FCC - TEST REPORT

Report Number	: 68.950.19.0481.01	Date of Issue:	May 17, 2019
Model	: CTR		
Product Type	: Infotainment headunit		
Applicant	: Harman Automotive Electronic Systems(Suzhou) Co., Ltd		
Address	: No.125, Fangzhou Road, SIP, Suzhou, Jiangsu Province, China		
Manufacturer	: Harman Automotive Electronic Systems(Suzhou) Co., Ltd		
Address	: No.125, Fangzhou Road, SIP, Suzhou, Jiangsu Province, China		
Test Result	: ■ Positive ☐ Negative		
Total pages including Appendices	: 44		

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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
FCC Registration No.:	514049
Telephone:	86 755 8828 6998
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3 Description of the Equipment Under Test

Product:	Infotainment headunit
Model no.:	CTR
FCC ID:	2ACRLCTR
Brand Name:	Harman
Options and accessories:	NIL
Rating:	DC 12V
RF Transmission Frequency:	2412-2462MHz
No. of Operated Channel:	11
Modulation:	DSSS, OFDM
Antenna Type:	Internal Antenna
Antenna Gain:	4.7dBi
Description of the EUT:	CTR is Infotainment headunit with AM, FM, DAB, Bluetooth, Wi-Fi function.

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2018 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB 558074 D01 DTS Measurement Guidance v05r02 DTS Measurement Guidance and ANSI C63.10 (2013).

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5 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C						
Test Condition		Pages	Test Site	Test Result		
				Pass	Fail	N/A
§15.207	Conducted emission AC power port	---	---	☐	☐	☒
§15.247 (b) (1)	Conducted peak output power	10	Site 1	☒	☐	☐
§15.247(a)(1)	20dB bandwidth	---	---	☐	☐	☒
§15.247(a)(1)	Carrier frequency separation	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Number of hopping frequencies	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Dwell Time	---	---	☐	☐	☒
§15.247(a)(2)	6dB bandwidth and 99% Occupied Bandwidth	12	Site 1	☒	☐	☐
§15.247(e)	Power spectral density	17	Site 1	☒	☐	☐
§15.247(d)	Spurious RF conducted emissions	18	Site 1	☒	☐	☐
§15.247(d)	Band edge	32	Site 1	☒	☐	☐
§15.247(d)	Spurious radiated emissions for transmitter	36	Site 1	☒	☐	☐
§15.203	Antenna requirement	See note 2		☒	☐	☐

Note 1: N/A=Not Applicable.
Note 2: The EUT uses an internal antenna, which gain is 4.7dBi. 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: 2ACRLCTR, complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules.

CTR is Infotainment headunit with AM, FM, DAB, Bluetooth, Wi-Fi 2.4GHz and Wi-Fi 5GHz function. But the report is only show Wi-Fi 2.4GHz test result. The TX and RX range is 2412MHz-2462MHz.

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:	April 20, 2019
Testing Start Date:	April 25, 2019
Testing End Date:	May 16, 2019

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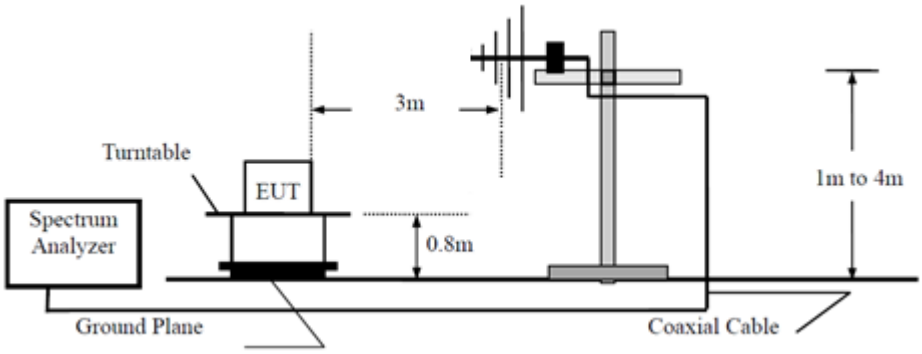
Reviewed by:	Prepared by:	Tested by:
John Zhi	Moon Xiong	Louise Liu
Section Manager	Project Engineer	Test Engineer

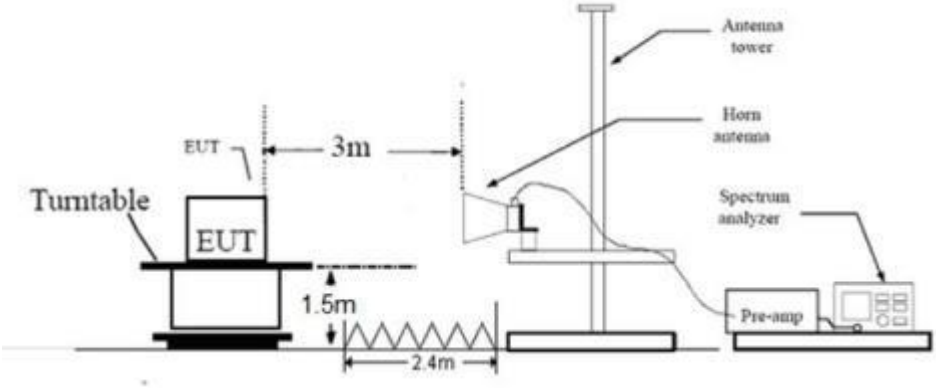
7 Test Setups

7.1 Radiated test setups

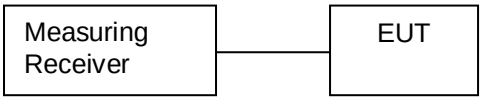
Below 1GHz



Above 1GHz



7.2 Conducted RF test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Computer	Lenovo	--	--

The system was configured to non-hopping mode.

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power.

Through pre-scan all kind of modulation and all kind of rates, find the 1Mbps of rate is the worst case of 802.11b; the 6Mbps of rate is the worst case of 802.11g; the 6.5Mbps of rate is the worst case of 802.11N20, Mcs0 of rate is the worst case of 802.11 N40. only the worst case transmitter rate data mode in recorded in the report.

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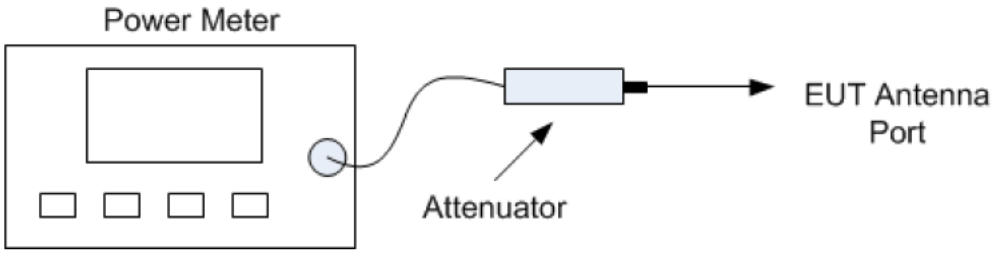
9 Technical Requirement

9.1 Conducted peak output power

Test Method

1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

4) Measure the average power of the transmitter. This measurement is a peak over both the ON and OFF periods of the transmitter.



Power meter conducted test setup

Limits
According to §15.247 (b) (1), conducted average output power limit as below:

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

Test result as below table

802.11b modulation Test Result

Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
Low channel 2412MHz	13.0	30	Pass
Middle channel 2437MHz	13.7	30	Pass
High channel 2462MHz	13.7	30	Pass

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802.11g modulation Test Result

Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
Low channel 2412MHz	9.5	30	Pass
Middle channel 2437MHz	10.2	30	Pass
High channel 2462MHz	10.3	30	Pass

802.11n20 modulation Test Result

Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
Low channel 2412MHz	9.6	30	Pass
Middle channel 2437MHz	10.3	30	Pass
High channel 2462MHz	10.4	30	Pass

802.11n40 modulation Test Result

Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
Low channel 2412MHz	9.6	30	Pass
Middle channel 2437MHz	9.9	30	Pass
High channel 2462MHz	9.8	30	Pass

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9.2 6dB bandwidth

Test Method for 6 dB Bandwidth

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 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)	6dB bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	10.120	0.5	Pass
Middle channel 2437MHz	10.160	0.5	Pass
High channel 2462MHz	10.120	0.5	Pass

802.11g modulation Test Result

Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	16.600	0.5	Pass
Middle channel 2437MHz	16.680	0.5	Pass
High channel 2462MHz	16.640	0.5	Pass

802.11n-HT20 modulation Test Result

Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	17.720	0.5	Pass
Middle channel 2437MHz	17.720	0.5	Pass
High channel 2462MHz	17.760	0.5	Pass

802.11n-HT40 modulation Test Result

Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	35.840	0.5	Pass
Middle channel 2437MHz	36.480	0.5	Pass
High channel 2462MHz	36.480	0.5	Pass

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6 dB Bandwidth

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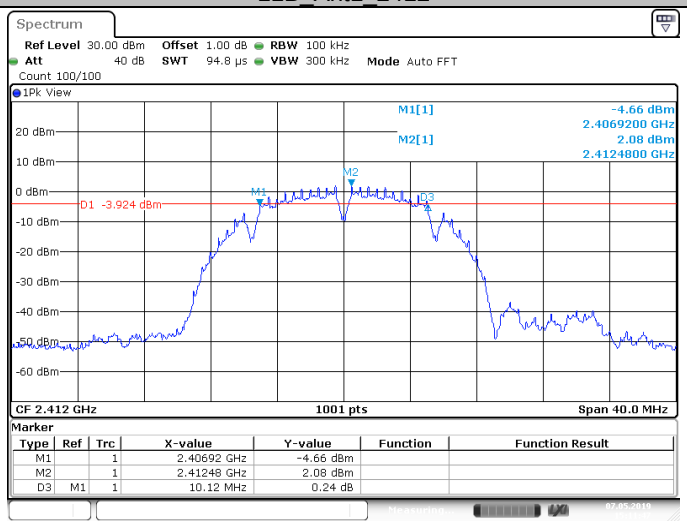

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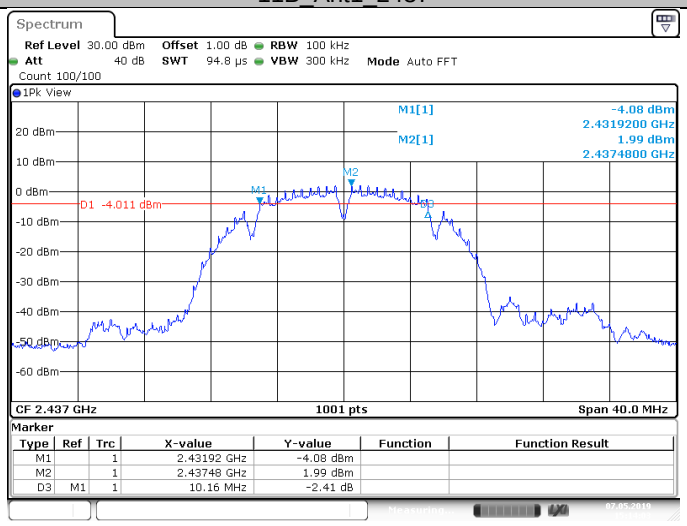

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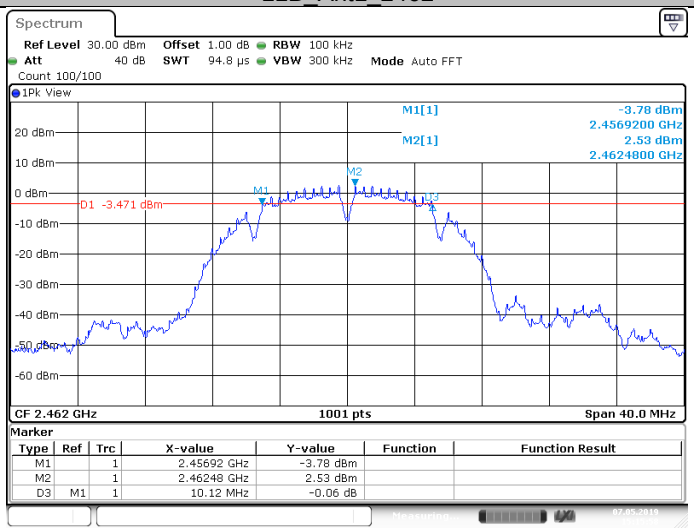

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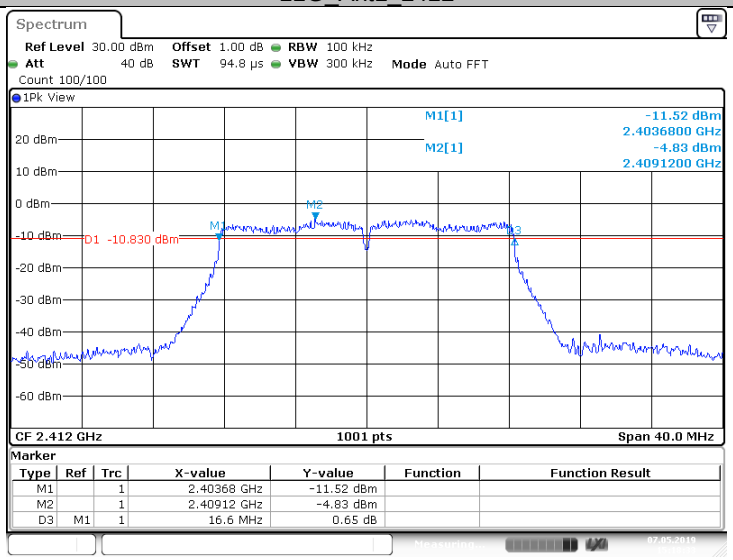

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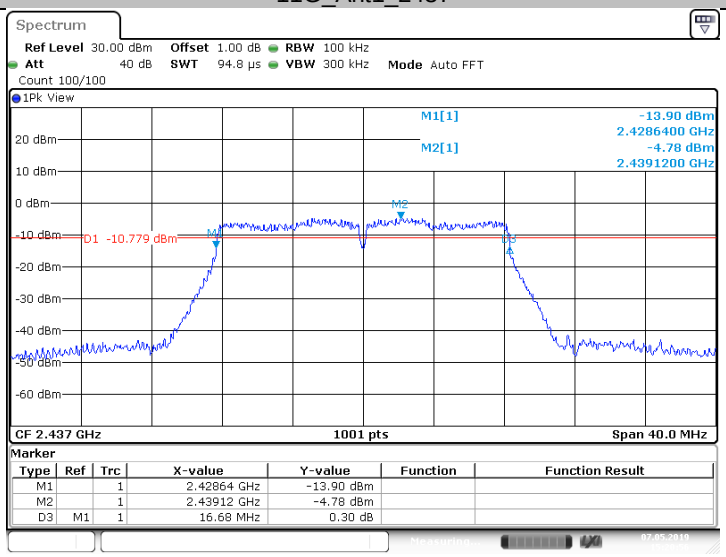

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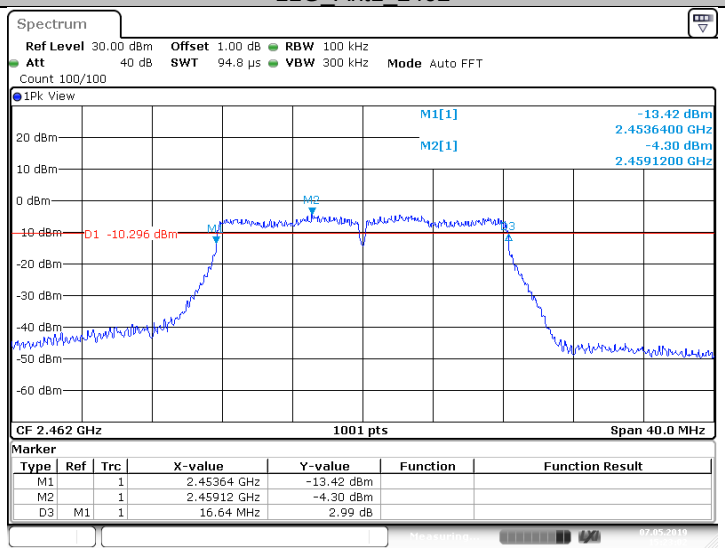

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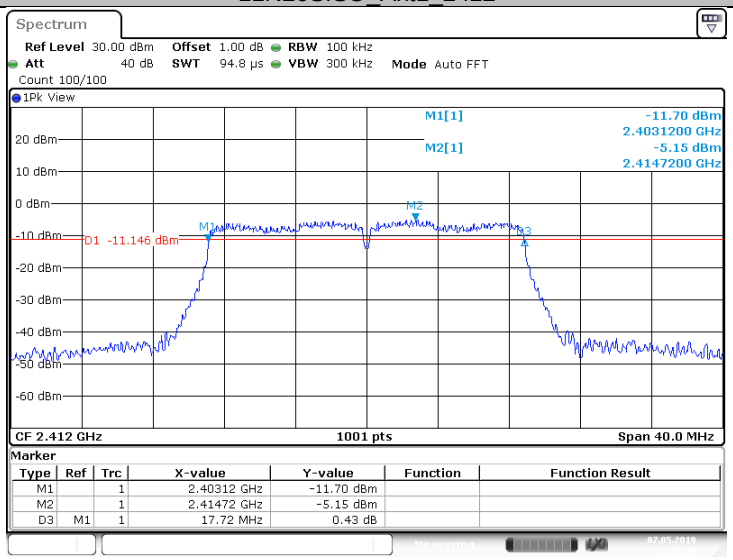

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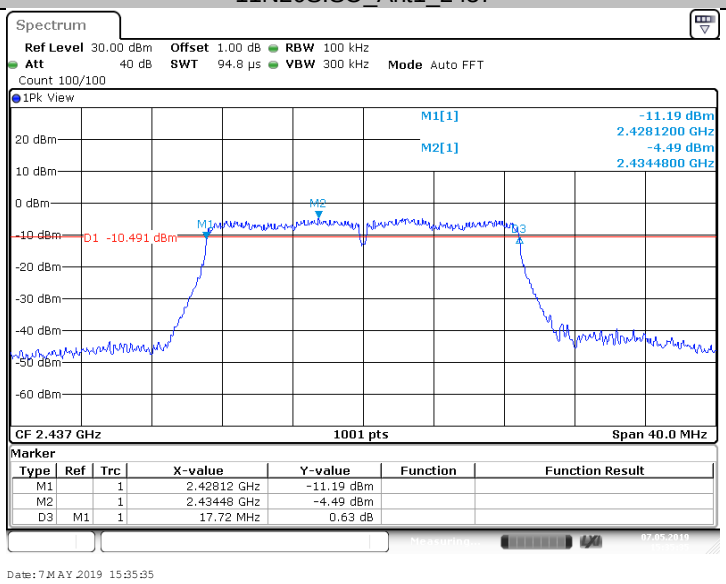

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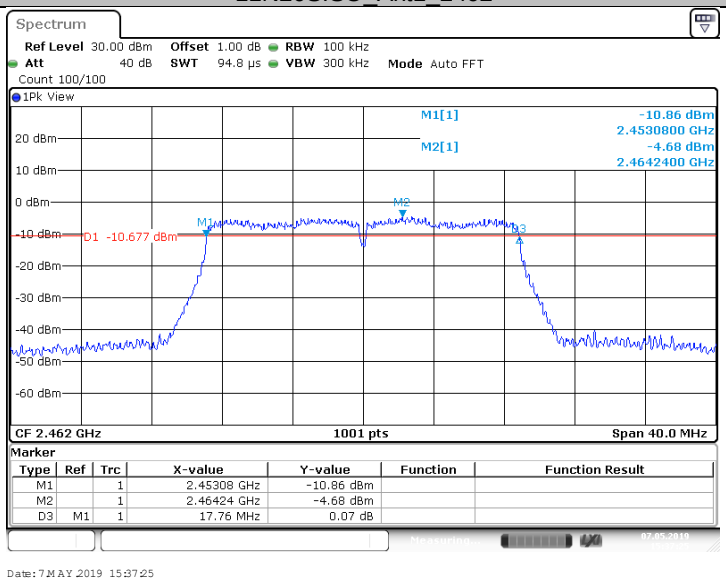

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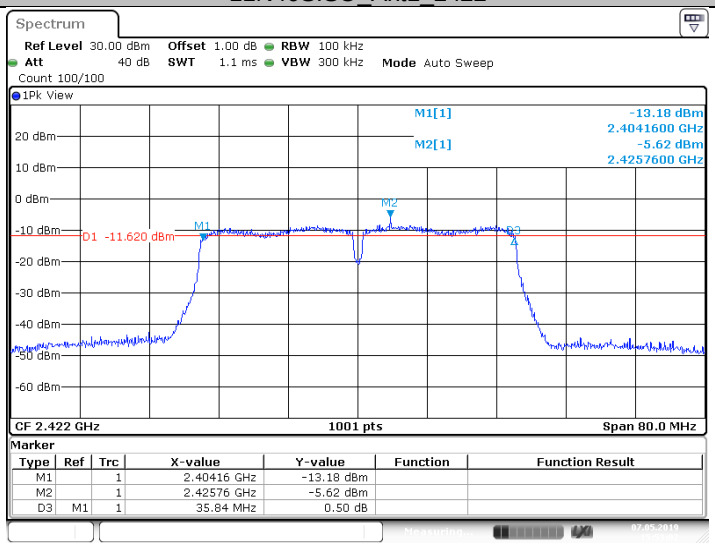

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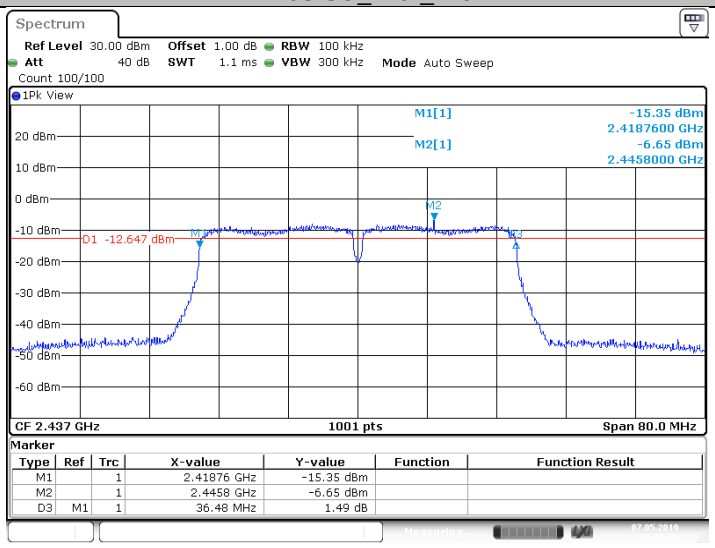

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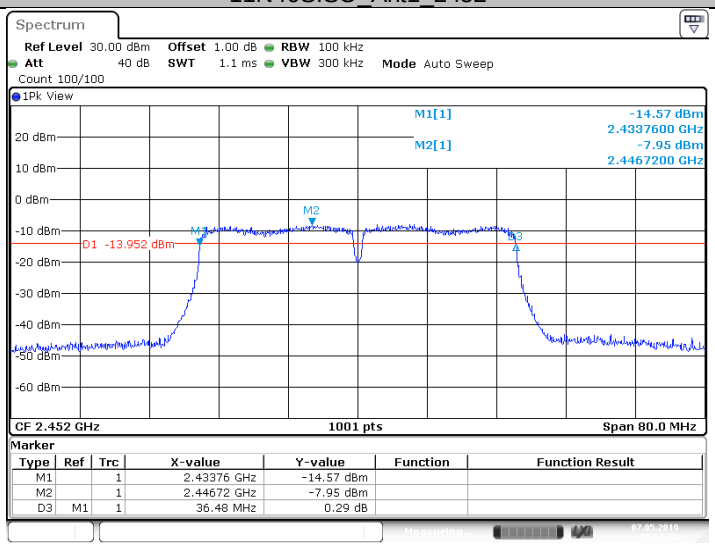

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9.3 Power spectral density

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 [dBm/3kHz]
≤8

802.11b modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low channel 2412MHz	-12.56	8	Pass
Middle channel 2437MHz	-12	8	Pass
High channel 2462MHz	-11.83	8	Pass

802.11g modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low channel 2412MHz	-17.97	8	Pass
Middle channel 2437MHz	-17.5	8	Pass
High channel 2462MHz	-17.41	8	Pass

802.11n-HT20 modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low channel 2412MHz	-16.42	8	Pass
Middle channel 2437MHz	-15.43	8	Pass
High channel 2462MHz	-16.38	8	Pass

802.11n-HT40 modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low channel 2412MHz	-20.24	8	Pass
Middle channel 2437MHz	-19.84	8	Pass
High channel 2462MHz	-19.76	8	Pass

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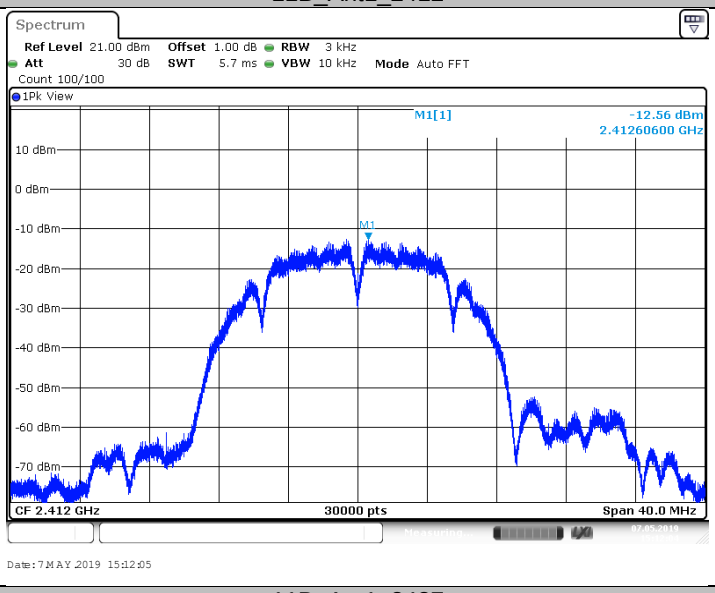

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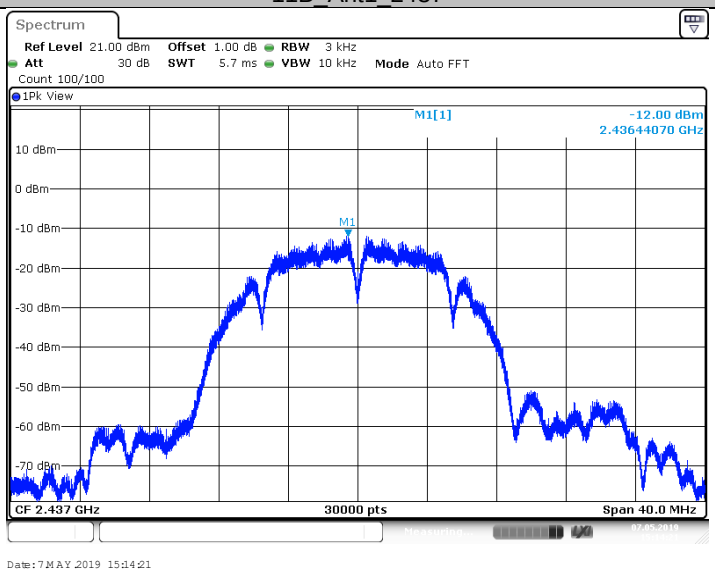

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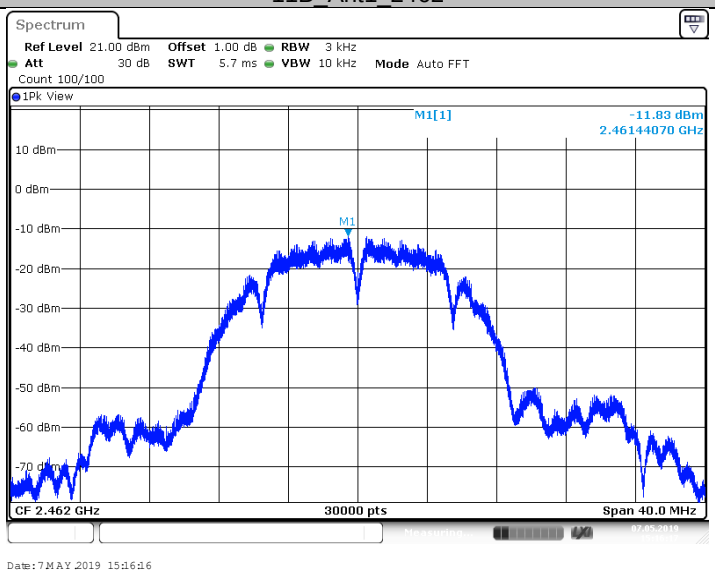

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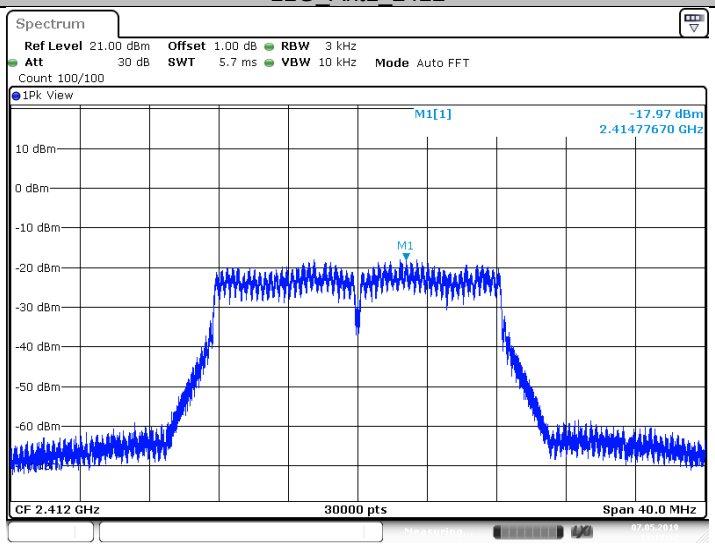

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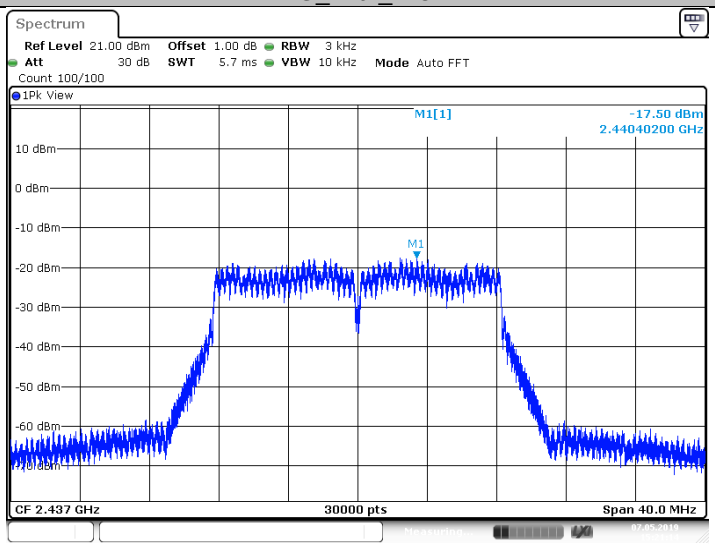

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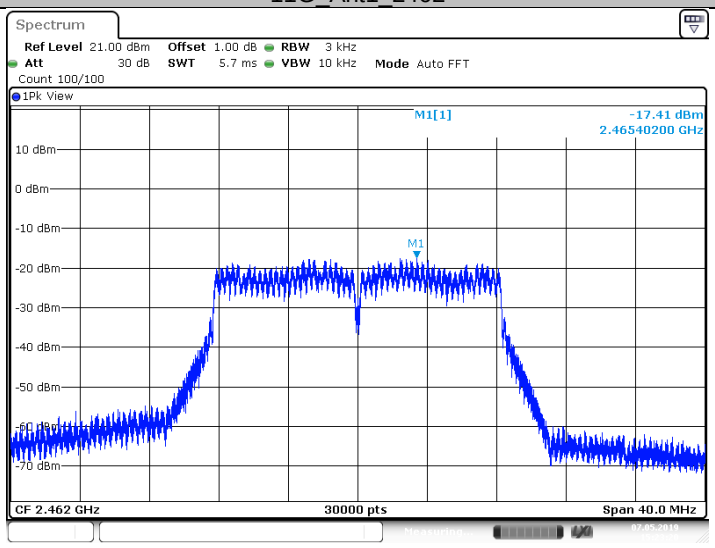

11N20SISO_Ant1_2412

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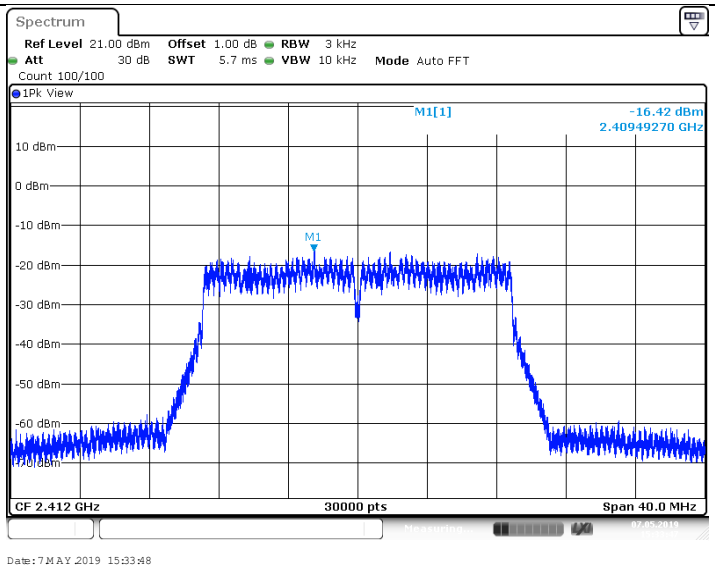

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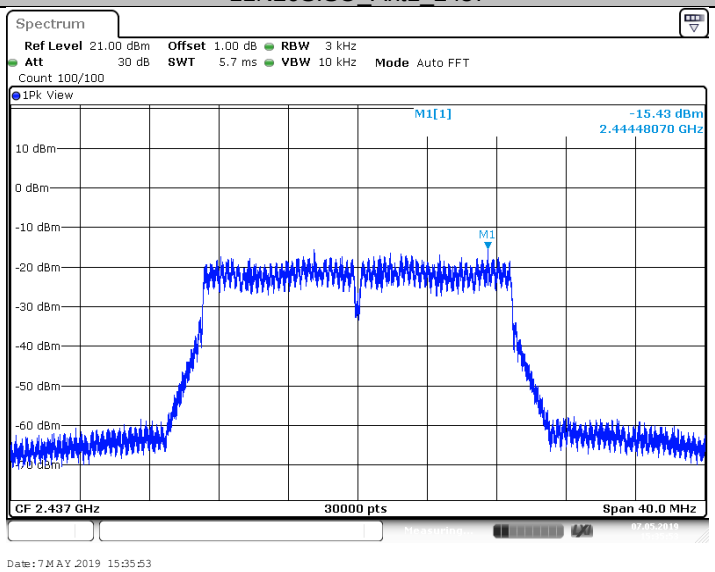

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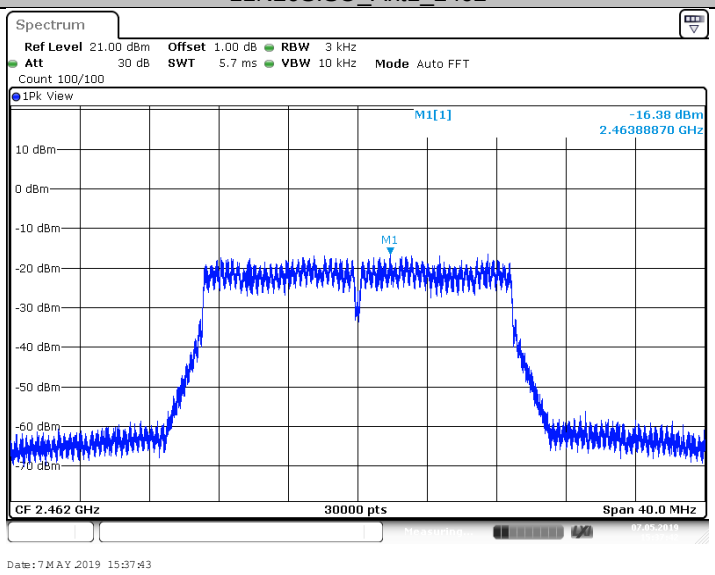

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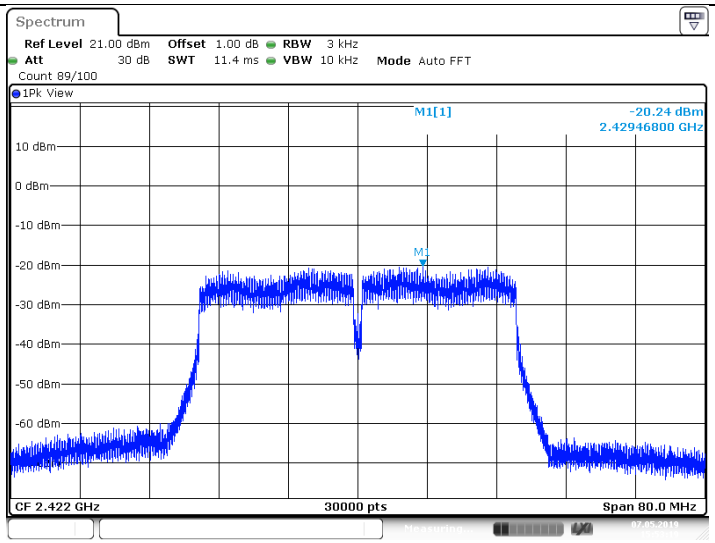

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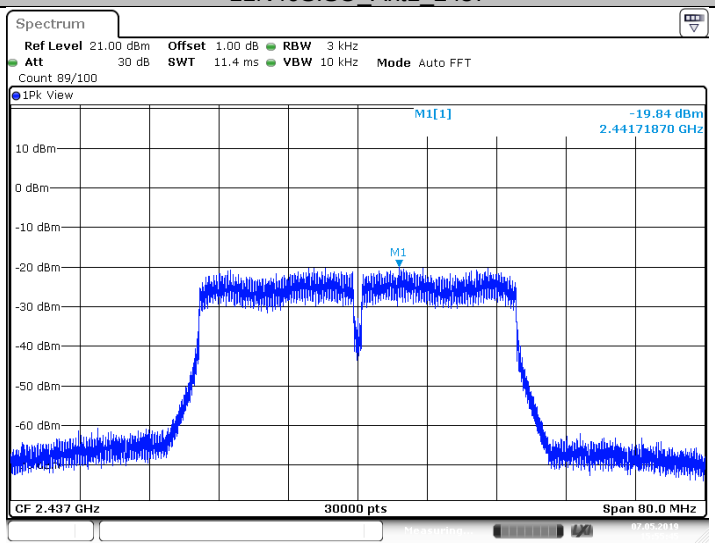

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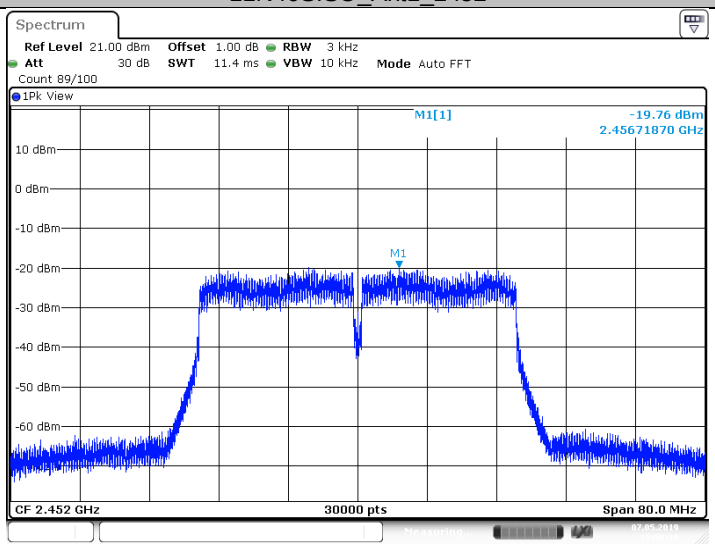

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9.4 Spurious RF conducted emissions

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 Mode	Antenna	Channel	FreqRange	RefLevel	Result	Limit	Verdict
11B	Ant1	2412	Reference	2.07	2.07	---	PASS
		2412	30~1000	30~1000	-68.06	<=-17.93	PASS
		2412	1000~26500	1000~26500	-53.16	<=-17.93	PASS
		2437	Reference	2.60	2.60	---	PASS
		2437	30~1000	30~1000	-66	<=-17.4	PASS
		2437	1000~26500	1000~26500	-53.3	<=-17.4	PASS
		2462	Reference	2.16	2.16	---	PASS
		2462	30~1000	30~1000	-67.17	<=-17.84	PASS
		2462	1000~26500	1000~26500	-53.12	<=-17.84	PASS
11G	Ant1	2412	Reference	-5.19	-5.19	---	PASS
		2412	30~1000	30~1000	-68.03	<=-25.19	PASS
		2412	1000~26500	1000~26500	-52.93	<=-25.19	PASS
		2437	Reference	-4.81	-4.81	---	PASS
		2437	30~1000	30~1000	-67.22	<=-24.81	PASS
		2437	1000~26500	1000~26500	-53.13	<=-24.81	PASS
		2462	Reference	-4.25	-4.25	---	PASS
		2462	30~1000	30~1000	-67.5	<=-24.25	PASS
		2462	1000~26500	1000~26500	-52.73	<=-24.25	PASS
11N20SISO	Ant1	2412	Reference	-5.21	-5.21	---	PASS
		2412	30~1000	30~1000	-66.11	<=-25.21	PASS
		2412	1000~26500	1000~26500	-52.33	<=-25.21	PASS
		2437	Reference	-5.00	-5.00	---	PASS
		2437	30~1000	30~1000	-66.94	<=-25	PASS
		2437	1000~26500	1000~26500	-52.72	<=-25	PASS
		2462	Reference	-4.60	-4.60	---	PASS
		2462	30~1000	30~1000	-66.15	<=-24.6	PASS
		2462	1000~26500	1000~26500	-52.93	<=-24.6	PASS
11N40SISO	Ant1	2422	Reference	-8.71	-8.71	---	PASS
		2422	30~1000	30~1000	-68	<=-28.71	PASS
		2422	1000~26500	1000~26500	-53.26	<=-28.71	PASS
		2437	Reference	-8.41	-8.41	---	PASS
		2437	30~1000	30~1000	-68.72	<=-28.41	PASS
		2437	1000~26500	1000~26500	-52.25	<=-28.41	PASS
		2452	Reference	-8.10	-8.10	---	PASS
		2452	30~1000	30~1000	-68.44	<=-28.1	PASS
		2452	1000~26500	1000~26500	-52.59	<=-28.1	PASS

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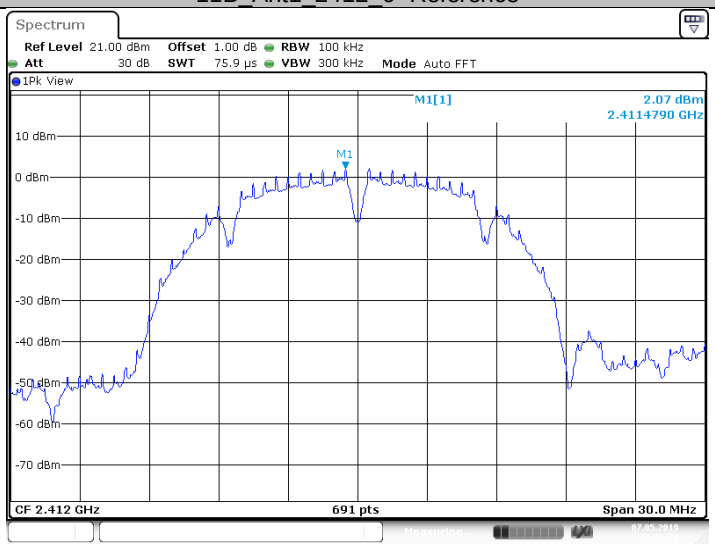

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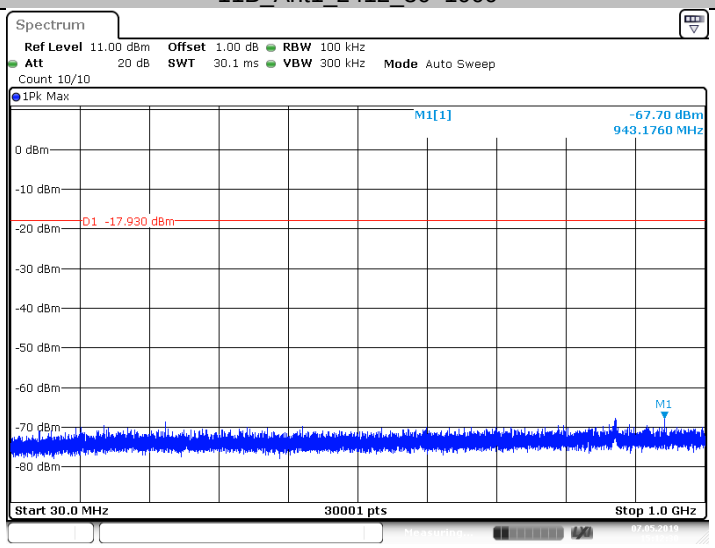

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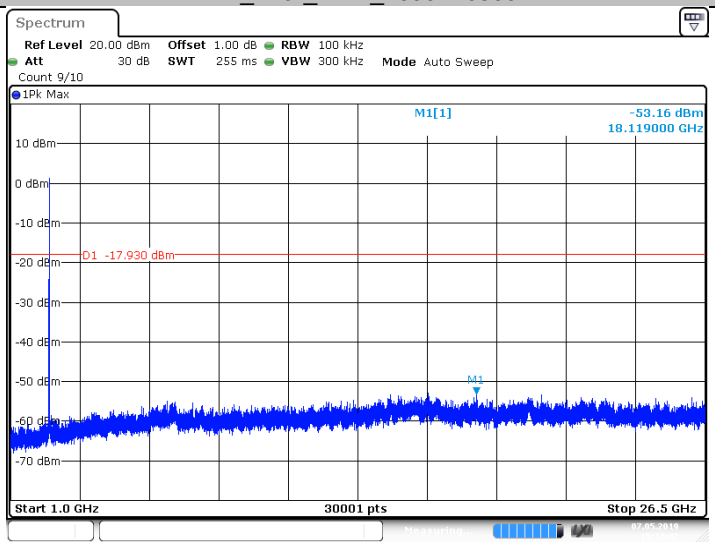

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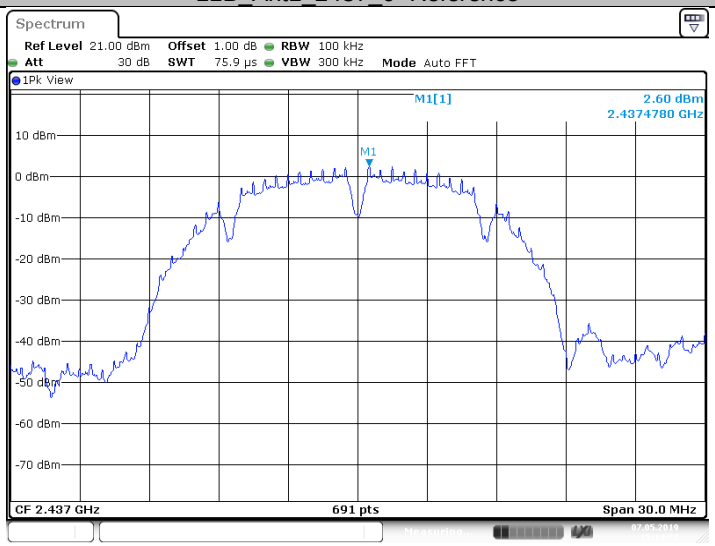

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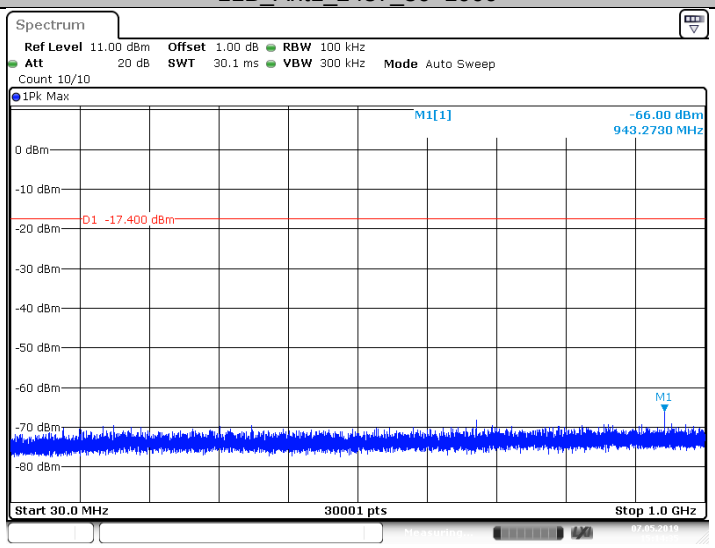

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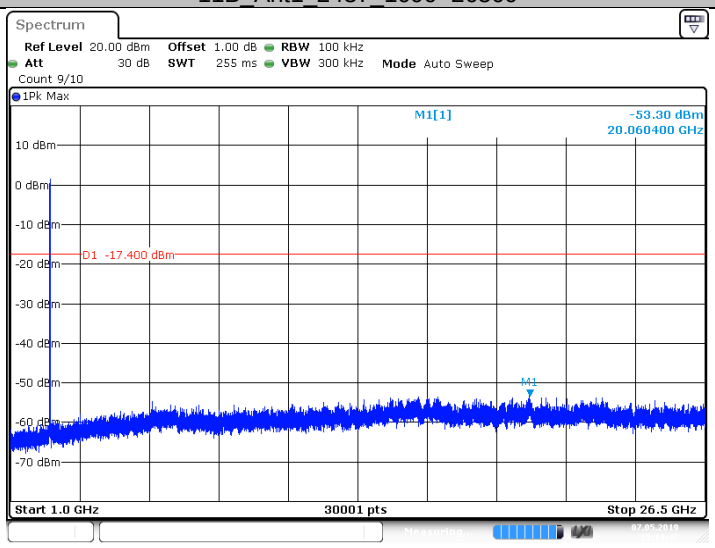

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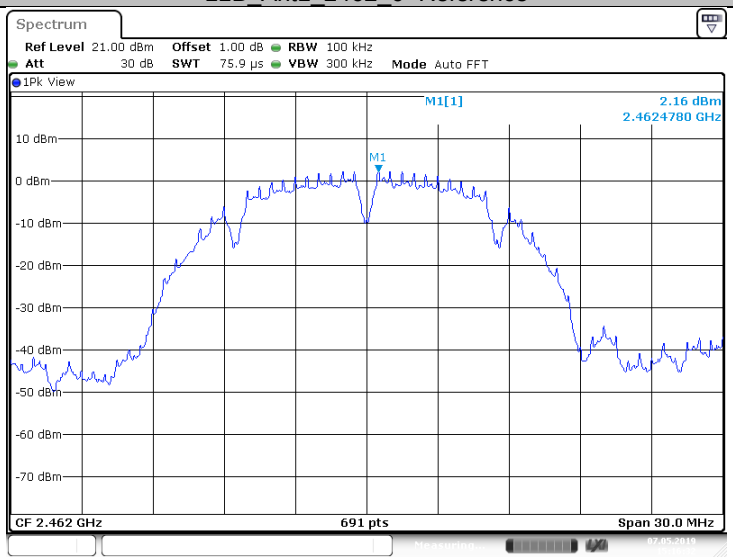

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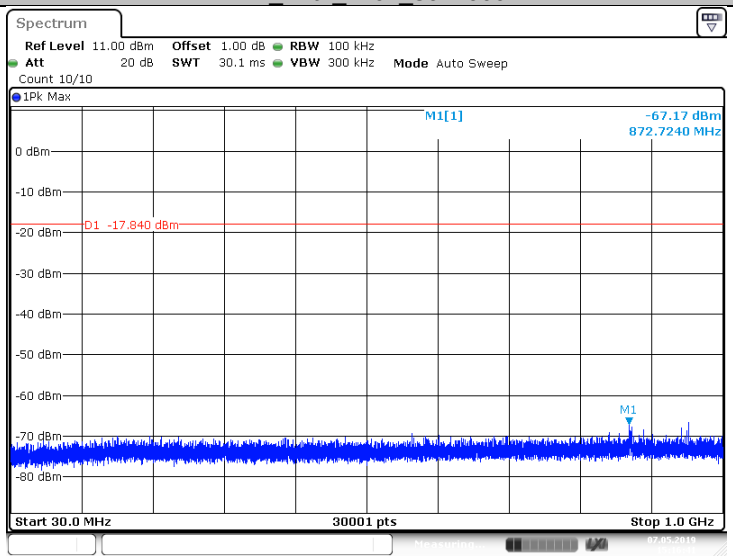

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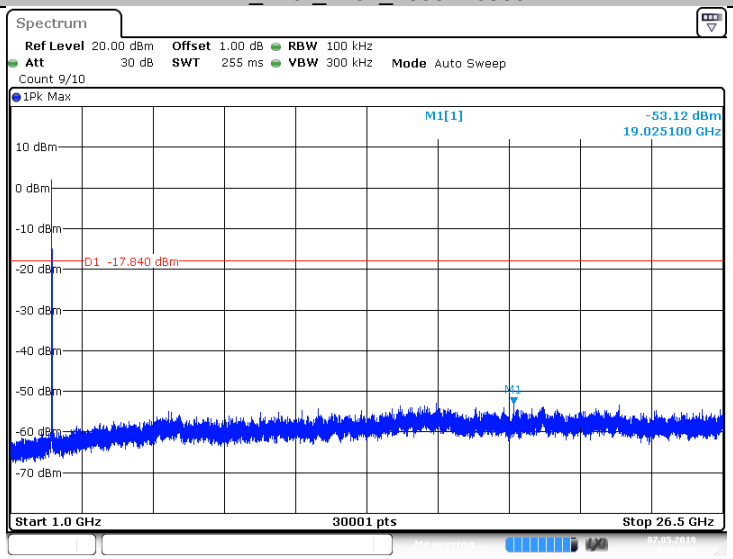

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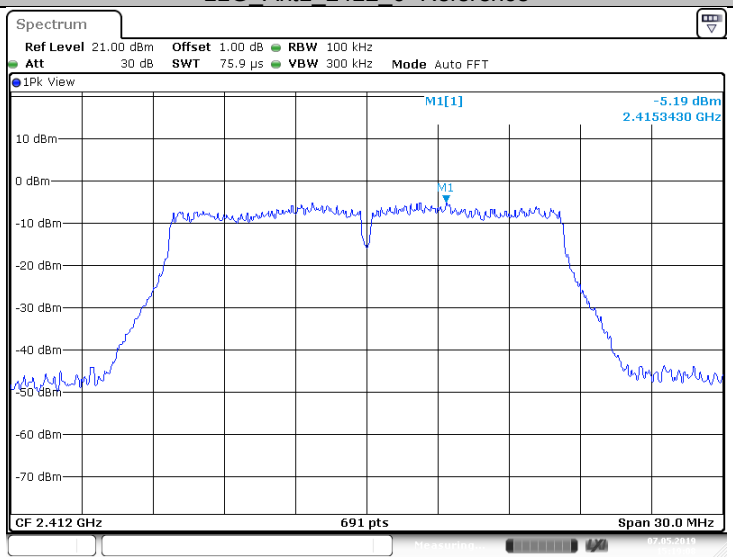
11G_Ant1_2412_0~Reference



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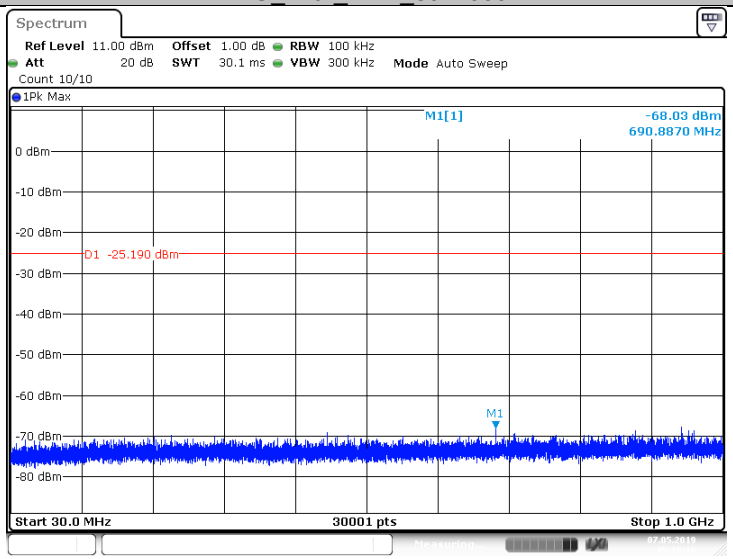

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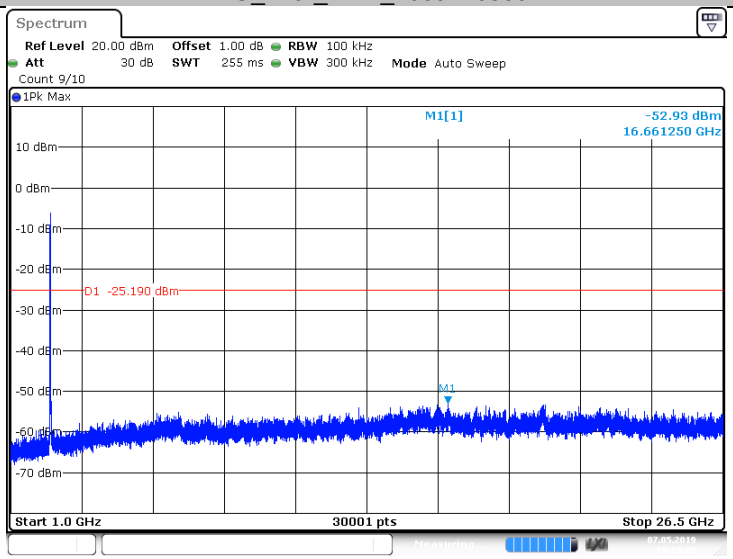

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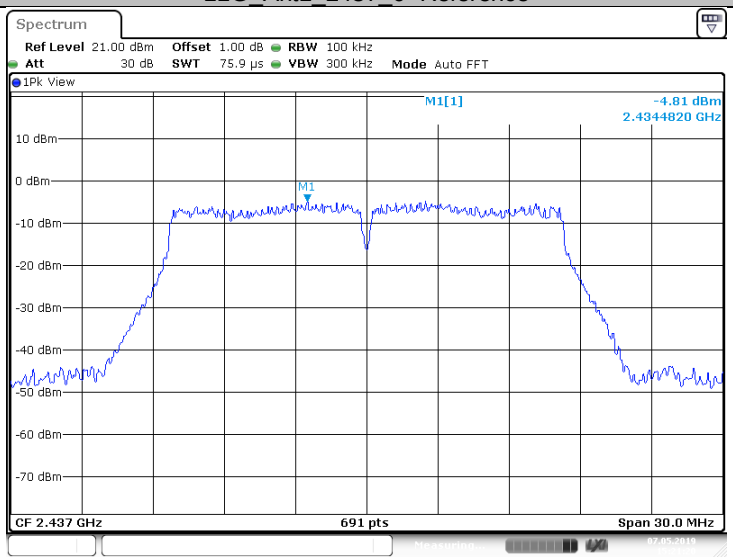

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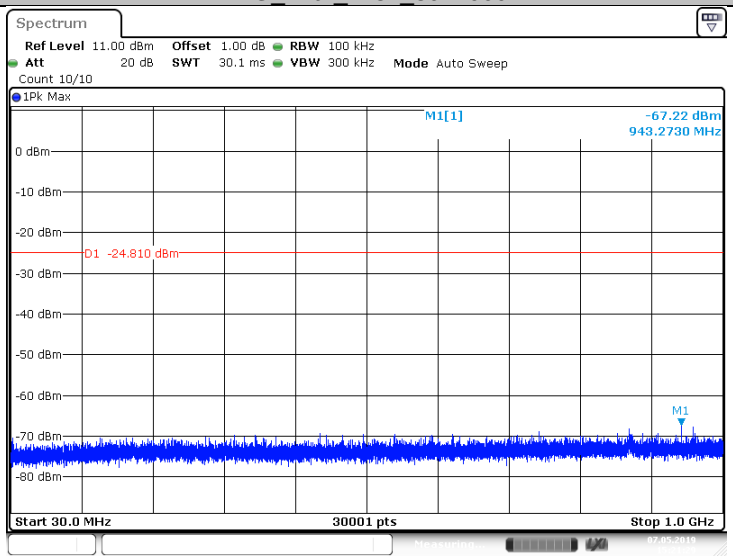

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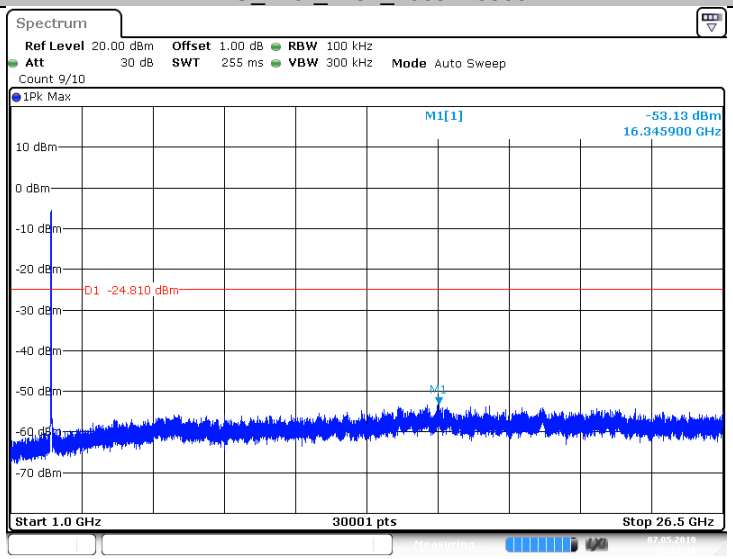

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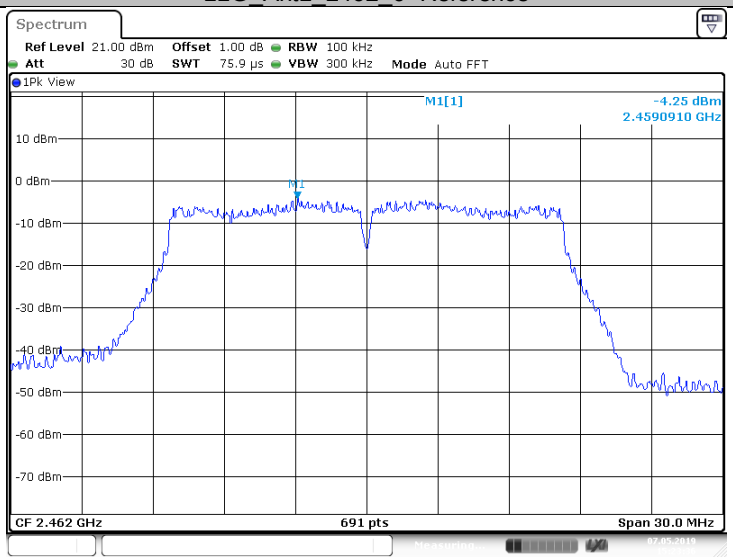

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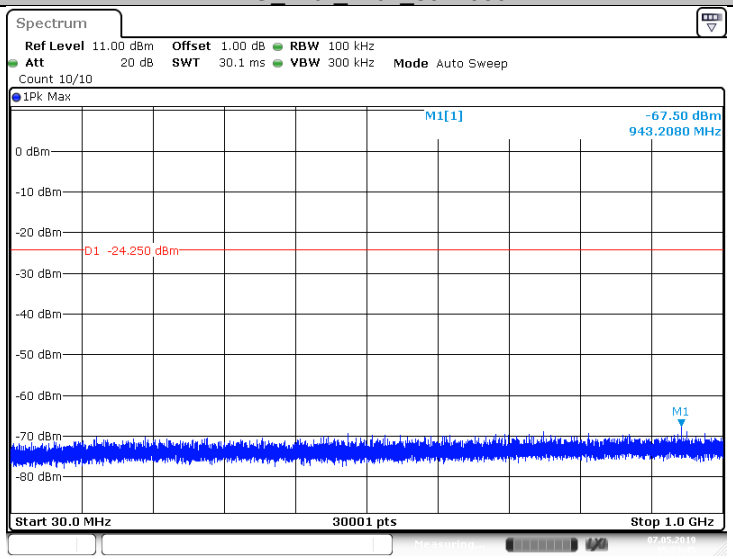

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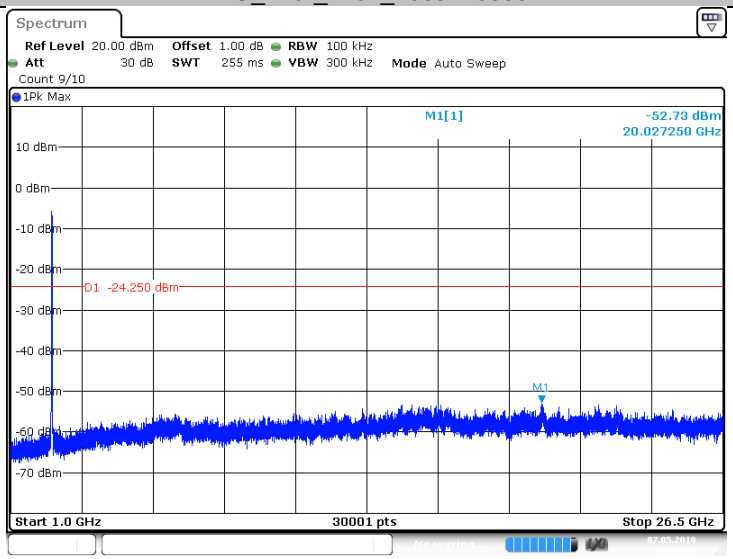

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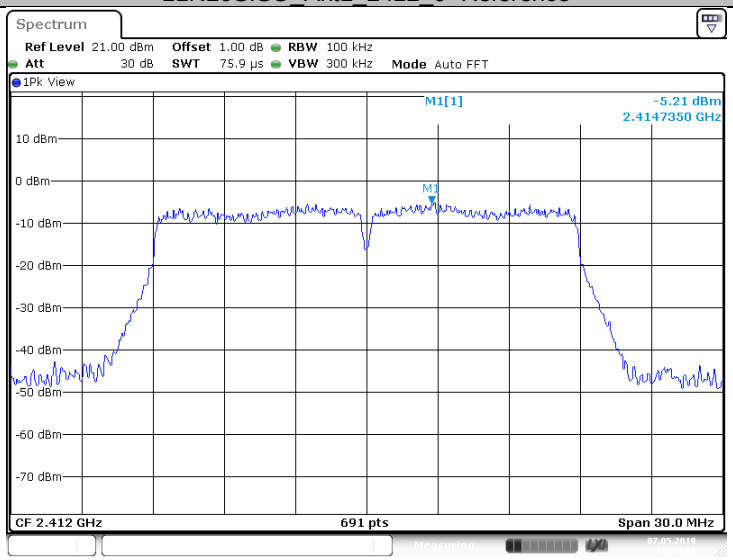
11N20SISO_Ant1_2412_0~Reference



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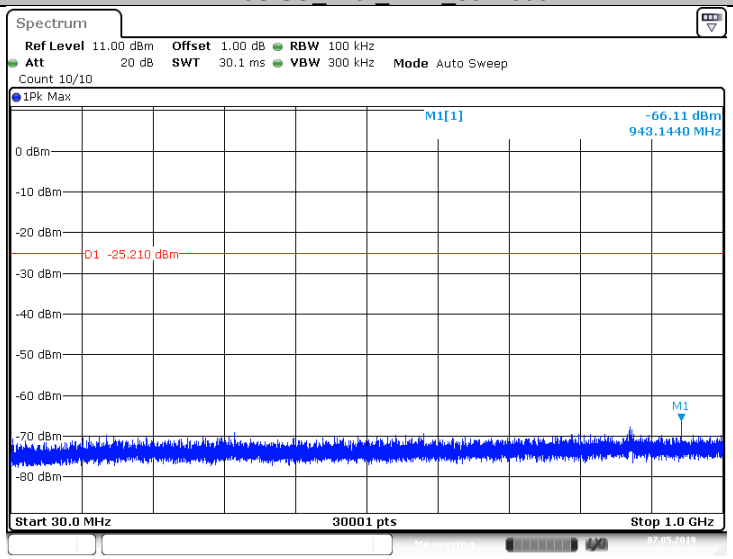

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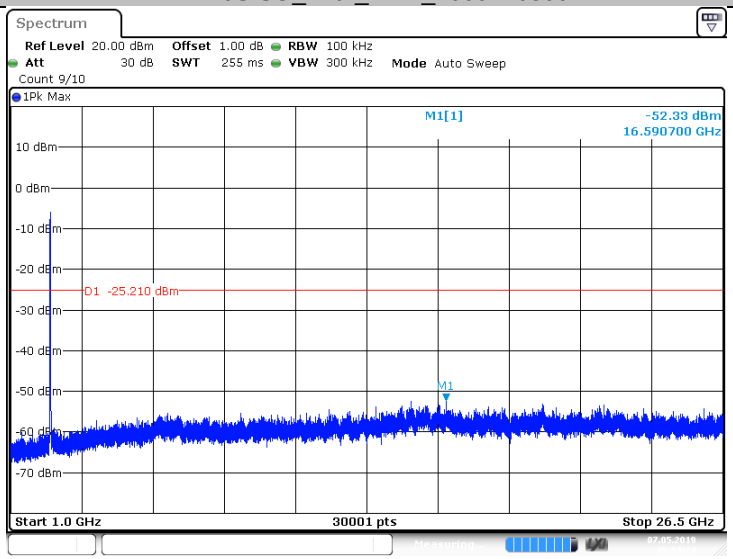

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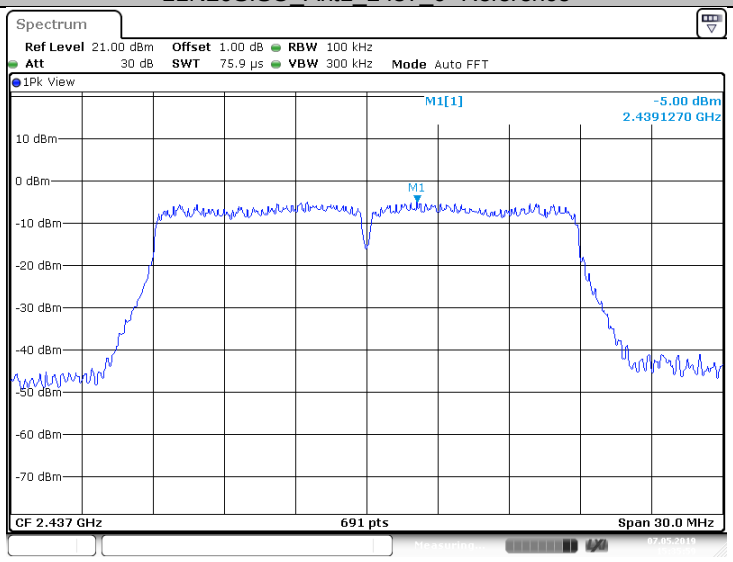
11N20SISO_Ant1_2437_0~Reference



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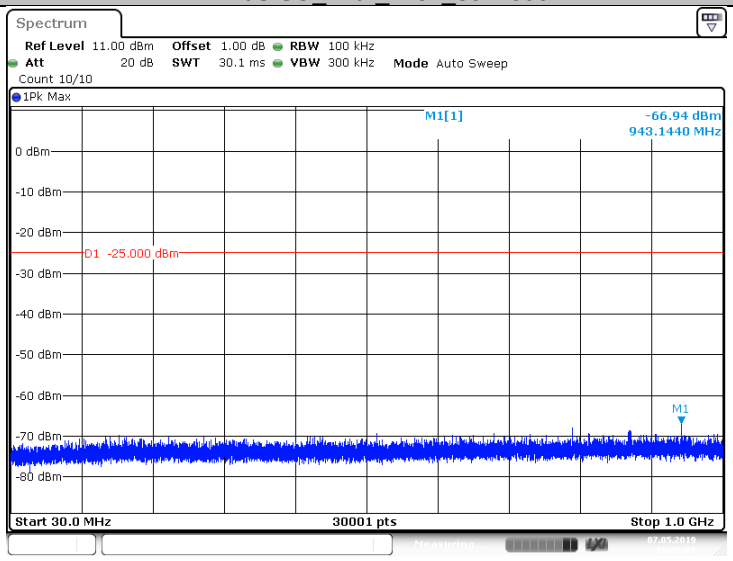

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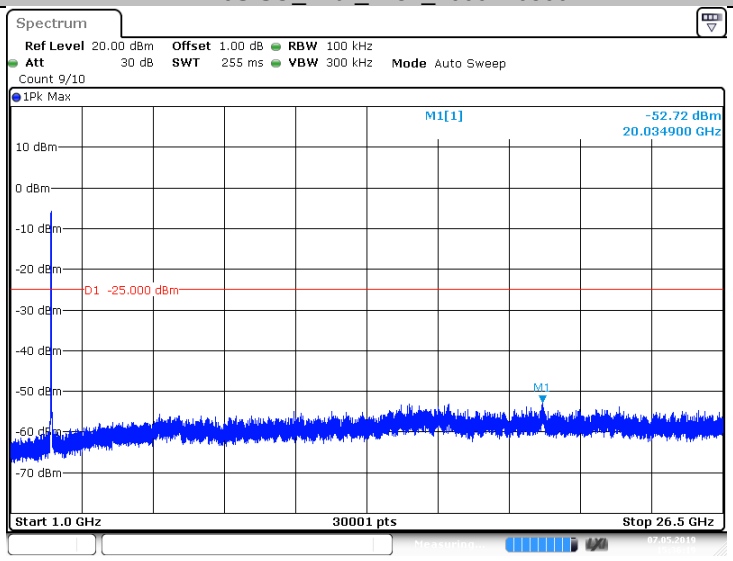

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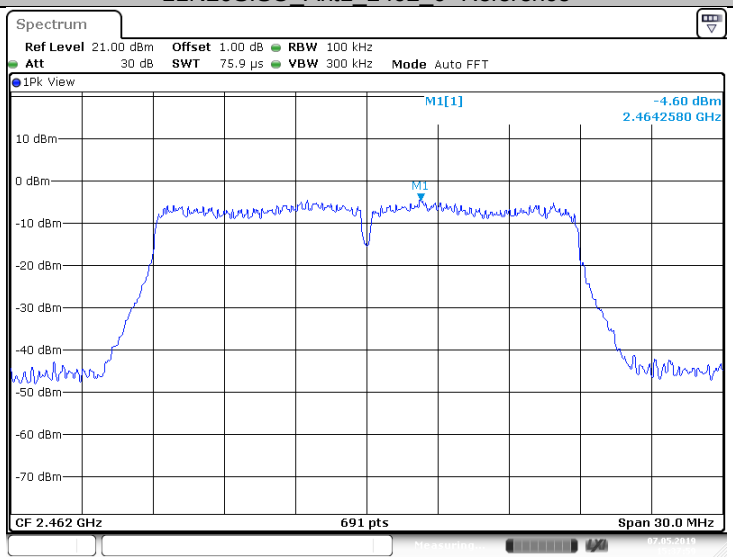

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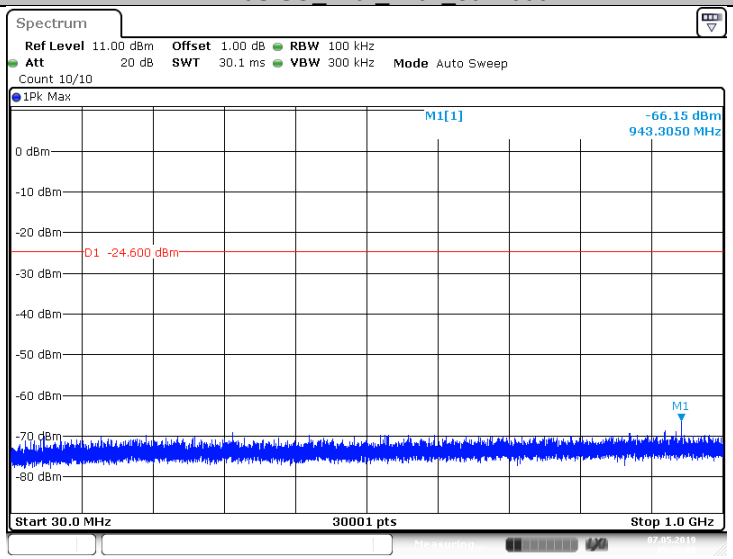

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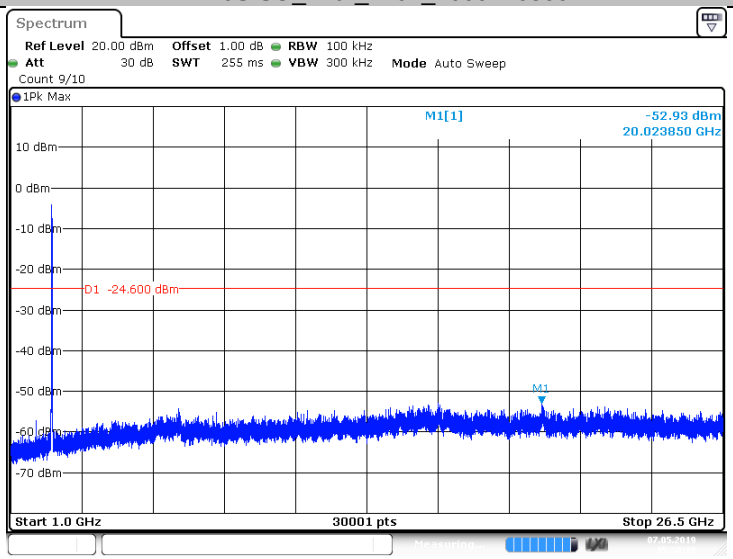

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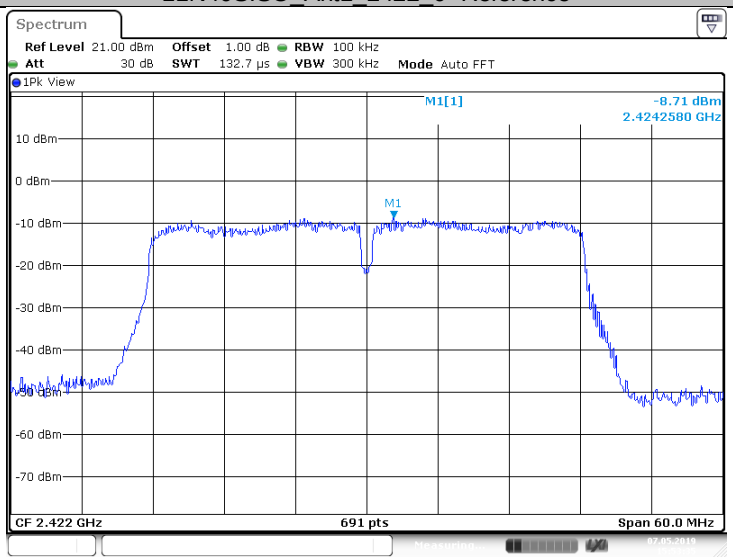
11N40SISO_Ant1_2422_0~Reference



Date:7MAY.2019 15:53:36

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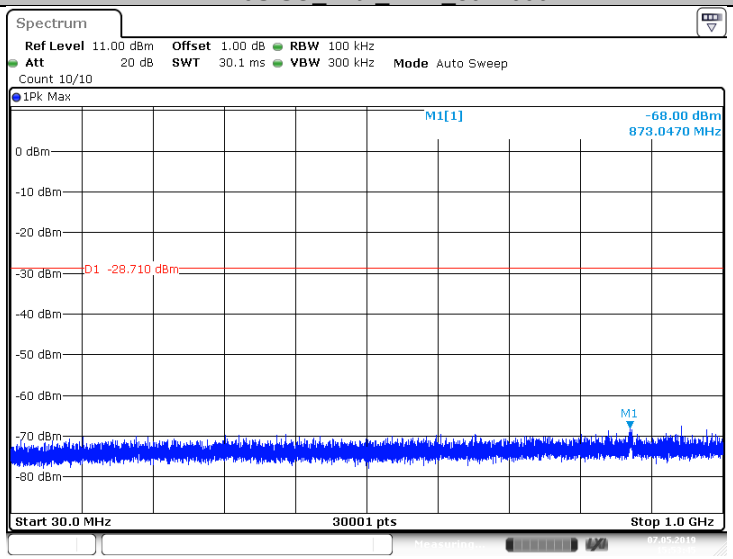

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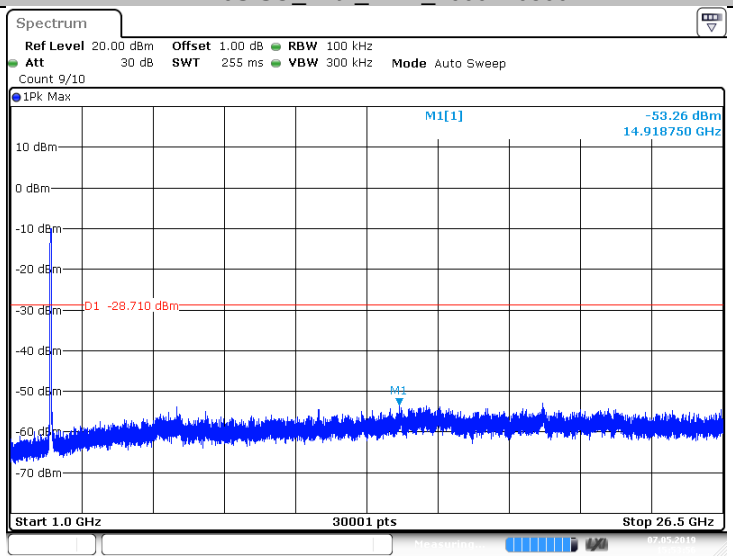

Date:7MAY.2019 15:53:56

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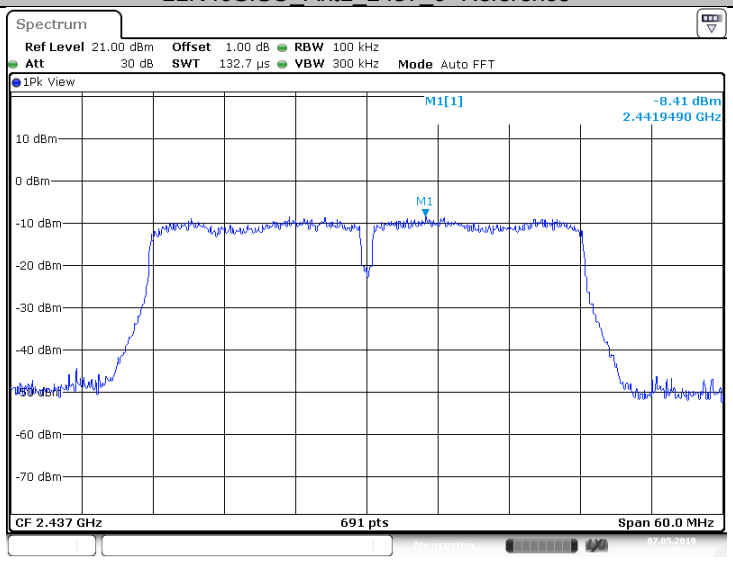
11N40SISO_Ant1_2437_0~Reference



Date:7MAY.2019 15:55:52

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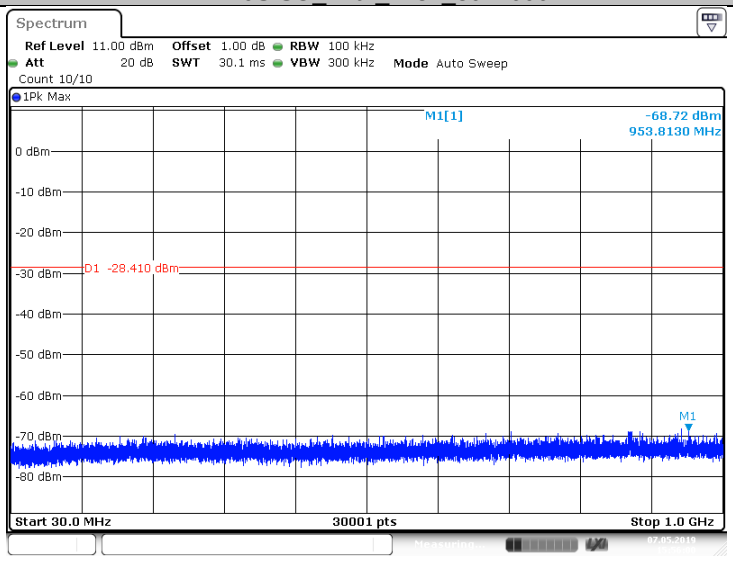
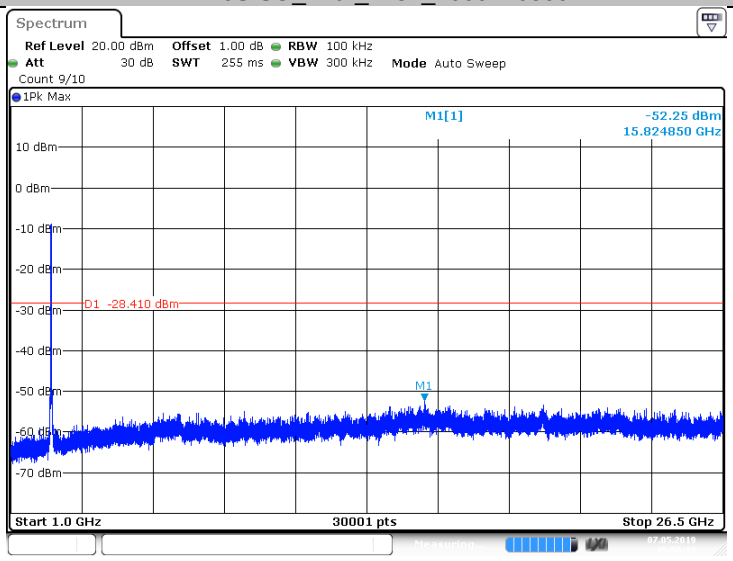


Date:7MAY.2019 15:56:01

11N40SISO_Ant1_2437_1000~26500



Date:7MAY.2019 15:56:12

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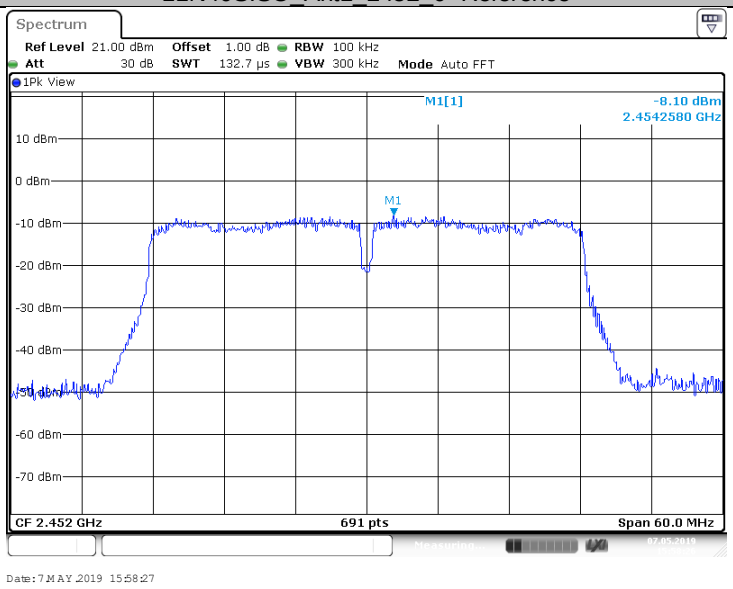
11N40SISO_Ant1_2452_0~Reference



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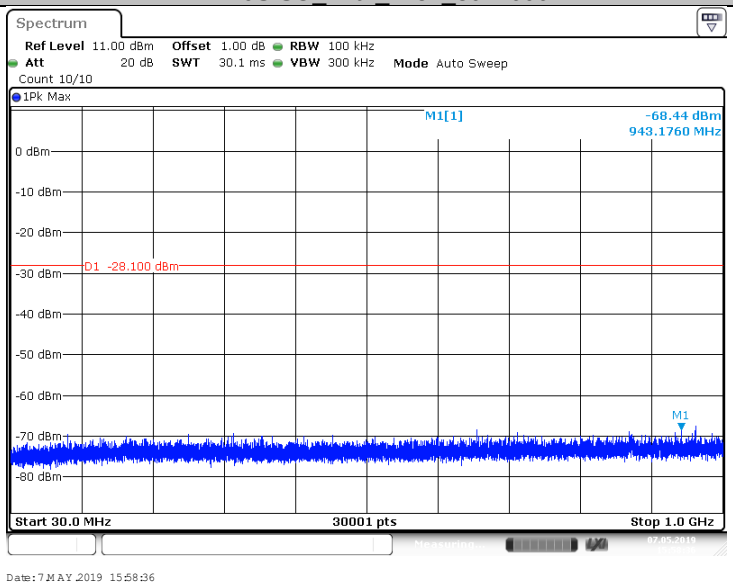

Remark: Test of above 1GHz were performed with 1MHz RBW, we can't find any burst, so they are considered to fulfill the requirement with 100KHz RBW without further testing.

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9.5 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:

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 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 the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

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

Test result

TestMode	Antenna	ChName	Channel	RefLevel	Result	Limit	Verdict
11B	Ant1	Low	2412	1.57	-49.82	<=-18.43	PASS
		High	2462	1.98	-57.75	<=-18.02	PASS
11G	Ant1	Low	2412	-5.16	-46.05	<=-25.16	PASS
		High	2462	-4.95	-50.87	<=-24.95	PASS
11N20SISO	Ant1	Low	2412	-5.05	-44.54	<=-25.05	PASS
		High	2462	-4.39	-49.11	<=-24.39	PASS
11N40SISO	Ant1	Low	2422	-8.98	-46.33	<=-28.98	PASS
		High	2452	-8.55	-47.27	<=-28.55	PASS

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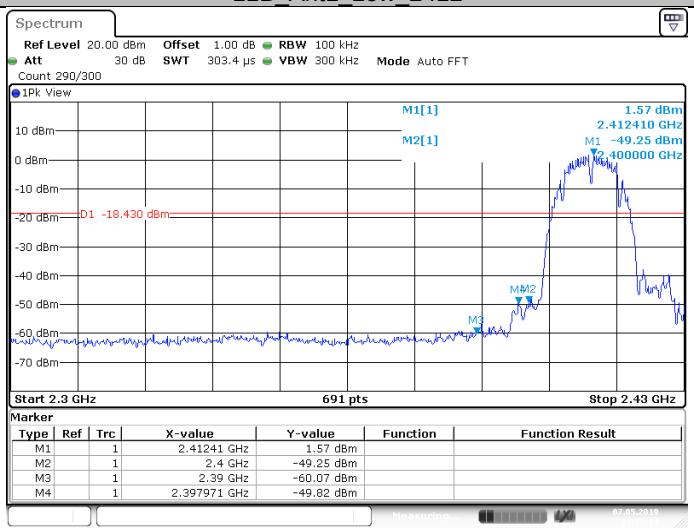
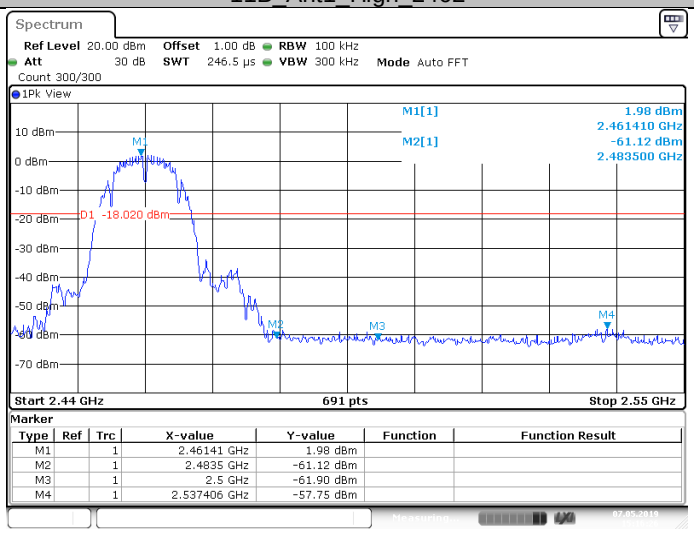
Band edge testing

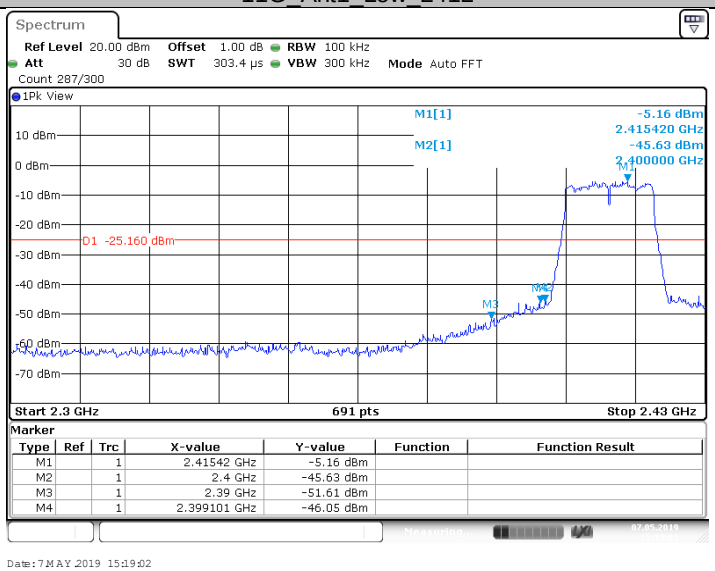
11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



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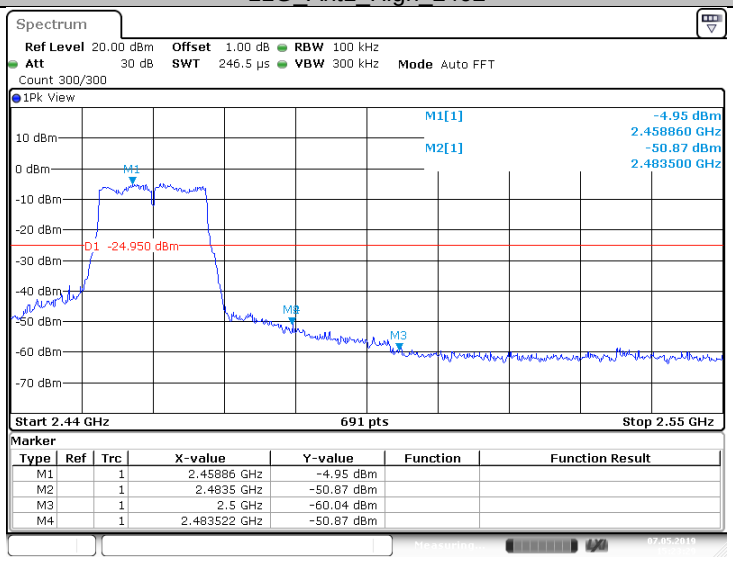
11G_Ant1_High_2462

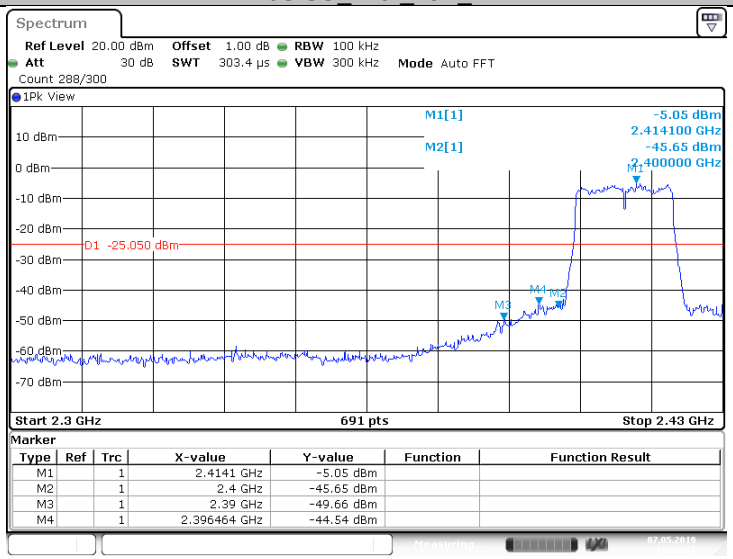


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45886 GHz	-4.95 dBm		
M2		1	2.4835 GHz	-50.87 dBm		
M3		1	2.5 GHz	-60.04 dBm		
M4		1	2.483522 GHz	-50.87 dBm		

Date: 7 MAY 2019 15:23:30

11N20SISO_Ant1_Low_2412

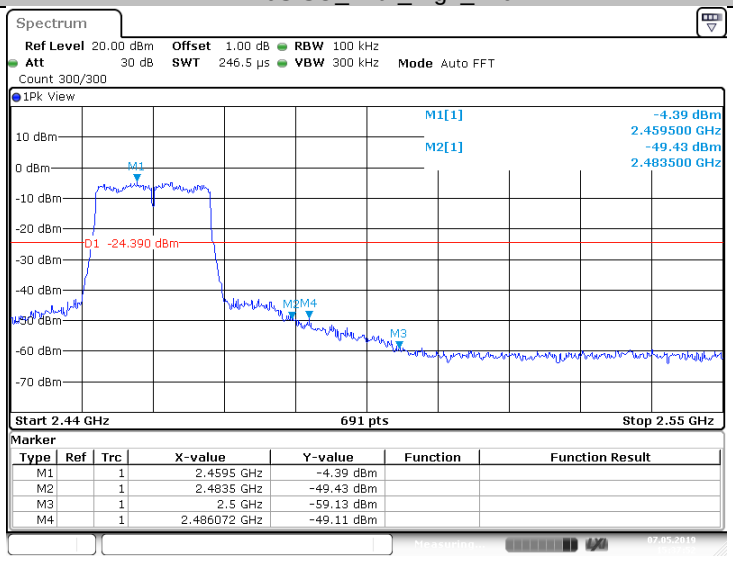


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4141 GHz	-5.05 dBm		
M2		1	2.4 GHz	-45.65 dBm		
M3		1	2.39 GHz	-49.66 dBm		
M4		1	2.396464 GHz	-44.54 dBm		

Date: 7 MAY 2019 15:33:57

11N20SISO_Ant1_High_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4595 GHz	-4.39 dBm		
M2		1	2.4835 GHz	-49.43 dBm		
M3		1	2.5 GHz	-59.13 dBm		
M4		1	2.486072 GHz	-49.11 dBm		

Date: 7 MAY 2019 15:37:53

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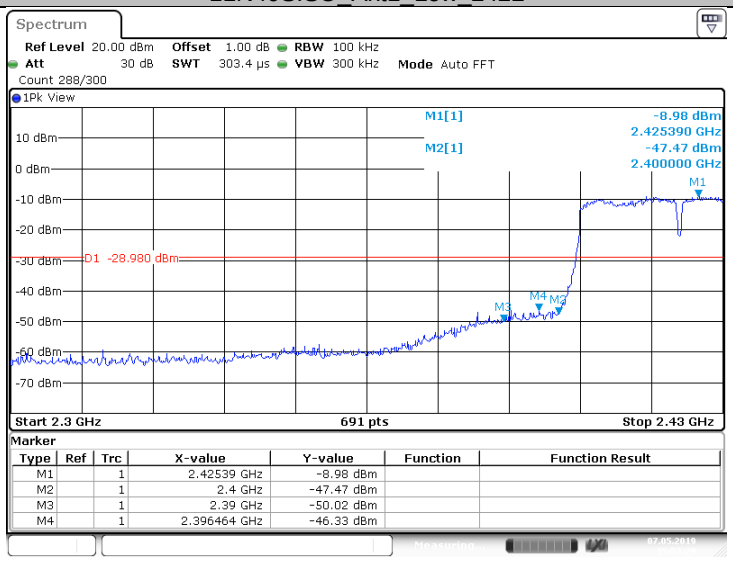
11N40SISO_Ant1_Low_2422

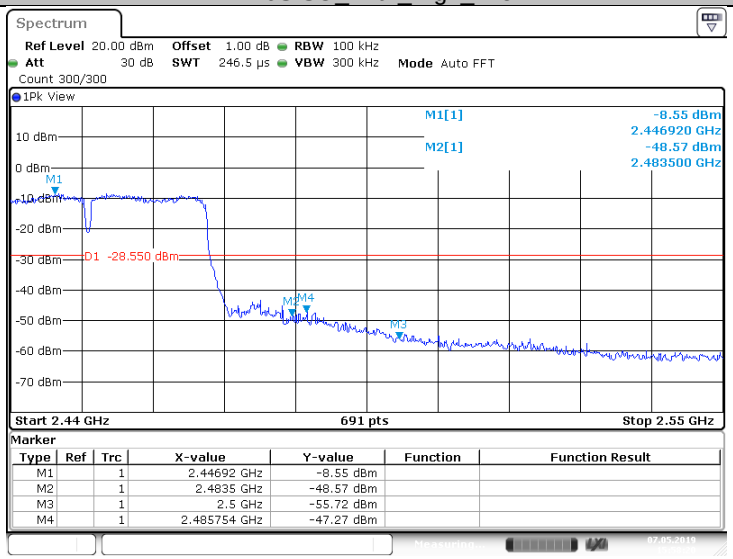


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.42539 GHz	-8.98 dBm		
M2		1	2.4 GHz	-47.47 dBm		
M3		1	2.39 GHz	-50.02 dBm		
M4		1	2.396464 GHz	-46.33 dBm		

Date:7MAY2019 15:53:29

11N40SISO_Ant1_High_2452



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44692 GHz	-8.55 dBm		
M2		1	2.4835 GHz	-48.57 dBm		
M3		1	2.5 GHz	-55.72 dBm		
M4		1	2.485754 GHz	-47.27 dBm		

Date:7MAY2019 15:58:21

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9.6 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 3meter 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
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.

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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.

The only worse case (802.11B mode) test result is listed in the report.
If the margin value exceeds 20dBuV/m that not show in the table.

Transmitting spurious emission test result as below:

802.11B Modulation 2412MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
30-1000MHz	71.979444	34.39	H	43.5	QP	5.61	Pass
	47.945000	30.02	H	2.78	QP	9.98	Pass
	465.469375	32.48	V	40	QP	13.52	Pass
	34.486250	25.45	V	43.5	QP	14.55	Pass
1000-25000MHz	17564.531250	49.75	H	74	PK	24.25	Pass
	17677.500000	50.21	V	74	PK	23.79	Pass

802.11B Modulation 2437MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
1000-25000MHz	--	--	H	74	PK	--	Pass
	--	--	H	74	PK	--	Pass
	17611.406250	50.85	V	74	PK	23.15	Pass
	17763.281250	50.59	V	74	PK	23.41	Pass

802.11B Modulation 2462MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
1000-25000MHz	--	--	H	74	PK	--	Pass
	--	--	H	74	PK	--	Pass
	17576.718750	50.60	H	74	PK	23.40	Pass
	17897.812500	50.11	V	74	PK	23.89	Pass

Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Pre-amplifier
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
Emission Level =Reading level +Correction Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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10 Test Equipment List

Radiated Emission Test

Description	Manufacturer	Model no.	Serial no.	cal. due date
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2019-7-6
Attenuator	Agilent	8491A	MY39264334	2019-7-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

RF conducted test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6
Power Splitter	Weinschel	1580	SC319	2019-7-5
Test software	Tonscend	System for BT/WIFI	Version 2.6	N/A

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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

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Radiated Spurious Emission 25MHz-3000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted RF test	RF Power Conducted: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%

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