

FCC 47 CFR PART 15 SUBPART C**TEST REPORT****For****Product Name: Mi Home Security Camera****Brand Name: MI ,****Model No.: SXJ01ZM****Series Model.:N/A****FCC ID: 2AMIN-SXJ01ZM****Test Report Number:****C170307R01-RPW****Issued for****ZIMI CORPORATION****Room A913, No. 159 Chengjiang Road, Jiangyin City, Jiangsu Province, P.R.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**

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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	April 28, 2017	C170307R01-RPW	ALL	N/A

1. TEST RESULT CERTIFICATION

Product Name:	Mi Home Security Camera
Trade Name:	MI , 
Model Name.:	SXJ01ZM
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Mobile unit
Date of Test:	April 12, 2017 ~ April 21, 2017
Applicant:	ZIMI CORPORATION Room A913, No. 159 Chengjiang Road, Jiangyin City, Jiangsu Province, P.R.China
Manufacturer:	ZIMI CORPORATION Room A913, No. 159 Chengjiang Road, Jiangyin City, Jiangsu Province, P.R.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 C63.10: 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.

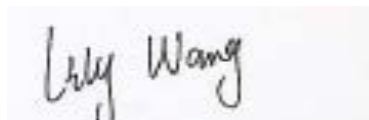
The test results of this report relate only to the tested sample EUT identified in this report.

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:	Mi Home Security Camera
Brand Name:	MI , 
Model Name:	SXJ01ZM
Series Model:	N/A
Model Discrepancy:	N/A
Power Adapter:	Model:A194-050200C-US1 INPUT: 100-240V~50/60Hz 0.35A MAX OUTPUT : 5.0V $\overline{\text{---}}$ 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: 18.91dBm IEEE 802.11g mode: 16.73dBm IEEE 802.11n HT20 mode: 15.91 dBm IEEE 802.11n HT40 mode: 15.90 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) IEEE802.11n HT40 mode: OFDM (MCS0~MCS7)
Number of Channels:	IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT20 : 11 Channels IEEE 802.11n HT40 : 9 Channels
Antenna Specification:	PCB Antenna Gain: 0.78 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: 2AMIN-SXJ01ZM** 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 C63.10 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.DESRIPTION OF TEST MODES

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 6Mbps 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.

IEEE 802.11n HT40 MHz Channel mode:

Channel Low (2422MHz)

Channel Mid (2437MHz)

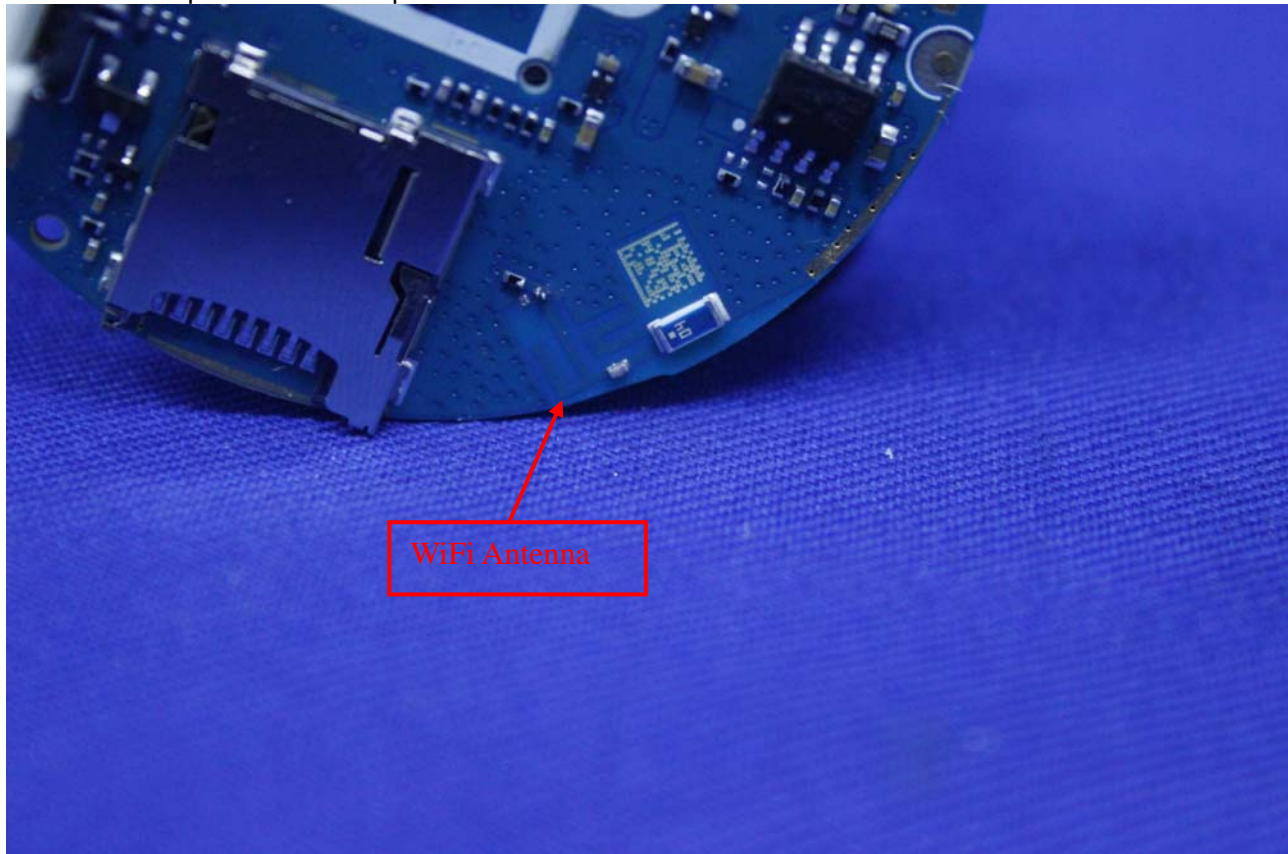
Channel High (2452MHz) with MCS0 data rate was chosen for full testing.

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(PCB Antenna for 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	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2016-7-21	2017-7-20
Power meter	Anritsu	ML2495A	1445010	2016-5-16	2017-5-15
Power sensor	Anritsu	MA2411B	1339220	2016-5-16	2017-5-15
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 Gauge	Anymetre	TH603	CCS007	2016-11-1	2017-10-31
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2016-7-21	2017-7-20
EMI Test Receiver	R&S	ESCI	101378	2017-1-5	2018-1-4
Pre-Amplifier	MINI	ZFL-1000VH2	070306	2017-1-5	2018-1-4
Pre-Amplifier	Miteq	JS41-00101800-32-10P	1675713	2016-7-21	2017-7-20
Bilog Antenna	Sunol	JB1	A062604	2016-5-29	2017-5-28
Bilog Antenna	Sunol	JB1	A110204-1	2016-5-29	2017-5-28
Loop Antenna	SCHWARZBECK	HXYZ9170	9170-108	2017-3-4	2018-3-3
Horn-antenna	SCHWARZBECK	9120D	D:266	2017-3-5	2018-3-4
Horn-antenna	SCHWARZBECK	9120D	D:267	2016-11-10	2017-11-9
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	CT100	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	2017-2-28	2018-2-27
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	2016-11-1	2017-10-31
TWO-LINE V-NETWORK	R&S	ENV216	101604	2016-11-1	2017-10-31
Pulse LIMITER	R&S	ESH3-Z2	100524	2017-1-5	2018-1-4
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, 2324E-2 for 3m chamber; the test facilities are listed with USA, Certification and Engineering Bureau, 424105 for 10m chamber, 238958 for 3m chamber.

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	
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	N/A	N/A

Remark:

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

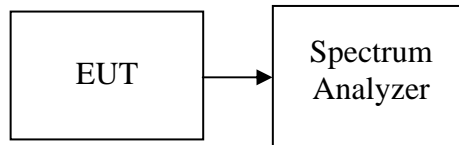
7. FCC PART 15.247 REQUIREMENTS

7.1.6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 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	10.144	>500	PASS
Mid	2437	10.192		PASS
High	2462	10.192		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.635	>500	PASS
Mid	2437	16.635		PASS
High	2462	16.635		PASS

IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.788	>500	PASS
Mid	2437	17.788		PASS
High	2462	17.788		PASS

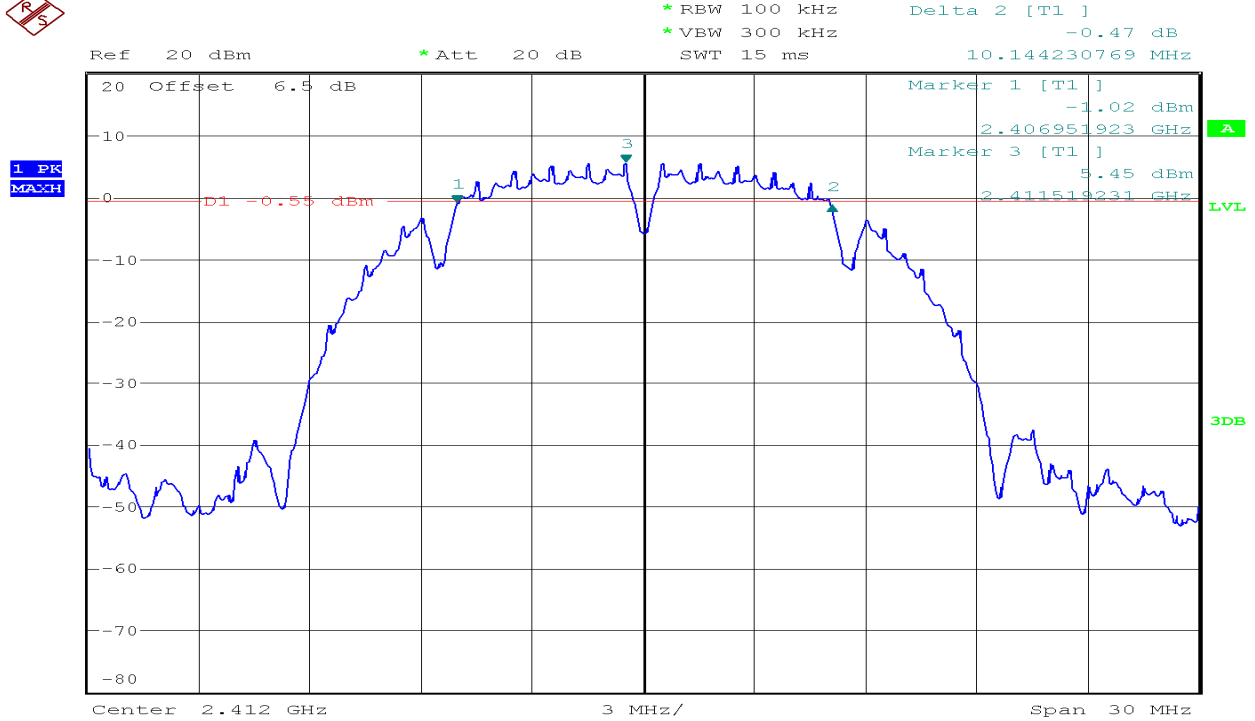
IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.538	>500	PASS
Mid	2437	36.538		PASS
High	2452	36.538		PASS

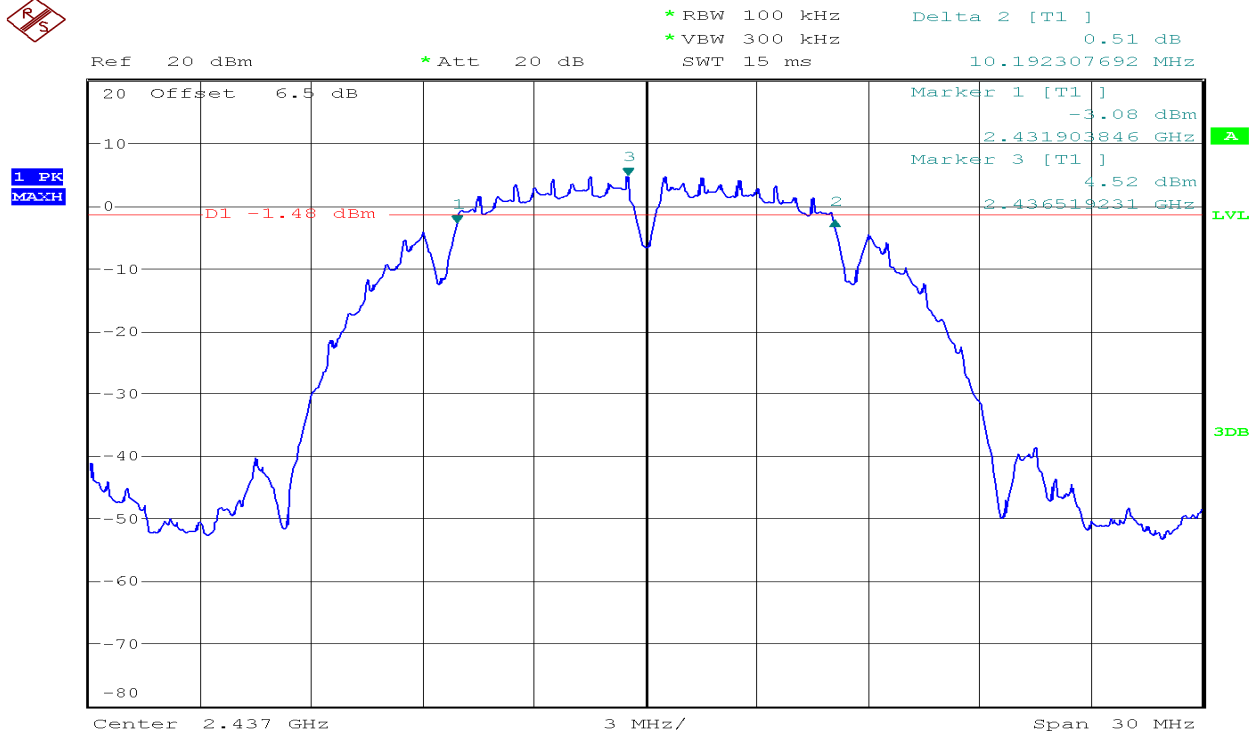
Test Plot

IEEE 802.11b MODE

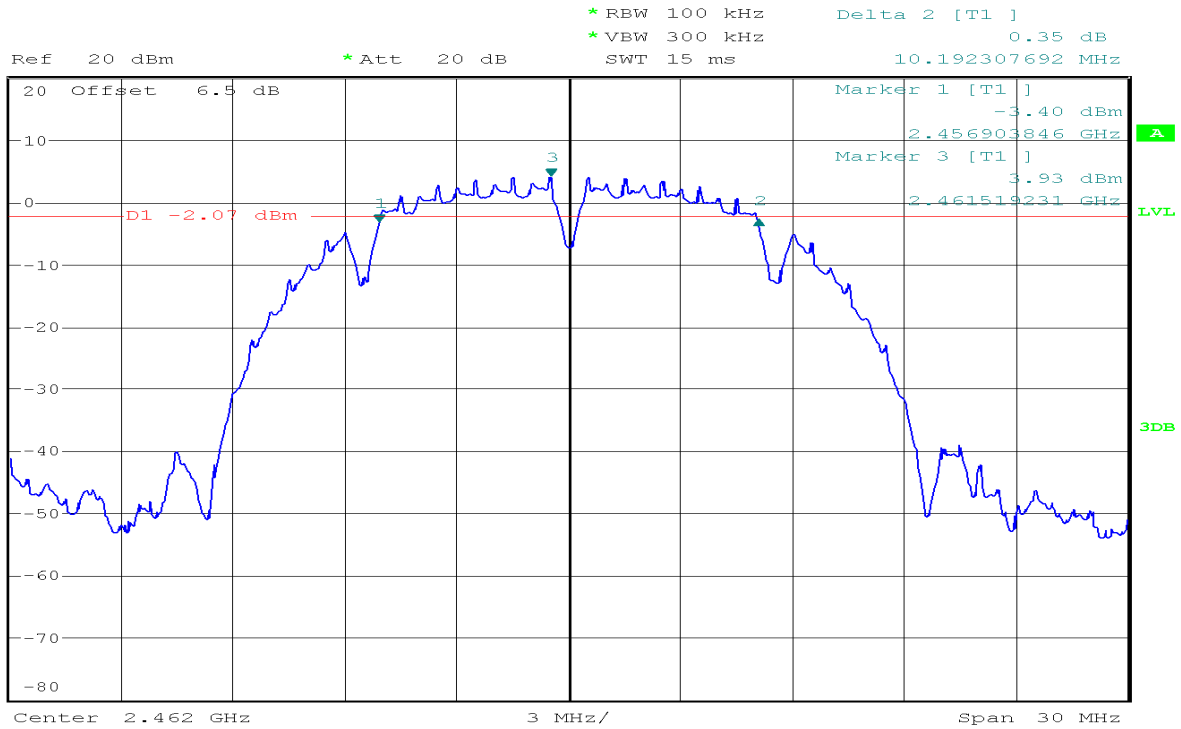
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

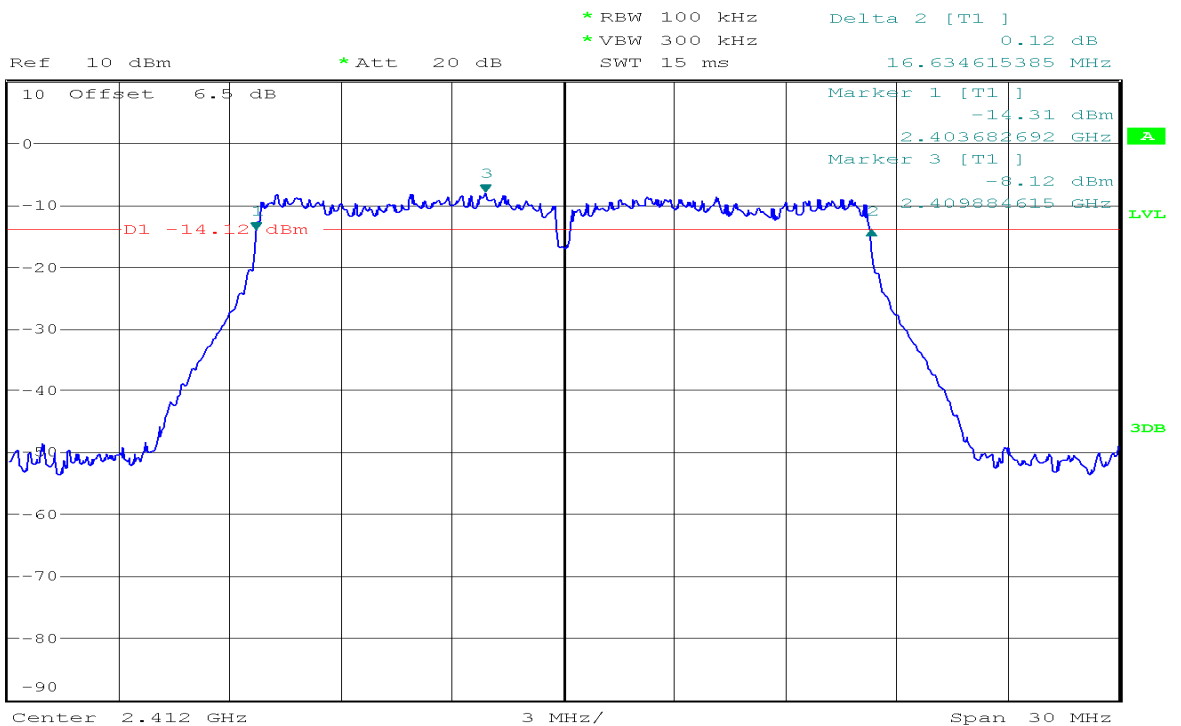


6dB Bandwidth (CH High)



IEEE 802.11g MODE

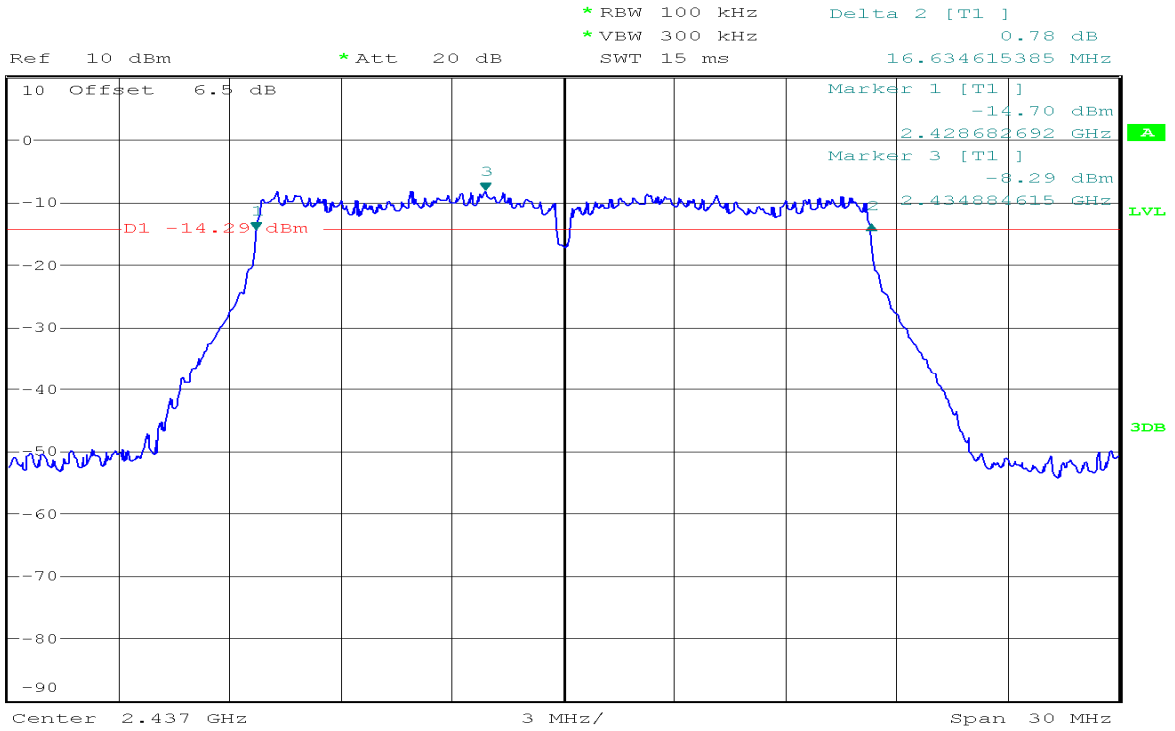
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



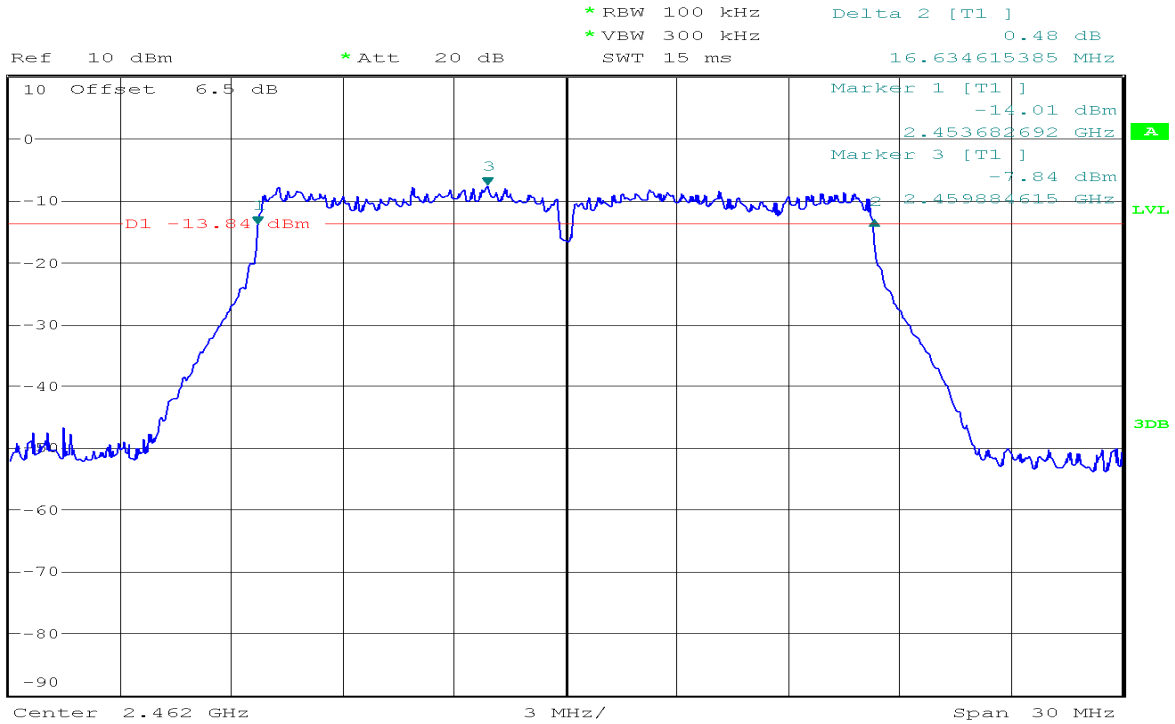
1 PK
MAXH



6dB Bandwidth (CH High)

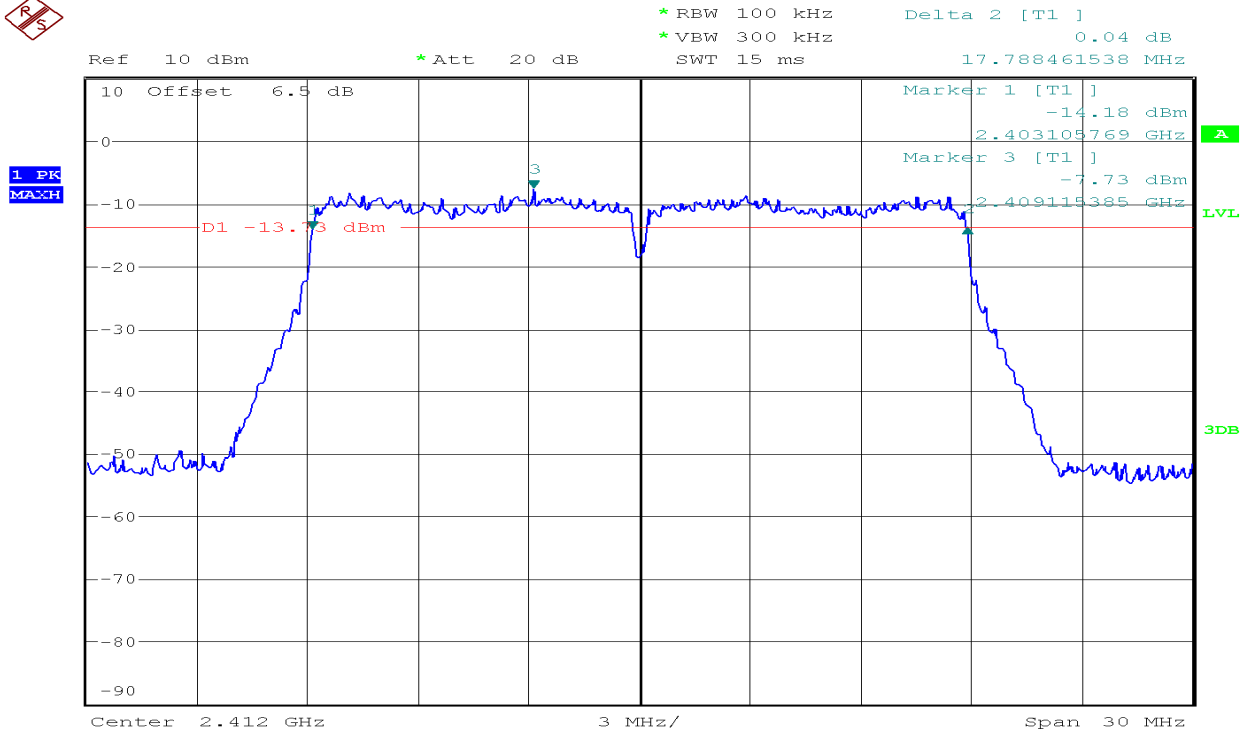


1 PK
MAXH

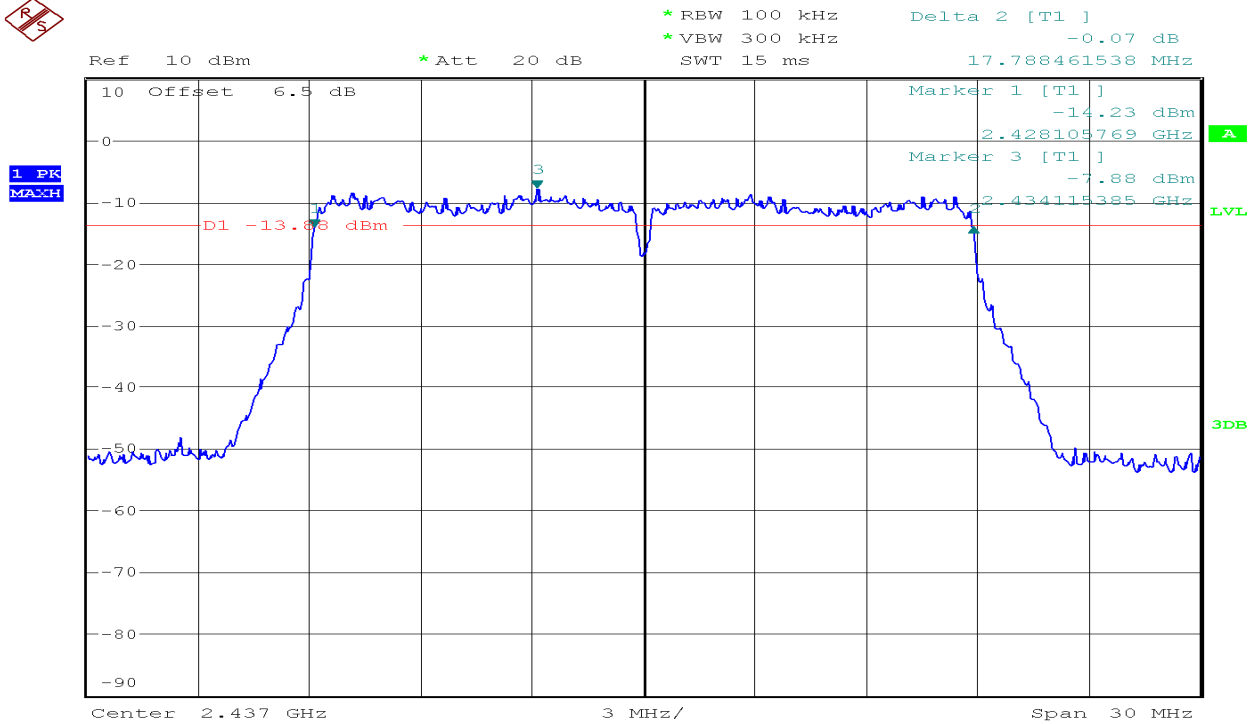


IEEE 802.11n HT20 mode

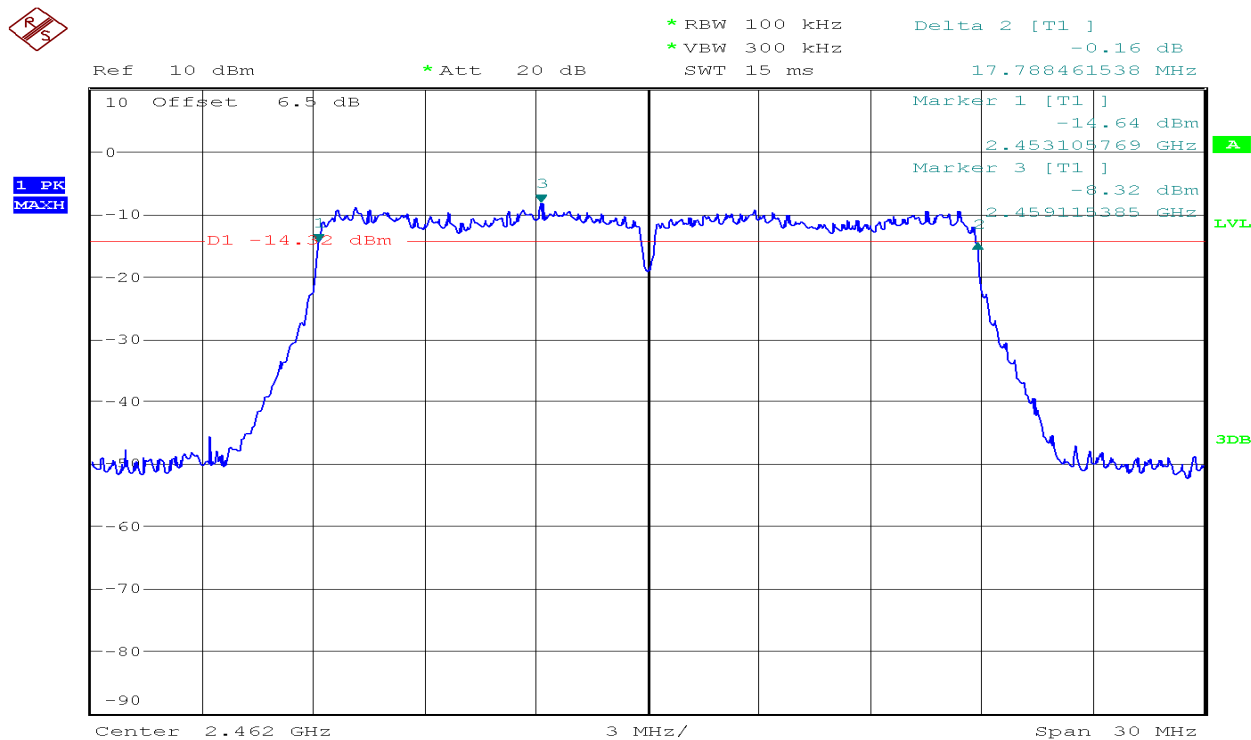
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

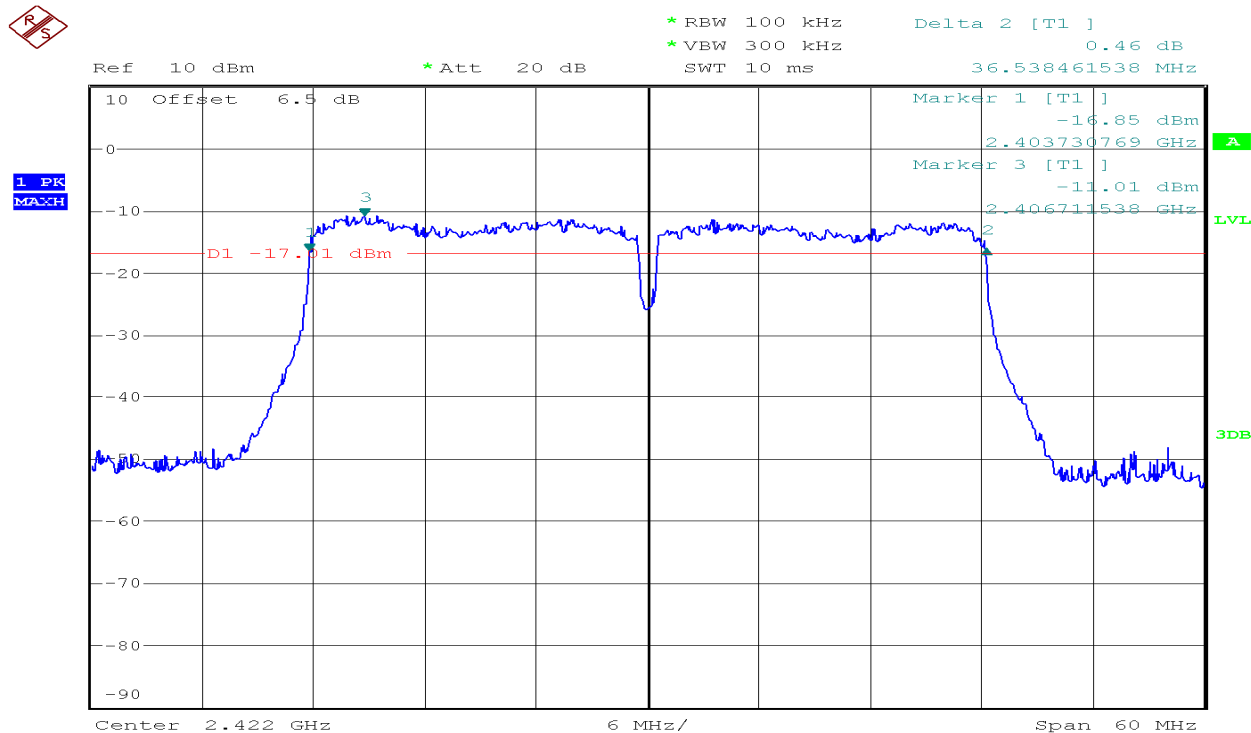


6dB Bandwidth (CH High)

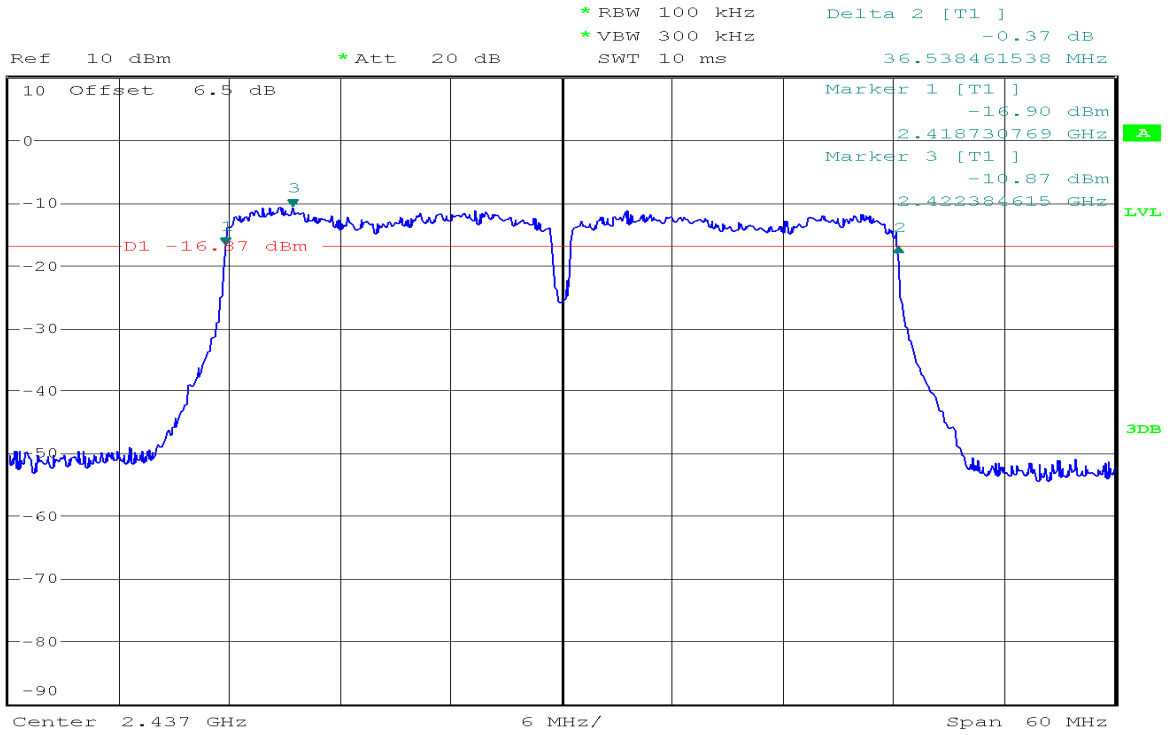


IEEE 802.11n HT40 mode

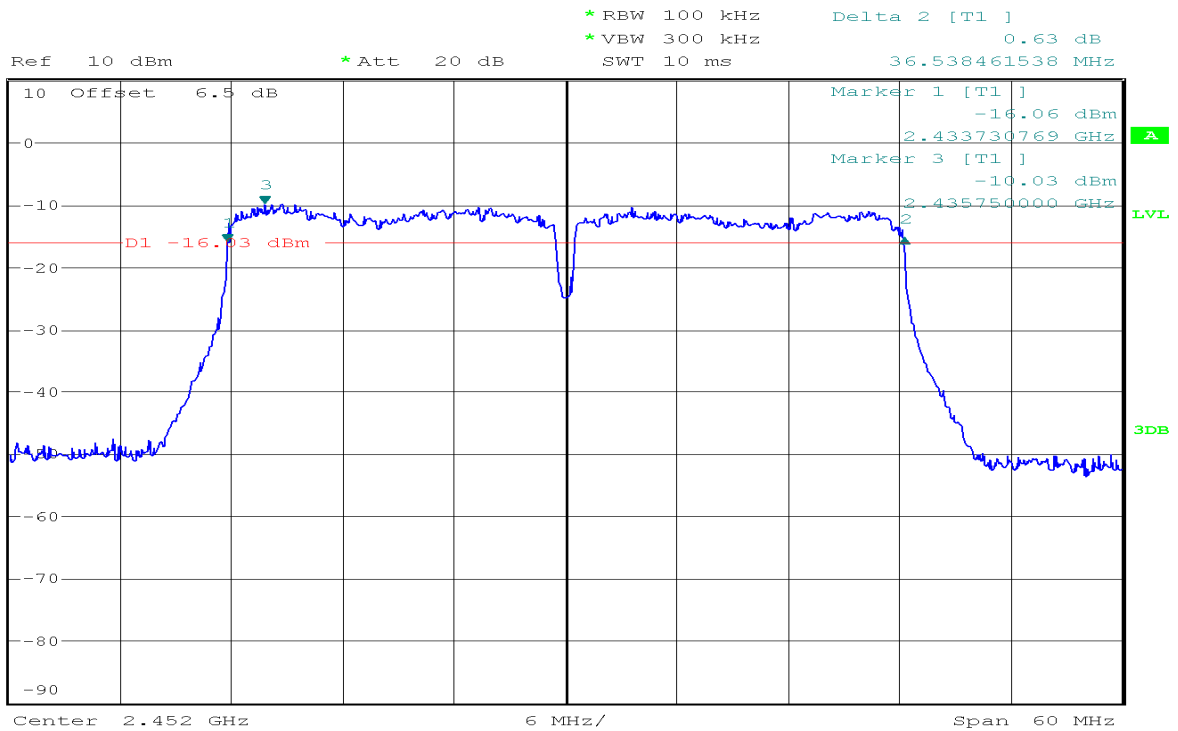
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



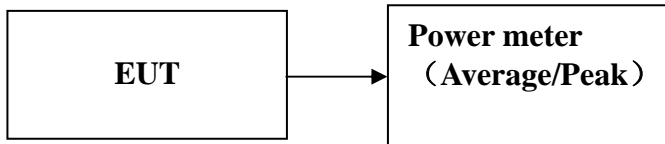
7.2. PEAK POWER

LIMIT

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

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 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. Guidance v04. 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)	Peak Output Power (dBm)	Limit (dBm)
Low	2412	18.91	30.00
Mid	2437	18.49	30.00
High	2462	18.24	30.00

Channel	Frequency (MHz)	Average Output Power (dBm)
Low	2412	16.32
Mid	2437	15.89
High	2462	15.68

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
Low	2412	16.41	30.00
Mid	2437	16.17	30.00
High	2462	16.73	30.00

Channel	Frequency (MHz)	Average Output Power (dBm)
Low	2412	6.31
Mid	2437	5.88
High	2462	6.41

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
Low	2412	15.91	30.00
Mid	2437	15.70	30.00
High	2462	15.21	30.00

Channel	Frequency (MHz)	Average Output Power (dBm)
Low	2412	6.28
Mid	2437	6.06
High	2462	5.54

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
Low	2422	15.38	30.00
Mid	2437	15.17	30.00
High	2462	15.90	30.00

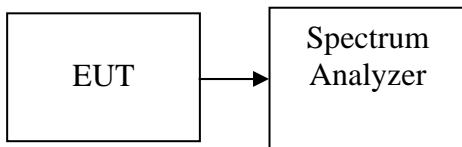
Channel	Frequency (MHz)	Average Output Power (dBm)
Low	2422	6.10
Mid	2437	5.89
High	2452	6.53

7.3. PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 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	-13.26	8.00	PASS
Mid	2437	-13.45	8.00	PASS
High	2462	-13.86	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-21.42	8.00	PASS
Mid	2437	-21.56	8.00	PASS
High	2462	-20.71	8.00	PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-21.32	8.00	PASS
Mid	2437	-21.82	8.00	PASS
High	2462	-21.75	8.00	PASS

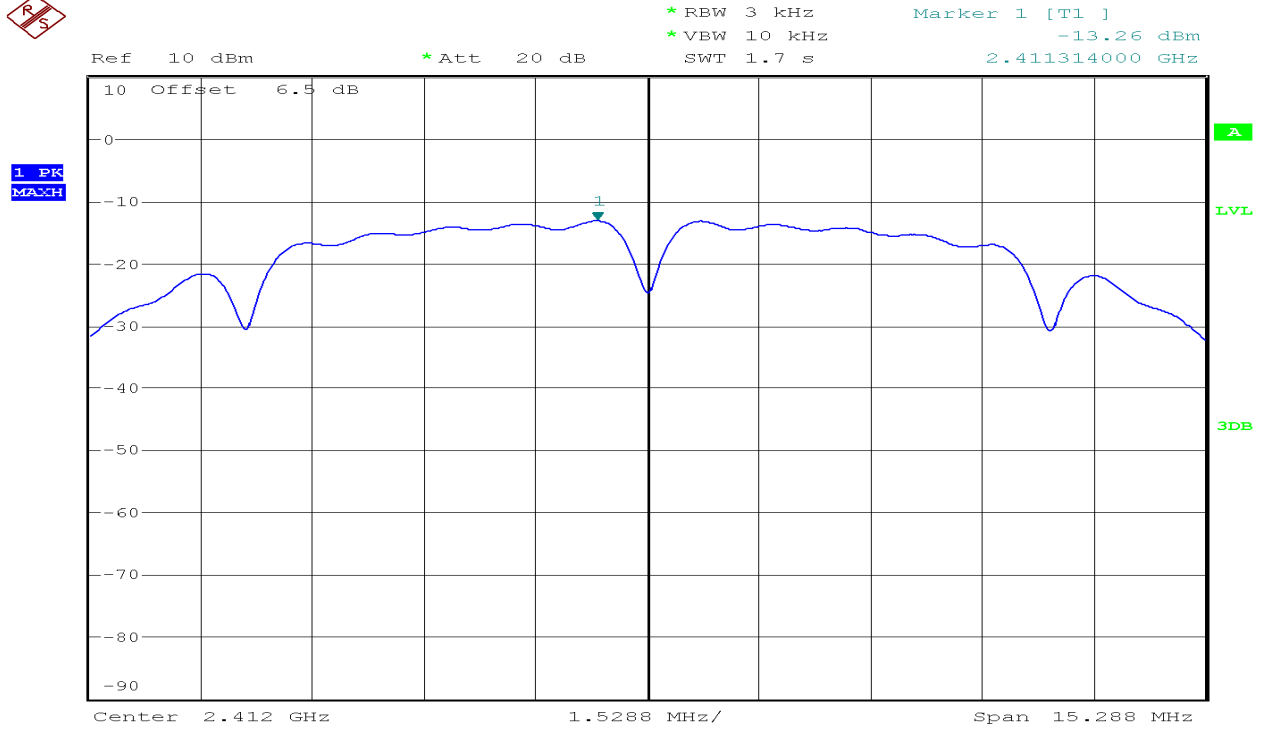
Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-23.22	8.00	PASS
Mid	2437	-24.03	8.00	PASS
High	2452	-22.28	8.00	PASS

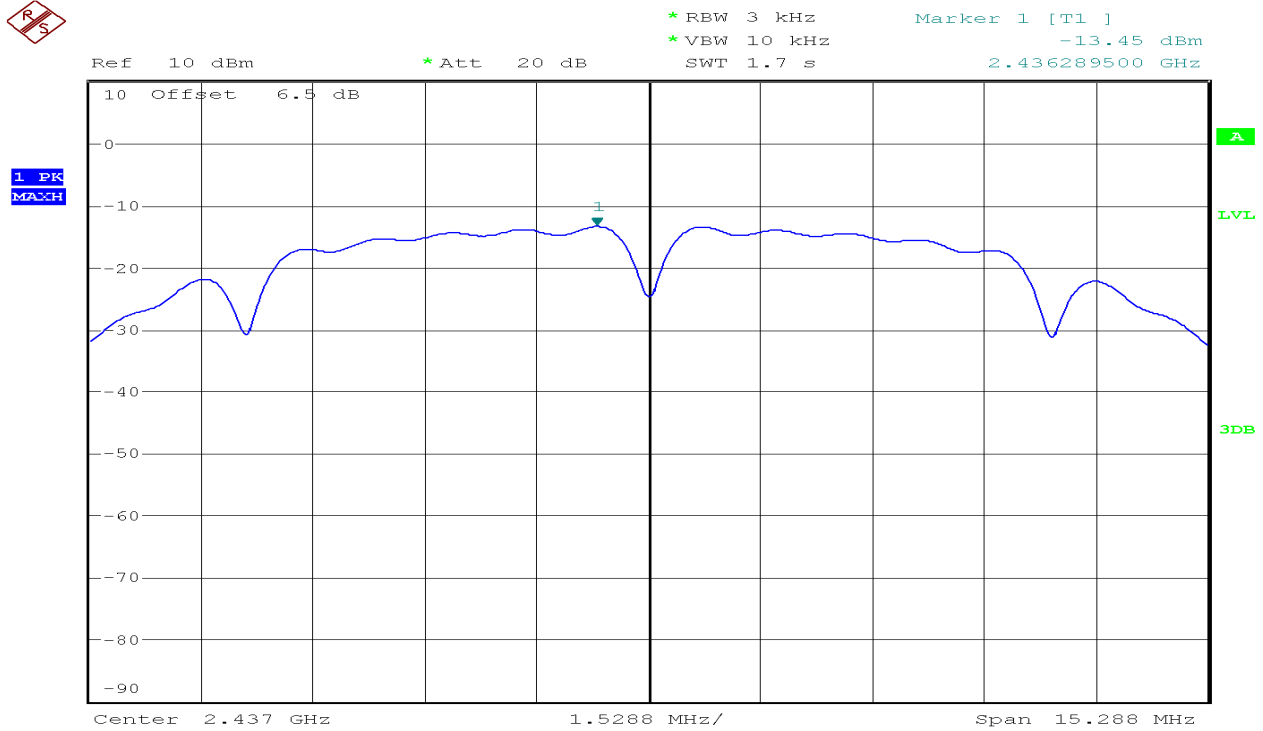
Test Plot

IEEE 802.11b mode

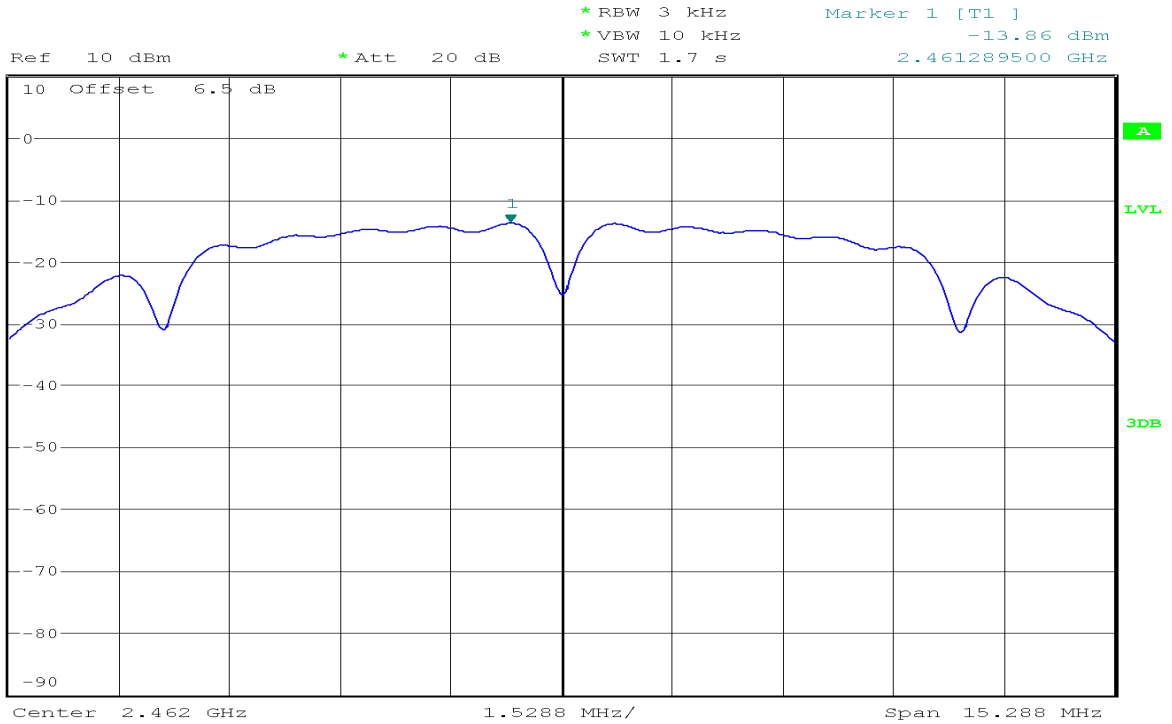
PPSD (CH Low)



PPSD(CH Mid)

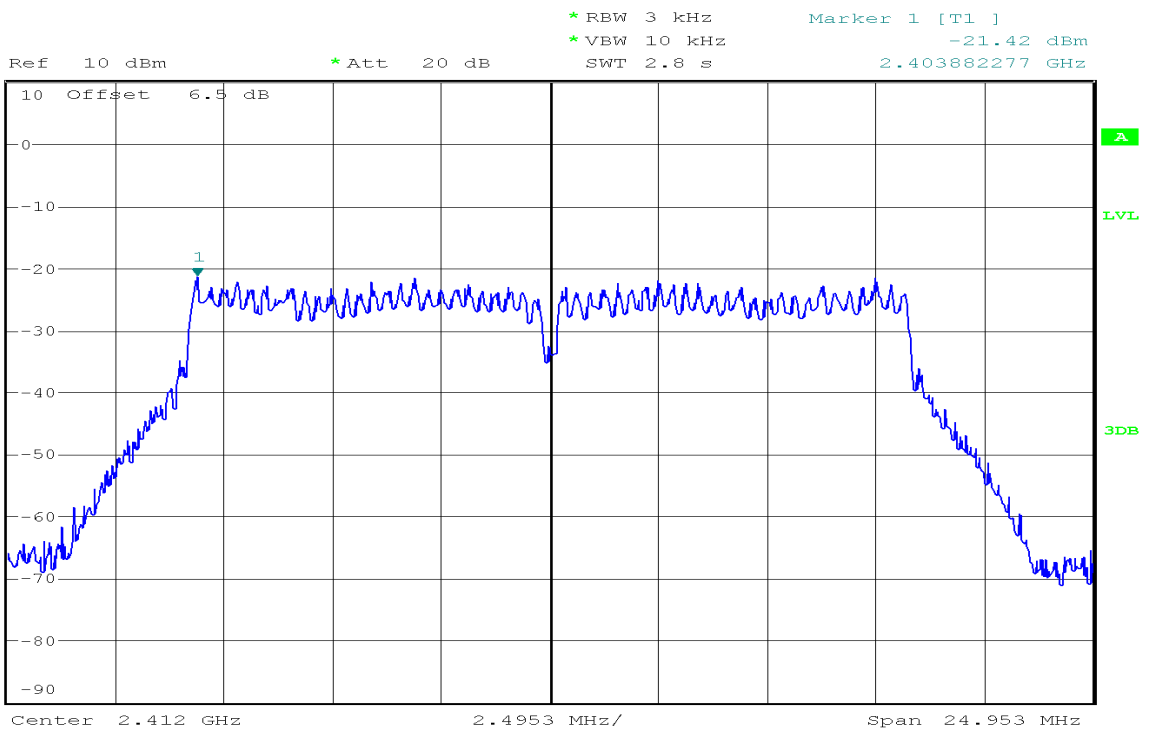


PPSD (CH High)



IEEE 802.11g mode

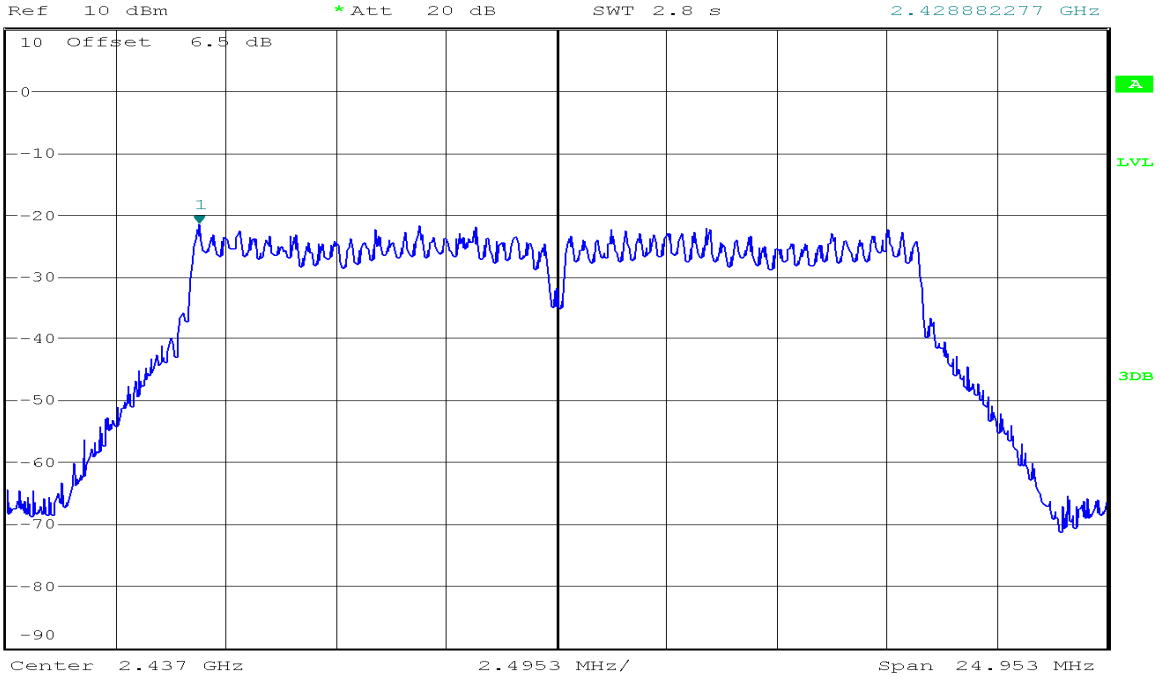
PPSD (CH Low)



PPSD (CH Mid)



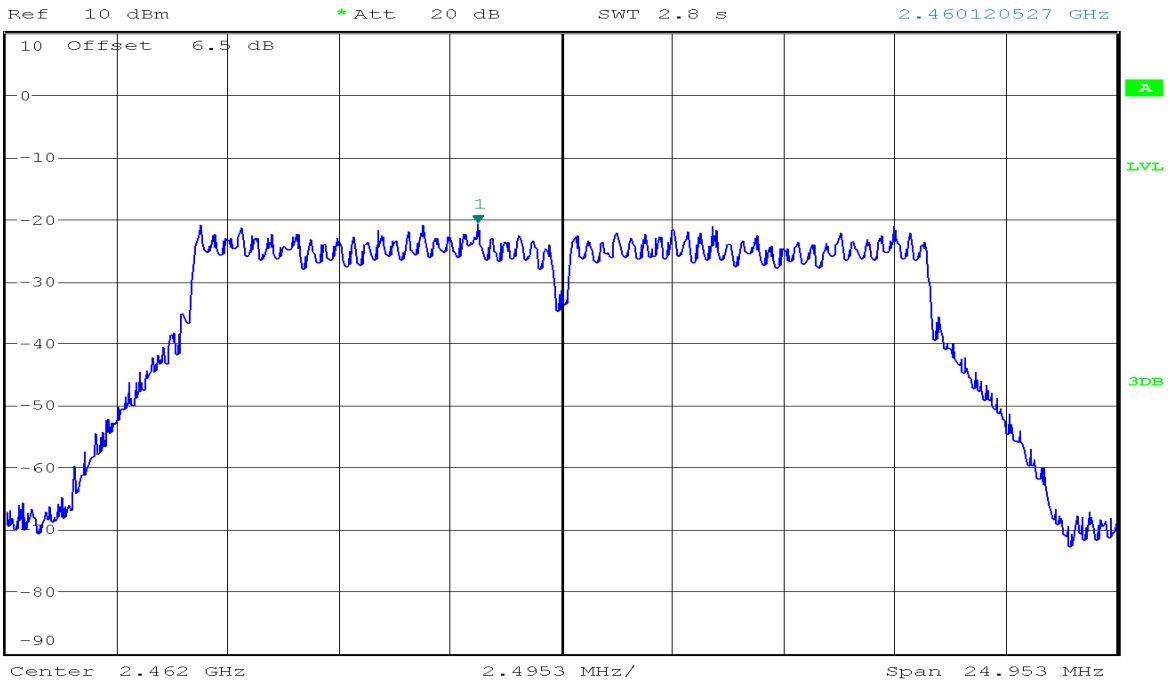
*RBW 3 kHz Marker 1 [T1]
*VBW 10 kHz -21.56 dBm
SWT 2.8 s 2.428882277 GHz



PPSD (CH High)

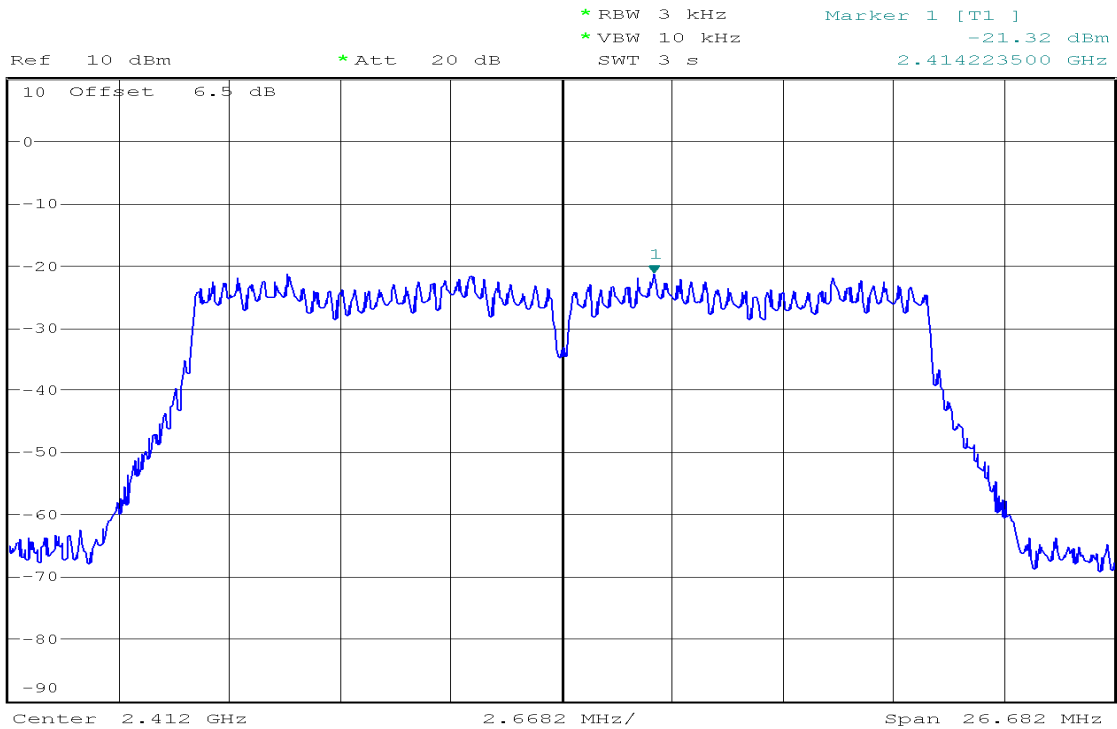


*RBW 3 kHz Marker 1 [T1]
*VBW 10 kHz -20.71 dBm
SWT 2.8 s 2.460120527 GHz

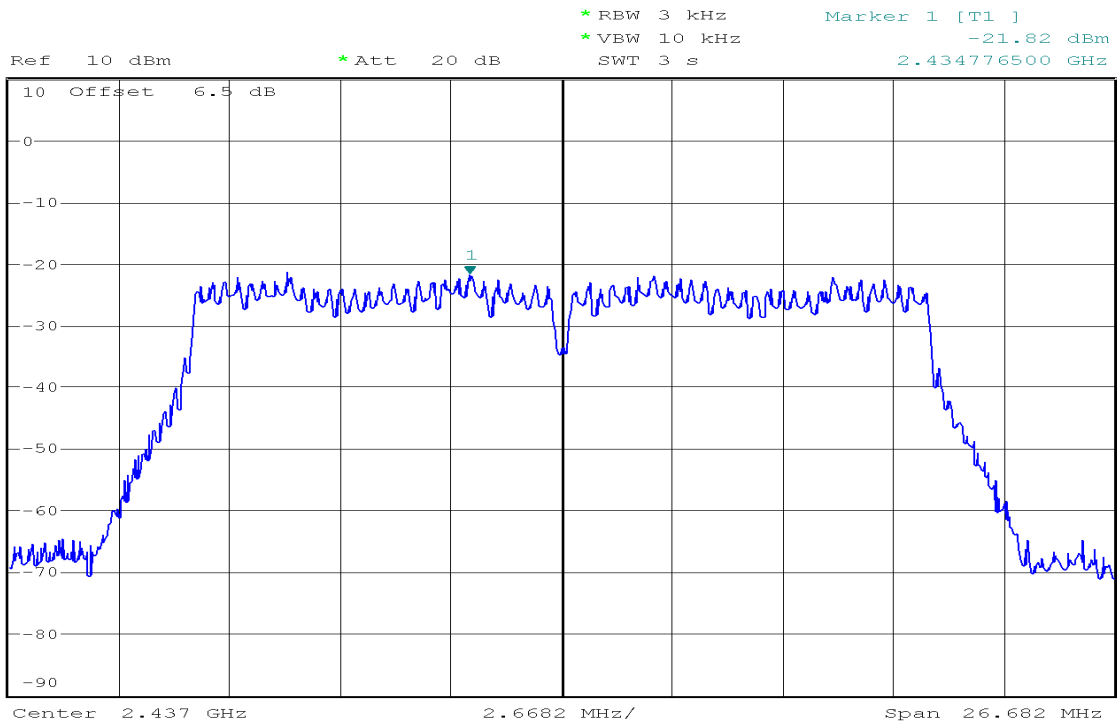


IEEE 802.11n HT20 mode

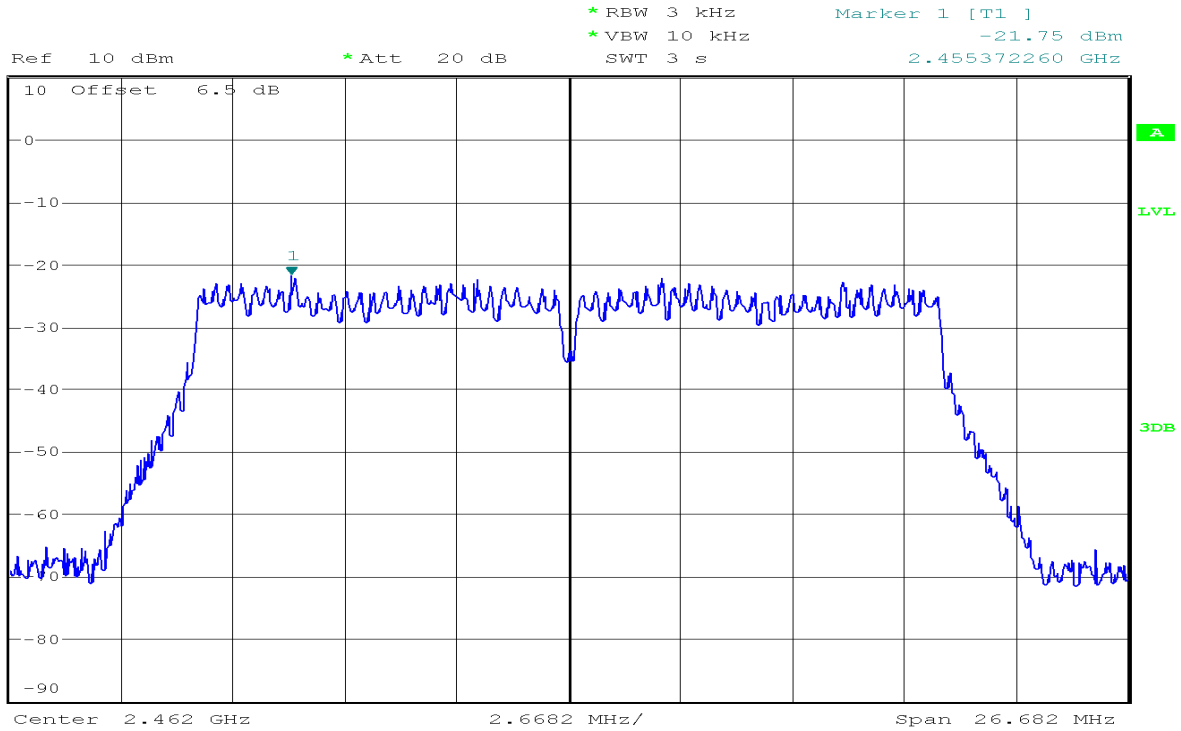
PPSD (CH Low)



PPSD (CH Mid)

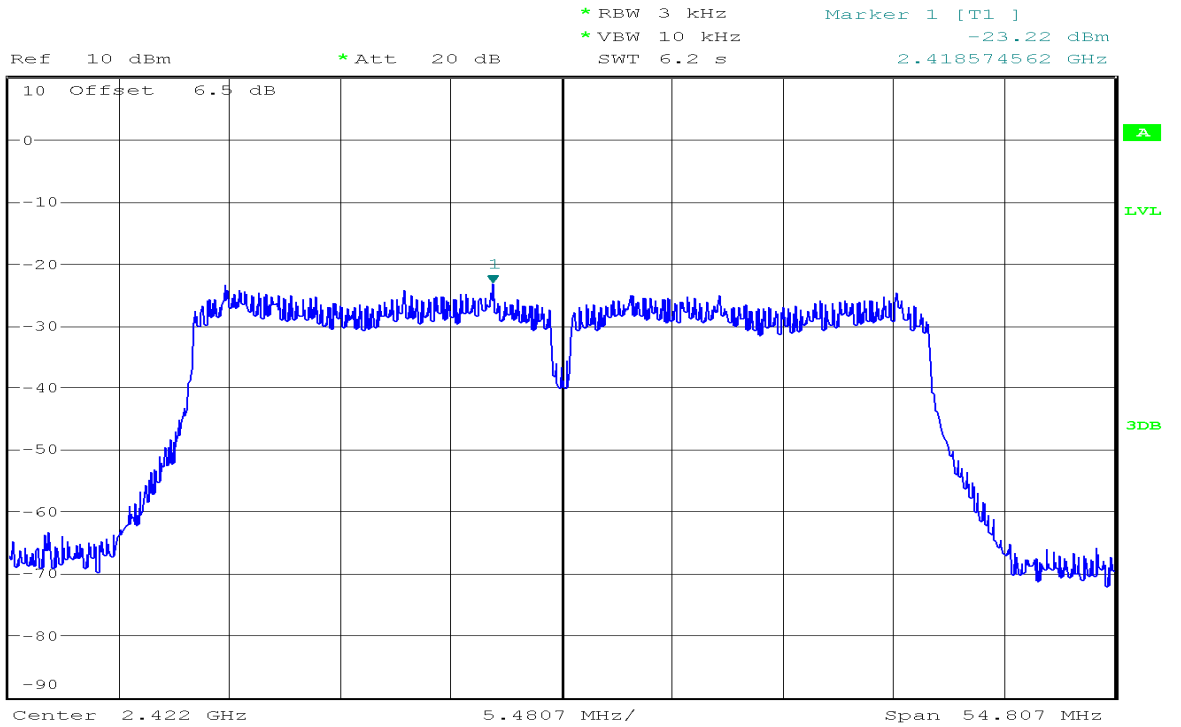


PPSD (CH High)



IEEE 802.11n HT40 mode

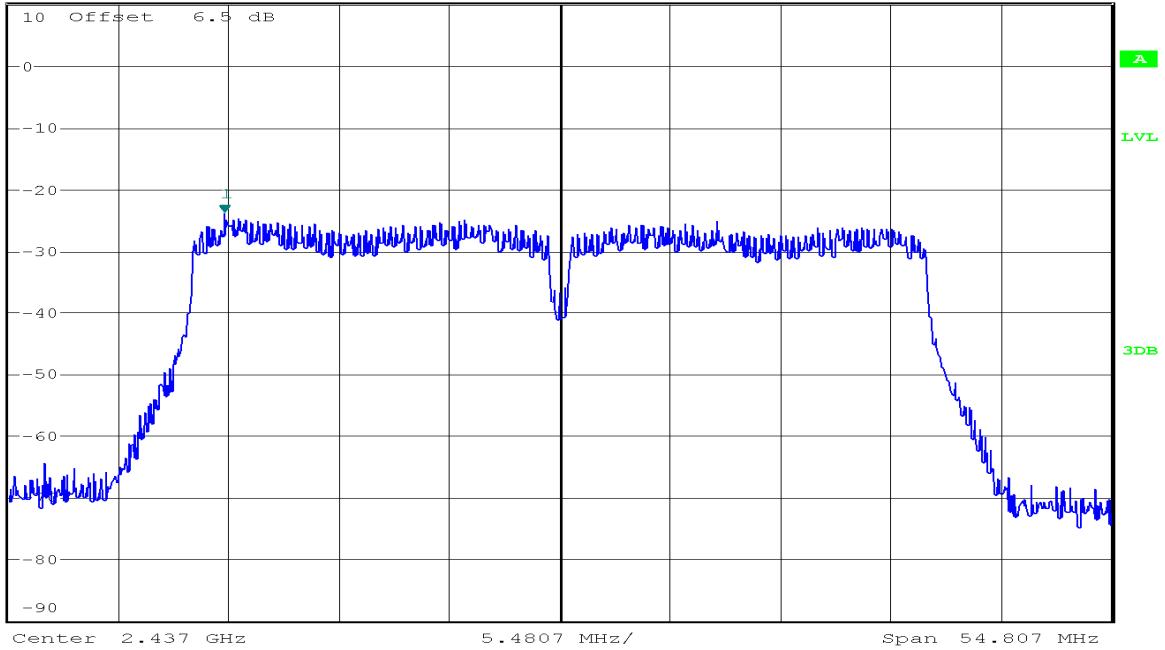
PPSD (CH Low)



PPSD (CH Mid)



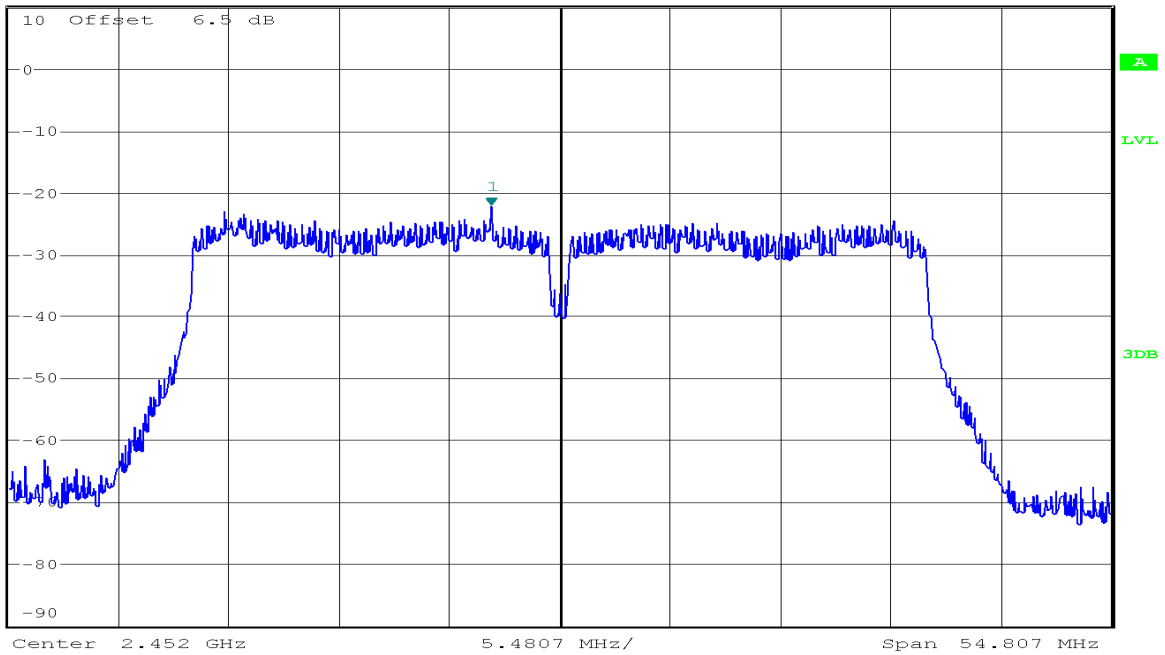
Ref 10 dBm * Att 20 dB * RBW 3 kHz * VBW 10 kHz SWT 6.2 s Marker 1 [T1] -24.03 dBm 2.420311971 GHz



PPSD (CH High)



Ref 10 dBm * Att 20 dB * RBW 3 kHz * VBW 10 kHz SWT 6.2 s Marker 1 [T1] -22.28 dBm 2.448574563 GHz



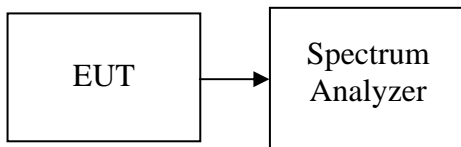
7.4.SPURIOUS EMISSIONS

Conducted Measurement

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

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

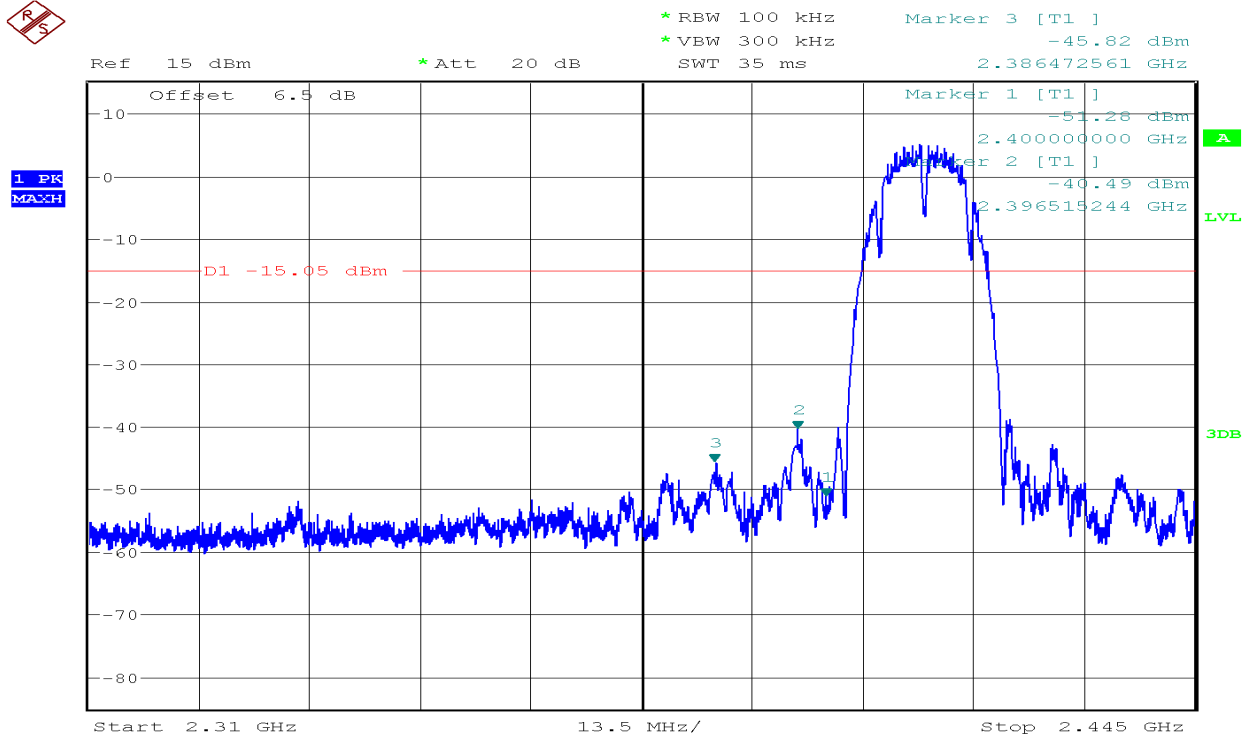
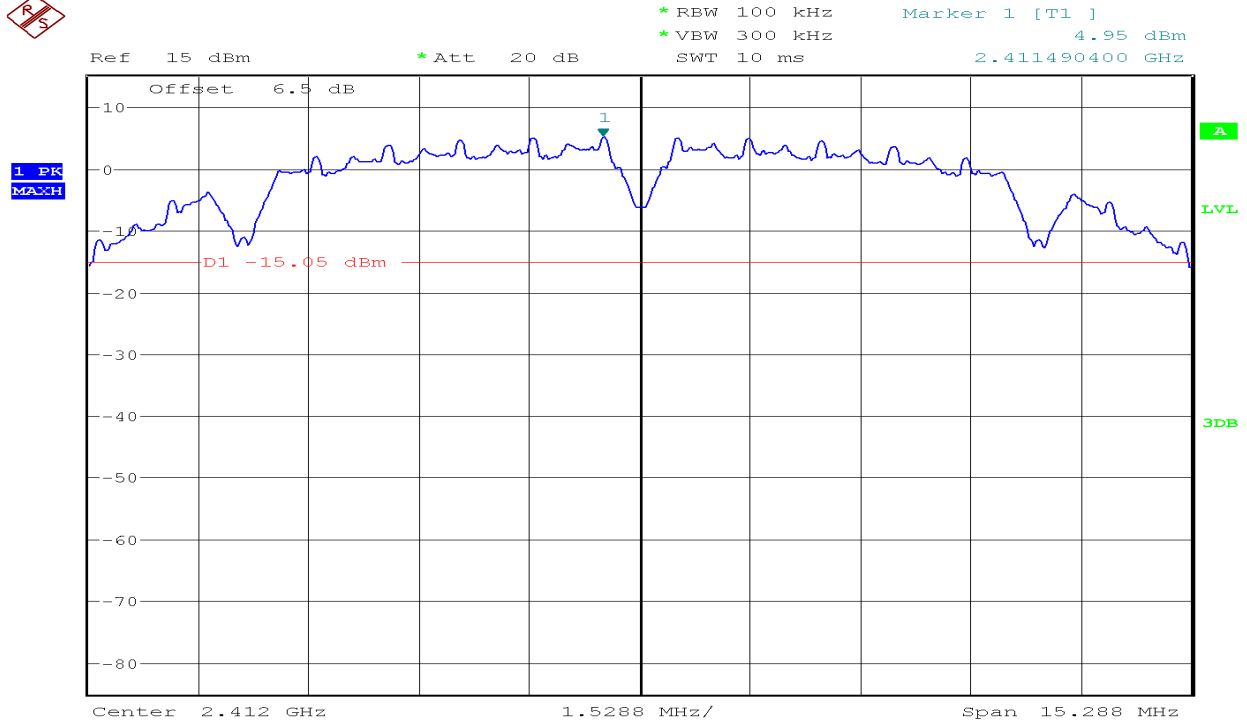
No non-compliance noted

Test Plot

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

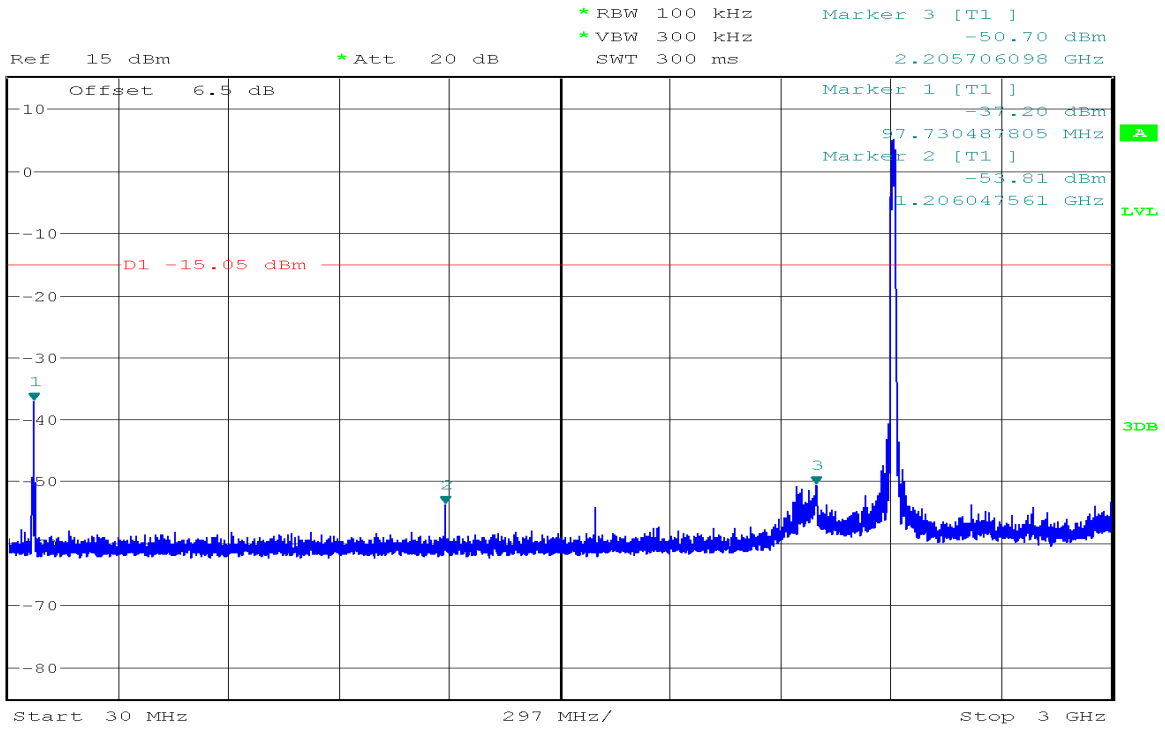
IEEE 802.11b mode

CH Low

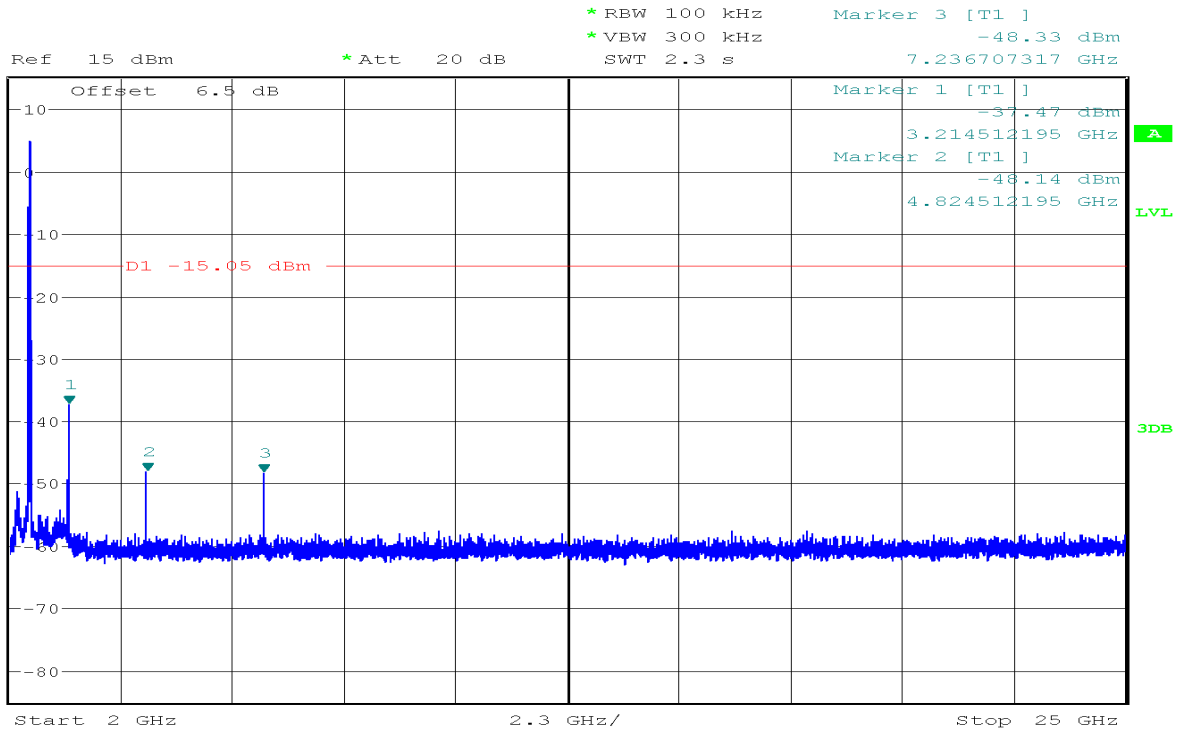




1 PR
MAXH



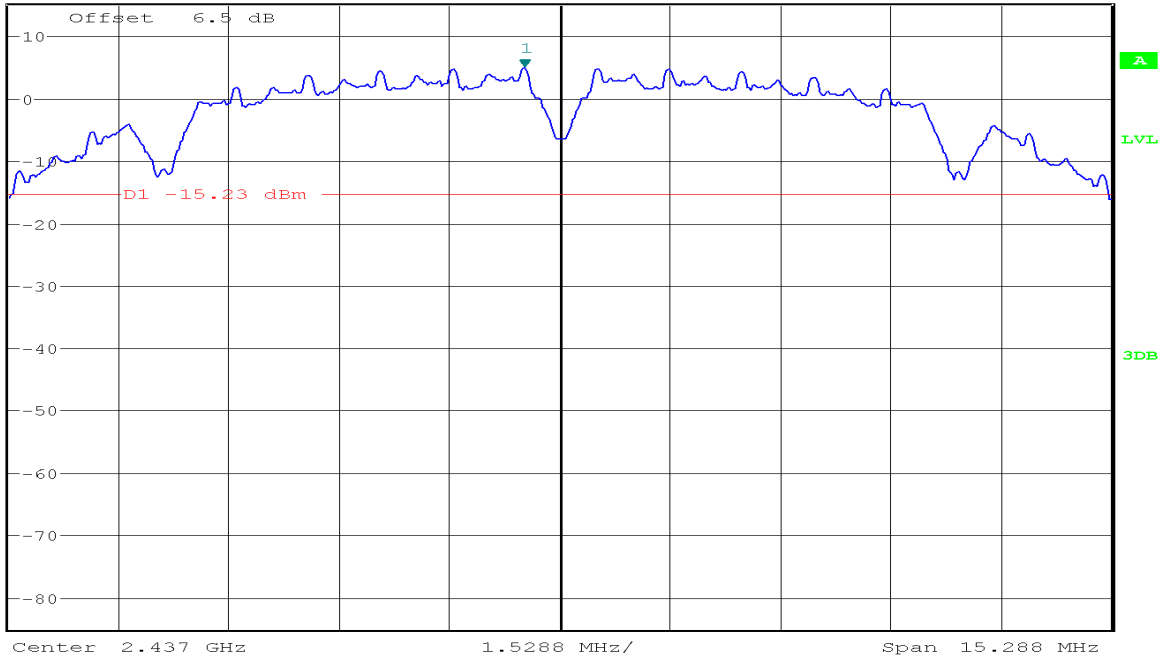
1 PR
MAXH



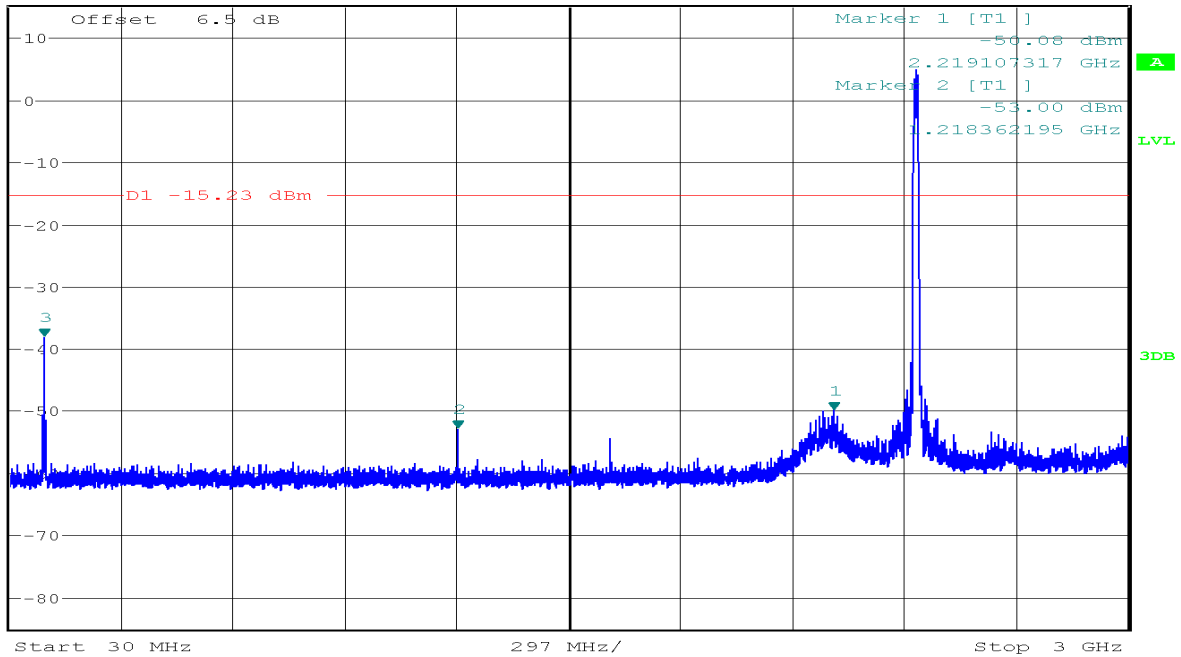
CH Mid

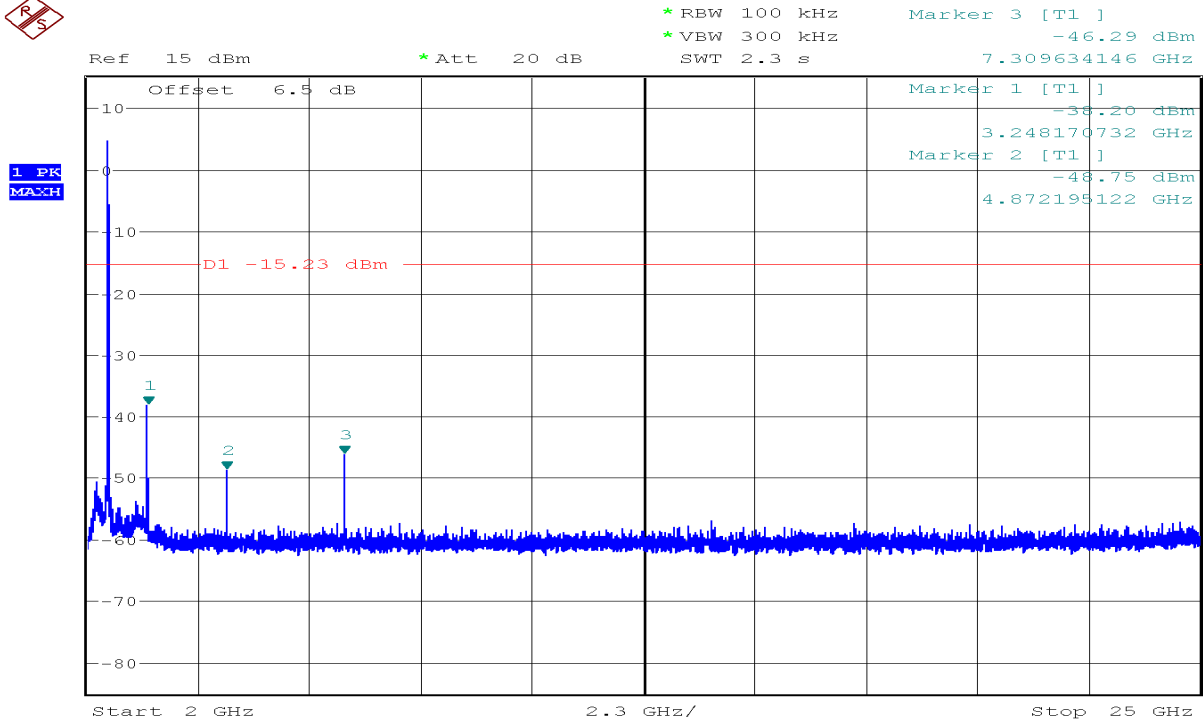


Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 1 [T1] 4.77 dBm
 *VBW 300 kHz 2.436515880 GHz
 SWT 10 ms

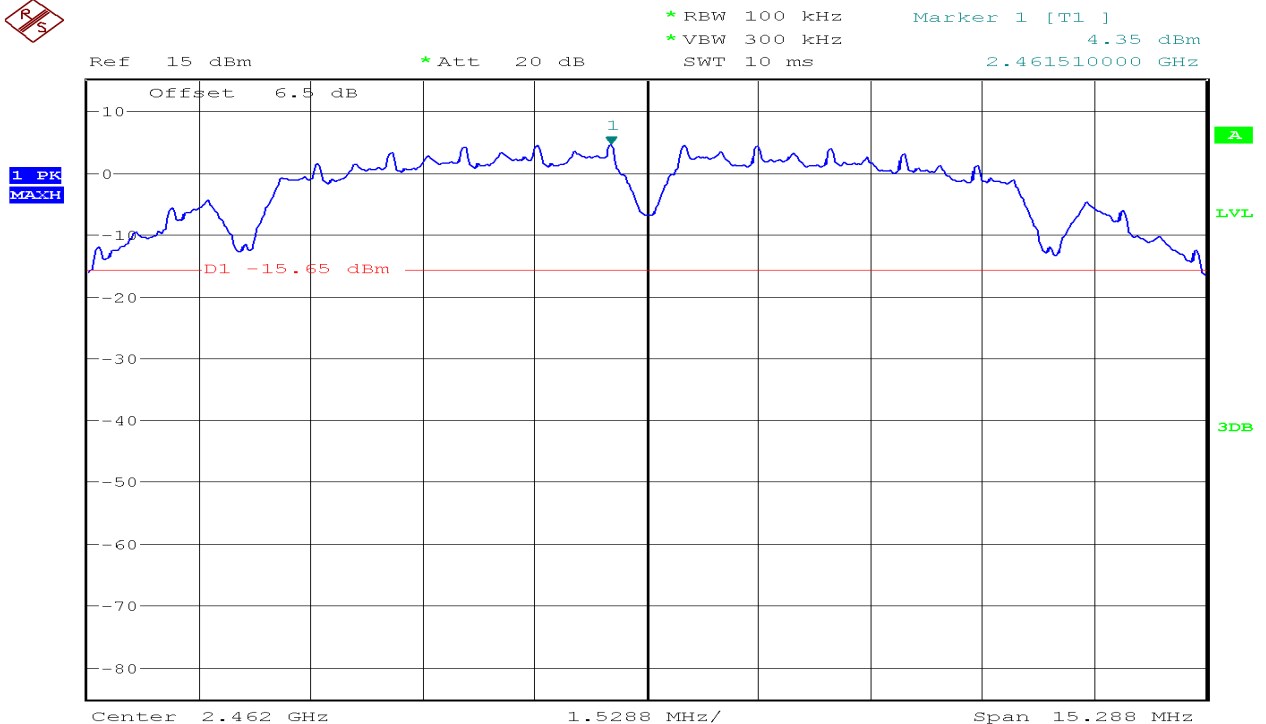


Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 3 [T1] -38.35 dBm
 *VBW 300 kHz 122.721951220 MHz
 SWT 300 ms



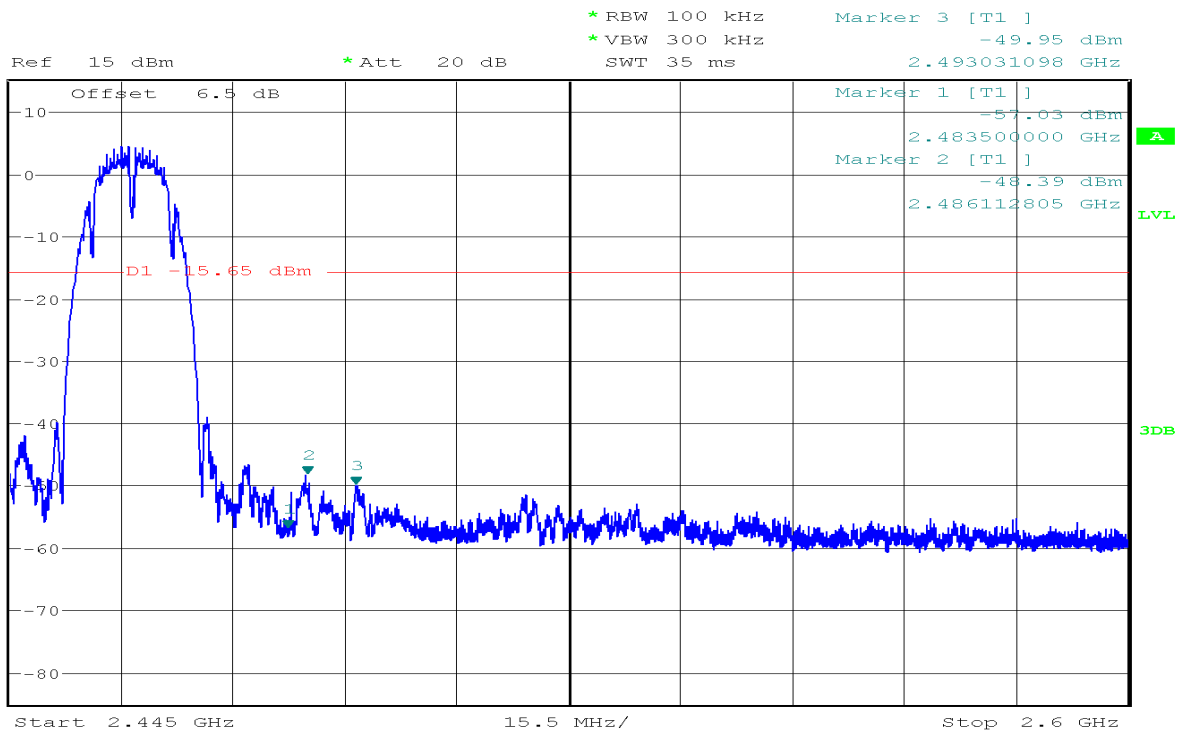


CH High

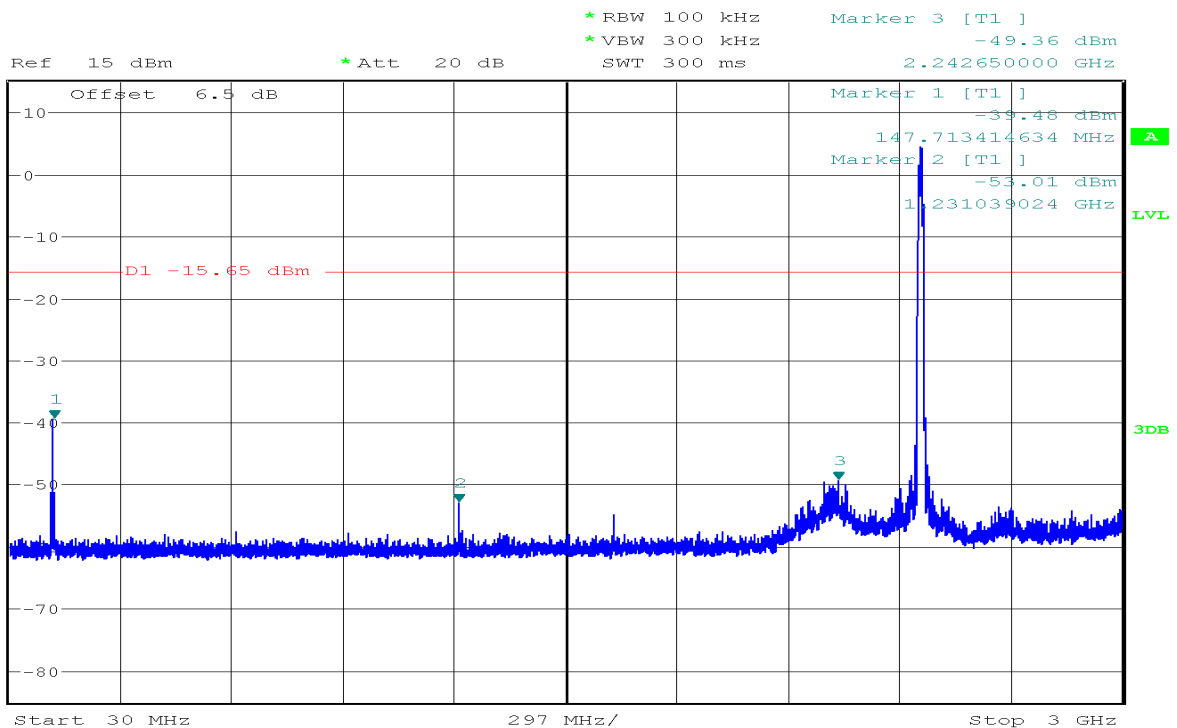




1 PK
MAXH

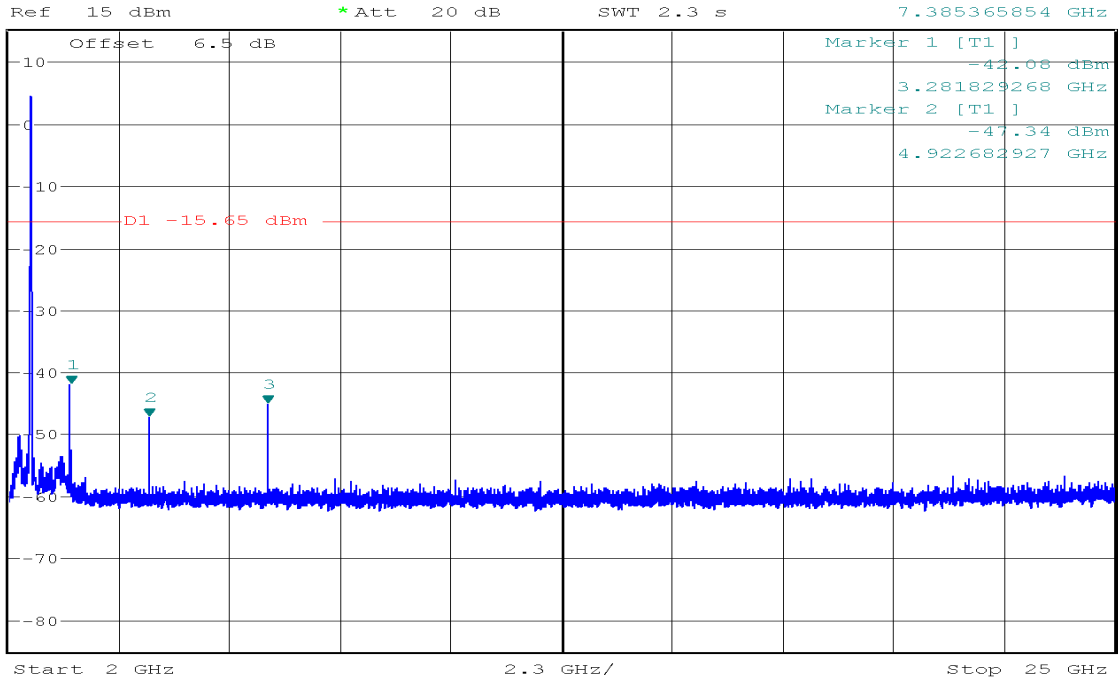


1 PK
MAXH





* RBW 100 kHz Marker 3 [T1]
 * VBW 300 kHz -45.25 dBm
 SWT 2.3 s 7.385365854 GHz

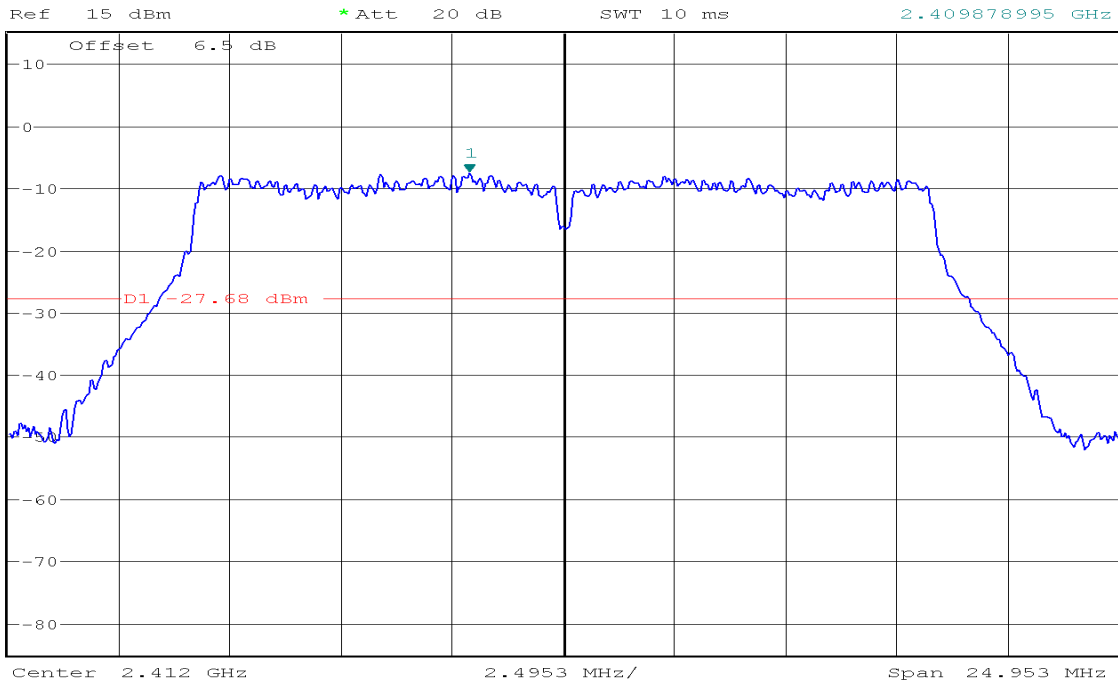


IEEE 802.11g mode

CH Low

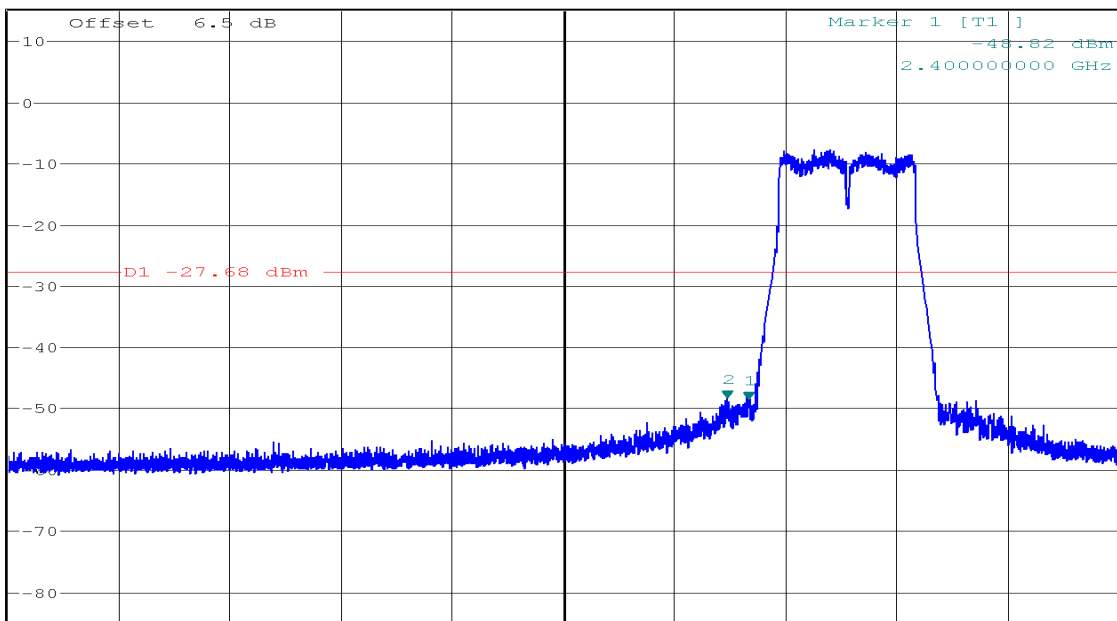


* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -7.68 dBm
 SWT 10 ms 2.409878995 GHz

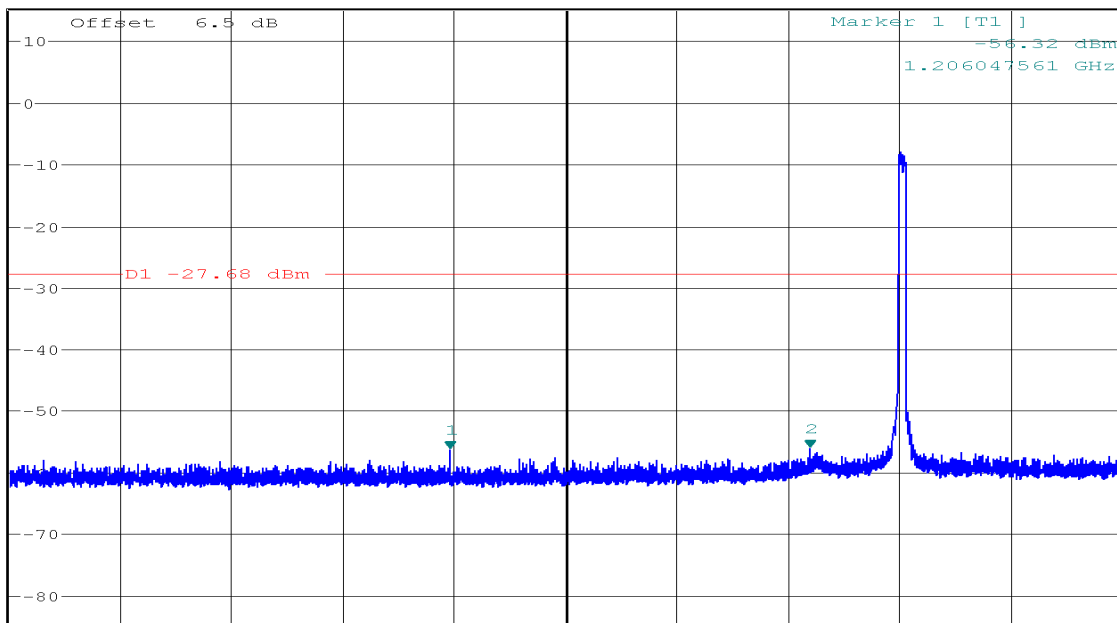




Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1] -48.60 dBm
 2.397321951 GHz
 *VBW 300 kHz
 SWT 35 ms

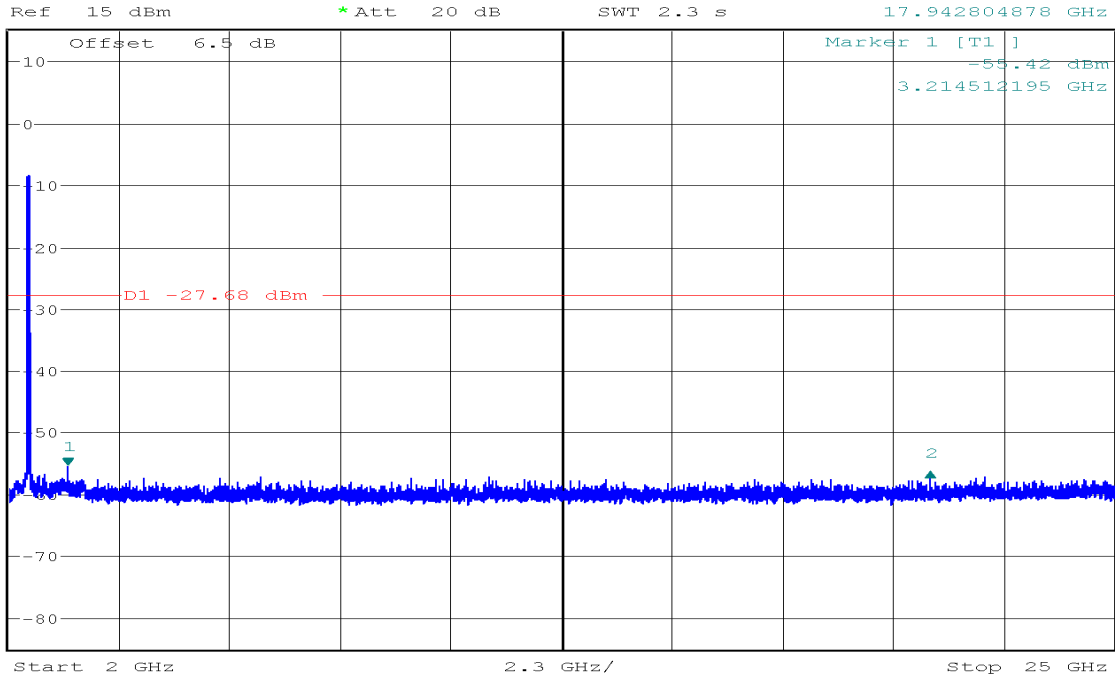


Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1] -56.19 dBm
 2.167675610 GHz
 *VBW 300 kHz
 SWT 300 ms





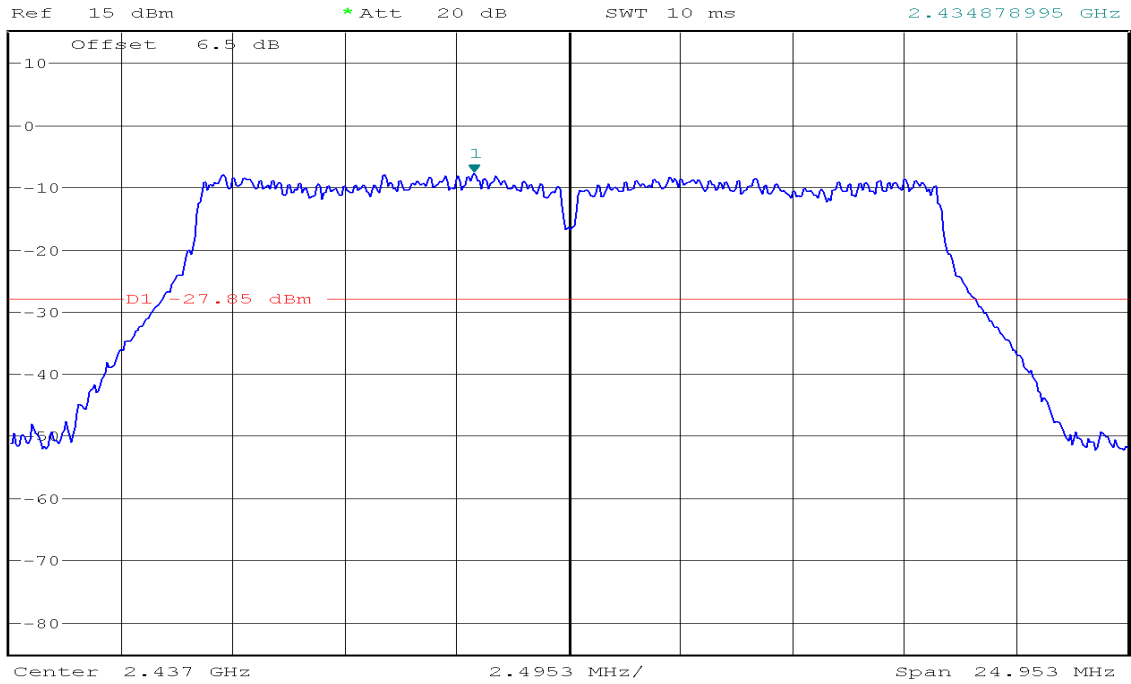
* RBW 100 kHz Delta 2 [T1]
 * VBW 300 kHz -1.08 dB
 SWT 2.3 s 17.942804878 GHz



CH Mid

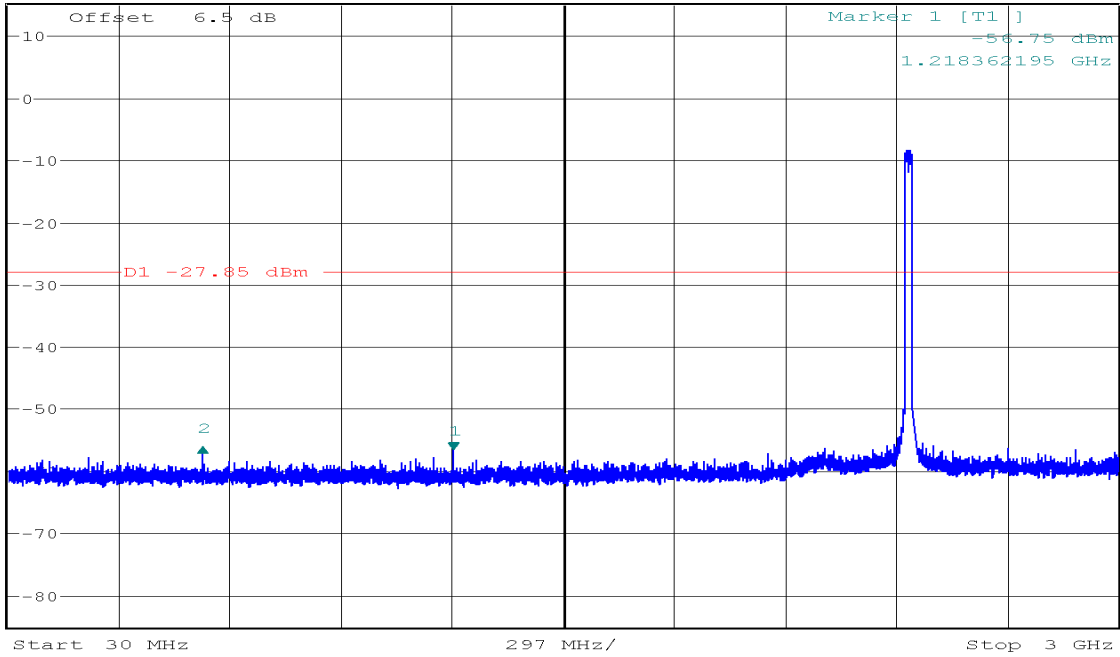


* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -7.85 dBm
 SWT 10 ms 2.434878995 GHz

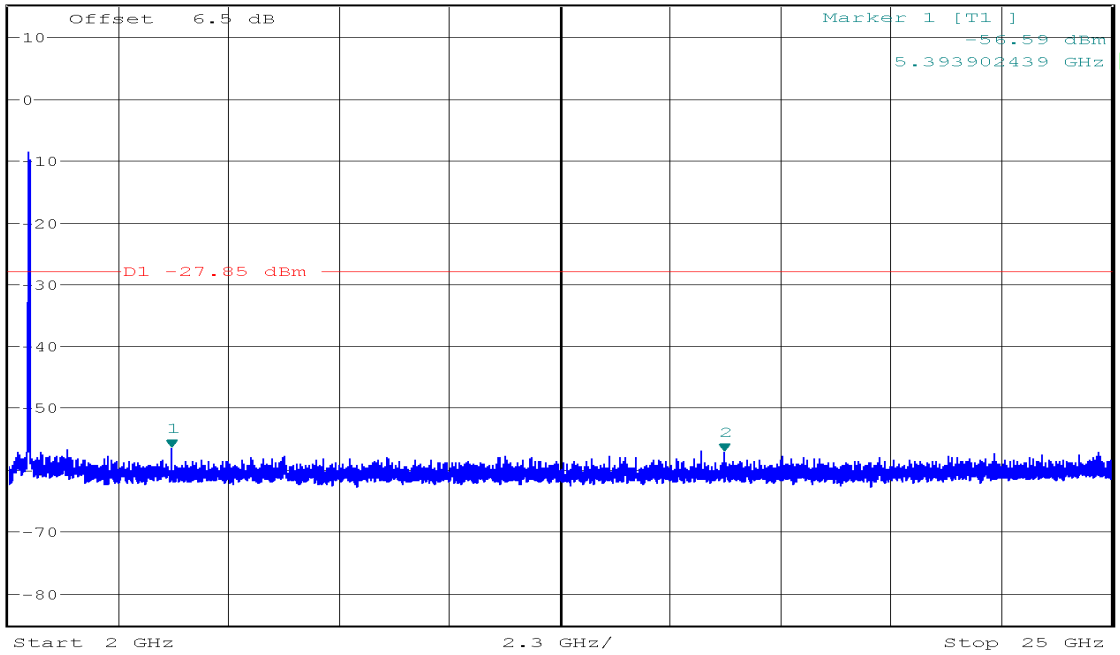




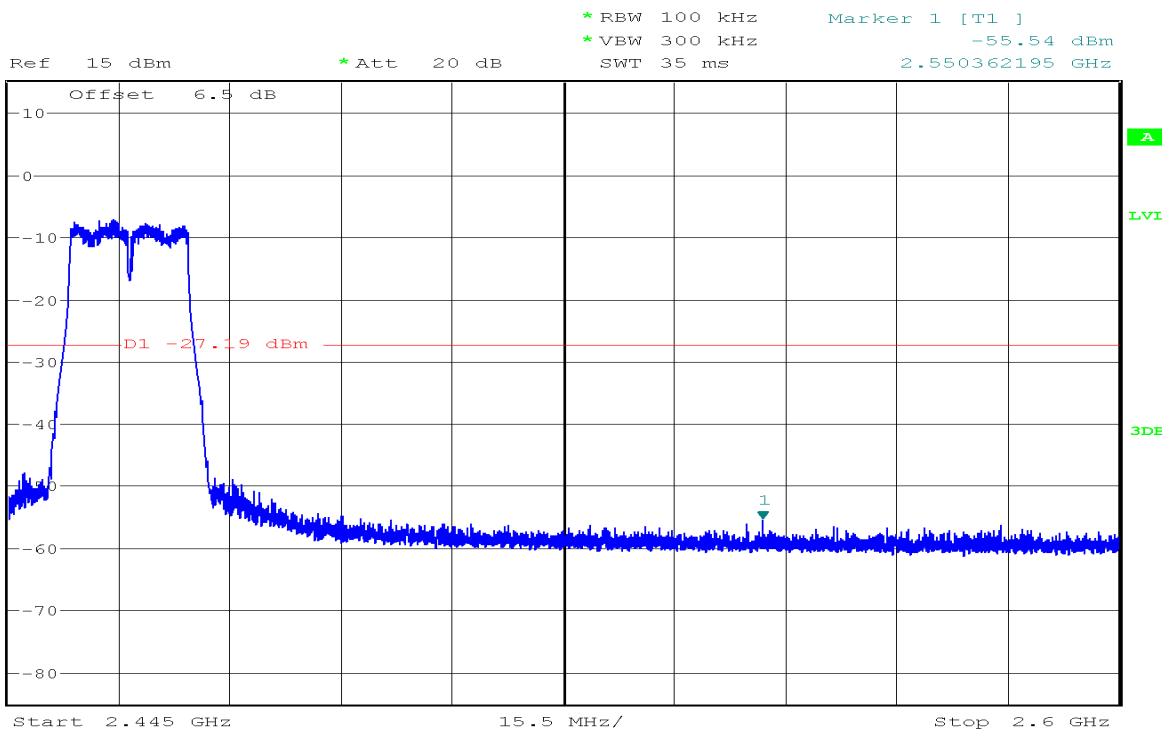
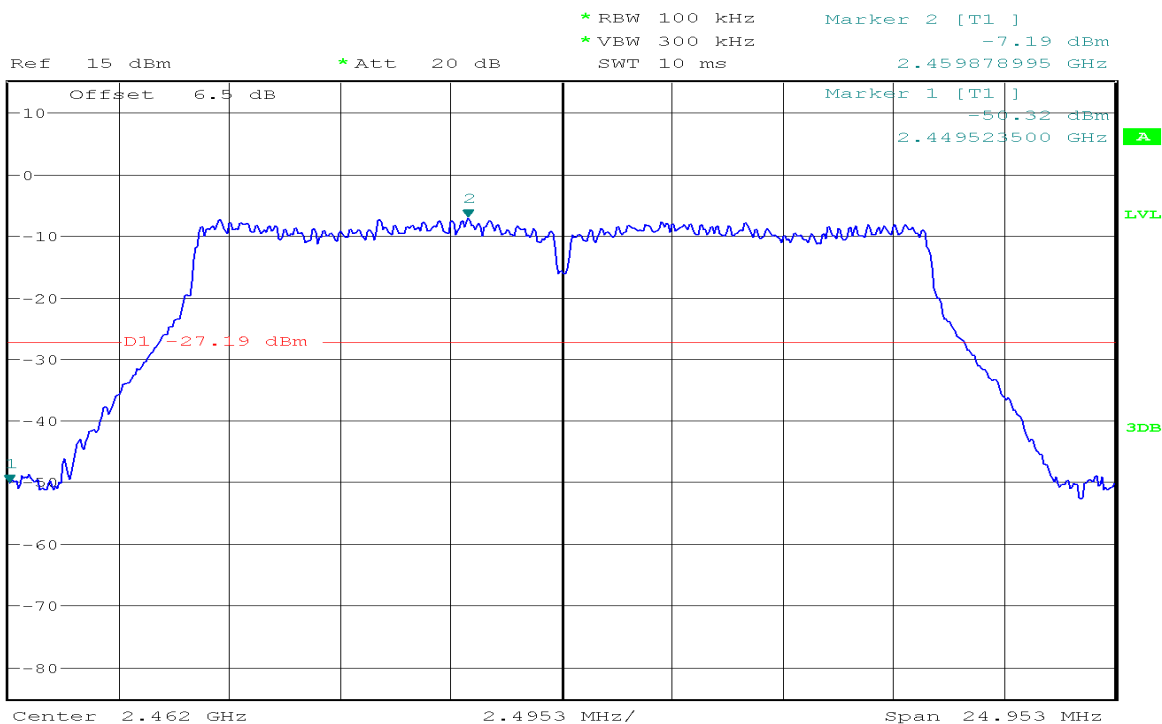
Ref 15 dBm *Att 20 dB *RBW 100 kHz Delta 2 [T1] 0.36 dB
 *VBW 300 kHz SWT 300 ms -669.336585366 MHz



Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1] -57.15 dBm
 *VBW 300 kHz SWT 2.3 s 16.919146341 GHz

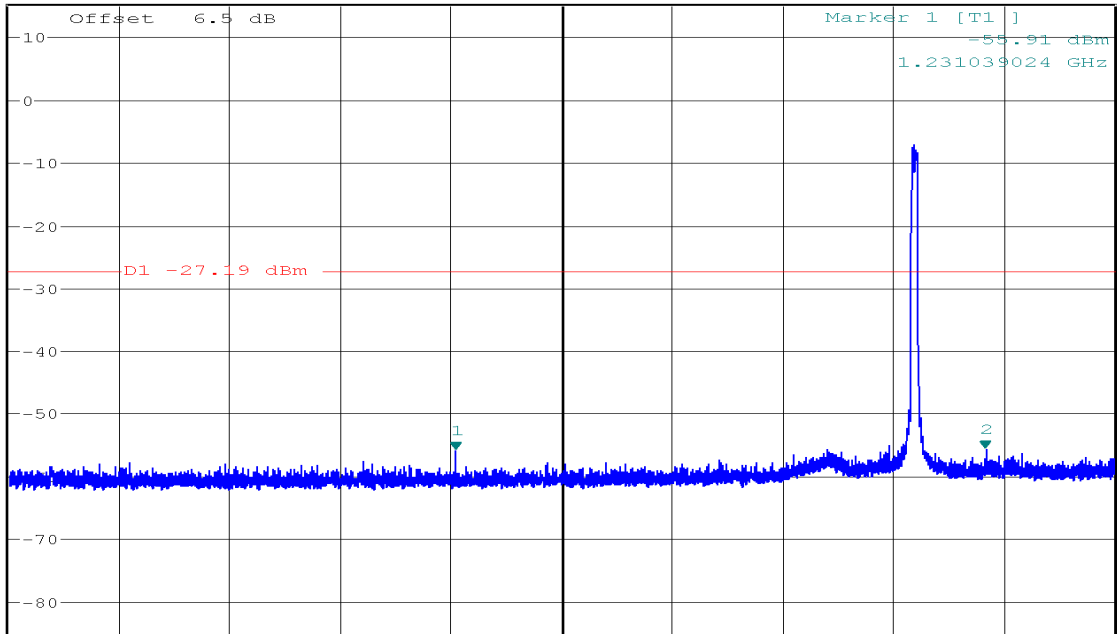


CH High

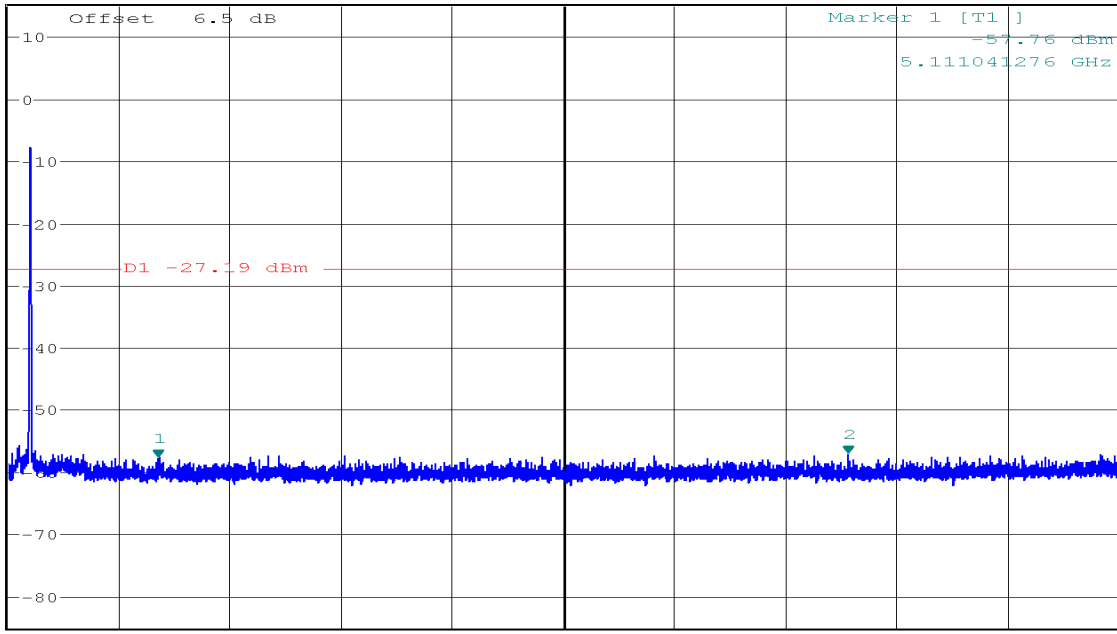




Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1] -55.61 dBm
*VBW 300 kHz 2.653741463 GHz
SWT 300 ms



Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1] -57.13 dBm
*VBW 300 kHz 19.379024390 GHz
SWT 2.3 s

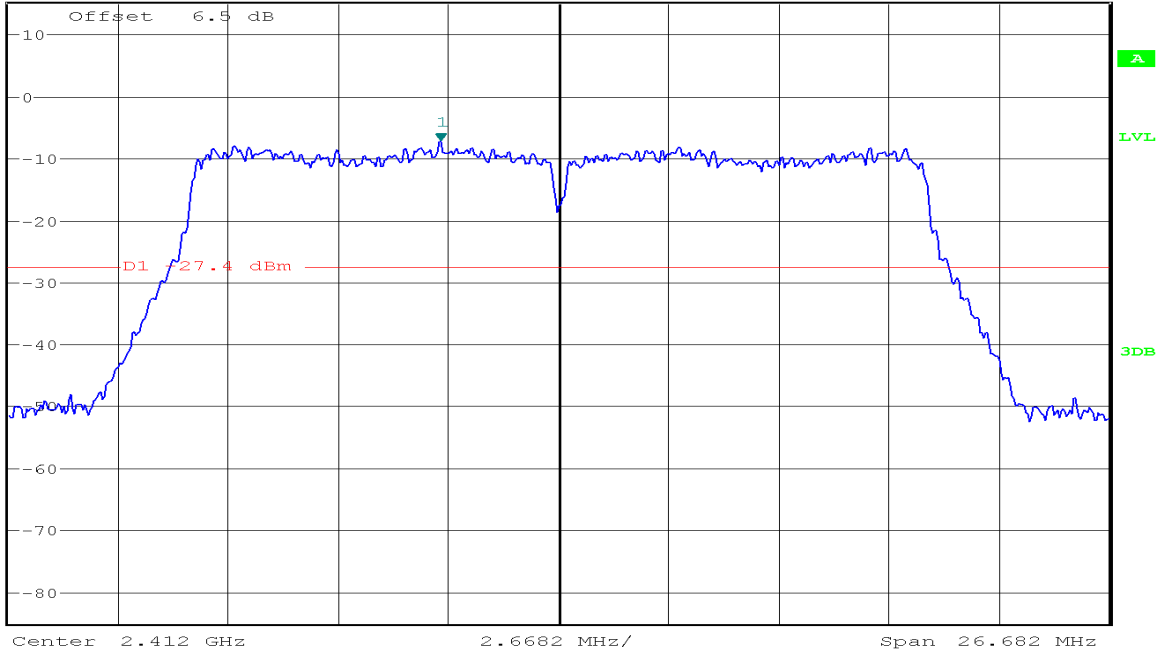


IEEE 802.11n HT20 mode

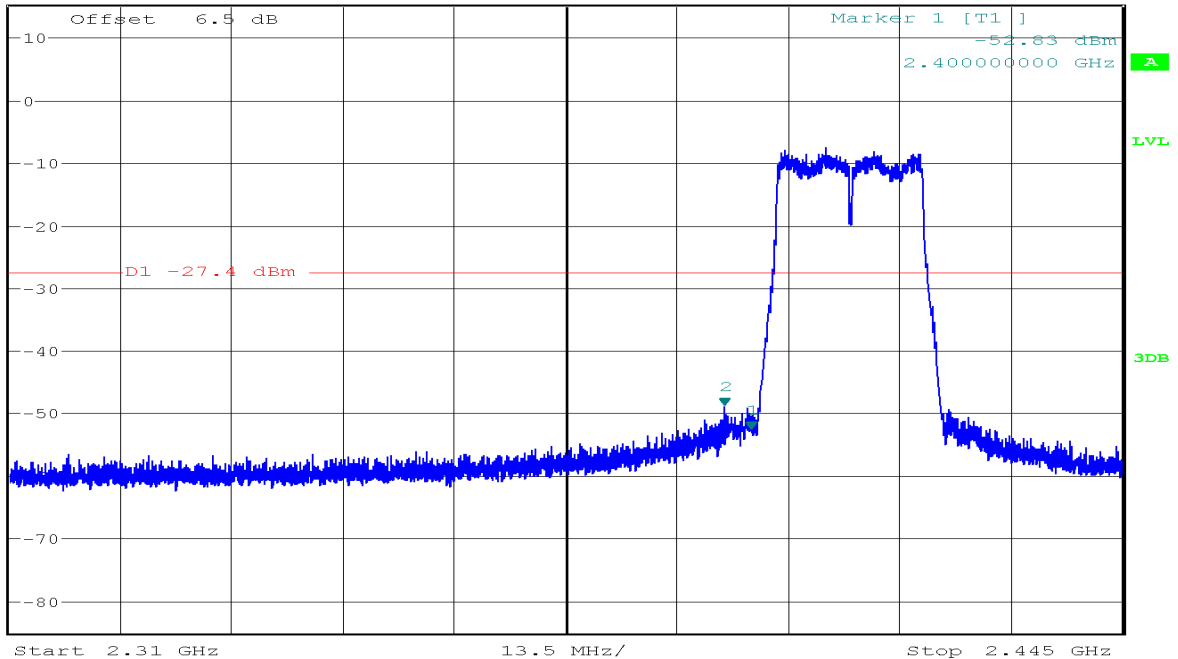
CH Low



Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 1 [T1]
 *VBW 300 kHz -7.40 dBm
 SWT 10 ms 2.409153920 GHz

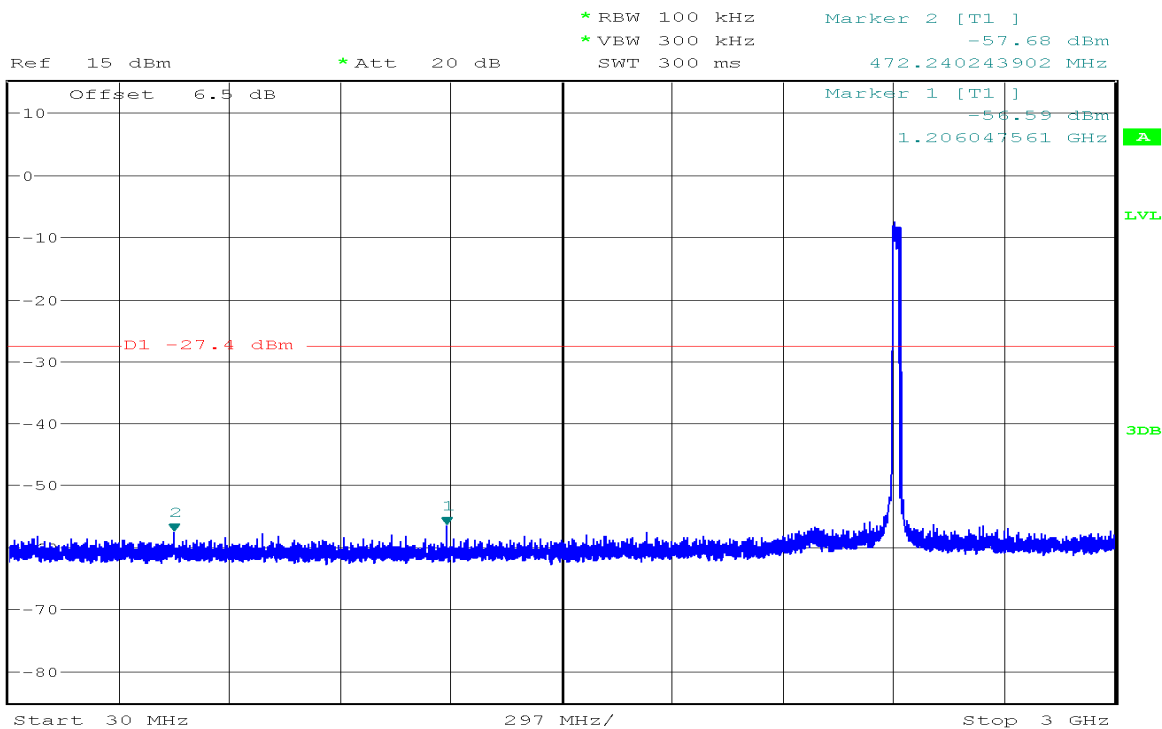


Ref 15 dBm *Att 20 dB *RBW 100 kHz Marker 2 [T1]
 *VBW 300 kHz -48.99 dBm
 SWT 35 ms 2.396663415 GHz

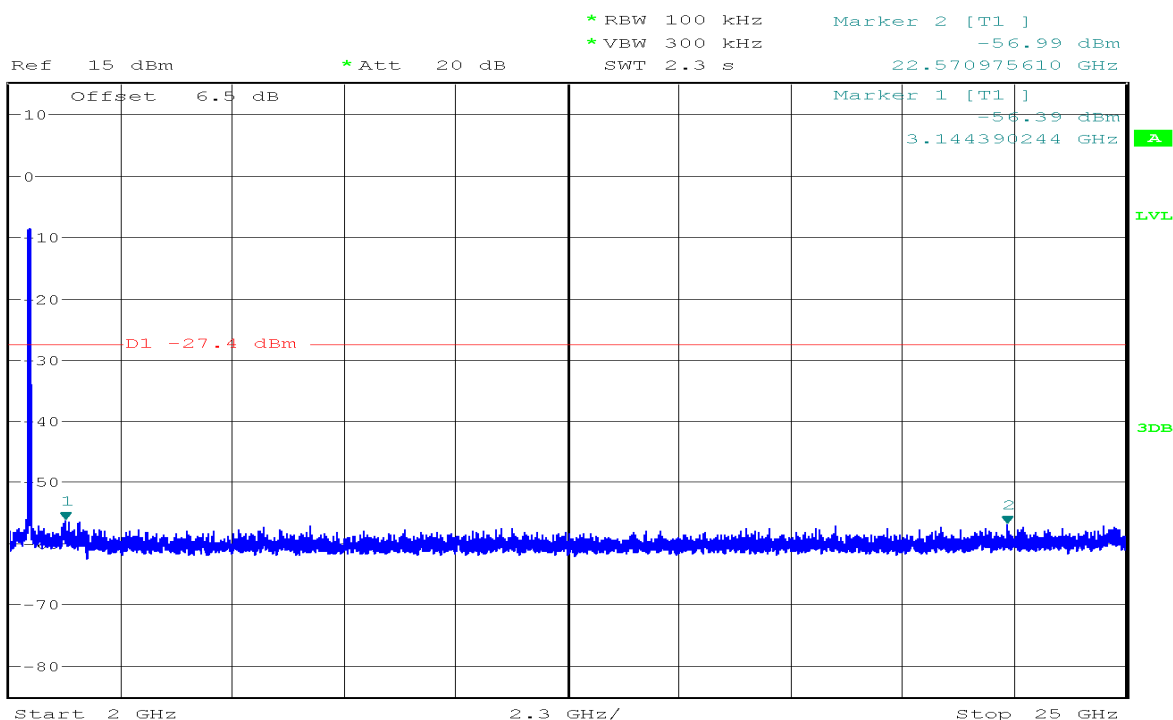




1 PK
MAXH



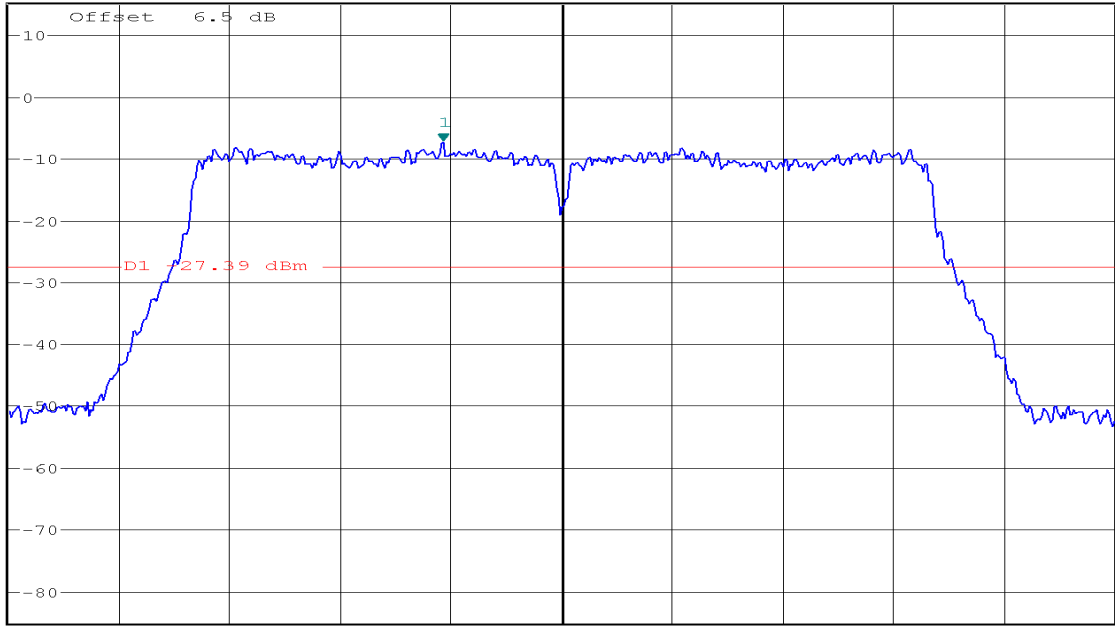
1 PK
MAXH



CH Mid



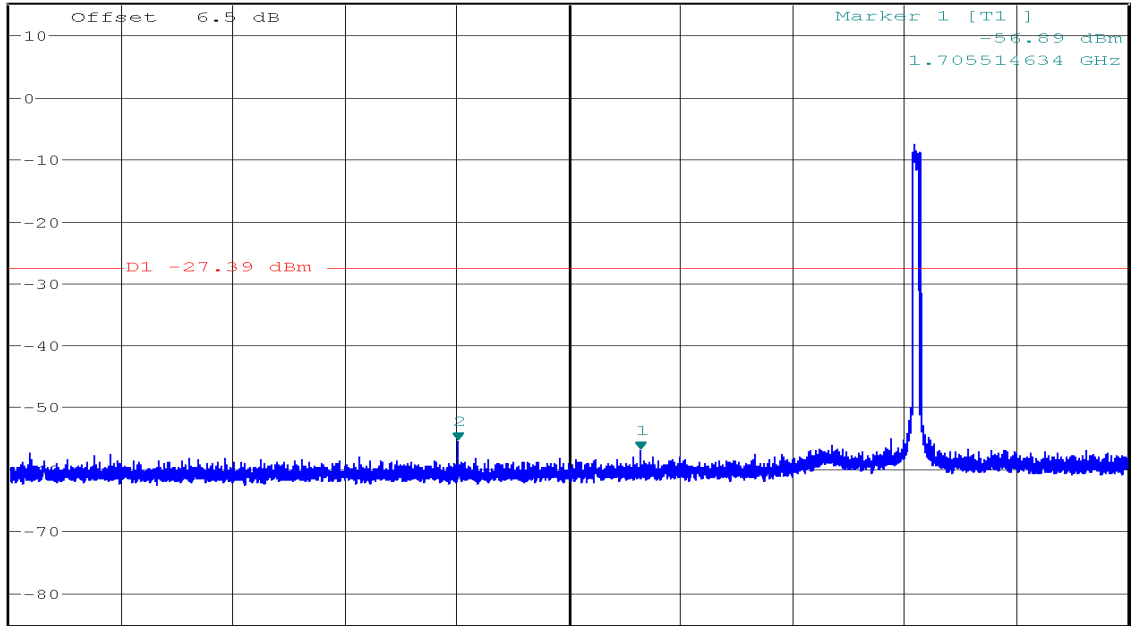
Ref 15 dBm * Att 20 dB * RBW 100 kHz Marker 1 [T1] -7.39 dBm
 * VBW 300 kHz 2.434153920 GHz
 SWT 10 ms



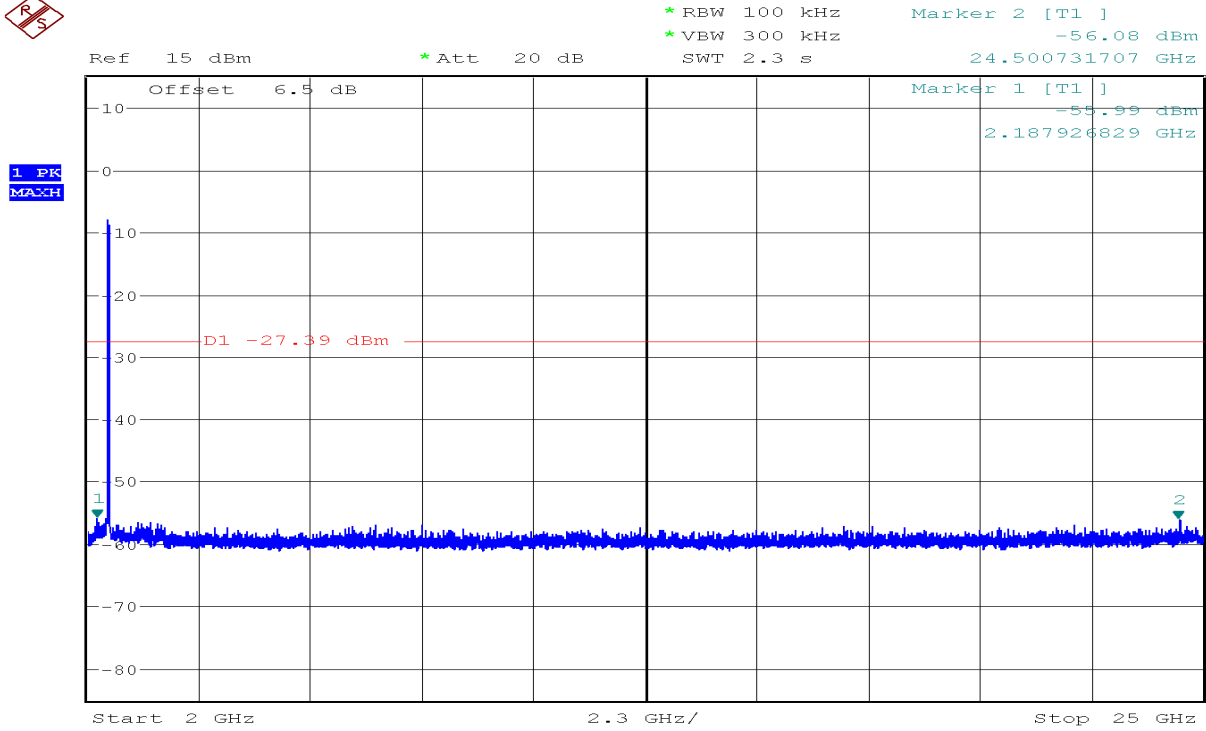
Center 2.437 GHz 2.6682 MHz/ Span 26.682 MHz



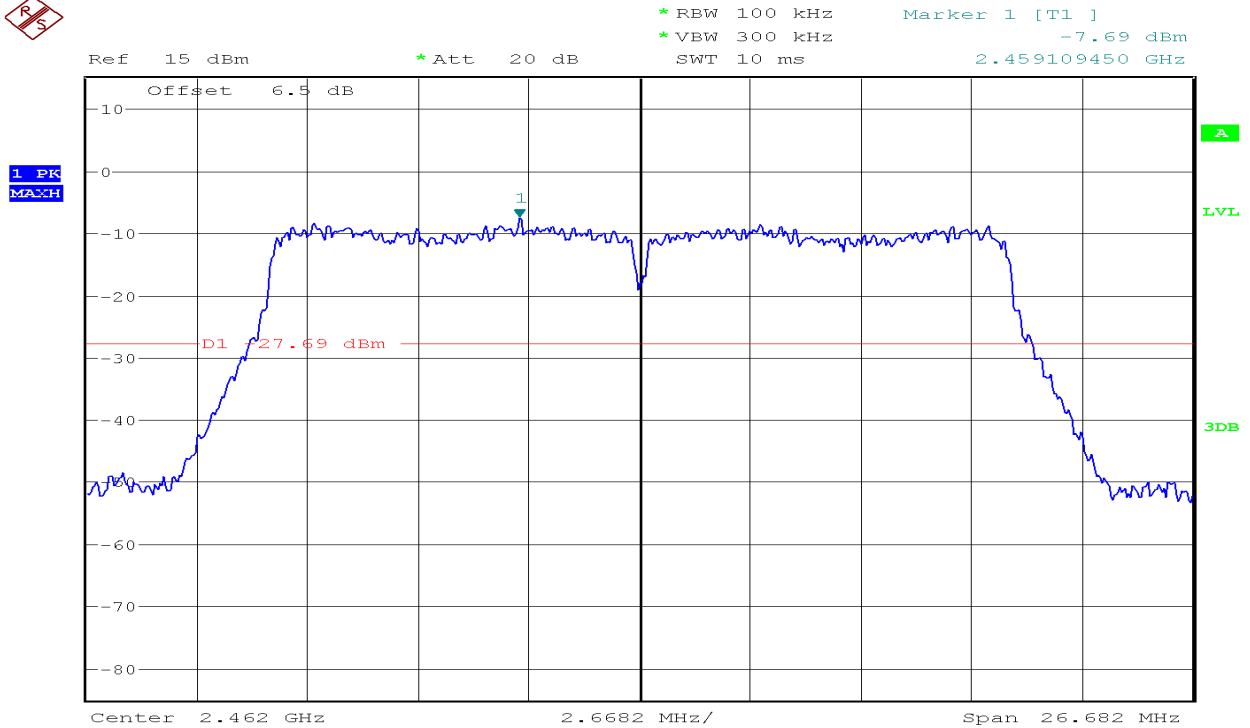
Ref 15 dBm * Att 20 dB * RBW 100 kHz Marker 2 [T1] -55.59 dBm
 * VBW 300 kHz 1.218362195 GHz
 SWT 300 ms



Start 30 MHz 297 MHz/ Stop 3 GHz

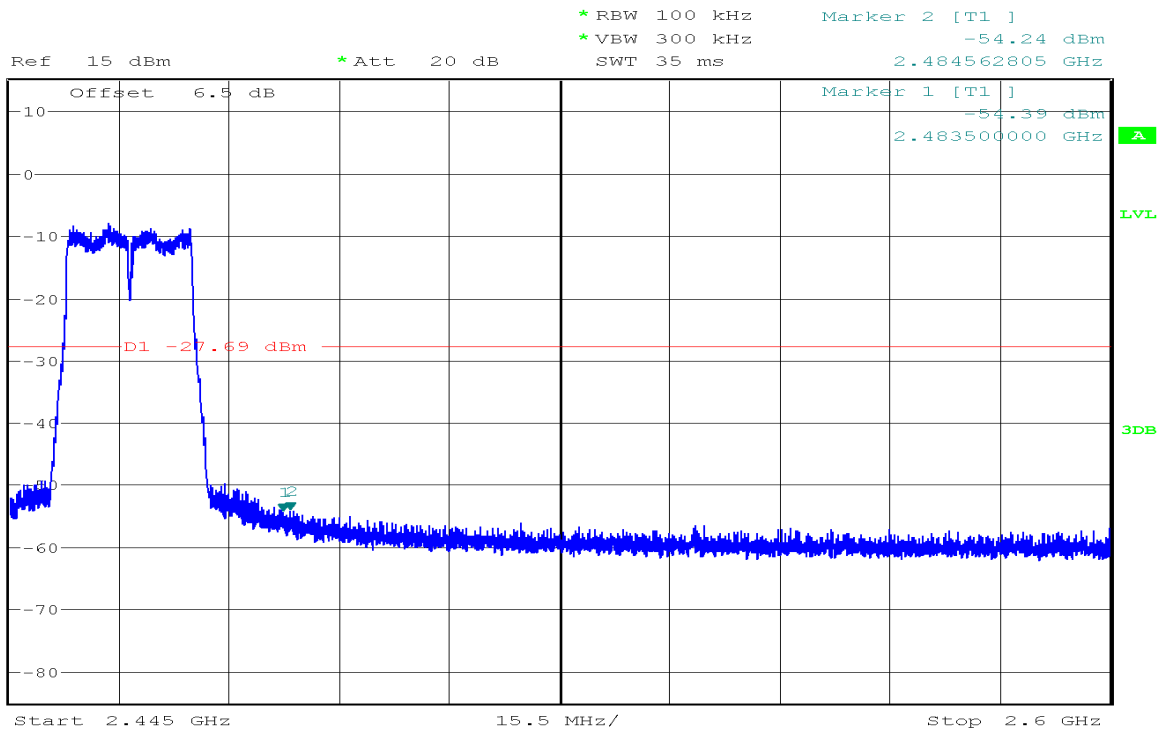


CH High

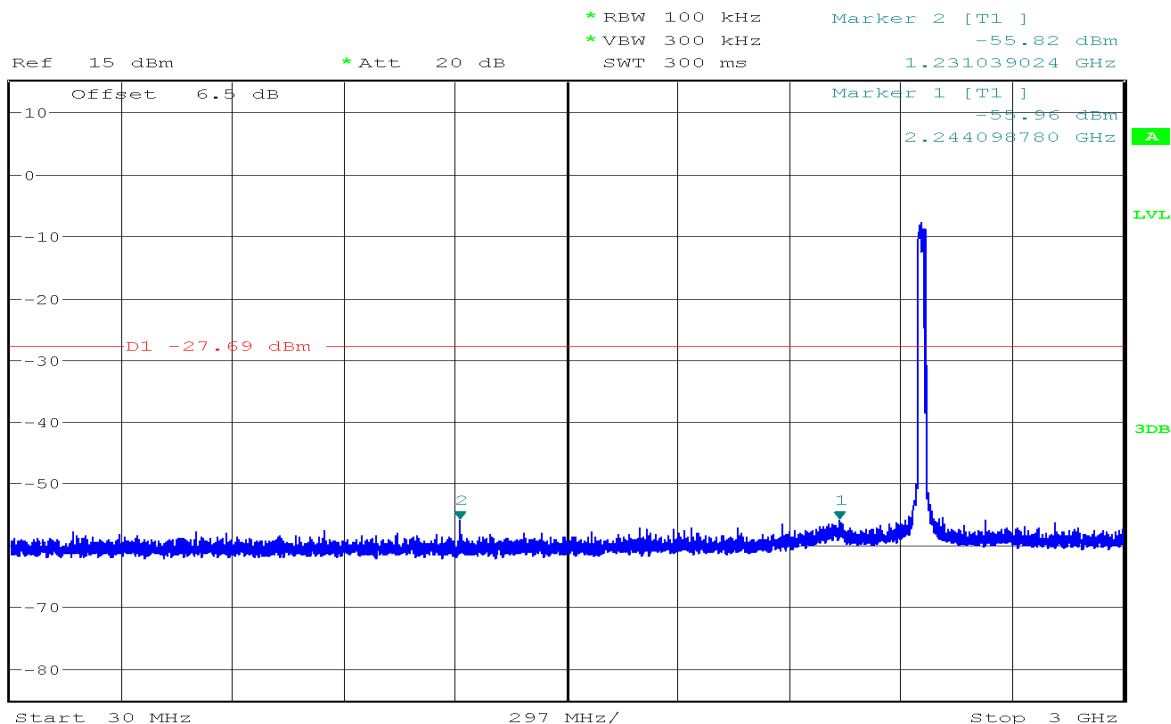


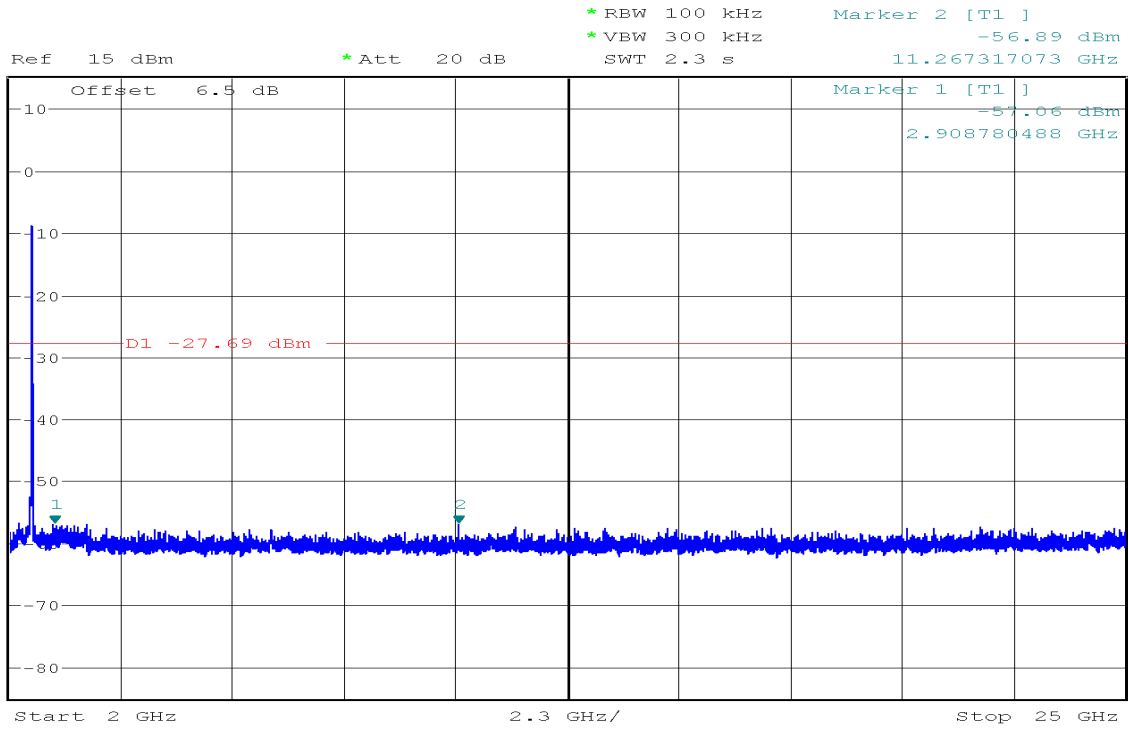


1 PK
MAXH



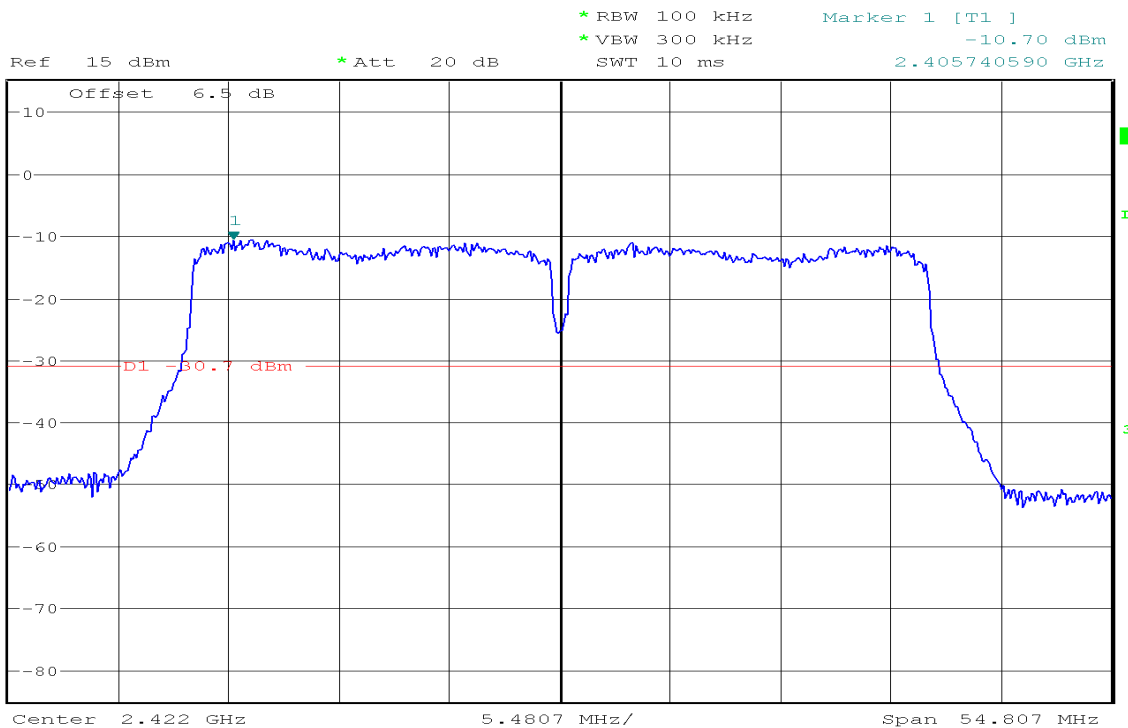
1 PK
MAXH

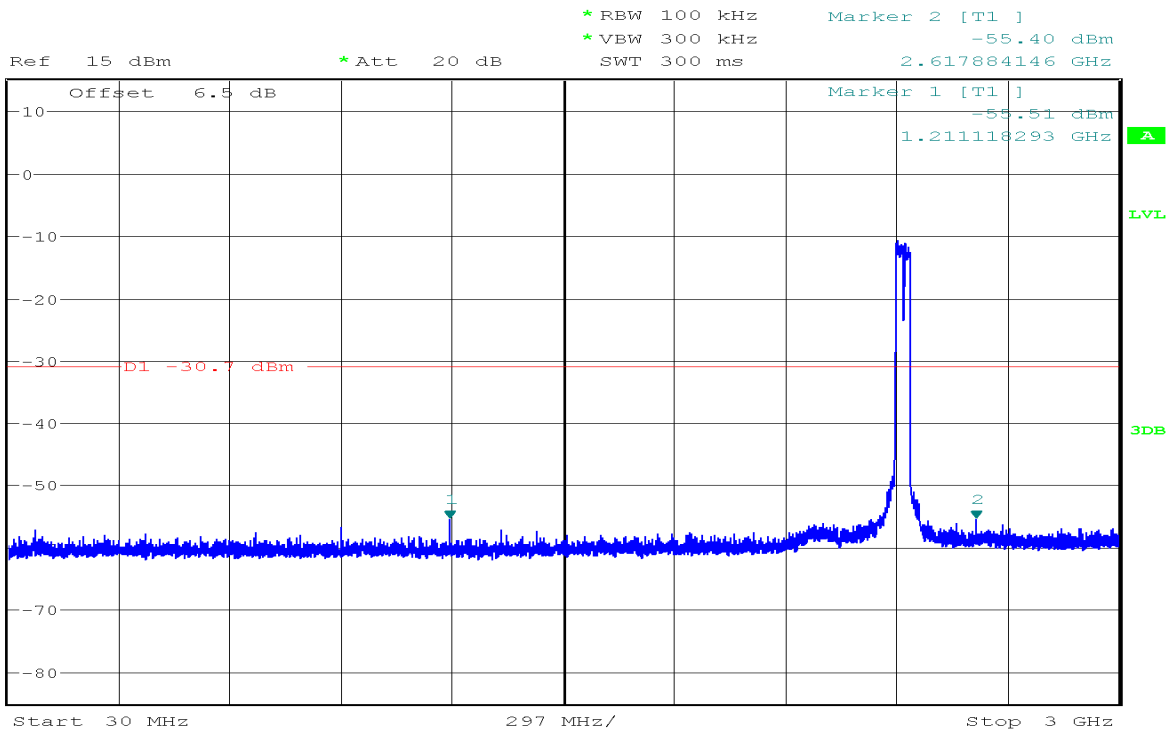
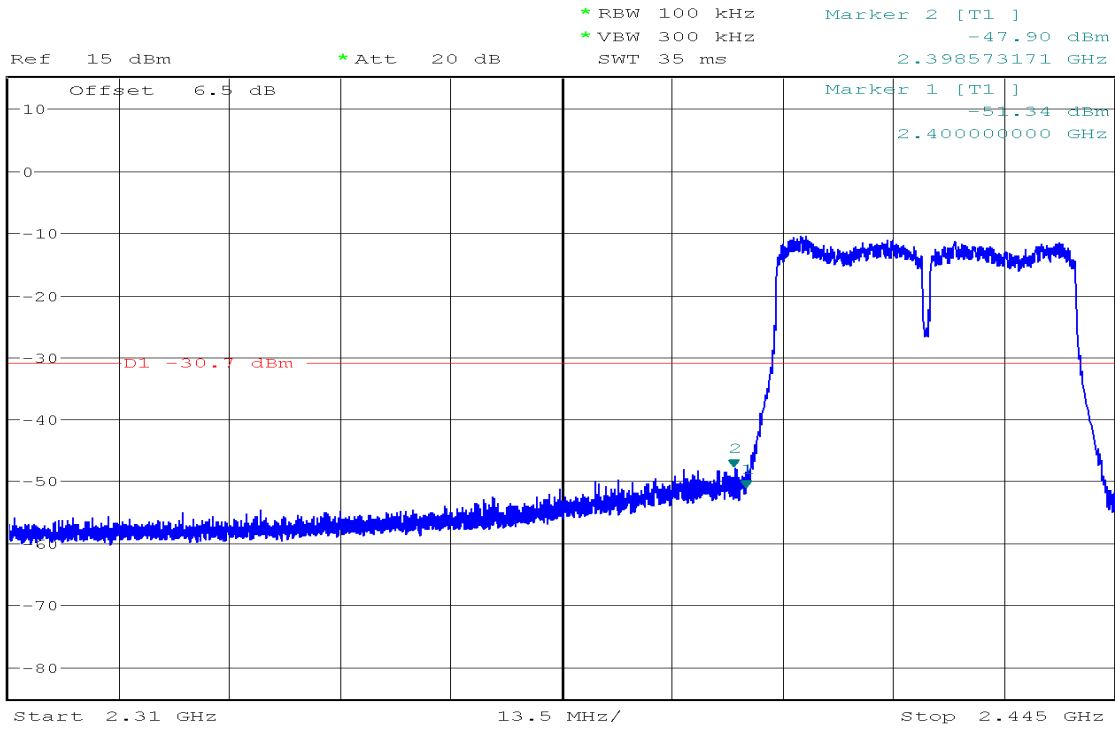


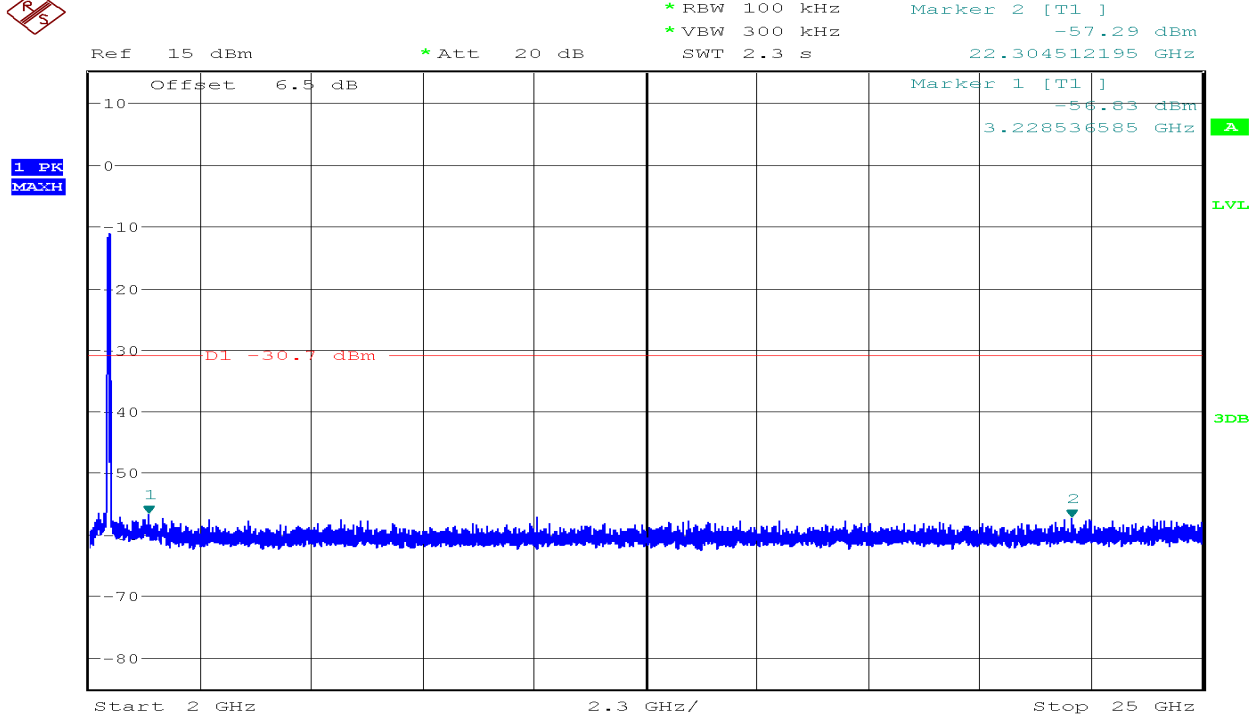


IEEE 802.11n HT40 mode

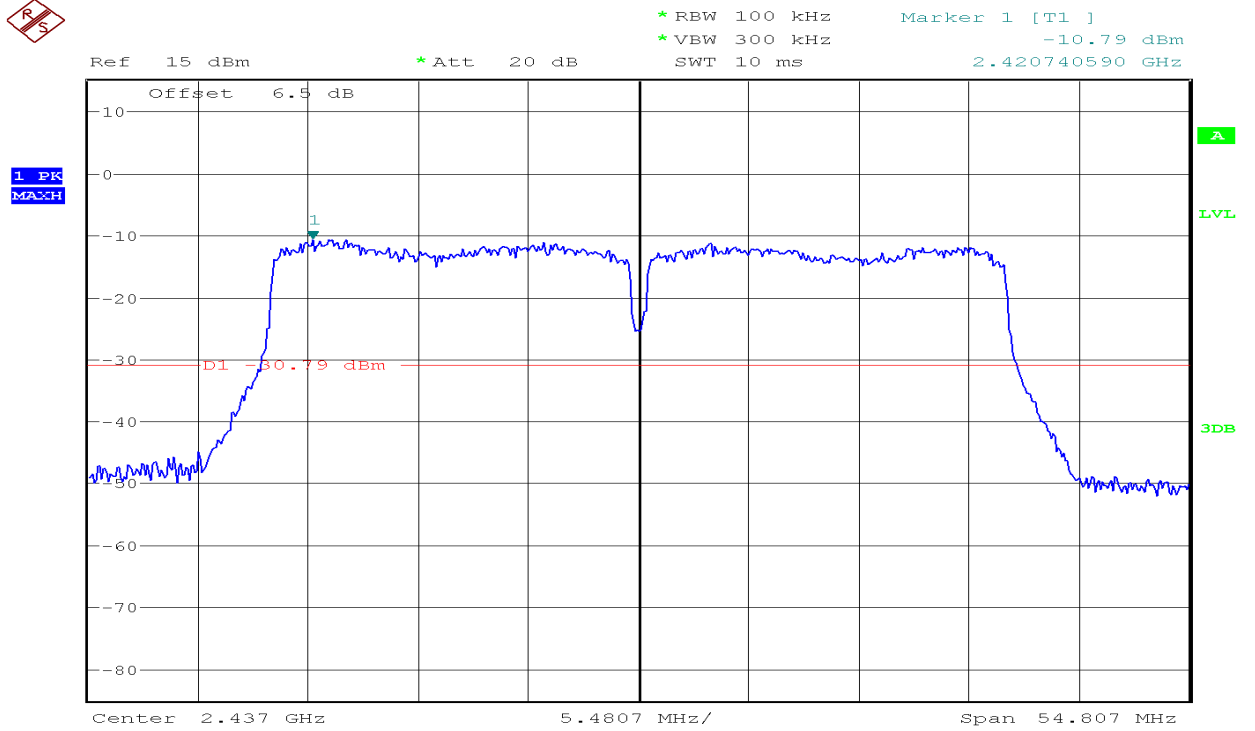
CH Low







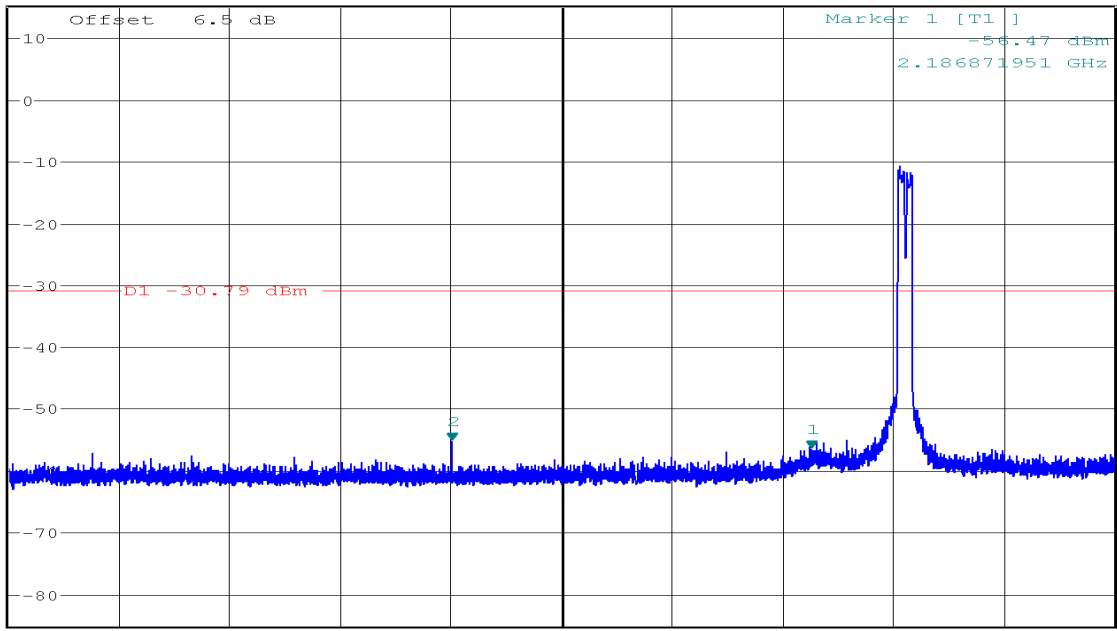
CH Mid





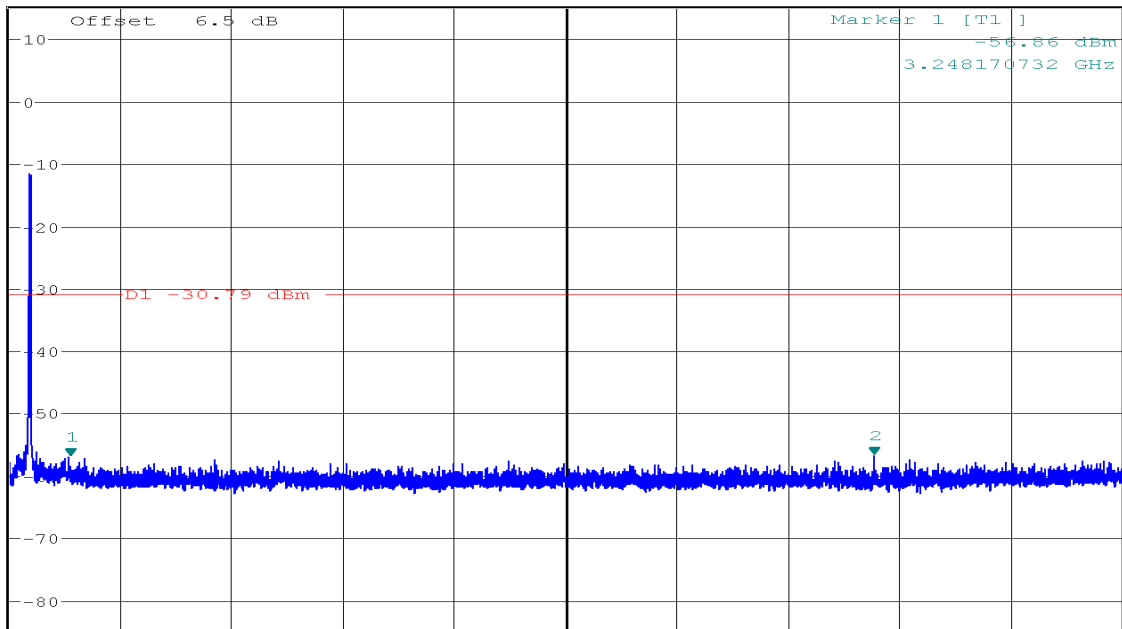
Ref 15 dBm * Att 20 dB * RBW 100 kHz Marker 2 [T1] -55.24 dBm
 * VBW 300 kHz 1.218362195 GHz
 SWT 300 ms

1 PK
MAXH



Ref 15 dBm * Att 20 dB * RBW 100 kHz Marker 2 [T1] -56.84 dBm
 * VBW 300 kHz 19.869878049 GHz
 SWT 2.3 s

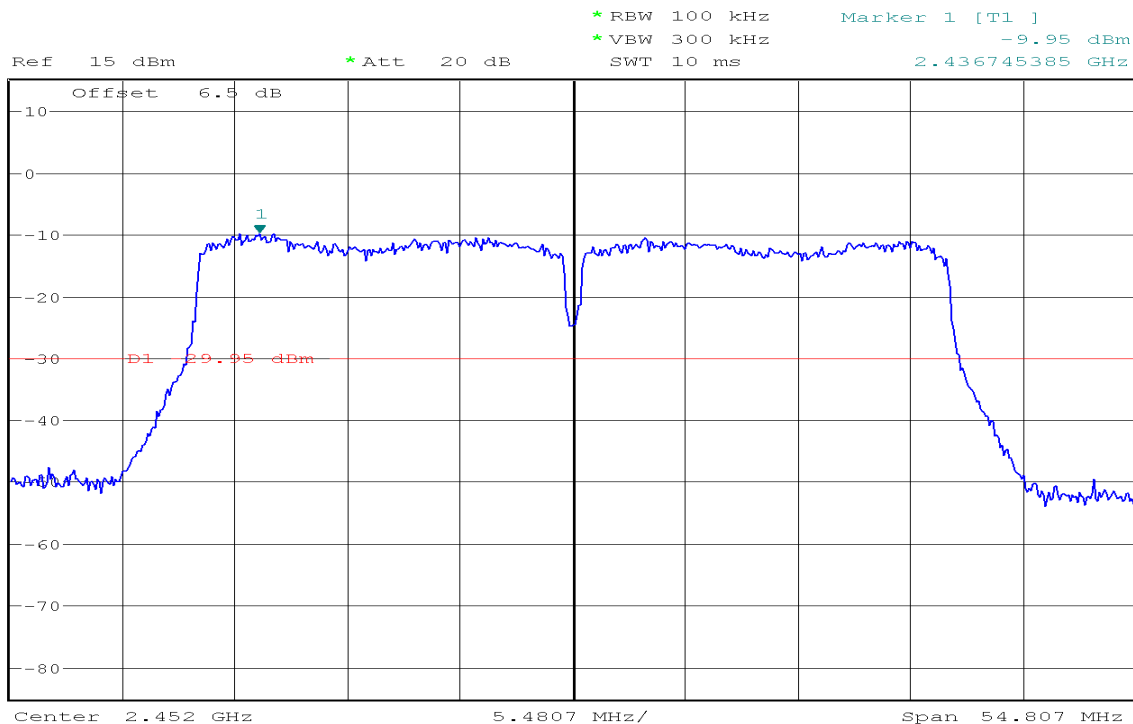
1 PK
MAXH



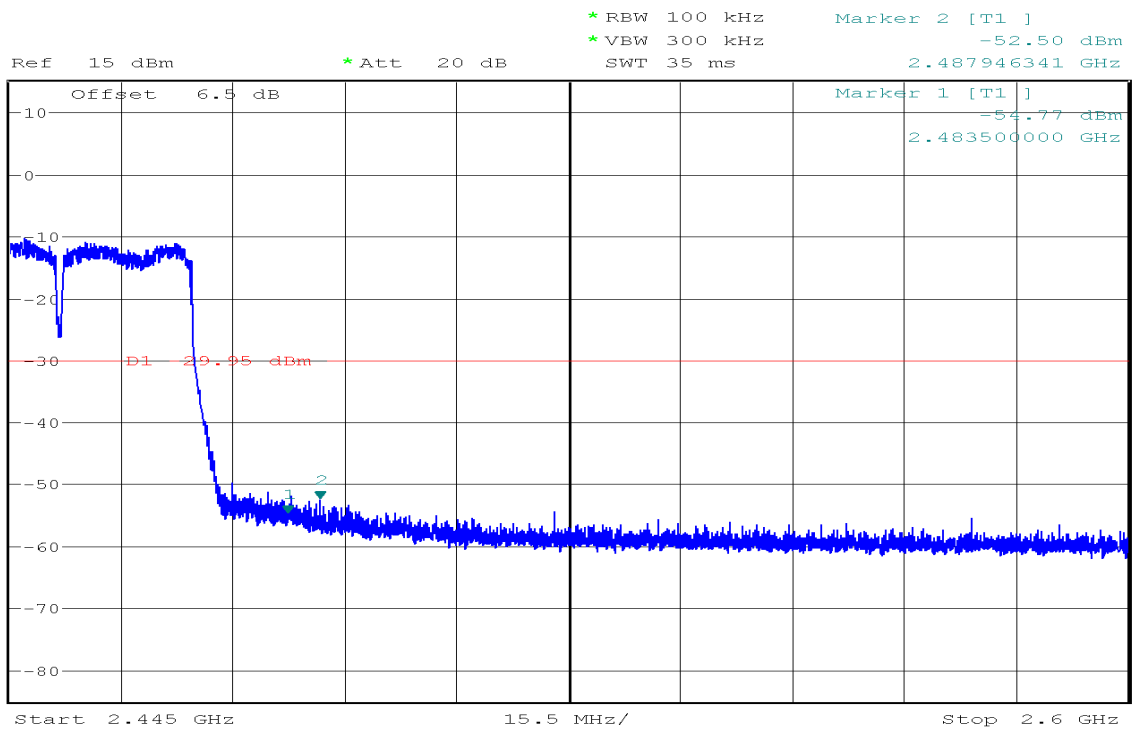
CH High



1 PK
MAXH

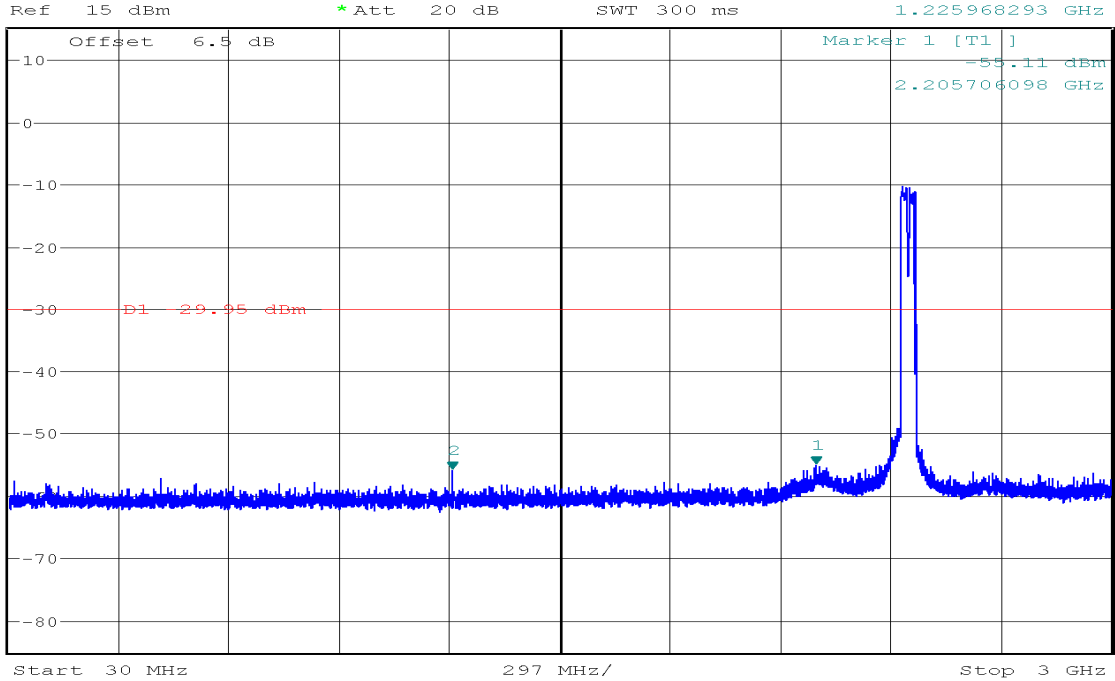


1 PK
MAXH

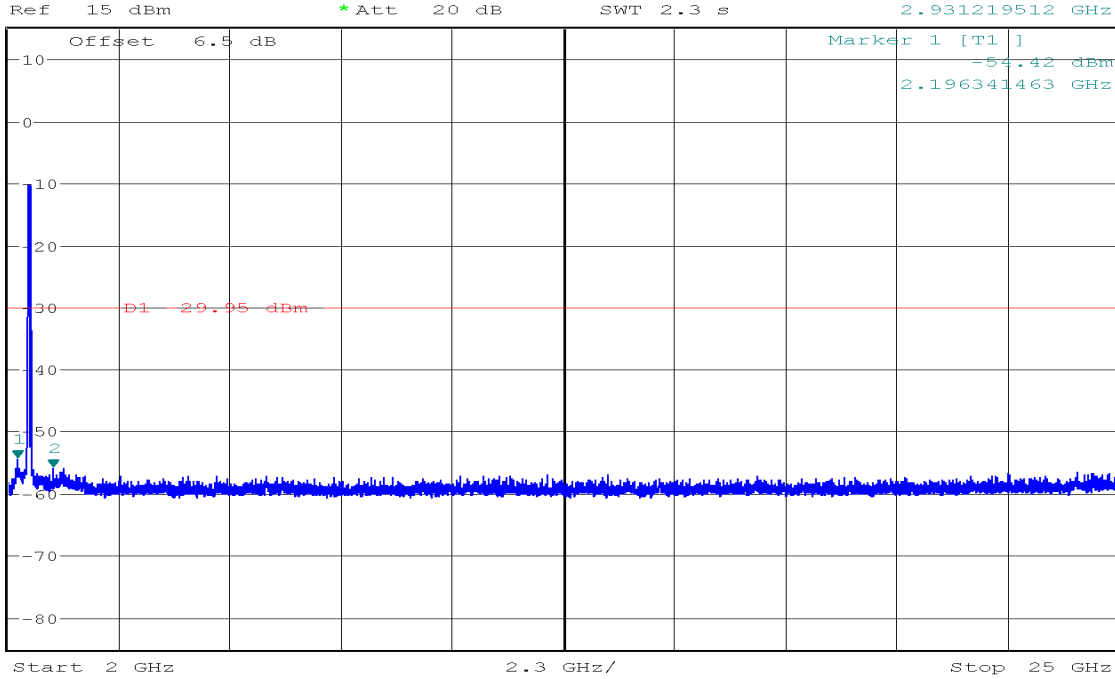




* RBW 100 kHz Marker 2 [T1]
 * VBW 300 kHz -55.98 dBm
 SWT 300 ms 1.225968293 GHz



* RBW 100 kHz Marker 2 [T1]
 * VBW 300 kHz -55.81 dBm
 SWT 2.3 s 2.931219512 GHz



7.5.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

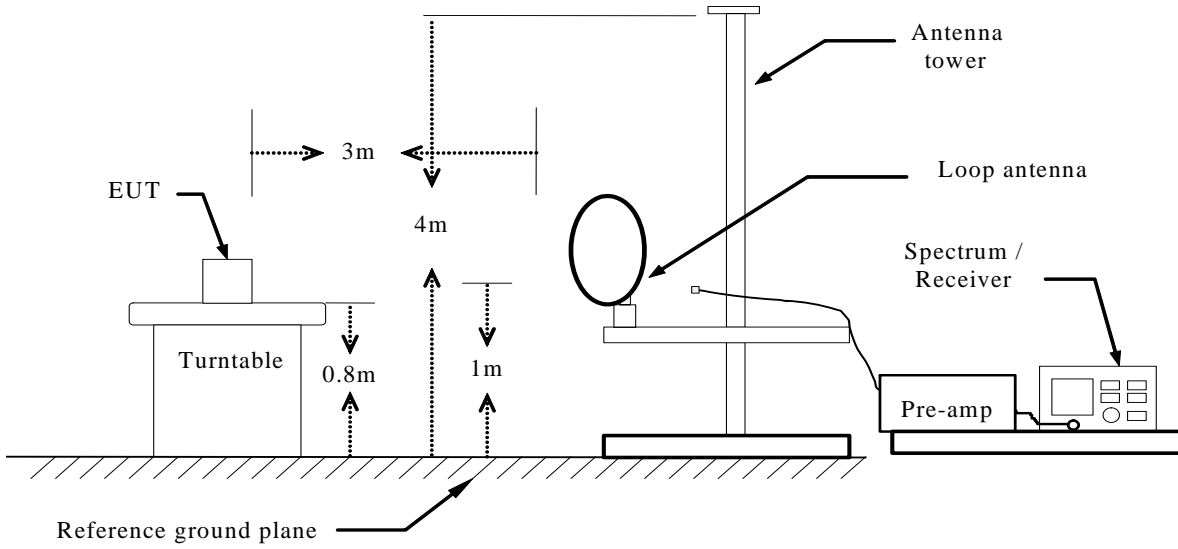
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

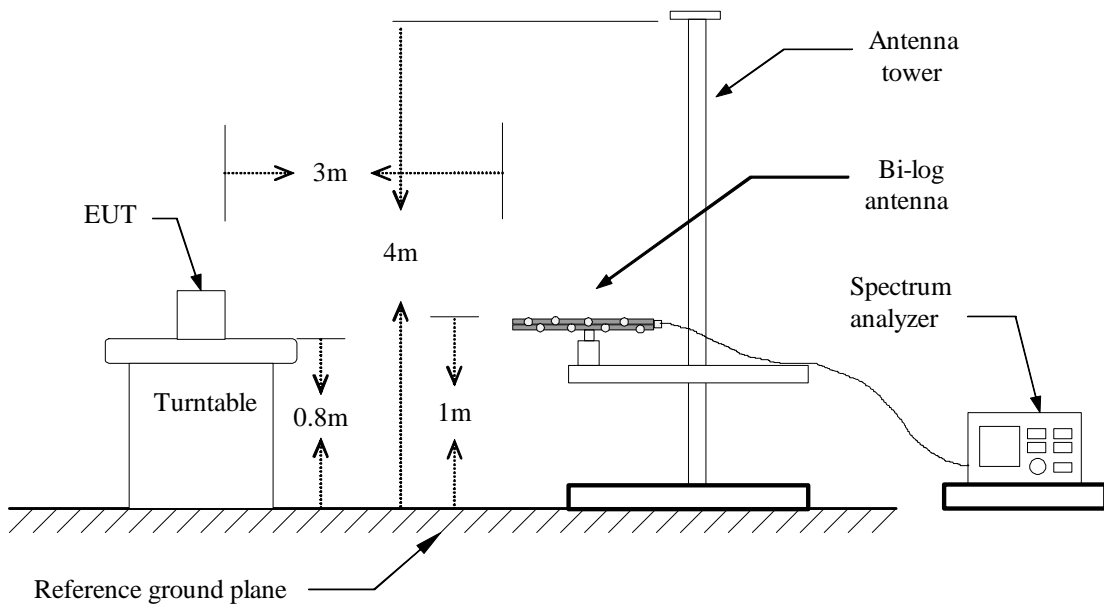
Frequency (MHz)	Field Strength (μ V/m at 3-meter)	Field Strength (dB μ V/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

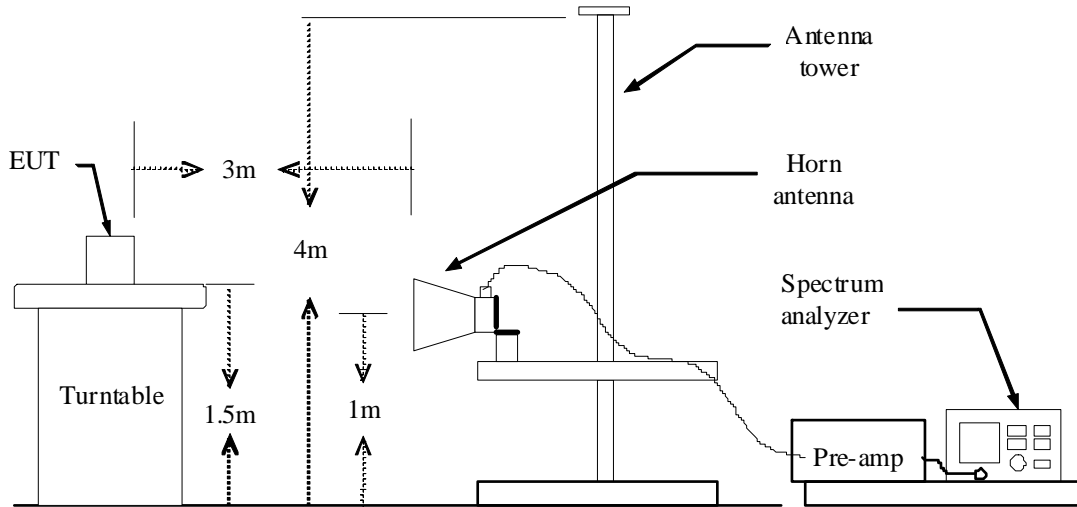
Below 30MHz



Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable 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 / Sweep=AUTO

VBW=10Hz,when duty cycle is no less than 98 percent.

VBW ≥ 1/T,when duty cycle is less than 98 percent,where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

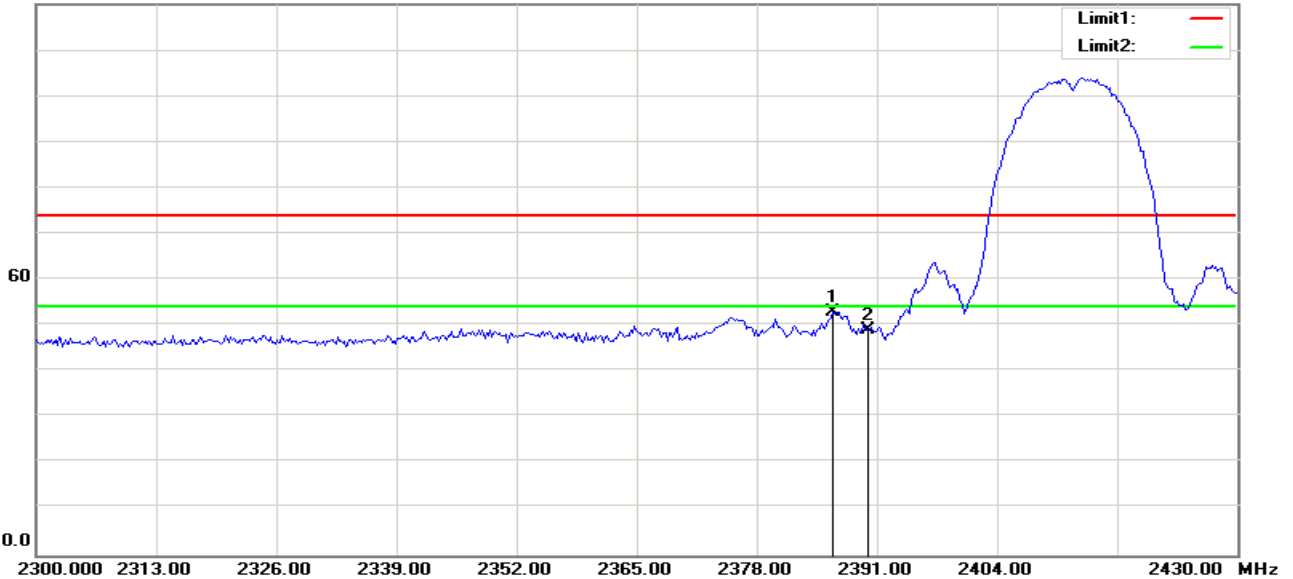
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
IEEE 802.11 b	100	--	--	10Hz
IEEE 802.11 g	100	--	--	10Hz
IEEE 802.11n HT20	100	--	--	10Hz
IEEE 802.11n HT40	100	--	--	10Hz

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

TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

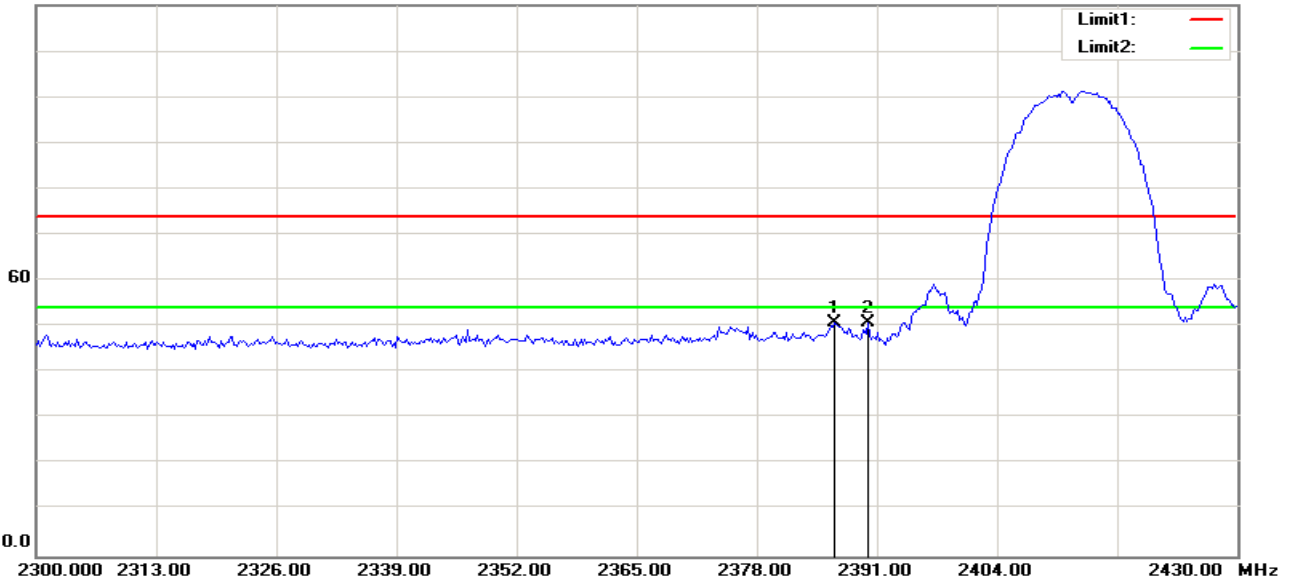
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.250	60.37	-7.35	53.02	74.00	-20.98	100	203	peak
2	2390.000	56.30	-7.31	48.99	74.00	-25.01	100	304	peak

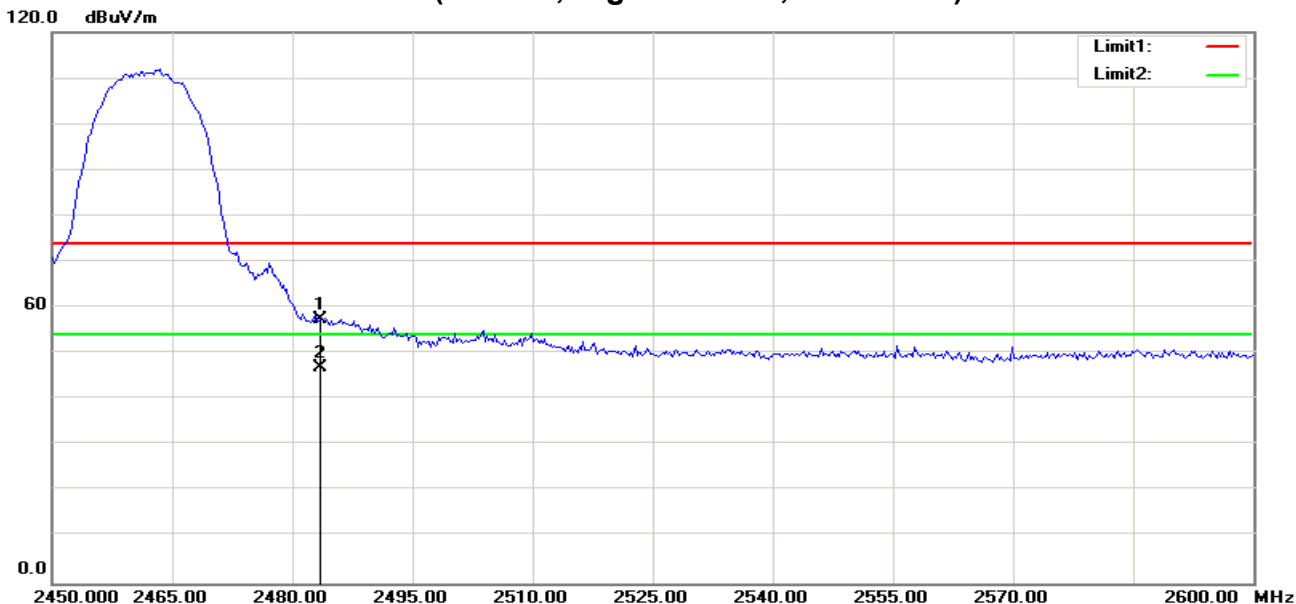
RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

120.0 dBuV/m



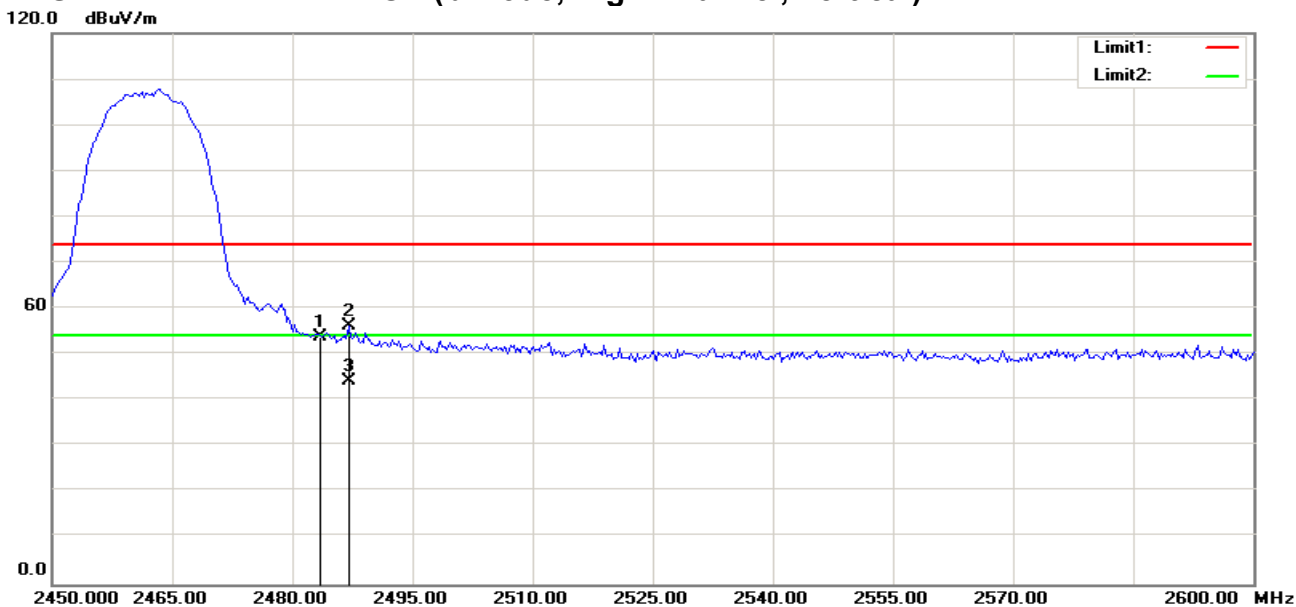
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.458	58.15	-7.34	50.81	74.00	-23.19	100	116	peak
2	2390.000	58.02	-7.31	50.71	74.00	-23.29	100	160	peak

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	63.89	-6.44	57.45	74.00	-16.55	126	360	peak
2	2483.500	53.33	-6.44	46.89	54.00	-7.11	126	360	AVG

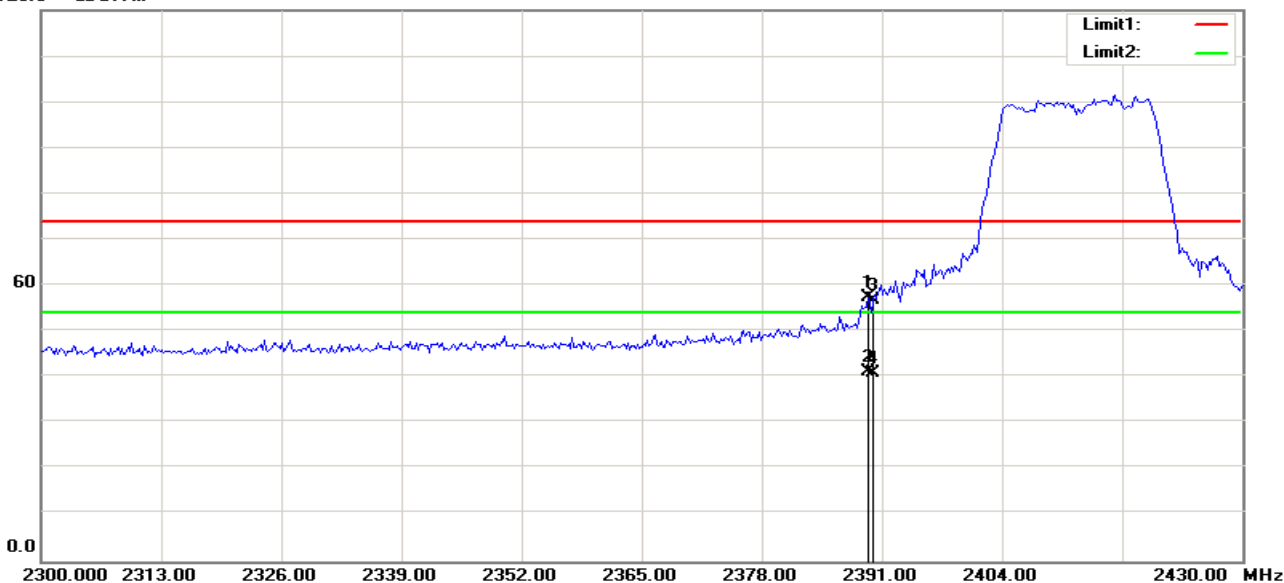
RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)



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	60.43	-6.44	53.99	74.00	-20.01	100	136	peak
2	2487.019	62.62	-6.41	56.21	74.00	-17.79	105	142	peak
3	2487.019	50.80	-6.41	44.39	54.00	-9.61	105	142	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)

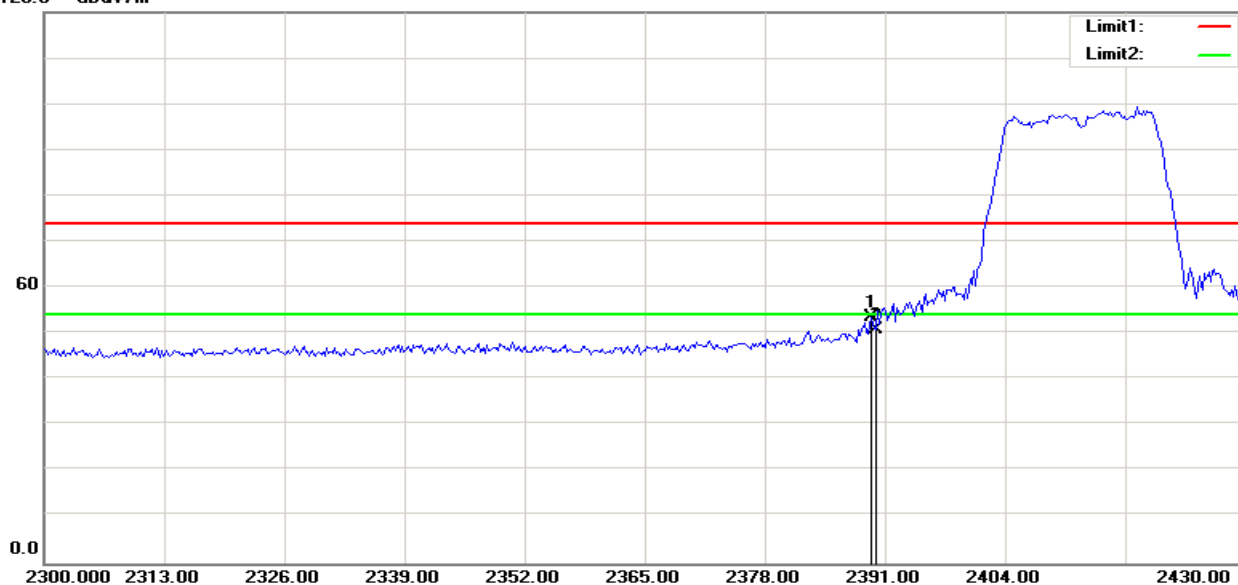
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.583	64.91	-7.31	57.60	74.00	-16.40	100	333	peak
2	2389.583	48.44	-7.31	41.13	54.00	-12.87	100	333	AVG
3	2390.000	64.13	-7.31	56.82	74.00	-17.18	100	203	peak
4	2390.000	48.27	-7.31	40.96	54.00	-13.04	100	203	AVG

RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

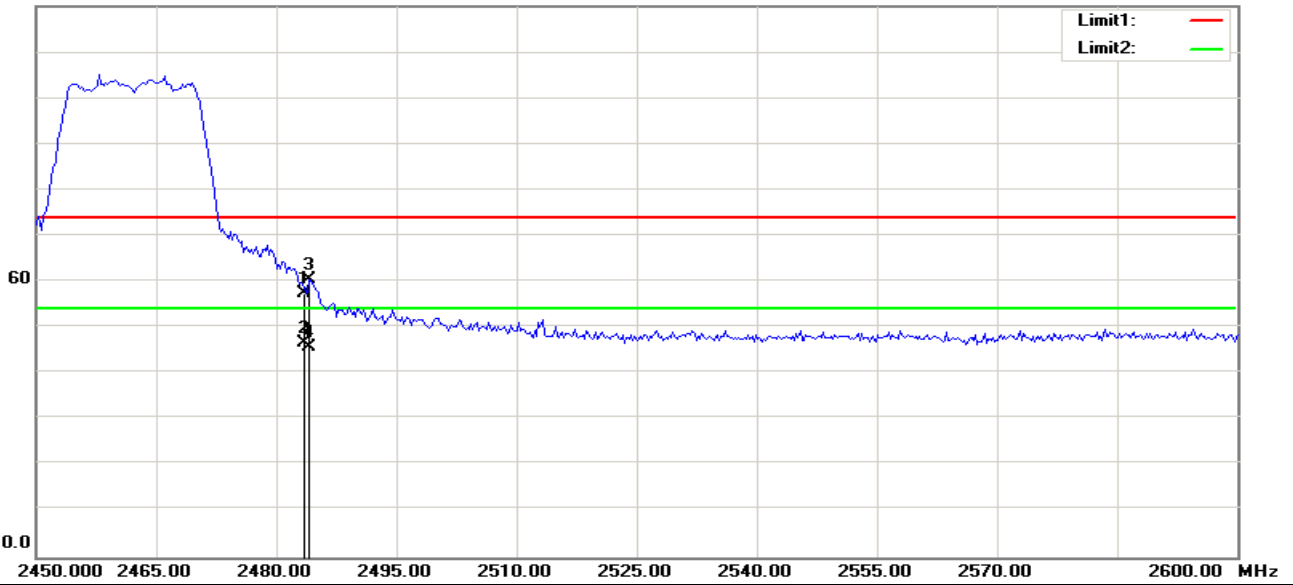
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.583	60.82	-7.31	53.51	74.00	-20.49	100	130	peak
2	2390.000	58.24	-7.31	50.93	74.00	-23.07	100	131	peak

RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

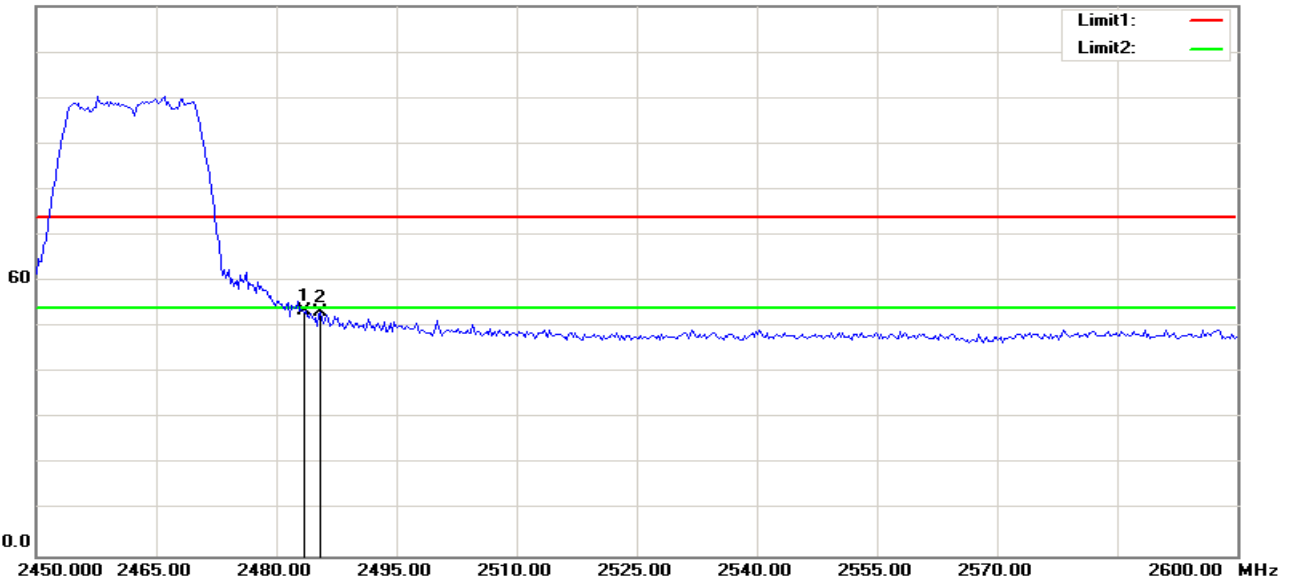
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	63.92	-6.44	57.48	74.00	-16.52	128	353	peak
2	2483.500	53.07	-6.44	46.63	54.00	-7.37	128	353	AVG
3	2484.135	67.00	-6.44	60.56	74.00	-13.44	128	356	peak
4	2484.135	52.08	-6.44	45.64	54.00	-8.36	128	356	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

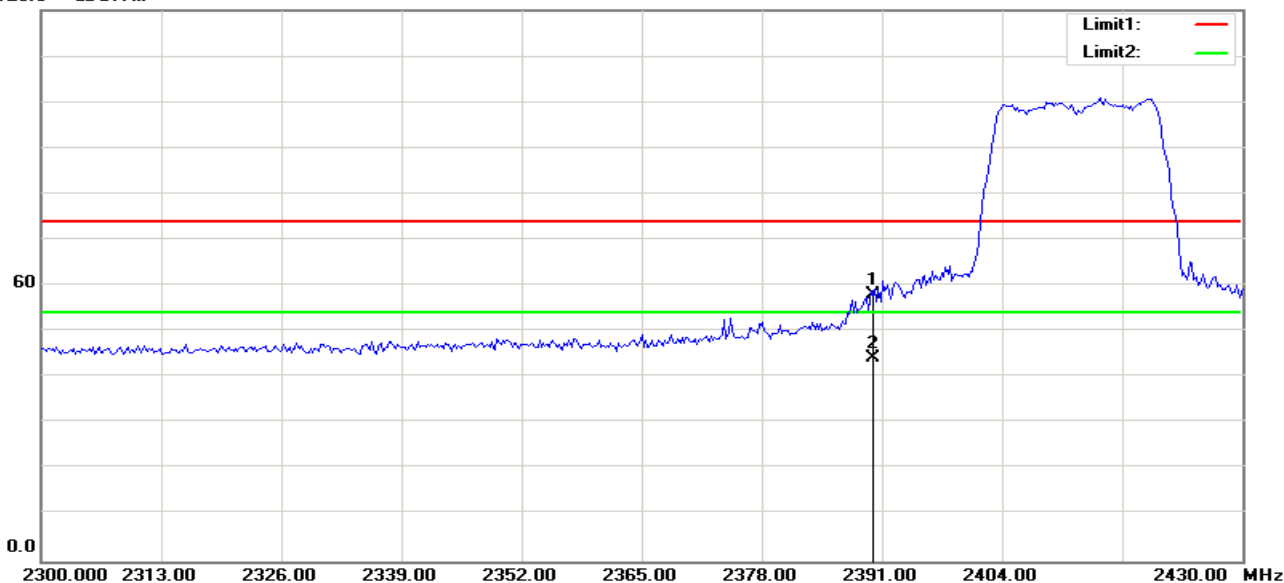
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	60.03	-6.44	53.59	74.00	-20.41	100	101	peak
2	2485.577	59.80	-6.42	53.38	74.00	-20.62	100	97	peak

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

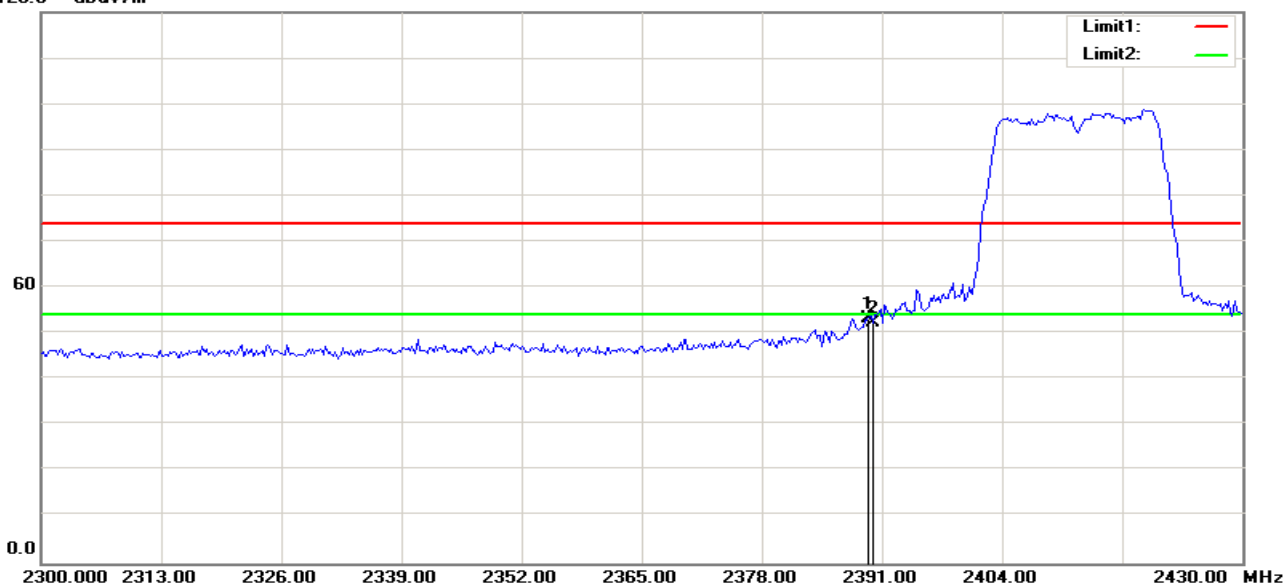
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	65.43	-7.31	58.12	74.00	-15.88	106	332	peak
2	2390.000	51.43	-7.31	44.12	54.00	-9.88	106	332	AVG

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

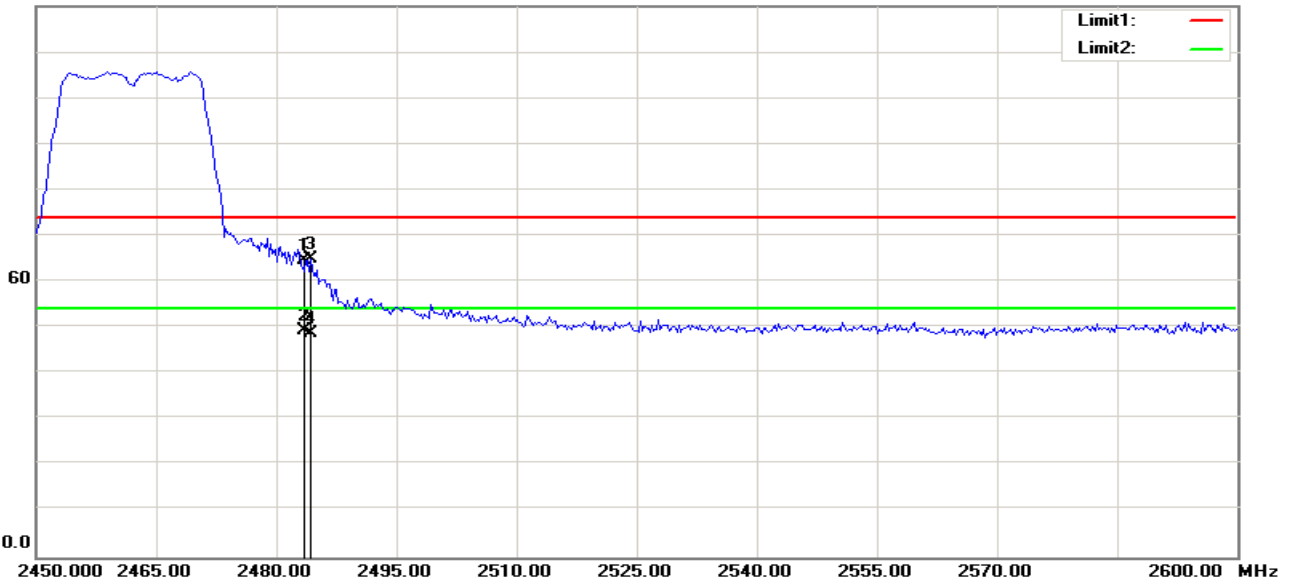
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.583	60.71	-7.31	53.40	74.00	-20.60	100	108	peak
2	2390.000	59.78	-7.31	52.47	74.00	-21.53	100	109	peak

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

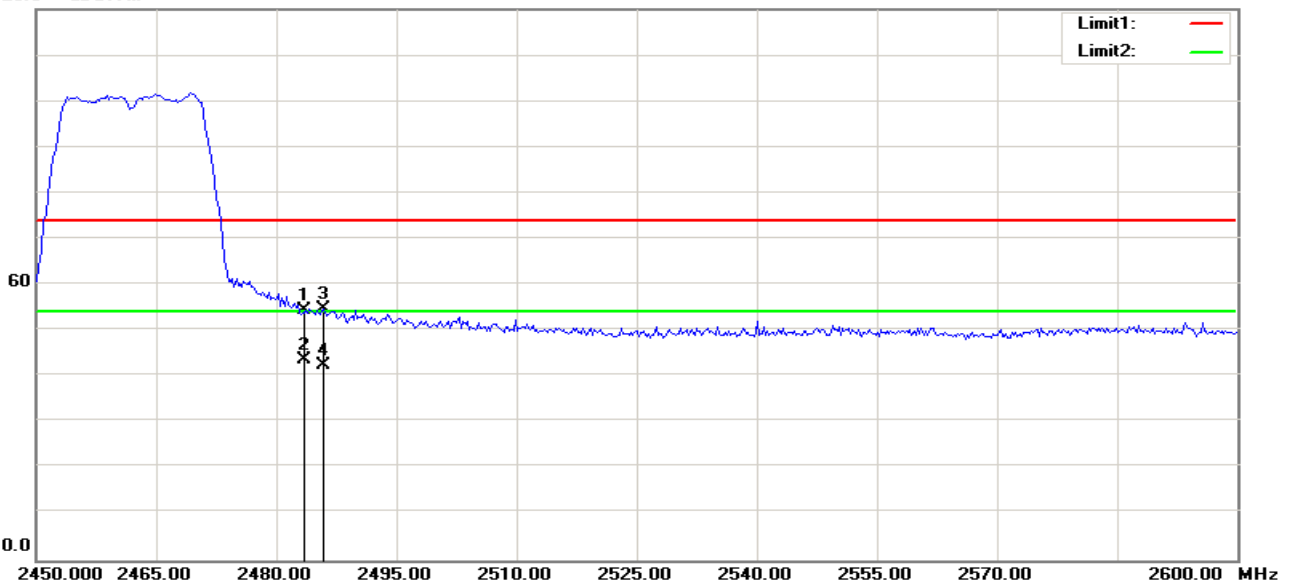
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	71.11	-6.44	64.67	74.00	-9.33	128	352	peak
2	2483.500	55.80	-6.44	49.36	54.00	-4.64	128	352	AVG
3	2484.375	71.31	-6.43	64.88	74.00	-9.12	128	10	peak
4	2484.375	55.29	-6.43	48.86	54.00	-5.14	128	10	AVG

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

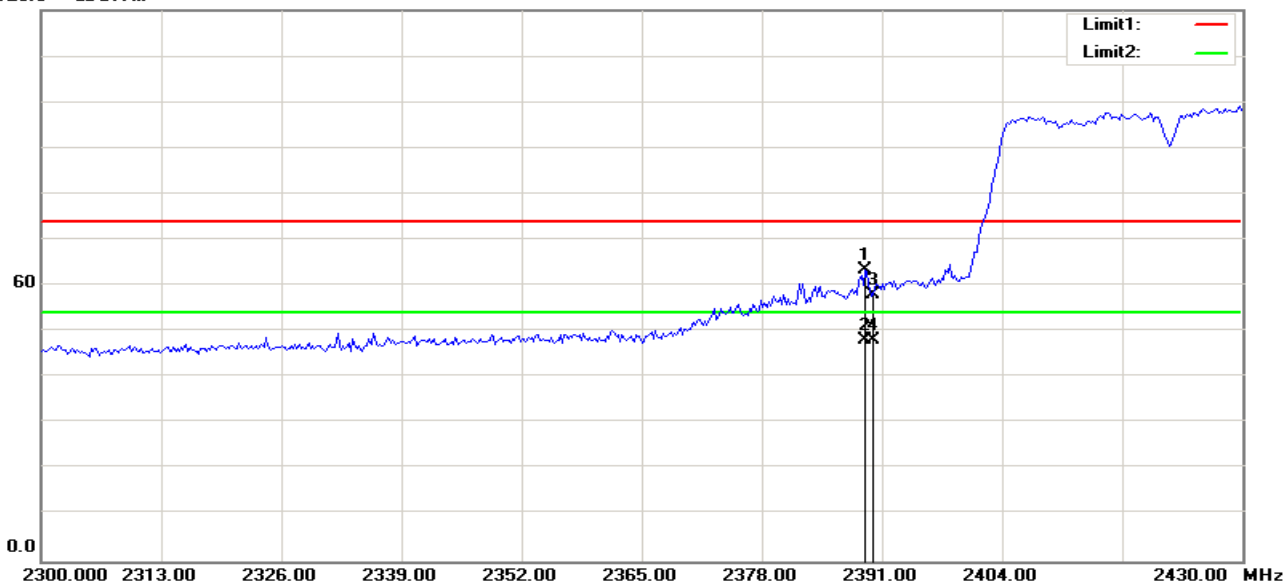
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	60.81	-6.44	54.37	74.00	-19.63	105	141	peak
2	2483.500	50.12	-6.44	43.68	54.00	-10.32	105	141	AVG
3	2485.817	61.26	-6.42	54.84	74.00	-19.16	105	144	peak
4	2485.817	48.89	-6.42	42.47	54.00	-11.53	105	144	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT40 mode, Low Channel, Horizontal)

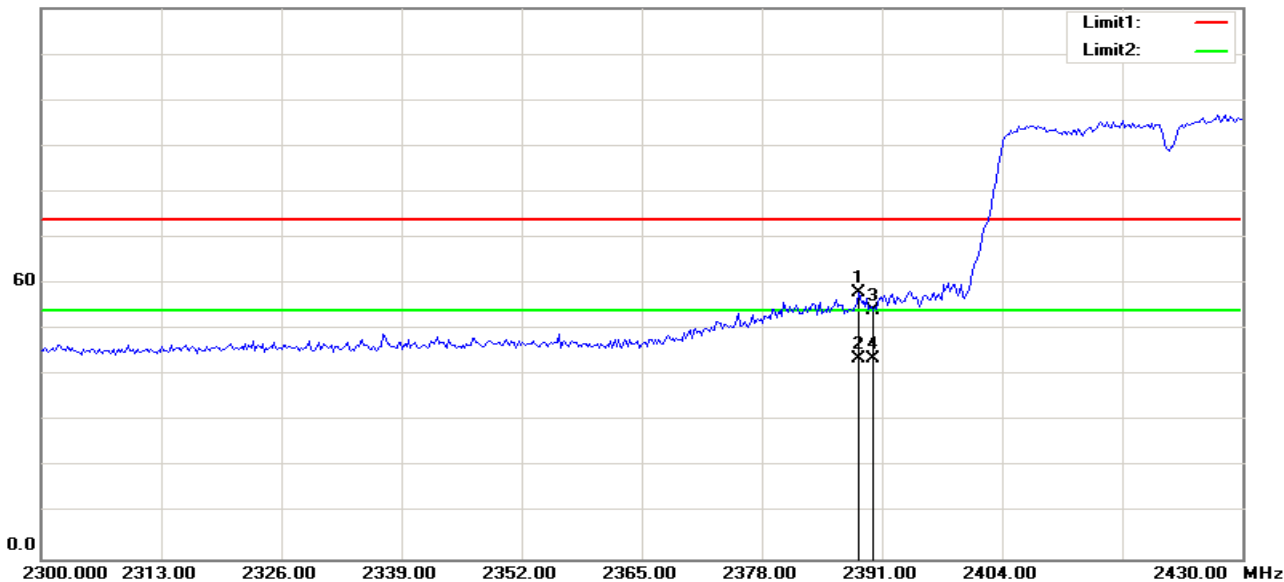
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.167	70.64	-7.32	63.32	74.00	-10.68	105	333	peak
2	2389.167	55.38	-7.32	48.06	54.00	-5.94	105	333	AVG
3	2390.000	65.29	-7.31	57.98	74.00	-16.02	105	330	peak
4	2390.000	55.51	-7.31	48.20	54.00	-5.80	105	330	AVG

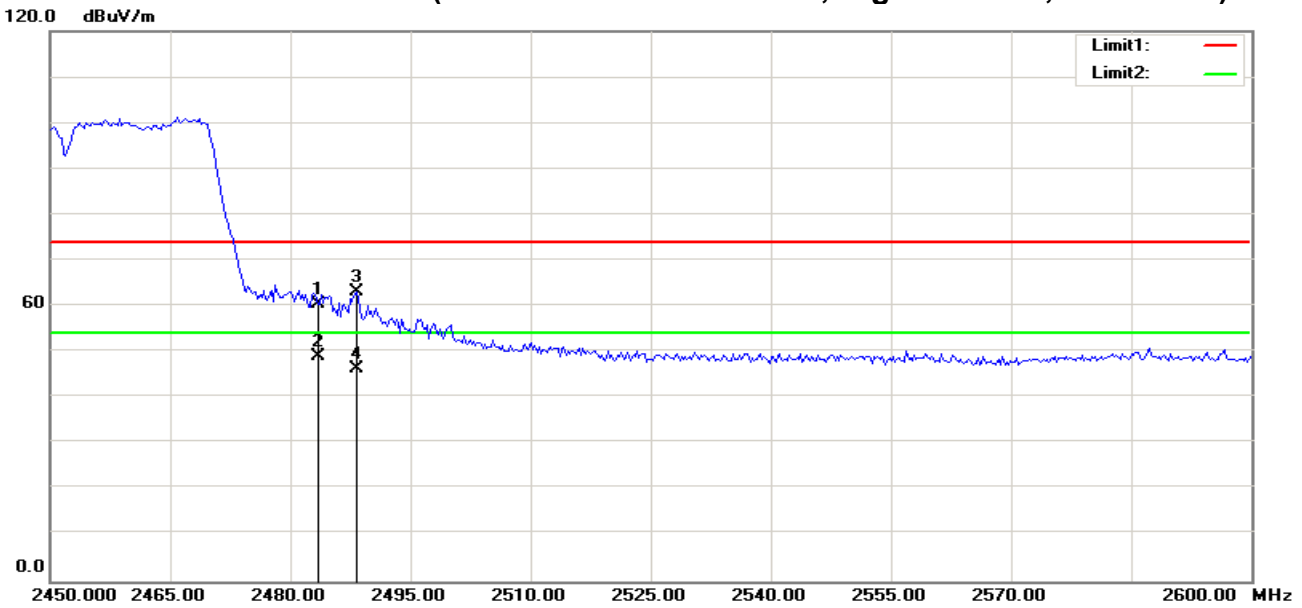
RESTRICTED BANDEDGE (IEEE 802.11n HT40 mode, Low Channel, Vertical)

120.0 dBuV/m



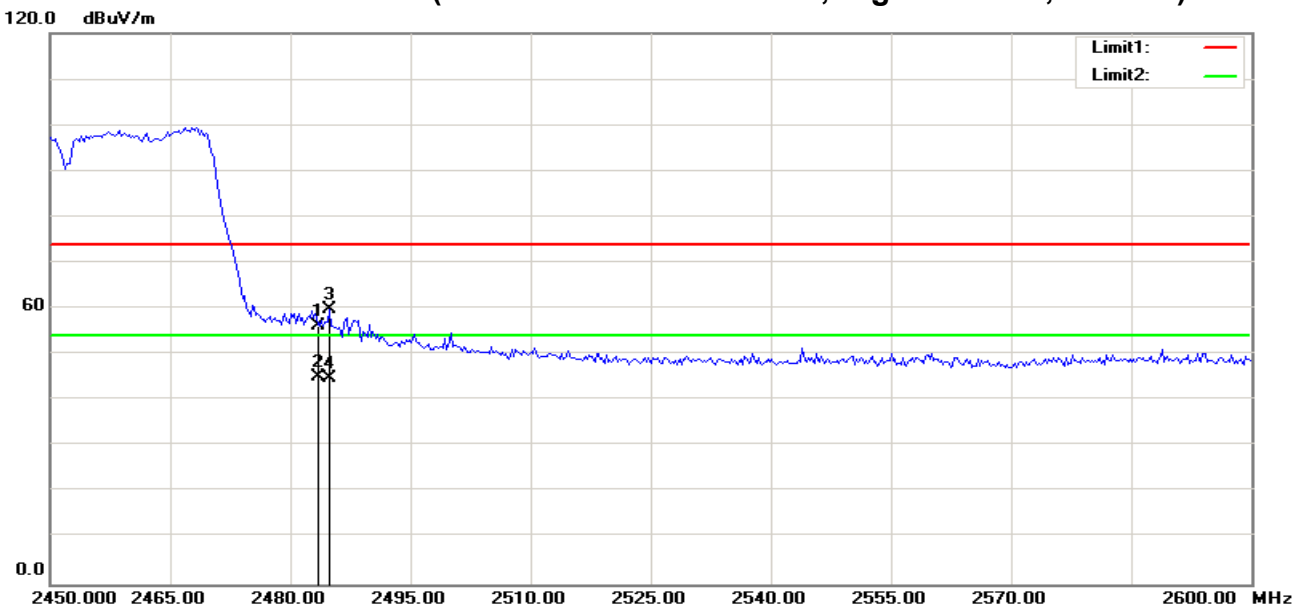
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2388.542	65.36	-7.32	58.04	74.00	-15.96	105	109	peak
2	2388.542	51.10	-7.32	43.78	54.00	-10.22	105	109	AVG
3	2390.000	61.57	-7.31	54.26	74.00	-19.74	105	130	peak
4	2390.000	51.11	-7.31	43.80	54.00	-10.20	105	130	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT40 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	66.92	-6.44	60.48	74.00	-13.52	100	338	peak
2	2483.500	55.39	-6.44	48.95	54.00	-5.05	100	338	AVG
3	2488.221	69.62	-6.40	63.22	74.00	-10.78	100	337	peak
4	2488.221	52.87	-6.40	46.47	54.00	-7.53	100	337	AVG

RESTRICTED BANDEDGE (IEEE 802.11n HT40 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	62.79	-6.44	56.35	74.00	-17.65	100	110	peak
2	2483.500	51.51	-6.44	45.07	54.00	-8.93	100	110	AVG
3	2484.856	66.13	-6.43	59.70	74.00	-14.30	100	111	peak
4	2484.856	51.18	-6.43	44.75	54.00	-9.25	100	111	AVG

Test Result of Radiated Emission**Below 30MHz**

The interference of the frequency value is lower than the limit below 20 db, measured as the background noise values and will not be recorded.

30MHz-1GHz

Operation Mode:	Normal Link	Test Date:	2017-4-17
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
44.5500	V	15.33	14.48	29.81	40.00	-10.19	peak
350.1000	V	11.89	18.50	30.39	46.00	-15.61	peak
425.7600	V	11.22	20.94	32.16	46.00	-13.84	peak
567.3800	V	10.82	22.66	33.48	46.00	-12.52	peak
709.0000	V	9.06	25.39	34.45	46.00	-11.55	peak
851.5900	V	8.66	25.93	34.59	46.00	-11.41	peak
217.2100	H	14.25	16.40	30.65	46.00	-15.35	peak
250.1900	H	16.49	16.44	32.93	46.00	-13.07	peak
341.3700	H	18.23	18.15	36.38	46.00	-9.62	peak
345.2500	H	18.67	18.30	36.97	46.00	-9.03	peak
350.1000	H	19.80	18.50	38.30	46.00	-7.70	peak
375.3200	H	15.49	19.51	35.00	46.00	-11.00	peak

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MHz).
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).



Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: 2017-4-18

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	4800.481	50.95	-5.27	45.68	74.00	-28.32	100	217	peak
2	7211.538	48.03	6.30	54.33	74.00	-19.67	100	169	peak
3	7211.538	43.94	6.30	50.24	54.00	-3.76	100	169	AVG
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	4800.481	48.44	-5.27	43.17	74.00	-30.83	100	127	peak
2	7211.538	49.95	6.30	56.25	74.00	-17.75	120	147	peak
3	7211.538	47.21	6.30	53.51	54.00	-0.49	120	147	AVG
N/A									

Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: 2017-4-18

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	4841.346	50.95	-5.24	45.71	74.00	-28.29	100	125	peak
2	7293.269	48.21	6.37	54.58	74.00	-19.42	138	216	peak
3	7293.269	43.99	6.37	50.36	54.00	-3.64	138	216	AVG
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	52.84	-5.24	47.60	74.00	-26.40	100	180	peak
2	7293.269	50.43	6.37	56.80	74.00	-17.20	102	175	peak
3	7293.269	47.01	6.37	53.38	54.00	-0.62	102	175	AVG
N/A									

Operation Mode: TX / IEEE 802.11b / CH High

Test Date: 2017-4-18

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	53.47	-5.17	48.30	74.00	-25.70	100	124	peak
2	7375.000	47.12	6.45	53.57	74.00	-20.43	100	214	peak
3	7375.000	43.47	6.45	49.92	54.00	-4.08	100	214	AVG
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	50.77	-5.17	45.60	74.00	-28.40	100	101	peak
2	7375.000	49.61	6.45	56.06	74.00	-17.94	110	186	peak
3	7375.000	46.35	6.45	52.80	54.00	-1.20	110	186	AVG
N/A									

Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: 2017-4-18

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	4800.481	43.23	-5.27	37.96	74.00	-36.04	100	170	peak
2	7211.538	44.82	6.30	51.12	74.00	-22.88	100	174	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	4800.481	42.84	-5.27	37.57	74.00	-36.43	100	1	peak
2	7211.538	44.58	6.30	50.88	74.00	-23.12	100	130	peak
N/A									



Compliance Certification Services (KunShan) Inc.

Date of Issue :April 28, 2017

Report No: C170307R01-RPW

FCC ID: 2AMIN-SXJ01ZM

Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: 2017-4-18

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	4882.212	42.70	-5.21	37.49	74.00	-36.51	100	204	peak
2	7293.269	43.65	6.37	50.02	74.00	-23.98	100	207	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	4800.481	46.03	-5.27	40.76	74.00	-33.24	100	67	peak
2	7293.269	42.83	6.37	49.20	74.00	-24.80	100	177	peak
N/A									

Operation Mode: TX / IEEE 802.11g / CH High

Test Date: 2017-4-18

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	44.69	-5.17	39.52	74.00	-34.48	100	105	peak
2	7375.000	42.99	6.45	49.44	74.00	-24.56	100	207	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	45.22	-5.17	40.05	74.00	-33.95	100	312	peak
2	7375.000	46.30	6.45	52.75	74.00	-21.25	100	180	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low

Test Date: 2017-4-18

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	4800.481	43.21	-5.27	37.94	74.00	-36.06	100	26	peak
2	7211.538	43.54	6.30	49.84	74.00	-24.16	100	157	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	4963.942	41.68	-5.14	36.54	74.00	-37.46	100	348	peak
2	7211.538	42.84	6.30	49.14	74.00	-24.86	100	123	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Mid

Test Date: 2017-4-18

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	1572.115	57.49	-12.27	45.22	74.00	-28.78	100	113	peak
2	7293.269	43.78	6.37	50.15	74.00	-23.85	100	205	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	4882.212	42.73	-5.21	37.52	74.00	-36.48	100	124	peak
2	7293.269	43.07	6.37	49.44	74.00	-24.56	100	234	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode / CH High **Test Date:** 2017-4-18

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	45.56	-5.17	40.39	74.00	-33.61	100	101	peak
2	7375.000	41.46	6.45	47.91	74.00	-26.09	100	206	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	44.43	-5.17	39.26	74.00	-34.74	100	119	peak
2	7375.000	43.83	6.45	50.28	74.00	-23.72	100	166	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Low

Test Date: 2017-4-18

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	4759.615	45.18	-5.30	39.88	74.00	-34.12	100	148	peak
2	7252.404	42.05	6.34	48.39	74.00	-25.61	100	209	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	7661.058	41.33	6.70	48.03	74.00	-25.97	100	296	peak
2	14403.846	37.24	16.06	53.30	74.00	-20.70	100	51	peak
N/A									

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

Test Date: 2017-4-18

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	4759.615	43.51	-5.30	38.21	74.00	-35.79	100	143	peak
2	7334.135	41.36	6.41	47.77	74.00	-26.23	100	186	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	4963.942	42.81	-5.14	37.67	74.00	-36.33	100	201	peak
2	7334.135	41.17	6.41	47.58	74.00	-26.42	100	168	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode / CH High **Test Date:** 2017-4-18

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	41.68	-5.17	36.51	74.00	-37.49	100	306	peak
2	7375.000	42.88	6.45	49.33	74.00	-24.67	100	210	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	41.79	-5.17	36.62	74.00	-37.38	100	309	peak
2	7129.808	41.22	6.23	47.45	74.00	-26.55	100	154	peak
N/A									

7.6.POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration

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

TEST PROCEDURE

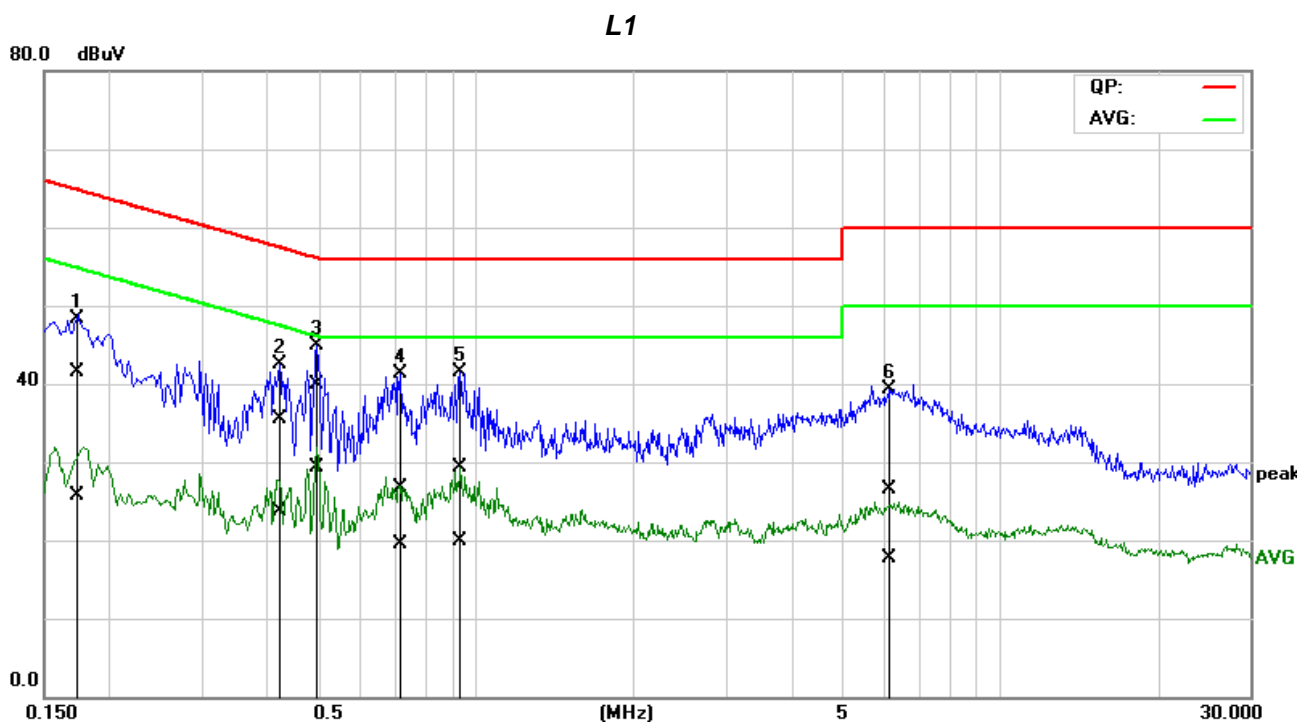
- 1.The EUT was placed on a table, which is 0.8m above ground plane.
- 2.Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3.Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

TEST DATA

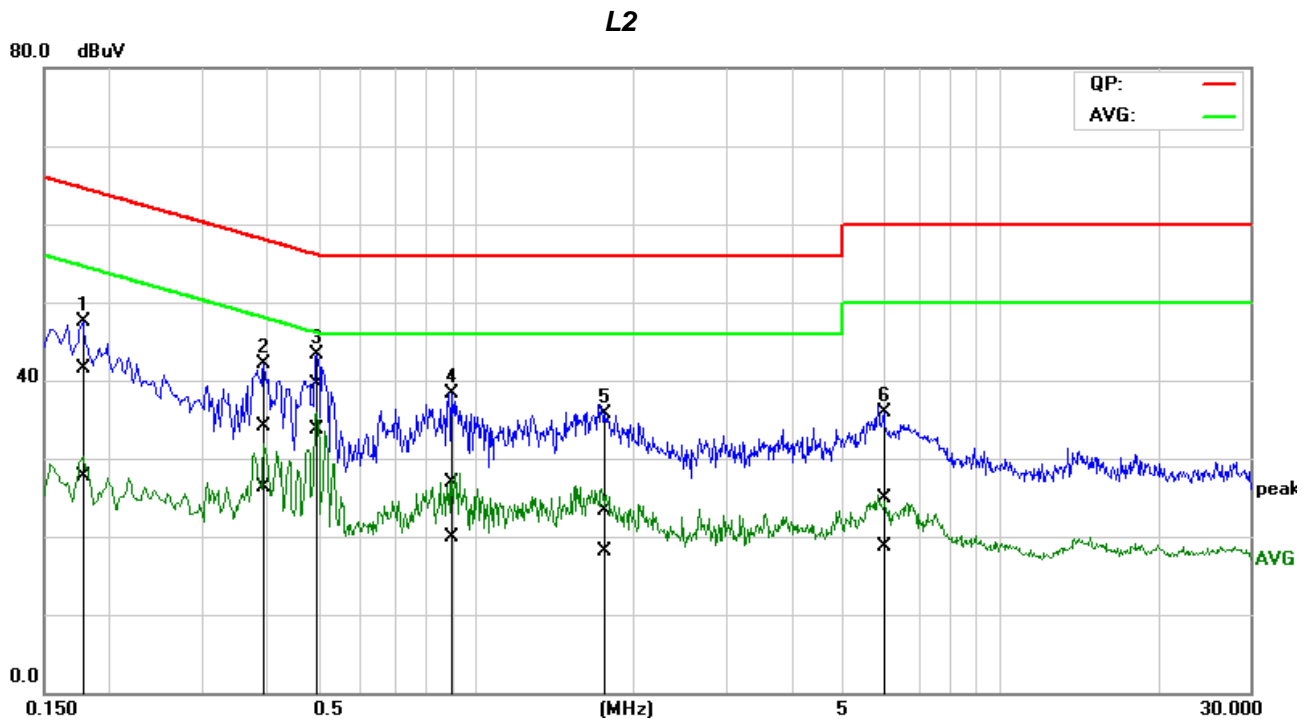
Job No.:	C170307R01	Date:	2017-4-21
Model No.:	SXJ01ZM	Time:	10:57:03
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1702	21.03	5.05	20.56	41.59	25.61	64.95	54.95	-23.36	-29.34	Pass
2	0.4208	15.00	3.27	20.52	35.52	23.79	57.43	47.43	-21.91	-23.64	Pass
3*	0.4953	19.47	8.89	20.49	39.96	29.38	56.08	46.08	-16.12	-16.70	Pass
4	0.7182	6.17	-1.08	20.50	26.67	19.42	56.00	46.00	-29.33	-26.58	Pass
5	0.9294	8.79	-0.53	20.51	29.30	19.98	56.00	46.00	-26.70	-26.02	Pass
6	6.2164	5.74	-3.06	20.68	26.42	17.62	60.00	50.00	-33.58	-32.38	Pass

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

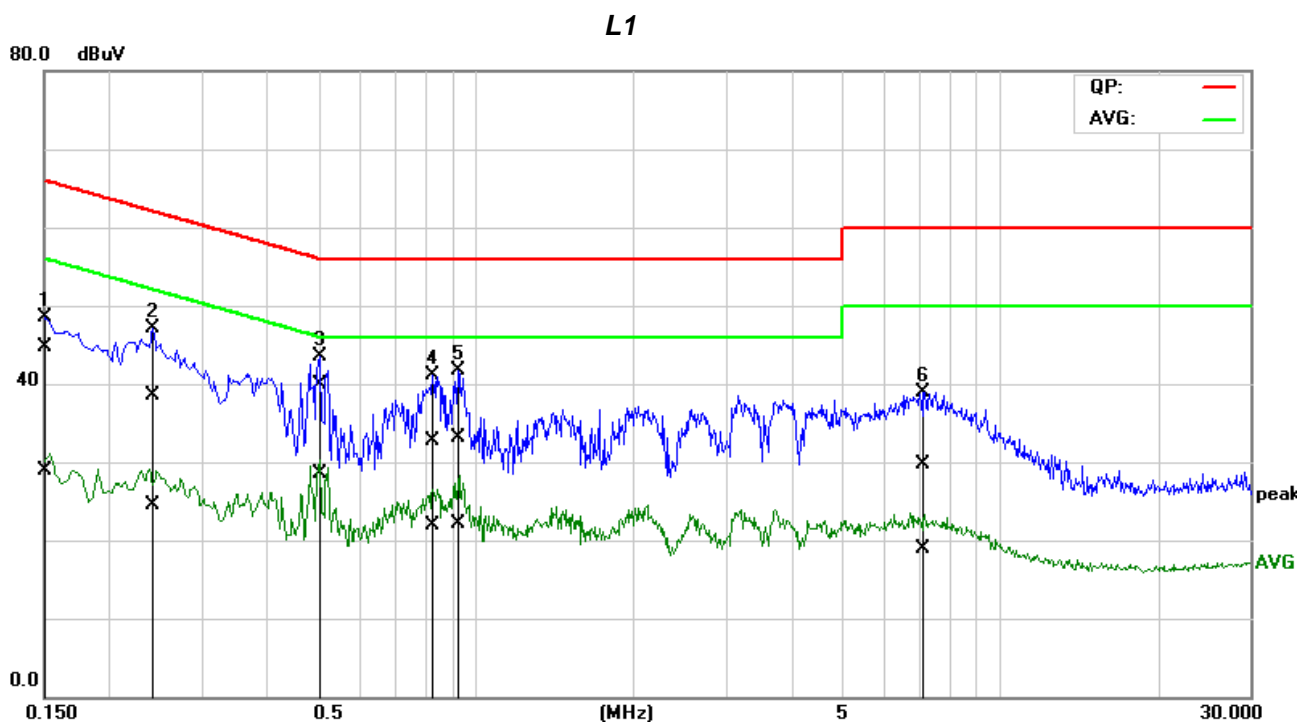
Job No.:	C170307R01	Date:	2017-4-21
Model No.:	SXJ01ZM	Time:	11:02:35
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1763	21.05	7.28	20.38	41.43	27.66	64.65	54.66	-23.22	-27.00	Pass
2	0.3957	13.70	5.92	20.46	34.16	26.38	57.94	47.94	-23.78	-21.56	Pass
3*	0.4968	19.06	13.30	20.45	39.51	33.75	56.05	46.05	-16.54	-12.30	Pass
4	0.8989	6.42	-0.61	20.47	26.89	19.86	56.00	46.00	-29.11	-26.14	Pass
5	1.7680	2.80	-2.46	20.51	23.31	18.05	56.00	46.00	-32.69	-27.95	Pass
6	5.9095	4.18	-2.00	20.77	24.95	18.77	60.00	50.00	-35.05	-31.23	Pass

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

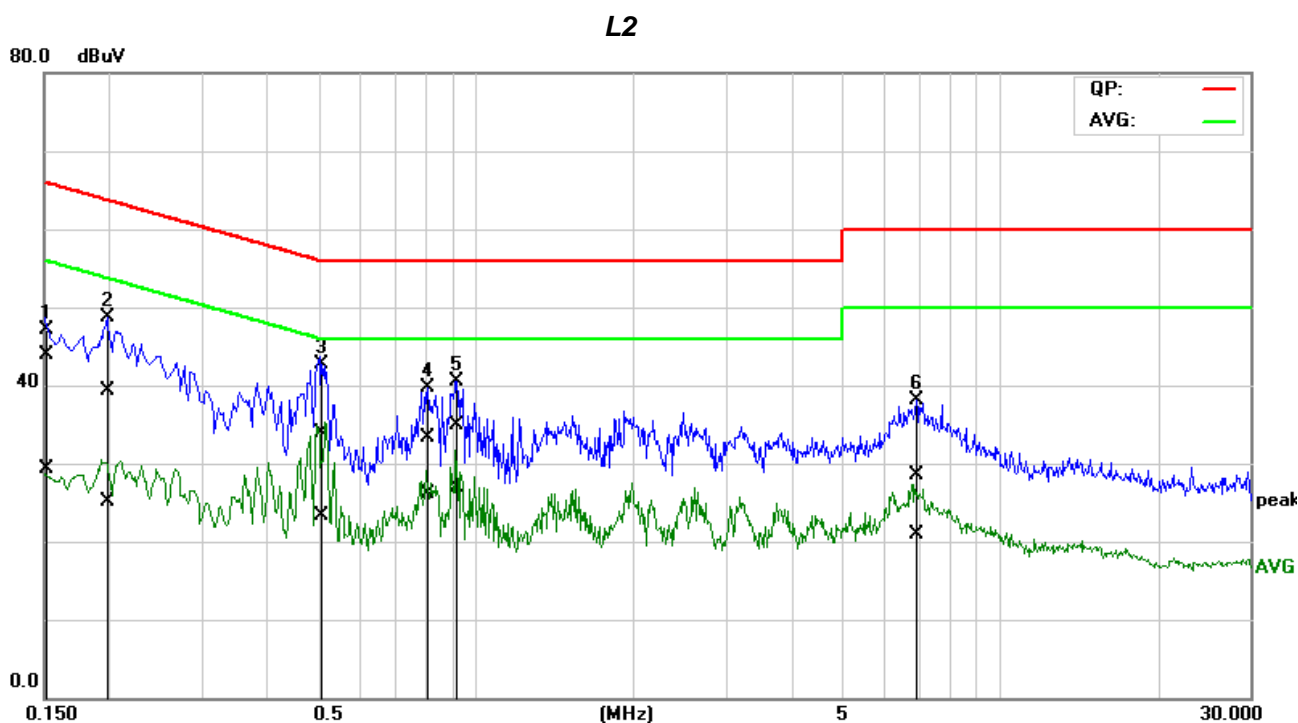
Job No.:	C170307R01	Date:	2017-4-21
Model No.:	SXJ01ZM	Time:	10:43:32
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 240V/60Hz
Model:		Description:	



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1517	24.30	8.64	20.36	44.66	29.00	65.90	55.91	-21.24	-26.91	Pass
2	0.2427	18.07	4.11	20.43	38.50	24.54	62.00	52.00	-23.50	-27.46	Pass
3*	0.4998	19.40	8.10	20.45	39.85	28.55	56.00	46.00	-16.15	-17.45	Pass
4	0.8252	12.20	1.49	20.46	32.66	21.95	56.00	46.00	-23.34	-24.05	Pass
5	0.9205	12.63	1.62	20.47	33.10	22.09	56.00	46.00	-22.90	-23.91	Pass
6	7.1467	8.95	-1.90	20.81	29.76	18.91	60.00	50.00	-30.24	-31.09	Pass

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

Job No.:	C170307R01	Date:	2017-4-21
Model No.:	SXJ01ZM	Time:	10:48:41
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:	



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1533	23.63	8.86	20.36	43.99	29.22	65.81	55.82	-21.82	-26.60	Pass
2	0.1977	18.96	4.65	20.40	39.36	25.05	63.70	53.71	-24.34	-28.66	Pass
3	0.5093	13.48	2.81	20.45	33.93	23.26	56.00	46.00	-22.07	-22.74	Pass
4	0.8040	12.86	5.60	20.46	33.32	26.06	56.00	46.00	-22.68	-19.94	Pass
5*	0.9182	14.36	6.37	20.47	34.83	26.84	56.00	46.00	-21.17	-19.16	Pass
6	6.9443	7.64	0.15	20.80	28.44	20.95	60.00	50.00	-31.56	-29.05	Pass

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

Remark:

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