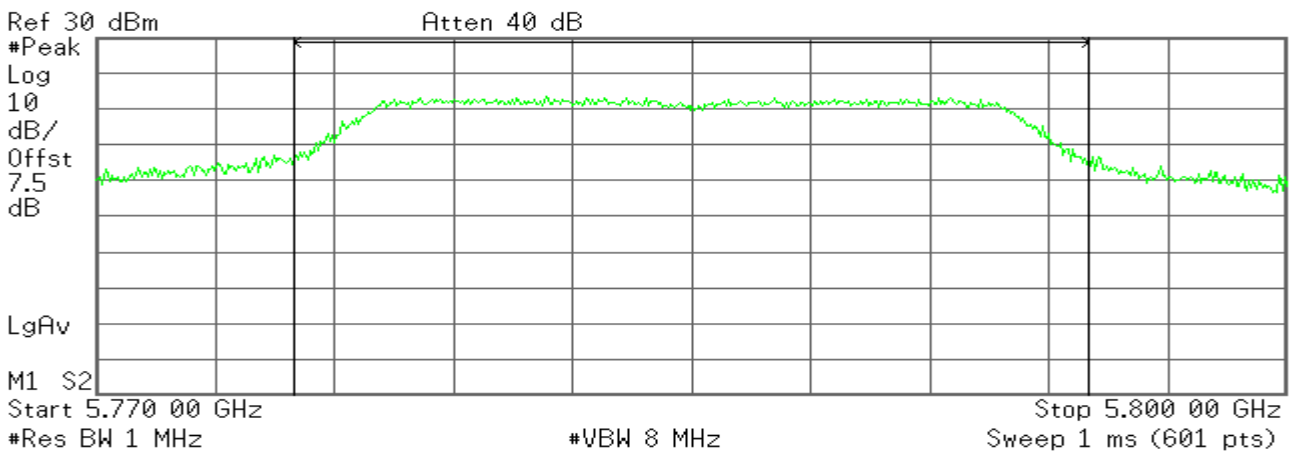
**Power Spectral Density**

-52.36 dBm/Hz

### CH Mid

Agilent

R T



**Channel Power**

19.74 dBm /20.0000 MHz

**Power Spectral Density**

-53.27 dBm/Hz



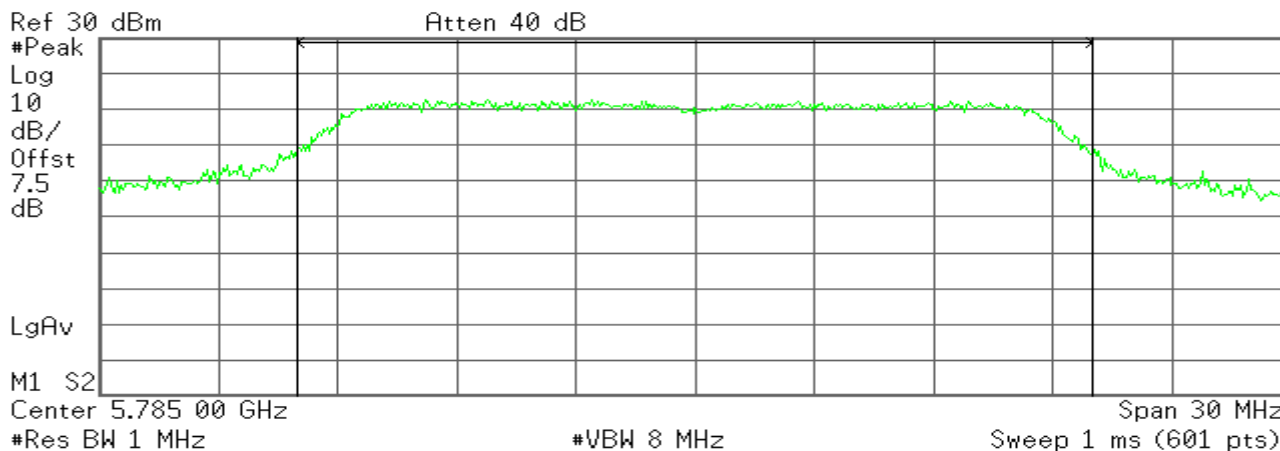




## CH Mid

Agilent

R T



**Channel Power**

19.27 dBm /20.0000 MHz

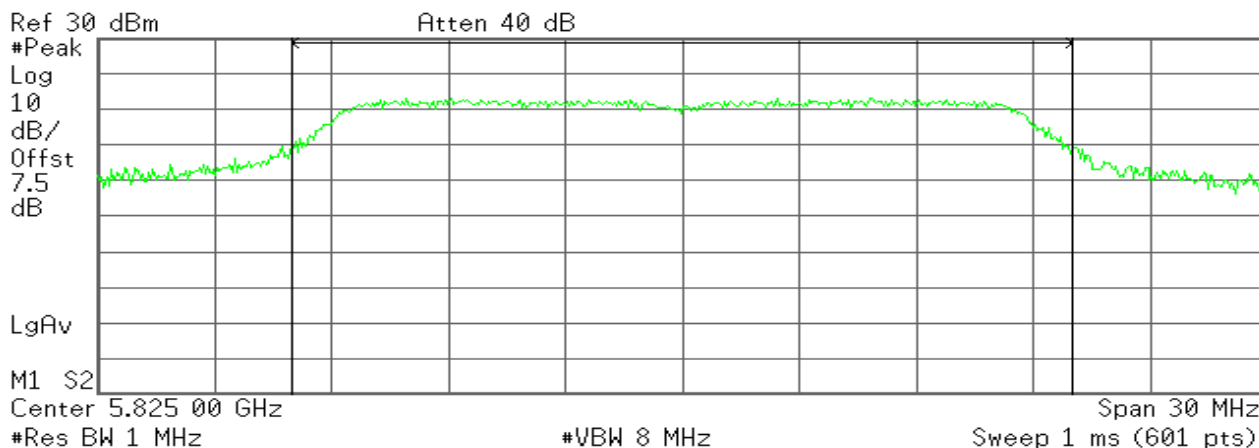
**Power Spectral Density**

-53.74 dBm/Hz

## CH High

Agilent

R T



**Channel Power**

19.95 dBm /20.0000 MHz

**Power Spectral Density**

-53.06 dBm/Hz



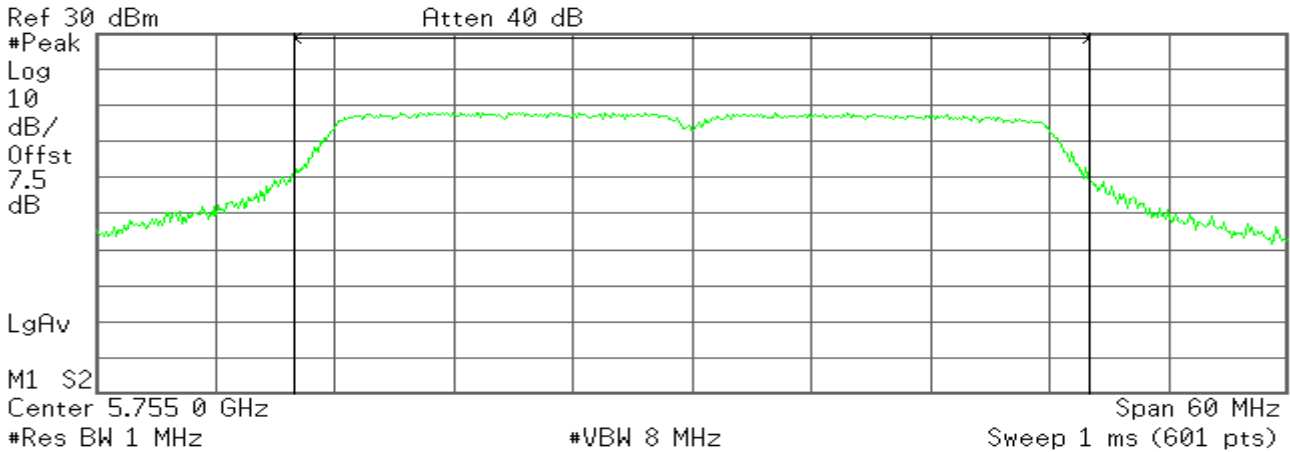
## IEEE 802.11an HT40 mode

5725~5785MHz

CH Low

Agilent

R T



Channel Power

18.01 dBm /40.0000 MHz

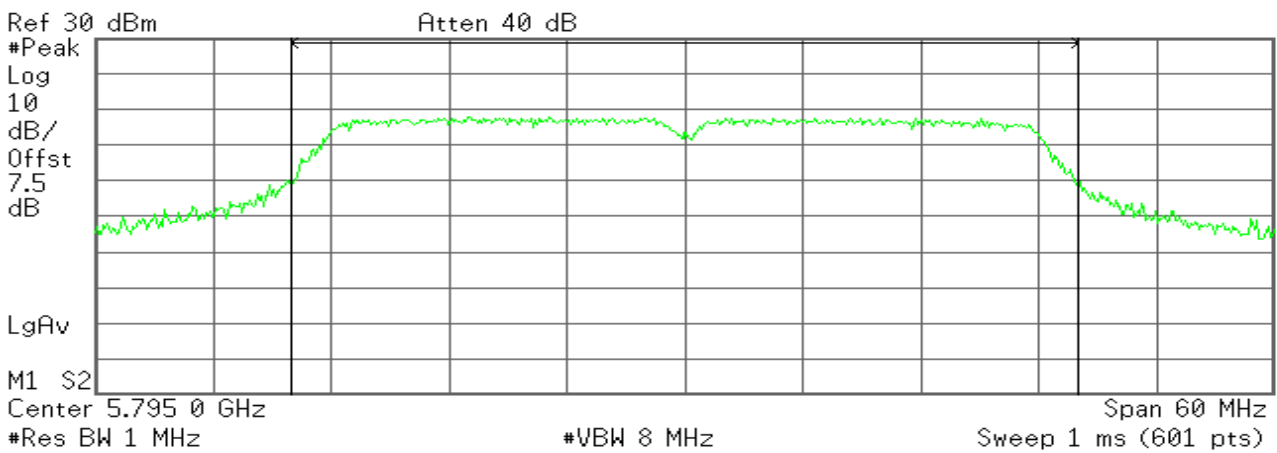
Power Spectral Density

-58.01 dBm/Hz

CH High

Agilent

R T



Channel Power

17.86 dBm /40.0000 MHz

Power Spectral Density

-58.16 dBm/Hz

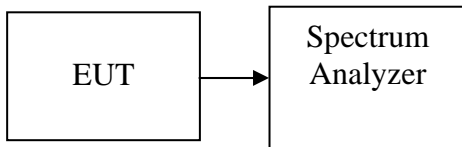


## 4.3. PEAK POWER SPECTRAL DENSITY

### 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*

### 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	-4.16	-3.99	2.51	8.00	PASS
Mid	2437	-6.11	-4.08	2.14	8.00	PASS
High	2462	-5.06	-4.22	2.28	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	-13.83	-9.86	0.59	8.00	PASS
Mid	2437	-9.13	-10.09	0.86	8.00	PASS
High	2462	-10.68	-0.59	2.92	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	-9.88	-10.47	0.76	8.00	PASS
Mid	2437	-8.95	-11.32	0.80	8.00	PASS
High	2462	-10.01	-0.51	2.99	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	-13.83	-14.16	0.33	8.00	PASS
Mid	2437	-14.67	-13.90	0.31	8.00	PASS
High	2452	-15.14	-16.05	0.23	8.00	PASS

**Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-0.99	8.00	PASS
Mid	5785	-3.33	8.00	PASS
High	5825	-3.21	8.00	PASS

**Test mode: IEEE 802.11n HT20 mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-2.69	8.00	PASS
Mid	5785	-3.63	8.00	PASS
High	5825	-3.64	8.00	PASS



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## Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-9.85	8.00	PASS
High	5795	-8.06	8.00	PASS

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



## Test Plot

### IEEE 802.11b mode/Chain 0

### PPSD (CH Low)

Agilent

R T

Mkr1 2.413 611 GHz  
-4.16 dBm

Ref 30 dBm

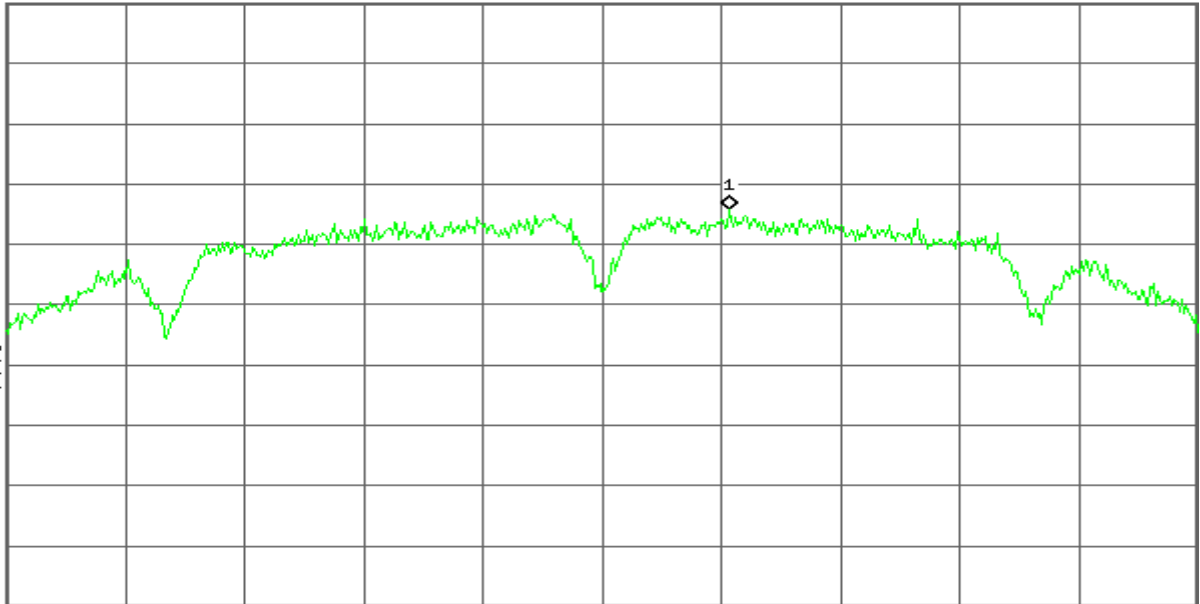
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 2.412 000 GHz

Span 15.2 MHz

#Res BW 3 kHz

#VBW 10 kHz

Sweep 1.592 s (601 pts)

### PPSD (CH Mid)

Agilent

R T

Mkr1 2.437 503 GHz  
-6.11 dBm

Ref 30 dBm

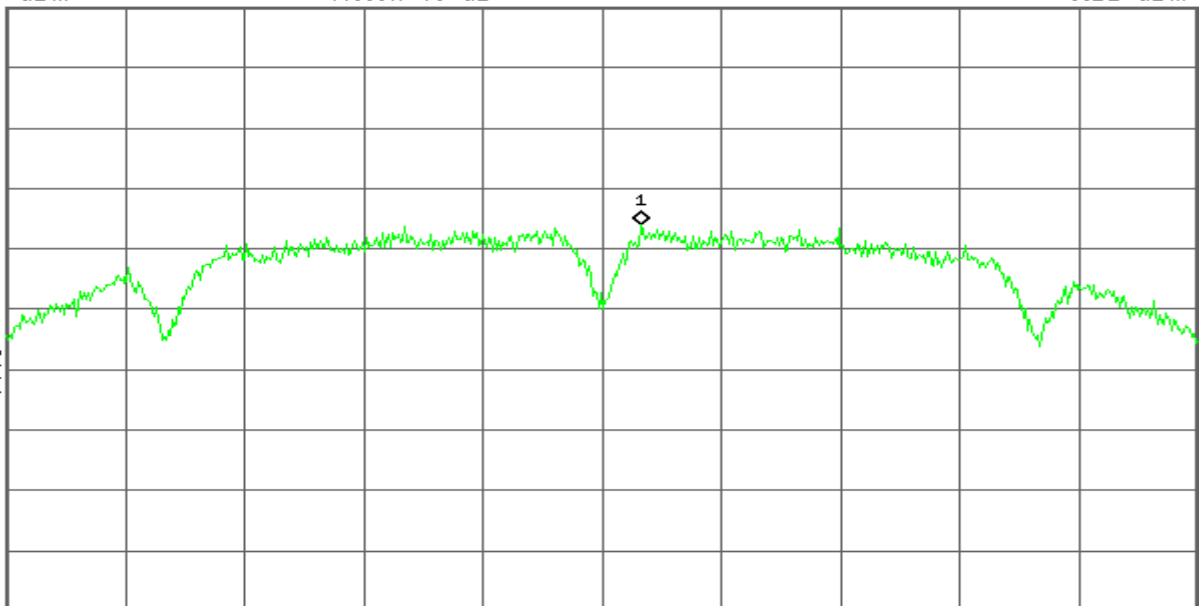
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 2.437 000 GHz

Span 15.2 MHz

#Res BW 3 kHz

#VBW 10 kHz

Sweep 1.592 s (601 pts)

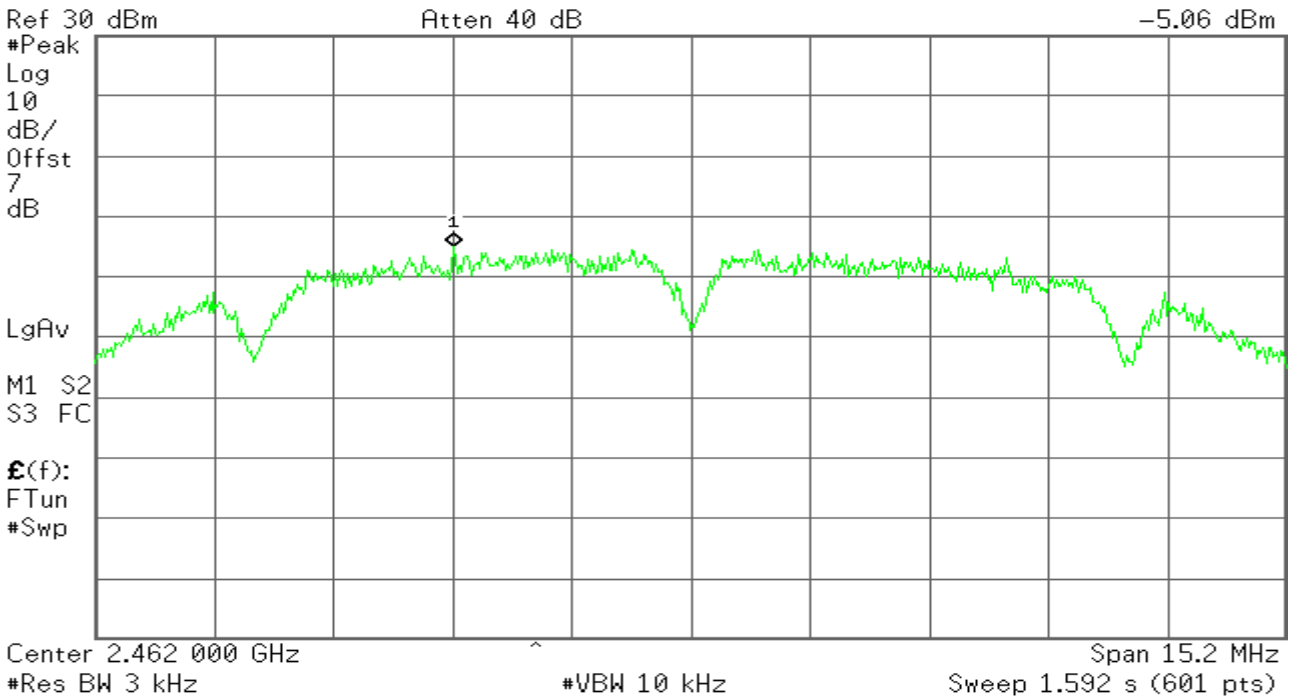


## PPSD (CH High)

Agilent

R T

Mkr1 2.459 005 GHz  
-5.06 dBm



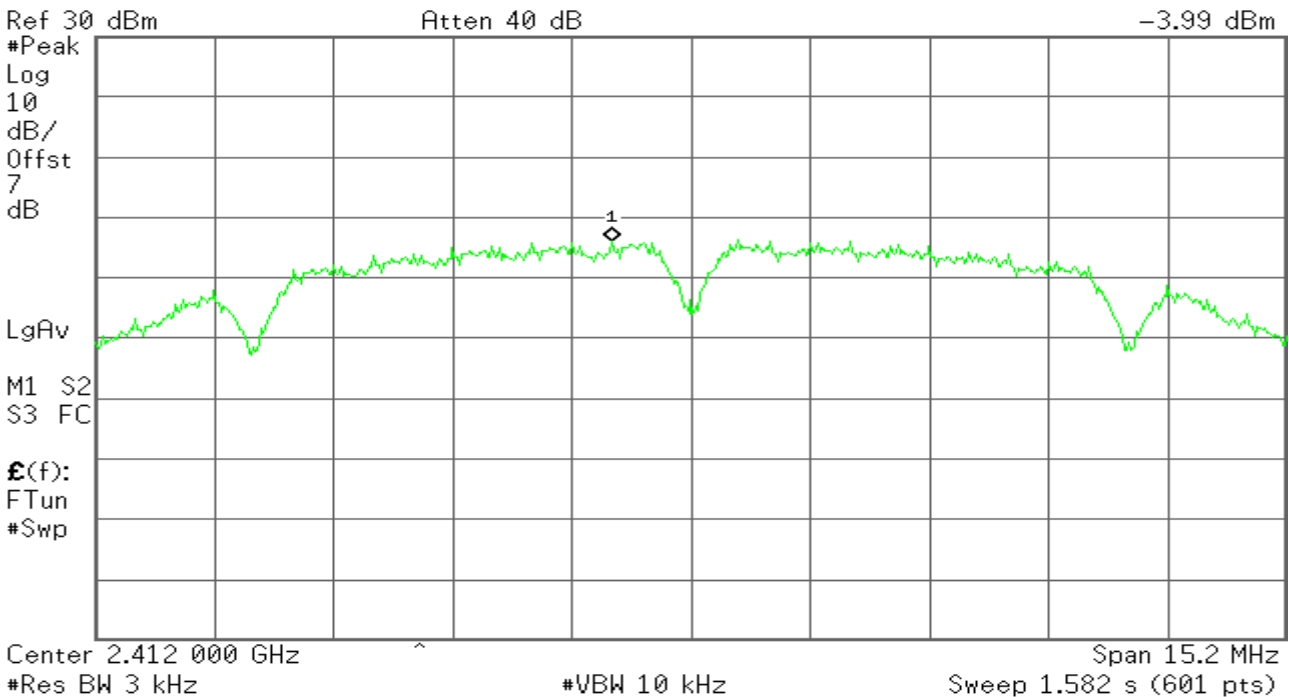
## IEEE 802.11b mode/Chain 1

### PPSD (CH Low)

Agilent

R T

Mkr1 2.411 000 GHz  
-3.99 dBm



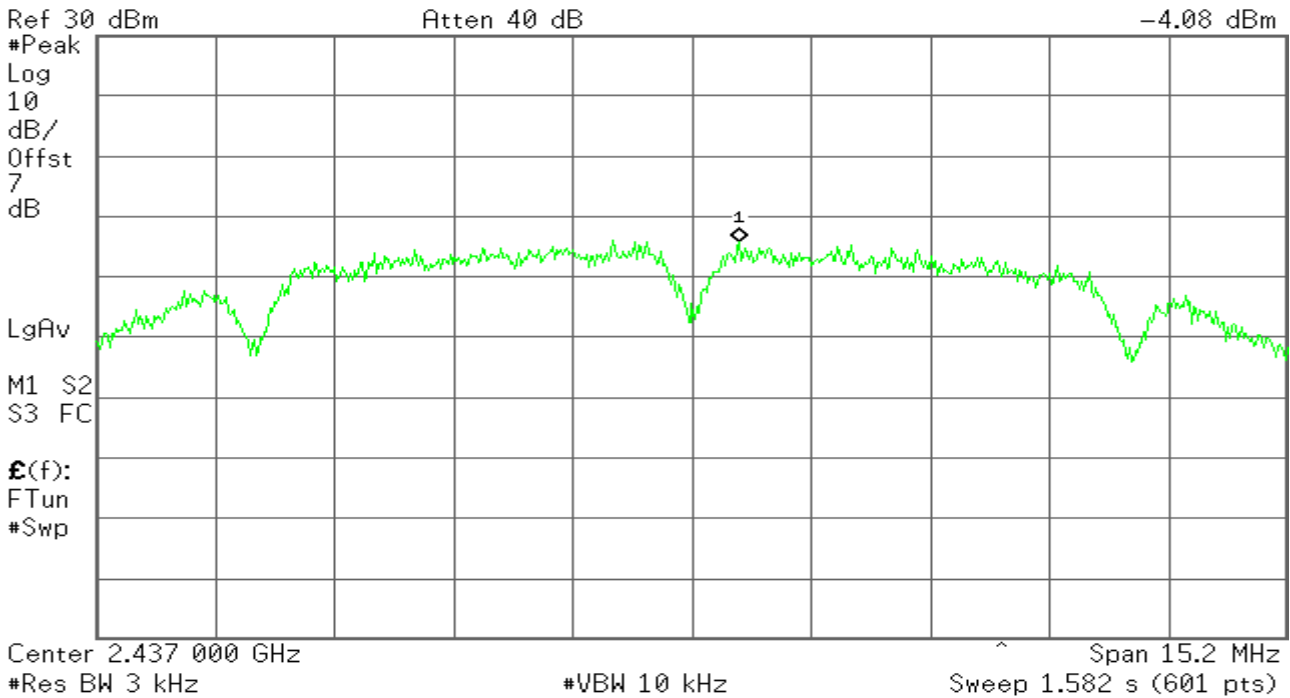


## PPSD (CH Mid)

Agilent

R T

Mkr1 2.437 600 GHz  
-4.08 dBm



## PPSD (CH High)

Agilent

R T

Mkr1 2.460 000 GHz  
-4.22 dBm







## IEEE 802.11g mode/Chain 0

### PPSD (CH Low)

Agilent

R T

Mkr1 2.417 33 GHz  
-13.83 dBm

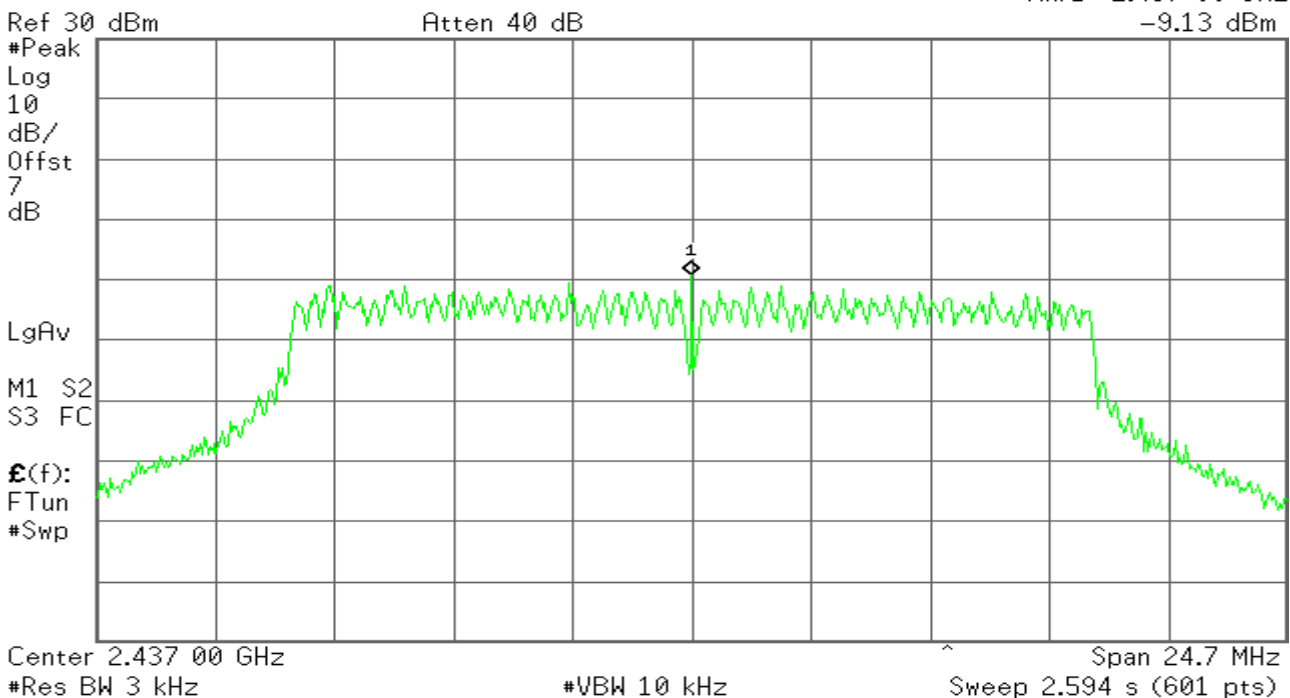


### PPSD (CH Mid)

Agilent

R T

Mkr1 2.437 00 GHz  
-9.13 dBm



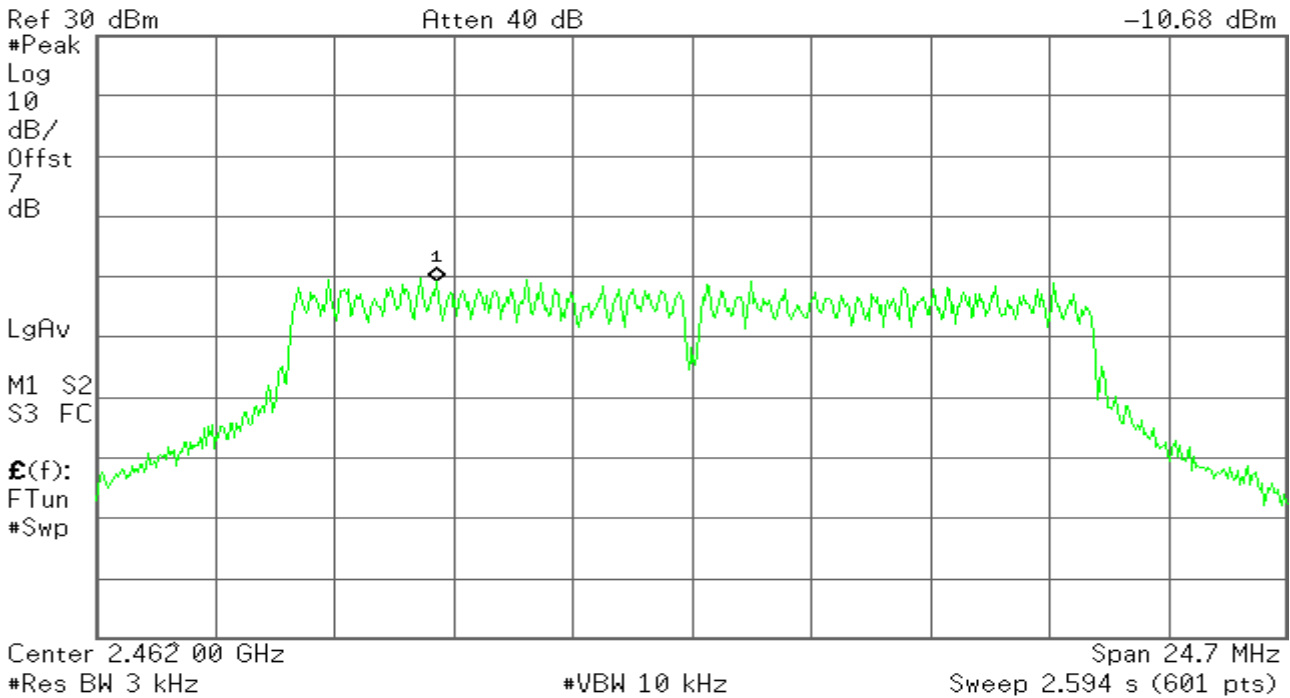


## PPSD (CH High)

Agilent

R T

Mkr1 2.456 71 GHz  
-10.68 dBm



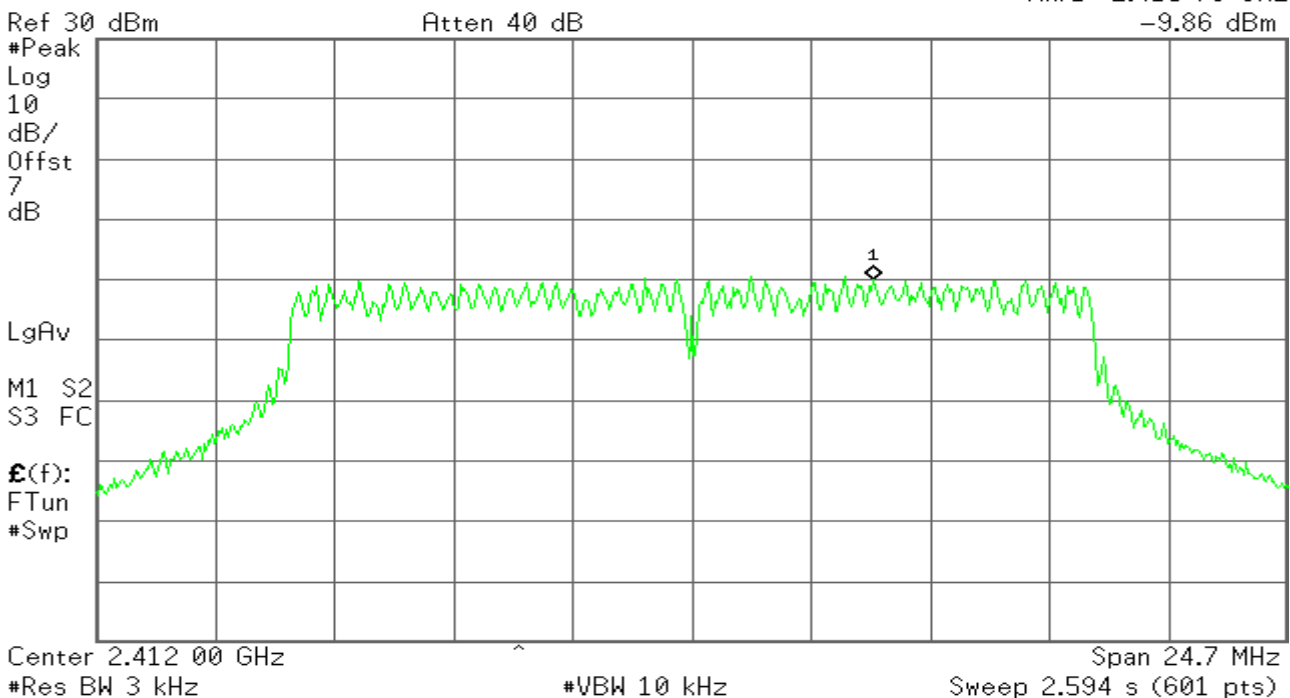
## IEEE 802.11g mode/Chain 1

### PPSD (CH Low)

Agilent

R T

Mkr1 2.415 73 GHz  
-9.86 dBm



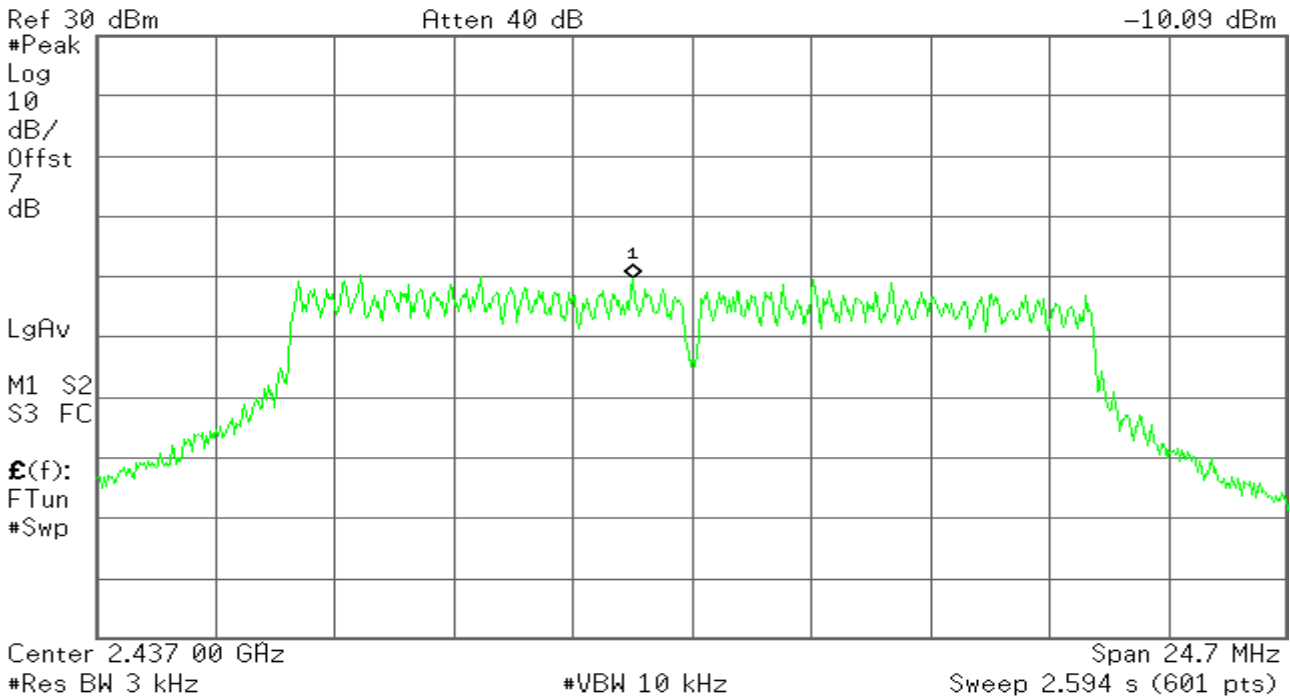


## PPSD (CH Mid)

Agilent

R T

Mkr1 2.435 77 GHz  
-10.09 dBm

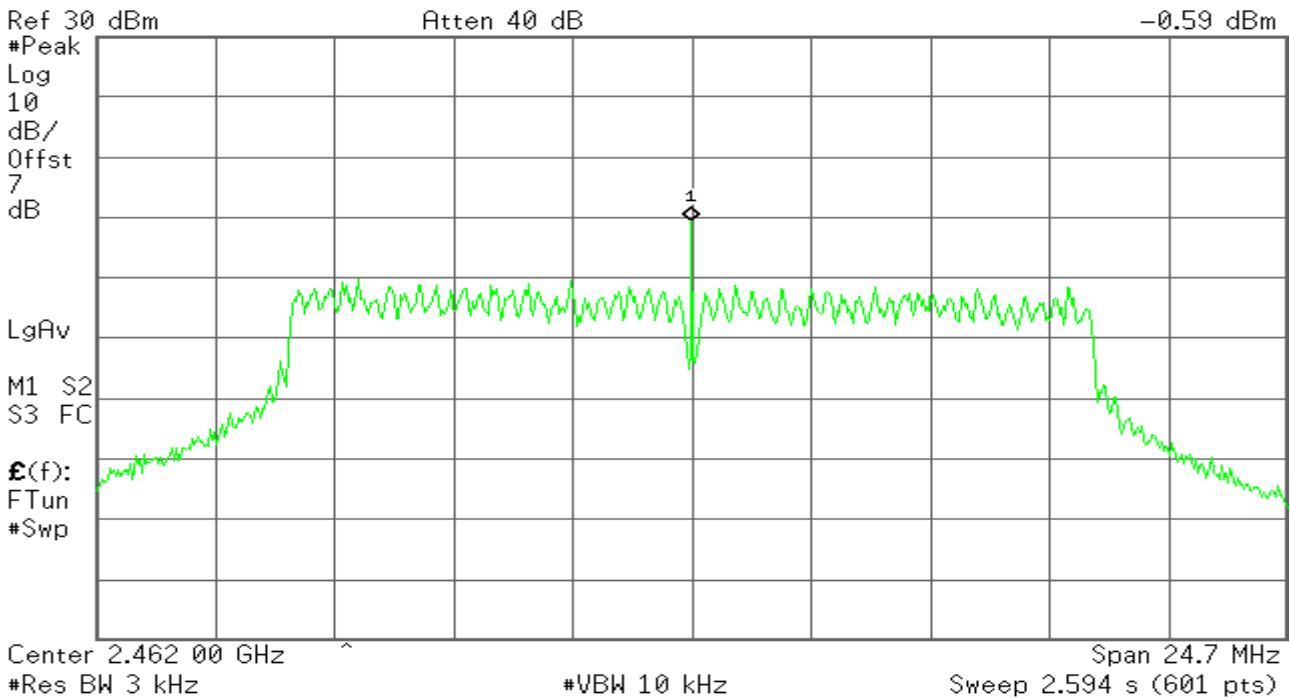


## PPSD (CH High)

Agilent

R T

Mkr1 2.462 00 GHz  
-0.59 dBm





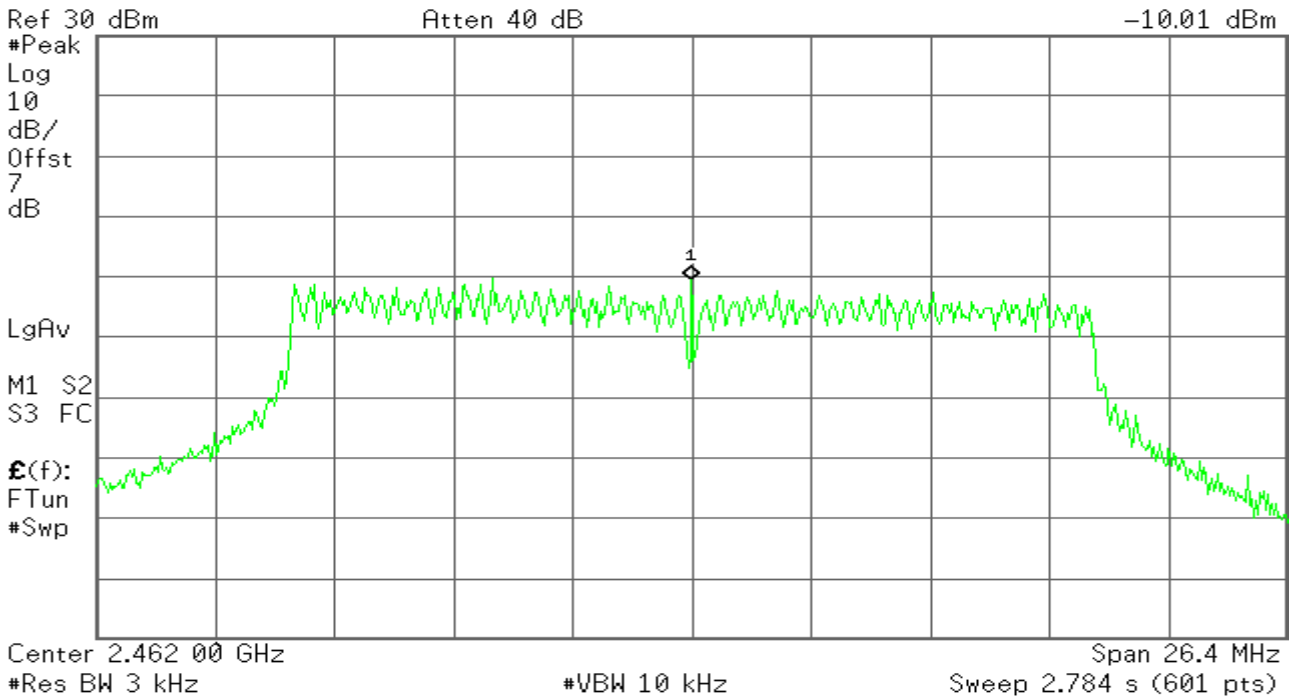


## PPSD (CH High)

Agilent

R T

Mkr1 2.462 00 GHz  
-10.01 dBm



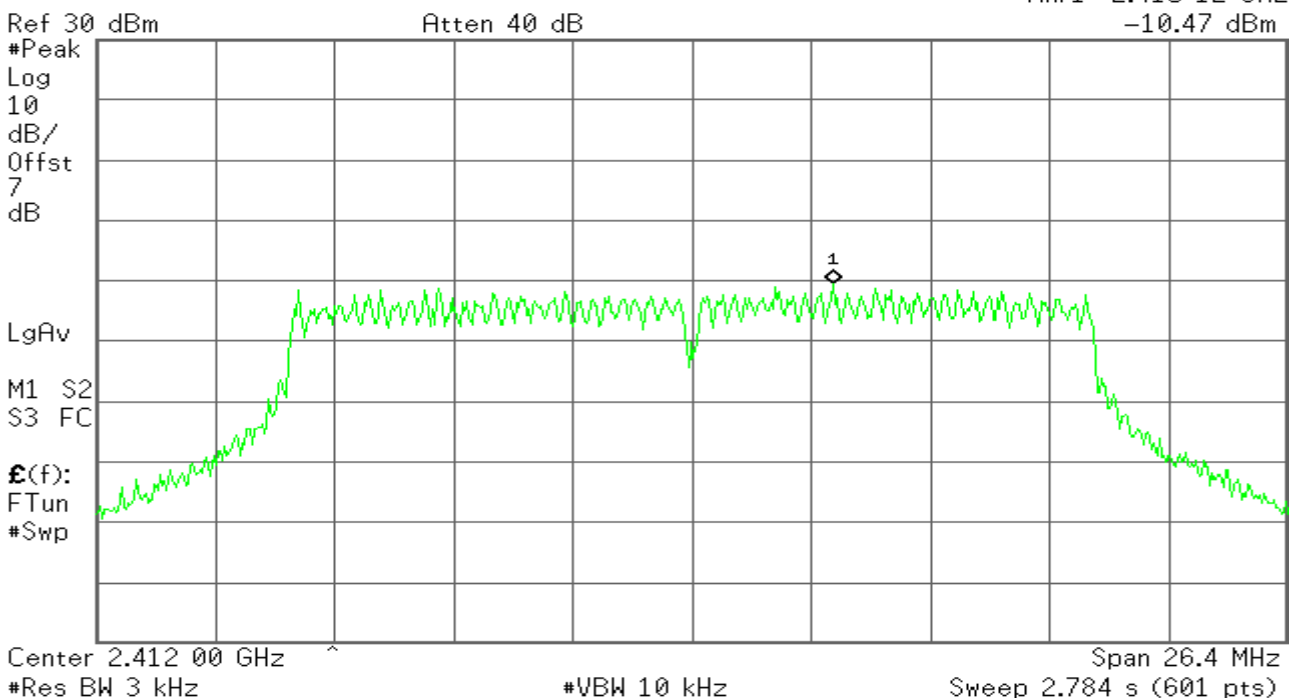
## IEEE 802.11n HT20 mode / Chain 1

### PPSD (CH Low)

Agilent

R T

Mkr1 2.415 12 GHz  
-10.47 dBm



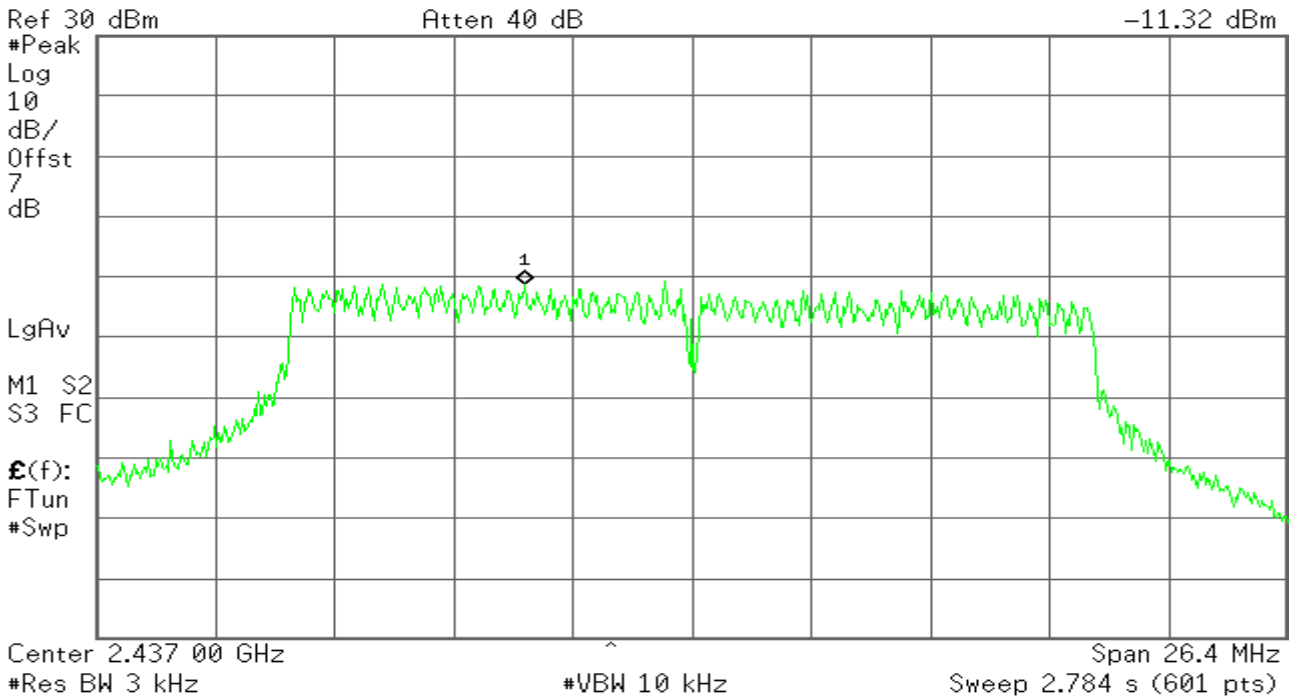


## PPSD (CH Mid)

Agilent

R T

Mkr1 2.433 30 GHz  
-11.32 dBm

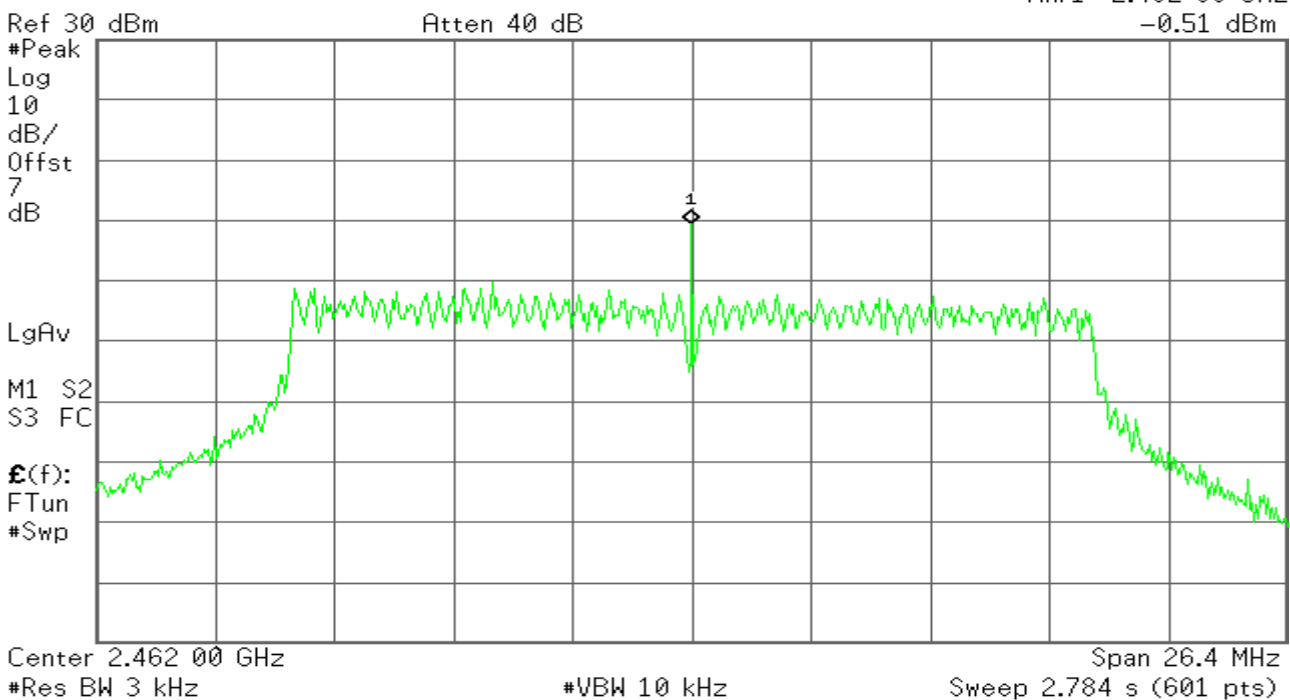


## PPSD (CH High)

Agilent

R T

Mkr1 2.462 00 GHz  
-0.51 dBm





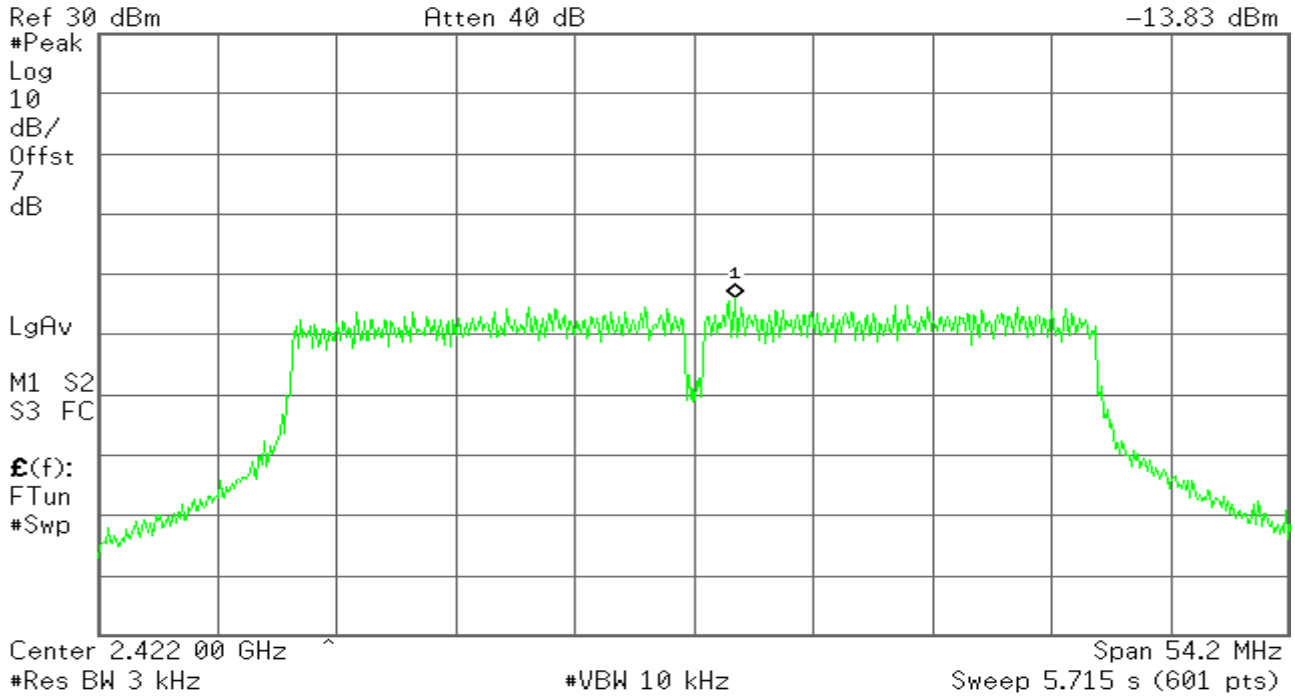
## IEEE 802.11n HT40 mode / Chain 0

### PPSD (CH Low)

Agilent

R T

Mkr1 2.423 90 GHz  
-13.83 dBm

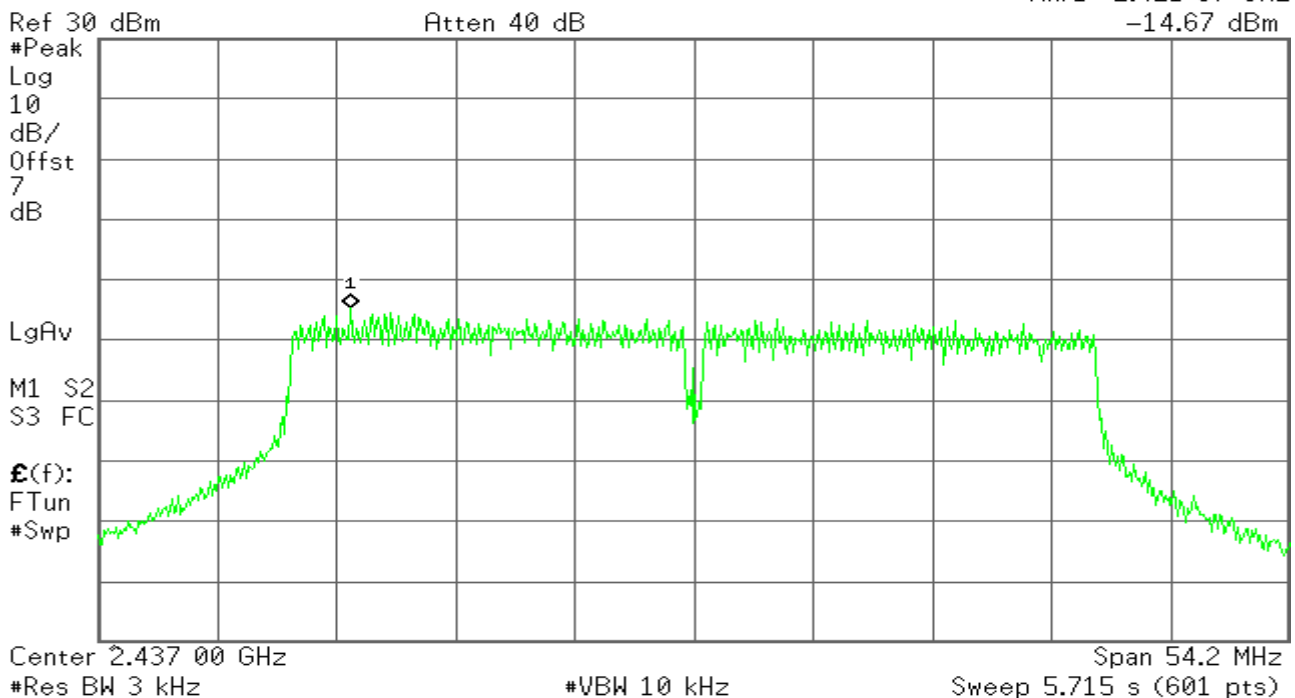


### PPSD (CH Mid)

Agilent

R T

Mkr1 2.421 37 GHz  
-14.67 dBm







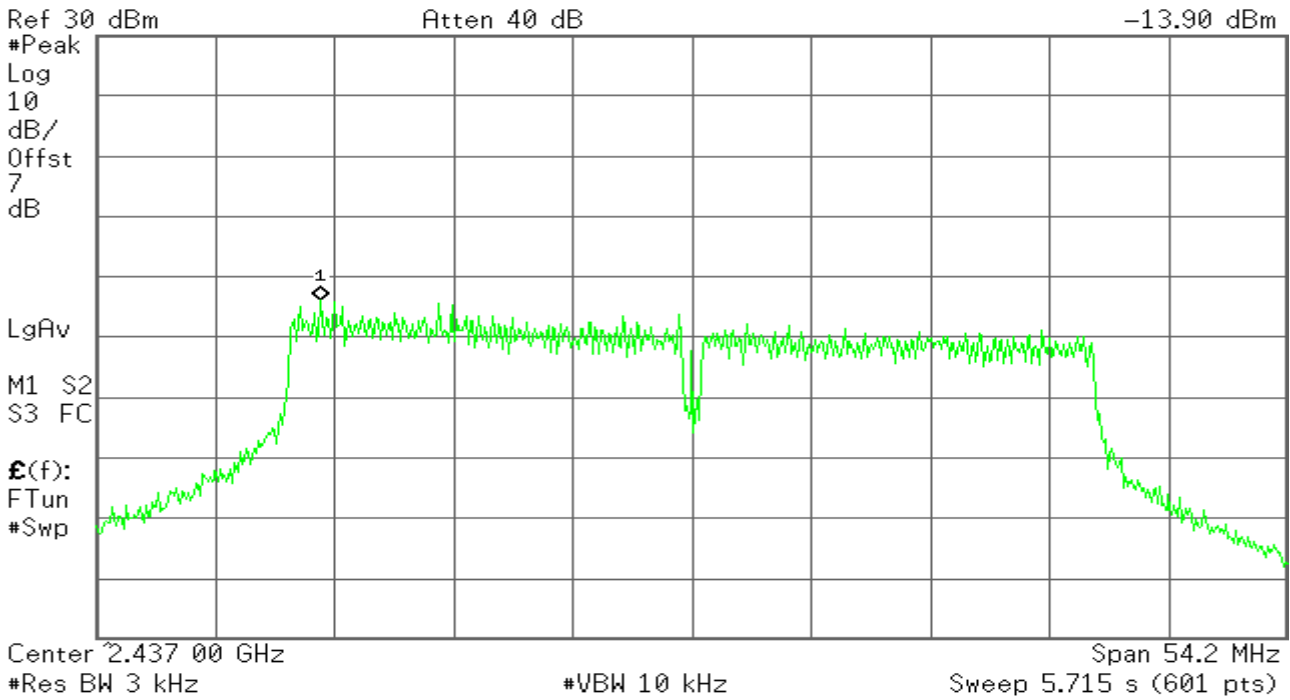


## PPSD (CH Mid)

Agilent

R T

Mkr1 2.420 11 GHz  
-13.90 dBm

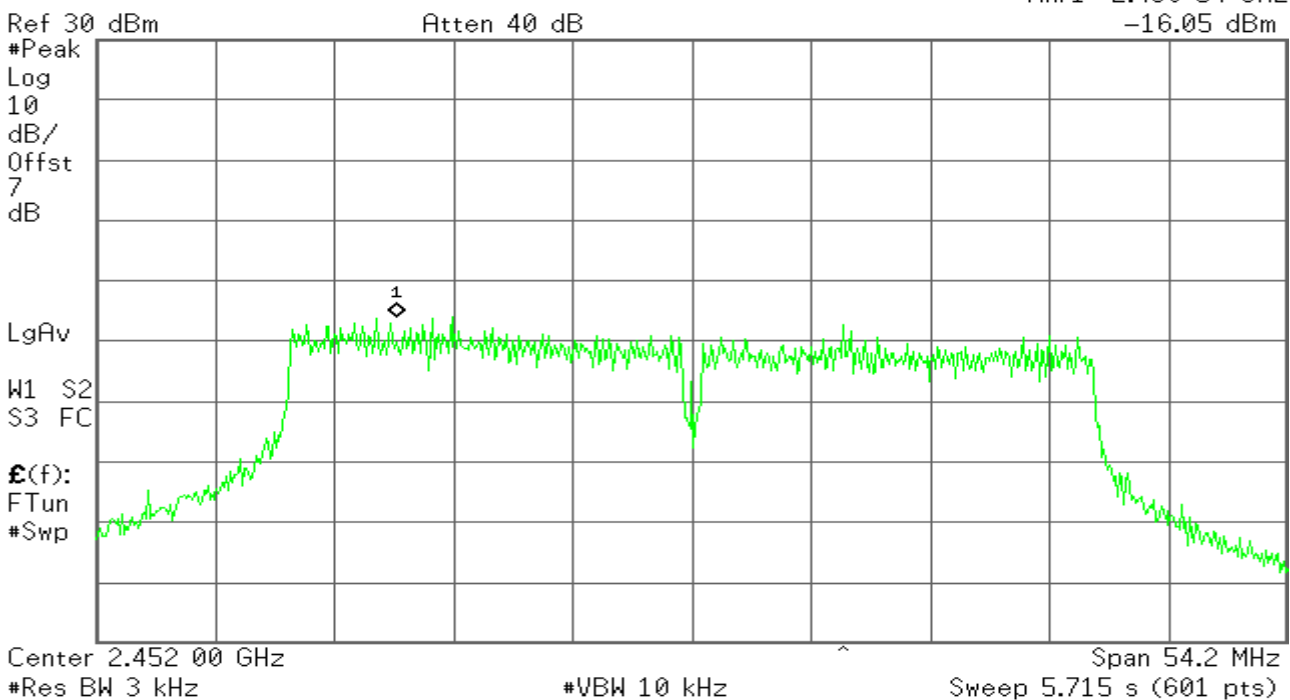


## PPSD (CH High)

Agilent

R T

Mkr1 2.438 54 GHz  
-16.05 dBm





## Test Plot

IEEE 802.11a mode:

5725~5825MHz

CH Low

Agilent

R T

Mkr1 5.746 23 GHz  
-0.99 dBm

Ref 30 dBm

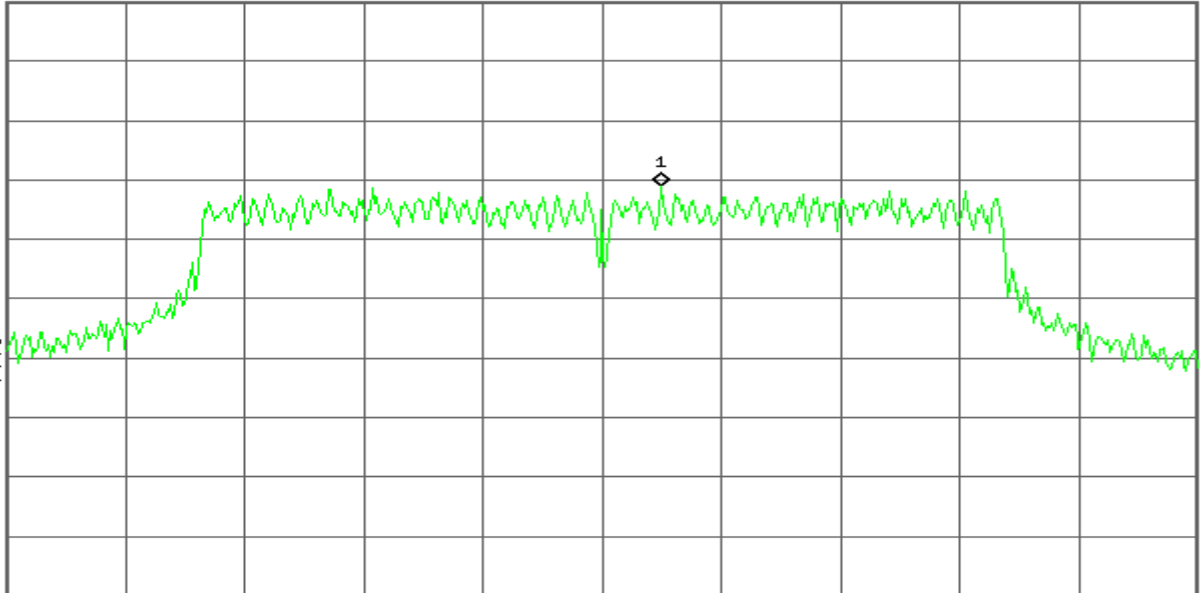
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

f(f):  
FTun  
#Swp



Center 5.745 00 GHz

Span 24.8 MHz

#Res BW 3 kHz

#VBW 10 kHz

Sweep 2.594 s (601 pts)

CH Mid

Agilent

R T

Mkr1 5.788 73 GHz  
-3.33 dBm

Ref 30 dBm

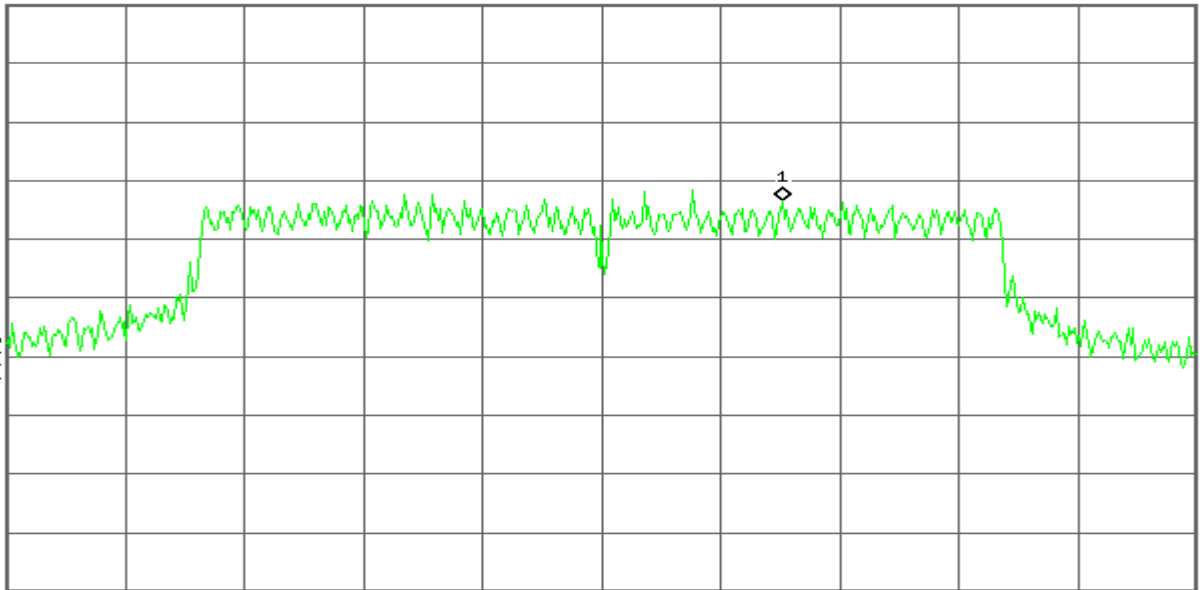
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

f(f):  
FTun  
#Swp



Center 5.785 00 GHz

Span 24.8 MHz

#Res BW 3 kHz

#VBW 10 kHz

Sweep 2.594 s (601 pts)



## CH High

Agilent

R T

Mkr1 5.821 31 GHz  
-3.21 dBm

Ref 30 dBm

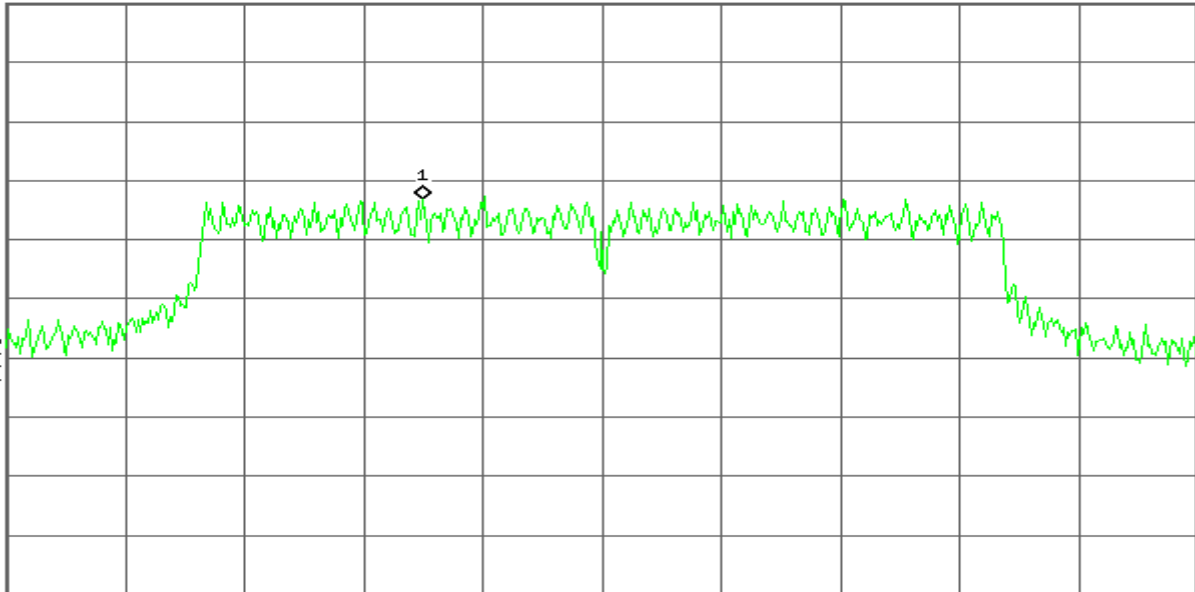
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 5.825 00 GHz

#Res BW 3 kHz

#VBW 10 kHz

Span 24.8 MHz  
Sweep 2.594 s (601 pts)\_

## IEEE 802.11an HT20 mode

5725~5825MHz

## CH Low

Agilent

R T

Mkr1 5.741 60 GHz  
-2.69 dBm

Ref 30 dBm

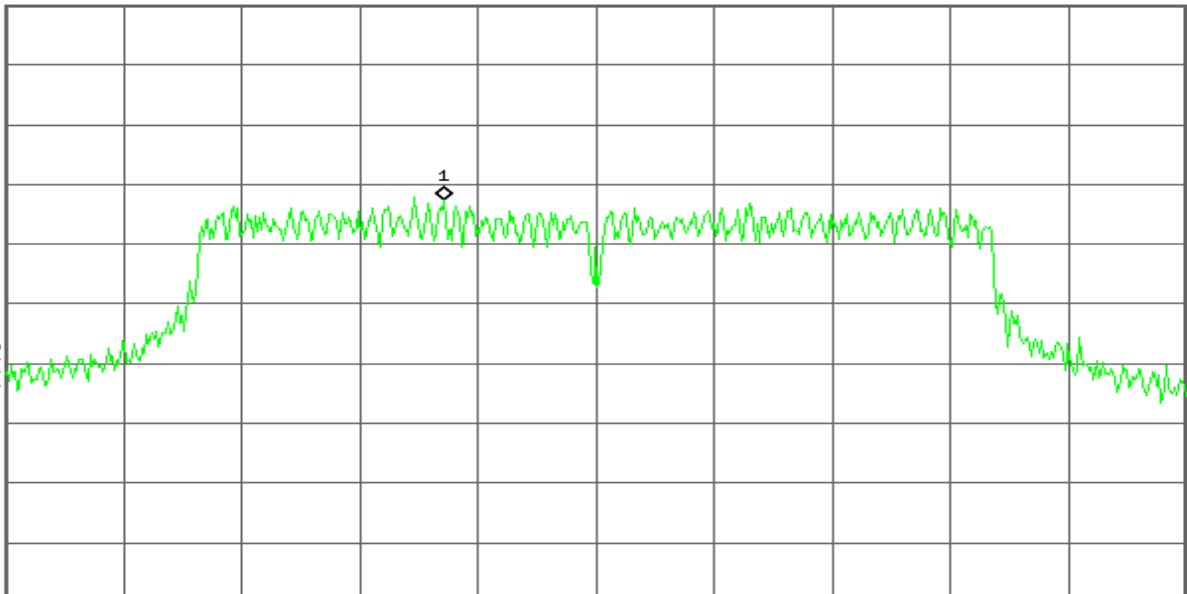
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 5.745 00 GHz^

#Res BW 3 kHz

#VBW 10 kHz

Span 26.6 MHz  
Sweep 2.794 s (601 pts)\_



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## CH Mid

Agilent

R T

Mkr1 5.787 52 GHz  
-3.63 dBm

Ref 30 dBm

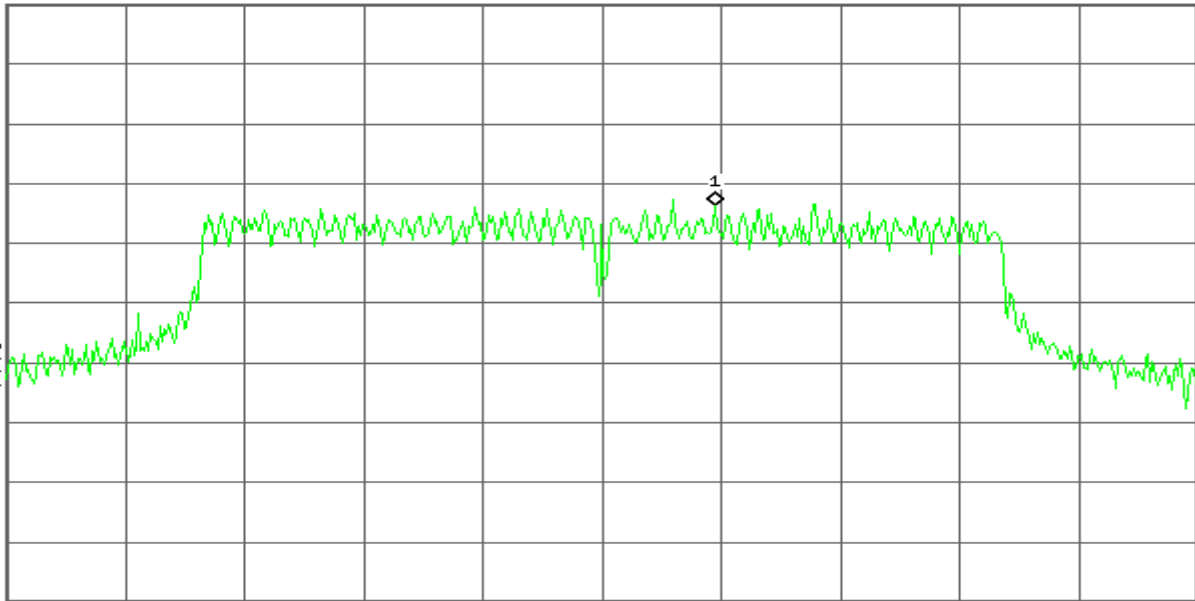
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 5.785 00 GHz

#Res BW 3 kHz

#VBW 10 kHz

Span 26.6 MHz

Sweep 2.794 s (601 pts)\_

## CH High

Agilent

R T

Mkr1 5.822 53 GHz  
-3.64 dBm

Ref 30 dBm

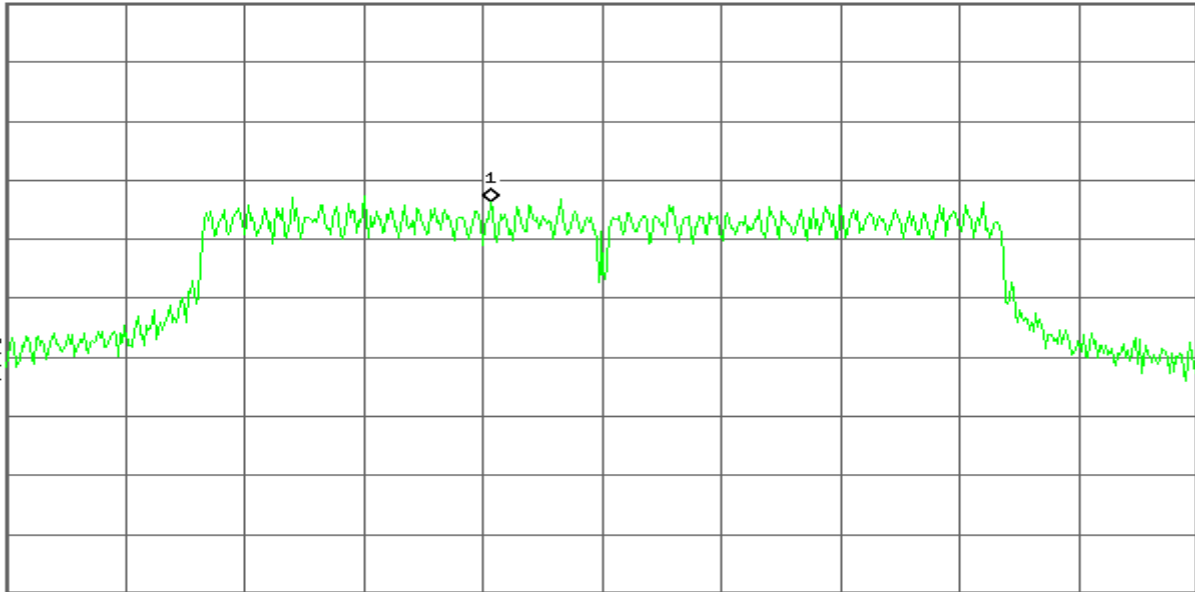
Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
#Swp



Center 5.825 00 GHz

#Res BW 3 kHz

#VBW 10 kHz

Span 26.6 MHz

Sweep 2.794 s (601 pts)\_



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## IEEE 802.11an HT40 mode

5725~5825MHz

CH Low

Agilent

R T

Mkr1 5.750 905 GHz  
-9.85 dBm

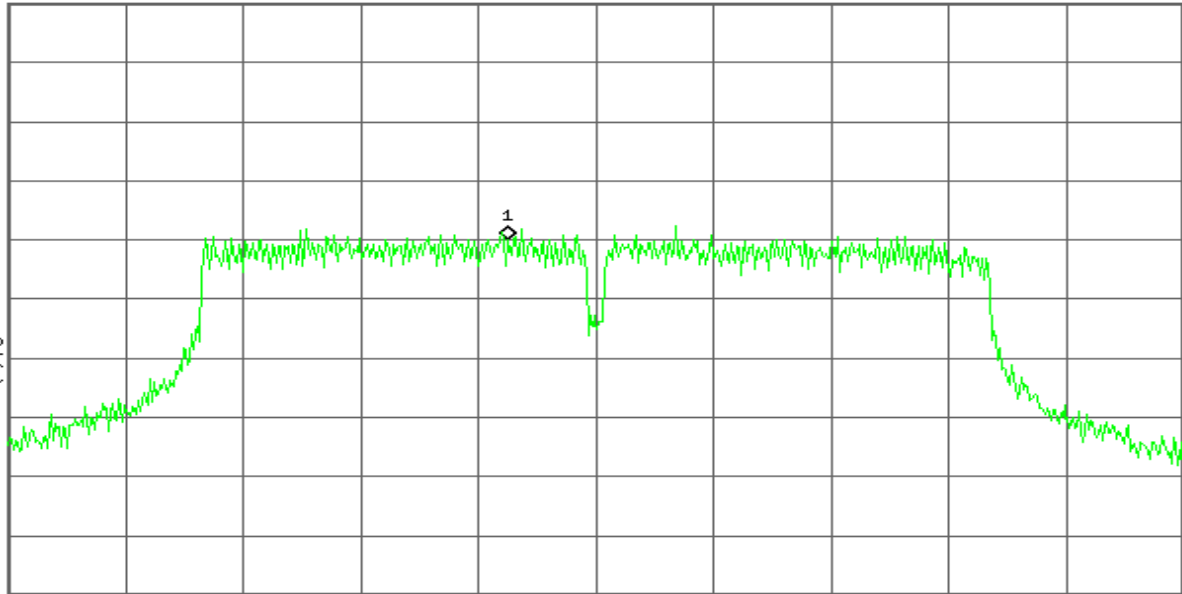
Ref 30 dBm  
#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

Atten 40 dB

LgAv

W1 S2  
S3 FC

£(f):  
FTun  
Swp



Center 5.755 000 GHz

#Res BW 3 kHz

#VBW 10 kHz

Span 54.7 MHz  
Sweep 5.757 s (601 pts)

CH High

Agilent

R T

Mkr1 5.784 990 GHz  
-8.06 dBm

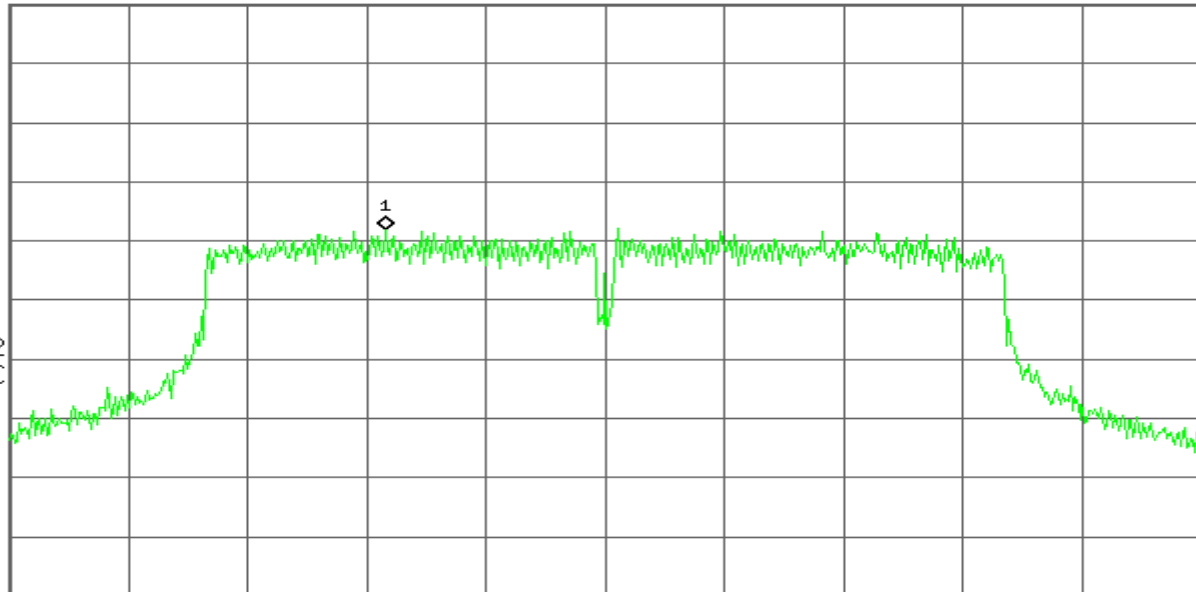
Ref 30 dBm  
#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB

Atten 40 dB

LgAv

M1 S2  
S3 FC

£(f):  
FTun  
Swp



Center 5.795 000 GHz

#Res BW 3 kHz

#VBW 10 kHz

Span 54.7 MHz  
Sweep 5.757 s (601 pts)

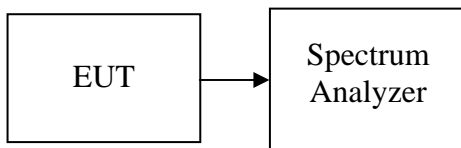


## 4.4.SPURIOUS EMISSIONS Conducted Measurement

### 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

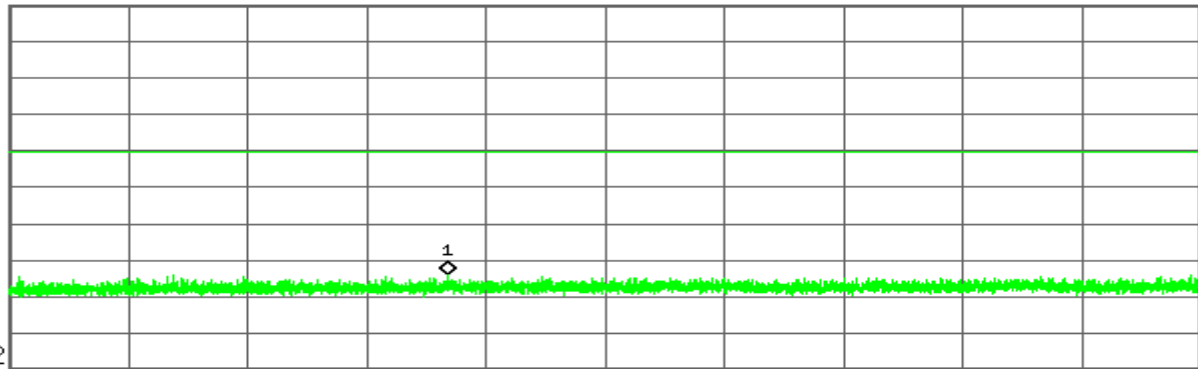
R T

Mkr1 386.93 MHz  
-43.84 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
DI  
-10.1  
dBm  
LgAv



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	386.93 MHz	-43.84 dBm

Agilent

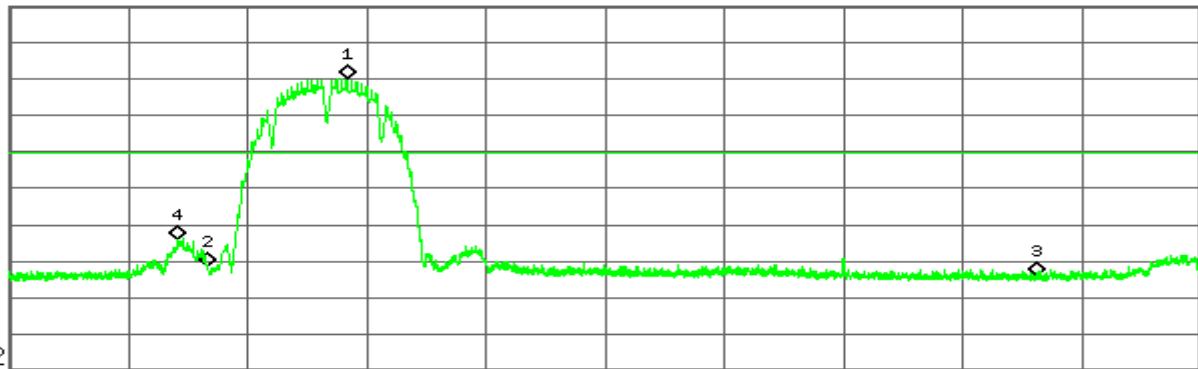
R T

Mkr1 2.414 003 GHz  
9.87 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
DI  
-10.1  
dBm  
LgAv



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.414 003 GHz	9.87 dBm
2	(1)	Freq	2.400 000 GHz	-41.22 dBm
3	(1)	Freq	2.483 500 GHz	-44.07 dBm
4	(1)	Freq	2.396 994 GHz	-34.28 dBm



# Compliance Certification Services Inc.

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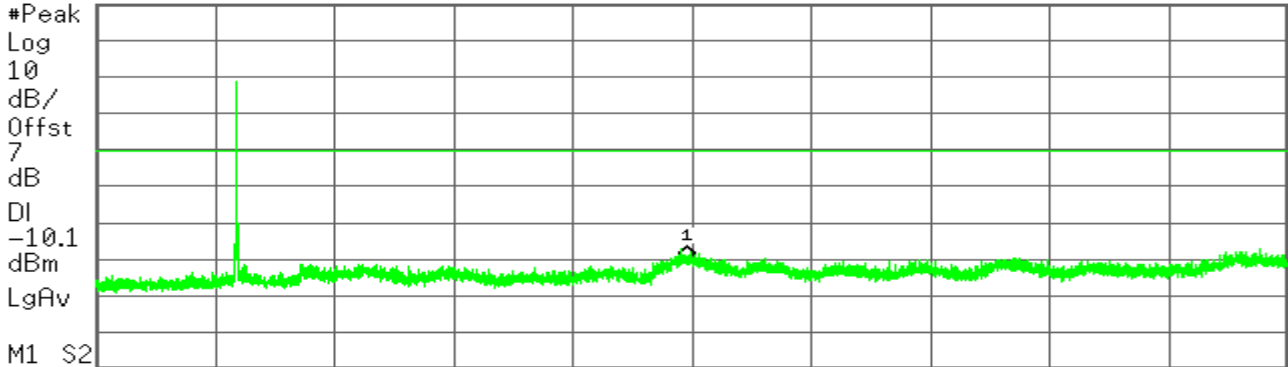
Agilent

R T

Mkr1 6.956 8 GHz  
-39.98 dBm

Ref 30 dBm

Atten 40 dB



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	6.956 8 GHz	-39.98 dBm

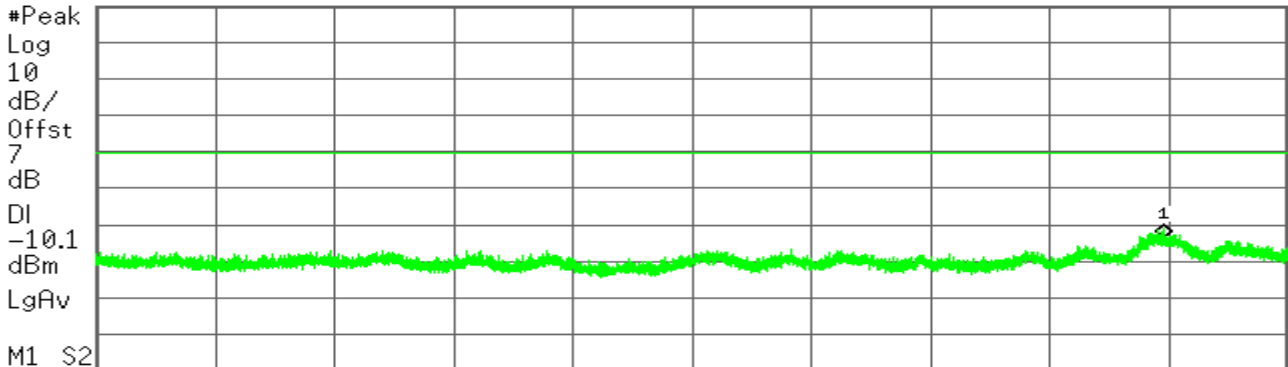
Agilent

R T

Mkr1 24.654 1 GHz  
-33.53 dBm

Ref 30 dBm

Atten 40 dB



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	24.654 1 GHz	-33.53 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

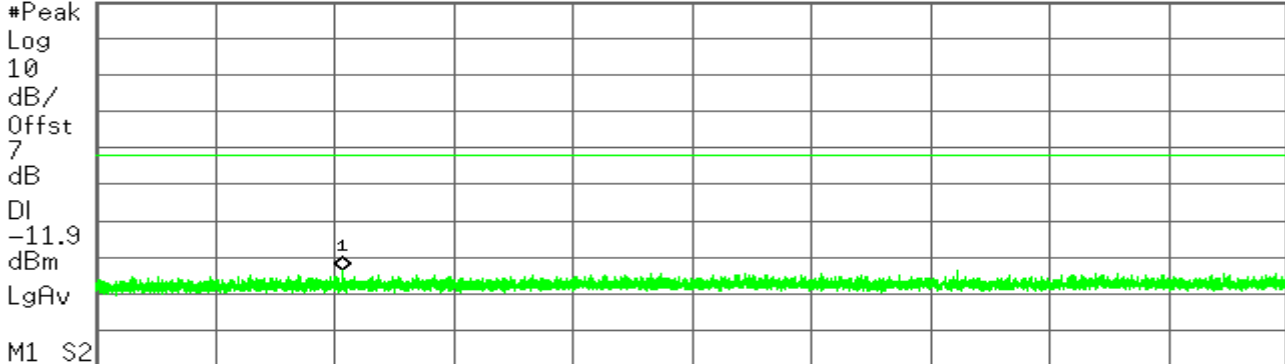
Agilent

R T

Mkr1 230.61 MHz  
-43.73 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	230.61 MHz	-43.73 dBm

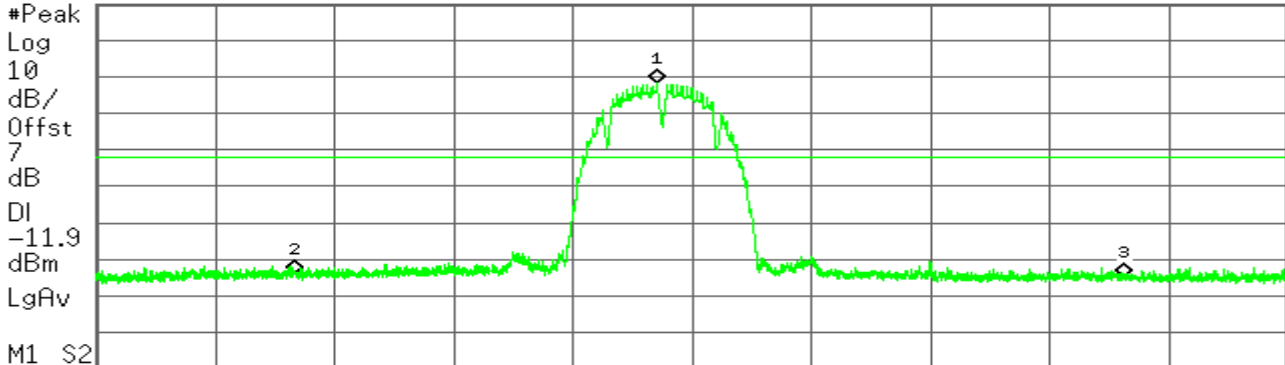
Agilent

R T

Mkr2 2.400 000 GHz  
-43.98 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.436 491 GHz	8.30 dBm
2	(1)	Freq	2.400 000 GHz	-43.98 dBm
3	(1)	Freq	2.483 500 GHz	-44.94 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

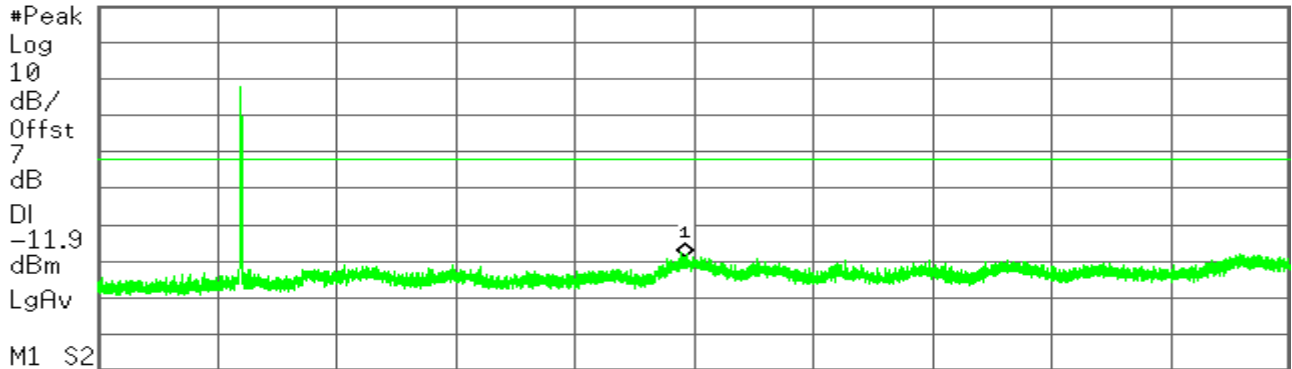
Agilent

R T

Mkr1 6.915 8 GHz  
-39.04 dBm

Ref 30 dBm

Atten 40 dB



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	6.915 8 GHz	-39.04 dBm

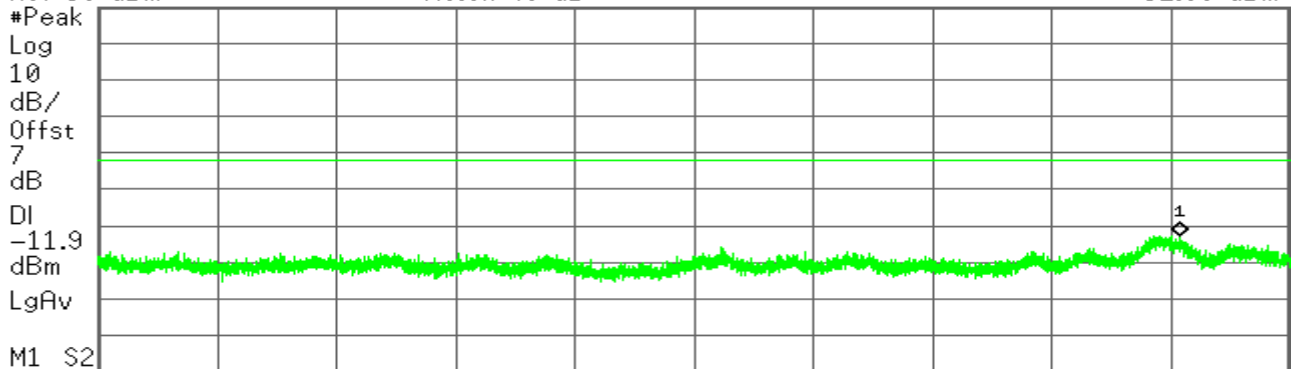
Agilent

R T

Mkr1 24.801 7 GHz  
-32.99 dBm

Ref 30 dBm

Atten 40 dB



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	24.801 7 GHz	-32.99 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

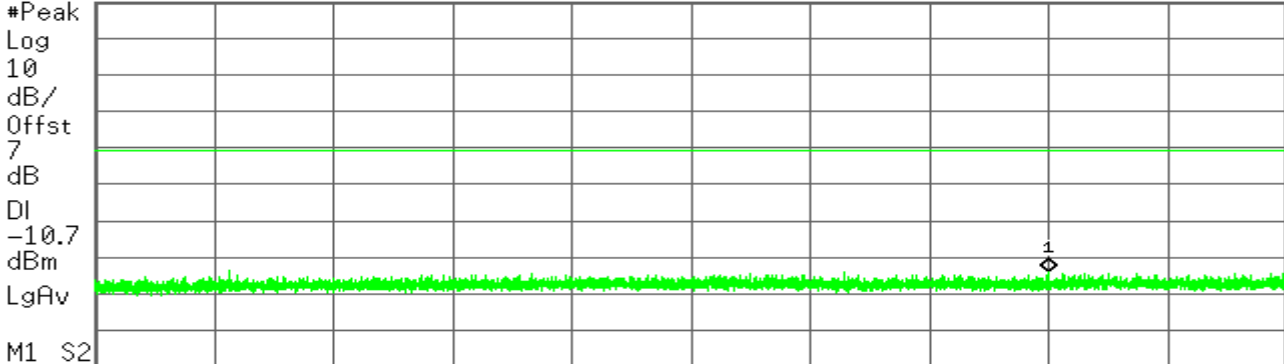
Agilent

R T

Mkr1 806.02 MHz  
-44.20 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	806.02 MHz	-44.20 dBm

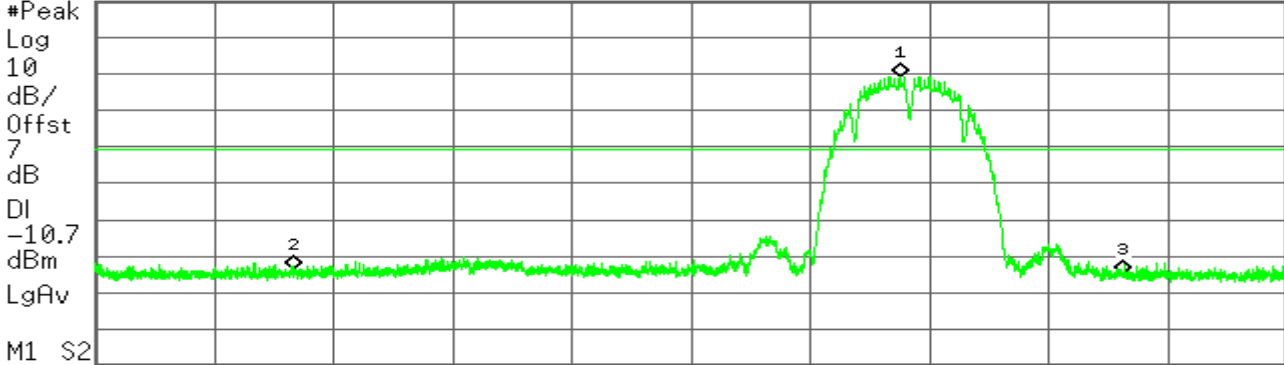
Agilent

R T

Mkr3 2.483 500 GHz  
-45.09 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.460 986 GHz	9.29 dBm
2	(1)	Freq	2.400 000 GHz	-43.41 dBm
3	(1)	Freq	2.483 500 GHz	-45.09 dBm



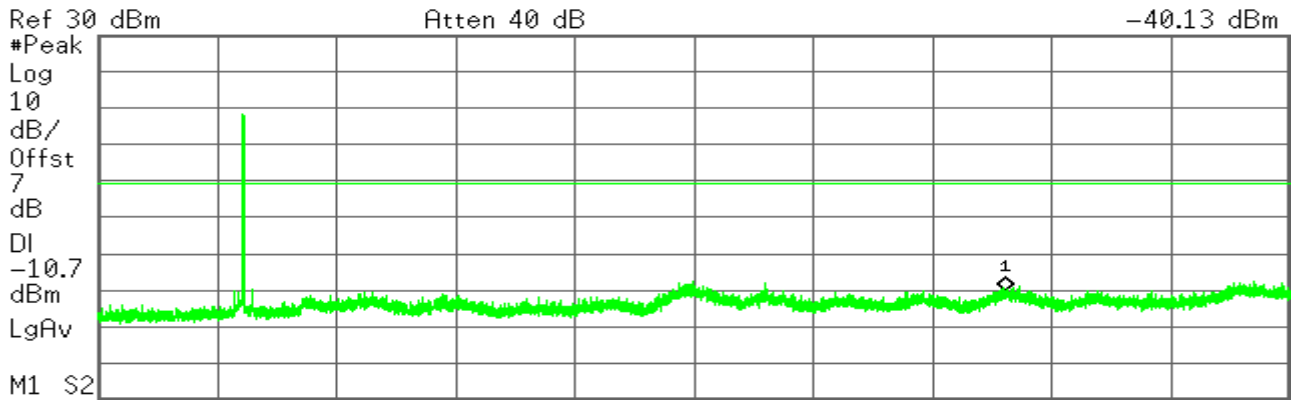
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 10.138 8 GHz  
-40.13 dBm



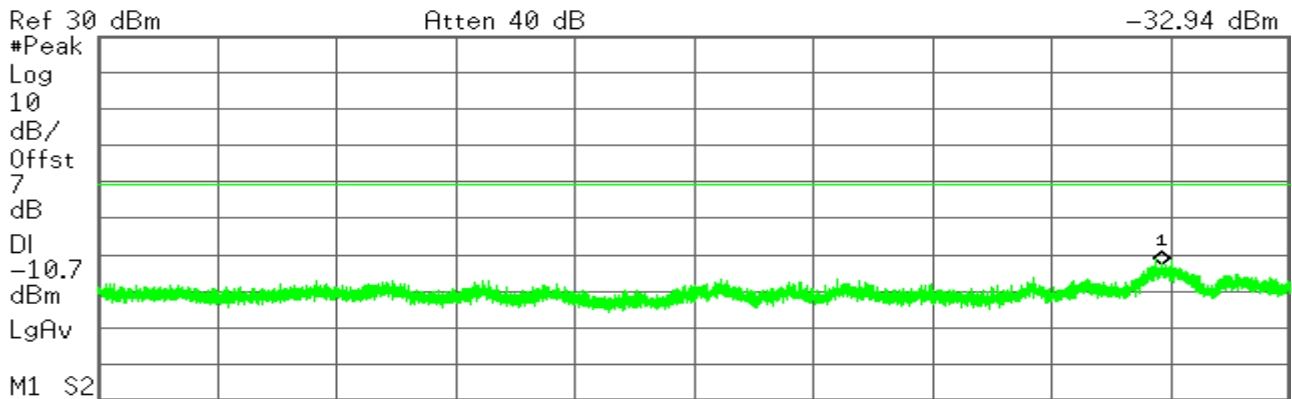
Start 1.000 0 GHz                      Stop 13.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	10.138 8 GHz	-40.13 dBm

Agilent

R T

Mkr1 24.600 2 GHz  
-32.94 dBm



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	24.600 2 GHz	-32.94 dBm



## IEEE 802.11b mode/Chain 1

### CH Low

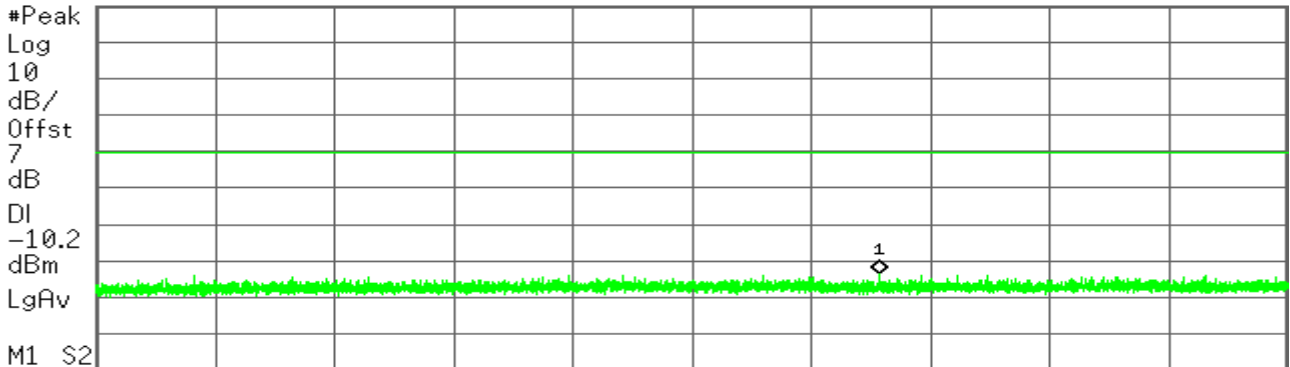
Agilent

R T

Mkr1 667.00 MHz  
-43.79 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	667.00 MHz	-43.79 dBm

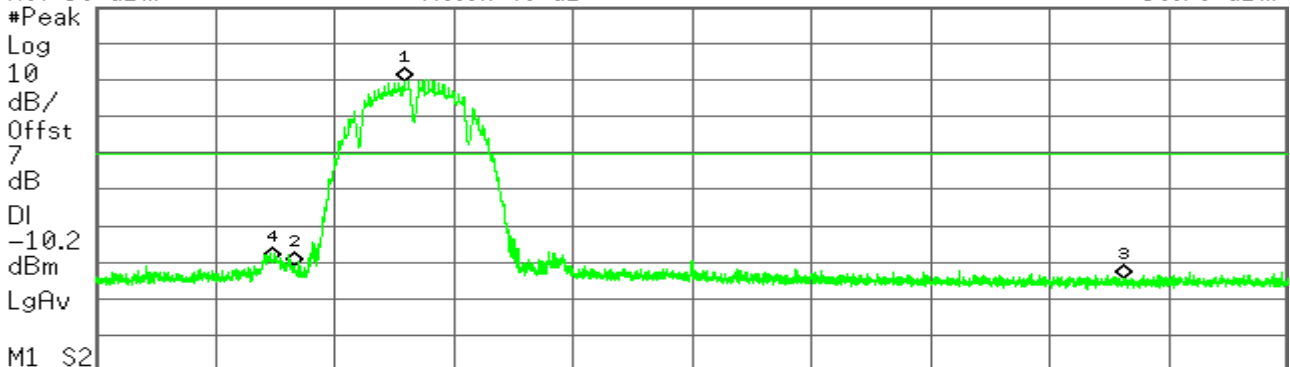
Agilent

R T

Mkr4 2.397 654 GHz  
-39.79 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.411 015 GHz	9.79 dBm
2	(1)	Freq	2.400 000 GHz	-40.97 dBm
3	(1)	Freq	2.483 500 GHz	-44.47 dBm
4	(1)	Freq	2.397 654 GHz	-39.79 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

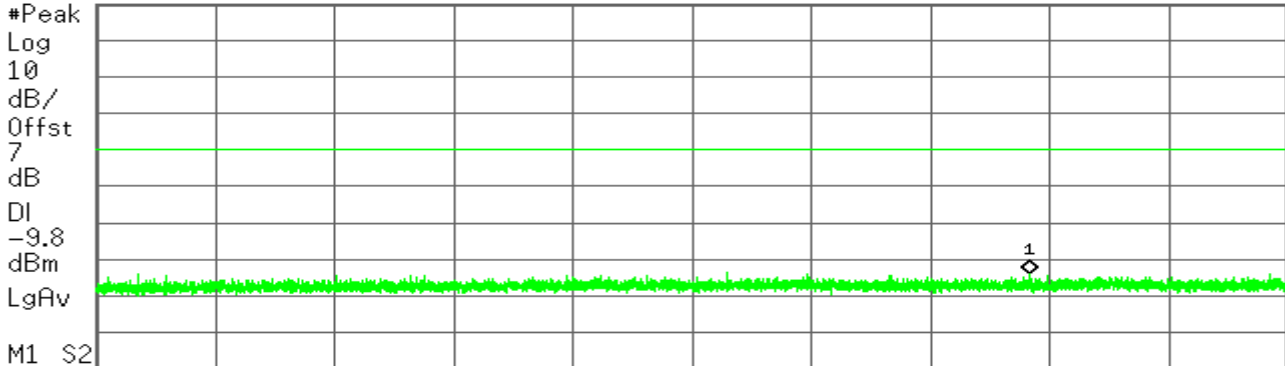
Agilent

R T

Mkr1 789.44 MHz  
-43.96 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	789.44 MHz	-43.96 dBm

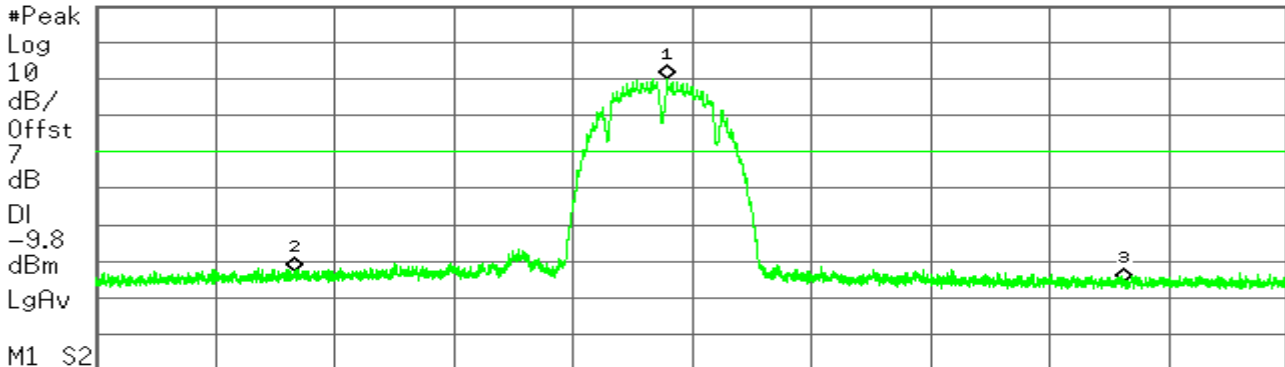
Agilent

R T

Mkr3 2.483 500 GHz  
-45.77 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.437 502 GHz	10.19 dBm
2	(1)	Freq	2.400 000 GHz	-42.65 dBm
3	(1)	Freq	2.483 500 GHz	-45.77 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

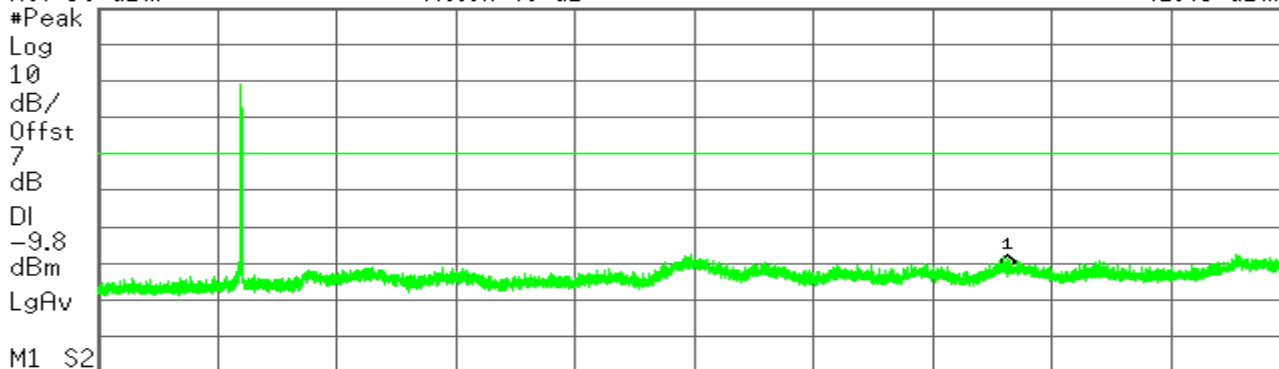
Agilent

R T

Mkr1 10.156 4 GHz  
-41.43 dBm

Ref 30 dBm

Atten 40 dB



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	10.156 4 GHz	-41.43 dBm

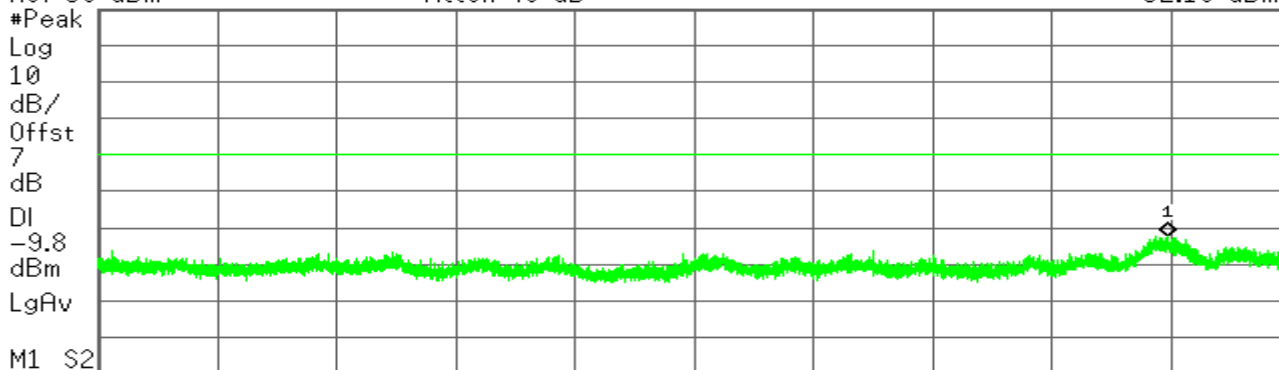
Agilent

R T

Mkr1 24.665 2 GHz  
-32.18 dBm

Ref 30 dBm

Atten 40 dB



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	24.665 2 GHz	-32.18 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

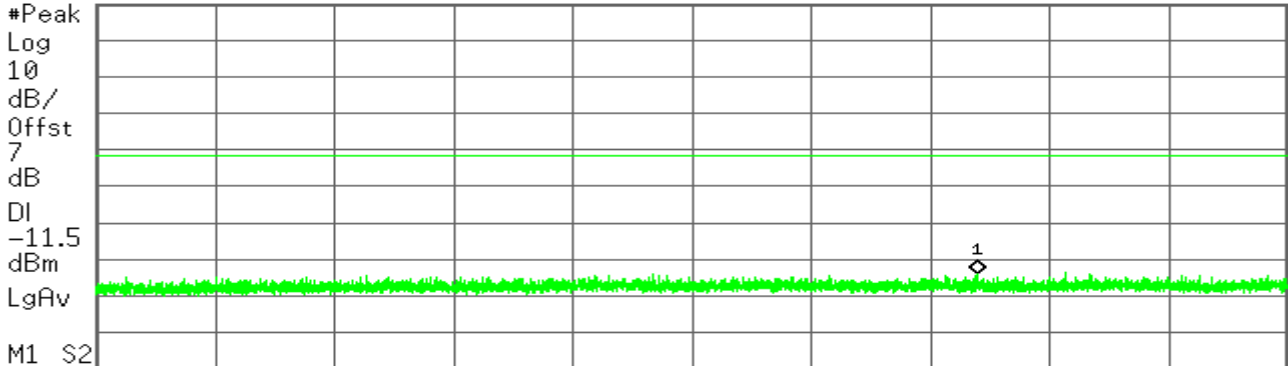
Agilent

R T

Mkr1 747.64 MHz  
-44.14 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	747.64 MHz	-44.14 dBm

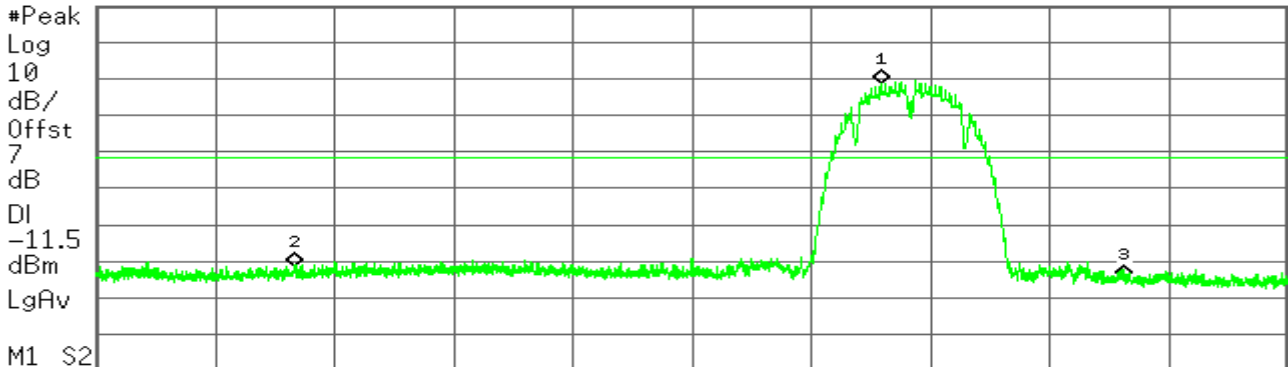
Agilent

R T

Mkr3 2.483 500 GHz  
-44.98 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.459 009 GHz	8.60 dBm
2	(1)	Freq	2.400 000 GHz	-41.49 dBm
3	(1)	Freq	2.483 500 GHz	-44.98 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

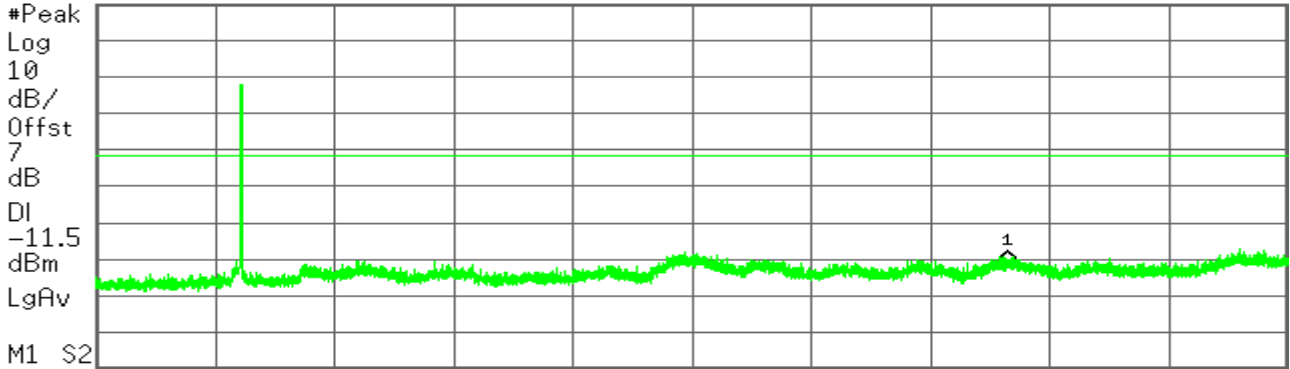
Agilent

R T

Mkr1 10.181 3 GHz  
-41.32 dBm

Ref 30 dBm

Atten 40 dB



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	10.181 3 GHz	-41.32 dBm

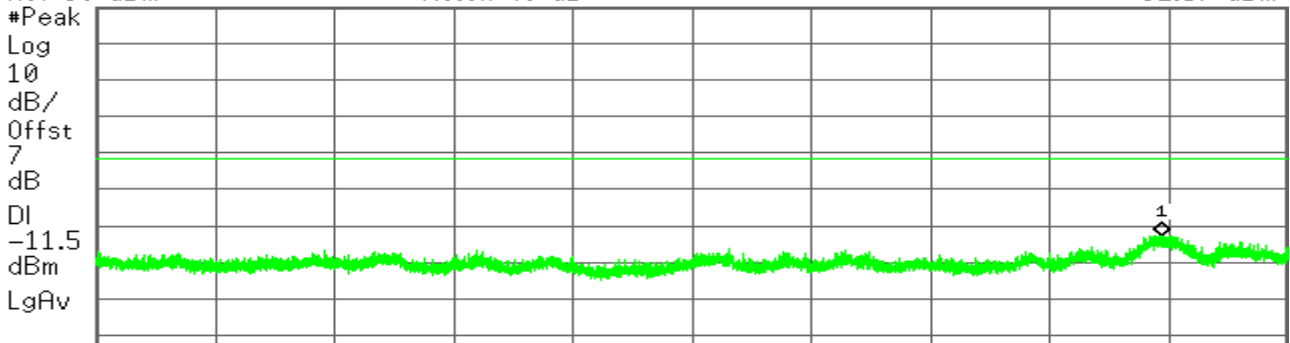
Agilent

R T

Mkr1 24.616 0 GHz  
-32.57 dBm

Ref 30 dBm

Atten 40 dB



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	24.616 0 GHz	-32.57 dBm



## IEEE 802.11g mode/Chain 0

### CH Low

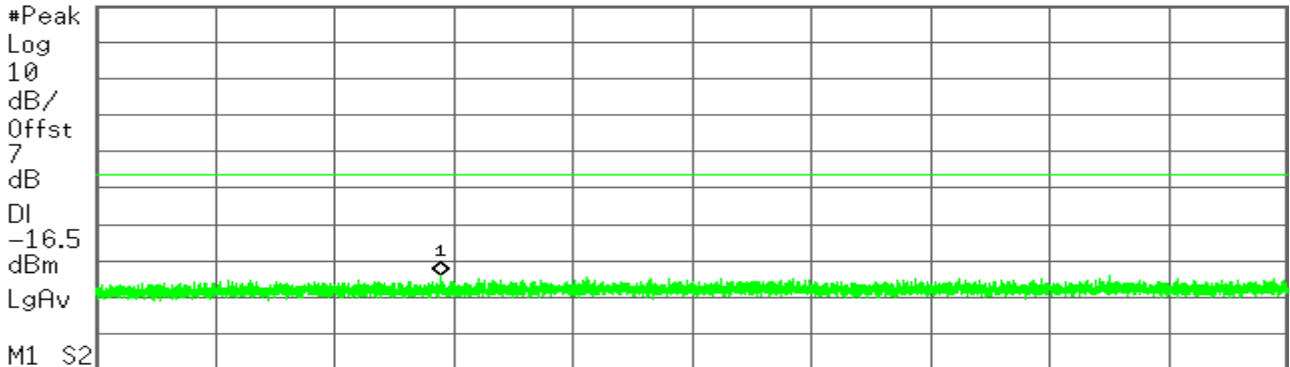
Agilent

R T

Mkr1 310.31 MHz  
-43.89 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	310.31 MHz	-43.89 dBm

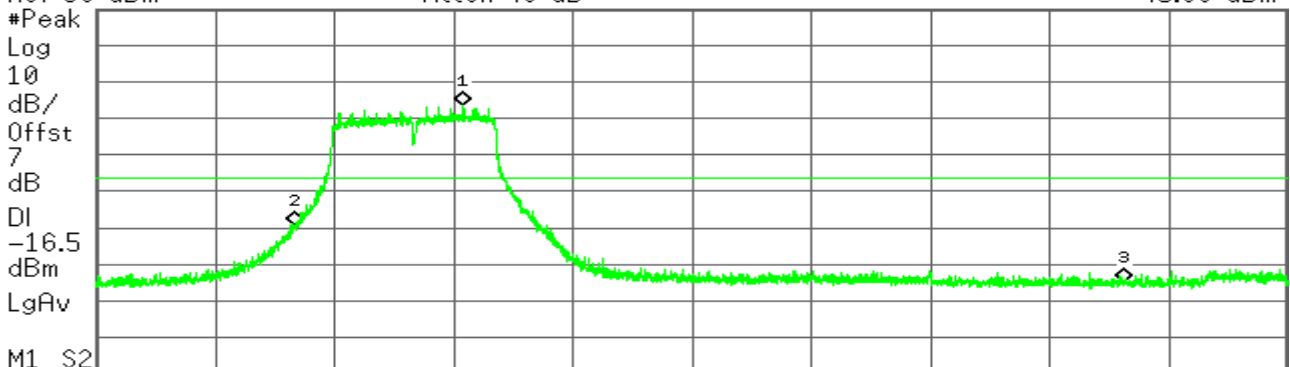
Agilent

R T

Mkr3 2.483 500 GHz  
-45.09 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.416 992 GHz	3.48 dBm
2	(1)	Freq	2.400 000 GHz	-29.51 dBm
3	(1)	Freq	2.483 500 GHz	-45.09 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

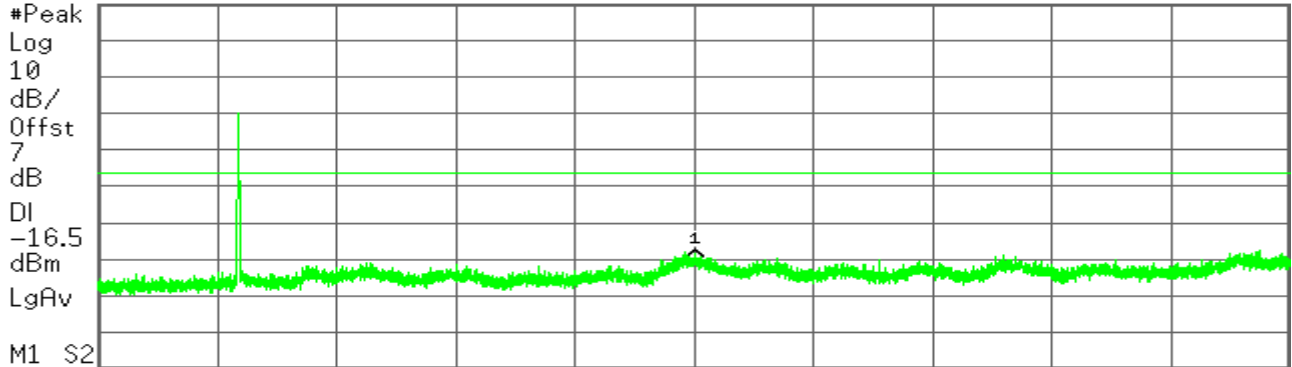
Agilent

R T

Mkr1 7.012 5 GHz  
-41.07 dBm

Ref 30 dBm

Atten 40 dB



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	7.012 5 GHz	-41.07 dBm

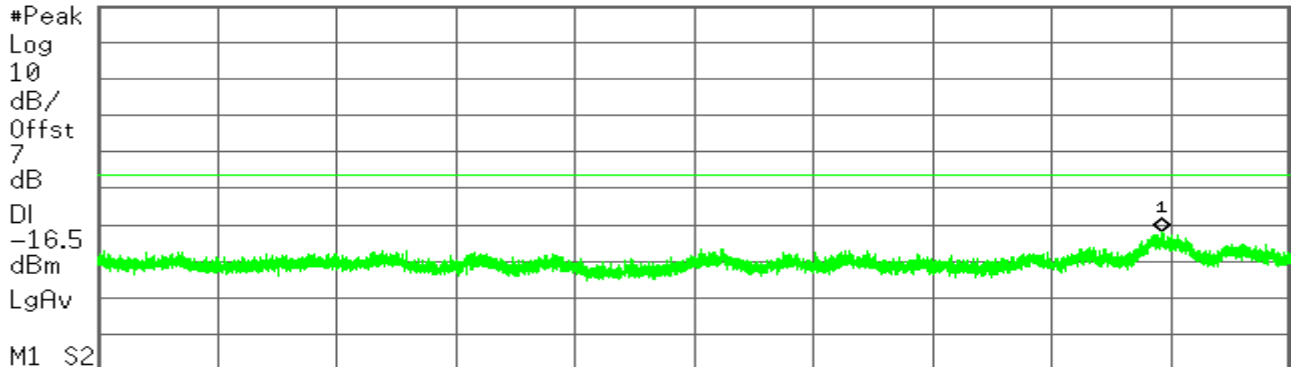
Agilent

R T

Mkr1 24.597 0 GHz  
-32.09 dBm

Ref 30 dBm

Atten 40 dB



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	24.597 0 GHz	-32.09 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

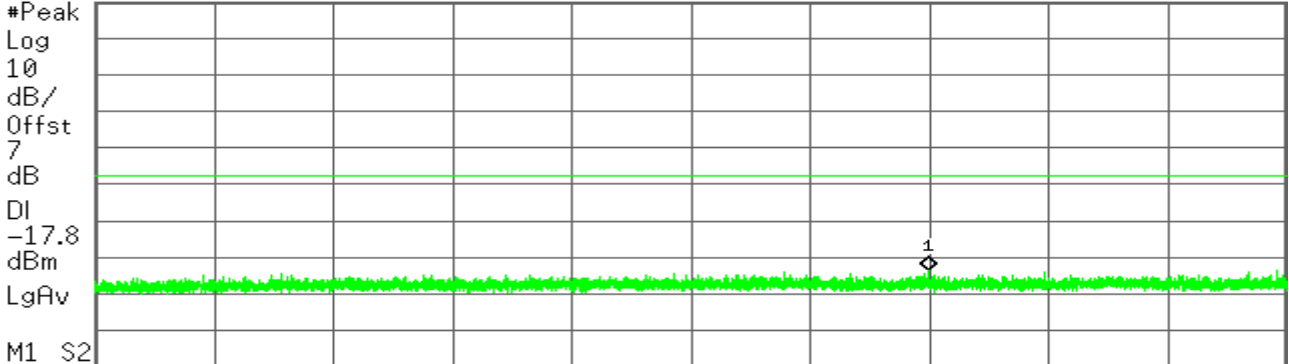
Agilent

R T

Mkr1 708.09 MHz  
-43.41 dBm

Ref 30 dBm

Atten 40 dB



Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	708.09 MHz	-43.41 dBm

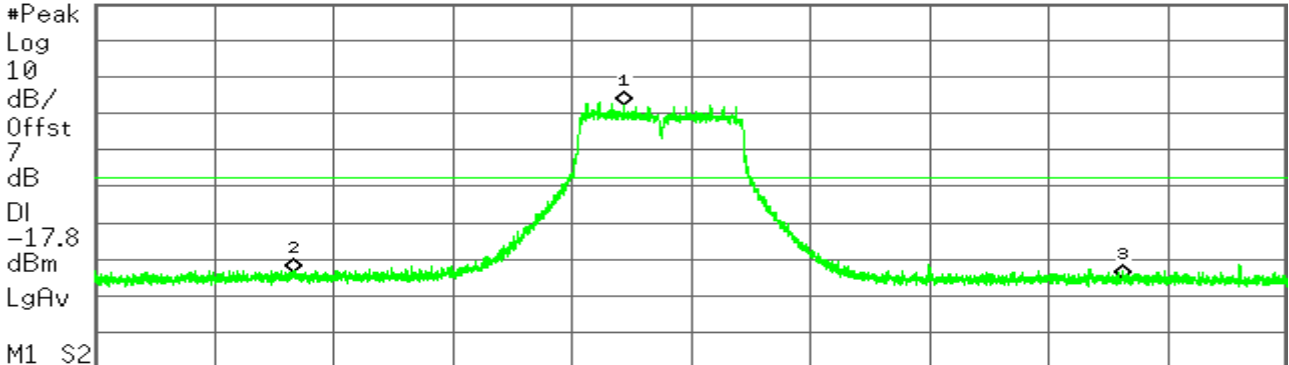
Agilent

R T

Mkr3 2.483 500 GHz  
-45.22 dBm

Ref 30 dBm

Atten 40 dB



Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.433 239 GHz	2.21 dBm
2	(1)	Freq	2.400 000 GHz	-43.74 dBm
3	(1)	Freq	2.483 500 GHz	-45.22 dBm



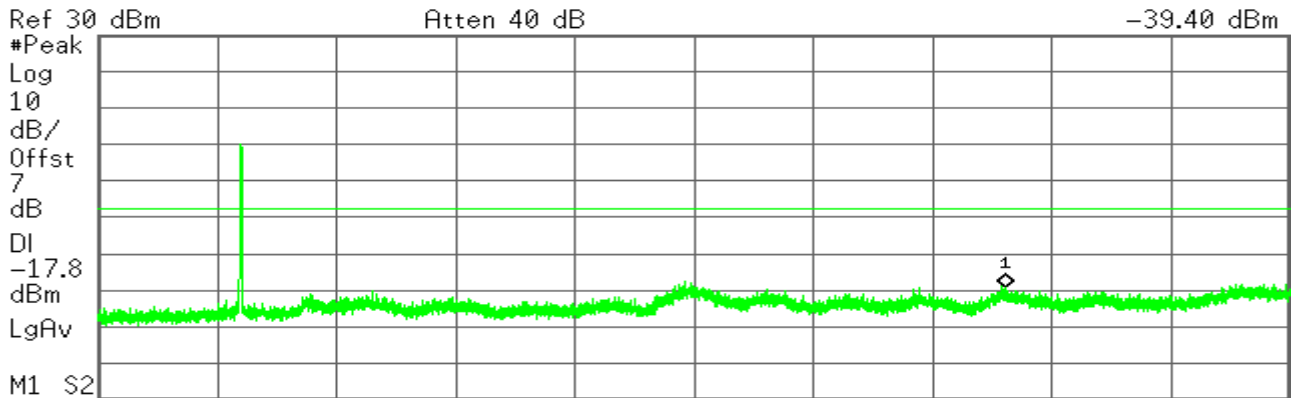
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 10.138 8 GHz  
-39.40 dBm



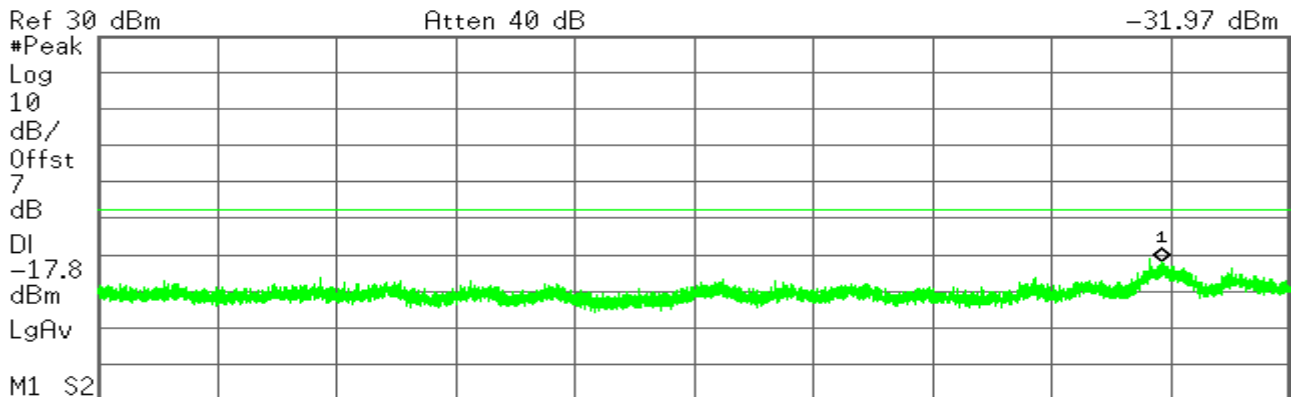
Start 1.000 0 GHz^    Stop 13.000 0 GHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	10.138 8 GHz	-39.40 dBm

Agilent

R T

Mkr1 24.609 7 GHz  
-31.97 dBm



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	24.609 7 GHz	-31.97 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

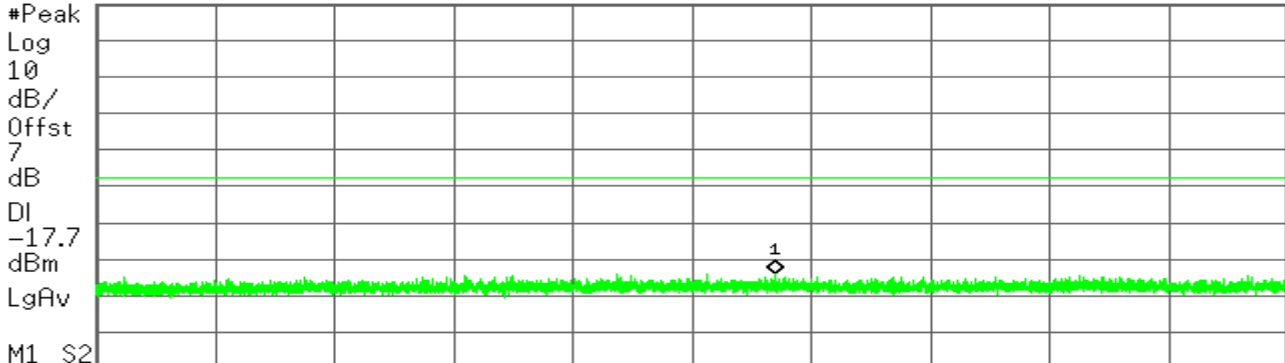
## CH High

Agilent

R T

Mkr1 582.68 MHz  
-44.22 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

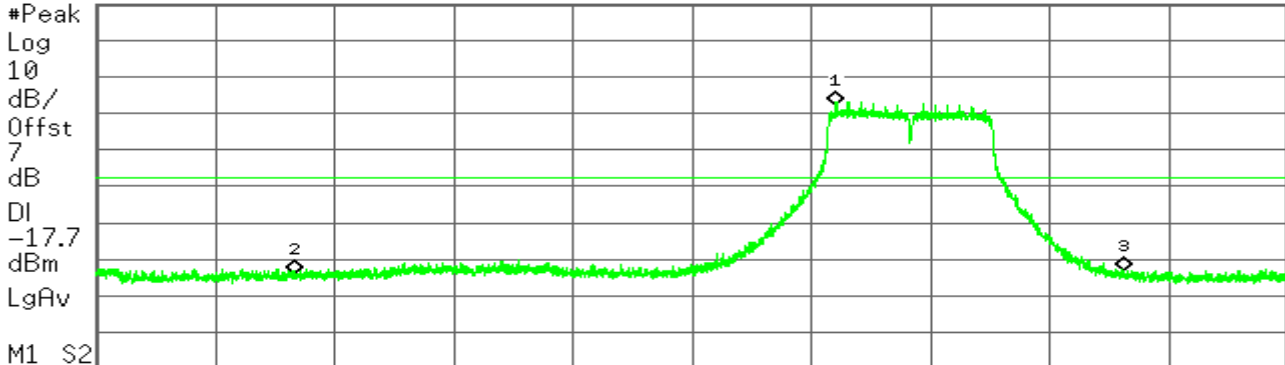
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	582.68 MHz	-44.22 dBm

Agilent

R T

Mkr3 2.483 500 GHz  
-43.13 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.454 467 GHz	2.27 dBm
2	(1)	Freq	2.400 000 GHz	-44.06 dBm
3	(1)	Freq	2.483 500 GHz	-43.13 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

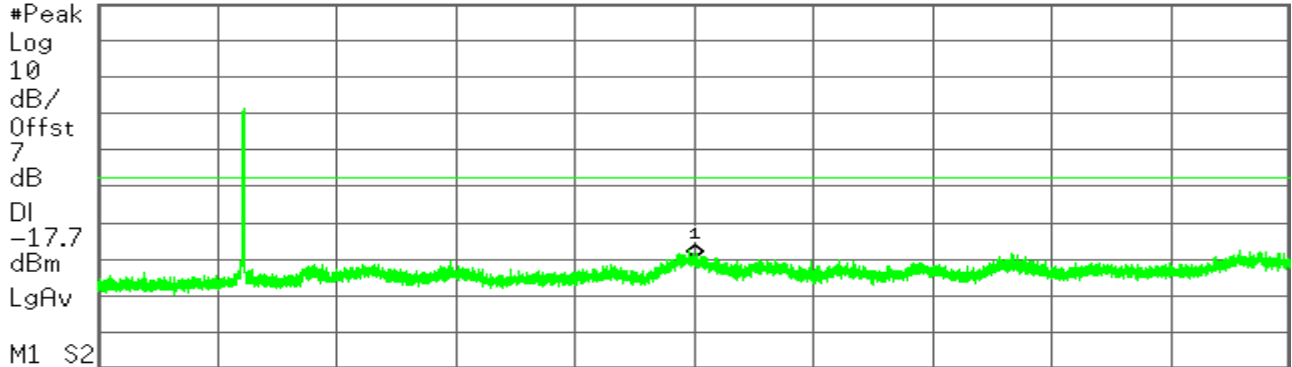
Agilent

R T

Mkr1 7.015 4 GHz  
-39.50 dBm

Ref 30 dBm

Atten 40 dB



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	7.015 4 GHz	-39.50 dBm

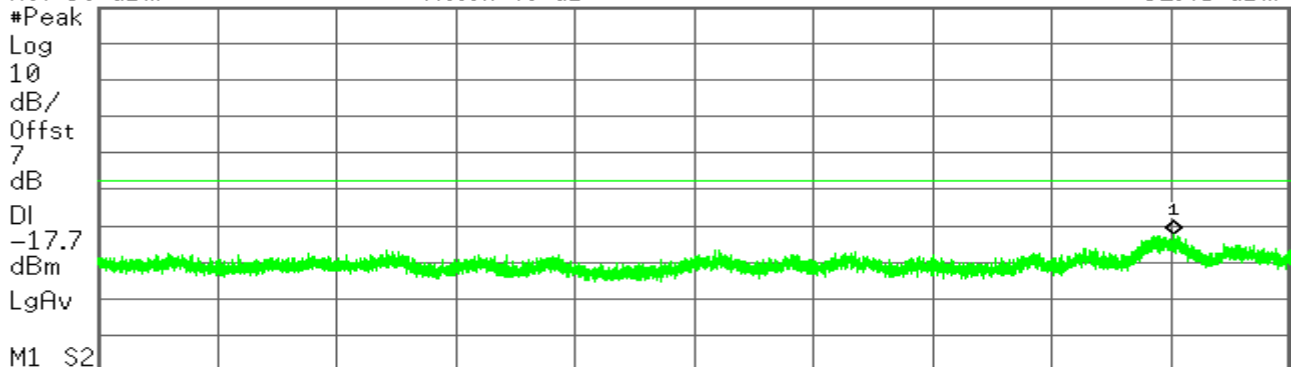
Agilent

R T

Mkr1 24.735 1 GHz  
-32.45 dBm

Ref 30 dBm

Atten 40 dB



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	24.735 1 GHz	-32.45 dBm





## IEEE 802.11g mode/Chain 1

### CH Low

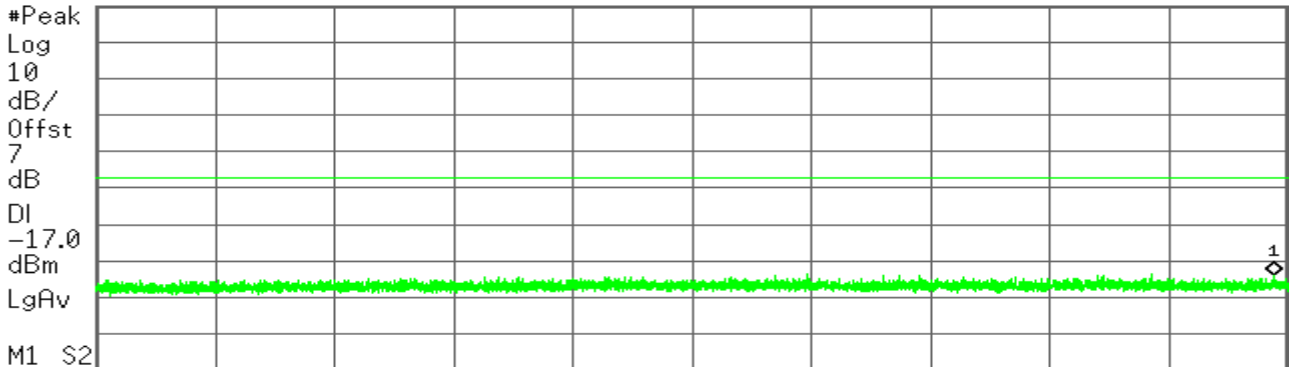
Agilent

R T

Mkr1 988.51 MHz  
-44.11 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	988.51 MHz	-44.11 dBm

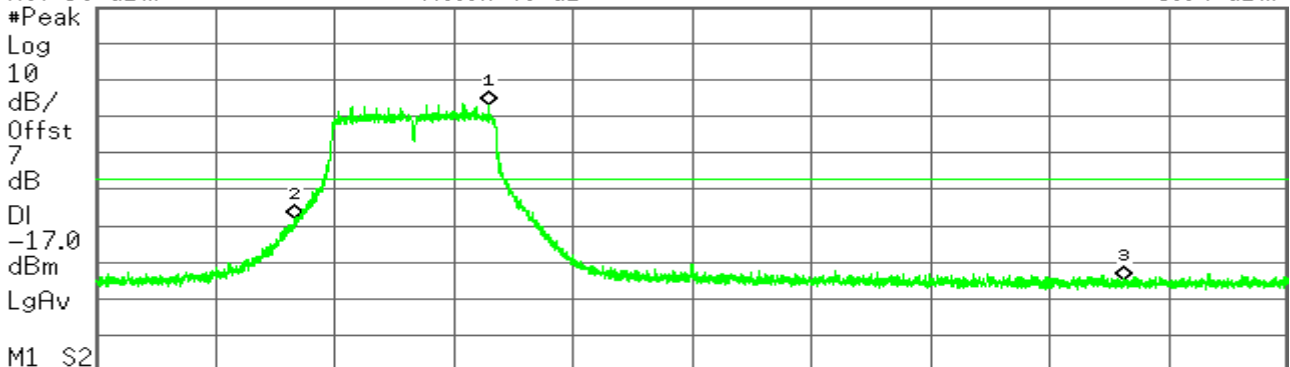
Agilent

R T

Mkr1 2.419 497 GHz  
3.04 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.419 497 GHz	3.04 dBm
2	(1)	Freq	2.400 000 GHz	-27.98 dBm
3	(1)	Freq	2.483 500 GHz	-44.87 dBm



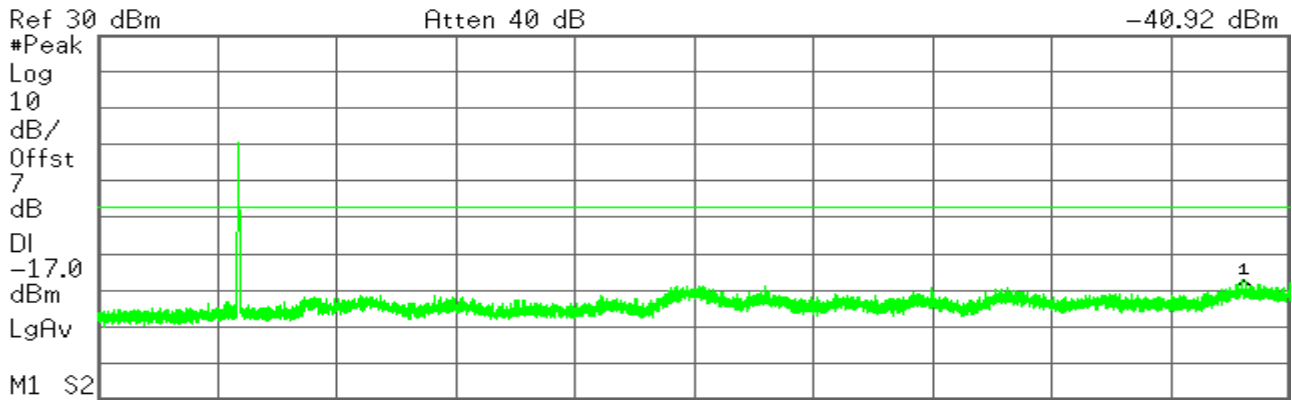
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 12.531 2 GHz  
-40.92 dBm



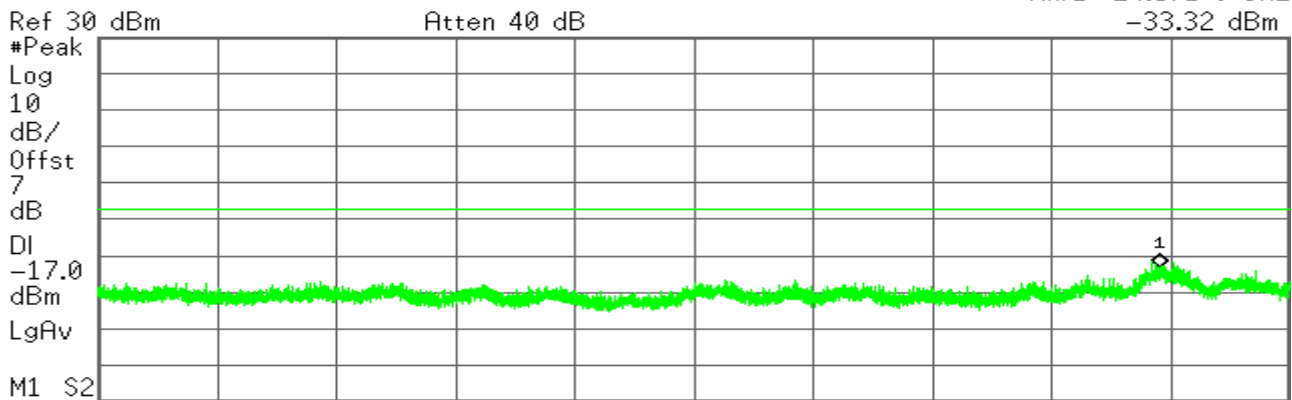
M1 S2  
Start 1.000 0 GHz                      Stop 13.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	12.531 2 GHz	-40.92 dBm

Agilent

R T

Mkr1 24.571 6 GHz  
-33.32 dBm



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	24.571 6 GHz	-33.32 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

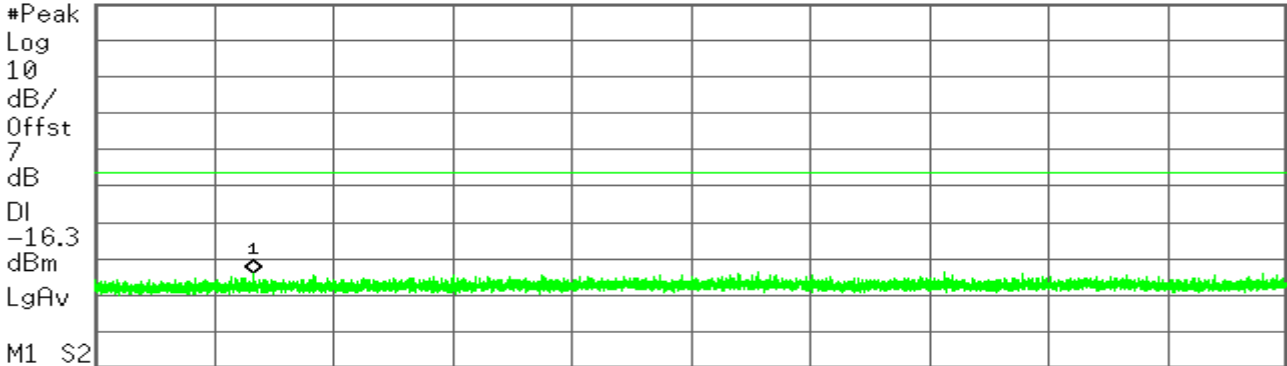
## CH Mid

Agilent

R T

Mkr1 158.96 MHz  
-43.88 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

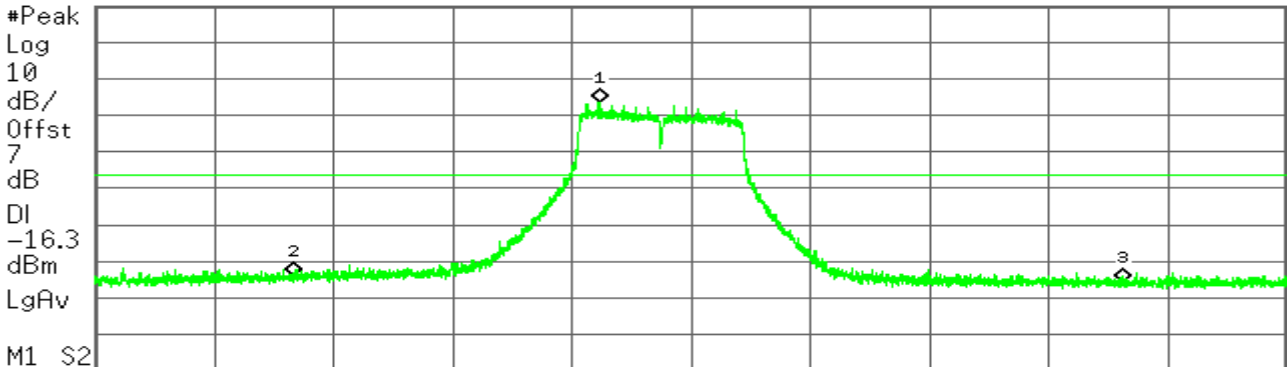
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	158.96 MHz	-43.88 dBm

Agilent

R T

Mkr3 2.483 500 GHz  
-45.95 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.430 734 GHz	3.75 dBm
2	(1)	Freq	2.400 000 GHz	-43.89 dBm
3	(1)	Freq	2.483 500 GHz	-45.95 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

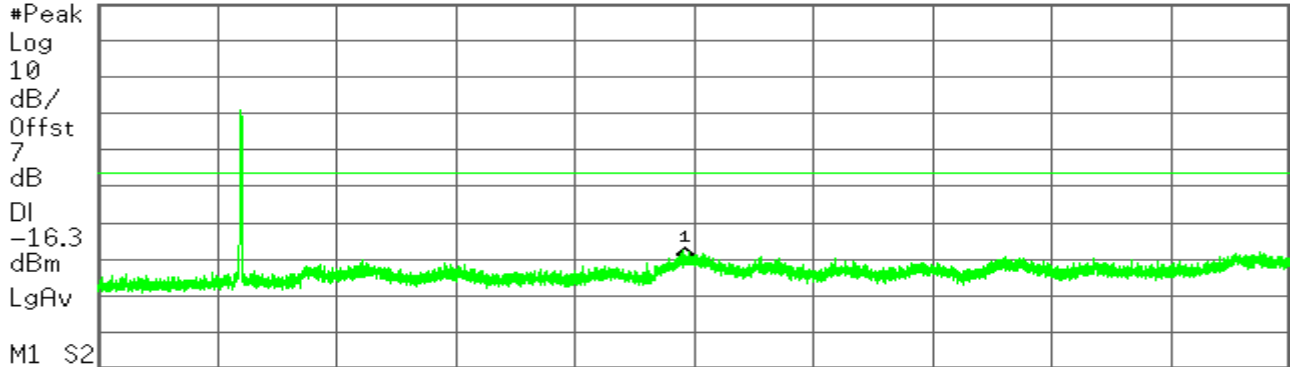
Agilent

R T

Mkr1 6.901 5 GHz  
-40.54 dBm

Ref 30 dBm

Atten 40 dB



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	6.901 5 GHz	-40.54 dBm

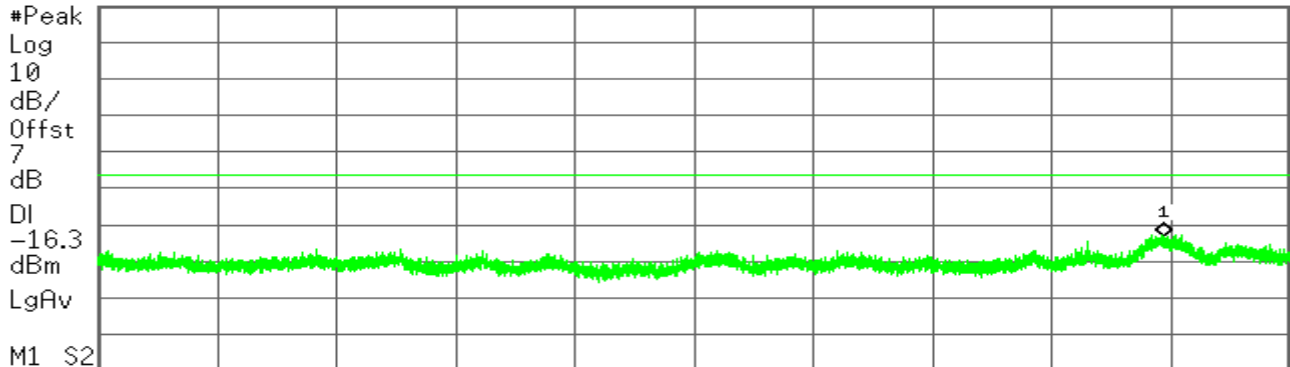
Agilent

R T

Mkr1 24.630 3 GHz  
-33.22 dBm

Ref 30 dBm

Atten 40 dB



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	24.630 3 GHz	-33.22 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

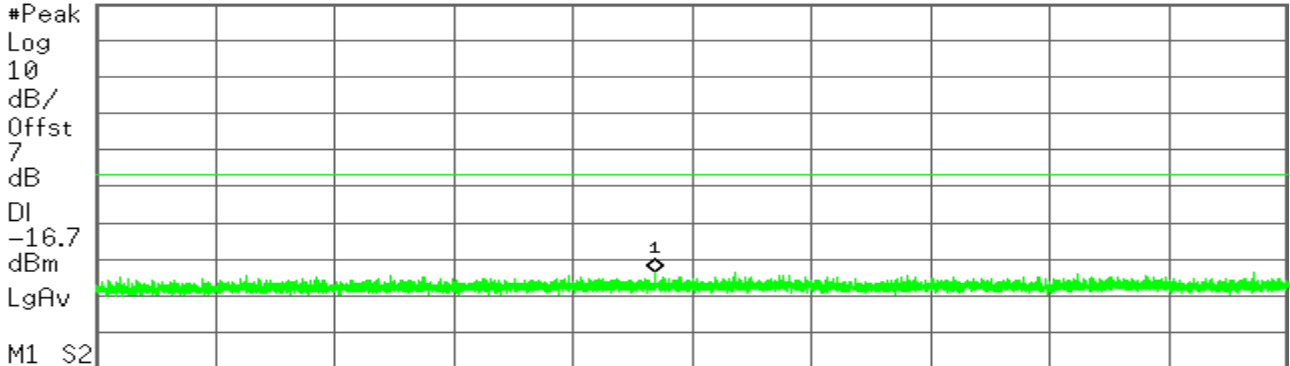
## CH High

Agilent

R T

Mkr1 485.10 MHz  
-43.54 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

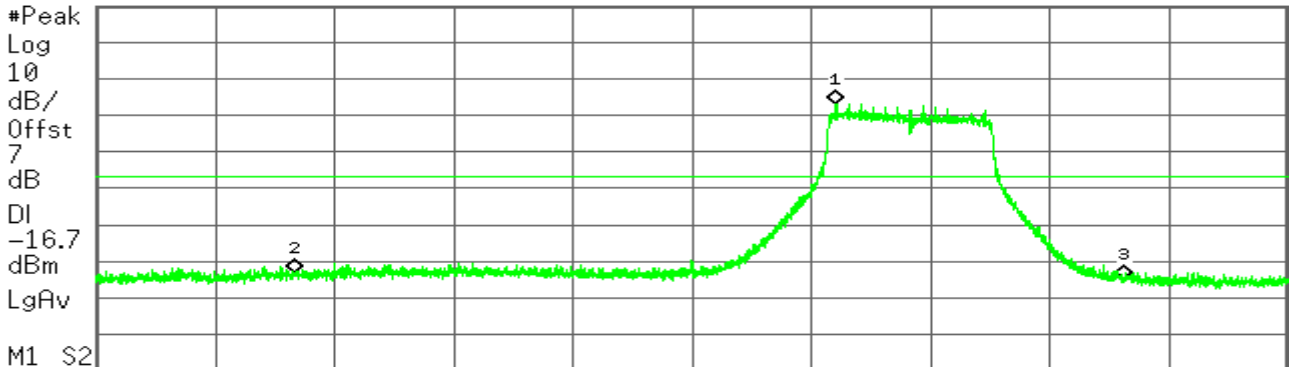
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	485.10 MHz	-43.54 dBm

Agilent

R T

Mkr3 2.483 500 GHz  
-45.04 dBm

Ref 30 dBm    Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.454 511 GHz	3.29 dBm
2	(1)	Freq	2.400 000 GHz	-42.97 dBm
3	(1)	Freq	2.483 500 GHz	-45.04 dBm



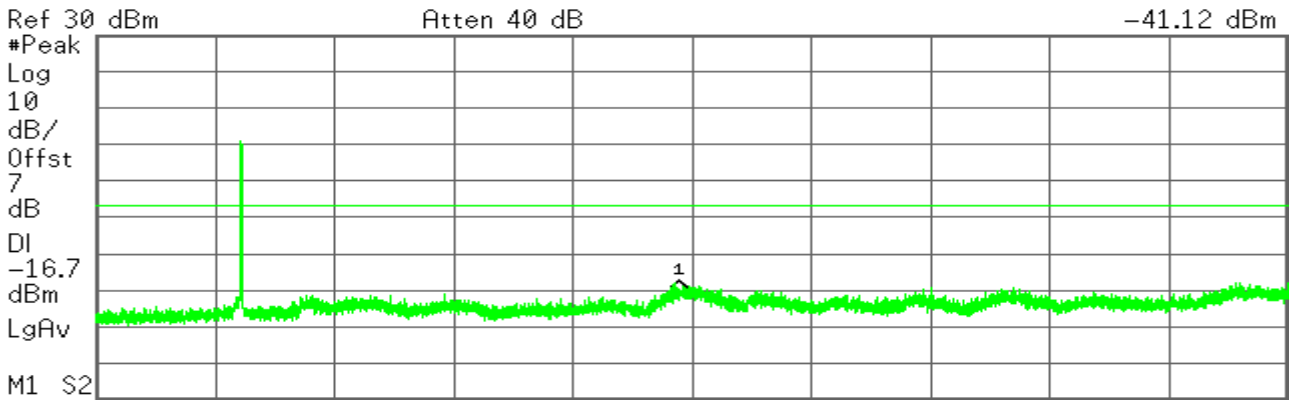
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 6.861 6 GHz  
-41.12 dBm



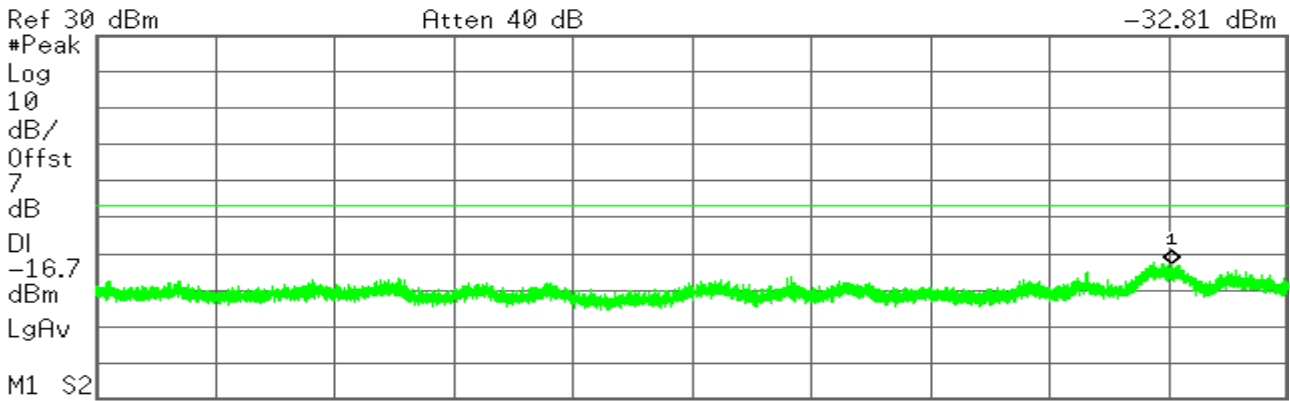
Start 1.000 0 GHz    Stop 13.000 0 GHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	6.861 6 GHz	-41.12 dBm

Agilent

R T

Mkr1 24.736 7 GHz  
-32.81 dBm



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	24.736 7 GHz	-32.81 dBm



## IEEE 802.11n HT20 mode / Chain 0

### CH Low

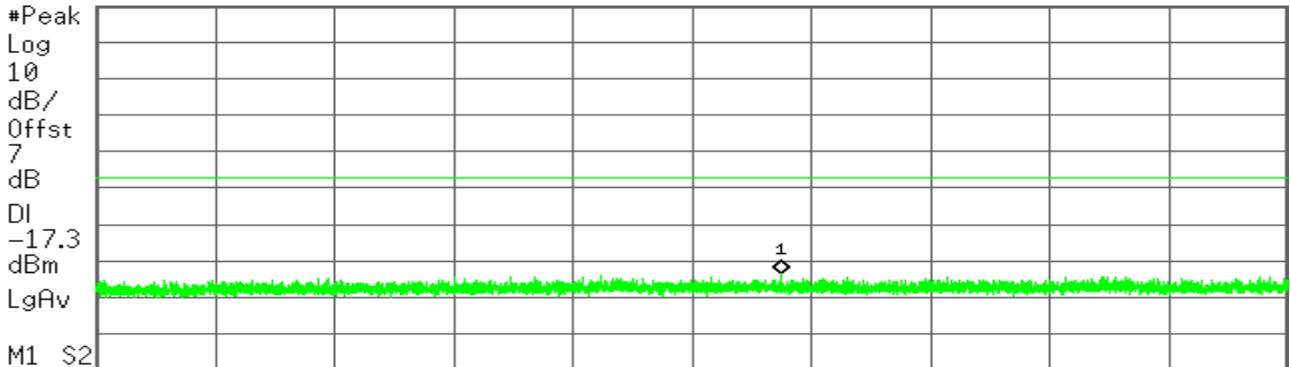
Agilent

R T

Mkr1 587.06 MHz  
-43.79 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	587.06 MHz	-43.79 dBm

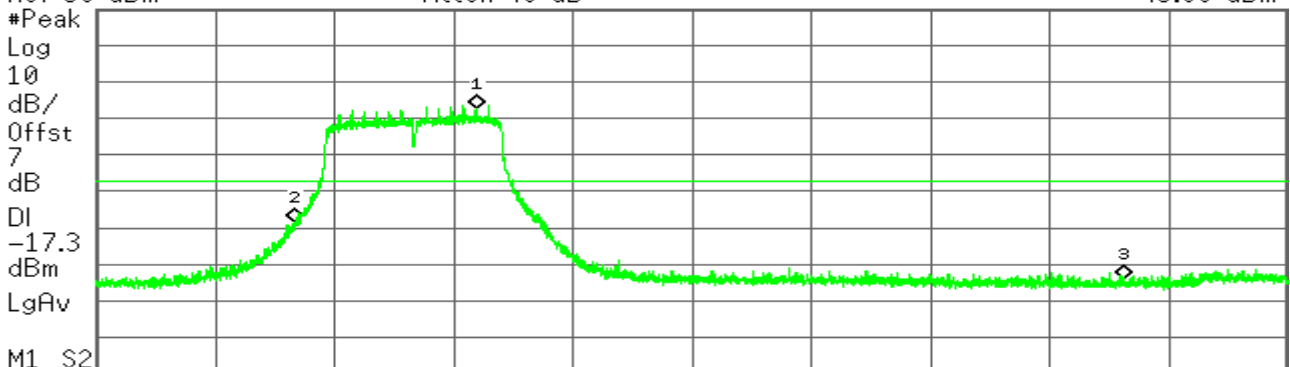
Agilent

R T

Mkr3 2.483 500 GHz  
-43.96 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.418 281 GHz	2.73 dBm
2	(1)	Freq	2.400 000 GHz	-28.63 dBm
3	(1)	Freq	2.483 500 GHz	-43.96 dBm







# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

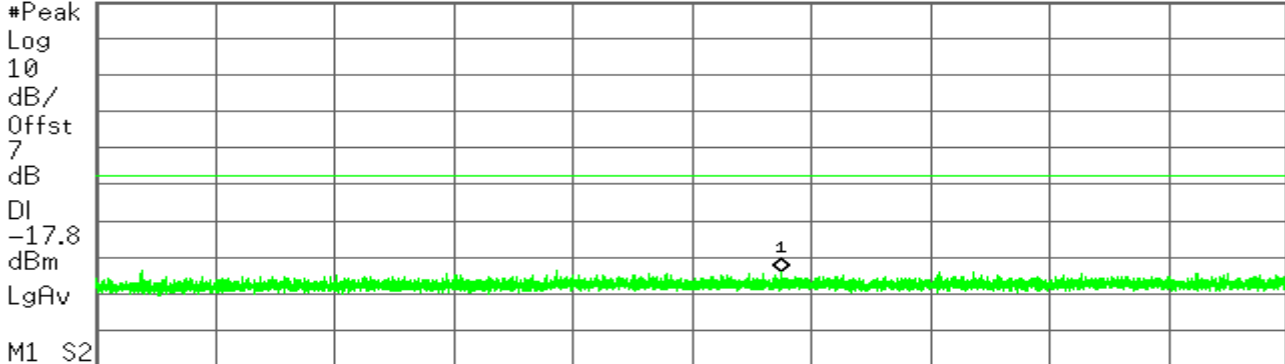
Agilent

R T

Mkr1 587.42 MHz  
-43.88 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	587.42 MHz	-43.88 dBm

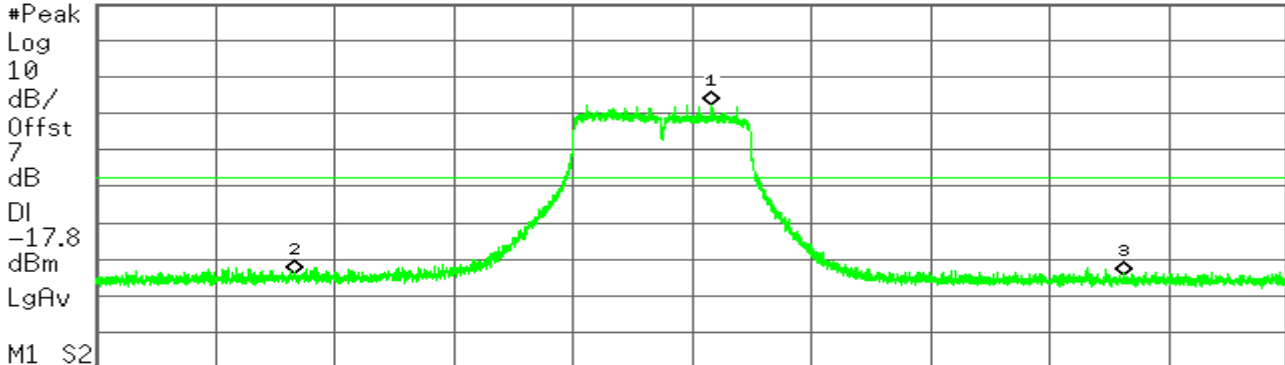
Agilent

R T

Mkr3 2.483 500 GHz  
-44.46 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.441 985 GHz	2.18 dBm
2	(1)	Freq	2.400 000 GHz	-43.88 dBm
3	(1)	Freq	2.483 500 GHz	-44.46 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

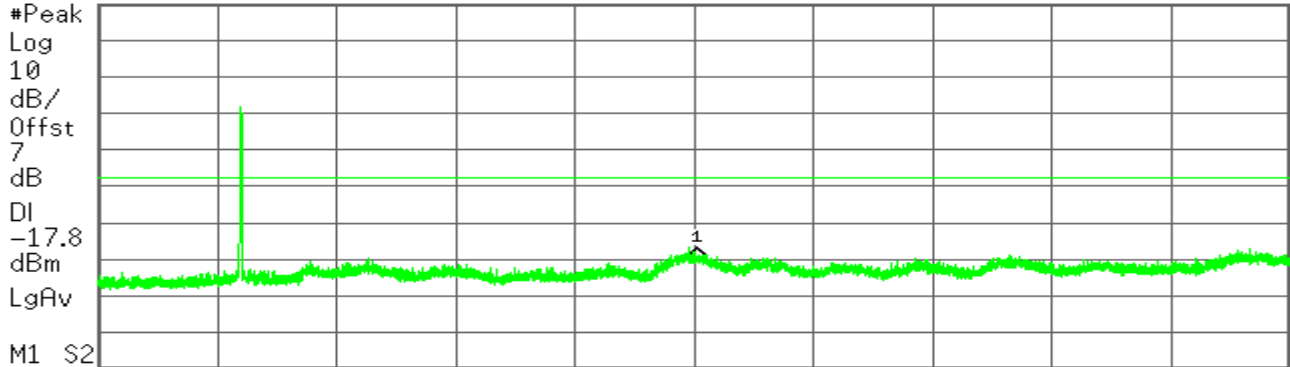
Agilent

R T

Mkr1 7.024 2 GHz  
-40.40 dBm

Ref 30 dBm

Atten 40 dB



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	7.024 2 GHz	-40.40 dBm

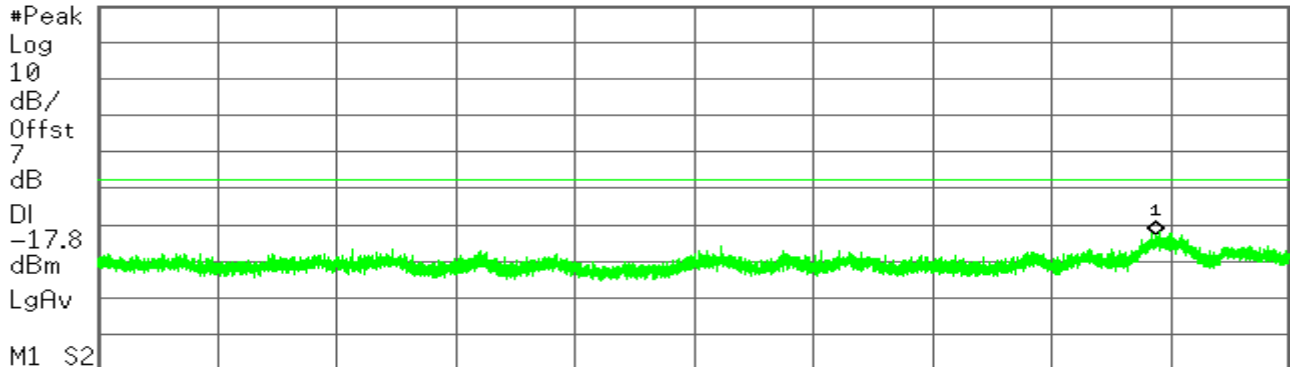
Agilent

R T

Mkr1 24.536 7 GHz  
-32.91 dBm

Ref 30 dBm

Atten 40 dB



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	24.536 7 GHz	-32.91 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

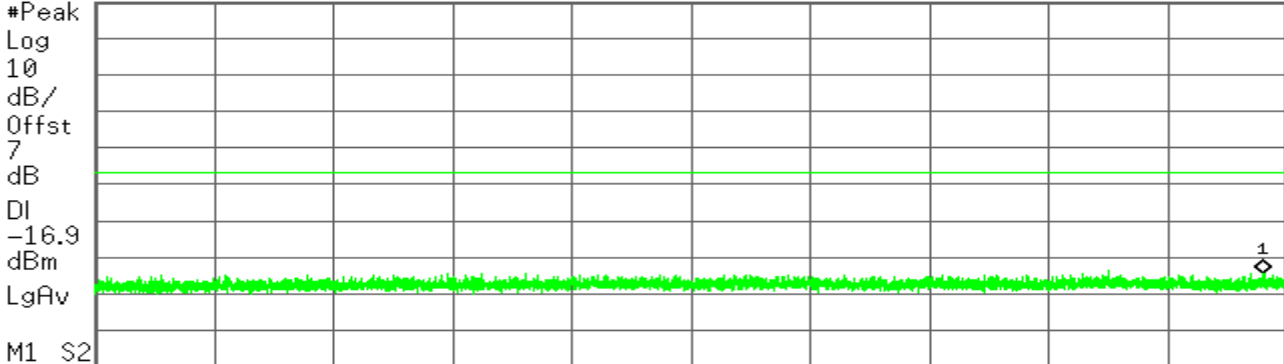
Agilent

R T

Mkr1 980.93 MHz  
-44.32 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	980.93 MHz	-44.32 dBm

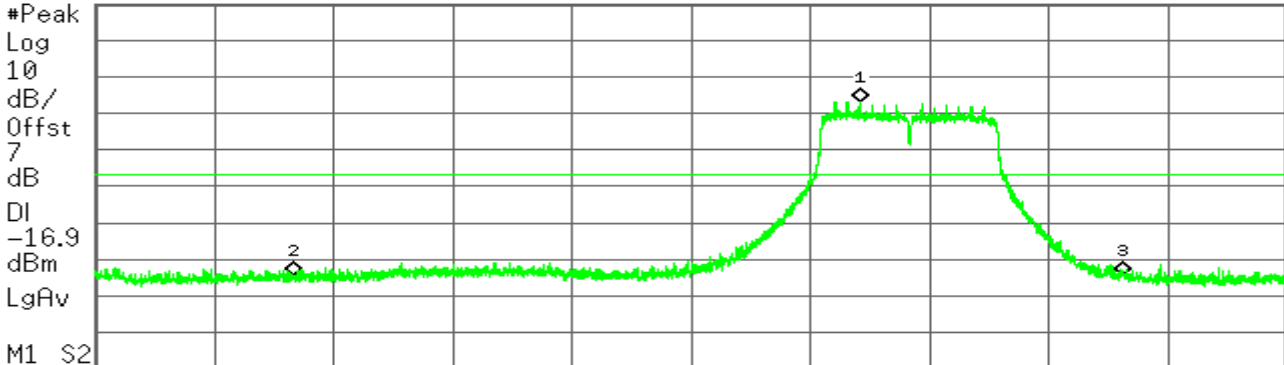
Agilent

R T

Mkr3 2.483 500 GHz  
-44.40 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.457 002 GHz	3.14 dBm
2	(1)	Freq	2.400 000 GHz	-44.46 dBm
3	(1)	Freq	2.483 500 GHz	-44.40 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

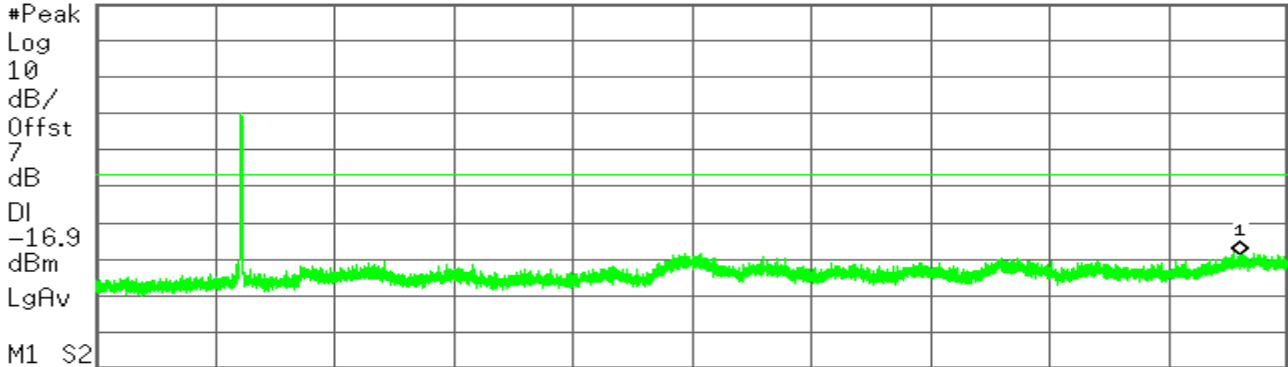
Agilent

R T

Mkr1 12.506 3 GHz  
-39.05 dBm

Ref 30 dBm

Atten 40 dB



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	12.506 3 GHz	-39.05 dBm

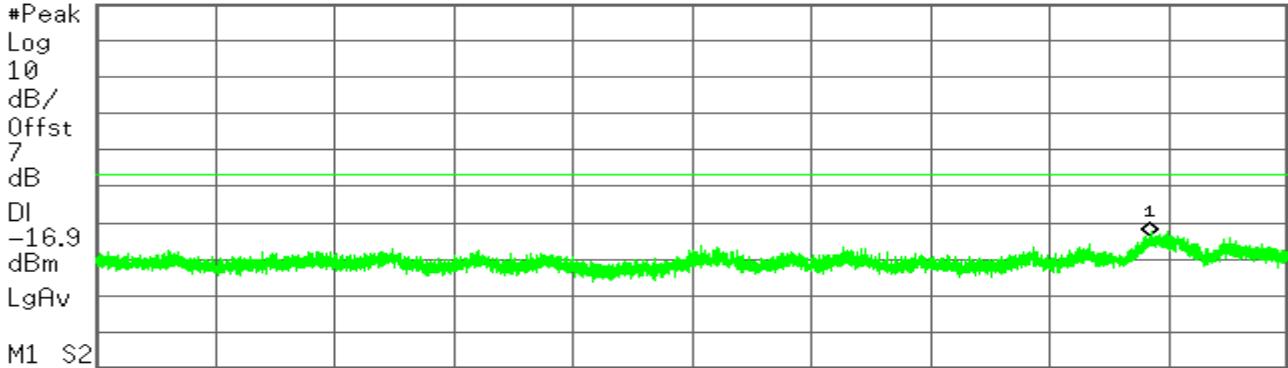
Agilent

R T

Mkr1 24.485 9 GHz  
-33.58 dBm

Ref 30 dBm

Atten 40 dB



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	24.485 9 GHz	-33.58 dBm



## IEEE 802.11n HT20 mode / Chain 1

### CH Low

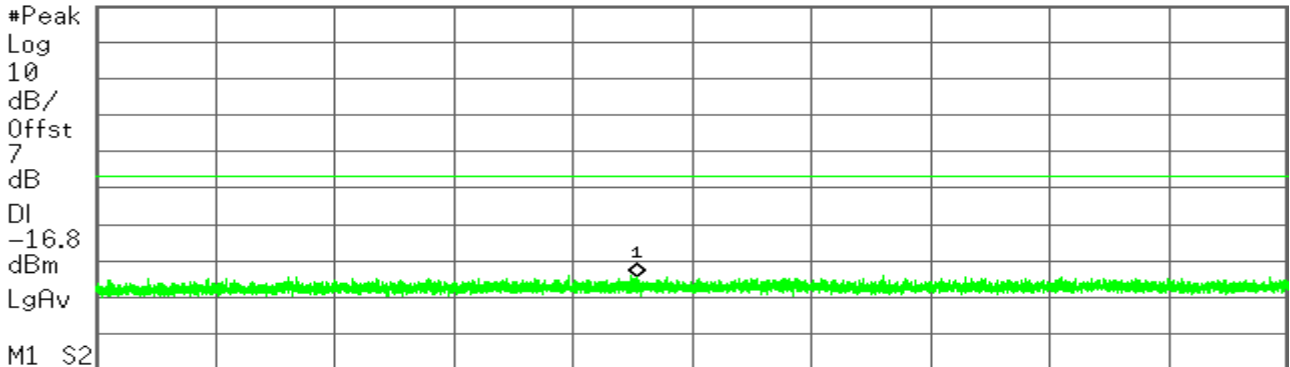
Agilent

R T

Mkr1 470.65 MHz  
-44.64 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	470.65 MHz	-44.64 dBm

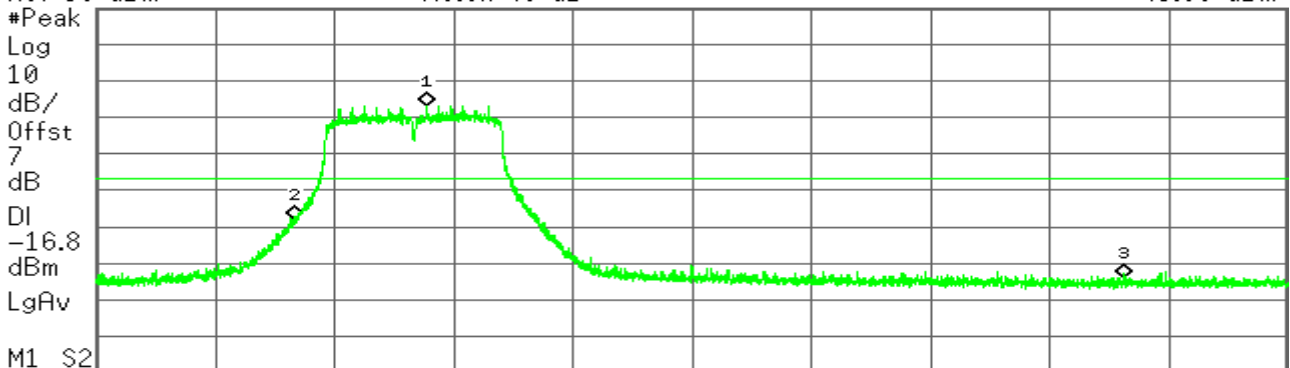
Agilent

R T

Mkr3 2.483 500 GHz  
-43.90 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.413 285 GHz	3.25 dBm
2	(1)	Freq	2.400 000 GHz	-28.23 dBm
3	(1)	Freq	2.483 500 GHz	-43.90 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

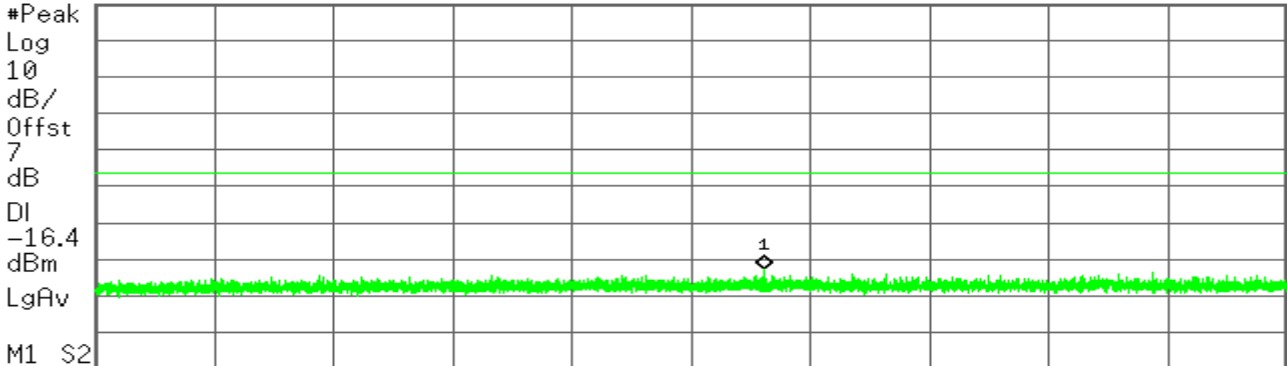
Agilent

R T

Mkr1 573.92 MHz  
-42.68 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	573.92 MHz	-42.68 dBm

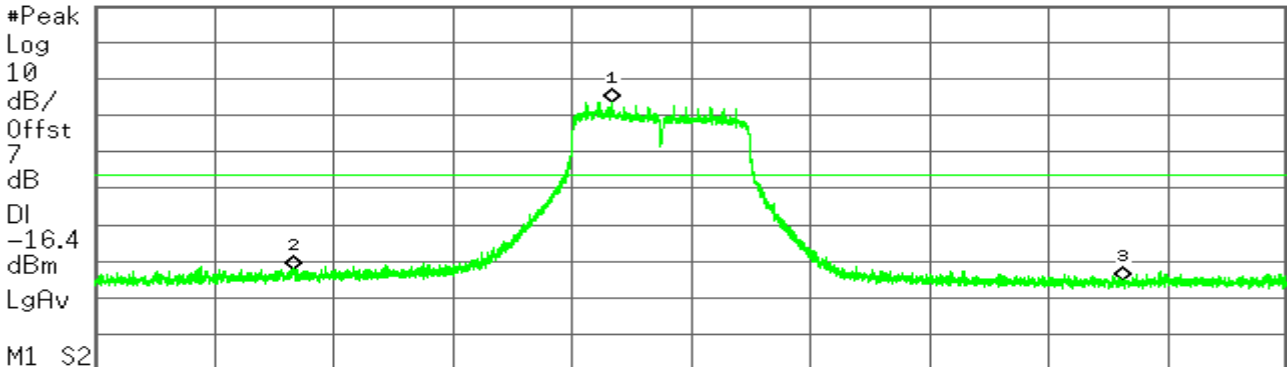
Agilent

R T

Mkr3 2.483 500 GHz  
-45.33 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.431 994 GHz	3.62 dBm
2	(1)	Freq	2.400 000 GHz	-42.23 dBm
3	(1)	Freq	2.483 500 GHz	-45.33 dBm



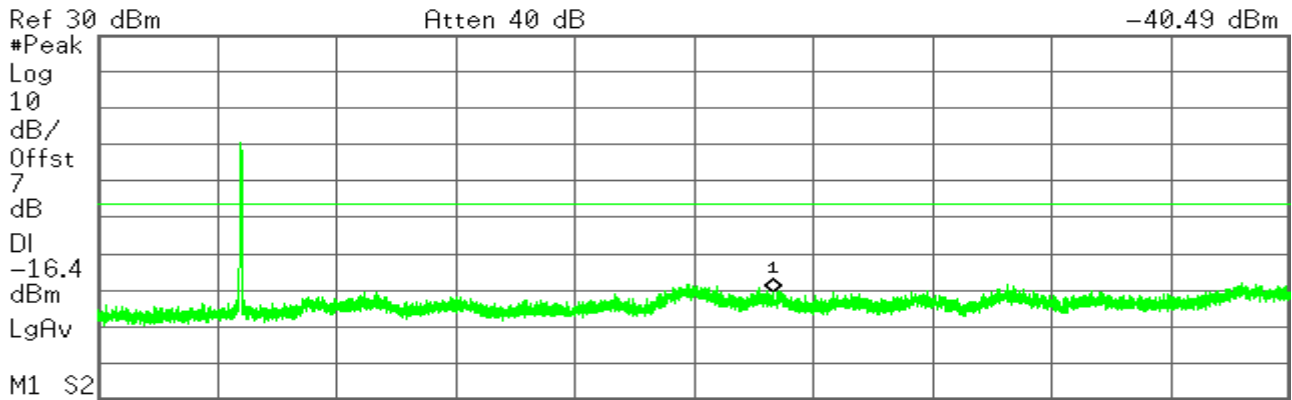
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 7.794 8 GHz  
-40.49 dBm



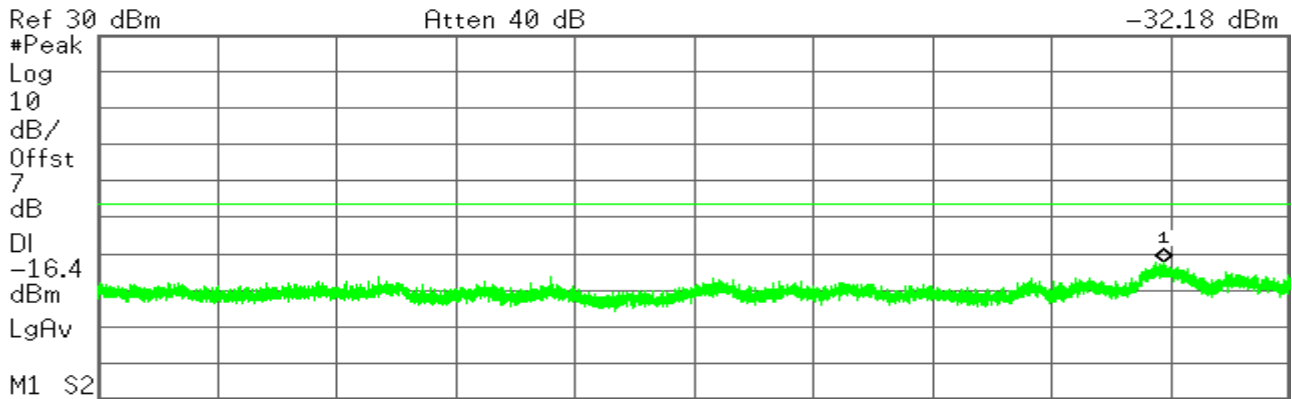
Start 1.000 0 GHz                      Stop 13.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.147 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	7.794 8 GHz	-40.49 dBm

Agilent

R T

Mkr1 24.617 6 GHz  
-32.18 dBm



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	24.617 6 GHz	-32.18 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

Agilent

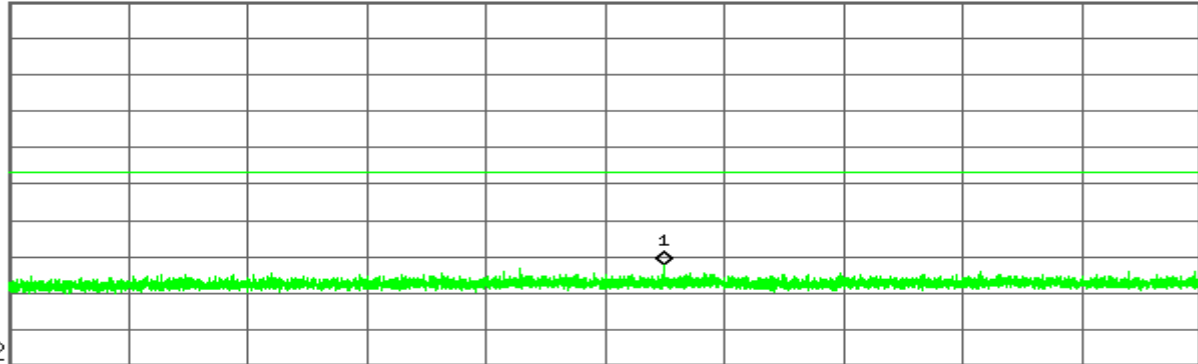
R T

Mkr1 563.26 MHz  
-42.47 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
DI  
-16.7  
dBm  
LgAv



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	563.26 MHz	-42.47 dBm

Agilent

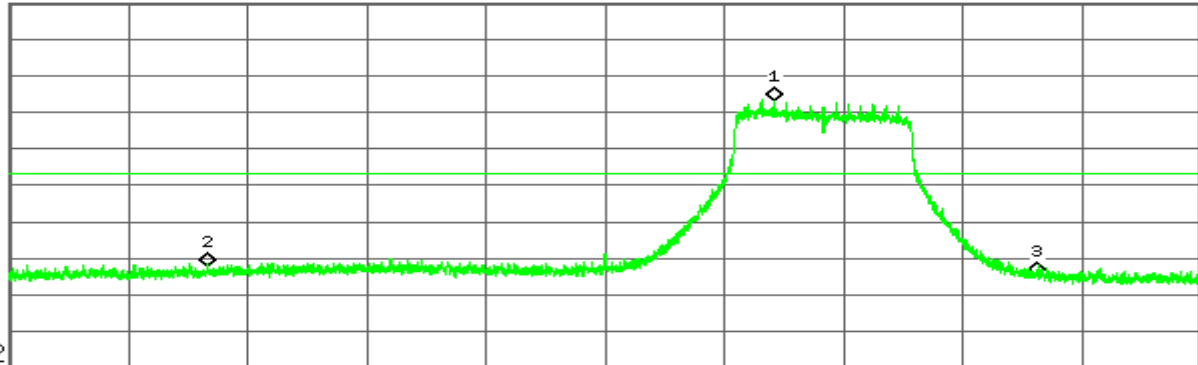
R T

Mkr3 2.483 500 GHz  
-44.88 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7  
dB  
DI  
-16.7  
dBm  
LgAv



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.456 987 GHz	3.32 dBm
2	(1)	Freq	2.400 000 GHz	-42.31 dBm
3	(1)	Freq	2.483 500 GHz	-44.88 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

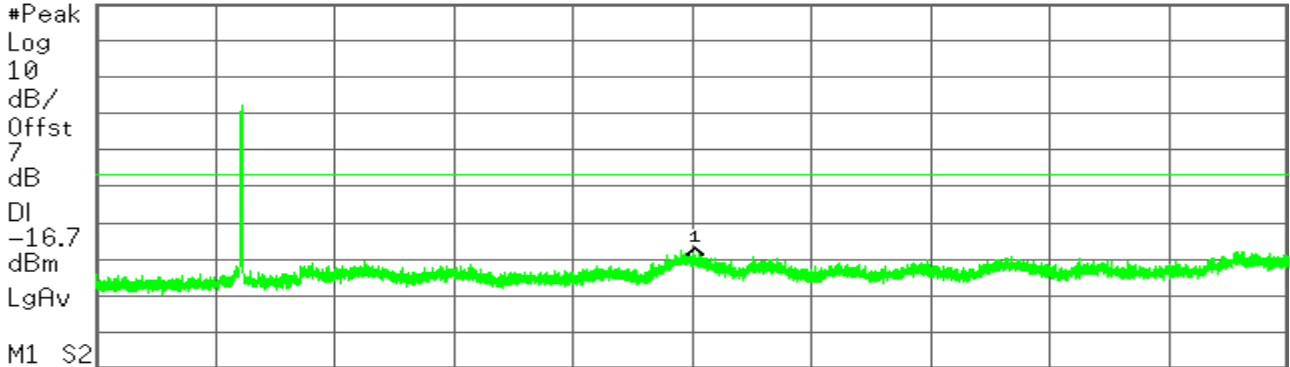
Agilent

R T

Mkr1 7.021 2 GHz  
-40.65 dBm

Ref 30 dBm

Atten 40 dB



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	7.021 2 GHz	-40.65 dBm

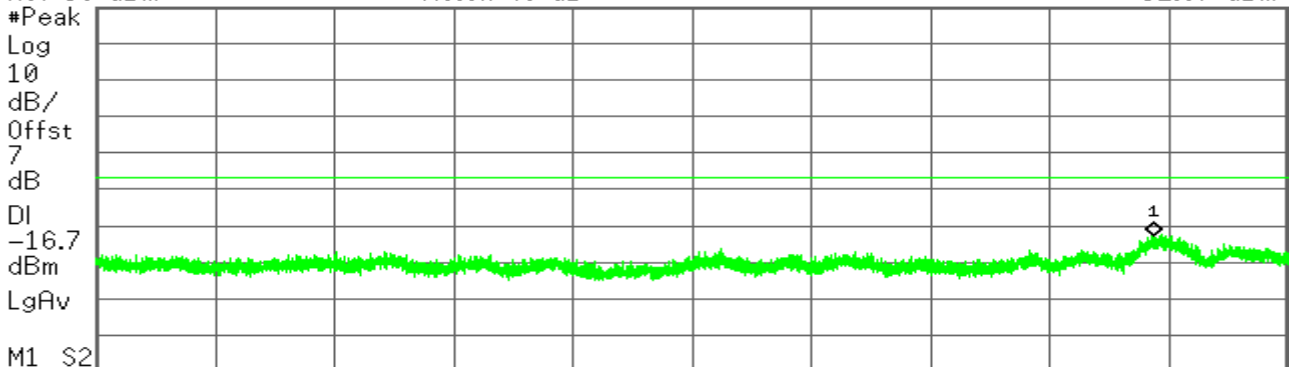
Agilent

R T

Mkr1 24.525 6 GHz  
-32.67 dBm

Ref 30 dBm

Atten 40 dB



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	24.525 6 GHz	-32.67 dBm



## IEEE 802.11n HT40 mode / Chain 0

### CH Low

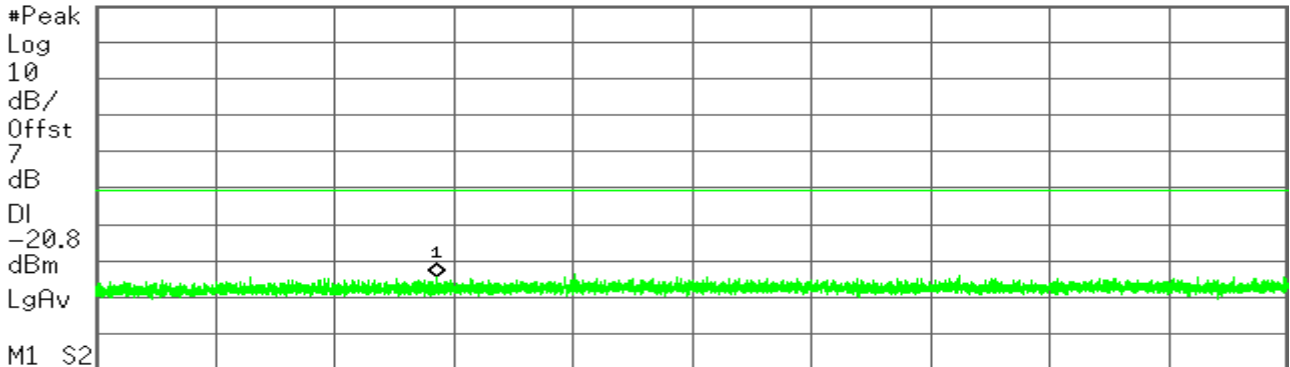
Agilent

R T

Mkr1 307.46 MHz  
-44.48 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	307.46 MHz	-44.48 dBm

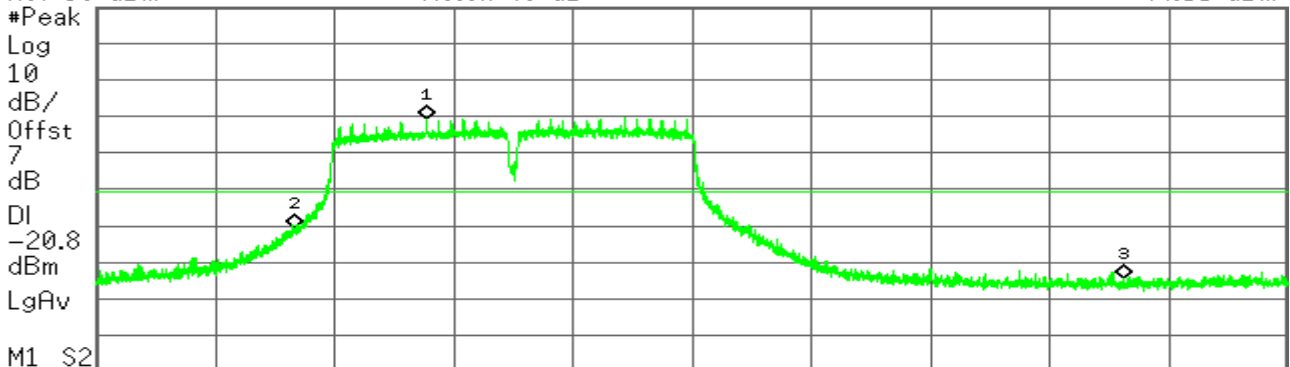
Agilent

R T

Mkr3 2.483 500 GHz  
-44.55 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.413 271 GHz	-0.79 dBm
2	(1)	Freq	2.400 000 GHz	-30.66 dBm
3	(1)	Freq	2.483 500 GHz	-44.55 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

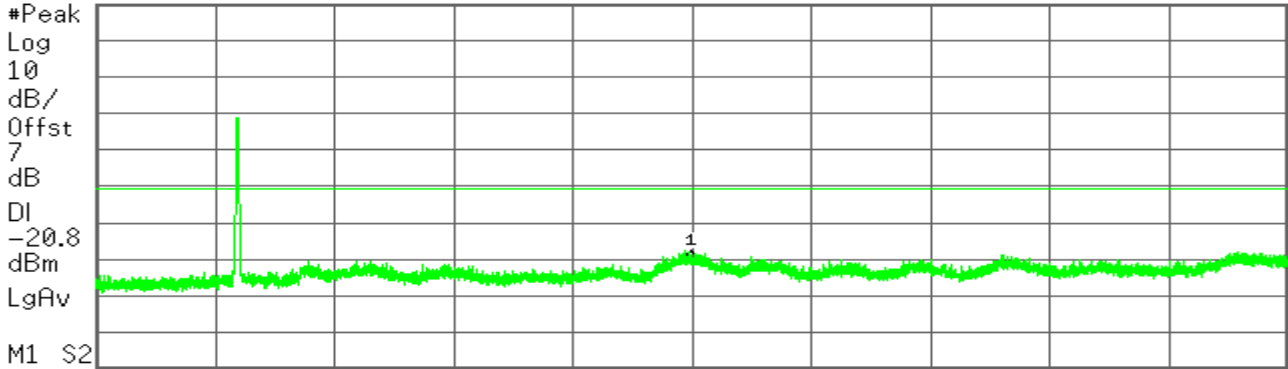
Agilent

R T

Mkr1 6.991 9 GHz  
-41.23 dBm

Ref 30 dBm

Atten 40 dB



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	6.991 9 GHz	-41.23 dBm

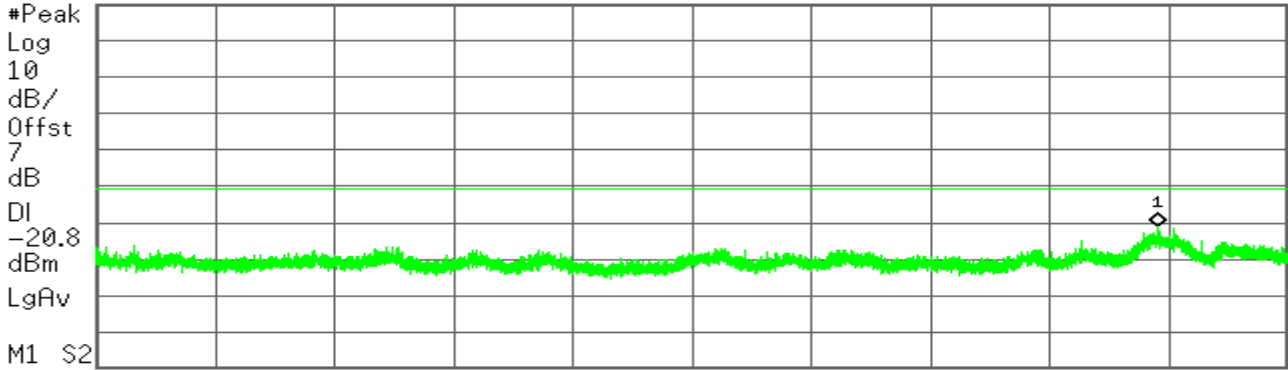
Agilent

R T

Mkr1 24.578 0 GHz  
-31.12 dBm

Ref 30 dBm

Atten 40 dB



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	24.578 0 GHz	-31.12 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

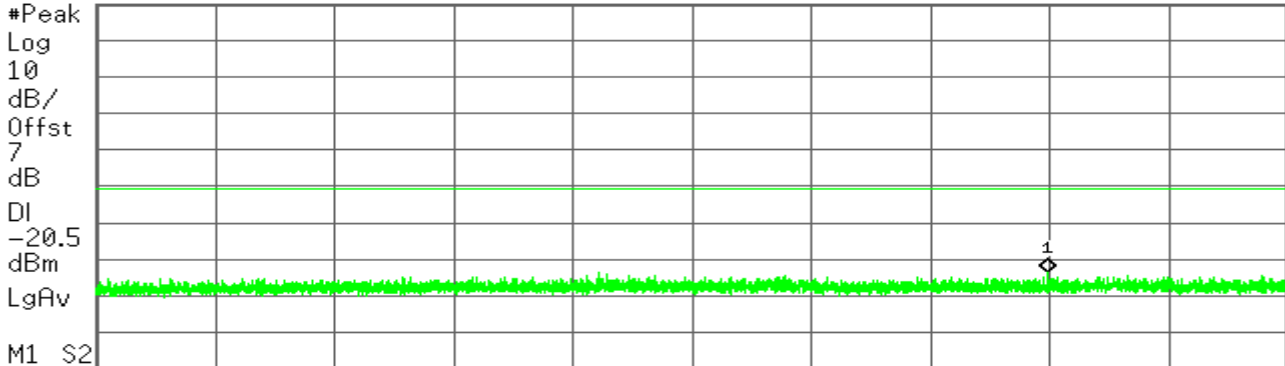
Agilent

R T

Mkr1 804.96 MHz  
-43.75 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Center 515.00 MHz

Span 970 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	804.96 MHz	-43.75 dBm

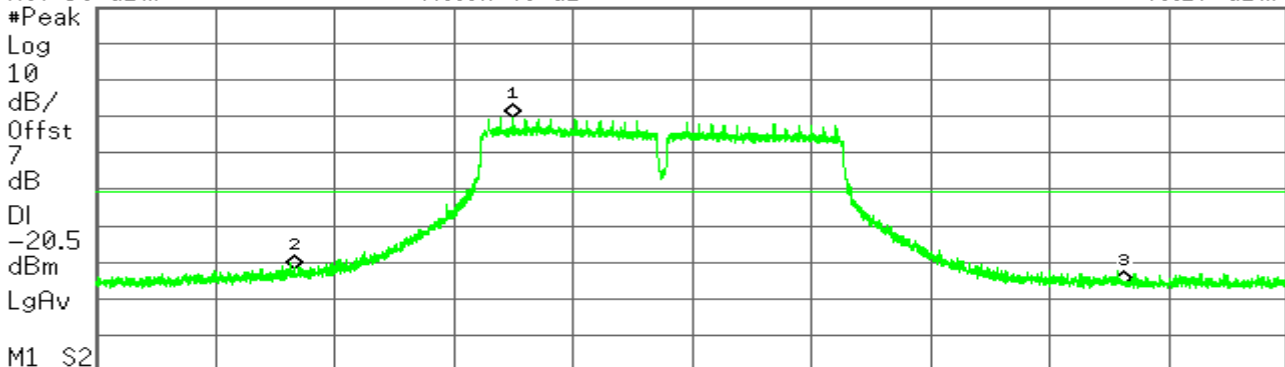
Agilent

R T

Mkr3 2.483 500 GHz  
-46.17 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.422 017 GHz	-0.51 dBm
2	(1)	Freq	2.400 000 GHz	-41.81 dBm
3	(1)	Freq	2.483 500 GHz	-46.17 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

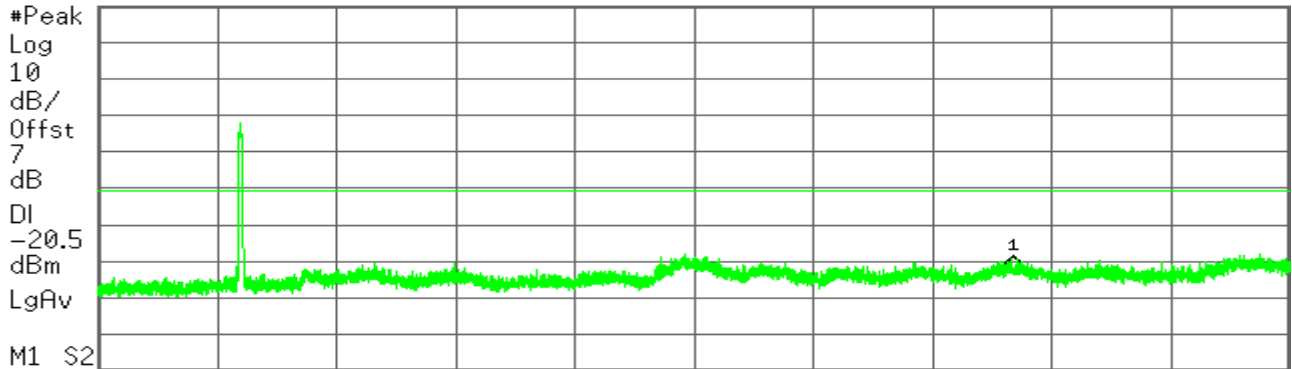
Agilent

R T

Mkr1 10.215 0 GHz  
-42.26 dBm

Ref 30 dBm

Atten 40 dB



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	10.215 0 GHz	-42.26 dBm

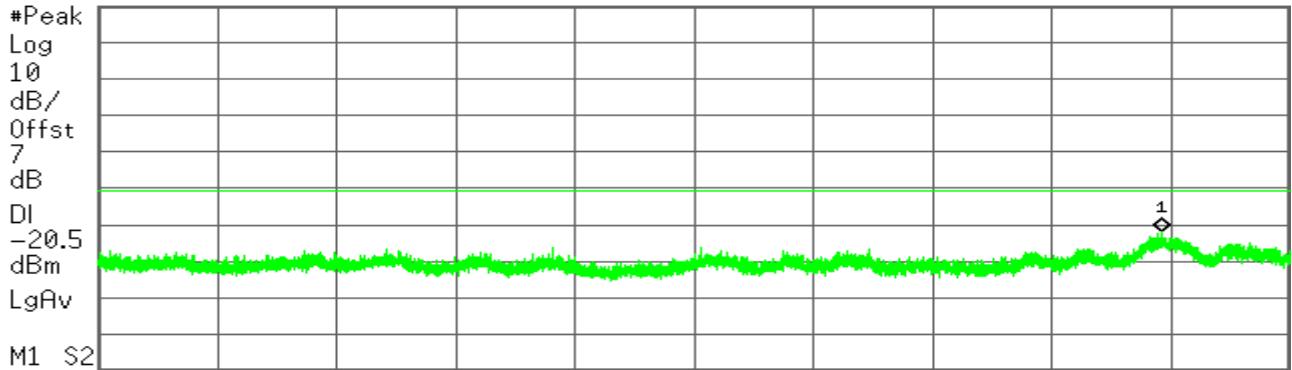
Agilent

R T

Mkr1 24.595 4 GHz  
-32.11 dBm

Ref 30 dBm

Atten 40 dB



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	24.595 4 GHz	-32.11 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

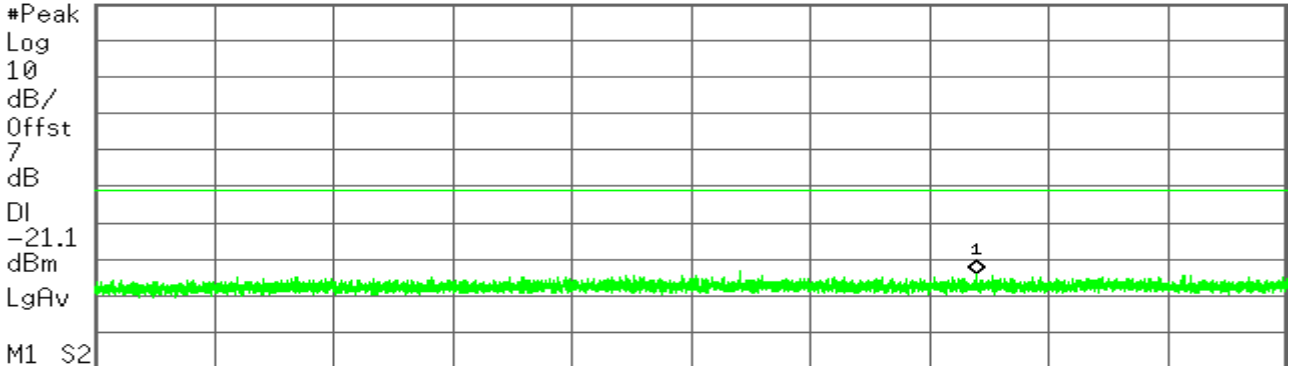
Agilent

R T

Mkr1 746.69 MHz  
-44.22 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	746.69 MHz	-44.22 dBm

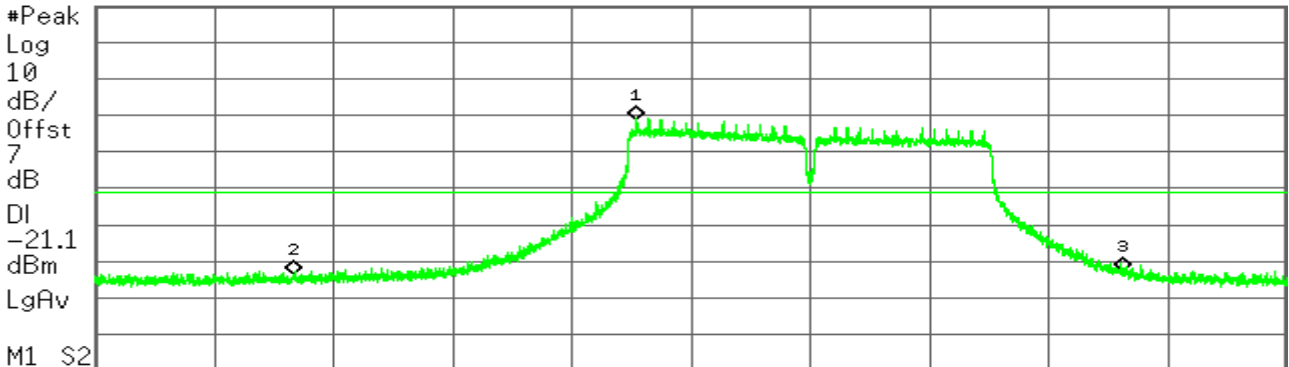
Agilent

R T

Mkr3 2.483 500 GHz  
-42.56 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.434 499 GHz	-1.07 dBm
2	(1)	Freq	2.400 000 GHz	-43.63 dBm
3	(1)	Freq	2.483 500 GHz	-42.56 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

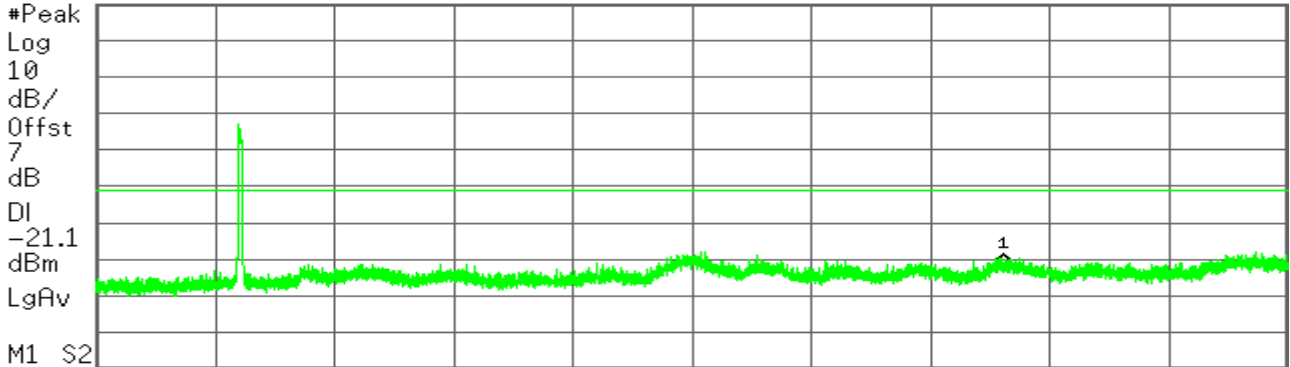
Agilent

R T

Mkr1 10.146 1 GHz  
-42.17 dBm

Ref 30 dBm

Atten 40 dB



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	10.146 1 GHz	-42.17 dBm

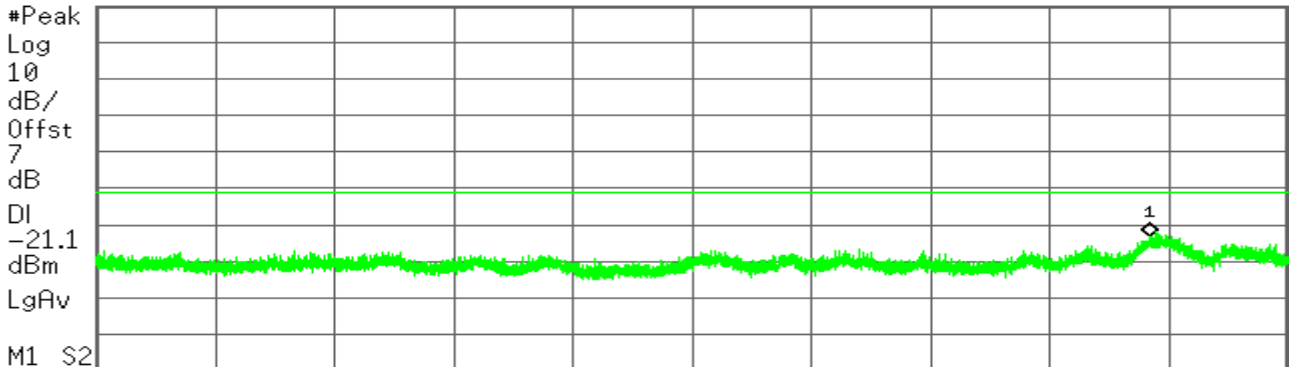
Agilent

R T

Mkr1 24.484 3 GHz  
-33.35 dBm

Ref 30 dBm

Atten 40 dB



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	24.484 3 GHz	-33.35 dBm





## IEEE 802.11n HT40 mode / Chain 1

### CH Low

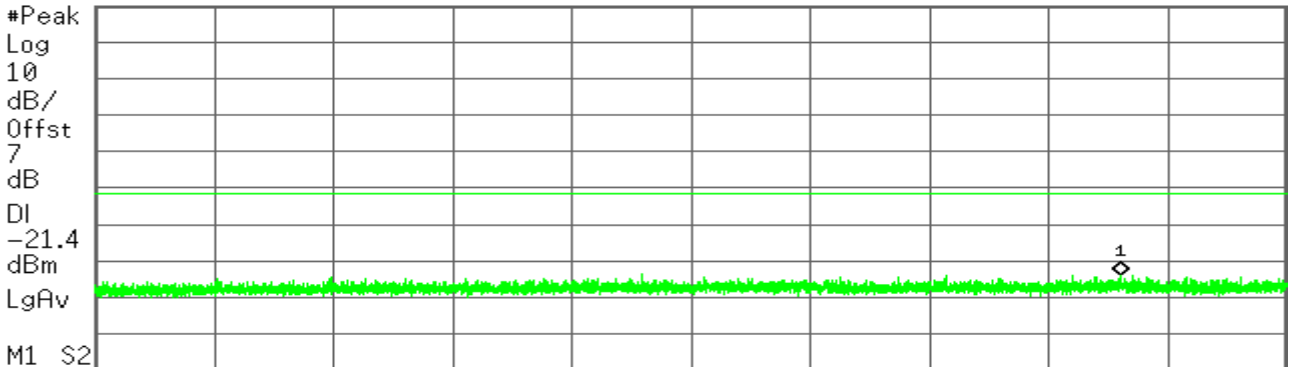
Agilent

R T

Mkr1 865.12 MHz  
-44.02 dBm

Ref 30 dBm

Atten 40 dB



Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	865.12 MHz	-44.02 dBm

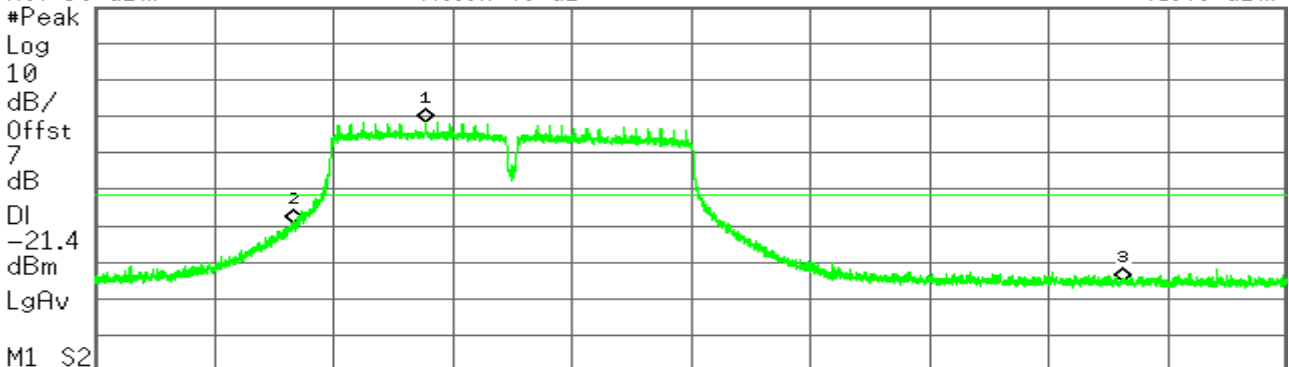
Agilent

R T

Mkr3 2.483 500 GHz  
-45.40 dBm

Ref 30 dBm

Atten 40 dB



Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.413 271 GHz	-1.42 dBm
2	(1)	Freq	2.400 000 GHz	-29.43 dBm
3	(1)	Freq	2.483 500 GHz	-45.40 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

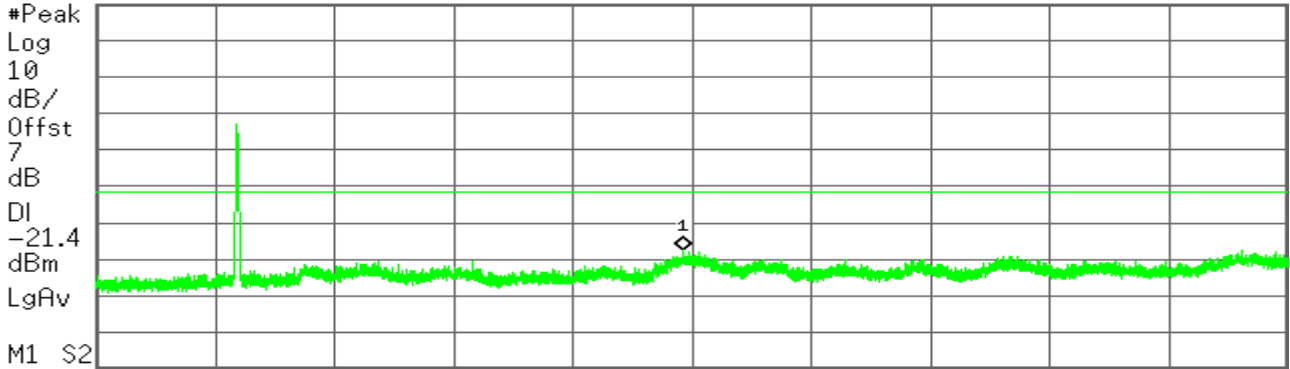
Agilent

R T

Mkr1 6.904 0 GHz  
-37.47 dBm

Ref 30 dBm

Atten 40 dB



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	6.904 0 GHz	-37.47 dBm

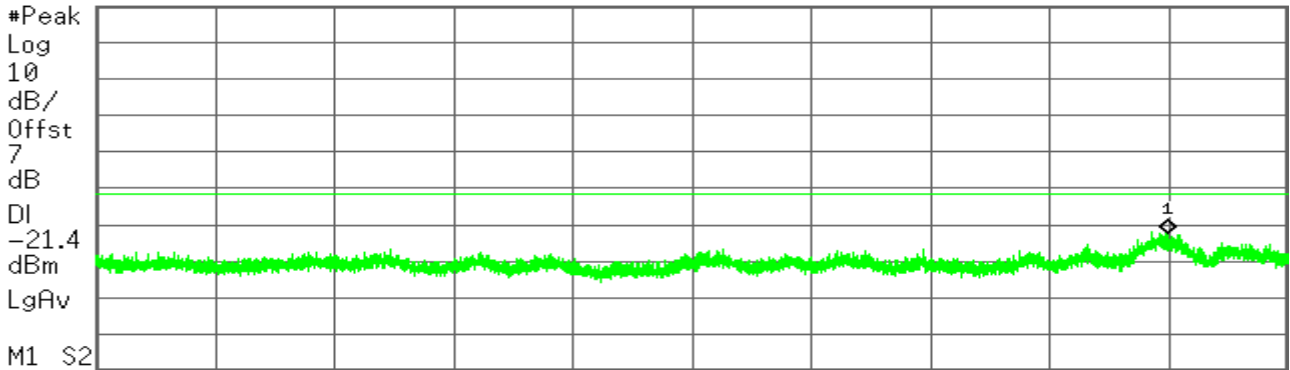
Agilent

R T

Mkr1 24.697 0 GHz  
-32.55 dBm

Ref 30 dBm

Atten 40 dB



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	24.697 0 GHz	-32.55 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

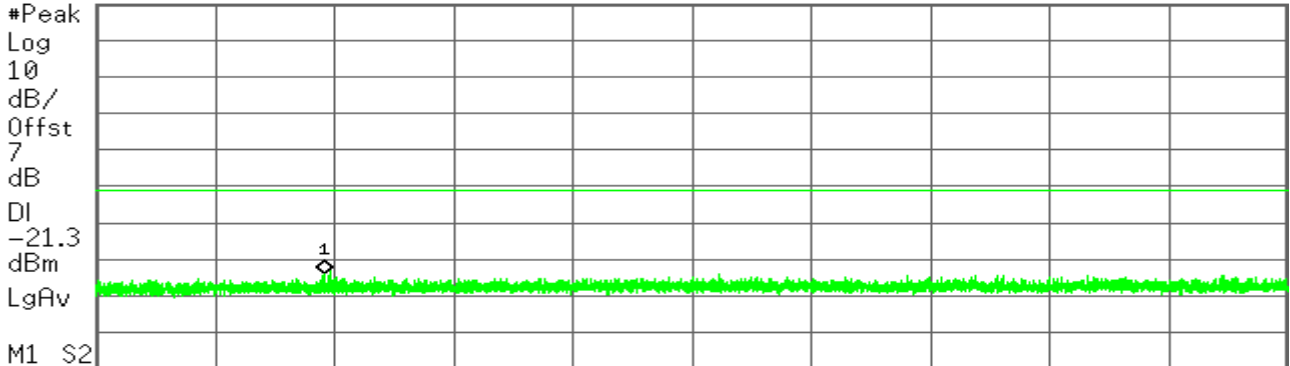
Agilent

R T

Mkr1 215.21 MHz  
-44.02 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	215.21 MHz	-44.02 dBm

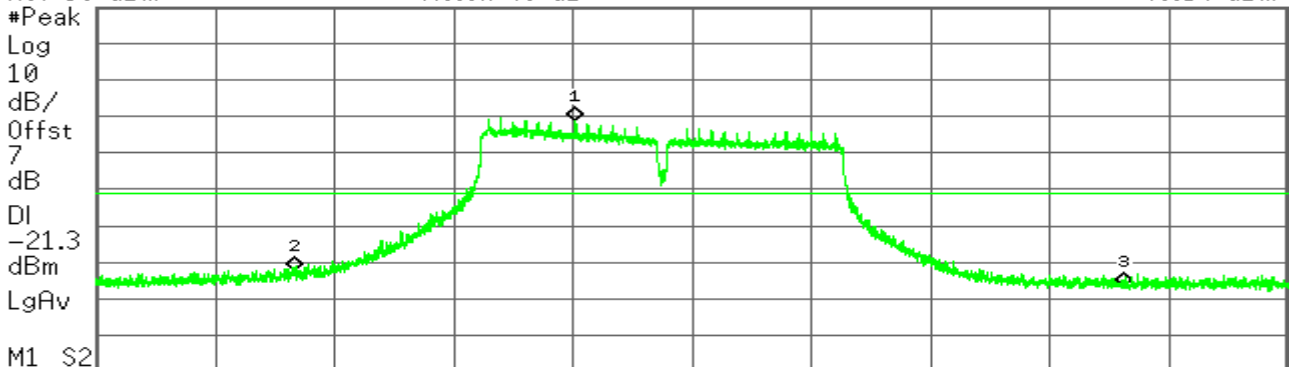
Agilent

R T

Mkr3 2.483 500 GHz  
-46.54 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.428 272 GHz	-1.33 dBm
2	(1)	Freq	2.400 000 GHz	-42.33 dBm
3	(1)	Freq	2.483 500 GHz	-46.54 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

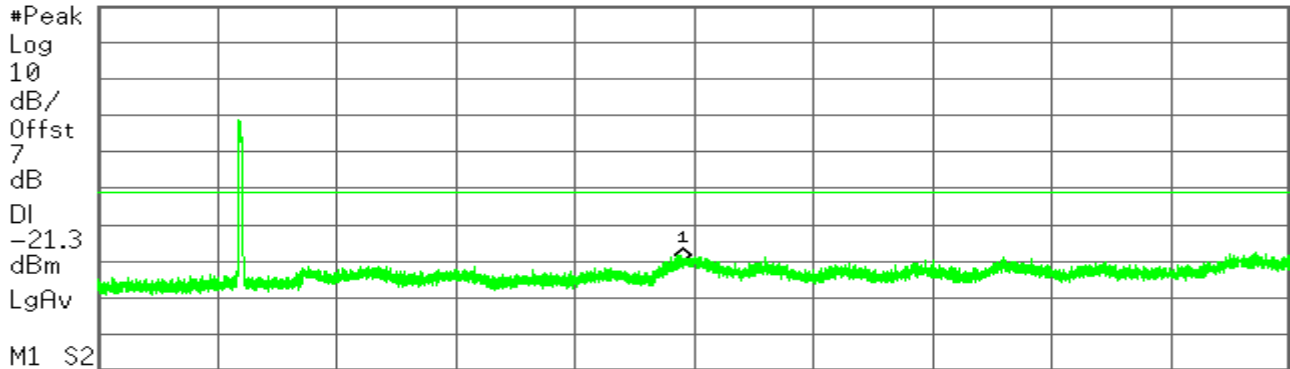
Agilent

R T

Mkr1 6.885 3 GHz  
-39.97 dBm

Ref 30 dBm

Atten 40 dB



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	6.885 3 GHz	-39.97 dBm

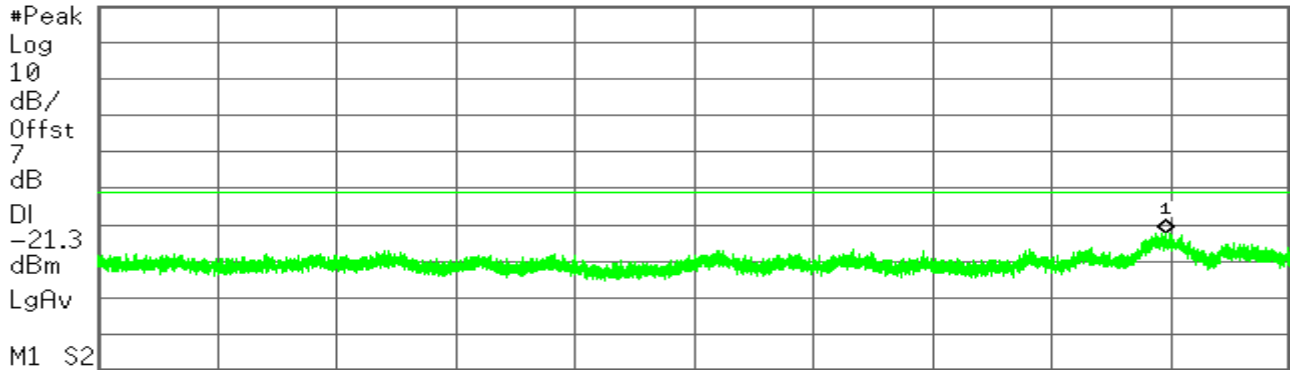
Agilent

R T

Mkr1 24.654 1 GHz  
-32.51 dBm

Ref 30 dBm

Atten 40 dB



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	24.654 1 GHz	-32.51 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

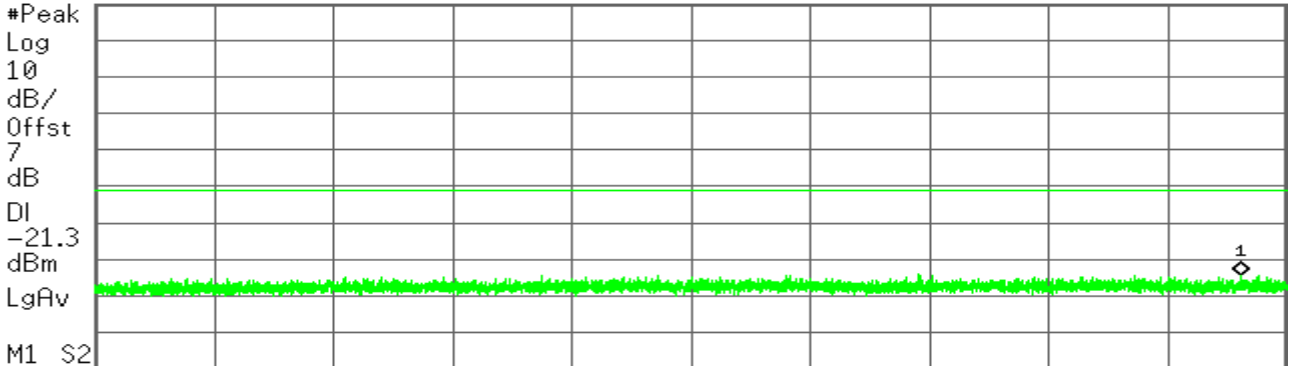
Agilent

R T

Mkr1 962.22 MHz  
-44.27 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	962.22 MHz	-44.27 dBm

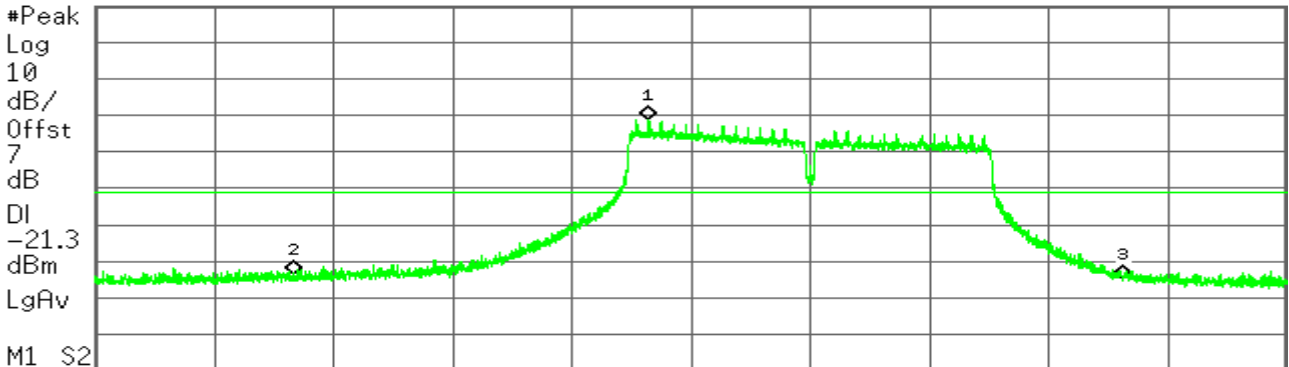
Agilent

R T

Mkr3 2.483 500 GHz  
-44.80 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 2.380 000 GHz

Stop 2.500 000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 11.47 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.435 759 GHz	-1.34 dBm
2	(1)	Freq	2.400 000 GHz	-43.58 dBm
3	(1)	Freq	2.483 500 GHz	-44.80 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

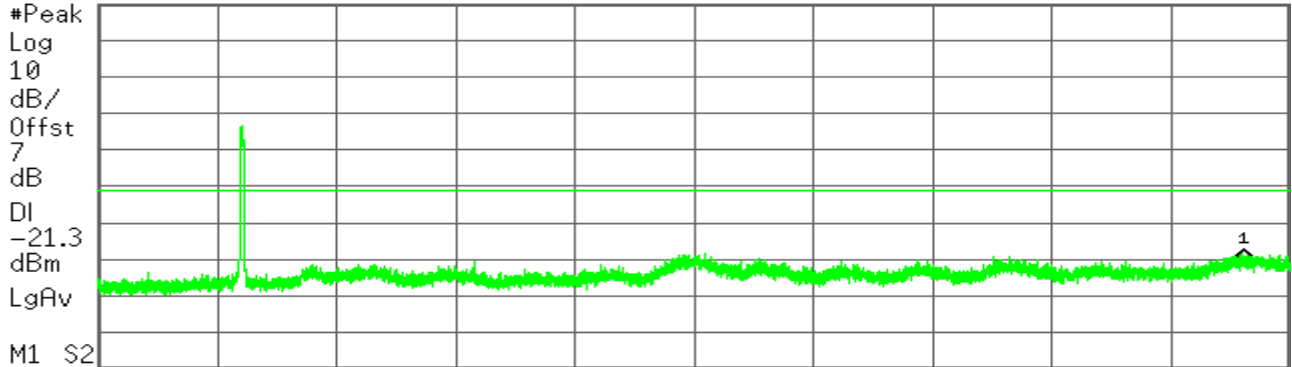
Agilent

R T

Mkr1 12.526 8 GHz  
-40.92 dBm

Ref 30 dBm

Atten 40 dB



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	12.526 8 GHz	-40.92 dBm

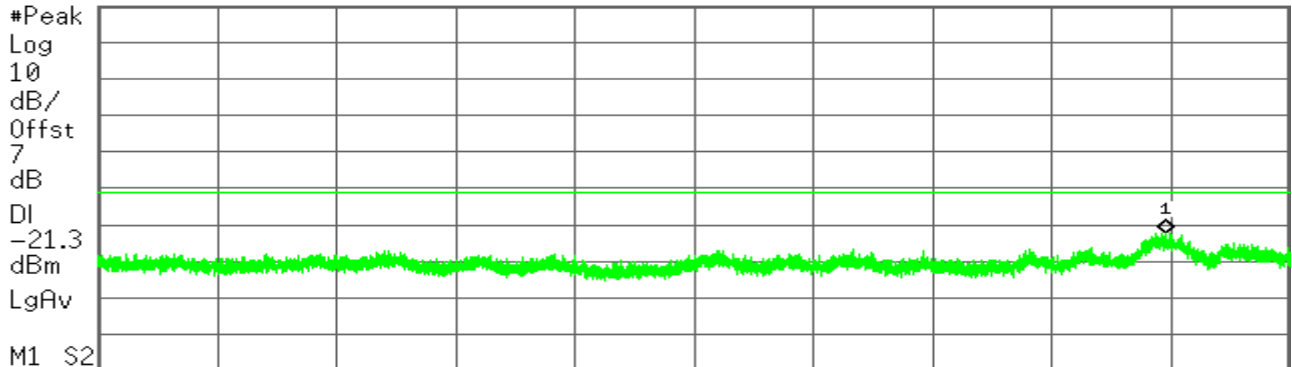
Agilent

R T

Mkr1 24.654 1 GHz  
-32.52 dBm

Ref 30 dBm

Atten 40 dB



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	24.654 1 GHz	-32.52 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## IEEE 802.11a mode

### CH Low

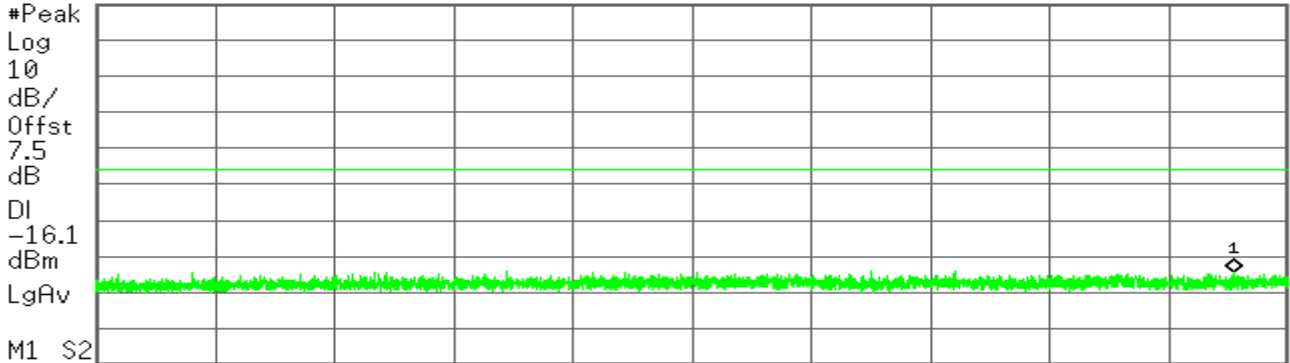
Agilent

R T

Mkr1 956.07 MHz  
-44.37 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	956.07 MHz	-44.37 dBm

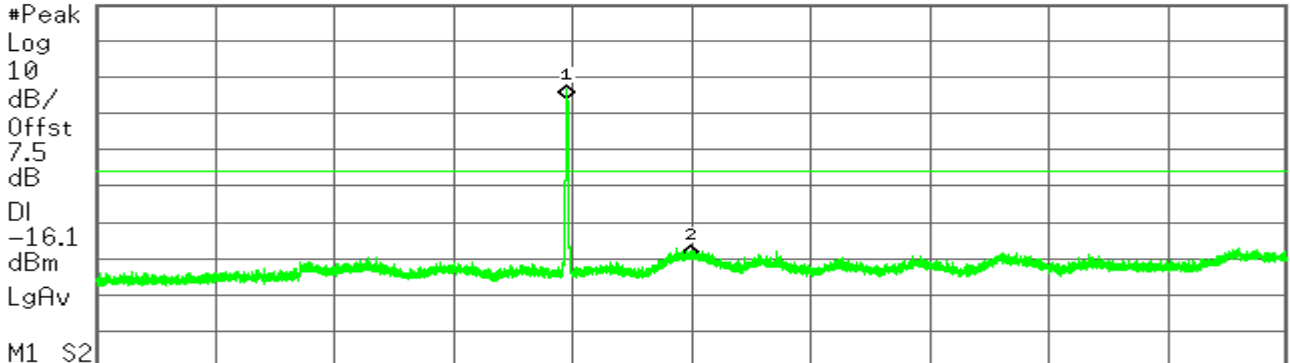
Agilent

R T

Mkr1 5.746 7 GHz  
3.94 dBm

Ref 30 dBm

Atten 40 dB



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	5.746 7 GHz	3.94 dBm
2	(1)	Freq	6.986 1 GHz	-39.93 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

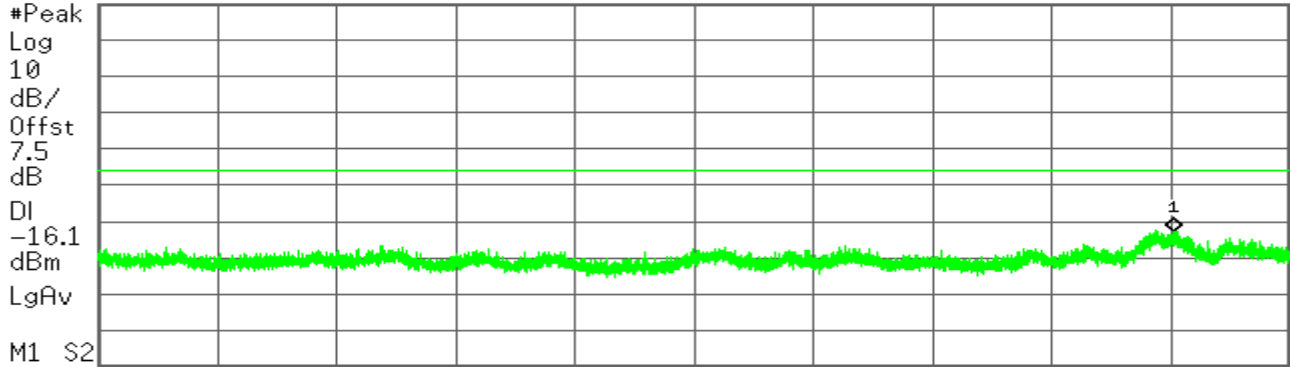
Agilent

R T

Mkr1 24.743 0 GHz  
-32.62 dBm

Ref 30 dBm

Atten 40 dB



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	24.743 0 GHz	-32.62 dBm

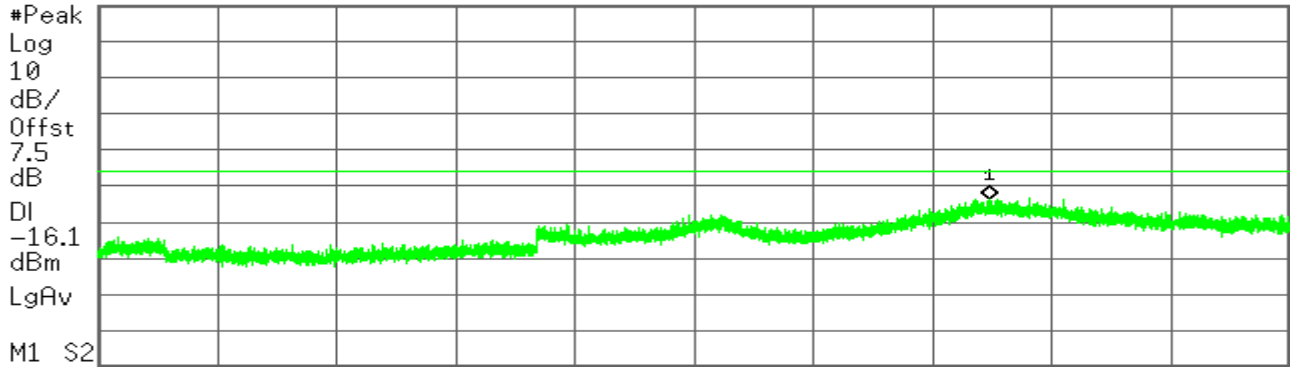
Agilent

R T

Mkr1 36.463 7 GHz  
-23.71 dBm

Ref 30 dBm

Atten 40 dB



Start 26.000 0 GHz

Stop 40.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.463 7 GHz	-23.71 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

Agilent

R T

Mkr1 451.94 MHz  
-43.96 dBm

Ref 30 dBm

Atten 40 dB

#Peak

Log

10

dB/

Offst

7.5

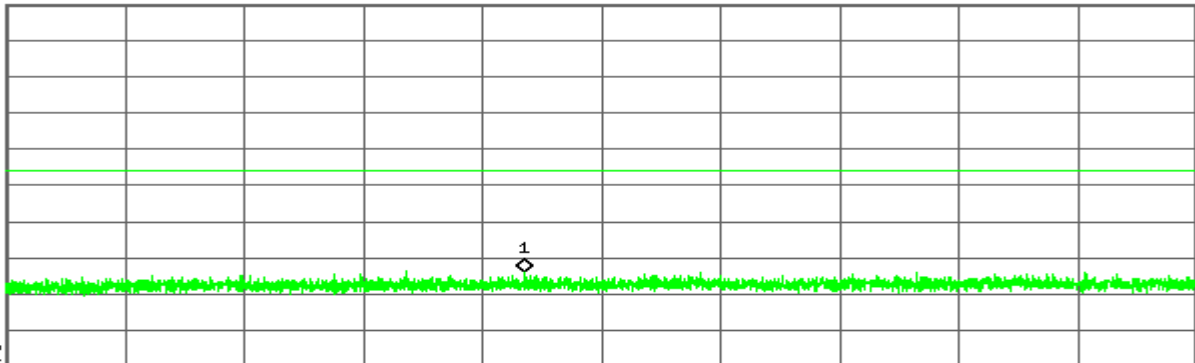
dB

DI

-15.9

dBm

LgAv



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	451.94 MHz	-43.96 dBm

Agilent

R T

Mkr1 5.778 9 GHz  
4.12 dBm

Ref 30 dBm

Atten 40 dB

#Peak

Log

10

dB/

Offst

7.5

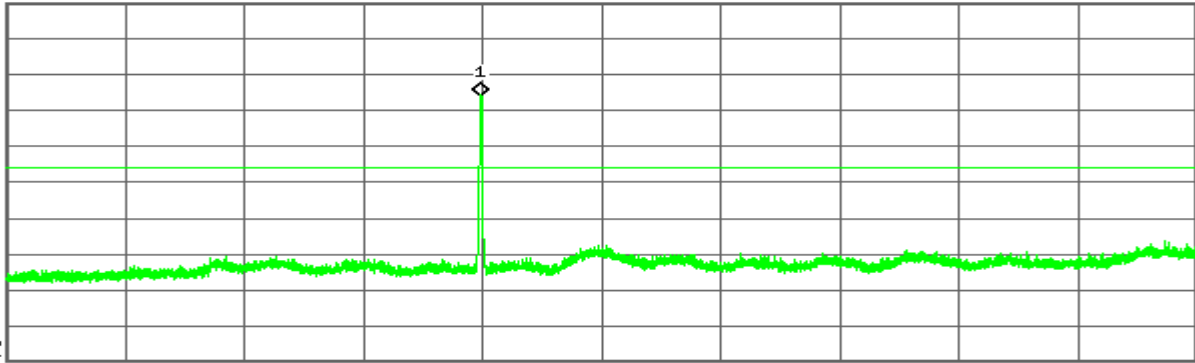
dB

DI

-15.9

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	5.778 9 GHz	4.12 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

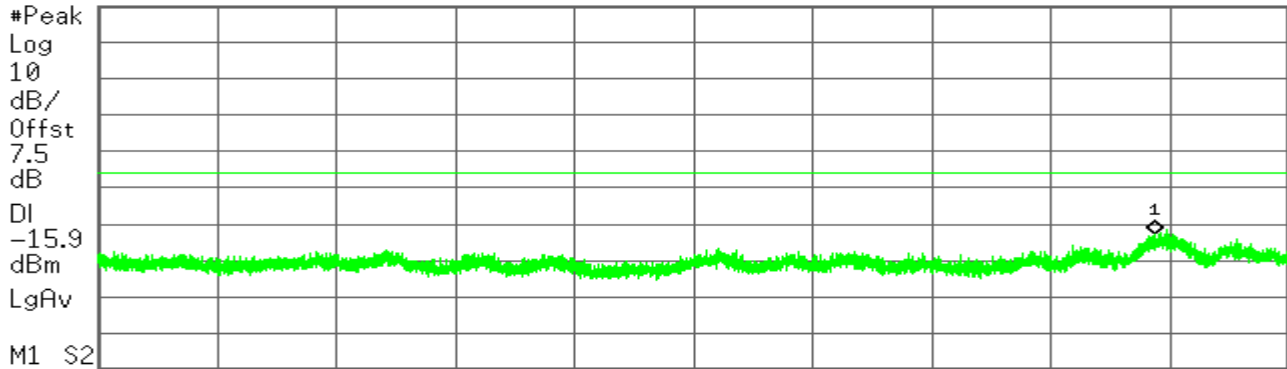
Agilent

R T

Mkr1 24.543 0 GHz  
-32.80 dBm

Ref 30 dBm

Atten 40 dB



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	24.543 0 GHz	-32.80 dBm

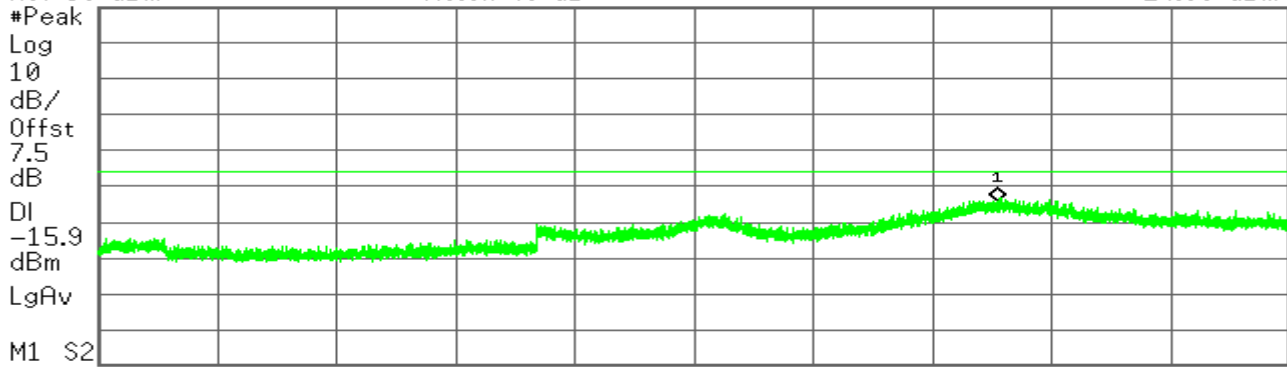
Agilent

R T

Mkr1 36.562 8 GHz  
-24.09 dBm

Ref 30 dBm

Atten 40 dB



M1 S2  
Start 26.000 0 GHz

Stop 40.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.562 8 GHz	-24.09 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

Agilent

R T

Mkr1 793.35 MHz  
-44.18 dBm

Ref 30 dBm

Atten 40 dB

#Peak

Log

10

dB/

Offst

7.5

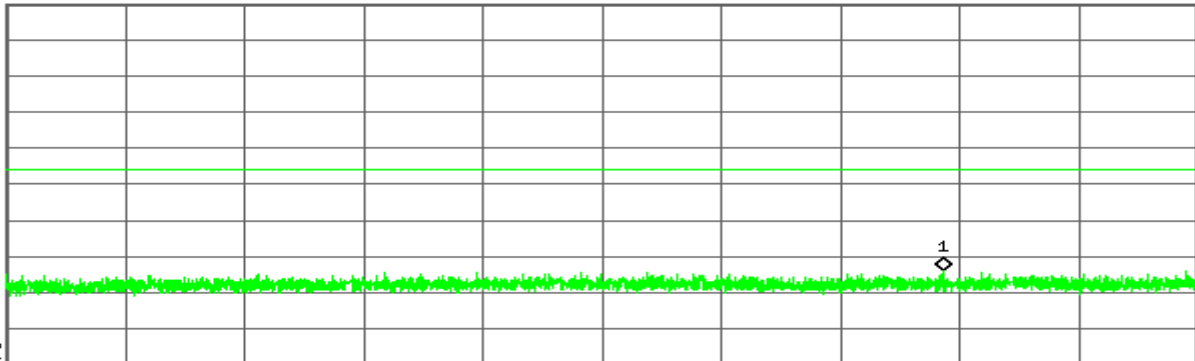
dB

DI

-16.0

dBm

LgAv



M1 S2

Center 515.00 MHz

Span 970 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	793.35 MHz	-44.18 dBm

Agilent

R T

Mkr1 5.830 2 GHz  
3.96 dBm

Ref 30 dBm

Atten 40 dB

#Peak

Log

10

dB/

Offst

7.5

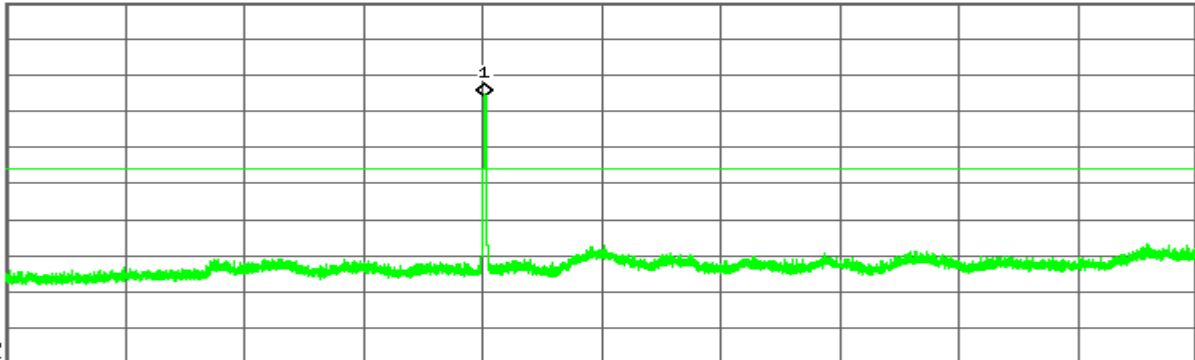
dB

DI

-16.0

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	5.830 2 GHz	3.96 dBm



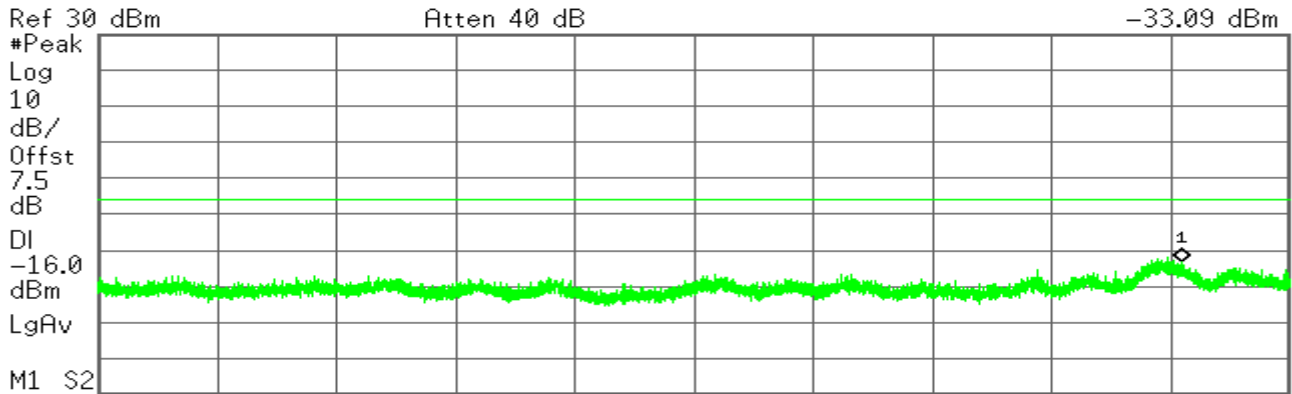
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 24.814 4 GHz  
-33.09 dBm



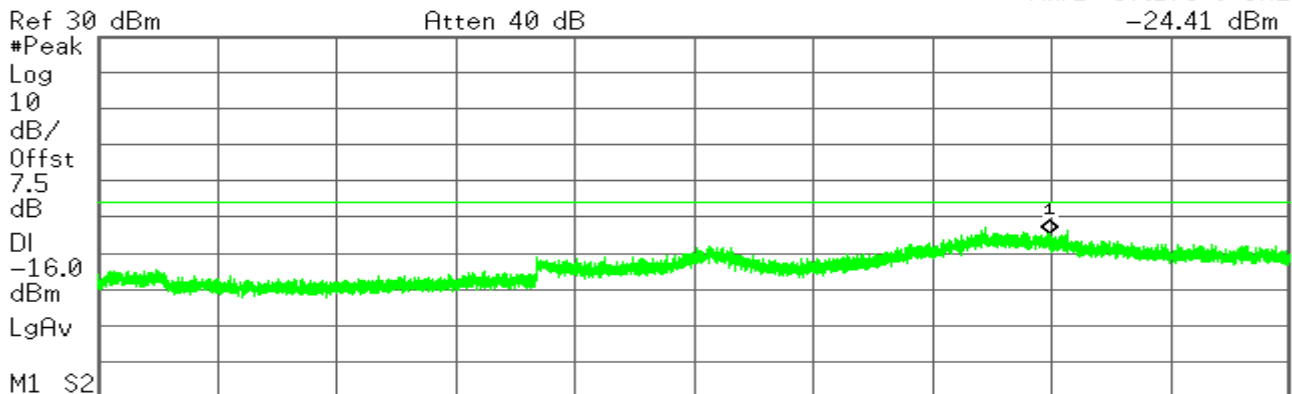
Start 13.000 0 GHz    Stop 26.000 0 GHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	24.814 4 GHz	-33.09 dBm

Agilent

R T

Mkr1 37.173 0 GHz  
-24.41 dBm



Start 26.000 0 GHz    Stop 40.000 0 GHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	37.173 0 GHz	-24.41 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## IEEE 802.11an HT20 mode

### CH Low

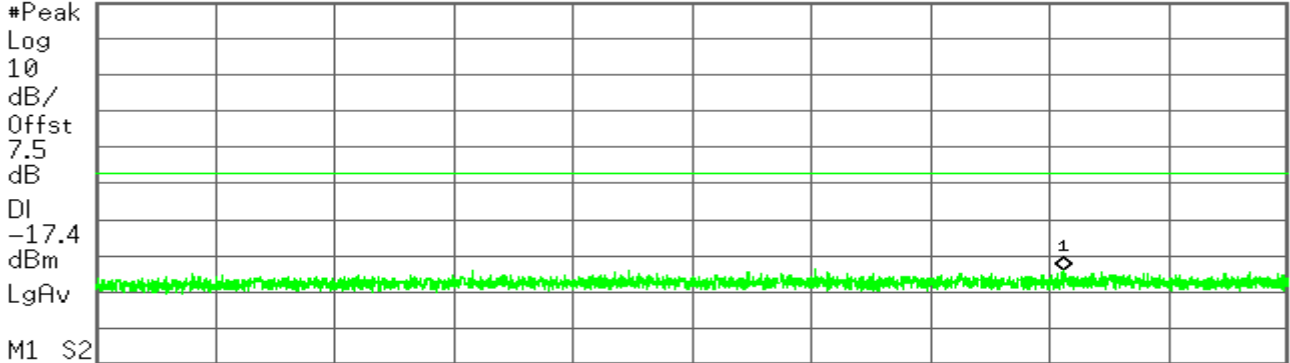
Agilent

R T

Mkr1 818.10 MHz  
-44.15 dBm

Ref 30 dBm

Atten 40 dB



M1 S2  
Center 515.00 MHz

Span 970 MHz

\*Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	818.10 MHz	-44.15 dBm

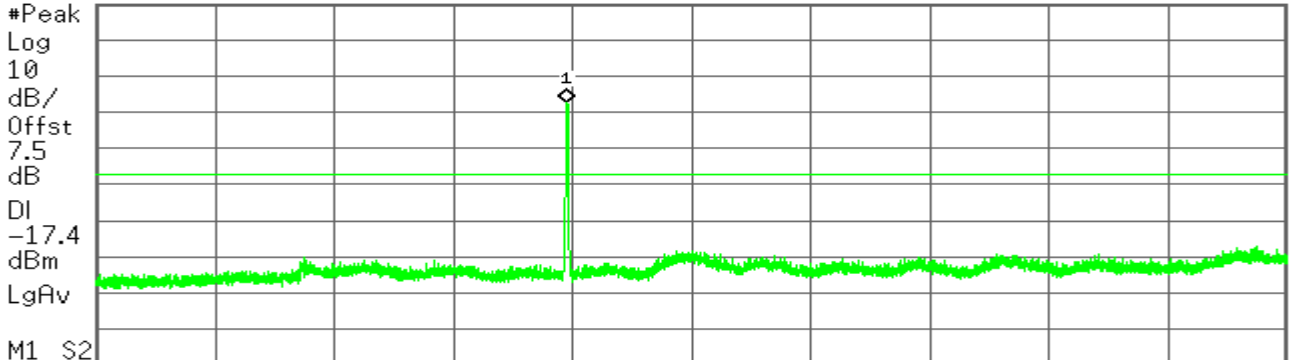
Agilent

R T

Mkr1 5.745 2 GHz  
2.65 dBm

Ref 30 dBm

Atten 40 dB



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	5.745 2 GHz	2.65 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH Mid

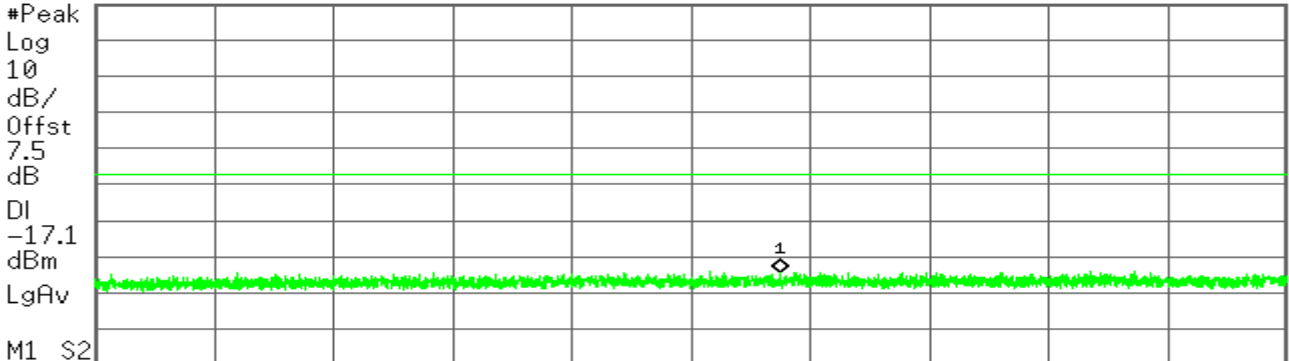
Agilent

R T

Mkr1 587.89 MHz  
-44.45 dBm

Ref 30 dBm

Atten 40 dB



Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	587.89 MHz	-44.45 dBm

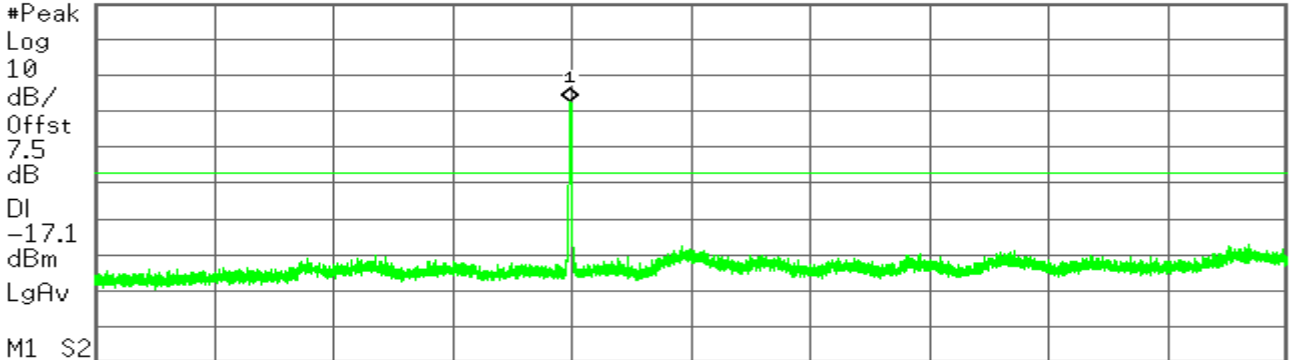
Agilent

R T

Mkr1 5.789 2 GHz  
2.89 dBm

Ref 30 dBm

Atten 40 dB



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	5.789 2 GHz	2.89 dBm



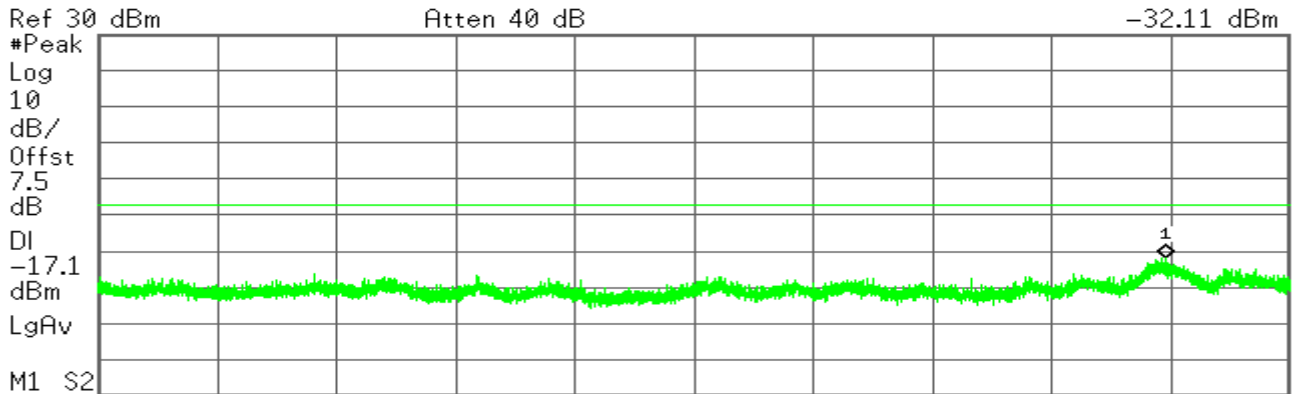
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 24.647 8 GHz  
-32.11 dBm



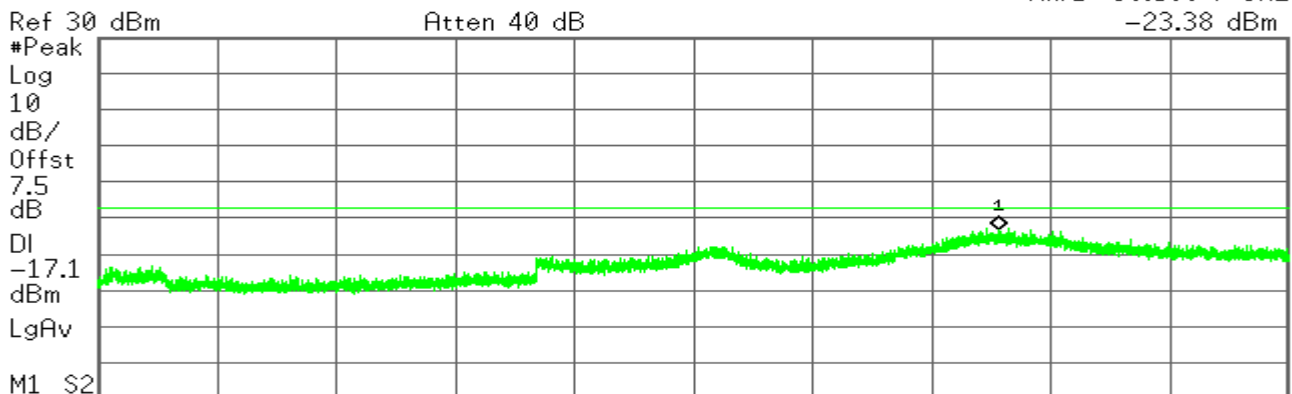
Start 13.000 0 GHz                      Stop 26.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	24.647 8 GHz	-32.11 dBm

Agilent

R T

Mkr1 36.598 7 GHz  
-23.38 dBm



Start 26.000 0 GHz                      Stop 40.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.598 7 GHz	-23.38 dBm





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

Agilent

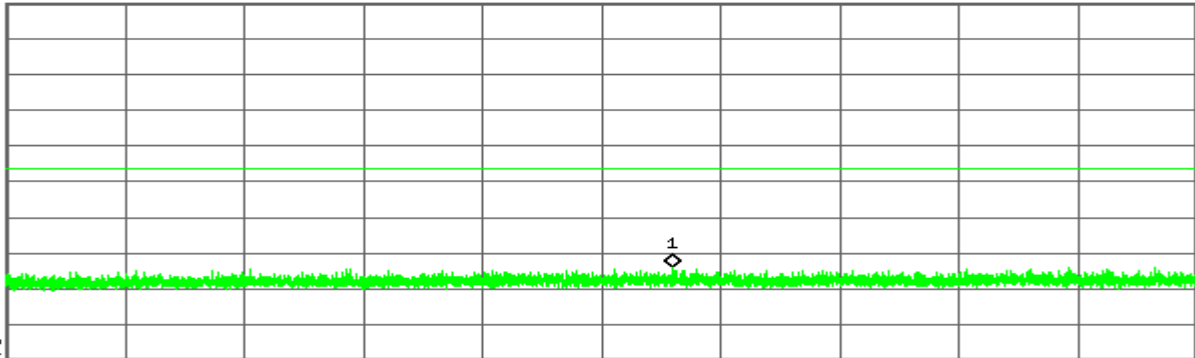
R T

Mkr1 572.85 MHz  
-43.97 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB  
DI  
-16.4  
dBm  
LgAv



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	572.85 MHz	-43.97 dBm

Agilent

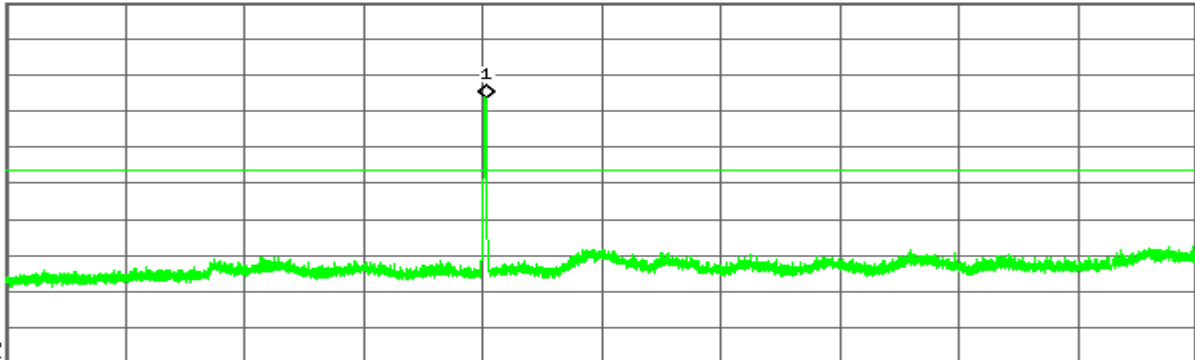
R T

Mkr1 5.831 6 GHz  
3.62 dBm

Ref 30 dBm

Atten 40 dB

#Peak  
Log  
10  
dB/  
Offst  
7.5  
dB  
DI  
-16.4  
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	5.831 6 GHz	3.62 dBm



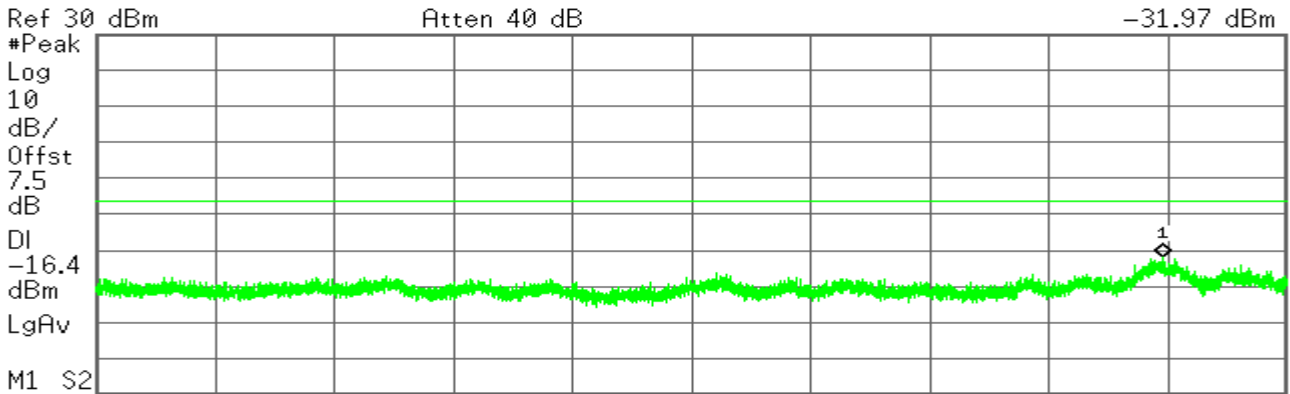
# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Agilent

R T

Mkr1 24.641 4 GHz  
-31.97 dBm



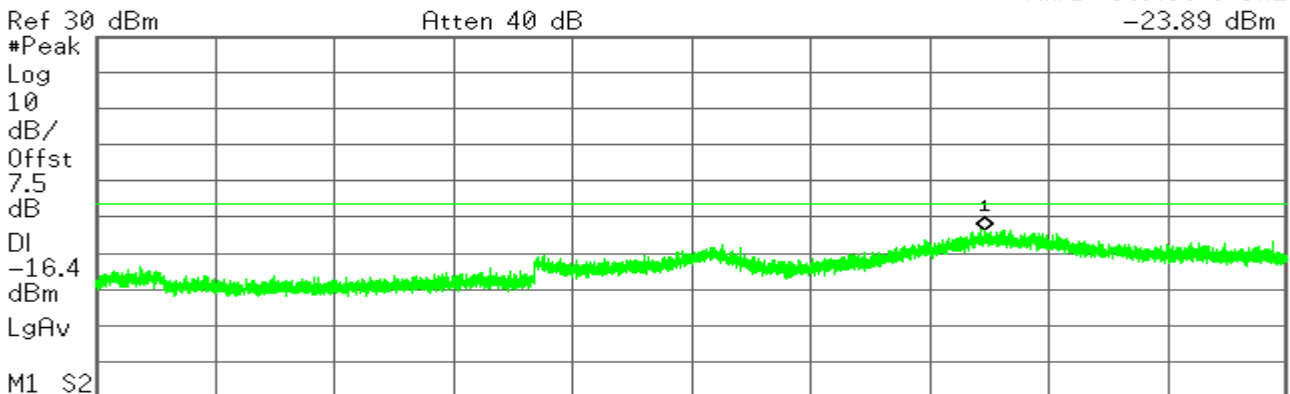
Start 13.000 0 GHz                      Stop 26.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.243 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	24.641 4 GHz	-31.97 dBm

Agilent

R T

Mkr1 36.439 8 GHz  
-23.89 dBm



Start 26.000 0 GHz                      Stop 40.000 0 GHz  
#Res BW 100 kHz                      #VBW 300 kHz                      Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.439 8 GHz	-23.89 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

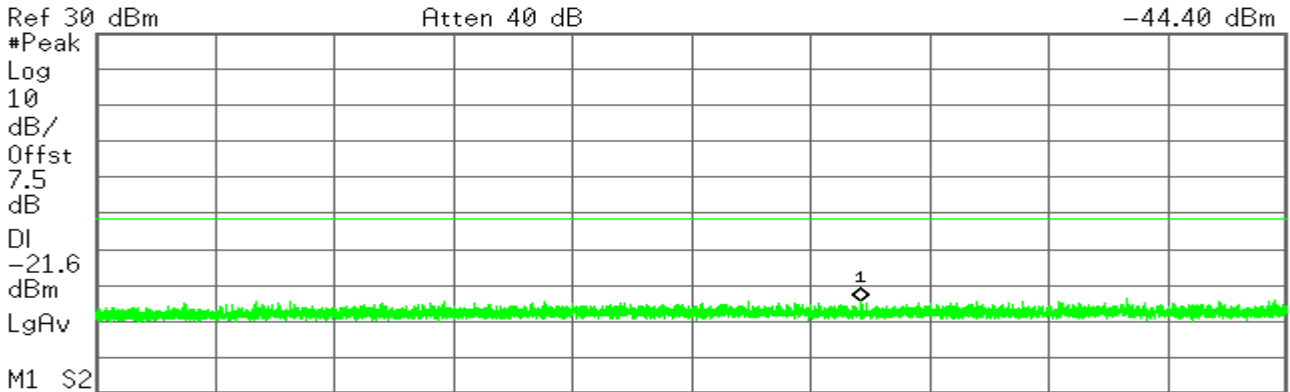
## IEEE 802.11an HT40 mode

### CH Low

Agilent

R T

Mkr1 652.67 MHz  
-44.40 dBm



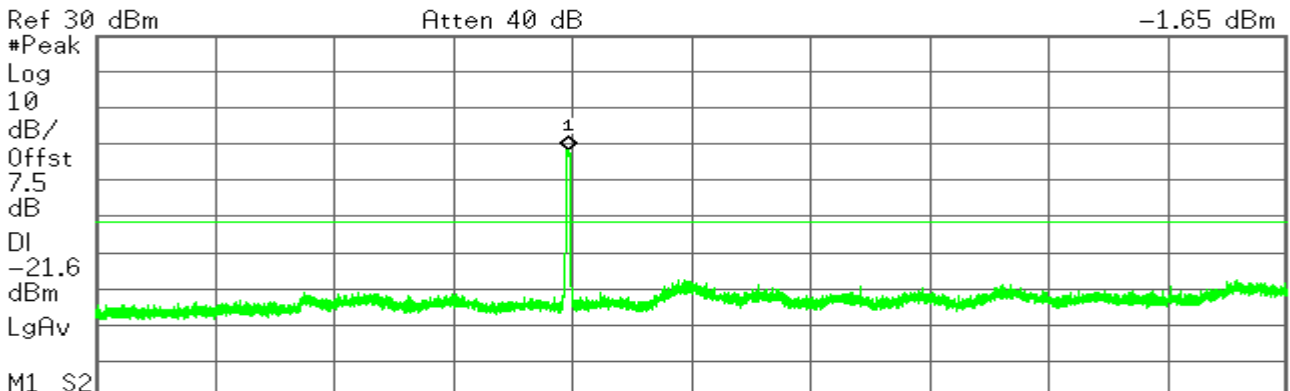
Start 30.00 MHz    Stop 1.000 00 GHz  
#Res BW 100 kHz    #VBW 300 kHz    Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	652.67 MHz	-44.40 dBm

Agilent

R T

Mkr1 5.765 7 GHz  
-1.65 dBm



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	5.765 7 GHz	-1.65 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

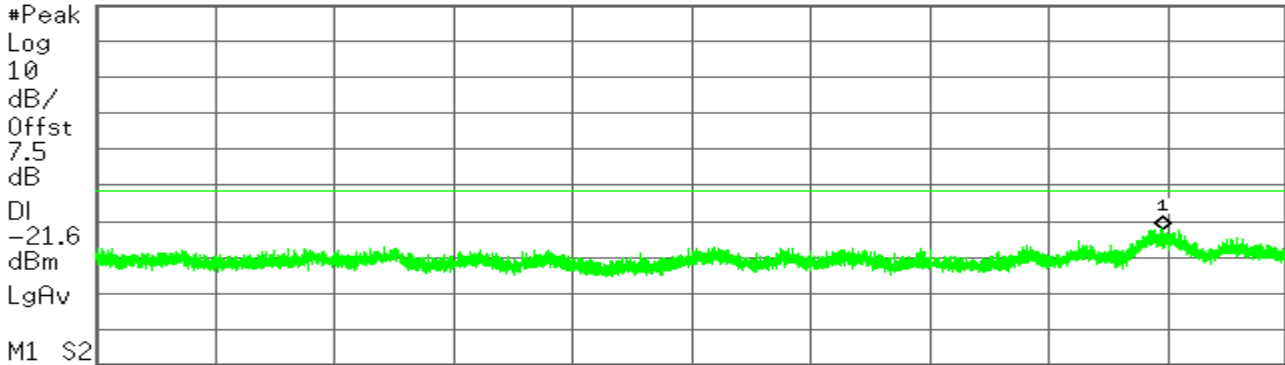
Agilent

R T

Mkr1 24.654 1 GHz  
-32.15 dBm

Ref 30 dBm

Atten 40 dB



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	24.654 1 GHz	-32.15 dBm

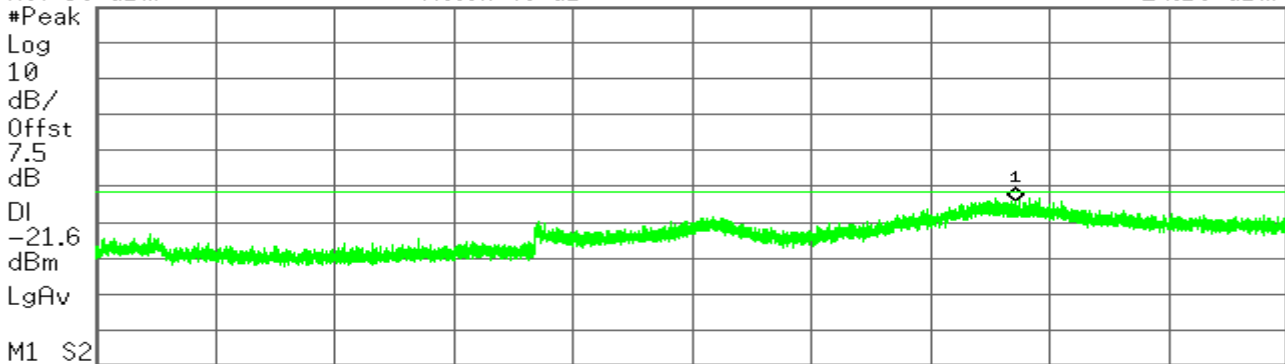
Agilent

R T

Mkr1 36.798 7 GHz  
-24.19 dBm

Ref 30 dBm

Atten 40 dB



M1 S2  
Center 33.000 0 GHz

Span 14 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.798 7 GHz	-24.19 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## CH High

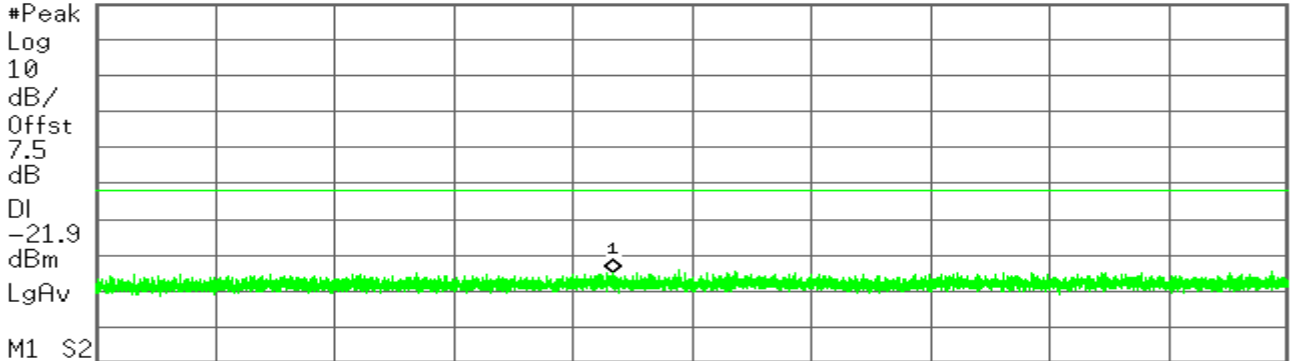
Agilent

R T

Mkr1 449.93 MHz  
-44.71 dBm

Ref 30 dBm

Atten 40 dB



M1 S2

Start 30.00 MHz

Stop 1.000 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 92.83 ms (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	449.93 MHz	-44.71 dBm

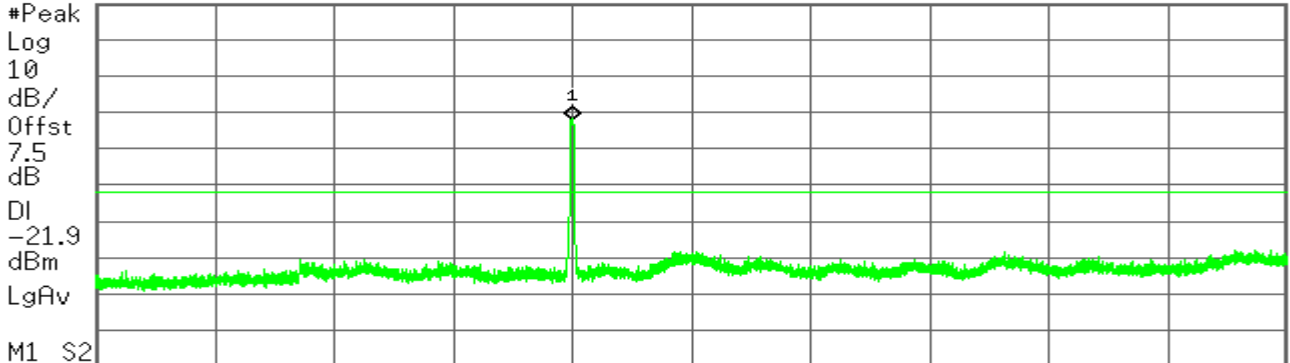
Agilent

R T

Mkr1 5.805 3 GHz  
-1.90 dBm

Ref 30 dBm

Atten 40 dB



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	5.805 3 GHz	-1.90 dBm



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

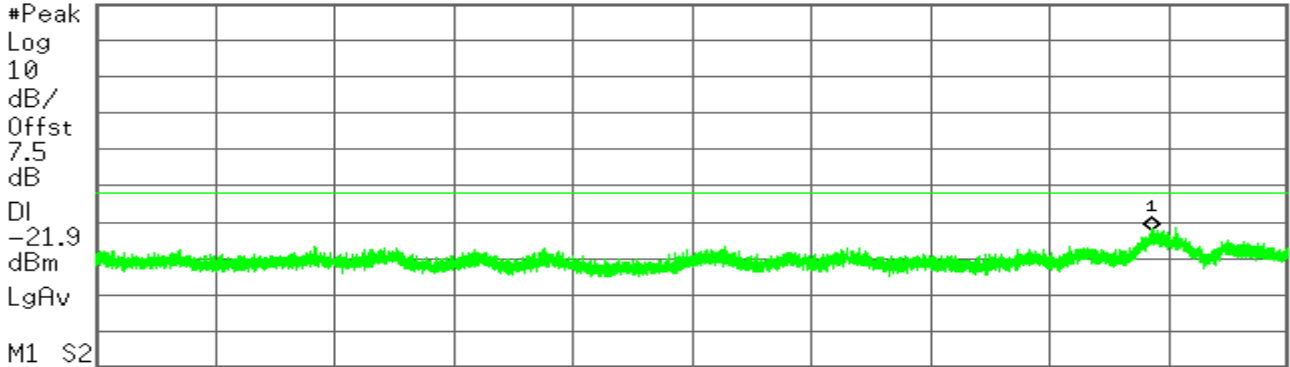
Agilent

R T

Mkr1 24.522 4 GHz  
-32.56 dBm

Ref 30 dBm

Atten 40 dB



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	24.522 4 GHz	-32.56 dBm

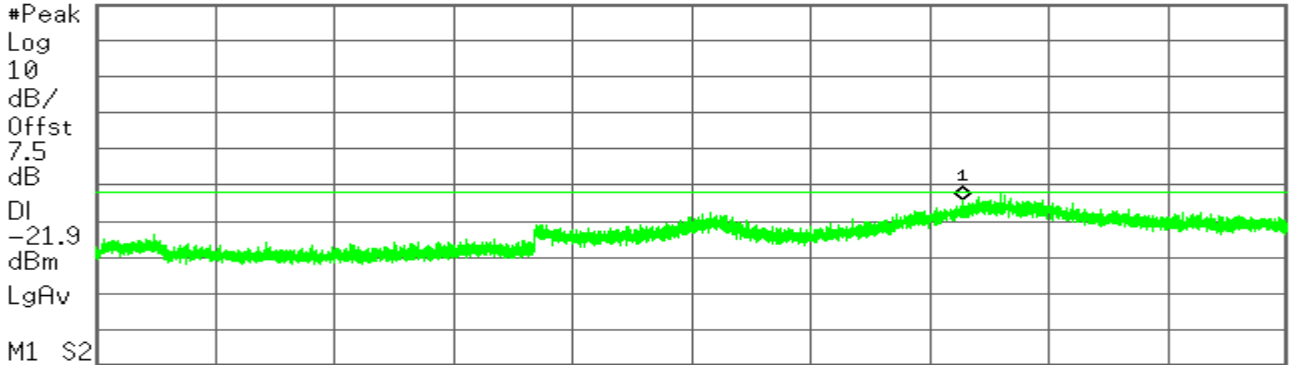
Agilent

R T

Mkr1 36.195 3 GHz  
-23.97 dBm

Ref 30 dBm

Atten 40 dB



M1 S2  
Start 26.000 0 GHz

Stop 40.000 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.338 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	36.195 3 GHz	-23.97 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.

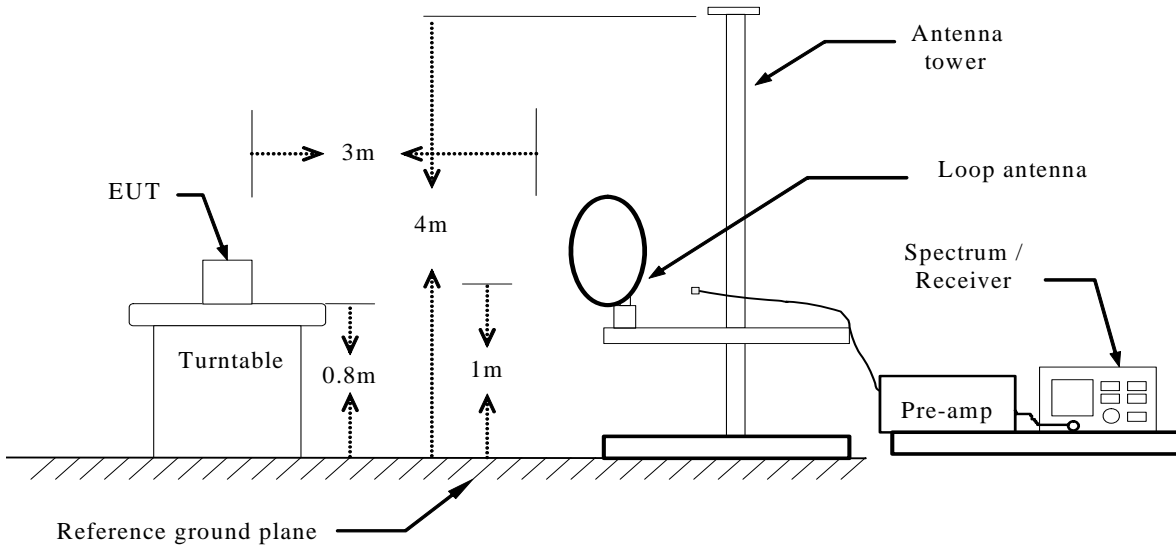
2. In the emission table above, the tighter limit applies at the band edges.

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

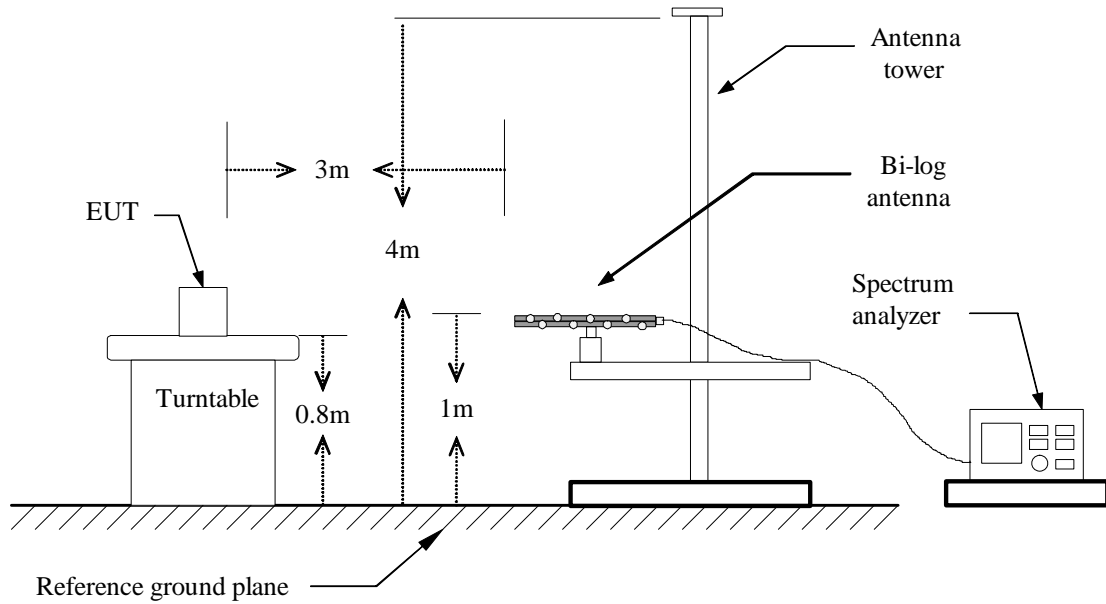
### Test Configuration



## Below 30MHz



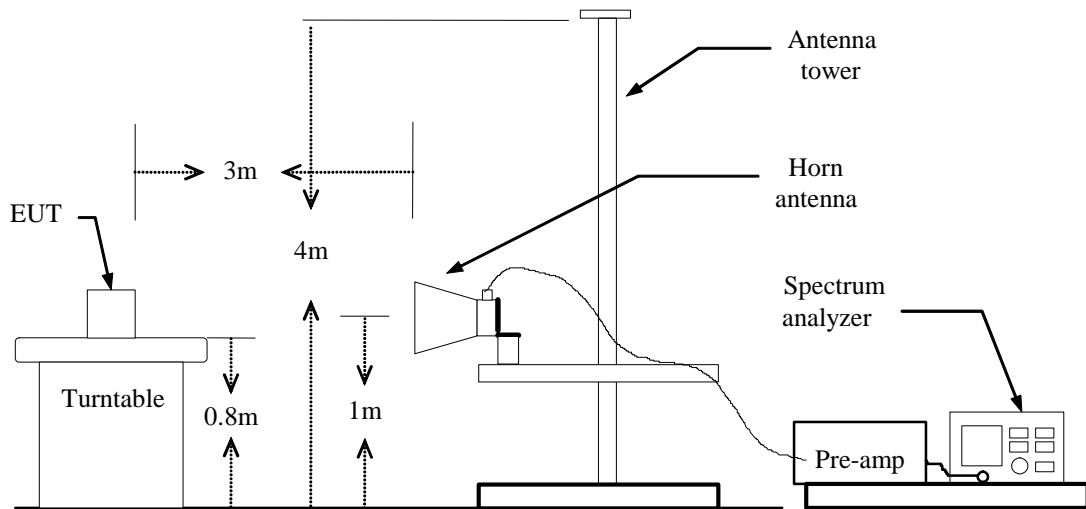
## Below 1 GHz







## 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

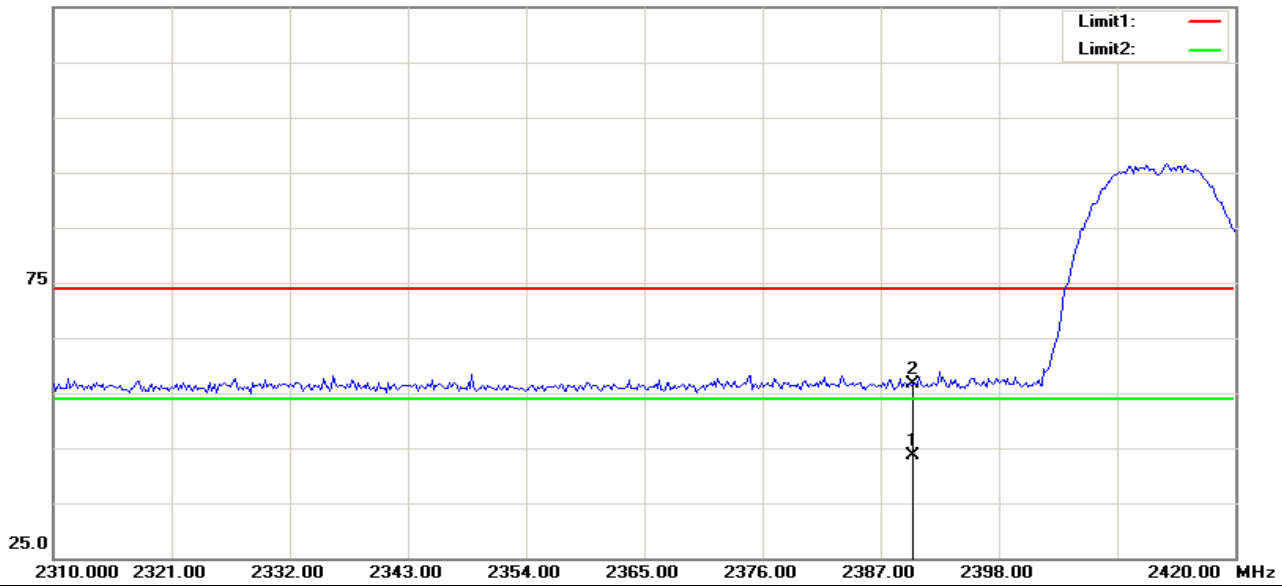
7. Repeat above procedures until the measurements for all frequencies are complete.

## TEST RESULTS



## RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

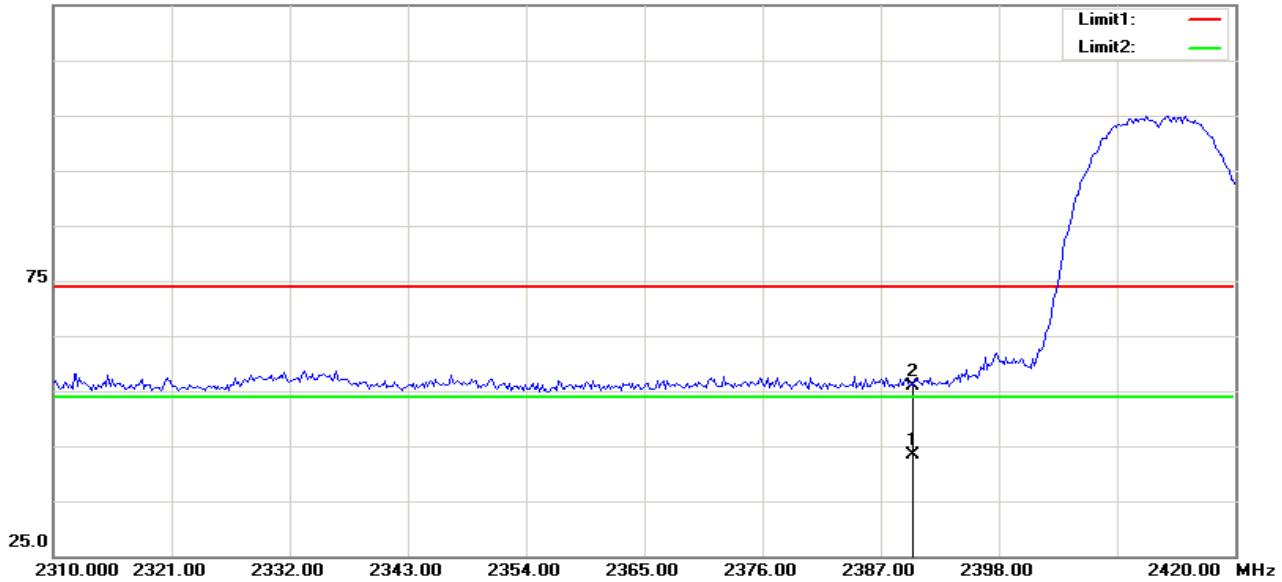
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.950	52.10	-8.45	43.65	54.00	-10.35	99	271	AVG
2	2390.000	65.07	-8.45	56.62	74.00	-17.38	100	273	peak

## RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

125.0 dBuV/m

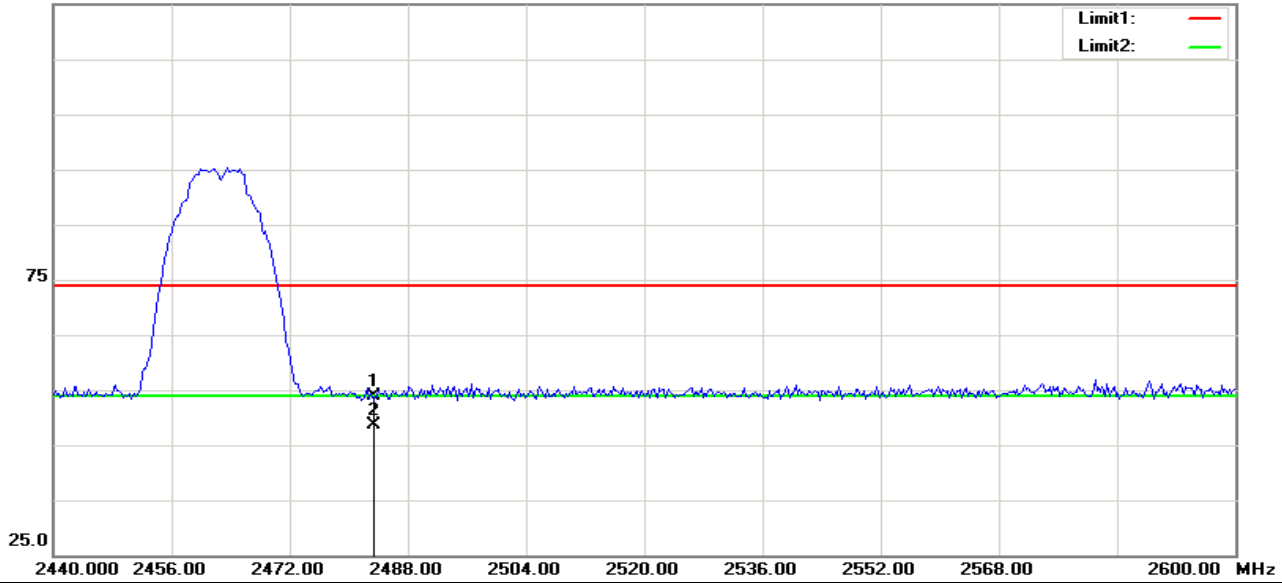


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.979	51.75	-8.45	43.30	54.00	-10.70	103	360	AVG
2	2390.000	64.33	-8.45	55.88	74.00	-18.12	100	359	peak



## RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

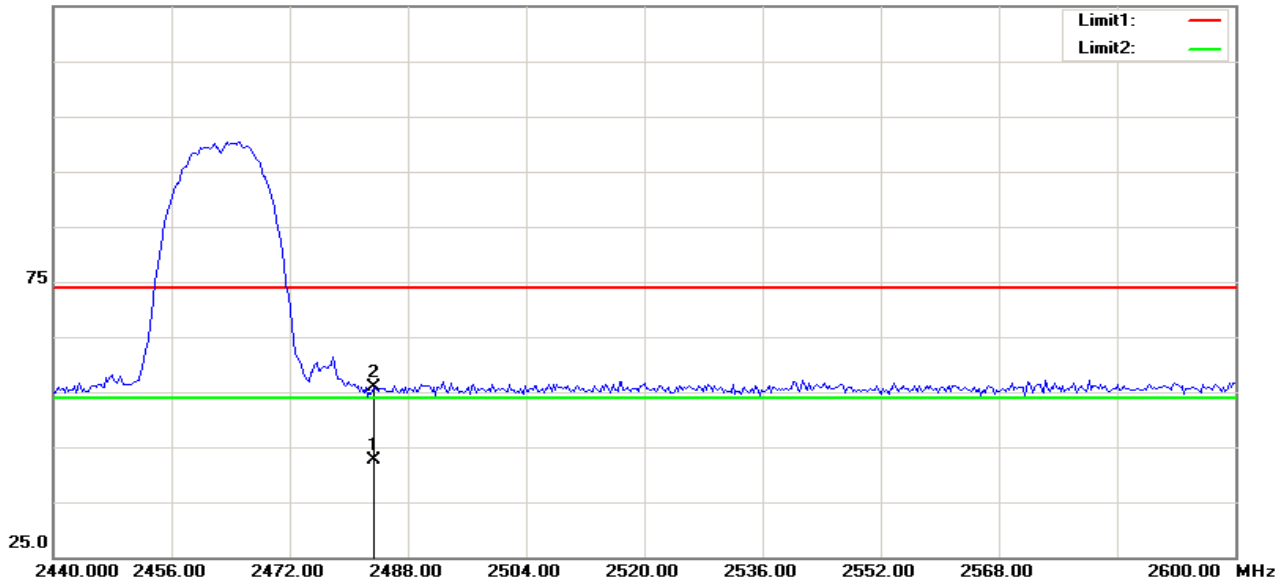
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	62.06	-8.09	53.97	74.00	-20.03	100	200	peak
2	2483.502	56.77	-8.09	48.68	54.00	-5.32	100	200	AVG

## RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

125.0 dBuV/m

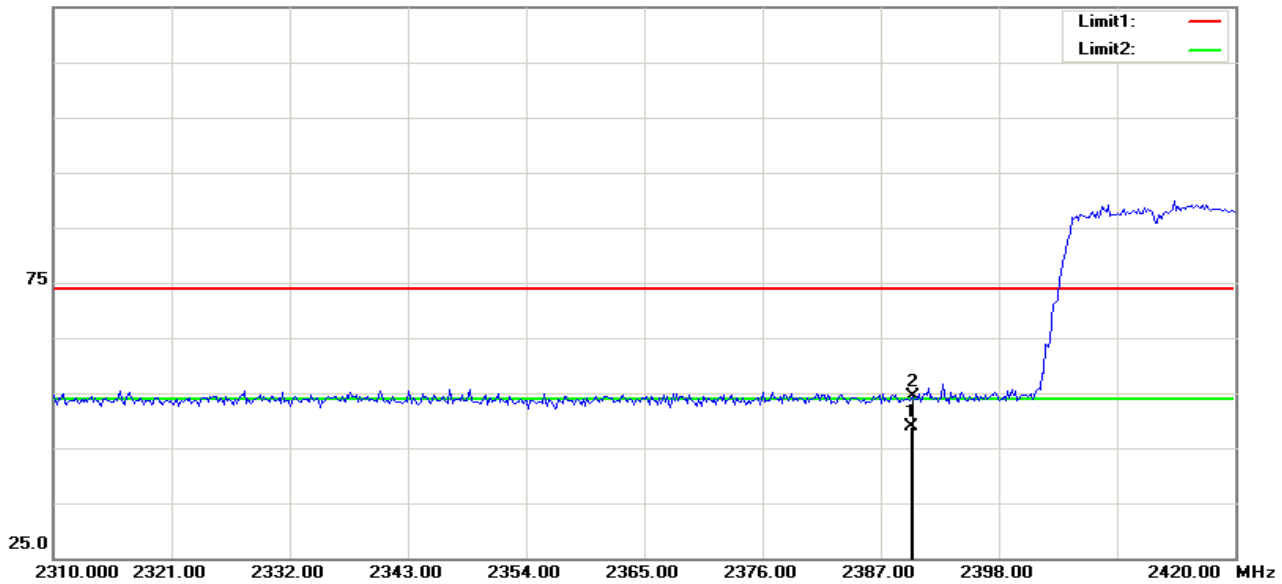


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.470	50.76	-8.09	42.67	54.00	-11.33	100	199	AVG
2	2483.500	63.90	-8.09	55.81	74.00	-18.19	100	200	peak



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

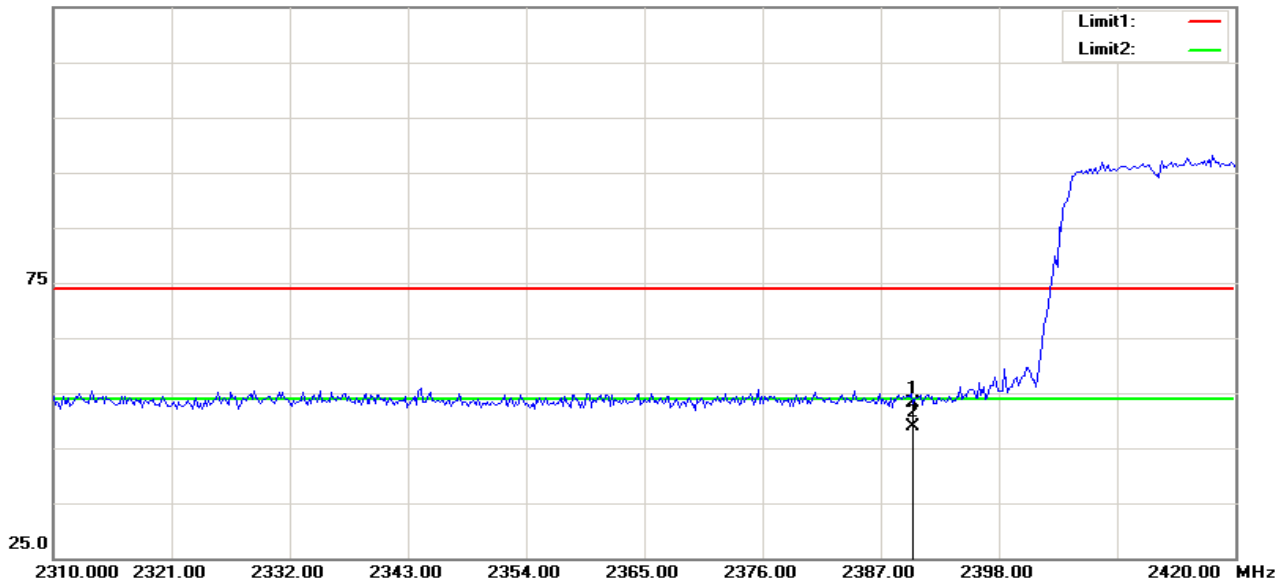
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.925	57.43	-8.45	48.98	54.00	-5.02	100	360	AVG
2	2390.000	62.79	-8.45	54.34	74.00	-19.66	100	360	peak

## RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

125.0 dBuV/m

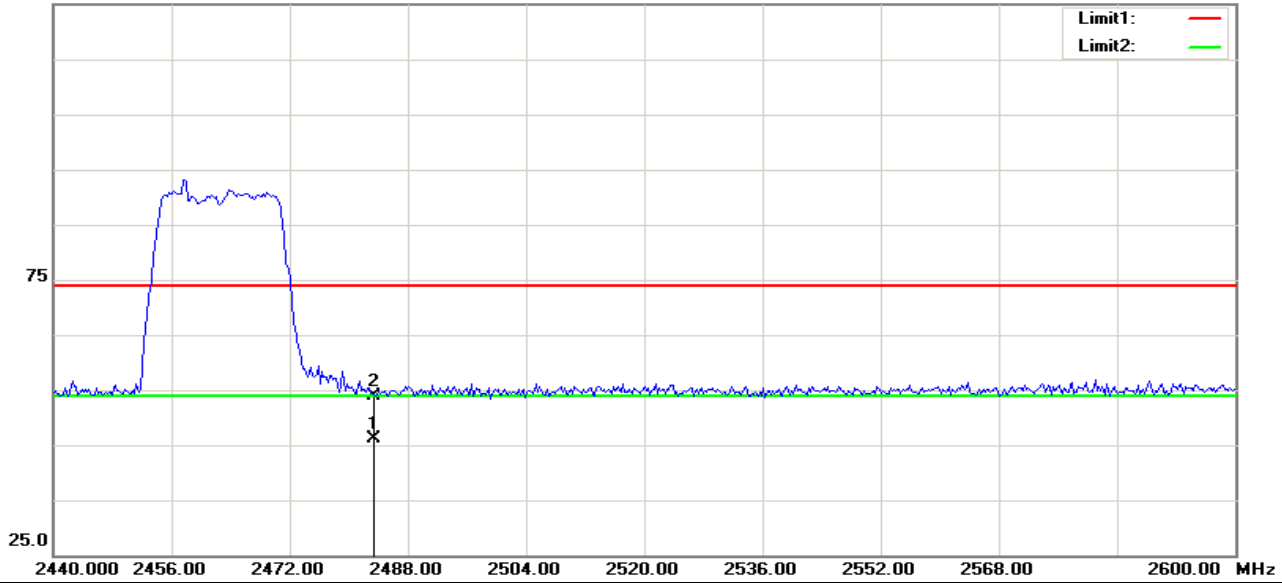


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	61.52	-8.45	53.07	74.00	-20.93	100	18	peak
2	2390.058	57.33	-8.45	48.88	54.00	-5.12	100	131	AVG



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

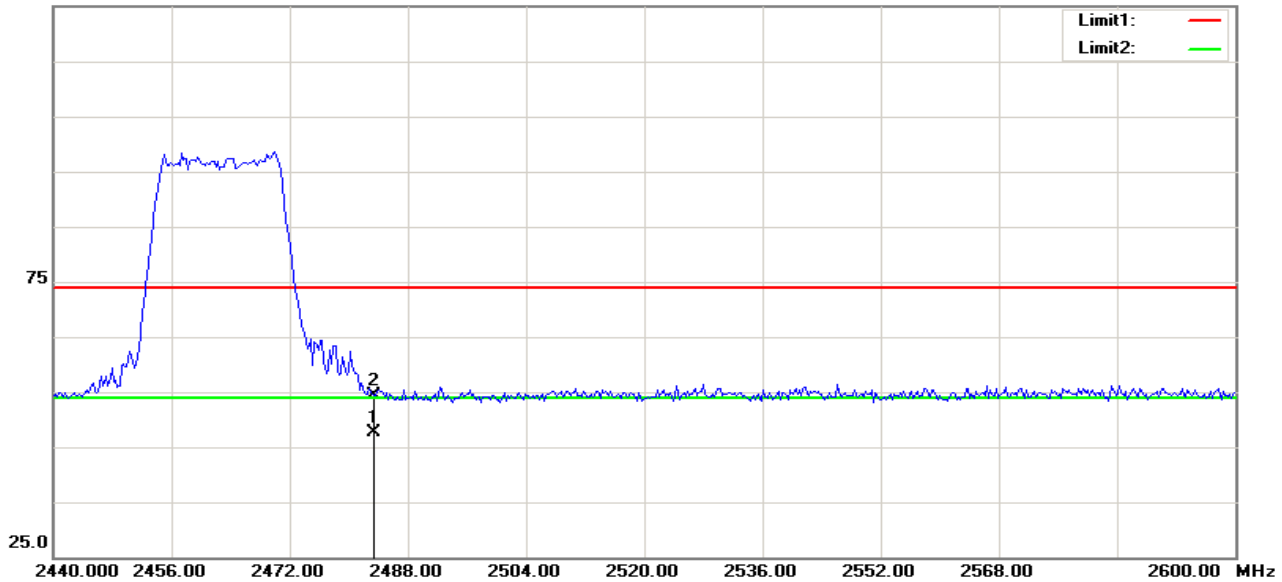
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.480	54.34	-8.09	46.25	54.00	-7.75	100	200	AVG
2	2483.500	62.06	-8.09	53.97	74.00	-20.03	100	200	peak

## RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

125.0 dBuV/m

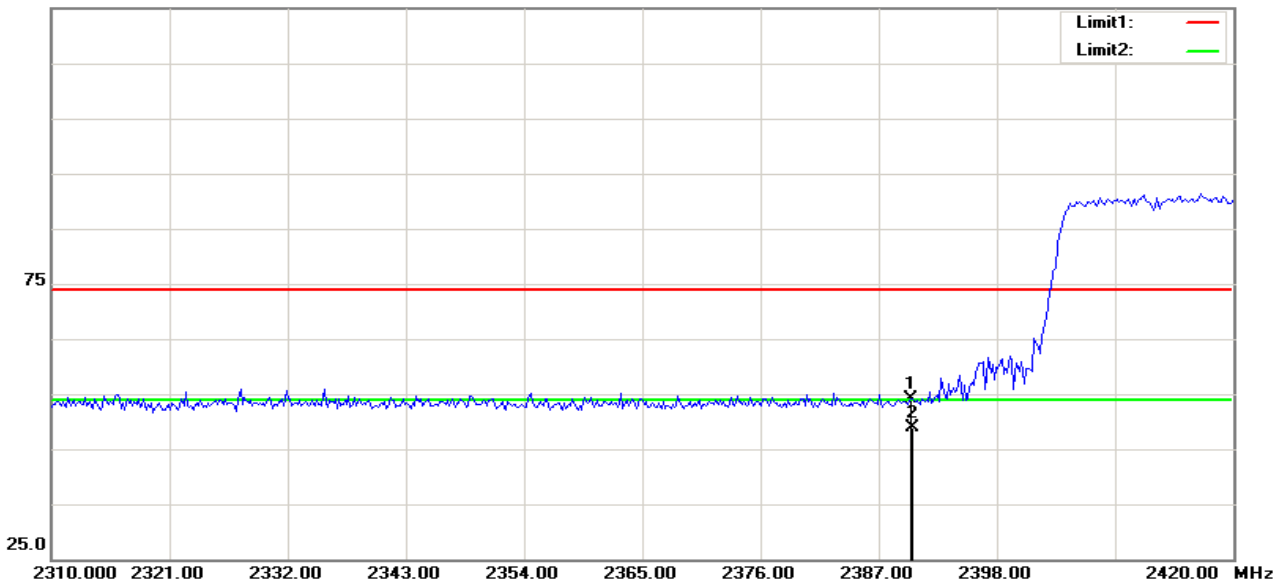


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.495	55.67	-8.09	47.58	54.00	-6.42	100	200	AVG
2	2483.500	62.50	-8.09	54.41	74.00	-19.59	100	200	peak



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

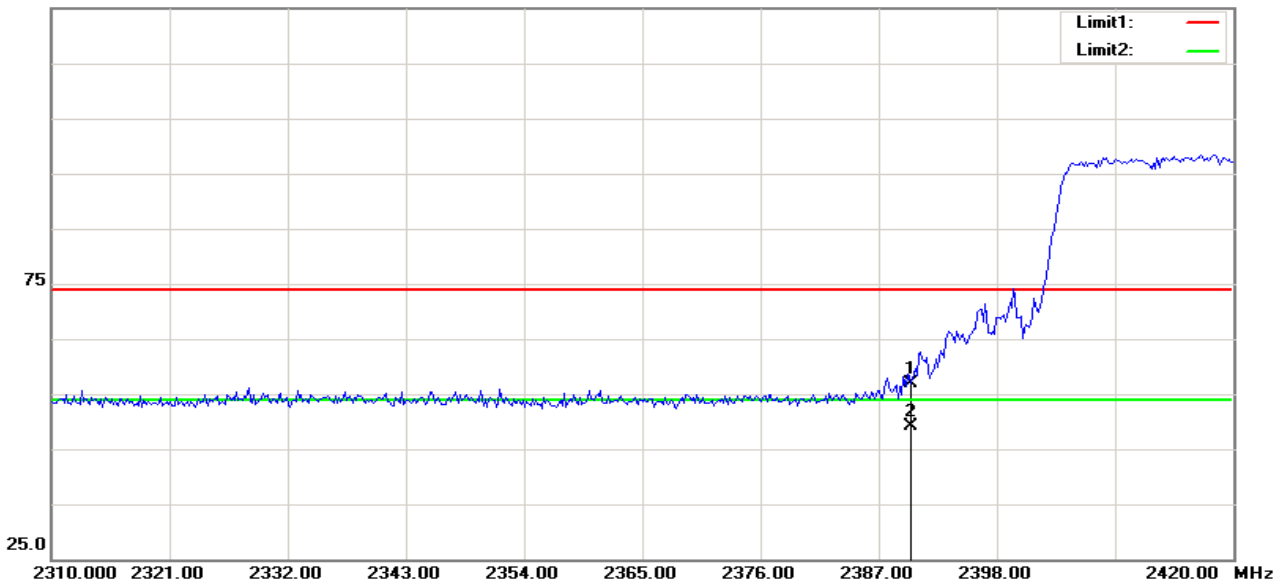
125.0 dBuV/m



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	62.54	-8.45	54.09	74.00	-19.91	100	360	peak
2	2390.154	57.40	-8.45	48.95	54.00	-5.05	100	299	AVG

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

125.0 dBuV/m

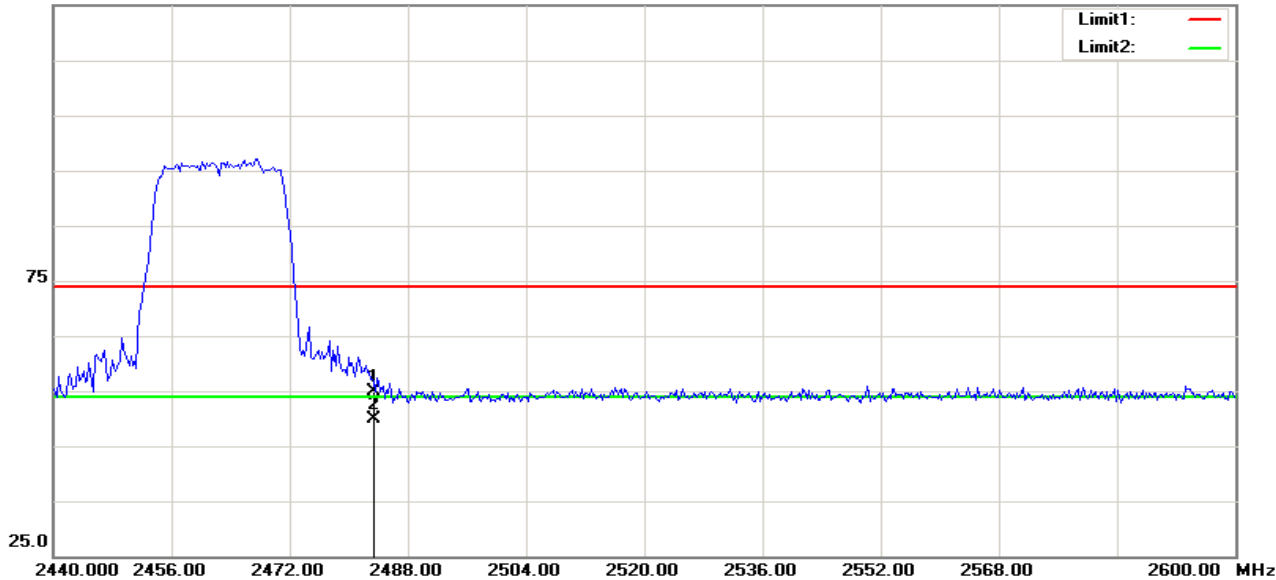


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	65.26	-8.45	56.81	74.00	-17.19	100	360	peak
2	2390.014	57.66	-8.45	49.21	54.00	-4.79	100	360	AVG



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

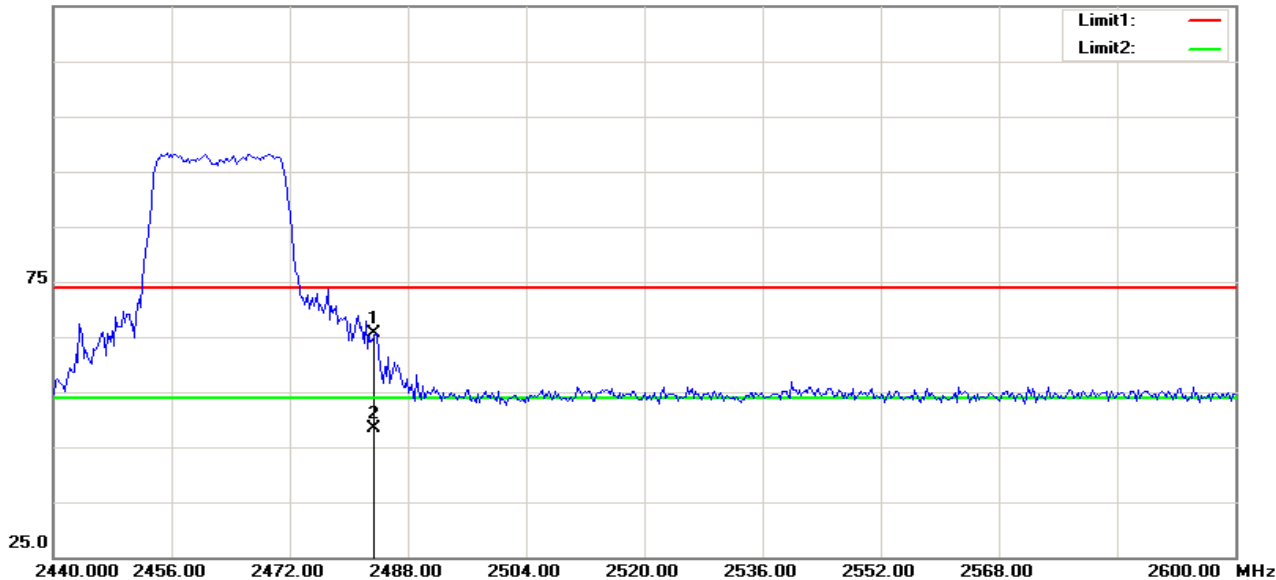
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	63.03	-8.09	54.94	74.00	-19.06	100	290	peak
2	2483.502	58.07	-8.09	49.98	54.00	-4.02	100	290	AVG

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

125.0 dBuV/m

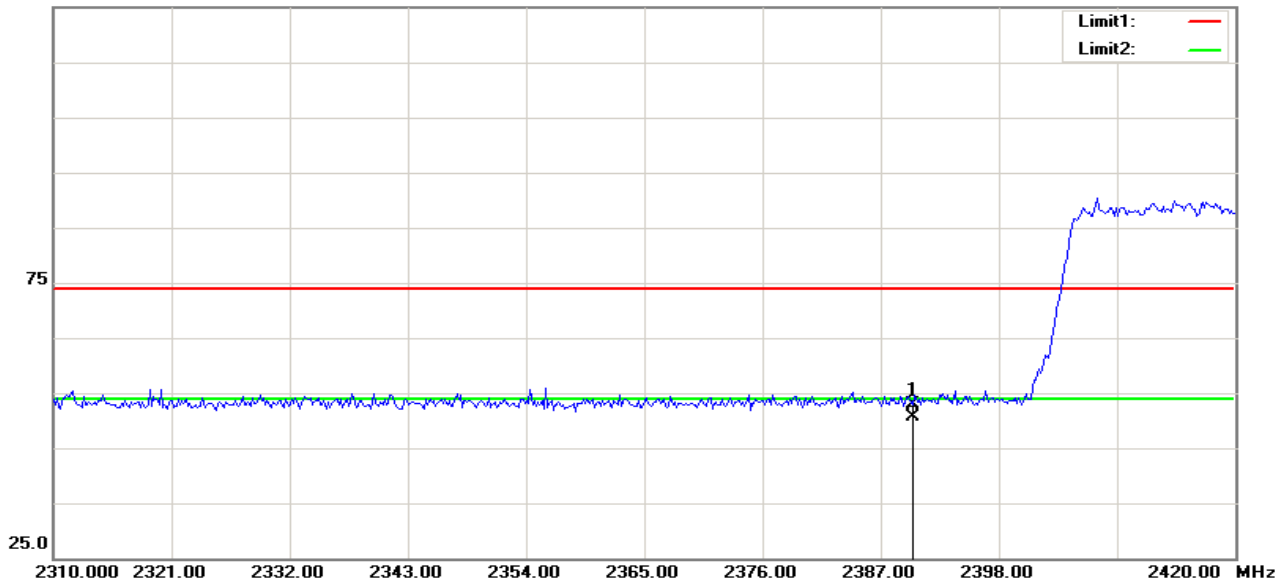


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	73.76	-8.09	65.67	74.00	-8.33	100	290	peak
2	2483.509	56.57	-8.09	48.48	54.00	-5.52	100	340	AVG



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

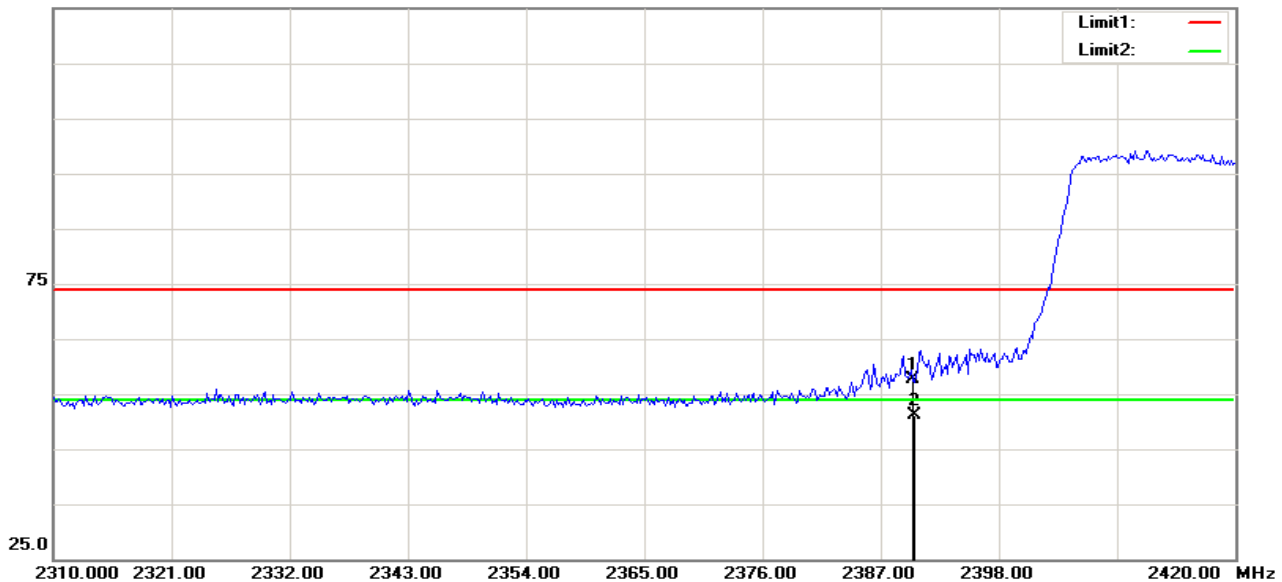
125.0 dBuV/m



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	61.37	-8.45	52.92	74.00	-21.08	100	360	peak
2	2390.058	59.14	-8.45	50.69	54.00	-3.31	100	299	AVG

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

125.0 dBuV/m



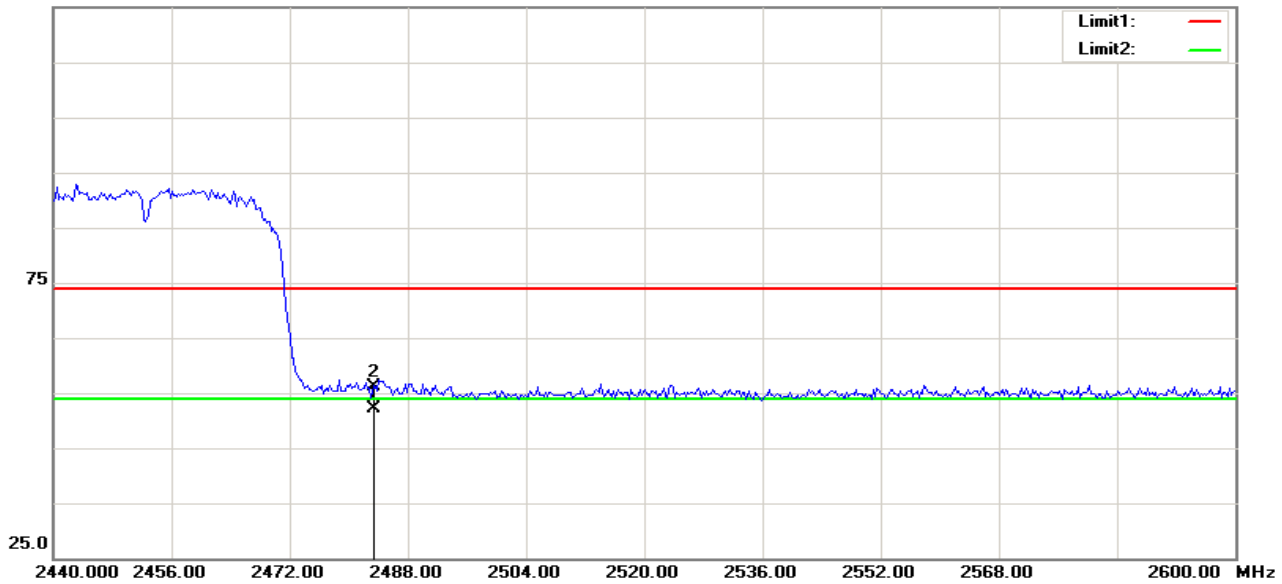
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	66.00	-8.45	57.55	74.00	-16.45	100	360	peak
2	2390.102	59.69	-8.45	51.24	54.00	-2.76	100	299	AVG





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

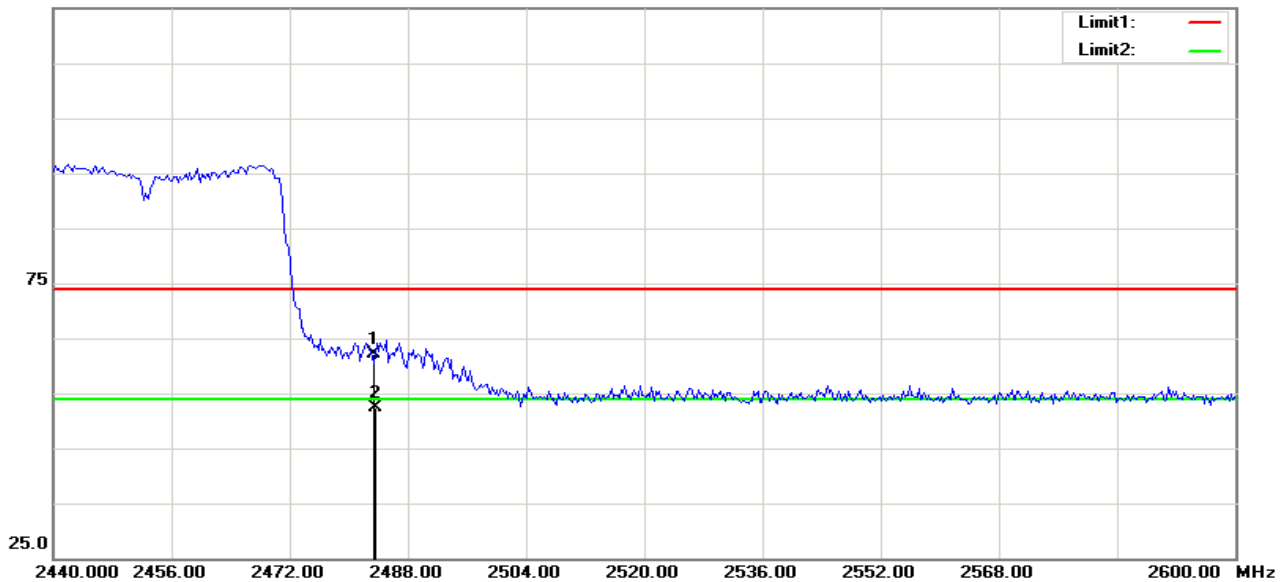
125.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.468	60.25	-8.09	52.16	54.00	-1.84	100	290	AVG
2	2483.500	64.17	-8.09	56.08	74.00	-17.92	100	290	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	2483.500	70.10	-8.09	62.01	74.00	-11.99	100	290	peak
2	2483.521	60.43	-8.09	52.34	54.00	-1.66	100	290	AVG



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## Below 1GHz

Operation Mode: Normal Link

Test Date: 2014-6-15

Temperature: 24°C

Tested by: Charly.xue

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
66.8600	V	20.84	9.03	29.87	40.00	-10.13	Peak
147.3700	V	13.87	14.03	27.90	43.50	-15.60	Peak
299.6600	V	17.12	14.72	31.84	46.00	-14.16	Peak
562.5300	V	15.42	20.91	36.33	46.00	-9.67	Peak
844.8000	V	10.80	25.23	36.03	46.00	-9.97	Peak
66.8600	V	20.84	9.03	29.87	40.00	-10.13	Peak
49.4000	H	23.54	9.06	32.60	40.00	-7.40	Peak
119.2400	H	16.86	15.03	31.89	43.50	-11.61	Peak
236.6100	H	24.92	13.61	38.53	46.00	-7.47	Peak
375.3200	H	24.25	17.45	41.70	46.00	-4.30	Peak
549.9200	H	14.32	21.03	35.35	46.00	-10.65	Peak
935.9800	H	15.38	25.30	40.68	46.00	-5.32	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: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

## Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: 2014-6-15

Temperature: 24°C

Tested by: Charly.xue

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	125	peak
2	4868.590	41.58	-1.28	40.30	74.00	-33.70	100	22	peak
3	7293.269	42.01	4.13	46.14	74.00	-27.86	100	54	peak
4	9745.192	38.70	6.49	45.19	74.00	-28.81	100	32	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	156	peak
2	4786.859	42.94	-1.39	41.55	74.00	-32.45	100	6	peak
3	7266.025	41.17	4.18	45.35	74.00	-28.65	100	325	peak
4	9717.949	38.98	6.63	45.61	74.00	-28.39	100	25	peak
N/A									

Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: 2014-6-15

Temperature: 24°C

Tested by: Charly.xue

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	55.36	-8.24	47.12	74.00	-26.88	100	55	peak
2	4868.590	40.61	-1.28	39.33	74.00	-34.67	100	48	peak
3	7211.538	40.33	4.29	44.62	74.00	-29.38	100	65	peak
4	9527.244	39.37	7.07	46.44	74.00	-27.56	100	159	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	2498.397	55.40	-8.03	47.37	74.00	-26.63	100	97	peak
2	4868.590	41.63	-1.28	40.35	74.00	-33.65	100	314	peak
3	7320.513	40.22	4.07	44.29	74.00	-29.71	100	21	peak
4	9608.974	38.06	7.18	45.24	74.00	-28.76	100	265	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11b / CH High

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	99	peak
2	4895.833	41.27	-1.30	39.97	74.00	-34.03	100	56	peak
3	7347.756	40.21	4.02	44.23	74.00	-29.77	100	154	peak
4	9772.436	39.12	6.36	45.48	74.00	-28.52	100	216	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	2443.910	58.38	-8.24	50.14	74.00	-23.86	100	69	peak
2	4923.077	41.16	-1.32	39.84	74.00	-34.16	100	15	peak
3	7347.756	41.19	4.02	45.21	74.00	-28.79	100	154	peak
4	9799.680	40.37	6.22	46.59	74.00	-27.41	100	48	peak
N/A									

**Operation Mode:** TX / IEEE 802.11g / CH Low

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	67	peak
2	4868.590	41.27	-1.28	39.99	74.00	-34.01	100	48	peak
3	7211.538	40.79	4.29	45.08	74.00	-28.92	100	85	peak
4	9608.974	38.81	7.18	45.99	74.00	-28.01	100	256	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	2416.667	56.71	-8.35	48.36	74.00	-25.64	100	98	peak
2	4786.859	42.34	-1.39	40.95	74.00	-33.05	100	145	peak
3	7211.538	40.61	4.29	44.90	74.00	-29.10	100	55	peak
4	9581.731	38.62	7.18	45.80	74.00	-28.20	100	62	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11g / CH Mid

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	2389.425	57.76	-8.45	49.36	74.00	-24.64	100	95	peak
1	4882.971	47.16	-1.29	45.87	74.00	-28.13	100	41	peak
2	7345.680	37.15	4.07	41.25	74.00	-32.75	100	142	peak
4	9678.911	38.81	7.18	45.98	74.00	-28.02	100	298	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	2471.154	57.46	-8.14	49.32	74.00	-24.68	100	98	peak
2	4868.590	41.63	-1.28	40.35	74.00	-33.65	100	59	peak
3	7375.000	38.81	3.97	42.78	74.00	-31.22	100	114	peak
4	9663.461	38.82	6.90	45.72	74.00	-28.28	100	64	peak

**Operation Mode:** TX / IEEE 802.11g / CH High

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	64	peak
2	4895.833	40.49	-1.30	39.19	74.00	-34.81	100	66	peak
3	7347.756	40.07	4.02	44.09	74.00	-29.91	100	51	peak
4	9799.680	39.43	6.22	45.65	74.00	-28.35	100	226	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	2443.910	57.00	-8.24	48.76	74.00	-25.24	100	5	peak
2	4977.564	40.04	-1.36	38.68	74.00	-35.32	100	48	peak
3	7456.731	39.03	4.37	43.40	74.00	-30.60	100	65	peak
4	9908.654	38.33	6.79	45.12	74.00	-28.88	100	8	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH Low  
**Temperature:** 24°C  
**Humidity:** 48 % RH

**Test Date:** 2014-6-15  
**Tested by:** Charly.xue  
**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	49	peak
2	4786.859	42.21	-1.39	40.82	74.00	-33.18	100	284	peak
3	7211.538	39.84	4.29	44.13	74.00	-29.87	100	5	peak
4	9608.974	38.51	7.18	45.69	74.00	-28.31	100	59	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	56.84	-8.45	48.39	74.00	-25.61	100	54	peak
2	4786.859	41.77	-1.39	40.38	74.00	-33.62	100	56	peak
3	7211.538	39.48	4.29	43.77	74.00	-30.23	100	314	peak
4	9636.218	36.77	7.04	43.81	74.00	-30.19	100	15	peak
N/A									

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH Mid  
**Temperature:** 24°C  
**Humidity:** 48 % RH

**Test Date:** 2014-6-15  
**Tested by:** Charly.xue  
**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	169	peak
2	4786.859	42.11	-1.39	40.72	74.00	-33.28	100	56	peak
3	7293.269	40.58	4.13	44.71	74.00	-29.29	100	48	peak
4	9636.218	37.64	7.04	44.68	74.00	-29.32	100	47	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	2416.667	58.67	-8.35	50.32	74.00	-23.68	100	97	peak
2	4923.077	39.70	-1.32	38.38	74.00	-35.62	100	48	peak
3	7347.756	39.63	4.02	43.65	74.00	-30.35	100	41	peak
4	9690.705	37.23	6.77	44.00	74.00	-30.00	100	65	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11n HT20 mode / CH High    **Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	58	peak
2	5004.808	41.75	-1.40	40.35	74.00	-33.65	100	209	peak
3	7456.731	38.71	4.37	43.08	74.00	-30.92	100	90	peak
4	9799.680	39.41	6.22	45.63	74.00	-28.37	100	44	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	2498.397	62.05	-8.03	54.02	74.00	-19.98	100	97	peak
2	4923.077	41.29	-1.32	39.97	74.00	-34.03	100	145	peak
3	7347.756	39.91	4.02	43.93	74.00	-30.07	100	54	peak
4	9772.436	38.79	6.36	45.15	74.00	-28.85	100	305	peak
N/A									

**Operation Mode:** TX / IEEE 802.11n HT40 mode / CH Low    **Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	48.89	-8.24	40.65	74.00	-33.35	100	298	peak
2	4786.859	41.77	-1.39	40.38	74.00	-33.62	100	48	peak
3	7293.269	41.12	4.13	45.25	74.00	-28.75	100	87	peak
4	9608.974	38.43	7.18	45.61	74.00	-28.39	100	49	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	2443.910	48.74	-8.24	40.50	74.00	-33.50	100	94	peak
2	4786.859	41.53	-1.39	40.14	74.00	-33.86	100	197	peak
3	7293.269	41.41	4.13	45.54	74.00	-28.46	100	87	peak
4	9636.218	38.23	7.04	45.27	74.00	-28.73	100	256	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11n HT40 mode / CH Mid

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	2471.154	55.05	-8.14	46.91	74.00	-27.09	100	48	peak
2	5004.808	40.97	-1.40	39.57	74.00	-34.43	100	354	peak
3	7293.269	40.58	4.13	44.71	74.00	-29.29	100	59	peak
4	9608.974	38.98	7.18	46.16	74.00	-27.84	100	91	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	2416.667	58.17	-8.35	49.82	74.00	-24.18	100	187	peak
2	4786.859	42.27	-1.39	40.88	74.00	-33.12	100	45	peak
3	7320.513	40.22	4.07	44.29	74.00	-29.71	100	354	peak
4	9636.218	38.65	7.04	45.69	74.00	-28.31	100	59	peak
N/A									

**Operation Mode:** TX / IEEE 802.11n HT40 mode / CH High

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	94	peak
2	4895.833	42.44	-1.30	41.14	74.00	-32.86	100	46	peak
3	7347.756	41.48	4.02	45.50	74.00	-28.50	100	99	peak
4	9772.436	39.74	6.36	46.10	74.00	-27.90	100	158	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	2498.397	58.71	-8.03	50.68	74.00	-23.32	100	360	peak
2	4895.833	41.05	-1.30	39.75	74.00	-34.25	100	84	peak
3	7347.756	40.17	4.02	44.19	74.00	-29.81	100	48	peak
4	9908.654	38.76	6.79	45.55	74.00	-28.45	100	124	peak
N/A									





# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11a / CH Low

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5740.385	53.30	-6.31	46.99	74.00	-27.01	100	125	peak
2	11434.295	43.19	6.61	49.80	74.00	-24.20	100	32	peak
3	17237.179	41.49	9.29	50.78	74.00	-23.22	100	315	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	5767.628	61.14	-6.24	54.90	74.00	-19.10	100	265	peak
2	5767.628	55.14	-6.24	48.90	54.00	-5.10	100	51	AVG
3	11461.539	44.75	6.39	51.14	74.00	-22.86	100	216	peak
4	17237.179	44.75	9.29	54.04	74.00	-19.96	100	102	peak
N/A									

**Operation Mode:** TX / IEEE 802.11a / CH Mid

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5767.628	53.97	-6.24	47.73	74.00	-26.27	100	164	peak
2	11570.473	43.43	6.55	49.98	54.00	-4.02	100	45	AVG
3	11570.513	55.70	6.55	62.25	74.00	-11.75	100	79	peak
4	17346.154	40.92	9.81	50.73	74.00	-23.27	100	48	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	5767.628	50.43	-6.24	44.19	74.00	-29.81	100	62	peak
2	11516.026	41.42	6.18	47.60	74.00	-26.40	100	97	peak
3	17346.154	41.03	9.81	50.84	74.00	-23.16	100	49	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / IEEE 802.11a / CH High

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5822.115	50.70	-6.08	44.62	74.00	-29.38	100	69	peak
2	11652.244	43.80	6.41	50.21	54.00	-3.79	100	198	AVG
3	11679.487	50.60	6.23	56.83	74.00	-17.17	100	44	peak
4	17455.128	40.37	9.68	50.05	74.00	-23.95	100	85	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	5822.115	51.45	-6.08	45.37	74.00	-28.63	100	97	peak
2	11570.513	42.43	6.55	48.98	74.00	-25.02	100	45	peak
3	17400.641	40.80	9.77	50.57	74.00	-23.43	100	11	peak
N/A									

**Operation Mode:** TX / draft 802.11n Standard-20 MHz mode / CH Low

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5740.385	51.54	-6.31	45.23	74.00	-28.77	100	64	peak
2	11461.539	42.57	6.39	48.96	74.00	-25.04	100	54	peak
3	17455.128	40.18	9.68	49.86	74.00	-24.14	100	48	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	11488.732	44.26	6.16	50.42	54.00	-3.58	100	92	AVG
2	11488.782	49.32	6.16	55.48	74.00	-18.52	100	156	peak
3	17237.179	40.55	9.29	49.84	74.00	-24.16	100	360	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / draft 802.11n Standard-20 MHz mode / CH Mid

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5767.628	50.53	-6.24	44.29	74.00	-29.71	100	169	peak
2	11652.244	43.54	6.41	49.95	74.00	-24.05	100	94	peak
3	17482.372	41.46	9.64	51.10	74.00	-22.90	100	14	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	5767.628	50.62	-6.24	44.38	74.00	-29.62	100	264	peak
2	11570.513	50.30	6.55	56.85	74.00	-17.15	100	148	peak
3	11571.756	42.97	6.56	49.53	54.00	-4.47	100	45	AVG
4	17346.154	40.44	9.81	50.25	74.00	-23.75	100	67	peak
N/A									

**Operation Mode:** TX / draft 802.11n Standard-20 MHz mode / CH High

**Test Date:** 2014-6-15

**Temperature:** 24°C

**Tested by:** Charly.xue

**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	5822.115	48.86	-6.08	42.78	74.00	-31.22	100	154	peak
2	11652.244	53.02	6.41	59.43	74.00	-14.57	100	8	peak
3	11654.487	42.94	6.39	49.33	54.00	-4.67	100	321	AVG
4	17482.372	40.15	9.64	49.79	74.00	-24.21	100	145	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	5822.115	48.46	-6.08	42.38	74.00	-31.62	100	95	peak
2	11652.244	51.51	6.41	57.92	74.00	-16.08	100	187	peak
3	11659.487	43.35	6.36	49.71	54.00	-4.29	100	54	AVG
4	17482.372	40.49	9.64	50.13	74.00	-23.87	100	247	peak
N/A									



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode / CH Low    **Test Date:** 2014-6-15  
**Temperature:** 24°C    **Tested by:** Charly.xue  
**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	5740.385	49.36	-6.31	43.05	74.00	-30.95	100	154	peak
2	11488.782	42.67	6.16	48.83	74.00	-25.17	100	25	peak
3	17373.397	41.80	9.80	51.60	74.00	-22.40	100	255	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	5740.385	46.66	-6.31	40.35	74.00	-33.65	100	94	peak
2	11597.756	42.14	6.73	48.87	74.00	-25.13	100	48	peak
3	17373.397	41.07	9.80	50.87	74.00	-23.13	100	55	peak
N/A									

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode / CH High    **Test Date:** 2014-6-15  
**Temperature:** 24°C    **Tested by:** Charly.xue  
**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	5794.872	48.66	-6.17	42.49	74.00	-31.51	100	164	peak
2	11597.756	45.39	6.73	52.12	74.00	-21.88	100	6	peak
3	17400.641	40.66	9.77	50.43	74.00	-23.57	100	57	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	5794.872	45.52	-6.17	39.35	74.00	-34.65	100	126	peak
2	11625.000	44.55	6.59	51.14	74.00	-22.86	100	97	peak
3	17318.910	40.59	9.84	50.43	74.00	-23.57	100	46	peak
N/A									



## 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  $\mu$ 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 $\mu$ 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.

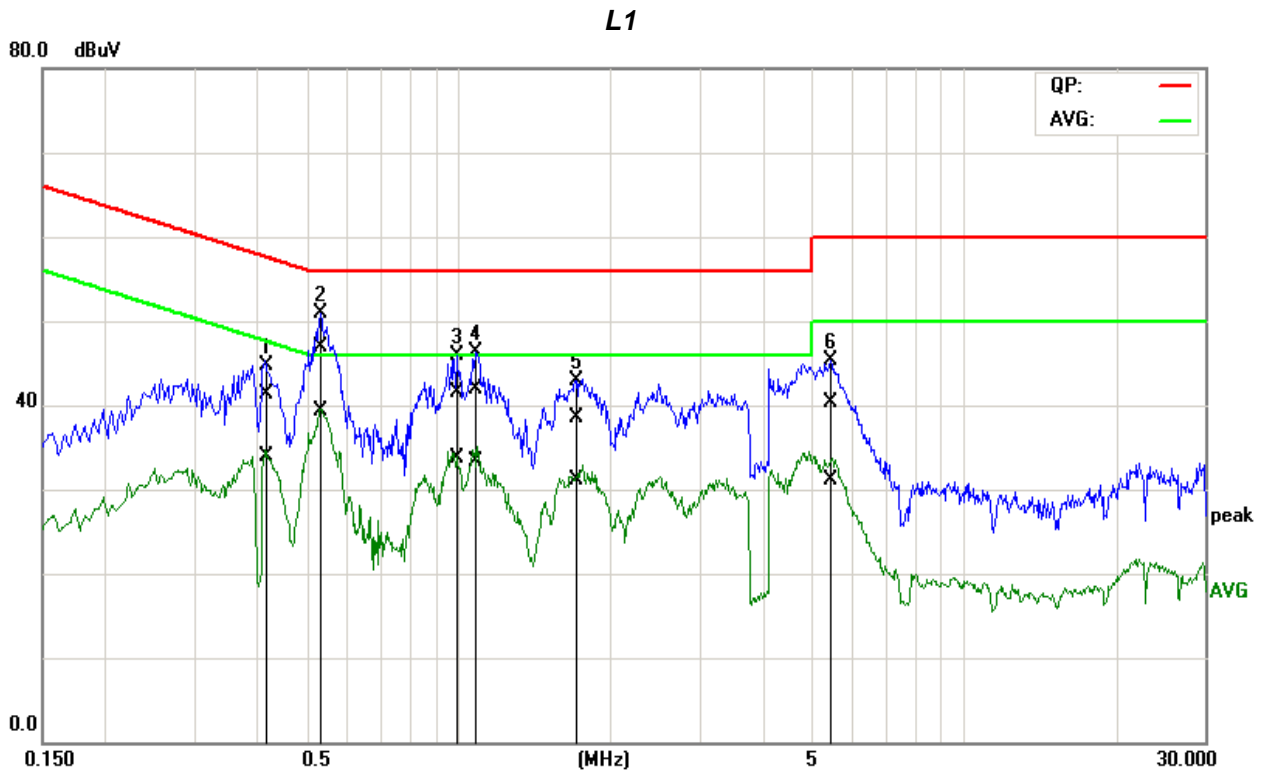
### Test Data



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Job No.:	C140516R01	Date:	2014-6-24
Model:	AC650W	Time:	11:19:42
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Charly.xue
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	0.4174	21.47	14.17	19.77	41.24	33.94	57.50	47.50	-16.26	-13.56	Pass
2	0.5348	27.06	19.54	19.83	46.89	39.37	56.00	46.00	-9.11	-6.63	Pass
3	0.9775	21.61	13.79	19.84	41.45	33.63	56.00	46.00	-14.55	-12.37	Pass
4	1.0773	22.08	13.52	19.85	41.93	33.37	56.00	46.00	-14.07	-12.63	Pass
5	1.7186	18.67	11.20	19.90	38.57	31.10	56.00	46.00	-17.43	-14.90	Pass
6	5.4625	19.93	10.67	20.34	40.27	31.01	60.00	50.00	-19.73	-18.99	Pass

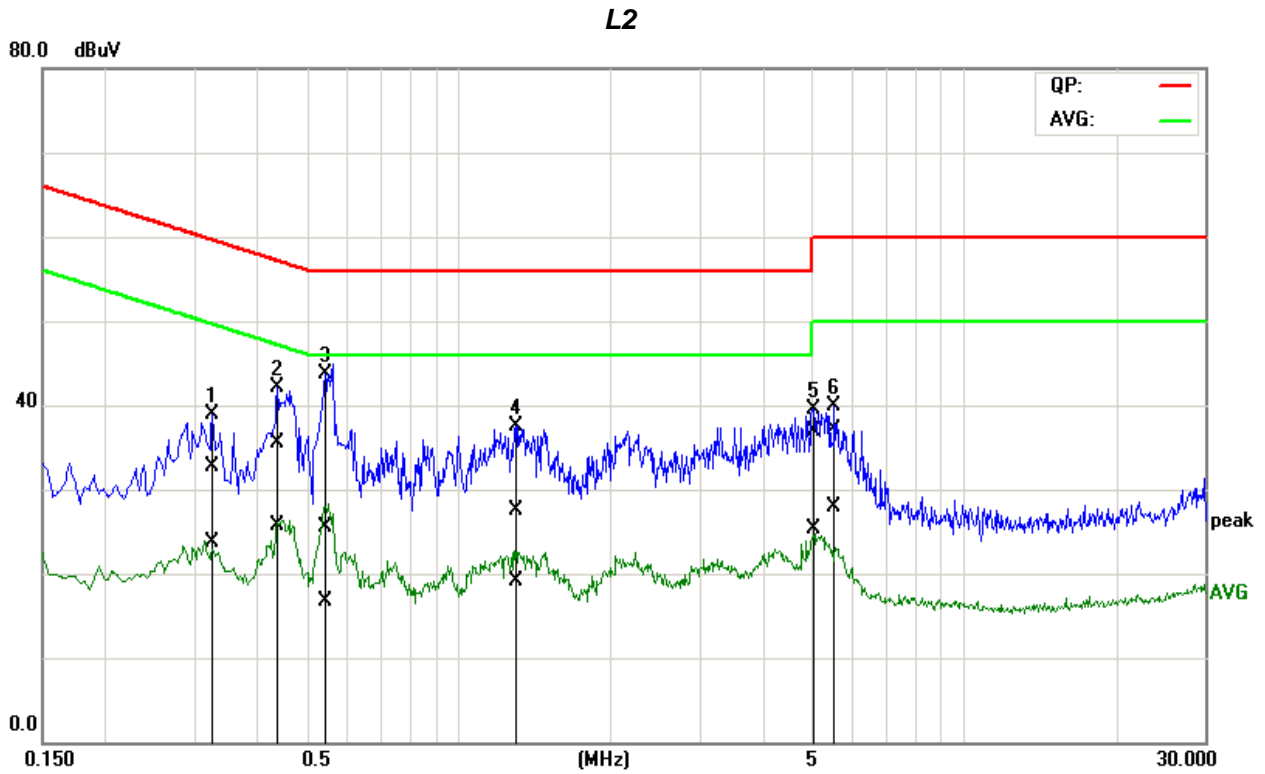
**Note:** 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).



# Compliance Certification Services Inc.

Report No: C140516R01-RPW    FCC ID: XPF-REG03-UTT    Date of Issue : September 20, 2014

Job No.:	C140516R01	Date:	2014-6-24
Model:	AC650W	Time:	11:23:47
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Charly.xue
Line:	L2	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	0.3263	13.05	3.88	19.73	32.78	23.61	59.54	49.54	-26.76	-25.93	Pass
2	0.4344	15.76	5.94	19.80	35.56	25.74	57.17	47.17	-21.61	-21.43	Pass
3	0.5471	5.72	-3.14	19.85	25.57	16.71	56.00	46.00	-30.43	-29.29	Pass
4	1.3001	7.55	-0.78	19.87	27.42	19.09	56.00	46.00	-28.58	-26.91	Pass
5	5.0555	16.60	5.06	20.31	36.91	25.37	60.00	50.00	-23.09	-24.63	Pass
6	5.5358	16.77	7.51	20.35	37.12	27.86	60.00	50.00	-22.88	-22.14	Pass

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