FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: ClickShare CS-100
Brand Name: Barco
Model No.: R9861510
Series Model.: N/A
FCC ID: 2AAED-R9861510
IC: 9393B-R9861510
Test Report Number:
C151211R02-RPW

Issued for

Barco NV

President Kennedypark 35, 8500 Kortrijk, Belgium

Issued by

Compliance Certification Services Inc.

Kun shan 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

Product Name:	ClickShare CS-100
Trade Name:	Barco
Model Name.:	R9861510
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Portable device
Date of Test:	December 20, 2015 ~ January 10, 2016
Applicant:	**Barco NV** President Kennedypark 35, 8500 Kortrijk, Belgium
Manufacturer:	**Barco NV** President Kennedypark 35, 8500 Kortrijk, Belgium
Application Type:	Certification

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted
Canada RSS-247 lssue 1	No non-compliance noted
Canada RSS-Gen lssue 4	No non-compliance noted

We hereby certify that:

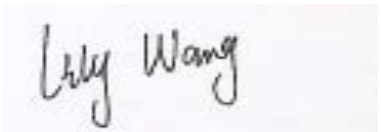
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Service Inc.

Tested by:



Lily.Wang
Test Engineer
Compliance Certification Service Inc.

2. EUT DESCRIPTION

Product Name:	ClickShare CS-100
Brand Name:	Barco
Model Name:	R9861510
Series Model:	N/A
Model Discrepancy:	N/A
Power Adapter:	Brand Name: GLOBTEK Model :GT-46180-1812 Input: 100-240V~0.6A 50-60Hz Output: DC12V 1.5A
Frequency Range:	2.4G:2412MHz-2462MHz
Transmit Power:	IEEE 802.11b mode: 20.46 dBm IEEE 802.11g mode: 25.67 dBm IEEE 802.11n HT20 mode: 24.65 dBm
Modulation Technique:	IEEE802.11b mode: DSSS (1,2,5.5 and 11 Mbps) IEEE802.11g mode: DSSS /OFDM (6,9,12,18,24,36,48 and 54 Mbps) IEEE802.11n HT20 mode: OFDM (MCS0~MCS7)
Number of Channels:	IEEE 802.11b/g/n HT20 mode: 11 Channels
Antenna Specification:	PCB antenna 0 for 2.4GHz Gain 1.98dBi PCB antenna 1 for 2.4GHz Gain 1.88dBi

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: 2AAED-R9861510*** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3.This submittal(s) (test report) is intended for ***IC: 9393B-R9861510*** filing to comply with Canada RSS-247 lssue 1 and Canada RSS-Gen lssue 4 Rules.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10 2013 and FCC CFR 47 15.207, 15.209 and 15.247.

3.1. EUT CONFIGURATION

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

3.2. EUT EXERCISE

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

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

3.3. GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10 2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

Under 1GHz

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 C63.10:2013.

Above 1GHz

The EUT is placed on a turn table, which is 1.5 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 C63.10:2013.

3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

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

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

[2] Above 38.6

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

3.5.DESCRIPTION OF TEST MODES

The EUT transmitting and receiving with two antennas working at b/g/n mode, Both chain0 and chain1 could be used as transmit/receiving antenna, so 2x2 configuration was used for all testing in this report.

The worst-case data rates:
IEEE802.11b mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 1Mbps data rate was chosen for full testing.

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

Channel High (2462MHz) with 24Mbps data rate was chosen for full testing.

IEEE 802.11n HT20 MHz Channel mode:

Channel Low (2412MHz)

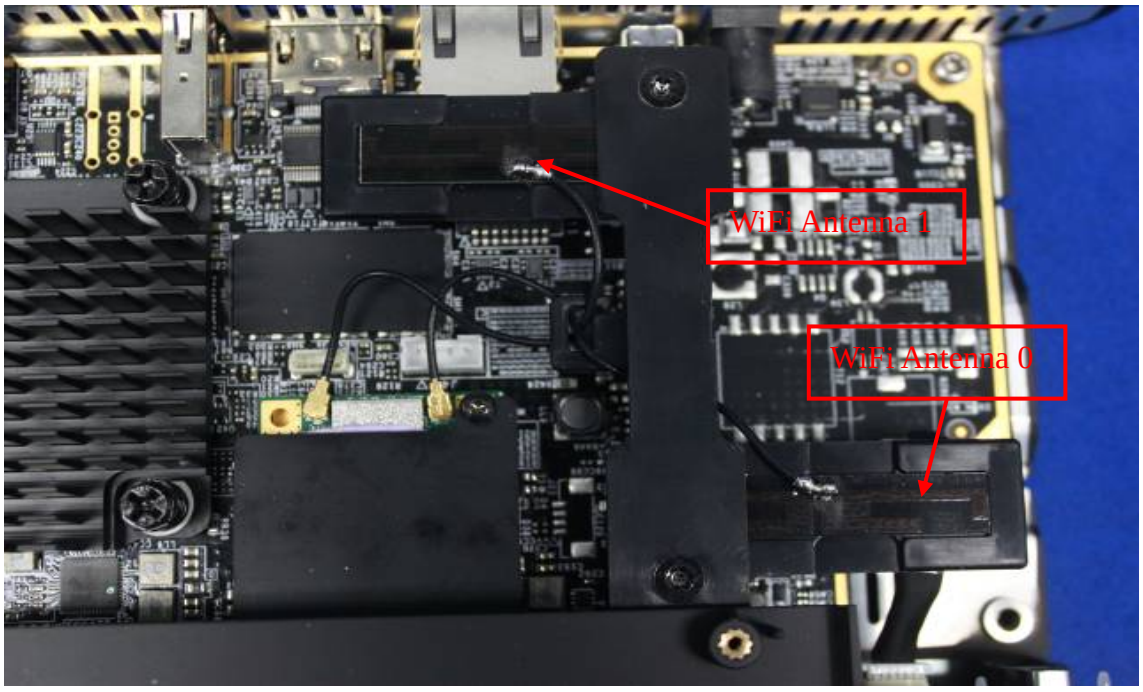
Channel Mid (2437MHz)

Channel High (2462MHz) with MCS0 data rate was chosen for full testing.

3.6.ANTENNA DESCRIPTION

an intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section"

* the antenna of this EUT is a unique(PIFA Antenna for 5G WiFi).
* the EUT complies with the requirement of 15.203.



4. INSTRUMENT CALIBRATION

4.1.MEASURING INSTRUMENT CALIBRATION

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

Equipment Used for Emissions Measurement

Conducted Emissions Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9	2016-4-8
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2015-5-11	2016-5-10
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-16	2016-3-15
Power meter	Anritsu	ML2495A	1445010	2015-04-24	2016-04-23
Power sensor	Anritsu	MA2411B	1339220	2015-04-24	2016-04-23
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R	N.C.R
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-22	2016-1-21
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9	2016-4-8
EMI Test Receiver	R&S	ESCI	101378	2015-1-22	2016-1-21
Pre-Amplfier	MINI	ZFL-1000VH2	d041703	2015-1-22	2016-1-21
Pre-Amplfier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22	2016-1-21
Bilog Antenna	Sunol	JB1	A062604	2015-3-6	2016-3-5
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2015-3-7	2016-3-6
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	CT1OO	95637	N.C.R	N.C.R
Test Software			EZ-EMC		

Conducted Emission					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI	100781	2015-3-16	2016-3-15
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	N.C.R	N.C.R
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	05012	2015-3-16	2016-3-15
Pulse LIMITER	R&S	ESH3-Z2	100524	2015-9-24	2016-9-23
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 C63.10 2013 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, 2324E-1 for 10m chamber 10m, 2324E-2 for 10m chamber 3m; the test facilities are listed with USA, Certification and Engineering Bureau, 424105 for 10m chamber 10m, 238958 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 C63.10 :2013)；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	ACCREDITED TESTING CERT #2541.01
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	93105, 90471
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-1600 C-1707 G-216

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

6. SETUP OF EQUIPMENT UNDER TEST

6.1.SETUP CONFIGURATION OF EUT

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

6.2.SUPPORT EQUIPMENT

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

Remark:

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

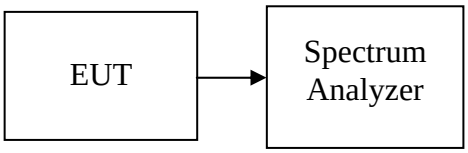
4. FCC PART 15.247 REQUIREMENTS

4.1.6DB BANDWIDTH

LIMIT

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

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.022	>500	PASS
Mid	2437	9.993		PASS
High	2462	10.123		PASS

IEEE 802.11b mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.070	>500	PASS
Mid	2437	10.096		PASS
High	2462	10.121		PASS

IEEE 802.11g mode /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.389	>500	PASS
Mid	2437	16.393		PASS
High	2462	16.414		PASS

IEEE 802.11g mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.364	>500	PASS
Mid	2437	16.359		PASS
High	2462	16.351		PASS

IEEE 802.11n HT20 mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.572	>500	PASS
Mid	2437	17.584		PASS
High	2462	17.618		PASS

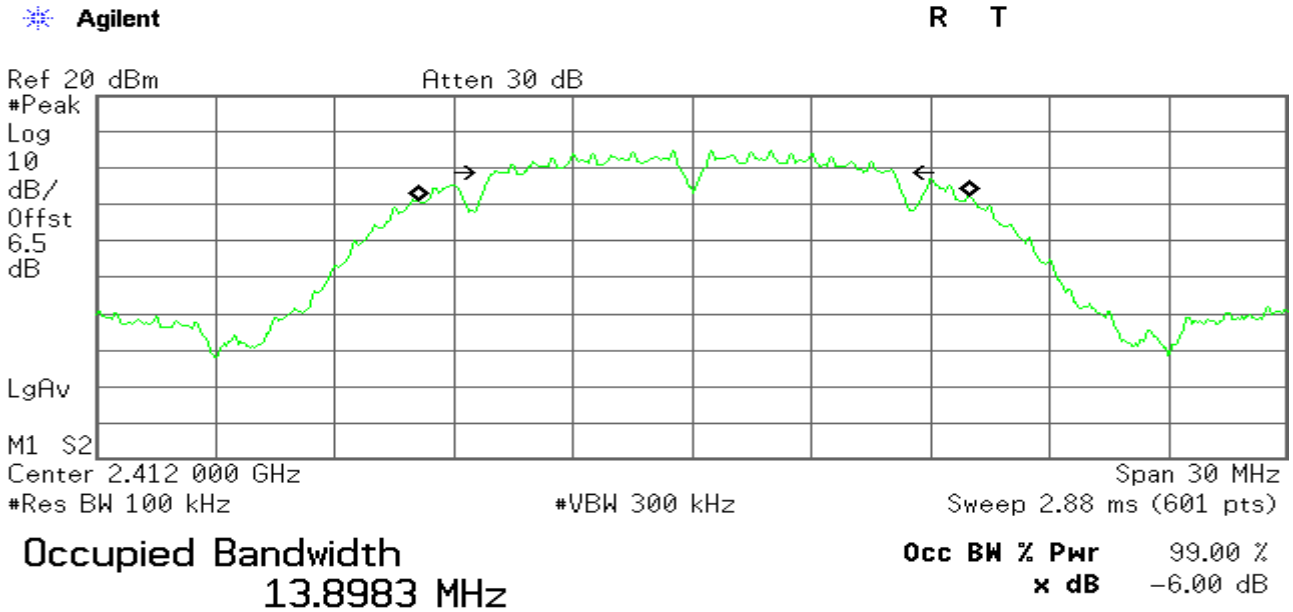
IEEE 802.11n HT20 mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.317	>500	PASS
Mid	2437	17.527		PASS
High	2462	17.565		PASS

Test Plot

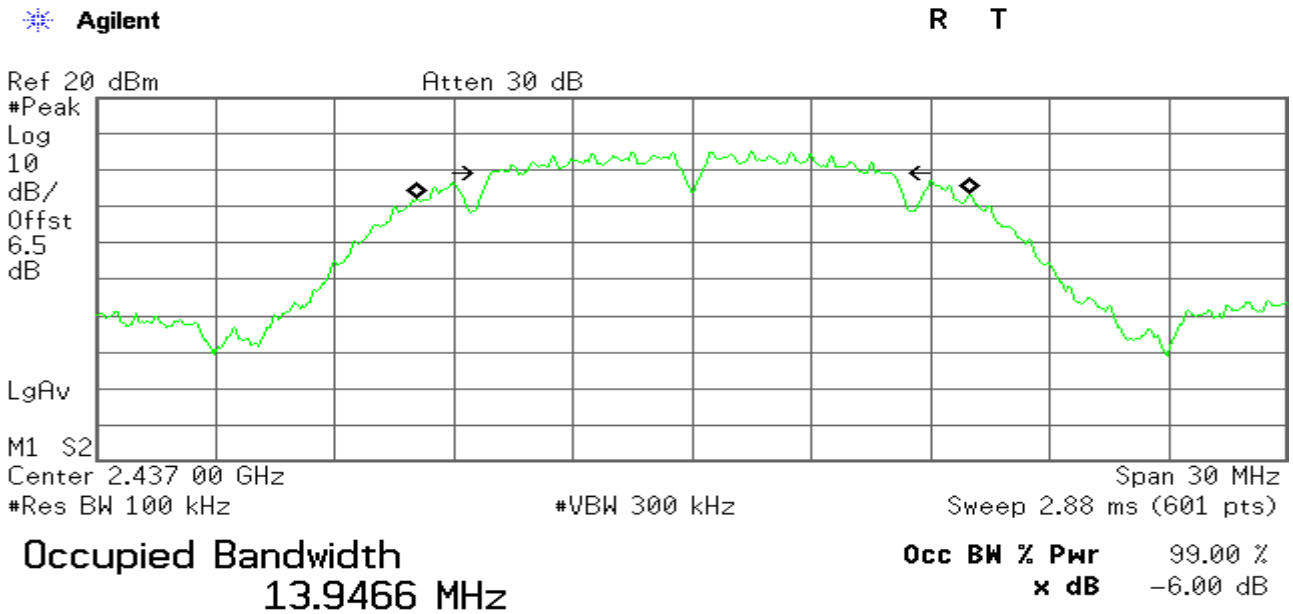
IEEE 802.11b MODE /Chain 0

6dB Bandwidth (CH Low)



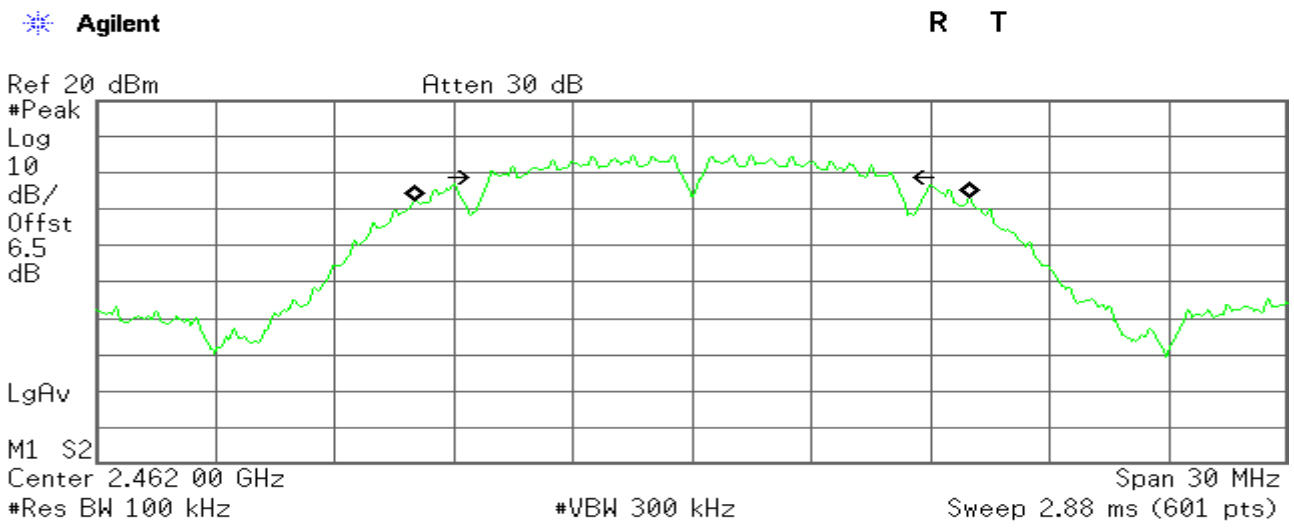
Transmit Freq Error 41.385 kHz
x dB Bandwidth 10.022 MHz

6dB Bandwidth (CH Mid)



Transmit Freq Error 27.191 kHz
x dB Bandwidth 9.993 MHz

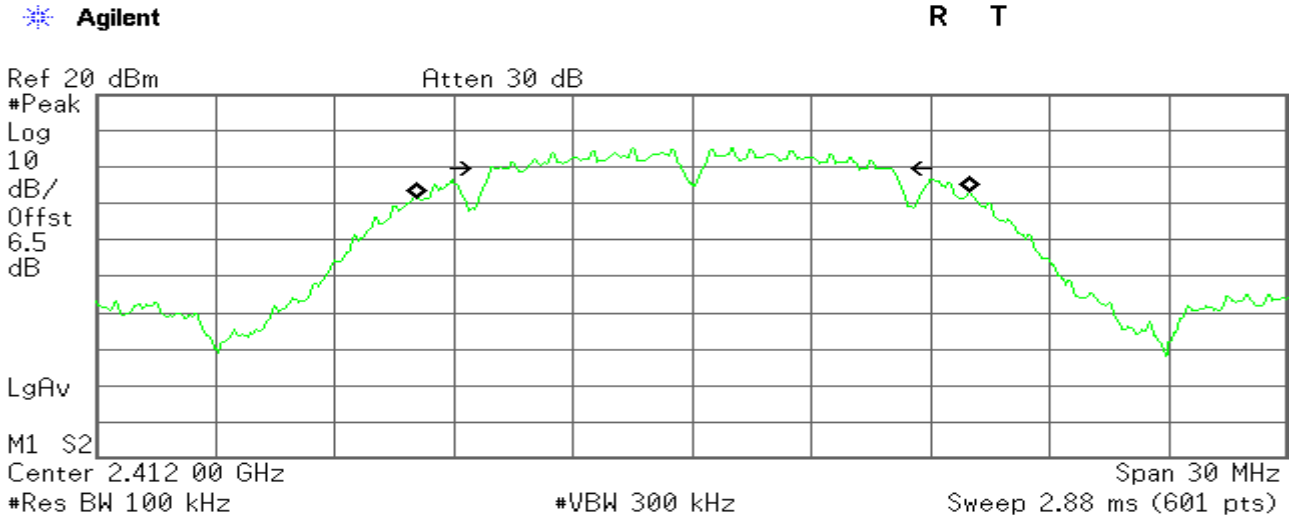
6dB Bandwidth (CH High)



Transmit Freq Error −8.956 Hz
x dB Bandwidth 10.123 MHz

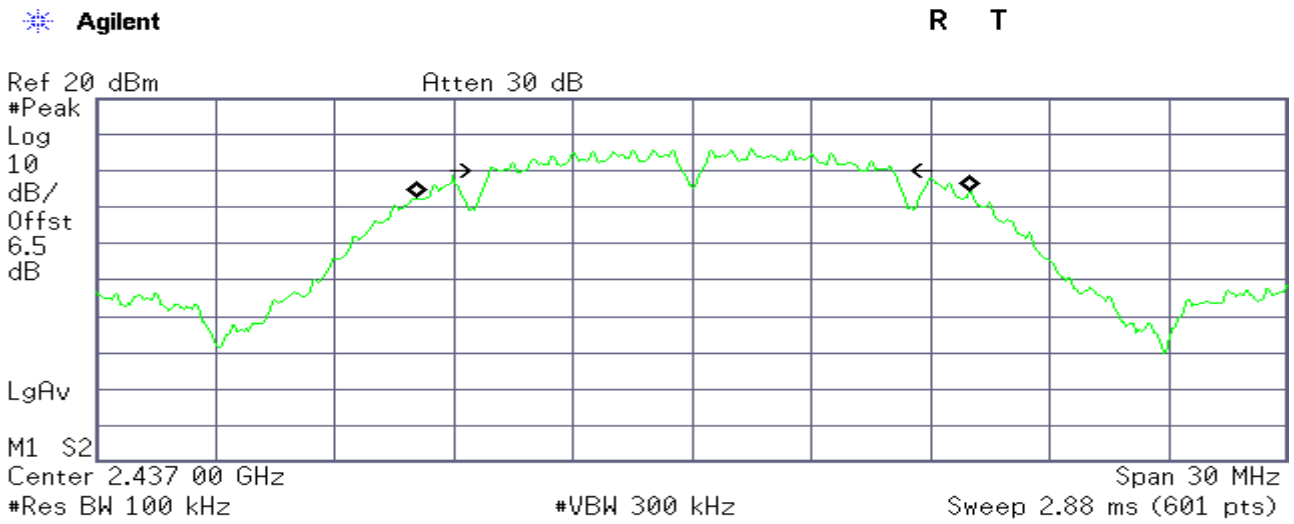
IEEE 802.11b MODE /Chain 1

6dB Bandwidth (CH Low)



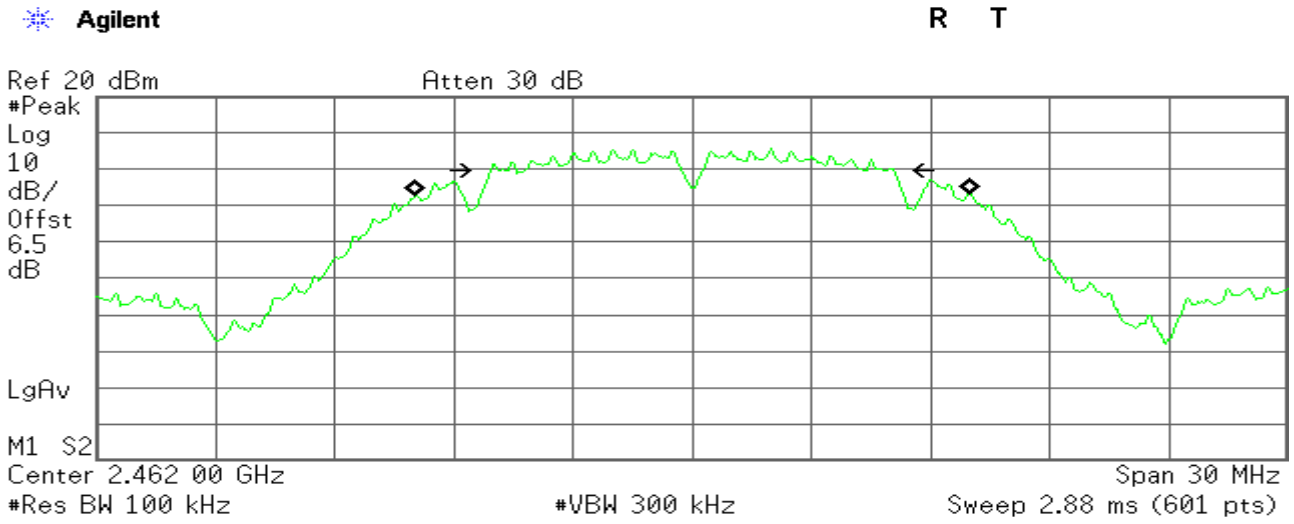
Transmit Freq Error 40.400 kHz
x dB Bandwidth 10.070 MHz

6dB Bandwidth (CH Mid)



Transmit Freq Error	34.959 kHz
x dB Bandwidth	10.096 MHz

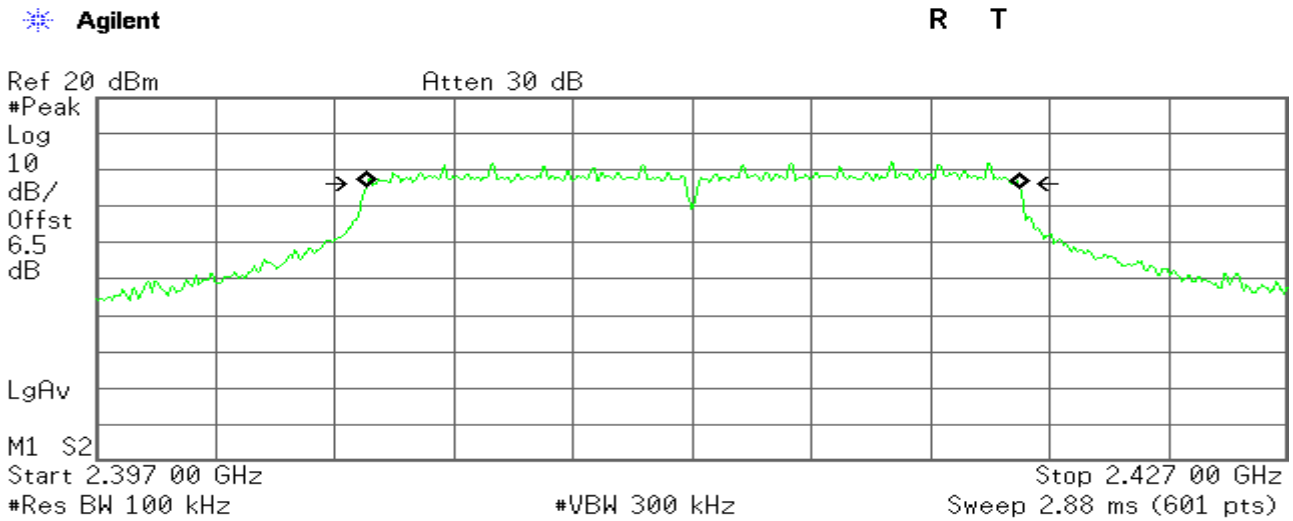
6dB Bandwidth (CH High)



Transmit Freq Error	2.669 kHz
x dB Bandwidth	10.121 MHz

IEEE 802.11g MODE /Chain 0

6dB Bandwidth (CH Low)

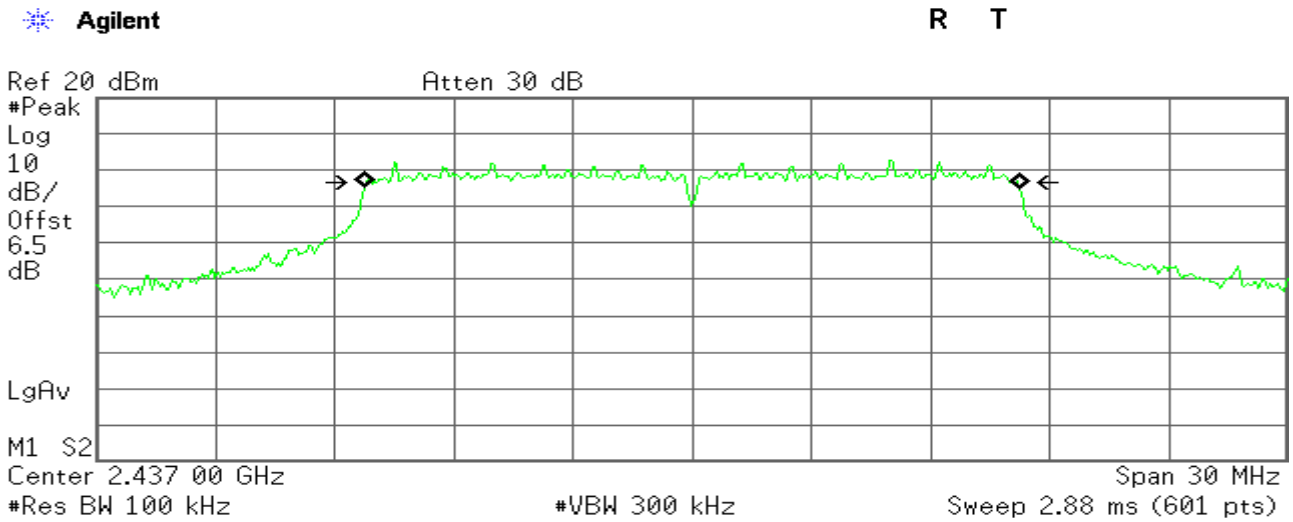


Occupied Bandwidth
16.4599 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 15.146 kHz
x dB Bandwidth 16.389 MHz

6dB Bandwidth (CH Mid)

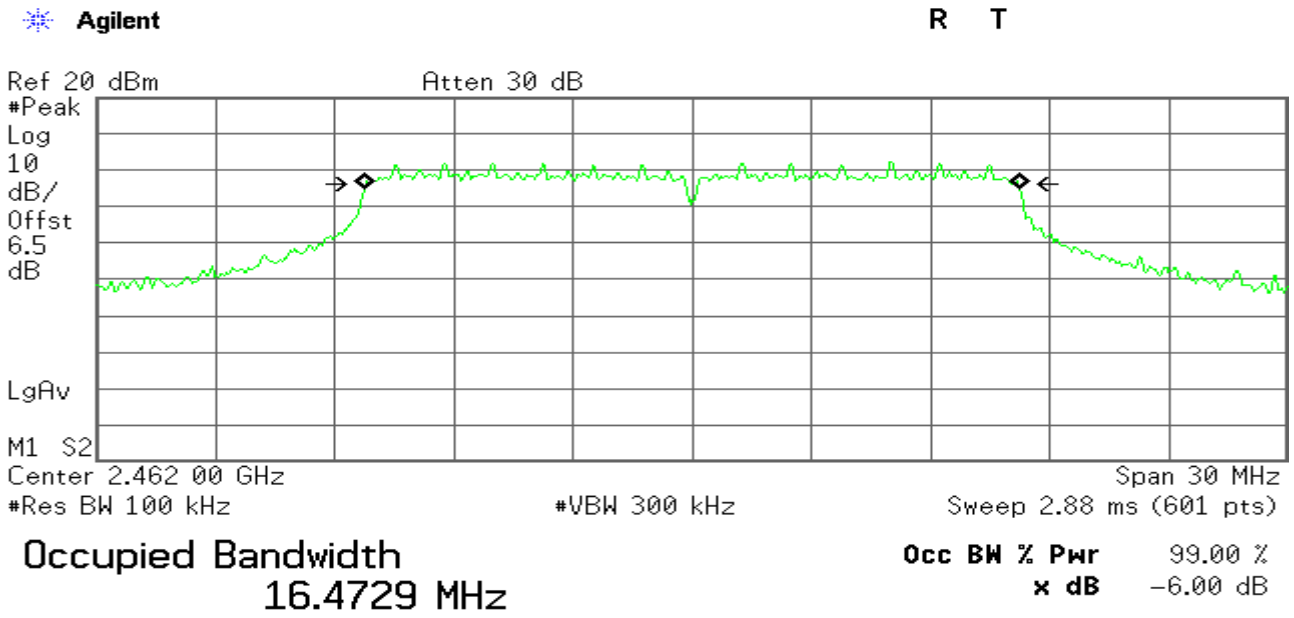


Occupied Bandwidth
16.4719 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 7.011 kHz
x dB Bandwidth 16.393 MHz

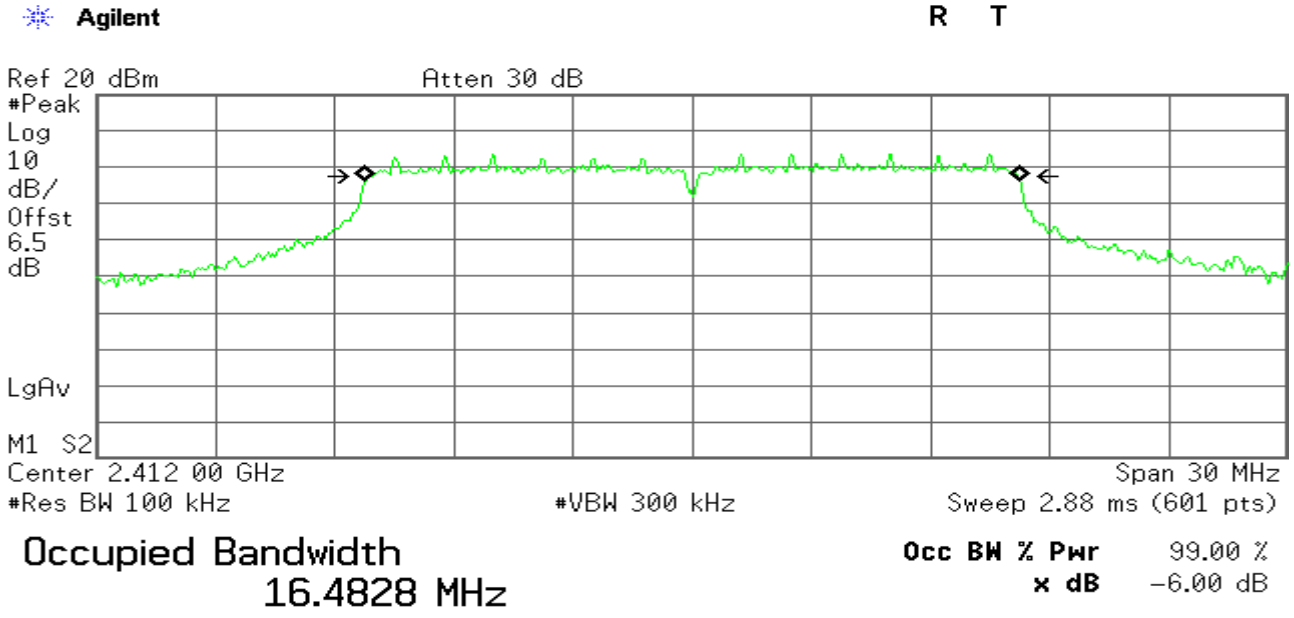
6dB Bandwidth (CH High)



Transmit Freq Error -1.903 kHz
x dB Bandwidth 16.414 MHz

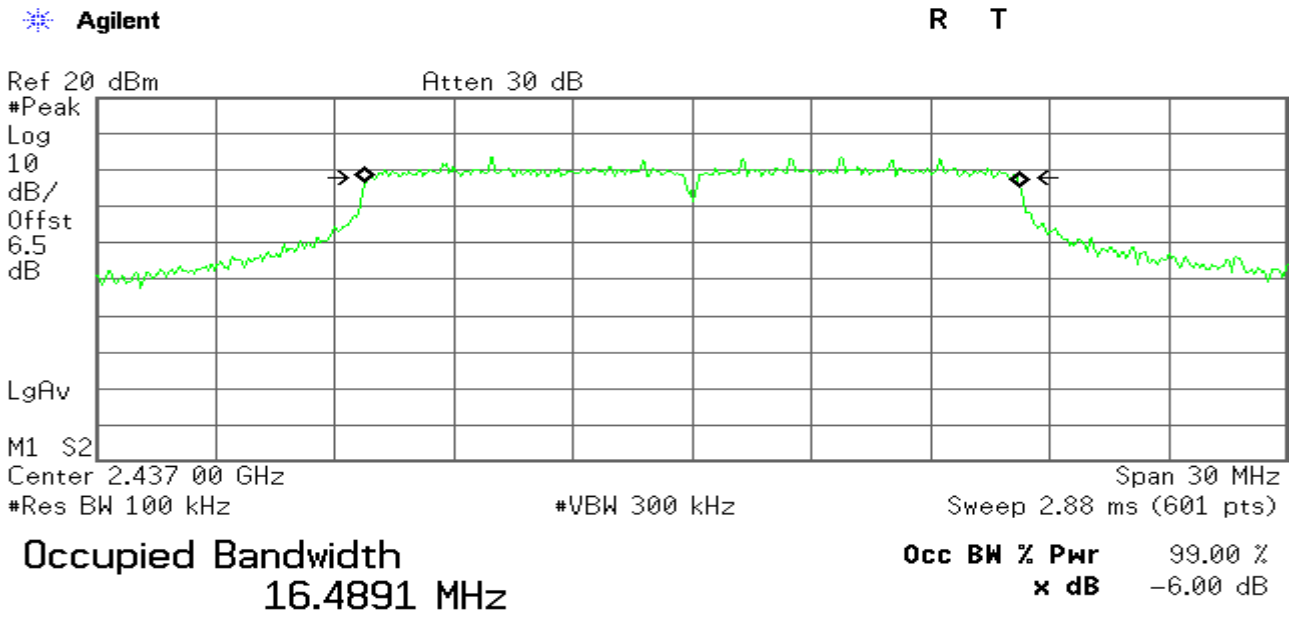
IEEE 802.11g MODE /Chain 1

6dB Bandwidth (CH Low)



Transmit Freq Error 10.266 kHz
x dB Bandwidth 16.364 MHz

6dB Bandwidth (CH Mid)

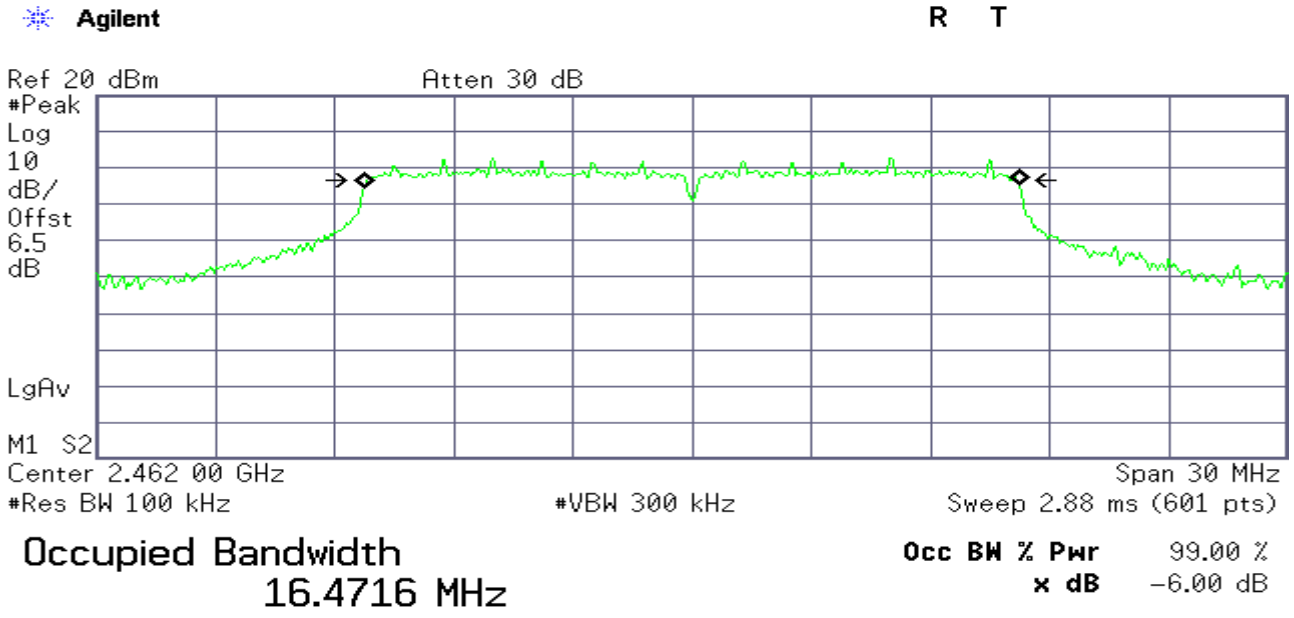


Occupied Bandwidth
16.4891 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 9.627 kHz
x dB Bandwidth 16.359 MHz

6dB Bandwidth (CH High)



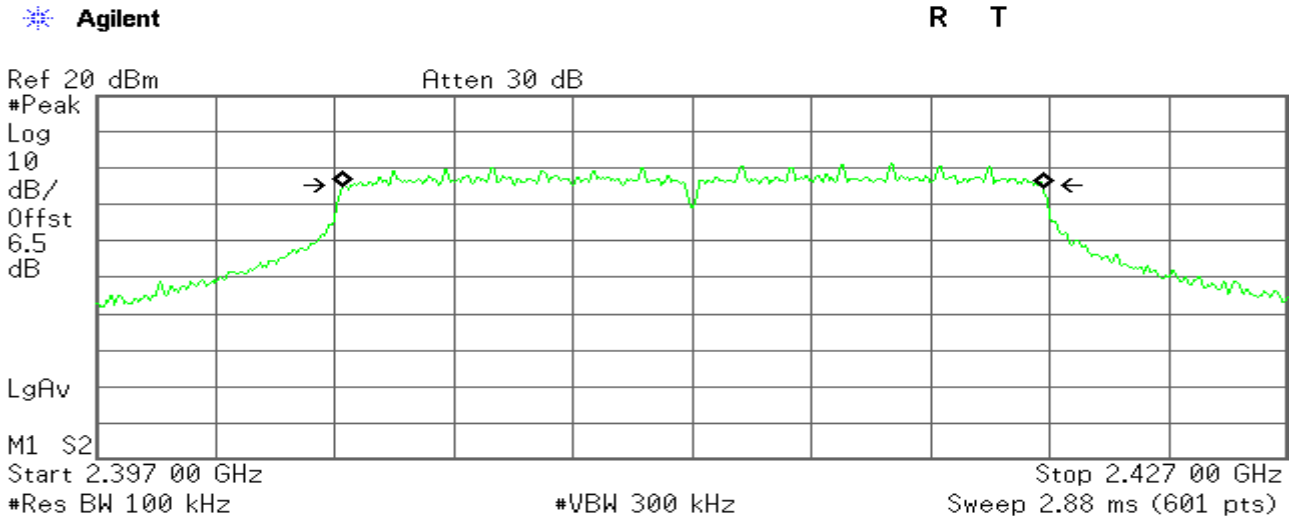
Occupied Bandwidth
16.4716 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -4.654 kHz
x dB Bandwidth 16.351 MHz

IEEE 802.11n HT20 mode / Chain 0

6dB Bandwidth (CH Low)

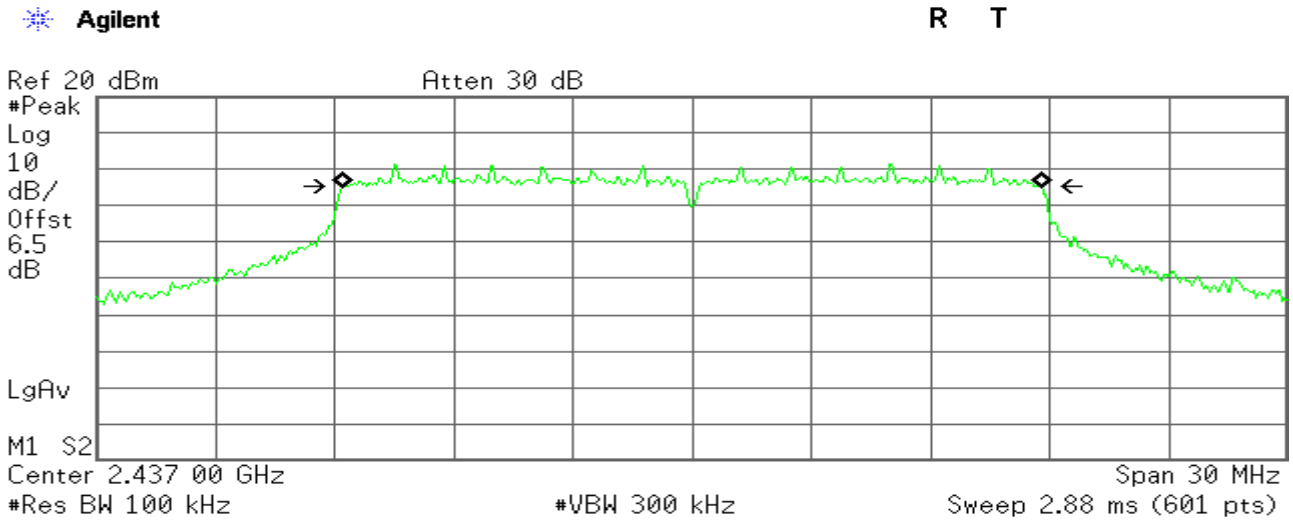


Occupied Bandwidth
17.6314 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 13.522 kHz
x dB Bandwidth 17.572 MHz

6dB Bandwidth (CH Mid)

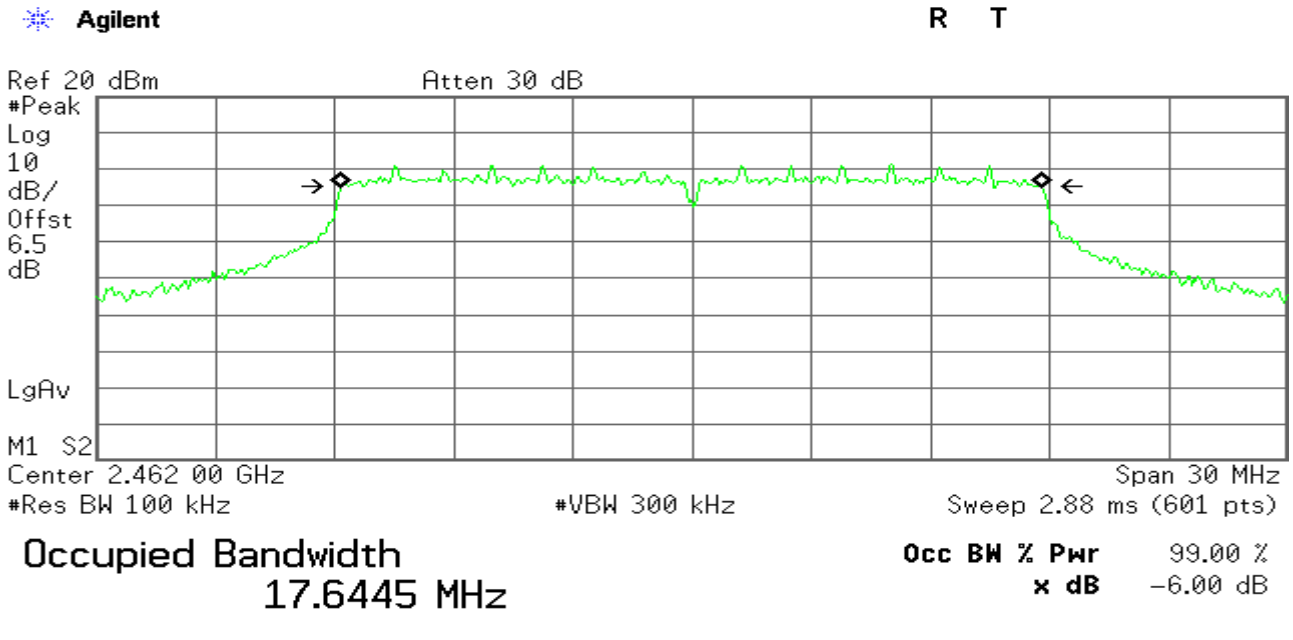


Occupied Bandwidth
17.6356 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

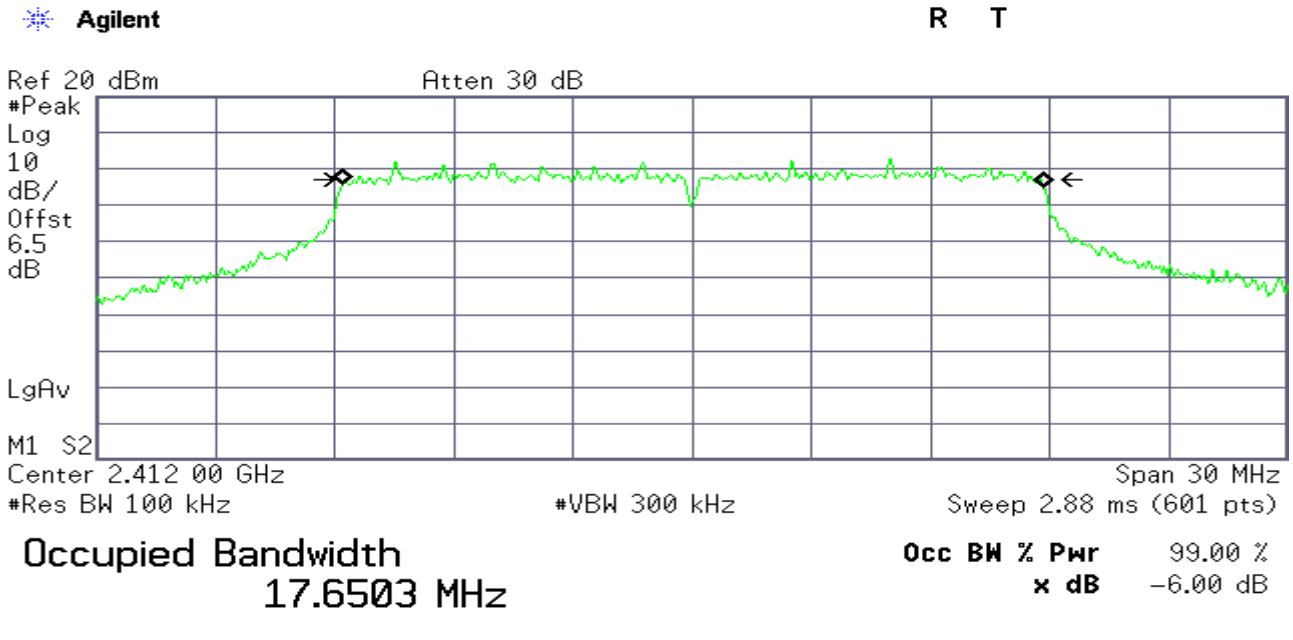
Transmit Freq Error 1.385 kHz
x dB Bandwidth 17.584 MHz

6dB Bandwidth (CH High)

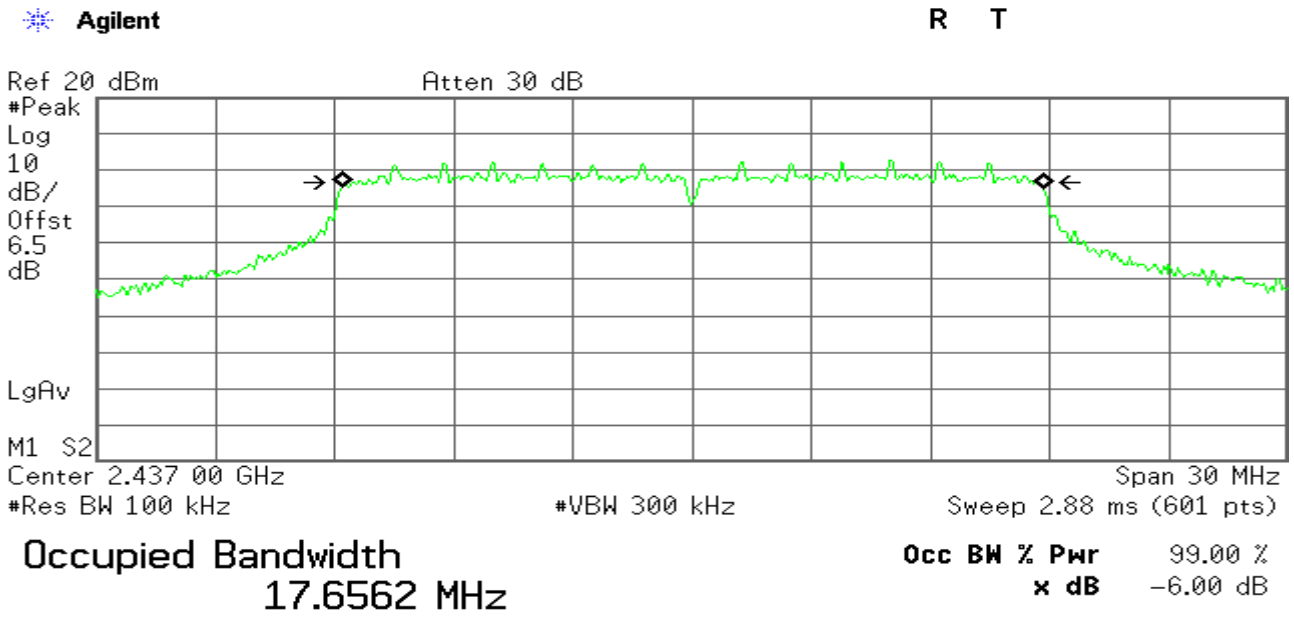


IEEE 802.11n HT20 mode / Chain 1

6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

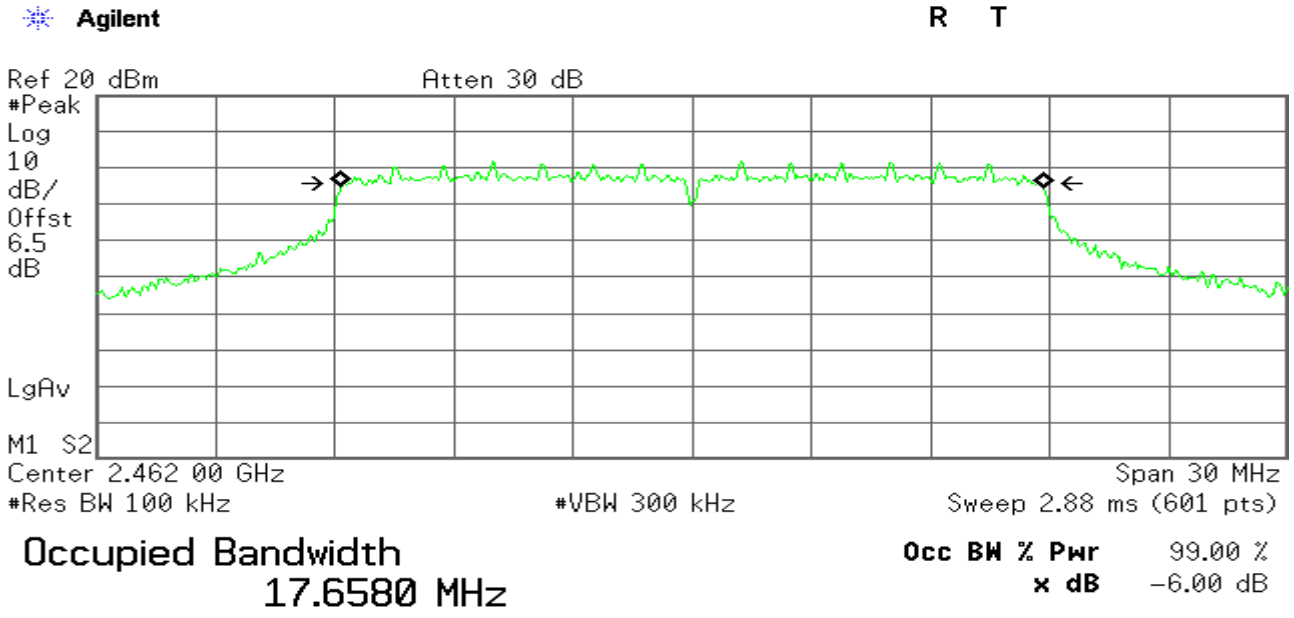


Occupied Bandwidth
17.6562 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 8.659 kHz
x dB Bandwidth 17.527 MHz

6dB Bandwidth (CH High)



Occupied Bandwidth
17.6580 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

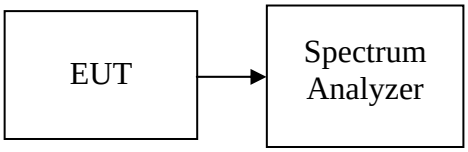
Transmit Freq Error 1.530 kHz
x dB Bandwidth 17.565 MHz

4.2.**99% BANDWIDTH MEASUREMENT**

LIMIT

None; for reporting purposes only
RSS-Gen 4.6.1

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to close to 1% of the selected span as is possible without being below 1%.The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	13.9293	PASS
Mid	2437	13.9549	PASS
High	2462	13.9686	PASS

IEEE 802.11b mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	13.9554	PASS
Mid	2437	14.0000	PASS
High	2462	14.0256	PASS

IEEE 802.11g mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	16.7601	PASS
Mid	2437	16.7973	PASS
High	2462	16.7970	PASS

IEEE 802.11g mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	16.9176	PASS
Mid	2437	16.9440	PASS
High	2462	16.8763	PASS

IEEE 802.11n HT20 mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	17.9809	PASS
Mid	2437	17.9766	PASS
High	2462	18.0092	PASS

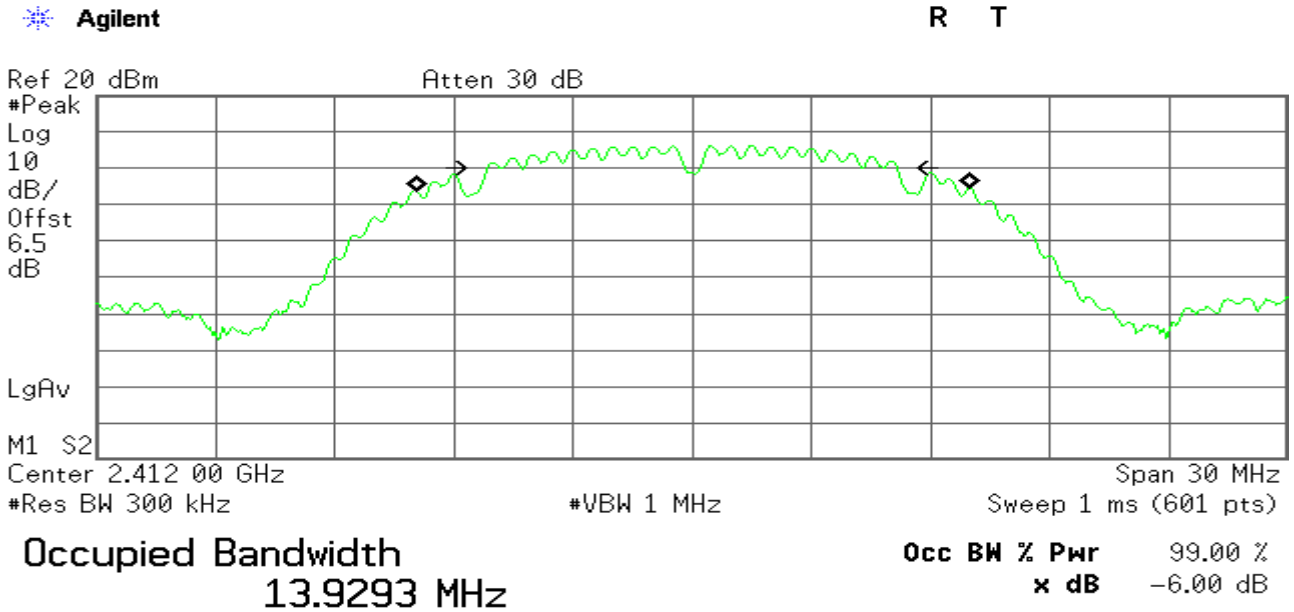
IEEE 802.11 n HT20 / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Result
Low	2412	18.0011	PASS
Mid	2437	18.0753	PASS
High	2462	18.0303	PASS

Test Plot

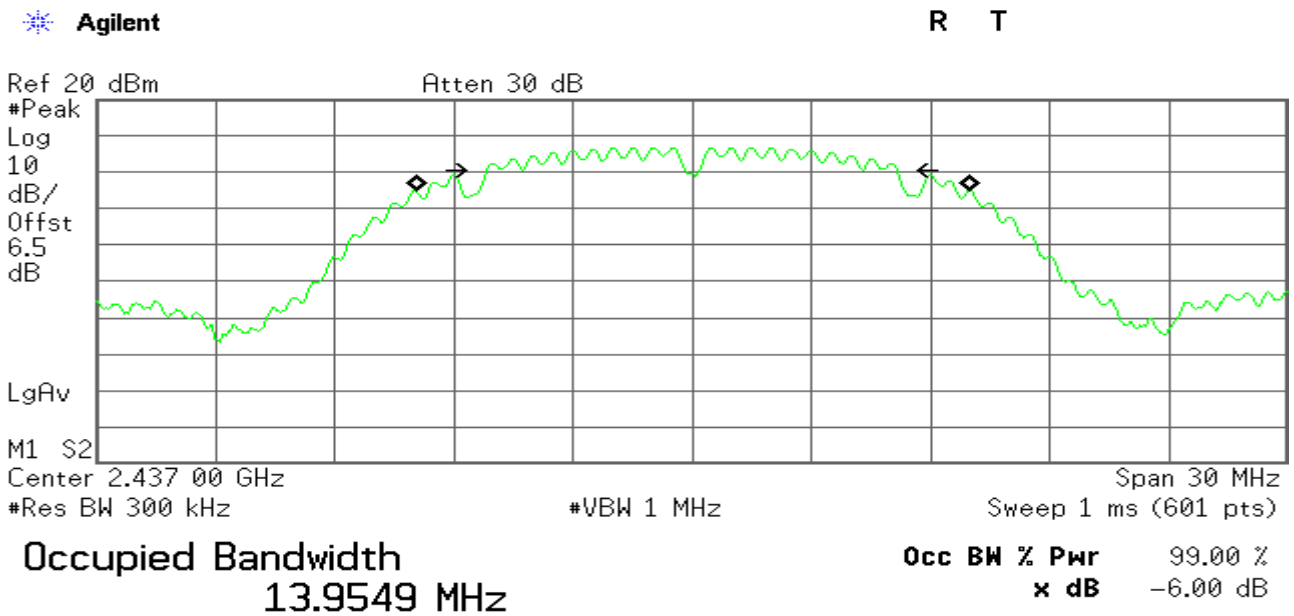
IEEE 802.11b MODE/chain 0

99% Bandwidth (CH Low)



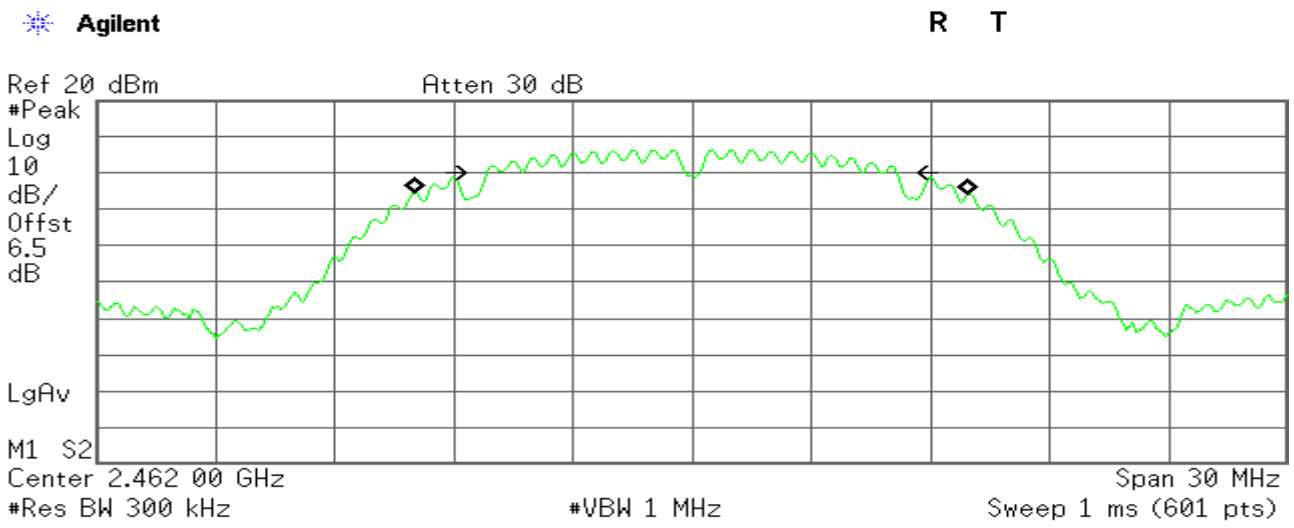
Transmit Freq Error	30.913 kHz
x dB Bandwidth	10.280 MHz

99% Bandwidth (CH Mid)



Transmit Freq Error	3.495 kHz
x dB Bandwidth	10.282 MHz

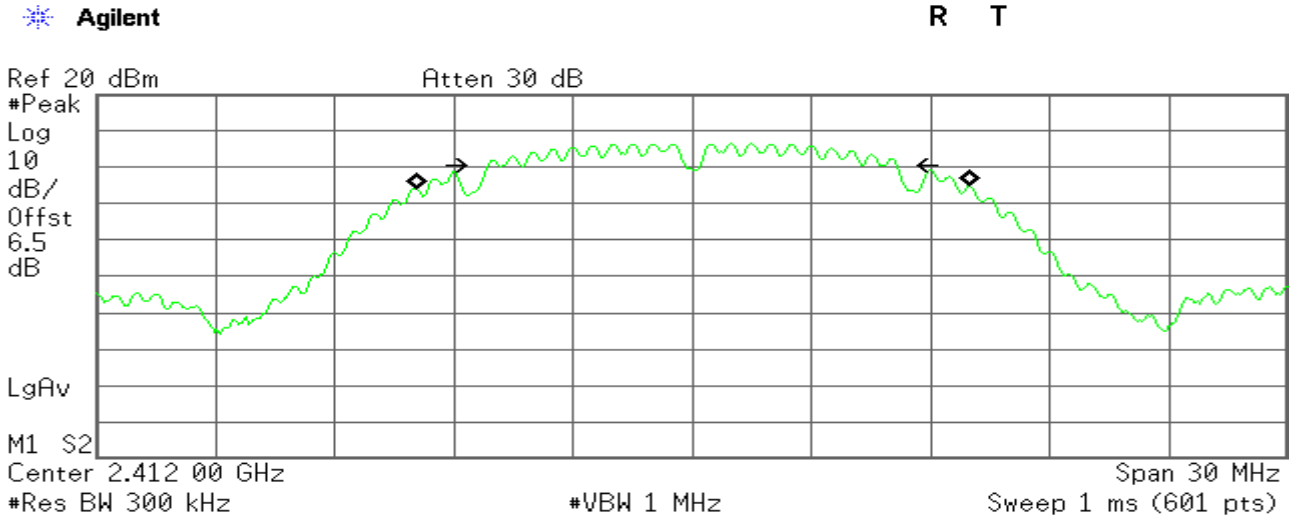
99% Bandwidth (CH High)



Transmit Freq Error −13.990 kHz
x dB Bandwidth 10.283 MHz

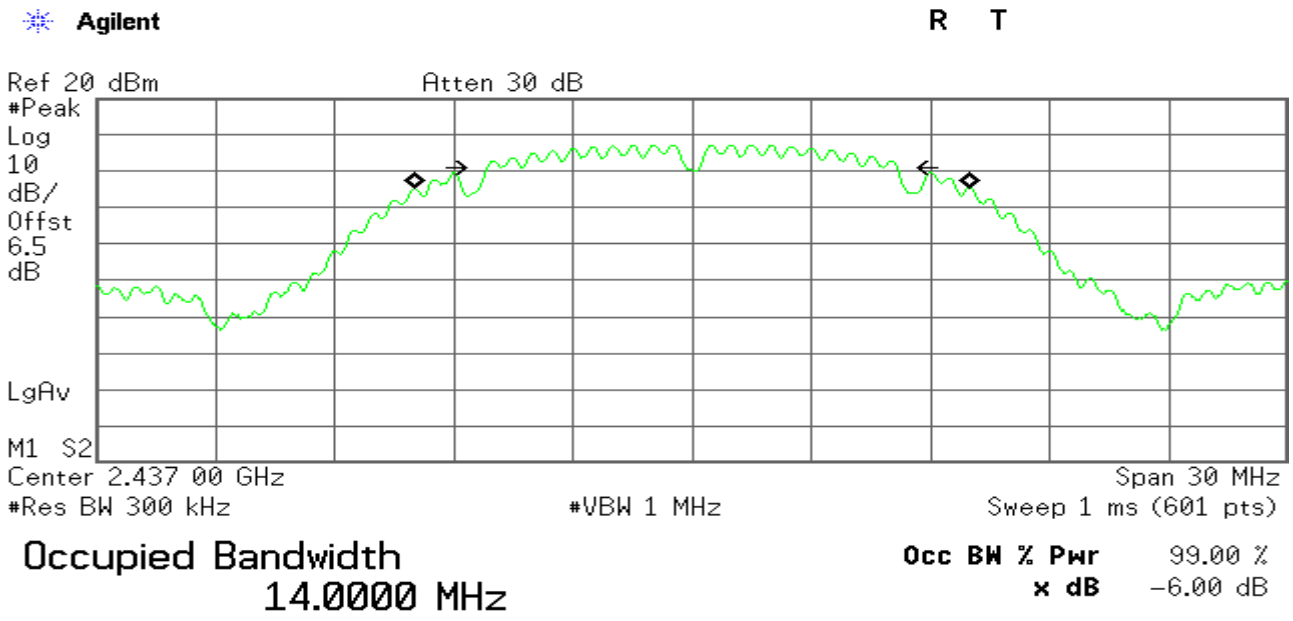
IEEE 802.11b MODE/chain 1

99% Bandwidth (CH Low)



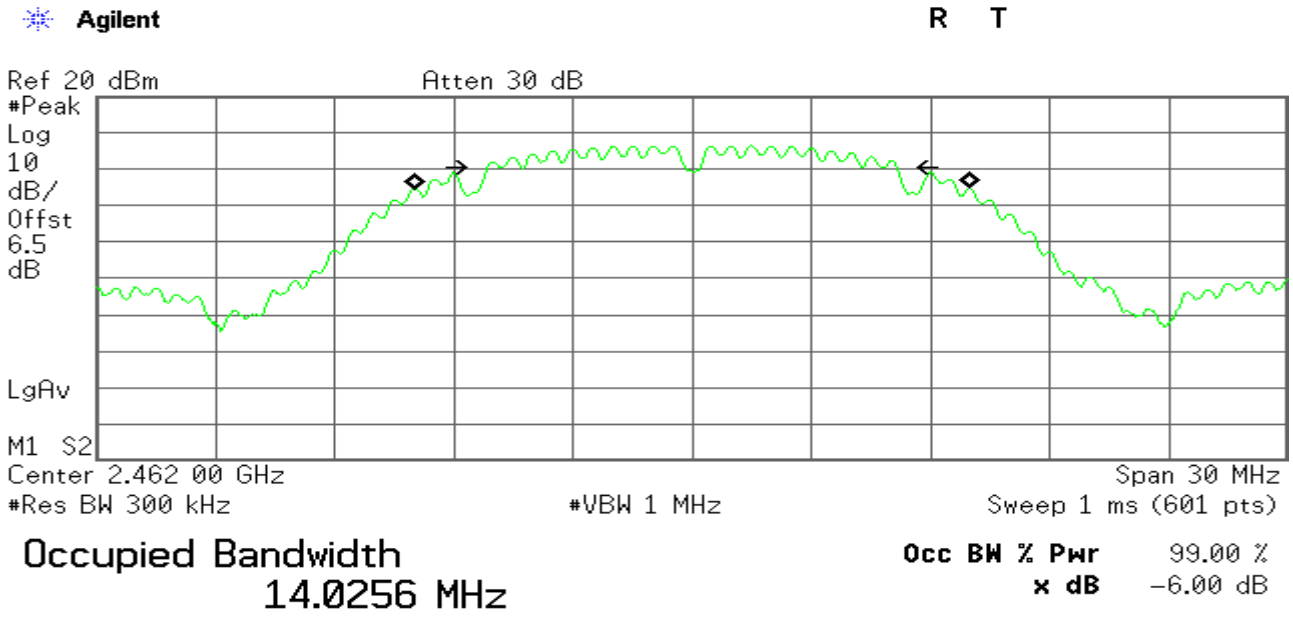
Transmit Freq Error 32.903 kHz
x dB Bandwidth 10.274 MHz

99% Bandwidth (CH Mid)



Transmit Freq Error	12.865 kHz
x dB Bandwidth	10.278 MHz

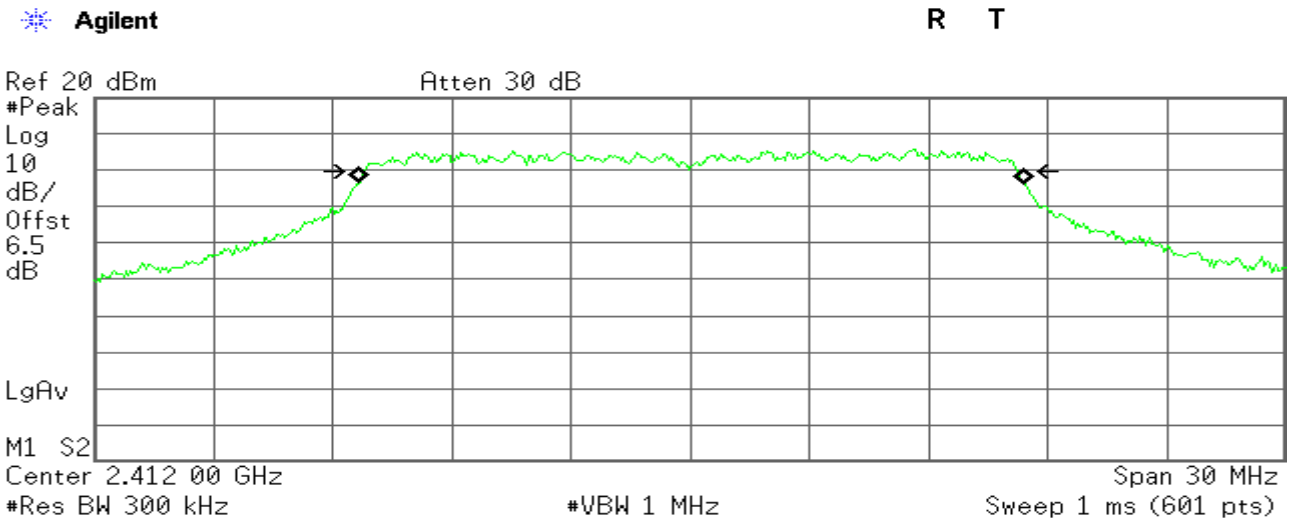
99% Bandwidth (CH High)



Transmit Freq Error	-616.616 Hz
x dB Bandwidth	10.283 MHz

IEEE 802.11g MODE/chain 0

99% Bandwidth (CH Low)

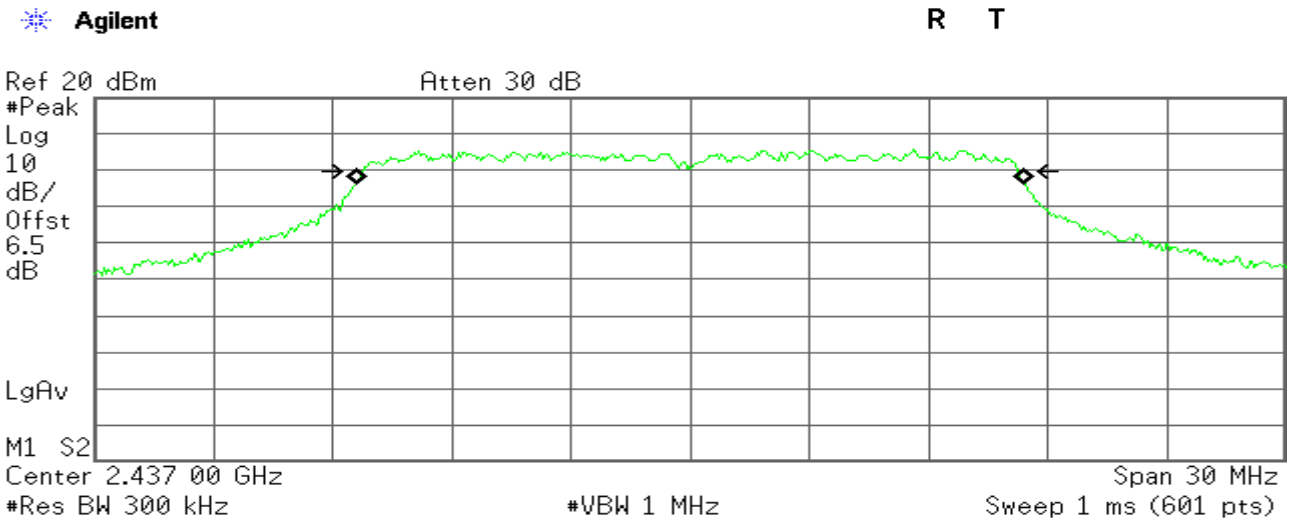


Occupied Bandwidth
16.7601 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 43.048 kHz
x dB Bandwidth 16.462 MHz

99% Bandwidth (CH Mid)

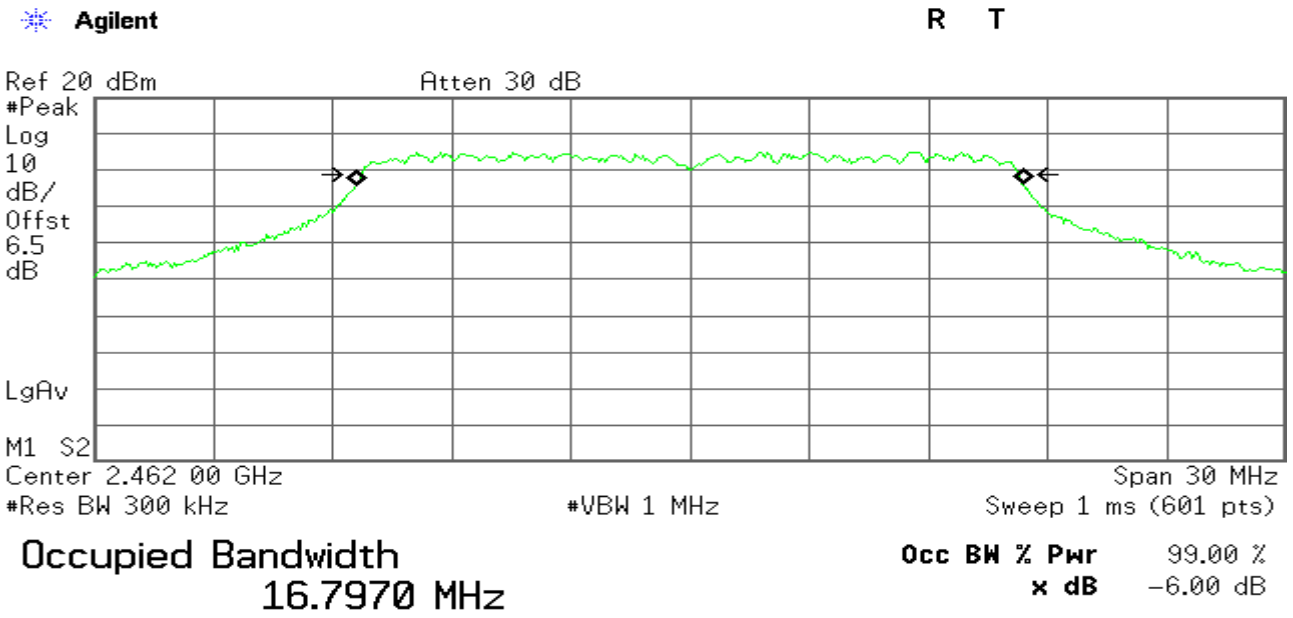


Occupied Bandwidth
16.7973 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

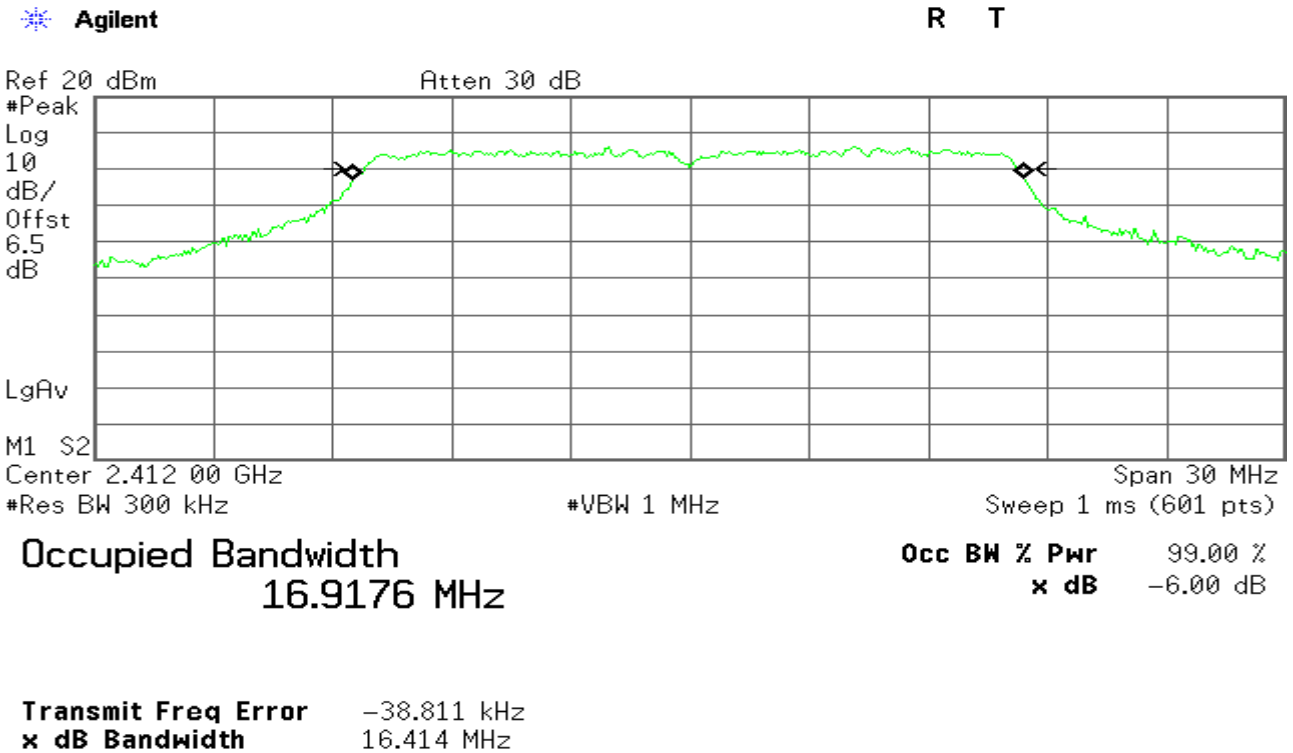
Transmit Freq Error 9.422 kHz
x dB Bandwidth 16.504 MHz

99% Bandwidth (CH High)

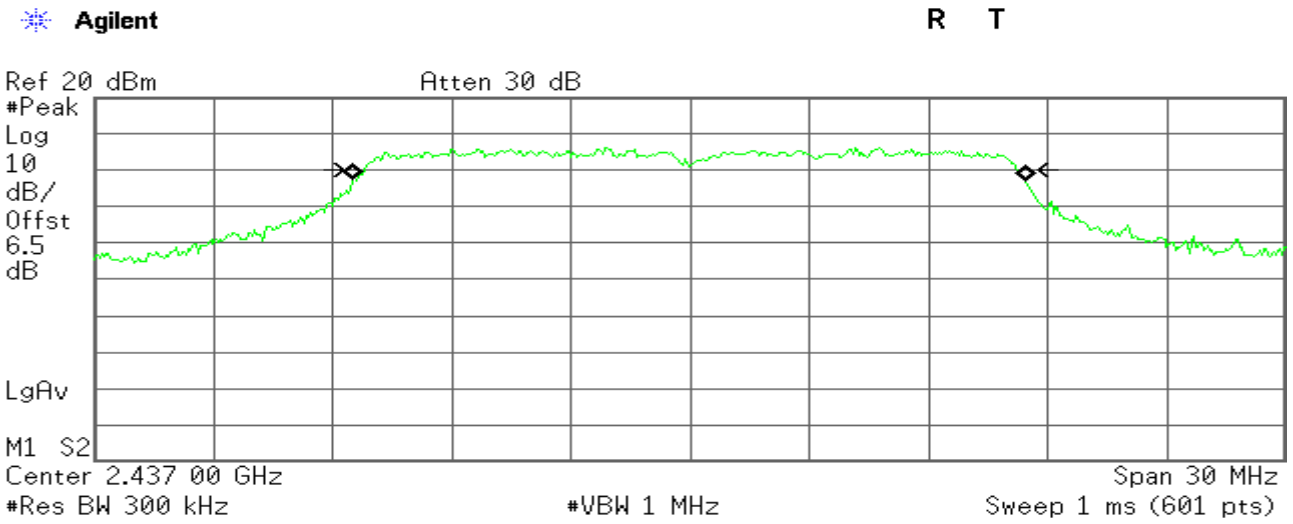


IEEE 802.11g MODE/chain 1

99% Bandwidth (CH Low)



99% Bandwidth (CH Mid)

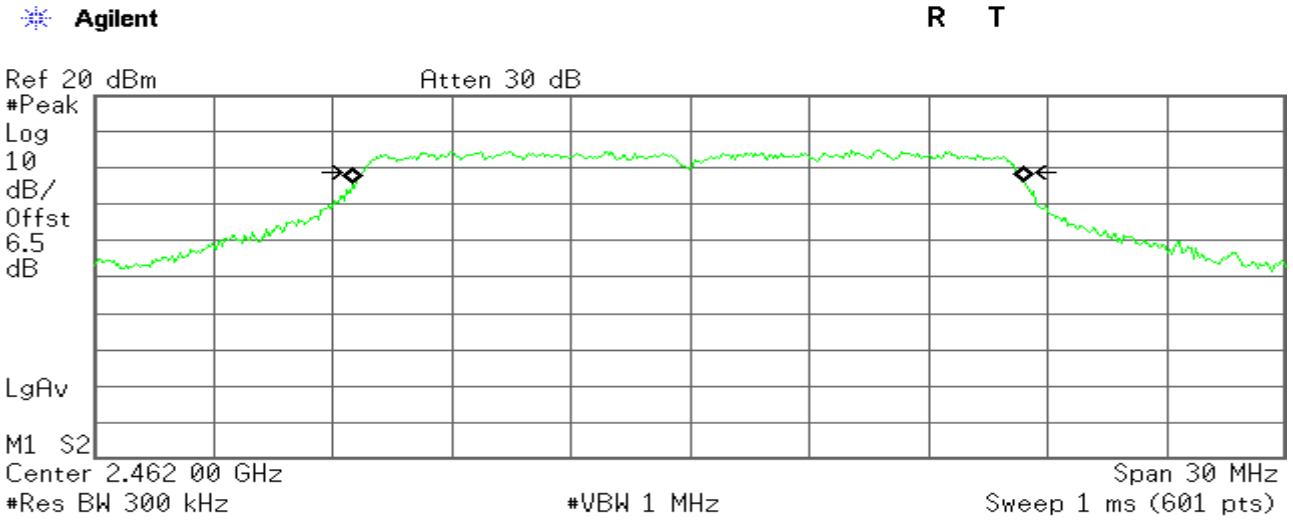


Occupied Bandwidth
16.9440 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -33.351 kHz
x dB Bandwidth 16.431 MHz

99% Bandwidth (CH High)



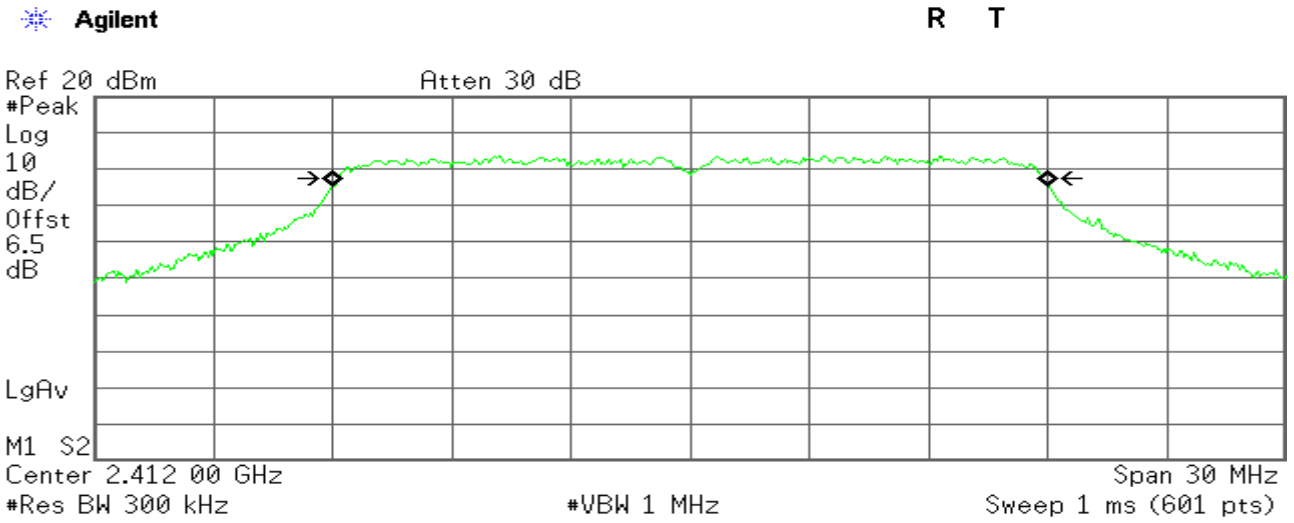
Occupied Bandwidth
16.8763 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -53.618 kHz
x dB Bandwidth 16.453 MHz

IEEE 802.11n HT20 mode/chain 0

99% Bandwidth (CH Low)

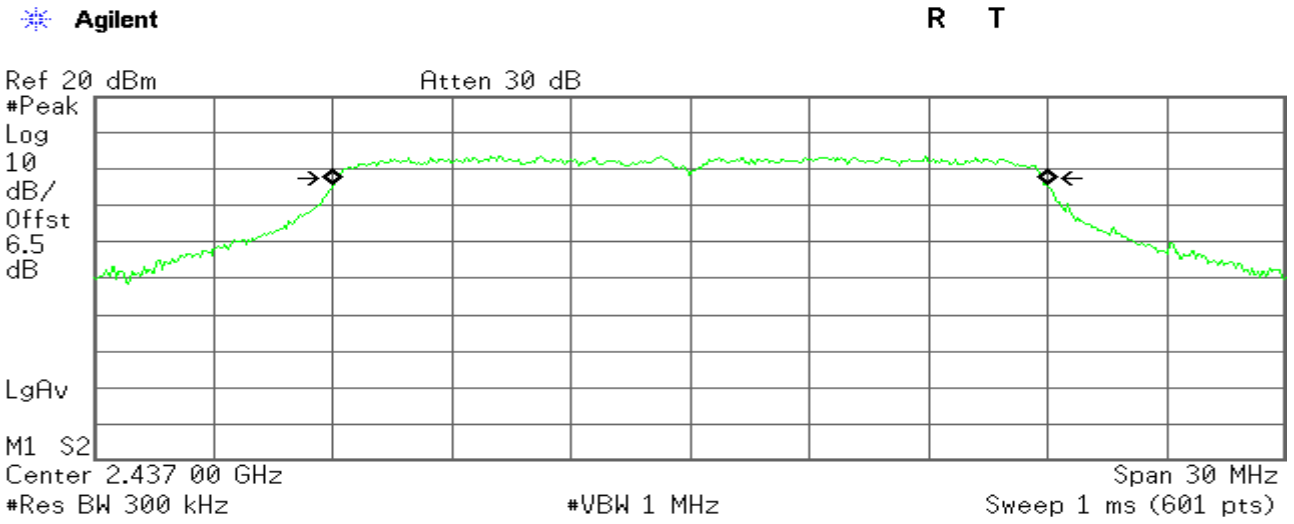


Occupied Bandwidth
17.9809 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 14.449 kHz
x dB Bandwidth 17.699 MHz

99% Bandwidth (CH Mid)

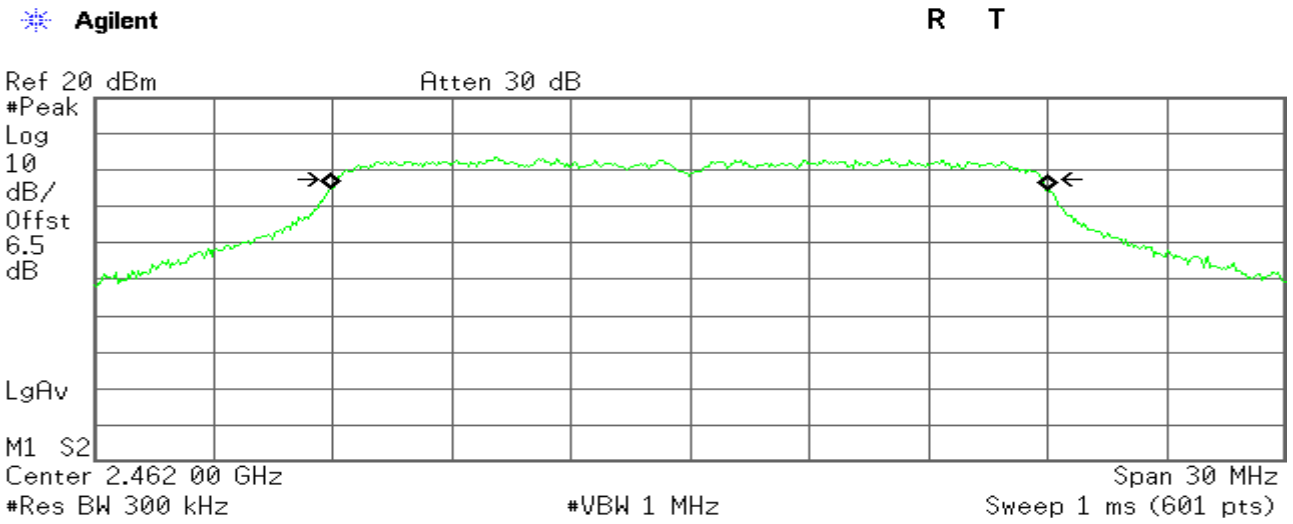


Occupied Bandwidth
17.9766 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -1.532 kHz
x dB Bandwidth 17.704 MHz

99% Bandwidth (CH High)



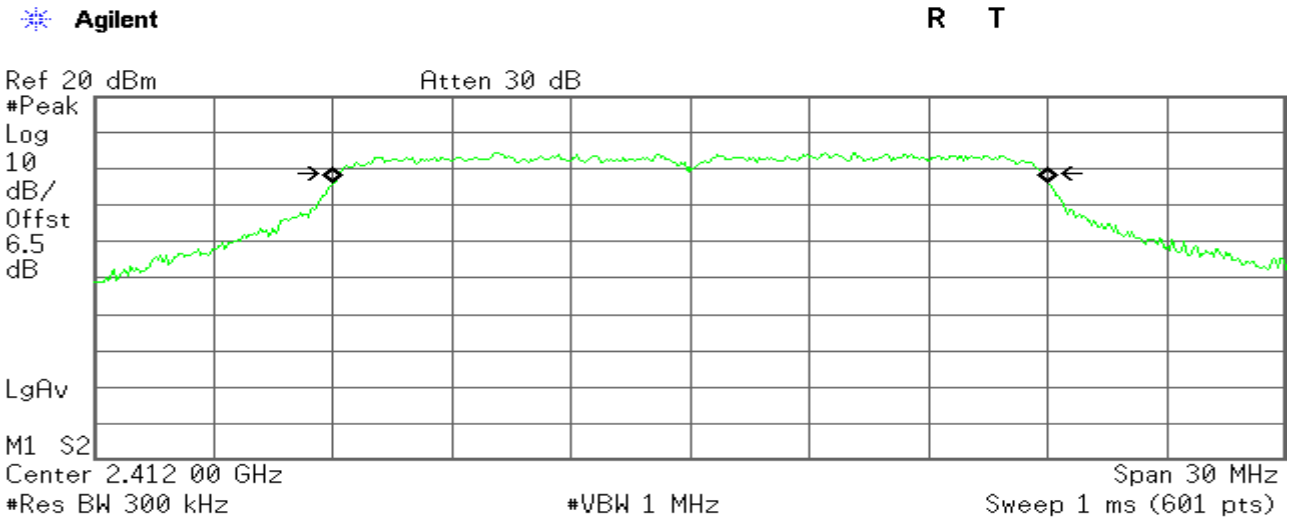
Occupied Bandwidth
18.0092 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -24.920 kHz
x dB Bandwidth 17.721 MHz

IEEE 802.11n HT20 mode/chain 1

99% Bandwidth (CH Low)

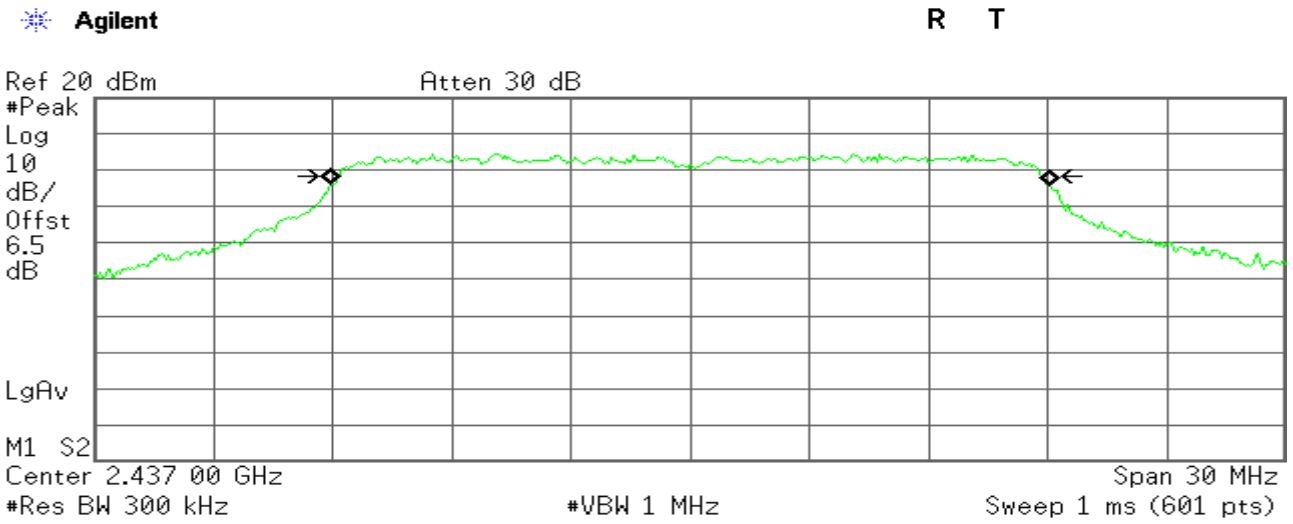


Occupied Bandwidth
18.0011 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 12.482 kHz
x dB Bandwidth 17.686 MHz

99% Bandwidth (CH Mid)

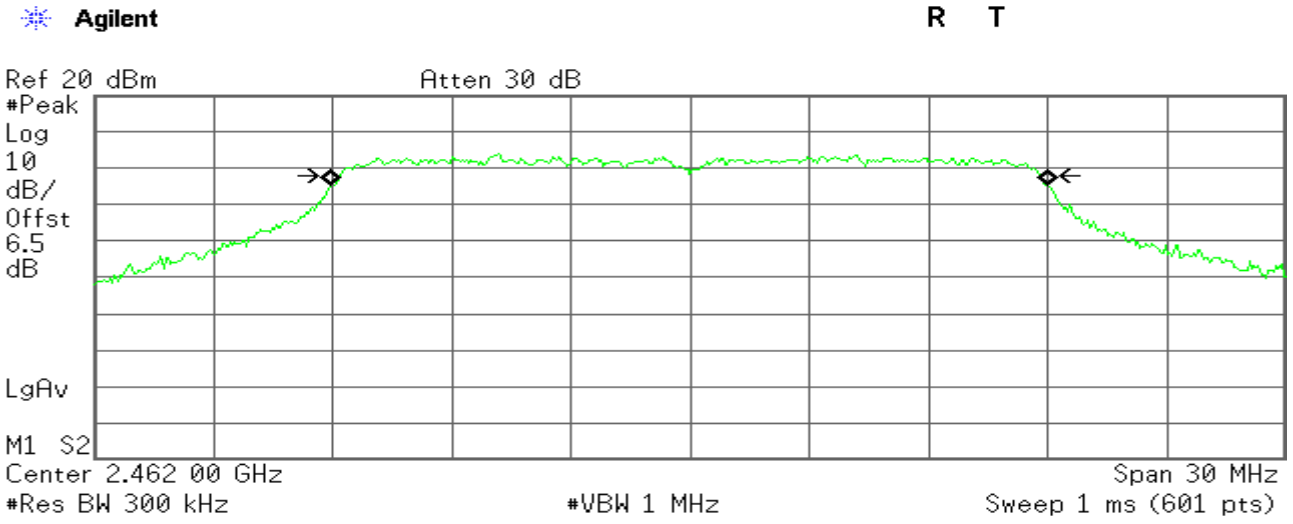


Occupied Bandwidth
18.0753 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 5.304 kHz
x dB Bandwidth 17.682 MHz

99% Bandwidth (CH High)



Occupied Bandwidth
18.0303 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -12.283 kHz
x dB Bandwidth 17.652 MHz

4.3.PEAK POWER

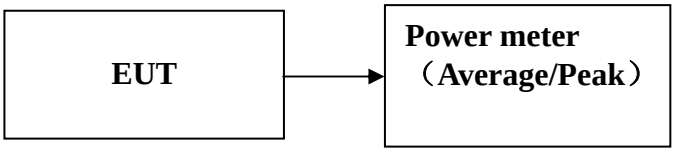
LIMIT

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

1. The EUT transmitter output is connected to the Power meter.
   The Power meter is set to the peak power detection.
2. The testing follows the Measurement Procedure FCC KDB No. 558074 D01 DTS Meas.
3. Guidance v03r03. 9.1.2 PKPM1 Peak power meter method.

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	16.68	16.98	19.84	30.00
Mid	2437	17.25	17.65	20.46	30.00
High	2462	17.34	17.53	20.45	30.00

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	22.37	22.94	25.67	30.00
Mid	2437	22.16	22.83	25.52	30.00
High	2462	21.72	22.01	24.88	30.00

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	21.31	21.95	24.65	30.00
Mid	2437	21.25	21.56	24.42	30.00
High	2462	20.84	20.99	23.93	30.00

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

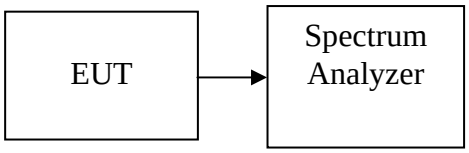
4.4.PEAK POWER SPECTRAL DENSITY

LIMIT

1.According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

2.According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

1.Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

2.Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 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	-8.98	-9.22	-6.09	8.00	PASS
Mid	2437	-9.01	-7.97	-5.45	8.00	PASS
High	2462	-9.72	-8.27	-5.92	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	-13.40	-11.72	-9.47	8.00	PASS
Mid	2437	-13.34	-11.38	-9.24	8.00	PASS
High	2462	-12.66	-12.91	-9.77	8.00	PASS

Test mode: IEEE 802.11n HT20 mode

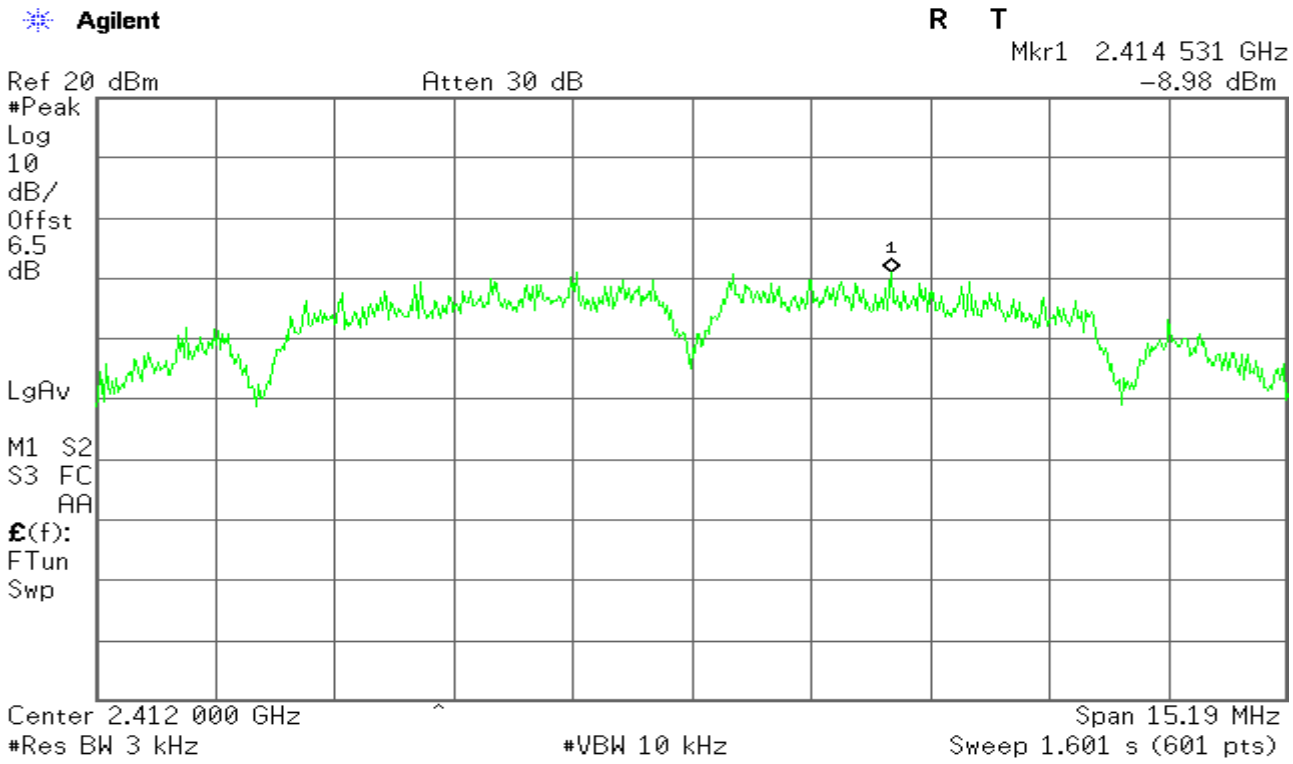
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.54	-13.13	-10.32	8.00	PASS
Mid	2437	-13.66	-13.41	-10.52	8.00	PASS
High	2462	-13.98	-14.25	-11.10	8.00	PASS

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

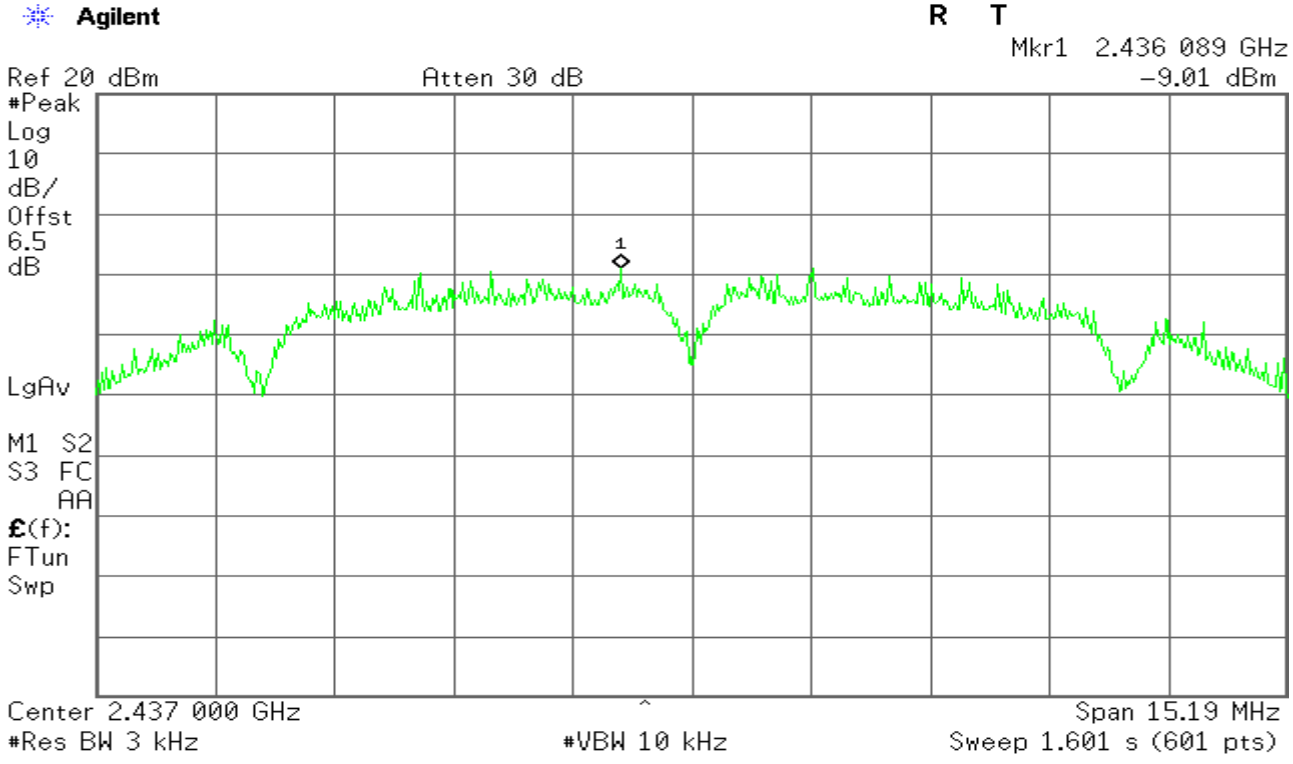
Test Plot

IEEE 802.11b mode/Chain 0

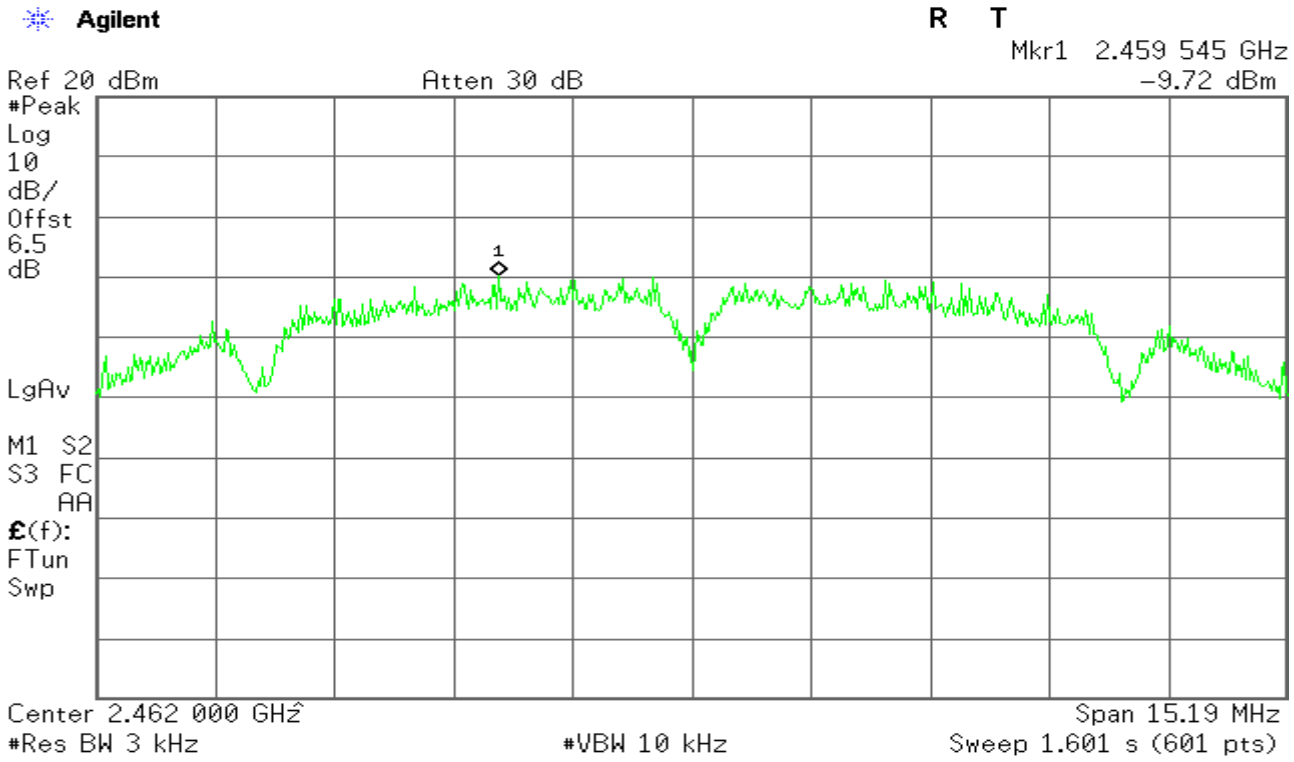
PPSD (CH Low)



PPSD(CH Mid)

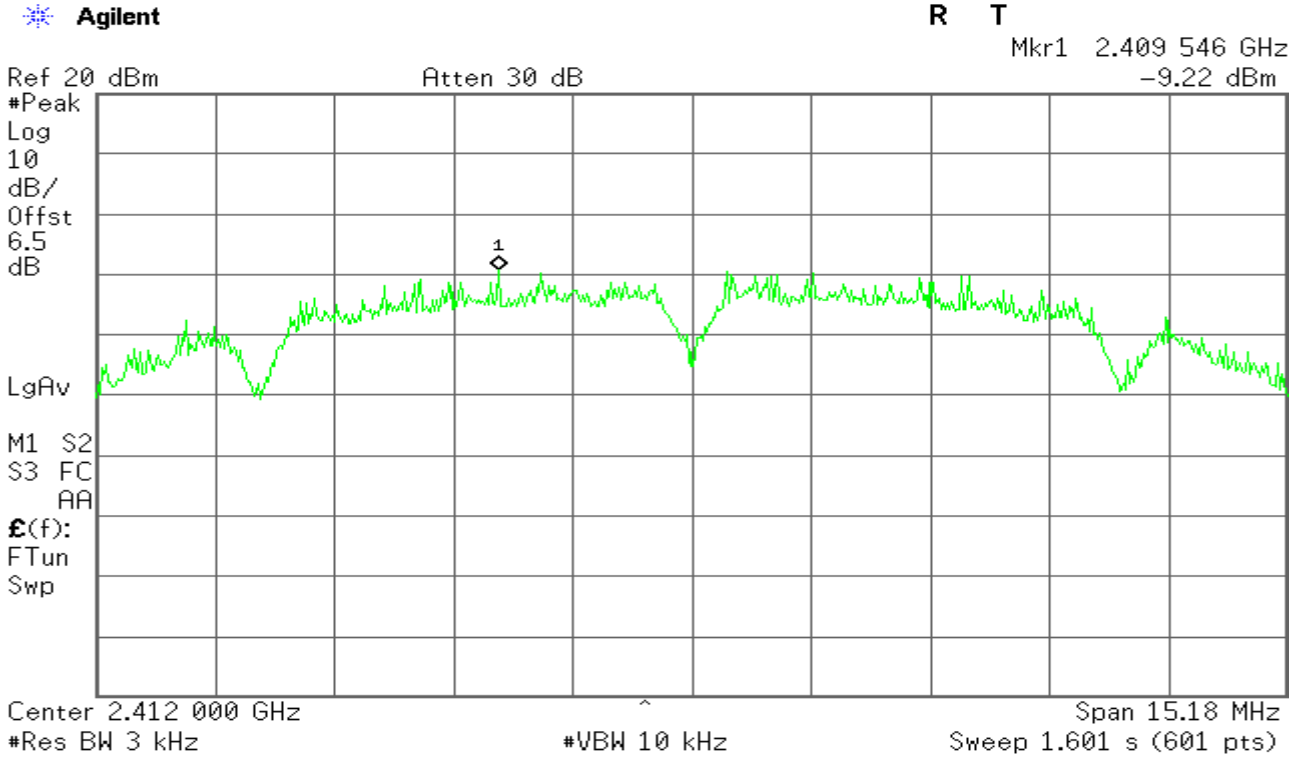


PPSD (CH High)

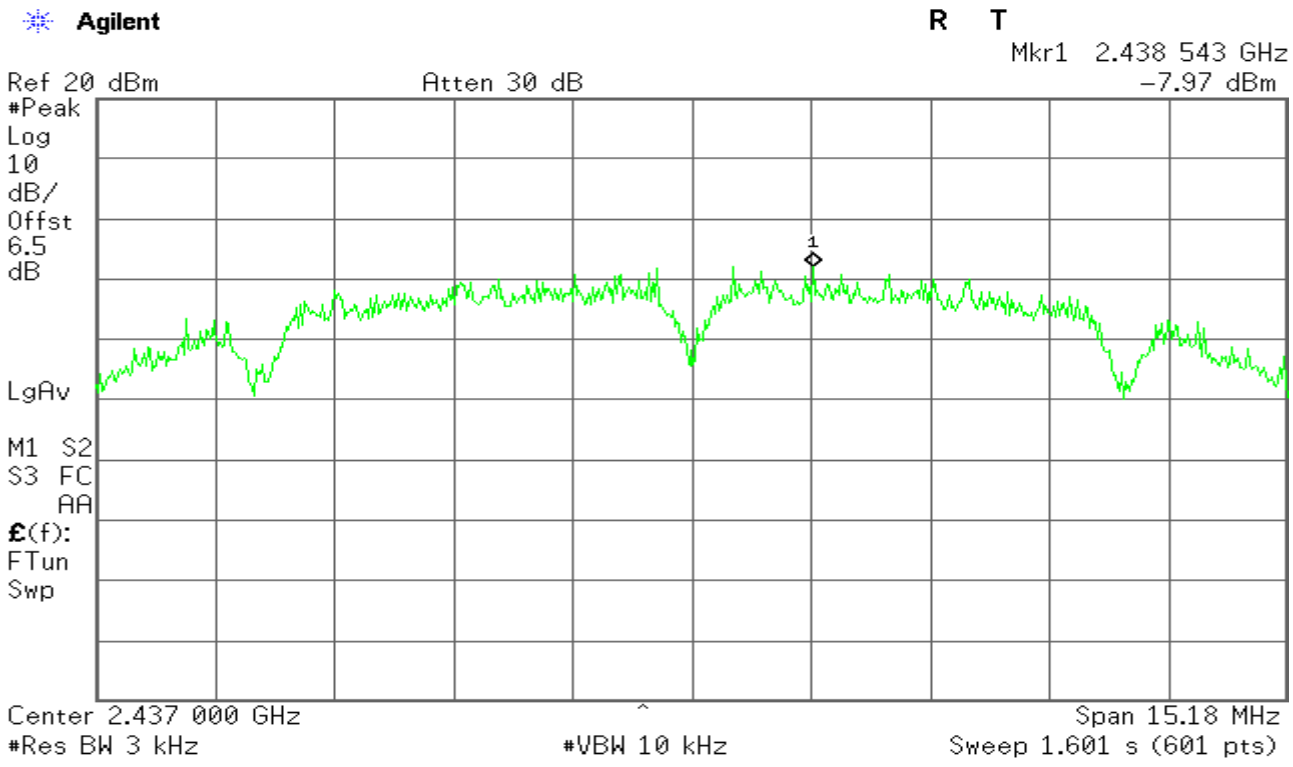


IEEE 802.11b mode/Chain 1

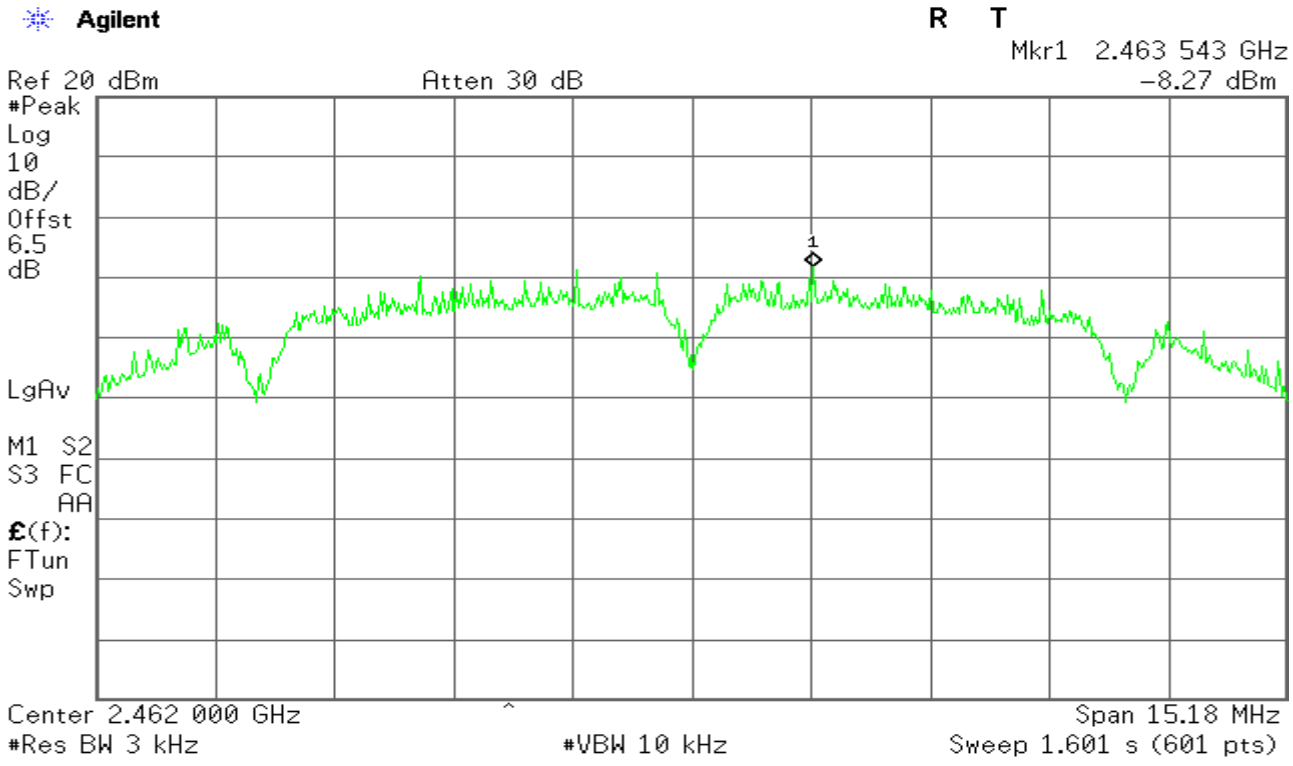
PPSD (CH Low)



PPSD (CH Mid)

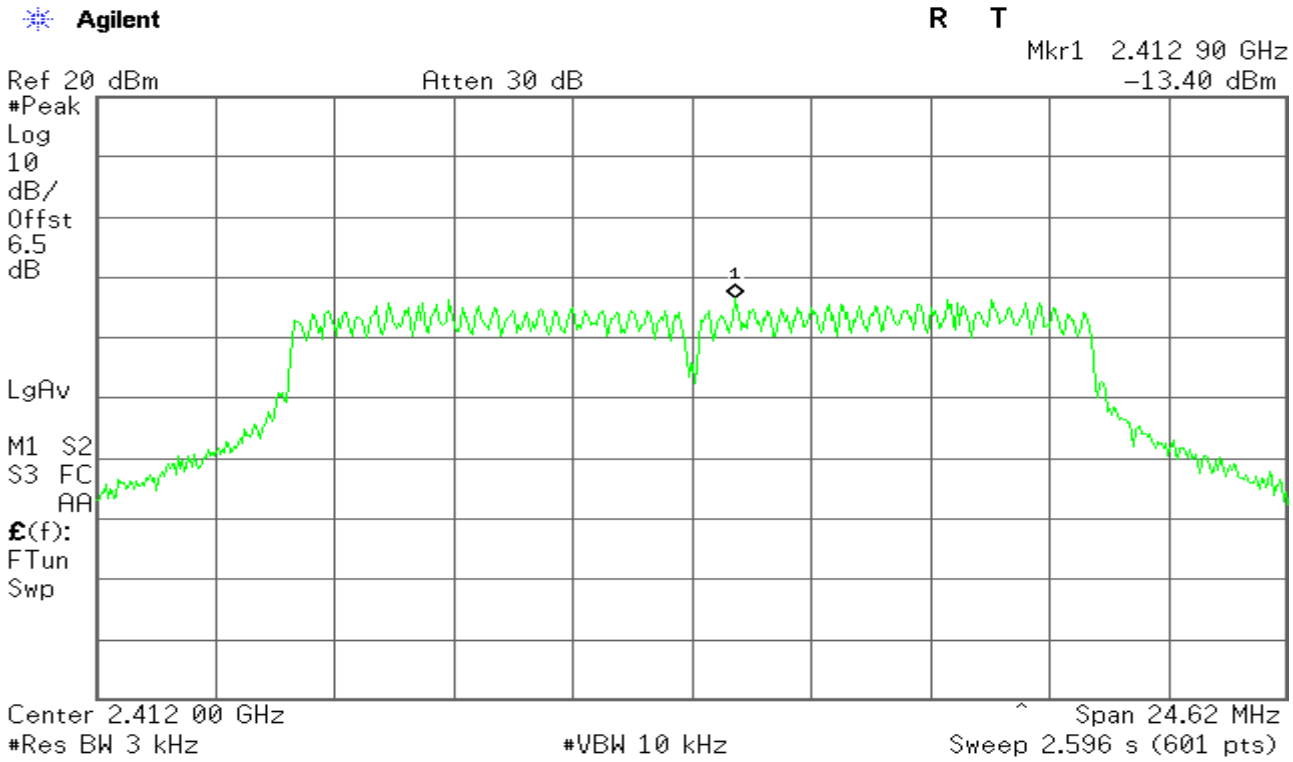


PSD (CH High)

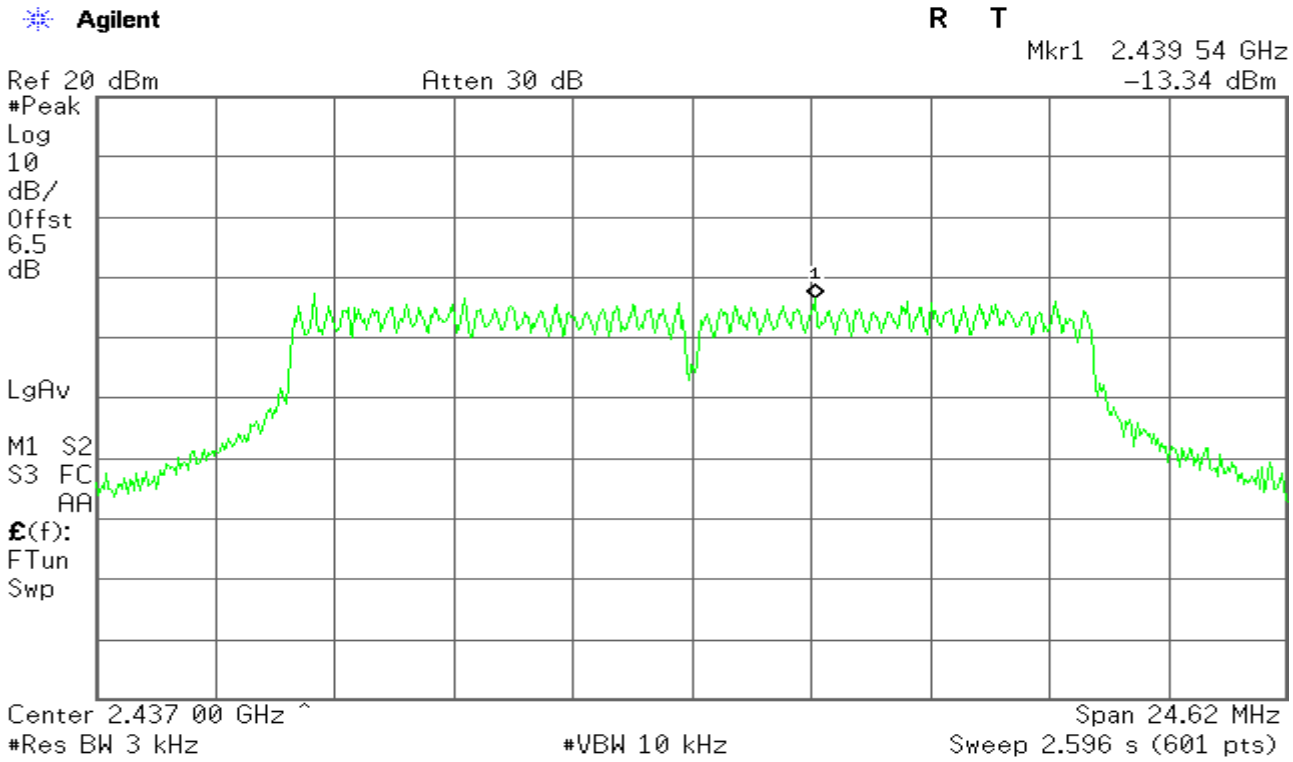


IEEE 802.11g mode/Chain 0

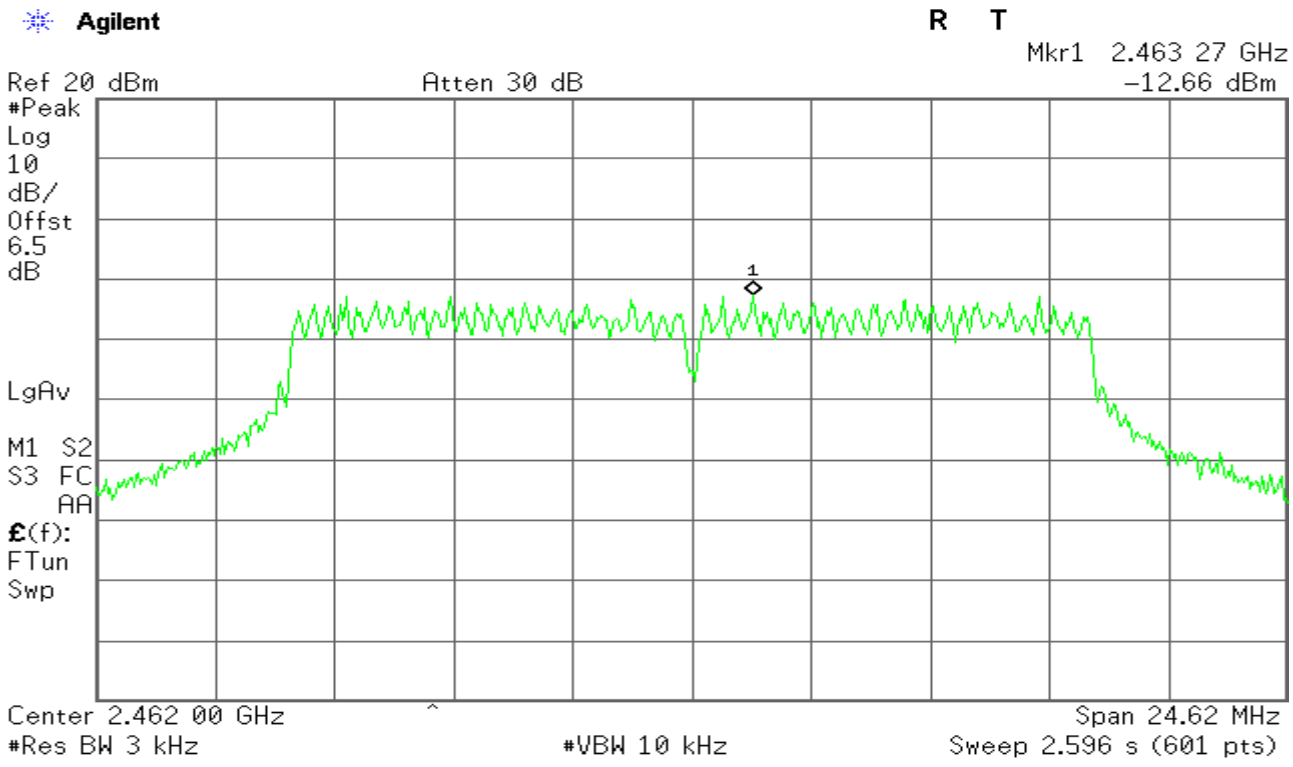
PPSD (CH Low)



PPSD (CH Mid)

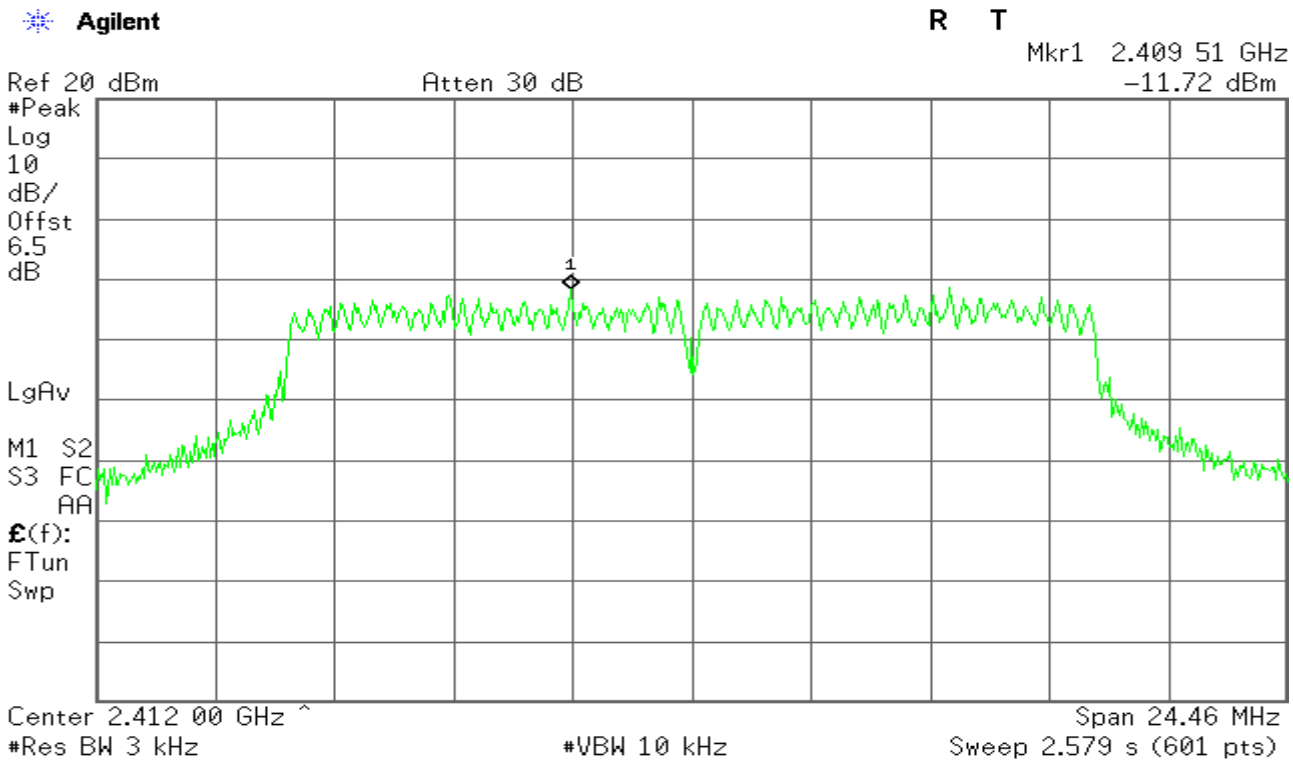


PPSD (CH High)

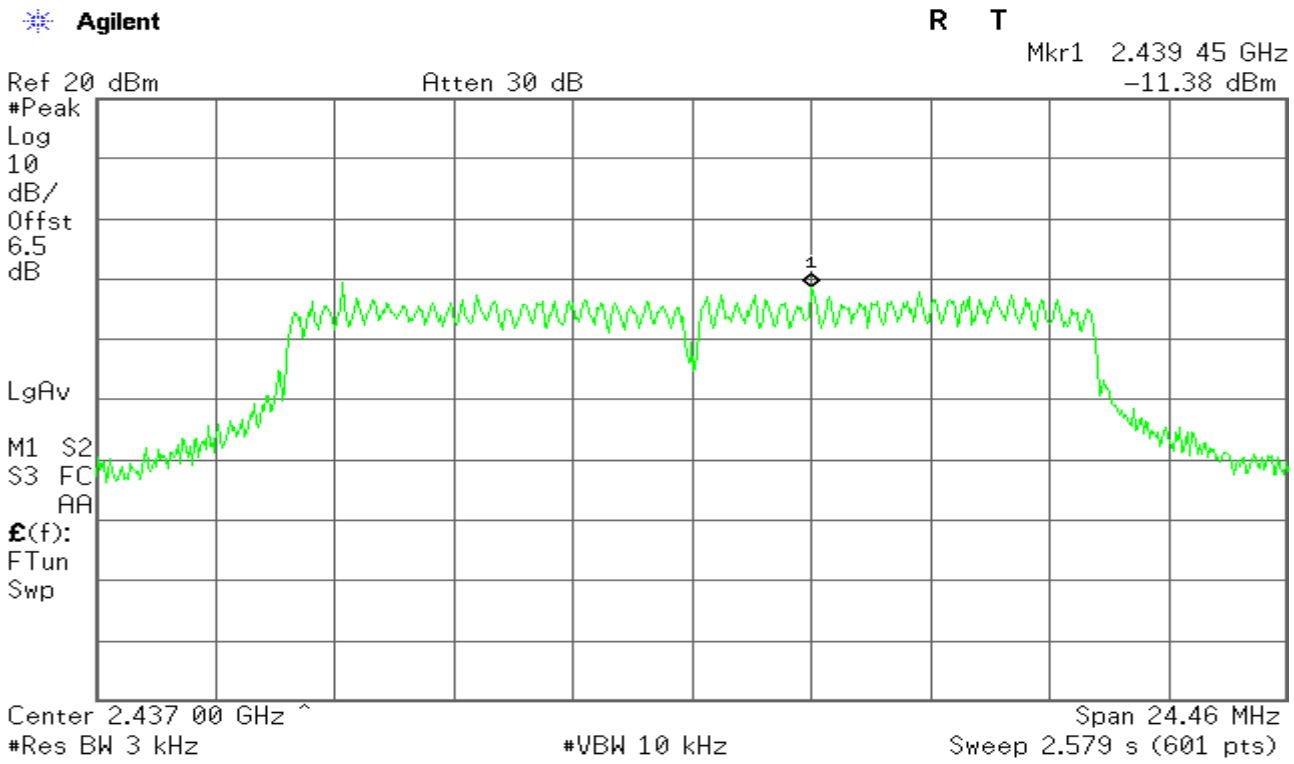


IEEE 802.11g mode/Chain 1

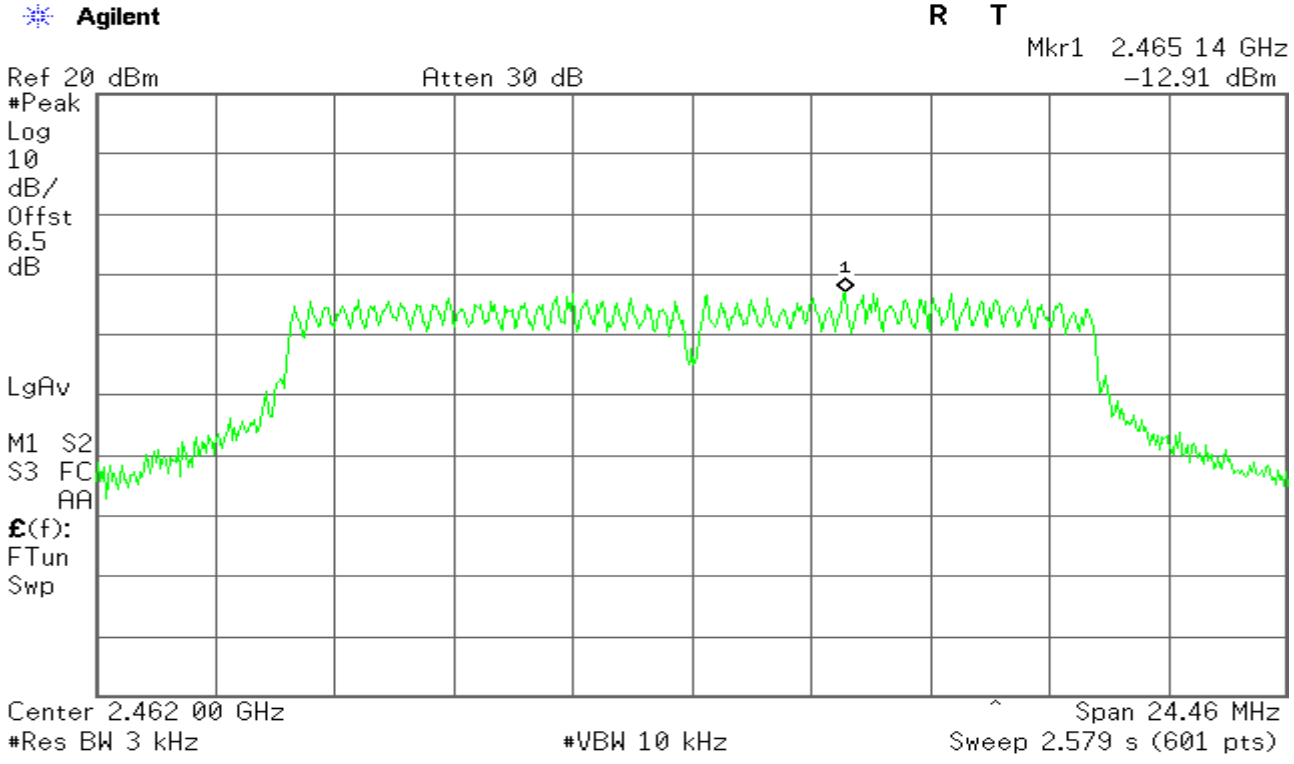
PPSD (CH Low)



PPSD (CH Mid)

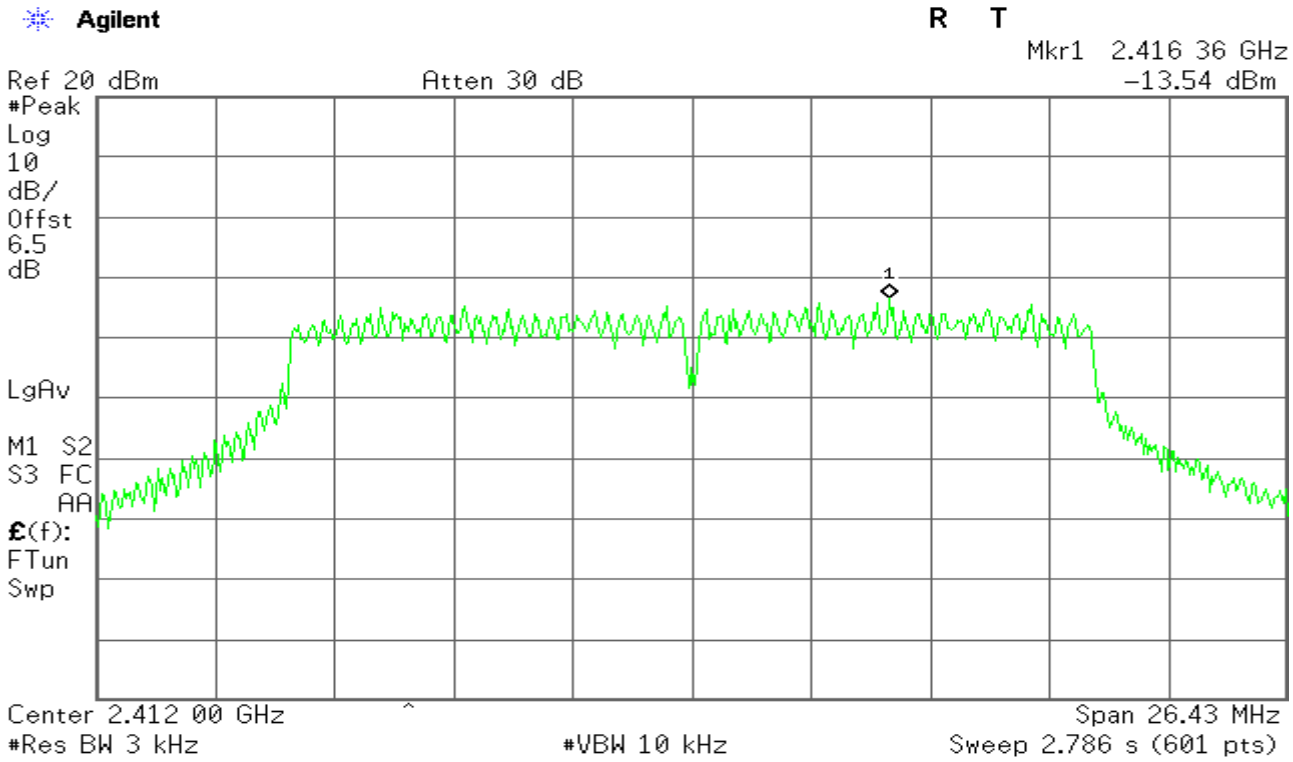


PPSD (CH High)

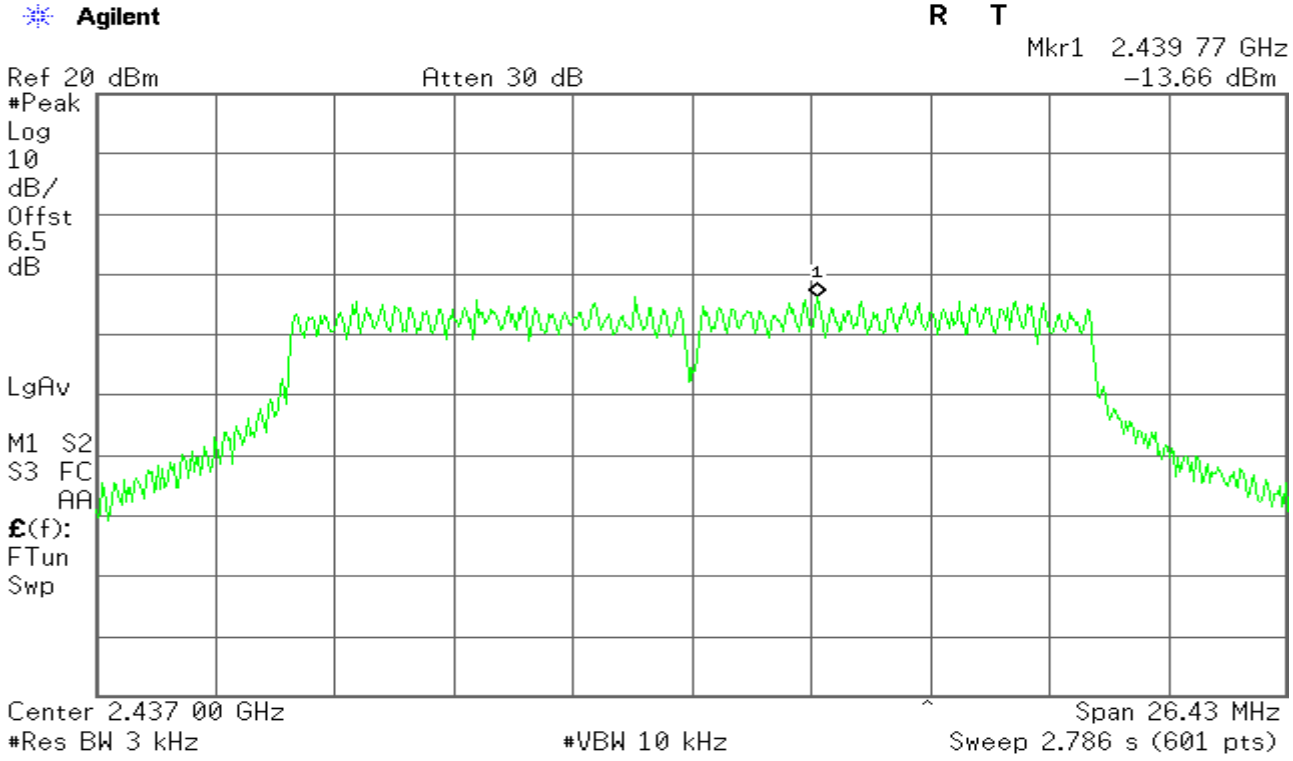


IEEE 802.11n HT20 mode / Chain 0

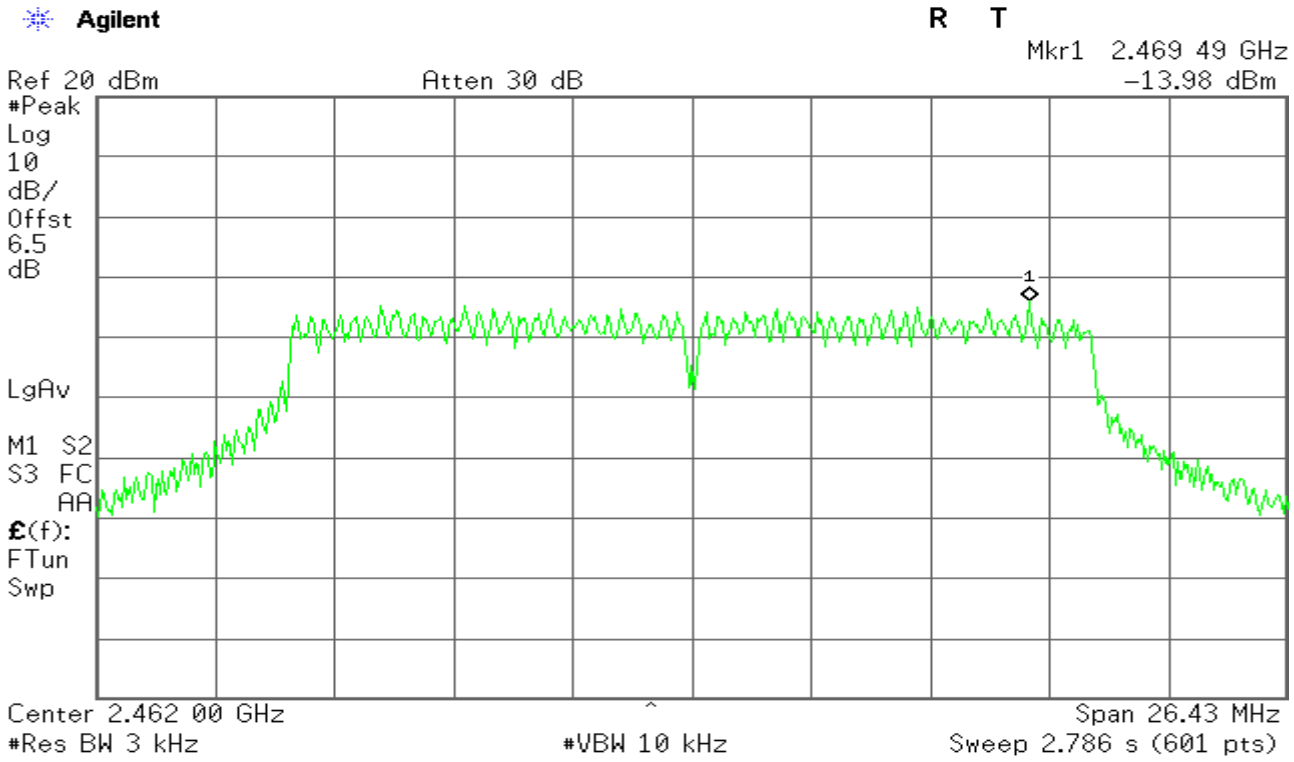
PPSD (CH Low)



PPSD (CH Mid)

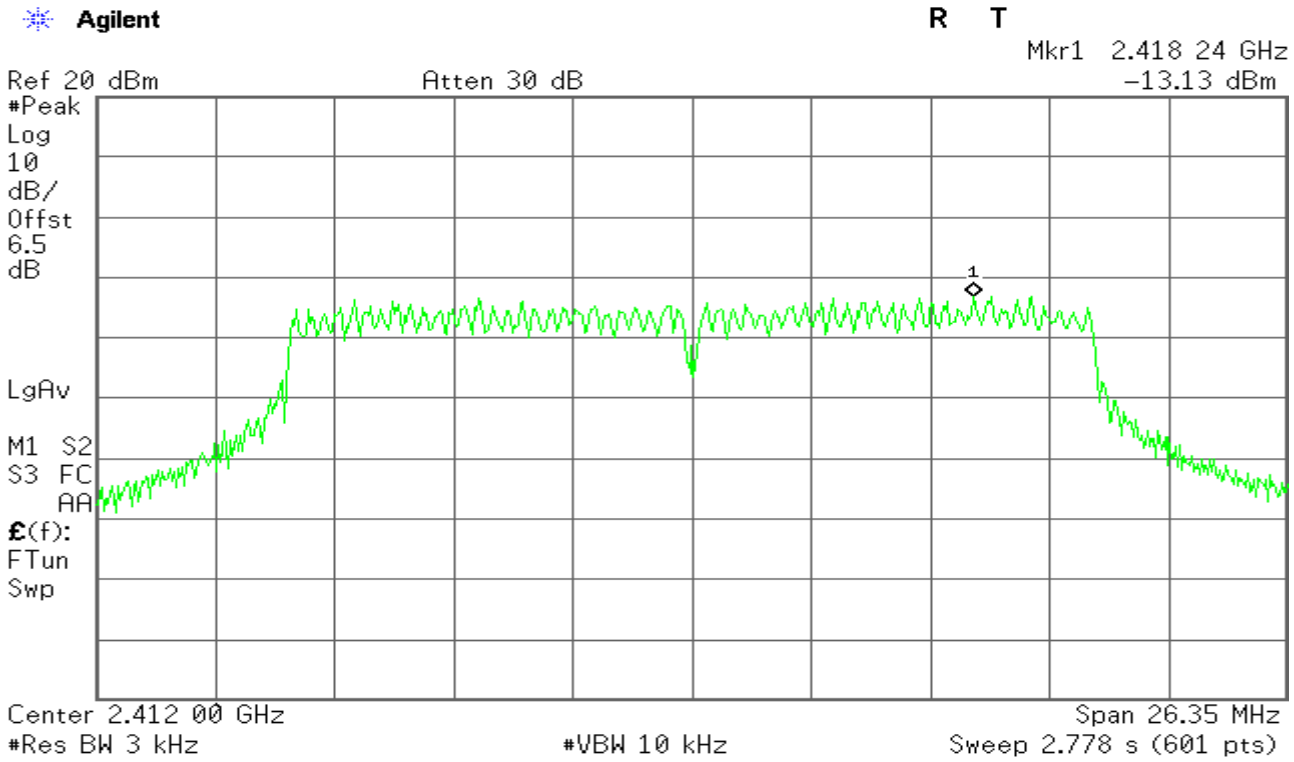


PPSD (CH High)

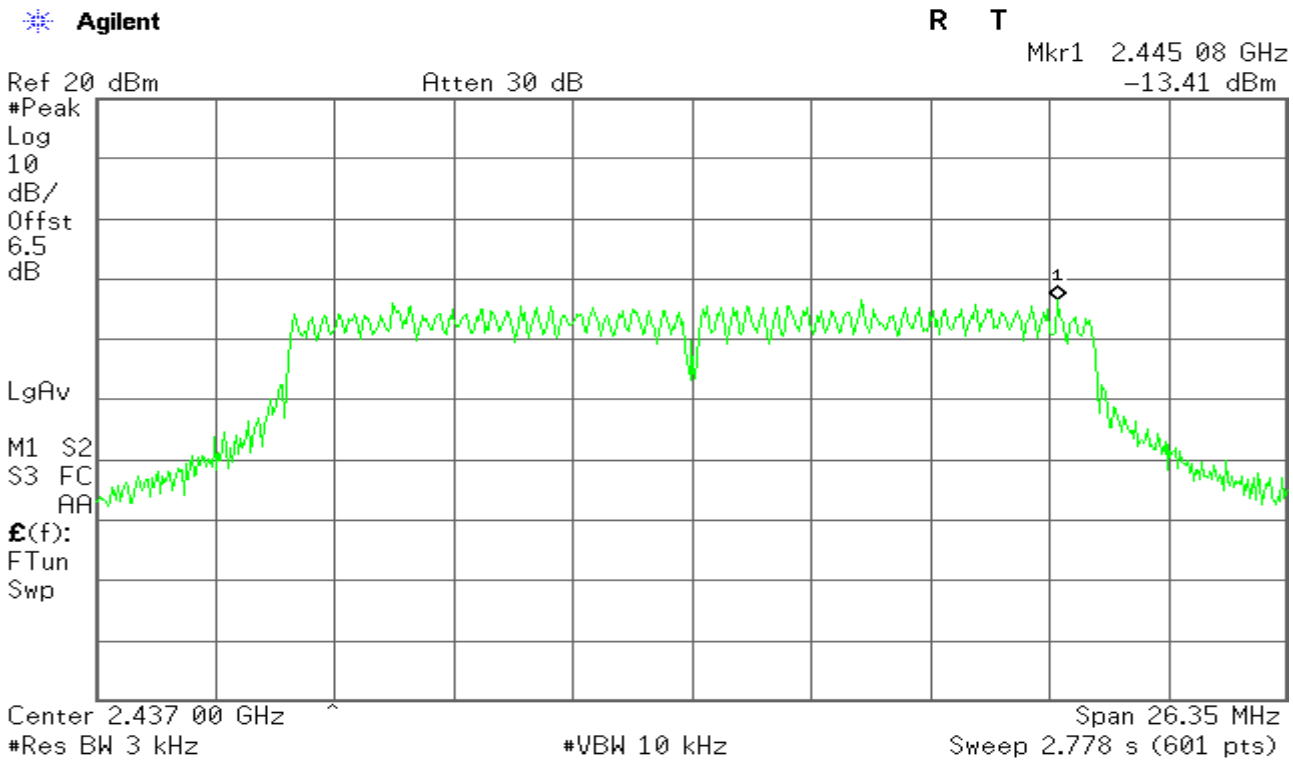


IEEE 802.11n HT20 mode / Chain 1

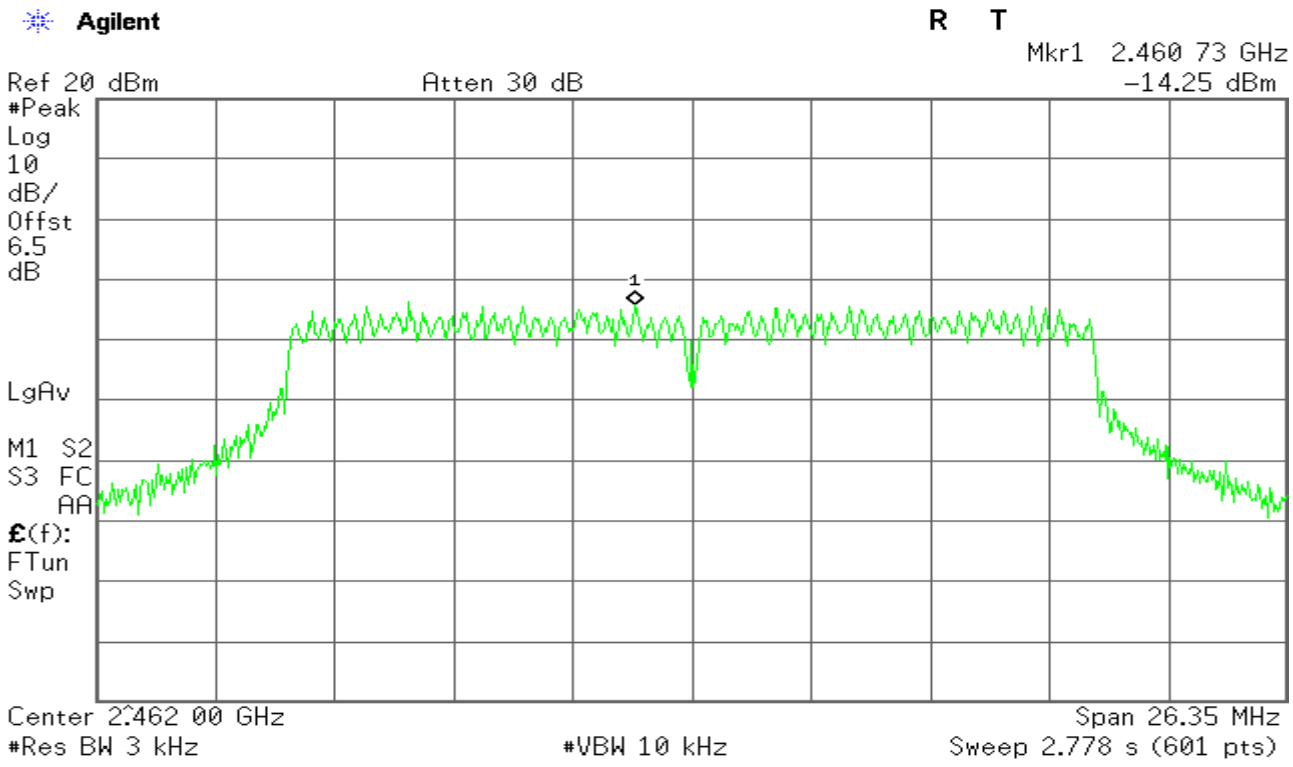
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)

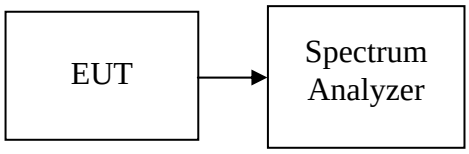


4.5.SPURIOUS EMISSIONS
Conducted Measurement

LIMIT

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

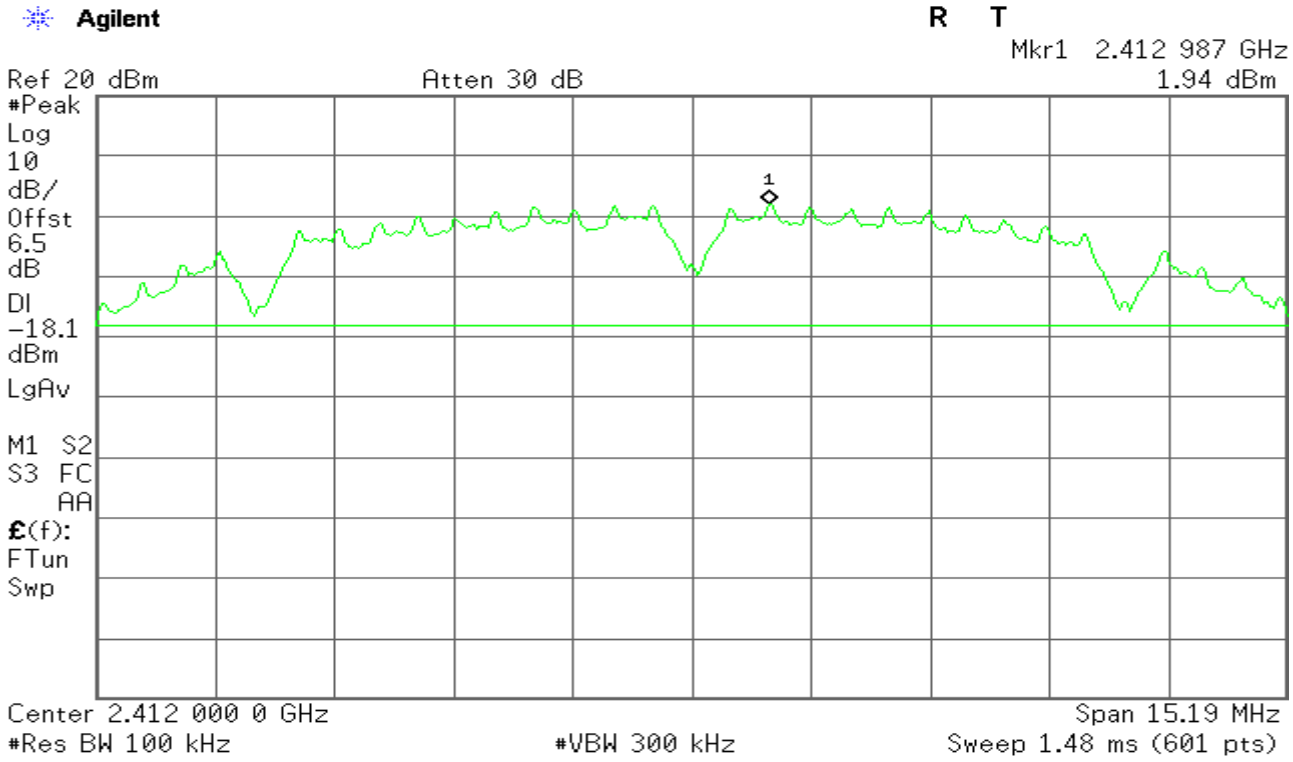
No non-compliance noted

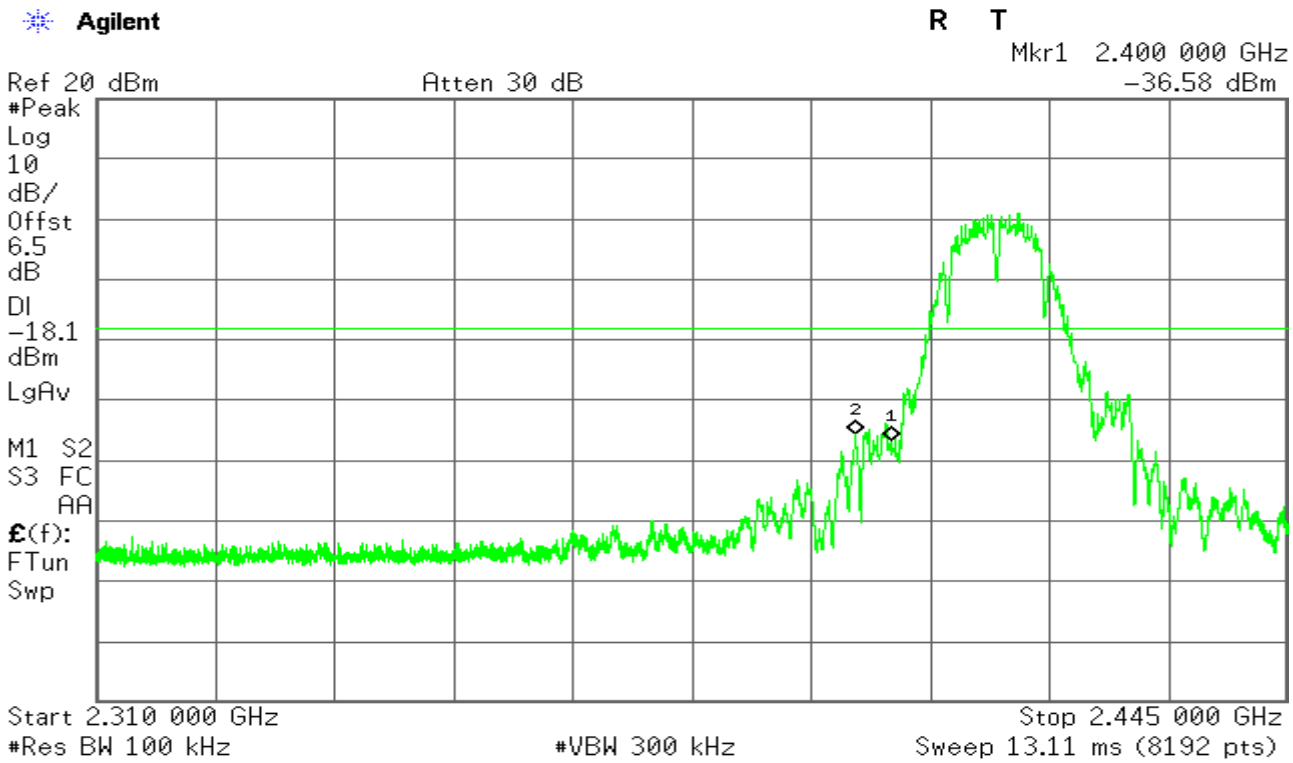
Test Plot

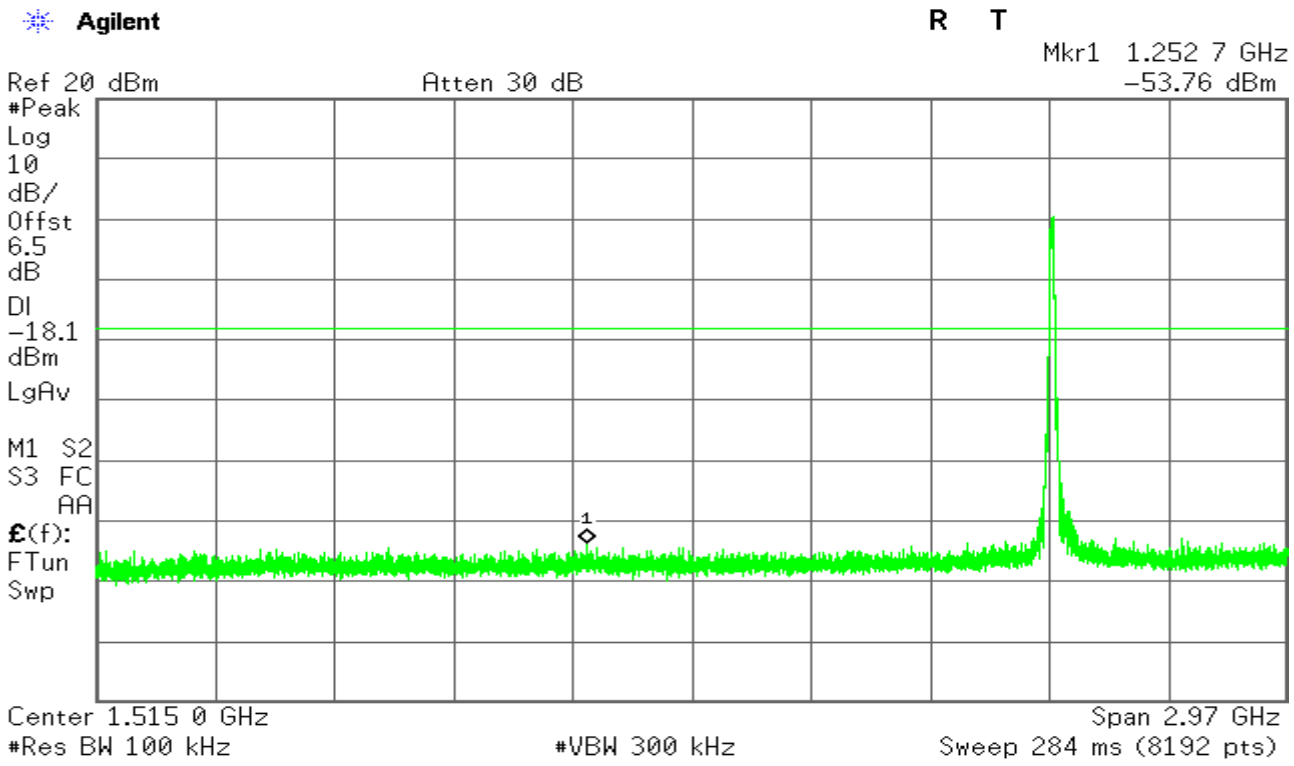
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

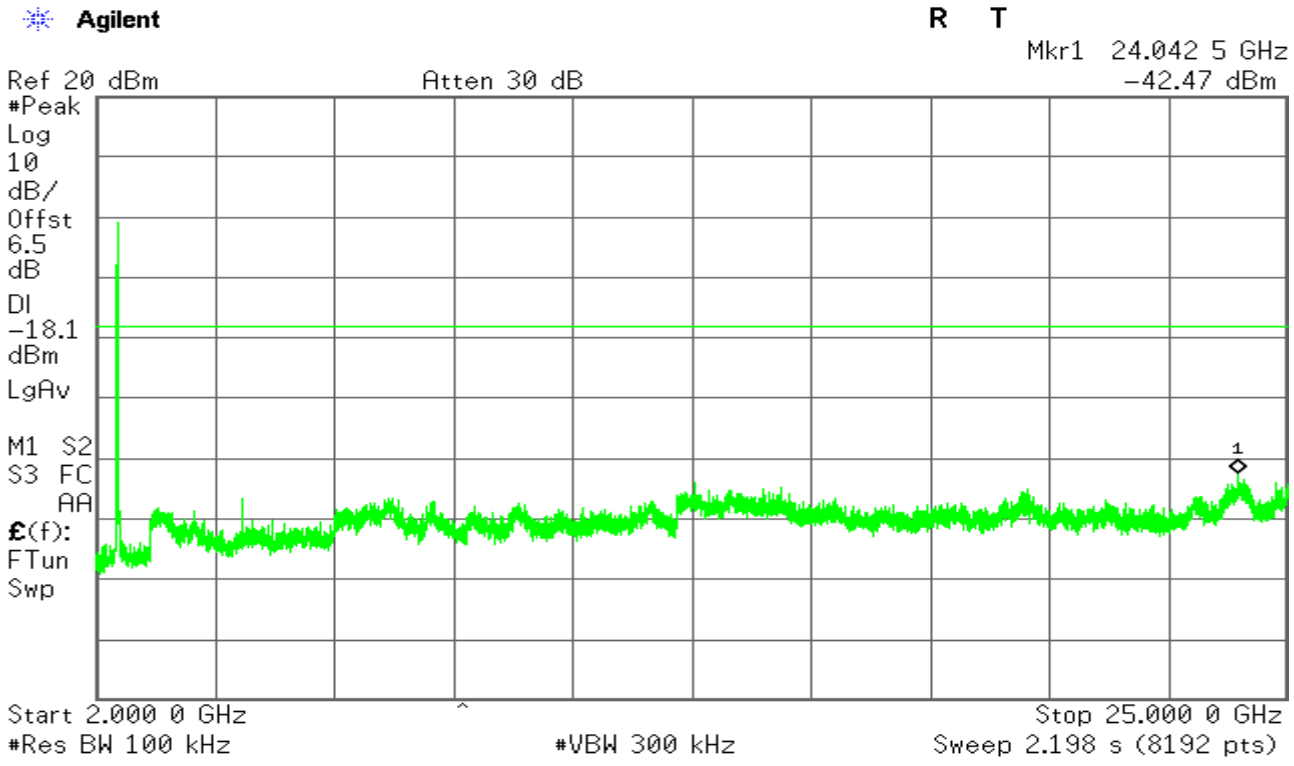
IEEE 802.11b mode/Chain 0

CH Low

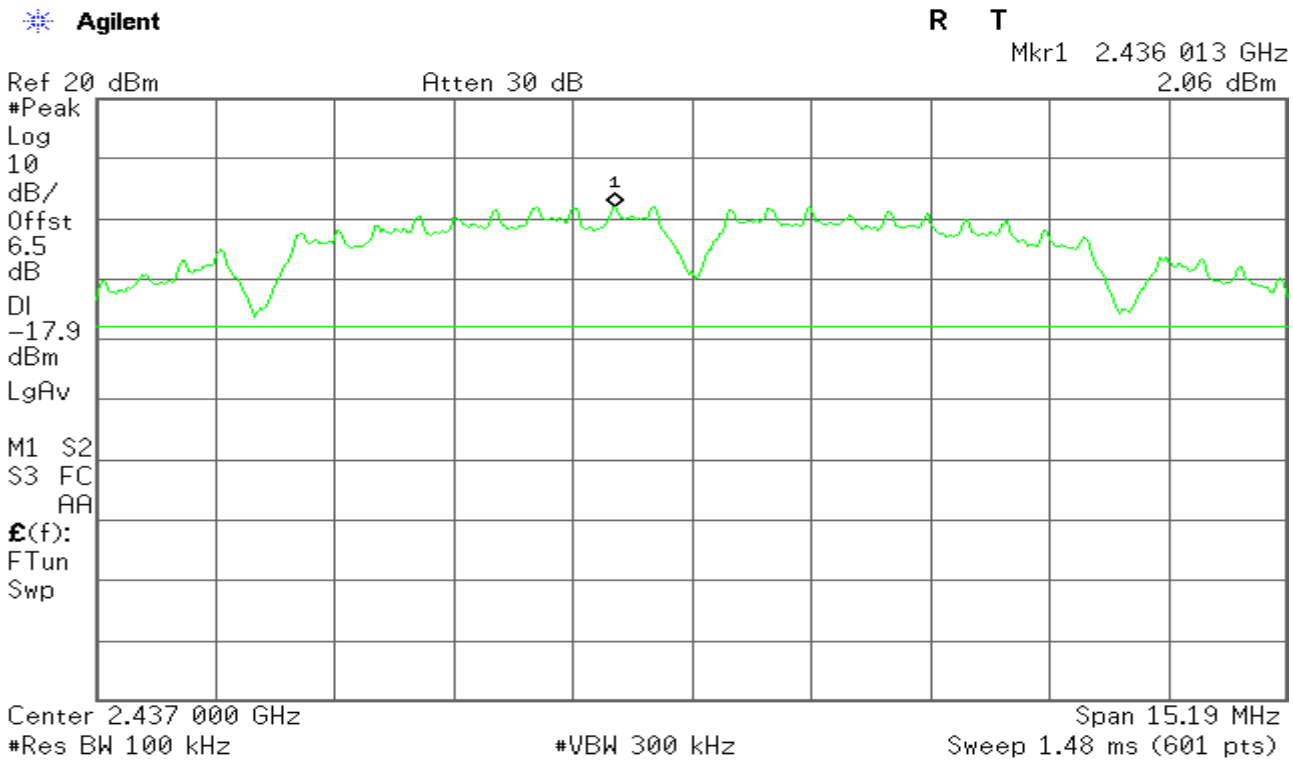


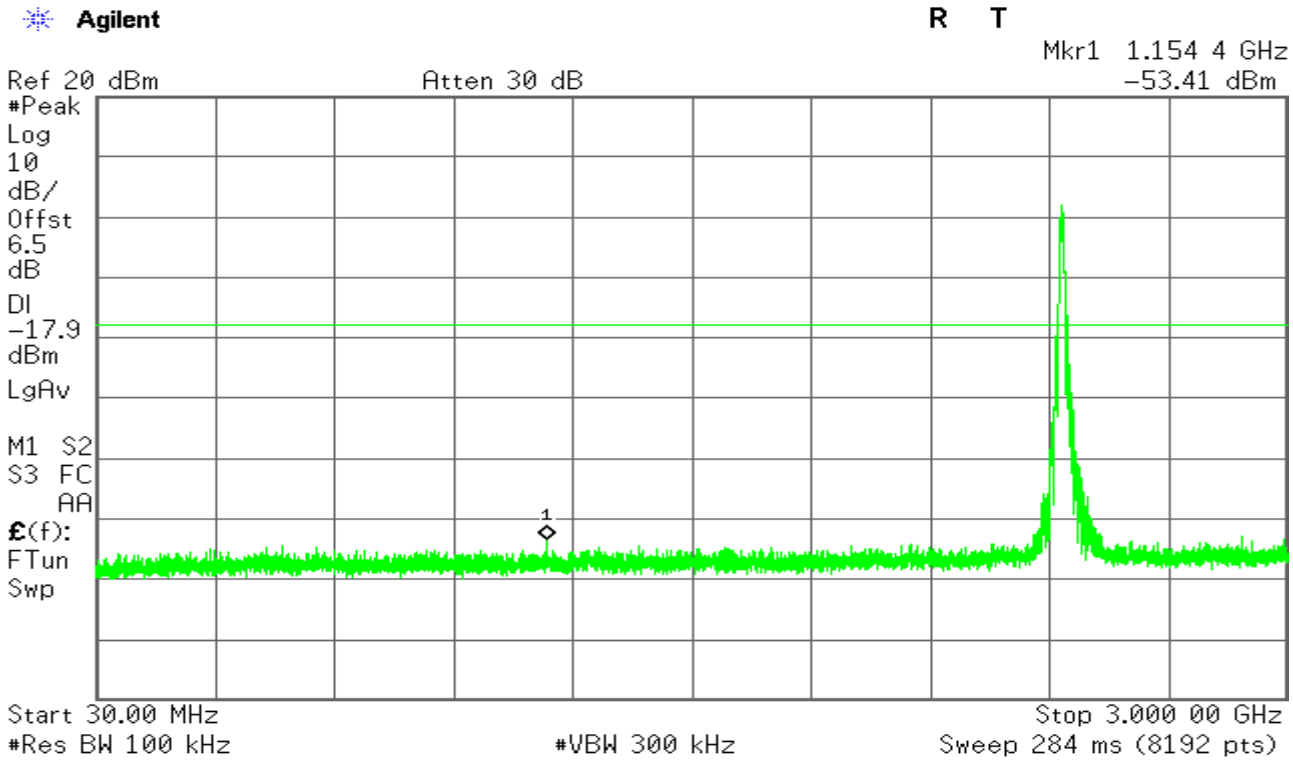


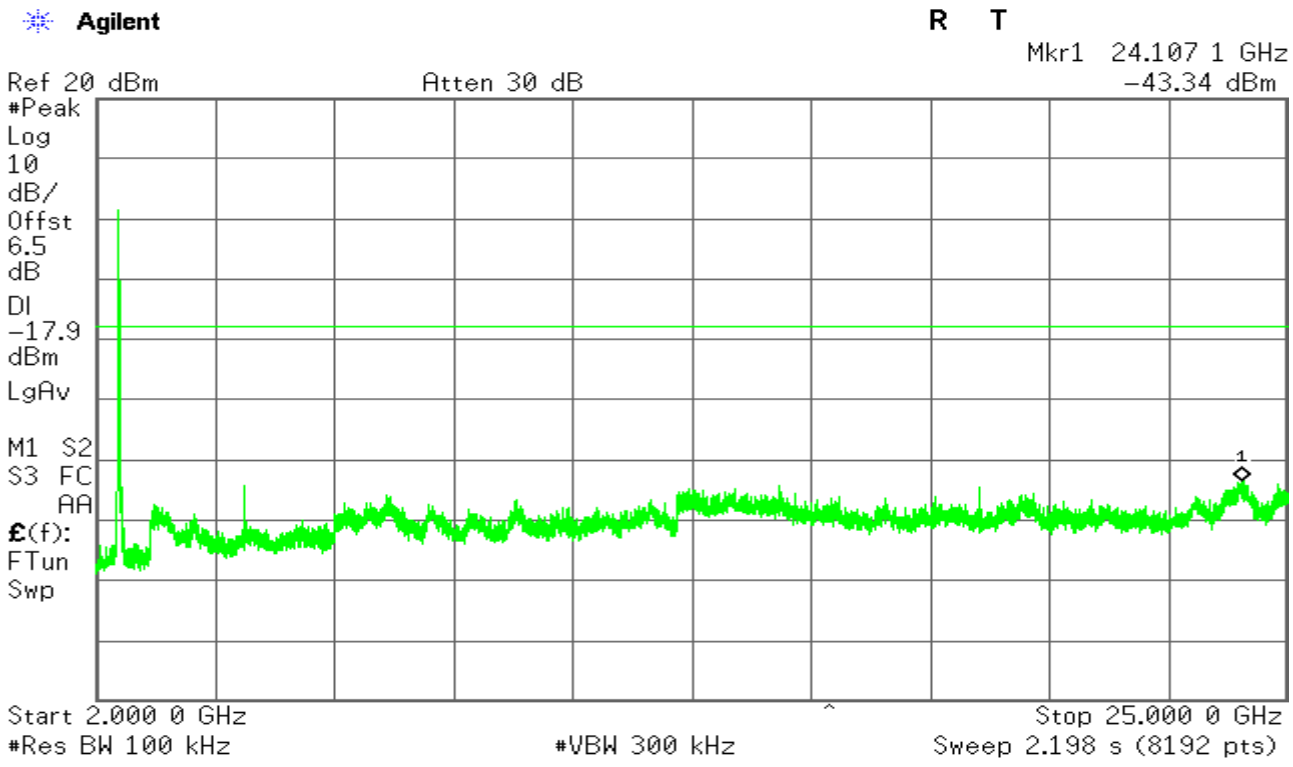

Agilent
R T
Mkr1 1.252 7 GHz
Ref 20 dBm
Atten 30 dB
-53.76 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.1
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 1.515 0 GHz
Span 2.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.042 5 GHz
Ref 20 dBm
Atten 30 dB
-42.47 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.1
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
Stop 25.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.198 s (8192 pts)

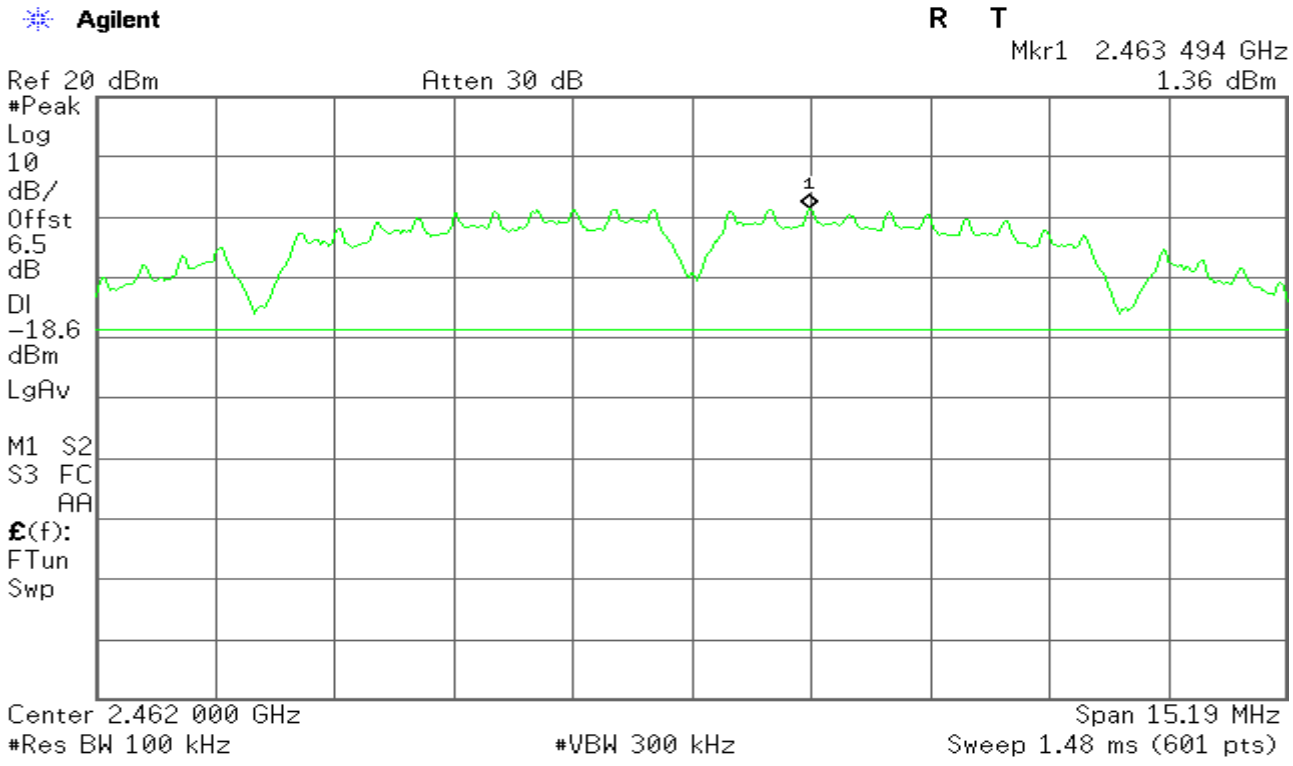
CH Mid

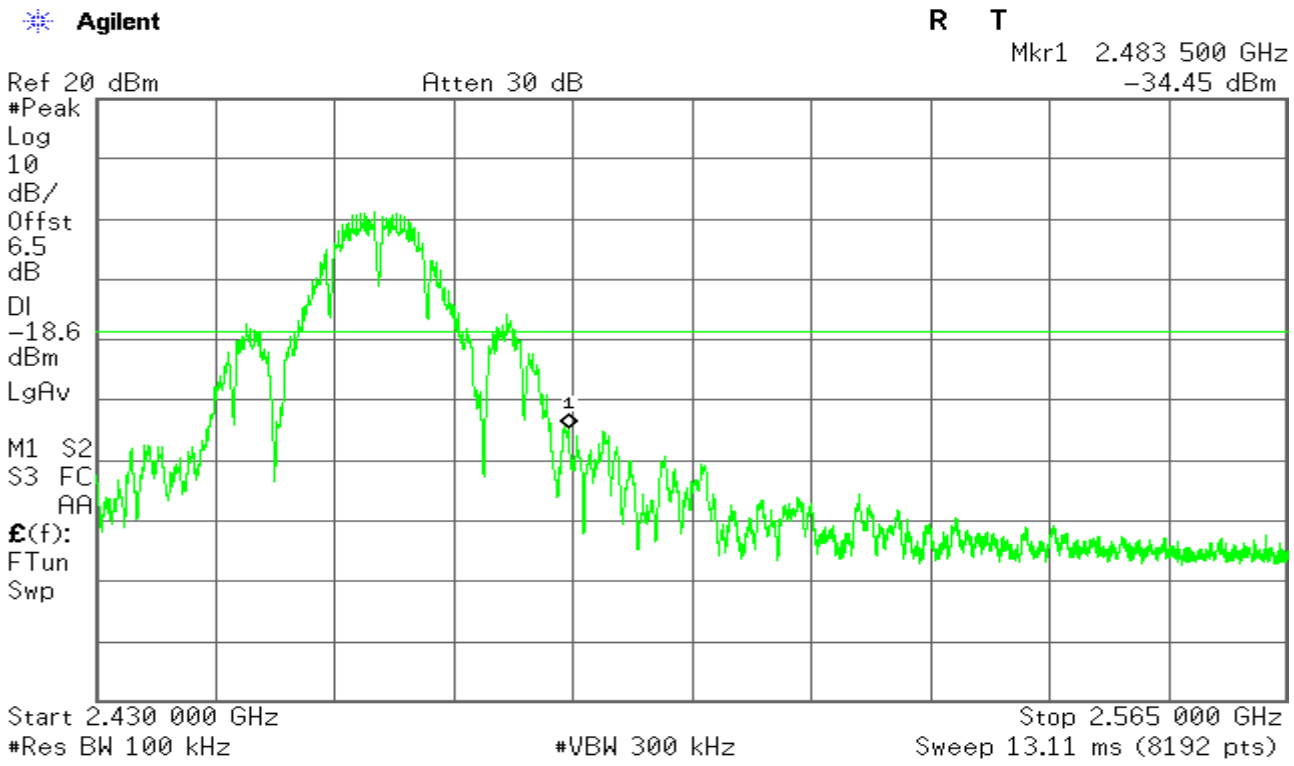

Agilent
R T
Mkr1 2.436 013 GHz
2.06 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.9
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 15.19 MHz
Sweep 1.48 ms (601 pts)

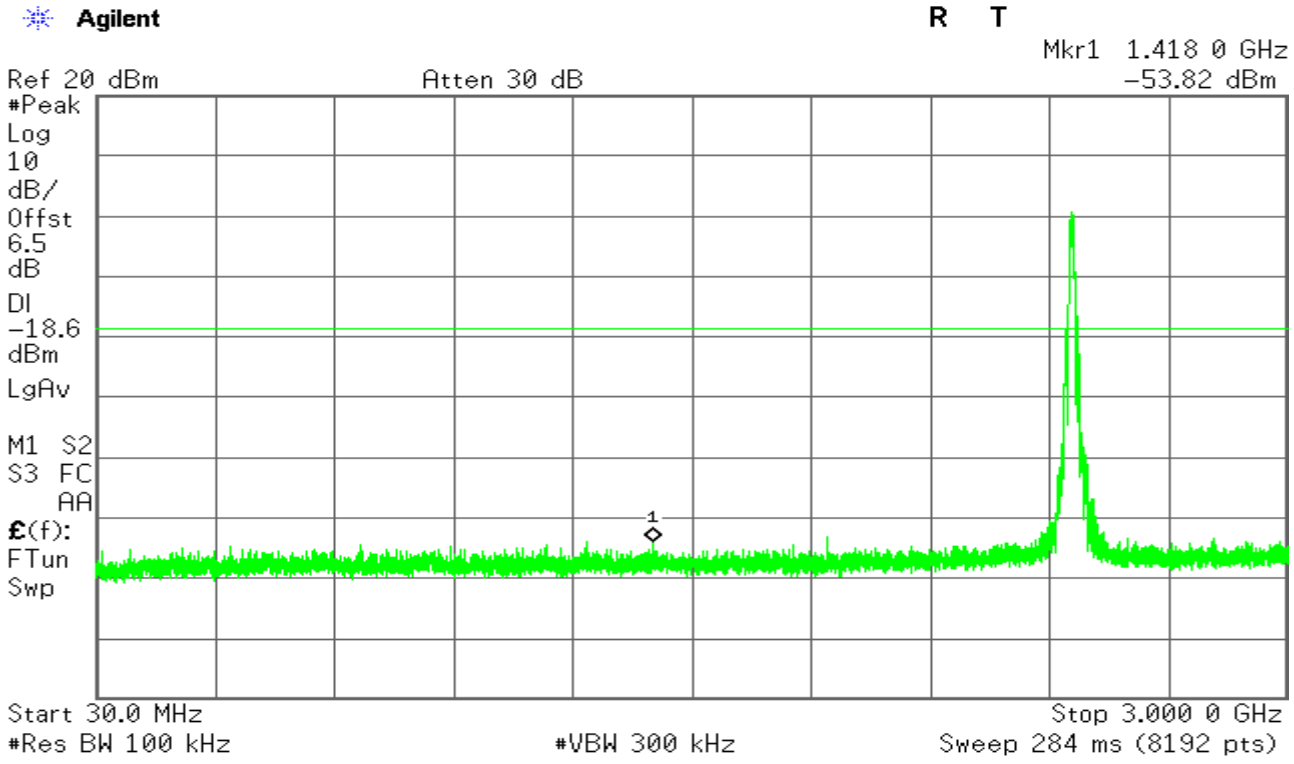

Agilent
R T
Mkr1 1.154 4 GHz
-53.41 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.9
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

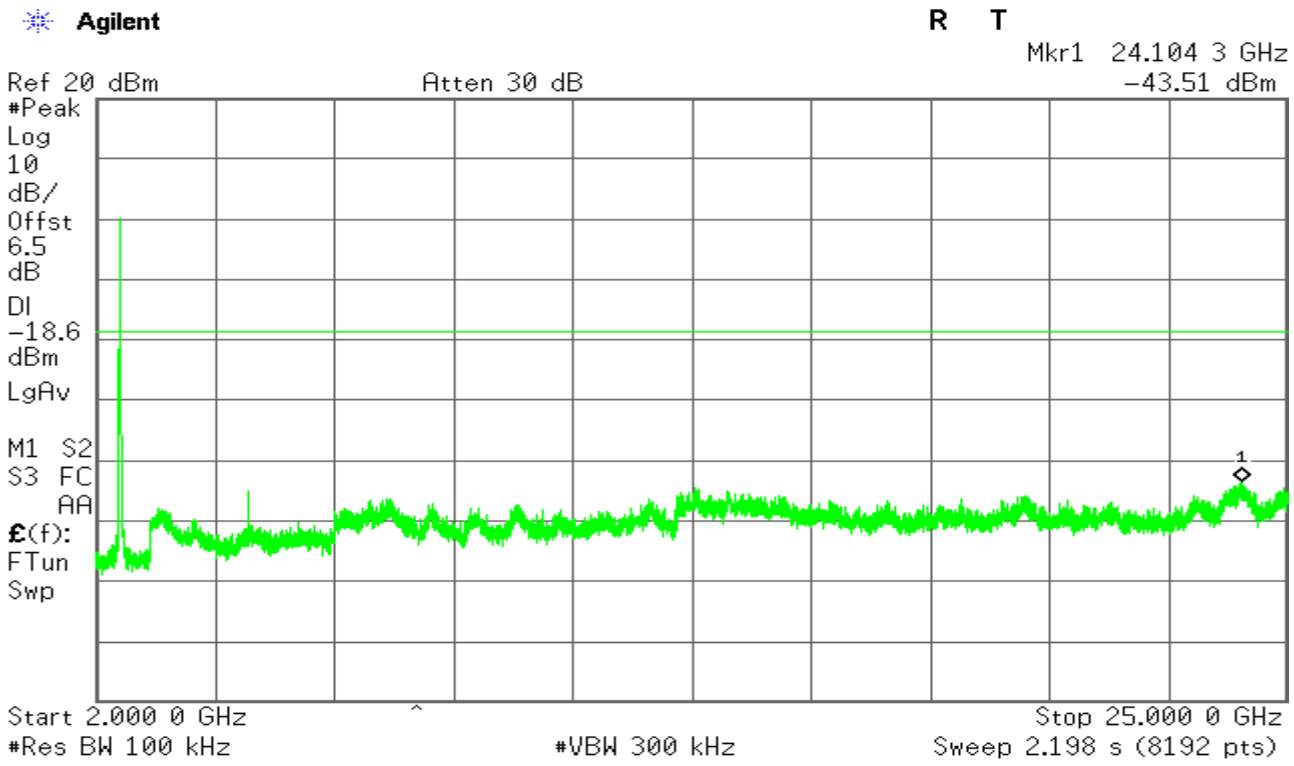

Agilent
R T
Mkr1 24.107 1 GHz
-43.34 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.9
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.463 494 GHz
1.36 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 15.19 MHz
Sweep 1.48 ms (601 pts)

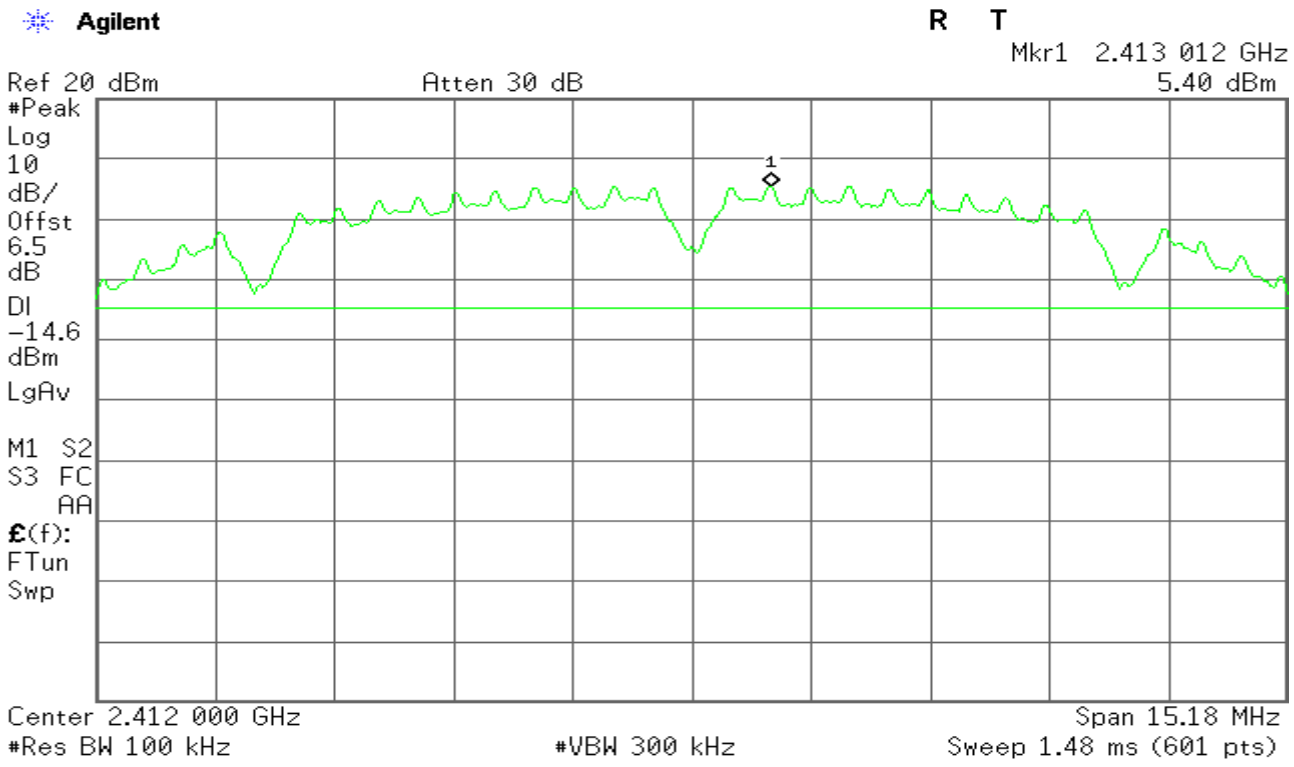

Agilent
R T
Mkr1 2.483 500 GHz
-34.45 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)

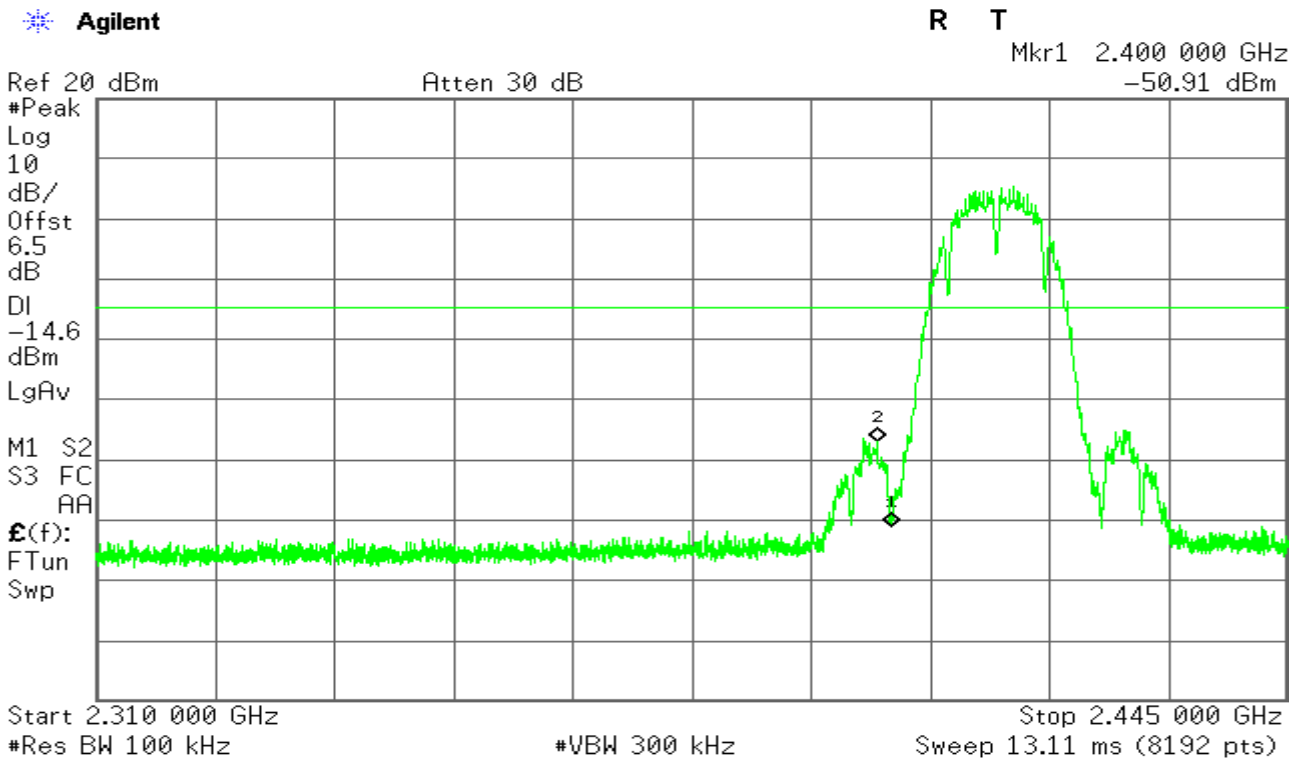

Agilent
R T
Mkr1 1.418 0 GHz
-53.82 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)

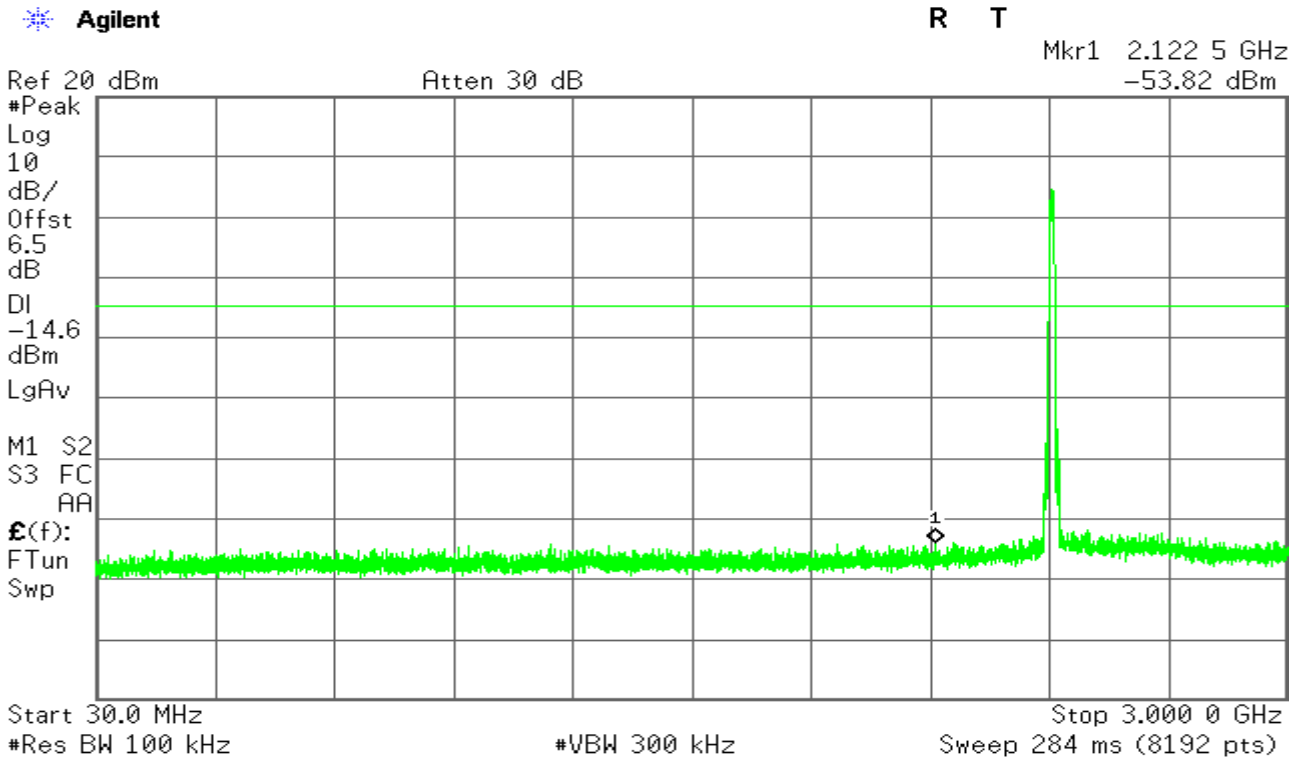


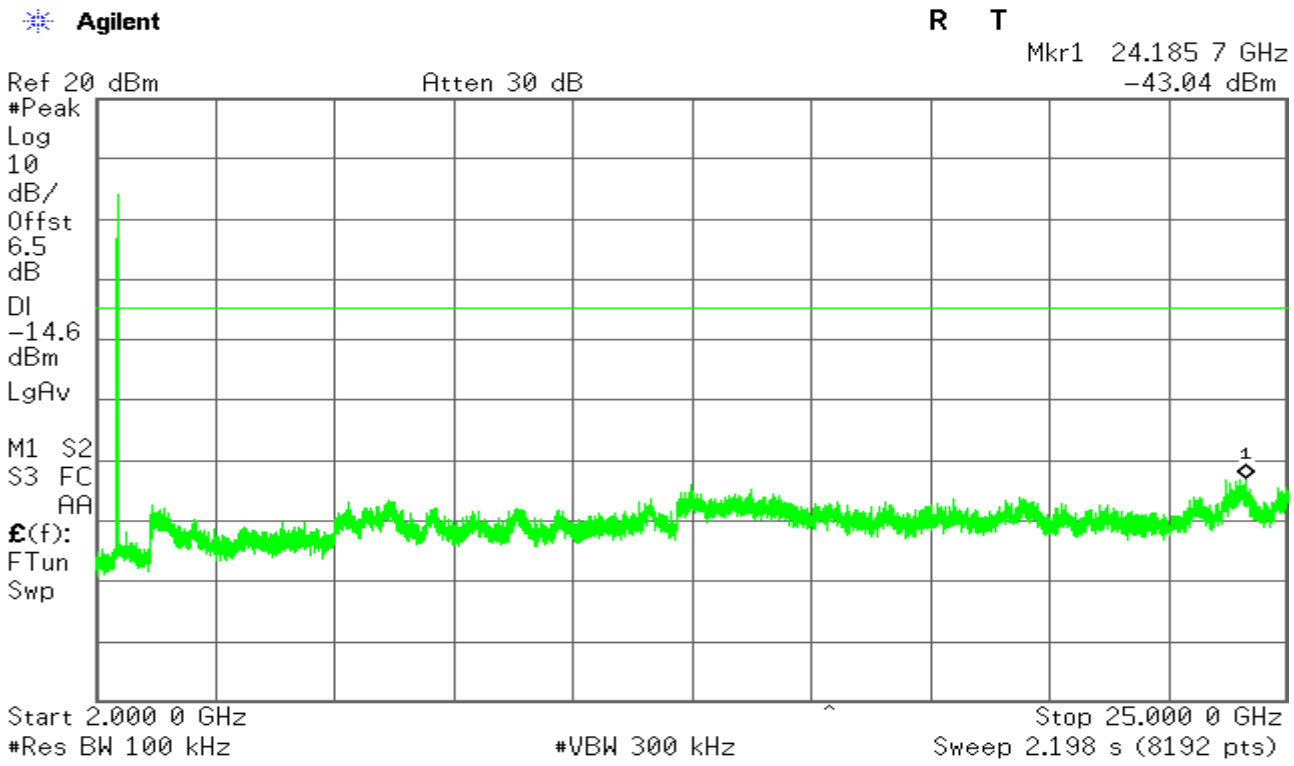
IEEE 802.11b mode/Chain 1

CH Low

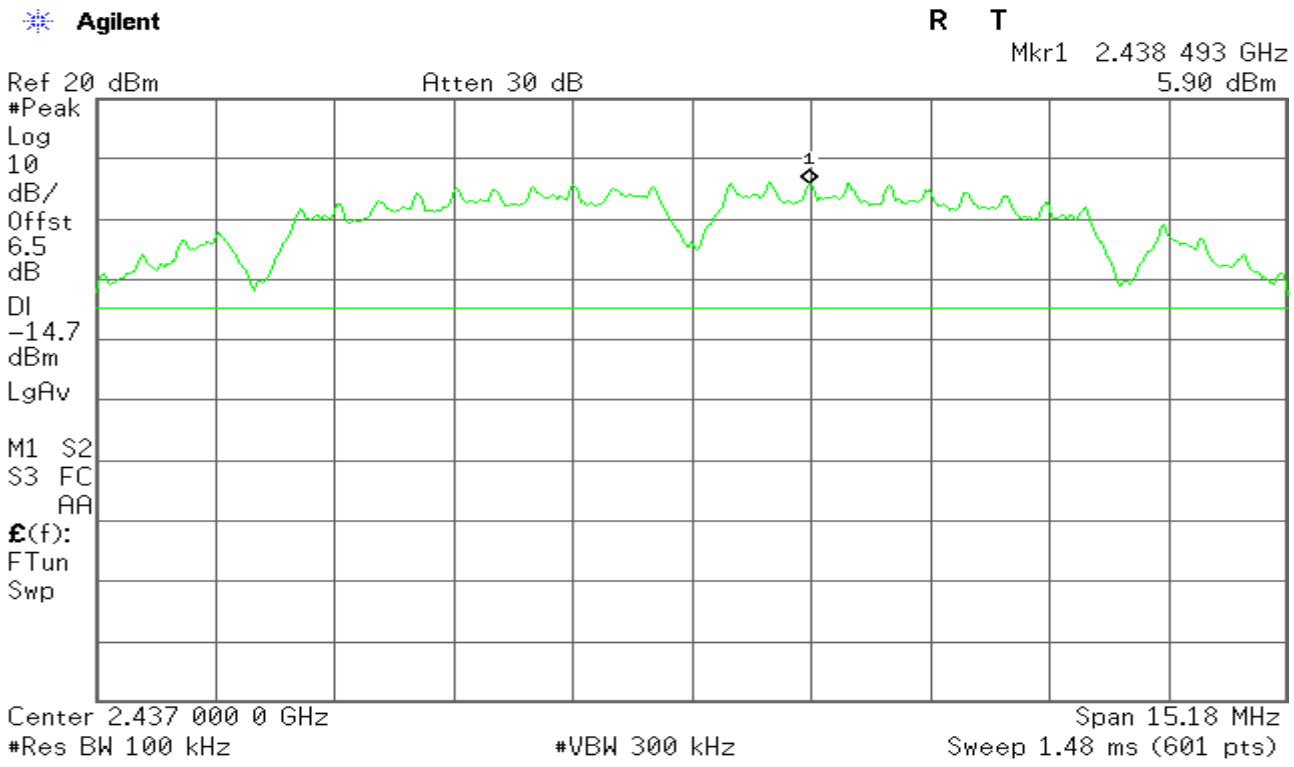


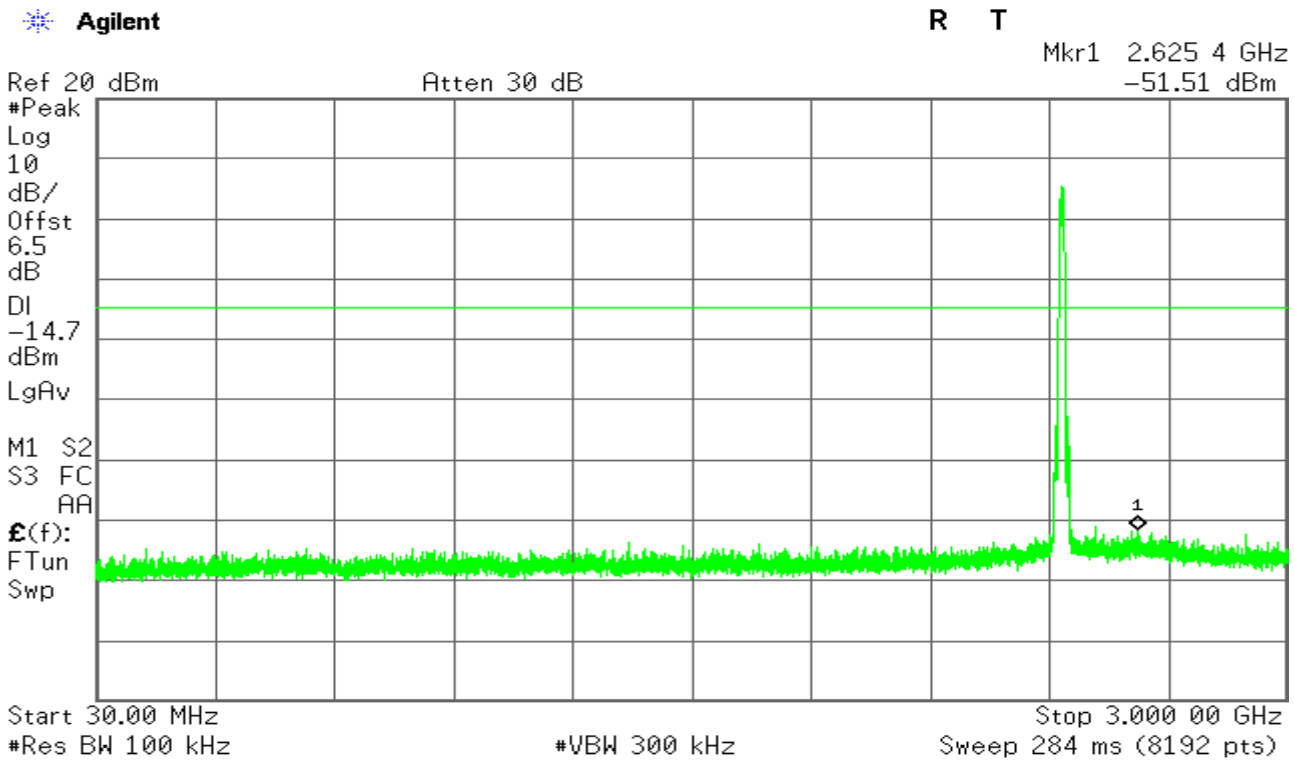

Agilent
R T
Mkr1 2.400 000 GHz
−50.91 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−14.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.310 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.445 000 GHz
Sweep 13.11 ms (8192 pts)

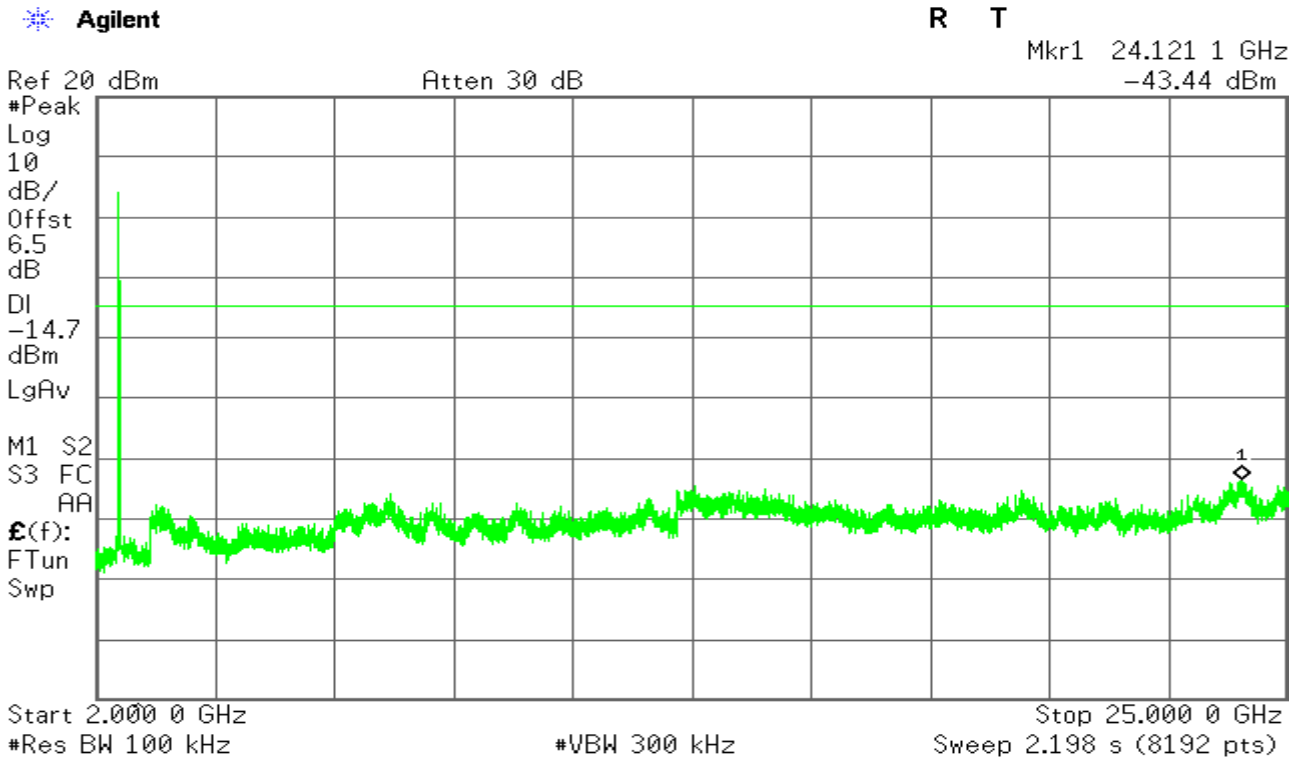

Agilent
R T
Mkr1 2.122 5 GHz
−53.82 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−14.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.185 7 GHz
-43.04 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

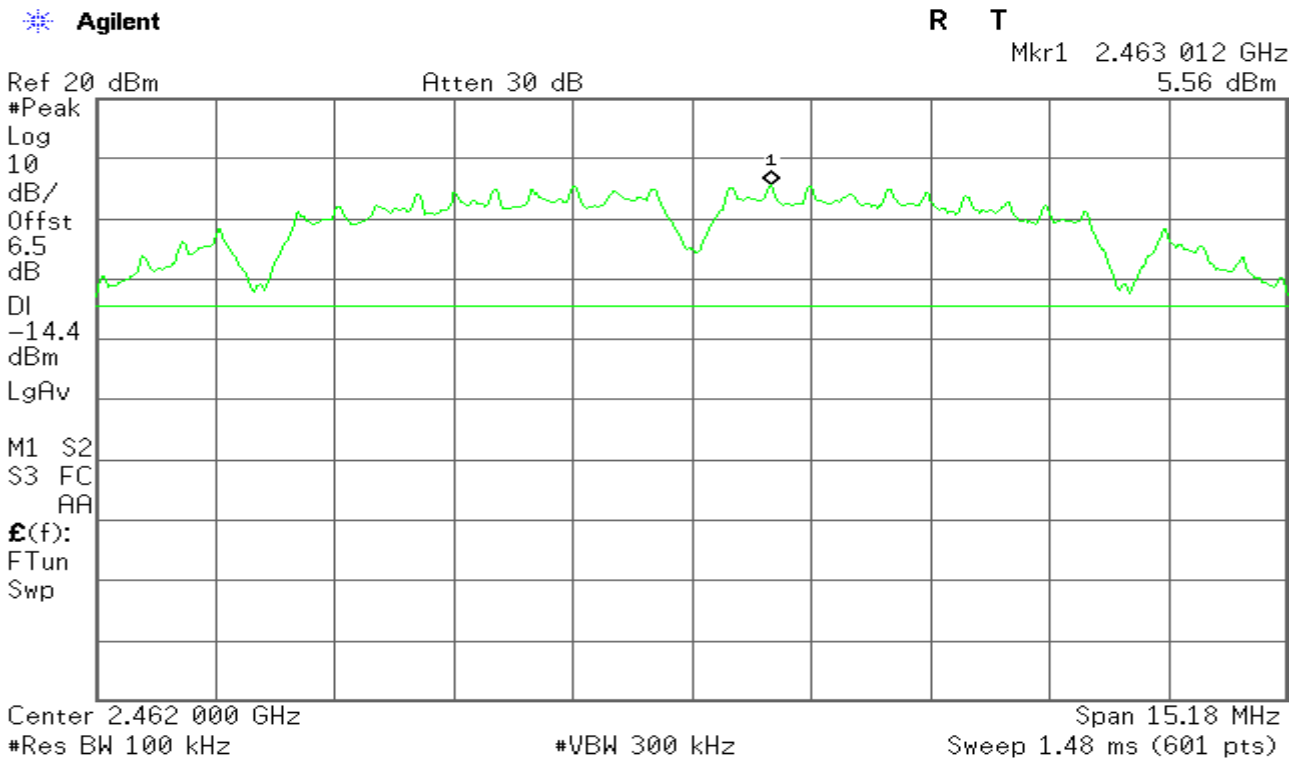
CH Mid

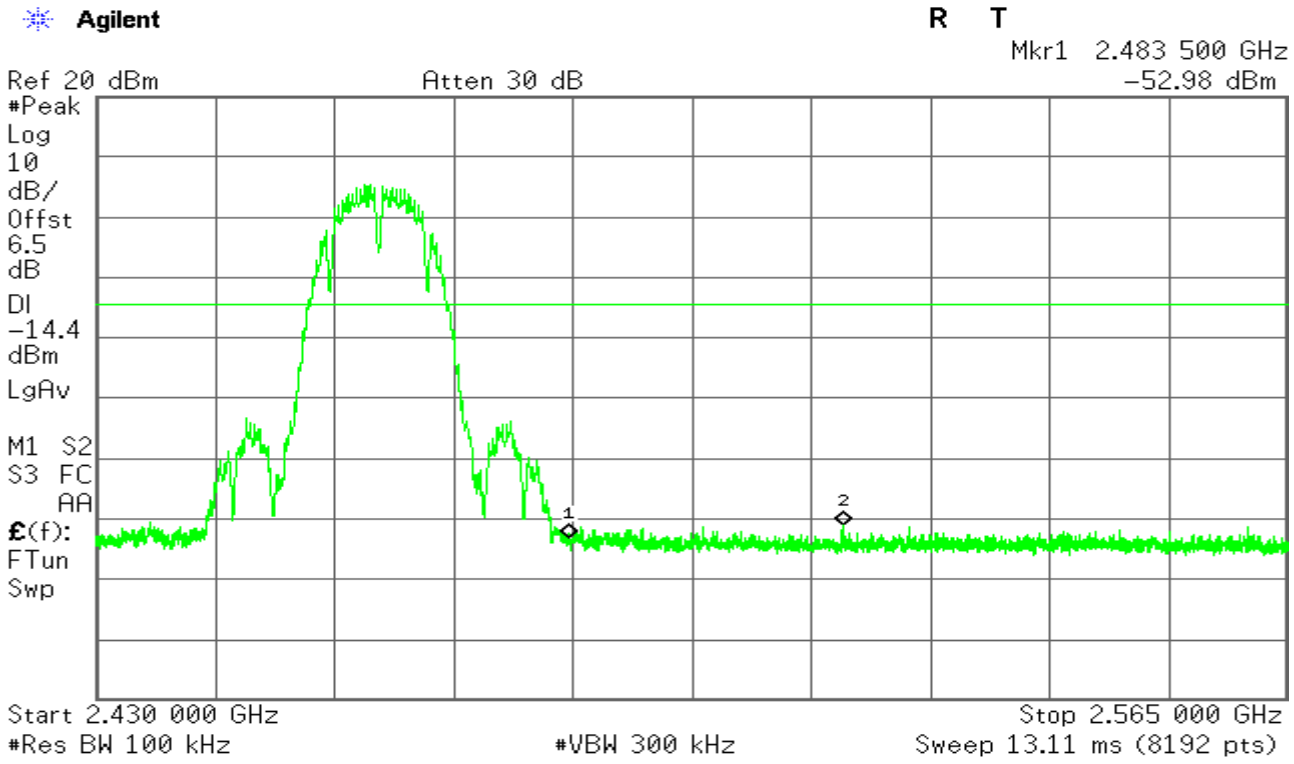

Agilent
R T
Mkr1 2.438 493 GHz
5.90 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 15.18 MHz
Sweep 1.48 ms (601 pts)

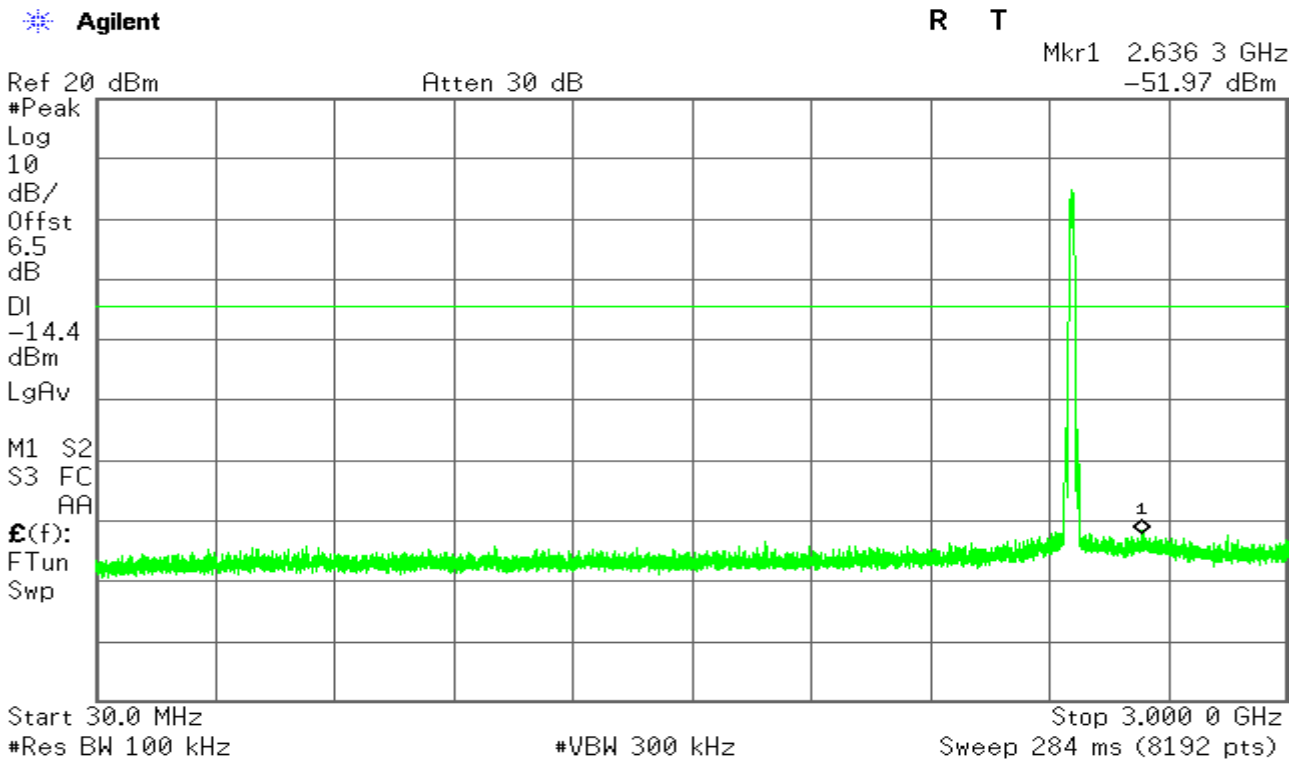

Agilent
R T
Mkr1 2.625 4 GHz
Ref 20 dBm
Atten 30 dB
−51.51 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−14.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

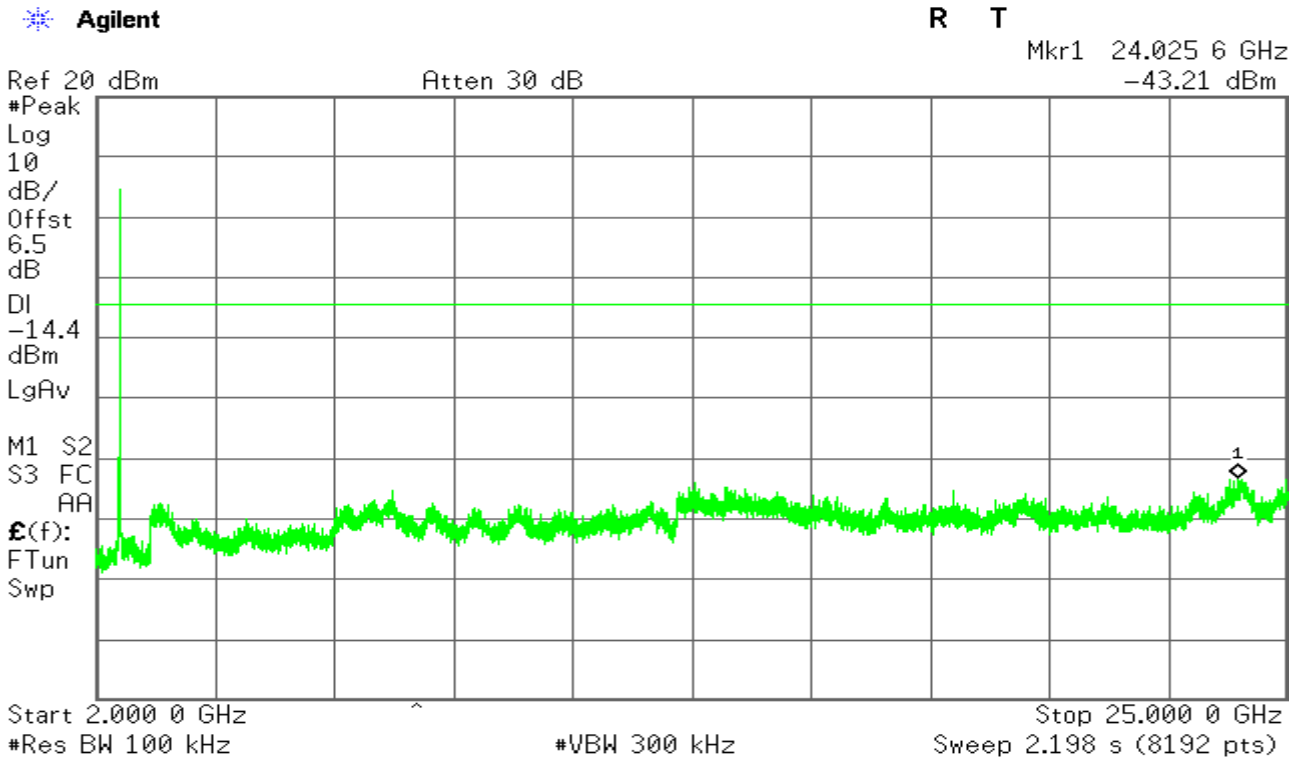

Agilent
R T
Mkr1 24.121 1 GHz
Ref 20 dBm
Atten 30 dB
−43.44 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−14.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.463 012 GHz
5.56 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.4
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 15.18 MHz
Sweep 1.48 ms (601 pts)

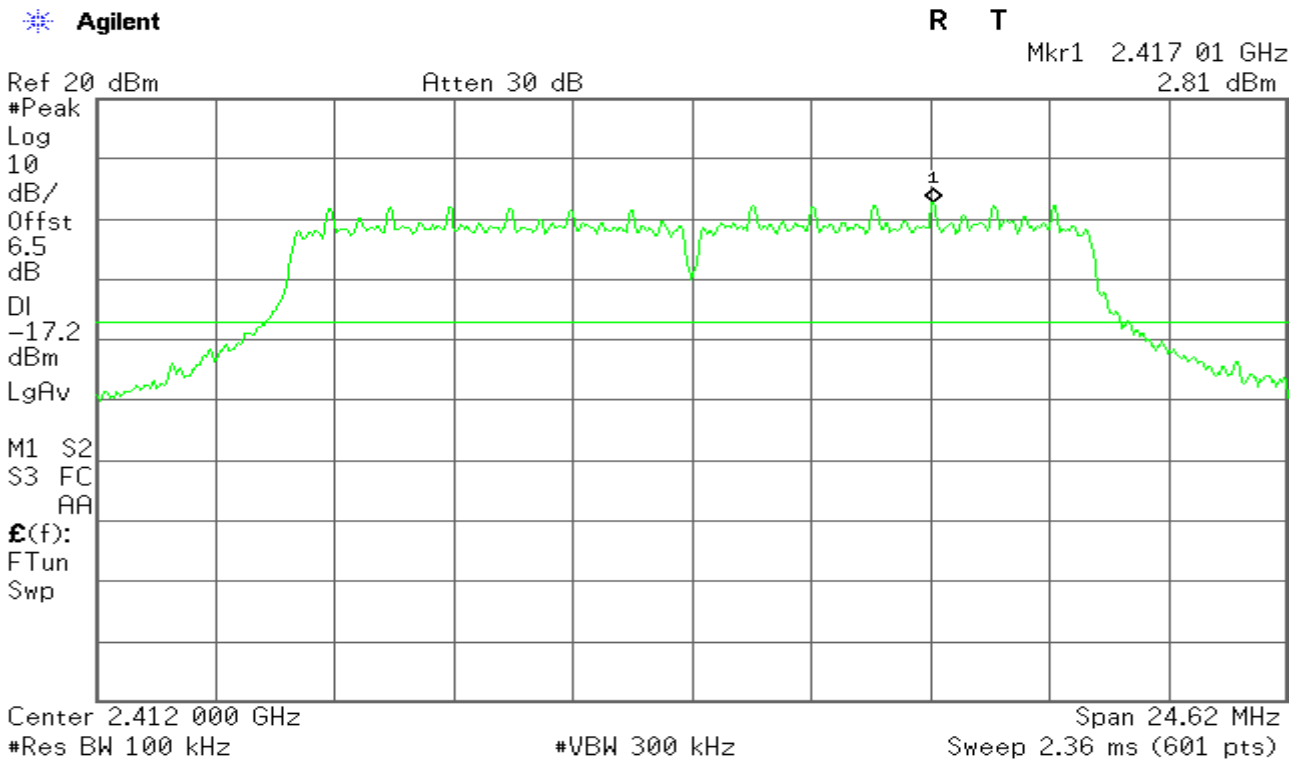

Agilent
R T
Mkr1 2.483 500 GHz
-52.98 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.4
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)

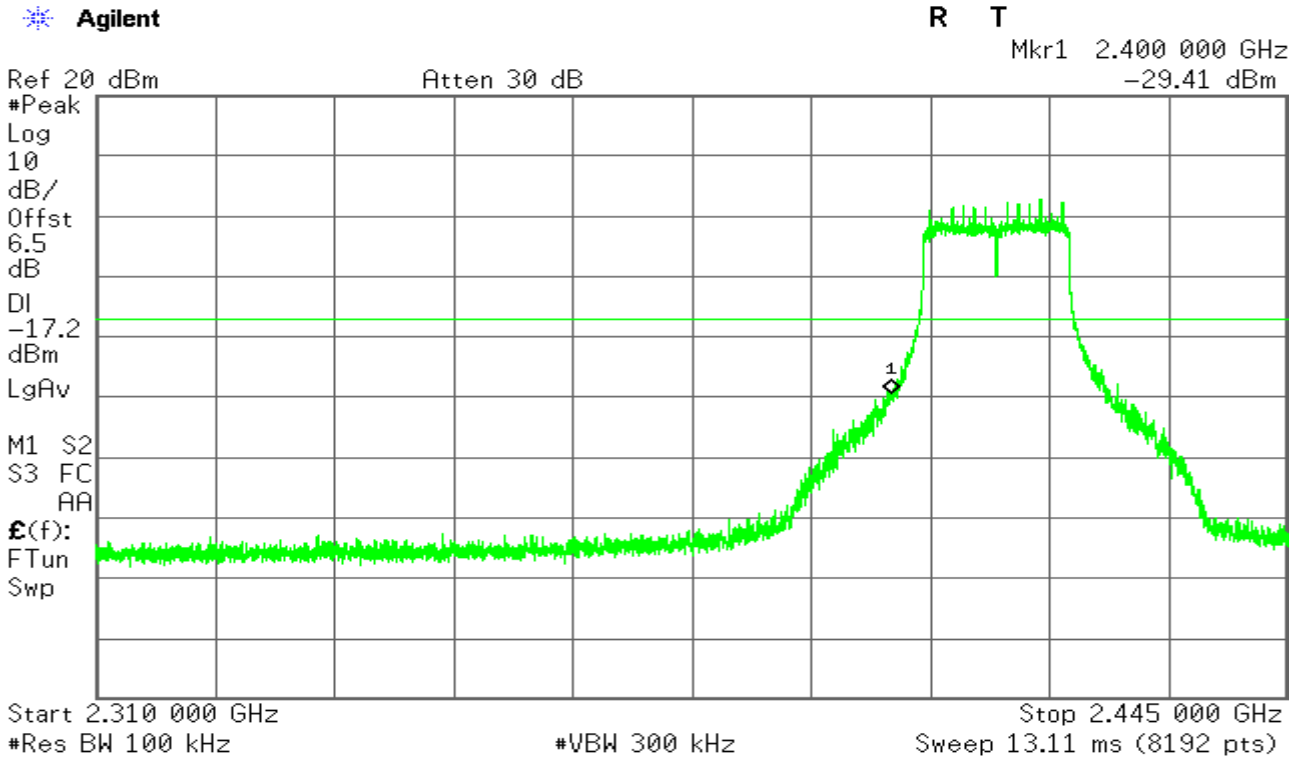

Agilent
R T
Mkr1 2.636 3 GHz
-51.97 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.4
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)

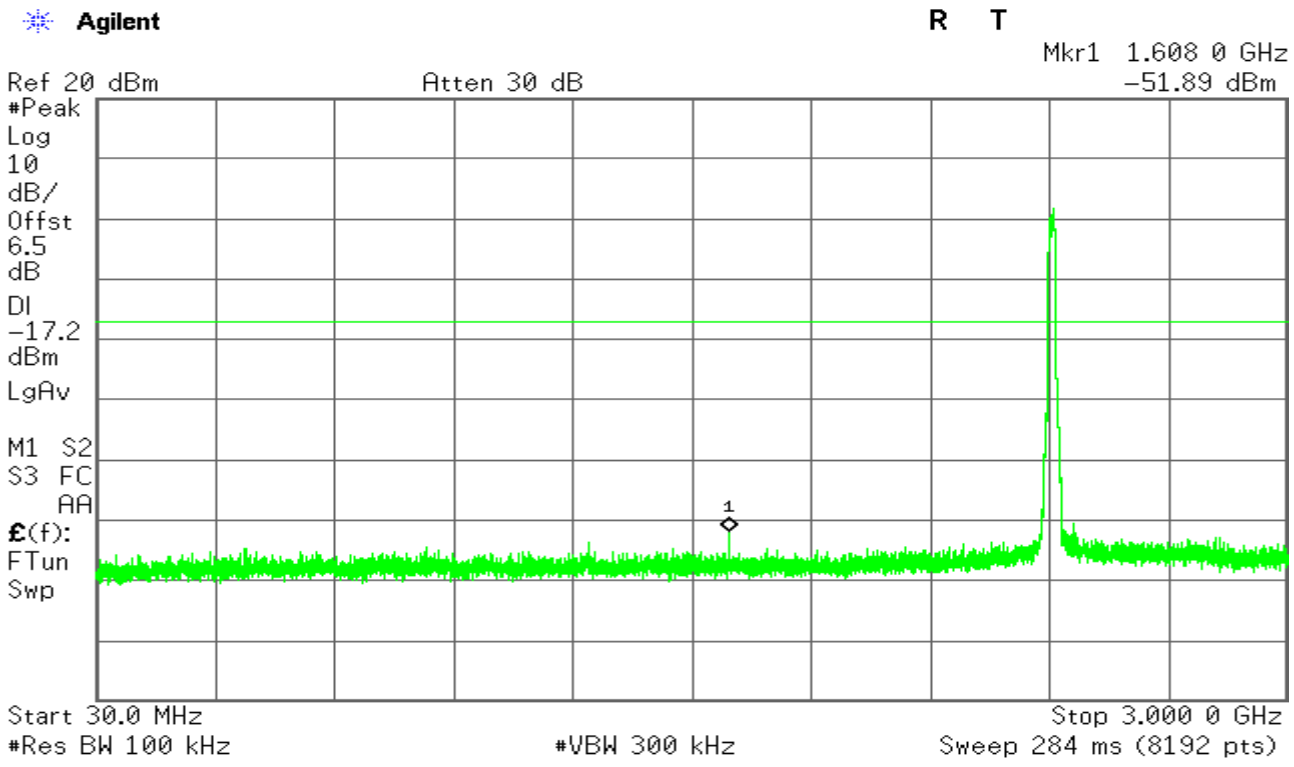

Agilent
R T
Mkr1 24.025 6 GHz
-43.21 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-14.4
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

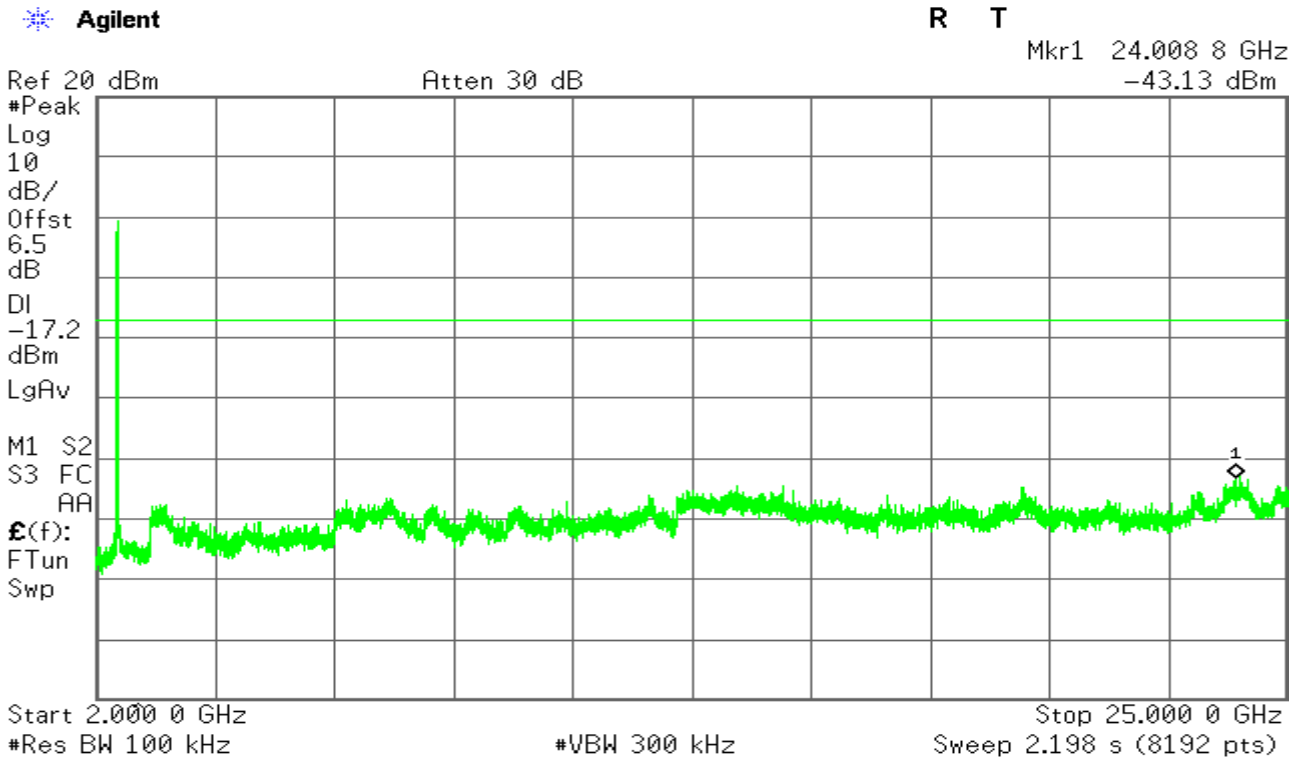
IEEE 802.11g mode/Chain 0

CH Low

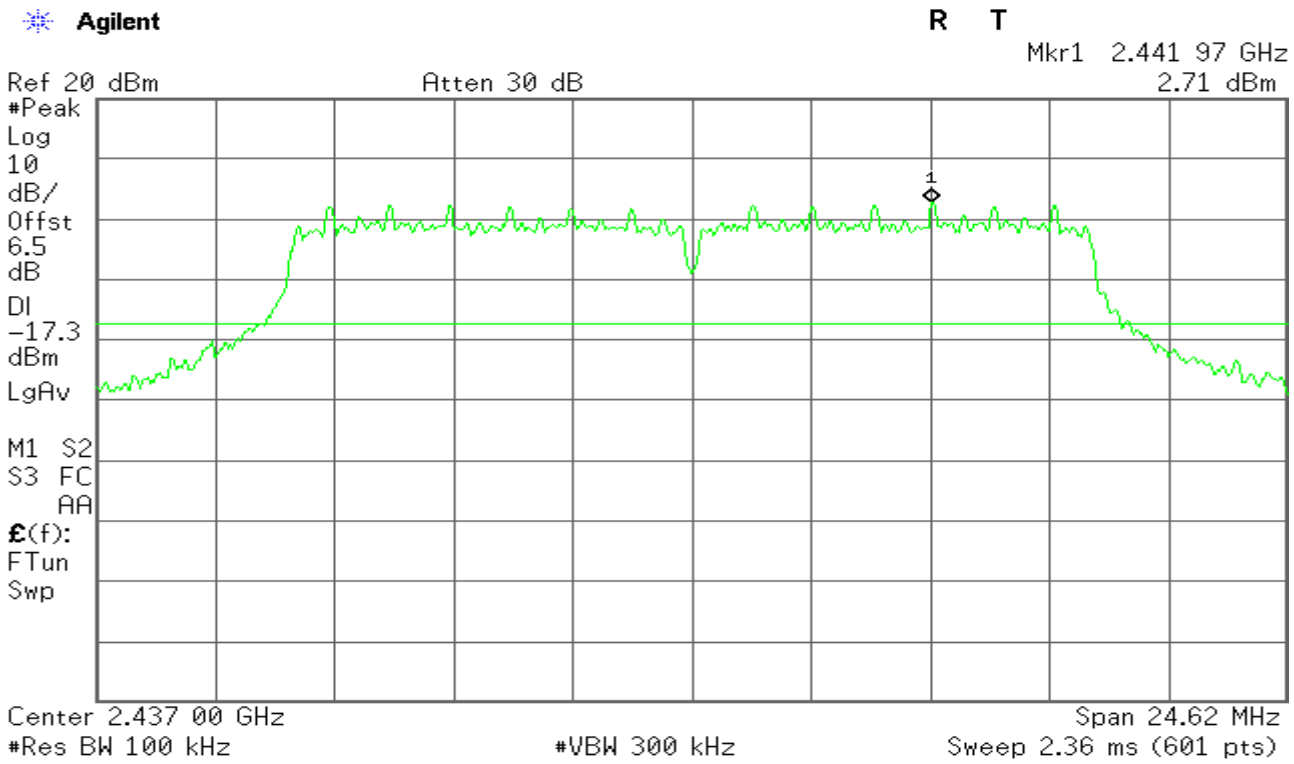


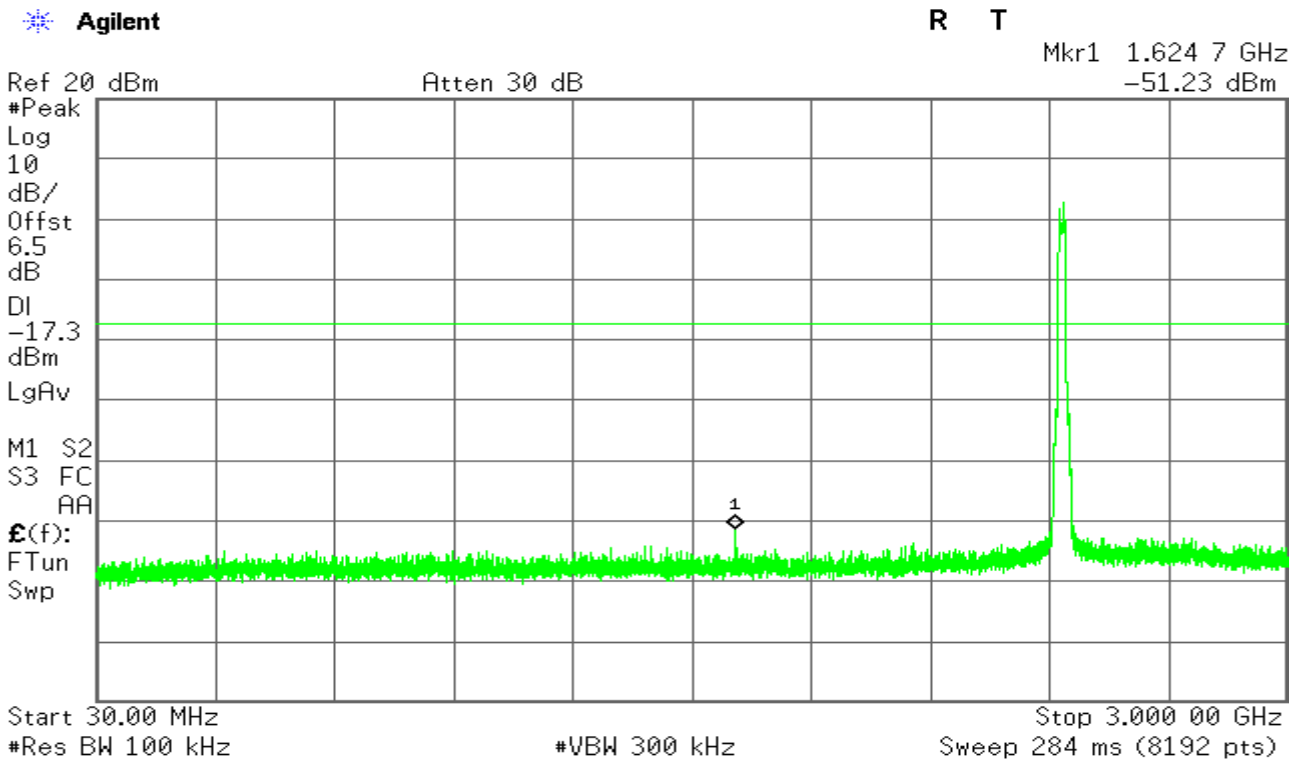


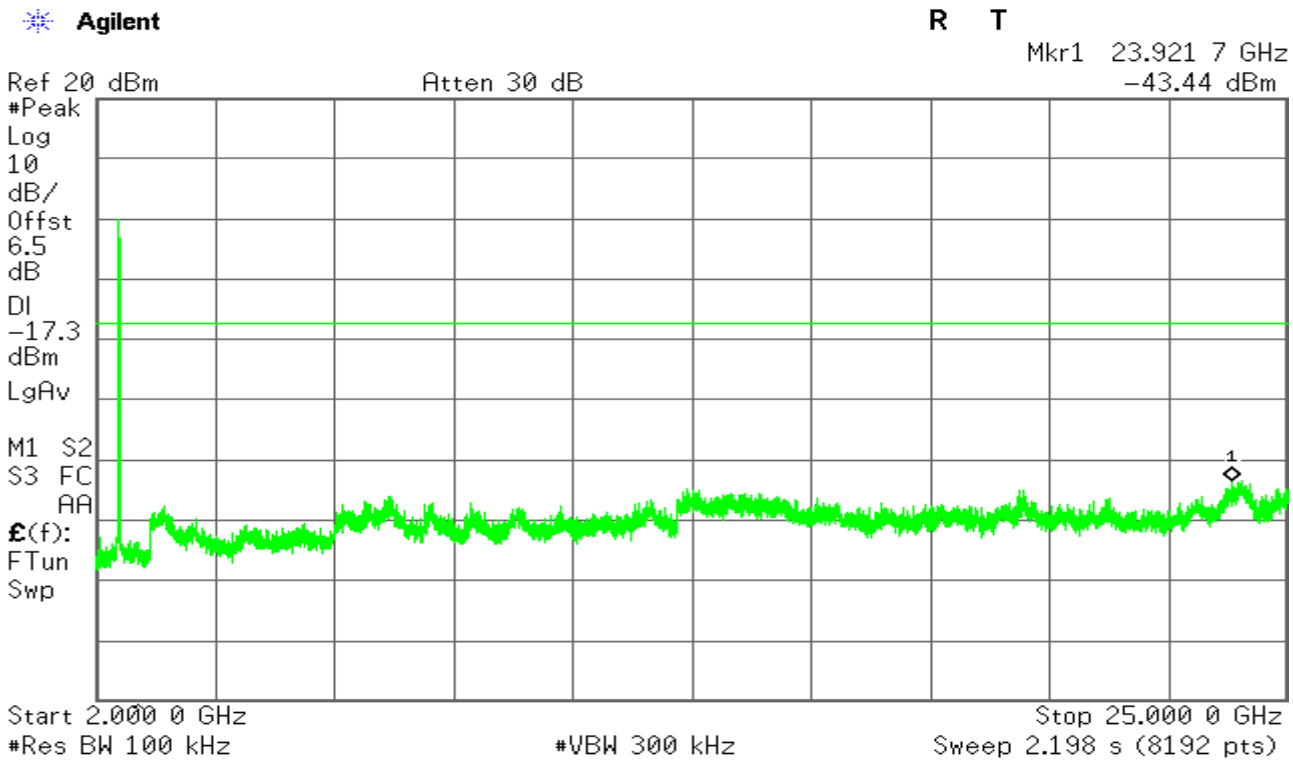

Agilent
R T
Mkr1 1.608 0 GHz
Ref 20 dBm
Atten 30 dB
−51.89 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−17.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
1
Start 30.0 MHz
Stop 3.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.008 8 GHz
Ref 20 dBm
Atten 30 dB
−43.13 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−17.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
1
Start 2.000 0 GHz
Stop 25.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.198 s (8192 pts)

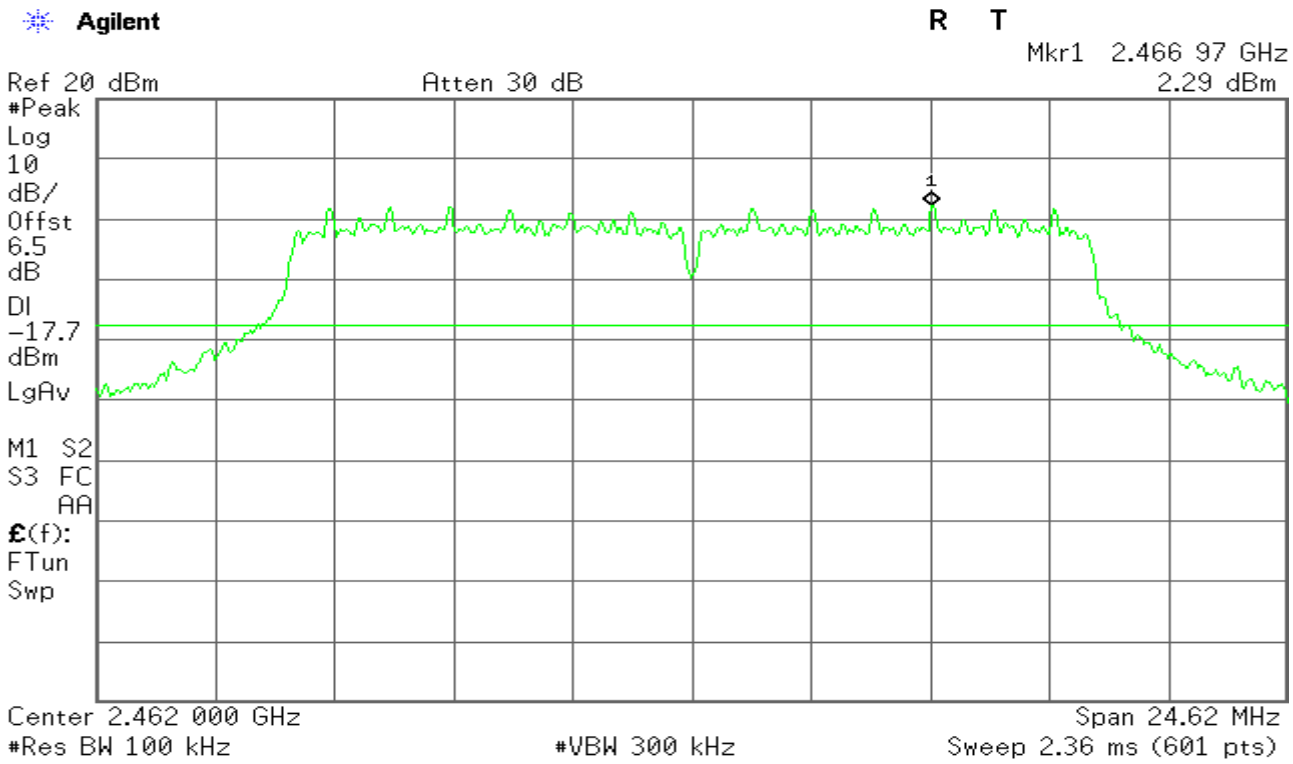
CH Mid

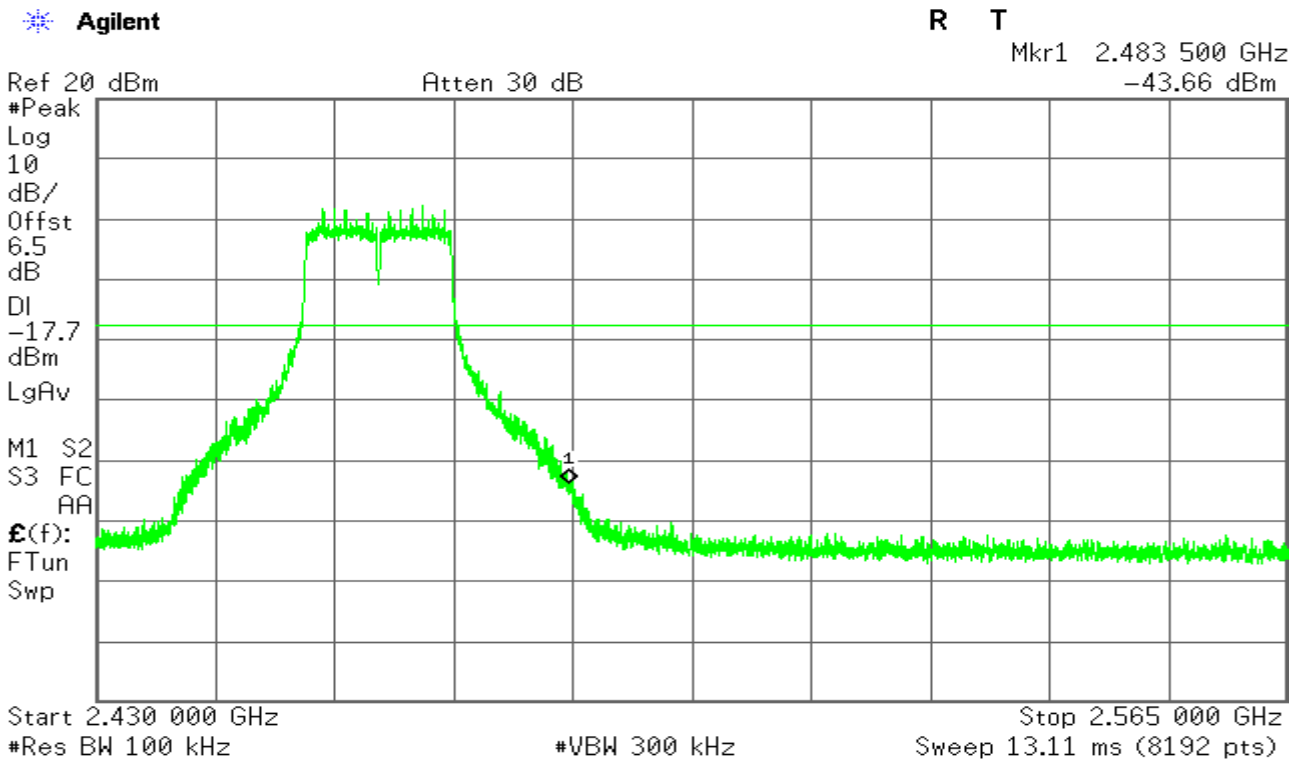

Agilent
R T
Mkr1 2.441 97 GHz
2.71 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 24.62 MHz
Sweep 2.36 ms (601 pts)

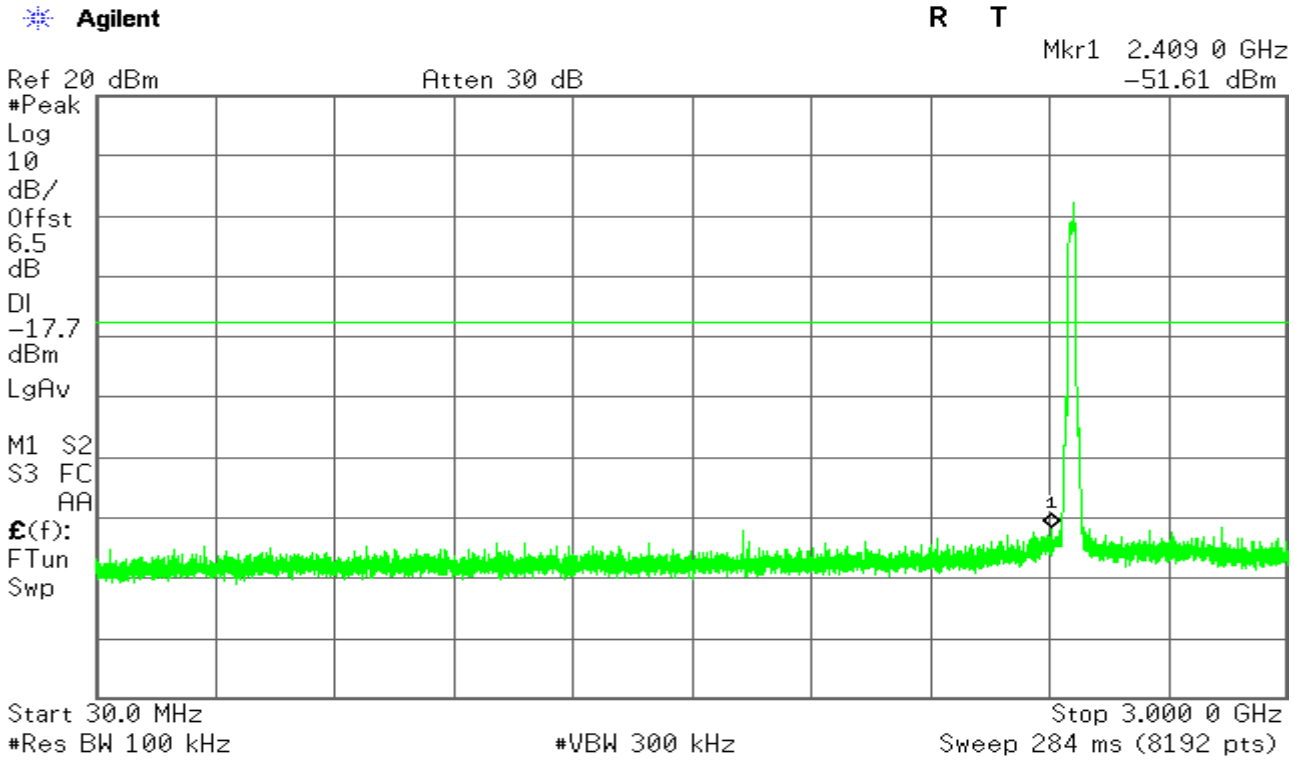

Agilent
R T
Mkr1 1.624 7 GHz
-51.23 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

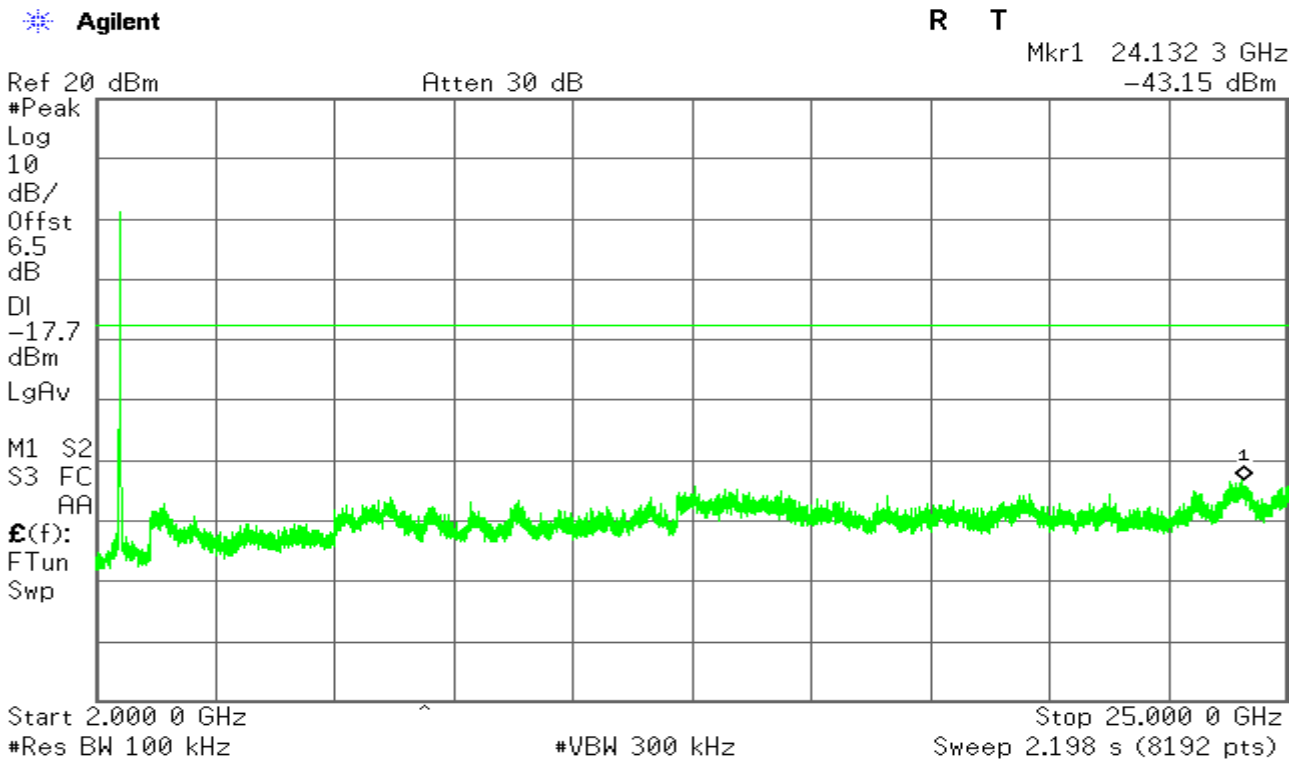

Agilent
R T
Mkr1 23.921 7 GHz
-43.44 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.466 97 GHz
2.29 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 24.62 MHz
Sweep 2.36 ms (601 pts)

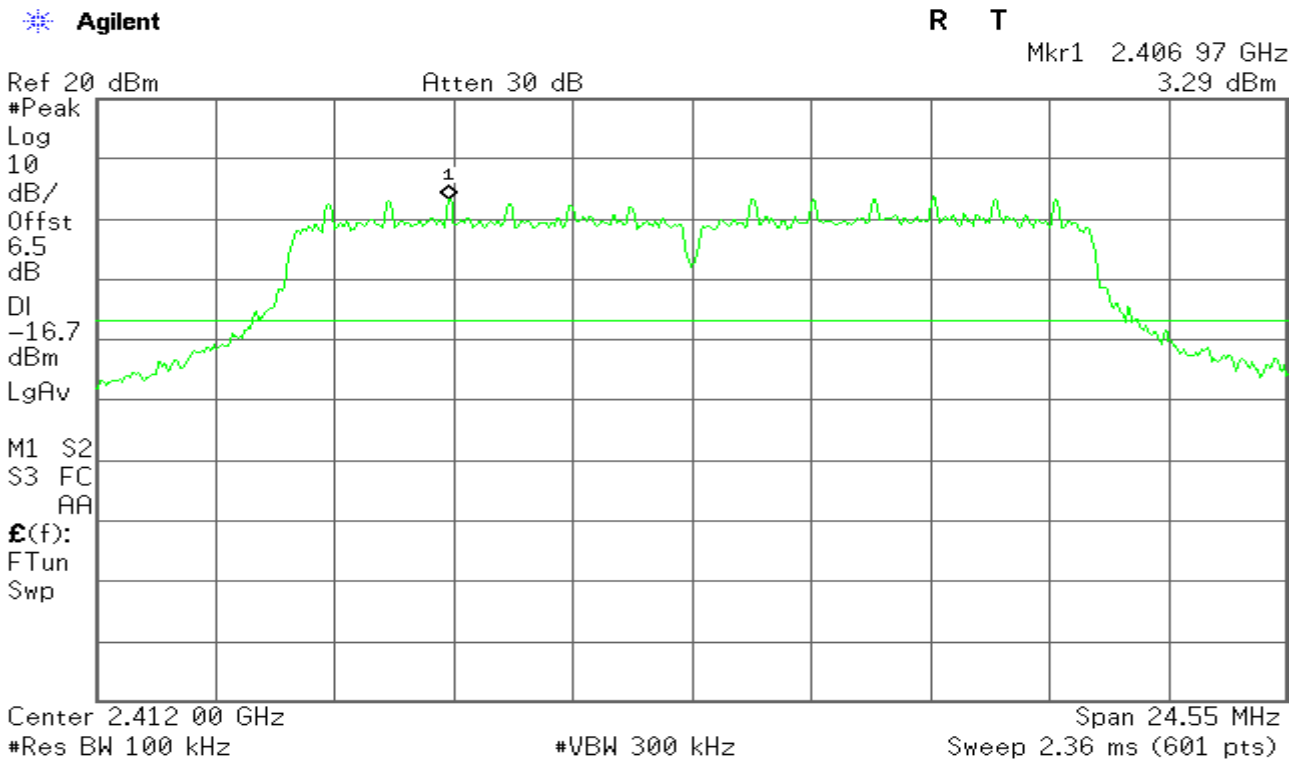

Agilent
R T
Mkr1 2.483 500 GHz
-43.66 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)

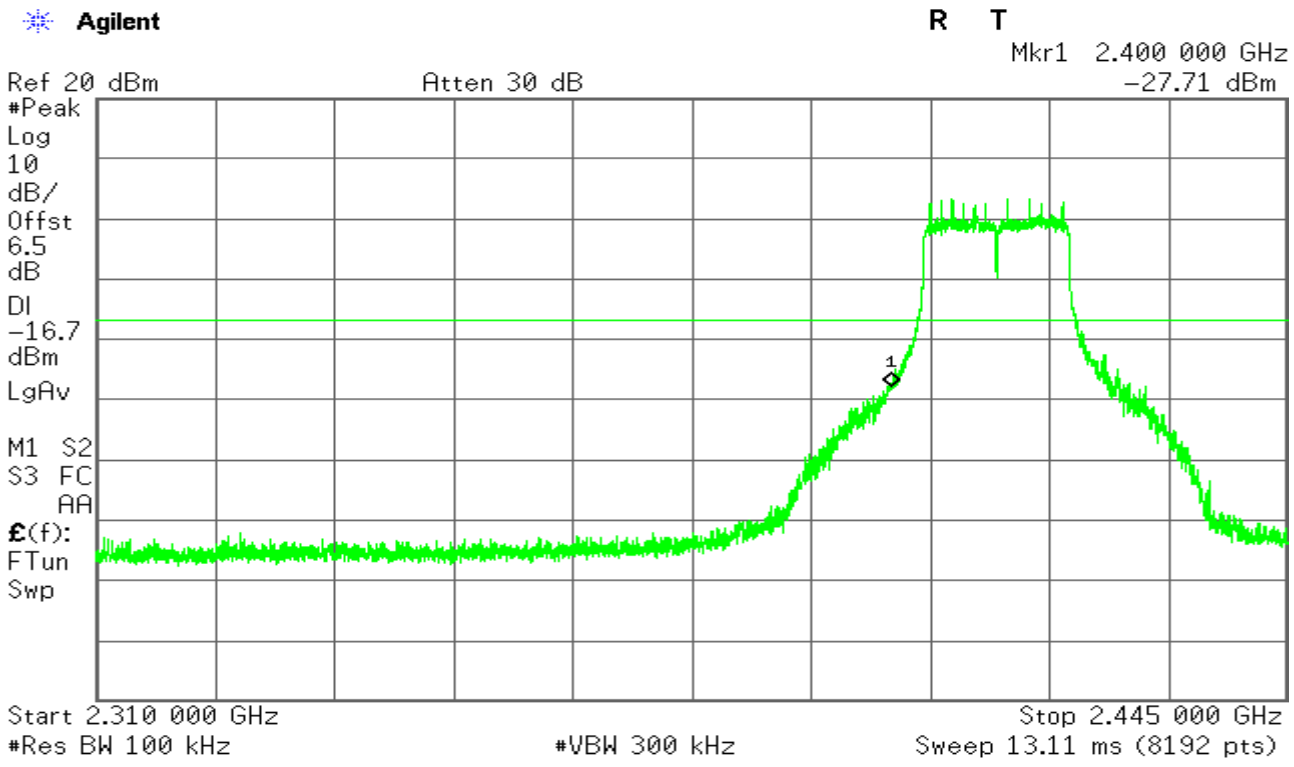

Agilent
R T
Mkr1 2.409 0 GHz
-51.61 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)

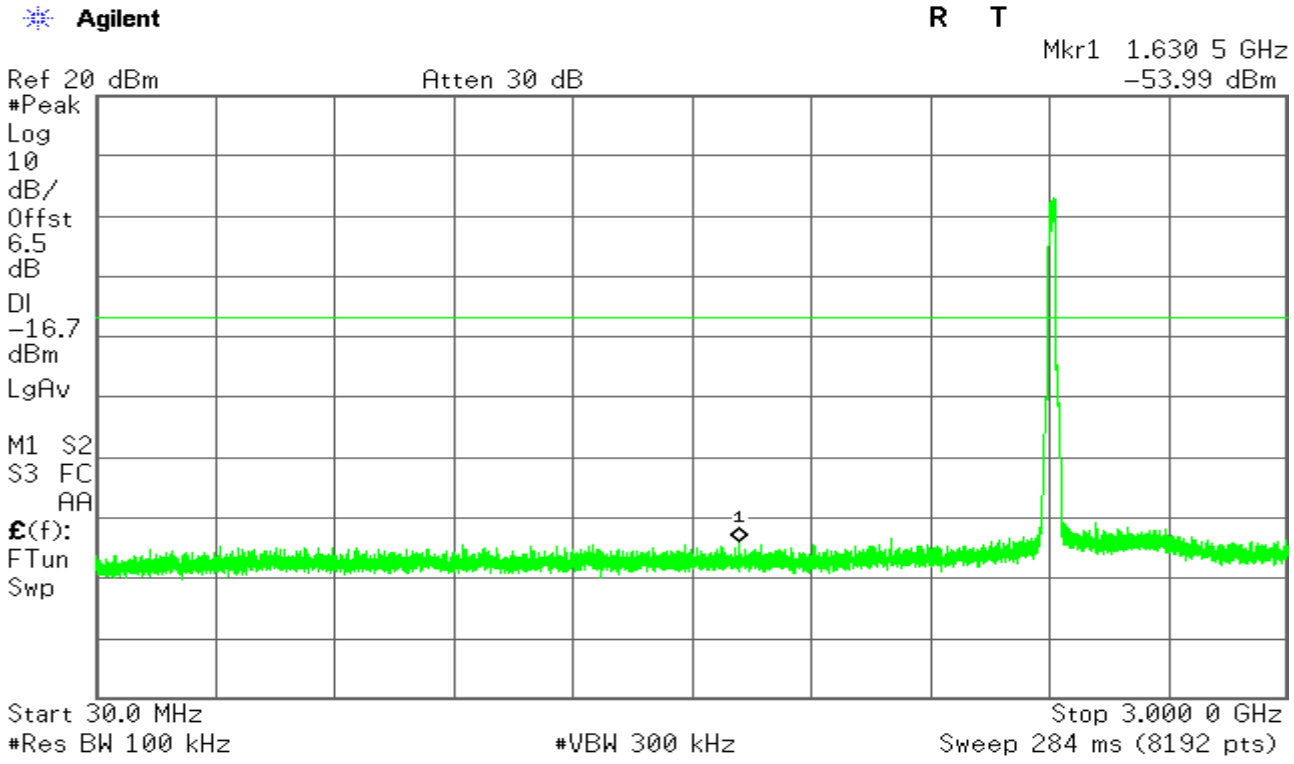


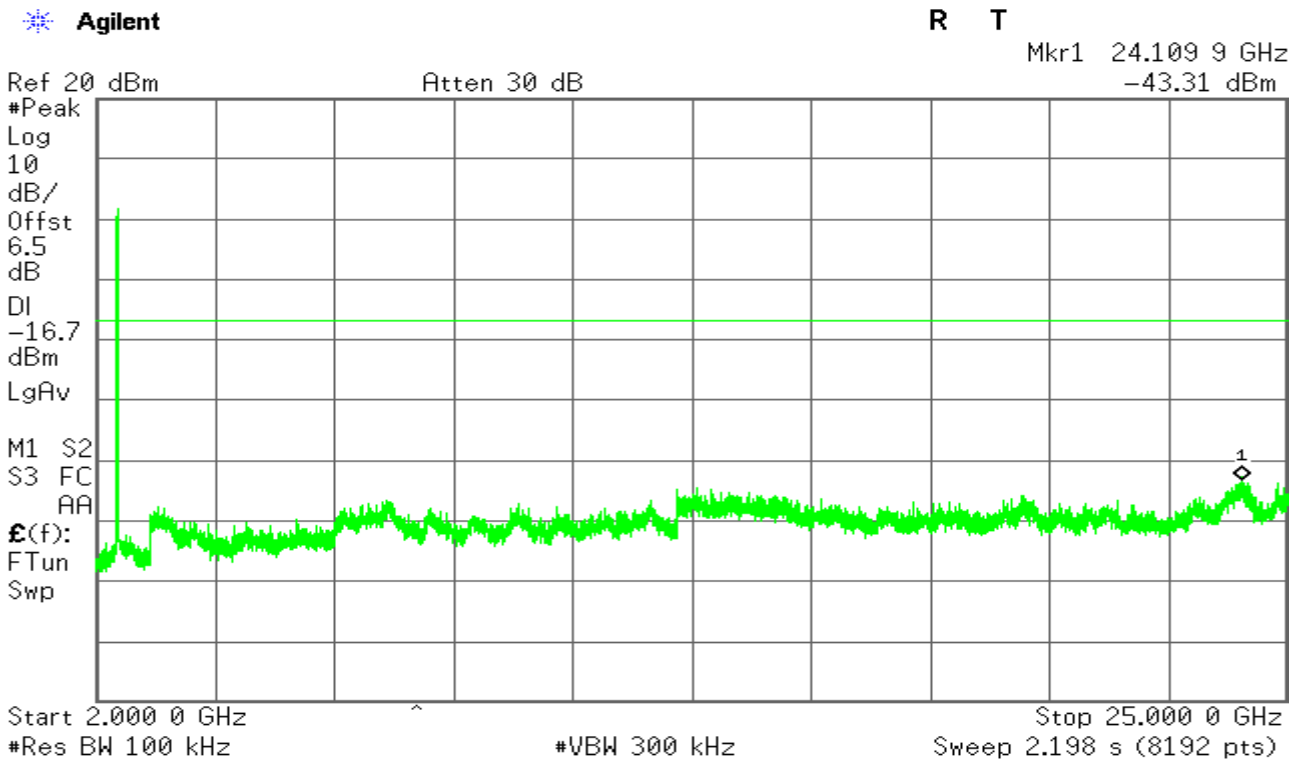
IEEE 802.11g mode/Chain 1

CH Low

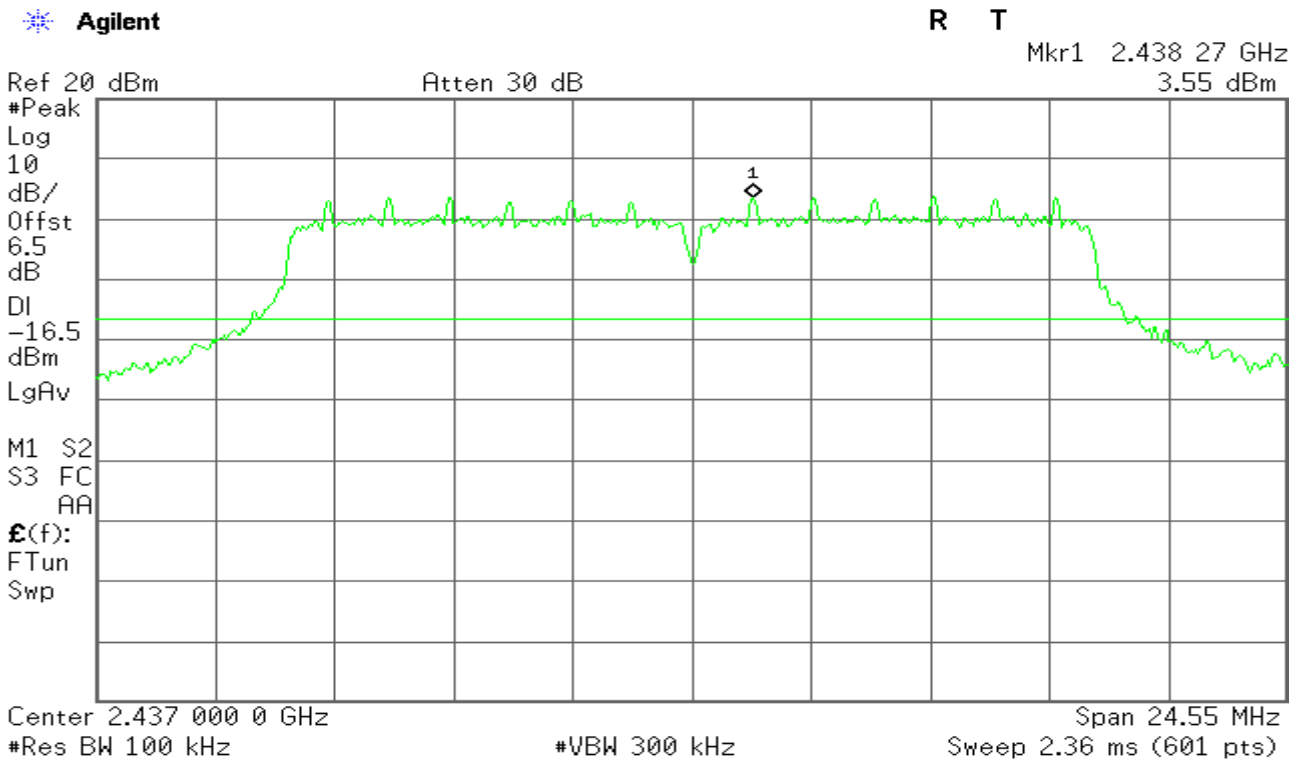


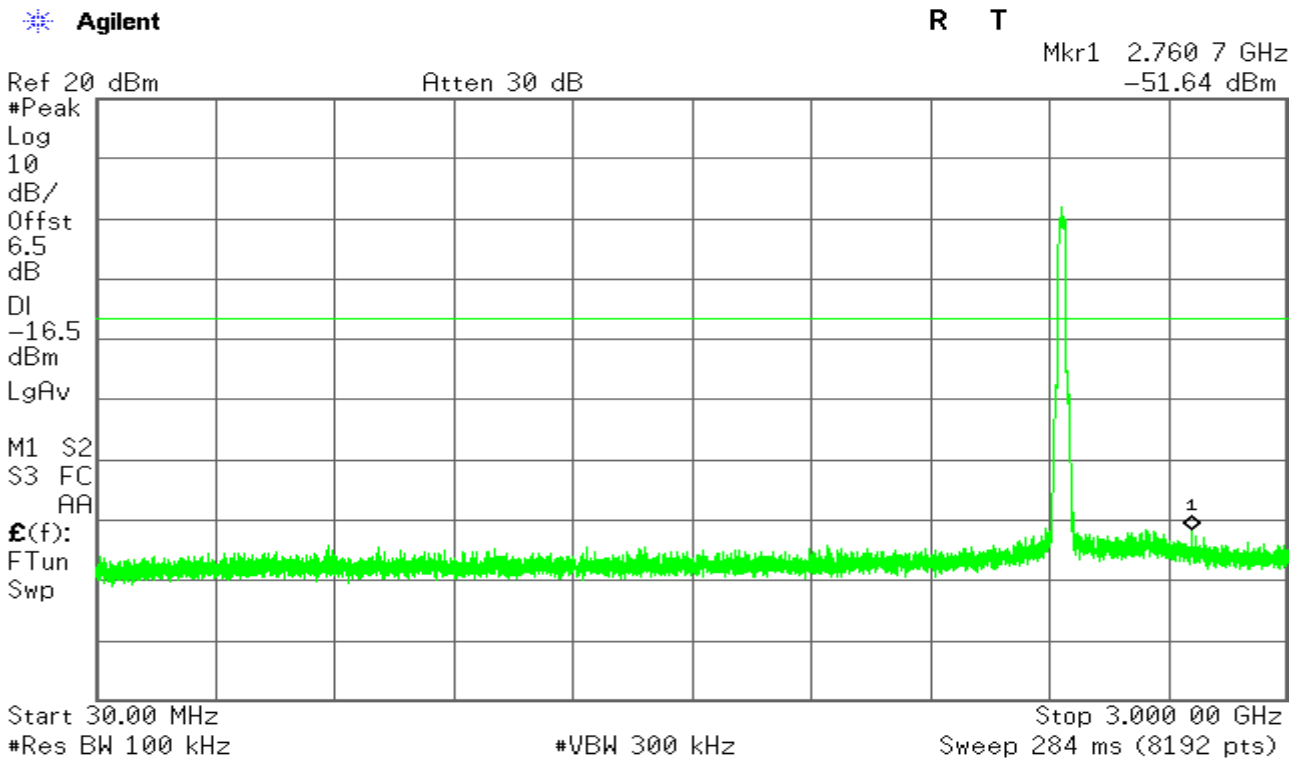

Agilent
R T
Mkr1 2.400 000 GHz
-27.71 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-16.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.310 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.445 000 GHz
Sweep 13.11 ms (8192 pts)

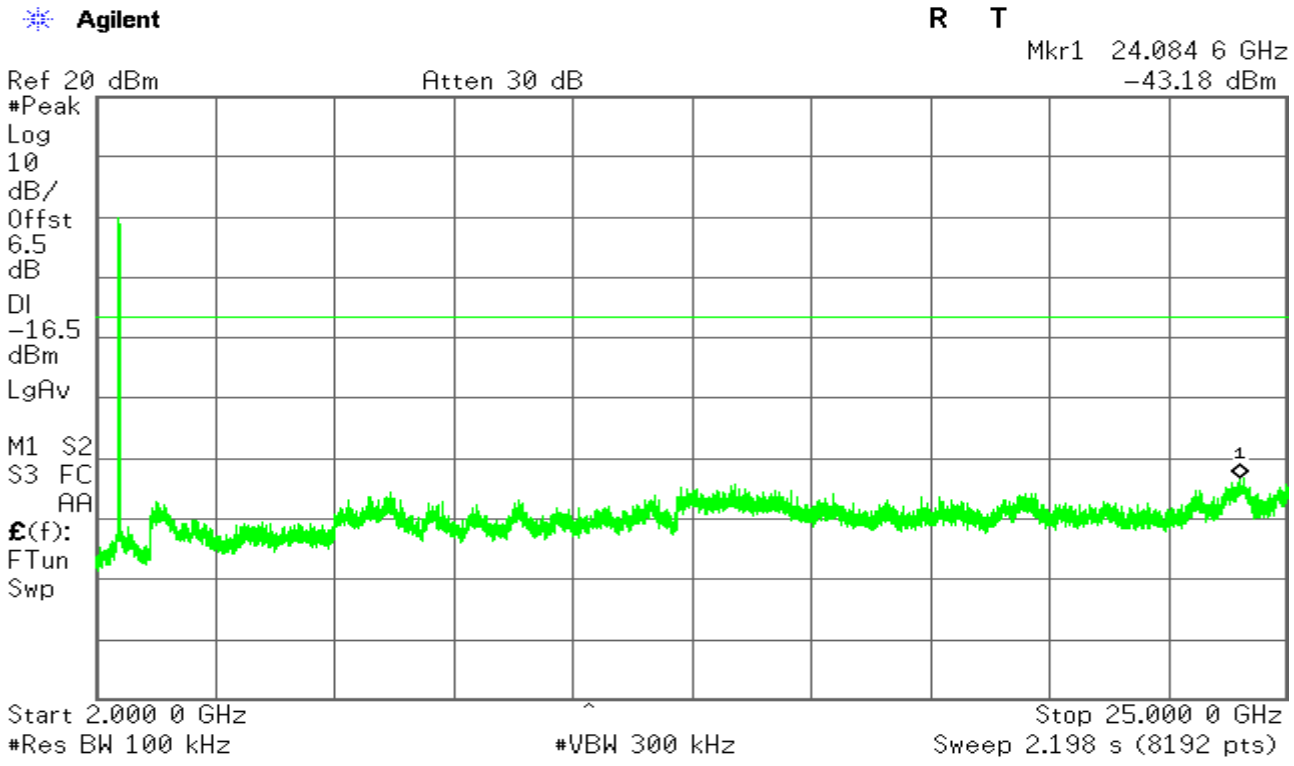

Agilent
R T
Mkr1 1.630 5 GHz
-53.99 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-16.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.109 9 GHz
-43.31 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-16.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

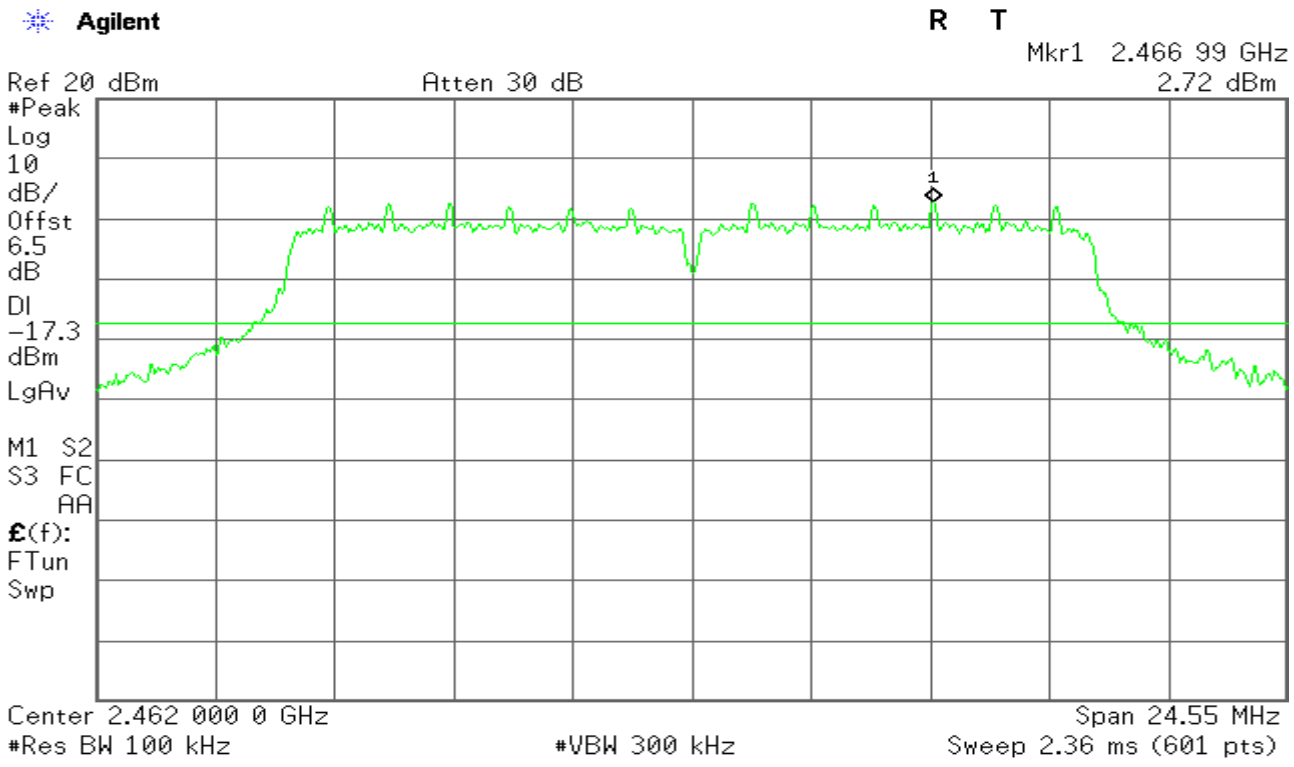
CH Mid

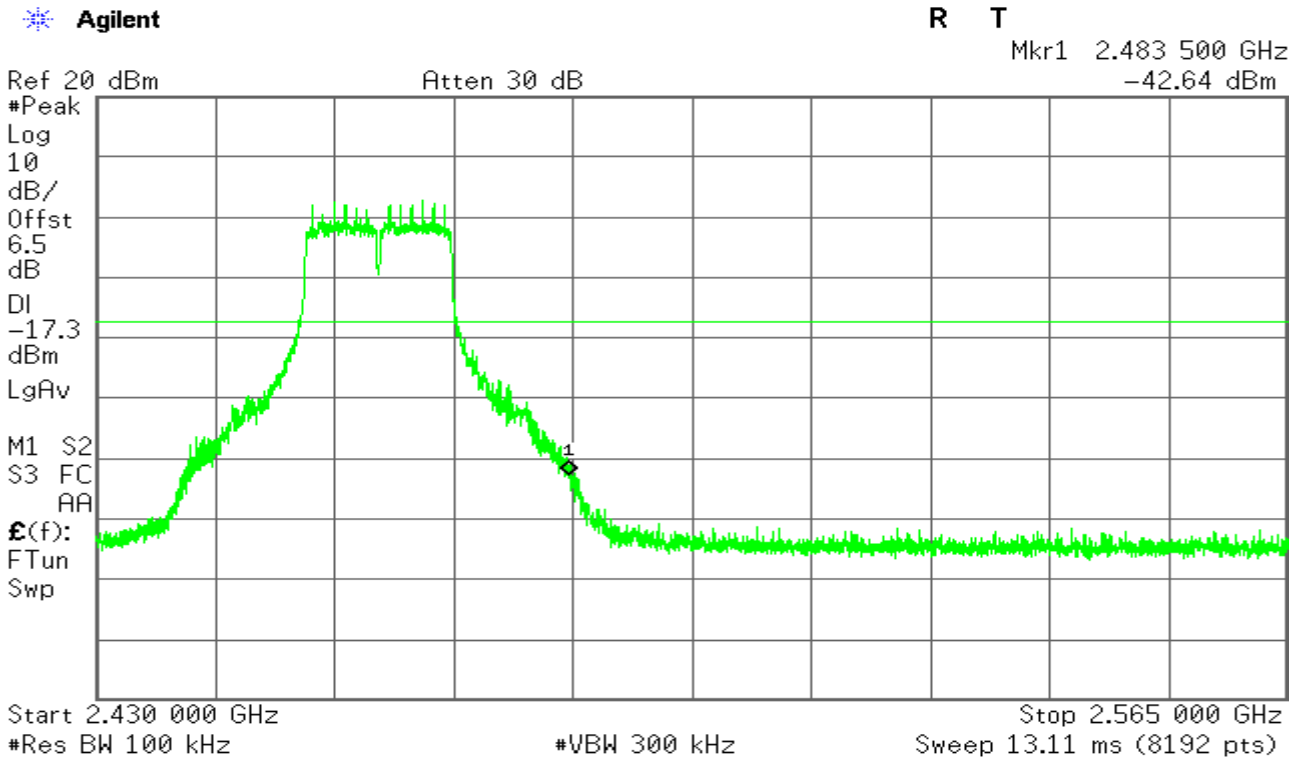

Agilent
R T
Mkr1 2.438 27 GHz
3.55 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-16.5
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 24.55 MHz
Sweep 2.36 ms (601 pts)

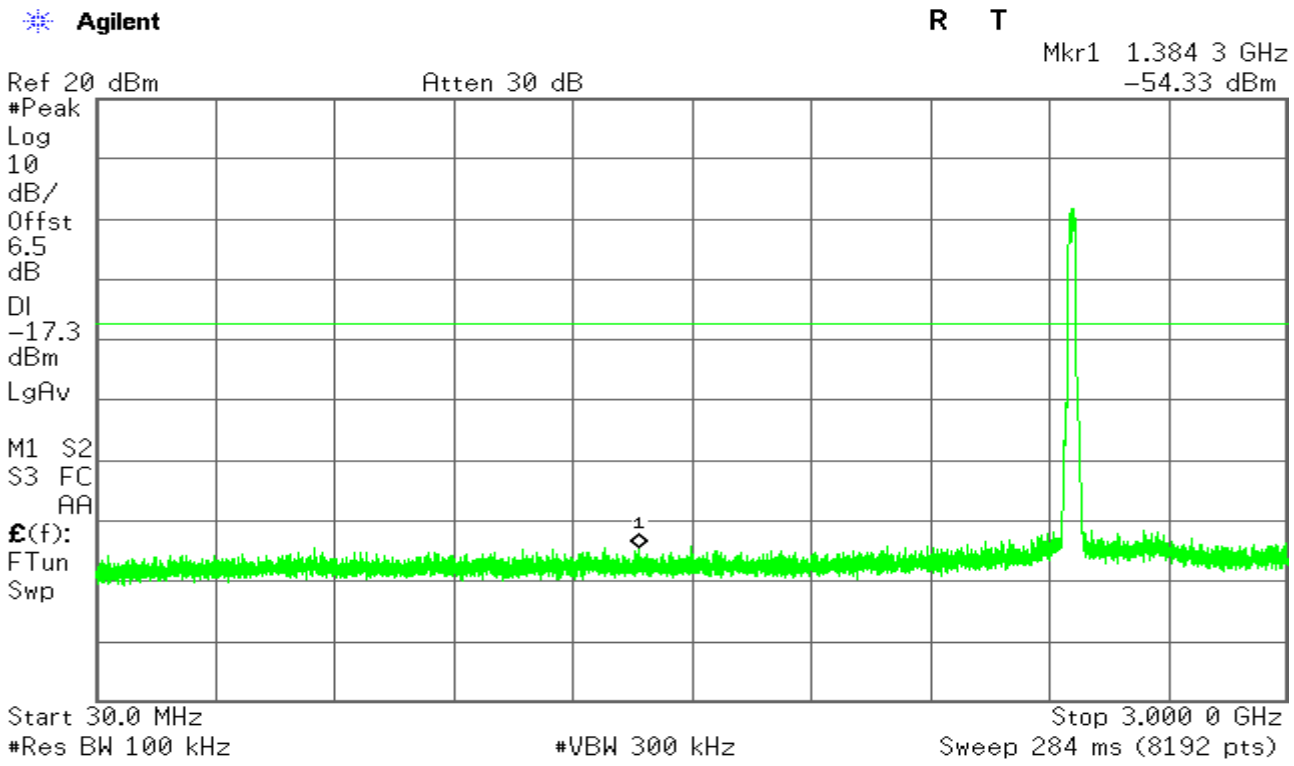

Agilent
R T
Mkr1 2.760 7 GHz
Ref 20 dBm
Atten 30 dB
−51.64 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−16.5
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

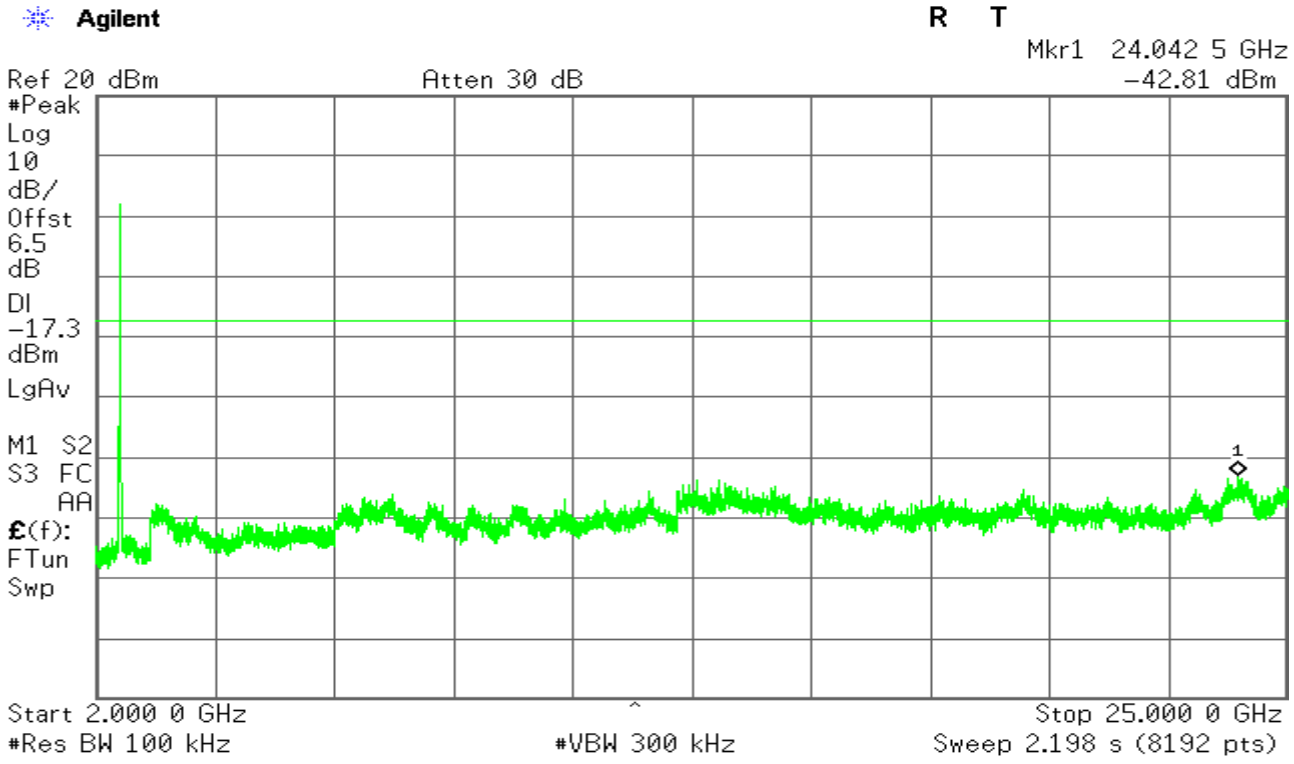

Agilent
R T
Mkr1 24.084 6 GHz
Ref 20 dBm
Atten 30 dB
−43.18 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−16.5
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.466 99 GHz
2.72 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 24.55 MHz
Sweep 2.36 ms (601 pts)

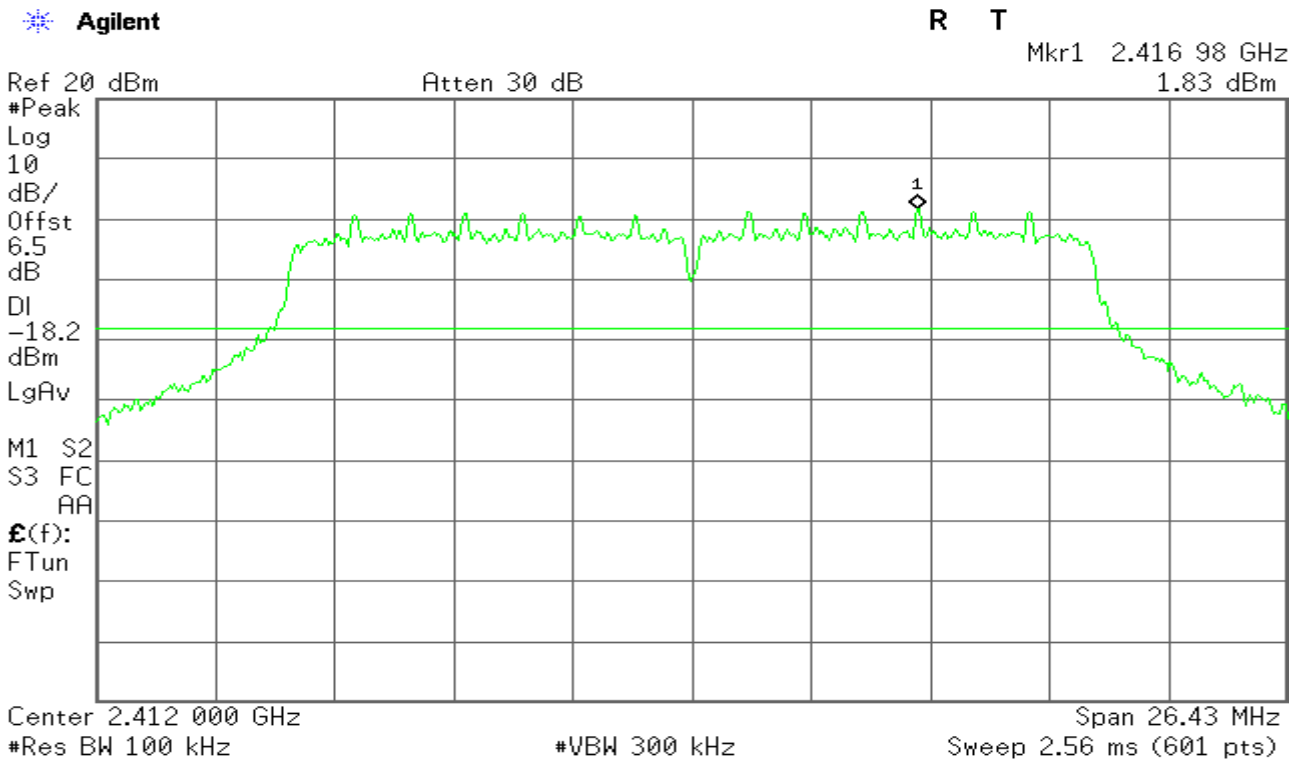

Agilent
R T
Mkr1 2.483 500 GHz
-42.64 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)

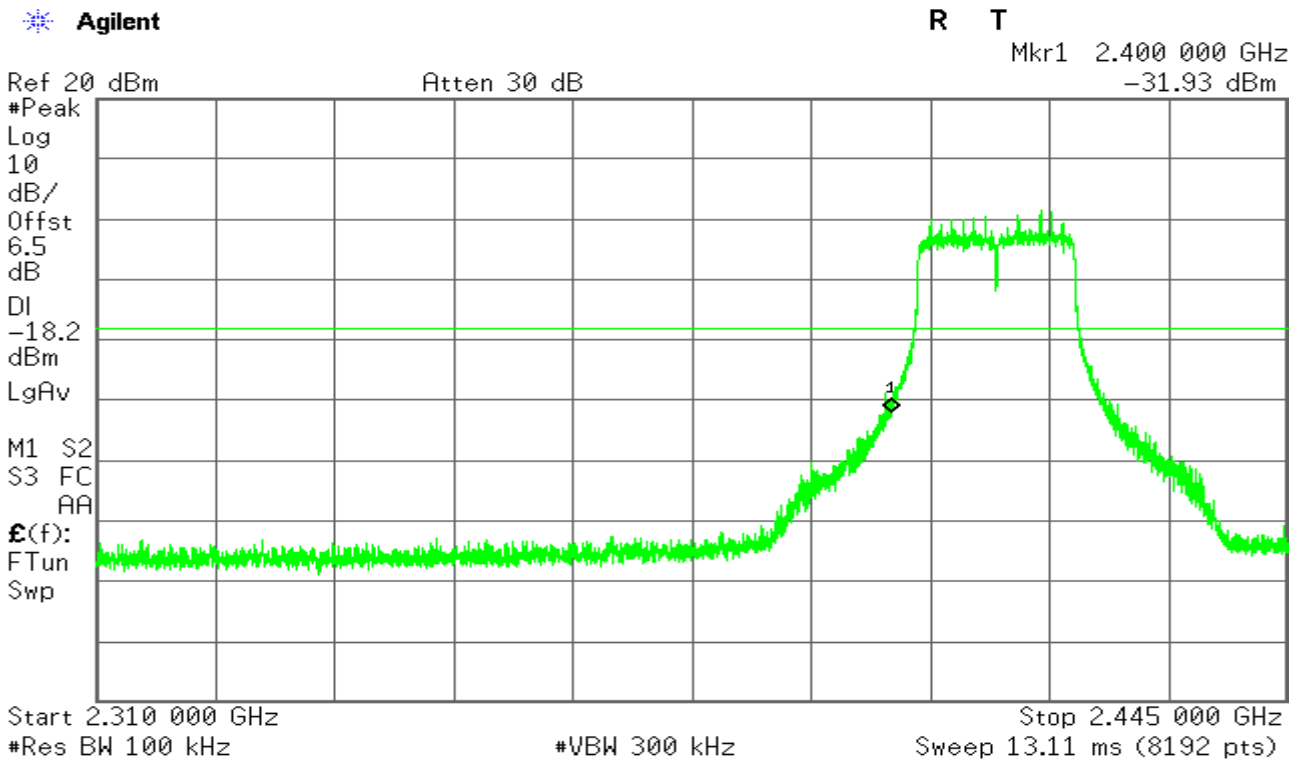

Agilent
R T
Mkr1 1.384 3 GHz
Ref 20 dBm
Atten 30 dB
-54.33 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)

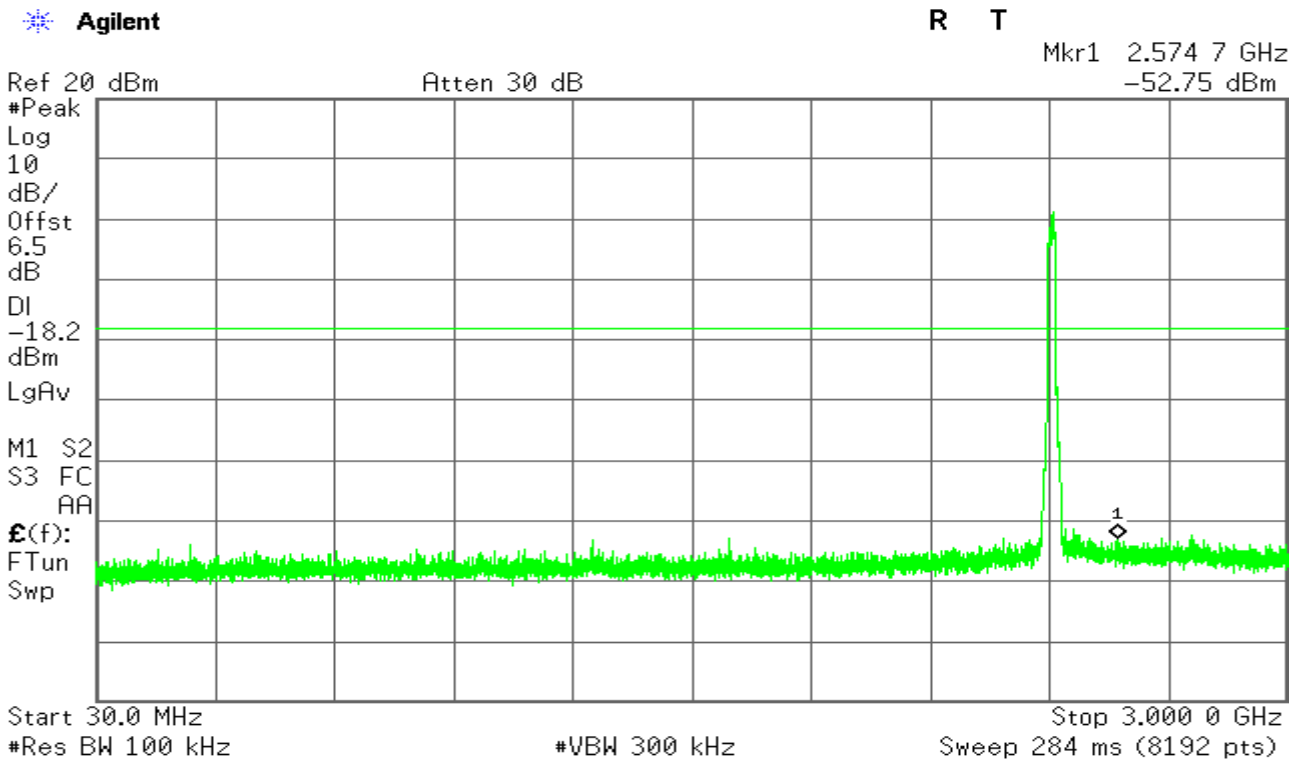

Agilent
R T
Mkr1 24.042 5 GHz
Ref 20 dBm
Atten 30 dB
-42.81 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

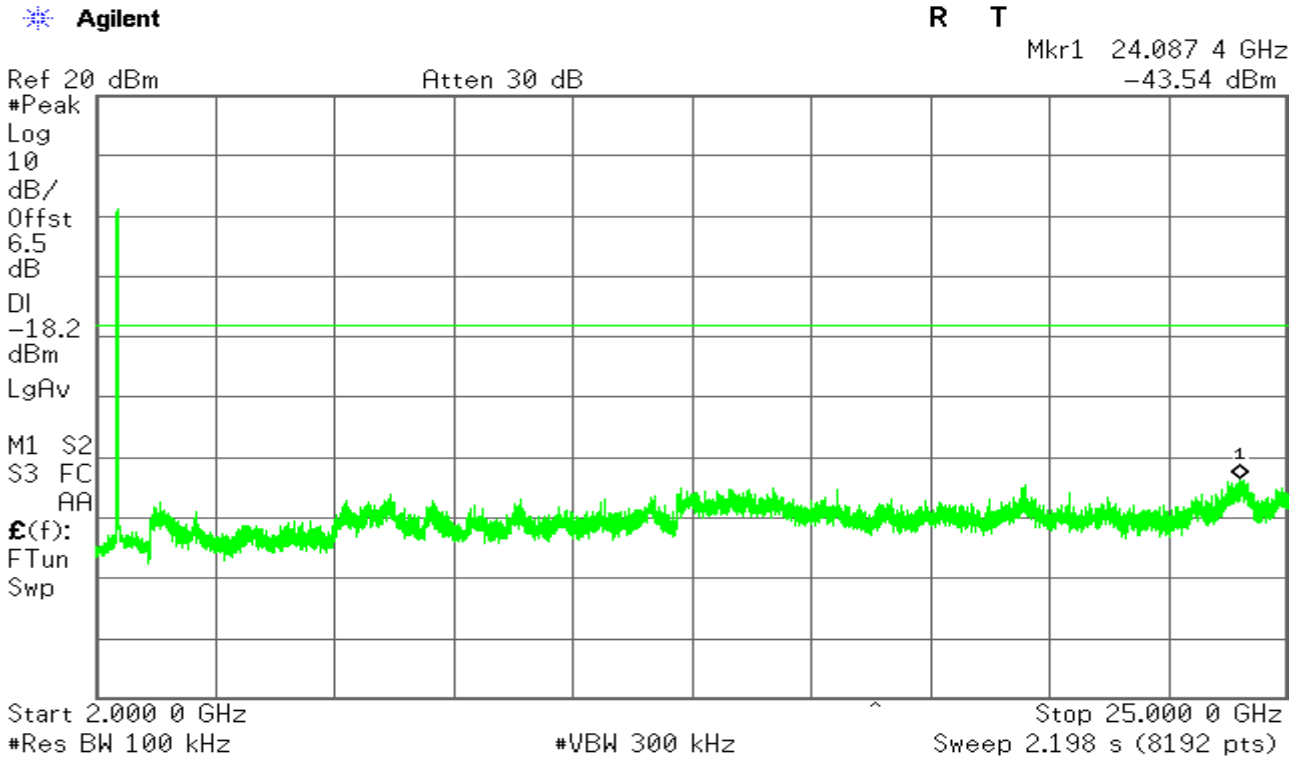
IEEE 802.11n HT20 mode / Chain 0

CH Low

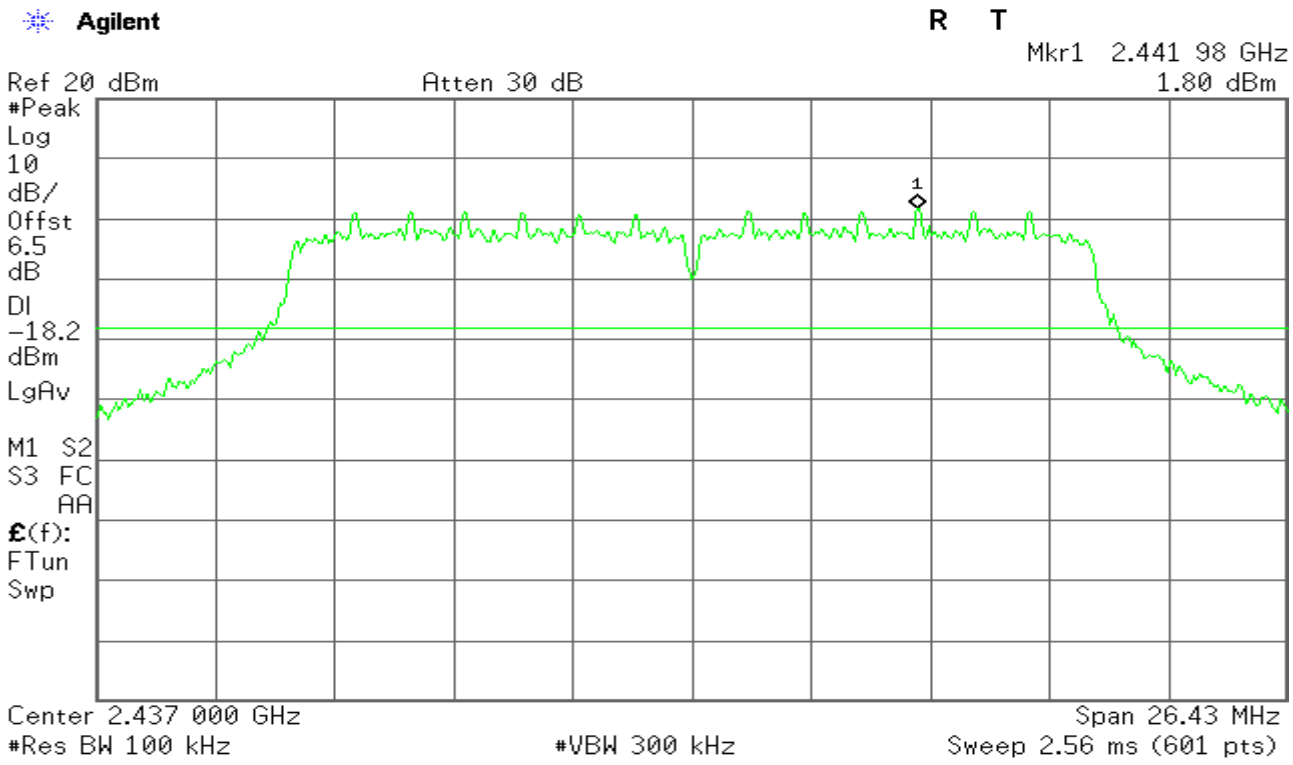


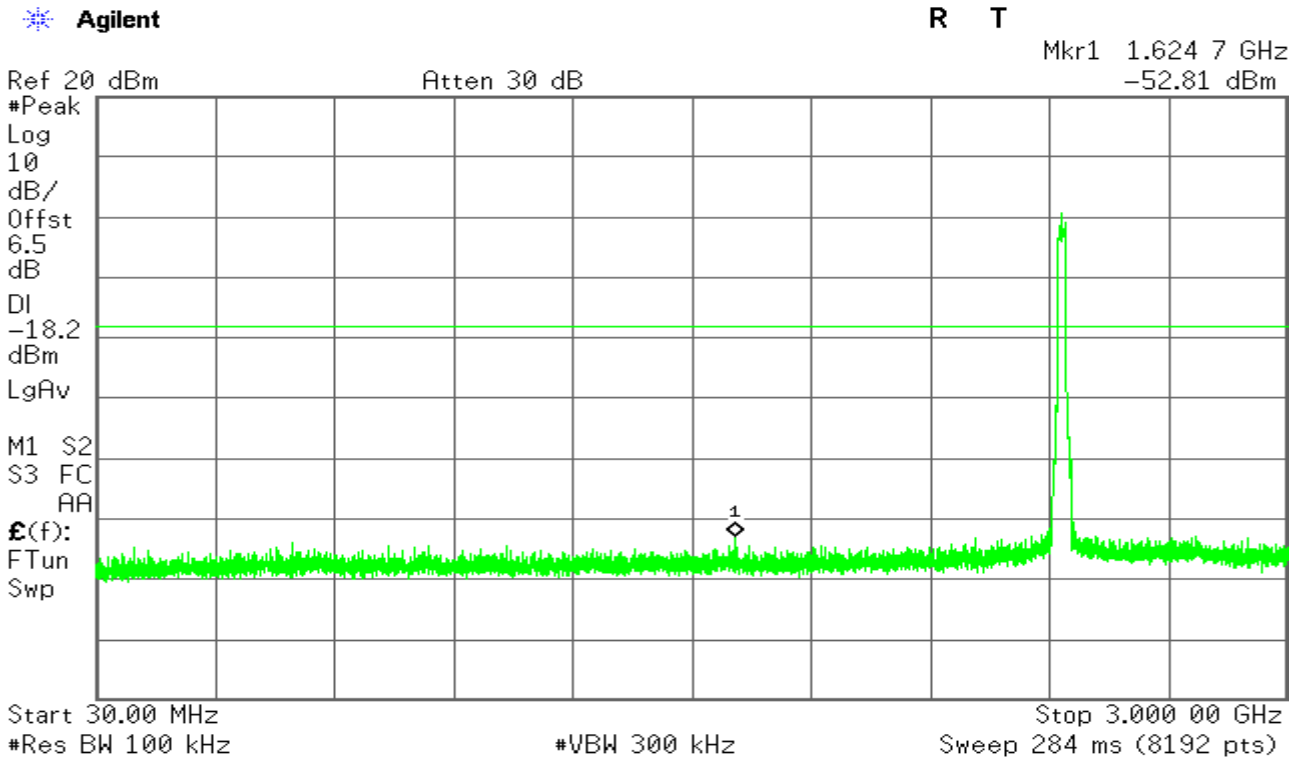


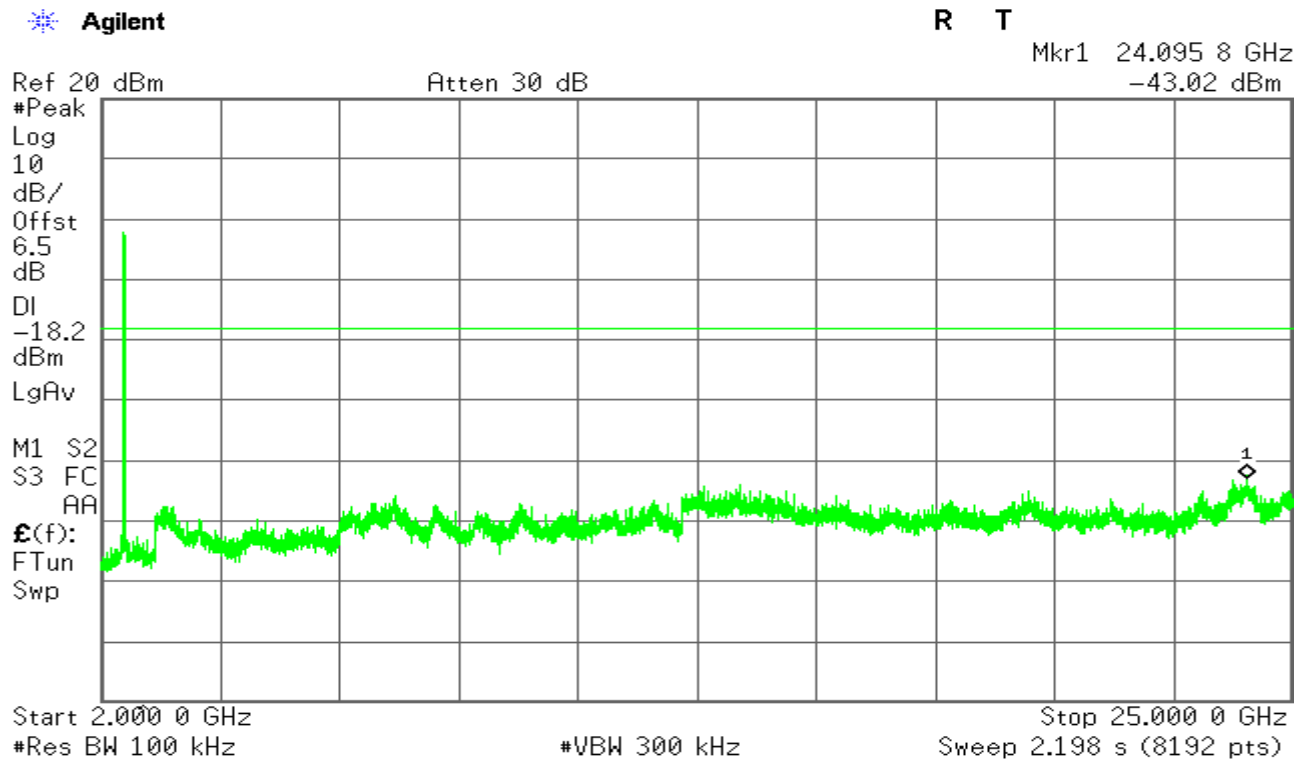

Agilent
R T
Mkr1 2.574 7 GHz
-52.75 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.087 4 GHz
-43.54 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

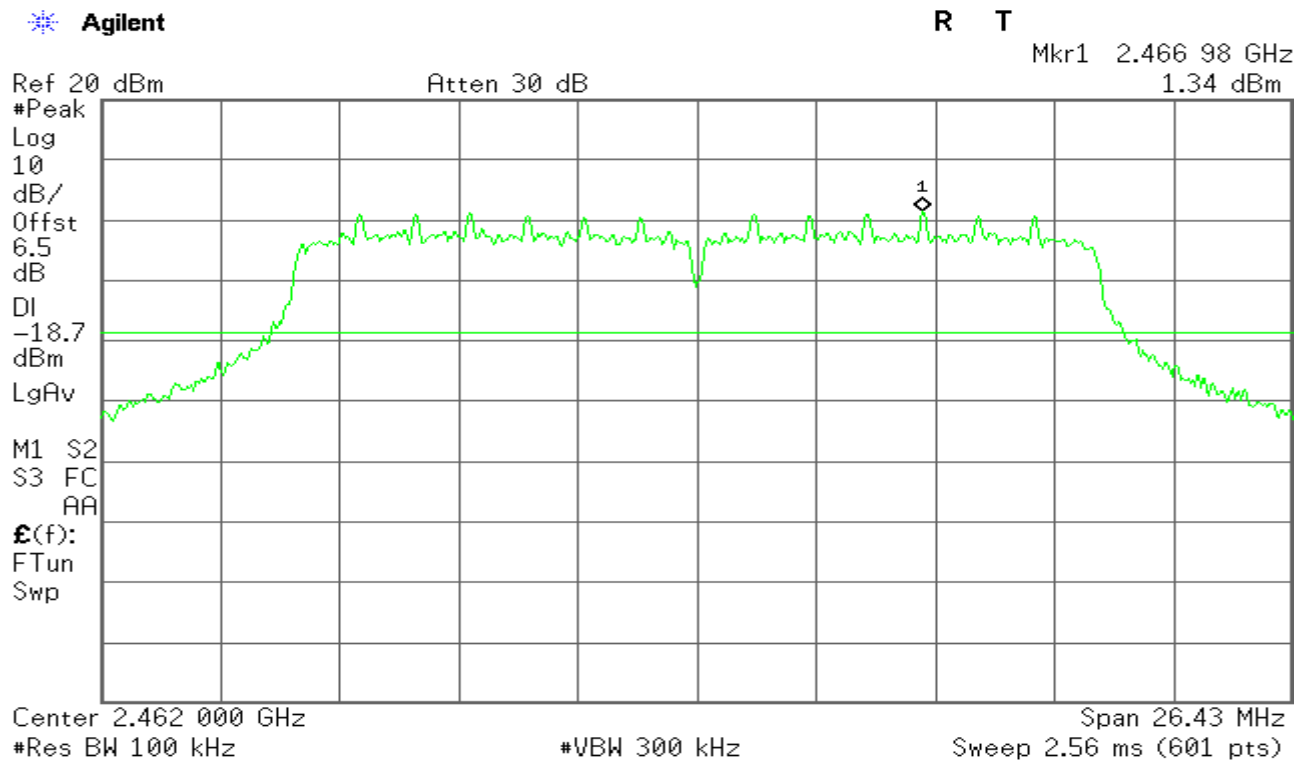
CH Mid

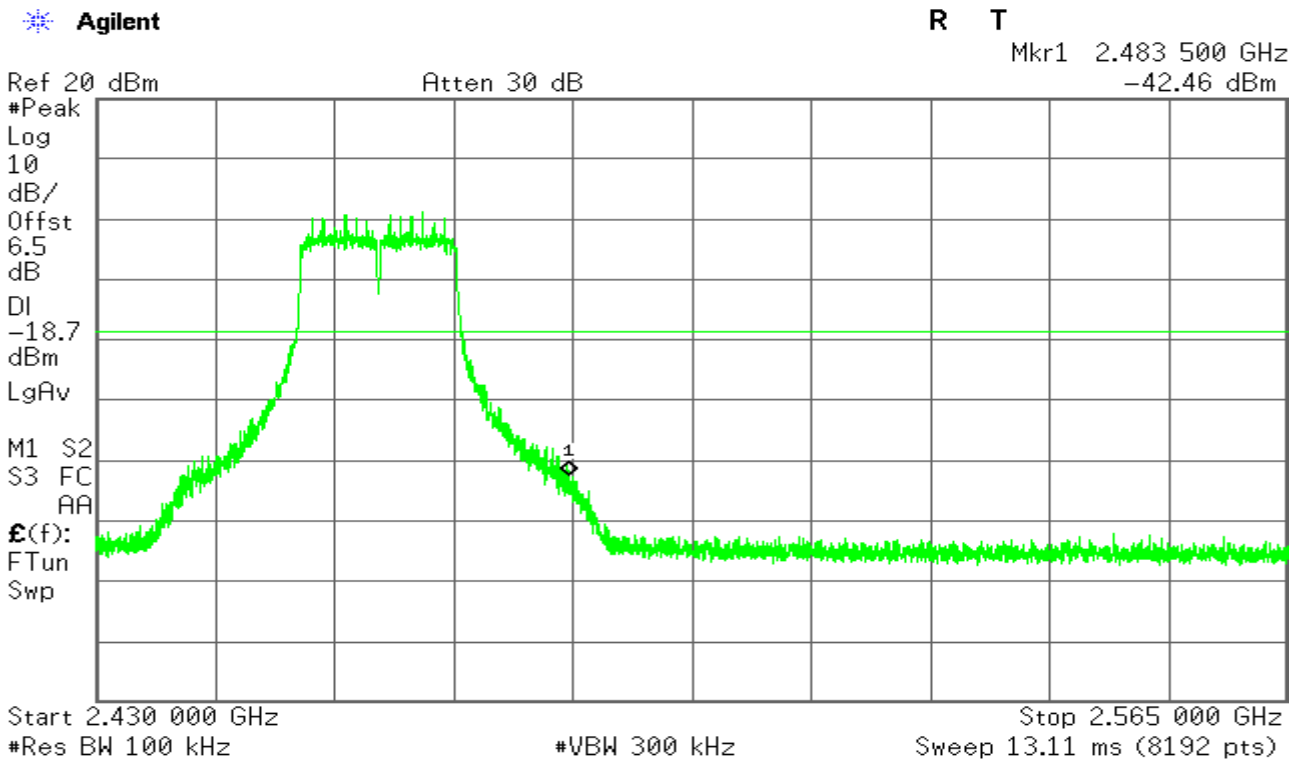

Agilent
R T
Mkr1 2.441 98 GHz
1.80 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.43 MHz
Sweep 2.56 ms (601 pts)

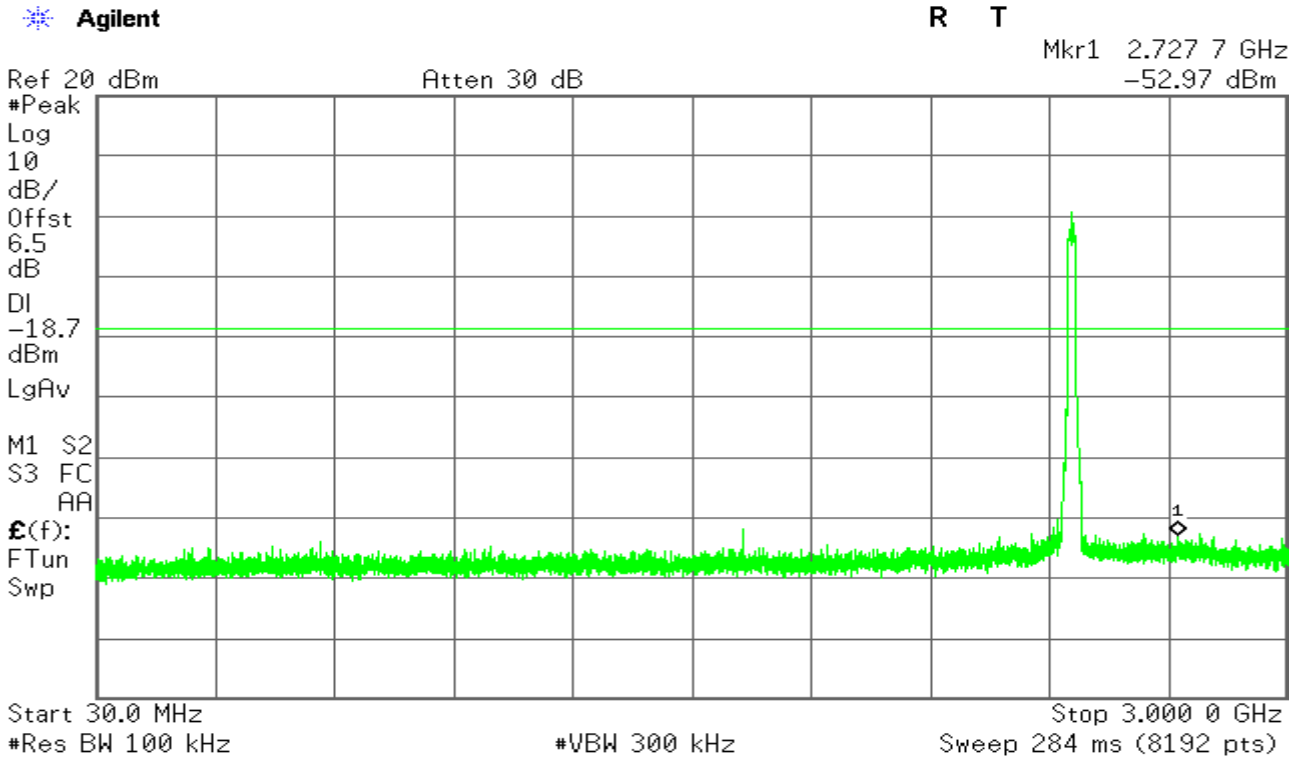

Agilent
R T
Mkr1 1.624 7 GHz
-52.81 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

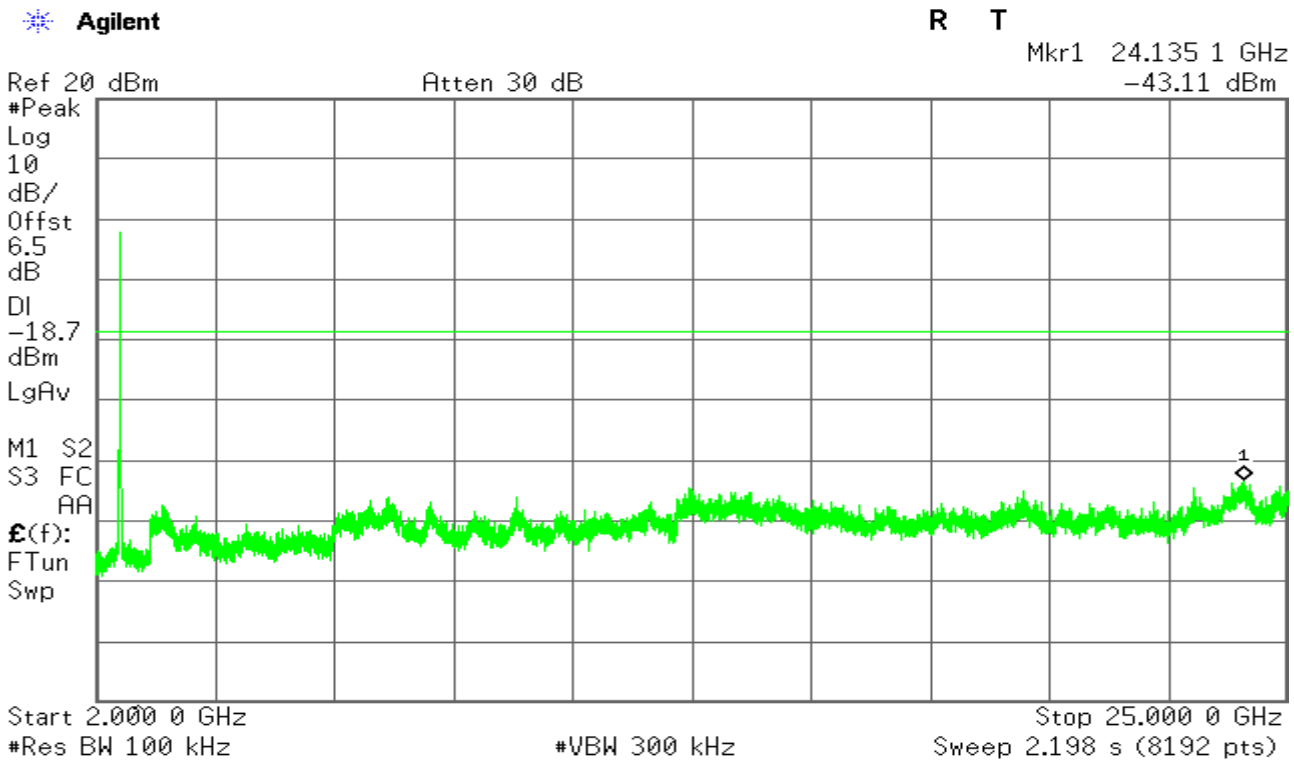

Agilent
R T
Mkr1 24.095 8 GHz
-43.02 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.2
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.466 98 GHz
1.34 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.43 MHz
Sweep 2.56 ms (601 pts)

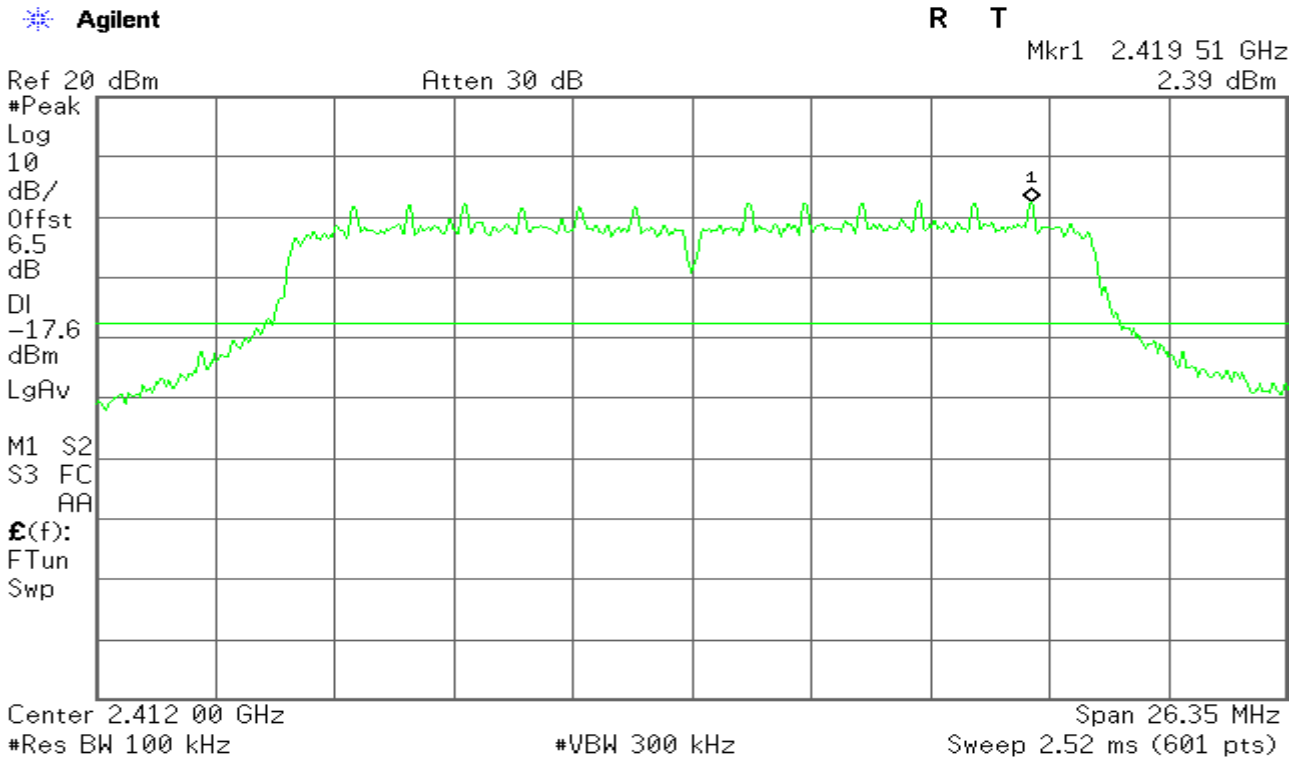

Agilent
R T
Mkr1 2.483 500 GHz
-42.46 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)

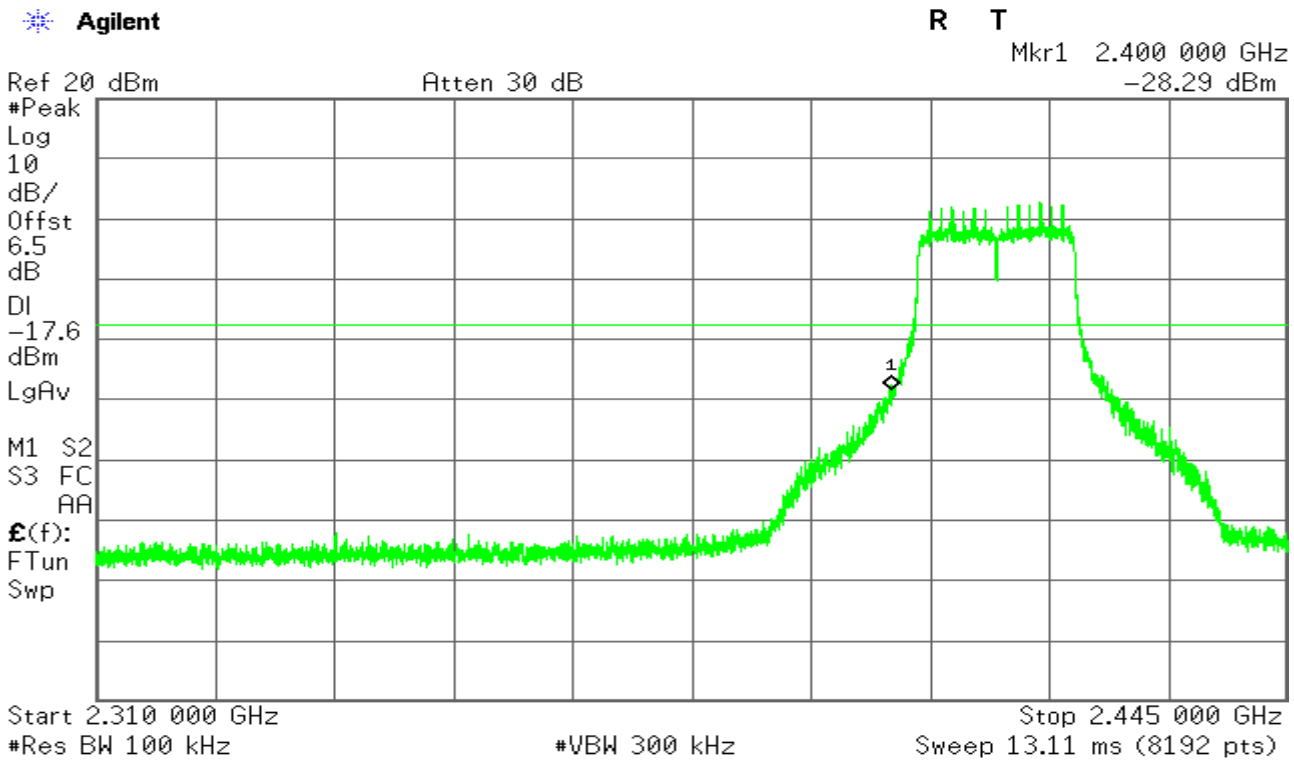

Agilent
R T
Mkr1 2.727 7 GHz
-52.97 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.7
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)

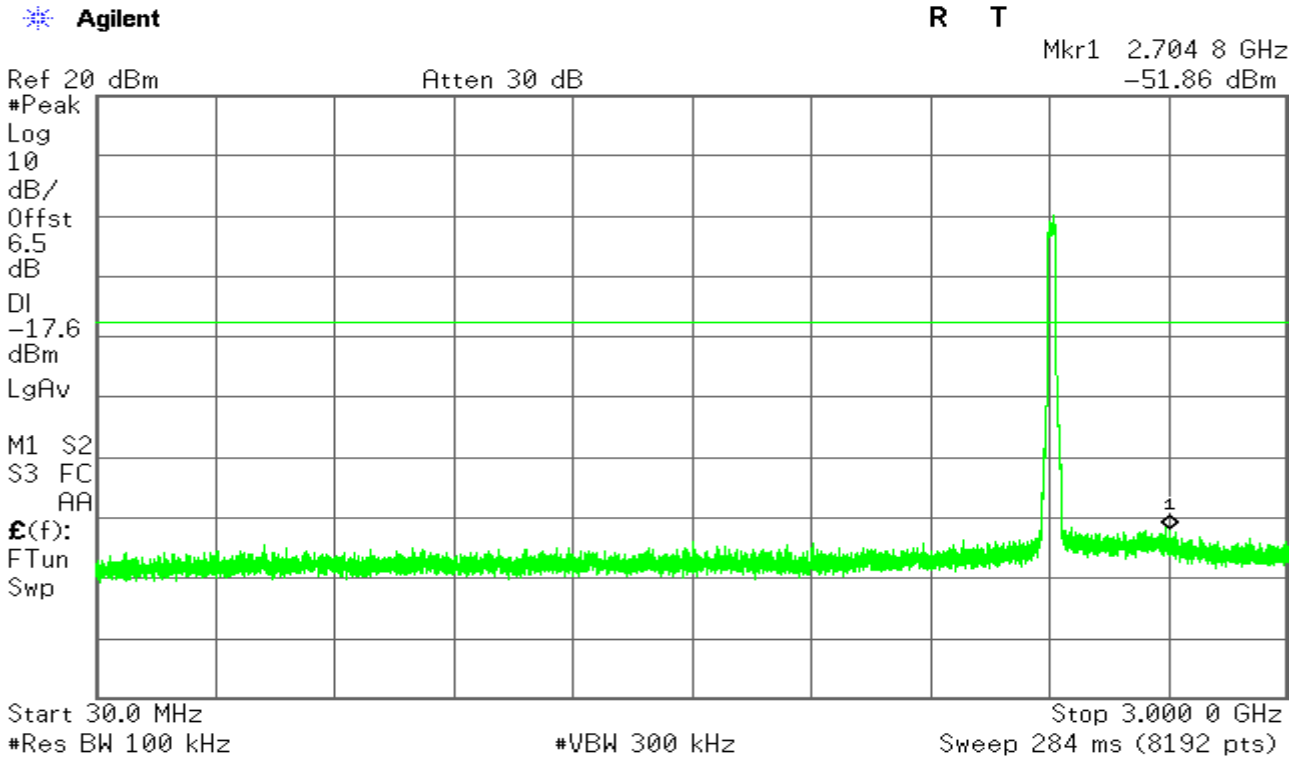


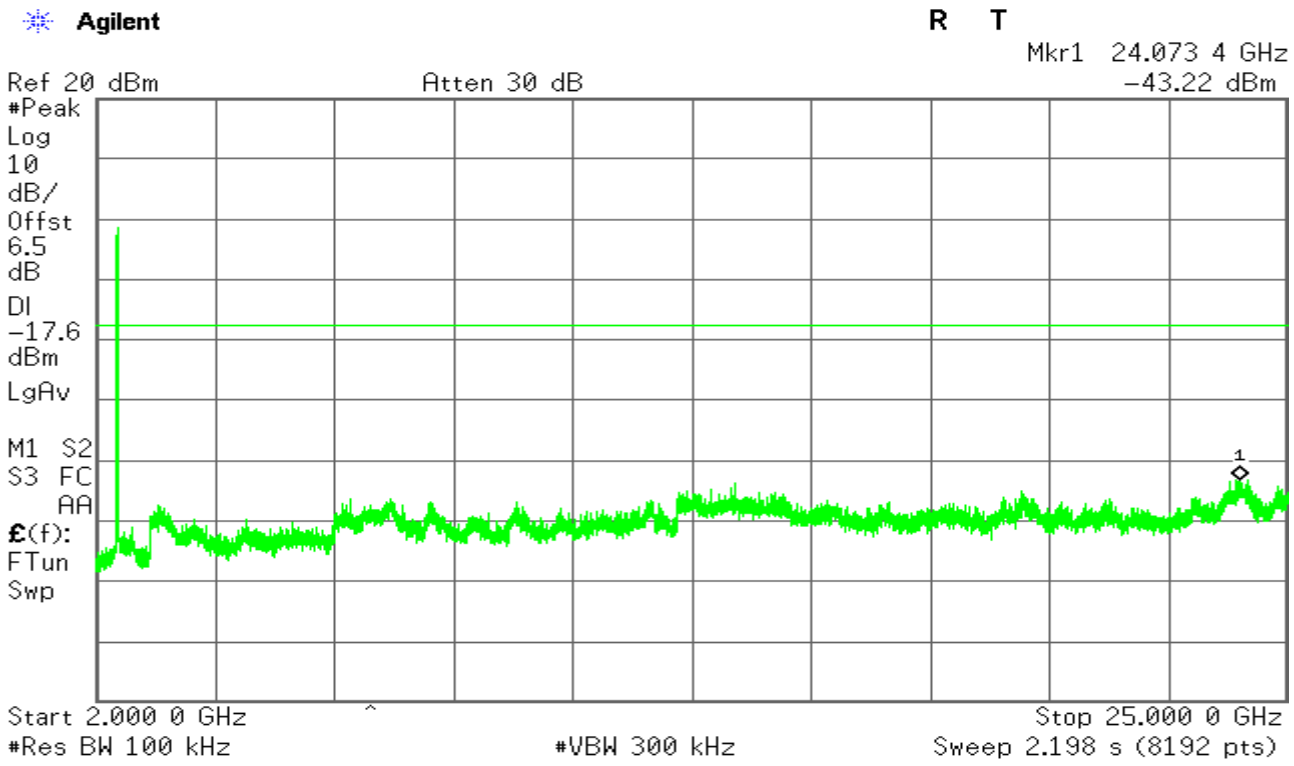
IEEE 802.11n HT20 mode / Chain 1

CH Low

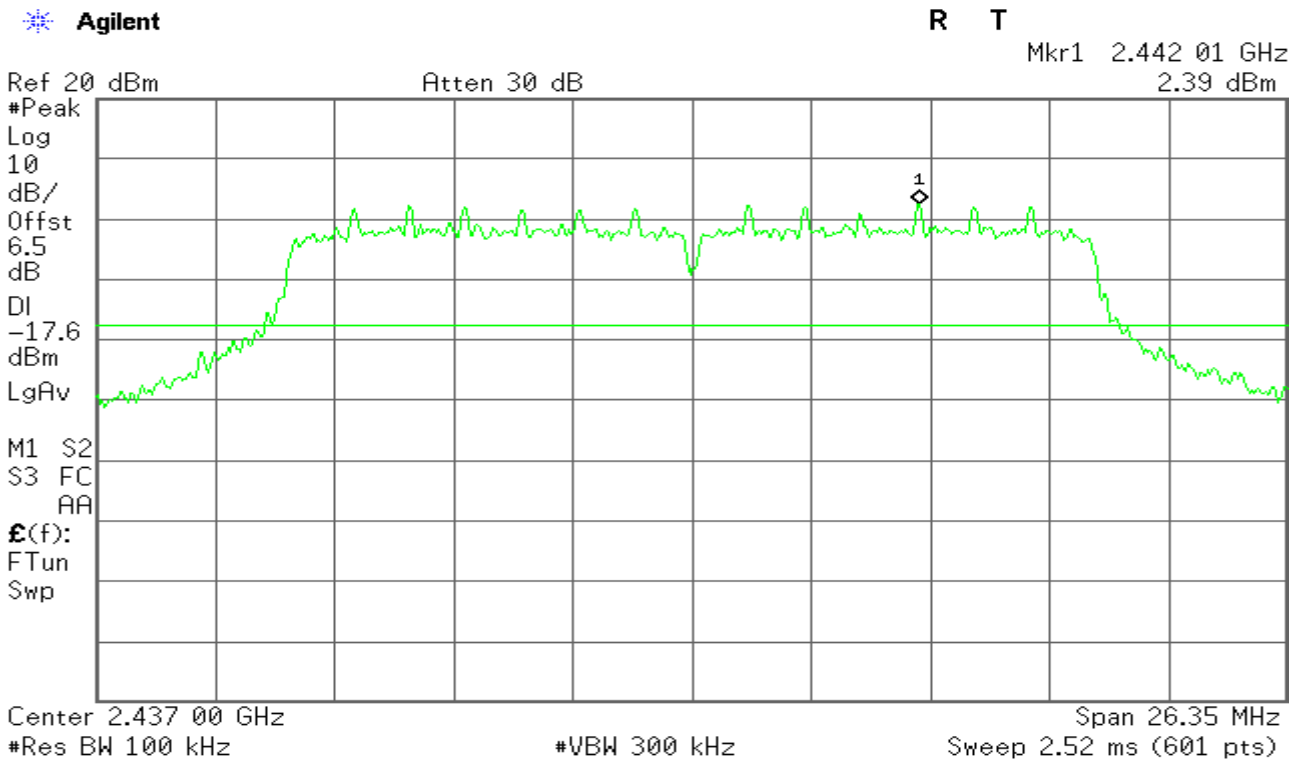


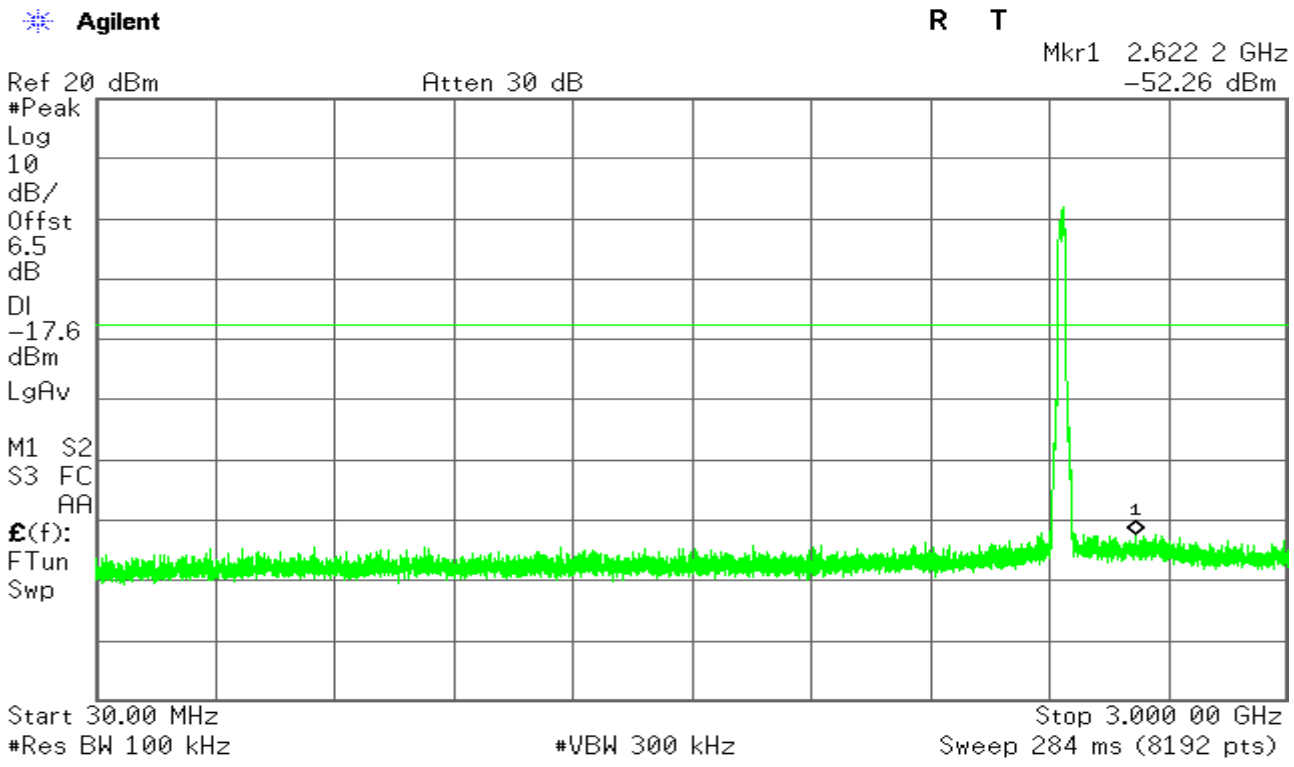

Agilent
R T
Mkr1 2.400 000 GHz
-28.29 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.310 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.445 000 GHz
Sweep 13.11 ms (8192 pts)

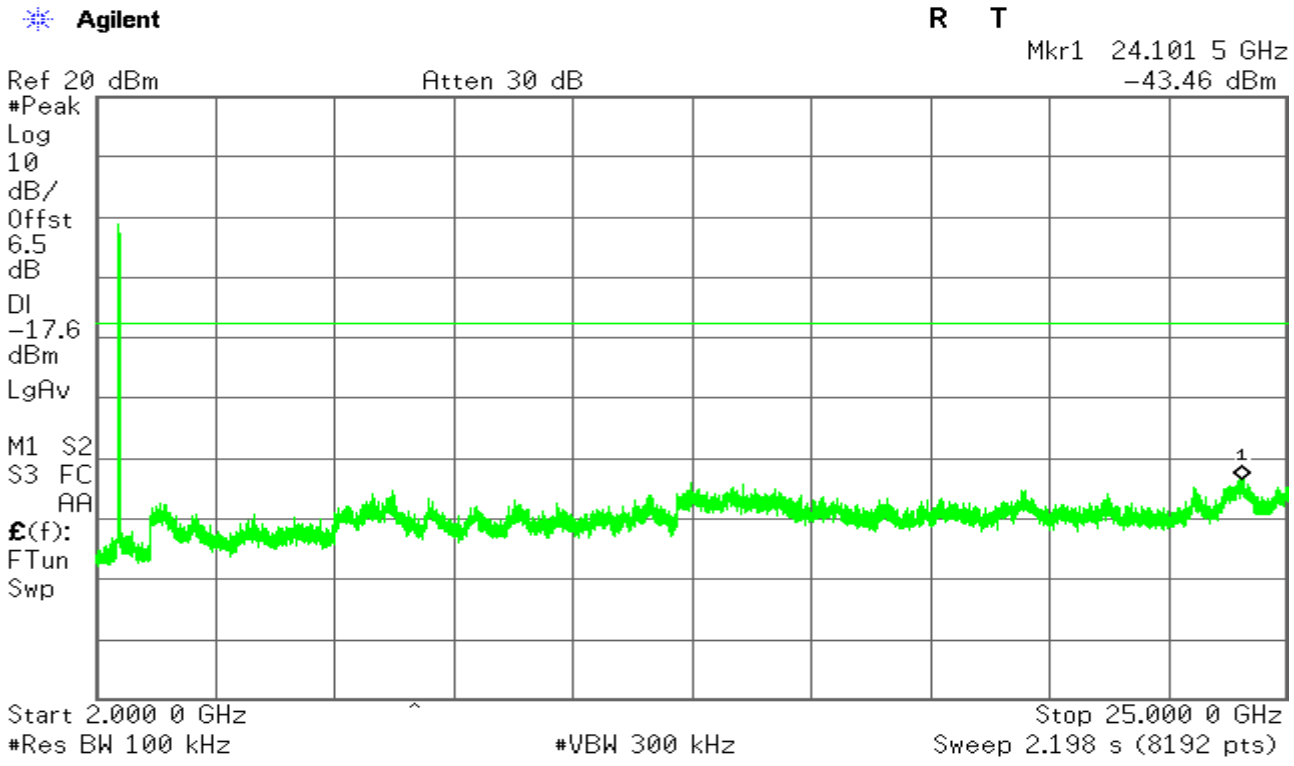

Agilent
R T
Mkr1 2.704 8 GHz
-51.86 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.073 4 GHz
-43.22 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

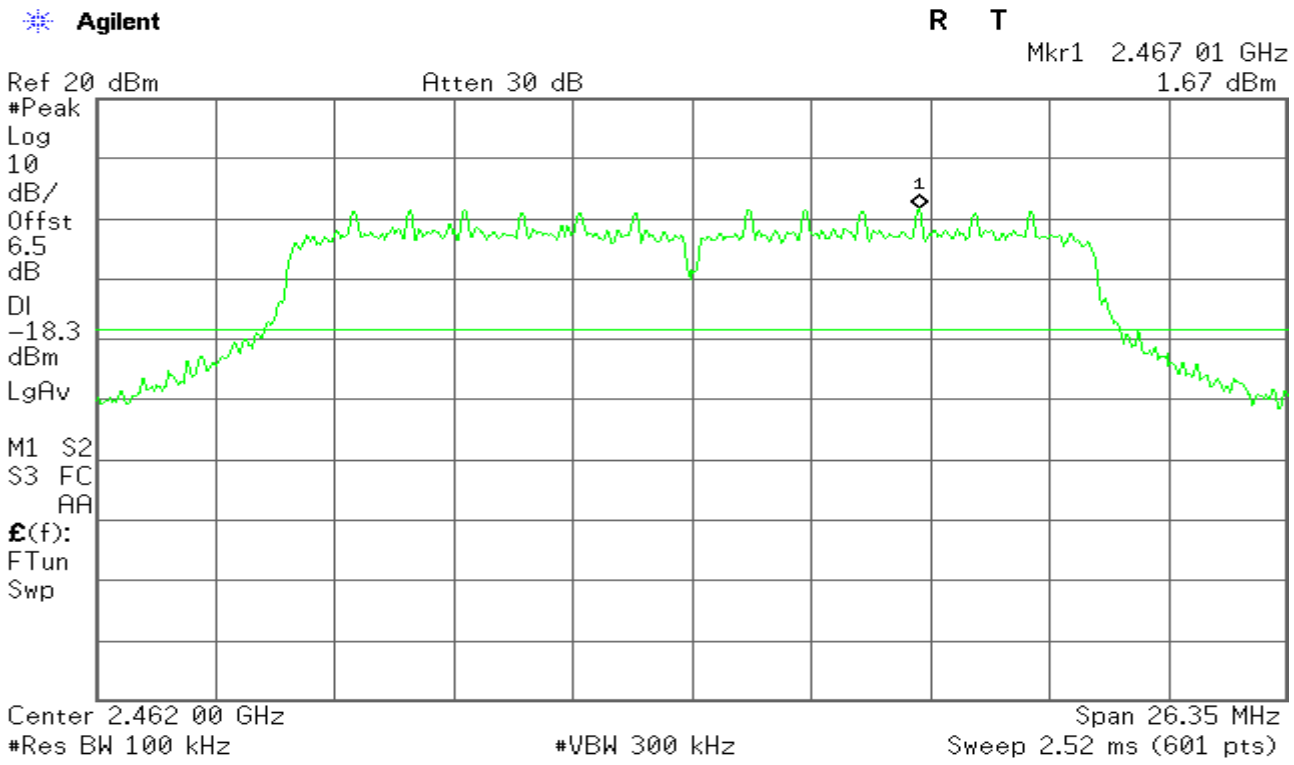
CH Mid

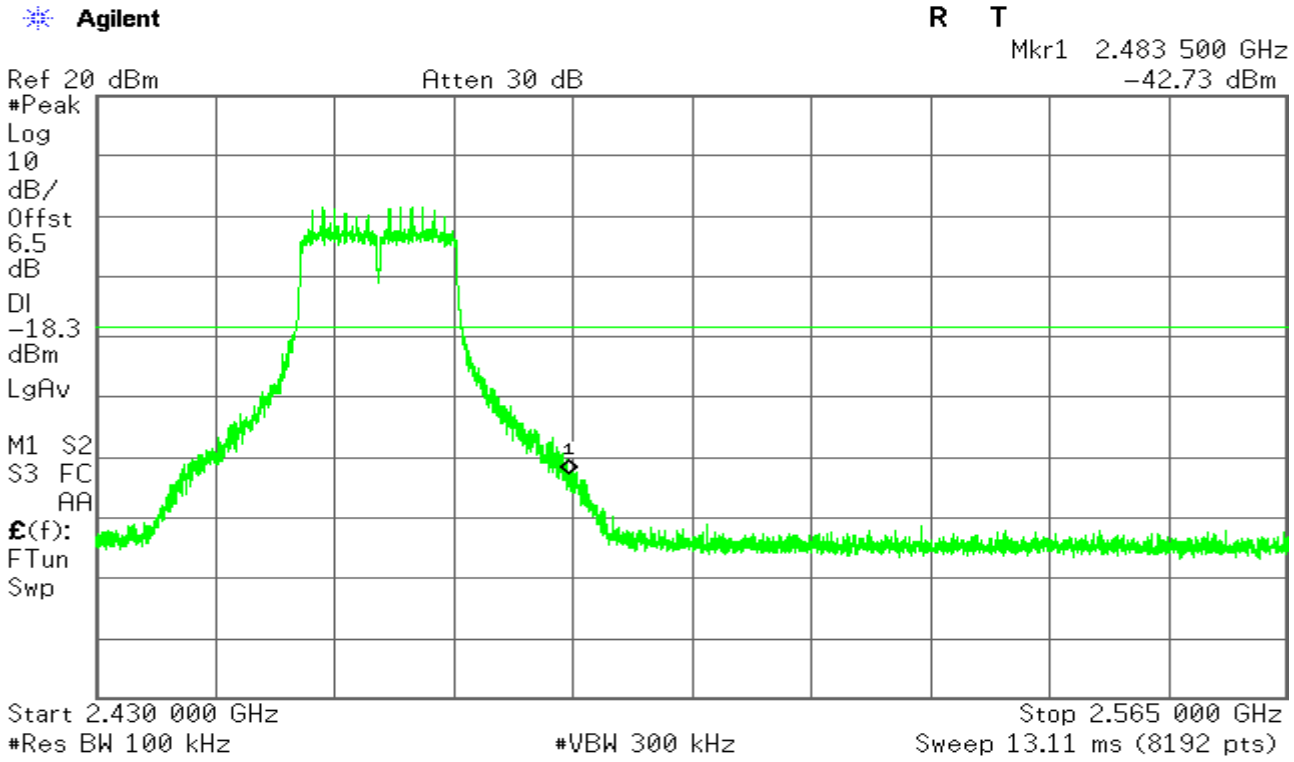

Agilent
R T
Mkr1 2.442 01 GHz
2.39 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.437 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.35 MHz
Sweep 2.52 ms (601 pts)

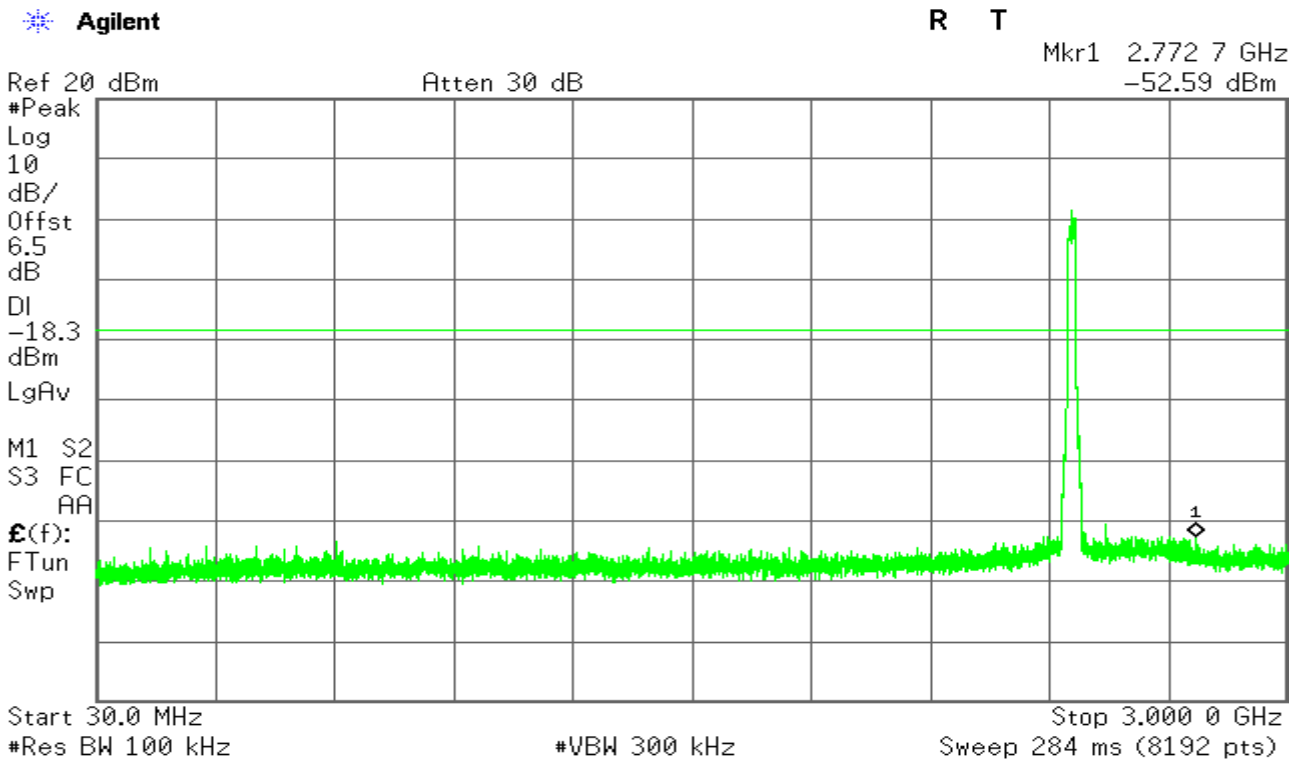

Agilent
R T
Mkr1 2.622 2 GHz
Ref 20 dBm
Atten 30 dB
−52.26 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 00 GHz
Sweep 284 ms (8192 pts)

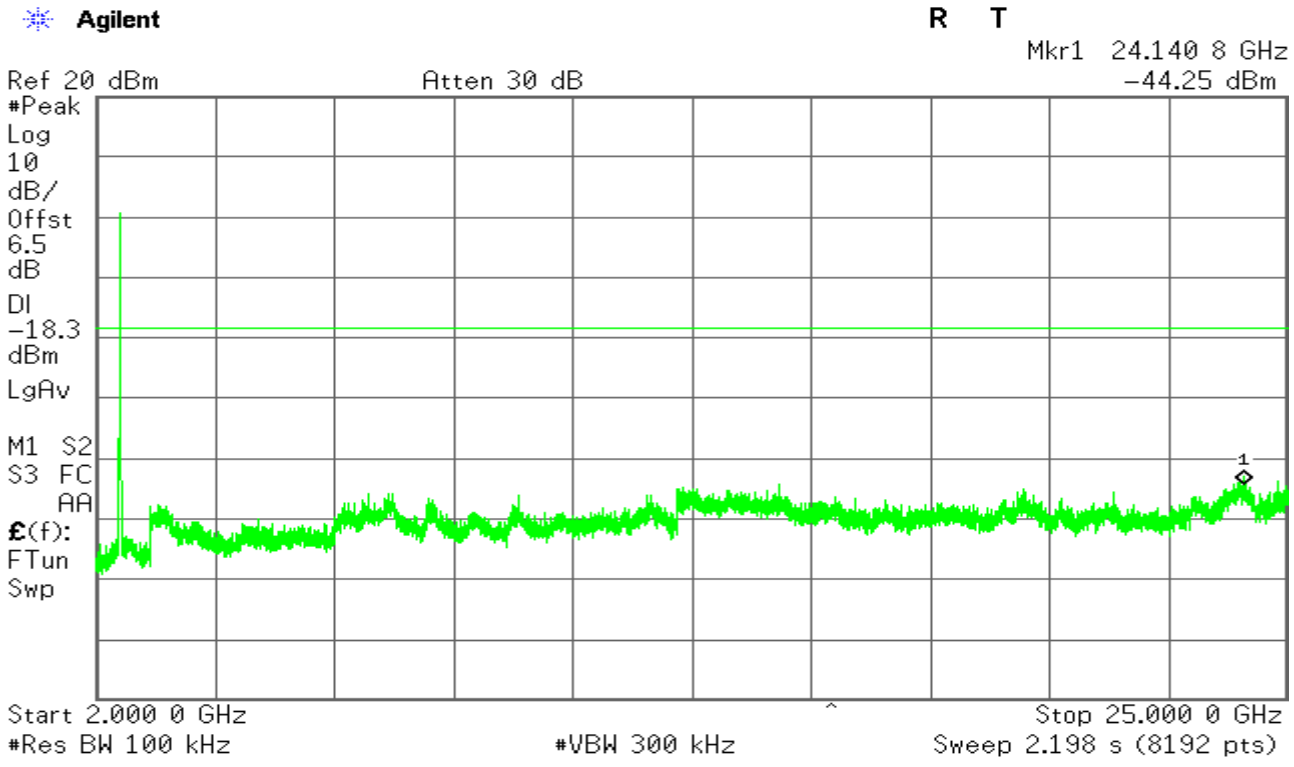

Agilent
R T
Mkr1 24.101 5 GHz
Ref 20 dBm
Atten 30 dB
−43.46 dBm
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
−17.6
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

CH High


Agilent
R T
Mkr1 2.467 01 GHz
1.67 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 2.462 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.35 MHz
Sweep 2.52 ms (601 pts)


Agilent
R T
Mkr1 2.483 500 GHz
-42.73 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.430 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.565 000 GHz
Sweep 13.11 ms (8192 pts)


Agilent
R T
Mkr1 2.772 7 GHz
-52.59 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 3.000 0 GHz
Sweep 284 ms (8192 pts)


Agilent
R T
Mkr1 24.140 8 GHz
-44.25 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
6.5
dB
Dl
-18.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 2.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 0 GHz
Sweep 2.198 s (8192 pts)

4.6.RADIATED EMISSIONS

LIMIT

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.10-2013. The EUT was placed above the ground plane, 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz. 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

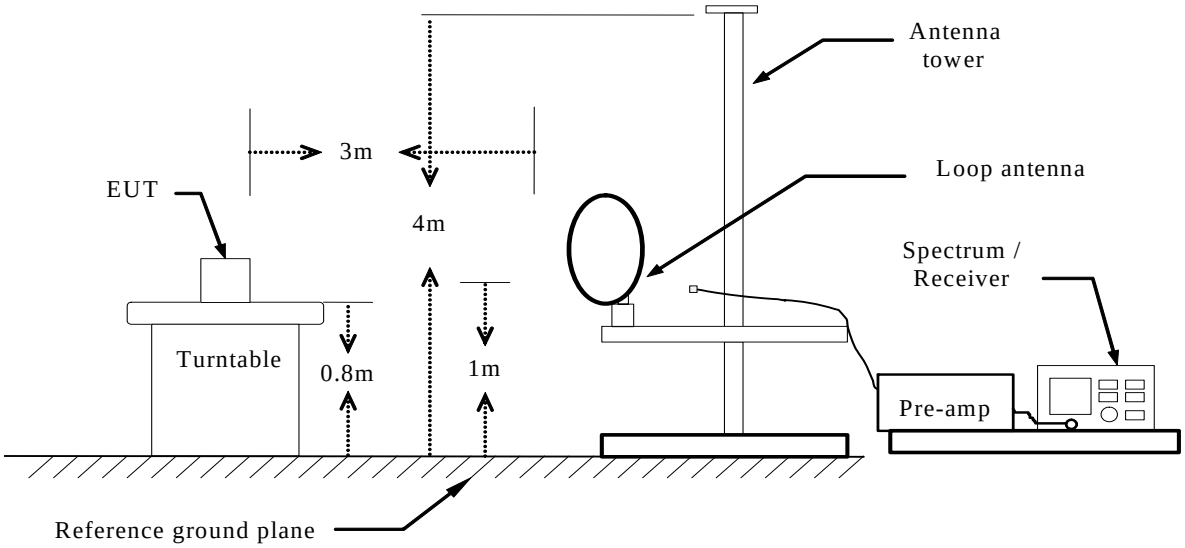
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

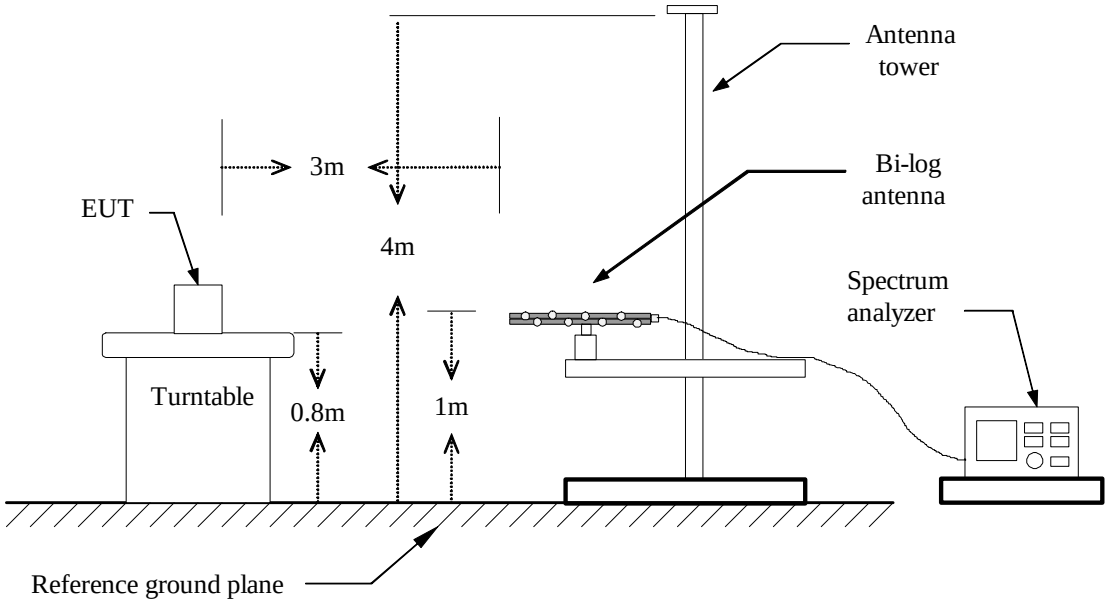
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

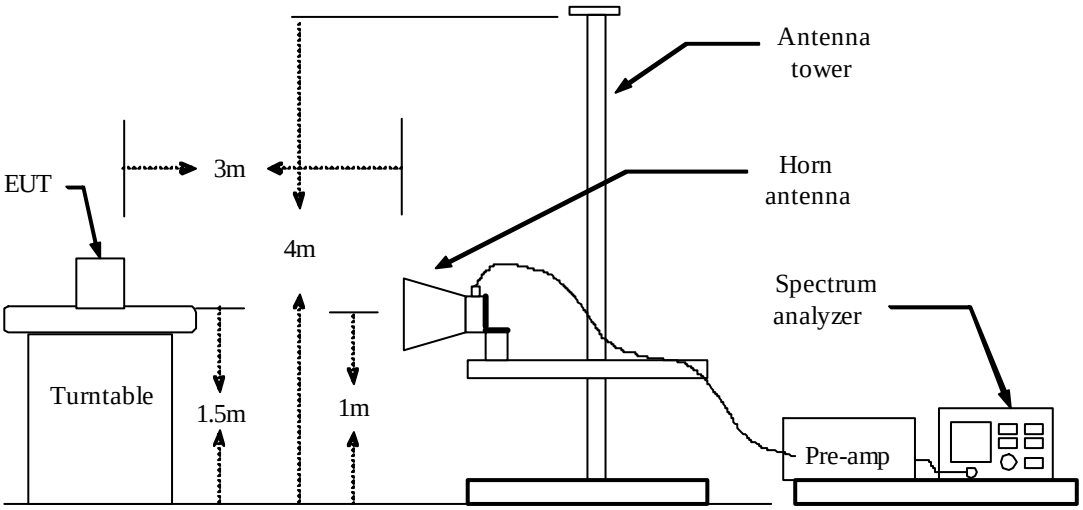
Below 30MHz



Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable above ground plane, which is 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz.
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:

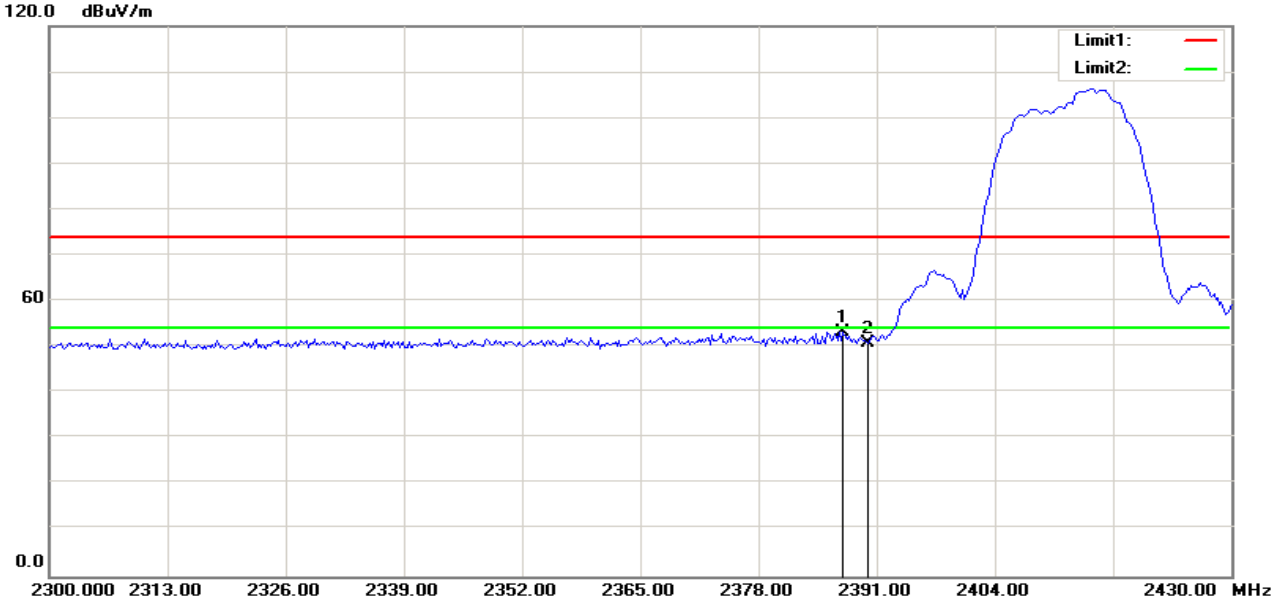
   PEAK: RBW=VBW=1MHz / Sweep=AUTO

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

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

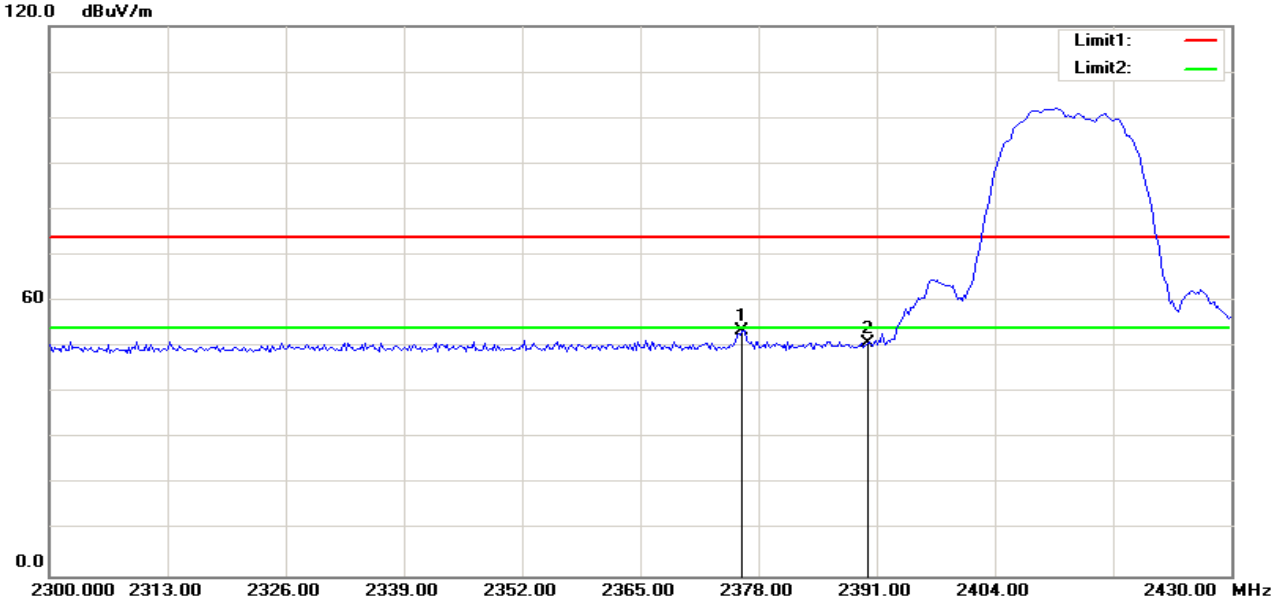
TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)



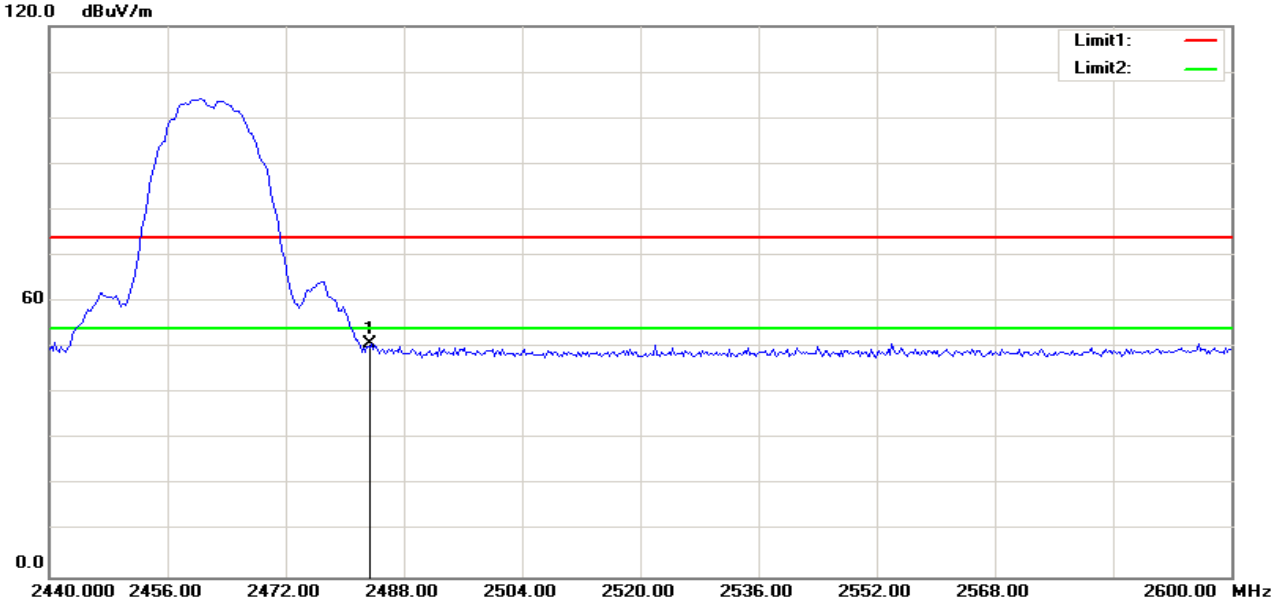
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2387.292	61.71	-8.49	53.22	74.00	-20.78	100	317	peak
2	2390.000	59.37	-8.49	50.88	74.00	-23.12	100	317	peak

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)



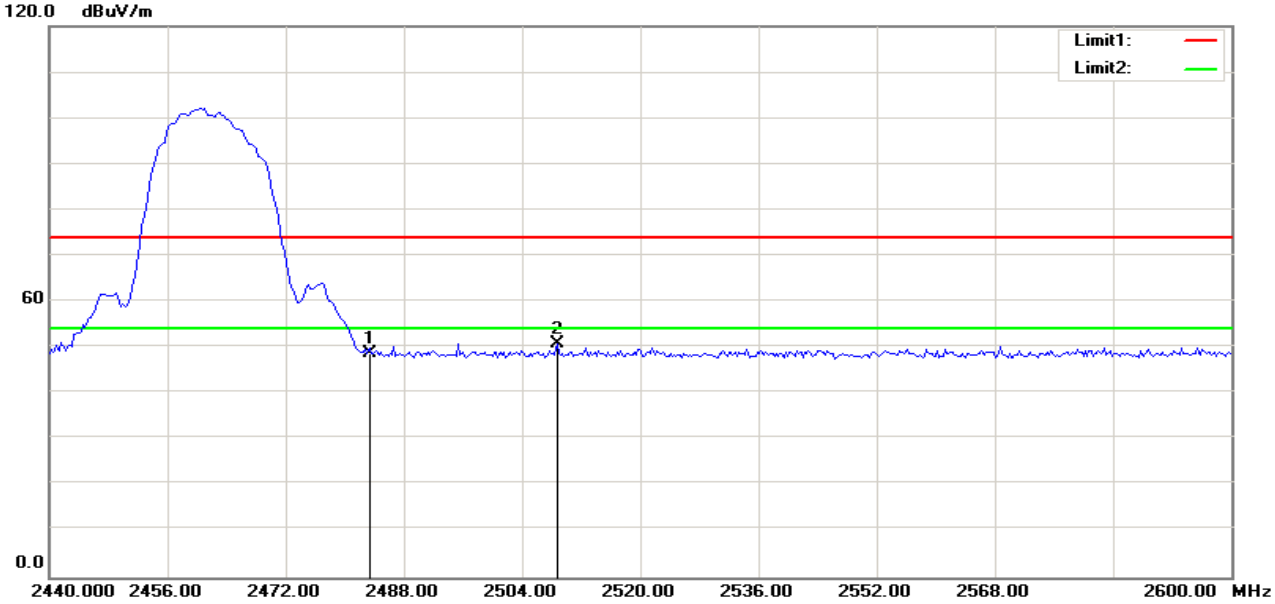
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2376.250	62.18	-8.51	53.67	74.00	-20.33	100	342	peak
2	2390.000	59.45	-8.49	50.96	74.00	-23.04	100	285	peak

RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)



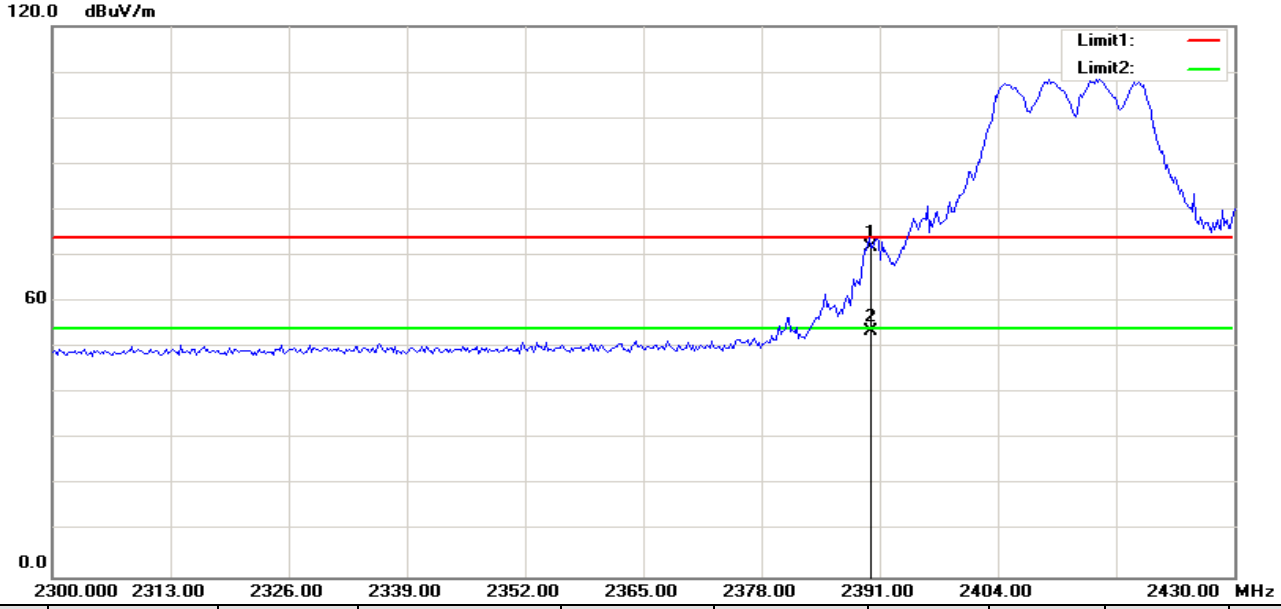
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	59.17	-8.30	50.87	74.00	-23.13	100	251	peak

RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)



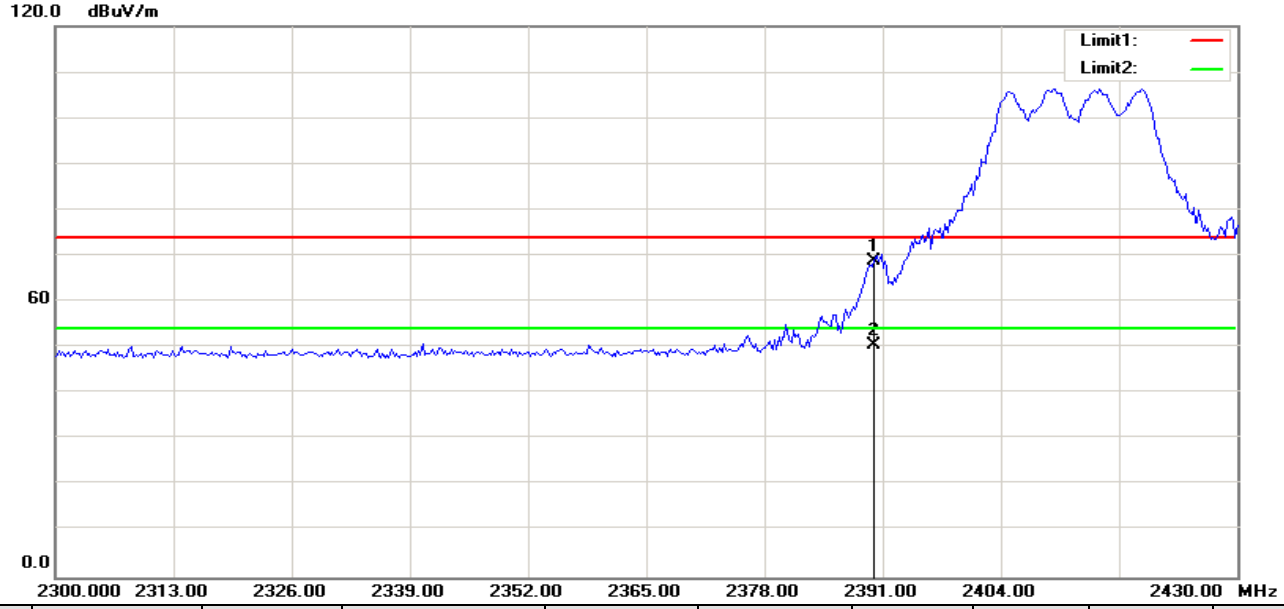
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	57.06	-8.30	48.76	74.00	-25.24	100	296	peak
2	2508.718	59.23	-8.25	50.98	74.00	-23.02	200	295	peak

RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)



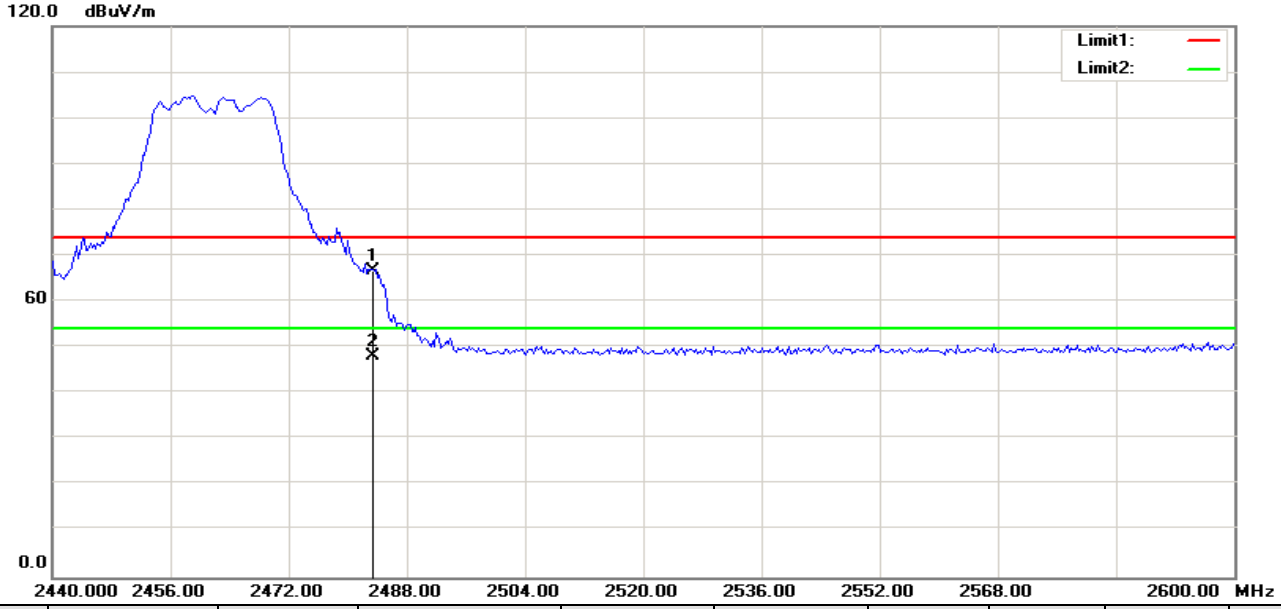
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2390.000	80.19	-8.49	71.70	74.00	-2.30	100		peak
2	2390.000	61.96	-8.49	53.47	54.00	-0.53	200	360	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)



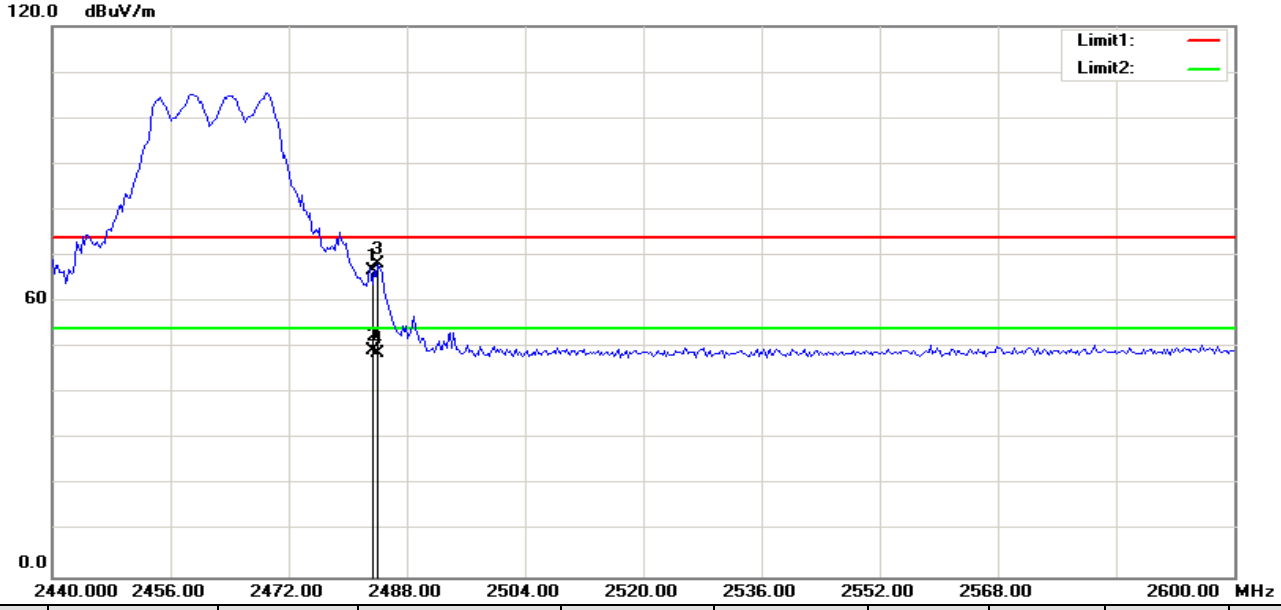
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2390.000	77.36	-8.49	68.87	74.00	-5.13	100	260	peak
2	2390.000	58.91	-8.49	50.42	54.00	-3.58	200	351	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)



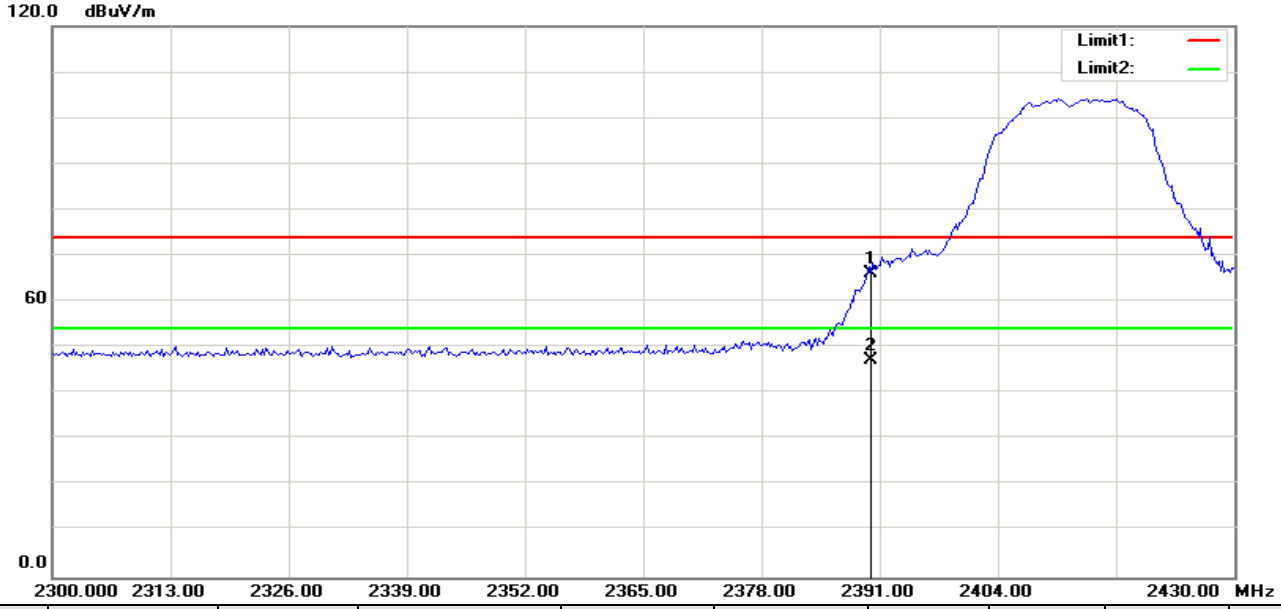
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	75.09	-8.30	66.79	74.00	-7.21	100	0	peak
2	2483.500	56.32	-8.30	48.02	54.00	-5.98	100	0	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)



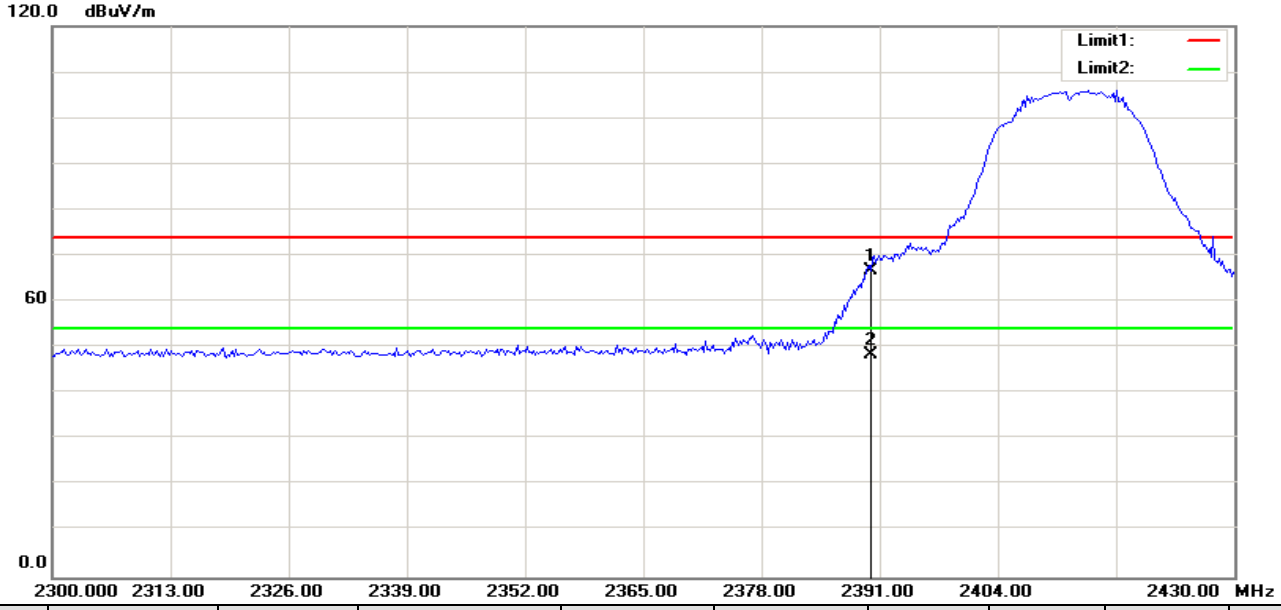
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	74.95	-8.30	66.65	74.00	-7.35	100	359	peak
2	2483.500	57.68	-8.30	49.38	54.00	-4.62	100	359	AVG
3	2484.103	76.64	-8.30	68.34	74.00	-5.66	100	295	peak
4	2484.103	57.11	-8.30	48.81	54.00	-5.19	100	295	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, Low Channel, Horizontal)



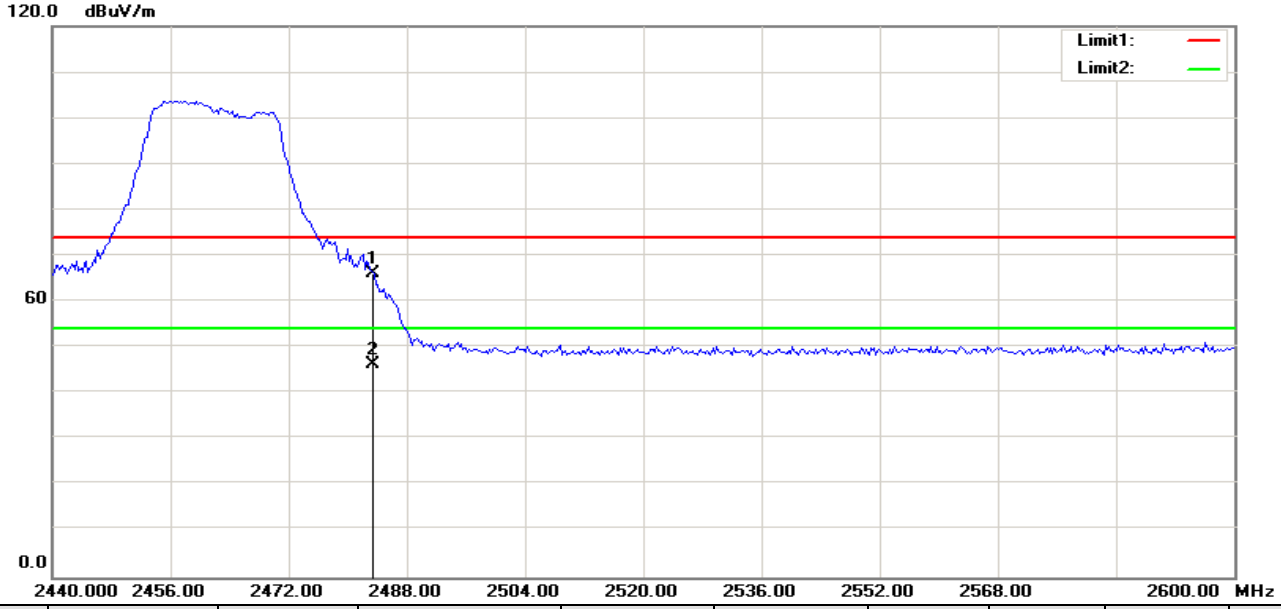
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2390.000	74.50	-8.49	66.01	74.00	-7.99	200	111	peak
2	2390.000	55.62	-8.49	47.13	54.00	-6.87	200	111	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, Low Channel, Vertical)



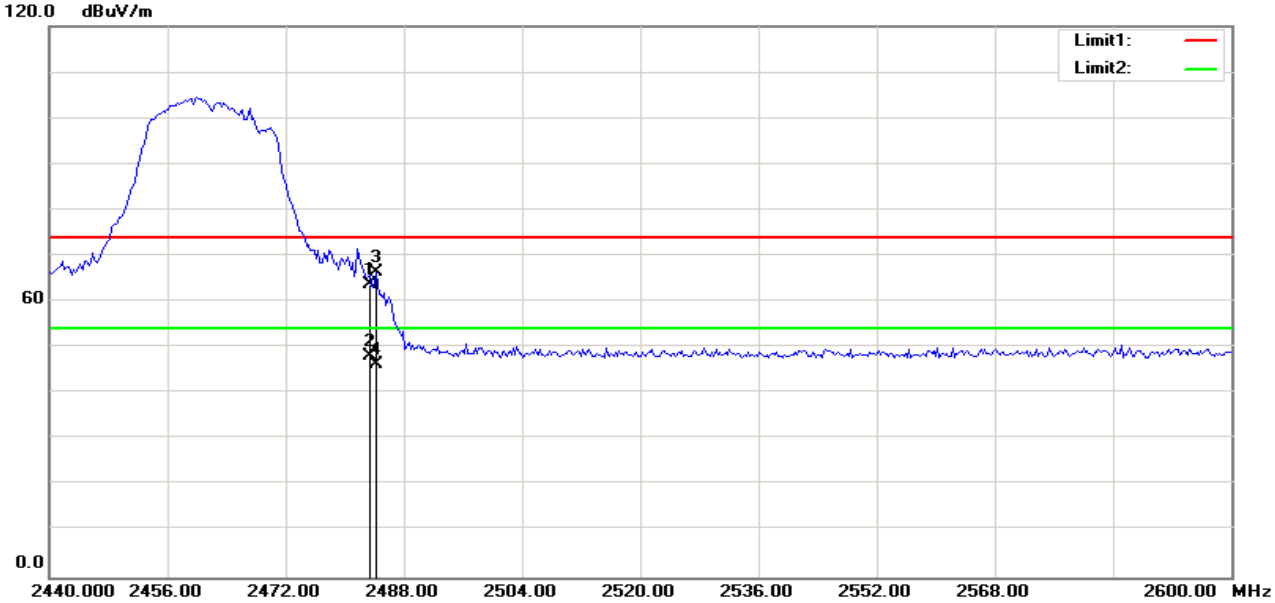
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2390.000	75.38	-8.49	66.89	74.00	-7.11	100	359	peak
2	2390.000	57.02	-8.49	48.53	54.00	-5.47	100	359	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, High Channel, Horizontal)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	74.58	-8.30	66.28	74.00	-7.72	100	36	peak
2	2483.500	54.58	-8.30	46.28	54.00	-7.72	100	36	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT20 mode, High Channel, Vertical)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	72.09	-8.30	63.79	74.00	-10.21	100	0	peak
2	2483.500	56.56	-8.30	48.26	54.00	-5.74	100	0	AVG
3	2484.359	74.68	-8.30	66.38	74.00	-7.62	100	295	peak
4	2484.359	54.74	-8.30	46.44	54.00	-7.56	100	295	AVG

Below 1GHz

Operation Mode:	Normal Link	Test Date:	2015-12-27
Temperature:	25°C	Tested by:	Lily.Wang
Humidity:	48% RH	Polarity:	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
32.9100	V	16.05	18.38	34.43	40.00	-5.57	peak
118.2700	V	25.49	11.97	37.46	43.50	-6.04	peak
154.1600	V	24.59	11.59	36.18	43.50	-7.32	peak
461.6500	V	17.48	18.64	36.12	46.00	-9.88	peak
723.5500	V	17.74	22.78	40.52	46.00	-5.48	peak
960.2300	V	16.07	24.78	40.85	54.00	-13.15	peak
32.9100	H	14.70	18.38	33.08	40.00	-6.92	peak
117.3000	H	21.20	11.98	33.18	43.50	-10.32	peak
154.1600	H	24.32	11.59	35.91	43.50	-7.59	peak
308.3900	H	18.52	14.59	33.11	46.00	-12.89	peak
720.6400	H	18.87	22.79	41.66	46.00	-4.34	peak
939.8600	H	15.05	24.68	39.73	46.00	-6.27	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).*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** 2016-1-3

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

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4841.346	49.52	-2.52	47.00	80.00	-33.00	100	16	peak
2	7238.782	47.45	1.93	49.38	80.00	-30.62	100	16	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4814.103	50.14	-2.60	47.54	80.00	-32.46	100	241	peak
2	7238.782	46.16	1.93	48.09	80.00	-31.91	100	95	peak
N/A									

Operation Mode: TX / IEEE 802.11b / CH Mid **Test Date:** 2016-1-3

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

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4814.103	45.80	-2.60	43.20	80.00	-36.80	100	172	peak
2	7456.731	43.55	2.69	46.24	80.00	-33.76	100	277	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4868.590	50.54	-2.44	48.10	80.00	-31.90	100	236	peak
2	7320.513	45.88	2.22	48.10	80.00	-31.90	100	129	peak
N/A									

Operation Mode: TX / IEEE 802.11b / CH High **Test Date:** 2016-1-3

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

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	4923.077	47.19	-2.28	44.91	80.00	-35.09	100	154	peak
2	7402.244	43.47	2.50	45.97	80.00	-34.03	100	150	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	4923.077	53.12	-2.28	50.84	80.00	-29.16	100	165	peak
2	7375.000	48.02	2.41	50.43	80.00	-29.57	100	122	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH Low **Test Date:** 2016-1-3

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

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	4814.103	46.07	-2.60	43.47	80.00	-36.53	100	138	peak
2	7211.538	43.34	1.84	45.18	80.00	-34.82	100	195	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	5004.808	47.60	-2.04	45.56	80.00	-34.44	100	176	peak
2	7238.782	43.62	1.93	45.55	80.00	-34.45	100	99	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH Mid **Test Date:** 2016-1-3

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

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	4868.590	45.59	-2.44	43.15	80.00	-36.85	100	154	peak
2	7511.218	43.15	2.88	46.03	80.00	-33.97	100	218	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	5004.808	47.87	-2.04	45.83	80.00	-34.17	100	167	peak
2	7048.077	45.31	1.27	46.58	80.00	-33.42	100	250	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH High **Test Date:** 2016-1-3

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

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	4895.833	46.35	-2.36	43.99	80.00	-36.01	100	156	peak
2	7511.218	43.44	2.88	46.32	80.00	-33.68	100	225	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	5004.808	47.42	-2.04	45.38	80.00	-34.62	100	165	peak
2	7129.808	43.43	1.55	44.98	80.00	-35.02	100	155	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low **Test Date:** 2016-1-3

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

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4814.103	43.61	-2.60	41.01	80.00	-38.99	100	76	peak
2	7674.680	43.25	3.45	46.70	80.00	-33.30	100	344	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5004.808	48.57	-2.04	46.53	80.00	-33.47	100	166	peak
2	7402.244	42.69	2.50	45.19	80.00	-34.81	100	138	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Mid **Test Date:** 2016-1-3

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

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4895.833	44.00	-2.36	41.64	80.00	-38.36	100	191	peak
2	7511.218	42.92	2.88	45.80	80.00	-34.20	100	181	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5004.808	48.82	-2.04	46.78	80.00	-33.22	100	170	peak
2	7184.295	43.25	1.74	44.99	80.00	-35.01	100	359	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH High **Test Date:** 2016-1-3

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

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	4923.077	44.21	-2.28	41.93	80.00	-38.07	100	319	peak
2	7347.756	43.04	2.31	45.35	80.00	-34.65	100	149	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	4841.346	44.62	-2.52	42.10	80.00	-37.90	100	99	peak
2	7511.218	42.49	2.88	45.37	80.00	-34.63	100	28	peak
N/A									

4.7.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 µH/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 (dBµV)	
	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.

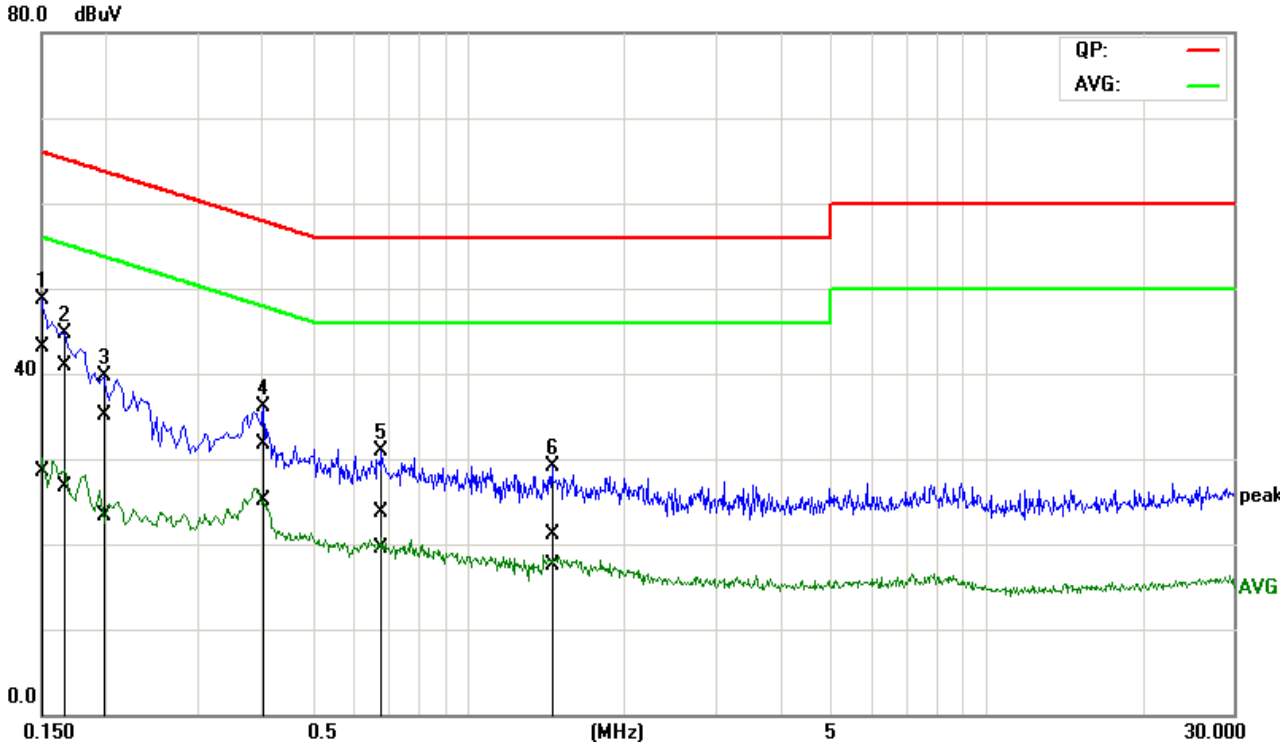
TEST RESULTS

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

Job No.:	C151211R02	Date:	2016-1-9
Model No.:	R9861510	Time:	PM 04:39:12
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L1

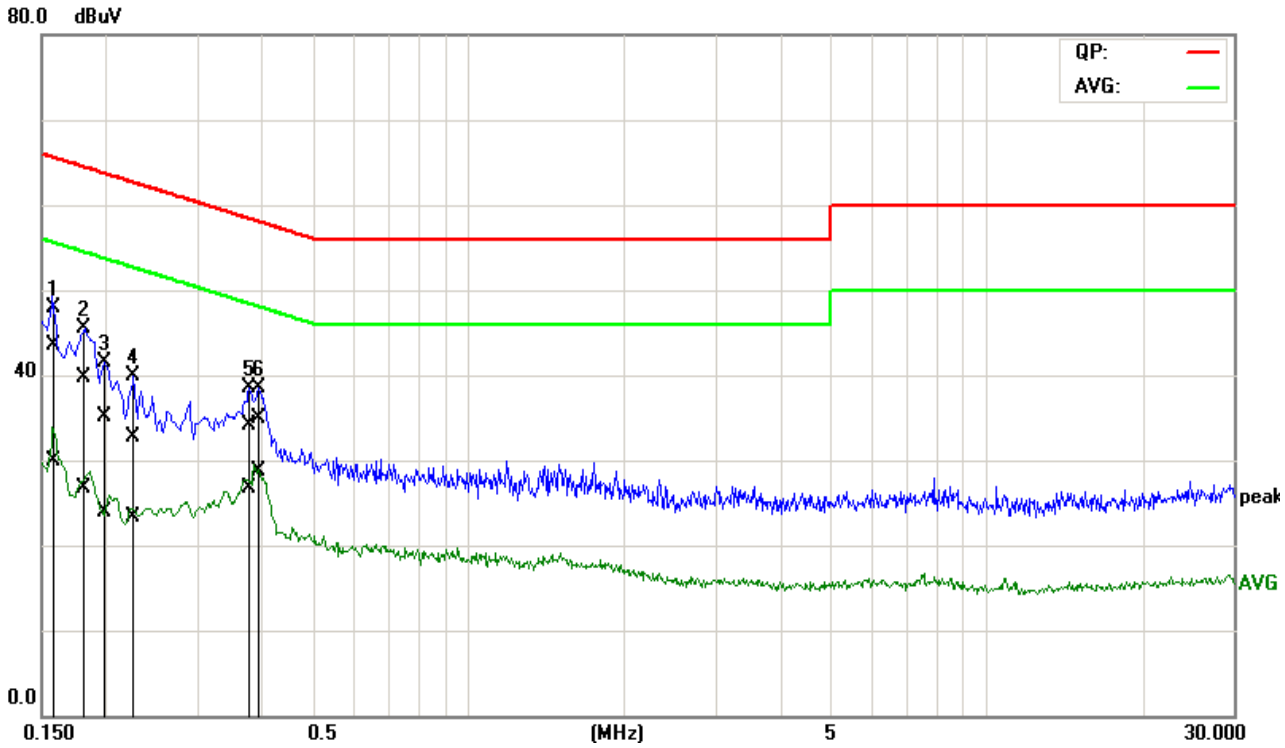


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1510	23.40	8.67	19.78	43.18	28.45	65.94	55.94	-22.76	-27.49	Pass
2	0.1648	21.13	6.90	19.78	40.91	26.68	65.22	55.22	-24.31	-28.54	Pass
3	0.1955	15.25	3.49	19.79	35.04	23.28	63.80	53.80	-28.76	-30.52	Pass
4	0.3988	11.82	5.24	19.80	31.62	25.04	57.88	47.88	-26.26	-22.84	Pass
5	0.6757	3.83	-0.30	19.81	23.64	19.51	56.00	46.00	-32.36	-26.49	Pass
6	1.4449	1.30	-2.28	19.83	21.13	17.55	56.00	46.00	-34.87	-28.45	Pass

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

Job No.:	C151211R02	Date:	2016-1-9
Model No.:	R9861510	Time:	PM 04:34:02
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L2

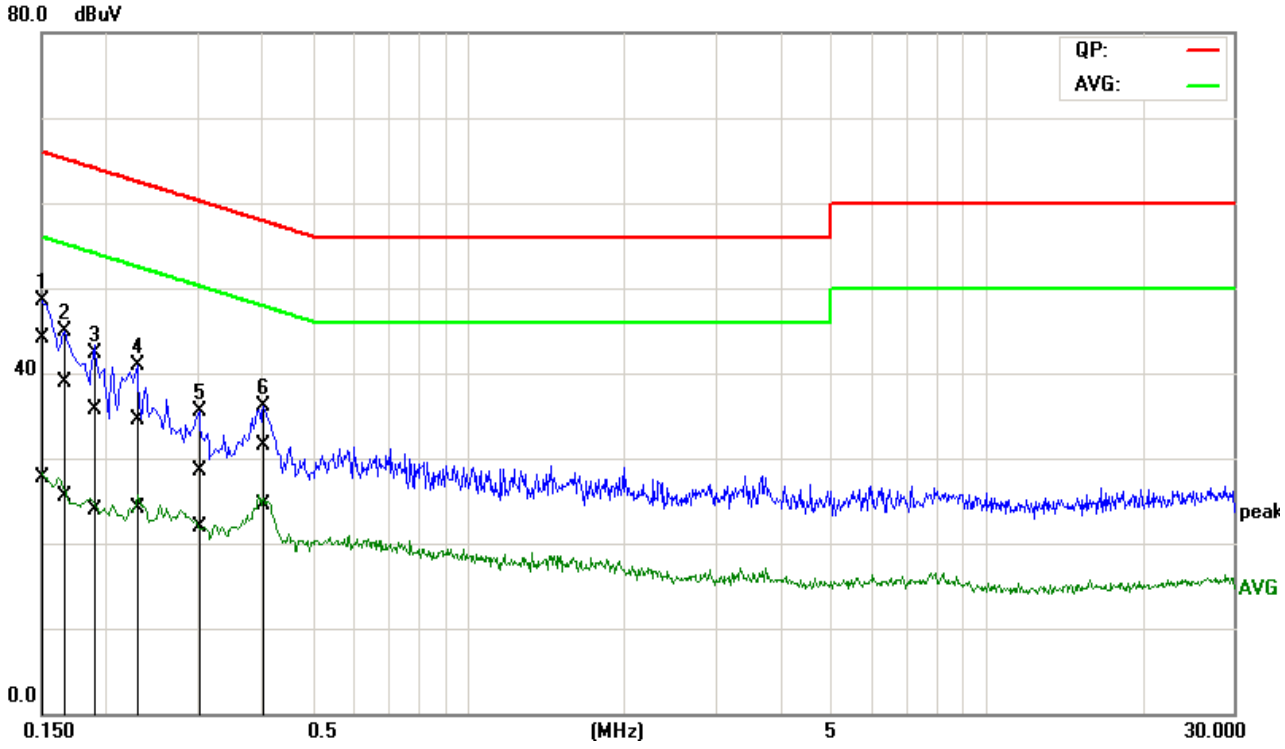


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1599	23.79	10.09	19.73	43.52	29.82	65.47	55.47	-21.95	-25.65	Pass
2	0.1801	19.91	6.95	19.74	39.65	26.69	64.48	54.48	-24.83	-27.79	Pass
3	0.1975	15.46	4.20	19.74	35.20	23.94	63.72	53.72	-28.52	-29.78	Pass
4	0.2254	13.05	3.54	19.74	32.79	23.28	62.62	52.62	-29.83	-29.34	Pass
5	0.3762	14.37	7.01	19.75	34.12	26.76	58.36	48.36	-24.24	-21.60	Pass
6*	0.3936	15.21	8.94	19.75	34.96	28.69	57.99	47.99	-23.03	-19.30	Pass

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

Job No.:	C151211R02	Date:	2016-1-9
Model No.:	R9861510	Time:	PM 04:44:19
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 240V/60Hz
Model:		Description:	

L1

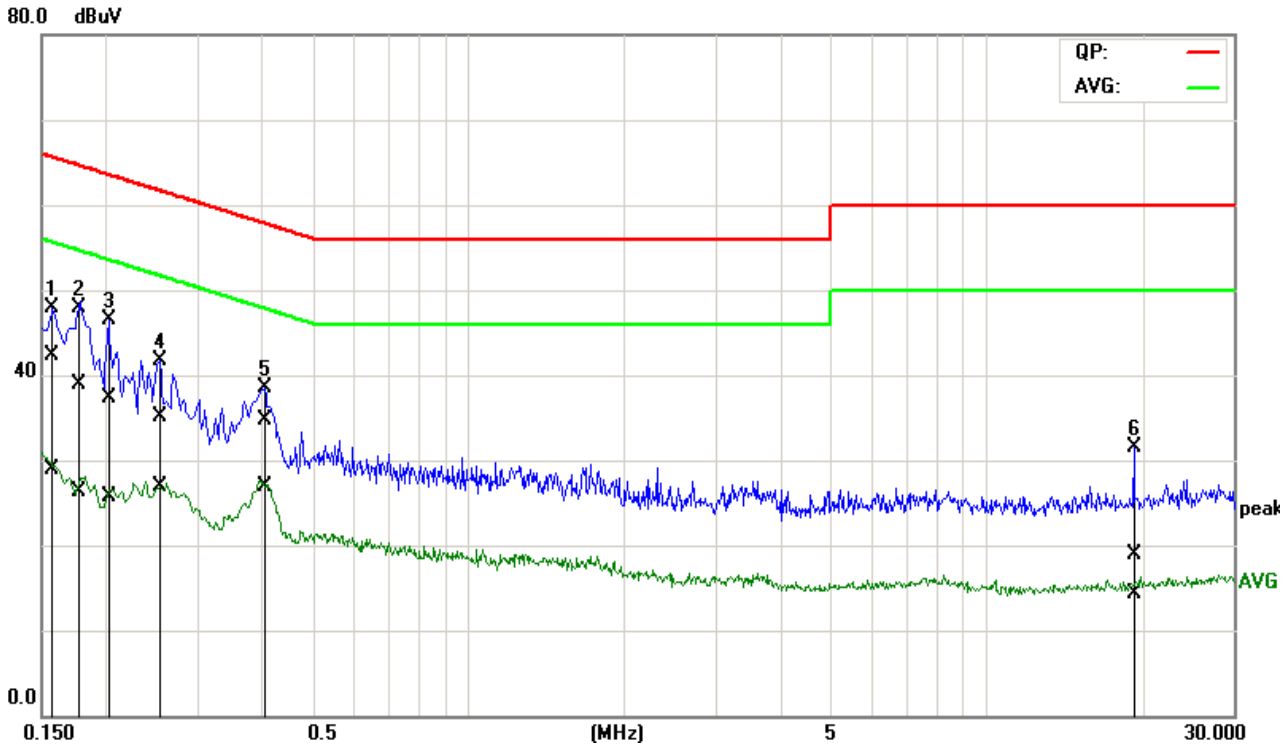


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1514	24.34	7.83	19.78	44.12	27.61	65.92	55.92	-21.80	-28.31	Pass
2	0.1669	19.06	5.70	19.78	38.84	25.48	65.11	55.11	-26.27	-29.63	Pass
3	0.1913	16.00	4.09	19.79	35.79	23.88	63.98	53.98	-28.19	-30.10	Pass
4	0.2307	14.63	4.26	19.79	34.42	24.05	62.42	52.42	-28.00	-28.37	Pass
5	0.3040	8.65	2.19	19.80	28.45	21.99	60.13	50.13	-31.68	-28.14	Pass
6	0.4059	11.79	4.73	19.81	31.60	24.54	57.73	47.73	-26.13	-23.19	Pass

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

Job No.:	C151211R02	Date:	2016-1-9
Model No.:	R9861510	Time:	PM 04:49:29
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 240V/60Hz
Model:		Description:	

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1584	22.48	9.11	19.73	42.21	28.84	65.55	55.55	-23.34	-26.71	Pass
2	0.1750	19.25	6.50	19.73	38.98	26.23	64.72	54.72	-25.74	-28.49	Pass
3	0.2007	17.62	5.90	19.74	37.36	25.64	63.58	53.58	-26.22	-27.94	Pass
4	0.2526	15.31	7.14	19.74	35.05	26.88	61.67	51.67	-26.62	-24.79	Pass
5*	0.4048	15.02	7.10	19.75	34.77	26.85	57.75	47.75	-22.98	-20.90	Pass
6	19.2696	-1.40	-6.00	20.27	18.87	14.27	60.00	50.00	-41.13	-35.73	Pass

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

*R*emark:

1.The measuring frequencies range between 0.15 MHz and 30 MHz.

2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.

3."---" denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.

4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

END OF REPORT