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TEST REPORT

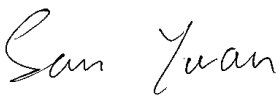
Application No. :	SHEMO10050056504
Applicant:	Jiangsu Shinco Digital Technology Co.,Ltd.
FCC ID:	YGLSH7601
Fundamental Frequency :	2.4GHz ISM Band
Equipment Under Test (EUT):	
Name:	LCD COLOR TV&BD PLAYER
Model No.:	NS-32LB451A11
Standards:	FCC PART 15 SUBPART C, Section 15.247
Date of Receipt:	May 17,2010
Date of Test:	May 18,2010 to July 15,2010
Date of Issue:	July 16,2010
Test Result :	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above.

Approved by:

Tino Pan
E&E Section Manager

Tested By:



San Yuan
EMC TEST Engineer

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Test Summary

The customer requested FCC tests for a 2.4GHz transmitter.			
Test	**Test Requirement**	**Test Procedure**	**Result**
AC Power Line Conducted Emission	FCC PART 15 Section 15.207(a)	ANSI C63.4,2003	PASS
Peak Output Power	FCC PART 15 Section 15.247(b)(3),(4)(c)	KDB 558074	PASS
6dB Bandwidth	FCC PART 15 Section 15.247(a)(2)	KDB 558074	PASS
Radiated Emission Band Edge	FCC PART 15 Section 15.247(d)	ANSI C63.4,2003 KDB 558074	PASS
Conducted Spurious Emission	FCC PART 15 Section 15.247(d)	KDB 558074	PASS
Radiated Spurious Emission	FCC PART 15 Section 15.247(d)	ANSI C63.4,2003 KDB 558074	PASS
Peak Power Density	FCC PART 15 Section 15.247(e)	KDB 558074	PASS
Antenna Requirement	FCC PART 15 Section 15.203	N/A	PASS

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2 Contents

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3 General Information

3.1 Client Information

Applicant :	Jiangsu Shinco Digital Technology Co.,Ltd.
Applicant Address:	5 West Waihuan Road,New District Changzhou ,Jiangsu 213022 China
Manufacturer:	Best Buy Co.,Inc. and its subsidiaries and affiliates
Manufacturer Address:	7601 Penn Avenue South Richfield,MN55423 USA

3.2 Details of E.U.T.

Name:	LCD COLOR TV&BD PLAYER
Model No.:	NS-32LB451A11
Power Supply:	~120VAC 60Hz
Power Cord:	About 1.5
Frequency Band :	2.4GHz ISM Band
Modulation tye	CCK,DQPSK,DBPSK for DSSS
	64QAM,16QAM,QPSK,BPSK for OFDM
Spread Spectrum:	IEEE 802.11b:DSSS
	IEEE 802.11g/n :OFDM
Frequency Range&	802.11b/g/n_20M:2412-2462MHz,11 channels
Channel number	802.11 n_40M:2422-2452 MHz, 7 channels

3.3 Description of Support Units

Name / Function	Model No.	Trade Name	S/N
MOUSE	M-UAE119	Lenovo	41U3029
KEYBOARD	KU-0225	Lenovo	0151853
PRINTER	Deskjet 6540	HP	MY4CDZR08G
DVD PLAYER	DV-410V-K	Pioneer	HHKD002282CN
PC	BV7	Lenovo	L3ABL2M
Multi TV pattern generator	WY5418A	WUYI	G23-025

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3.4 Test Location

Tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.
Tel: +86 21 6191 5666 Fax: +86 21 6191 5655
No tests were sub-contracted.

3.5 Other Information Requested by the Customer

None.

3.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2011-07-29.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2012-03-17.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2011-09-29.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3172 and C-3514 respectively. Date of Registration: 2009-11-30. Date of Expiry: 2012-03-17.

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4 Test Results

4.1 Test Instruments

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2010-6-4	2011-6-3
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2010-6-4	2011-6-3
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2010-4-9	2011-4-8
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2010-6-4	2011-6-3
5	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2009-10-9	2010-10-8
6	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY－2003P	--	2009-10-15	2010-10-14
7	CLAMP METER	FLUKE	316	86080010	2010-04-28	2011-04-27
8	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2009-10-15	2010-10-14
9	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2010-6-17	2011-6-16
10	DC power	KIKUSUI	PMC35－3	NF100260	2010-1-16	2011-1-15
11	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800.0/ 2000.0-0.2/40-5SSK	11	2010-1-27	2011-1-26
12	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/880.0-0.2/40-5SSK	9	2010-1-27	2011-1-26
13	High pass Filter	FSCW	HP 12/2800-5AA2	19A45-02	2010-4-9	2011-4-8
14	Low nosie amplifier	TESEQ	LNA6900	70133	2010-7-6	2011-7-5

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15	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2010-06-04	2011-06-03
16	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2010-05-07	2011-05-06
17	Line impedance stabilization network	ETS	3816/2	00034161	2009-07-30	2010-07-29

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4.2 E.U.T. Operation

Input voltage: AC 120V 60Hz

Operating Environment:

Temperature: 25.0 °C

Humidity: 56 % RH

Atmospheric Pressure: 1008 mbar

EUT Operation: The EUT has been tested under operating condition.

Test program was used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

802.11 b mode:Channel low (2412MHz) mid(2437MHz) high(2462MHz) with the worst case 1Mbps date rate was report for radiated spurious emission.

802.11 g mode:Channel low (2412MHz) mid(2437MHz) high(2462MHz) with the worst case 6Mbps date rate was report for radiated spurious emission.

802.11 n _20M mode:Channel low (2412MHz) mid(2437MHz) high(2462MHz) with the worst case 6.5Mbps date rate was report for radiated spurious emission.

802.11 n _40M mode:Channel low (2422MHz) mid(2437MHz) high(2452MHz) with the worst case 13.5Mbps date rate was report for radiated spurious emission.

4.3 Test Procedure & Measurement Data

4.3.1 Antenna Requirement

Test Requirement: FCC Part15 15.203

Test Date: May 24,2010

Measurement Distance: 3m (Semi-Anechoic Chamber)

Requirements: An intentional radiator shall be designed to ensure that no antenna other than fumished by the responsible party shall be used with the device.The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.The manufacturer may design the unit so that a broken antenna can be replaced by the user,but the use of a standard antenna jack or electrical connector is prohibited.This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211,15.213,15.217,15.219or 15.221.Further, this requirement does not apply to intentional radiators that must be professionally installed,such as perimeter protection systems and some field disturbance sensors,or to other Intentional radiators which,in accordance with Section 15.31(d), Must be measured at the installation site,However,the installer shall be responsible for ensuring that the proper antenna is employed so

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That the limits in this part are not exceeded.

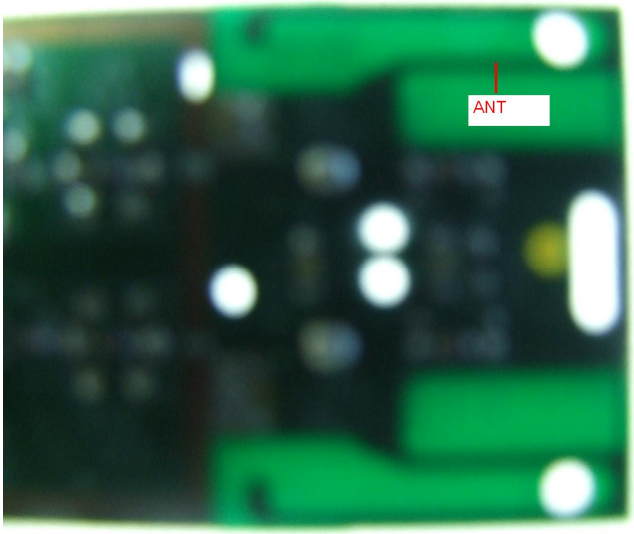
FCC Rules (Section15.203)

Described how the EUT complies with the requirement that either its antenna is permanently attached,or that it employs a unique Antenna connector,for every antenna proposed for use with the EUT.
The exception in those cases where EUT must be professionally Installed.In order to demonstrate that professional installation is Required,the following 3 points must be addressed:

- The application(or intended use)of the EUT
- The installation requirements of the EUT
- The method by which the EUT will be marketed

Conclusion

The directional gains of antenna used for transmitting is 2 dBi, The RF transmitter uses an integrate antenna withot connector, Please refer to he following picture.



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4.3.2 Conducted Emission Test

Test Requirement: FCC Part15 15.207

Test date: July 2,2010

Standard Applicable According to section 15.207,frequency 150KHz to 30MHz shall not not exceed the limit table as blew.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*

EUT Setup

1.The conducted emission tests were performed in the test site,using the setup in accordance with the ANSI C63.4-2003.

2.The AC/DC Power adaptor of EUT was plug-in LISN.The rear of the EUT and periphearals were placed flushed with the rear of the tabletop.

3.The LISN was connected with 120V AC/60Hz power source.

Measurement Result Operation mode:Normal Link Mode

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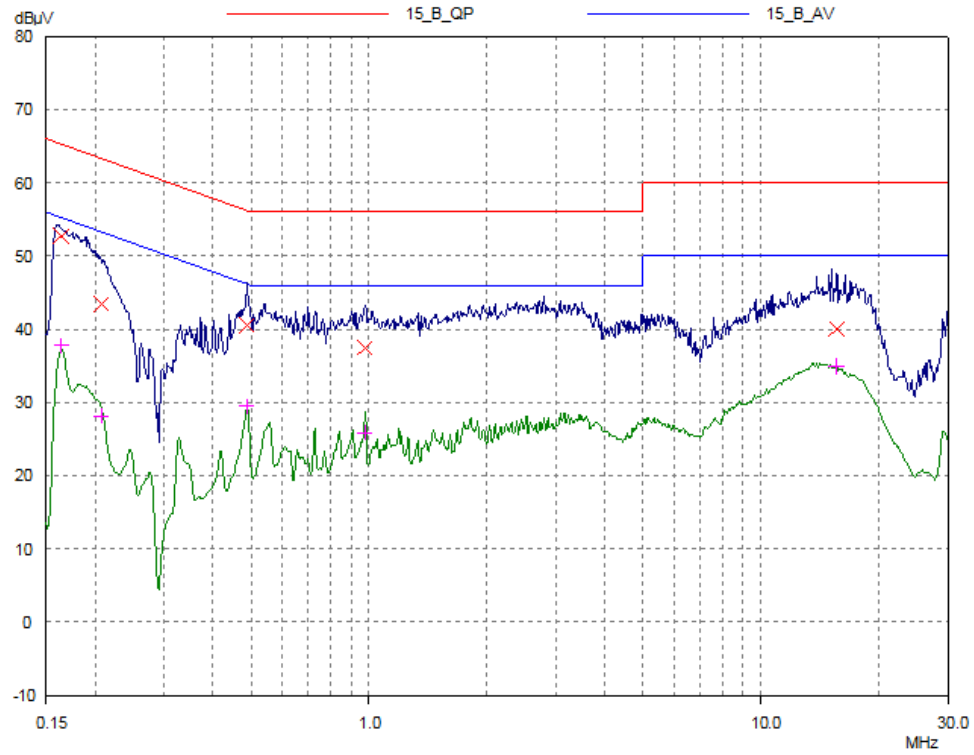
L line:



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.16374	52.69	65.27	12.58
0.20795	43.51	63.29	19.78
0.4878	40.57	56.21	15.64
0.97569	37.49	56.00	18.51
15.61641	40.11	60.00	19.89

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.16374	37.77	55.27	17.50
0.20795	28.10	53.29	25.19
0.4878	29.49	46.21	16.72
0.97569	25.88	46.00	20.12
15.61641	34.95	50.00	15.05

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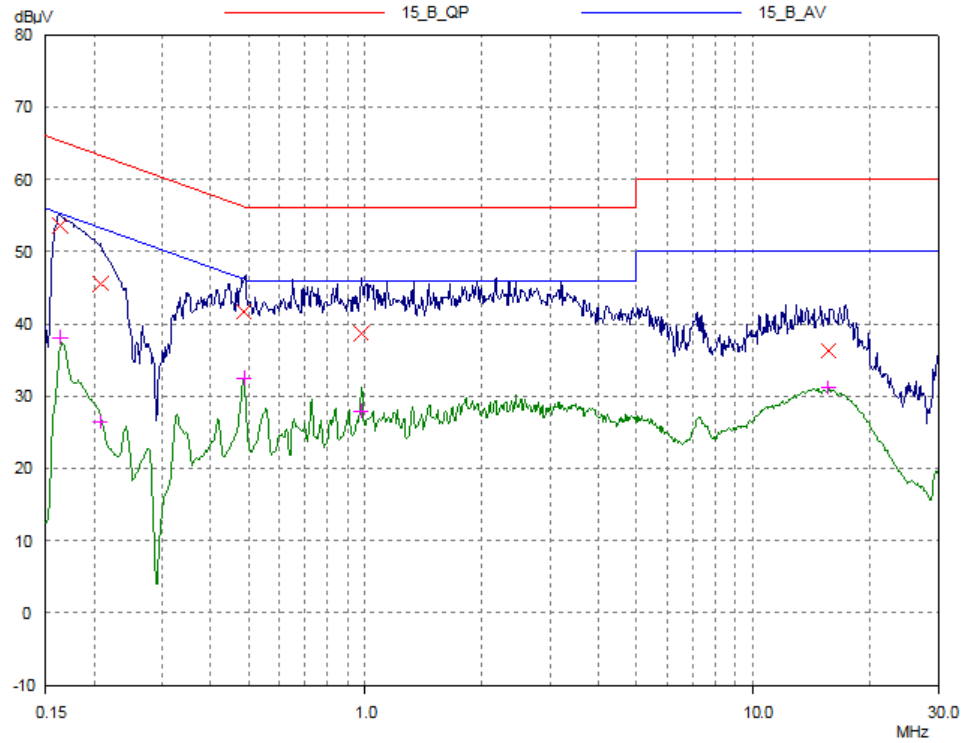
N Line:



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.16374	53.64	65.27	11.63
0.20795	45.61	63.29	17.68
0.4878	41.66	56.21	14.55
0.97569	38.73	56.00	17.27
15.61641	36.28	60.00	23.72

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.16374	38.11	55.27	17.16
0.20795	26.35	53.29	26.94
0.4878	32.51	46.21	13.70
0.97569	27.94	46.00	18.06
15.61641	31.19	50.00	18.81

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4.3.3 Peak Output Power Measurement

Test Requirement: FCC Part 15 15.247(a)(2),(b)

Test date June 1,2010 to July 5,2010

Standard Applicable: According to section 15.247(a)(2),(b)
(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennaswith 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.

(c) Operation with directional antenna gains greater than 6 dBi.
(1) Fixed point-to-point operation:
(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB fore very 3 dB that the directional gain of the antenna exceeds 6 dBi.
(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

Measuremet Produre

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

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3. Set the occur band to the entire emission bandwitdth of the signal.
4. Record the max.channel power reading
5. Repeat above procedures until all the frequency measured were complete.

Measurement Result:

Mode	CH	Frequency (MHz)	Chain 1 Output Power (dBm)	Chain2 Output Power (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11b (1Mbps)	Low	2412	12.72	12.55	N/A	30	PASS
	Mid	2437	12.63	12.34	N/A	30	PASS
	High	2462	12.31	12.25	N/A	30	PASS
802.11g (6Mbps)	Low	2412	17.67	17.74	N/A	30	PASS
	Mid	2437	18.56	18.43	N/A	30	PASS
	High	2462	18.19	18.65	N/A	30	PASS
802.11n_HT20 (6.5Mbps)	Low	2412	18.74	18.86	21.81	30	PASS
	Mid	2437	18.96	18.76	21.87	30	PASS
	High	2462	18.10	18.21	21.16	30	PASS
802.11n_HT40 (13.5Mbps)	Low	2422	18.16	18.11	21.15	30	PASS
	Mid	2437	17.94	18.32	21.14	30	PASS
	High	2452	17.56	18.45	21.04	30	PASS

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4.3.4 6dB Bandwidth

Test Requirement:	FCC Part15 247(a)(2)
Test date:	June 1,2010 to July 5,2010
Standard Applicable:	According to section 15.247(a)(2),Systems using digital modulationg techniques may operate in the 902-928MHz,2400-2483.5MHz,and 5725-5850MHz bands.The minimum 6dB bandwidth shall be at least 500KHz.
Measurement Procedure:	1. Place the EUT on the table and set it in transmitting mode. 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. 3. Set the spectrum analyzer as RBW=100KHz, VBW =3* RBW, Span=30/ 50MHz, Sweep=auto 4. Mark the peak frequency and –6dB (upper and lower) frequency. 5. Repeat above procedures until all frequency measured were complete.

Measurement Result:

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Chain 1:

Test Results(802.11b)1M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	10.095	500	PASS
MID	2437	10.096	500	PASS
HIGH	2462	10.143	500	PASS

Test Results(802.11g)6M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	16.442	500	PASS
MID	2437	16.490	500	PASS
HIGH	2462	16.586	500	PASS

Test Results(802.11n_20M)6.5M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	17.692	500	PASS
MID	2437	17.740	500	PASS
HIGH	2462	17.836	500	PASS

Test Results(802.11n_40M)13.5M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2422	36.458	500	PASS
MID	2437	36.298	500	PASS
HIGH	2452	36.462	500	PASS

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Chain 2:

Test Results(802.11b)1M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	10.175	500	PASS
MID	2437	10.175	500	PASS
HIGH	2462	10.166	500	PASS

Test Results(802.11g)6M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	17.033	500	PASS
MID	2437	16.506	500	PASS
HIGH	2462	16.506	500	PASS

Test Results(802.11n_20M)6.5M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	17.868	500	PASS
MID	2437	17.788	500	PASS
HIGH	2462	17.788	500	PASS

Test Results(802.11n_40M)13.5M

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2422	36.538	500	PASS
MID	2437	36.538	500	PASS
HIGH	2452	36.538	500	PASS

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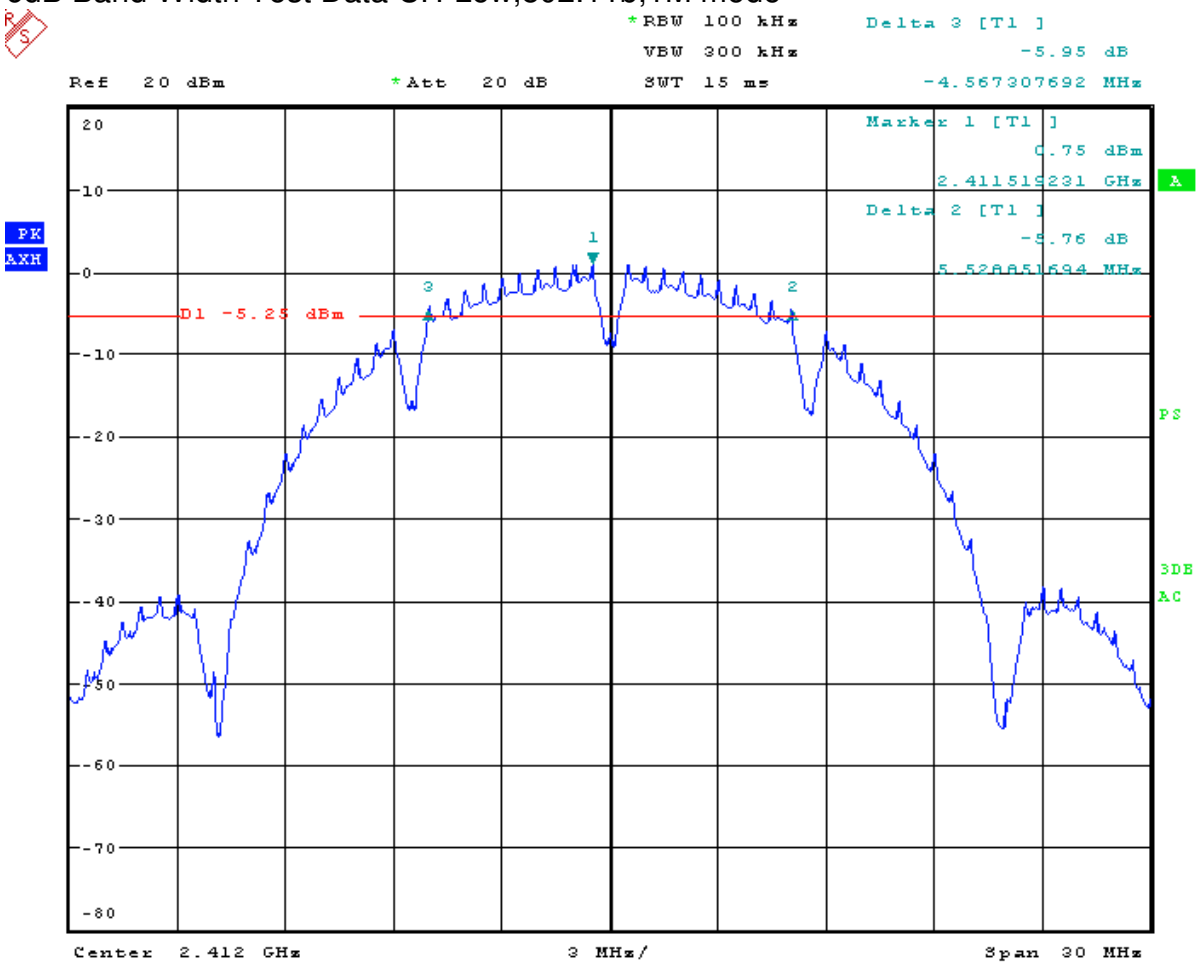
Chain 1:

6dB Band Width Test Data CH-Low,802.11b,1M mode



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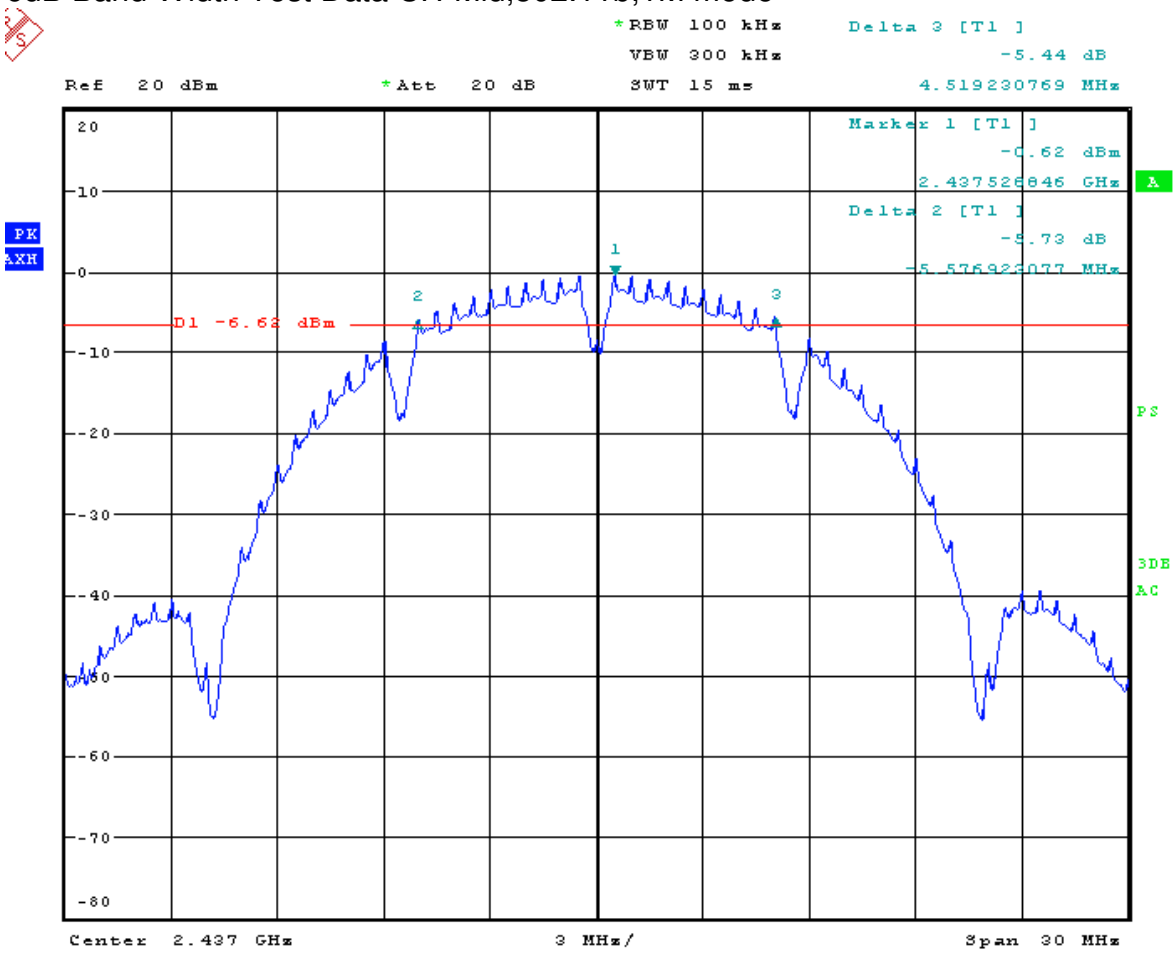
6dB Band Width Test Data CH-Mid,802.11b,1M mode



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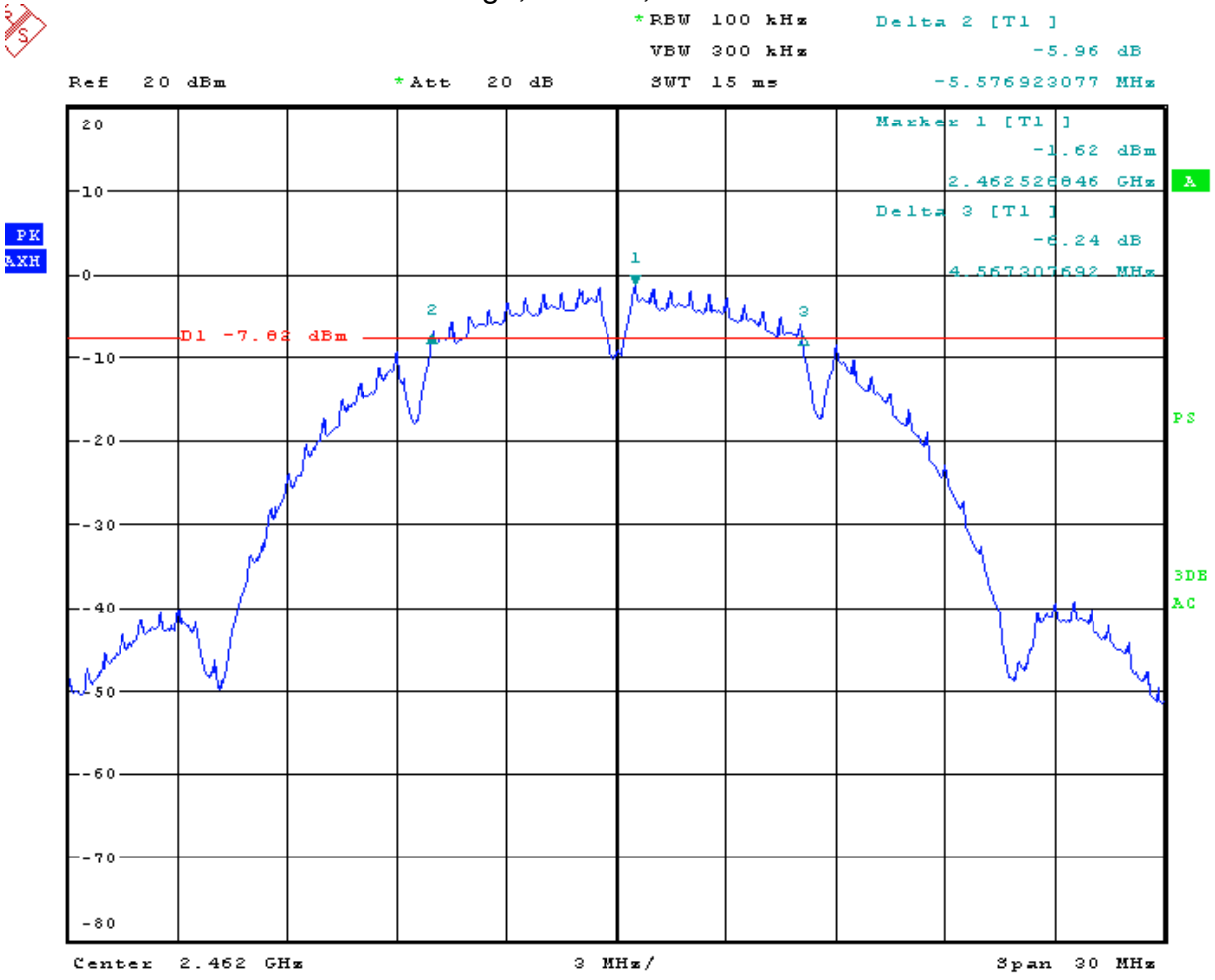
6dB Band Width Test Data CH-High,802.11b,1M mode



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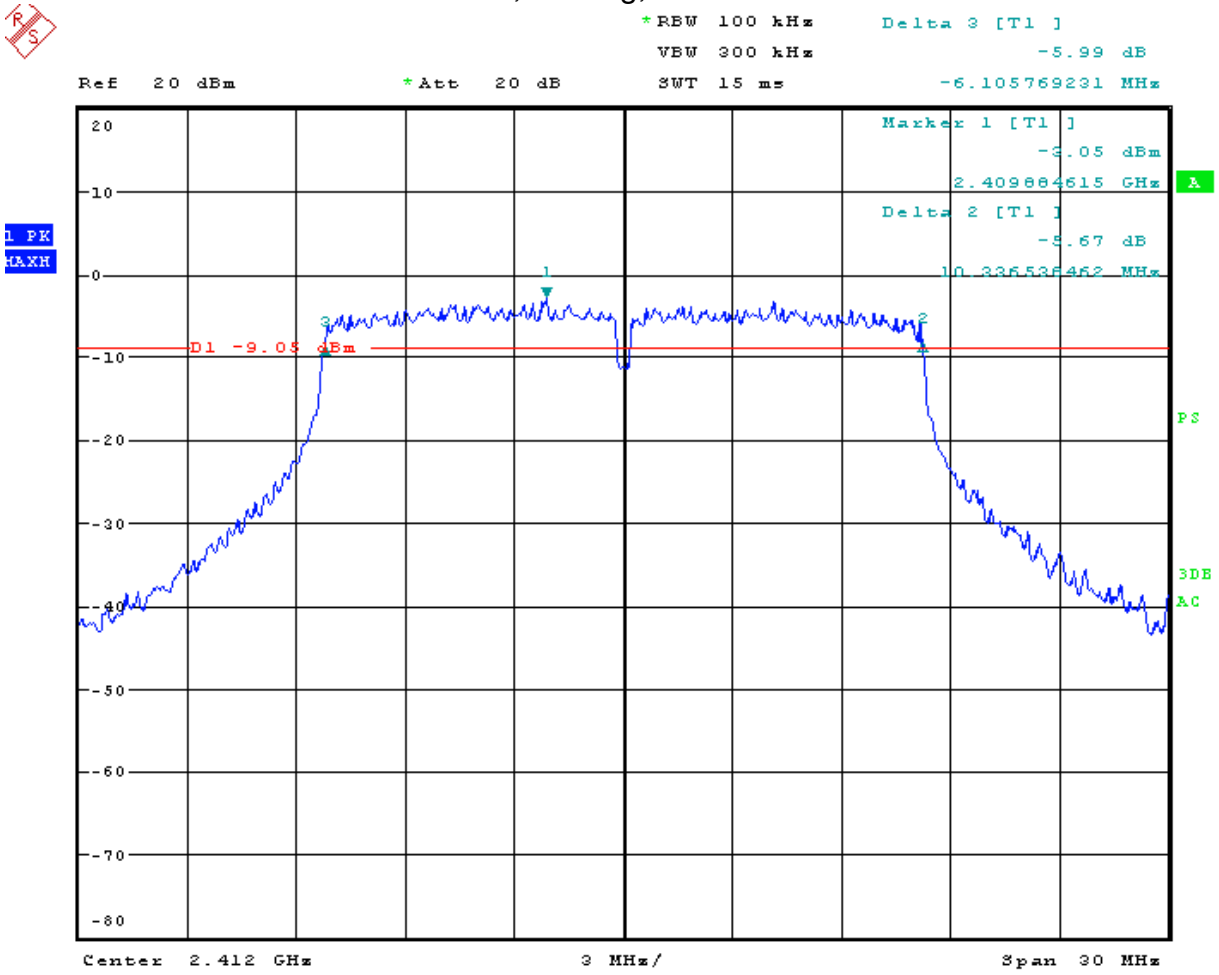
6dB Band Width Test Data CH-Low,802.11g,6M mode



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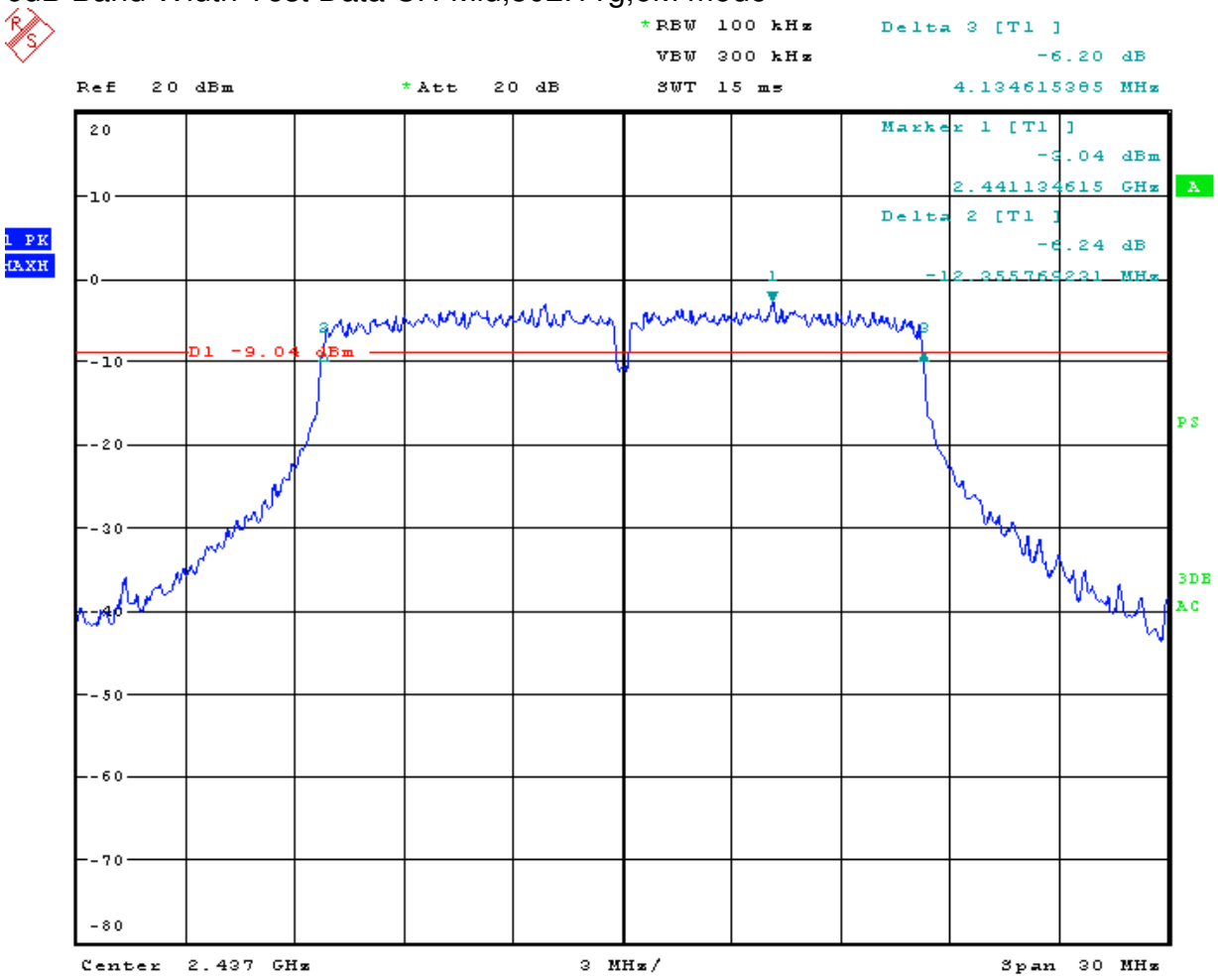
6dB Band Width Test Data CH-Mid,802.11g,6M mode



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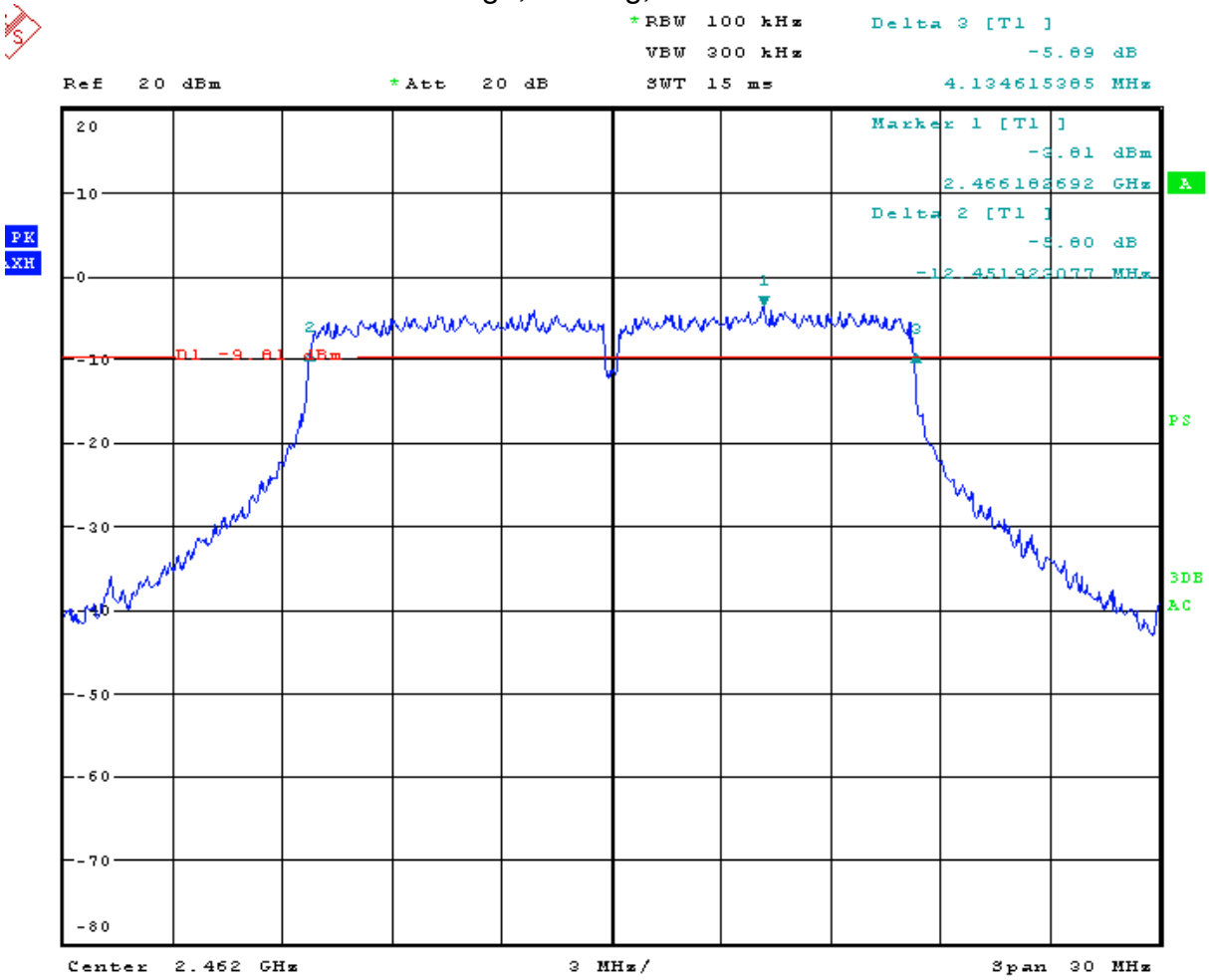
6dB Band Width Test Data CH-High,802.11g,6M mode



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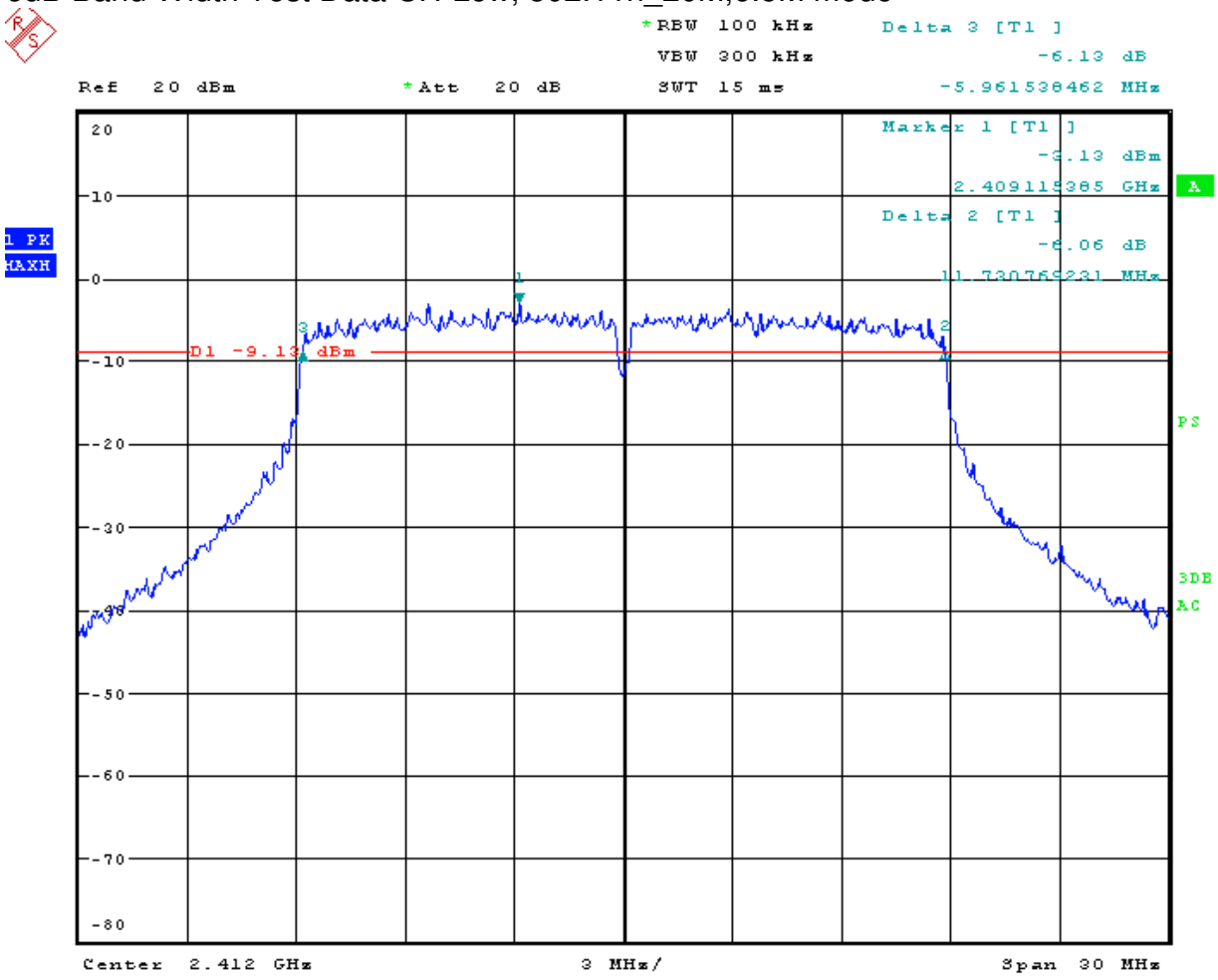
6dB Band Width Test Data CH-Low, 802.11n_20M,6.5M mode



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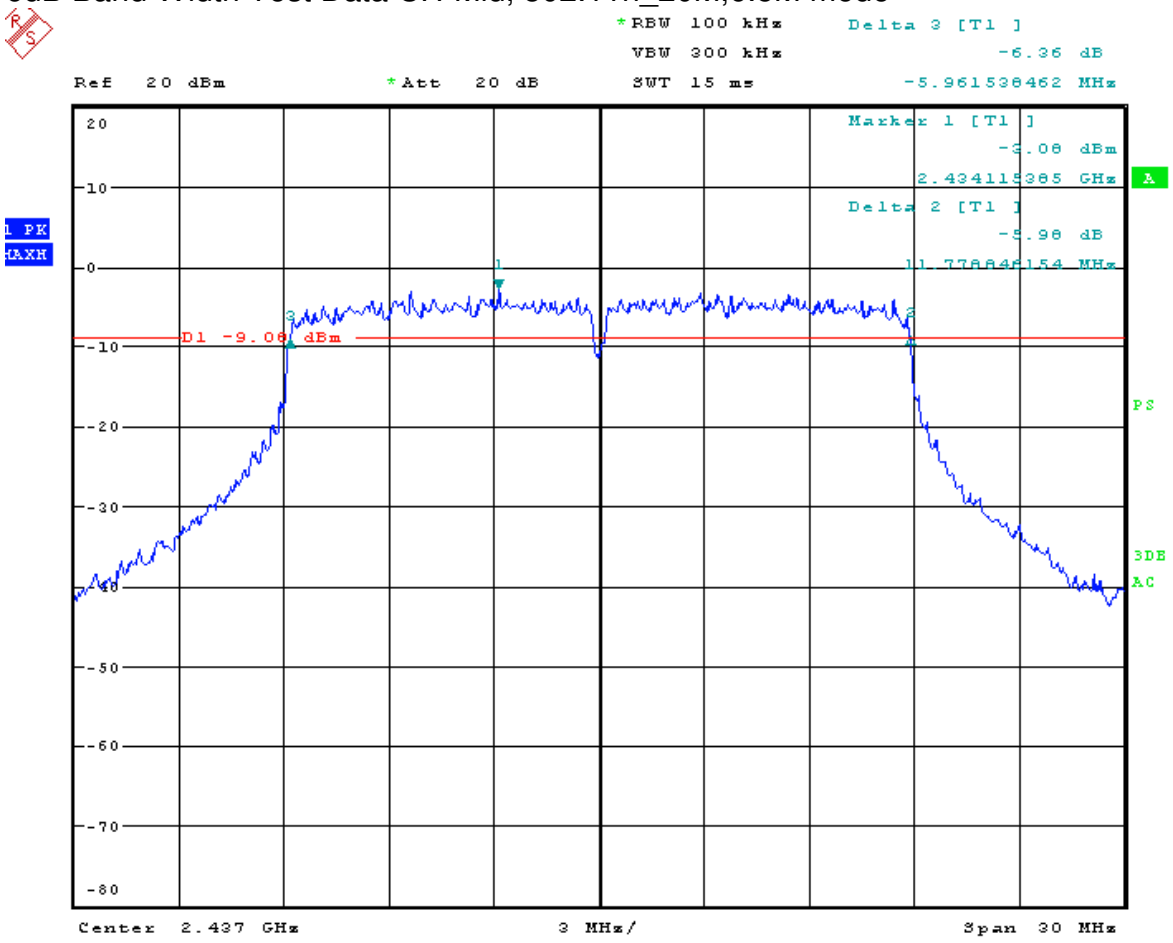
6dB Band Width Test Data CH-Mid, 802.11n_20M,6.5M mode



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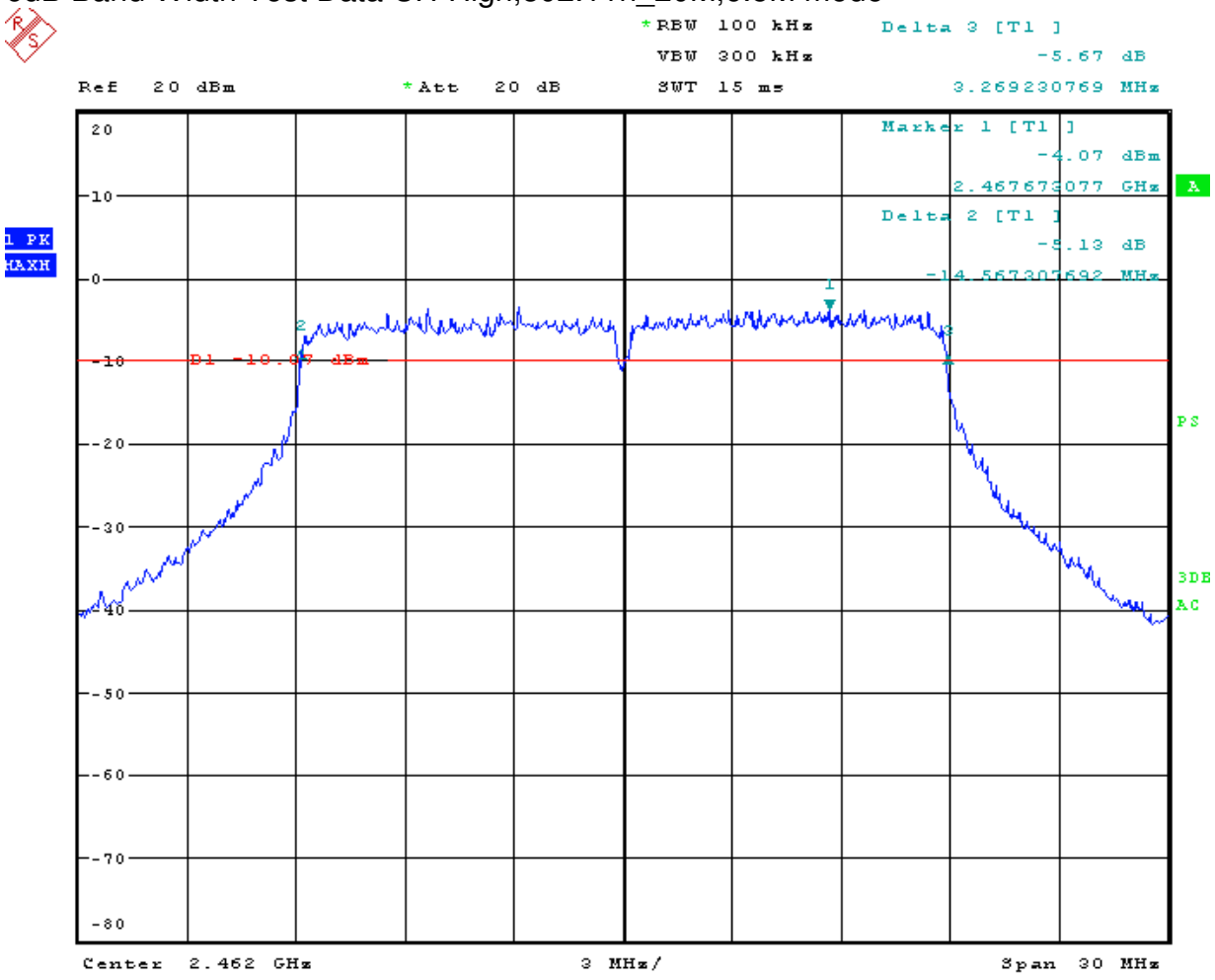
6dB Band Width Test Data CH-High,802.11n_20M,6.5M mode



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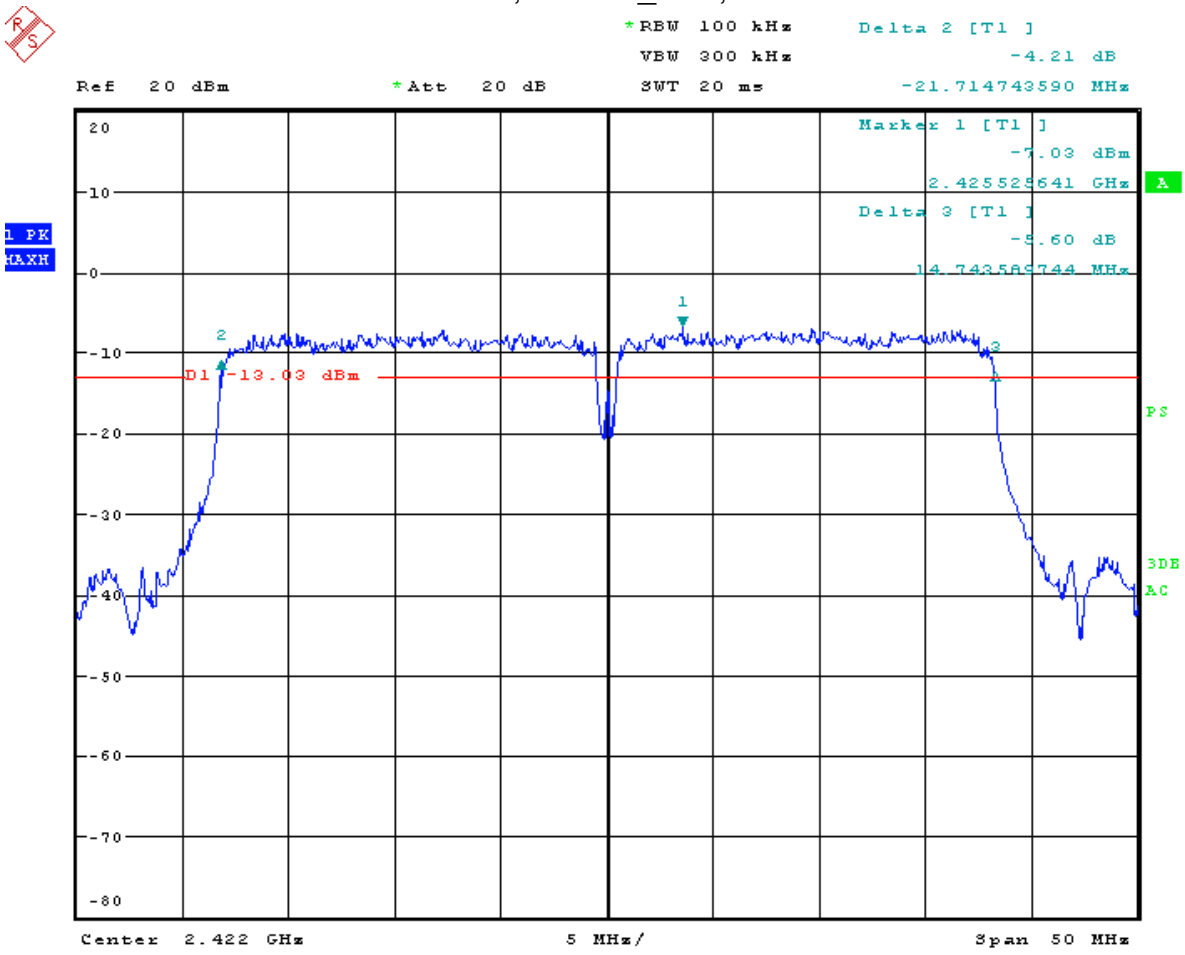
6dB Band Width Test Data CH-Low,802.11n_40M,13.5M mode



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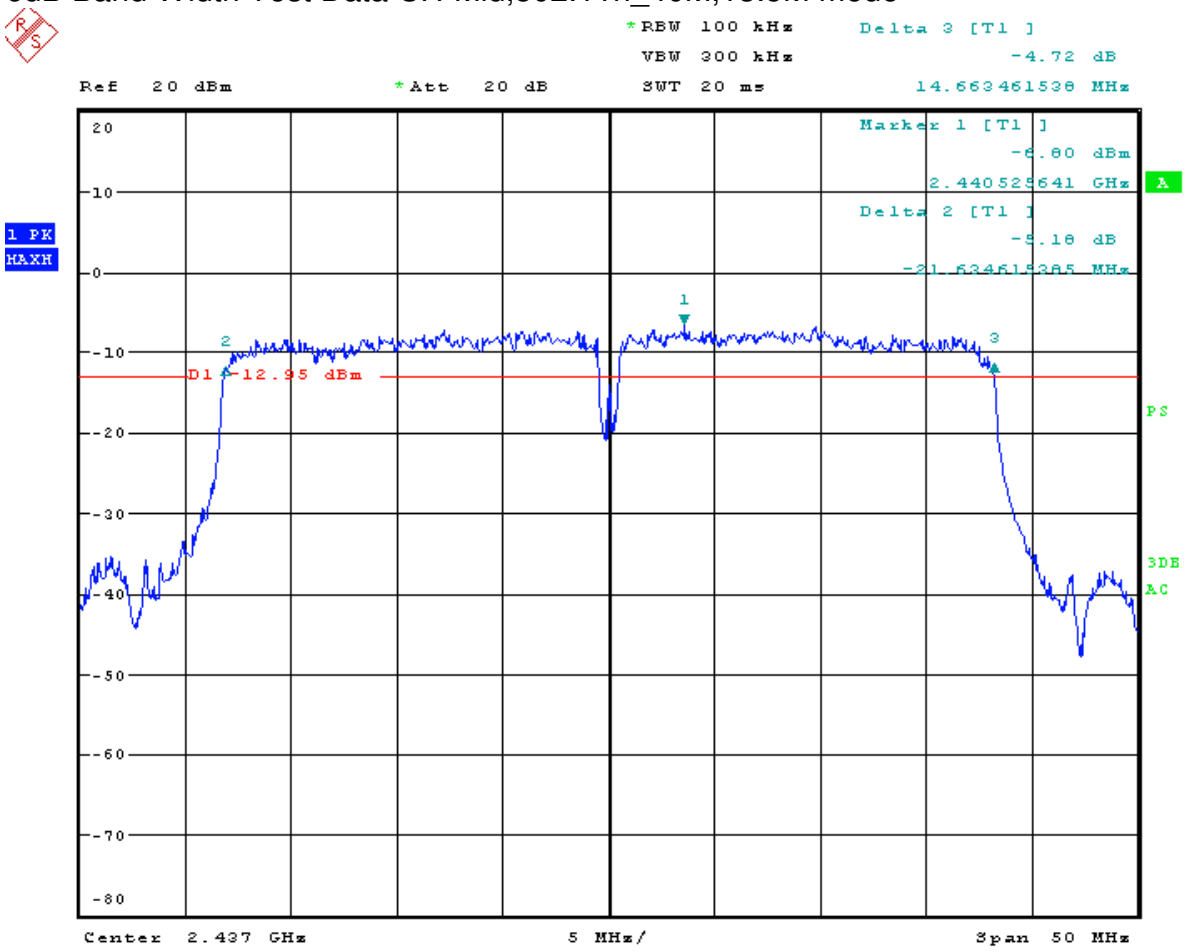
6dB Band Width Test Data CH-Mid,802.11n_40M,13.5M mode



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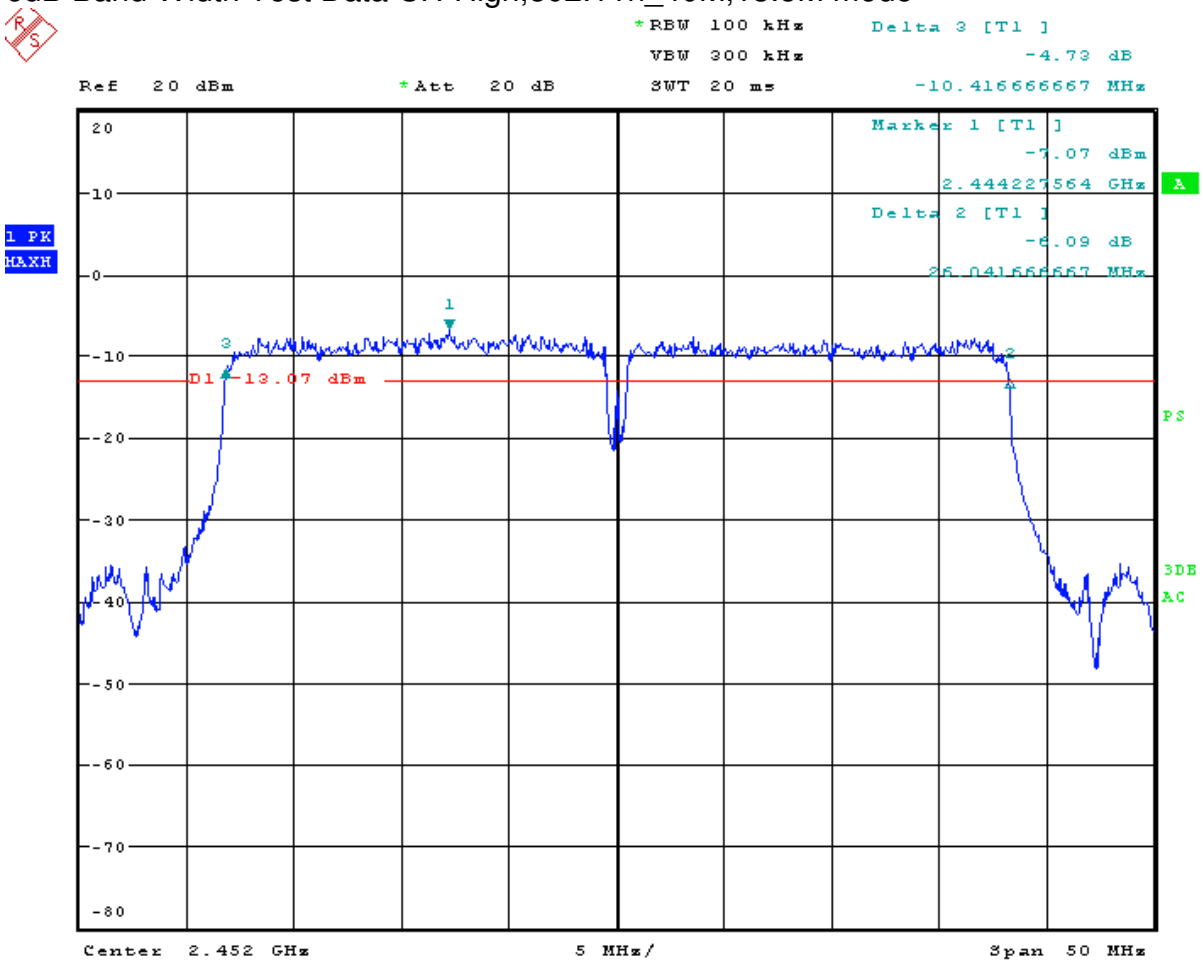
6dB Band Width Test Data CH-High,802.11n_40M,13.5M mode



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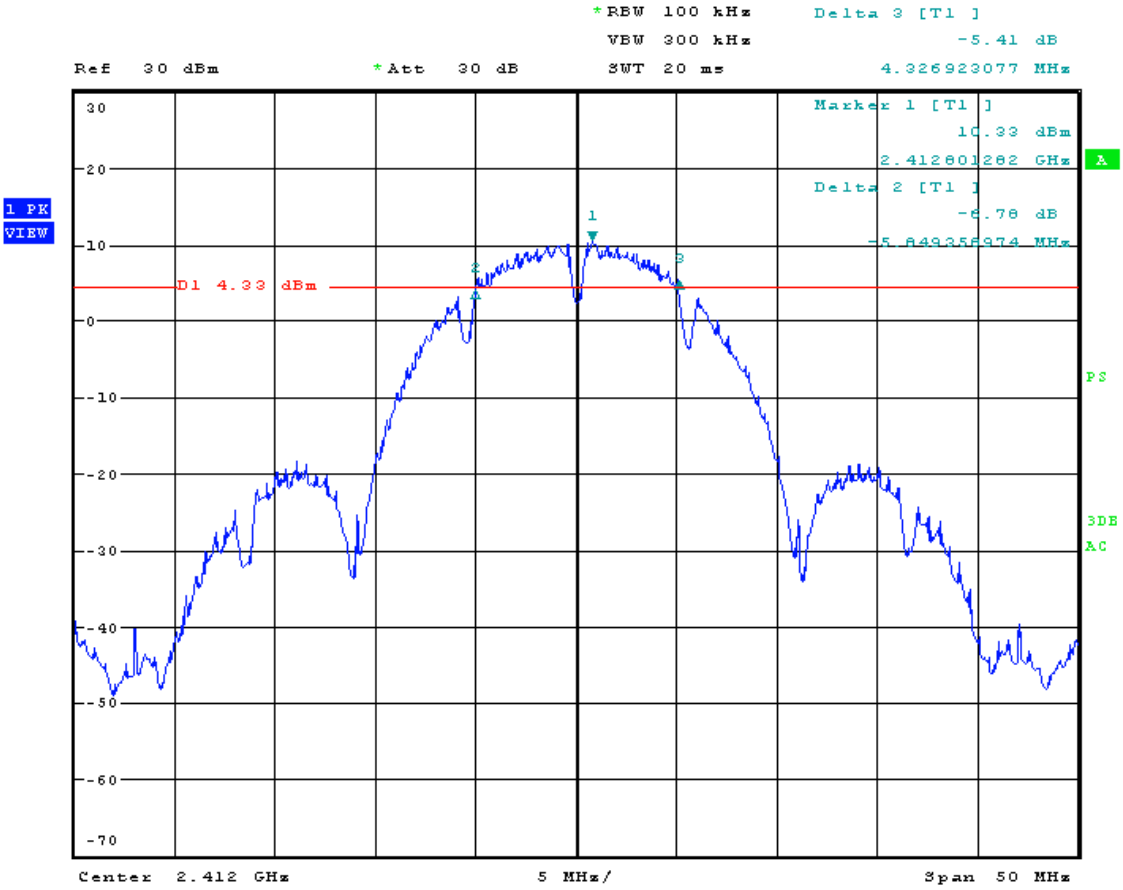
Chain 2:

6dB Band Width Test Data CH-Low,802.11b,1M mode



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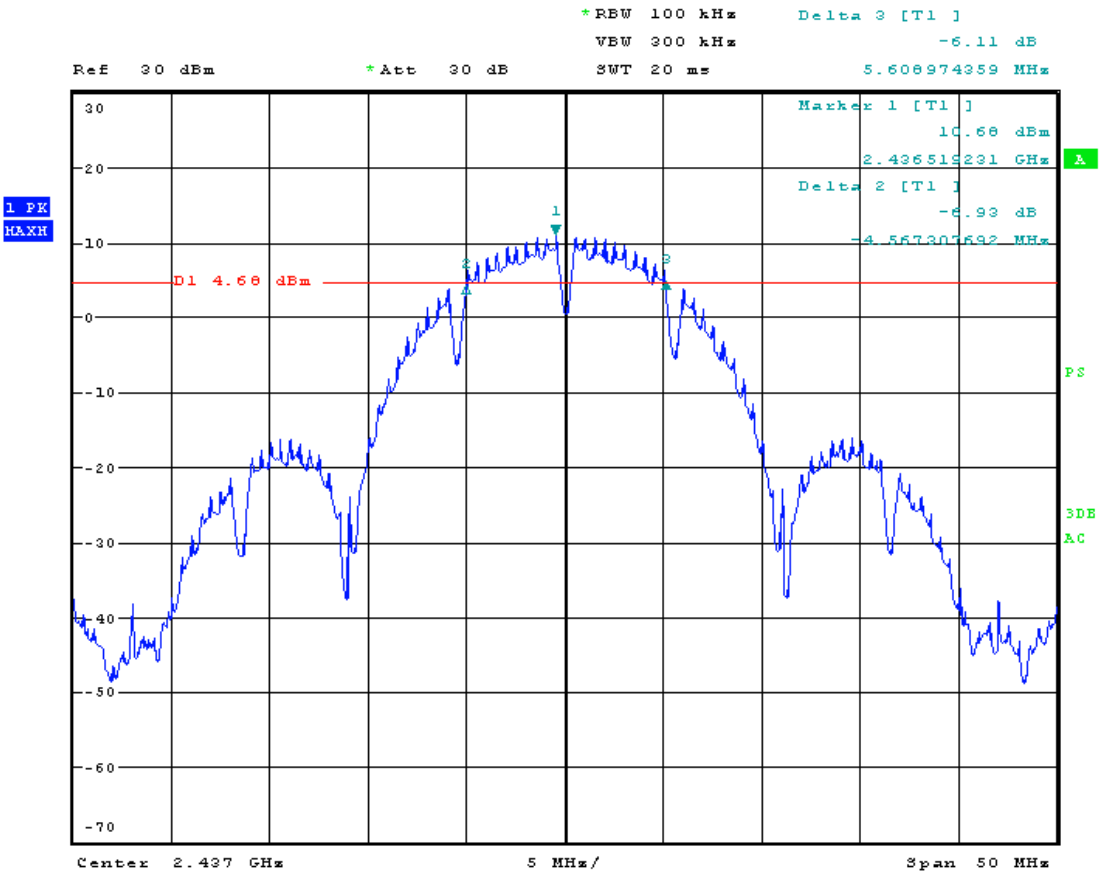
6dB Band Width Test Data CH-Mid,802.11b,1M mode



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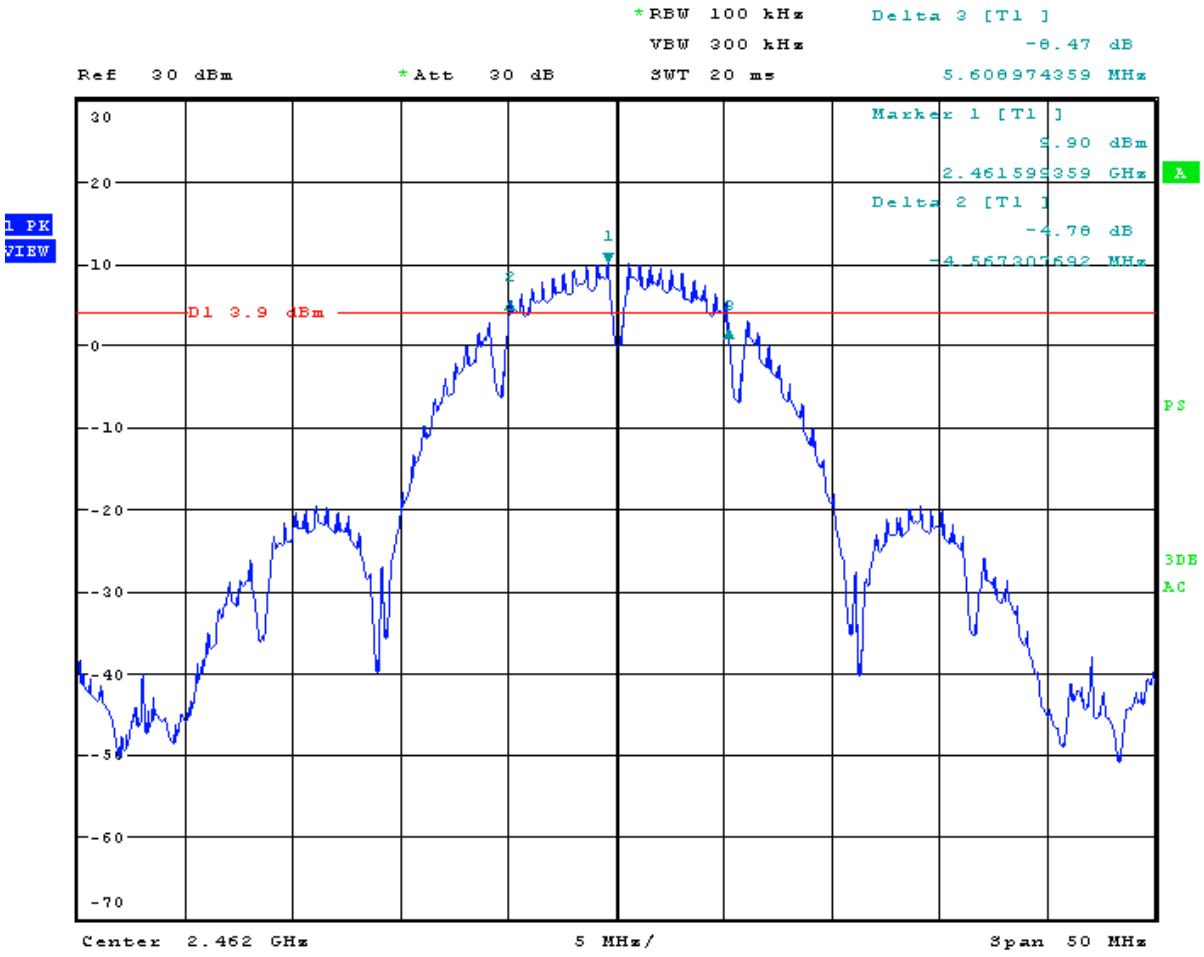
6dB Band Width Test Data CH-High,802.11b,1M mode



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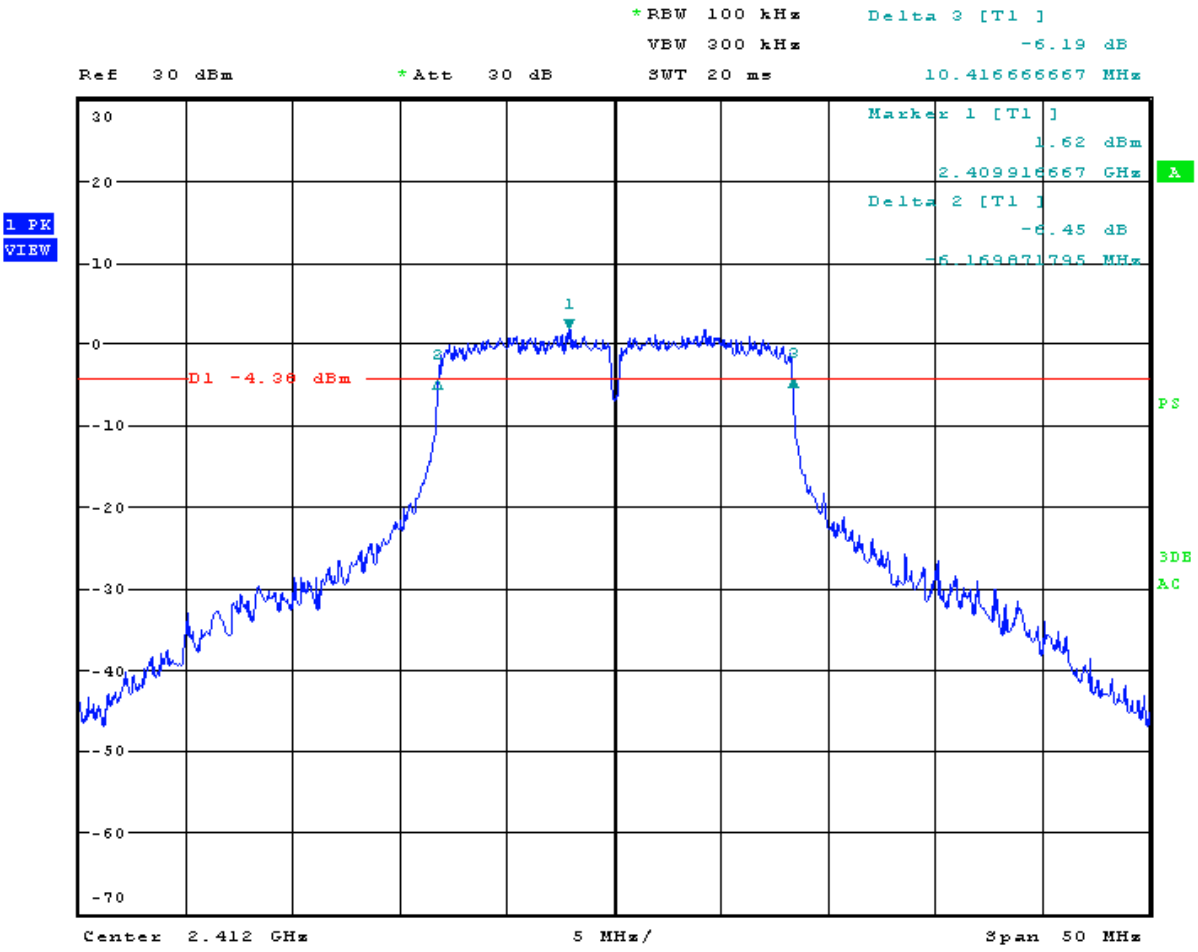
6dB Band Width Test Data CH-Low,802.11g,6M mode



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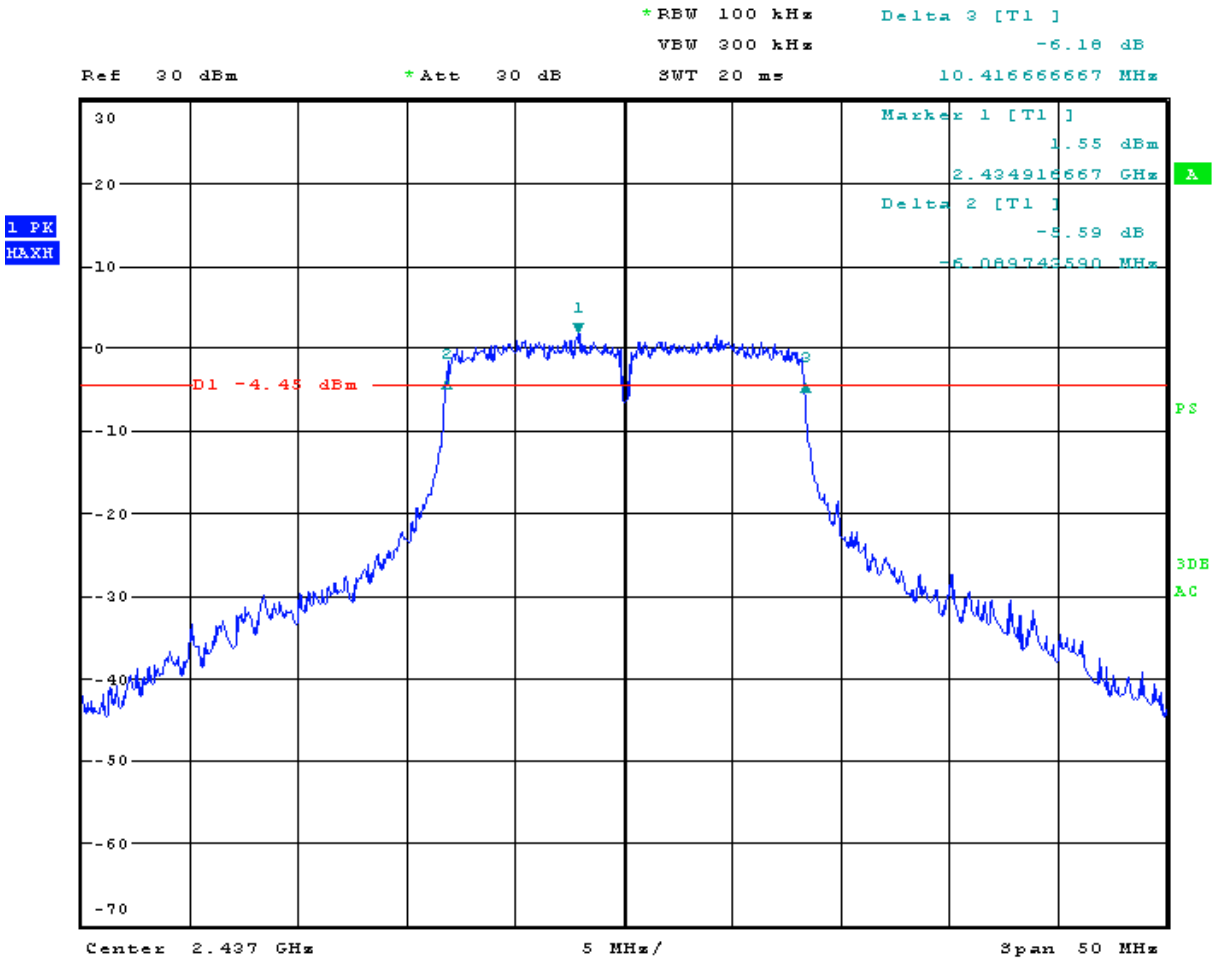

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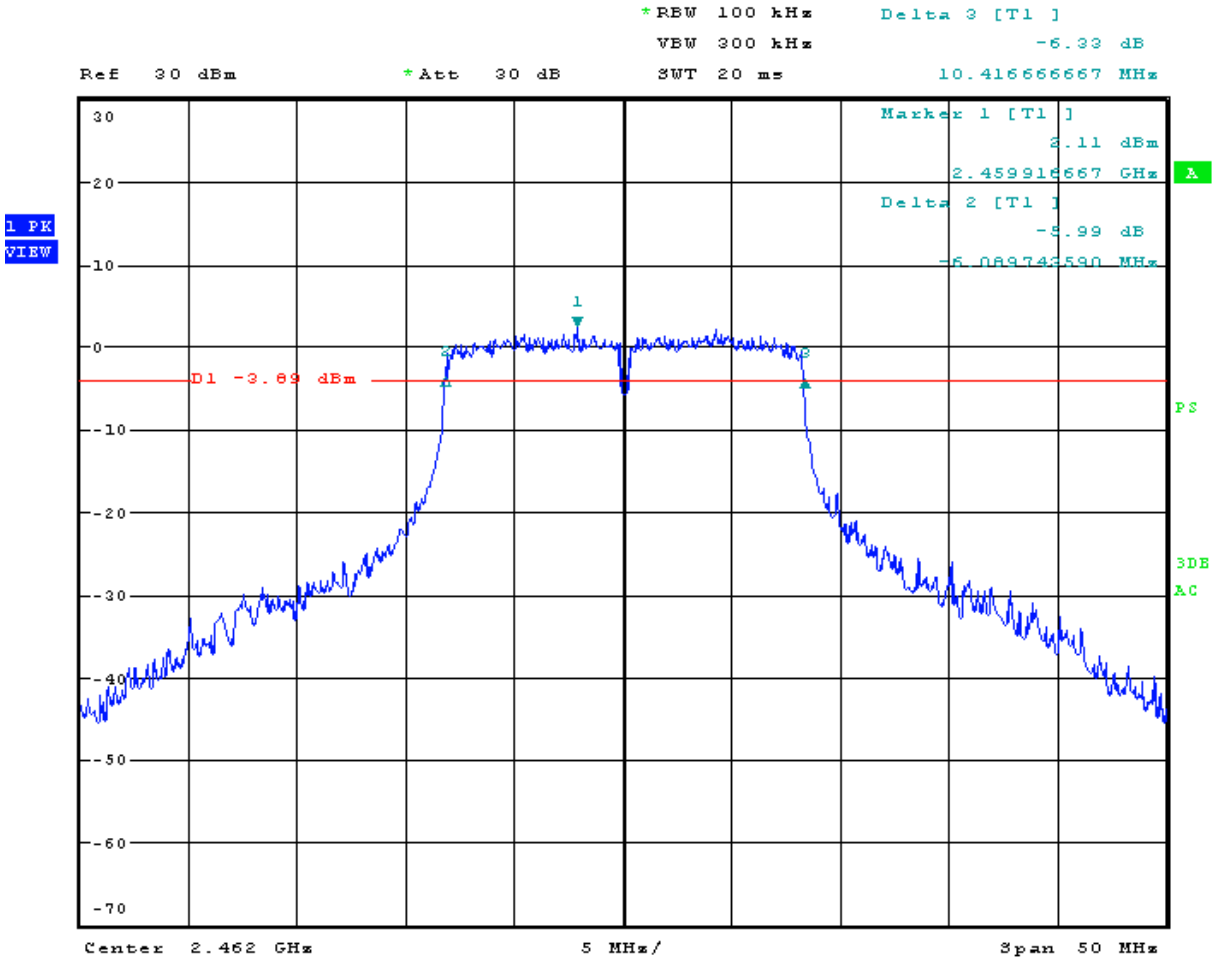

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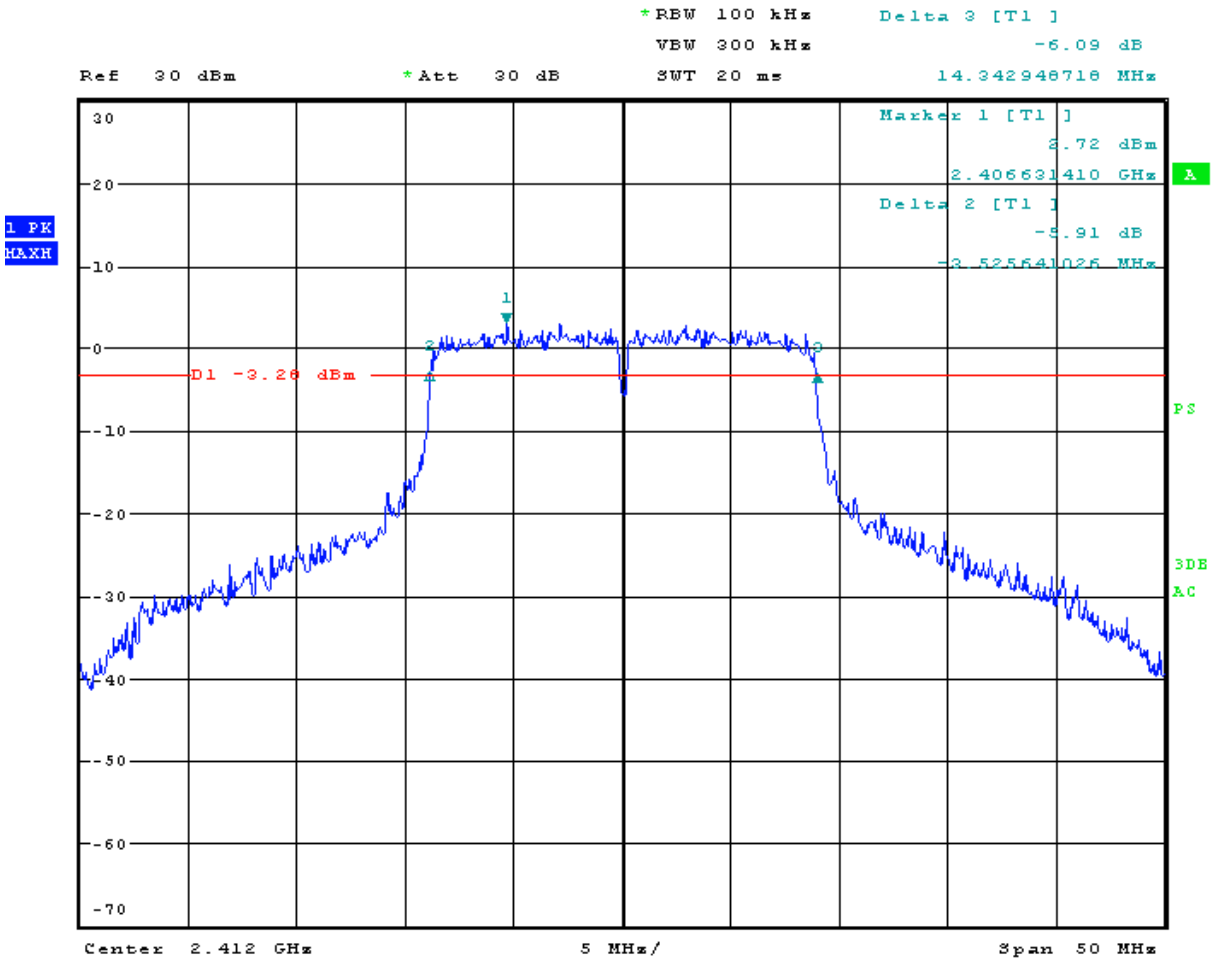
6dB Band Width Test Data CH-Low, 802.11n_20M,6.5M mode



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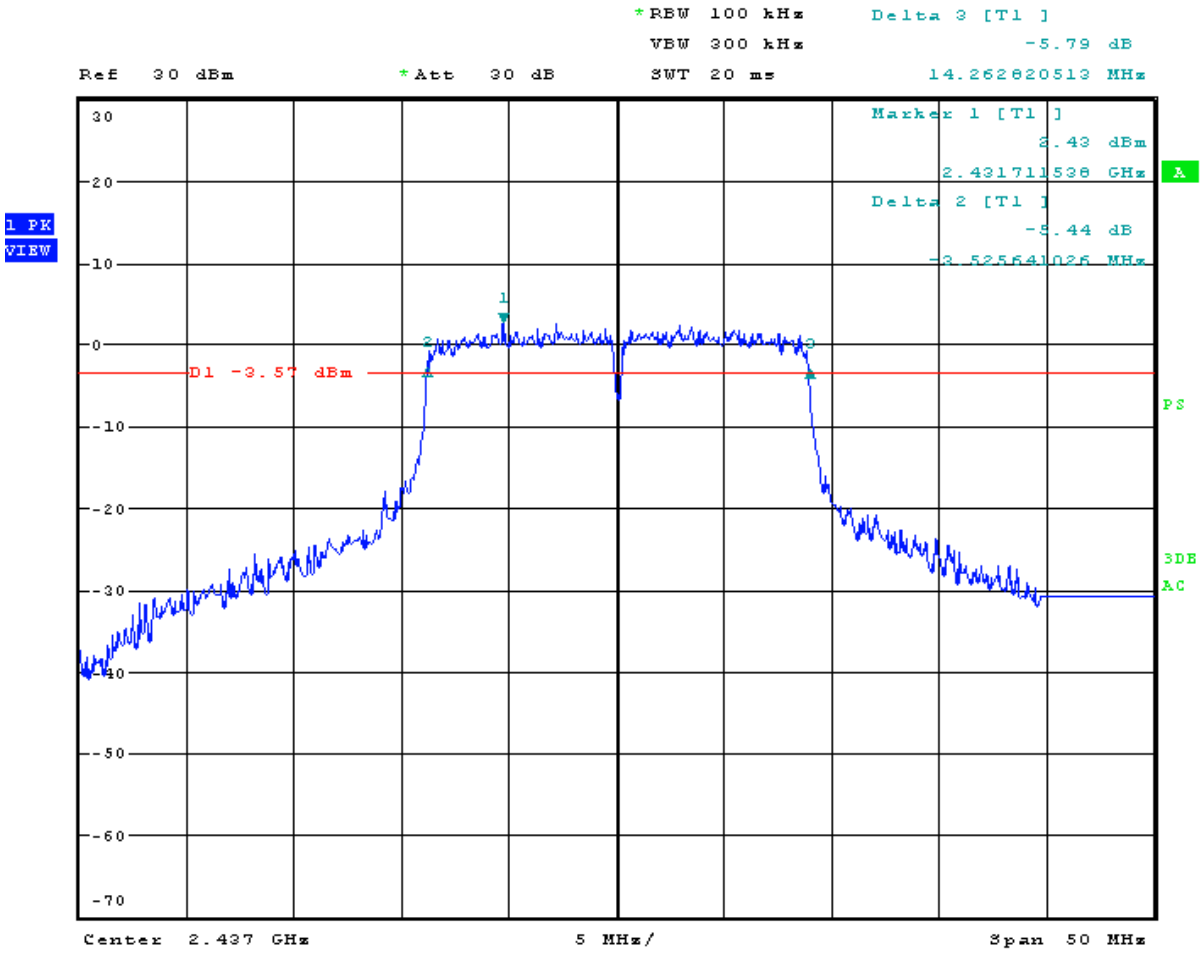

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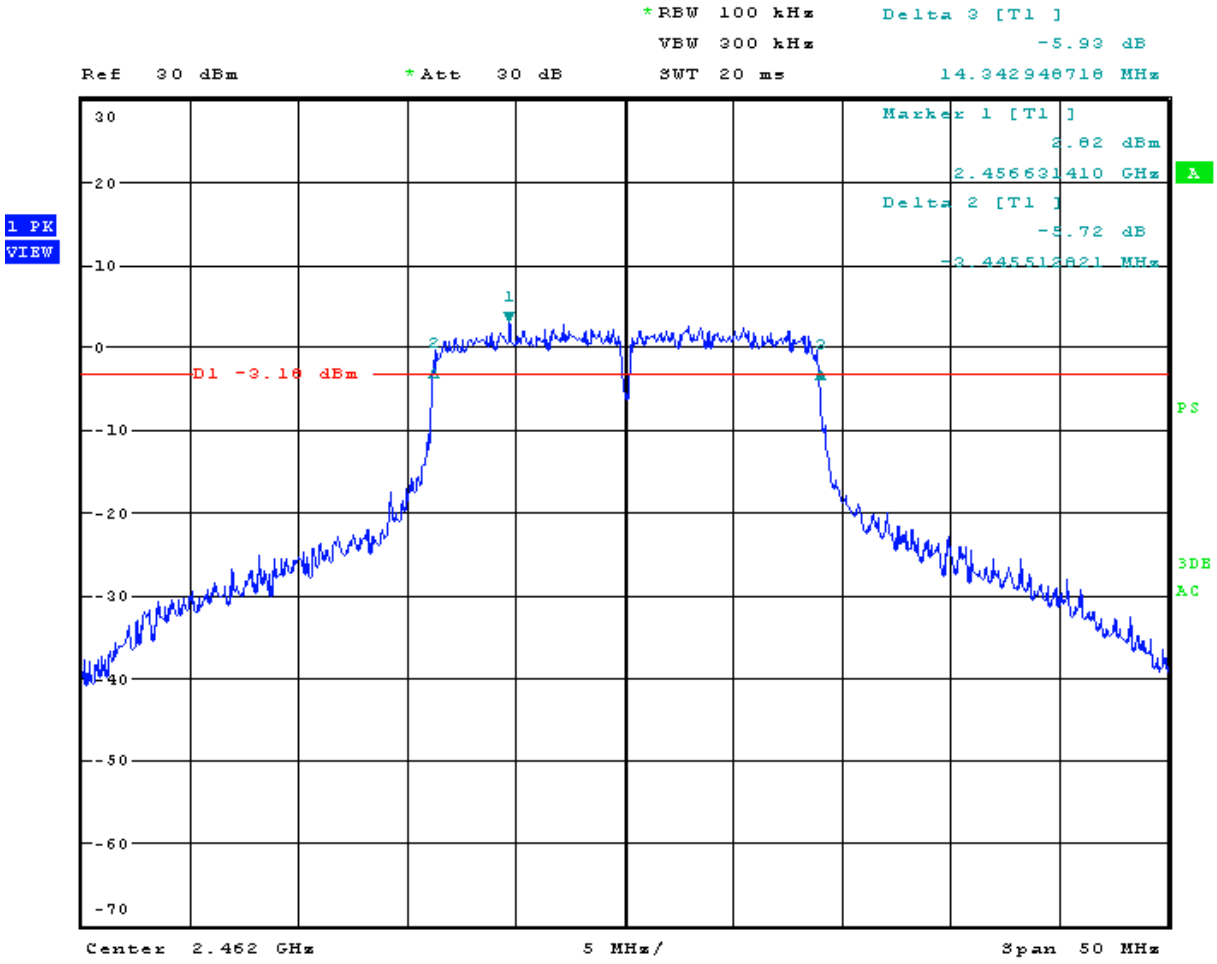
6dB Band Width Test Data CH-High,802.11n_20M,6.5M mode



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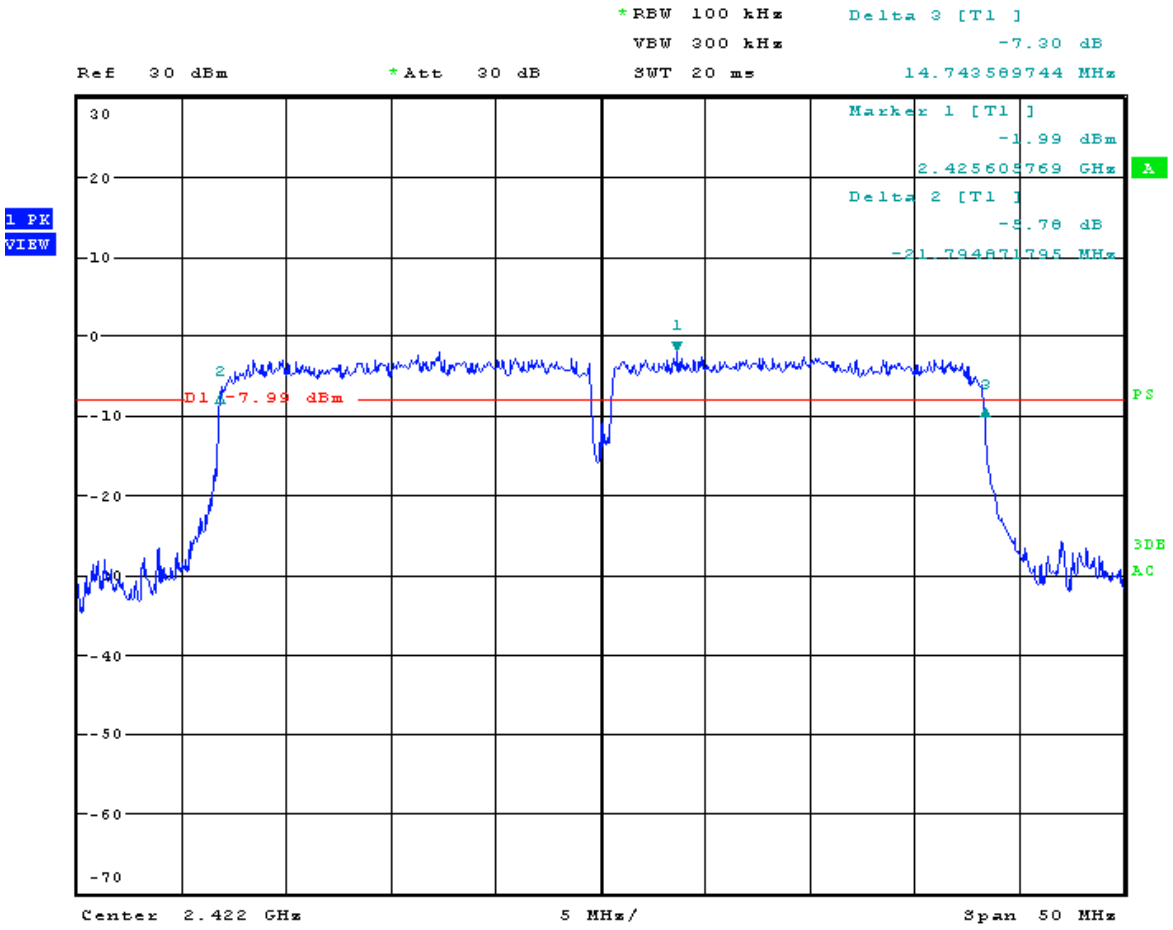
6dB Band Width Test Data CH-Low,802.11n_40M,13.5M mode



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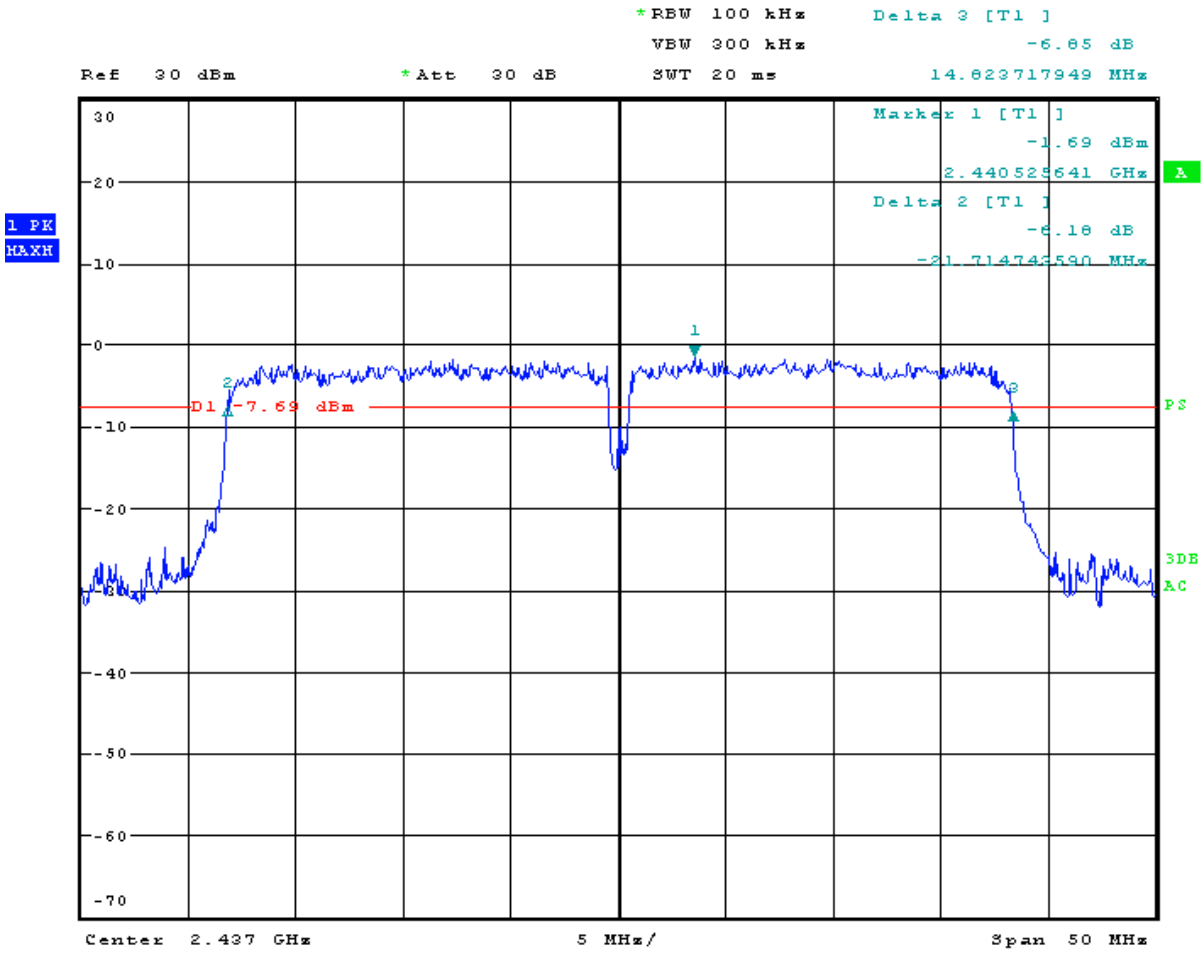
6dB Band Width Test Data CH-Mid,802.11n_40M,13.5M mode



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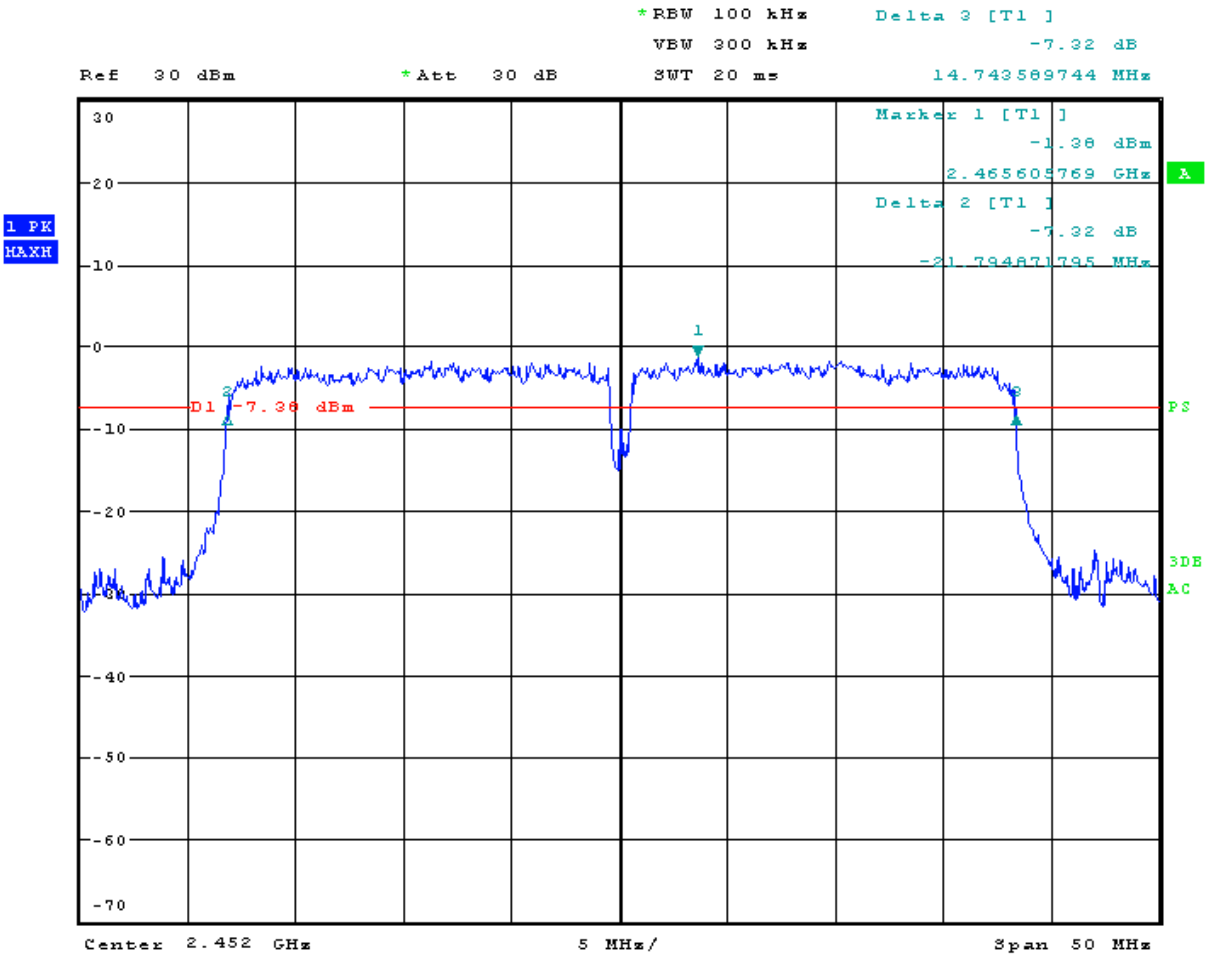
6dB Band Width Test Data CH-High,802.11n_40M,13.5M mode



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4.3.5 Radiated Emission Band Edge

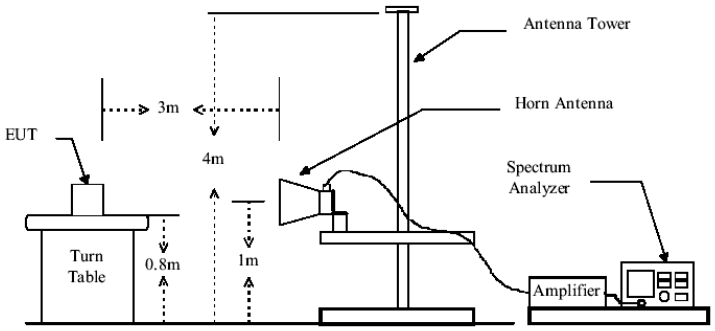
Test Requirement: FCC Part15 247(c)

Test date: May 26,210 to July 15,2010

Standard Applicable: According to section 15.247(c),in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating,the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power,In addition,radiated emissions which fall in the restricted bands,as defined in section 15.205(a),must also comply with the radiated emission limits specified in 15.209(a).

Measurement Procedure: The EUT was setup according to ANSI 63.4,2003 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47 CFR 15.247 requirements.The EUT is placed on a turn table which is 0.8 m above ground.The turn table is rotated 360 degrees to determine to the position of the maximum emission level.The EUT was positioned such that the distance from antenna to the EUT was 3 menters.The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level This is repeated for both horizontal and vertical polarization of the antenna.In order to find the maximum emission,all of the interface cables were manipulated according to ANSIC 63.4:2003 on radiated measurement.
The device is an 802.11n device in a 2×2 MIMO configuration, We have test the radiated emission in chain 1 and chain 2 for 802.11b &802.11g,and the test result shown indicateds the worst case radiated emission in chain 1,and spectrum analyzer parameters setting as shown below:
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

Radiated Emission Test Set-up Frequency Over 1GHz



The field strength is calculated by adding the Antenna Factor,Preamplifier Factor&Cable Factor. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

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Measurement Result:

CH Low 802.11b Mode 1M

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	46.55	-	-14.22	32.33	-	74.00	54.00	21.67
2400.00	47.32	-	-14.10	33.22	-	74.00	54.00	20.78

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	45.76	-	-14.22	31.54	-	74.00	54.00	22.46
2400.00	46.34	-	-14.10	32.24	-	74.00	54.00	21.76

CH High 802.11b Mode 1M

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.5	48.56	-	-14.13	34.43	-	74.00	54.00	19.57

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.5	49.56	-	-14.13	35.43	-	74.00	54.00	18.57

Remark:

(1)Data of measurement within this frequency range shown"-"in the table above means the reading of emissions are attenuated more than 6dB below the permissible limits or the field strength is too small to be measured.

(2)Radiated emissions measured in the frequency above 1GHz were made with an instrument using Peak detector mode and average detector mode of the emission show in Actual FS colum.When measured Peak value is under AV Limit,It does not need to measure AV value again.

(3)Factor= Antenna Factor+Cable Factor- Preamplifier Factor

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CH Low 802.11g Mode 6M

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	45.09	-	-14.22	30.87	-	74.00	54.00	23.13
2400.00	46.32	-	-14.10	32.22	-	74.00	54.00	21.78

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	46.10	-	-14.22	31.88	-	74.00	54.00	22.12
2400.00	46.77	-	-14.10	32.67	-	74.00	54.00	21.33

CH High 802.11g Mode 6M

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.5	48.56	-	-14.13	34.43	-	74.00	54.00	19.57

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.5	47.47	-	-14.13	33.34	-	74.00	54.00	20.66

Remark:

(1)Data of measurement within this frequency range shown"-"in the table above means the reading of emissions are attenuated more than 6dB below the permissible limits or the field strength is too small to be measured.

(2)Radiated emissions measured in the frequency above 1GHz were made with an instrument using Peak detector mode and average detector mode of the emission show in Actual FS colum.When measured Peak value is under AV Limit,It does not need to measure AV value again.

(3)Factor= Antenna Factor+Cable Factor -Preamplifier Factor

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CH Low 802.11n_20M ,6.5M Mode

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	46.78	-	-14.22	32.56	-	74.00	54.00	21.44
2400.00	48.77	-	-14.10	34.67	-	74.00	54.00	19.33

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	46.42	-	-14.22	32.2	-	74.00	54.00	21.8
2400.00	47.33	-	-14.10	33.23	-	74.00	54.00	20.77

CH High 802.11n_20M ,6.5M Mode

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	49	-	-14.13	34.87	-	74.00	54.00	19.13

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	49.45	-	-14.13	35.32	-	74.00	54.00	18.68

Remark:

(1)Data of measurement within this frequency range shown"-"in the table above means the reading of emissions are attenuated more than 6dB below the permissible limits or the field strength is too small to be measured.

(2)Radiated emissions measured in the frequency above 1GHz were made with an instrument using Peak detector mode and average detector mode of the emission show in Actual FS colum.When measured Peak value is under AV Limit,It does not need to measure AV value again.

(3)Factor= Antenna Factor+Cable Factor-Preamplifier Factor

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CH Low 802.11n_40M,13.5M Mode

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	46.34	-	-14.22	32.12	-	74.00	54.00	21.88
2400.00	47.53	-	-14.10	33.43	-	74.00	54.00	20.57

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.00	45.55	-	-14.22	31.33	-	74.00	54.00	22.67
2400.00	48.22	-	-14.10	34.12	-	74.00	54.00	19.88

CH High 802.11n_40M,13.5M Mode

Horizontal:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	49.69	-	-14.13	35.56	-	74.00	54.00	18.44

Vertical:

Frequency (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB/m)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	50.34	-	-14.13	36.21	-	74.00	54.00	17.79

Remark:

(1)Data of measurement within this frequency range shown"-"in the table above means the reading of emissions are attenuated more than 6dB below the permissible limits or the field strength is too small to be measured.

(2)Radiated emissions measured in the frequency above 1GHz were made with an instrument using Peak detector mode and average detector mode of the emission show in Actual FS colum.When measured Peak value is under AV Limit,It does not need to measure AV value again.

(3) Factor= Antenna Factor+Cable Factor-Preamplifier Factor

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4.3.6 Conducted Spurious Emission Test

Test Requirement:	FCC Part15 247(c)
Test date:	May 26,2010 to July 5,2010
Standard Applicable:	According to section 15.247(c),in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating,the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power,In addition,radiated emissions which fall in the restricted bands,as defined in section 15.205(a),must also comply with the radiated emission limits specified in 15.209(a).
Measurement Procedure:	1. Place the EUT on the table and set it in transmitting mode. 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. 3. Set center frequency of spectrum analyzer = operating frequency. 4. Set the spectrum analyzer as RBW=100KHz VBW=300KHz, Sweep = auto 6. Repeat above procedures until all frequency measured were complete.

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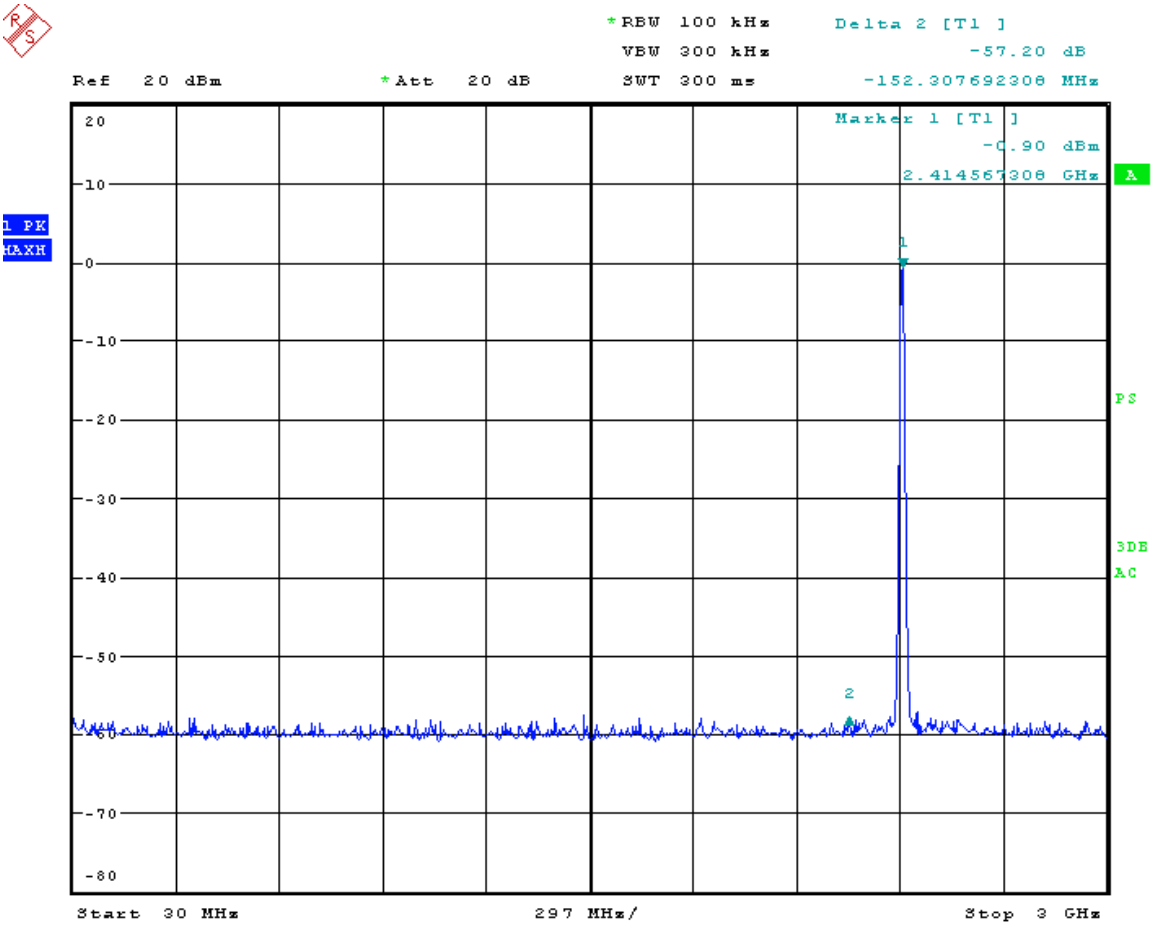
Measurement Result:

Chain 1:

Conducted spurious Emission Measurement Result (802.11b)1M

CH Low 30MHz-3GHz



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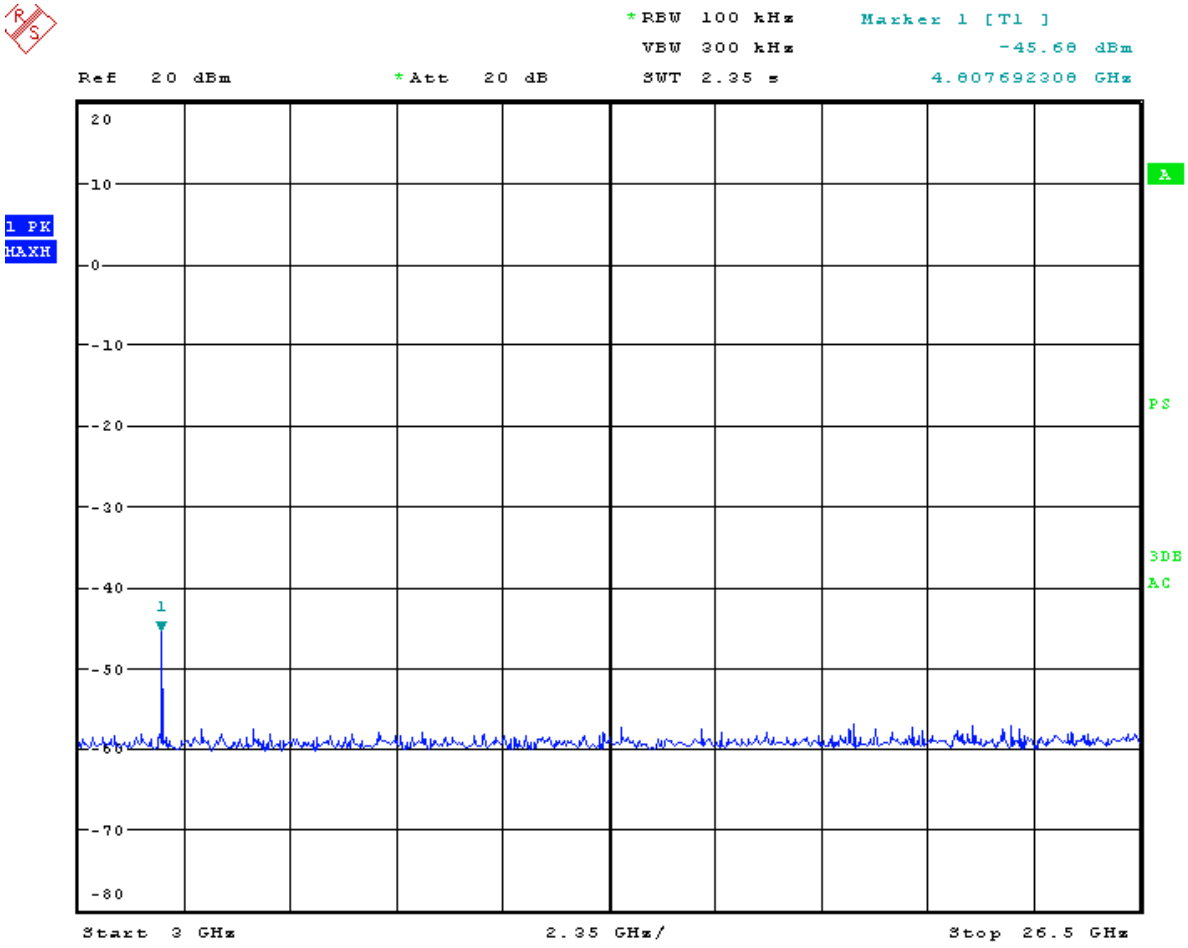
CH Low 3GHz-26.5GHz



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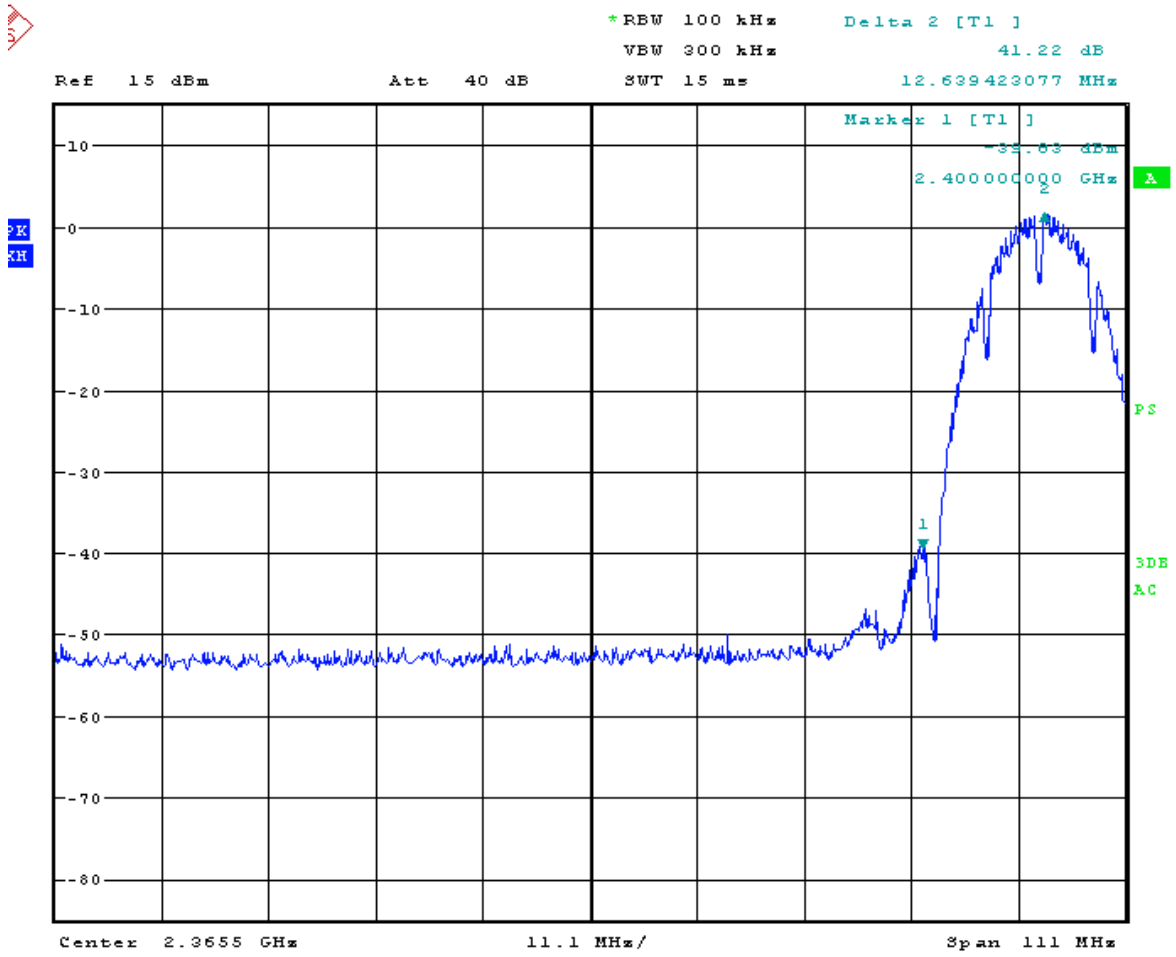

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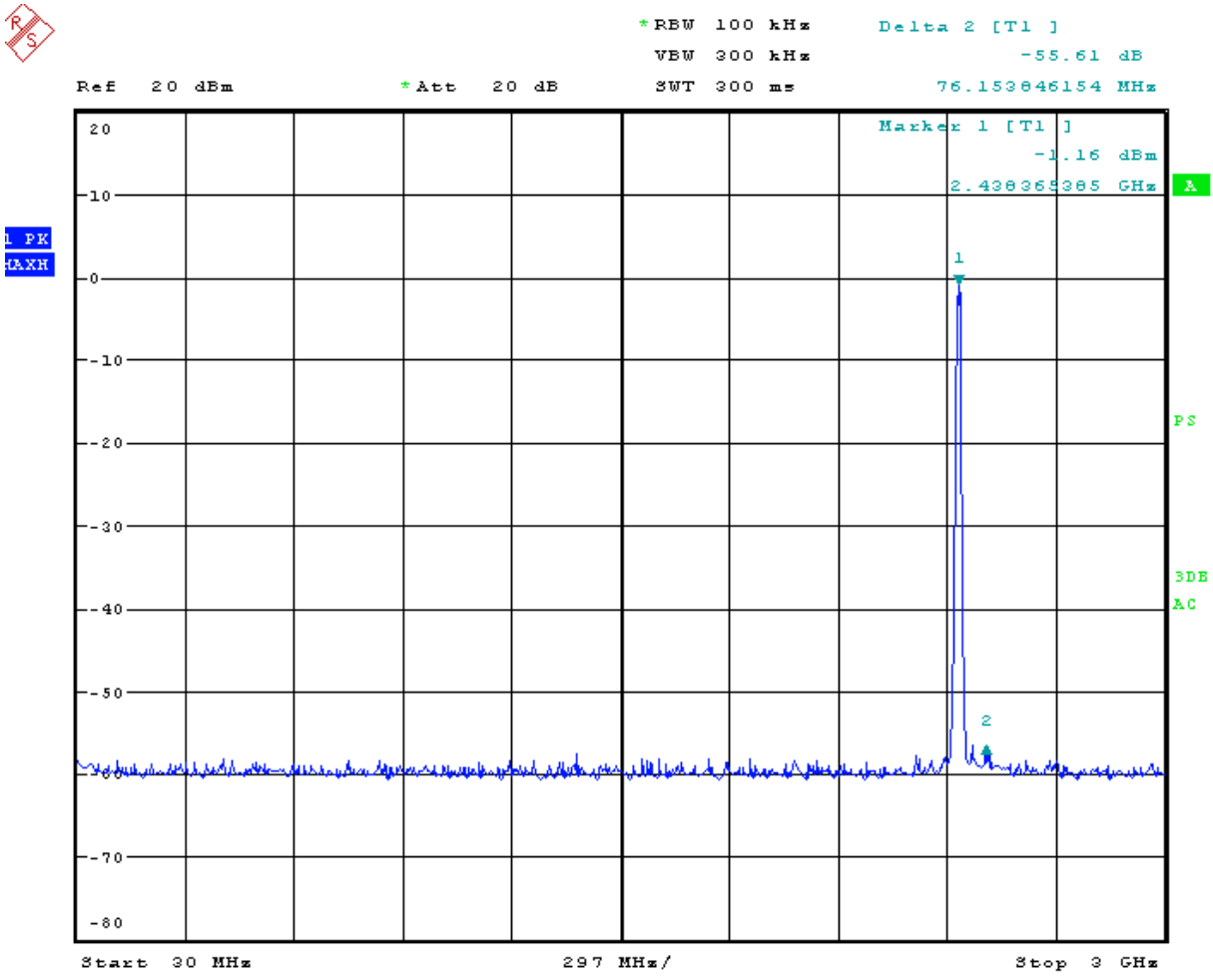
Ch Mid 30MHz-3GHz



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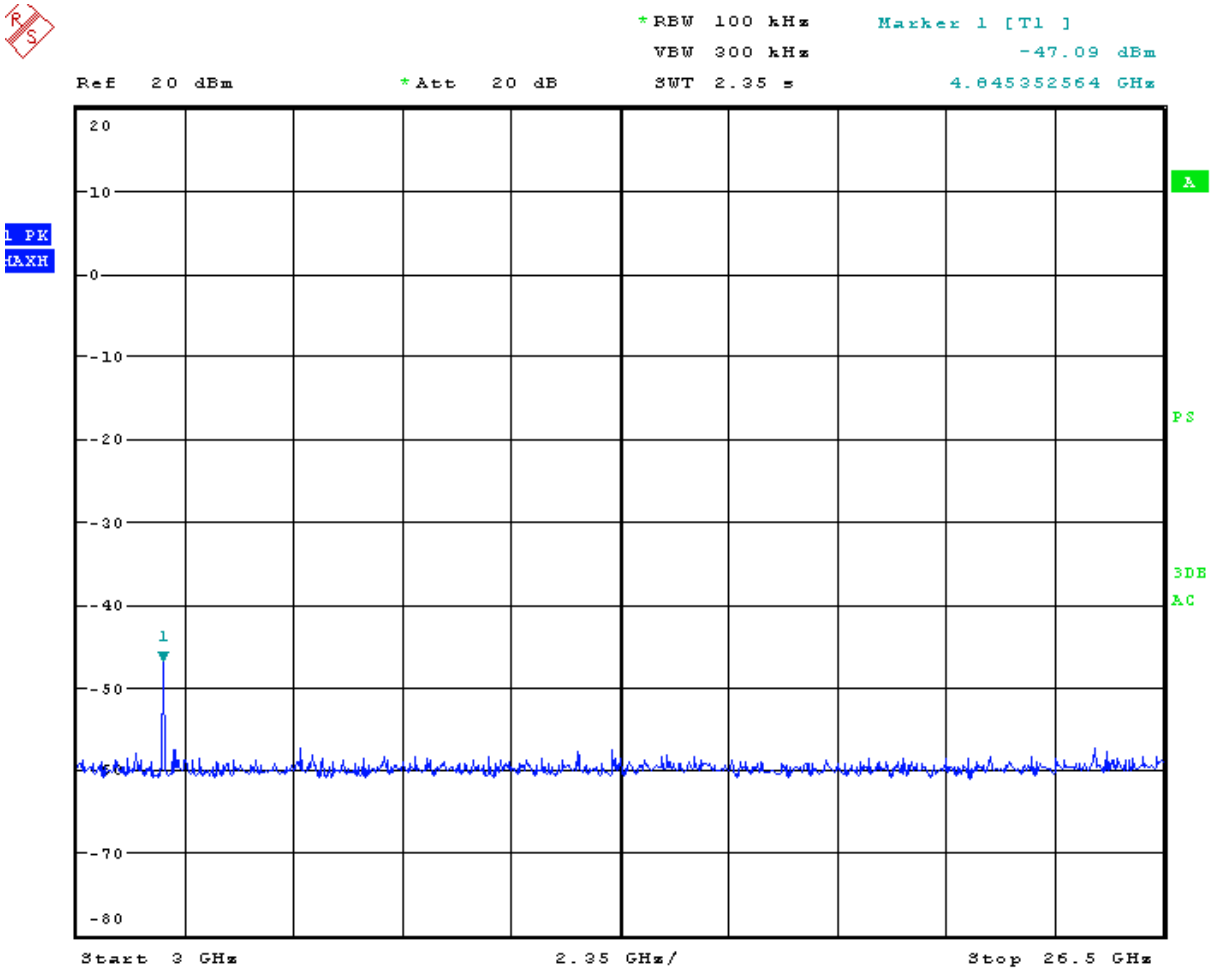
Ch Mid 3GHz-26.5GHz



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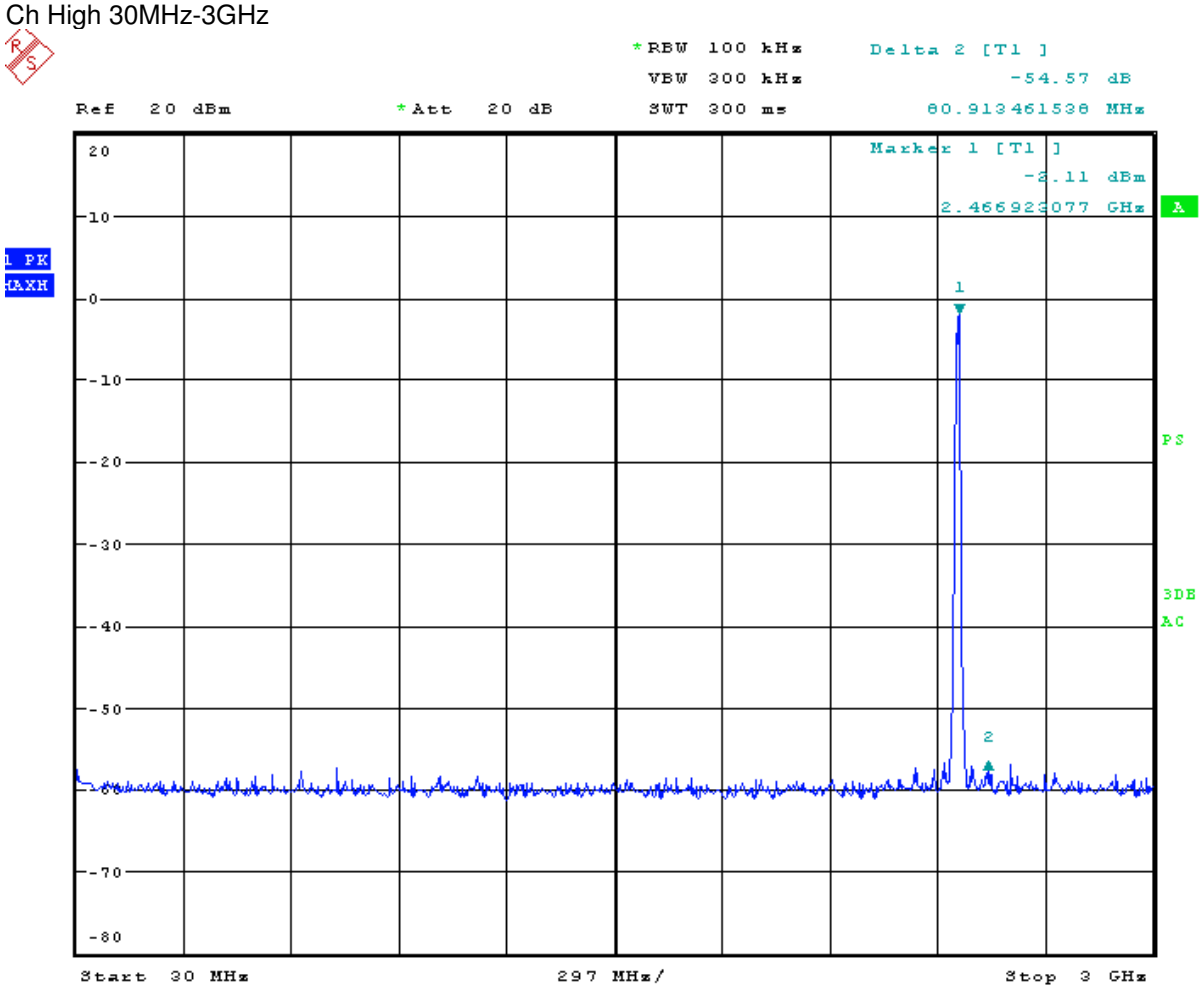
Ch High 30MHz-3GHz



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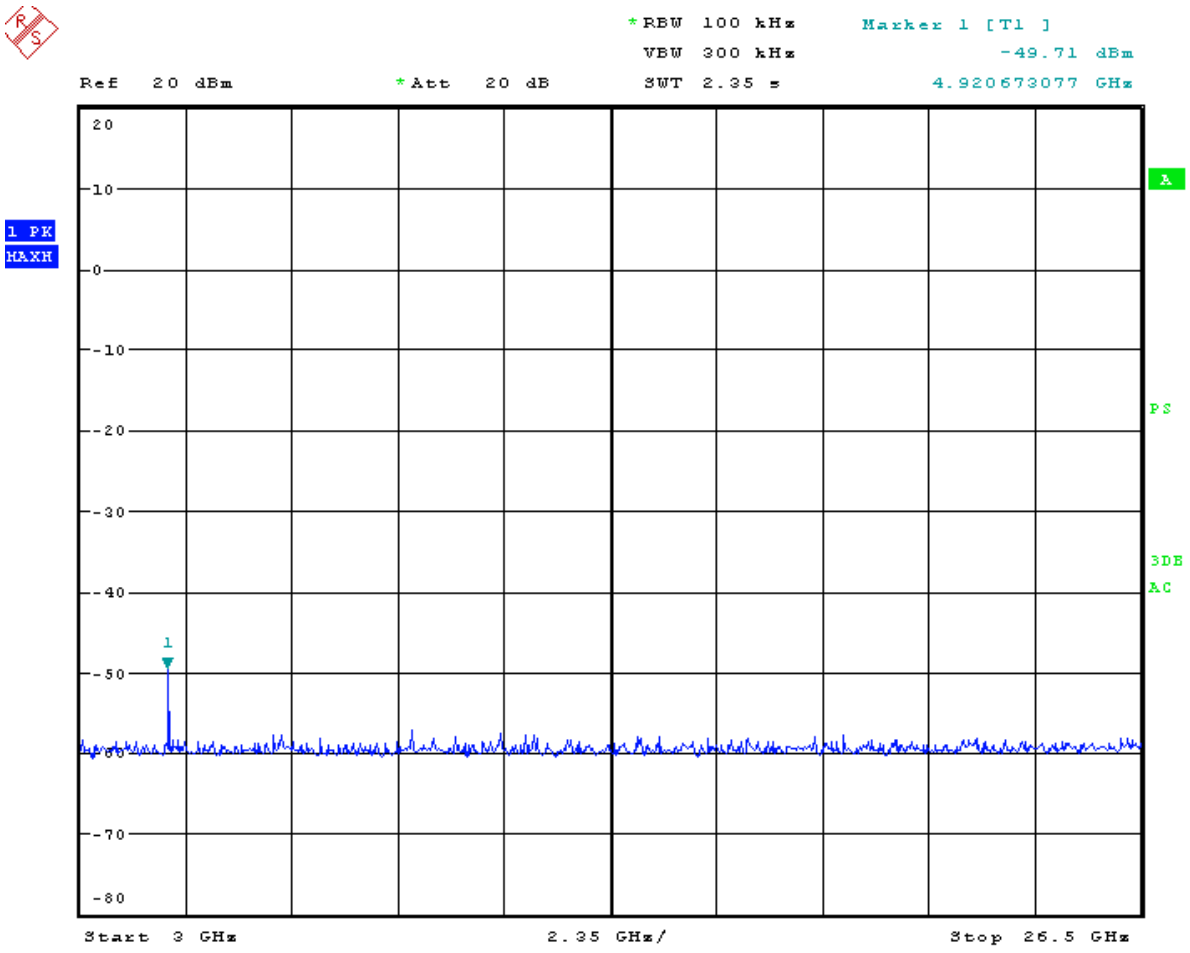
Ch High 3GHz-26.5GHz



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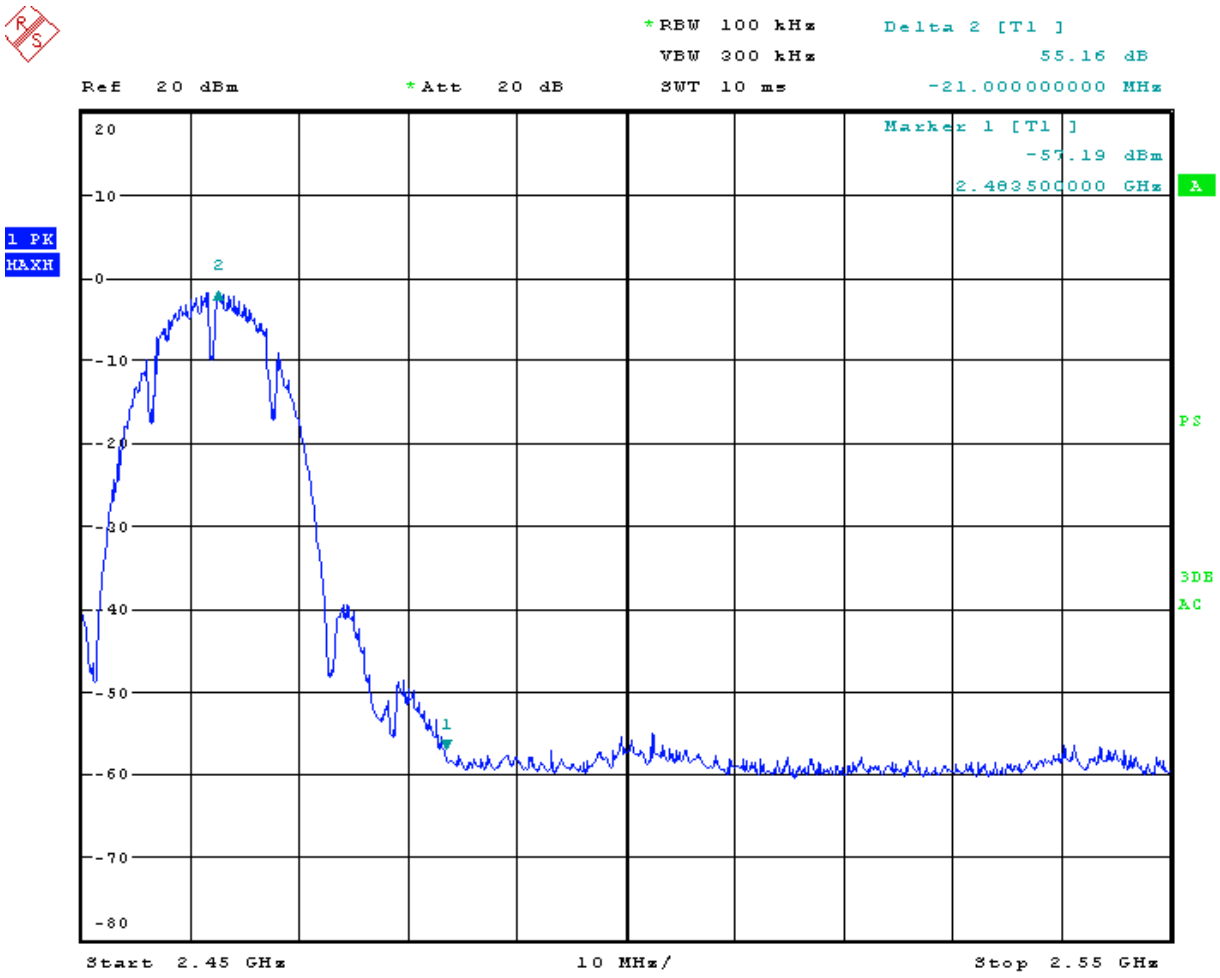

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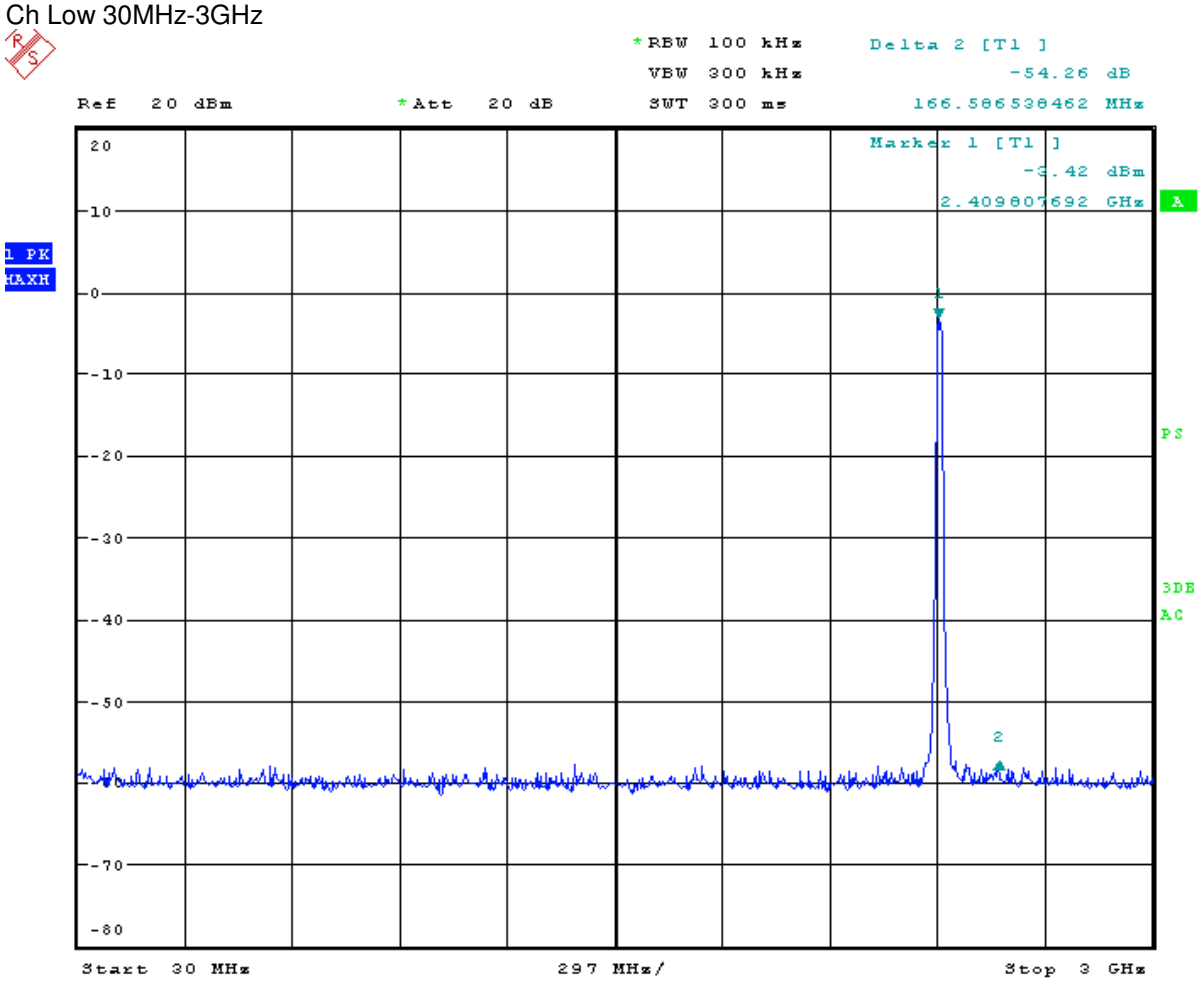
Conducted Spurious Emission Measurement Result(802.11g),6M

Ch Low 30MHz-3GHz



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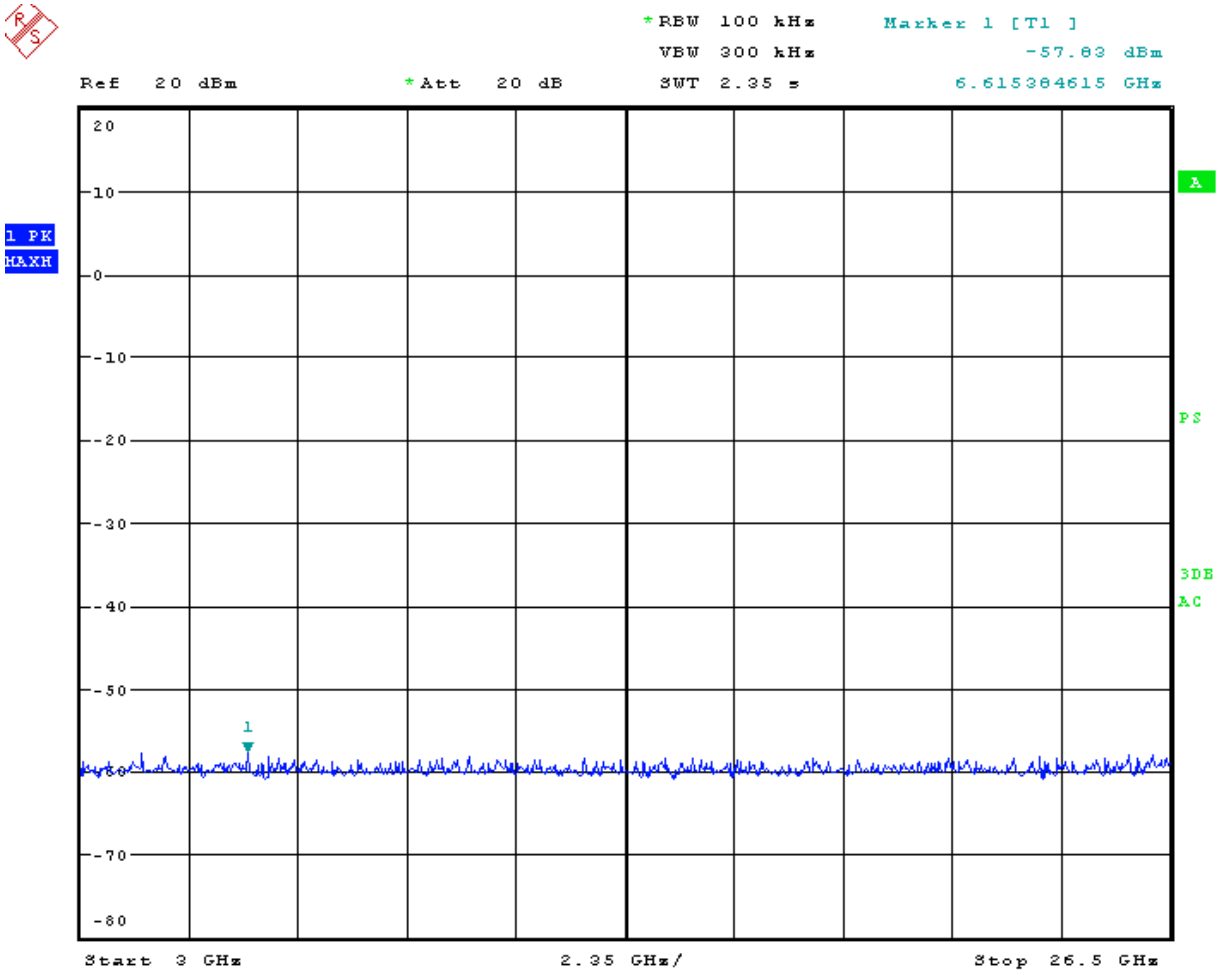
Ch Low 3GH-26.5GHz



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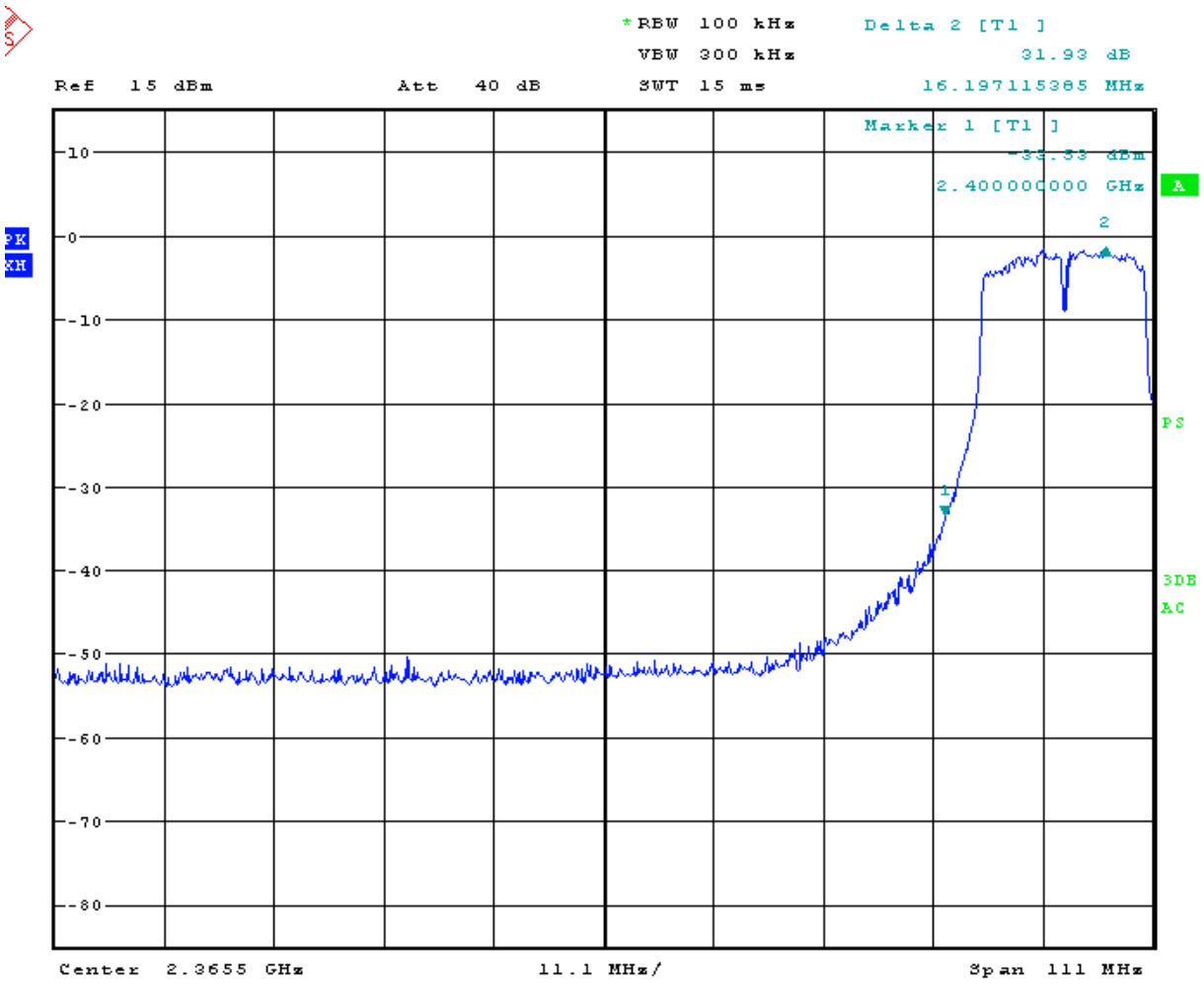

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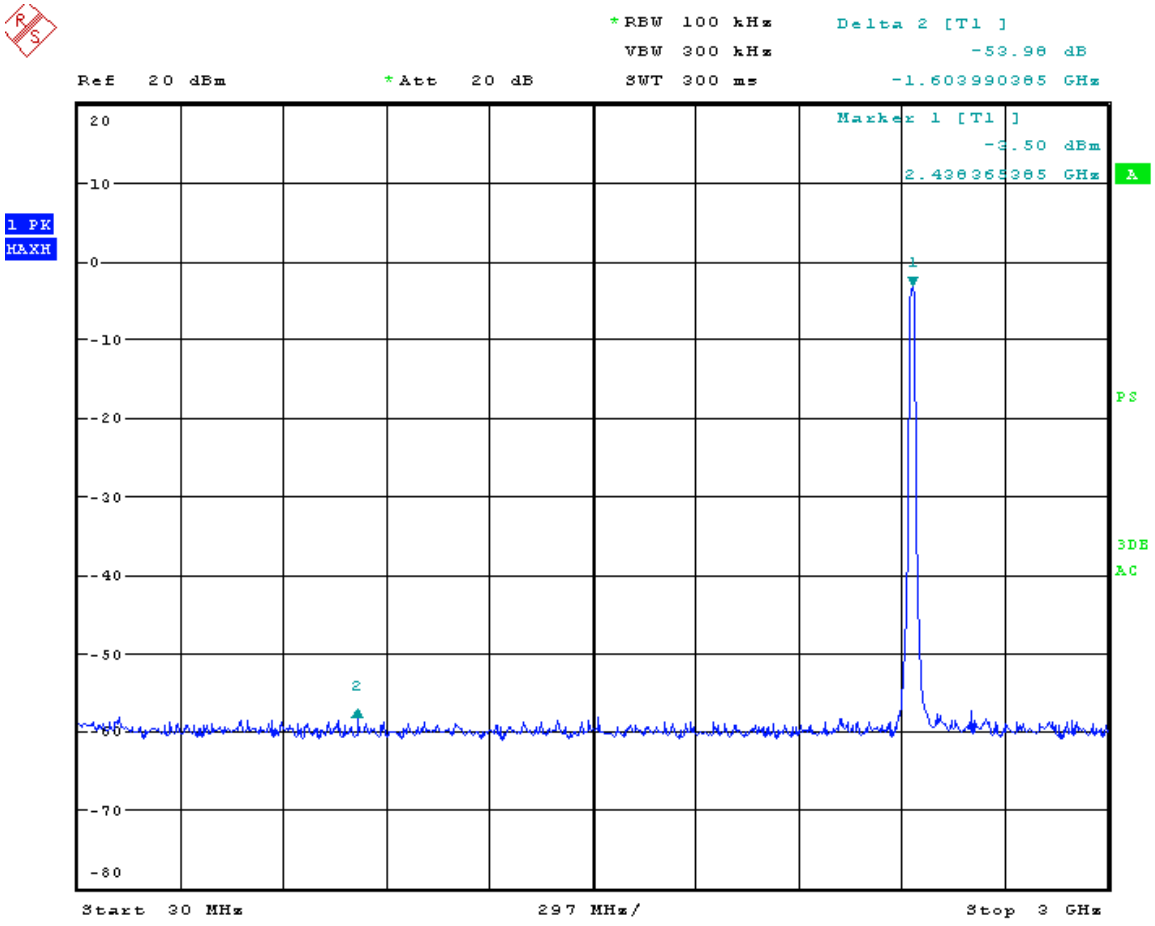
Ch Mid 30MHz-3GHz



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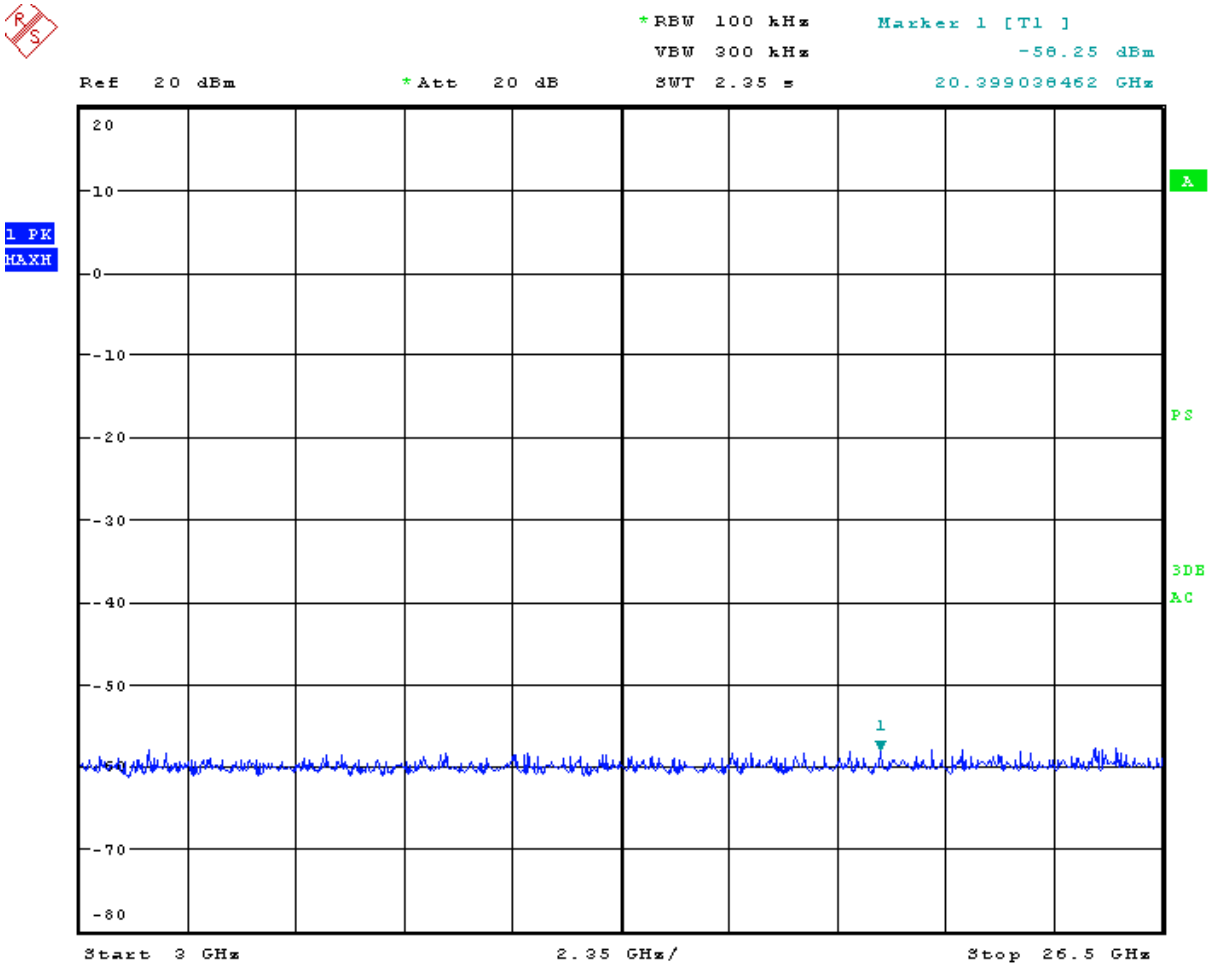
Ch Mid 3GHz-26.5GHz



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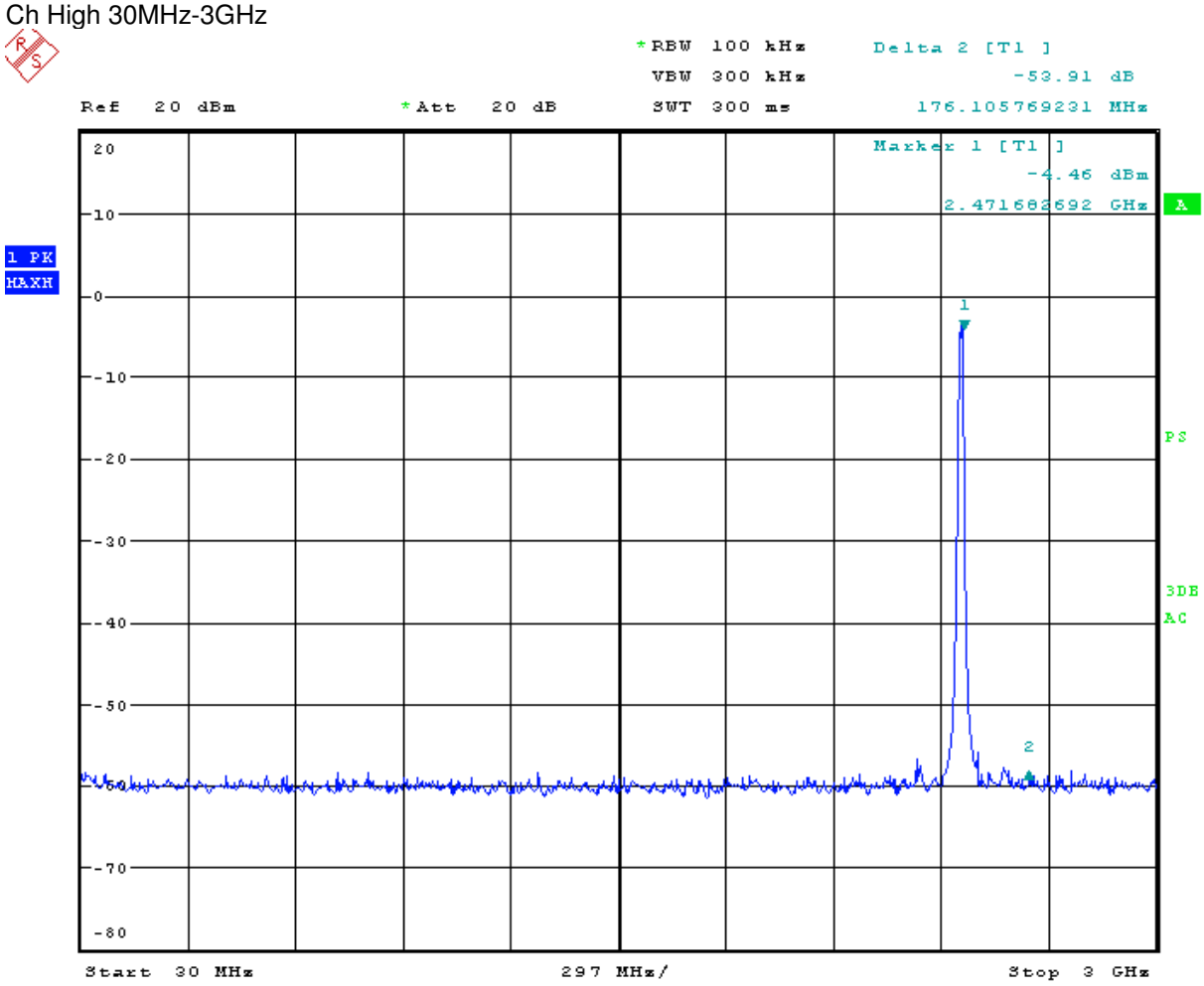
Ch High 30MHz-3GHz



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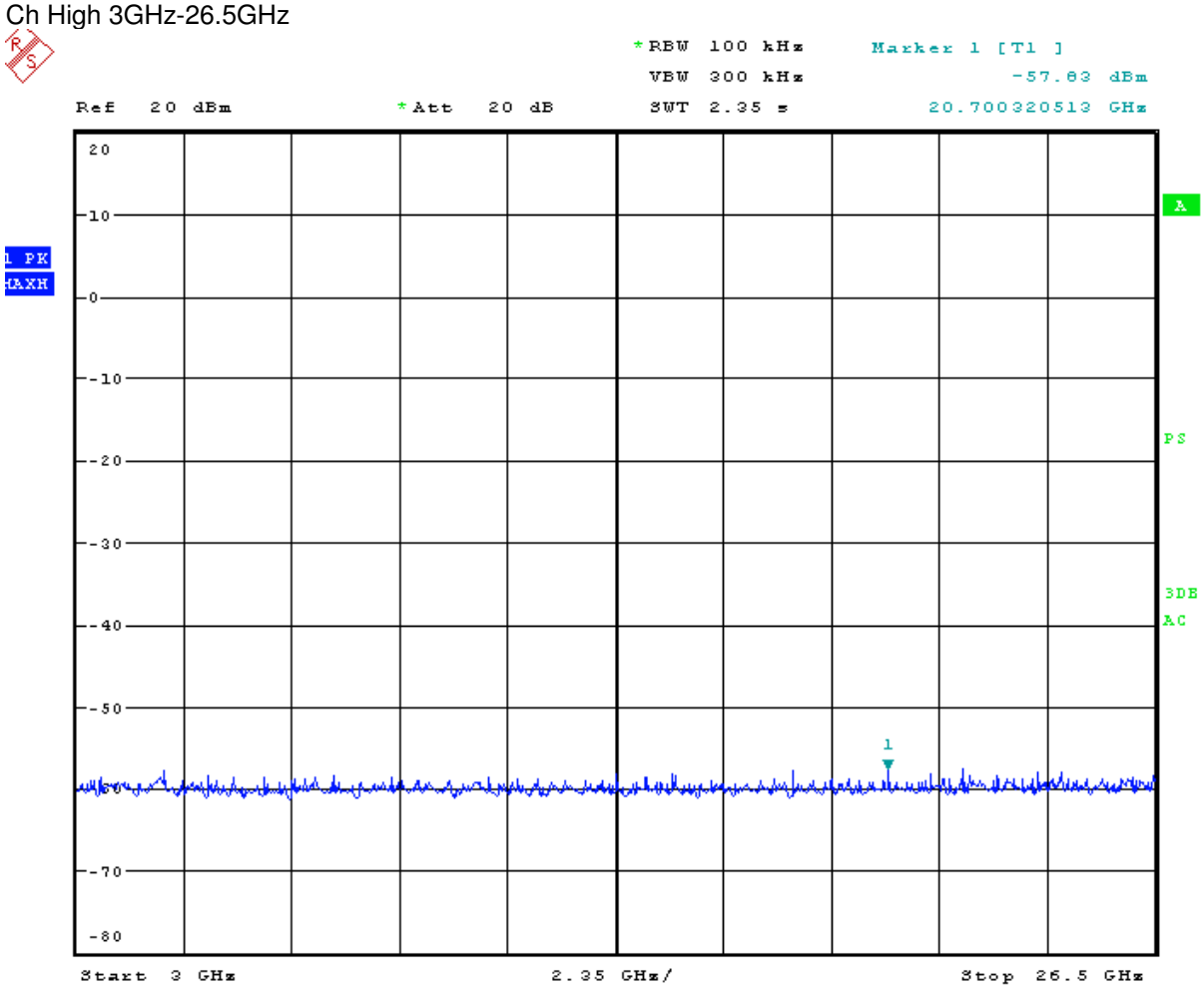
Ch High 3GHz-26.5GHz



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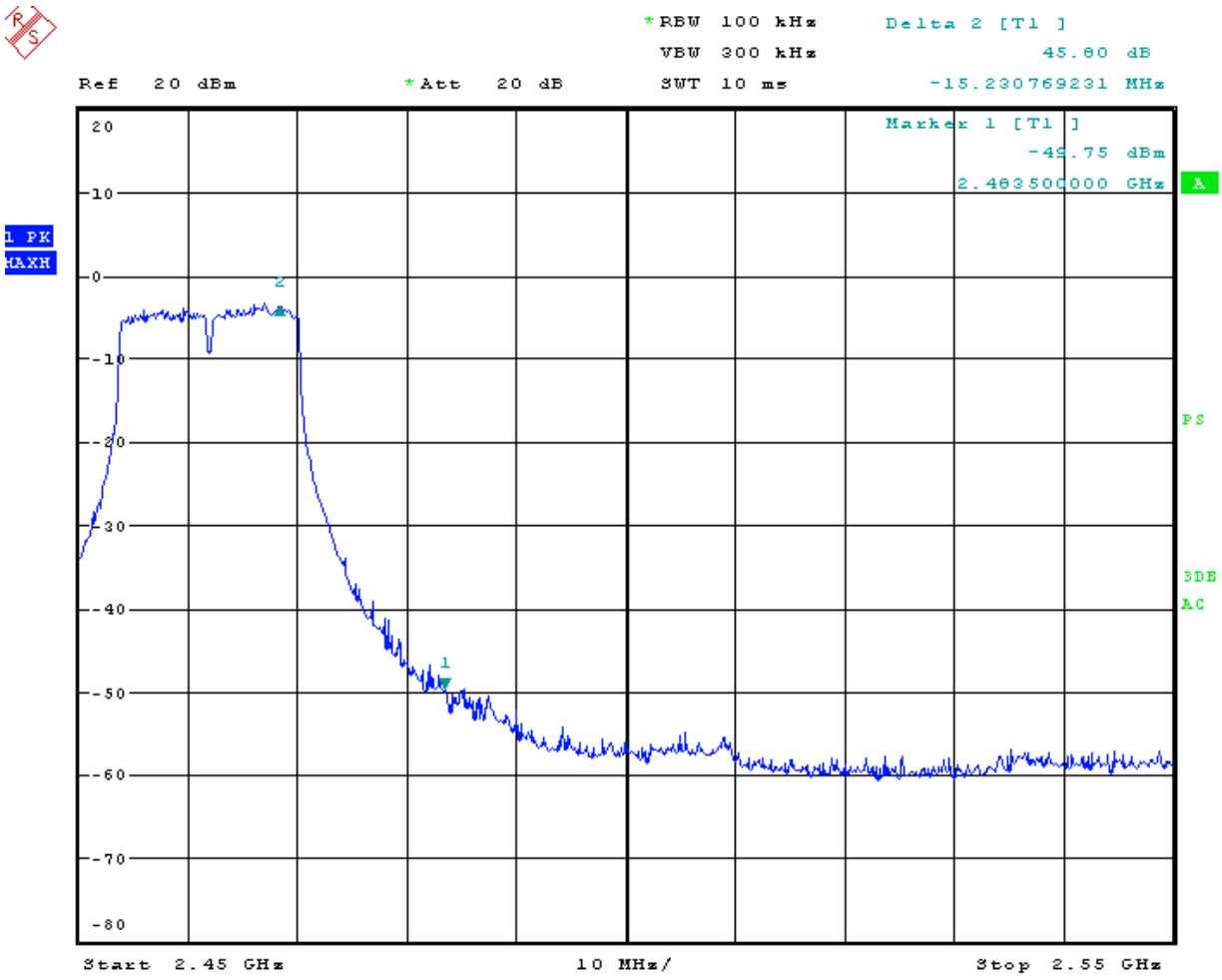

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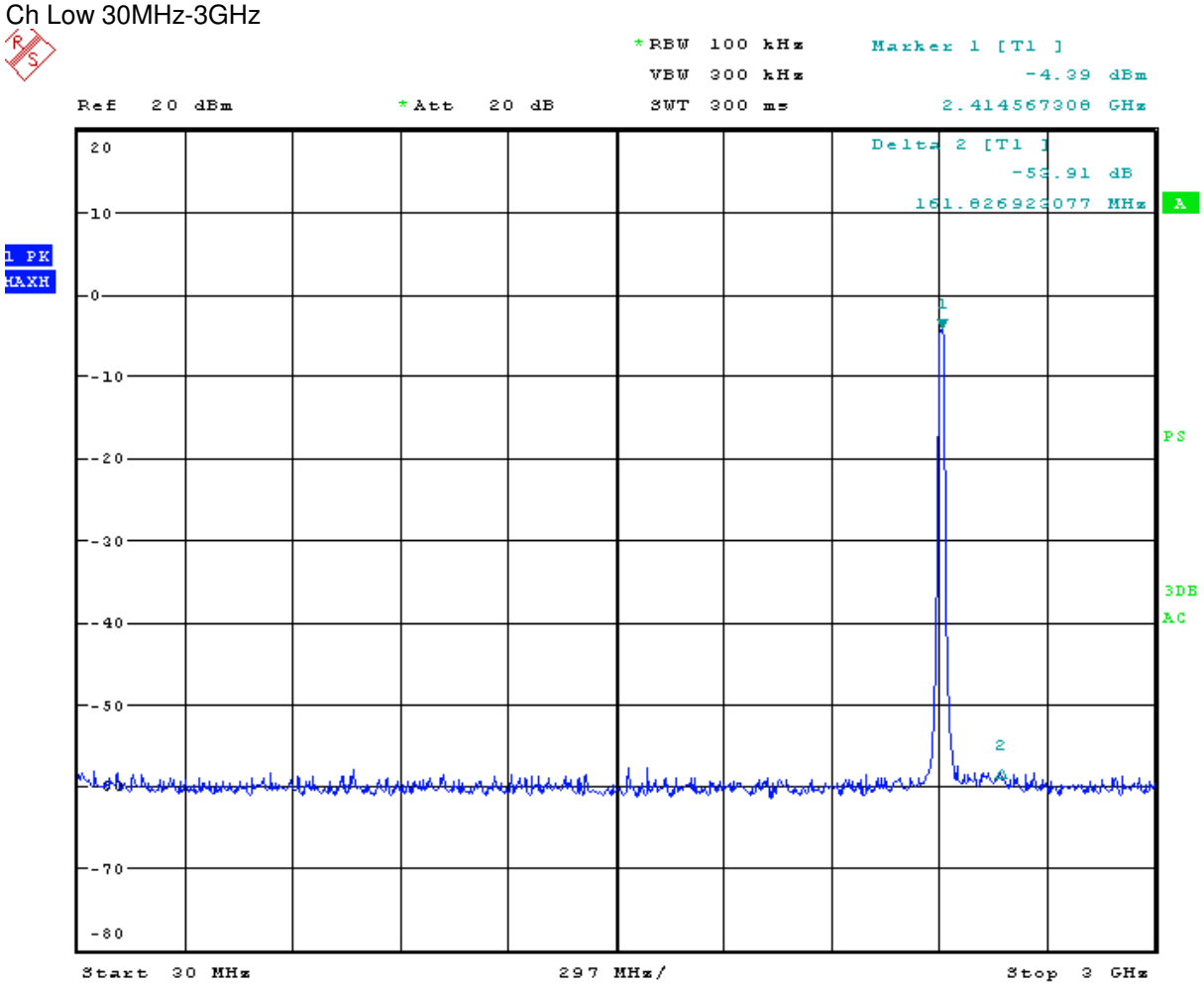
Conducted Spurious Emission Measurement Result(802.11n_20M)6.5M

Ch Low 30MHz-3GHz



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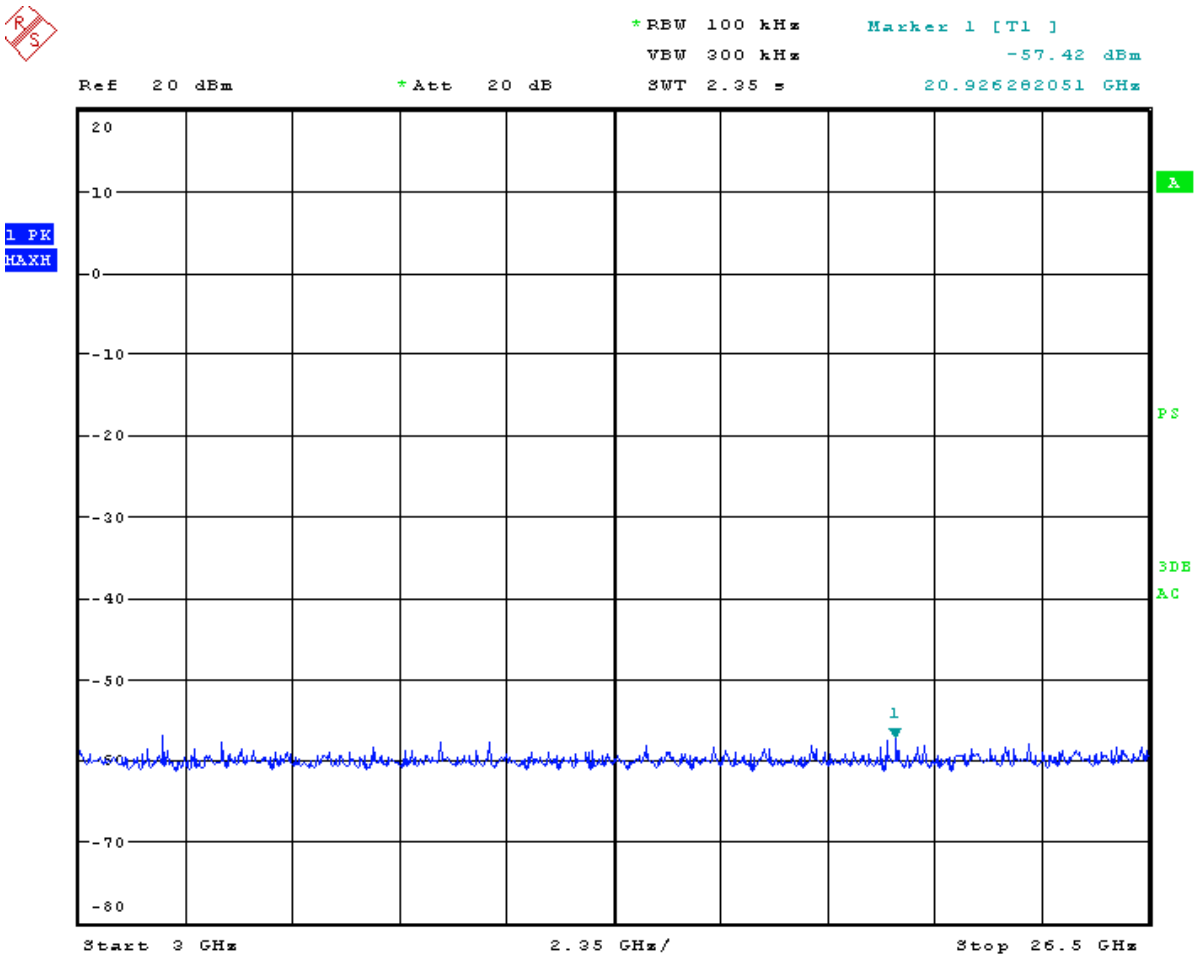
Ch Low 3GHz-26.5GHz



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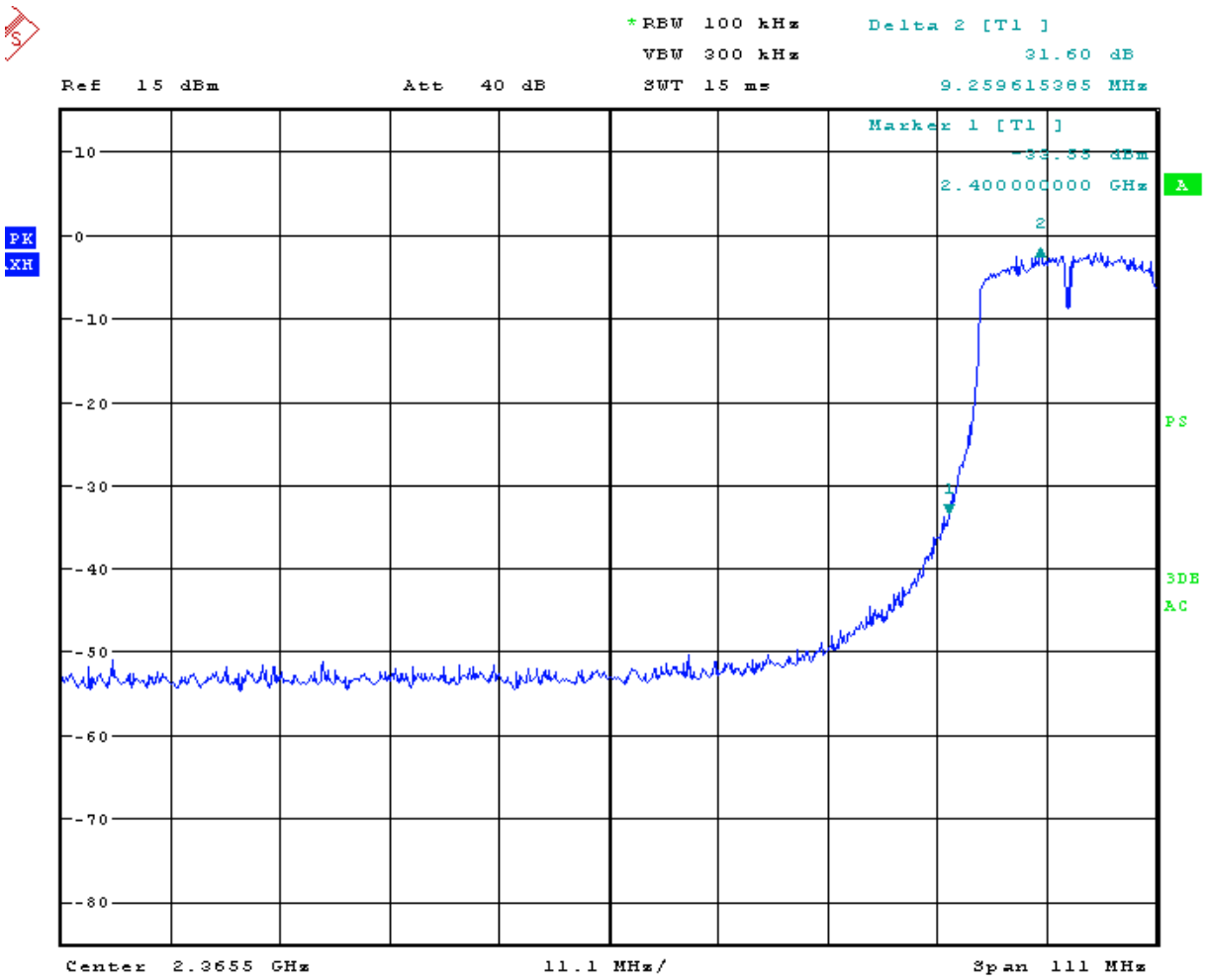

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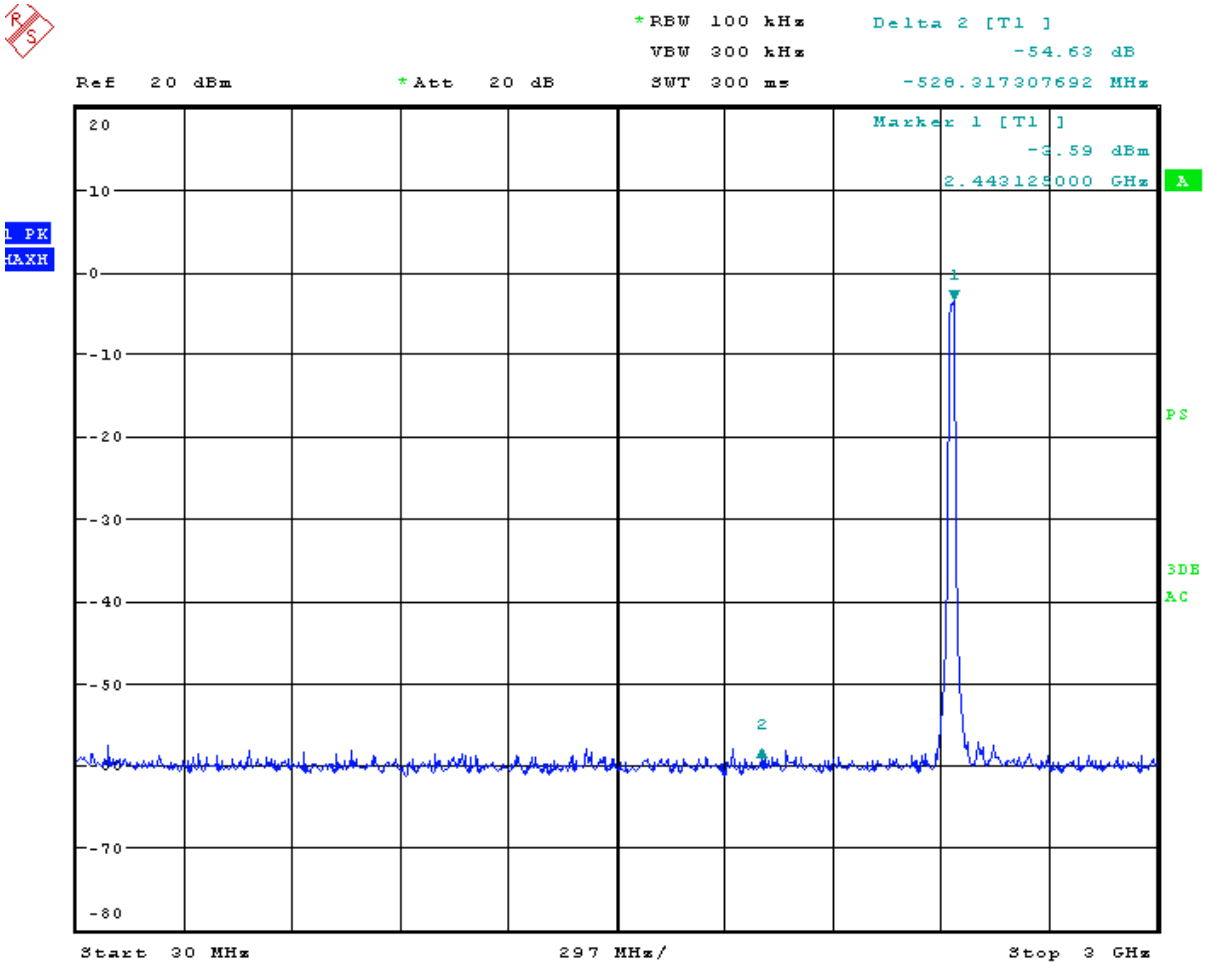
Ch Mid 30MHz-3GHz



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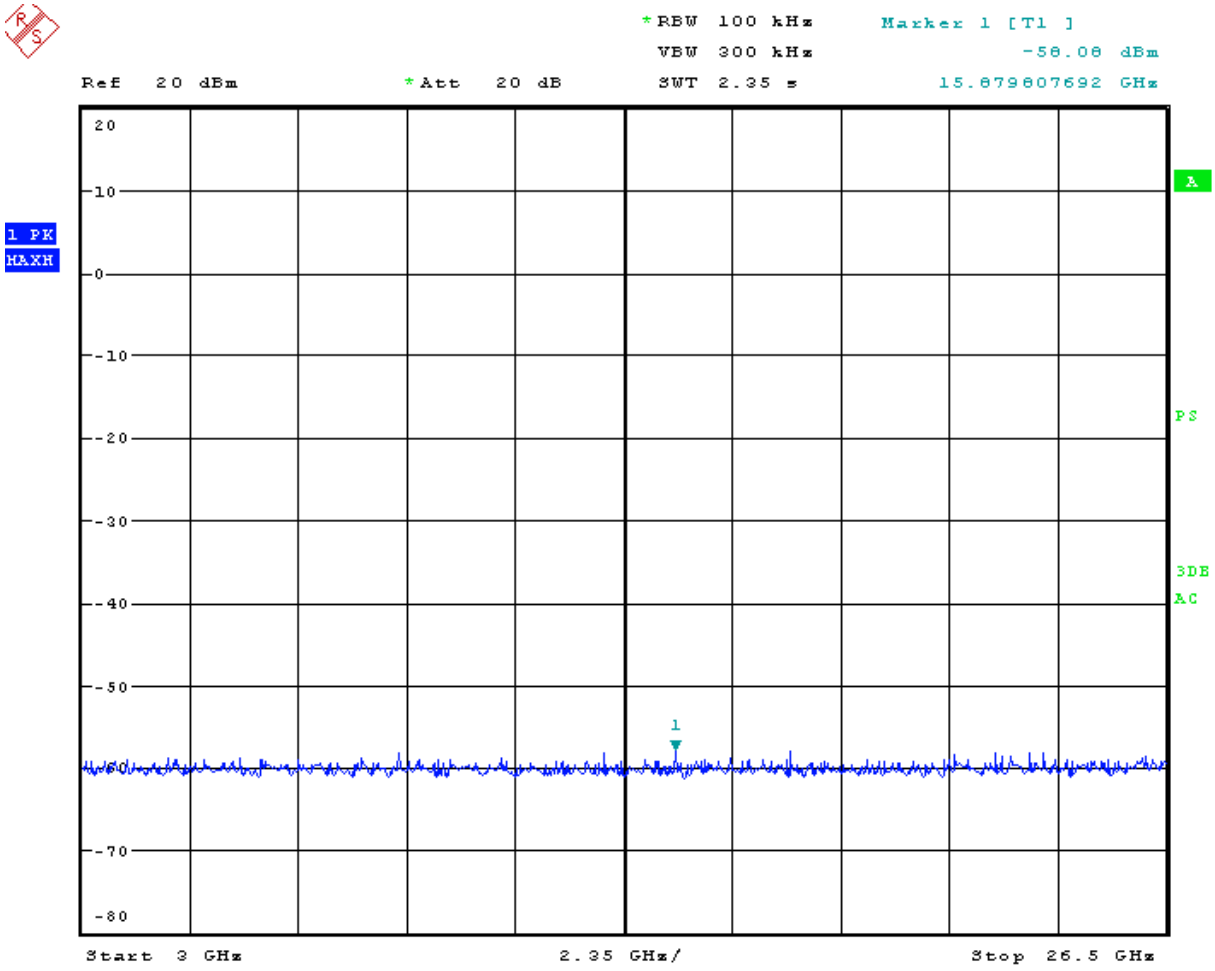
Ch Mid 3GHz-26.5GHz



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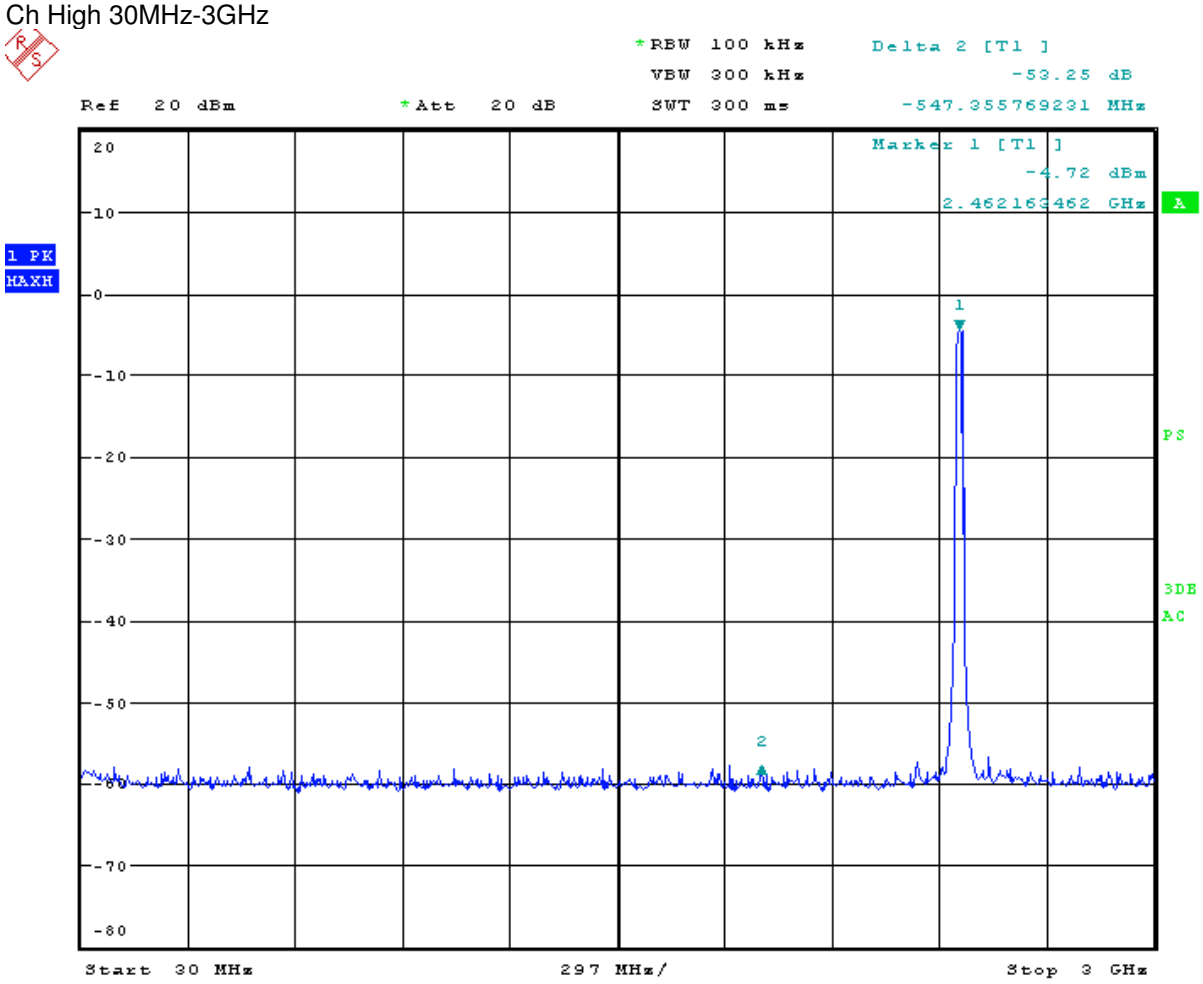
Ch High 30MHz-3GHz



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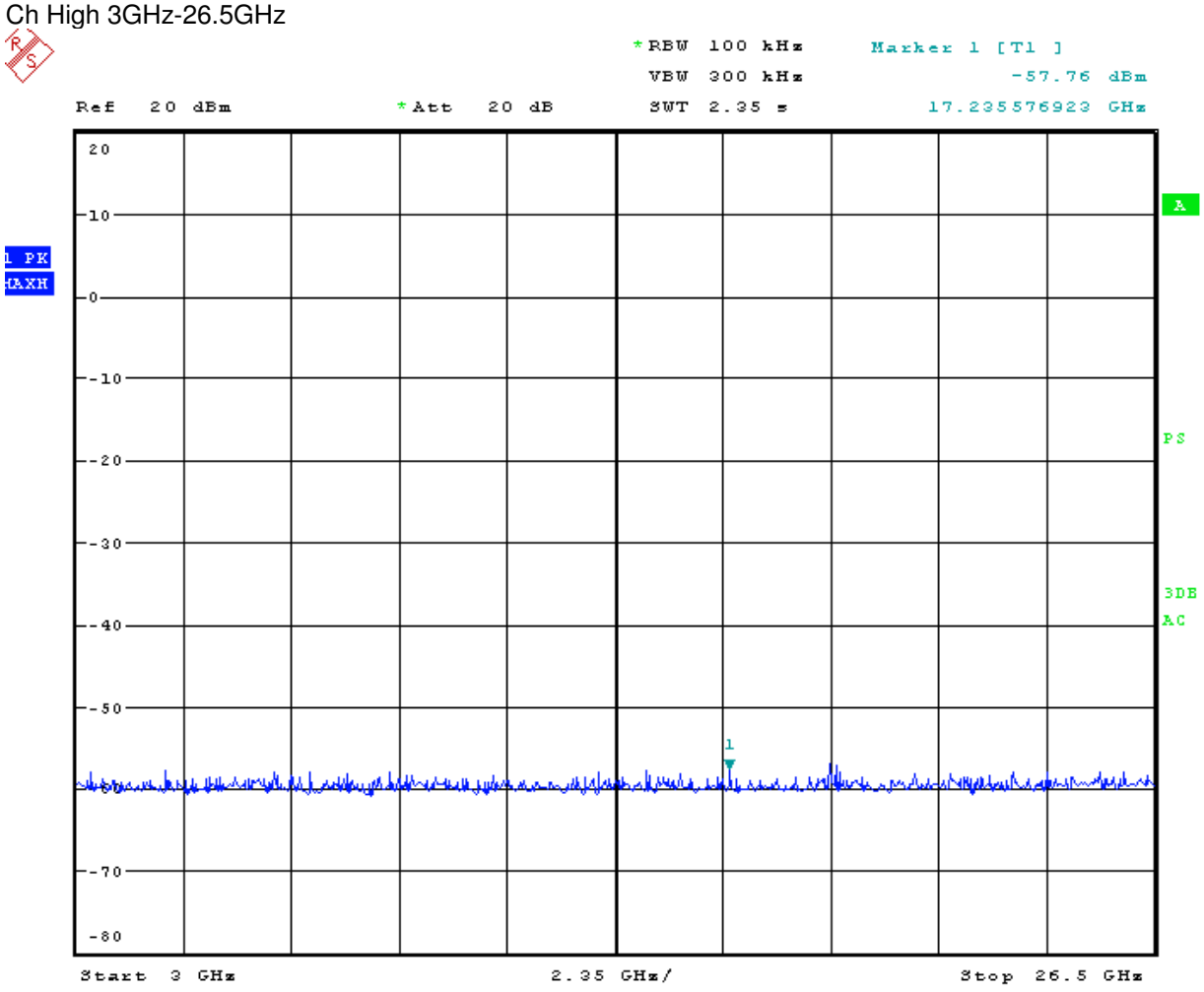
Ch High 3GHz-26.5GHz



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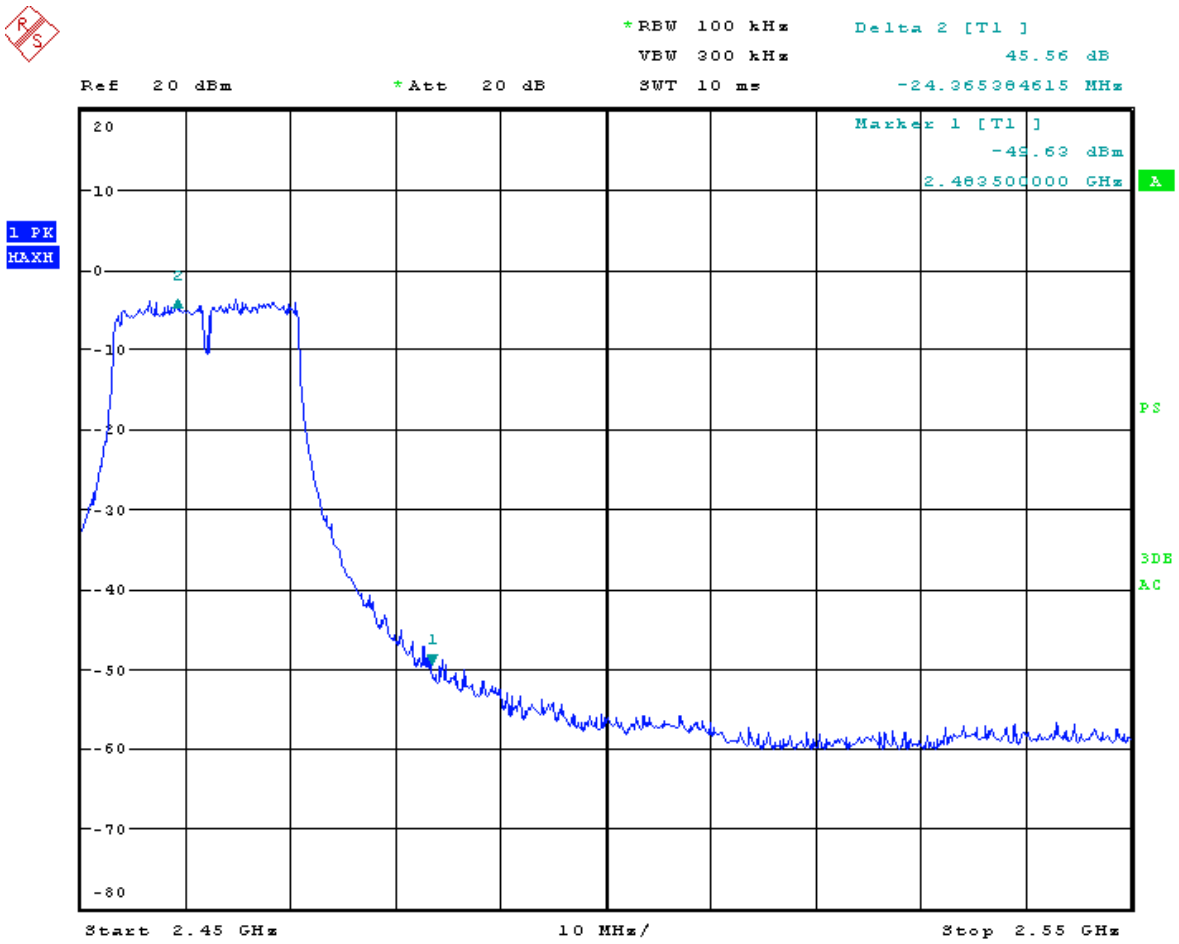

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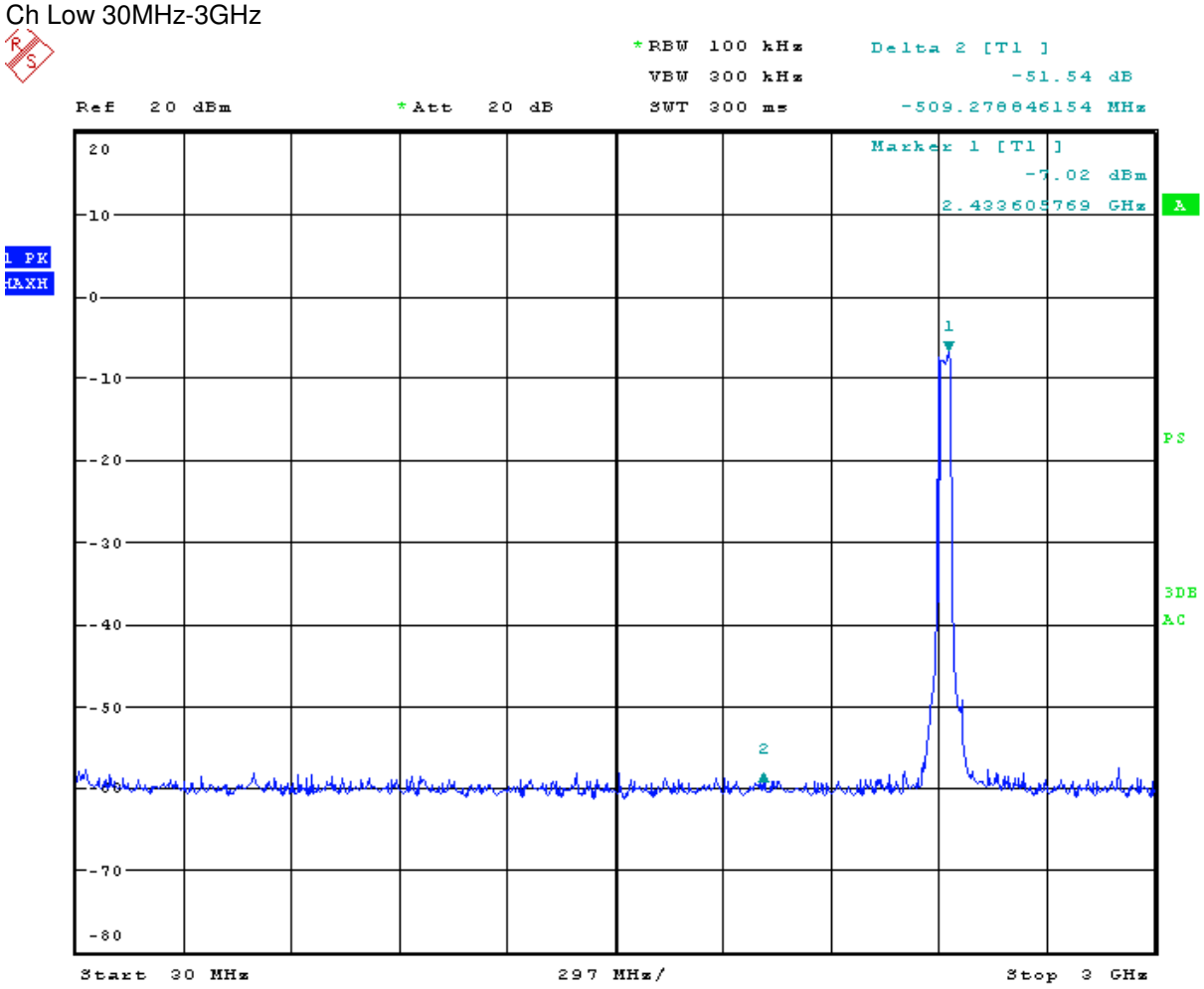
Conducted Spurious Emission Measurement Result(802.11n_40M)13.5M

Ch Low 30MHz-3GHz



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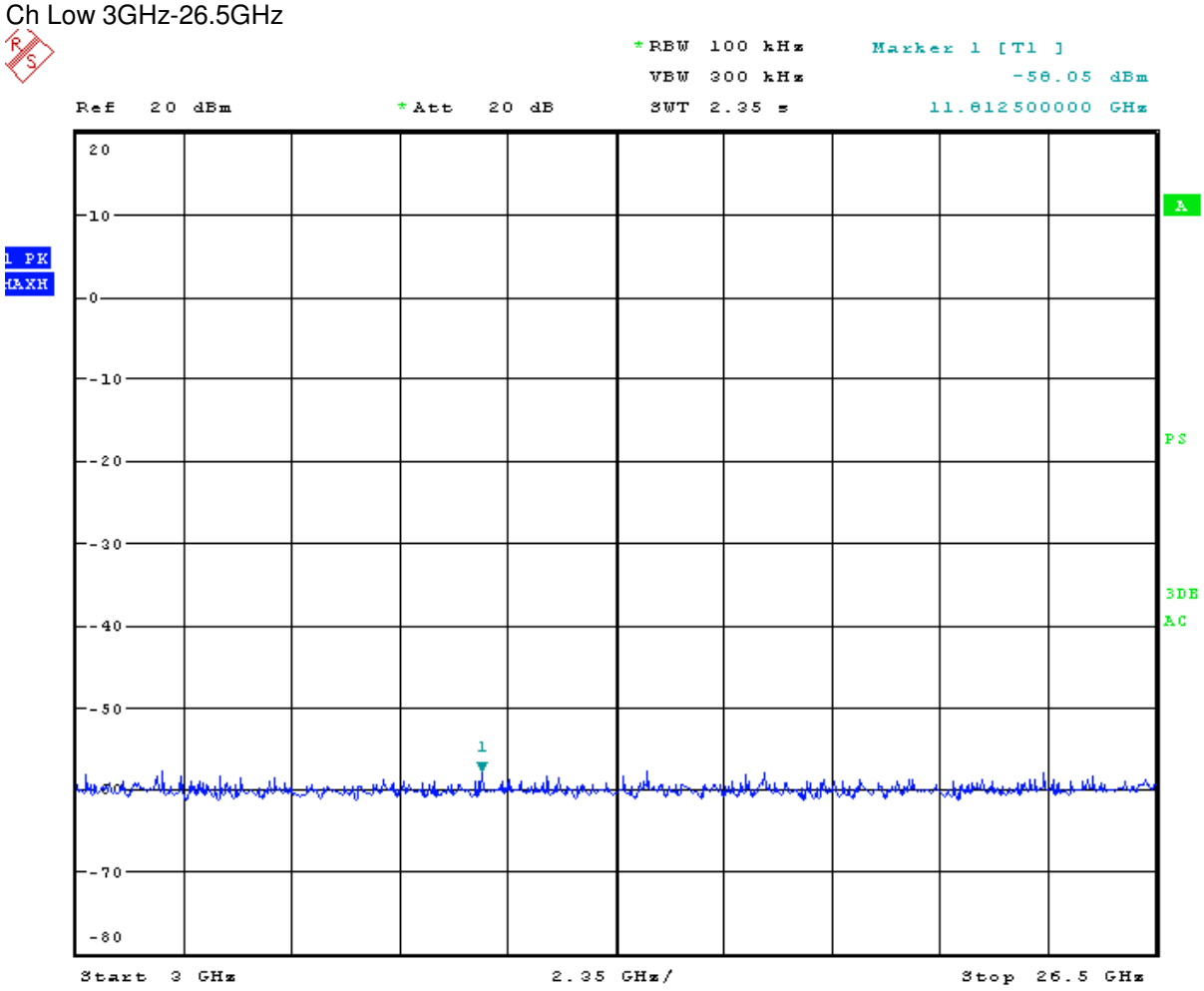
Ch Low 3GHz-26.5GHz



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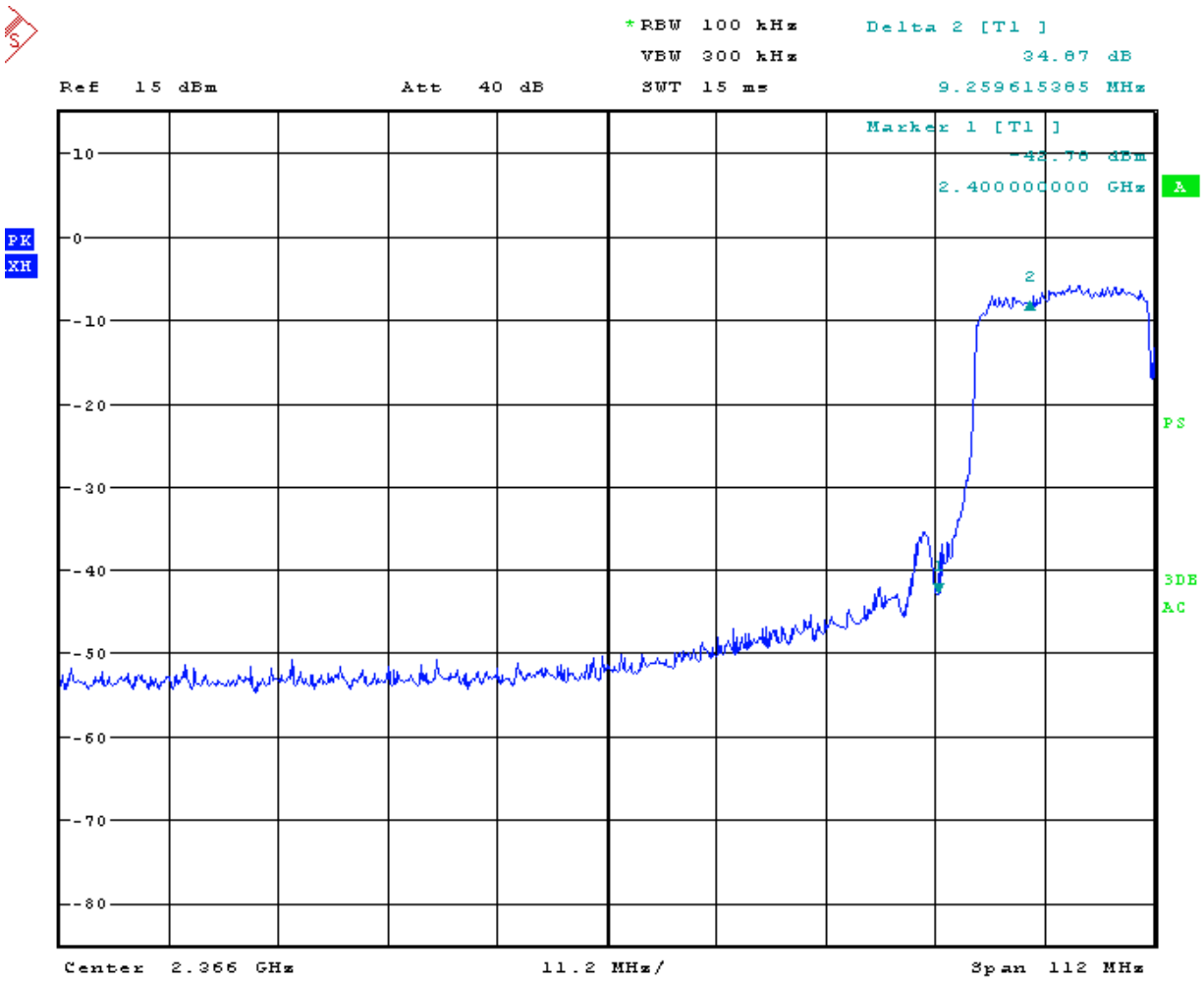

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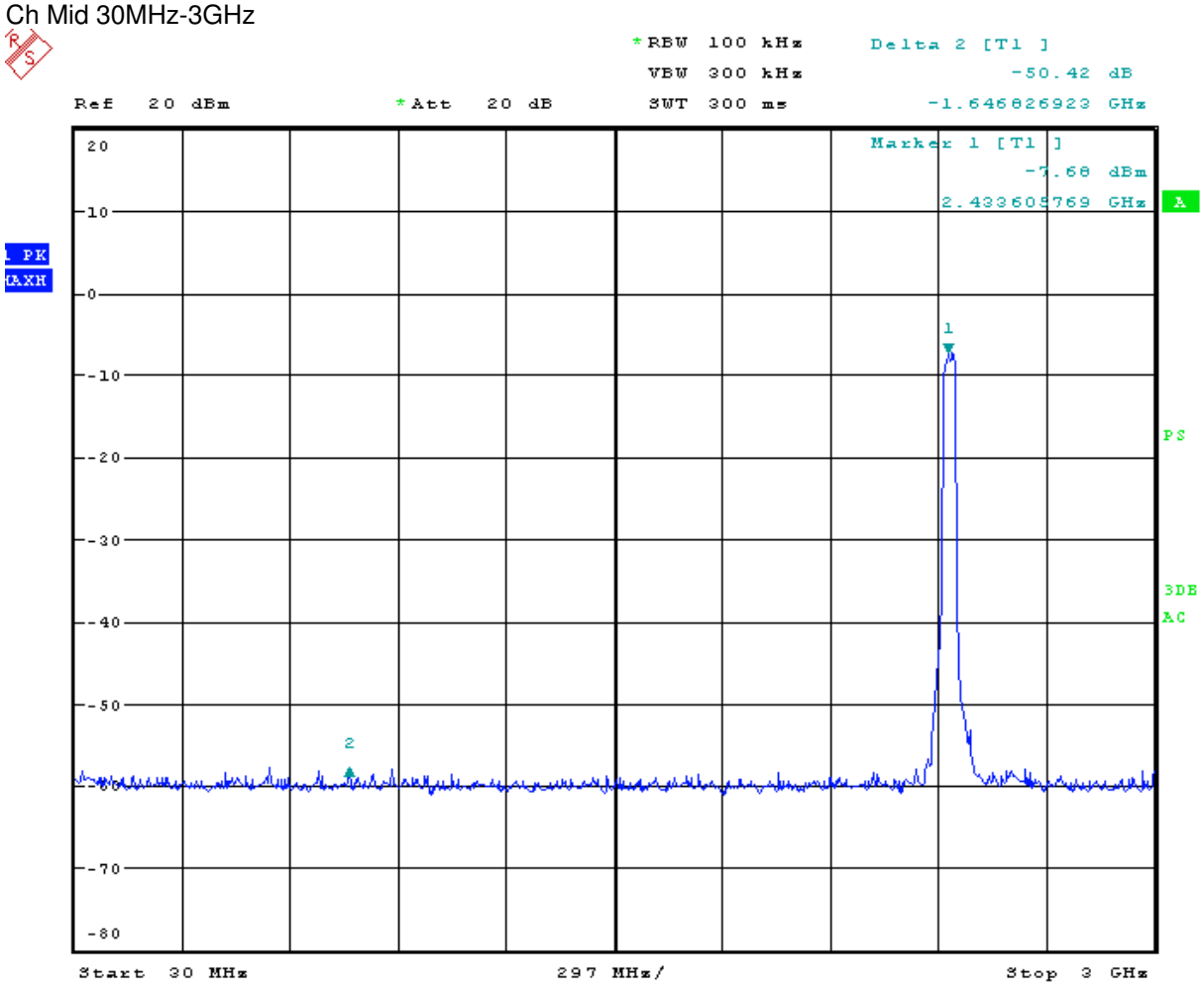
Ch Mid 30MHz-3GHz



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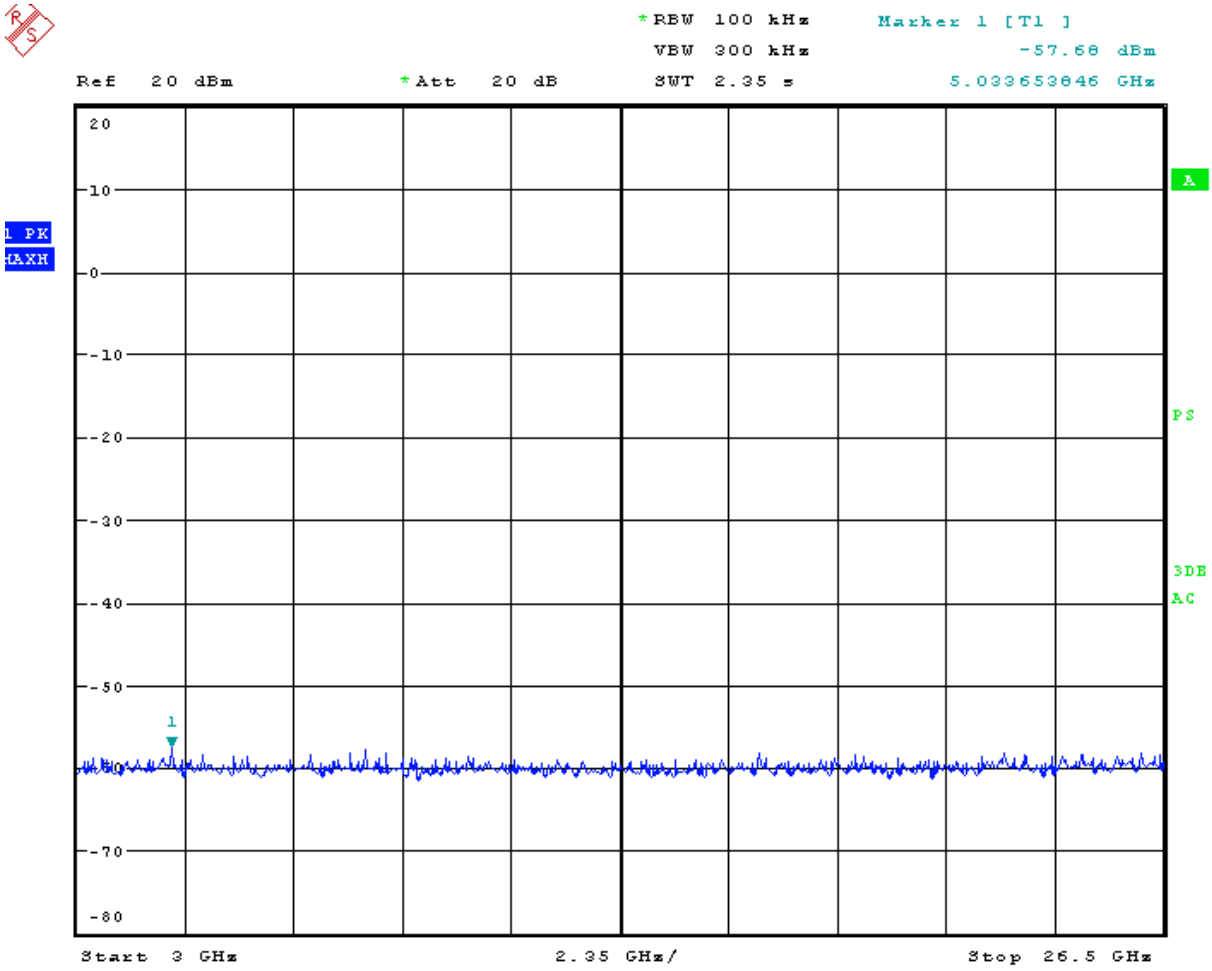
Ch Mid 3GHz-26.5GHz



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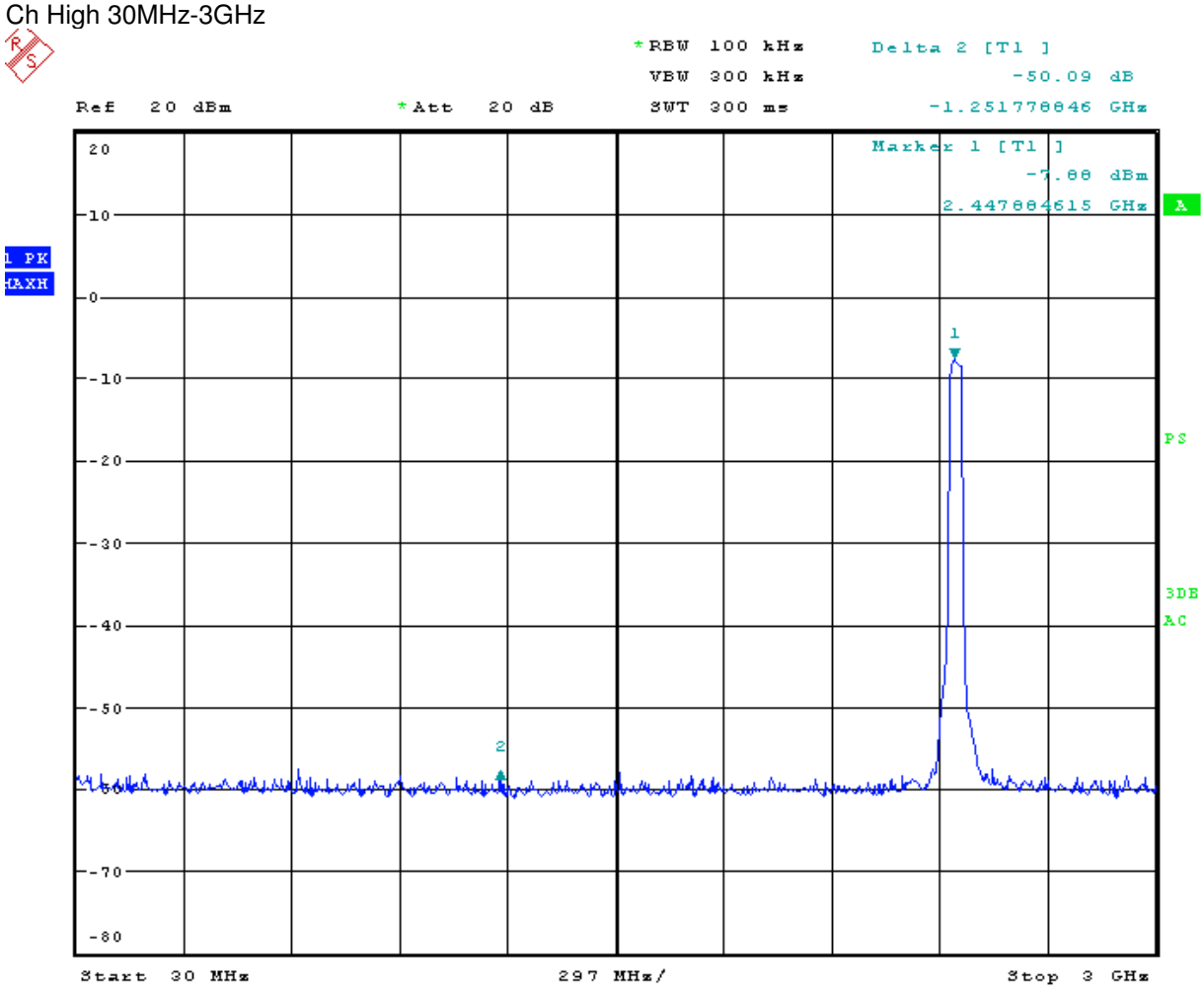
Ch High 30MHz-3GHz



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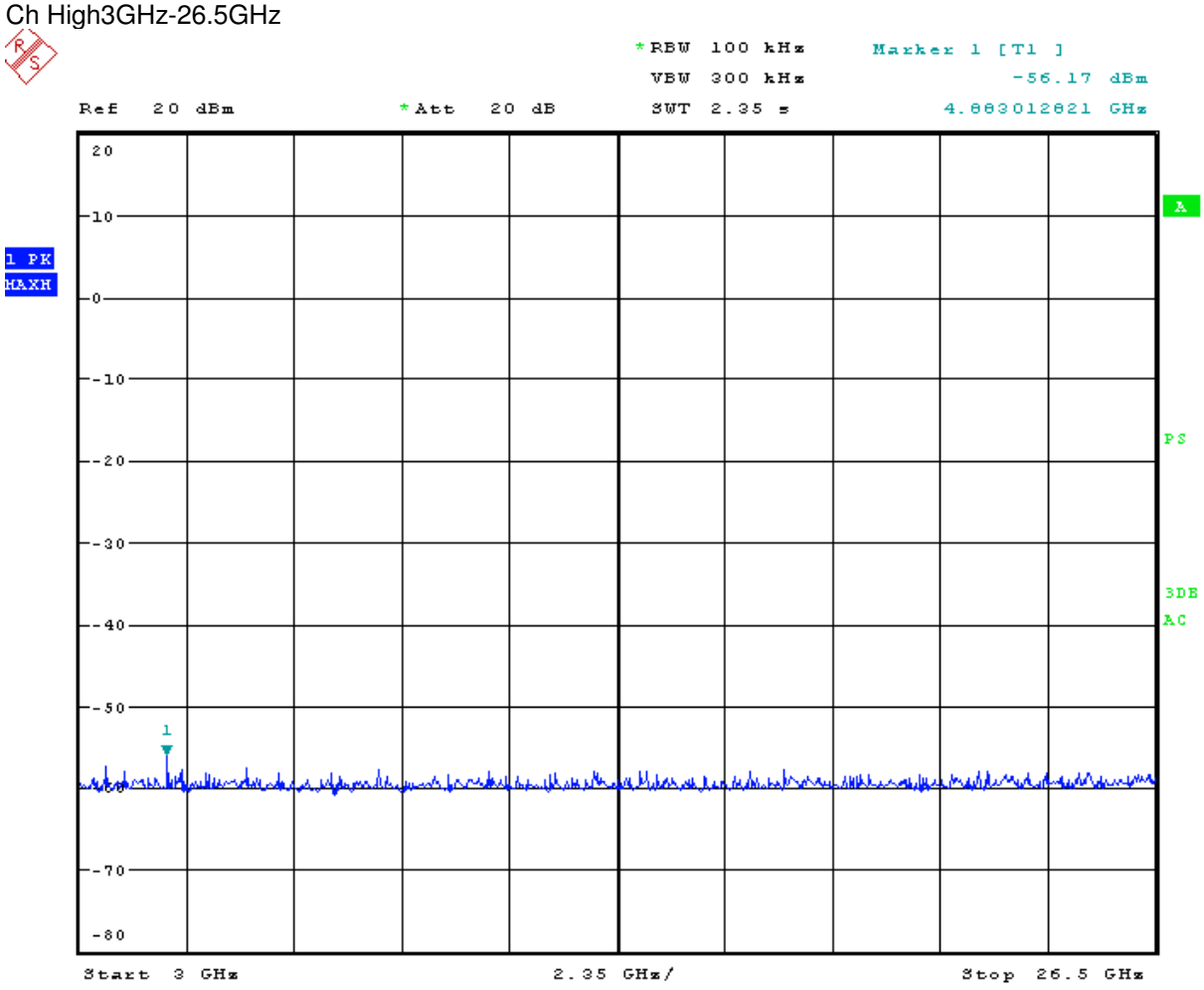
Ch High3GHz-26.5GHz



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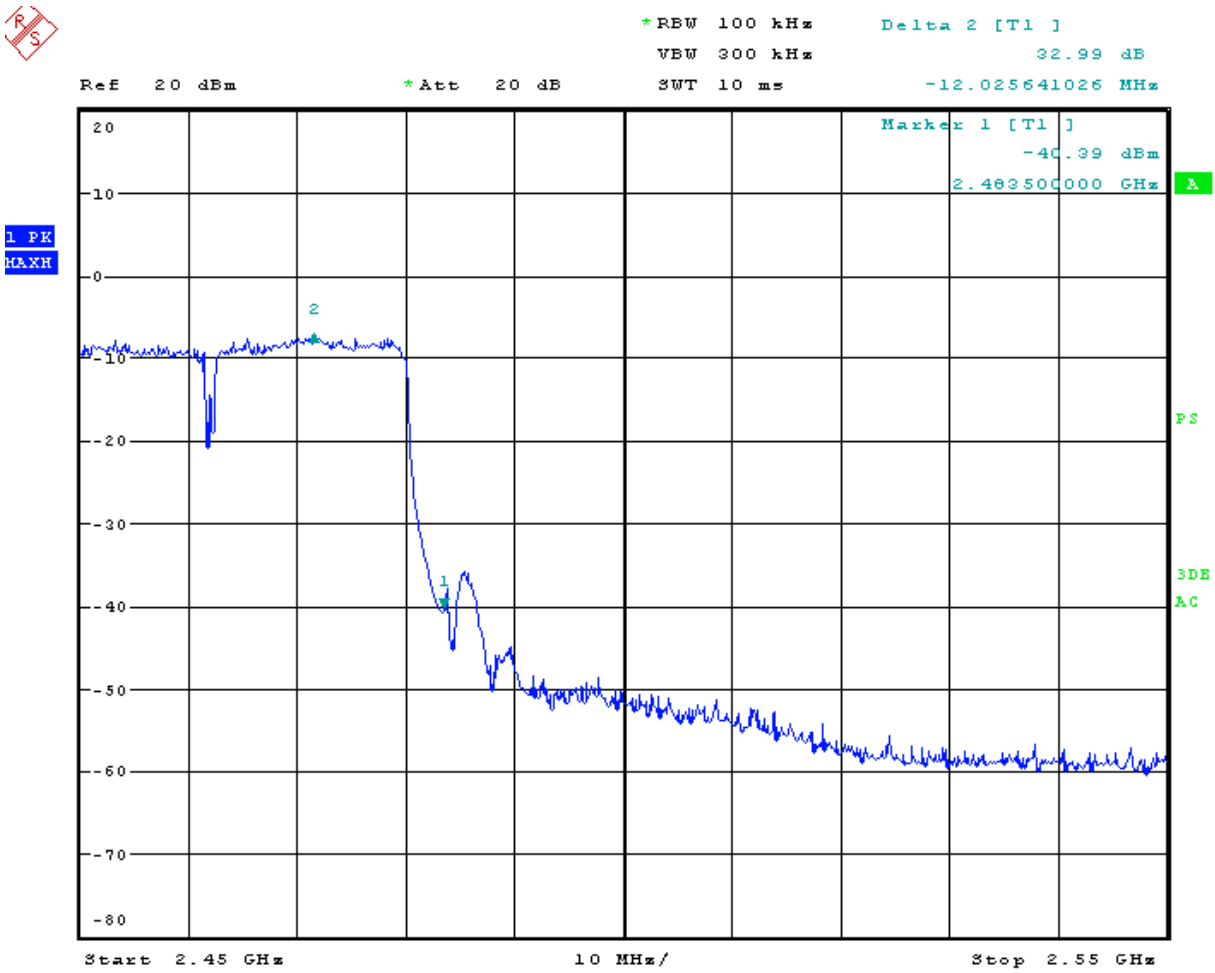

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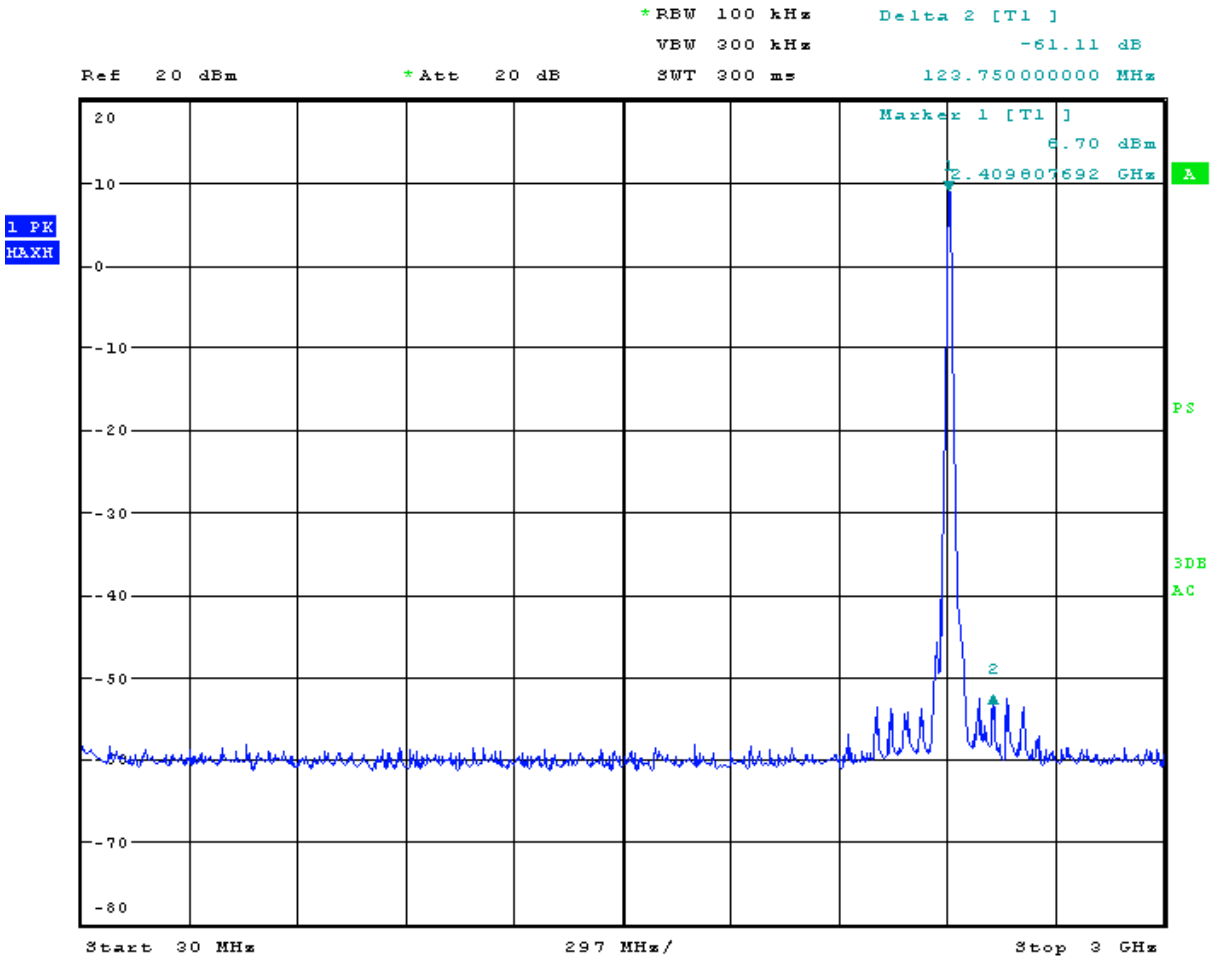
Chain 2:

Conducted spurious Emission Measurement Result (802.11b)1M

CH Low 30MHz-3GHz



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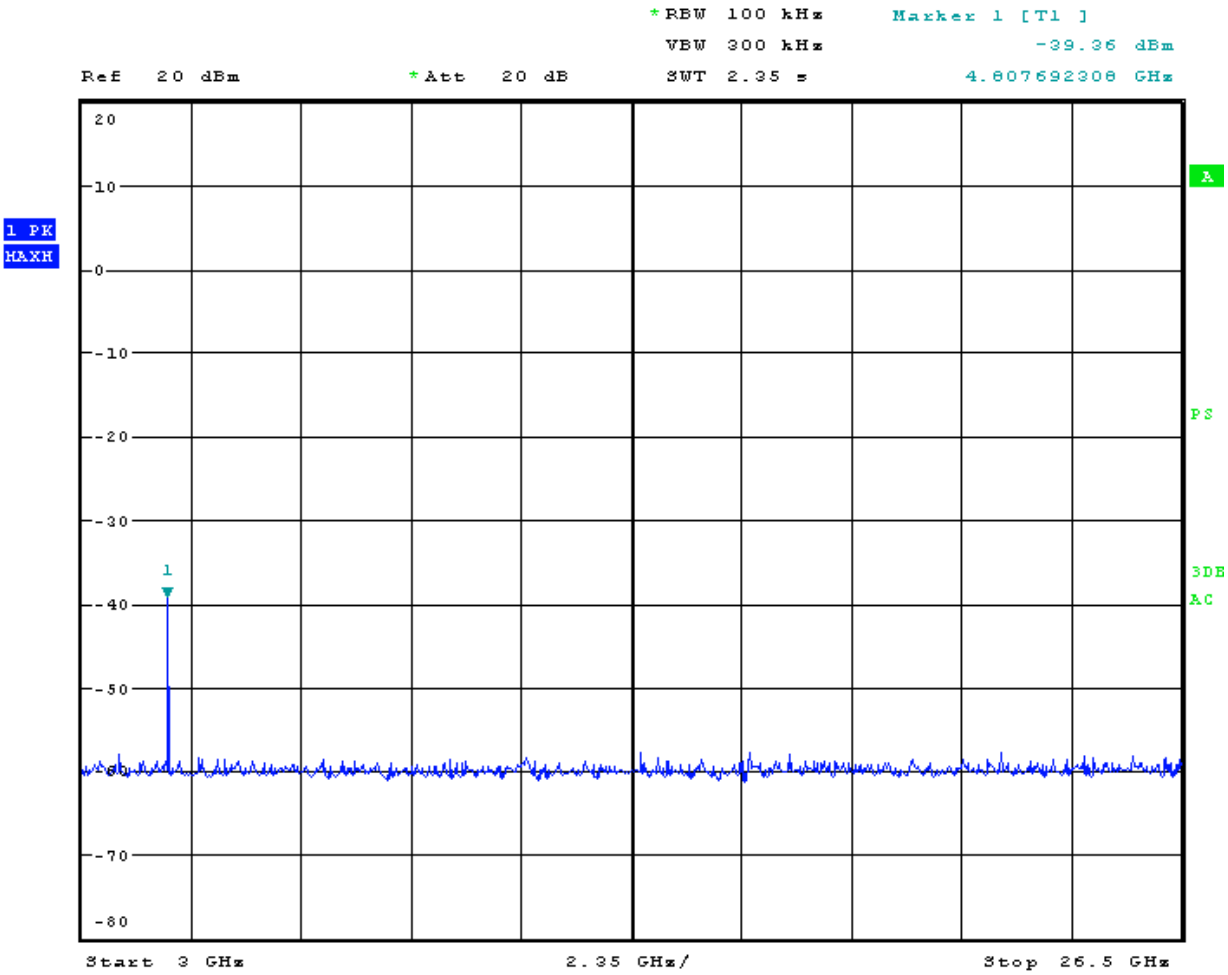
Tino.Pan@sgs.com

CH Low 3GHz-26.5GHz



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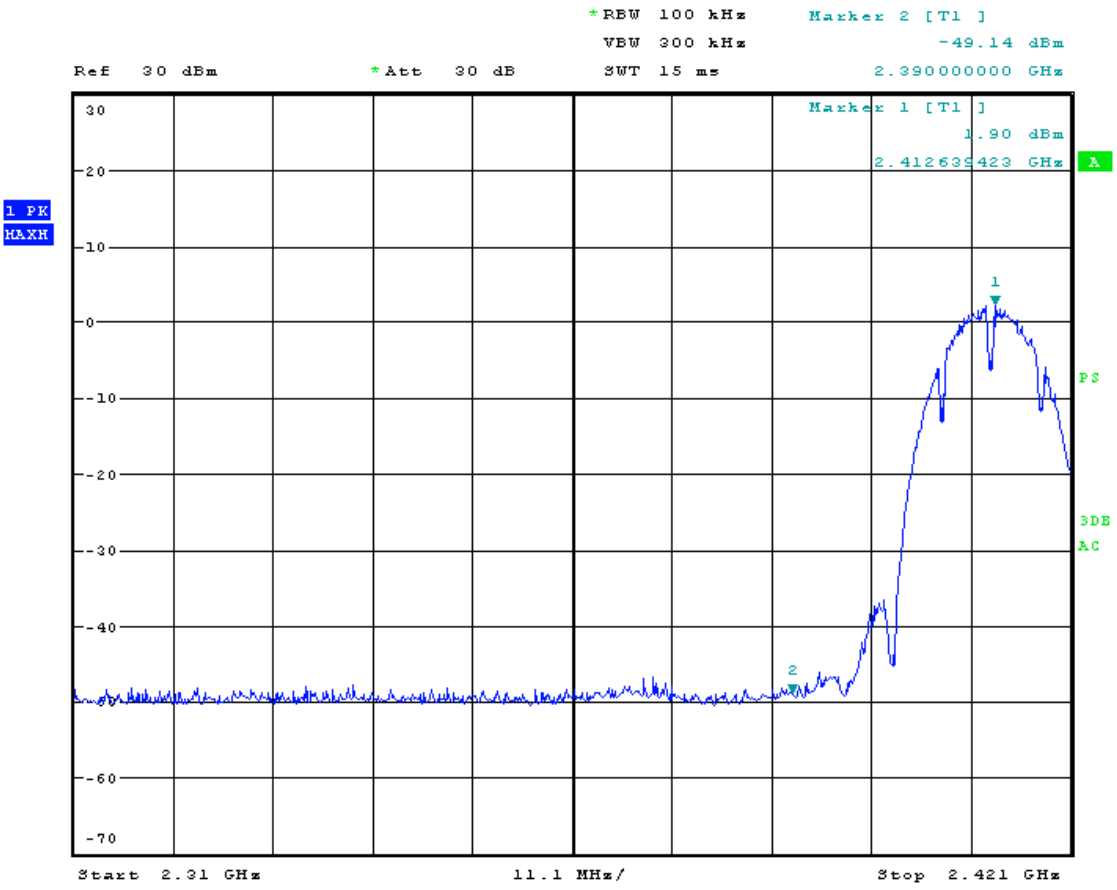

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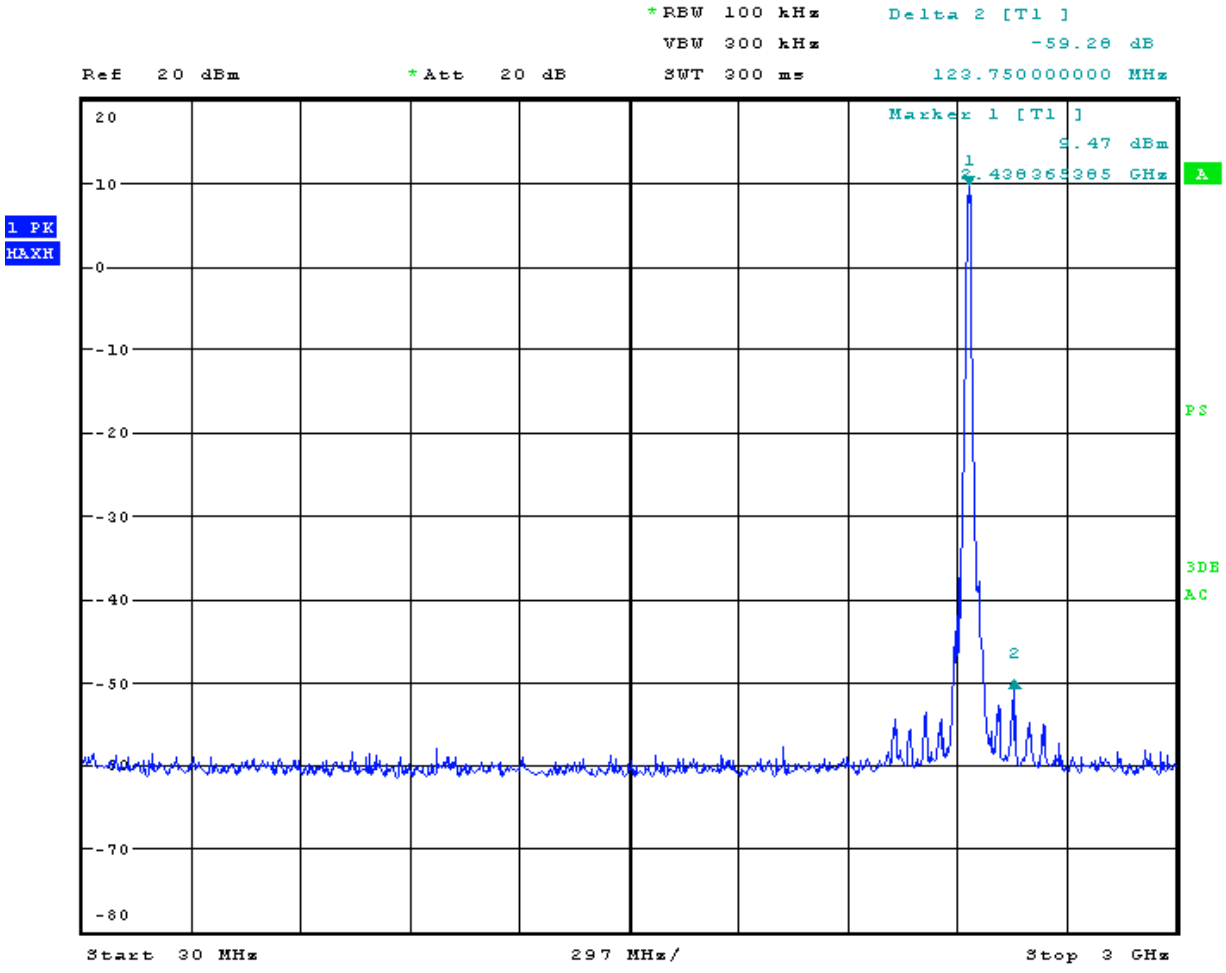
Ch Mid 30MHz-3GHz



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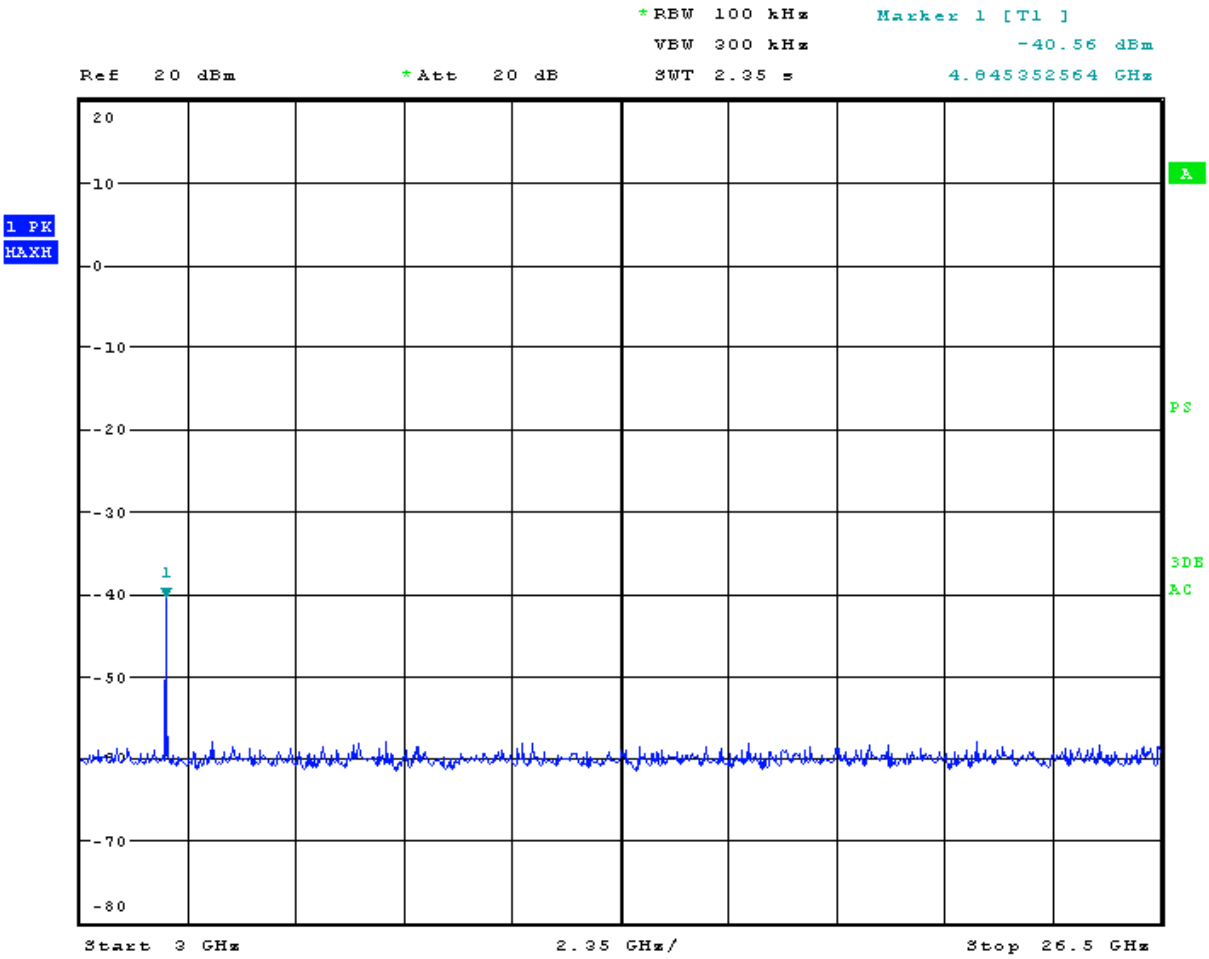
Ch Mid 3GHz-26.5GHz



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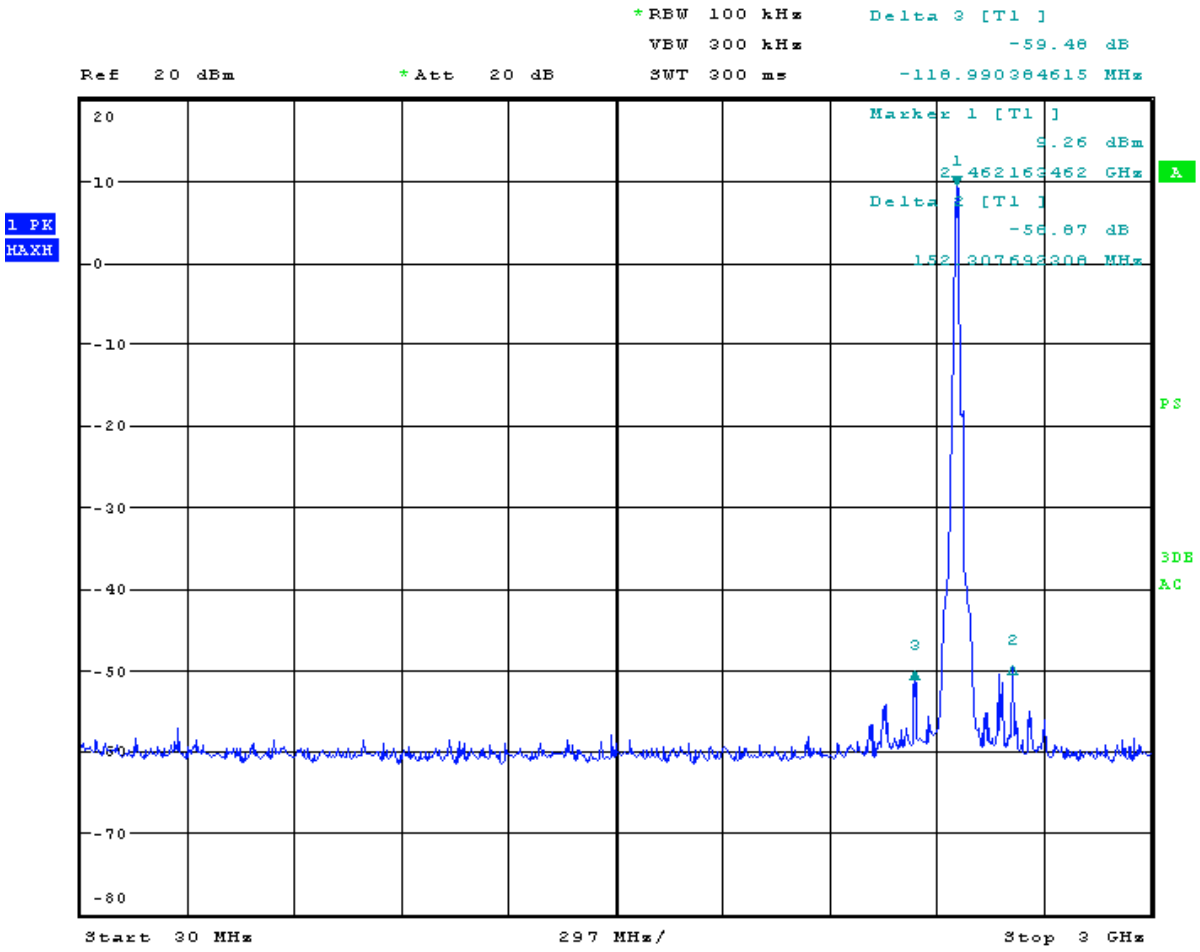
Ch High 30MHz-3GHz



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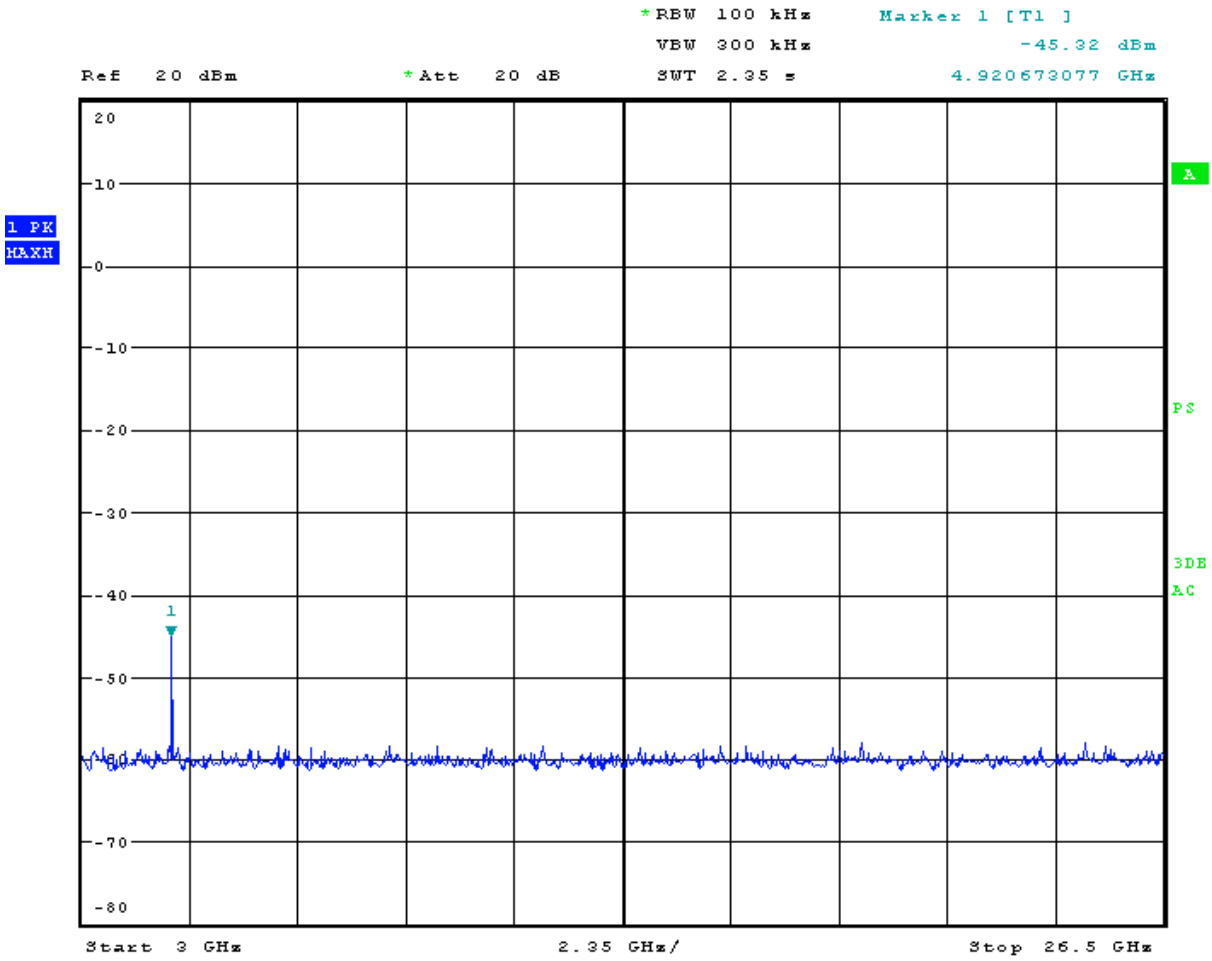
Ch High 3GHz-26.5GHz



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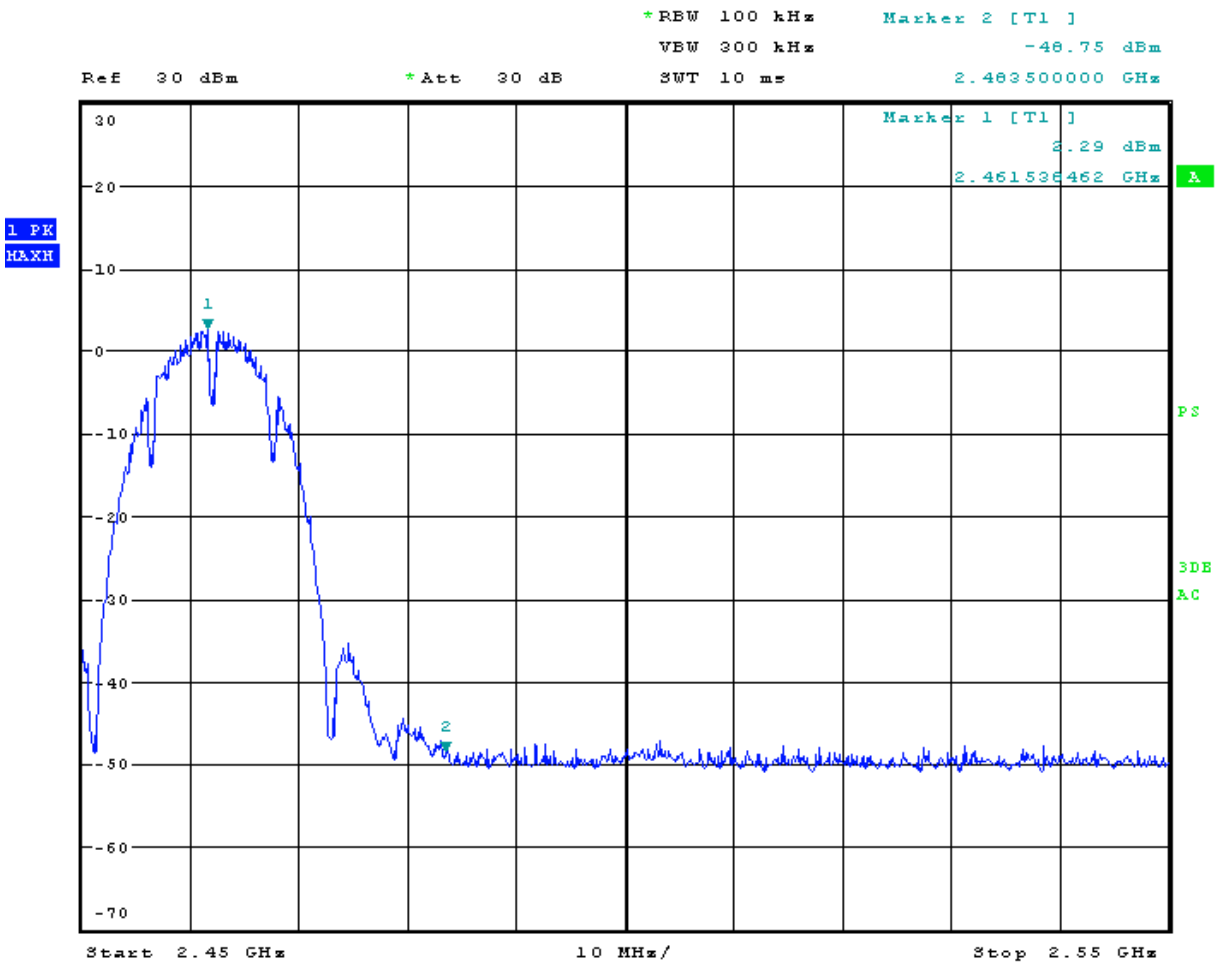

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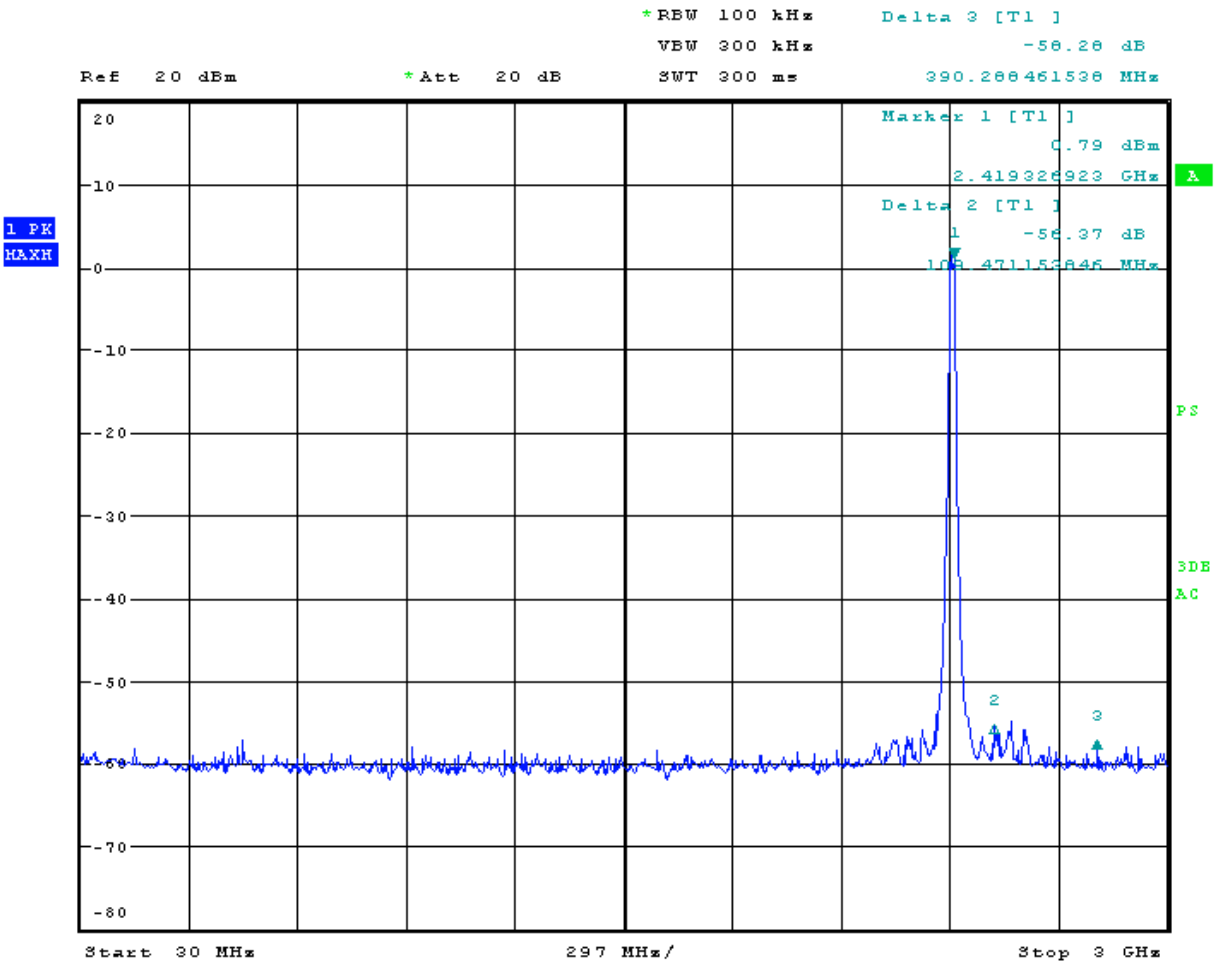
Conducted Spurious Emission Measurement Result(802.11g),6M

Ch Low 30MHz-3GHz



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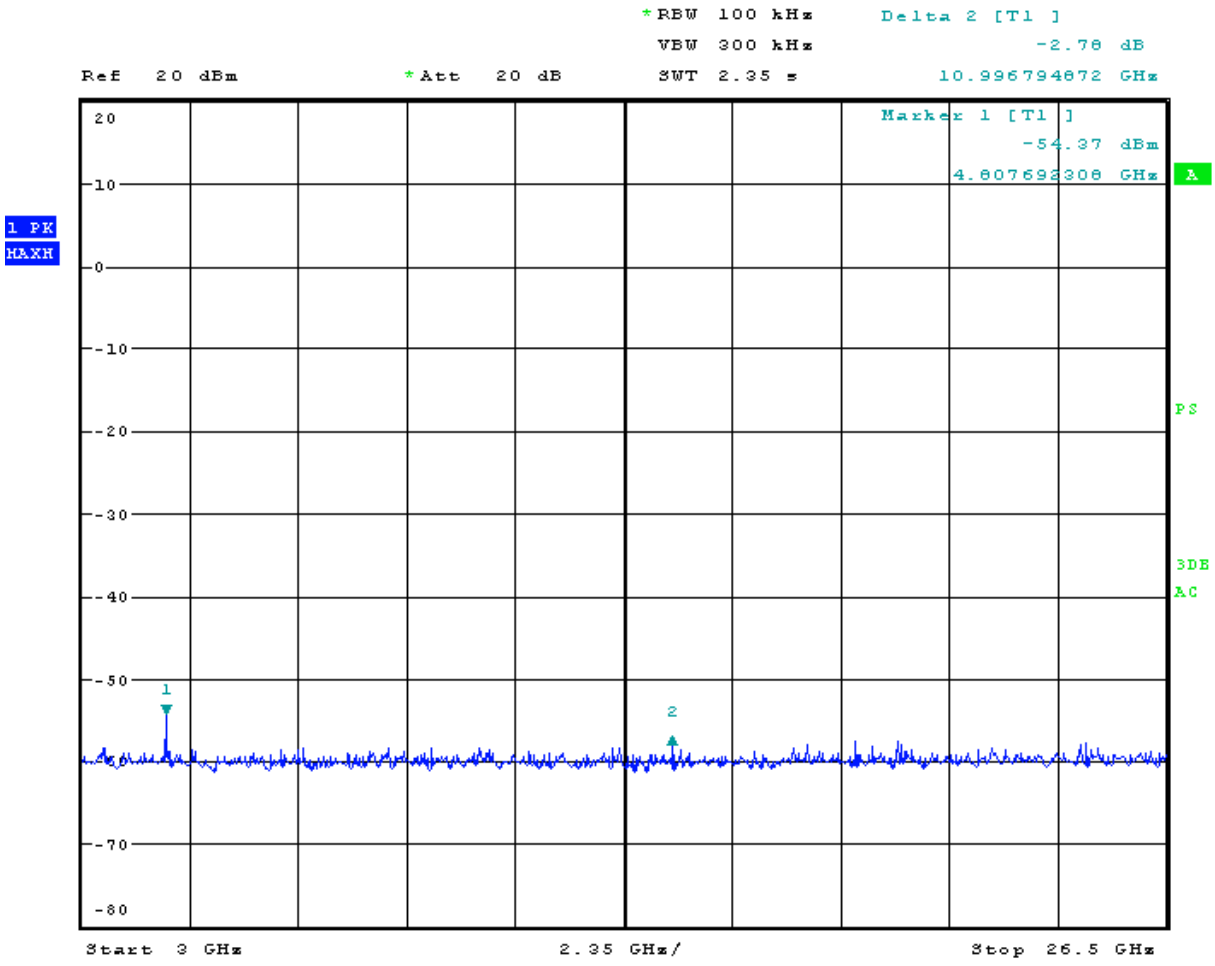
Ch Low 3GH-26.5GHz



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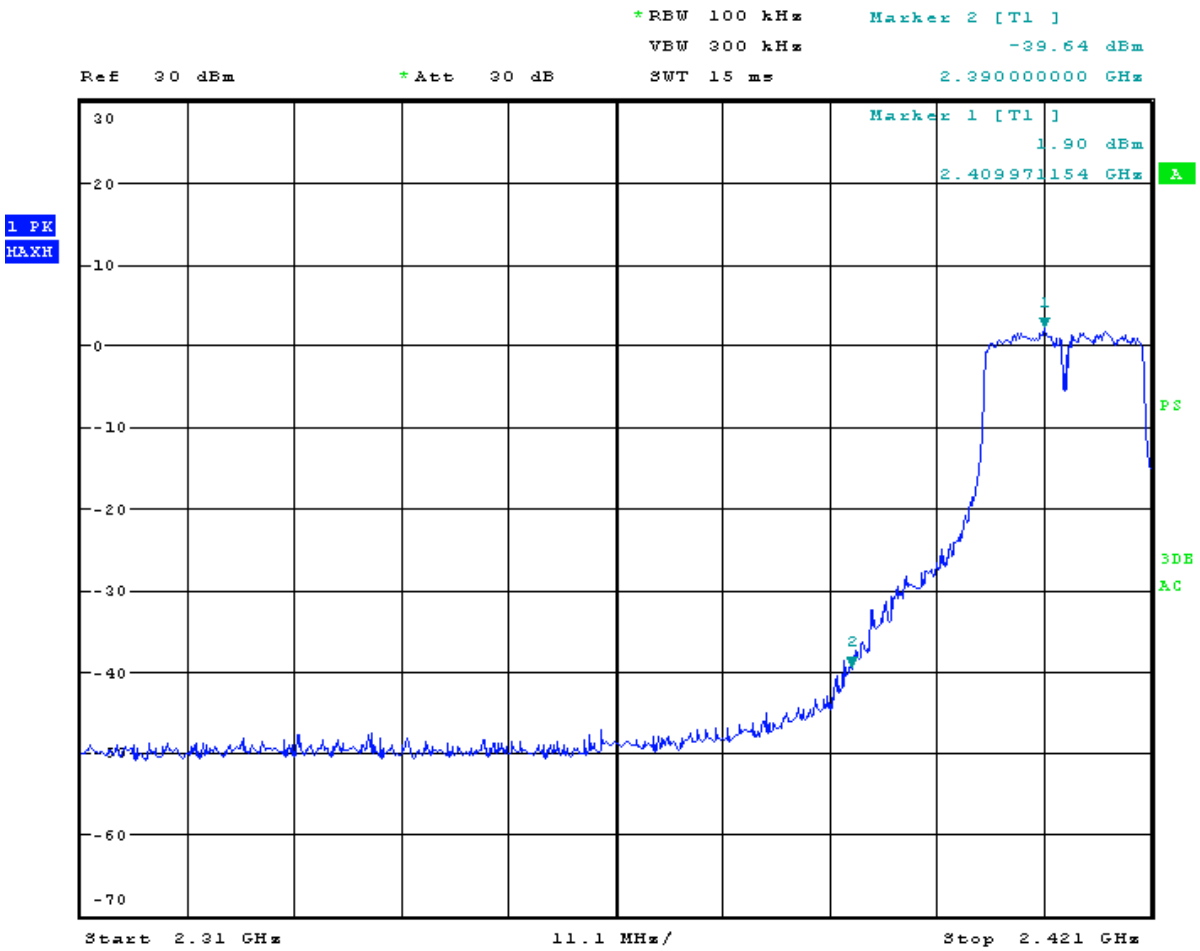

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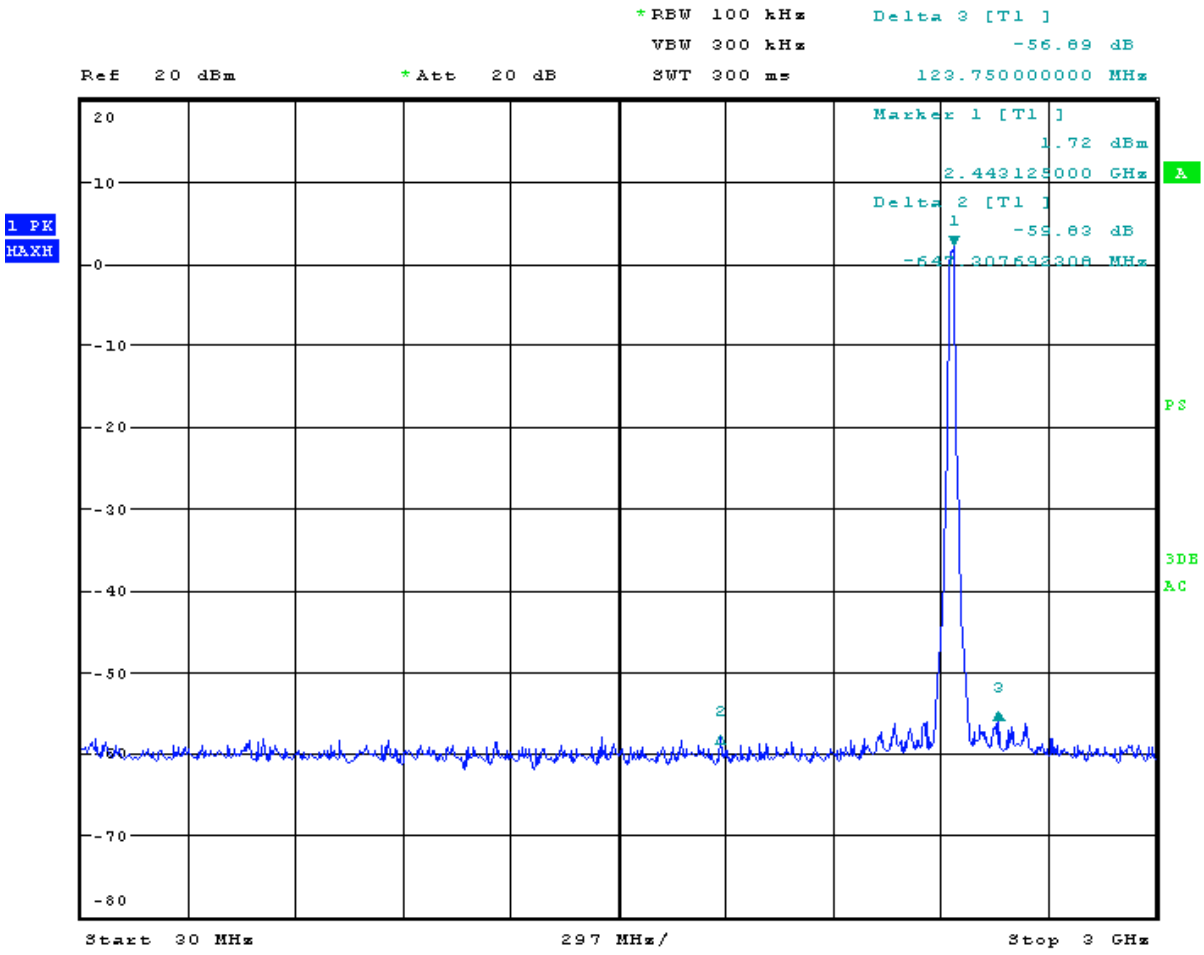
Ch Mid 30MHz-3GHz



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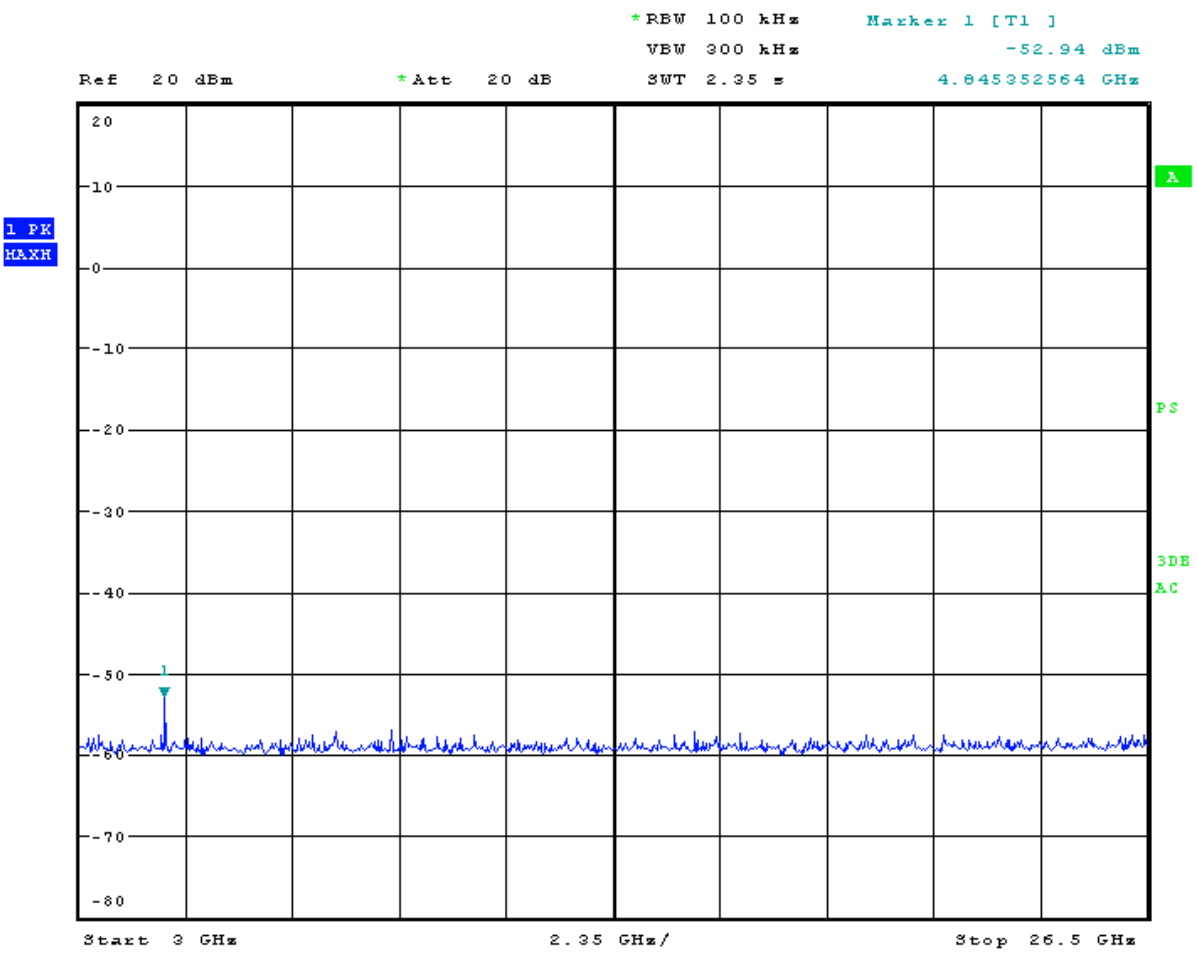
Ch Mid 3GHz-26.5GHz



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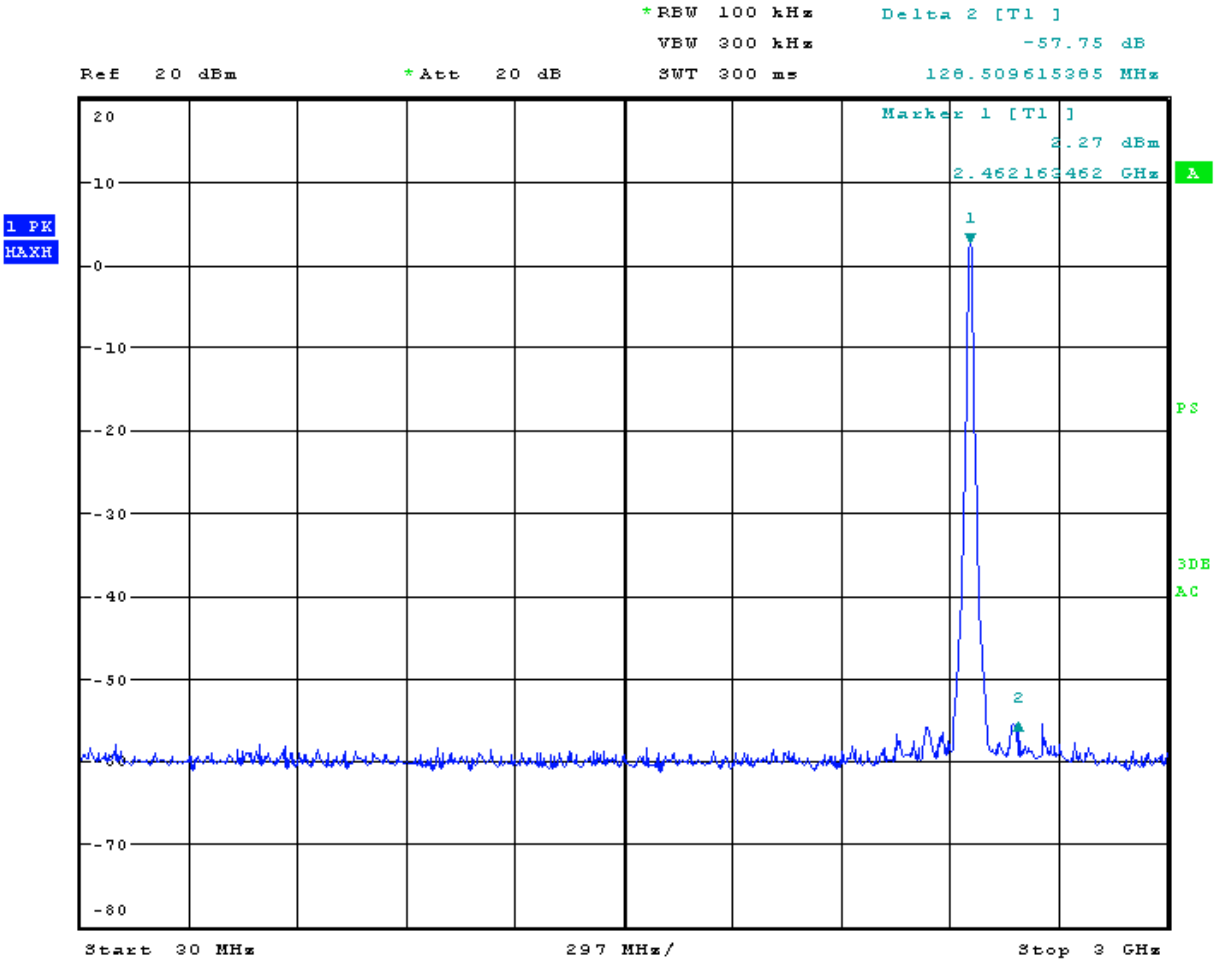
Ch High 30MHz-3GHz



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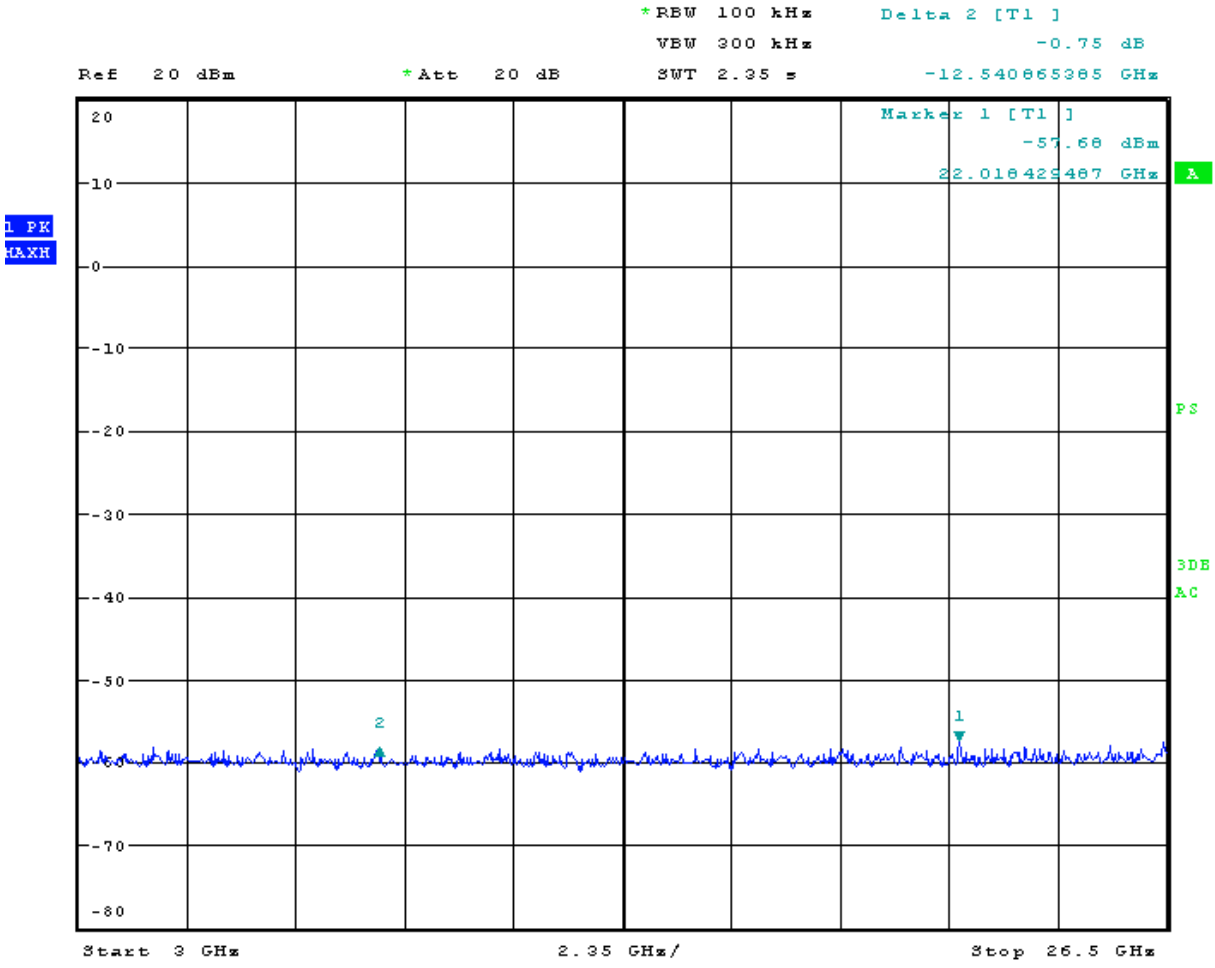
Ch High 3GHz-26.5GHz



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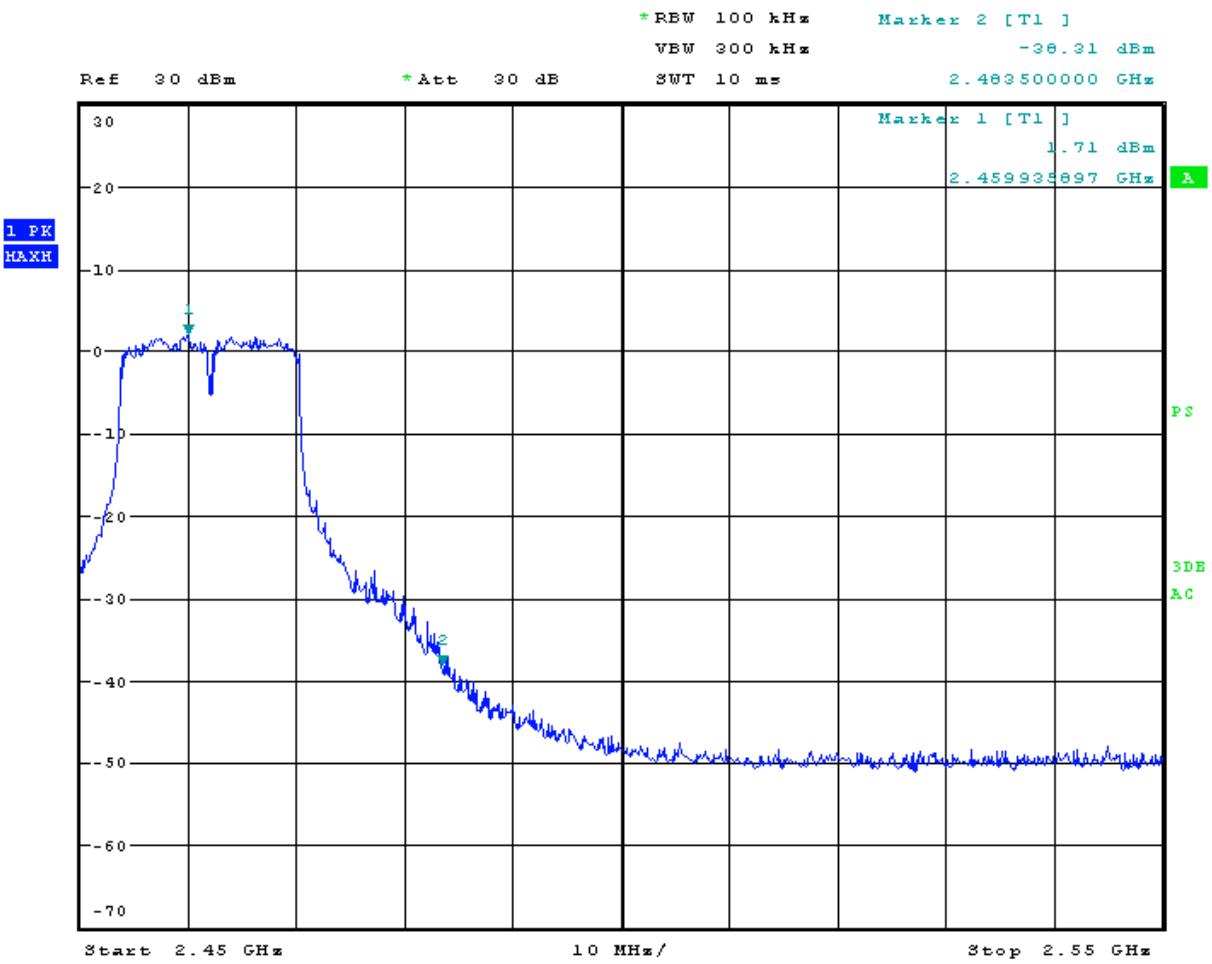

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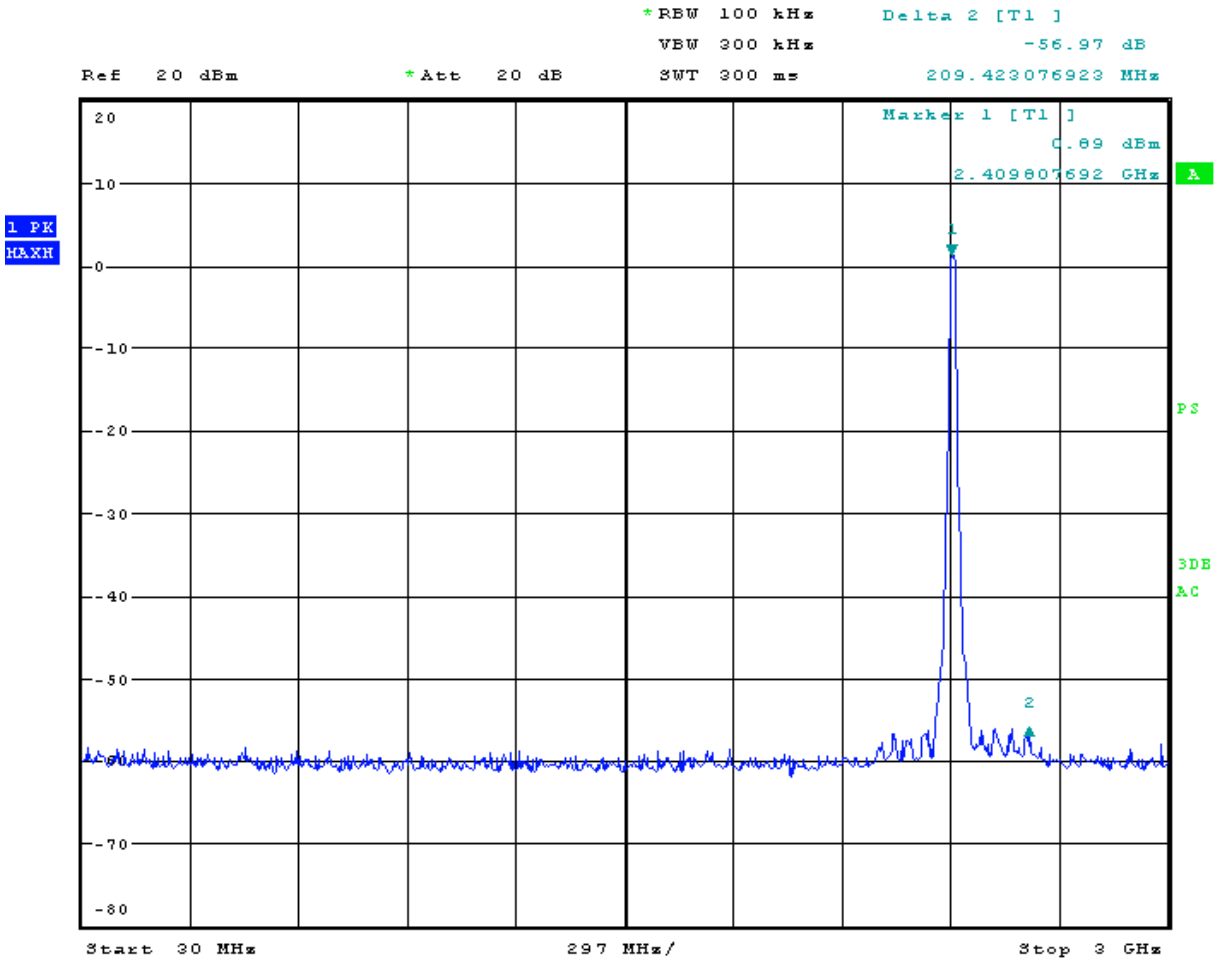
Conducted Spurious Emission Measurement Result(802.11n_20M)6.5M

Ch Low 30MHz-3GHz



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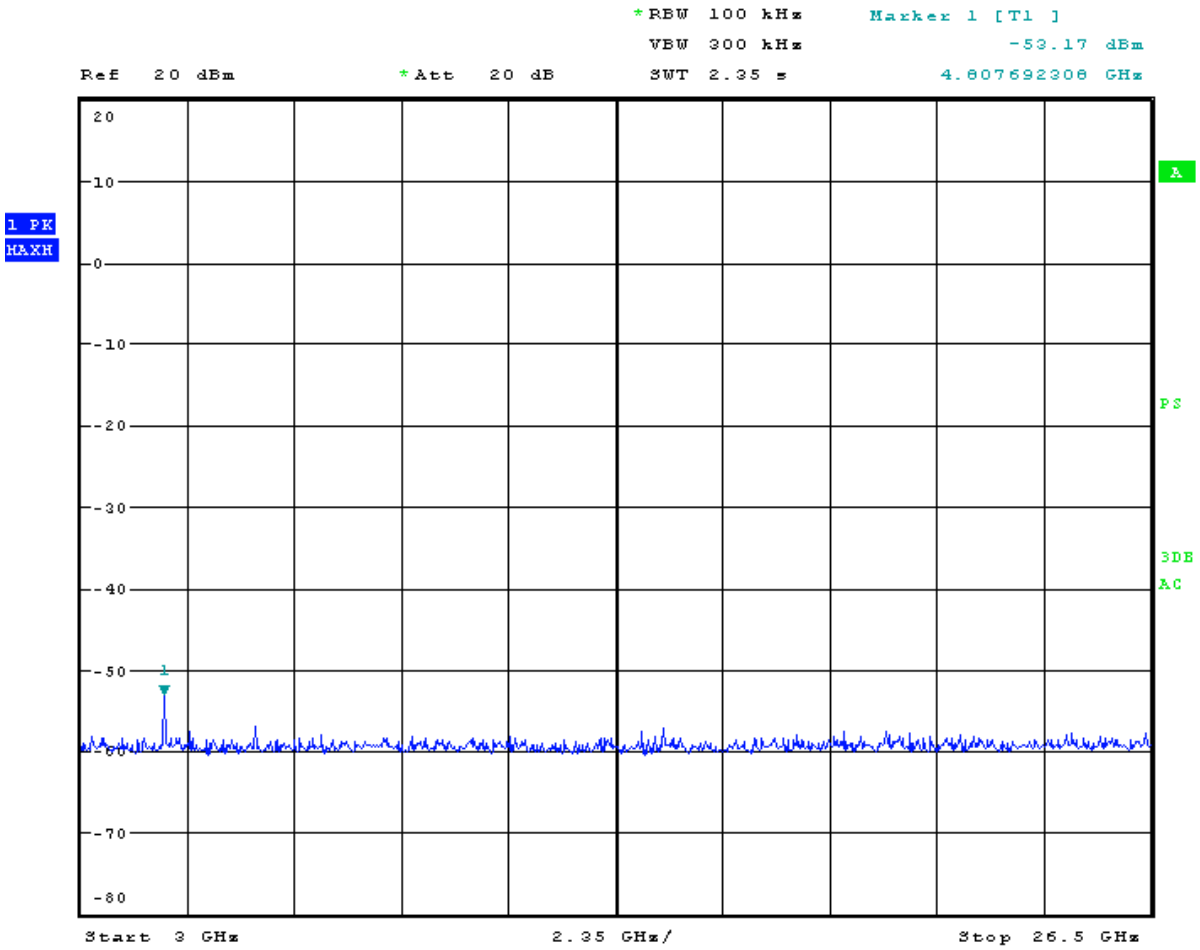
Ch Low 3GHz-26.5GHz



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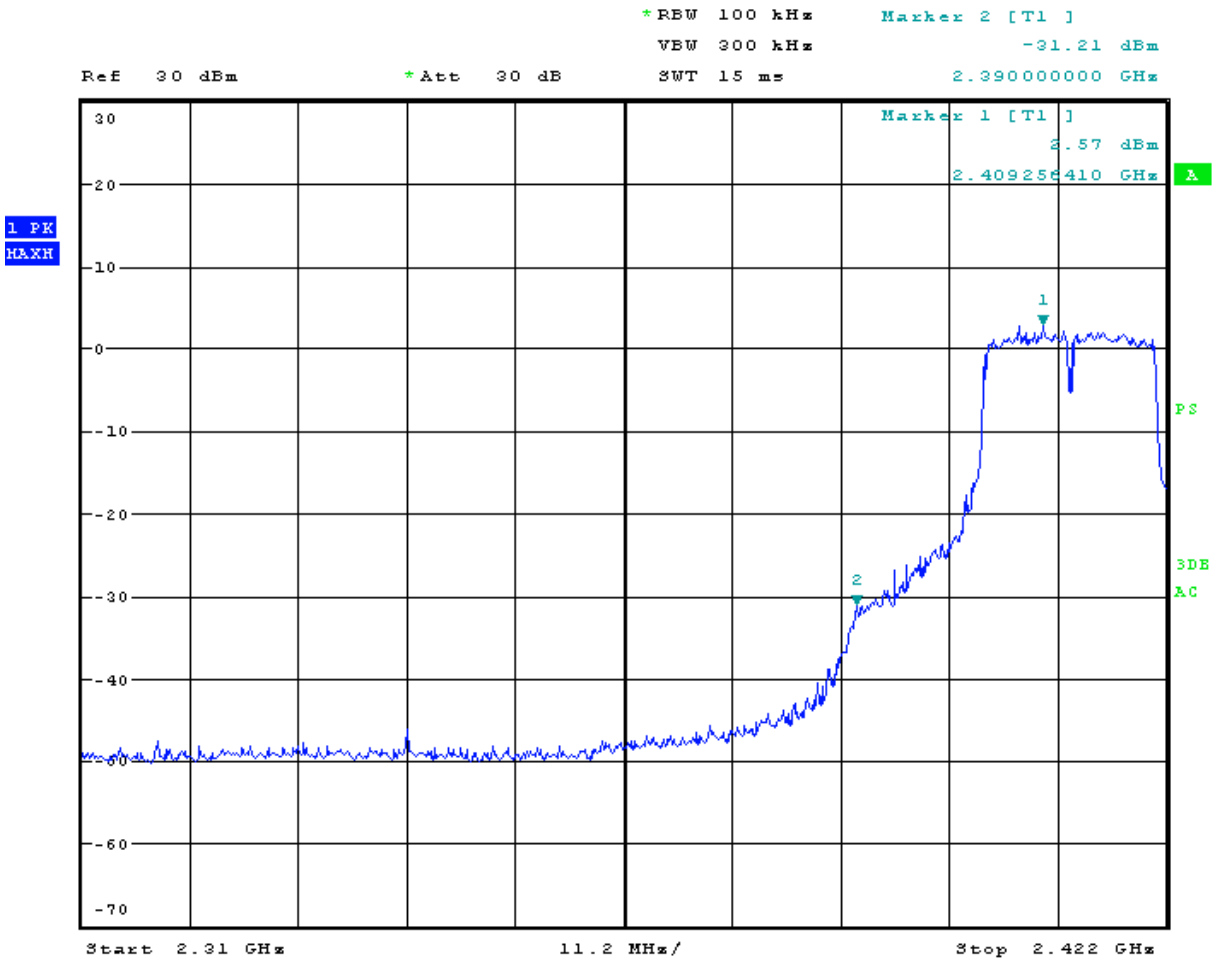

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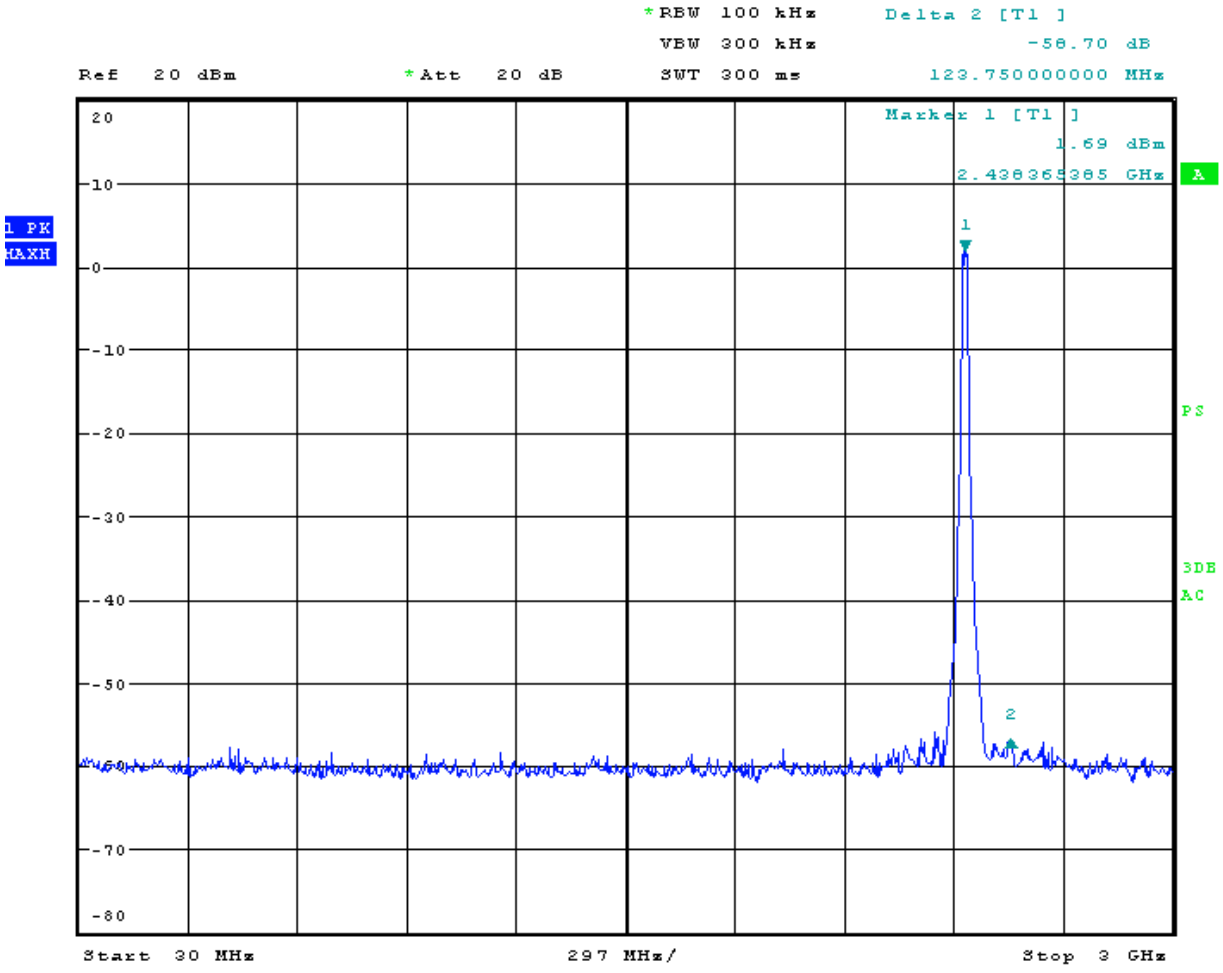
Ch Mid 30MHz-3GHz



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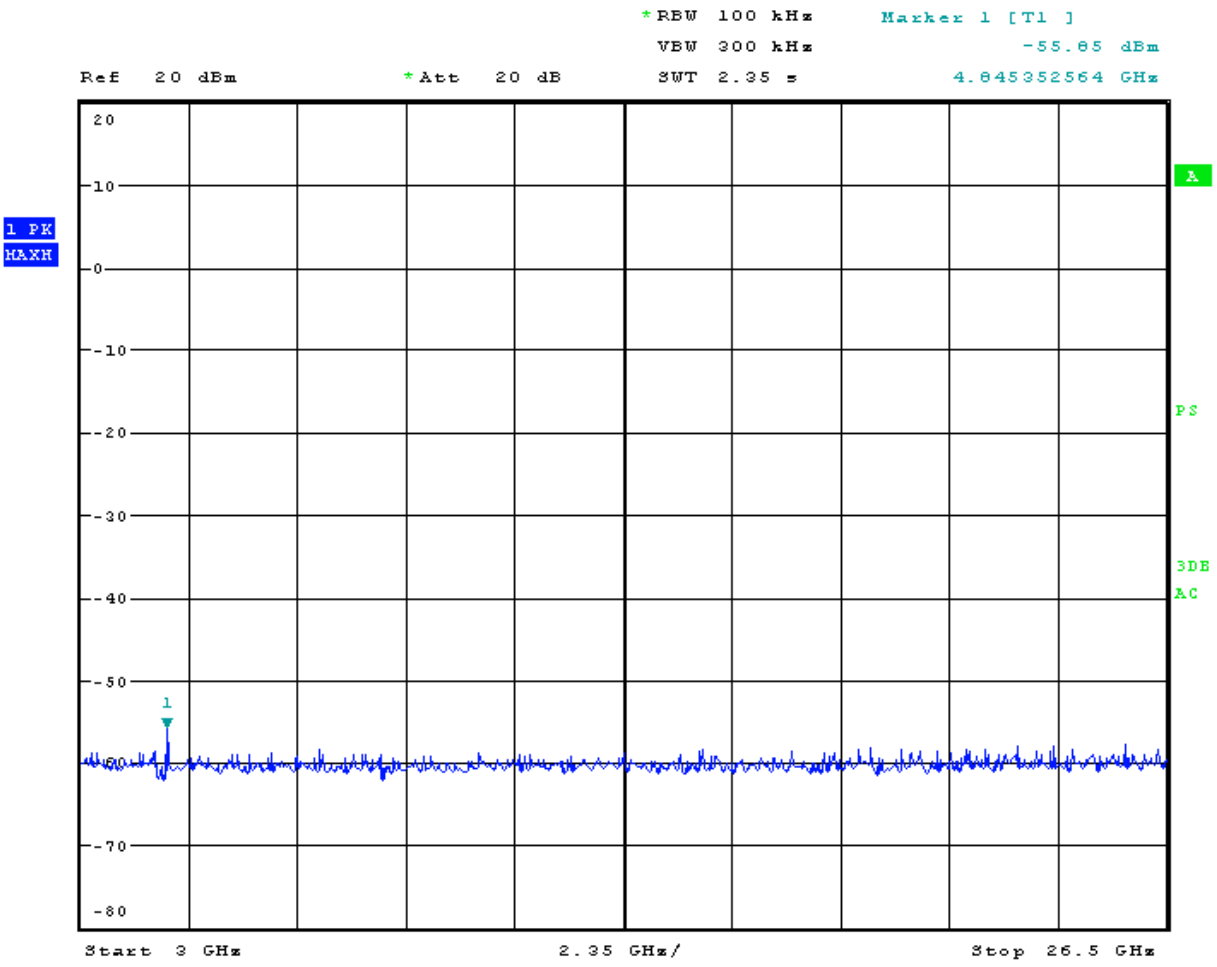
Ch Mid 3GHz-26.5GHz



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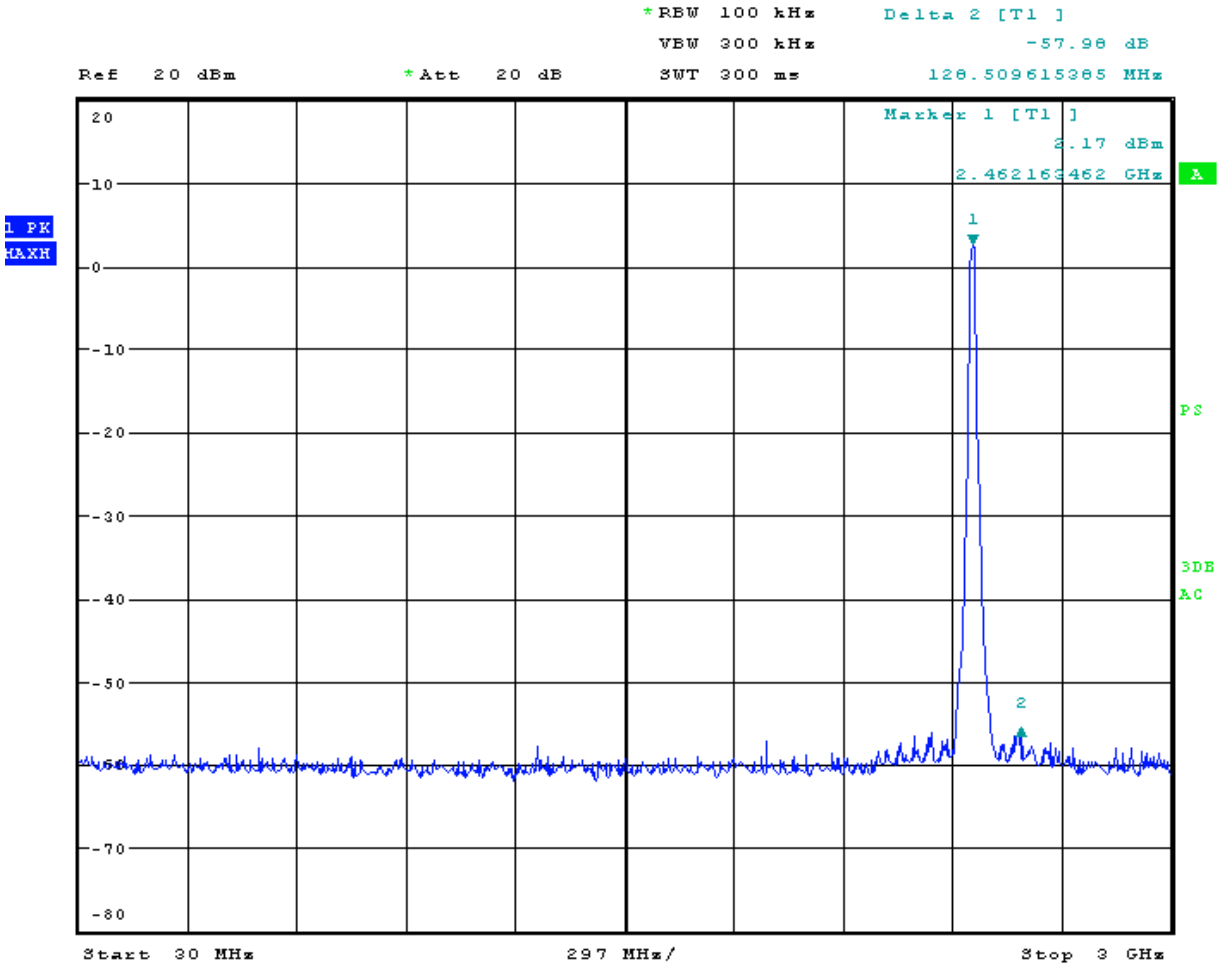
Ch High 30MHz-3GHz



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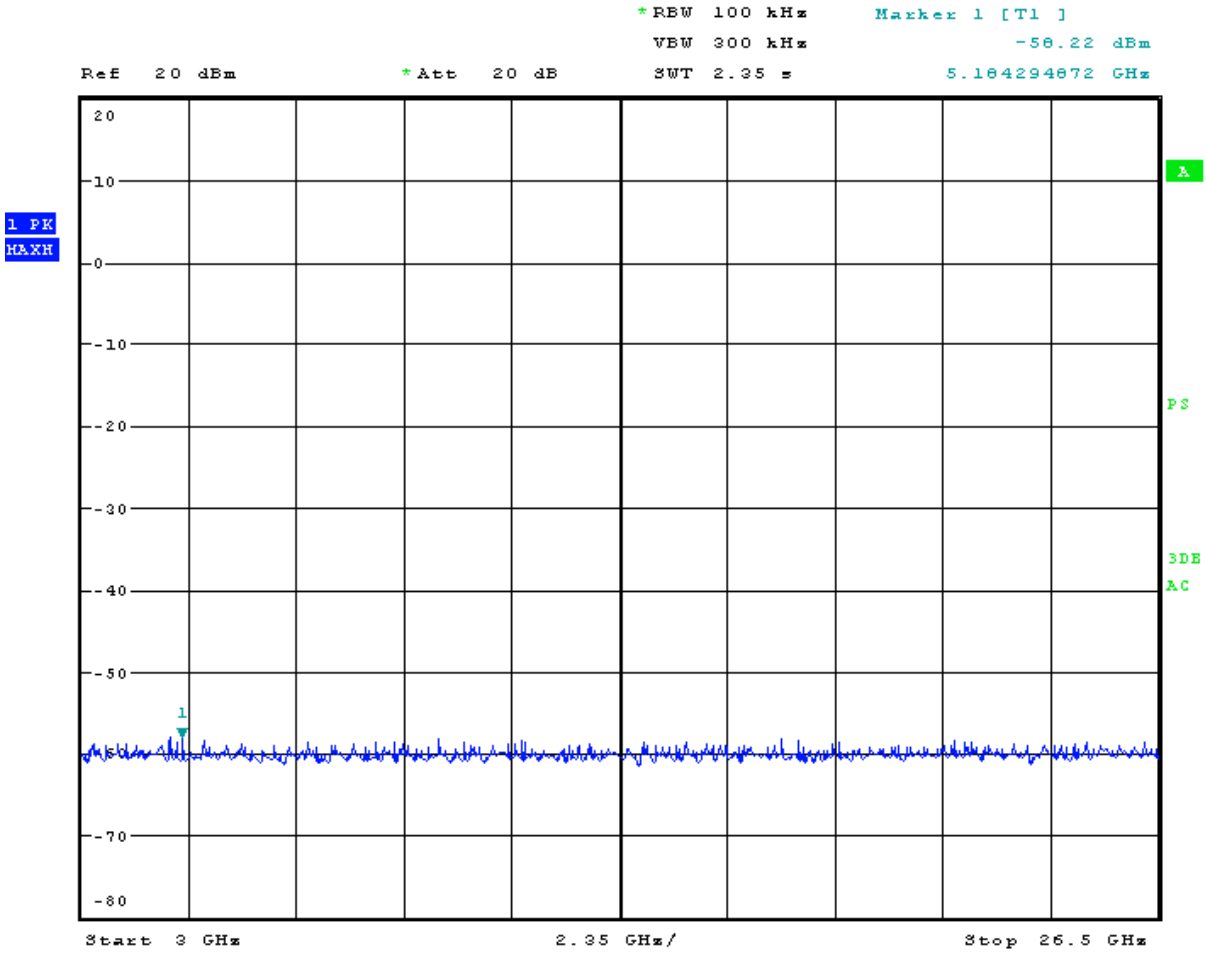
Ch High 3GHz-26.5GHz



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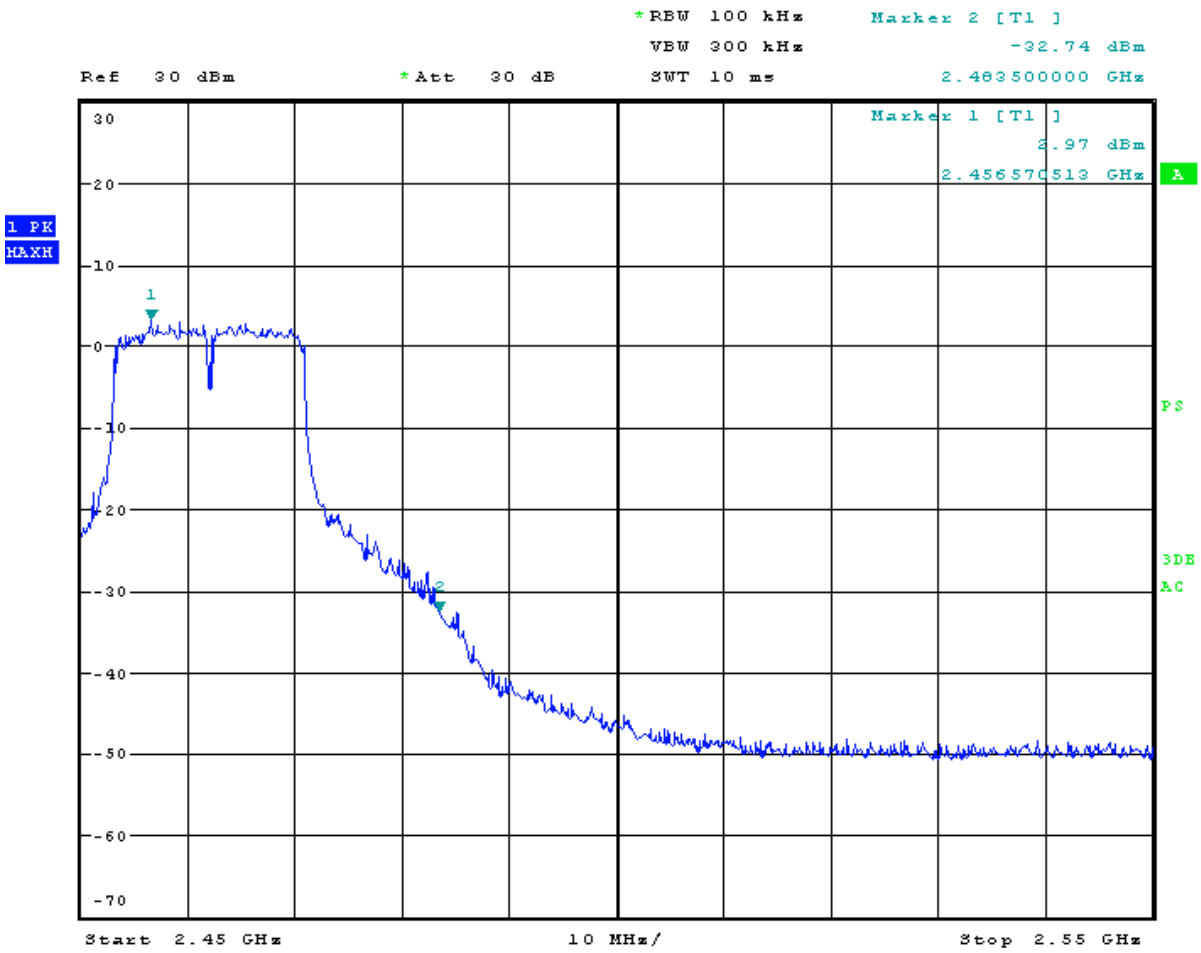

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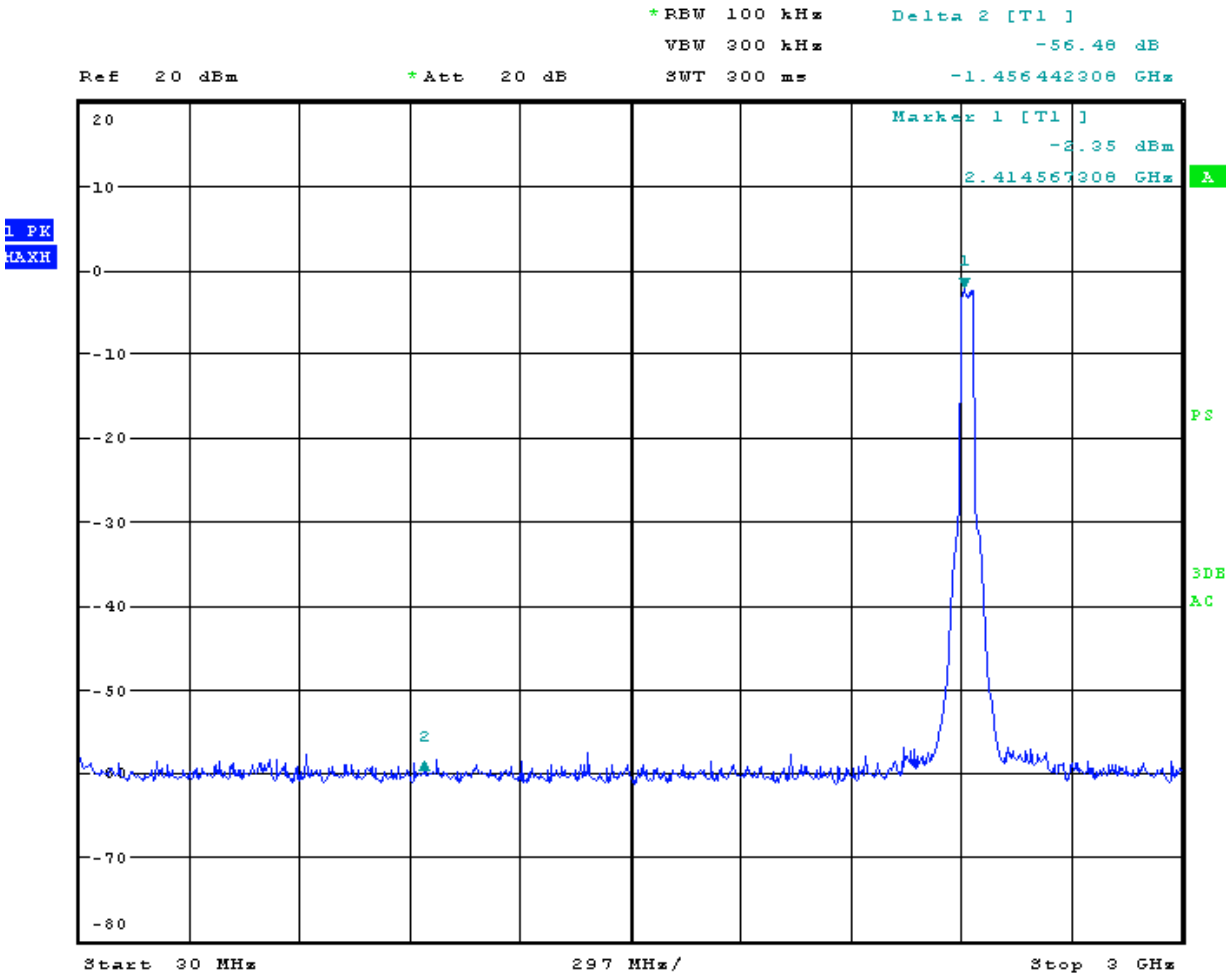
Conducted Spurious Emission Measurement Result(802.11n_40M)13.5M

Ch Low 30MHz-3GHz



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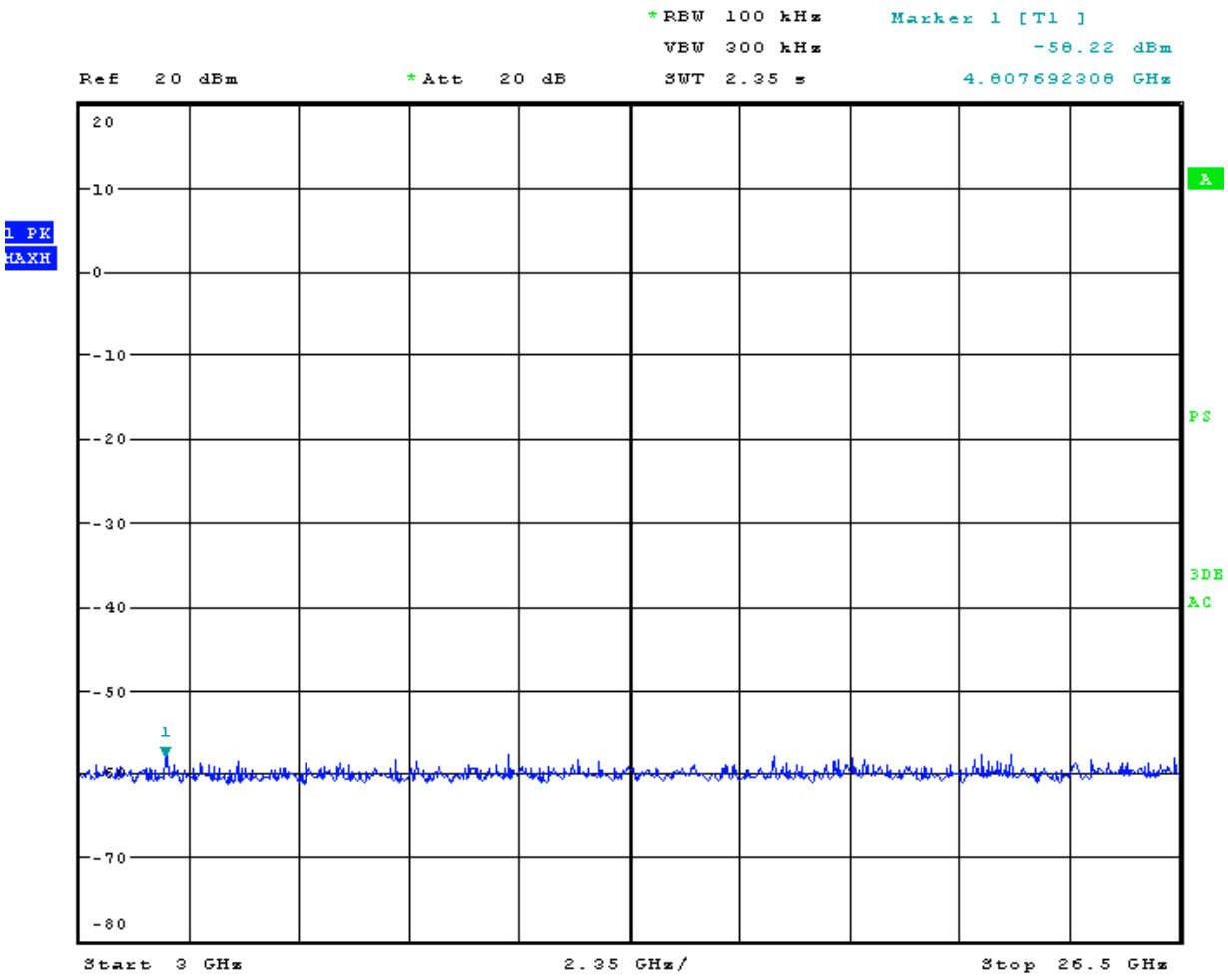
Ch Low 3GHz-26.5GHz



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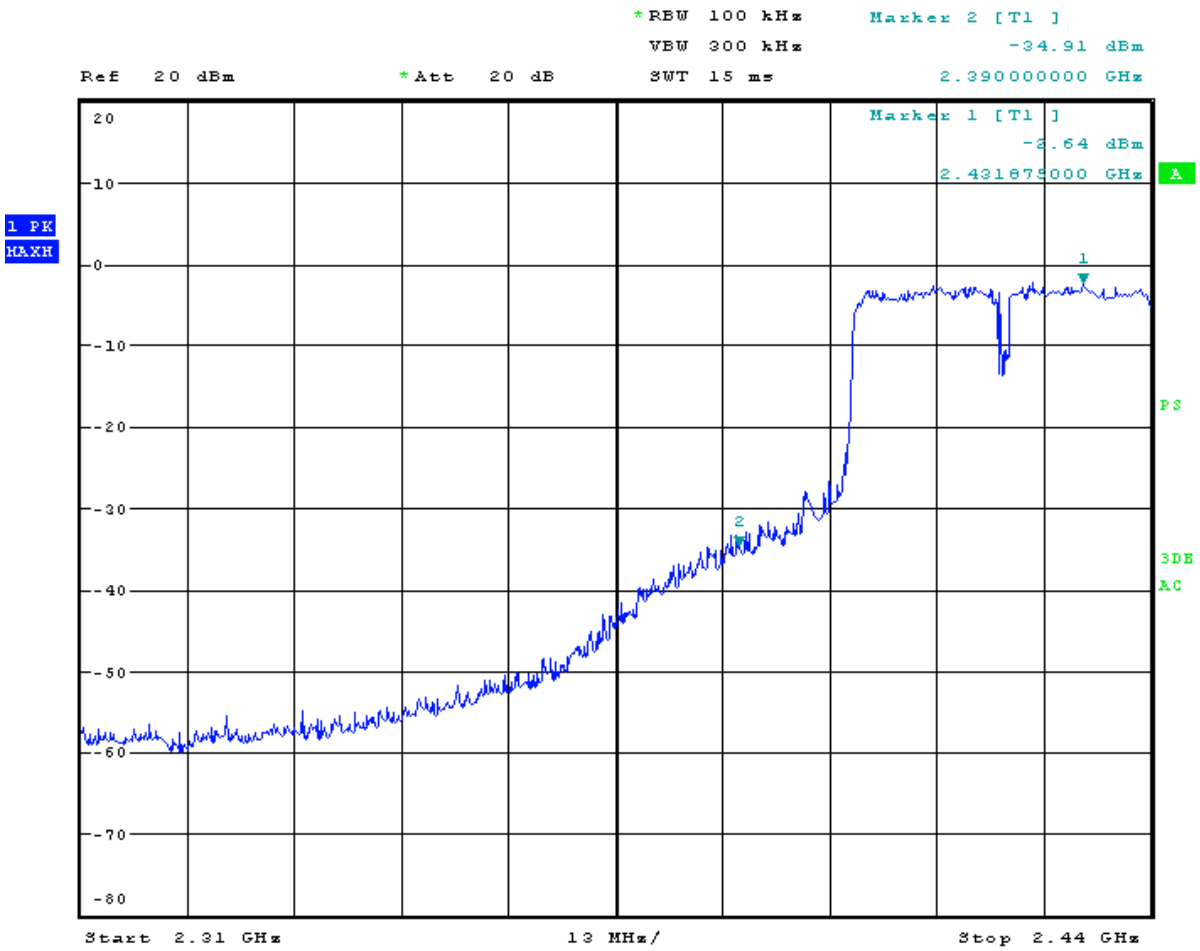

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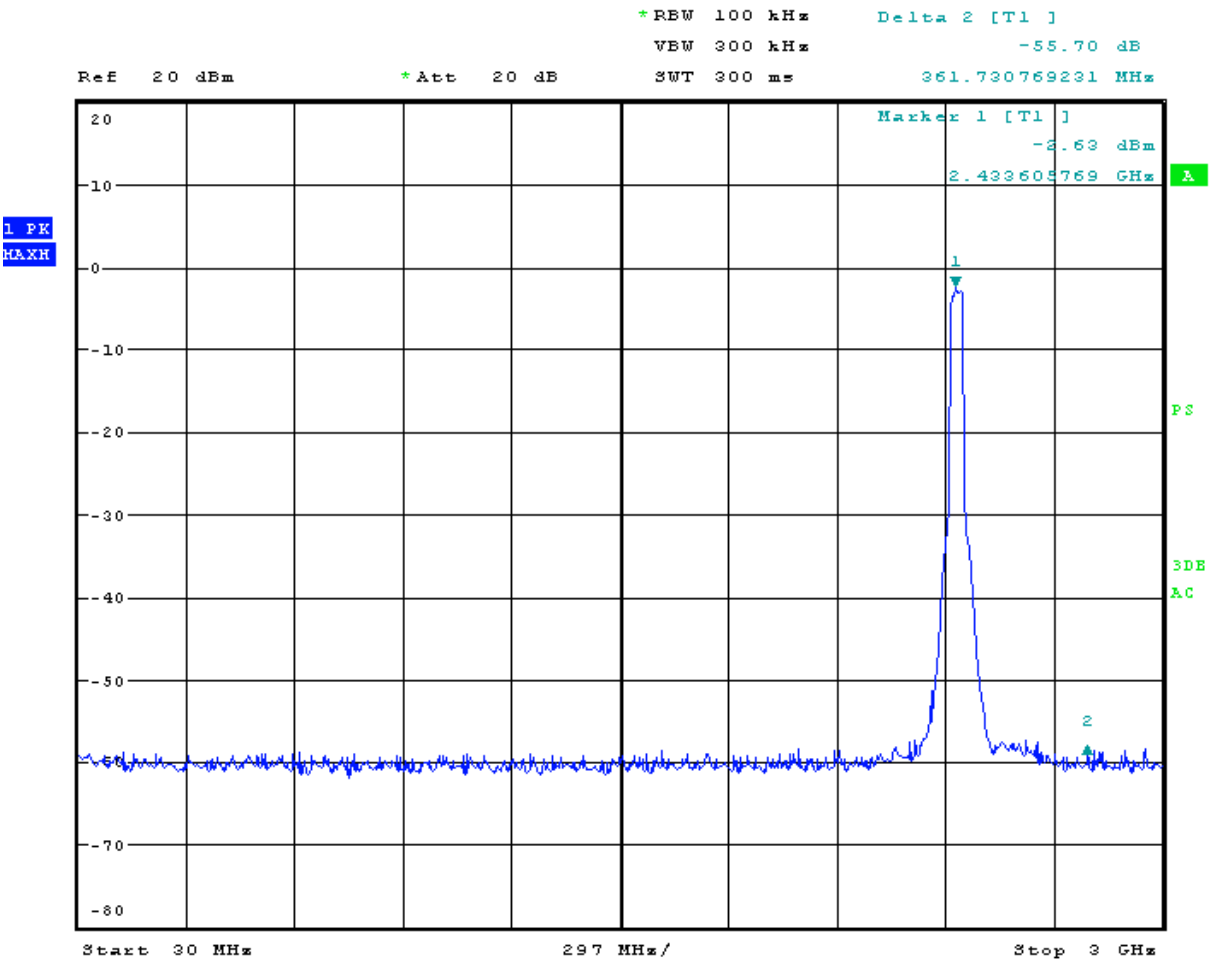
Ch Mid 30MHz-3GHz



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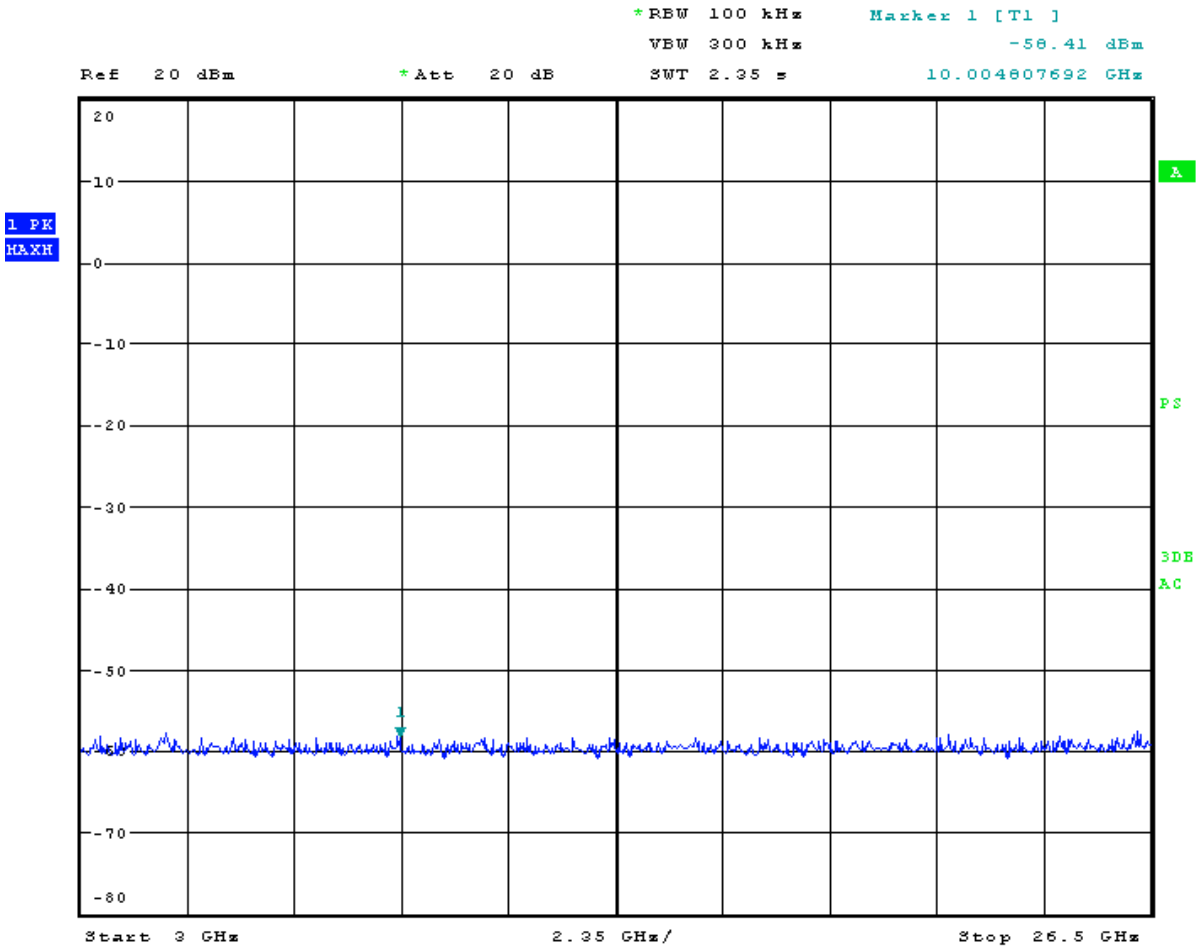
Ch Mid 3GHz-26.5GHz



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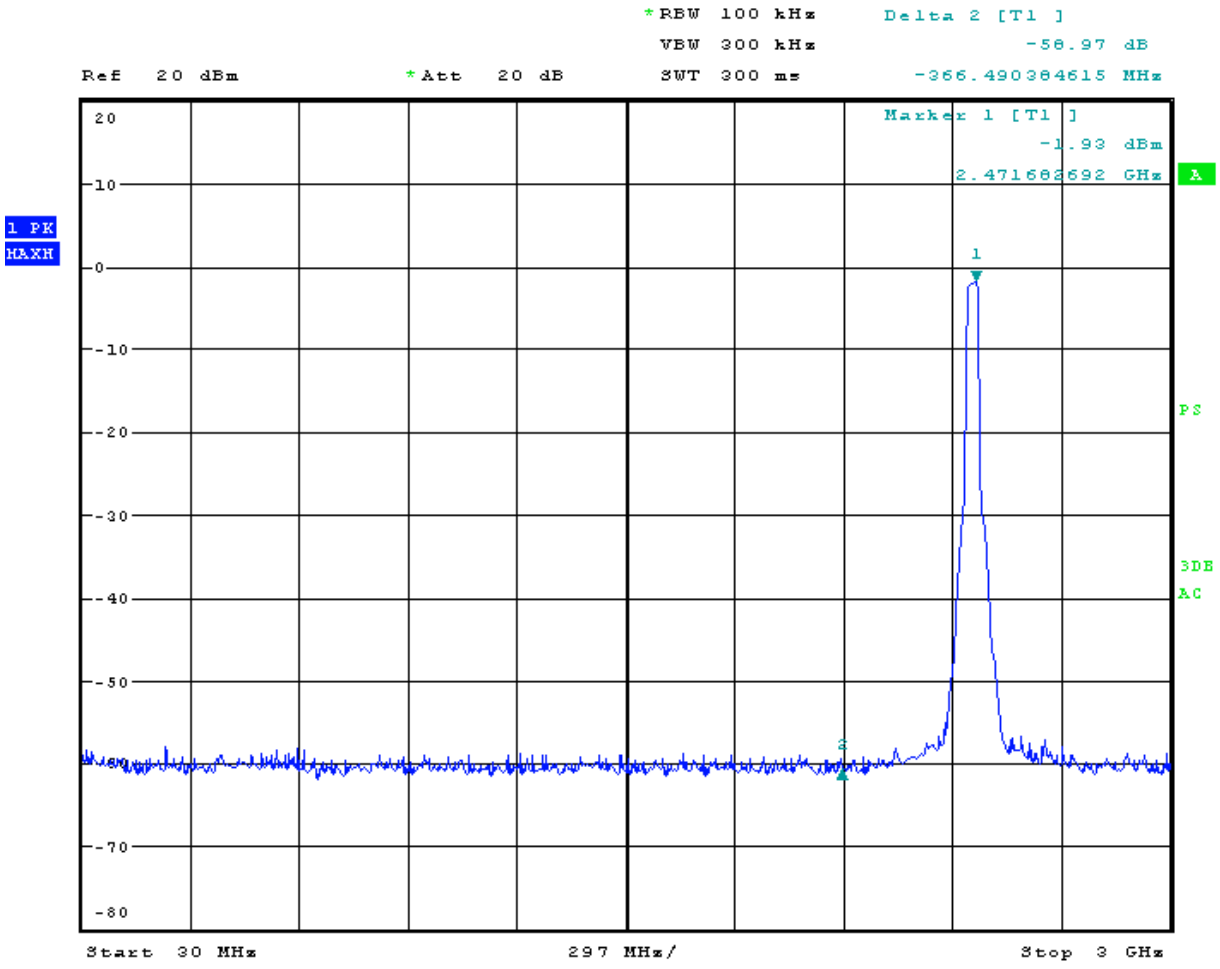
Ch High 30MHz-3GHz



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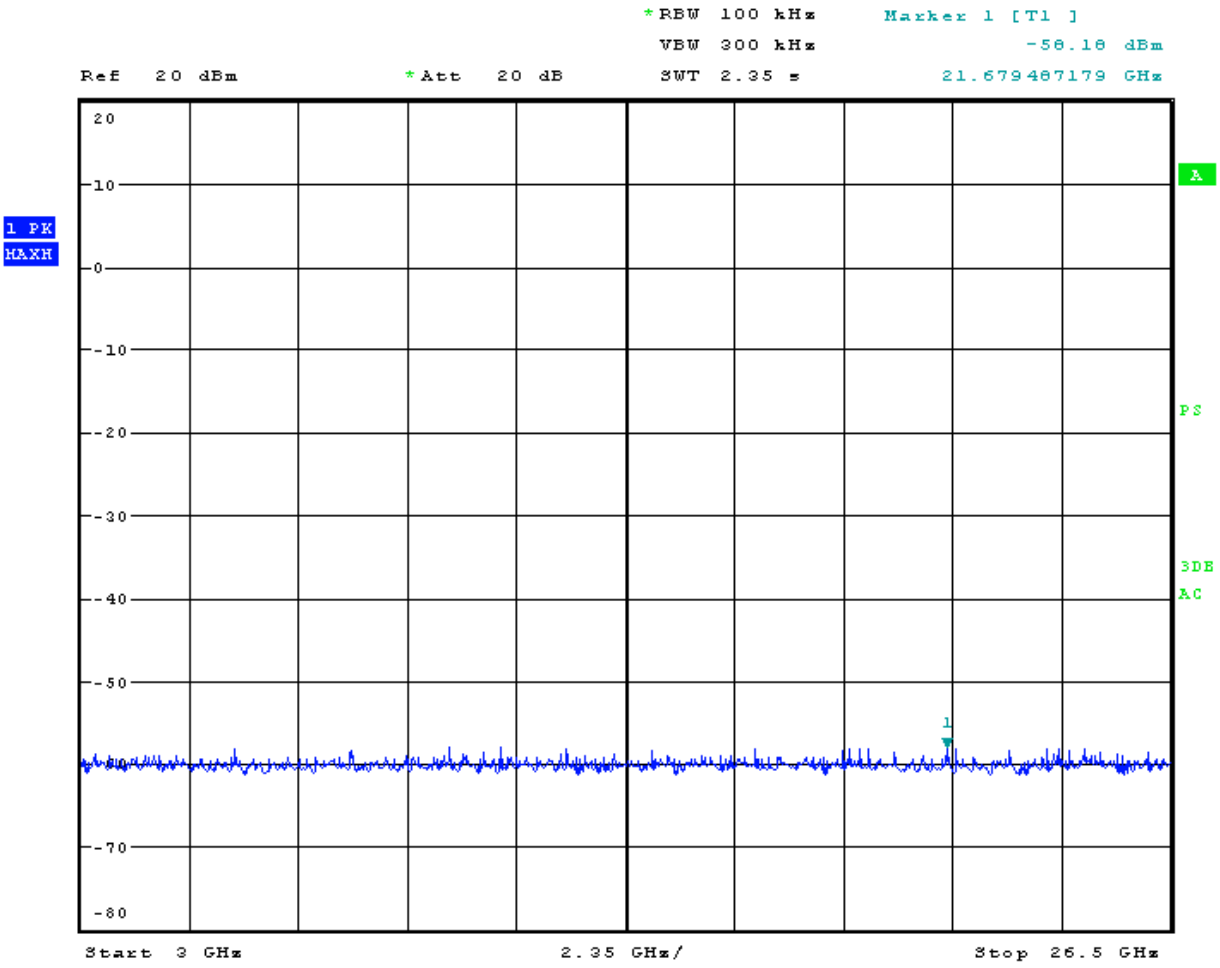
Ch High3GHz-26.5GHz



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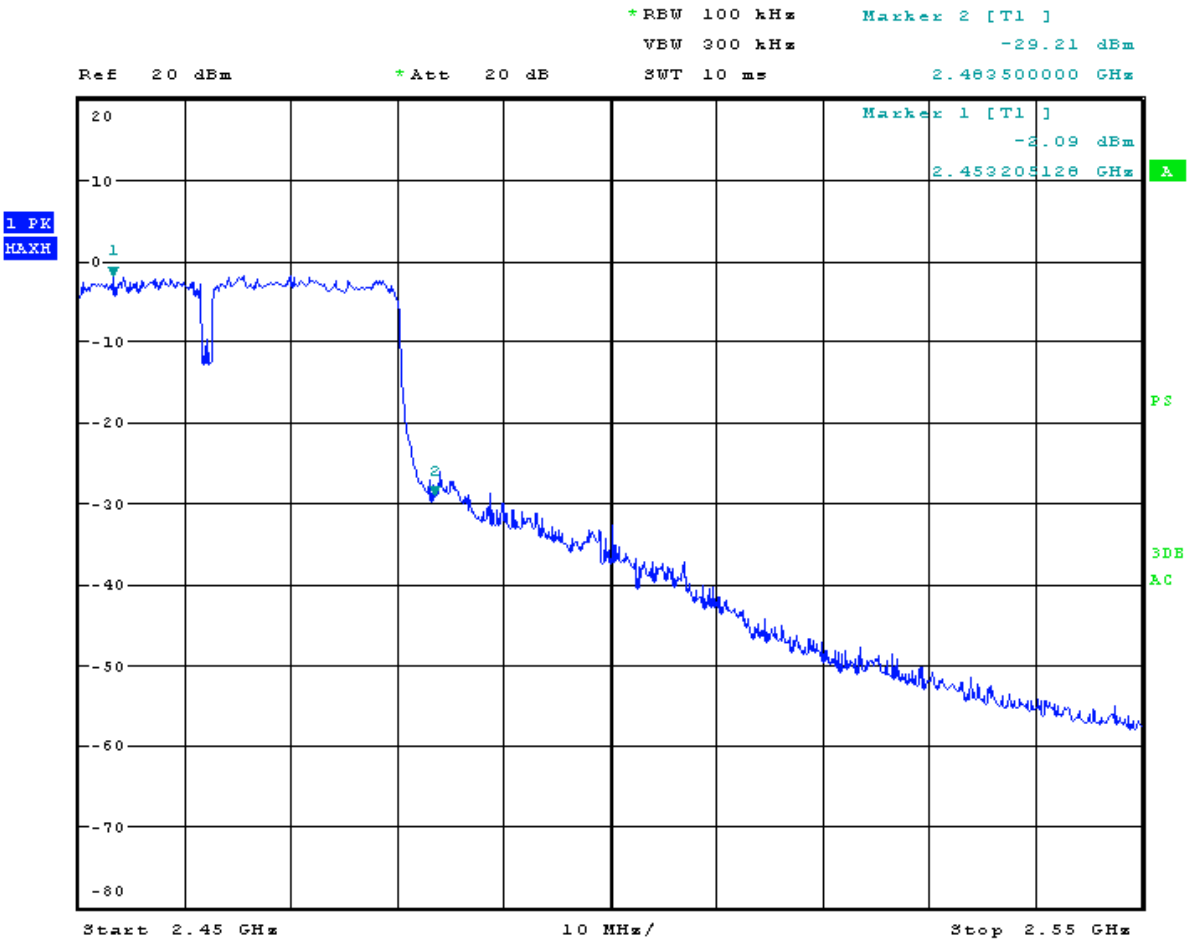

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4.3.7 Spurious Radiated Emission Test

Test Requirement:	FCC Part15 247(c)
Test date:	May 26,2010 to July 2,2010
Standard Applicable:	According to section 15.247(c),all other emissions outside these bands shall not exceed the general radiated emission limits specified in section15.209(a).And according to section 15.33(a)(1),for an intentional radiator operates below 10GHz,the frequency range of measurements:to the tenth harmonic of the highest fundamental frequency or to 40GHz,which is lower.
Measurement Procedure:	1. The EUT was placed on a turn table which is 0.8m above ground plane. 2. The turn table shall rotate 360 degrees to determine the position of maximum emission level. 3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions. Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz). 1MHz resolution bandwidth and Peak detector apply (1000 MHz – 25GHz) Above 1GHz (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO. 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. Repeat above procedures until all frequency measured were complete. 7. The device is an 802.11n device in a 2×2 MIMO configuration, We have test the radiated emission in chain 1 and chain 2 for 802.11b &802.11g,and the test result shown indicateds the worst case radiated emission in chain 1.

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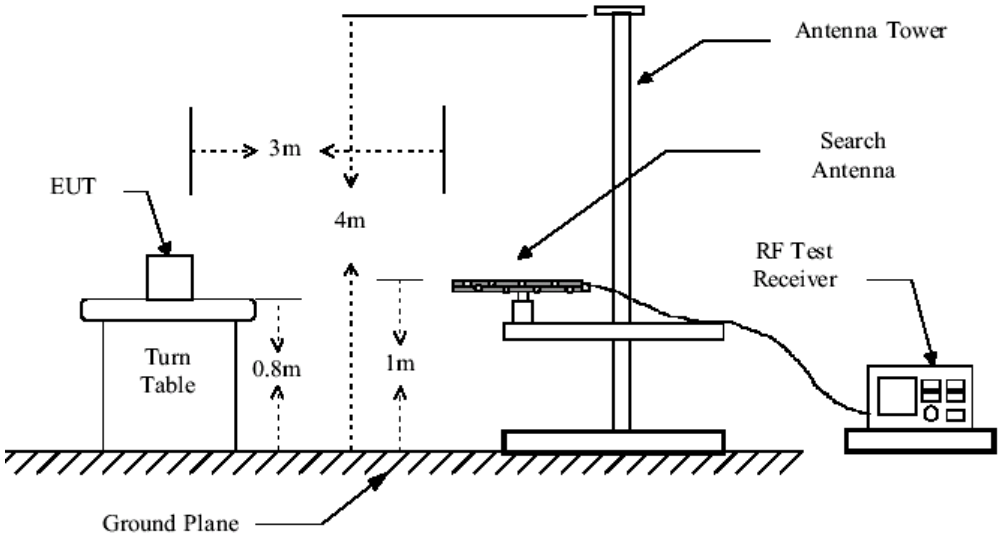
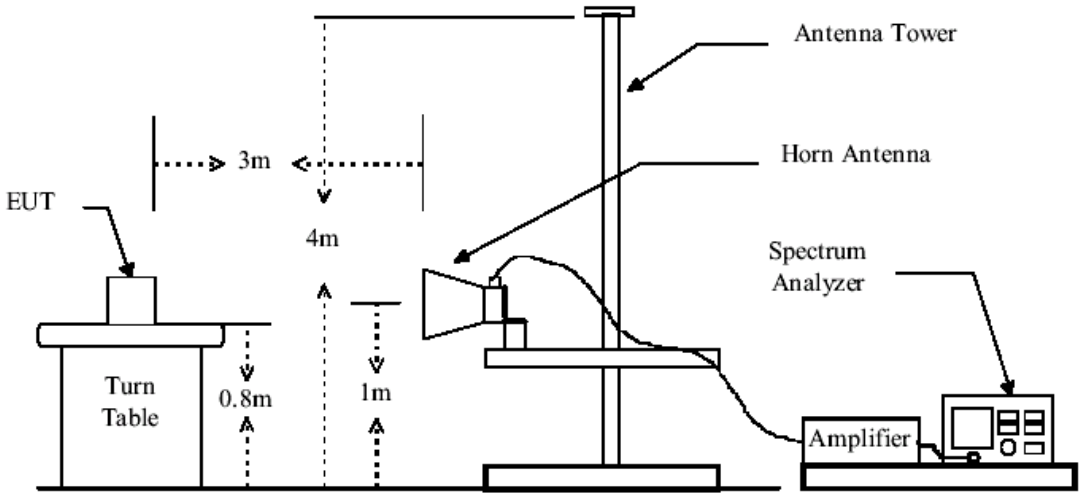
Radiated Test Set-up:
Radiated Emission Test Set-up,Frequency Below 1000MHz



Radiated Emission Test Set-up Frequency Over 1GHz



Low nosie amplifier was used below 1GHz,High pass Filter was used above 3GHz.
Between 1G and 3GHz, we did not use any amplifier or filter.

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Operation Mode:802.11b TX CH Low 1M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.32	36.32	46.00	Vertical
124	13.4	0.2	24.6	42.46	31.46	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	66.5	55.8	74	Vertical
7236.0	35.5	1.7	0.6	43.1	38.6	33.3	74	V
9648.0	37.7	2.1	0.9	43.3	42.9	40.3	74	V
4824.0	31.0	1.2	0.5	43.4	69.3	58.6	74	Horizontal
7236.0	35.5	1.7	0.6	43.1	37.7	32.4	74	H
9648.0	37.7	2.1	0.9	43.3	43.8	41.2	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	55.0	44.3	54	Vertical
7236.0	35.5	1.7	0.6	43.1	34.1	28.8	54	V
9648.0	37.7	2.1	0.9	43.3	27.9	25.3	54	V
4824.0	31.0	1.2	0.5	43.4	44.9	34.2	54	Horizontal
7236.0	35.5	1.7	0.6	43.1	34.2	28.9	54	H
9648.0	37.7	2.1	0.9	43.3	35.8	33.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11b TX CH Mid 1M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.35	36.35	46.00	Vertical
124	13.4	0.2	24.6	42.56	31.56	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	65.0	54.4	74	Vertical
7311.0	35.7	1.7	0.6	43.1	39.9	34.8	74	V
9748.0	37.8	2.1	0.9	43.0	41.5	39.3	74	V
4874.0	31.1	1.3	0.5	43.5	65.7	55.1	74	Horizontal
7311.0	35.7	1.7	0.6	43.1	37.6	32.5	74	H
9748.0	37.8	2.1	0.9	43.0	42.7	40.5	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	53.8	43.2	54	Vertical
7311.0	35.7	1.7	0.6	43.1	32.9	27.8	54	V
9748.0	37.8	2.1	0.9	43.0	30.6	28.4	54	V
4874.0	31.1	1.3	0.5	43.5	51.8	41.2	54	Horizontal
7311.0	35.7	1.7	0.6	43.1	34.0	28.9	54	H
9748.0	37.8	2.1	0.9	43.0	34.4	32.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11b TX CH High 1M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.28	36.28	46.00	Vertical
124	13.4	0.2	24.6	42.72	31.72	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	64	53.4	74	Vertical
7386.0	35.8	1.7	0.6	43.1	40.2	35.2	74	V
9848.0	38.0	2.2	0.9	42.8	34	32.3	74	V
4924.0	31.4	1.4	0.5	43.9	59.1	48.5	74	Horizontal
7386.0	35.8	1.7	0.6	43.1	37.4	32.4	74	H
9848.0	38.0	2.2	0.9	42.8	42.2	40.5	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	55.8	45.2	54	Vertical
7386.0	35.8	1.7	0.6	43.1	33.6	28.6	54	V
9848.0	38.0	2.2	0.9	42.8	34	32.3	54	V
4924.0	31.4	1.4	0.5	43.9	52.9	42.3	54	Horizontal
7386.0	35.8	1.7	0.6	43.1	34.2	29.2	54	H
9848.0	38.0	2.2	0.9	42.8	34.9	33.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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6. Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11g TX CH Low 6M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	46.44	35.44	46.00	Vertical
124	13.4	0.2	24.6	43.22	32.22	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	63.0	52.3	74	Vertical
7236.0	35.5	1.7	0.6	43.1	37.4	32.1	74	V
9648.0	37.7	2.1	0.9	43.3	41.5	38.9	74	V
4824.0	31.0	1.2	0.5	43.4	64.2	53.5	74	Horizontal
7236.0	35.5	1.7	0.6	43.1	38.7	33.4	74	H
9648.0	37.7	2.1	0.9	43.3	43.1	40.5	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	52.8	42.1	54	Vertical
7236.0	35.5	1.7	0.6	43.1	35.0	29.7	54	V
9648.0	37.7	2.1	0.9	43.3	29.4	26.8	54	V
4824.0	31.0	1.2	0.5	43.4	48.9	38.2	54	Horizontal
7236.0	35.5	1.7	0.6	43.1	37.2	31.9	54	H
9648.0	37.7	2.1	0.9	43.3	38.0	35.4	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11g TX CH Mid 6M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.23	36.23	46.00	Vertical
124	13.4	0.2	24.6	42.68	31.68	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	61.8	51.2	74	Vertical
7311.0	35.7	1.7	0.6	43.1	36.9	31.8	74	V
9748.0	37.8	2.1	0.9	43.0	40.0	37.8	74	V
4874.0	31.1	1.3	0.5	43.5	60.4	49.8	74	Horizontal
7311.0	35.7	1.7	0.6	43.1	37.3	32.2	74	H
9748.0	37.8	2.1	0.9	43.0	41.0	38.8	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	51.9	41.3	54	Vertical
7311.0	35.7	1.7	0.6	43.1	33.9	28.8	54	V
9748.0	37.8	2.1	0.9	43.0	31.6	29.4	54	V
4874.0	31.1	1.3	0.5	43.5	50.4	39.8	54	Horizontal
7311.0	35.7	1.7	0.6	43.1	32.7	27.6	54	H
9748.0	37.8	2.1	0.9	43.0	34.1	31.9	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11g TX CH High 6M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.43	36.43	46.00	Vertical
124	13.4	0.2	24.6	42.88	31.88	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	60.4	49.8	74	Vertical
7386.0	35.8	1.7	0.6	43.1	38.1	33.1	74	V
9848.0	38.0	2.2	0.9	42.8	38.5	36.8	74	V
4924.0	31.4	1.4	0.5	43.9	58.8	48.2	74	Horizontal
7386.0	35.8	1.7	0.6	43.1	37.4	32.4	74	H
9848.0	38.0	2.2	0.9	42.8	39.2	37.5	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	49.5	38.9	54	Vertical
7386.0	35.8	1.7	0.6	43.1	33.5	28.5	54	V
9848.0	38.0	2.2	0.9	42.8	34.6	32.9	54	V
4924.0	31.4	1.4	0.5	43.9	48.5	37.9	54	Horizontal
7386.0	35.8	1.7	0.6	43.1	34.2	29.2	54	H
9848.0	38.0	2.2	0.9	42.8	34.9	33.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n_20M TX CH Low 6.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	46.55	35.55	46.00	Vertical
124	13.4	0.2	24.6	43.01	32.01	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	65.0	54.3	74	Vertical
7236.0	35.5	1.7	0.6	43.1	38.8	33.5	74	V
9648.0	37.7	2.1	0.9	43.3	41.1	38.5	74	V
4824.0	31.0	1.2	0.5	43.4	64.2	53.5	74	Horizontal
7236.0	35.5	1.7	0.6	43.1	37.9	32.6	74	H
9648.0	37.7	2.1	0.9	43.3	42.2	39.6	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	55.5	44.8	54	Vertical
7236.0	35.5	1.7	0.6	43.1	36.8	31.5	54	V
9648.0	37.7	2.1	0.9	43.3	37.0	34.4	54	V
4824.0	31.0	1.2	0.5	43.4	53.5	42.8	54	Horizontal
7236.0	35.5	1.7	0.6	43.1	37.5	32.2	54	H
9648.0	37.7	2.1	0.9	43.3	36.2	33.6	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n_20M TX CH Mid 6.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.28	36.28	46.00	Vertical
124	13.4	0.2	24.6	42.72	31.72	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	65.8	55.2	74	Vertical
7311.0	35.7	1.7	0.6	43.1	38.5	33.4	74	V
9748.0	37.8	2.1	0.9	43.0	40.9	38.7	74	V
4874.0	31.1	1.3	0.5	43.5	63.8	53.2	74	Horizontal
7311.0	35.7	1.7	0.6	43.1	37.3	32.2	74	H
9748.0	37.8	2.1	0.9	43.0	41.8	39.6	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	53.4	42.8	54	Vertical
7311.0	35.7	1.7	0.6	43.1	34.6	29.5	54	V
9748.0	37.8	2.1	0.9	43.0	33.4	31.2	54	V
4874.0	31.1	1.3	0.5	43.5	50.9	40.3	54	Horizontal
7311.0	35.7	1.7	0.6	43.1	34.0	28.9	54	H
9748.0	37.8	2.1	0.9	43.0	34.4	32.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n_20MX CH High 6.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.11	36.11	46.00	Vertical
124	13.4	0.2	24.6	42.12	31.12	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	64.2	53.6	74	Vertical
7386.0	35.8	1.7	0.6	43.1	37.1	32.1	74	V
9848.0	38.0	2.2	0.9	42.8	37.3	35.6	74	V
4924.0	31.4	1.4	0.5	43.9	61.8	51.2	74	Horizontal
7386.0	35.8	1.7	0.6	43.1	36.6	31.6	74	H
9848.0	38.0	2.2	0.9	42.8	38.4	36.7	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.0	31.4	1.4	0.5	43.9	55.4	44.8	54	Vertical
7386.0	35.8	1.7	0.6	43.1	32.5	27.5	54	V
9848.0	38.0	2.2	0.9	42.8	31.5	29.8	54	V
4924.0	31.4	1.4	0.5	43.9	53.1	42.5	54	Horizontal
7386.0	35.8	1.7	0.6	43.1	31.5	26.5	54	H
9848.0	38.0	2.2	0.9	42.8	35.9	34.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n_40M TX CH Low13.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.24	36.24	46.00	Vertical
124	13.4	0.2	24.6	42.55	31.55	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4844.0	31.5	1.3	0.5	43.5	65.6	55.4	74	Vertical
7266.0	35.5	1.6	0.6	43.1	40.6	35.2	74	V
9688.0	37.8	2.1	0.9	43.5	42.2	39.5	74	V
4844.0	31.5	1.3	0.5	43.5	63.6	53.4	74	Horizontal
7266.0	35.5	1.6	0.6	43.1	39.6	34.2	74	H
9688.0	37.8	2.1	0.9	43.5	41.3	38.6	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4844.0	31.5	1.3	0.5	43.5	55.4	45.2	54	Vertical
7266.0	35.5	1.6	0.6	43.1	35.0	29.6	54	V
9688.0	37.8	2.1	0.9	43.5	34.0	31.3	54	V
4844.0	31.5	1.3	0.5	43.5	53.7	43.5	54	Horizontal
7266.0	35.5	1.6	0.6	43.1	34.9	29.5	54	H
9688.0	37.8	2.1	0.9	43.5	32.9	30.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n_40M TX CH Mid 13.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	47.22	36.22	46.00	Vertical
124	13.4	0.2	24.6	42.44	31.44	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	66.9	56.3	74	Vertical
7311.0	35.7	1.7	0.6	43.1	39.3	34.2	74	V
9748.0	37.8	2.1	0.9	43.0	41.8	39.6	74	V
4874.0	31.1	1.3	0.5	43.5	64.7	54.1	74	Horizontal
7311.0	35.7	1.7	0.6	43.1	38.2	33.1	74	H
9748.0	37.8	2.1	0.9	43.0	40	37.8	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.0	31.1	1.3	0.5	43.5	54.8	44.2	54	Vertical
7311.0	35.7	1.7	0.6	43.1	33.6	28.5	54	V
9748.0	37.8	2.1	0.9	43.0	34.4	32.2	54	V
4874.0	31.1	1.3	0.5	43.5	51.9	41.3	54	Horizontal
7311.0	35.7	1.7	0.6	43.1	34.4	29.3	54	H
9748.0	37.8	2.1	0.9	43.0	35.4	33.2	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode:802.11n _40MTX CH High 13.5M

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
124	13.4	0.2	24.6	46.27	35.27	46.00	Vertical
124	13.4	0.2	24.6	43.42	32.42	46.00	Horizontal

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4904.0	31.6	1.4	0.5	43.9	65.7	55.3	74	Vertical
7356.0	35.6	1.7	0.6	43.1	39.4	34.2	74	V
9808.0	37.9	2.1	0.9	42.8	41.7	39.8	74	V
4904.0	31.6	1.4	0.5	43.9	64.7	54.3	74	Horizontal
7356.0	35.6	1.7	0.6	43.1	38.8	33.6	74	H
9808.0	37.9	2.1	0.9	42.8	40.3	38.4	74	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4904.0	31.6	1.4	0.5	43.9	52.6	42.2	54	Vertical
7356.0	35.6	1.7	0.6	43.1	33.8	28.6	54	V
9808.0	37.9	2.1	0.9	42.8	35.1	33.2	54	V
4904.0	31.6	1.4	0.5	43.9	51.0	40.6	54	Horizontal
7356.0	35.6	1.7	0.6	43.1	35.0	29.8	54	H
9808.0	37.9	2.1	0.9	42.8	36.4	34.5	54	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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Fina Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

4.3.8 Peak Power Spectral Density

Test Requirement:	FCC Part15 247(e)
Test date:	June 1,2010 to July 15,2010
Standard Applicable:	According to section 15.247(e),For digitally modulated systems,the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dB in any 3KHz band during any time in terval of continuous transmission.This power spectral density shall be determined in accordance with the provisions of paragraph(b) of this section.The same method of determining the conducted output power shall be used to determine the powr spectral density.
Measurement Procedure:	The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requiremnts. Set RBW=3KHz,Set VBW=10KHz,Sweep time=100s,Set detector=Peak detector.

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Measurement Result:
Chain 1:

Test Results(802.11b)1M

CH	Frequency (MHz)	RF Power Density Reading (dBm)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-5.06	0.00	-5.06
MID	2437	-4.27	0.00	-4.27
HIGH	2462	-5.82	0.00	-5.82

Test Results(802.11g)6M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-9.07	0.00	-9.07
MID	2437	-10.87	0.00	-10.87
HIGH	2462	-10.75	0.00	-10.75

Test Results(802.11n_20M)6.5M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-9.34	0.00	-9.34
MID	2437	-10.83	0.00	-10.83
HIGH	2462	-10.99	0.00	-10.99

Test Results(802.11n_40M)13.5M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2422	-12.56	0.00	-12.56
MID	2437	-11.86	0.00	-11.86
HIGH	2452	-12.36	0.00	-12.36

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Chain 2:

Test Results(802.11b)1M

CH	Frequency (MHz)	RF Power Density Reading (dBm)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-4.46	0.00	-4.46
MID	2437	-6.39	0.00	-6.39
HIGH	2462	-5.24	0.00	-5.24

Test Results(802.11g)6M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-10.19	0.00	-10.19
MID	2437	-10.58	0.00	-10.58
HIGH	2462	-10.01	0.00	-10.01

Test Results(802.11n_20M)6.5M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2412	-10.69	0.00	-10.69
MID	2437	-9.33	0.00	-9.33
HIGH	2462	-10.59	0.00	-10.59

Test Results(802.11n_40M)13.5M

CH	Frequency (MHz)	RF Power Density Reading (MHz)	Cable loss (Db)	RF Power Density Level(dBm)
LOW	2422	-12.05	0.00	-12.05
MID	2437	-11.89	0.00	-11.89
HIGH	2452	-12.38	0.00	-12.38

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Mode	CH	Frequency (MHz)	Chain 1 Power (dBm)	Chain2 Power (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11b (1Mbps)	Low	2412	-5.06	-4.46	N/A	8	PASS
	Mid	2437	-4.27	-6.39	N/A	8	PASS
	High	2462	-5.82	-5.24	N/A	8	PASS
802.11g (6Mbps)	Low	2412	-9.07	-10.19	N/A	8	PASS
	Mid	2437	-10.87	-10.58	N/A	8	PASS
	High	2462	-10.75	-10.01	N/A	8	PASS
802.11n_HT20 (6.5Mbps)	Low	2412	-9.34	-10.69	-6.95	8	PASS
	Mid	2437	-10.83	-9.33	-7.01	8	PASS
	High	2462	-10.99	-10.59	-7.78	8	PASS
802.11n_HT40 (13.5Mbps)	Low	2422	-12.56	-12.05	-9.28	8	PASS
	Mid	2437	-11.86	-11.89	-8.86	8	PASS
	High	2452	-12.36	-12.38	-9.36	8	PASS

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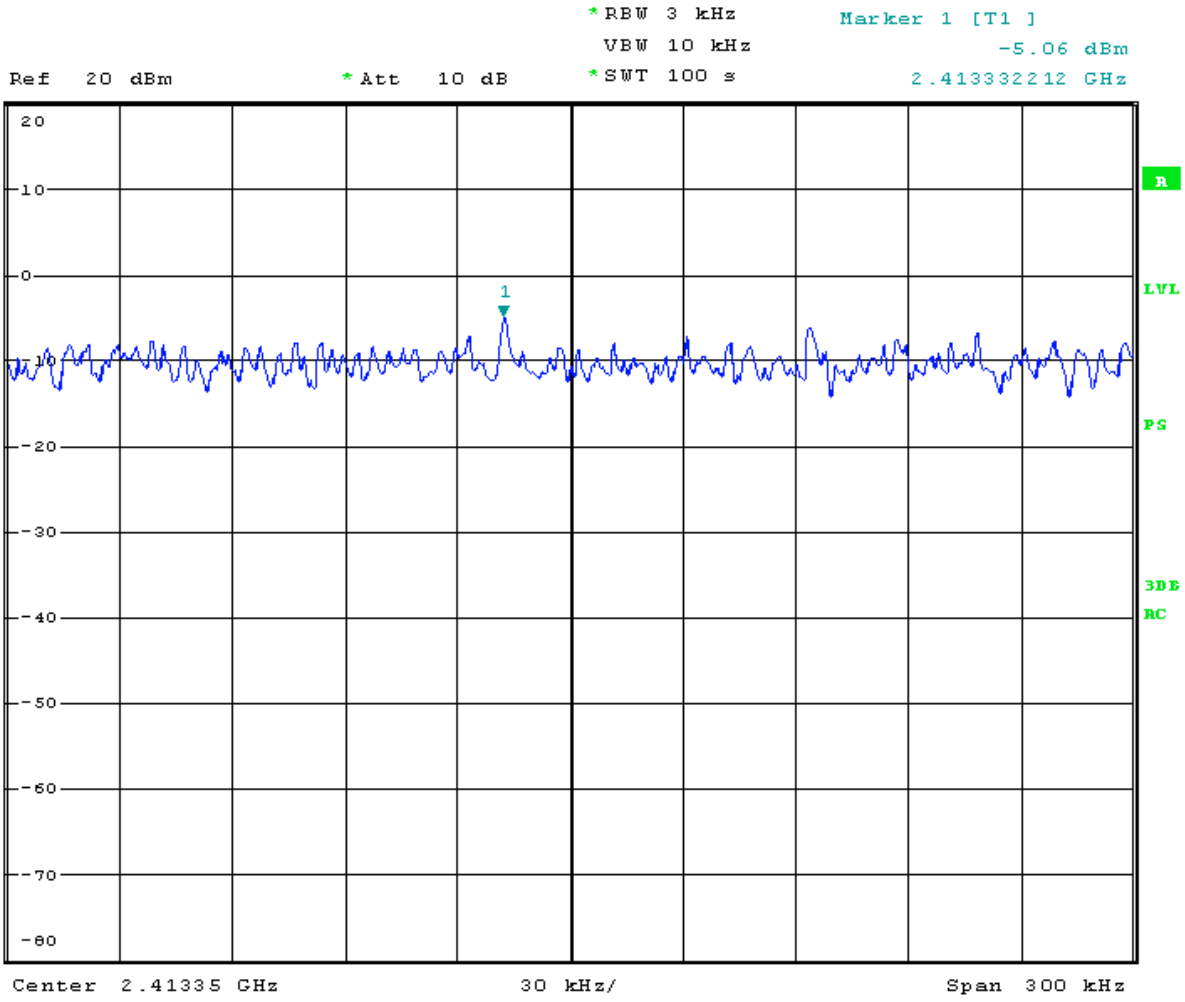
Chain 1:

802.11b 1M Power Spectral Density Test Plot(CH-Low)



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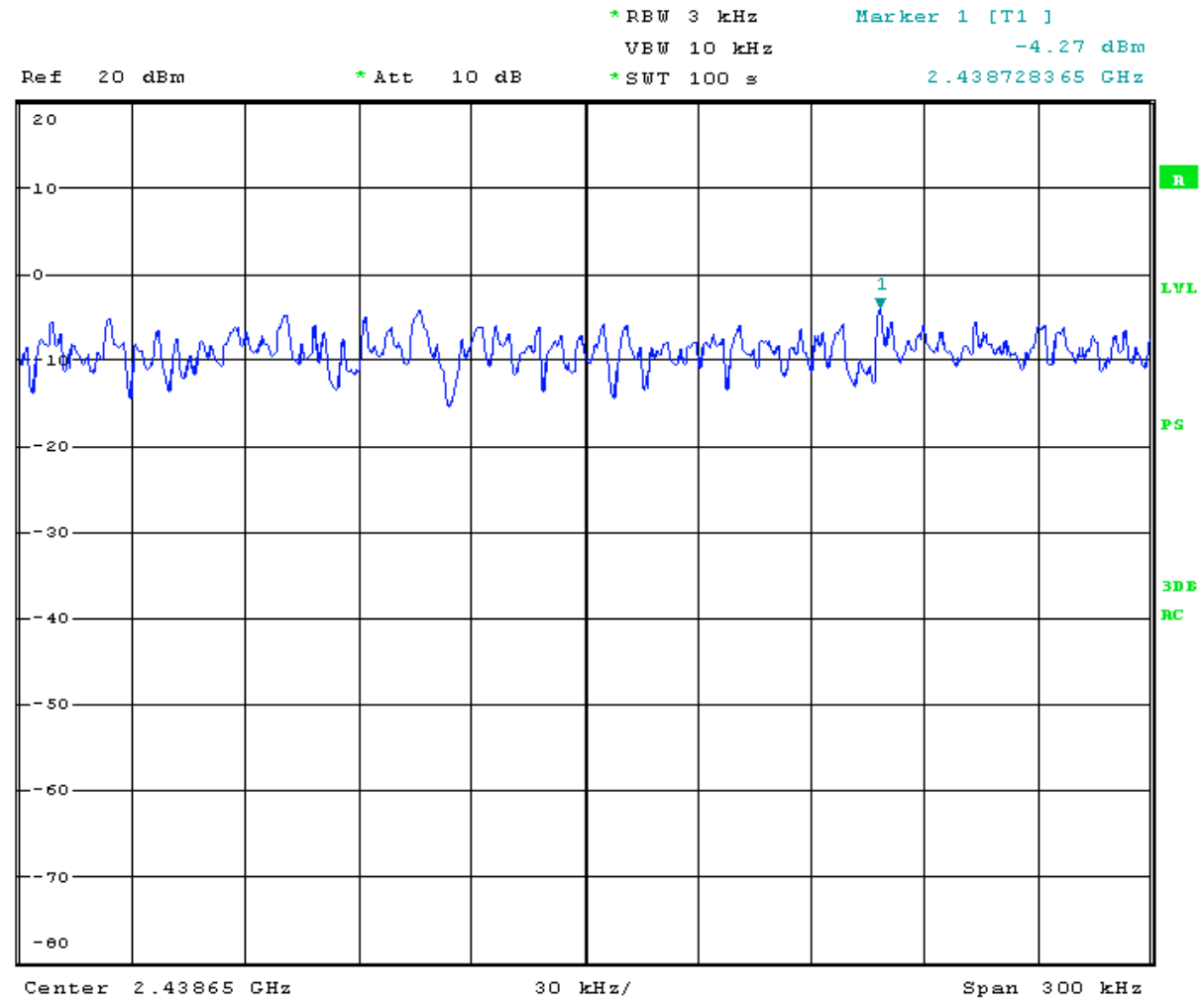
Power Spectral Density Test Plot(CH-Mid)



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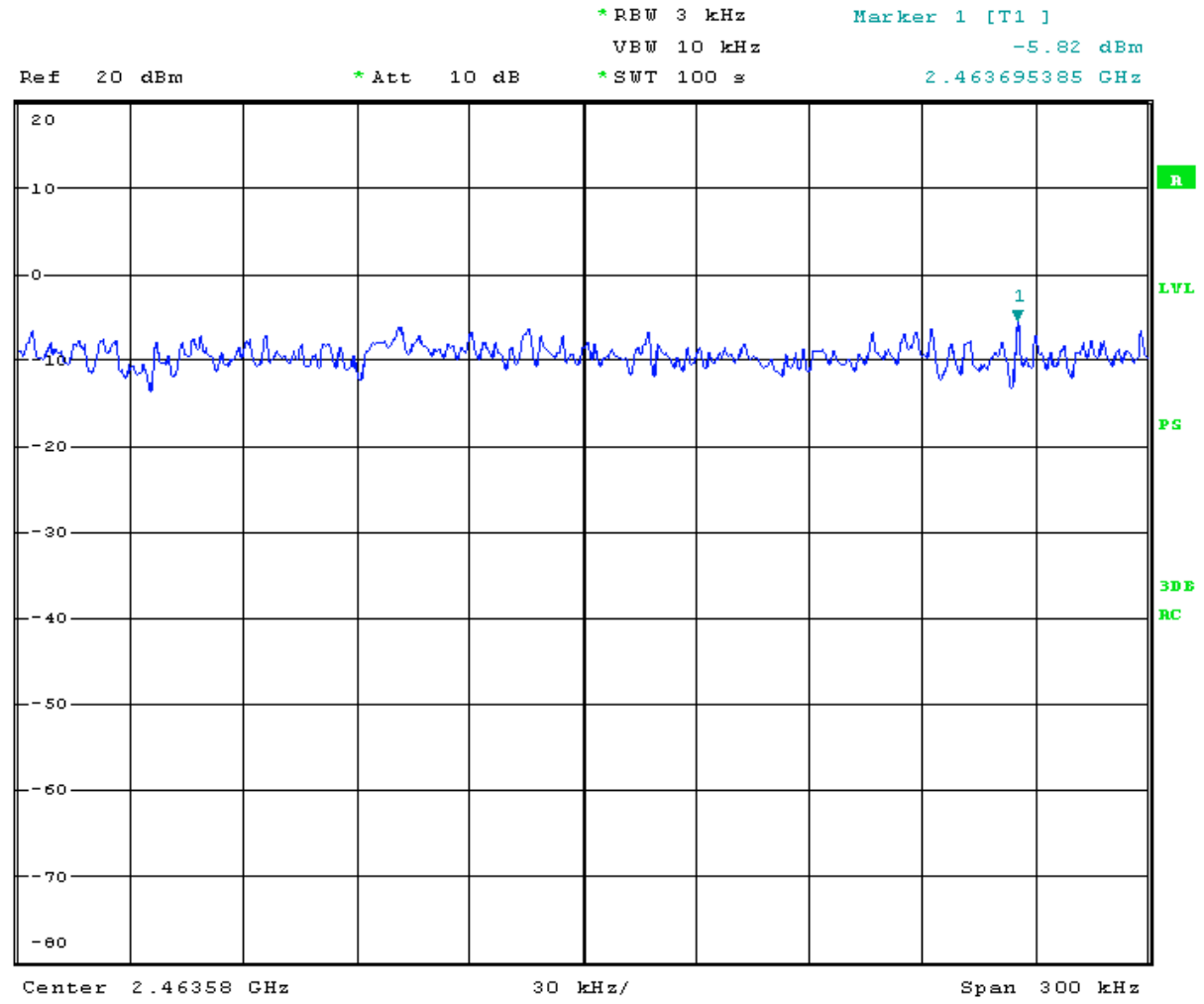
Power Spectral Density Test Plot(CH-High)



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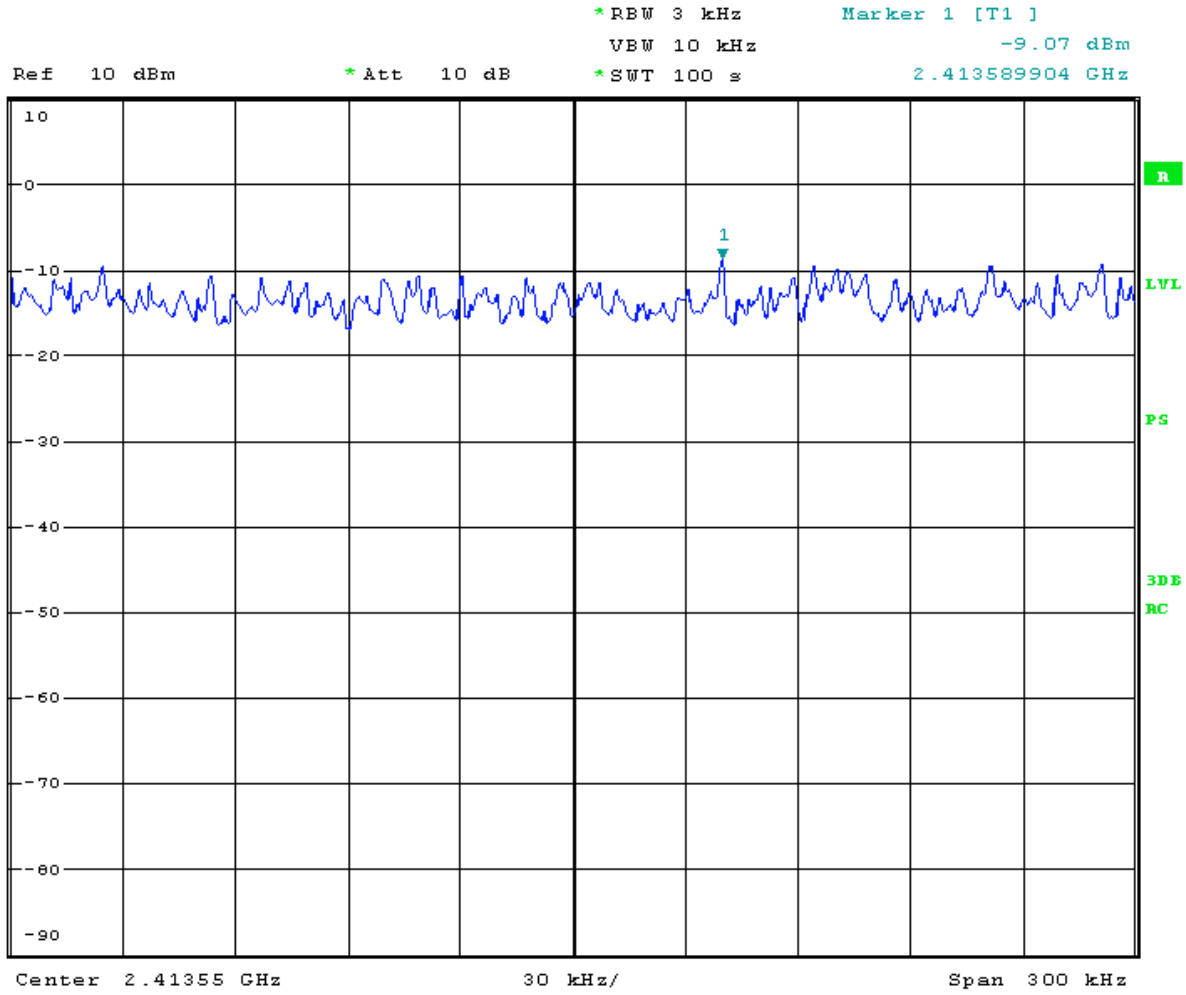
802.11g 6M Power Spectral Density Test Plot(CH-Low)



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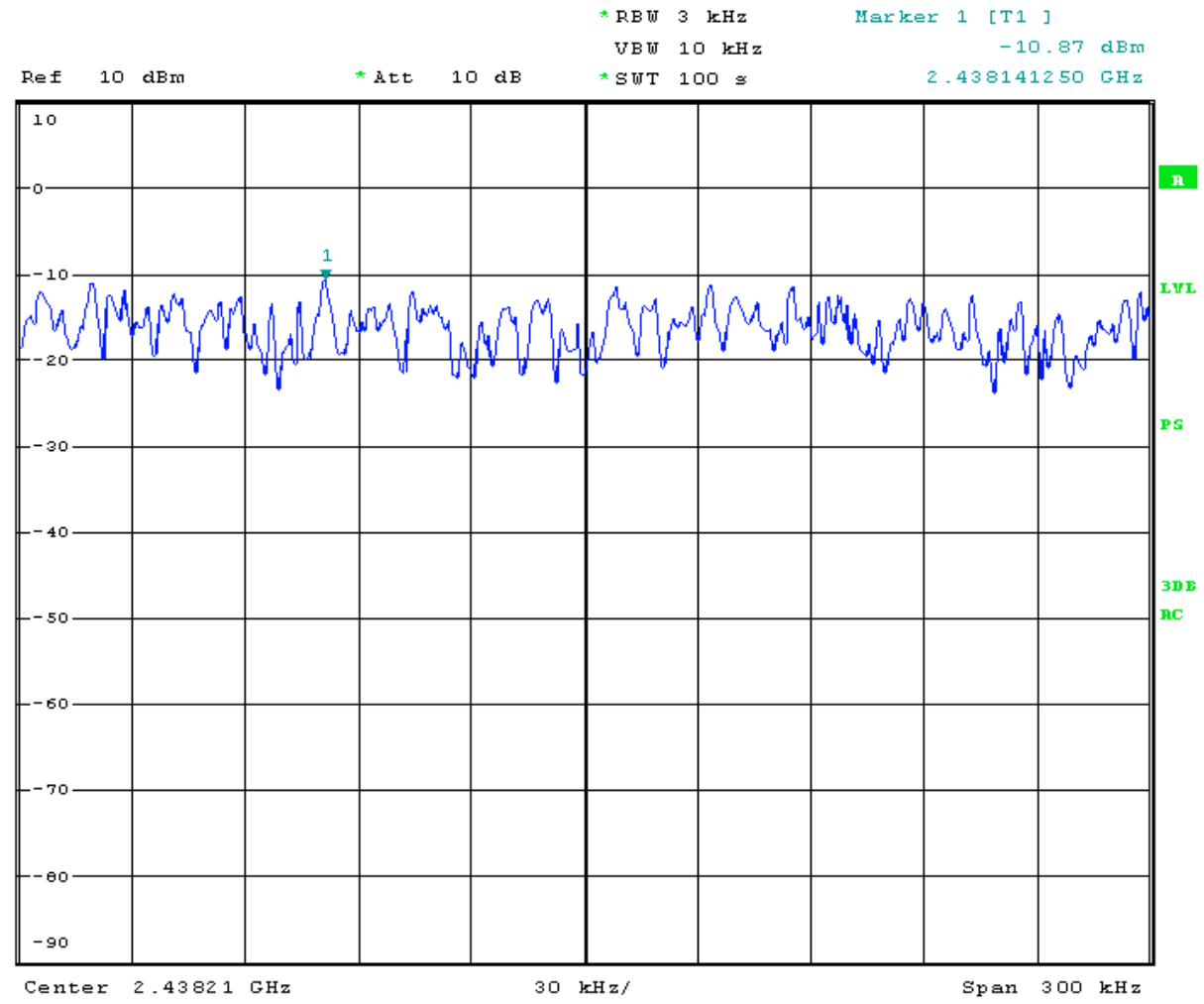
Power Spectral Density Test Plot(CH-Mid)



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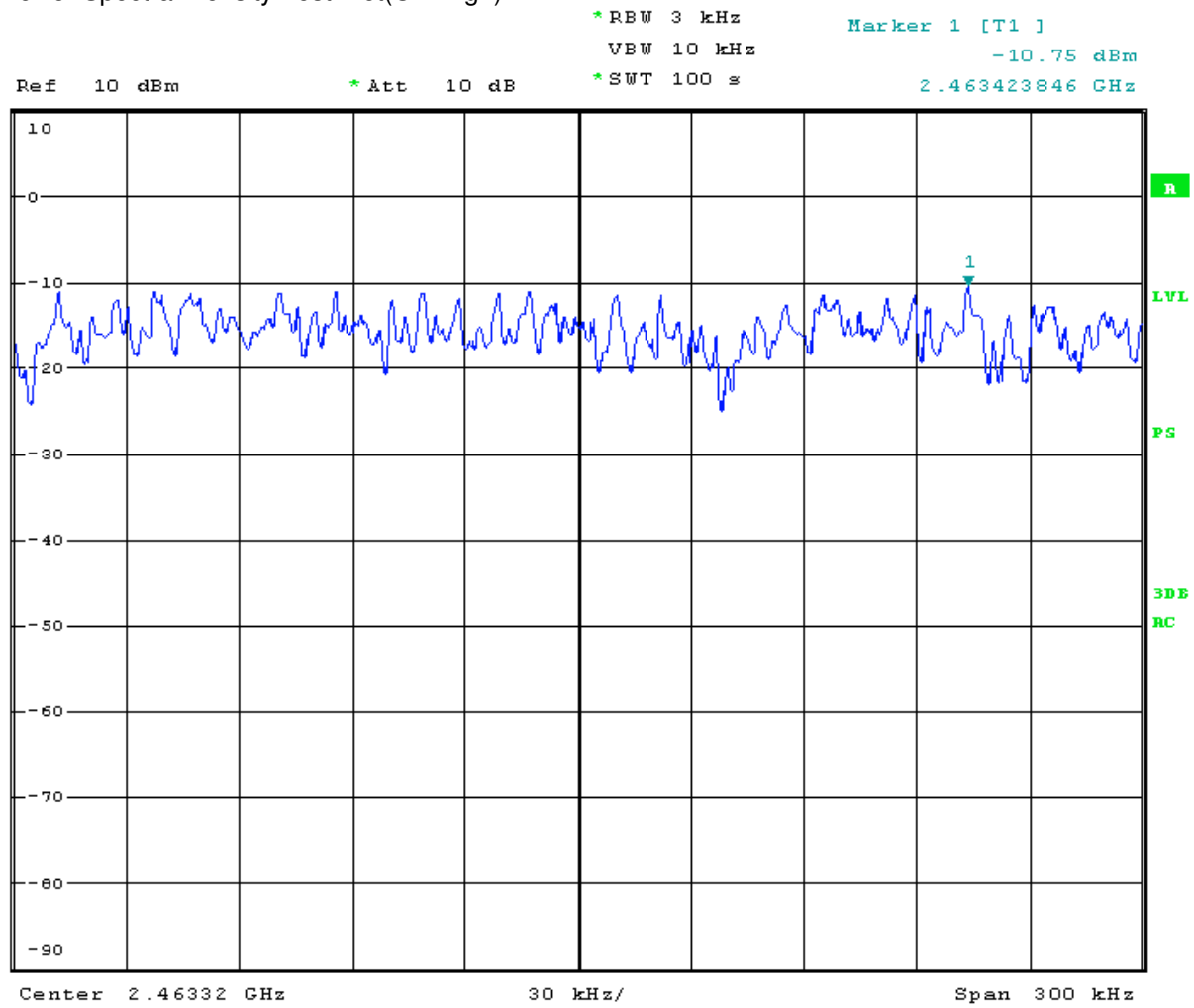
Power Spectral Density Test Plot(CH-High)



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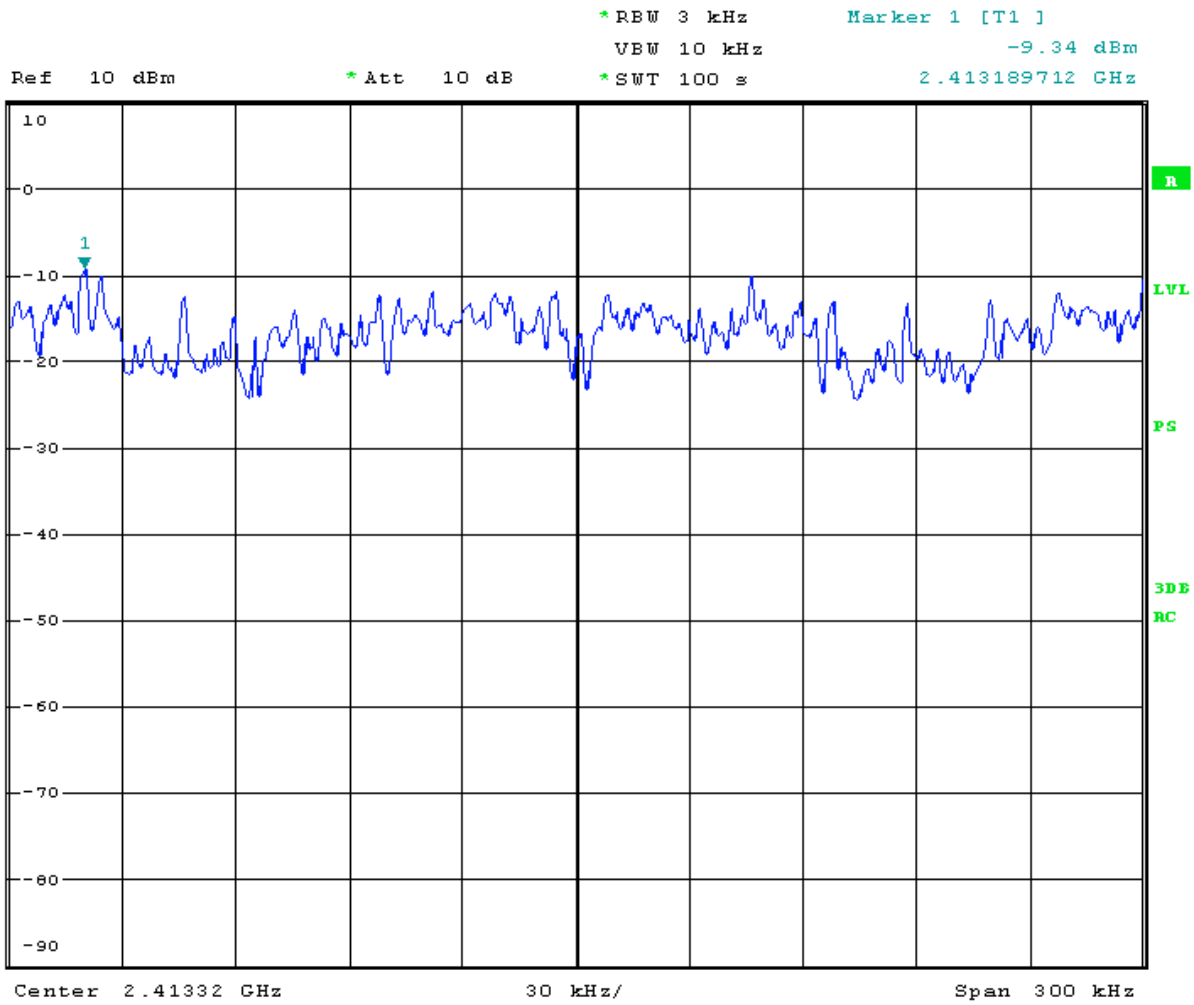
802.11n_20M 6.5M Power Spectral Density Test Plot(CH-Low)



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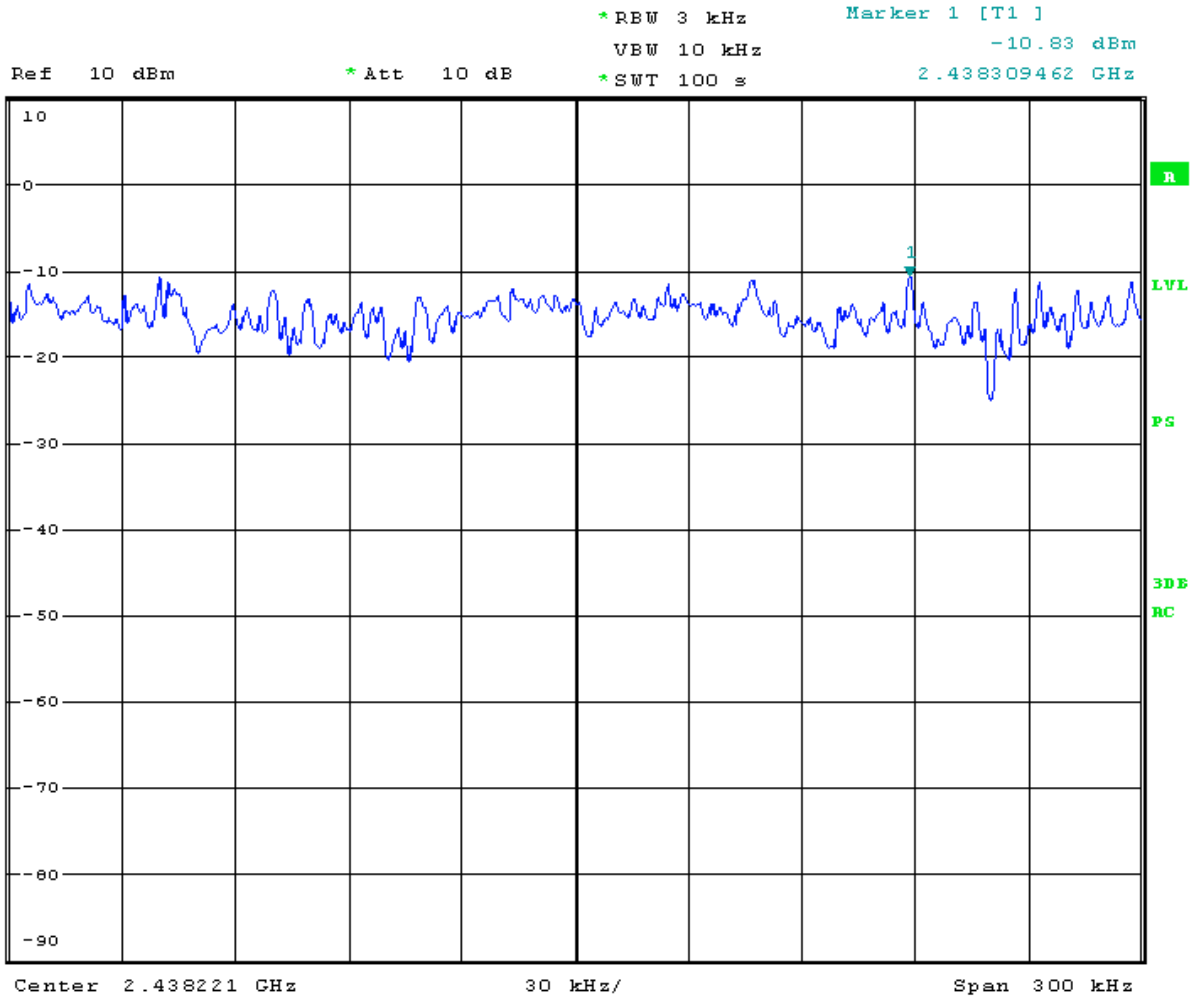
Power Spectral Density Test Plot(CH-Mid)



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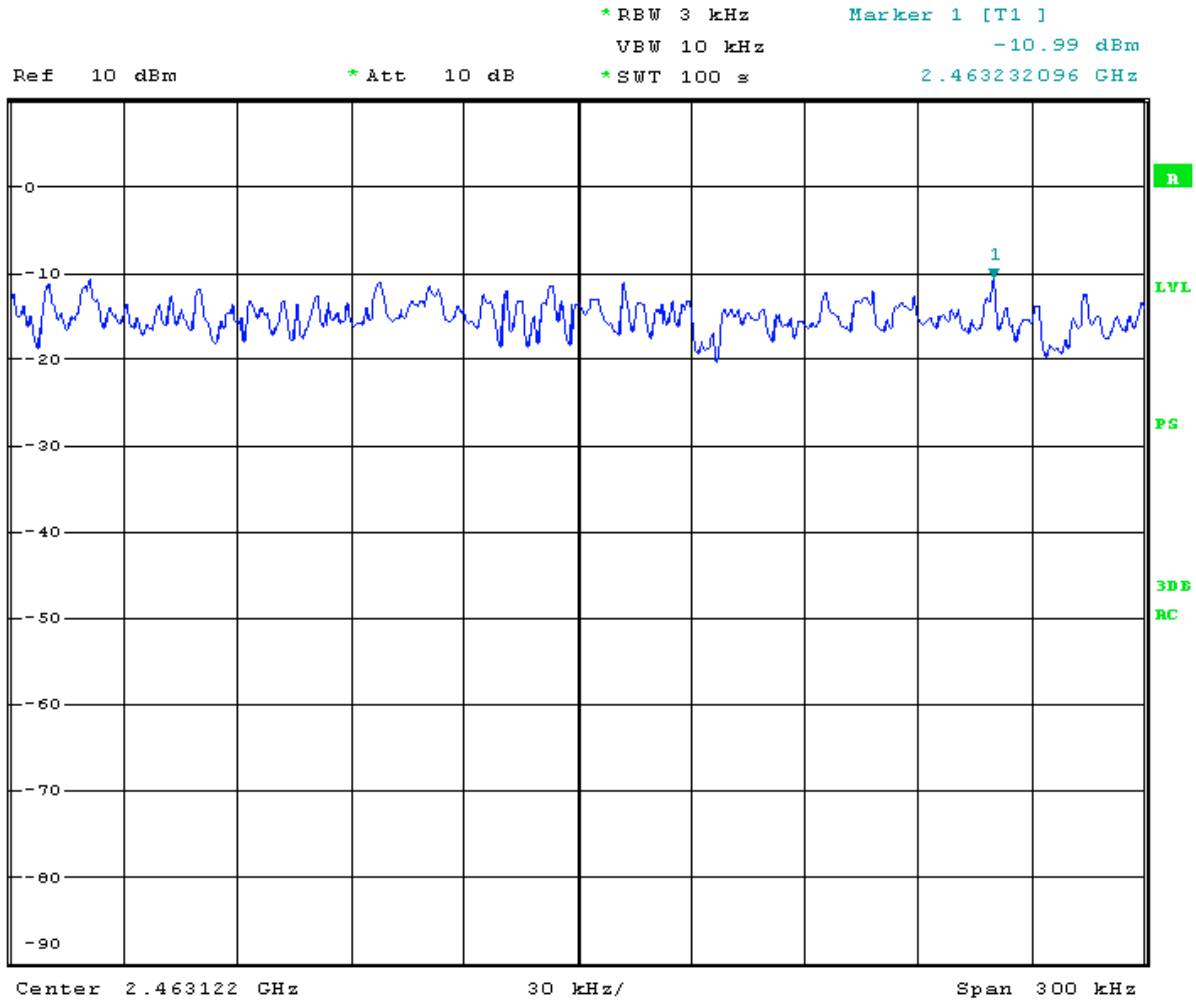
Power Spectral Density Test Plot(CH-High)



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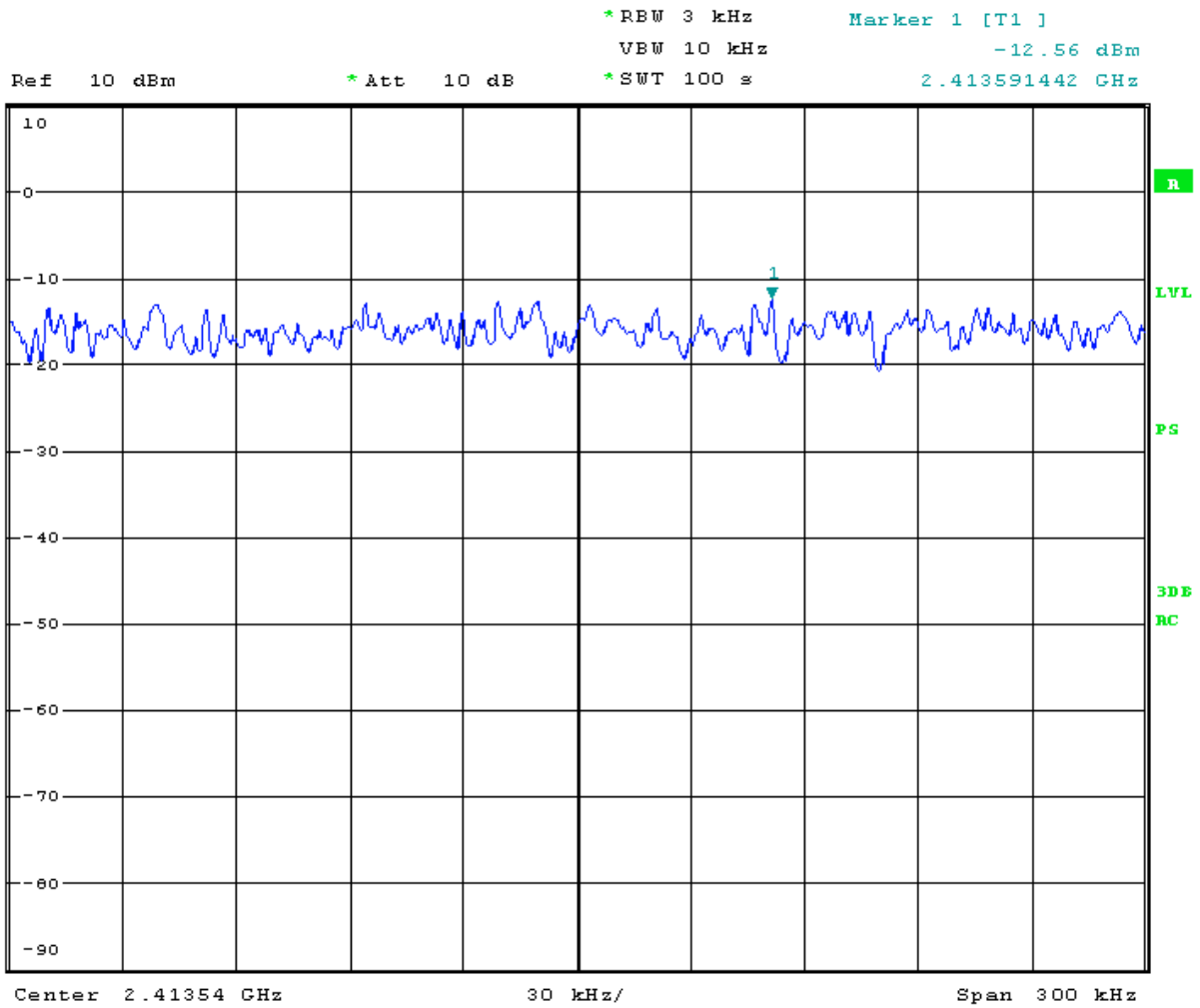
802.11n_40M 13.5M Power Spectral Density Test Plot(CH-Low)



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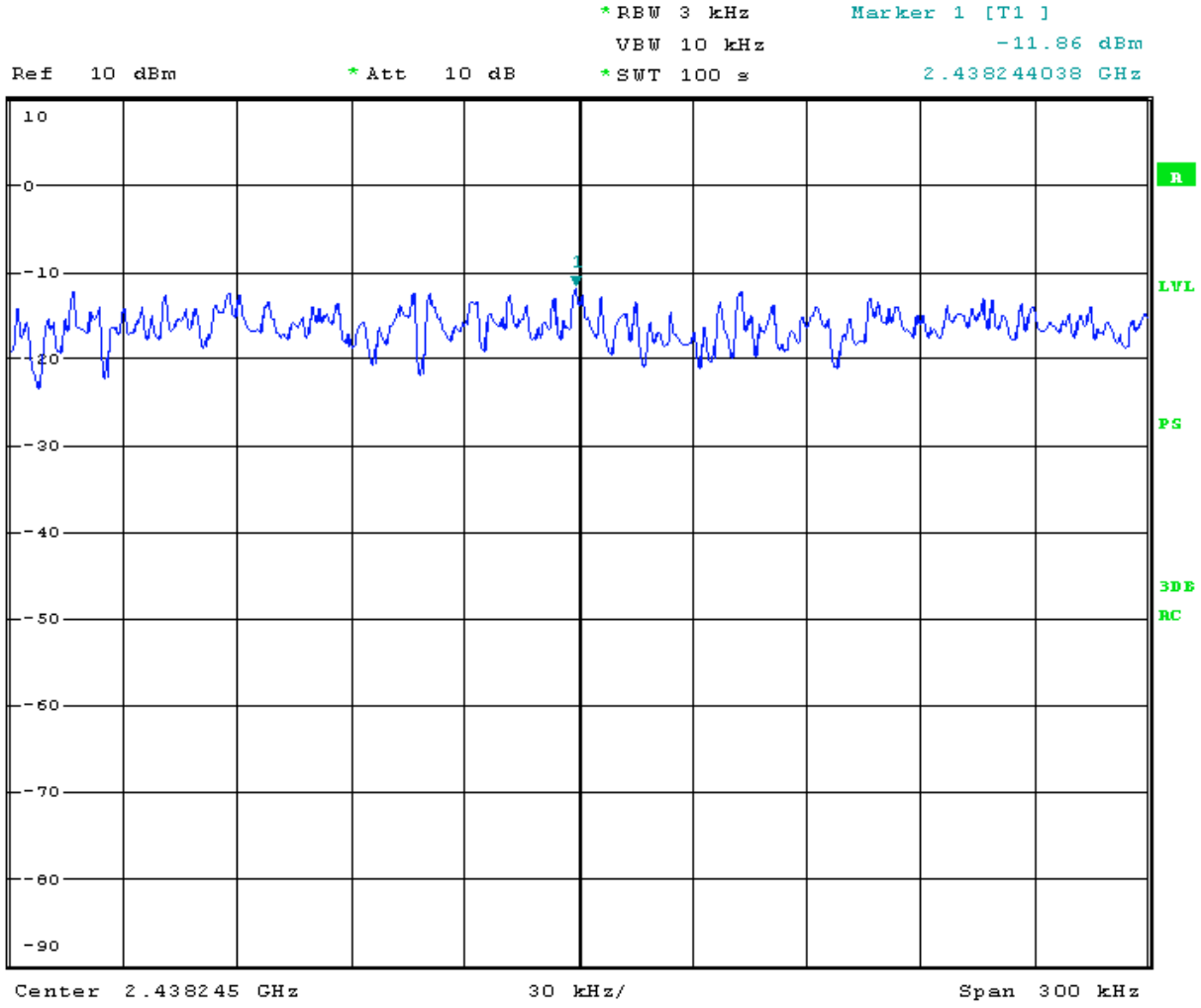
Power Spectral Density Test Plot(CH-Mid)



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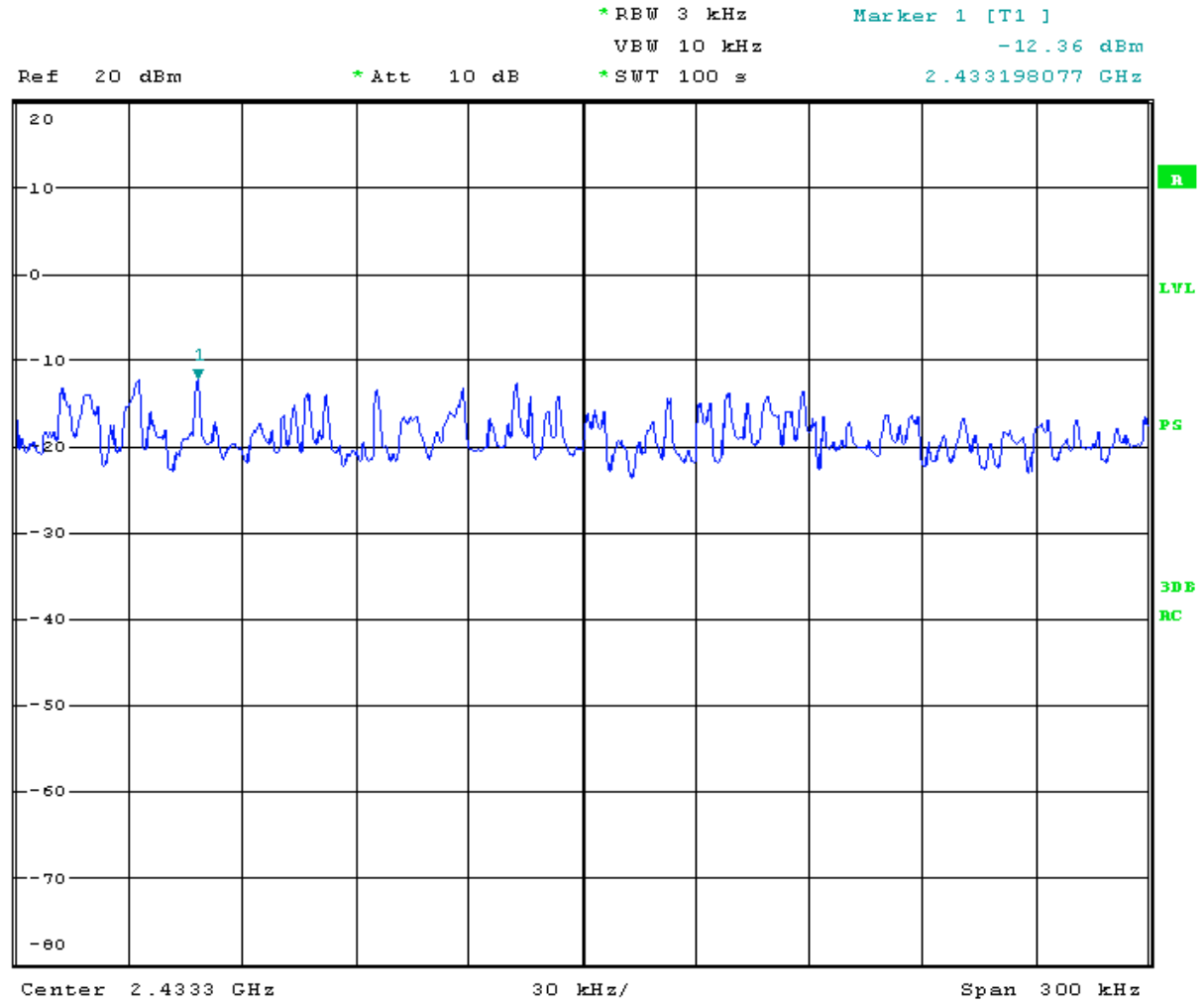
Power Spectral Density Test Plot(CH-High)



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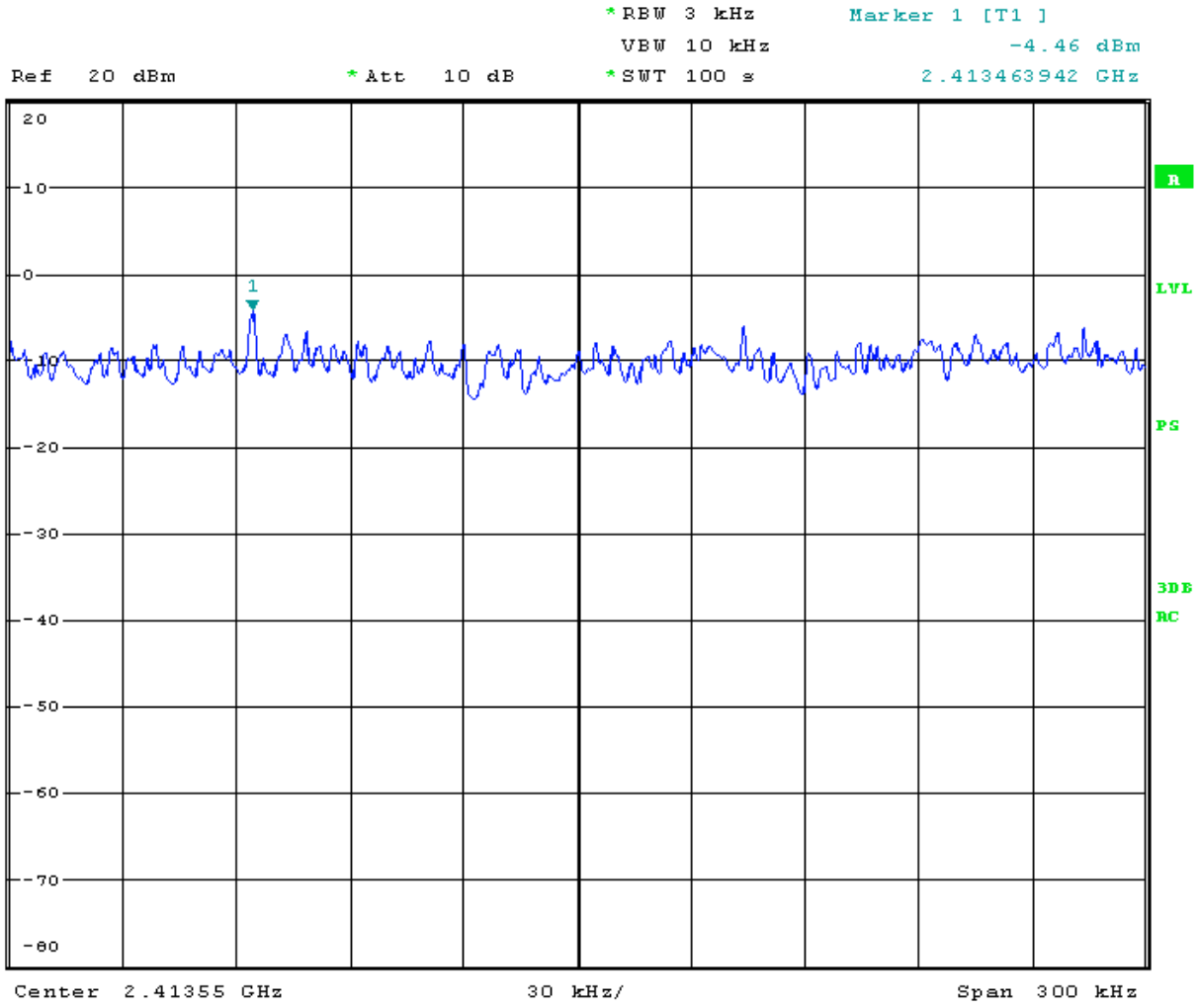
Chain 2:

802.11b 1M Power Spectral Density Test Plot(CH-Low)



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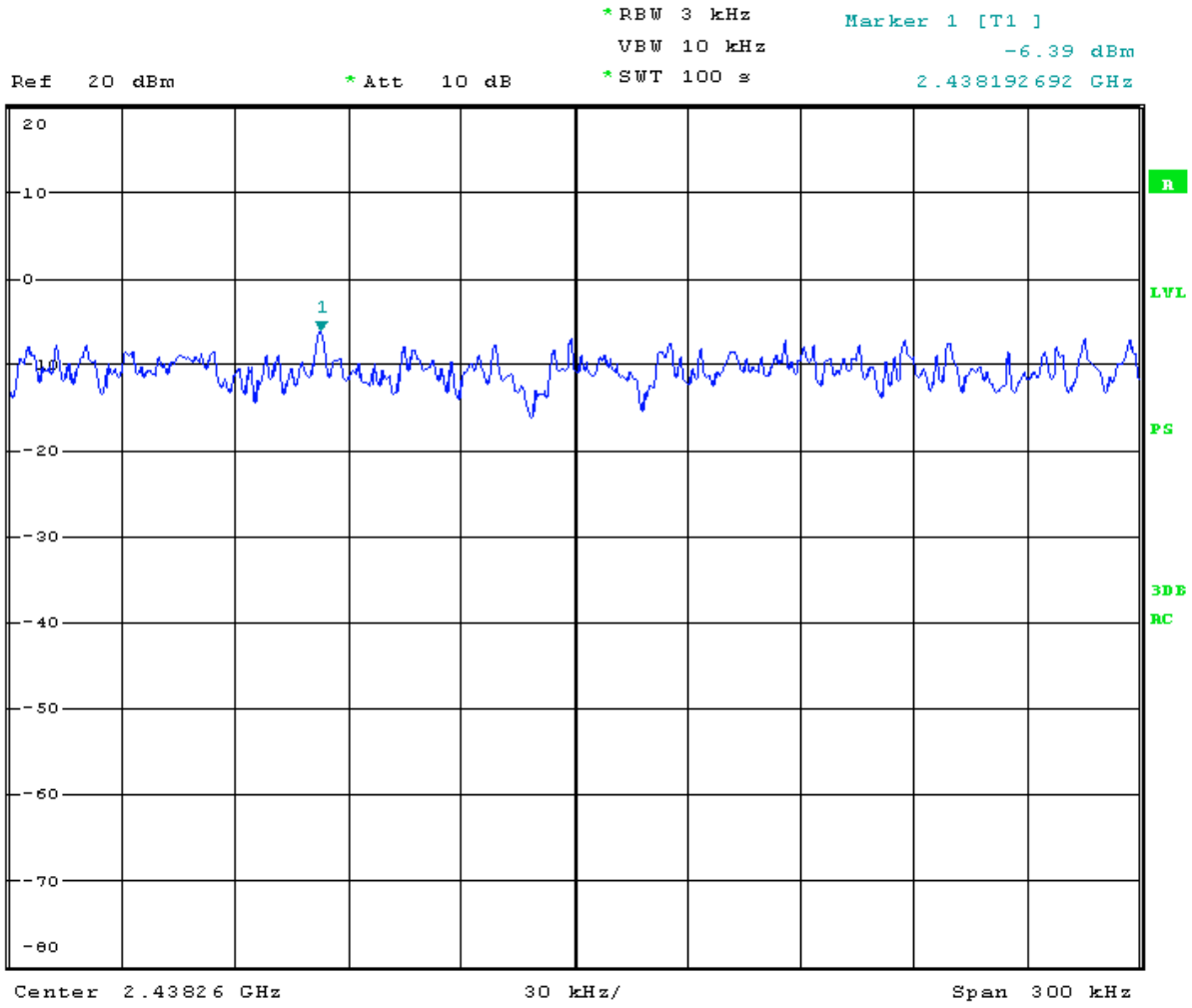
Power Spectral Density Test Plot(CH-Mid)



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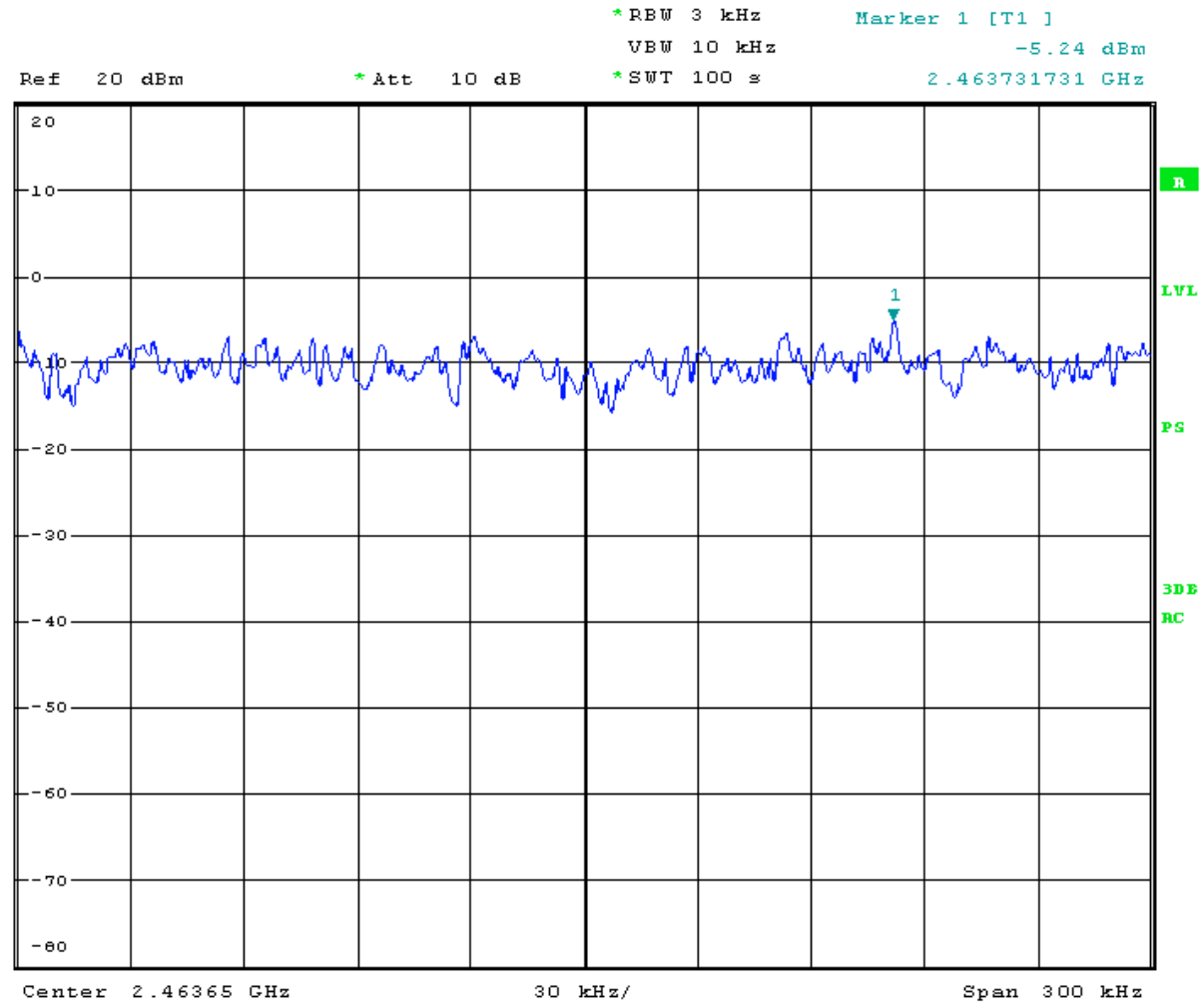
Power Spectral Density Test Plot(CH-High)



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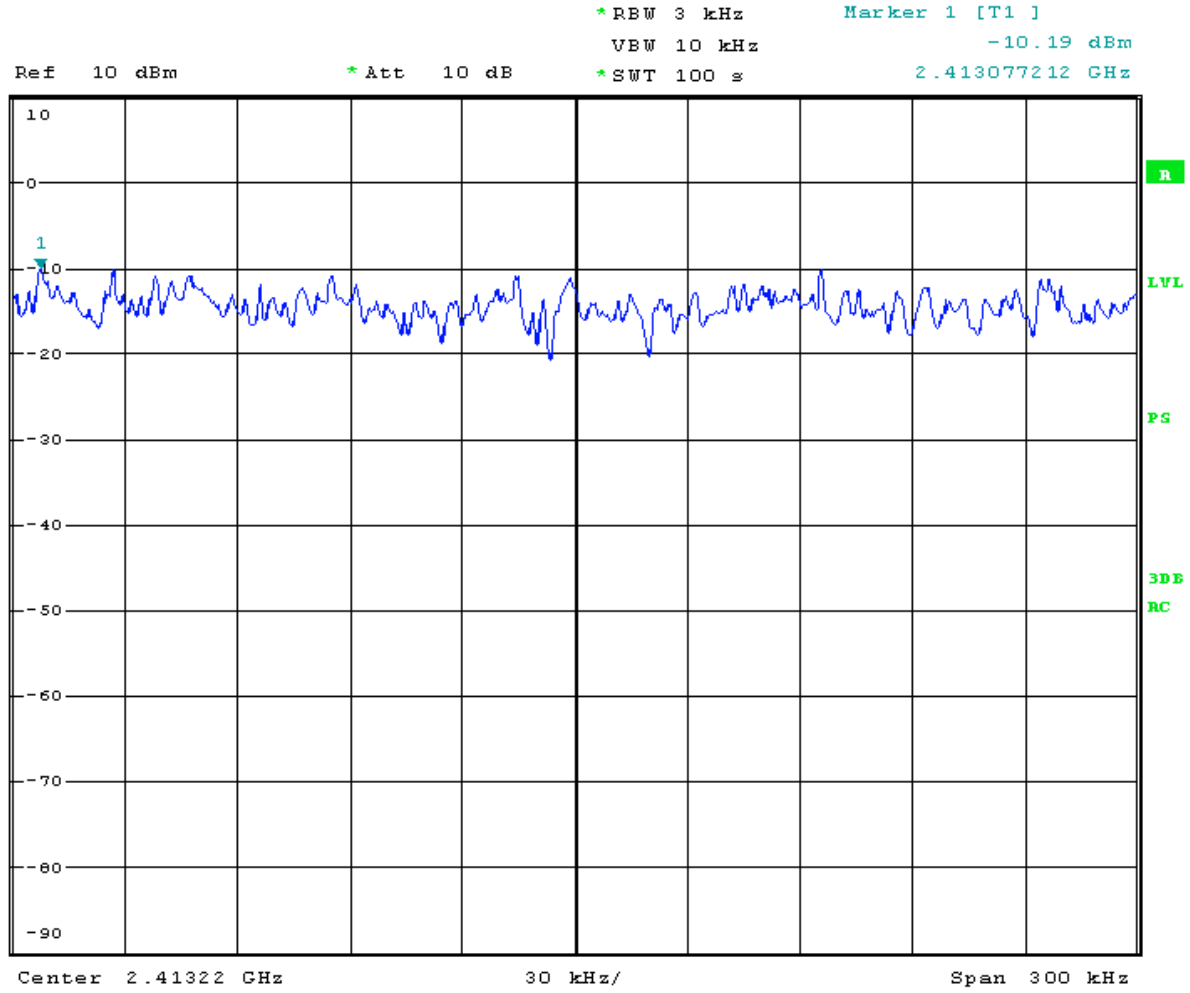
802.11g 6M Power Spectral Density Test Plot(CH-Low)



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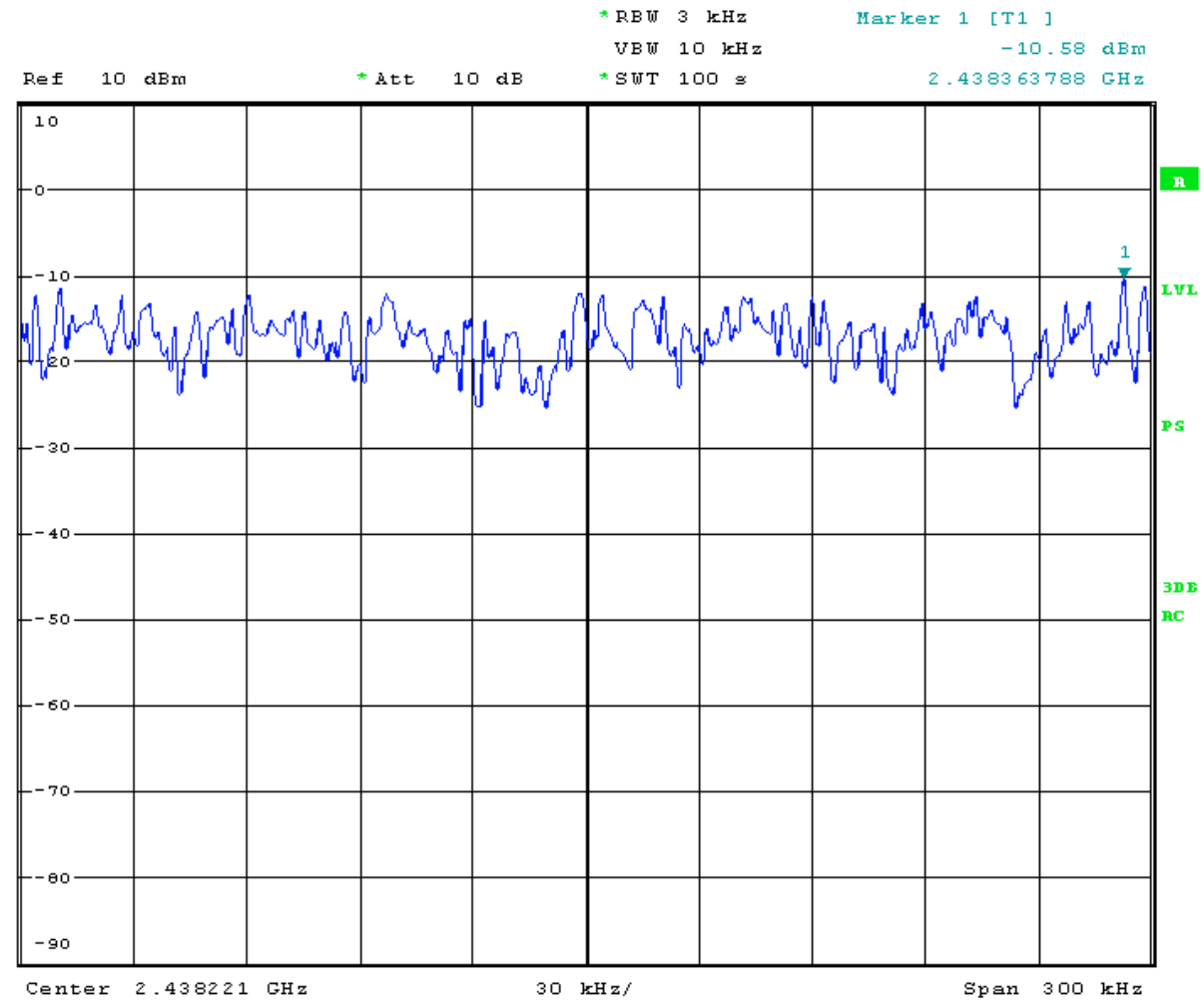
Power Spectral Density Test Plot(CH-Mid)



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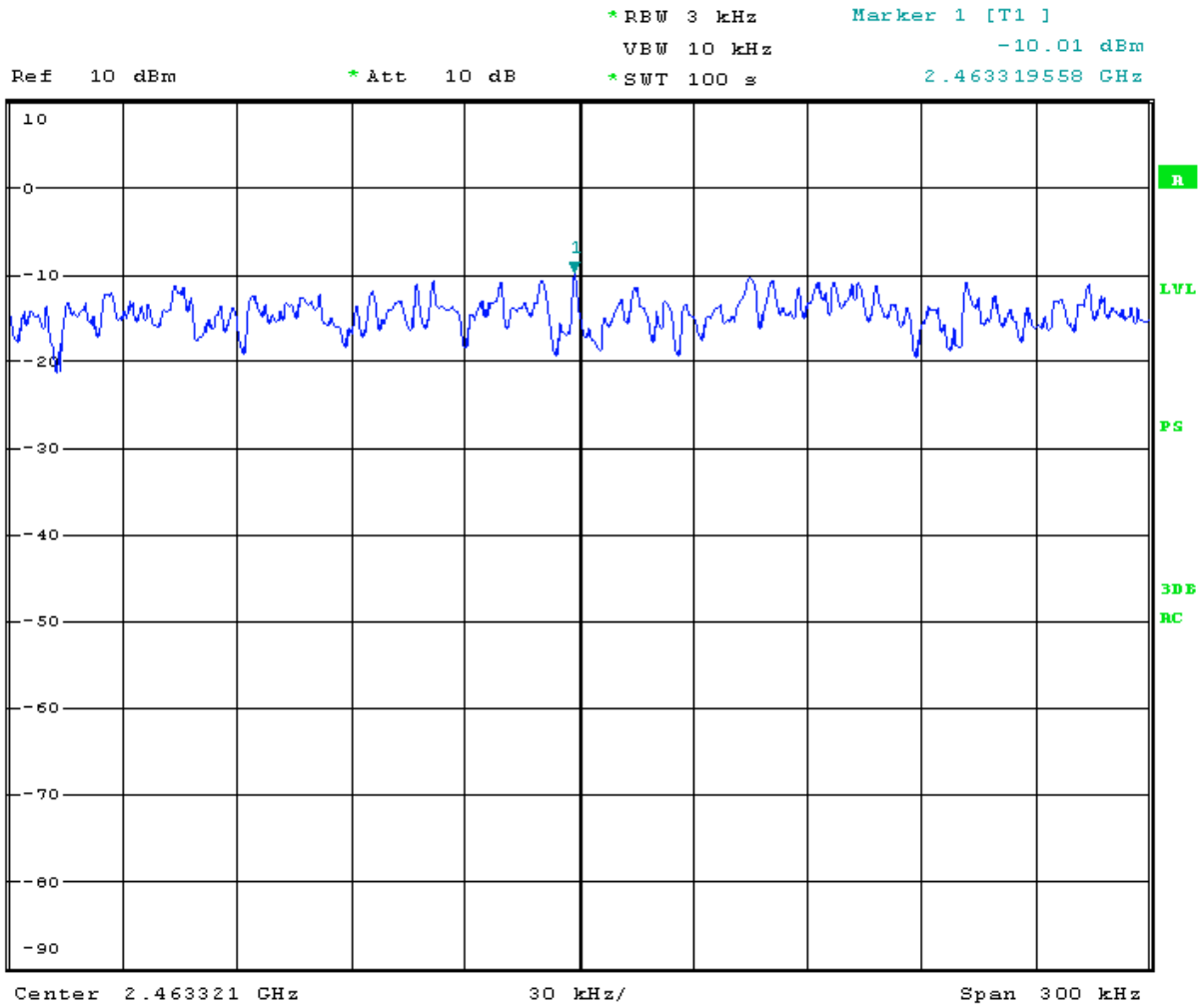
Power Spectral Density Test Plot(CH-High)



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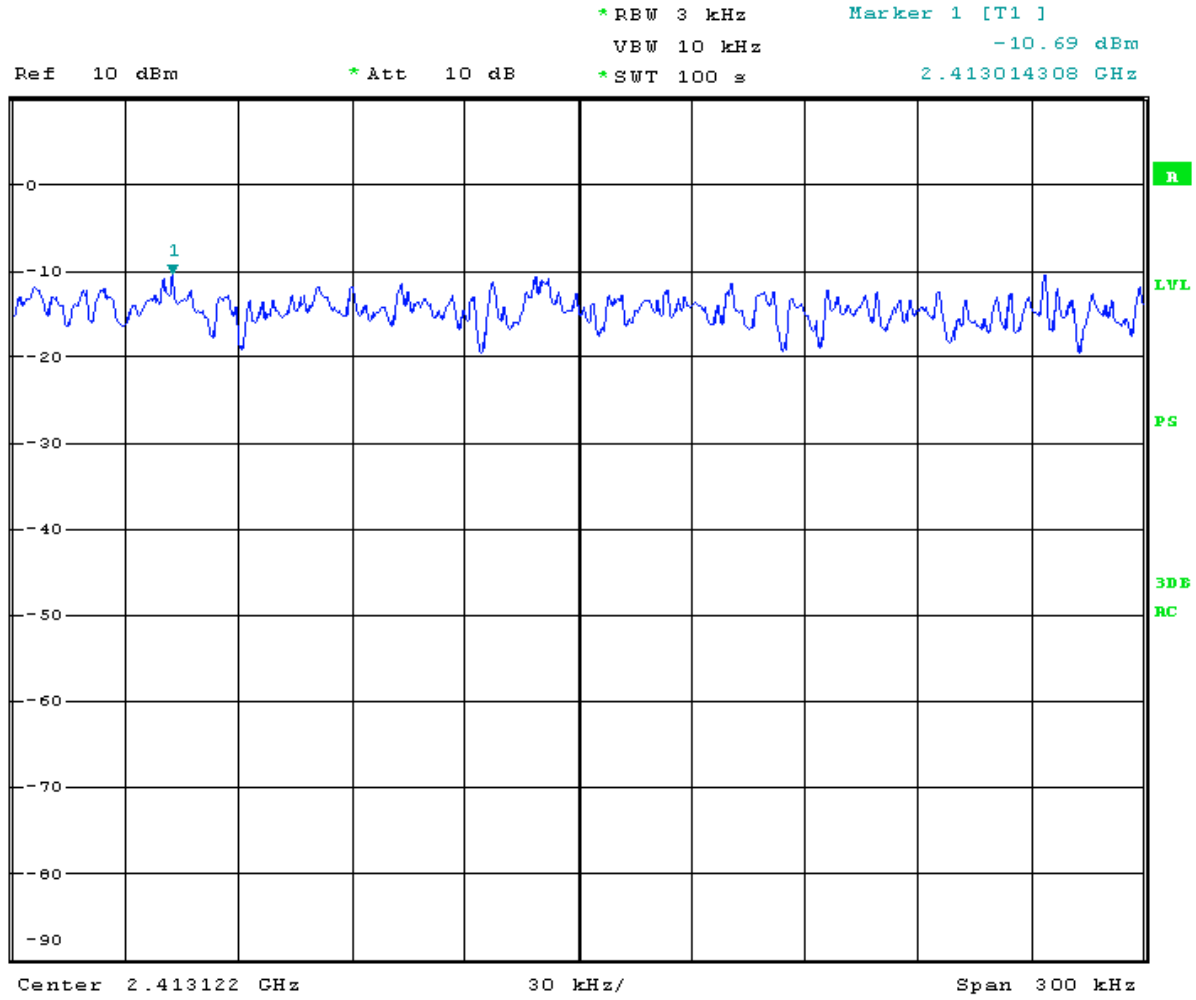
802.11n_20M 6.5M Power Spectral Density Test Plot(CH-Low)



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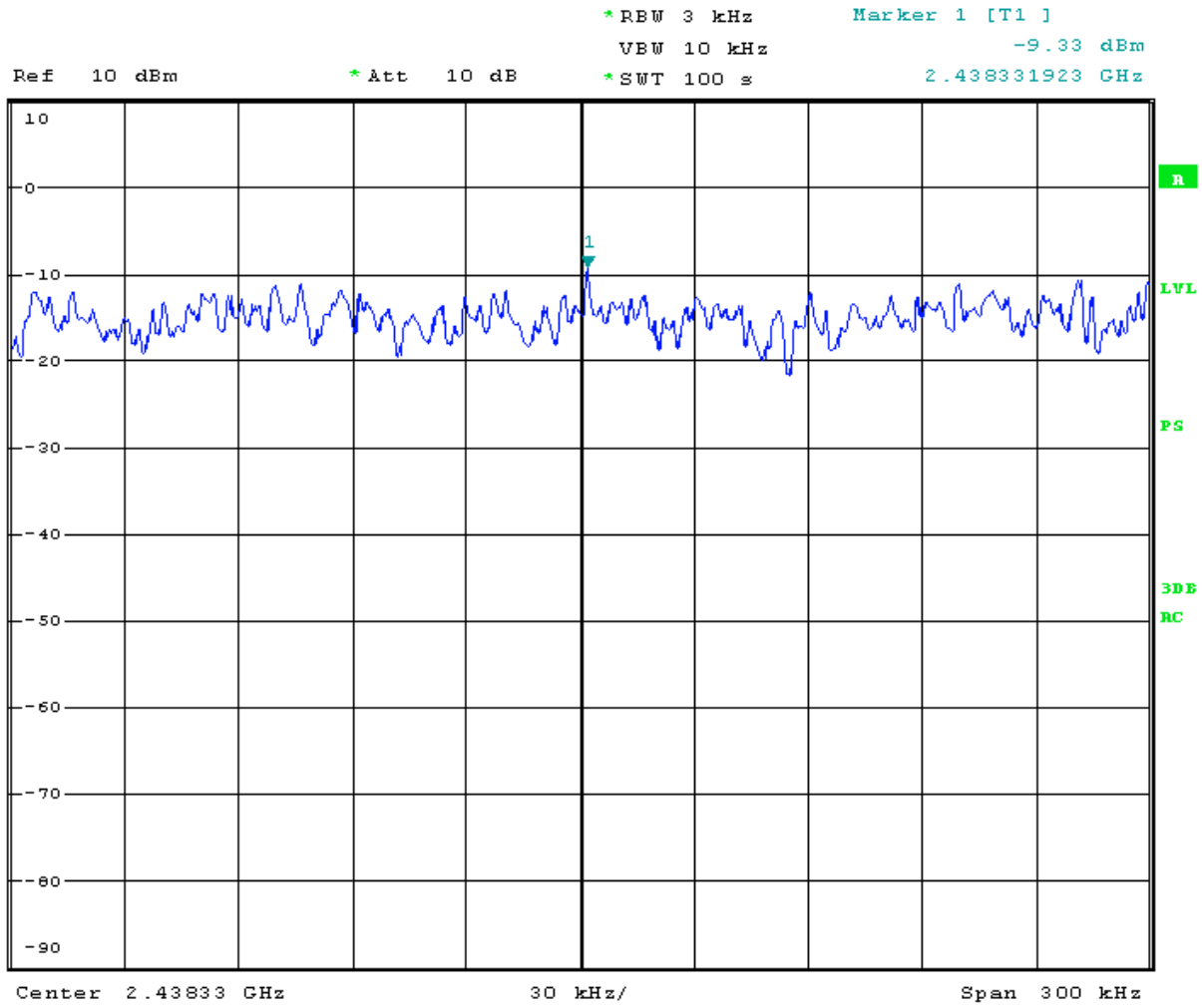
Power Spectral Density Test Plot(CH-Mid)



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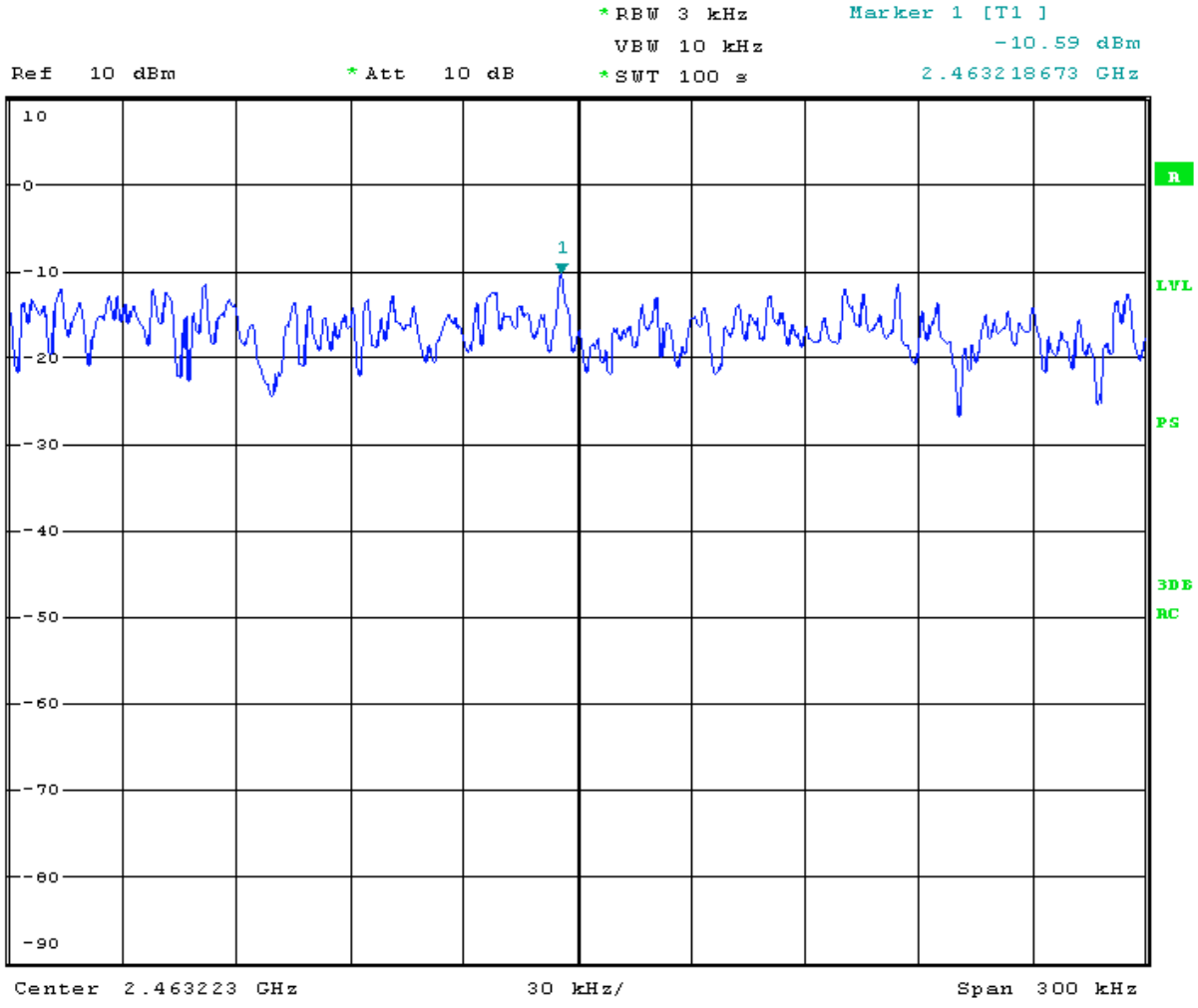
Power Spectral Density Test Plot(CH-High)



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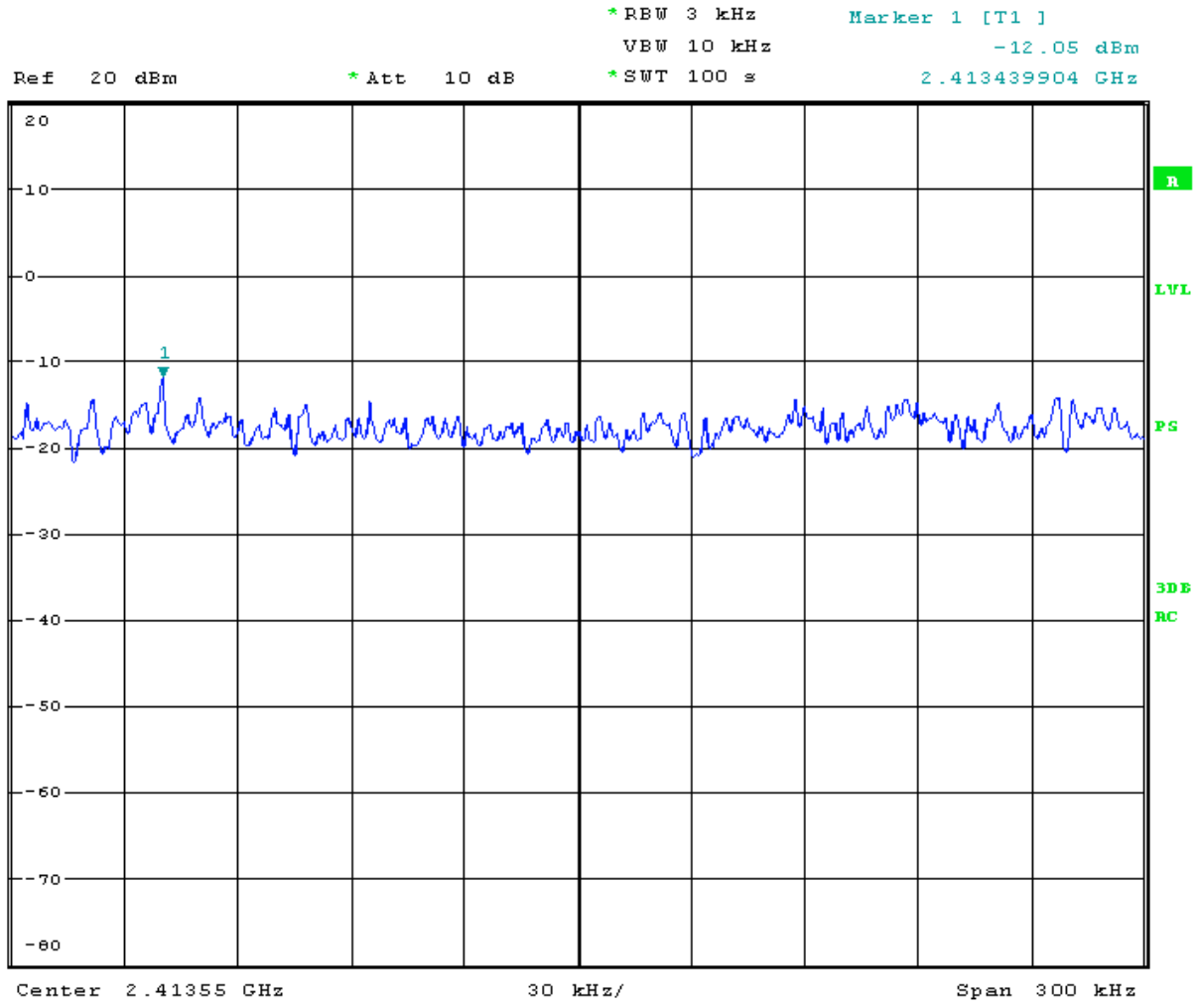
802.11n_40M 13.5M Power Spectral Density Test Plot(CH-Low)



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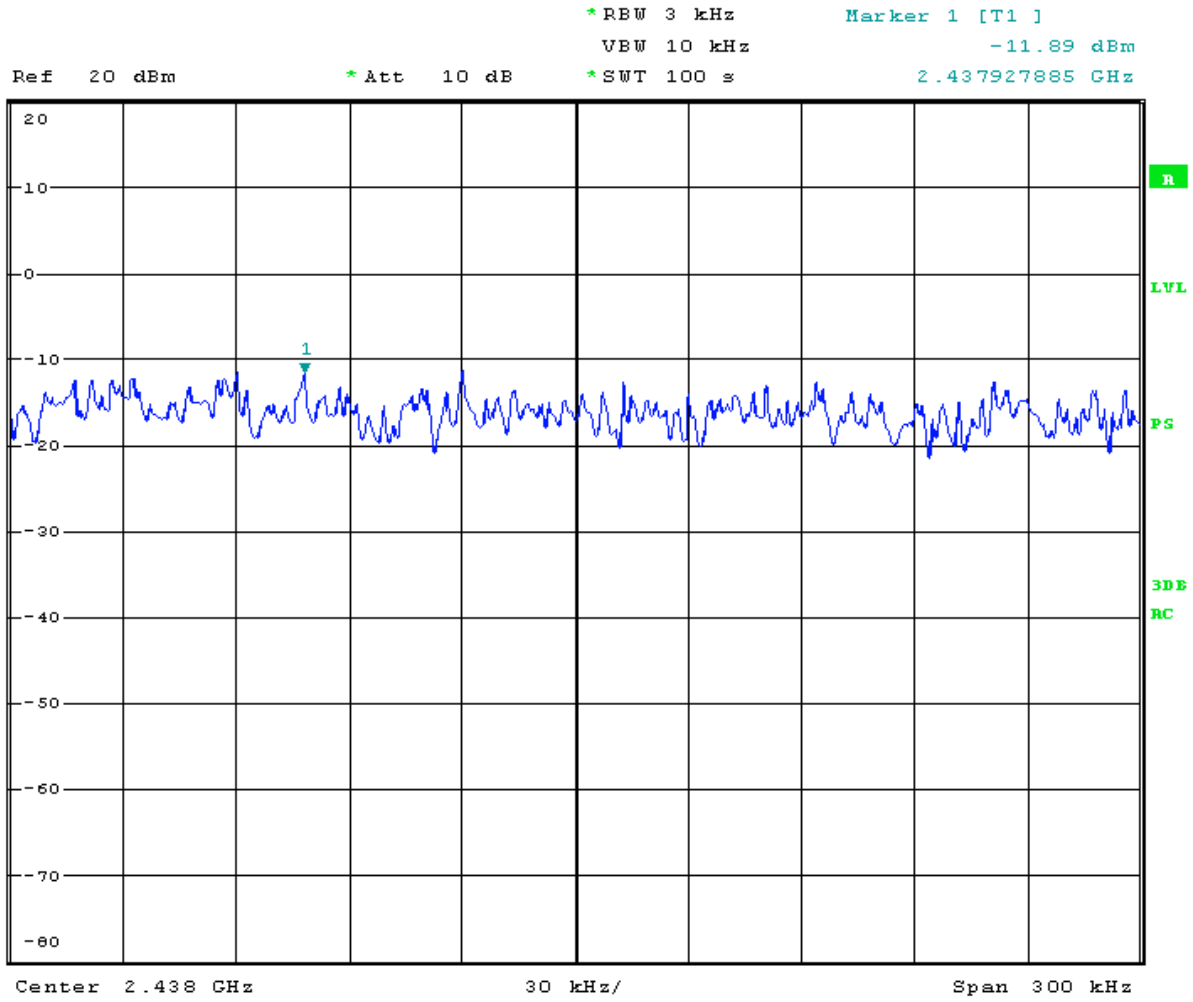
Power Spectral Density Test Plot(CH-Mid)



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Power Spectral Density Test Plot(CH-High)