

SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

TEST REPORT

SCOPE OF WORK

FCC TESTING-100002634

REPORT NUMBER

191104028SZN-003

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Intertek Report No.: 191104028SZN-003

SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Application
For
Certification

FCC ID: 2AA3H-S6064**Onn. 5.1.2 Atmos Soundbar, onn. 5.1.2 Atmos Soundbar****Model: 100002634****Brand Name:****2.4GHz Wi-Fi Transceiver**

Report No.: 191104028SZN-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 [10-1-18]

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

Leo Li
Project Engineer

Kidd Yang
Technical Supervisor
Date: December 5, 2019

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Intertek Testing Services Shenzhen Ltd. Longhua Branch

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MEASUREMENT/TECHNICAL REPORT

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 [10-01-18] Edition] provision.

Report prepared by:

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1.0 Summary of Test results

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Applicant Address: No.15, Zhongfu road, Tangxiayong community, Yanluo street, Bao 'an district, Shenzhen city, Guangdong, China

Model: 100002634

FCC ID: 2AA3H-S6064

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), 15.209, FCC 15.205	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.

2.0 General Description

2.1 Product Description

The equipment under test (EUT) is a Soundbar with Bluetooth, 2.4G SRD, and WiFi functions. The 2.4G SRD module carry with double antennas, but they can't transmit at the same time. Bluetooth and Wi-Fi transmitters are share one antenna while they cannot transmit simultaneously. The EUT is powered by AC 120V/60Hz. For more detailed features description, please refer to the user's manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS.

Antenna Type: Integral Antenna

Antenna Gain: 3.4dBi

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

2.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the Onn. 5.1.2 Atmos Soundbar/ onn. 5.1.2 Atmos Soundbar 2.4GHz WIFI function.

For the BT 5.0 EDR mode was tested and demonstrated in report 191104028SZN-001.

For the BT 5.0 BLE mode was tested and demonstrated in report 191104028SZN-002.

For the 5GHz WIFI function was tested and demonstrated in report 191104028SZN-004.

For the 2.4GHz SRD function was tested and demonstrated in report 191104028SZN-005.

For other functions were reported in the SDOC report: 191104030SZN-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 v05r02. 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.

2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

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 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 meters 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 was 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.

Test software: SecureCRT

3.3 Special Accessories

HDMI cable (Shielded, Length 6ft)

3.4 Equipment Modification

Any modifications installed previous to testing by SHENZHEN 3NOD DIGITAL TECHNOLOGY 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.

3.5 Measurement Uncertainty

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

3.6 Support Equipment List and Description

Description	Manufacturer	Remark
LED TV (Provided by Intertek)	Sony	KDL-24EX520
iPod (Provided by Intertek)	Apple	A1367
USB flash disk (Provided by Intertek)	Kingston	DTSE9G2
Detachable AC Cord for Soundbar (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	without core, Length 4.92ft
Optical cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	Length 6ft
LAN cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	unshielded, Length 6ft
3.5mm to 3.5mm stereo audio cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	unshielded, Length 6ft
HDMI cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	Shielded, without core, Length 6ft
HDMI cable*3 (Provided by Intertek)	UGREEN	Shielded, without core, Length 6ft
Remote control (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	100002634
Dummy load 1 (Provided by Intertek)	N/A	100 Ω
Dummy load 2 (Provided by Intertek)	N/A	100 Ω

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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 has 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: 3.4dBi. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.4 + 10 log(2) = 6.4 dBi > 6 dBi, So maximum allowed Transmitter output will reduce to 29.6dBm (912mW) for conducted TX power.

SISO Mode, Ant1:

IEEE 802.11b (Antenna Gain = 3.4dBi) (CCK, 1Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	19.1	81.3
Middle Channel: 2437	19.8	95.5
High Channel: 2462	19.0	79.4

IEEE 802.11g (Antenna Gain = 3.4dBi) (16QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	18.4	69.2
Middle Channel: 2437	18.2	66.1
High Channel: 2462	18.3	67.6

IEEE 802.11n-HT20 (Antenna Gain = 3.4dBi) (64QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	17.5	56.2
Middle Channel: 2437	17.3	53.7
High Channel: 2462	17.0	50.1

IEEE 802.11n-HT40 (Antenna Gain = 3.4dBi) (64QAM, 13.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2422	16.3	42.7
Middle Channel: 2437	16.1	40.7
High Channel: 2452	16.2	41.7

SISO Mode, Ant2:

IEEE 802.11b (Antenna Gain = 3.4dBi) (CCK, 1Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	20.7	117.5
Middle Channel: 2437	20.5	112.2
High Channel: 2462	20.3	107.2

IEEE 802.11g (Antenna Gain = 3.4dBi) (16QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	19.2	83.2
Middle Channel: 2437	19.1	81.3
High Channel: 2462	19.5	89.1

IEEE 802.11n-HT20 (Antenna Gain = 3.4dBi) (64QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	18.3	67.6
Middle Channel: 2437	18.4	69.2
High Channel: 2462	18.2	66.1

IEEE 802.11n-HT40 (Antenna Gain = 3.4dBi) (64QAM, 13.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2422	17.4	55.0
Middle Channel: 2437	17.8	60.3
High Channel: 2452	17.5	56.2

MIMO Mode:

IEEE 802.11n-HT20 (Antenna Gain = 6.4dBi) (16QAM, 6.5Mbps)				
Frequency (MHz)	Output in dBm (Peak Reading)			Total Output in mWatt
	Ant 1	Ant 2	Total	
Low Channel: 2412	17.32	17.21	20.3	106.6
Middle Channel: 2437	17.21	17.16	20.2	104.6
High Channel: 2462	17.12	16.97	20.1	101.3

IEEE 802.11n-HT40 (Antenna Gain = 6.4dBi) (64QAM, 13.5Mbps)				
Frequency (MHz)	Output in dBm (Peak Reading)			Total Output in mWatt
	Ant 1	Ant 2	Total	
Low Channel: 2422	16.64	16.64	19.7	92.3
Middle Channel: 2437	16.47	16.63	19.6	90.4
High Channel: 2452	16.52	16.58	19.6	90.4

Cable loss: 1.5 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 20.7dBm

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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 v05r02. 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.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	9.030
2437	9.030
2462	9.036

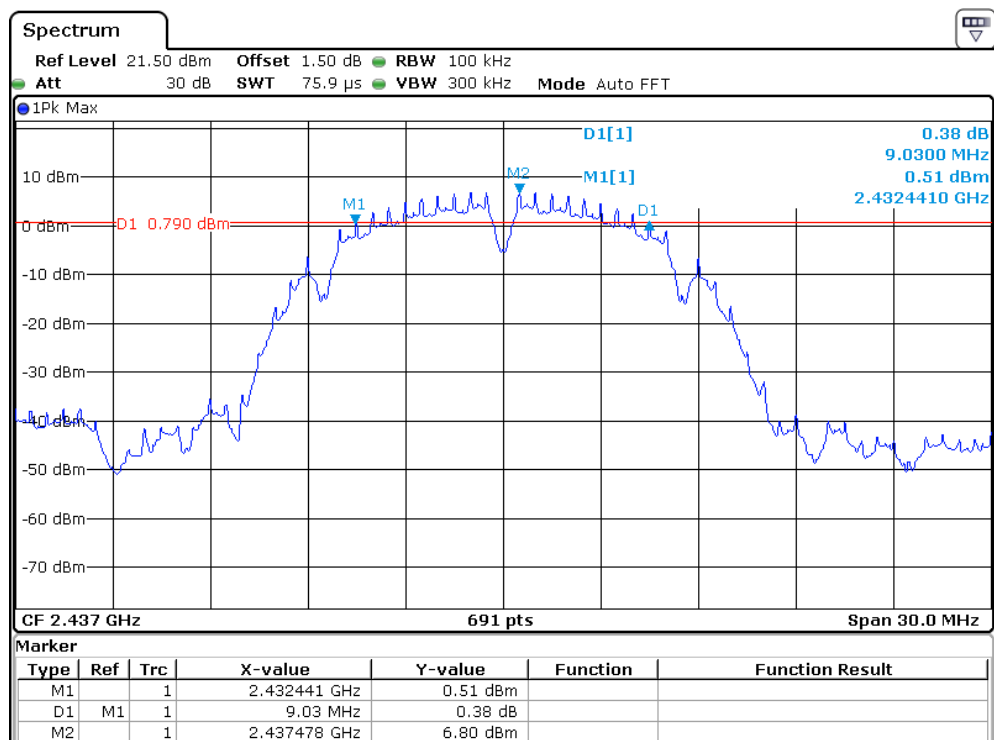
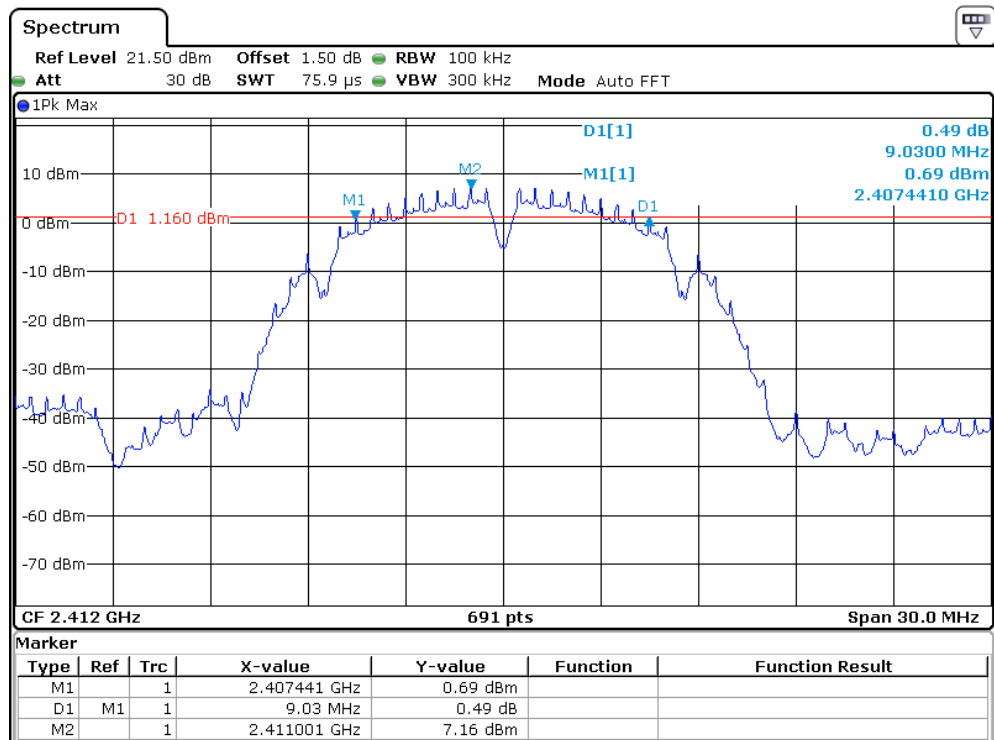
IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.353
2437	16.368
2462	16.368

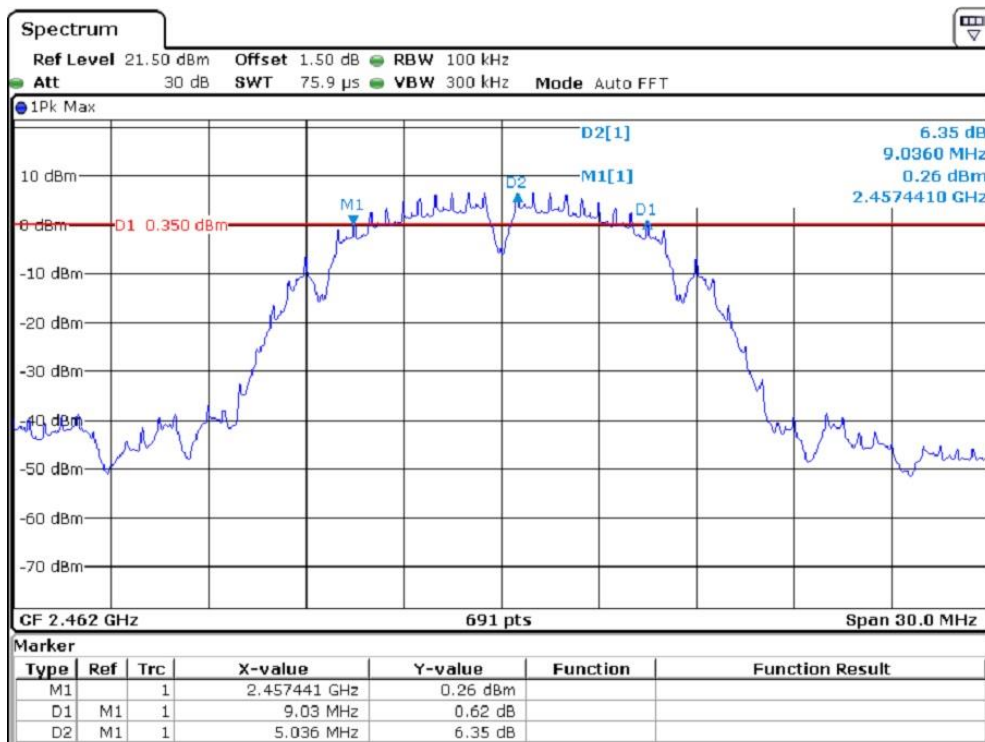
IEEE 802.11n-HT20 (64QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.323
2437	17.540
2462	17.453

IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.122
2437	36.103
2452	36.295

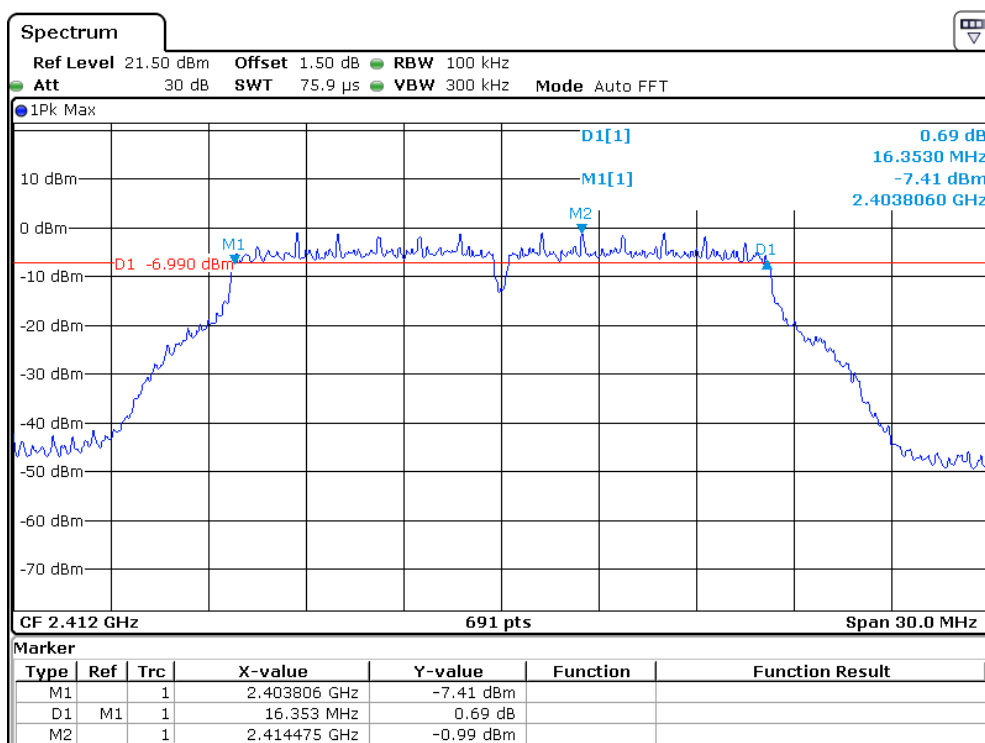
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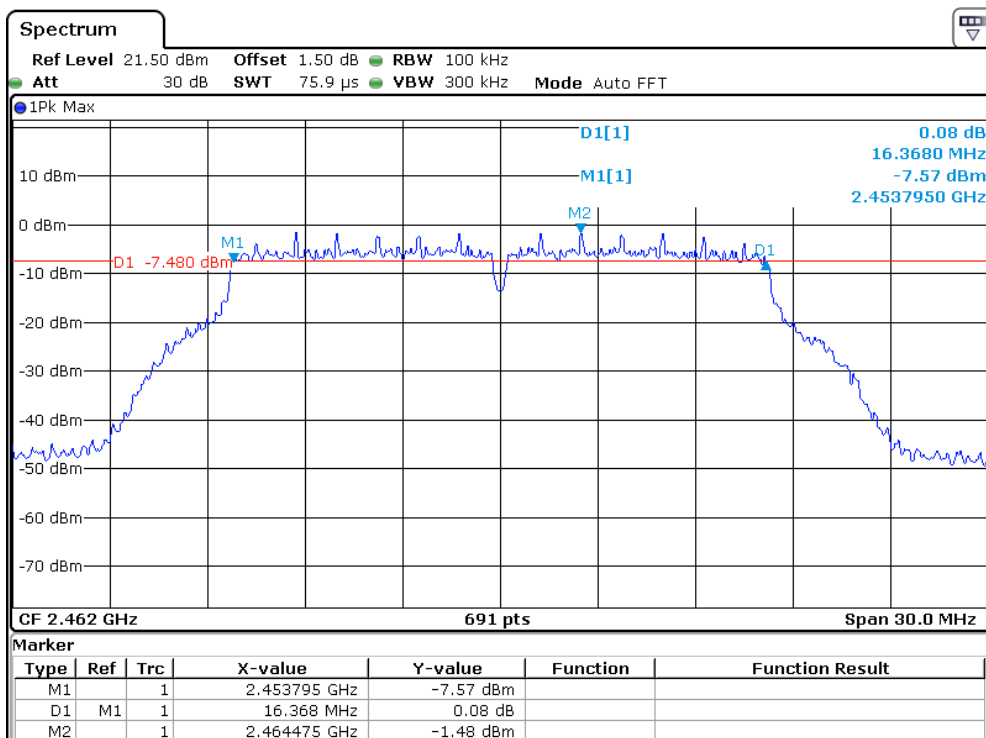
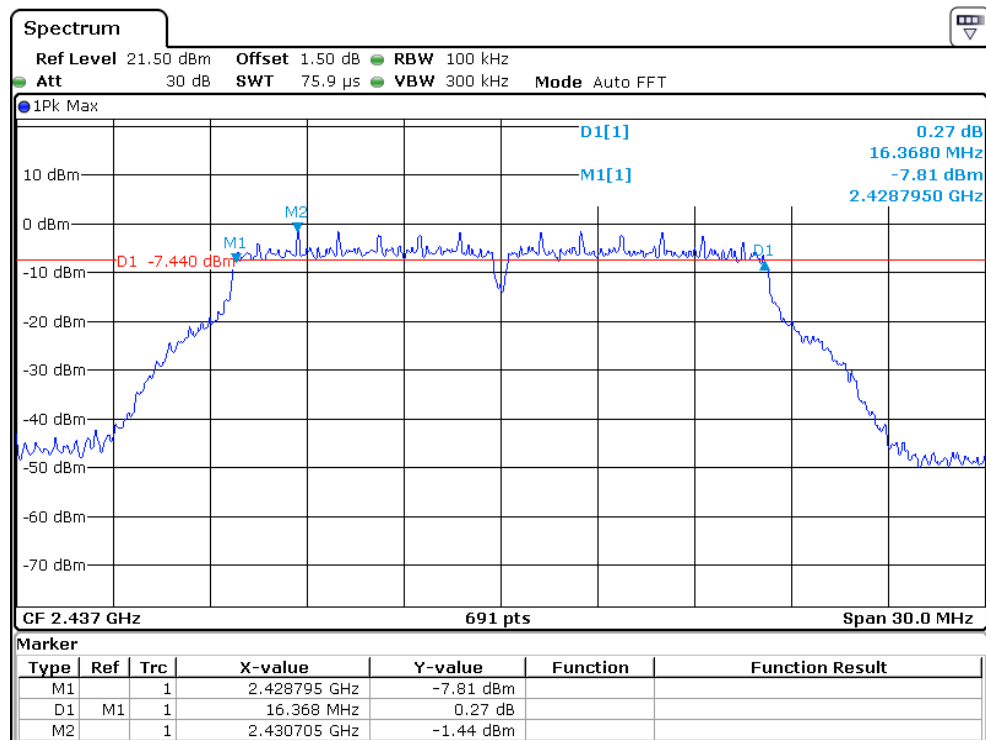
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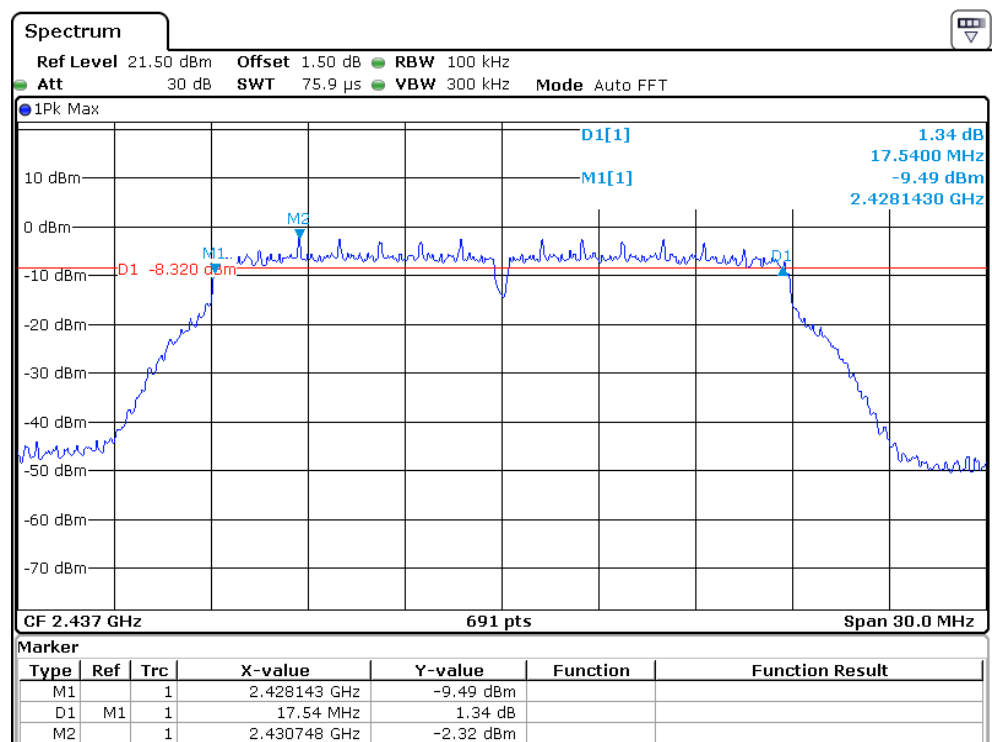
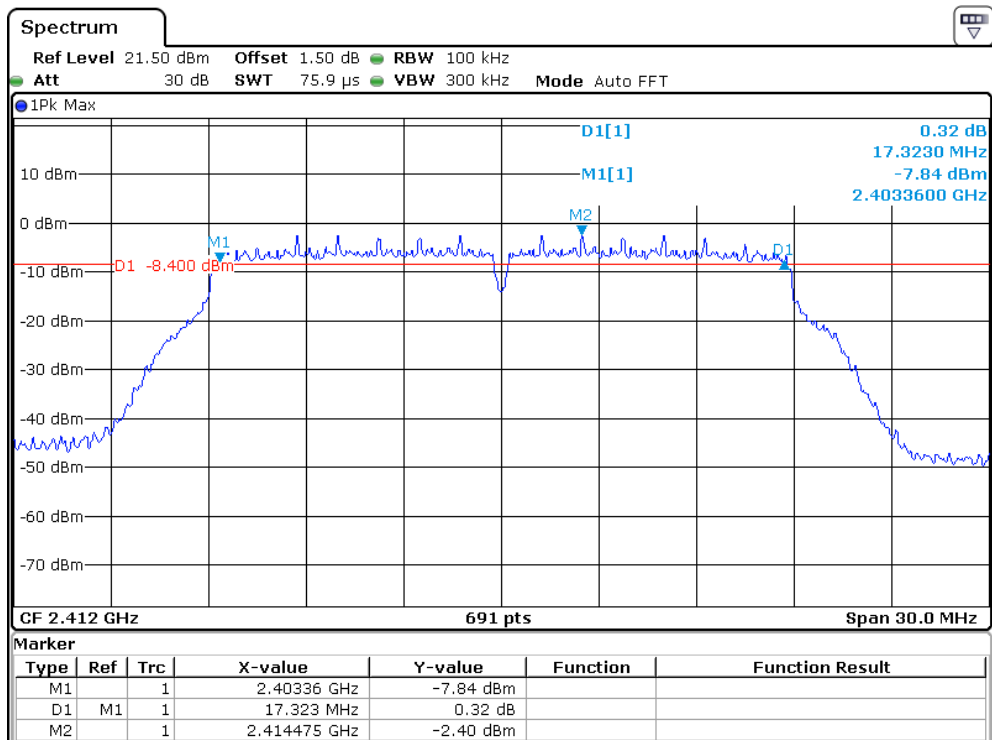


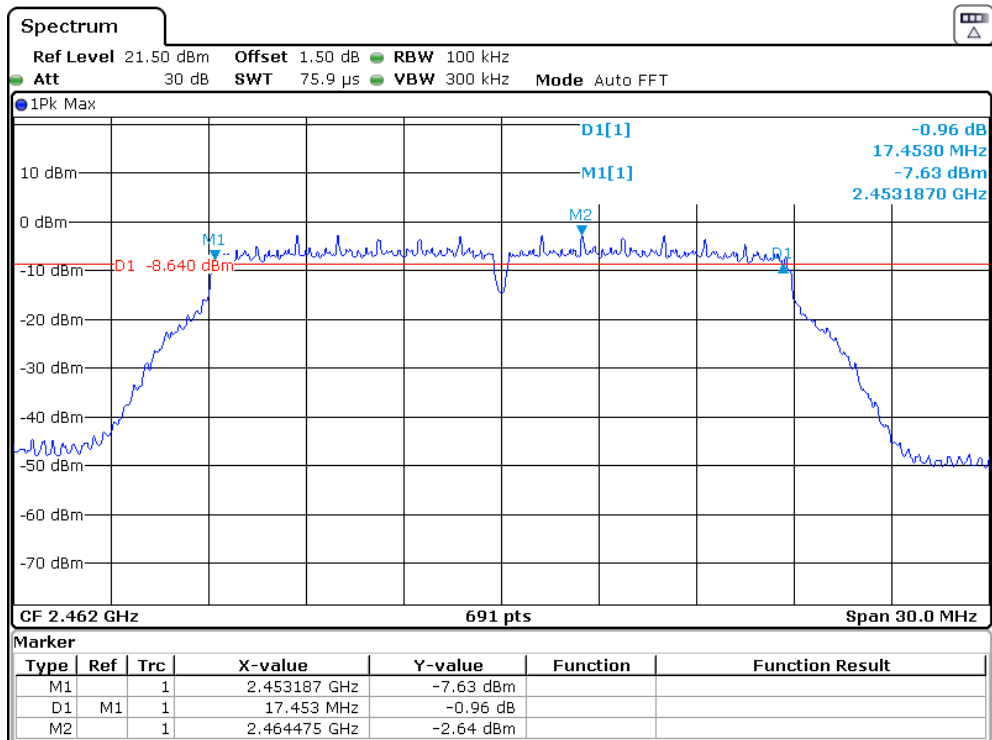
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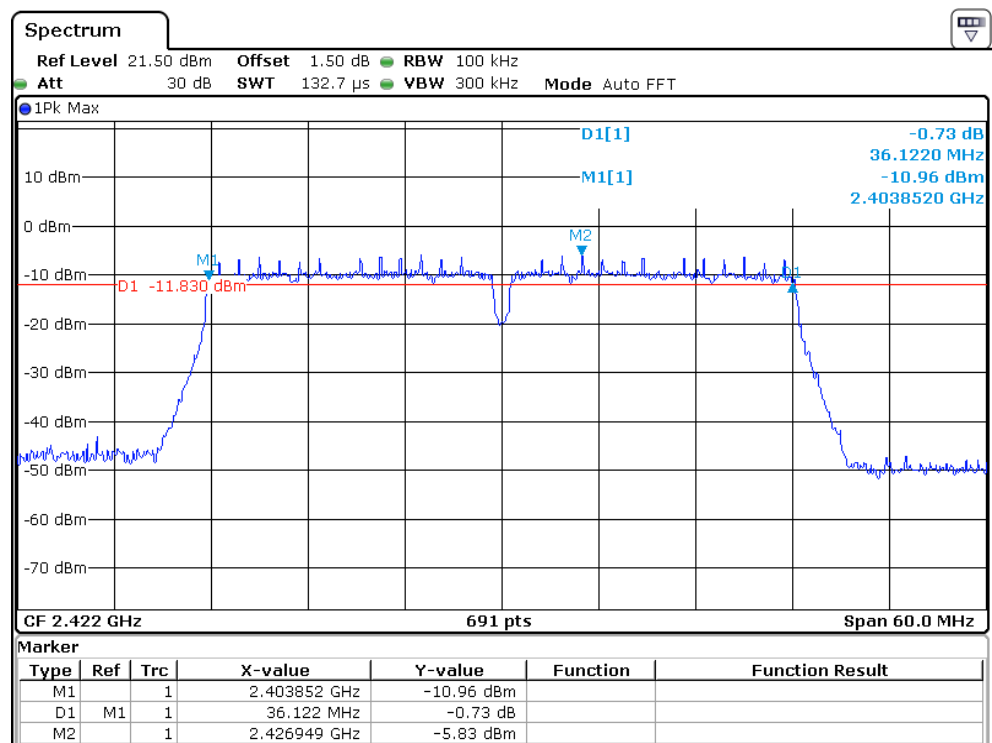


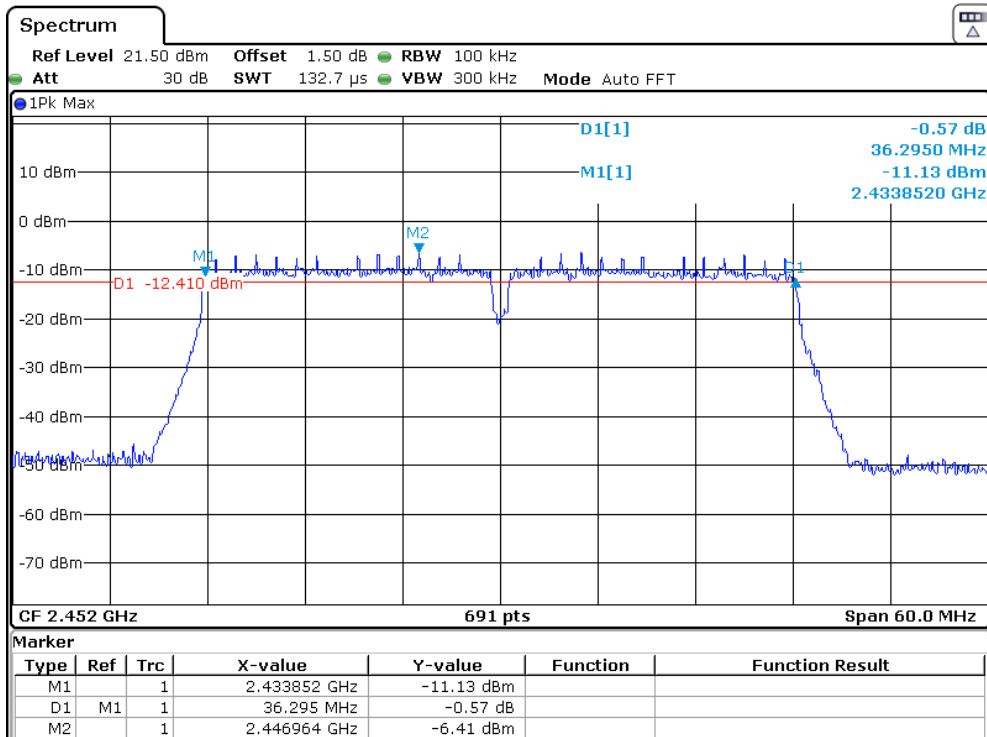
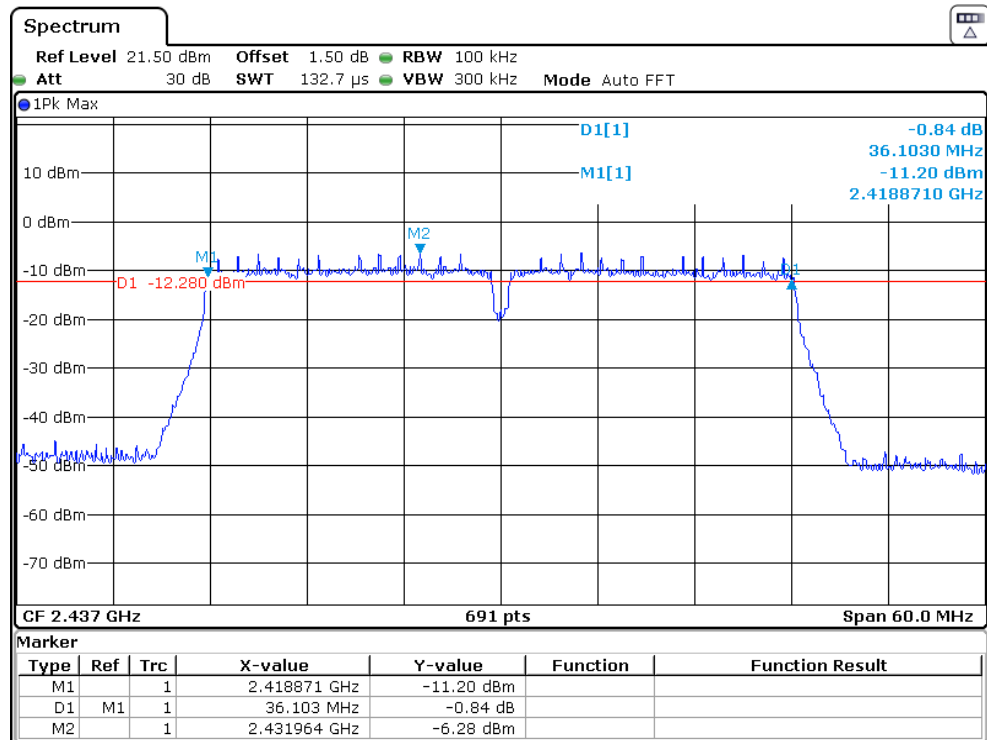
802.11n-HT20





802.11n-HT40





Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05r02.

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.

For antennas with gains of 6 dBi or less, the limit of Power Density does not exceed 8dBm/3 kHz. 2.4G band Ant gain: 3.4dBi. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.4 + 10 log(2) = 6.4 dBi > 6 dBi, So maximum allowed Power Density will reduce to 7.6dBm/3kHz for conducted TX power.

SISO Mode, Ant1:

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	7.09
2437	6.82
2462	6.60

IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-0.93
2437	-1.58
2462	-1.42

IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-2.32
2437	-2.42
2462	-2.68

IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2422	-5.87
2437	-6.29
2452	-6.46

SISO Mode, Ant2:

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	7.53
2437	7.53
2462	7.36

IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-0.26
2437	-0.62
2462	-0.77

IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-1.69
2437	-1.46
2462	-1.79

IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2422	-5.54
2437	-5.58
2452	-5.27

MIMO Mode:

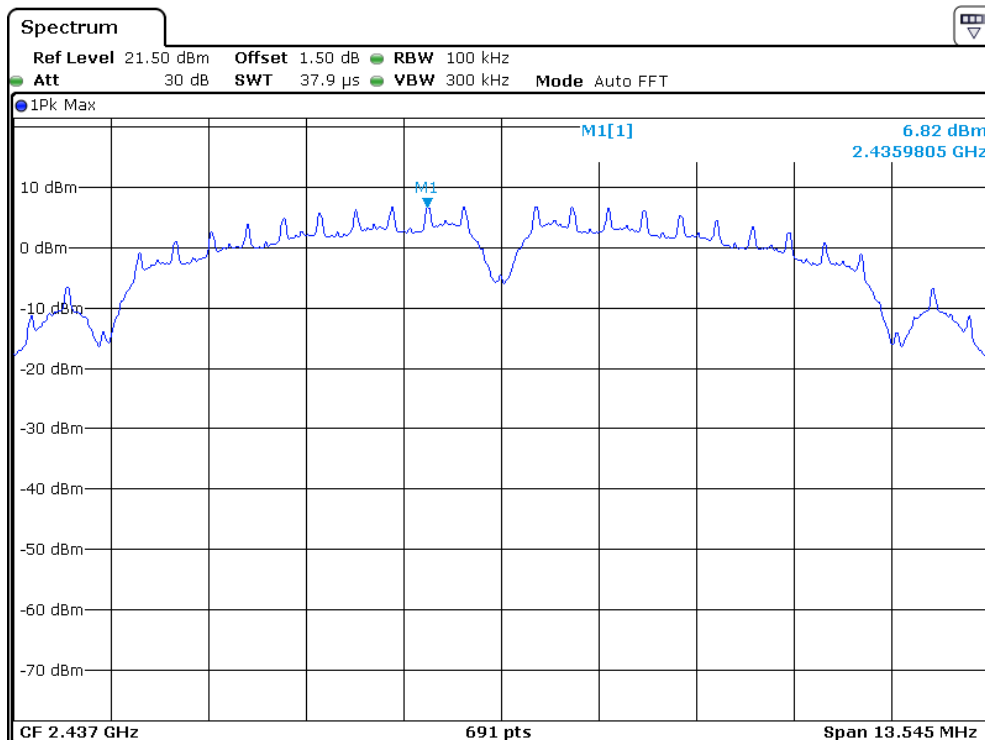
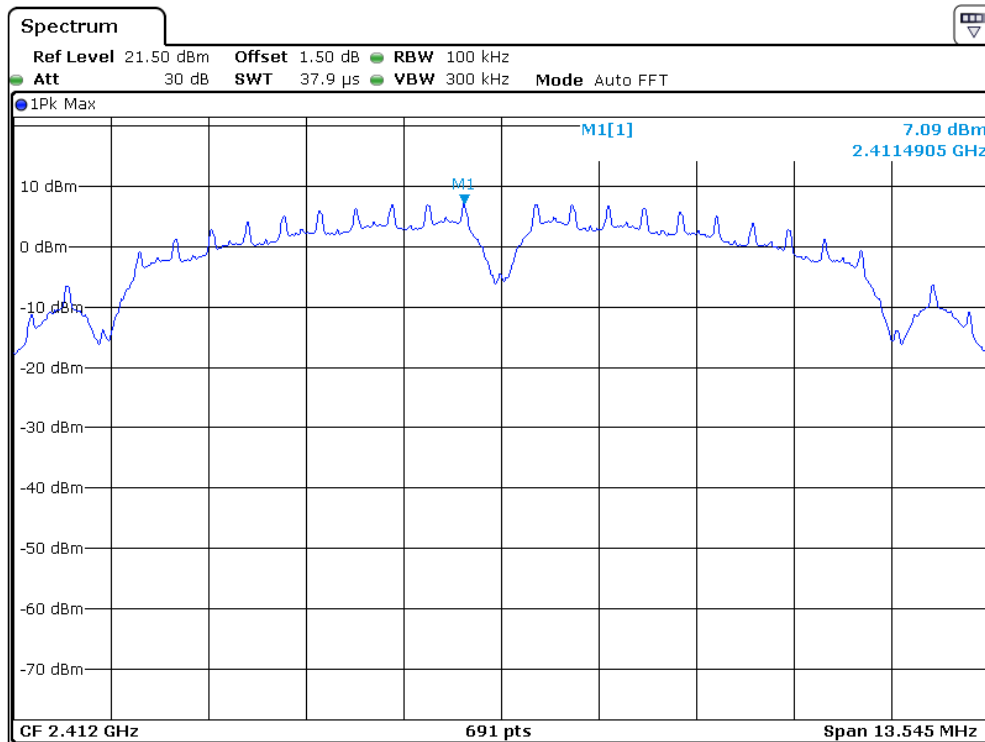
IEEE 802.11n-HT20 (16QAM, 6.5Mbps)			
Frequency (MHz)	Power Density with RBW 100KHz		Power Density with RBW 100KHz
	Ant1	Ant2	Total
2412	-1.41	-0.01	2.36
2437	-1.48	-0.24	2.19
2462	-1.74	-0.60	1.88

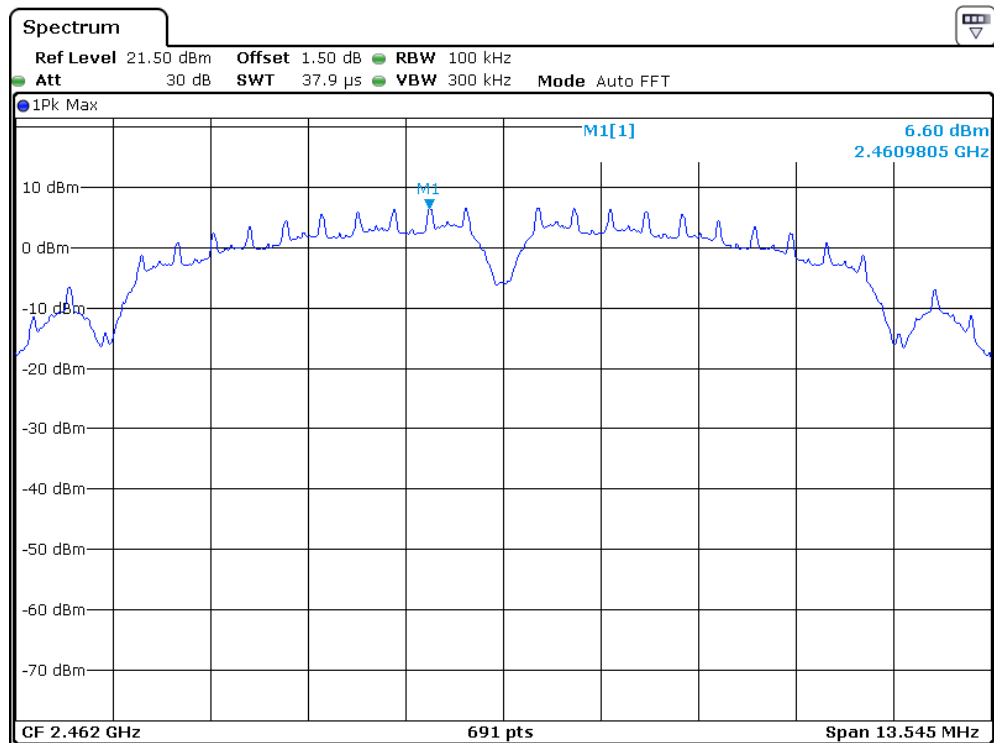
IEEE 802.11n-HT40 (64QAM, 13.5Mbps)			
Frequency (MHz)	Power Density with RBW 100KHz		Power Density with RBW 100KHz
	Ant1	Ant2	Total
2422	-5.36	-3.39	-1.25
2437	-5.36	-3.62	-1.39
2452	-5.77	-3.66	-1.58

The test plots are attached as below.

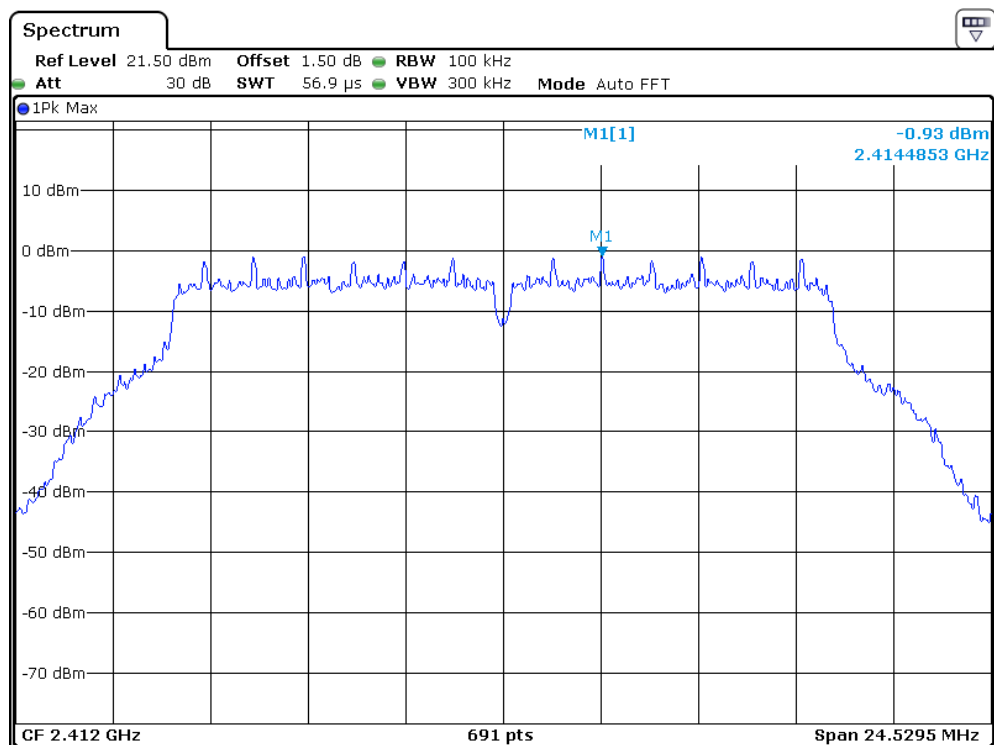
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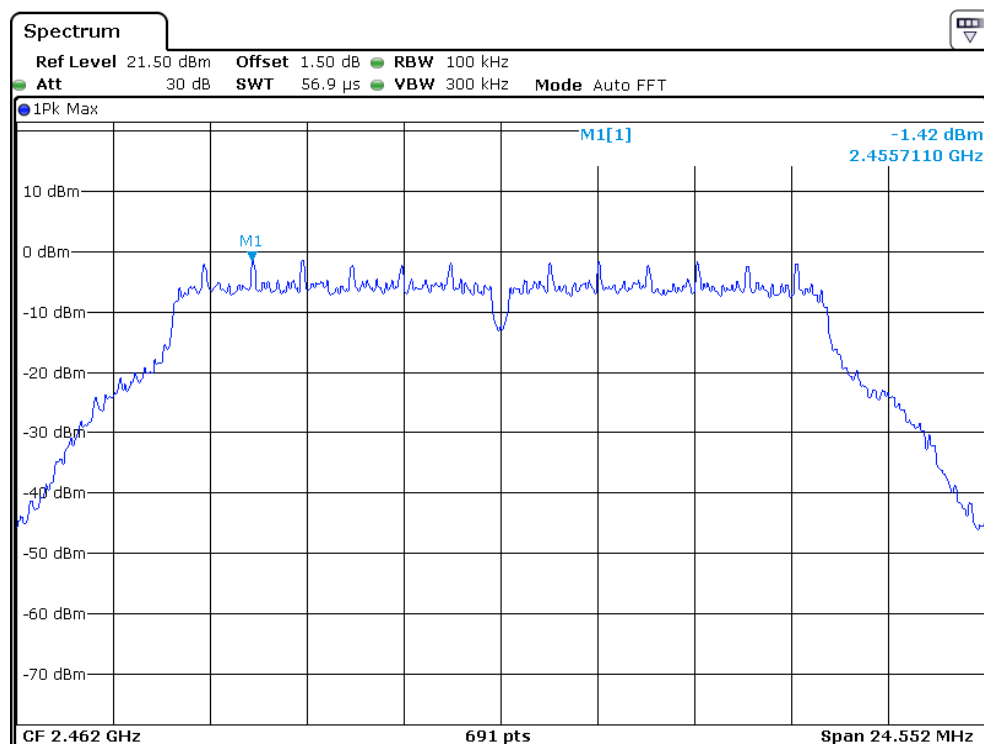
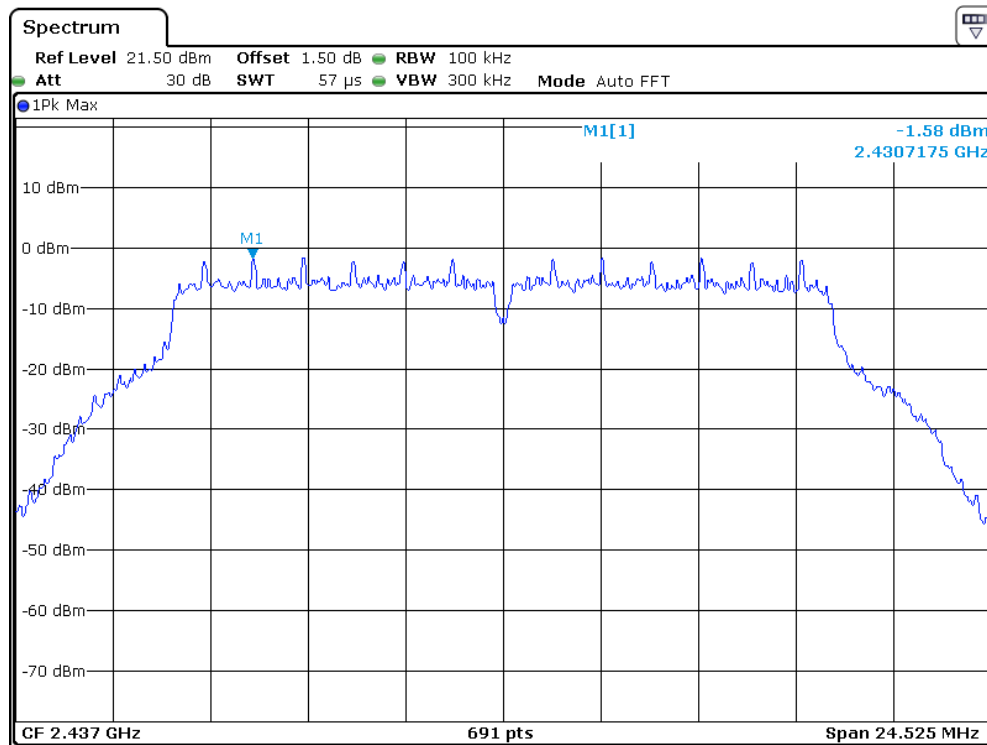
802.11b



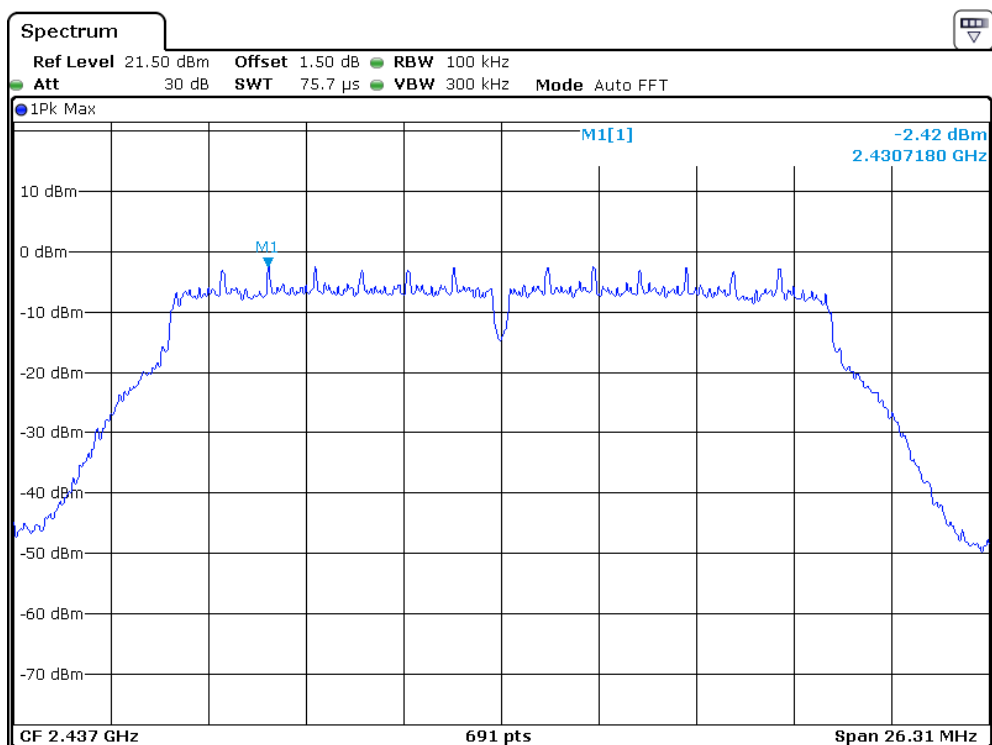
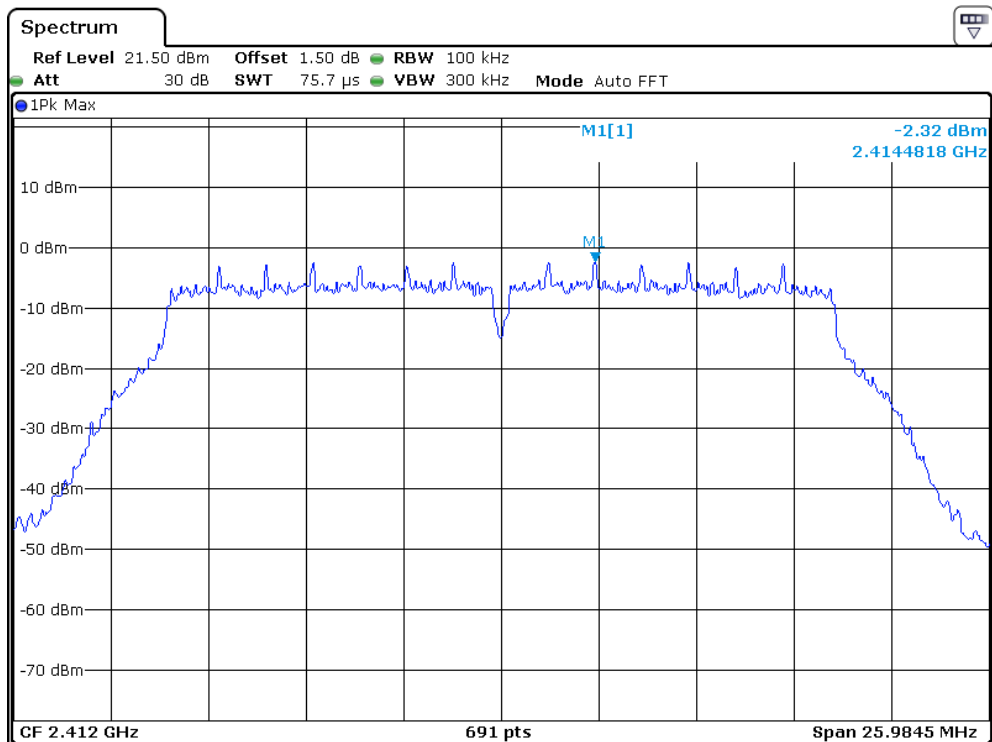


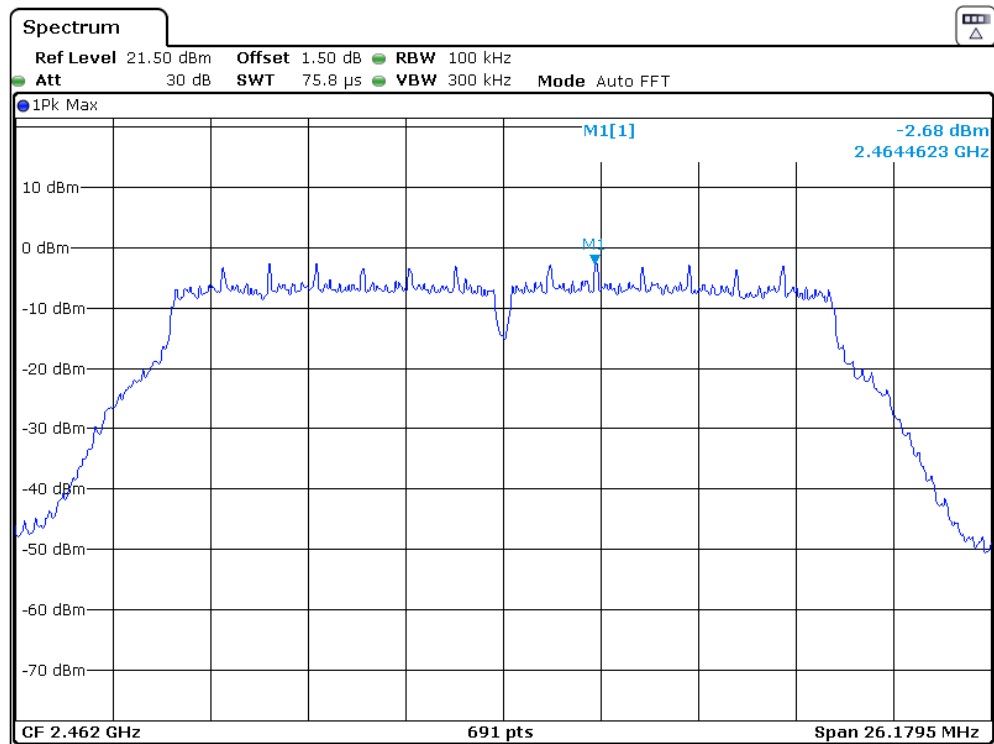
802.11g



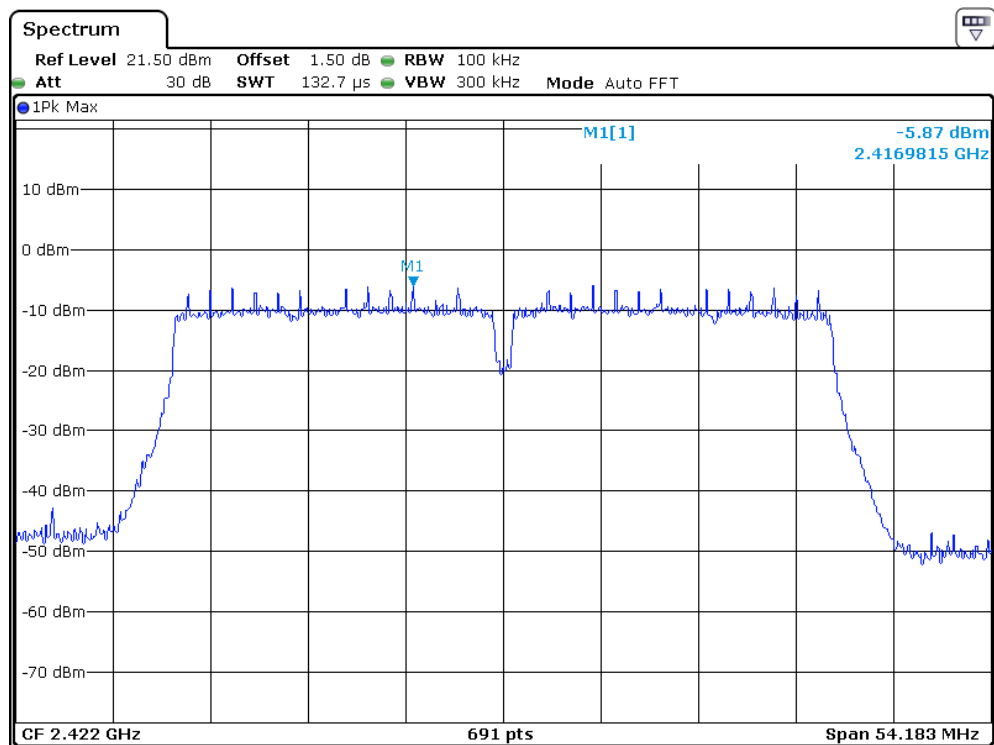


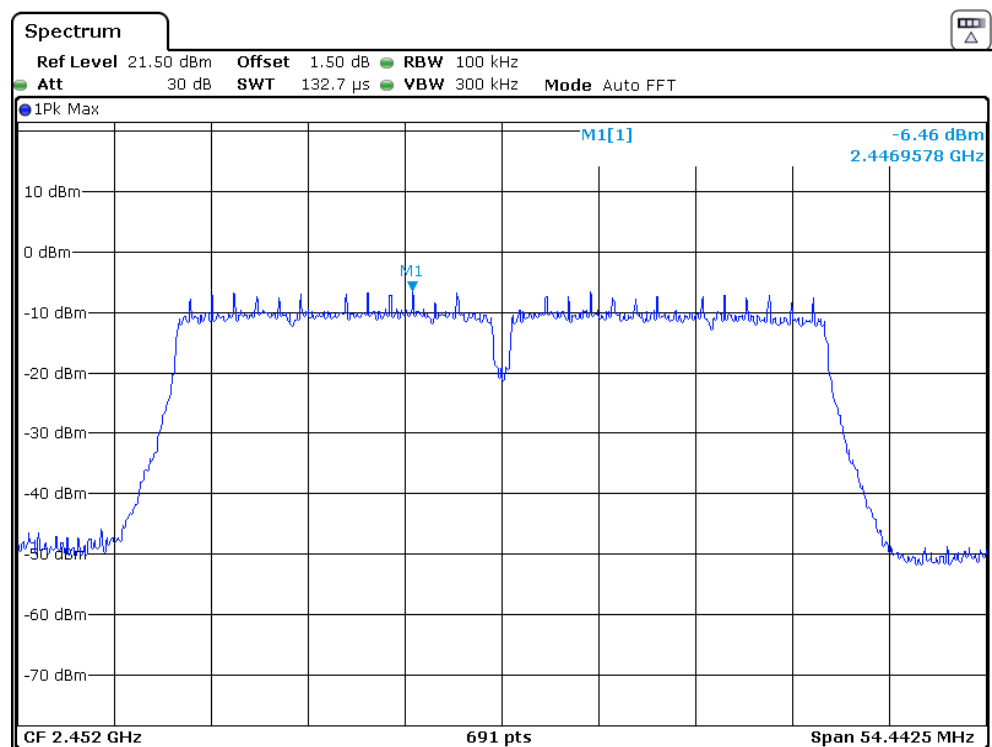
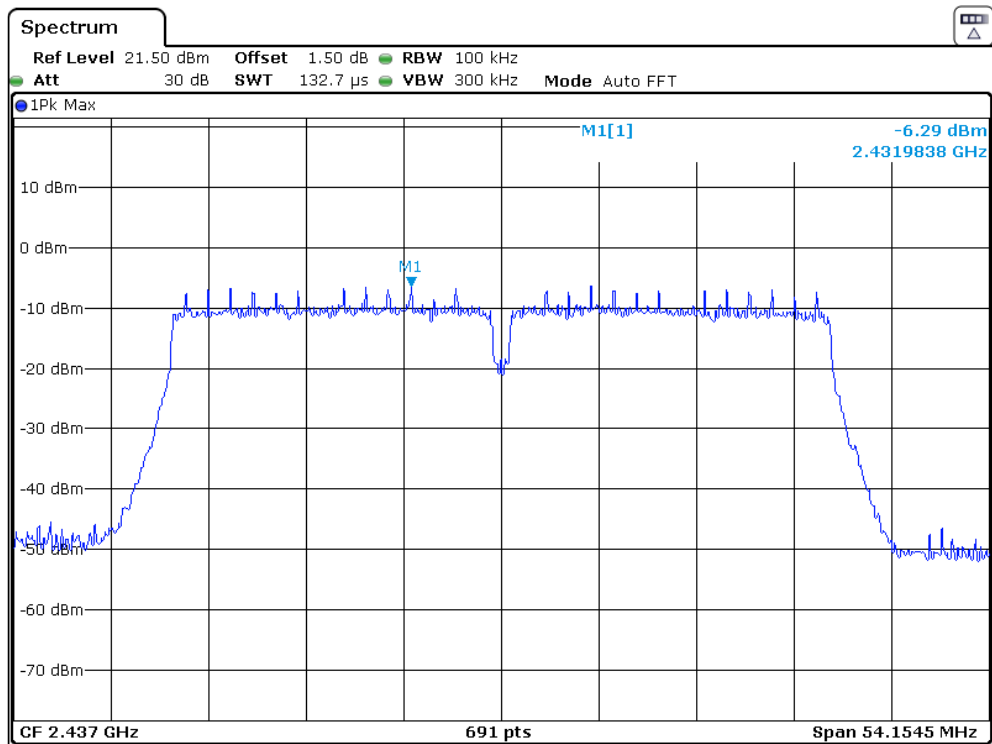
802.11n-HT20





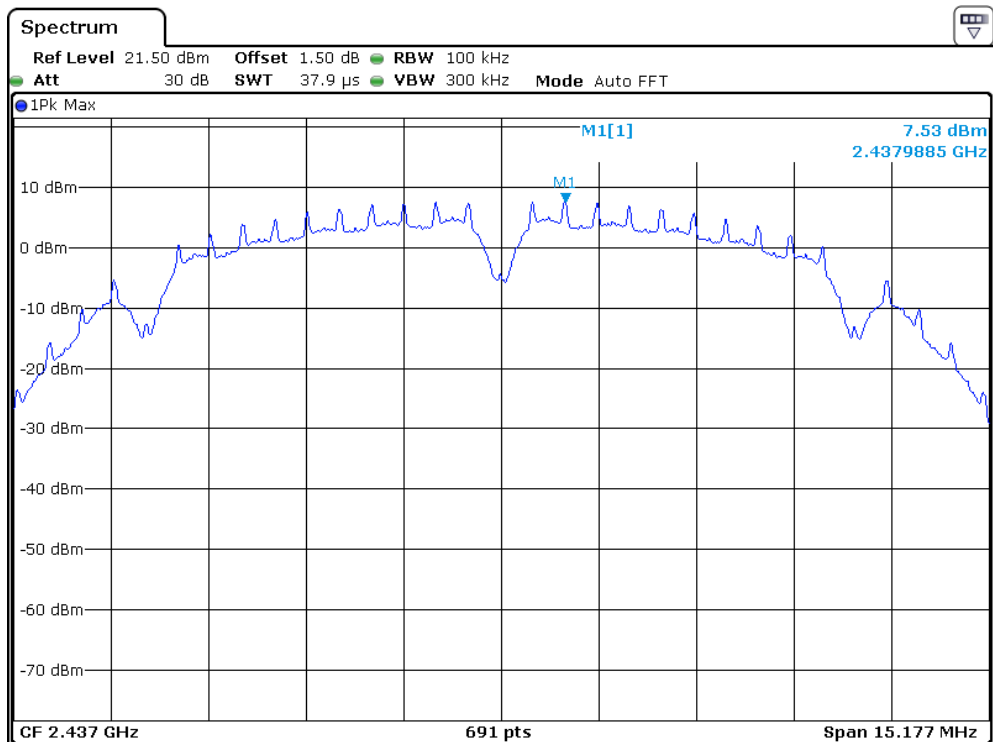
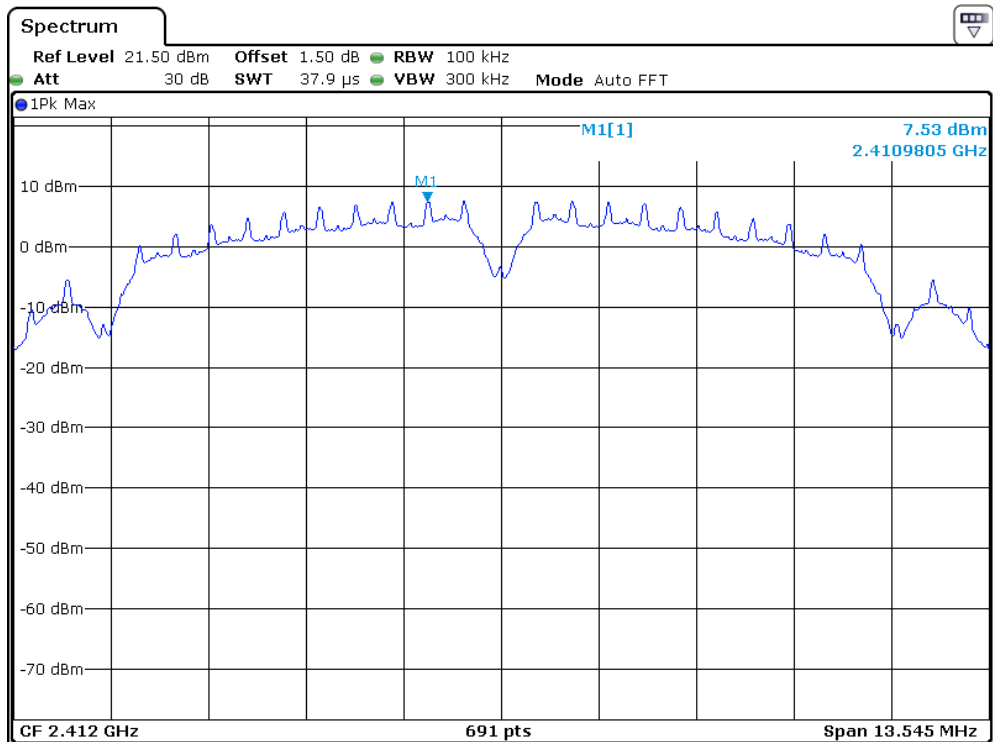
802.11n-HT40

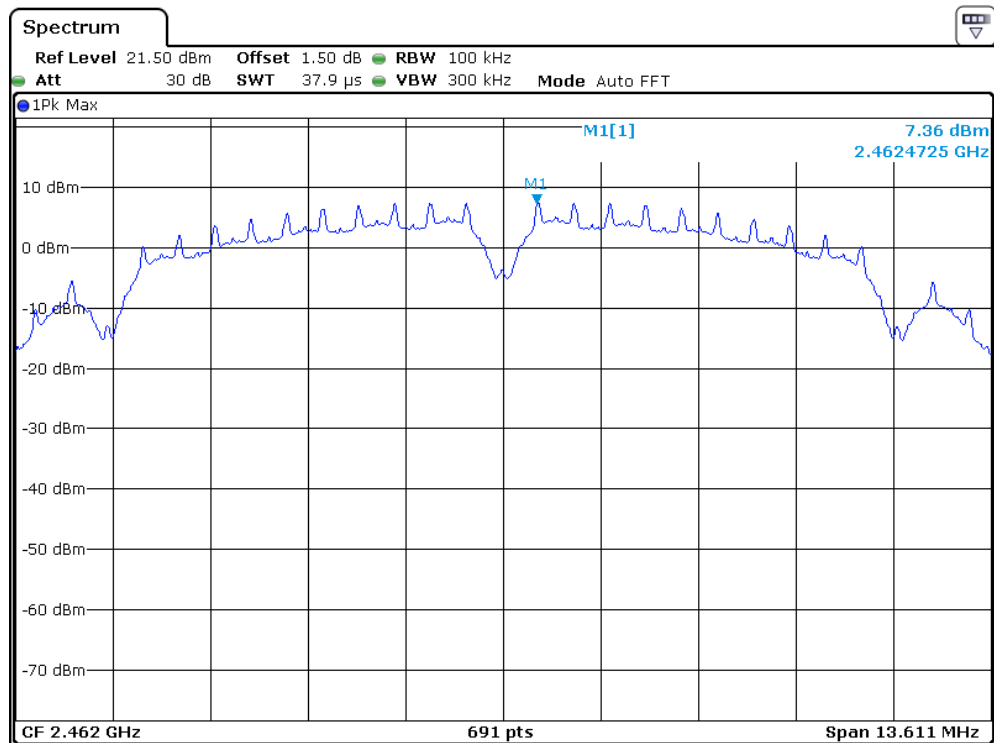




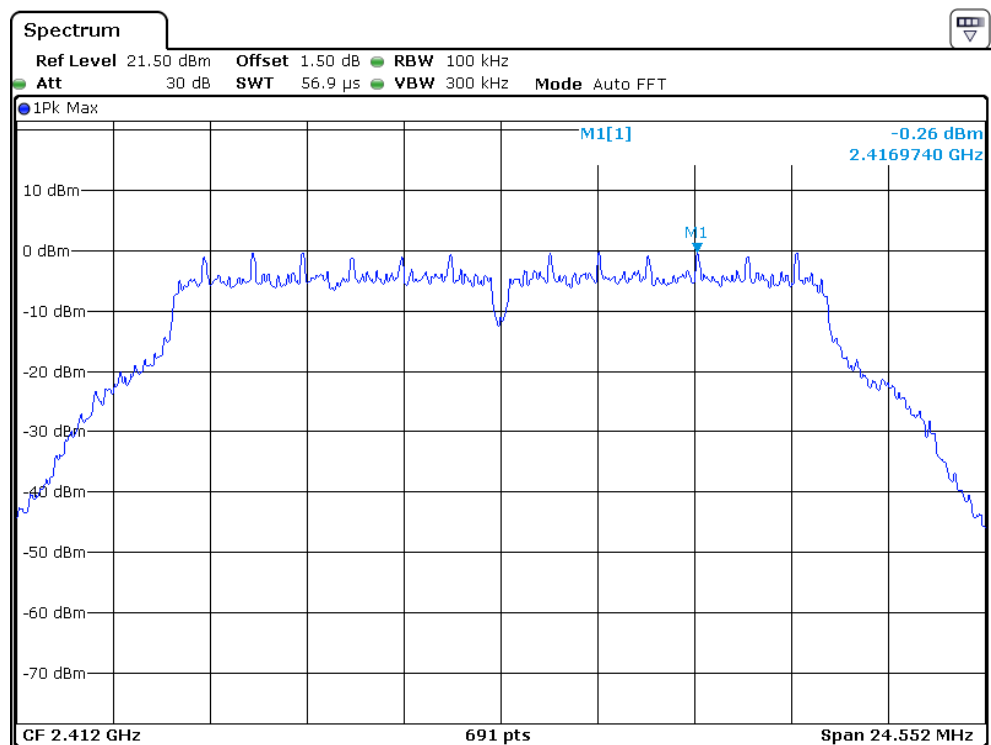
SISO-ANT 2:

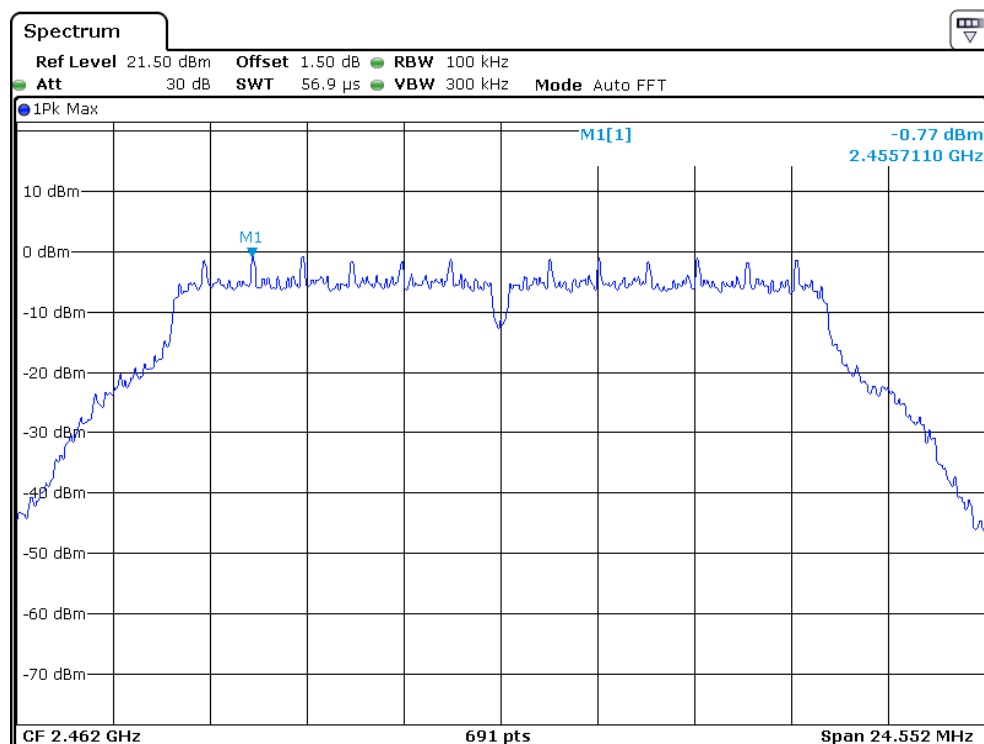
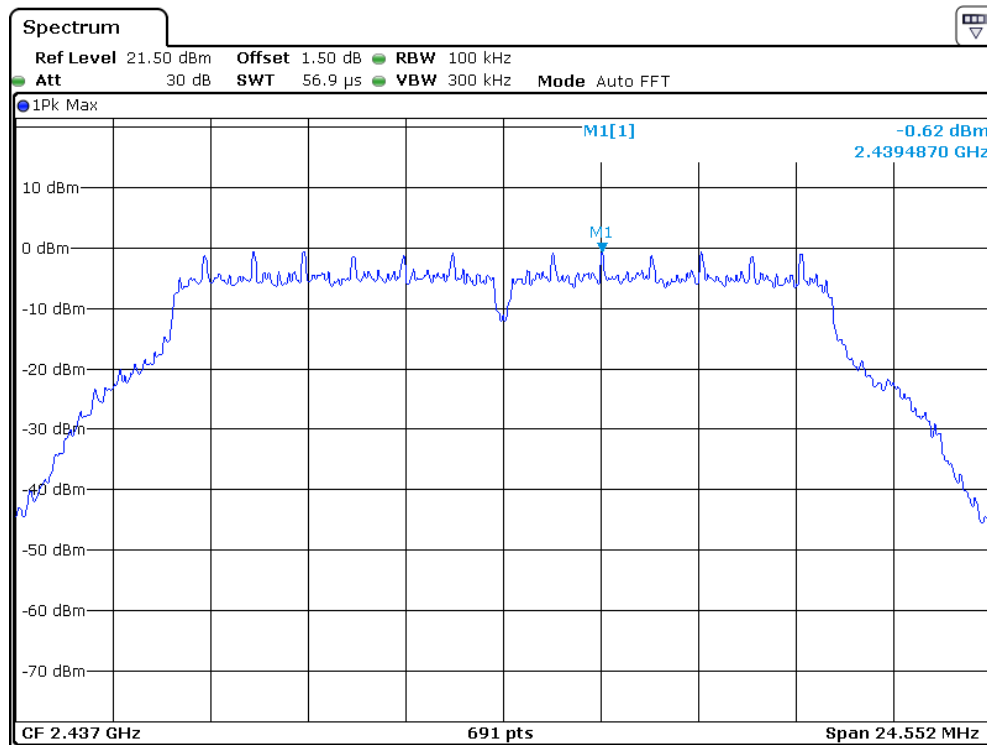
802.11b



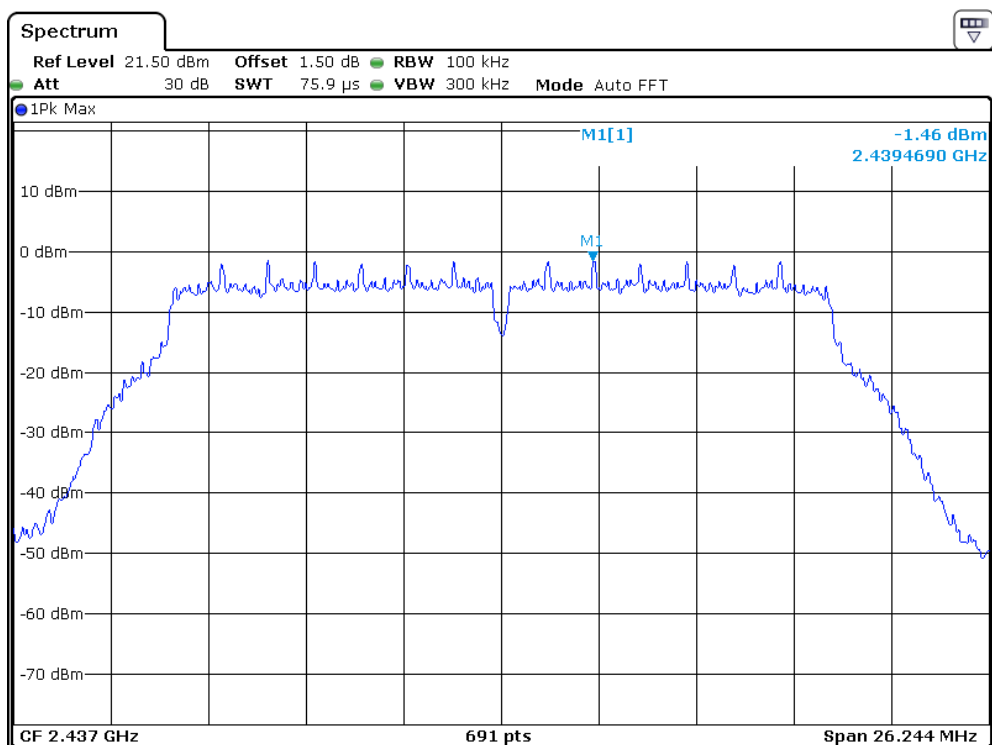
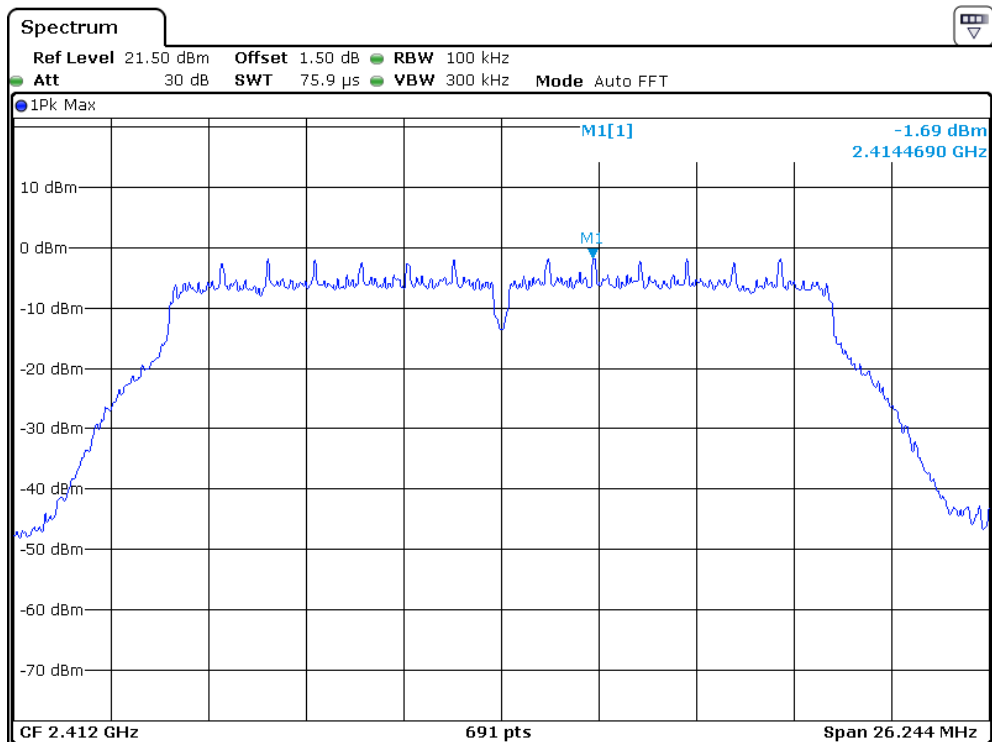


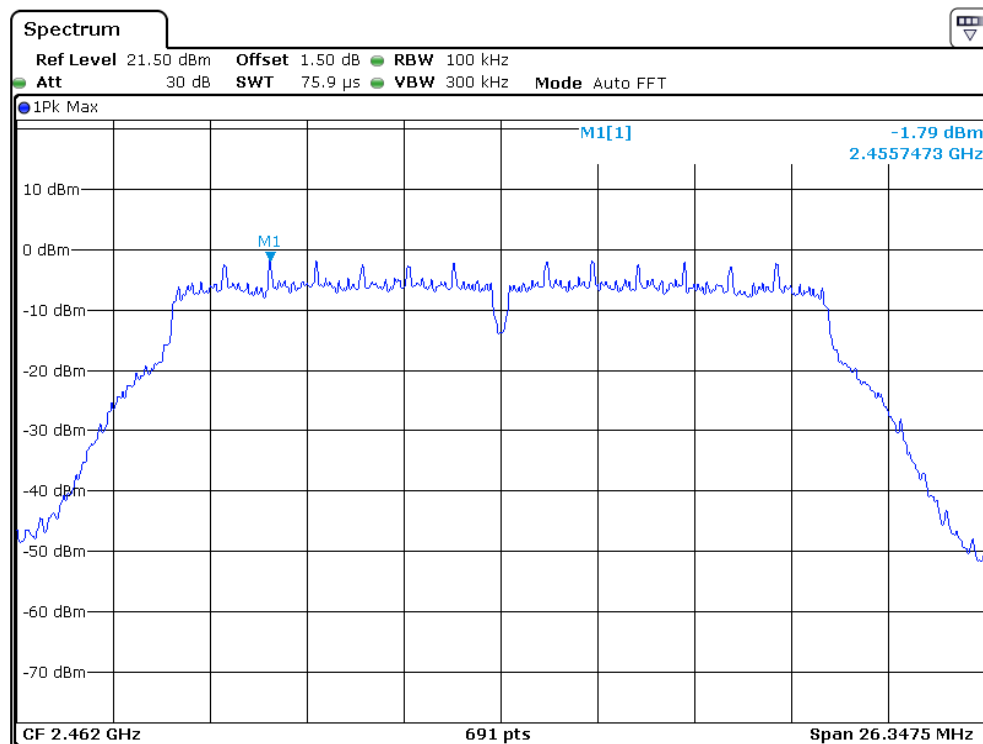
802.11g



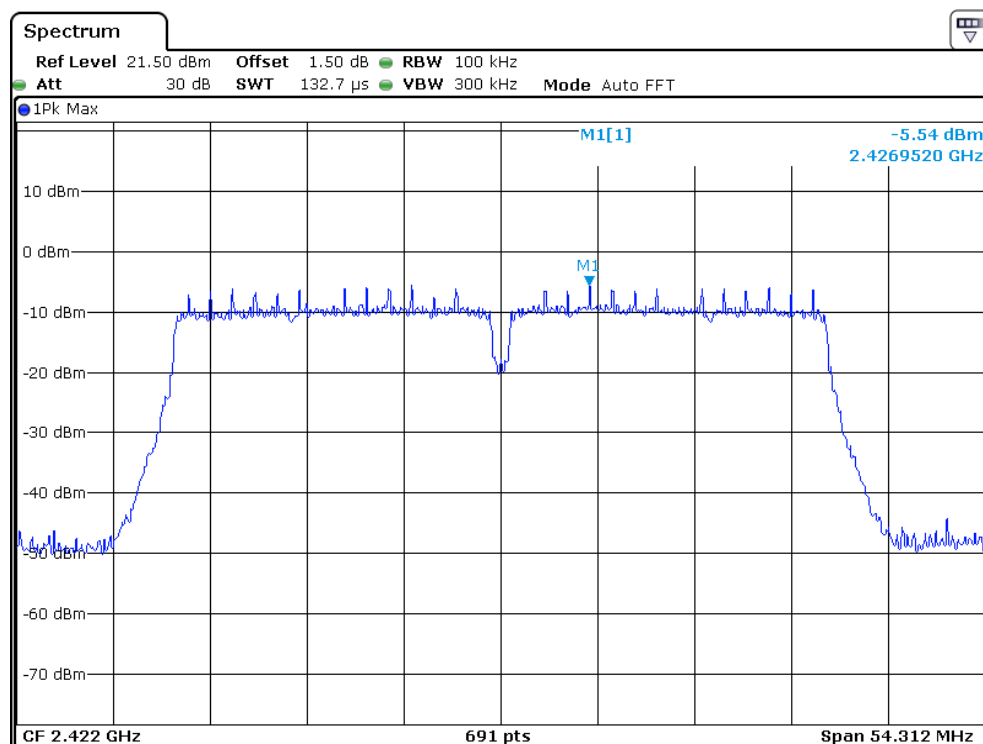


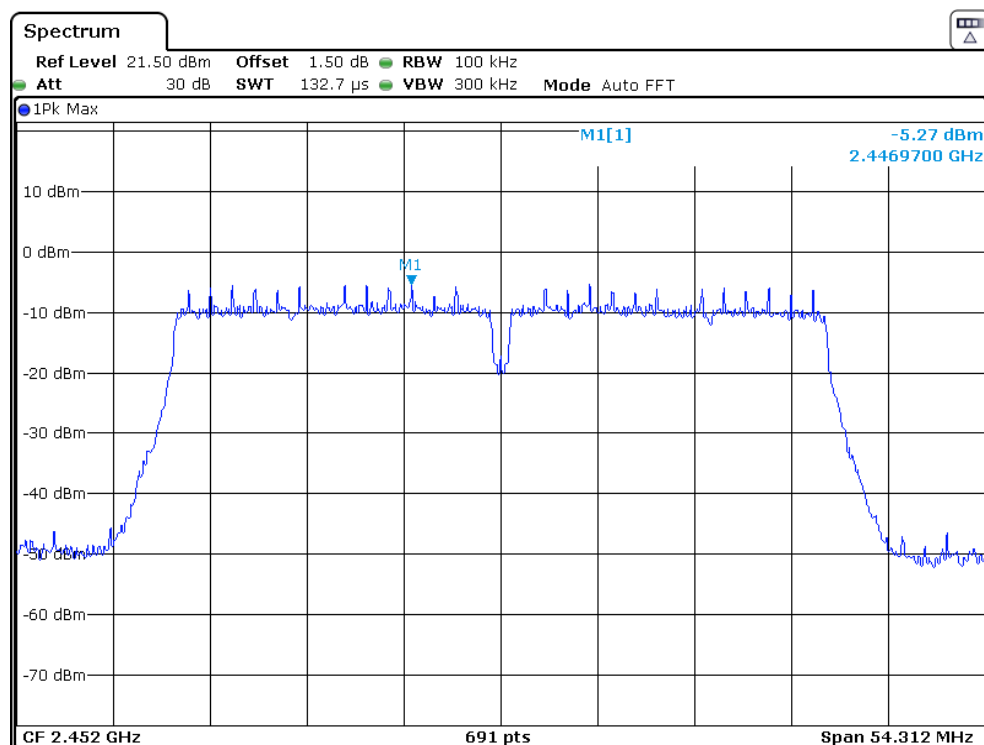
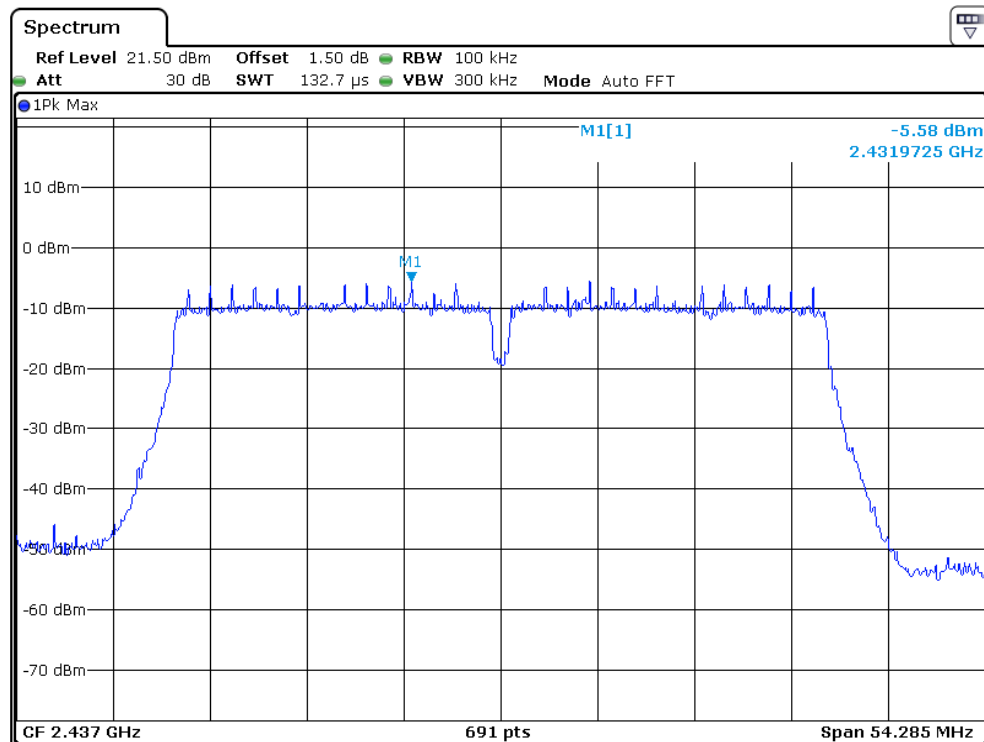
802.11n-HT20





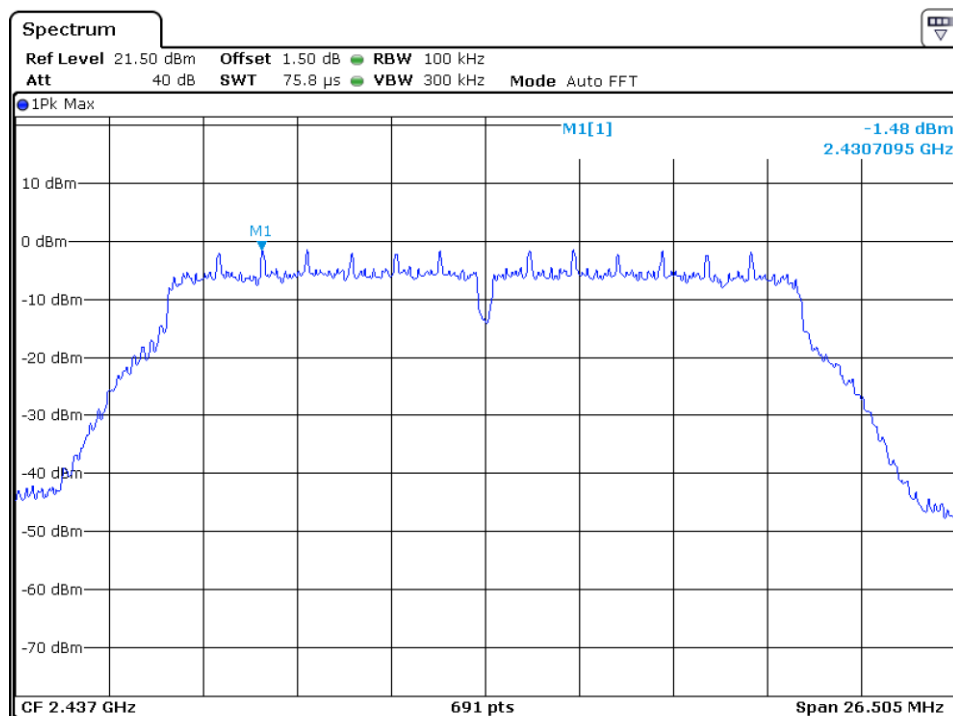
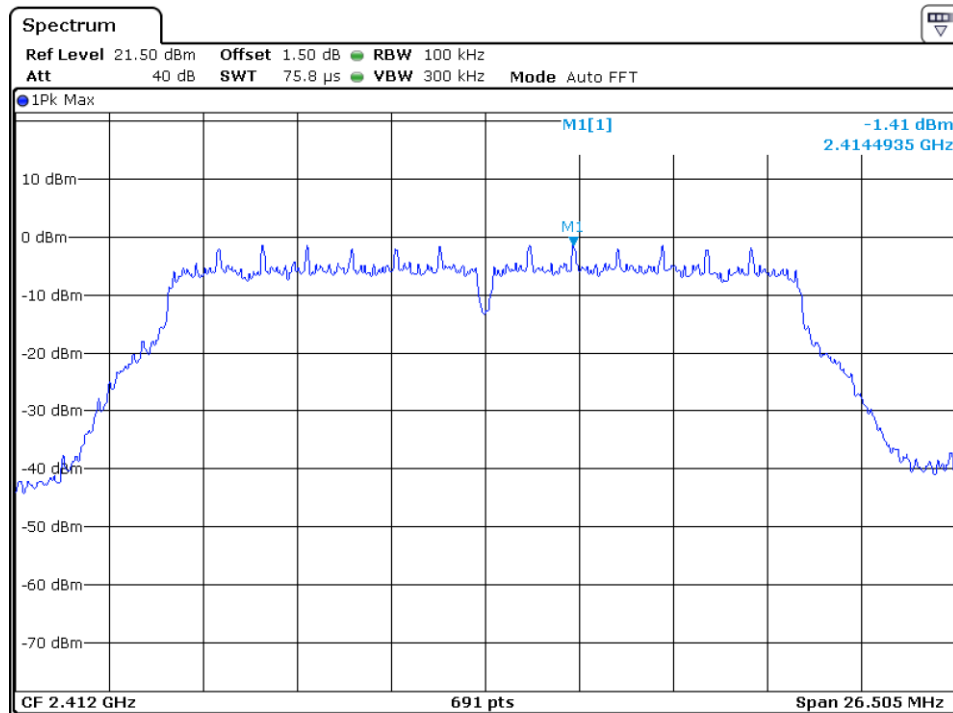
802.11n-HT40

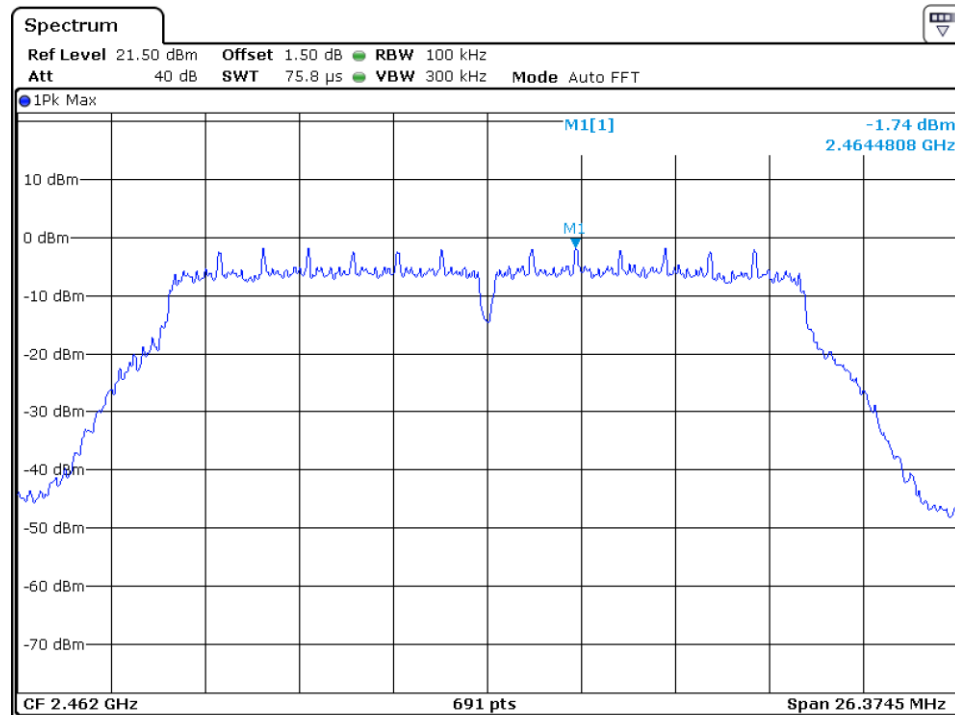




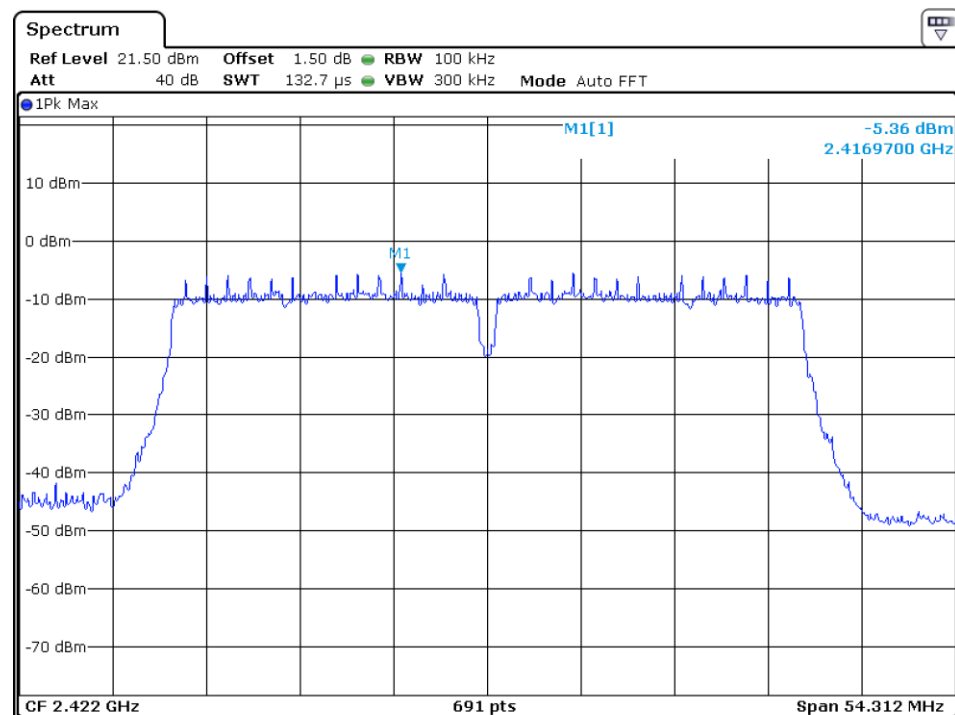
MIMO-ANT 1:

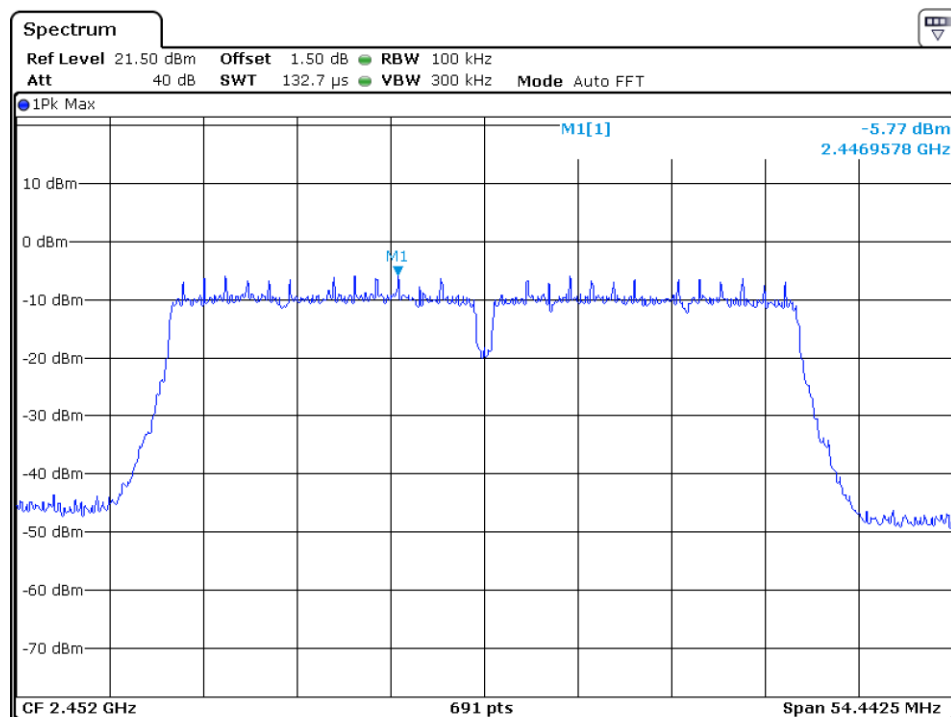
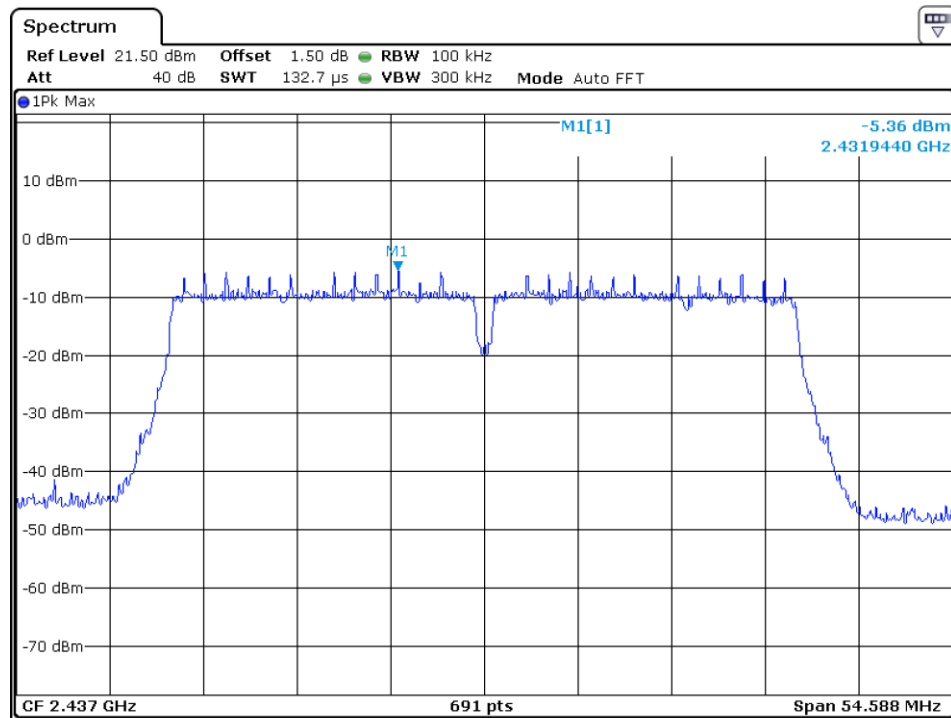
802.11n-HT20





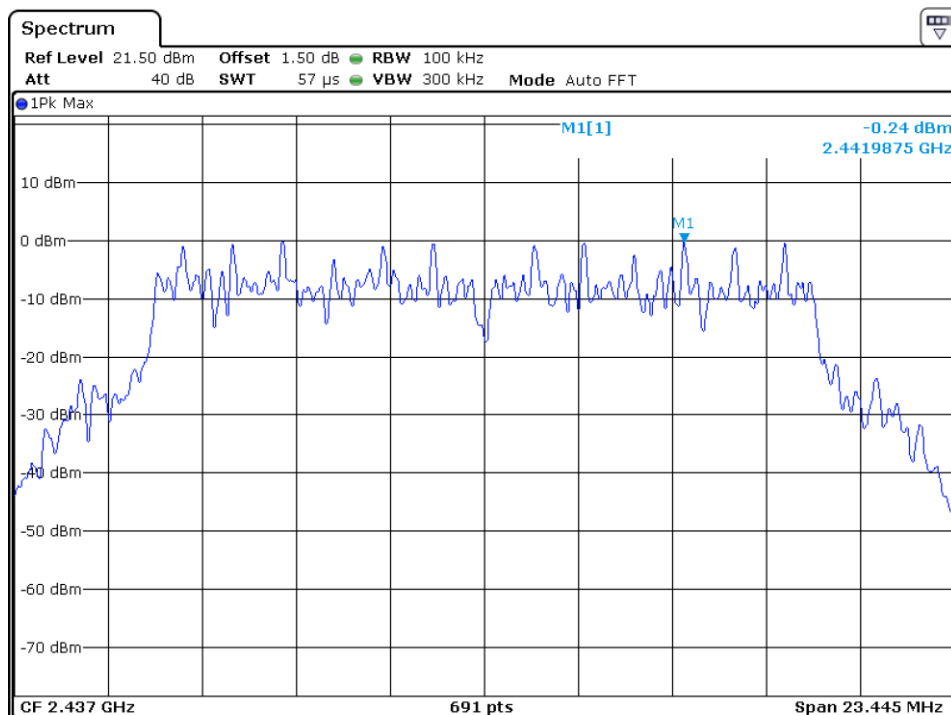
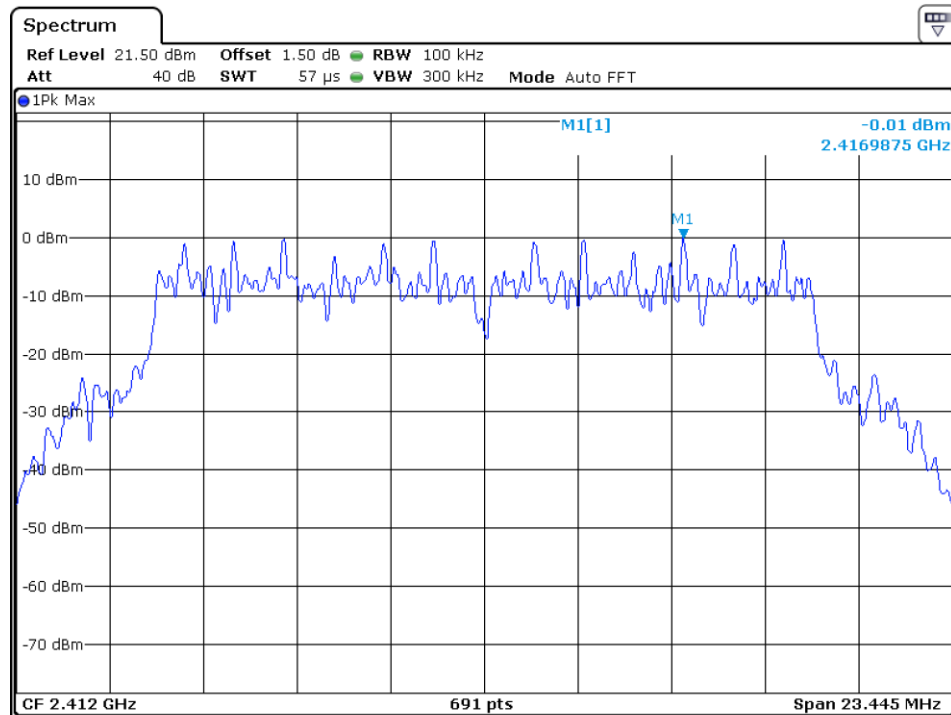
802.11n-HT40

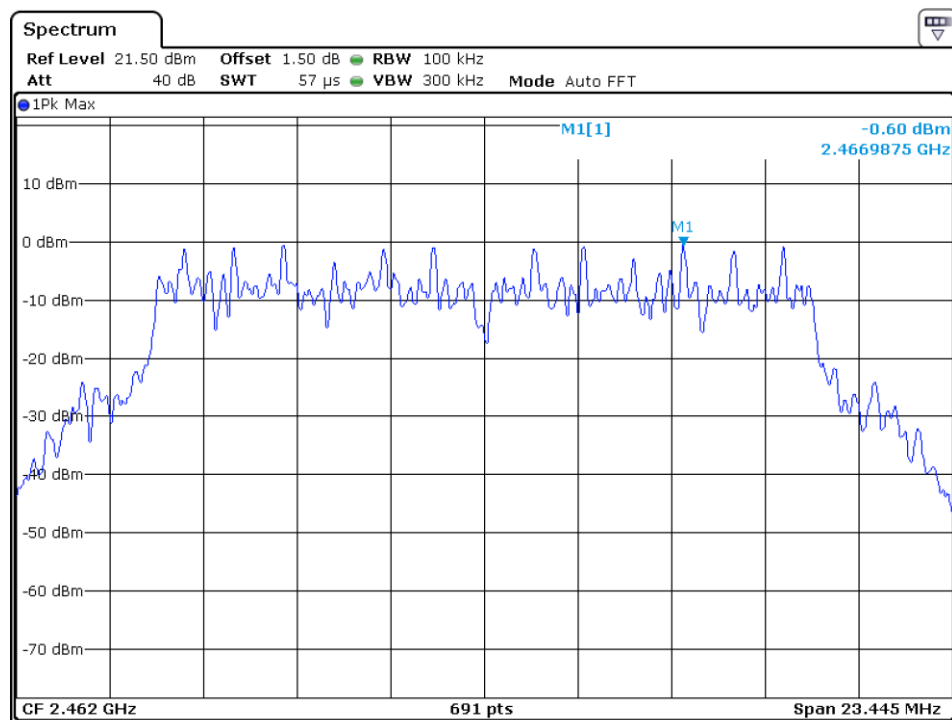




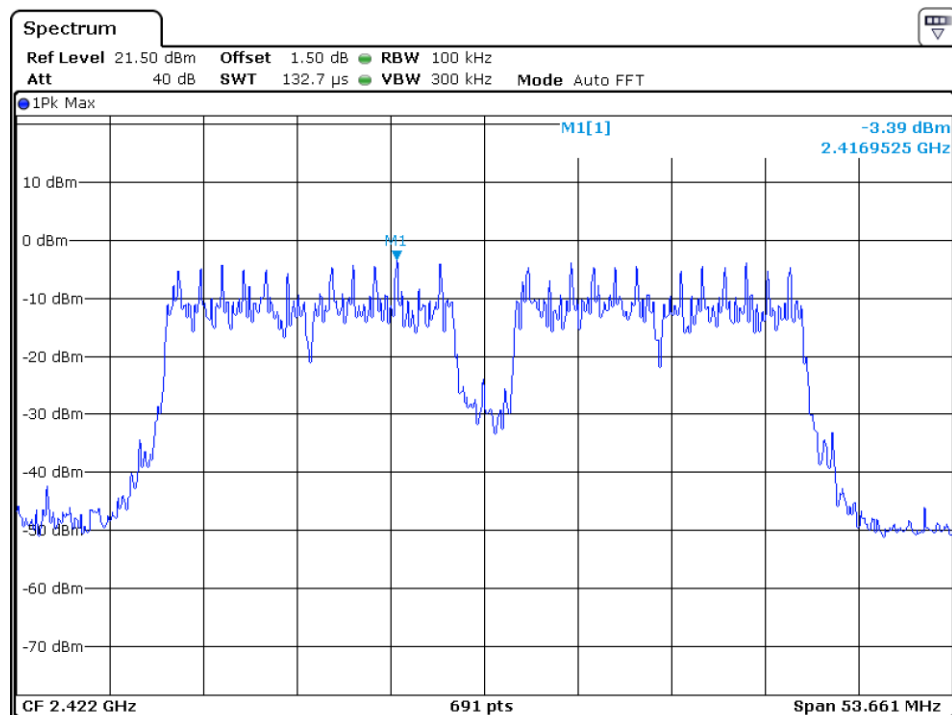
MIMO-ANT 2:

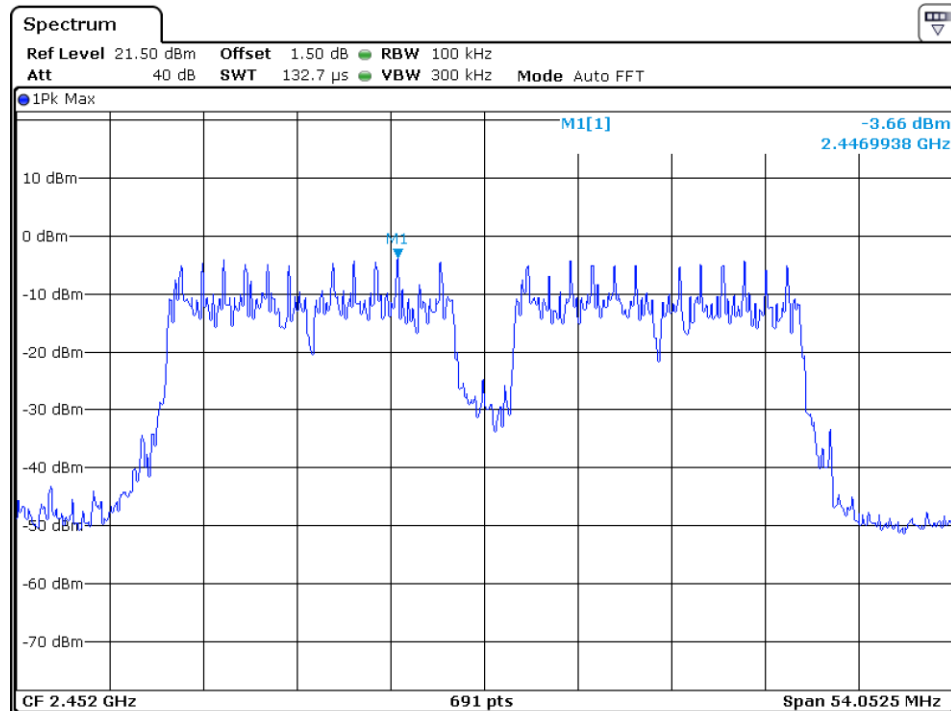
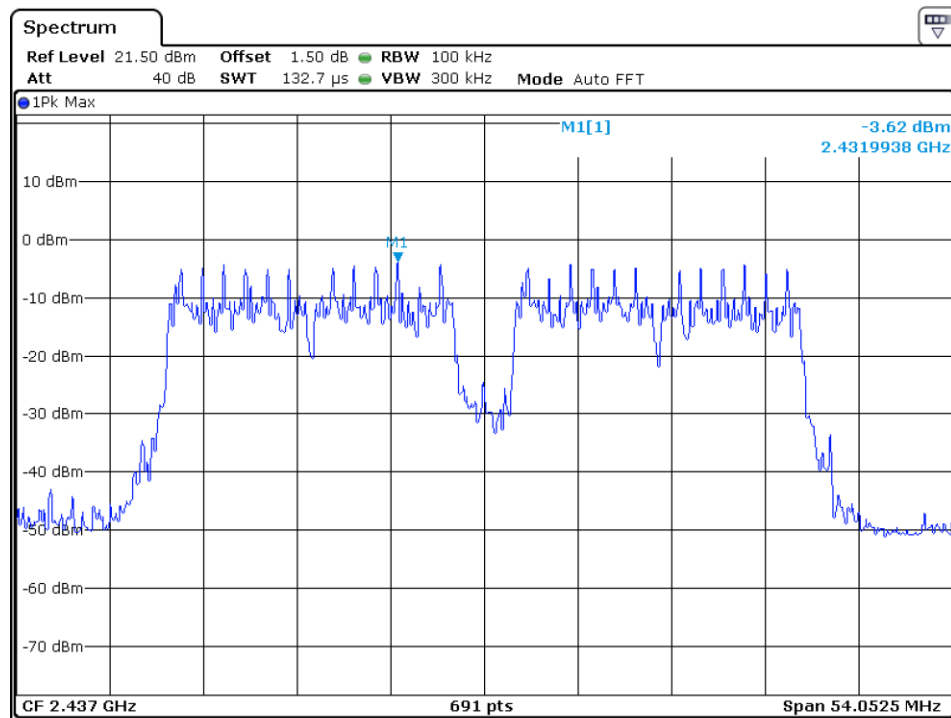
802.11n-HT20





802.11n-HT40





Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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 v05r02.

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 with rate of 1Mbps for 802.11b and 6Mbps for 802.11g and 6Mbps for 802.11n-HT20 and 13.5Mbps for 802.11n-HT40.

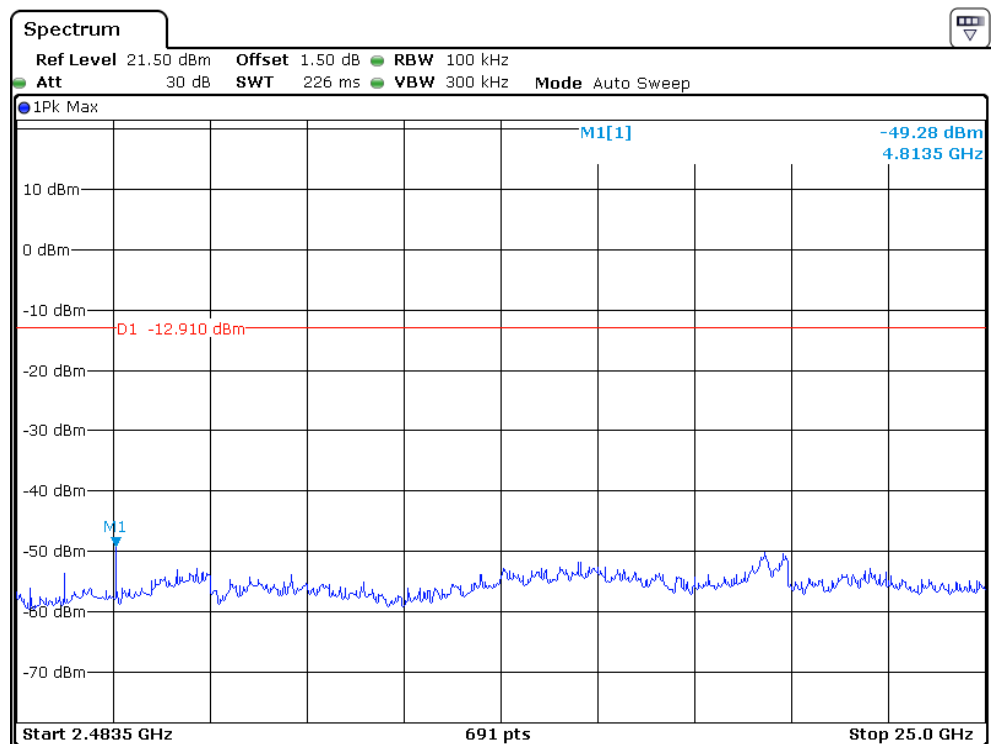
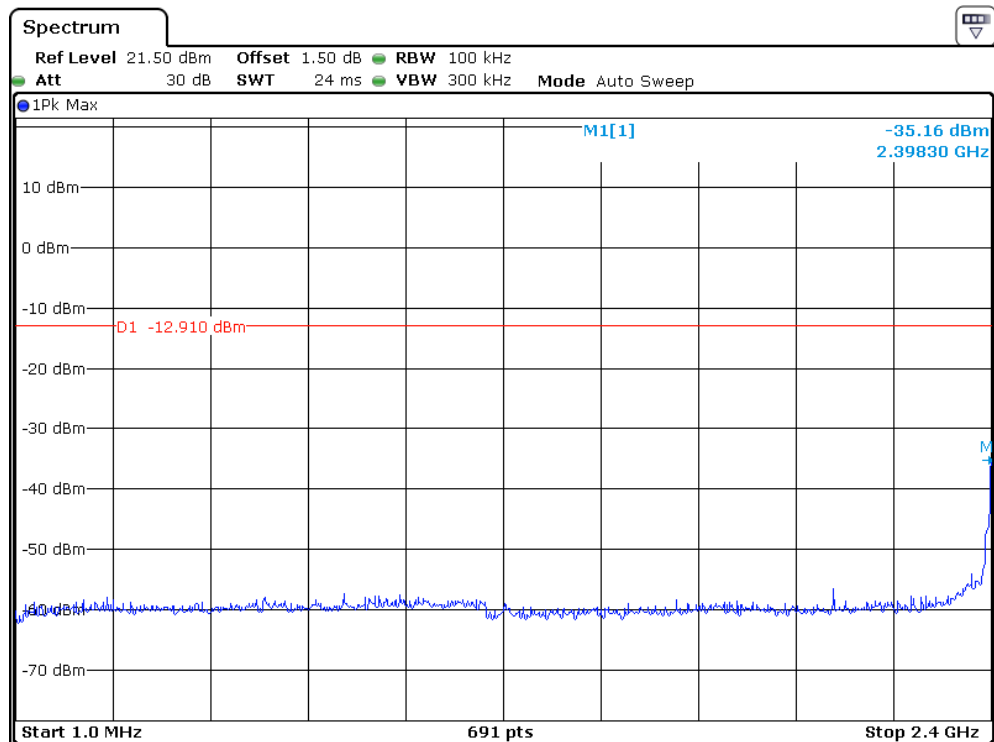
The test plots showed all spurious emission up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

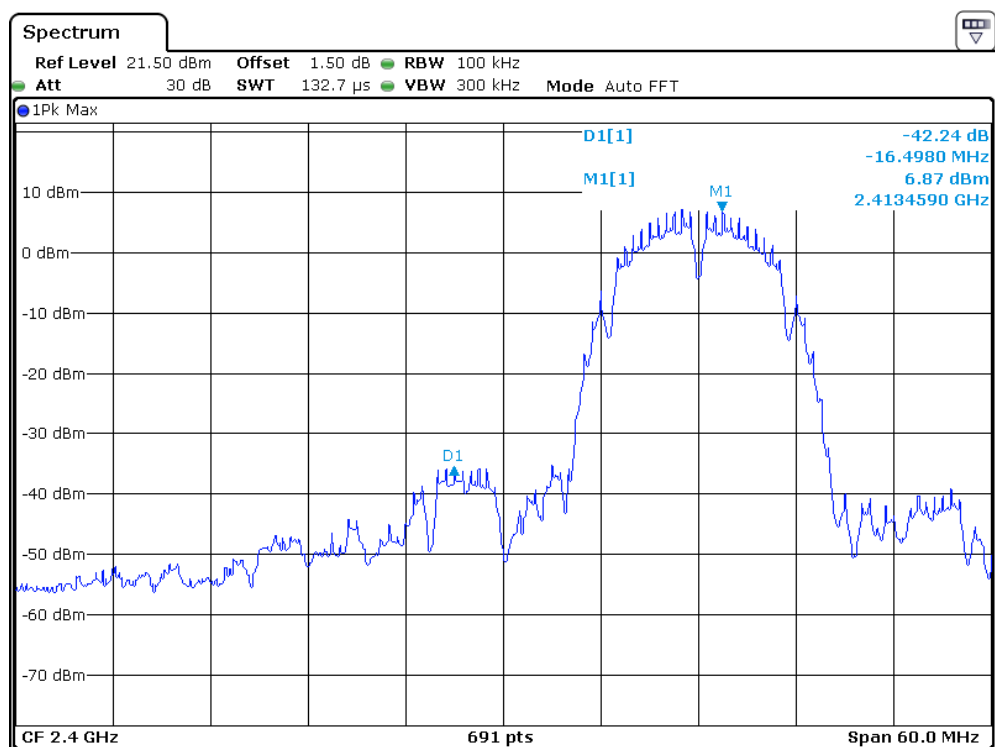
The test plots are attached as below.

SISO Mode, Ant1:

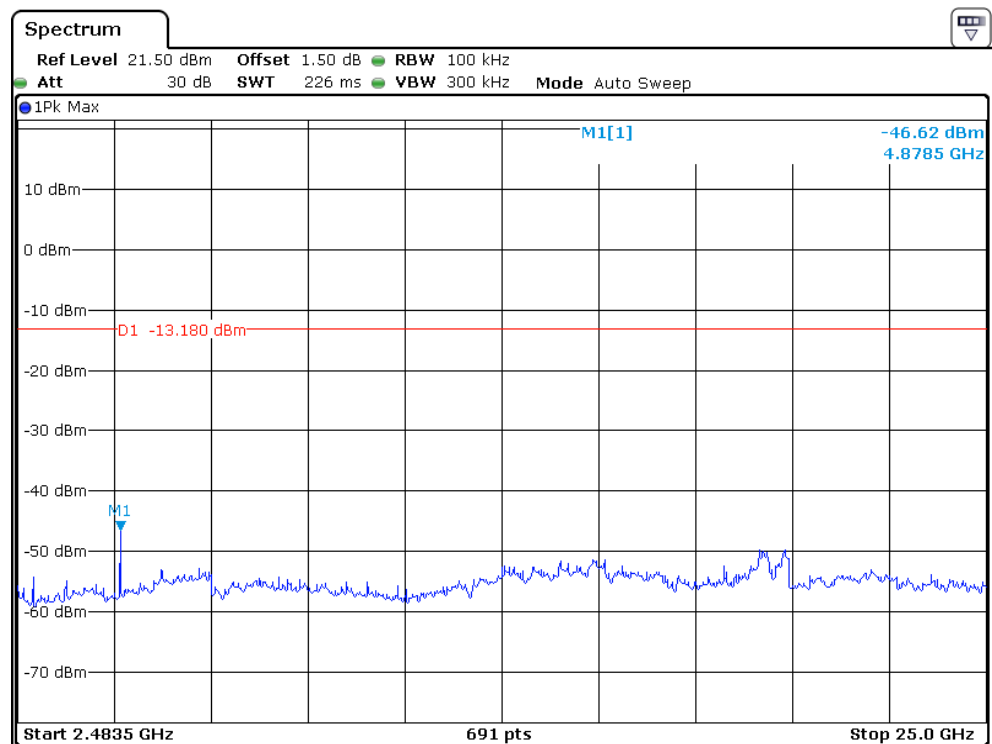
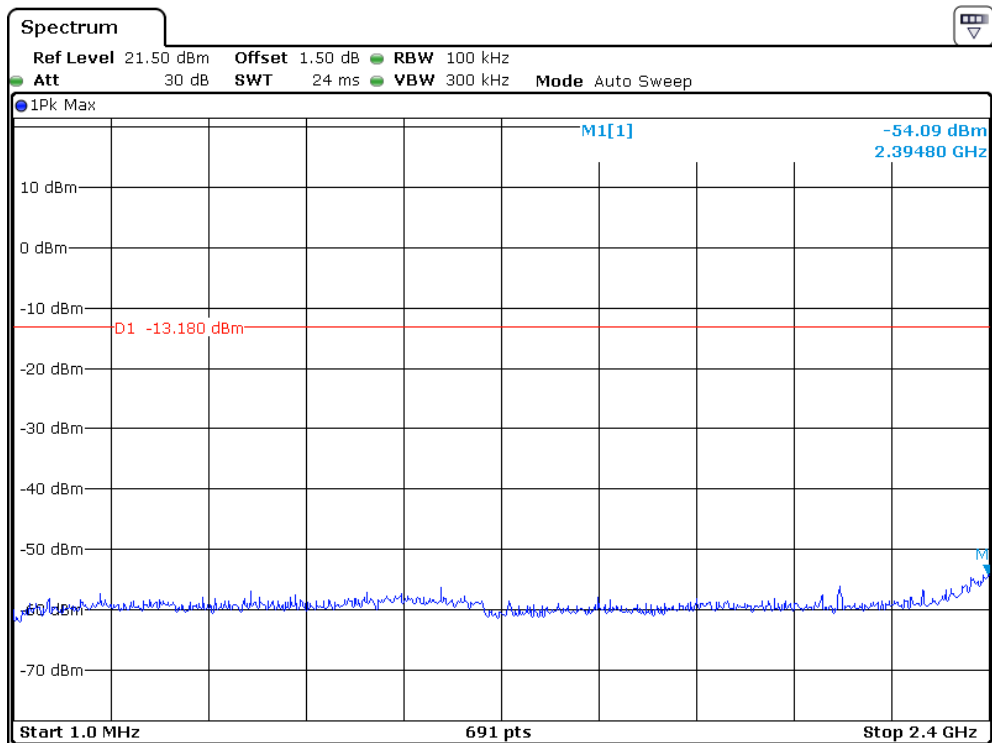
802.11b

Channel 01 (2412MHz) Reference Level: 7.09dBm

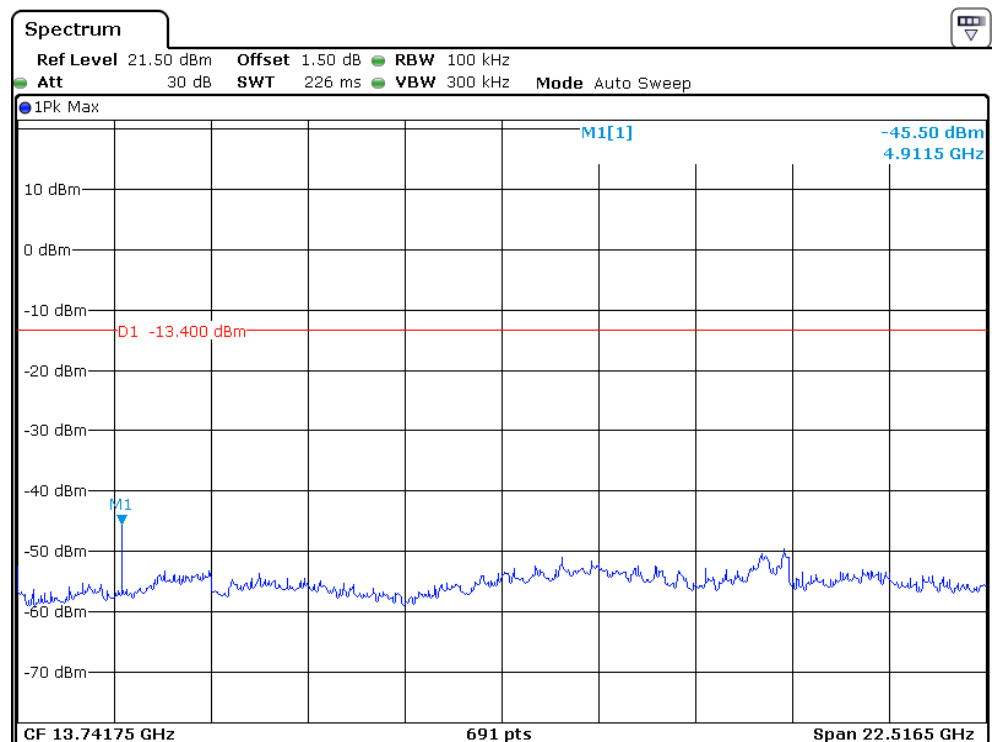
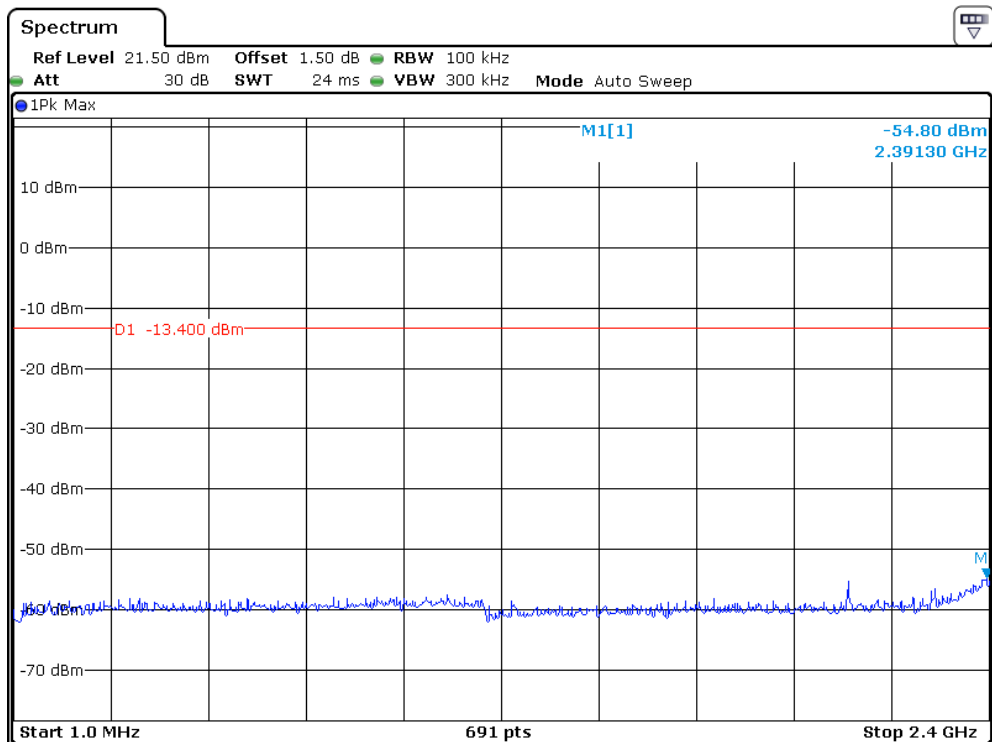


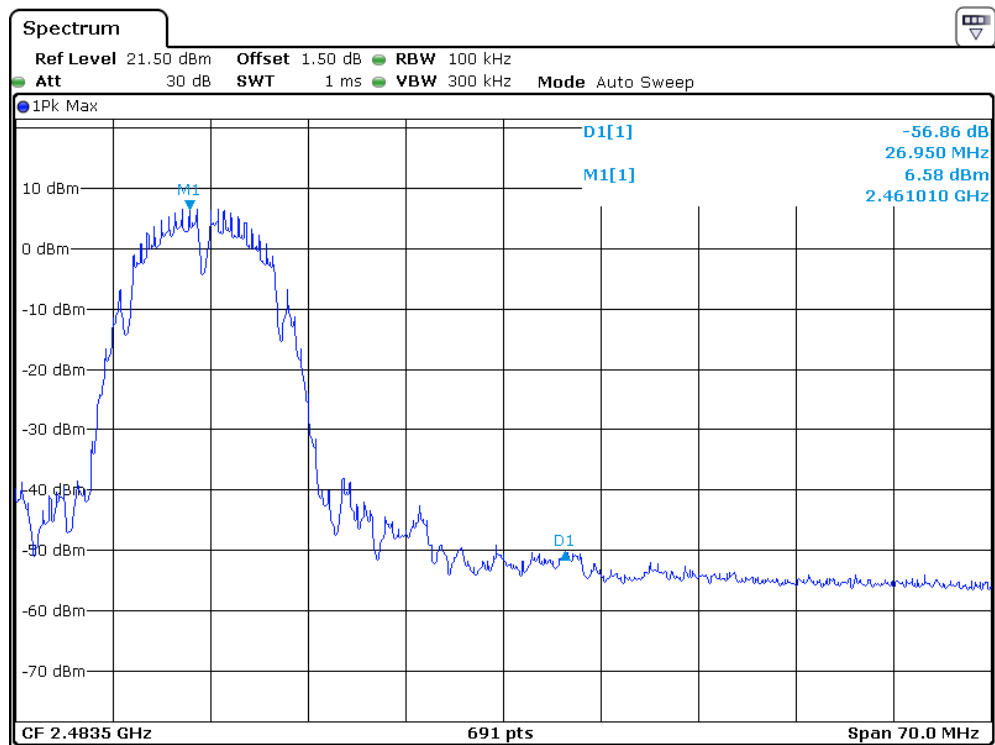


Channel 06 (2437MHz) Reference Level: 6.82dBm



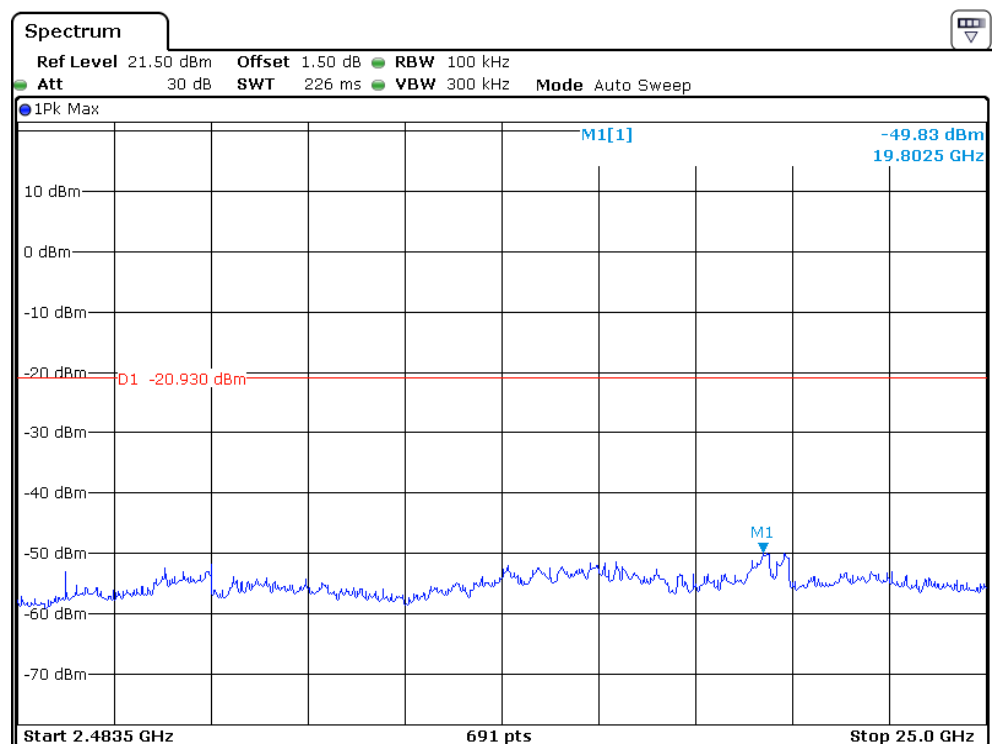
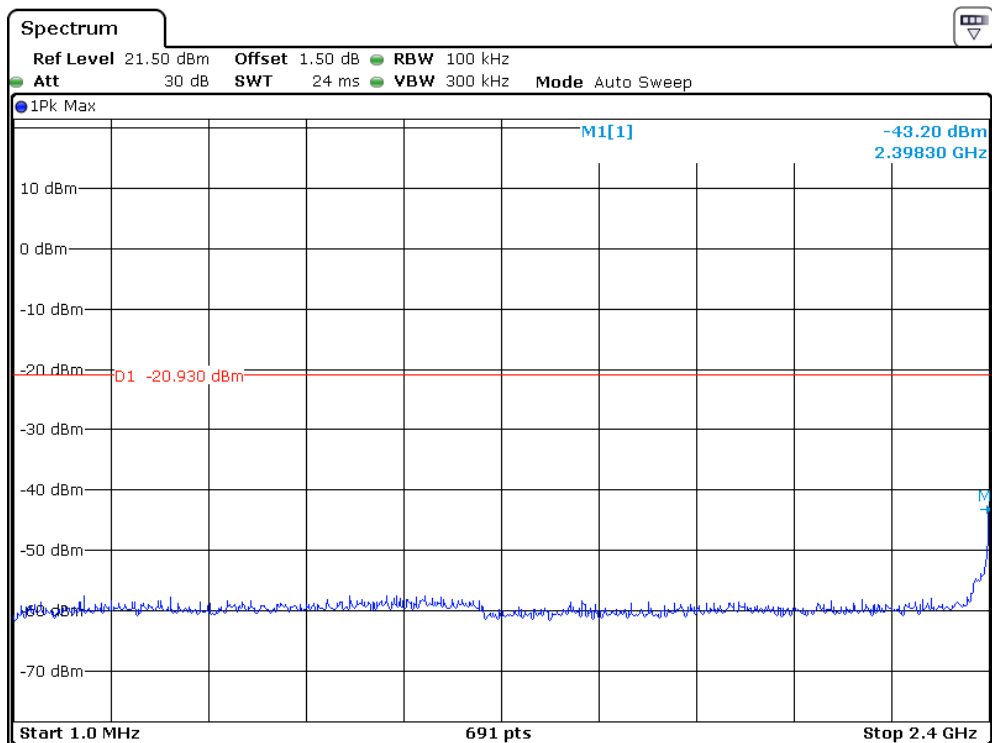
Channel 11 (2462MHz) Reference Level: 6.60dBm

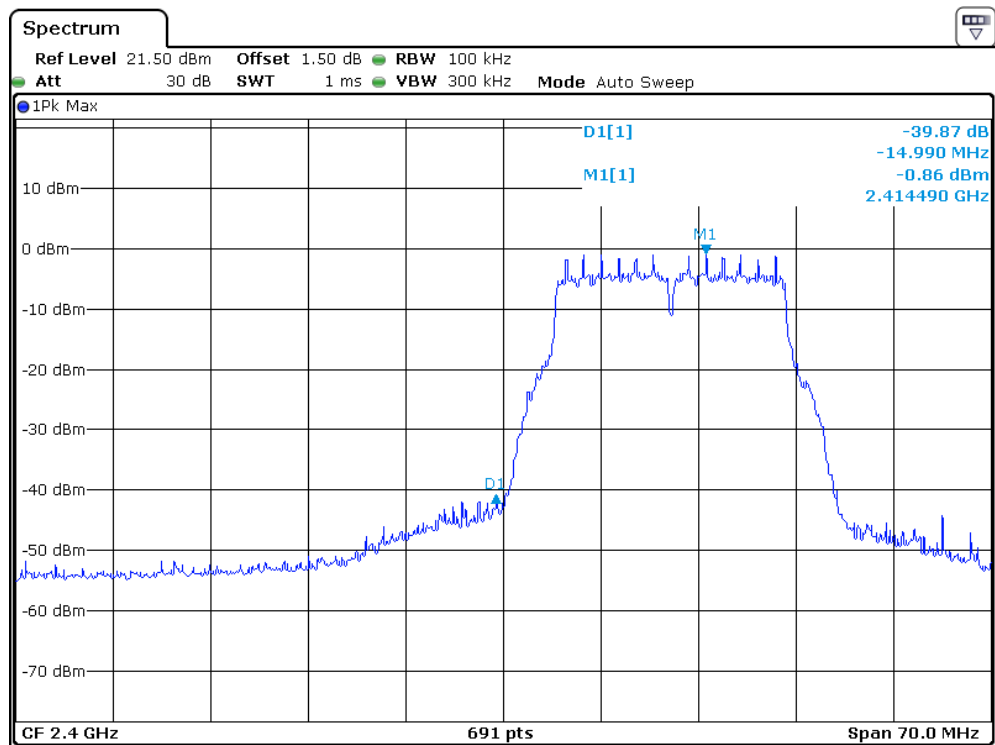




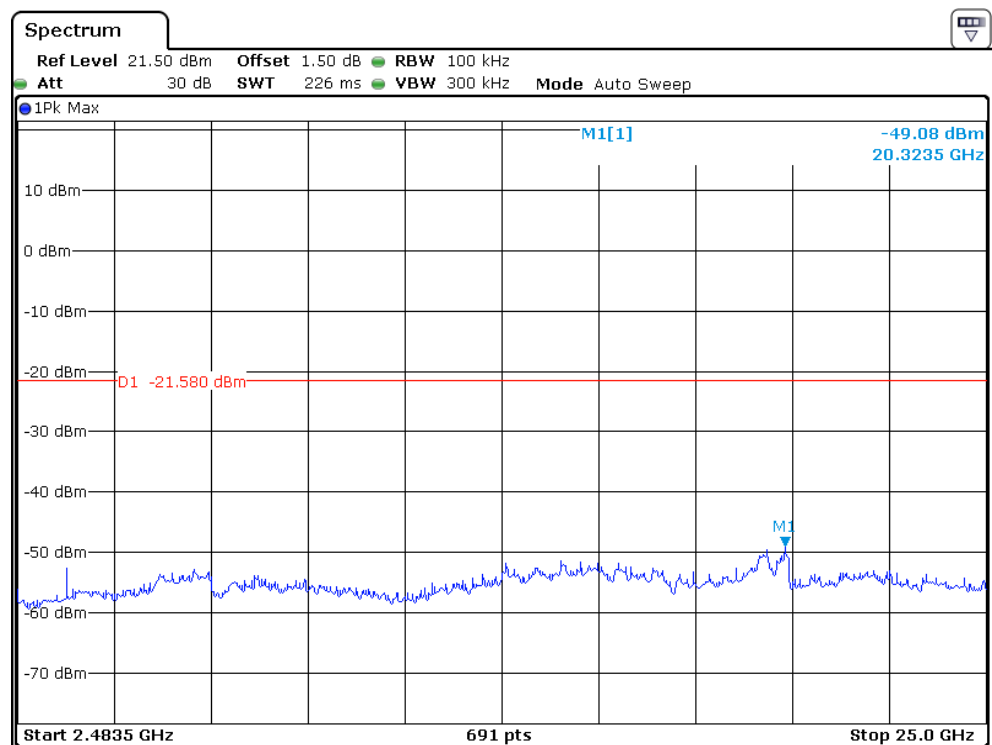
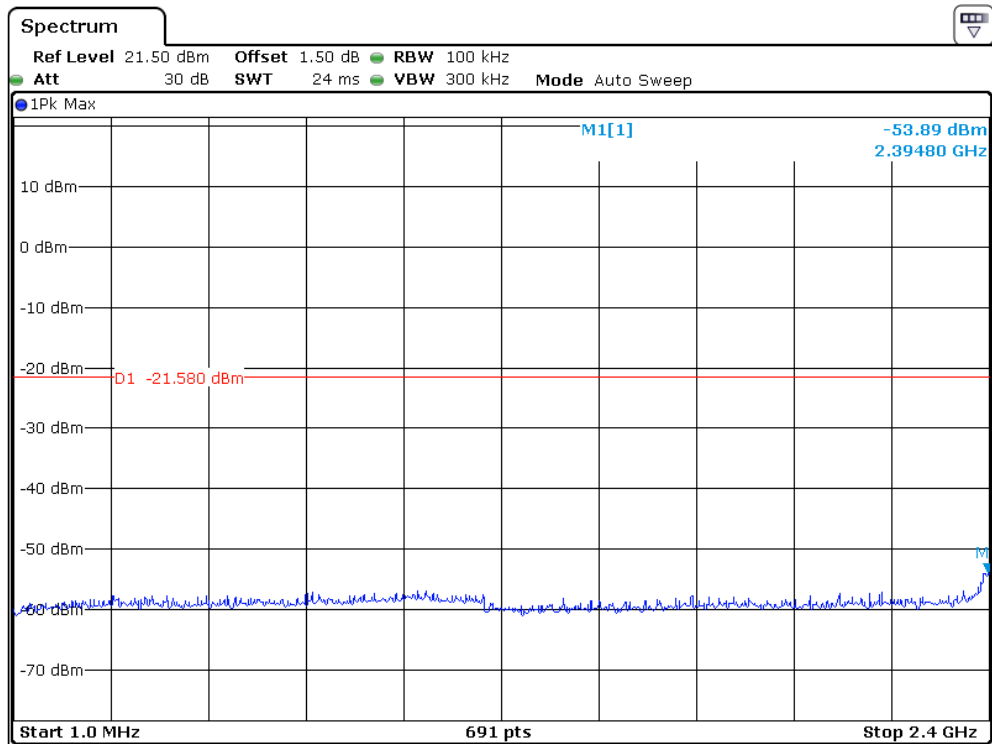
802.11g

Channel 01 (2412MHz) Reference Level: -0.93dBm

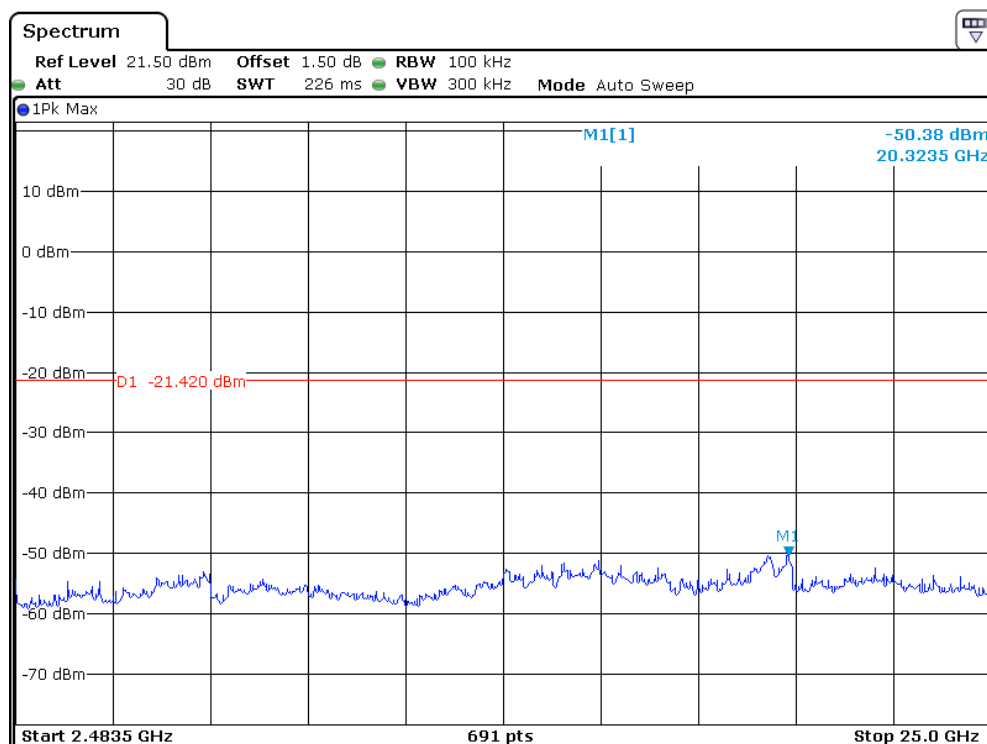
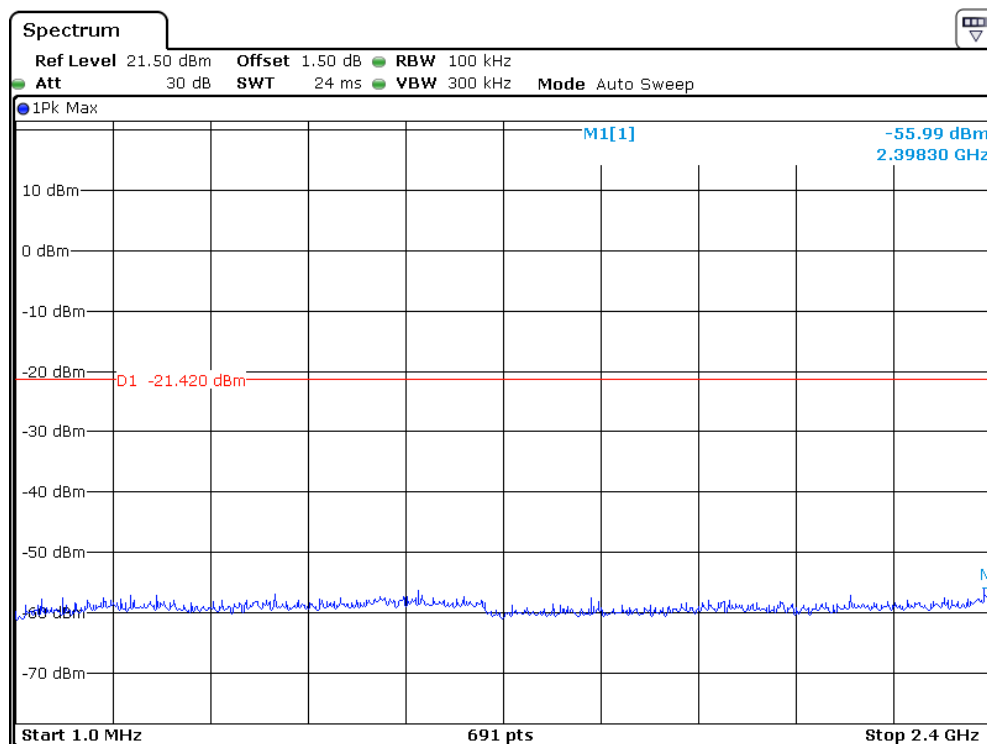


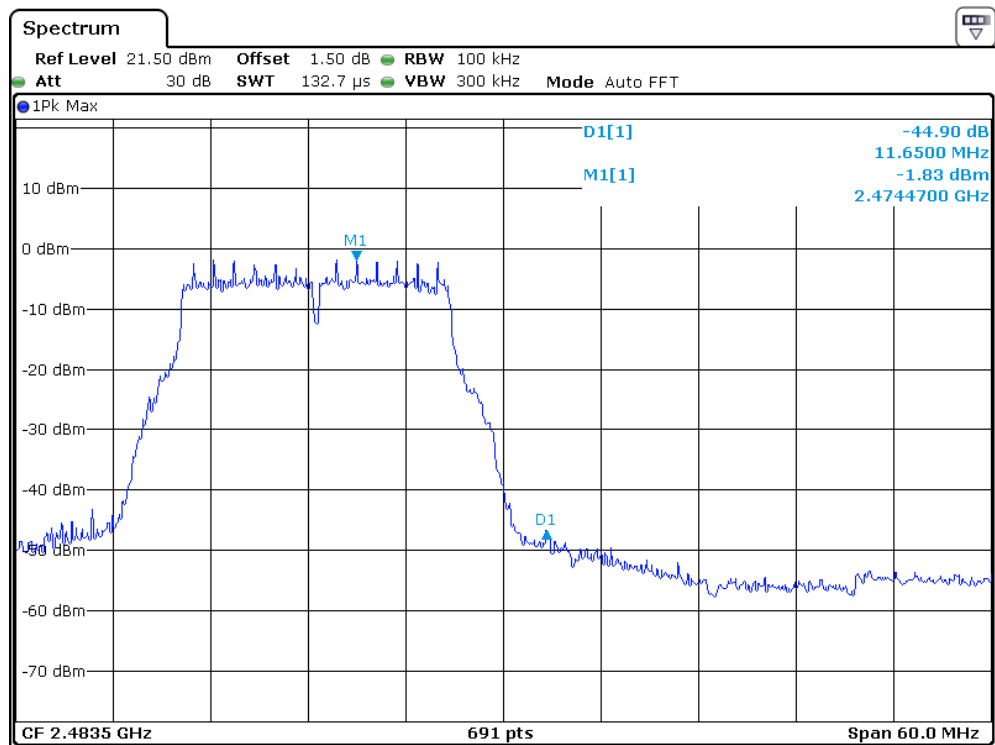


Channel 06 (2437MHz) Reference Level: -1.58dBm



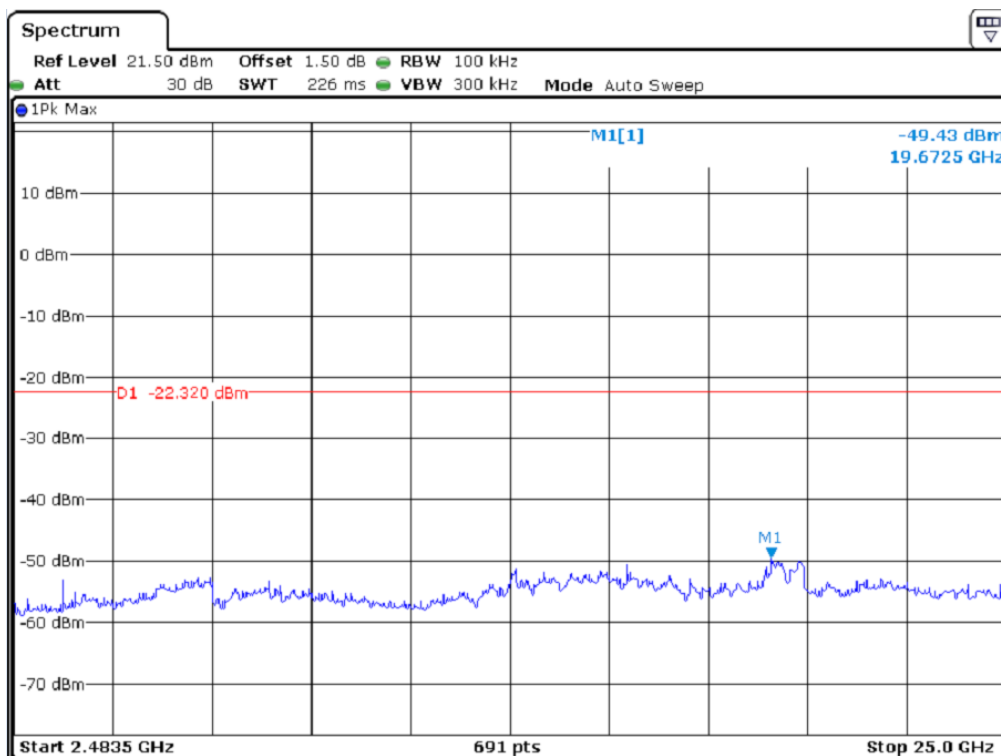
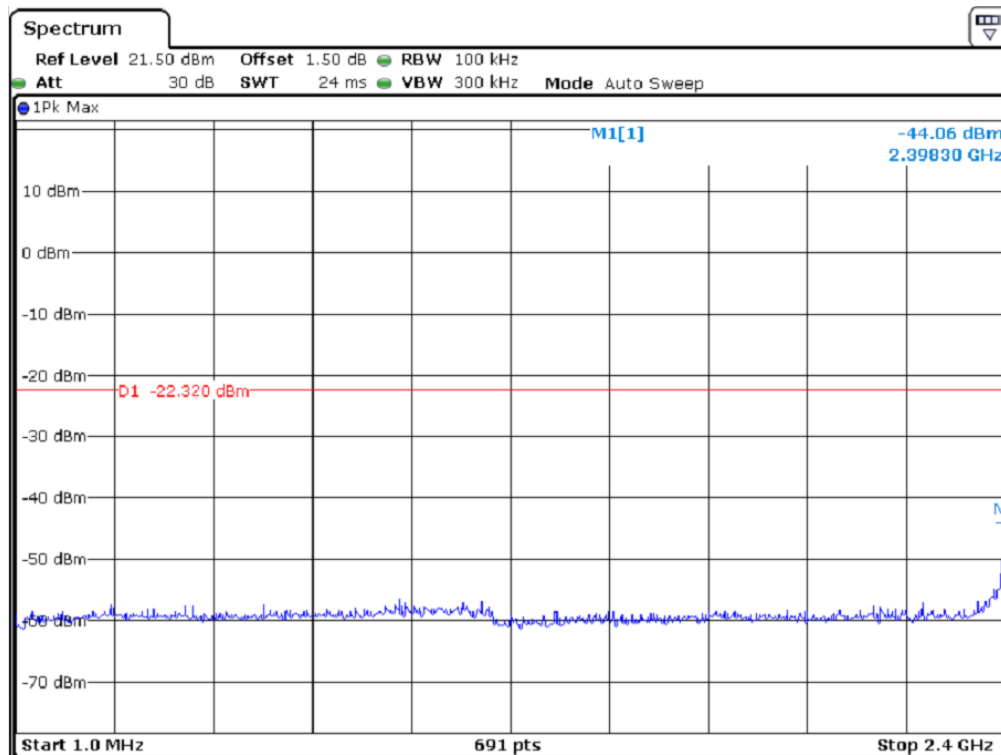
Channel 11 (2462MHz) Reference Level: -1.42dBm

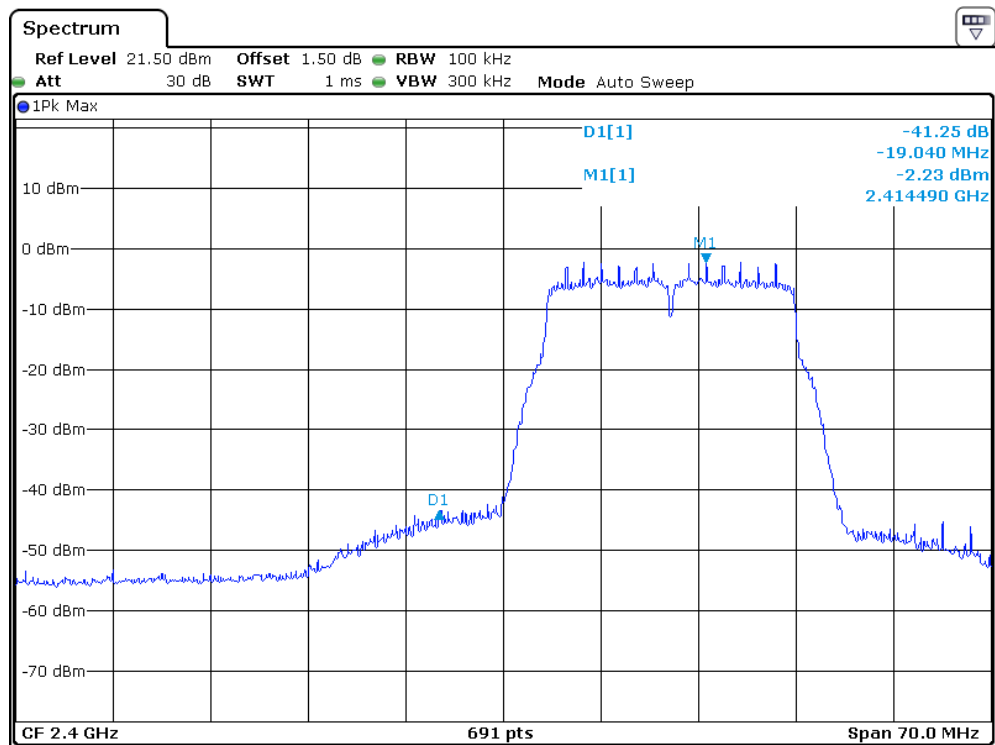




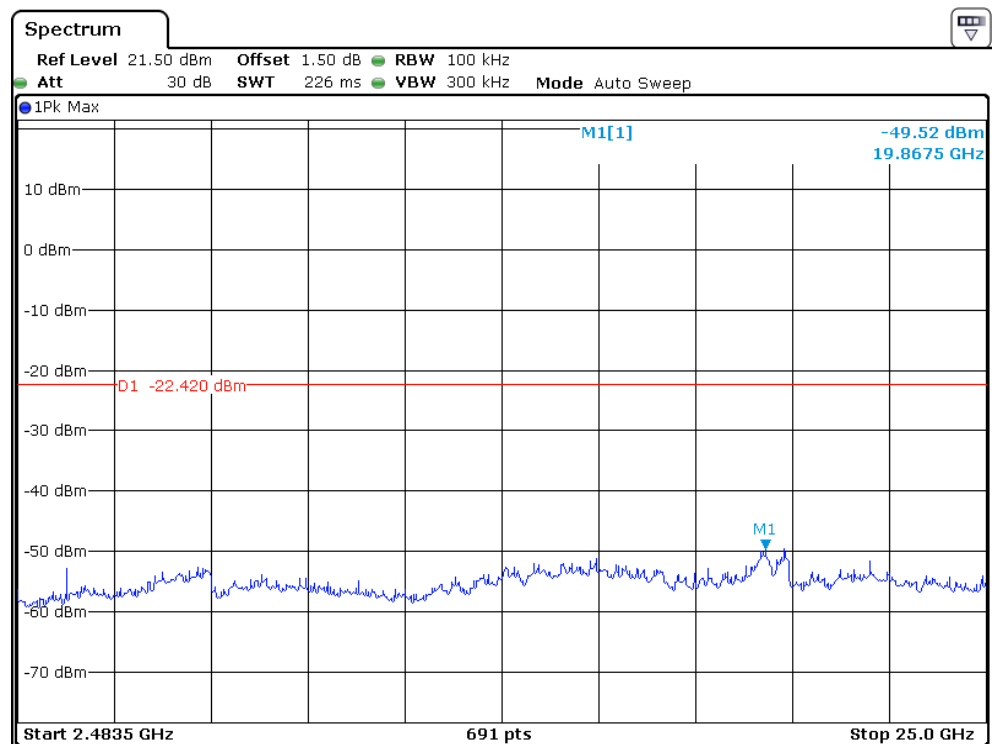
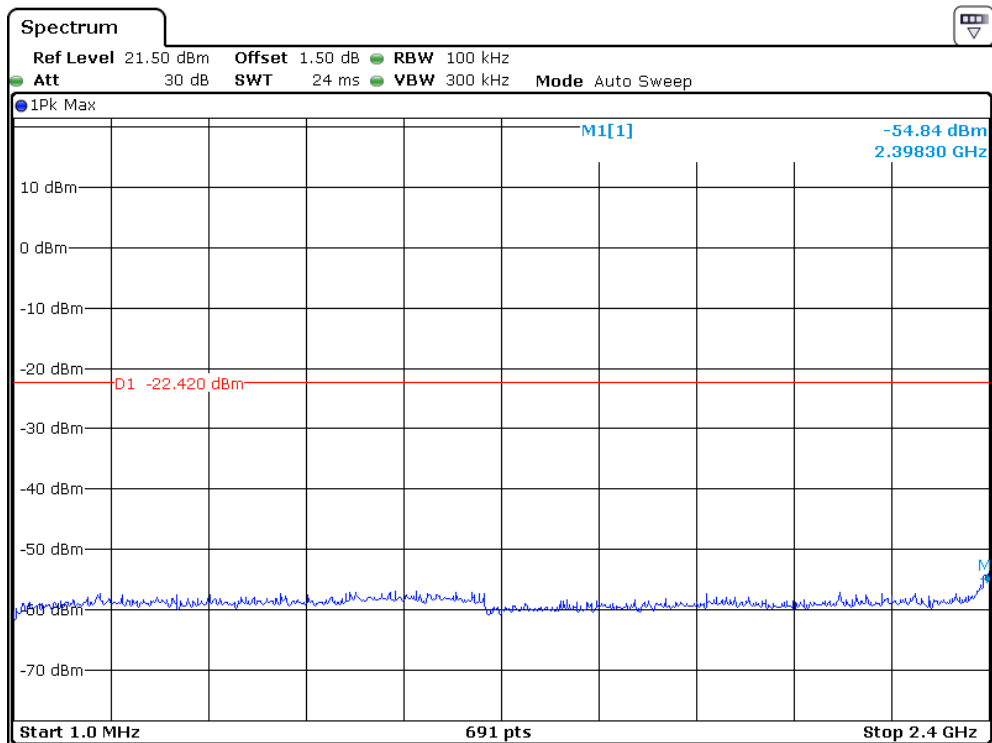
802.11n-HT20

Channel 01 (2412MHz) Reference Level: -2.32dBm

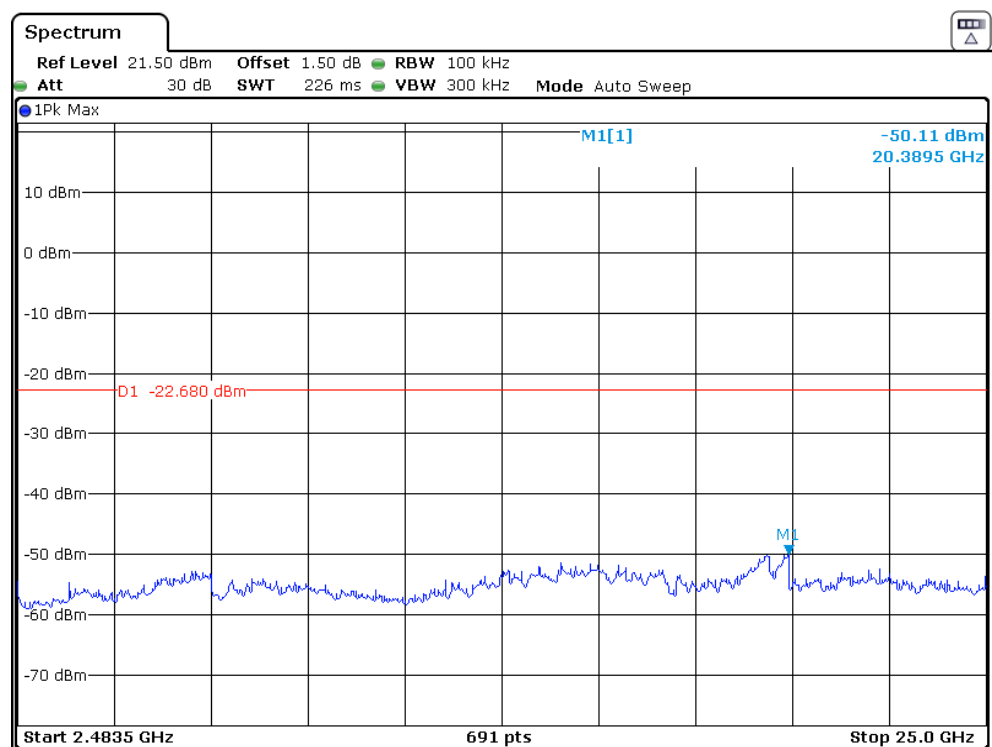
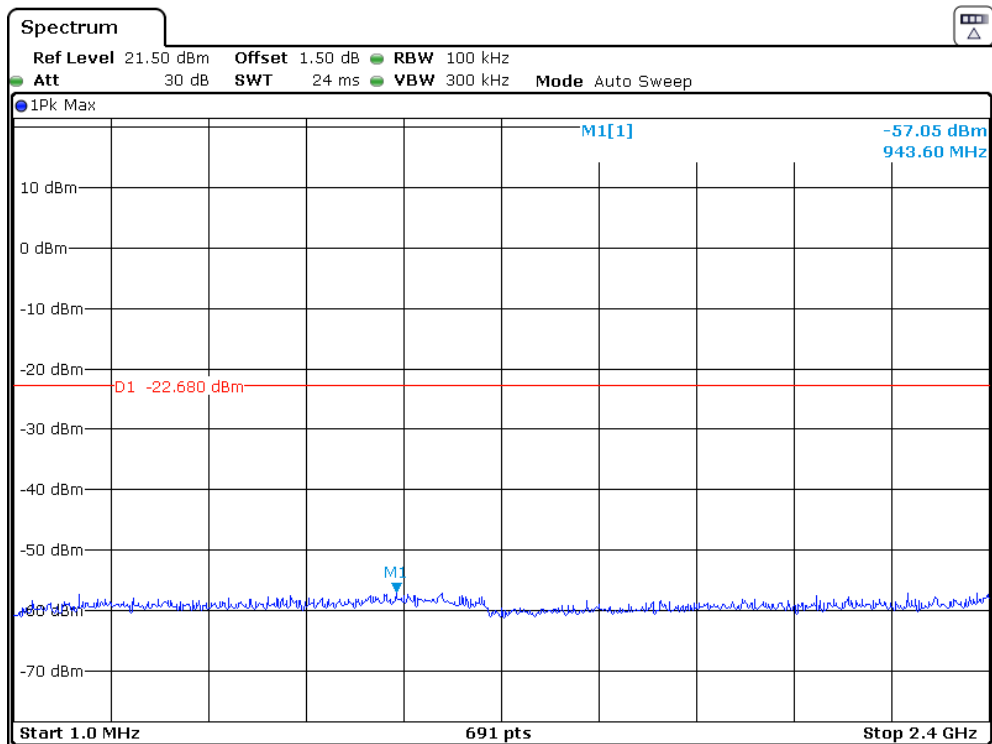


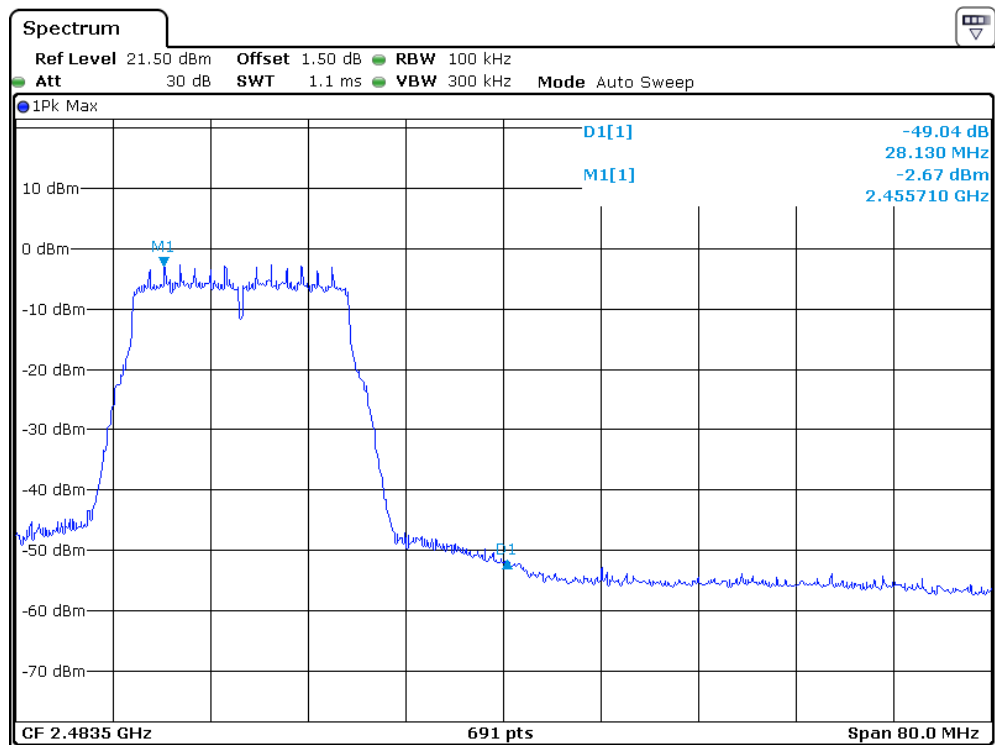


Channel 06 (2437MHz) Reference Level: -2.42dBm



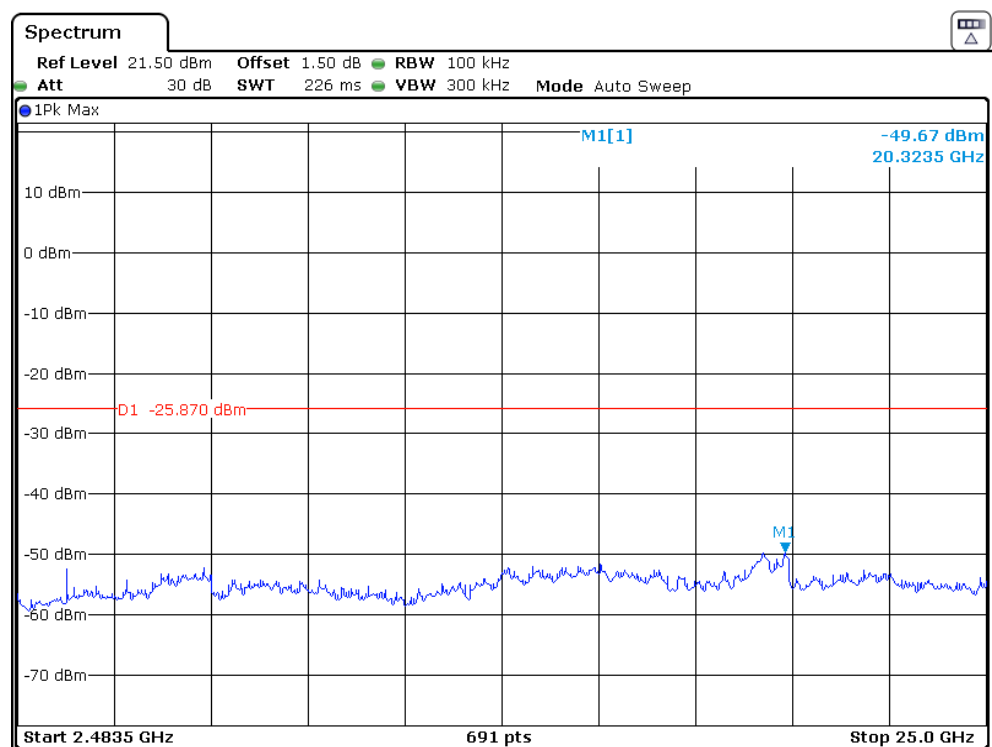
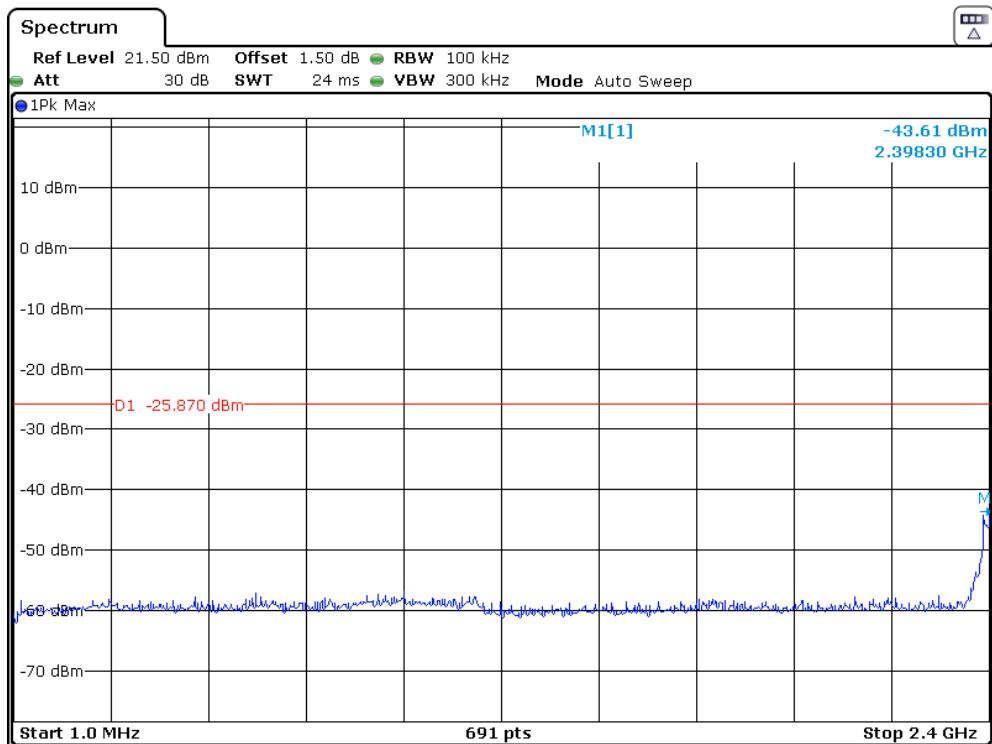
Channel 11 (2462MHz) Reference Level: -2.68dBm

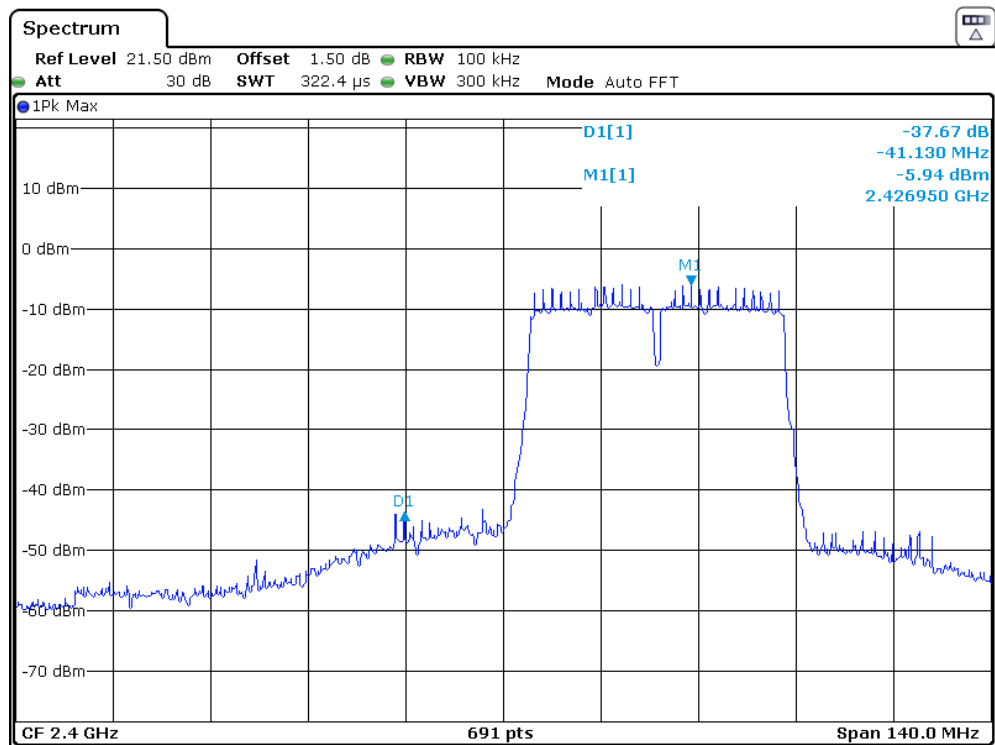




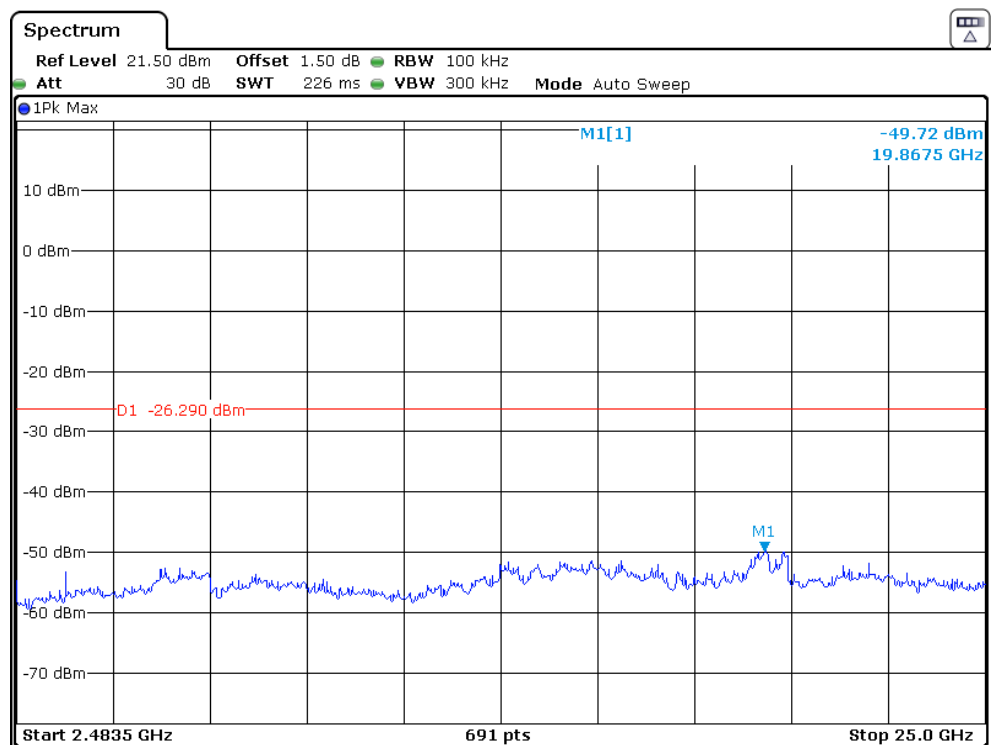
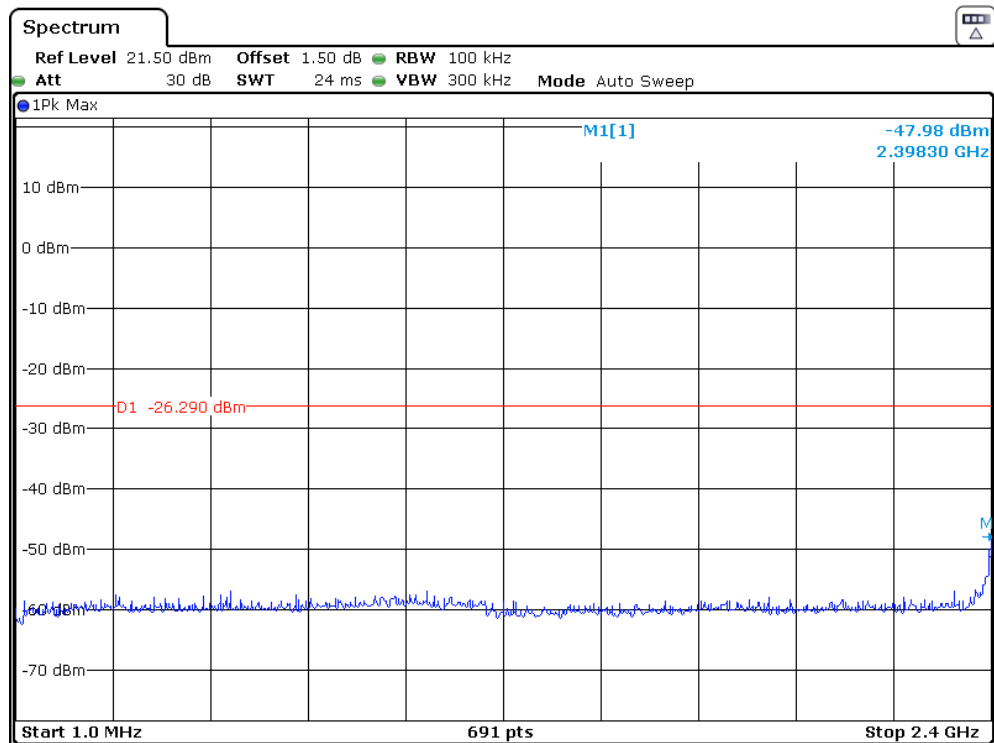
802.11n-HT40

Channel 01 (2422MHz) Reference Level: -5.87dBm

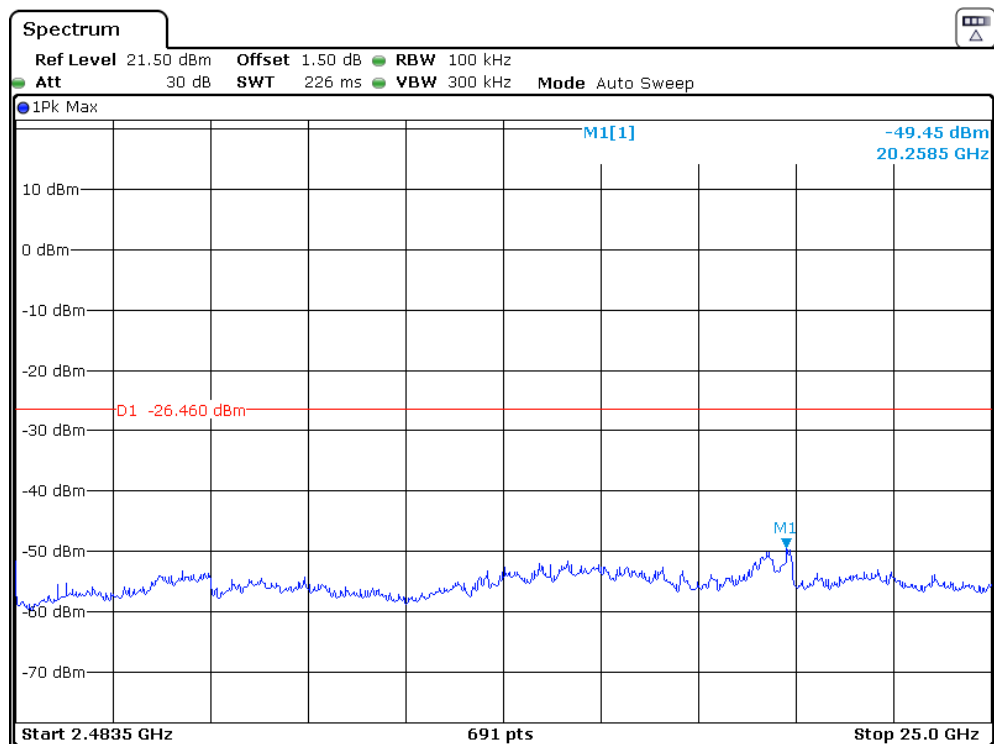
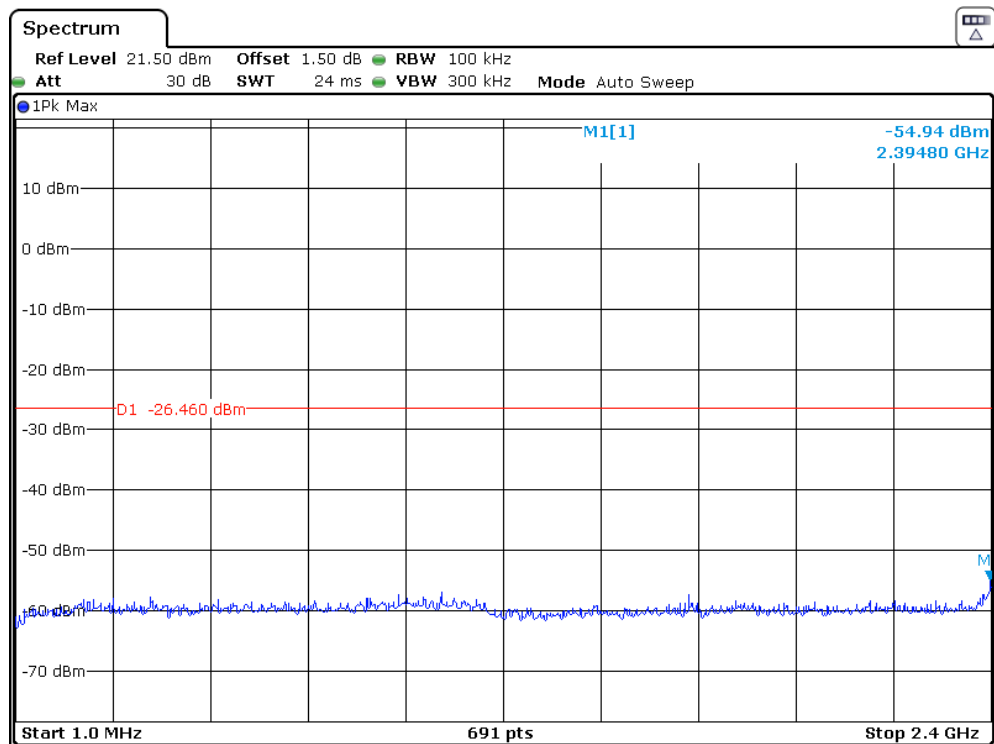


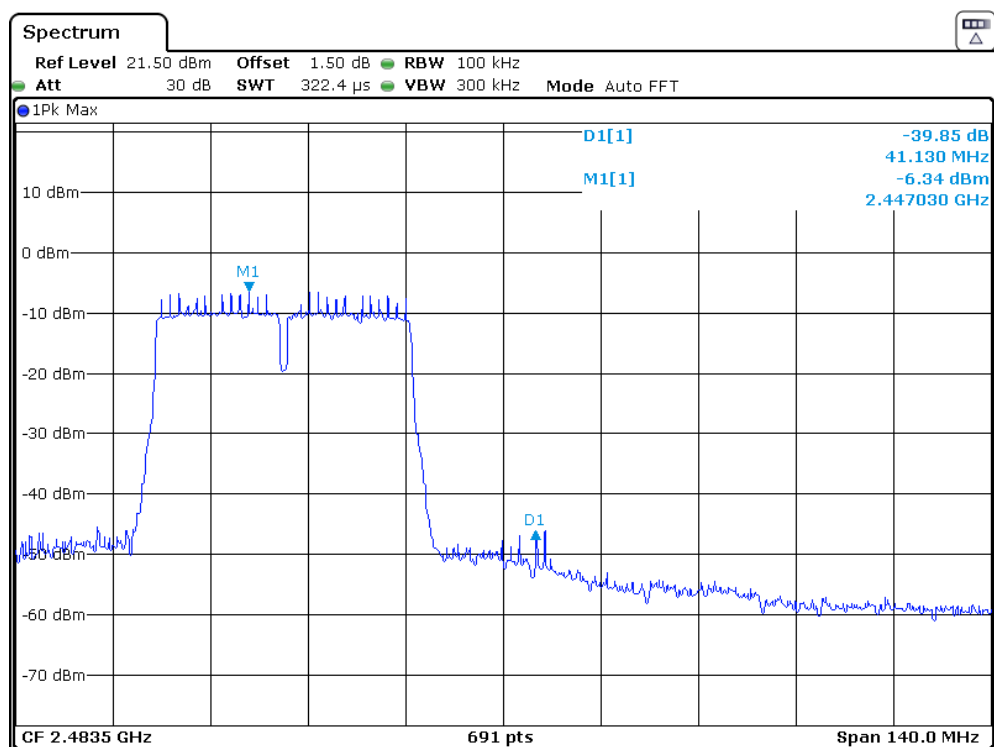


Channel 06 (2437MHz) Reference Level: -6.29dBm



Channel 11 (2452MHz) Reference Level: -6.46dBm

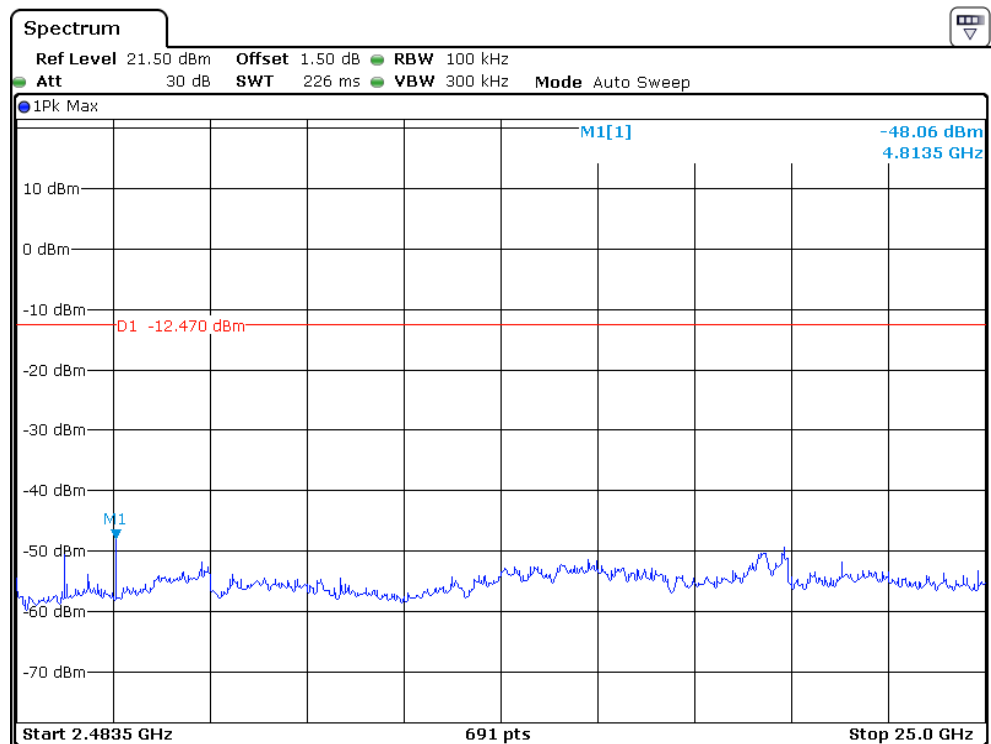
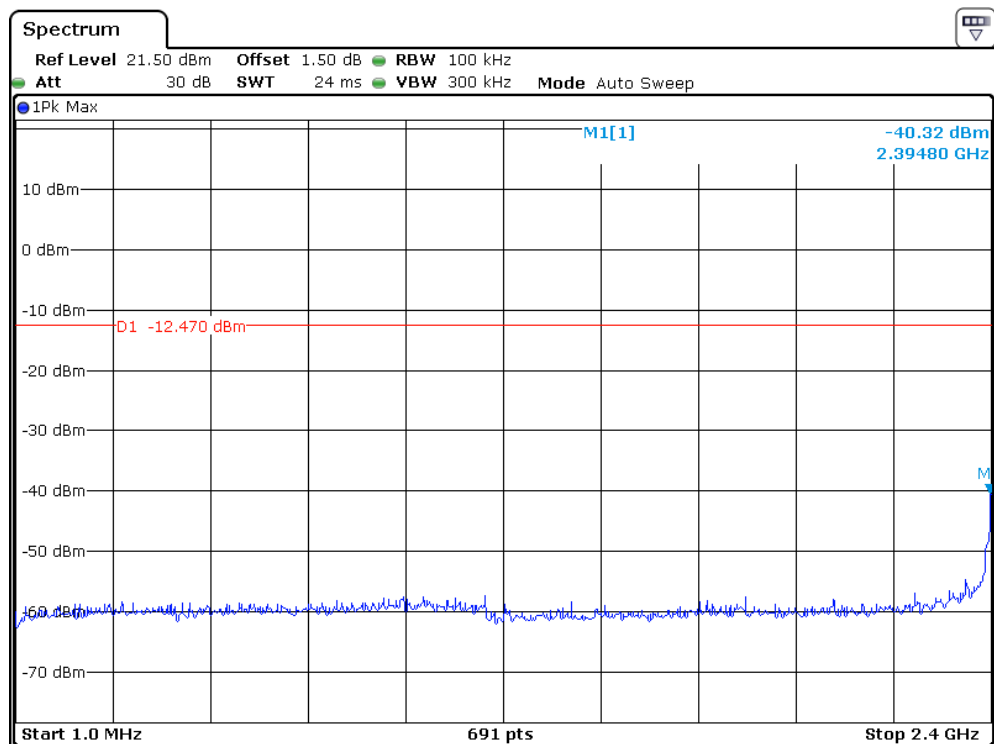


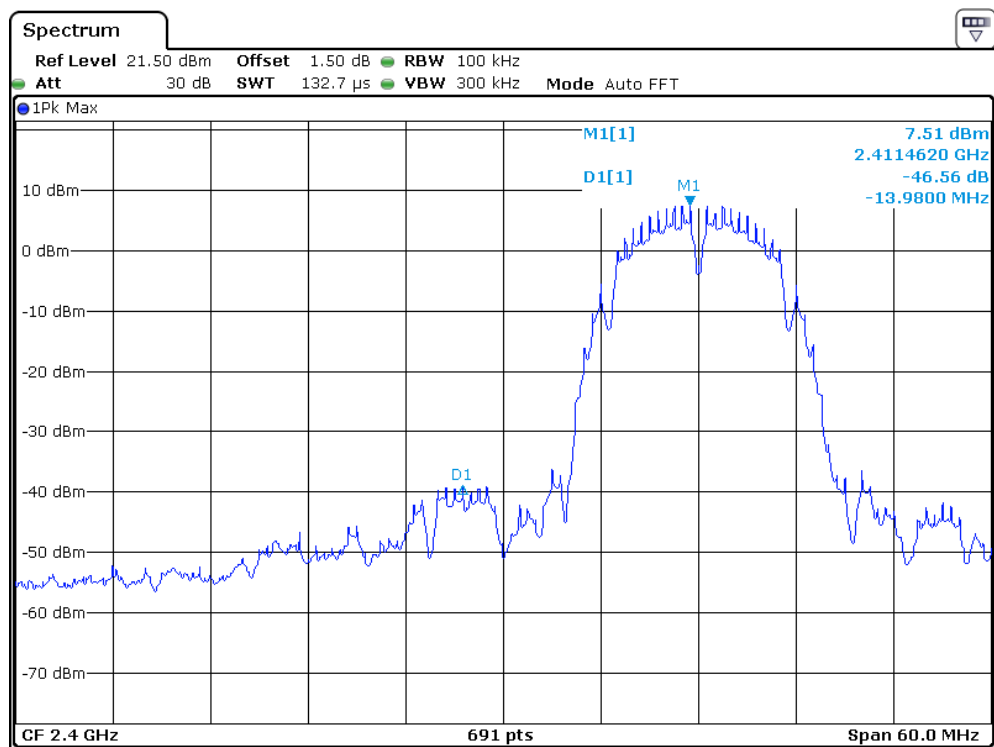


SISO Mode, Ant2:

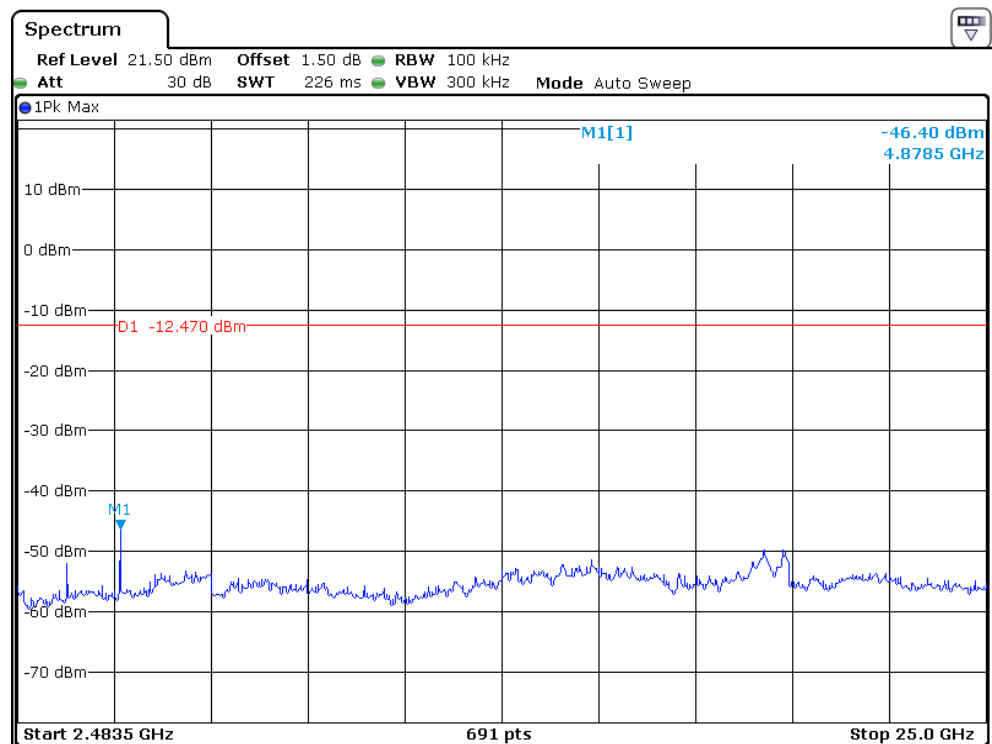
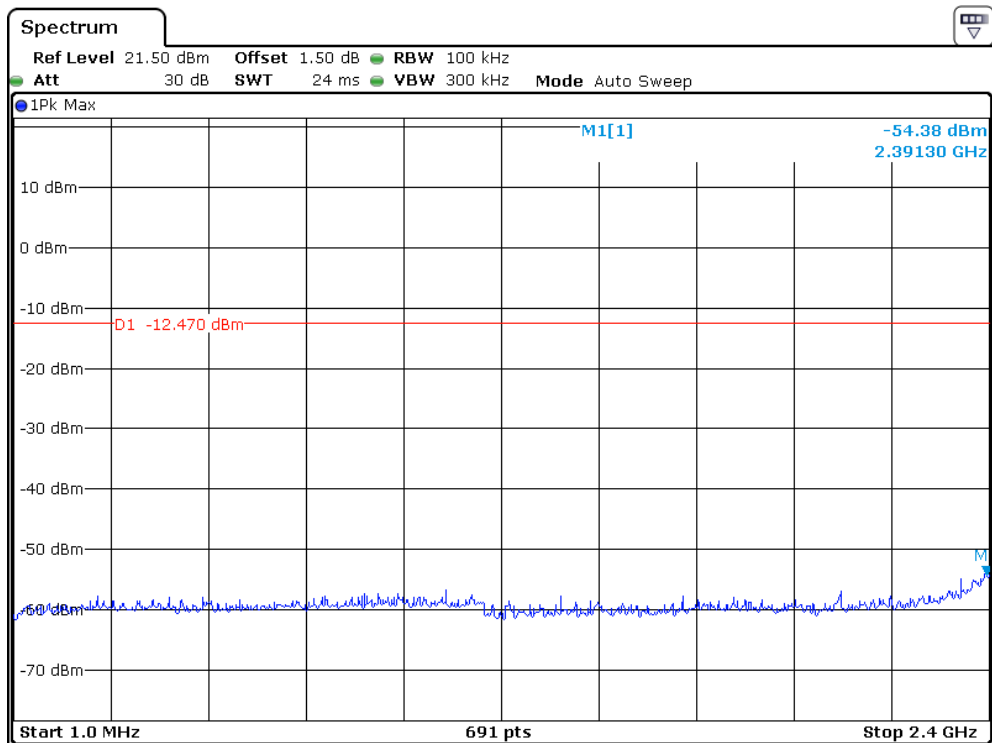
802.11b

Channel 01 (2412MHz) Reference Level: 7.53dBm

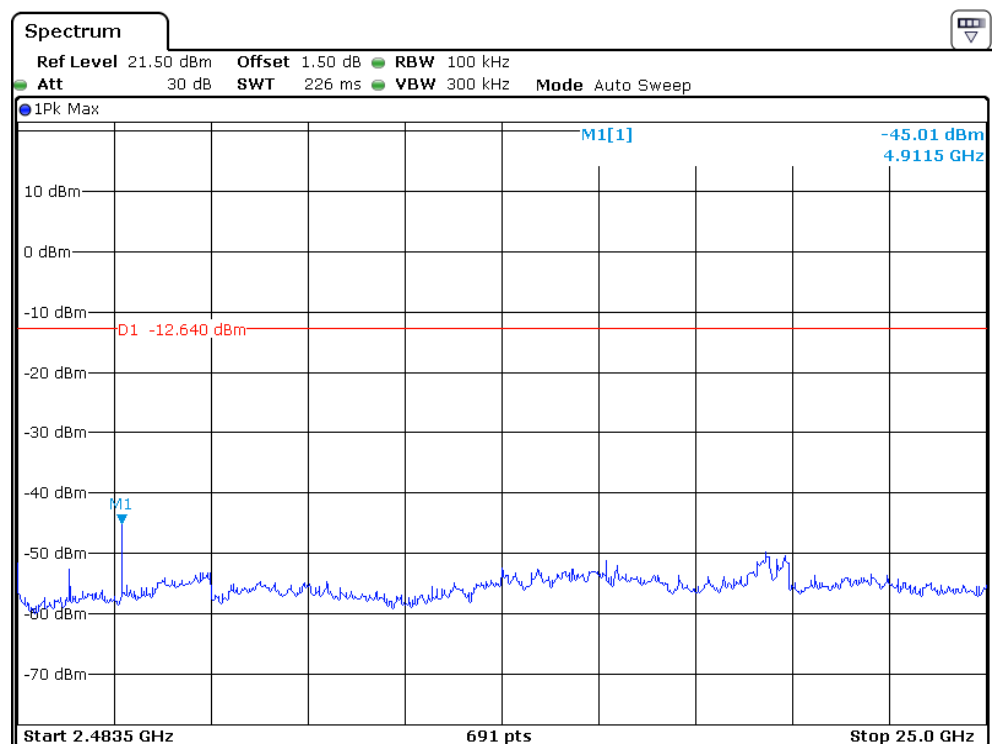
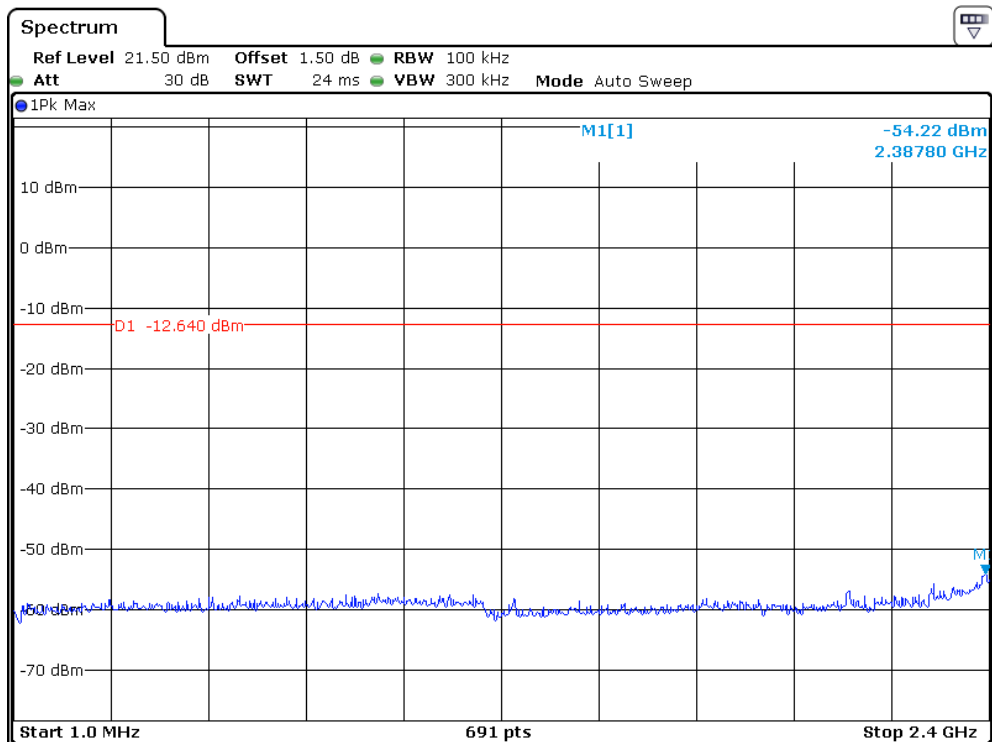


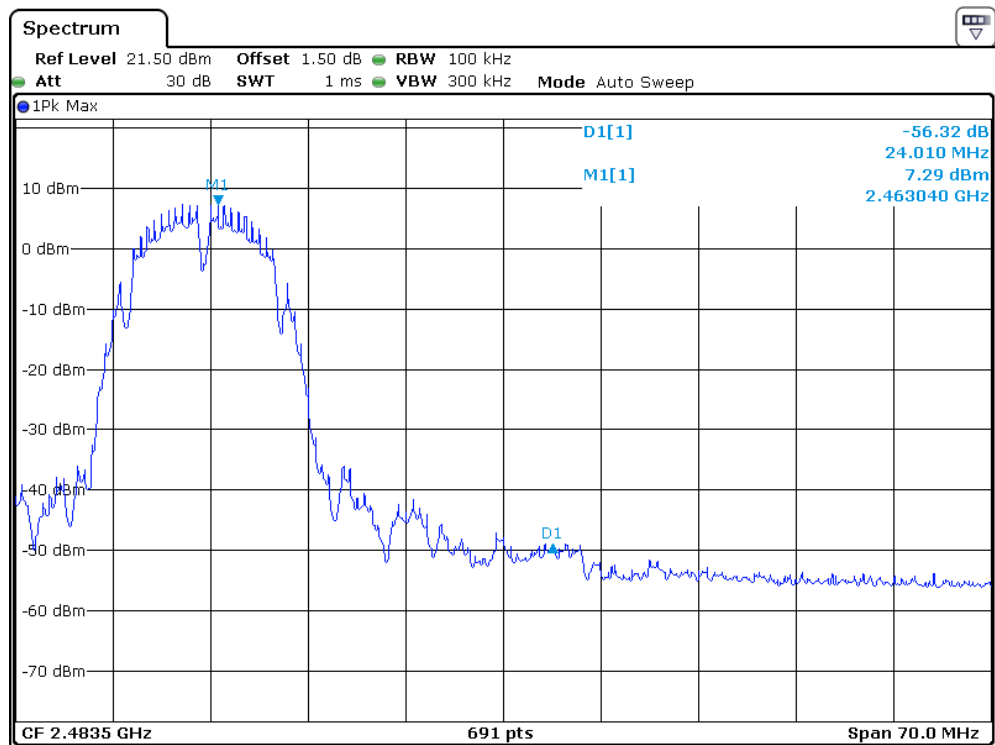


Channel 06 (2437MHz) Reference Level: 7.53dBm



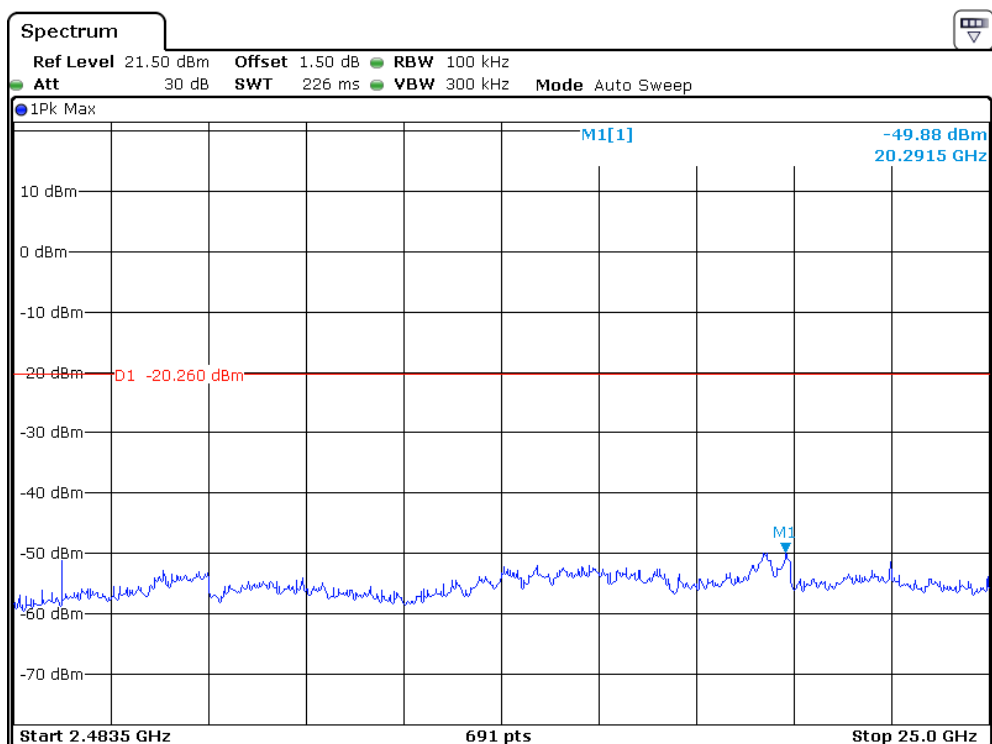
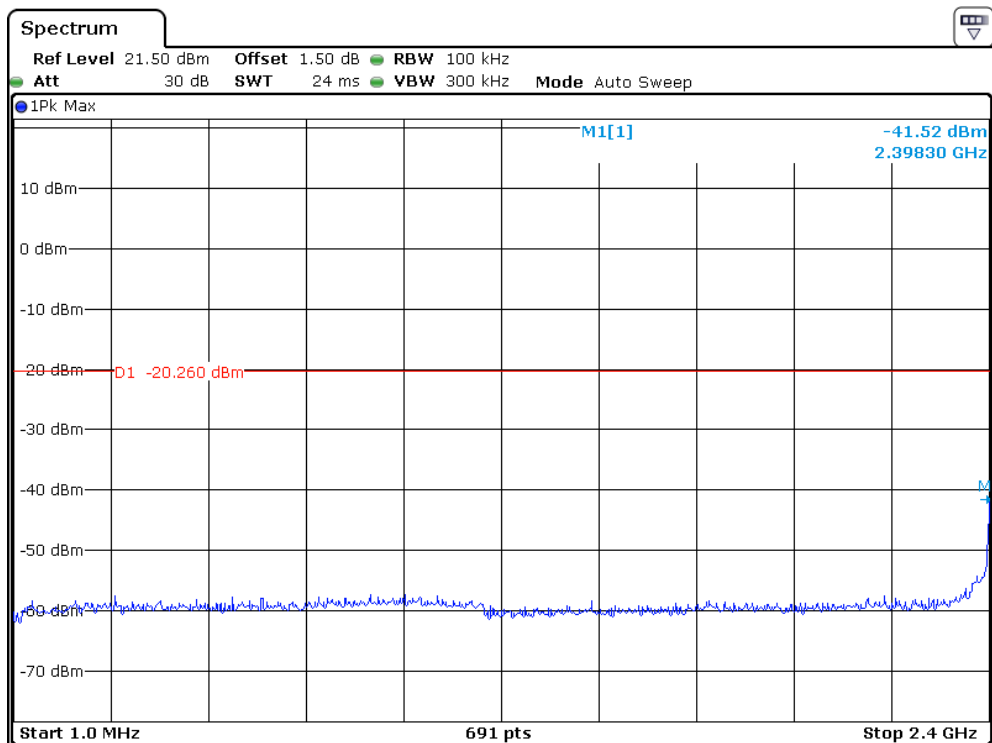
Channel 11 (2462MHz) Reference Level: 7.36dBm

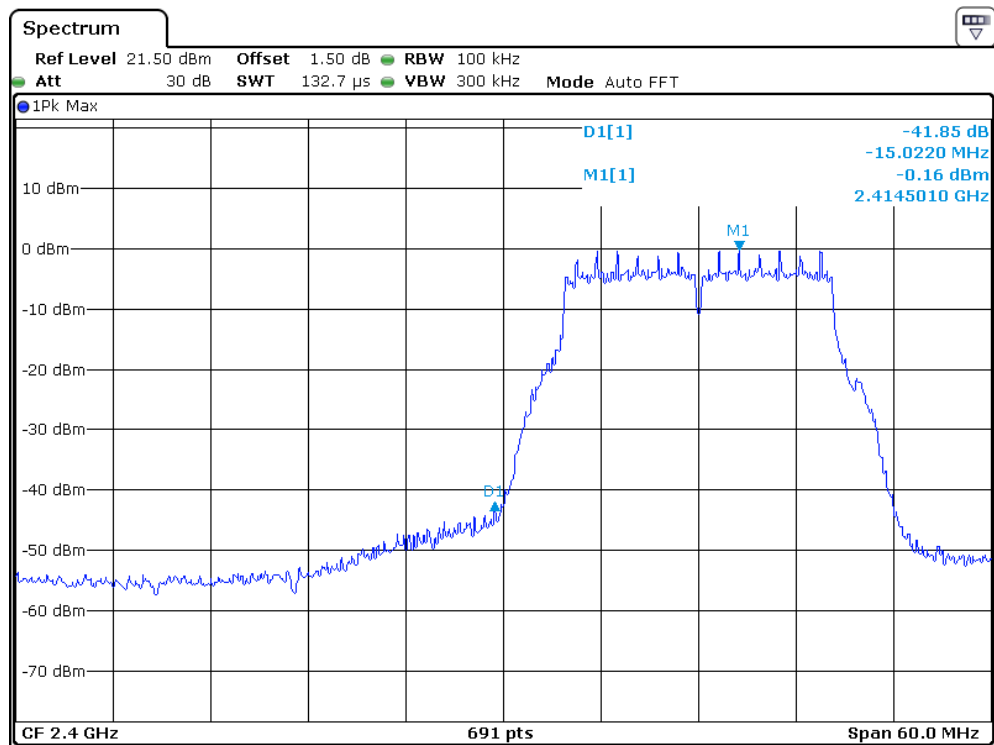




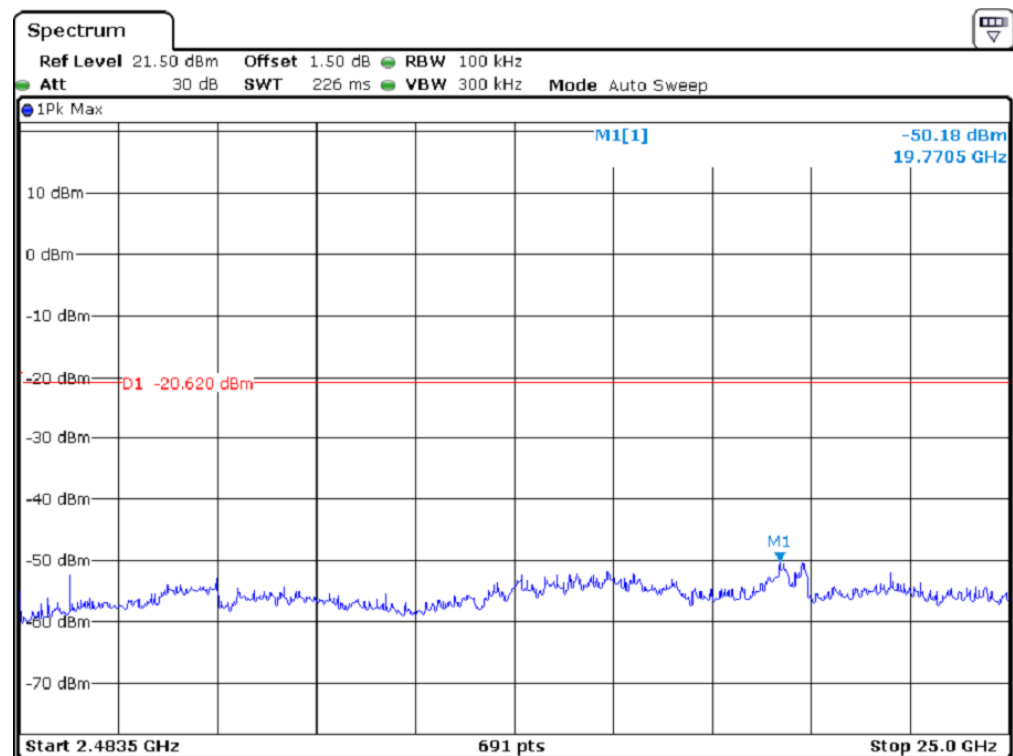
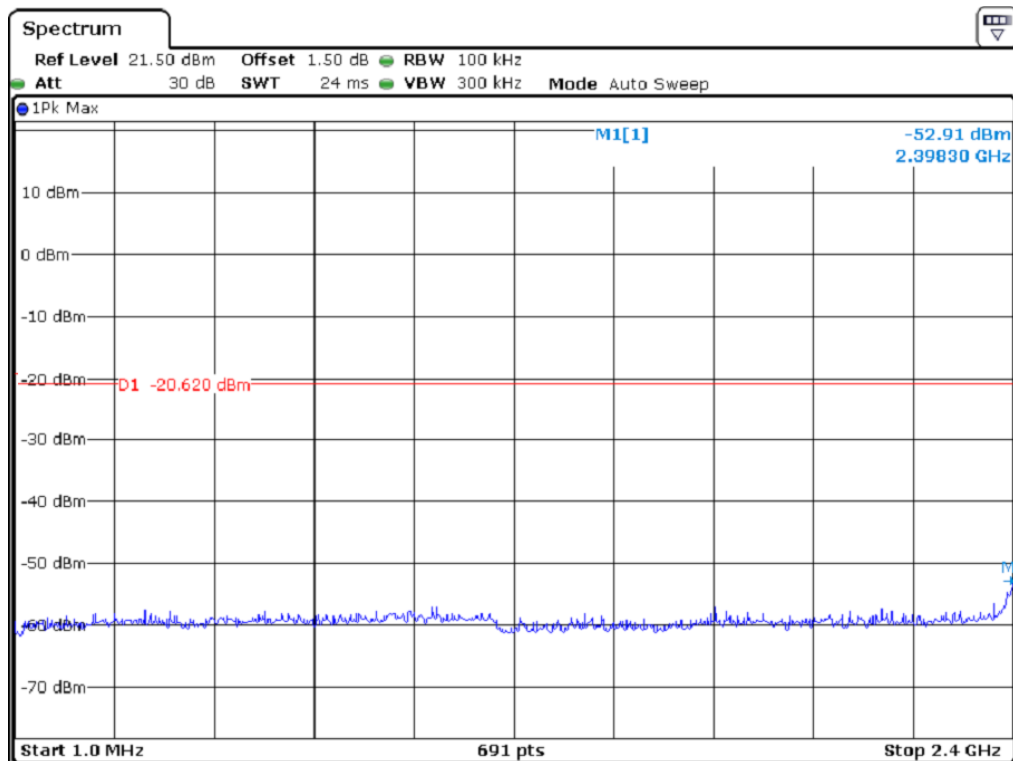
802.11g

Channel 01 (2412MHz) Reference Level: -0.26dBm

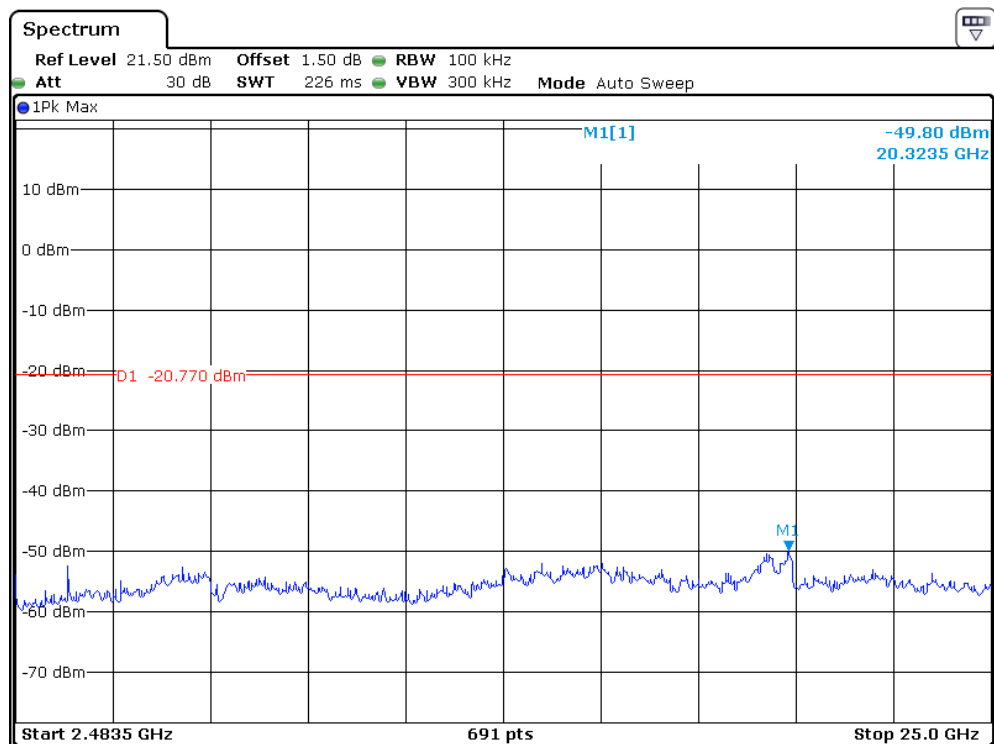
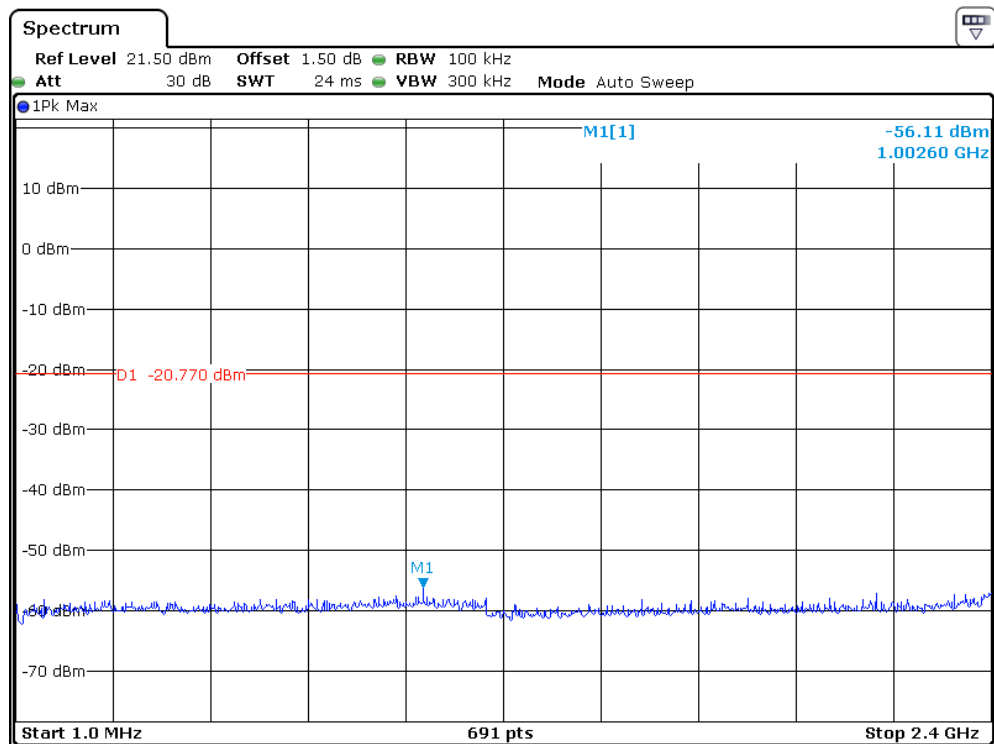


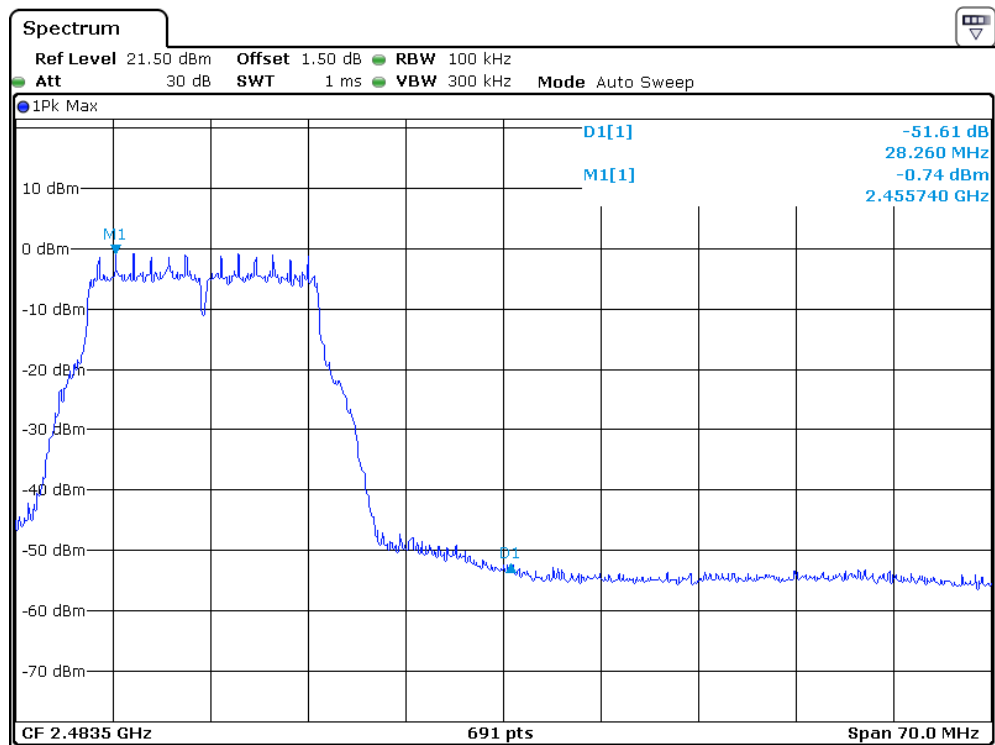


Channel 06 (2437MHz) Reference Level: -0.62dBm



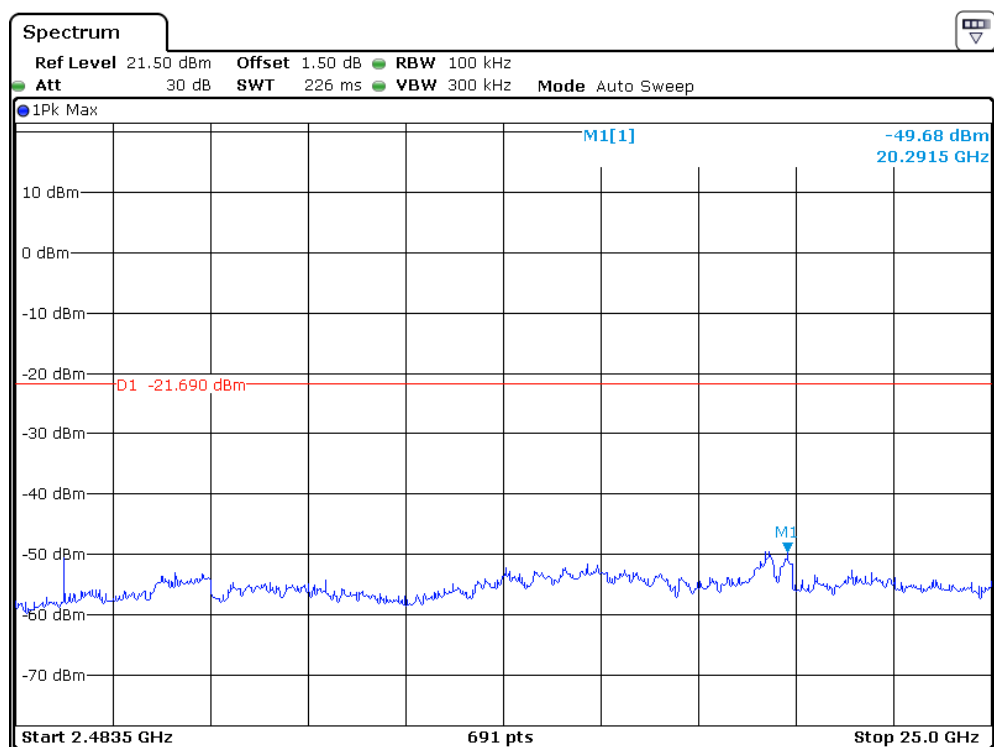
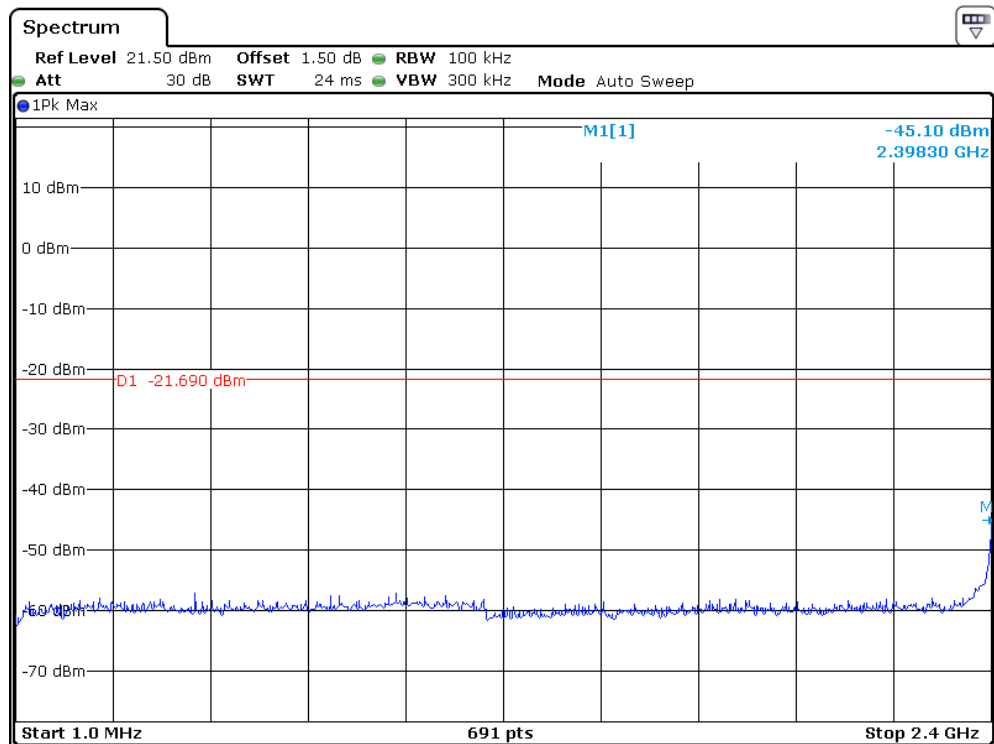
Channel 11 (2462MHz) Reference Level: -0.77dBm

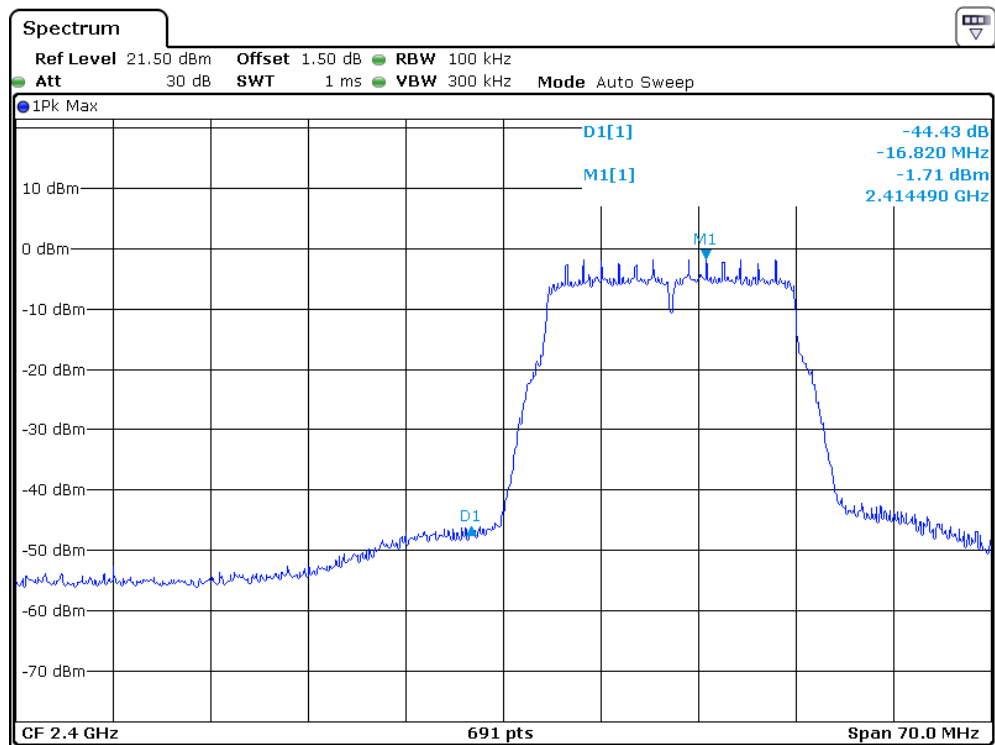




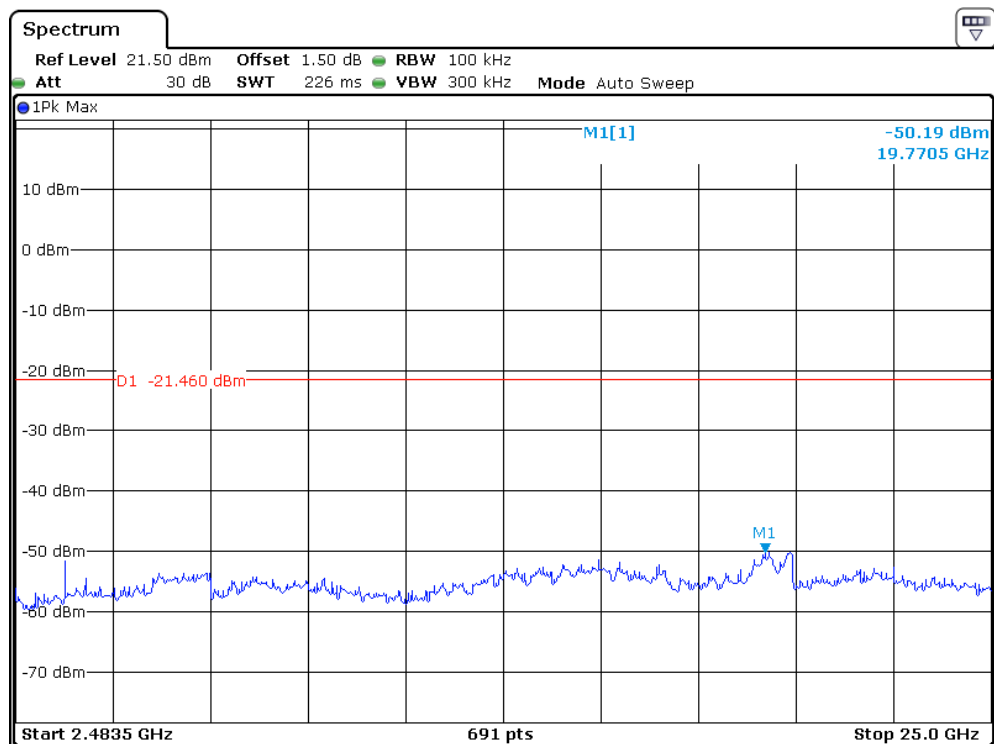
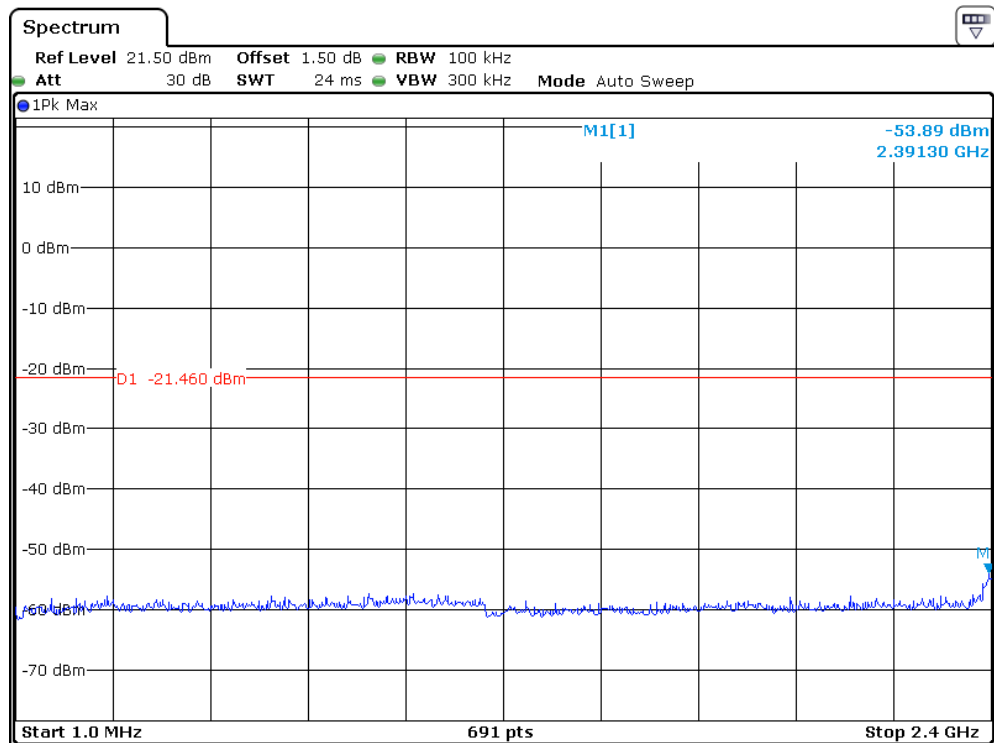
802.11n-HT20

Channel 01 (2412MHz) Reference Level: -1.69dBm

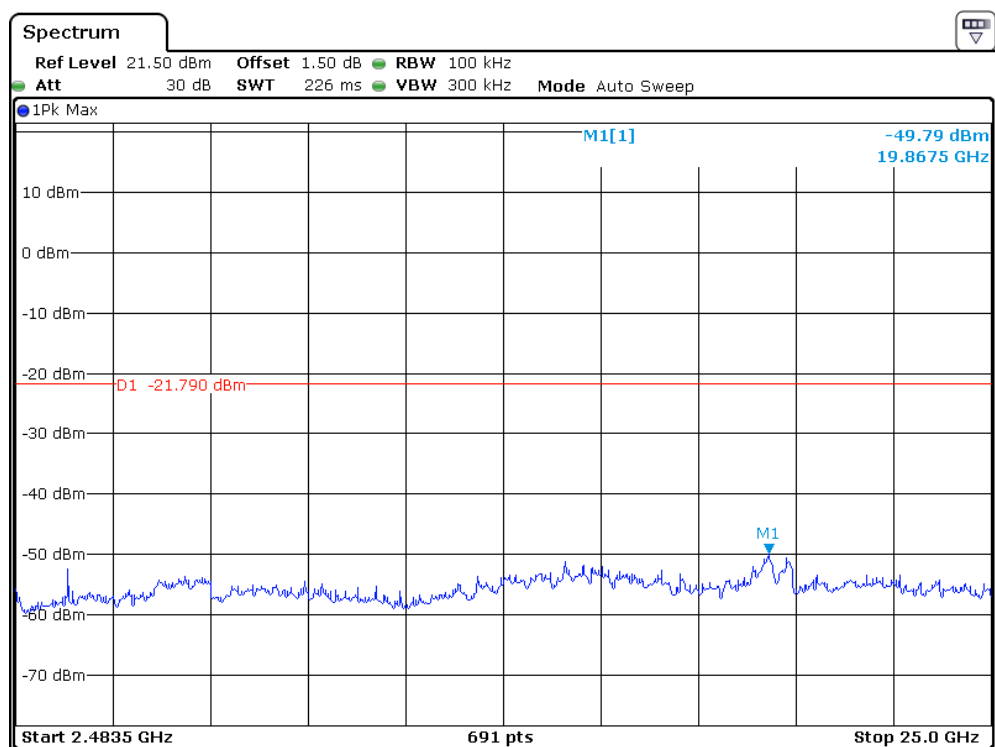
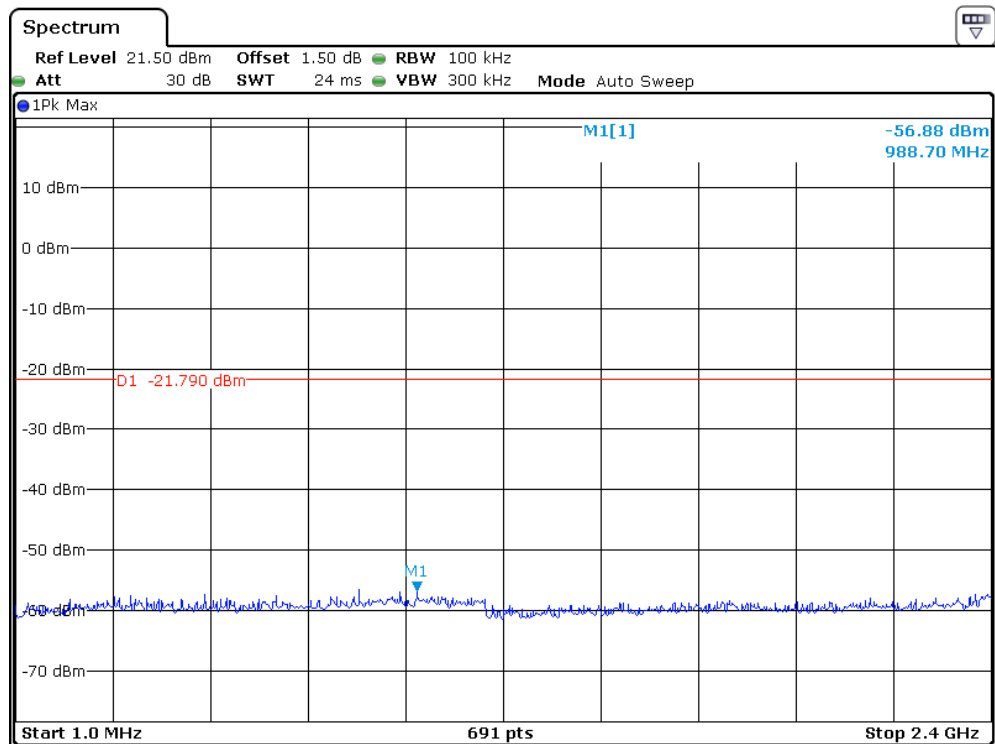


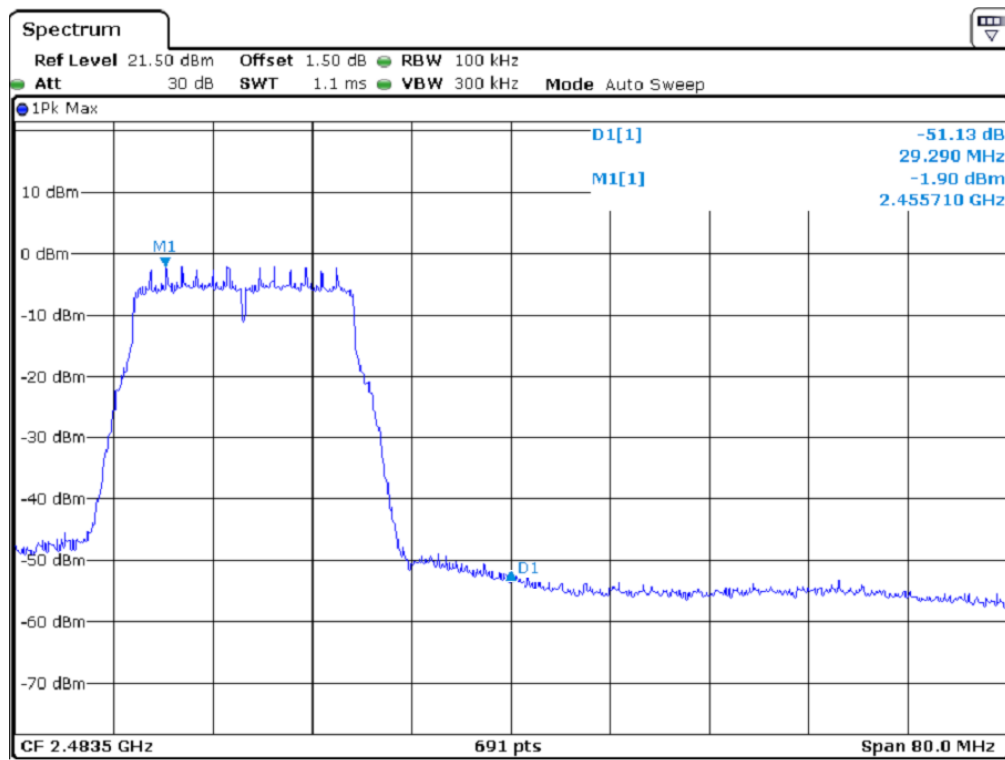


Channel 06 (2437MHz) Reference Level: -1.46dBm



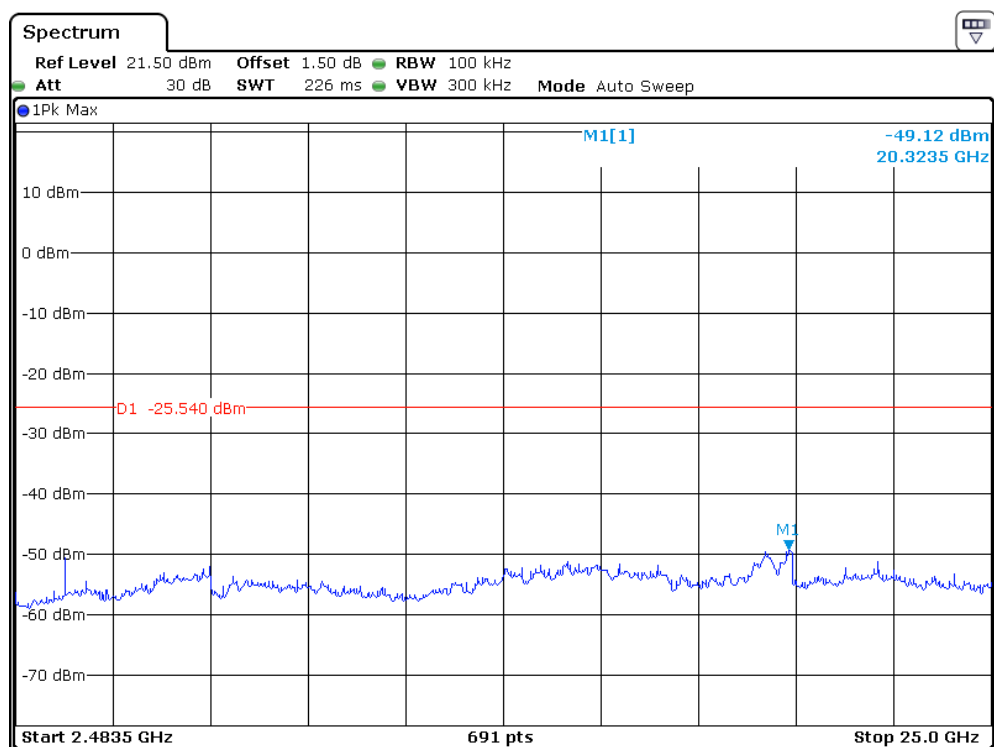
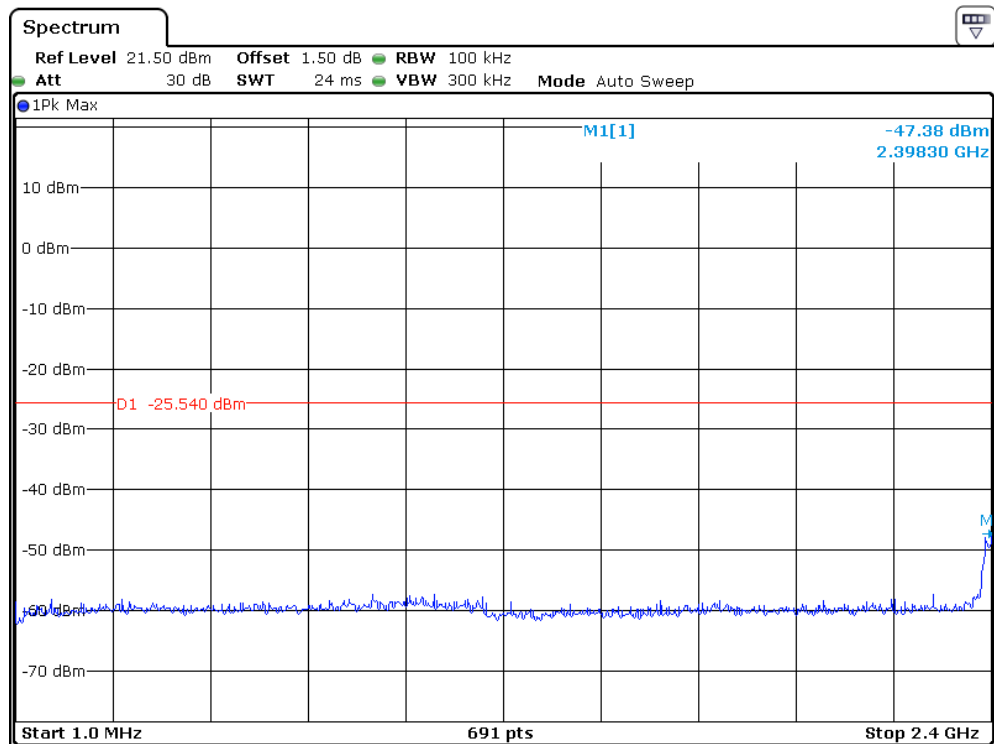
Channel 11 (2462MHz) Reference Level: -1.79dBm

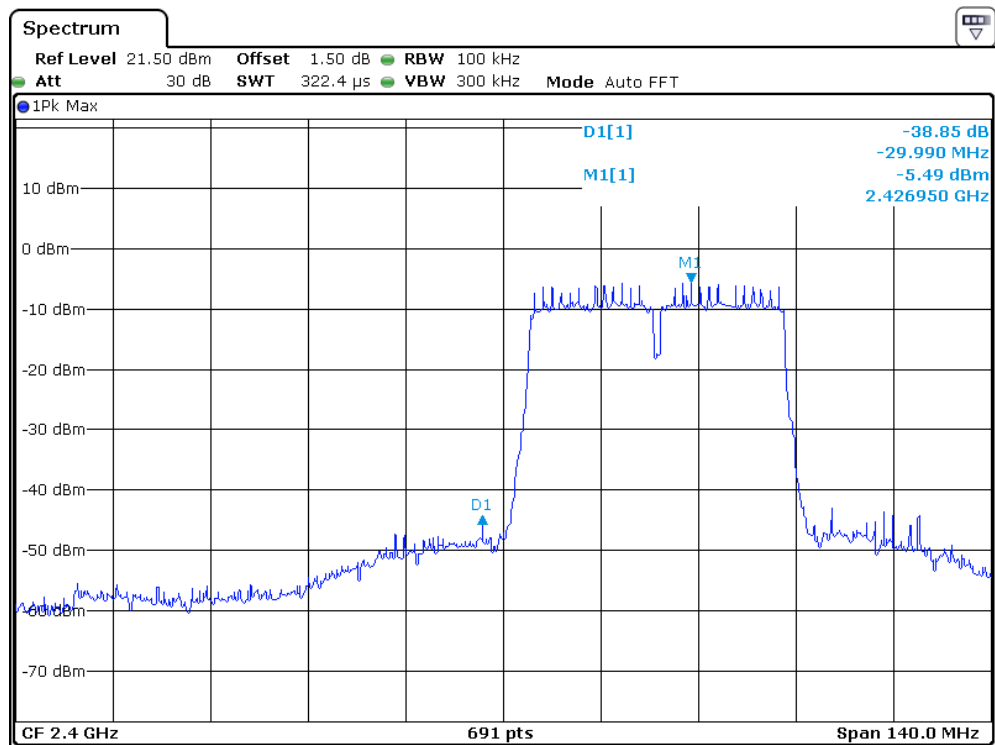




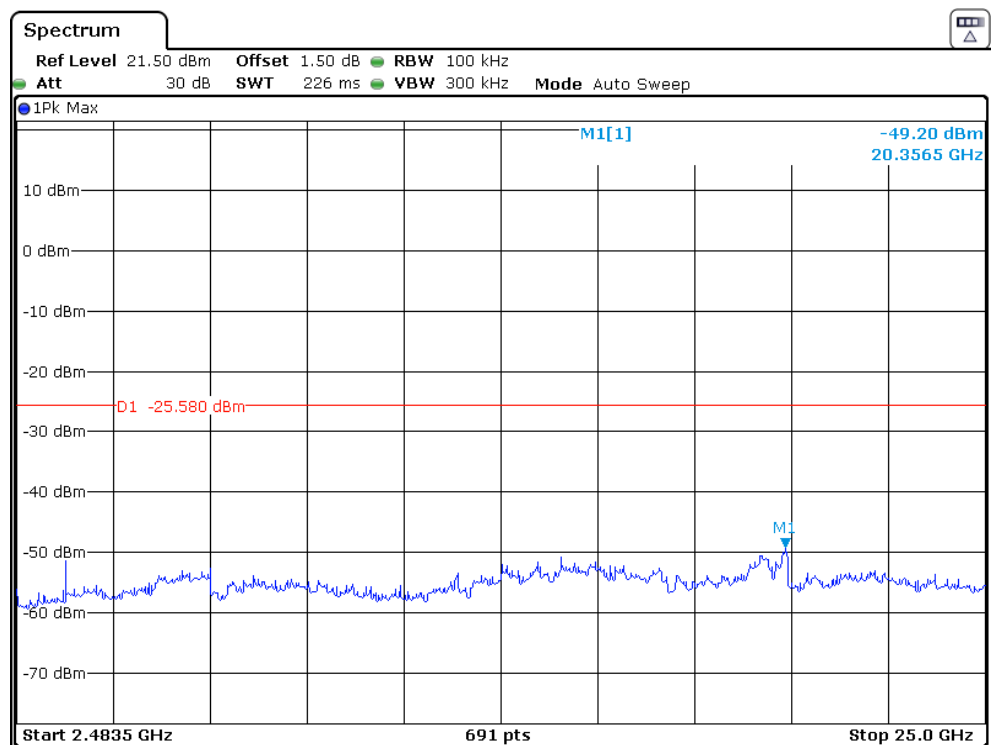
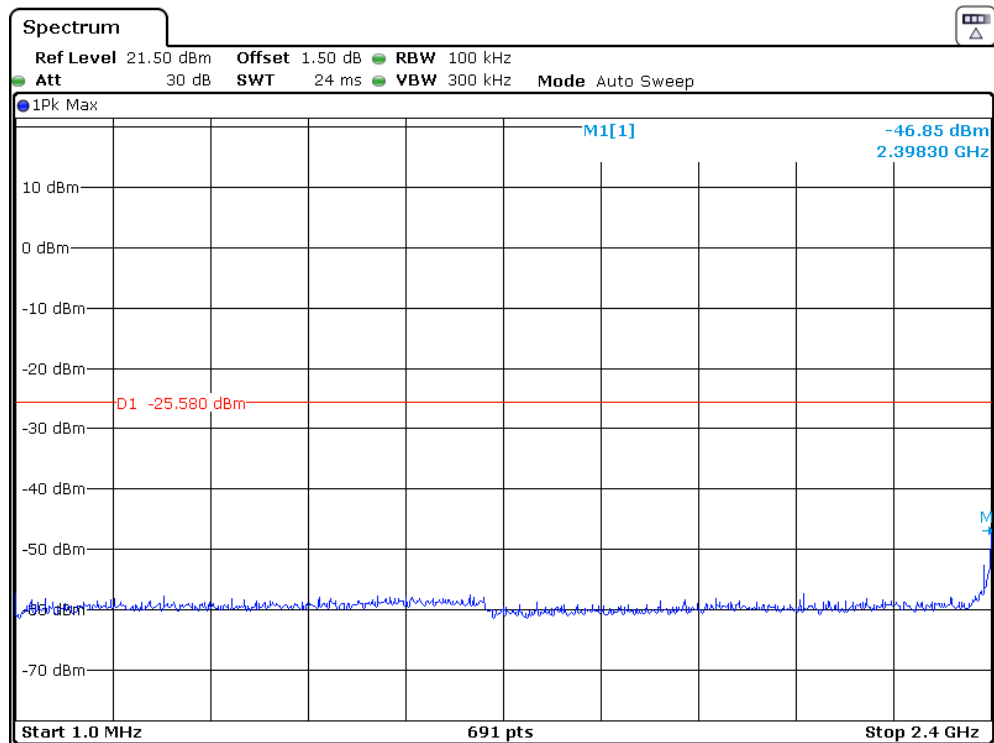
802.11n-HT40

Channel 01 (2422MHz) Reference Level: -5.54dBm

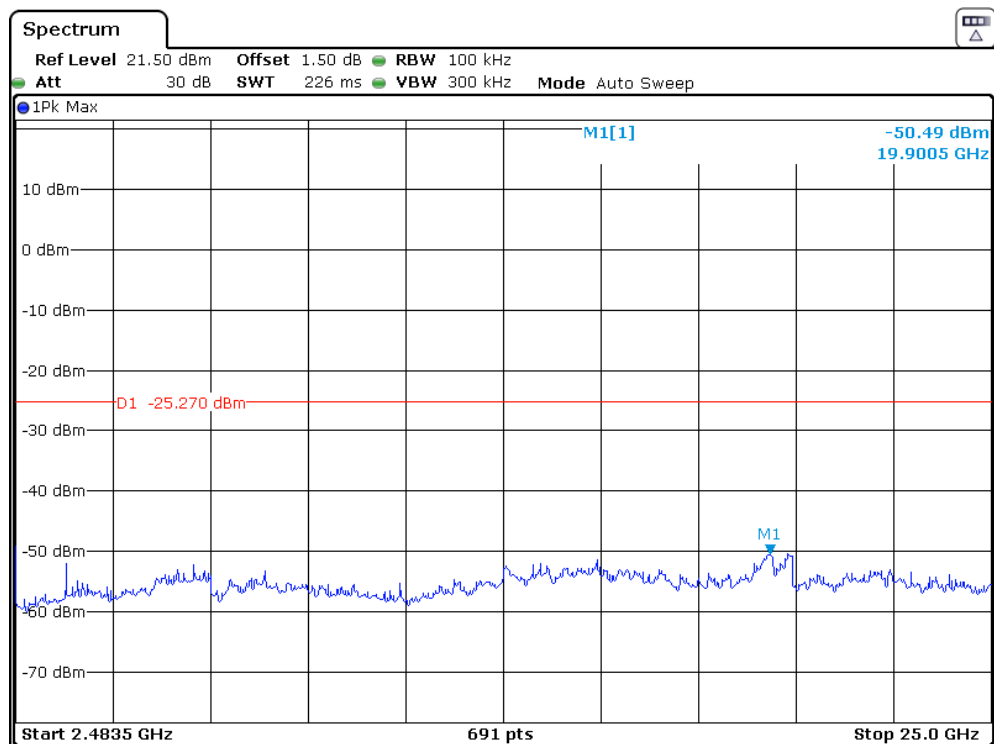
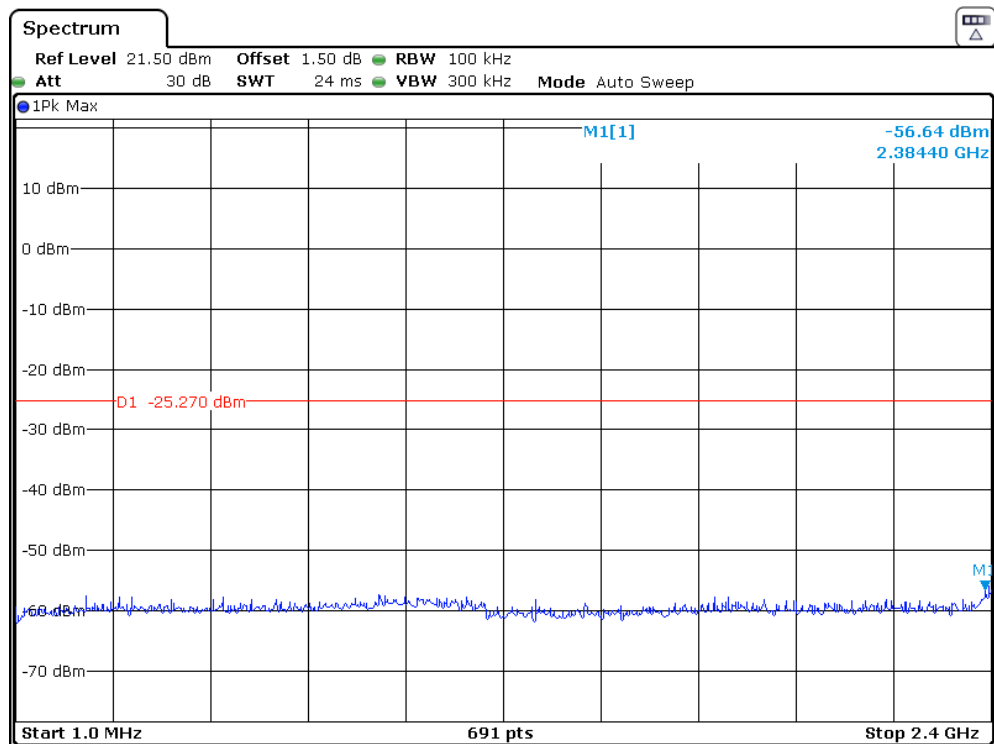


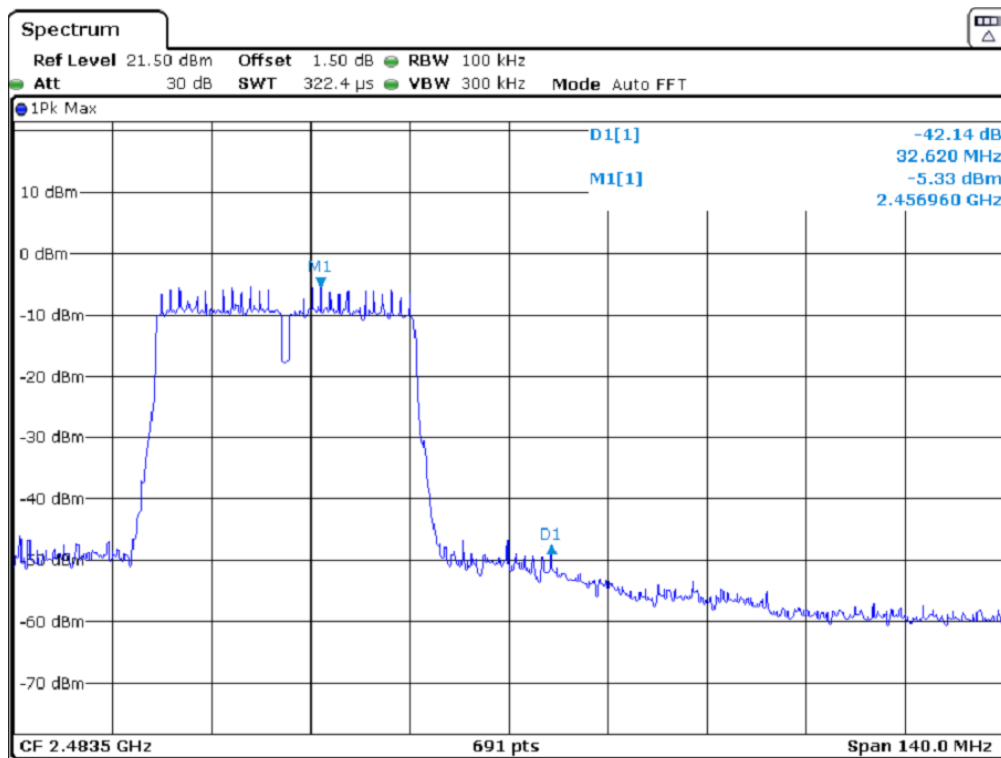


Channel 06 (2437MHz) Reference Level: -5.58dBm



Channel 11 (2452MHz) Reference Level: -5.27dBm

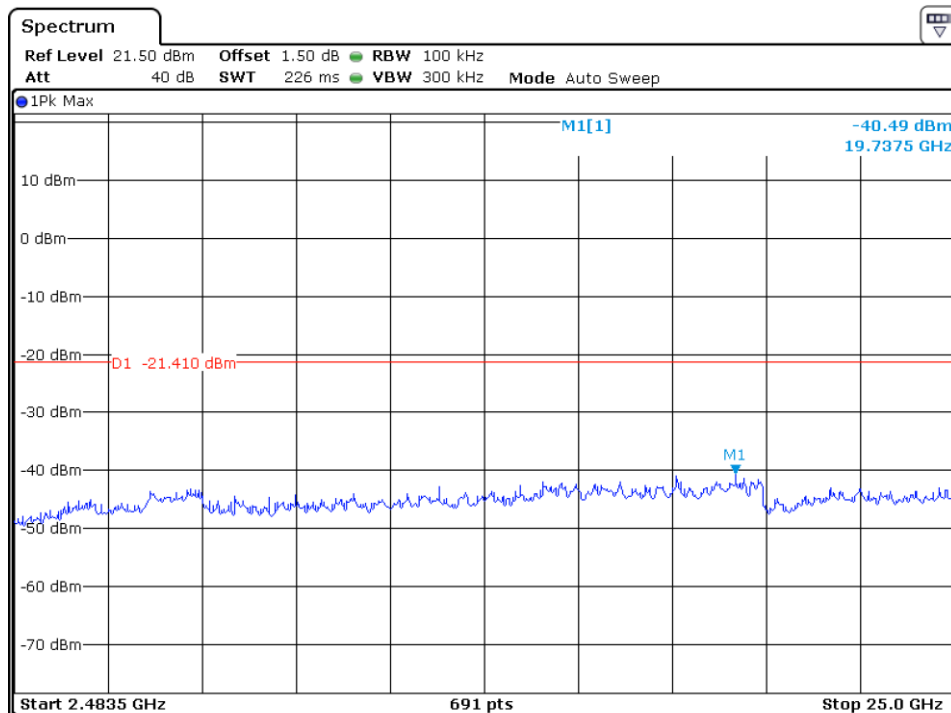
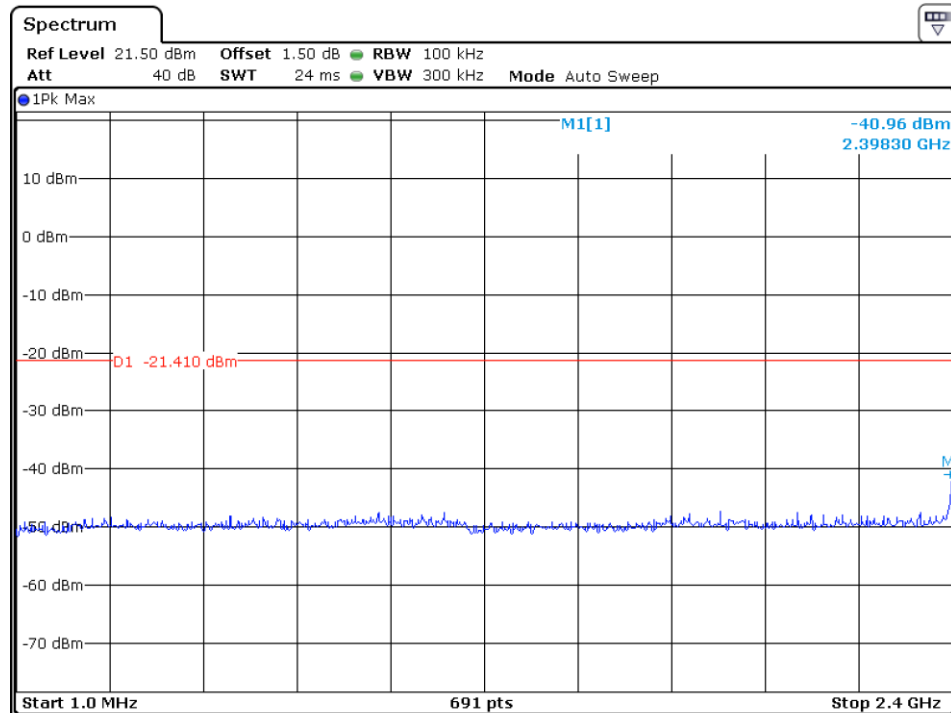


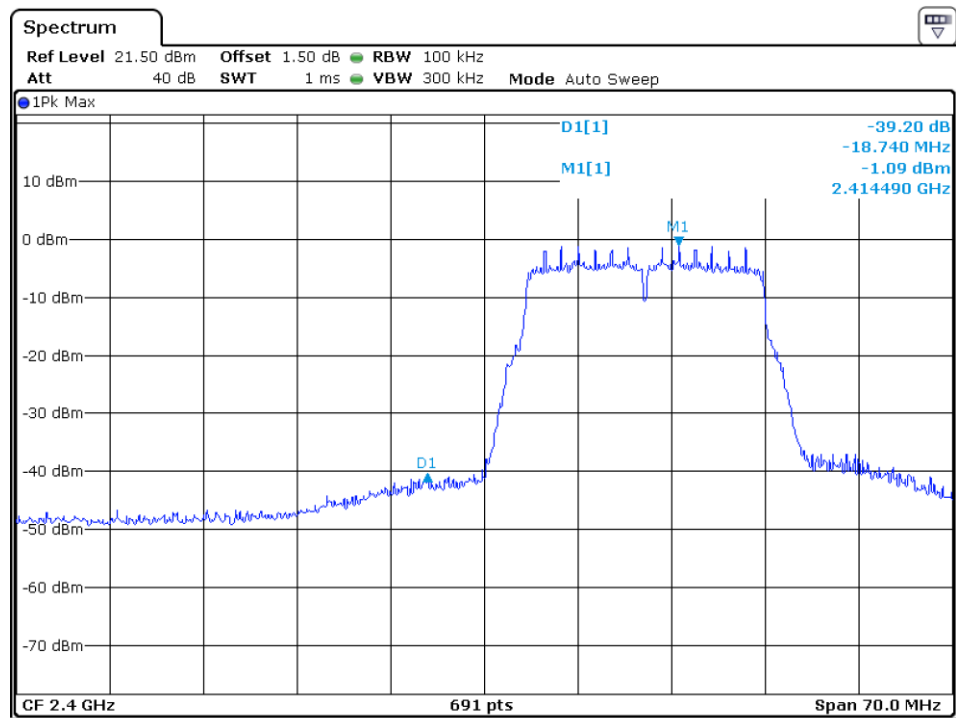


MIMO Mode, Ant1:

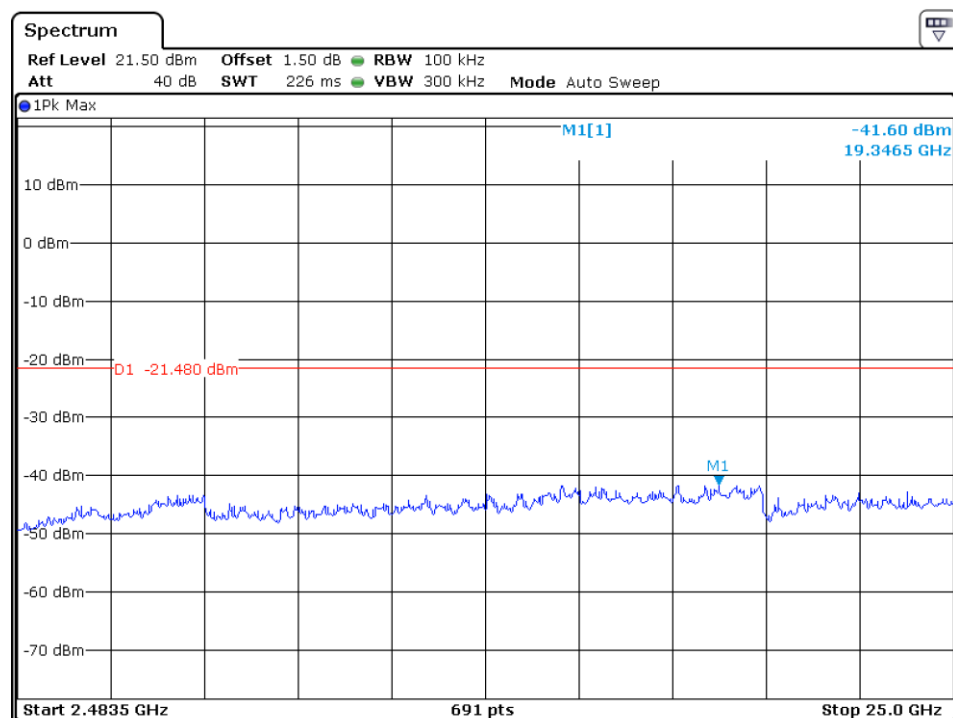
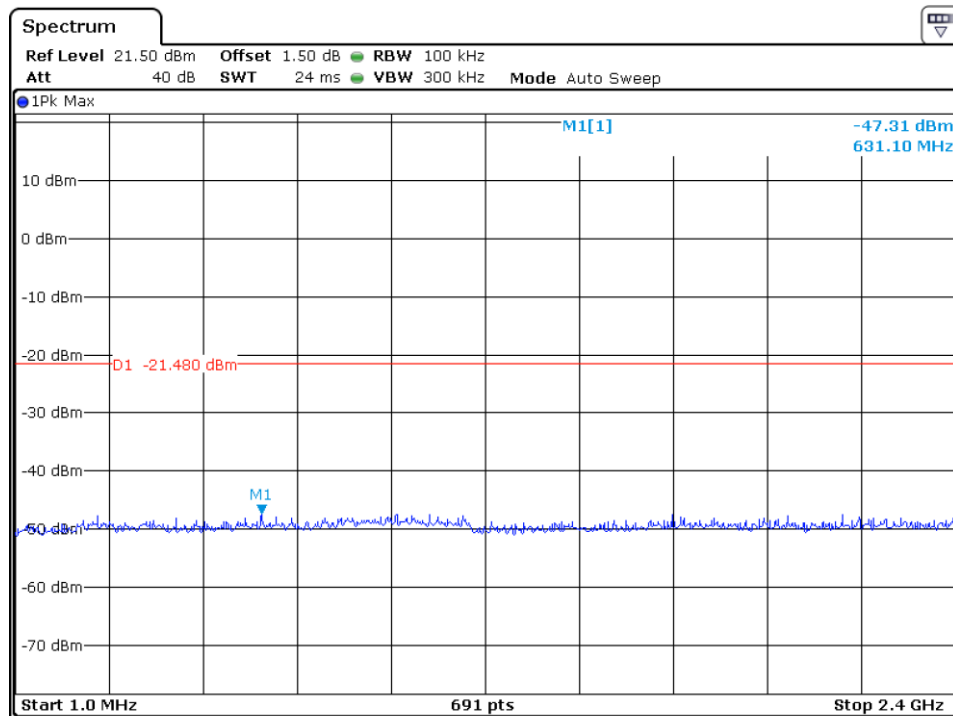
802.11n-HT20

Channel 01 (2412MHz) Reference Level: -1.41dBm

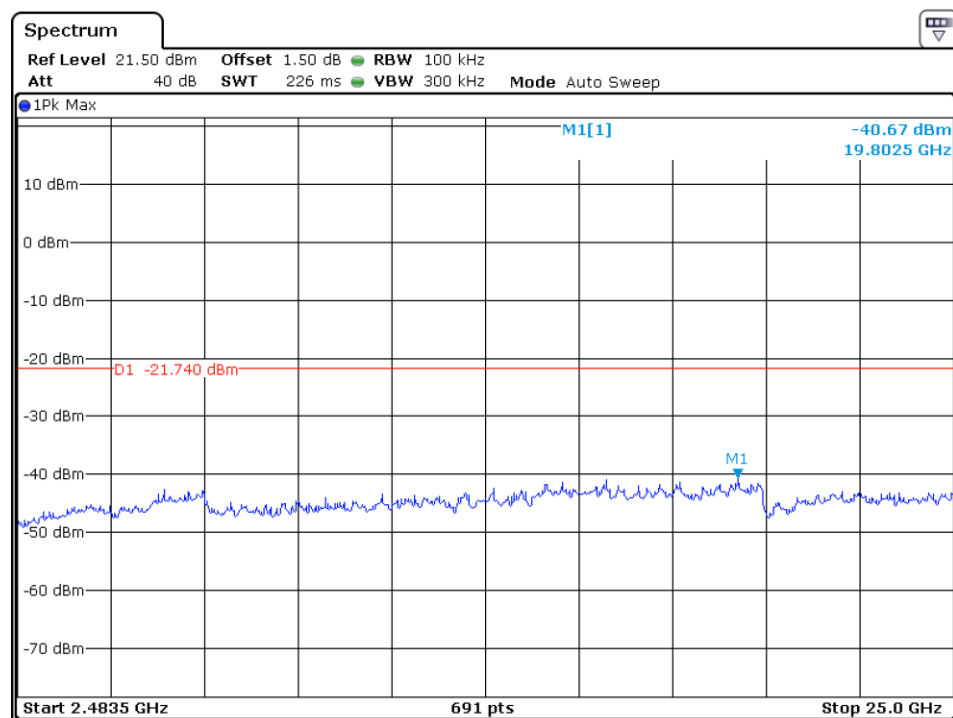
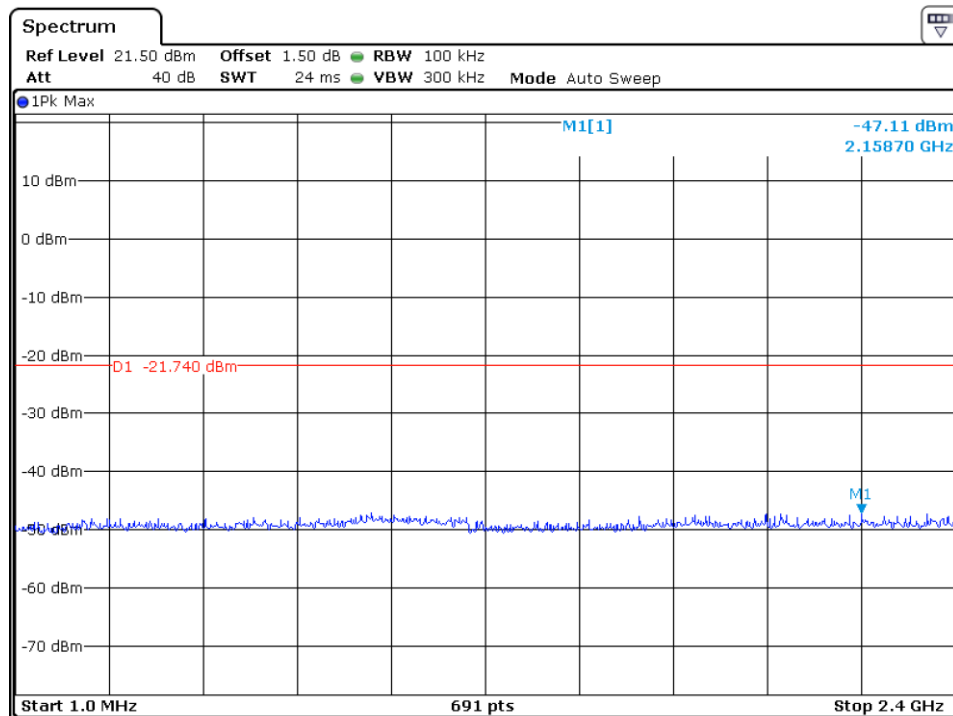


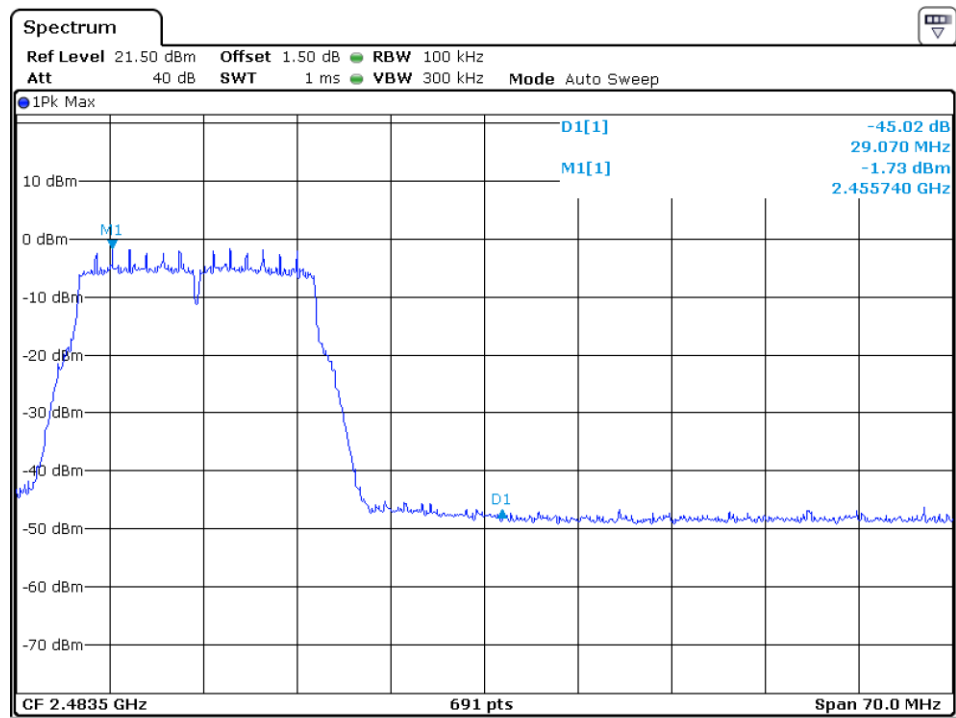


Channel 06 (2437MHz) Reference Level: -1.48dBm



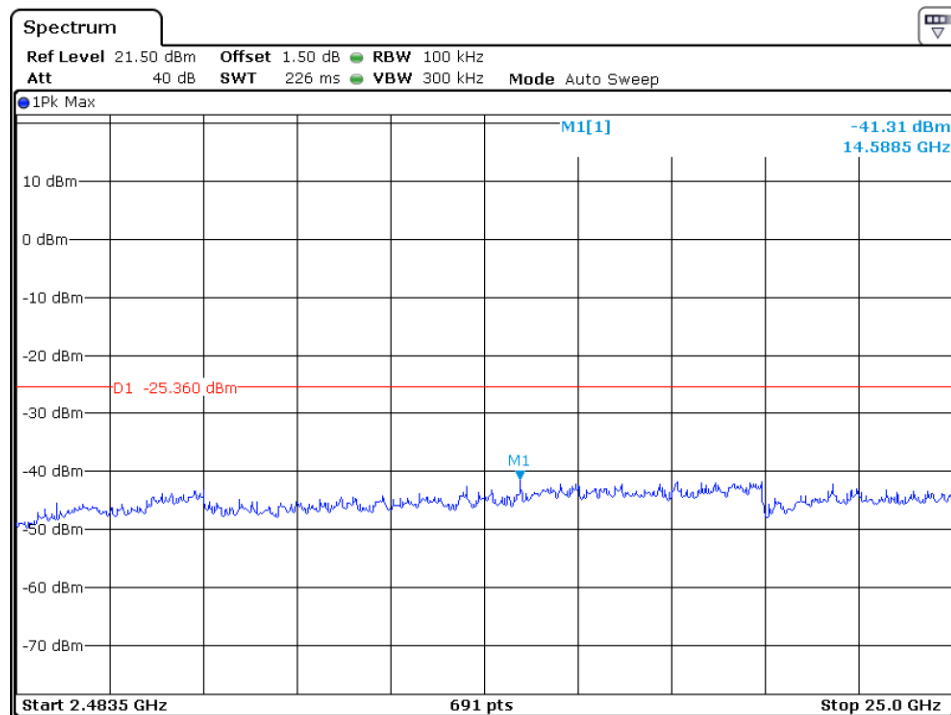
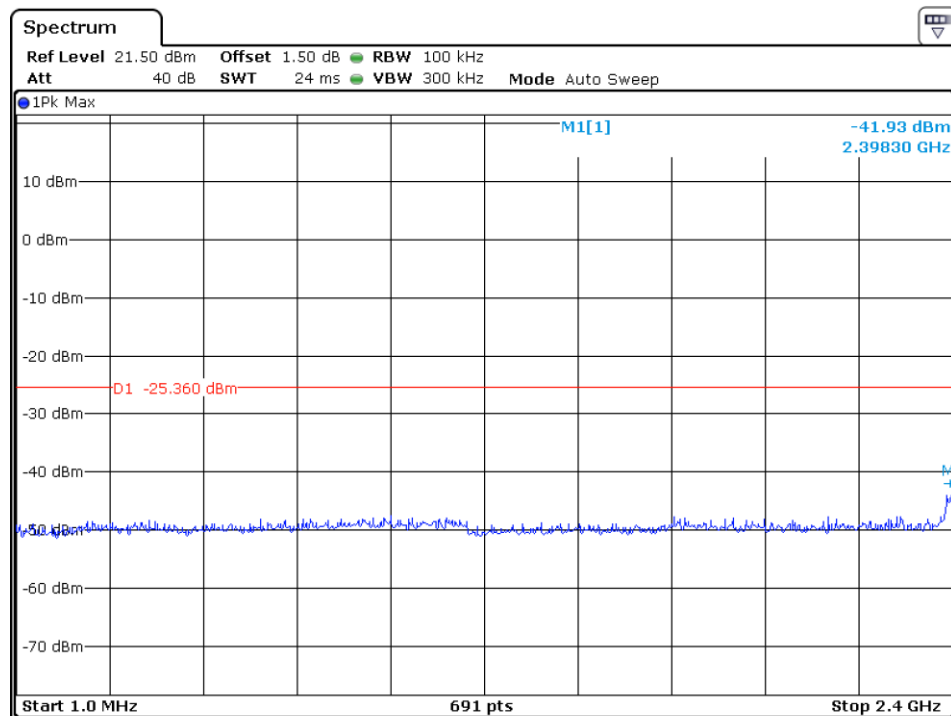
Channel 11 (2462MHz) Reference Level: -1.74dBm

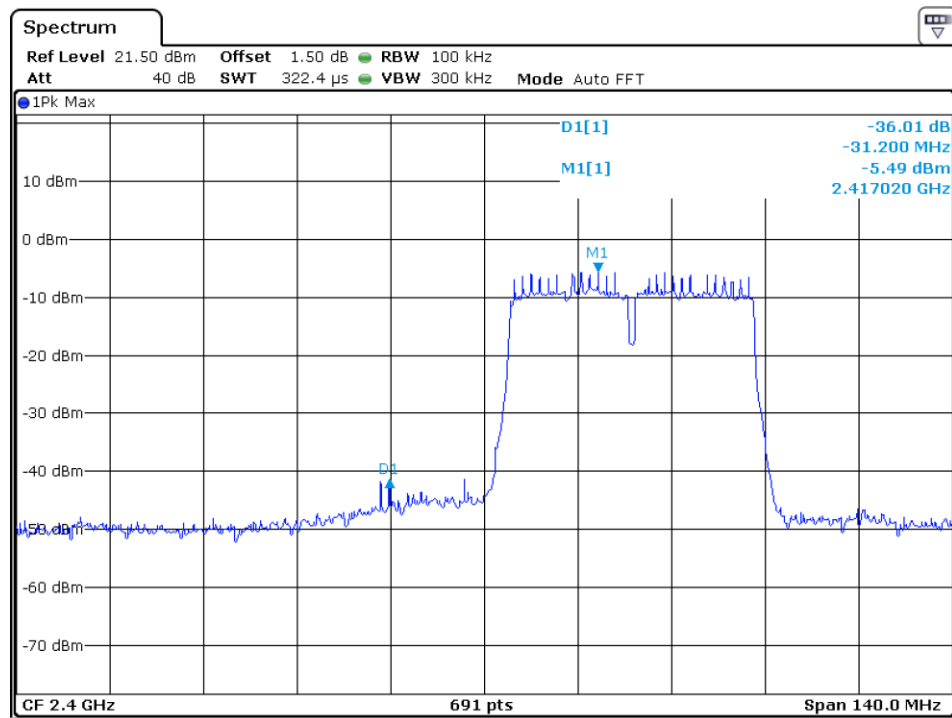




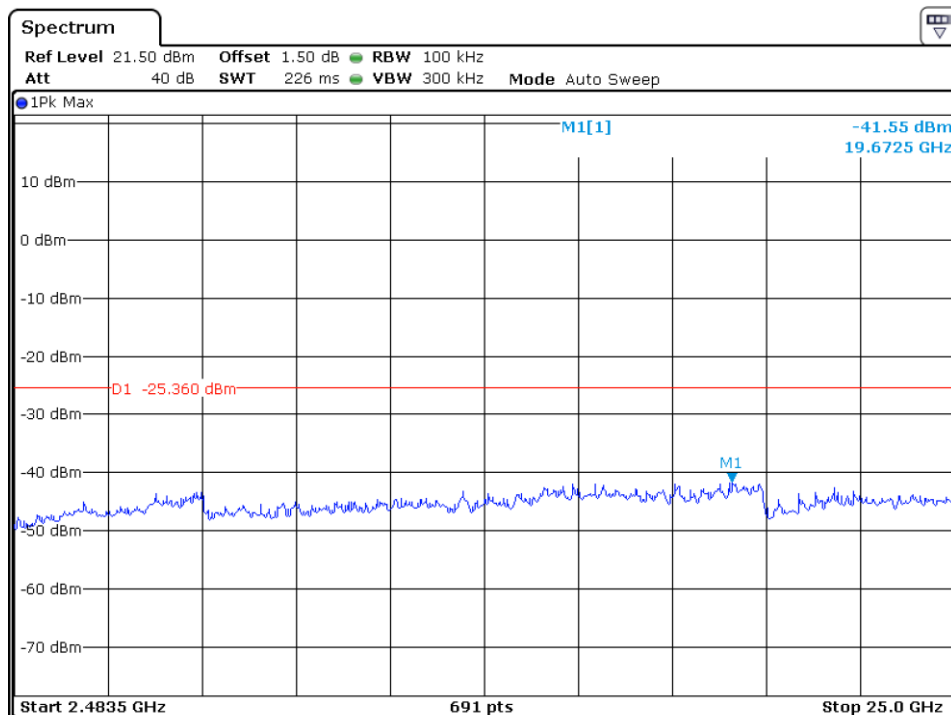
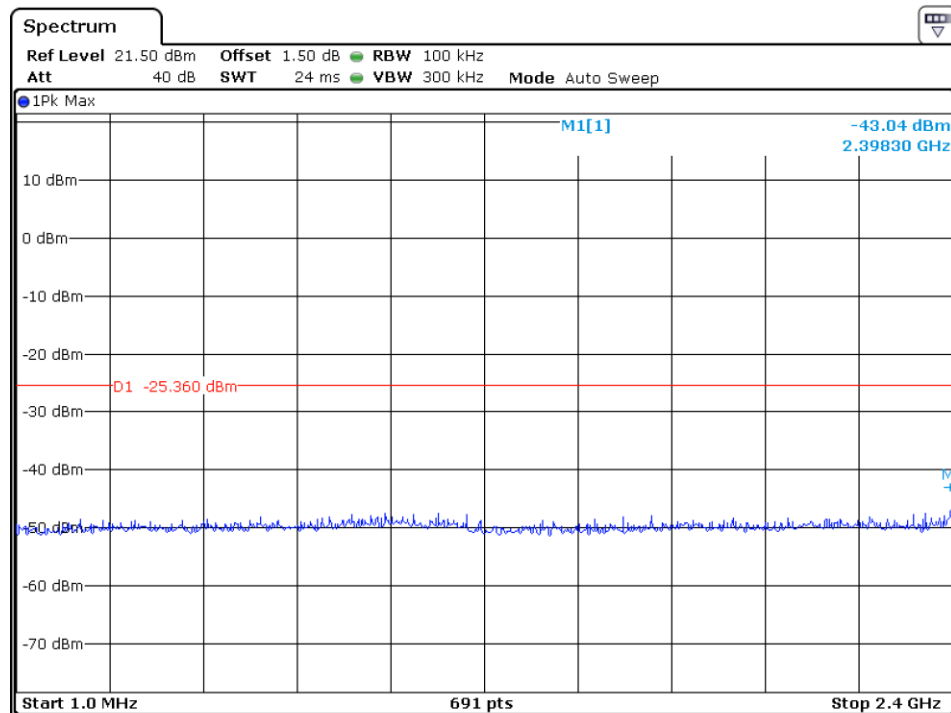
802.11n-HT40

Channel 01 (2422MHz) Reference Level: -5.36dBm

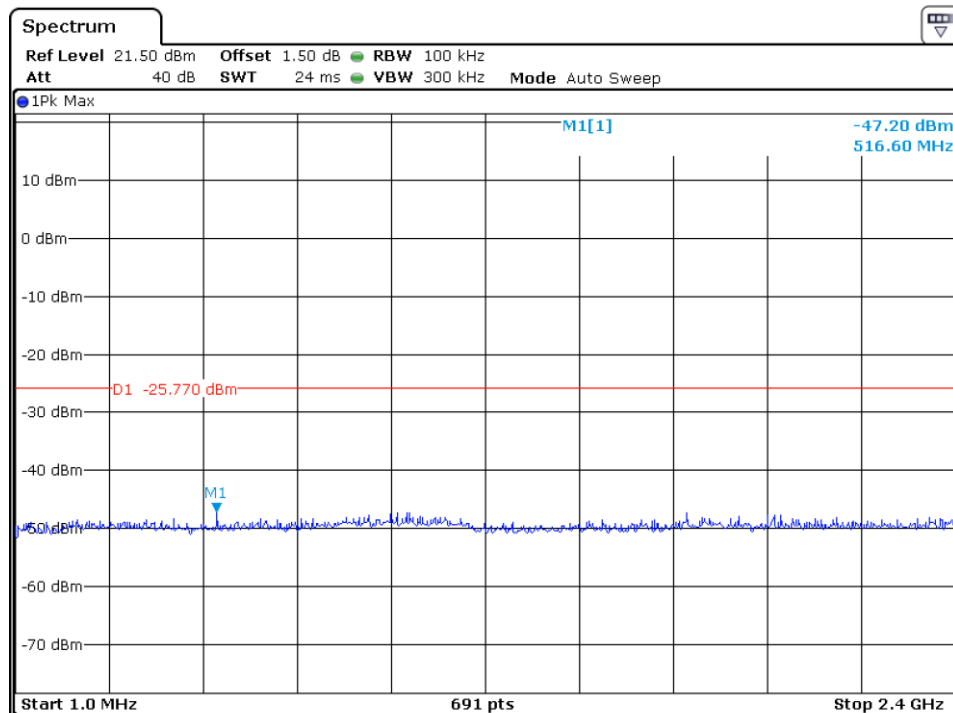


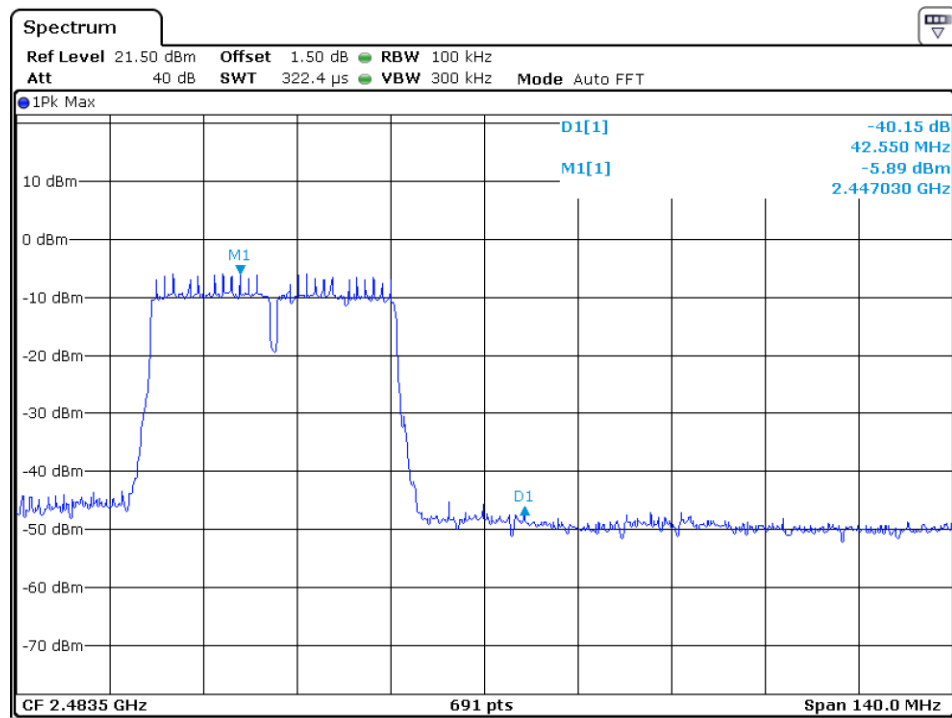


Channel 06 (2437MHz) Reference Level: -5.36dBm



Channel 11 (2452MHz) Reference Level: -5.77dBm

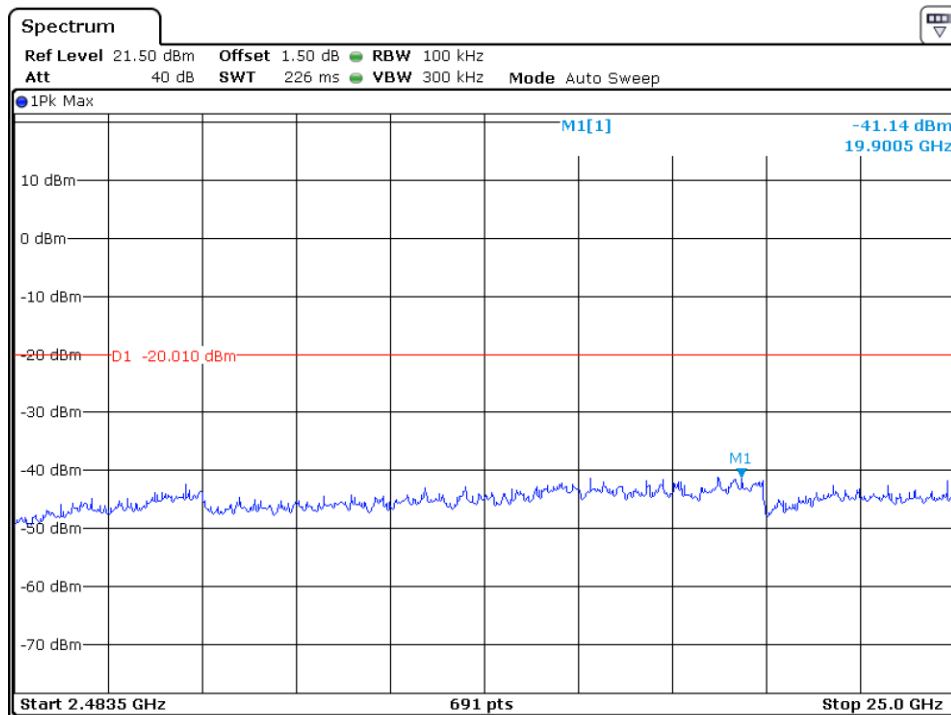
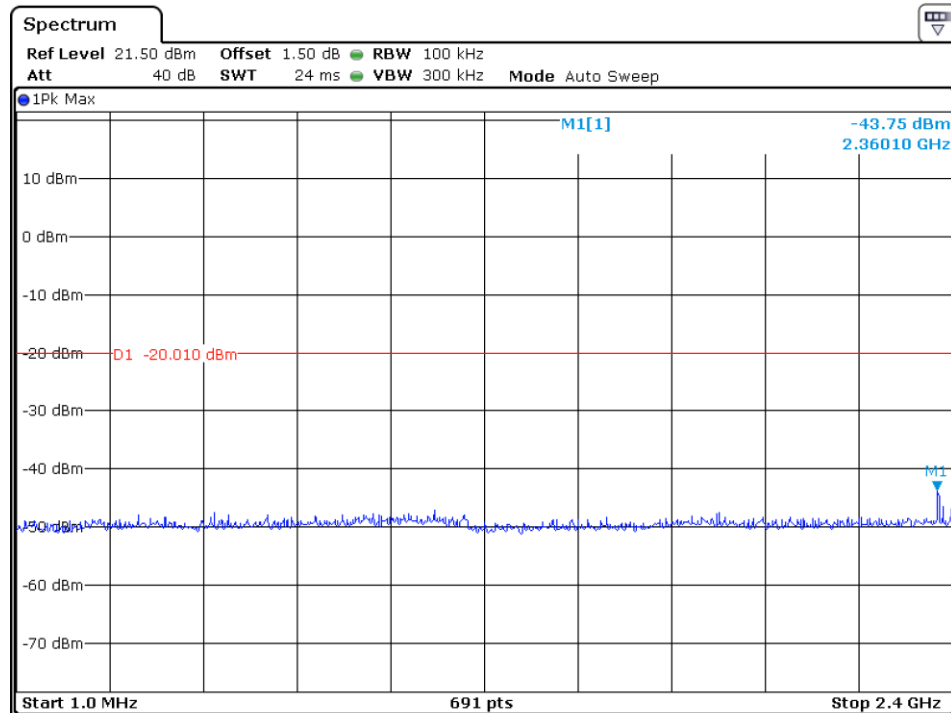


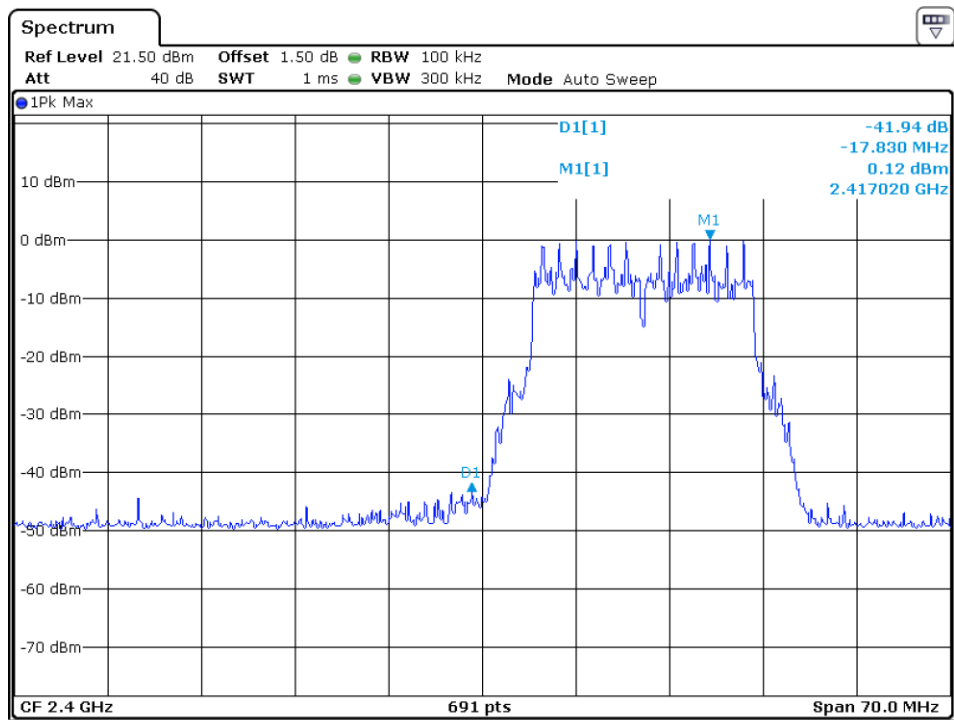


MIMO Mode, Ant2:

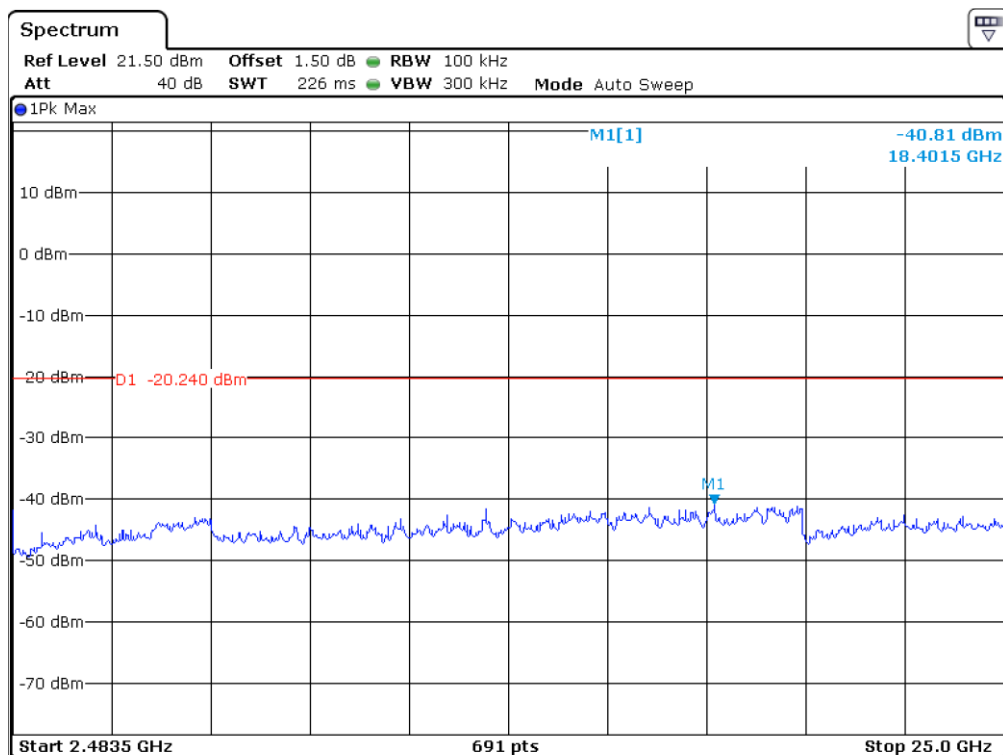
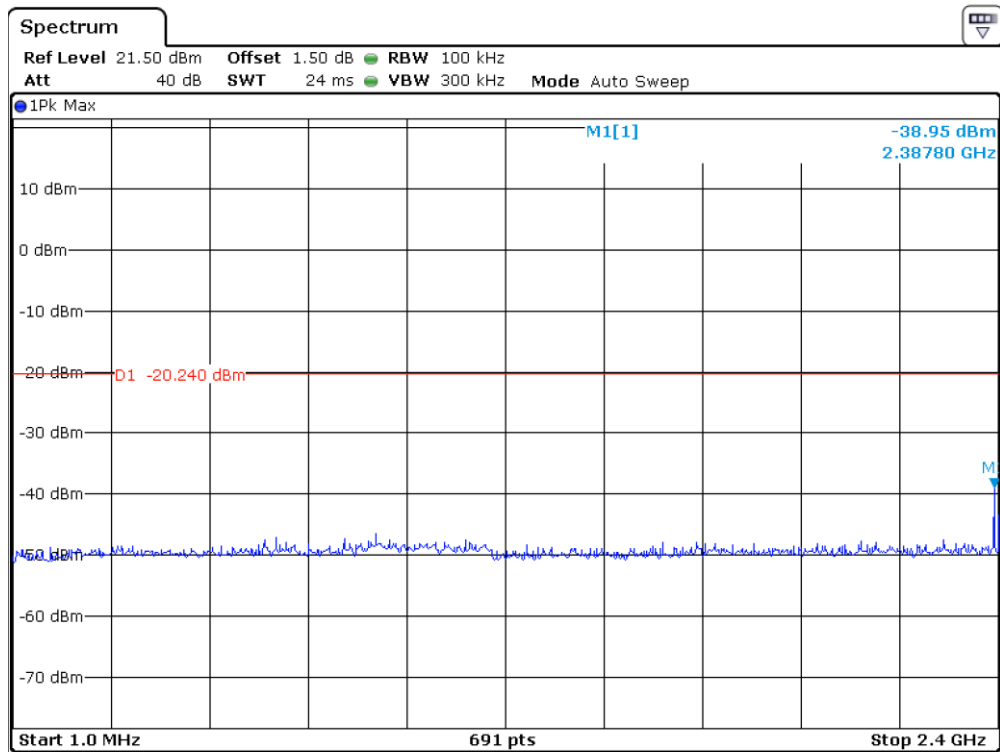
802.11n-HT20

Channel 01 (2412MHz) Reference Level: -0.01dBm

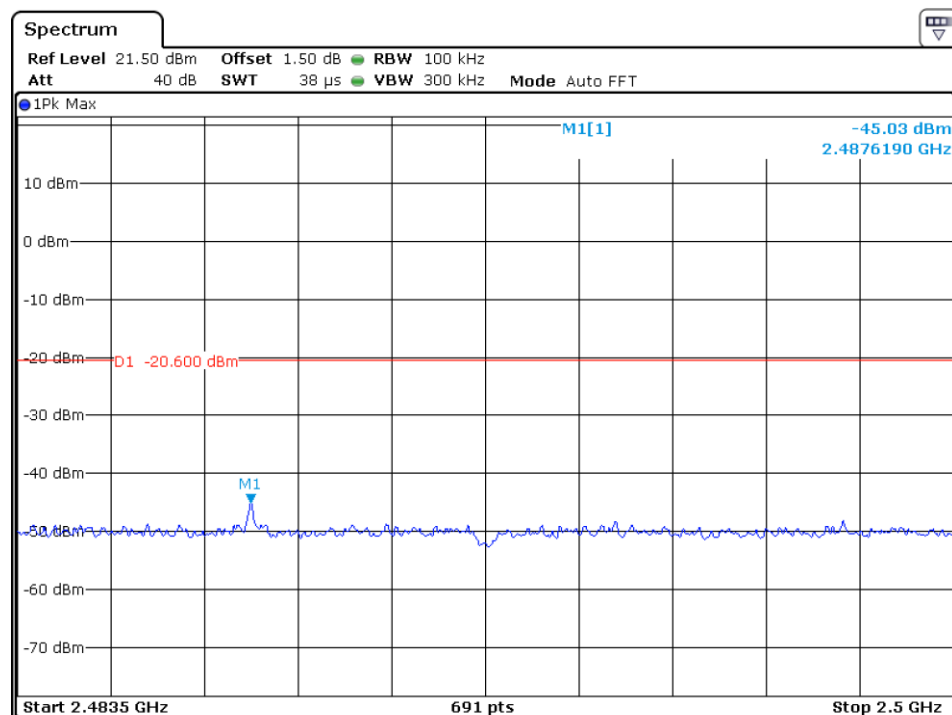
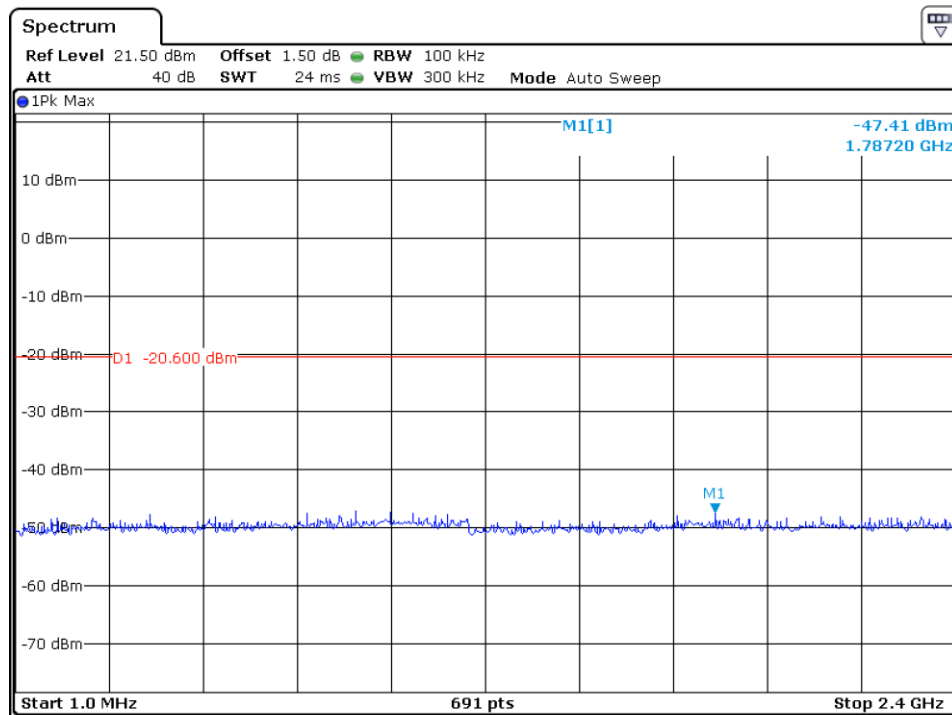


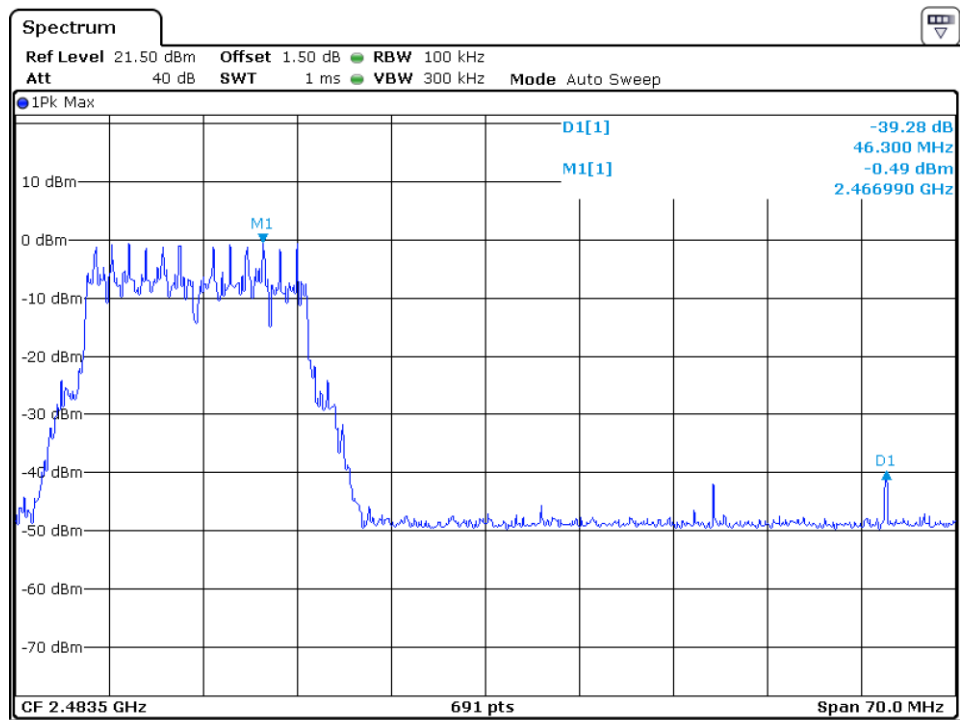


Channel 06 (2437MHz) Reference Level: -0.24dBm



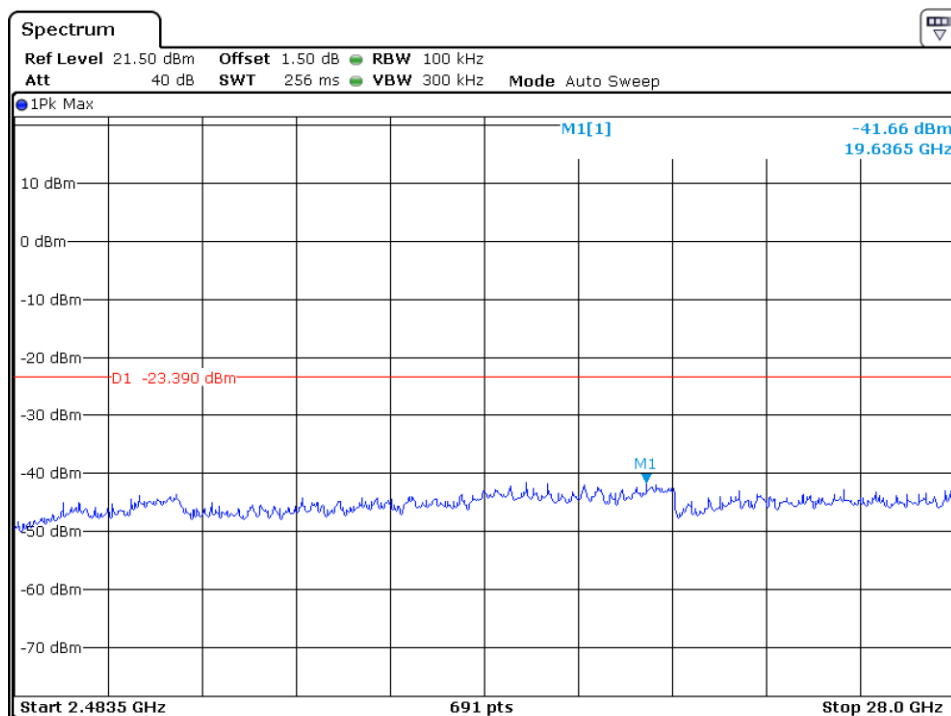
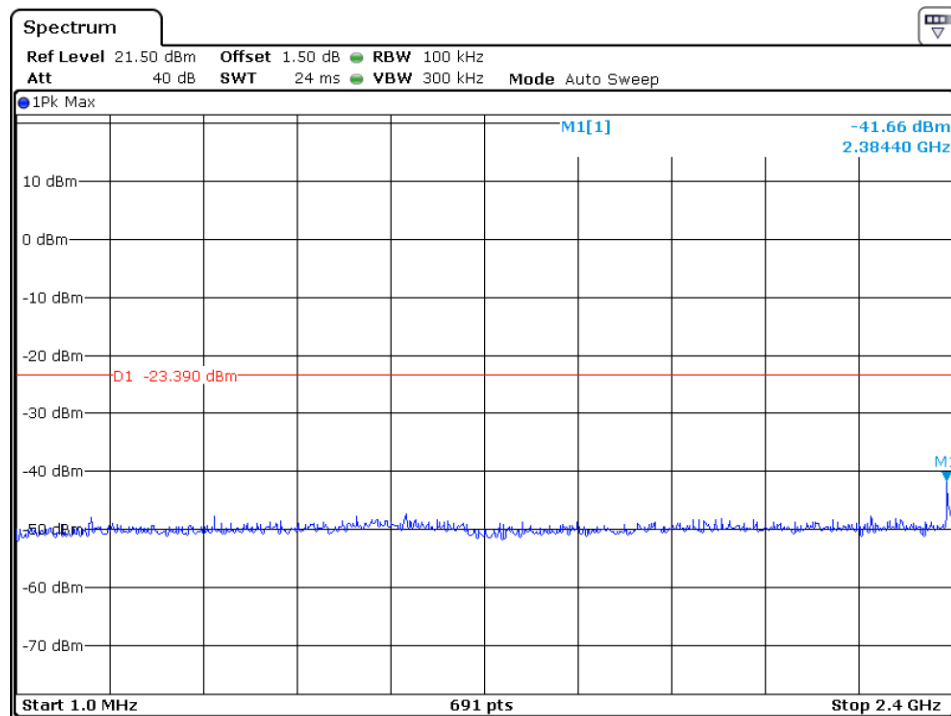
Channel 11 (2462MHz) Reference Level: -0.60dBm

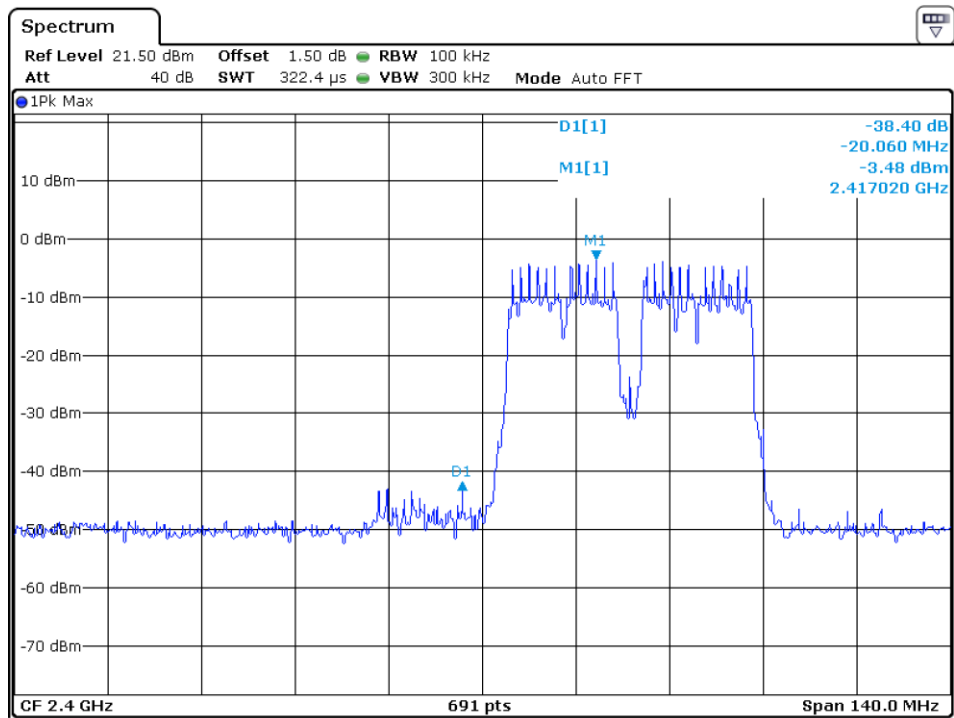




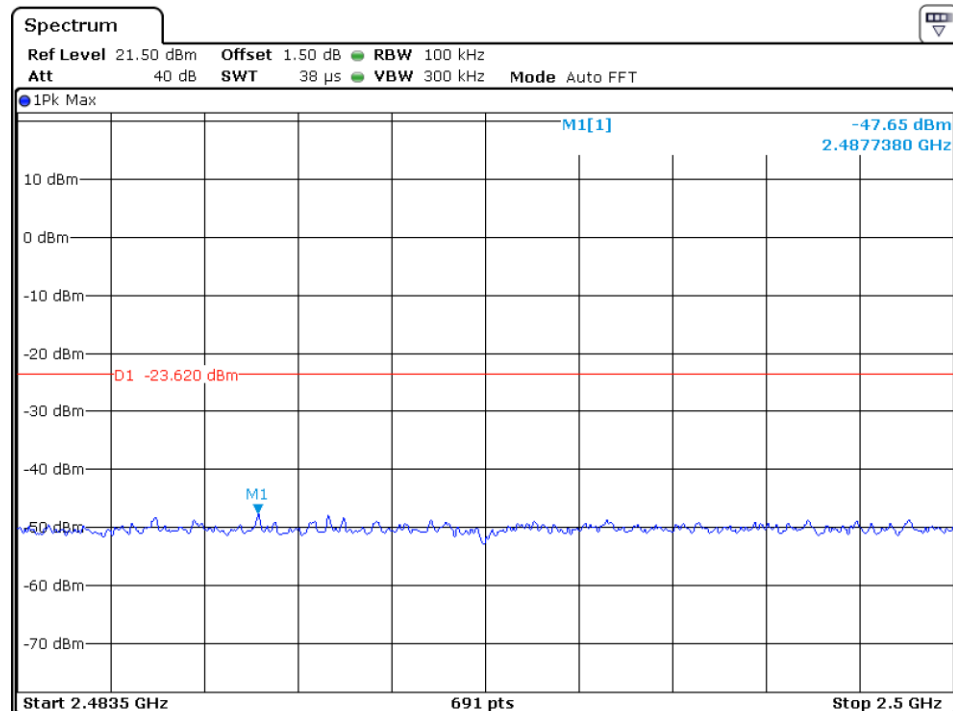
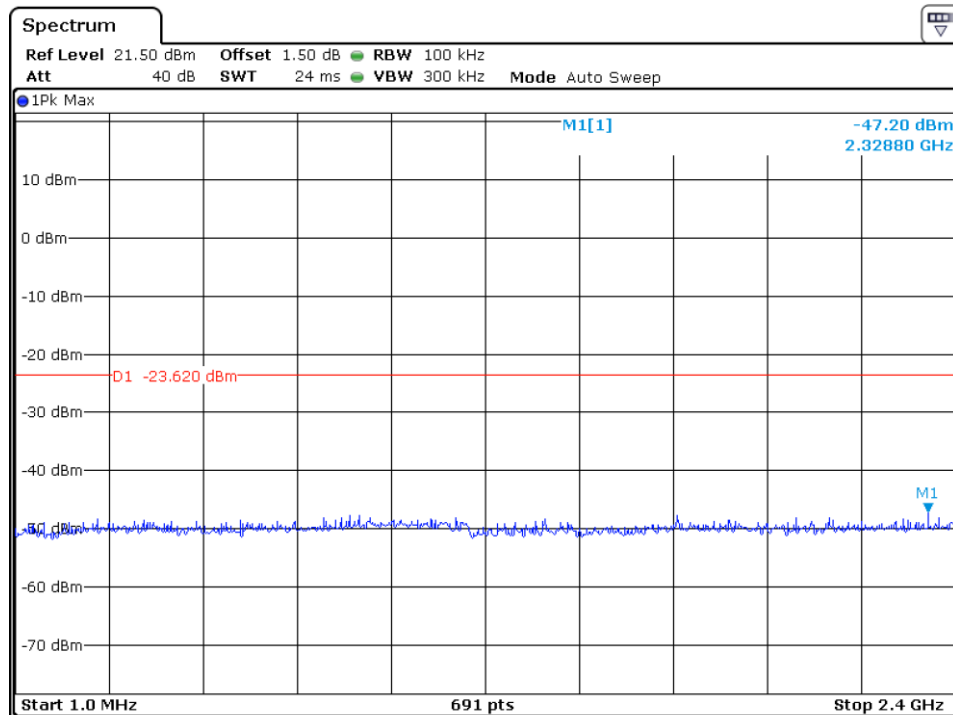
802.11n-HT40

Channel 01 (2422MHz) Reference Level: -3.39dBm

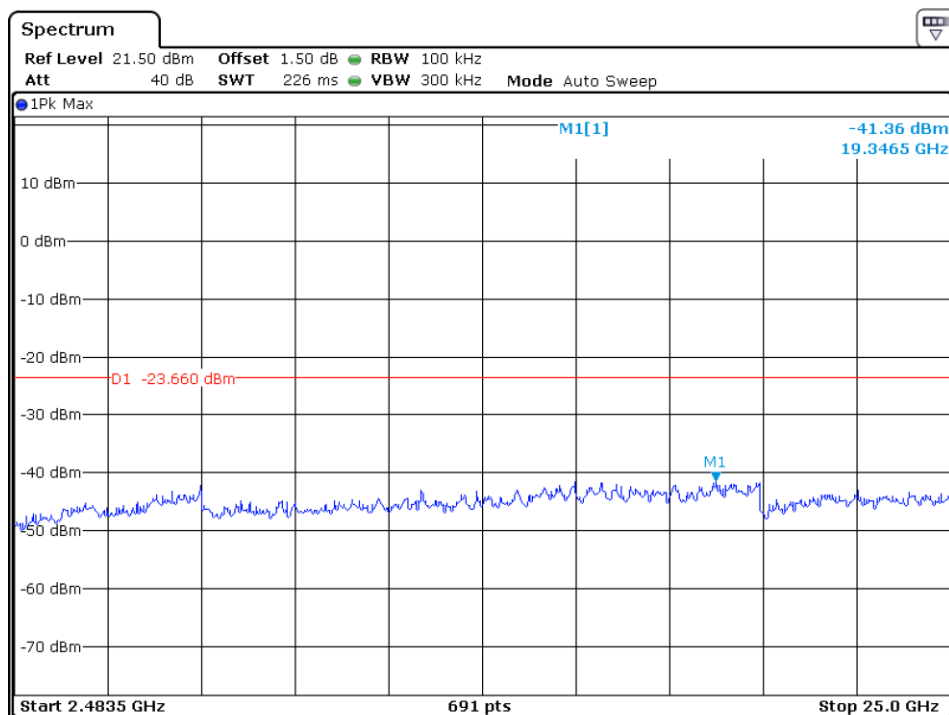
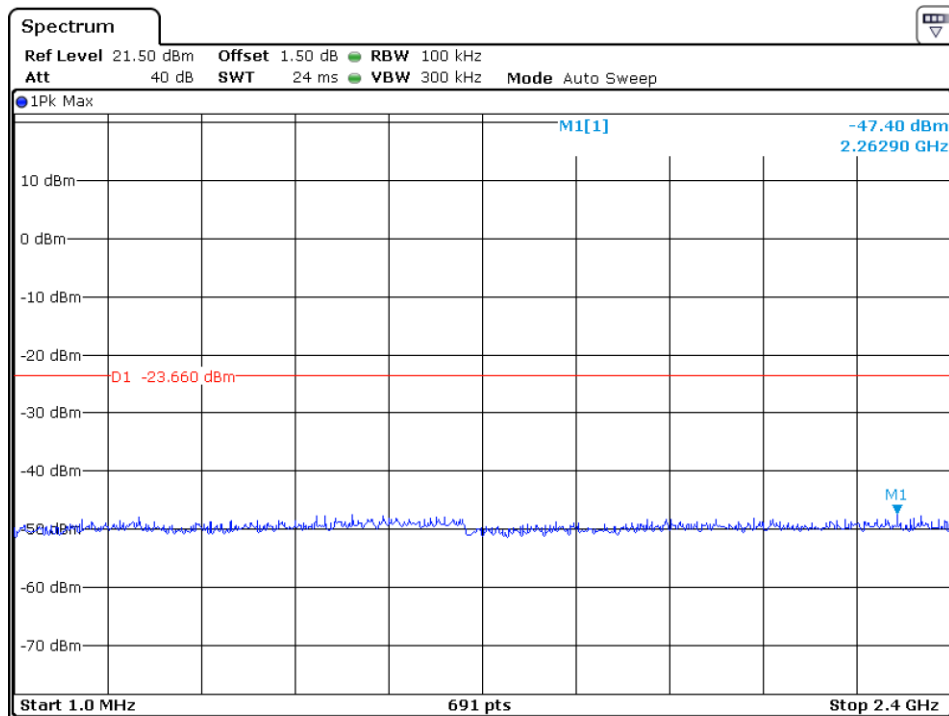


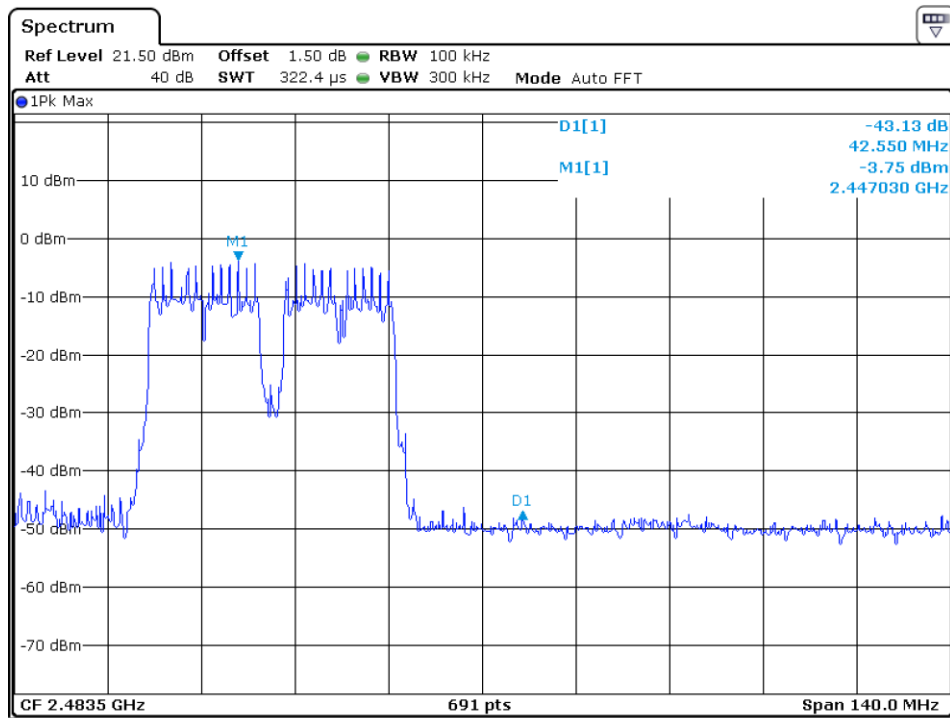


Channel 06 (2437MHz) Reference Level: -3.62dBm



Channel 11 (2452MHz) Reference Level: -3.66dBm





Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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

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Date of Test: November 30, 2019

Model: 100002634

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.

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

4.8 Radiated Spurious Emission

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit. Simultaneous transmission was considered during the test, but only worst-case is reported.

Worst Case Radiated Spurious Emission (SISO ANT1 802.11b-Channel 11)
at 7386.000MHz
is passed by 4.5dB margin.

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

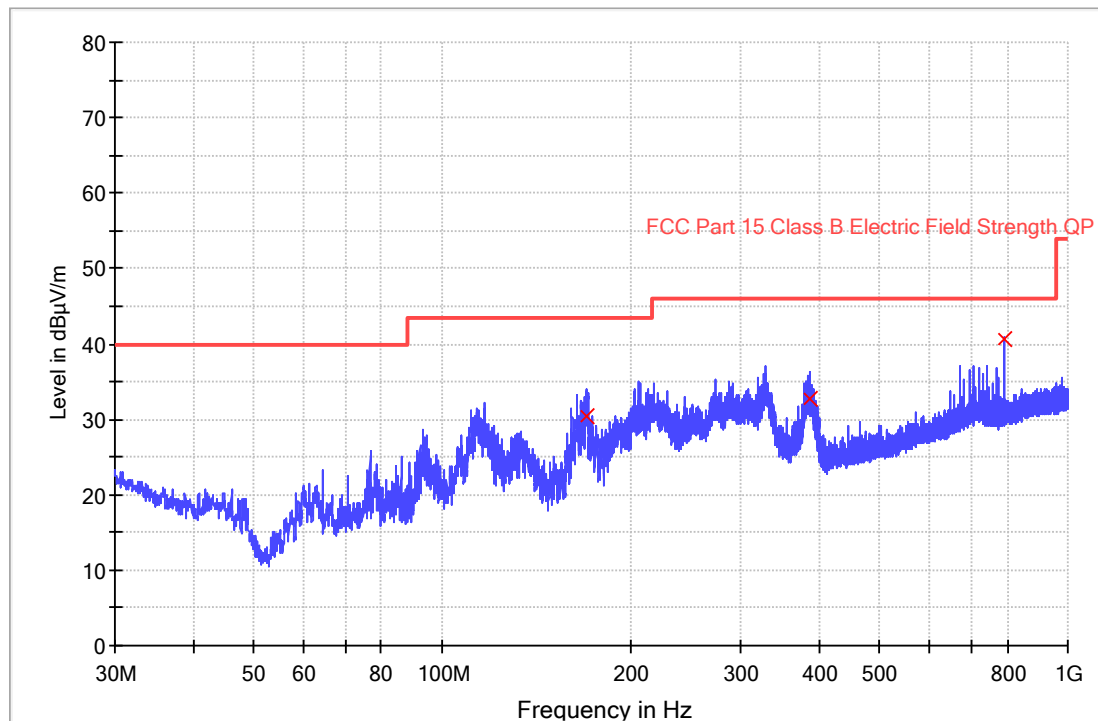
Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

Simultaneous transmission (2.4G SRD & Wi-Fi)

ANT Polarity: Horizontal



Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
169.906333	30.4	1000.0	120.000	H	12.1	13.1	43.5
387.348000	32.6	1000.0	120.000	H	19.0	13.4	46.0
791.999667	40.5	1000.0	120.000	H	26.3	5.5	46.0

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBμV/m) = Corr. (dB/m) + Read Level (dBμV)
3. Margin (dB) = Limit Line (dBμV/m) – Level (dBμV/m)

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

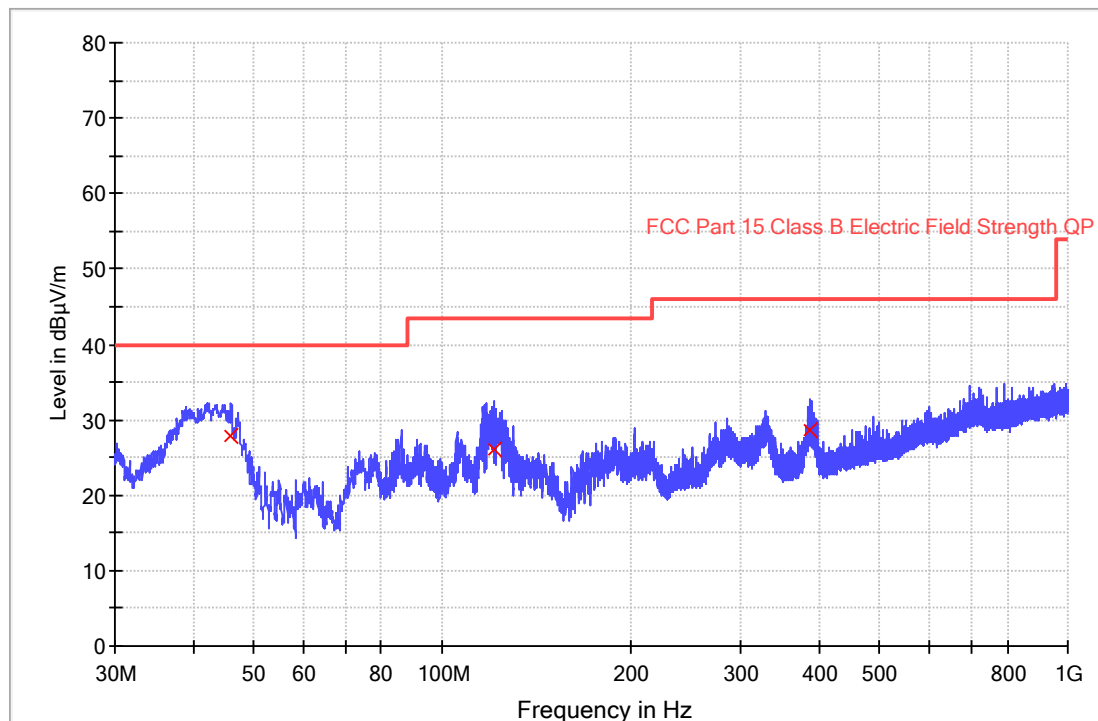
Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

Simultaneous transmission (2.4G SRD & Wi-Fi)

ANT Polarity: Vertical



Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
46.037333	27.9	1000.0	120.000	V	10.3	12.1	40.0
121.309333	26.0	1000.0	120.000	V	9.9	17.5	43.5
386.733667	28.6	1000.0	120.000	V	19.0	17.4	46.0

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBμV/m) = Corr. (dB/m) + Read Level (dBμV)
3. Margin (dB) = Limit Line(dBμV/m) – Level (dBμV/m)

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11b-Channel 01)

Radiated Emissions (above 1GHz)

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	58.9	36.8	33.5	55.6	74.0	-18.4
Horizontal	*2390.000	63.8	36.4	29.1	56.5	74.0	-17.5

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	51.2	36.8	33.5	47.9	54.0	-6.1
Horizontal	*2390.000	54.7	36.4	29.1	47.4	54.0	-6.6

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11b-Channel 06)

Radiated Emissions (above 1GHz)

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	59.6	36.7	33.4	56.3	74.0	-17.7
Horizontal	*7311.000	57.6	36.6	35.8	56.8	74.0	-17.2

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	51.6	36.7	33.4	48.3	54.0	-5.7
Horizontal	*7311.000	48.8	36.6	35.8	48.0	54.0	-6.0

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11b-Channel 11)

Radiated Emissions (above 1GHz)

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	60.4	36.8	33.3	56.9	74.0	-17.1
Horizontal	*7386.000	65.3	36.5	29.3	58.1	74.0	-15.9

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	51.4	36.8	33.3	47.9	54.0	-6.1
Horizontal	*7386.000	56.7	36.5	29.3	49.5	54.0	-4.5

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11g-Channel 01)

Radiated Emissions (above 1GHz)

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	52.8	36.8	33.5	49.5	74.0	-24.5
Horizontal	*2390.000	62.8	36.4	29.1	55.5	74.0	-18.5

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	42.8	36.8	33.5	39.5	54.0	-14.5
Horizontal	*2390.000	53.4	36.4	29.1	46.1	54.0	-7.9

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11g-Channel 06)

Radiated Emissions (above 1GHz)

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	53.5	36.7	33.4	50.2	74.0	-23.8
Horizontal	*7311.000	58.0	36.6	35.8	57.2	74.0	-16.8

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	43.2	36.7	33.4	39.9	54.0	-14.1
Horizontal	*7311.000	48.2	36.6	35.8	47.4	54.0	-6.6

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11g-Channel 11)

Radiated Emissions (above 1GHz)

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	52.1	36.8	33.3	48.6	74.0	-25.4
Horizontal	*7386.000	64.7	36.5	29.3	57.5	74.0	-16.5

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	44.0	36.8	33.3	40.5	54.0	-13.5
Horizontal	*7386.000	55.2	36.5	29.3	48.0	54.0	-6.0

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n20-Channel 01)

Radiated Emissions (above 1GHz)

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	52.7	36.8	33.5	49.4	74.0	-24.6
Horizontal	*2390.000	64.3	36.4	29.1	57.0	74.0	-17.0

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	43.2	36.8	33.5	39.9	54.0	-14.1
Horizontal	*2390.000	53.9	36.4	29.1	46.6	54.0	-7.4

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n20-Channel 06)

Radiated Emissions (above 1GHz)

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	52.9	36.7	33.4	49.6	74.0	-24.4
Horizontal	*7311.000	57.3	36.6	35.8	56.5	74.0	-17.5

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	43.6	36.7	33.4	40.3	54.0	-13.7
Horizontal	*7311.000	47.8	36.6	35.8	47.0	54.0	-7.0

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n20-Channel 11)

Radiated Emissions (above 1GHz)

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	52.8	36.8	33.3	49.3	74.0	-24.7
Horizontal	*7386.000	64.8	36.5	29.3	57.6	74.0	-16.4

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	43.7	36.8	33.3	40.2	54.0	-13.8
Horizontal	*7386.000	56.1	36.5	29.3	48.9	54.0	-5.1

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n40-Channel 03)

Radiated Emissions (above 1GHz)

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	*4844.000	51.8	36.8	33.5	48.5	74.0	-25.5
Horizontal	*2390.000	63.7	36.4	29.1	56.4	74.0	-17.6

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	*4844.000	43.2	36.8	33.5	39.9	54.0	-14.1
Horizontal	*2390.000	54.3	36.4	29.1	47.0	54.0	-7.0

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n40-Channel 06)

Radiated Emissions (above 1GHz)

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	53.1	36.7	33.4	49.8	74.0	-24.2
Horizontal	*7311.000	56.5	36.6	35.8	55.7	74.0	-18.3

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	44.5	36.7	33.4	41.2	54.0	-12.8
Horizontal	*7311.000	47.3	36.6	35.8	46.5	54.0	-7.5

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT1-Transmitting (802.11n40-Channel 09)

Radiated Emissions (above 1GHz)

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	*4904.000	53.0	36.8	33.3	49.5	74.0	-24.5
Horizontal	*7356.000	65.0	36.5	29.3	57.8	74.0	-16.2

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	*4904.000	43.2	36.8	33.3	39.7	54.0	-14.3
Horizontal	*7356.000	55.0	36.5	29.3	47.8	54.0	-6.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11b-Channel 01)

Radiated Emissions (above 1GHz)

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	57.6	36.8	33.5	54.3	74.0	-19.7
Horizontal	*2390.000	62.5	36.4	29.1	55.2	74.0	-18.8

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	50.2	36.8	33.5	46.9	54.0	-7.1
Horizontal	*2390.000	54.4	36.4	29.1	47.1	54.0	-6.9

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11b-Channel 06)

Radiated Emissions (above 1GHz)

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	58.9	36.7	33.4	55.6	74.0	-18.4
Horizontal	*7311.000	56.0	36.6	35.8	55.2	74.0	-18.8

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	51.3	36.7	33.4	48.0	54.0	-6.0
Horizontal	*7311.000	48.4	36.6	35.8	47.6	54.0	-6.4

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11b-Channel 11)

Radiated Emissions (above 1GHz)

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	59.7	36.8	33.3	56.2	74.0	-17.8
Horizontal	*7386.000	64.8	36.5	29.3	57.6	74.0	-16.4

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	51.6	36.8	33.3	48.1	54.0	-5.9
Horizontal	*7386.000	56.0	36.5	29.3	48.8	54.0	-5.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11g-Channel 01)

Radiated Emissions (above 1GHz)

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	52.4	36.8	33.5	49.1	74.0	-24.9
Horizontal	*2390.000	61.4	36.4	29.1	54.1	74.0	-19.9

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	43.7	36.8	33.5	40.4	54.0	-13.6
Horizontal	*2390.000	53.1	36.4	29.1	45.8	54.0	-8.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11g-Channel 06)

Radiated Emissions (above 1GHz)

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	54.7	36.7	33.4	51.4	74.0	-22.6
Horizontal	*7311.000	57.6	36.6	35.8	56.8	74.0	-17.2

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	43.8	36.7	33.4	40.5	54.0	-13.5
Horizontal	*7311.000	47.7	36.6	35.8	46.9	54.0	-7.1

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11g-Channel 11)

Radiated Emissions (above 1GHz)

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	52.8	36.8	33.3	49.3	74.0	-24.7
Horizontal	*7386.000	63.9	36.5	29.3	56.7	74.0	-17.3

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	44.7	36.8	33.3	41.2	54.0	-12.8
Horizontal	*7386.000	54.7	36.5	29.3	47.5	54.0	-6.5

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n20-Channel 01)

Radiated Emissions (above 1GHz)

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	51.8	36.8	33.5	48.5	74.0	-25.5
Horizontal	*2390.000	63.7	36.4	29.1	56.4	74.0	-17.6

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	43.5	36.8	33.5	40.2	54.0	-13.8
Horizontal	*2390.000	53.1	36.4	29.1	45.8	54.0	-8.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n20-Channel 06)

Radiated Emissions (above 1GHz)

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	52.0	36.7	33.4	48.7	74.0	-25.3
Horizontal	*7311.000	56.6	36.6	35.8	55.8	74.0	-18.2

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	44.4	36.7	33.4	41.1	54.0	-12.9
Horizontal	*7311.000	47.6	36.6	35.8	46.8	54.0	-7.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n20-Channel 11)

Radiated Emissions (above 1GHz)

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	52.0	36.8	33.3	48.5	74.0	-25.5
Horizontal	*7386.000	63.5	36.5	29.3	56.3	74.0	-17.7

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	44.2	36.8	33.3	40.7	54.0	-13.3
Horizontal	*7386.000	54.7	36.5	29.3	47.5	54.0	-6.5

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n40-Channel 03)

Radiated Emissions (above 1GHz)

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	*4844.000	52.1	36.8	33.5	48.8	74.0	-25.2
Horizontal	*2390.000	63.1	36.4	29.1	55.8	74.0	-18.2

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	*4844.000	43.8	36.8	33.5	40.5	54.0	-13.5
Horizontal	*2390.000	54.0	36.4	29.1	46.7	54.0	-7.3

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n40-Channel 06)

Radiated Emissions (above 1GHz)

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	52.4	36.7	33.4	49.1	74.0	-24.9
Horizontal	*7311.000	56.7	36.6	35.8	55.9	74.0	-18.1

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	43.9	36.7	33.4	40.6	54.0	-13.4
Horizontal	*7311.000	48.6	36.6	35.8	47.8	54.0	-6.2

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

SISO-ANT2-Transmitting (802.11n40-Channel 09)

Radiated Emissions (above 1GHz)

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	*4904.000	52.3	36.8	33.3	48.8	74.0	-25.2
Horizontal	*7356.000	63.7	36.5	29.3	56.5	74.0	-17.5

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	*4904.000	44.4	36.8	33.3	40.9	54.0	-13.1
Horizontal	*7356.000	54.1	36.5	29.3	46.9	54.0	-7.1

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n20-Channel 01)

Radiated Emissions (above 1GHz)

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	50.4	36.8	33.5	47.1	74.0	-26.9
Horizontal	*2390.000	62.5	36.4	29.1	55.2	74.0	-18.8

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	44.4	36.8	33.5	41.1	54.0	-12.9
Horizontal	*2390.000	52.2	36.4	29.1	44.9	54.0	-9.1

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n20-Channel 06)

Radiated Emissions (above 1GHz)

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	51.5	36.7	33.4	48.2	74.0	-25.8
Horizontal	*7311.000	56.1	36.6	35.8	55.3	74.0	-18.7

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	44.0	36.7	33.4	40.7	54.0	-13.3
Horizontal	*7311.000	47.1	36.6	35.8	46.3	54.0	-7.7

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n20-Channel 11)

Radiated Emissions (above 1GHz)

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	51.3	36.8	33.3	47.8	74.0	-26.2
Horizontal	*7386.000	63.1	36.5	29.3	55.9	74.0	-18.1

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	43.8	36.8	33.3	40.3	54.0	-13.7
Horizontal	*7386.000	54.3	36.5	29.3	47.1	54.0	-6.9

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n40-Channel 03)

Radiated Emissions (above 1GHz)

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	*4844.000	50.9	36.8	33.5	47.6	74.0	-26.4
Horizontal	*2390.000	62.5	36.4	29.1	55.2	74.0	-18.8

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	*4844.000	44.4	36.8	33.5	41.1	54.0	-12.9
Horizontal	*2390.000	53.5	36.4	29.1	46.2	54.0	-7.8

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n40-Channel 06)

Radiated Emissions (above 1GHz)

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	51.5	36.7	33.4	48.2	74.0	-25.8
Horizontal	*7311.000	55.1	36.6	35.8	54.3	74.0	-19.7

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	44.8	36.7	33.4	41.5	54.0	-12.5
Horizontal	*7311.000	46.7	36.6	35.8	45.9	54.0	-8.1

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

Worst Case Operating Mode:

MIMO-Transmitting (802.11n40-Channel 09)

Radiated Emissions (above 1GHz)

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	*4904.000	51.9	36.8	33.3	48.4	74.0	-25.6
Horizontal	*7356.000	63.0	36.5	29.3	55.8	74.0	-18.2

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	*4904.000	44.8	36.8	33.3	41.3	54.0	-12.7
Horizontal	*7356.000	53.7	36.5	29.3	46.5	54.0	-7.5

- 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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

4.9 Conducted Emission

Worst Case Conducted Emission
at 0.454MHz
is passed by 14.0dB margin.

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

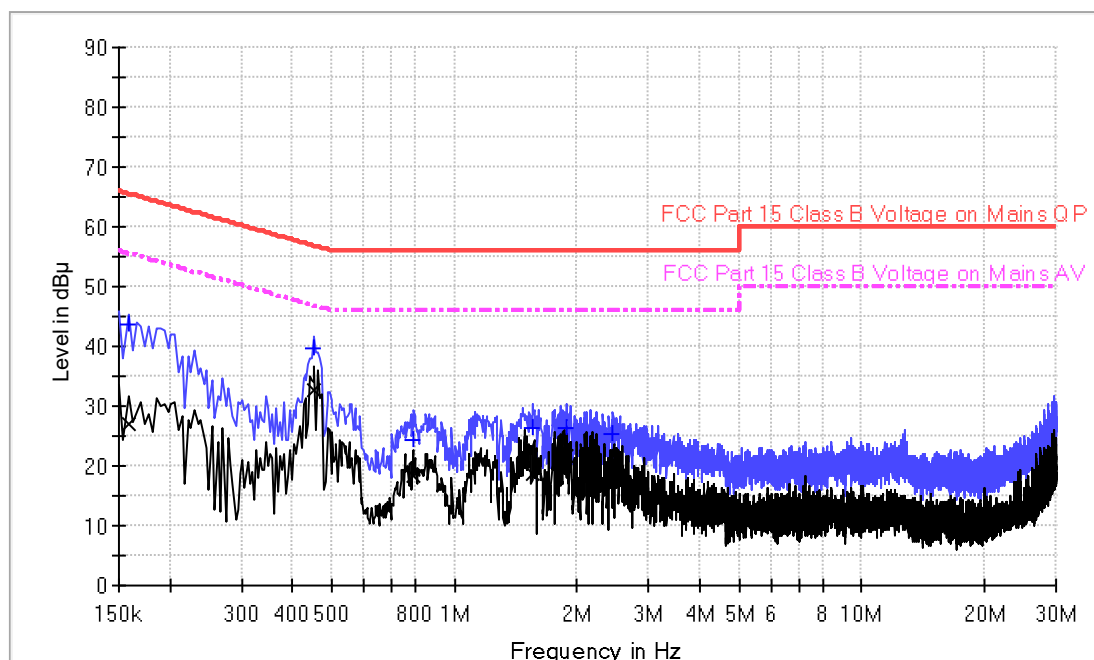
Model: 100002634

Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)

Phase: Live

Graphic / Data Table

Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	43.6	9.000	L1	9.7	22.0	65.6
0.454000	39.6	9.000	L1	9.7	17.2	56.8
0.790000	24.3	9.000	L1	9.7	31.7	56.0
1.558000	26.3	9.000	L1	9.7	29.7	56.0
1.886000	26.5	9.000	L1	9.7	29.5	56.0
2.454000	25.3	9.000	L1	9.7	30.7	56.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	27.0	9.000	L1	9.7	28.6	55.6
0.454000	32.8	9.000	L1	9.7	14.0	46.8
0.790000	18.3	9.000	L1	9.7	27.7	46.0
1.558000	18.6	9.000	L1	9.7	27.4	46.0
1.886000	21.7	9.000	L1	9.7	24.3	46.0
2.454000	18.1	9.000	L1	9.7	27.9	46.0

Remark:

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

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

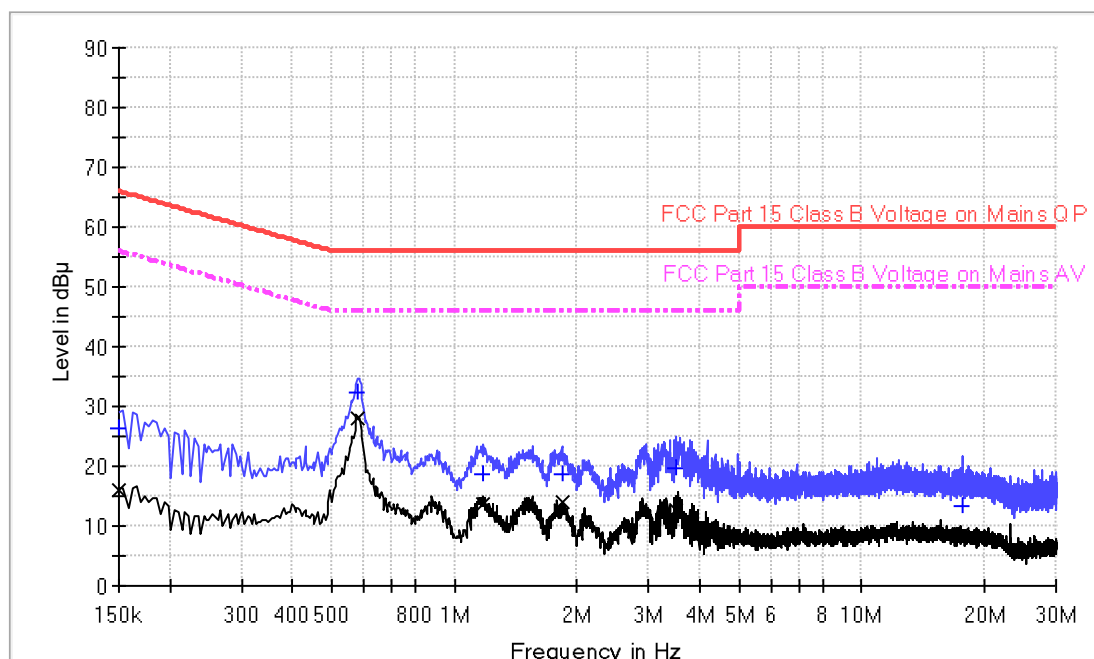
Model: 100002634

Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)

Phase: Neutral

Graphic / Data Table

Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	26.2	9.000	N	9.6	39.8	66.0
0.578000	32.4	9.000	N	9.7	23.6	56.0
1.178000	18.6	9.000	N	9.7	37.4	56.0
1.834000	18.6	9.000	N	9.7	37.4	56.0
3.482000	19.5	9.000	N	9.7	36.5	56.0
17.614000	13.2	9.000	N	10.1	46.8	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	16.0	9.000	N	9.6	40.0	56.0
0.578000	28.0	9.000	N	9.7	18.0	46.0
1.178000	13.8	9.000	N	9.7	32.2	46.0
1.834000	13.8	9.000	N	9.7	32.2	46.0
3.482000	12.6	9.000	N	9.7	33.4	46.0
17.614000	8.5	9.000	N	10.1	41.5	50.0

Remark:

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

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD

Date of Test: November 30, 2019

Model: 100002634

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.

5.0 Equipment Photographs

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

6.0 Product Labeling

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

7.0 Technical Specifications

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

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.

9.0 Confidentiality Request

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

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.

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	28-May-2019	28-May-2020
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	28-May-2019	28-May-2020
SZ061-04	Biconilog Antenna	ETS	3142C	00078828	14-Sep-2018	14-Sep-2020
SZ185-01	EMI Receiver	R & S	ESCI	100547	4-Jan-2019	4-Jan-2020
SZ061-08	Horn Antenna	ETS	3115	00092346	7-Sep-2019	7-Sep-2021
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	13-Aug-2019	13-Aug-2021
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	24-May-2019	24-May-2020
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	28-May-2019	28-May-2020
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	28-May-2019	28-May-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	--	19-Jun-2019	19-Dec-2019
SZ062-05	RF Cable	RADIAL	0.04-26.5GHz	--	14-Aug-2019	14-Aug-2020
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	14-Aug-2019	14-Aug-2020
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	28-May-2019	28-May-2020
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	29-Oct-2019	29-Oct-2020
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	29-Oct-2019	29-Oct-2020
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	28-May-2019	28-May-2020
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	30-Oct-2019	30-Oct-2020

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