

FCC/IC - TEST REPORT

Report Number : **64.790.16.04629.01** Date of Issue: October 31, 2016

Model : CS532AE(LT), CS532AH(LT)

Product Type : WIFI MODULE

Applicant : Gree Electric Appliance, Inc.of Zhuhai

Address : JinJi West Rd, QianShan, Zhuhai, GuangDong, 519070, P.R.China

Manufacturer : Gree Electric Appliance, Inc.of Zhuhai

Address : JinJi West Rd, QianShan, Zhuhai, GuangDong, 519070, P.R.China

Test Result : ☒ **Positive** ☐ **Negative**



Total pages including
Appendices : 43

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2, Nanshan District,
Shenzhen City, 518052,
P. R. China

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

FCC registration number: 502708

IC registration number: 10320A

3 Description of the Equipment Under Test

Product:	WIFI MODULE
Model no.:	CS532AE(LT), CS532AH(LT)
Remark:	Two models are identical in circuit design, PCB layout and components used but only different in the length of external connection cable. Test were only performed to CS532AE(LT).
FCC ID:	2ADAP-CS532AELT
IC	12478A-CS532AELT
Options and accessories:	Nil
Rating:	DC5V
RF Transmission Frequency:	2412MHz-2462MHz
No. of Operated Channel:	802.11b/g/n20: 11 channel
Modulation:	802.11b: CCK DSSS 802.11g: OFDM 802.11n20: OFDM
Antenna Type:	Internal Printed ANT
Antenna Gain:	2dBi
Description of the EUT:	The EUT is a WIFI module designed for air conditioner..

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2015 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-247 Issue 1 2015	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices

All the test methods were according to KDB558074 D01 DTS Meas Guidance issued by April 8, 2016 and ANSI C63.10 (2013).

5 Summary of Test Results

Technical Requirements				
FCC Part 15 Subpart C				
Test Condition			Pages	Test Result
§15.207	RSS-GEN 8.8	Conducted emission AC power port	10	Pass
§15.247(b)(1)	RSS-247 Clause 5.4(2)	Conducted peak output power	13	Pass
§15.247(e)	RSS-247 Clause 5.2(2)	Power spectral density*	18	Pass
§15.247(a)(2)	RSS-247 Clause 5.2(1)	6dB bandwidth	19	Pass
§15.247(a)(1)	RSS-247 Clause 5.1(1)	20dB bandwidth and 99% Occupied Bandwidth	--	N/A
§15.247(a)(1)	RSS-247 Clause 5.1(2)	Carrier frequency separation	--	N/A
§15.247(a)(1)(iii)	RSS-247 Clause 5.1(4)	Number of hopping frequencies	--	N/A
§15.247(a)(1)(iii)	RSS-247 Clause 5.1(4)	Dwell Time	--	N/A
§15.247(d)	RSS-247 Clause 5.5	Spurious RF conducted emissions	24	Pass
§15.247(d)	RSS-247 Clause 5.5	Band edge	34	Pass
§15.247(d) & §15.209 &	RSS-247 Clause 5.5 & RSS-GEN 6.13	Spurious radiated emissions for transmitter	38	Pass
§15.203	RSS-GEN 8.3	Antenna requirement	See note 1	Pass

Note 1: N/A=Not Applicable.

Note 2: The EUT uses Internal Printed ANT antenna, which gain is 2dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID:2ADAP-CS532AELT, IC: 12478A-CS532AELT complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C, RSS- 247 and RSS-Gen rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: October 11, 2016

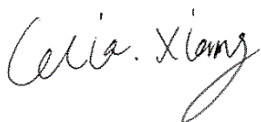
Testing Start Date: October 11, 2016

Testing End Date: October 20, 2016

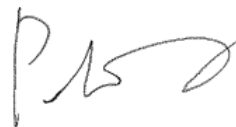
TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch

Reviewed by:

Prepared by:



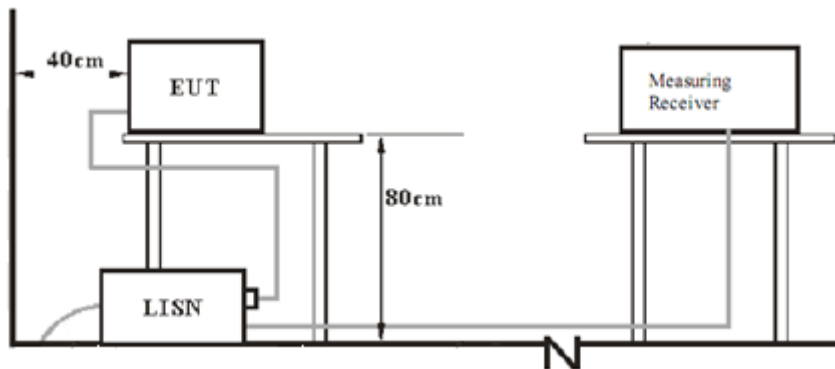
Celia Xiang



Peter Jia

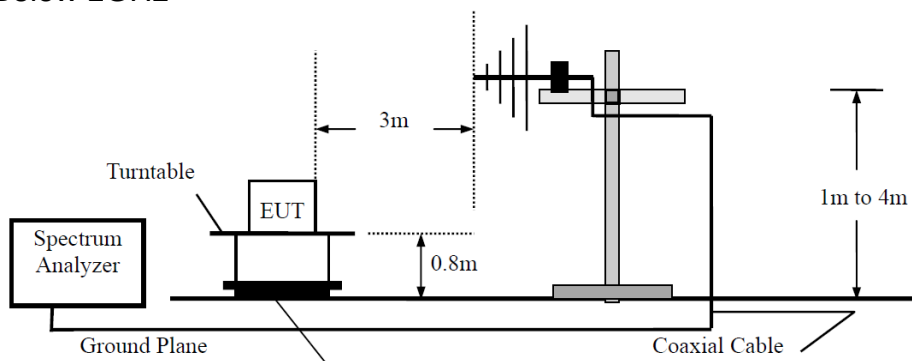
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

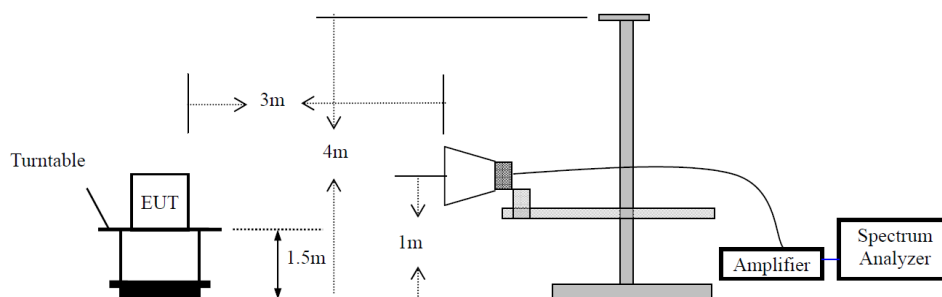


7.2 Radiated test setups

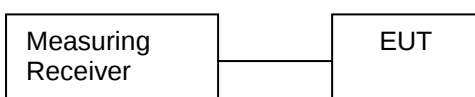
Below 1GHz



Above 1GHz



7.3 Conducted RF test setups



8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)
Mainboard of air-conditioner	GREE	/
Software	/	ART2_Kingfisher.1.1.2_beta

9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

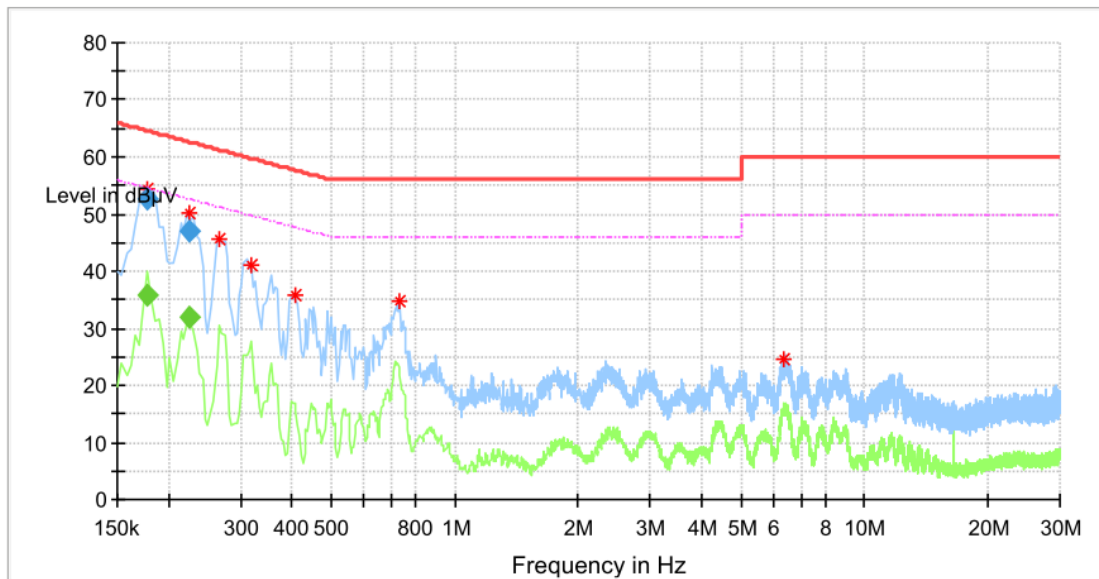
Limit

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

Conducted Emission

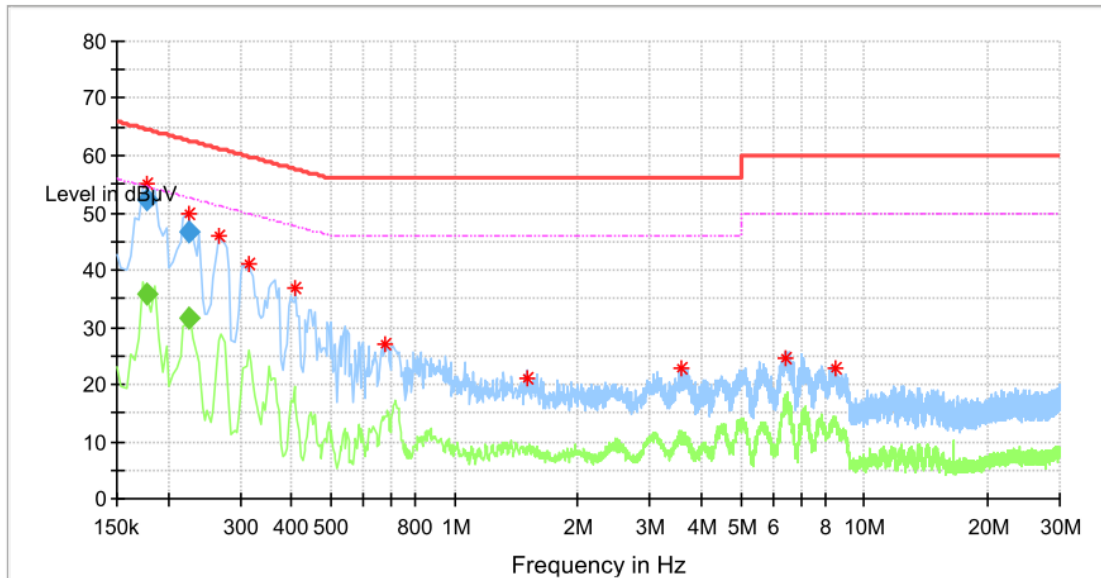
Product Type : WIFI MODULE
 M/N : CS532AE(LT)
 Operating Condition : WiFi function on.
 Test Specification : Live
 Comment : AC 120V/60Hz
 Test date : 2016-10-20



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.177500	---	35.73	54.60	18.87	L1	9.7
0.177500	52.58	---	64.60	12.02	L1	9.7
0.225500	---	31.94	52.61	20.67	L1	9.7
0.225500	47.14	---	62.61	15.47	L1	9.7

Conducted Emission

Product Type : WIFI MODULE
 M/N : CS532AE(LT)
 Operating Condition : WiFi function on.
 Test Specification : Neutral
 Comment : AC 120V/60Hz
 Test date : 2016-10-20



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.177500	---	35.96	54.60	18.64	N	9.6
0.177500	52.15	---	64.60	12.45	N	9.6
0.225500	---	31.43	52.61	21.18	N	9.6
0.225500	46.73	---	62.61	15.88	N	9.6

9.2 Conducted peak output power

Test Method

1. Use the following spectrum analyzer settings:
Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
RBW > the 20 dB bandwidth of the emission being measured, VBW ≥ RBW,
Sweep = auto, Detector function = peak, Trace = max hold
2. Add a correction factor to the display.
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power

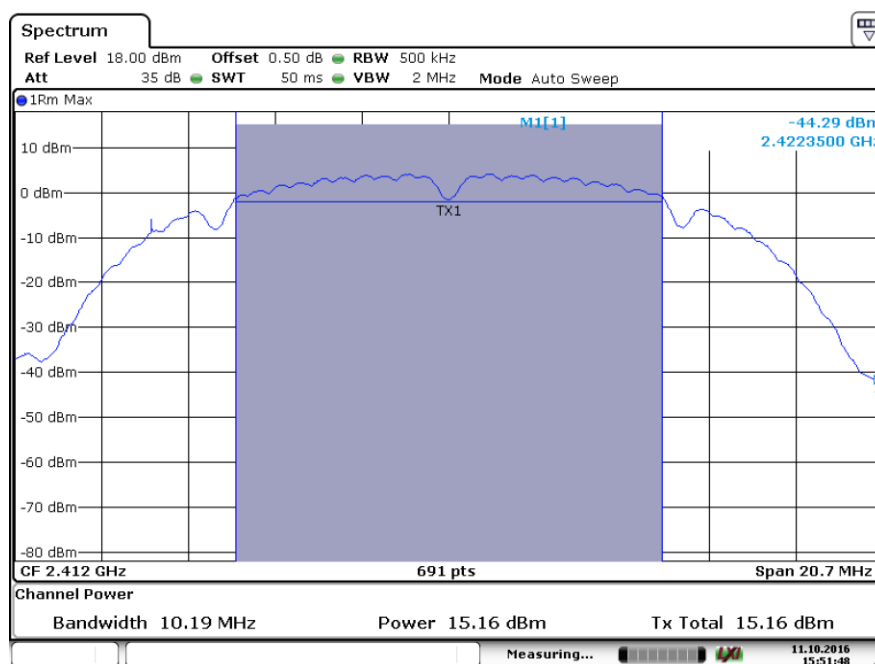
Limits

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

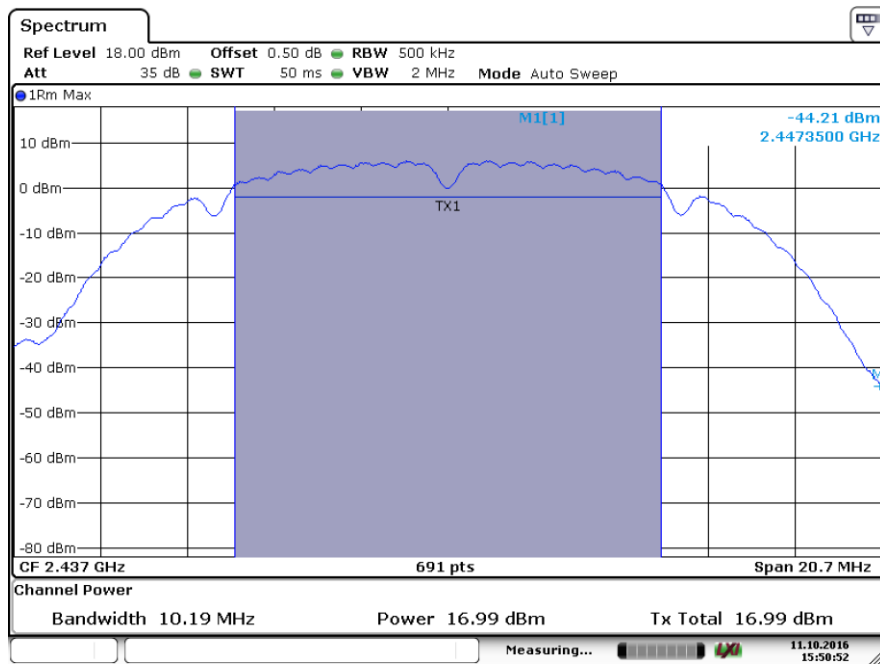
Conducted peak output power

802.11b modulation Test Result

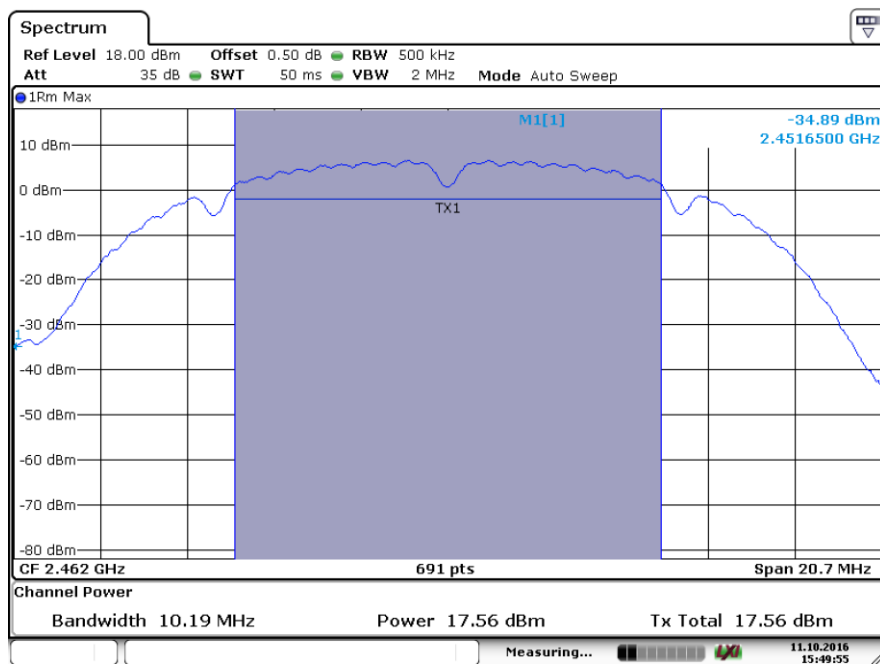
Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2412MHz	15.16	Pass
Middle channel 2437MHz	16.99	Pass
High channel 2462MHz	17.56	Pass



Date: 11.OCT.2016 15:51:48



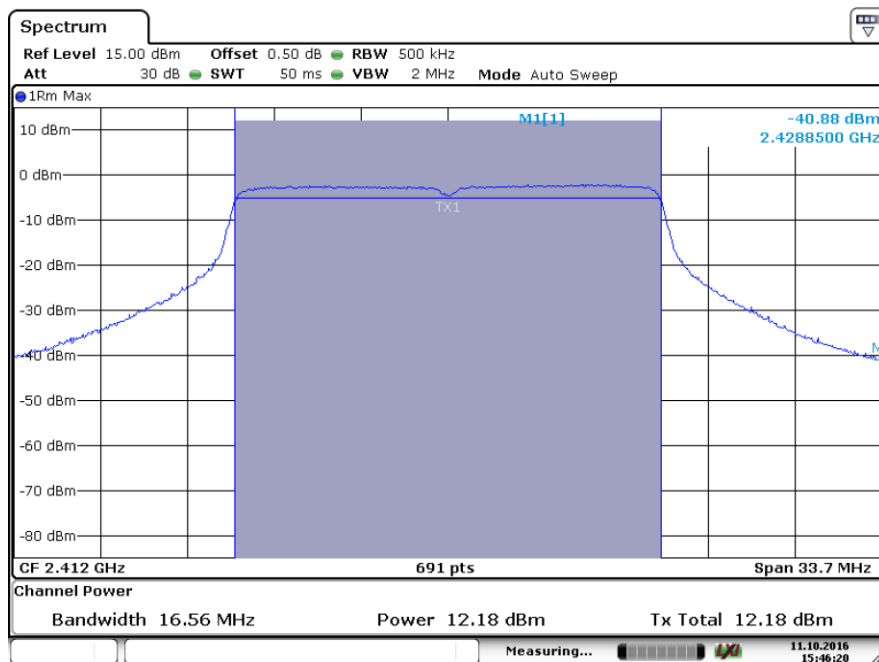
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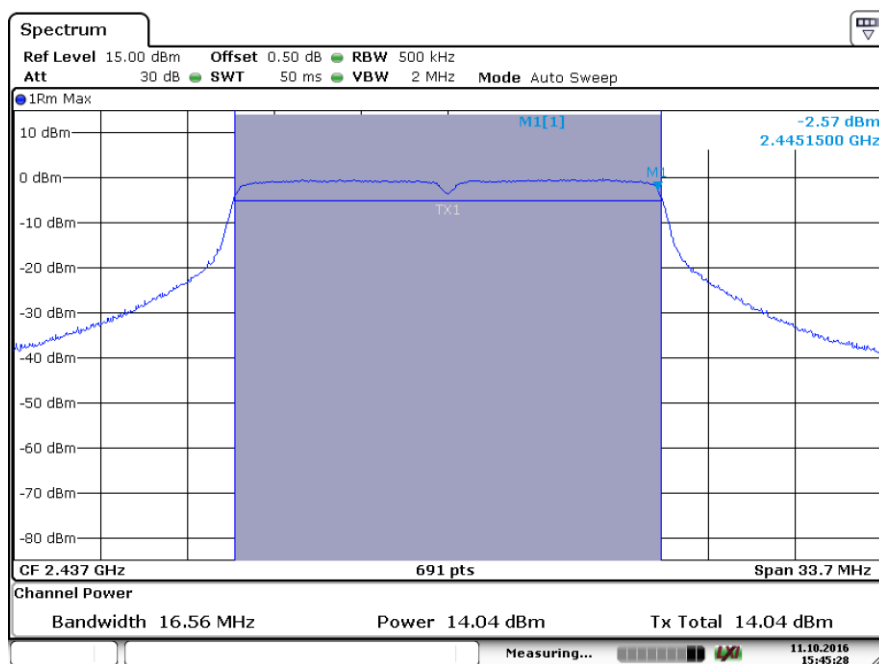
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802.11g modulation Test Result

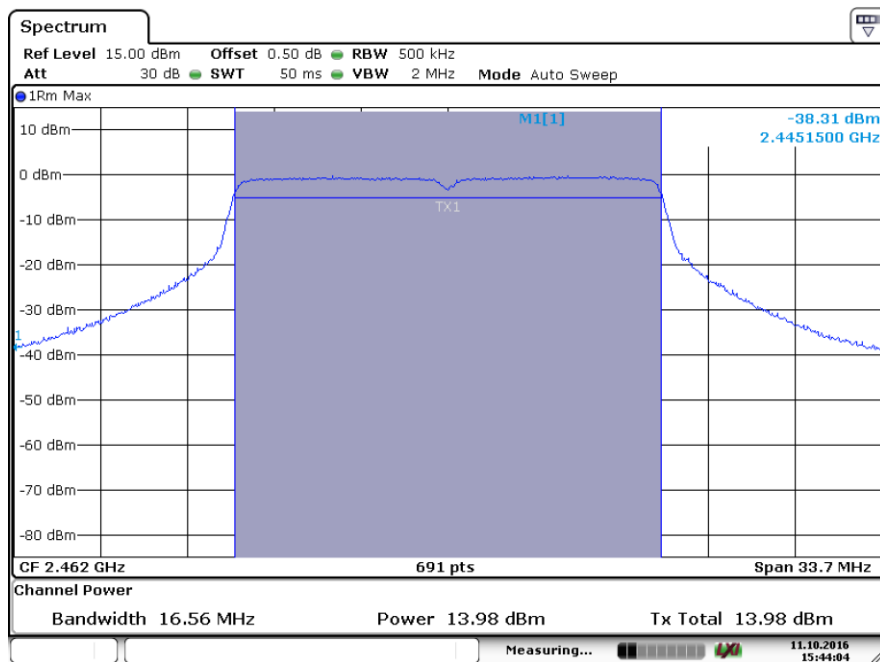
Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2412MHz	12.18	Pass
Middle channel 2437MHz	14.04	Pass
High channel 2462MHz	13.98	Pass



Date: 11.OCT.2016 15:46:20



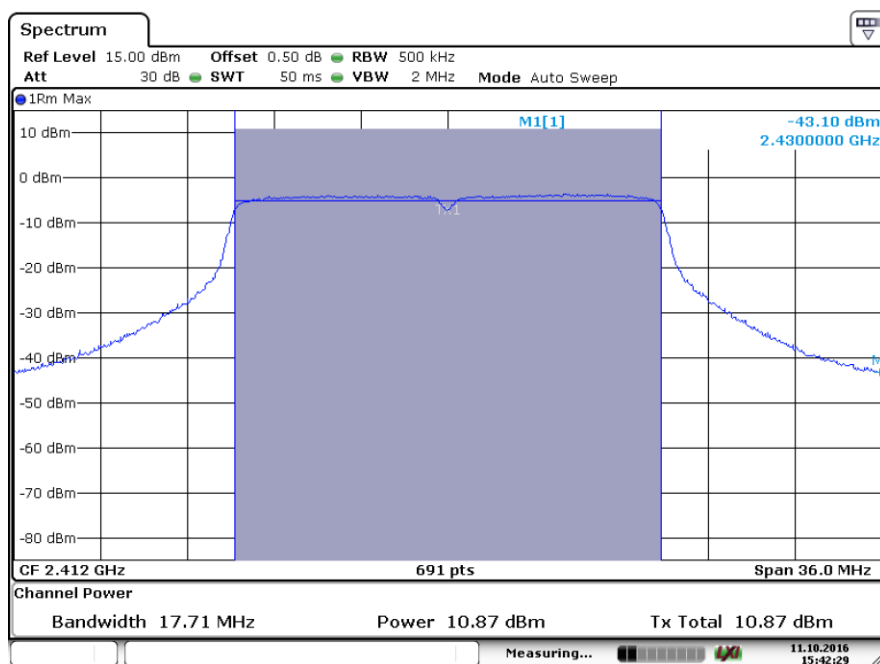
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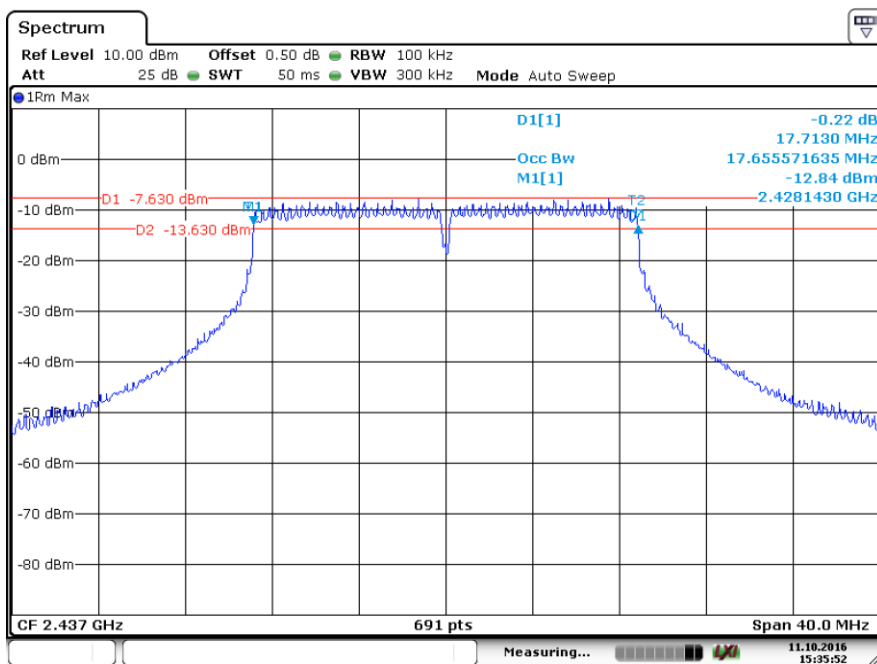
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802.11n20 modulation Test Result

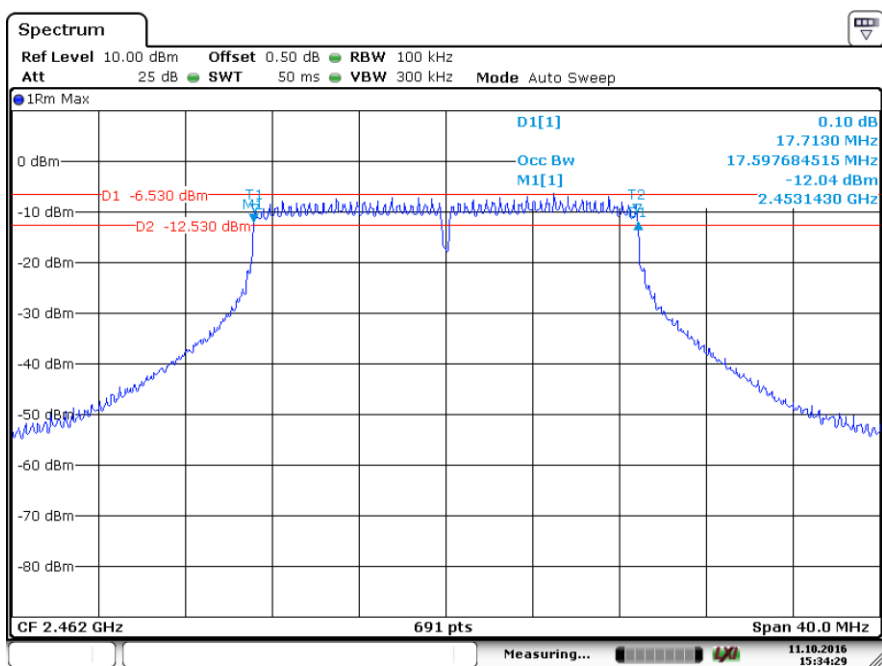
Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2412MHz	10.87	Pass
Middle channel 2437MHz	12.76	Pass
High channel 2462MHz	13.02	Pass



Date: 11.OCT.2016 15:42:29



Date: 11.OCT.2016 15:35:52



Date: 11.OCT.2016 15:34:29

9.3 Power spectral density

Test Method

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance:

1. Set analyzer center frequency to DTS channel center frequency.
RBW=3kHz, VBW $\geq$ 3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold
2. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
3. Repeat above procedures until other frequencies measured were completed

Limit

Limit

$\leq 8 \text{ dBm/3KHz}$

802.11b modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-10.03	8	Pass
2437	-8.37	8	Pass
2462	-7.76	8	Pass

802.11g modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-11.73	8	Pass
2437	-11.38	8	Pass
2462	-9.9	8	Pass

802.11n20 modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-13.04	8	Pass
2437	-12.62	8	Pass
2462	-11.20	8	Pass

9.4 6 dB Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
RBW=100K, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 6 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

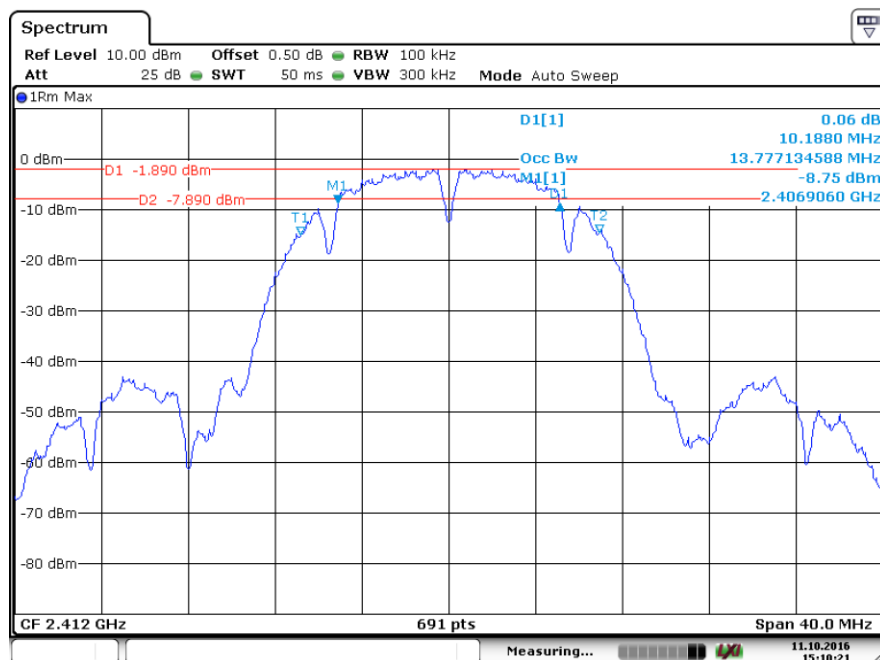
Limit

Limit [kHz]

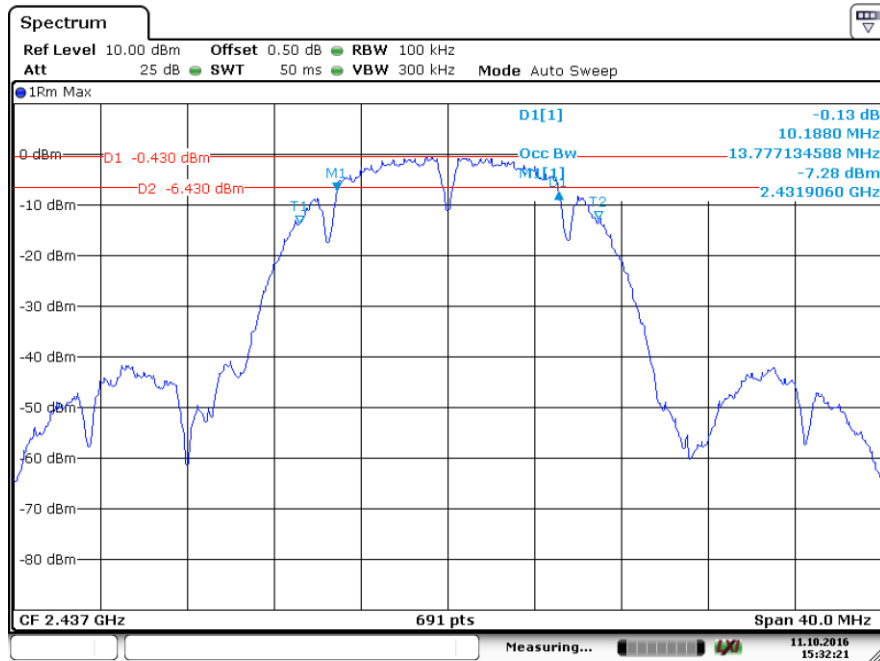
≥ 500

802.11b modulation Test Result

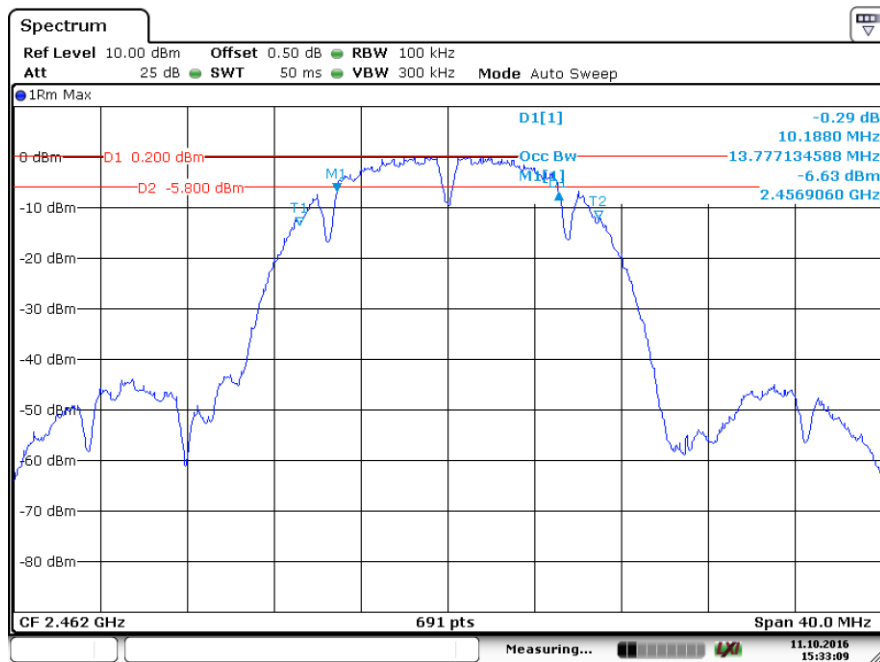
Frequency MHz	6 dB Bandwidth MHz	Limit kHz	Result
2412	13.777	500	Pass
2437	13.777	500	Pass
2462	13.777	500	Pass



Date: 11.OCT.2016 15:10:21



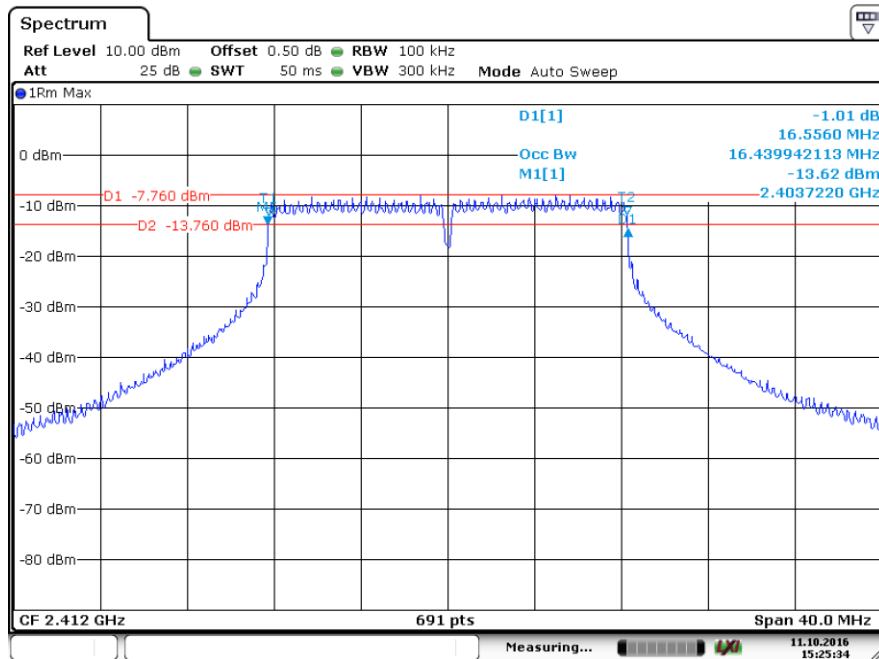
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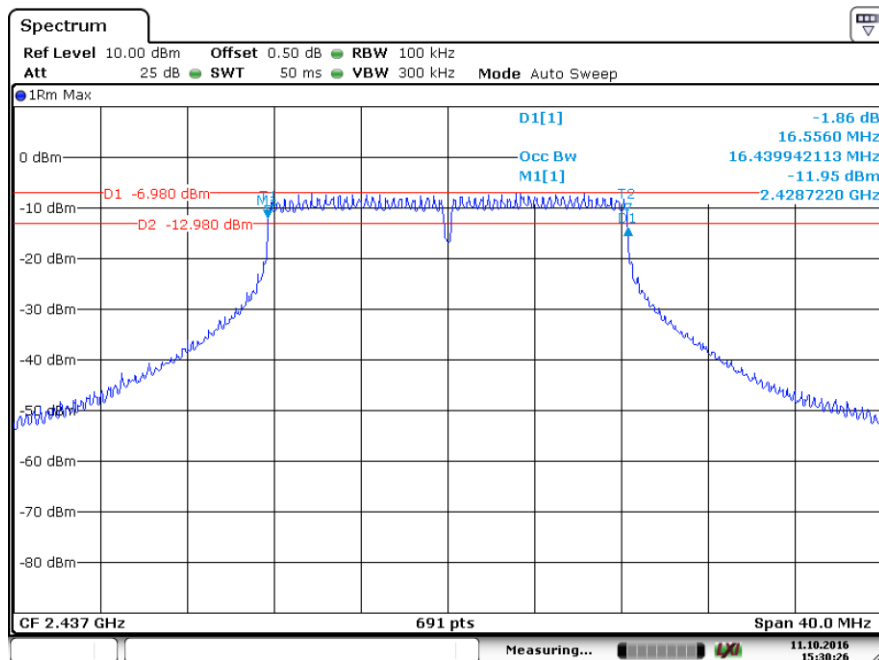
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802.11g modulation Test Result

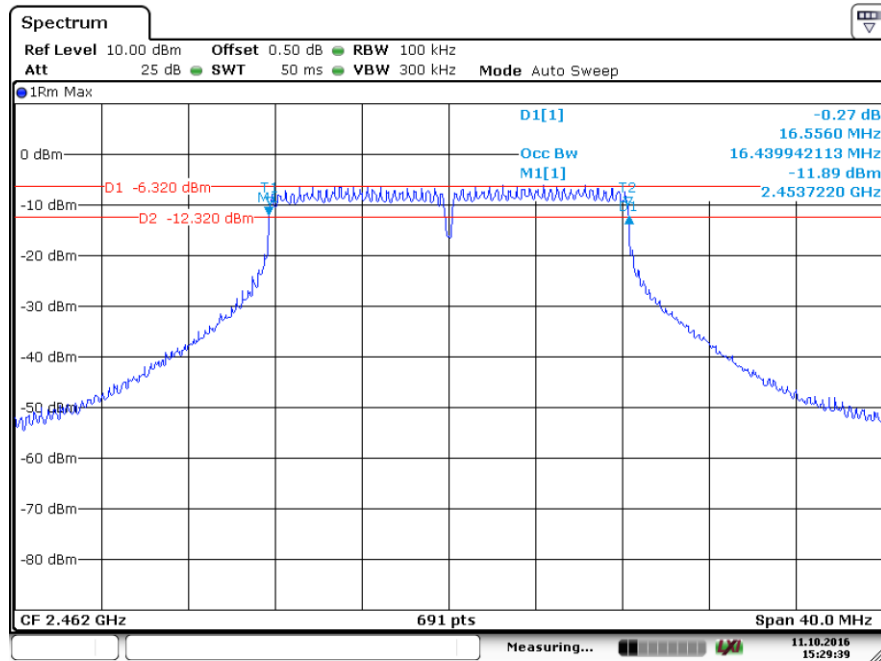
Frequency MHz	6 dB Bandwidth MHz	Limit kHz	Result
2412	16.440	500	Pass
2437	16.440	500	Pass
2462	16.440	500	Pass



Date: 11.OCT.2016 15:25:34



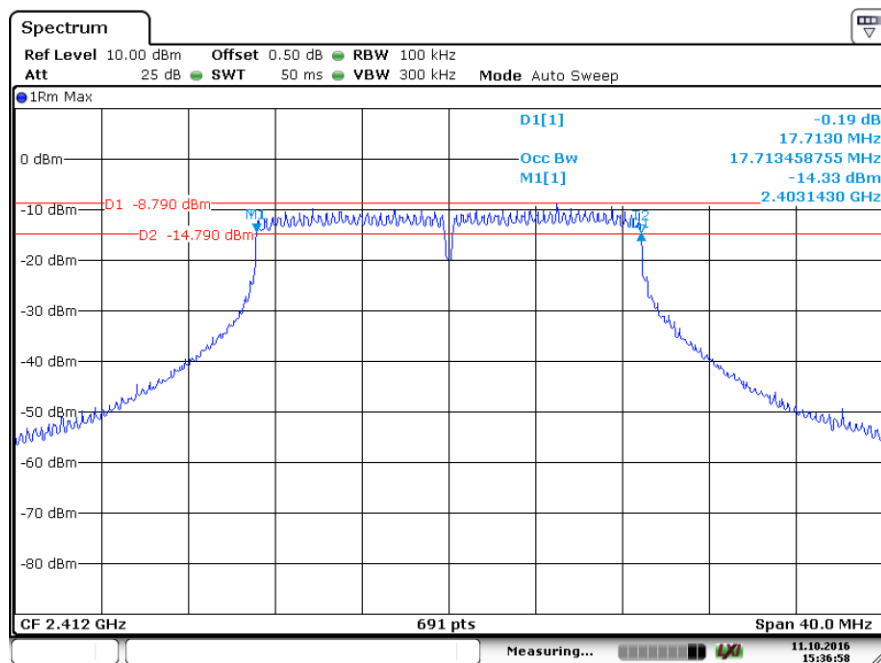
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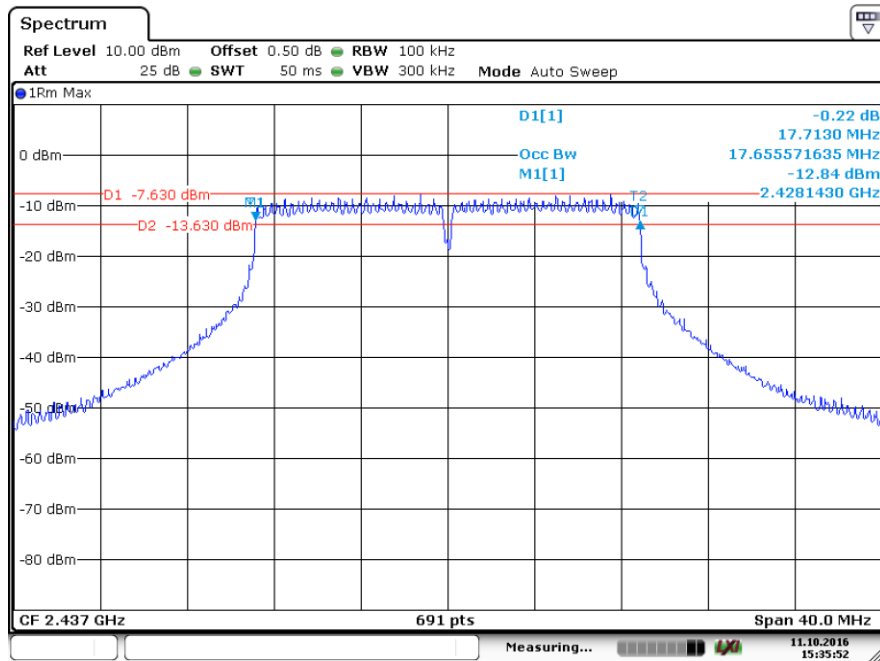
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802.11n20 modulation Test Result

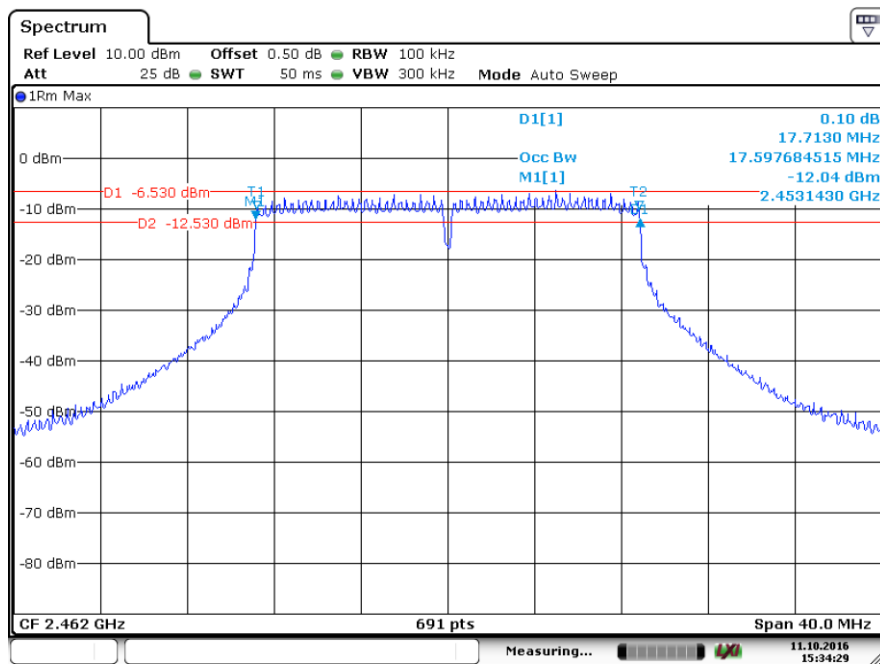
Frequency MHz	6 dB Bandwidth kHz	Limit kHz	Result
2412	17.713	500	Pass
2437	17.656	500	Pass
2462	17.598	500	Pass



Date: 11.OCT.2016 15:36:59



Date: 11.OCT.2016 15:35:52



Date: 11.OCT.2016 15:34:29

9.5 Spurious RF conducted emissions

Test Method

1. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz, VBW $\geq$ RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
3. The level displayed must comply with the limit specified in this Section. Submit these plots.
4. Repeat above procedures until all frequencies measured were complete.

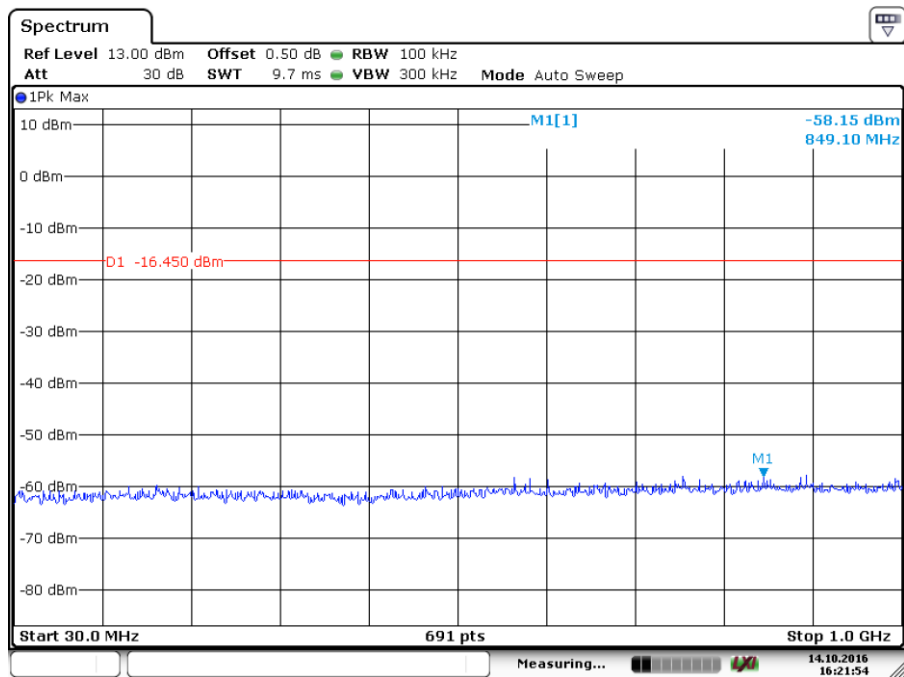
Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

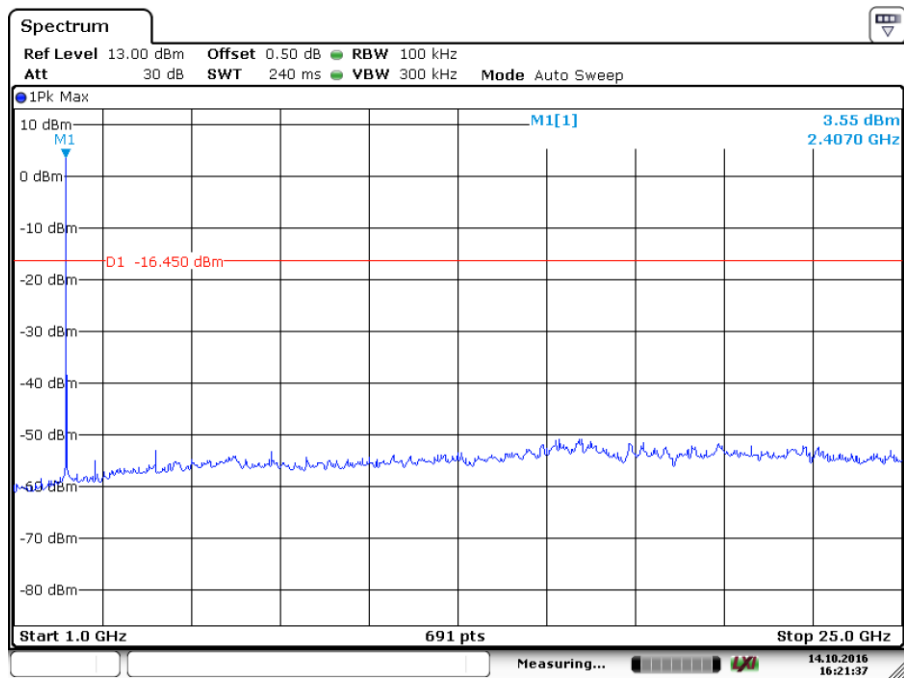
Spurious RF conducted emissions

802.11b Modulation:

2412MHz

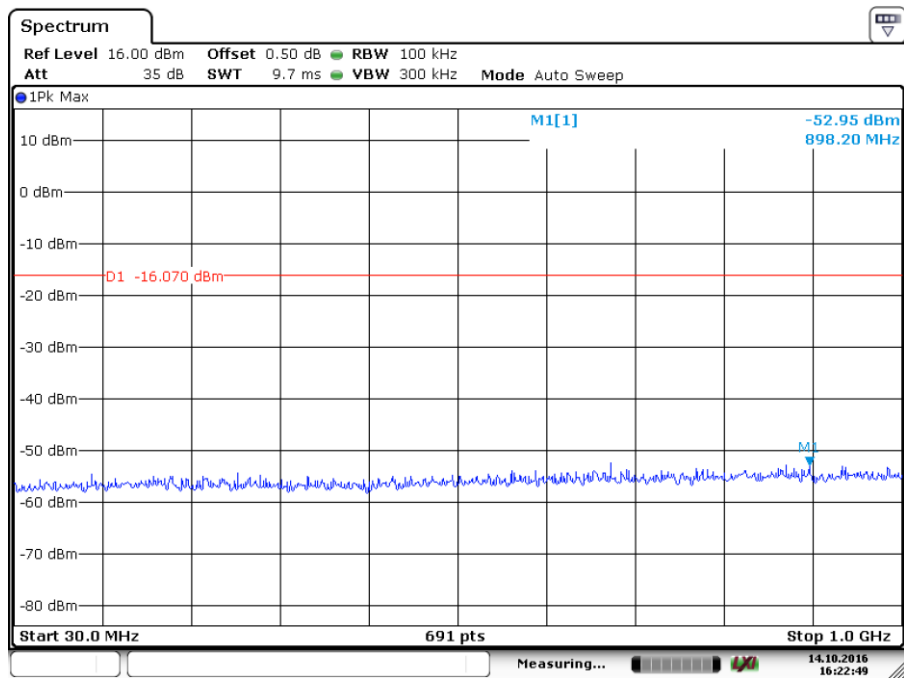


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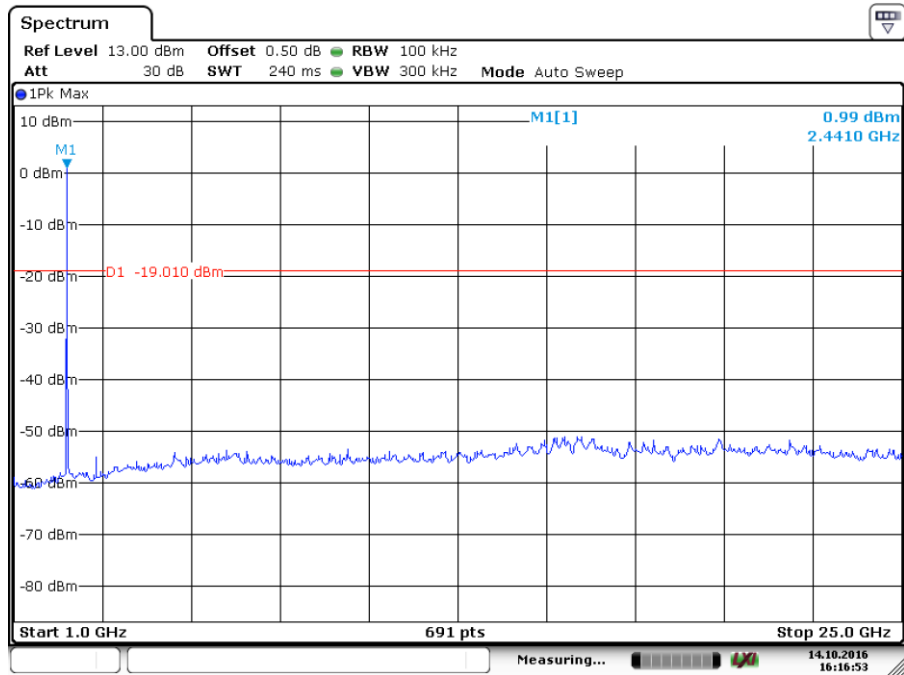


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2437MHz

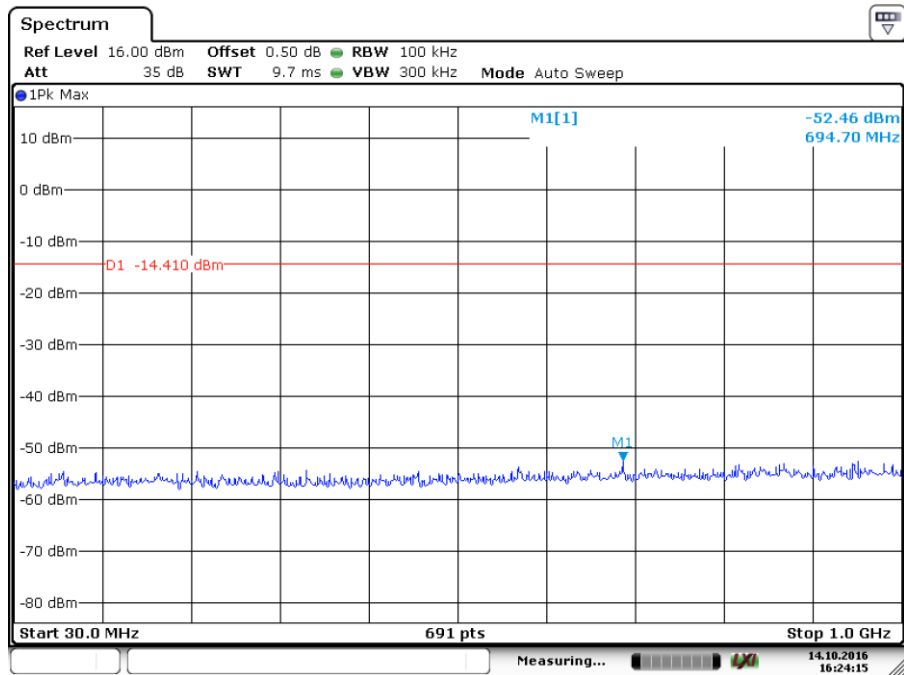


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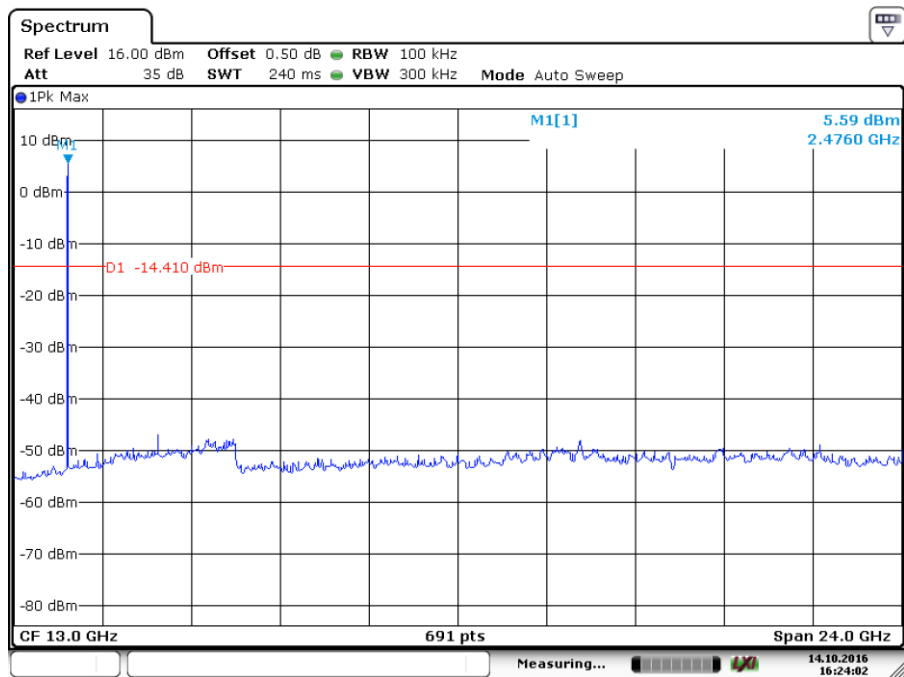


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2462MHz



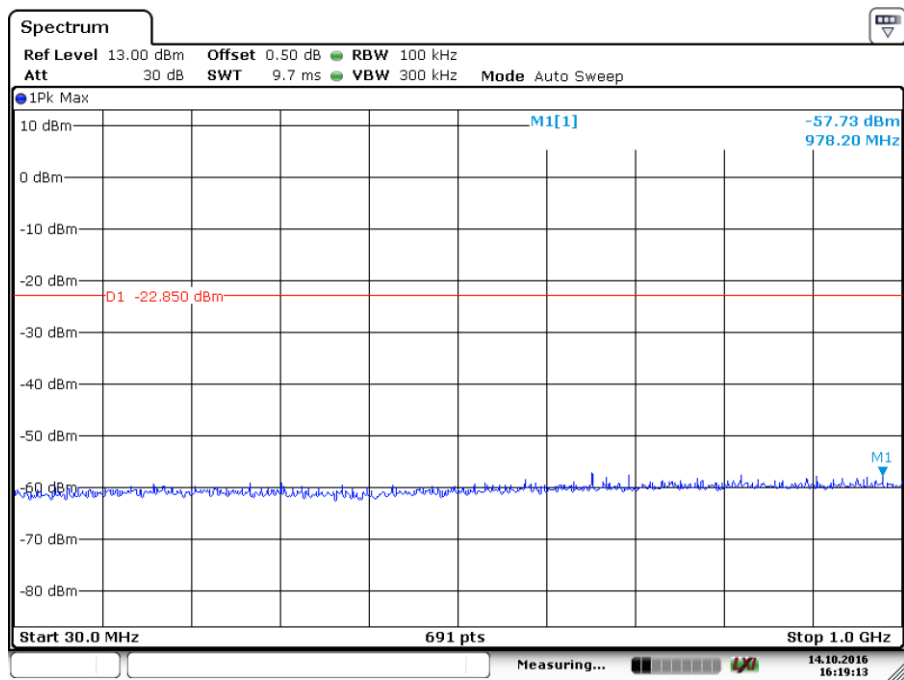
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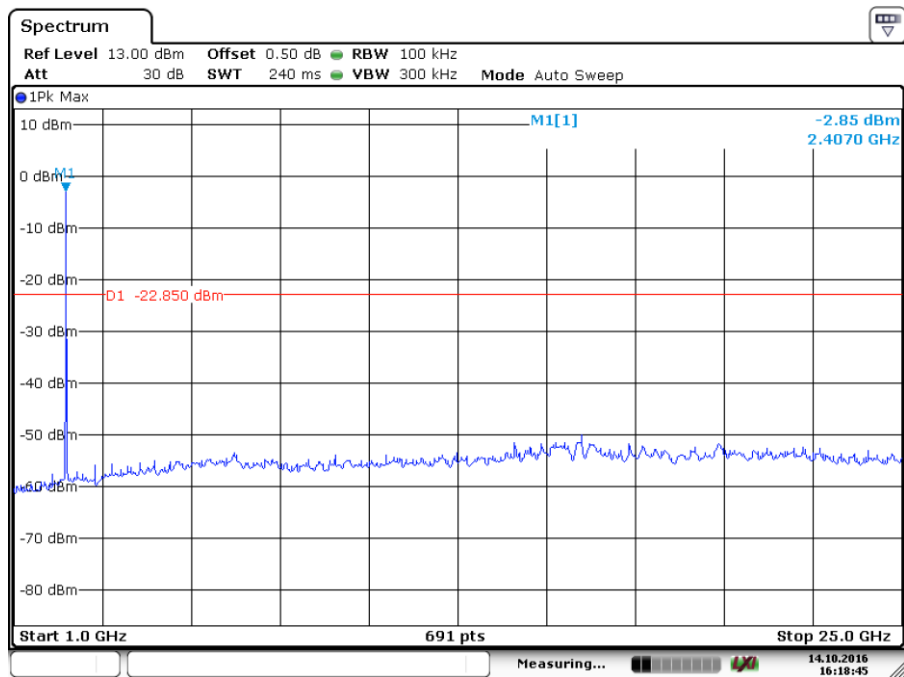
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802.11G Modulation:

2412MHz

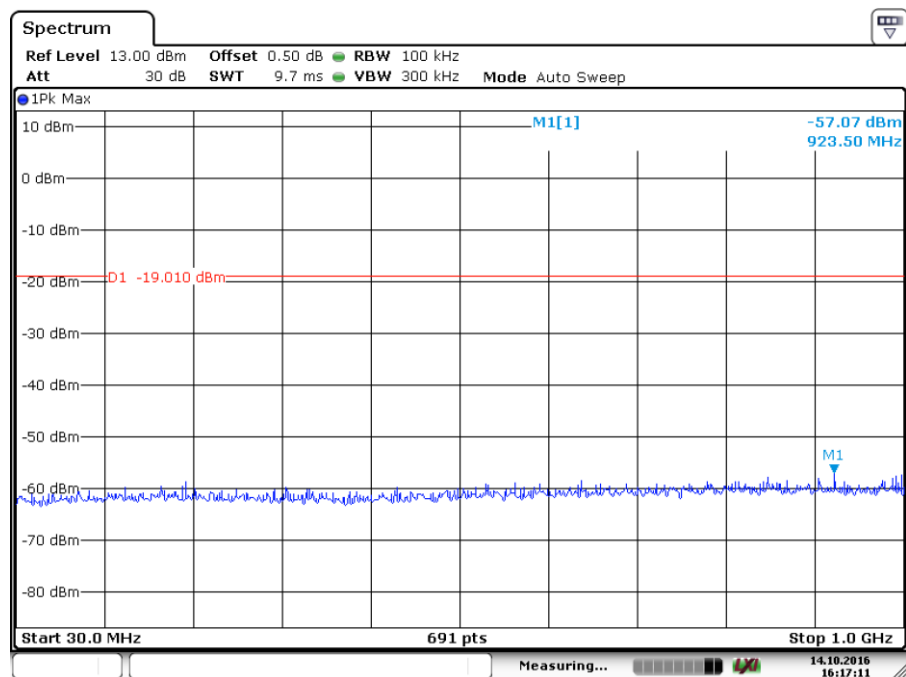


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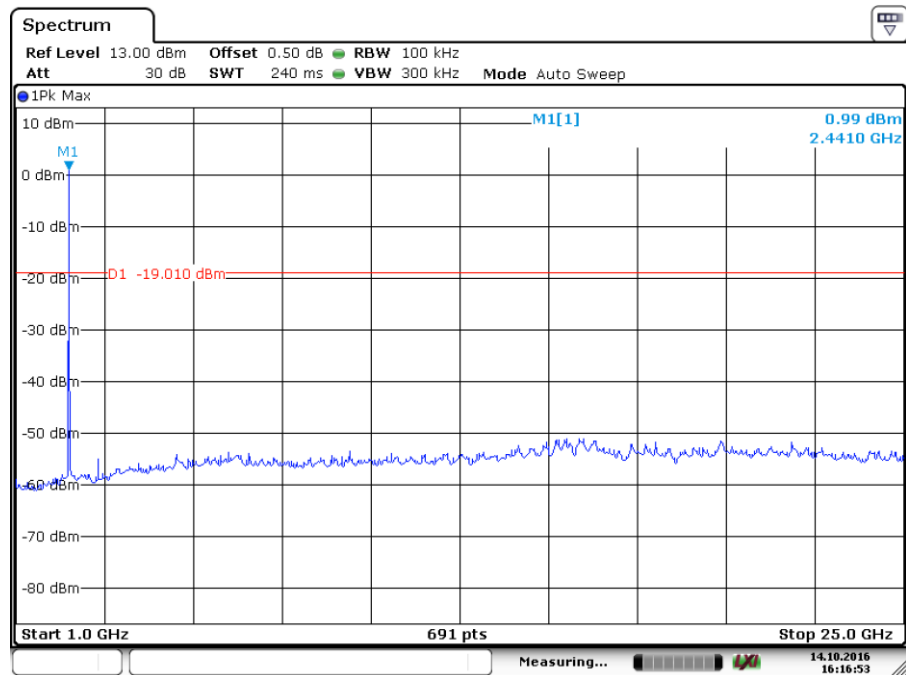


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2437MHz

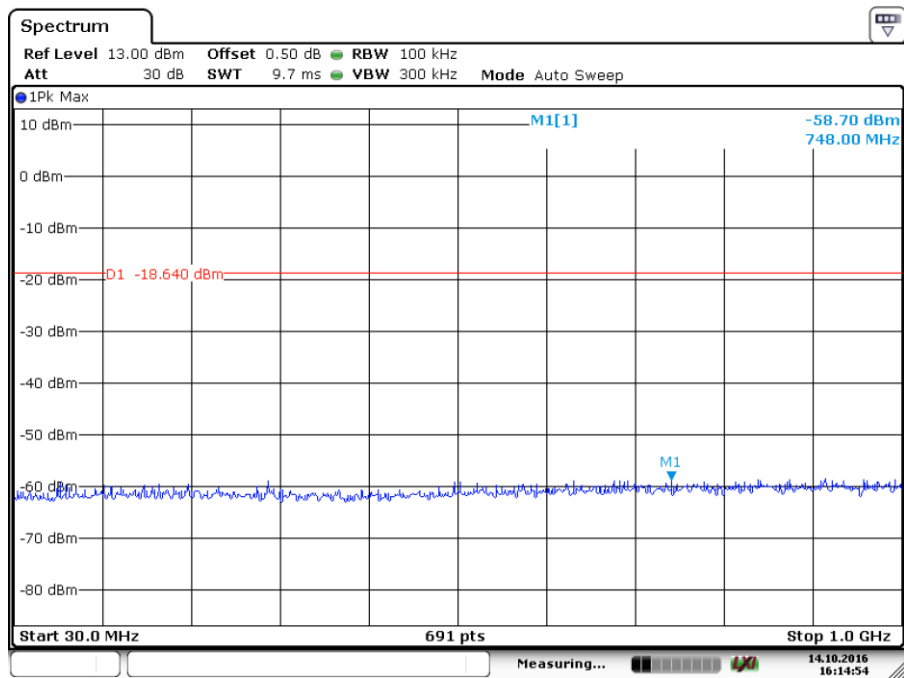


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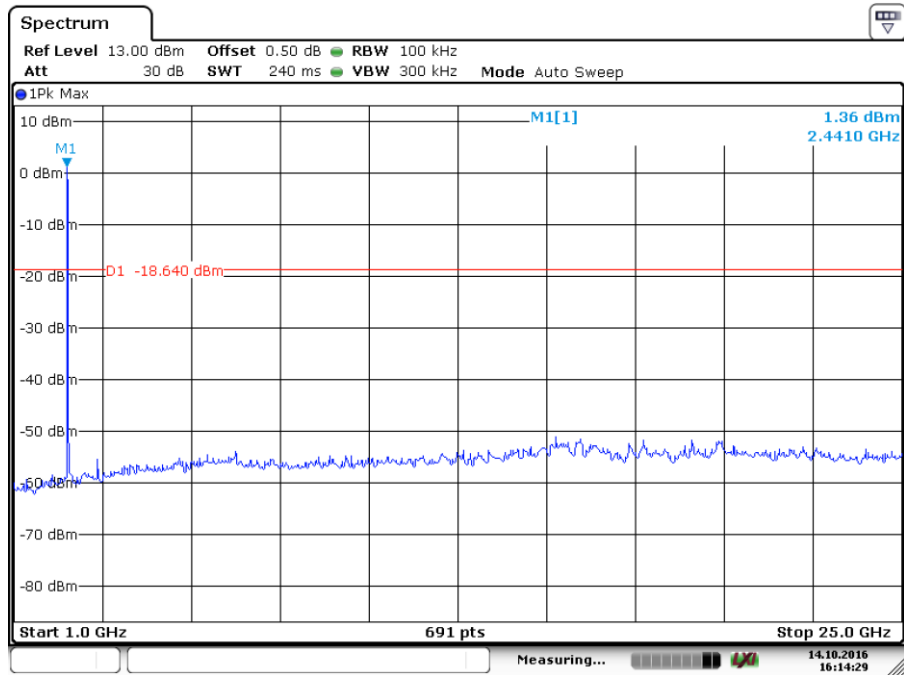


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2462MHz



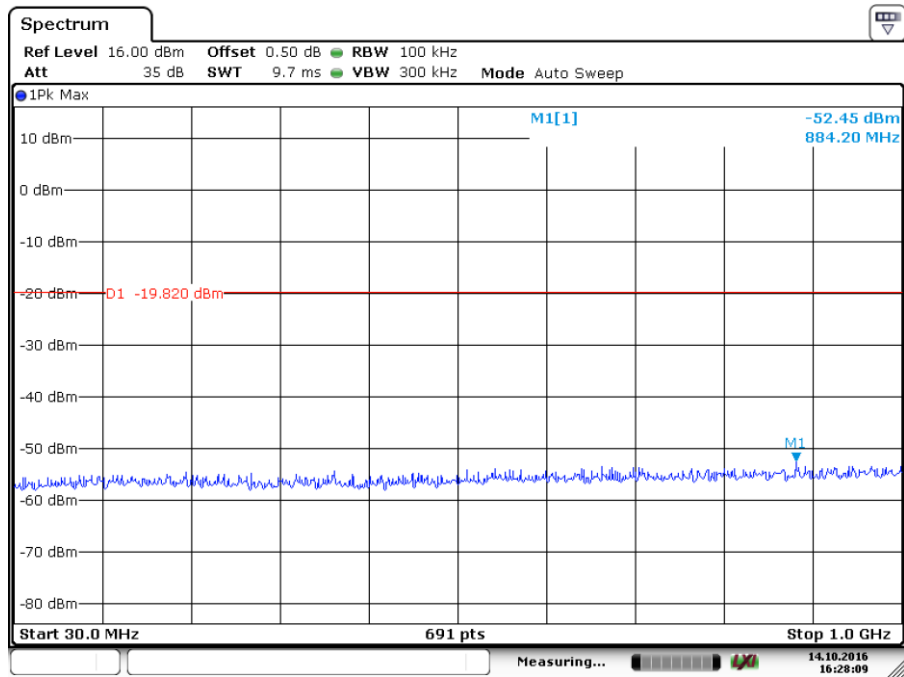
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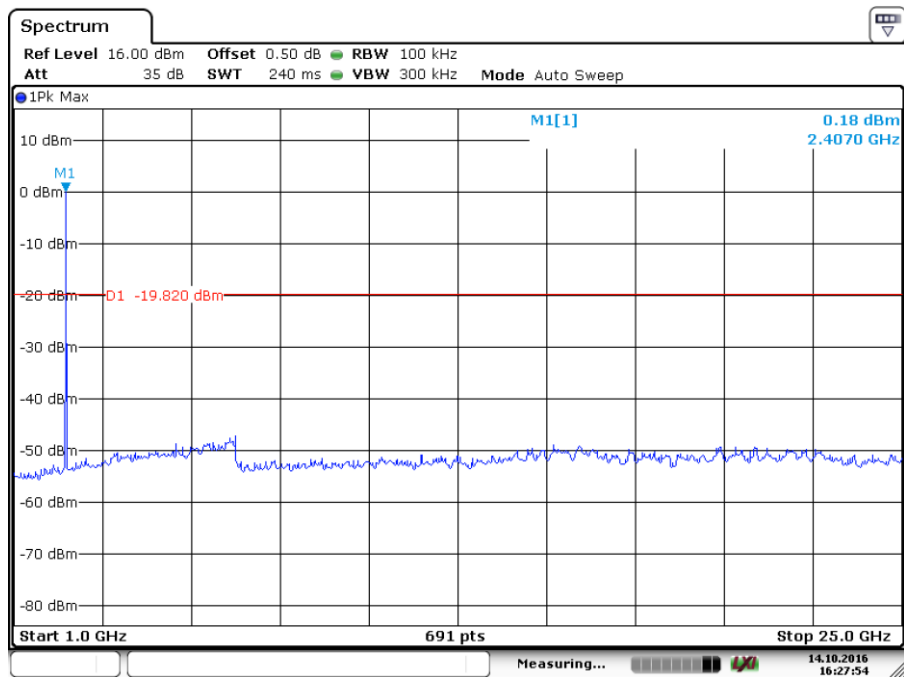
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802.11N(20) Modulation:

2412MHz

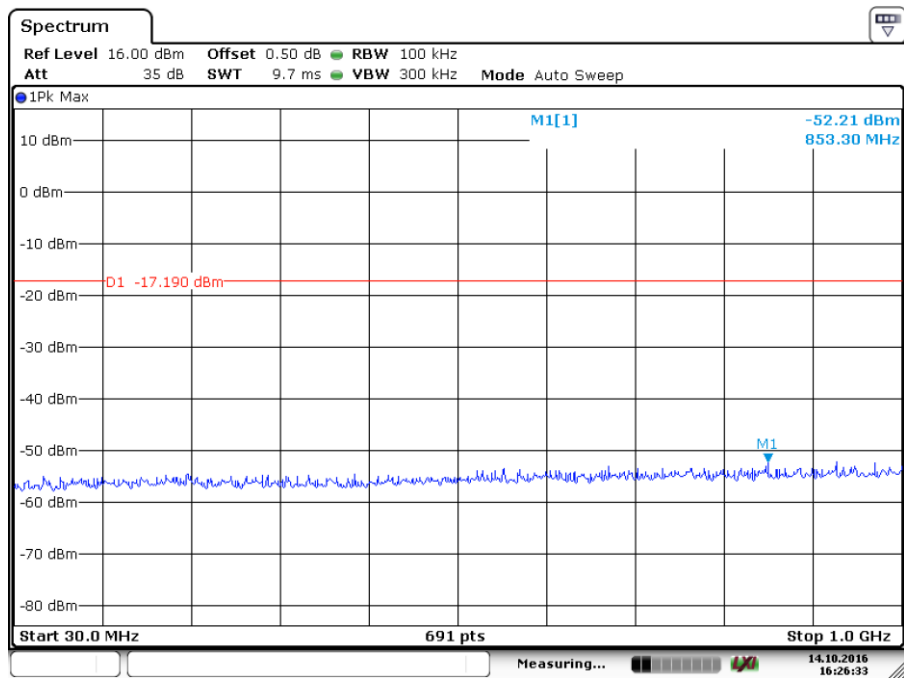


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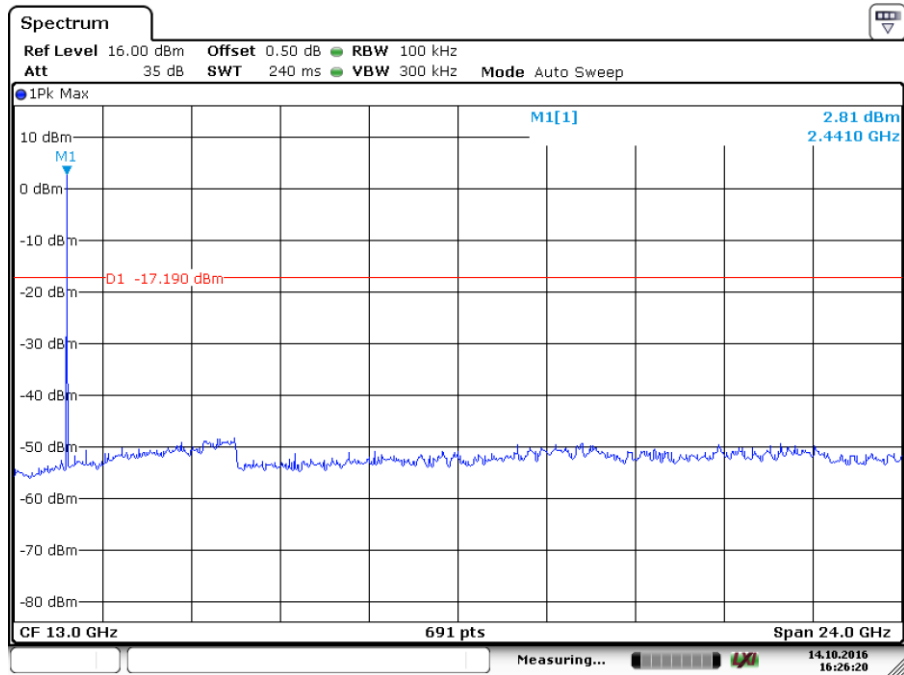


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2437MHz

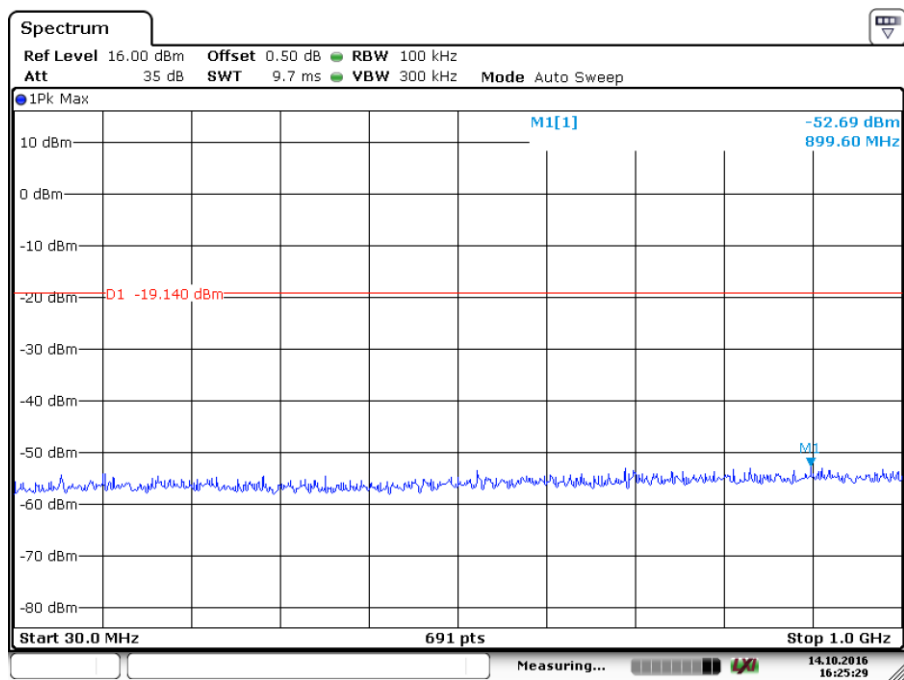


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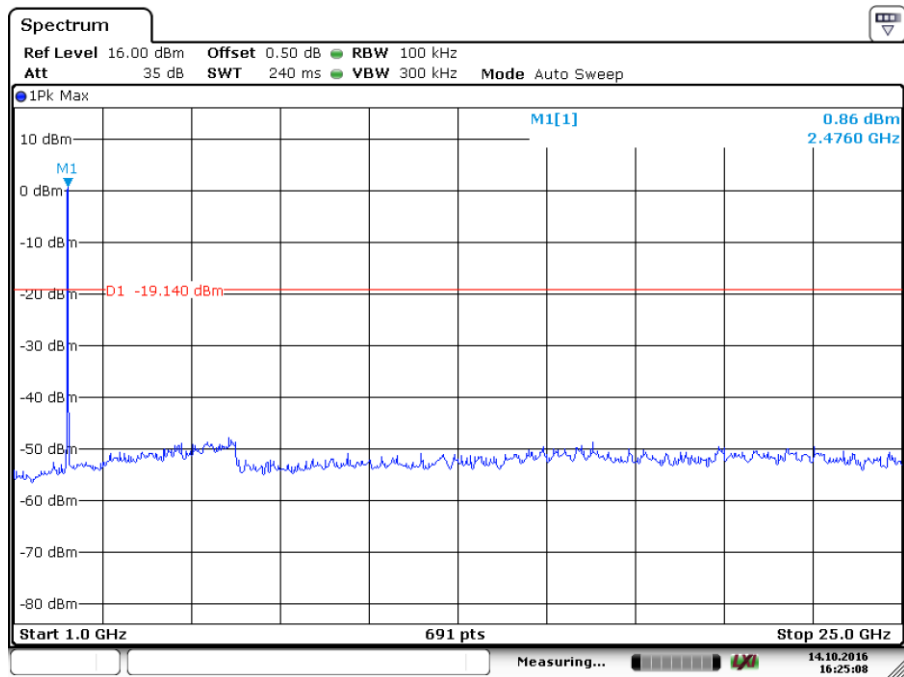


Date: 14.OCT.2016 16:26:20

2462MHz



Date: 14.OCT.2016 16:25:30



Date: 14.OCT.2016 16:25:08

9.6 Band edge testing

Test Method

- 1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW $\geq$ RBW, Sweep = auto, Detector function = peak, Trace = max hold
- 2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
- 3 The level displayed must comply with the limit specified in this Section. .
- 4 Repeat the test at the hopping off and hopping on mode, submit all the plots.

Limit:

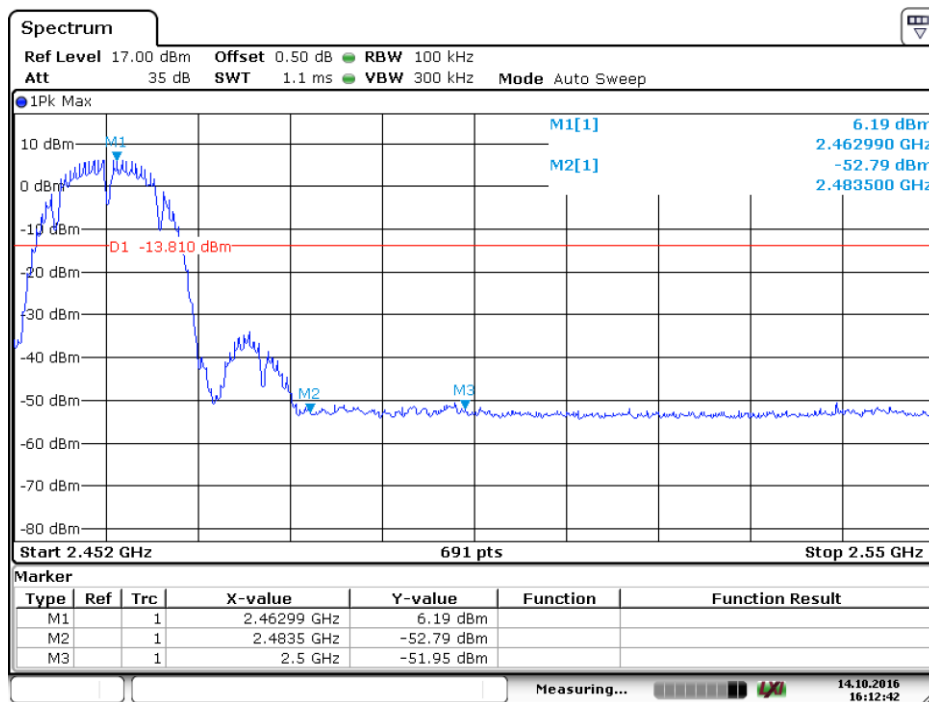
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

Band edge testing

802.11b Modulation Test Result

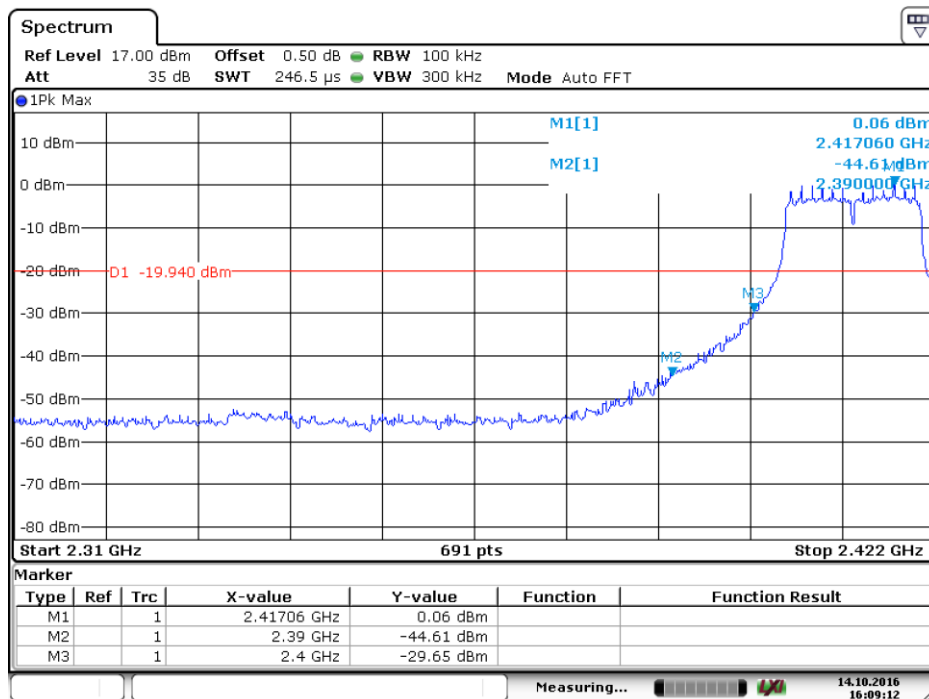


Date: 14.OCT.2016 16:07:06

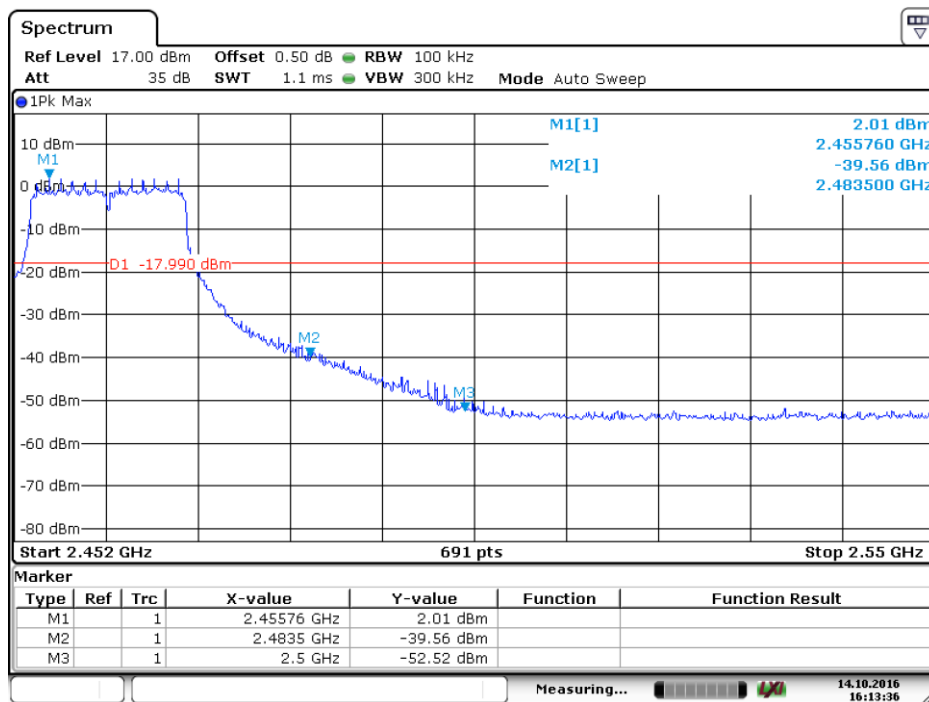


Date: 14.OCT.2016 16:12:42

802.11g Modulation Test Result

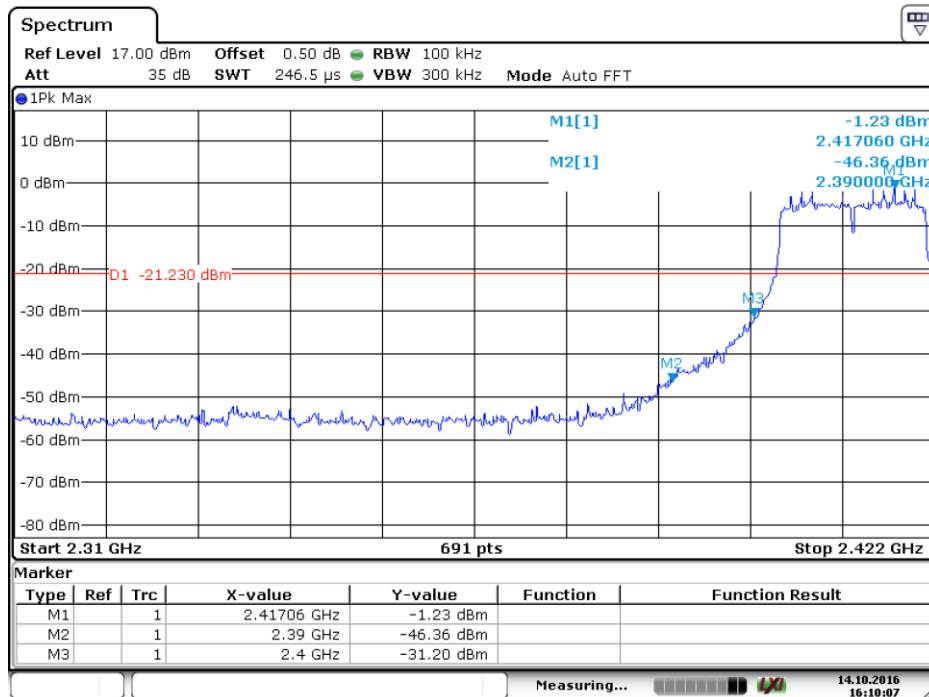


Date: 14.OCT.2016 16:09:12

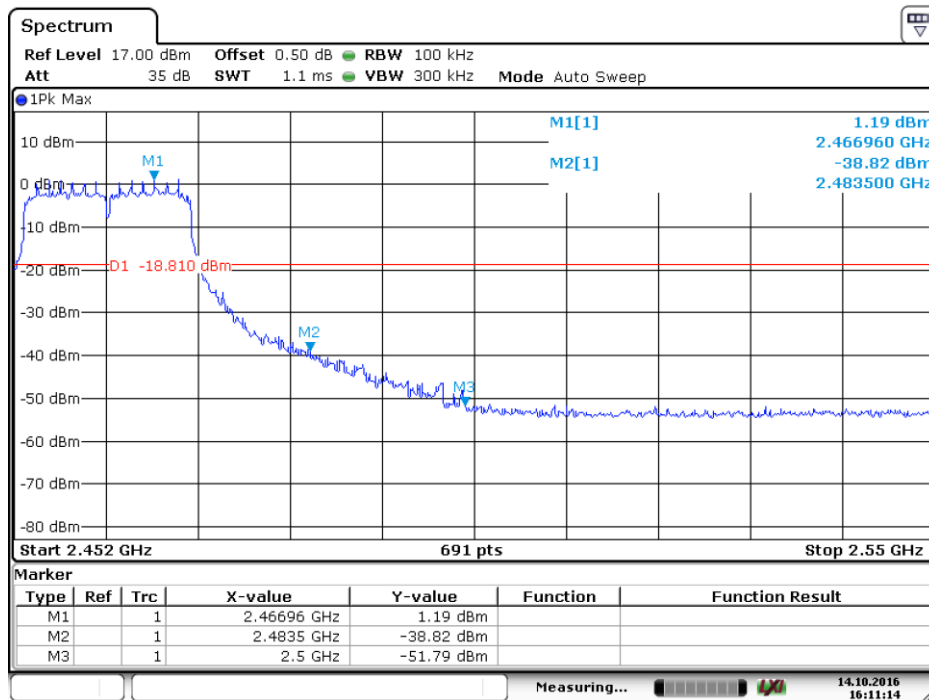


Date: 14.OCT.2016 16:13:36

802.11n(20) Modulation Test Result



Date: 14.OCT.2016 16:10:08



Date: 14.OCT.2016 16:11:15

9.7 Spurious radiated emissions for transmitter

Test Method

- 1: The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
- 3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5: Use the following spectrum analyzer settings According to C63.10:

For Above 1GHz

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 1MHz, VBW ≥ RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 100 KHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Note:

- 1: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.
- 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($20\log(1/\text{duty cycle})$).
- 4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

Limit

The radio emission outside the operating frequency band 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.

Radiated emissions which fall in the restricted bands, as defined in section 15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBμV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Transmitting spurious emission test result as below:

Emission below 1GHz

Frequency band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBuV/m		dBuV/m	Pass
30-1000MHz	32.317222	36.36	H	40.00	QP	3.64	Pass
	45.412222	30.61	H	40.00	QP	9.39	Pass
	75.374444	30.00	H	40.00	QP	10.00	Pass
	165.584444	34.91	H	43.50	QP	8.59	Pass
	243.507778	39.79	H	46.00	QP	6.21	Pass
	715.790000	34.08	H	46.00	QP	11.92	Pass
	31.886111	39.44	V	40.00	QP	0.56	Pass
	33.125556	39.91	V	40.00	QP	0.09	Pass
	74.242778	34.52	V	40.00	QP	5.48	Pass
	88.038333	34.46	V	43.50	QP	9.04	Pass
	244.262222	43.14	V	46.00	QP	2.86	Pass
	360.662222	39.25	V	46.00	QP	6.75	Pass

Emission between 1G-25GHz

802.11b Modulation:

2412MHz Test Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
1599.333333	33.05	74.00	40.95	H	-10.1
2375.266667	32.69	74.00	41.31	H	-6.6
4889.000000	35.39	74.00	38.61	H	1.8
8686.000000	40.10	74.00	33.90	H	8.1
14987.000000	46.92	74.00	27.08	H	18.3
1253.200000	31.34	74.00	42.66	V	-12.2
2248.200000	35.44	74.00	38.56	V	-6.8
4931.500000	36.57	74.00	37.43	V	1.9
8269.000000	40.48	74.00	33.52	V	7.2
14995.000000	47.60	74.00	26.40	V	18.4

2437MHz Test Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
1251.666667	32.00	74.00	42.00	V	-12.2
1498.800000	31.82	74.00	42.18	V	-11.1
4782.000000	35.14	74.00	38.86	V	1.7
7308.500000	40.94	74.00	33.06	V	5.5
14909.500000	47.82	74.00	26.18	V	18.1
1251.400000	29.72	74.00	44.28	H	-12.2
2357.600000	32.91	74.00	41.09	H	-6.6
2547.600000	32.55	74.00	41.45	H	-6.0
4874.000000	37.31	74.00	36.69	H	1.8
7309.500000	41.50	74.00	32.50	H	5.5
15049.000000	47.07	74.00	26.93	H	18.3

2462MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1599.733333	39.09	74.00	34.91	H	-10.1
2459.533333	40.42	74.00	33.58	H	-6.2
4924.000000	41.34	74.00	32.66	H	1.9
7384.000000	40.26	74.00	33.74	H	5.9
15822.00000	47.80	74.00	26.20	H	18.7
1237.733333	32.46	74.00	41.54	V	-12.3
1592.266667	34.09	74.00	39.91	V	-10.2
2248.200000	34.53	74.00	39.47	V	-6.8
2460.000000	38.57	74.00	35.43	V	-6.2
4924.000000	38.49	74.00	35.51	V	1.9
7039.500000	39.70	74.00	34.30	V	5.8
15030.00000	48.03	74.00	25.97	V	18.4

802.11g Modulation:
2412MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1251.066666	32.15	74.00	41.85	V	-12.2
2244.533333	32.31	74.00	41.69	V	-6.8
4889.000000	35.43	74.00	38.57	V	1.8
6597.000000	36.52	74.00	37.48	V	4.3
12396.50000	44.37	74.00	29.63	V	12.2
15587.00000	47.70	74.00	26.30	V	18.3
1593.533333	32.26	74.00	41.74	H	-10.2
2376.866666	39.51	74.00	34.49	H	-6.6
4869.500000	35.44	74.00	38.56	H	1.8
7063.500000	38.65	74.00	35.35	H	5.8
14834.50000	46.87	74.00	27.13	H	17.7

2437MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1000.000000	19.47	54.00	54.53	V	-13.7
1252.000000	30.58	74.00	43.42	V	-12.2
2248.133333	35.43	74.00	38.57	V	-6.8
4941.000000	35.98	74.00	38.02	V	1.9
10100.00000	41.30	74.00	32.70	V	9.0
17715.50000	50.71	74.00	23.29	V	23.0
1592.066667	33.42	74.00	40.58	H	-10.2
2363.333333	31.90	74.00	42.10	H	-6.6
4923.000000	35.35	74.00	38.65	H	1.9
8758.000000	41.35	74.00	32.65	H	8.5
14985.50000	46.74	74.00	27.26	H	18.3

2462MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1253.600000	32.35	74.00	41.65	V	-12.2
2248.066667	33.94	74.00	40.06	V	-6.8
4792.000000	35.52	74.00	38.48	V	1.7
7485.000000	40.46	74.00	33.54	V	6.4
14991.50000	47.19	74.00	26.81	V	18.3
1592.133333	31.26	74.00	42.74	H	-10.2

2502.333333	35.97	74.00	38.03	H	-6.0
4749.000000	35.13	74.00	38.87	H	1.4
7012.500000	38.95	74.00	35.05	H	5.6
15067.00000	47.09	74.00	26.91	H	18.2
17737.50000	50.45	74.00	23.55	H	23.1

802.11n20 Modulation: 2412MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1592.933333	32.28	74.00	41.72	H	-10.2
2247.933333	31.11	74.00	42.89	H	-6.8
4826.500000	35.53	74.00	38.47	H	1.9
7111.500000	37.76	74.00	36.24	H	5.4
13129.50000	43.65	74.00	30.35	H	12.8
1000.000000	19.86	54.00	54.14	V	-13.7
1258.066667	31.96	74.00	42.04	V	-12.1
2248.133333	33.10	74.00	40.90	V	-6.8
4865.500000	36.13	74.00	37.87	V	1.8
8187.000000	39.76	74.00	34.24	V	7.3
14873.50000	45.75	74.00	28.25	V	18.0

2437MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1000.000000	21.85	54.00	52.15	V	-13.7
1250.866667	31.67	74.00	42.33	V	-12.2
1599.800000	31.31	74.00	42.69	V	-10.1
2248.200000	33.47	74.00	40.53	V	-6.8
4866.500000	34.98	74.00	39.02	V	1.8
8761.000000	40.14	74.00	33.86	V	8.5
15039.50000	46.88	74.00	27.12	V	18.3
1000.000000	18.85	54.00	55.15	H	-13.7
1599.066667	34.20	74.00	39.80	H	-10.1
2374.066667	32.60	74.00	41.40	H	-6.6
4812.500000	36.04	74.00	37.96	H	1.9
10256.00000	41.42	74.00	32.58	H	8.9
15016.00000	47.07	74.00	26.93	H	18.4

2462MHz Test Result

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
1249.200000	31.12	74.00	42.88	V	-12.2
2248.066667	34.49	74.00	39.51	V	-6.8
4994.000000	36.17	74.00	37.83	V	2.1
8696.000000	41.24	74.00	32.76	V	8.1
17709.00000	50.58	74.00	23.42	V	23.0
1000.000000	20.80	54.00	53.20	H	-13.7
1599.800000	38.07	74.00	35.93	H	-10.1
2504.800000	37.00	74.00	37.00	H	-6.0
4870.000000	33.44	74.00	40.56	H	1.8
7045.000000	39.61	74.00	34.39	H	5.9
8614.000000	41.10	74.00	32.90	H	7.4
14969.50000	47.06	74.00	26.94	H	18.3
17895.00000	50.14	74.00	23.86	H	23.2

10 Test Equipment List

List of Test Instruments

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
CE	EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2017-7-15
	LISN	Rohde & Schwarz	ENV4200	100249	2017-7-15
	LISN	Rohde & Schwarz	ENV216	100326	2017-7-15
	ISN	Rohde & Schwarz	ENY81	100177	2017-7-15
	ISN	Rohde & Schwarz	ENY81-CA6	101664	2017-7-15
	High Voltage Probe	Rohde & Schwarz	TK9420(VT9 420)	9420-58	2017-7-15
	RF Current Probe	Rohde & Schwarz	EZ-17	100816	2017-7-15
	Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2017-7-17
	Test software	Rohde & Schwarz	EMC32	Version9.15.0 0	N/A
C	Signal Generator	Rohde & Schwarz	SMB100A	108272	2017-7-15
	Signal Analyzer	Rohde & Schwarz	FSV40	101030	2017-7-15
	Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2017-7-15
	RF Switch Module	Rohde & Schwarz	OSP120/OS P-B157	101226/10085 1	2017-7-15
RE	EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2017-7-15
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2017-8-3
	Horn Antenna	Rohde & Schwarz	HF907	102294	2017-7-15
	Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2017-7-15
	3m Semi-anechoic chamber	TDK	9X6X6	----	2019-5-29

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth
- 20dB bandwidth and 99% Occupied Bandwidth
- Carrier frequency separation
- Number of hopping frequencies
- Dwell Time
- Power spectral density
- Spurious RF conducted emissions
- Band edge

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.83dB; Vertical: 4.91dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-18000MHz	Horizontal: 4.89dB; Vertical: 4.88dB;
Uncertainty for Conducted Emission 150KHz-30MHz	U=3.5dB(k=2)