

Huawei Technologies Co., Ltd.

TEST REPORT

SCOPE OF WORK

FCC TESTING—X22B-C

REPORT NUMBER

190102037SZN-003

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Huawei Technologies Co., Ltd.

Application
For
Certification

FCC ID: QIS-X22B-C**Huawei STB/Huawei BOX****Model: X22B-C, X22A-C, X22D-C, X22E-C****Brand Name: HUAWEI****2.4GHz Transceiver****Report No.: 190102037SZN-003**

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-17]

Prepared and Checked by:**Approved by:**

Rui Zhou
Project Engineer

Kidd Yang
Technical Supervisor
Date: 29 March 2019

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Intertek Testing Service Shenzhen Ltd. Longhua Branch

101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen.

Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751

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MEASUREMENT/TECHNICAL REPORT

Huawei Technologies Co., Ltd.

Model: X22B-C

Additional Model: X22A-C, X22D-C, X22E-C

FCC ID: QIS-X22B-C

This report concerns (check one) Original Grant ☒ Class II Change ☐

Equipment Type: DTS - Part 15 Digital Transmission Systems (Wi-Fi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes ☐ No ☒

If yes, defer until :
date

Company Name agrees to notify the Commission by:
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes ☐ No ☒

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-1-17] Edition] provision.

Report prepared by:

Rui Zhou
Intertek Testing Services Shenzhen Ltd. Longhua Branch
101, 201, Building B, No. 308 Wuhe Avenue,
Zhangkengjing Community, GuanHu Subdistrict,
LongHua District, Shenzhen, P.R. China.
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751

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List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

SUMMARY OF TEST RESULTS

1.0 Summary of Test results

Huawei STB/Huawei BOX

Model: X22B-C

FCC ID: QIS-X22B-C

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

EXHIBIT 2

GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a Huawei STB/Huawei BOX with WIFI function operating at 2412-2462MHz for 802.11b/g/n-HT20, 11 channels with 5MHz channel spacing and 2422-2452MHz for 802.11n-HT40. The EUT can be powered by DC 12V/1A through adapter. For more detailed features description, please refer to the user's manual.

Antenna Type: Integral antenna

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM, CCK, DQPSK, DBPSK.

Antenna Gain: Antenna 1: 0 dBi Max for 2.4G WIFI

Antenna 2: 0 dBi Max for 2.4G WIFI

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

The Model: X22A-C, X22D-C, X22E-C are the same as the Model: X22B-C in hardware aspect (circuitry and electrical, mechanical and physical construction), the only differences is the model no. for trading purpose.

Each model may have multiple configurations due to the optional interfaces. The test was based on the worst configuration (full interface configuration).

Standard interface	Optional interface
ETH, USB (rear), HDMI, DVB, DC, 11ac 2*2 wifi, BT 4.2	SPDIF, Mini AV, WPS, Micro SD, Reset, USB (Side)

The Huawei STB/Huawei BOX, Model: X22B-C has three designing schemes. It would be placed on the market with three different adapters, Partly tests are required to both designing schemes, and show the worst case in report.

Adapter	Model	Manufacture	Electrical parameters
Adapter 1	HW-120100U0W	Shenzhen TOPOW Electronics Co.,Ltd.	Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 12V 1A
Adapter 2	HW-120100U0W	Shenzhen Huntkey Electronic Co.,Ltd.	Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 12V 1A
Adapter 3	HW-120100U0W	Dongguan Phitek Electronics Co.,Ltd.	Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 12V 1A

2.2 Related Submittal(s) Grants

This is an application for certification of DTS- Part 15 Digital Transmission Systems (2.4GHz Wi-Fi transmitter portion).

For the BT classic function was tested and demonstrated in report 190102037SZN-001.

For the BT BLE function was tested and demonstrated in report 190102037SZN-002.

For the 5GHz WiFi function was tested and demonstrated in report 190102037SZN-004.

For other functions were reported in the SDOC report: 190102036SZN-001.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10: 2013 and KDB 558074 D01 v05. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 1F/2F, Building B, QiaoAn Scientific Technology Park, Shangheng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: CN1188).

EXHIBIT 3

SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by DC 12V/1A through adapter and the adapter was powered by AC 120V, 60Hz during the test, only the worst data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

The rear of unit was flushed with the rear of the table.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

3.3 Special Accessories

N/A.

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by Huawei Technologies Co., Ltd. Will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

3.6 Support Equipment List and Description

Refer List:

Description	Manufacturer	Model No.
Laptop (Provided by Intertek)	Lenovo	T420
Test TV (Provided by Intertek)	SONY	KDL-24EX520
Wireless Route (Provided by Intertek)	NETGEAR	R7800
USB Memory (Provided by Intertek)	SanDisk	SDCZ36-002G-P36
Optical cable (Provided by Intertek)	/	unshielded, 130cm
Dummy Load (Provided by Intertek)	/	/
HDMI Cable (Provided by Applicant)	/	unshielded, 150cm
AV out Cable (Provided by Applicant)	/	unshielded, 150cm
RJ45 Cable (Provided by Applicant)	/	unshielded, 150cm
Remote control	/	/

EXHIBIT 4

MEASUREMENT RESULTS

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 18, 2019

Model: X22B-C

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna power of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm). 2.4G band Ant gain: 0 dBi. In MIMO (2Tx), Ant1+Ant2 Directional gain = $G_{ANT} + 10 \log(N)$ dBi = $0 + 10 \log(2) = 3.0$ dBi < 6 dBi, so the Power limit is 30.0dBm(1W) for conducted TX power.

SISO Mode, Ant1:

IEEE 802.11b (Antenna Gain = 0dBi) (1Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	18.51	70.96
Middle Channel: 2437	18.14	65.16
High Channel: 2462	18.75	74.99

IEEE 802.11g (Antenna Gain = 0dBi) (6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	23.91	246.04
Middle Channel: 2437	23.83	241.55
High Channel: 2462	24.22	264.24

IEEE 802.11n-HT20 (Antenna Gain = 0dBi) (6.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	23.48	222.84
Middle Channel: 2437	23.95	248.31
High Channel: 2462	23.68	233.35

IEEE 802.11n-HT40 (Antenna Gain = 0dBi) (13.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2422	23.78	238.78
Middle Channel: 2437	23.73	236.05
High Channel: 2452	23.50	223.87

SISO Mode, Ant2:

IEEE 802.11b (Antenna Gain = 0dBi) (1Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	19.56	90.36
Middle Channel: 2437	20.06	101.39
High Channel: 2462	20.25	105.93

IEEE 802.11g (Antenna Gain = 0dBi) (6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	24.38	274.16
Middle Channel: 2437	24.33	271.02
High Channel: 2462	24.49	281.20

IEEE 802.11n-HT20 (Antenna Gain = 0dBi) (6.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	23.86	243.22
Middle Channel: 2437	24.28	267.92
High Channel: 2462	24.73	297.17

IEEE 802.11n-HT40 (Antenna Gain = 0dBi) (13.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2422	24.25	266.07
Middle Channel: 2437	24.29	268.53
High Channel: 2452	24.36	272.89

MIMO Mode:

IEEE 802.11n-HT20 (MIMO, Antenna Gain = 3dBi) (6.5Mbps)				
Frequency (MHz)	Output in dBm (Peak Reading)			Total Output in mWatt
	Ant 1	Ant 2	Total	
Low Channel: 2412	22.16	22.62	25.41	347.53
Middle Channel: 2437	22.57	22.88	25.74	374.97
High Channel: 2462	22.68	22.55	25.62	364.75

IEEE 802.11n-HT40 (MIMO, Antenna Gain = 3dBi) (13.5Mbps)				
Frequency (MHz)	Output in dBm (Peak Reading)			Total Output in mWatt
	Ant 1	Ant 2	Total	
Low Channel: 2422	22.23	22.32	25.29	338.06
Middle Channel: 2437	22.37	22.52	25.46	351.56
High Channel: 2452	22.38	22.83	25.57	360.58

Cable loss: 1.4 dB(ANT 1), 1.2 dB(ANT 2) External Attenuation: 0 dB
Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 25.74 dBm

For RF Exposure, the information is saved with filename: RF exposure.pdf.

Applicant: Huawei Technologies Co., Ltd.
Date of Test: January 18, 2019

Model: X22B-C

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074 D01 v05. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

SISO Mode, Ant1:

IEEE 802.11b (1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	9.074
2437	9.508
2462	9.551

IEEE 802.11g (6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.368
2437	16.324
2462	16.324

IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.323
2437	17.279
2462	17.106

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.035
2437	36.295
2452	36.295

SISO Mode, Ant2:

IEEE 802.11b (1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	9.551
2437	9.551
2462	9.986

IEEE 802.11g (6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.324
2437	16.324
2462	16.324

IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.323
2437	17.019
2462	17.323

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.295
2437	36.035
2452	36.035

MIMO Mode, Ant1:

IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.279
2437	17.062
2462	17.062

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.295
2437	36.295
2452	36.295

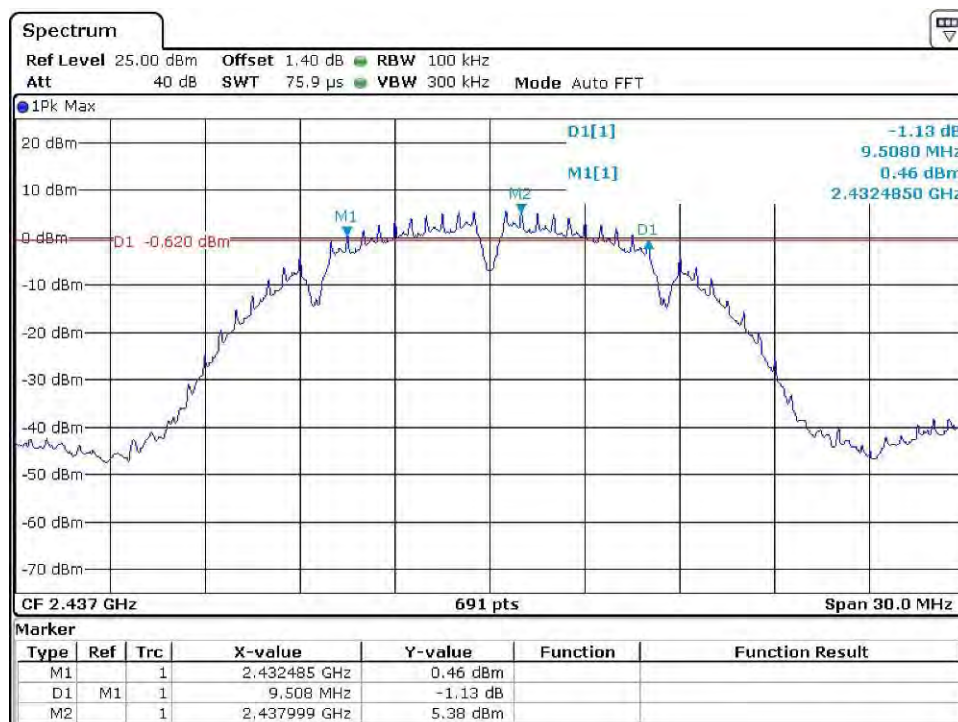
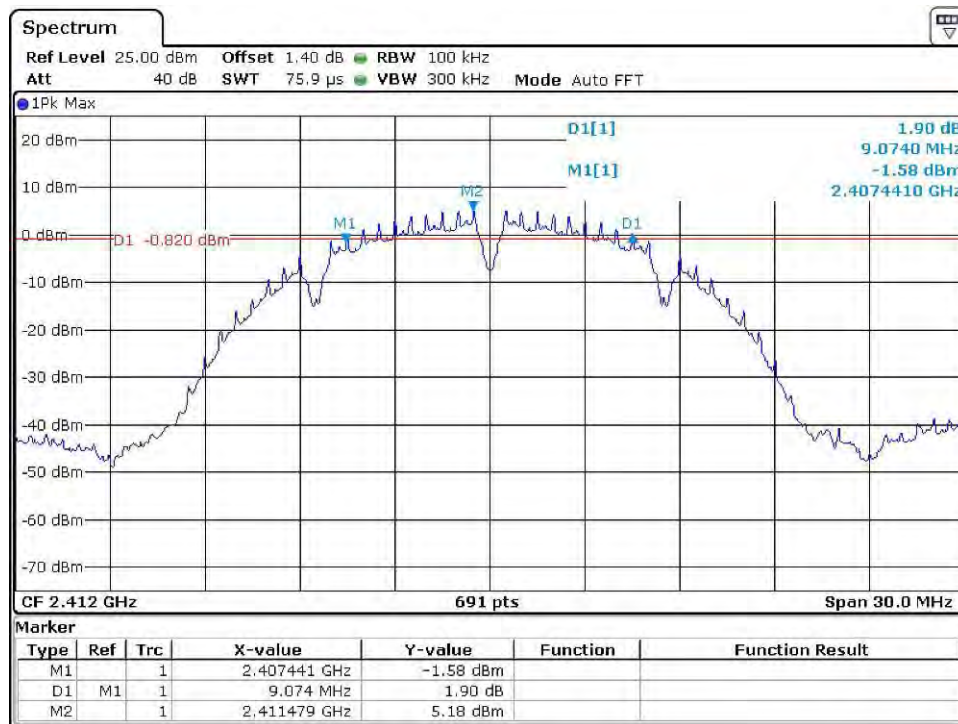
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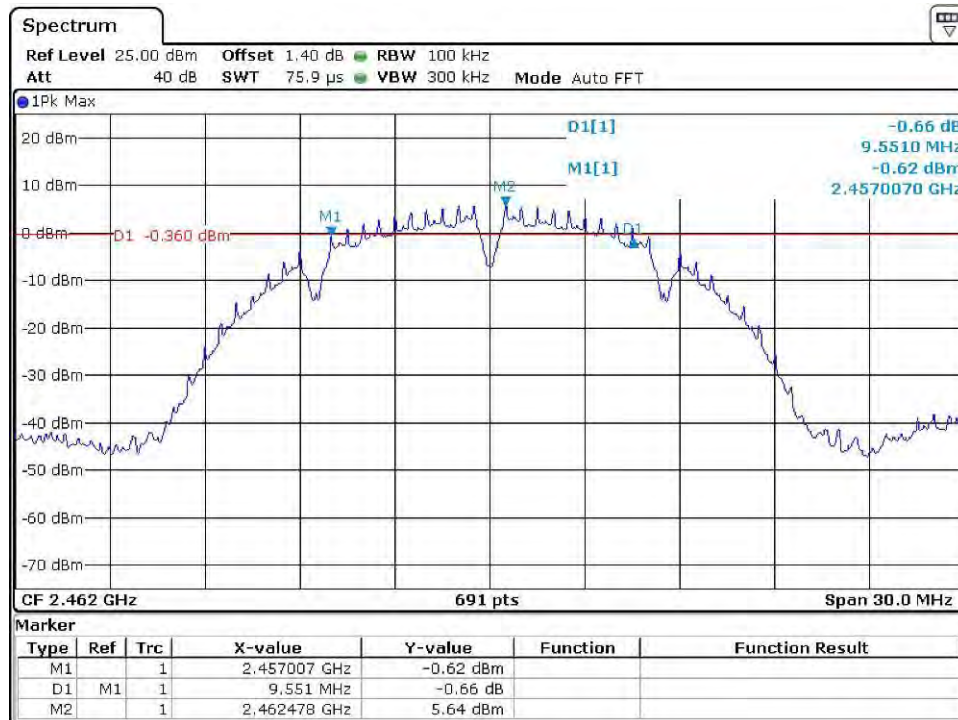
IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.323
2437	17.019
2462	17.279

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.035
2437	35.035
2452	36.122

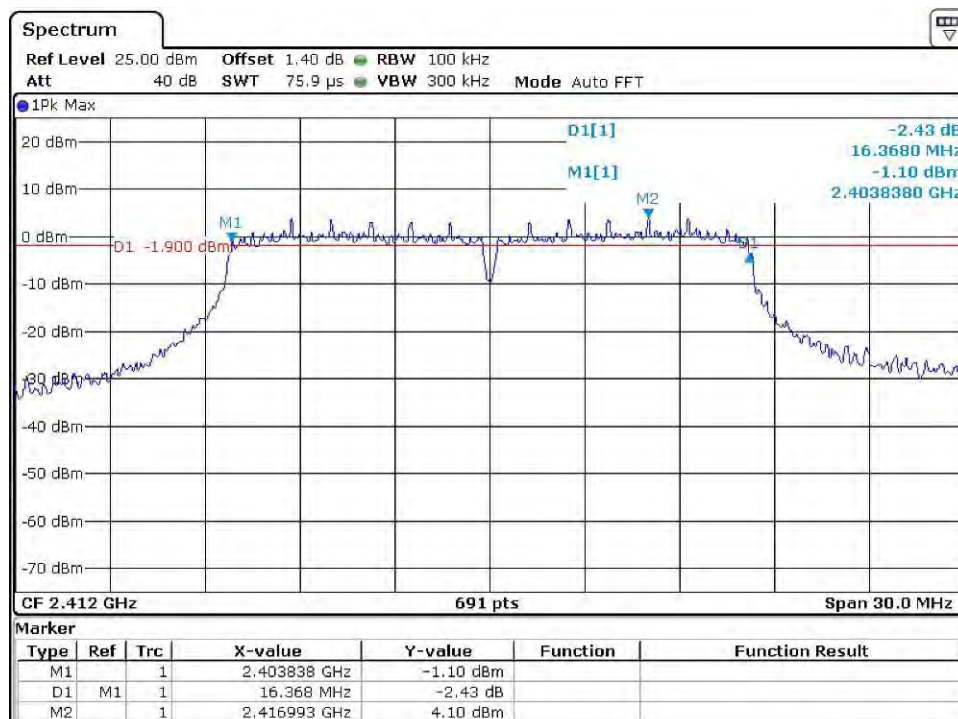
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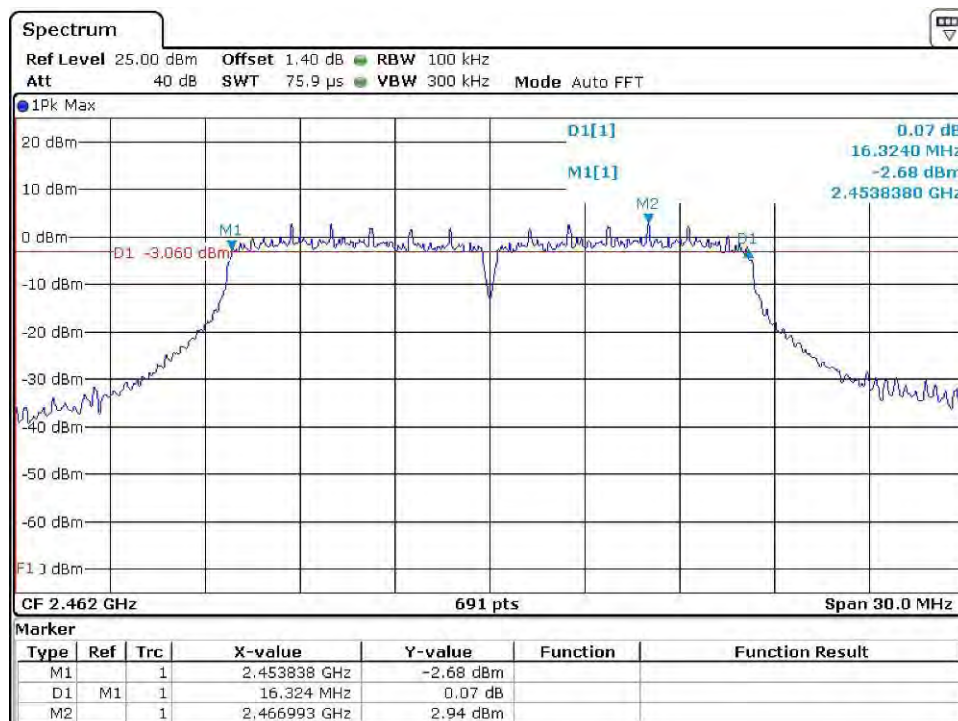
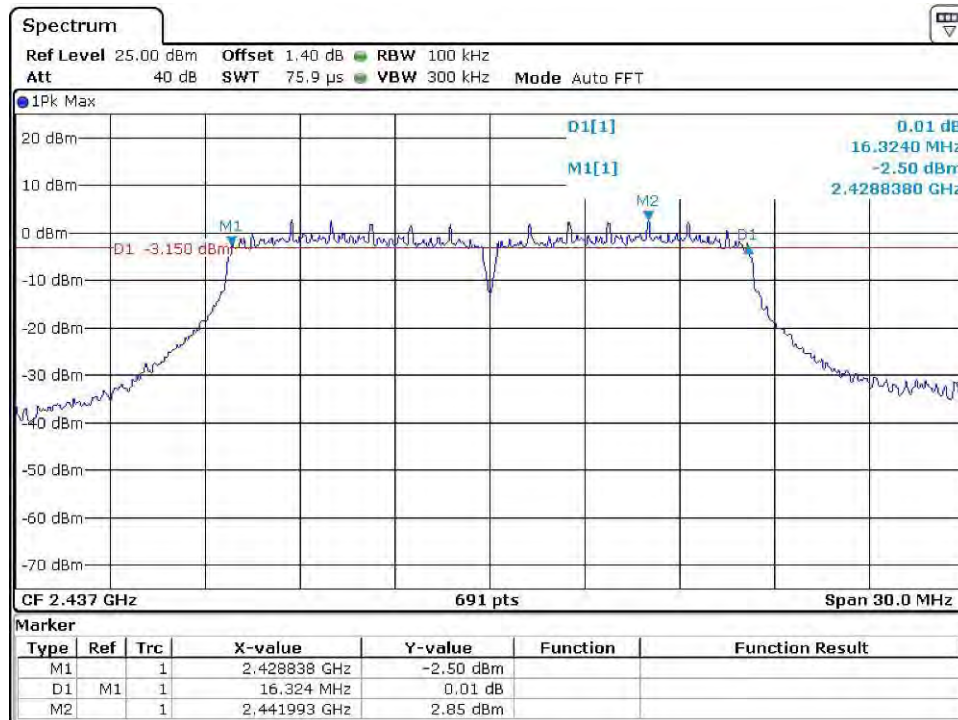
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802.11b



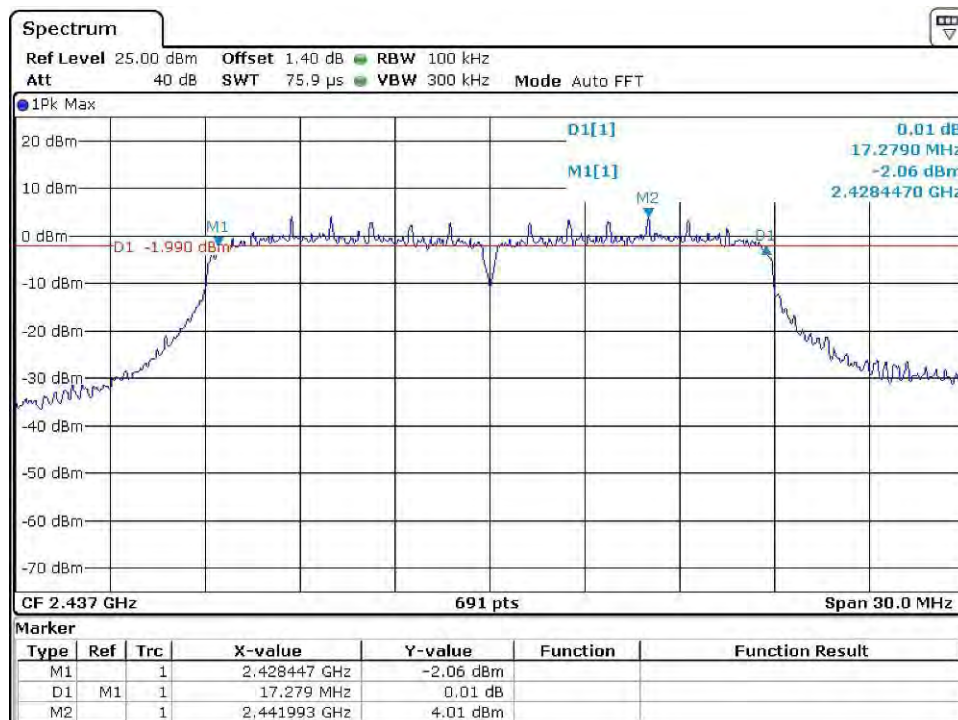
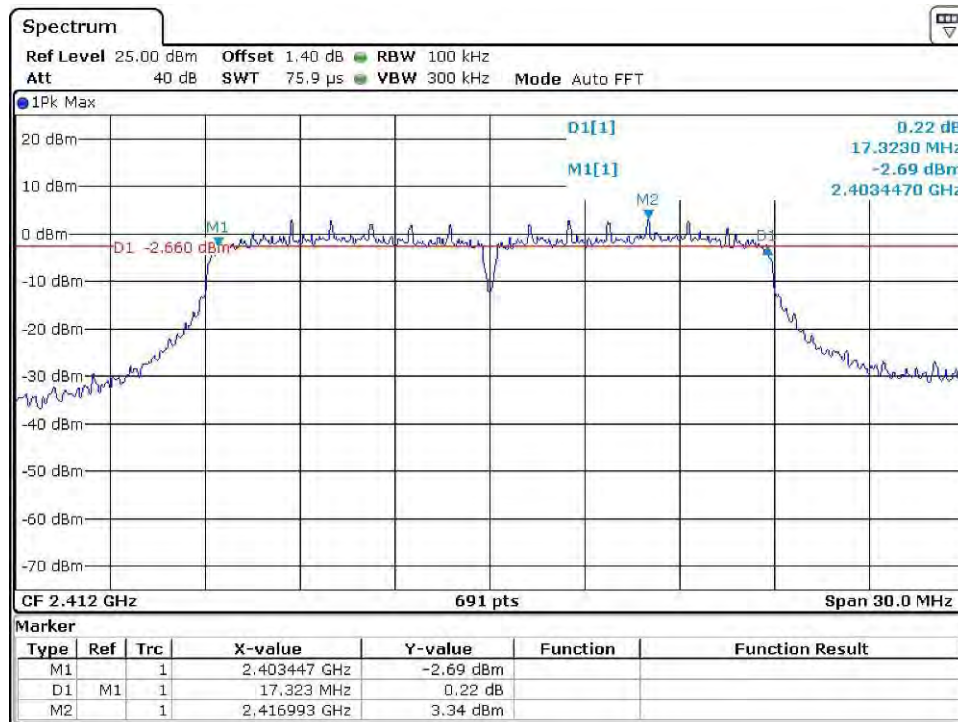


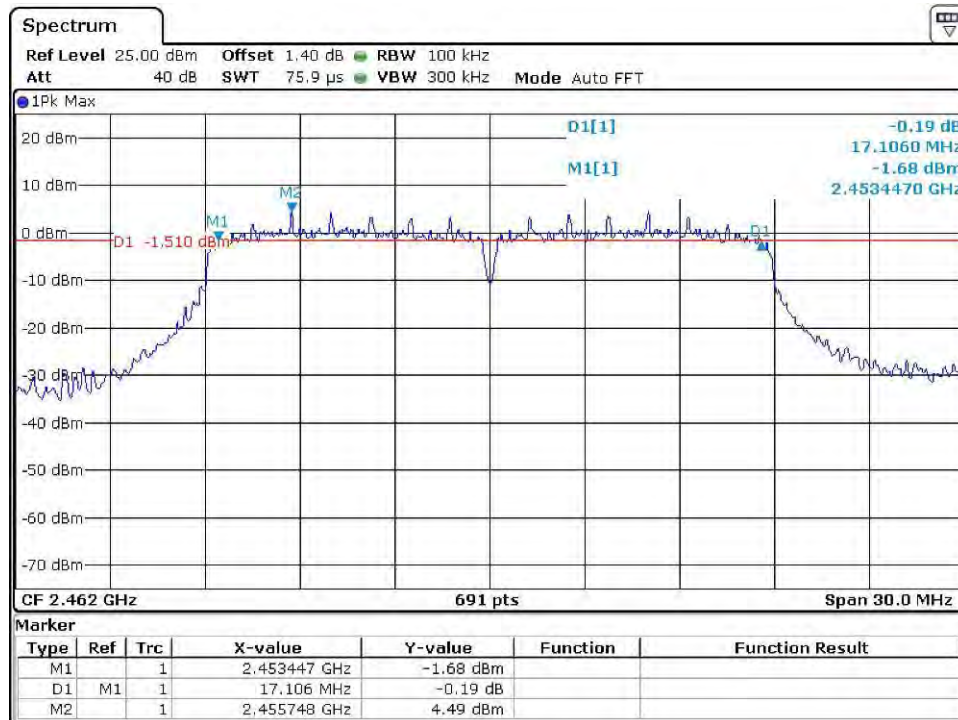
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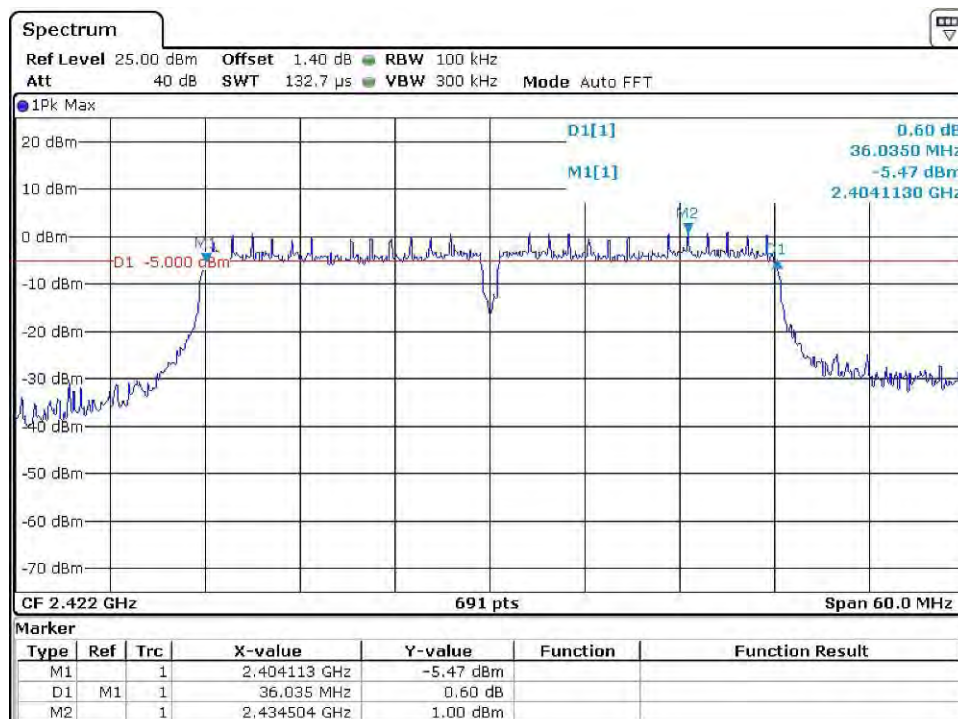


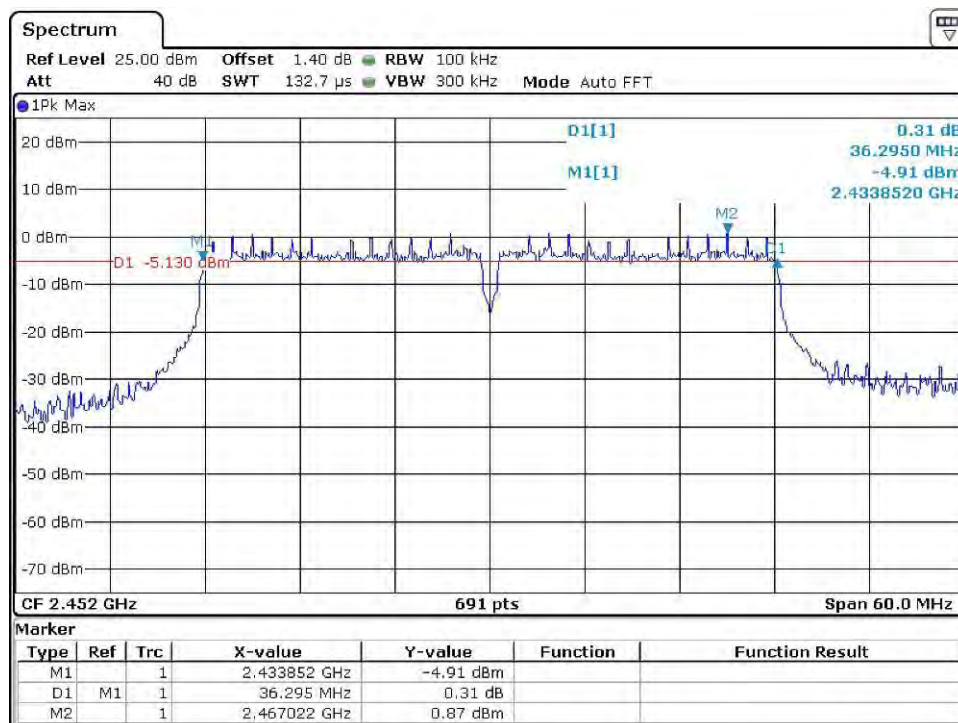
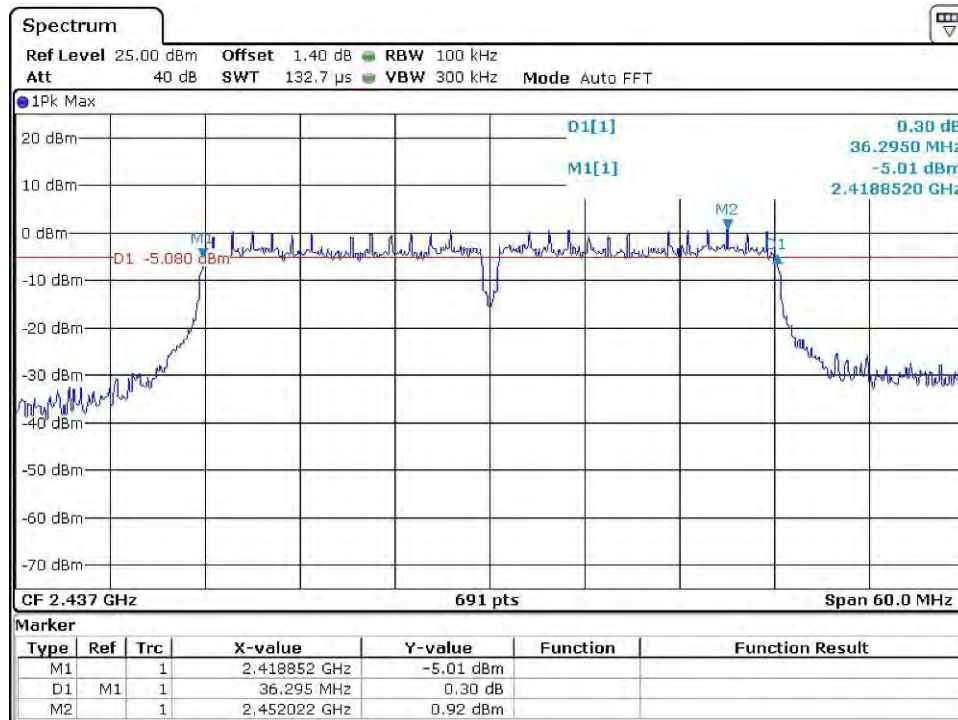
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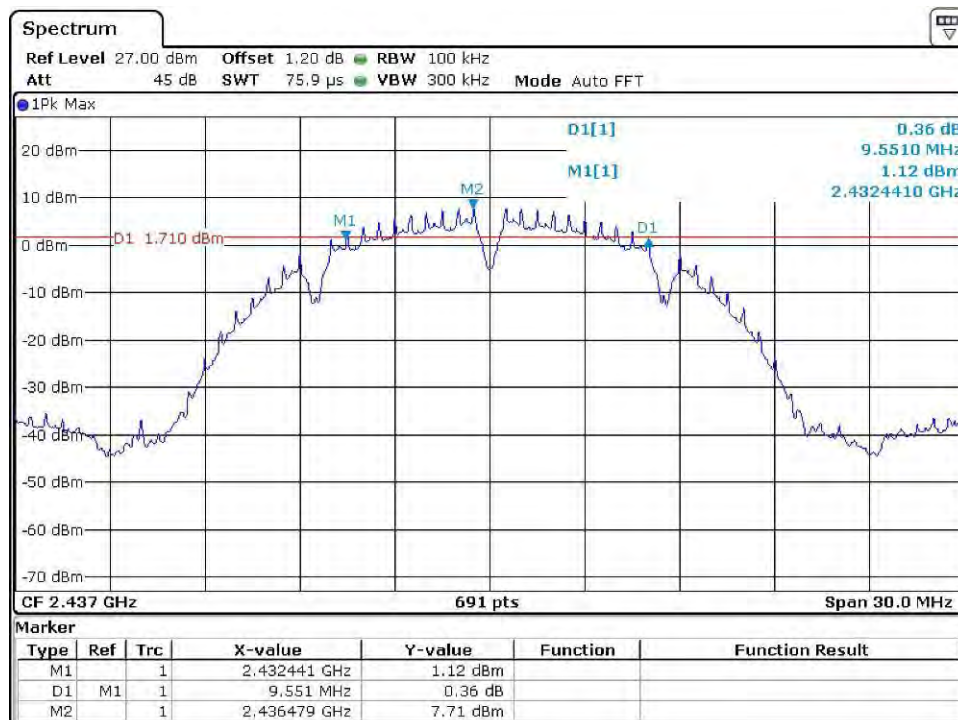
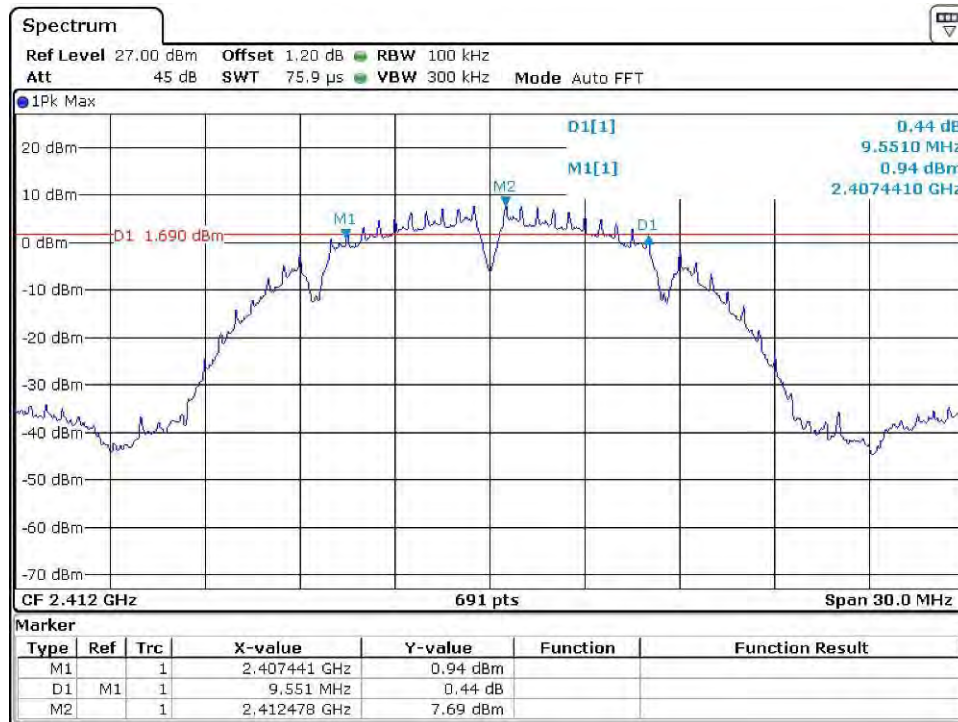


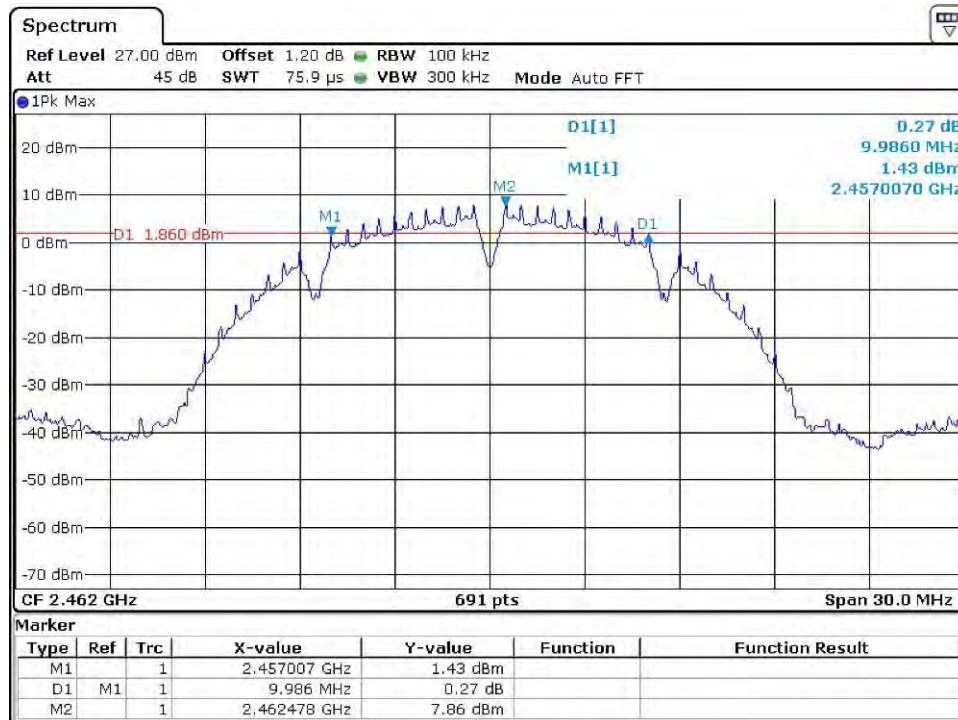
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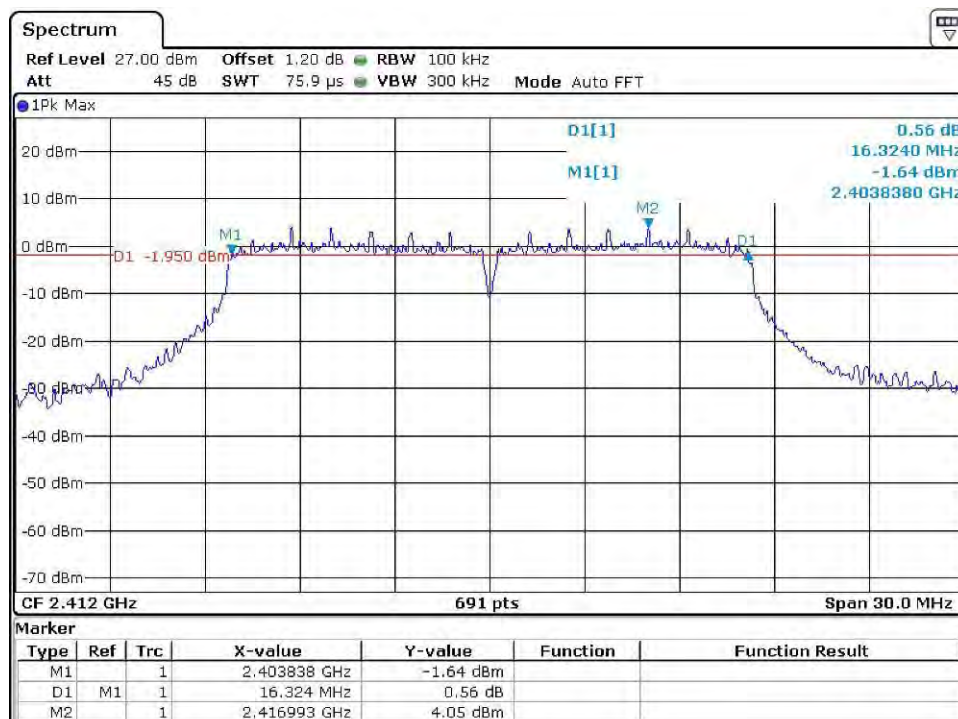


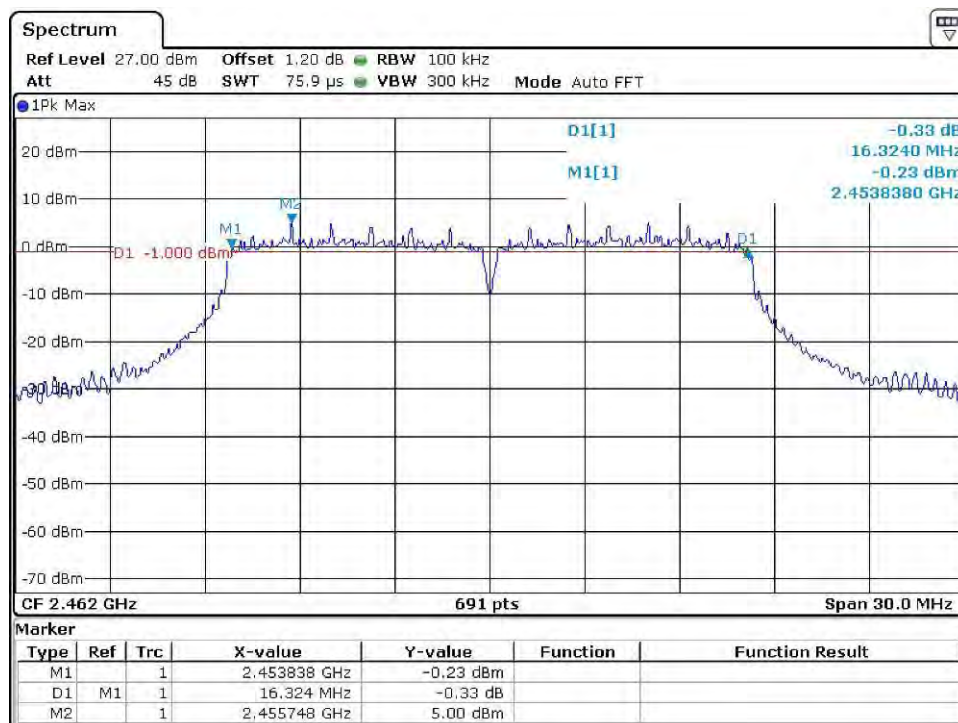
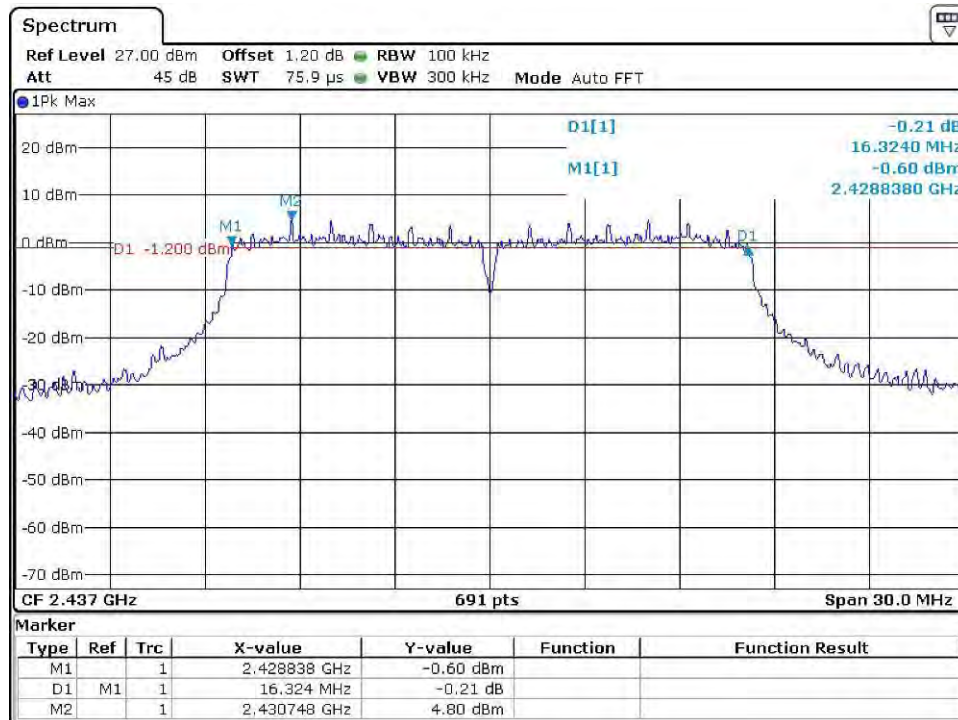
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802.11b



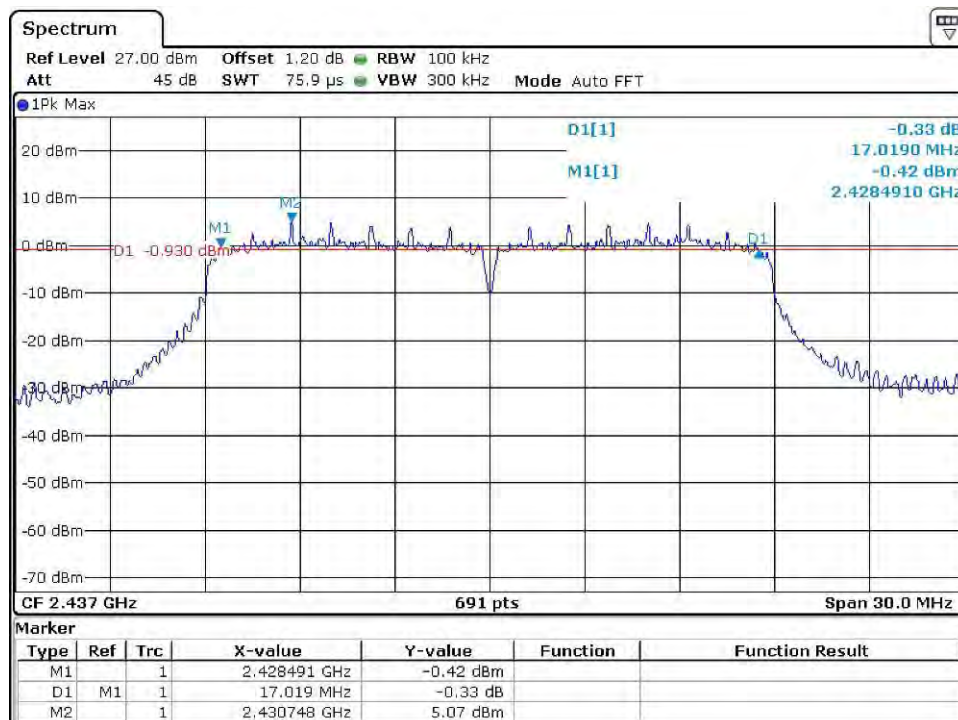
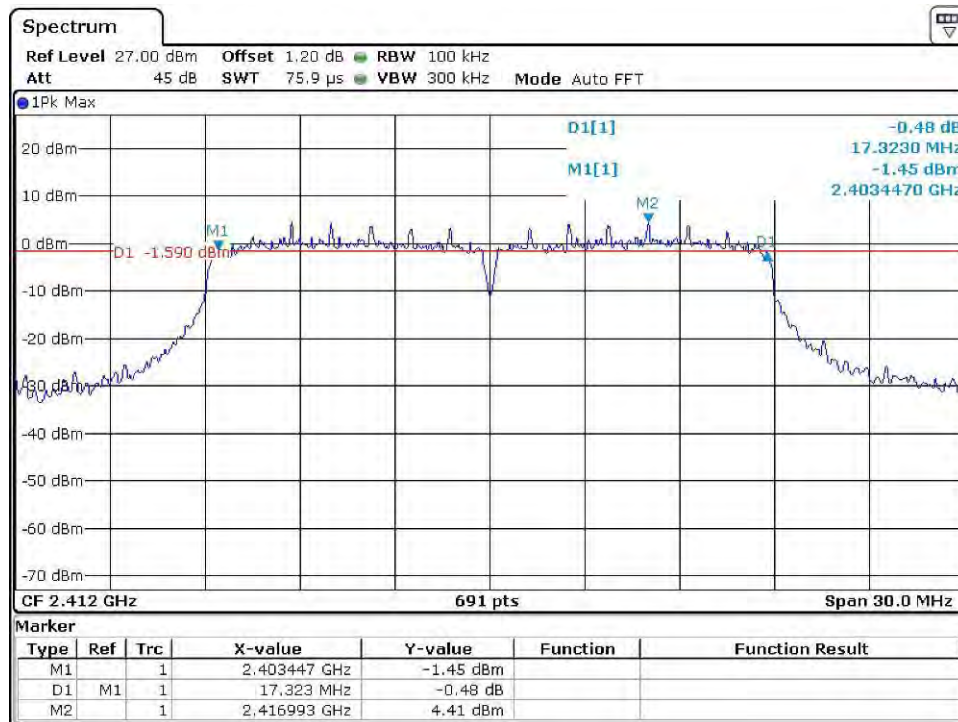


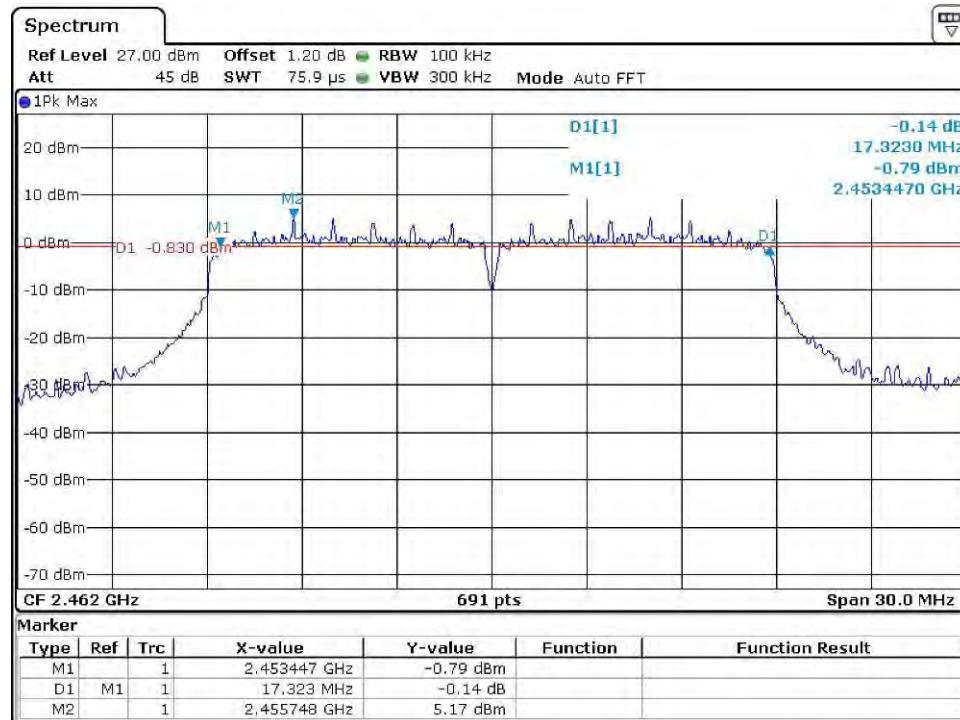
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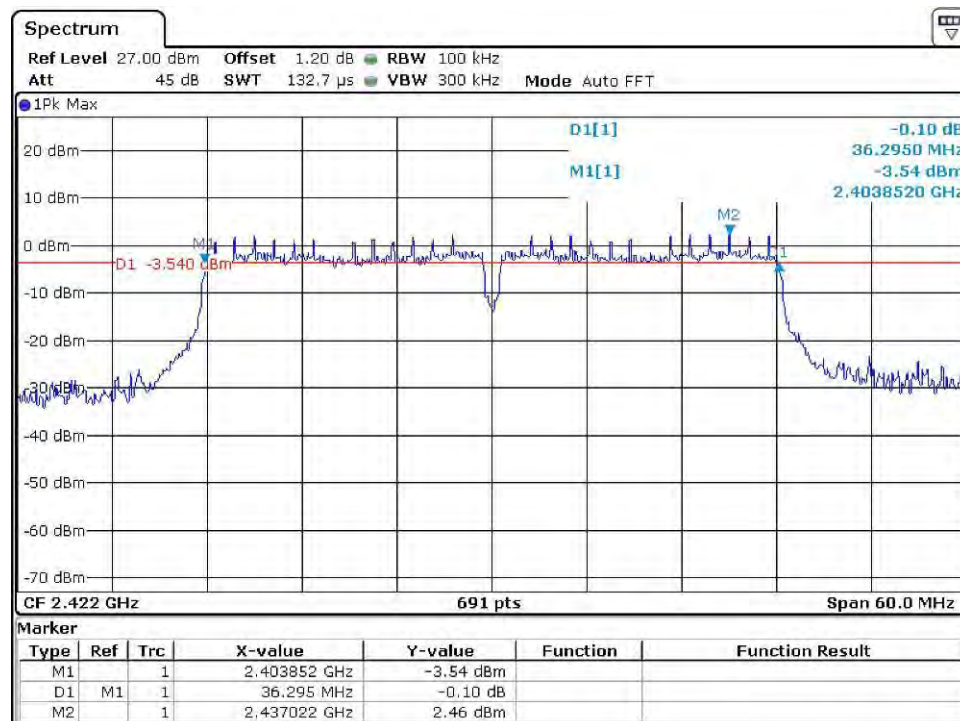


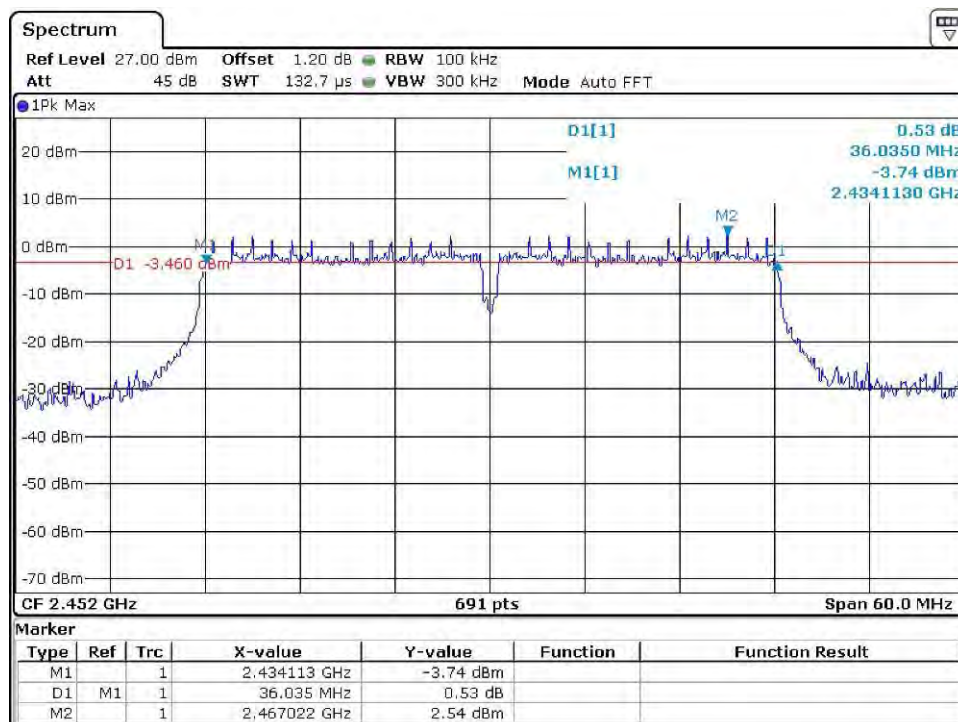
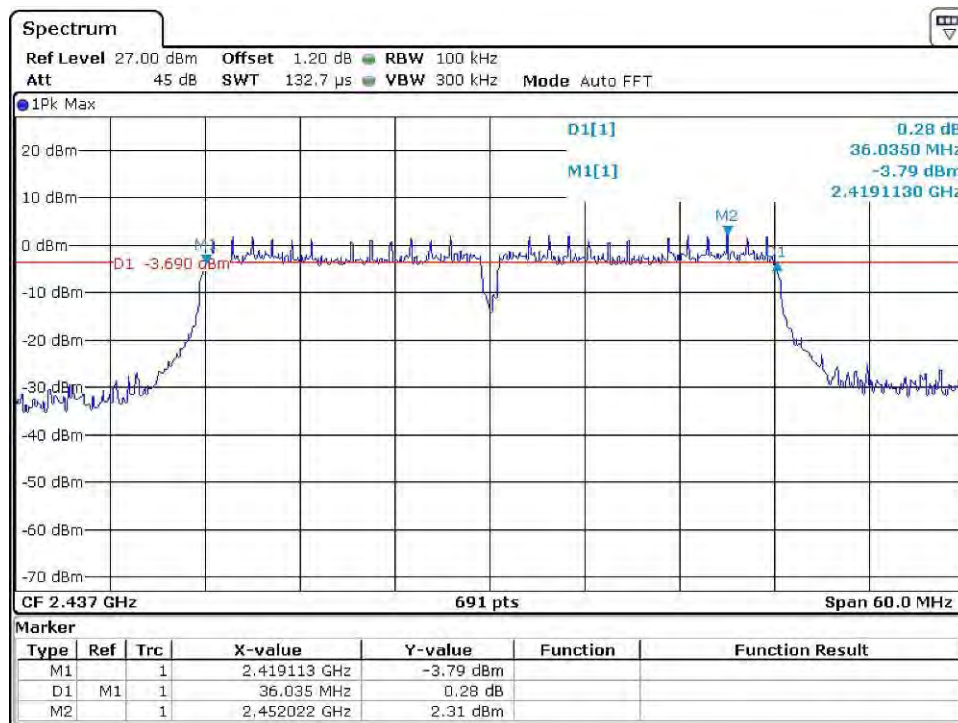
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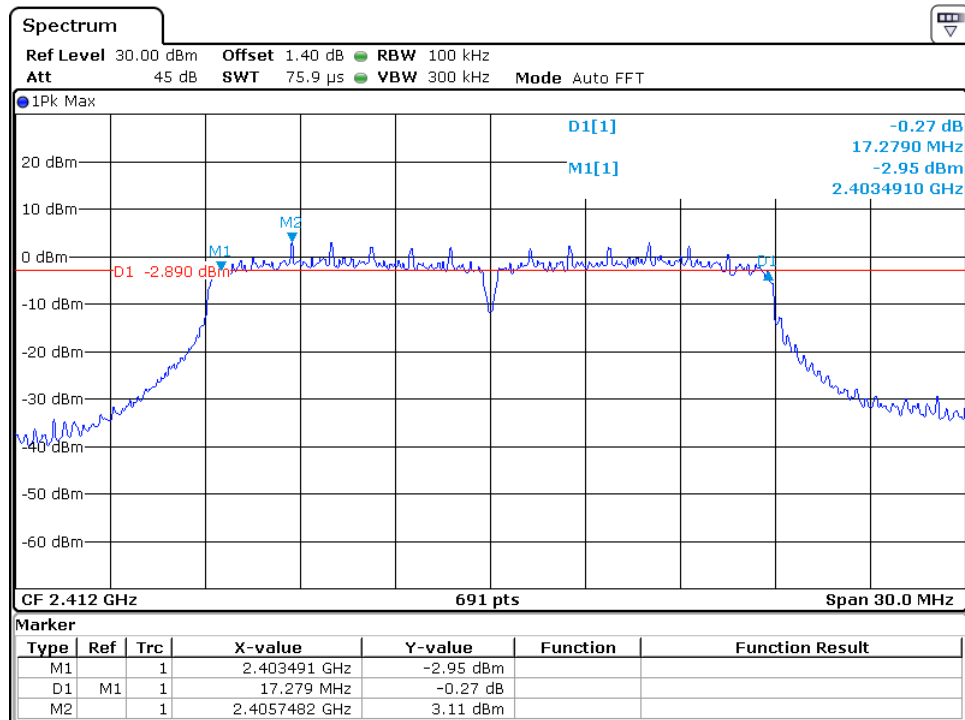


802.11n-HT40

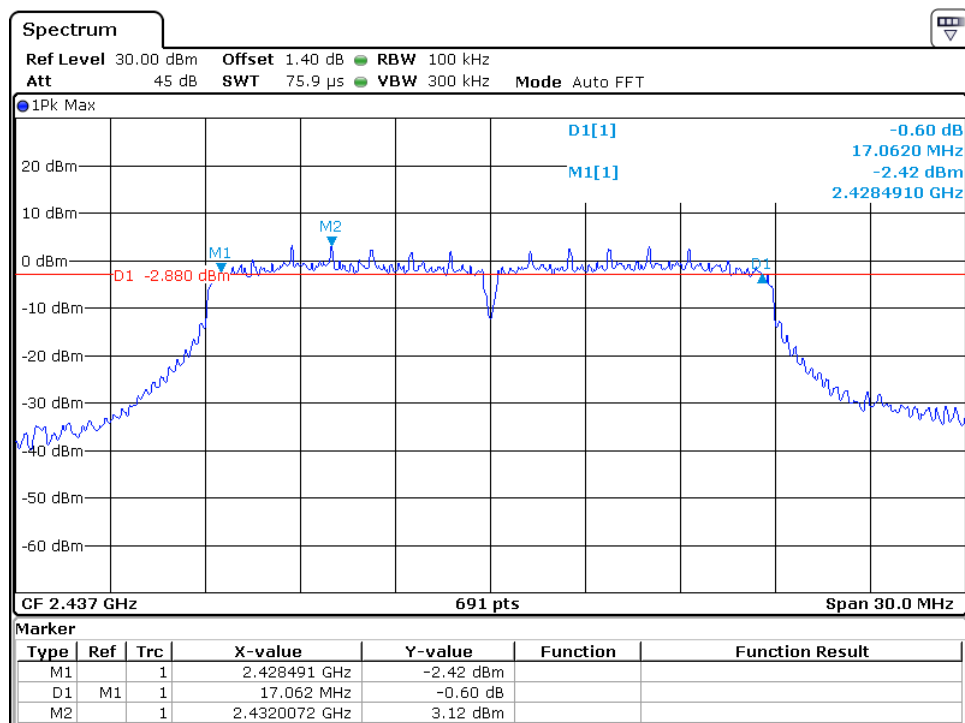




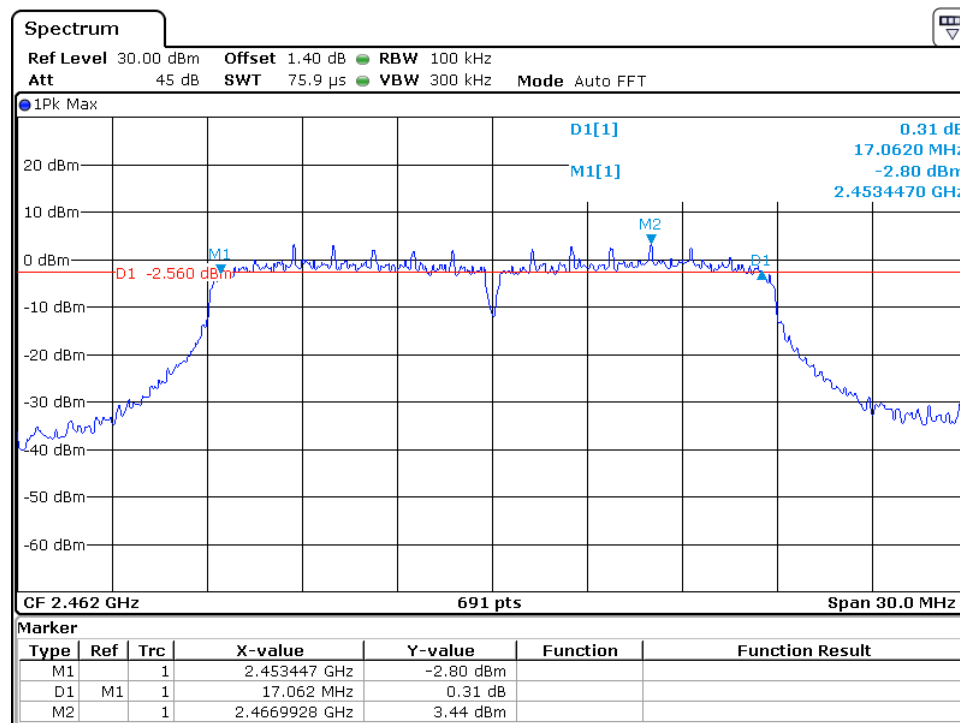
MIMO Mode, Ant1:
802.11n-HT20



Date: 21.JAN 2019 13:29:44

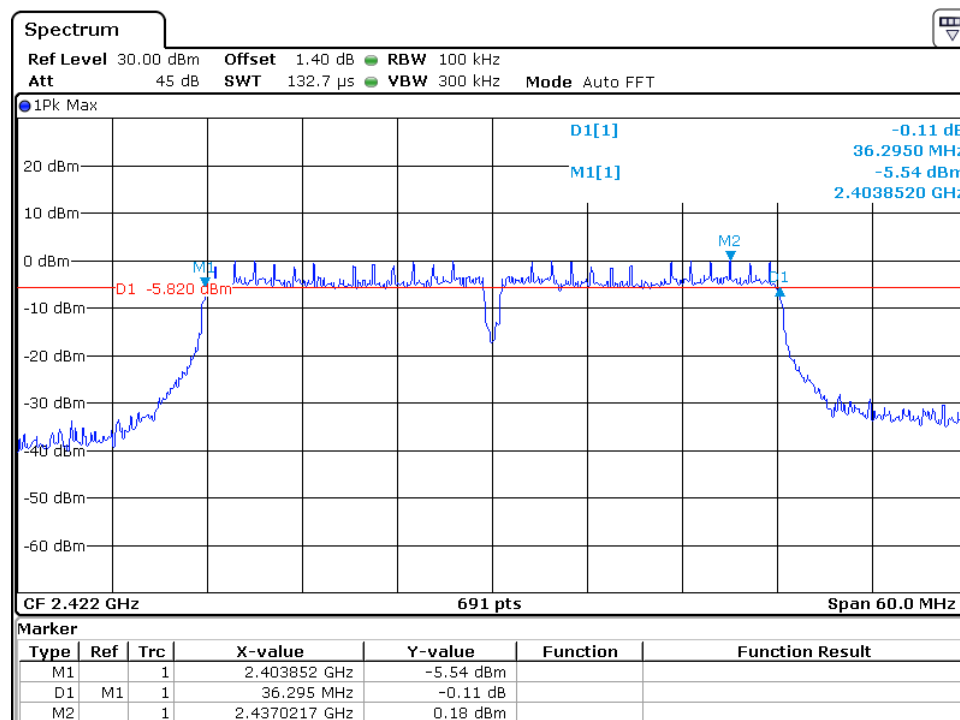


Date: 21.JAN 2019 13:33:54

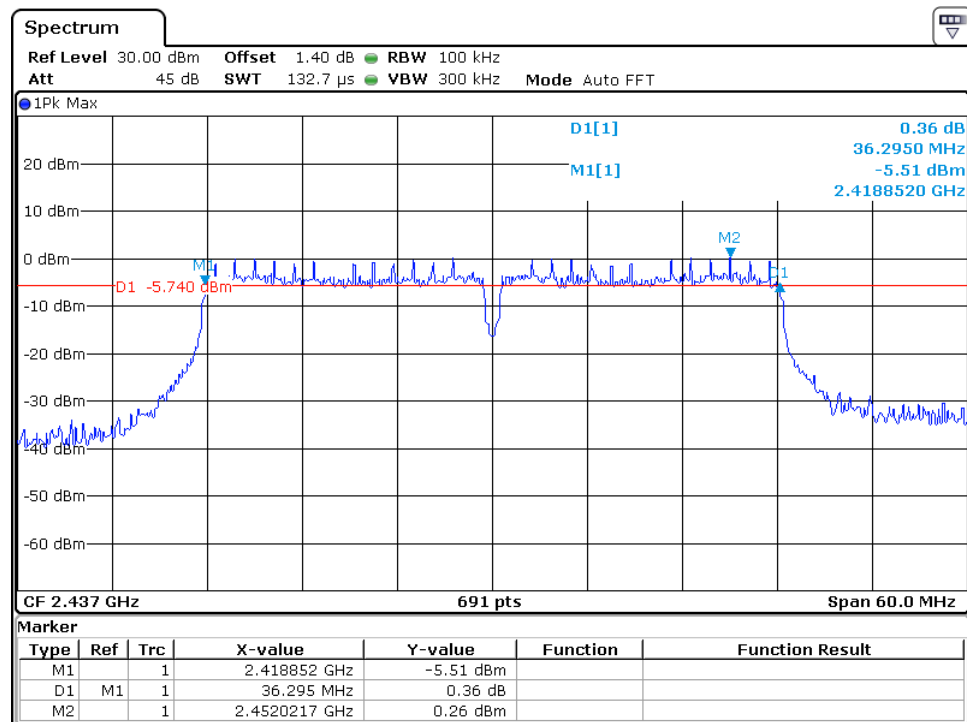


Date: 21.JAN.2019 13:37:17

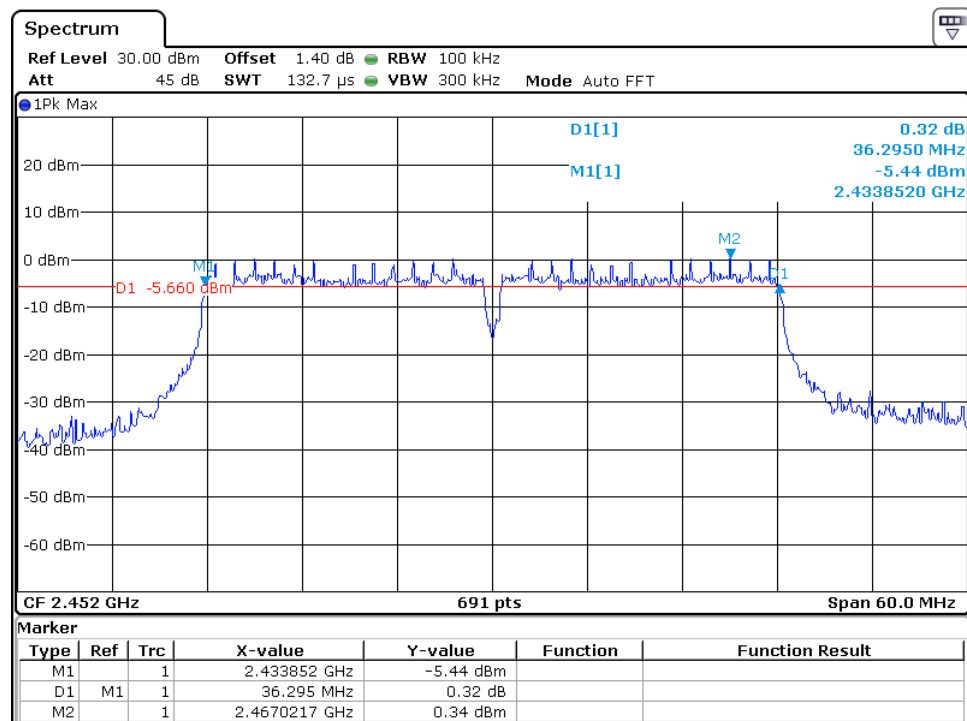
802.11n-HT40



Date: 21.JAN.2019 13:42:00

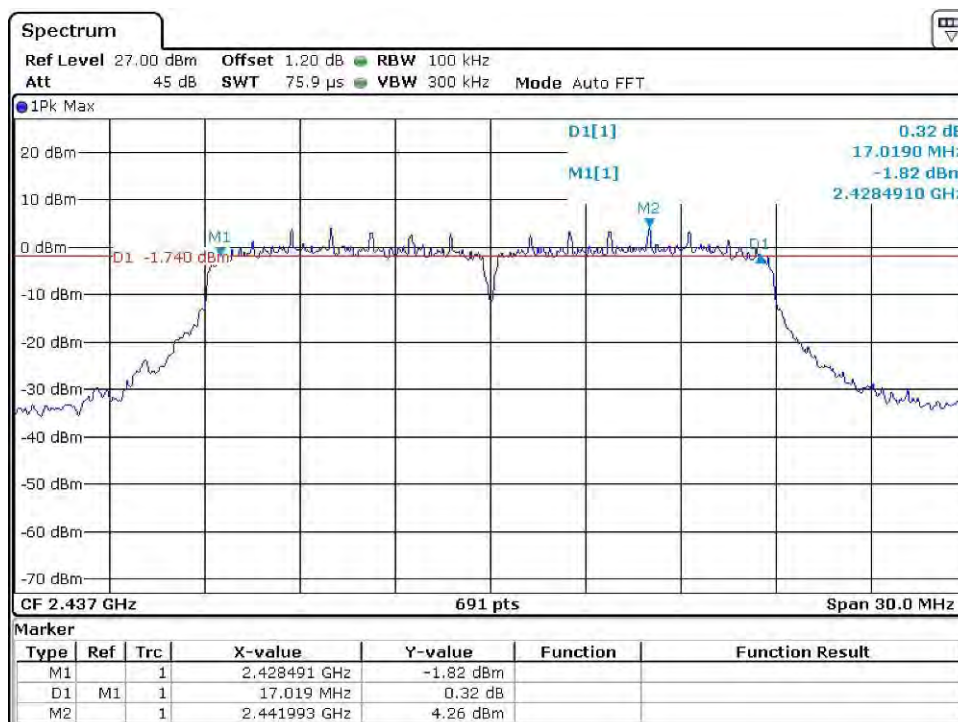
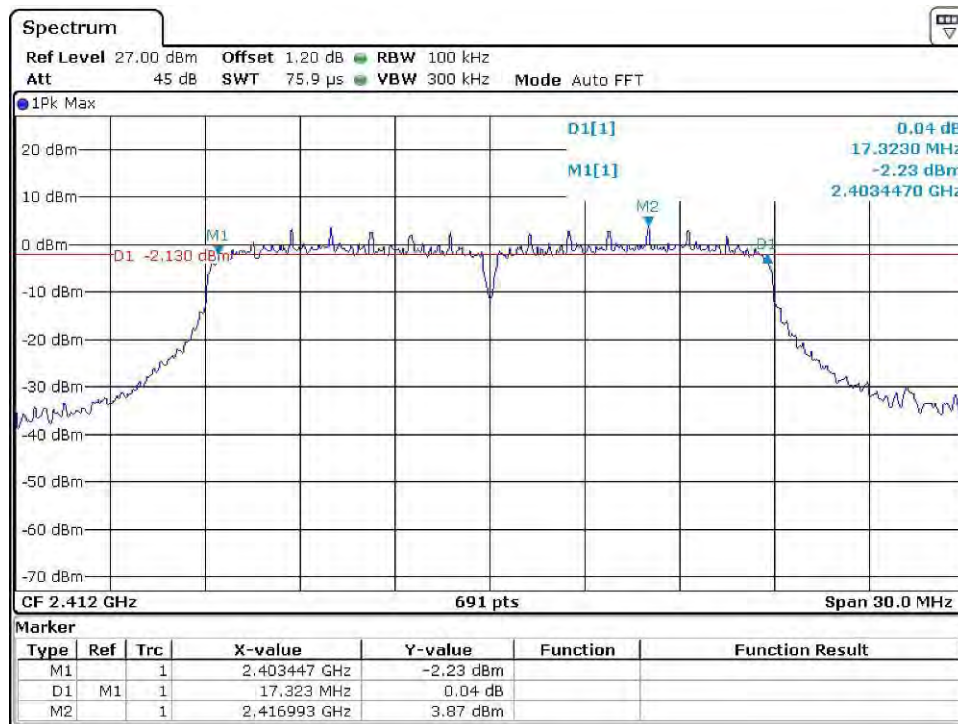


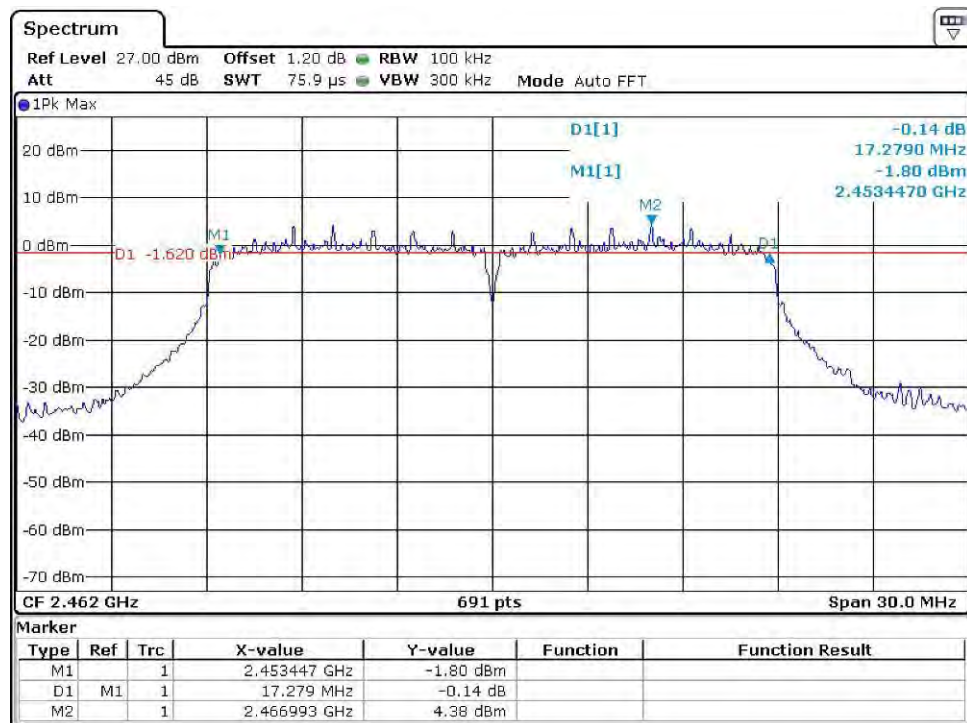
Date: 21 JAN 2019 13:46:07



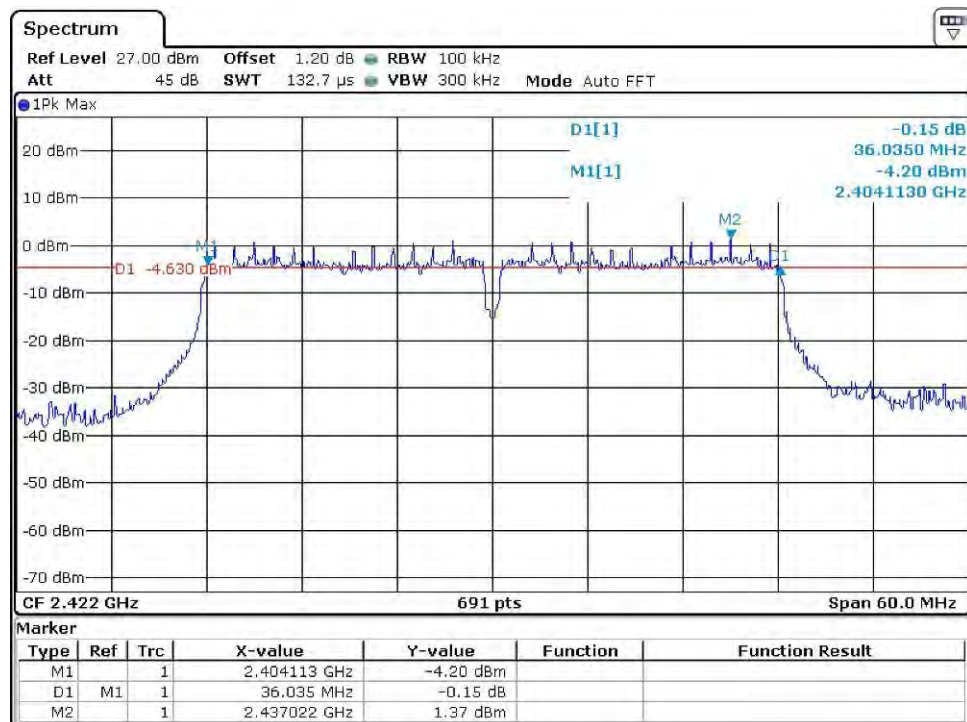
Date: 21 JAN 2019 13:50:22

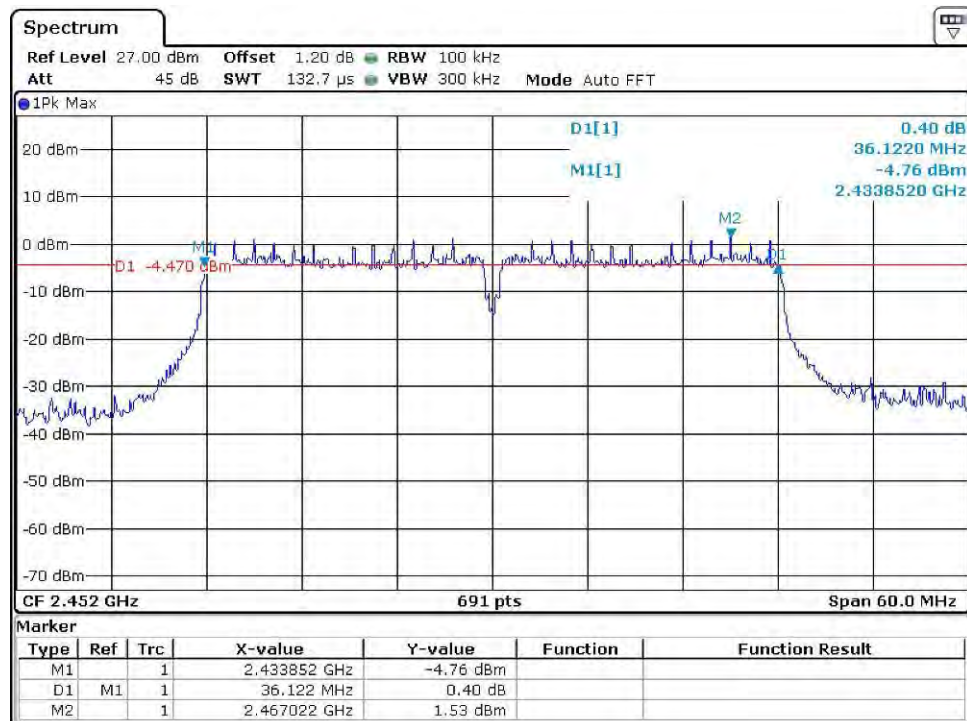
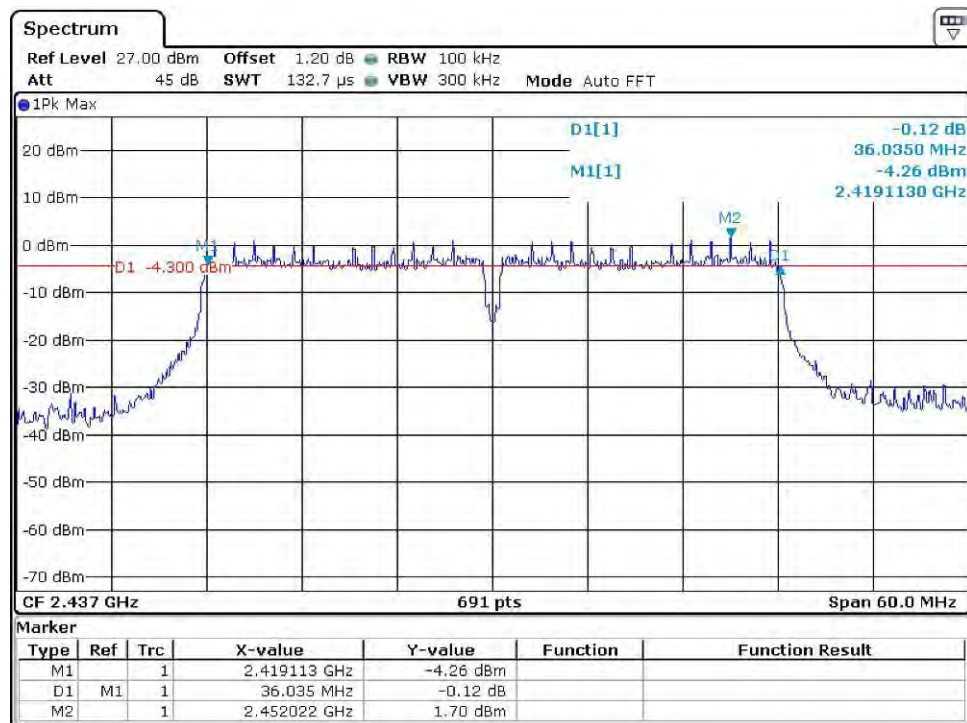
MIMO Mode, Ant2:
802.11n-HT20





802.11n-HT40





Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 18, 2019

Model: X22B-C

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/3 kHz.

SISO Mode, Ant1:

IEEE 802.11b (1Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-8.70
2437	-8.34
2462	-7.85

IEEE 802.11g (6Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-10.62
2437	-11.64
2462	-12.12

IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-10.88
2437	-9.88
2462	-10.67

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2422	-13.59
2437	-14.22
2452	-13.11

SISO Mode, Ant2:

IEEE 802.11b (1Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-5.18
2437	-5.63
2462	-5.36

IEEE 802.11g (6Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-9.25
2437	-8.42
2462	-9.12

IEEE 802.11n-HT20 (6.5Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2412	-9.02
2437	-10.09
2462	-8.53

IEEE 802.11n-HT40 (13.5Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2422	-11.51
2437	-9.98
2452	-10.71

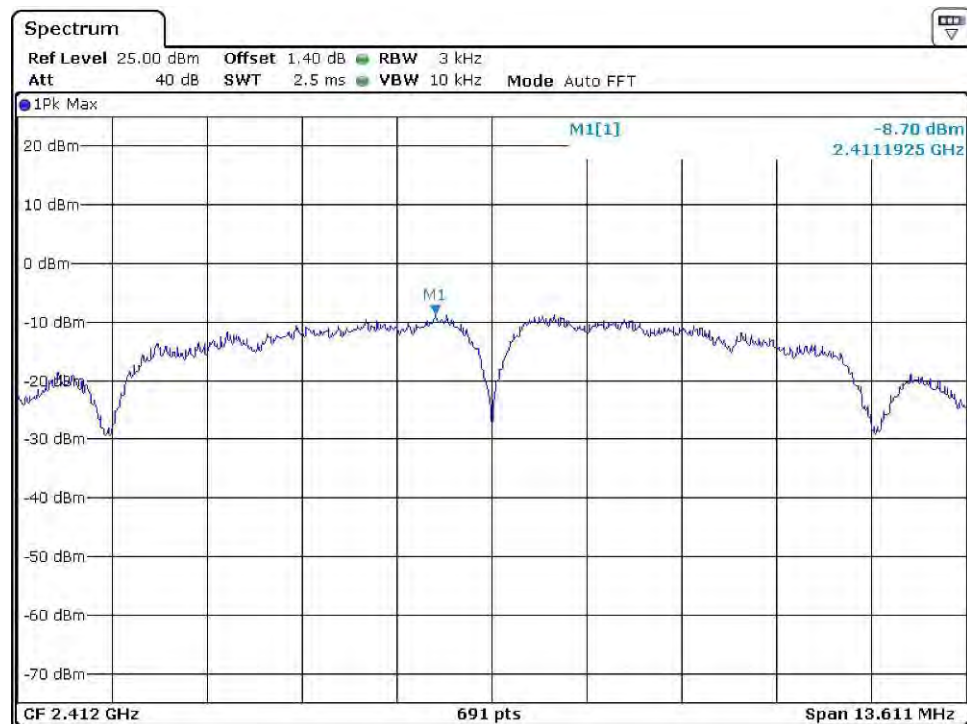
MIMO Mode:

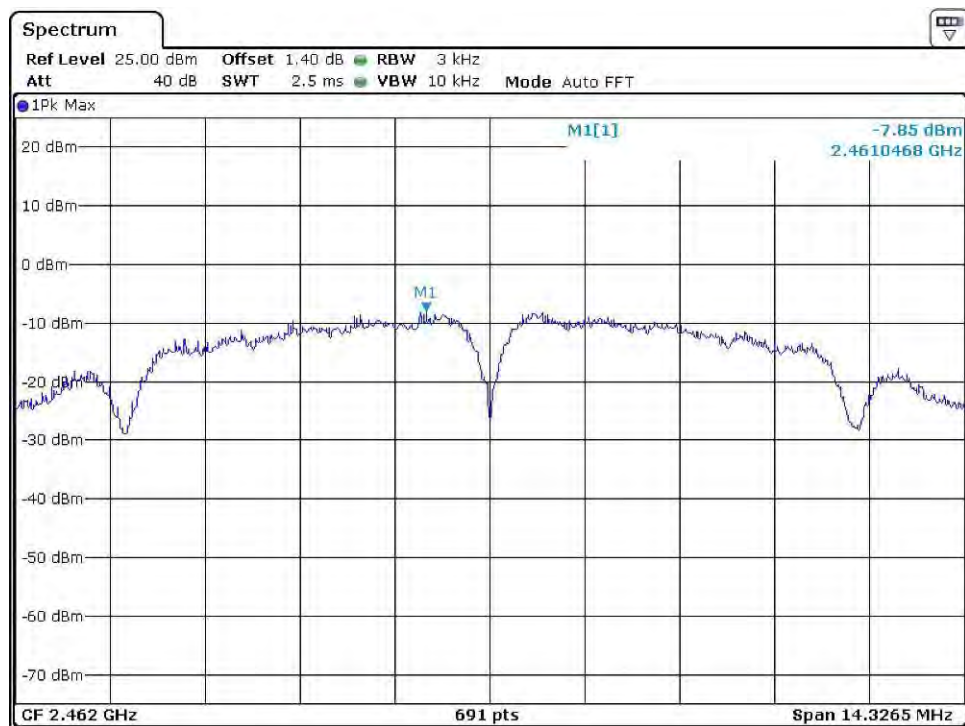
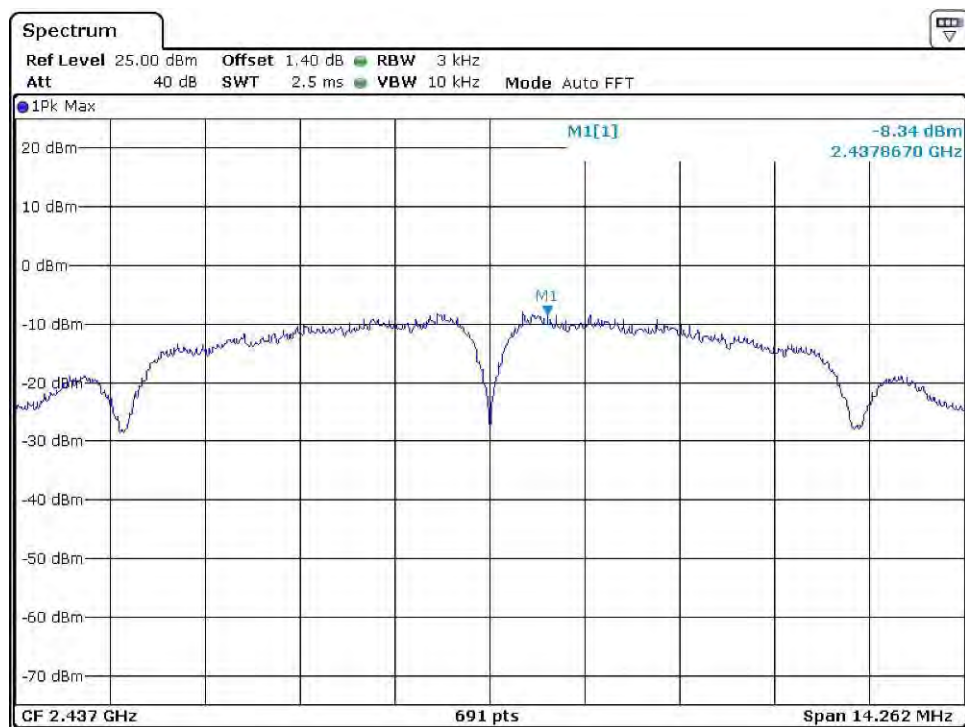
IEEE 802.11n-HT20 (6.5Mbps)			
Frequency (MHz)	Power Density with RBW 3KHz		Power Density with RBW 3KHz
	Ant1	Ant2	Total
2412	-11.54	-11.15	-8.33
2437	-11.80	-9.98	-7.78
2462	-10.74	-10.69	-7.70

IEEE 802.11n-HT40 (13.5Mbps)			
Frequency (MHz)	Power Density with RBW 3KHz		Power Density with RBW 3KHz
	Ant1	Ant2	Total
2422	-13.66	-14.04	-10.84
2437	-14.65	-13.37	-10.95
2452	-14.74	-12.99	-10.77

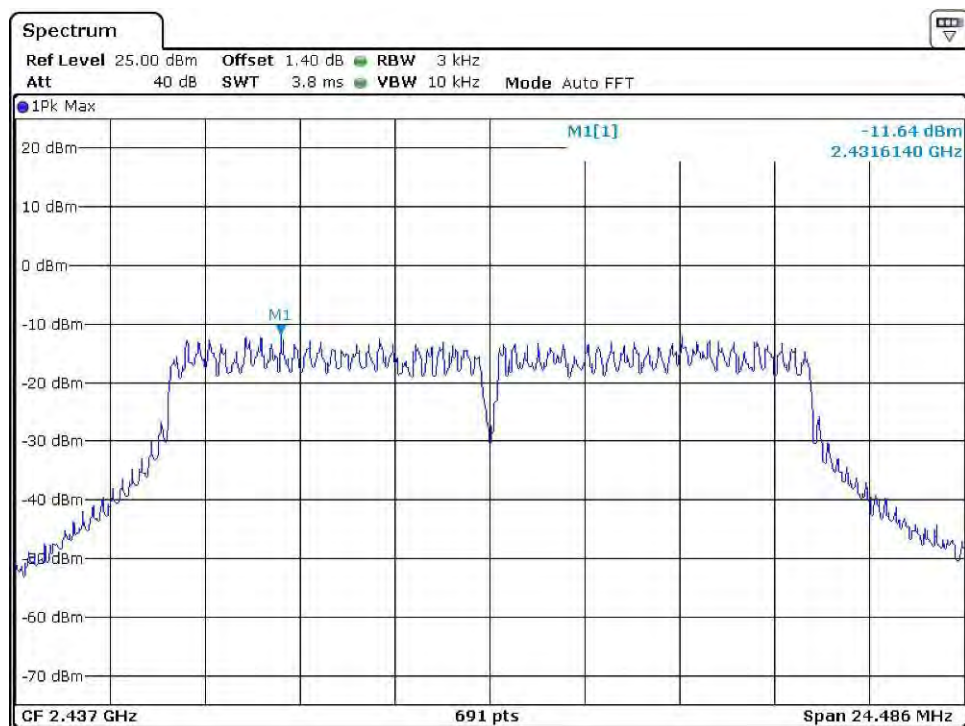
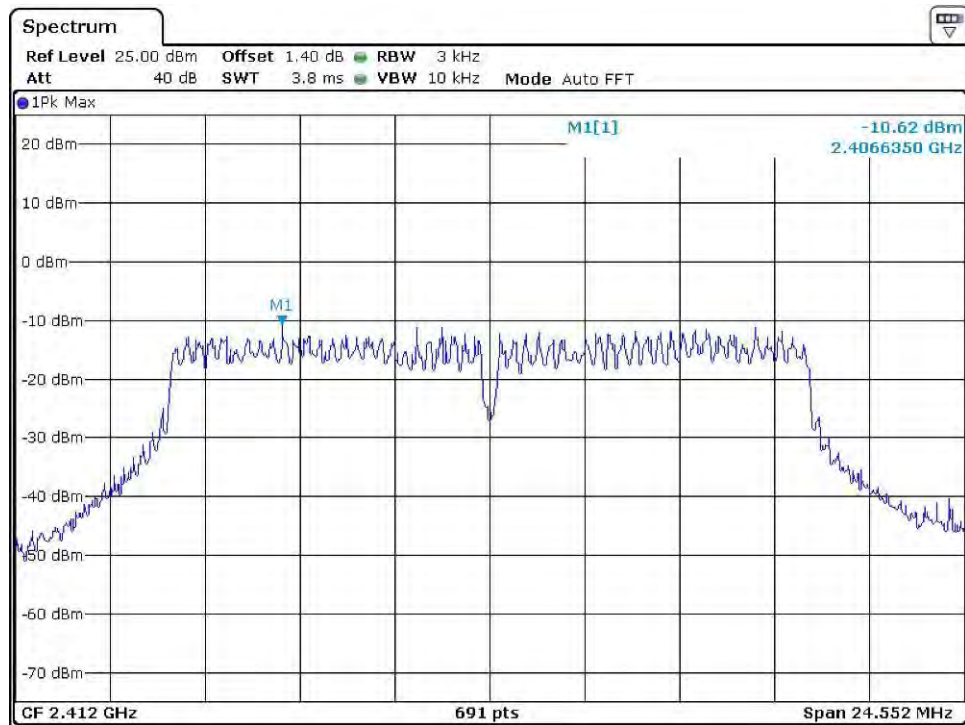
The test plots are attached as below.

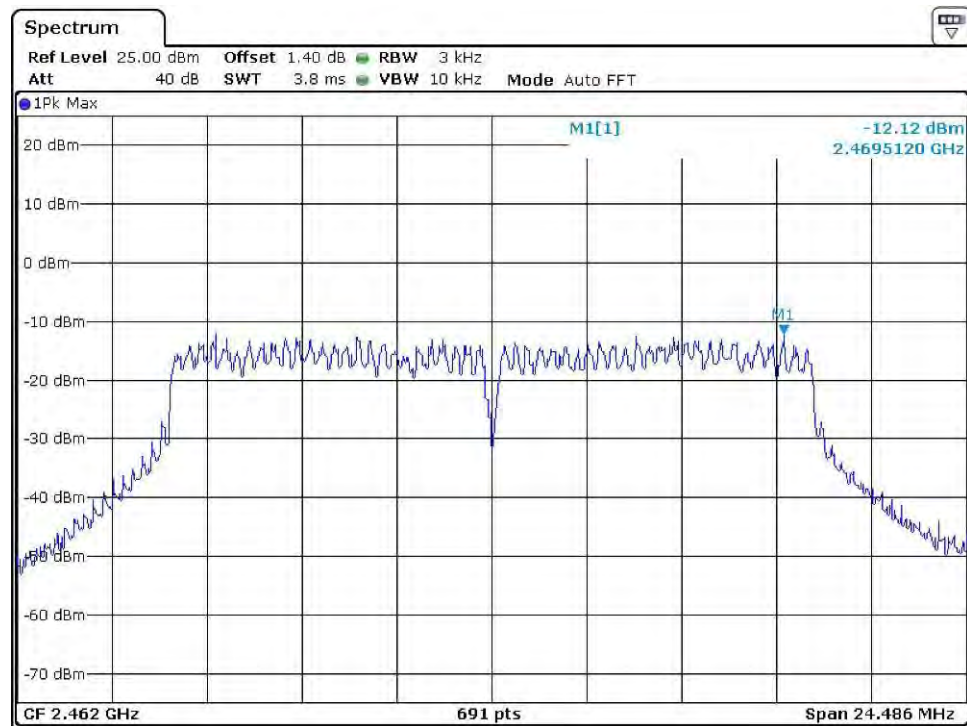
SISO Mode, Ant1:
802.11b



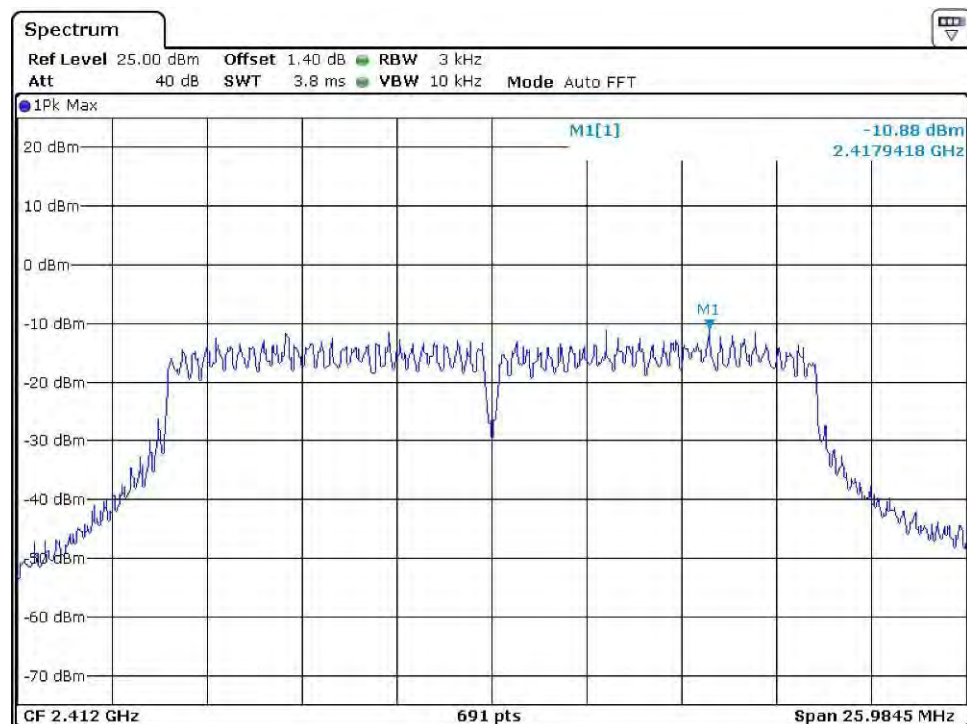


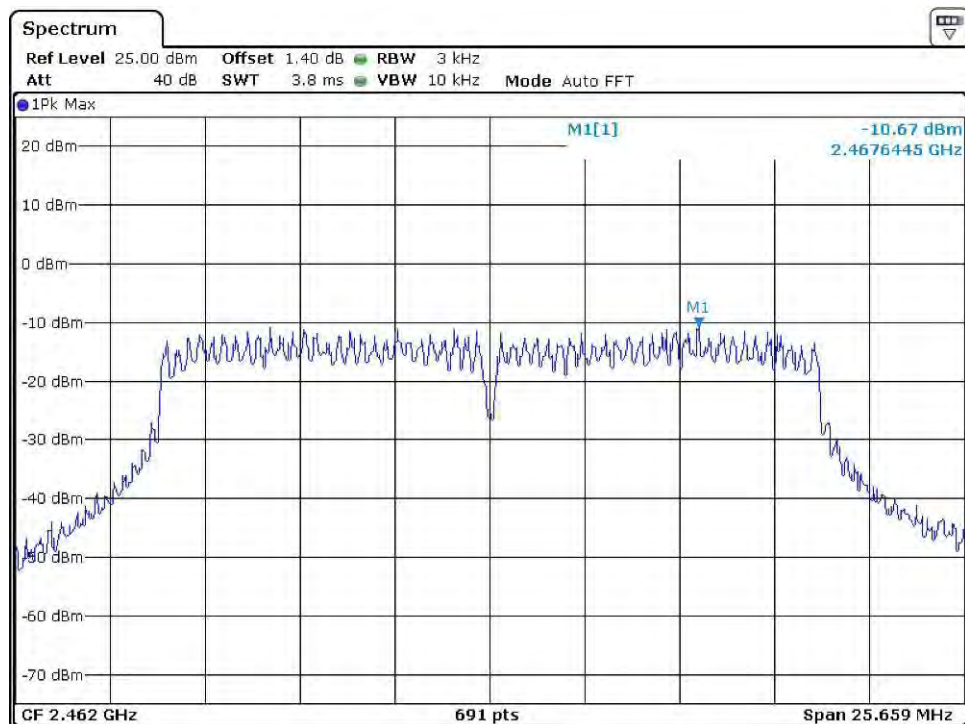
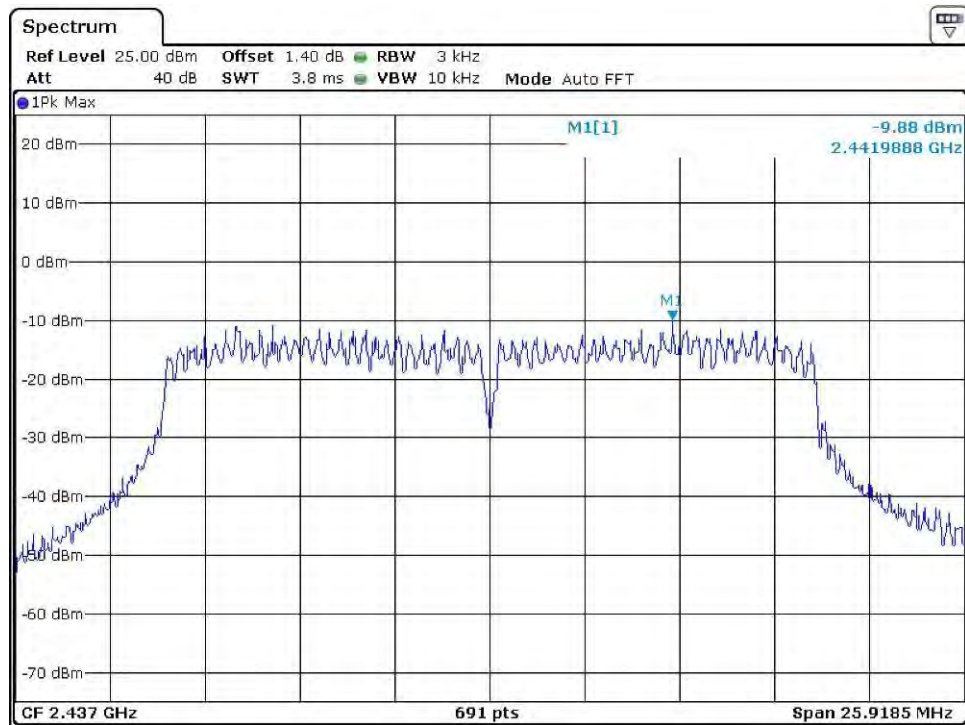
802.11g



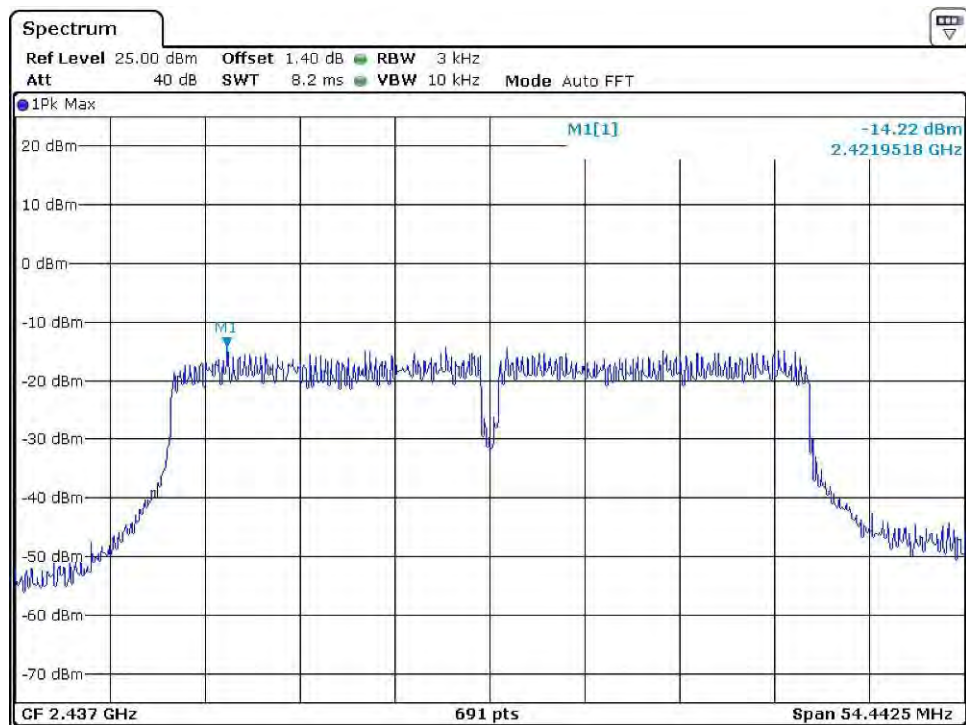
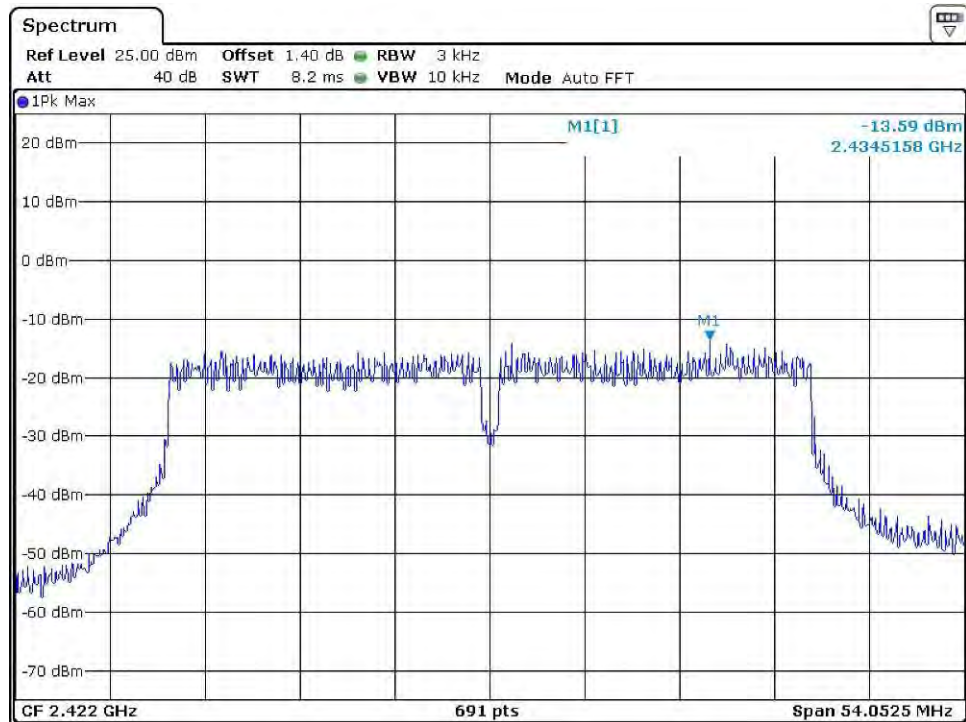


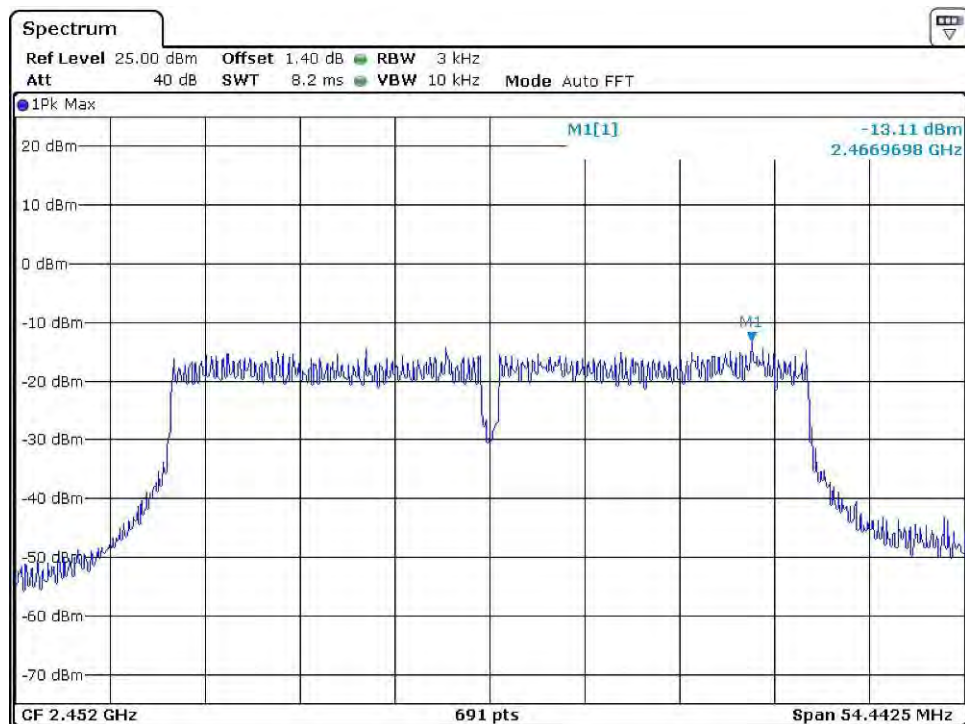
802.11n-HT20



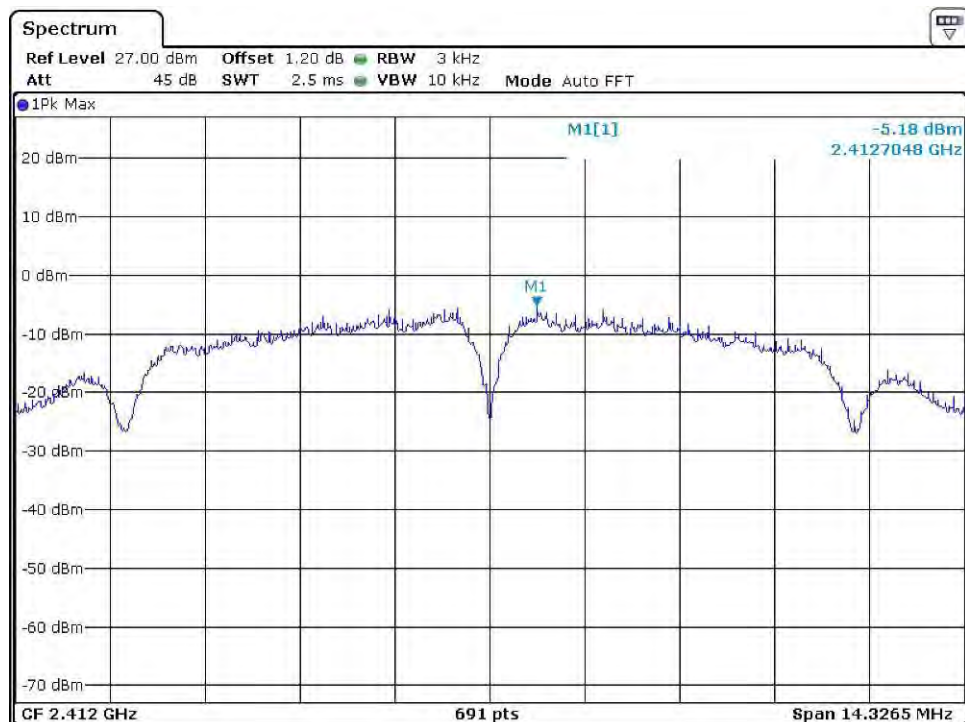


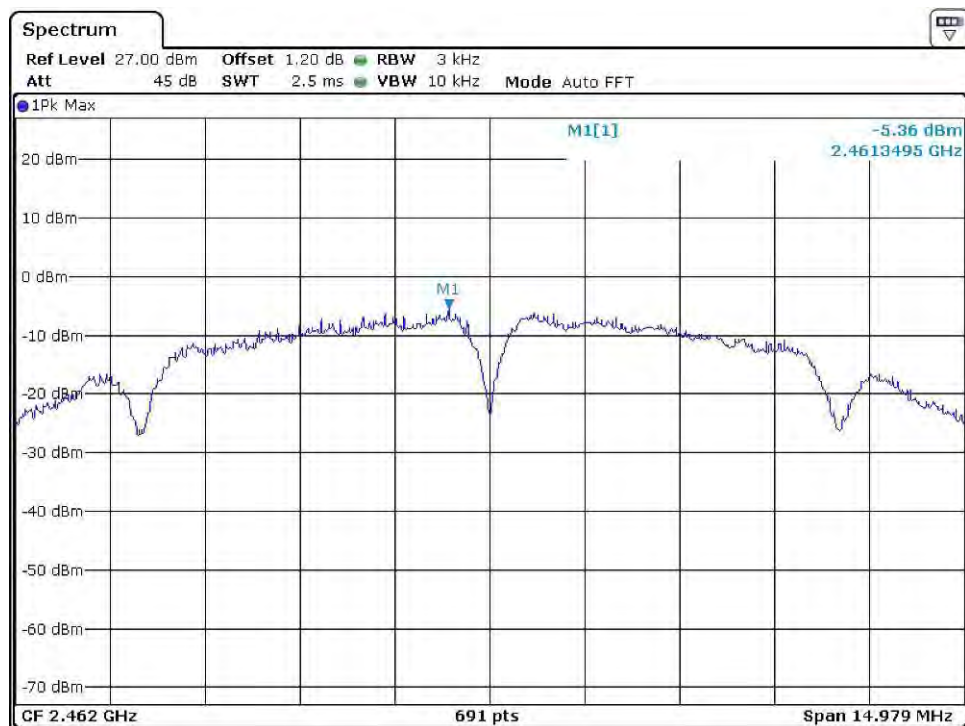
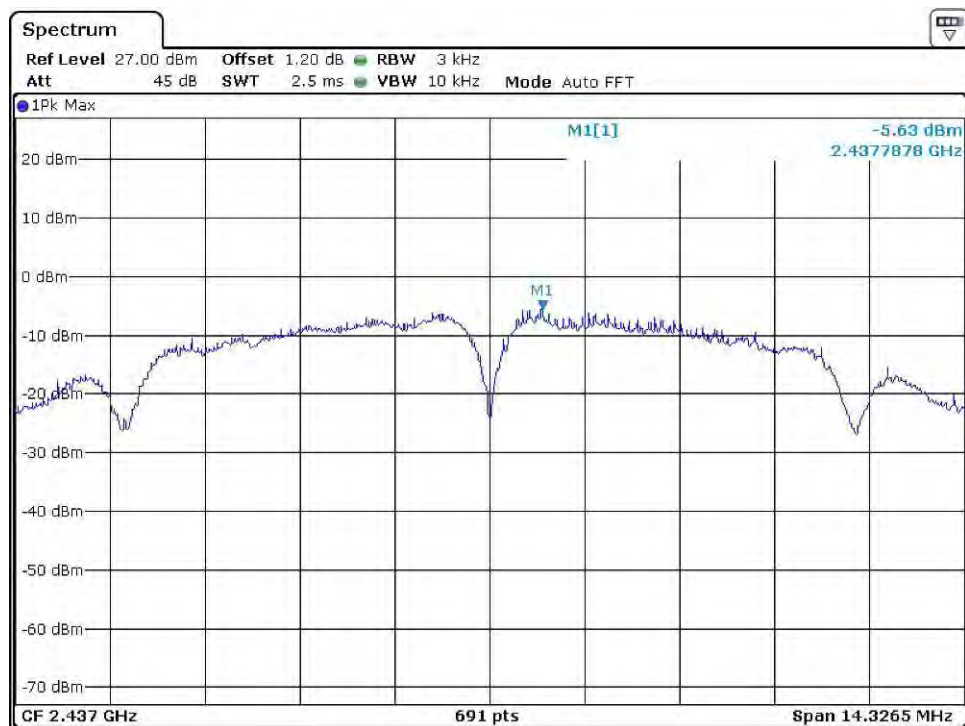
802.11n-HT40



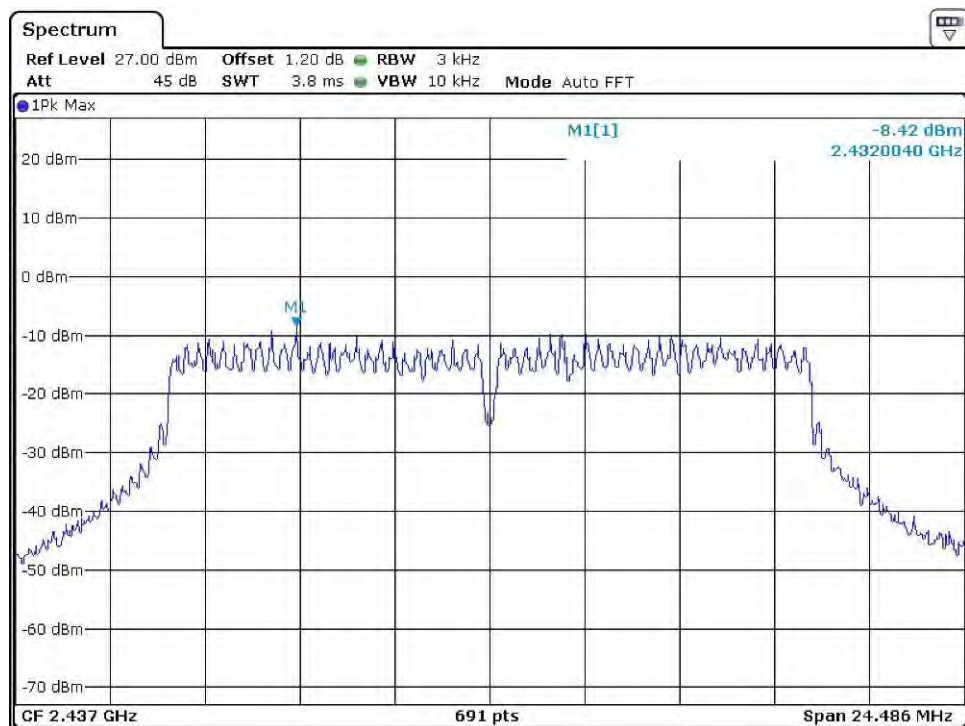
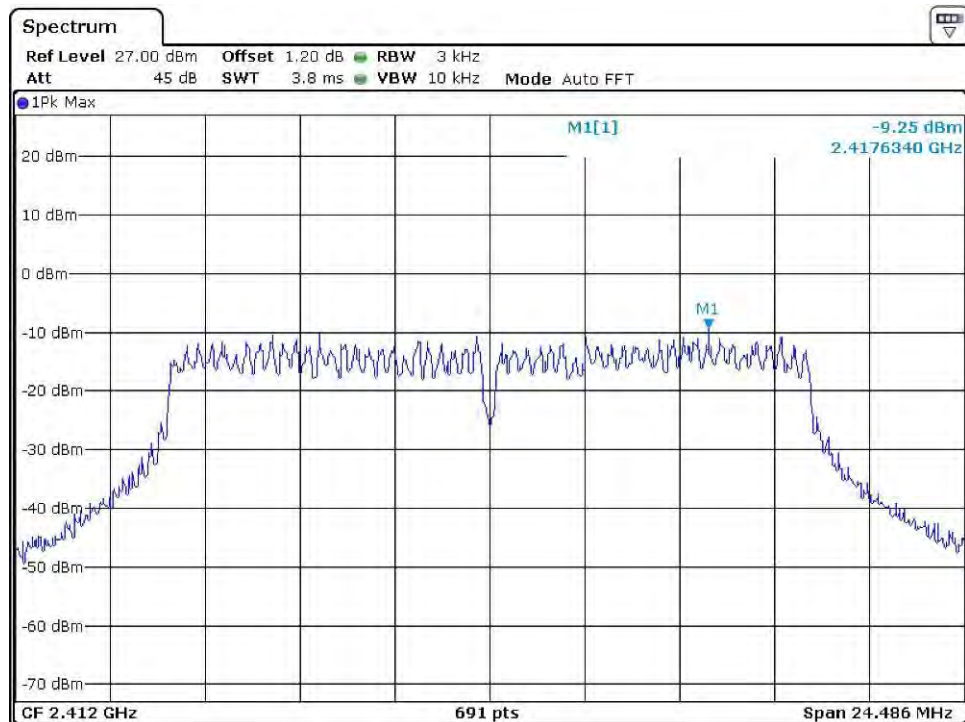


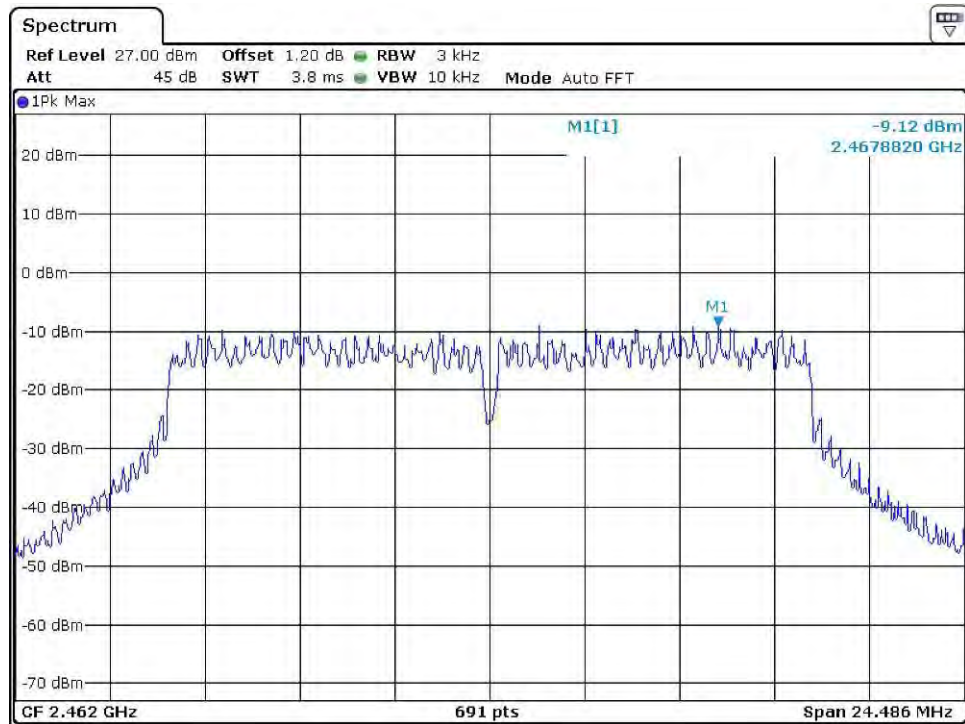
SISO Mode, Ant2:
802.11b



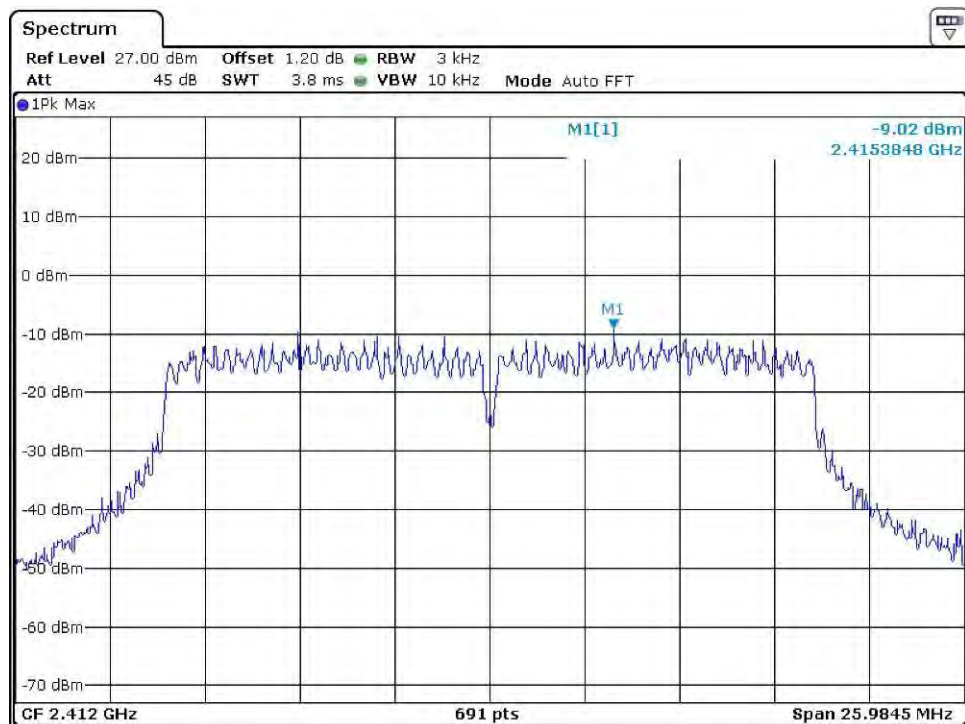


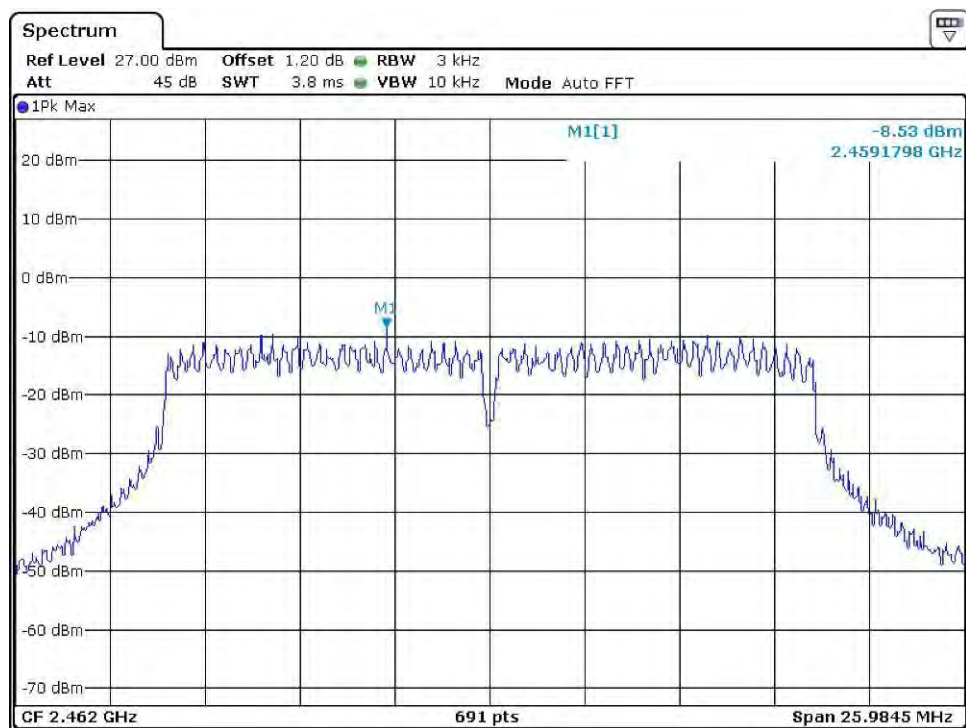
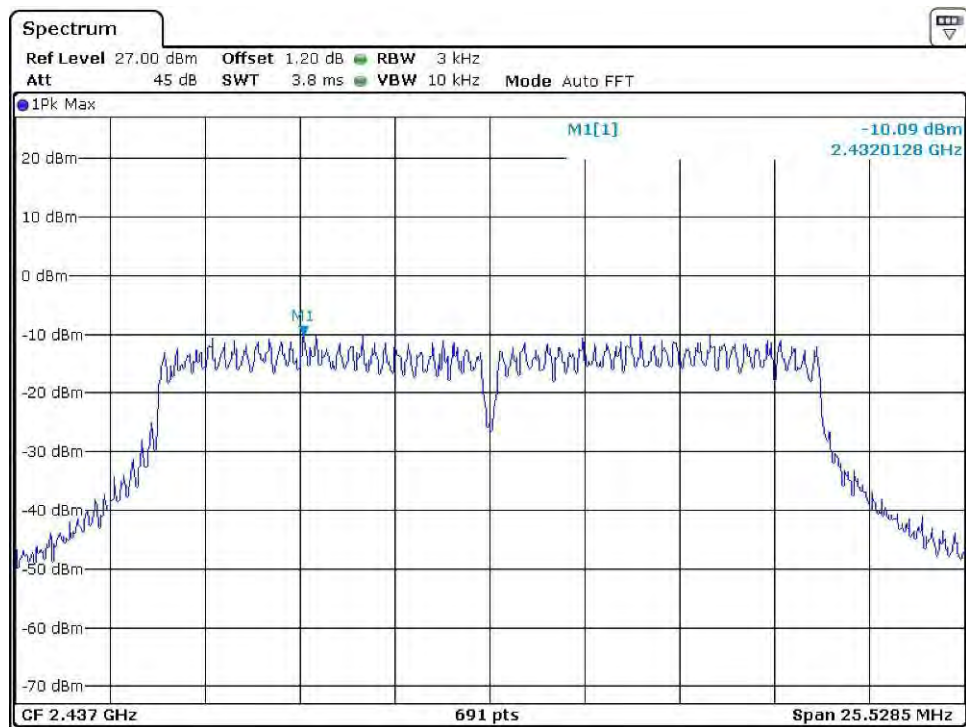
802.11g



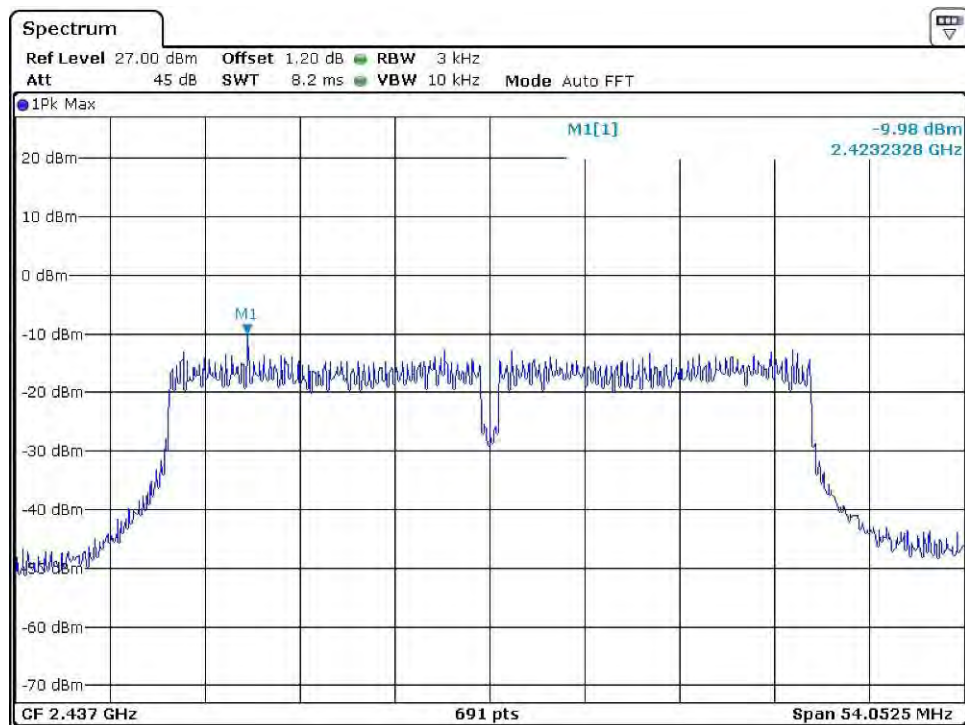
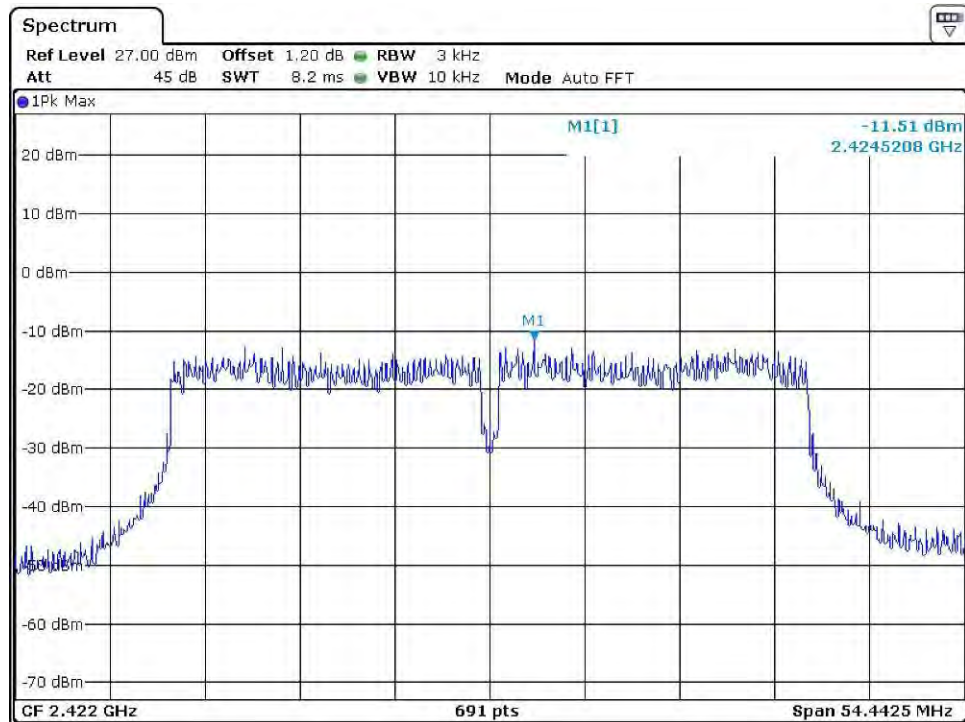


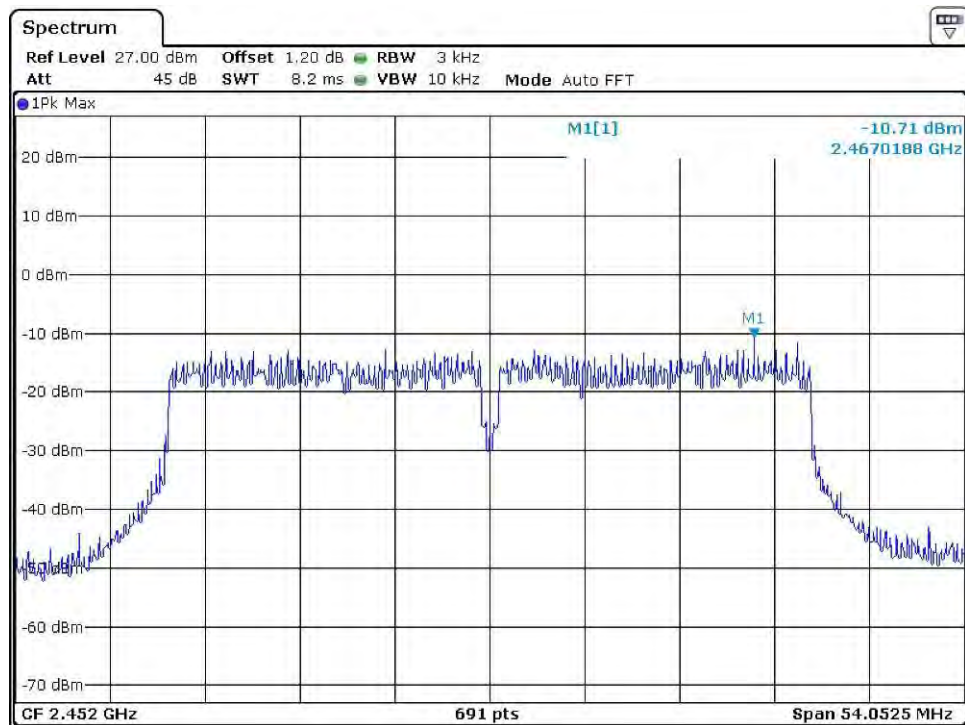
802.11n-HT20



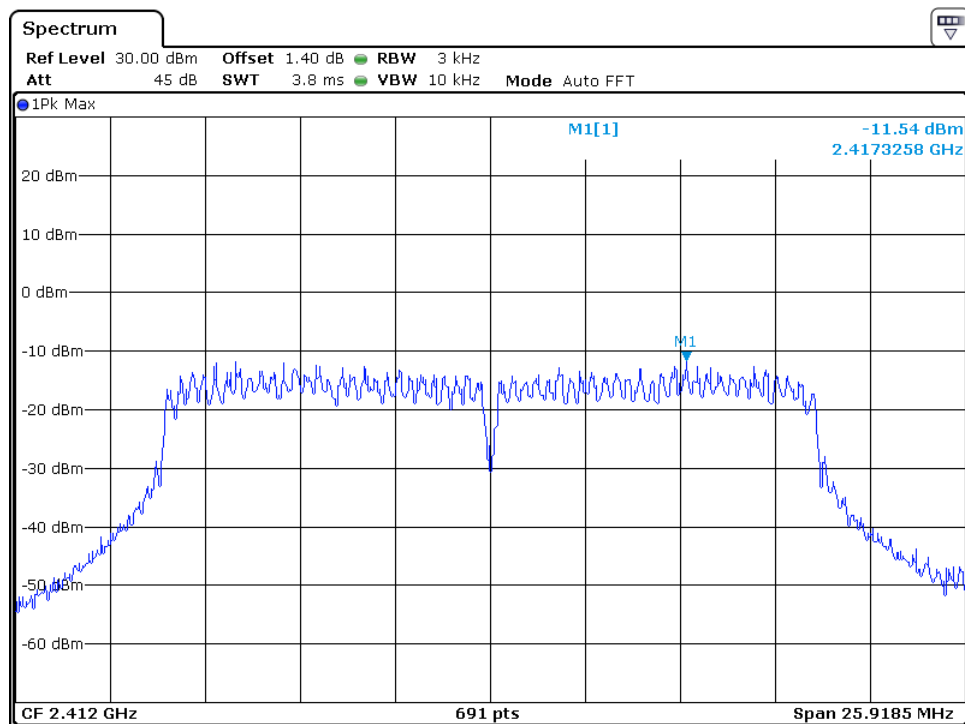


802.11n-HT40

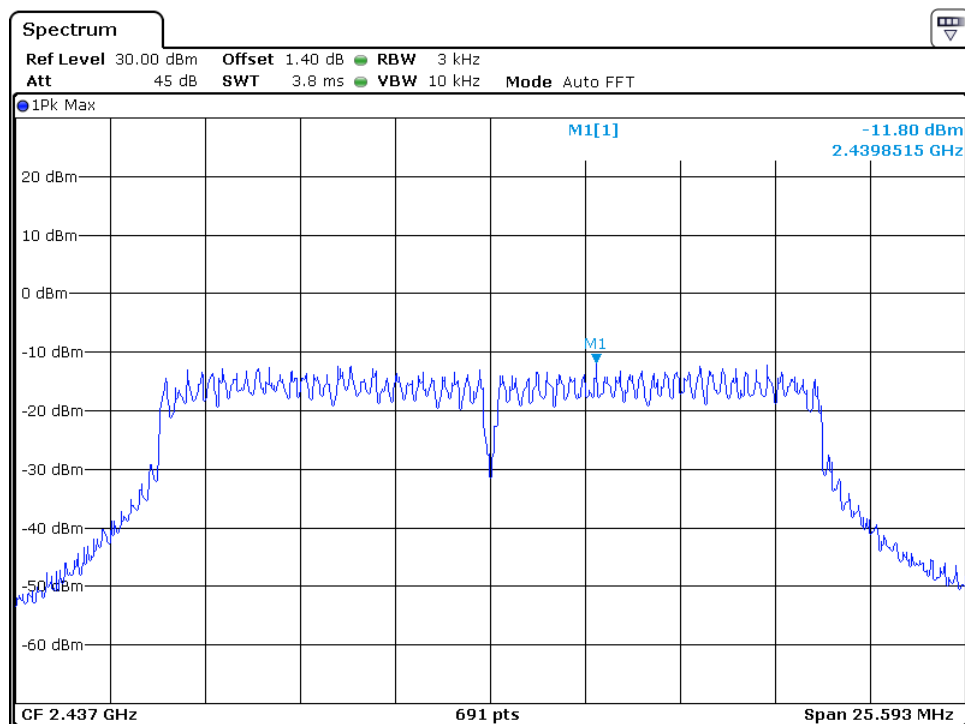




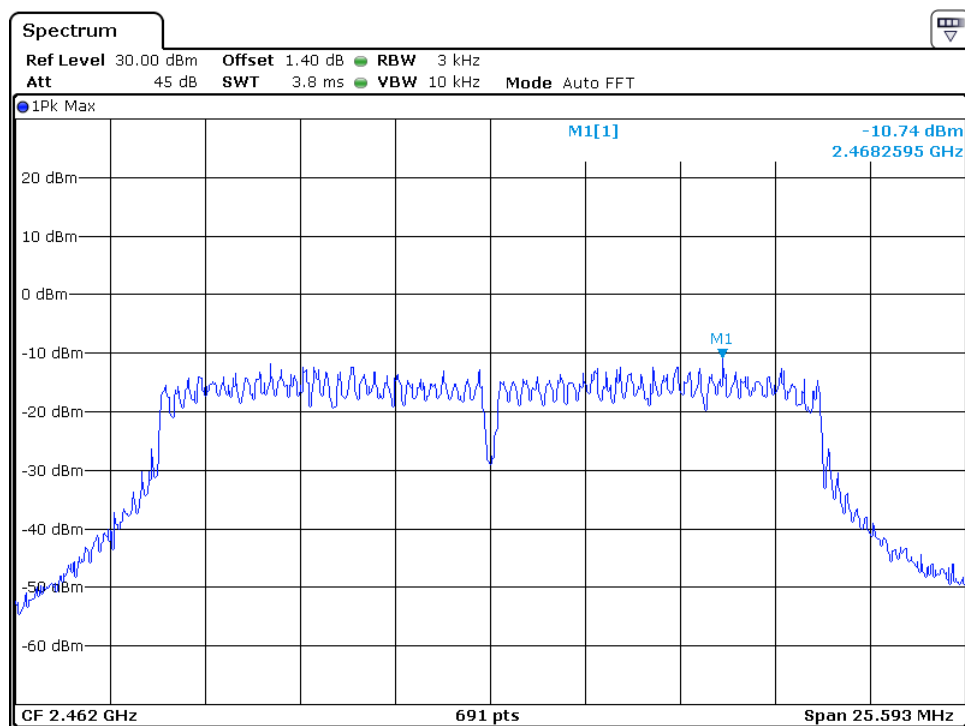
MIMO Mode, Ant1:
802.11n-HT20



Date: 21.JAN.2019 13:30:48

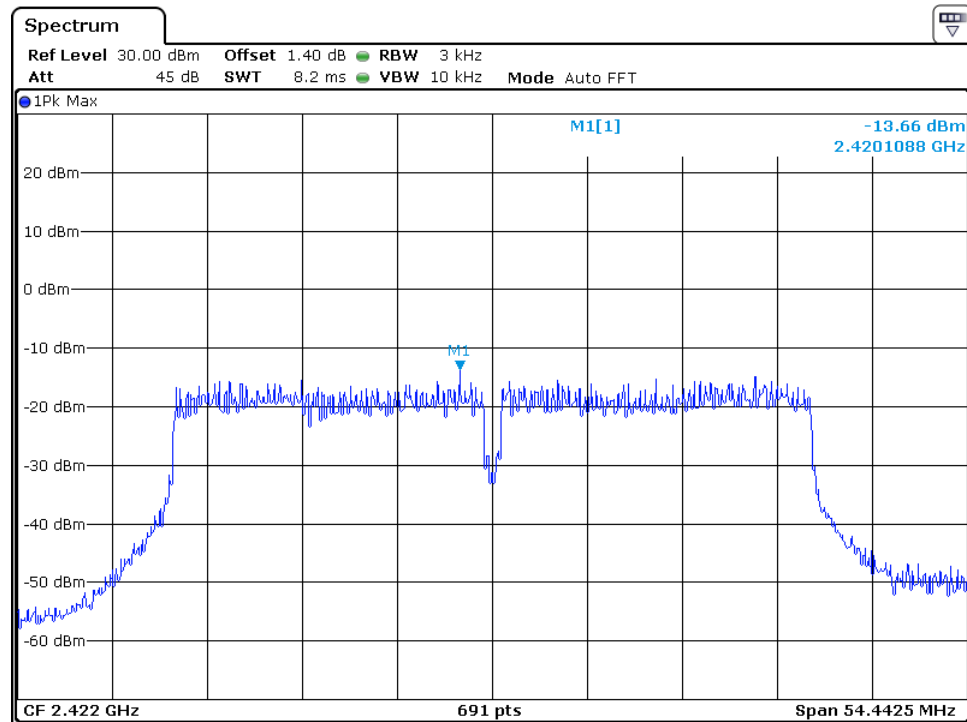


Date: 21 JAN 2019 13:34:41

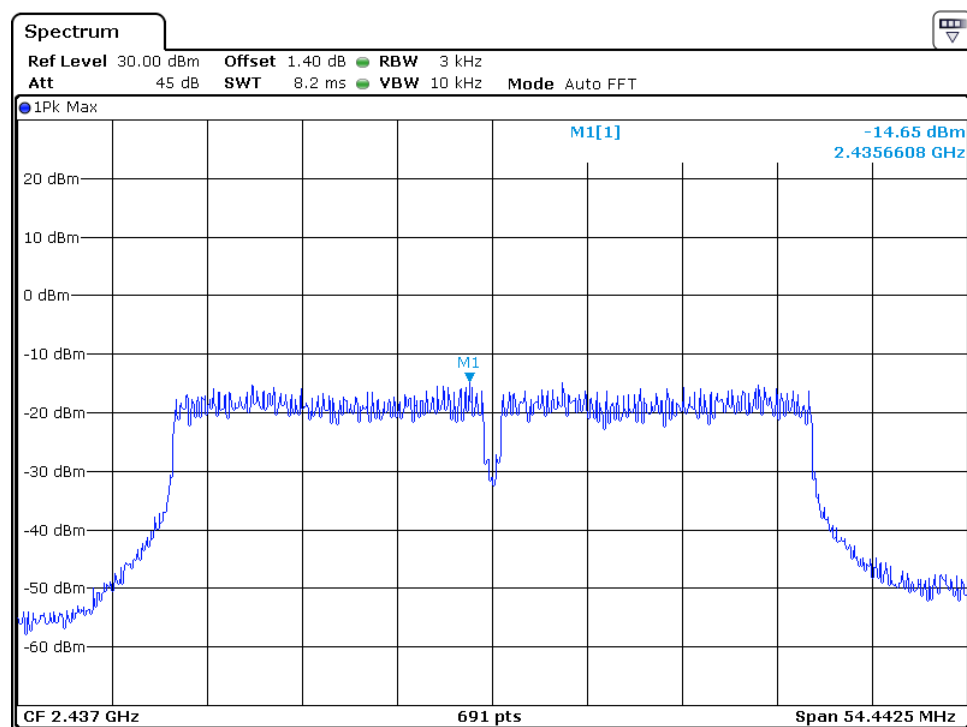


Date: 21 JAN 2019 13:38:08

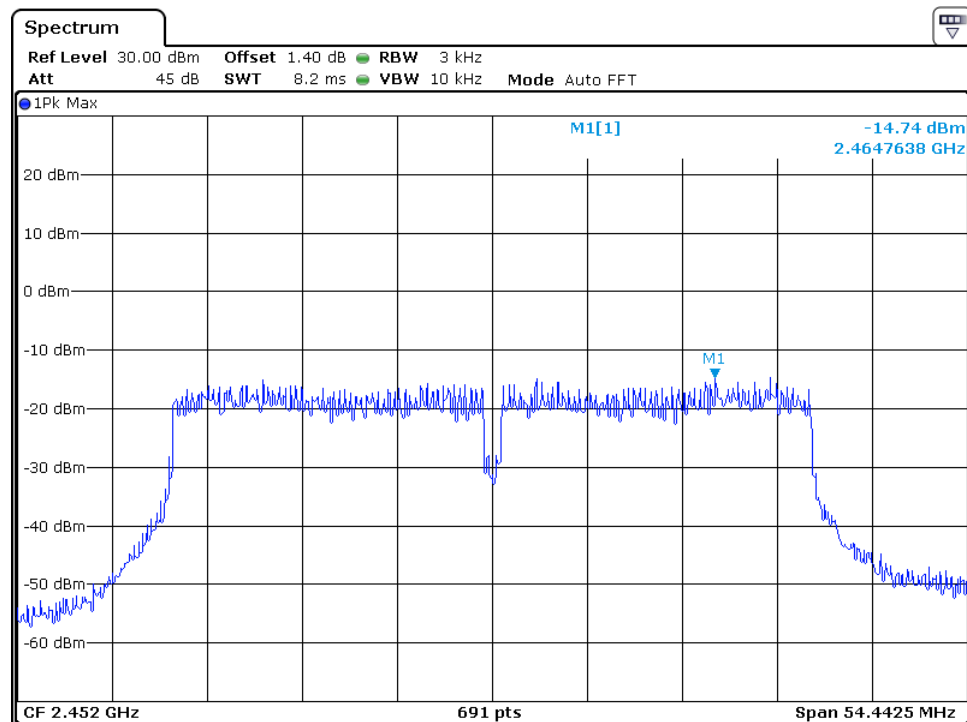
802.11n-HT40



Date: 21 JAN 2019 13:42:59

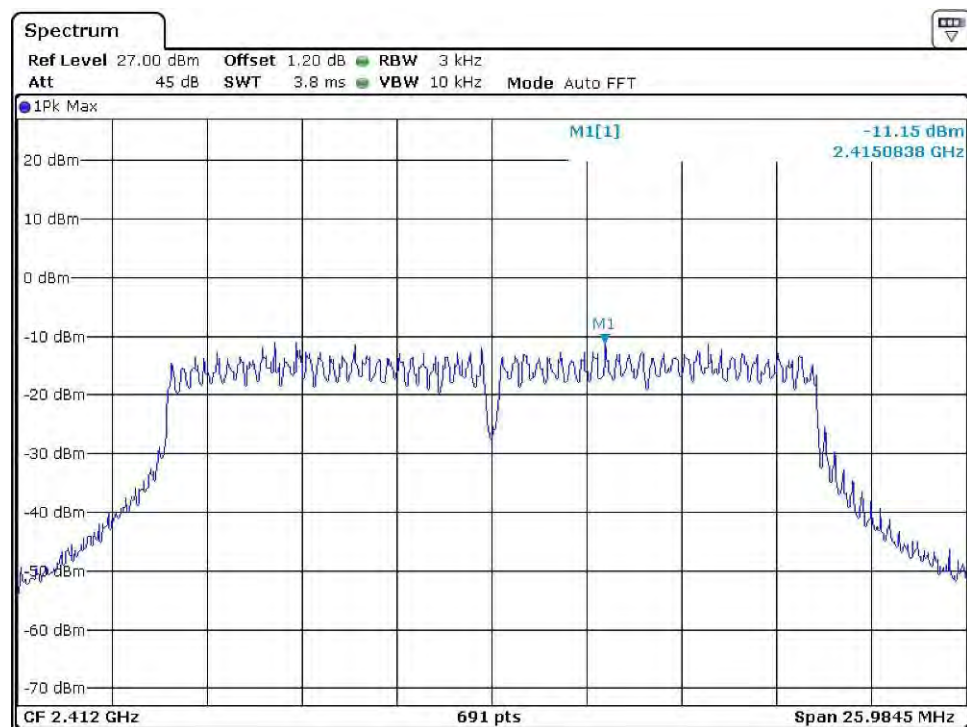


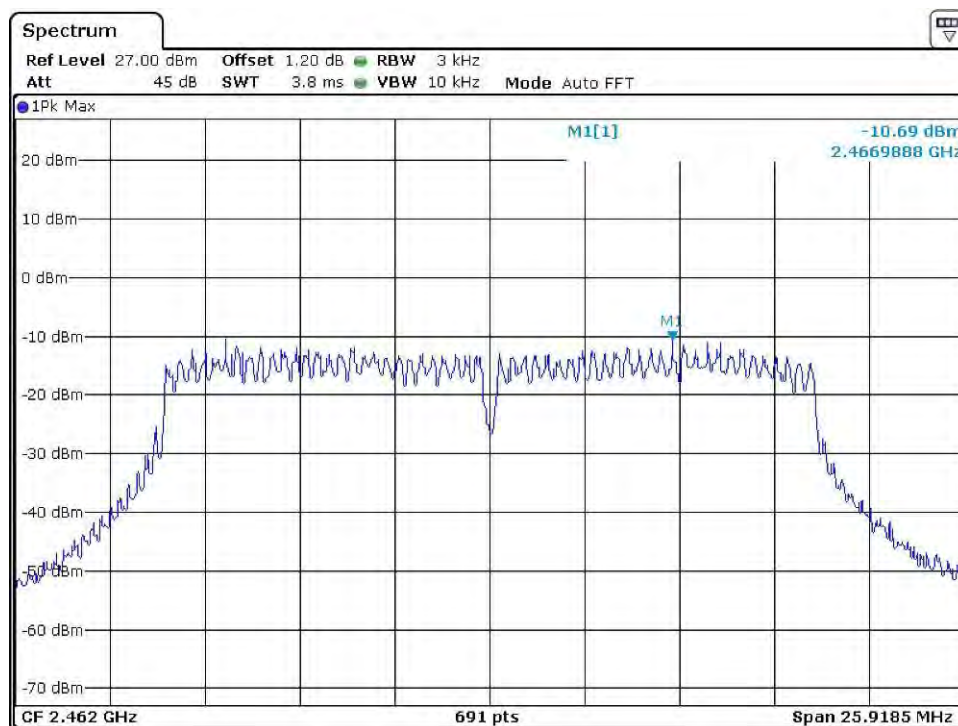
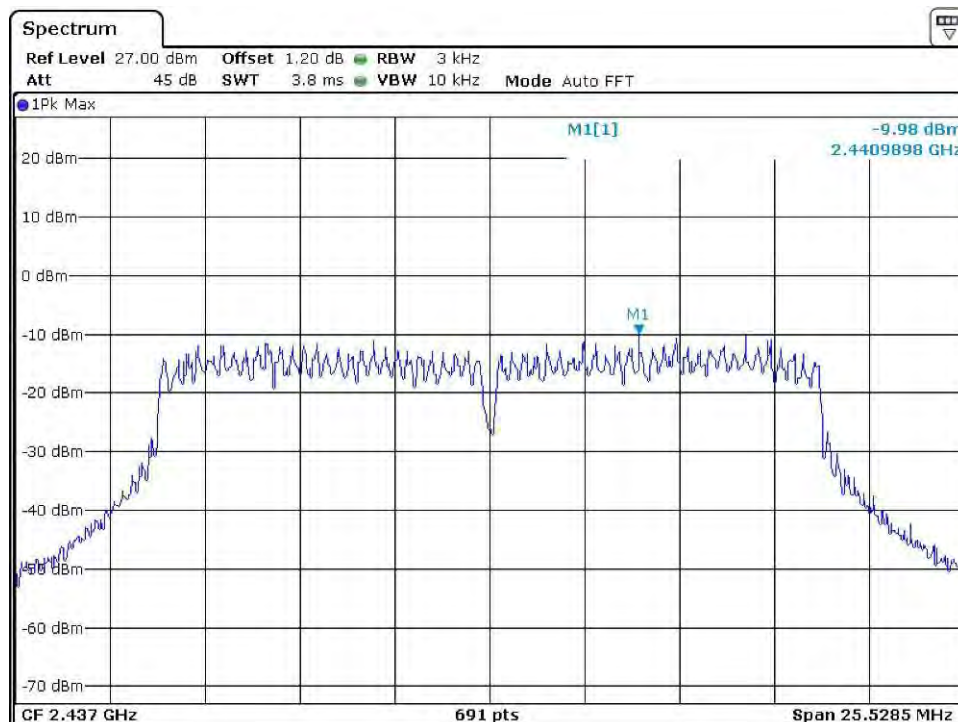
Date: 21 JAN 2019 13:47:20



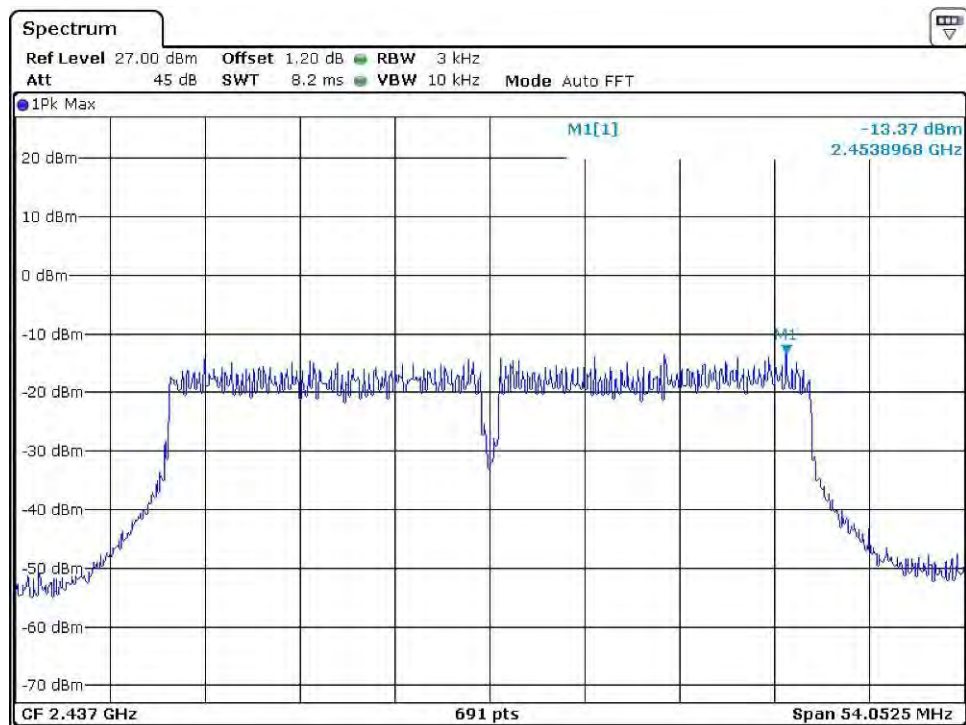
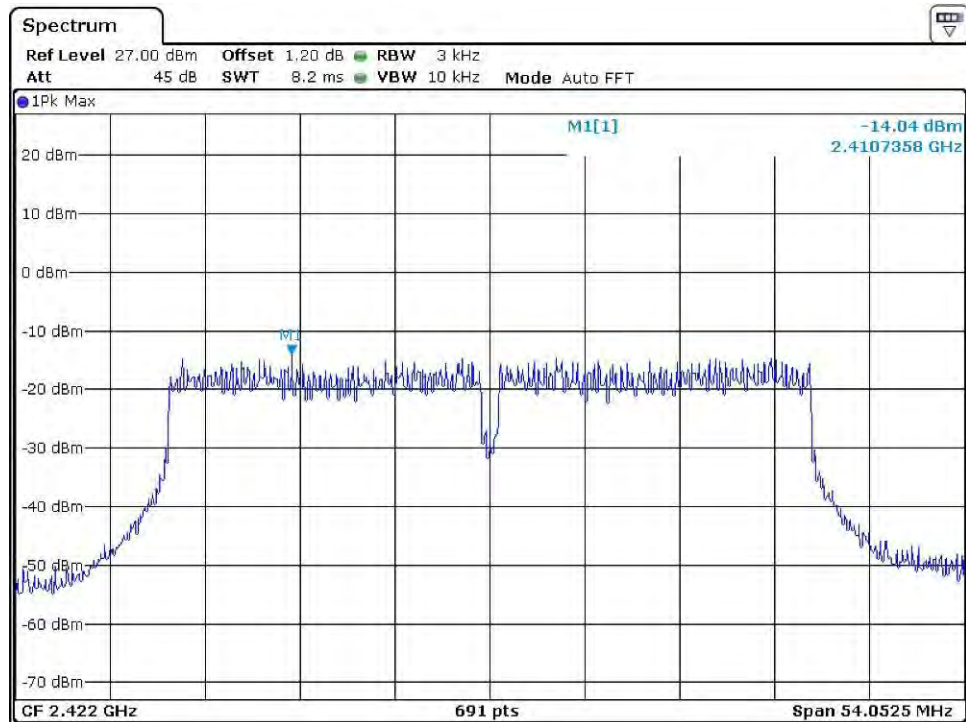
Date: 21 JAN 2019 13:51:59

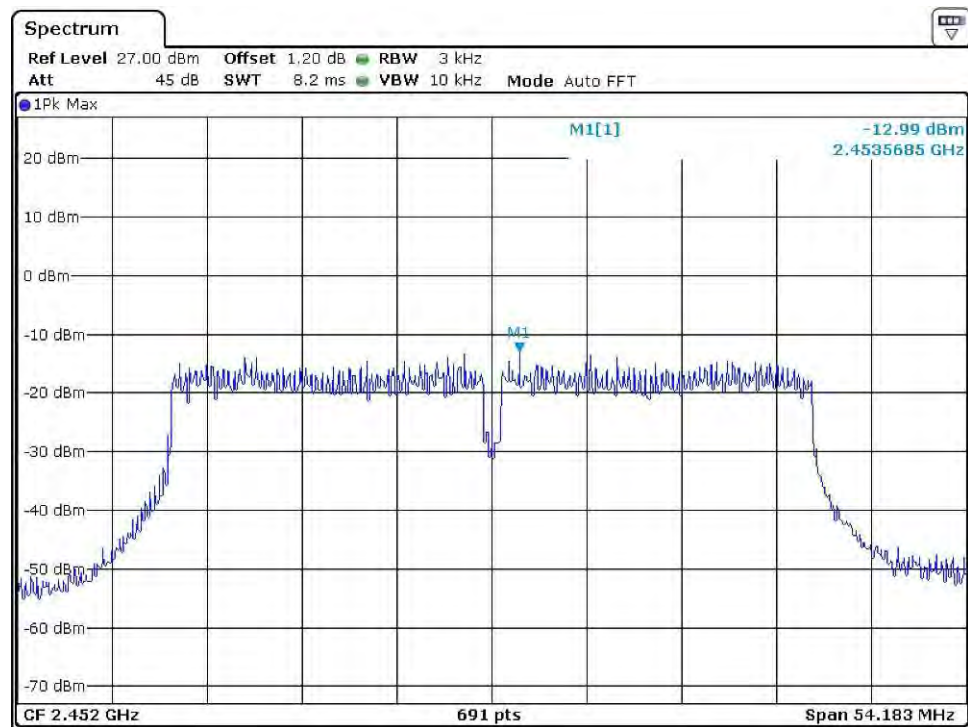
MIMO Mode, Ant2:
802.11n-HT20





802.11n-HT40





Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 21, 2019

Model: X22B-C

4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. The Measurement Procedure was set according to the FCC KDB 558074 D01 v05.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the attached test plots for out of band conducted emissions data.

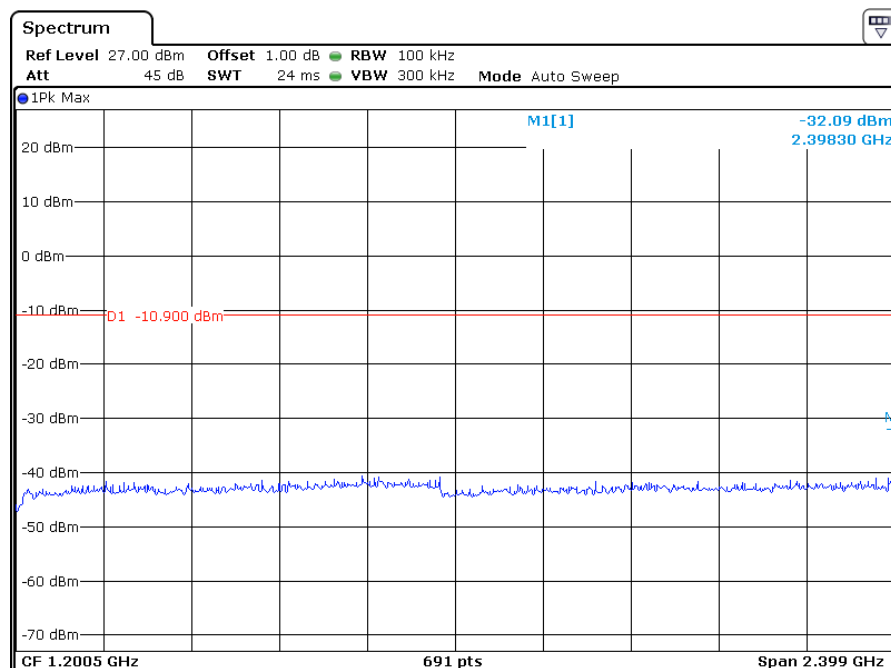
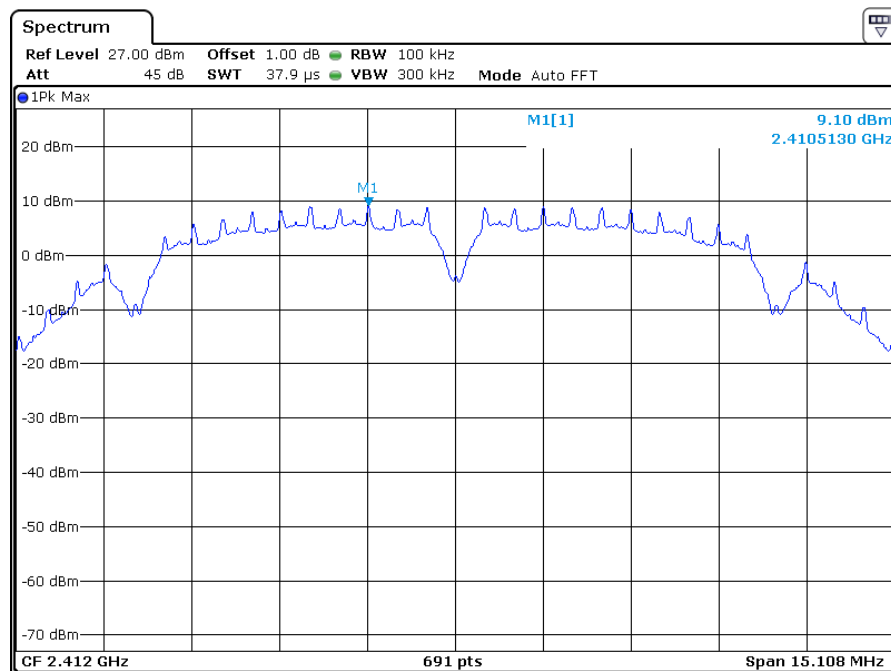
The test plots showed all spurious emission up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

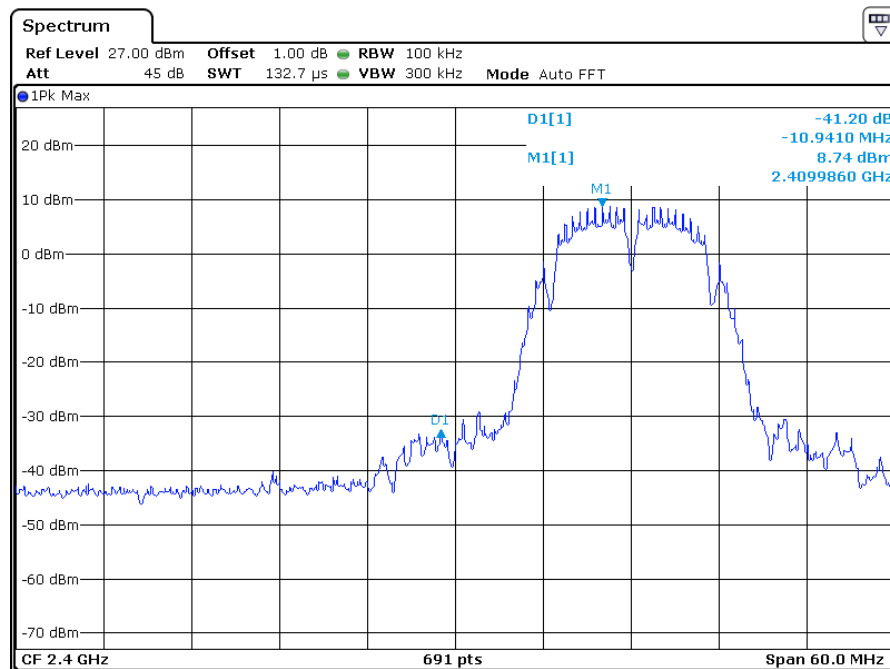
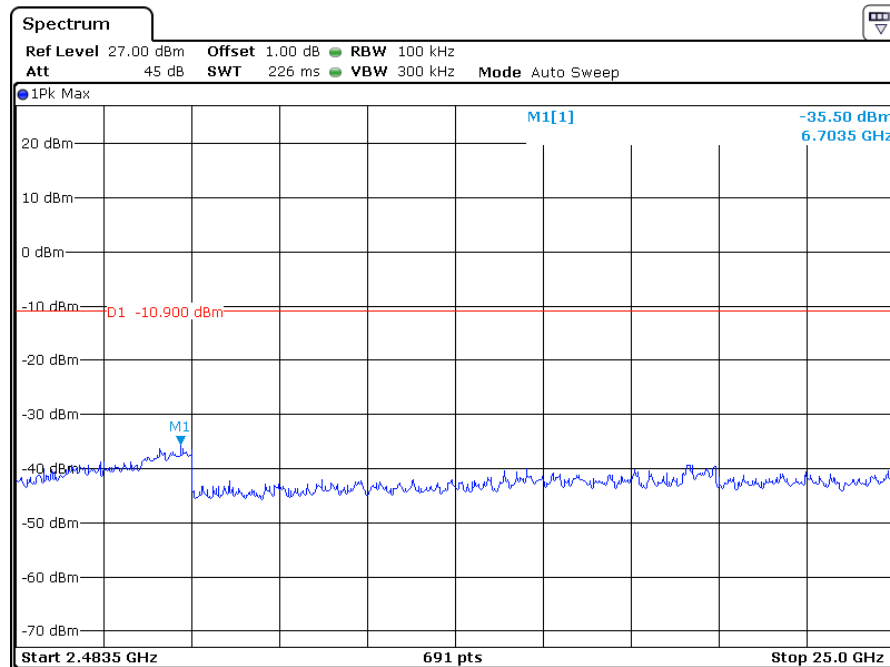
The test plots are attached as below.

SISO Mode, Ant1:

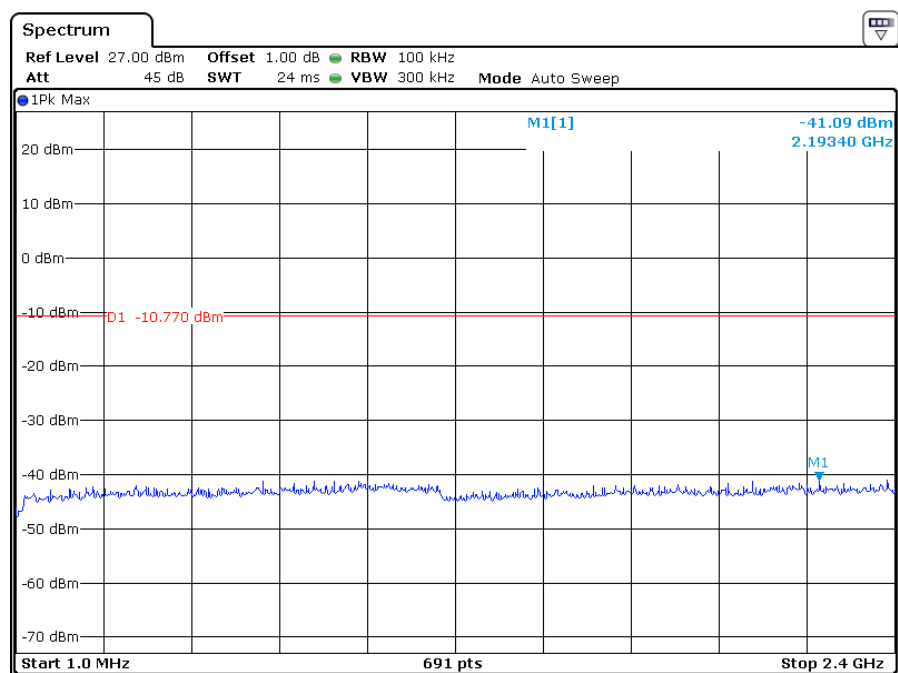
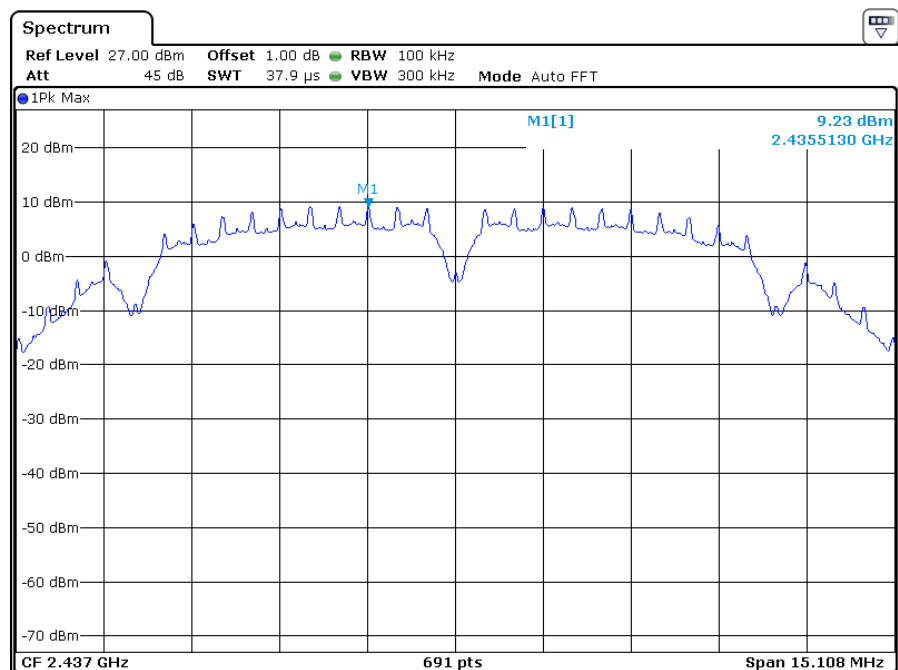
802.11b:

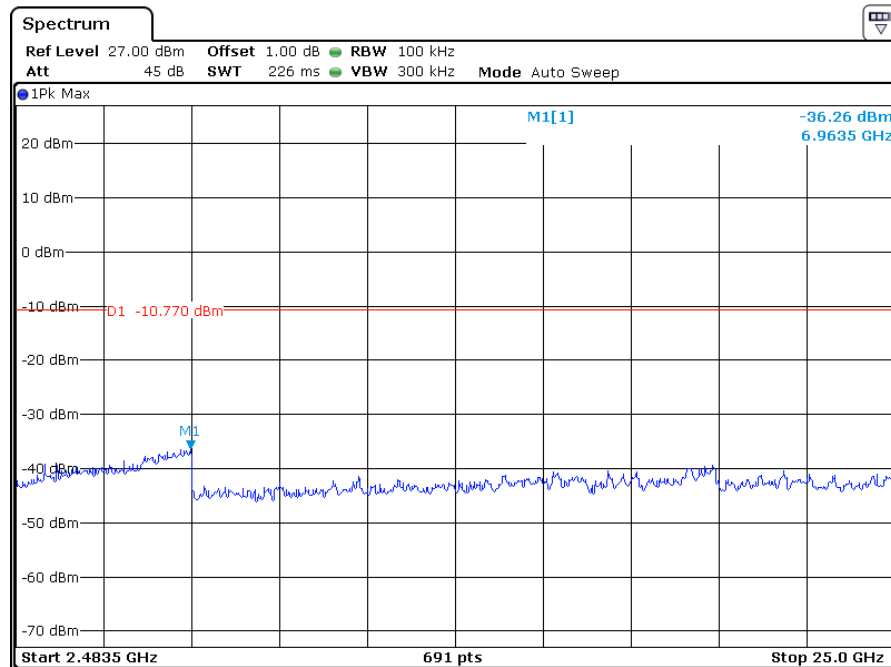
Channel 01 (2412MHz) Reference Level: 9.10dBm



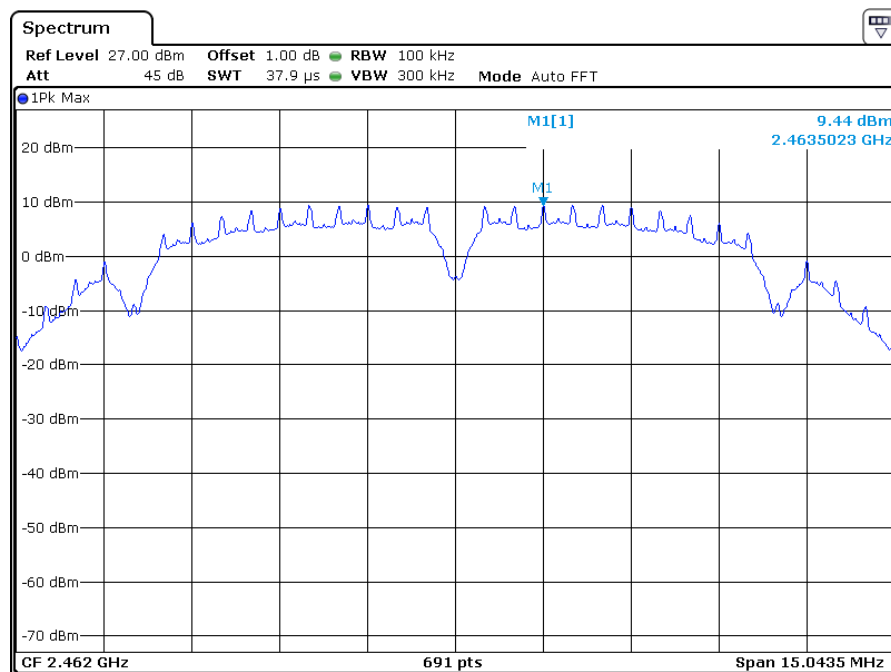


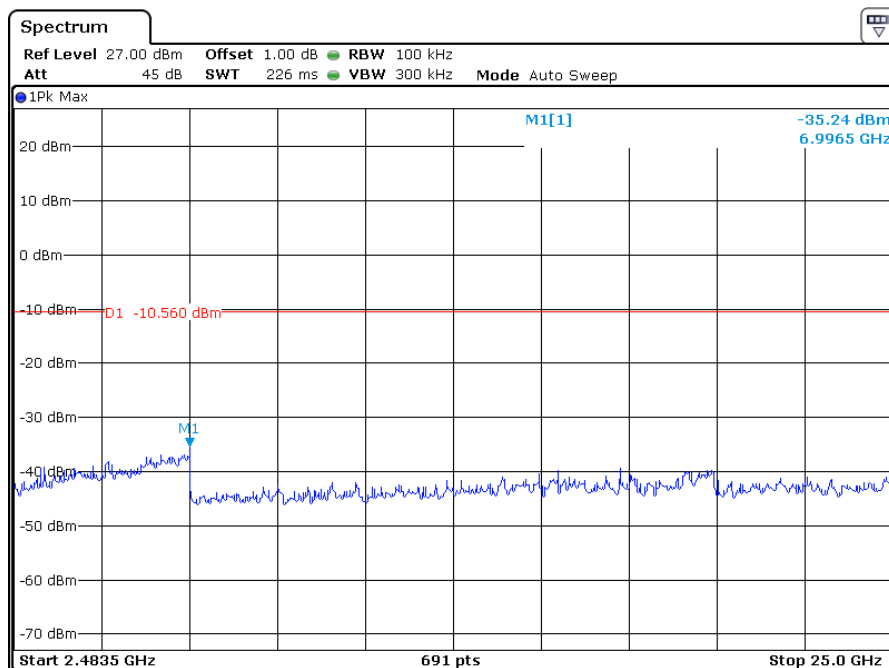
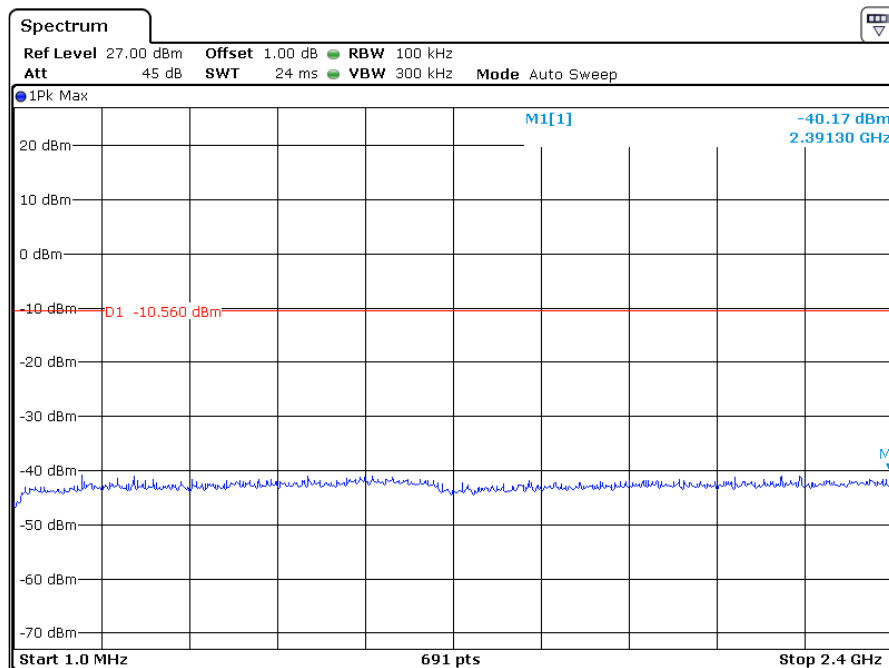
Channel 06 (2437MHz) Reference Level: 9.23dBm

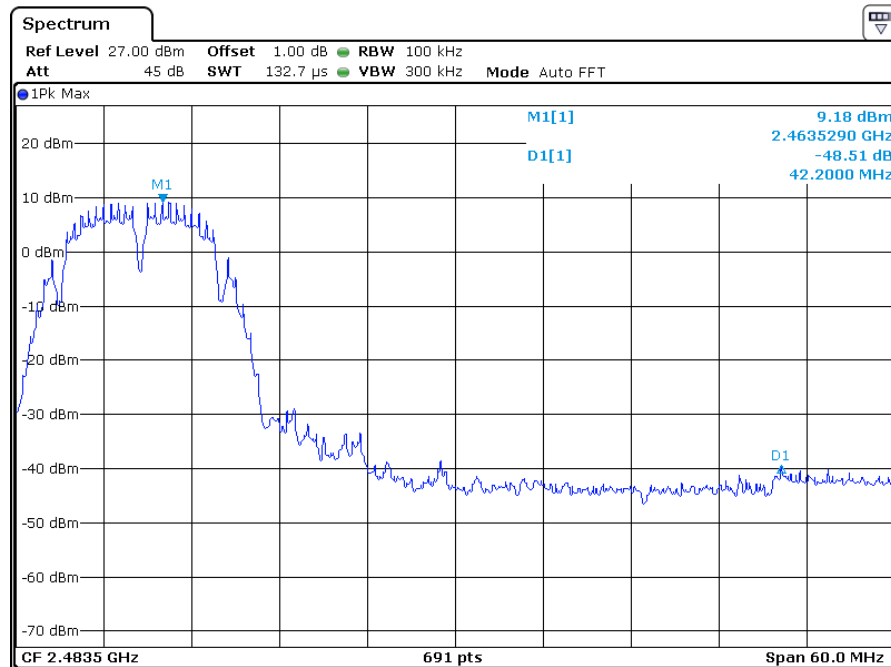




Channel 11 (2462MHz) Reference Level: 9.44dBm

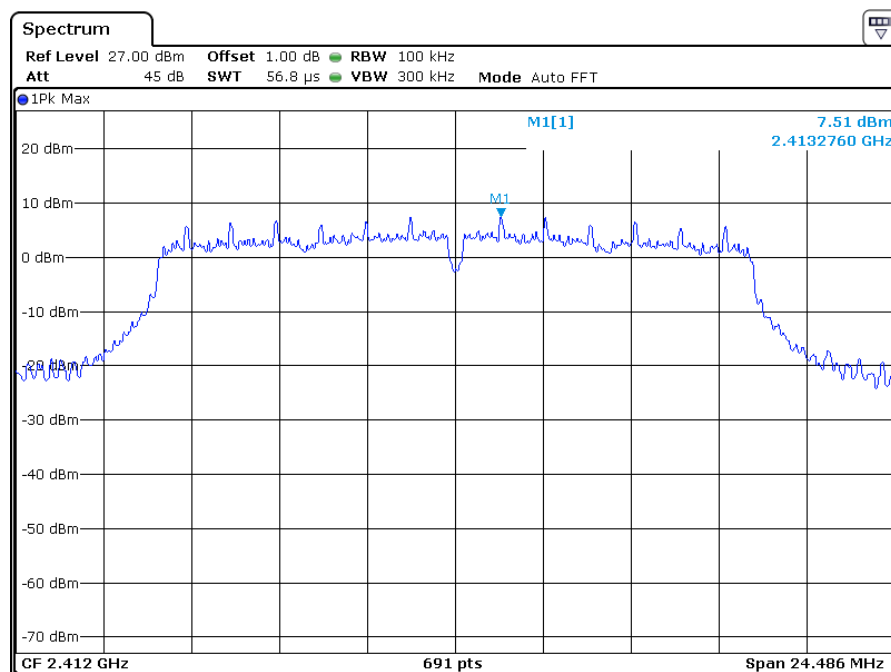


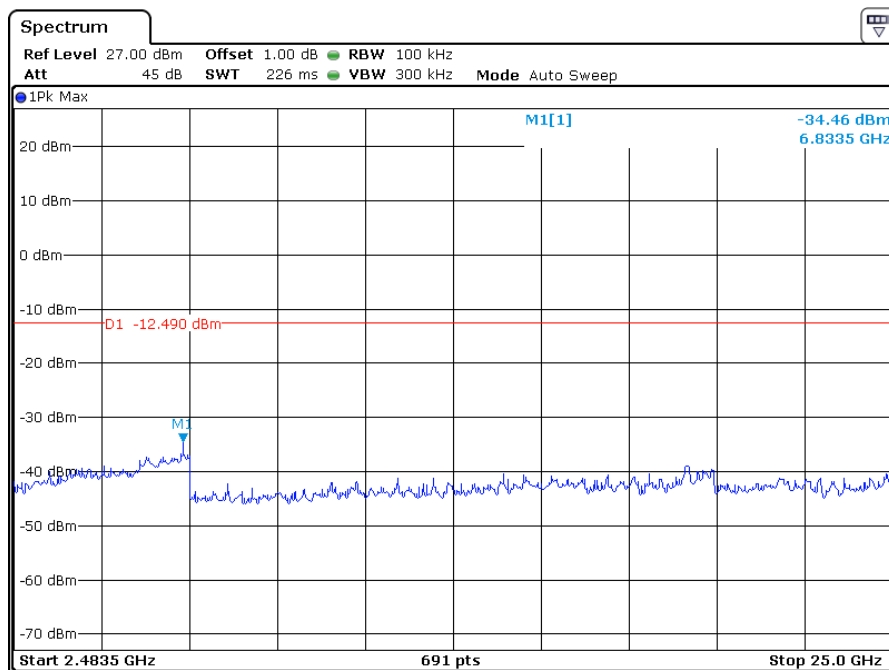
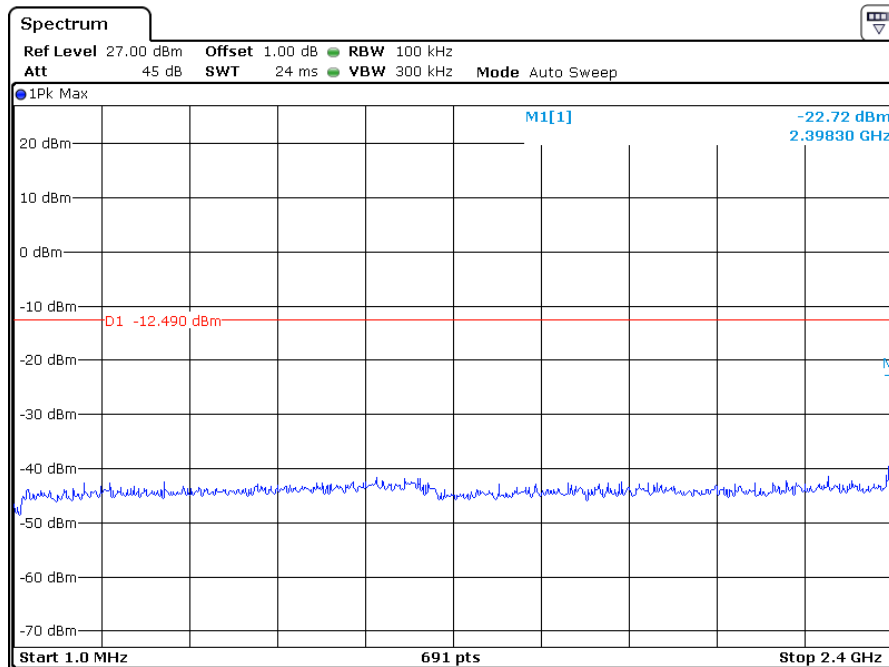


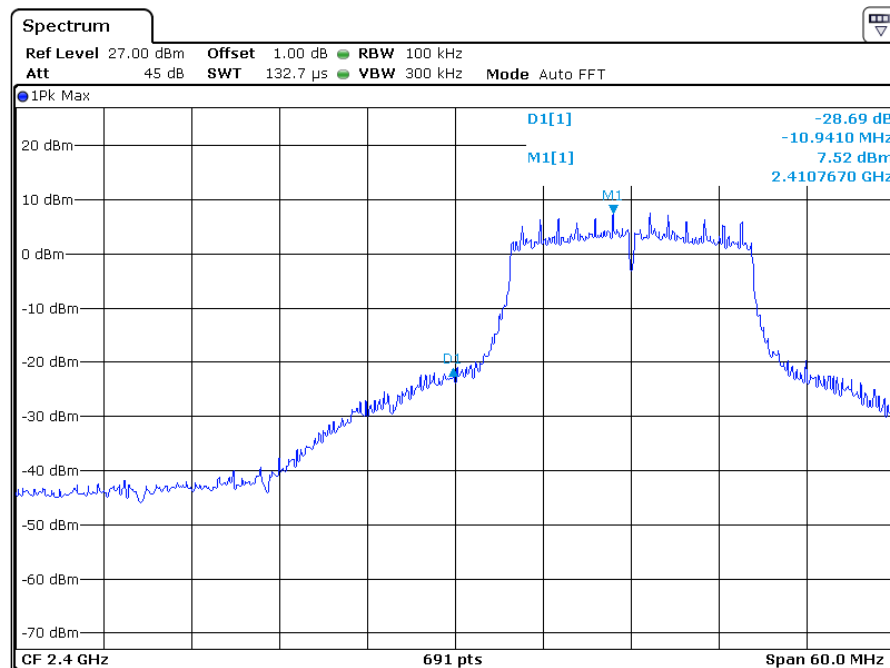


802.11g

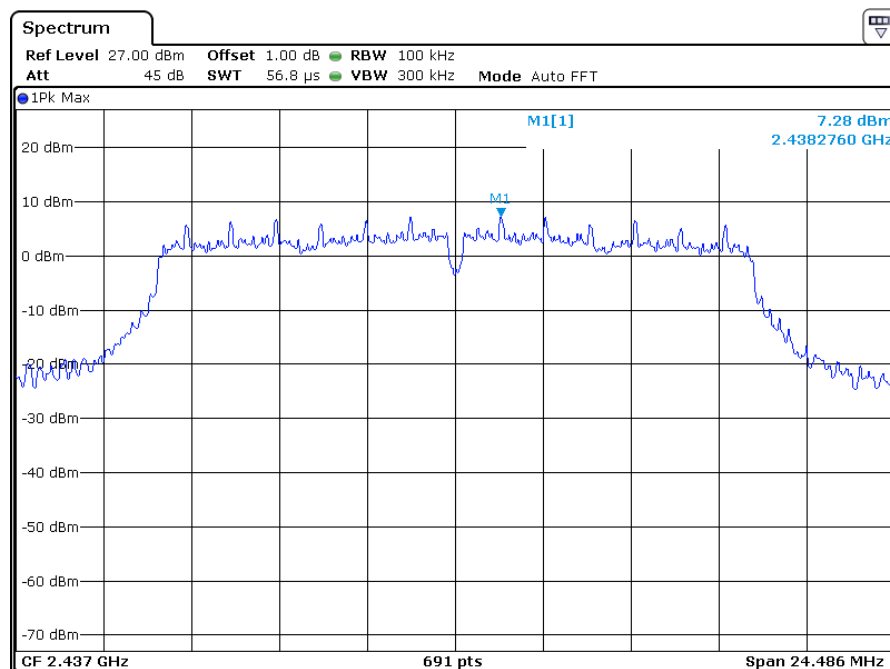
Channel 01 (2412MHz) Reference Level: 7.51dBm

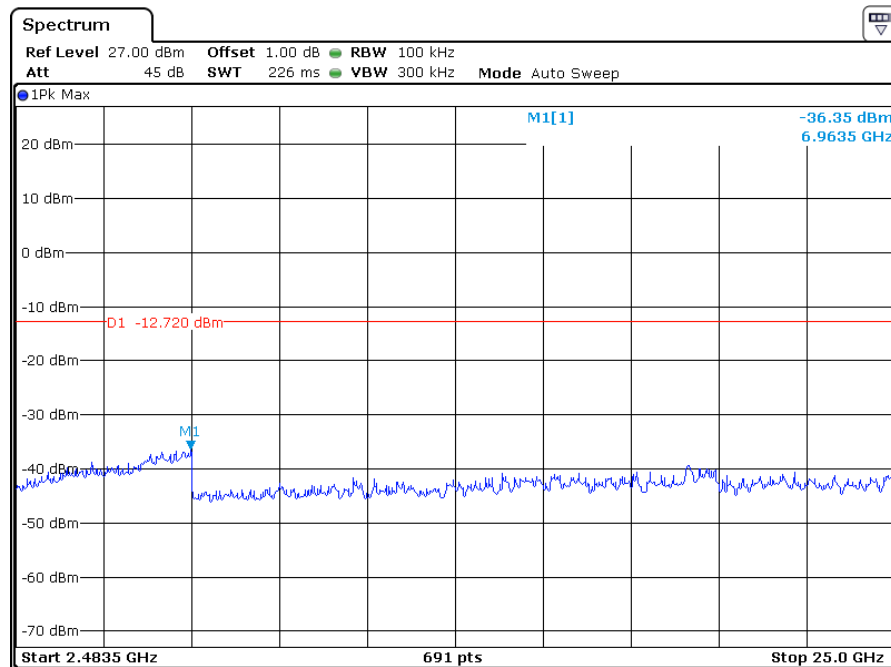
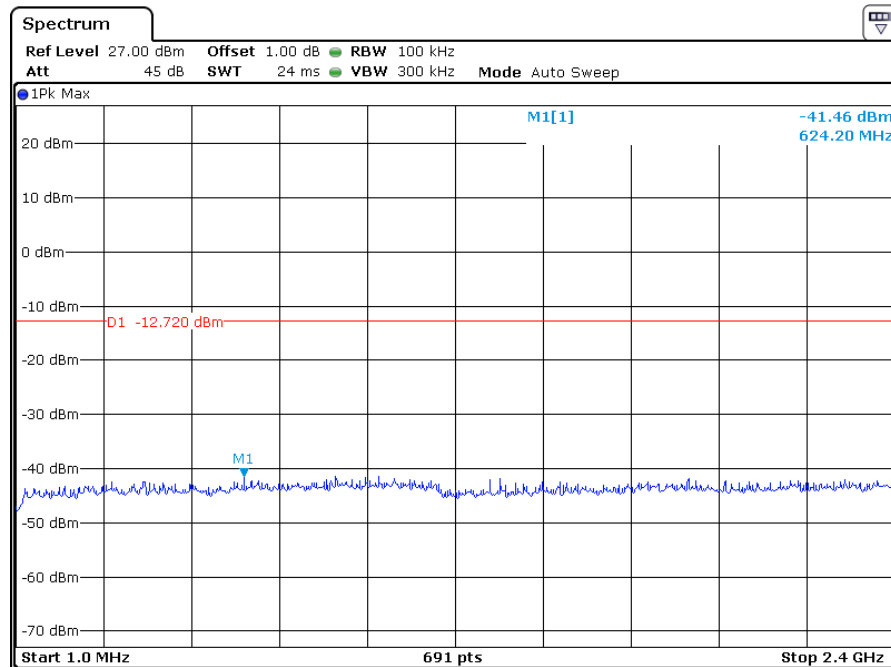




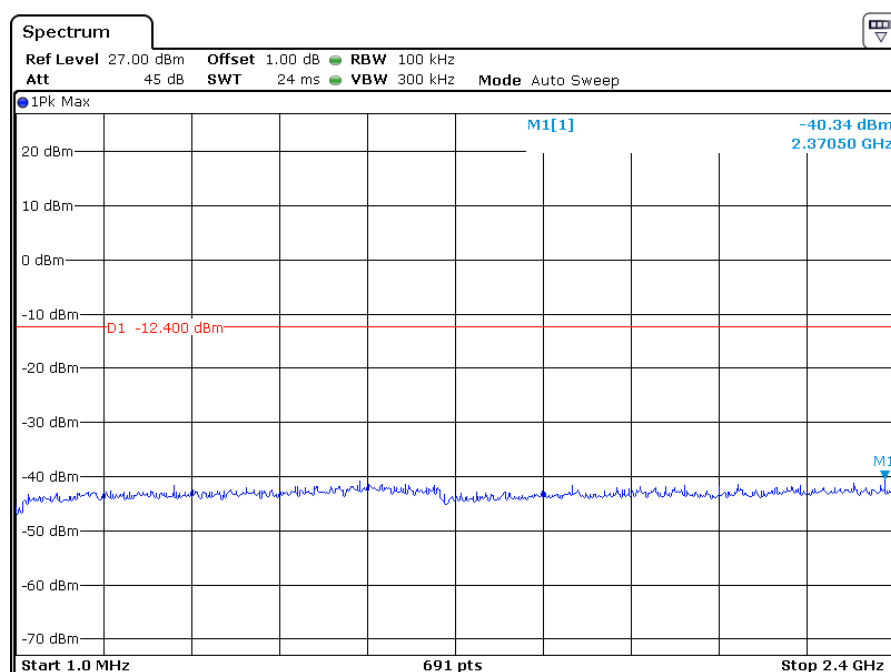
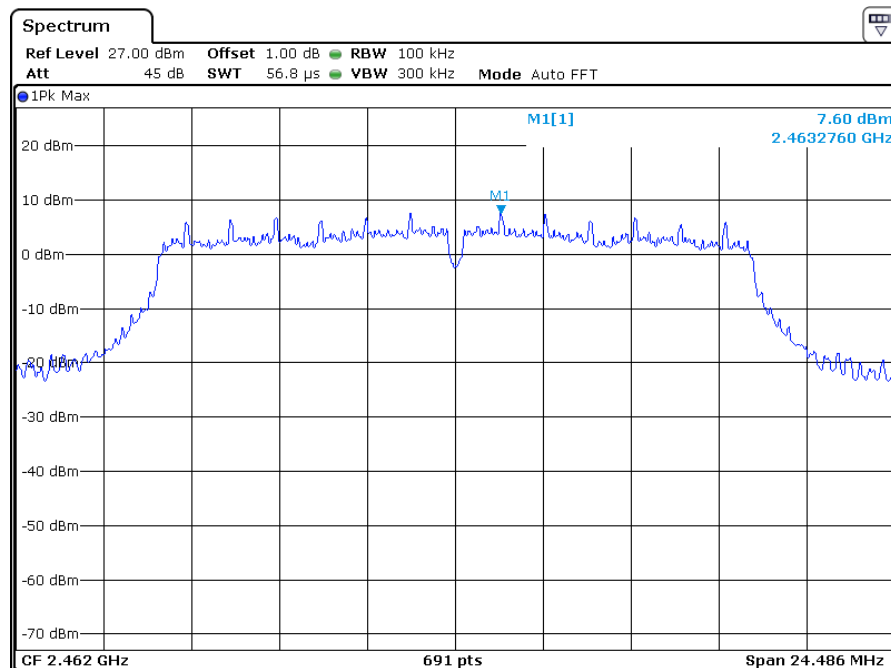


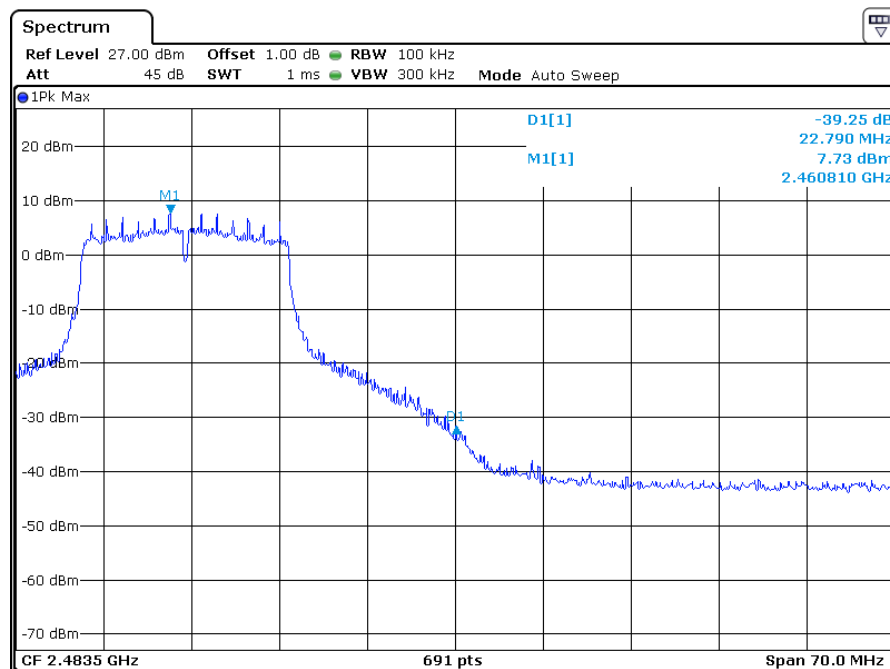
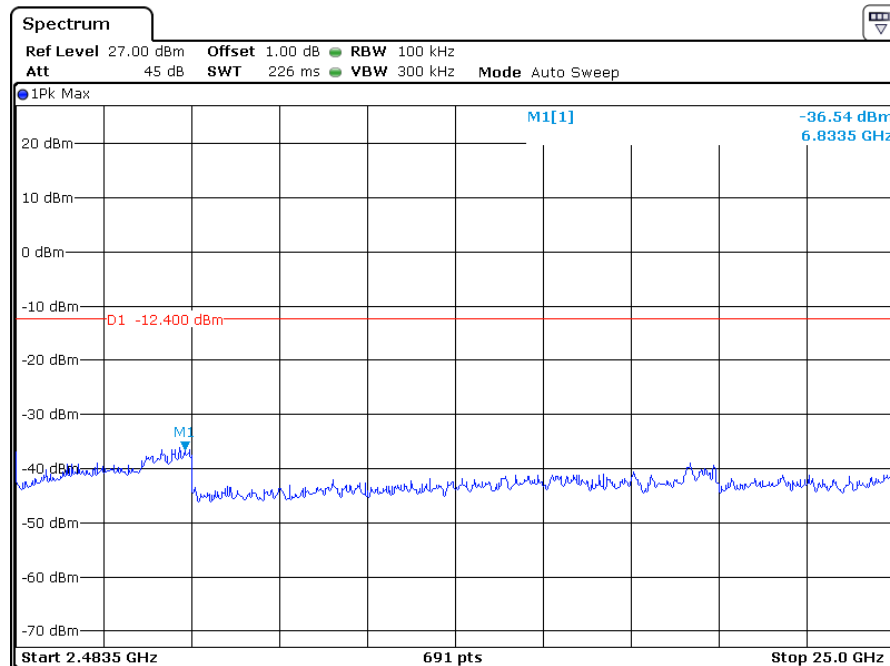
Channel 06 (2437MHz) Reference Level:7.28dBm





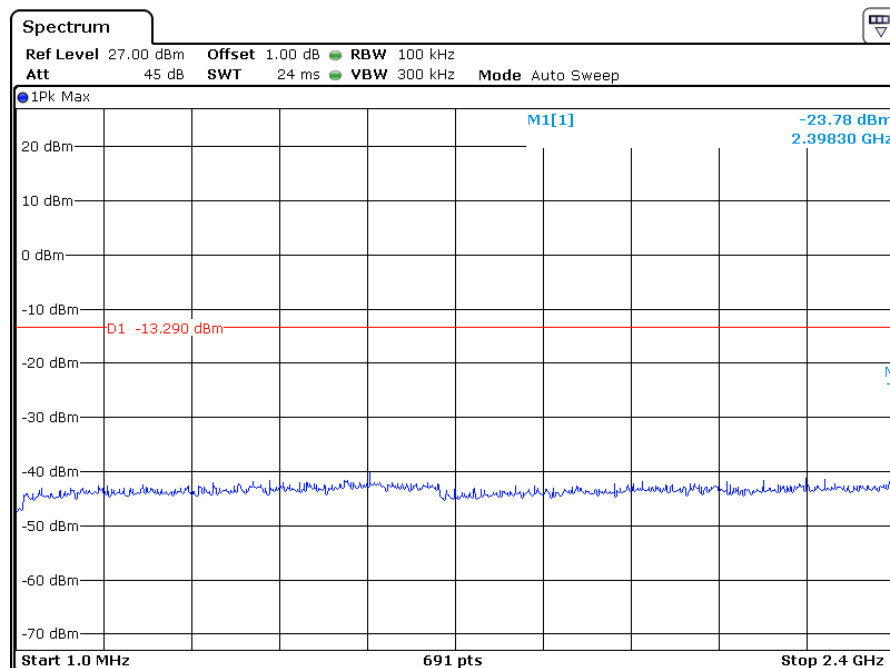
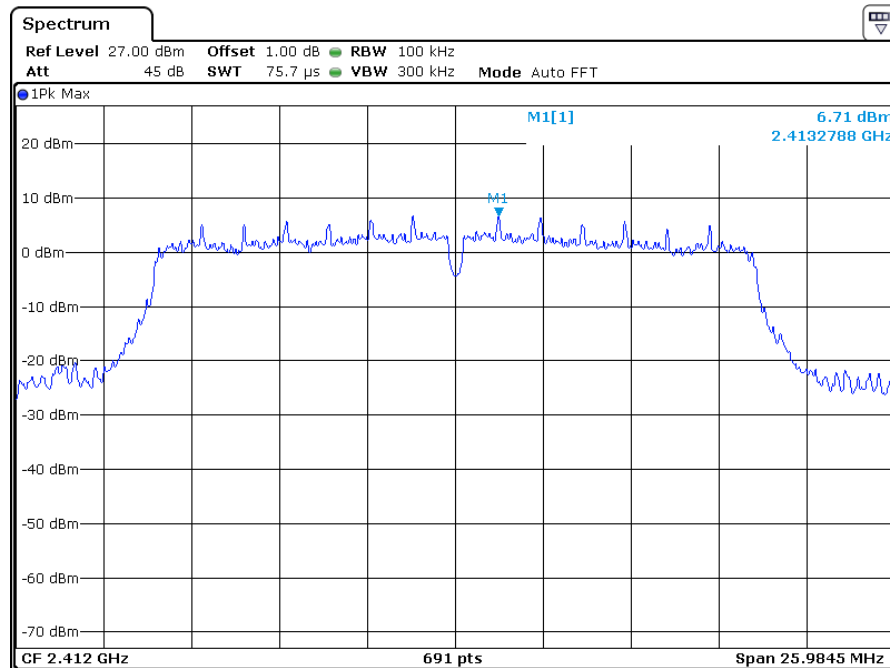
Channel 11 (2462MHz) Reference Level: 7.60dBm

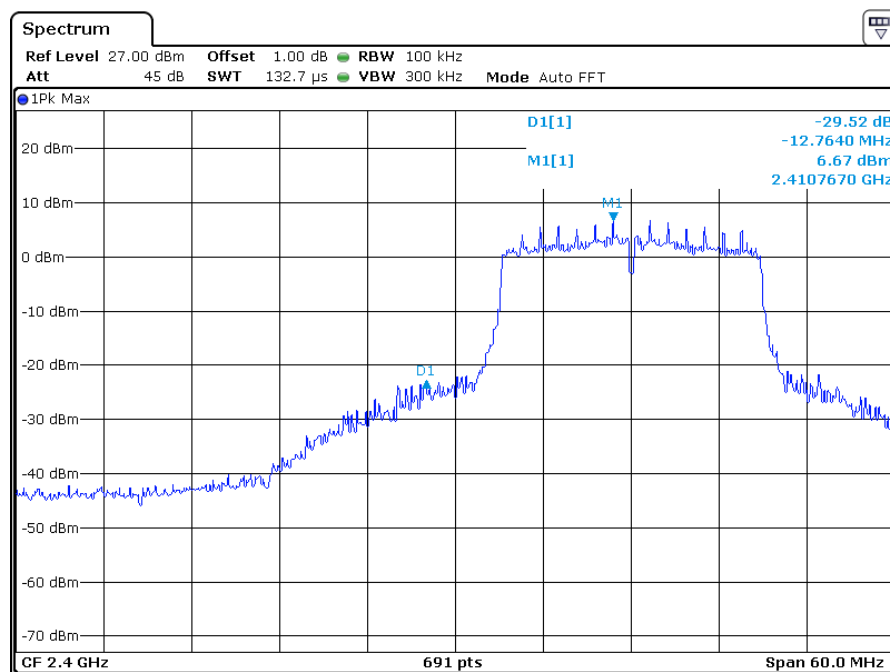
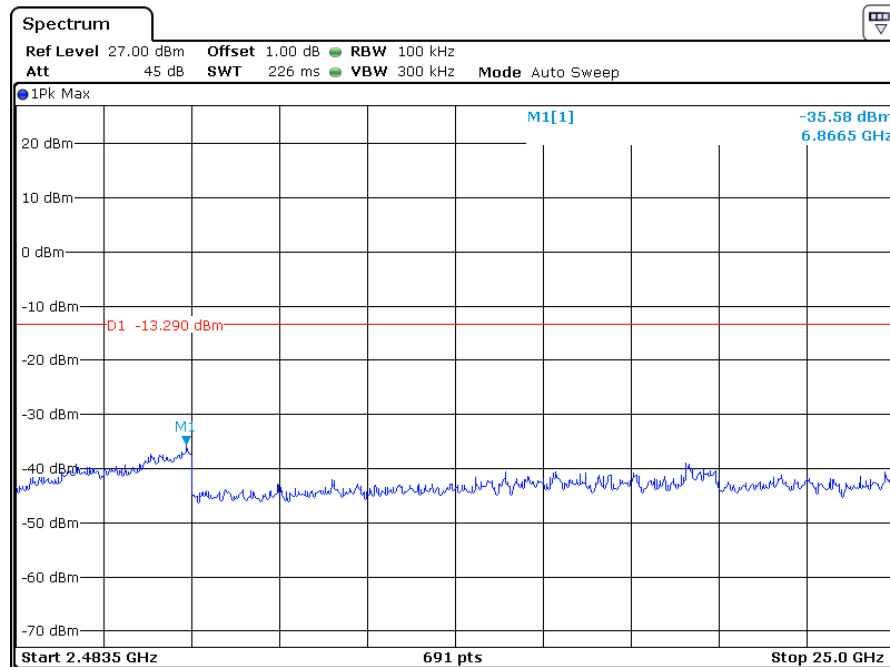




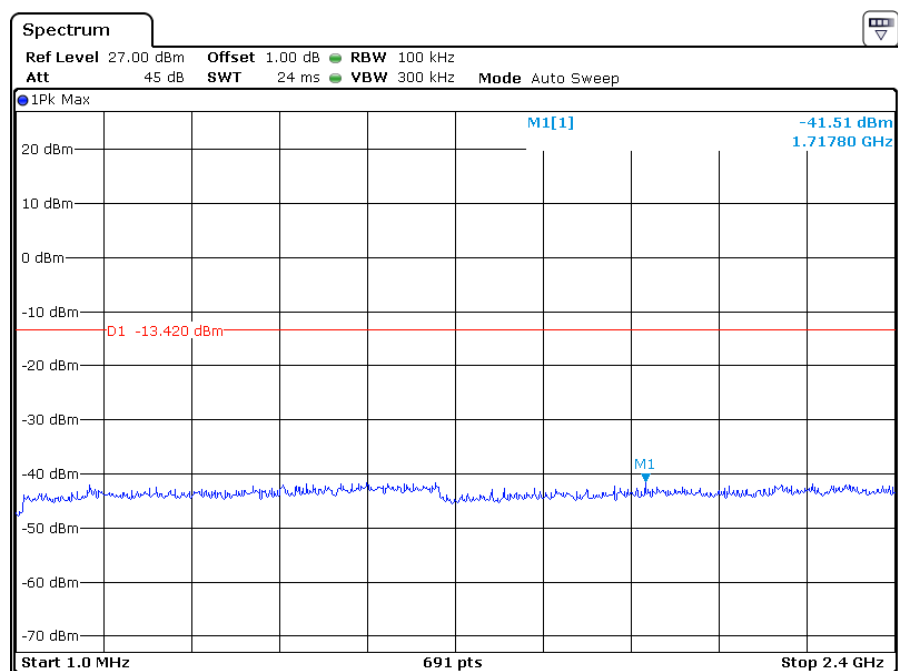
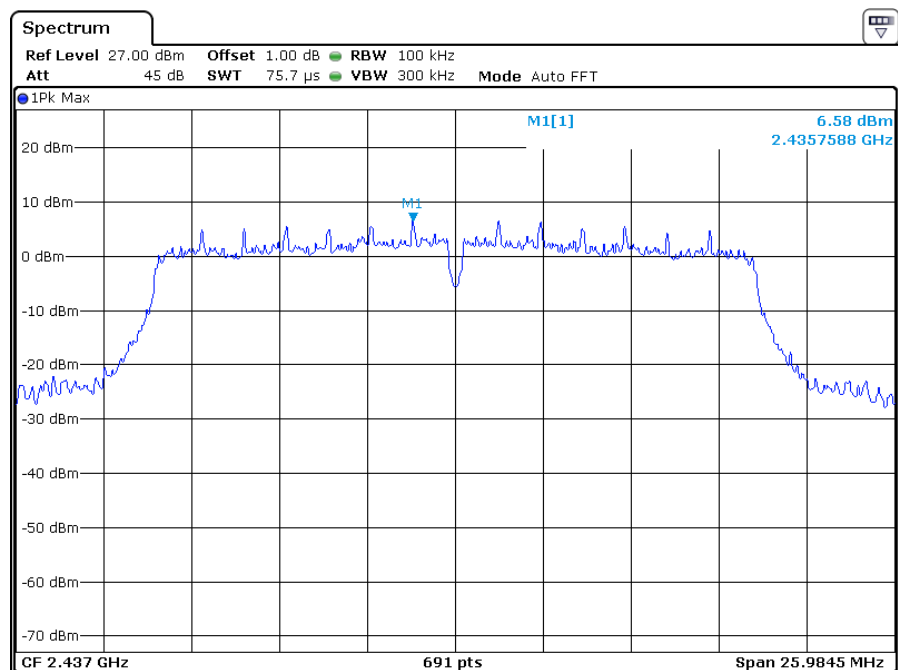
802.11n-HT20

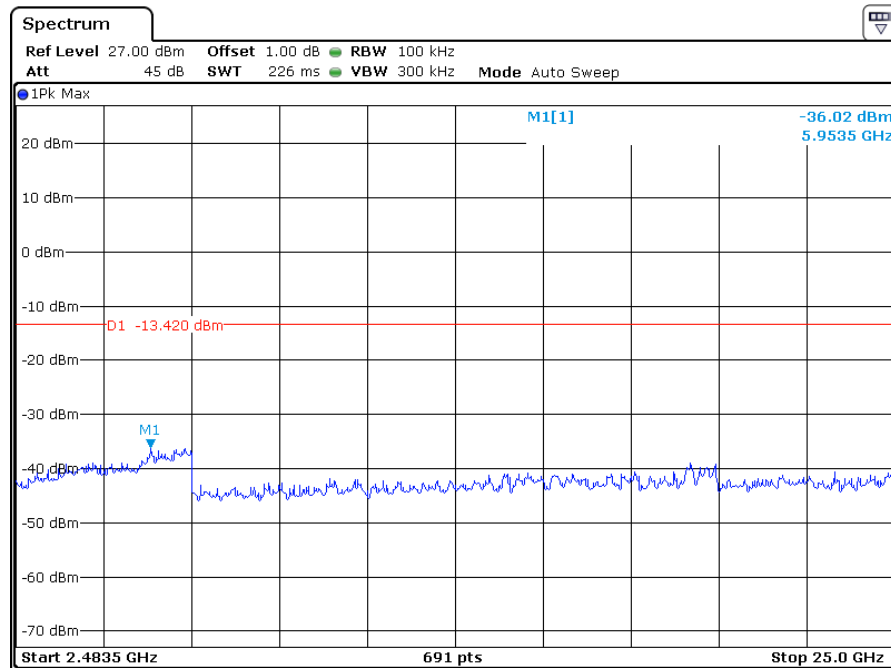
Channel 01 (2412MHz) Reference Level: 6.71dBm



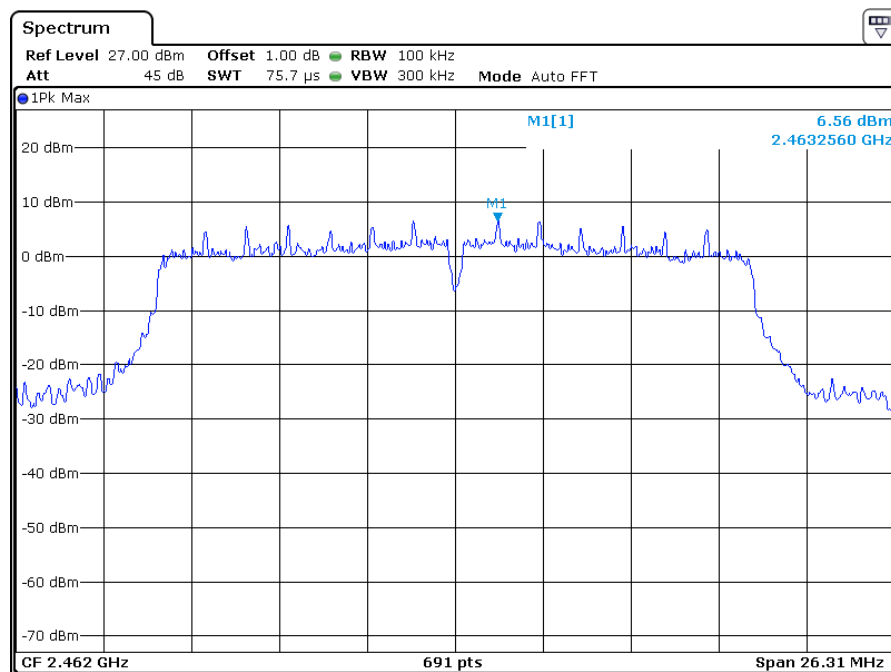


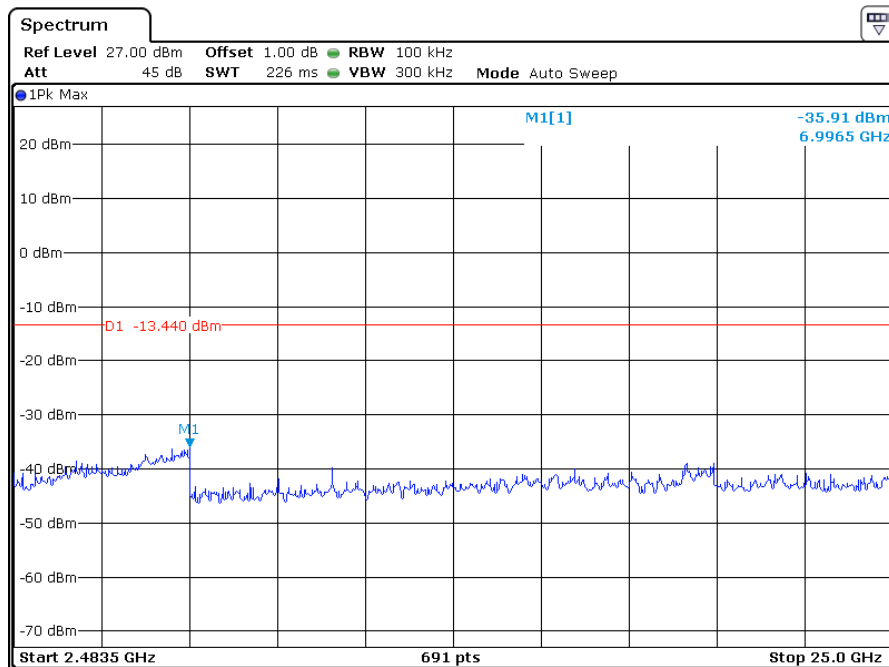
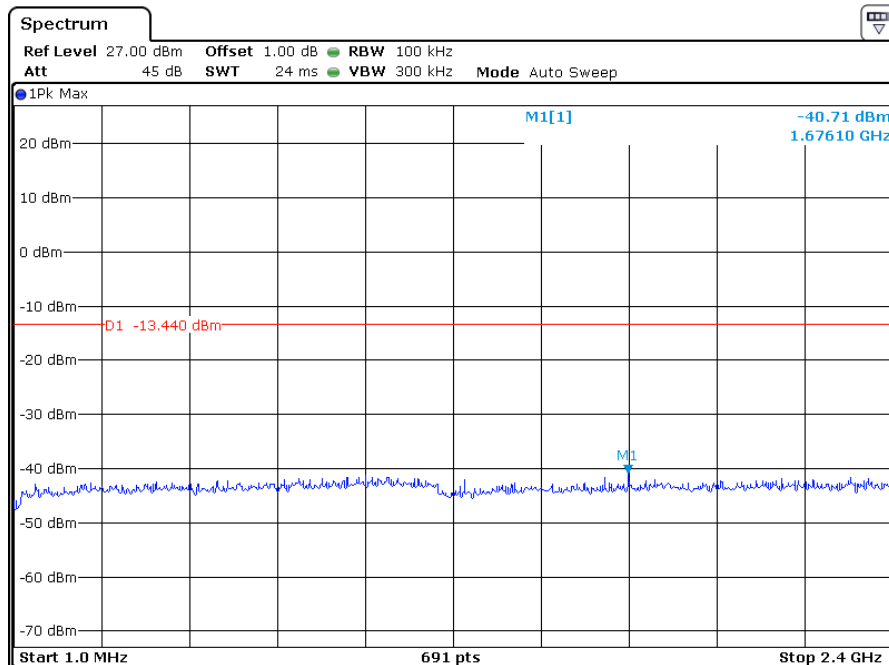
Channel 06 (2437MHz) Reference Level: 6.58dBm

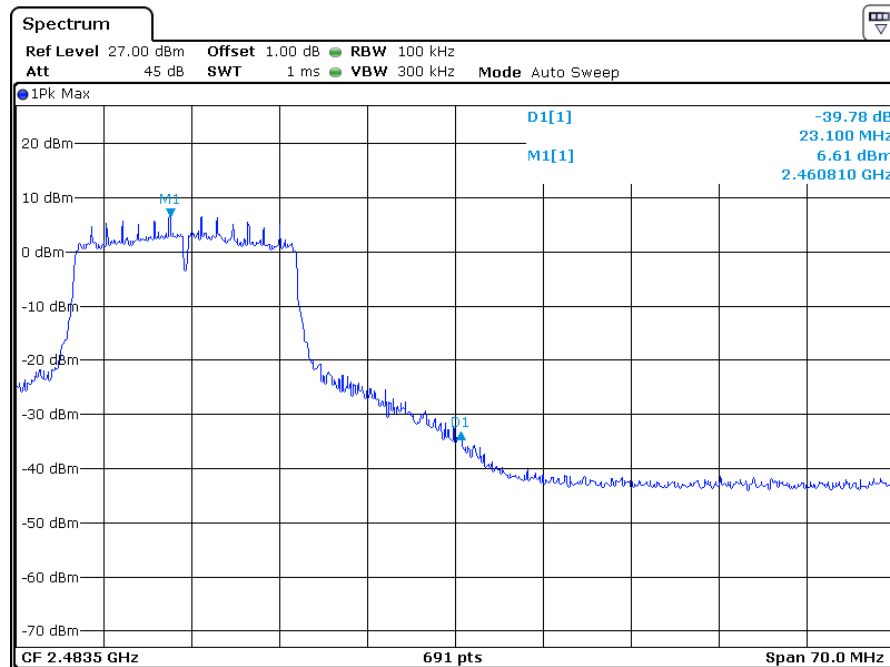




Channel 11 (2462MHz) Reference Level: 6.56dBm

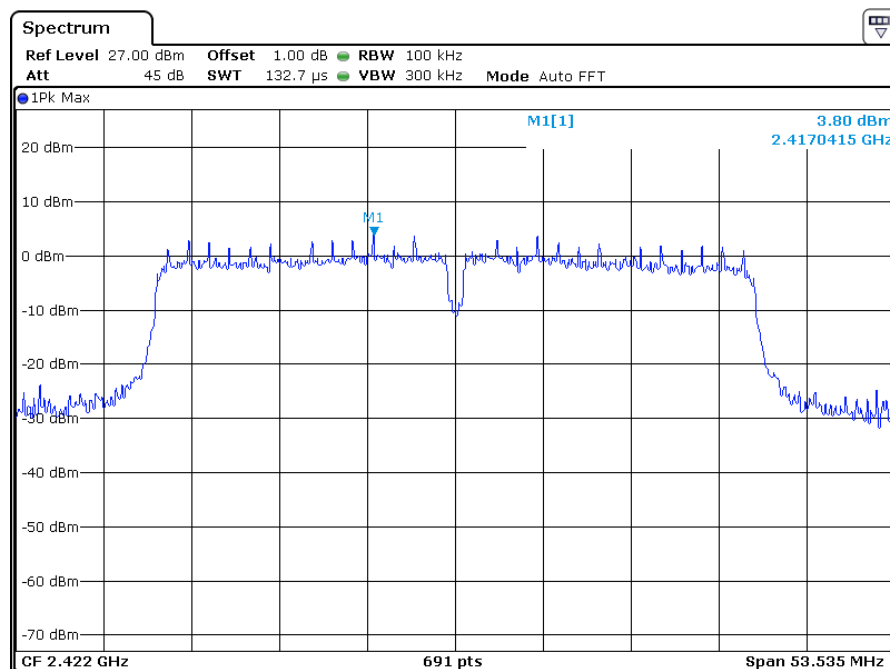


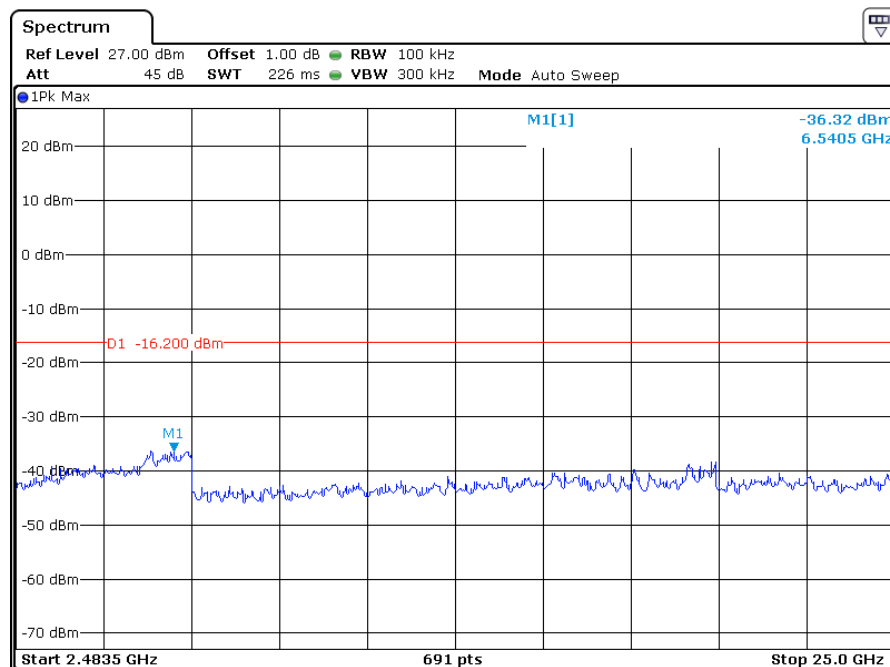
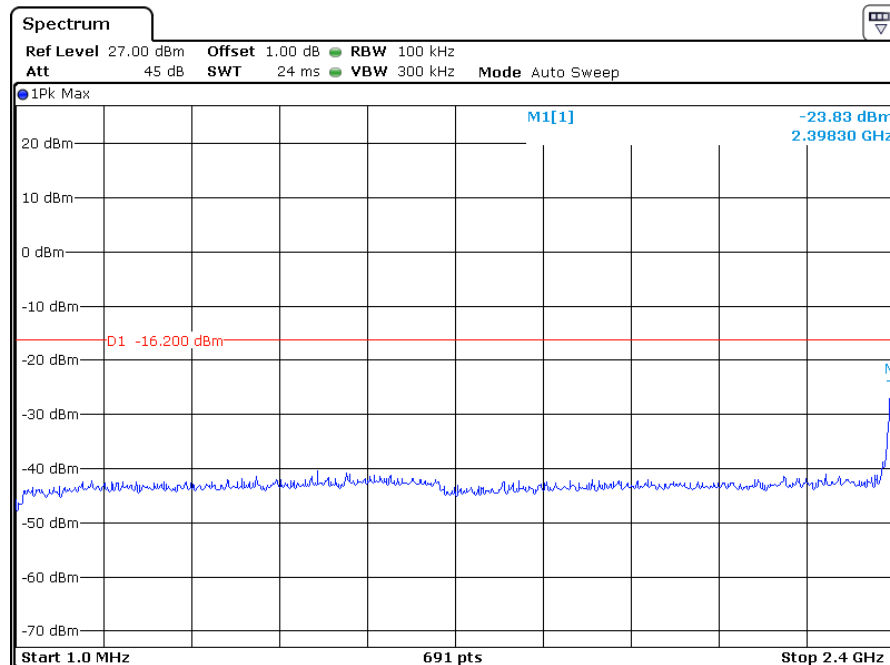


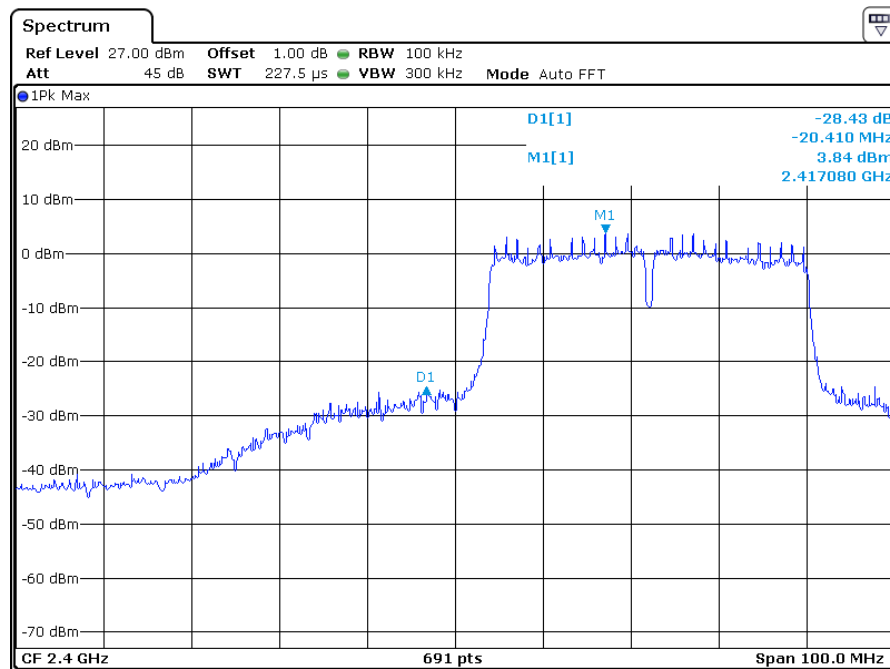


802.11n-HT40

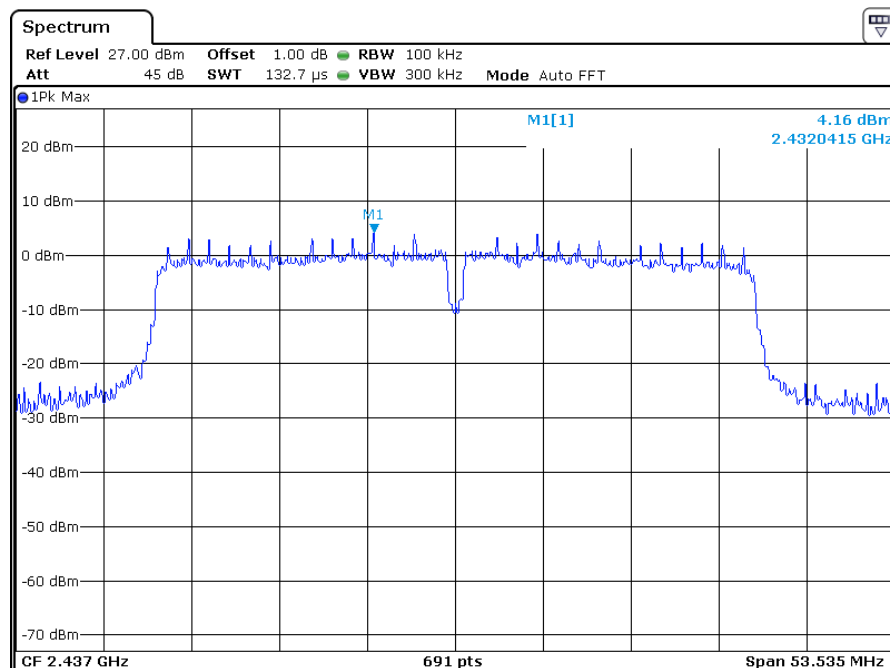
Channel 03 (2422MHz) Reference Level: 3.8dBm

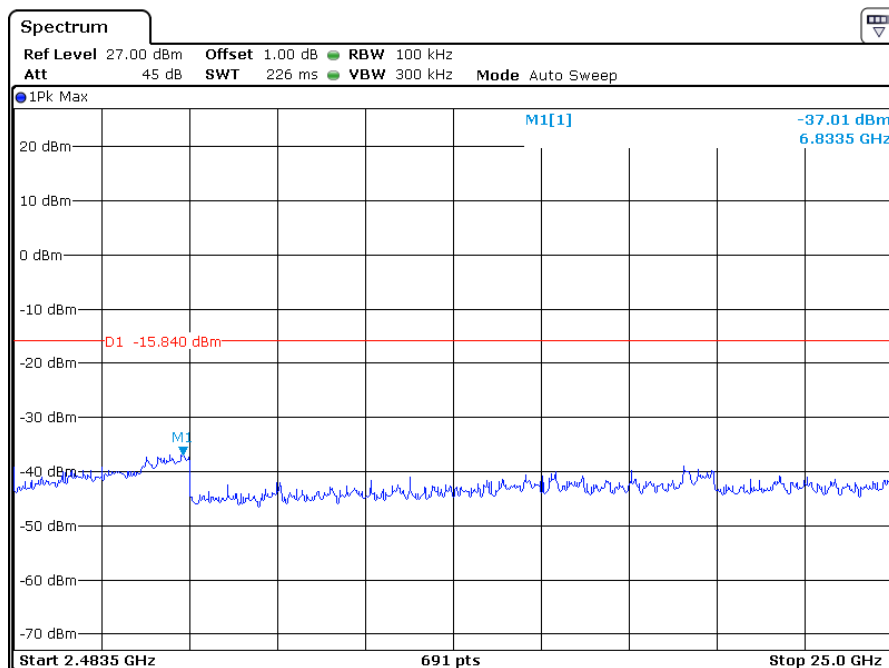
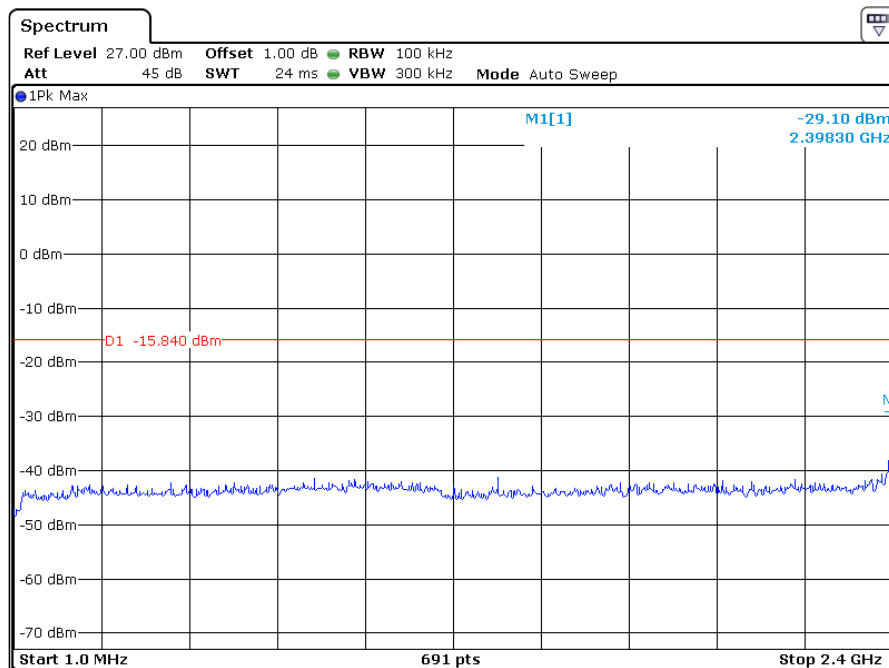




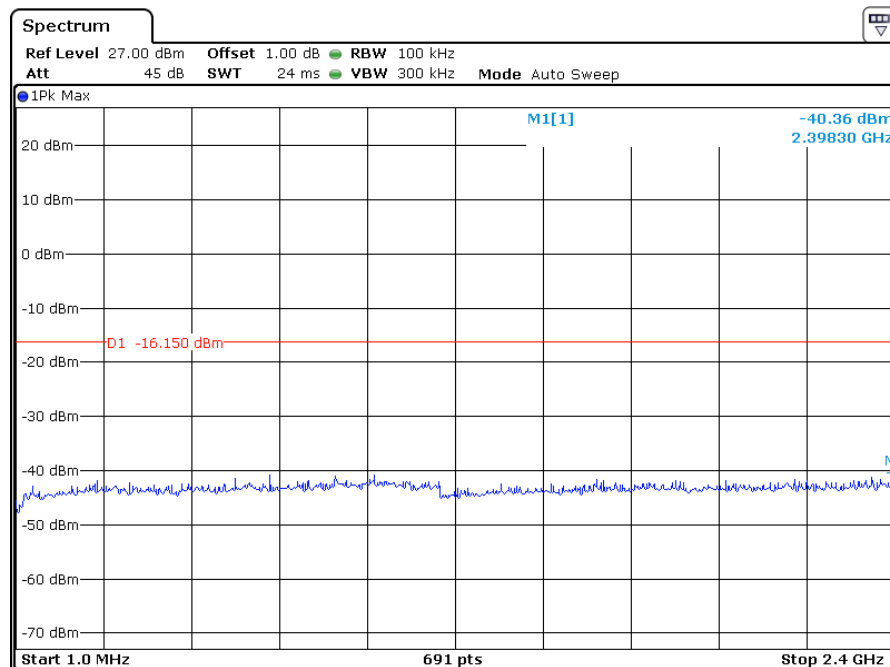
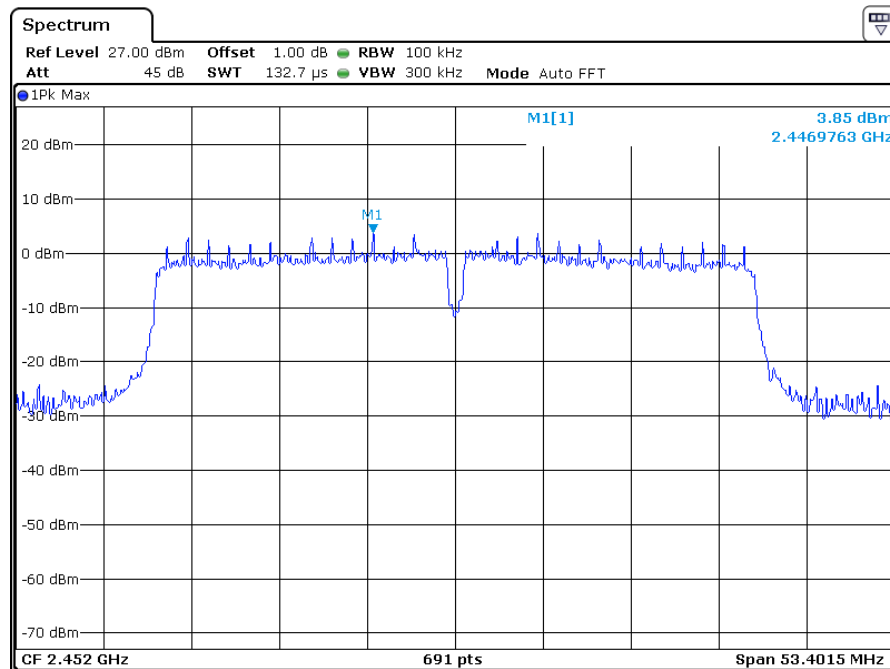


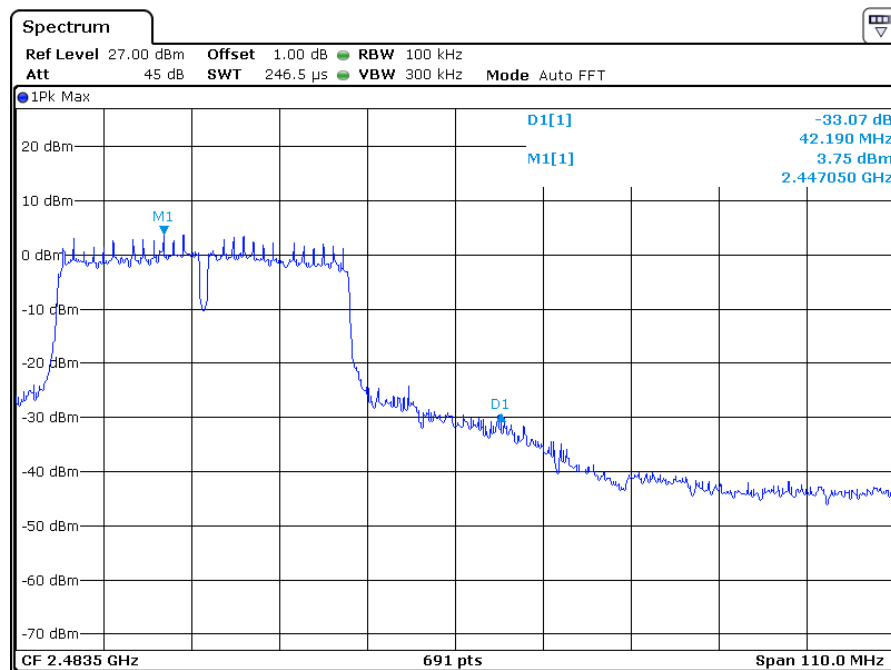
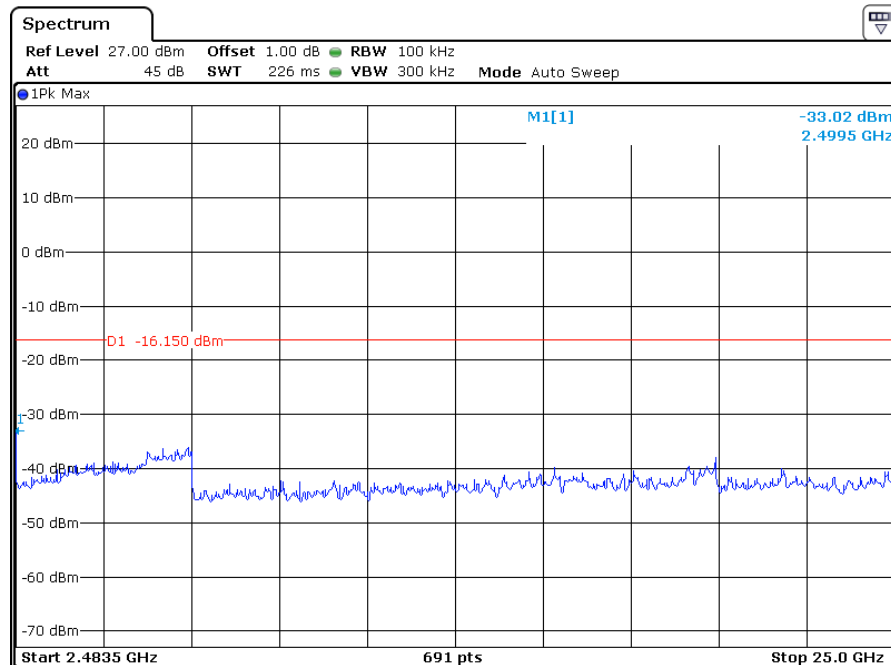
Channel 06 (2437MHz) Reference Level: 4.16dBm





Channel 09 (2452MHz) Reference Level: 3.85dBm

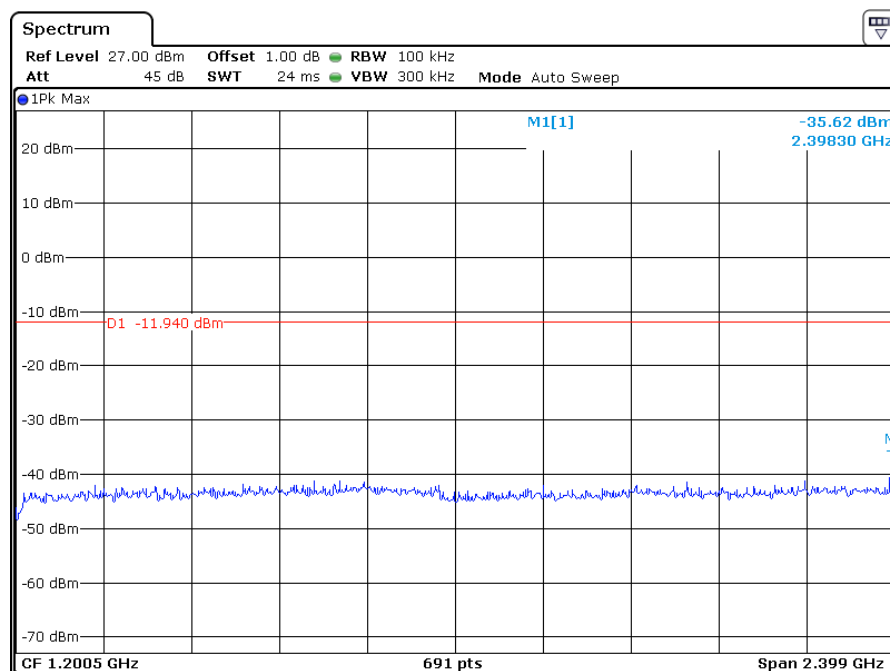
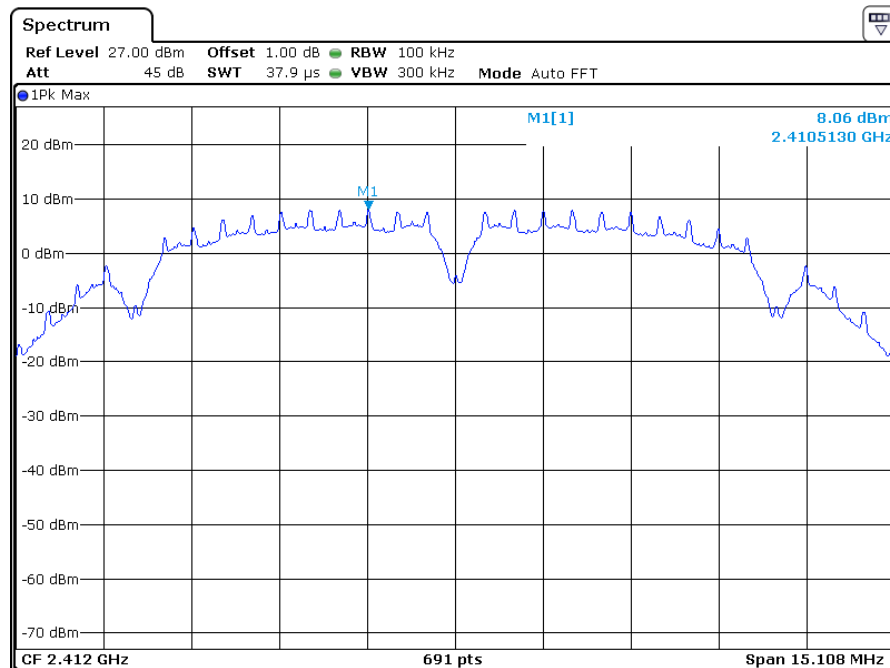


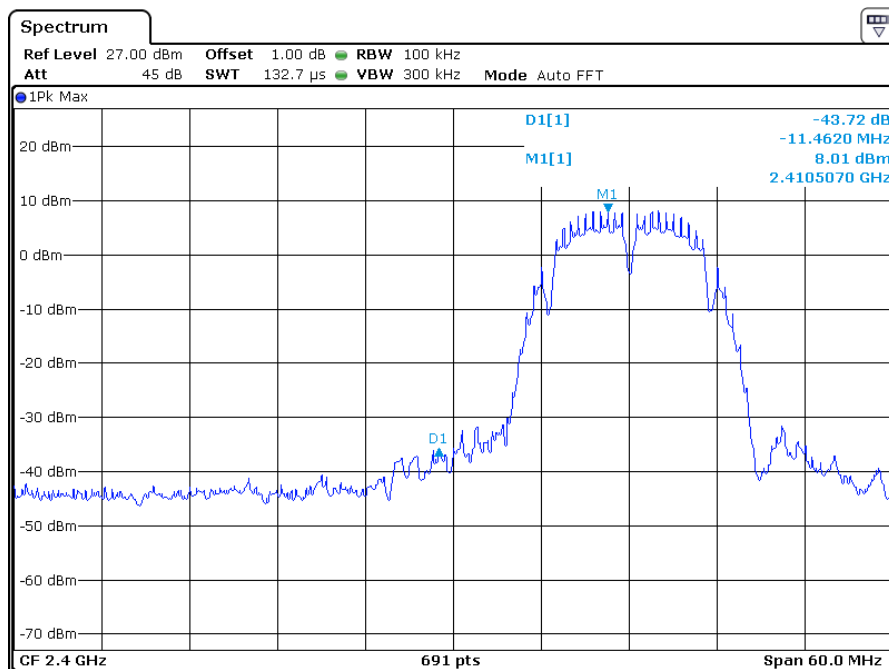
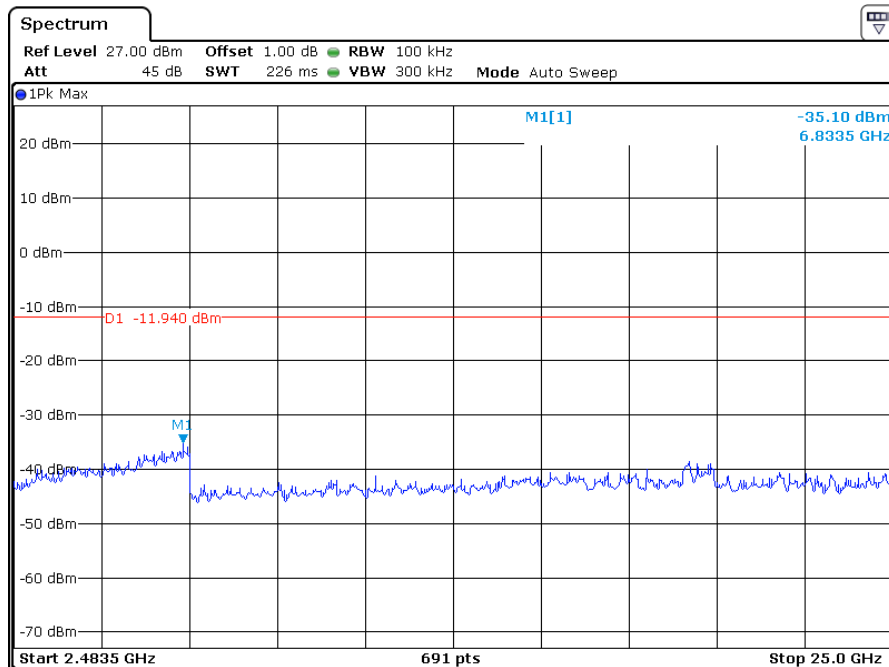


SISO Mode, Ant2:

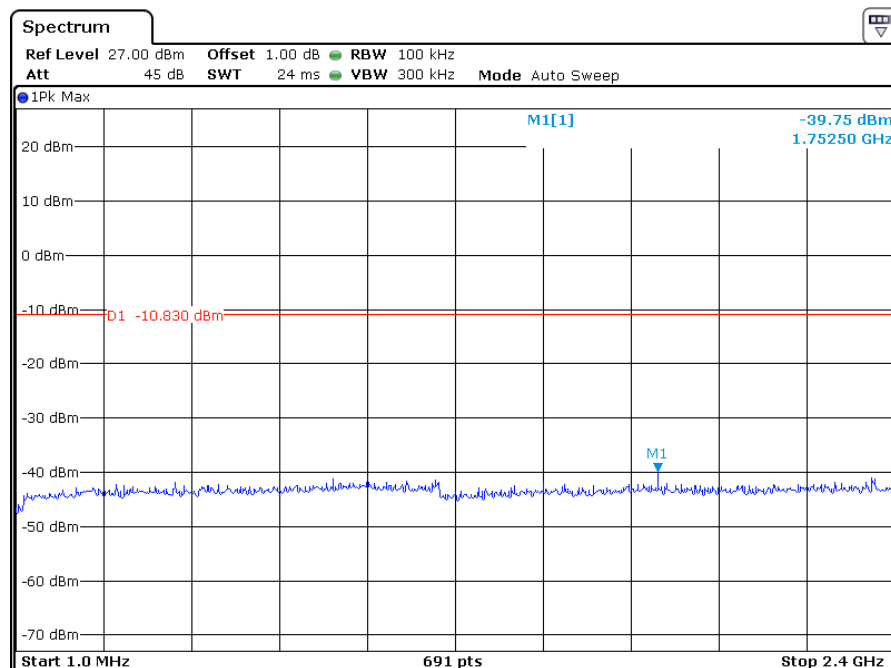
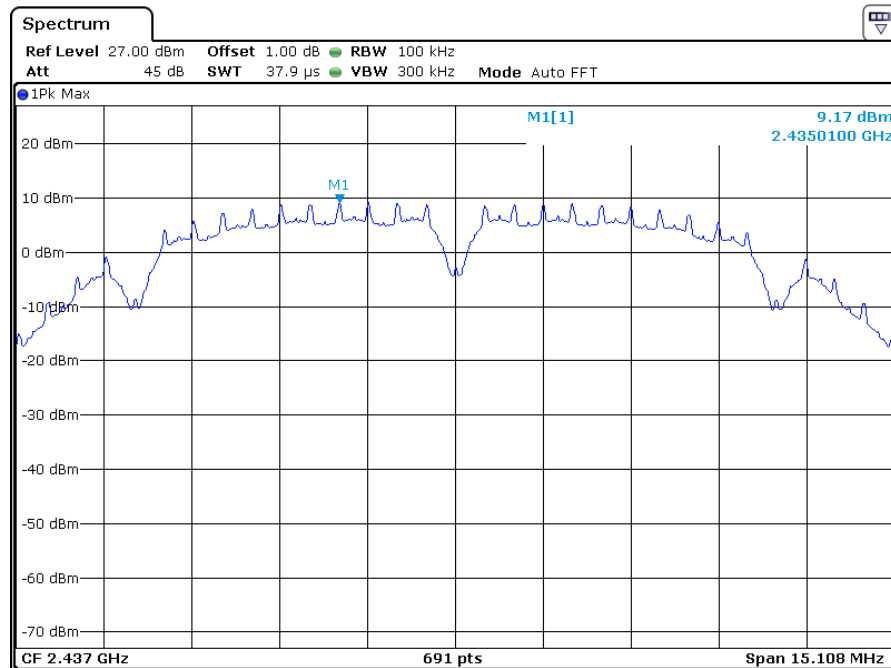
802.11b

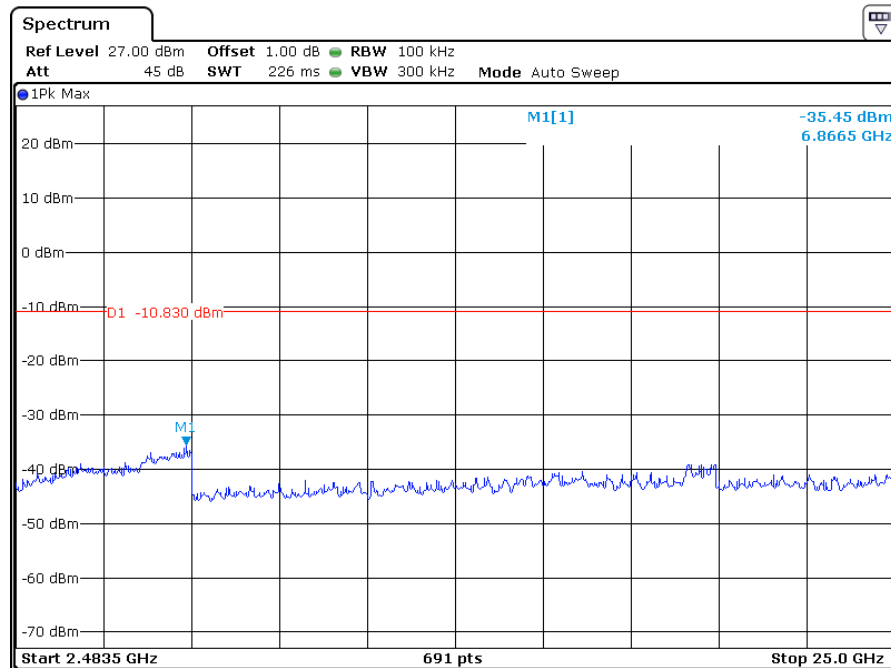
Channel 01 (2412MHz) Reference Level: 8.06dBm



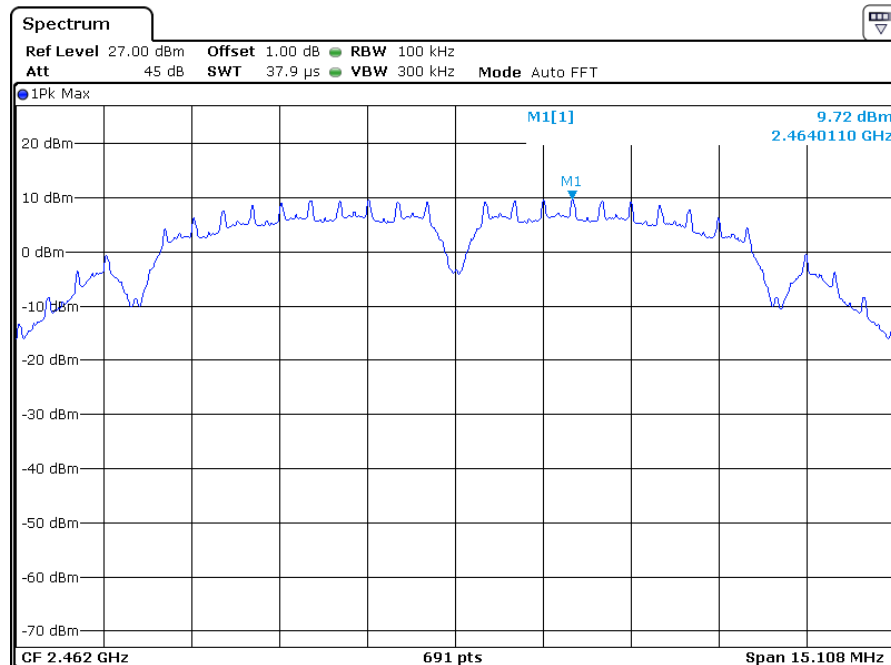


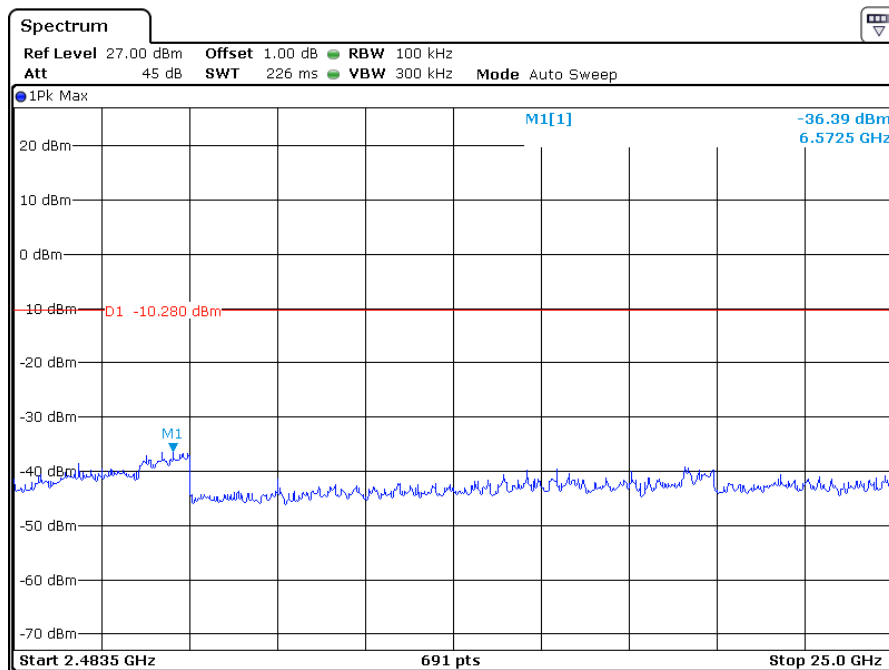
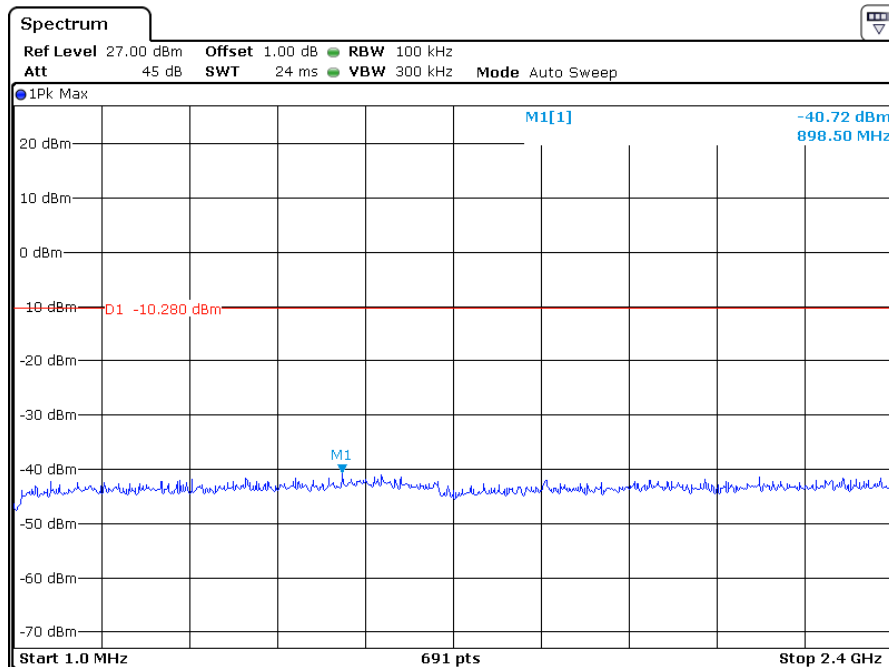
Channel 06 (2437MHz) Reference Level: 9.17dBm

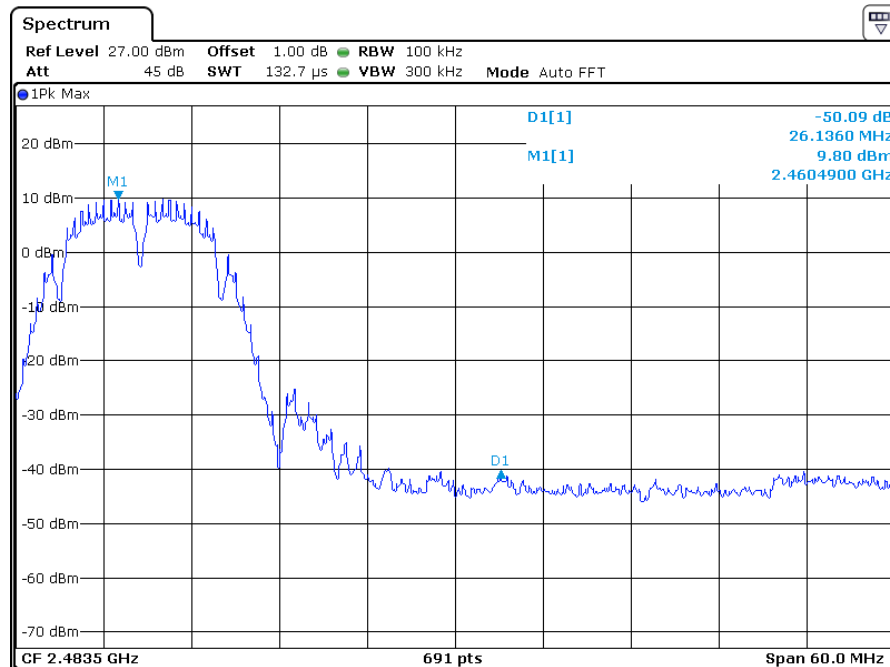




Channel 11 (2462MHz) Reference Level: 9.72dBm

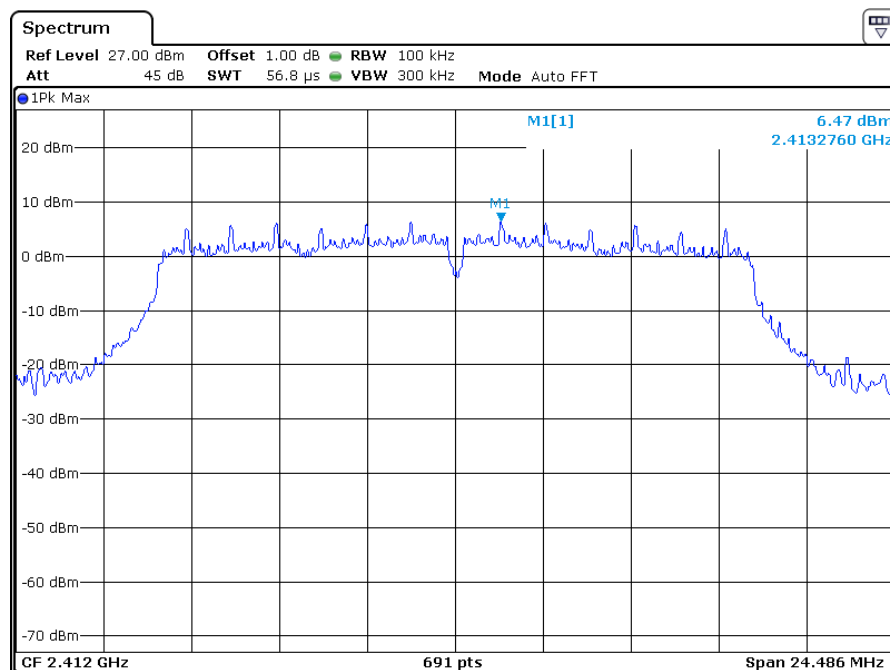


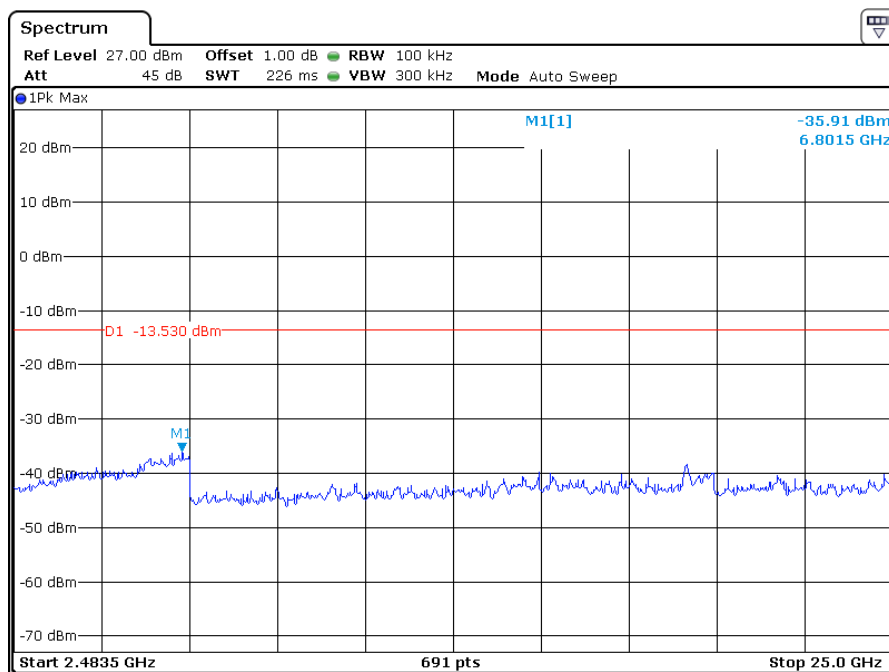
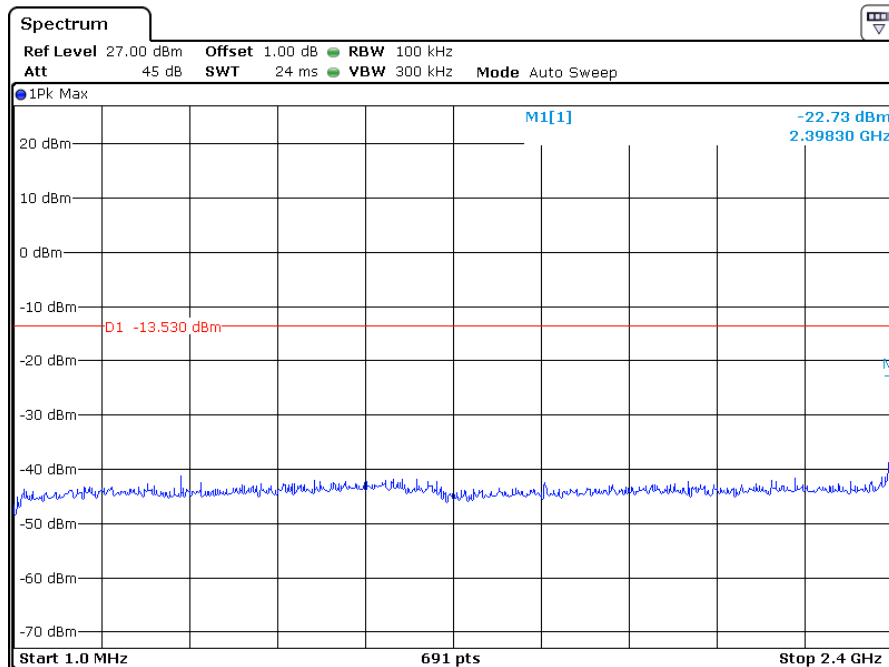


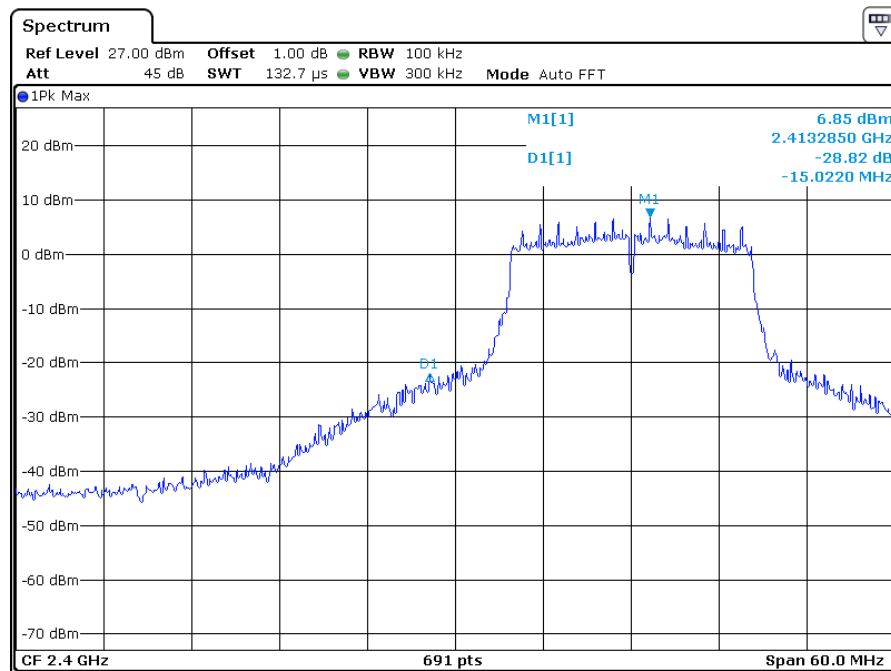


802.11g

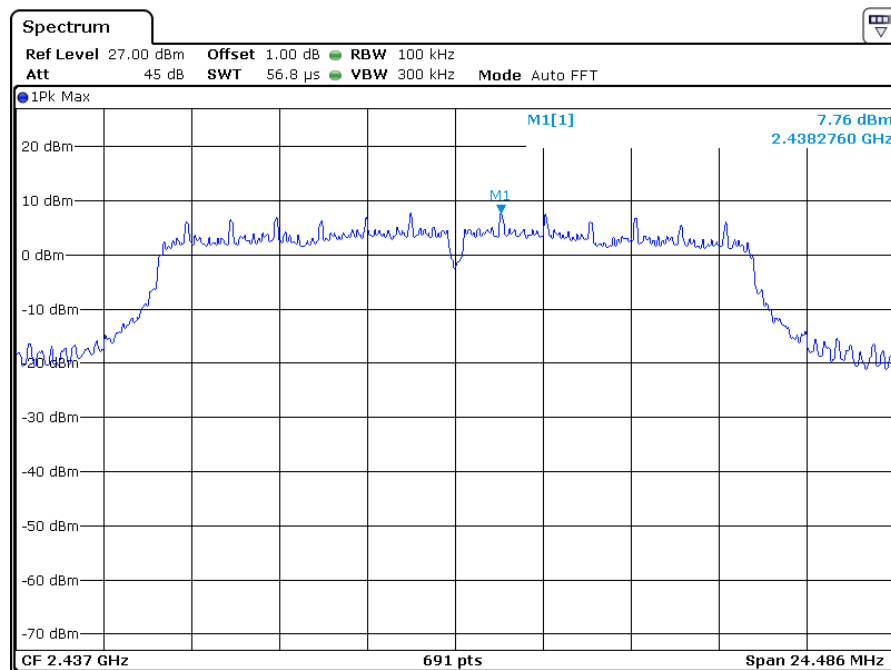
Channel 01 (2412MHz) Reference Level: 6.47dBm

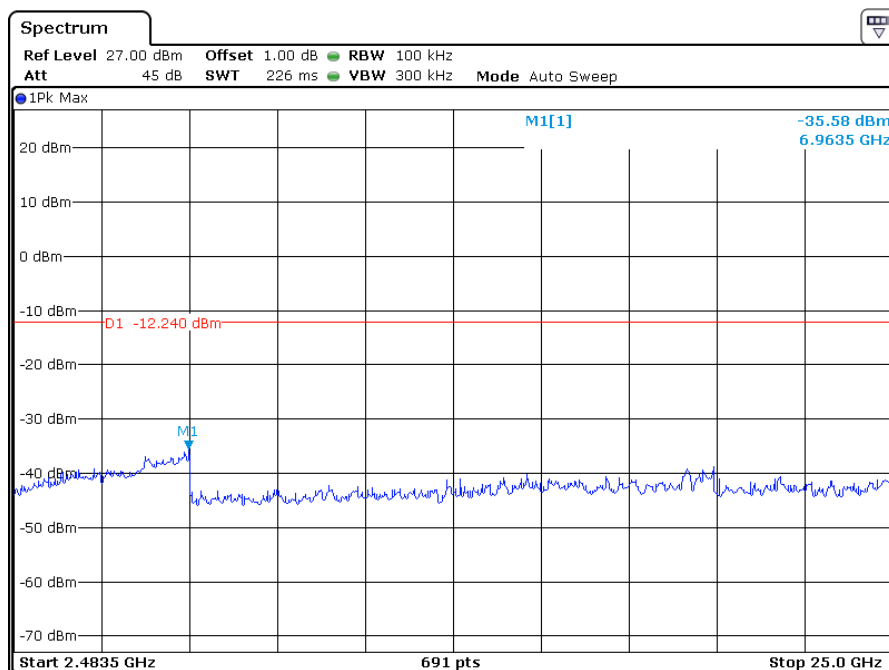
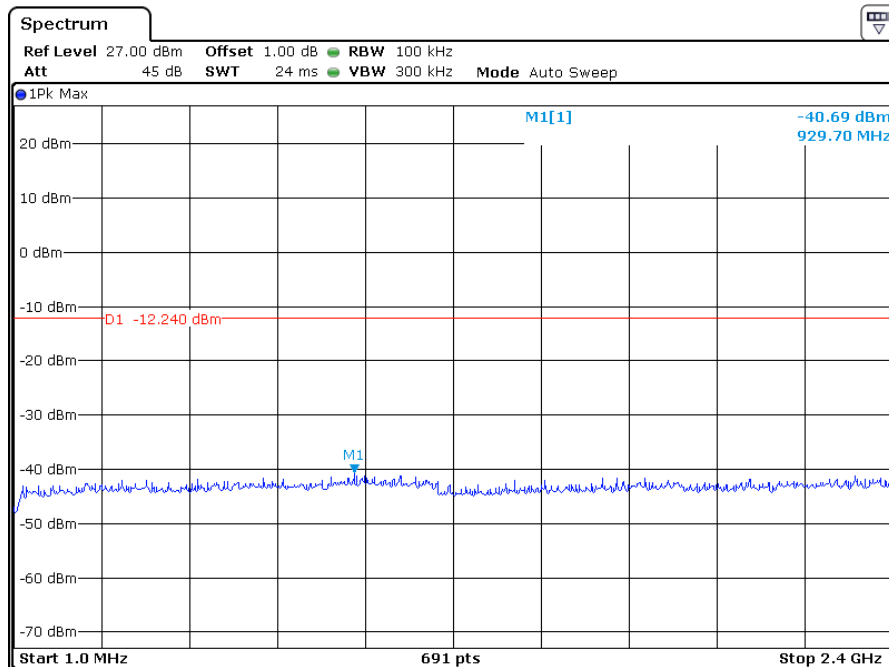




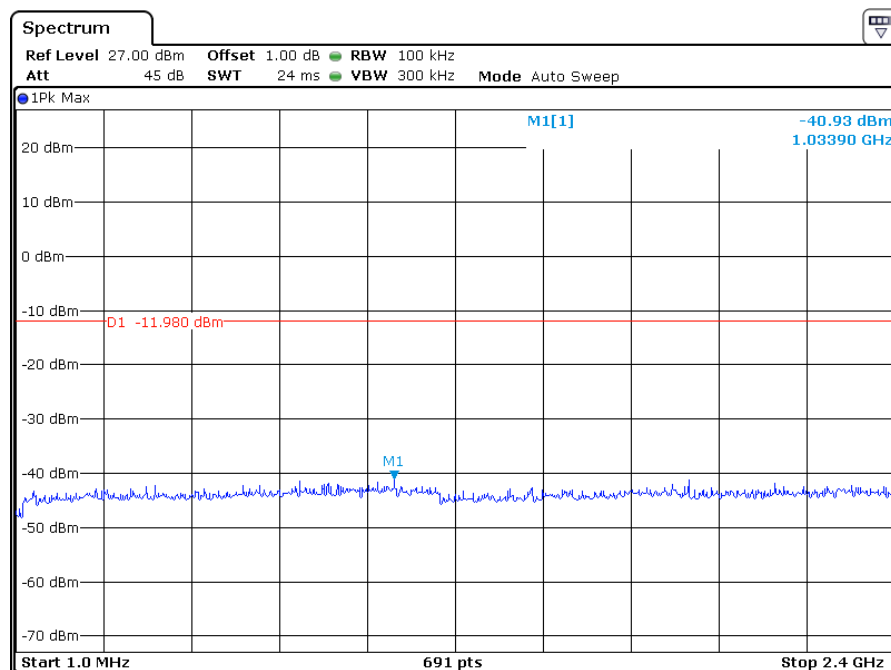
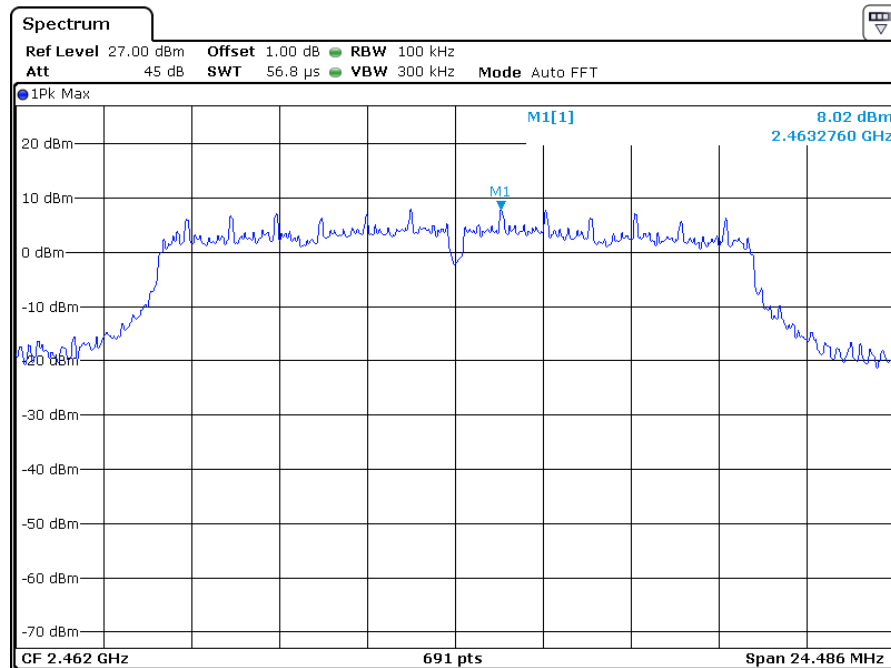


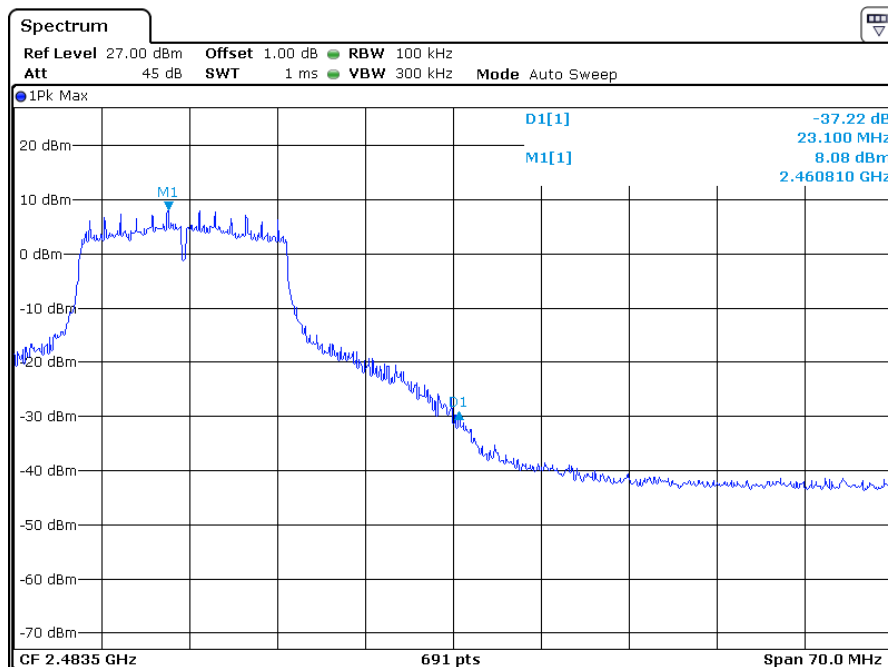
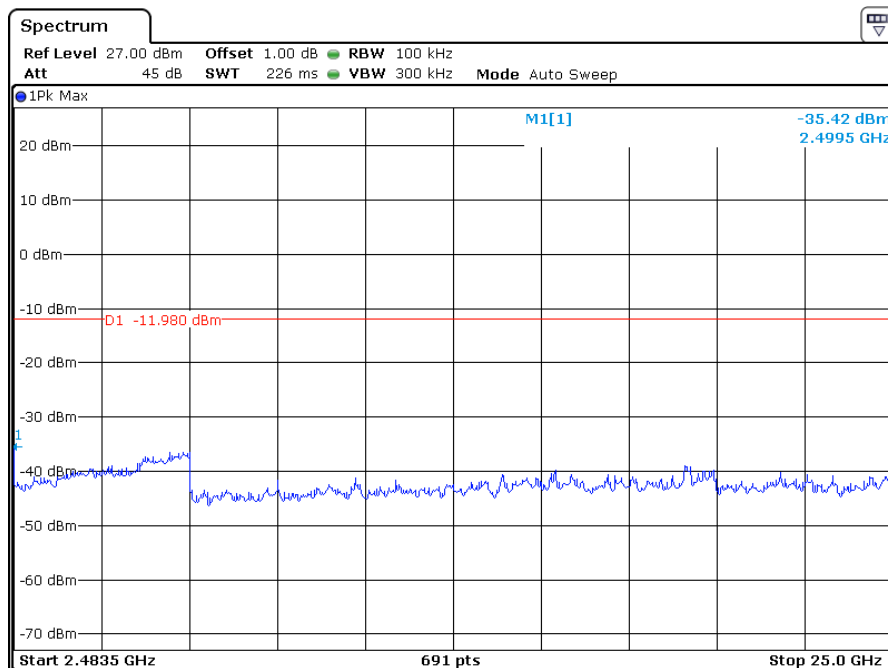
Channel 06 (2437MHz) Reference Level: 7.76dBm





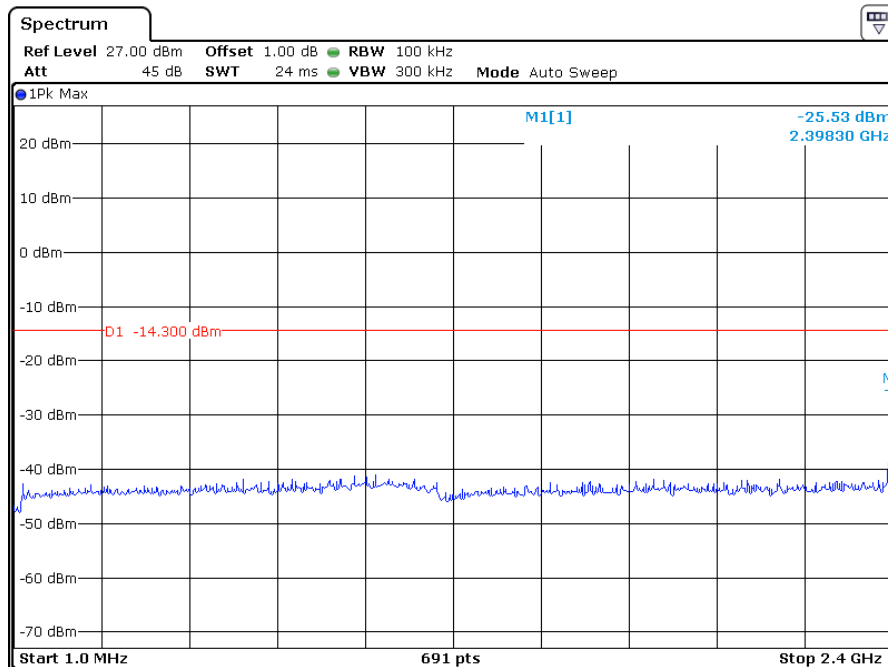
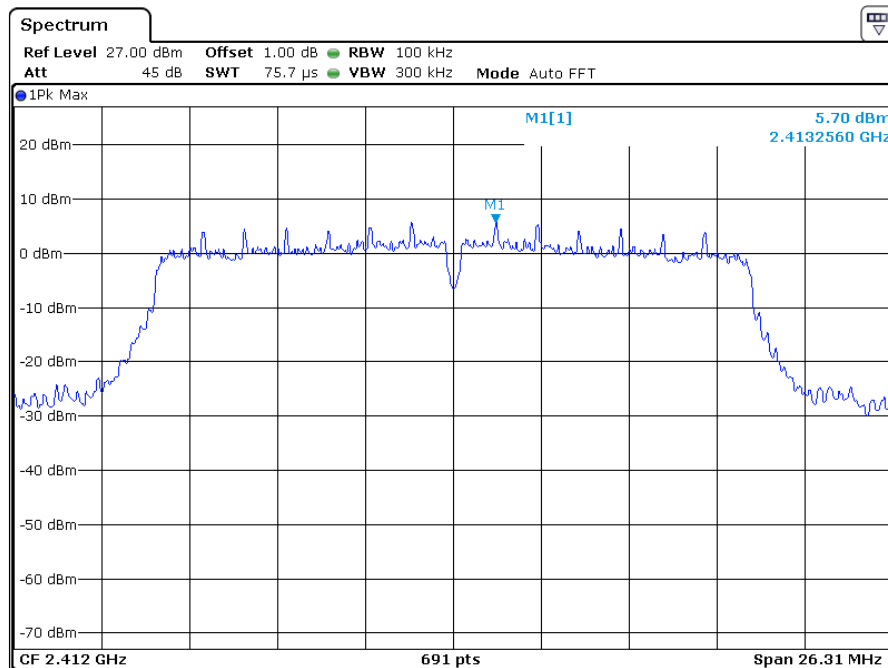
Channel 11 (2462MHz) Reference Level: 8.02dBm

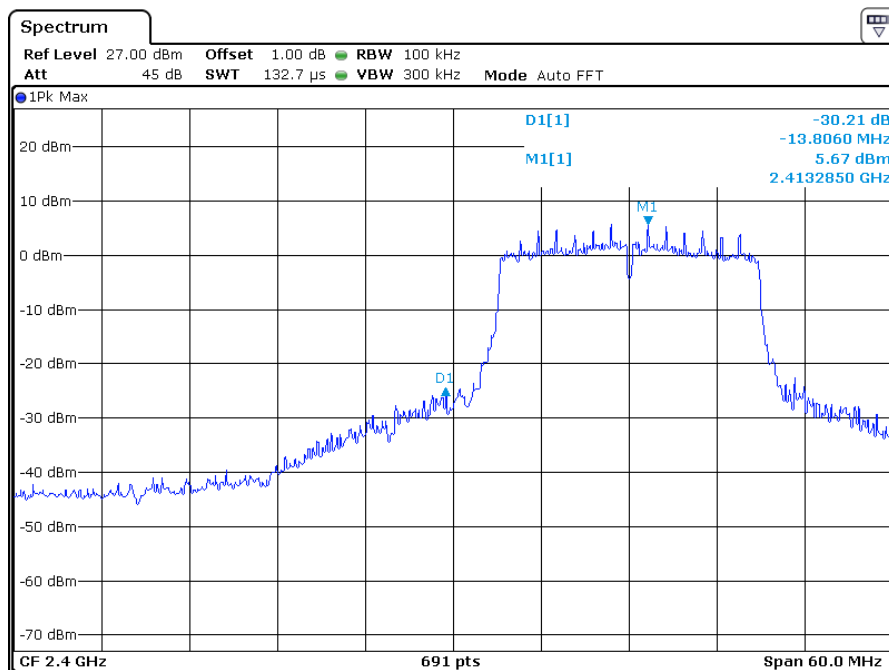
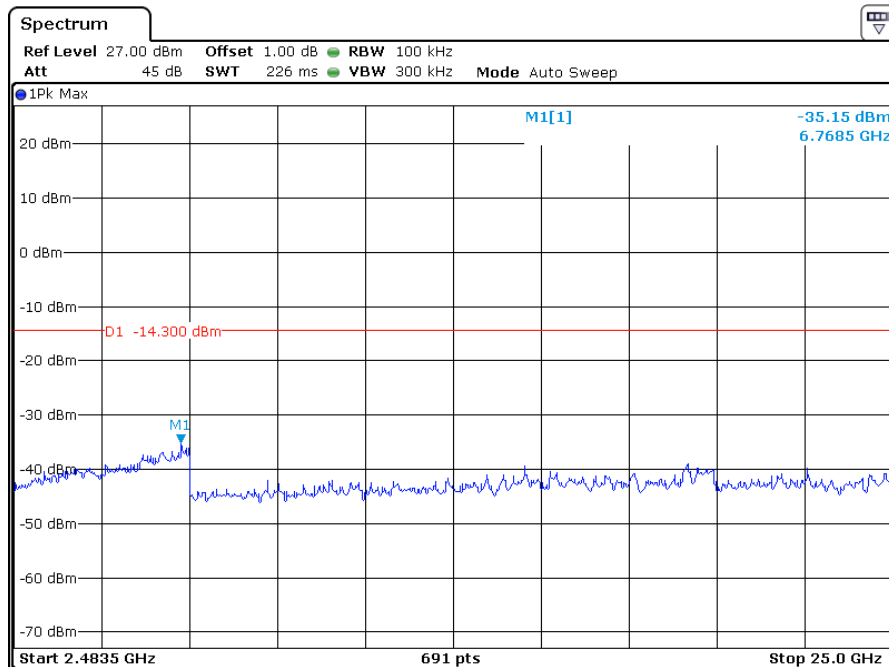




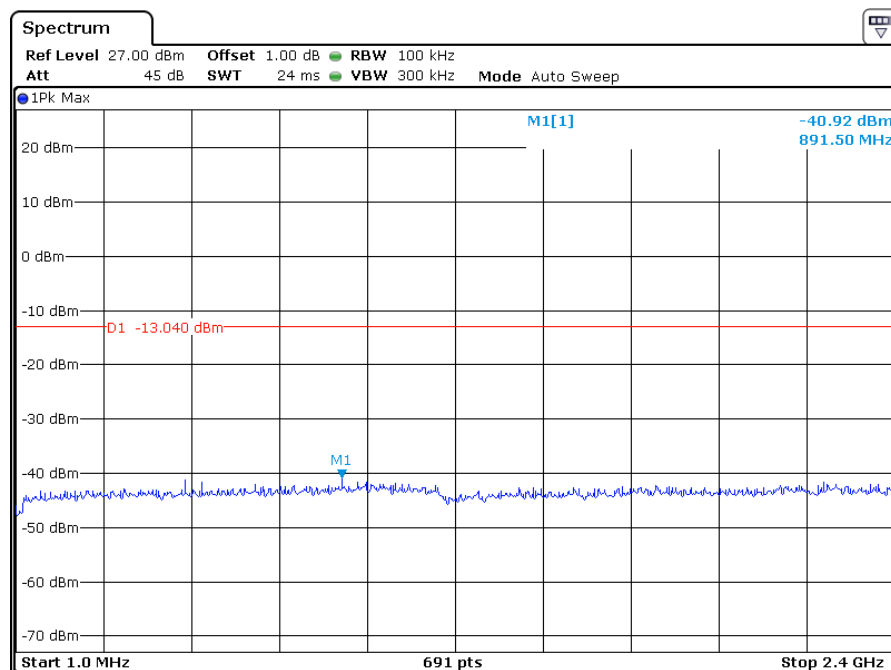
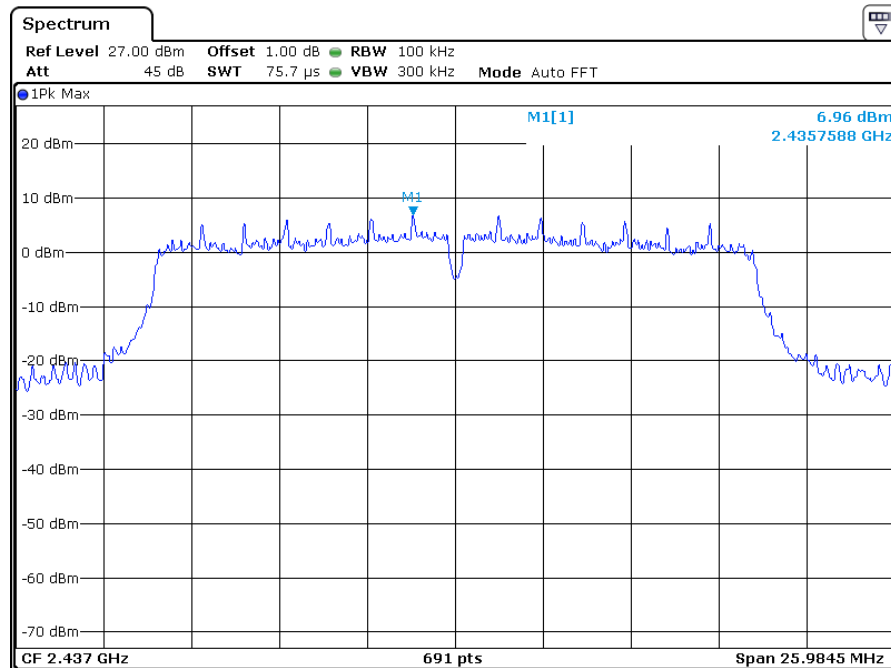
802.11n-HT20

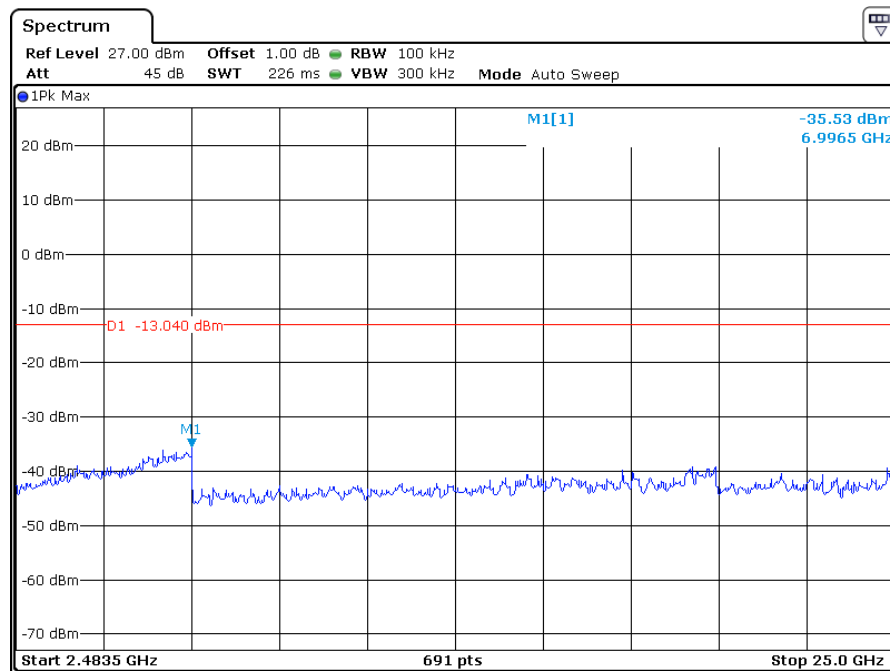
Channel 01 (2412MHz) Reference Level: 5.7dBm



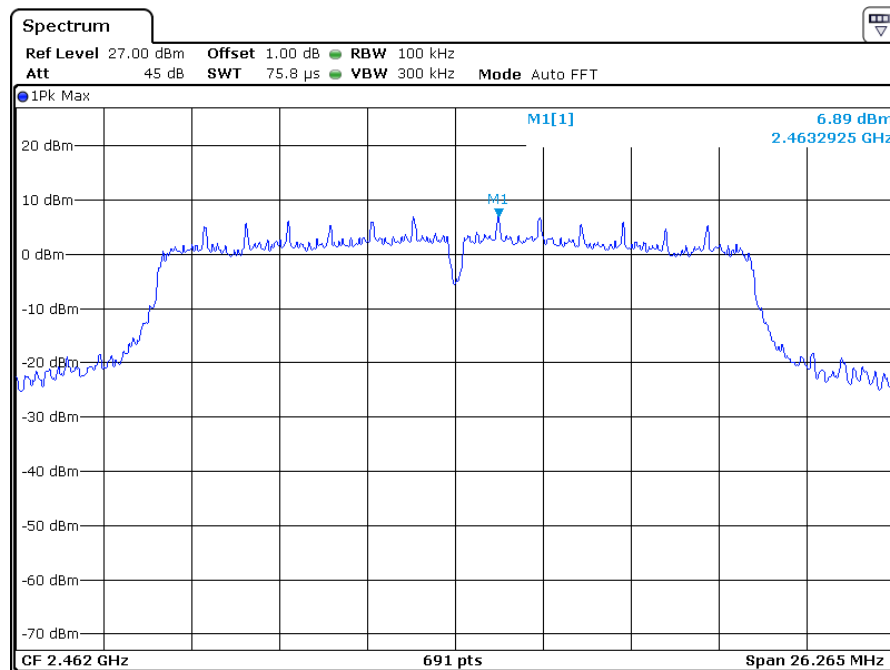


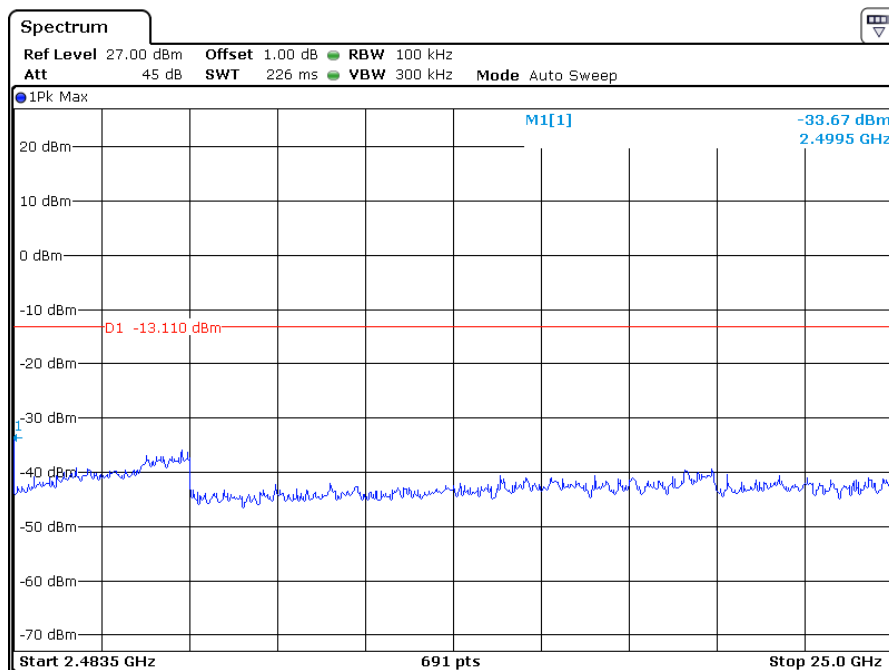
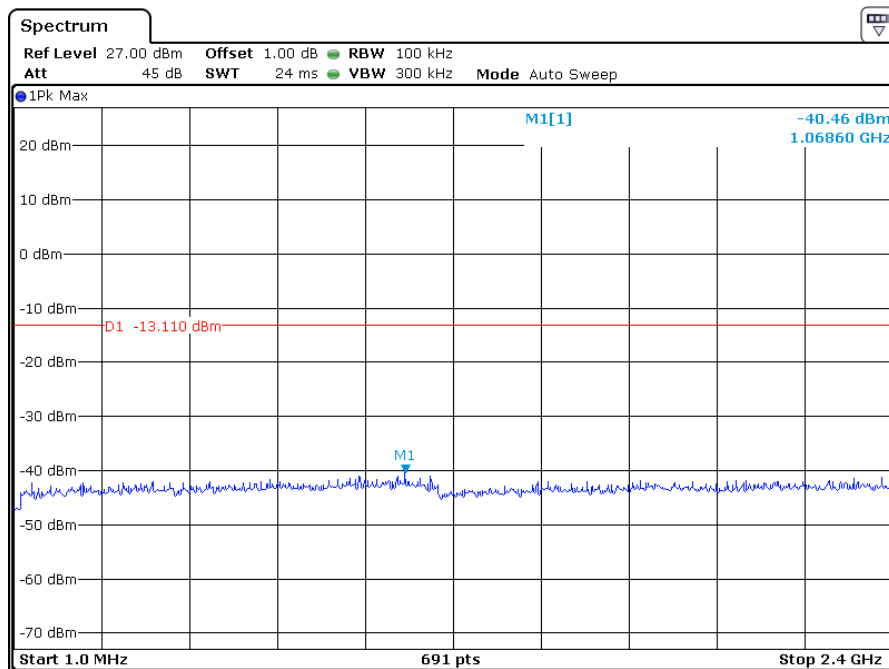
Channel 06 (2437MHz) Reference Level: 6.96dBm

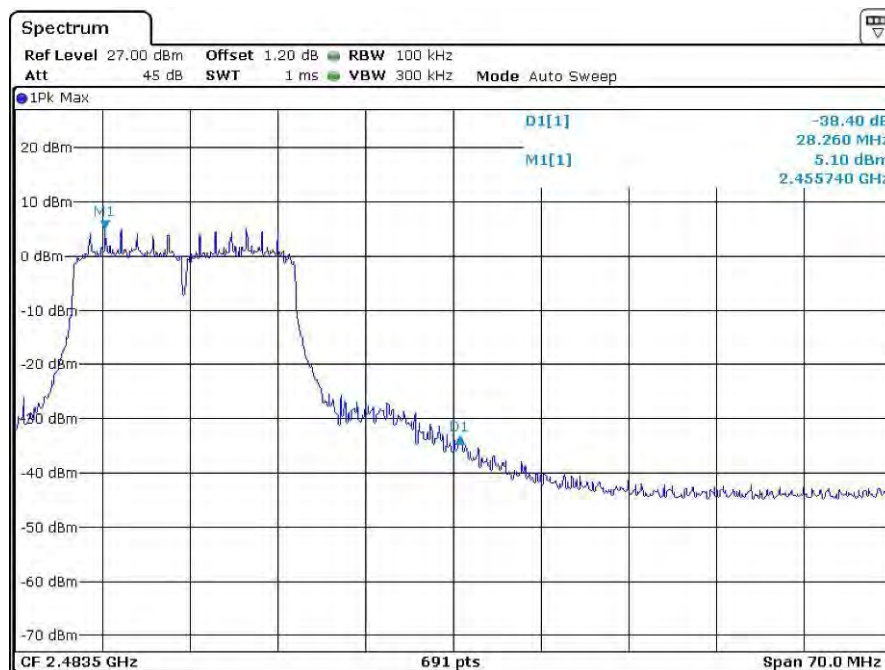




Channel 11 (2462MHz) Reference Level: 6.89dBm

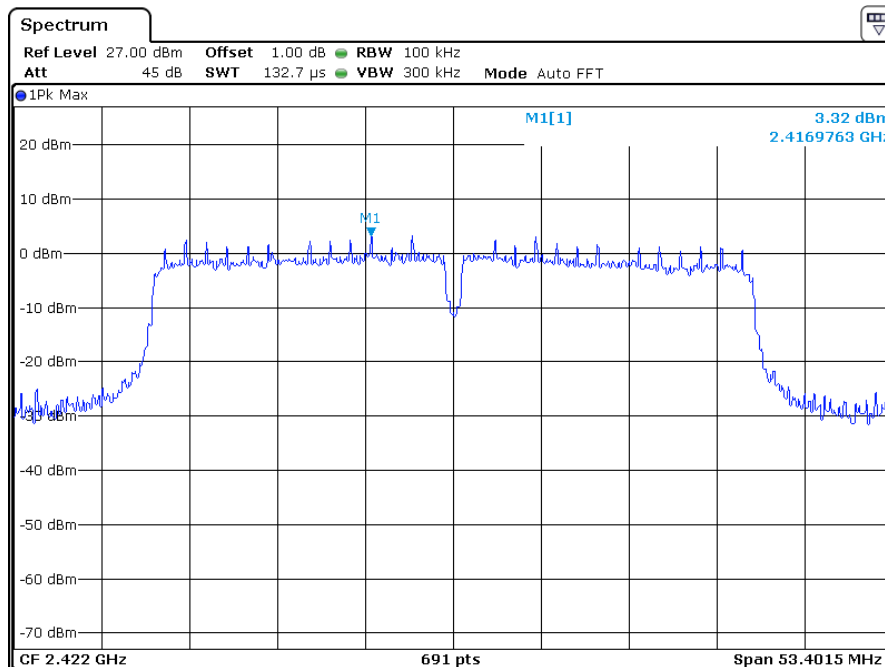


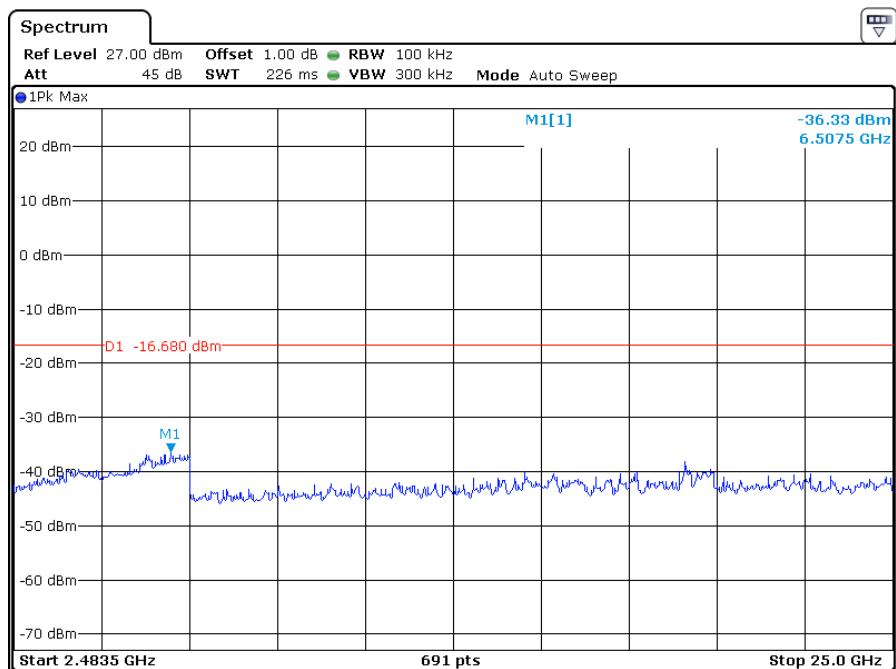
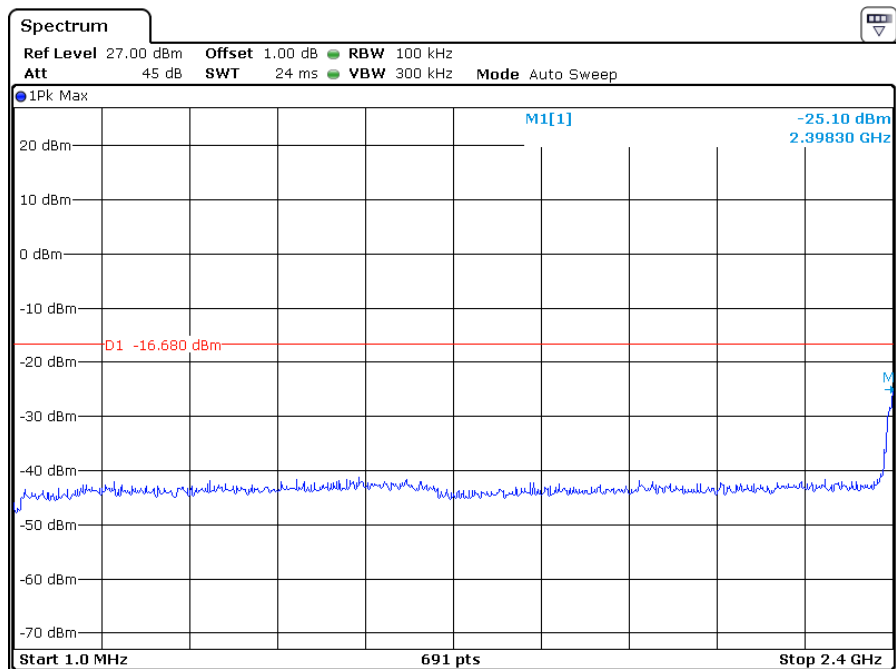


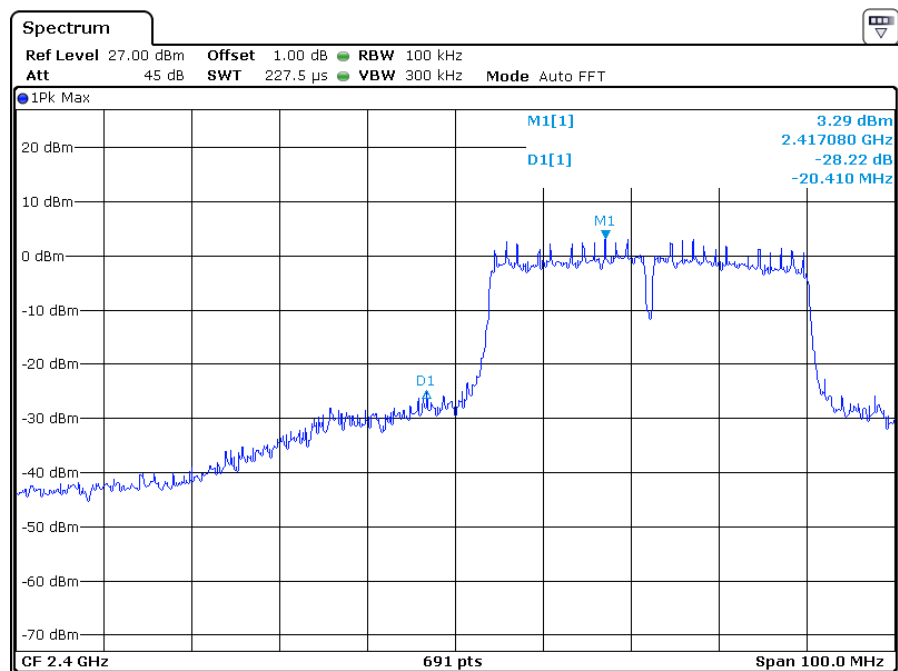


802.11n-HT40

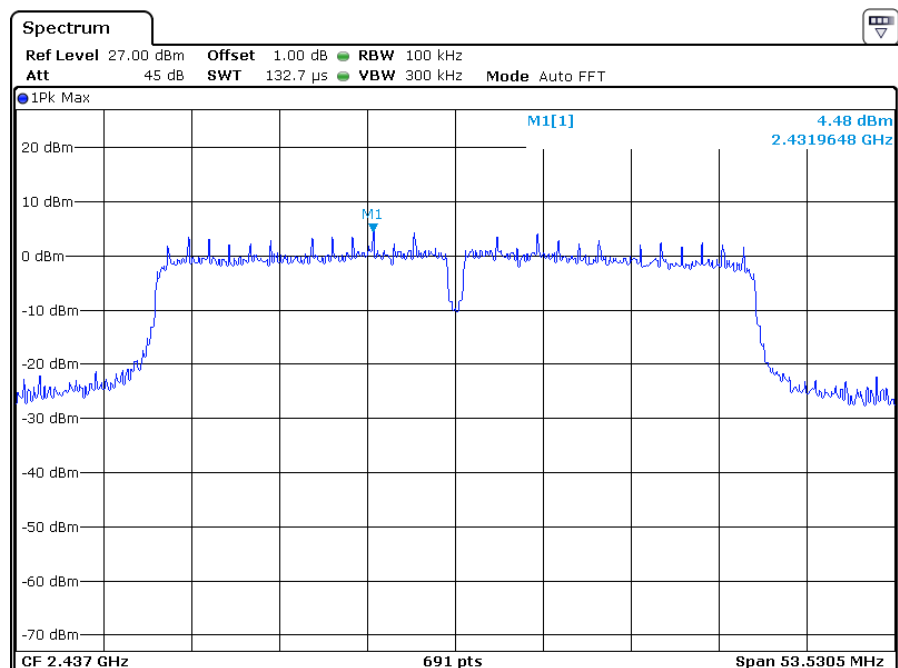
Channel 03 (2422MHz) Reference Level: 3.32dBm

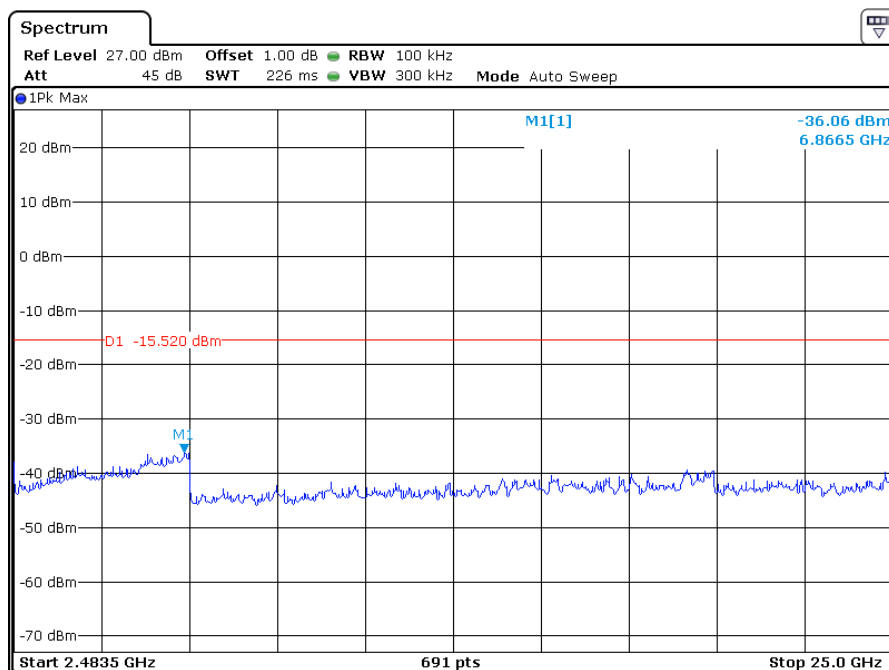
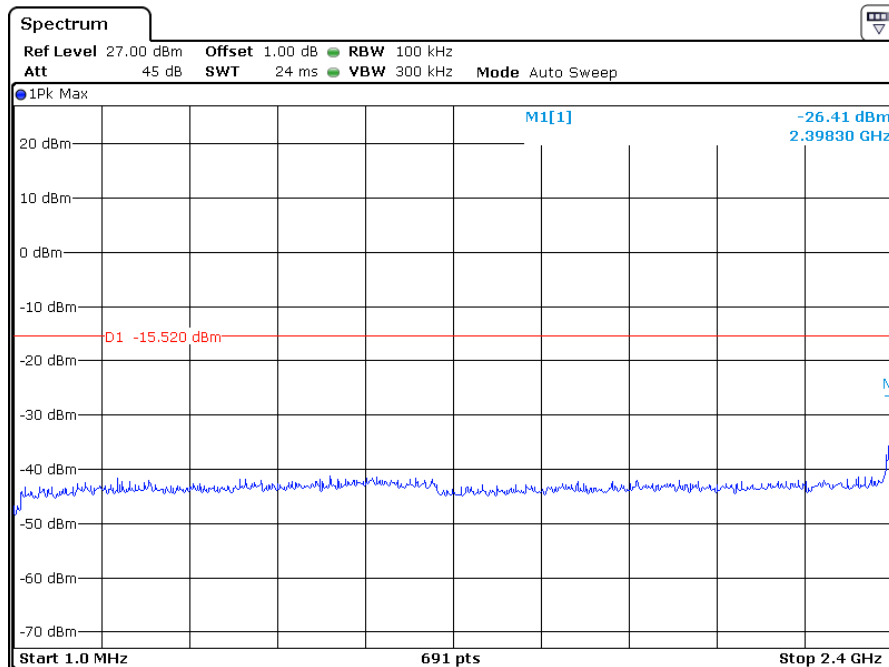




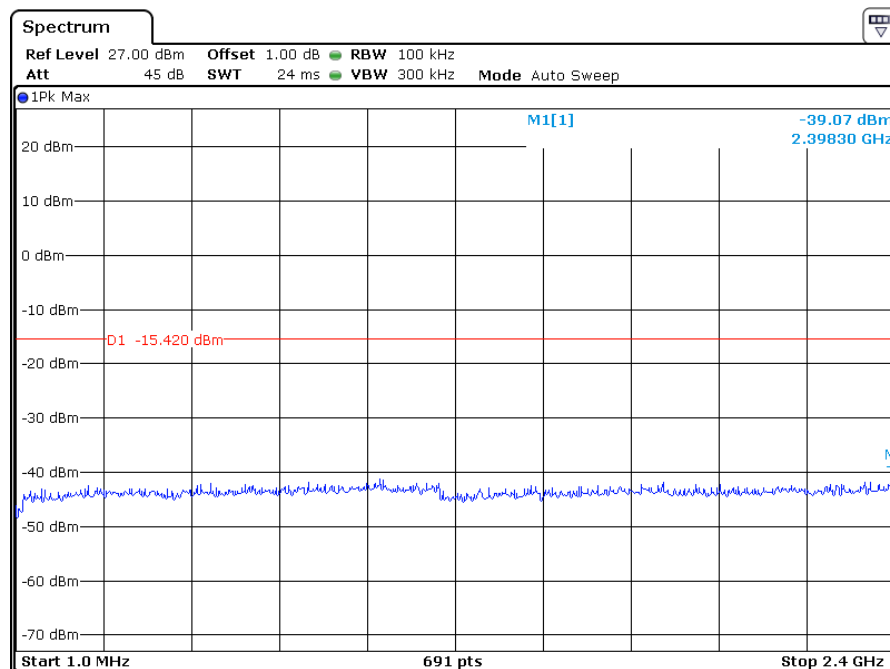
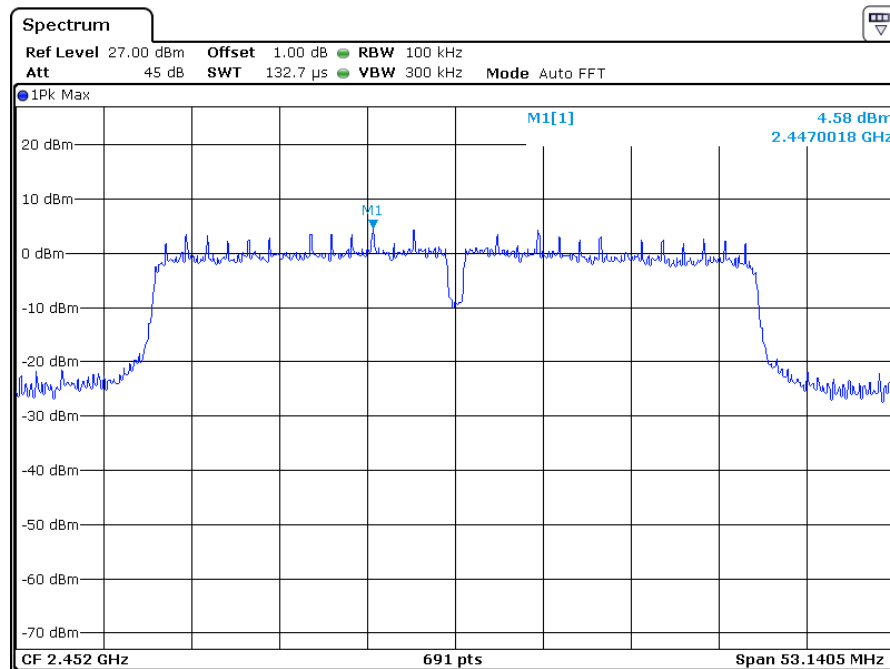


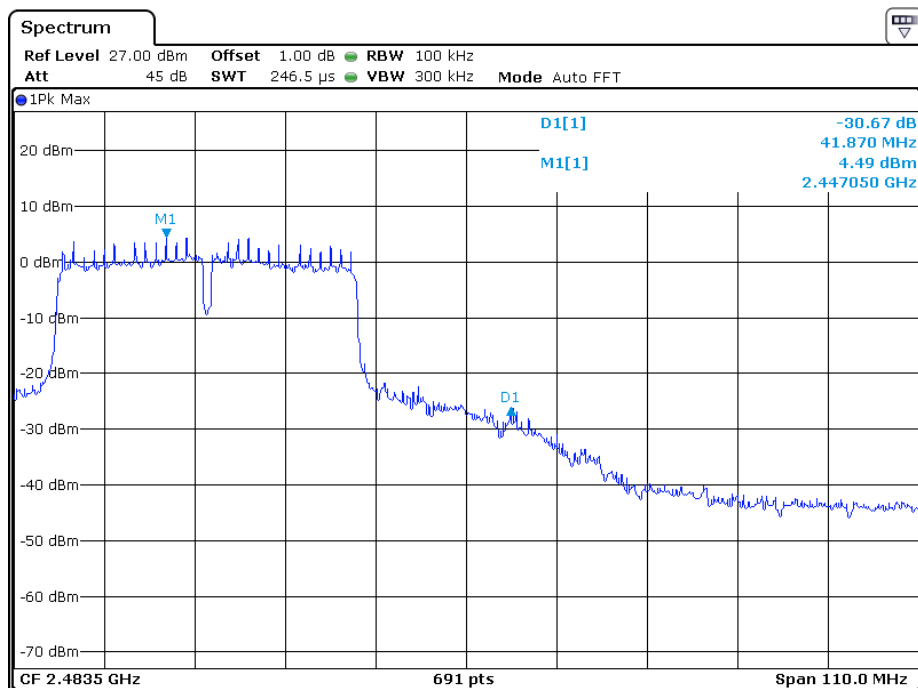
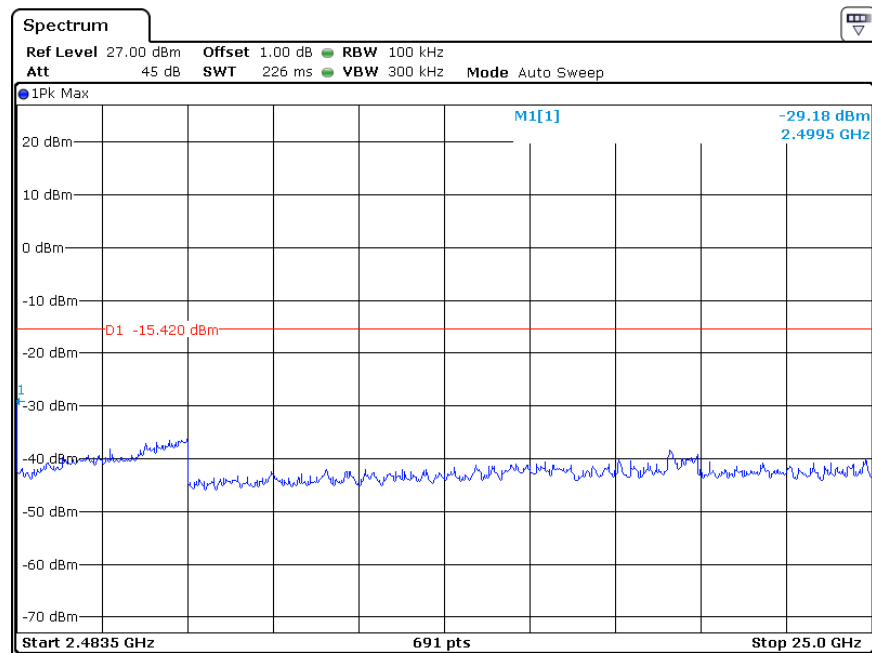
Channel 06 (2437MHz) Reference Level: 4.48dBm





Channel 09 (2452MHz) Reference Level: 4.58dBm

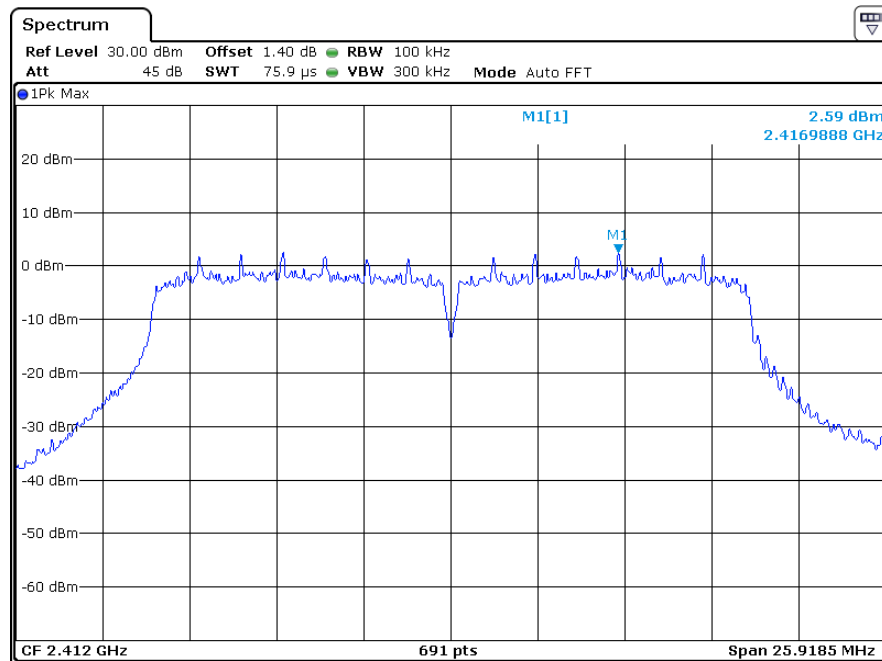




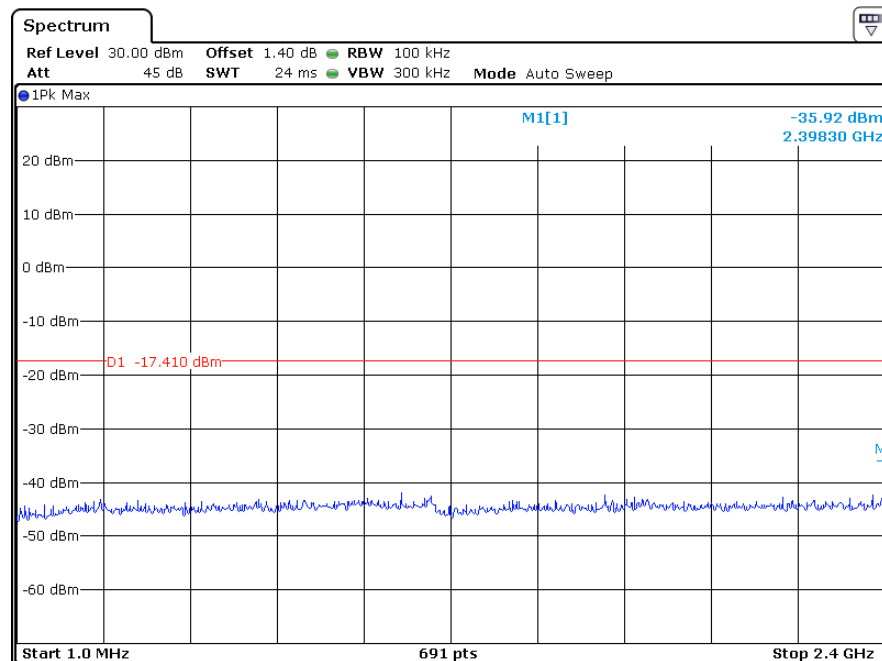
MIMO Mode, Ant1:

802.11n-HT20

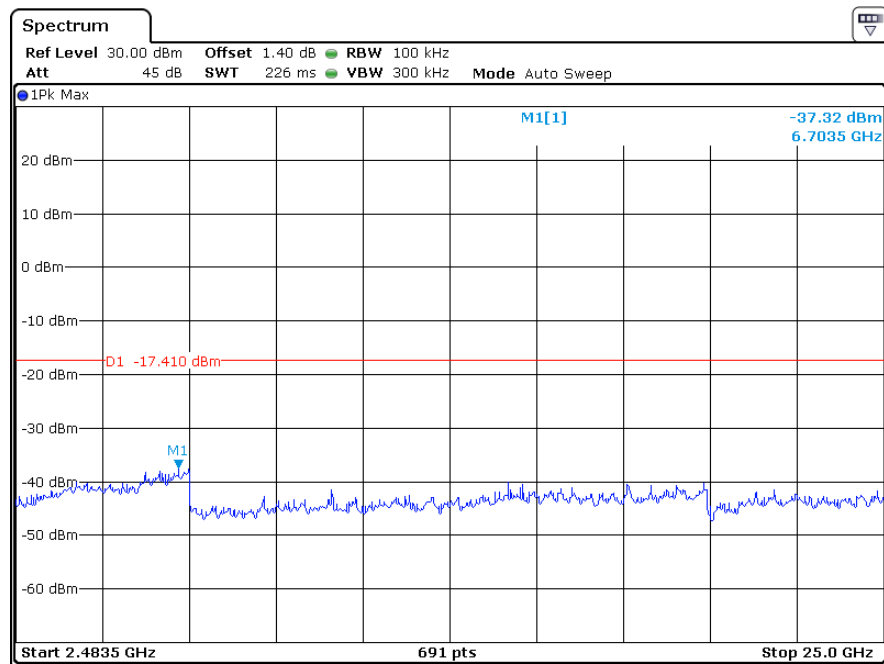
Channel 01 (2412MHz) Reference Level: 2.59dBm



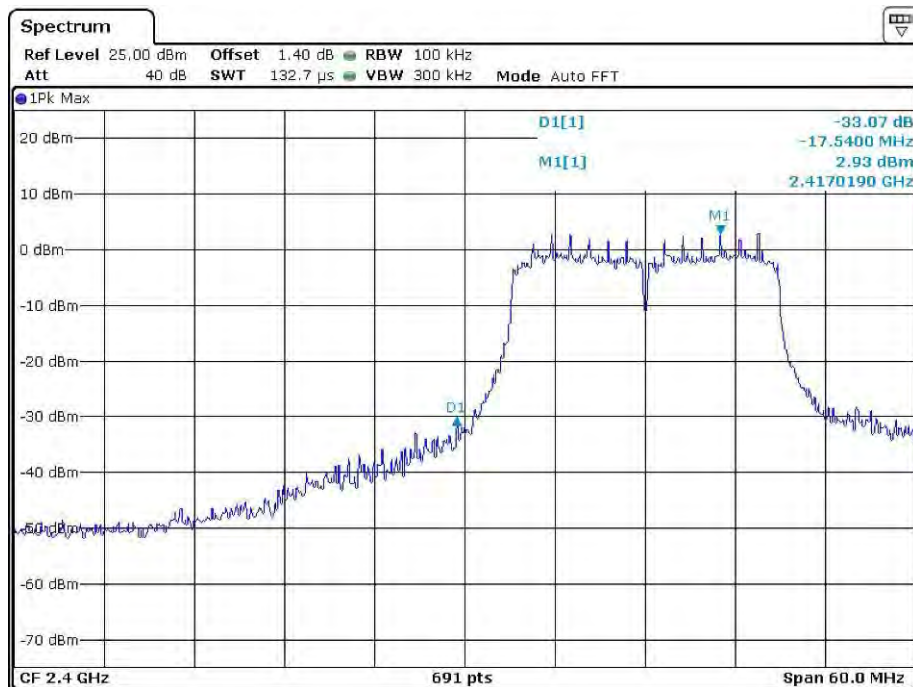
Date: 21 JAN 2019 13:30:31



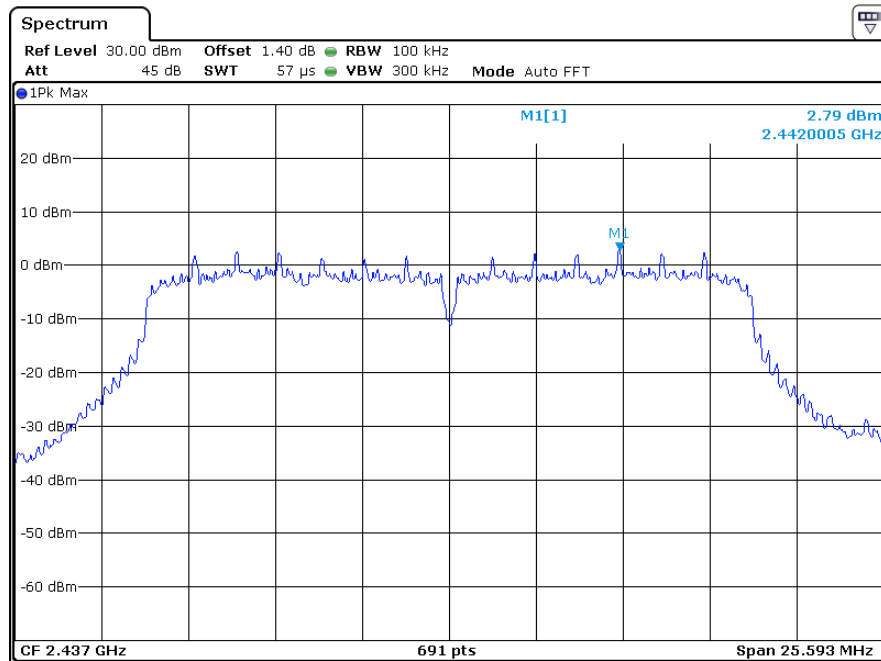
Date: 21 JAN 2019 13:31:16



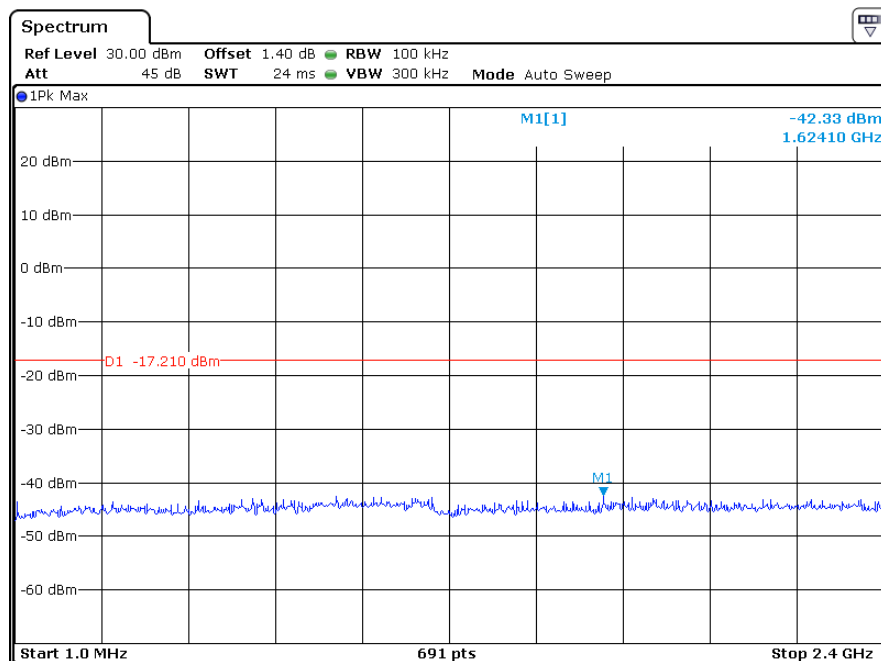
Date: 21.JAN 2019 13:31:46



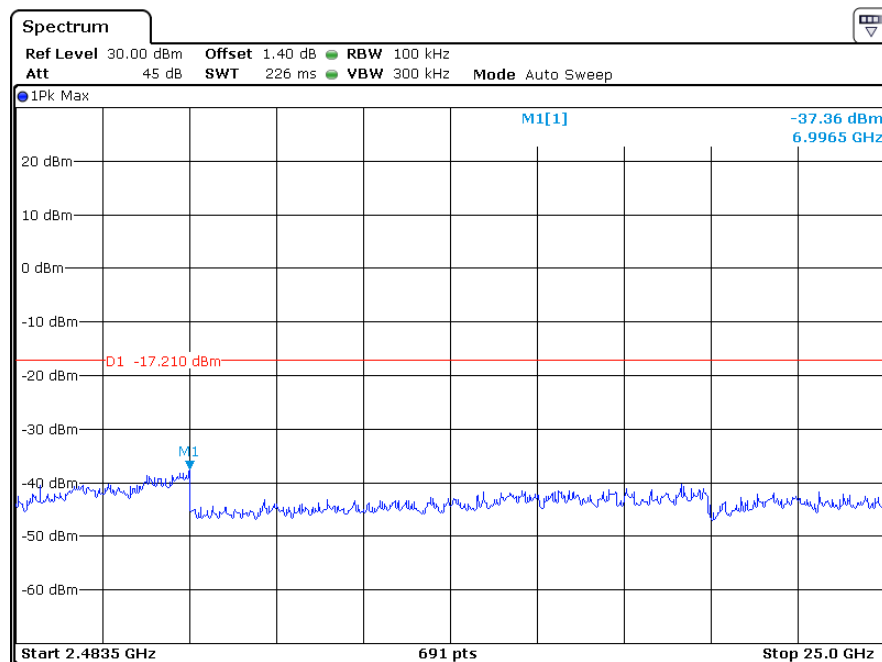
Channel 06 (2437MHz) Reference Level: 2.79dBm



Date: 21 JAN 2019 13:34:23

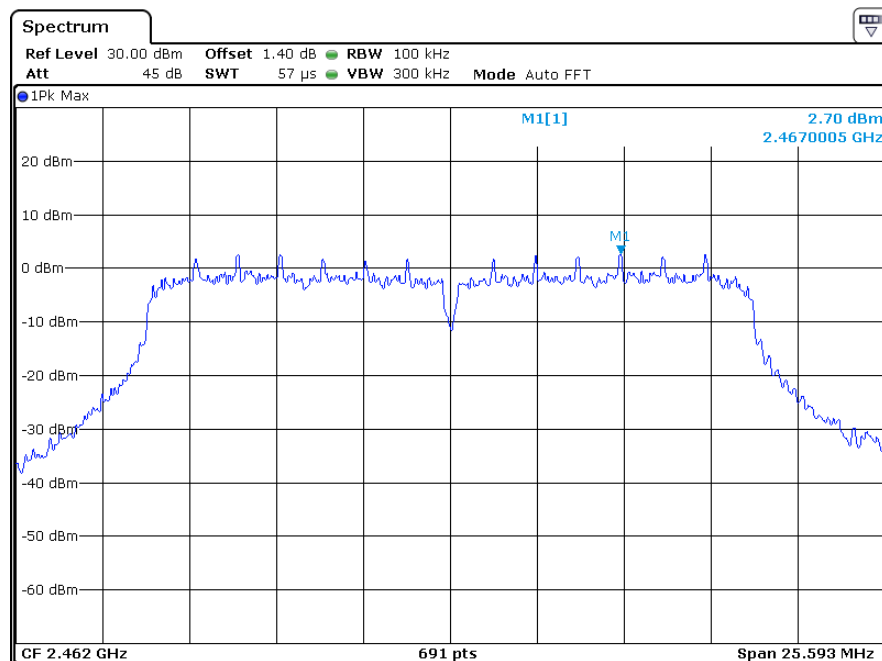


Date: 21 JAN 2019 13:35:97

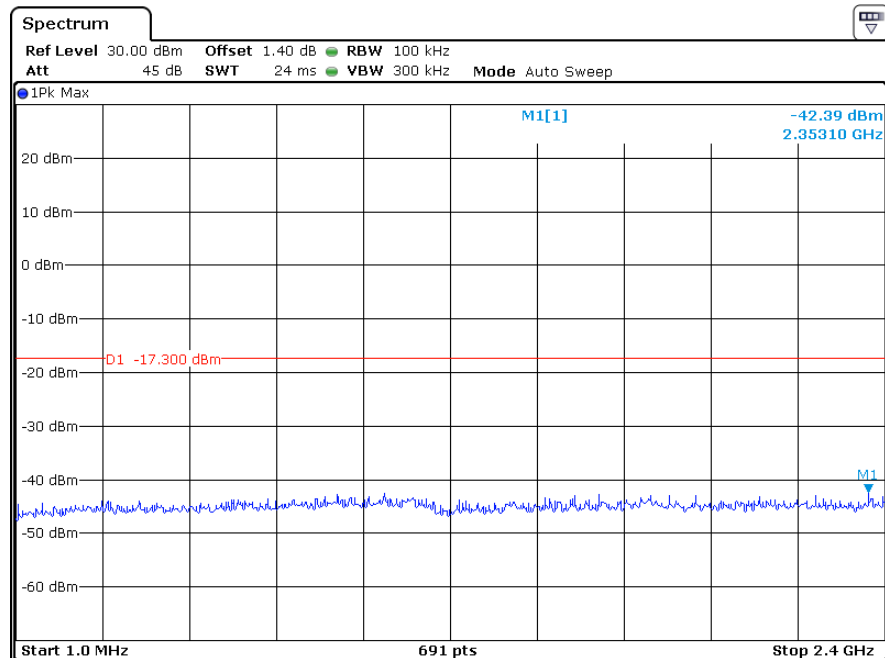


Date: 21.JAN 2019 13:35:28

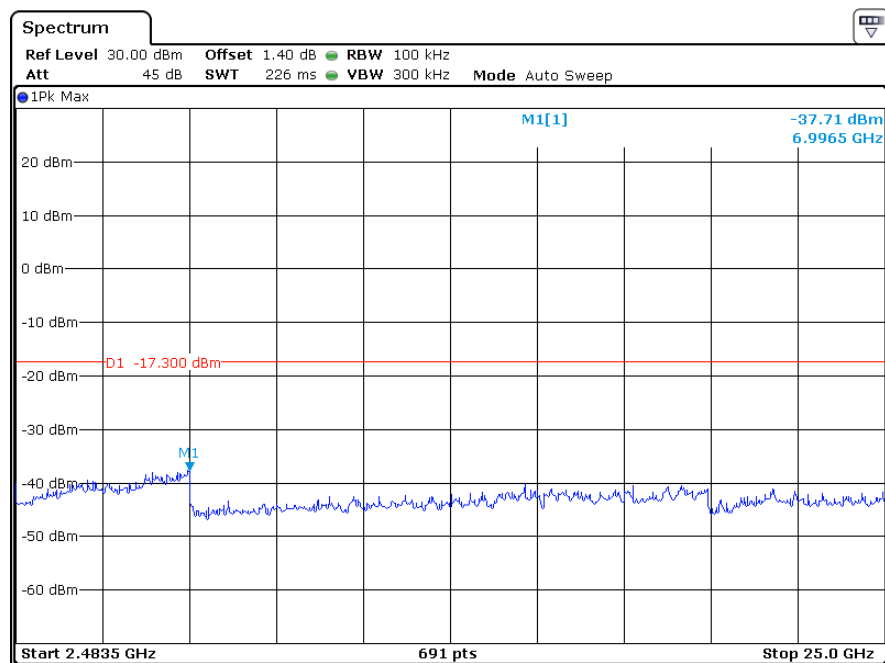
Channel 11 (2462MHz) Reference Level: 2.70dBm



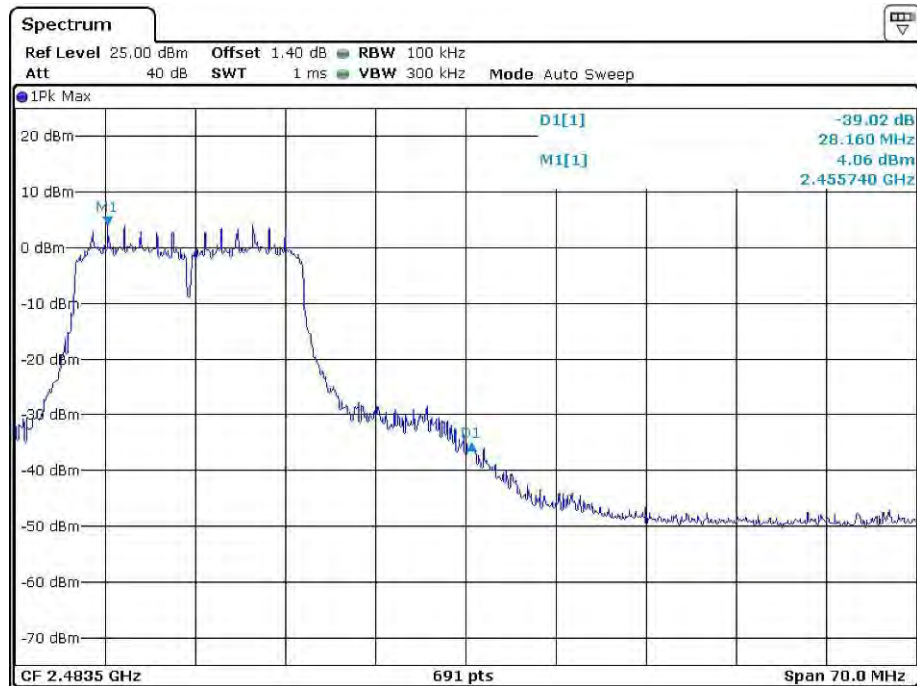
Date: 21.JAN 2019 13:37:47



Date: 21 JAN 2019 13:38:39

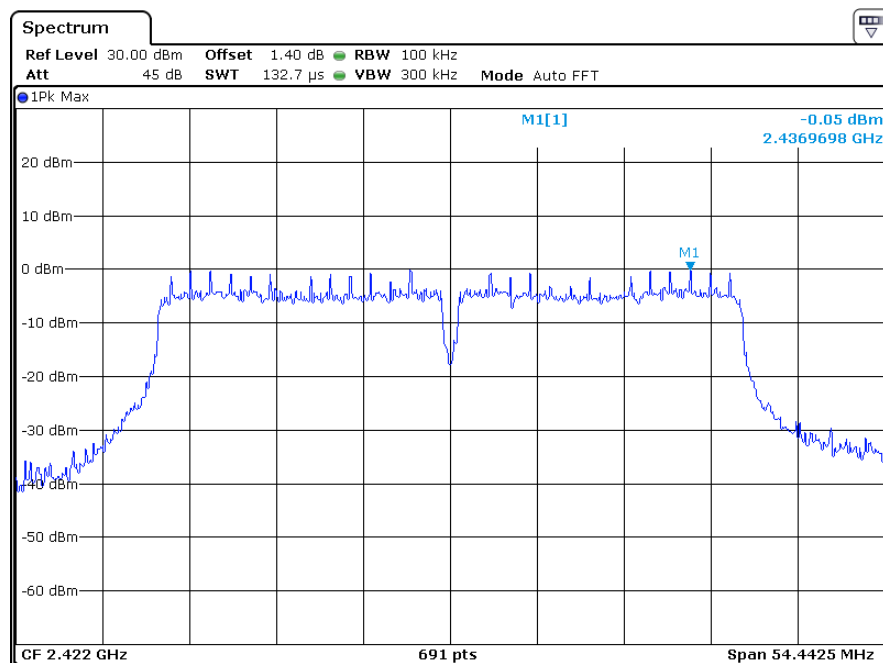


Date: 21 JAN 2019 13:39:12

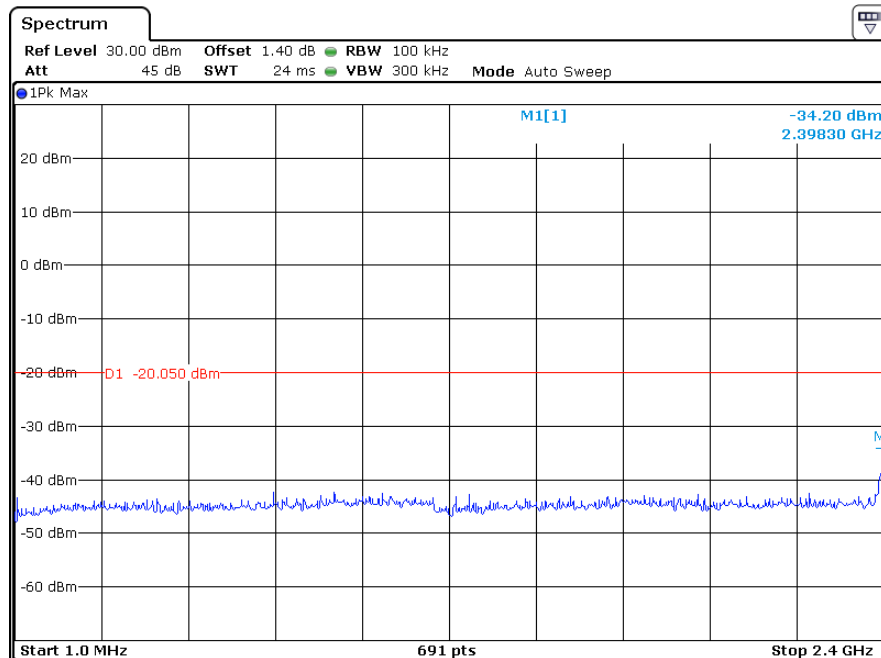


802.11n-HT40

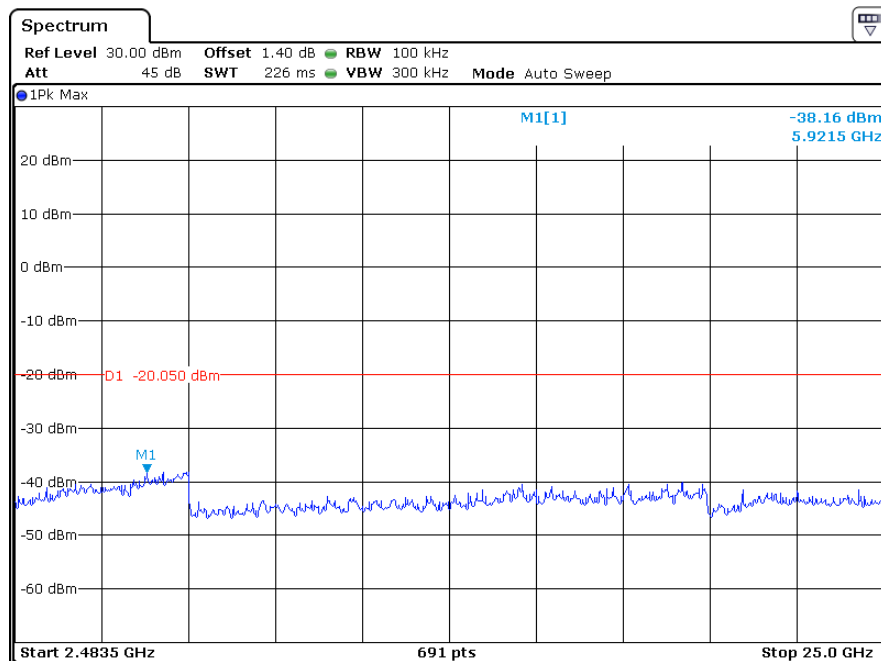
Channel 03 (2422MHz) Reference Level: -0.05dBm



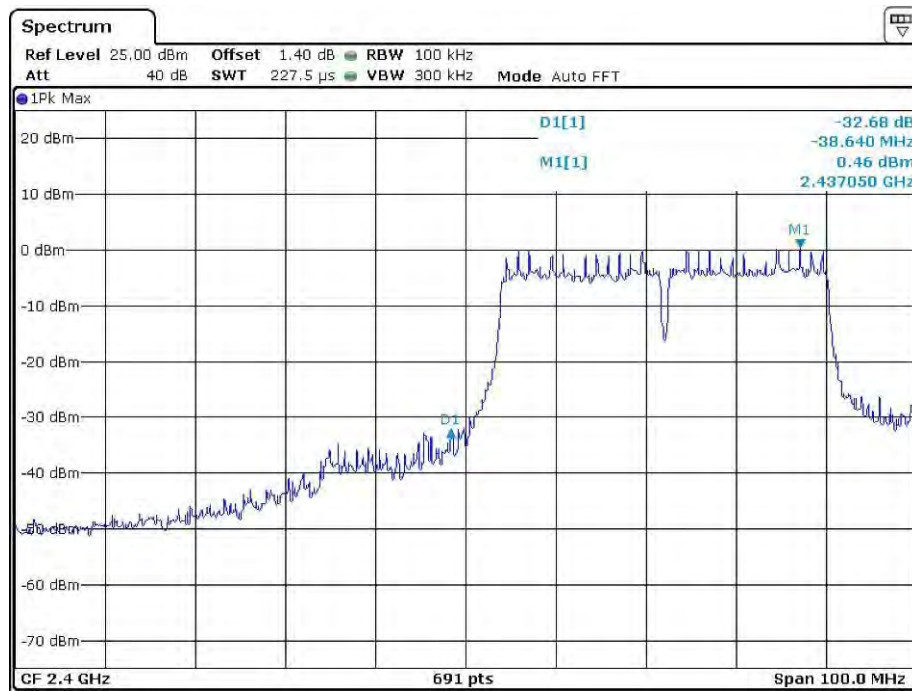
Date: 21 JAN 2019 13:42:39



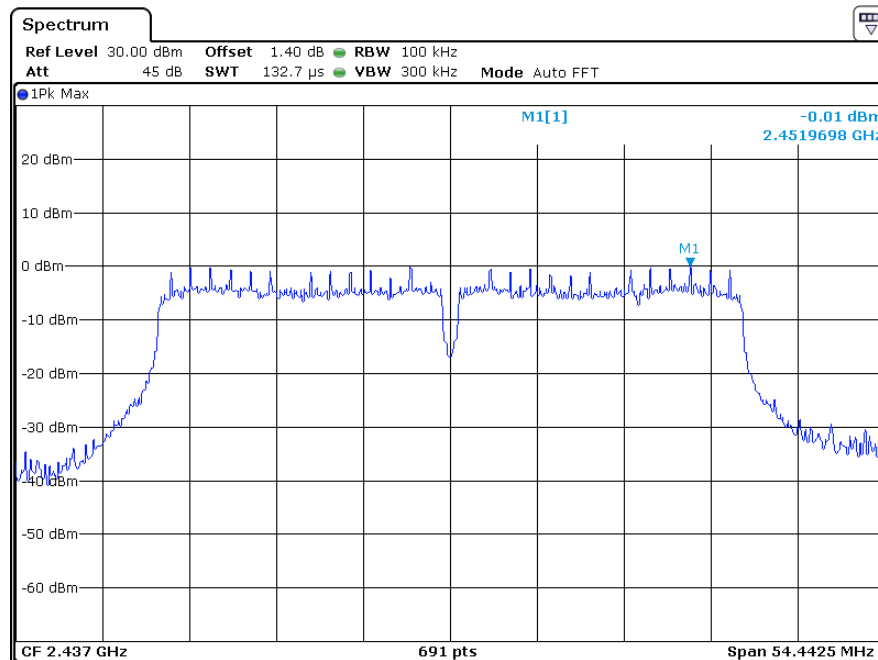
Date: 21.JAN 2019 13:43:30



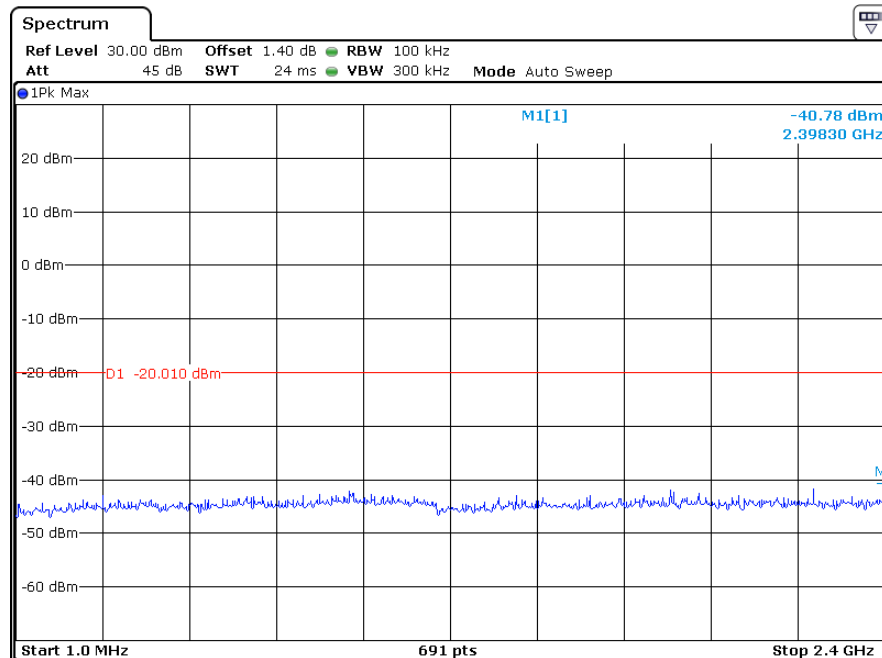
Date: 21.JAN 2019 13:43:59



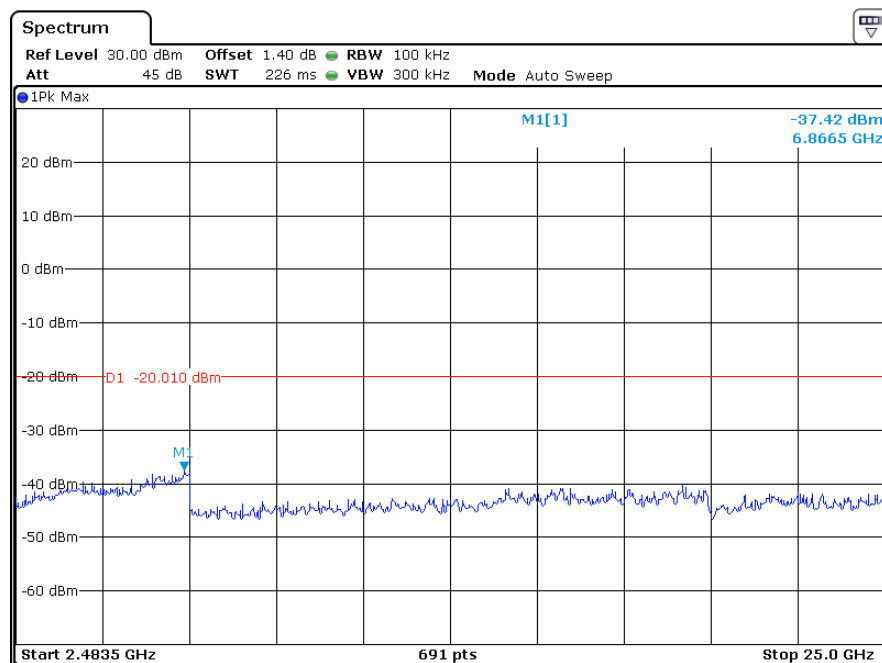
Channel 06 (2437MHz) Reference Level: -0.01dBm



Date: 21 JAN 2019 13:47:03

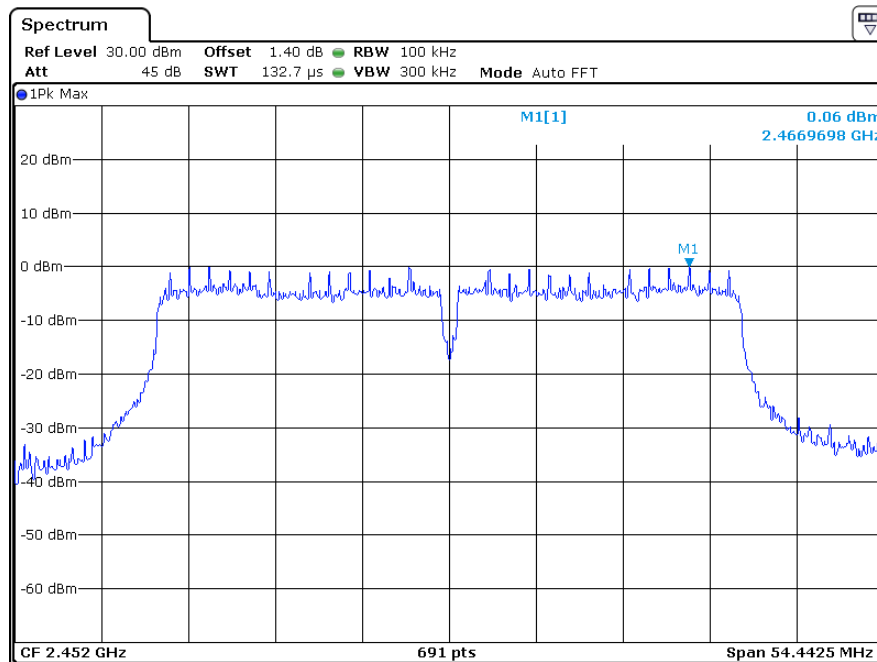


Date: 21 JAN 2019 13:47:50

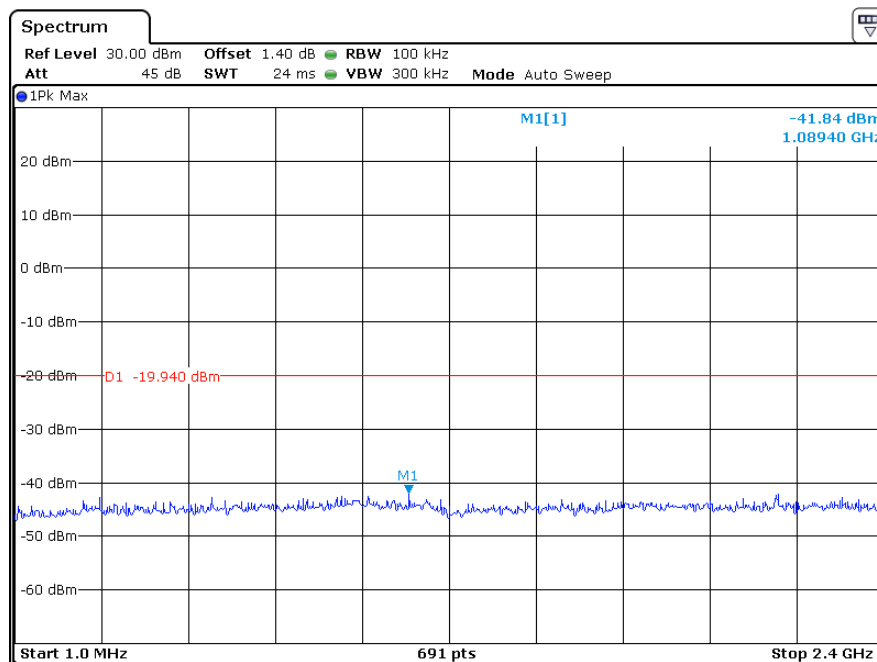


Date: 21 JAN 2019 13:48:15

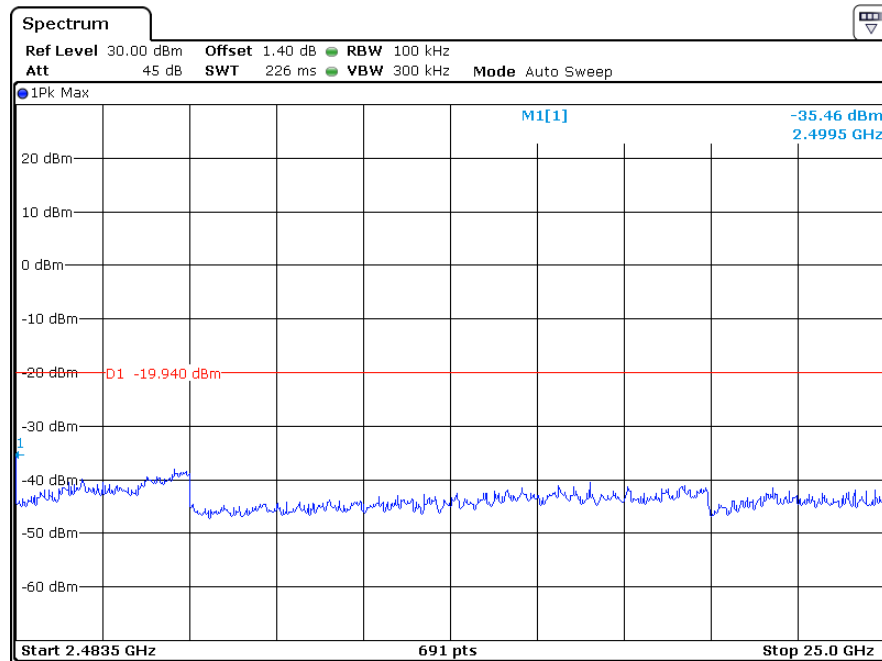
Channel 09 (2452MHz) Reference Level: 0.06dBm



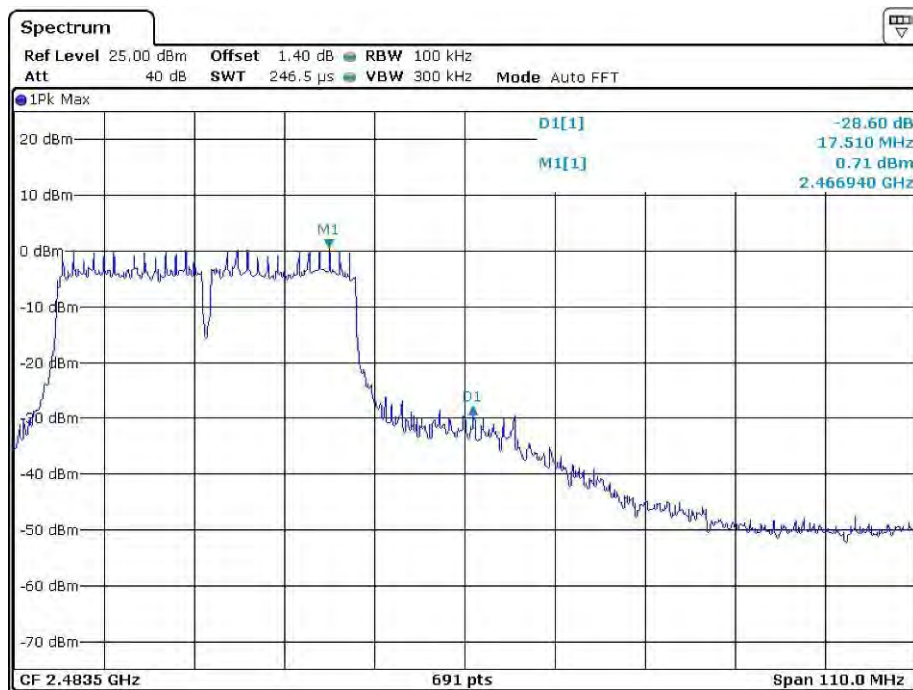
Date: 21 JAN 2019 13:51:33



Date: 21 JAN 2019 13:52:15



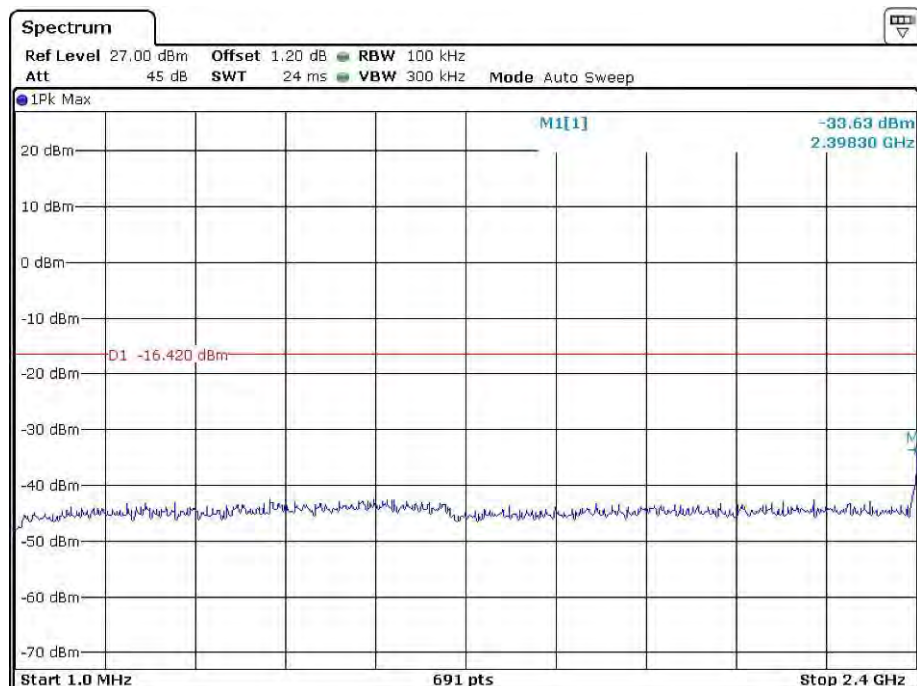
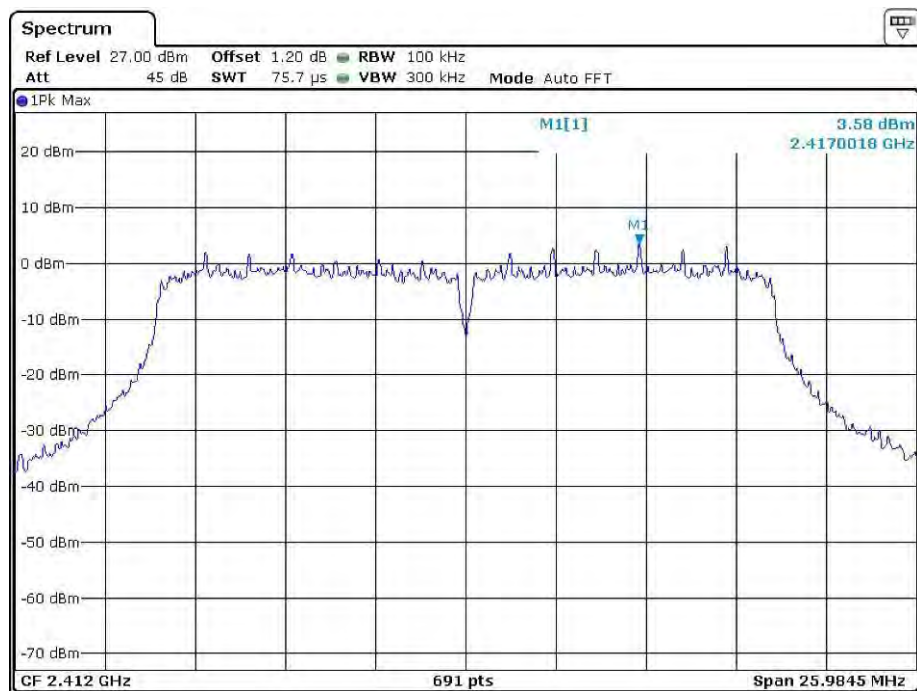
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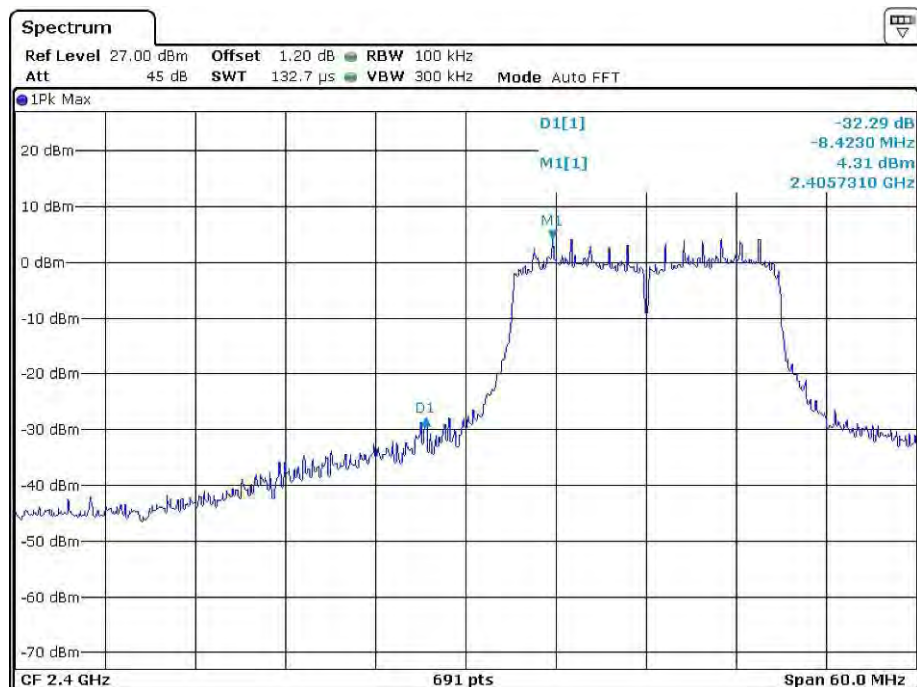
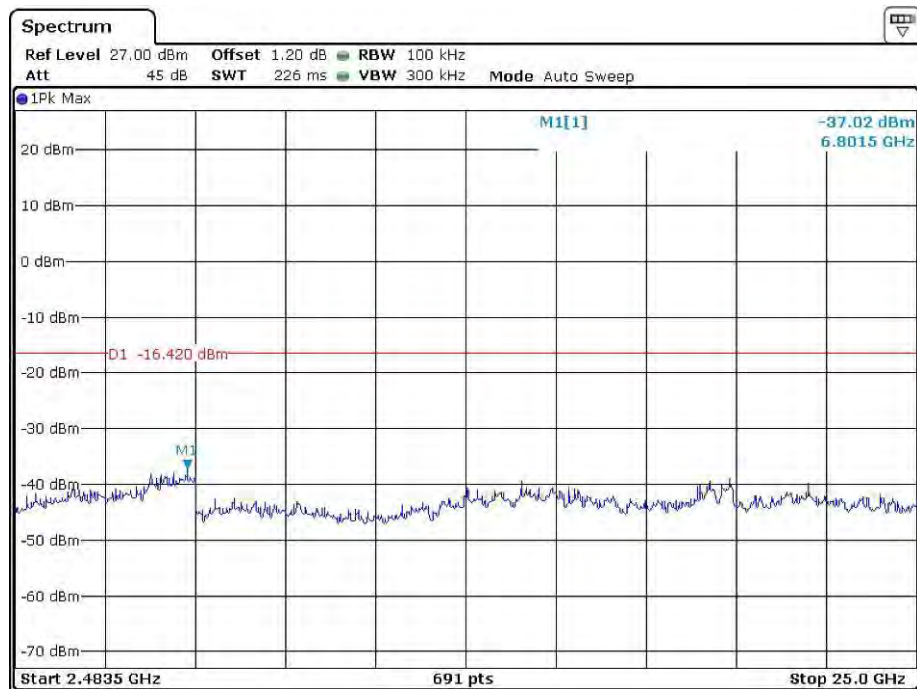


MIMO Mode, Ant2:

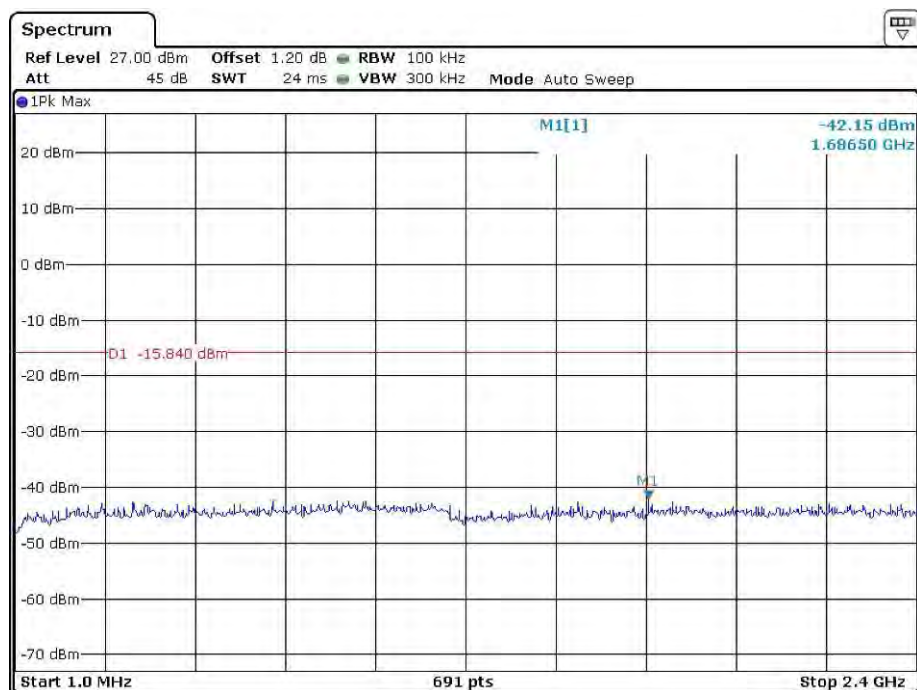
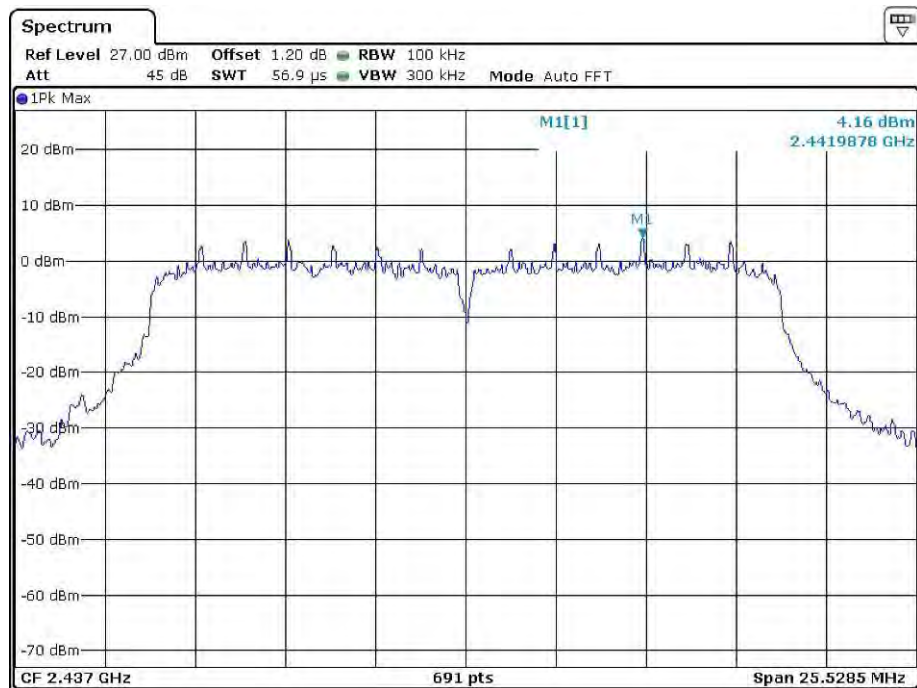
802.11n-HT20

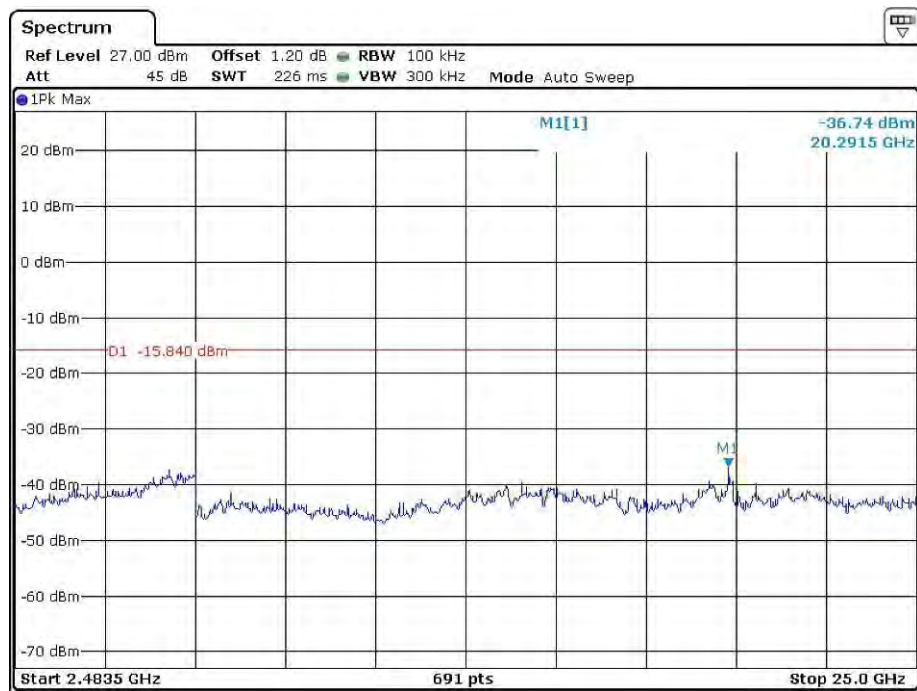
Channel 01 (2412MHz) Reference Level: 3.58dBm



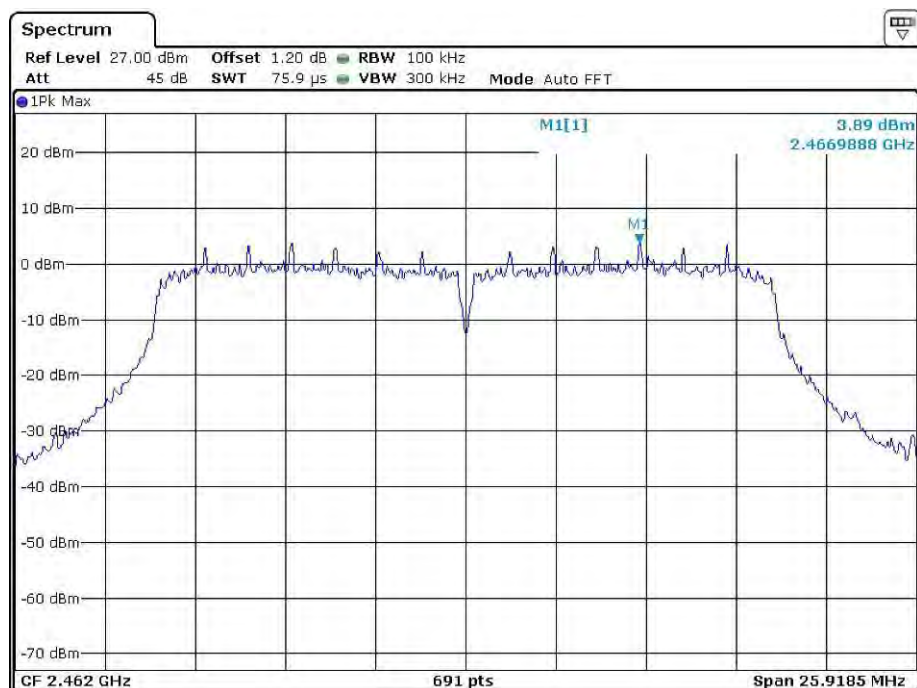


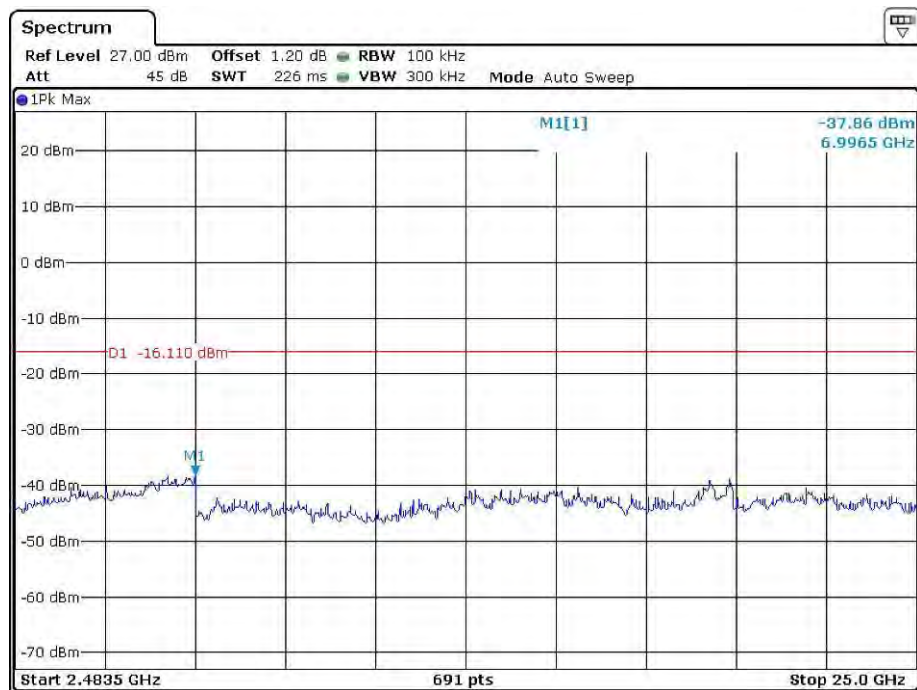
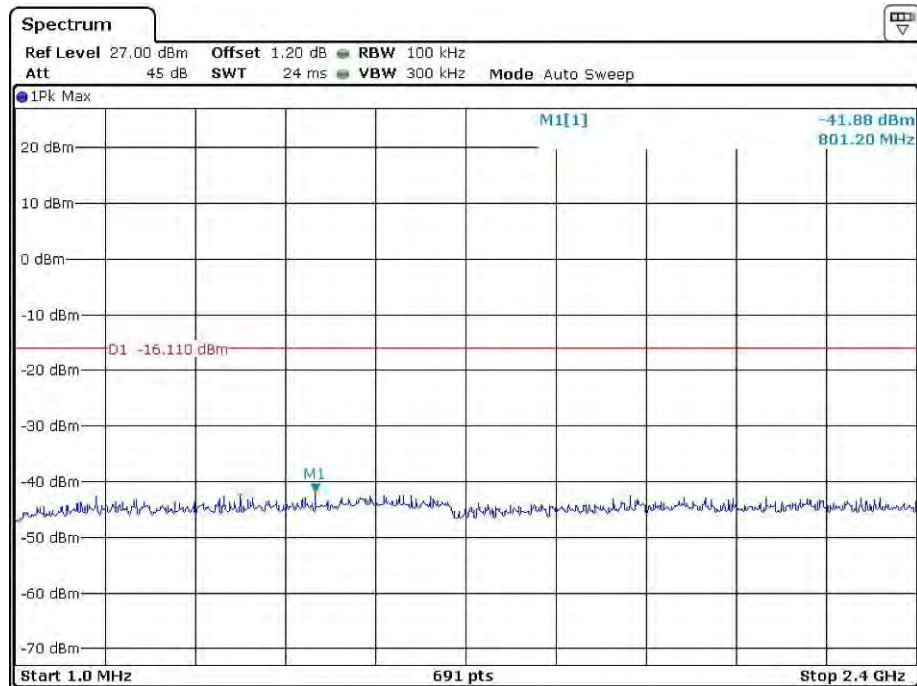
Channel 06 (2437MHz) Reference Level: 4.16dBm

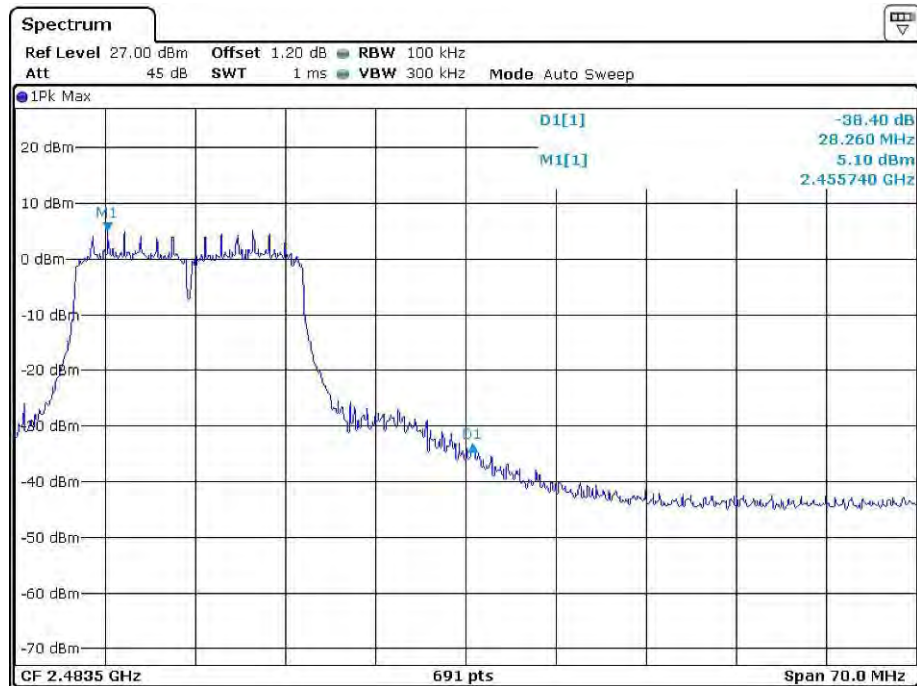




Channel 11 (2462MHz) Reference Level: 3.89dBm

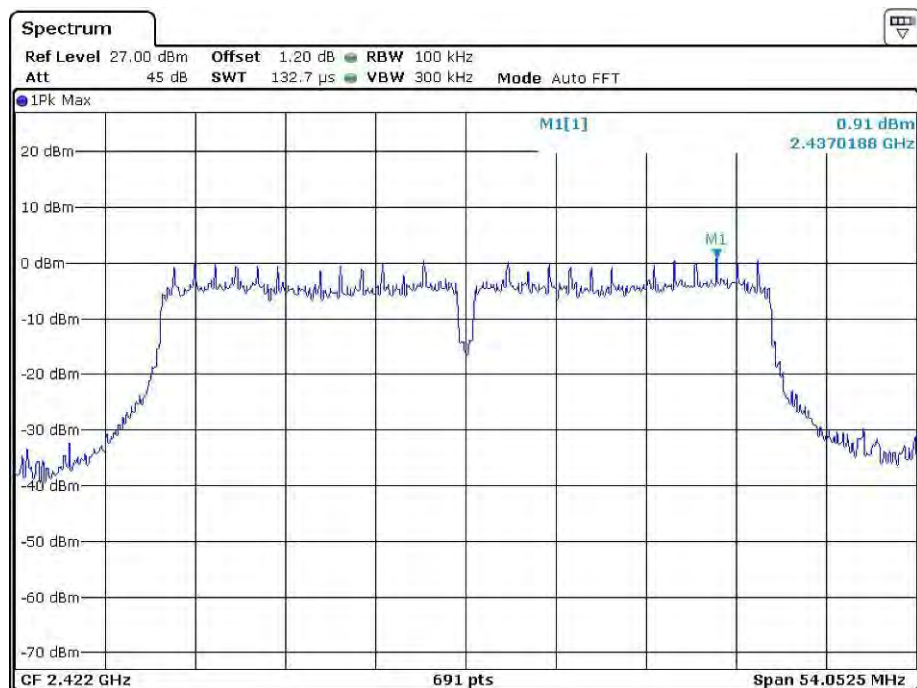


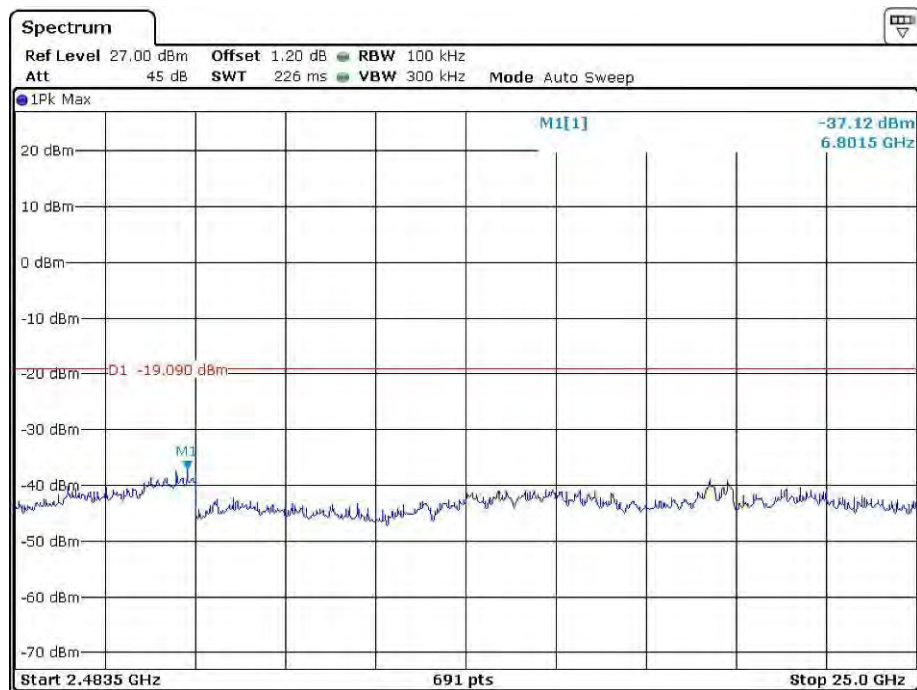
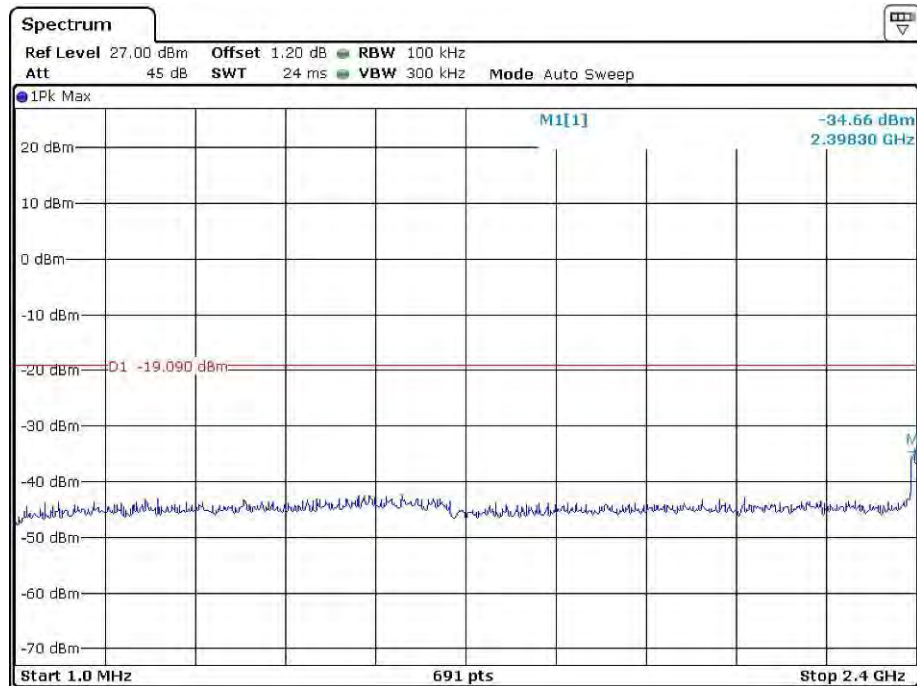


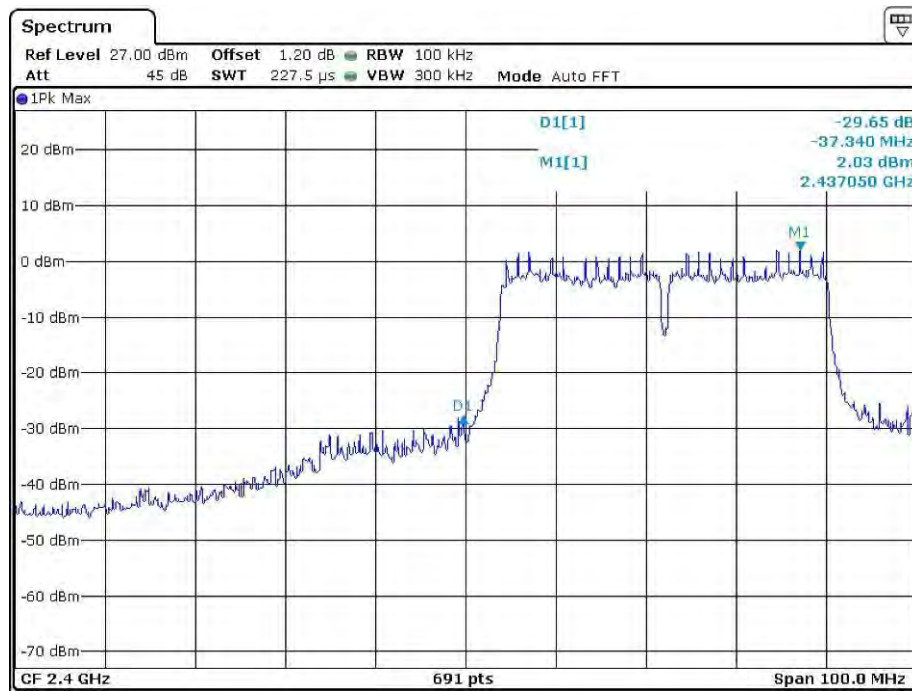


802.11n-HT40

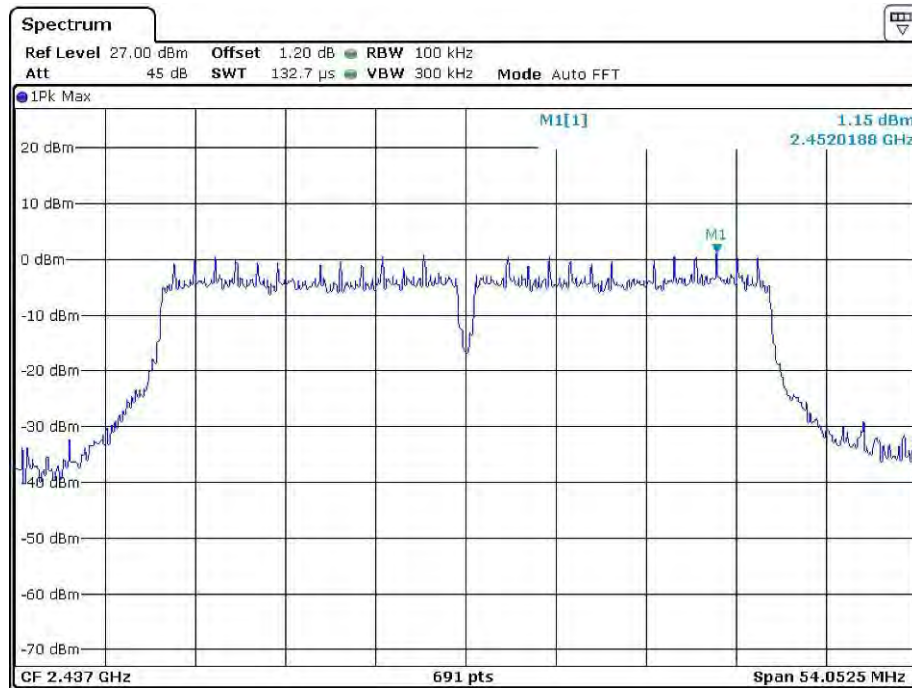
Channel 03 (2422MHz) Reference Level: 0.91dBm

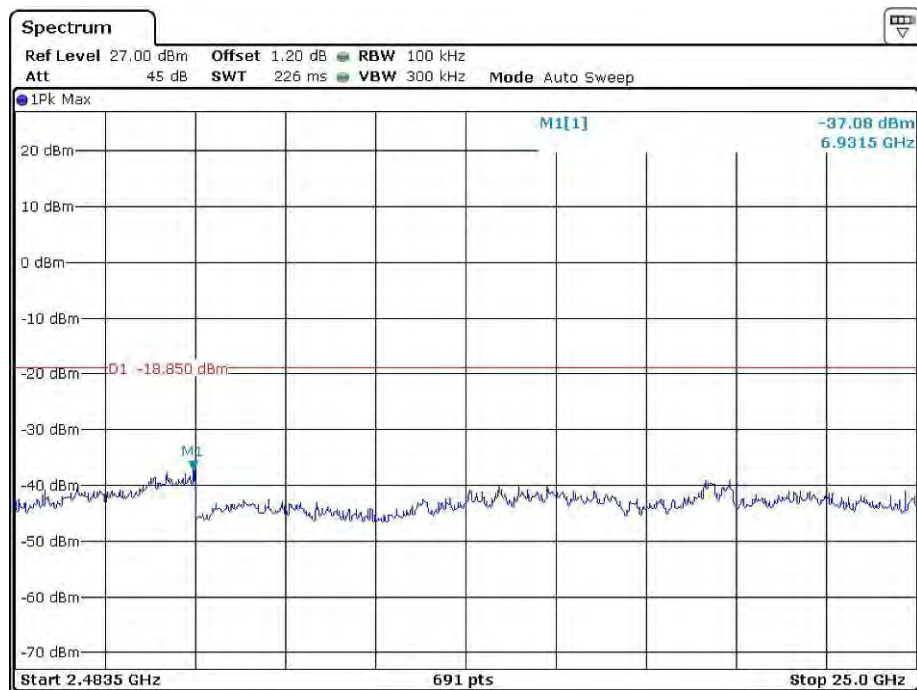
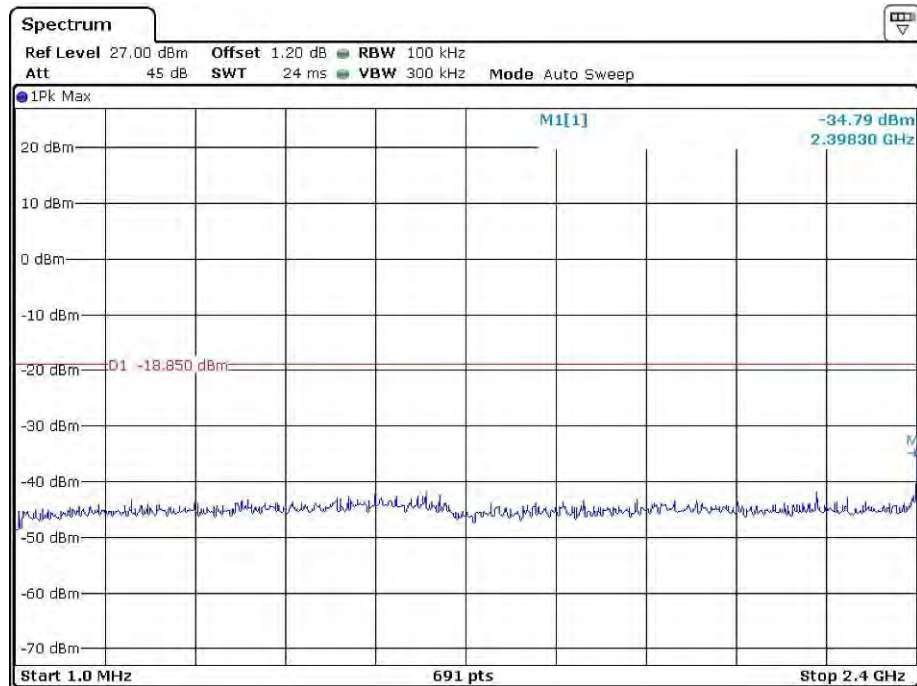




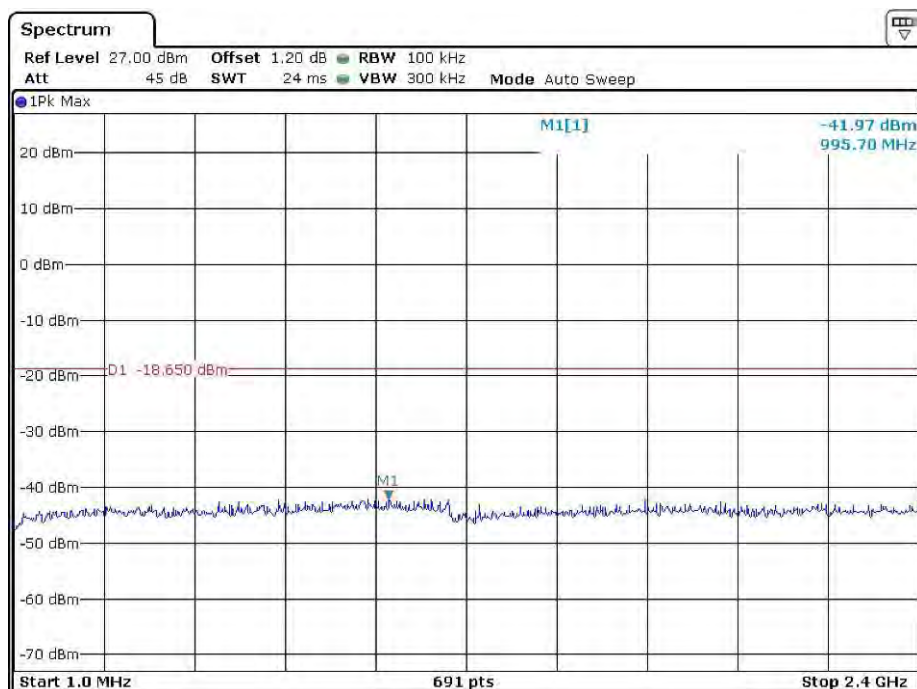
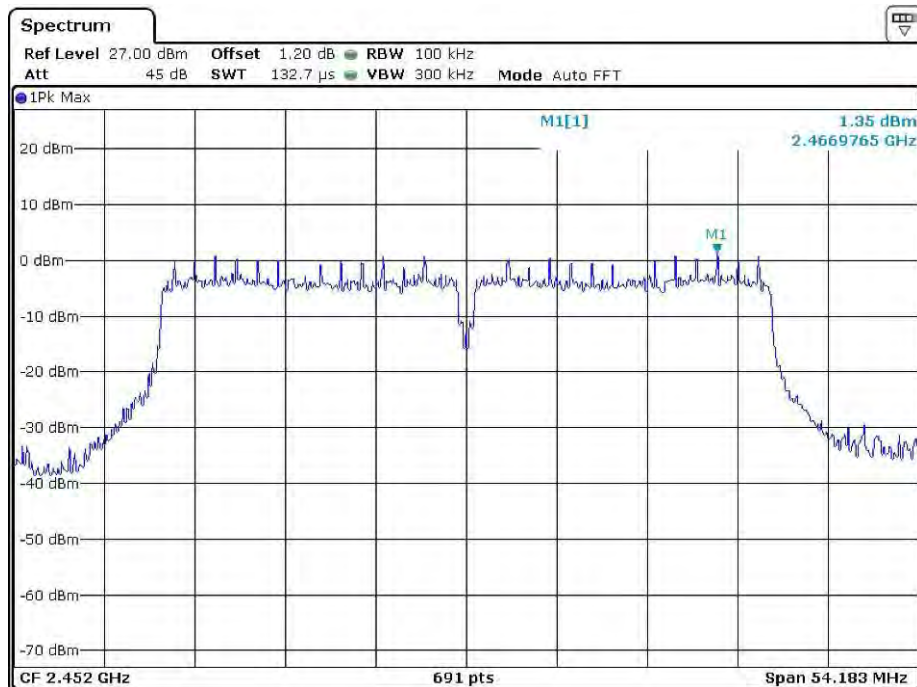


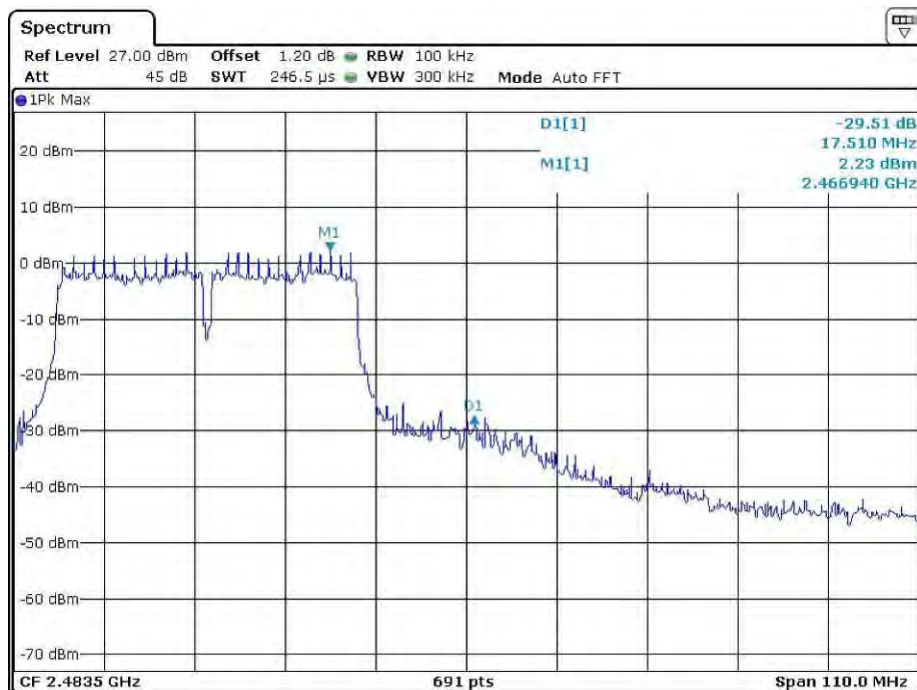
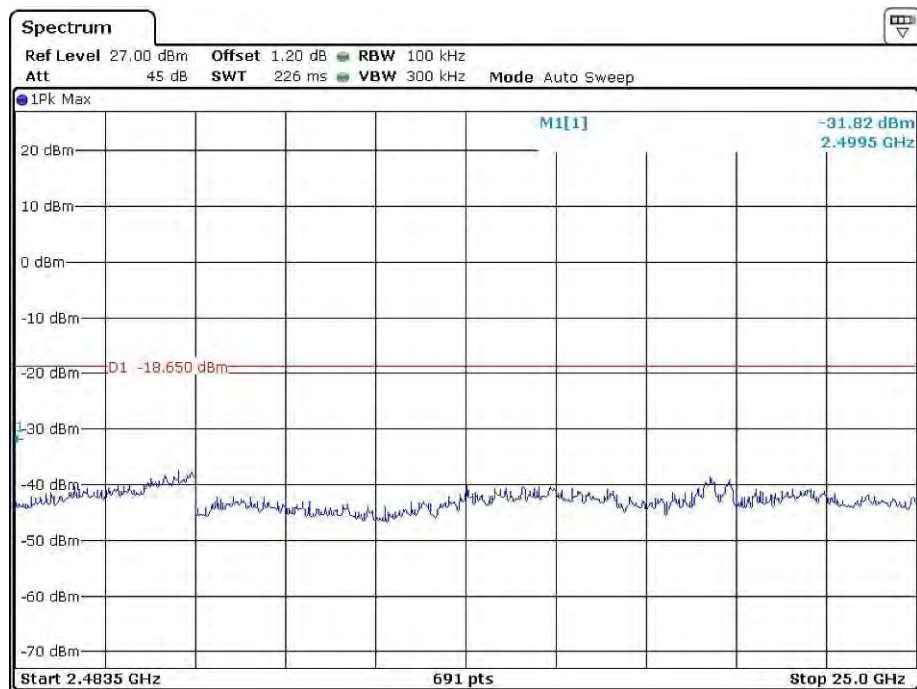
Channel 06 (2437MHz) Reference Level: 1.15dBm





Channel 09 (2452MHz) Reference Level: 1.35dBm





Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 21, 2019

Model: X22B-C

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental

[] See attached data sheet

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Model: X22B-C

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified. Simultaneous transmission was considered during the test.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Model: X22B-C

4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD$$

Example

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$\begin{aligned} RA &= 62.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ PD &= 0 \text{ dB} \\ FS &= 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Model: X22B-C

4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission
at 7386MHz
is passed by 9.88dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Worst Case Operating Mode:

Worst Case Adapter:

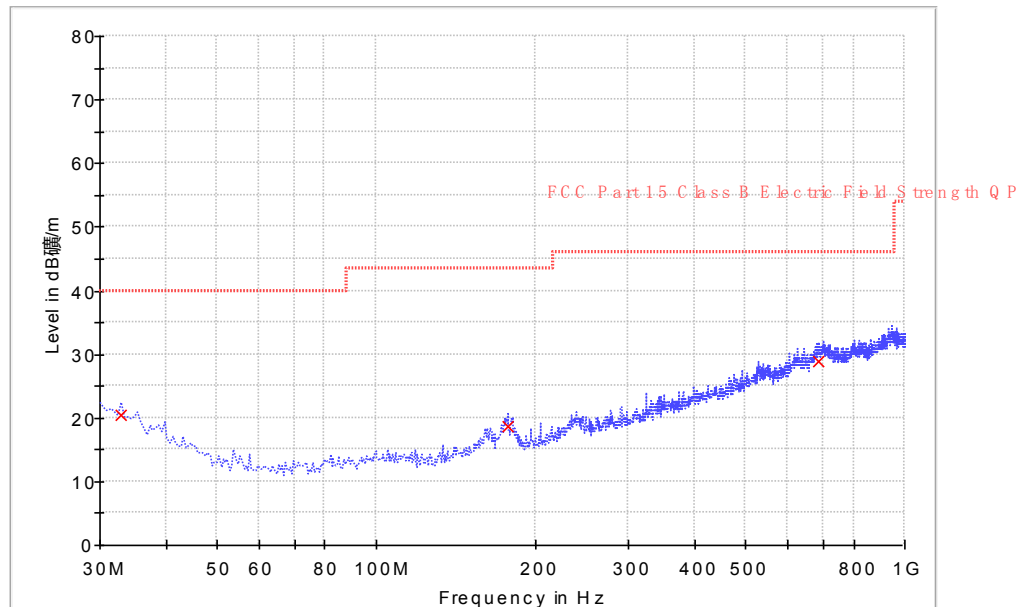
Model: X22B-C

Transmitting (11b-2412MHz)

Adapter1

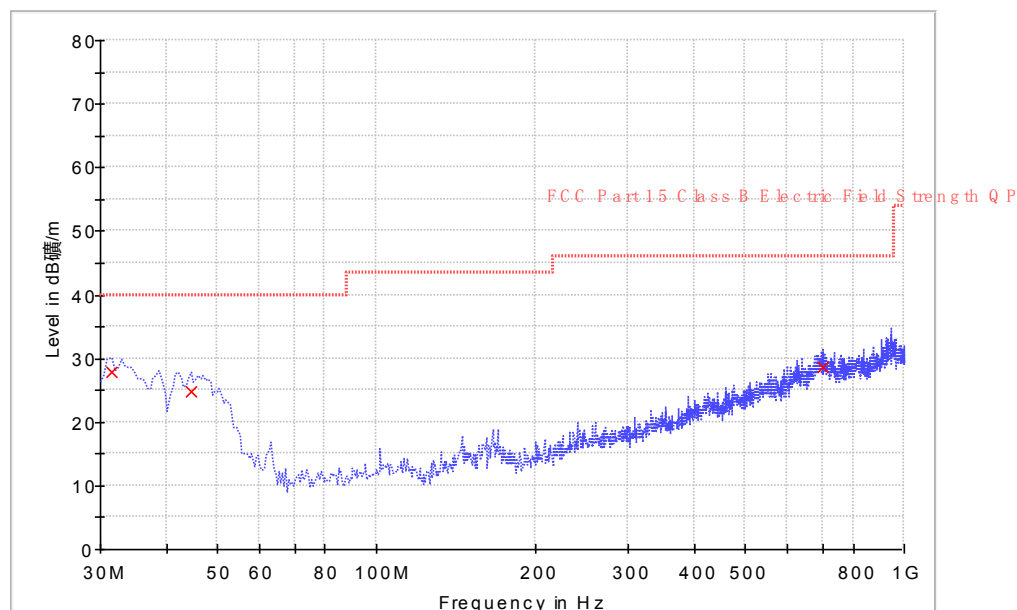
ANT Polarity: Horizontal

FCC Part 15



ANT Polarity: Vertical

FCC Part 15



Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Worst Case Operating Mode:

Worst Case Adapter:

Model: X22B-C

Transmitting (11b-2412MHz)

Adapter 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	32.910000	24.1	20.0	16.4	20.5	40.0	-19.5
Horizontal	177.440000	27.4	20.0	11.3	18.7	43.5	-24.8
Horizontal	685.720000	24.0	20.0	24.9	28.9	46.0	-17.1
Vertical	31.455000	30.7	20.0	17.1	27.8	40.0	-12.2
Vertical	44.550000	34.0	20.0	10.9	24.9	40.0	-15.1
Vertical	699.785000	23.1	20.0	25.5	28.6	46.0	-17.4

NOTES: 1. Quasi-Peak detector is used for frequency below 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions are below the QP limit.

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Worst Case Operating Mode:

Model: X22B-C

Transmitting (11b-2412MHz)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	50.7	36.3	33.5	47.85	74.0	-26.15
Horizontal	*2387.500	49.5	36.4	27.3	40.37	74.0	-33.63

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	39.5	36.3	33.5	36.73	54.0	-17.27
Horizontal	*2387.500	41.8	36.4	27.3	32.65	54.0	-21.35

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Worst Case Operating Mode:

Model: X22B-C

Transmitting (11b-2437MHz)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	50.5	36.3	33.6	47.84	74.0	-26.16
Horizontal	*7311.000	51.1	36.3	37.8	52.58	74.0	-21.42

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	40.3	36.3	33.6	37.63	54.0	-16.37
Horizontal	*7311.000	41.2	36.3	37.8	42.67	54.0	-11.33

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 17, 2019

Worst Case Operating Mode:

Model: X22B-C

Transmitting (11b-2462MHz)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	49.9	36.3	33.6	47.22	74.0	-26.78
Horizontal	*7386.000	52.3	36.3	37.8	53.78	74.0	-20.22

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	39.8	36.3	33.6	37.12	54.0	-16.88
Horizontal	*7386.000	42.6	36.3	37.8	44.12	54.0	-9.88

- NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

4.9 Conducted Emission at Mains Terminal

4.9.1 Conducted Emissions Configuration Photograph

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

4.9.2 Conducted Emissions

Worst Case Neutral-Conducted Configuration
At

0.370 MHz

Judgement: Passed by 11.7 dB margin

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 18, 2019

Worst Case Operating Mode:

Worst Case Adapter:

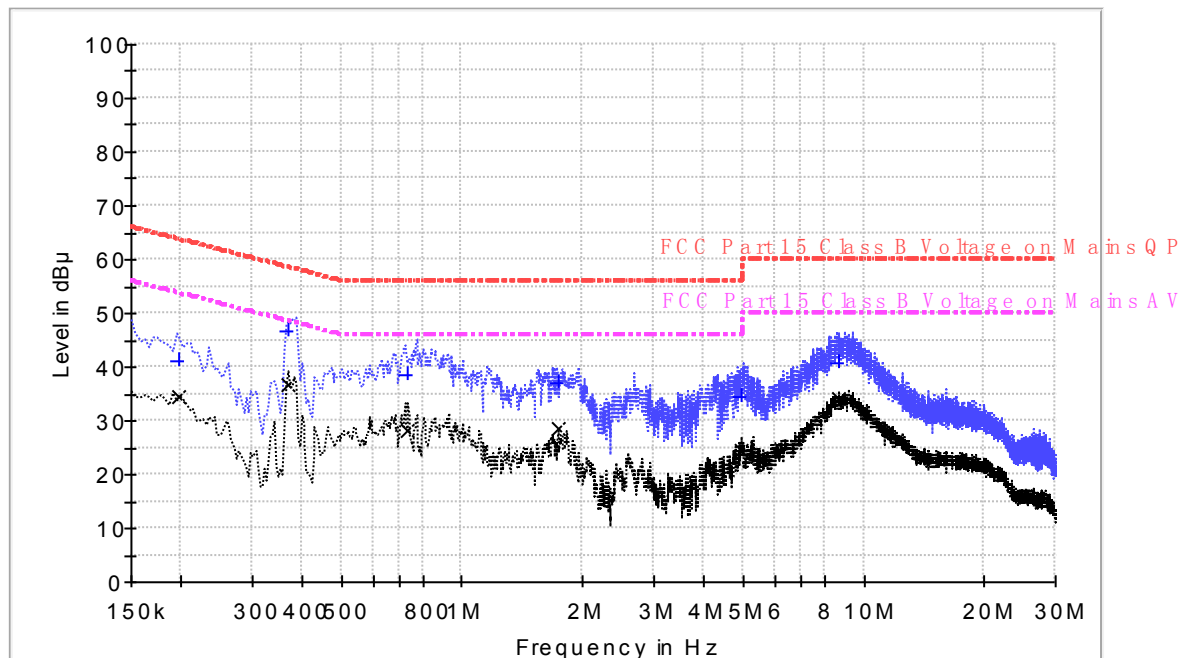
Phase: Live

Model: X22B-C

WIFI Link

Adapter 3

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.198000	41.3	L	9.6	22.5	63.7
0.370000	46.8	L	9.6	11.7	58.5
0.734000	38.4	L	9.7	17.6	56.0
1.730000	36.9	L	9.7	19.1	56.0
4.942000	34.6	L	9.7	21.4	56.0
8.686000	40.8	L	9.8	19.2	60.0

Result Table AV

Frequency (MHz)	Average (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
0.198000	34.3	L	9.6	19.4	53.7
0.370000	36.8	L	9.6	11.7	48.5
0.734000	28.2	L	9.6	17.8	46.0
1.730000	28.4	L	9.6	17.6	46.0
4.942000	24.5	L	9.6	21.5	46.0
8.686000	34.0	L	9.8	16.0	50.0

Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)

2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: Huawei Technologies Co., Ltd.

Date of Test: January 18, 2019

Worst Case Operating Mode:

Worst Case Adapter:

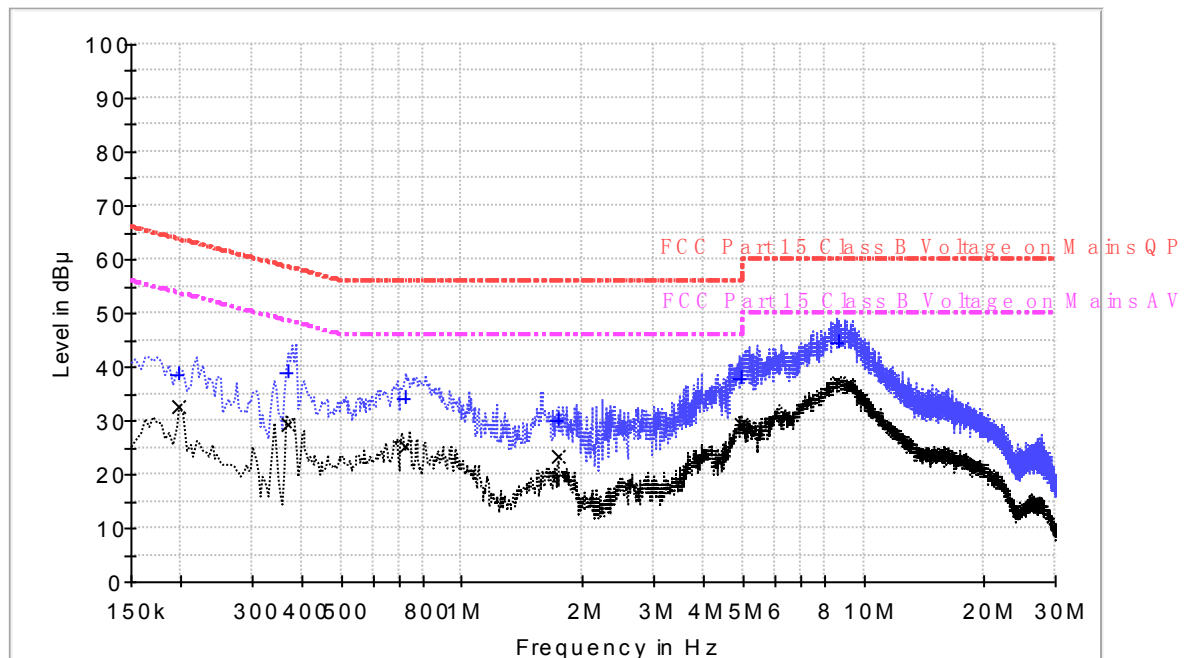
Phase: Neutral

Model: X22B-C

WIFI Link

Adapter 3

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.198000	38.6	N	9.6	25.1	63.7
0.370000	38.8	N	9.6	19.7	58.5
0.726000	34.2	N	9.7	21.8	56.0
1.730000	30.0	N	9.7	26.0	56.0
4.966000	37.7	N	9.8	18.3	56.0
8.630000	44.5	N	9.9	15.5	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.198000	32.6	N	9.6	21.1	53.7
0.370000	29.1	N	9.6	19.4	48.5
0.726000	25.3	N	9.7	20.7	46.0
1.730000	23.5	N	9.7	22.5	46.0
4.966000	29.4	N	9.8	16.6	46.0
8.630000	37.0	N	9.9	13.0	50.0

Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dB μ V) – Level (dB μ V)

Applicant: Huawei Technologies Co., Ltd.

Model: X22B-C

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

☐ Not required - No digital part

☐ Test results are attached

☒ Included in the separated report.

Applicant: Huawei Technologies Co., Ltd.

Model: X22B-C

4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

EXHIBIT 5

EQUIPMENT PHOTOGRAPHS

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

EXHIBIT 6

PRODUCT LABELLING

6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

EXHIBIT 7

TECHNICAL SPECIFICATIONS

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 8

INSTRUCTION MANUAL

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

EXHIBIT 10

MISCELLANEOUS INFORMATION

10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

EXHIBIT 11

TEST EQUIPMENT LIST

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	5-Jun-2018	5-Jun-2019
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	5-Jun-2018	5-Jun-2019
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-May-2018	11-May-2019
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	5-Jun-2018	5-Jun-2019
SZ061-03	Biconilog Antenna	ETS	3142C	00078828	16-Oct-2018	16-Oct-2019
SZ061-08	Horn Antenna	ETS	3115	00092346	14-Sep-2018	14-Sep-2019
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	17-Mar-2018	17-Mar-2019
SZ056-03	Spectrum Analyzer	R&S	FSP30	101148	05-Jun-2018	05-Jun-2019
SZ185-01	EMI Receiver	R & S	ESCI	100547	4-Jan-2019	4-Jan-2020
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	15-Jan-2019	15-Jan-2020
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	15-Dec-2018	15-Dec-2020
SZ062-02	RF Cable	RADIAL	RG 213U	--	02-Jul-2018	02-Jul-2019
SZ062-05	RF Cable	RADIAL	0.04-26.5GHz	--	02-Jun-2018	02-Jun-2019
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	02-Jun-2018	02-Jun-2019
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	26-Oct-2018	26-Oct-2019
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	26-Oct-2018	26-Oct-2019
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	04-Jul-2018	04-Jul-2019
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Jan-2017	16-Jan-2020
SZ062-16	RF Cable	HUBER+SUHNER	CBL2-BN-1m	110127-2231000	29-Oct-2018	29-Oct-2019

***** End of Report *****