FCC/IC - TEST REPORT

Report Number	:	**64.790.18.05627.01**	Date of Issue:	November 30, 2018
Model	:	US-SK103, US-OSK103, CE-SK103, EU-OSK103		
Product Type	:	Smart Kit		
Applicant	:	GD Midea Air-conditioning Equipment Co.,Ltd.		
Address	:	Midea Industrial District, Beijiao, Shunde, Foshan, Guangdong, China		
Manufacturer	:	GD Midea Air-conditioning Equipment Co.,Ltd.		
Address	:	Midea Industrial District, Beijiao, Shunde, Foshan, Guangdong, China		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	45		

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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 No.: 514049
IC Registration No.: 10320A

3 Description of the Equipment Under Test

Product:	Smart Kit
PMN:	Smart Kit
Model no.:	US-SK103, US-OSK103, CE-SK103, EU-OSK103
HVIN:	US-SK103, US-OSK103, CE-SK103, EU-OSK103
FCC ID:	2ADQOMDNA19
IC	12575A-MDNA19
Options and accessories:	Nil
Rating Input:	DC 5V
RF Transmission Frequency:	2412MHz-2462MHz
No. of Operated Channel:	802.11b/g/n20: 11 channel 802.11n40: 7 channel
Modulation:	802.11b: CCK DSSS 802.11g: OFDM 802.11n20: OFDM 802.11n40: OFDM
Antenna Type:	Internal Printed PCB antenna
Antenna Gain:	2.1dBi
Description of the EUT:	EUT is a WIFI smart kit for wireless controlling for products of Midea Group.

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2017 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-247 Issue 2 February 2017	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices

Test Method:
1: ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
2: ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices.
3: KDB 558074 D01 15.247 Meas Guidance V05.

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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*	15	Pass
§15.247(a)(2)	RSS-247 Clause 5.2(1)	6dB bandwidth	16	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	22	Pass
§15.247(d)	RSS-247 Clause 5.5	Band edge	36	Pass
§15.247(d) & §15.209 &	RSS-247 Clause 5.5 & RSS-GEN 6.13	Spurious radiated emissions for transmitter	41	Pass
§15.203	RSS-GEN 8.3	Antenna requirement	See note 2	Pass

Note 1: N/A=Not Applicable.
Note 2: The EUT uses Internal Printed ANT antenna, which gain is 2.1dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

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6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID:2ADQOMDNA19, IC:12575A-MDNA19 complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C, RSS- 247 and RSS-Gen rules.
All models are the same except appearance, tests were only performed on US-SK103.

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 5, 2018

Testing Start Date: October 7, 2018

Testing End Date: October 17, 2018

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Reviewed by:	Prepared by:	Test by:
Tony Liu	Kevin Ouyang	Louise Liu

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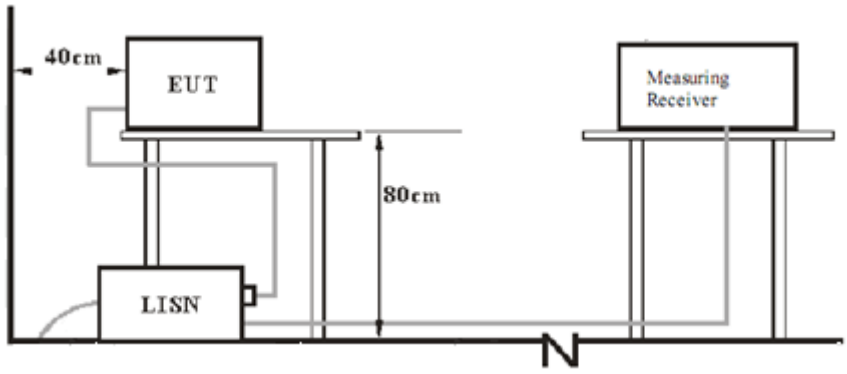
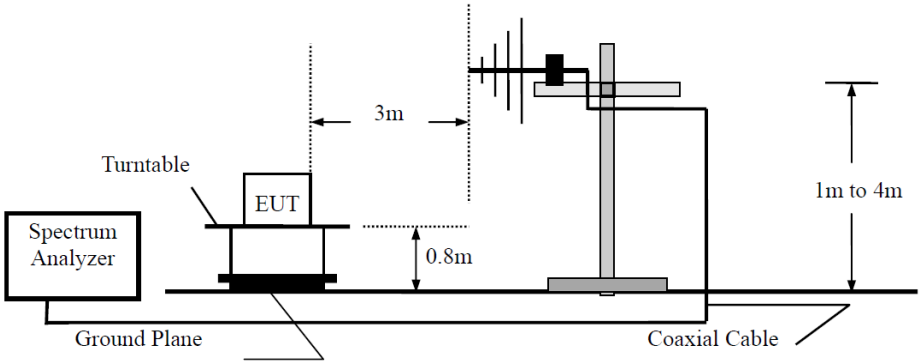
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

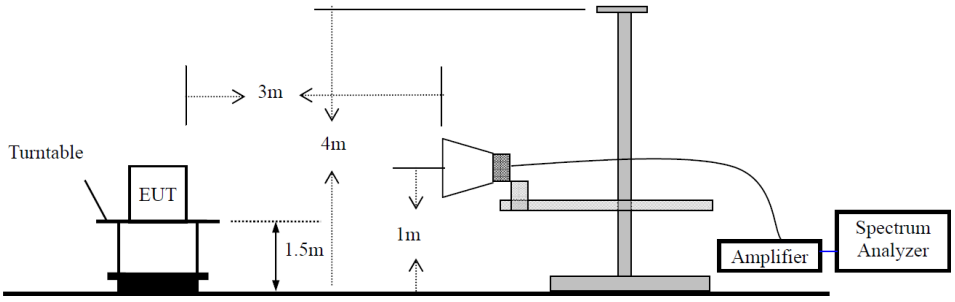


7.2 Radiated test setups

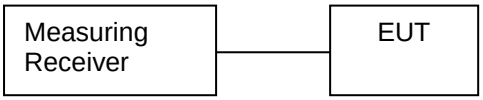
Below 1GHz



Above 1GHz



7.3 Conducted RF test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)
air-conditioner	Midea	/
Software	/	ART2_Kingfisher

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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 dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

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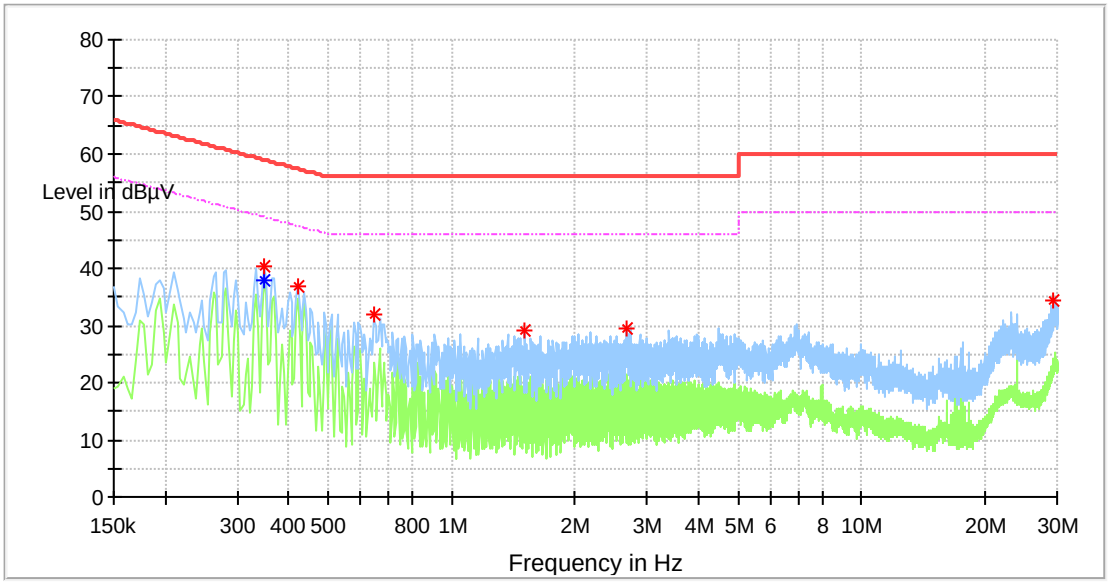
Test data:

Conducted Emission

Product Type	:	Smart Kit
M/N	:	US-SK103
Operating Condition	:	WiFi function on.
Test Specification	:	L
Comment	:	AC 120V/60Hz
Test date	:	2018-10-19



No significant emission was detected within 10 dB to limit

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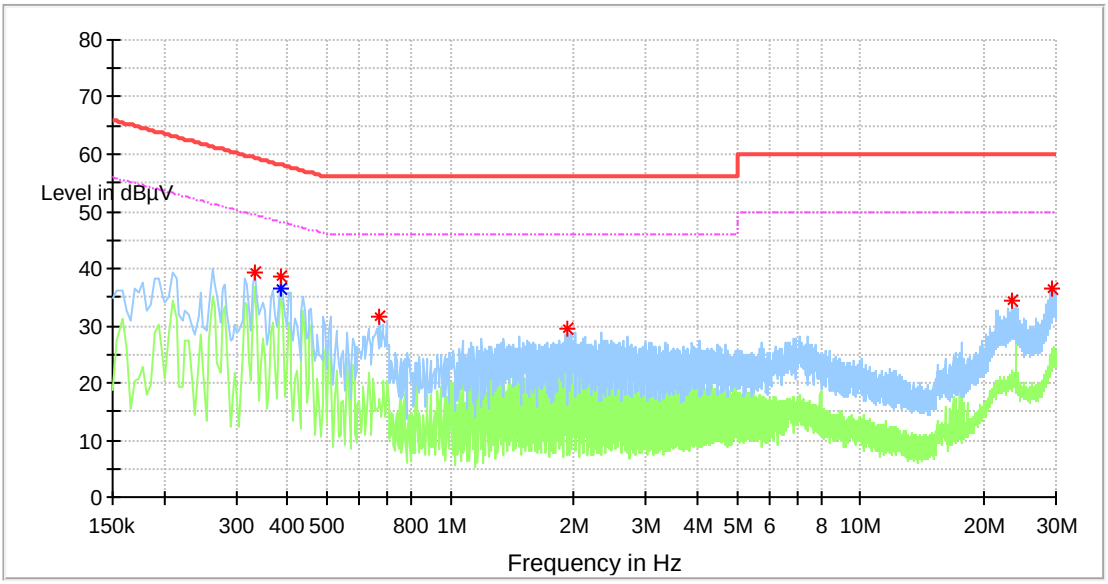
Conducted Emission

Product Type	:	Smart Kit
M/N	:	US-SK103
Operating Condition	:	WiFi function on.
Test Specification	:	N
Comment	:	AC 120V/60Hz
Test date	:	2018-10-19



No significant emission was detected within 10 dB to limit

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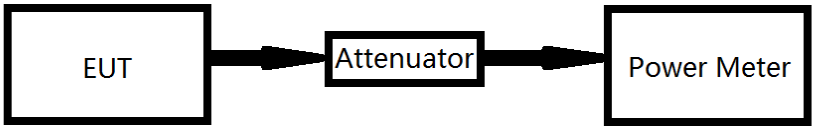
9.2 Conducted peak output power

Test Method

1. Connect EUT test port to Power meter.
2. Set the EUT to transmit maximum output power at 2.4GHz.
3. Then set the EUT to transmit at high, middle and low frequency and measure the conducted output power separately.
4. Repeat above procedures until all frequencies measured were complete.

Test Setup:

The Wi-Fi component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



Limits

According to §15.247 (b) (3), RSS-247, Clause 5.4 (d), conducted PEAK output power limit as below:

Frequency Range MHz	Limit (Output Power) W	Limit (Output Power) dBm
2400-2483.5	≤1	≤30

According to RSS-247, Clause 5.4 (d), E.I.R.P limit as below:

Frequency Range MHz	Limit (E.I.R.P) W	Limit (E.I.R.P) dBm
2400-2483.5	≤4	≤36

Test Result: Pass

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Test Data:

802.11b modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	E.I.R.P Output Power dBm	Result
Low channel 2412MHz	15.0	17.1	Pass
Middle channel 2437MHz	13.9	16.0	Pass
High channel 2462MHz	14.1	16.2	Pass

802.11g modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	E.I.R.P Output Power dBm	Result
Low channel 2412MHz	14.5	16.6	Pass
Middle channel 2437MHz	12.7	14.8	Pass
High channel 2462MHz	13.2	15.3	Pass

802.11n20 modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	E.I.R.P Output Power dBm	Result
Low channel 2412MHz	14.3	16.4	Pass
Middle channel 2437MHz	14.1	16.2	Pass
High channel 2462MHz	14.0	16.1	Pass

802.11n40 modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	E.I.R.P Output Power dBm	Result
Low channel 2422MHz	14.6	16.7	Pass
Middle channel 2437MHz	14.7	16.8	Pass
High channel 2452MHz	14.8	16.9	Pass

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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≥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
≤ 8 dBm/3KHz

802.11b modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-8.91	8	Pass
2437	-8.90	8	Pass
2462	-8.23	8	Pass

802.11g modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-9.39	8	Pass
2437	-9.18	8	Pass
2462	-9.56	8	Pass

802.11n20 modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2412	-13.91	8	Pass
2437	-14.16	8	Pass
2462	-14.25	8	Pass

802.11n40 modulation Test Result

Frequency MHz	Power spectral density	Limit dBm/3KHz	Result
2422	-19.10	8	Pass
2437	-17.66	8	Pass
2452	-17.64	8	Pass

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9.4 6 dB Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
RBW=100K, VBW≥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, 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

Test Result:

Test Mode	Antenna	Channel	6 dB Bandwidth [MHz]	FL[MHz]	FH[MHz]	Limit[KHz]	Verdict
11B	Ant1	2412	10.160	2406.840	2417.000	500	PASS
		2437	10.160	2431.840	2442.000	500	PASS
		2462	10.160	2456.840	2467.000	500	PASS
11G	Ant1	2412	16.400	2403.720	2420.120	500	PASS
		2437	16.400	2428.720	2445.120	500	PASS
		2462	16.400	2453.720	2470.120	500	PASS
11N20SISO	Ant1	2412	17.640	2403.080	2420.720	500	PASS
		2437	17.640	2428.080	2445.720	500	PASS
		2462	17.680	2453.080	2470.760	500	PASS
11N40SISO	Ant1	2422	36.480	2403.680	2440.160	500	PASS
		2437	36.480	2418.680	2455.160	500	PASS
		2452	36.240	2433.920	2470.160	500	PASS

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Test Graphs

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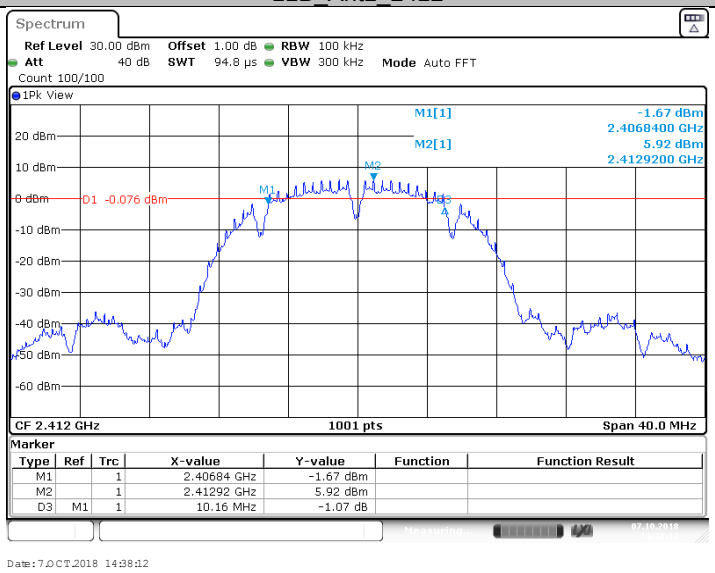

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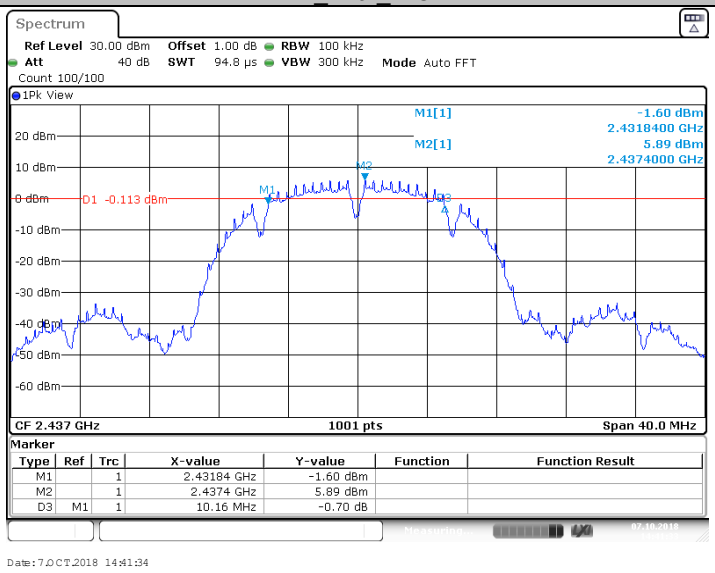

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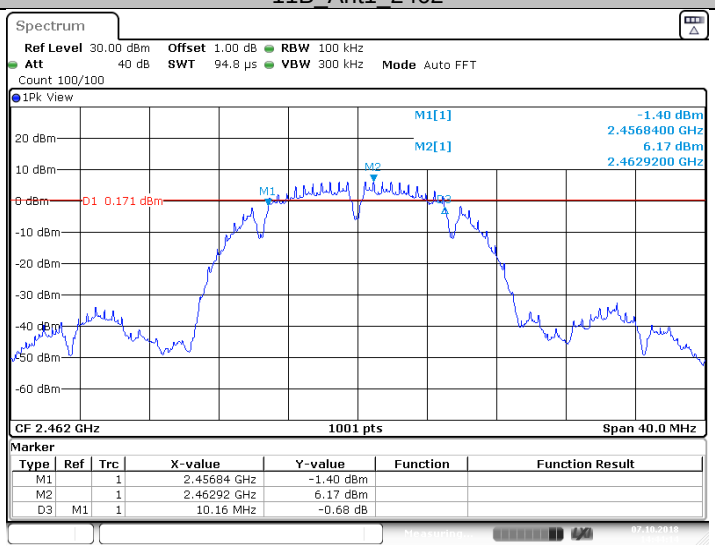
11B_Ant1_2462



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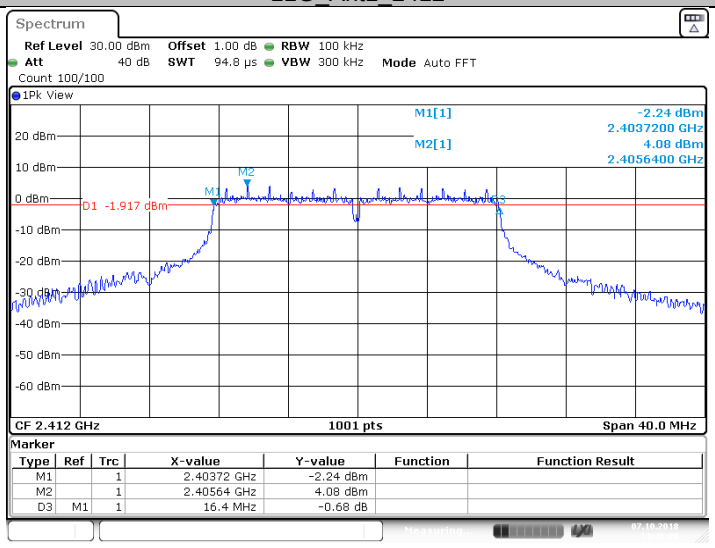

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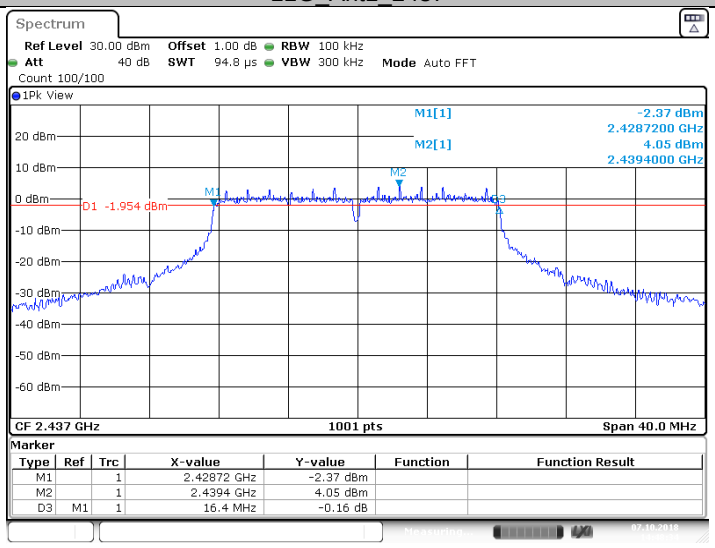

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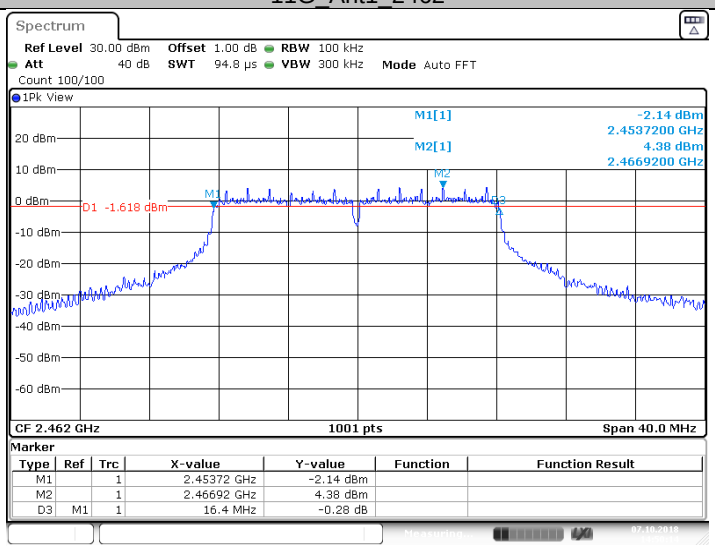
11G_Ant1_2462



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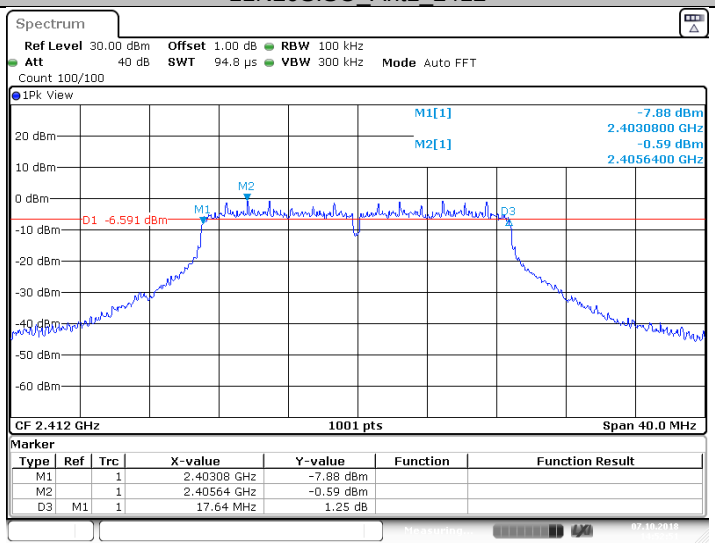

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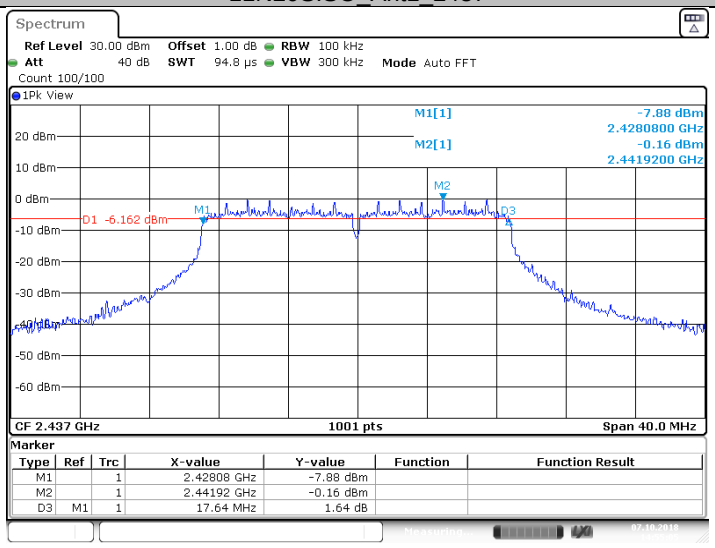

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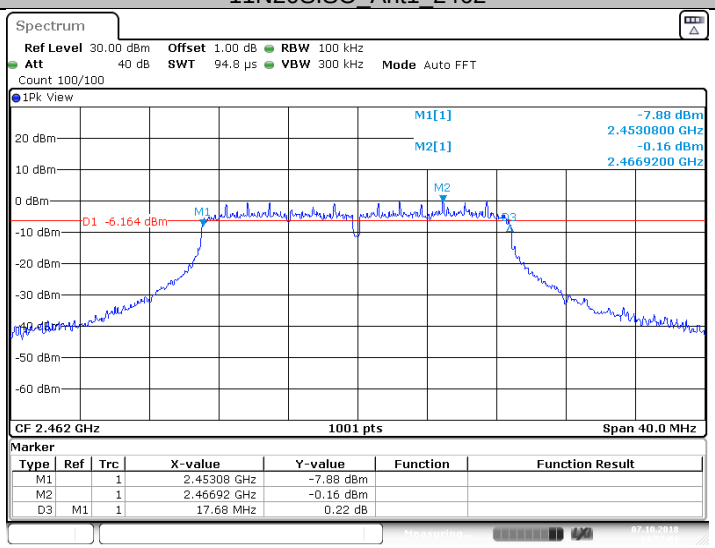
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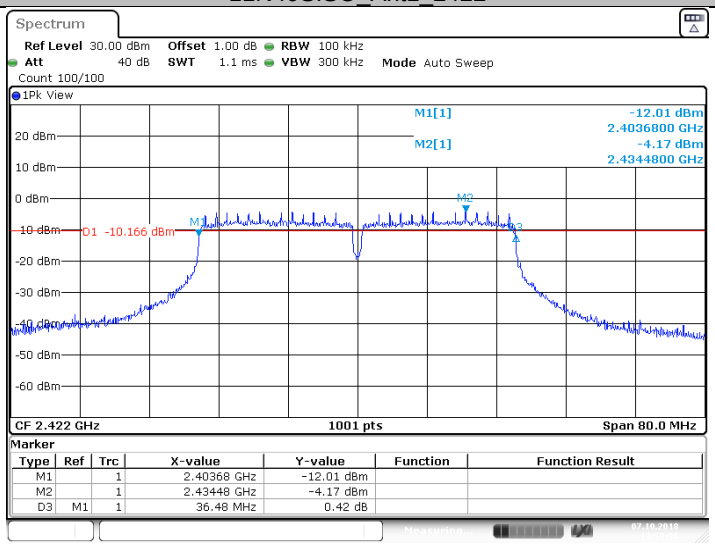
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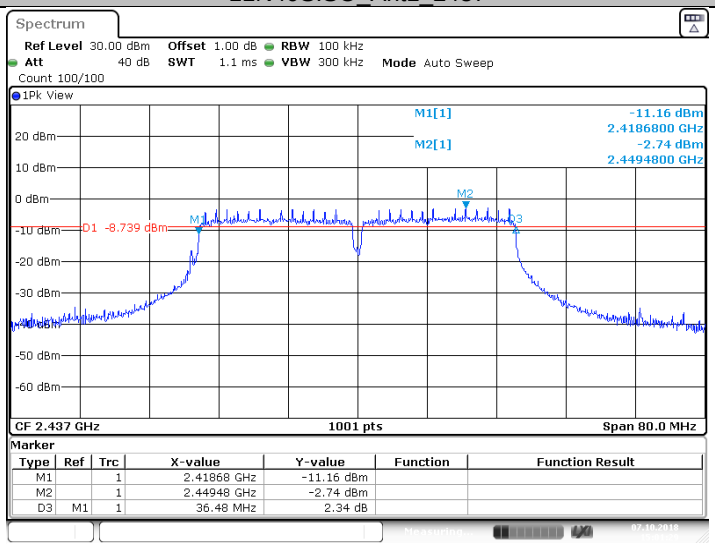

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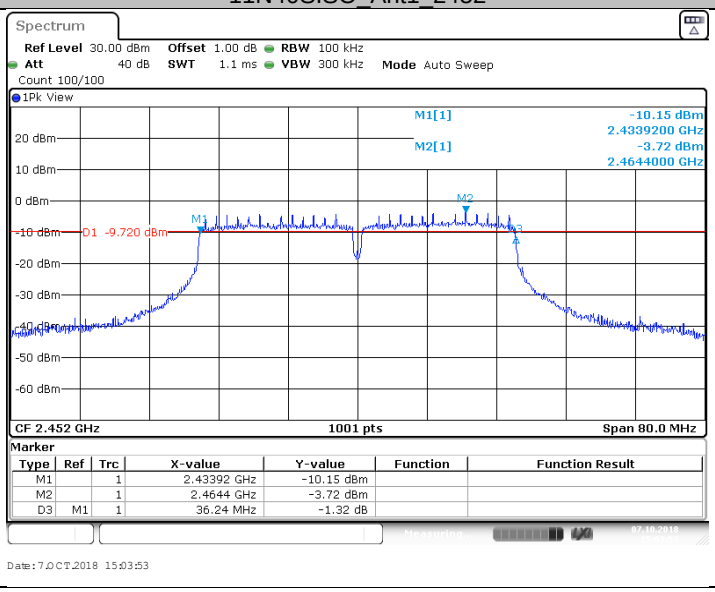

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9.5 Spurious RF conducted emissions

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≥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

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Spurious RF conducted emissions

Test Result

TestMode	Channel	FreqRange	RefLevel	Result	Limit	Verdict
11B	2412	Reference	5.54	5.54	---	PASS
	2412	30~1000	5.54	-43.74	-14.46	PASS
	2412	1000~26500	5.54	-52.88	-14.46	PASS
	2437	Reference	5.64	5.64	---	PASS
	2437	30~1000	5.64	-43.55	-14.36	PASS
	2437	1000~26500	5.64	-52.59	-14.36	PASS
	2462	Reference	6.25	6.25	---	PASS
	2462	30~1000	6.25	-42.73	-13.75	PASS
	2462	1000~26500	6.25	-52.95	-13.75	PASS
11G	2412	Reference	3.79	3.79	---	PASS
	2412	30~1000	3.79	-45.52	-16.21	PASS
	2412	1000~26500	3.79	-52.32	-16.21	PASS
	2437	Reference	3.96	3.96	---	PASS
	2437	30~1000	3.96	-45.02	-16.04	PASS
	2437	1000~26500	3.96	-53.43	-16.04	PASS
	2462	Reference	4.14	4.14	---	PASS
	2462	30~1000	4.14	-45.29	-15.86	PASS
	2462	1000~26500	4.14	-52.3	-15.86	PASS
11N20SISO	2412	Reference	-1.90	-1.90	---	PASS
	2412	30~1000	-1.90	-45.33	-21.9	PASS
	2412	1000~26500	-1.90	-53.43	-21.9	PASS
	2437	Reference	-0.47	-0.47	---	PASS
	2437	30~1000	-0.47	-44.94	-20.47	PASS
	2437	1000~26500	-0.47	-51.22	-20.47	PASS
	2462	Reference	-0.31	-0.31	---	PASS
	2462	30~1000	-0.31	-43.66	-20.31	PASS
	2462	1000~26500	-0.31	-52.4	-20.31	PASS
11N40SISO	2422	Reference	-4.64	-4.64	---	PASS
	2422	30~1000	-4.64	-49.32	-24.64	PASS
	2422	1000~26500	-4.64	-53.29	-24.64	PASS
	2437	Reference	-3.15	-3.15	---	PASS
	2437	30~1000	-3.15	-47.63	-23.15	PASS
	2437	1000~26500	-3.15	-52.1	-23.15	PASS
	2452	Reference	-3.90	-3.90	---	PASS
	2452	30~1000	-3.90	-48.29	-23.9	PASS
	2452	1000~26500	-3.90	-53.71	-23.9	PASS

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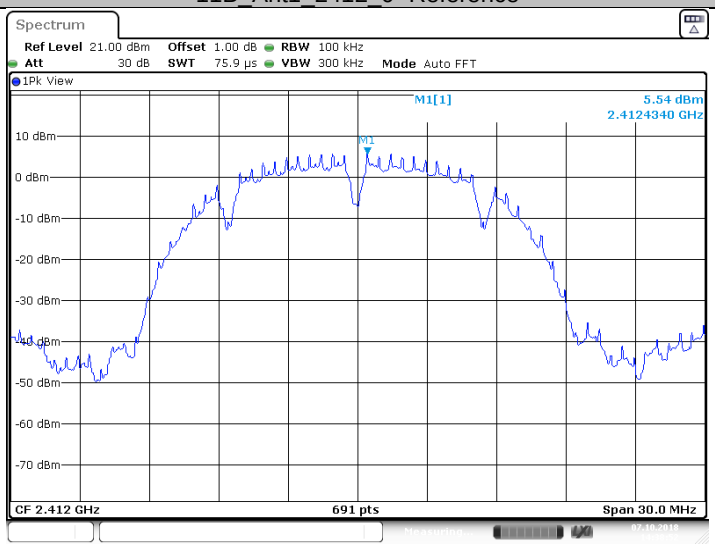
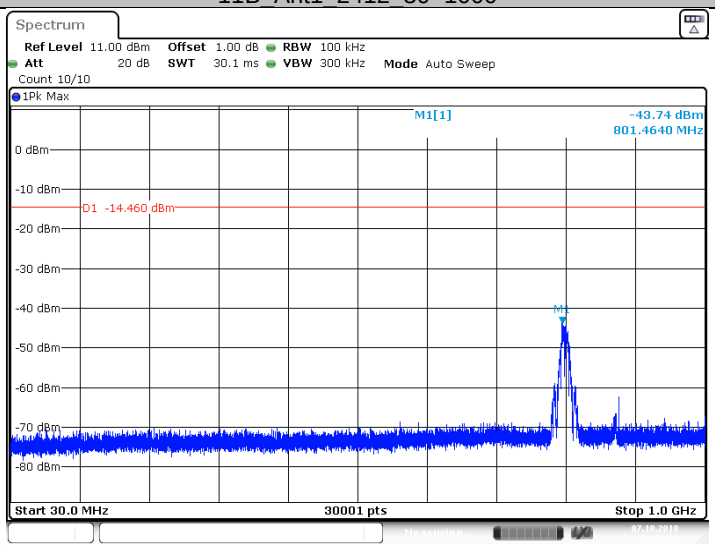
Test Graphs

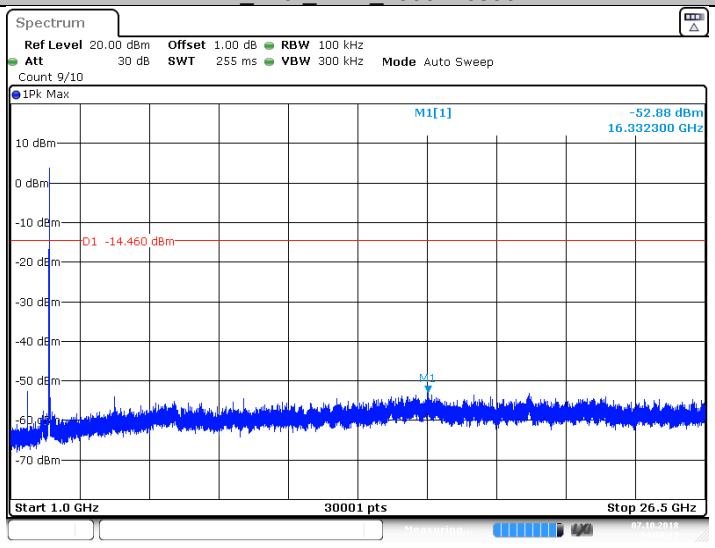
11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500



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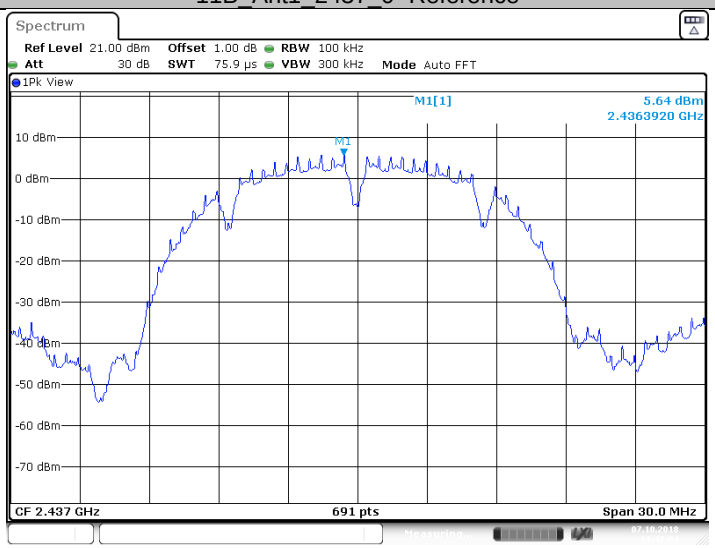
11B_Ant1_2437_0~Reference

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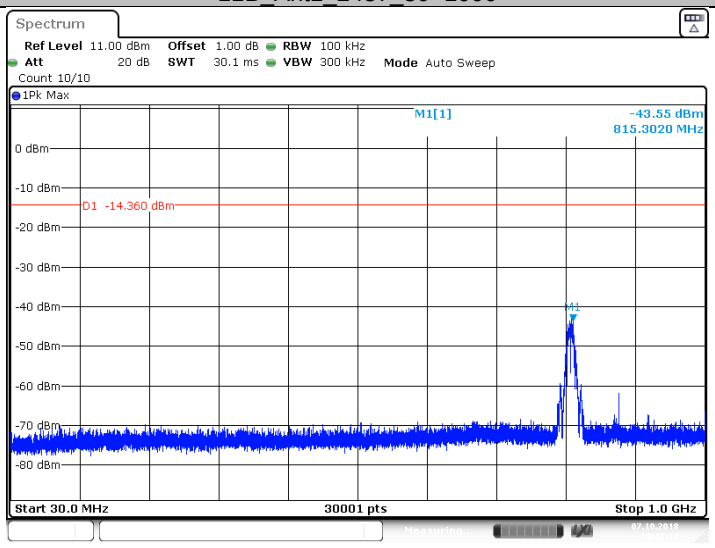
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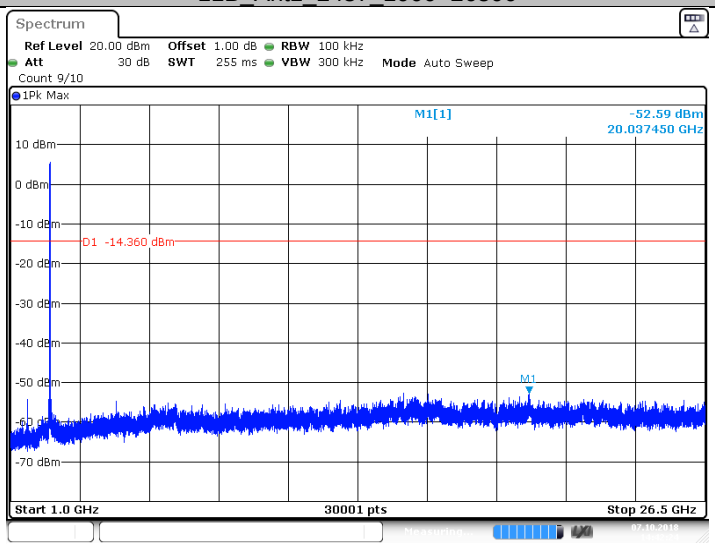

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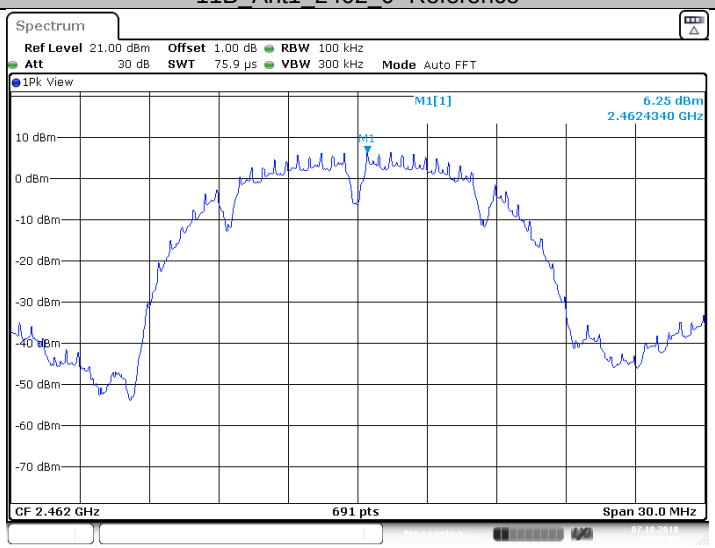
11B_Ant1_2462_0~Reference

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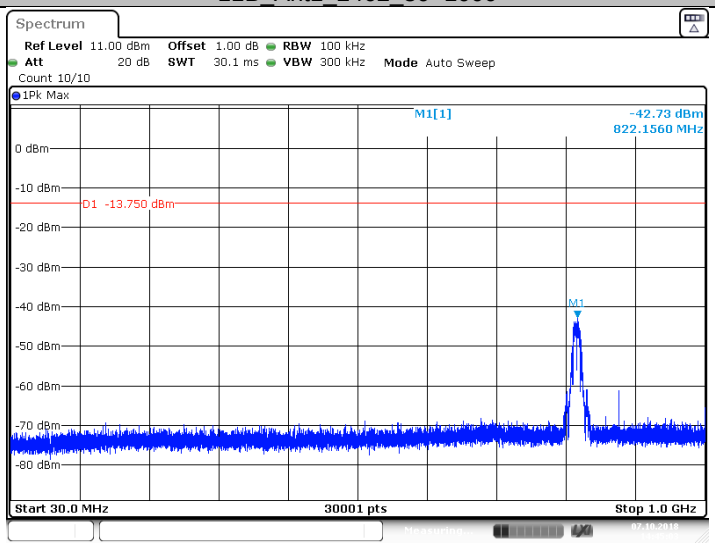
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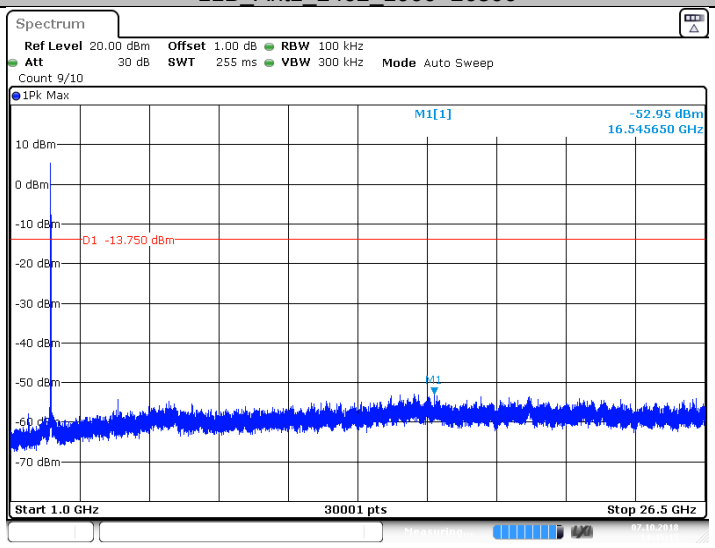

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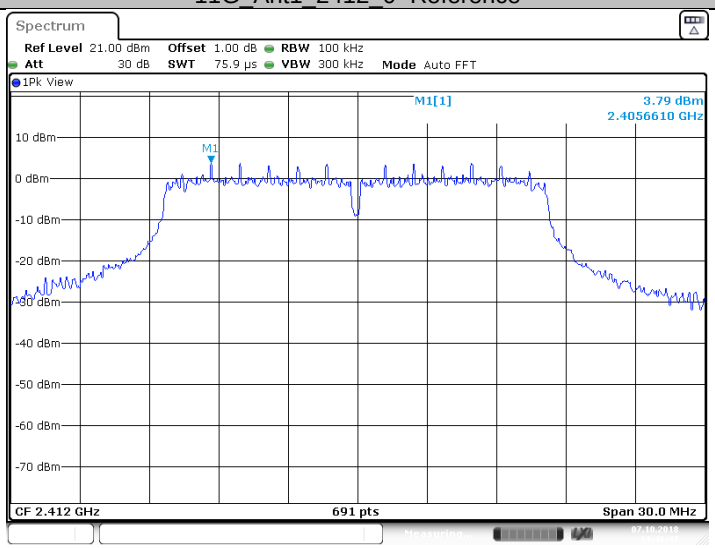
11G_Ant1_2412_0~Reference

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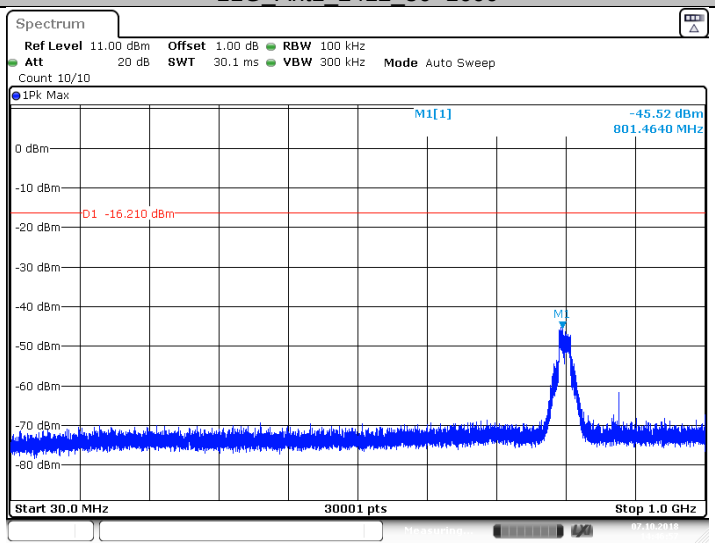
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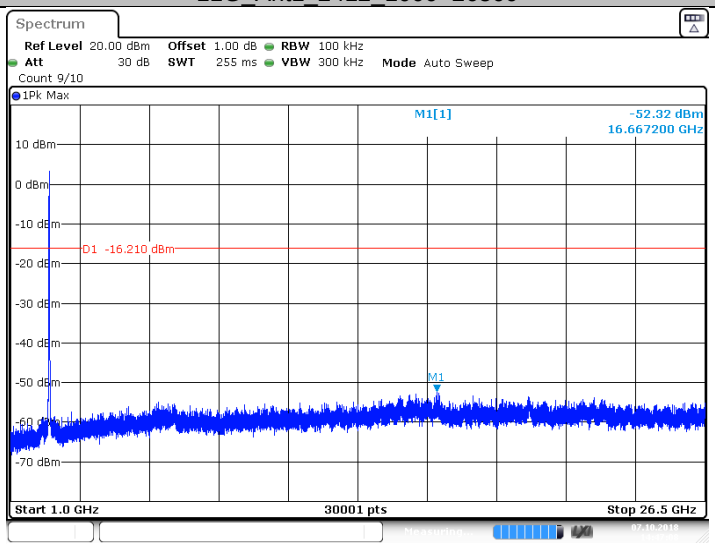

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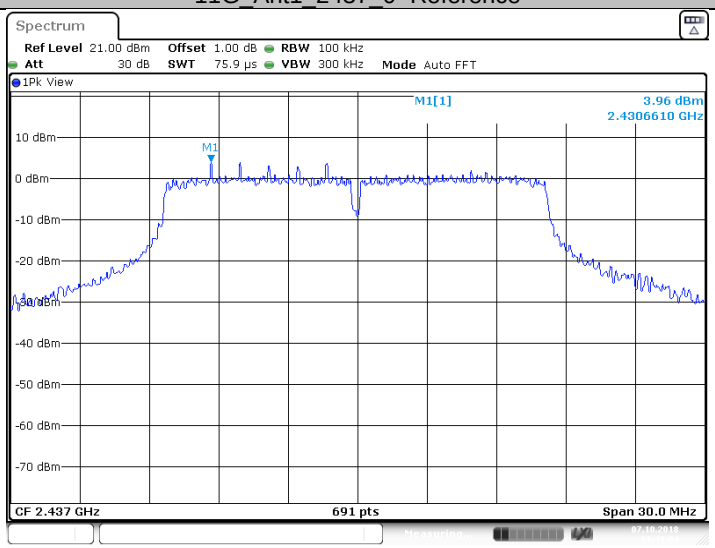
11G_Ant1_2437_0~Reference

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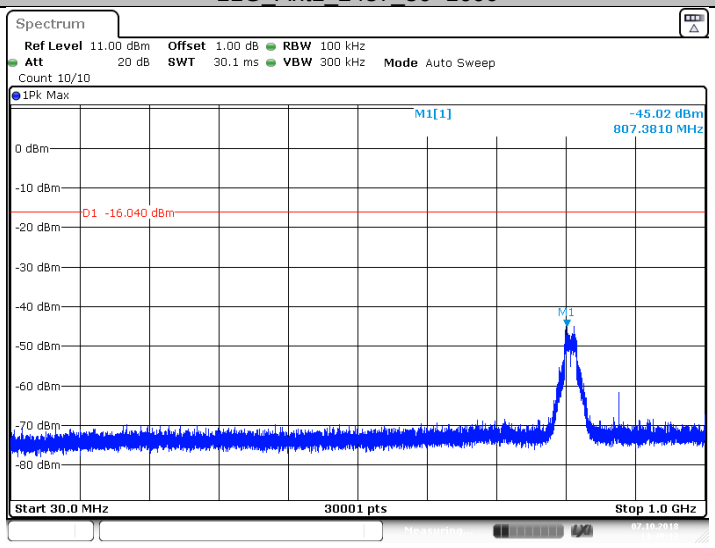
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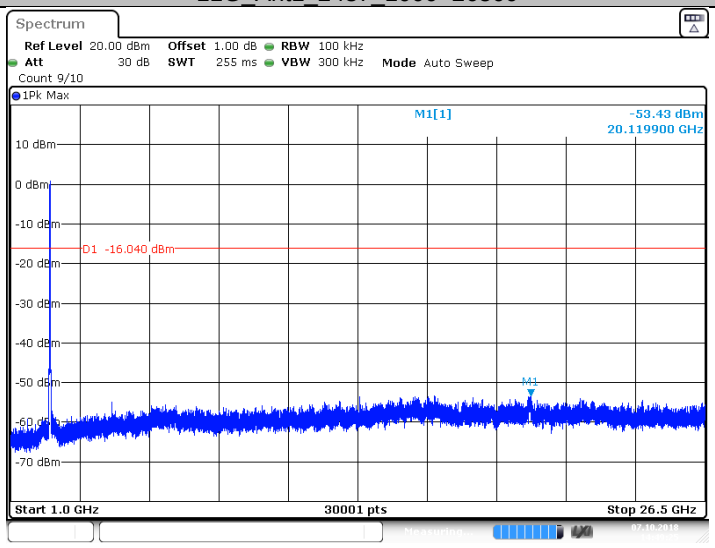

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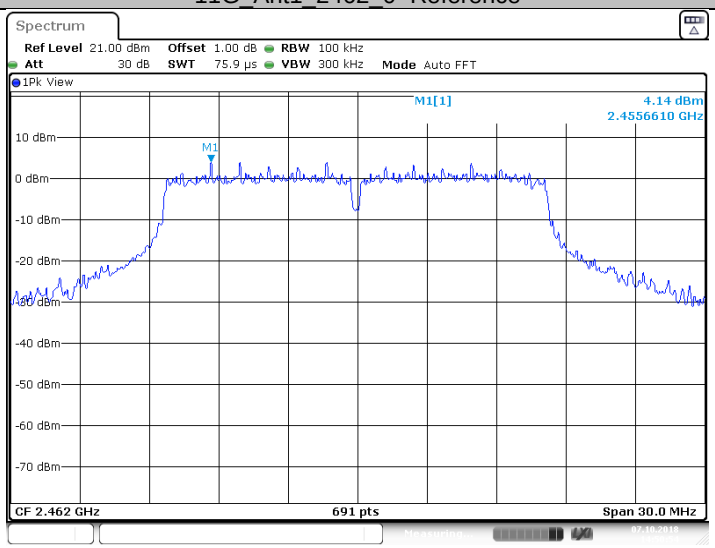
11G_Ant1_2462_0~Reference

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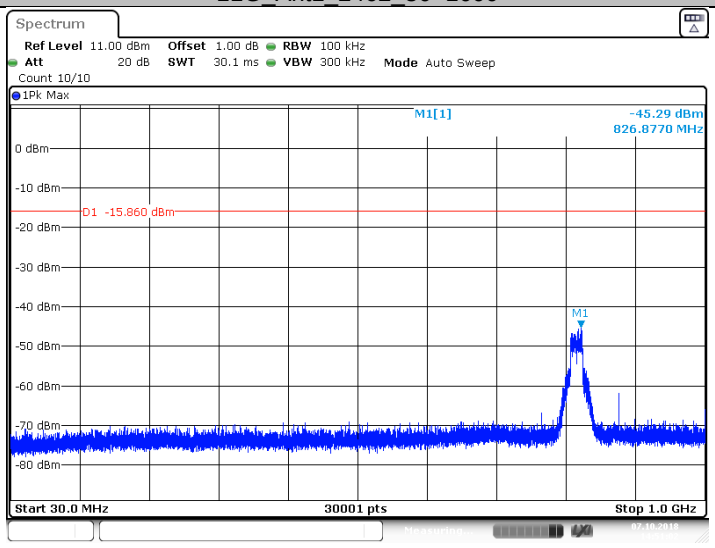
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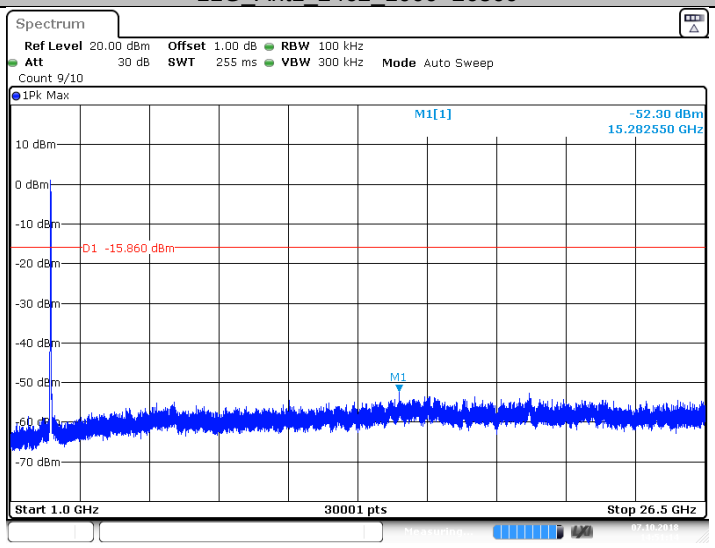

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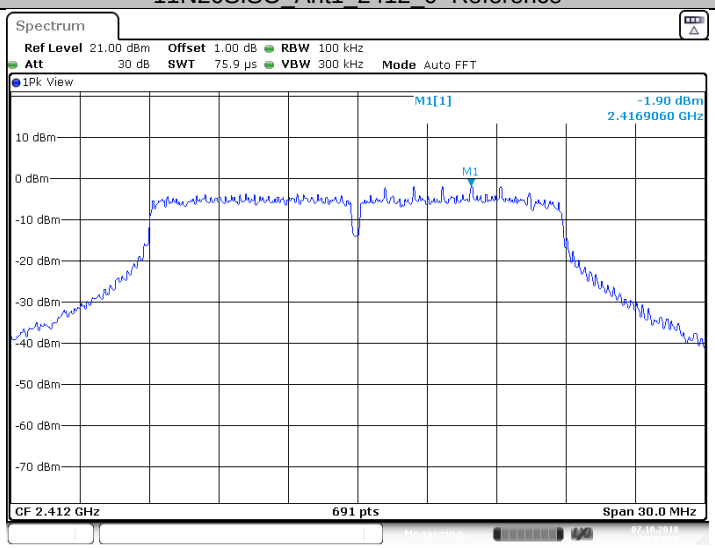
11N20SISO_Ant1_2412_0~Reference

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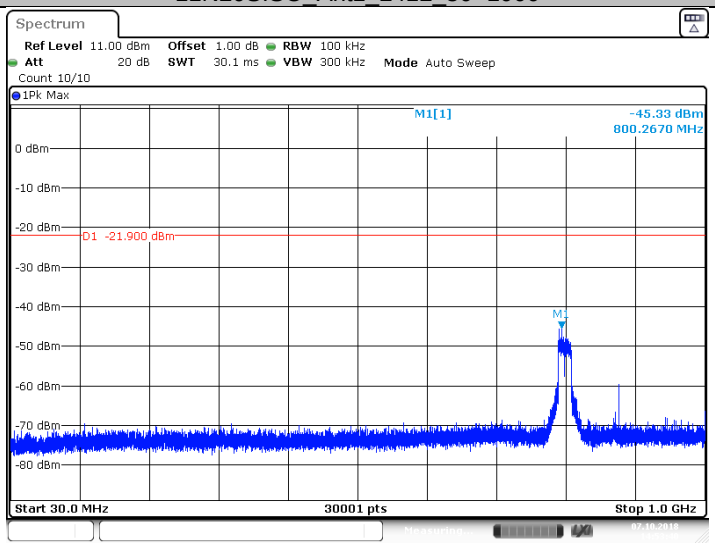
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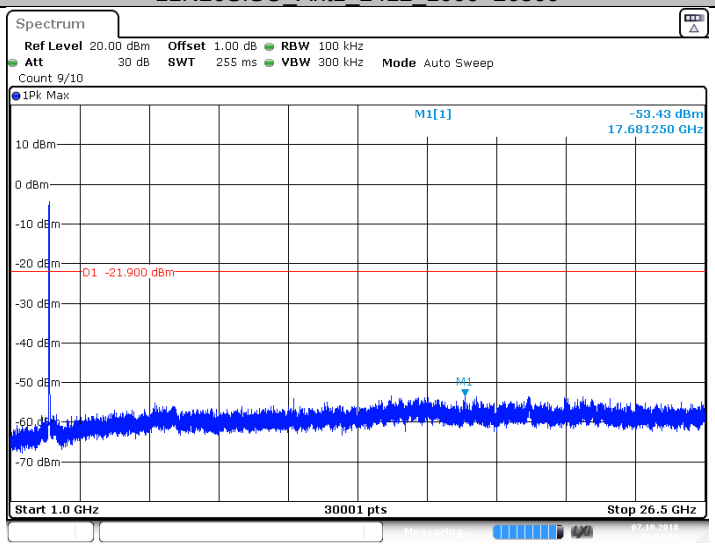

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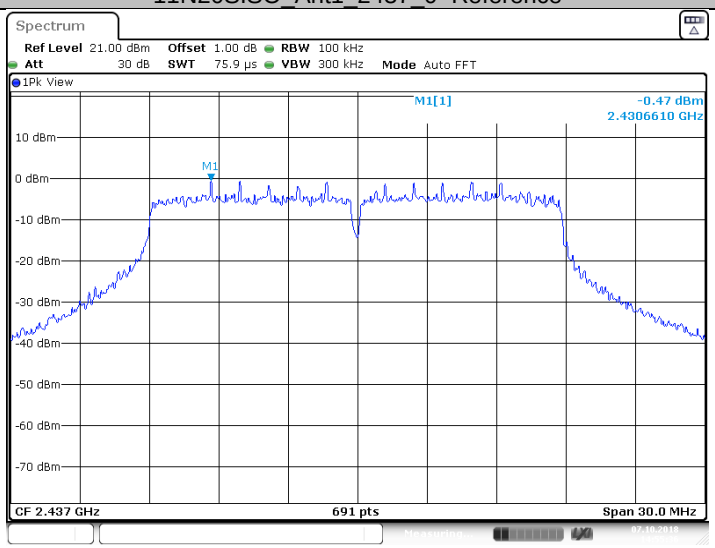
11N20SISO_Ant1_2437_0~Reference

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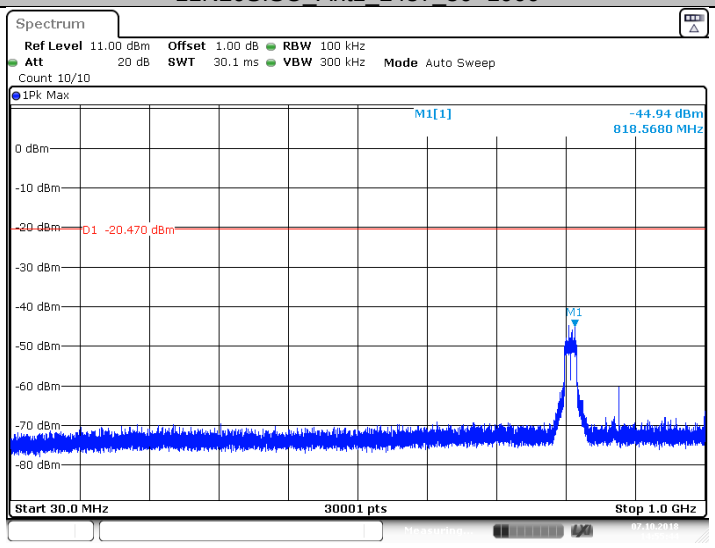
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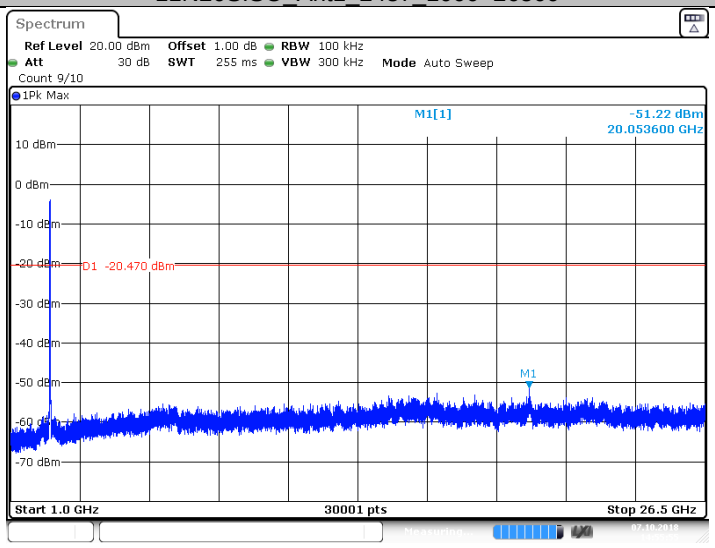

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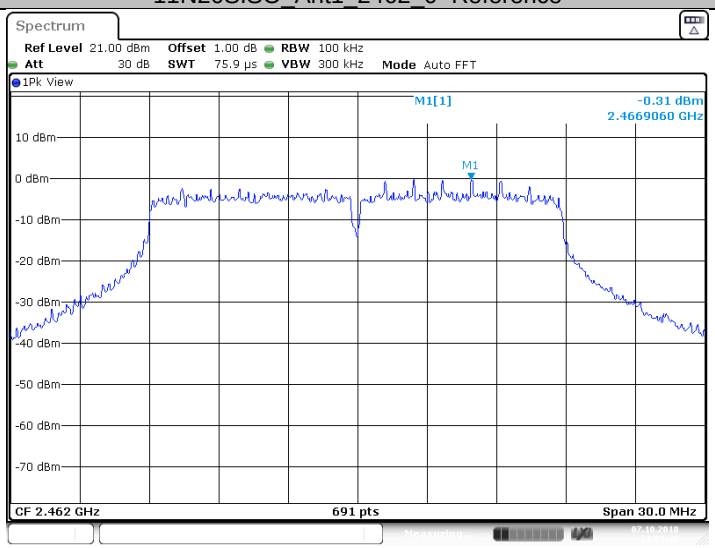
11N20SISO_Ant1_2462_0~Reference

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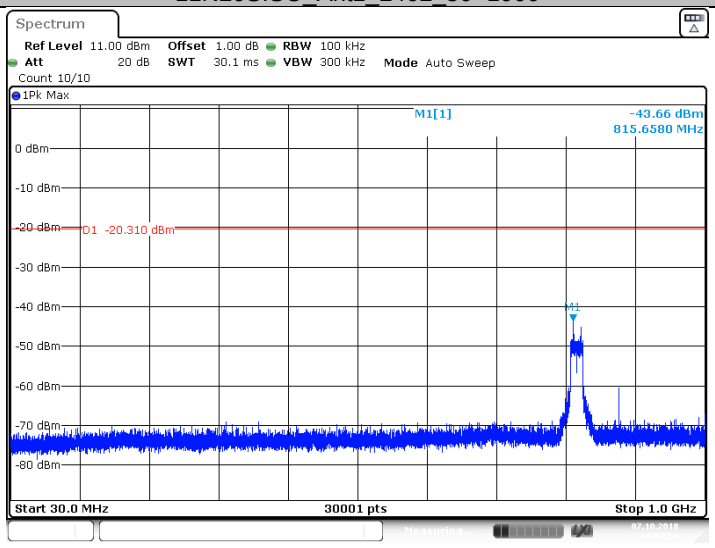
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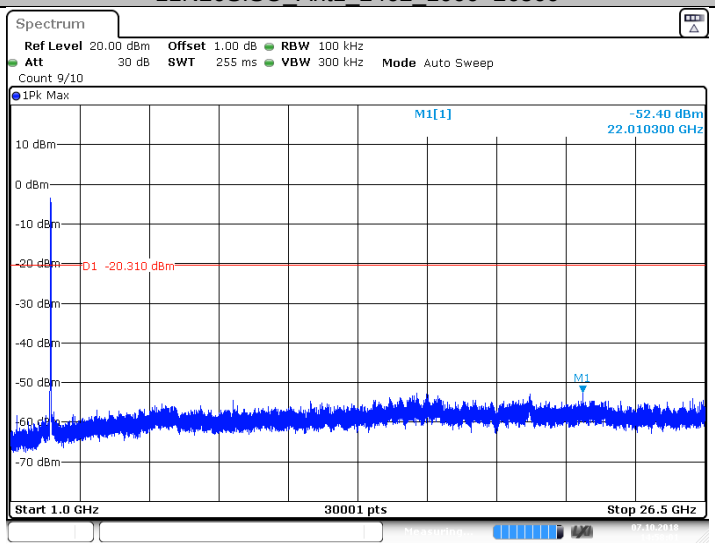

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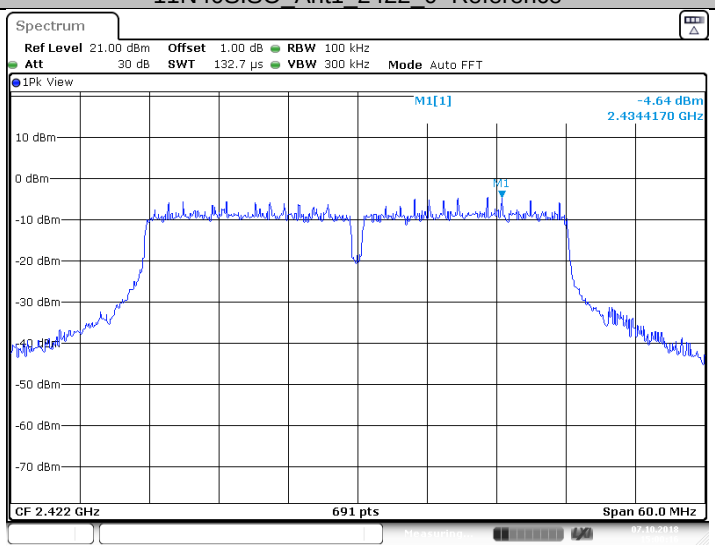
11N40SISO_Ant1_2422_0~Reference



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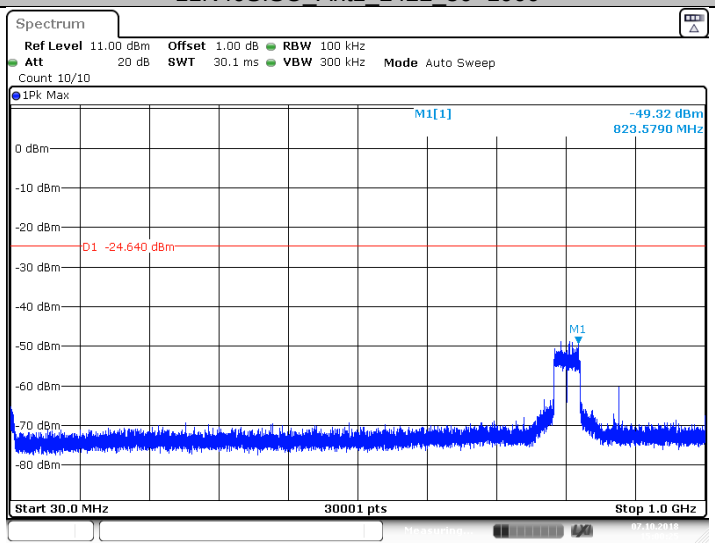

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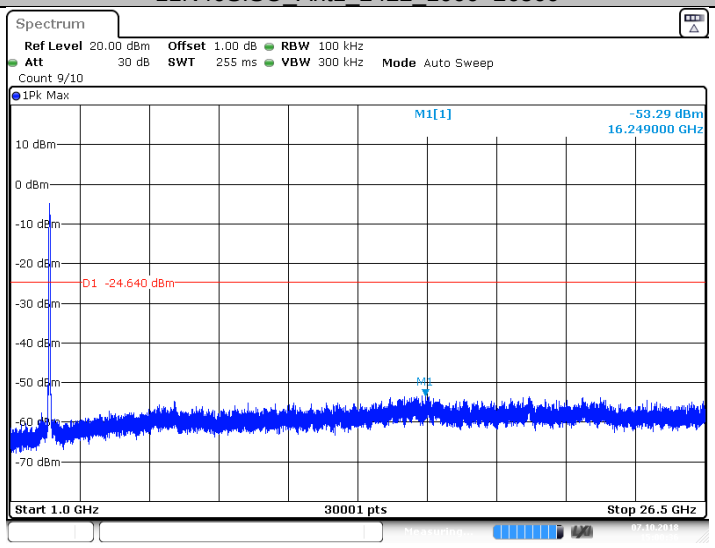

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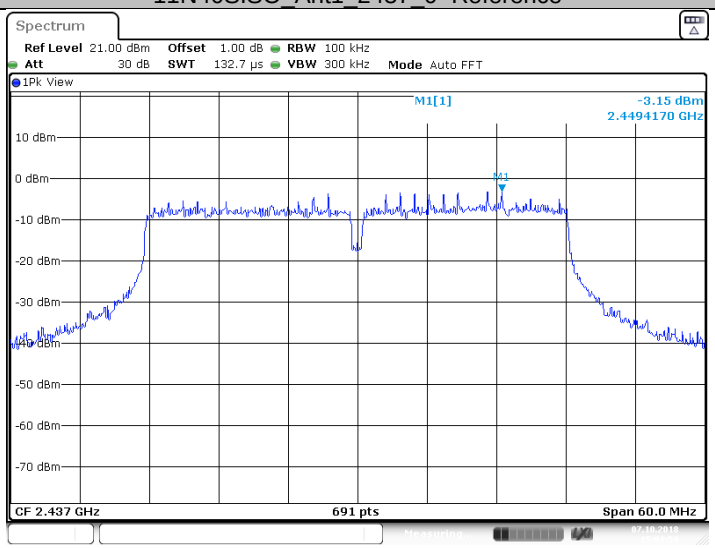
11N40SISO_Ant1_2437_0~Reference

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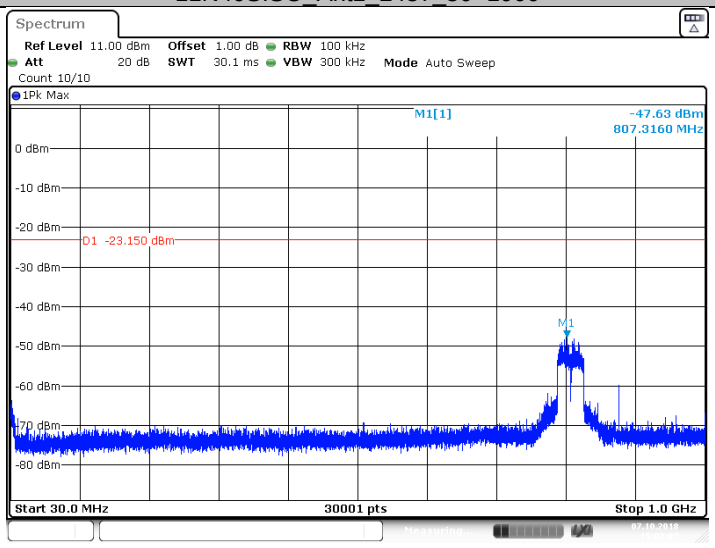
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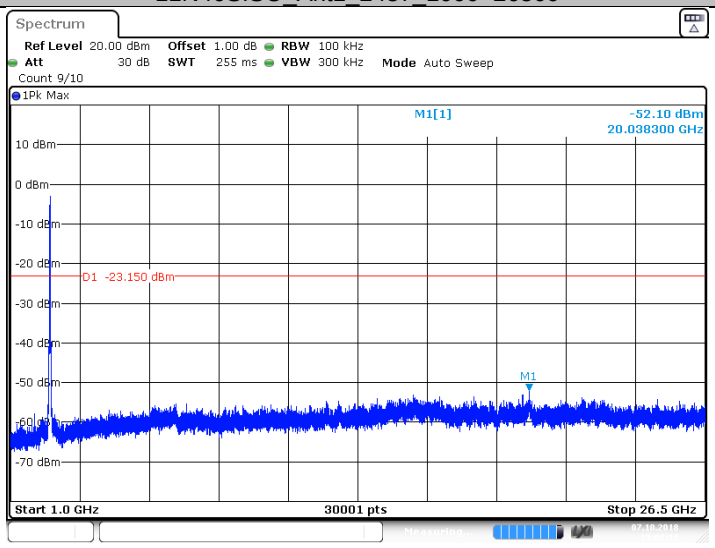

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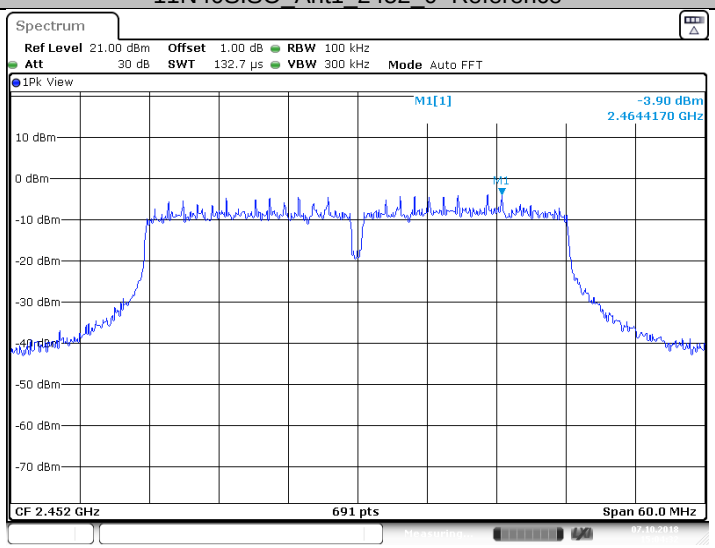
11N40SISO_Ant1_2452_0~Reference

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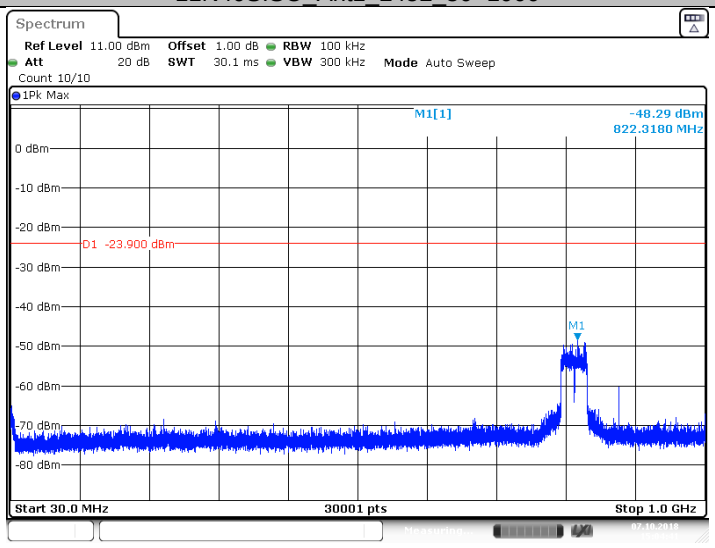
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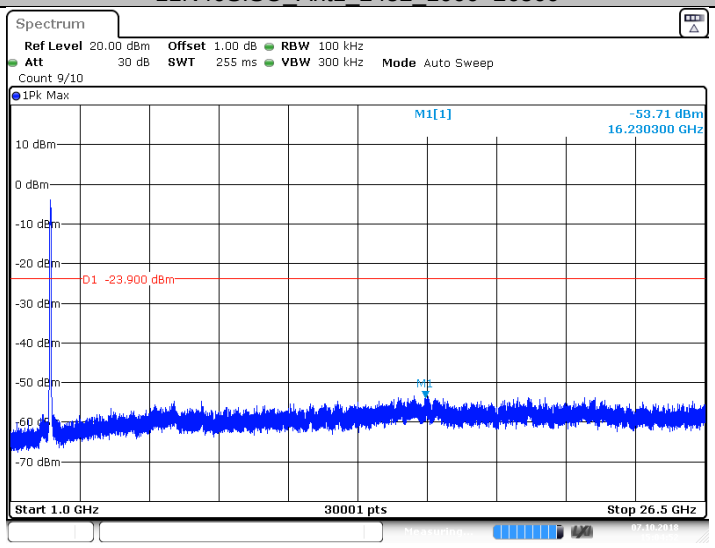

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9.6 Band edge testing

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≥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 the100 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.

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Band edge testing

Test Result

Test Mode	Channel	Ref Level	Result	Limit	Verdict
11B	2412	5.18	-36.94	-14.82	PASS
	2462	6.15	-53.71	-13.85	PASS
11G	2412	2.56	-24.45	-17.44	PASS
	2462	3.90	-35.22	-16.10	PASS
11N20SISO	2412	-0.88	-29.94	-20.88	PASS
	2462	-0.32	-43.54	-20.32	PASS
11N40SISO	2422	-4.63	-34.63	-24.63	PASS
	2452	-4.59	-37.52	-24.59	PASS

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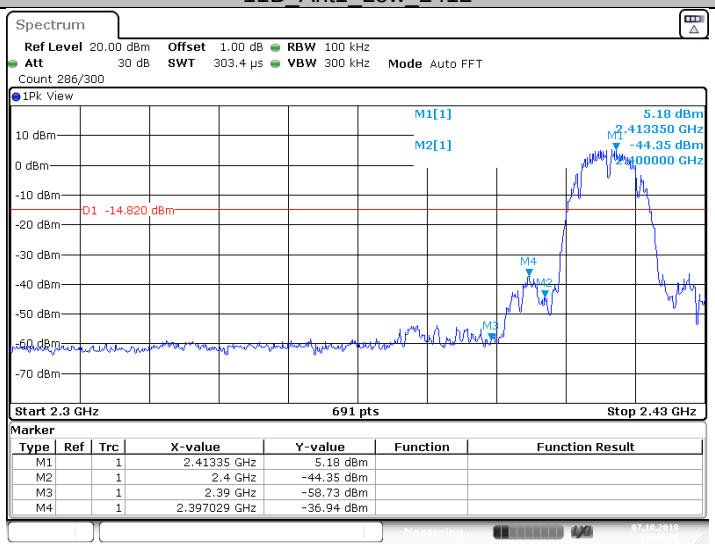
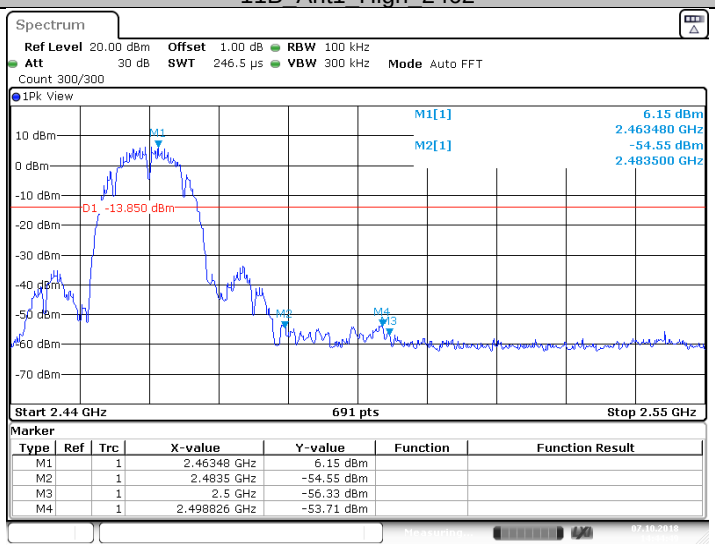
Test Graphs

11B_Ant1_Low_2412



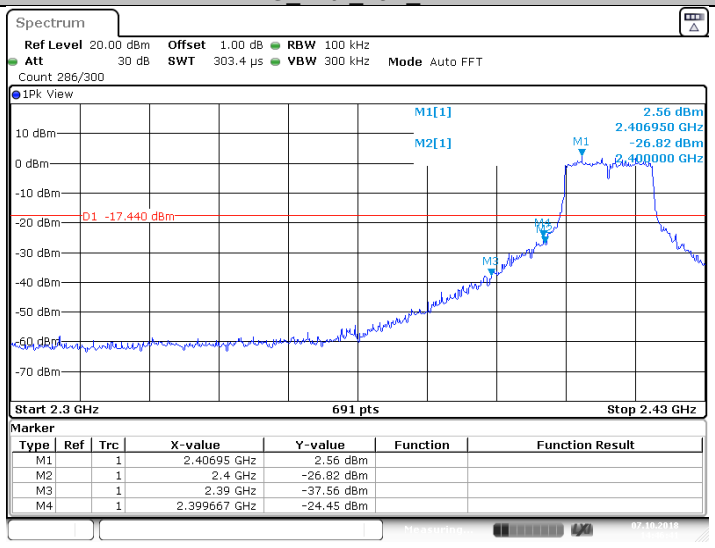
Date: 7.OCT.2018 14:38:46

11B_Ant1_High_2462



Date: 7.OCT.2018 14:44:49

11G_Ant1_Low_2412



Date: 7.OCT.2018 14:46:42

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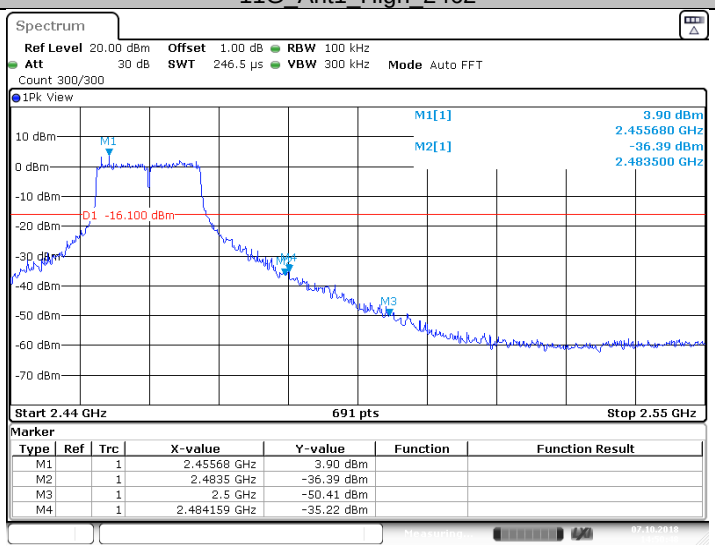
11G_Ant1_High_2462

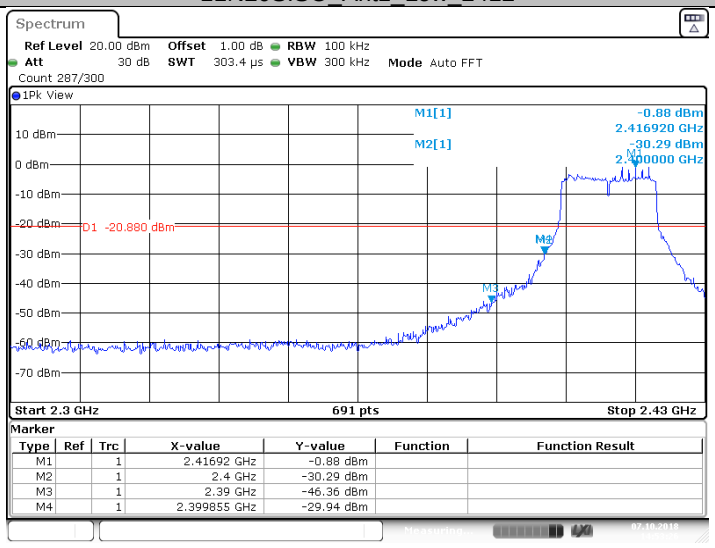


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45568 GHz	3.90 dBm		
M2		1	2.4835 GHz	-36.39 dBm		
M3		1	2.5 GHz	-50.41 dBm		
M4		1	2.484159 GHz	-35.22 dBm		

Date: 7.OCT.2018 14:50:48

11N20SISO_Ant1_Low_2412

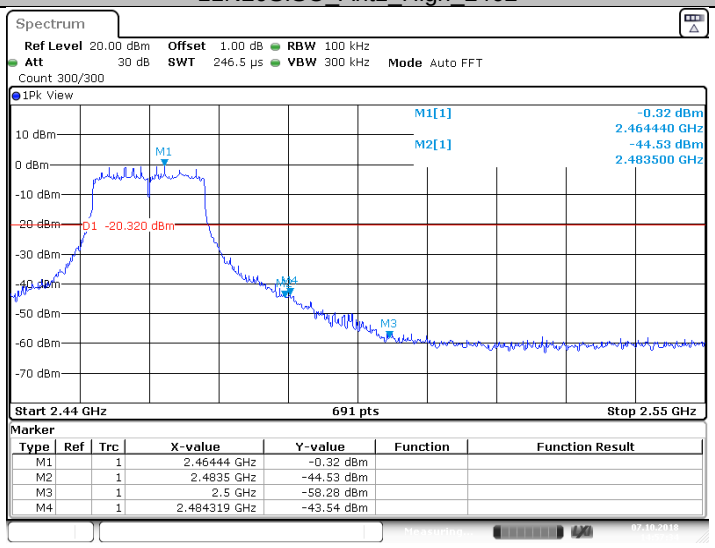


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41692 GHz	-0.88 dBm		
M2		1	2.4 GHz	-30.29 dBm		
M3		1	2.39 GHz	-46.36 dBm		
M4		1	2.399855 GHz	-29.94 dBm		

Date: 7.OCT.2018 14:53:26

11N20SISO_Ant1_High_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46444 GHz	-0.32 dBm		
M2		1	2.4835 GHz	-44.53 dBm		
M3		1	2.5 GHz	-58.28 dBm		
M4		1	2.484319 GHz	-43.54 dBm		

Date: 7.OCT.2018 14:57:35

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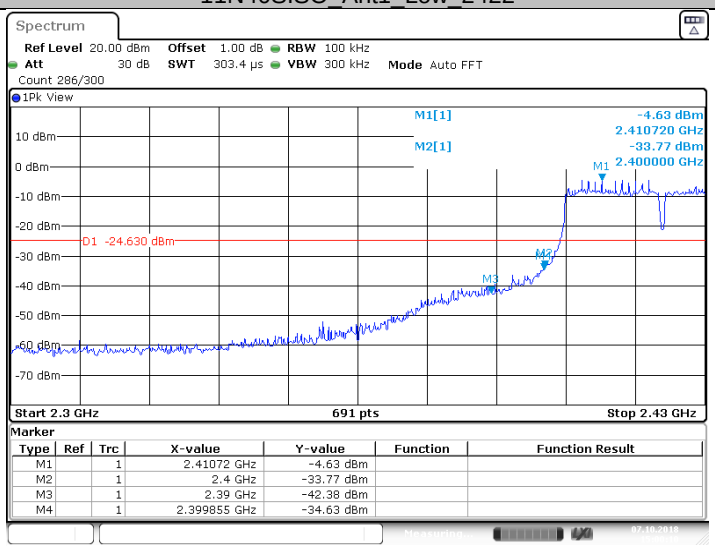
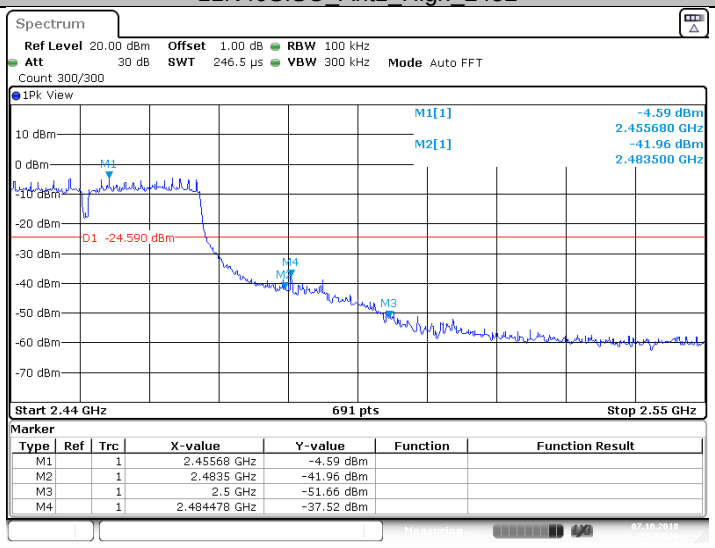
11N40SISO_Ant1_Low_2422

11N40SISO_Ant1_High_2452


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9.7 Spurious radiated emissions for transmitter

Test Method

1: The EUT was place 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 (20log(1/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 section15.205, 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

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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.
Pretest all modulation type, report the data of the worst case.
Transmitting spurious emission test result as below:
Emission below 1GHz

Frequency (MHz)	QP (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB)
86.260000	25.65	40.00	14.35	V	-30.3
183.745000	16.17	43.50	27.33	V	-29.0
282.631111	28.03	46.00	17.97	V	-26.1
781.803889	33.77	46.00	12.23	V	-17.0
121.934444	19.73	43.50	23.77	H	-29.9
283.870556	25.91	46.00	20.09	H	-26.1
499.533889	32.89	46.00	13.11	H	-21.7
797.593333	30.10	46.00	15.90	H	-16.8

Emission between 1G-25GHz
802.11b Modulation:
2412MHz Test Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB)
1000.000000	21.00	54.00	53.00	H	-12.9
1599.625000	30.99	74.00	43.01	H	-10.6
2164.937500	30.74	74.00	43.26	H	-7.4
2558.375000	35.28	74.00	38.72	H	-4.4
4823.906250	46.27	74.00	27.73	H	3.9
7527.187500	40.74	74.00	33.26	H	9.7
10912.96875	39.50	74.00	34.50	H	9.9
12754.21875	44.57	74.00	29.43	H	14.6
1599.250000	26.54	74.00	47.46	V	-10.6
1730.562500	26.73	74.00	47.27	V	-9.9
2412.562500	41.56	74.00	32.44	V	-5.4
2648.687500	30.40	74.00	43.60	V	-4.0
4823.906250	47.69	74.00	26.31	V	3.9
7057.500000	40.79	74.00	33.21	V	6.9
7529.531250	40.52	74.00	33.48	V	9.7
10625.15625	42.14	74.00	31.86	V	10.3

2437MHz Test Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB)
1599.375000	37.13	74.00	36.87	H	-10.6
2368.375000	31.65	74.00	42.35	H	-5.9
2600.062500	36.75	74.00	37.25	H	-4.2
4883.906250	47.69	74.00	26.31	H	3.8
7537.031250	41.75	74.00	32.25	H	9.8
10954.21875	39.62	74.00	34.38	H	9.9
14722.96875	45.89	74.00	28.11	H	17.7
1253.875000	30.66	74.00	43.34	V	-11.8
2248.187500	31.07	74.00	42.93	V	-6.7
2557.062500	32.36	74.00	41.64	V	-4.3
4883.906250	46.40	74.00	27.60	V	3.8
7628.906250	41.44	74.00	32.56	V	9.8
10987.50000	39.42	74.00	34.58	V	9.9
14460.46875	46.46	74.00	27.54	V	16.9

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2462MHz Test Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV /m)	Margin (dB)	Pol	Corr. (dB)
1599.375000	28.67	74.00	45.33	H	-10.6
2281.750000	32.04	74.00	41.96	H	-6.5
2472.500000	40.93	74.00	33.07	H	-4.8
2569.750000	34.88	74.00	39.12	H	-4.4
4943.906250	47.87	74.00	26.13	H	4.2
7637.812500	40.91	74.00	33.09	H	9.7
9432.656250	40.51	74.00	33.49	H	9.7
11131.40625	40.74	74.00	33.26	H	9.9
1592.937500	32.34	74.00	41.66	V	-10.6
2247.875000	30.28	74.00	43.72	V	-6.7
2475.500000	42.52	74.00	31.48	V	-4.8
2589.500000	32.08	74.00	41.92	V	-4.3
4943.906250	49.12	74.00	24.88	V	4.2
6624.843750	40.19	74.00	33.81	V	6.2
8667.187500	39.33	74.00	34.67	V	8.4
12370.78125	44.75	74.00	29.25	V	14.1
17724.37500	50.37	74.00	23.63	V	22.7

Remark:
(1) "*" means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.
(2) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.
(3) Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

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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	2019-7-6
	LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
	LISN	Rohde & Schwarz	ENV432	101318	2019-7-6
	LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
	ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
	ISN	Rohde & Schwarz	ENY81-CA6	101664	2019-7-6
	High Voltage Probe	Rohde & Schwarz	TK9420(VT9420)	9420-584	2019-6-30
	RF Current Probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
	Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2019-7-6
	Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A
C	Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
	Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
	Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
	RF Switch Module / Power meter	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6
RE	Signal Analyzer	Rohde & Schwarz	FSV40	101031	2019-7-6
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	708	2019-7-4
	Horn Antenna	Rohde & Schwarz	HF907	102295	2019-7-4
	Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2019-7-12
	Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
	Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2019-7-6
	Fully Anechoic Chamber	TDK	8X4X4	--	2020-7-7
	Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

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

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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: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted Emission 150KHz-30MHz	U=3.21dB(k=2)
RF Power Conducted:	1.16dB
Frequency test involved:	0.6×10^{-7} or 1%

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