FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: Enjoy TV

Brand Name: N/A

Model No.: ATV582

Series Model: ATV581,ATV582BD,ATV582B,ATV581B,ATV581BD,ATV1800,ATV1800E, ATV180,ATV181，ATV520，ATV520E,STV5

FCC ID: ZJU00141730

Test Report Number: C140801R01-RPW

Issued for

Shenzhen Geniatech INC., LTD

8th F, GDC Building, No. 9 Gaoxin Middle 3rd Rd. Nanshan District, Shenzhen, China

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

ACCREDITED
TESTING CERT #2541.01

Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	August 15, 2014	N/A	ALL	N/A

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION

Product Name:	Enjoy TV
Trade Name:	N/A
Model Name.:	ATV582
Series Model:	ATV581,ATV582BD,ATV582B,ATV581B,ATV581BD,ATV1800,ATV1800E,ATV180, ATV181，ATV520，ATV520E,STV5
Applicant Discrepancy:	Initial
Device Category:	Mobile Device
Date of Test:	August 3, 2014 to August 10, 2014
Applicant:	**Shenzhen Geniatech INC., LTD** 8th F, GDC Building, No. 9 Gaoxin Middle 3rd Rd. Nanshan District, Shenzhen, China
Manufacturer:	**Shenzhen Geniatech INC., LTD** 18th F, GDC Building, No. 9 Gaoxin Middle 3rd Rd. Nanshan District, Shenzhen, China
Application Type:	Certification

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

We hereby certify that:

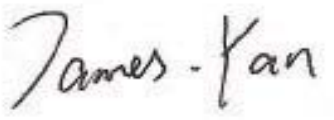
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample EUT tested as described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

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

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Service Inc.

Tested by:



James.Yan
Test Engineer
Compliance Certification Service Inc.

2. EUT DESCRIPTION

Product Name:	Enjoy TV
Brand Name:	N/A
Model Name:	ATV582
Series Model:	ATV581,ATV582BD,ATV582B,ATV581B,ATV581BD,ATV1800,ATV1800E,ATV180, ATV181，ATV520，ATV520E，STV5
Model Discrepancy:	Different appearance.
Power Adapter Power Rating :	Model: SW108SMD Input: AC 100V~240V 50/60Hz 0.35A Output: DC 5.3V 2000mA
Frequency Range:	IEEE 802.11b/g: 2412MHz to 2462 MHz IEEE 802.11n HT20: 2412MHz to 2462 MHz IEEE 802.11n HT40: 2422MHz to 2452 MHz
Transmit Power:	IEEE 802.11b mode: 19.42 dBm IEEE 802.11g mode: 15.78 dBm IEEE 802.11n HT20 mode: 14.48 dBm IEEE 802.11n HT40 mode: 14.59 dBm
Modulation Technique:	802.11b mode: DSSS (1,2,5.5 and 11 Mbps) 802.11g mode: DSSS /OFDM (6,9,12,18,24,36,48 and 54 Mbps) 802.11n HT20 mode: OFDM (6.5,13,19.5,26,39,52,58.5 and 65 Mbps) 802.11n HT40 mode: OFDM (13.5,27,40.5,54,81,108,121.5 and 135 Mbps)
Number of Channels:	IEEE 802.11b/g/n HT20 mode: 11 Channels IEEE 802.11n HT40 mode: 7 Channels
Antenna Specification:	Dipole antennas for 2.4GHz Gain 2 dBi

Remark:

1.The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2.This submittal(s) (test report) is intended for ***FCC ID: ZJU00141730*** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 2009and FCC CFR 47 15.207, 15.209 and 15.247.

3.1. EUT CONFIGURATION

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

3.2. EUT EXERCISE

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

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

3.3. GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4 2009.

3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

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

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

[2] Above 38.6

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

3.5. DESCRIPTION OF TEST MODES

The EUT transmitting and receiving with one antennas simultaneously working at b/g/n mode, so 1x1configuration was used for all testing in this report.

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

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

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

Draft 802.11n HT20 MHz Channel mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

Draft 802.11n HT40 MHz Channel mode:

Channel Low (2422MHz)

Channel Mid (2437MHz)

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

3.6.ANTENNA DESCRIPTION

Antenna specifications meet the requirements of 15.203

4. INSTRUMENT CALIBRATION

4.1.MEASURING INSTRUMENT CALIBRATION

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

Equipment Used for Emissions Measurement

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2015-5-11
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-16
Power Sensor	Anritsu	MA2411A	0917072	2015-6-3
Power Meter	Aglient	U2021XA	MY53120005	2014-9-13
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-22
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-11-13
EMI Test Receiver	R&S	ESCI	101378	2015-1-22
Pre-Amplfier	MINI	ZFL-1000VH2	d041703	2015-1-22
Pre-Amplfier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22
Bilog Antenna	Sunol	JB1	A062604	2015-3-6
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2015-3-7
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Test Software	EZ-EMC			

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

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

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

5. FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

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

Kunshan city JiangSu, (215300), CHINA.

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

5.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3. LABORATORY ACCREDITATIONS AND LISTING

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

5.4.TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	47 CFR FCC Part 15/18 (using ANSI C63.4 :2009)；VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002；EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003；EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22；CAN/CSA-CEI/IEC CISPR 22；EN 61000-3-2；EN 61000-3-3；EN550024； EN 61000-4-2；EN 61000-4-3；EN61000-4-4；EN 61000-4-5； EN 61000-4-6；IEC 61000-4-8；EN 61000-4-11；IEC61000-3-2；IEC61000-3-3；IEC 61000-4-2； IEC 61000-4-3；IEC 61000-4-4； IEC 61000-4-5；IEC 61000-4-6；IEC 61000-4-8；IEC 61000-4-11；EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17；47 CFR FCC Part 15, 22, 24	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 DOC
1.	LCD Monitor	DELL	U2713HMt	N/A	YES

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.*

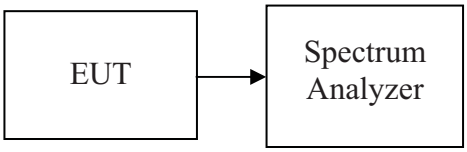
4. FCC PART 15.247 REQUIREMENTS

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

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	9.603	>500	PASS
Mid	2437	9.585		PASS
High	2462	9.526		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.396	>500	PASS
Mid	2437	16.421		PASS
High	2462	16.405		PASS

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.631	>500	PASS
Mid	2437	17.733		PASS
High	2462	17.615		PASS

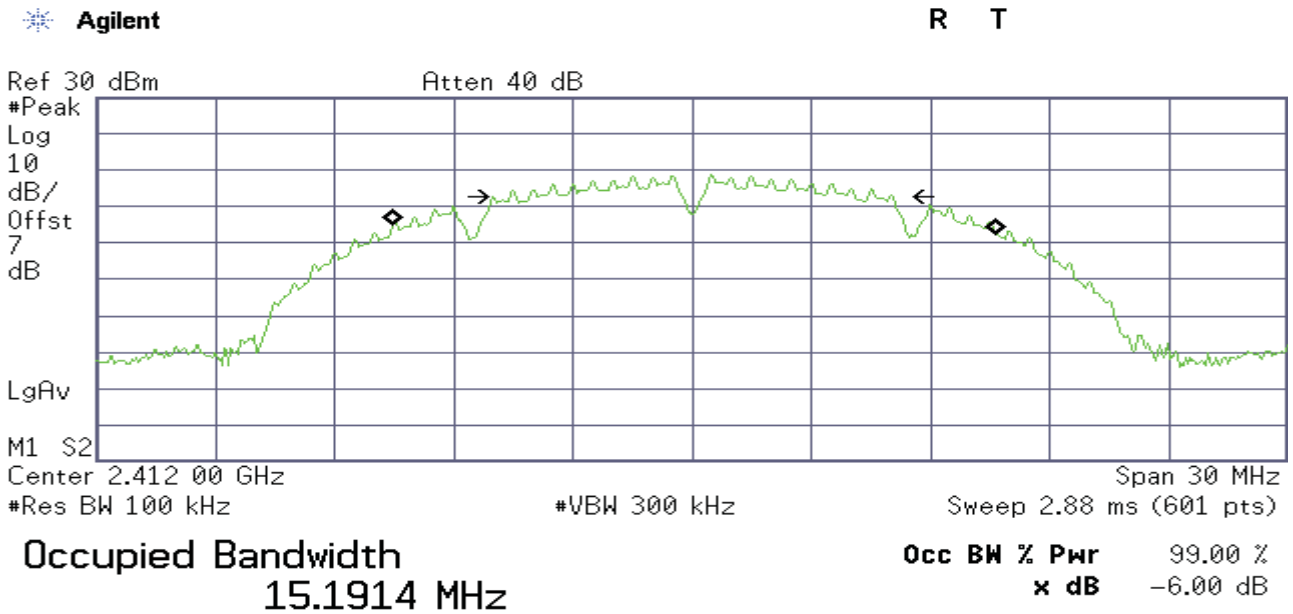
draft 802.11n wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.399	>500	PASS
Mid	2437	35.363		PASS
High	2452	35.338		PASS

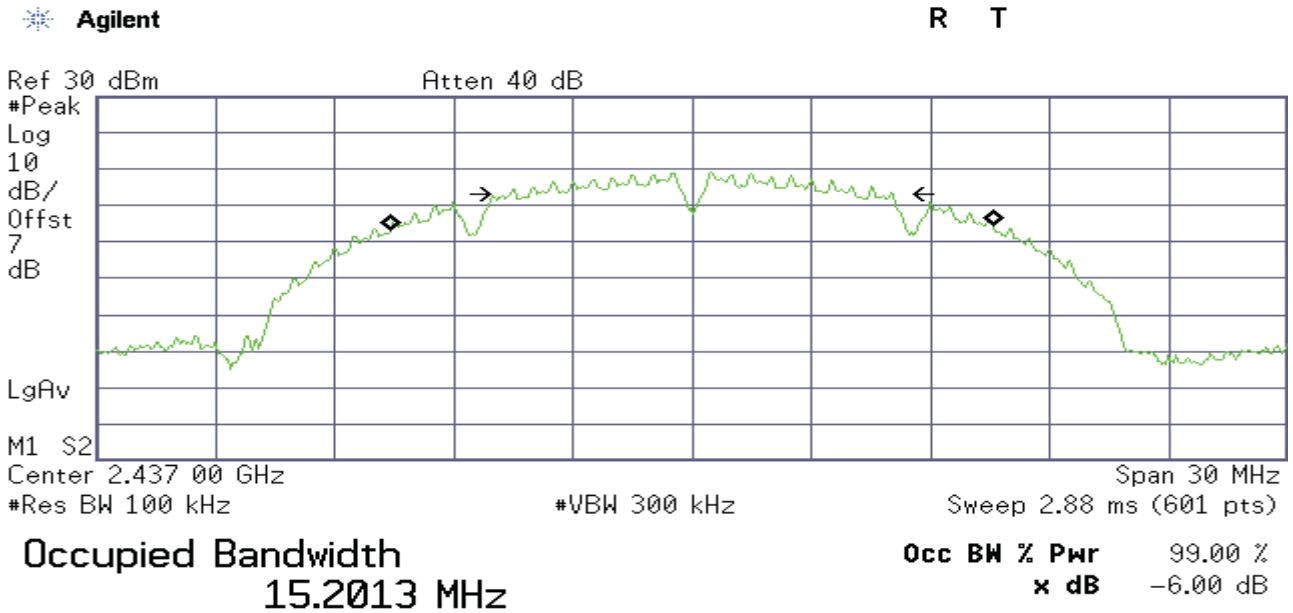
Test Plot

IEEE 802.11b MODE

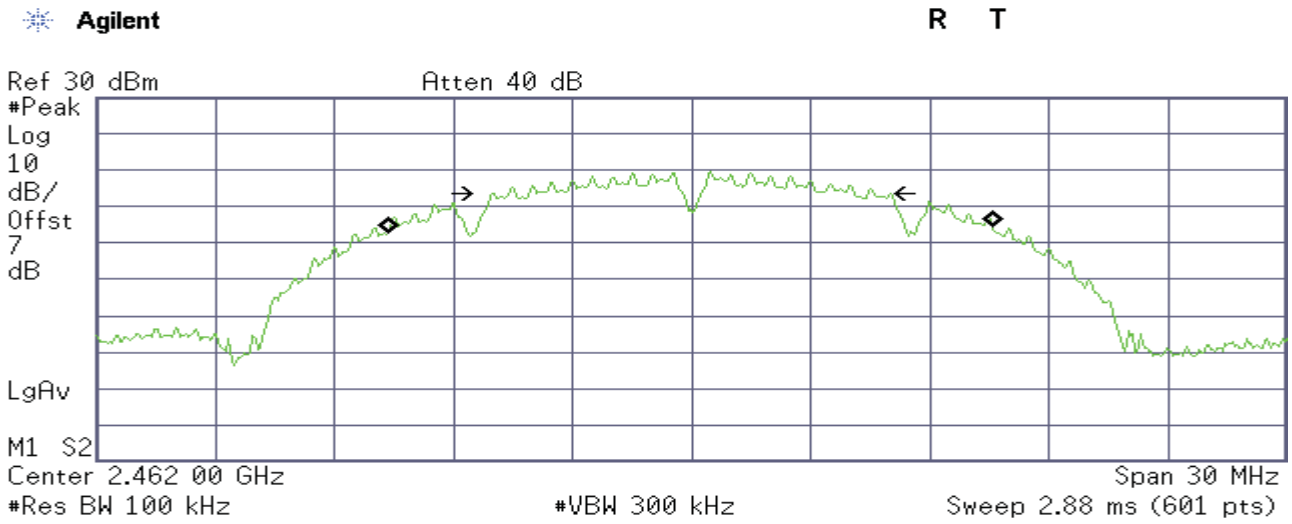
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



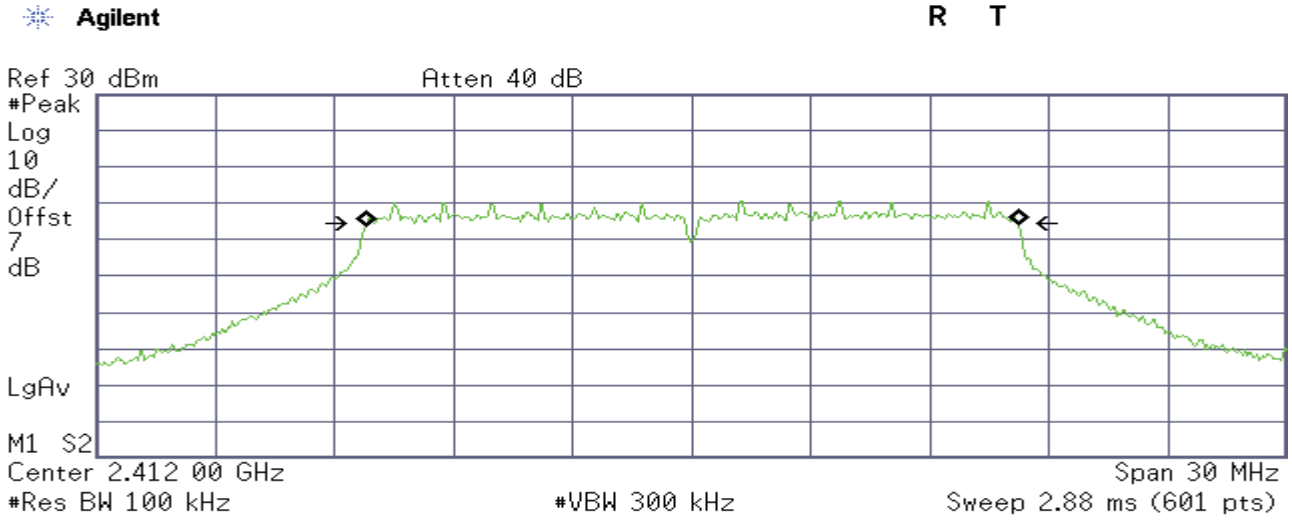
6dB Bandwidth (CH High)



Transmit Freq Error −36.268 kHz
x dB Bandwidth 9.526 MHz

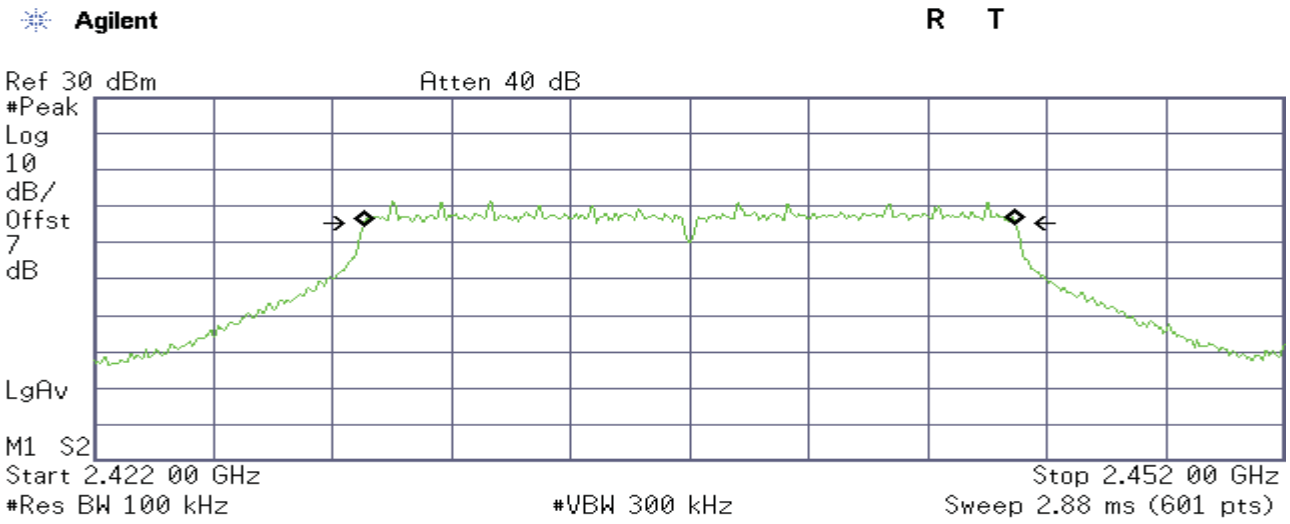
IEEE 802.11g MODE

6dB Bandwidth (CH Low)



Transmit Freq Error 6.822 kHz
x dB Bandwidth 16.396 MHz

6dB Bandwidth (CH Mid)

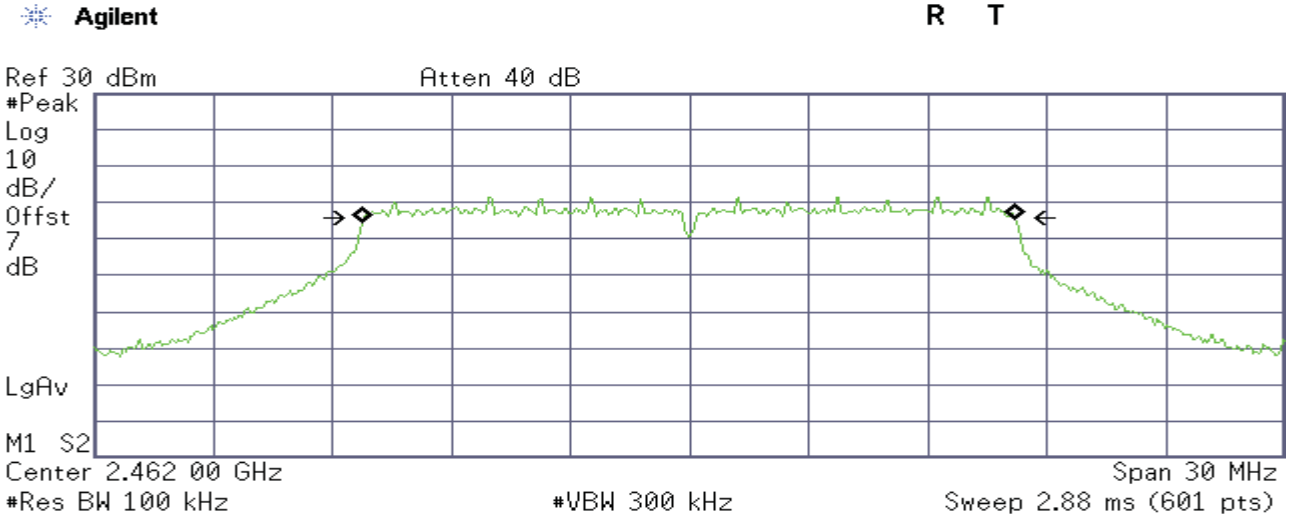


Occupied Bandwidth
16.4348 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -2.202 kHz
x dB Bandwidth 16.421 MHz

6dB Bandwidth (CH High)



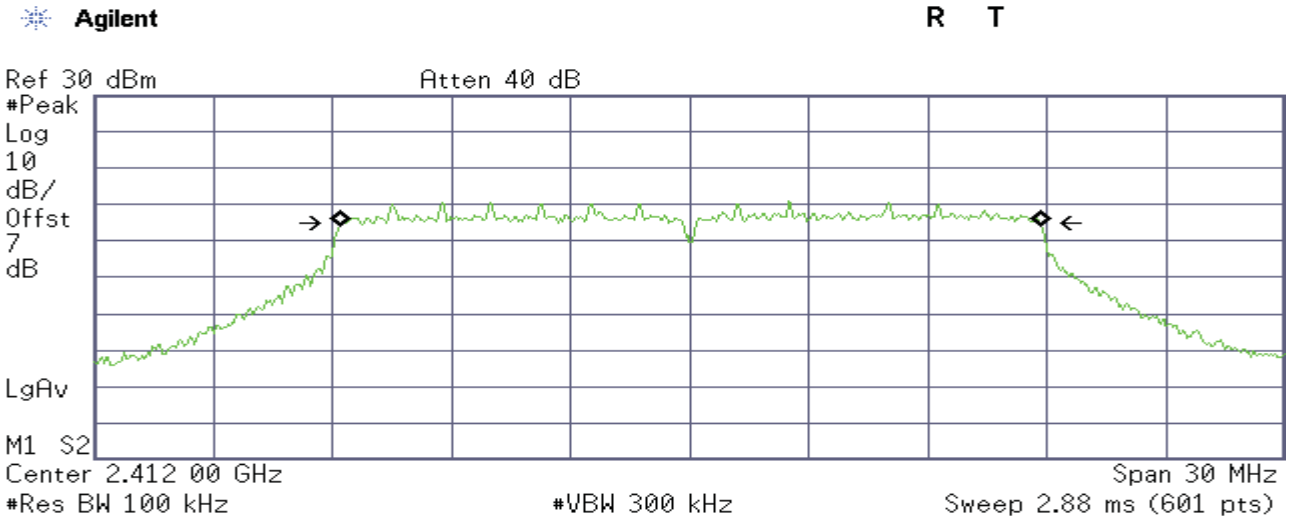
Occupied Bandwidth
16.4468 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -5.195 kHz
x dB Bandwidth 16.405 MHz

802.11n HT20 MHz Channel mode

6dB Bandwidth (CH Low)

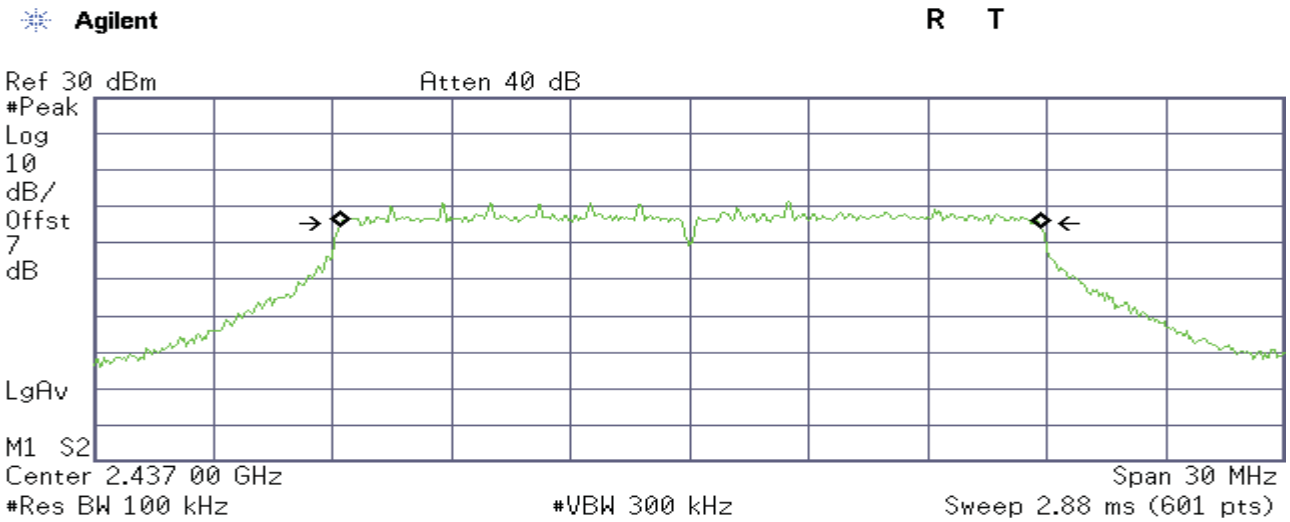


Occupied Bandwidth
17.6733 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 20.174 kHz
x dB Bandwidth 17.631 MHz

6dB Bandwidth (CH Mid)

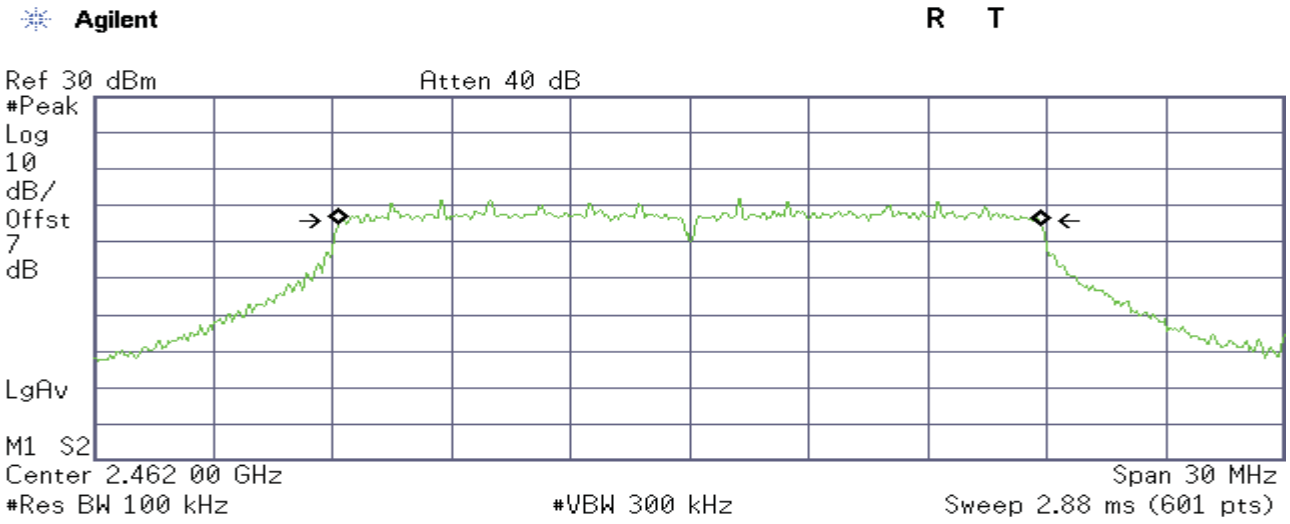


Occupied Bandwidth
17.6750 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

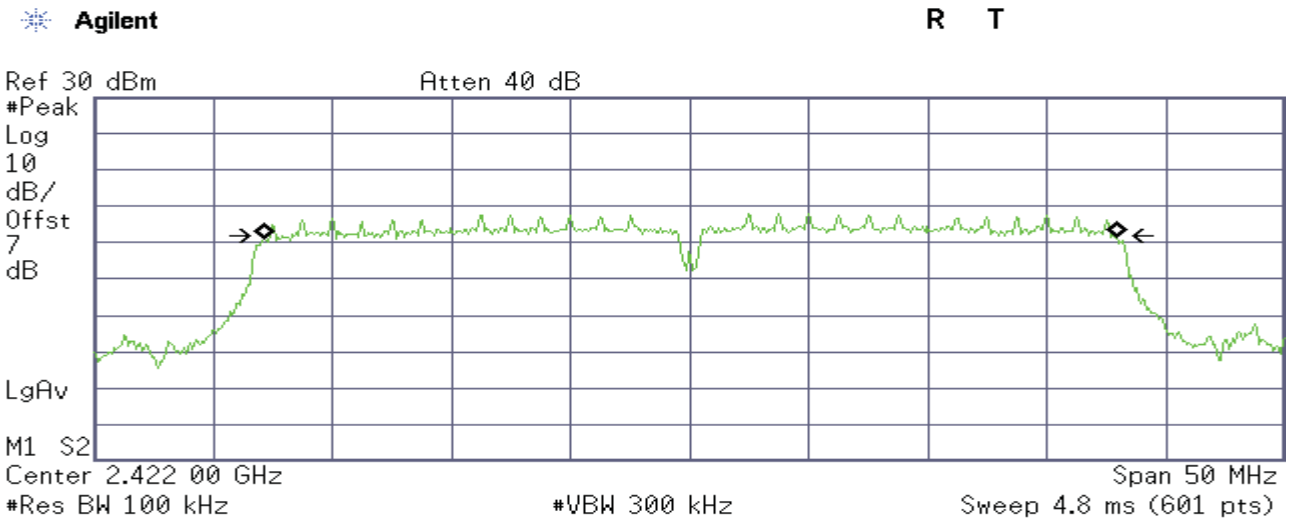
Transmit Freq Error 17.834 kHz
x dB Bandwidth 17.733 MHz

6dB Bandwidth (CH High)

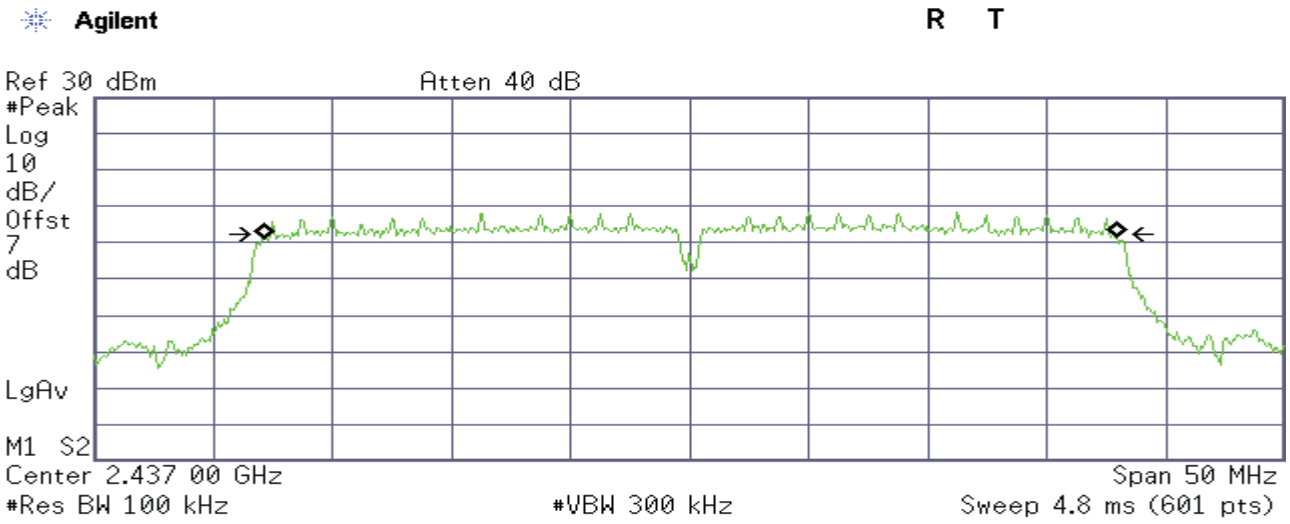


802.11n HT40 MHz Channel mode

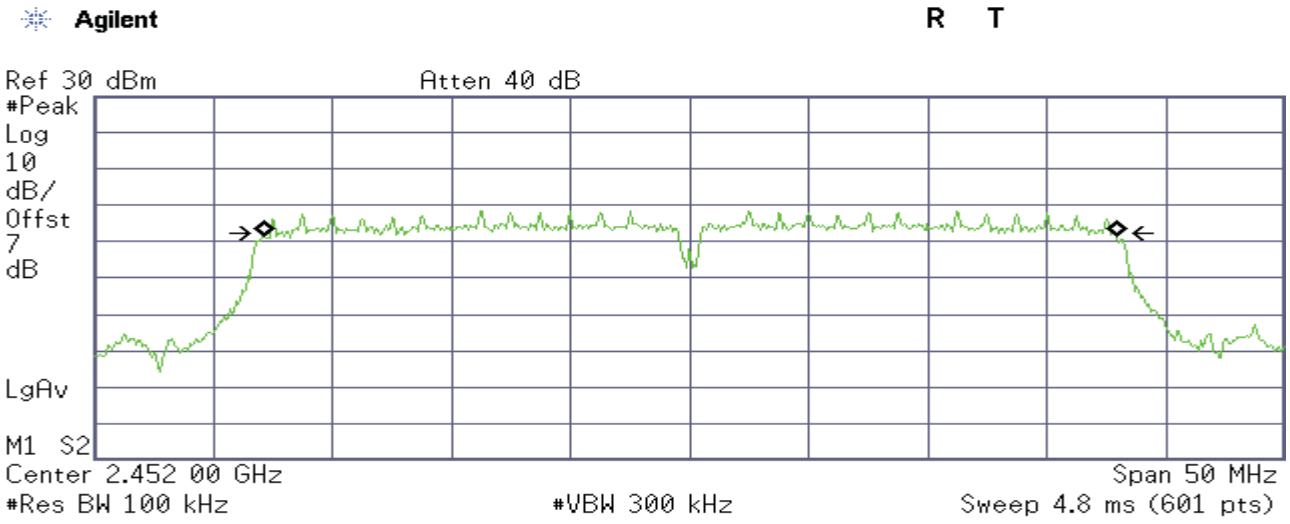
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



4.2.PEAK POWER

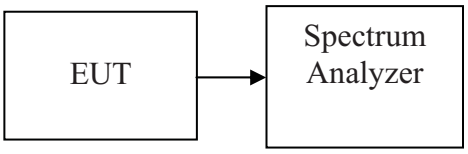
LIMIT

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

1.According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, and 2400-2483.5 MHz: 1 Watt.

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

Test Configuration



TEST PROCEDURE

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

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

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	19.42	30
Mid	2437	19.07	30
High	2462	18.91	30

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	15.27	30
Mid	2437	15.78	30
High	2462	15.54	30

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2412	14.48	30
Mid	2437	14.41	30
High	2462	14.15	30

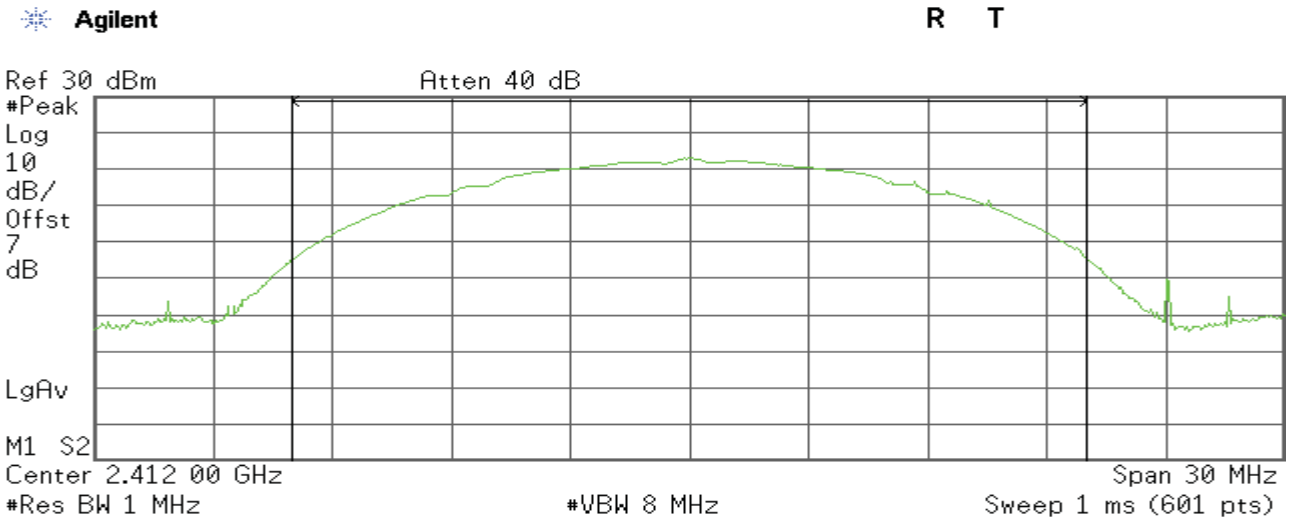
Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Low	2422	14.37	30
Mid	2437	14.22	30
High	2452	14.59	30

Test Plot

IEEE 802.11b mode

Peak Power (CH Low)



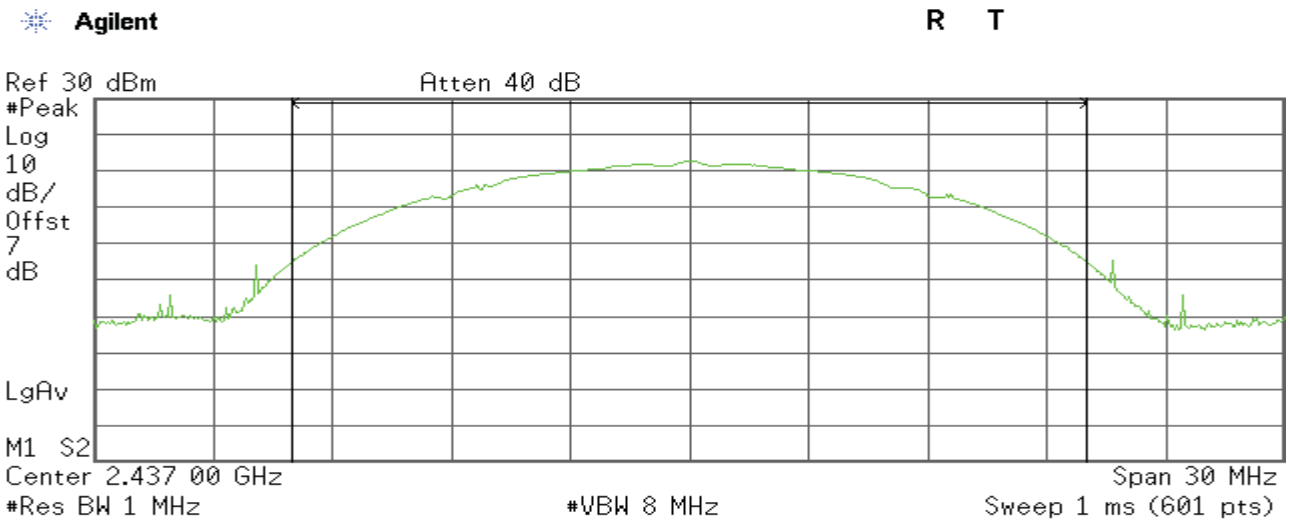
Channel Power

19.42 dBm /20.0000 MHz

Power Spectral Density

-52.59 dBm/Hz

Peak Power (CH Mid)



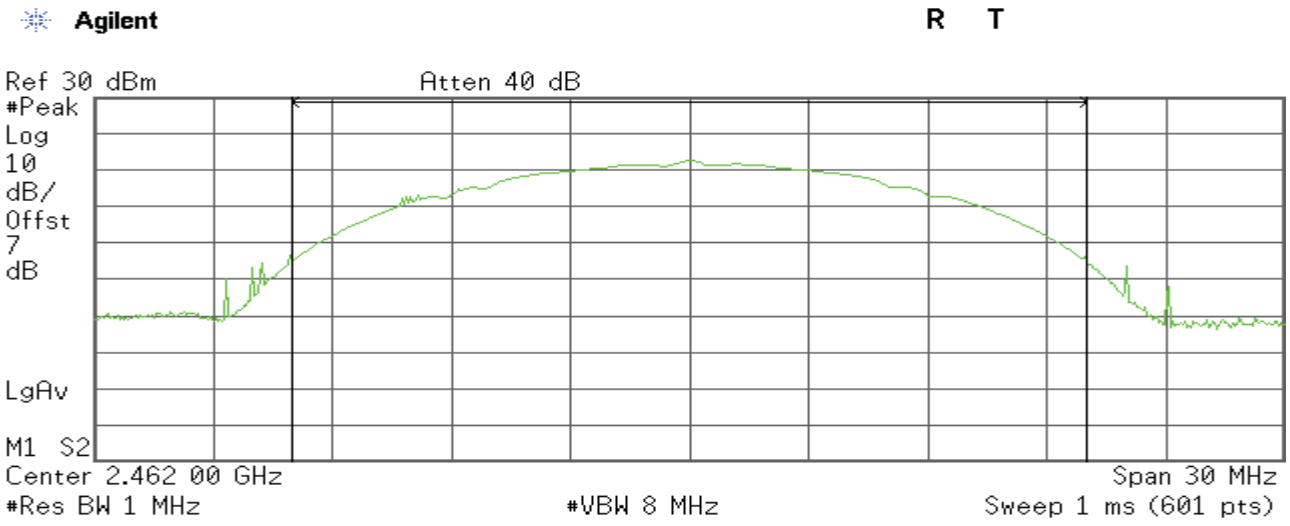
Channel Power

19.07 dBm /20.0000 MHz

Power Spectral Density

-52.94 dBm/Hz

Peak Power (CH High)



Channel Power

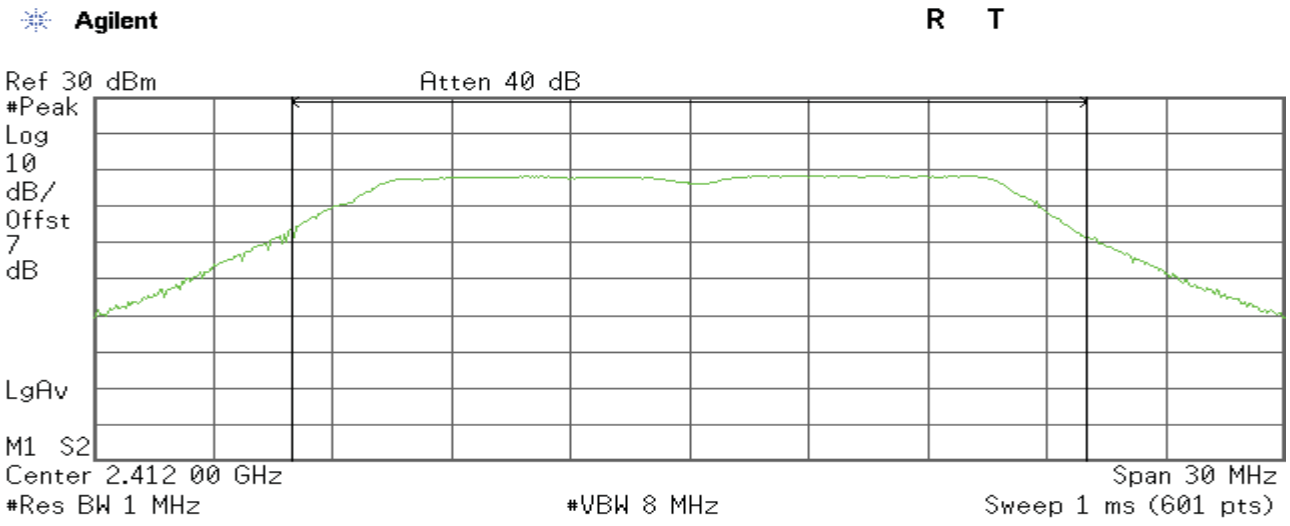
18.91 dBm /20.0000 MHz

Power Spectral Density

-53.10 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)



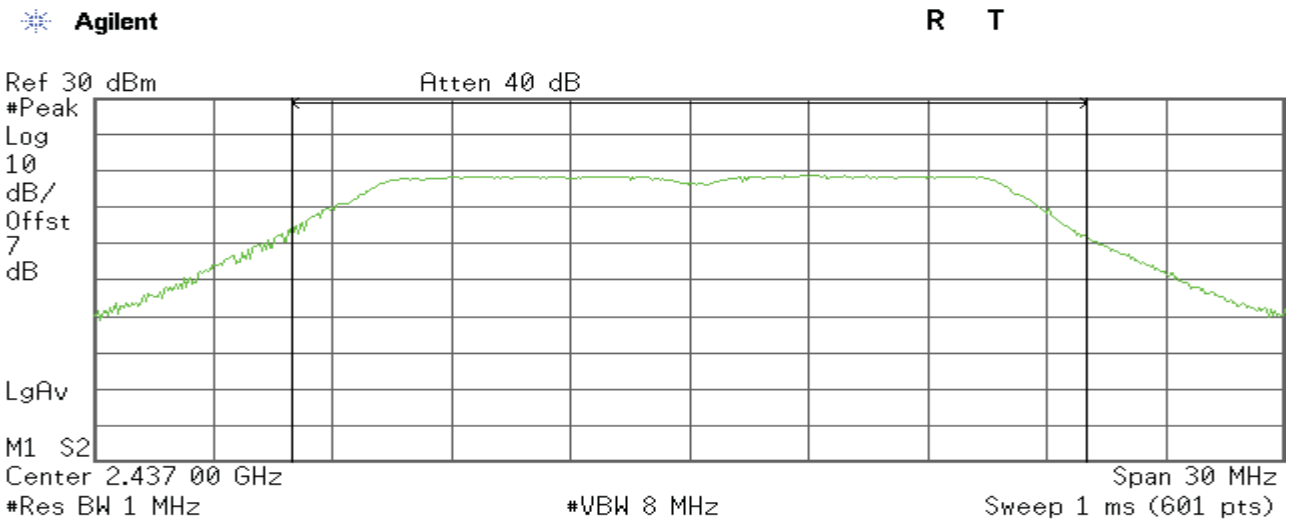
Channel Power

15.27 dBm /20.0000 MHz

Power Spectral Density

-57.73 dBm/Hz

Peak Power (CH Mid)



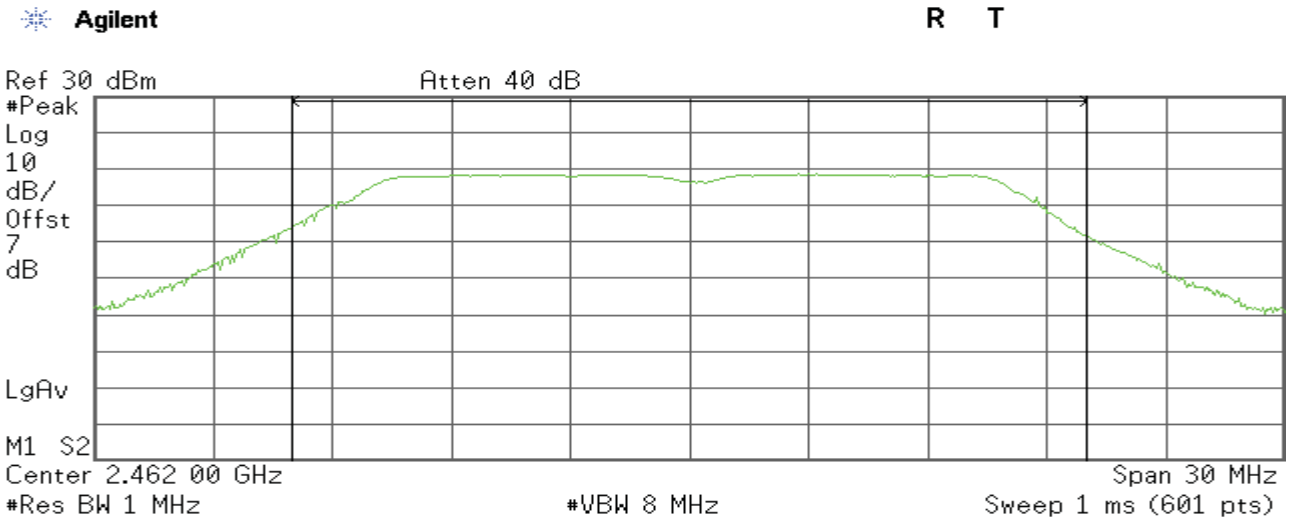
Channel Power

15.78 dBm /20.0000 MHz

Power Spectral Density

-57.28 dBm/Hz

Peak Power (CH High)



Channel Power

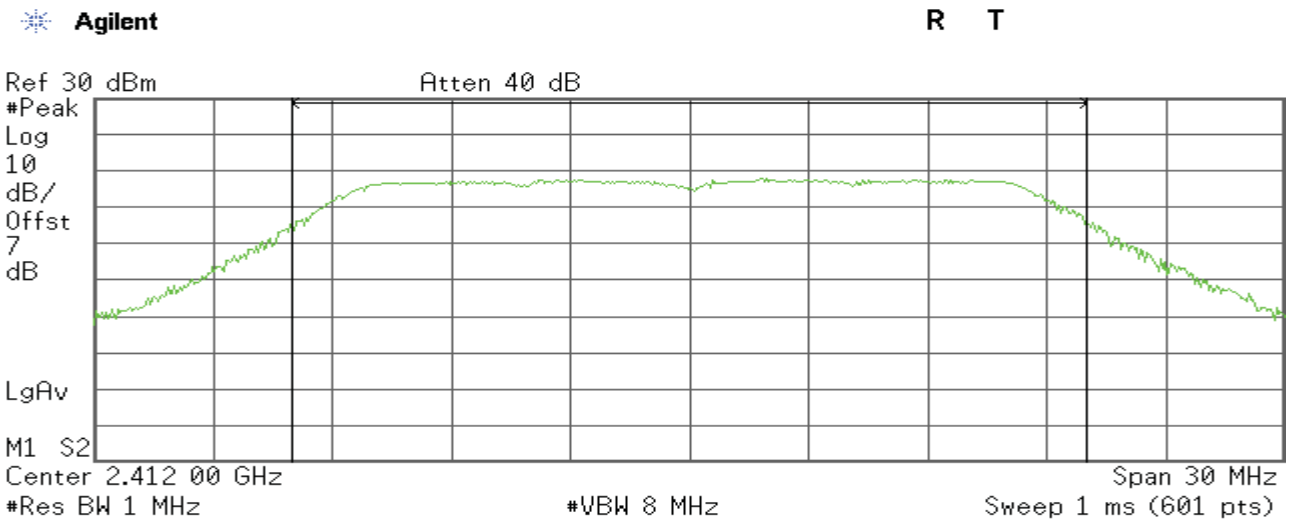
15.54 dBm /20.0000 MHz

Power Spectral Density

-57.48 dBm/Hz

IEEE 802.11n HT20 mode

Peak Power (CH Low)



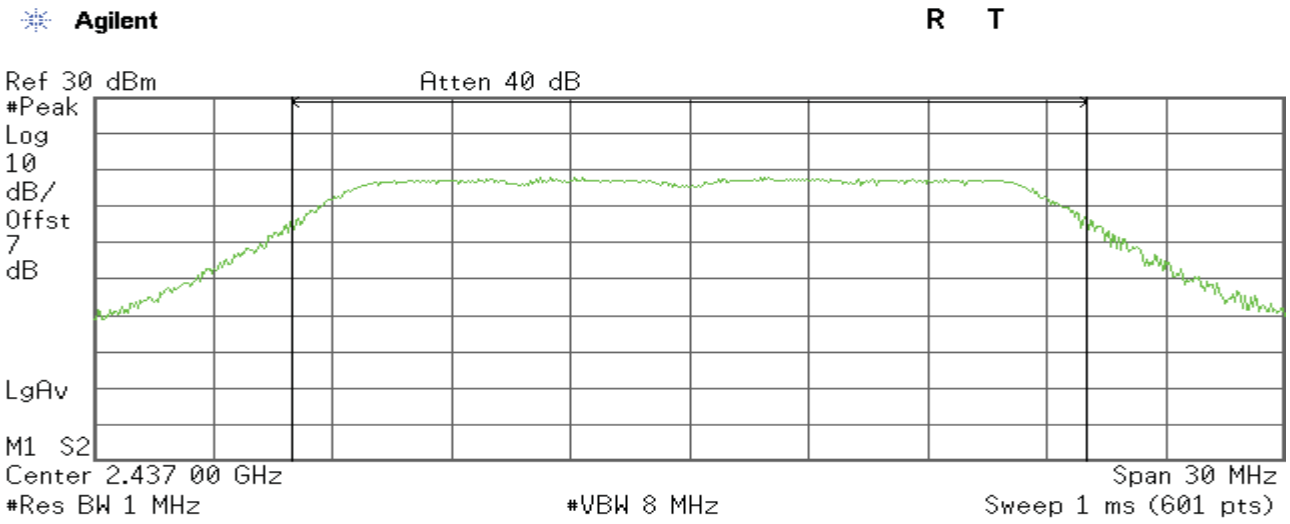
Channel Power

14.48 dBm /20.0000 MHz

Power Spectral Density

-58.54 dBm/Hz

Peak Power (CH Mid)



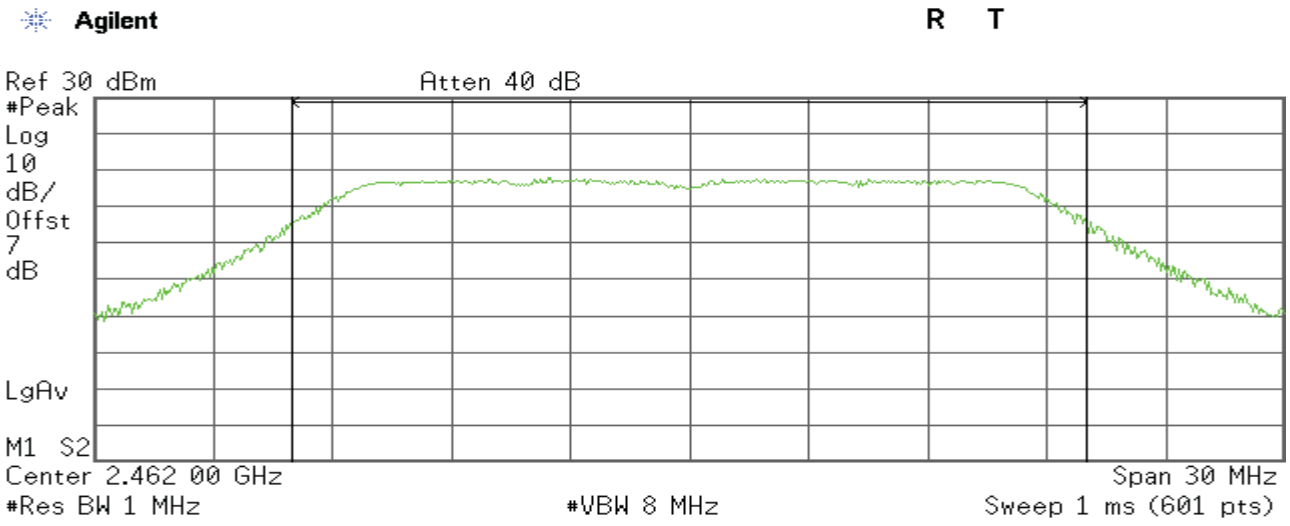
Channel Power

14.41 dBm /20.0000 MHz

Power Spectral Density

-58.61 dBm/Hz

Peak Power (CH High)



Channel Power

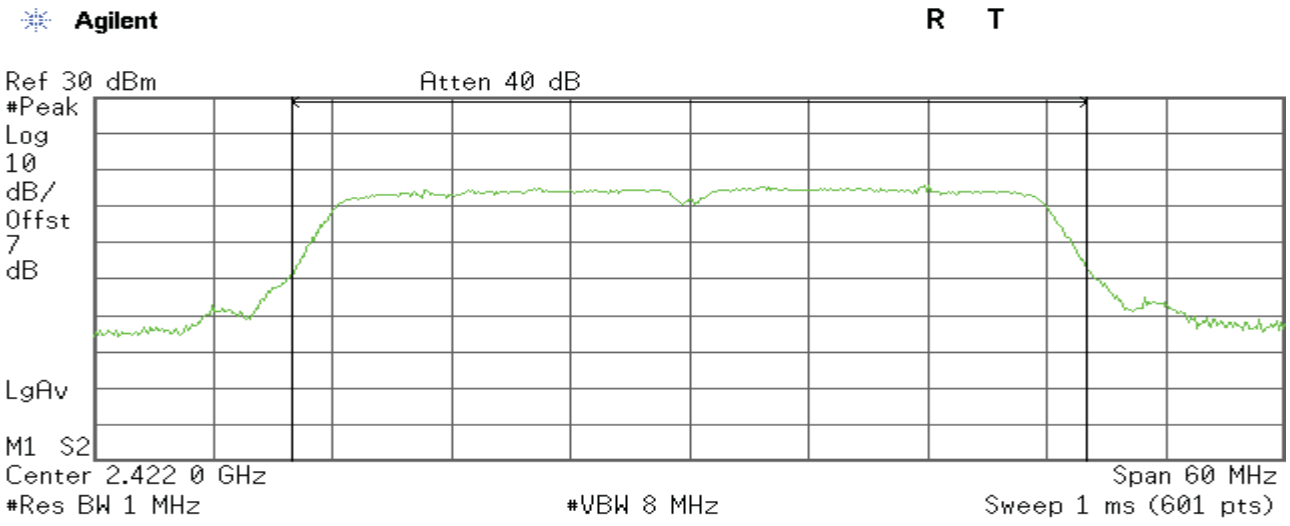
14.15 dBm /20.0000 MHz

Power Spectral Density

-58.90 dBm/Hz

IEEE 802.11n HT40 mode

Peak Power (CH Low)



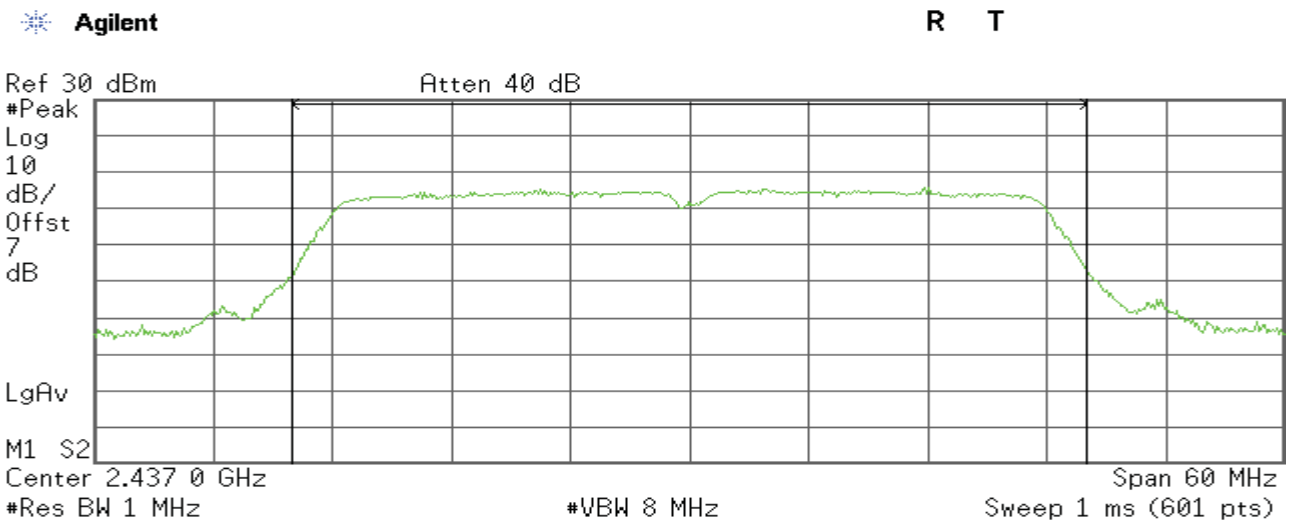
Channel Power

14.37 dBm /40.0000 MHz

Power Spectral Density

-61.72 dBm/Hz

Peak Power (CH Mid)



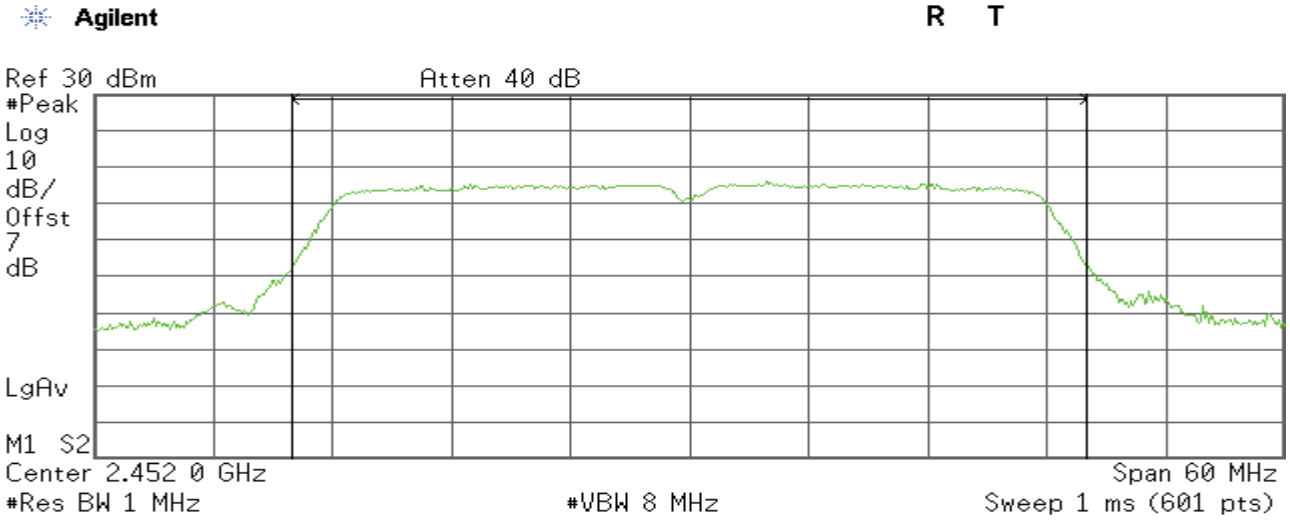
Channel Power

14.22 dBm /40.0000 MHz

Power Spectral Density

-61.75 dBm/Hz

Peak Power (CH High)



Channel Power

14.59 dBm /40.0000 MHz

Power Spectral Density

-61.44 dBm/Hz

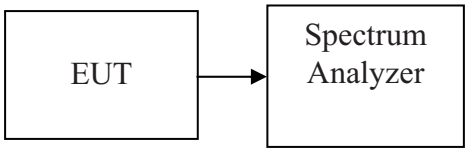
4.3.PEAK POWER SPECTRAL DENSITY

LIMIT

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

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

Test Configuration



TEST PROCEDURE

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

2.Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 1.5 times the DTS bandwidth, Sweep = auto

3.Record the max reading.

4.Repeat the above procedure until the measurements for all frequencies are completed.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-7.39	8.00	PASS
Mid	2437	-7.32	8.00	PASS
High	2462	-7.91	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-15.65	8.00	PASS
Mid	2437	-16.10	8.00	PASS
High	2462	-14.94	8.00	PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-15.14	8.00	PASS
Mid	2437	-14.08	8.00	PASS
High	2462	-14.67	8.00	PASS

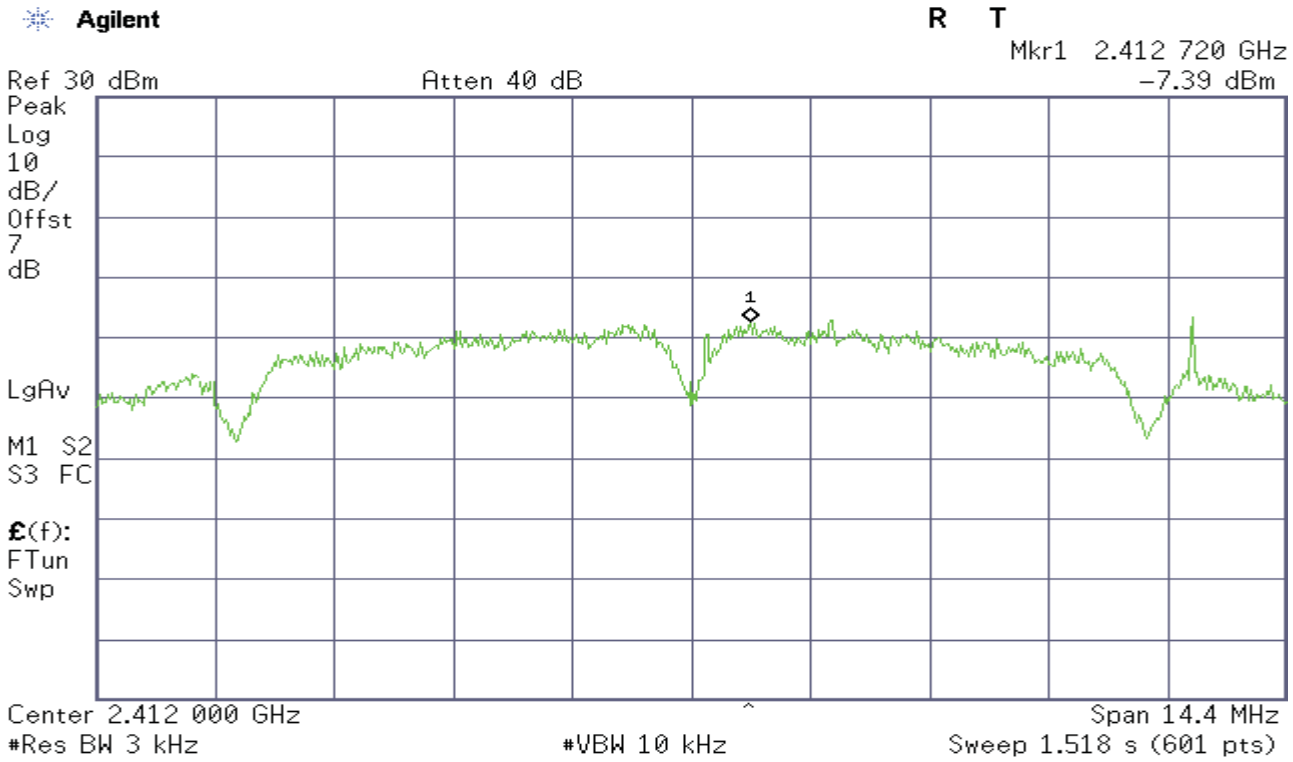
Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-17.52	8.00	PASS
Mid	2437	-18.46	8.00	PASS
High	2452	-17.11	8.00	PASS

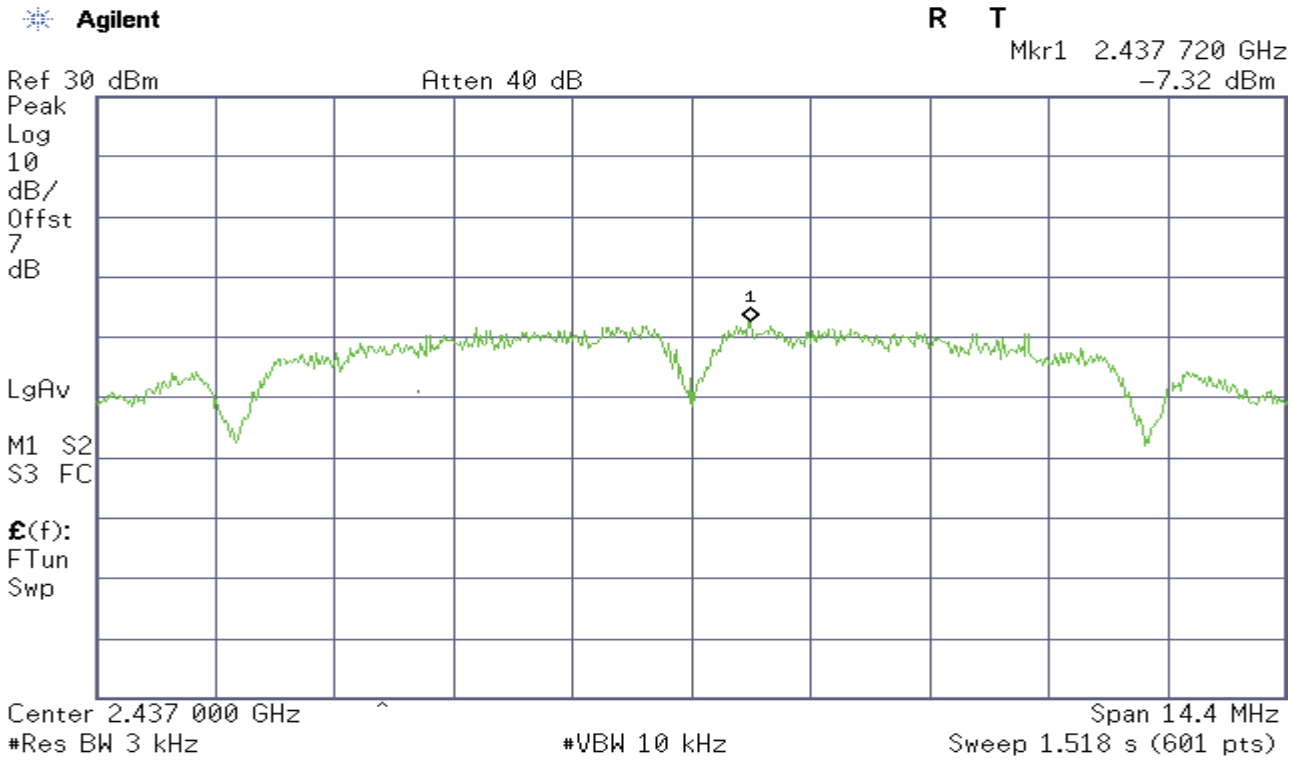
Test Plot

IEEE 802.11b mode

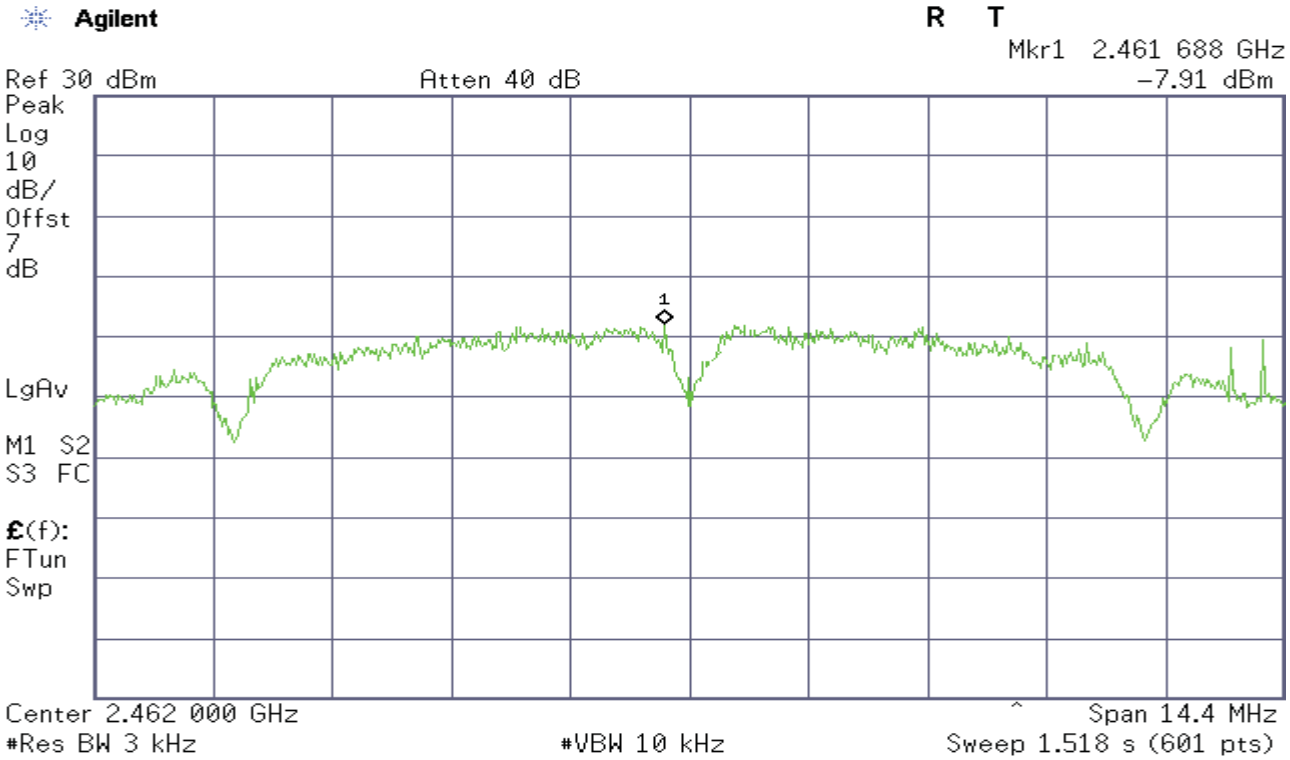
PPSD (CH Low)



PPSD (CH Mid)

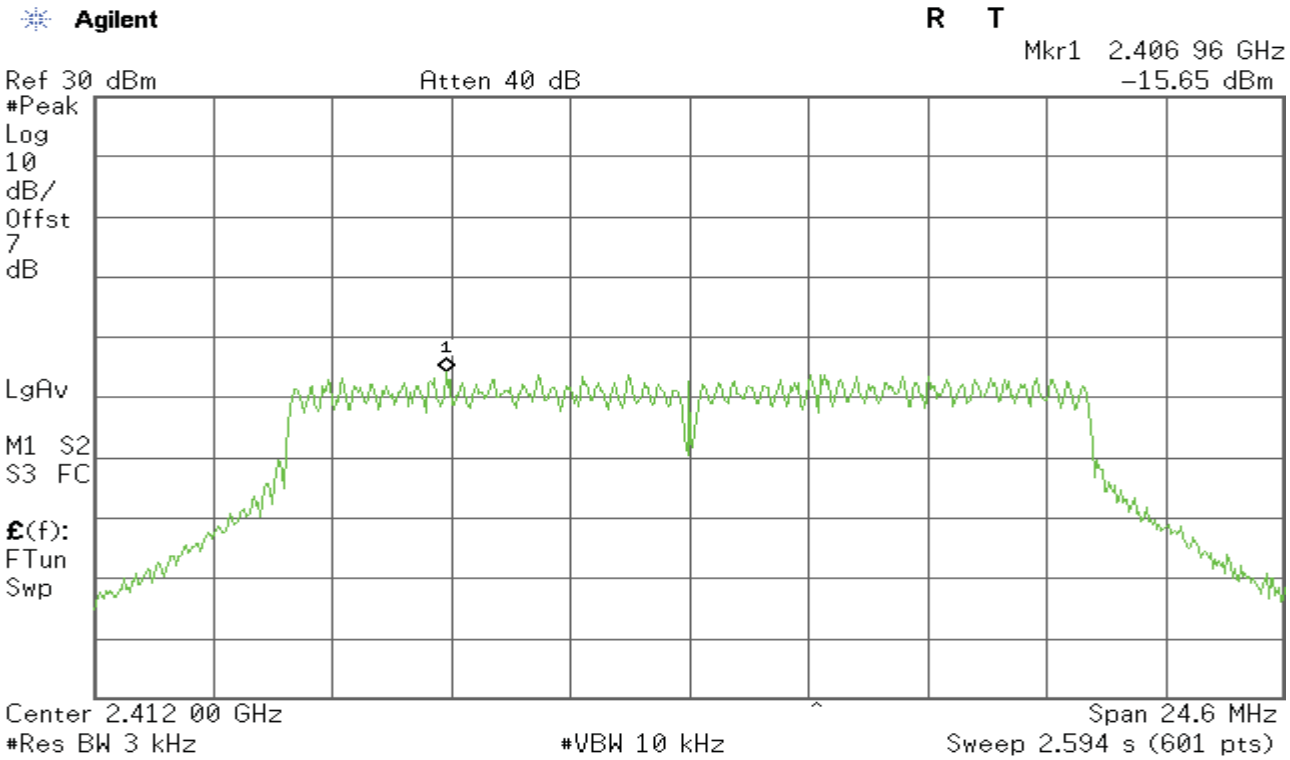


PPSD (CH High)

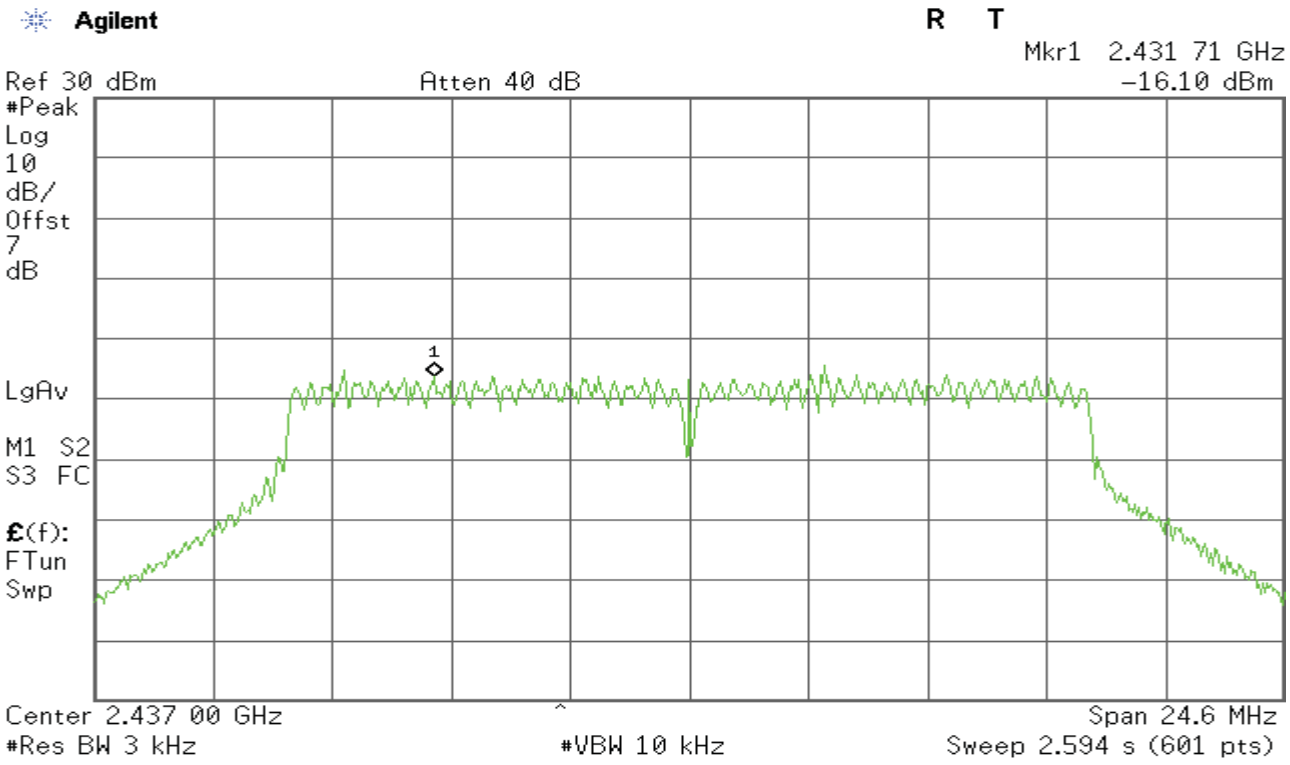


IEEE 802.11g mode

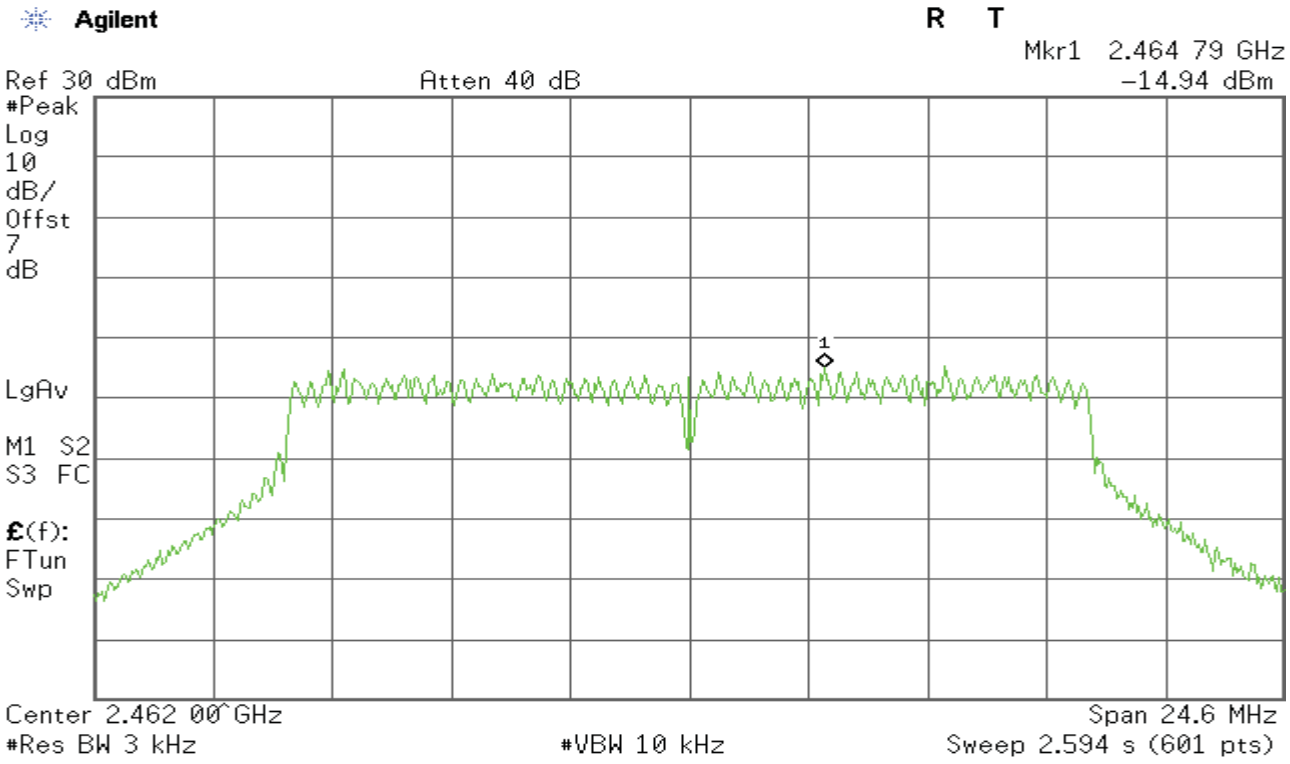
PPSD (CH Low)



PPSD (CH Mid)

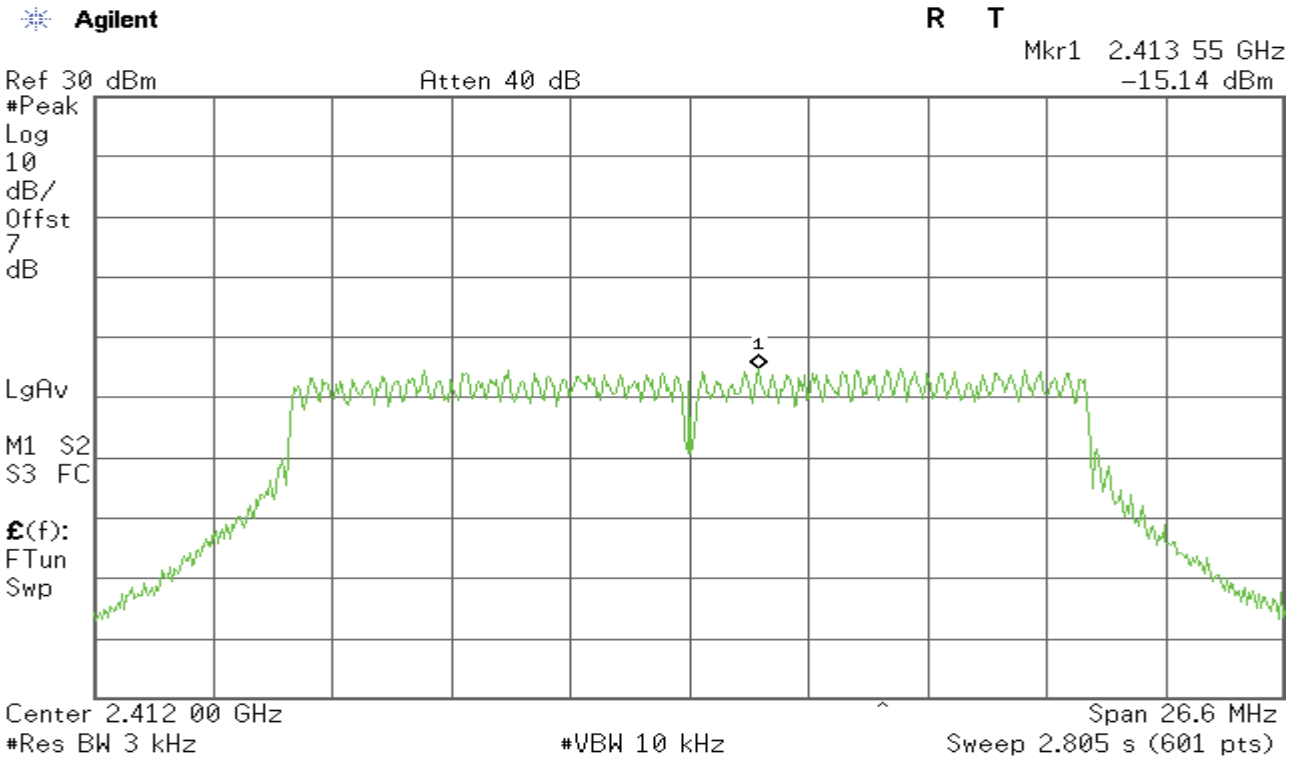


PPSD (CH High)

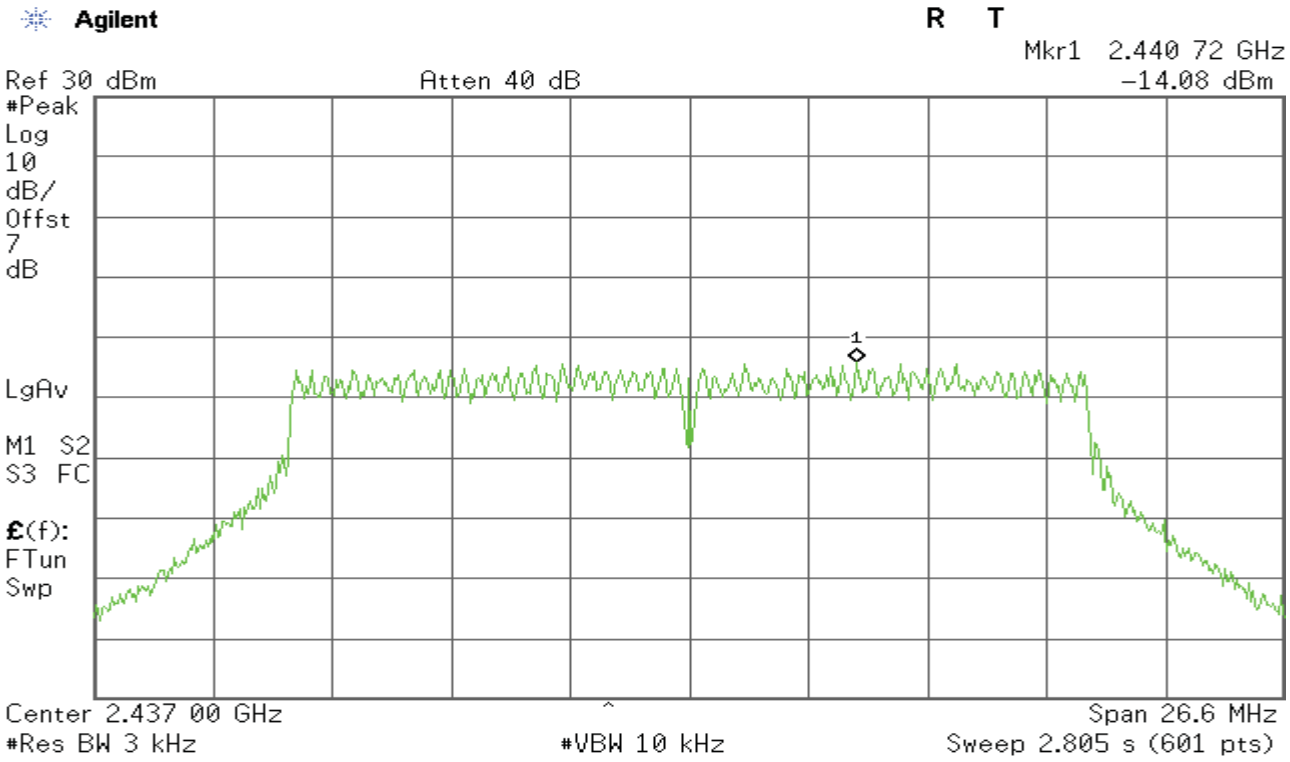


IEEE 802.11n HT20 mode

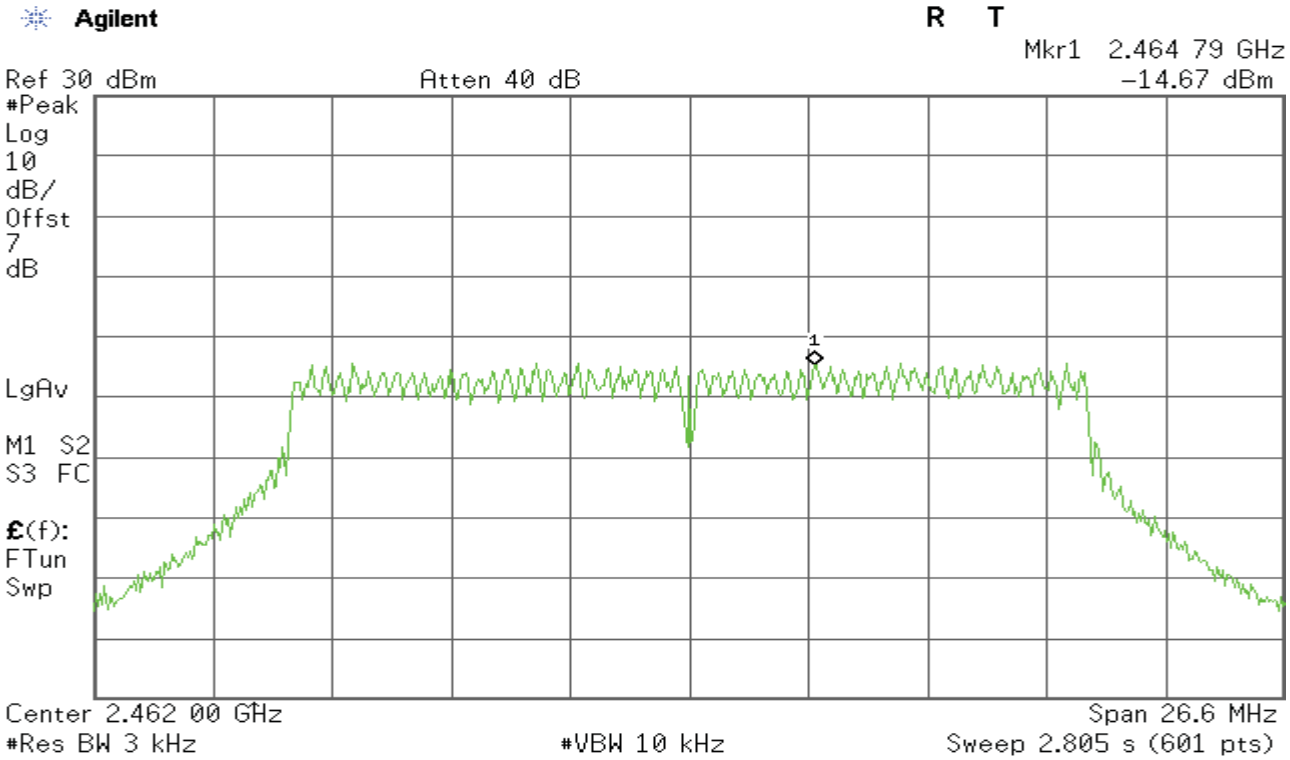
PPSD (CH Low)



PPSD (CH Mid)

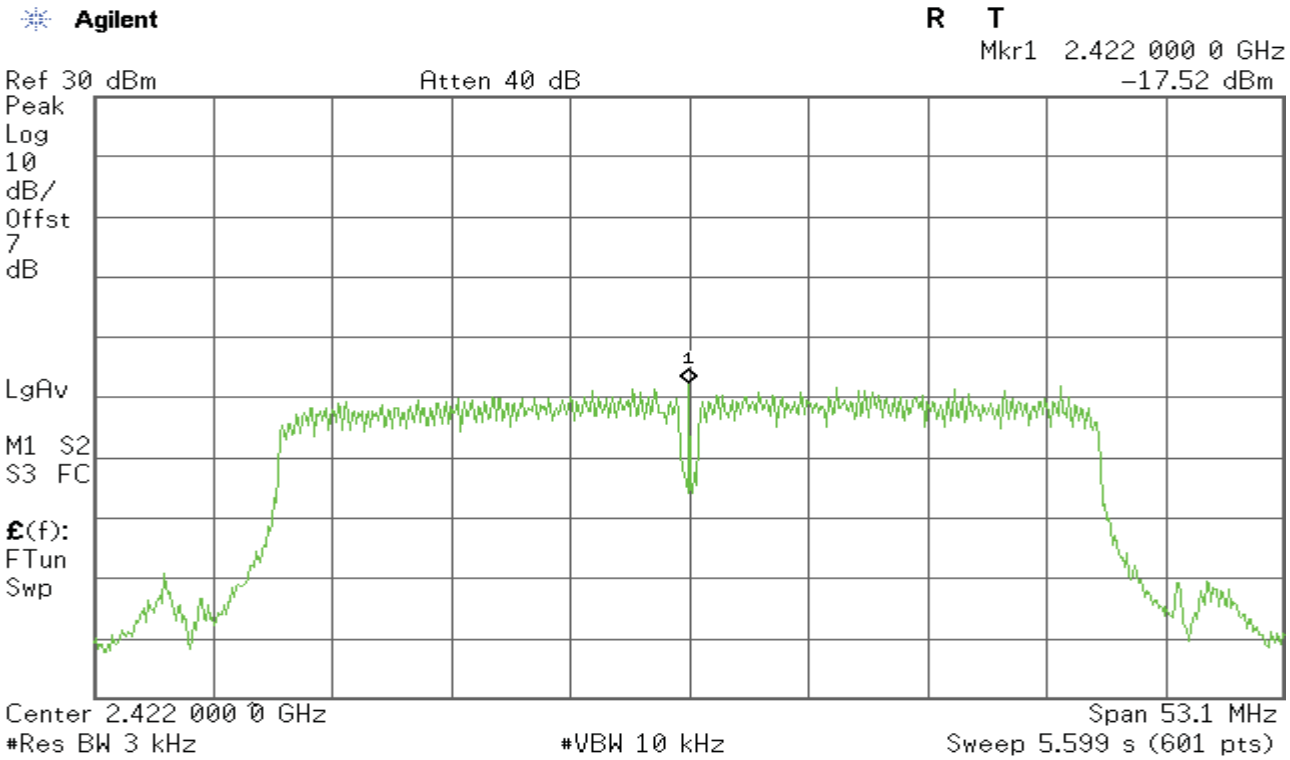


PPSD (CH High)

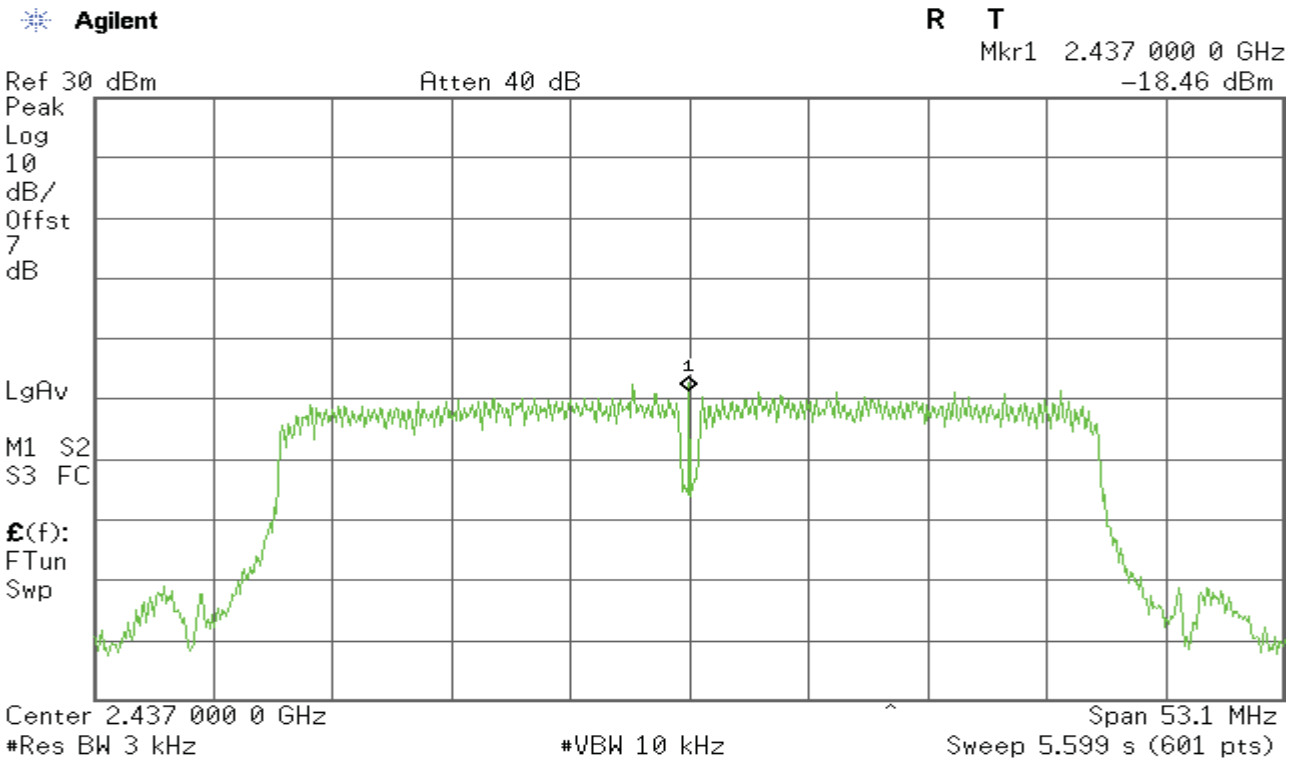


IEEE 802.11n HT40 mode

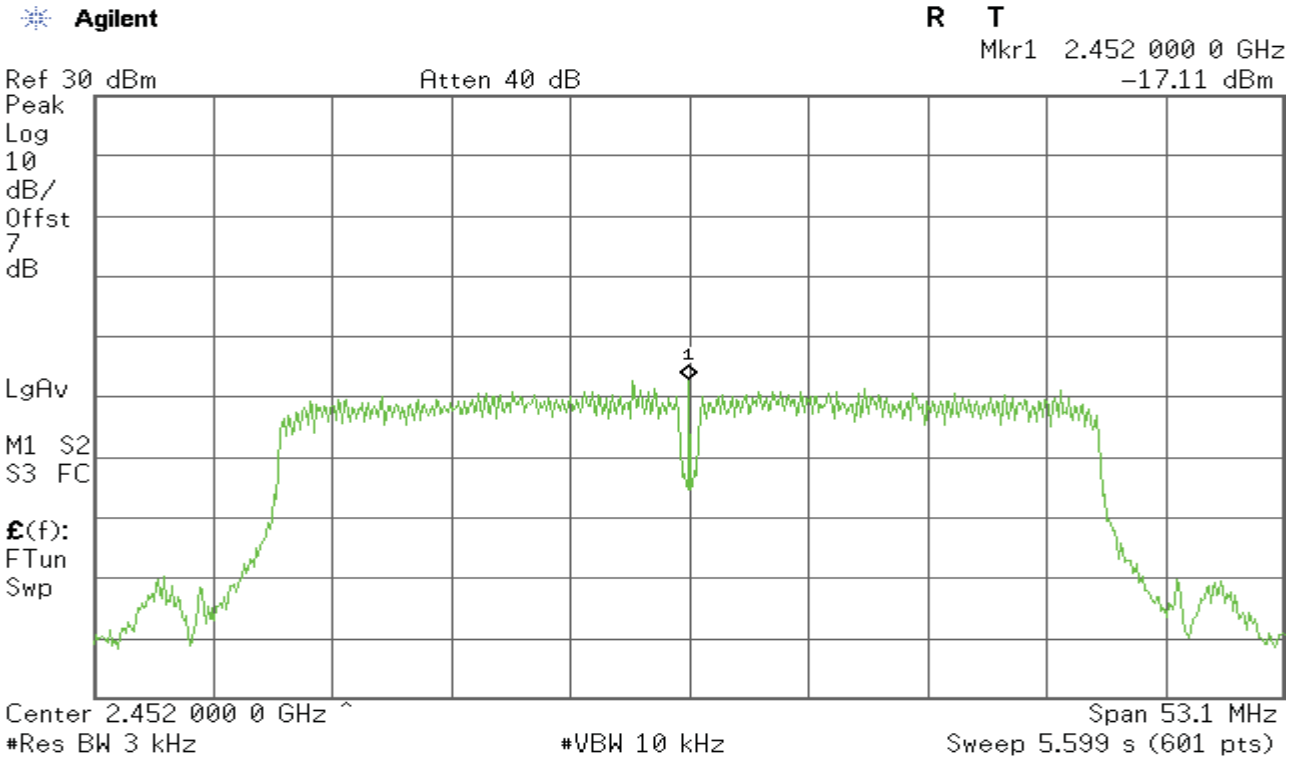
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)

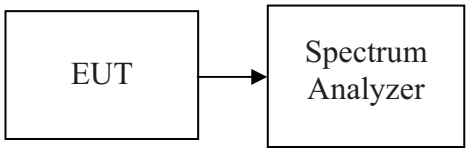


4.4.SPURIOUS EMISSIONS
Conducted Measurement

LIMIT

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

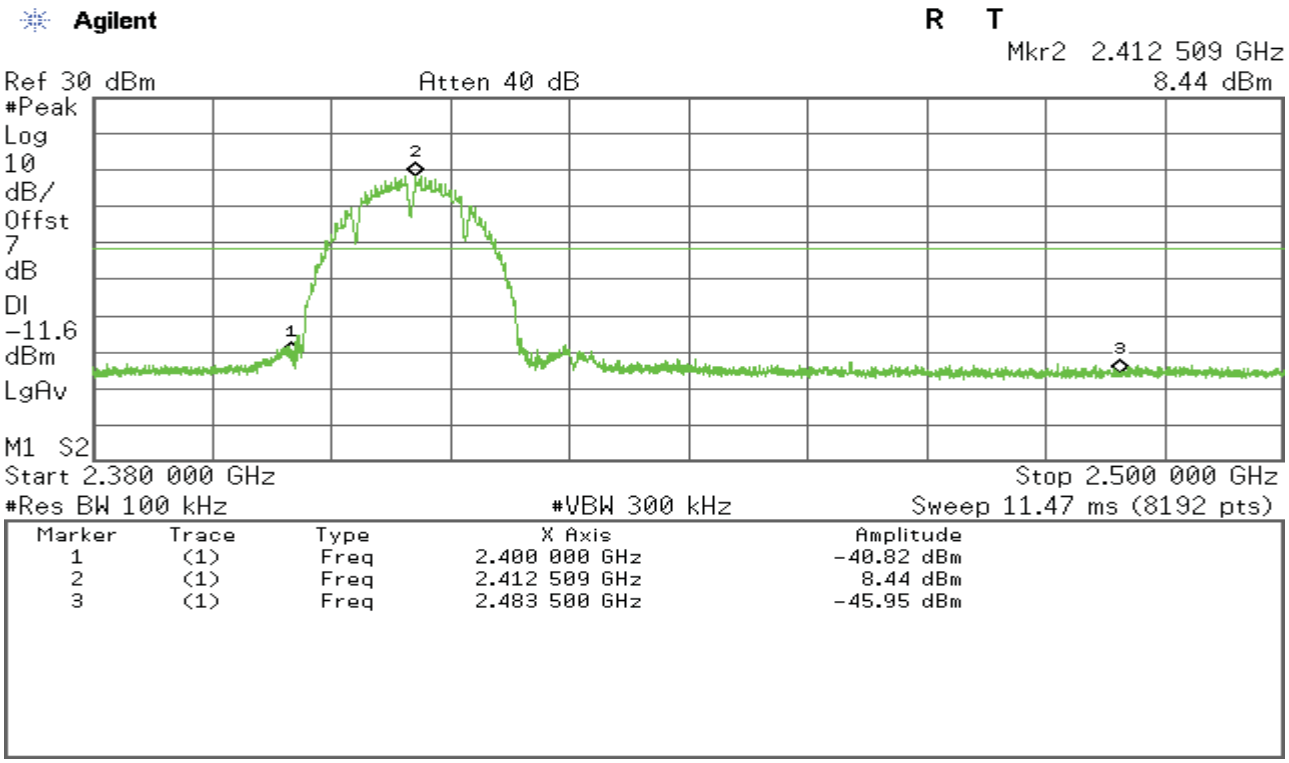
TEST RESULTS

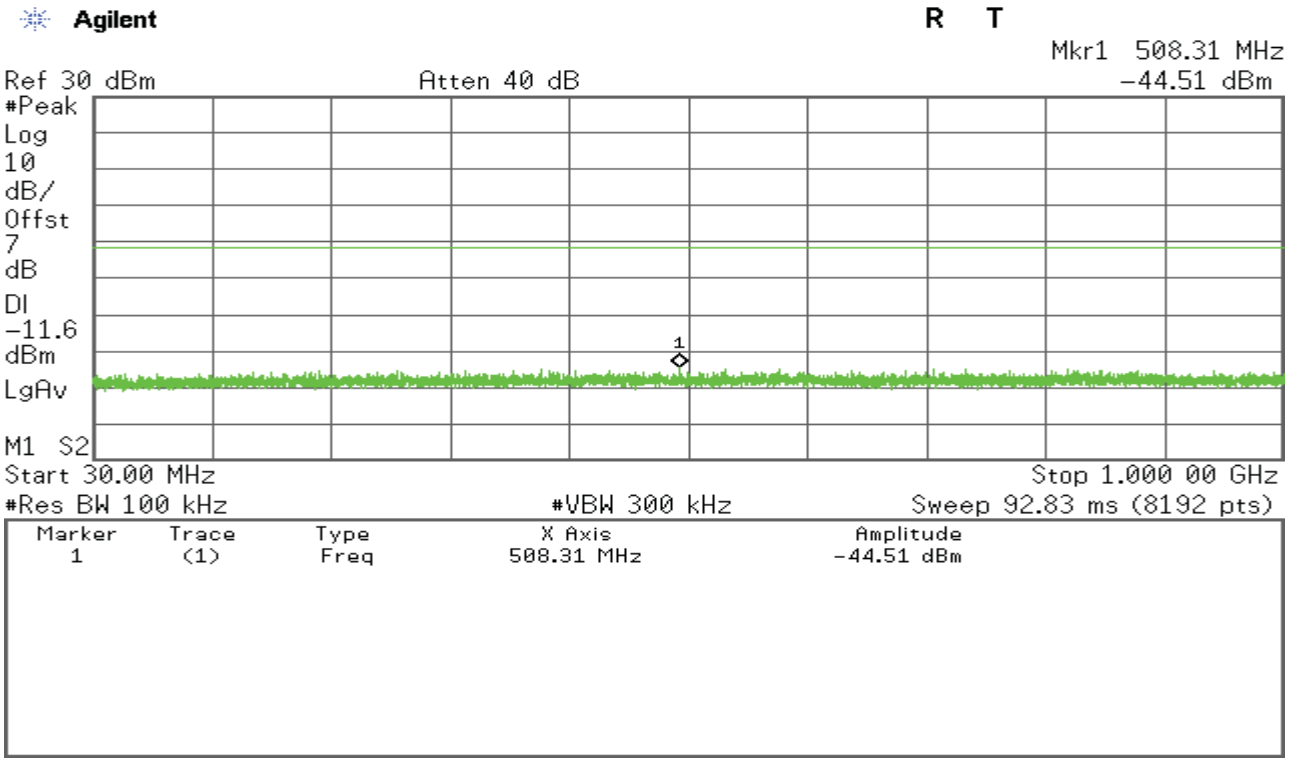
No non-compliance noted

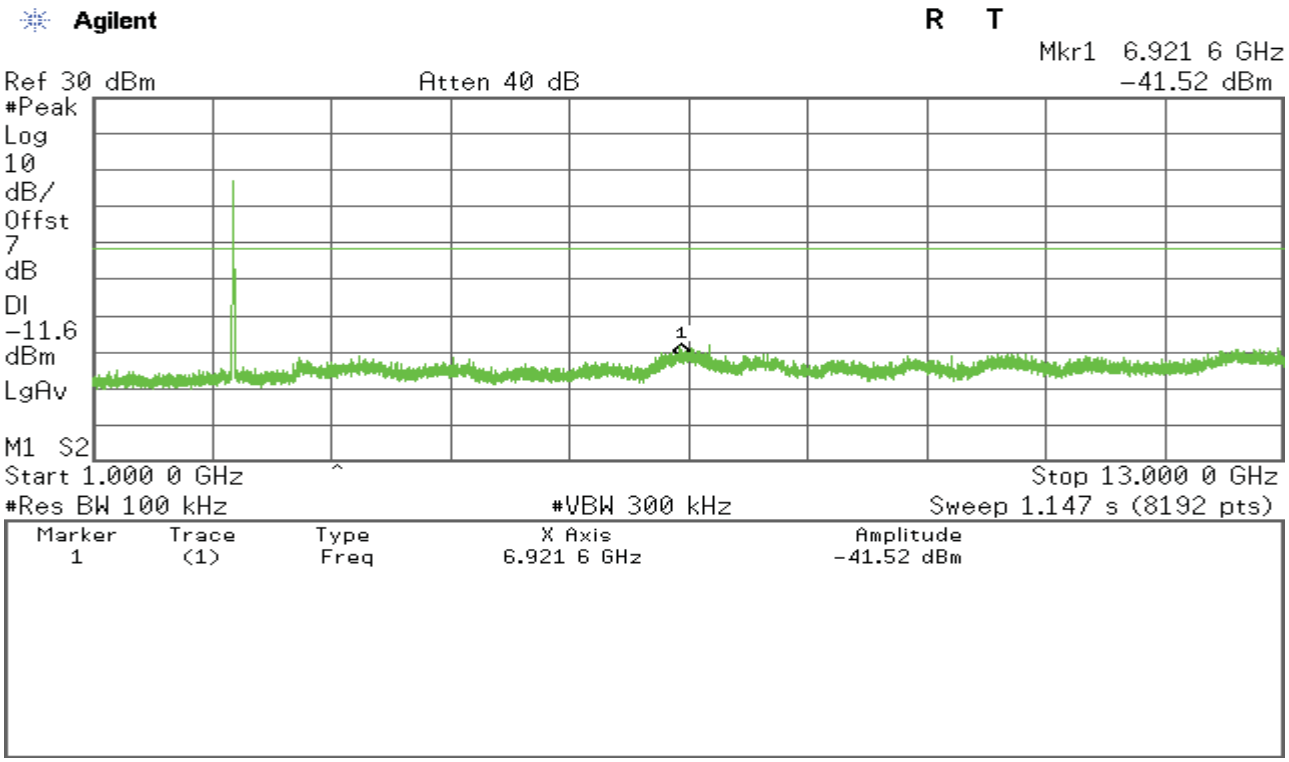
Test Plot
OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

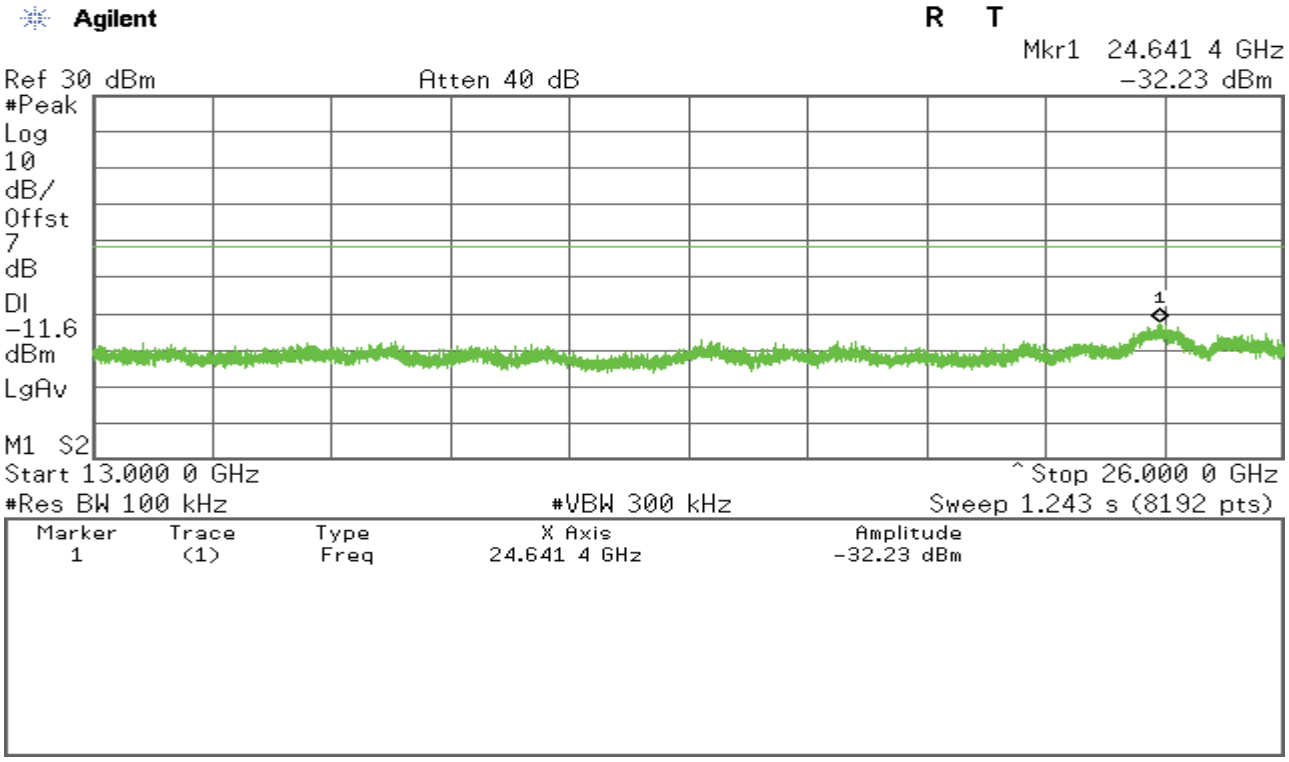
IEEE 802.11b mode

CH Low

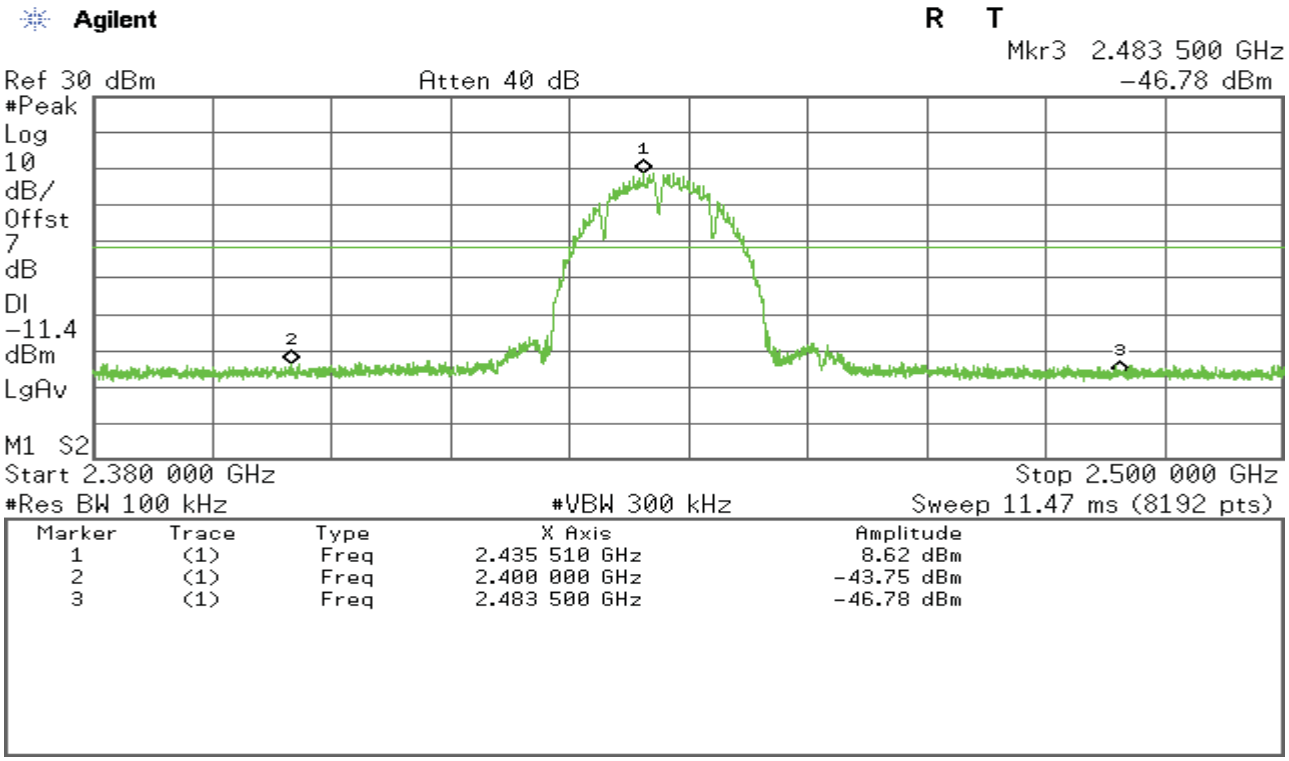


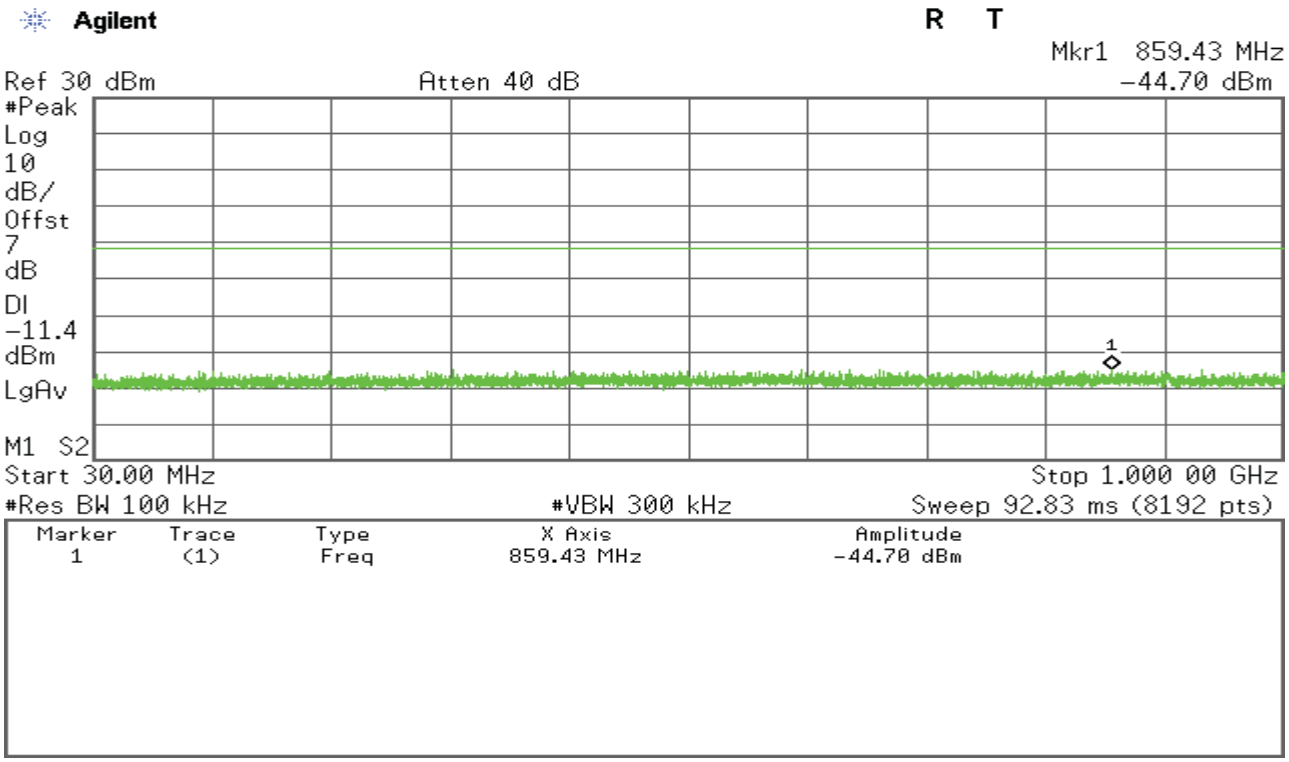


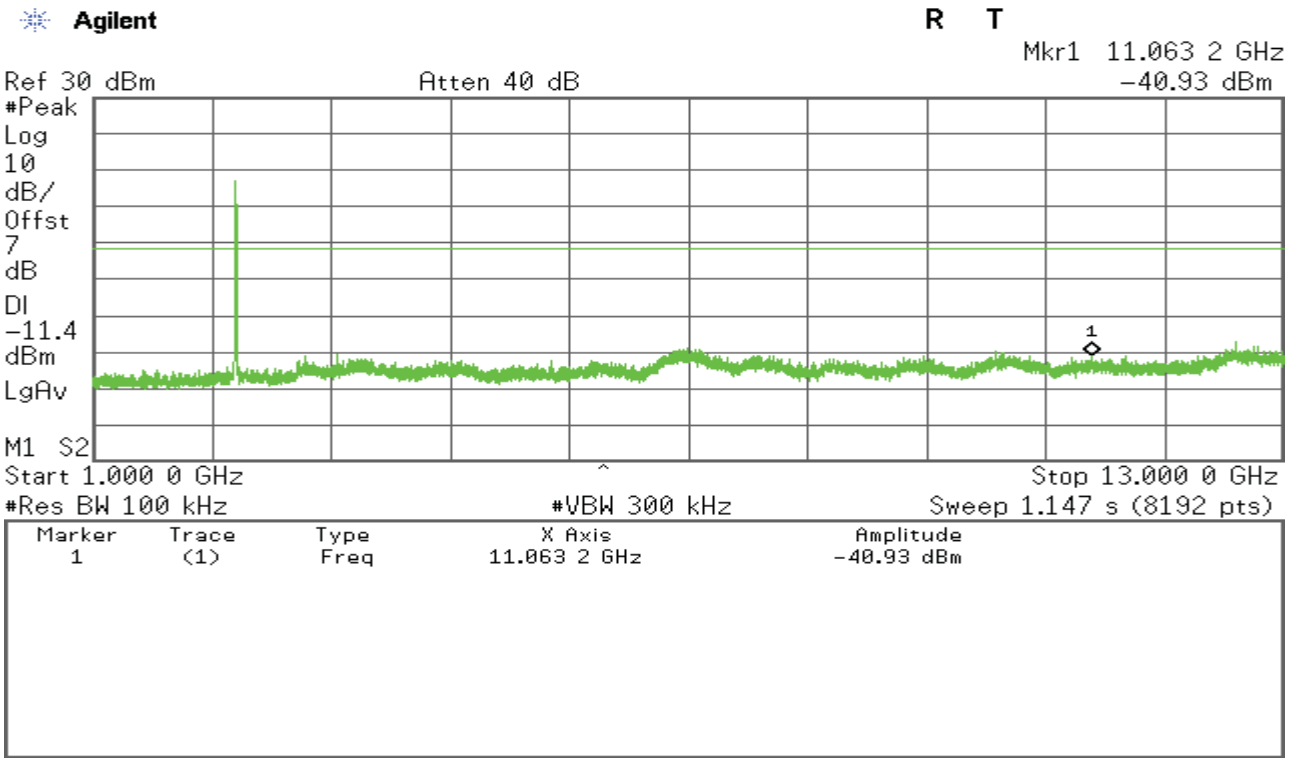


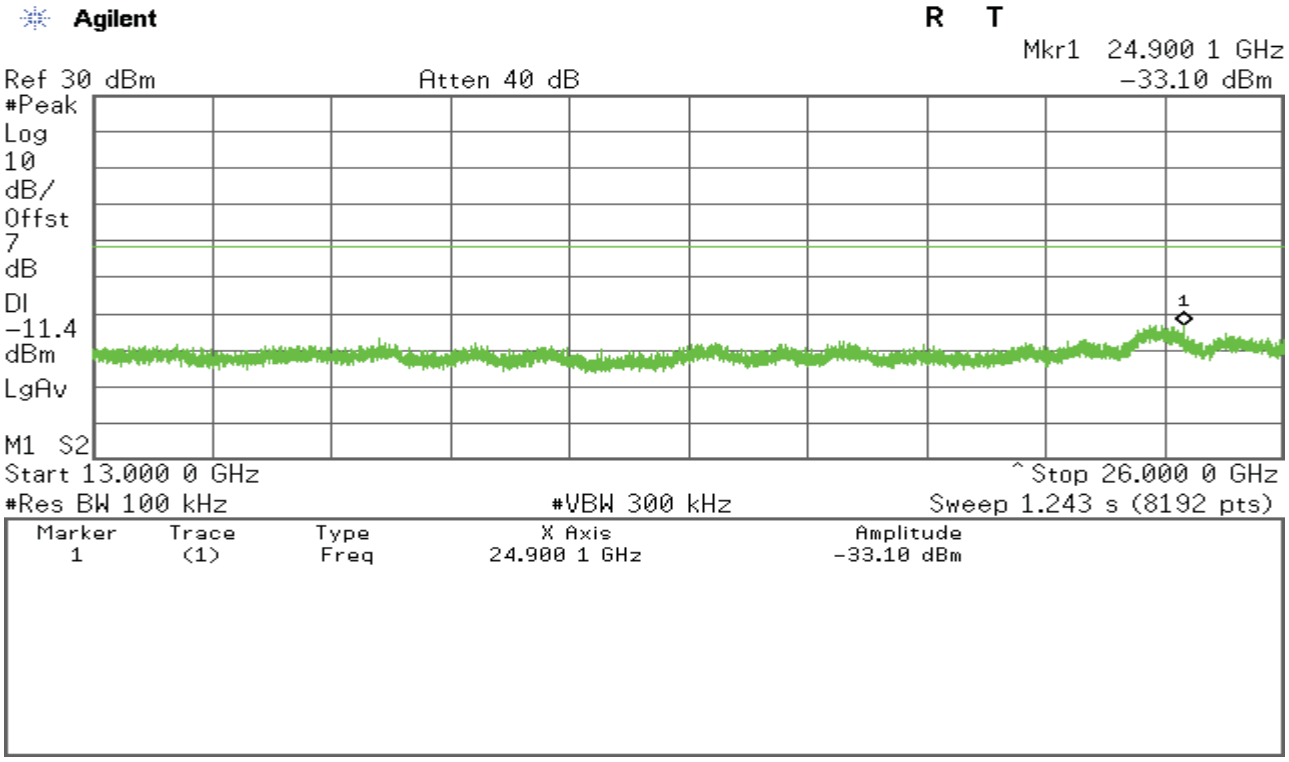


CH Mid

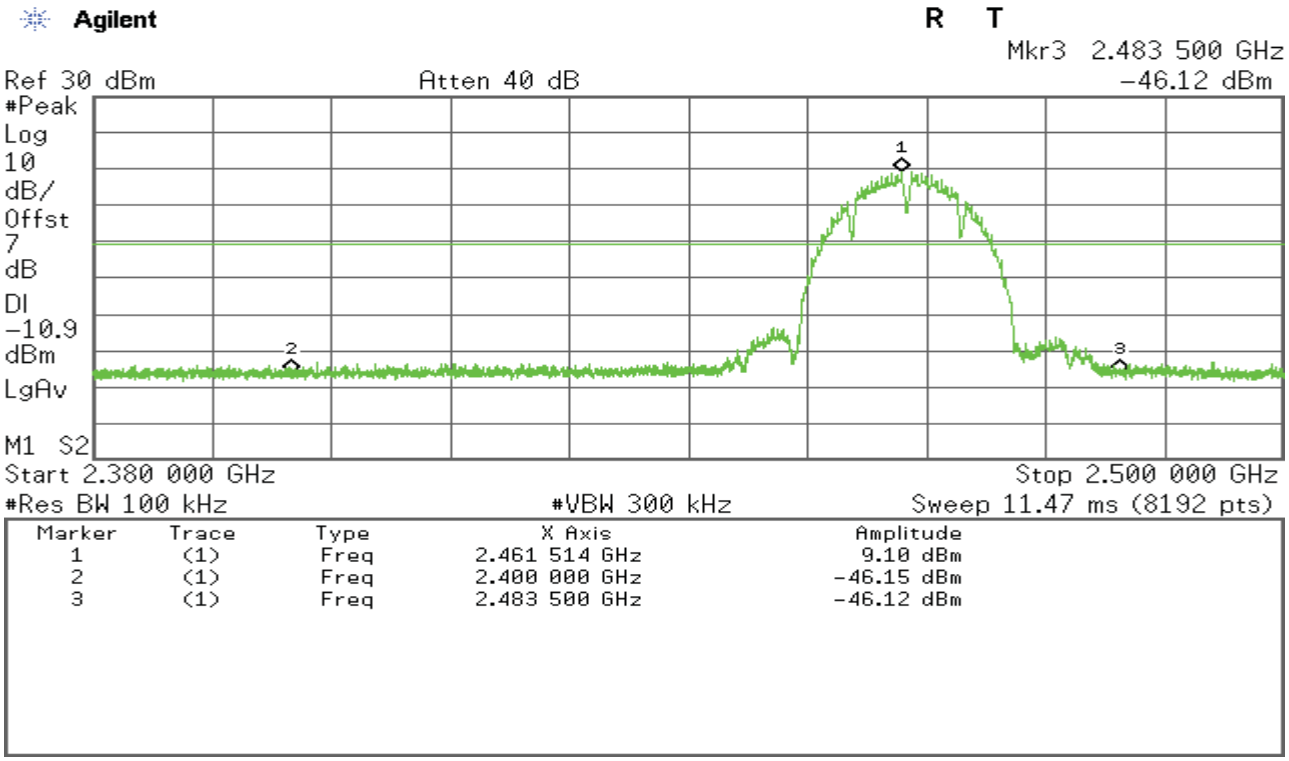


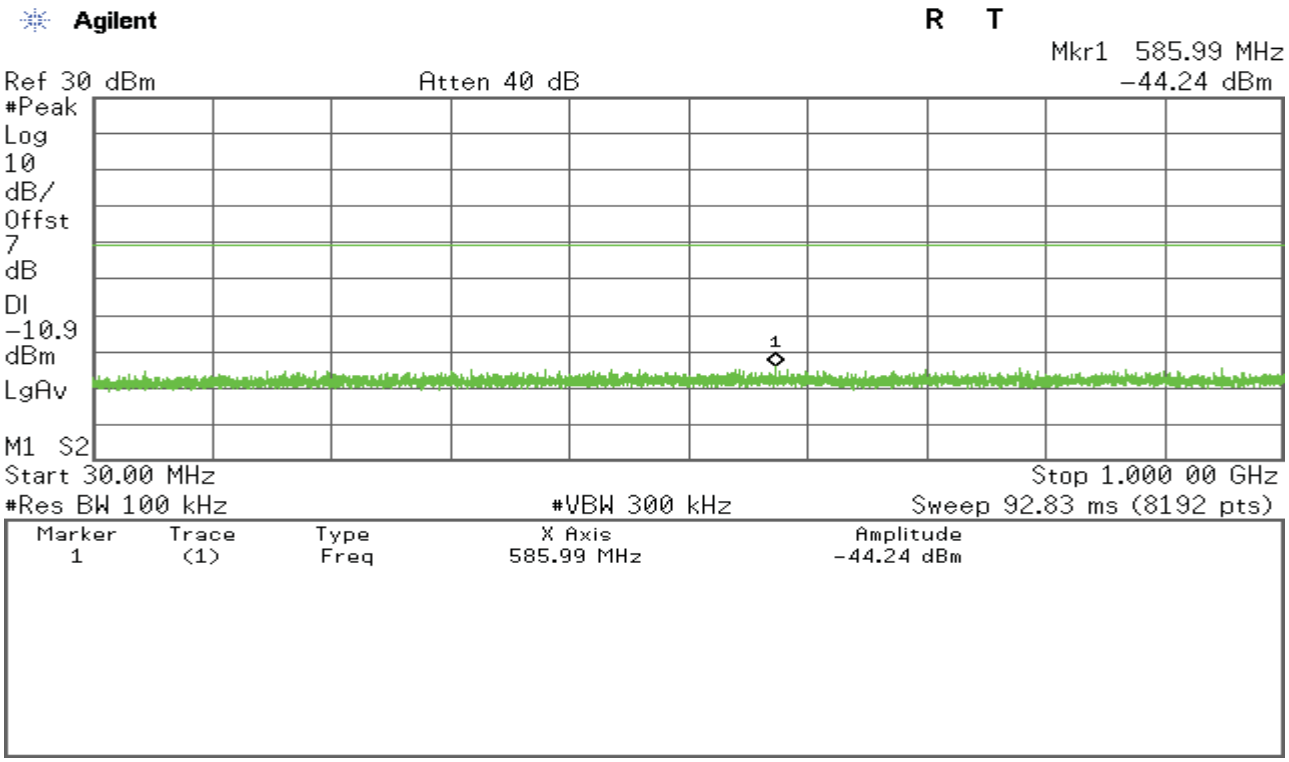


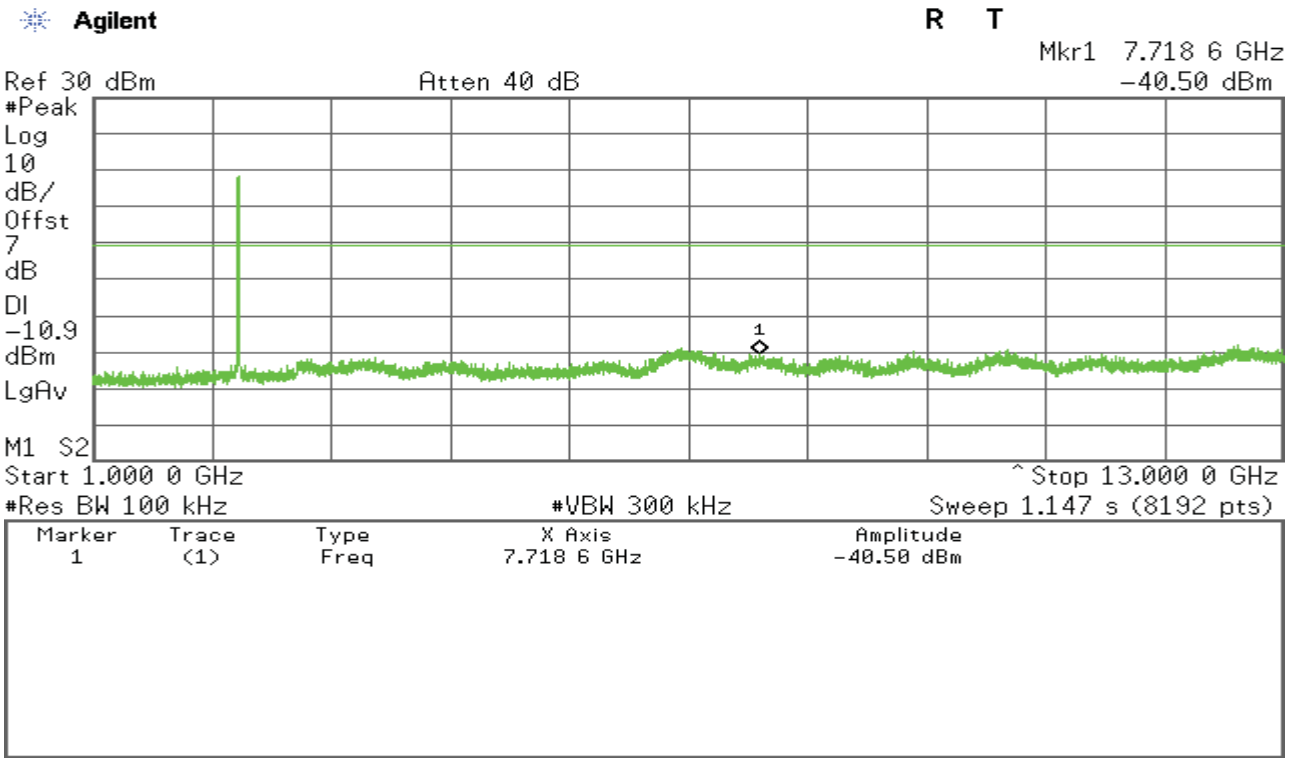


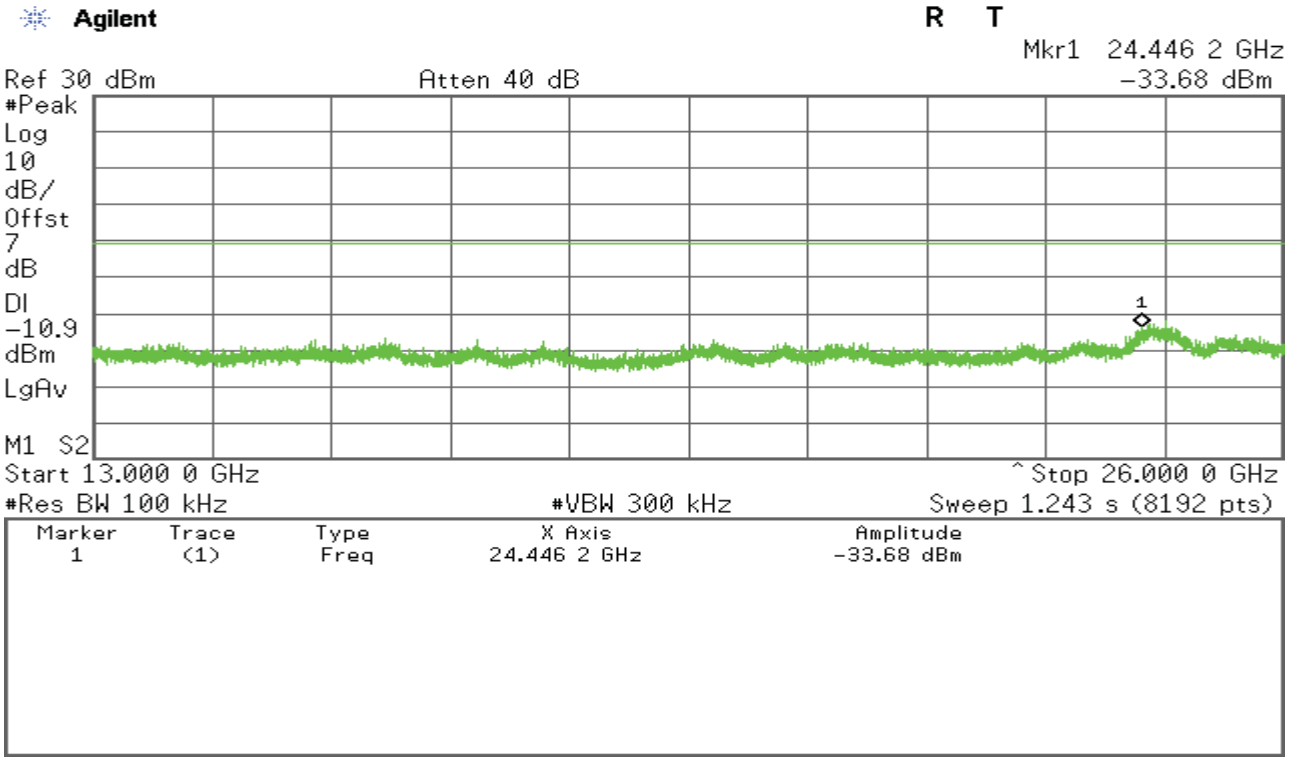


CH High



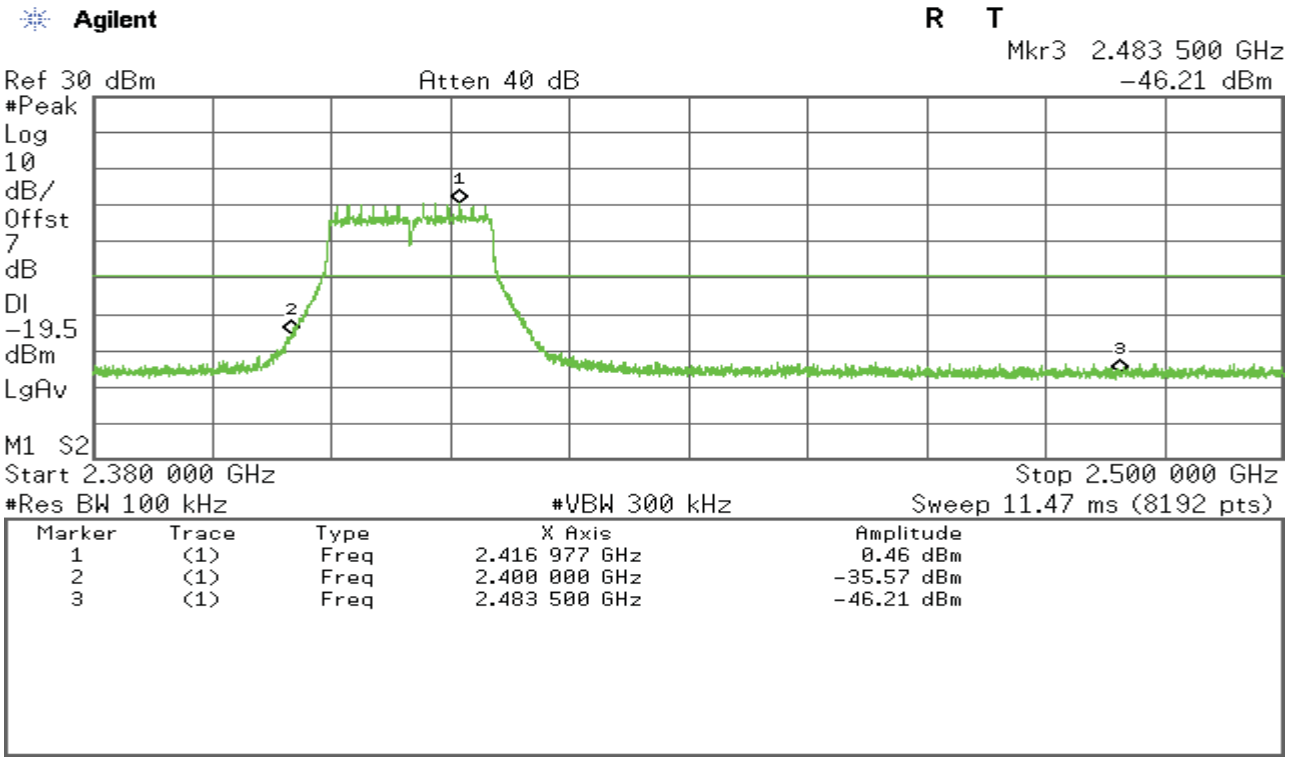


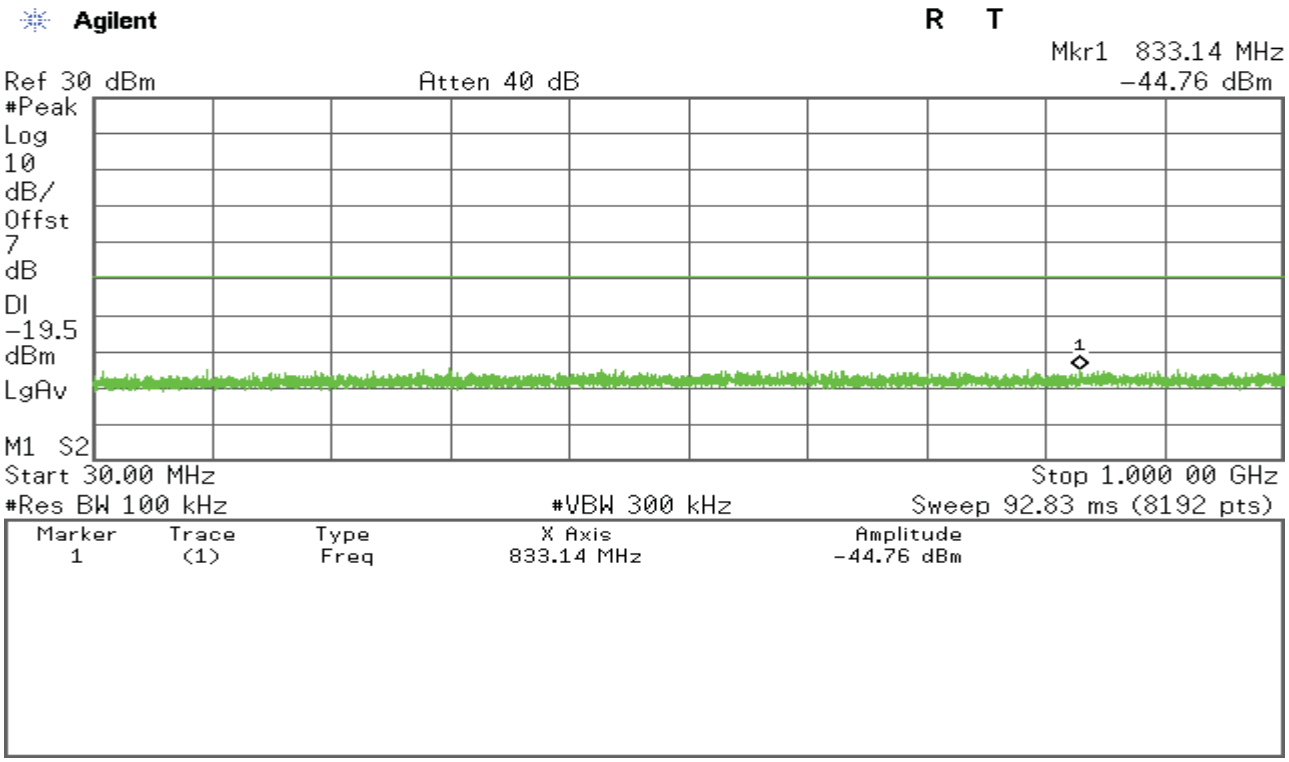


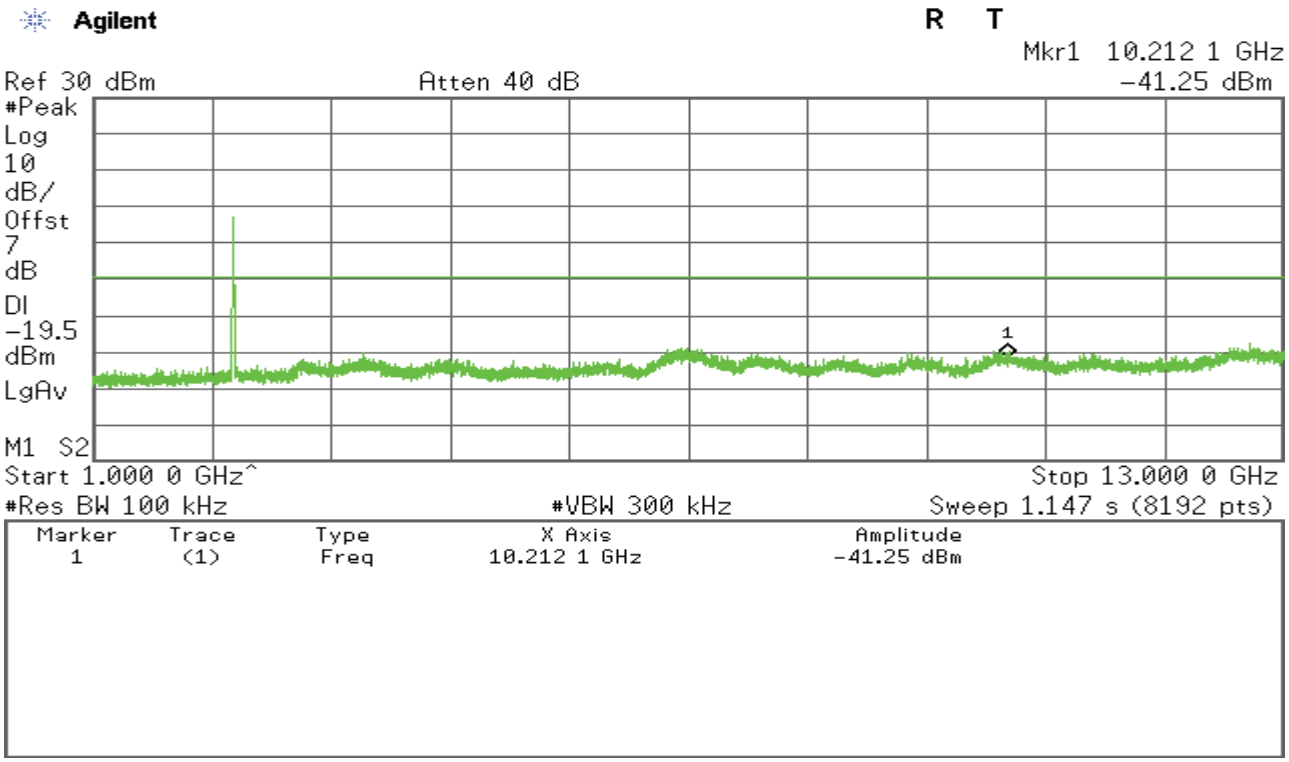


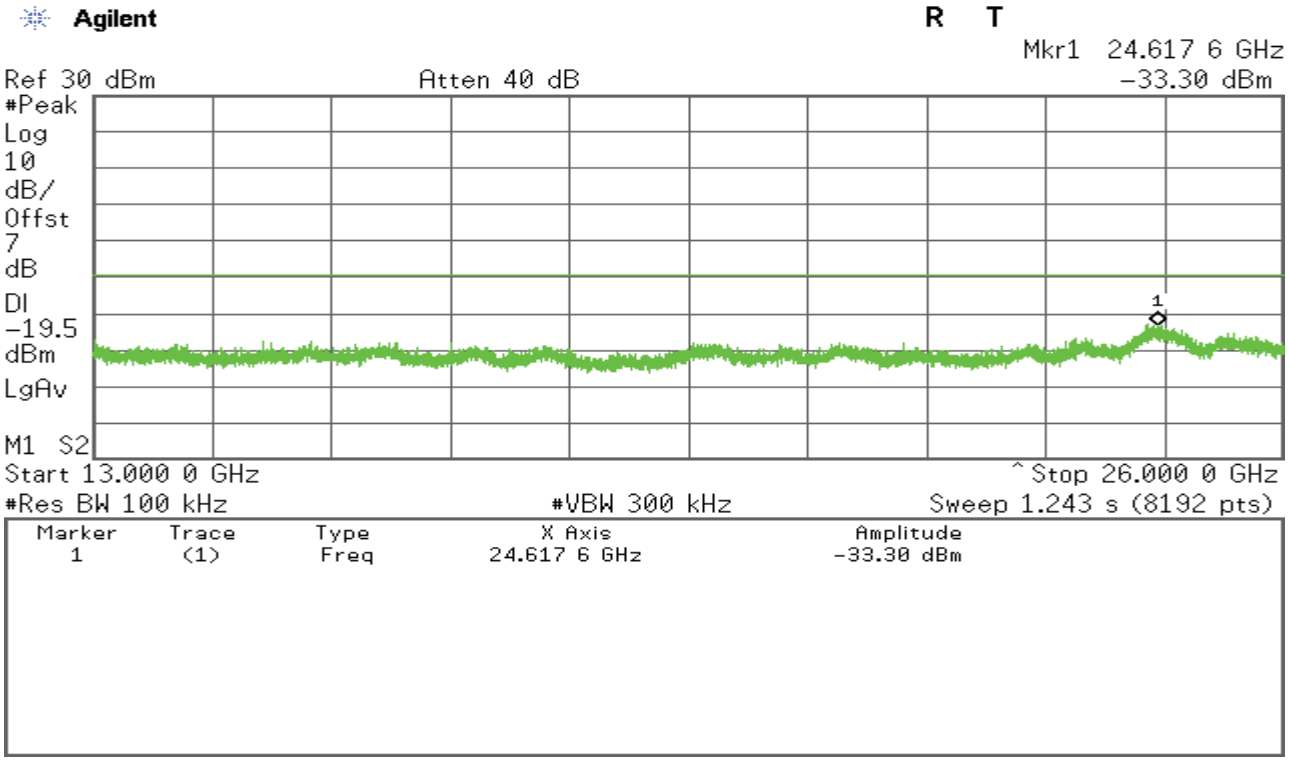
IEEE 802.11g mode

CH Low

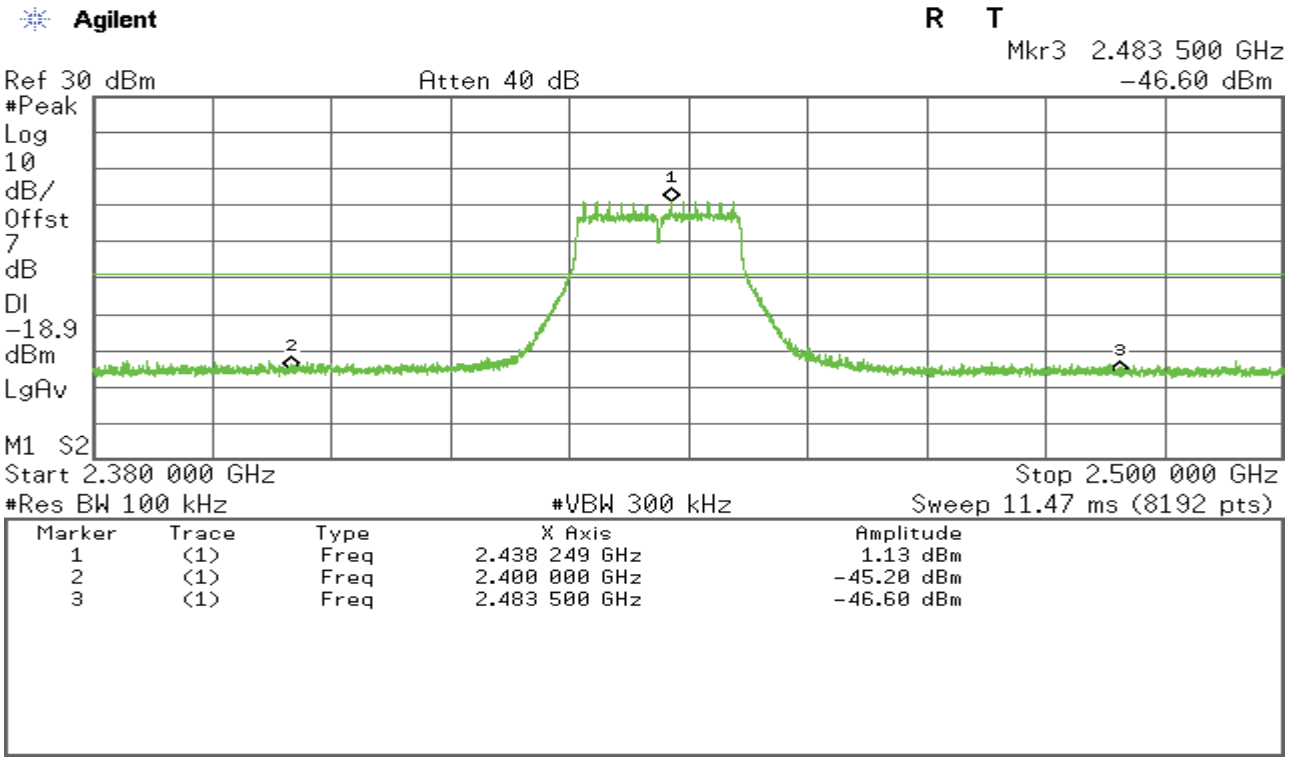


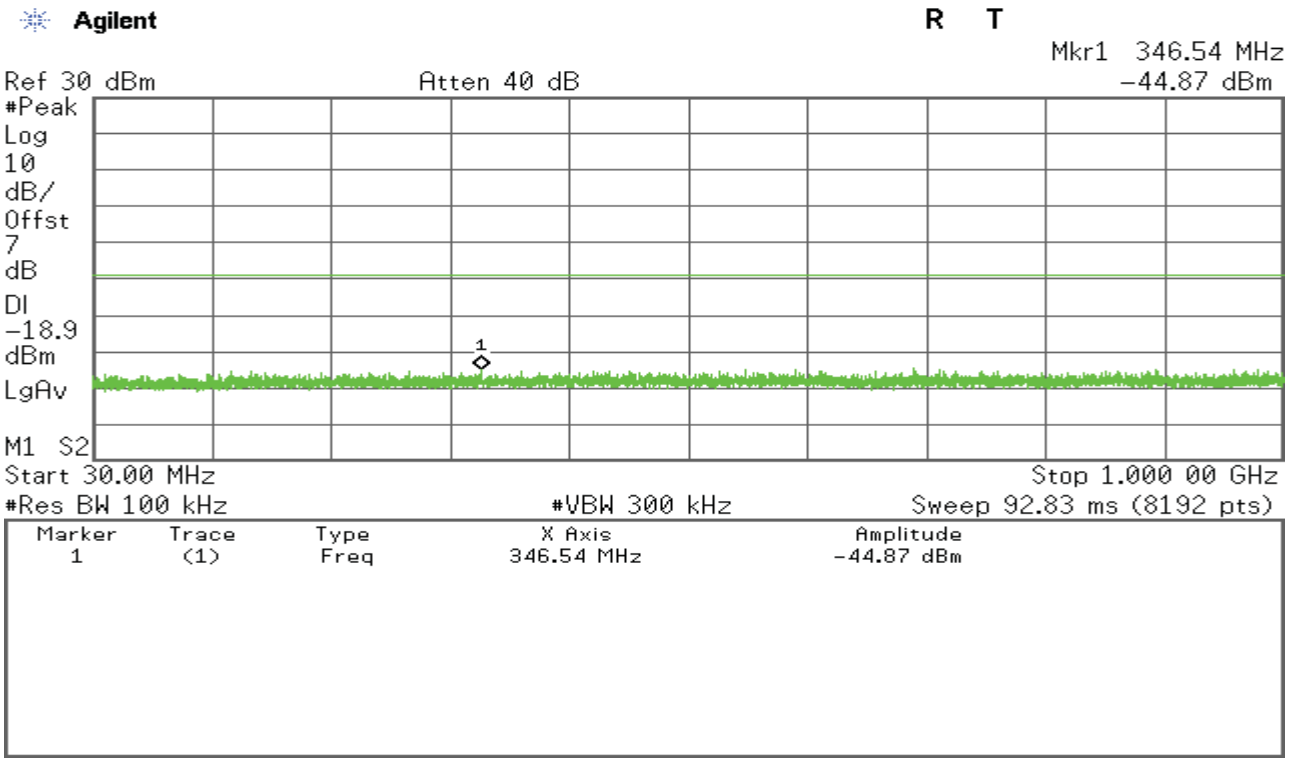


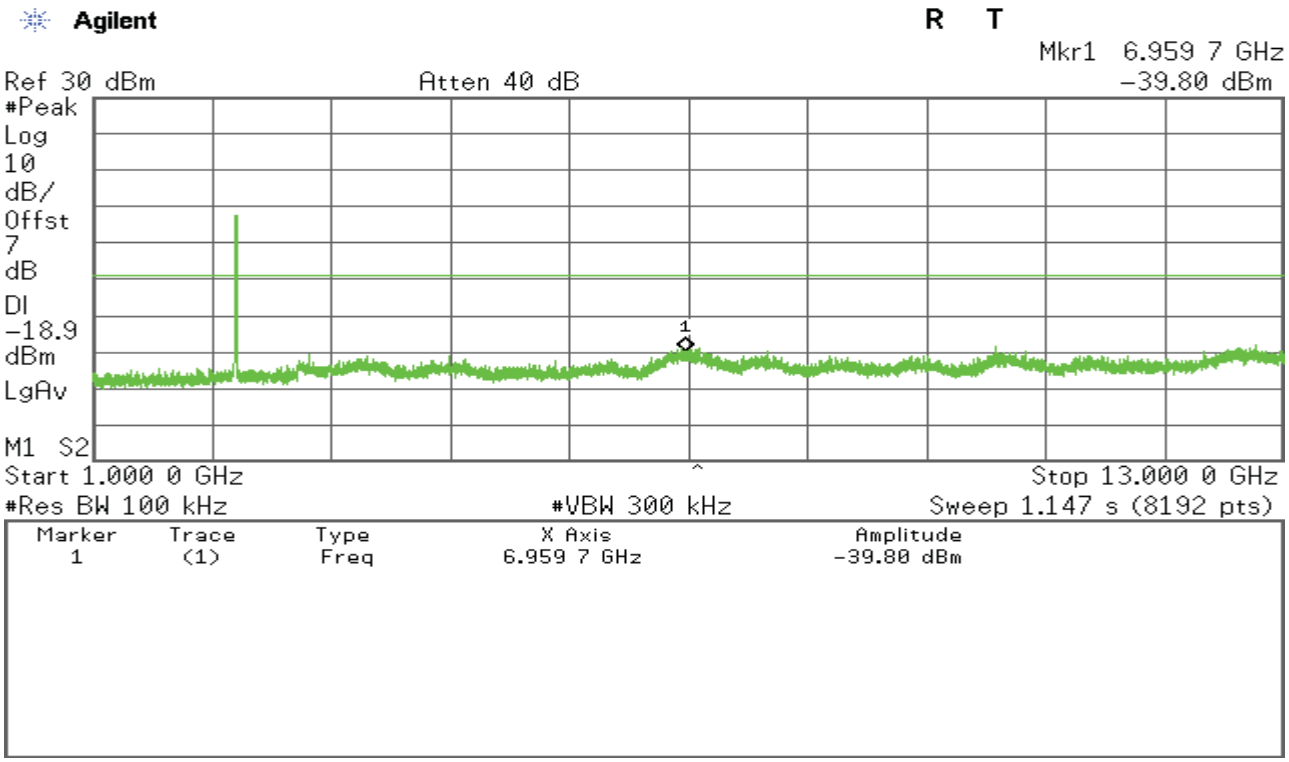


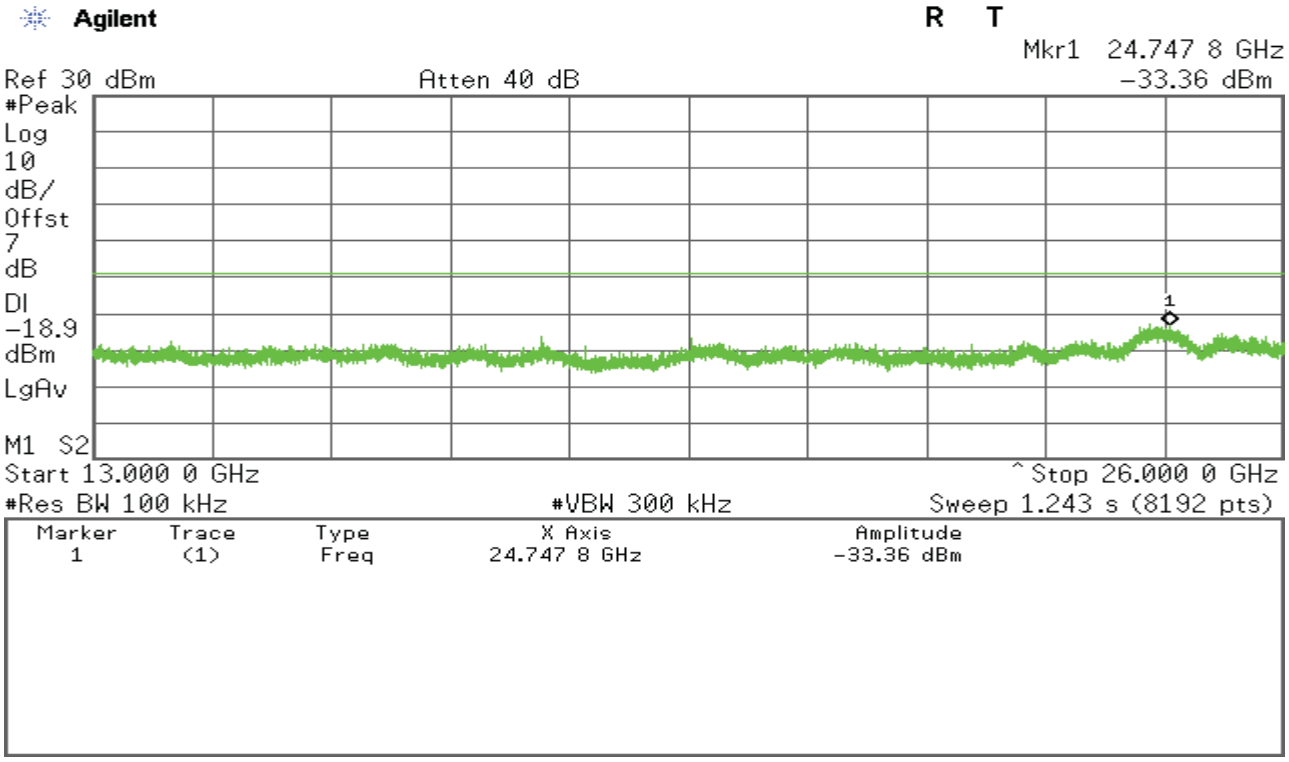


CH Mid

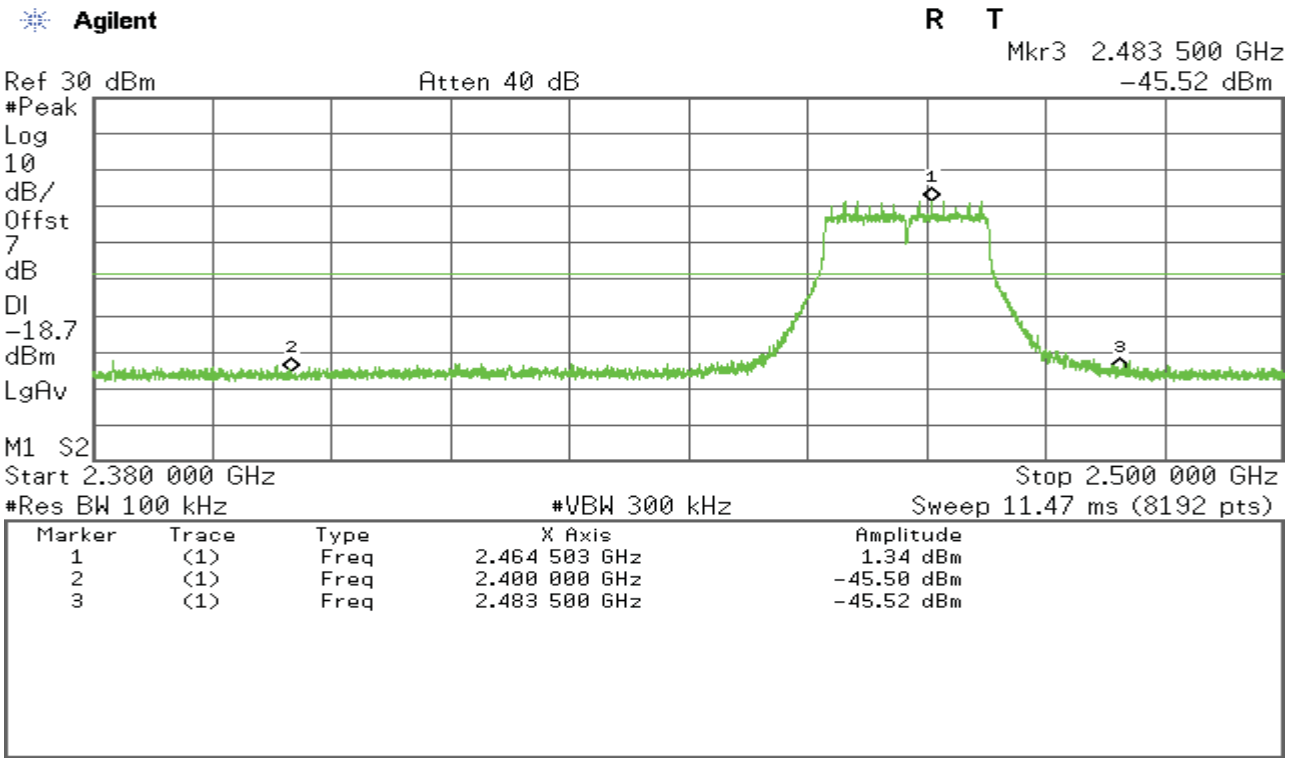


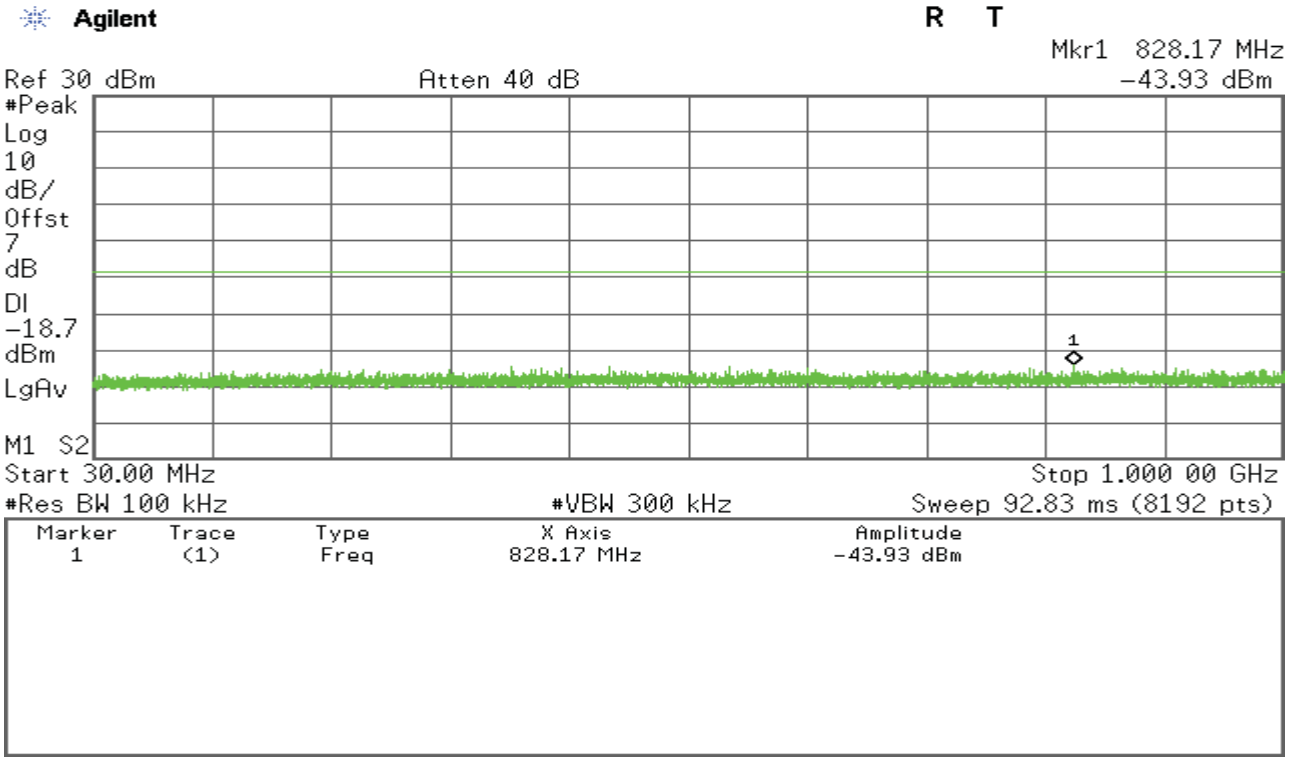


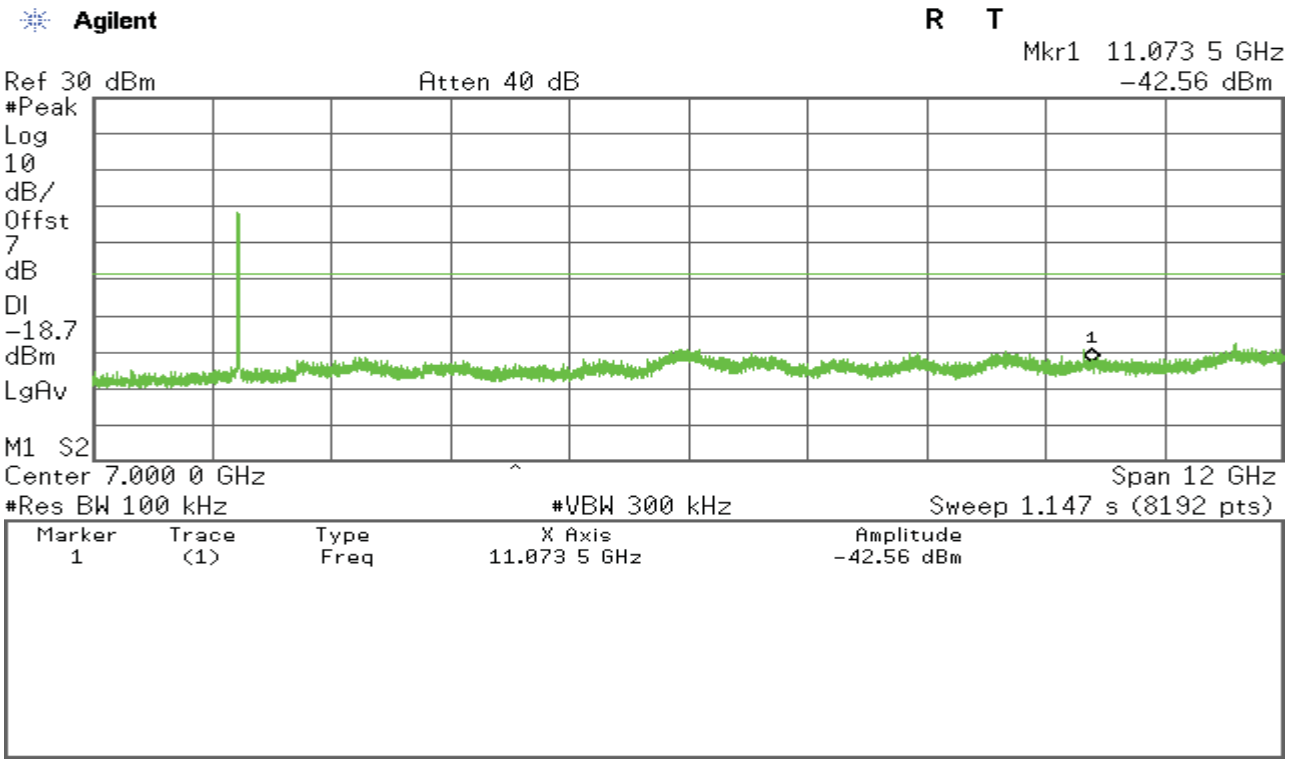


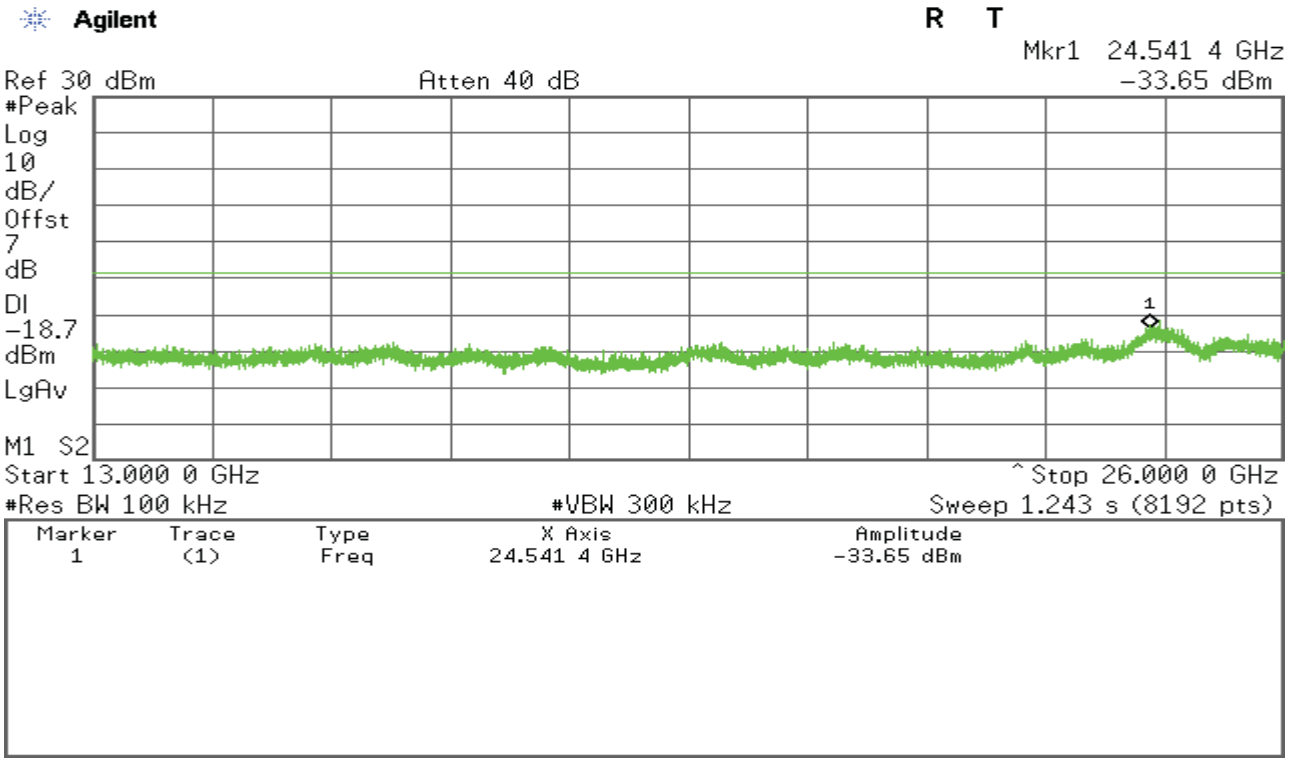


CH High



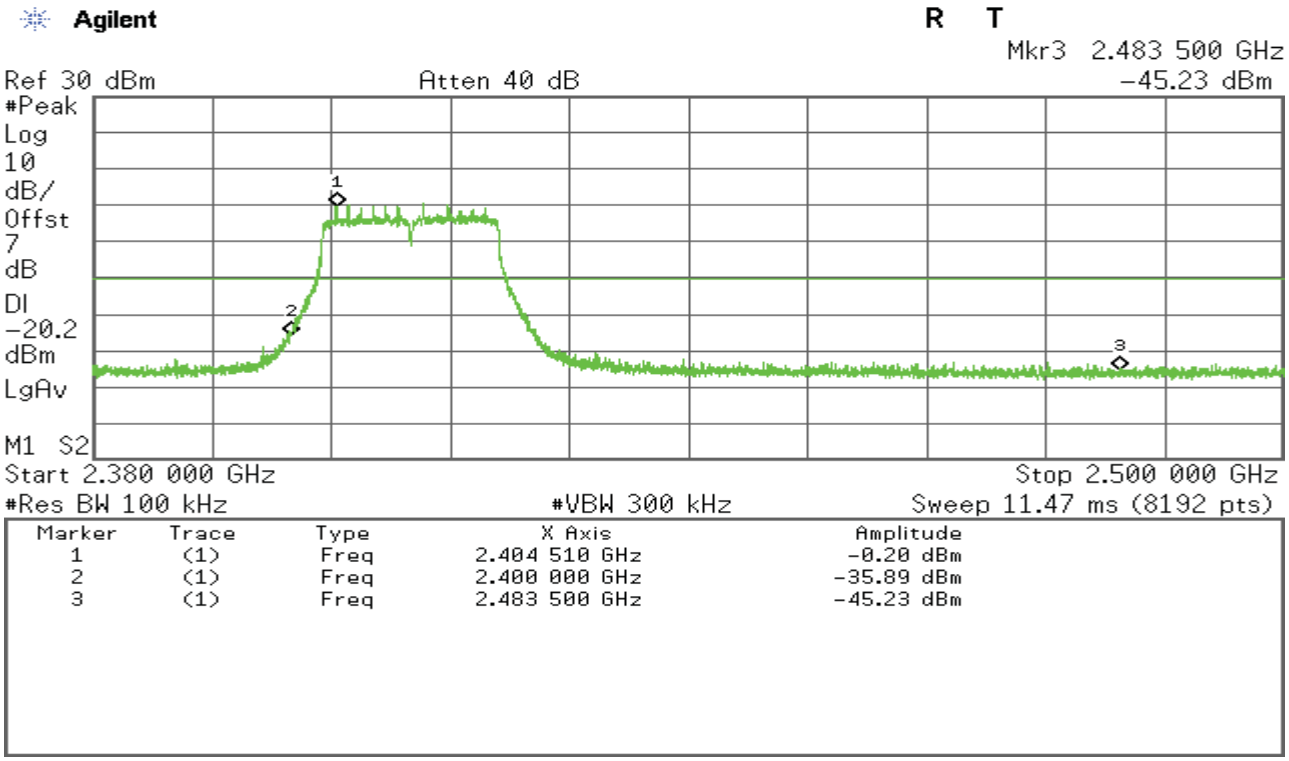


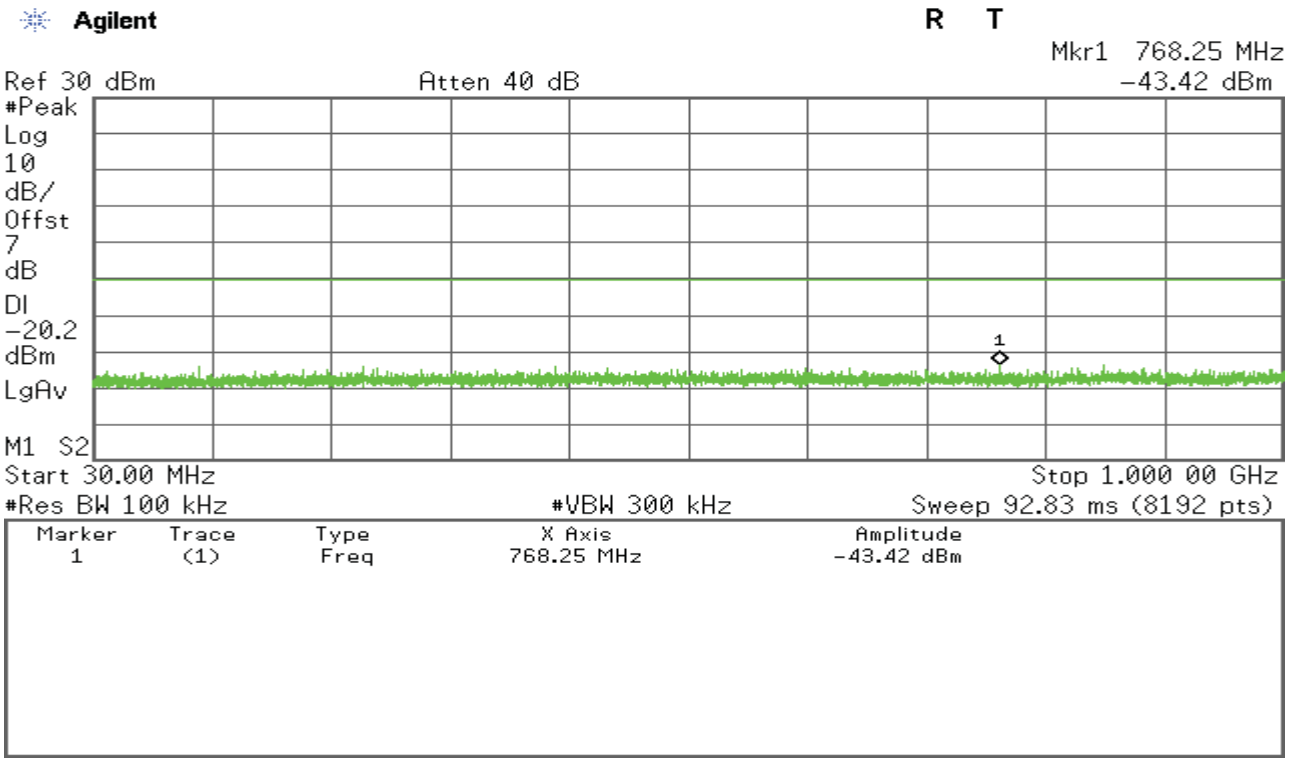


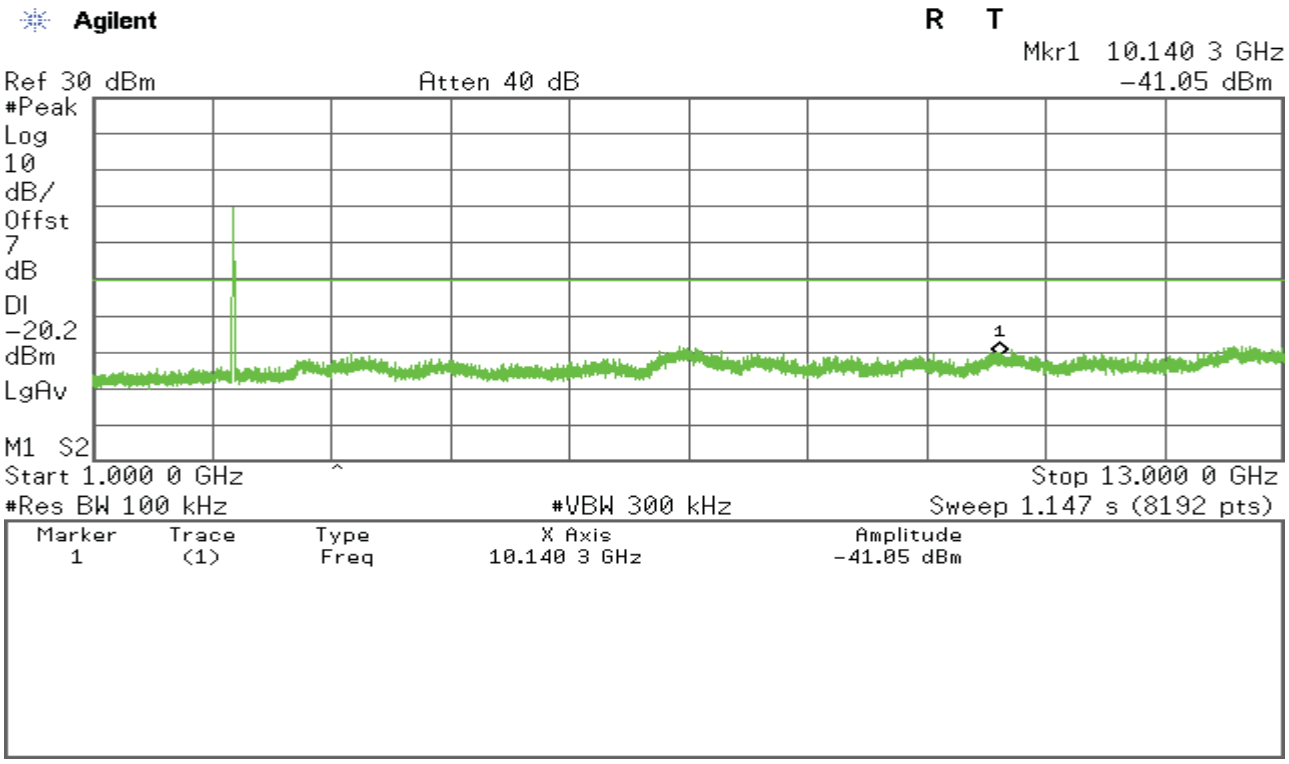


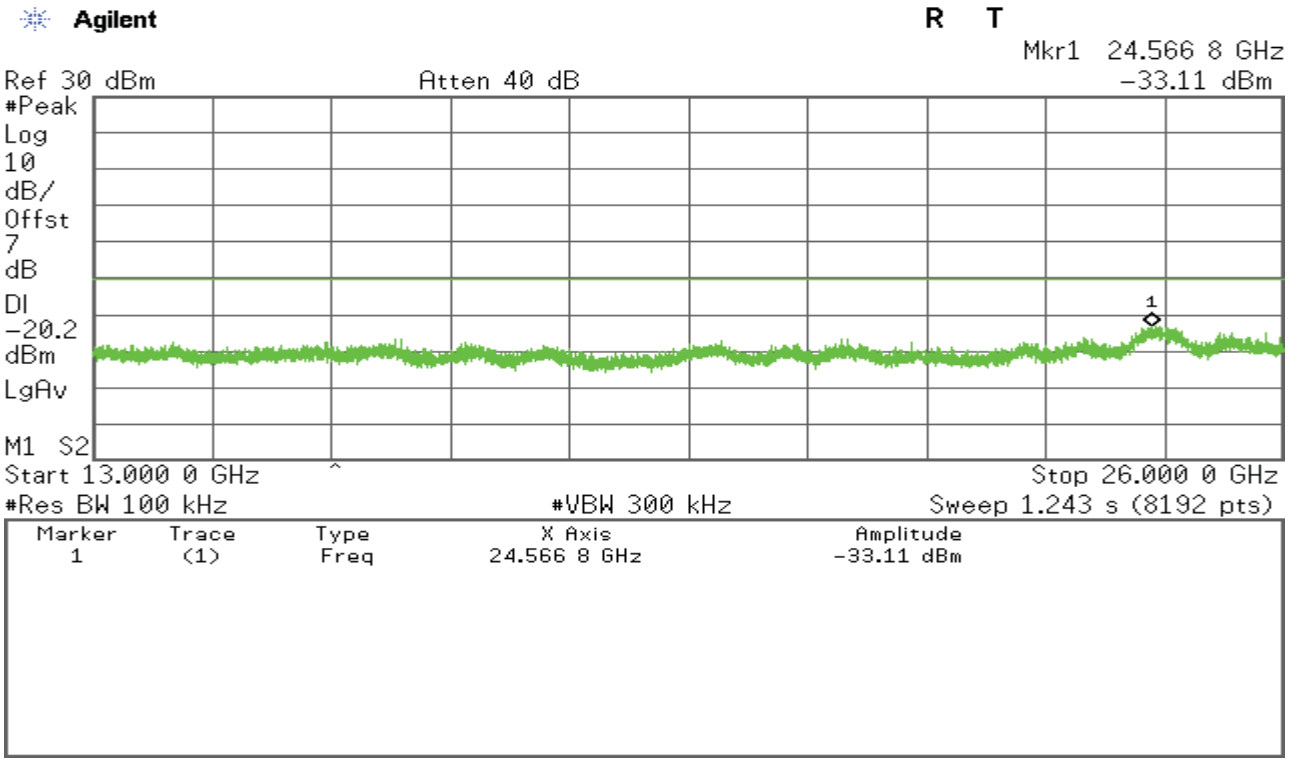
IEEE 802.11n HT20 mode

CH Low

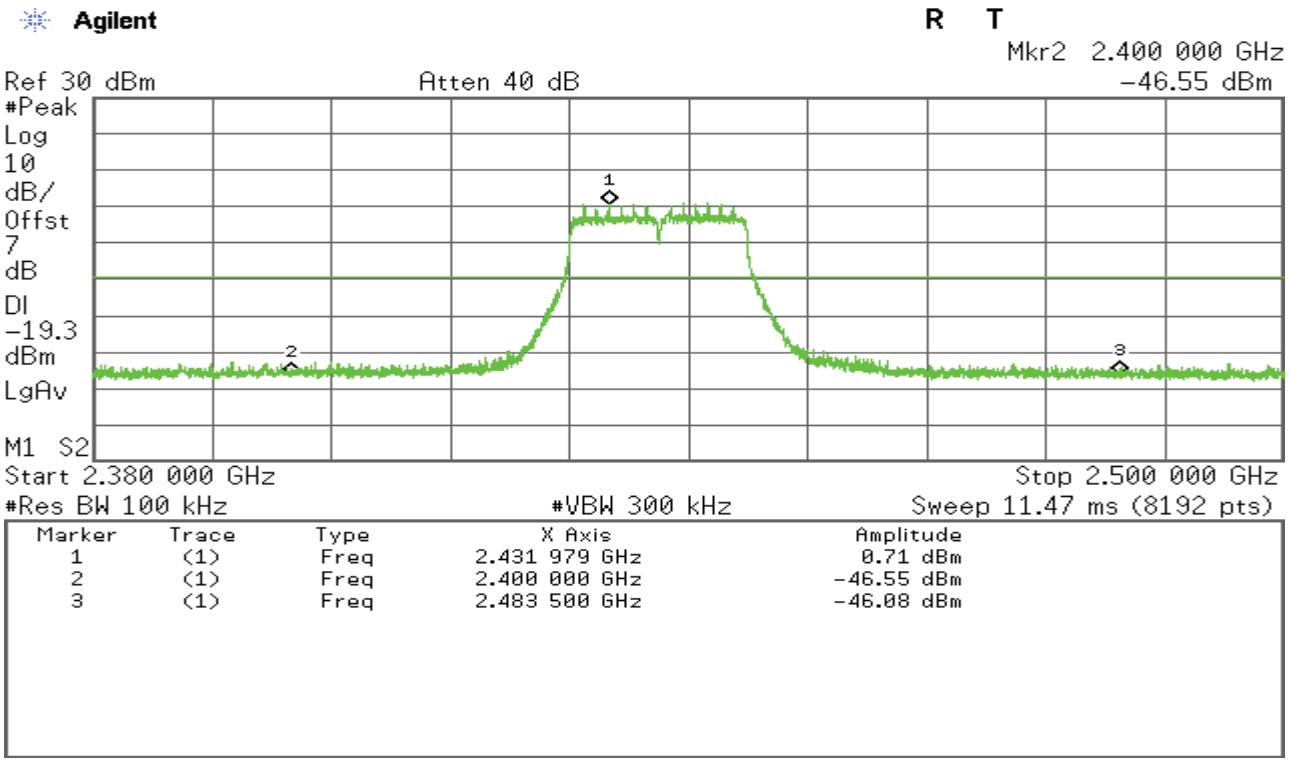


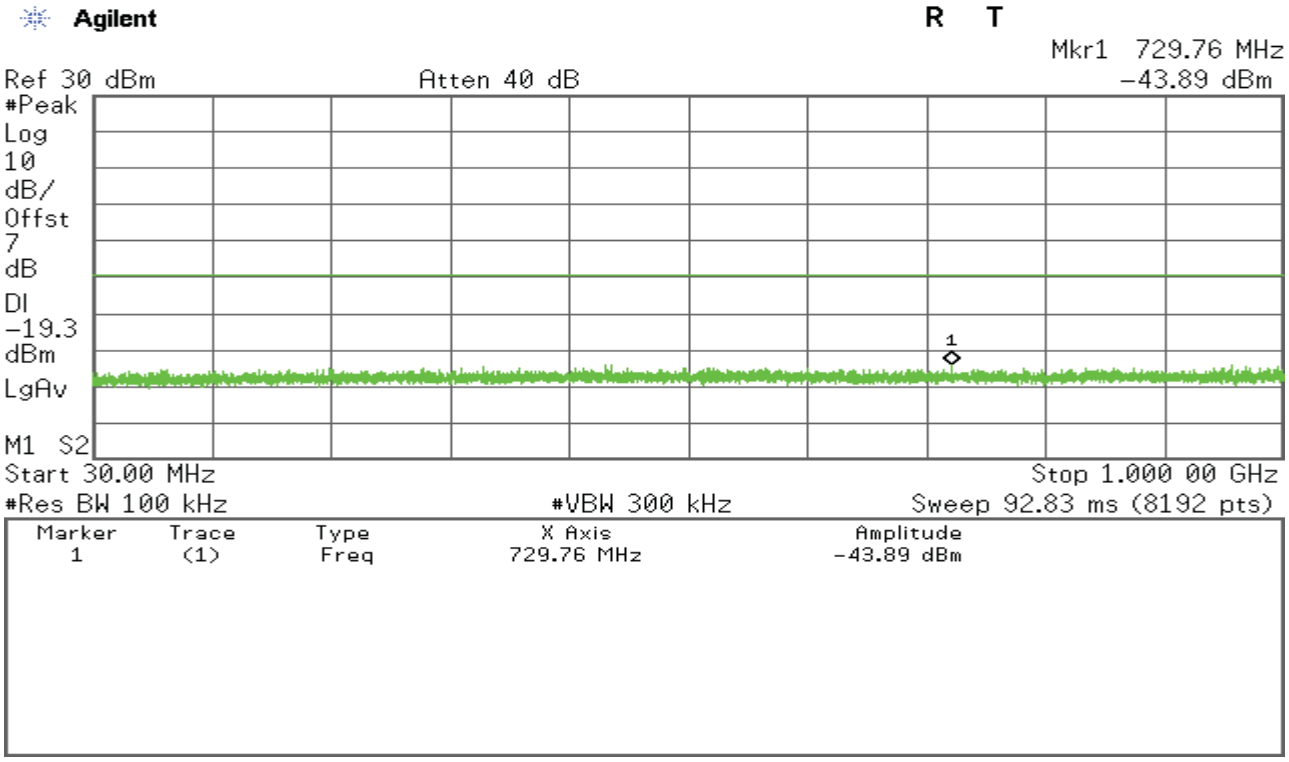


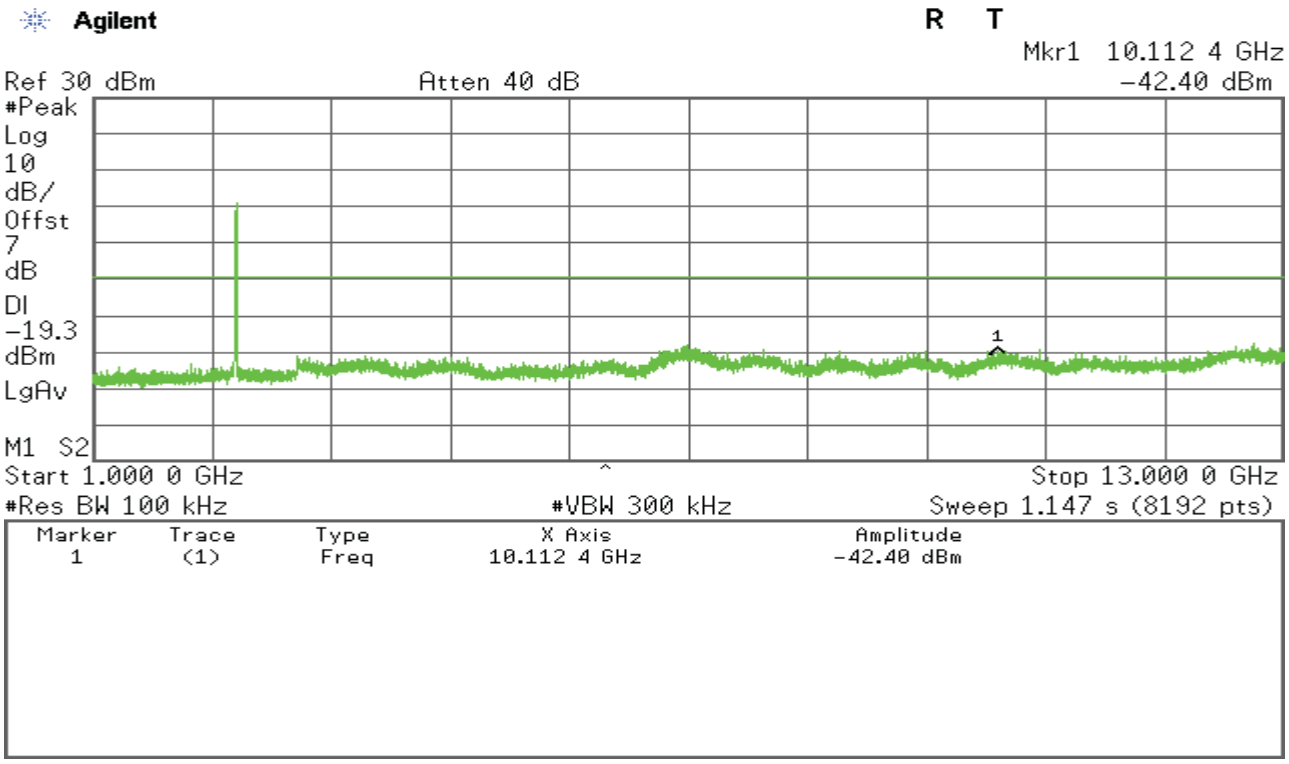


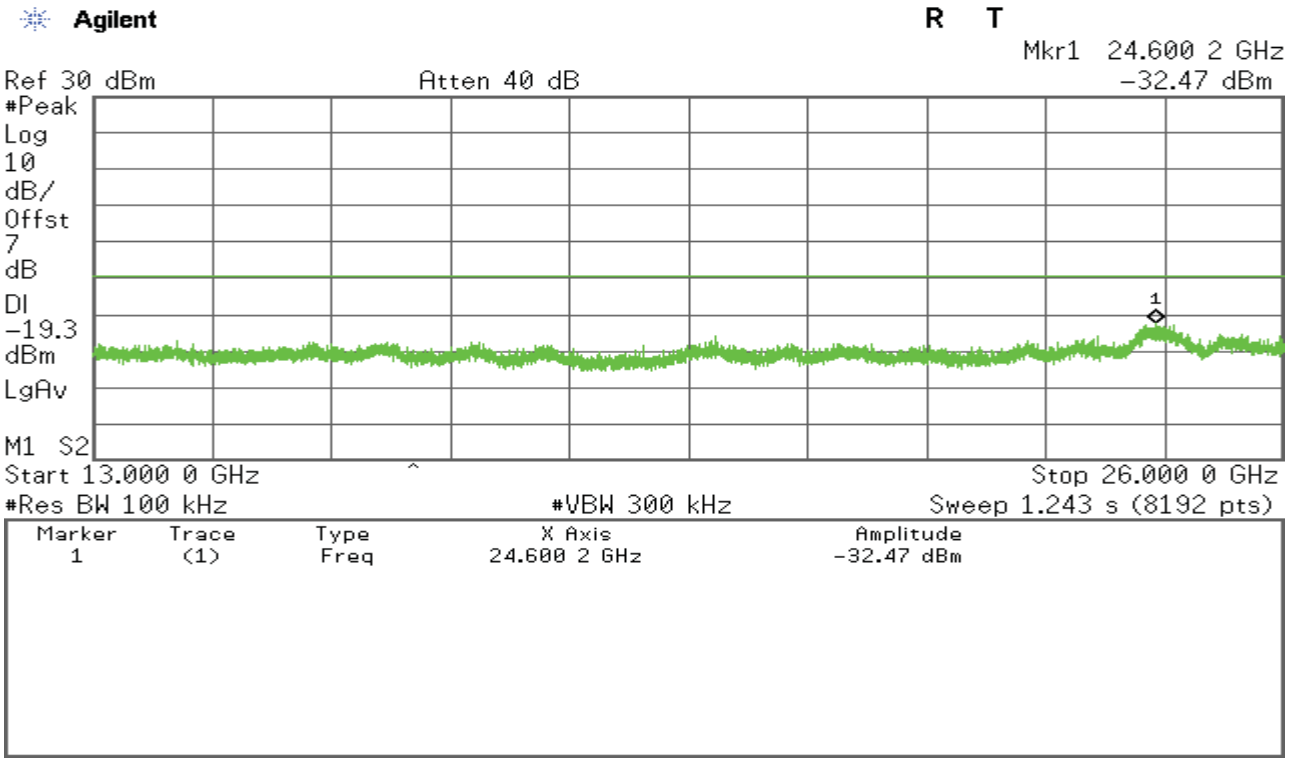


CH Mid

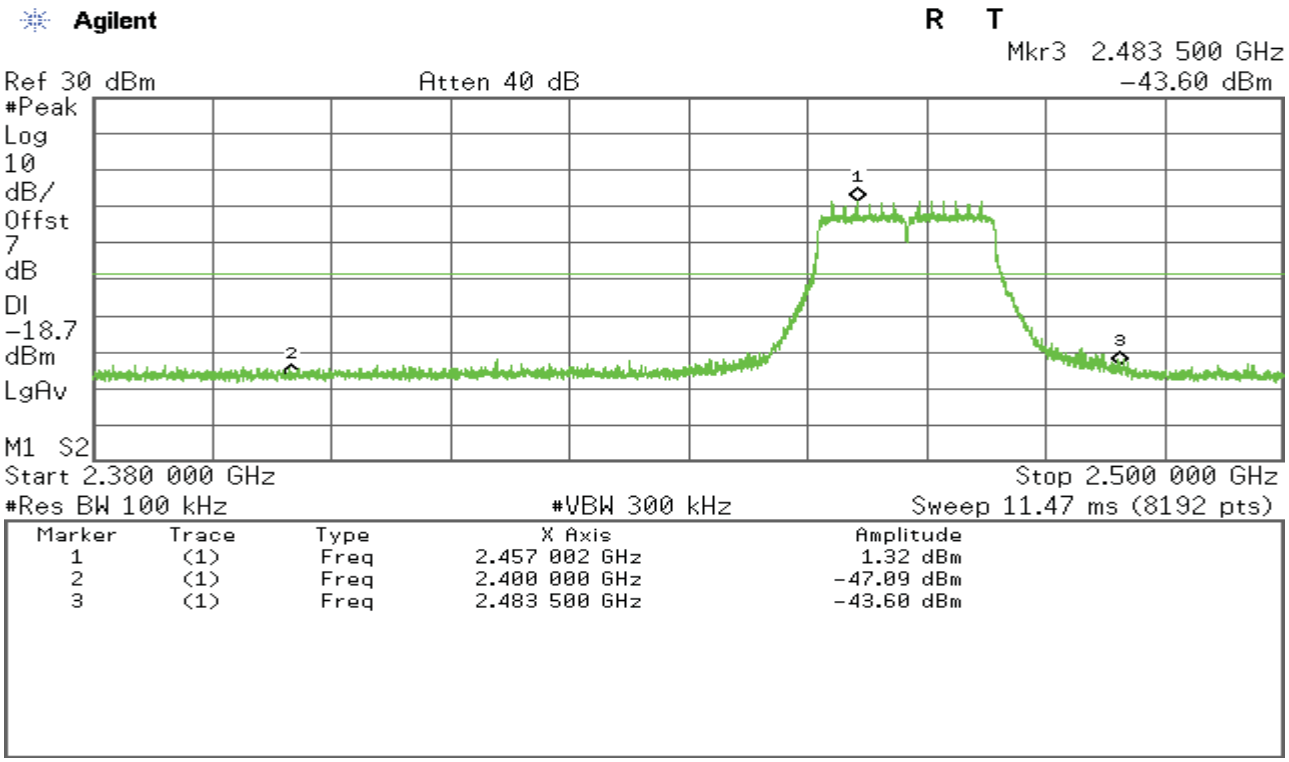


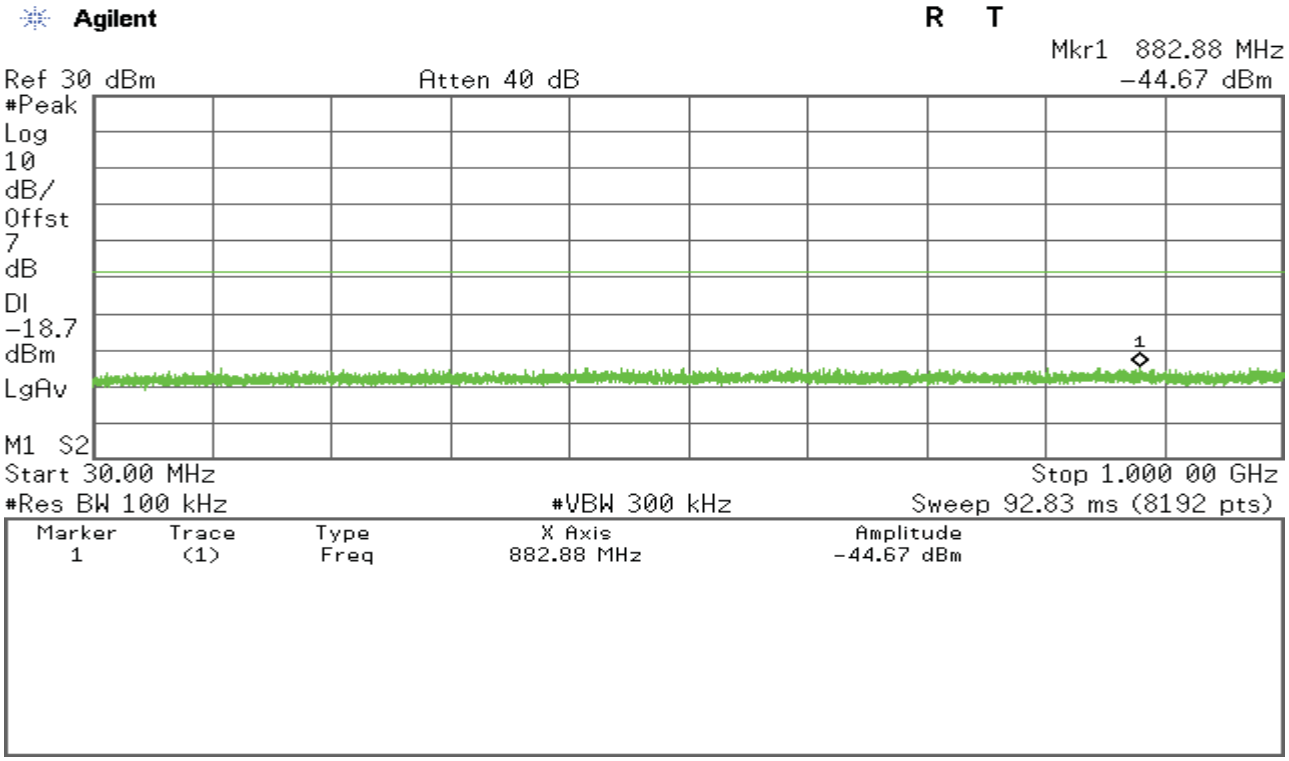


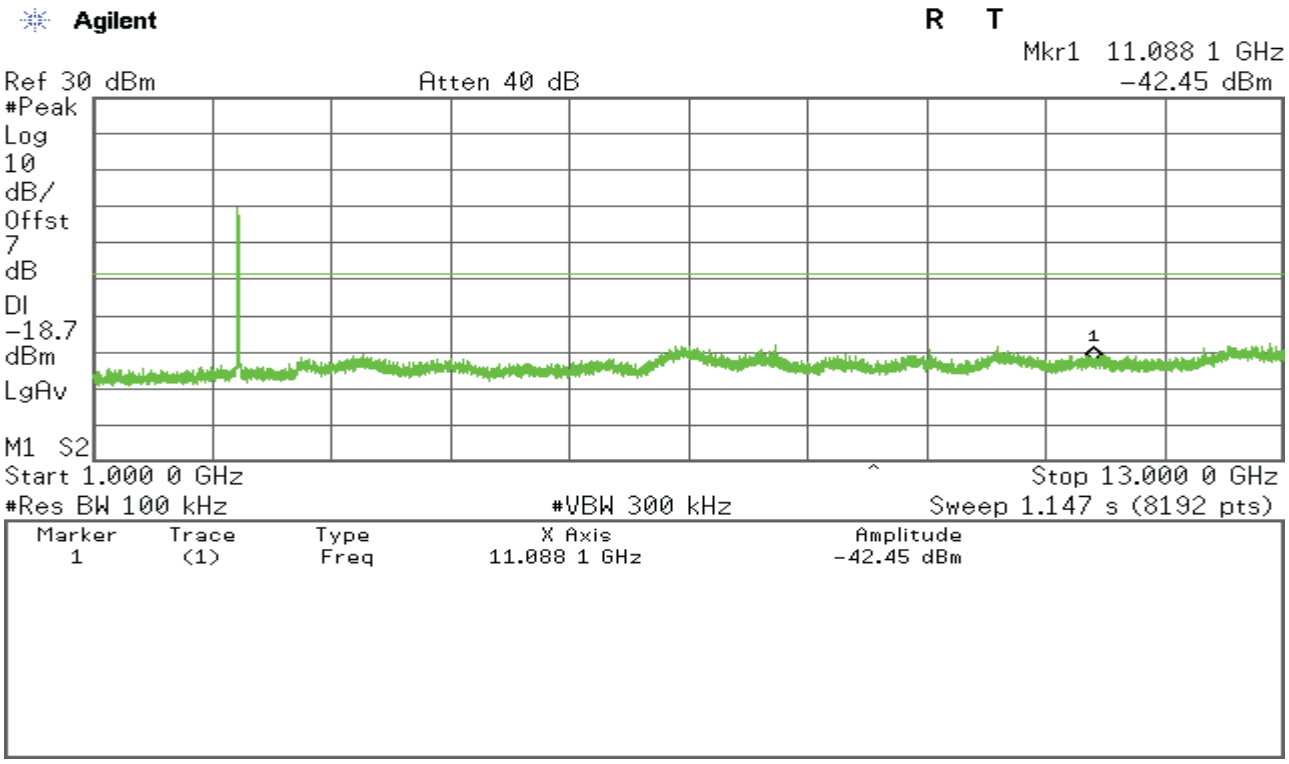


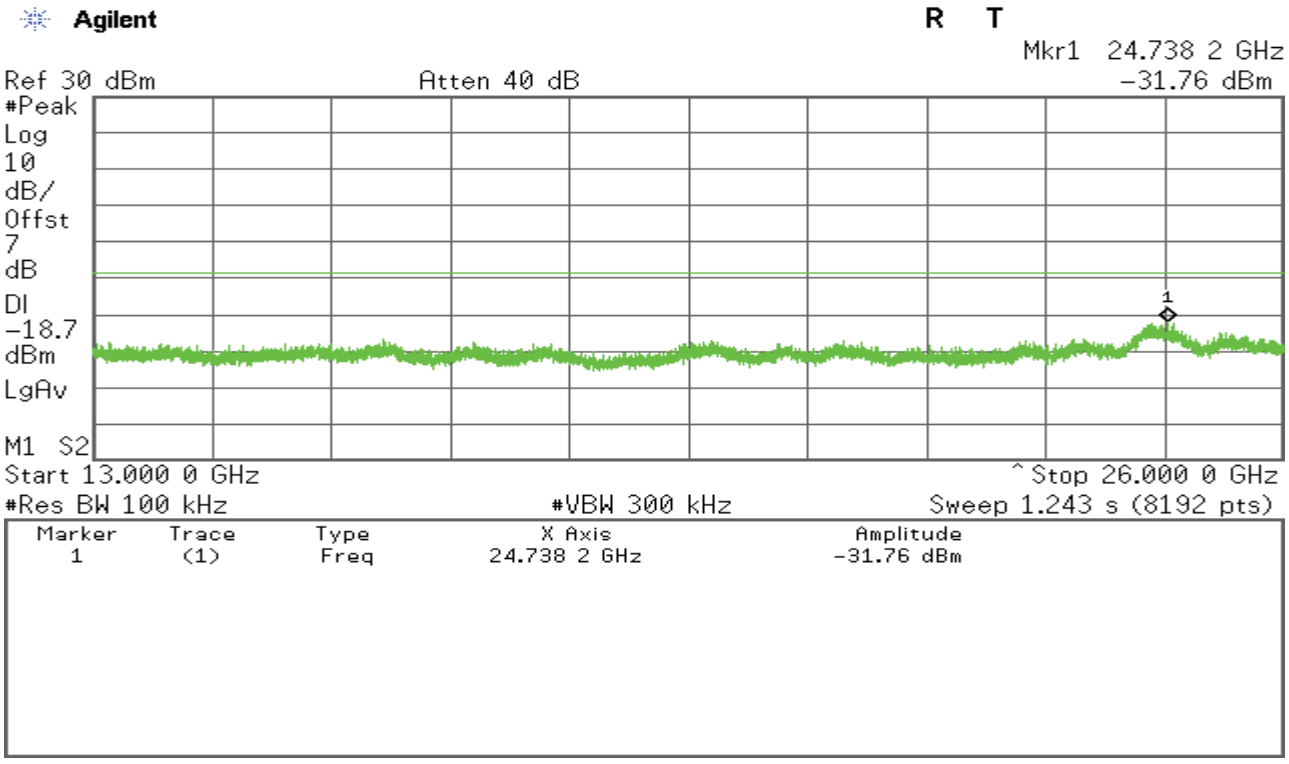


CH High



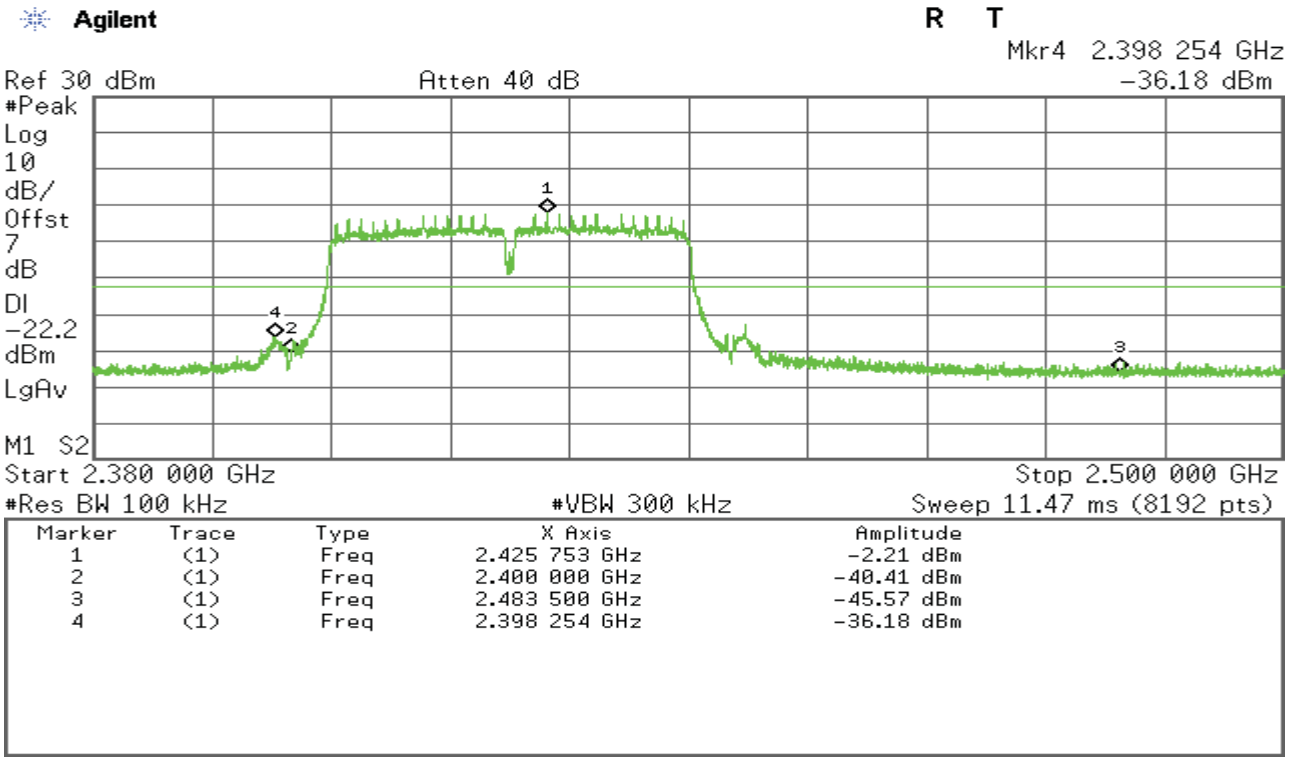




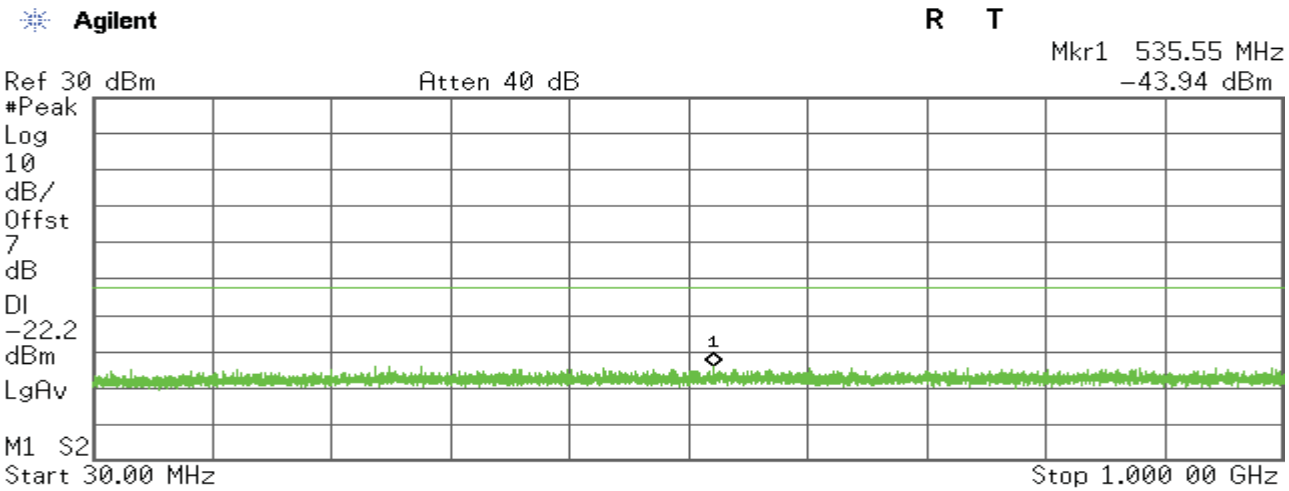


IEEE 802.11n HT40 mode

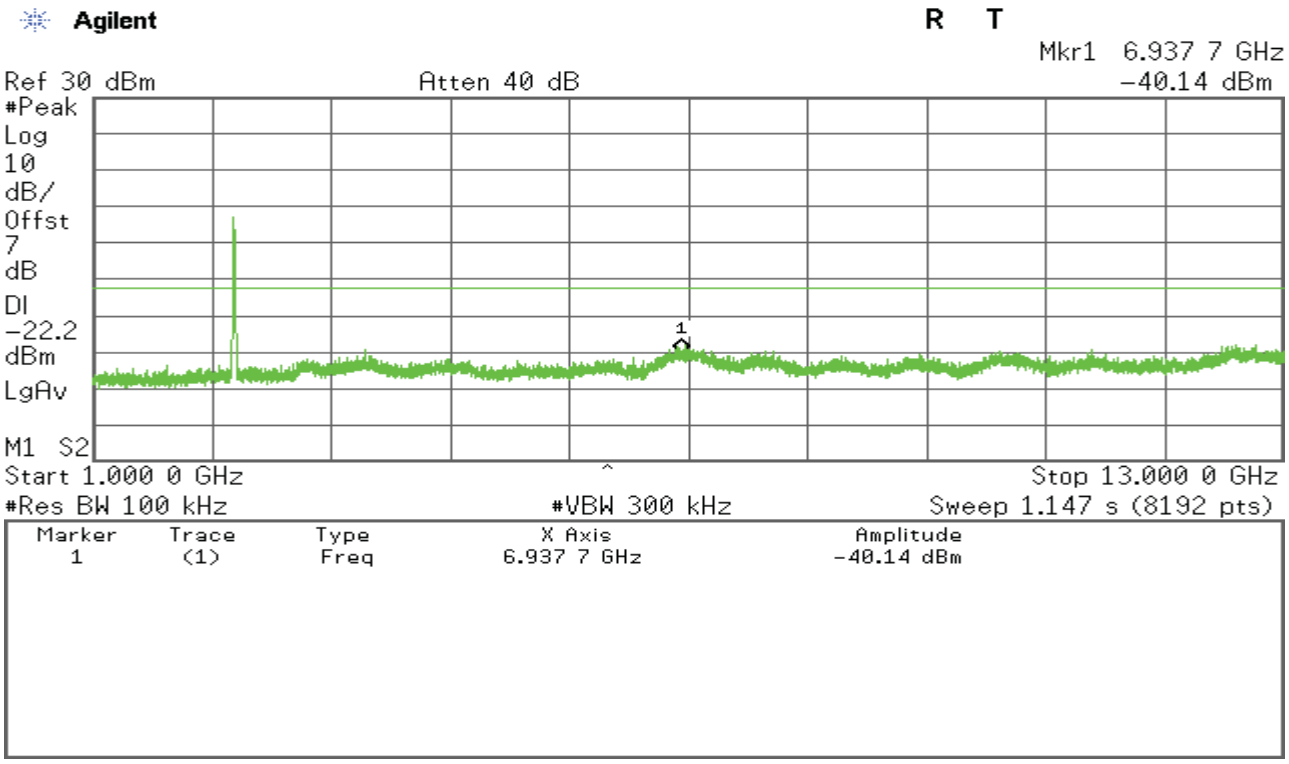
CH Low

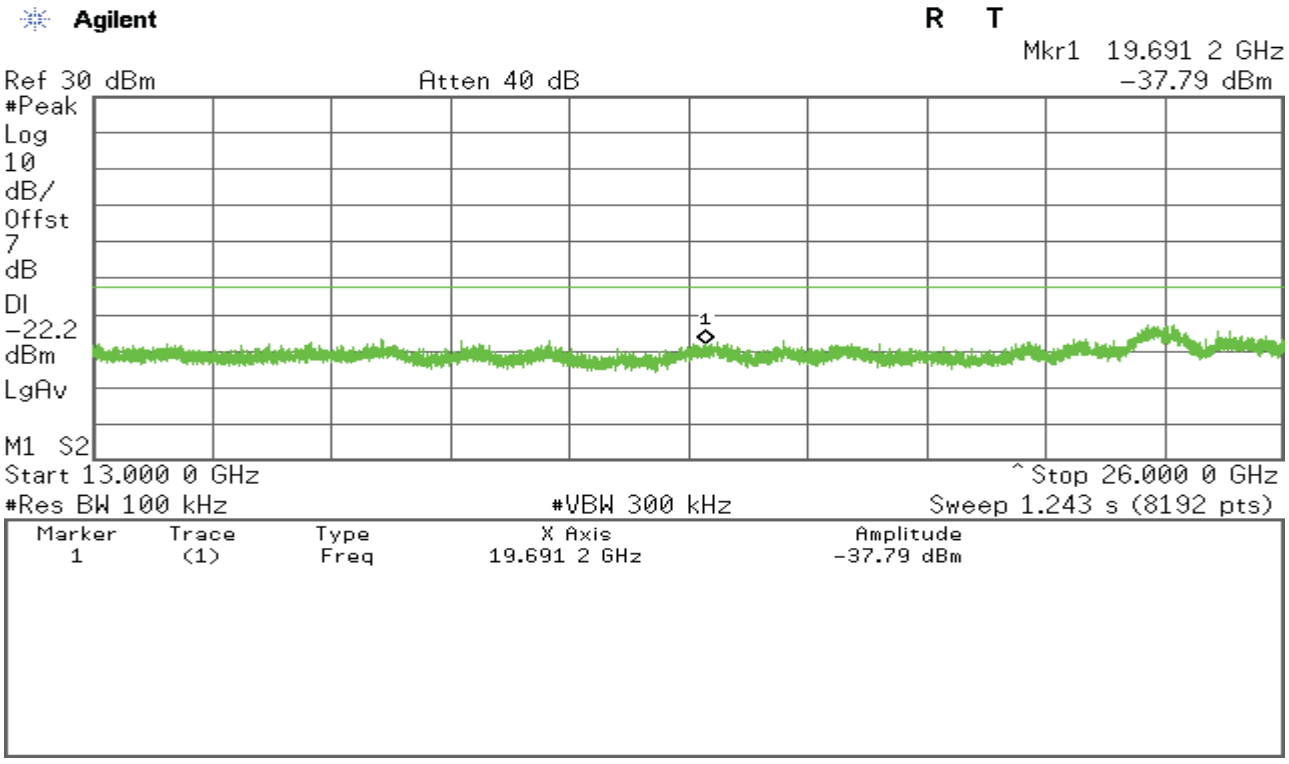


Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.425 753 GHz	-2.21 dBm
2	(1)	Freq	2.400 000 GHz	-40.41 dBm
3	(1)	Freq	2.483 500 GHz	-45.57 dBm
4	(1)	Freq	2.398 254 GHz	-36.18 dBm

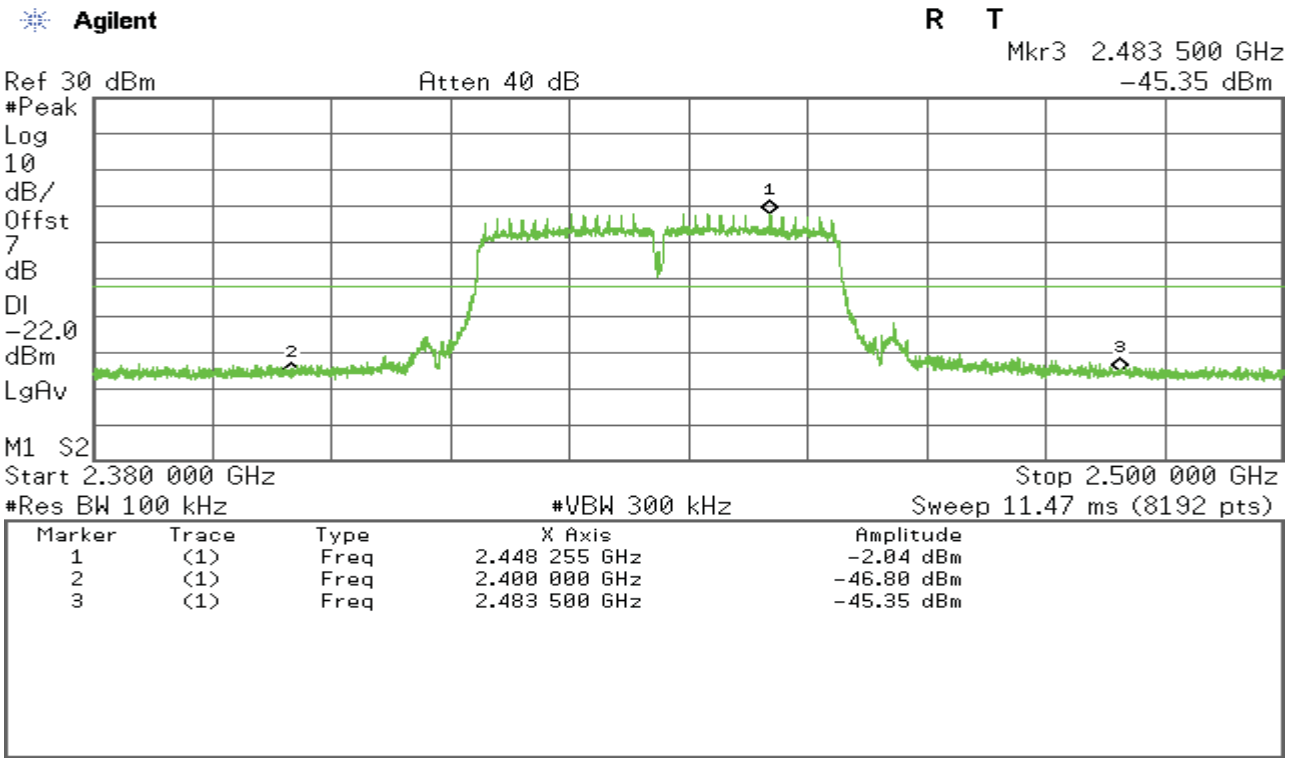


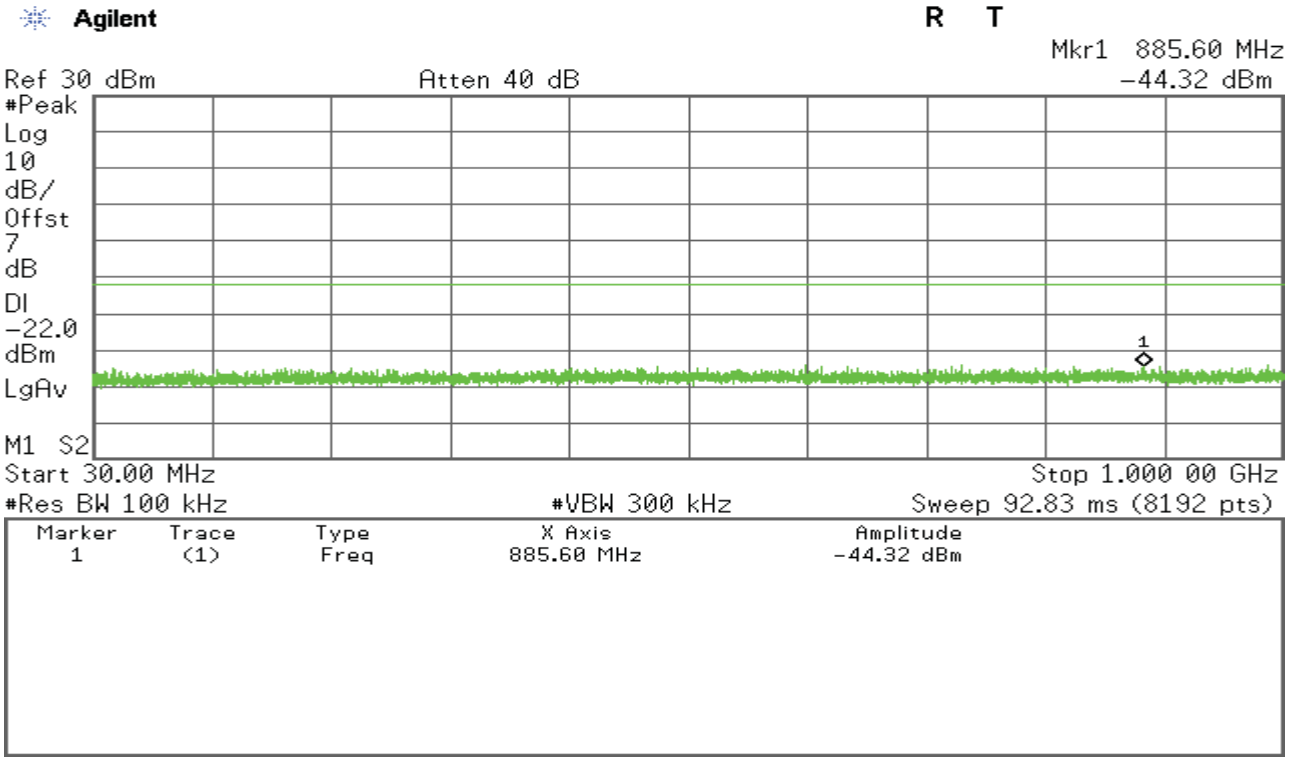
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	535.55 MHz	-43.94 dBm

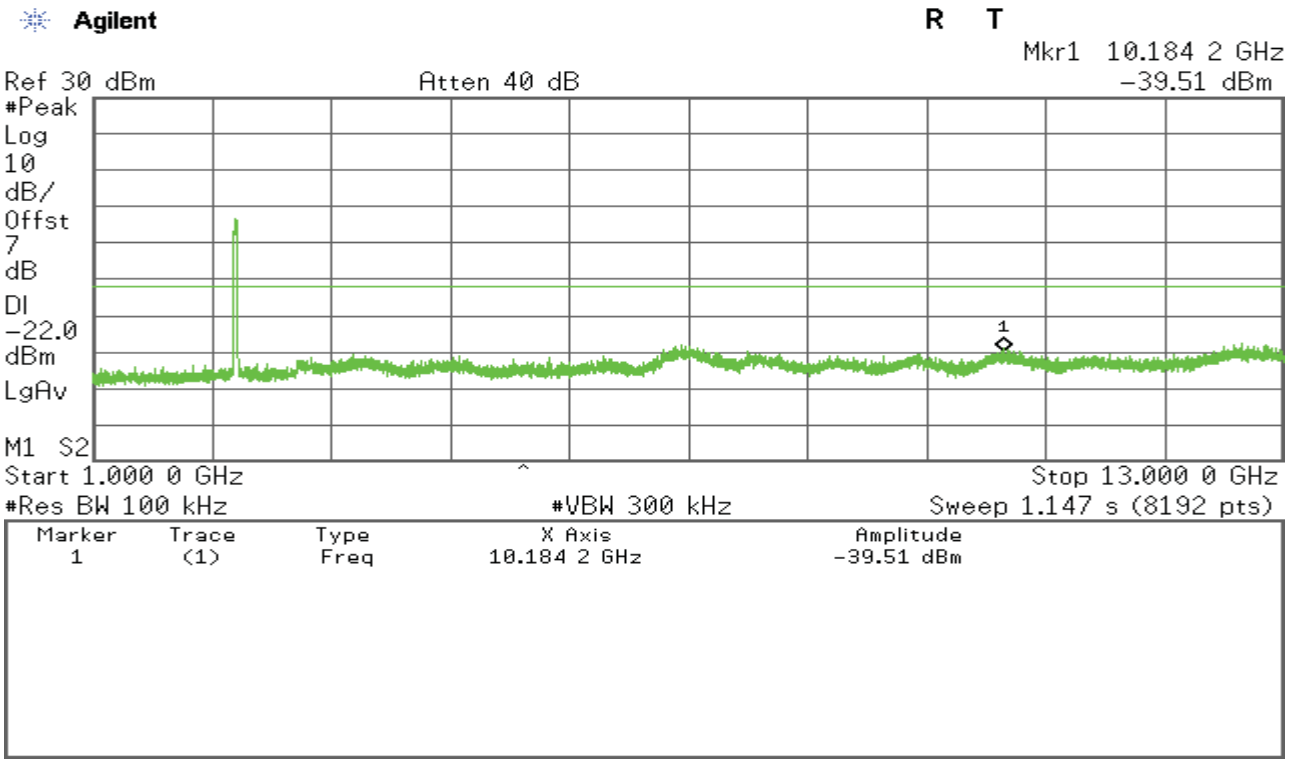


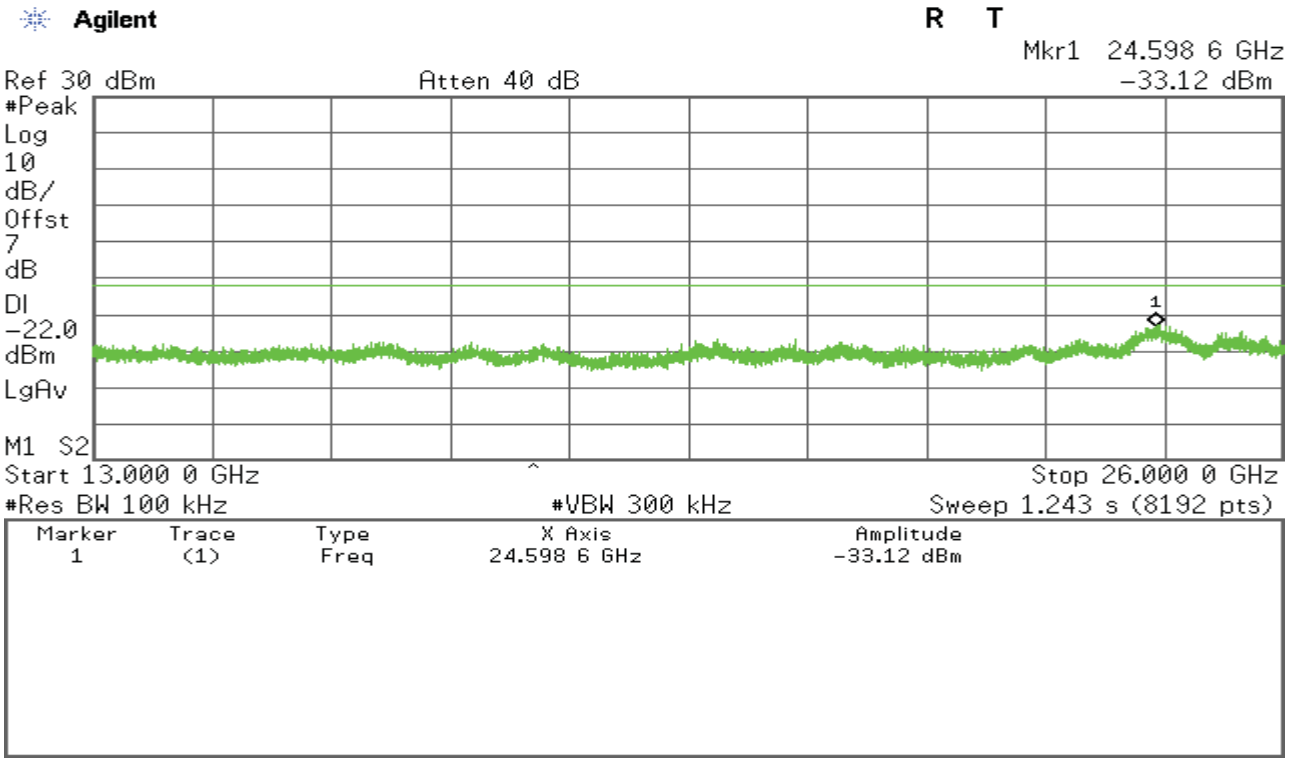


CH Mid

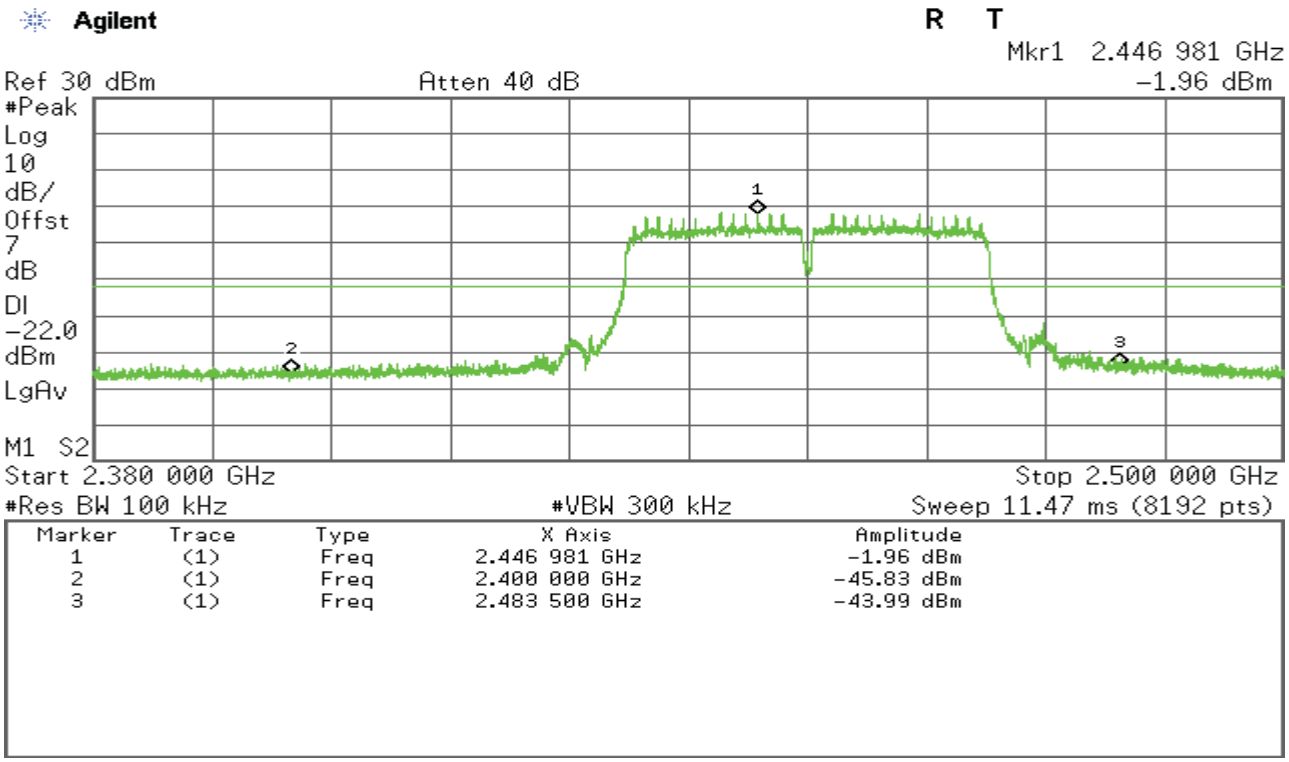


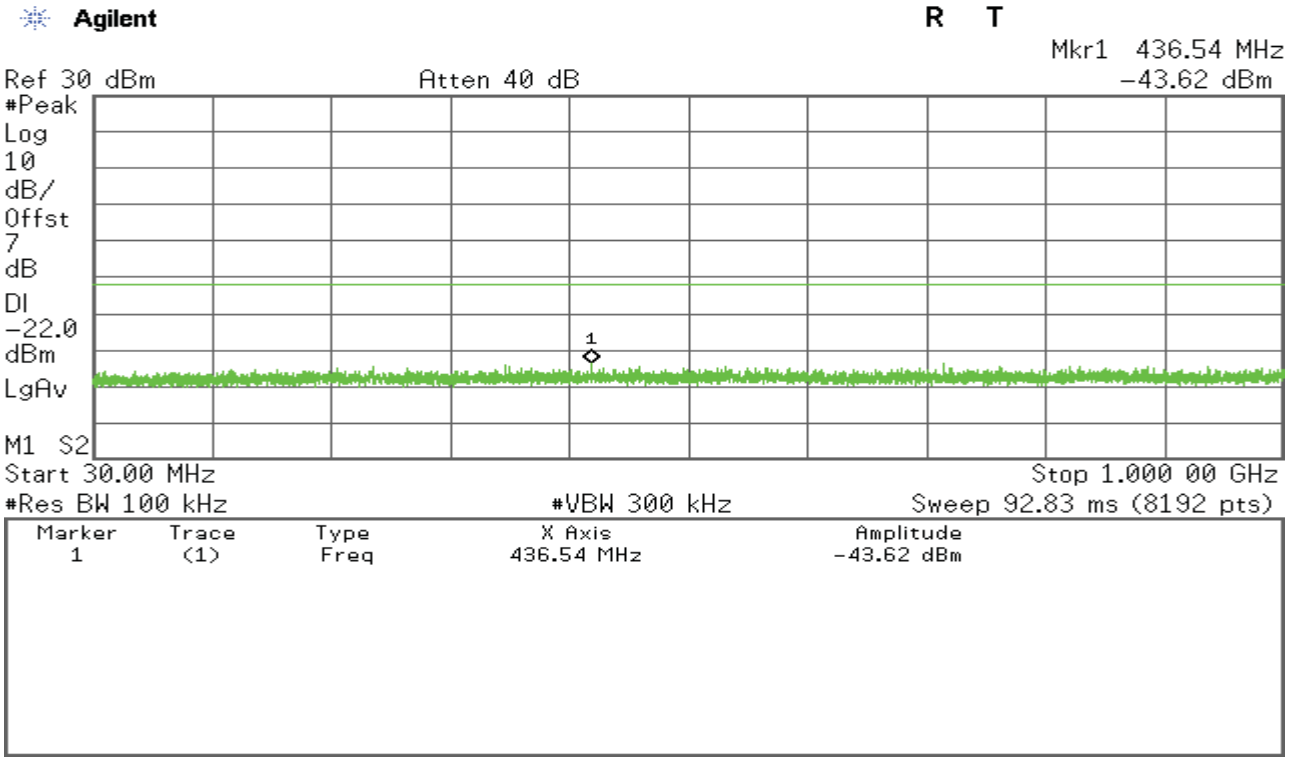


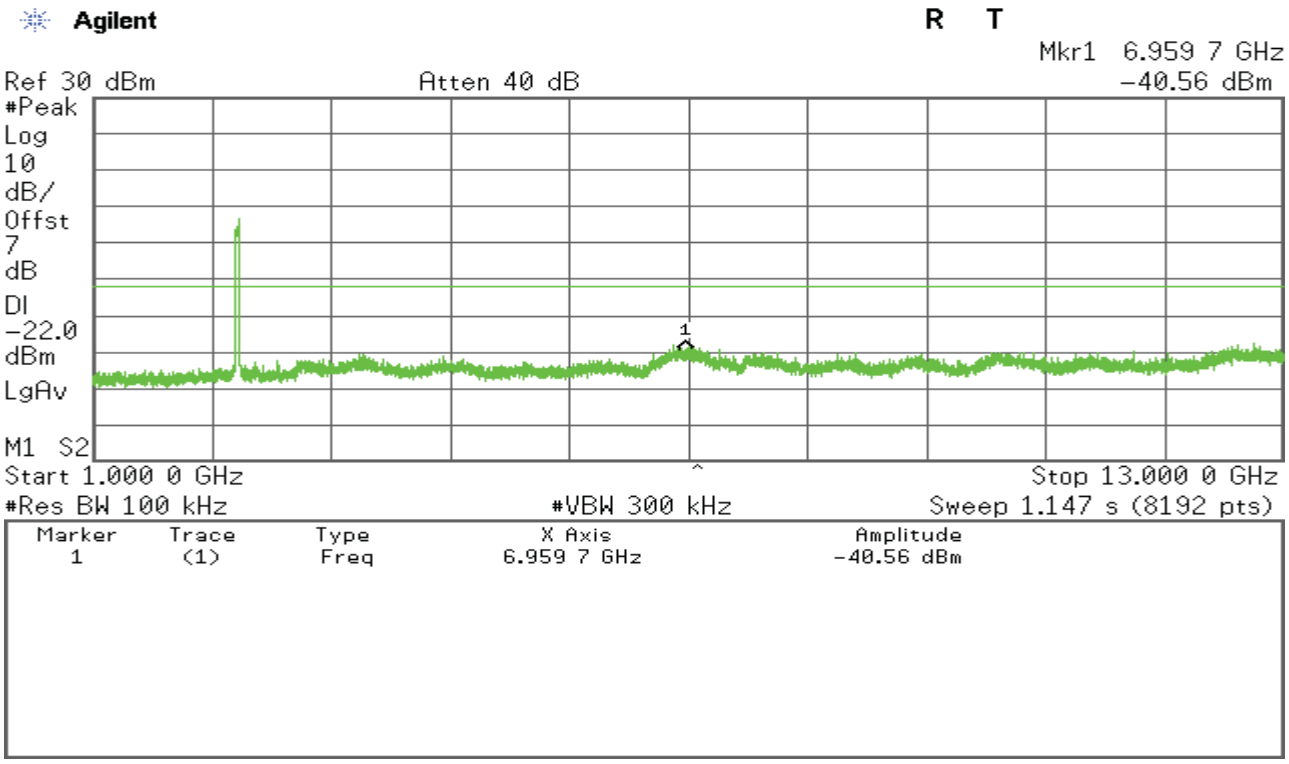


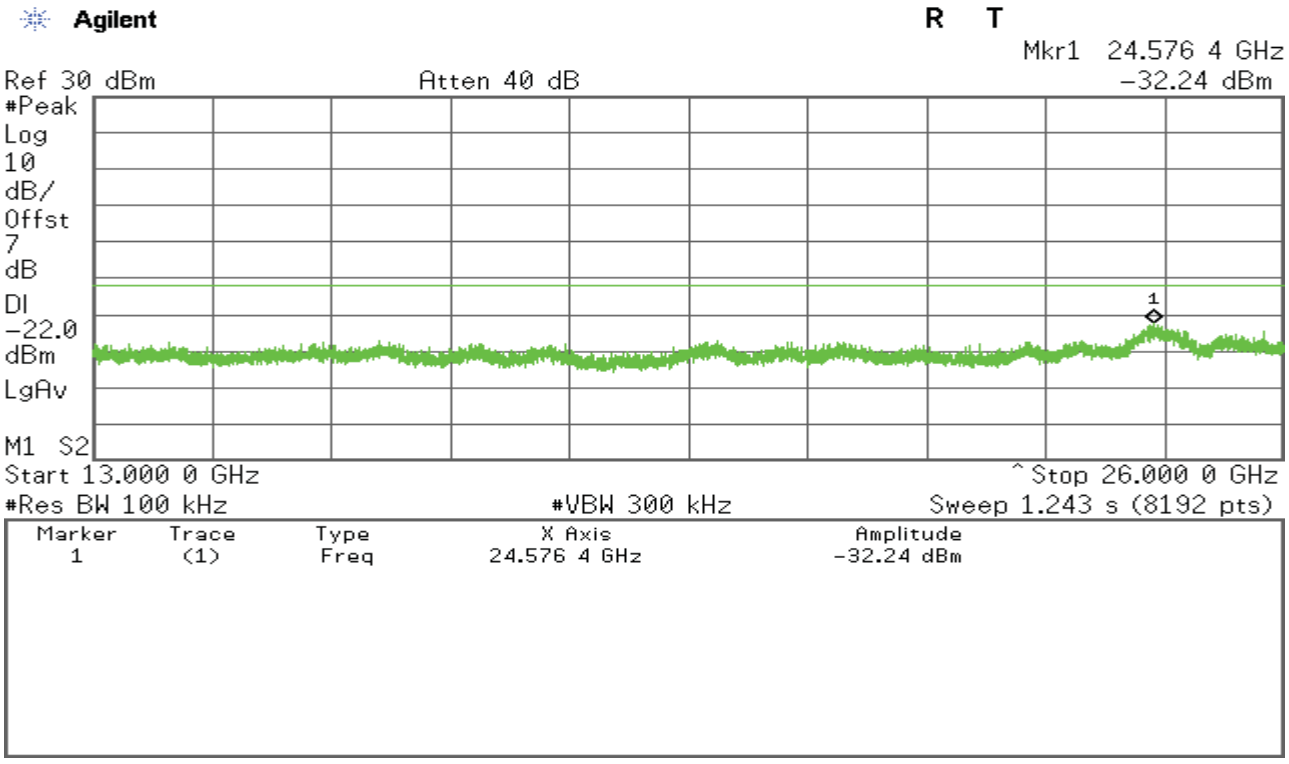


CH High









4.5.RADIATED EMISSIONS

LIMIT

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

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

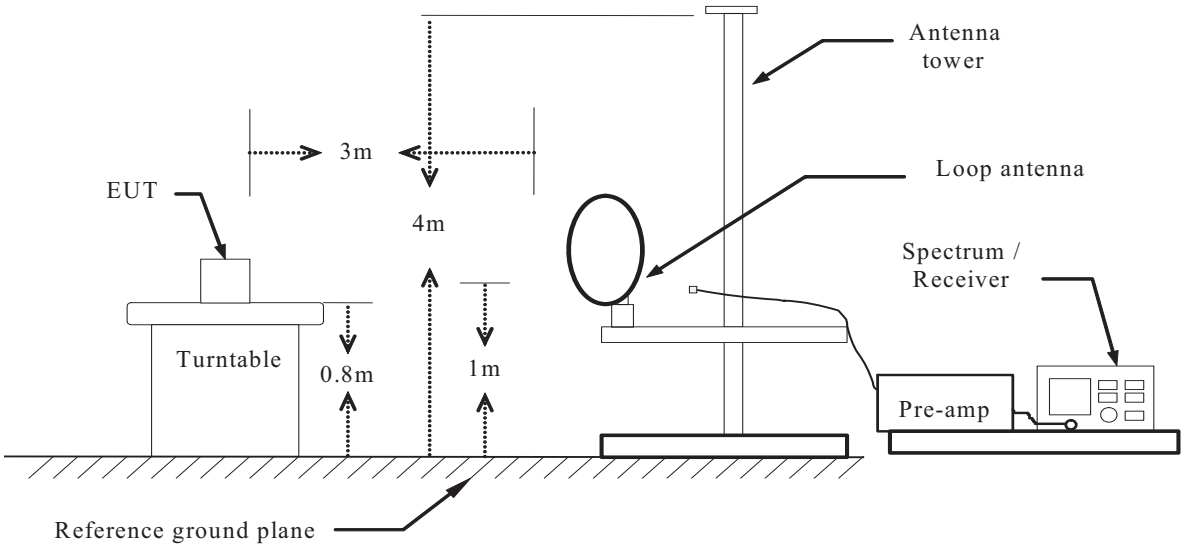
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

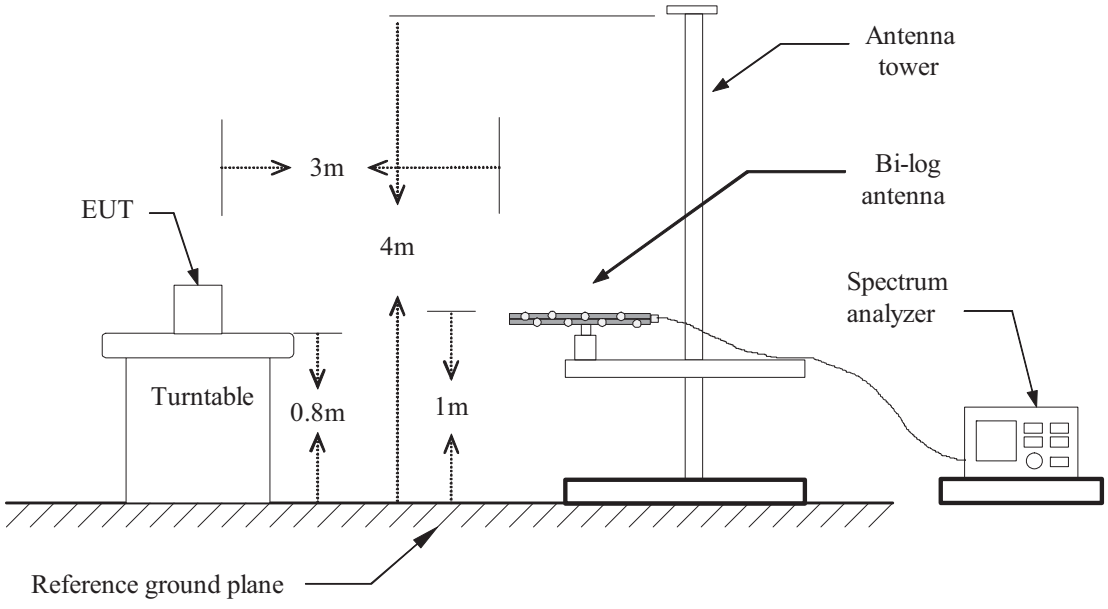
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

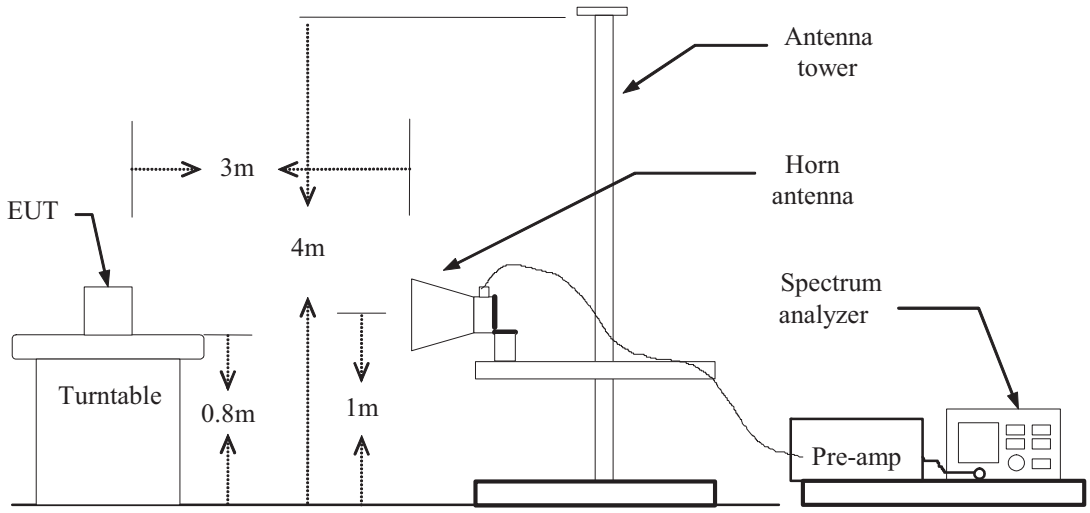
Below 30MHz



Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

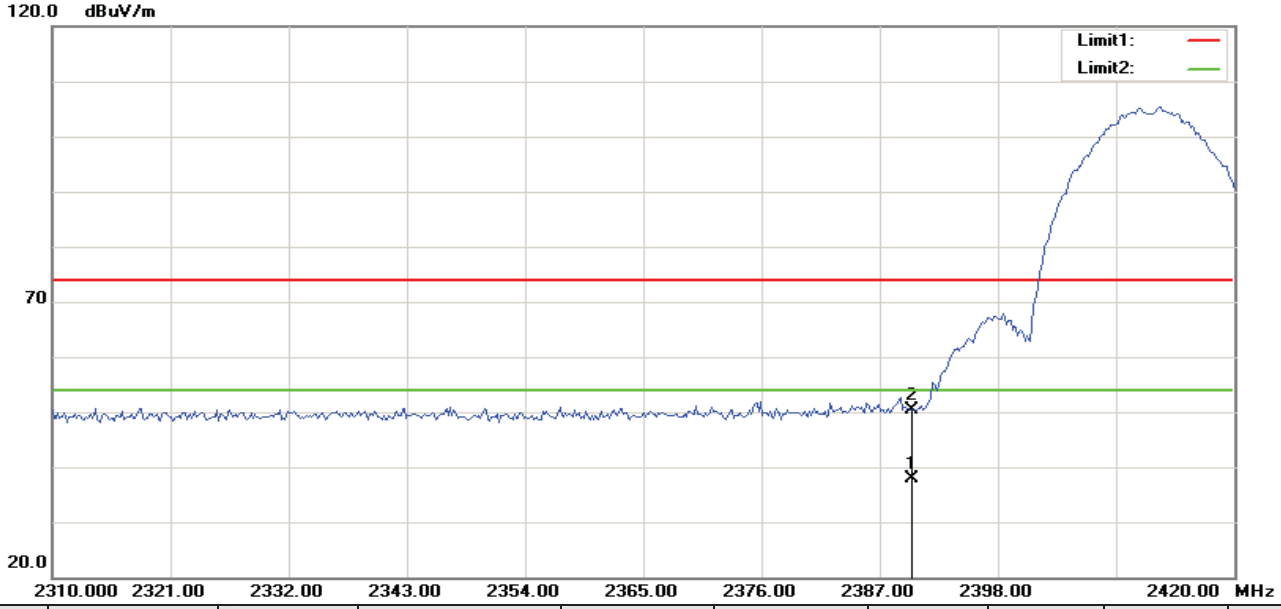
   Above 1GHz:

   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO, PEAK DETECTOR

   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO, PEAK DETECTOR
7. Repeat above procedures until the measurements for all frequencies are complete.

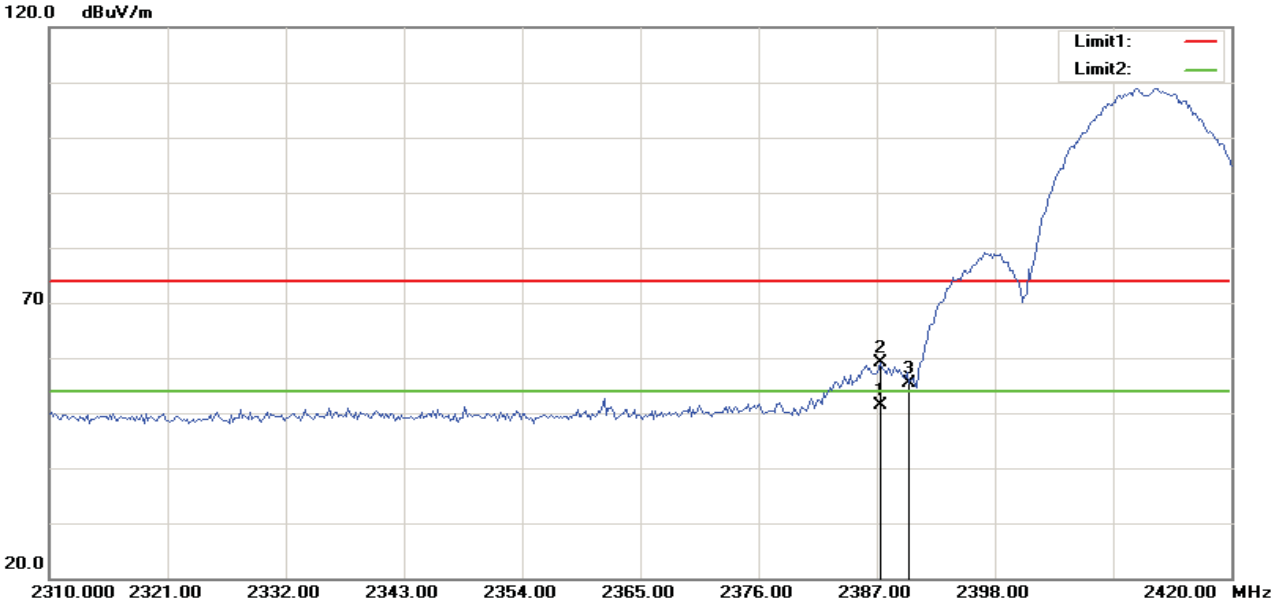
TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)



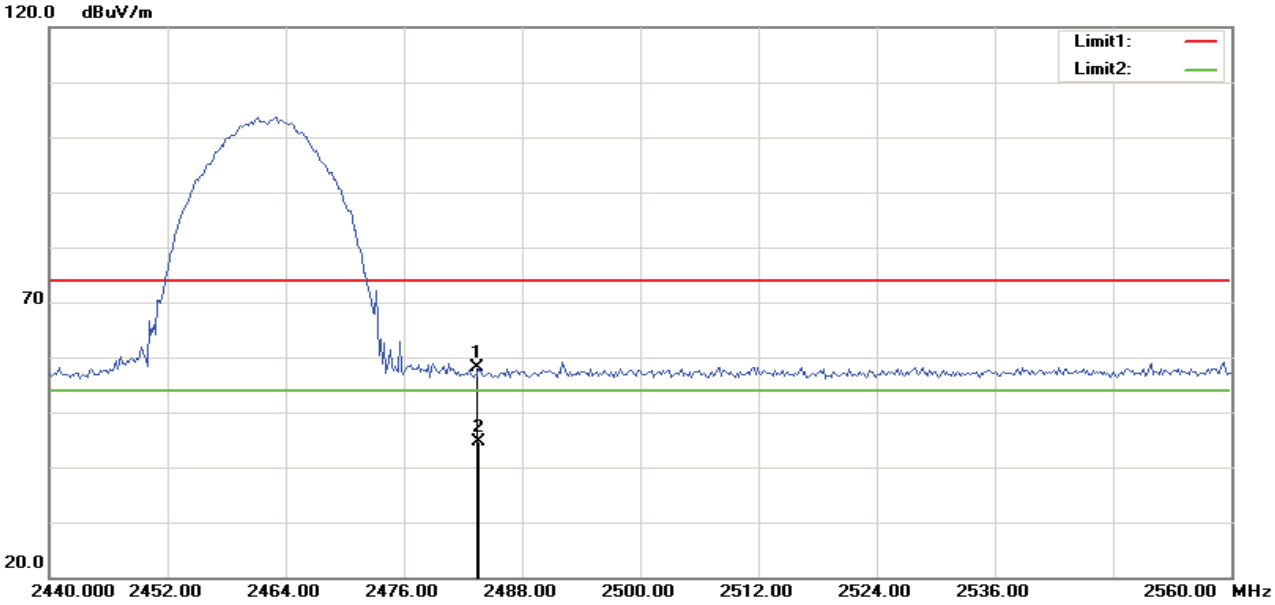
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2389.964	46.36	-8.45	37.91	54.00	-16.09	100	128	AVG
2	2390.000	46.02	-8.45	37.57	54.00	-16.43	100	132	AVG
3	2390.000	58.85	-8.45	50.40	74.00	-23.60	100	129	peak

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)



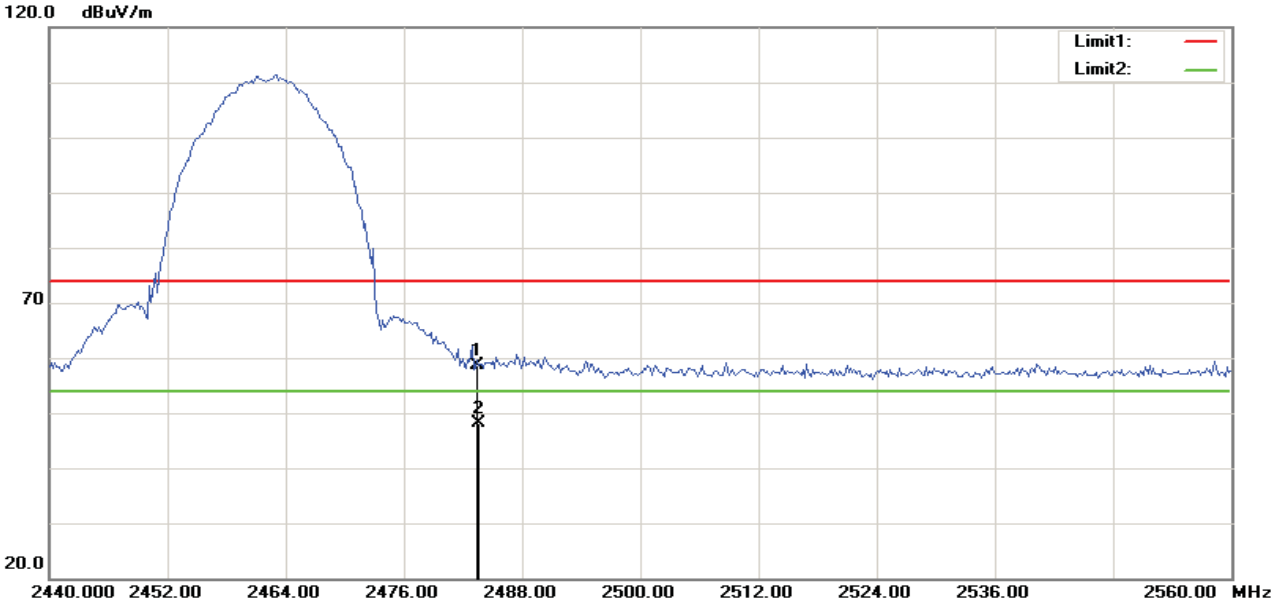
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2387.363	59.80	-8.46	51.34	54.00	-2.66	100	271	AVG
2	2387.388	67.47	-8.46	59.01	74.00	-14.99	100	273	peak
3	2390.000	63.91	-8.45	55.46	74.00	-18.54	100	273	peak
4	2390.000	58.72	-8.45	50.27	54.00	-3.73	100	269	AVG

RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)



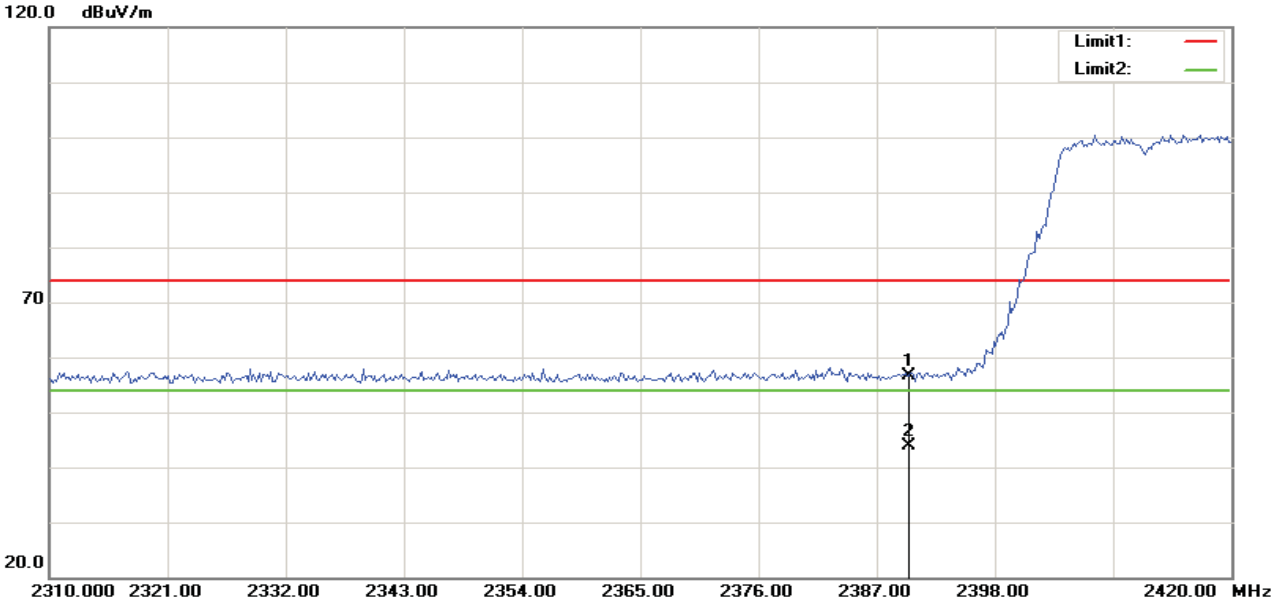
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	66.11	-8.09	58.02	74.00	-15.98	100	308	peak
2	2483.550	52.63	-8.09	44.54	54.00	-9.46	100	307	AVG

RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)



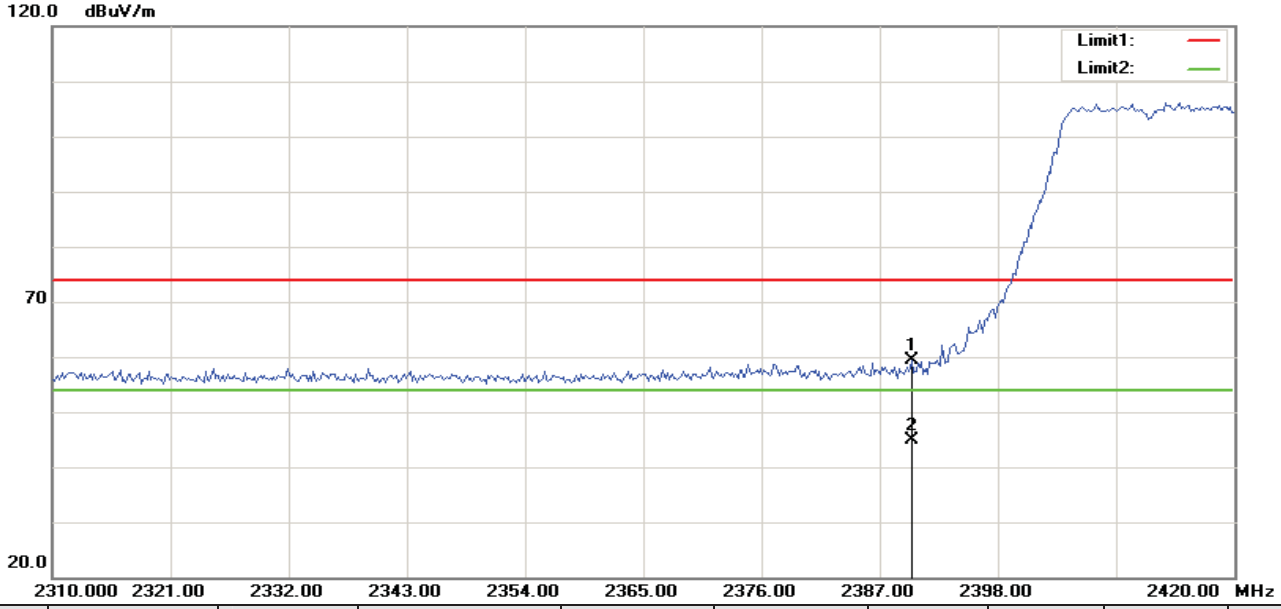
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	66.61	-8.09	58.52	74.00	-15.48	100	274	peak
2	2483.536	56.22	-8.09	48.13	54.00	-5.87	100	272	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)



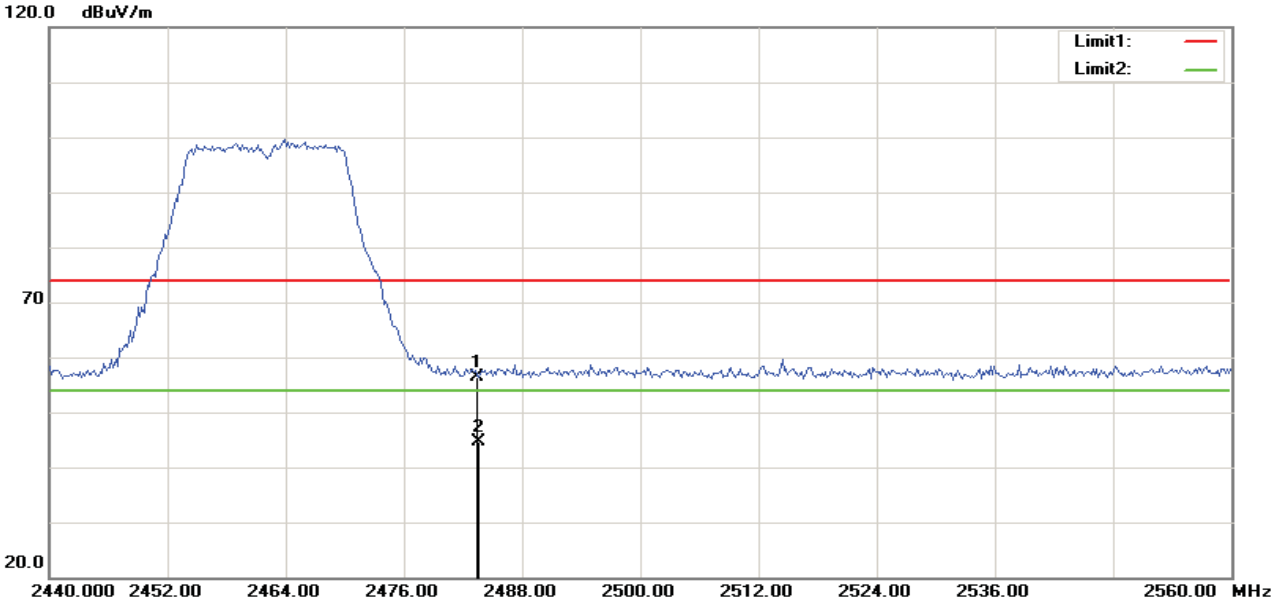
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	65.17	-8.45	56.72	74.00	-17.28	100	27	peak
2	2390.021	52.37	-8.45	43.92	54.00	-10.08	100	25	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)



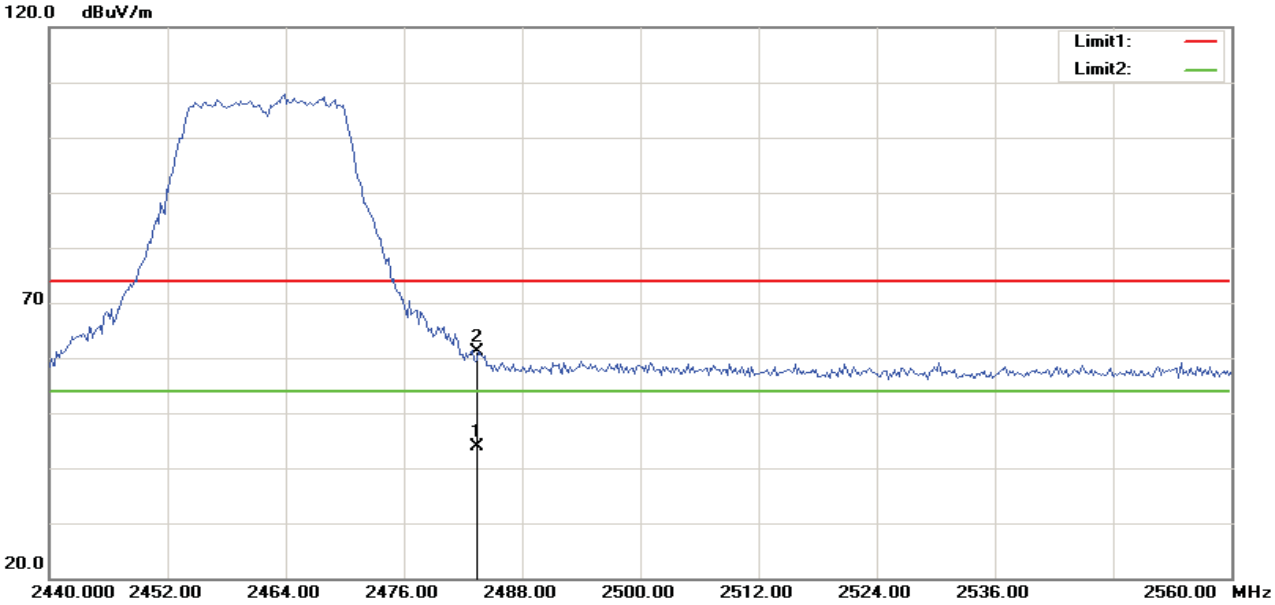
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	67.89	-8.45	59.44	74.00	-14.56	100	66	peak
2	2390.050	53.31	-8.45	44.86	54.00	-9.14	100	65	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)



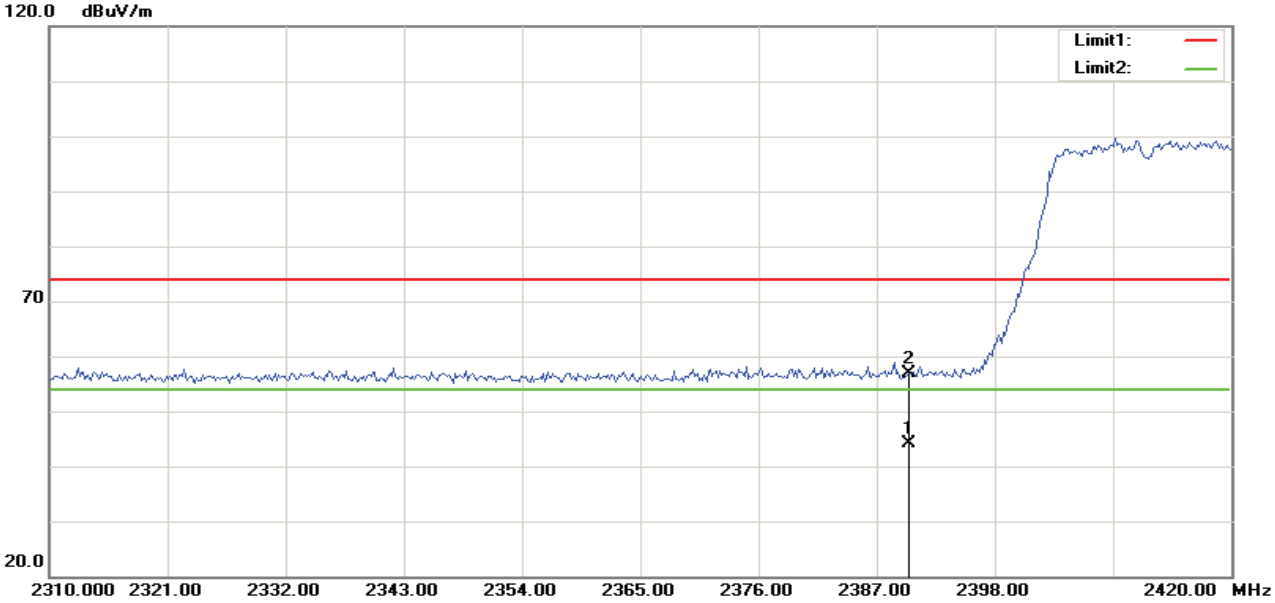
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	64.48	-8.09	56.39	74.00	-17.61	100	213	peak
2	2483.550	52.74	-8.09	44.65	54.00	-9.35	100	213	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)



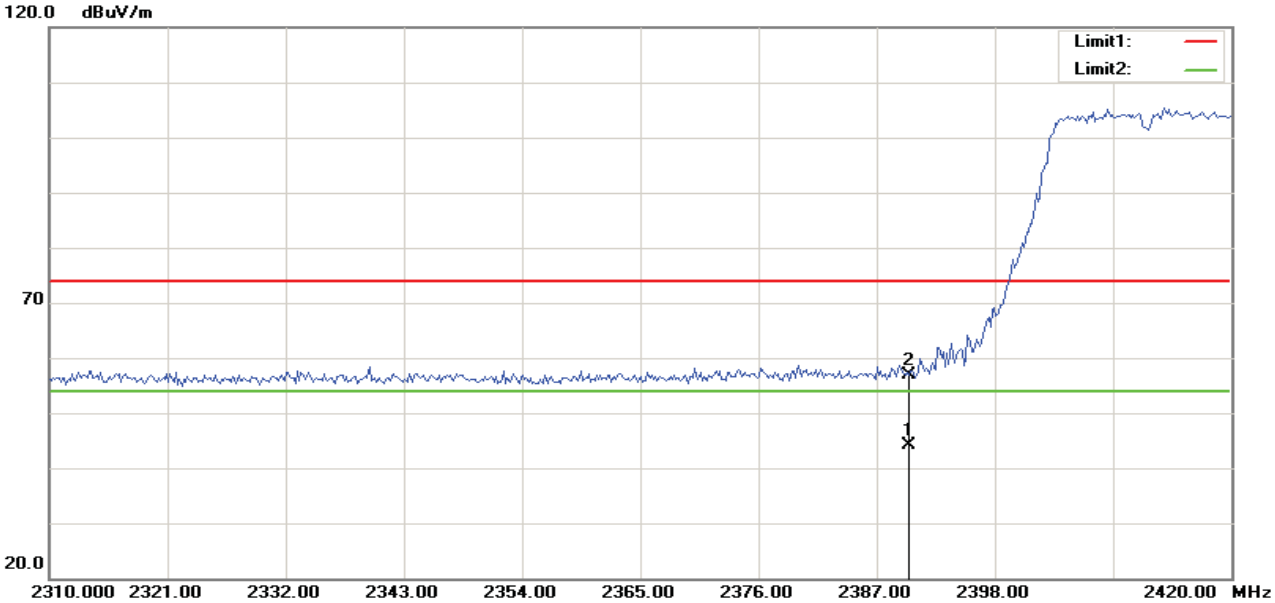
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.493	52.02	-8.09	43.93	54.00	-10.07	100	275	AVG
2	2483.500	69.11	-8.09	61.02	74.00	-12.98	100	275	peak

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



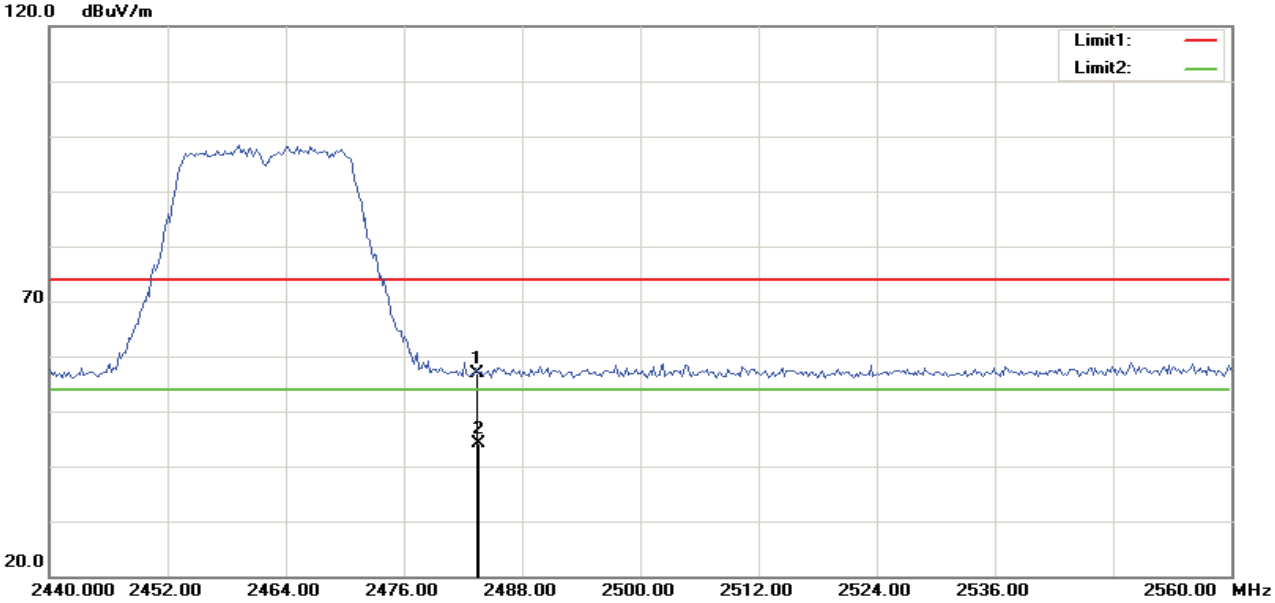
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2389.979	52.70	-8.45	44.25	54.00	-9.75	100	216	AVG
2	2390.000	65.26	-8.45	56.81	74.00	-17.19	100	218	peak

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



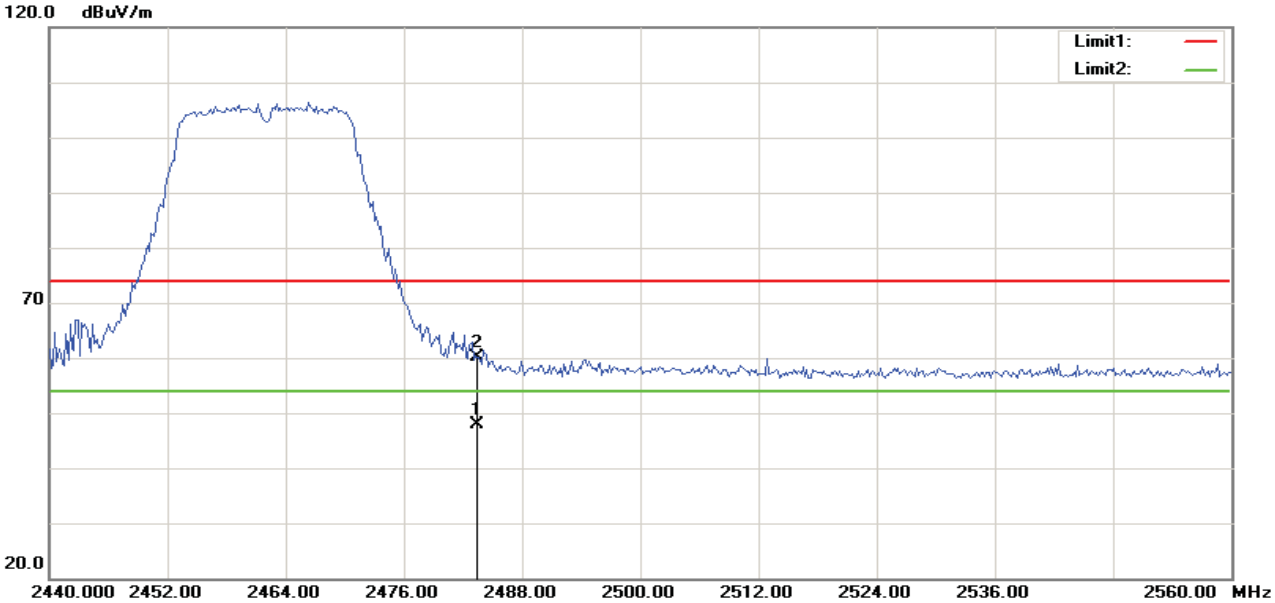
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2389.950	52.47	-8.45	44.02	54.00	-9.98	100	210	AVG
2	2390.000	65.32	-8.45	56.87	74.00	-17.13	100	210	peak

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



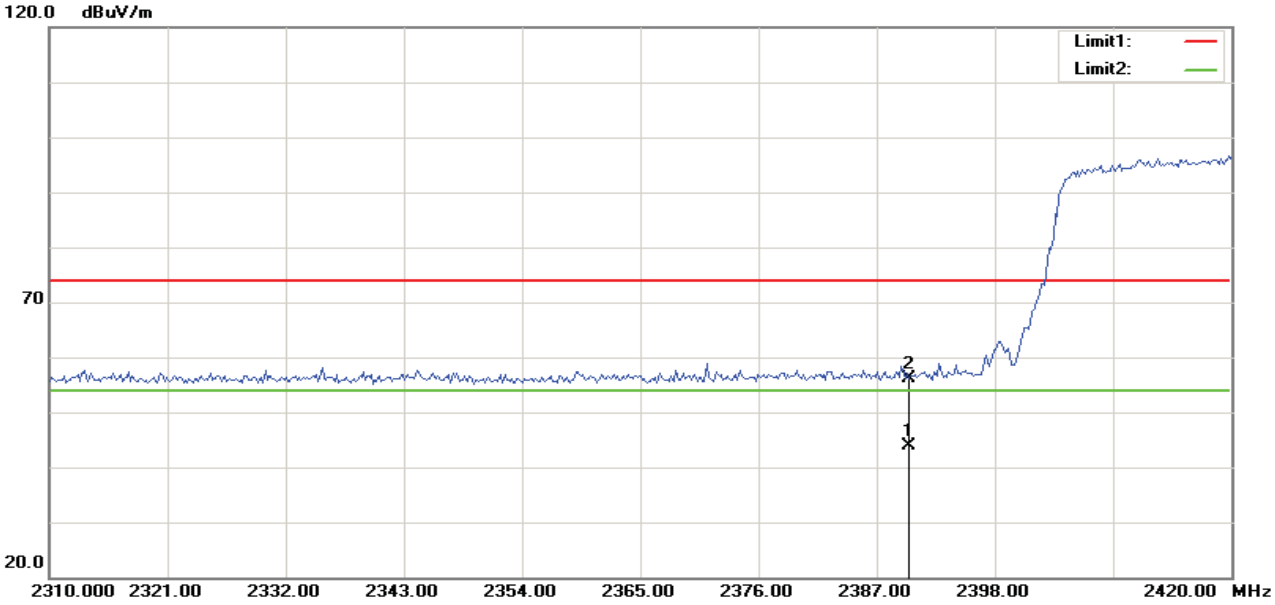
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.500	64.91	-8.09	56.82	74.00	-17.18	100	149	peak
2	2483.550	52.26	-8.09	44.17	54.00	-9.83	100	149	AVG

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



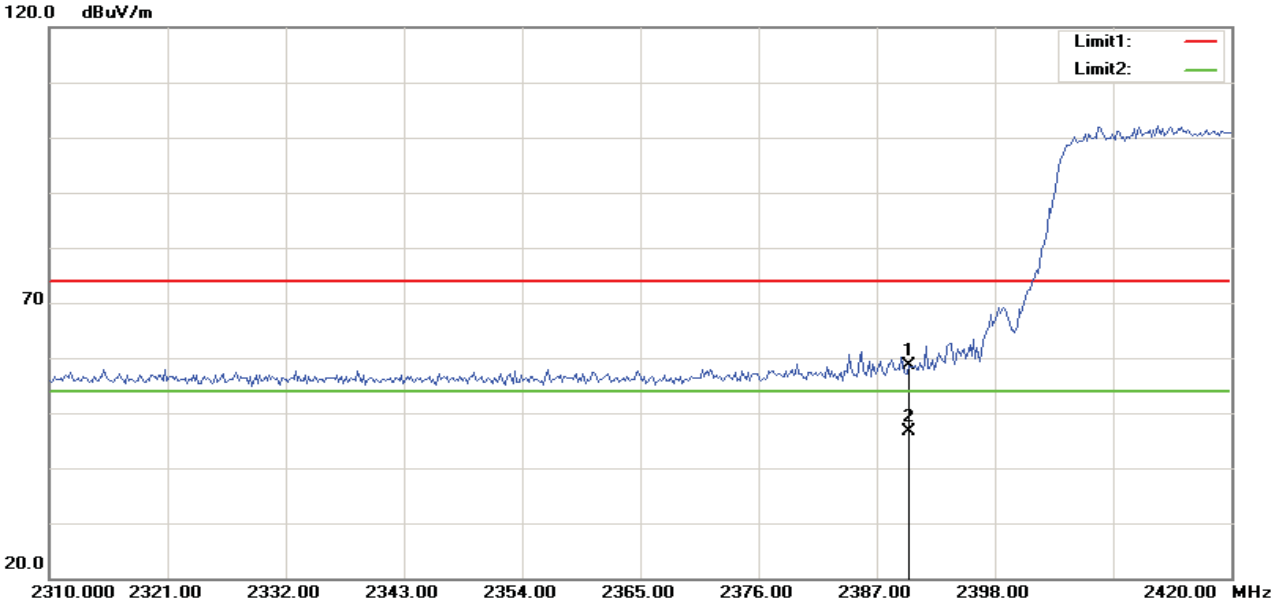
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2483.464	55.87	-8.09	47.78	54.00	-6.22	100	272	AVG
2	2483.500	68.10	-8.09	60.01	74.00	-13.99	100	272	peak

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



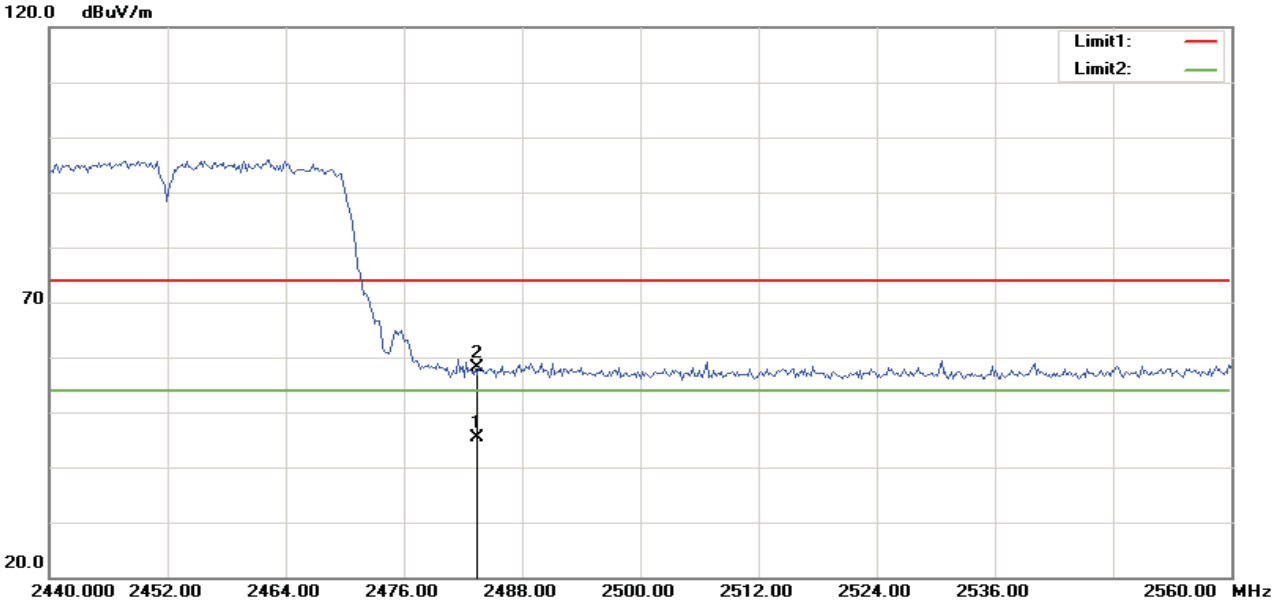
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.993	52.32	-8.45	43.87	54.00	-10.13	100	319	AVG
2	2390.000	64.53	-8.45	56.08	74.00	-17.92	100	319	peak

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



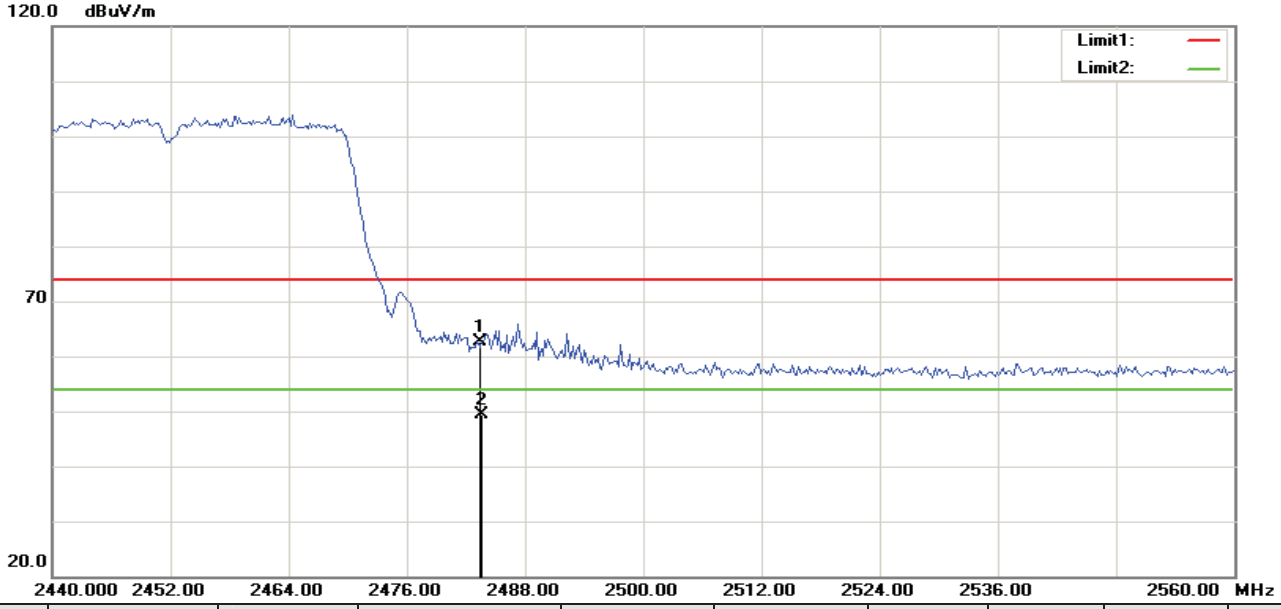
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	66.96	-8.45	58.51	74.00	-15.49	100	272	peak
2	2390.025	55.10	-8.45	46.65	54.00	-7.35	100	272	AVG

RESTRICTED BANDEDGE (n Wide -40 MHz Channel 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	2483.479	53.50	-8.09	45.41	54.00	-8.59	100	235	AVG
2	2483.500	66.31	-8.09	58.22	74.00	-15.78	100	237	peak

RESTRICTED BANDEDGE (n Wide -40 MHz Channel 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	70.70	-8.09	62.61	74.00	-11.39	100	270	peak
2	2483.521	57.48	-8.09	49.39	54.00	-4.61	100	270	AVG

Below 1GHz

Operation Mode: Keeping TX **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
43.9904	V	21.91	11.78	33.69	40.00	-6.31	Peak
143.4776	V	21.77	14.76	36.53	43.50	-6.97	Peak
261.6186	V	26.58	12.53	39.11	46.00	-6.89	Peak
642.4679	V	18.92	21.50	40.42	46.00	-5.58	Peak
827.4519	V	19.06	23.00	42.06	46.00	-3.94	Peak
1000.0000	V	17.65	25.43	43.08	54.00	-10.92	Peak
104.6154	H	21.91	11.78	33.69	40.00	-6.31	Peak
155.9135	H	21.77	14.76	36.53	43.50	-6.97	Peak
207.2115	H	26.58	12.53	39.11	46.00	-6.89	Peak
314.4712	H	18.92	21.50	40.42	46.00	-5.58	Peak
787.0353	H	19.06	23.00	42.06	46.00	-3.94	Peak
931.6026	H	17.65	25.43	43.08	54.00	-10.92	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:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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	59.38	-1.24	58.14	74.00	-15.86	100	144	peak
2	4814.103	50.50	-1.24	49.26	54.00	-4.74	100	144	AVG
3	7048.077	44.10	4.61	48.71	74.00	-25.29	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	4814.103	54.32	-1.24	53.08	74.00	-20.92	100	143	peak
2	7157.051	44.09	4.39	48.48	74.00	-25.52	100	2	peak
N/A									

Operation Mode: TX / IEEE 802.11b / CH Mid **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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	2334.936	55.55	-8.68	46.87	74.00	-27.13	100	356	peak
2	4923.077	39.82	-1.32	38.50	74.00	-35.50	100	344	peak
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	2389.423	56.05	-8.45	47.60	74.00	-26.40	100	13	peak
2	4895.833	40.02	-1.30	38.72	74.00	-35.28	100	270	peak
3	7347.756	39.63	4.02	43.65	74.00	-30.35	100	62	peak
N/A									

Operation Mode: TX / IEEE 802.11b / CH High **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4923.077	58.74	-1.32	57.42	74.00	-16.58	100	147	peak
2	4923.077	50.14	-1.32	48.82	54.00	-5.18	100	147	AVG
2	7838.141	43.63	5.91	49.54	74.00	-24.46	100	308	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	53.73	-1.32	52.41	74.00	-21.59	100	142	peak
2	7783.654	42.99	6.09	49.08	74.00	-24.92	100	113	peak
3	9608.974	42.99	7.18	50.17	74.00	-23.83	100	306	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH Low **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4814.103	53.89	-1.24	52.65	74.00	-21.35	100	150	peak
2	7048.077	44.04	4.61	48.65	74.00	-25.35	100	265	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	4814.103	48.20	-1.24	46.96	74.00	-27.04	100	138	peak
2	7102.564	44.02	4.50	48.52	74.00	-25.48	100	294	peak
3	9472.756	42.83	6.96	49.79	74.00	-24.21	100	127	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH Mid **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	7320.513	40.75	4.07	44.82	74.00	-29.18	100	289	peak
2	9636.218	37.64	7.04	44.68	74.00	-29.32	100	107	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	2525.641	54.41	-7.93	46.48	74.00	-27.52	100	125	peak
2	4923.077	39.70	-1.32	38.38	74.00	-35.62	100	130	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH High **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4923.077	55.25	-1.32	53.93	74.00	-20.07	100	147	peak
2	7729.167	42.90	5.92	48.82	74.00	-25.18	100	215	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	49.93	-1.32	48.61	74.00	-25.39	100	138	peak
2	7647.436	43.27	5.66	48.93	74.00	-25.07	100	329	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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	53.80	-1.24	52.56	74.00	-21.44	100	144	peak
2	7974.359	44.30	5.07	49.37	74.00	-24.63	100	56	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	48.64	-1.24	47.40	74.00	-26.60	100	144	peak
2	7129.808	43.93	4.45	48.38	74.00	-25.62	100	159	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Mid **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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	4868.590	40.61	-1.28	39.33	74.00	-34.67	100	229	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	4895.833	40.02	-1.30	38.72	74.00	-35.28	100	270	peak
2	7375.000	38.81	3.97	42.78	74.00	-31.22	100	41	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH High **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4923.077	55.24	-1.32	53.92	74.00	-20.08	100	148	peak
2	7838.141	43.74	5.91	49.65	74.00	-24.35	100	360	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	48.40	-1.32	47.08	74.00	-26.92	100	138	peak
2	7947.115	43.99	5.24	49.23	74.00	-24.77	100	159	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Low **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4841.346	54.36	-1.26	53.10	74.00	-20.90	100	144	peak
2	6993.590	44.02	4.64	48.66	74.00	-25.34	100	154	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	49.59	-1.26	48.33	74.00	-25.67	100	140	peak
2	7048.077	44.18	4.61	48.79	74.00	-25.21	100	5	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Mid **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	7238.782	40.78	4.23	45.01	74.00	-28.99	100	297	peak
2	9608.974	38.98	7.18	46.16	74.00	-27.84	100	112	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	42.30	-1.26	41.04	74.00	-32.96	100	301	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode / CH High **Test Date:** 2014-8-7

Temperature: 24°C **Tested by:** James.Yan

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

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	4895.833	55.22	-1.30	53.92	74.00	-20.08	100	147	peak
2	7592.949	43.71	5.45	49.16	74.00	-24.84	100	151	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	4895.833	49.19	-1.30	47.89	74.00	-26.11	100	110	peak
2	7048.077	44.63	4.61	49.24	74.00	-24.76	100	108	peak
N/A									

4.6.POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 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.

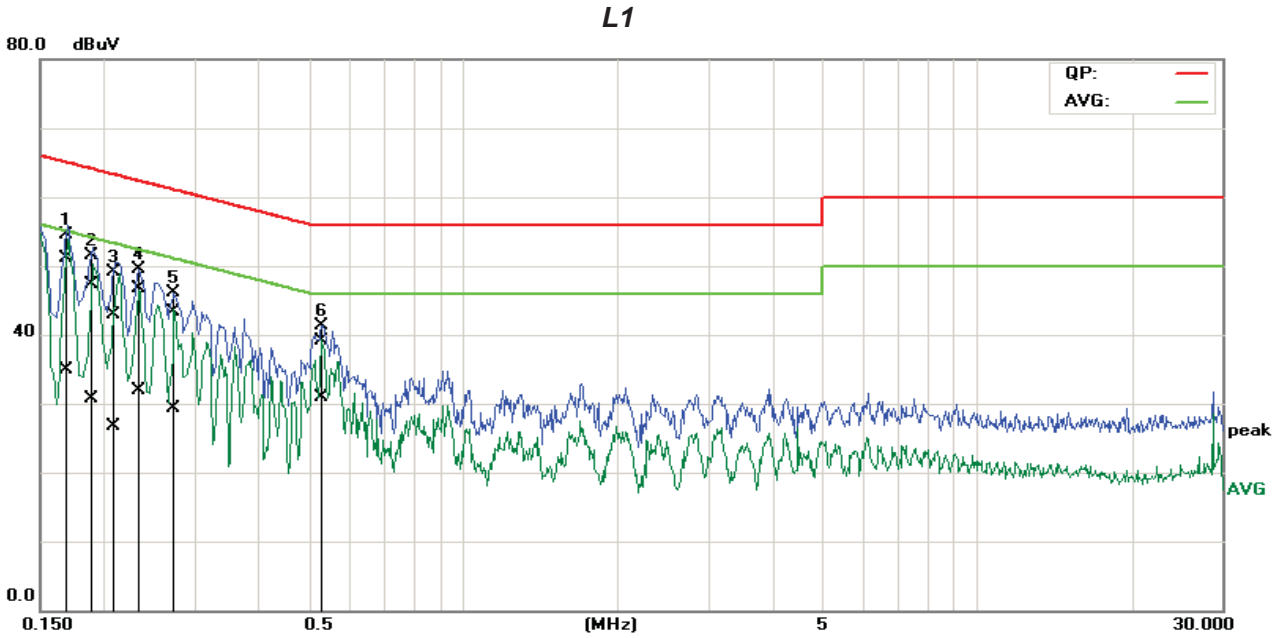
3.Repeat above procedures until all frequency measured were complete.

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.:	C140801R01	Date:	2014-8-8
Model:	ATV582	Time:	12:32:29
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	

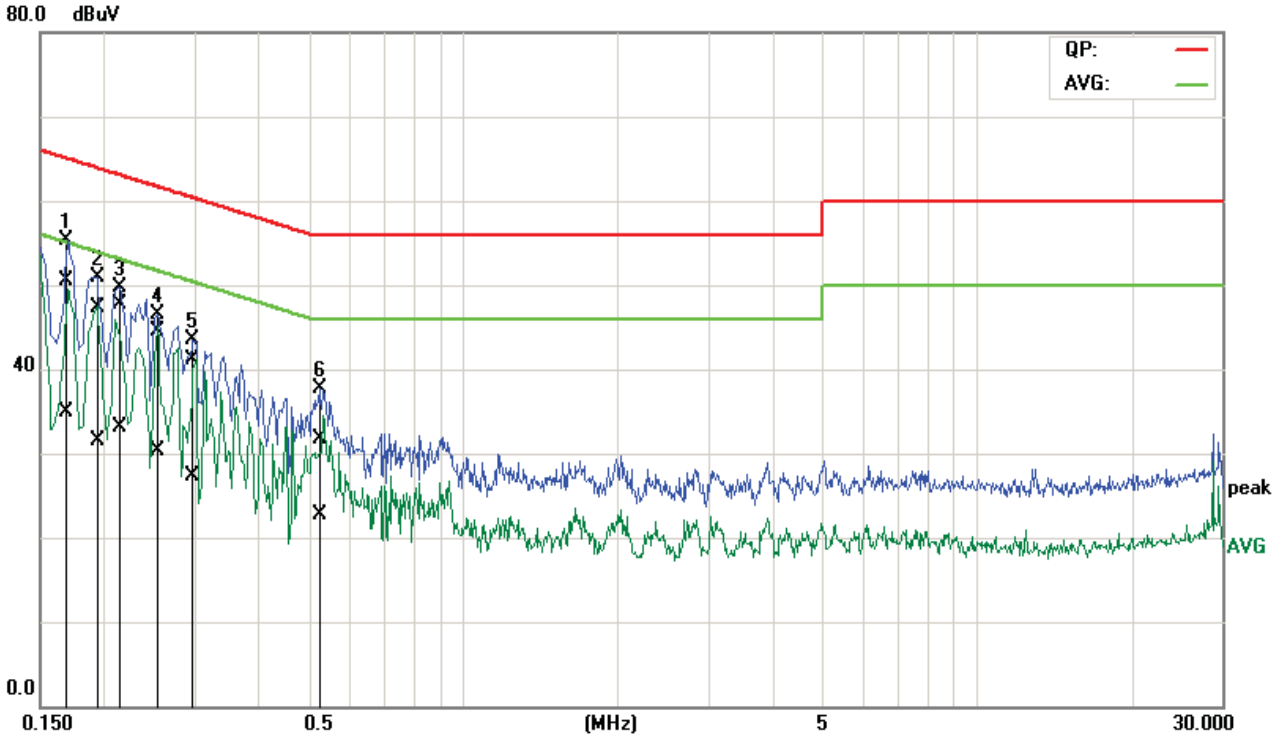


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1662	31.33	15.19	19.74	51.07	34.93	65.15	55.15	-14.08	-20.22	Pass
2	0.1858	27.74	11.09	19.66	47.40	30.75	64.22	54.22	-16.82	-23.47	Pass
3	0.2054	23.36	7.14	19.60	42.96	26.74	63.39	53.39	-20.43	-26.65	Pass
4	0.2314	27.04	12.36	19.62	46.66	31.98	62.40	52.40	-15.74	-20.42	Pass
5	0.2743	23.68	9.60	19.66	43.34	29.26	60.99	50.99	-17.65	-21.73	Pass
6	0.5314	19.29	11.04	19.83	39.12	30.87	56.00	46.00	-16.88	-15.13	Pass

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

Job No.:	C140801R01	Date:	2014-8-8
Model:	ATV582	Time:	12:36:59
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	

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*	0.1672	30.74	15.22	19.70	50.44	34.92	65.10	55.10	-14.66	-20.18	Pass
2	0.1949	27.57	11.76	19.65	47.22	31.41	63.83	53.83	-16.61	-22.42	Pass
3	0.2130	27.98	13.55	19.65	47.63	33.20	63.09	53.09	-15.46	-19.89	Pass
4	0.2538	24.75	10.63	19.68	44.43	30.31	61.63	51.63	-17.20	-21.32	Pass
5	0.2969	21.39	7.66	19.71	41.10	27.37	60.33	50.33	-19.23	-22.96	Pass
6	0.5185	11.84	2.82	19.85	31.69	22.67	56.00	46.00	-24.31	-23.33	Pass

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