

FCC - TEST REPORT

Report Number : **64.790.18.02285.01** Date of Issue: December 8, 2020

Model : GBF-1270-F2, 0395, GBF-1270-F3, 0397

Product Type : WI-FI SMART SCALE

Applicant : Greater Goods,LLC

Address : 4427 Chouteau Ave.St.Louis, Missouri,63110, United States

Manufacturer : Zhongshan Transtek Electronics Co.,Ltd

Address : No. 23,Jin'an Road, Minzhong, Zhongshan ,Guangdong, 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
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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 number: 10320A

3 Description of the Equipment Under Test

Product:	WI-FI SMART SCALE
Model no.:	GBF-1270-F2, 0395, GBF-1270-F3, 0397
FCC ID:	2ADUL0397
Options and accessories:	Nil
Rating Input:	DC 1.5V*4
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:	Integral Antenna
Antenna Gain:	3.22dBi
Description of the EUT:	The EUTs are WI-FI SMART SCALE

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2019 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB558074 v05r02 and ANSI C63.10 (2013).

5 Summary of Test Results

Technical Requirements			
FCC Part 15 Subpart C			
Test Condition		Pages	Test Result
§15.207	Conducted emission AC power port	--	N/A
§15.247(b)(1)	Conducted peak output power	10	Pass
§15.247(e)	Power spectral density	11	Pass
§15.247(a)(2)	6dB bandwidth	15	Pass
§15.247(a)(1)	20dB bandwidth and 99% Occupied Bandwidth	--	N/A
§15.247(a)(1)	Carrier frequency separation	--	N/A
§15.247(a)(1)(iii)	Number of hopping frequencies	--	N/A
§15.247(a)(1)(iii)	Dwell Time	--	N/A
§15.247(d)	Spurious RF conducted emissions	19	Pass
§15.247(d)	Band edge	30	Pass
§15.247(d) & §15.209 &	Spurious radiated emissions for transmitter	34	Pass
§15.203	Antenna requirement	See note 1	Pass

Note 1: N/A=Not Applicable.

Note 2: The EUT uses a integral antenna, which gain is 3.22dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

6 General Remarks

EUTs are WI-FI SMART SCALE supports Wi-Fi functions: 2412MHz - 2462MHz for 2.4GHz, and all models are identical except the appearance. So the model GBF-1270-F2 was selected to perform full test.

This submittal(s) (test report) is intended for FCC ID:2ADUL0397.

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: 2020-08-20

Testing Date: 2020-08-28~2020-09-11

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

Reviewed by:


Tony Liu

Prepared by:


Kevin Ouyang

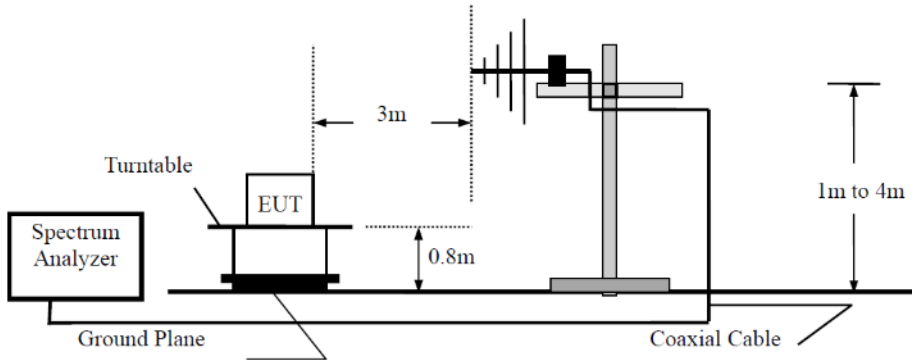
Test by:


Louise Liu

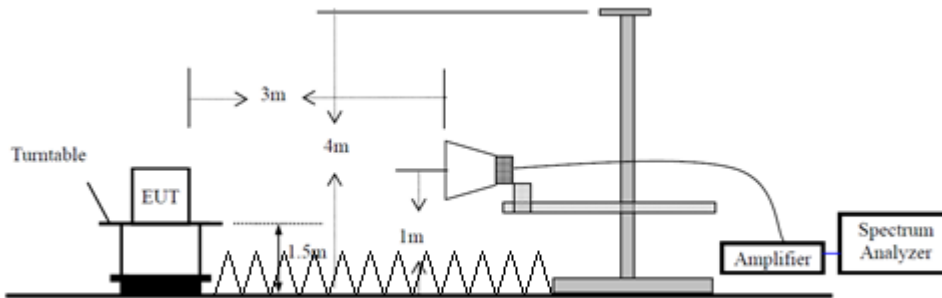
7 Test Setups

7.1 Radiated test setups

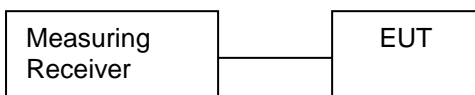
Below 1GHz



Above 1GHz



7.2 Conducted RF test setups



8 Systems test configuration

Auxiliary Equipment Used during Test:

Test channel & mode:

The was Interactive Tablet configured using a proprietary communication interface provided by the client. The interface allows channel control required to support the evaluation.

Duty cycle during test: 100%

802.11b/802.11g/802.11n-HT20

Test mode	Channel	Frequency (MHz)
TX	1	2412
TX	6	2437
TX	11	2462

9 Technical Requirement

9.1 Conducted peak output power

Test Method

1. Connect the power meter to the EUT
 - a) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.
 - b) At all times the EUT is transmitting at its maximum power control level.
 - c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Adjust the measurement in dBm by adding $10\log(1/x)$, where x is the duty cycle to the measurement result.

Limits

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

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

Conducted peak output power

Test Mode	Antenna	Channel (MHz)	Total Power (dBm)	Limit (dBm)	Verdict
11B	Ant1	2412	0.97	30	PASS
		2437	0.54	30	PASS
		2462	0.68	30	PASS
11G	Ant1	2412	-0.47	30	PASS
		2437	-0.61	30	PASS
		2462	-0.73	30	PASS
11N20	Ant1	2412	-1.01	28	PASS
		2437	-0.58	28	PASS
		2462	-1.11	28	PASS

9.2 Power spectral density

Test Method

1. Connect EUT test port to spectrum analyzer.
2. 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.
3. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
4. Repeat above procedures until other frequencies measured were completed.

Limit

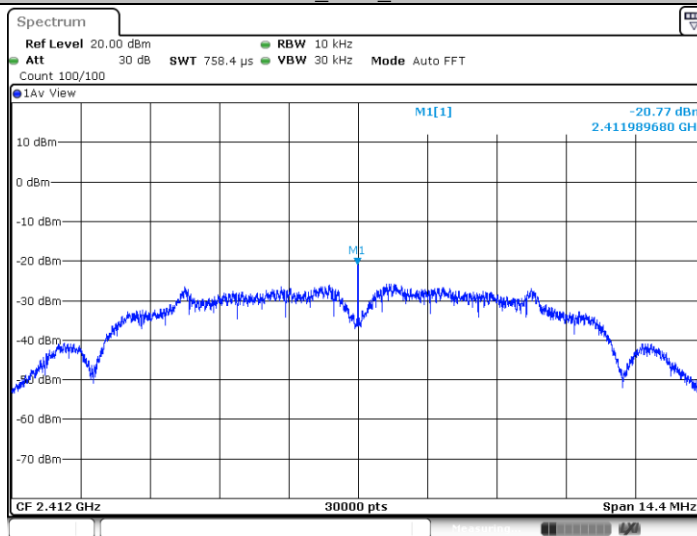
Limit [dBm/3KHz]

≤ 8

Test Mode	Antenna	Channel (MHz)	PSD (dBm/3KHz)	Limit(dBm/3KHz)	Verdict
11B	Ant1	2412	-20.77	≤8	PASS
		2437	-20.79	≤8	PASS
		2462	-19.72	≤8	PASS
11G	Ant1	2412	-19.3	≤8	PASS
		2437	-20.24	≤8	PASS
		2462	-19.28	≤8	PASS
11N20	Ant1	2412	-18.19	≤8	PASS
		2437	-18.75	≤8	PASS
		2462	-18.2	≤8	PASS

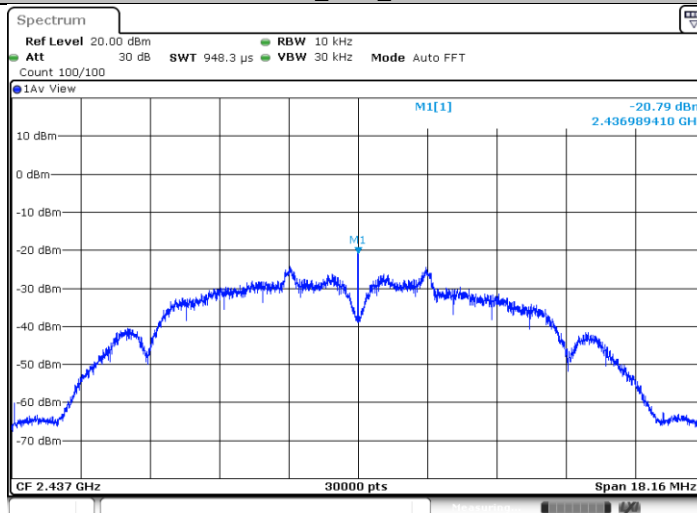
Test Graphs

11B_Ant1_2412



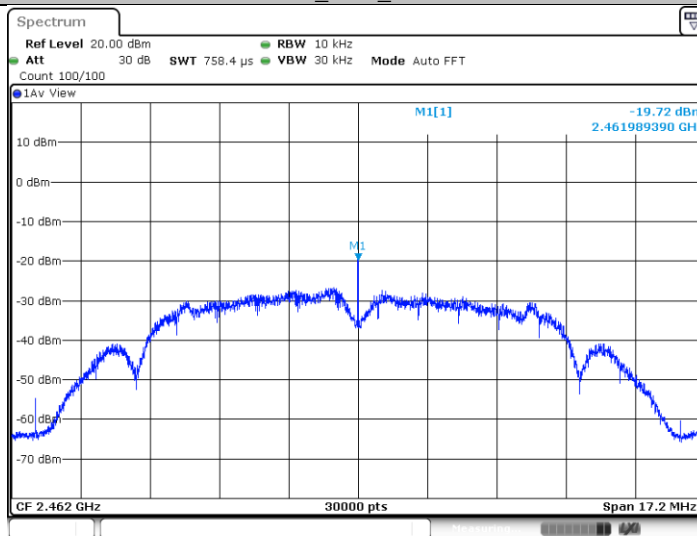
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11B_Ant1_2437



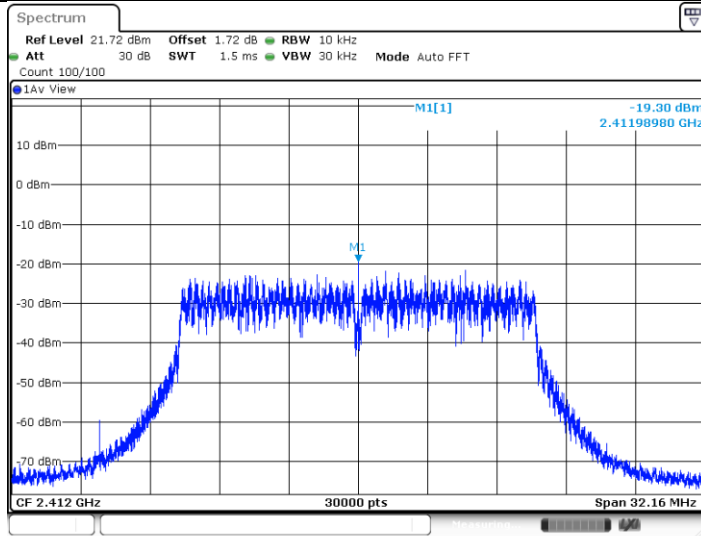
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11B_Ant1_2462



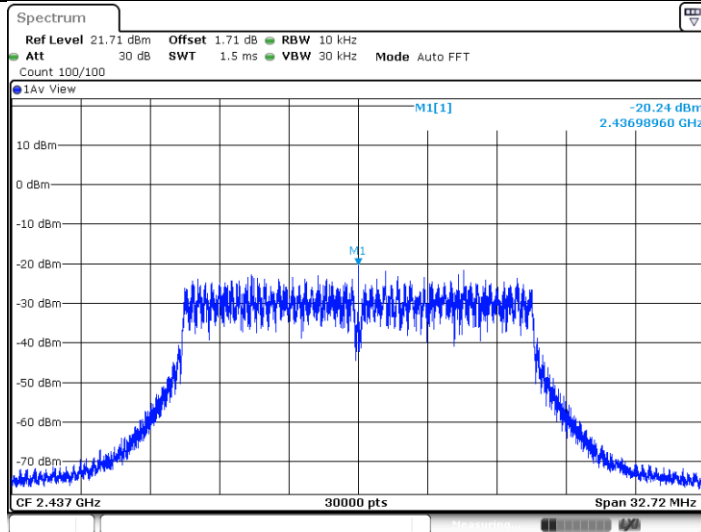
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11G_Ant1_2412



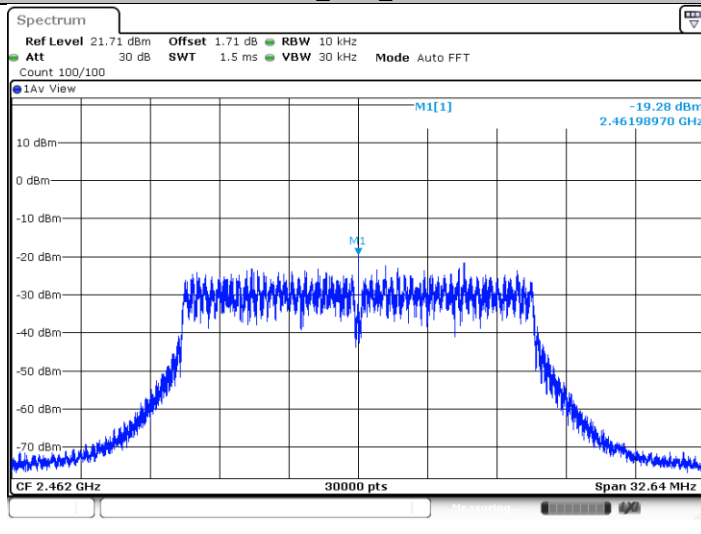
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11G_Ant1_2437



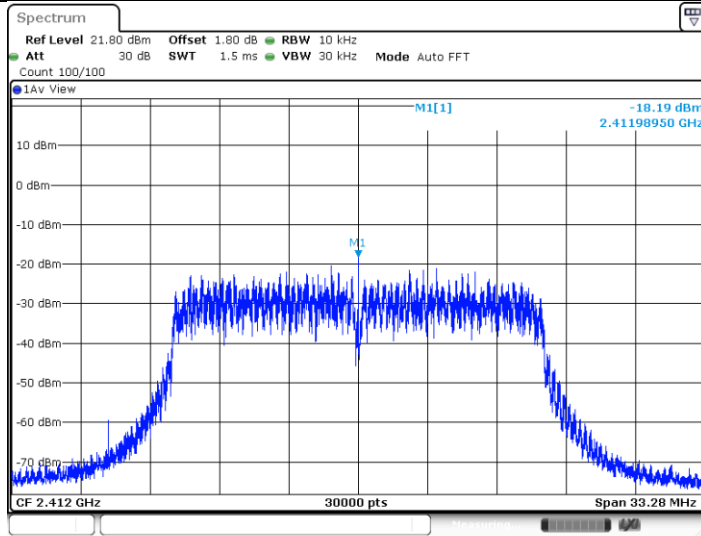
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11G_Ant1_2462



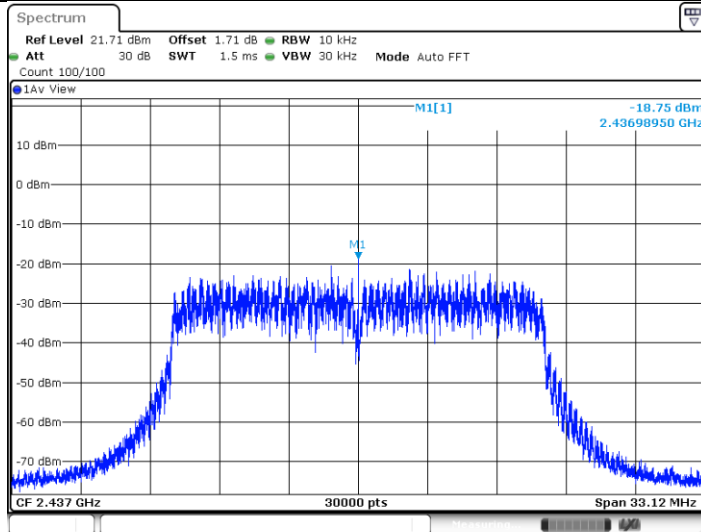
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11N20SISO_Ant1_2412



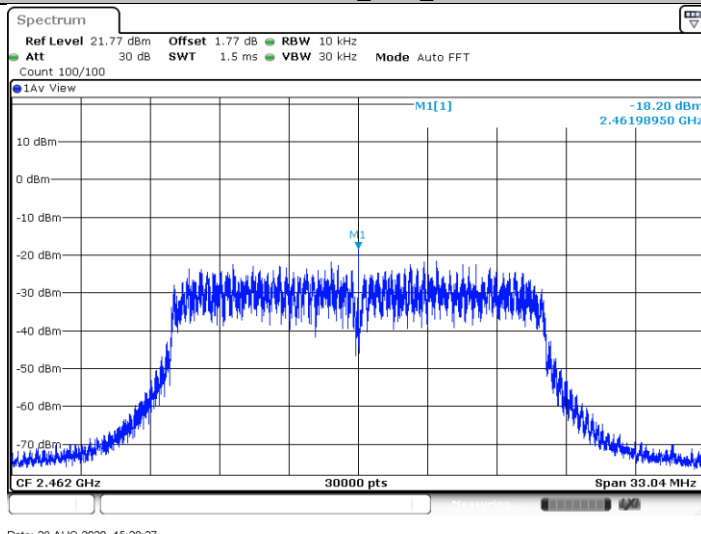
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11N20SISO_Ant1_2437



Date: 28 AUG.2020 15:18:07

11N20SISO_Ant1_2462



Date: 28 AUG.2020 15:20:27

9.3 6 dB Bandwidth

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Use the following spectrum analyzer settings:
Set RBW \geq 1% of the 99% bandwidth, VBW \geq RBW.
Sweep = auto, Detector function = peak, Trace = max hold
3. 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 \geq 6 dB.
4. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

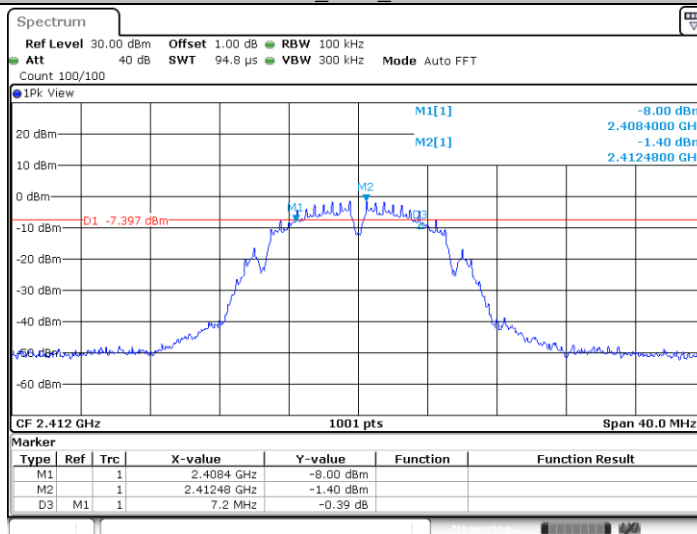
Limit [kHz]

≥ 500

Test Mode	Antenna	Channel (MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant1	2412	7.200	2408.400	2415.600	PASS
		2437	9.080	2432.440	2441.520	PASS
		2462	8.600	2457.440	2466.040	PASS
11G	Ant1	2412	16.080	2403.840	2419.920	PASS
		2437	16.360	2428.840	2445.200	PASS
		2462	16.320	2453.880	2470.200	PASS
11N20SISO	Ant1	2412	16.640	2403.840	2420.480	PASS
		2437	16.560	2428.960	2445.520	PASS
		2462	16.520	2453.960	2470.480	PASS

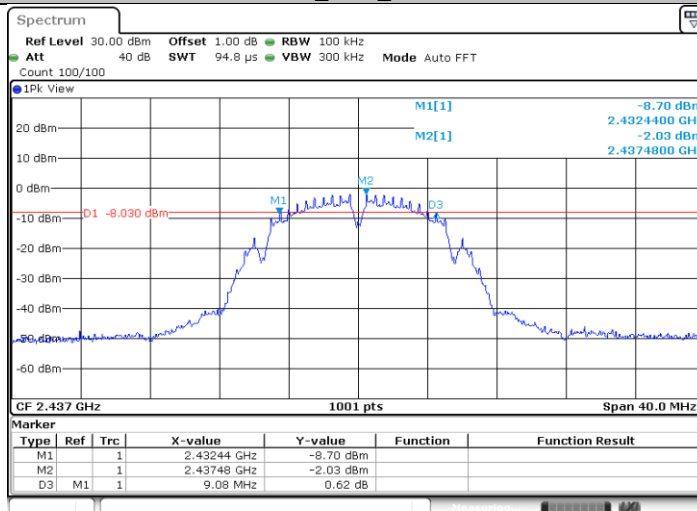
Test Graphs

11B_Ant1_2412



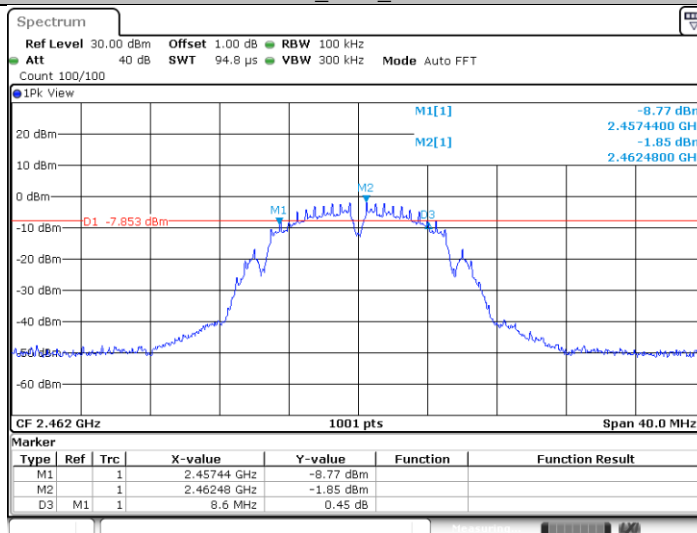
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11B_Ant1_2437



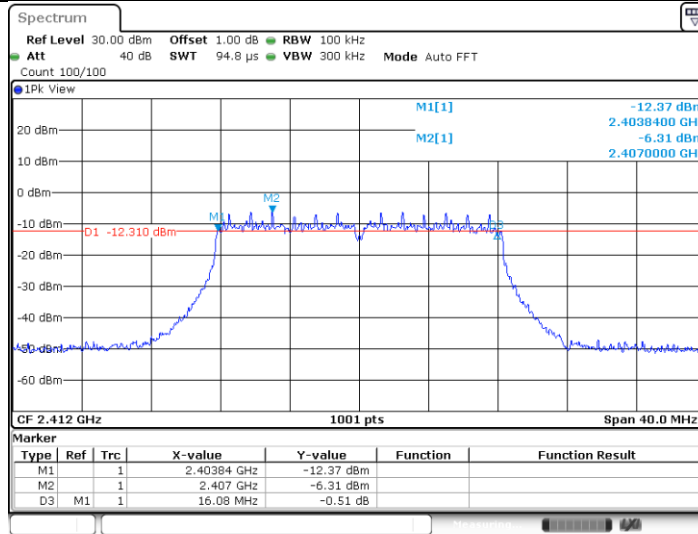
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11B_Ant1_2462



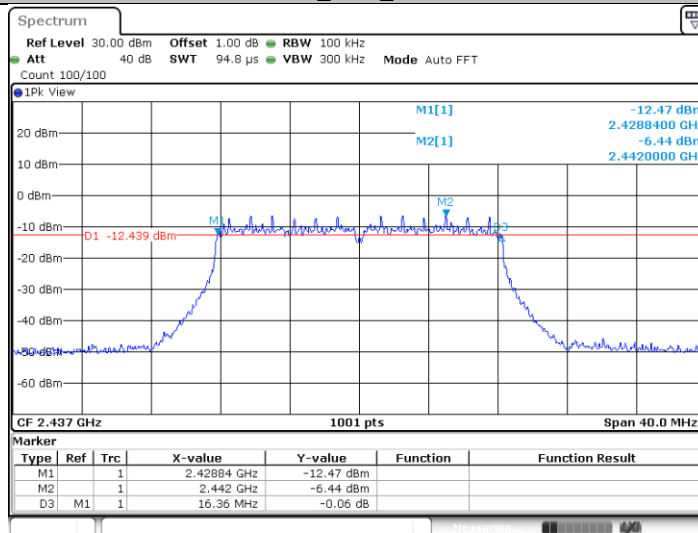
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11G_Ant1_2412



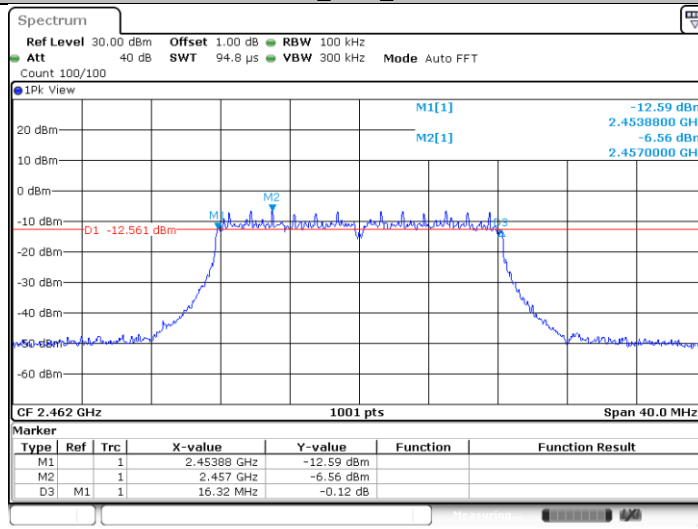
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11G_Ant1_2437



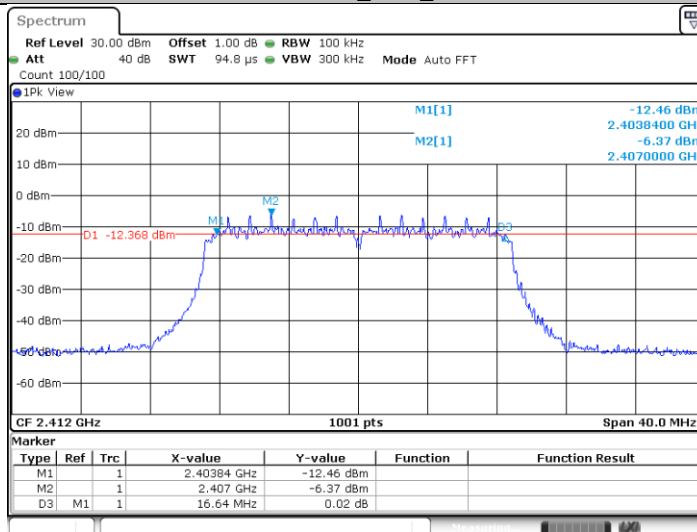
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11G_Ant1_2462



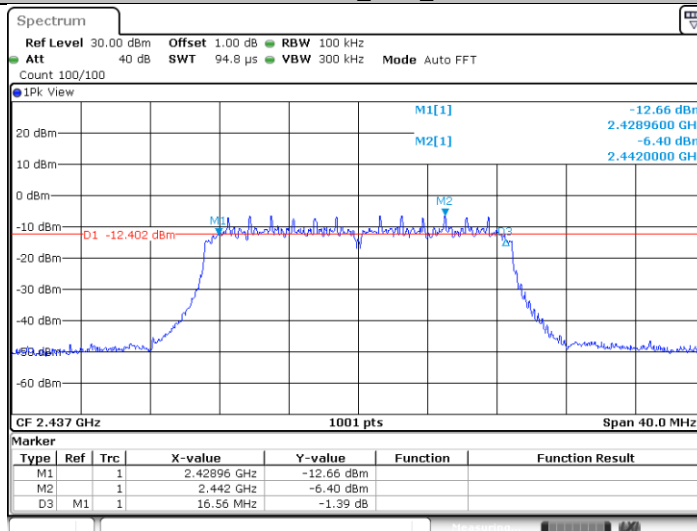
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11N20SISO_Ant1_2412



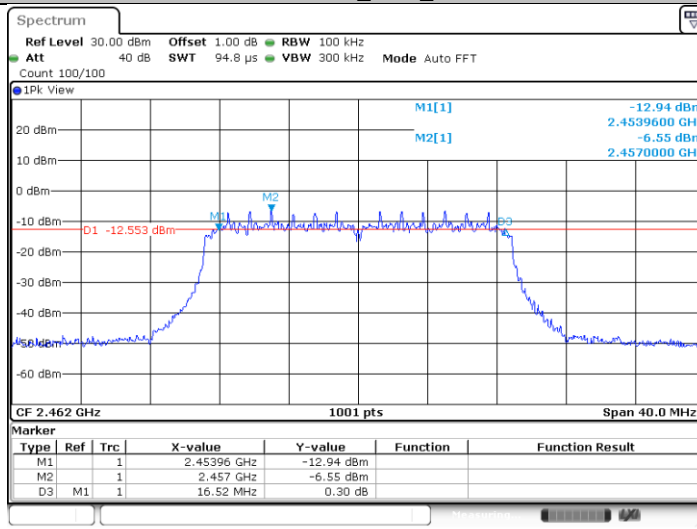
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11N20SISO_Ant1_2437



Date: 28 AUG.2020 15:17:44

11N20SISO_Ant1_2462



Date: 28 AUG.2020 15:20:05

9.4 Spurious RF conducted emissions

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Establish a reference level by using the following procedure:
 - a. Set RBW=100 kHz. VBW \geq 3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
 - b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
3. Use the maximum PSD level to establish the reference level.
 - a. Set the center frequency and span to encompass frequency range to be measured.
 - b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
4. Repeat above procedures until other frequencies measured were completed.

Limit

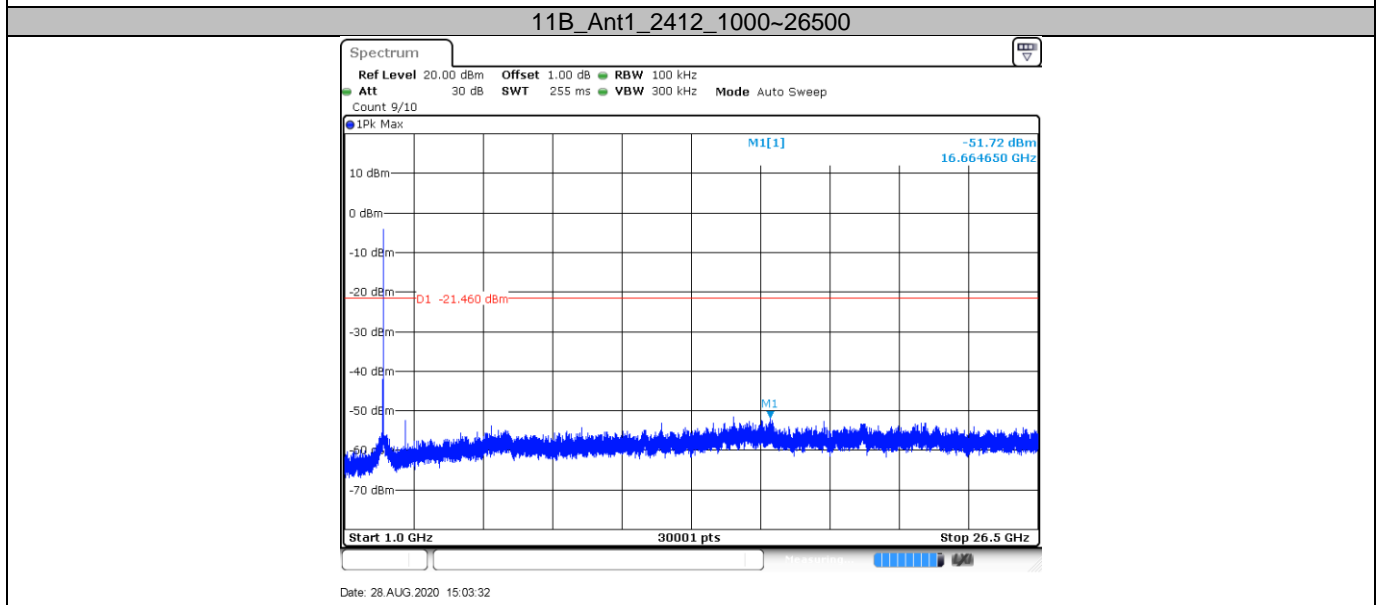
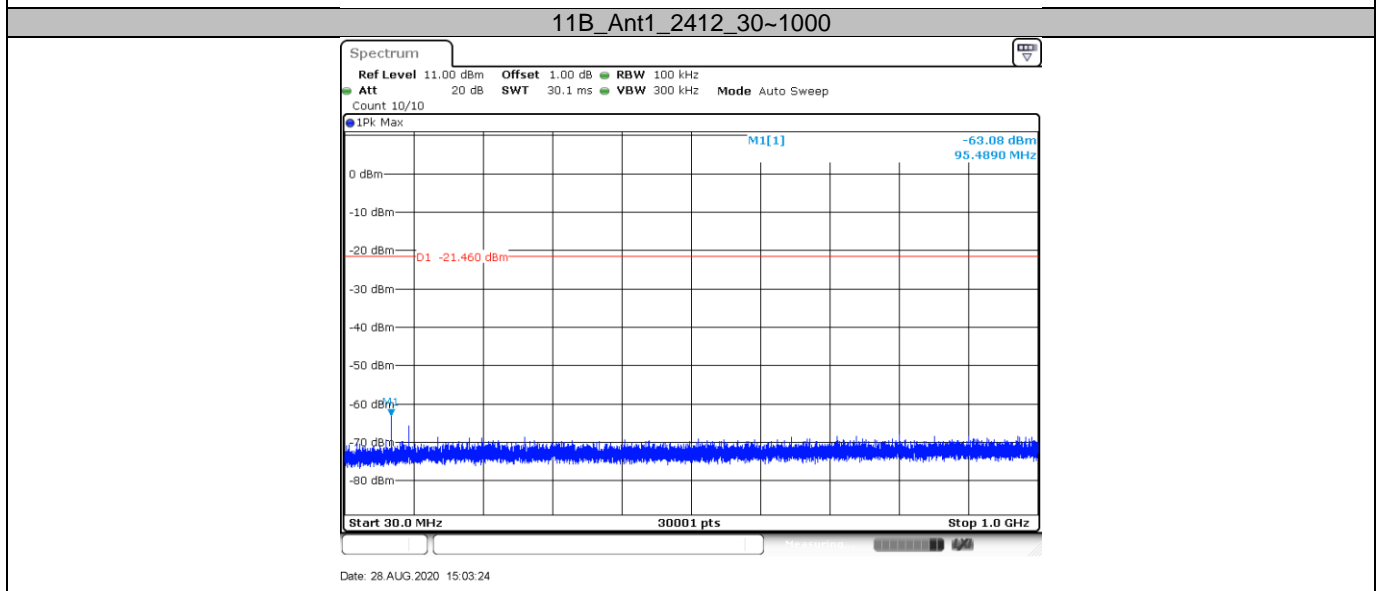
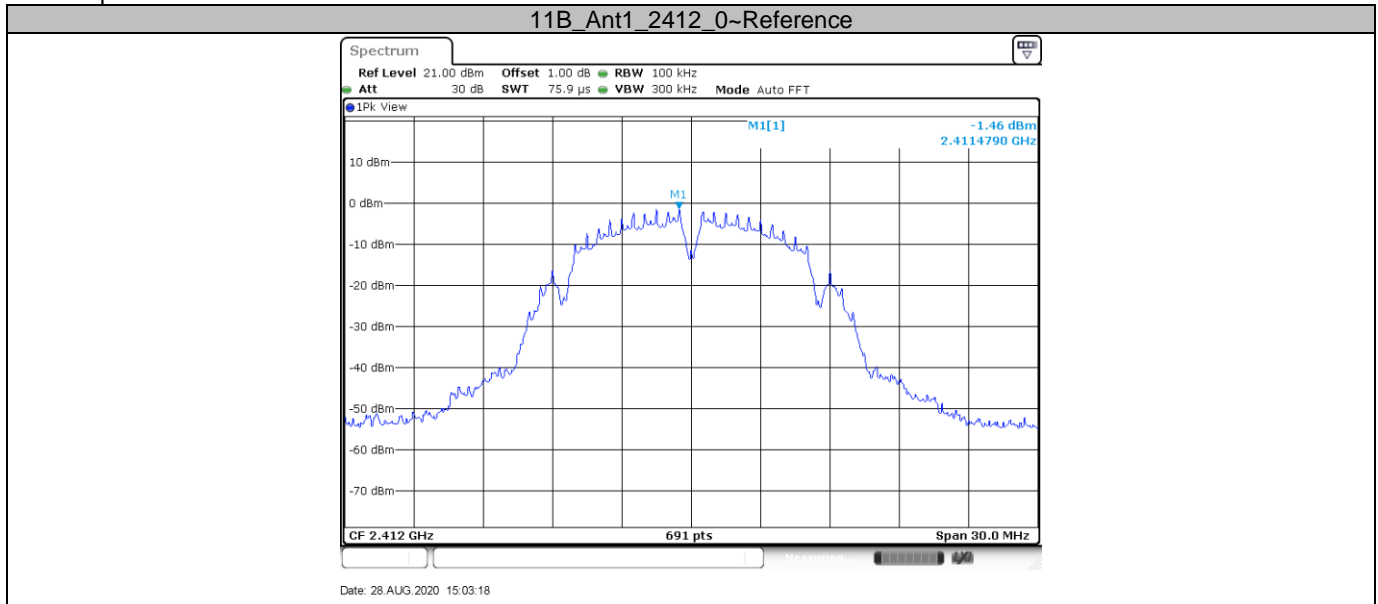
Frequency Range MHz	Limit (dBc)
30-25000	-20

Spurious RF conducted emissions

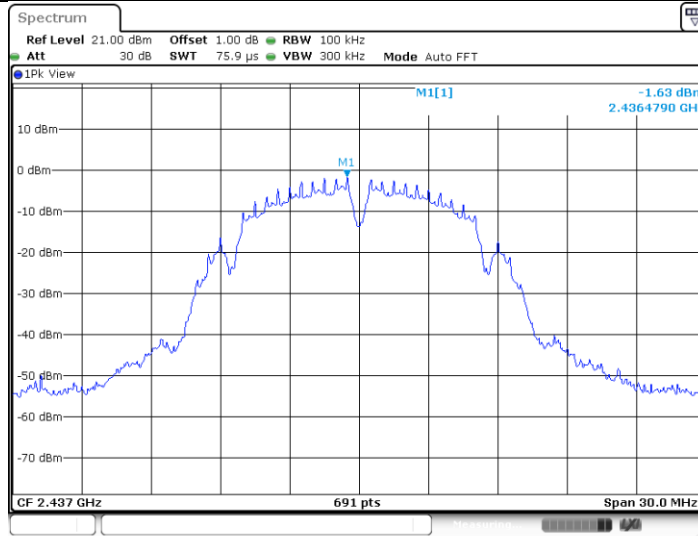
Test Result

Test Mode	Antenna	Channel (MHz)	FreqRange (MHz)	RefLevel (dBm)	Result (dBm)	Limit (dBm)	Verdict
11B	Ant1	2412	Reference	-1.46	-1.46	---	PASS
		2412	30~1000	-1.46	-63.08	<=-21.46	PASS
		2412	1000~26500	-1.46	-51.72	<=-21.46	PASS
		2437	Reference	-1.63	-1.63	---	PASS
		2437	30~1000	-1.63	-62.24	<=-21.63	PASS
		2437	1000~26500	-1.63	-51.23	<=-21.63	PASS
		2462	Reference	-1.80	-1.80	---	PASS
		2462	30~1000	-1.80	-63.78	<=-21.8	PASS
11G	Ant1	2462	1000~26500	-1.80	-51.9	<=-21.8	PASS
		2412	Reference	-6.63	-6.63	---	PASS
		2412	30~1000	-6.63	-64.06	<=-26.63	PASS
		2412	1000~26500	-6.63	-49.7	<=-26.63	PASS
		2437	Reference	-6.60	-6.60	---	PASS
		2437	30~1000	-6.60	-62.99	<=-26.6	PASS
		2437	1000~26500	-6.60	-51.87	<=-26.6	PASS
		2462	Reference	-6.50	-6.50	---	PASS
11N20	Ant1	2462	30~1000	-6.50	-63.38	<=-26.5	PASS
		2462	1000~26500	-6.50	-52.58	<=-26.5	PASS
		2412	Reference	-6.62	-6.62	---	PASS
		2412	30~1000	-6.62	-62.22	<=-26.62	PASS
		2412	1000~26500	-6.62	-49.15	<=-26.62	PASS
		2437	Reference	-6.69	-6.69	---	PASS
		2437	30~1000	-6.69	-63.21	<=-26.69	PASS
		2437	1000~26500	-6.69	-52.41	<=-26.69	PASS
11N20	Ant1	2462	Reference	-6.52	-6.52	---	PASS
		2462	30~1000	-6.52	-62.74	<=-26.52	PASS
		2462	1000~26500	-6.52	-52.73	<=-26.52	PASS

Test Graphs

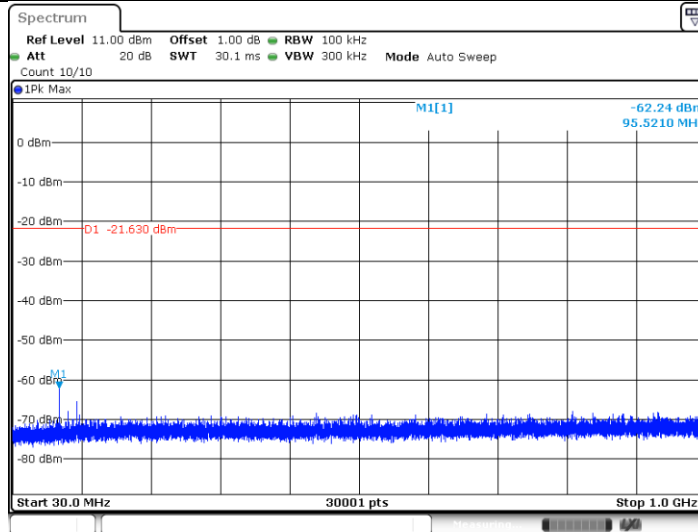


11B_Ant1_2437_0-Reference



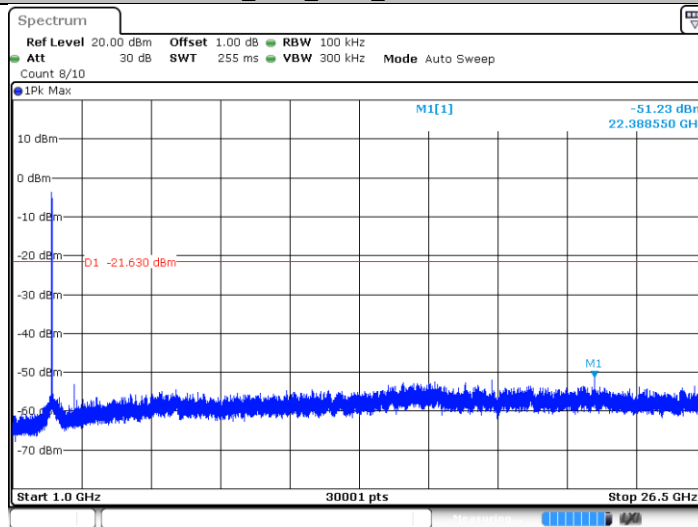
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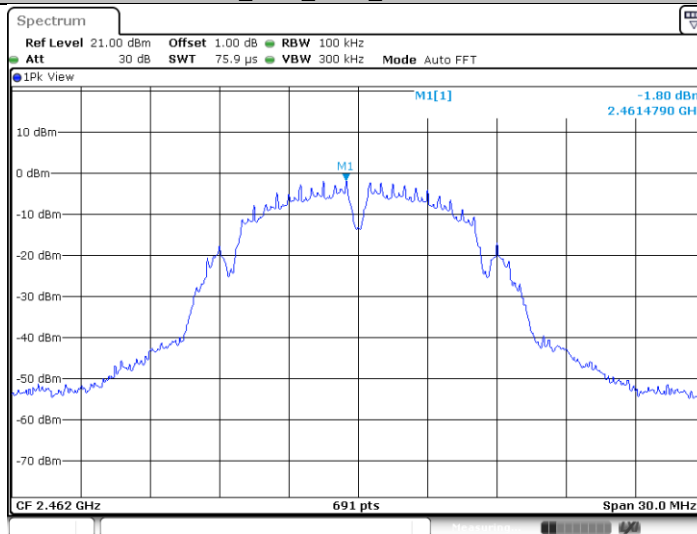
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11B_Ant1_2437_1000-26500



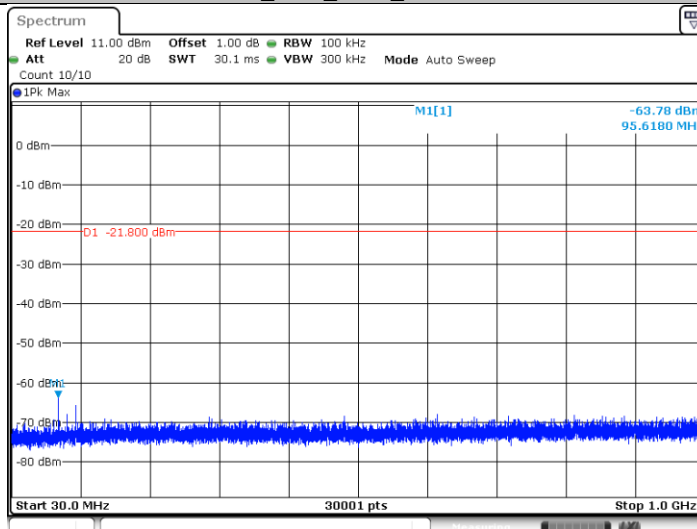
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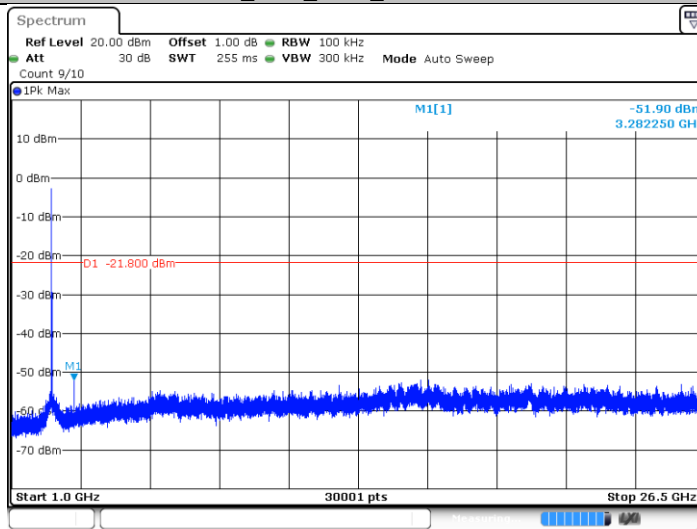
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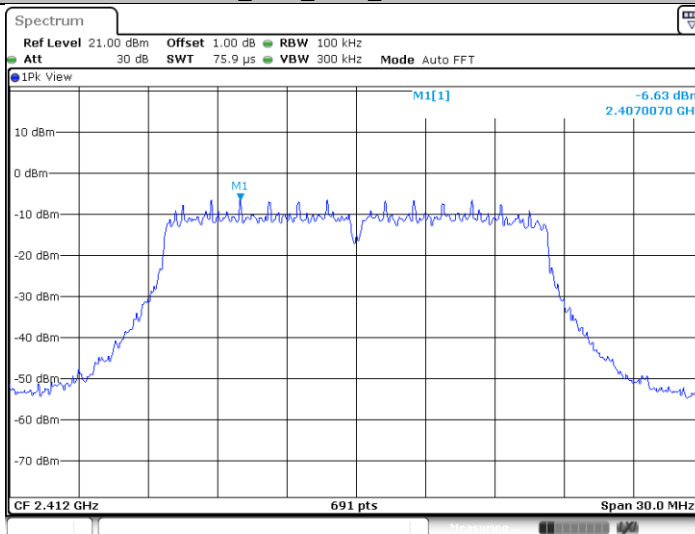
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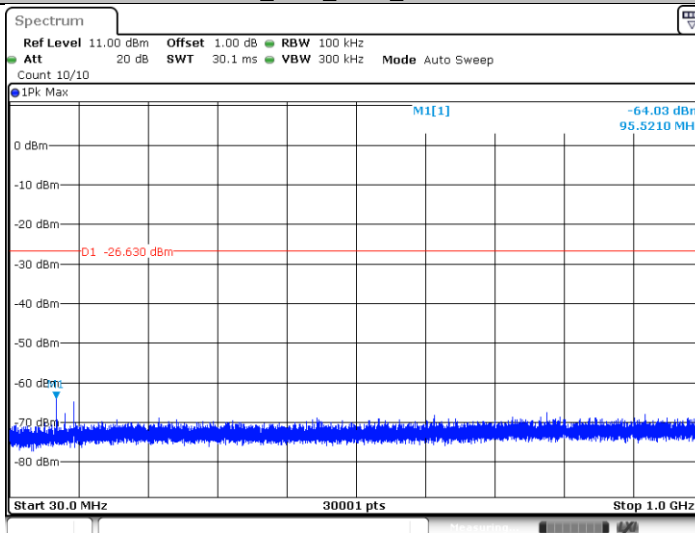


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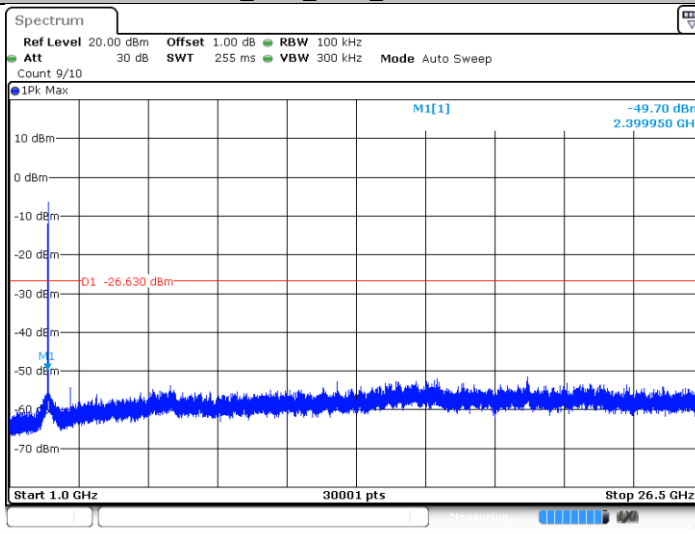
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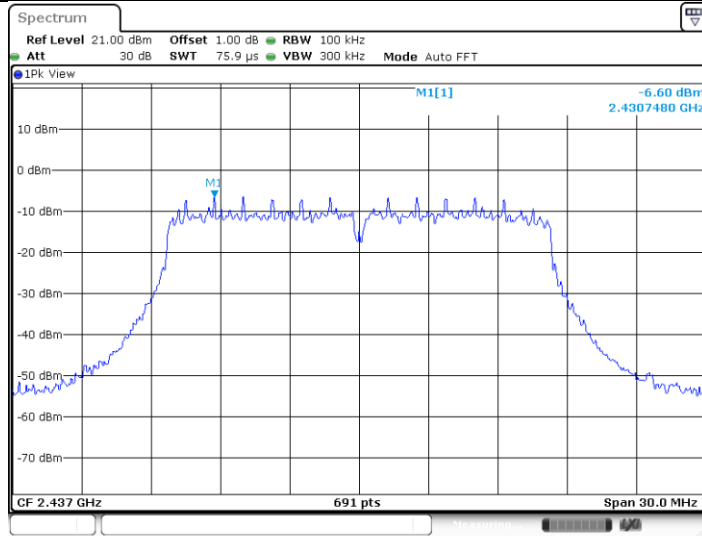
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11G_Ant1_2412_1000~26500

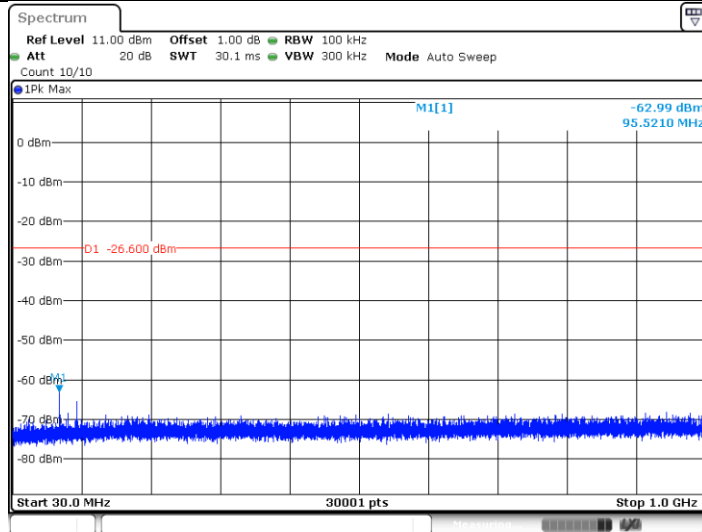


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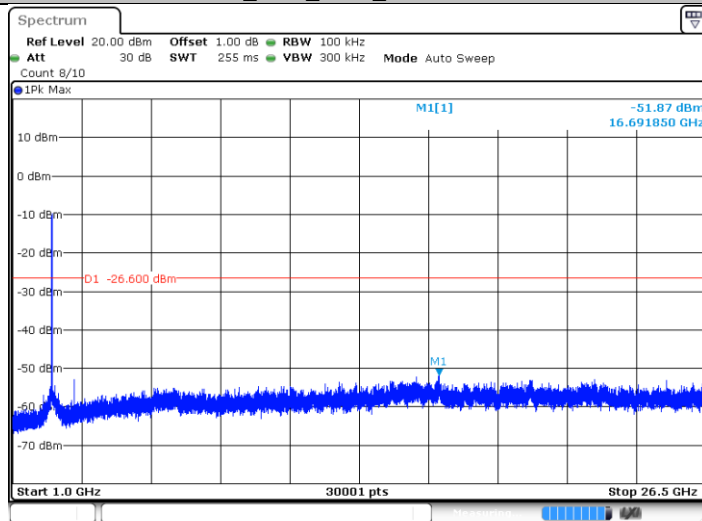
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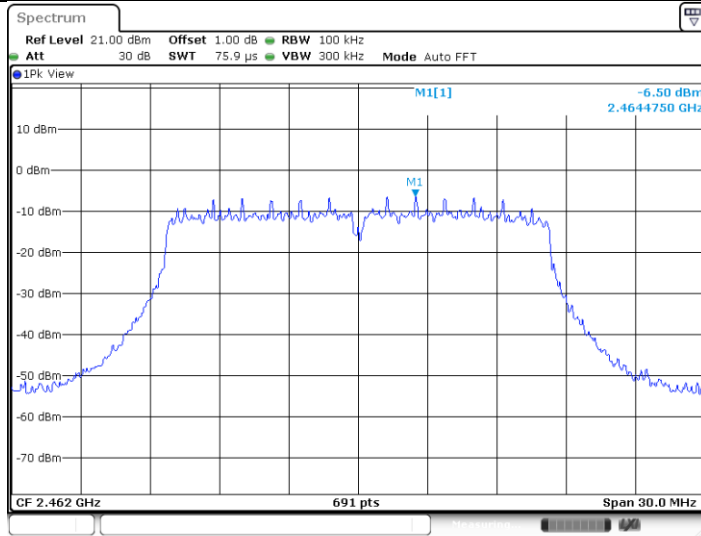
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11G_Ant1_2437_1000~26500



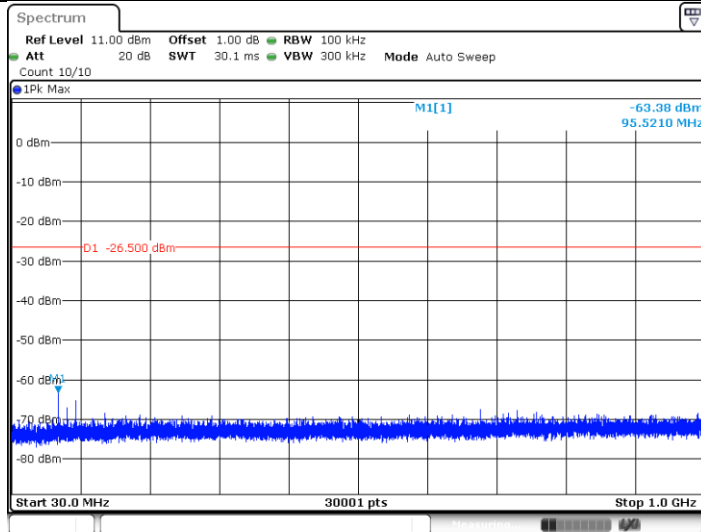
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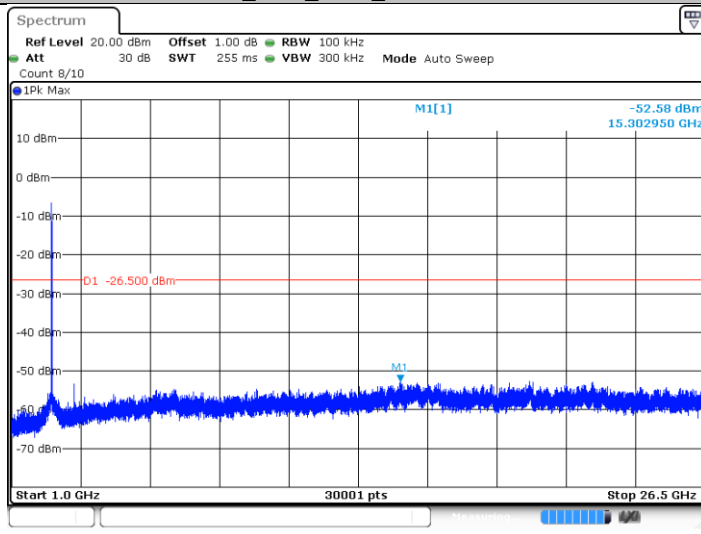
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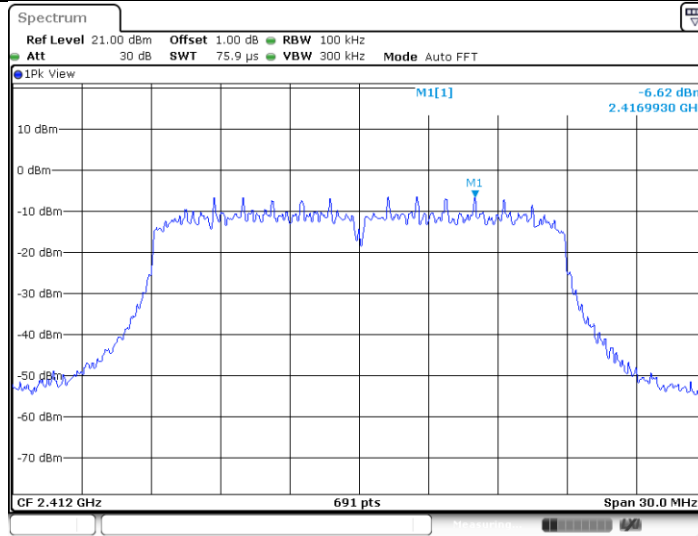
Date: 28 AUG.2020 15:13:12

11G_Ant1_2462_1000~26500



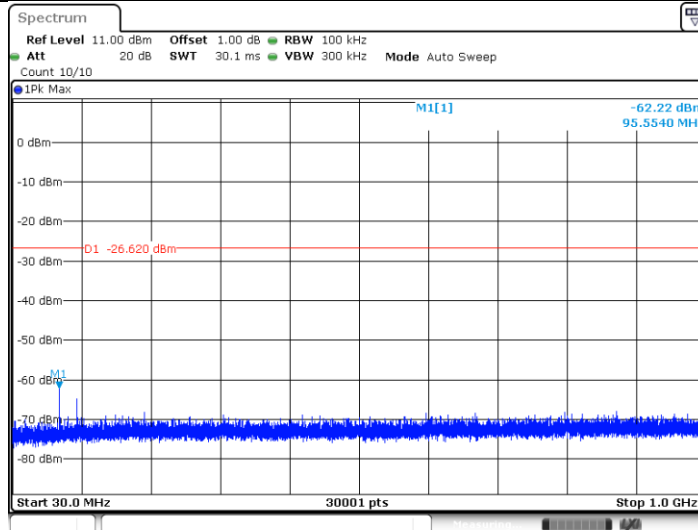
Date: 28 AUG.2020 15:13:20

11N20SISO_Ant1_2412_0~Reference



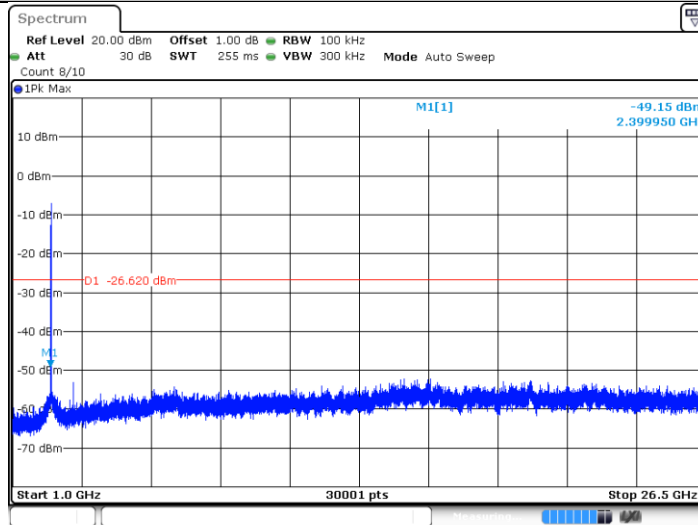
Date: 28 AUG.2020 15:15:37

11N20SISO_Ant1_2412_30~1000



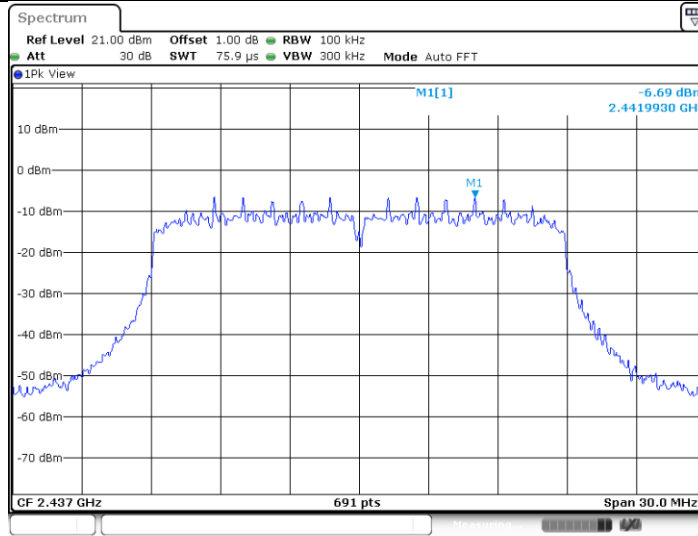
Date: 28 AUG.2020 15:15:43

11N20SISO_Ant1_2412_1000~26500



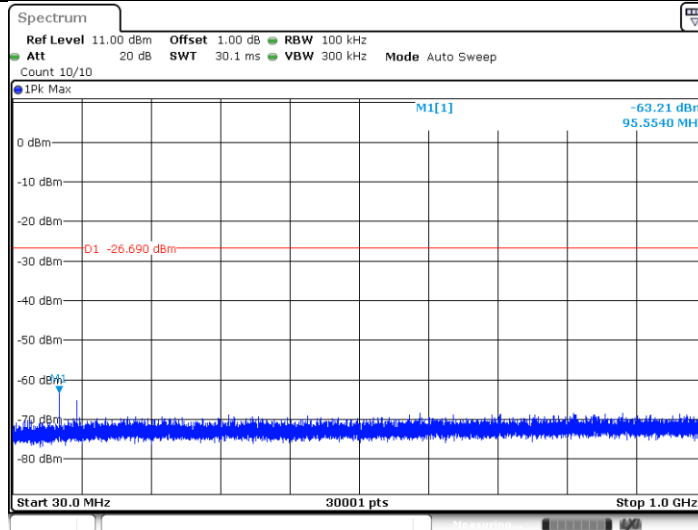
Date: 28 AUG.2020 15:15:51

11N20SISO_Ant1_2437_0~Reference



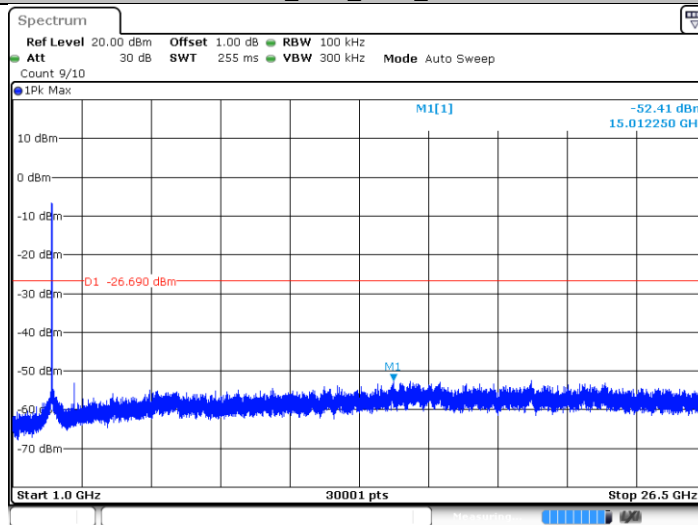
Date: 28 AUG.2020 15:18:13

11N20SISO_Ant1_2437_30~1000



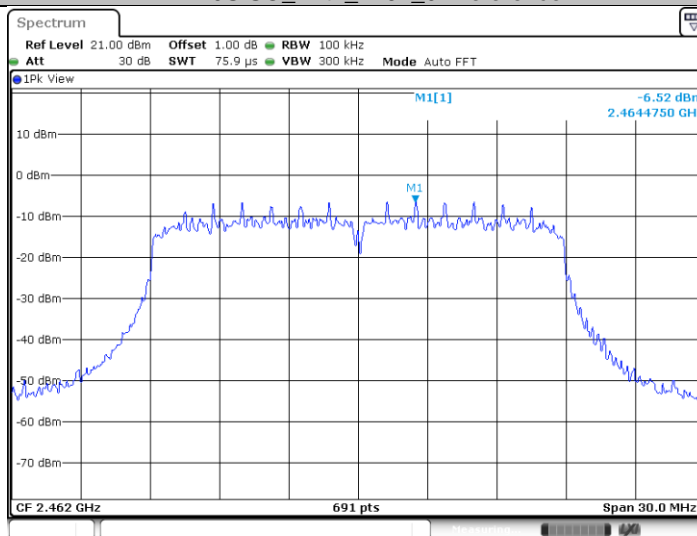
Date: 28 AUG.2020 15:18:19

11N20SISO_Ant1_2437_1000~26500



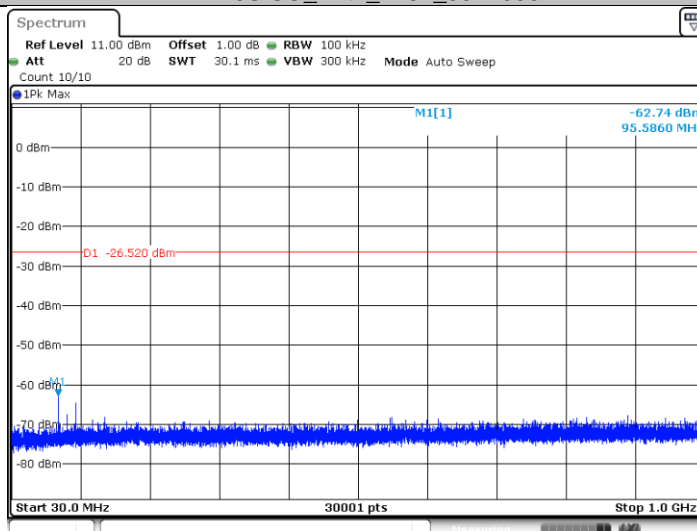
Date: 28 AUG.2020 15:18:27

11N20SISO_Ant1_2462_0~Reference



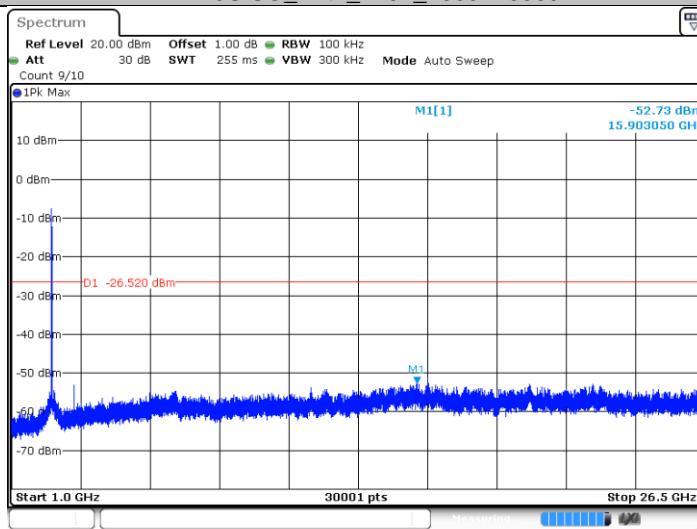
Date: 28 AUG.2020 15:20:43

11N20SISO_Ant1_2462_30~1000



Date: 28 AUG.2020 15:20:49

11N20SISO_Ant1_2462_1000~26500



Date: 28 AUG.2020 15:20:57

9.5 Band edge testing

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Set spectrum analyzer setting as below:
Set $RBW \geq 1\%$ of the span, $VBW \geq RBW$.
Set Sweep = auto. Set Detector function = peak. Allow the trace to stabilize.
Set Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
3. Repeat above procedures until all frequencies measured were complete.

Limit:

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

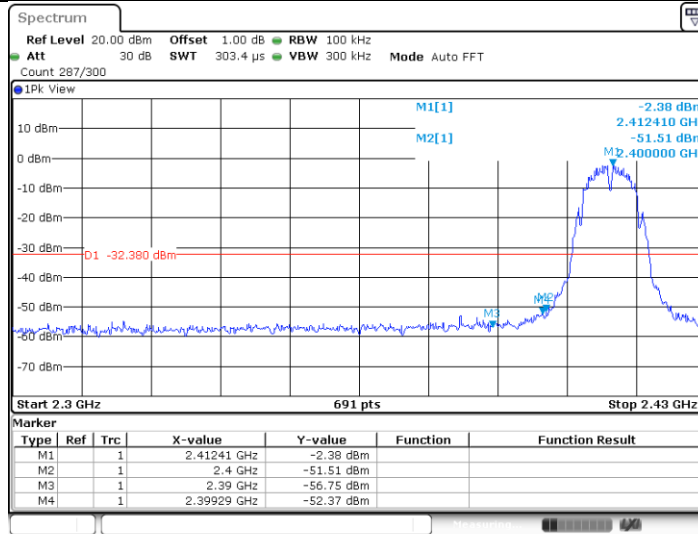
Band edge testing

Test result

Test Mode	Antenna	ChName	Channel (MHz)	RefLevel (dBm)	Result (dBm)	Limit (dBm)	Verdict
11B	Ant1	Low	2412	-2.38	-52.37	<=-32.38	PASS
		High	2462	-1.75	-54.41	<=-31.75	PASS
11G	Ant1	Low	2412	-6.30	-50.15	<=-36.3	PASS
		High	2462	-6.64	-54.18	<=-36.64	PASS
11N20	Ant1	Low	2412	-6.28	-48.55	<=-36.28	PASS
		High	2462	-6.68	-54.09	<=-36.68	PASS

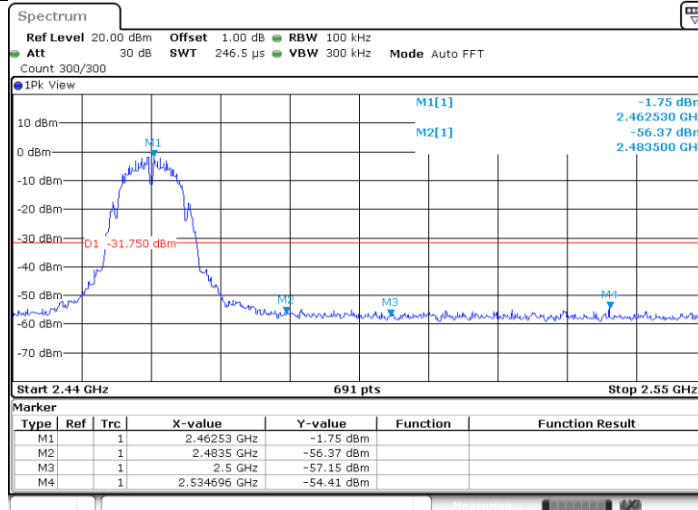
Test Graphs

11B_Ant1_Low_2412



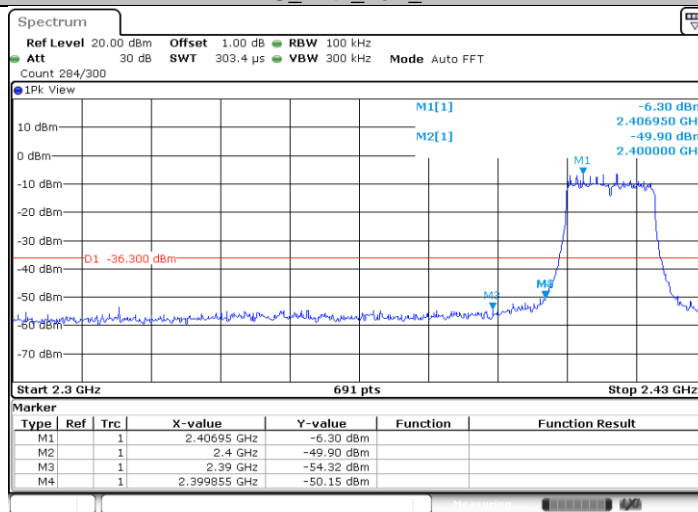
Date: 28 AUG.2020 15:03:12

11B_Ant1_High_2462



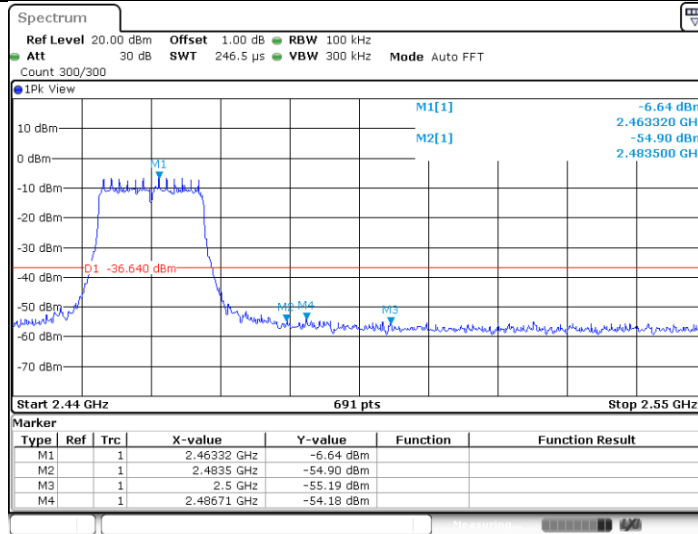
Date: 28 AUG.2020 15:07:16

11G_Ant1_Low_2412



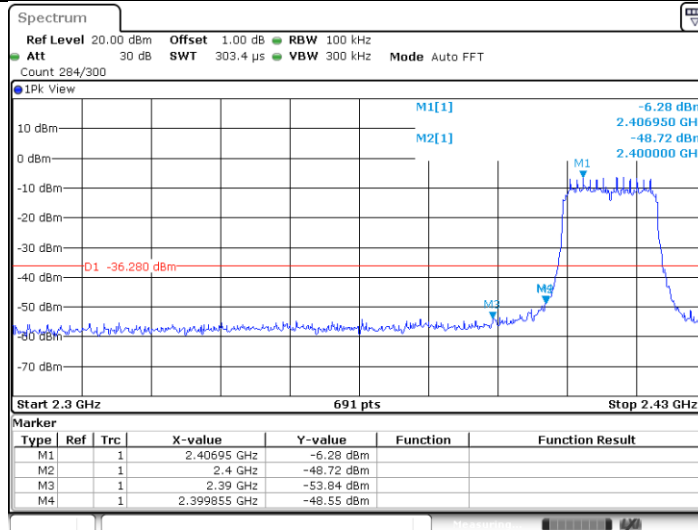
Date: 28 AUG.2020 15:09:23

11G_Ant1_High_2462



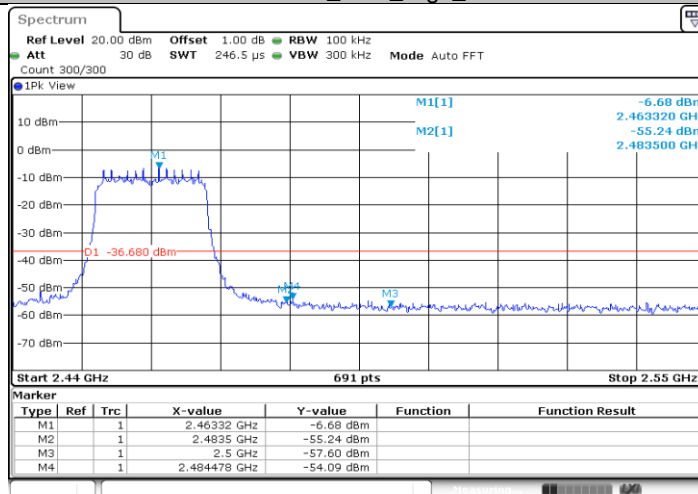
Date: 28 AUG.2020 15:13:00

11N20SISO_Ant1_Low_2412



Date: 28 AUG.2020 15:15:31

11N20SISO_Ant1_High_2462



Date: 28 AUG.2020 15:20:36

9.6 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 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 to 120KHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions 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, Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz

- a) RBW = 1 MHz.
- b) VBW \ [3 × RBW].
- c) Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq \text{RBW} / 2$.
Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
- d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
- e) Sweep time = auto.
- f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of $1 / D$, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)
- g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

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 dB μ V/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.

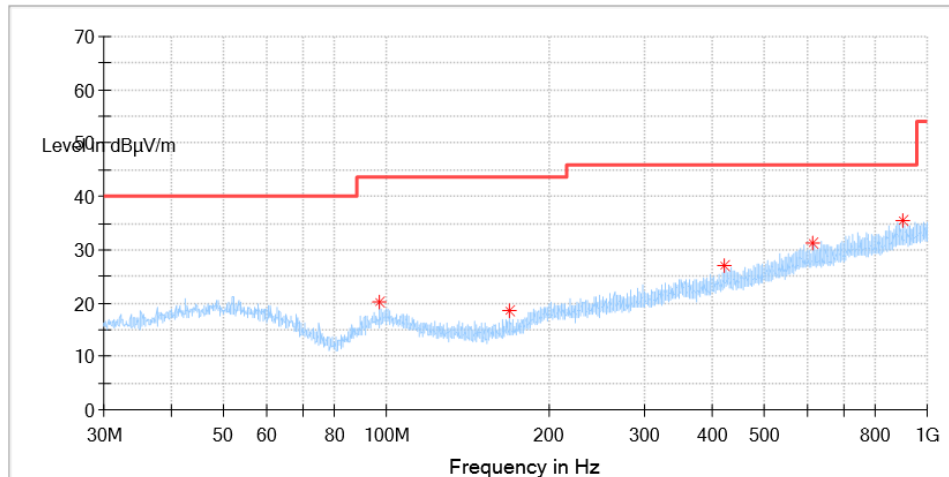
Pretest all modulation type, report the data of the worst case(802.11b).

Transmitting spurious emission test result as below:

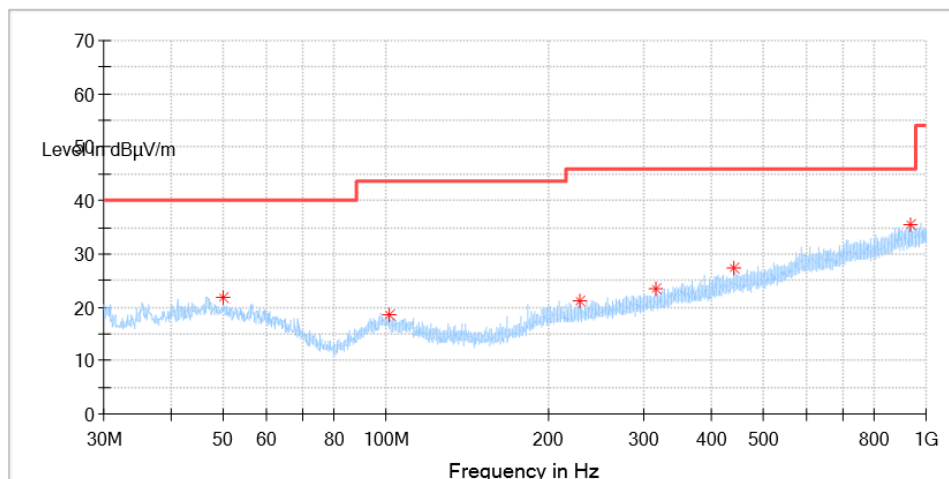
For model: GBF-1270-F2

802.11b Modulation:

Emission below 1GHz



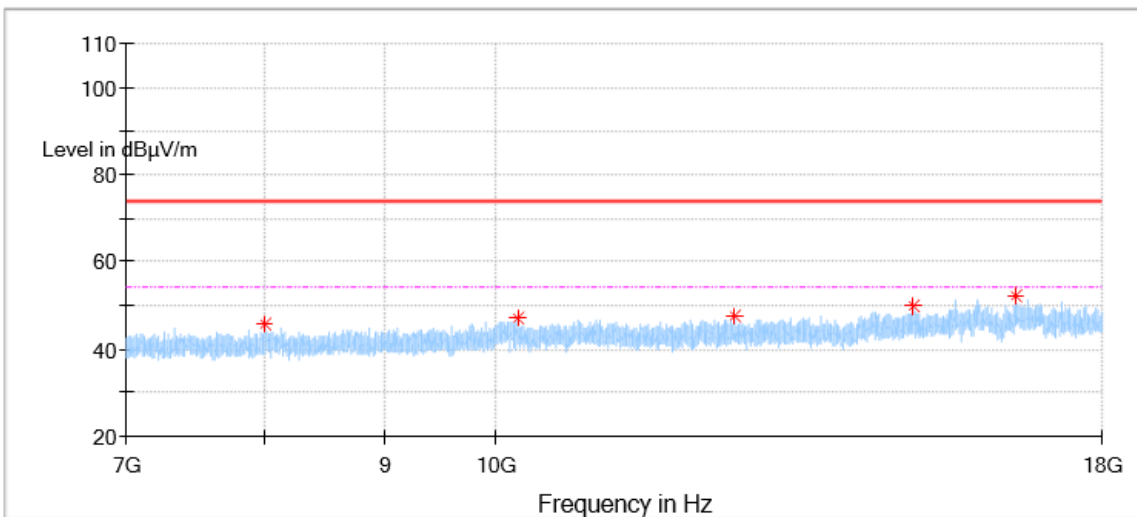
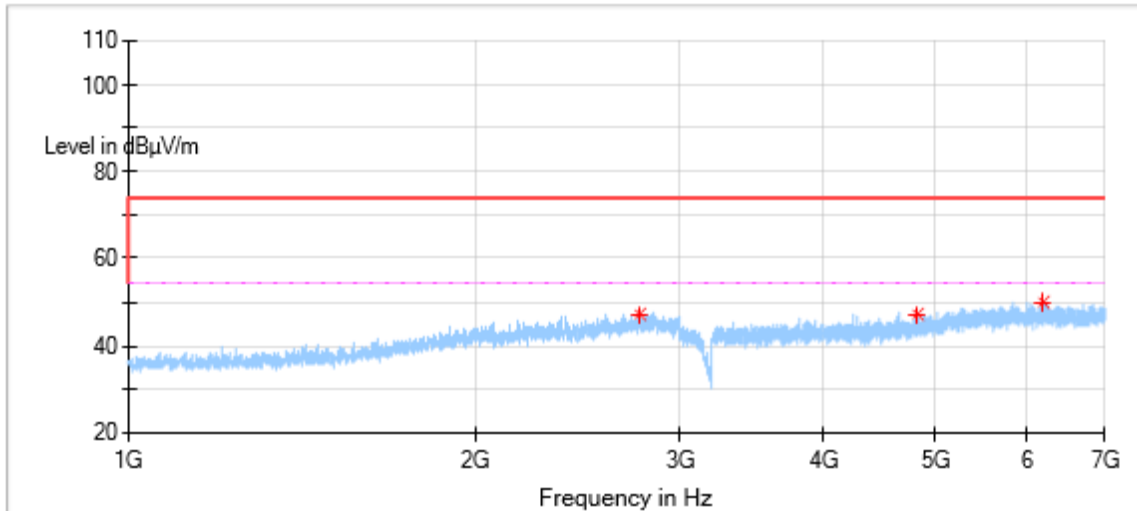
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
97.172500	20.32	43.50	23.18	100.0	H	204.0	16
168.770625	18.72	43.50	24.78	100.0	H	337.0	14
421.152500	26.86	46.00	19.14	100.0	H	158.0	22
616.546875	31.41	46.00	14.59	100.0	H	204.0	26
904.515625	35.39	46.00	10.61	100.0	H	135.0	30



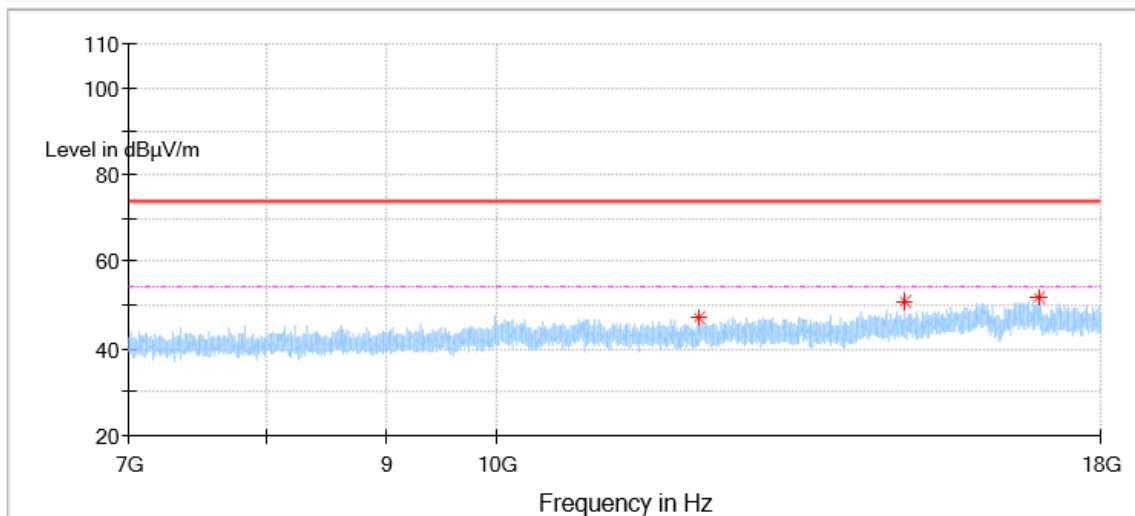
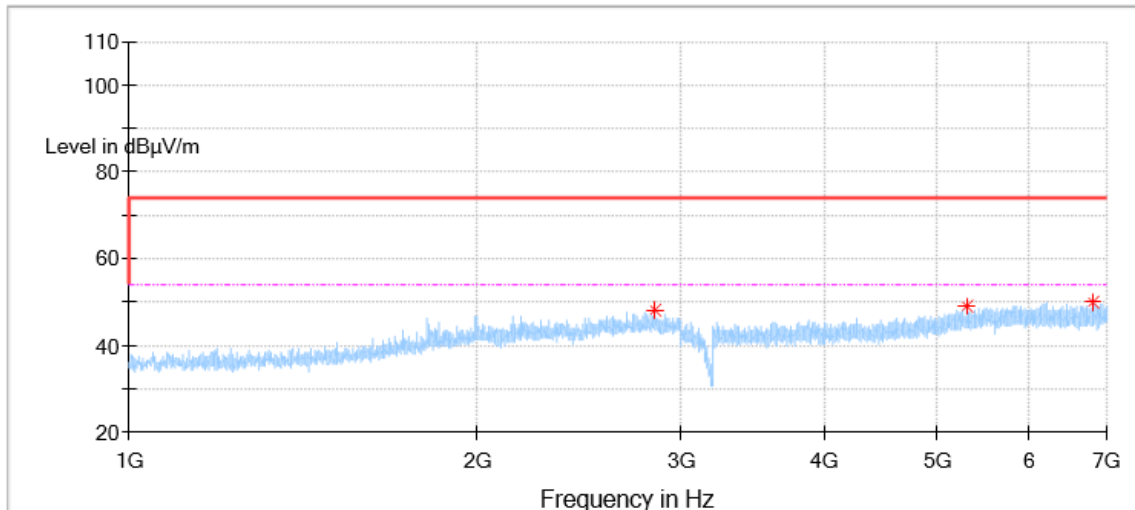
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
49.945625	21.84	40.00	18.16	100.0	V	350.0	18
101.537500	18.68	43.50	24.82	100.0	V	15.0	16
229.213750	21.30	46.00	24.70	100.0	V	0.0	17
316.938125	23.32	46.00	22.68	100.0	V	0.0	19
440.552500	27.37	46.00	18.63	100.0	V	180.0	22
937.616875	35.58	46.00	10.42	100.0	V	262.0	30

Emission between 1G-25GHz

802.11b Modulation:
2412MHz Test Result

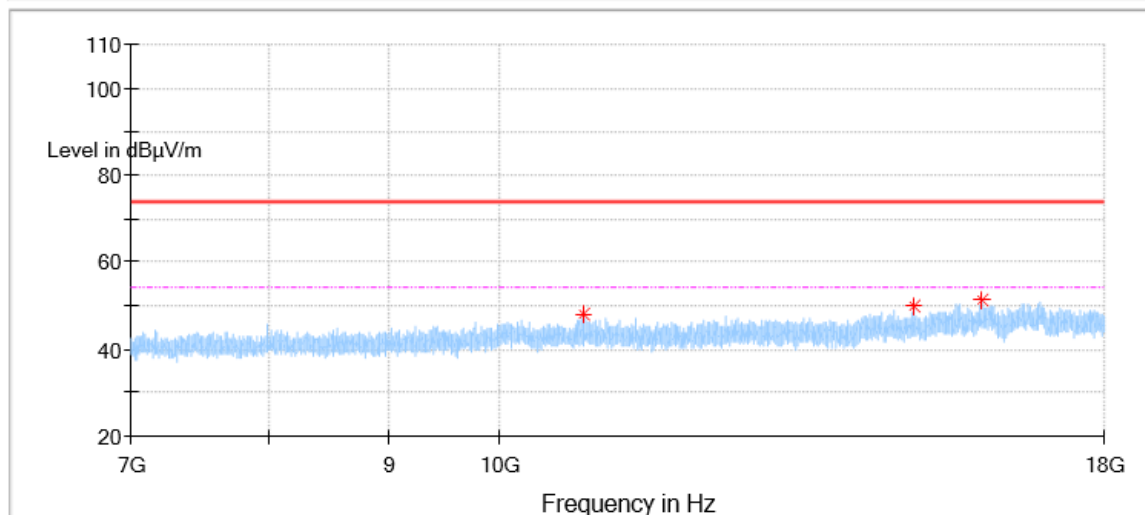
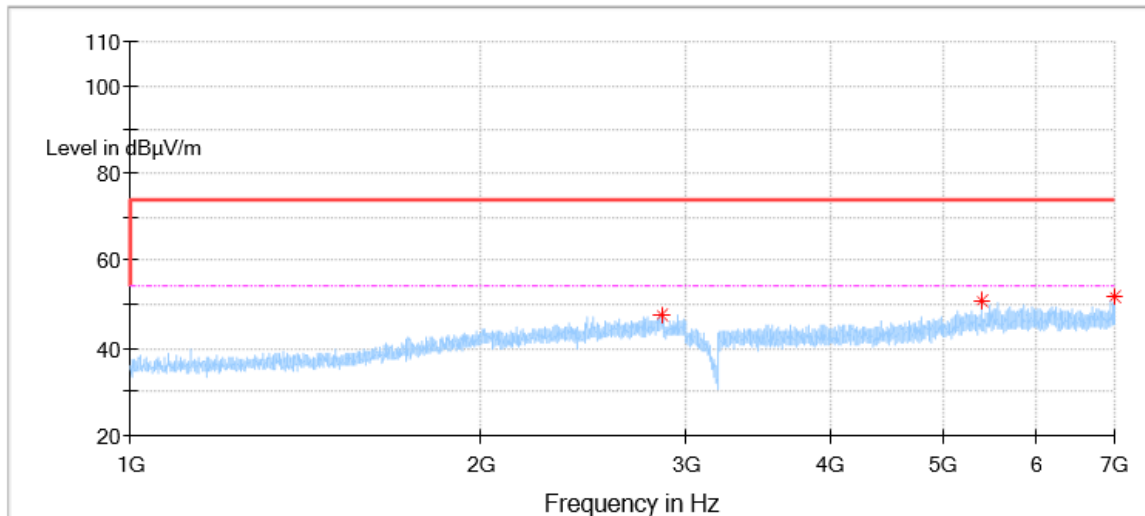


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2765.000000	47.33	74.00	26.67	150.0	H	66.0	-2.2
4824.500000	47.33	74.00	26.67	150.0	H	337.0	1.6
6185.500000	50.21	74.00	23.79	150.0	H	312.0	5.3
8003.500000	45.82	74.00	28.18	150.0	H	326.0	6.3
10220.500000	47.14	74.00	26.86	150.0	H	234.0	9.0
12616.000000	47.79	74.00	26.21	150.0	H	162.0	9.4
14990.000000	50.15	74.00	23.85	150.0	H	116.0	12.3
16553.000000	52.17	74.00	21.83	150.0	H	0.0	15.7

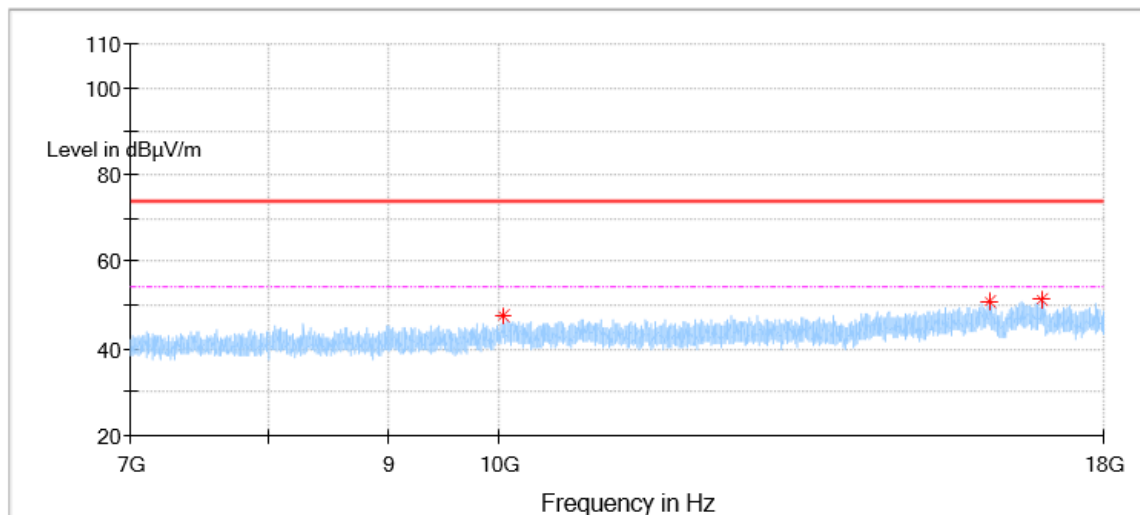
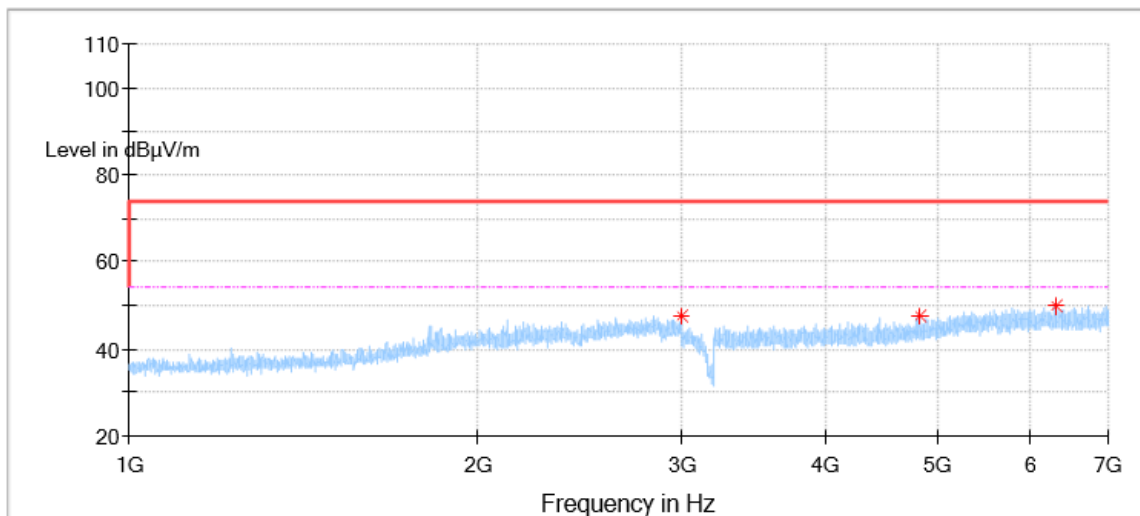


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2846.000000	48.24	74.00	25.76	150.0	V	162.0	-1.9
5302.000000	49.14	74.00	24.86	150.0	V	78.0	2.5
6795.500000	49.98	74.00	24.02	150.0	V	238.0	5.9
12188.500000	47.04	74.00	26.96	150.0	V	60.0	8.8
14871.500000	50.88	74.00	23.12	150.0	V	244.0	11.8
16945.500000	51.69	74.00	22.31	150.0	V	0.0	16.5

2437MHz Test Result

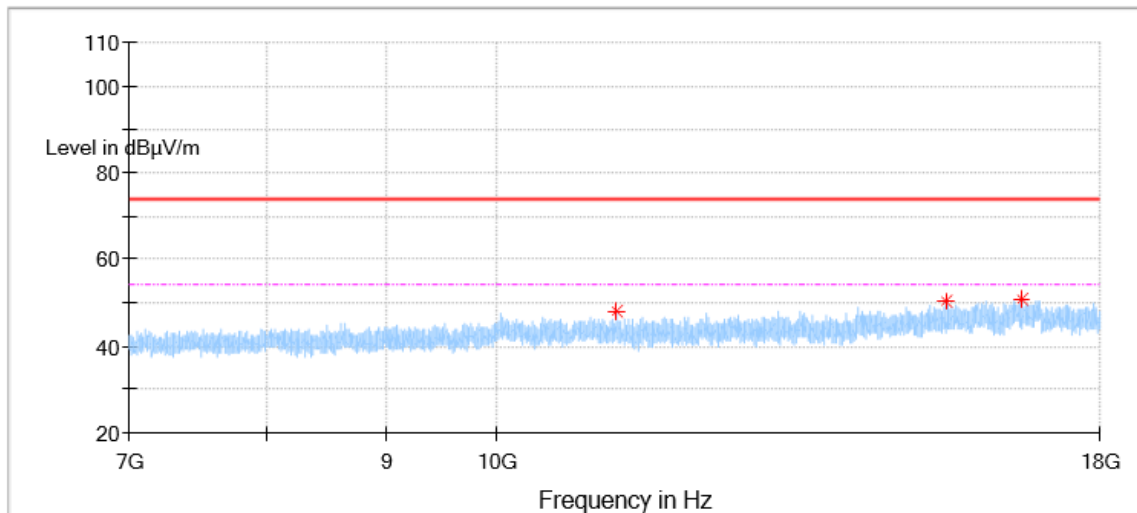
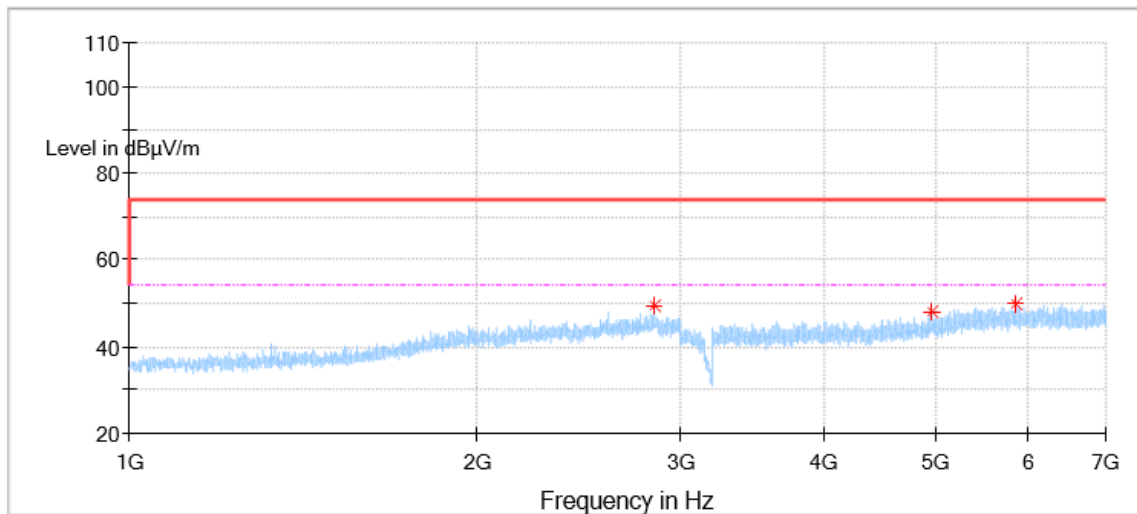


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2862.500000	47.88	74.00	26.12	150.0	H	106.0	-1.8
5385.000000	50.87	74.00	23.13	150.0	H	8.0	2.7
6995.000000	51.64	74.00	22.36	150.0	H	71.0	6.4
10859.000000	48.30	74.00	25.70	150.0	H	1.0	8.5
14979.000000	50.22	74.00	23.78	150.0	H	37.0	12.3
15975.500000	51.28	74.00	22.72	150.0	H	1.0	14.3

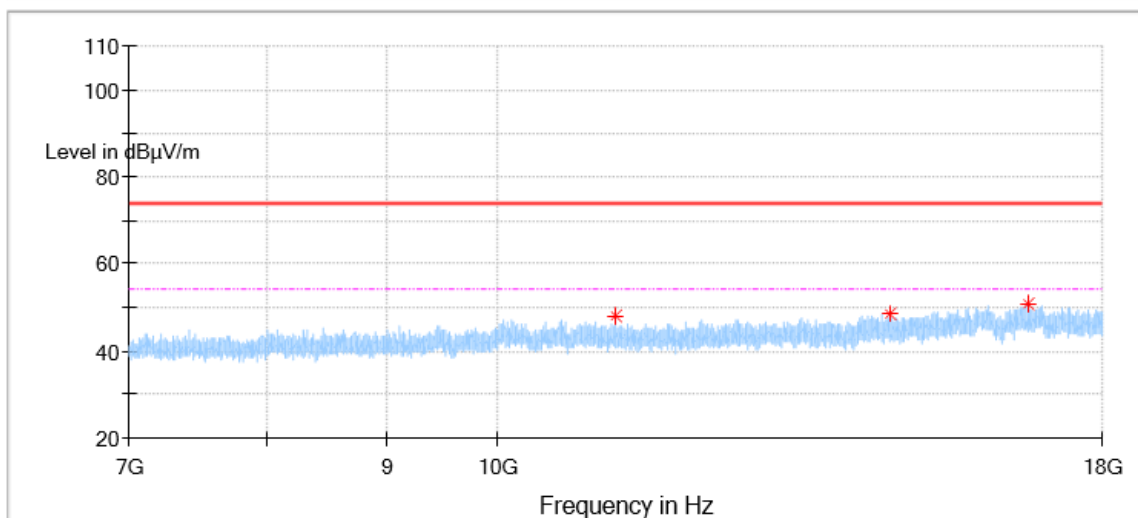
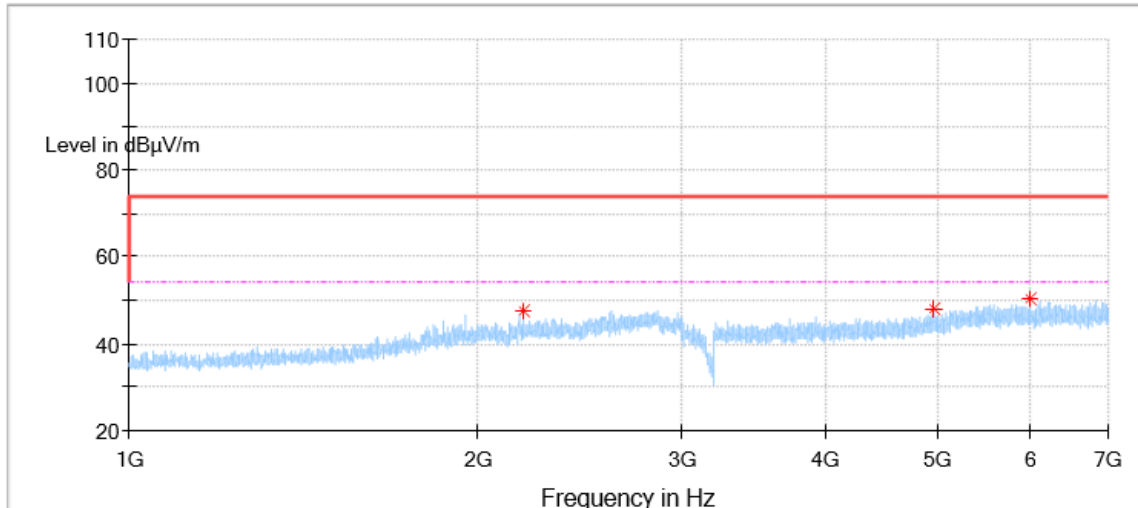


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2998.500000	47.56	74.00	26.44	150.0	V	126.0	-1.4
4812.000000	47.61	74.00	26.39	150.0	V	132.0	1.6
6322.500000	50.10	74.00	23.91	150.0	V	93.0	5.4
10041.500000	47.56	74.00	26.44	150.0	V	0.0	9.1
16117.500000	51.01	74.00	22.99	150.0	V	70.0	14.7
16937.000000	51.53	74.00	22.47	150.0	V	70.0	16.5

2462MHz Test Result



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2851.000000	49.53	74.00	24.47	150.0	H	138.0	-1.9
4944.500000	48.07	74.00	25.93	150.0	H	331.0	1.7
5853.000000	50.06	74.00	23.94	150.0	H	113.0	4.2
11252.500000	48.06	74.00	25.94	150.0	H	277.0	8.4
15504.500000	50.30	74.00	23.70	150.0	H	70.0	13.0
16682.000000	50.70	74.00	23.30	150.0	H	359.0	15.9



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2188.500000	47.79	74.00	26.21	150.0	V	287.0	-3.7
4953.500000	47.93	74.00	26.07	150.0	V	16.0	1.7
5993.500000	50.25	74.00	23.75	150.0	V	215.0	4.2
11230.500000	48.35	74.00	25.65	150.0	V	37.0	8.5
14655.000000	48.61	74.00	25.39	150.0	V	218.0	11.3
16749.500000	50.70	74.00	23.30	150.0	V	126.0	16.1

Remark:

- (1) Data of measurement within frequency range 18Hz-26GHz are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.
- (2) Level=Reading Level + Correction Factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

10 Test Equipment List

List of Test Instruments

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2021-6-22
High Pass Filter (HPF)	UCL	UCL-BPF1-7G	1504005103	2021-7-3
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2021-8-5
Horn Antenna	Rohde & Schwarz	HF907	102295	2021-8-5
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2021-9-2
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2021-6-21
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2021-7-30
Attenuator	Agilent	8491A	MY39264334	2022-12-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2022-12-6
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	2021-6-21
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2021-6-21
Power Splitter	Weinschel	1580	SC319	2021-7-16
Vector Signal Generator	Rohde & Schwarz	SMBV100A	262825	2021-6-21
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2021-6-21
Test software	Tonscend	System for BT/WIFI	Version 2.6	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

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 Spurious Emission 25MHz-3000MHz	Horizontal: 4.80dB; Vertical: 4.87dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.59dB; Vertical: 4.58dB;
Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz	Horizontal: 5.05dB; Vertical: 5.04dB;
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%
Uncertainty Evaluation for Power Spectral Density Conducted measurement	1.17dB
Uncertainty Evaluation for Spurious emissions Conducted measurement	1.43dB