

FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: WLAN 11n USB Adapter

Brand Name: CC&C

Model No.: WL-7200-V2

Series Model: N/A

FCC ID: PANWL7200V2

Test Report Number:

C150616R01-RPW

Issued for

CC&C Technologies, Inc.

8F, No. 150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan

Issued by

Compliance Certification Services Inc.

Kunshan Laboratory

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

TEL: 86-512-57355888

FAX: 86-512-57370818



TESTING CERT #2541.01

Note: This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by A2LA or any government agencies. The test results in the report only apply to the tested sample.

TABLE OF CONTENTS

1.	TEST RESULT CERTIFICATION.....	3
2.	EUT DESCRIPTION.....	4
3.	TEST METHODOLOGY	6
3.1.	EUT CONFIGURATION	6
3.2.	EUT EXERCISE	6
3.3.	GENERAL TEST PROCEDURES.....	6
3.4.	FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS.....	7
3.5.	DESCRIPTION OF TEST MODES.....	8
3.6.	ANTENNA DESCRIPTION	9
4.	INSTRUMENT CALIBRATION.....	9
4.1.	MEASURING INSTRUMENT CALIBRATION	9
5.	FACILITIES AND ACCREDITATIONS	11
5.1.	FACILITIES	11
5.2.	EQUIPMENT.....	11
5.3.	LABORATORY ACCREDITATIONS AND LISTING	11
5.4.	TABLE OF ACCREDITATIONS AND LISTINGS	12
6.	SETUP OF EQUIPMENT UNDER TEST.....	13
6.1.	SETUP CONFIGURATION OF EUT.....	13
6.2.	SUPPORT EQUIPMENT.....	13
4.	FCC PART 15.247 REQUIREMENTS.....	14
4.1.	6DB BANDWIDTH	14
4.2.	PEAK POWER	28
4.3.	PEAK POWER SPECTRAL DENSITY	30
4.4.	SPURIOUS EMISSIONS	44
4.5.	RADIATED EMISSIONS	89
4.6.	POWERLINE CONDUCTED EMISSIONS	107

1. TEST RESULT CERTIFICATION

Product Name:	WLAN 11n USB Adapter
Trade Name:	CC&C
Model Name.:	WL-7200-V2
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Portable Device
Date of Test:	June 18, 2015 ~ June 29, 2015
Applicant:	CC&C Technologies, Inc. 8F, No.150, Jian Yi Rd, Zhonghe District, New Taipei City, 235, Taiwan
Manufacturer:	Kunshan CC&C Technologies, Co., Ltd. No.9 Building, 3rd Main Street, Kunshan Free Trade Zone, Jiangsu Province, P.R.China
Application Type:	Certification

APPLICABLE STANDARDS

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

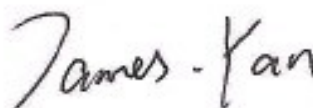
We hereby certify that:

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 C63.4: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

Approved by:

Tested by:



Jeff.Fang
RF Manager
Compliance Certification Service Inc.

James.Yan
Test Engineer
Compliance Certification Service Inc.



Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	July 3, 2015	C150616R01	ALL	N/A
01	July 22, 2015	C150616R01	P28&P30	Modify the limit of the power & PPSD Update the Device Category to Portable Device on page3

2. EUT DESCRIPTION

Product Name:	WLAN 11n USB Adapter
Brand Name:	CC&C
Model Name:	WL-7200-V2
Series Model:	N/A
Model Discrepancy:	N/A
Power Adapter Power Rating :	DC 5V
Frequency Range:	2.4G:2412MHz-2462MHz
Transmit Power:	IEEE 802.11b mode: 19.69 dBm IEEE 802.11g mode: 17.76 dBm IEEE 802.11n HT20 mode: 15.66 dBm IEEE 802.11n HT40 mode: 15.13 dBm
Modulation Technique:	802.11b mode: DSSS (1,2,5.5 and 11 Mbps) 802.11g mode: DSSS /OFDM (6,9,12,18,24,36,48 and 54 Mbps) 802.11n HT20 mode: OFDM (6.5,13,19.5,26,39,52,58.5 and 65 Mbps) 802.11n HT40 mode: OFDM (13.5,27,40.5,54,81,108,121.5 and 135 Mbps)
Number of Channels:	IEEE 802.11b/g/n HT20 mode: 11 Channels IEEE 802.11n HT40 mode: 7 Channels
Antenna Specification:	PIFA antenna1 for 2.4GHz Gain 4.70 dBi PIFA antenna2 for 2.4GHz Gain 4.70 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: PANWL7200V2** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3. TEST METHODOLOGY

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

3.1.EUT CONFIGURATION

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

3.2.EUT EXERCISE

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

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

3.3.GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

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

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

² Above 38.6

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

3.5.DESCRPTION OF TEST MODES

The EUT transmitting and receiving with two antennas simultaneously working at b/g/n mode, so 2x2 configuration was used for all testing in this report.

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

The worst-case data rates:

IEEE802.11b mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

IEEE802.11g mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

Draft 802.11n Standard-20 MHz Channel mode:

Channel Low (2412MHz)

Channel Mid (2437MHz)

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

Draft 802.11n Wide-40 MHz Channel mode:

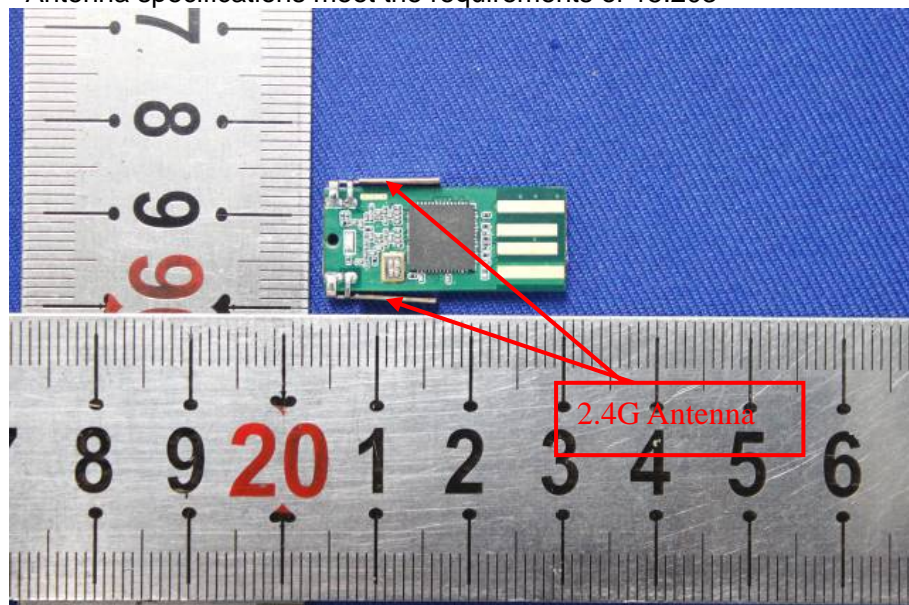
Channel Low (2422MHz)

Channel Mid (2437MHz)

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

3.6. ANTENNA DESCRIPTION

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	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-11-12	2015-11-11
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	2015-5-11	2016-5-10
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-16	2016-3-15
Power meter	Anritsu	ML2495A	1445010	2014-12-01	2015-11-30
Power sensor	Anritsu	MA2411B	1339220	2014-12-06	2015-12-05
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R	N.C.R
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-22	2016-1-21
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-11-12	2015-11-11
EMI Test Receiver	R&S	ESCI	101378	2015-1-22	2016-1-21
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	2015-1-22	2016-1-21
Pre-Amplifier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22	2016-1-21
Bilog Antenna	Sunol	JB1	A062604	2015-3-6	2016-3-5
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2015-3-7	2016-3-6
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	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	2015-3-16	2016-3-15
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	N.C.R	N.C.R
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	05012	2015-3-16	2016-3-15
Pulse LIMITER	R&S	ESH3-Z2	100524	2014-9-25	2015-9-24
Test Software			EZ-EMC		

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

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

5. FACILITIES AND ACCREDITATIONS

5.1.FACILITIES

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

Kunshan city JiangSu, (215300), CHINA.

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

5.2.EQUIPMENT

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

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



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

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

5.3.LABORATORY ACCREDITATIONS AND LISTING

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

5.4.TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	47 CFR FCC Part 15/18 (using ANSI C63.4 :2009); VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002; EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003; EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 61000-3-2; EN 61000-3-3; EN550024; EN 61000-4-2; EN 61000-4-3; EN61000-4-4; EN 61000-4-5; EN 61000-4-6; IEC 61000-4-8; EN 61000-4-11; IEC61000-3-2; IEC61000-3-3; IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-11; EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17; 47 CFR FCC Part 15, 22, 24	 TESTING CERT #2541.01
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	 93105, 90471
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-1600 C-1707 G-216

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

6. SETUP OF EQUIPMENT UNDER TEST

6.1.SETUP CONFIGURATION OF EUT

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

6.2.SUPPORT EQUIPMENT

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

Remark:

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

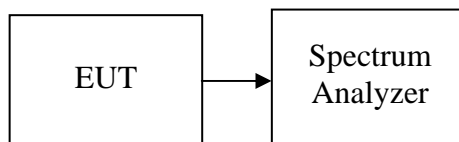
7. FCC PART 15.247 REQUIREMENTS

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 /Chain 0

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

IEEE 802.11b mode /Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.096	>500	PASS
Mid	2437	10.096		PASS
High	2462	10.144		PASS

IEEE 802.11g mode /Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.635	>500	PASS
Mid	2437	16.635		PASS
High	2462	16.587		PASS

IEEE 802.11g mode /Chain 1

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 / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.885	>500	PASS
Mid	2437	17.885		PASS
High	2462	17.865		PASS

IEEE 802.11n HT20 mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.885	>500	PASS
Mid	2437	17.885		PASS
High	2462	17.885		PASS

IEEE 802.11n HT40 mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.635	>500	PASS
Mid	2437	36.538		PASS
High	2452	36.635		PASS

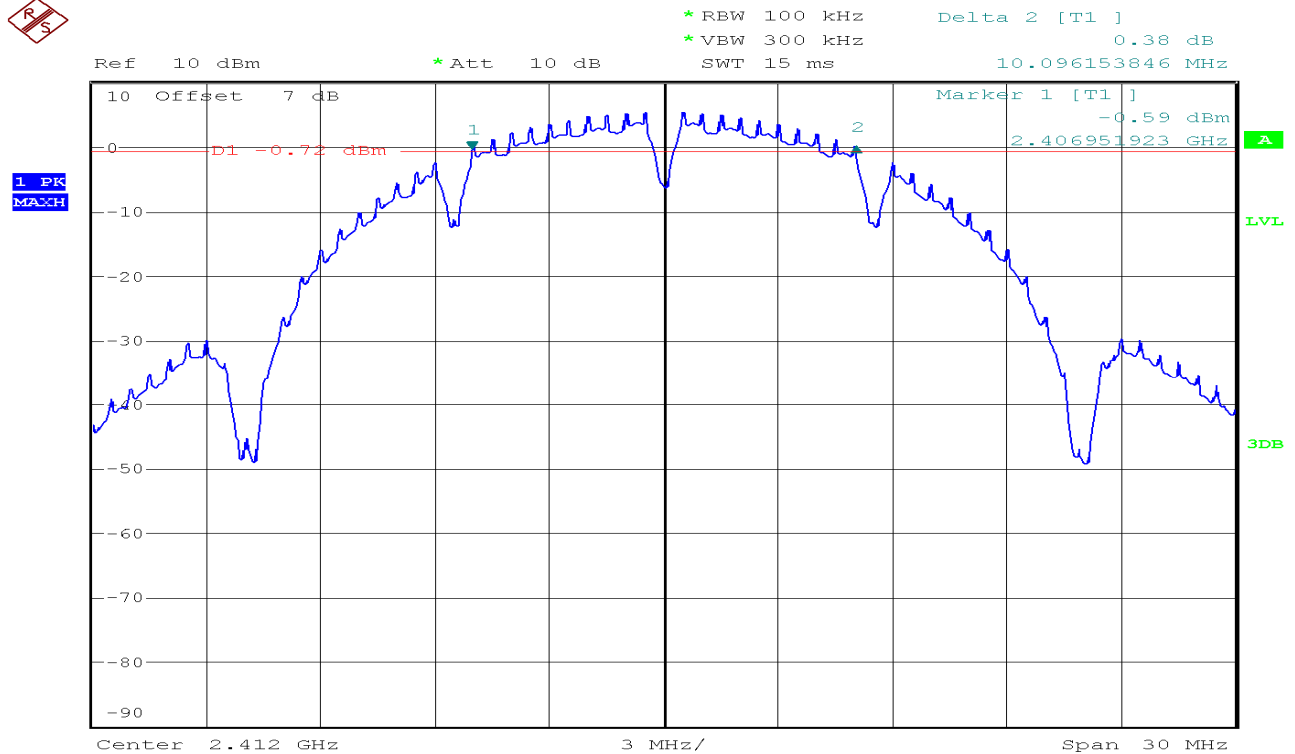
IEEE 802.11n HT40 mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.635	>500	PASS
Mid	2437	36.538		PASS
High	2452	36.538		PASS

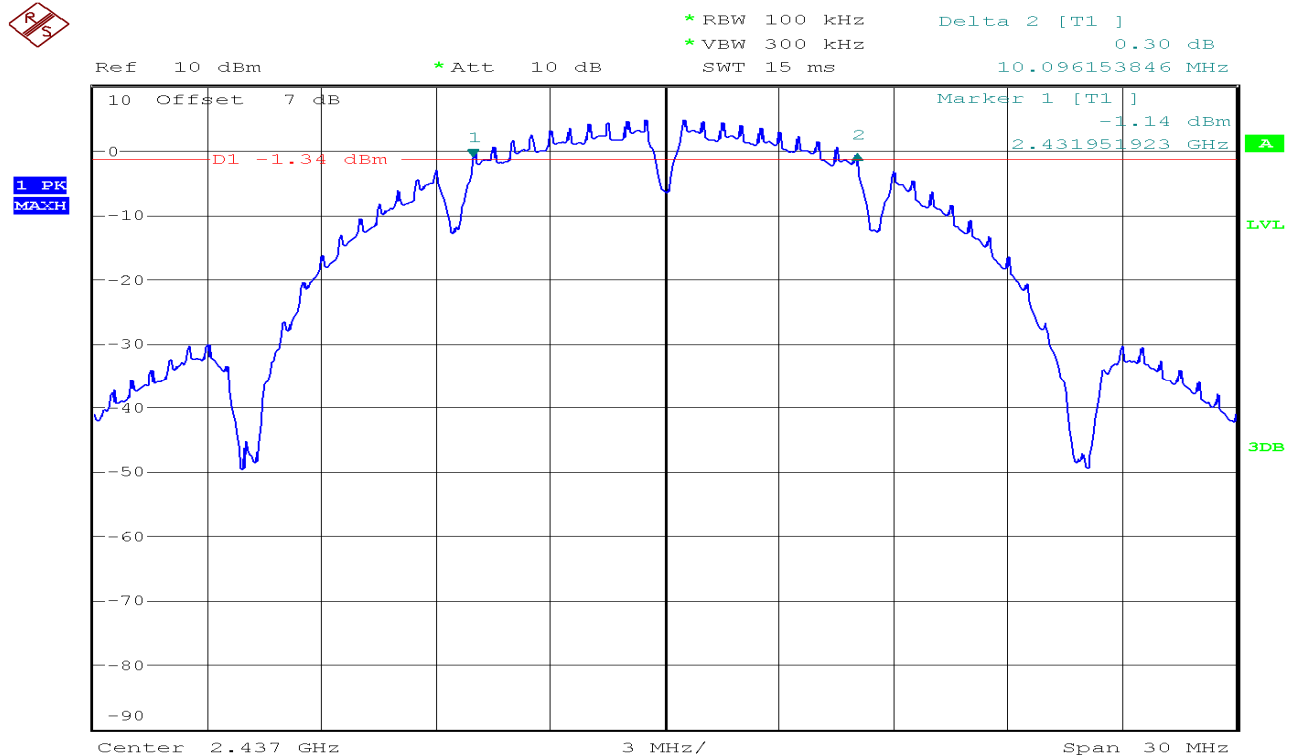
Test Plot

IEEE 802.11b MODE /Chain 0

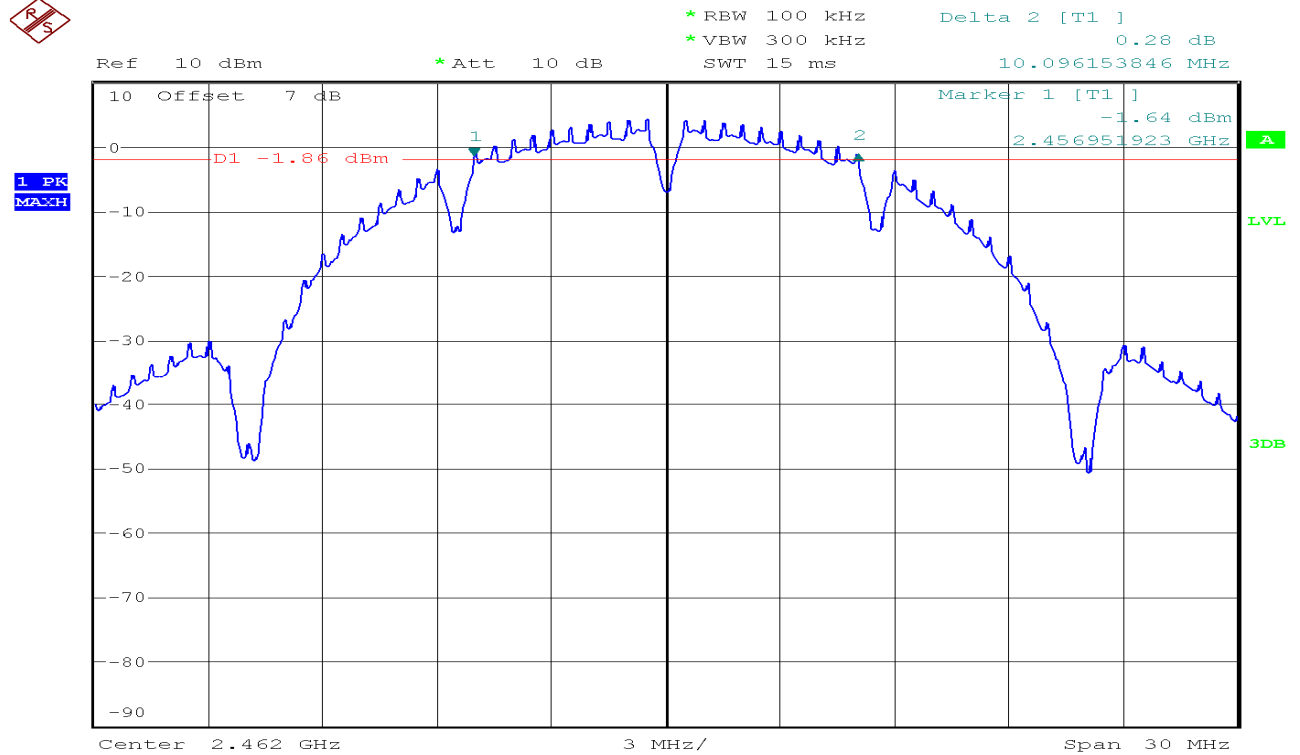
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

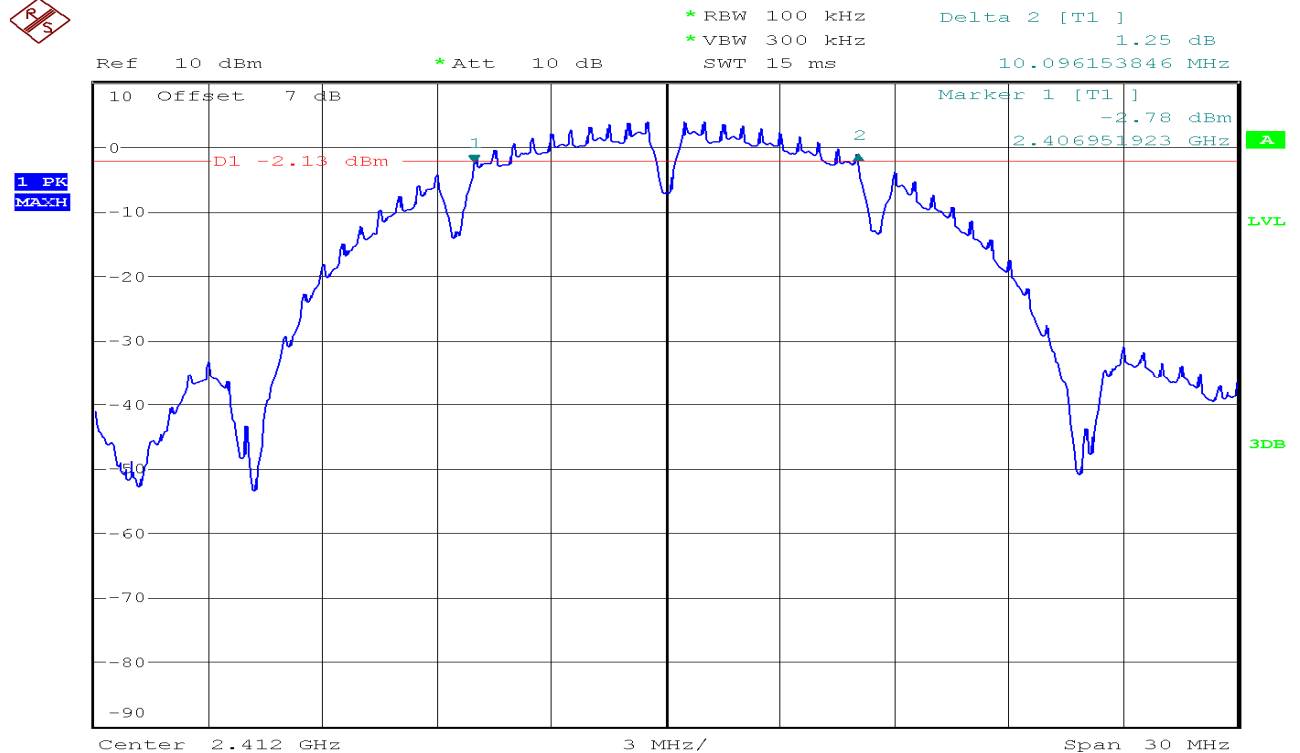


6dB Bandwidth (CH High)

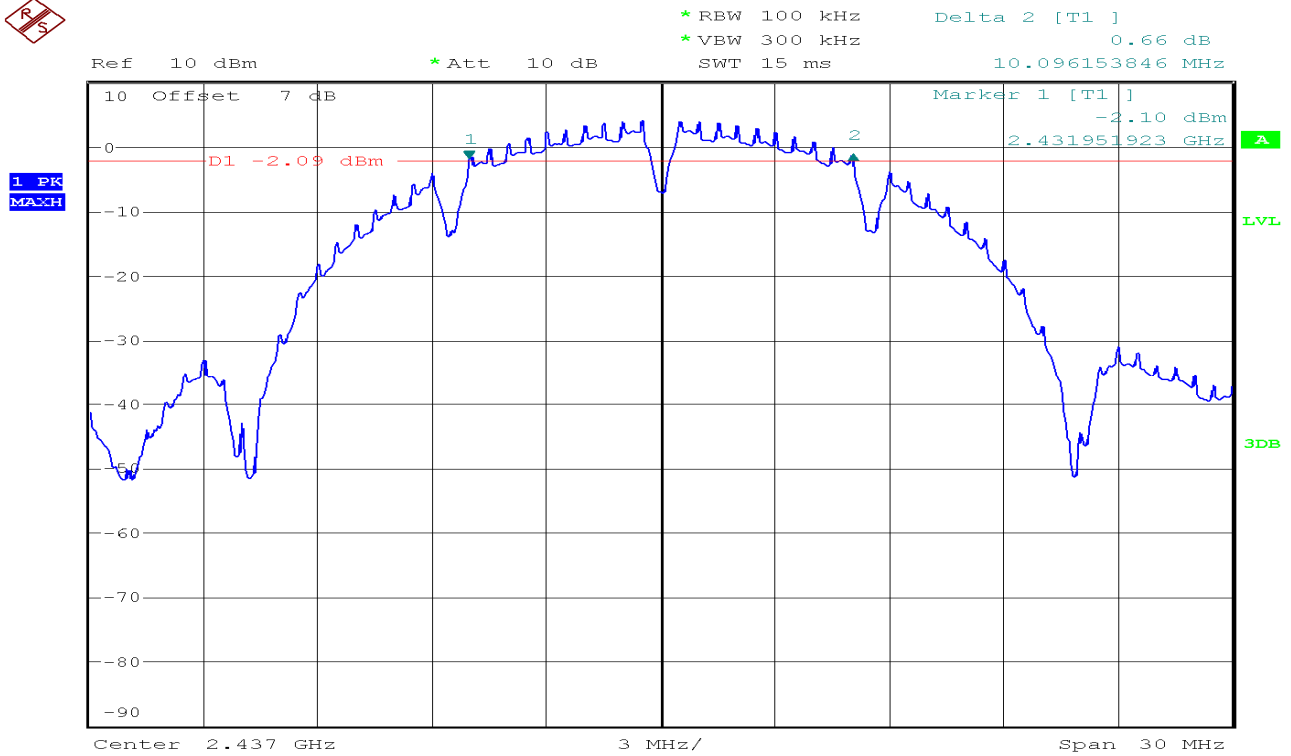


IEEE 802.11b MODE /Chain 1

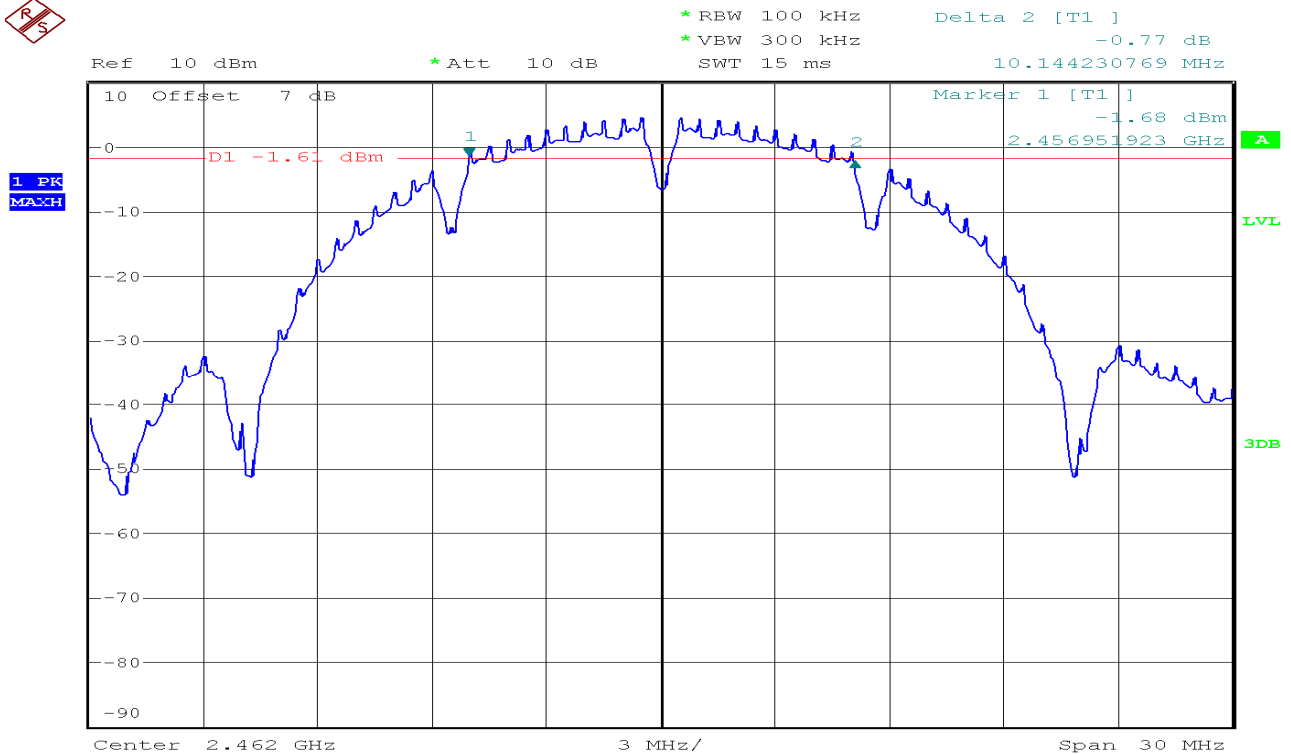
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

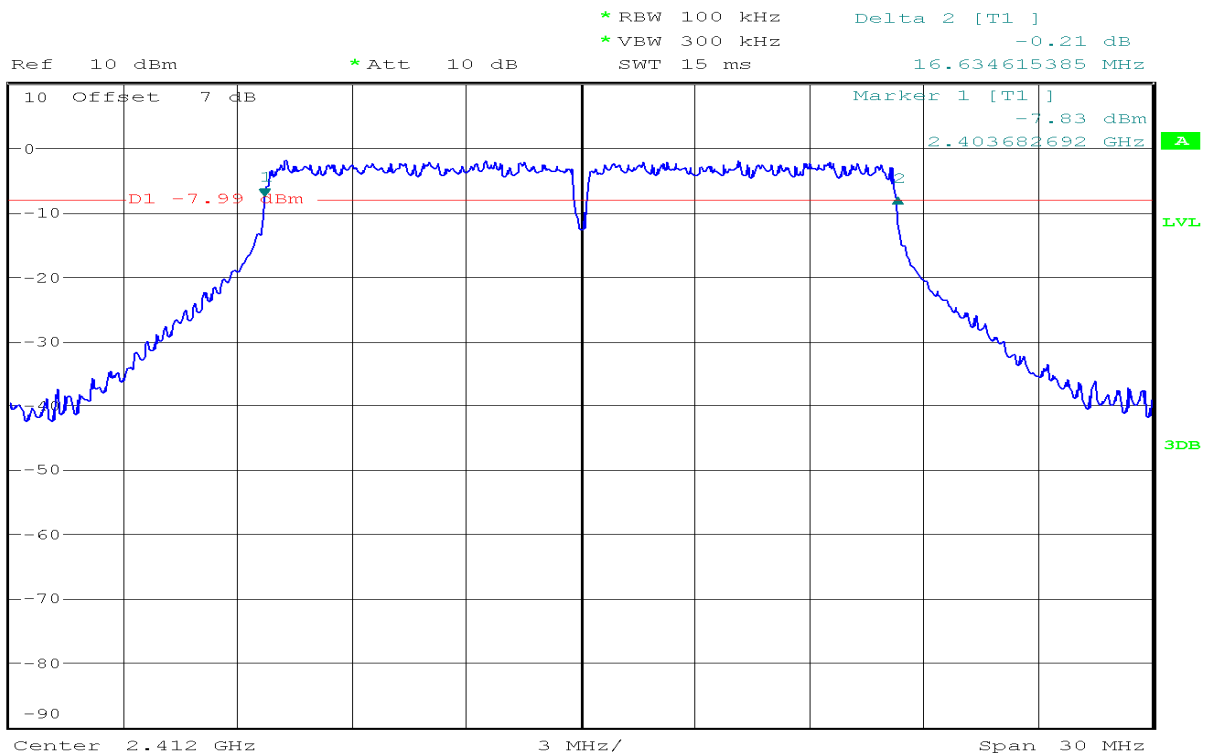


6dB Bandwidth (CH High)

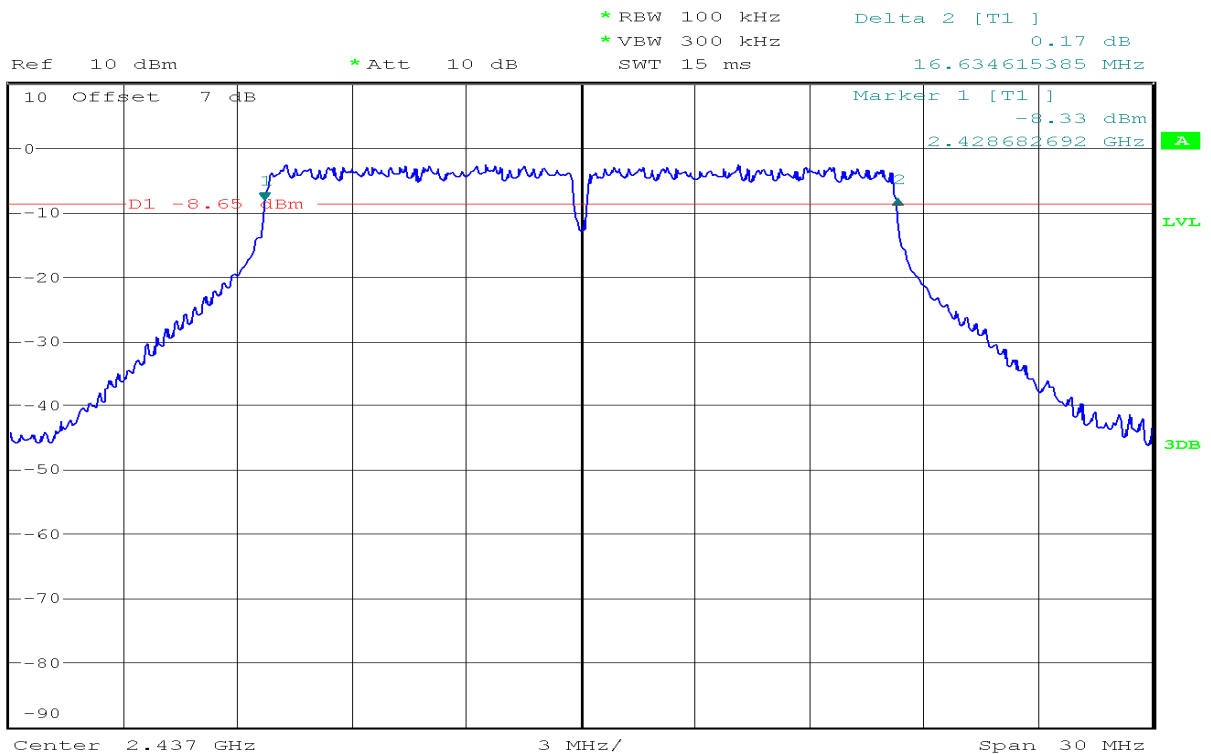


IEEE 802.11g MODE /Chain 0

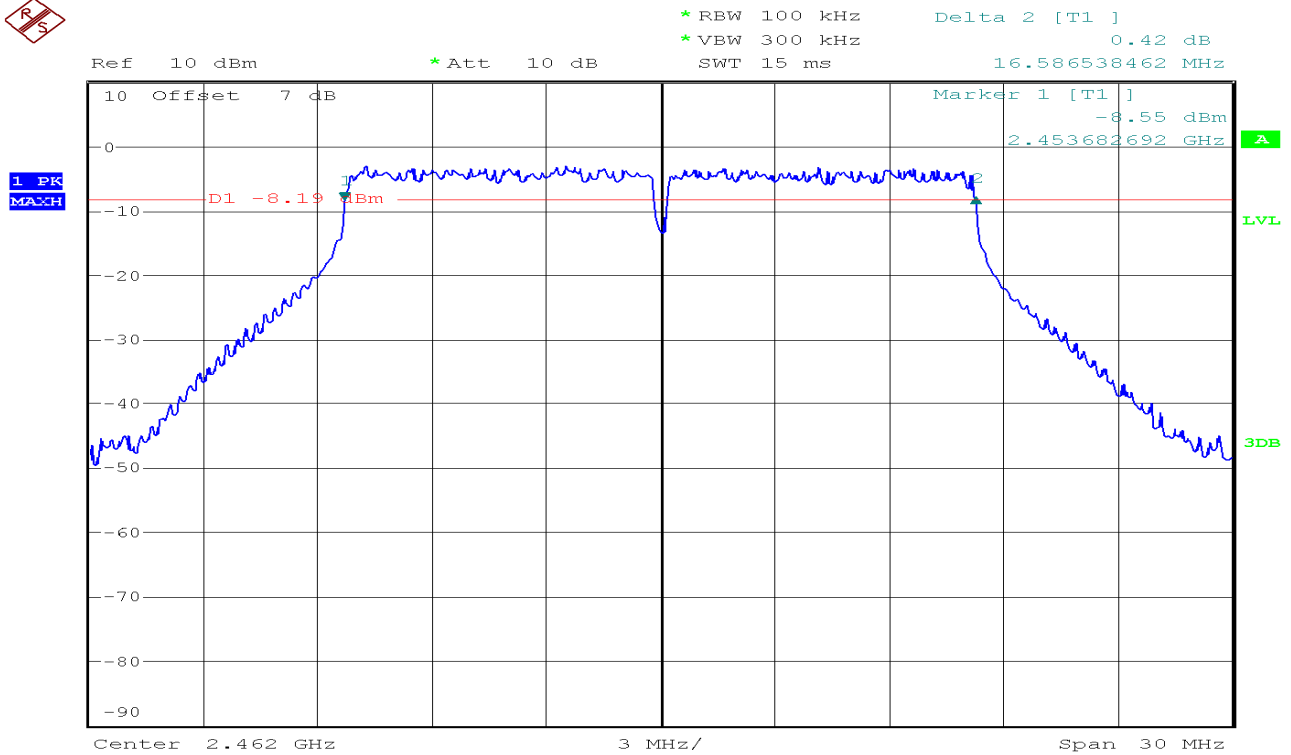
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

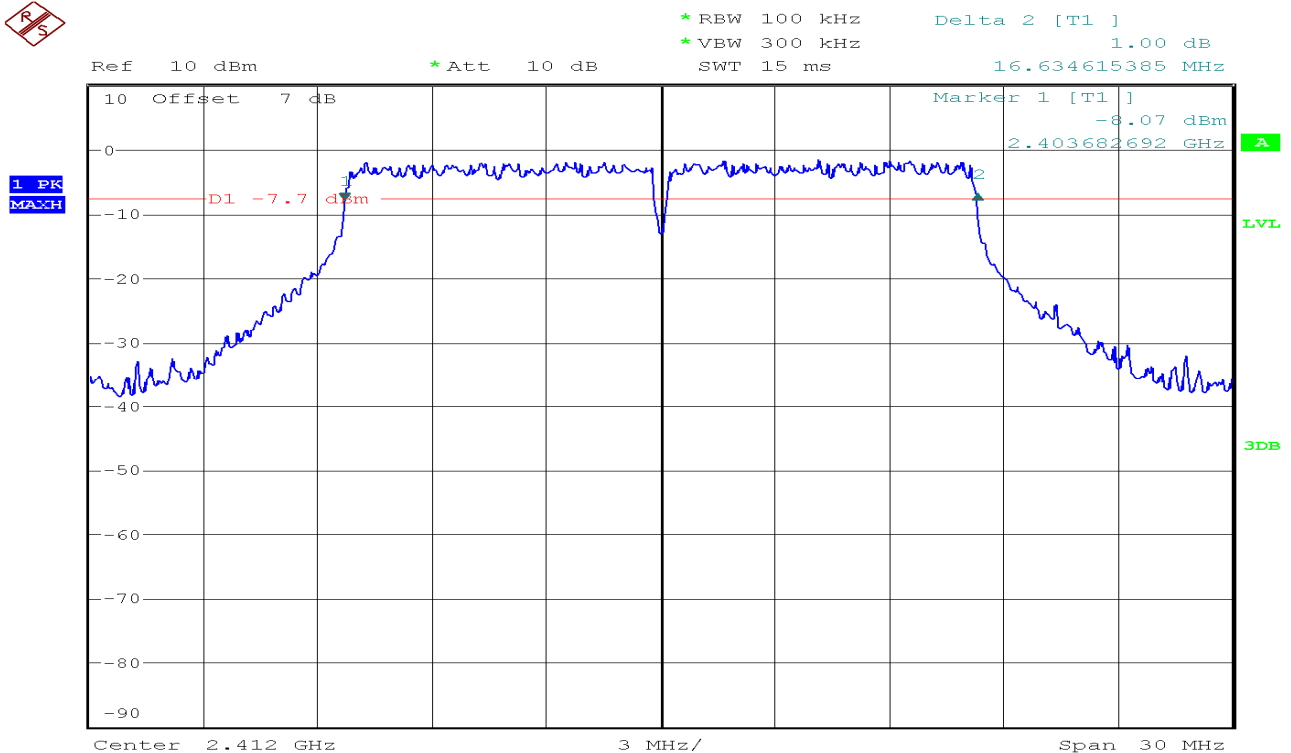


6dB Bandwidth (CH High)

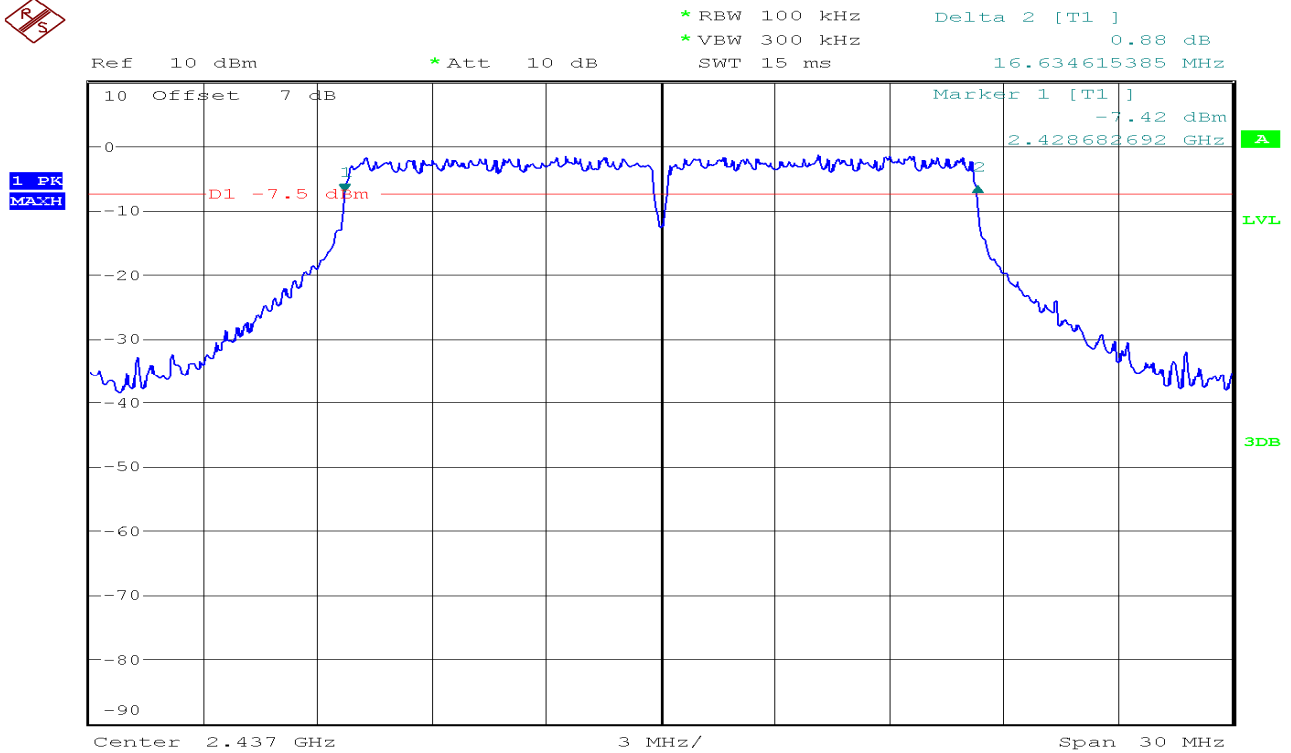


IEEE 802.11g MODE /Chain 1

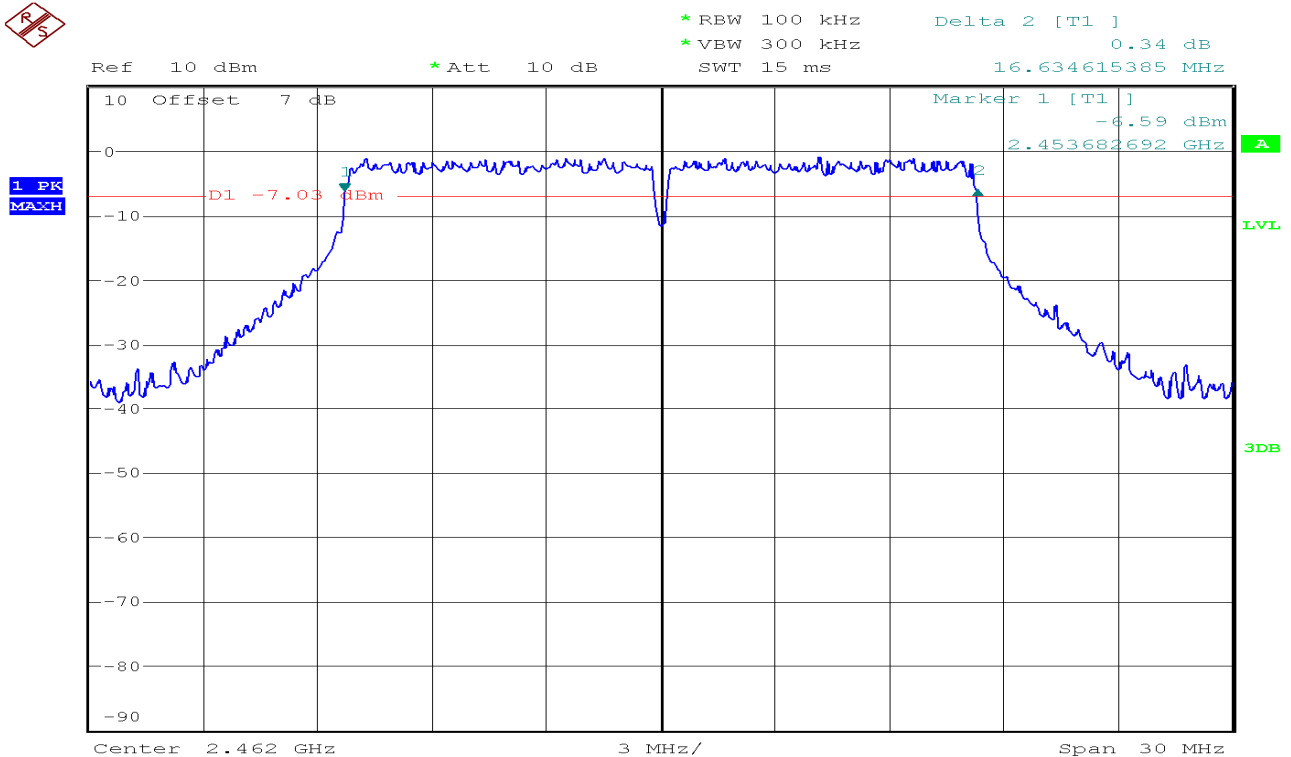
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

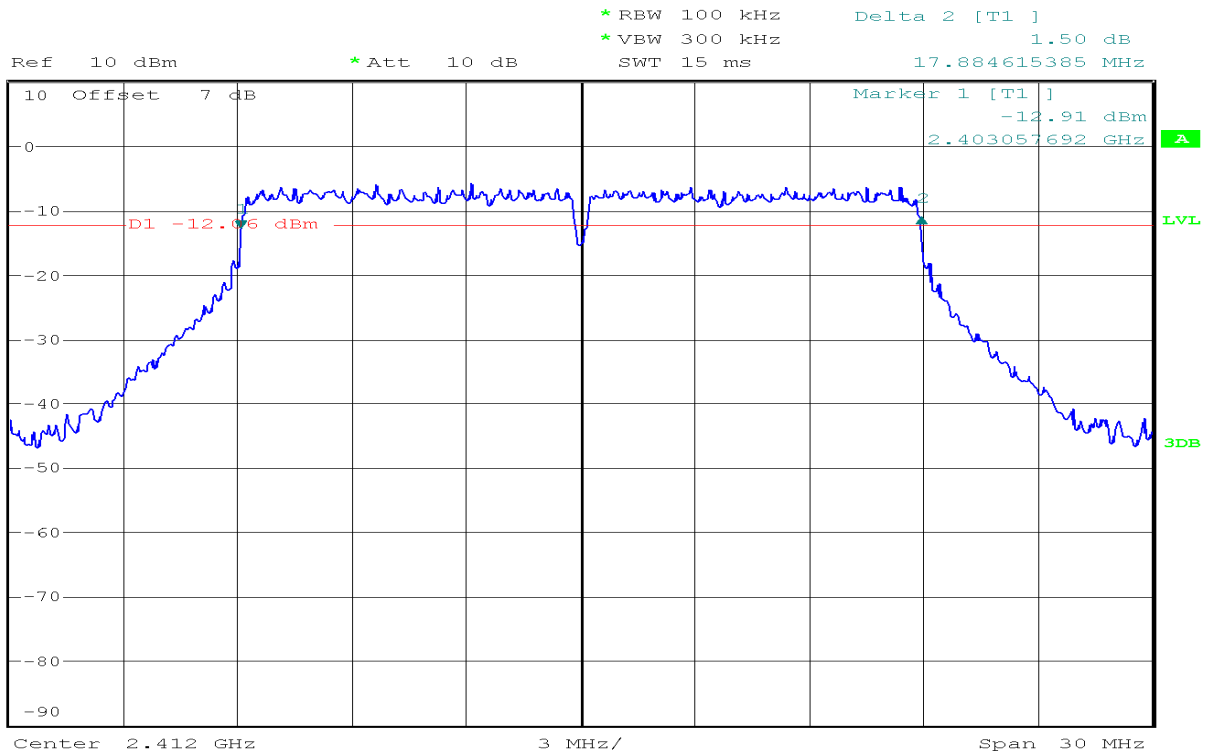


6dB Bandwidth (CH High)

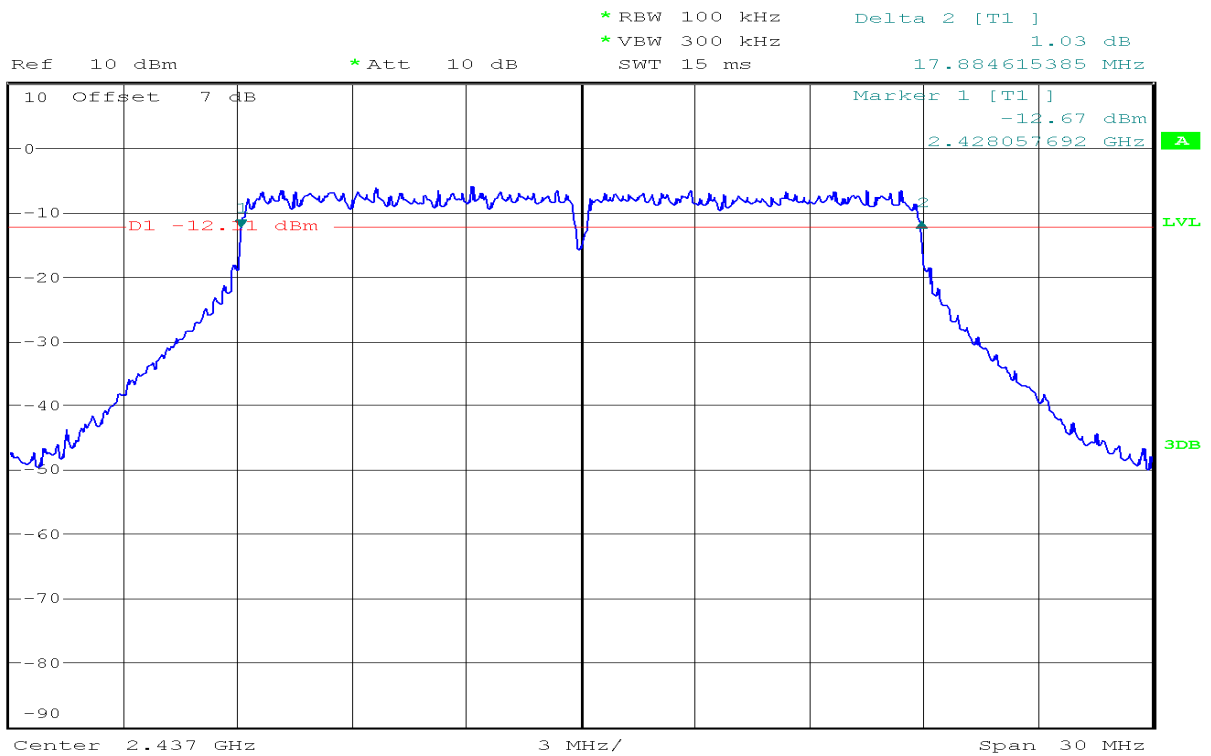


IEEE 802.11n HT20 mode / Chain 0

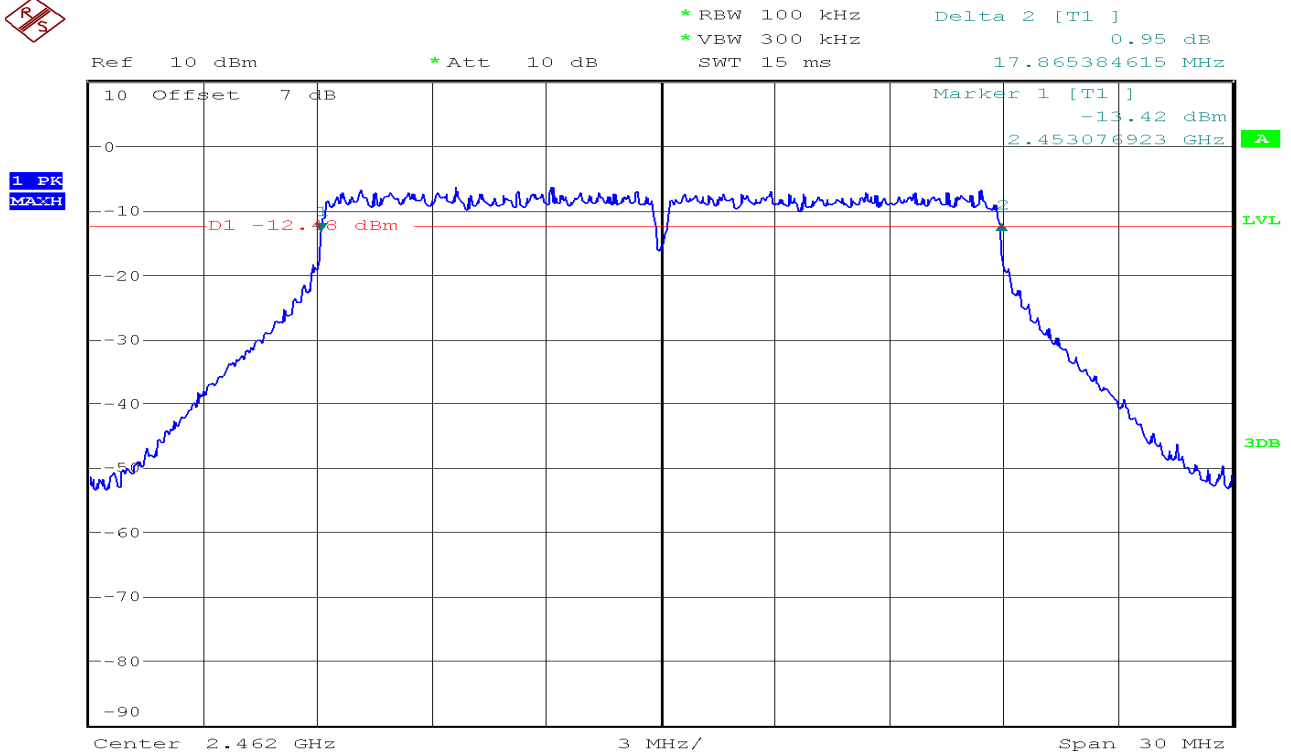
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

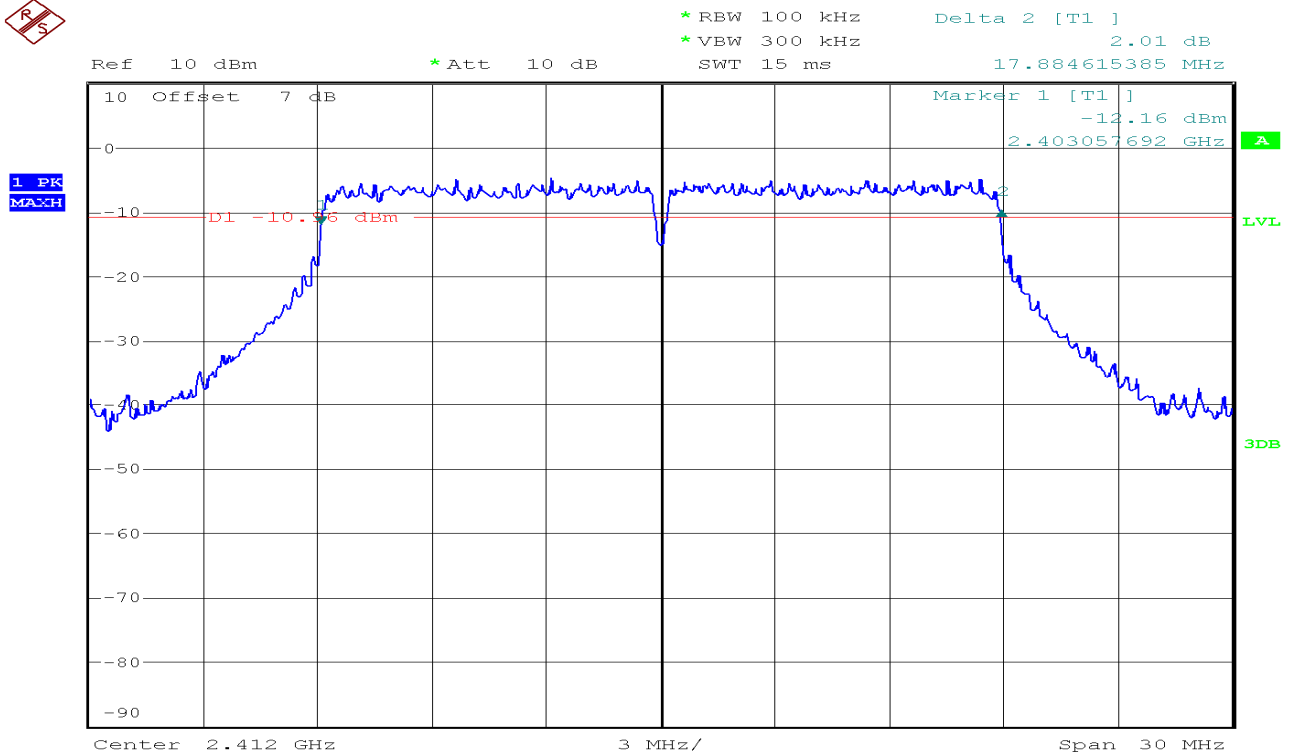


6dB Bandwidth (CH High)

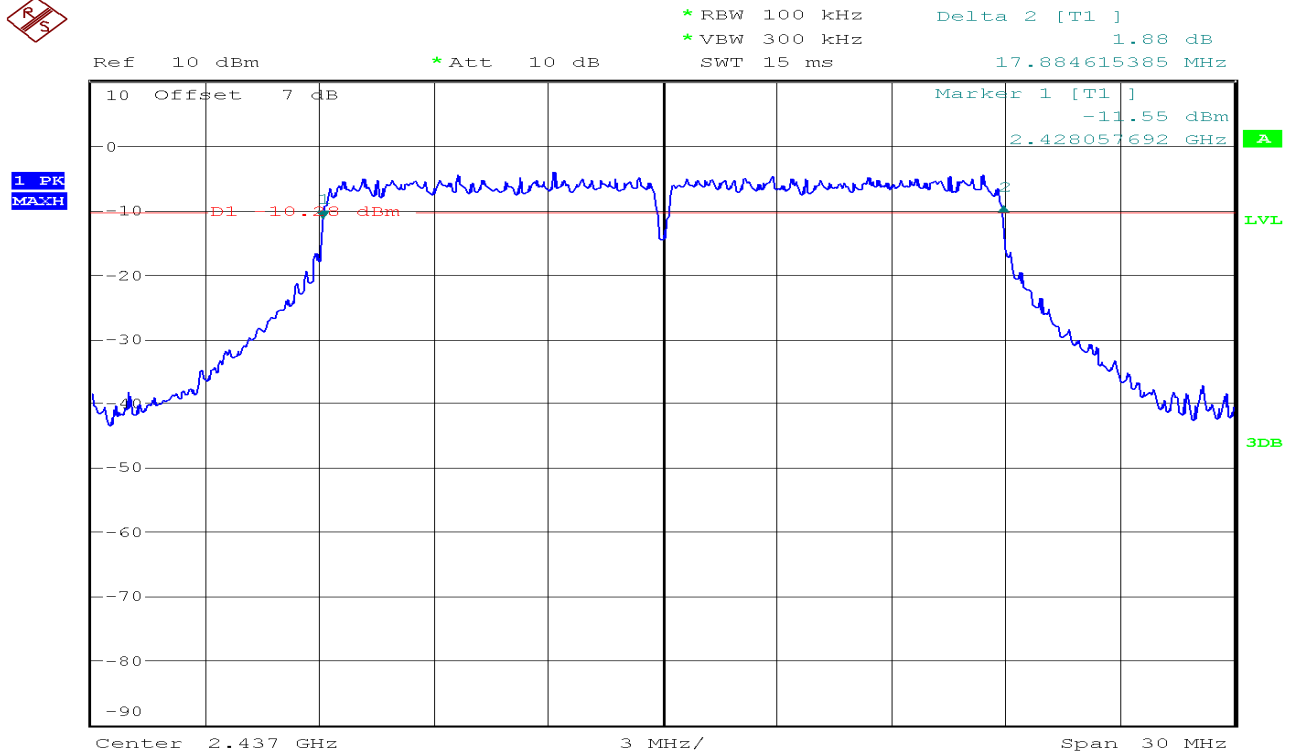


IEEE 802.11n HT20 mode / Chain 1

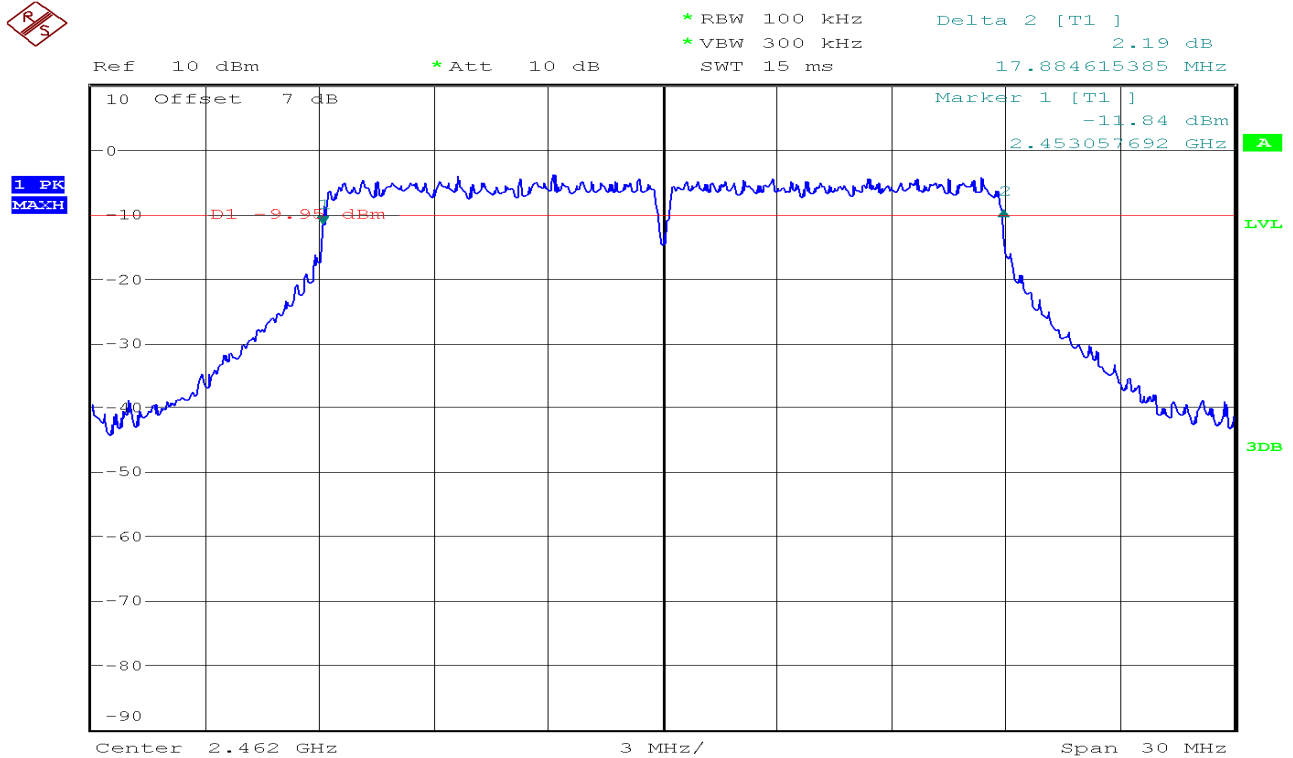
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

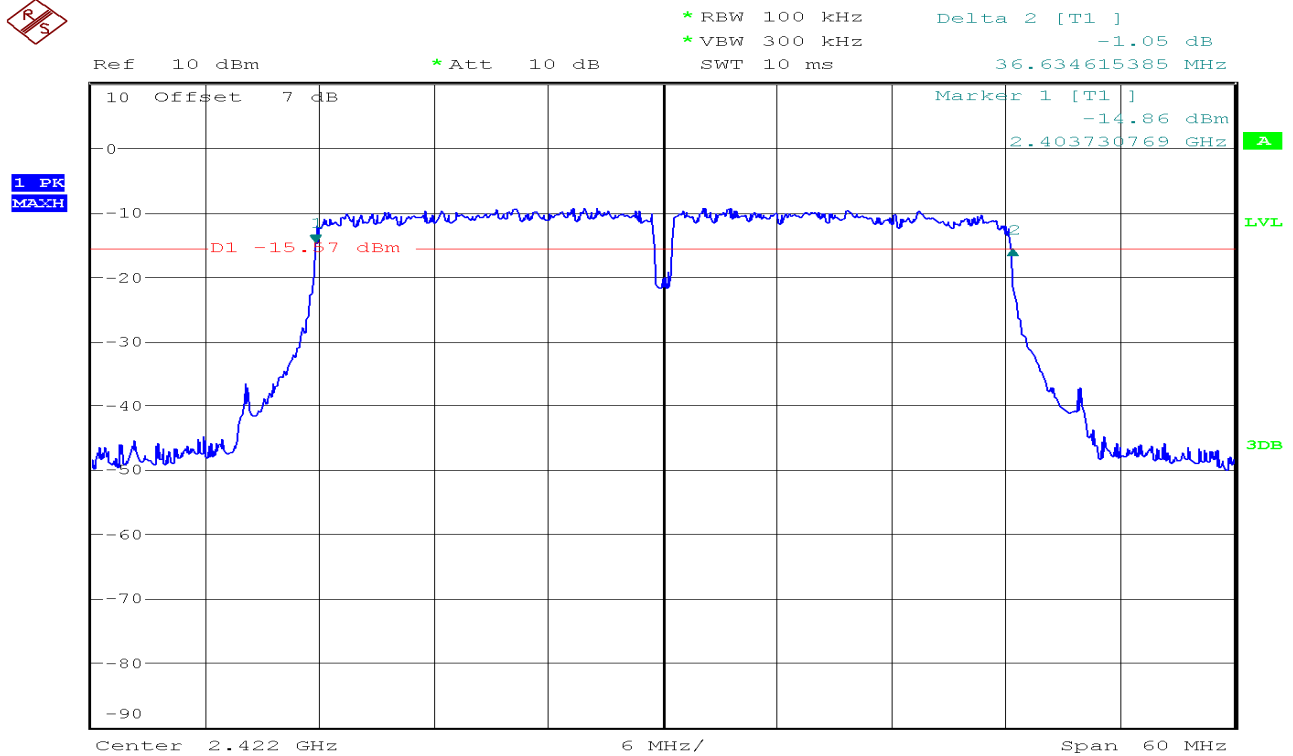


6dB Bandwidth (CH High)

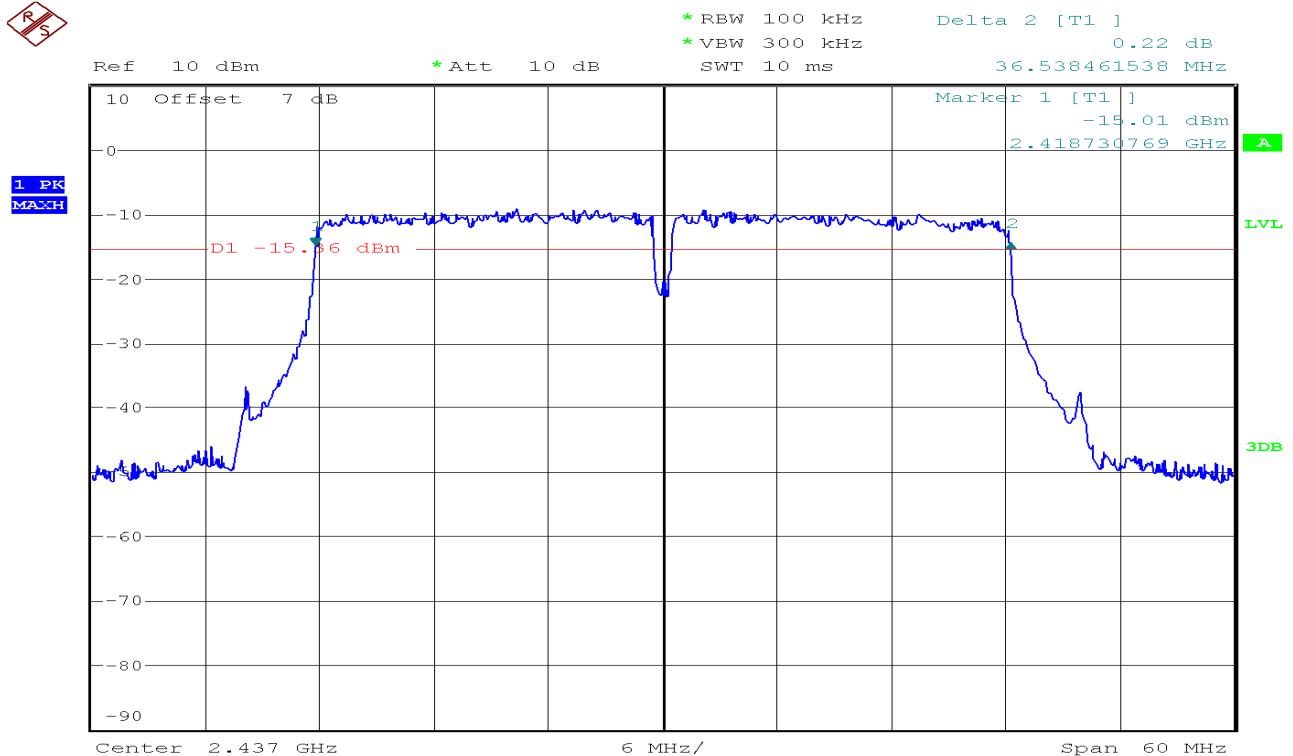


IEEE 802.11n HT40 mode / Chain 0

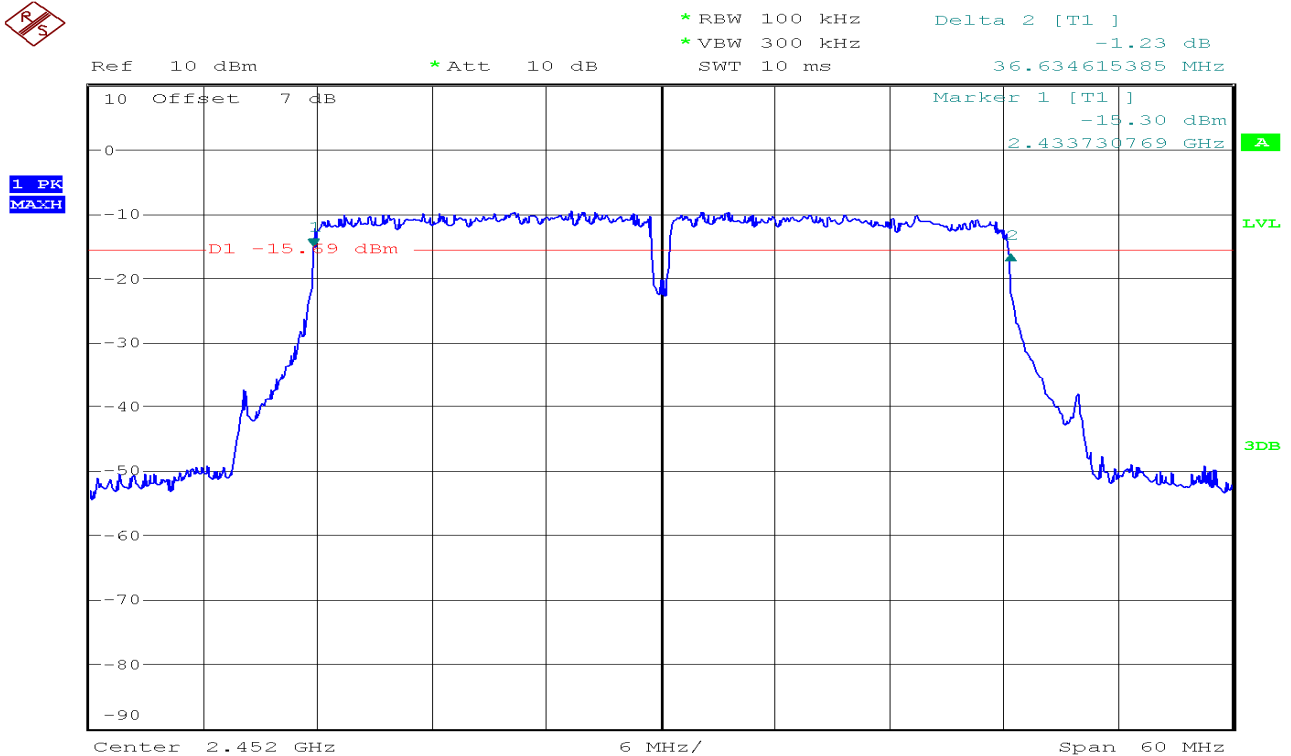
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

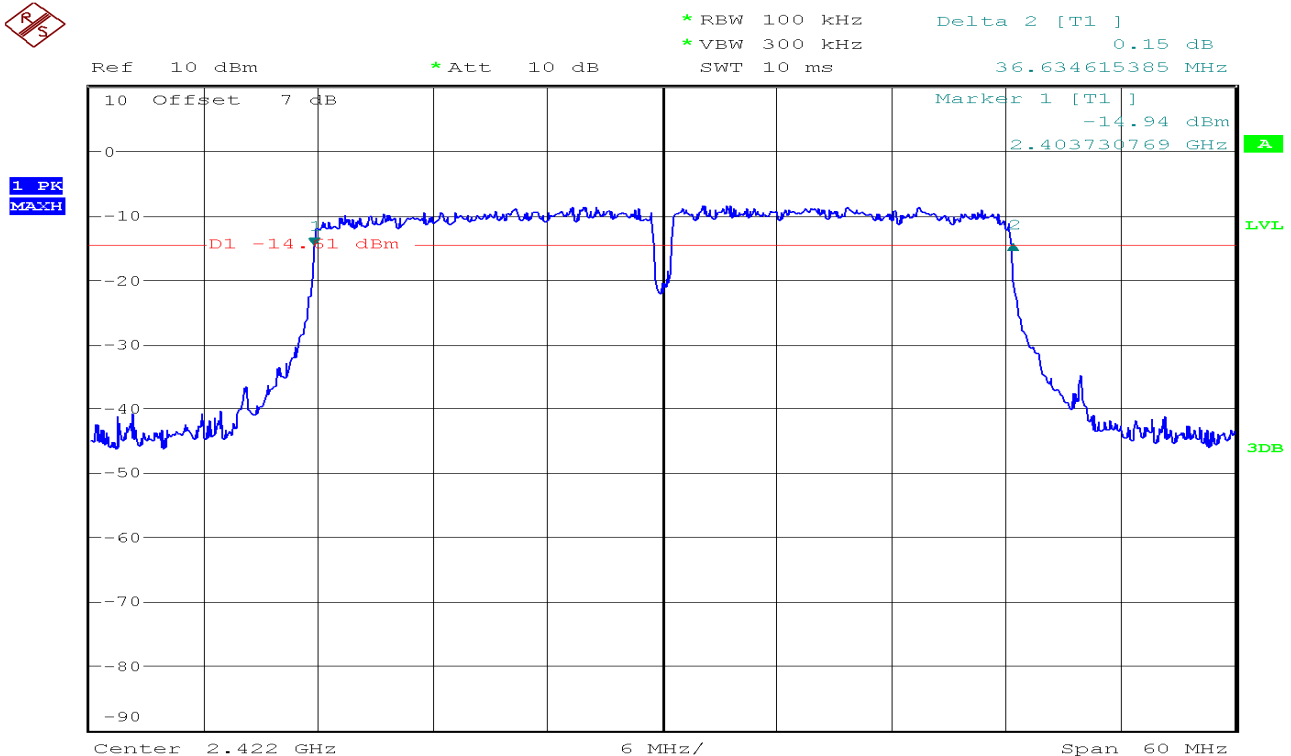


6dB Bandwidth (CH High)

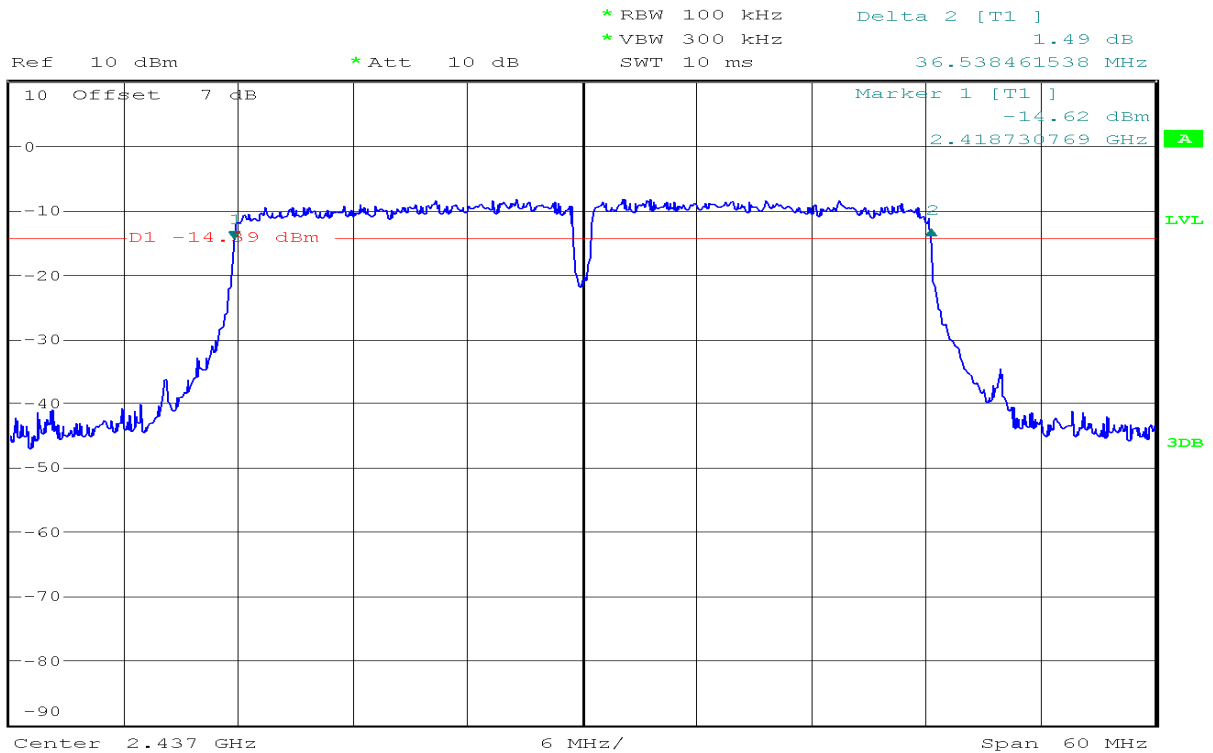


IEEE 802.11n HT40 mode / Chain 1

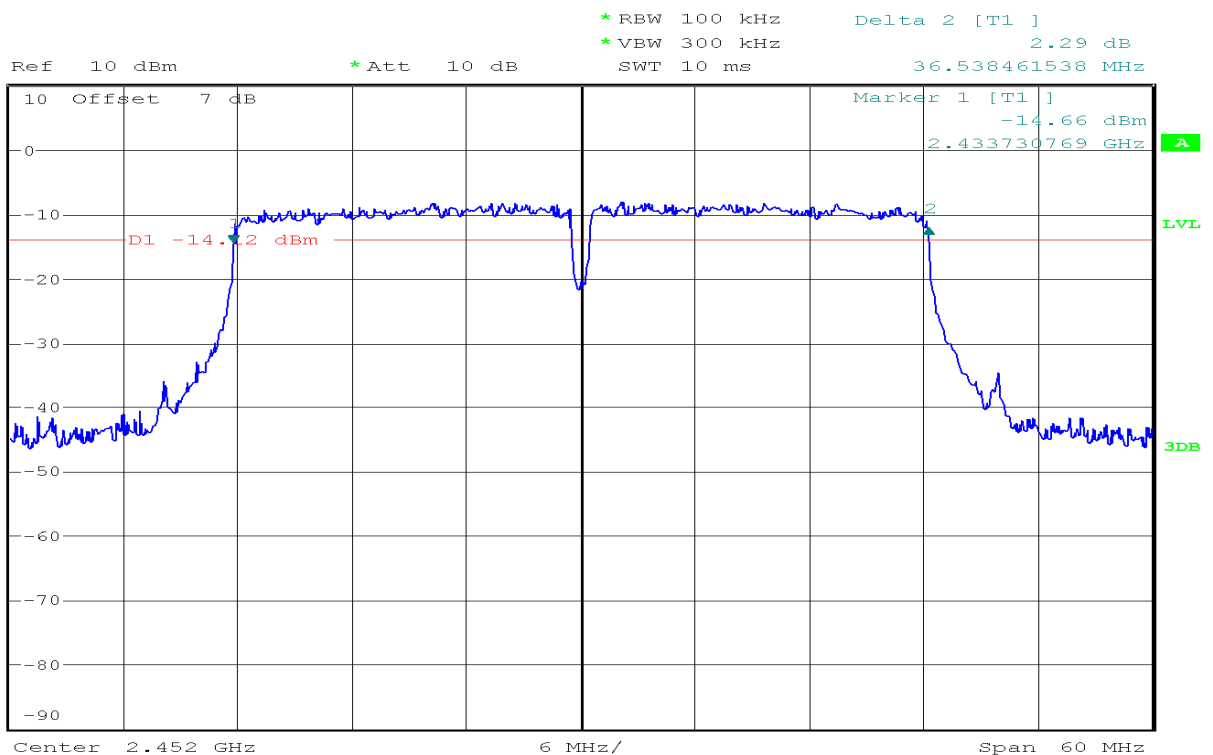
6dB Bandwidth (CH Low)



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:

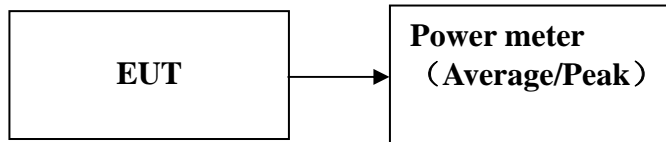
1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, and 2400-2483.5 MHz: 1 Watt.

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.

Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi = $4.7 + 10 \log(2)$ dBi = 7.71 dBi

Limit = $30 - (7.71 - 6) = 28.29$ dBm

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted

Test Data**Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	16.95	16.38	19.68	28.29
Mid	2437	16.67	16.69	19.69	28.29
High	2462	15.88	16.85	19.40	28.29

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	14.93	14.56	17.76	28.29
Mid	2437	14.47	14.75	17.62	28.29
High	2462	13.44	14.84	17.21	28.29

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2412	12.98	12.30	15.66	28.29
Mid	2437	12.41	12.71	15.57	28.29
High	2462	11.54	12.79	15.22	28.29

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	2422	12.40	11.81	15.13	28.29
Mid	2437	12.14	11.95	15.06	28.29
High	2452	11.51	12.06	14.80	28.29

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

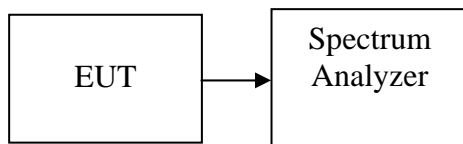
7.3. PEAK POWER SPECTRAL DENSITY

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.

Limit = $8 - 10 \log(N_{\text{ANT}}) = 8 - 10 \log(2) = 4.99 \text{ dBm}$

TEST RESULTS

No non-compliance noted

Test Data**Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-14.35	-16.17	-12.16	4.99	PASS
Mid	2437	-15.09	-15.60	-12.33	4.99	PASS
High	2462	-15.58	-15.38	-12.47	4.99	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-16.66	-16.18	-13.40	4.99	PASS
Mid	2437	-16.91	-15.35	-13.05	4.99	PASS
High	2462	-17.30	-15.56	-13.33	4.99	PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2412	-19.00	-18.42	-15.69	4.99	PASS
Mid	2437	-19.76	-17.91	-15.73	4.99	PASS
High	2462	-20.78	-18.10	-16.23	4.99	PASS

Test mode: IEEE 802.11n HT40 mode

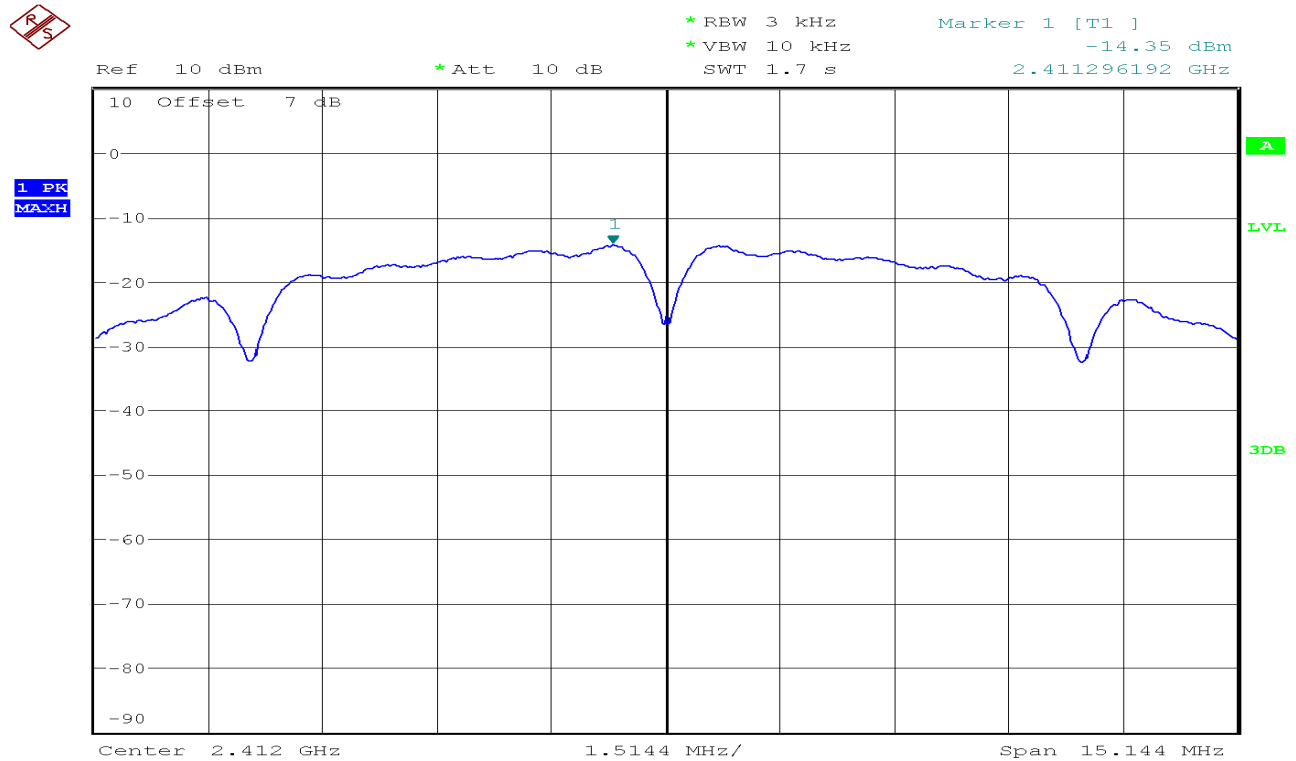
Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
Low	2422	-18.93	-20.66	-16.70	4.99	PASS
Mid	2437	-18.60	-19.18	-15.87	4.99	PASS
High	2452	-20.61	-21.66	-18.09	4.99	PASS

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

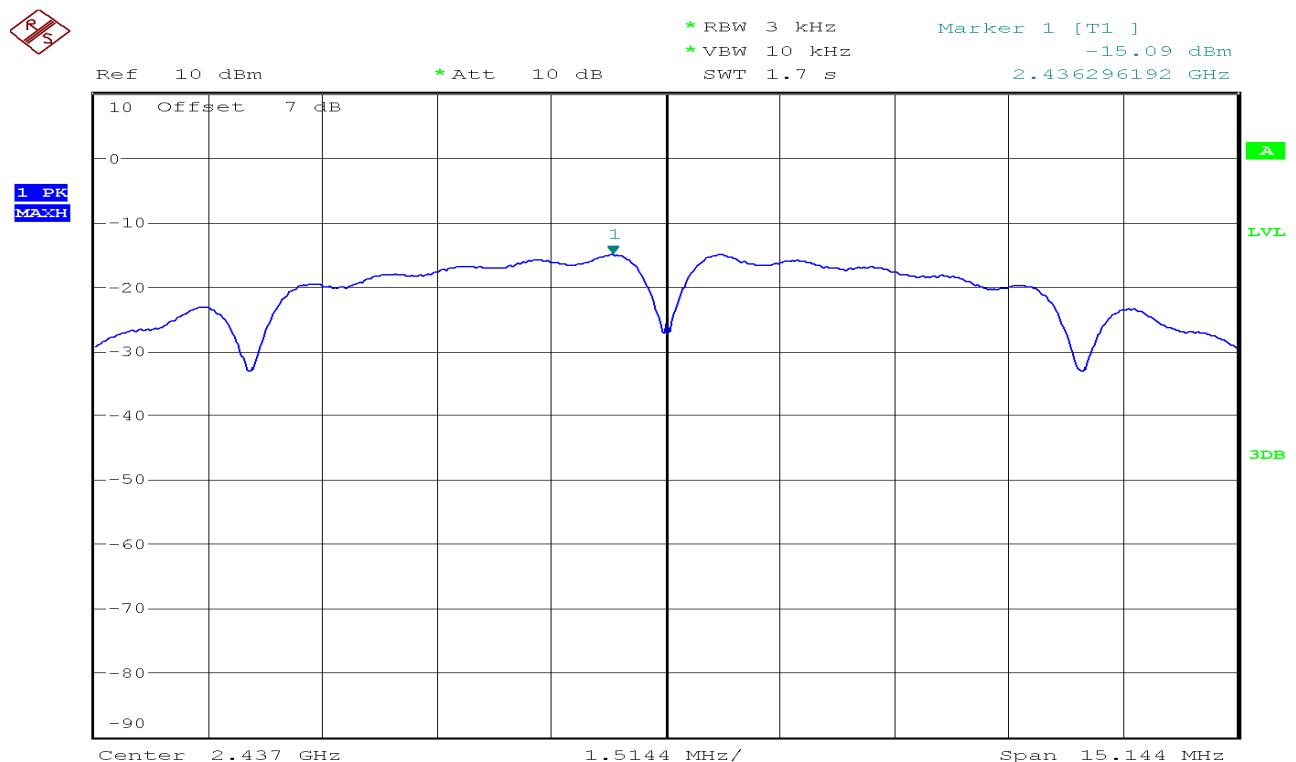
Test Plot

IEEE 802.11b mode/Chain 0

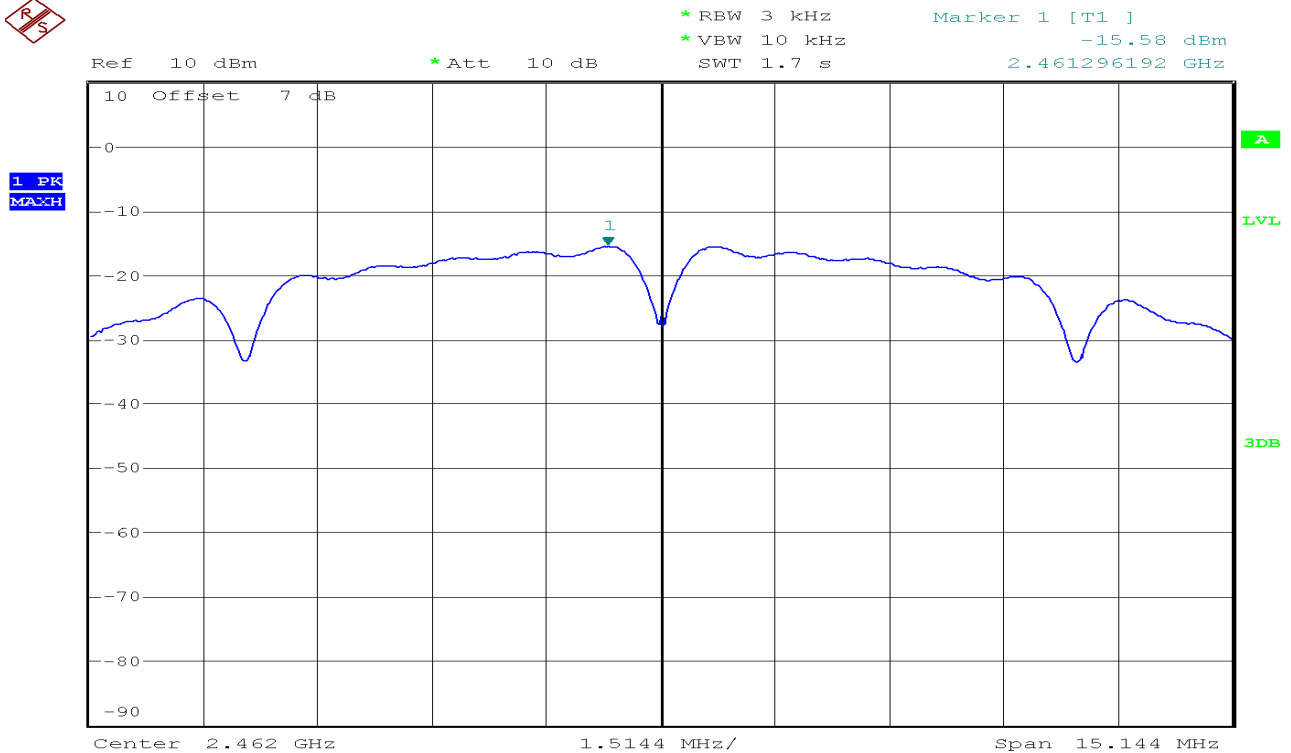
PPSD (CH Low)



PPSD(CH Mid)

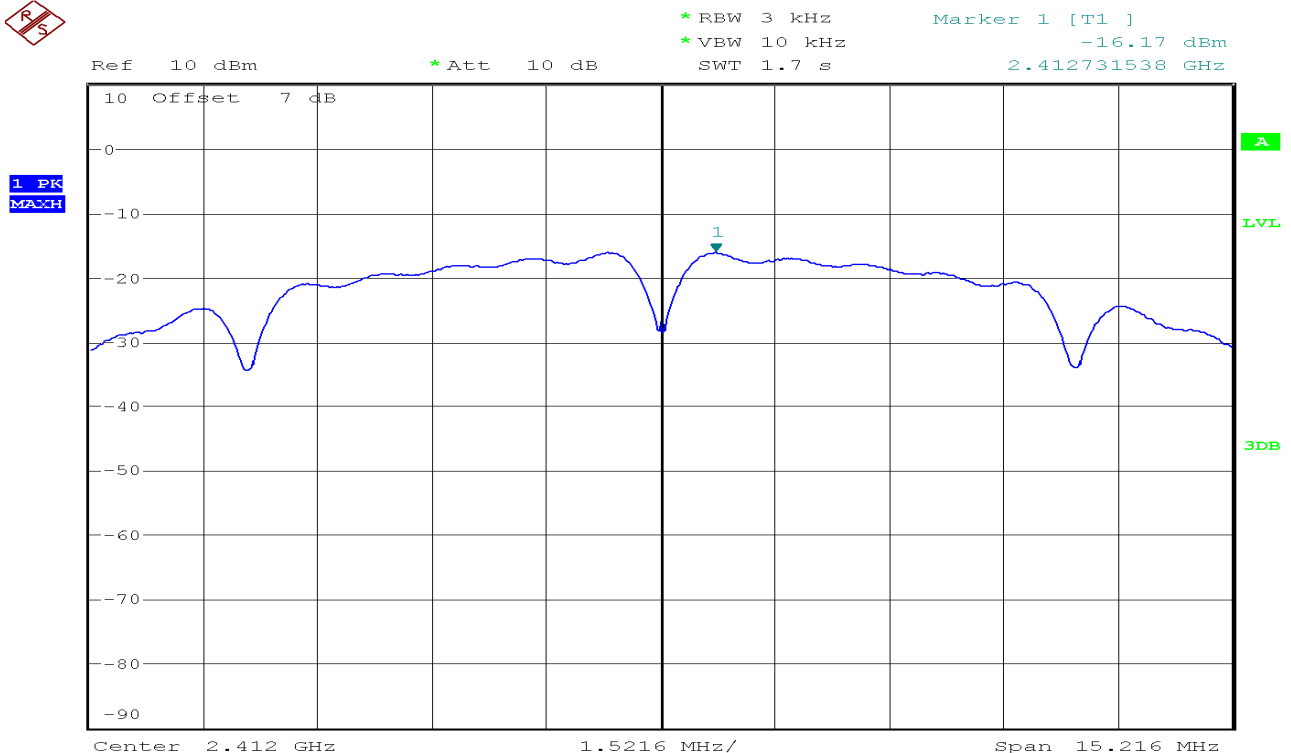


PPSD (CH High)

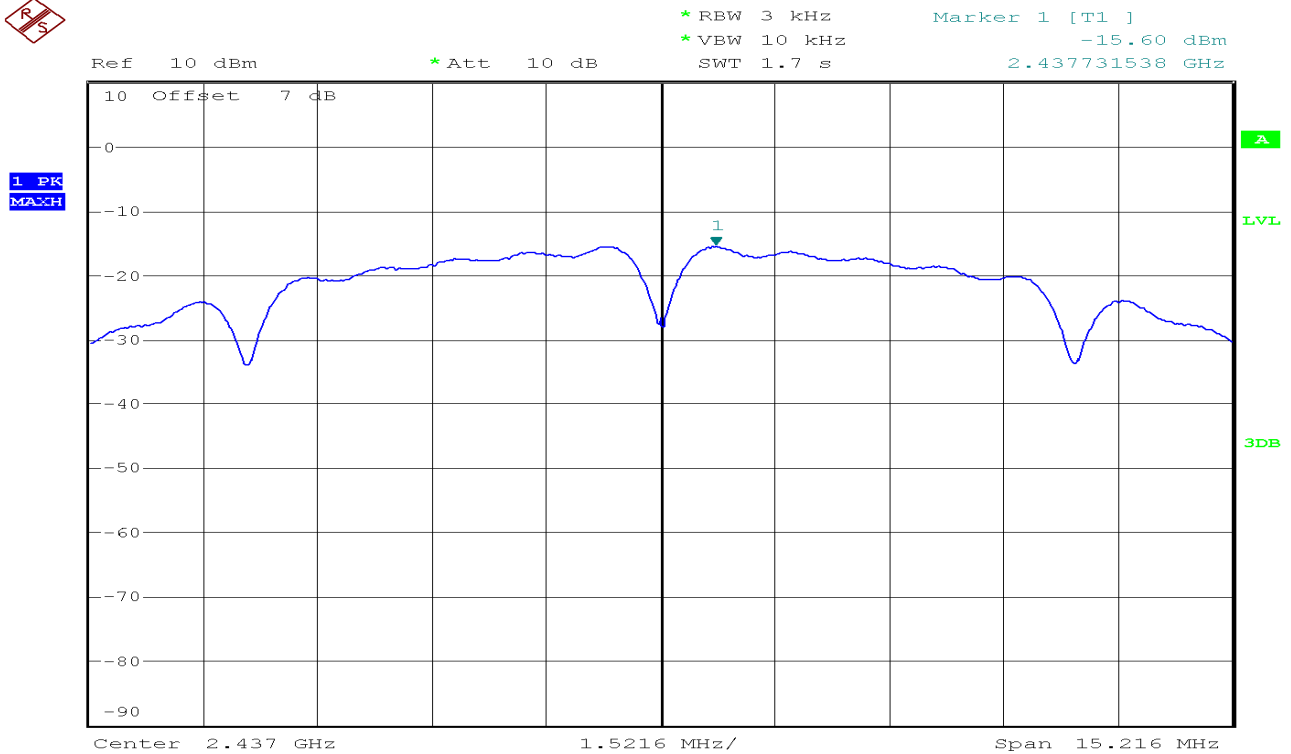


IEEE 802.11b mode/Chain 1

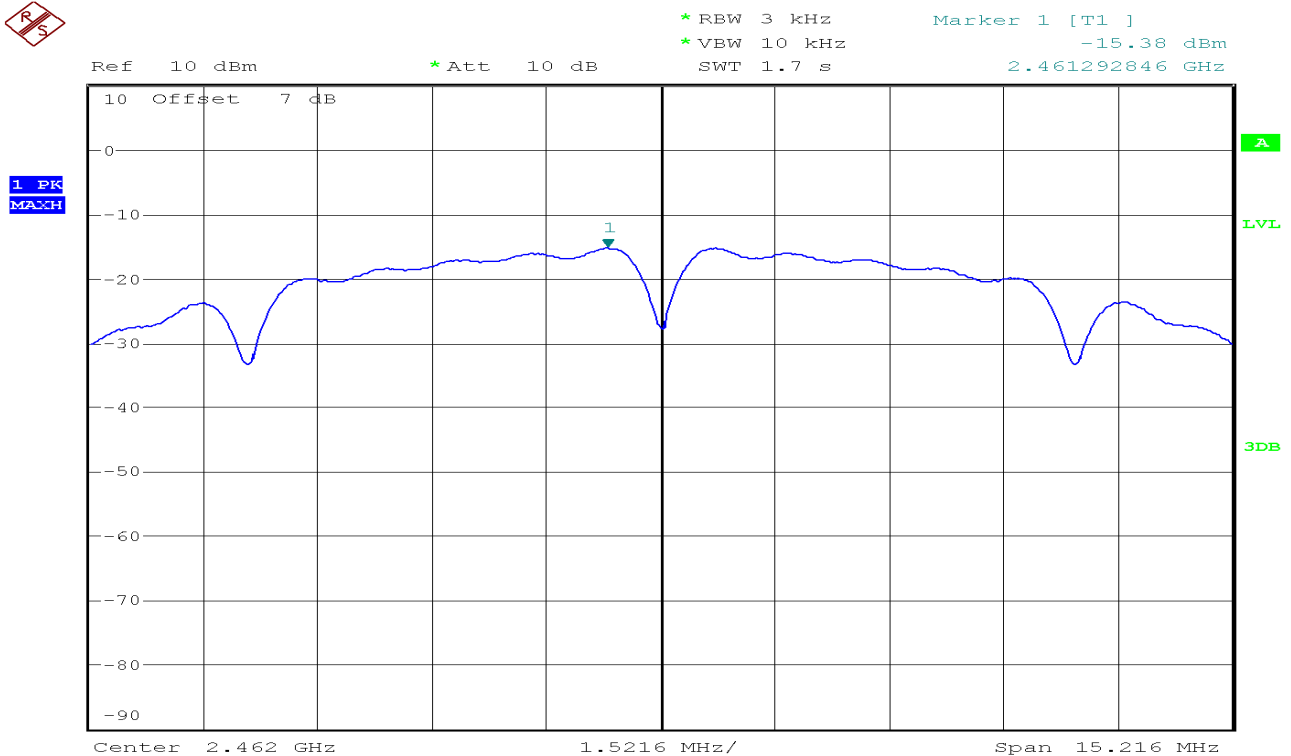
PPSD (CH Low)



PPSD (CH Mid)

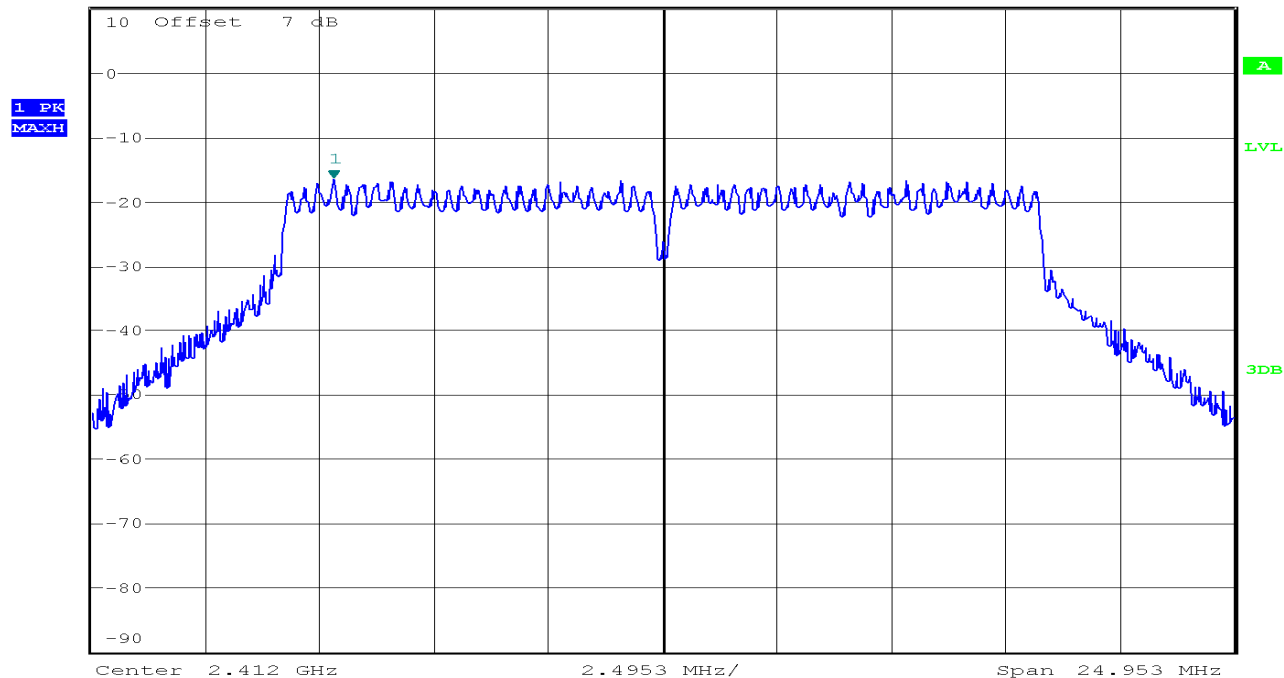


PPSD (CH High)

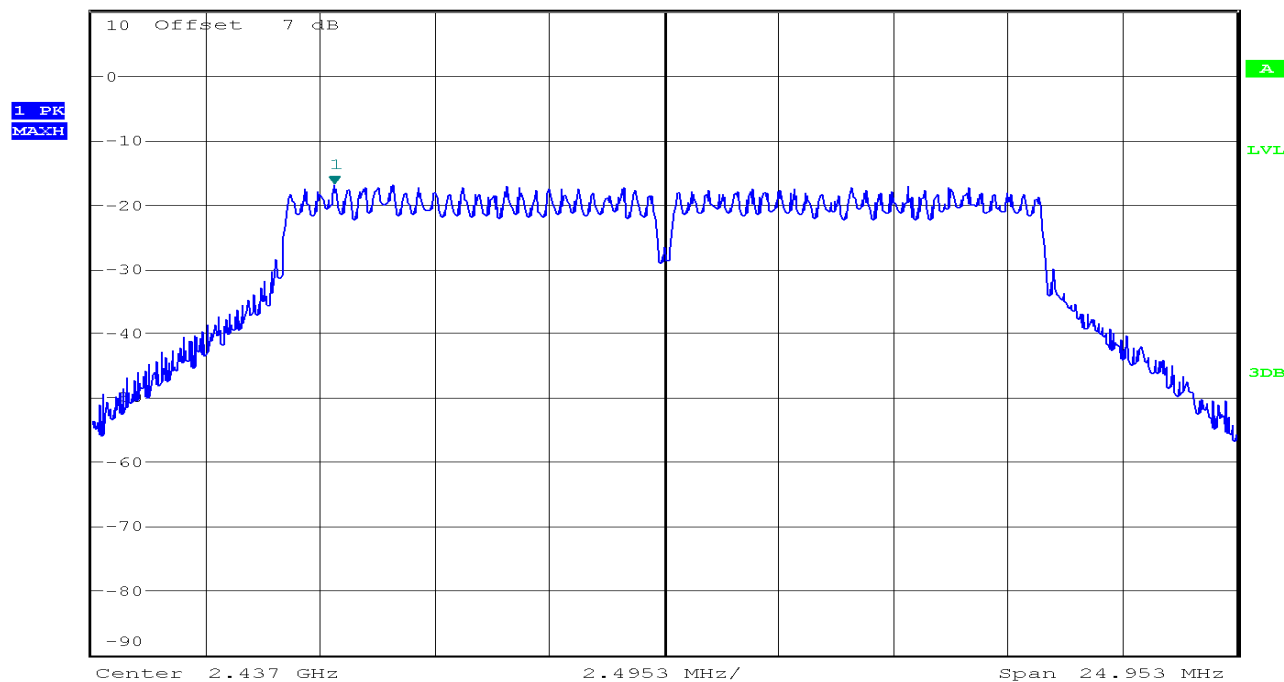


IEEE 802.11g mode/Chain 0**PPSD (CH Low)**

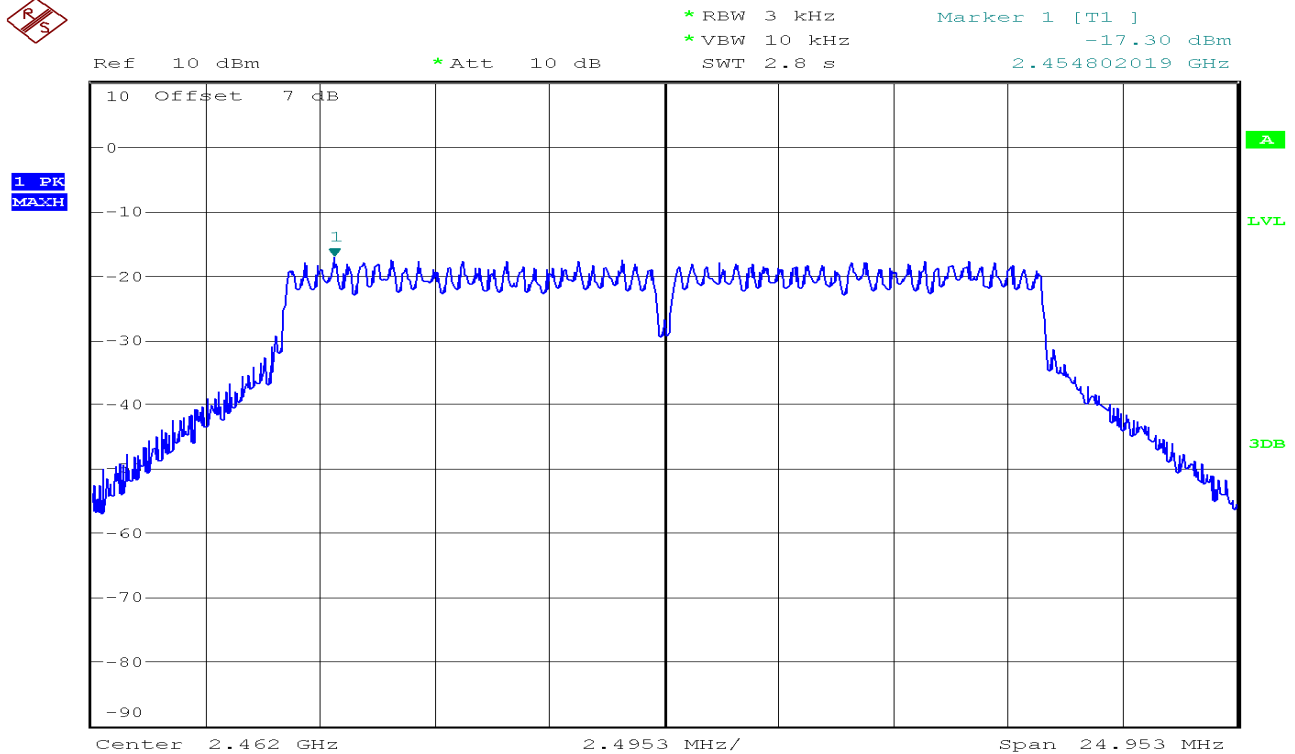
Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 2.8 s Marker 1 [T1] -16.66 dBm 2.404802019 GHz

**PPSD (CH Mid)**

Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 2.8 s Marker 1 [T1] -16.91 dBm 2.429802019 GHz

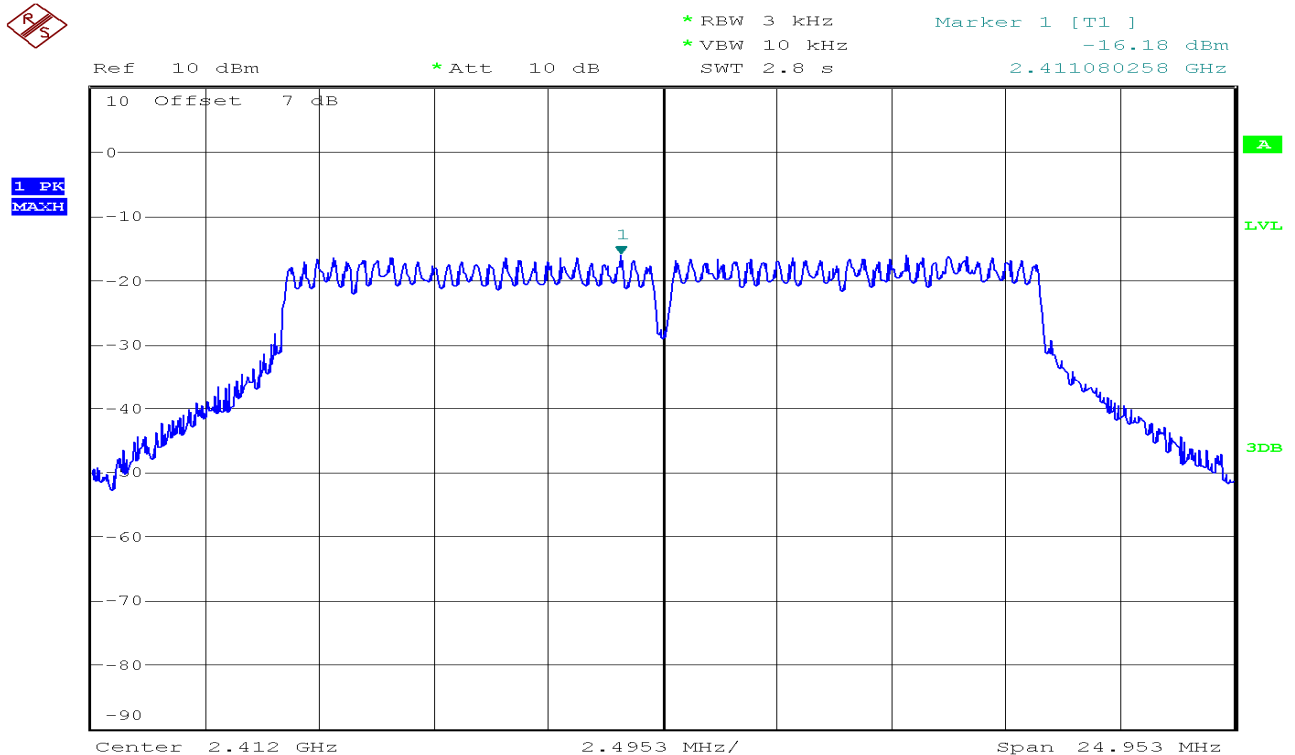


PPSD (CH High)

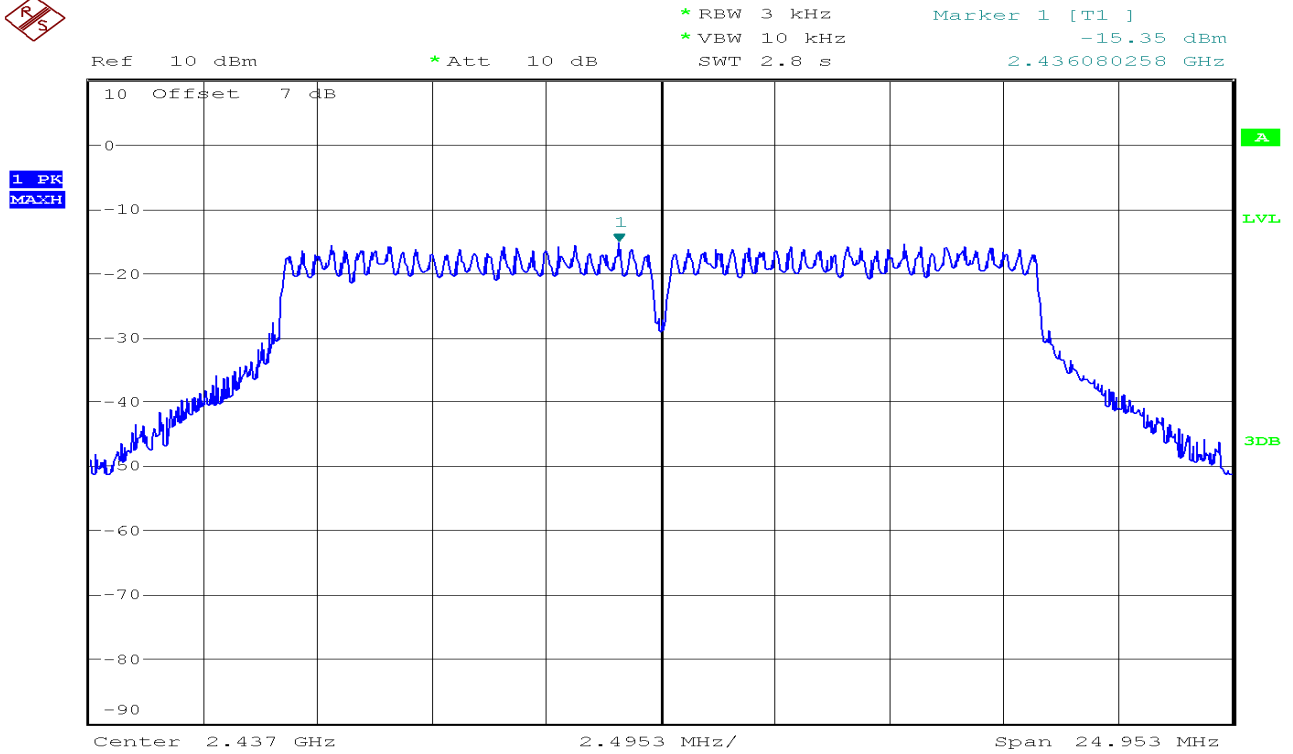


IEEE 802.11g mode/Chain 1

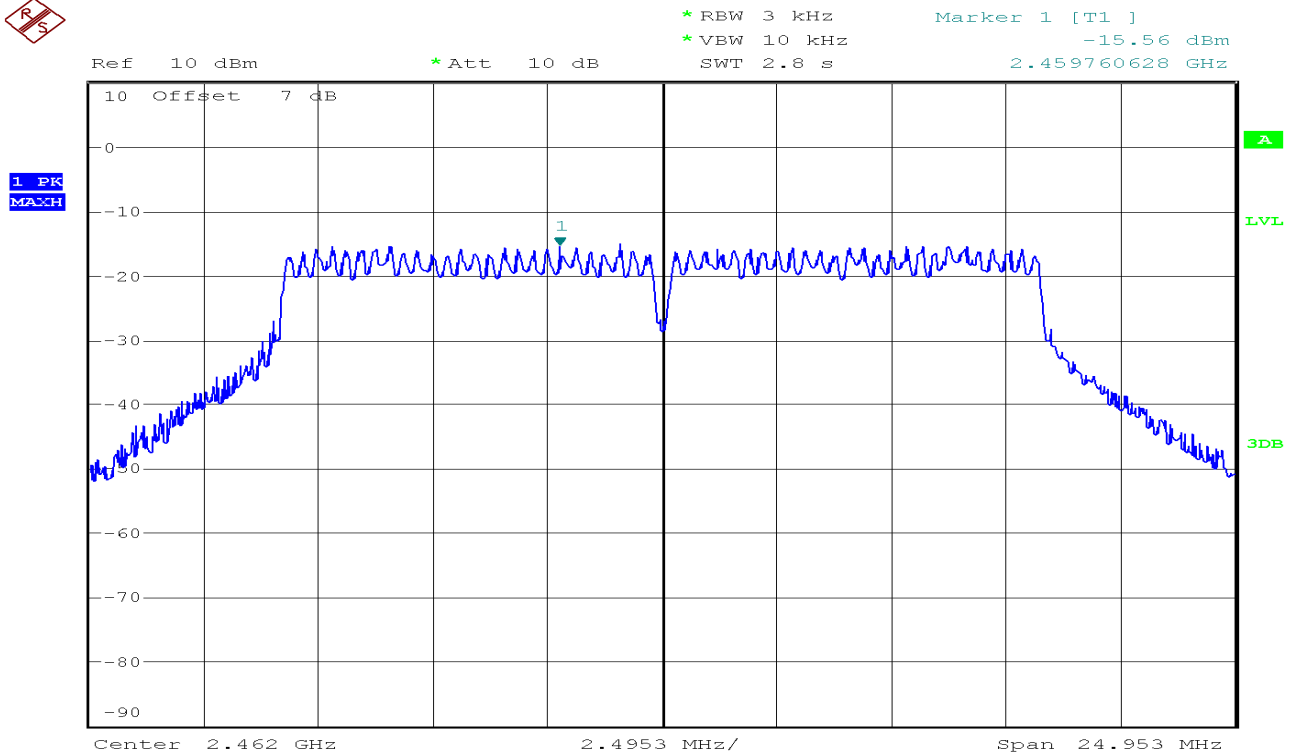
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)

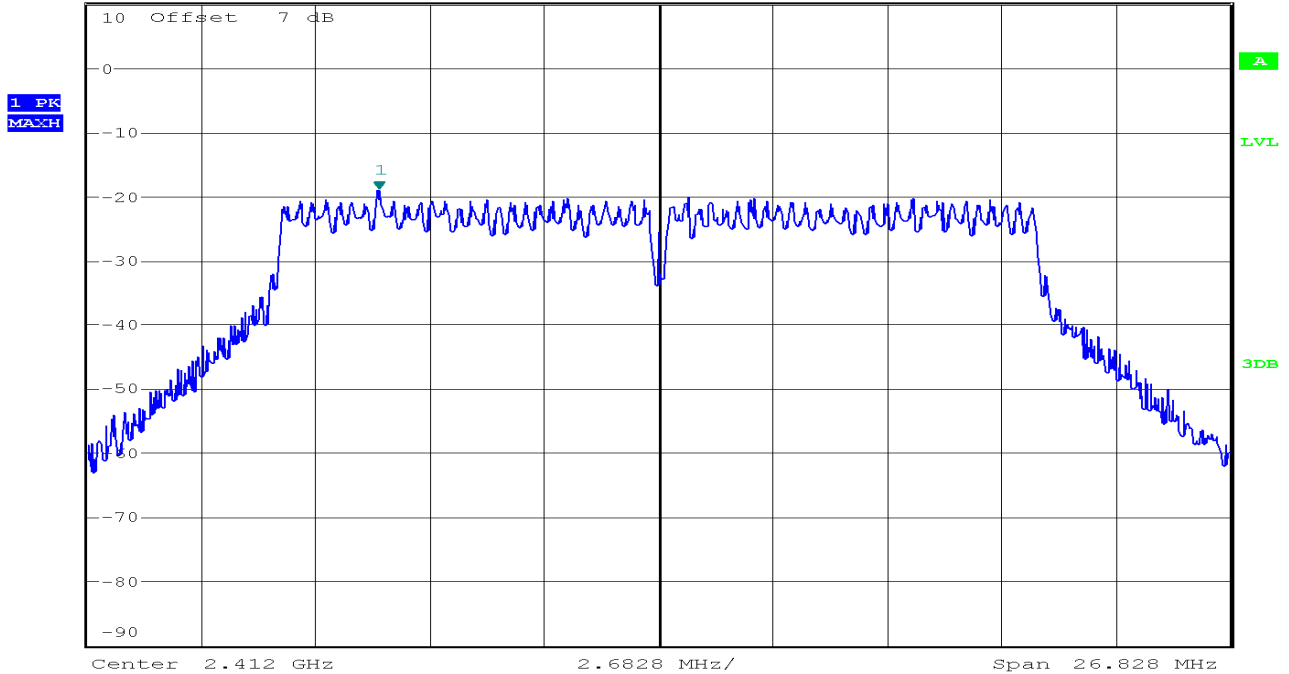


IEEE 802.11n HT20 mode / Chain 0

PPSD (CH Low)



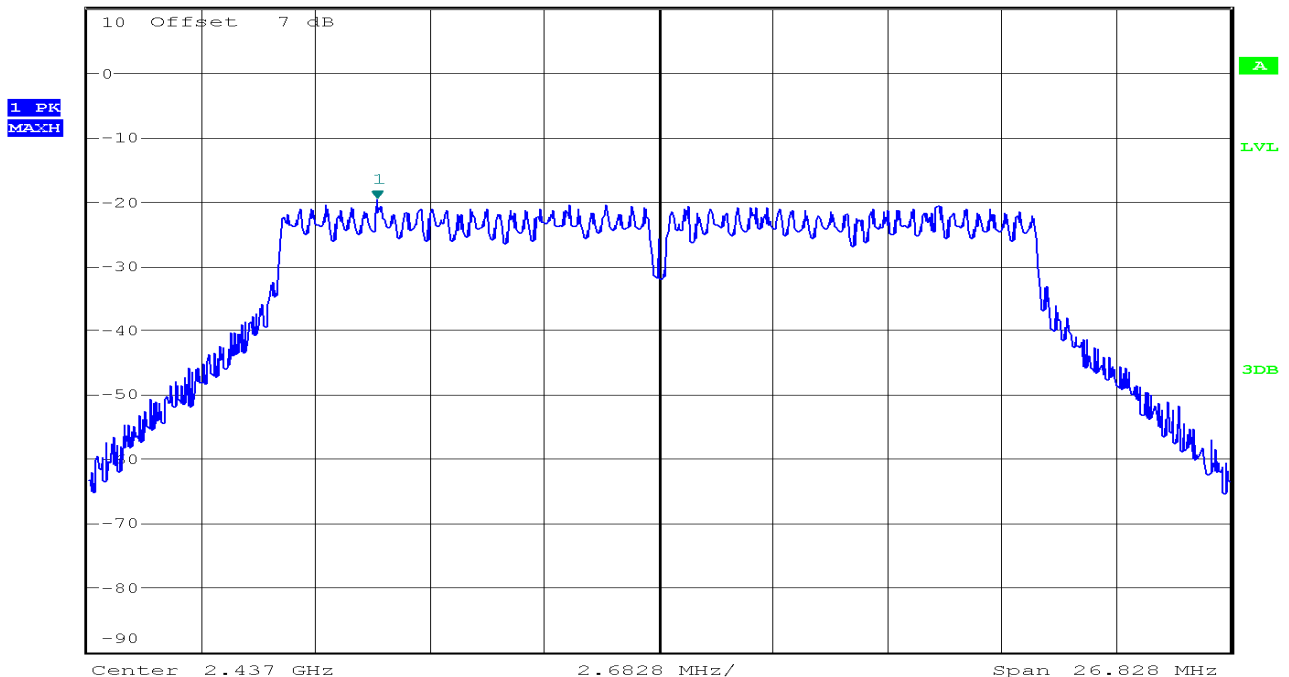
Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 3 s Marker 1 [T1] -19.00 dBm 2.405421981 GHz



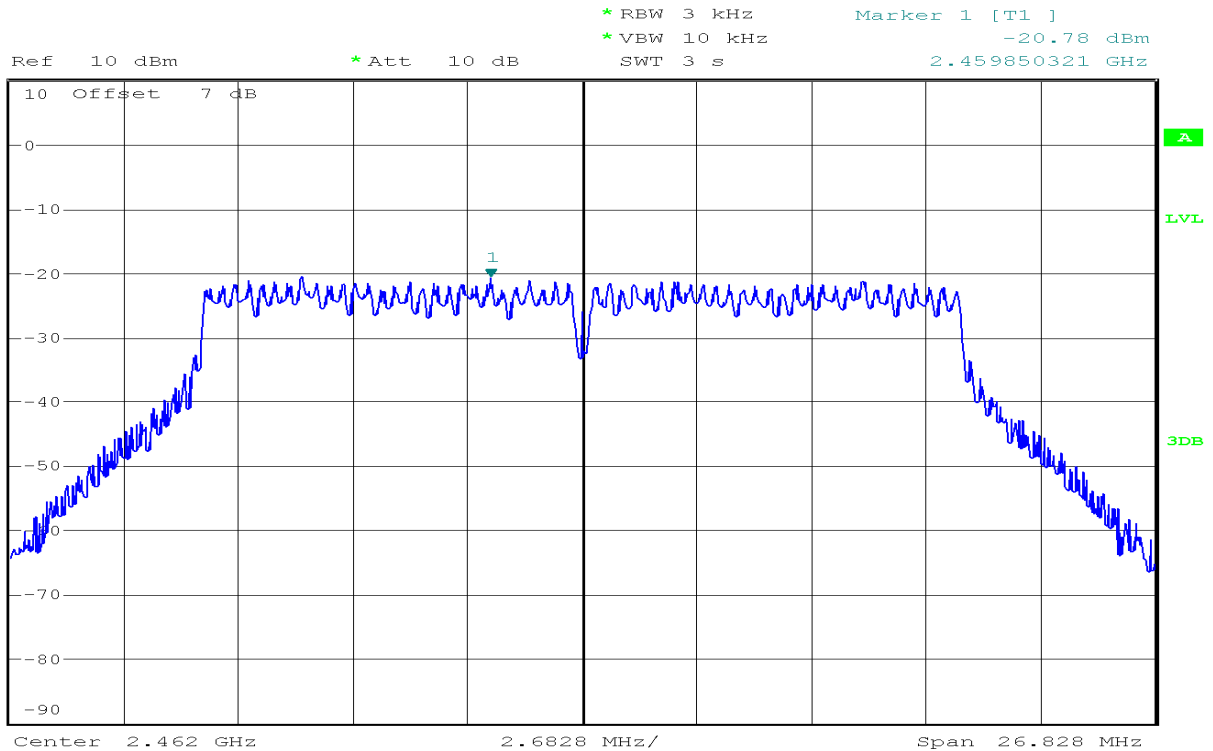
PPSD (CH Mid)



Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 3 s Marker 1 [T1] -19.76 dBm 2.430378987 GHz

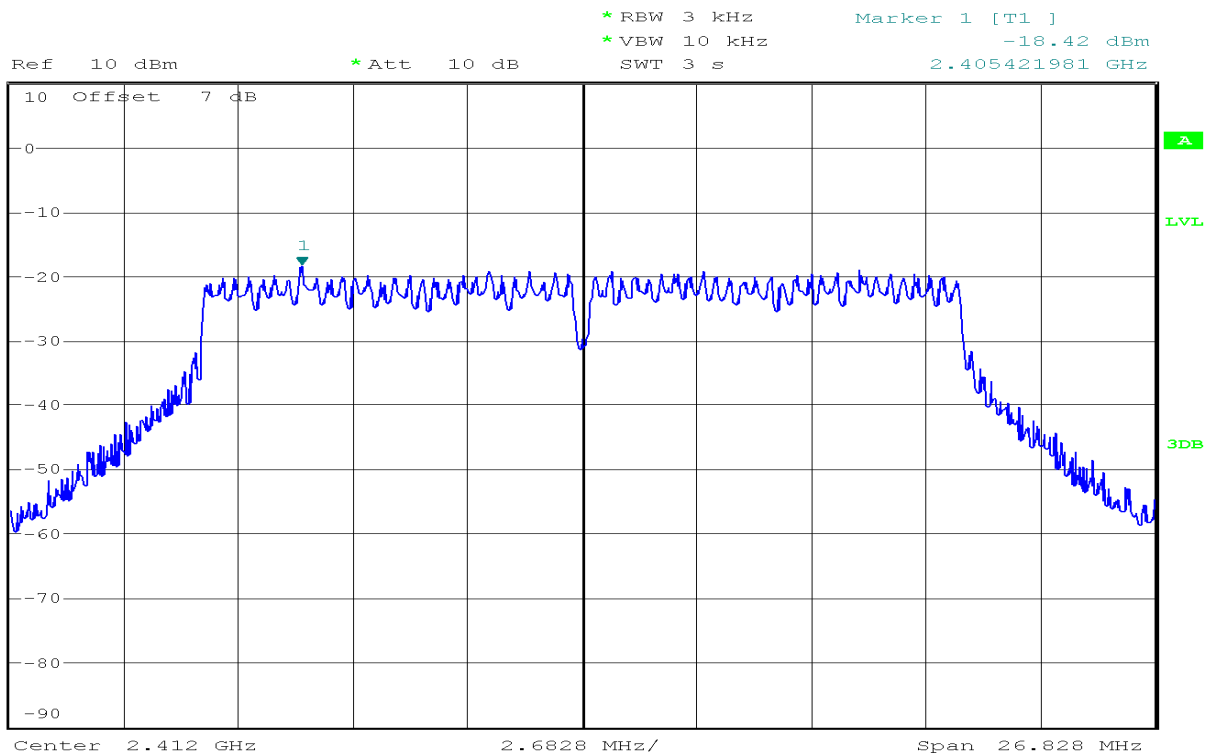


PPSD (CH High)

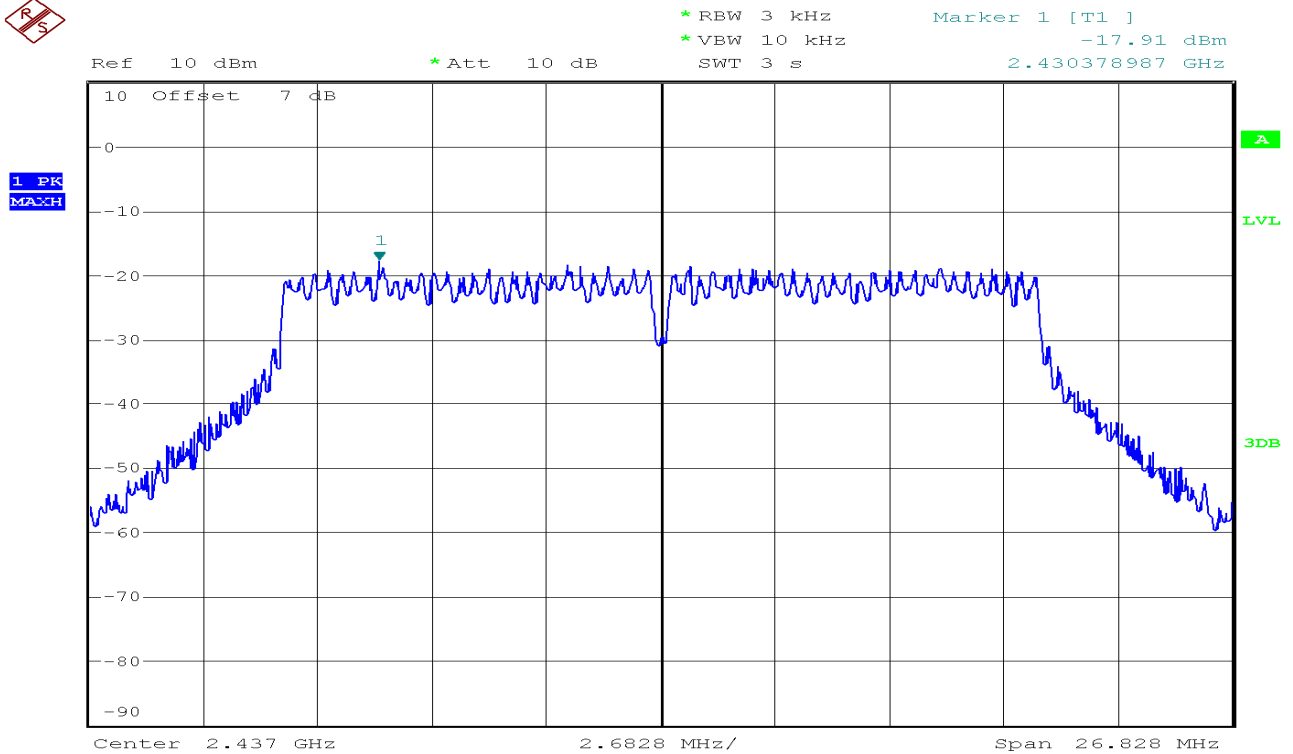


IEEE 802.11n HT20 mode / Chain 1

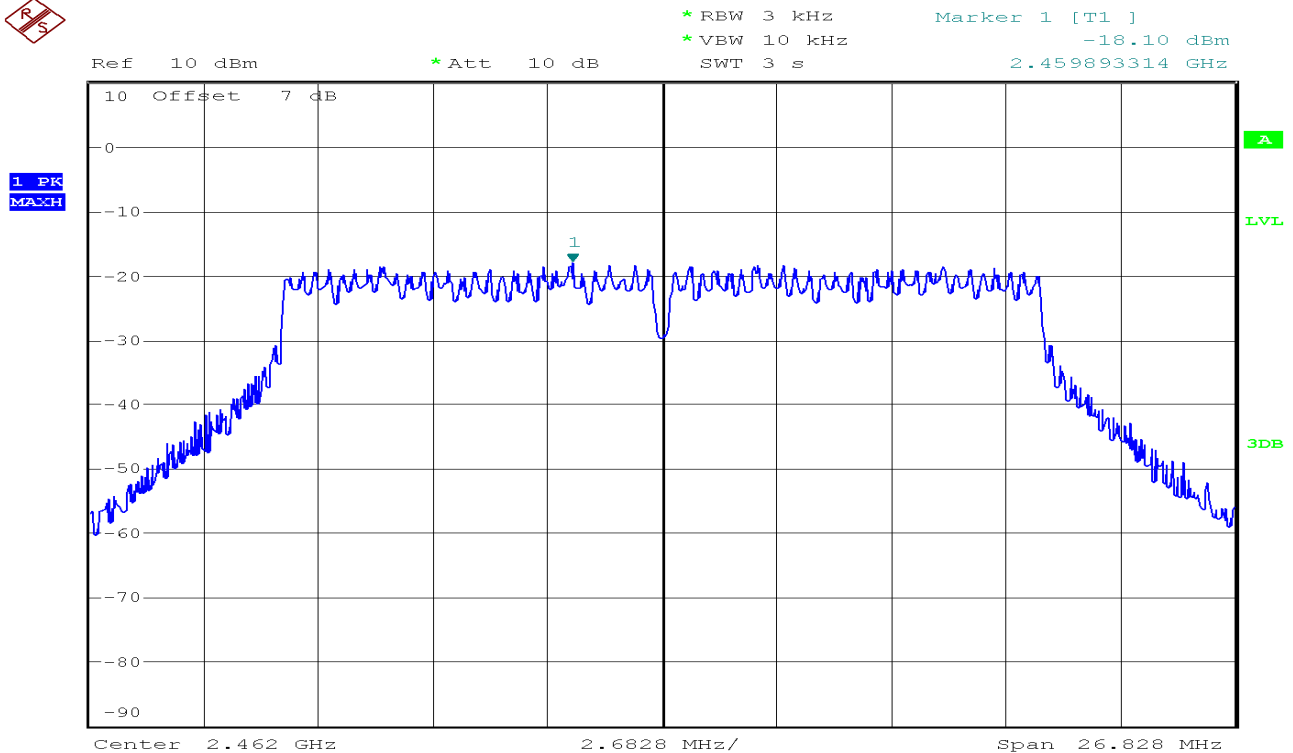
PPSD (CH Low)



PPSD (CH Mid)

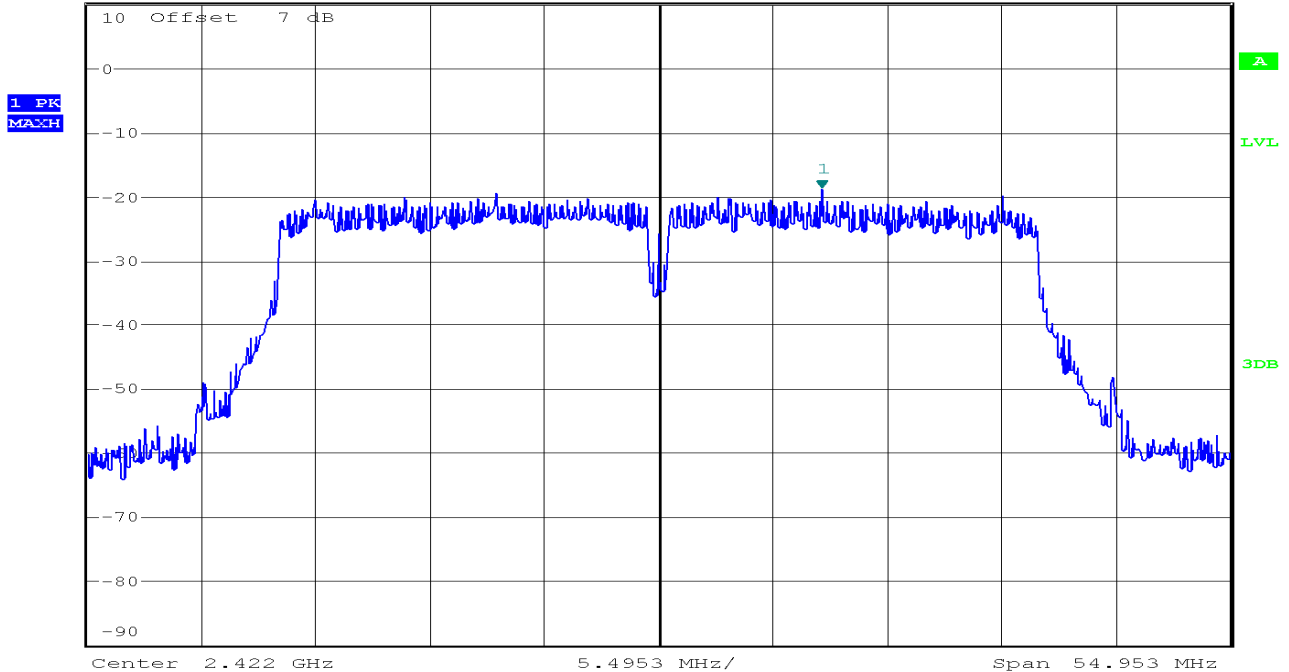


PPSD (CH High)

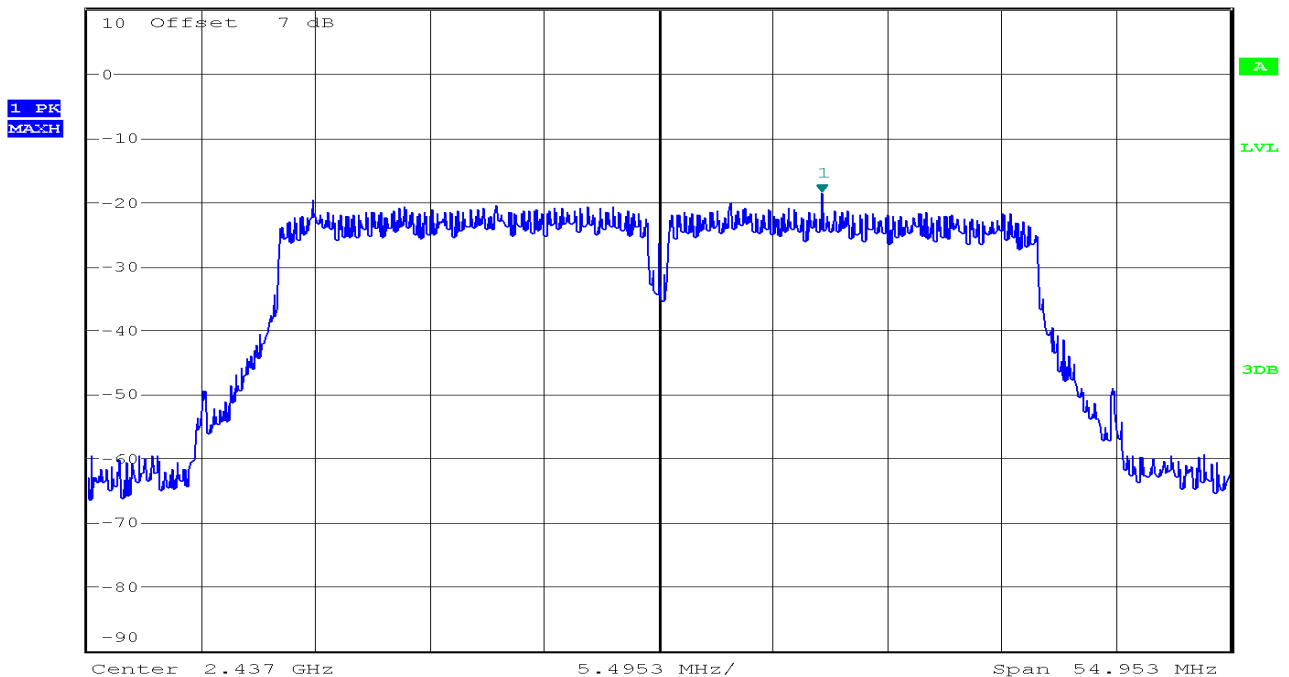


IEEE 802.11n HT40 mode / Chain 0**PPSD (CH Low)**

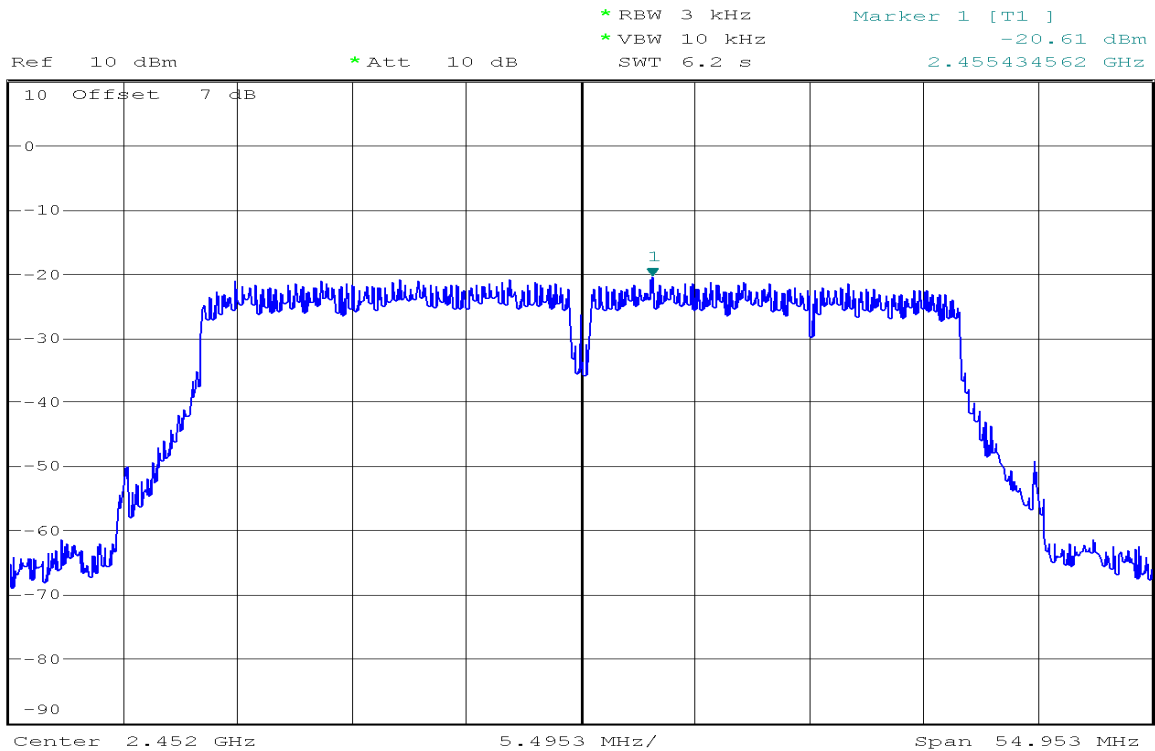
Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 6.2 s Marker 1 [T1] -18.93 dBm 2.429837848 GHz

**PPSD (CH Mid)**

Ref 10 dBm * Att 10 dB * RBW 3 kHz * VBW 10 kHz SWT 6.2 s Marker 1 [T1] -18.60 dBm 2.444837848 GHz

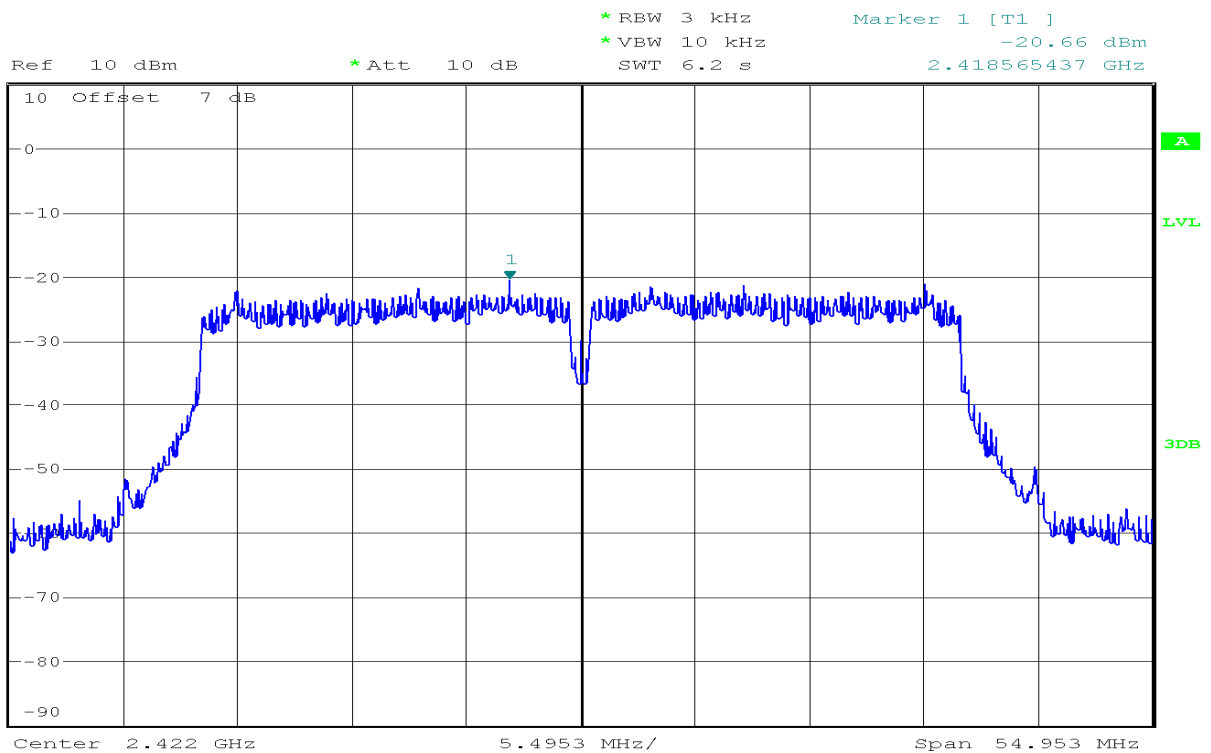


PPSD (CH High)

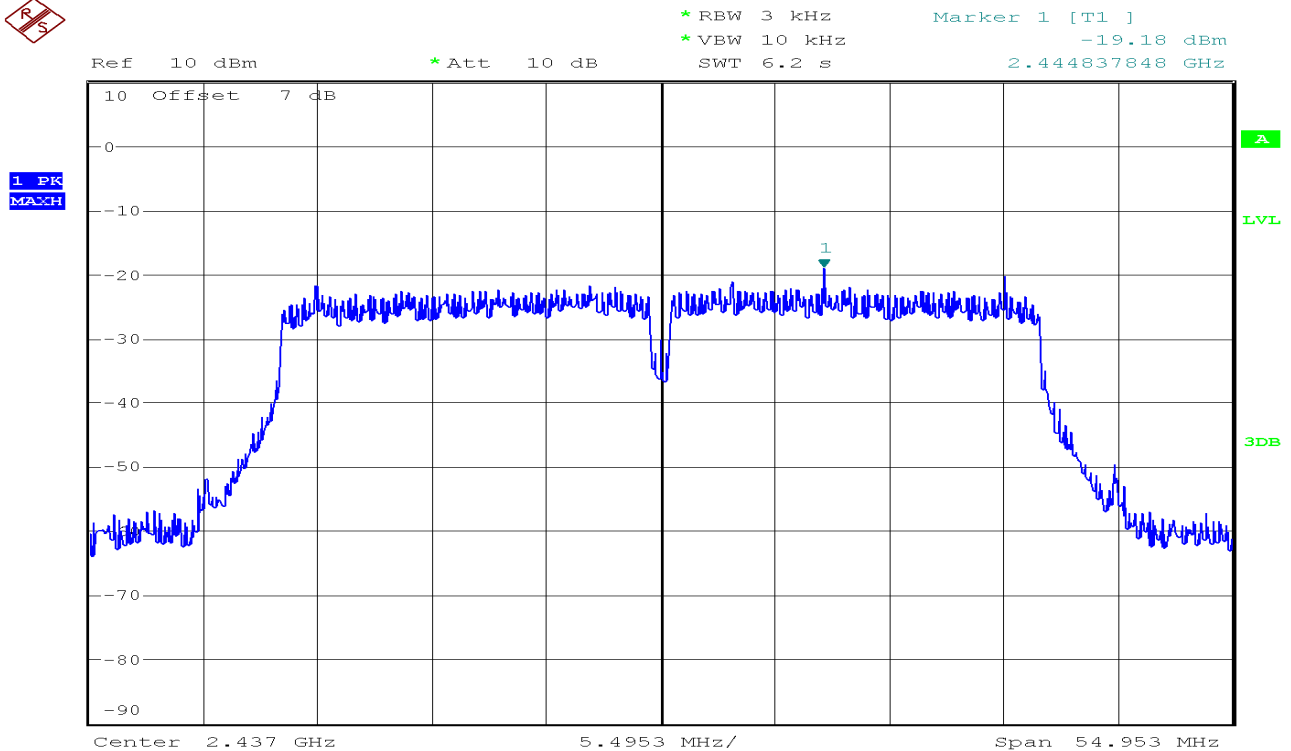


IEEE 802.11n HT40 mode / Chain 1

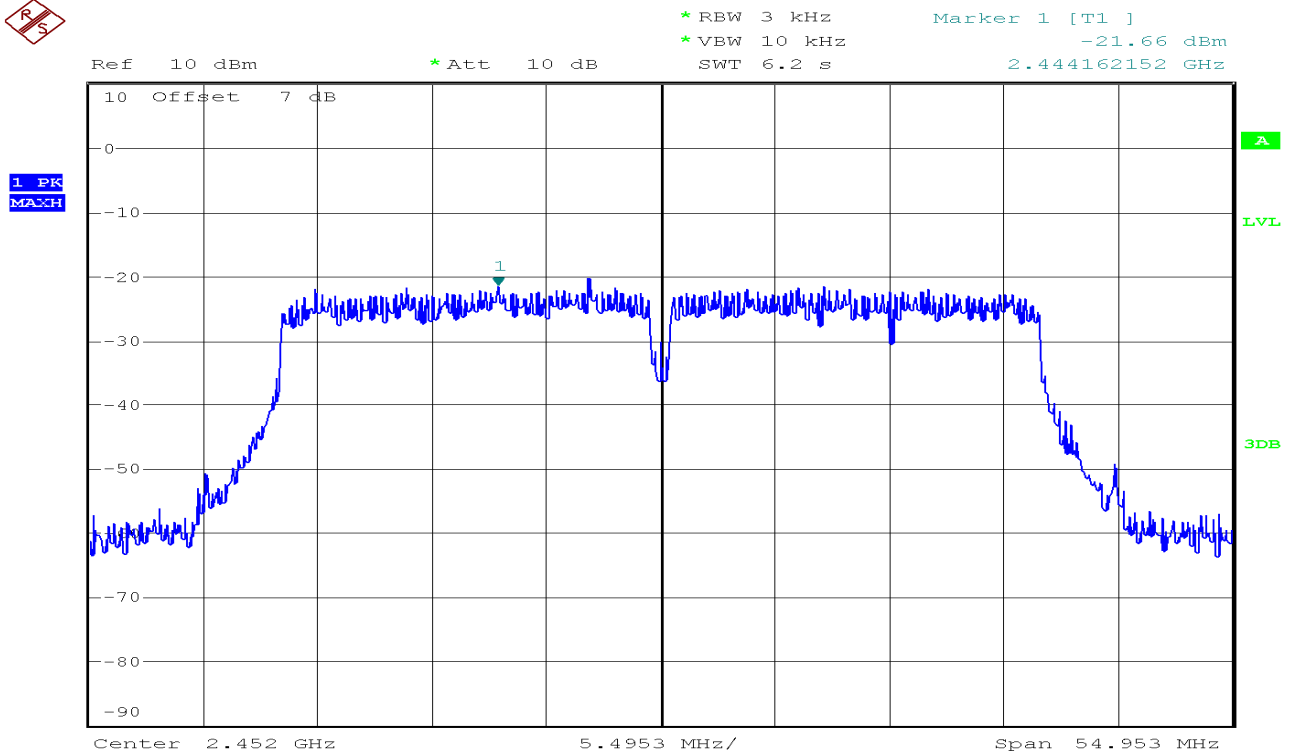
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)



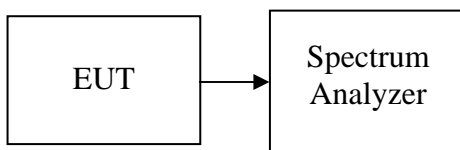
7.4.SPURIOUS EMISSIONS

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

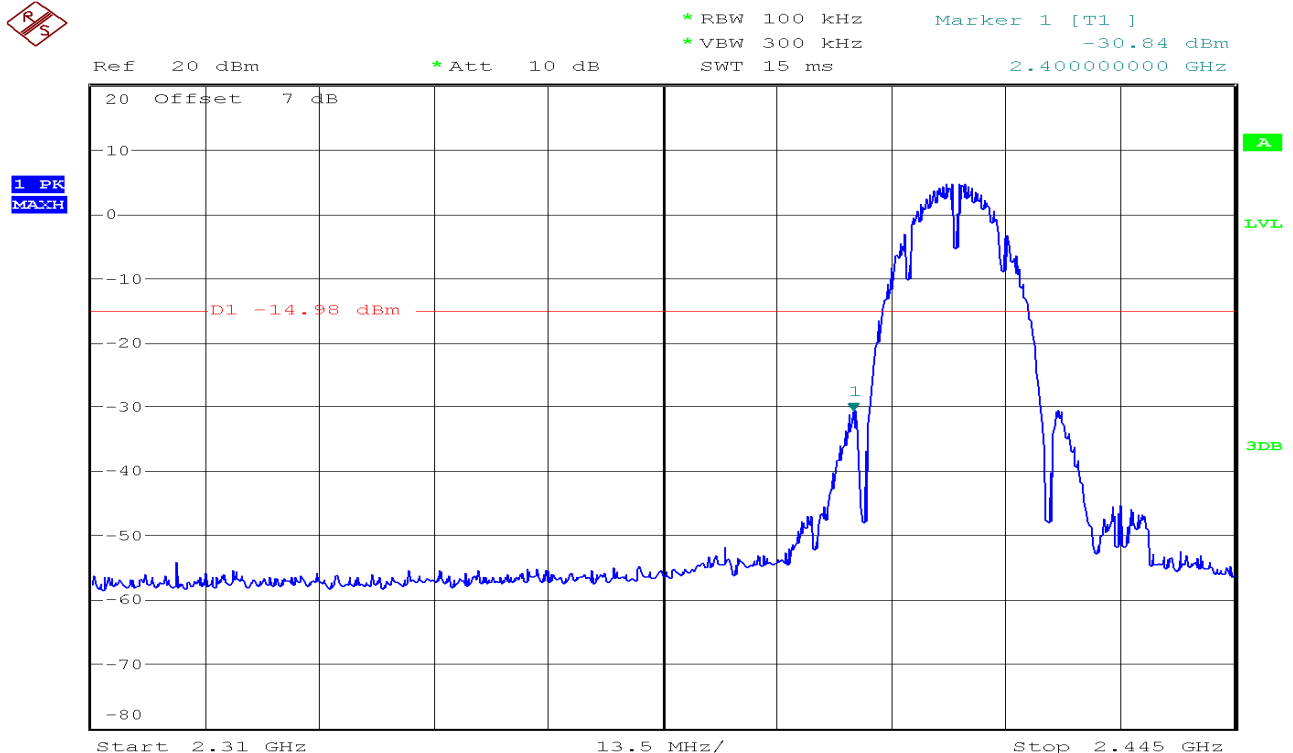
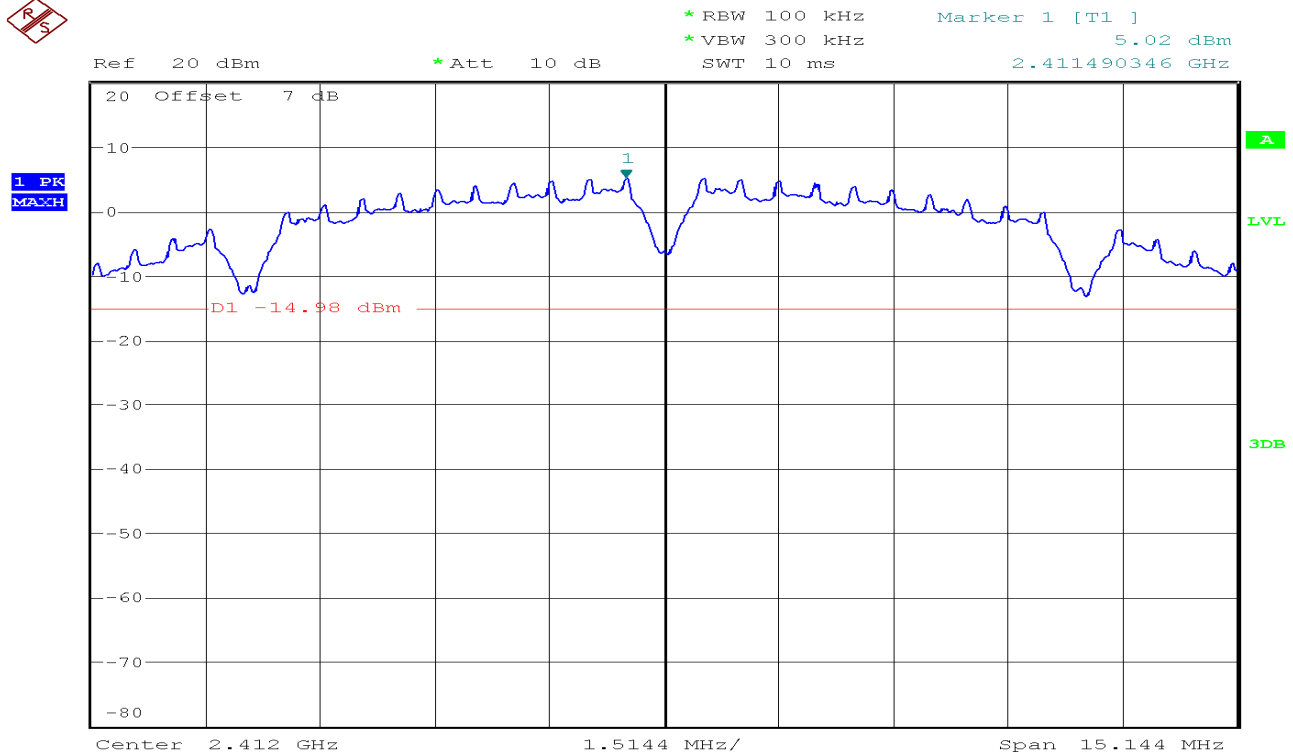
Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

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

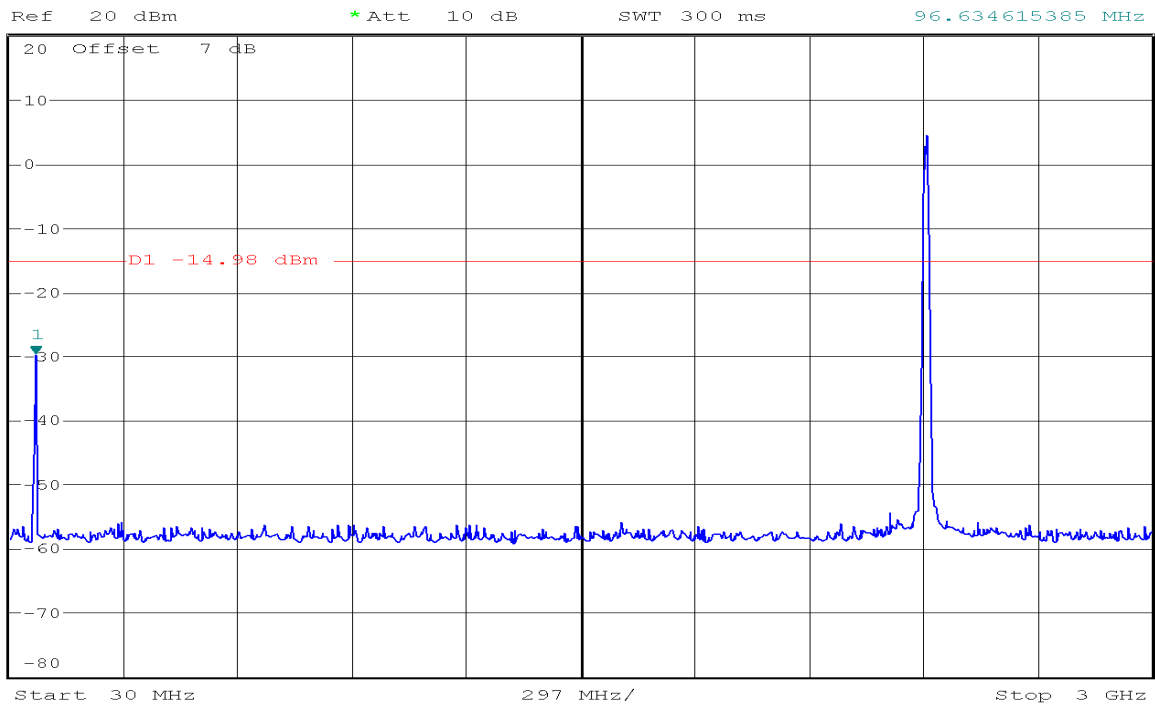
No non-compliance noted

Test Plot**OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT****IEEE 802.11b mode/Chain 0****CH Low**



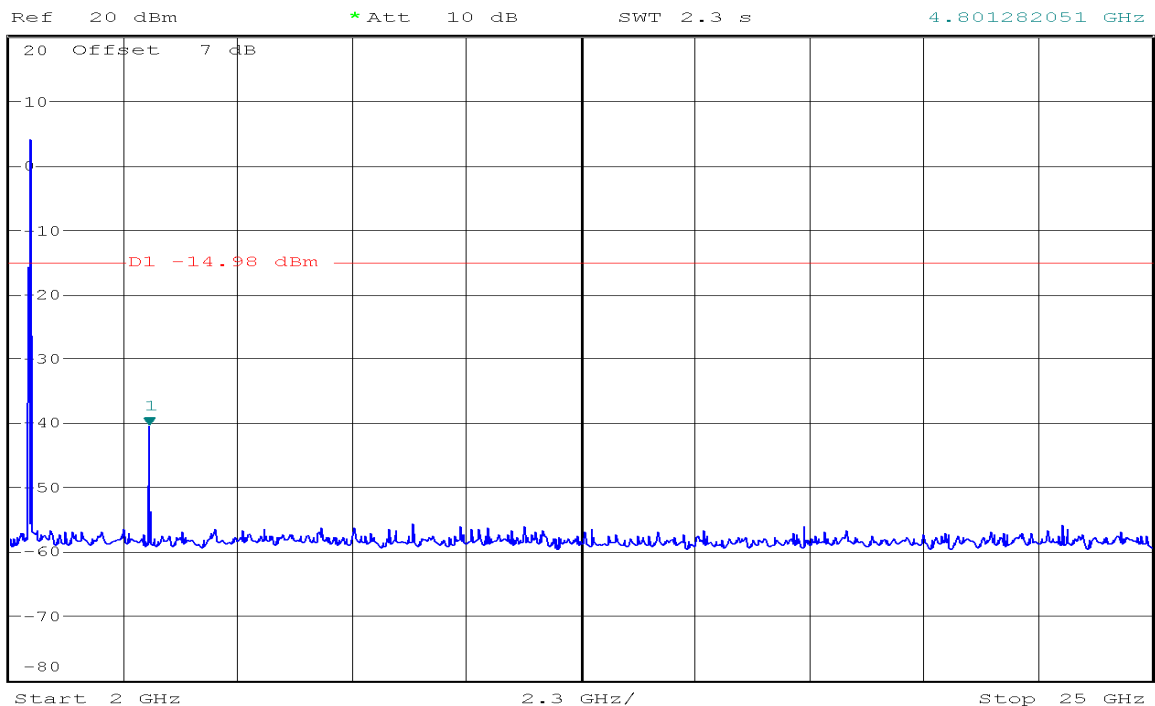
* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-29.85 dBm
96.634615385 MHz

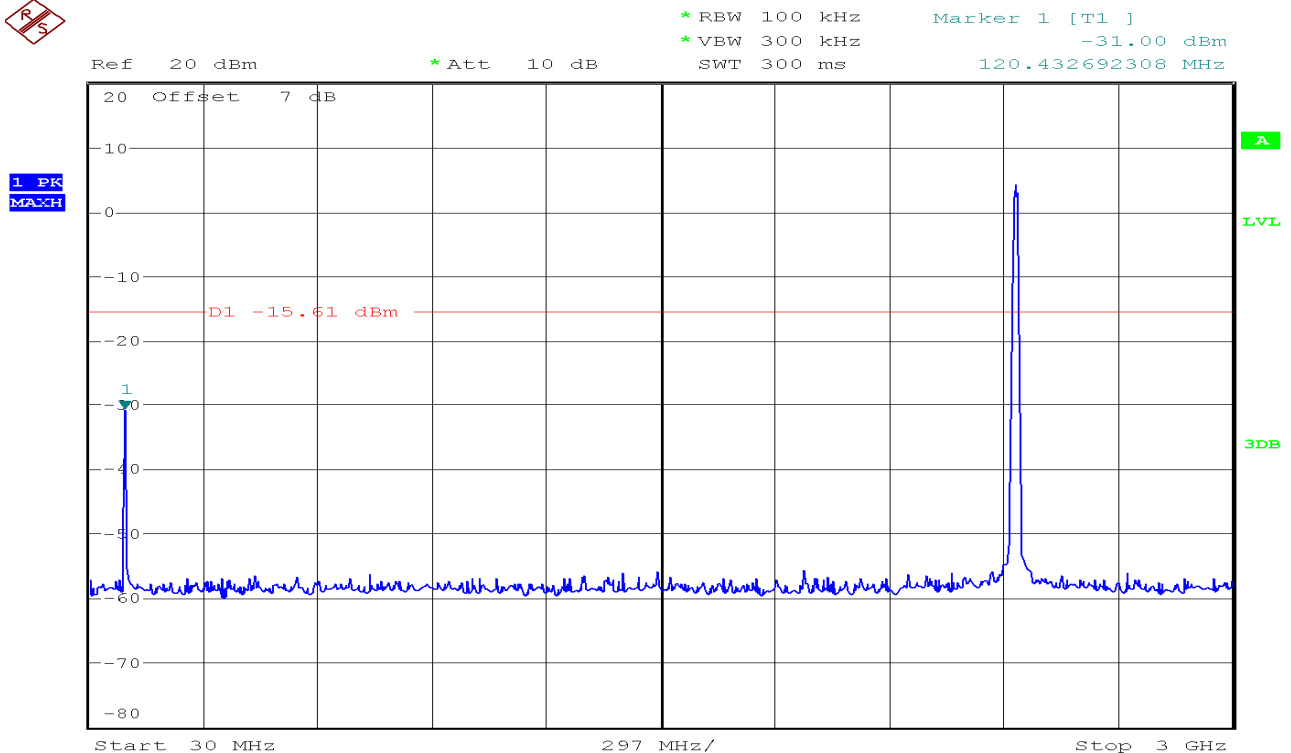
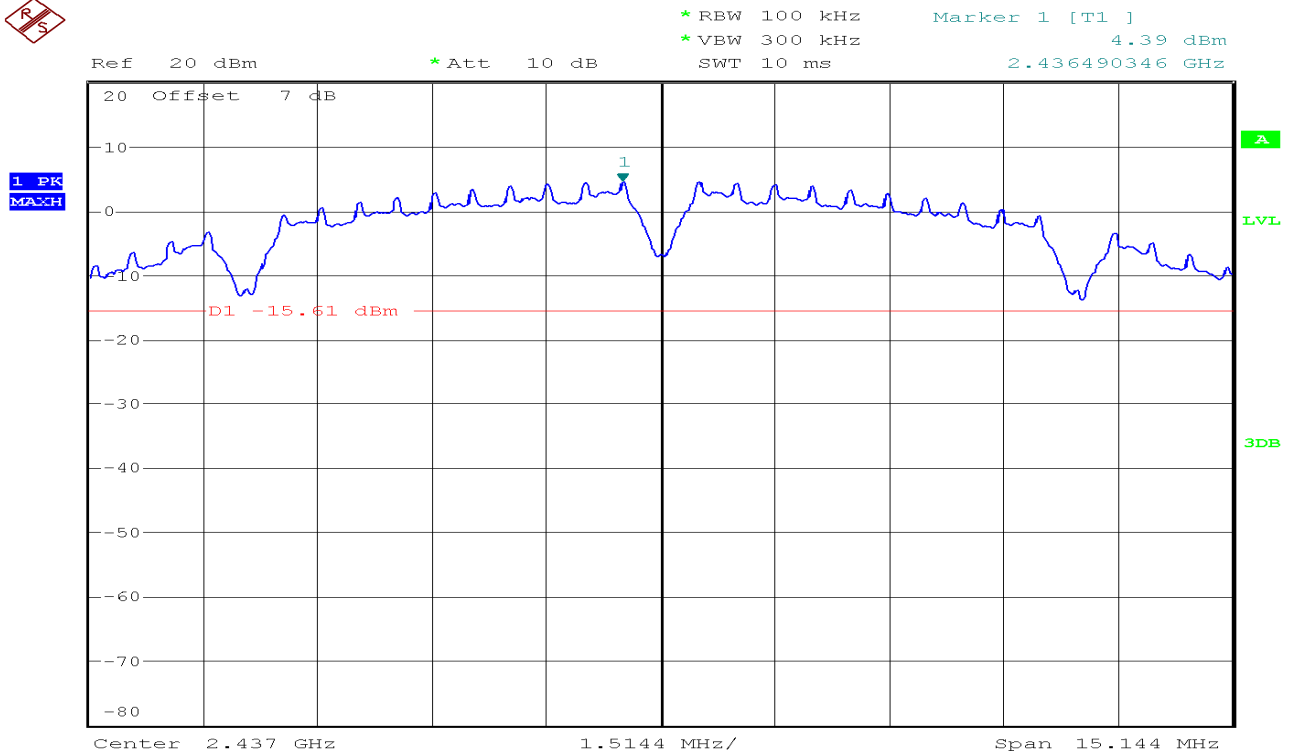


* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-40.51 dBm
4.801282051 GHz



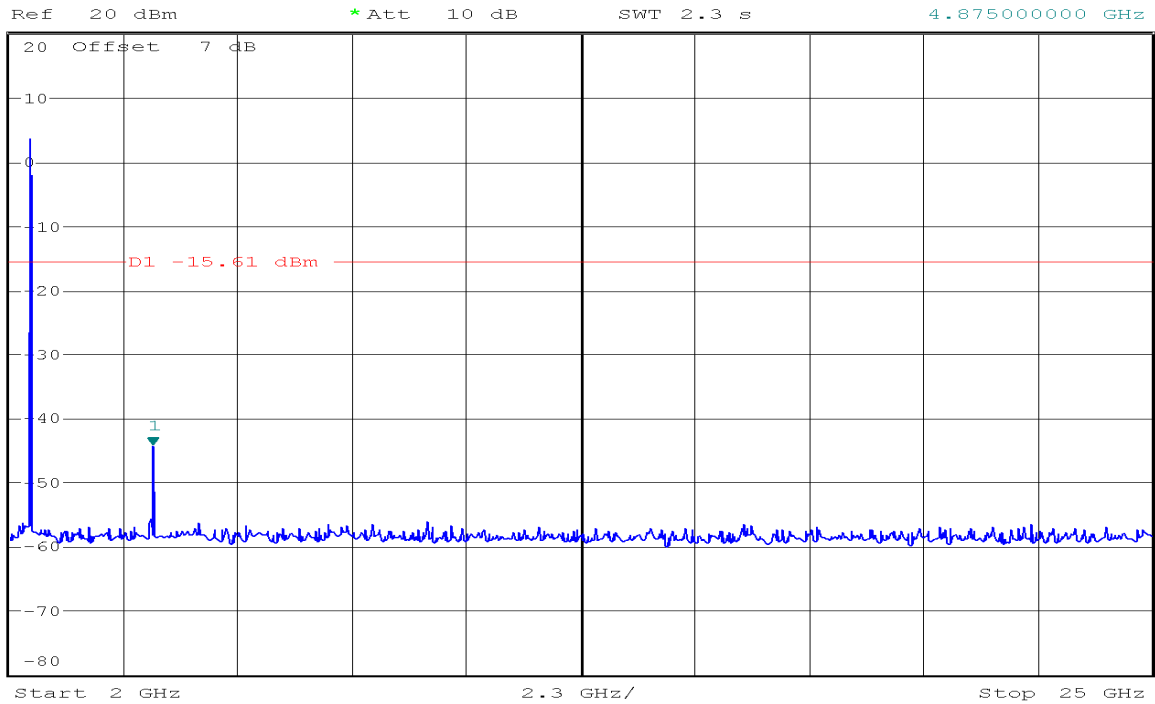
CH Mid





* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-44.43 dBm
4.875000000 GHz

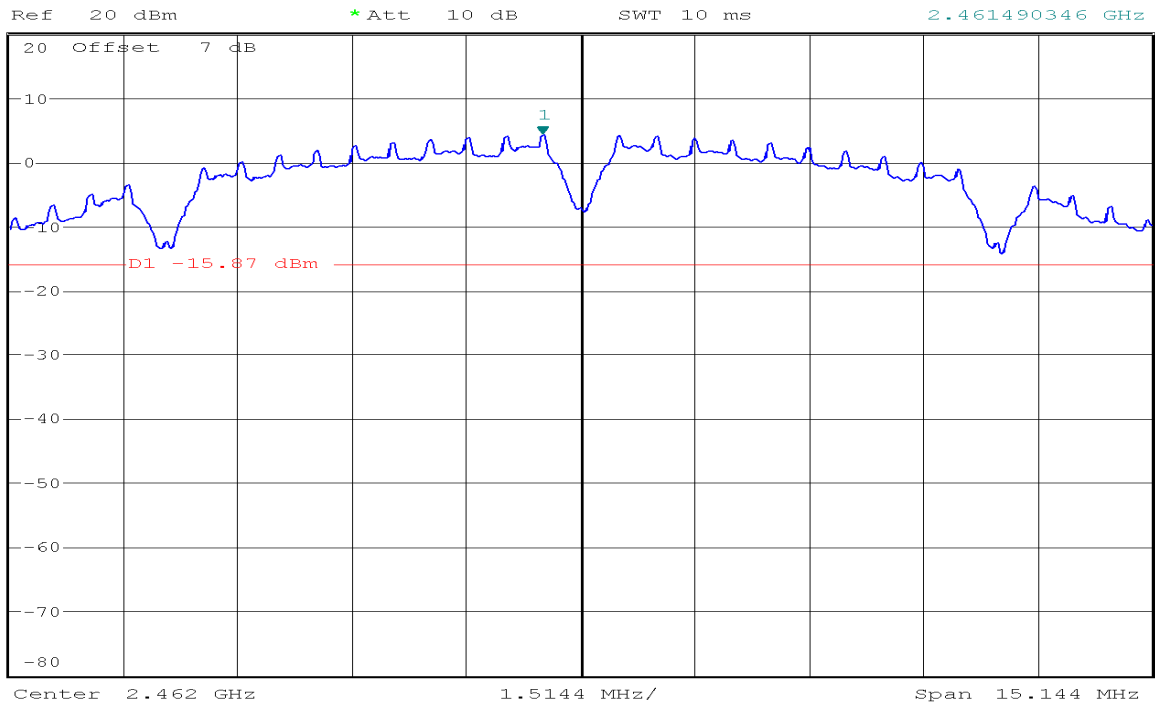


CH High



* RBW 100 kHz
* VBW 300 kHz
SWT 10 ms

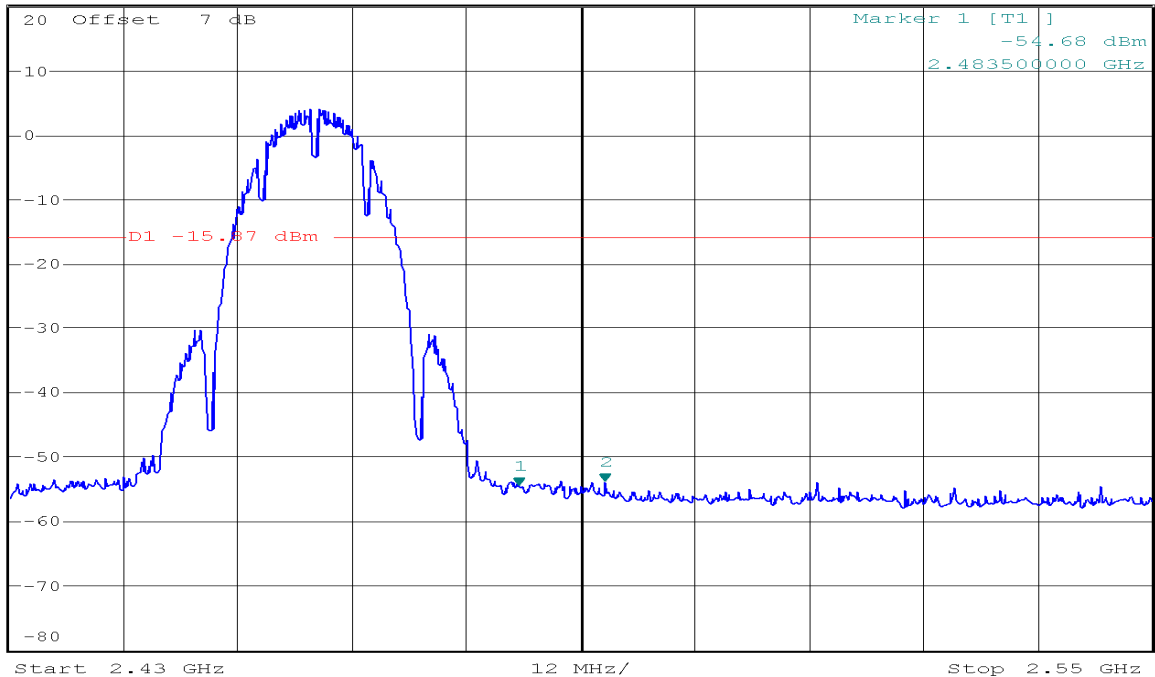
Marker 1 [T1]
4.13 dBm
2.461490346 GHz





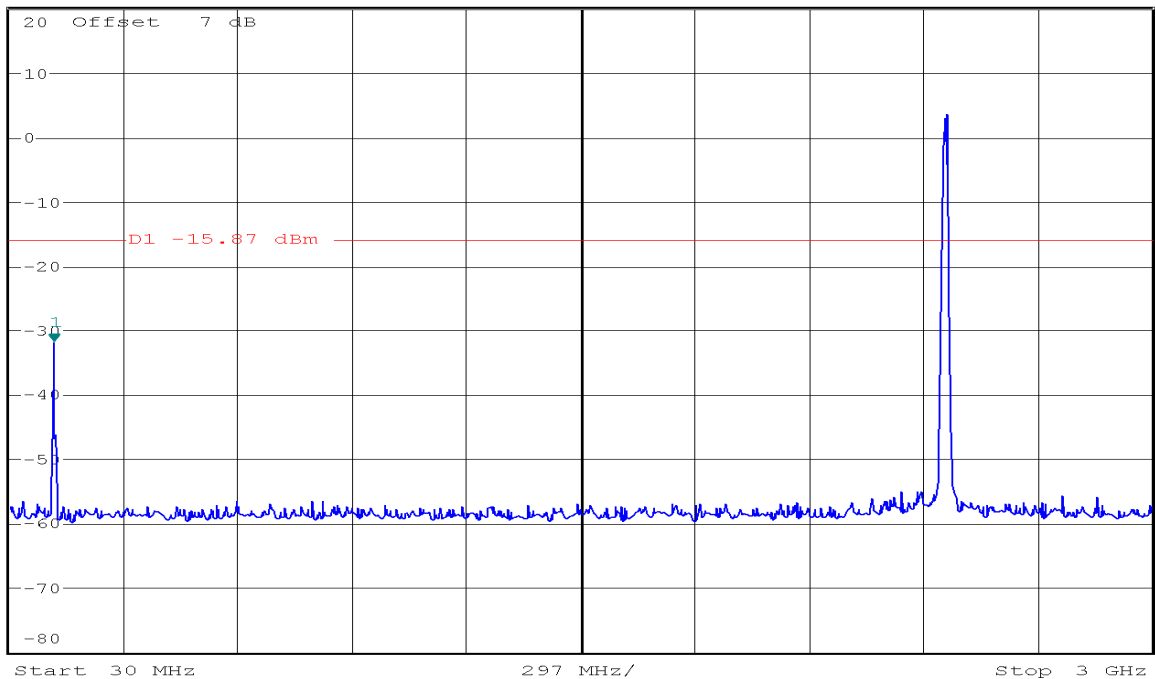
Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 2 [T1]
 * VBW 300 kHz -54.01 dBm
 SWT 15 ms 2.492576923 GHz

1 PK
 MATH



Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -32.04 dBm
 SWT 300 ms 144.230769231 MHz

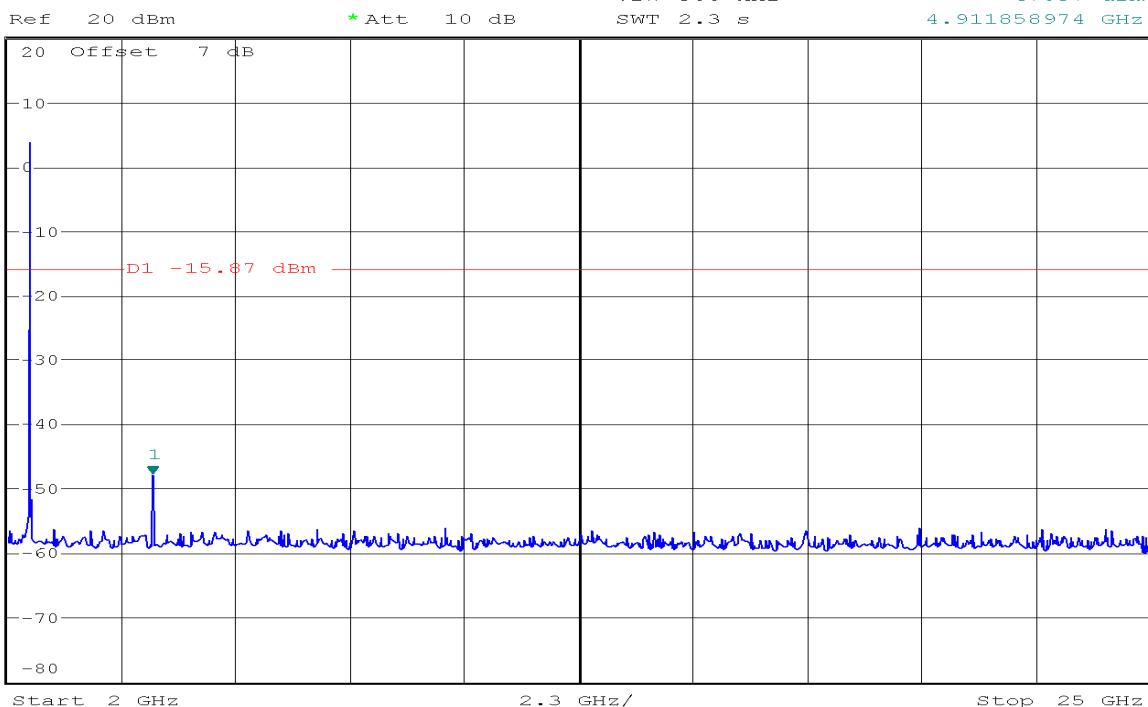
1 PK
 MATH





* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-47.97 dBm
4.911858974 GHz



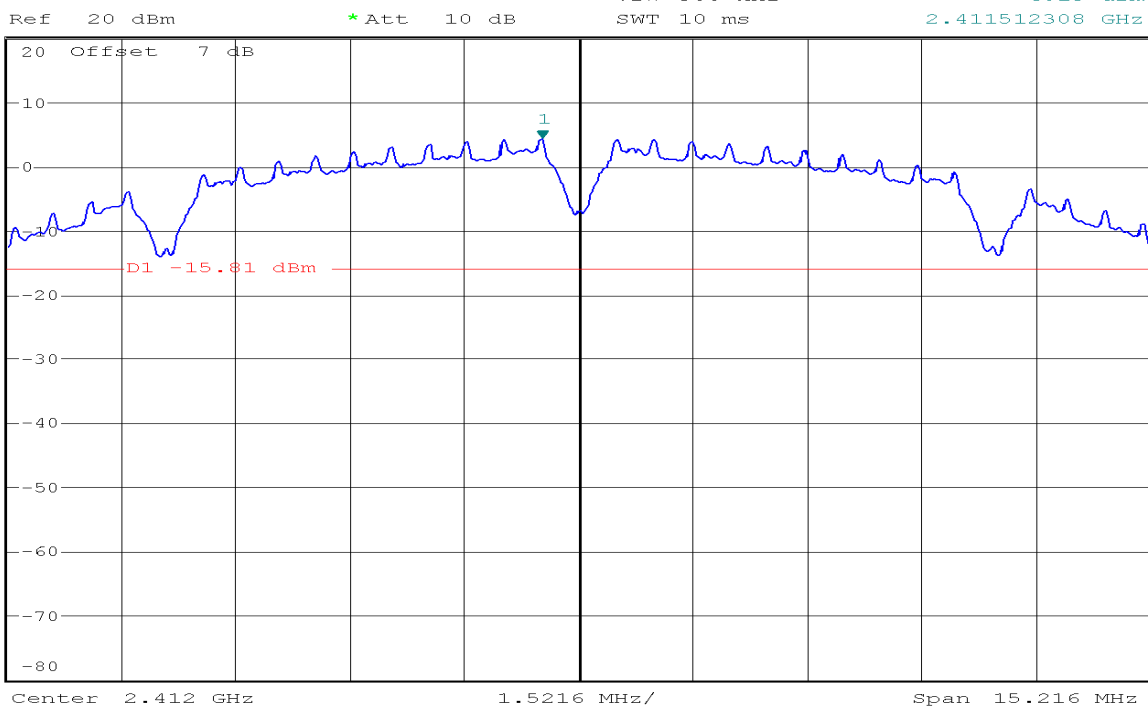
IEEE 802.11b mode/Chain 1

CH Low



* RBW 100 kHz
* VBW 300 kHz
SWT 10 ms

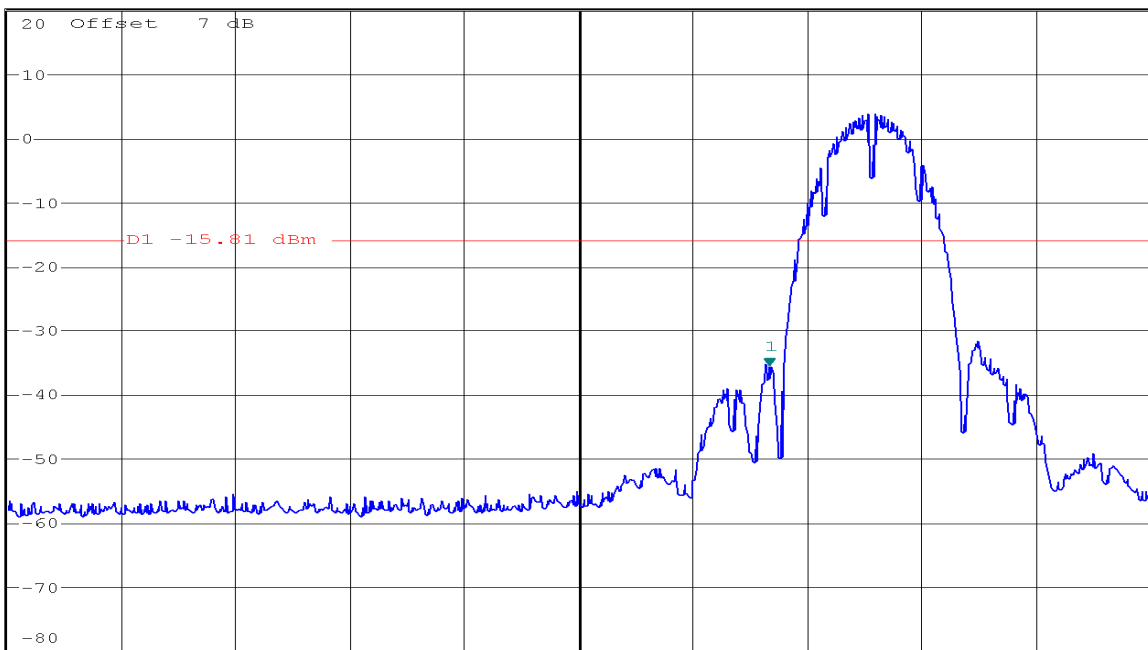
Marker 1 [T1]
4.19 dBm
2.411512308 GHz





Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -35.68 dBm
* VBW 300 kHz 2.400000000 GHz
SWT 15 ms

1 PK
MATH

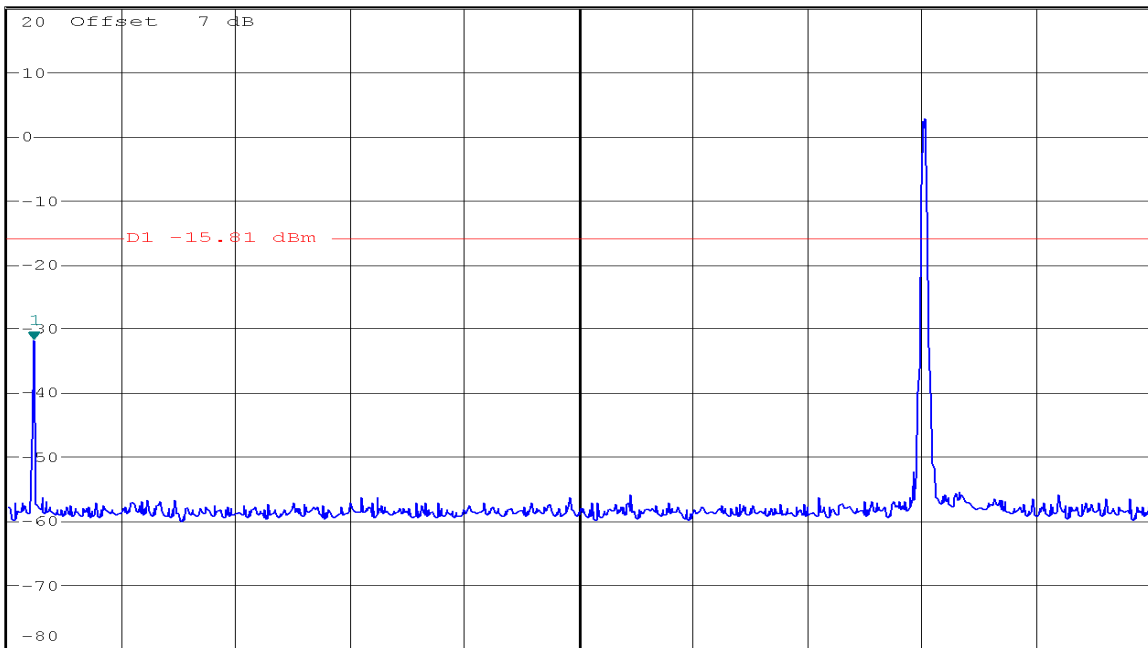


Start 2.31 GHz 13.5 MHz/ Stop 2.445 GHz



Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -31.98 dBm
* VBW 300 kHz 96.634615385 MHz
SWT 300 ms

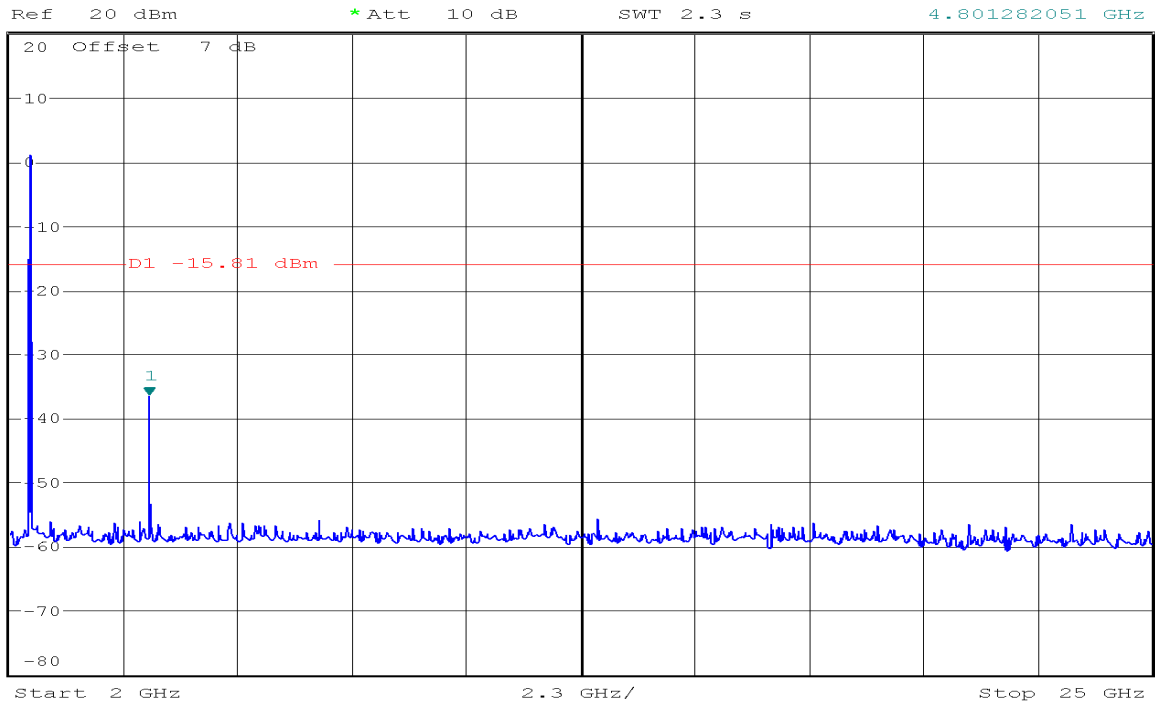
1 PK
MATH



Start 30 MHz 297 MHz/ Stop 3 GHz



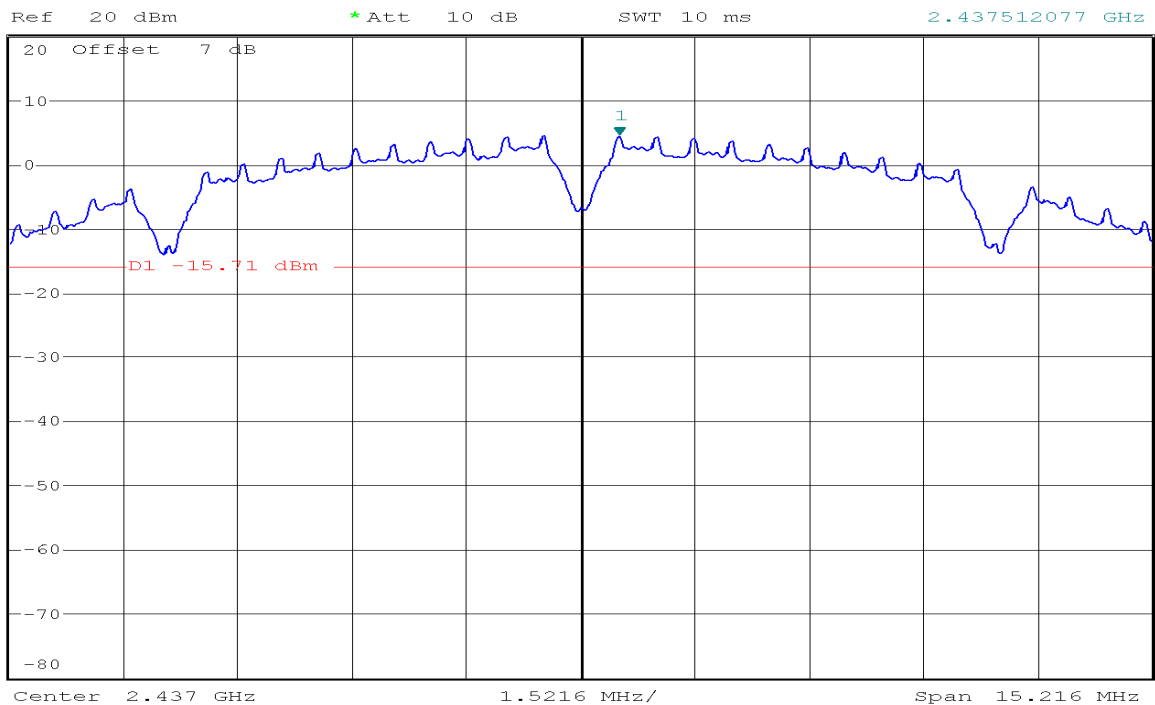
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 2.3 s
Marker 1 [T1]
-36.61 dBm
4.801282051 GHz



CH Mid



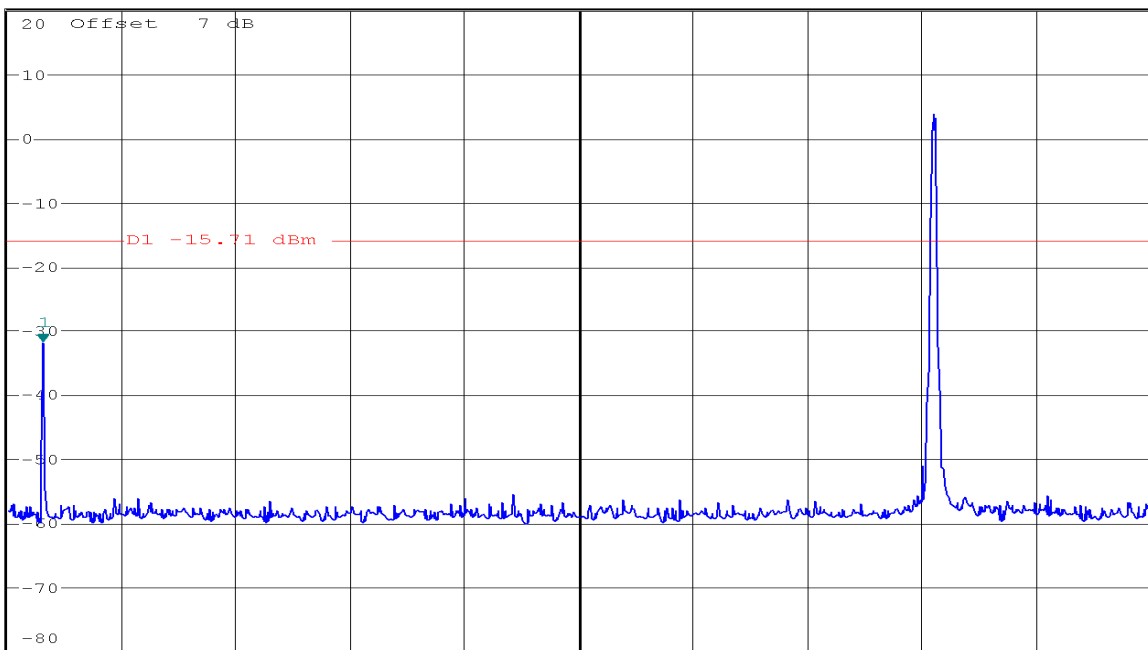
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 10 ms
Marker 1 [T1]
4.29 dBm
2.437512077 GHz





Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -32.05 dBm
* VBW 300 kHz 120.432692308 MHz
SWT 300 ms

1 PK
MATH

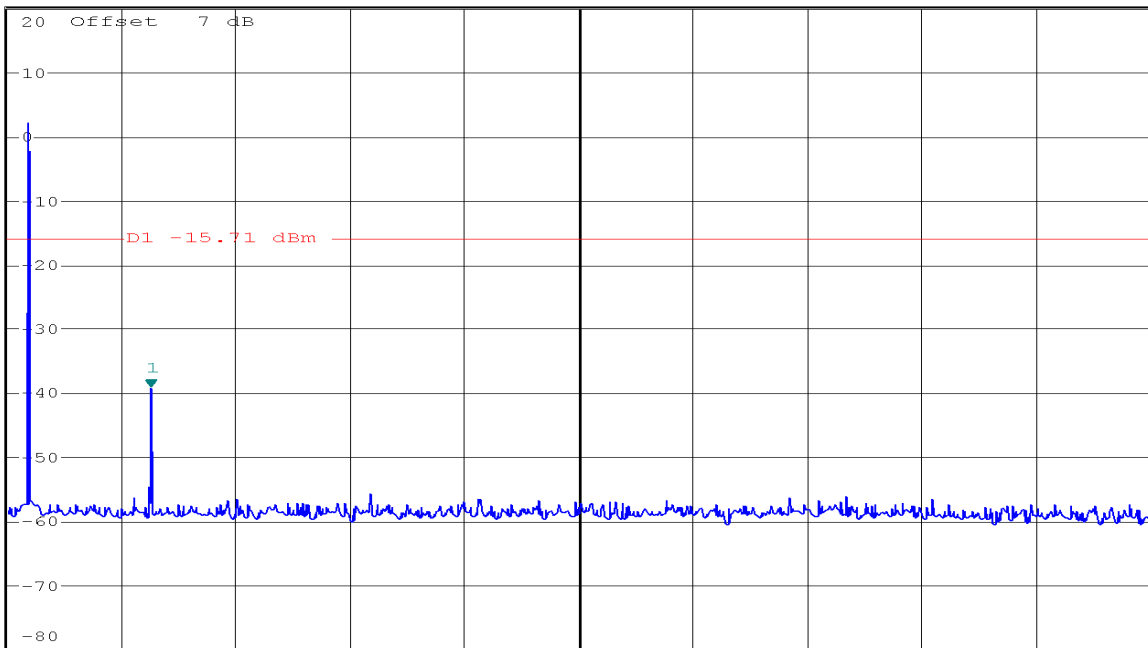


Start 30 MHz 297 MHz/ Stop 3 GHz



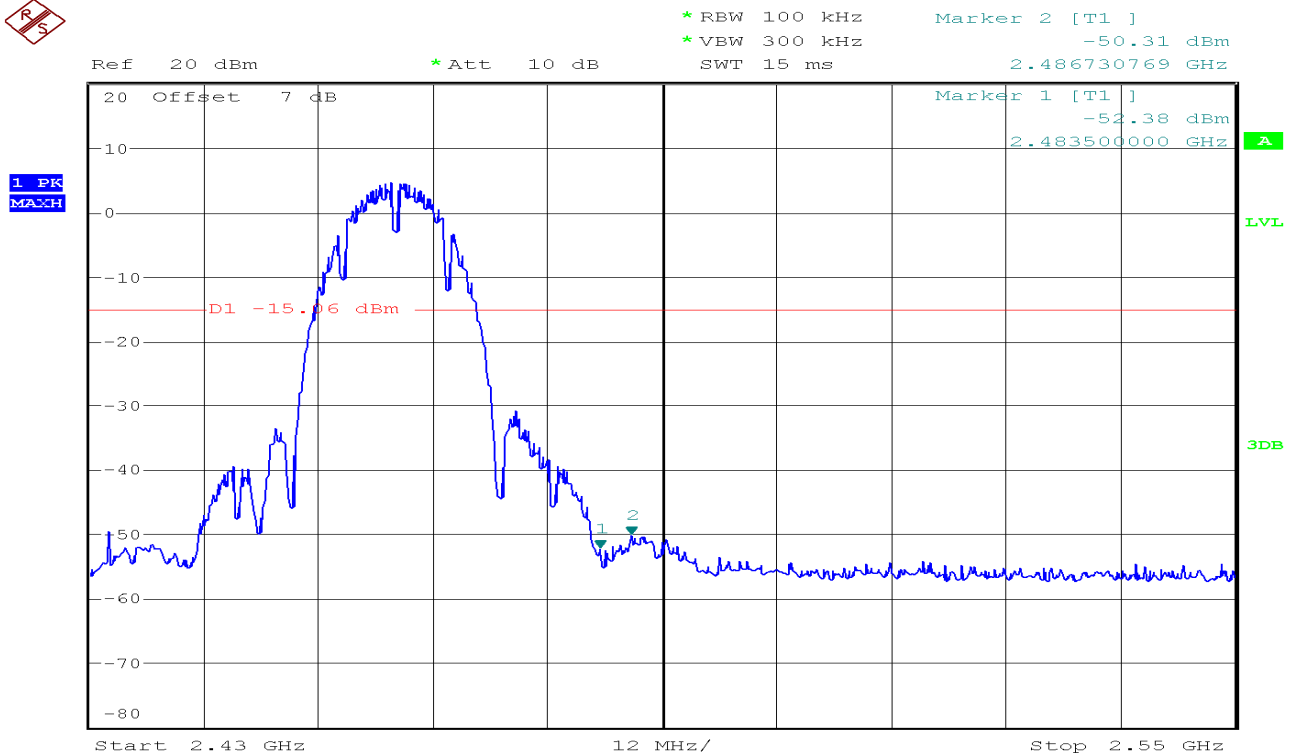
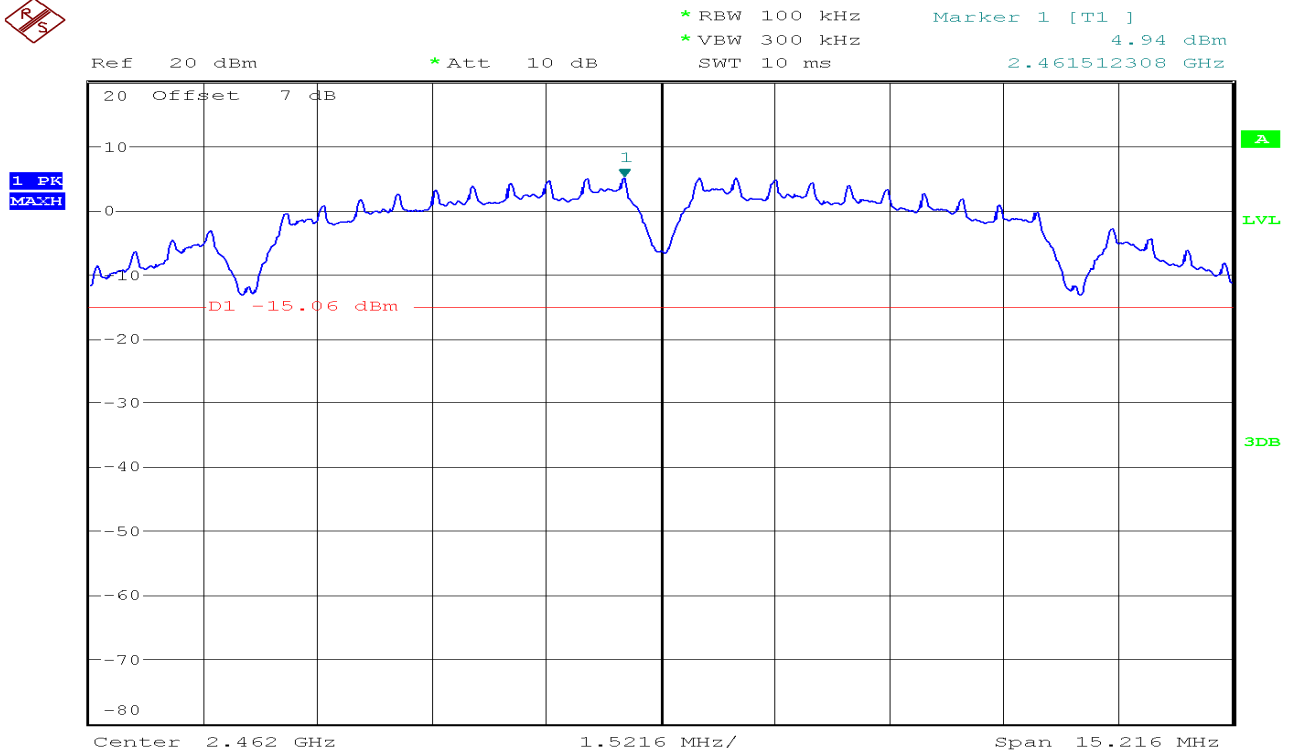
Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -39.28 dBm
* VBW 300 kHz 4.875000000 GHz
SWT 2.3 s

1 PK
MATH



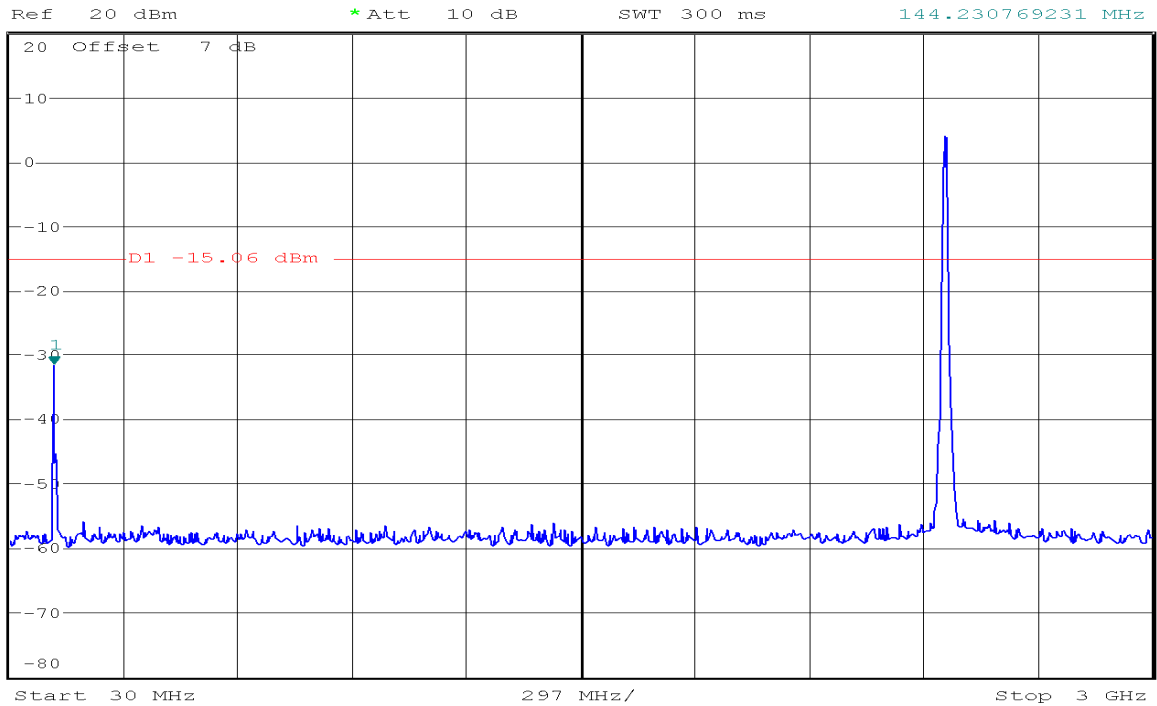
Start 2 GHz 2.3 GHz/ Stop 25 GHz

CH High

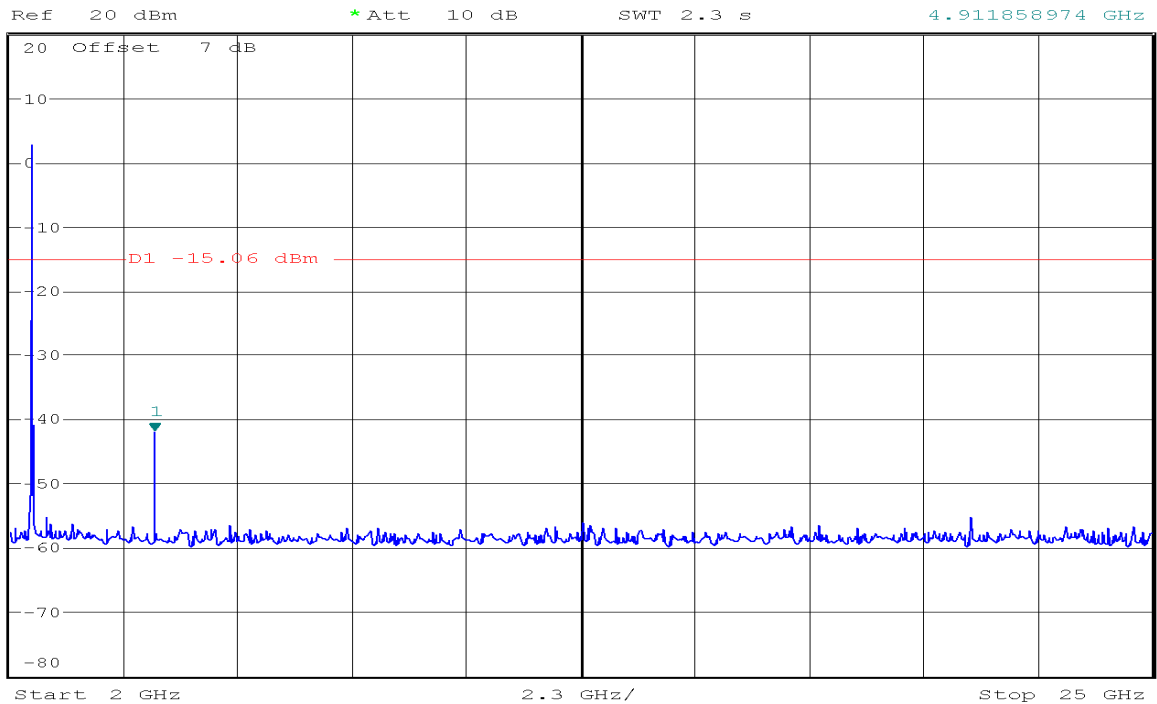




* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -31.70 dBm
 SWT 300 ms 144.230769231 MHz

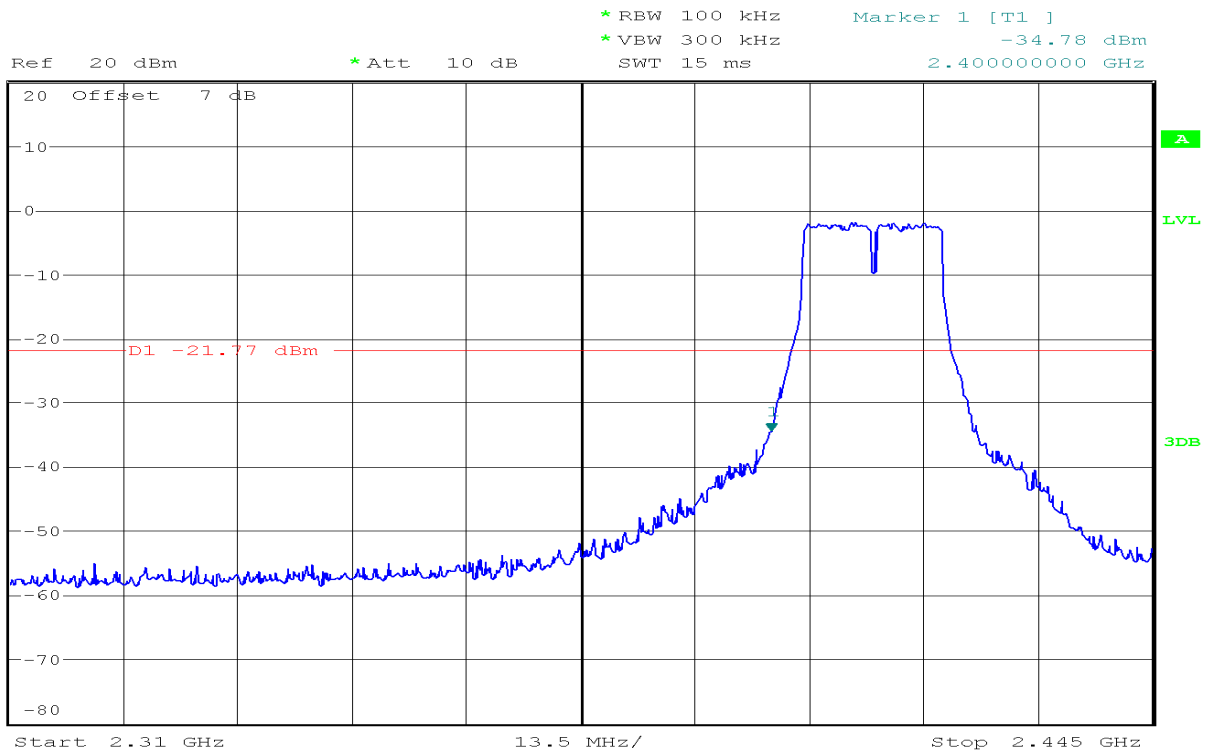
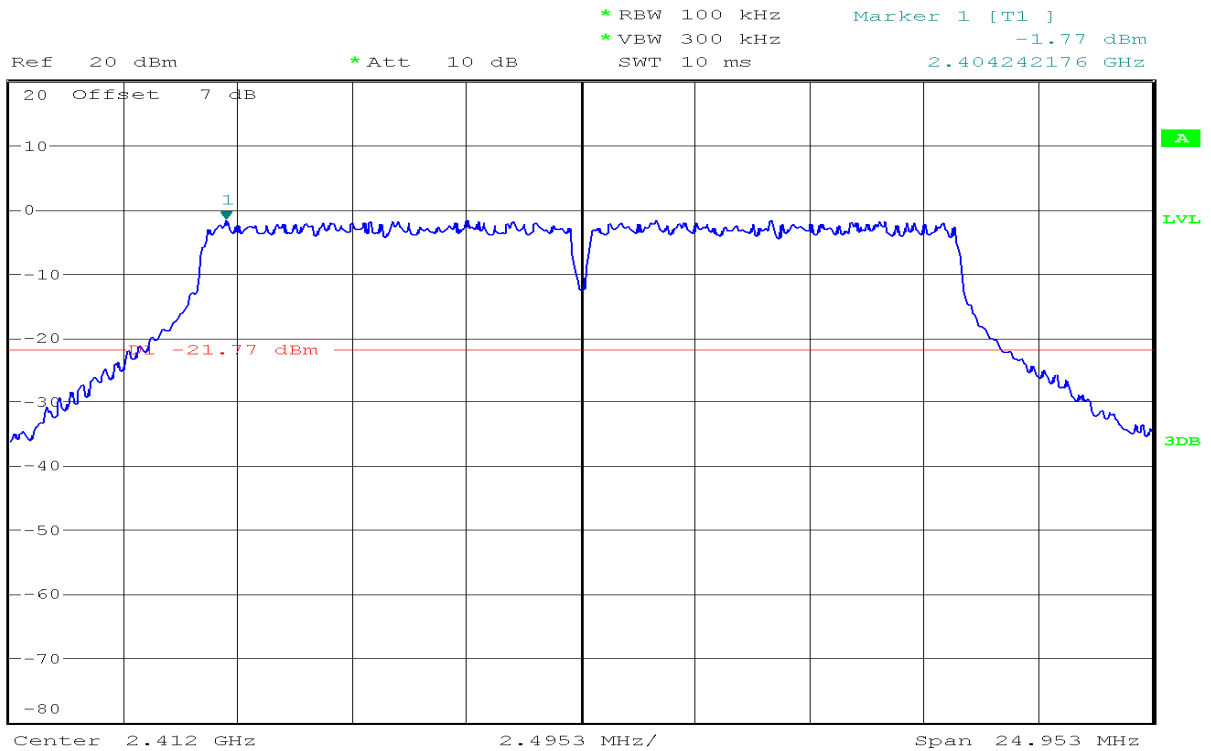


* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -42.14 dBm
 SWT 2.3 s 4.911858974 GHz



IEEE 802.11g mode/Chain 0

CH Low



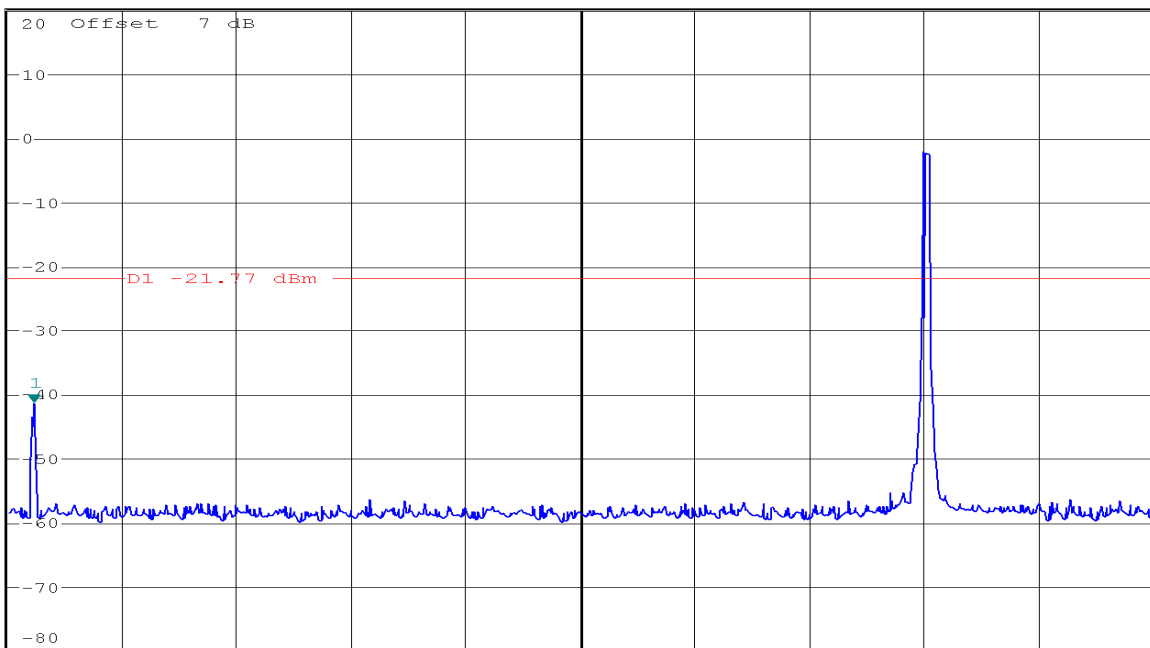


* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-41.46 dBm
96.634615385 MHz

Ref 20 dBm
* Att 10 dB

1 PK
MATH



Start 30 MHz

297 MHz/

Stop 3 GHz

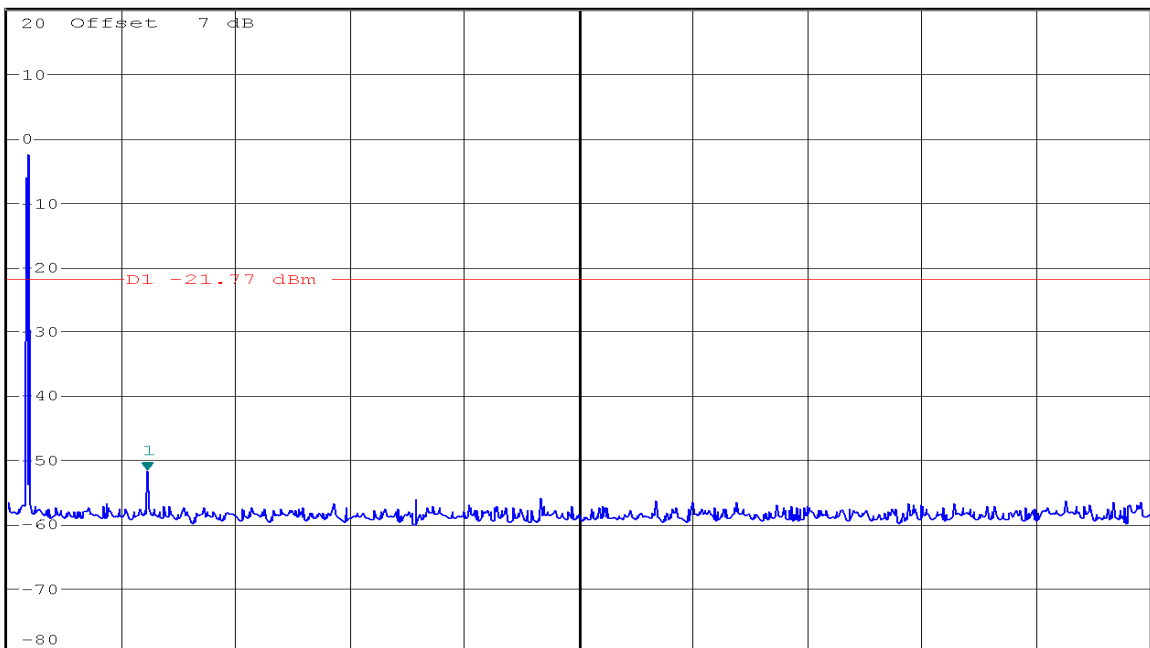


* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-51.68 dBm
4.801282051 GHz

Ref 20 dBm
* Att 10 dB

1 PK
MATH

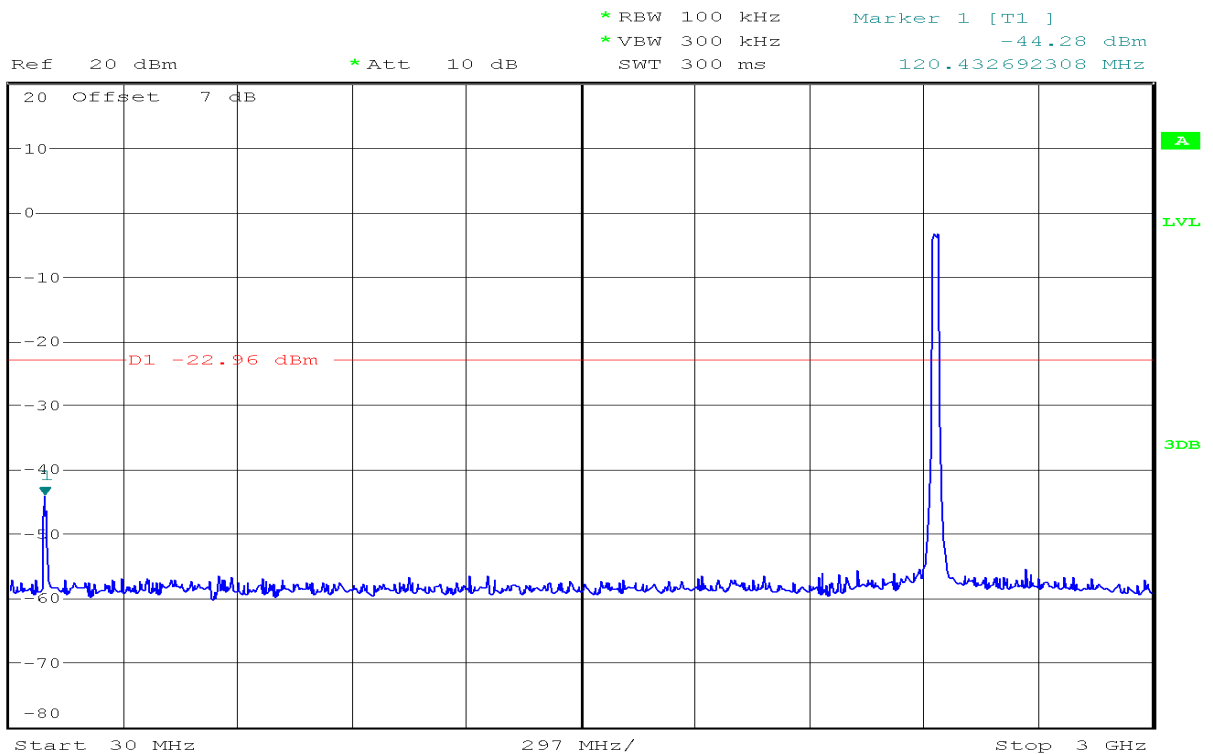
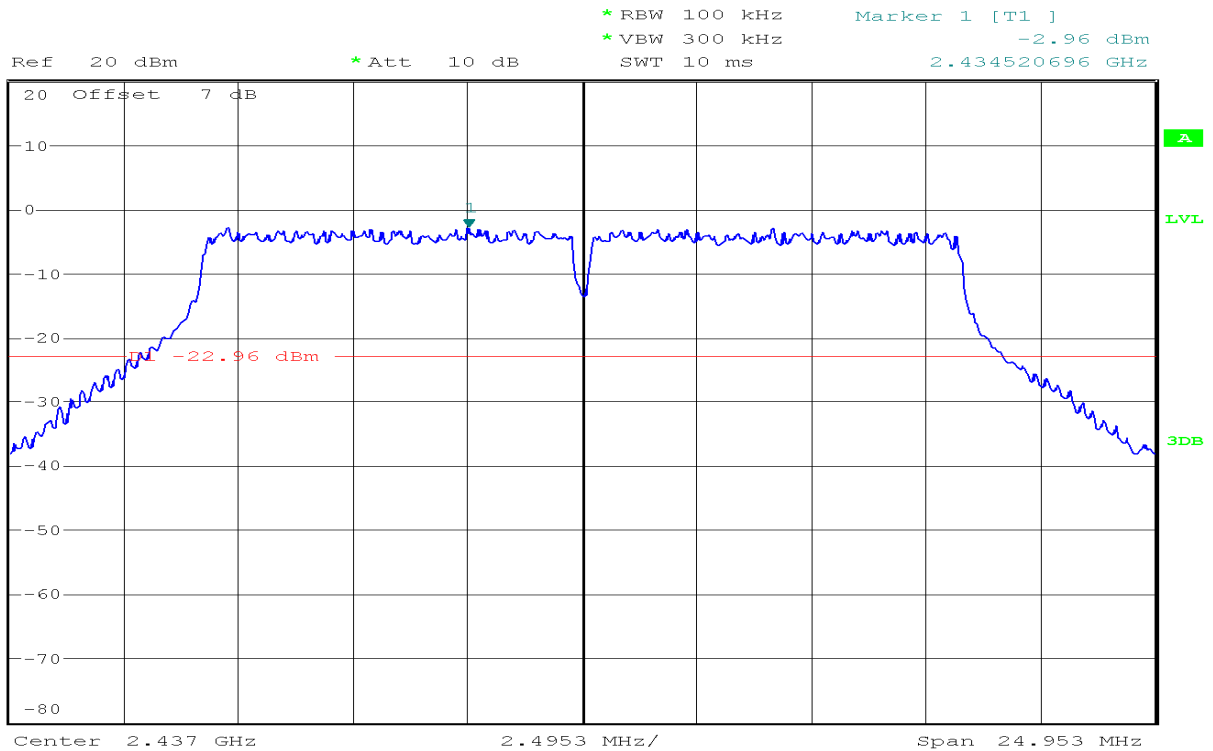


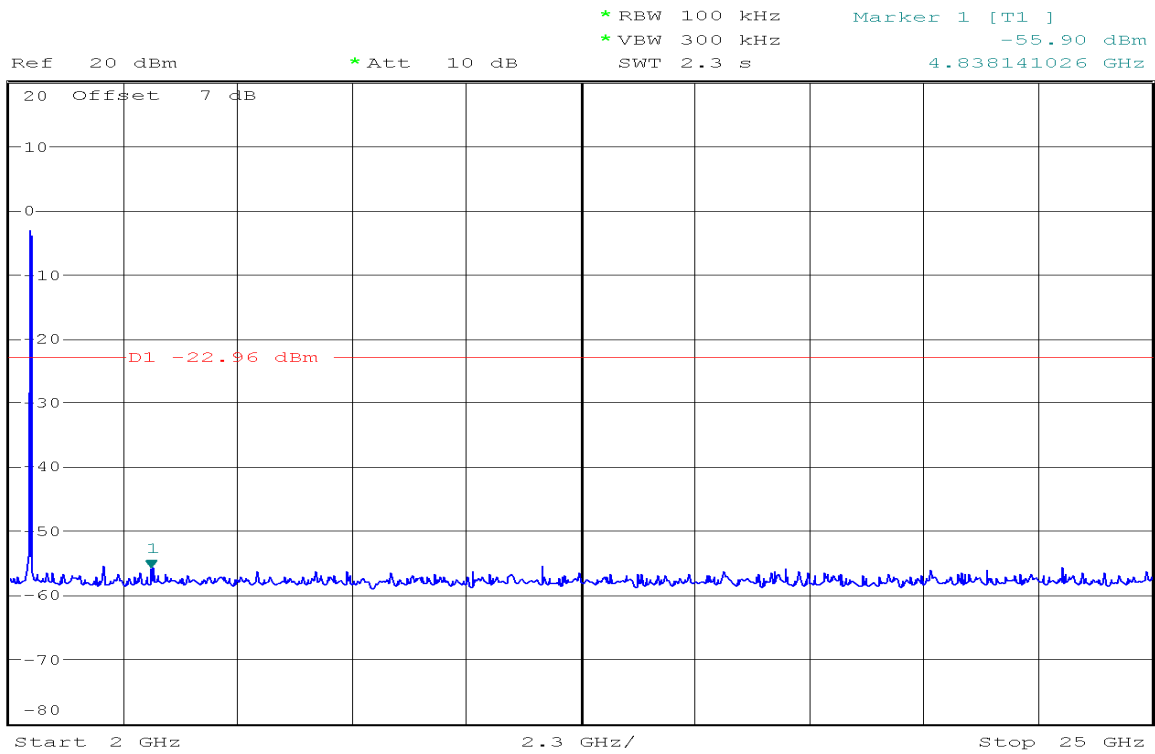
Start 2 GHz

2.3 GHz/

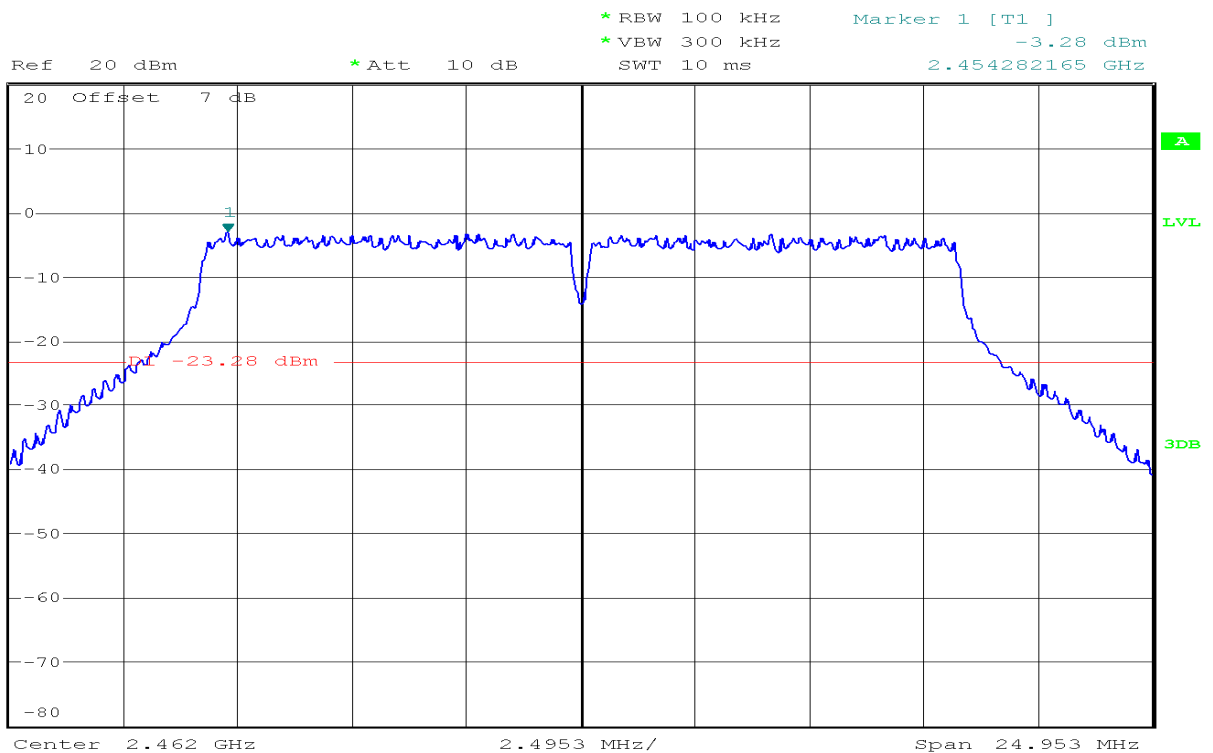
Stop 25 GHz

CH Mid



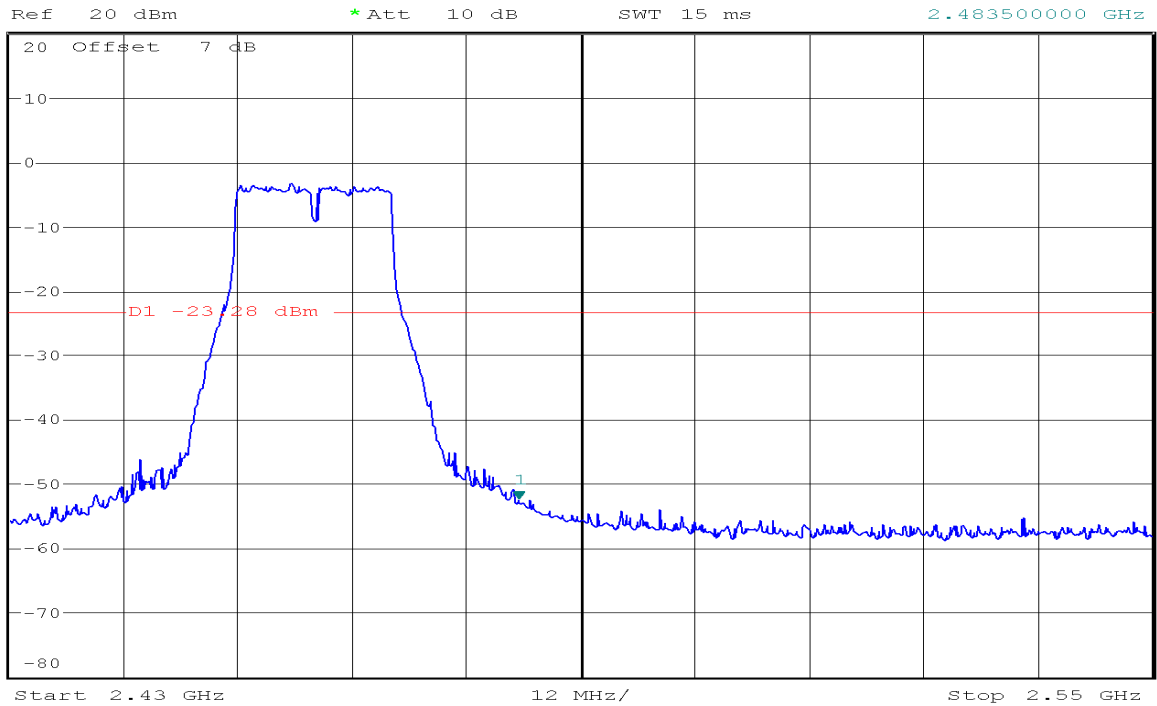


CH High

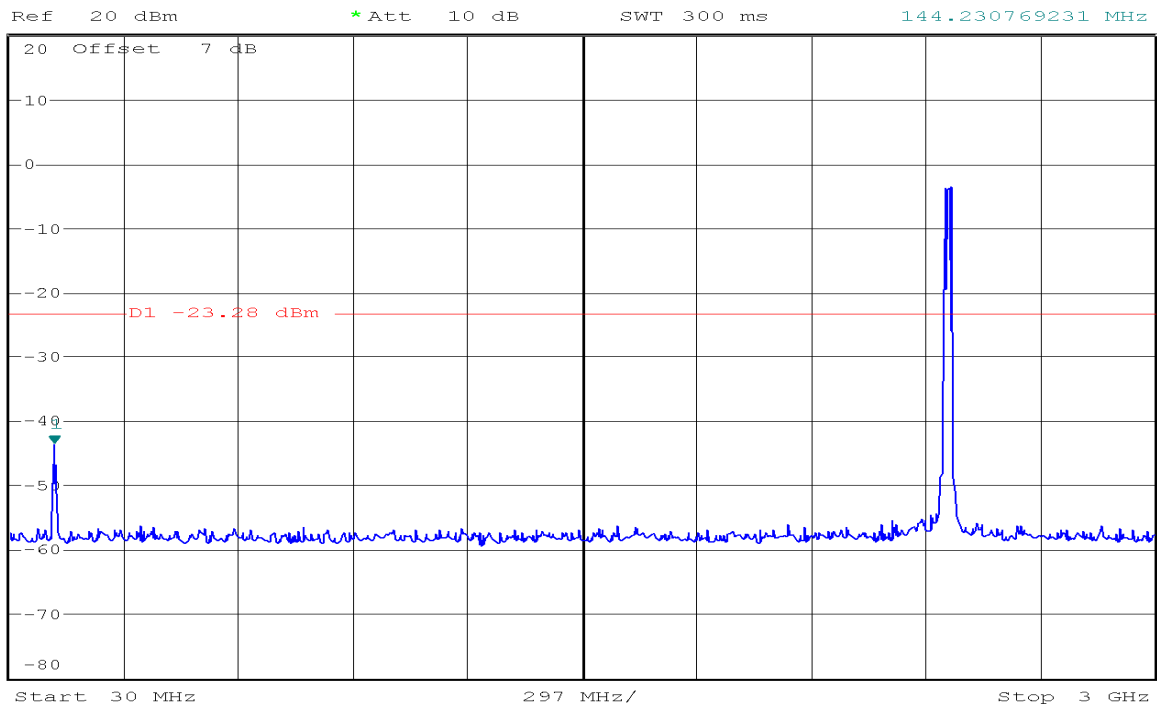




* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -52.54 dBm
 SWT 15 ms 2.483500000 GHz



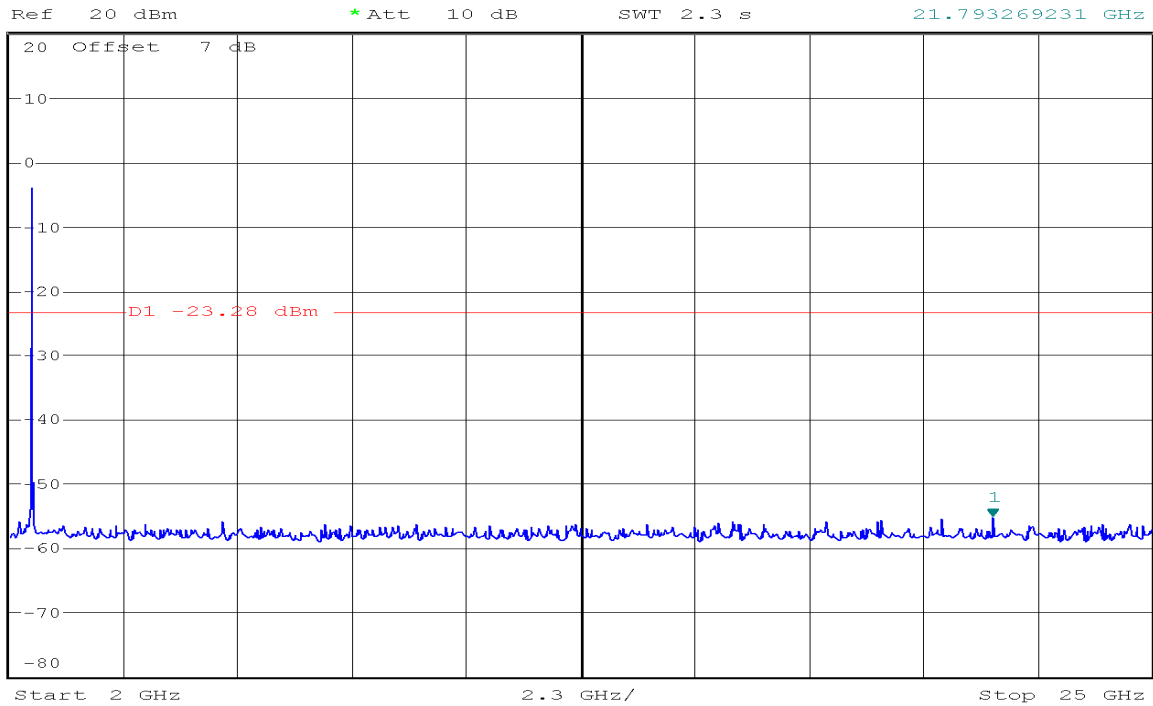
* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -43.73 dBm
 SWT 300 ms 144.230769231 MHz





* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-55.33 dBm
21.793269231 GHz



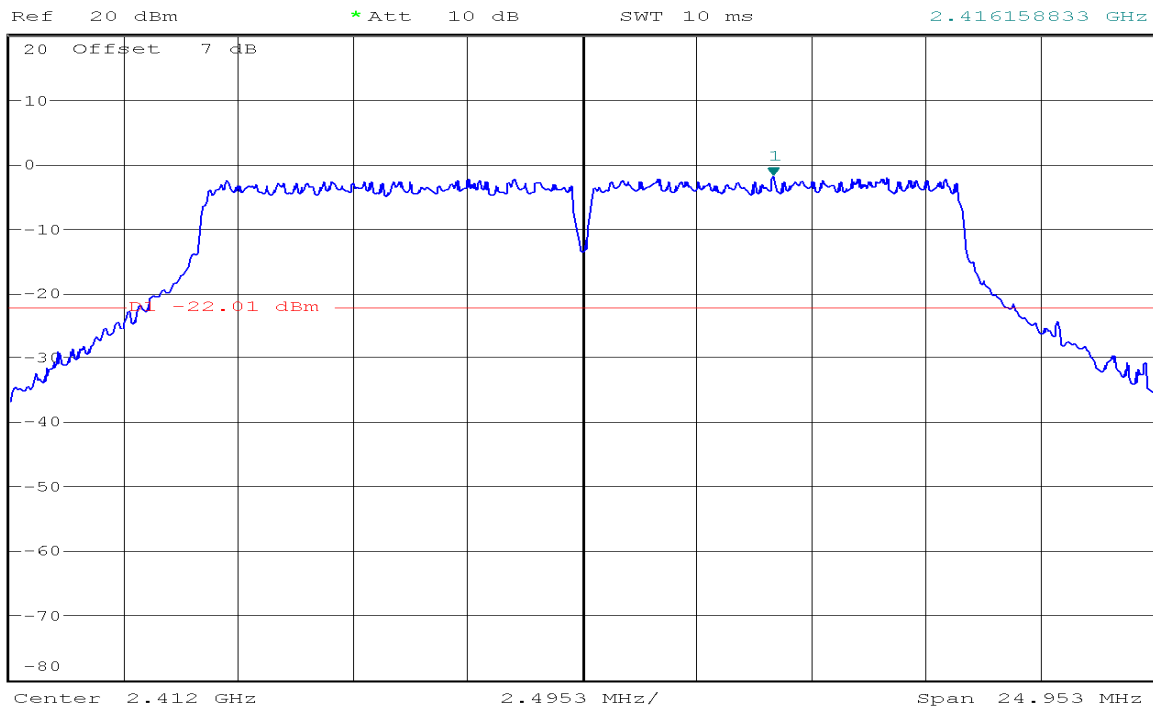
IEEE 802.11g mode/Chain 1

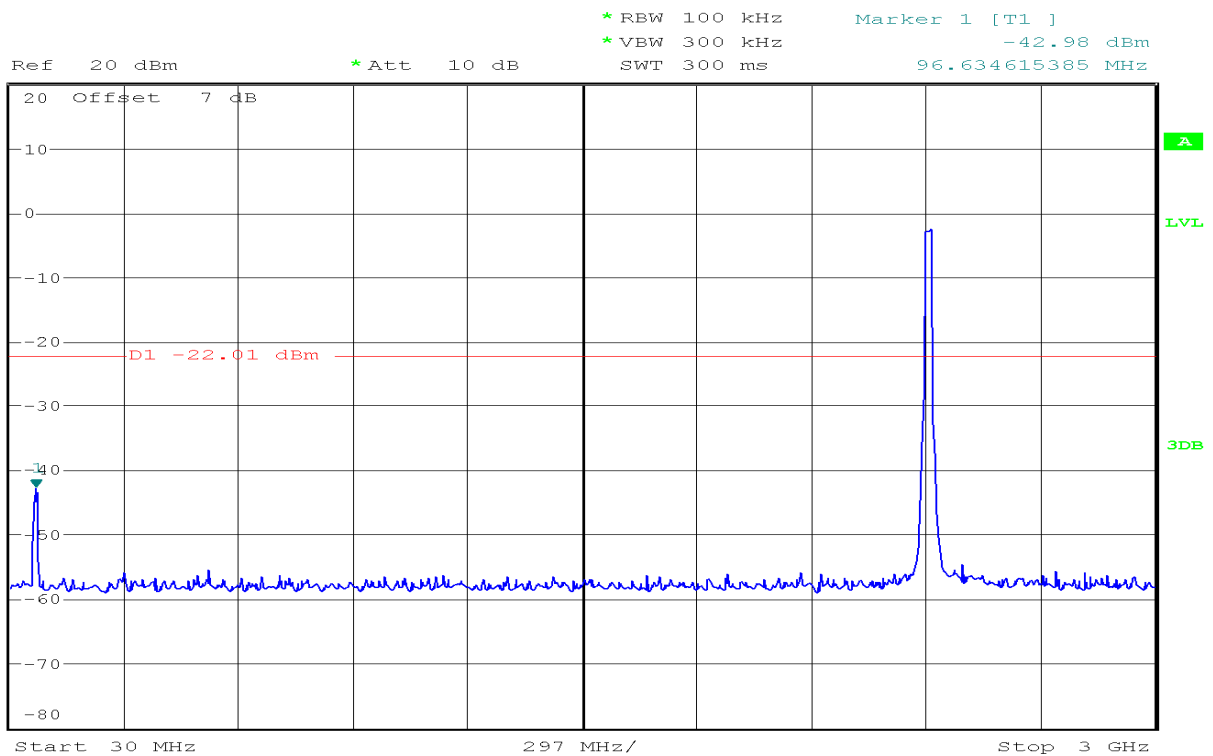
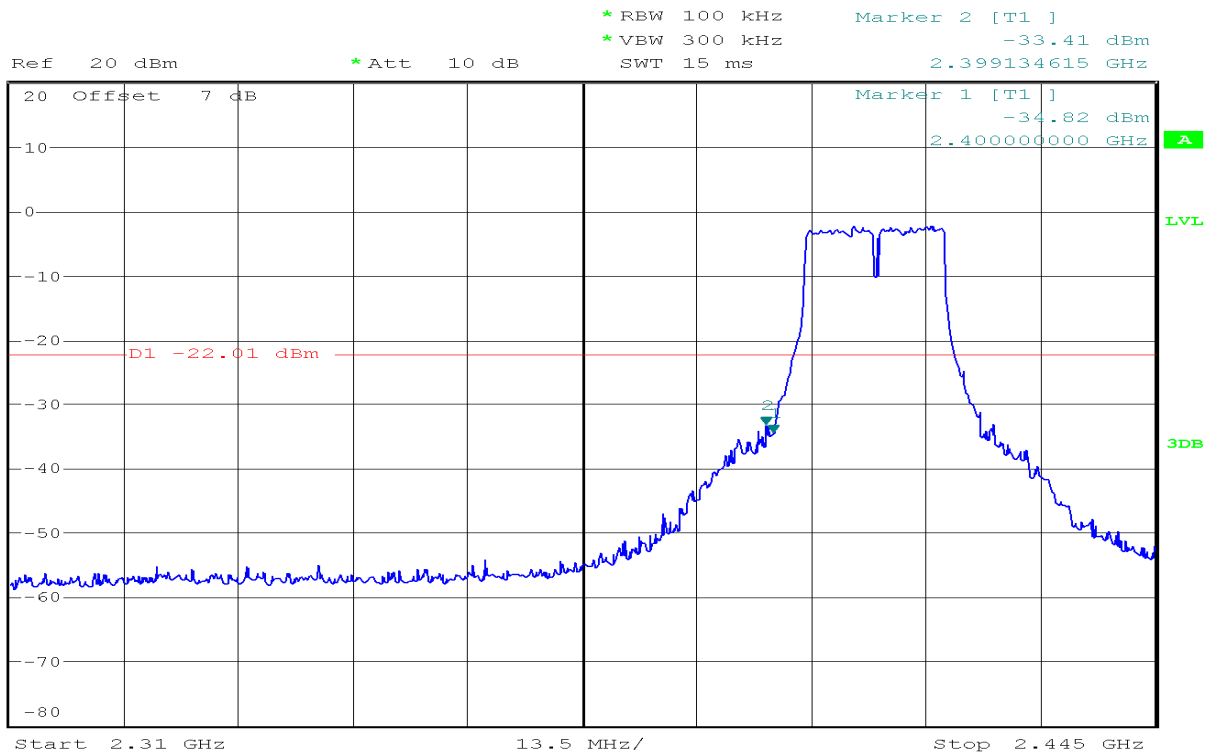
CH Low



* RBW 100 kHz
* VBW 300 kHz
SWT 10 ms

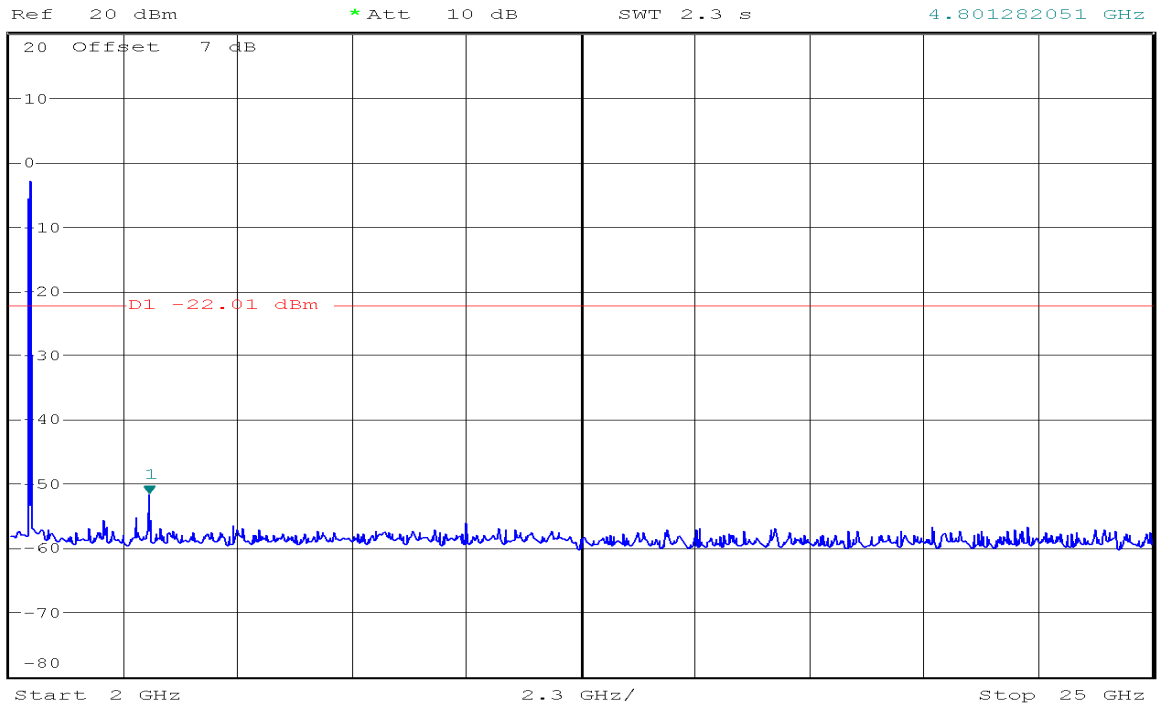
Marker 1 [T1]
-2.01 dBm
2.416158833 GHz







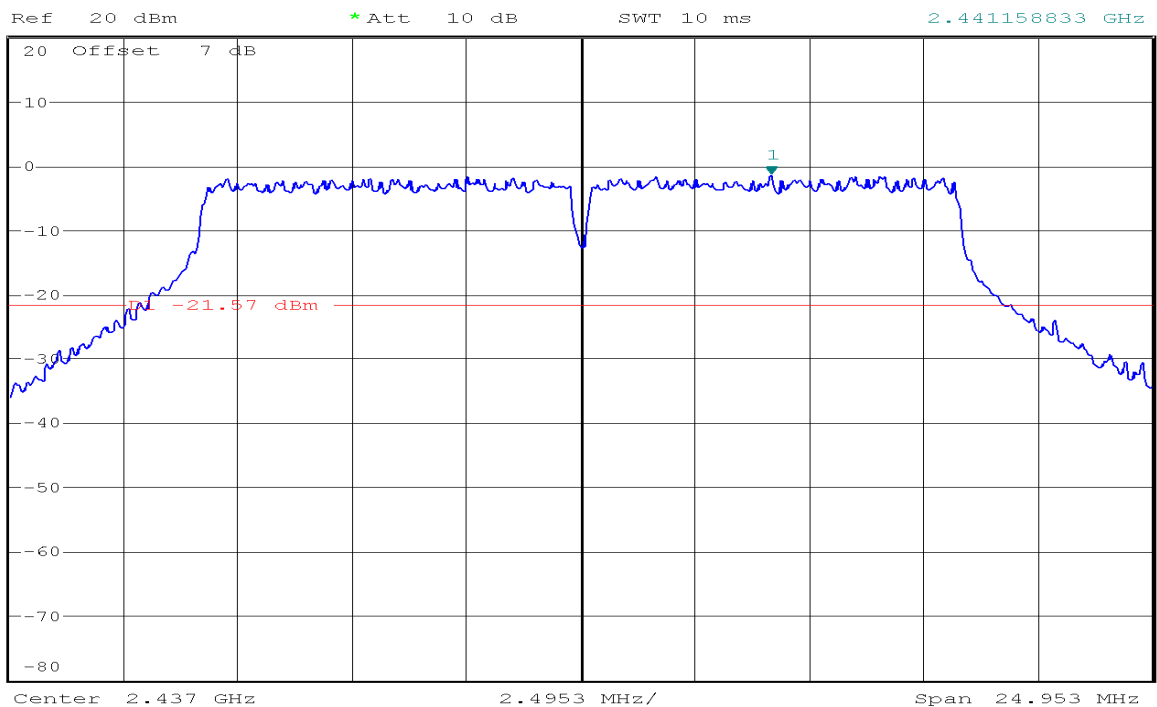
* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -51.80 dBm
 SWT 2.3 s 4.801282051 GHz



CH Mid



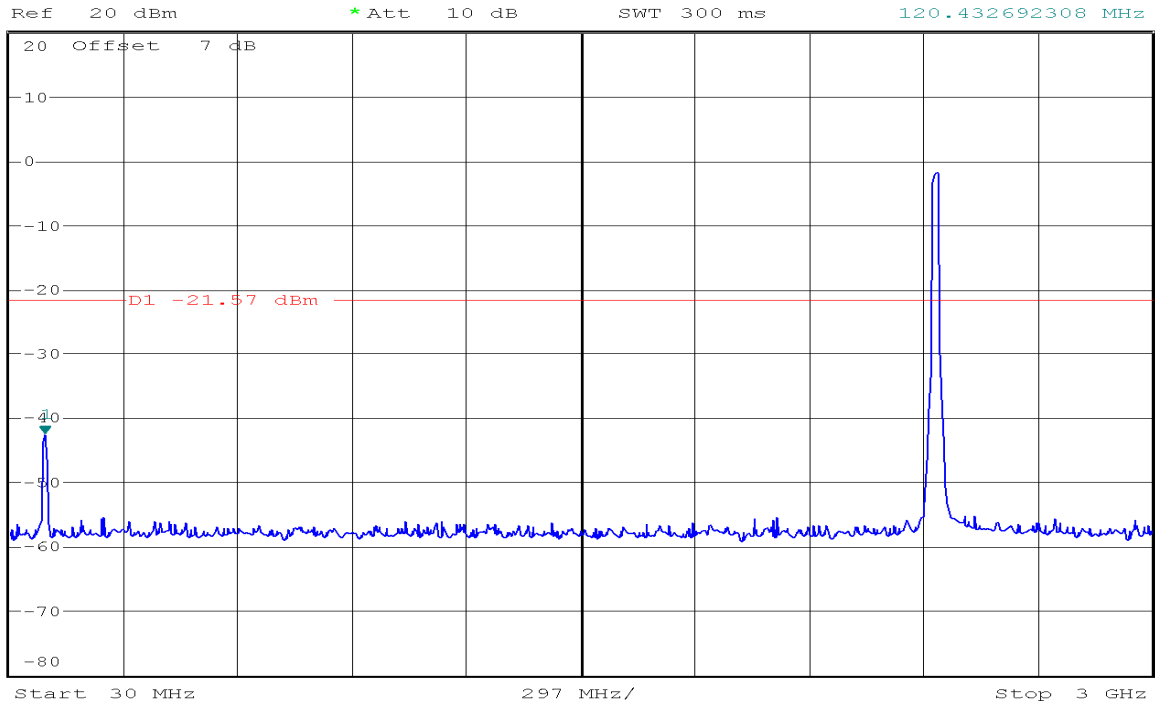
* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -1.57 dBm
 SWT 10 ms 2.441158833 GHz





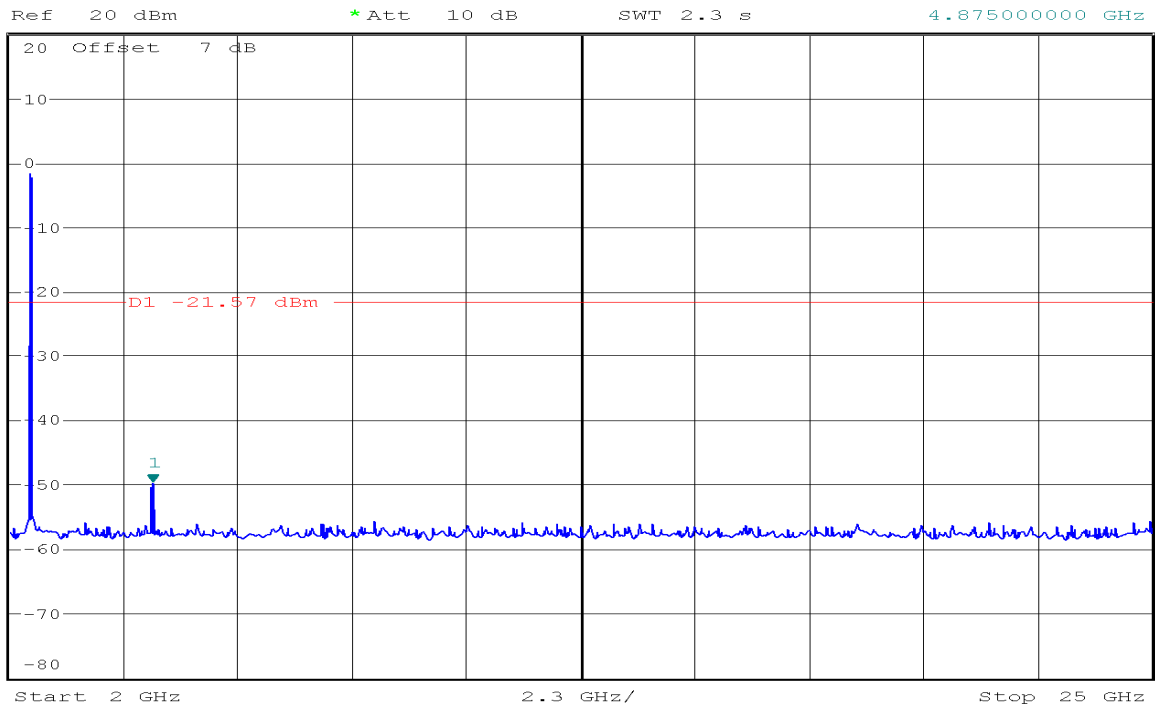
* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-42.80 dBm
120.432692308 MHz

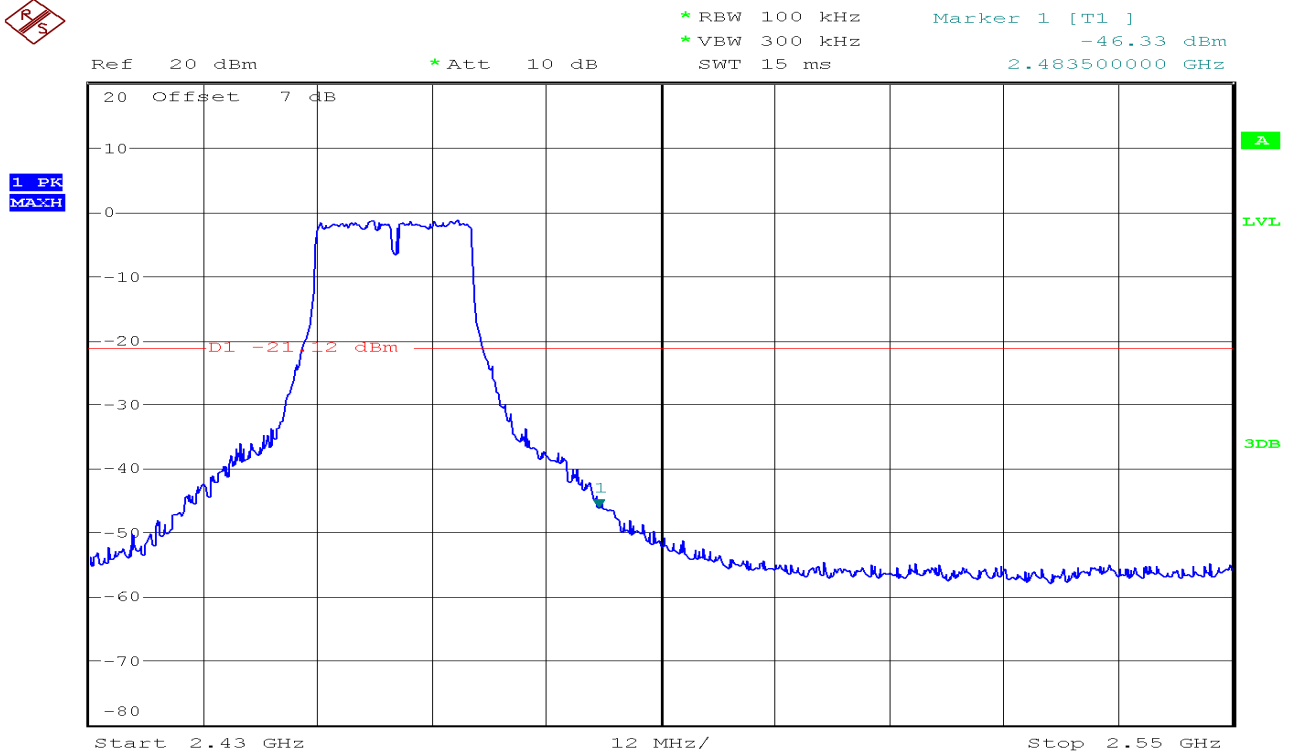
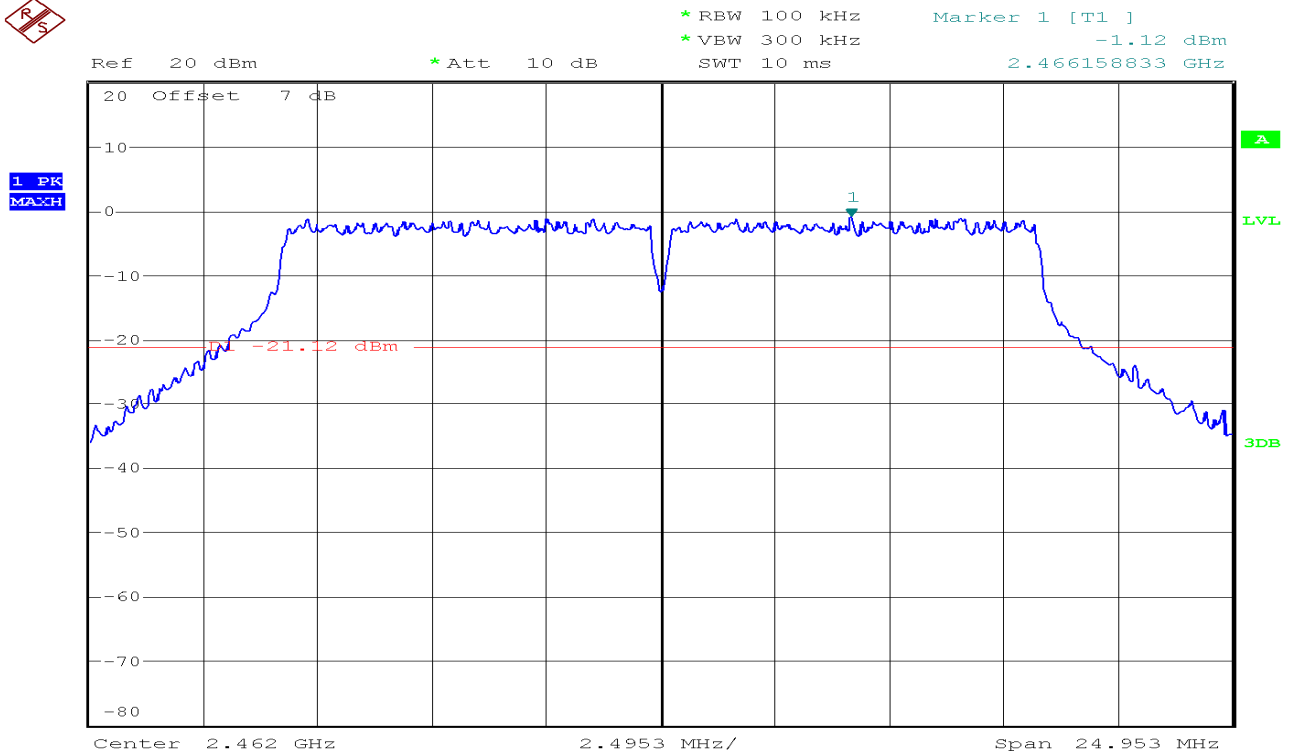


* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-49.85 dBm
4.875000000 GHz



CH High





* RBW 100 kHz

Marker 1 [T1]

* VBW 300 kHz

-40.51 dBm

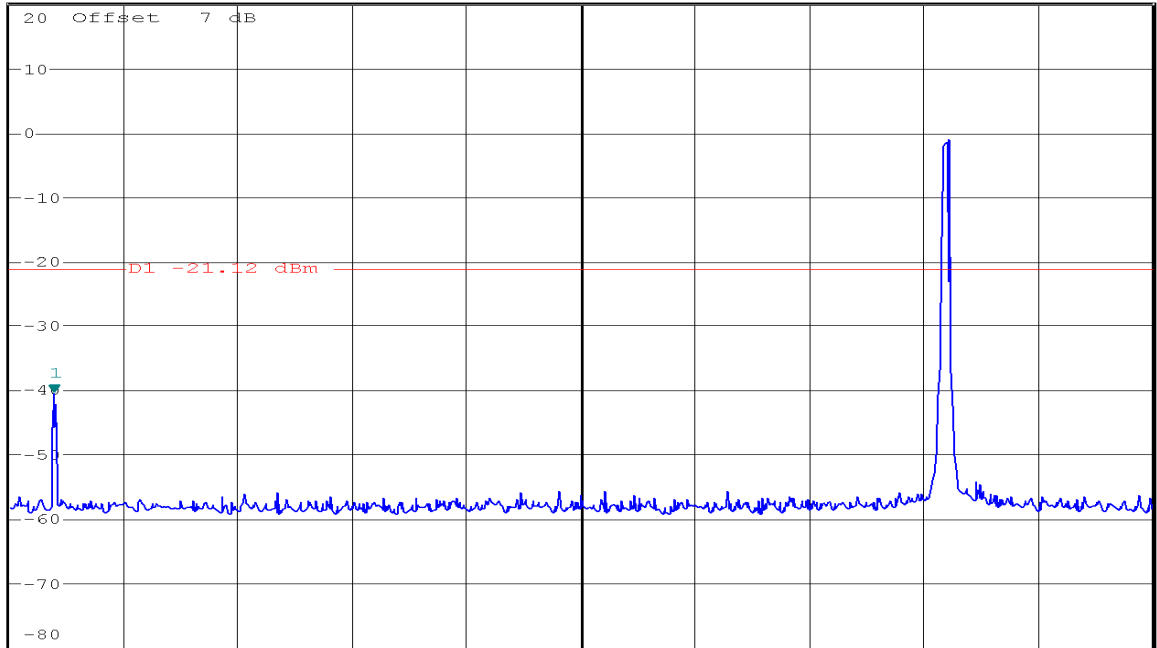
SWT 300 ms

144.230769231 MHz

Ref 20 dBm

* Att 10 dB

1 PK
MATH



Start 30 MHz

297 MHz/

Stop 3 GHz



* RBW 100 kHz

Marker 1 [T1]

* VBW 300 kHz

-50.37 dBm

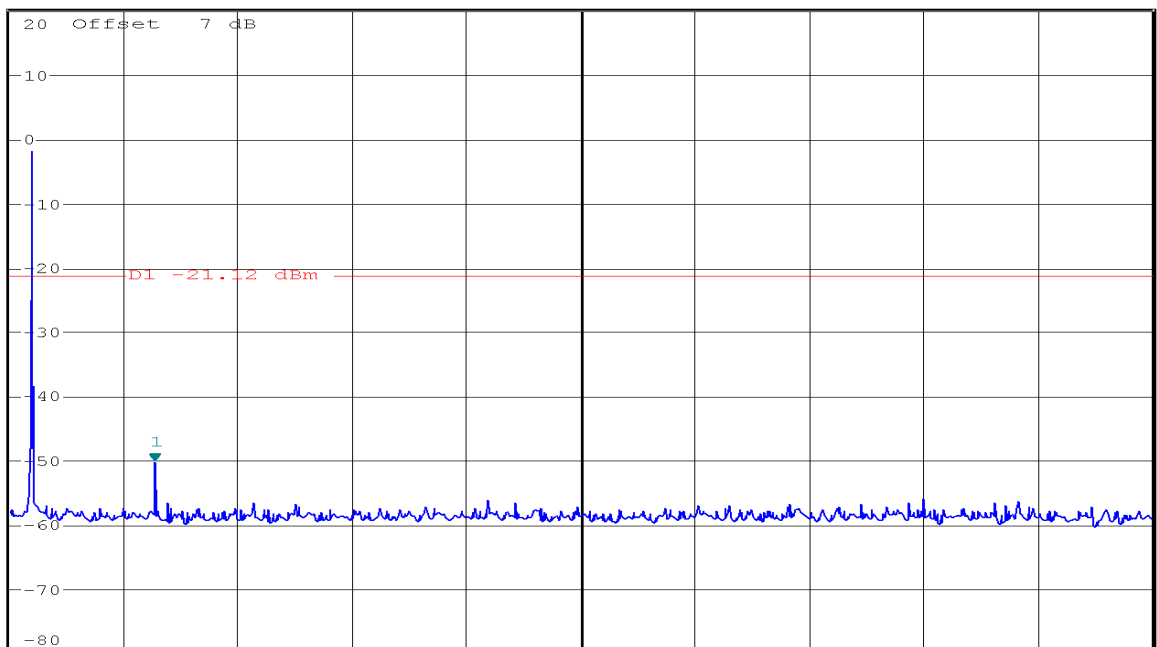
SWT 2.3 s

4.911858974 GHz

Ref 20 dBm

* Att 10 dB

1 PK
MATH



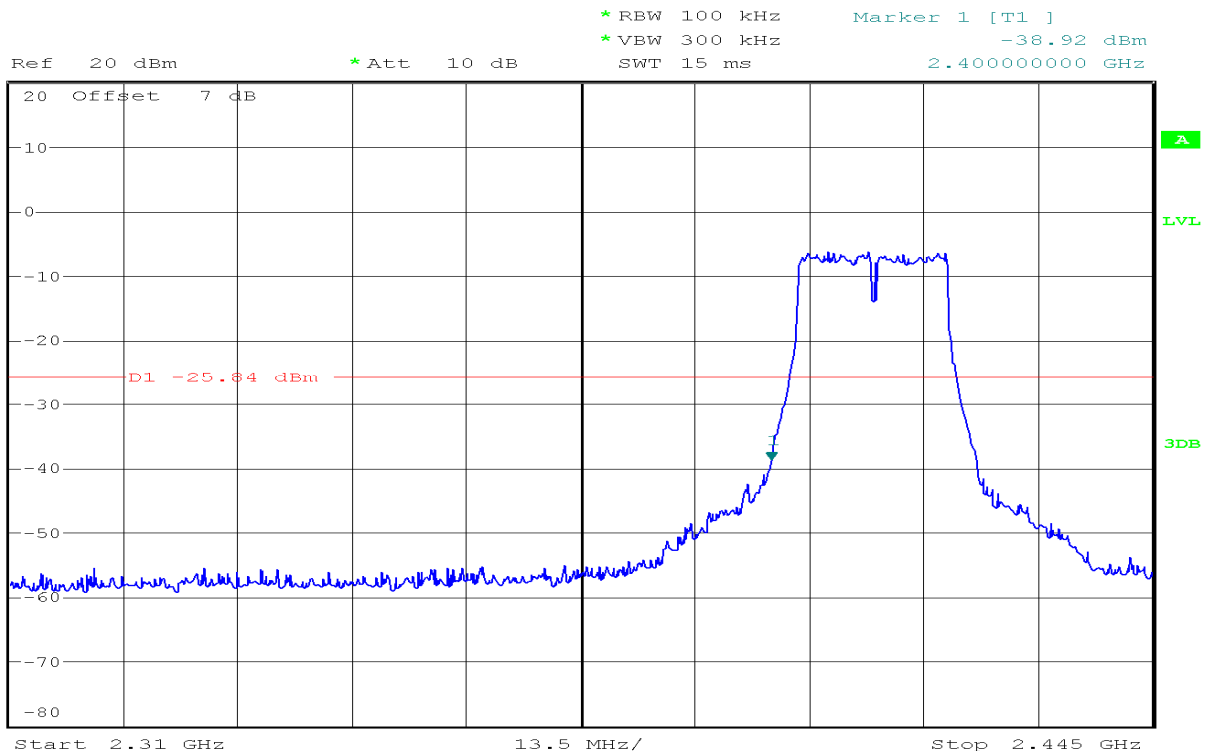
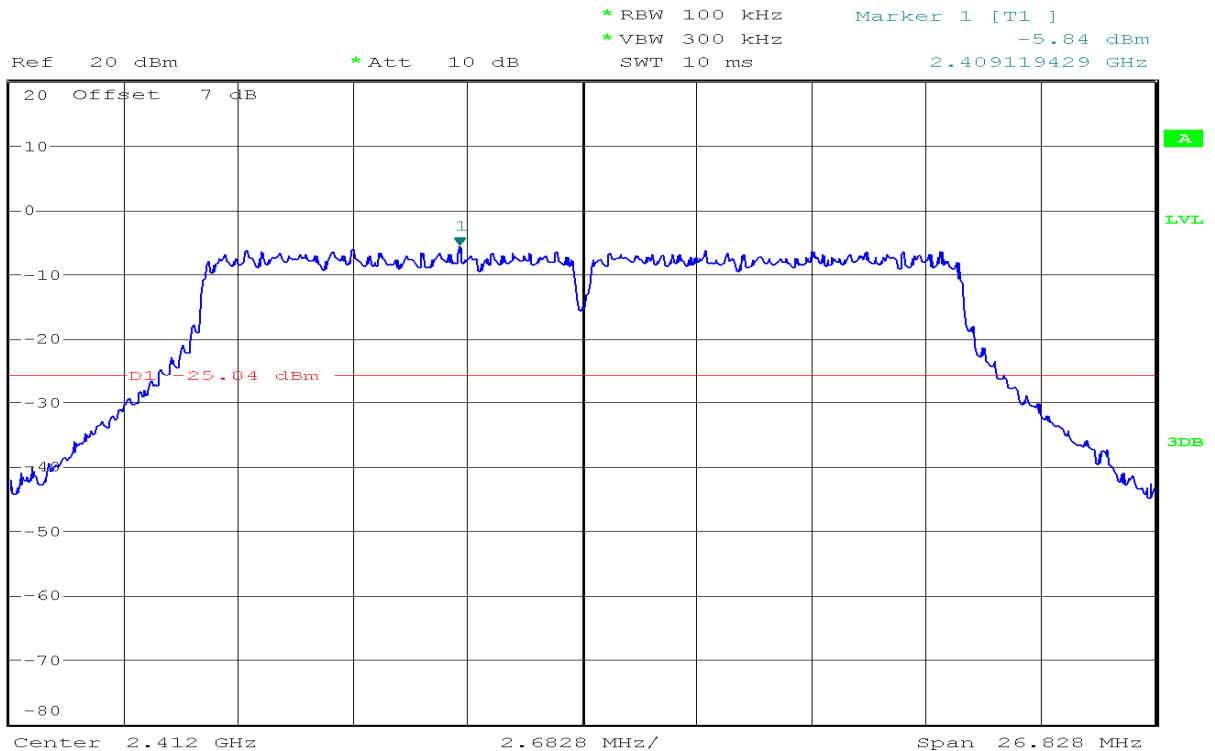
Start 2 GHz

2.3 GHz/

Stop 25 GHz

IEEE 802.11n HT20 mode / Chain 0

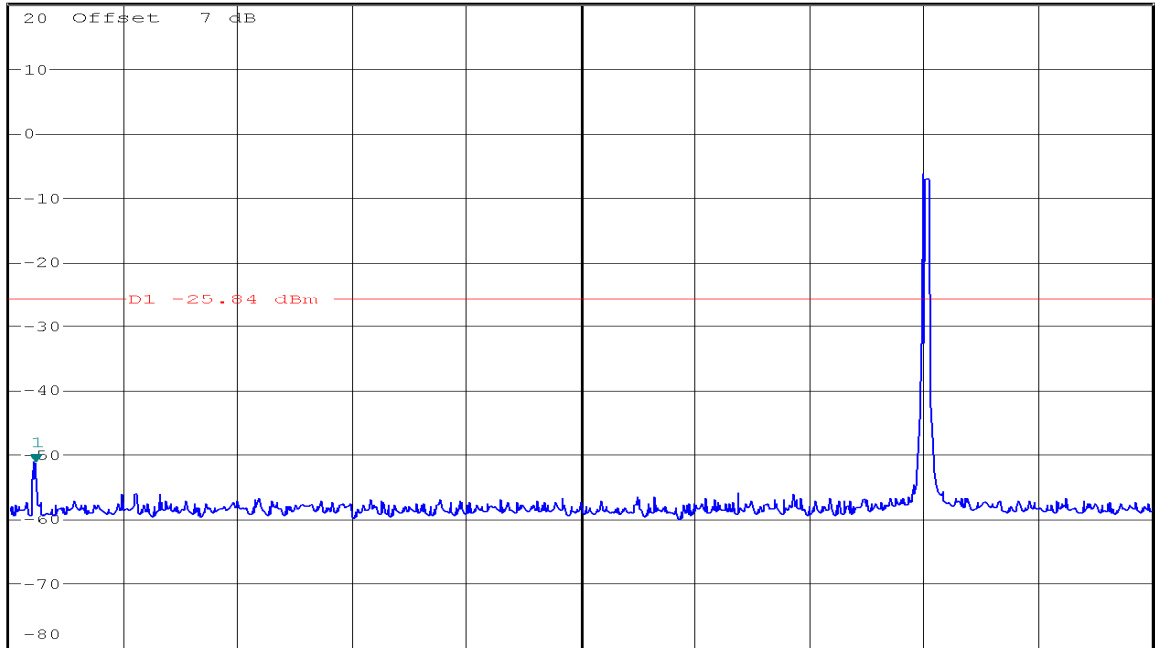
CH Low





Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -51.38 dBm
 SWT 300 ms 96.634615385 MHz

1 PK
MATH

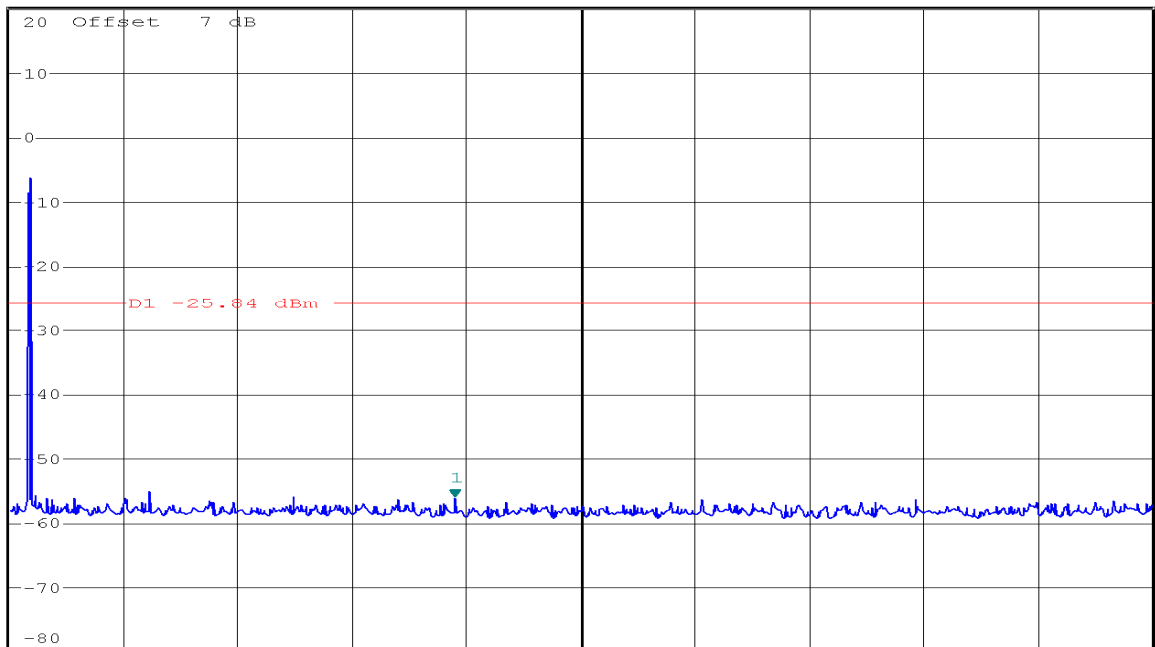


Start 30 MHz 297 MHz/ Stop 3 GHz



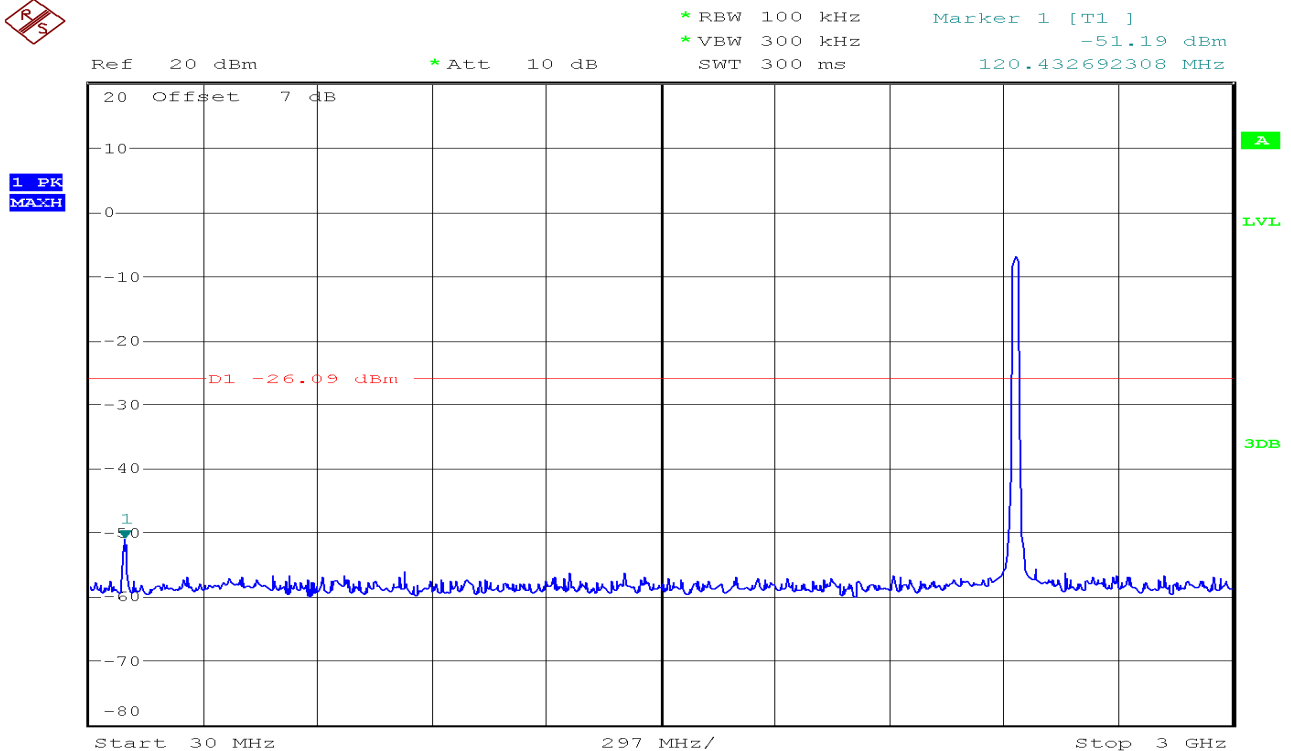
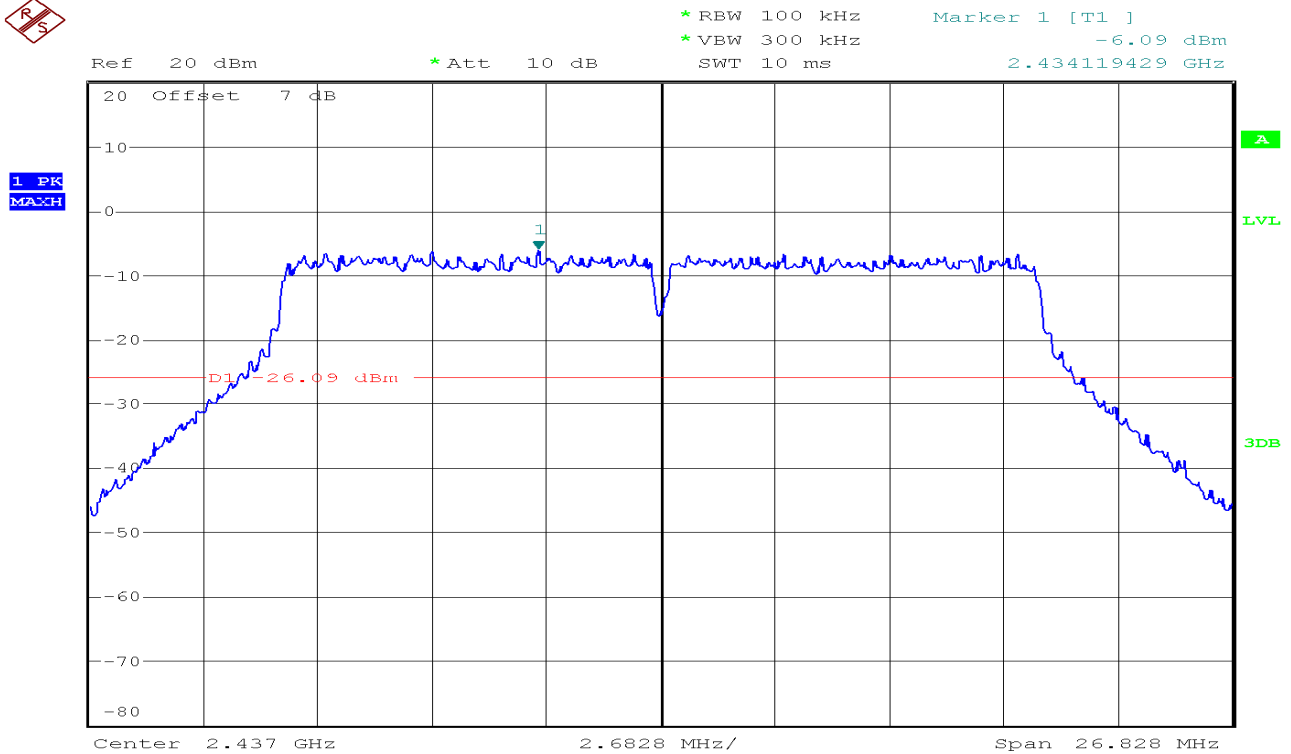
Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -56.20 dBm
 SWT 2.3 s 10.956730769 GHz

1 PK
MATH



Start 2 GHz 2.3 GHz/ Stop 25 GHz

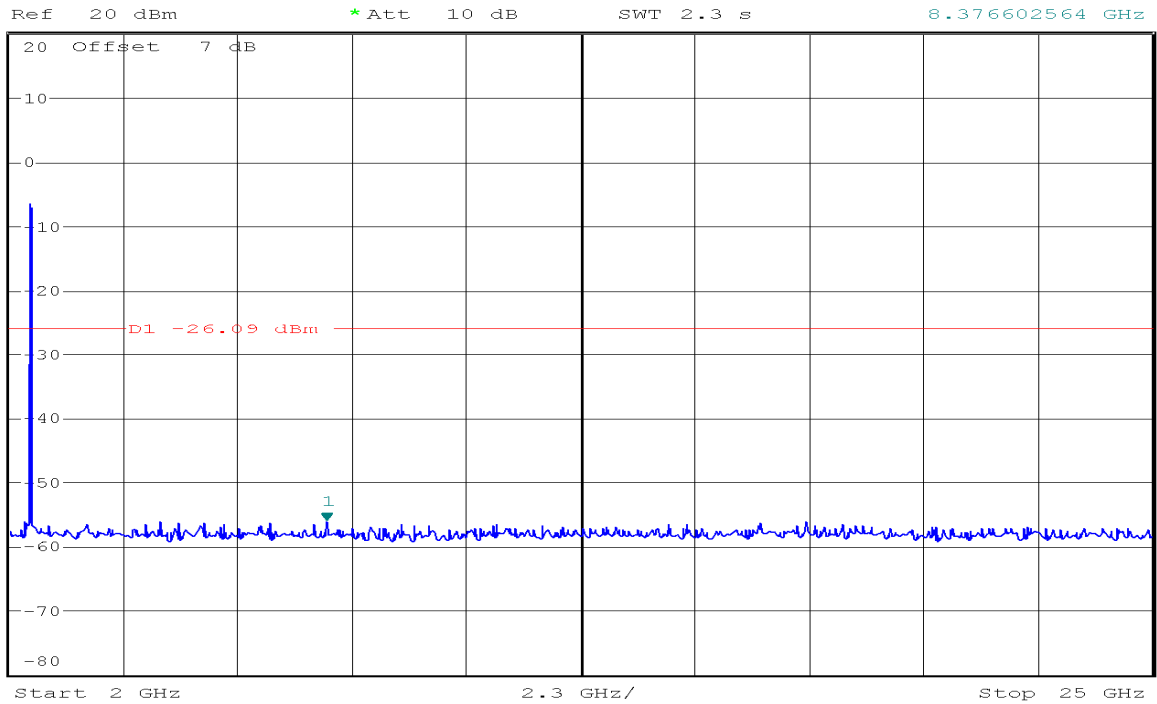
CH Mid





* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-56.15 dBm
8.376602564 GHz

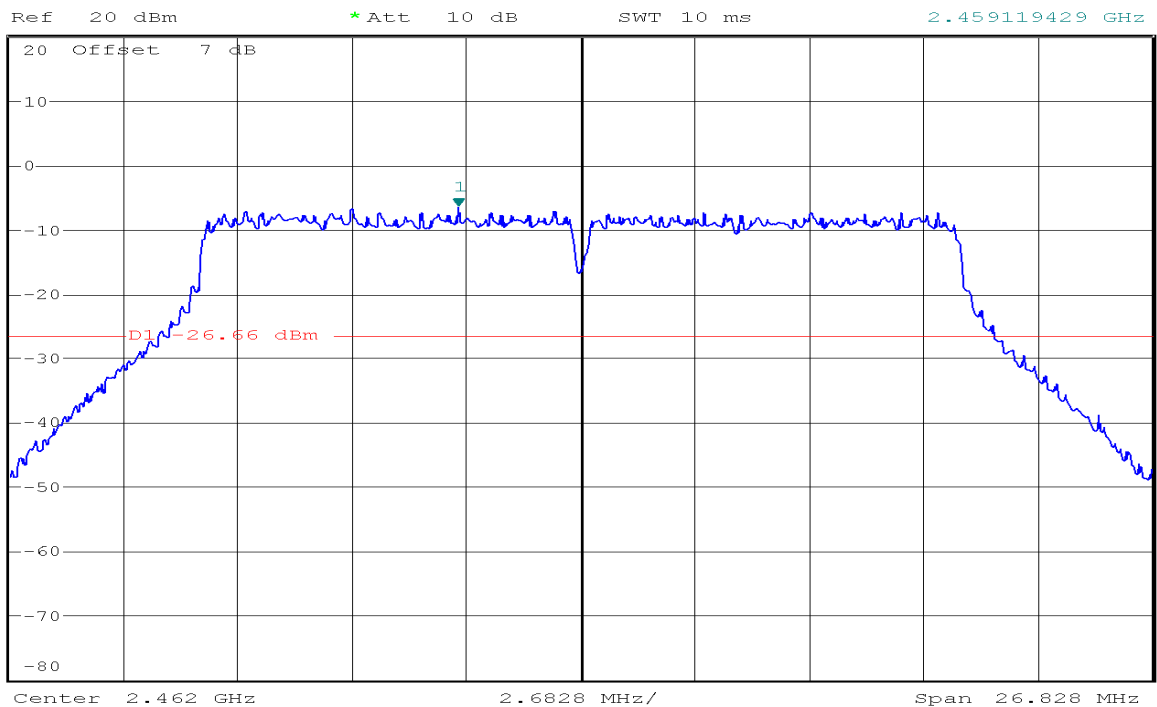


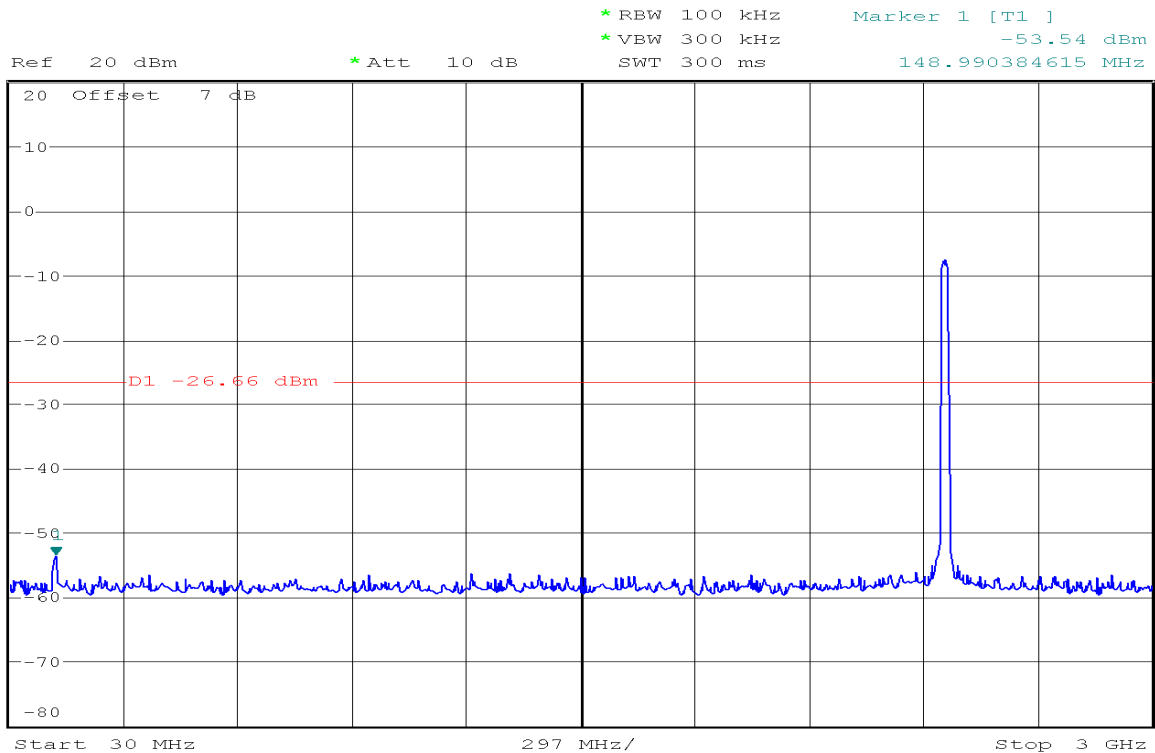
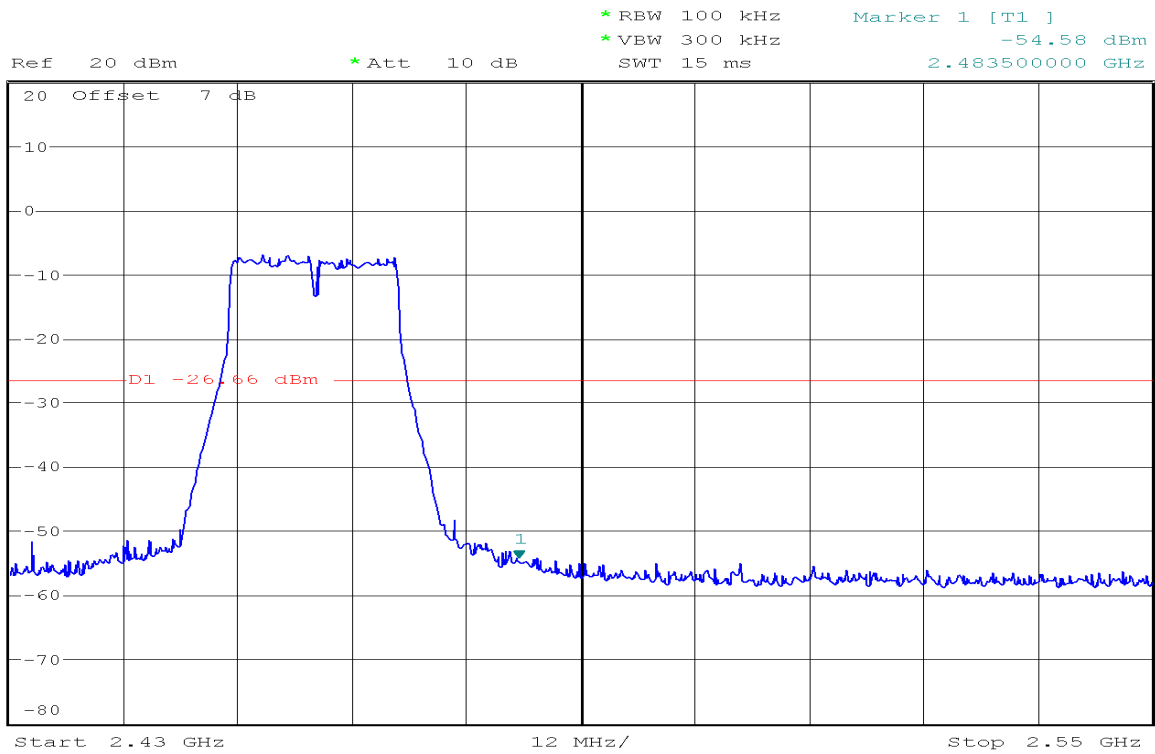
CH High



* RBW 100 kHz
* VBW 300 kHz
SWT 10 ms

Marker 1 [T1]
-6.66 dBm
2.459119429 GHz

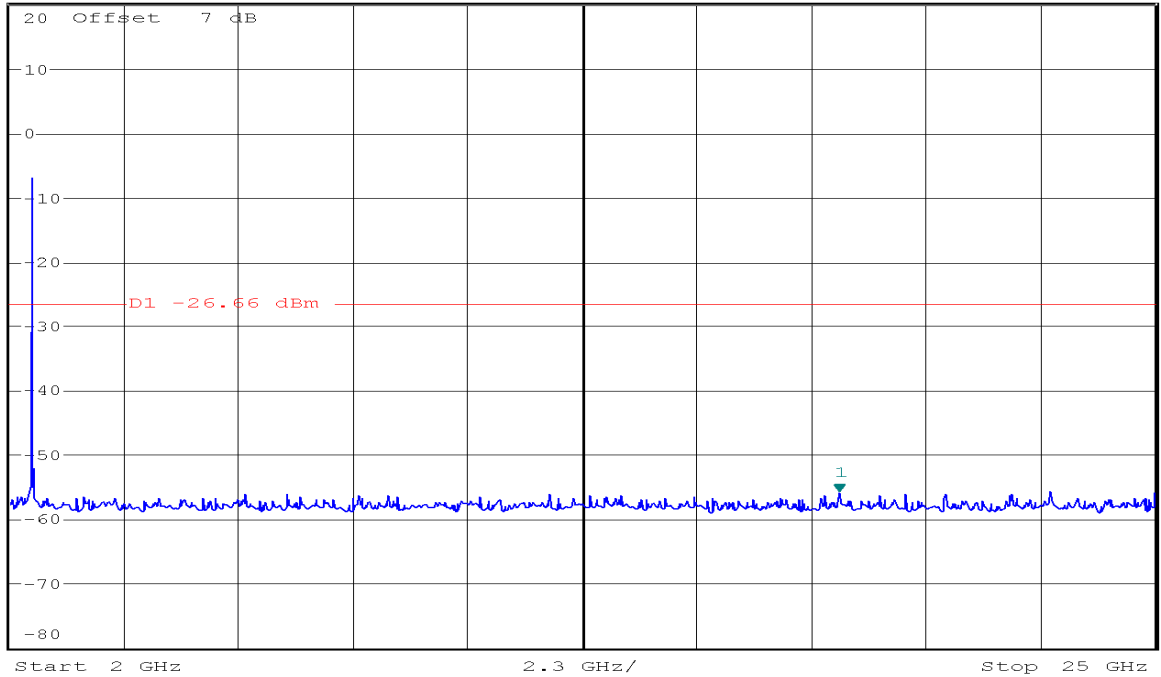






Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -56.00 dBm
 SWT 2.3 s 18.660256410 GHz

1 PK
MATH



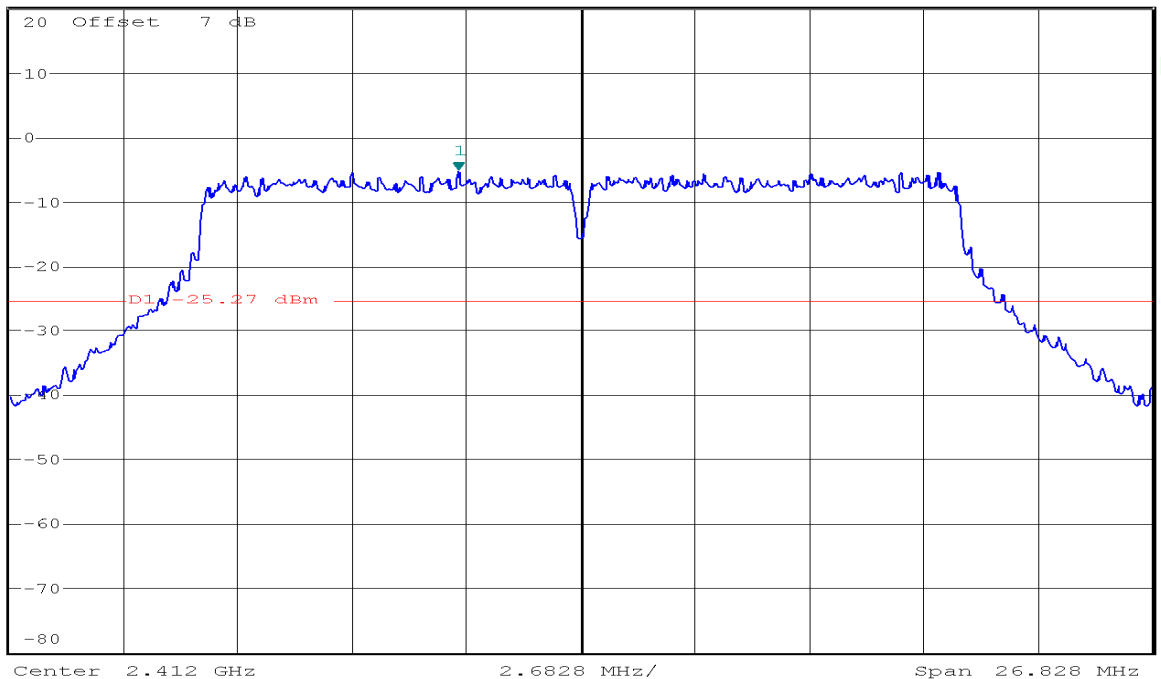
IEEE 802.11n HT20 mode / Chain 1

CH Low



Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -5.27 dBm
 SWT 10 ms 2.409119429 GHz

1 PK
MATH



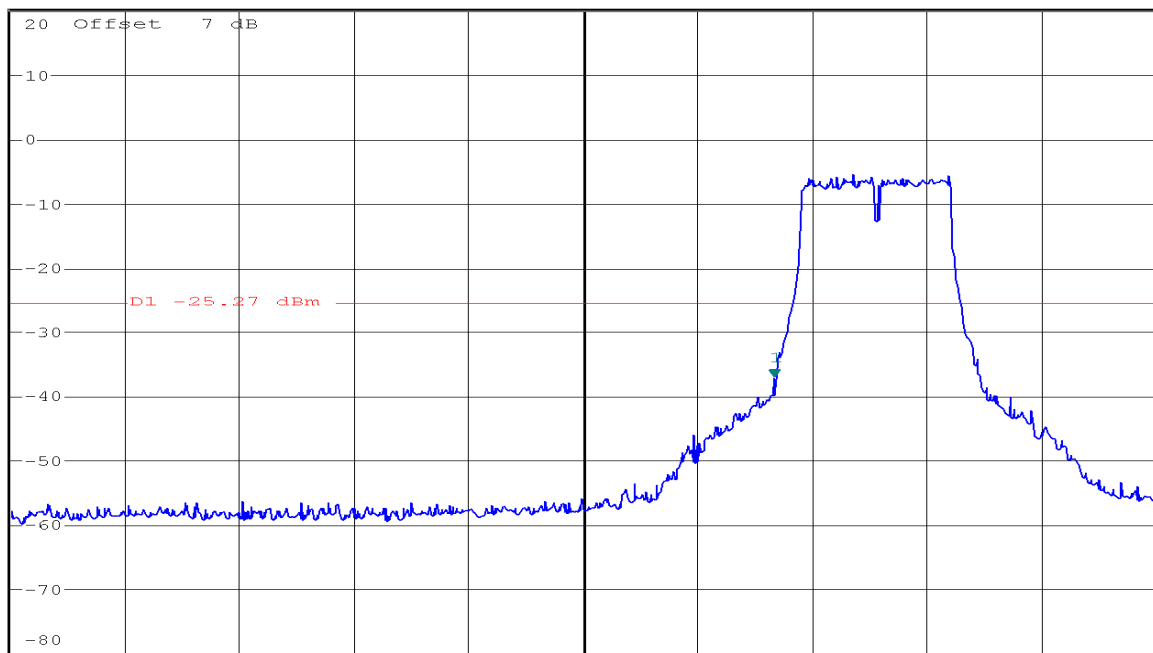


* RBW 100 kHz
* VBW 300 kHz
SWT 15 ms

Marker 1 [T1]
-37.31 dBm
2.400000000 GHz

Ref 20 dBm
* Att 10 dB

1 PK
MATCH



Start 2.31 GHz 13.5 MHz/ Stop 2.445 GHz

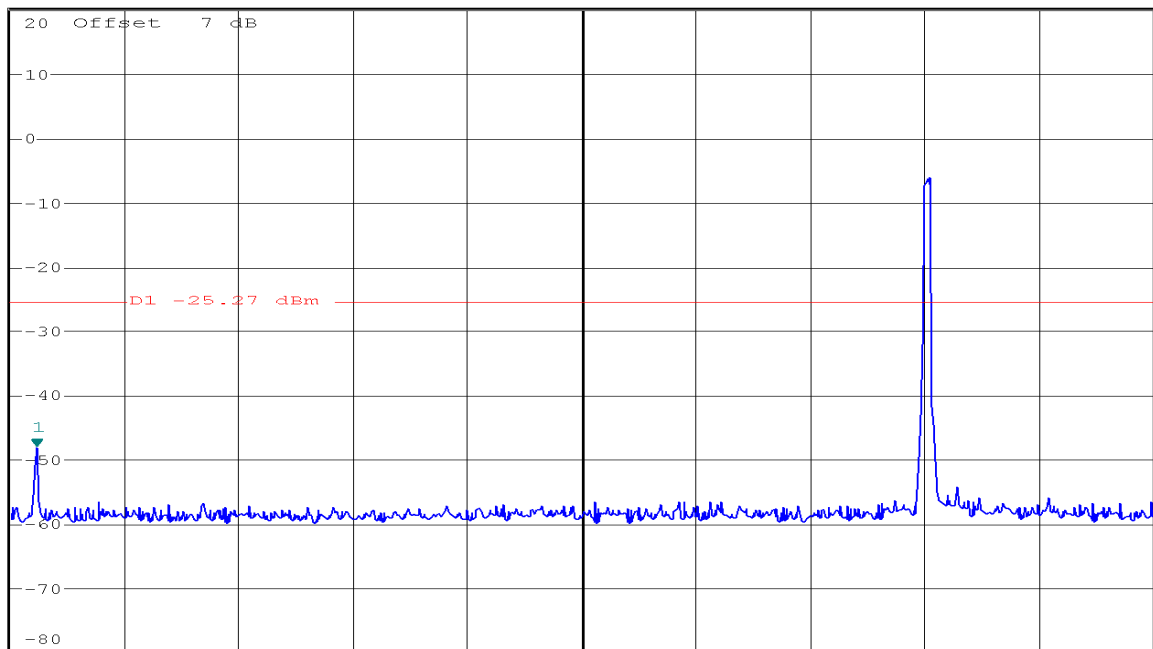


* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-48.08 dBm
96.634615385 MHz

Ref 20 dBm
* Att 10 dB

1 PK
MATCH



Start 30 MHz 297 MHz/ Stop 3 GHz



```
* RBW 100 kHz
```

Marker 1 [T1]

* VBW 300 kHz

-49.64 dBm

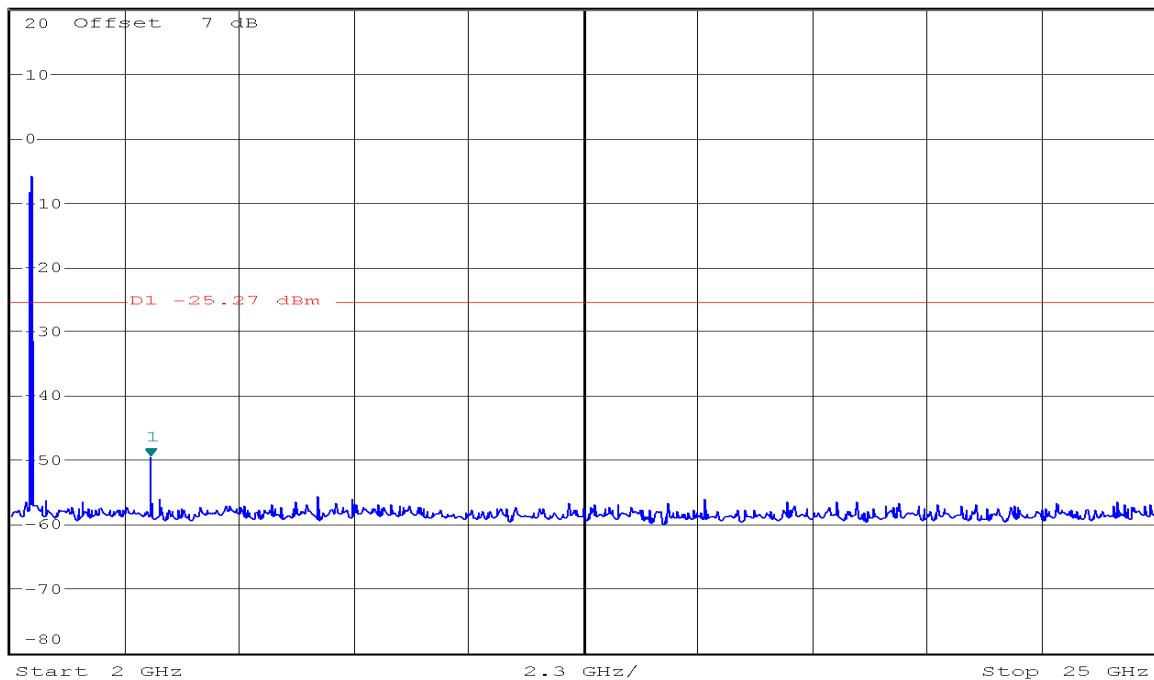
SWT 2.3 s

4.801282051 GHz

Ref 20 dBm

- * Att 10 dB

SWT 2.3 s



CH Mid



```
* RBW 100 kHz
```

Marker 1 [T1]

* VBW 300 kHz

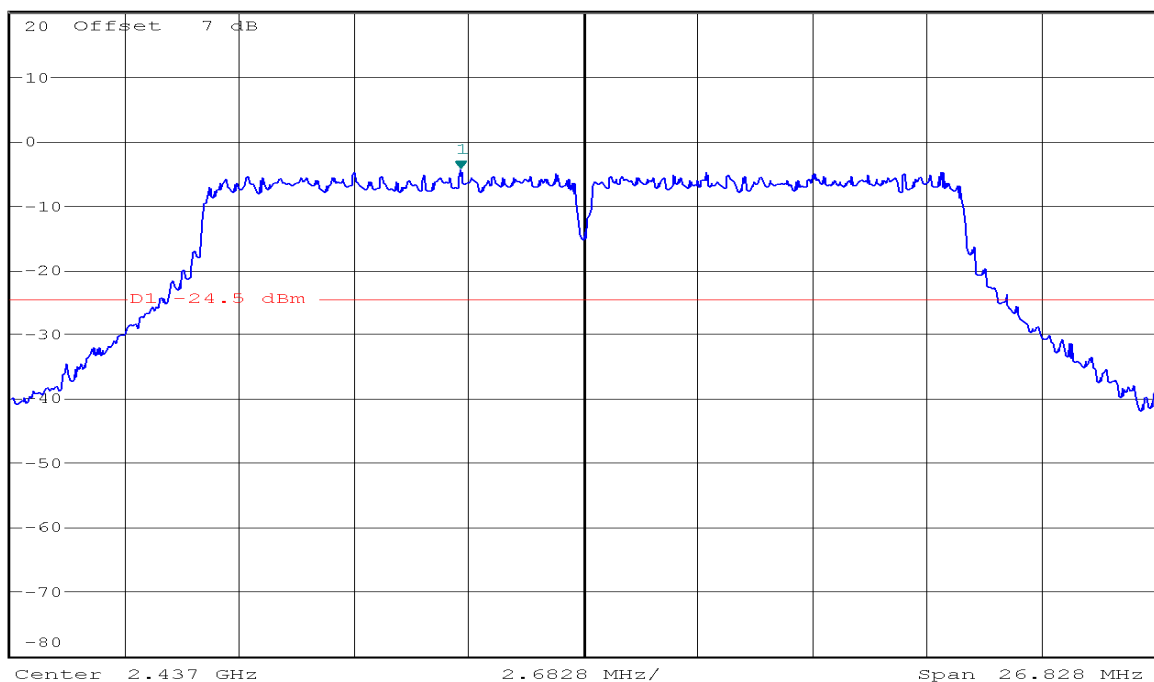
-4.50 dBm

SWT 10 ms

2.434119429 GHz

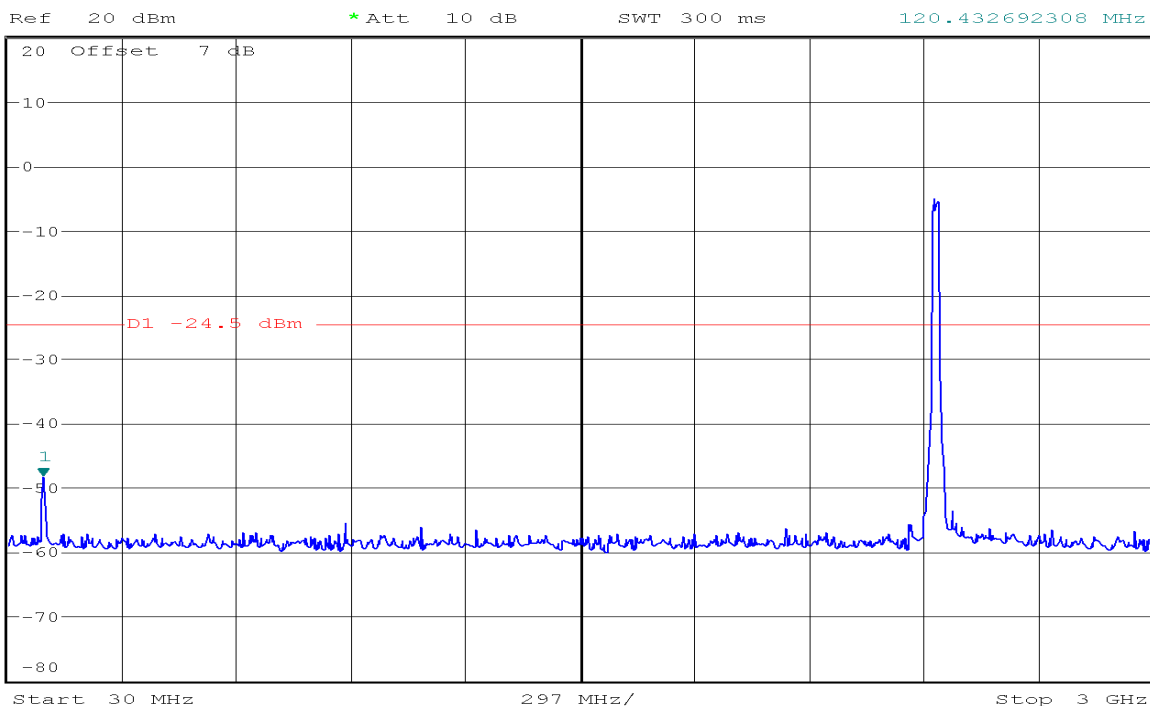
Ref 20 dBm

- * Att 10 dB

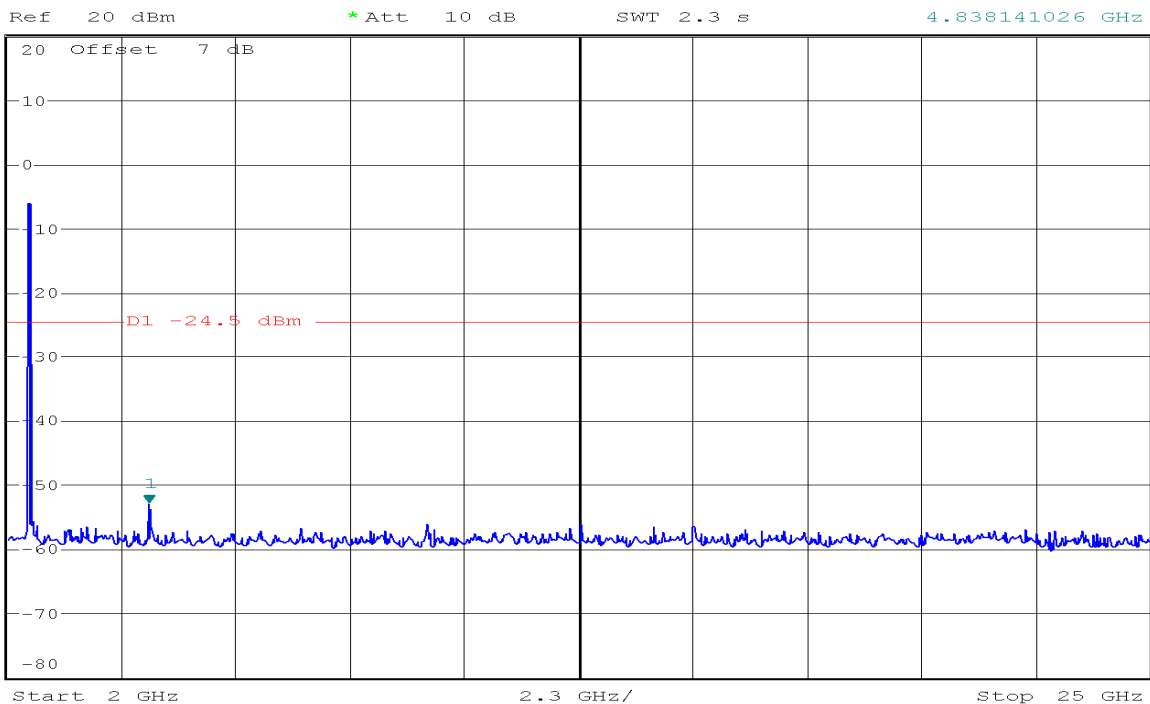




* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 300 ms
Marker 1 [T1]
-48.42 dBm
120.432692308 MHz



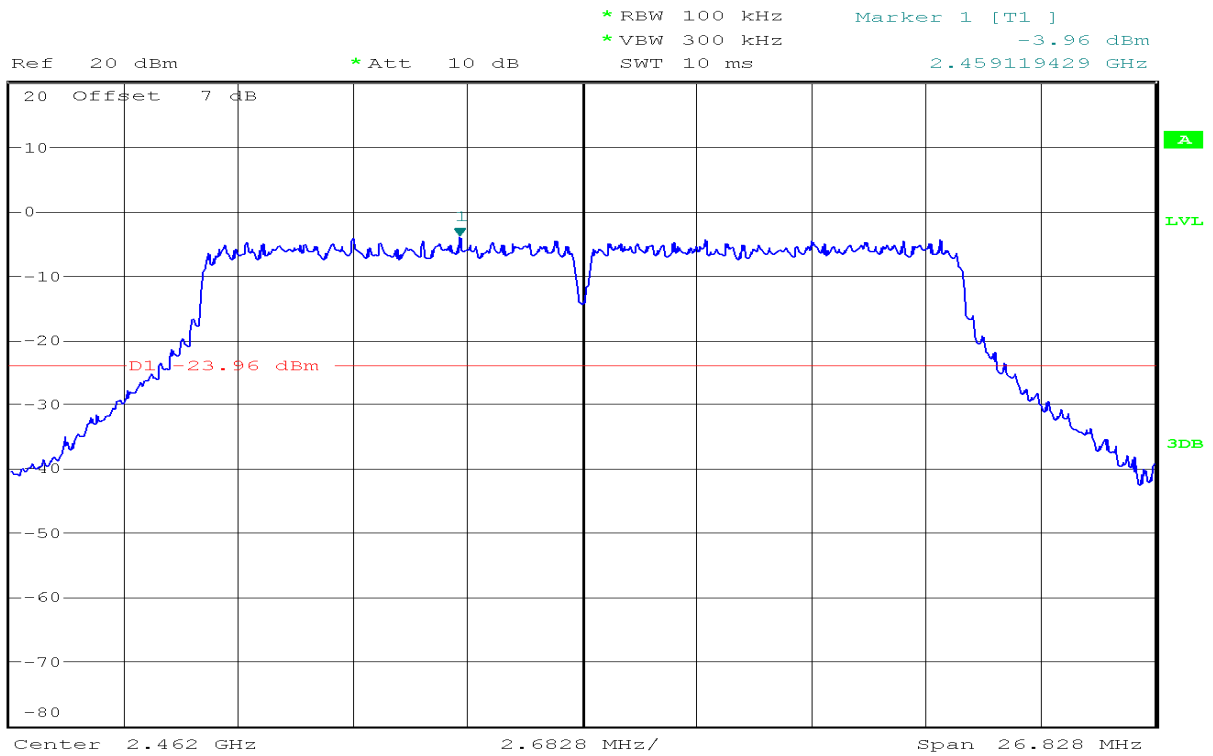
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 2.3 s
Marker 1 [T1]
-53.08 dBm
4.838141026 GHz



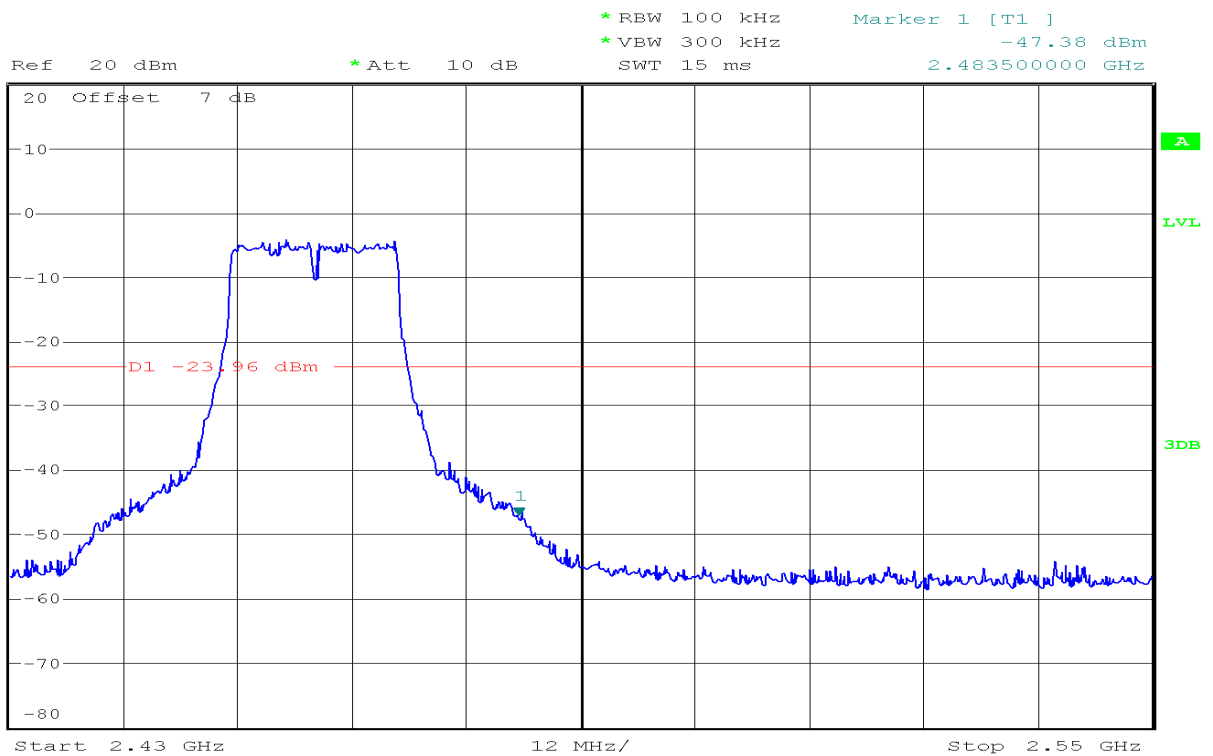
CH High



1 PK
MATH



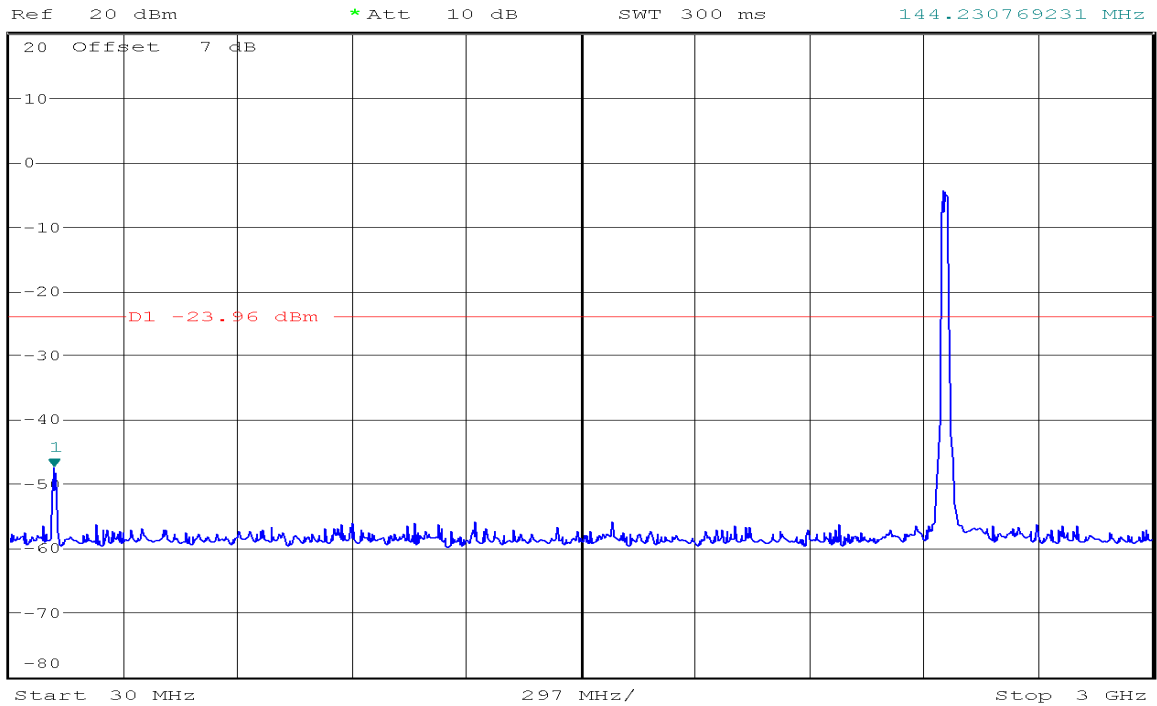
1 PK
MATH





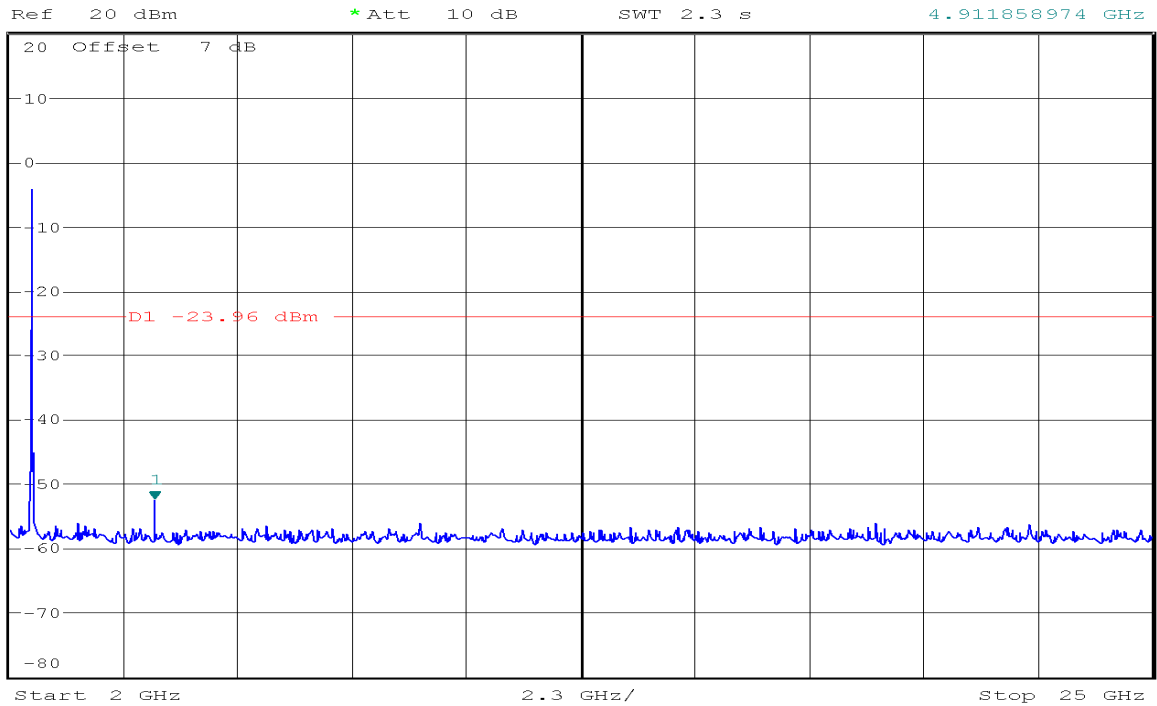
* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-47.63 dBm
144.230769231 MHz



* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-52.62 dBm
4.911858974 GHz

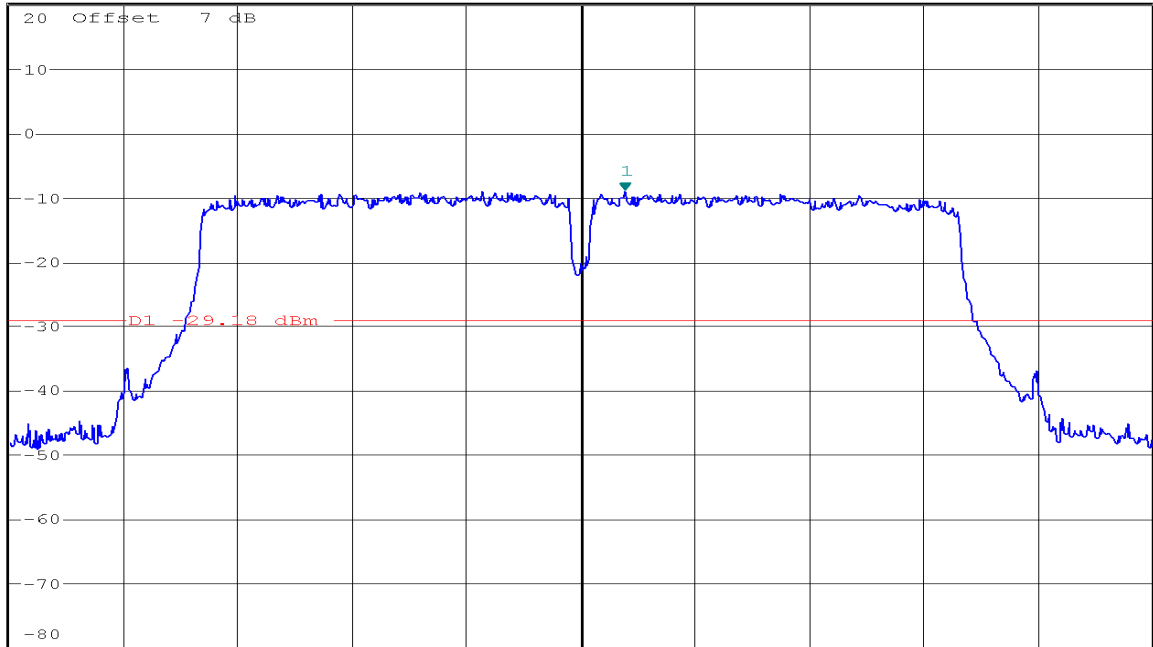


IEEE 802.11n HT40 mode / Chain 0

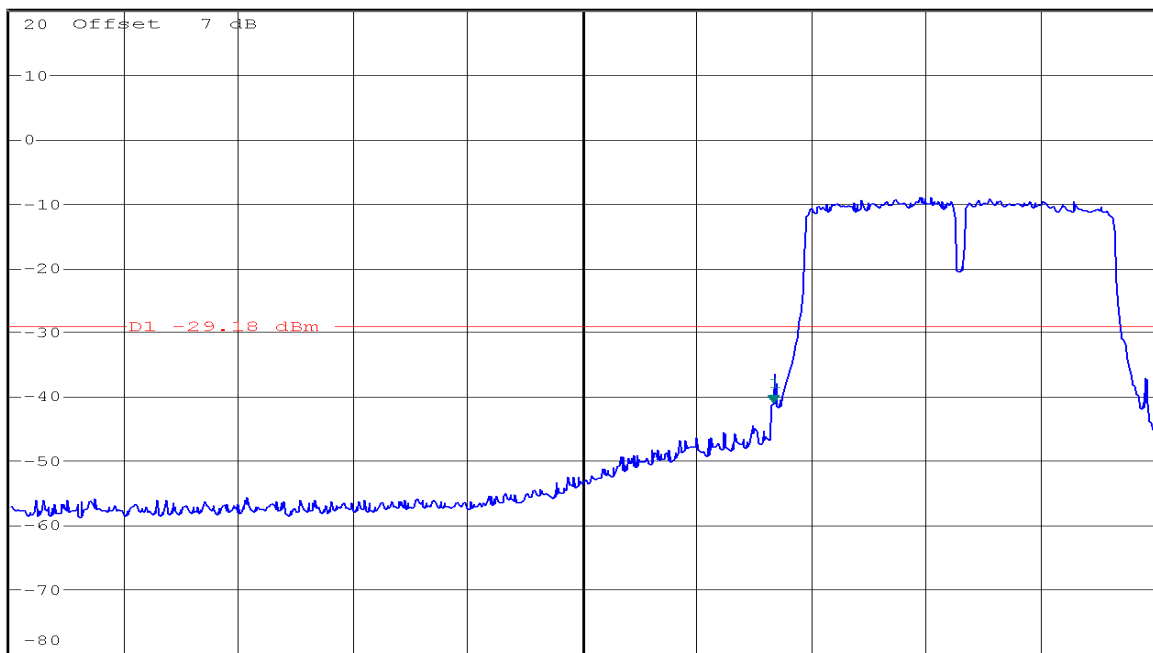
CH Low



Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 10 ms Marker 1 [T1] -9.18 dBm 2.424113577 GHz

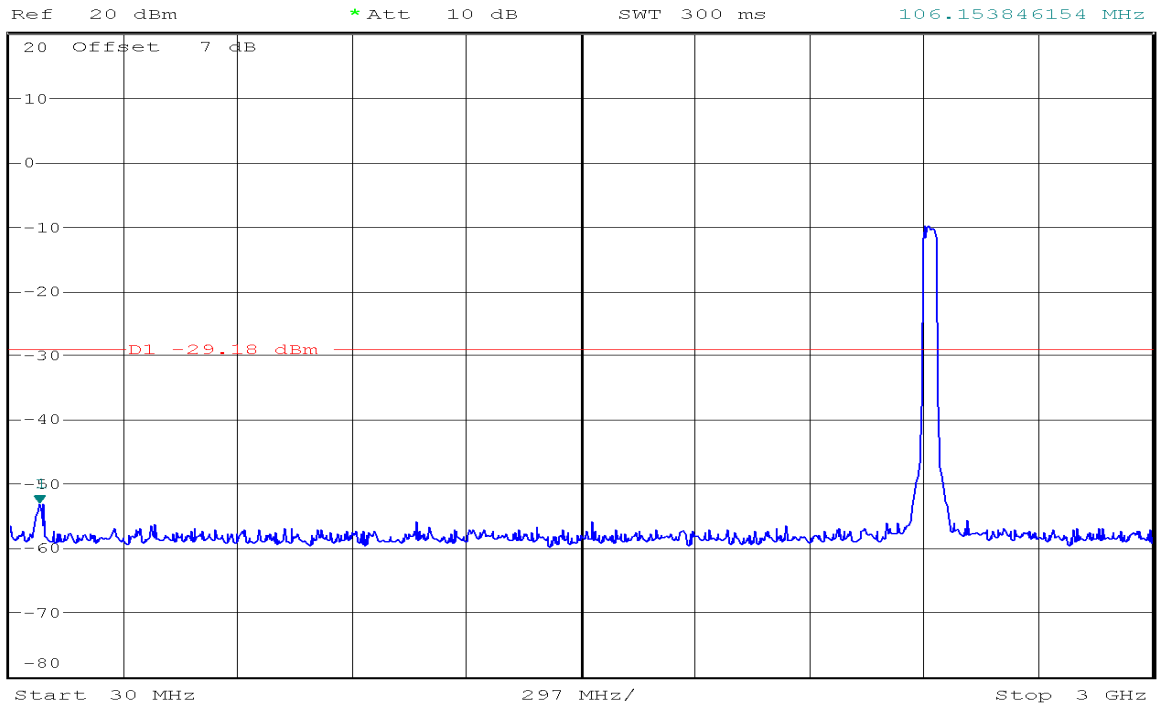


Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 15 ms Marker 1 [T1] -41.23 dBm 2.400000000 GHz

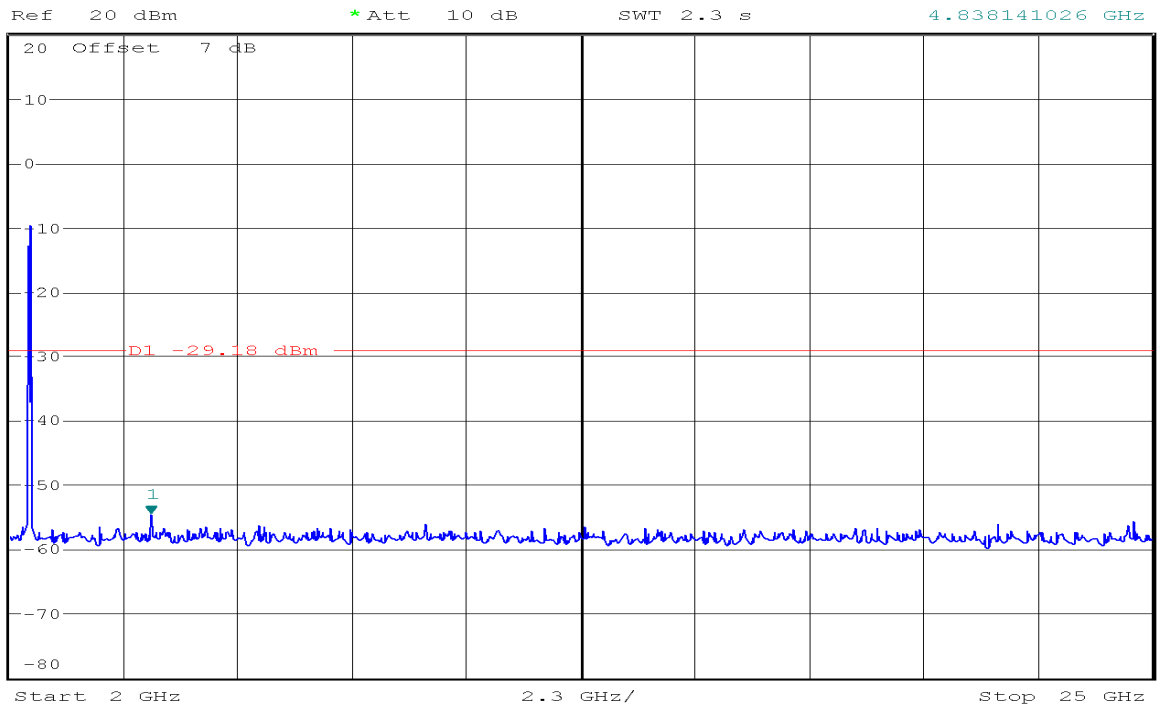




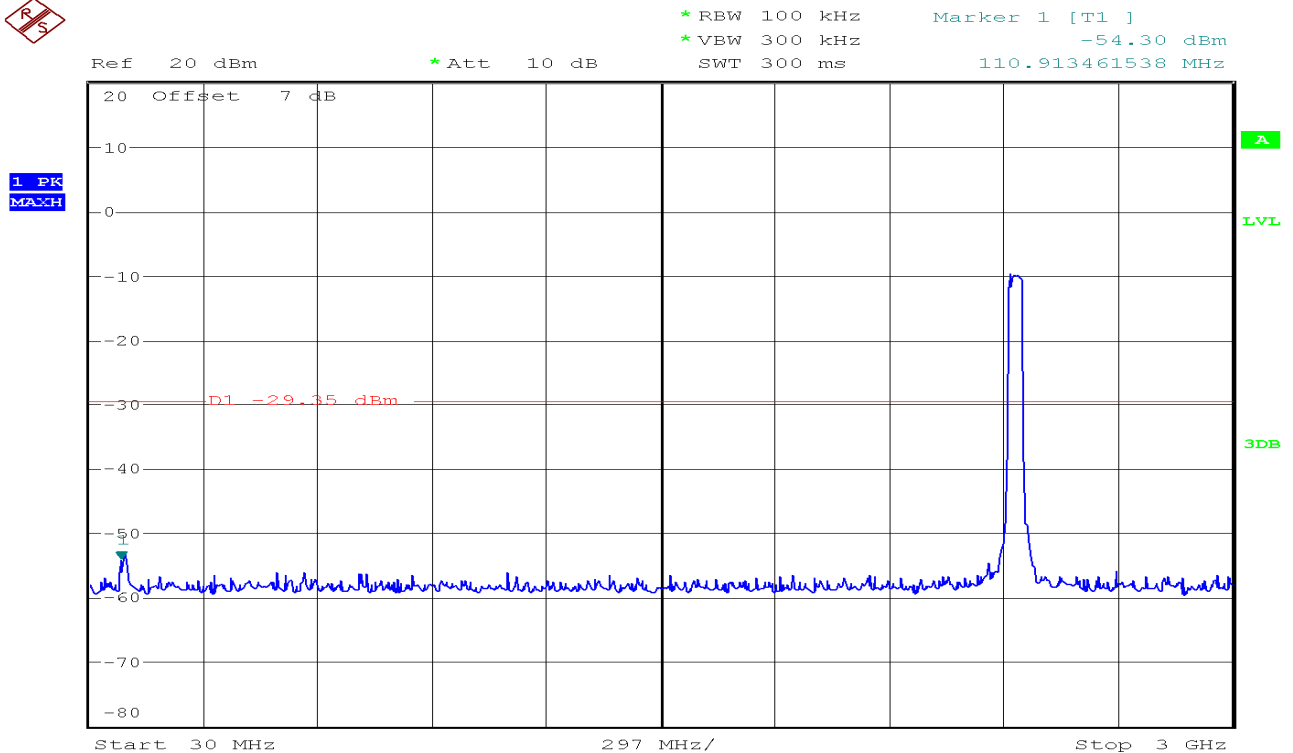
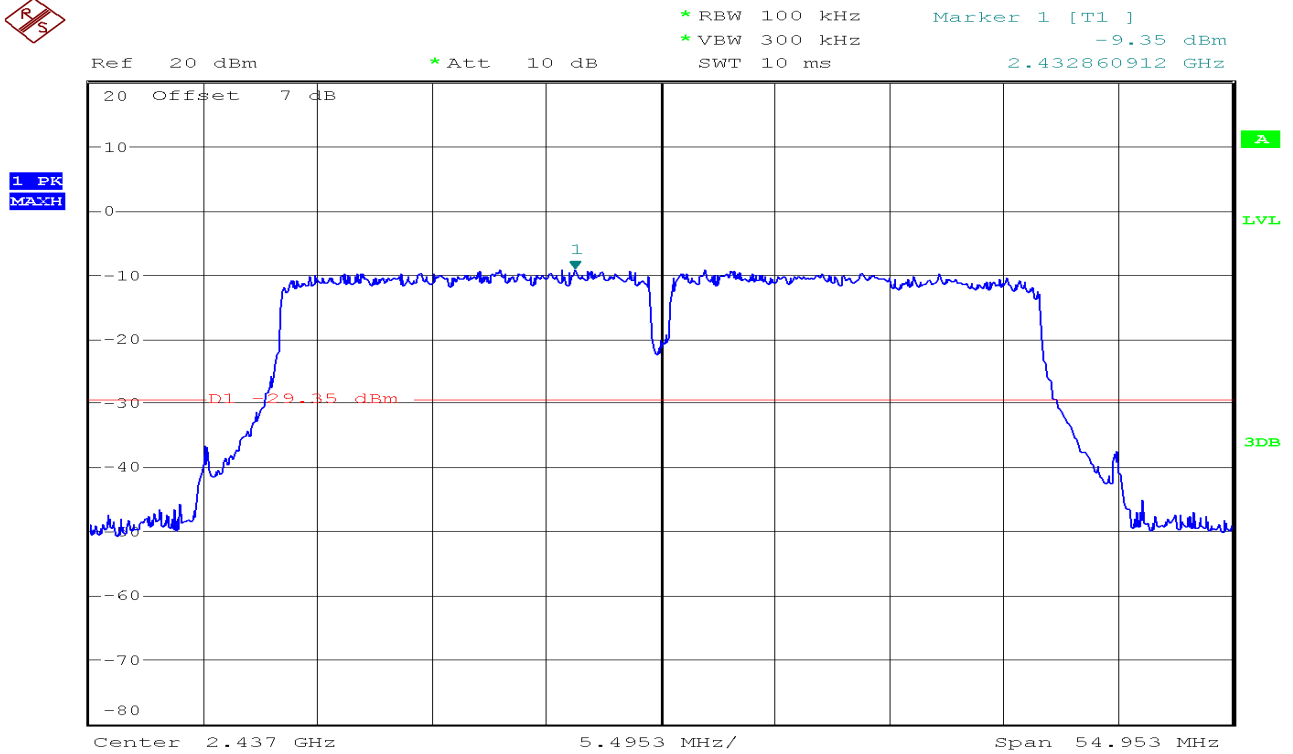
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
SWT 300 ms
Marker 1 [T1]
-53.18 dBm
106.153846154 MHz



* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
SWT 2.3 s
Marker 1 [T1]
-54.79 dBm
4.838141026 GHz

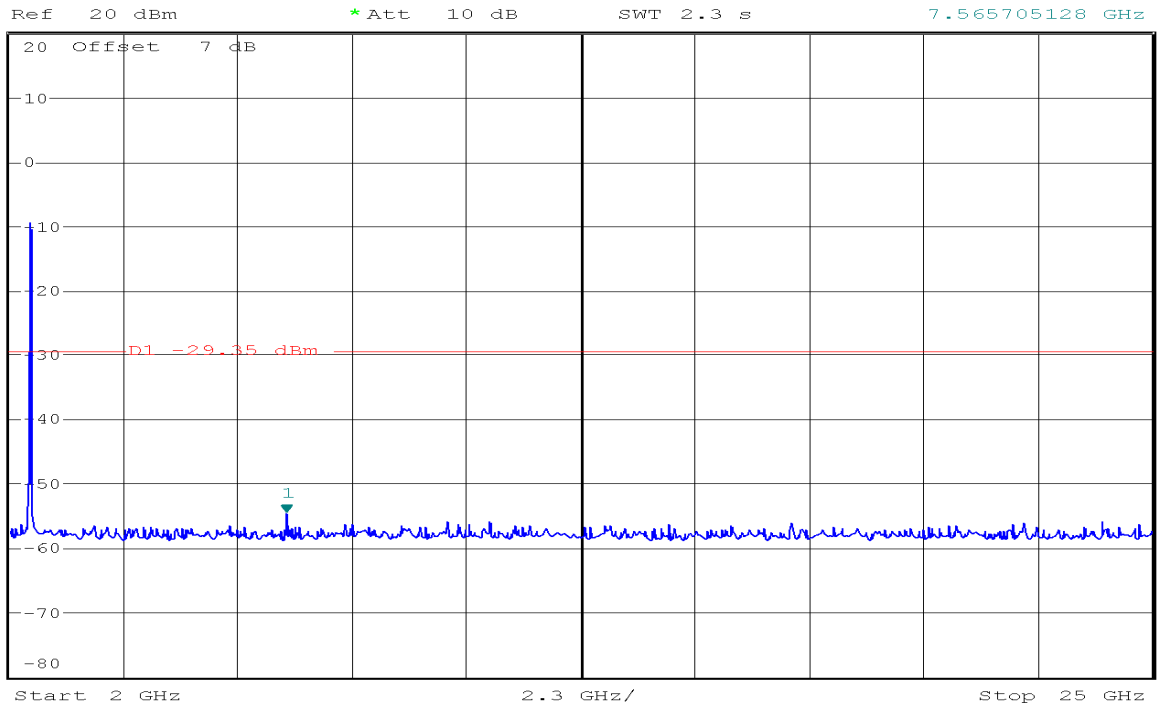


CH Mid





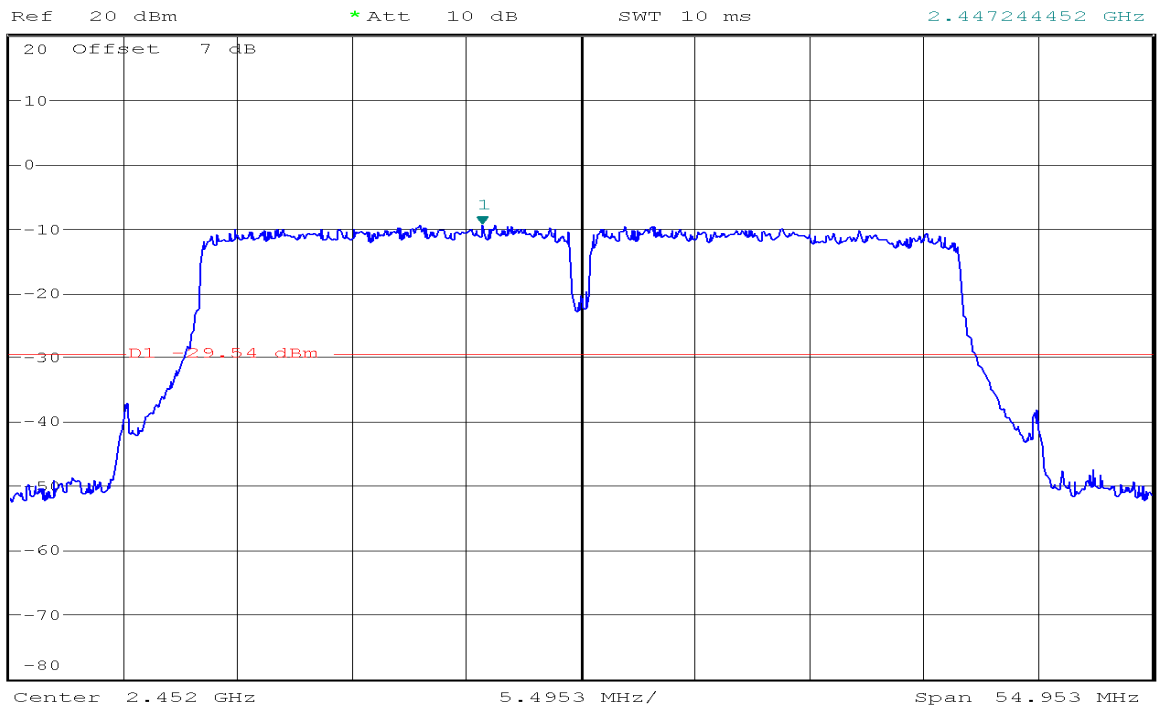
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 2.3 s
Marker 1 [T1]
-54.78 dBm
7.565705128 GHz



CH High



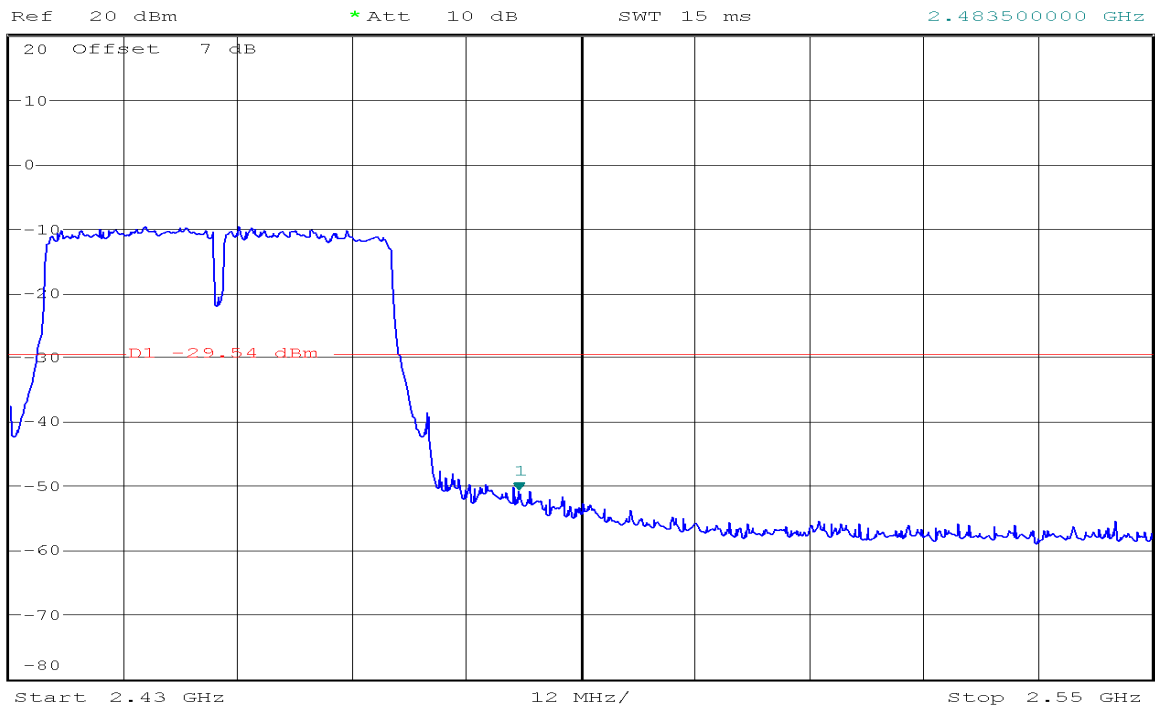
* RBW 100 kHz
* VBW 300 kHz
* Att 10 dB
* SWT 10 ms
Marker 1 [T1]
-9.54 dBm
2.447244452 GHz





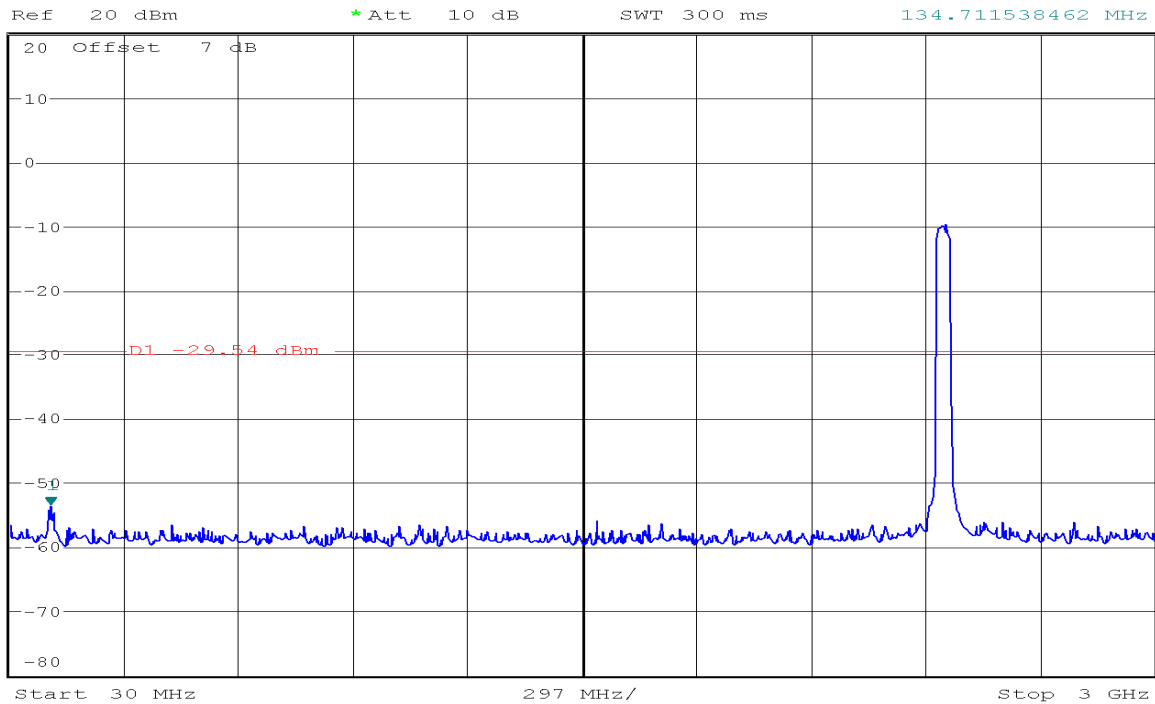
* RBW 100 kHz
* VBW 300 kHz
SWT 15 ms

Marker 1 [T1]
-50.94 dBm
2.483500000 GHz



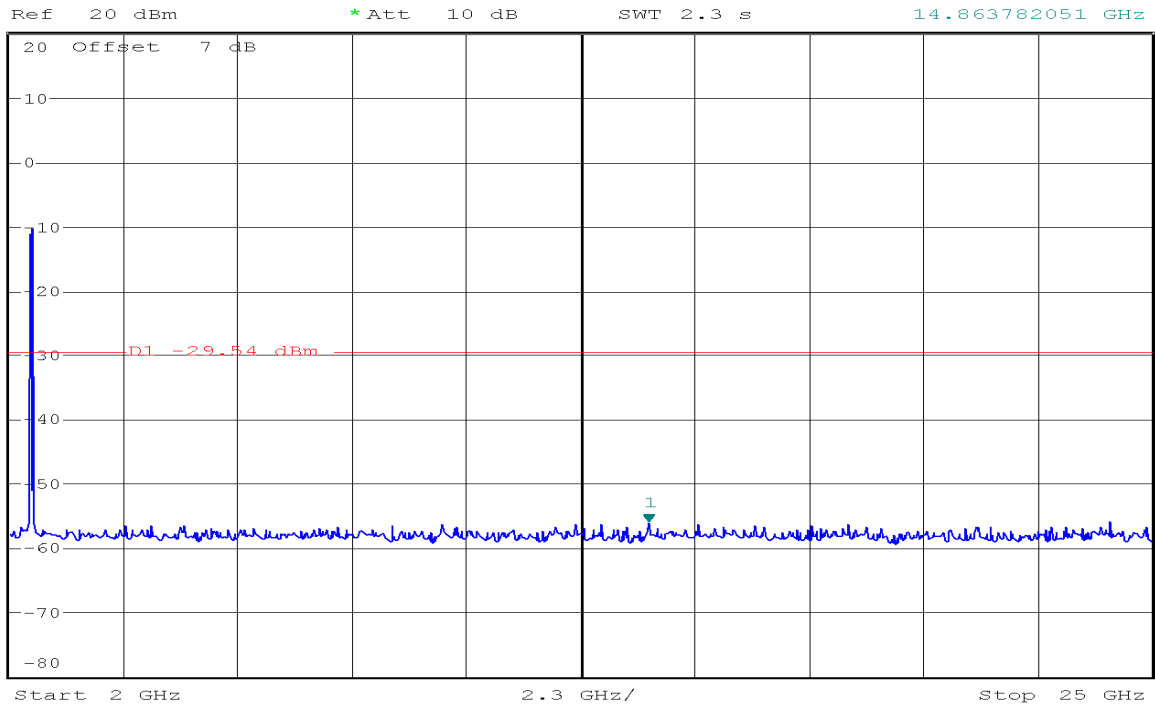
* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-53.70 dBm
134.711538462 MHz





* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -56.25 dBm
 SWT 2.3 s 14.863782051 GHz

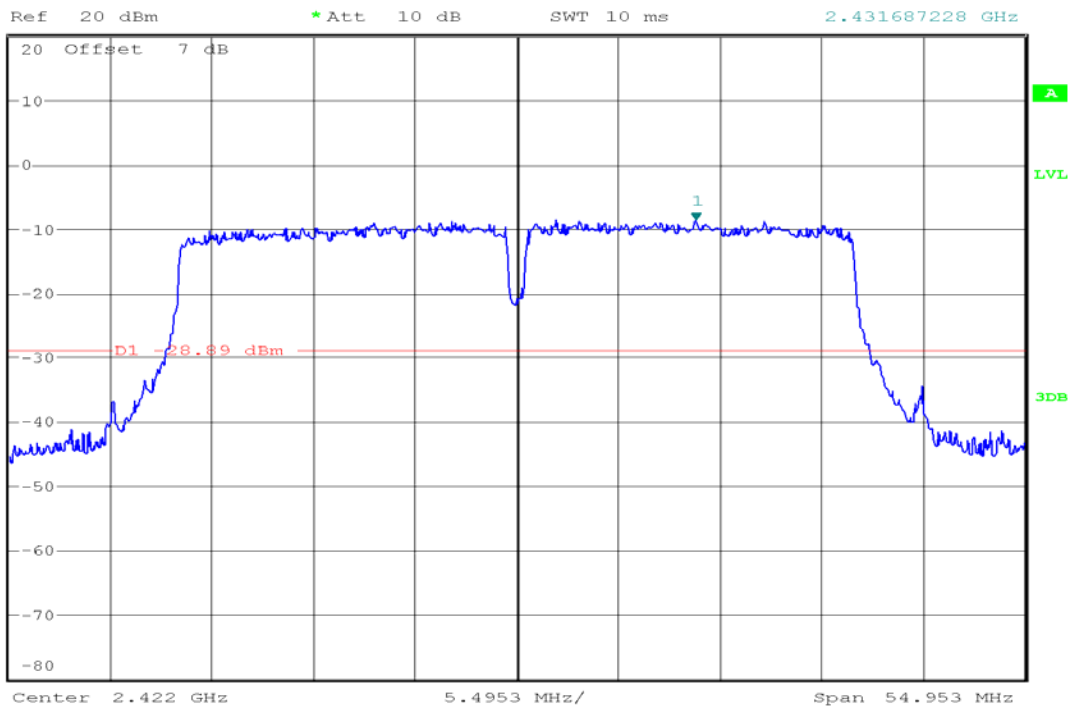


IEEE 802.11n HT40 mode / Chain 1

CH Low



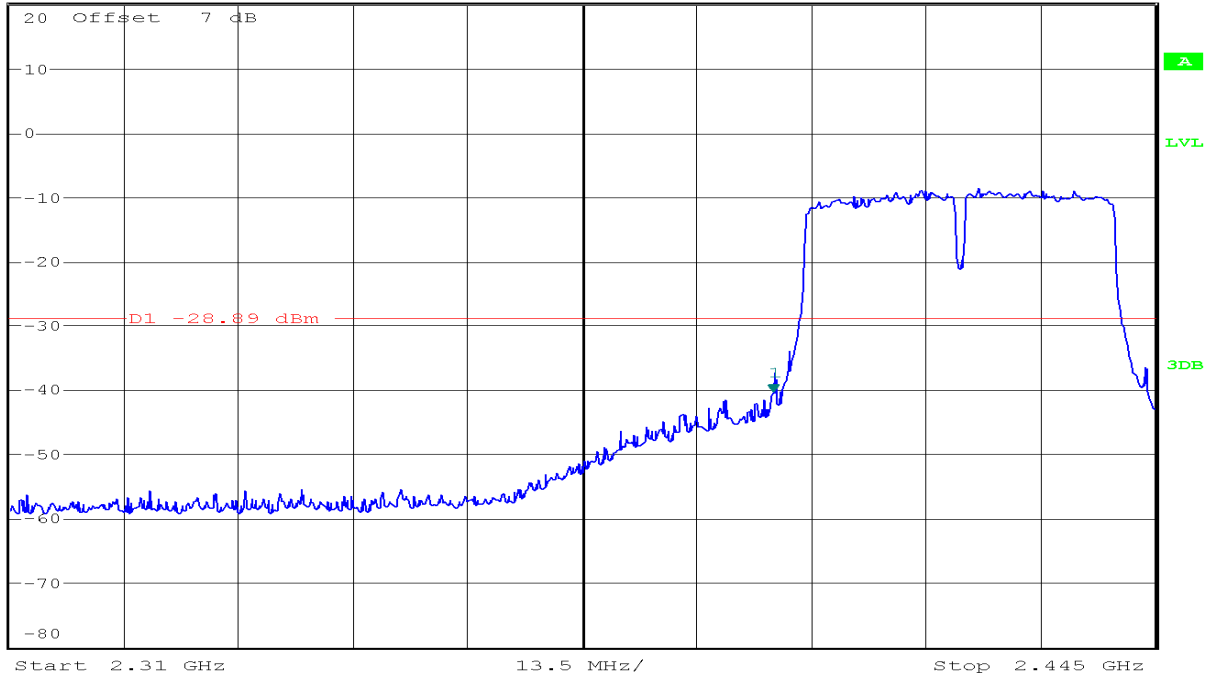
* RBW 100 kHz Marker 1 [T1]
 * VBW 300 kHz -8.89 dBm
 SWT 10 ms 2.431687228 GHz





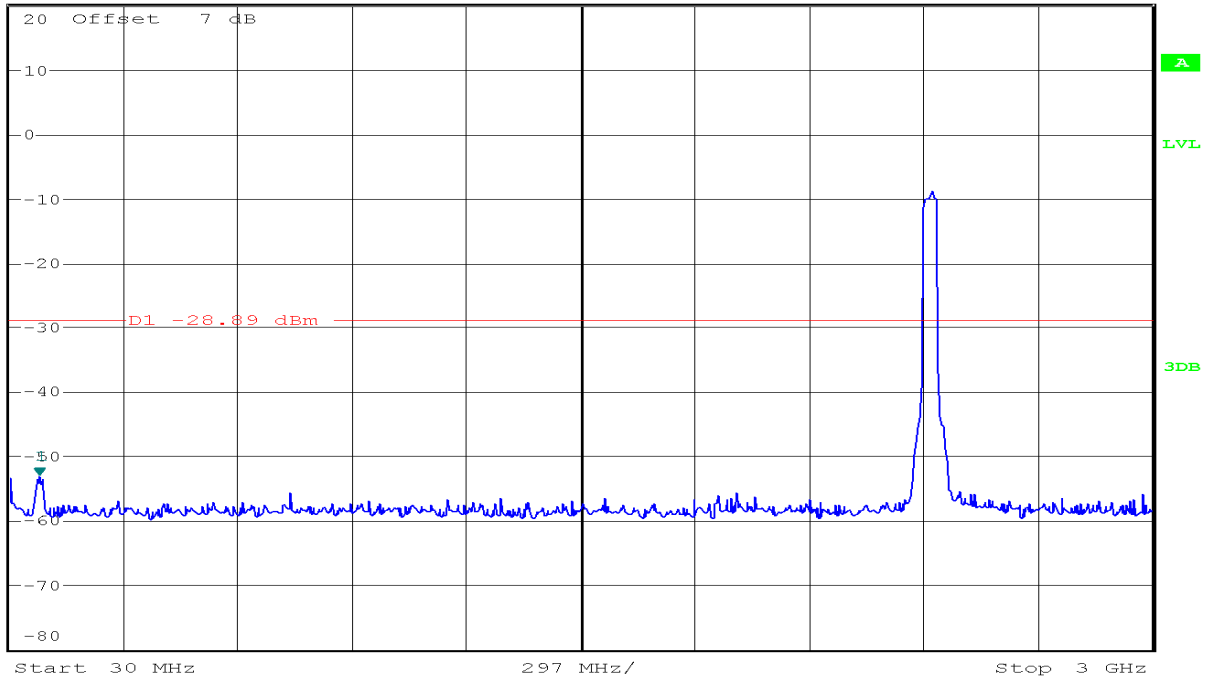
Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -40.63 dBm
* VBW 300 kHz 2.40000000 GHz
SWT 15 ms

1 PK
MATCH



Ref 20 dBm * Att 10 dB * RBW 100 kHz Marker 1 [T1] -53.22 dBm
* VBW 300 kHz 106.153846154 MHz
SWT 300 ms

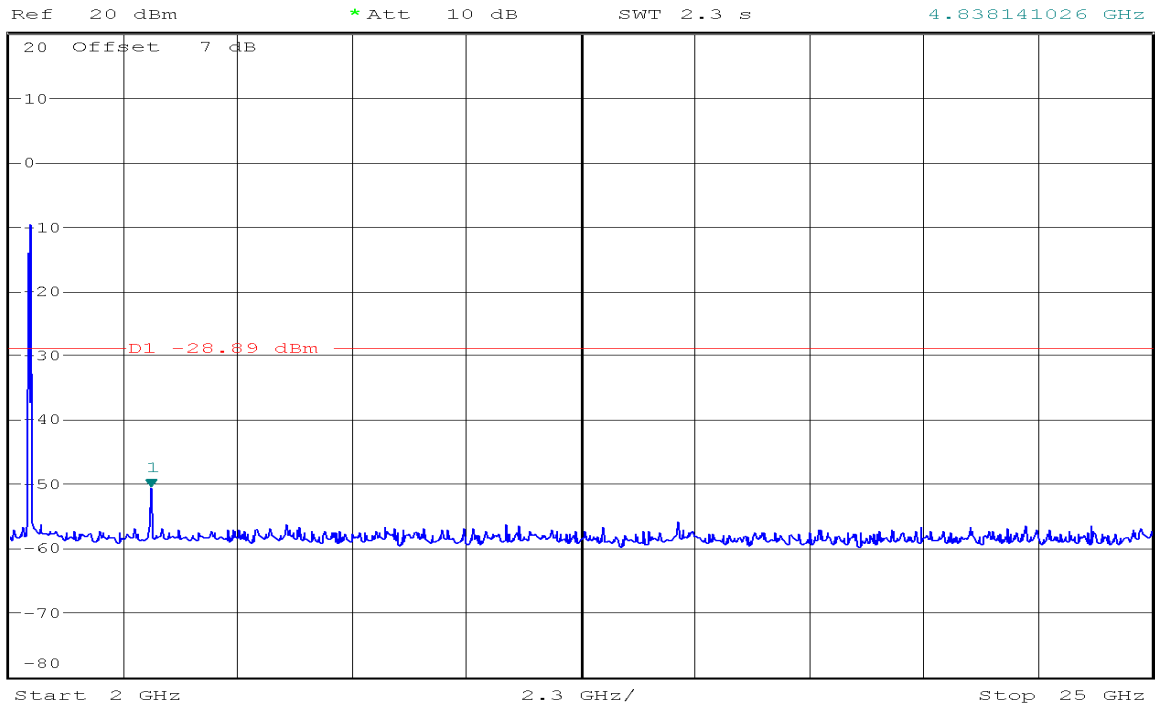
1 PK
MATCH





* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-50.65 dBm
4.838141026 GHz

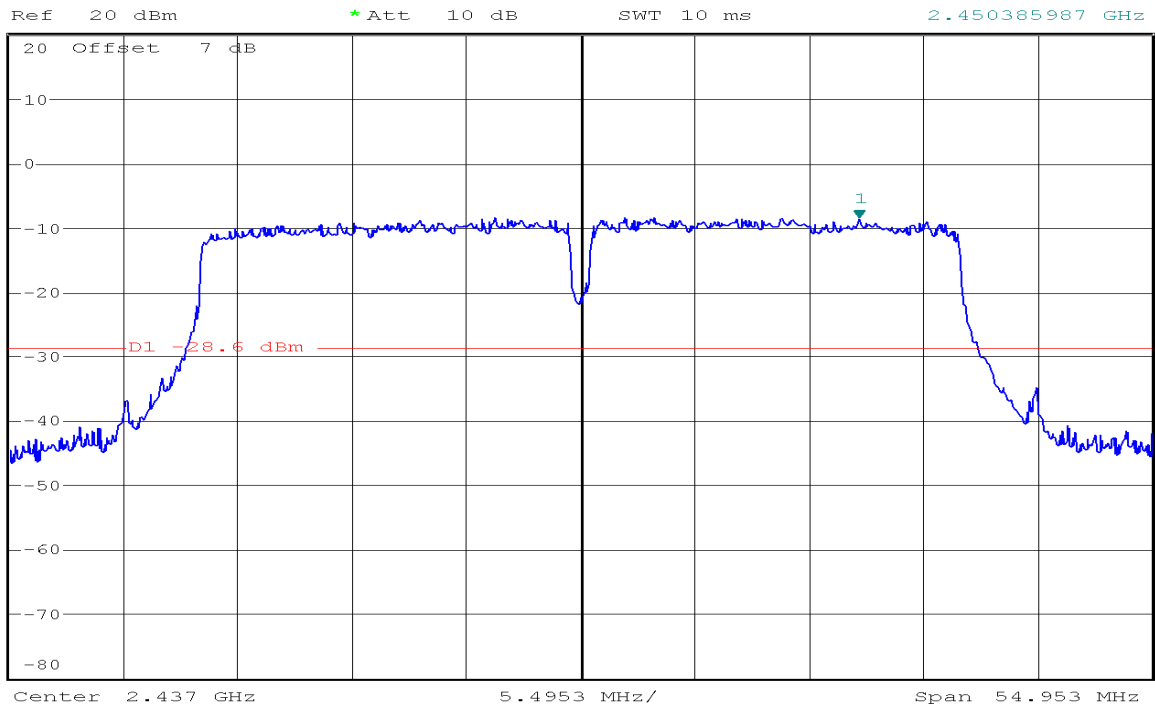


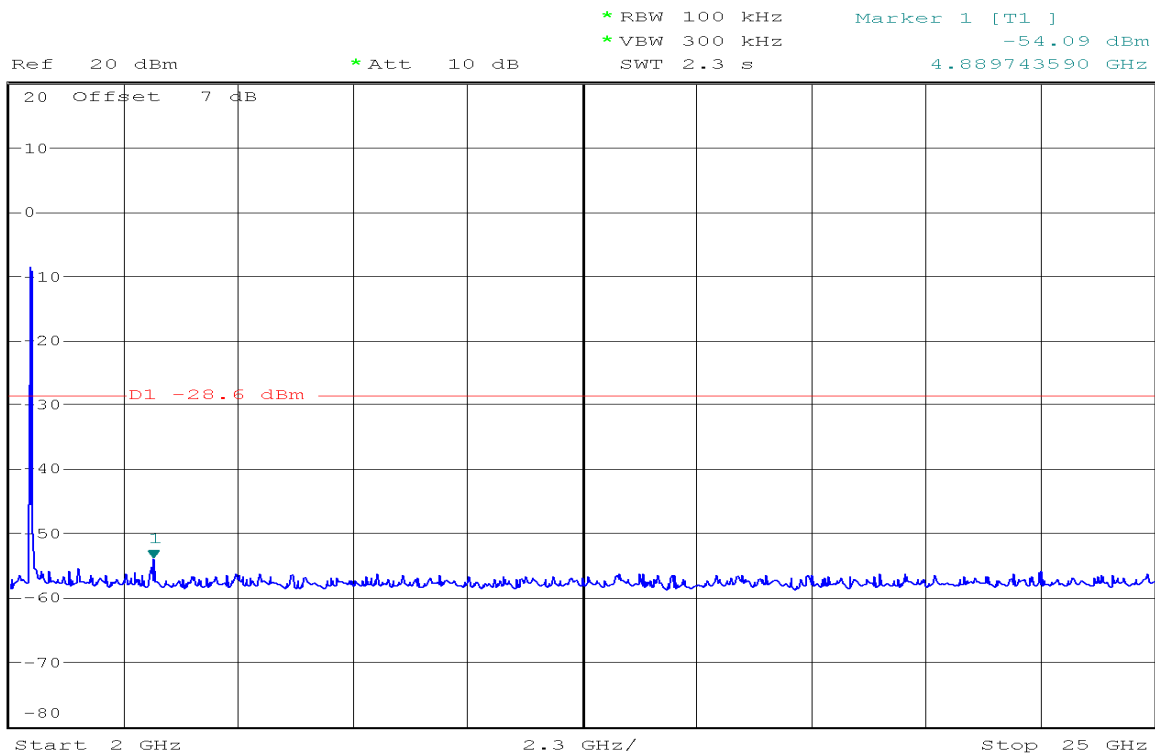
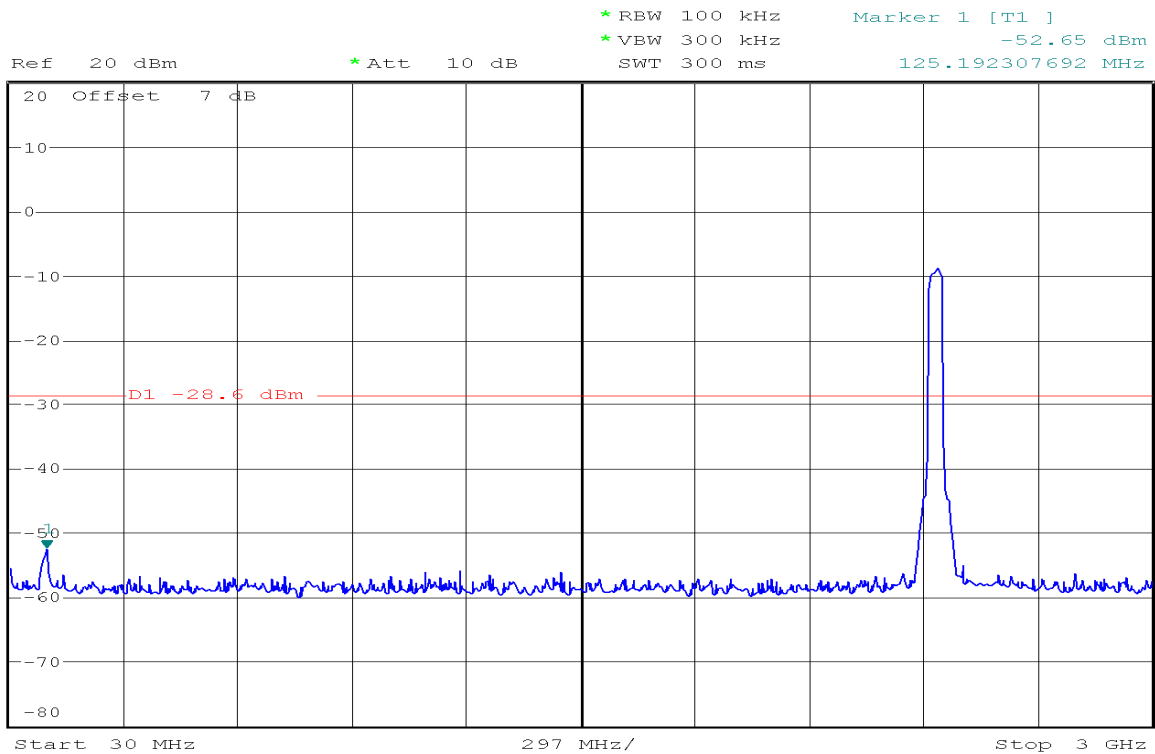
CH Mid



* RBW 100 kHz
* VBW 300 kHz
SWT 10 ms

Marker 1 [T1]
-8.60 dBm
2.450385987 GHz

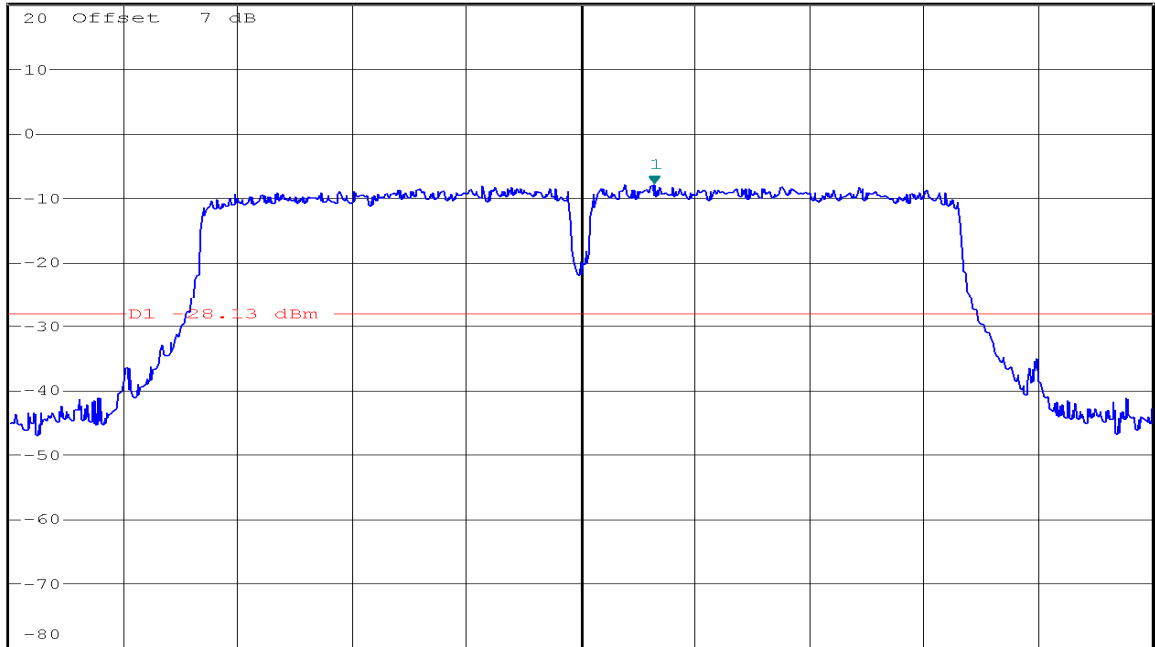




CH High



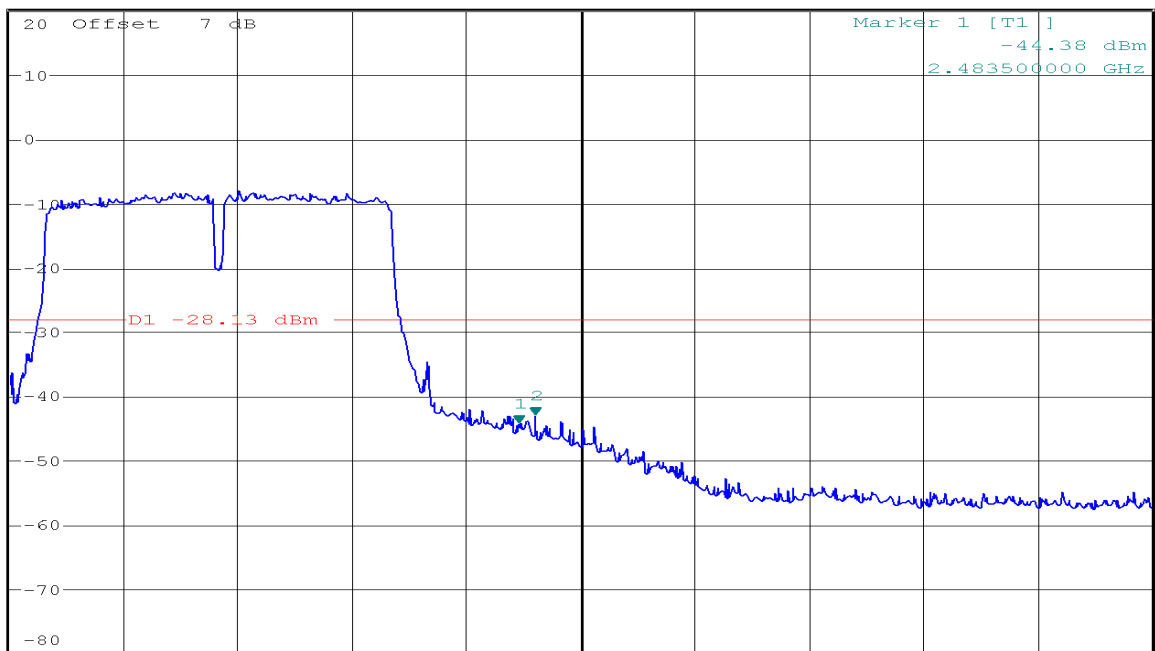
Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 10 ms Marker 1 [T1] -8.13 dBm 2.455522628 GHz



Center 2.452 GHz 5.4953 MHz/ Span 54.953 MHz



Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 15 ms Marker 2 [T1] -43.15 dBm 2.485230769 GHz

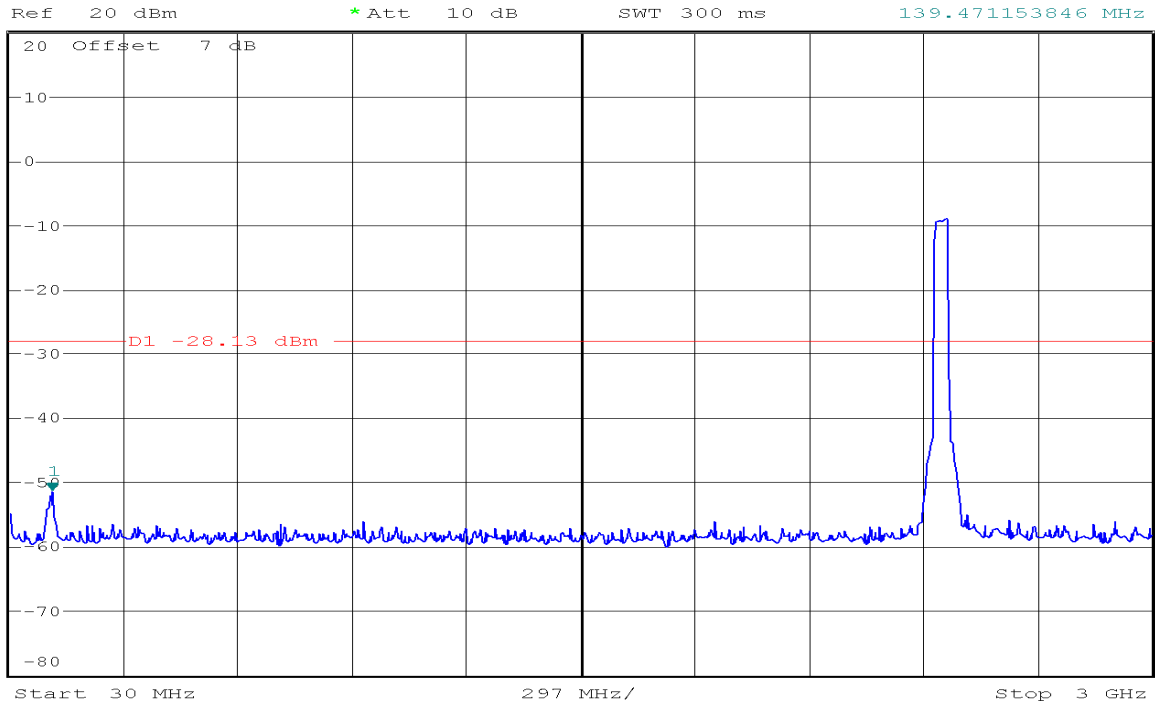


Start 2.43 GHz 12 MHz/ Stop 2.55 GHz



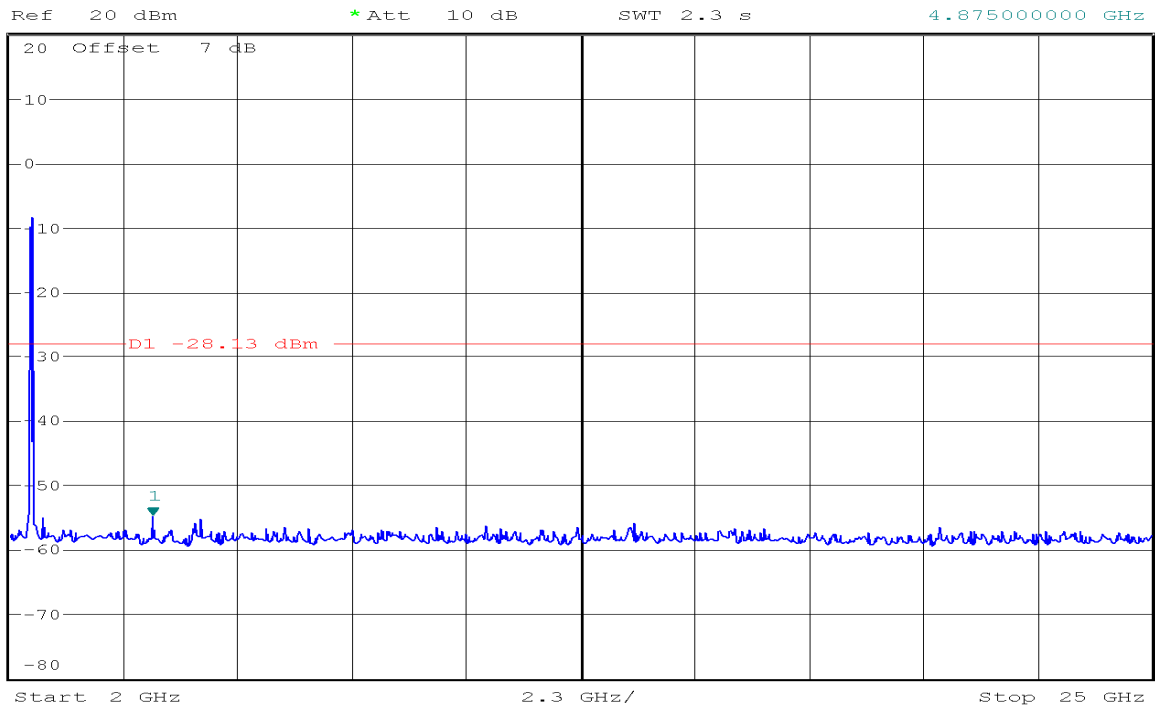
* RBW 100 kHz
* VBW 300 kHz
SWT 300 ms

Marker 1 [T1]
-51.54 dBm
139.471153846 MHz



* RBW 100 kHz
* VBW 300 kHz
SWT 2.3 s

Marker 1 [T1]
-54.81 dBm
4.875000000 GHz



7.5. RADIATED EMISSIONS

LIMIT

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

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

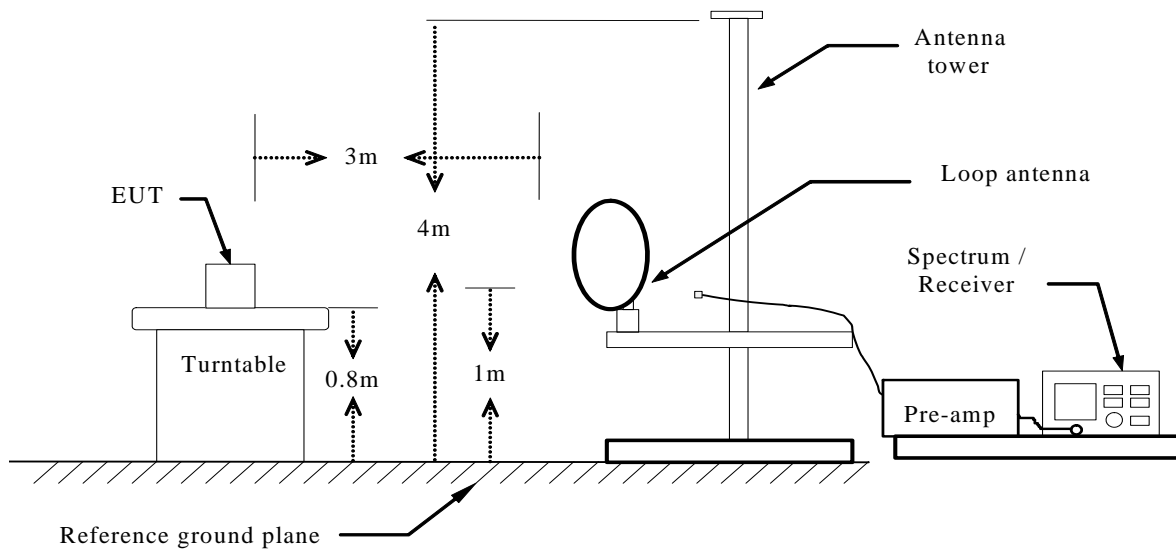
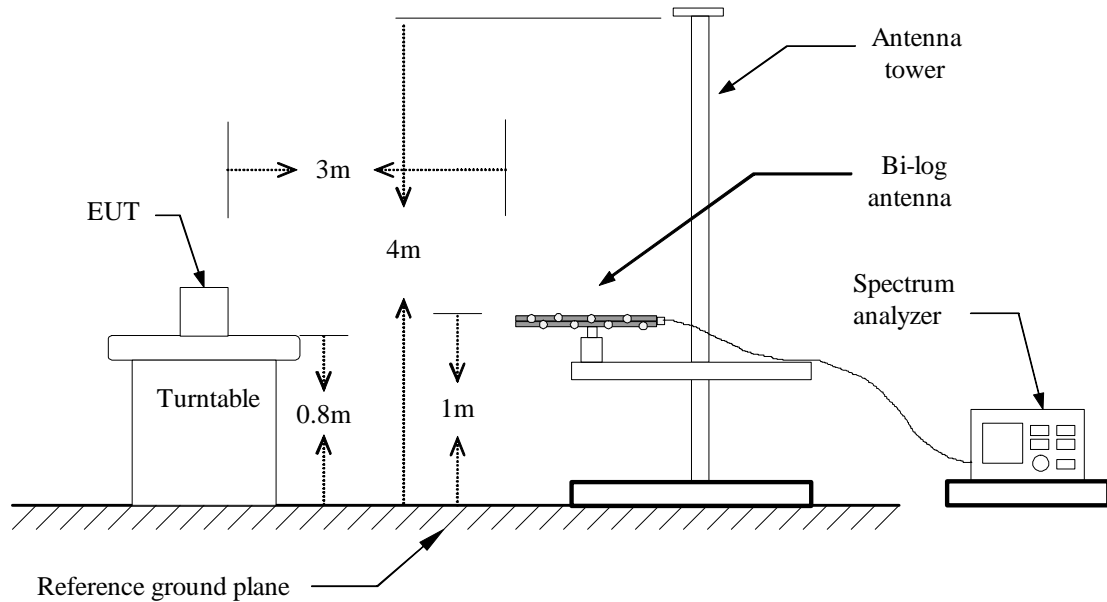
FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

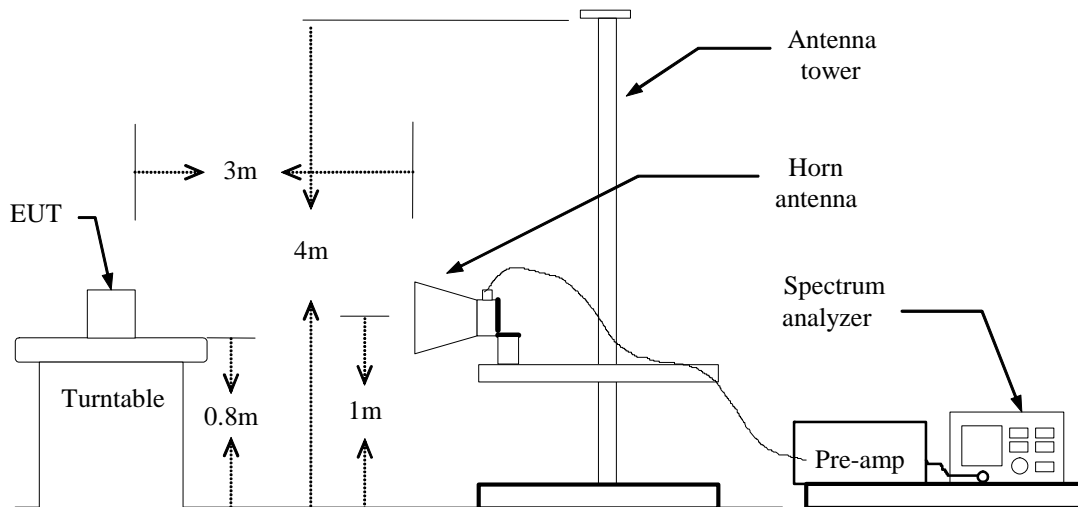
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

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

Test Configuration

Below 30MHz**Below 1 GHz**

Above 1 GHz**TEST PROCEDURE**

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

Below 1GHz:

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

Above 1GHz:

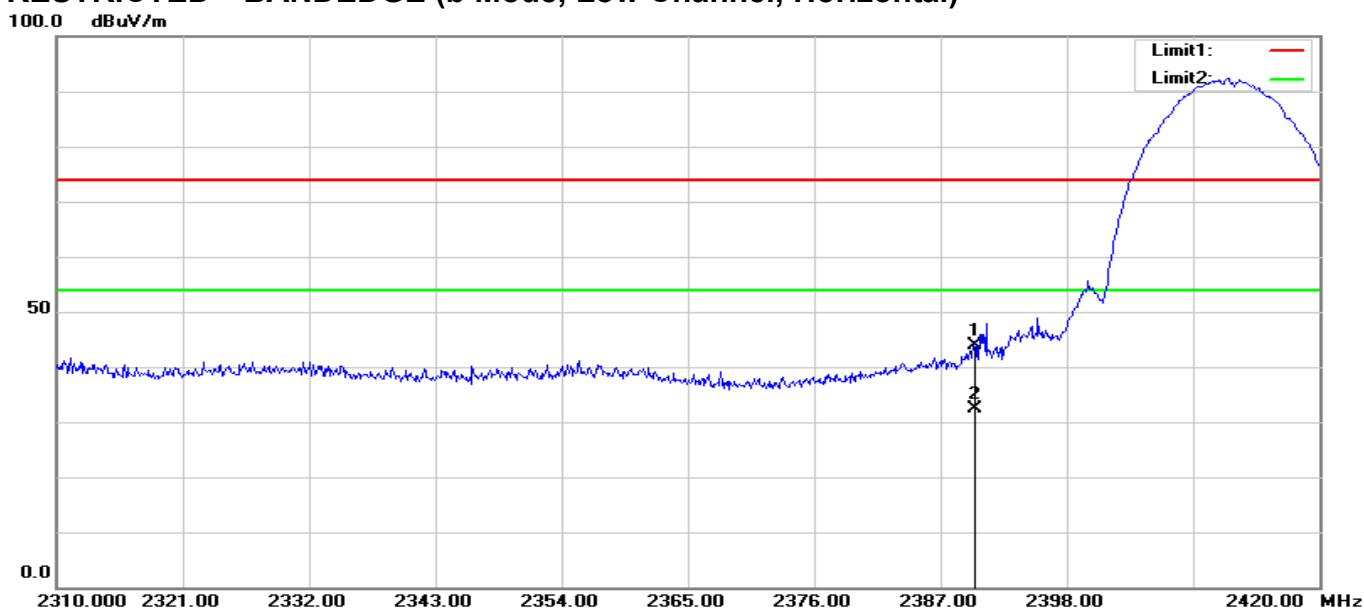
PEAK: RBW=VBW=1MHz / Sweep=AUTO

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

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

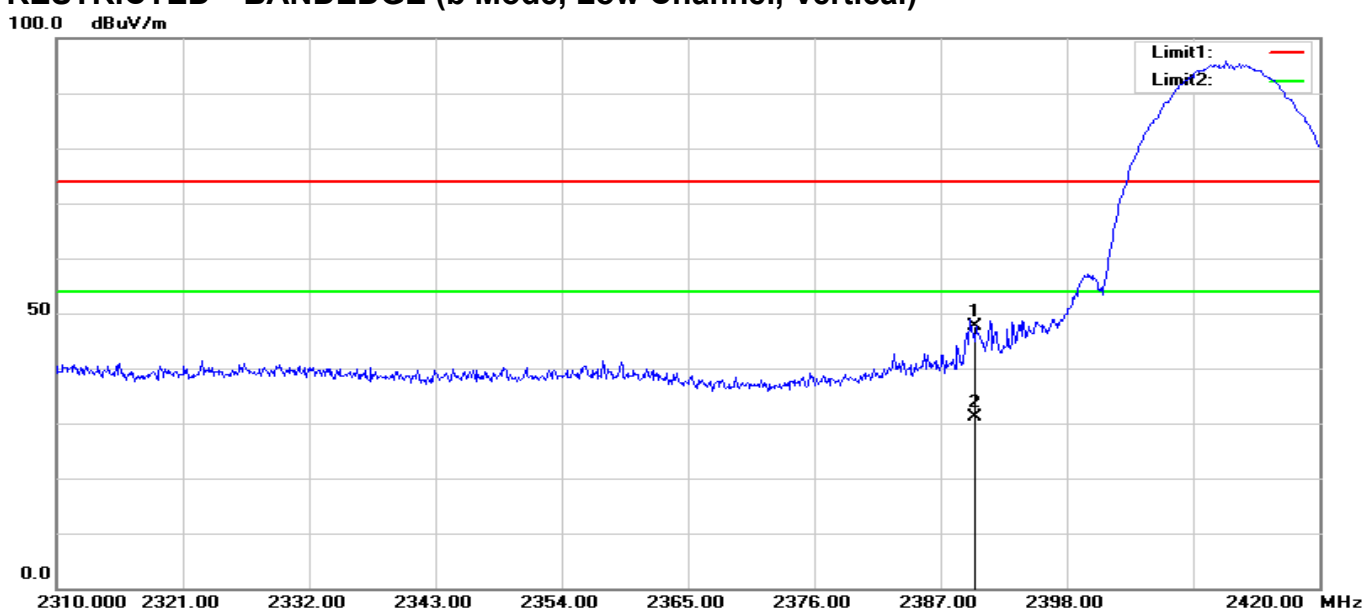
TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)



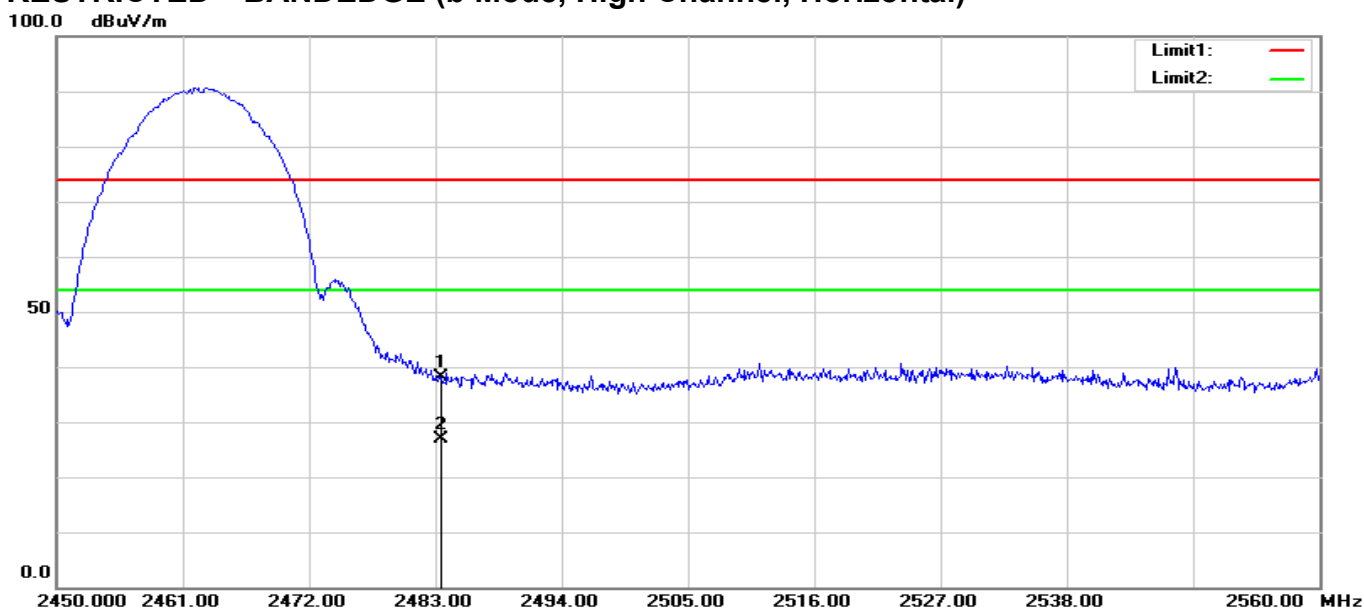
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.43	0.46	43.89	74.00	-30.11	100	355	peak
2	2390.000	31.94	0.46	32.40	54.00	-21.60	100	355	AVG

RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)



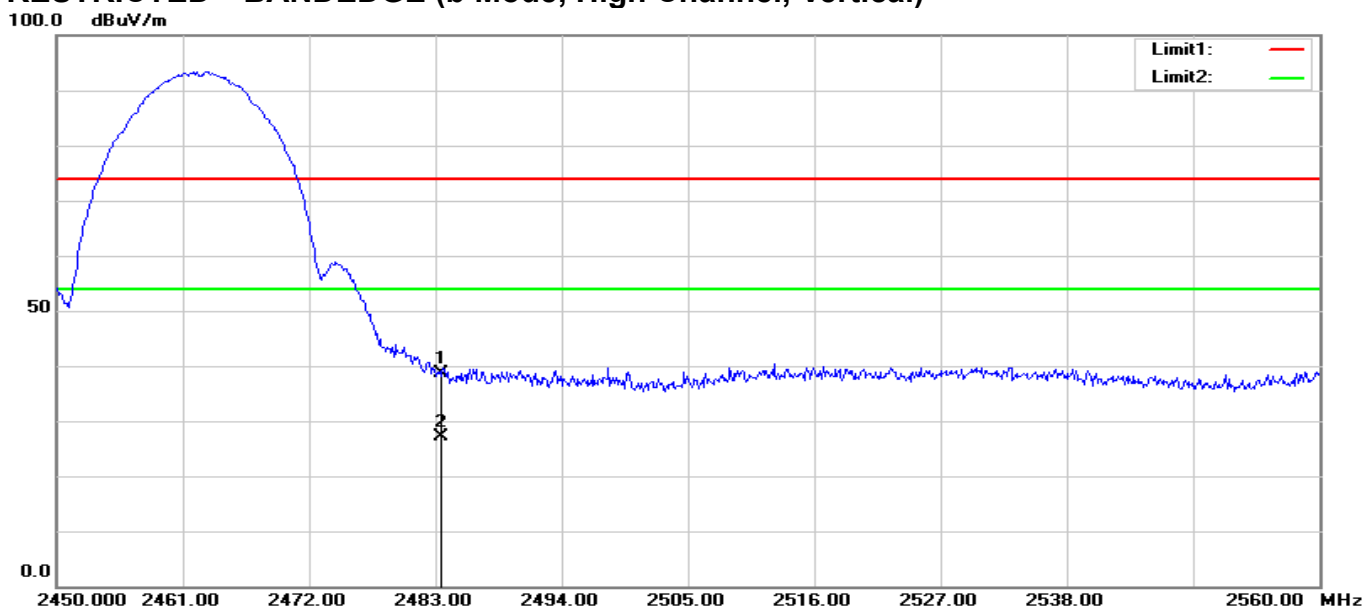
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.23	0.46	47.69	74.00	-26.31	100	173	peak
2	2390.000	30.77	0.46	31.23	54.00	-22.77	100	173	AVG

RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)



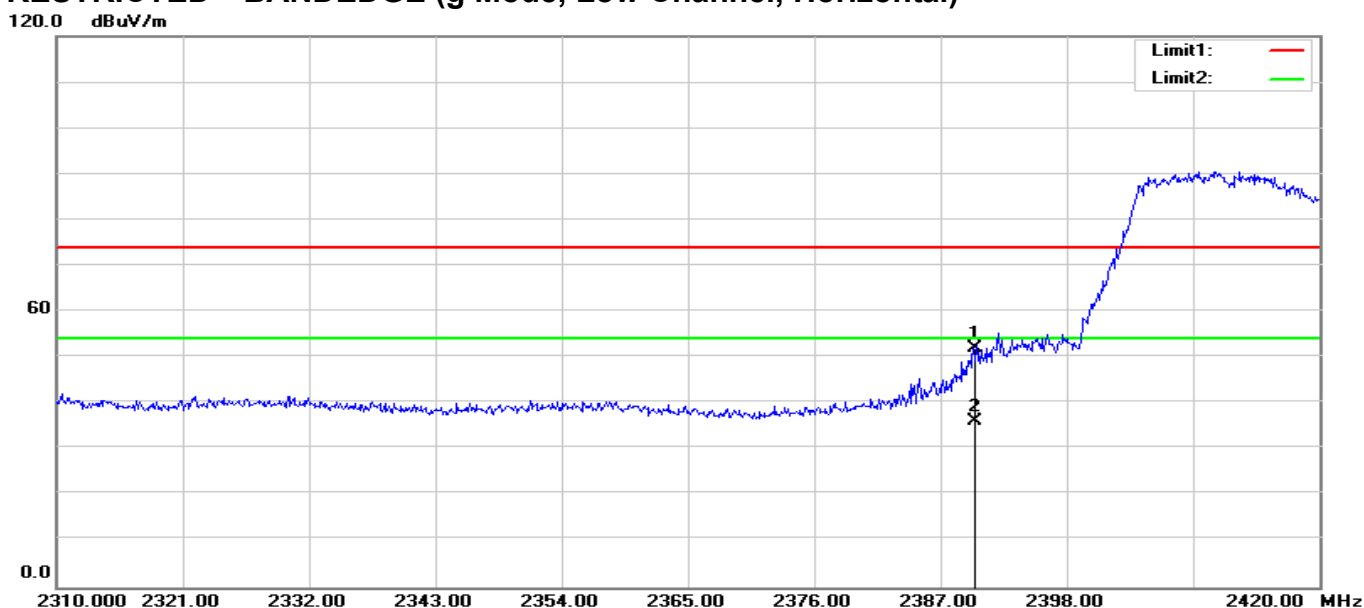
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	38.04	0.09	38.13	74.00	-35.87	100	140	peak
2	2483.500	26.91	0.09	27.00	54.00	-27.00	100	140	AVG

RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)



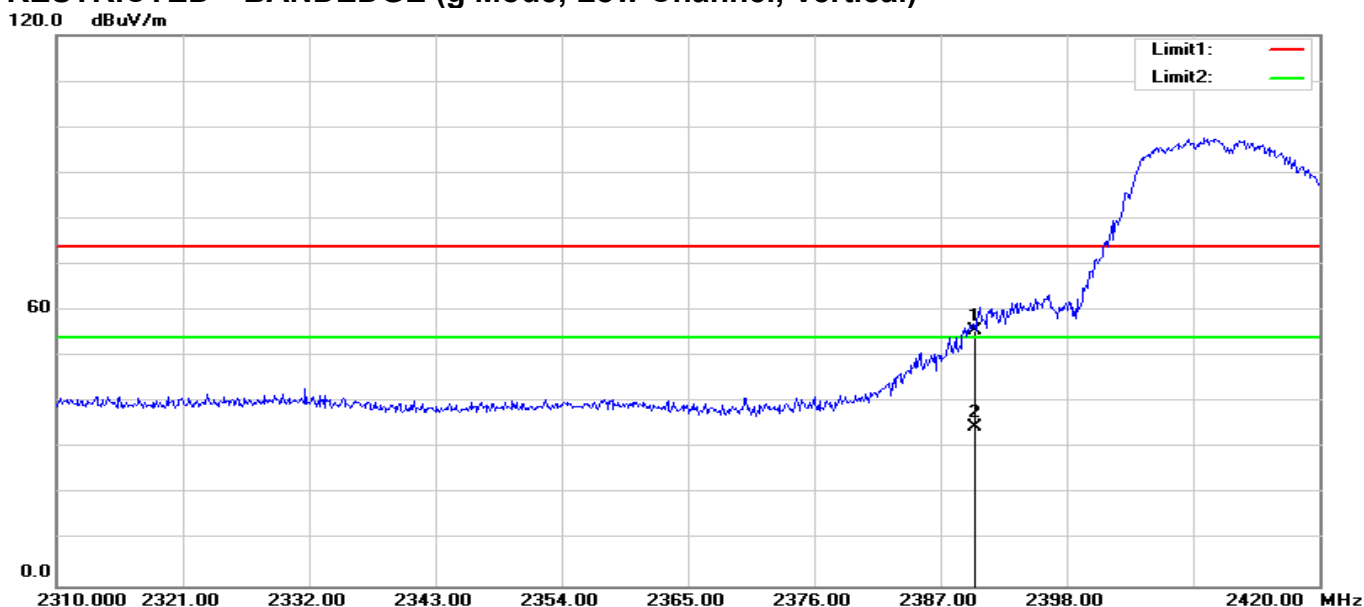
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	38.61	0.09	38.70	74.00	-35.30	100	112	peak
2	2483.500	26.96	0.09	27.05	54.00	-26.95	100	112	AVG

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	51.68	0.46	52.14	74.00	-21.86	100	181	peak
2	2390.000	35.82	0.46	36.28	54.00	-17.72	100	181	AVG

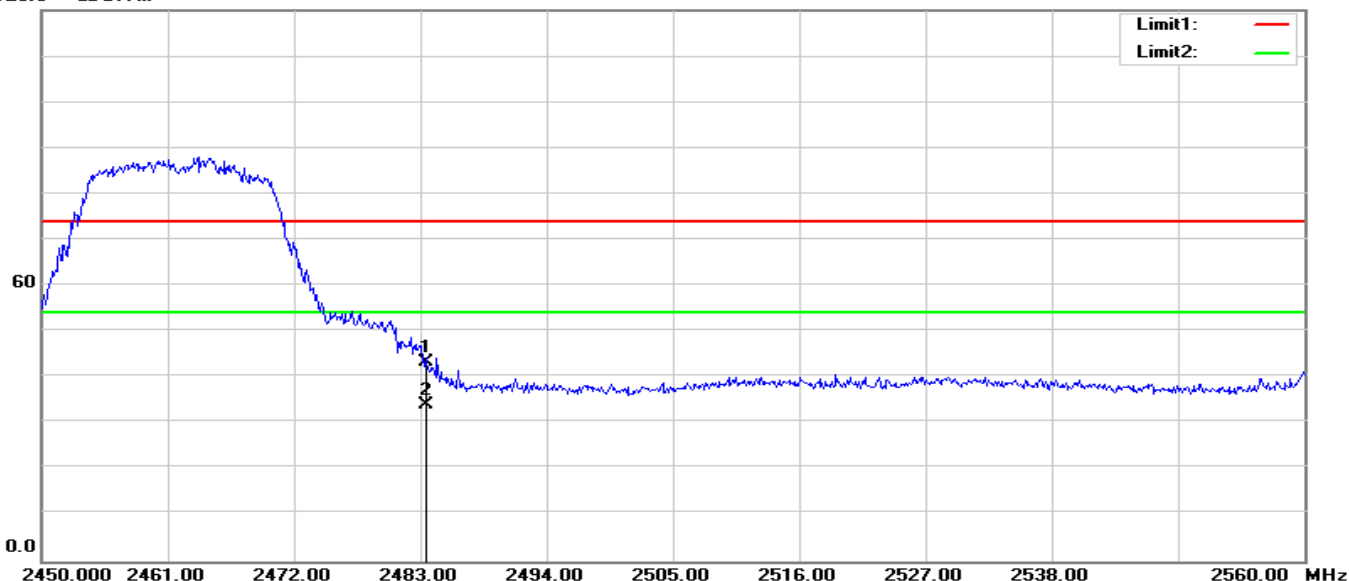
RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)



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	55.16	0.46	55.62	74.00	-18.38	100	215	peak
2	2390.000	34.06	0.46	34.52	54.00	-19.48	100	215	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

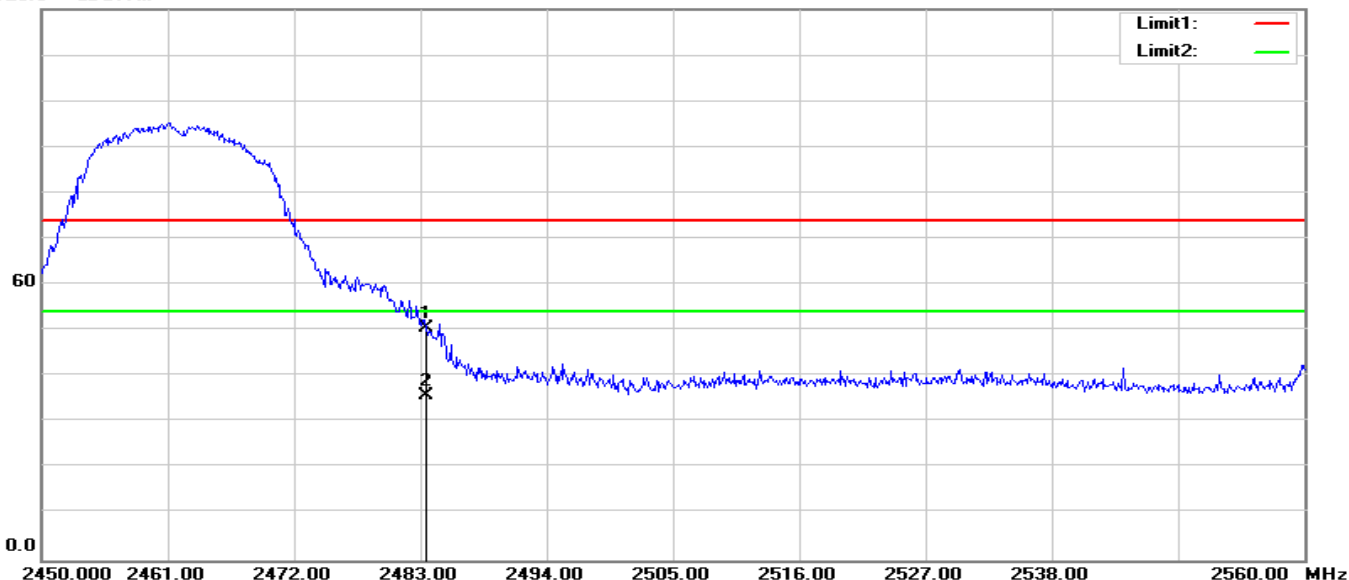
120.0 dBuV/m



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	43.35	0.09	43.44	74.00	-30.56	100	143	peak
2	2483.500	34.06	0.09	34.15	54.00	-19.85	100	143	AVG

RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

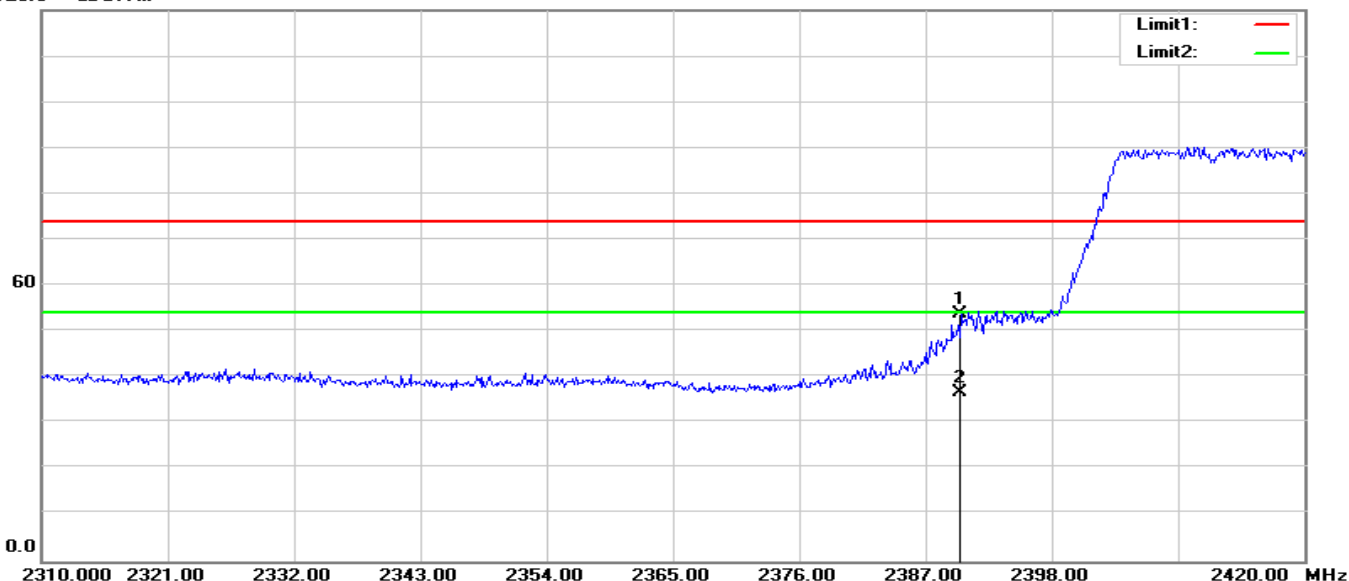
120.0 dBuV/m



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	50.50	0.09	50.59	74.00	-23.41	100	253	peak
2	2483.500	35.89	0.09	35.98	54.00	-18.02	100	253	AVG

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

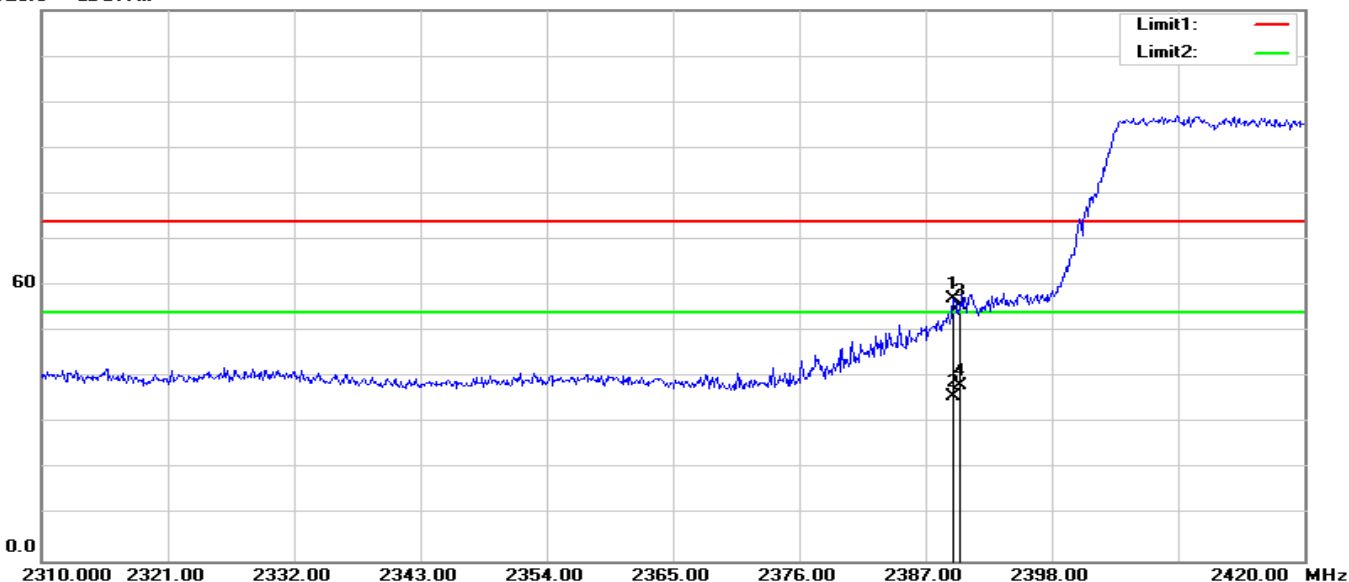
120.0 dBuV/m



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	53.27	0.46	53.73	74.00	-20.27	100	119	peak
2	2390.000	36.43	0.46	36.89	54.00	-17.11	100	119	AVG

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

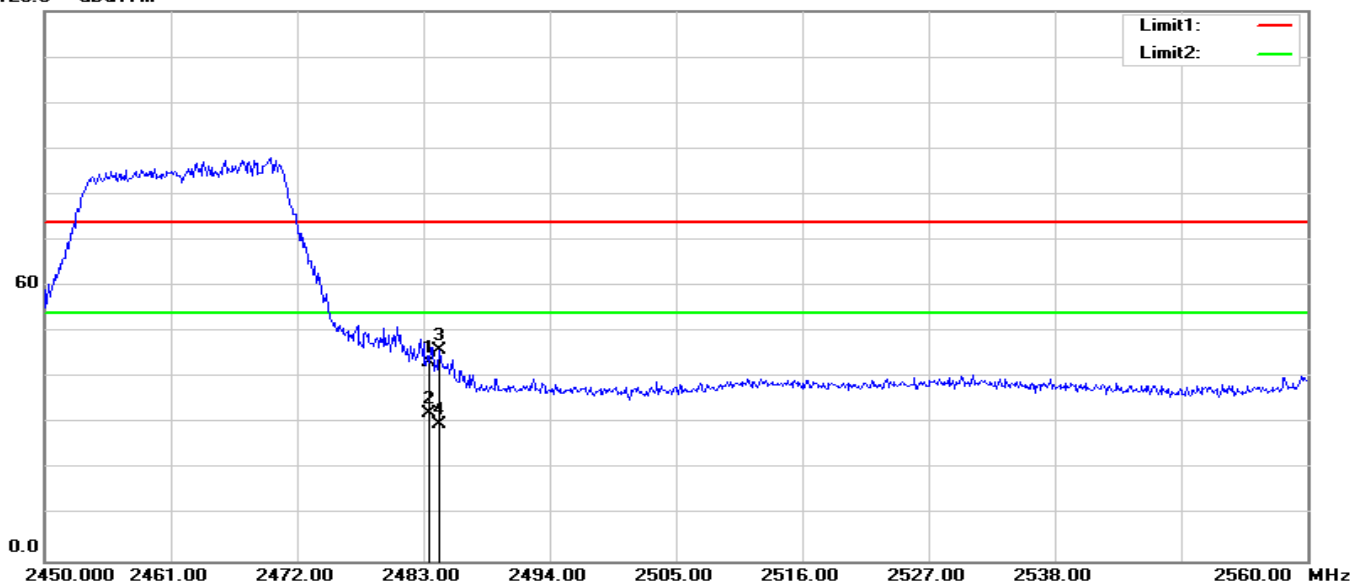
120.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.420	56.63	0.46	57.09	74.00	-16.91	100	249	peak
2	2389.420	35.38	0.46	35.84	54.00	-18.16	100	249	AVG
3	2390.000	55.11	0.46	55.57	74.00	-18.43	100	303	peak
4	2390.000	37.66	0.46	38.12	54.00	-15.88	100	303	AVG

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

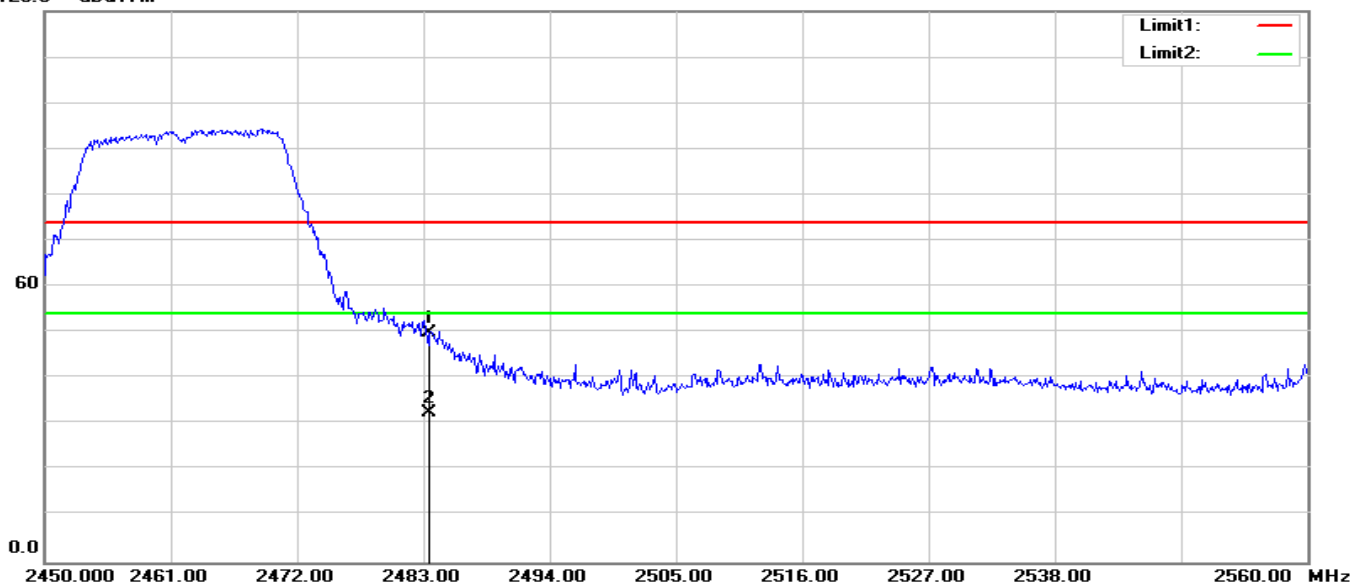
120.0 dBuV/m



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	43.39	0.09	43.48	74.00	-30.52	100	45	peak
2	2483.500	32.02	0.09	32.11	54.00	-21.89	100	45	AVG
3	2484.320	45.96	0.09	46.05	74.00	-27.95	100	211	peak
4	2484.320	29.89	0.09	29.98	54.00	-24.02	100	211	AVG

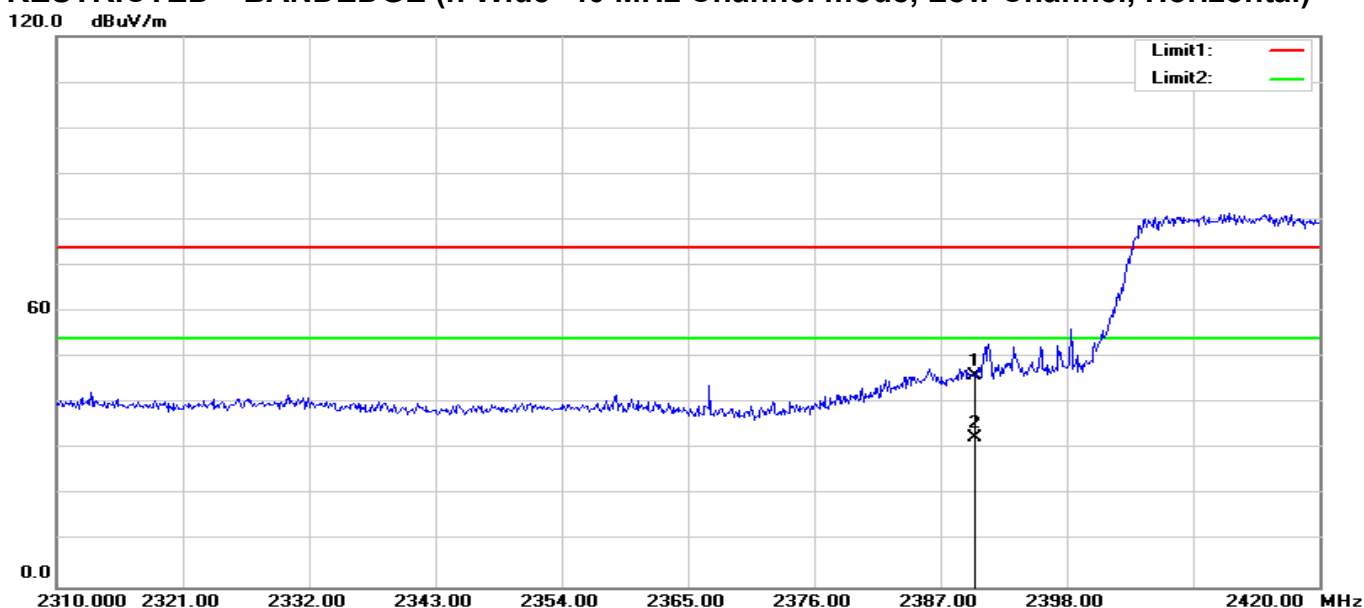
RESTRICTED BANDEDGE (n Standard-20 MHz Channel mode, High Channel, Vertical)

120.0 dBuV/m



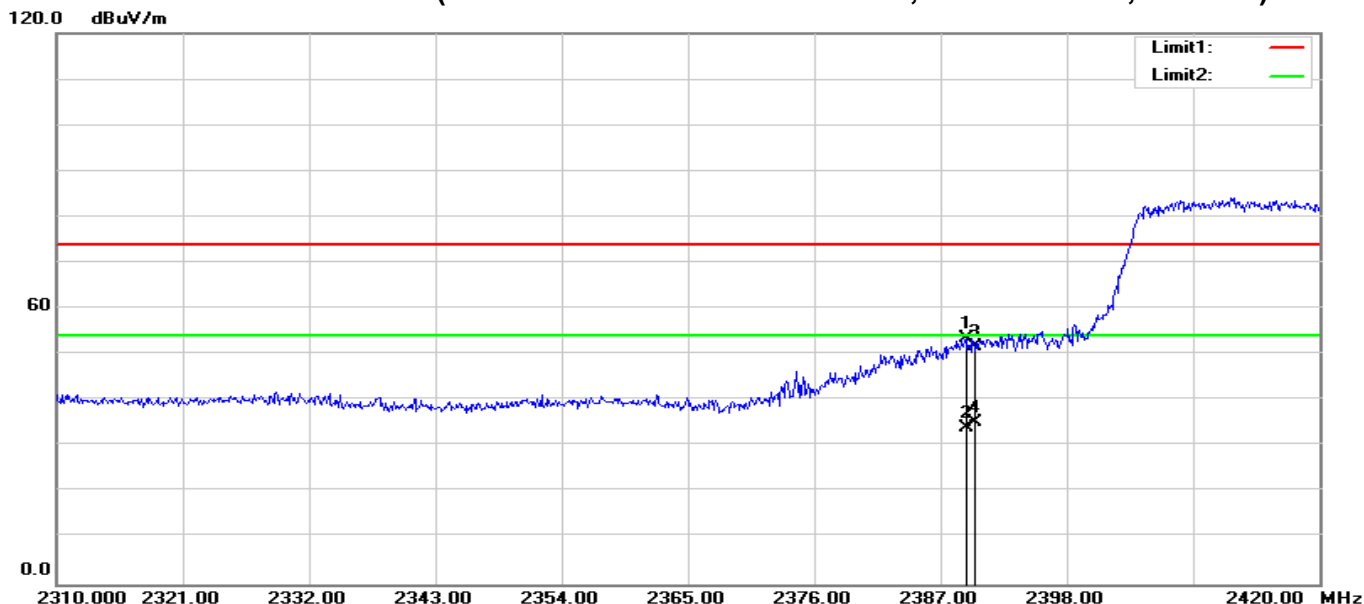
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.88	0.09	49.97	74.00	-24.03	100	210	peak
2	2483.500	32.42	0.09	32.51	54.00	-21.49	100	210	AVG

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



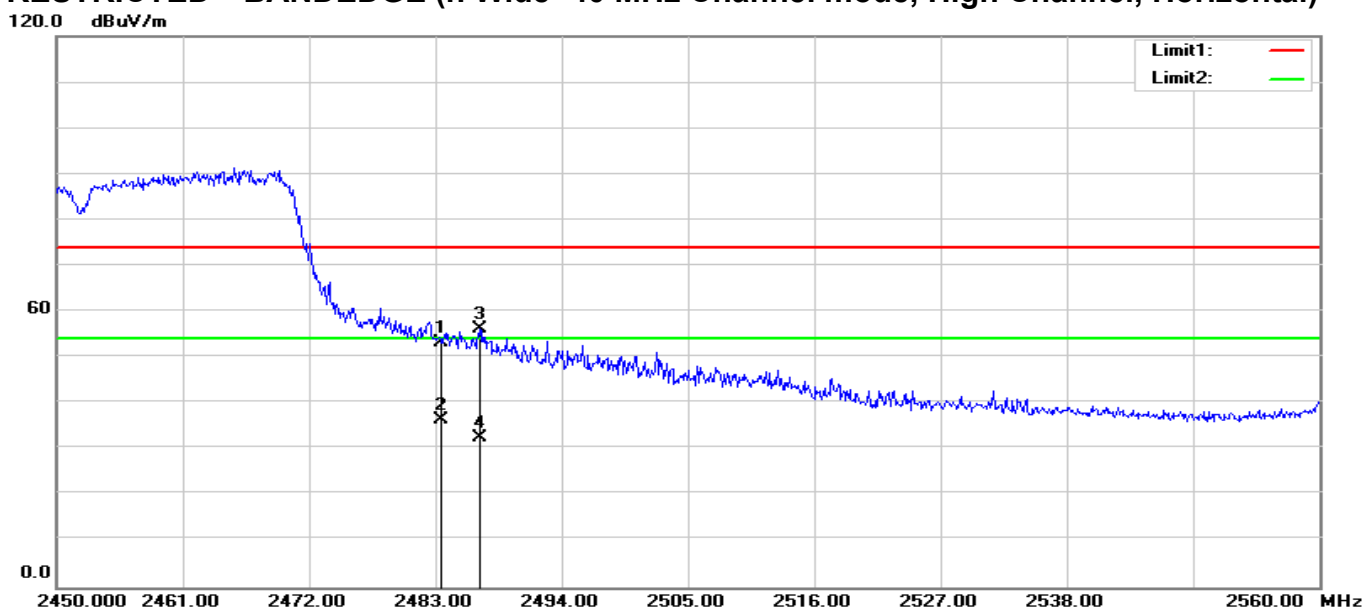
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.67	0.46	46.13	74.00	-27.87	100	131	peak
2	2390.000	32.17	0.46	32.63	54.00	-21.37	100	131	AVG

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



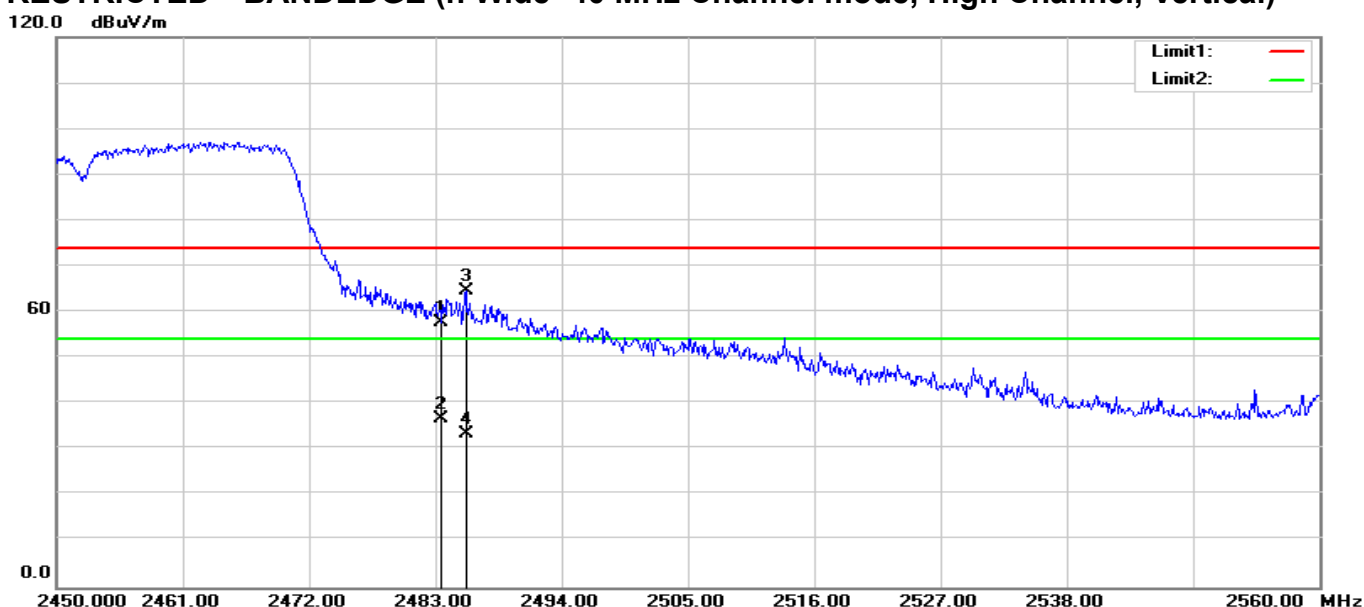
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2389.200	53.15	0.46	53.61	74.00	-20.39	100	144	peak
2	2389.200	33.72	0.46	34.18	54.00	-19.82	100	144	AVG
3	2390.000	51.43	0.46	51.89	74.00	-22.11	100	12	peak
4	2390.000	34.83	0.46	35.29	54.00	-18.71	100	12	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	2483.500	53.31	0.09	53.40	74.00	-20.60	100	31	peak
2	2483.500	36.46	0.09	36.55	54.00	-17.45	100	31	AVG
3	2486.850	56.11	0.08	56.19	74.00	-17.81	100	265	peak
4	2486.850	32.51	0.08	32.59	54.00	-21.41	100	265	AVG

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	57.62	0.09	57.71	74.00	-16.29	100	360	peak
2	2483.500	36.76	0.09	36.85	54.00	-17.15	100	360	AVG
3	2485.640	64.61	0.09	64.70	74.00	-9.30	100	3	peak
4	2485.640	33.38	0.09	33.47	54.00	-20.53	100	3	AVG

Below 1GHz**Operation Mode:** Normal Link**Test Date:** 2015-6-27**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
45.5200	V	15.98	11.94	27.92	40.00	-12.08	Peak
85.2900	V	18.58	10.47	29.05	40.00	-10.95	Peak
123.1200	V	8.83	13.73	22.56	43.50	-20.94	Peak
151.2500	V	7.18	16.00	23.18	43.50	-20.32	Peak
263.7700	V	9.42	14.94	24.36	46.00	-21.64	Peak
299.6600	V	7.23	16.80	24.03	46.00	-21.97	Peak
99.8400	H	10.89	11.74	22.63	43.50	-20.87	Peak
180.3500	H	12.65	15.30	27.95	43.50	-15.55	Peak
207.5100	H	13.18	14.73	27.91	43.50	-15.59	Peak
260.8600	H	14.14	14.79	28.93	46.00	-17.07	Peak
299.6600	H	13.88	16.80	30.68	46.00	-15.32	Peak
415.0900	H	6.87	21.09	27.96	46.00	-18.04	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. $\text{Margin (dB)} = \text{Result (dBuV/m)} - \text{Limit (dBuV/m)}$.

Above 1 GHz**Operation Mode:** TX / IEEE 802.11b(chain0+chain1) / CH Low**Test Date:** 2015-6-27**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	4774.000	36.42	8.39	44.81	74.00	-29.19	100	4	peak
2	9789.000	34.02	18.16	52.18	74.00	-21.82	100	113	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	4774.000	36.63	8.39	45.02	74.00	-28.98	100	0	peak
2	9517.000	34.24	16.46	50.70	74.00	-23.30	100	129	peak
N/A									

Operation Mode: TX / IEEE 802.11b(chain0+chain1) / CH Mid**Test Date:** 2015-6-27**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	4910.000	37.04	8.90	45.94	74.00	-28.06	100	163	peak
2	9466.000	35.55	16.22	51.77	74.00	-22.23	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	4910.000	37.12	8.90	46.02	74.00	-27.98	100	270	peak
2	10741.000	31.53	22.23	53.76	74.00	-20.24	100	207	peak
N/A									



Compliance Certification Services Inc.

Date of Issue : July 3, 2015

Report No: C150616R01-RPW

FCC ID: PANWL7200V2

Operation Mode: TX / IEEE 802.11b(chain0+chain1) / CH High **Test Date:** 2015-6-27

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	5029.000	37.82	9.23	47.05	74.00	-26.95	100	358	peak
2	9874.000	33.68	18.69	52.37	74.00	-21.63	100	200	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	4910.000	37.86	8.90	46.76	74.00	-27.24	100	200	peak
2	9602.000	34.22	16.99	51.21	74.00	-22.79	100	220	peak
N/A									

Operation Mode: TX / IEEE 802.11g(chain0+chain1) / CH Low **Test Date:** 2015-6-27

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	4706.000	36.73	8.14	44.87	74.00	-29.13	100	38	peak
2	9585.000	34.34	16.88	51.22	74.00	-22.78	100	1	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	4638.000	36.25	7.89	44.14	74.00	-29.86	100	27	peak
2	10673.000	31.84	21.57	53.41	74.00	-20.59	100	220	peak
N/A									



Compliance Certification Services Inc.

Date of Issue : July 3, 2015

Report No: C150616R01-RPW

FCC ID: PANWL7200V2

Operation Mode: TX / IEEE 802.11g(chain0+chain1) / CH Mid

Test Date: 2015-6-27

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	5505.000	38.38	9.22	47.60	74.00	-26.40	100	210	peak
2	9551.000	32.75	16.67	49.42	74.00	-24.58	100	9	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	4825.000	37.87	8.58	46.45	74.00	-27.55	100	24	peak
2	10486.000	33.63	19.89	53.52	74.00	-20.48	100	127	peak
N/A									

Operation Mode: TX / IEEE 802.11g(chain0+chain1) / CH High

Test Date: 2015-6-27

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	4519.000	36.59	7.45	44.04	74.00	-29.96	100	200	peak
2	9585.000	33.46	16.88	50.34	74.00	-23.66	100	358	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	4910.000	37.82	8.90	46.72	74.00	-27.28	100	350	peak
2	9704.000	34.17	17.63	51.80	74.00	-22.20	100	301	peak
N/A									



Compliance Certification Services Inc.

Date of Issue : July 3, 2015

Report No: C150616R01-RPW

FCC ID: PANWL7200V2

Operation Mode: TX / IEEE 802.11n HT20 mode(chain0+chain1) / CH Low**Test Date:** 2015-6-27**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	5318.000	38.13	9.22	47.35	74.00	-26.65	100	88	peak
2	10146.000	33.03	19.60	52.63	74.00	-21.37	100	332	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	5131.000	36.23	9.22	45.45	74.00	-28.55	100	238	peak
2	10605.000	32.28	20.91	53.19	74.00	-20.81	100	136	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT20 mode(chain0+chain1) / CH Mid**Test Date:** 2015-6-27**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	4808.000	38.43	8.52	46.95	74.00	-27.05	100	98	peak
2	9262.000	35.52	15.46	50.98	74.00	-23.02	100	38	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	5250.000	36.54	9.22	45.76	74.00	-28.24	100	359	peak
2	10537.000	33.10	20.26	53.36	74.00	-20.64	100	159	peak
N/A									



Compliance Certification Services Inc.

Date of Issue : July 3, 2015

Report No: C150616R01-RPW

FCC ID: PANWL7200V2

Operation Mode: TX / IEEE 802.11n HT20
mode(chain0+chain1) / CH High

Test Date: 2015-6-27

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	4757.000	36.09	8.33	44.42	74.00	-29.58	100	17	peak
2	9619.000	34.34	17.09	51.43	74.00	-22.57	100	220	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	5097.000	33.55	9.23	42.78	74.00	-31.22	100	153	peak
2	10741.000	30.41	22.23	52.64	74.00	-21.36	100	183	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40
mode(chain0+chain1) / CH Low

Test Date: 2015-6-27

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	4825.000	37.37	8.58	45.95	74.00	-28.05	100	332	peak
2	9670.000	34.19	17.41	51.60	74.00	-22.40	100	271	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	5182.000	37.35	9.22	46.57	74.00	-27.43	100	88	peak
2	10163.000	33.07	19.62	52.69	74.00	-21.31	100	27	peak
N/A									



Compliance Certification Services Inc.

Date of Issue :July 3, 2015

Report No:C150616R01-RPW

FCC ID: PANWL7200V2

Operation Mode: TX / IEEE 802.11n HT40 mode(chain0+chain1) / CH Mid **Test Date:** 2015-6-27
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	4791.000	37.51	8.46	45.97	74.00	-28.03	100	144	peak
2	13019.000	30.56	23.24	53.80	74.00	-20.20	100	0	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	4910.000	37.69	8.90	46.59	74.00	-27.41	100	0	peak
2	9313.000	35.83	15.65	51.48	74.00	-22.52	100	180	peak
N/A									

Operation Mode: TX / IEEE 802.11n HT40 mode(chain0+chain1) / CH High **Test Date:** 2015-6-27
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	4587.000	38.82	7.70	46.52	74.00	-27.48	100	48	peak
2	9755.000	32.31	17.95	50.26	74.00	-23.74	100	88	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	4774.000	36.97	8.39	45.36	74.00	-28.64	100	359	peak
2	10690.000	31.02	21.74	52.76	74.00	-21.24	100	103	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.

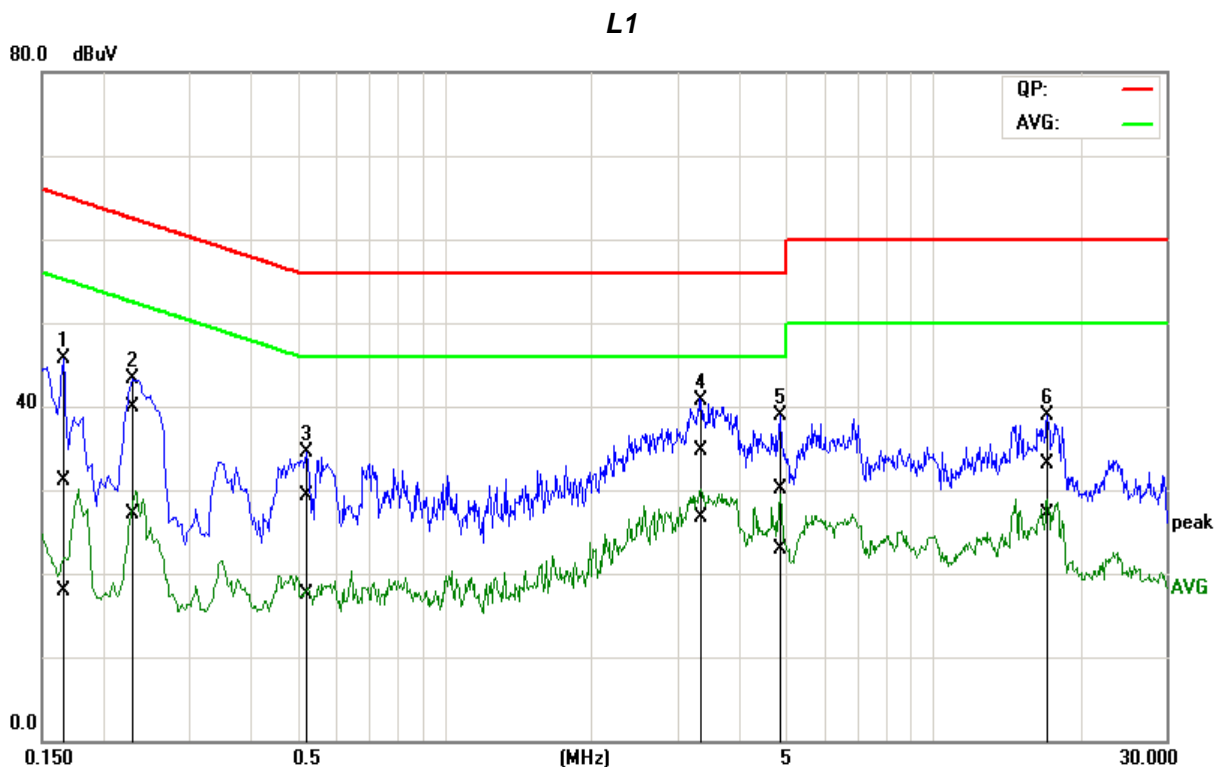
TEST RESULTS

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.: C150616R01
 Model: WL-7200-V2
 Standard: FCC Class B
 Test item: Conduction test
 Line: L1
 Model:

Date: 2015-6-22
 Time: 10:00:30
 Temp.(C)/Hum.(%): 22(C)/48%
 Test By: James.Yan
 Test Voltage: AC 120V/60Hz
 Description:

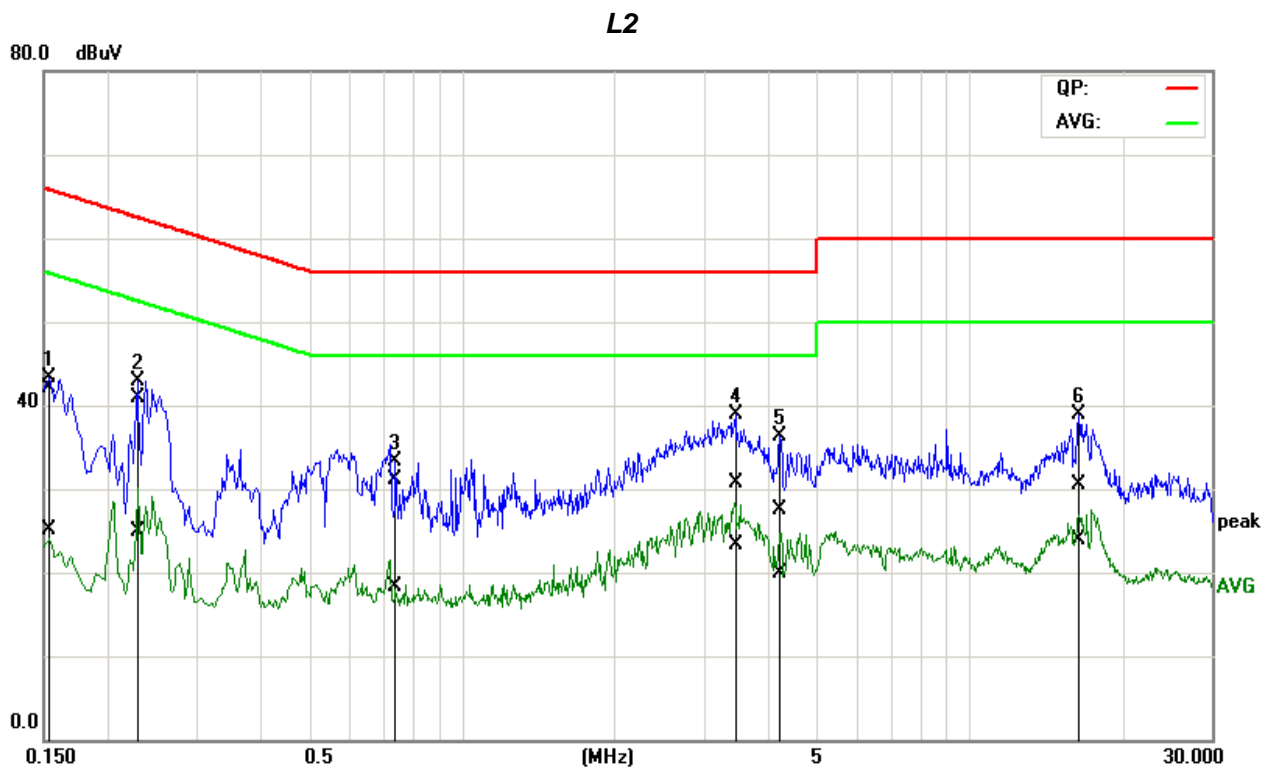


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1647	11.37	-1.76	19.75	31.12	17.99	65.22	55.22	-34.10	-37.23	Pass
2	0.2293	20.35	7.56	19.62	39.97	27.18	62.47	52.48	-22.50	-25.30	Pass
3	0.5228	9.44	-2.23	19.83	29.27	17.60	56.00	46.00	-26.73	-28.40	Pass
4	3.3763	14.66	6.60	20.10	34.76	26.70	56.00	46.00	-21.24	-19.30	Pass
5*	4.8939	9.90	2.53	20.29	30.19	22.82	56.00	46.00	-25.81	-23.18	Pass
6	17.0653	12.13	6.05	20.96	33.09	27.01	60.00	50.00	-26.91	-22.99	Pass

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

Job No.: C150616R01
 Model: WL-7200-V2
 Standard: FCC Class B
 Test item: Conduction test
 Line: L2
 Model:

Date: 2015-6-22
 Time: 10:06:58
 Temp.(C)/Hum.(%): 22(C)/48%
 Test By: James.Yan
 Test Voltage: AC 120V/60Hz
 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	0.1553	22.32	5.32	19.72	42.04	25.04	65.71	55.71	-23.67	-30.67	Pass
2	0.2284	21.23	5.20	19.66	40.89	24.86	62.50	52.51	-21.61	-27.65	Pass
3	0.7339	11.24	-1.55	19.84	31.08	18.29	56.00	46.00	-24.92	-27.71	Pass
4	3.3996	10.56	3.25	20.12	30.68	23.37	56.00	46.00	-25.32	-22.63	Pass
5*	4.2686	7.24	-0.36	20.22	27.46	19.86	56.00	46.00	-28.54	-26.14	Pass
6	16.4865	9.62	3.04	20.80	30.42	23.84	60.00	50.00	-29.58	-26.16	Pass

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