

Fig.A.5.3 Band Edges (802.11g, Ch 1)

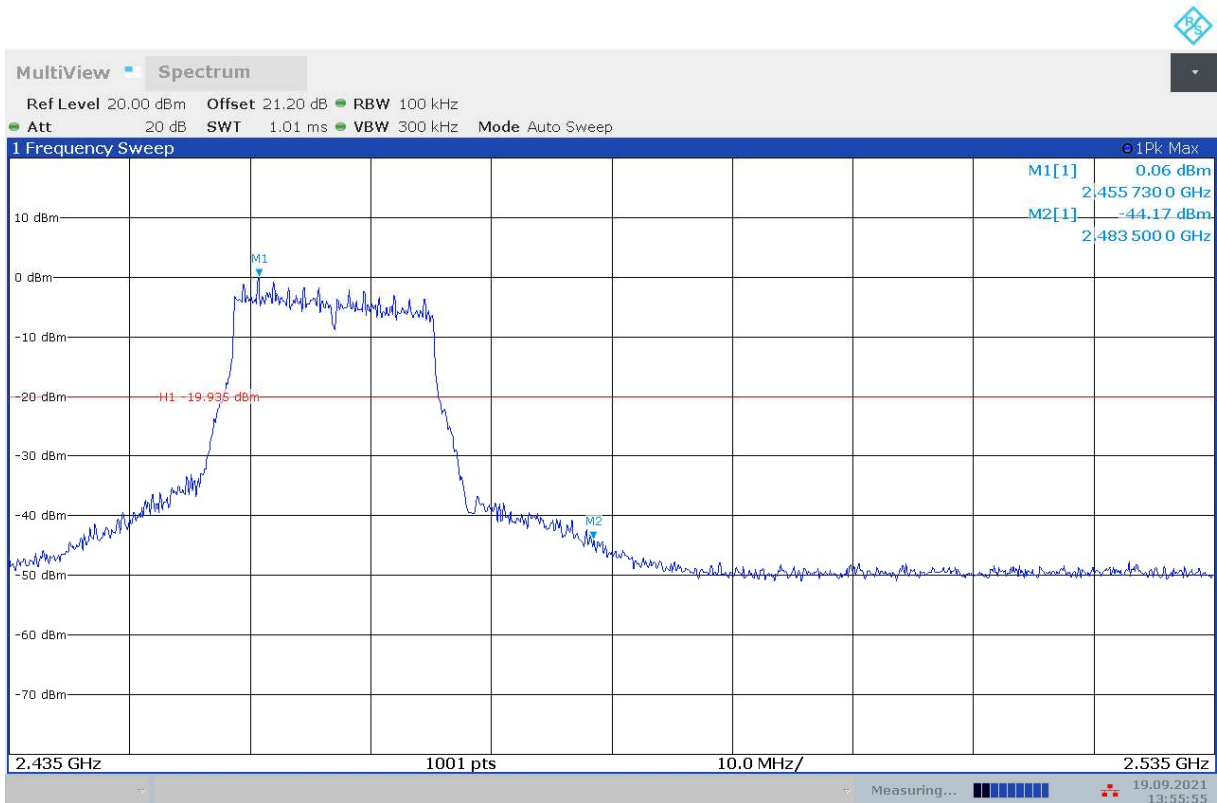


Fig.A.5.4 Band Edges (802.11g, Ch 11)

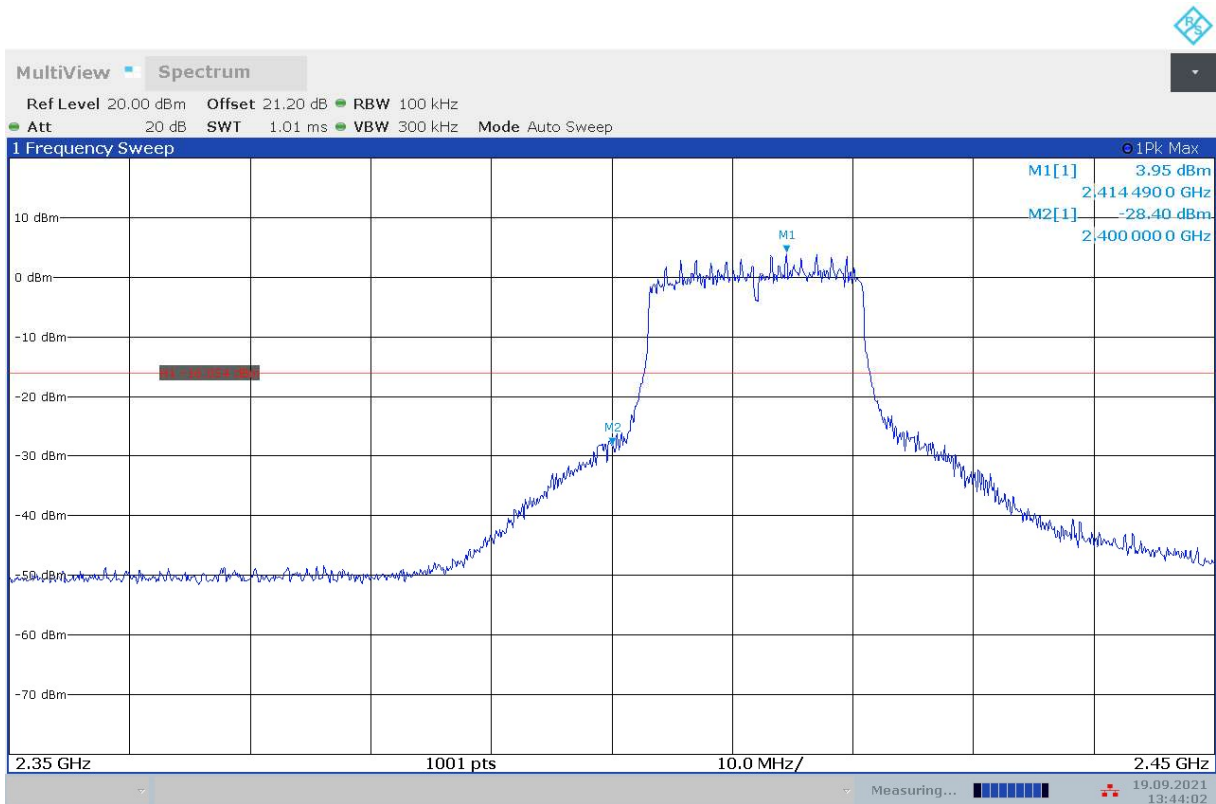


Fig.A.5.5 Band Edges (802.11n-HT20, Ch 1)

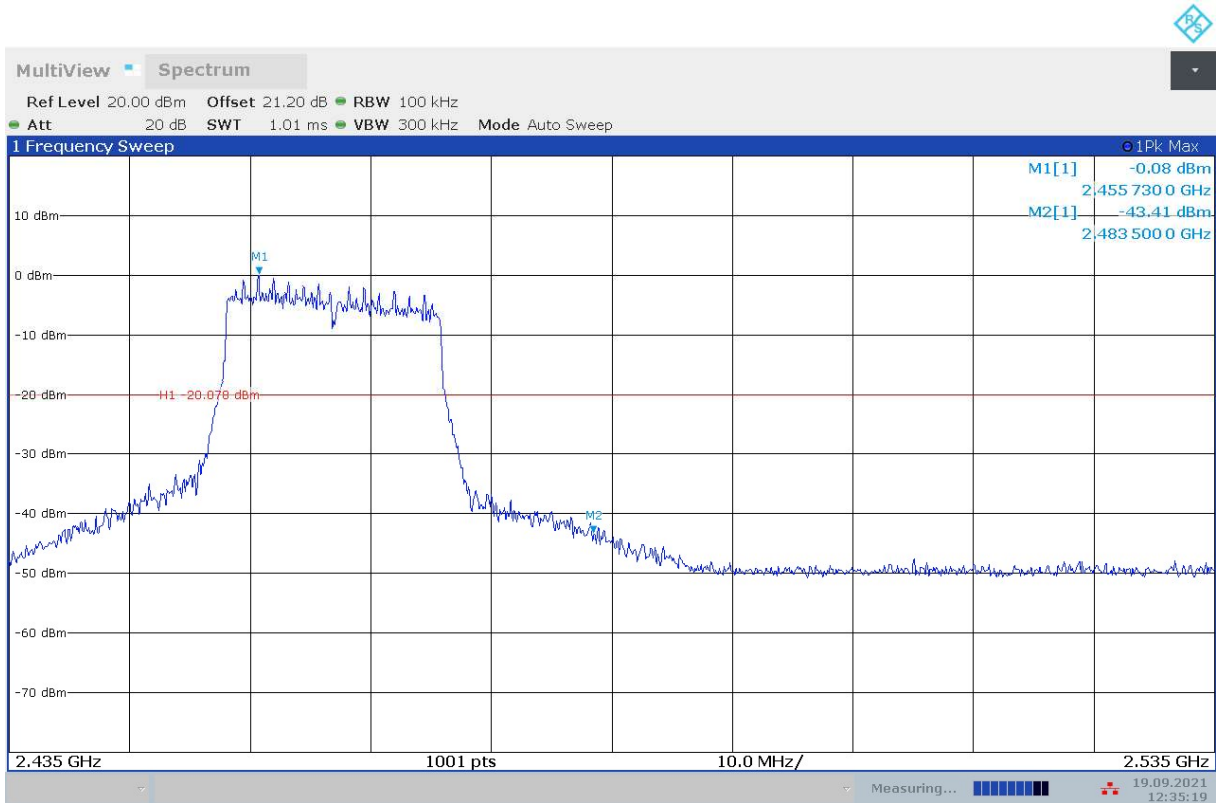


Fig.A.5.6 Band Edges (802.11n-HT20, Ch 11)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission – Conducted

Method of Measurement: See ANSI C63.10-2013-clause 11.11

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency
- b) Set the span to ≥ 1.5 times the DTS bandwidth
- c) Set the RBW= 100 kHz
- d) Set the VBW= 300 kHz
- e) Detector = Peak
- f) Sweep time = auto couple
- g) Trace mode = max hold
- h) Allow trace to fully stabilize
- i) Use the peak marker function to determine the maximum PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW = 300 kHz.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) 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) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

EUT ID: UT17a

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.A.6.1.1	P
		30 MHz ~ 26 GHz	Fig.A.6.1.2	P
	6	2.437 GHz	Fig.A.6.1.3	P
		30 MHz ~ 26 GHz	Fig.A.6.1.4	P
	11	2.462 GHz	Fig.A.6.1.5	P
		30 MHz ~ 26 GHz	Fig.A.6.1.6	P
		Frequency Range	Test Results	Conclusion
802.11g	1	2.412 GHz	Fig.A.6.1.7	P
		30 MHz ~ 26 GHz	Fig.A.6.1.8	P
	6	2.437 GHz	Fig.A.6.1.9	P
		30 MHz ~ 26 GHz	Fig.A.6.1.10	P
	11	2.462 GHz	Fig.A.6.1.11	P
		30 MHz ~ 26 GHz	Fig.A.6.1.12	P
		Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.412 GHz	Fig.A.6.1.13	P
		30 MHz ~ 26 GHz	Fig.A.6.1.14	P
	6	2.437 GHz	Fig.A.6.1.15	P
		30 MHz ~ 26 GHz	Fig.A.6.1.16	P
	11	2.462 GHz	Fig.A.6.1.17	P
		30 MHz ~ 26 GHz	Fig.A.6.1.18	P

Conclusion: Pass

Test graphs as below:

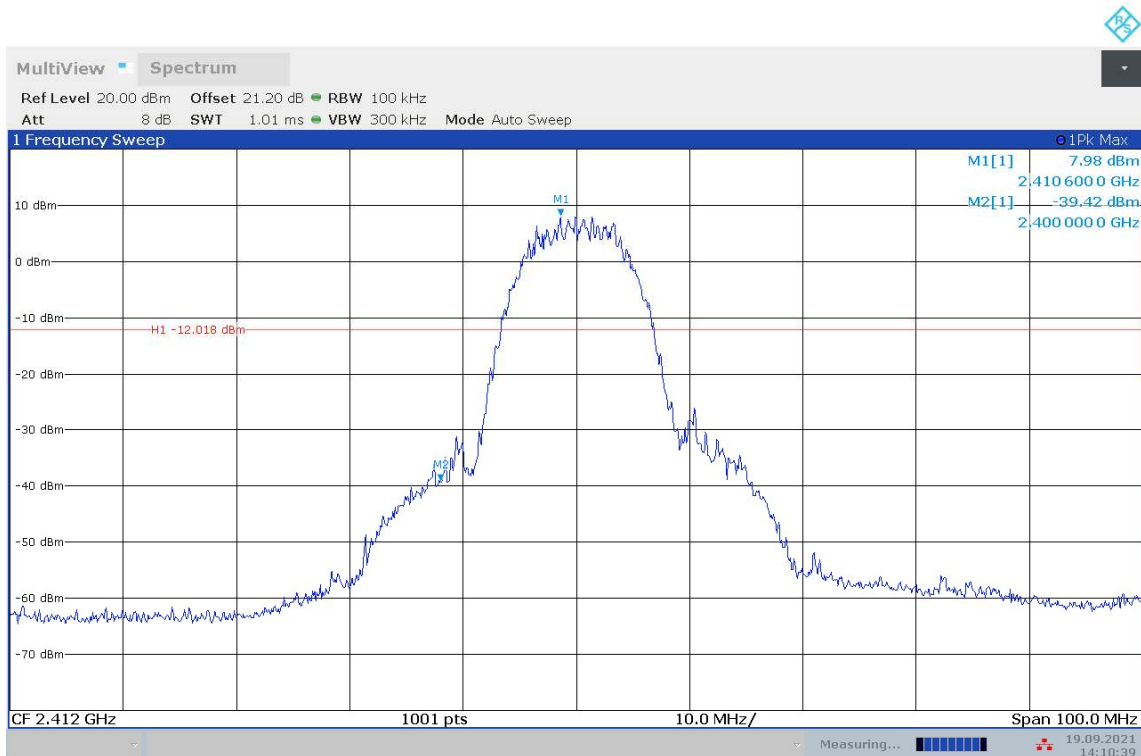


Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)

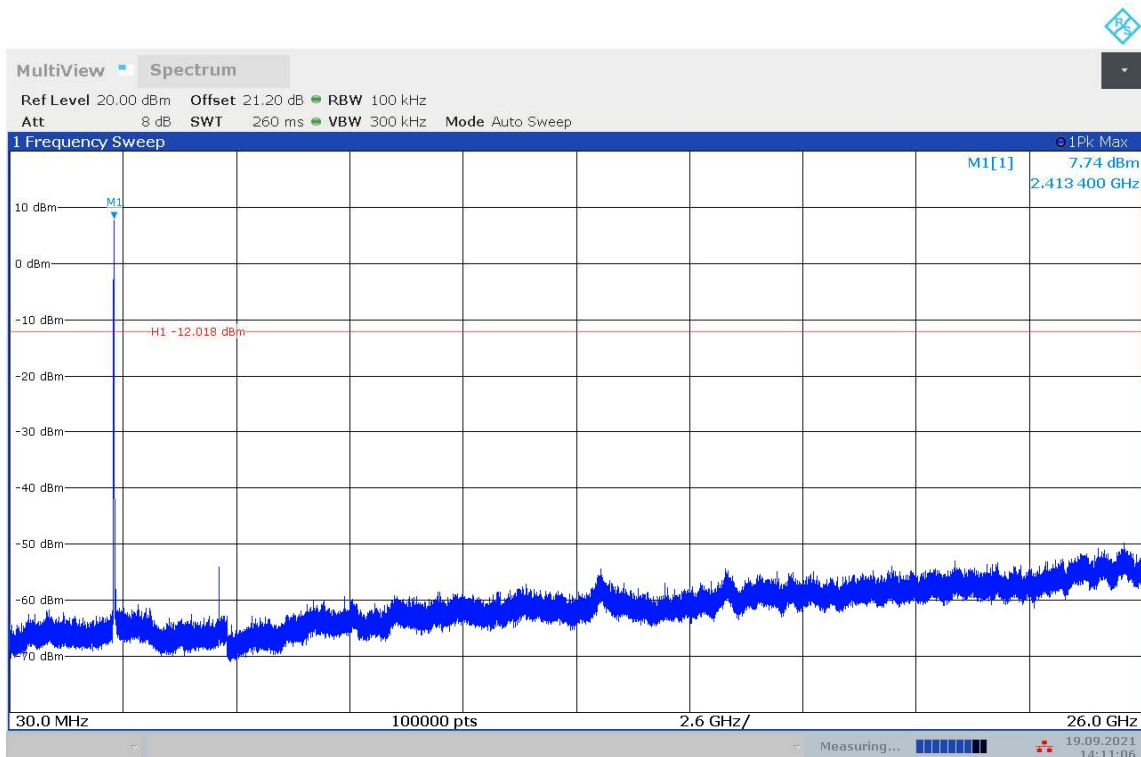


Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-26 GHz)

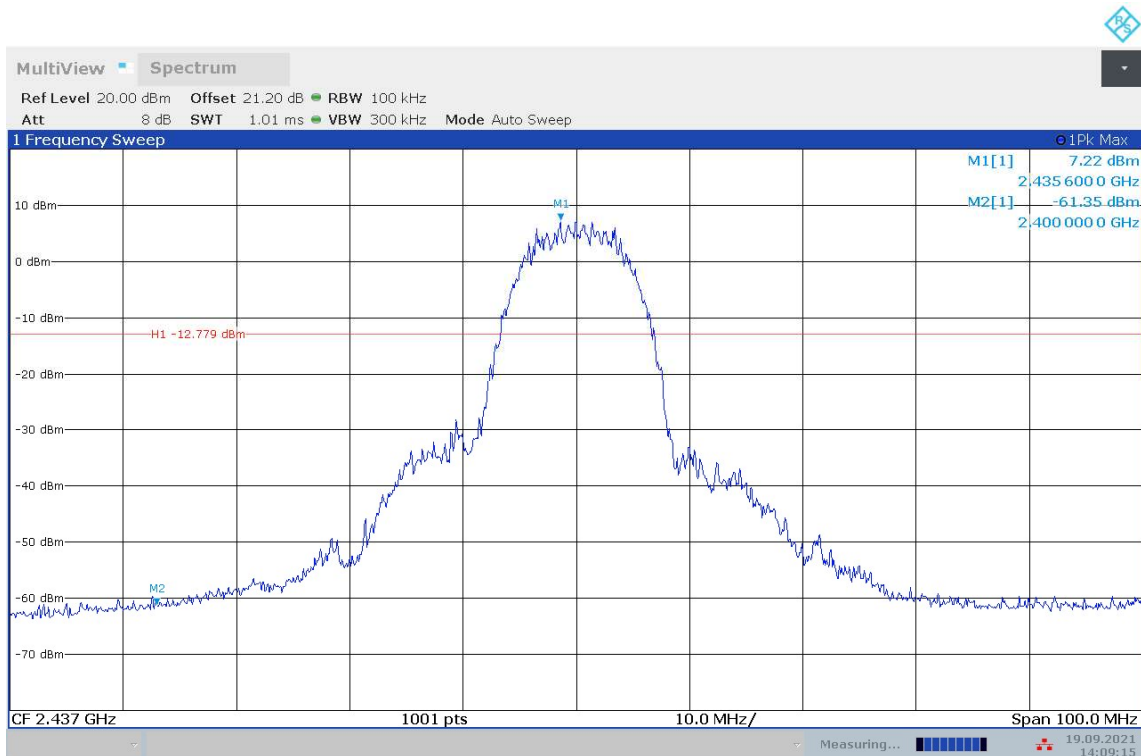


Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)

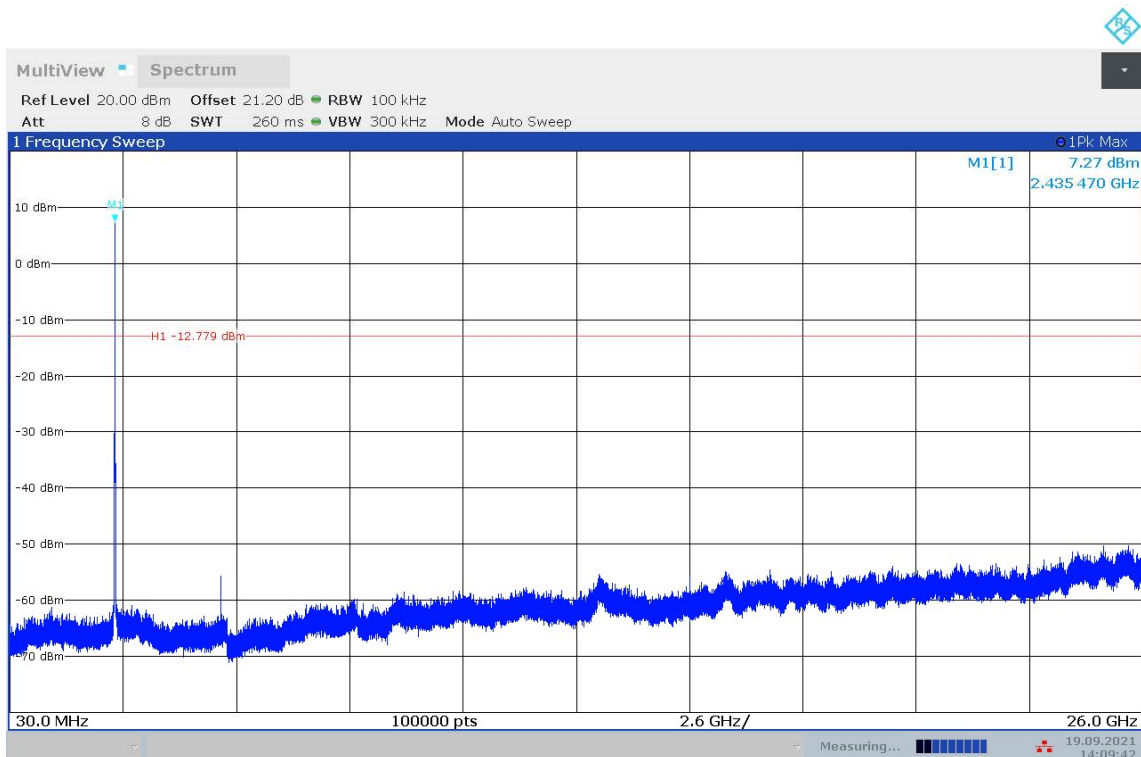


Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-26 GHz)

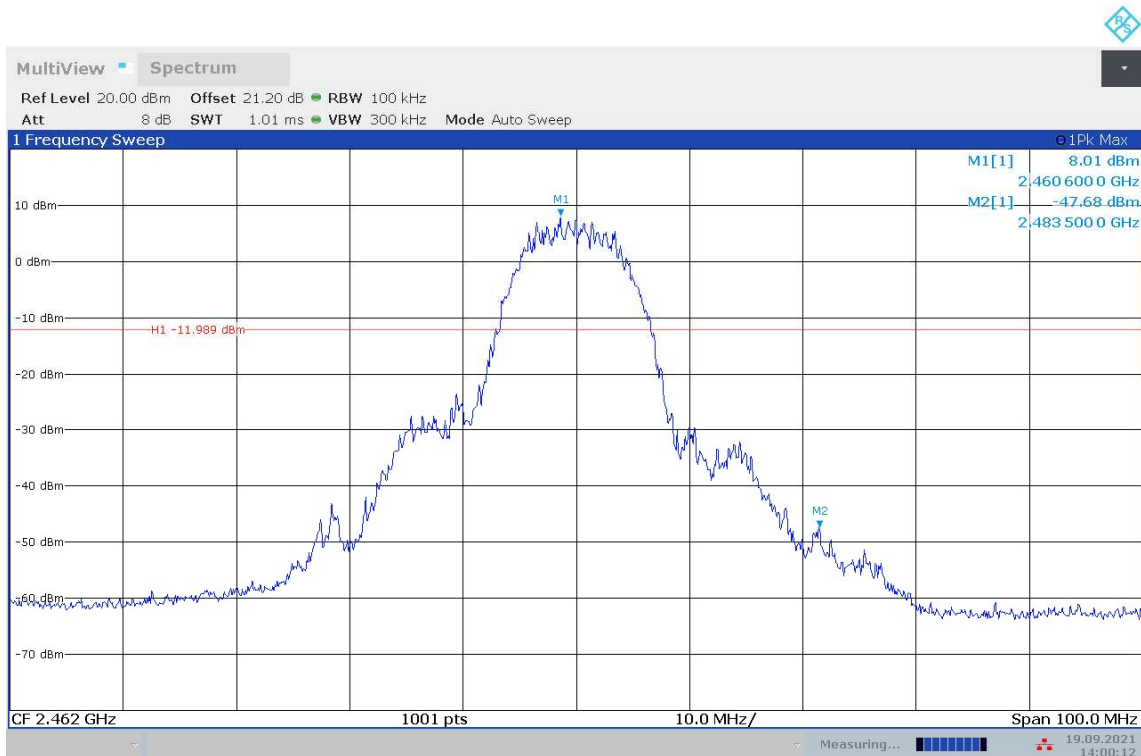


Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)

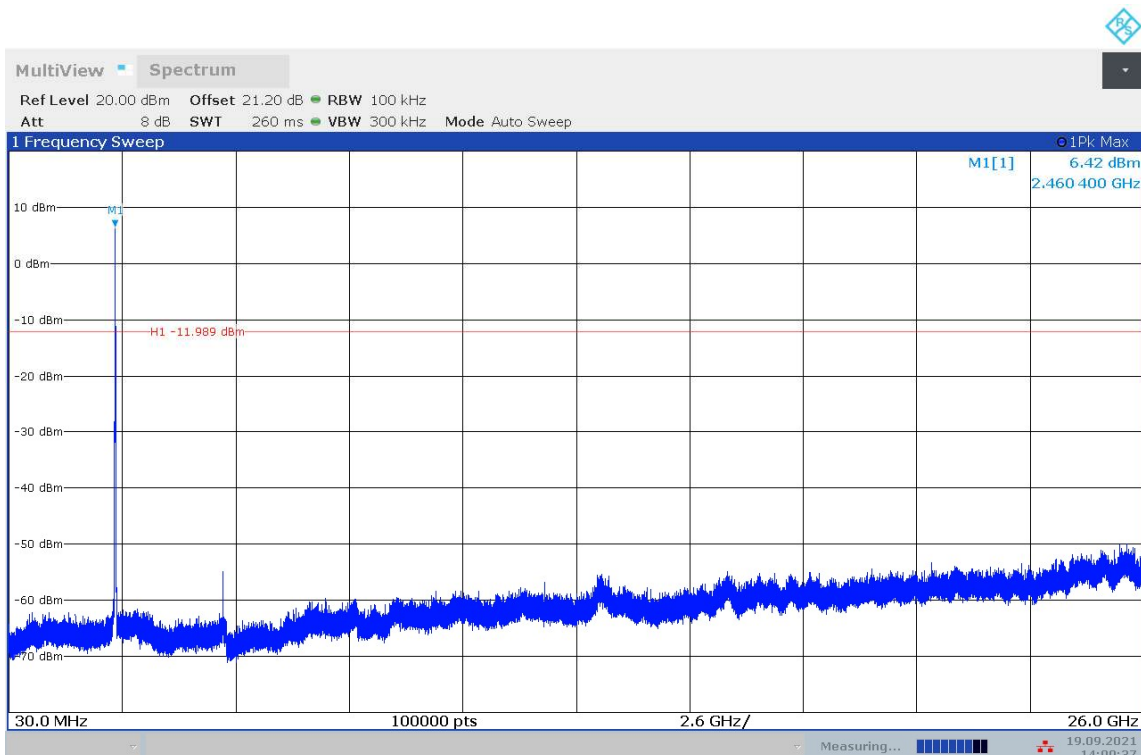


Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-26 GHz)

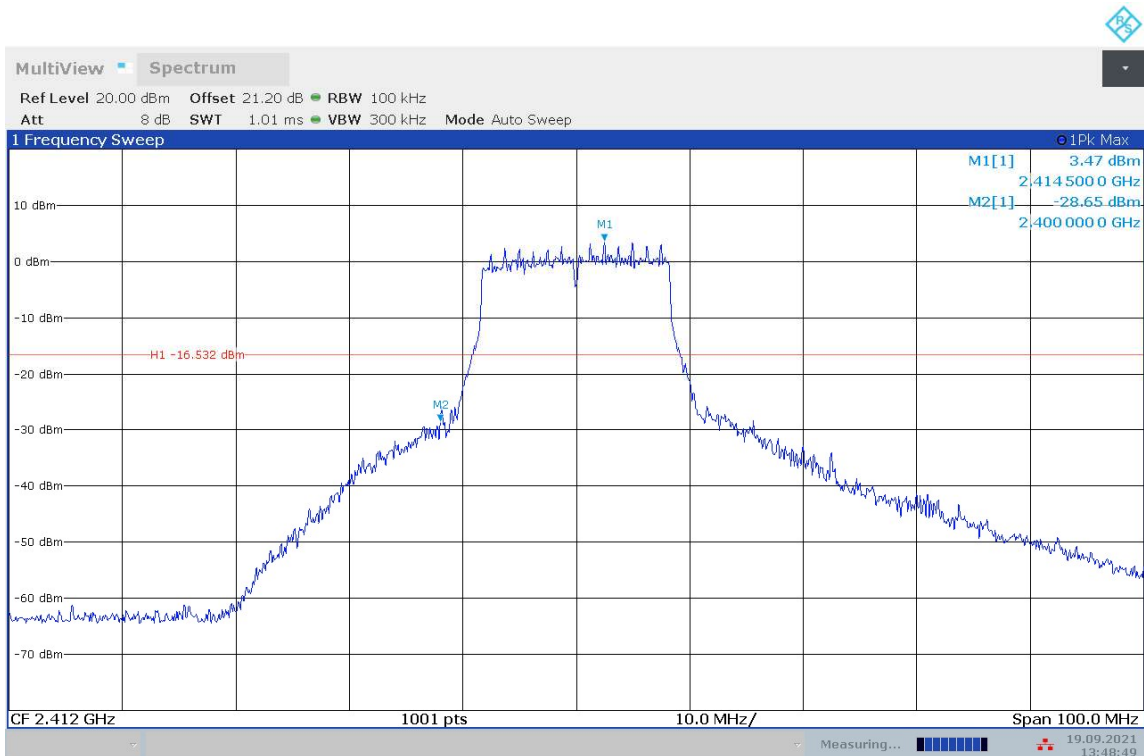


Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)

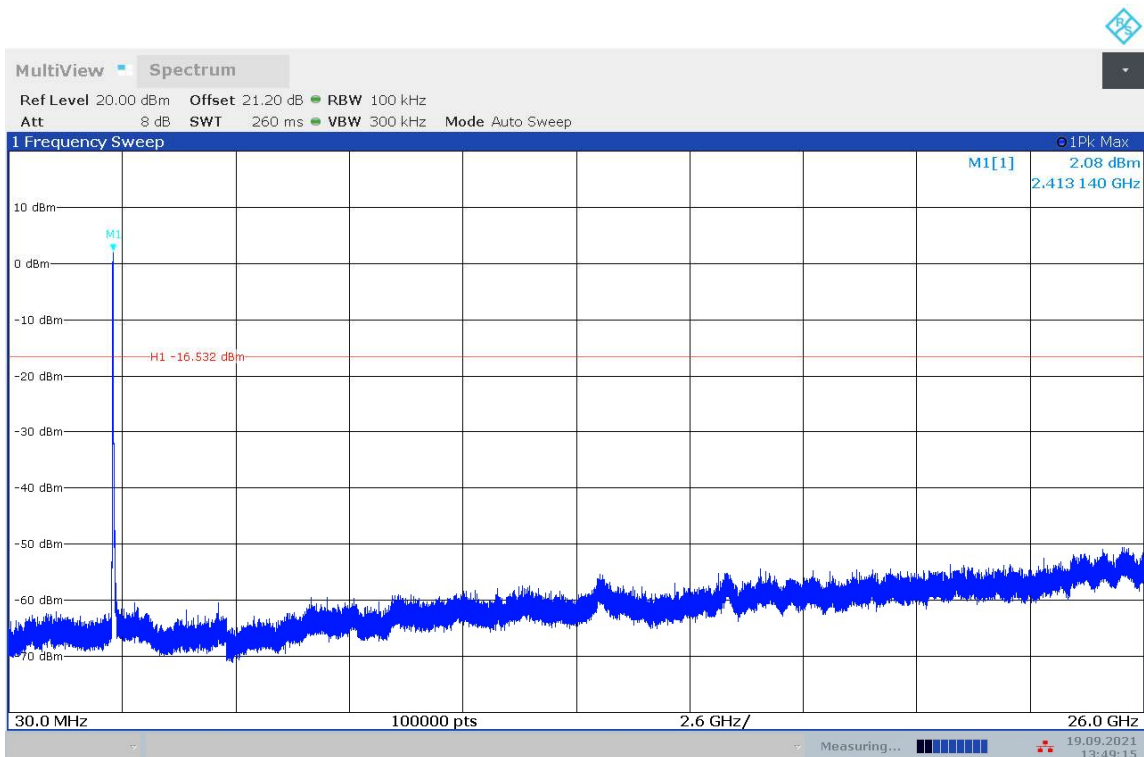


Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-26 GHz)

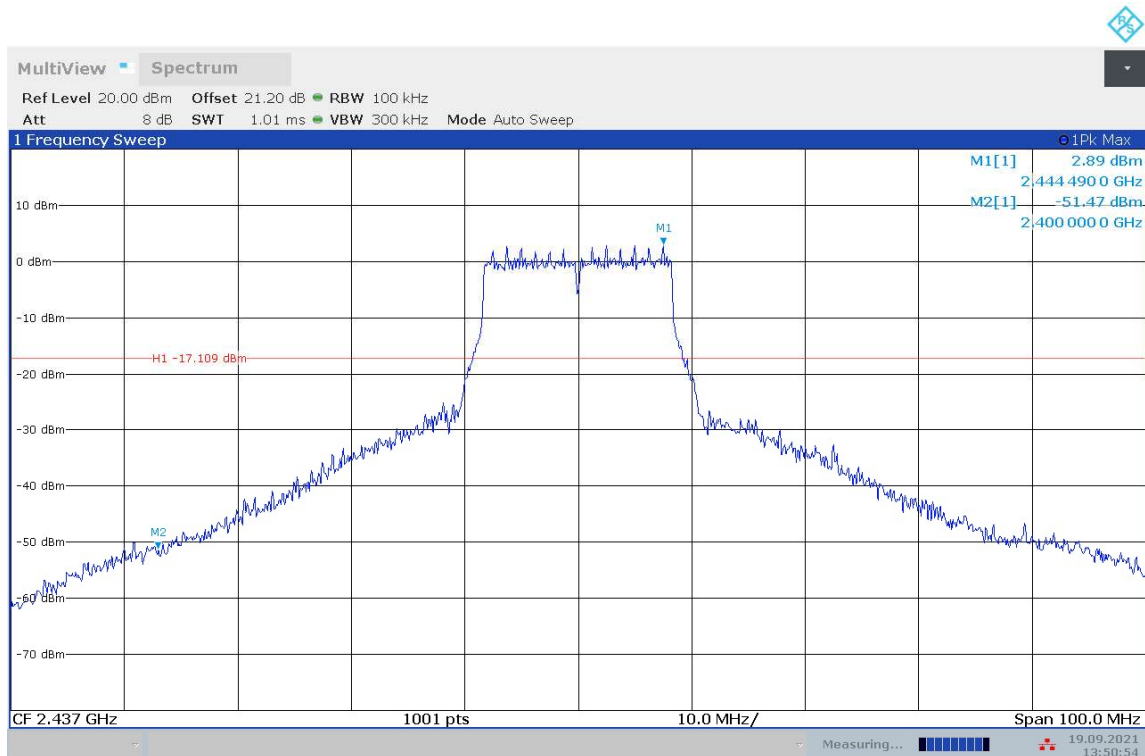


Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11g, Ch6, Center Frequency)

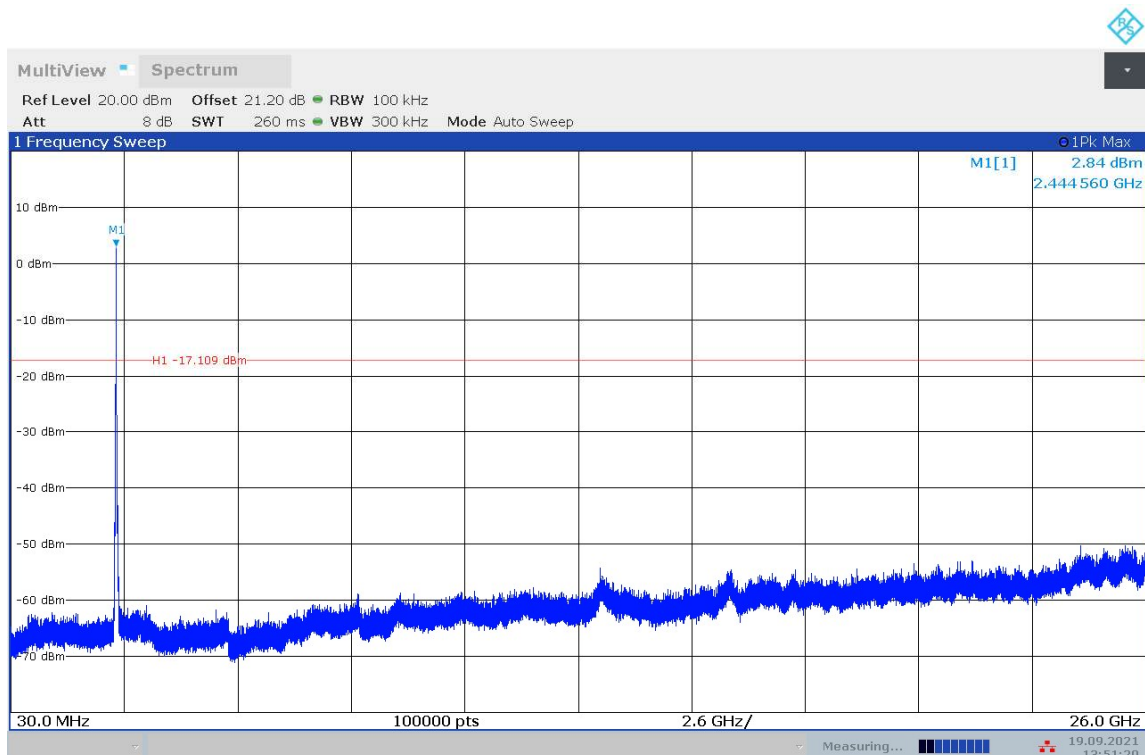


Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 30 MHz-26 GHz)

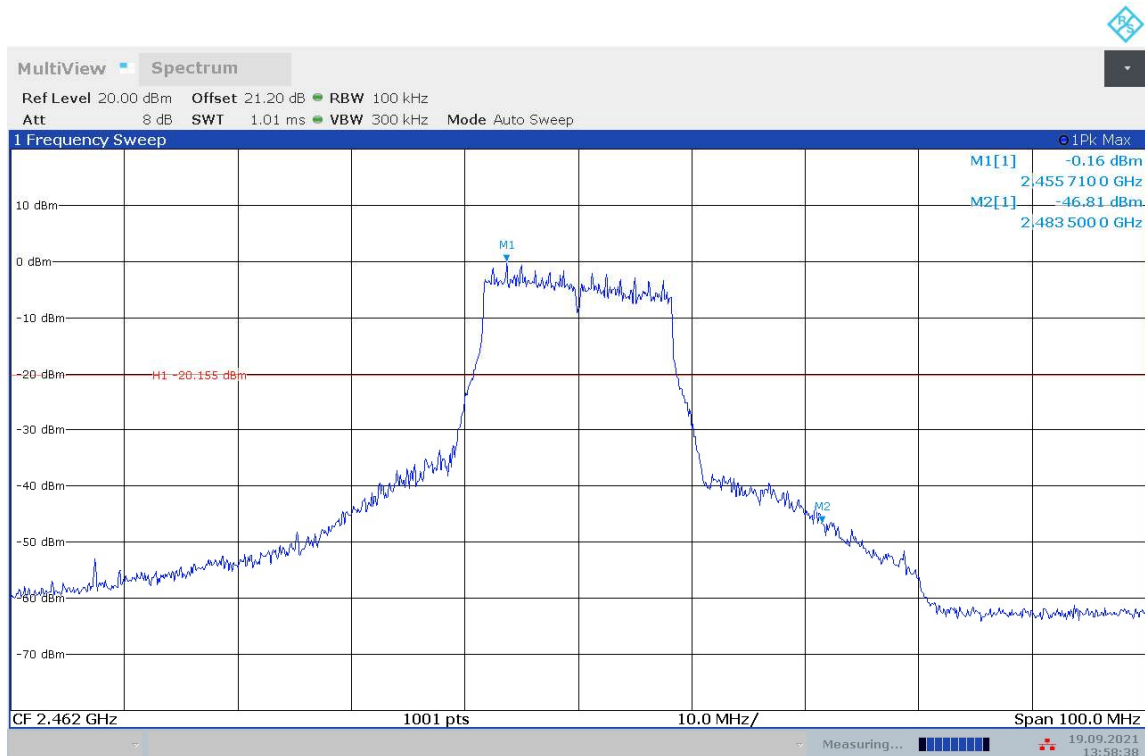


Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11g, Ch11, Center Frequency)

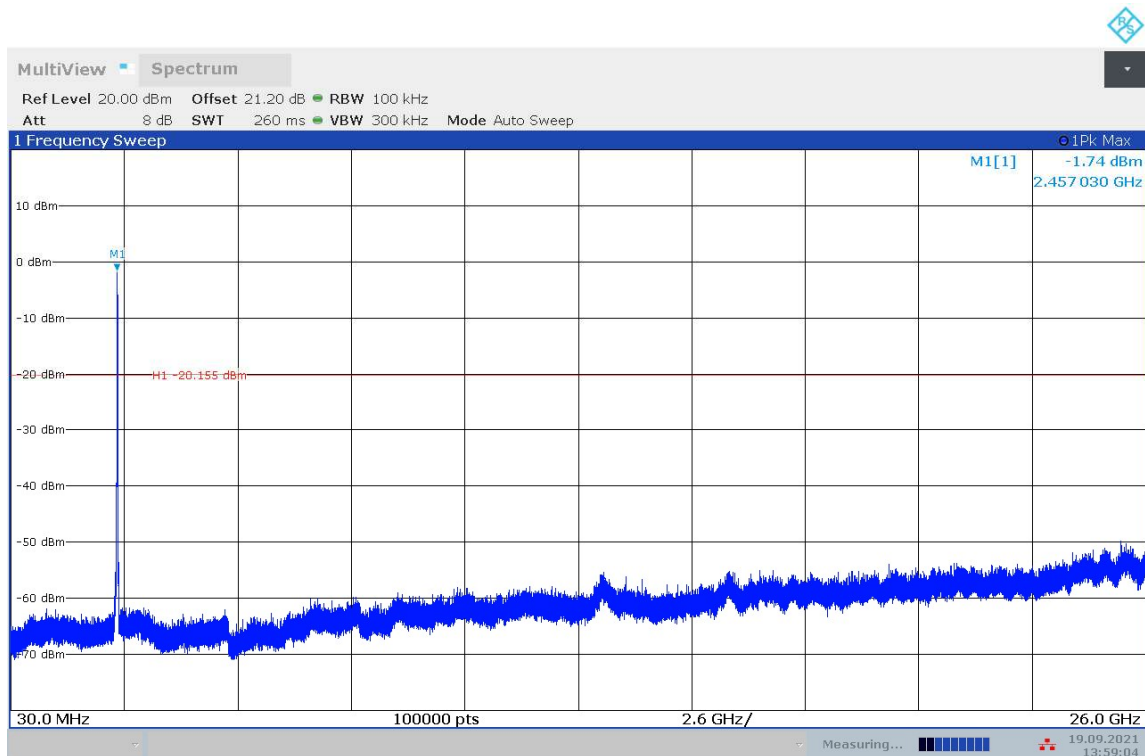


Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 30 MHz-26 GHz)

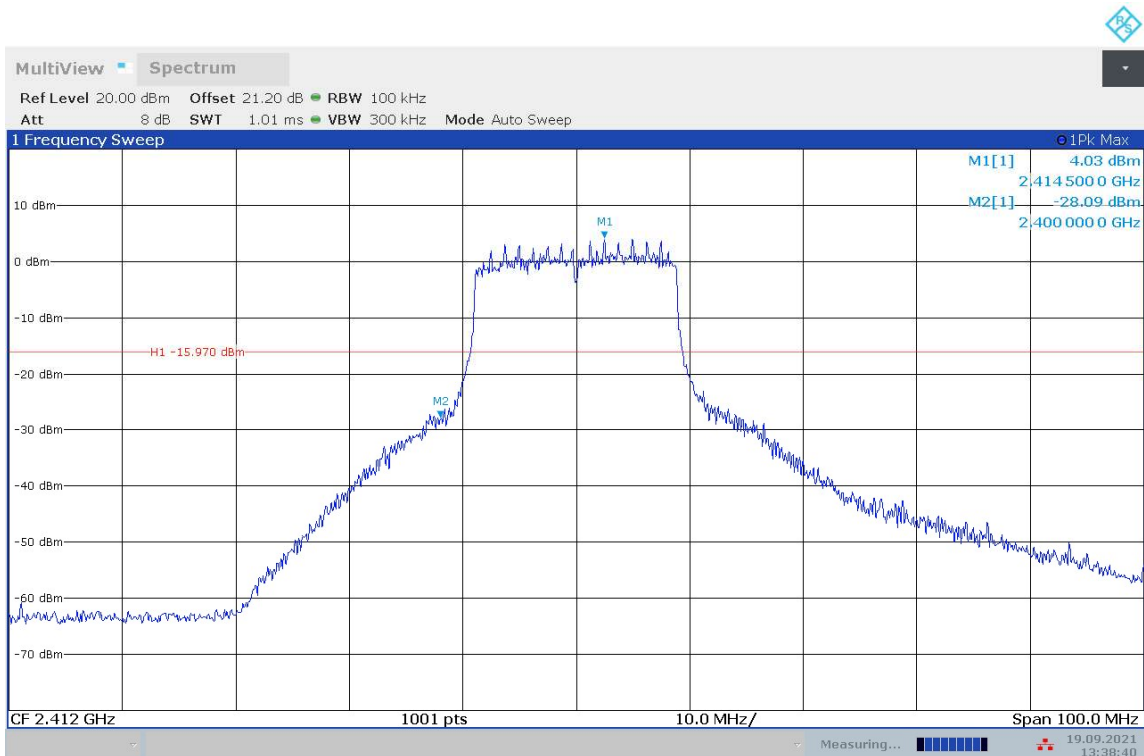


Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, Center Frequency)

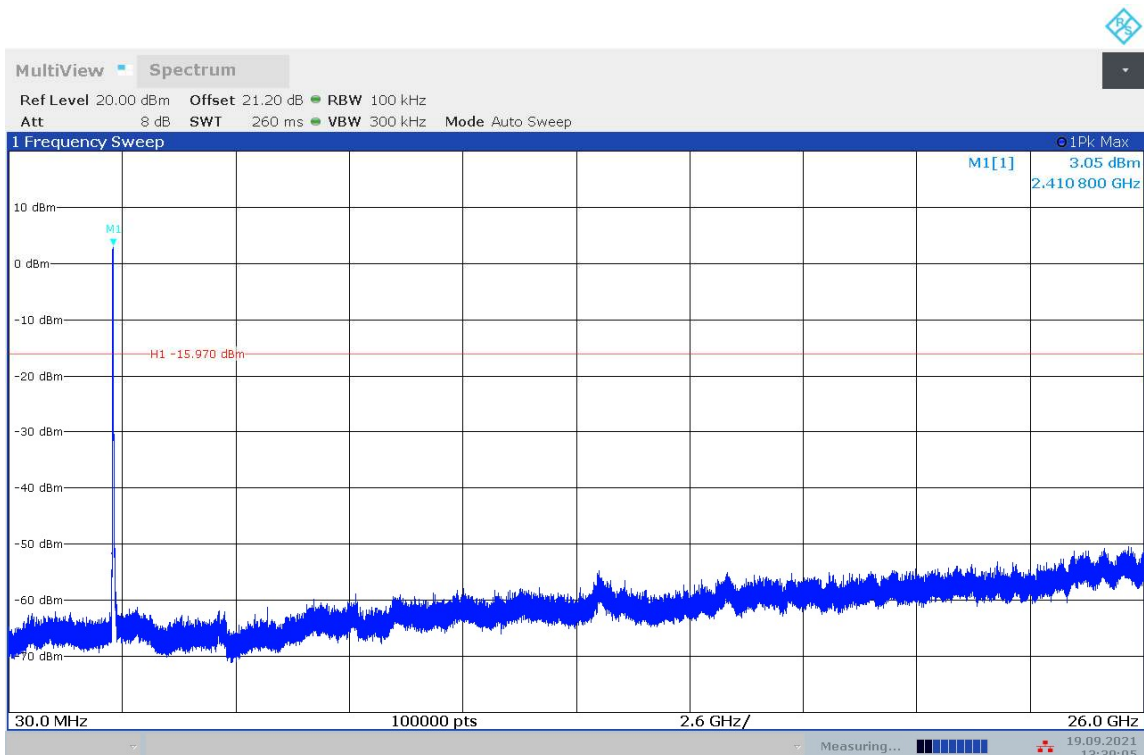


Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 30 MHz-26 GHz)

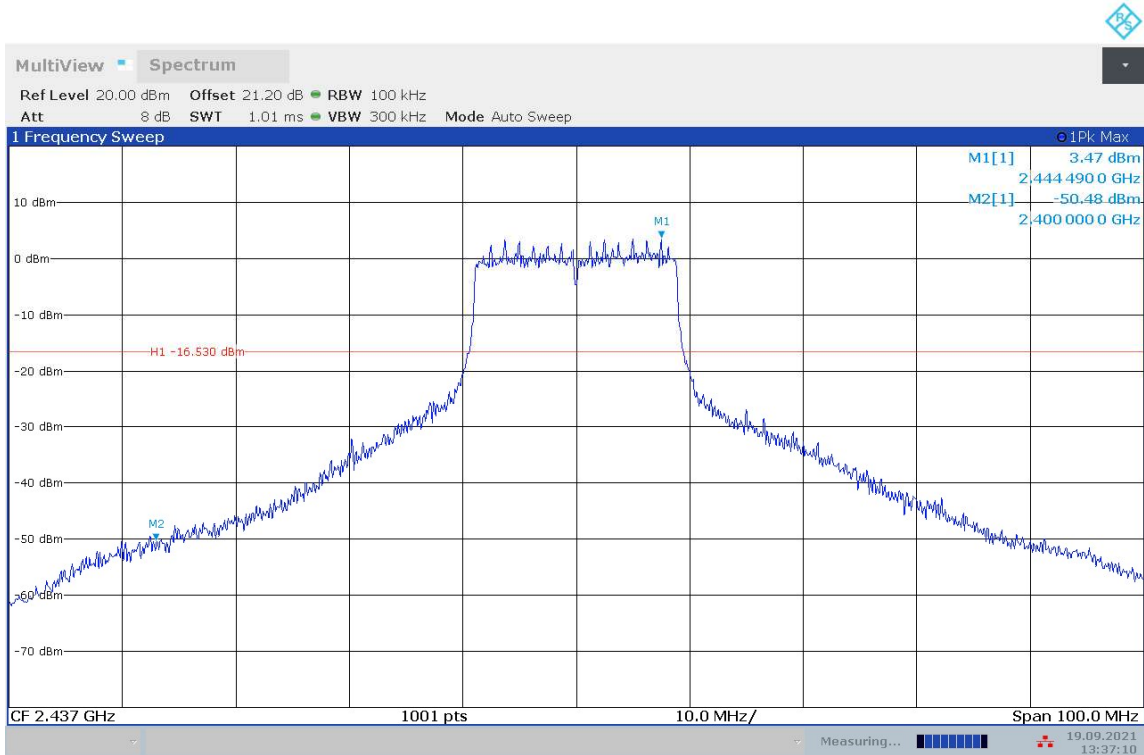


Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, Center Frequency)

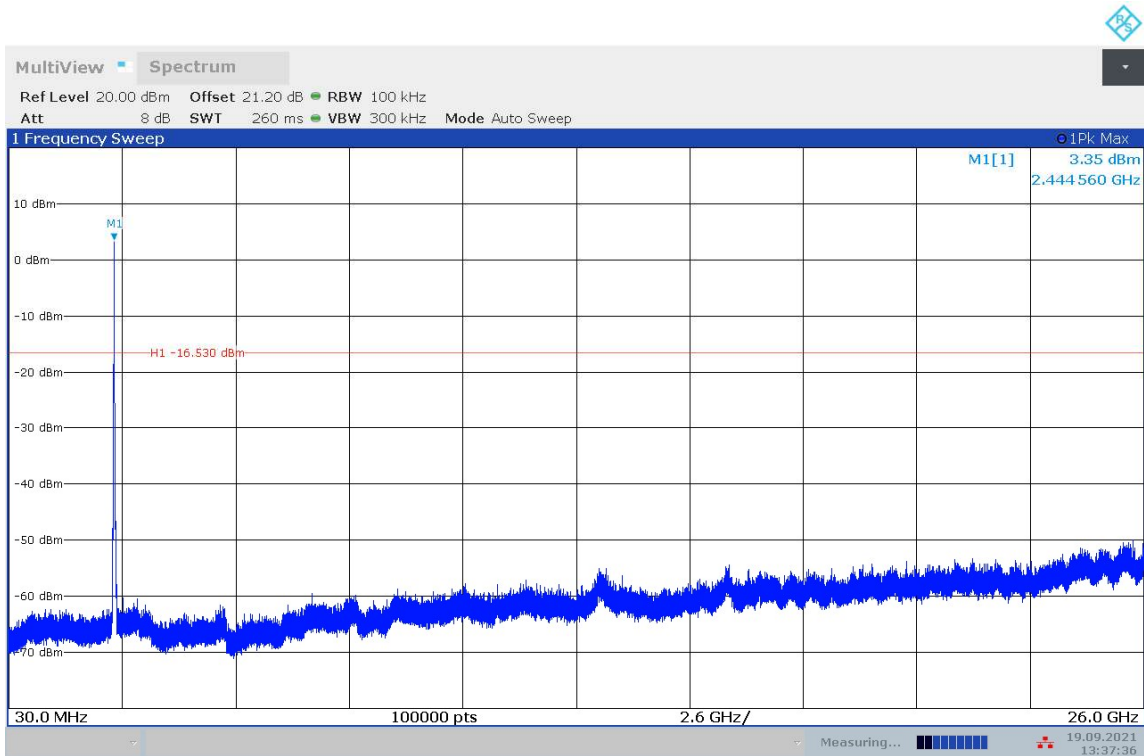


Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 30 MHz-26 GHz)

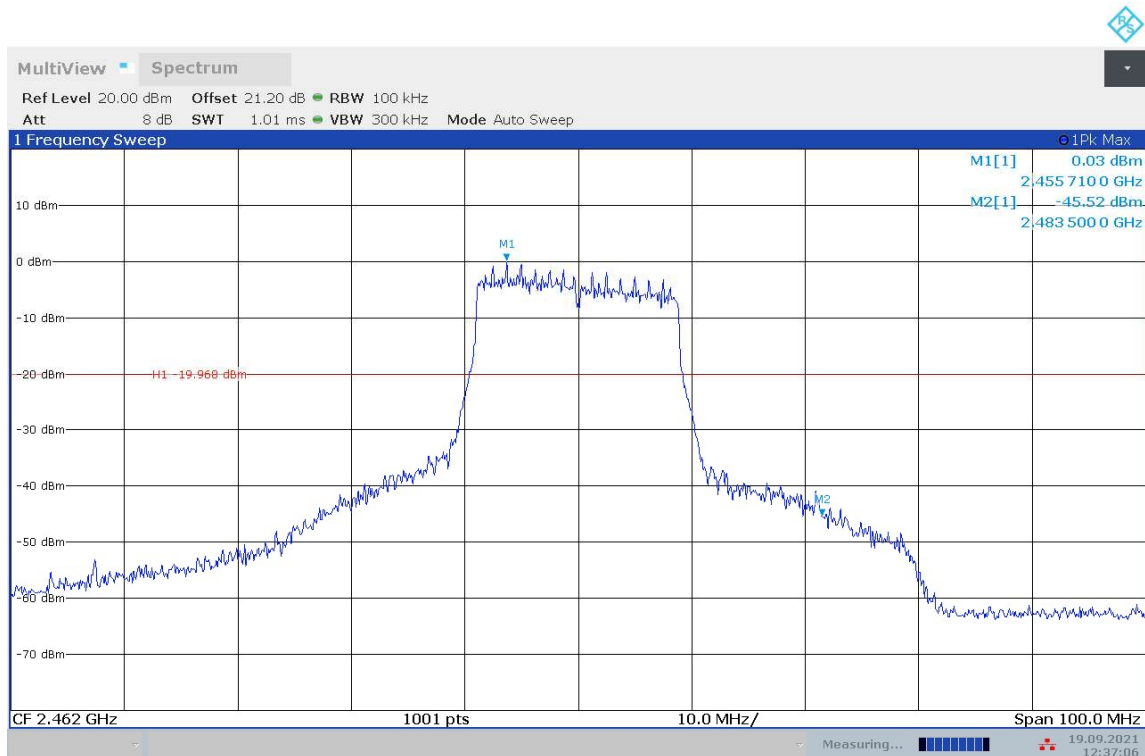


Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, Center Frequency)

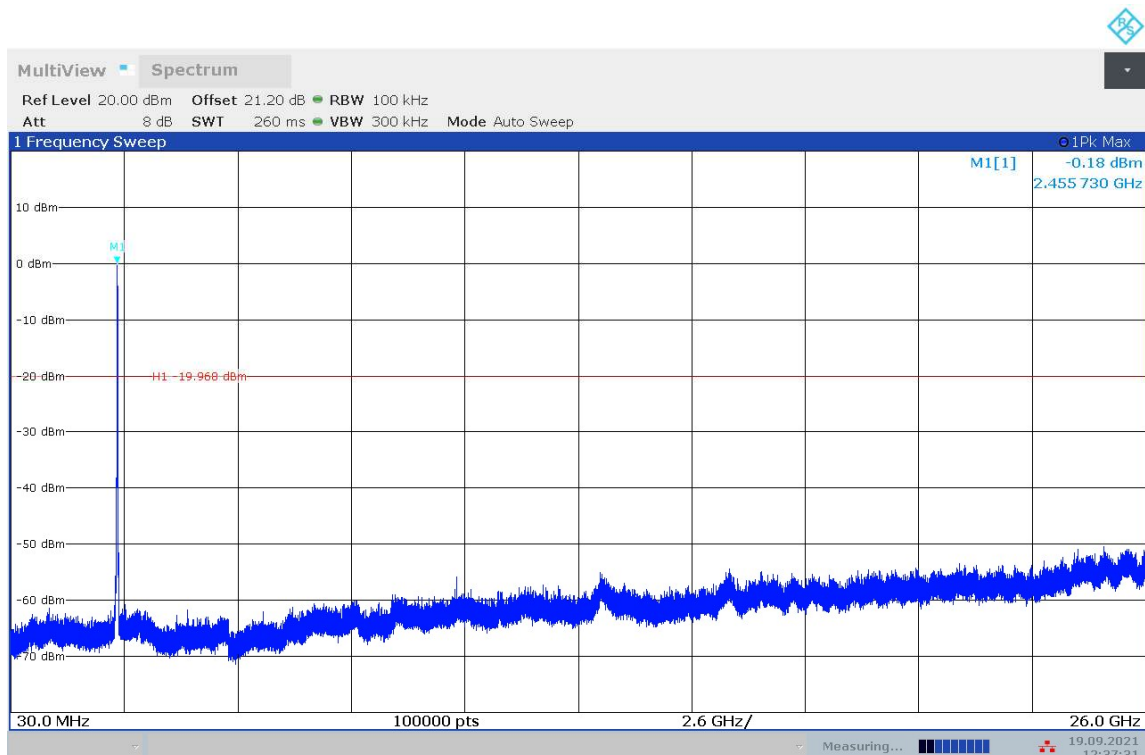


Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 30 MHz-26 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Method of Measurement: See ANSI C63.10-2013-clause 6.4 & 6.5 & 6.6

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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 § 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Frequency (MHz)	Field strength(μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The instrument setting:

Frequency of emission (MHz)	RBW/VBW
30-1000	100kHz/300kHz
1000-4000	1MHz/3MHz
4000-18000	1MHz/3MHz
18000-26500	1MHz/3MHz

EUT ID: UT08a

Measurement results:

802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.31GHz~2.43GHz---L	Fig.A.6.2.1	P
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.2	P

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.31GHz~2.43GHz---L	Fig.A.6.2.3	P
	2	2.31GHz~2.43GHz---L	Fig.A.6.2.4	P
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.5	P
	10	2.45GHz~2.50GHz---H	Fig.A.6.2.6	P
	9	2.45GHz~2.50GHz---H	Fig.A.6.2.7	P
	8	2.45GHz~2.50GHz---H	Fig.A.6.2.8	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.31GHz~2.43GHz---L	Fig.A.6.2.9	P
	2	2.31GHz~2.43GHz---L	Fig.A.6.2.10	P
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.11	P
	10	2.45GHz~2.50GHz---H	Fig.A.6.2.12	P
	9	2.45GHz~2.50GHz---H	Fig.A.6.2.13	P

Conclusion: Pass

Note:

1. A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

$$\text{Result} = P_{Mea} + A_{Rpl} = P_{Mea} + \text{Cable Loss} + \text{Antenna Factor}$$

2. The range of evaluated frequency is from 9 kHz to 26GHz. Measurement value show only up to 6 maximum emissions noted.

Peak
802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2384.605	60.63	2.62	27.66	30.35	74.00	13.37	V
2389.642	60.14	2.62	27.66	29.86	74.00	13.86	H
4823.906	40.07	-37.50	32.06	45.52	74.00	33.93	H
7234.688	53.05	-37.00	35.77	54.28	74.00	20.95	V
9647.812	46.26	-36.00	37.80	44.46	74.00	27.74	V
12060.000	47.51	-34.81	39.06	43.26	74.00	26.49	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
1865.500	42.81	-41.05	26.87	56.99	74.00	31.19	V
2815.000	39.59	-39.92	28.55	50.97	74.00	34.41	V
4874.062	42.13	-37.87	32.19	47.81	74.00	31.87	H
73120.312	53.63	0.00	0.00	53.63	74.00	20.37	V
9748.125	46.41	-35.41	37.80	44.03	74.00	27.59	H
12185.156	48.21	-34.73	38.99	43.95	74.00	25.79	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.756	60.66	2.65	27.69	30.32	74.00	13.34	V
2483.856	60.28	2.65	27.69	29.93	74.00	13.72	V
4924.219	41.80	-37.91	32.31	47.39	74.00	32.20	H
7386.094	56.92	-36.93	36.13	57.71	74.00	17.08	H
9846.094	47.47	-35.55	37.80	45.22	74.00	26.53	H
12309.844	48.14	-34.68	38.91	43.90	74.00	25.86	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.677	67.11	2.62	27.66	36.83	74.00	6.89	V
2389.923	67.39	2.62	27.66	37.10	74.00	6.61	V
4353.281	42.85	-38.53	31.09	50.29	74.00	31.15	V
7233.281	53.88	-37.00	35.77	55.11	74.00	20.12	V
9647.812	45.61	-36.00	37.80	43.81	74.00	28.39	V
12060.000	48.12	-34.81	39.06	43.87	74.00	25.88	V

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2227.875	39.22	-40.35	27.60	51.97	74.00	34.78	H
2568.875	38.82	-39.99	27.89	50.92	74.00	35.18	V
4874.062	41.46	-37.87	32.19	47.14	74.00	32.54	H
7305.469	54.89	-37.06	35.94	56.01	74.00	19.11	V
9748.125	46.61	-35.41	37.80	44.23	74.00	27.39	V
12185.156	47.92	-34.73	38.99	43.66	74.00	26.08	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.569	69.19	2.65	27.69	38.85	74.00	4.81	V
2484.344	70.05	2.65	27.69	39.71	74.00	3.95	V
4354.219	41.55	-38.53	31.09	48.99	74.00	32.45	H
7388.906	54.66	-36.93	36.14	55.44	74.00	19.34	V
9847.969	46.92	-35.56	37.80	44.68	74.00	27.08	H
12309.844	47.75	-34.68	38.91	43.51	74.00	26.25	V

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.870	70.18	2.62	27.66	39.90	74.00	3.82	V
2389.940	70.89	2.62	27.66	40.61	74.00	3.11	V
4823.906	39.98	-37.50	32.06	45.42	74.00	34.02	H
7237.031	52.47	-37.00	35.78	53.70	74.00	21.53	H
9647.812	45.63	-36.00	37.80	43.83	74.00	28.37	V
12060.000	48.30	-34.81	39.06	44.05	74.00	25.70	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2151.000	39.04	-40.91	27.57	52.39	74.00	34.96	H
2815.125	39.70	-39.92	28.55	51.08	74.00	34.30	V
4874.062	40.36	-37.87	32.19	46.04	74.00	33.64	H
7319.531	53.07	-37.06	35.98	54.15	74.00	20.93	V
9748.125	46.61	-35.41	37.80	44.22	74.00	27.39	V
12185.156	48.93	-34.73	38.99	44.67	74.00	25.07	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.744	67.62	2.65	27.69	37.28	74.00	6.38	V
2484.338	67.30	2.65	27.69	36.96	74.00	6.70	V
4924.219	40.63	-37.91	32.31	46.22	74.00	33.37	H
7382.812	56.09	-36.94	36.13	56.90	74.00	17.91	V
9847.969	47.07	-35.56	37.80	44.83	74.00	26.93	V
12309.844	49.42	-34.68	38.91	45.19	74.00	24.58	V

Average
802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.850	46.31	2.62	27.66	16.03	54.00	7.69	V
2389.925	46.32	2.62	27.66	16.04	54.00	7.68	V
4823.750	29.16	-37.50	32.06	34.61	54.00	24.84	H
7235.000	47.63	-37.00	35.77	48.86	54.00	6.37	H
9648.125	34.29	-36.00	37.80	32.49	54.00	19.71	H
12060.000	35.96	-34.81	39.06	31.71	54.00	18.04	V

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2413.775	46.28	2.63	27.67	15.99	54.00	7.72	V
2459.050	46.67	2.60	27.69	16.38	54.00	7.33	V
4873.750	28.57	-37.87	32.18	34.25	54.00	25.43	V
7311.875	48.38	-37.06	35.96	49.48	54.00	5.62	V
9748.125	34.74	-35.41	37.80	32.35	54.00	19.26	H
12185.000	36.88	-34.73	38.99	32.62	54.00	17.12	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.500	48.75	2.64	27.69	18.41	54.00	5.25	V
2483.525	48.60	2.64	27.69	18.26	54.00	5.40	V
4923.750	33.22	-37.90	32.31	38.81	54.00	20.78	V
7385.000	52.29	-36.93	36.13	53.09	54.00	1.71	V
9878.125	35.06	-35.66	37.80	32.92	54.00	18.94	V
12310.000	36.46	-34.67	38.91	32.22	54.00	17.54	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.725	49.35	2.62	27.66	19.07	54.00	4.65	V
2389.950	49.42	2.62	27.66	19.14	54.00	4.58	V
4353.750	27.84	-38.53	31.09	35.28	54.00	26.16	V
7235.625	40.83	-37.00	35.78	42.05	54.00	13.17	V
9648.125	34.44	-36.00	37.80	32.63	54.00	19.56	V
12060.000	36.13	-34.81	39.06	31.88	54.00	17.87	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2399.425	48.26	2.63	27.66	17.97	54.00	5.74	V
2477.725	48.53	2.60	27.69	18.23	54.00	5.47	V
4873.750	29.05	-37.87	32.18	34.73	54.00	24.95	V
7313.125	42.03	-37.07	35.96	43.13	54.00	11.97	V
9748.125	34.92	-35.41	37.80	32.54	54.00	19.08	V
12185.000	37.11	-34.73	38.99	32.85	54.00	16.89	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.550	49.24	2.64	27.69	18.90	54.00	4.76	V
2483.575	49.30	2.65	27.69	18.96	54.00	4.70	V
4353.750	28.19	-38.53	31.09	35.63	54.00	25.81	V
7385.000	44.94	-36.93	36.13	45.75	54.00	9.06	V
9708.125	34.63	-35.69	37.80	32.51	54.00	19.37	V
12135.000	36.58	-34.75	39.02	32.31	54.00	17.42	H

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.950	49.26	2.62	27.66	18.98	54.00	4.74	V
2389.975	49.29	2.62	27.66	19.00	54.00	4.71	V
4823.750	28.58	-37.50	32.06	34.02	54.00	25.42	H
7236.250	38.84	-37.00	35.78	40.06	54.00	15.16	H
9648.125	34.29	-36.00	37.80	32.49	54.00	19.71	V
12060.000	36.26	-34.81	39.06	32.02	54.00	17.74	V

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2399.875	47.40	2.63	27.66	17.11	54.00	6.60	V
2474.275	47.42	2.57	27.69	17.15	54.00	6.58	V
4873.750	28.89	-37.87	32.18	34.58	54.00	25.11	H
7314.375	39.89	-37.07	35.96	40.99	54.00	14.11	H
9748.125	35.07	-35.41	37.80	32.69	54.00	18.93	H
12185.000	37.07	-34.73	38.99	32.81	54.00	16.93	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.500	48.51	2.64	27.69	18.17	54.00	5.49	V
2483.525	48.49	2.64	27.69	18.15	54.00	5.51	V
4923.750	28.78	-37.90	32.31	34.37	54.00	25.22	H
7385.625	41.73	-36.93	36.13	42.53	54.00	12.27	V
9848.125	35.11	-35.56	37.80	32.87	54.00	18.89	H
12310.000	36.75	-34.67	38.91	32.51	54.00	17.25	V

Test graphs as below:

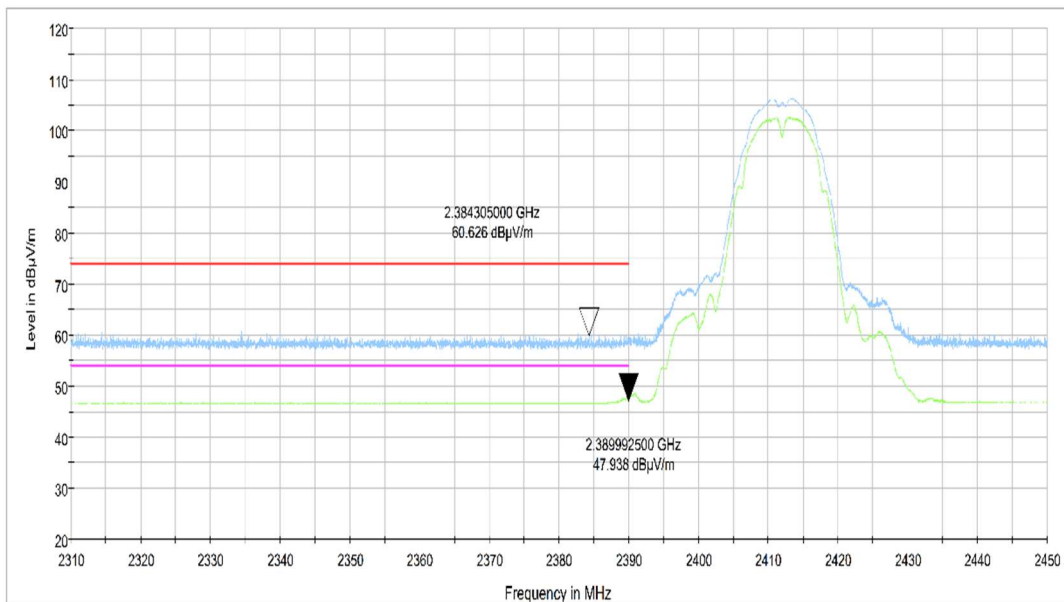


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.45GHz

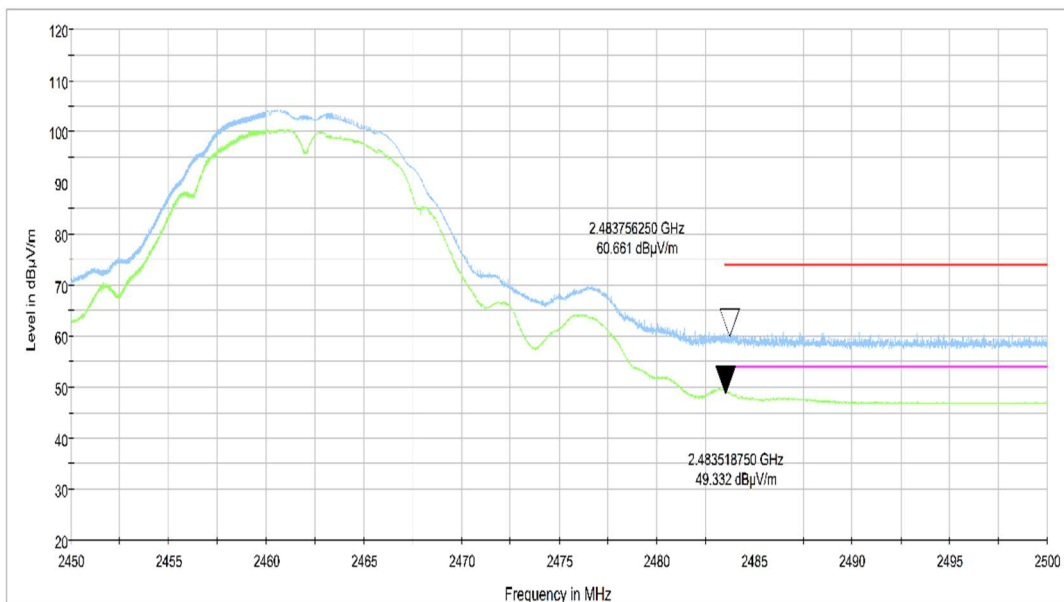


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

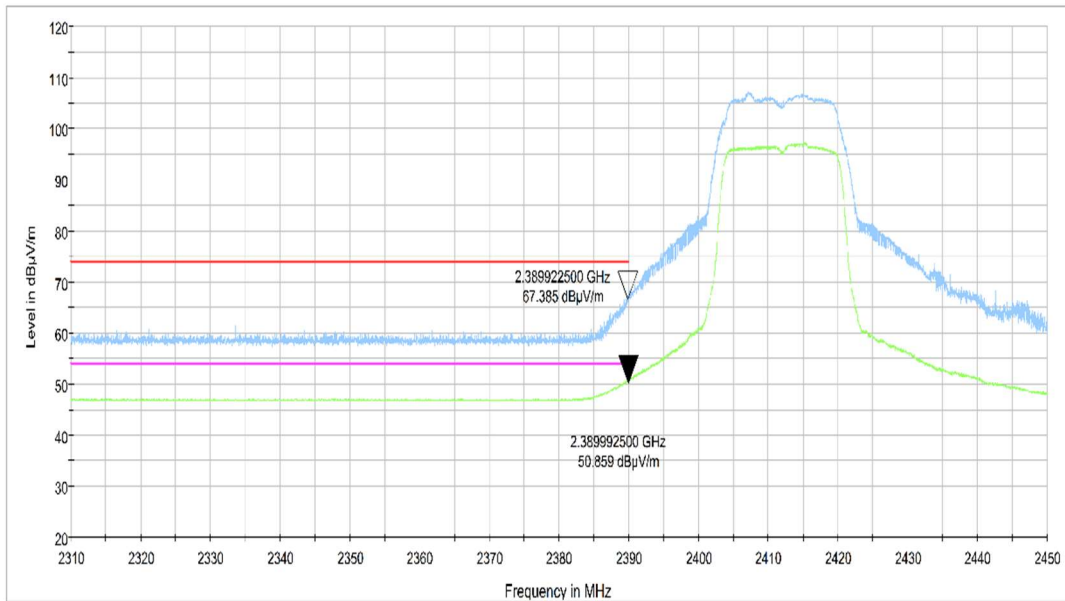


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz

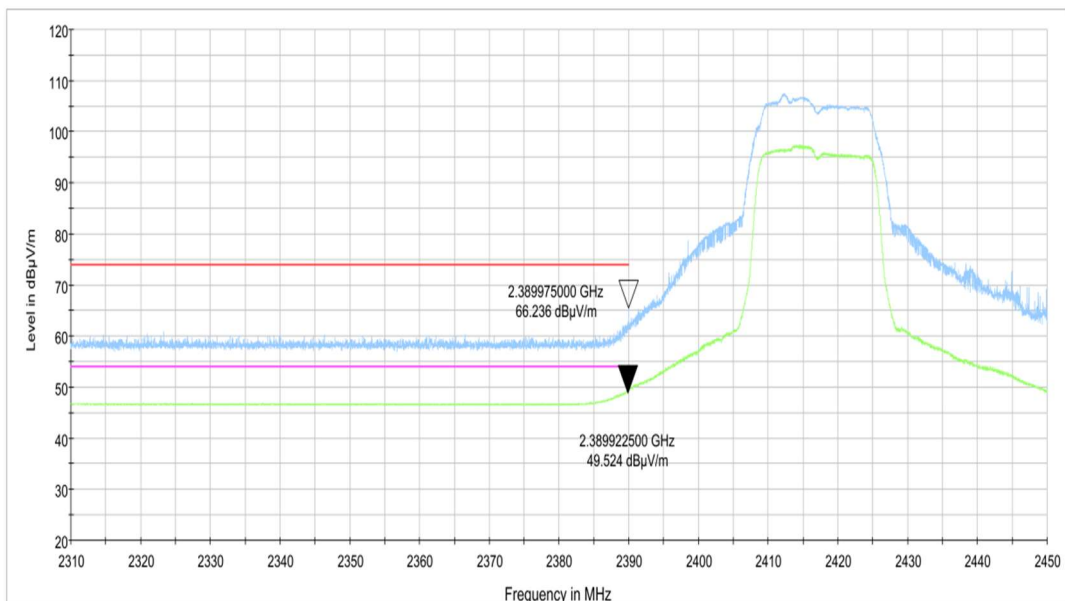


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch2, 2.31 GHz - 2.45GHz

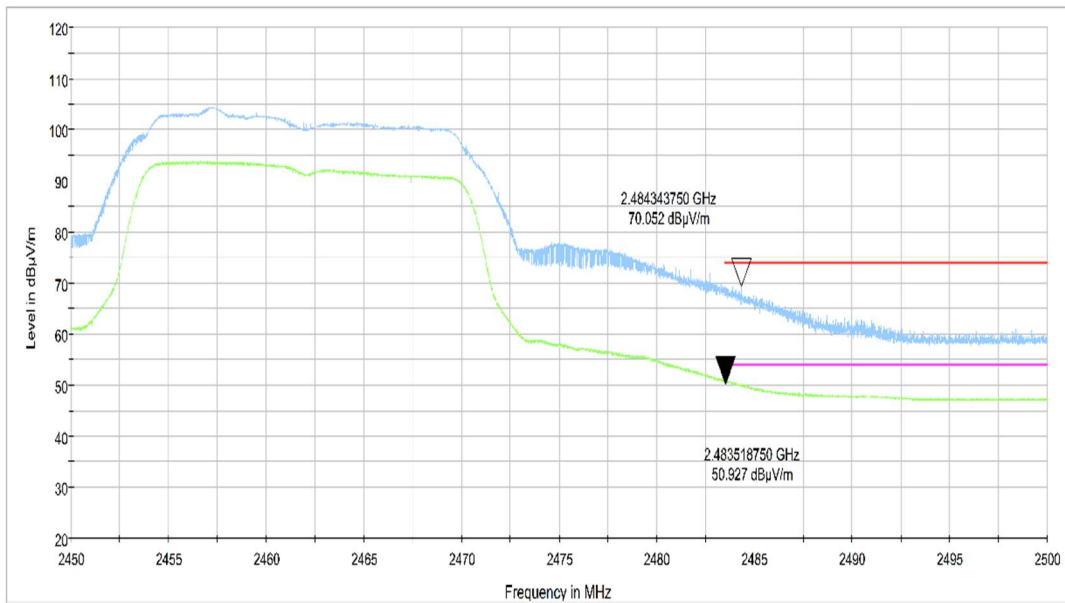


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

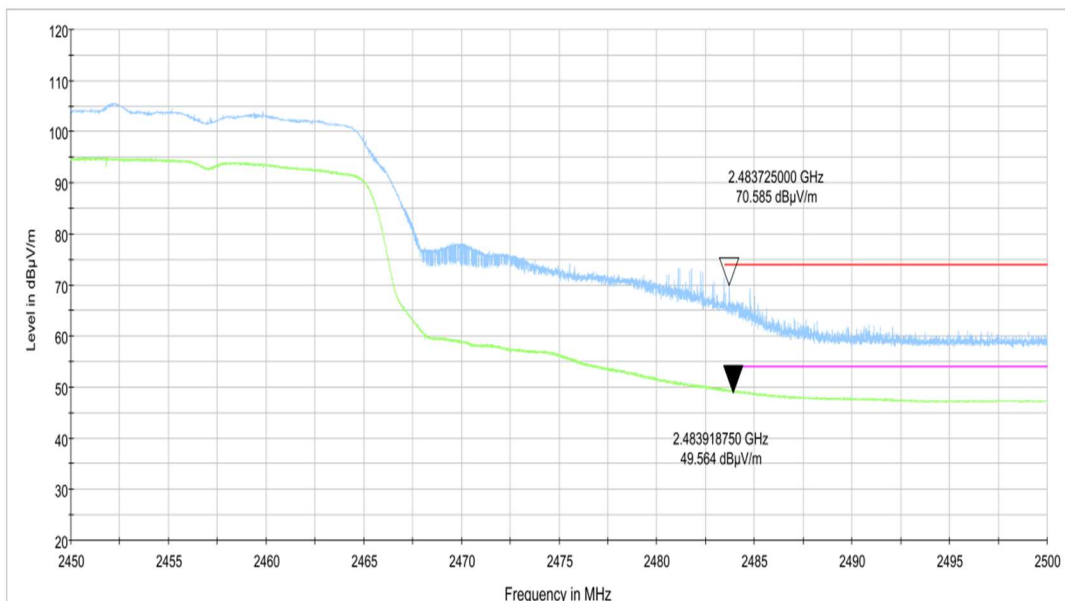


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch10, 2.45 GHz - 2.50GHz

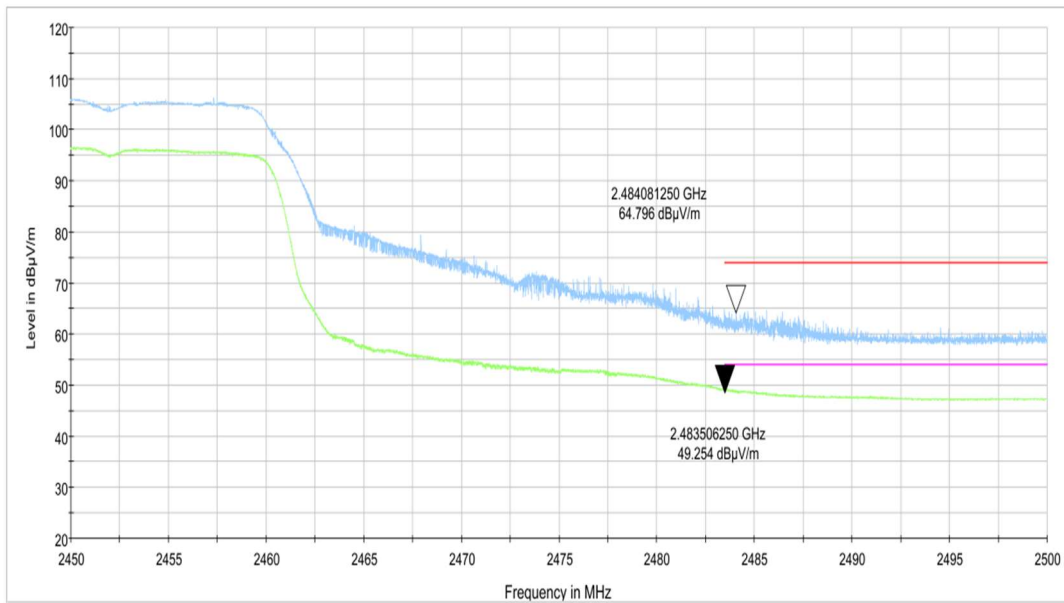


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch9, 2.45 GHz - 2.50GHz

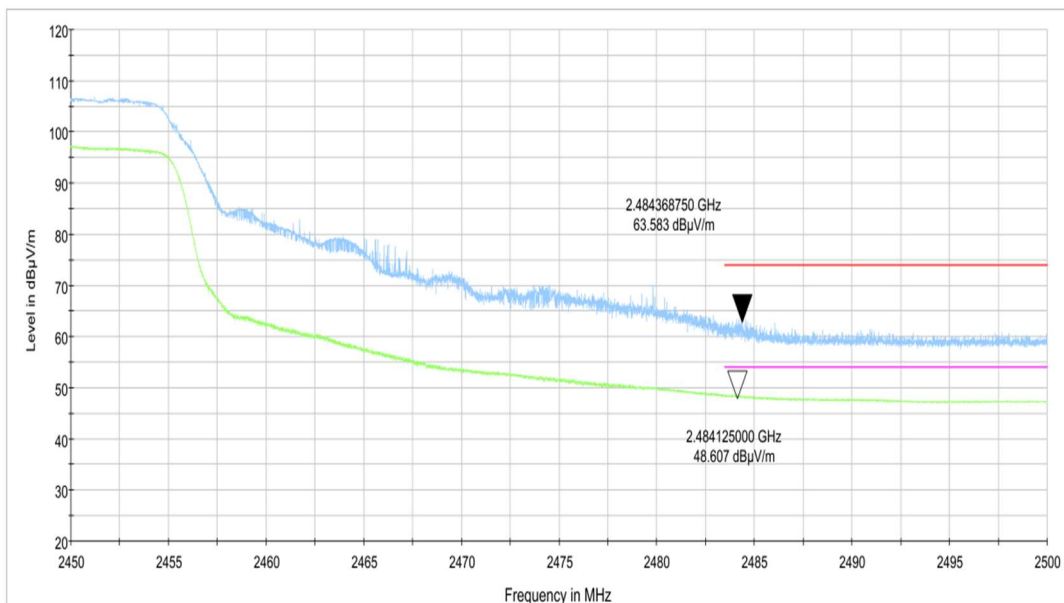


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch8, 2.45 GHz - 2.50GHz

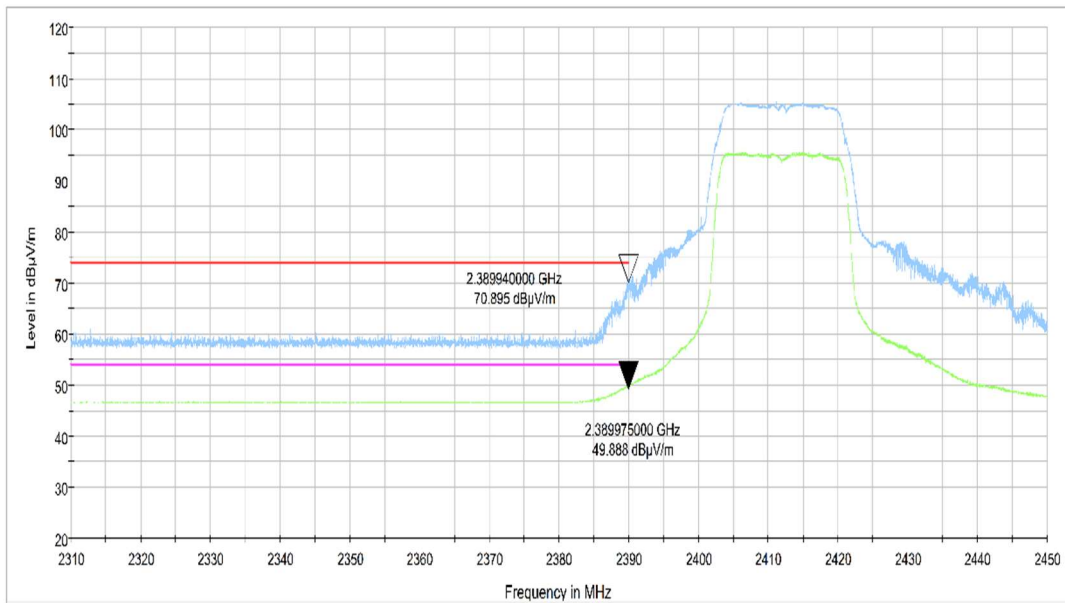


Fig.A.6.2.9 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

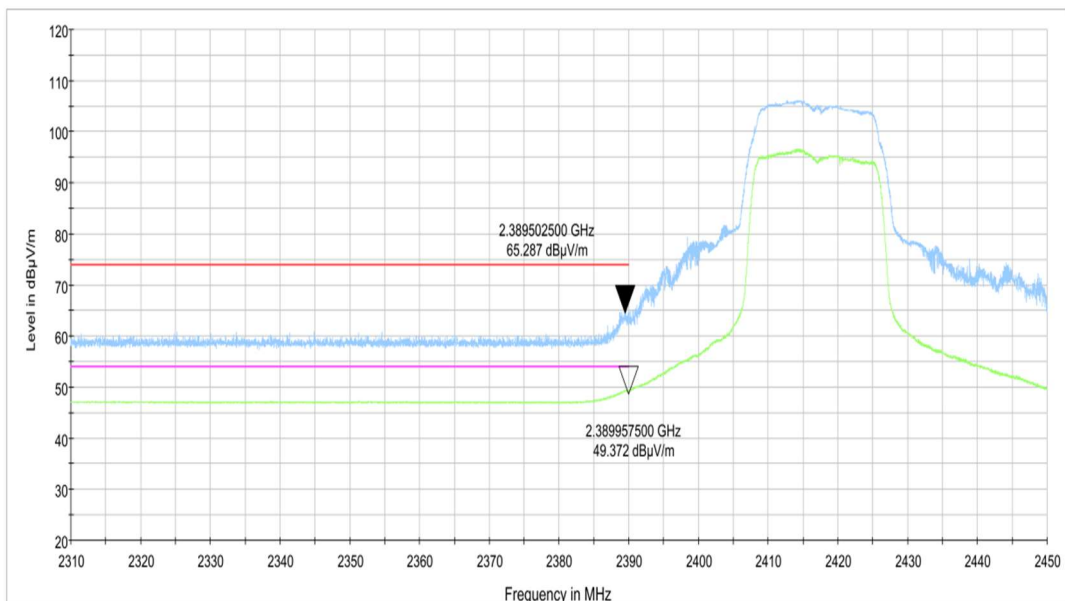


Fig.A.6.2.10 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch2, 2.31 GHz - 2.45GHz

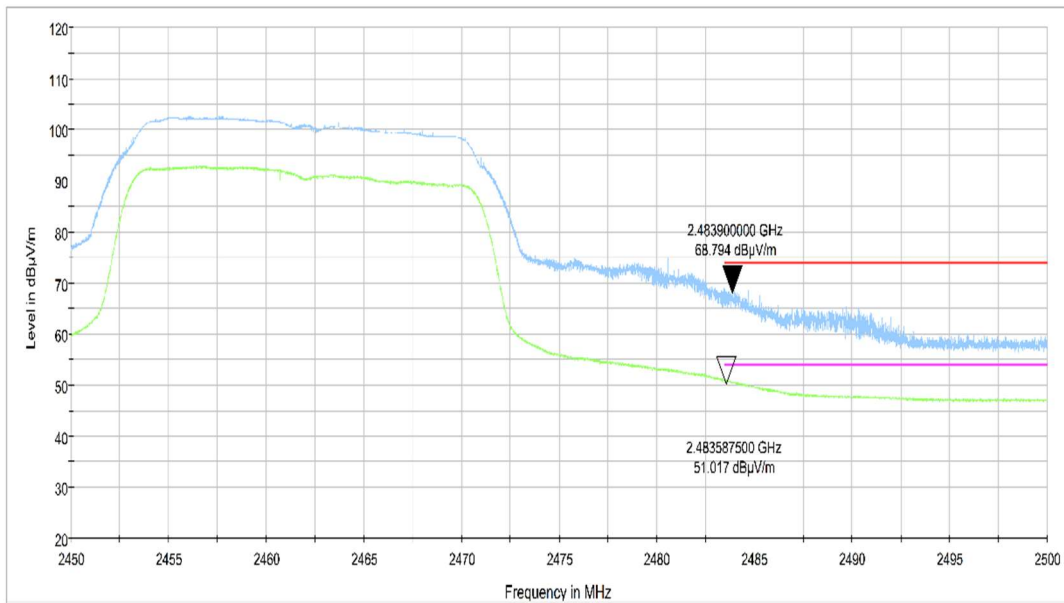


Fig.A.6.2.11 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

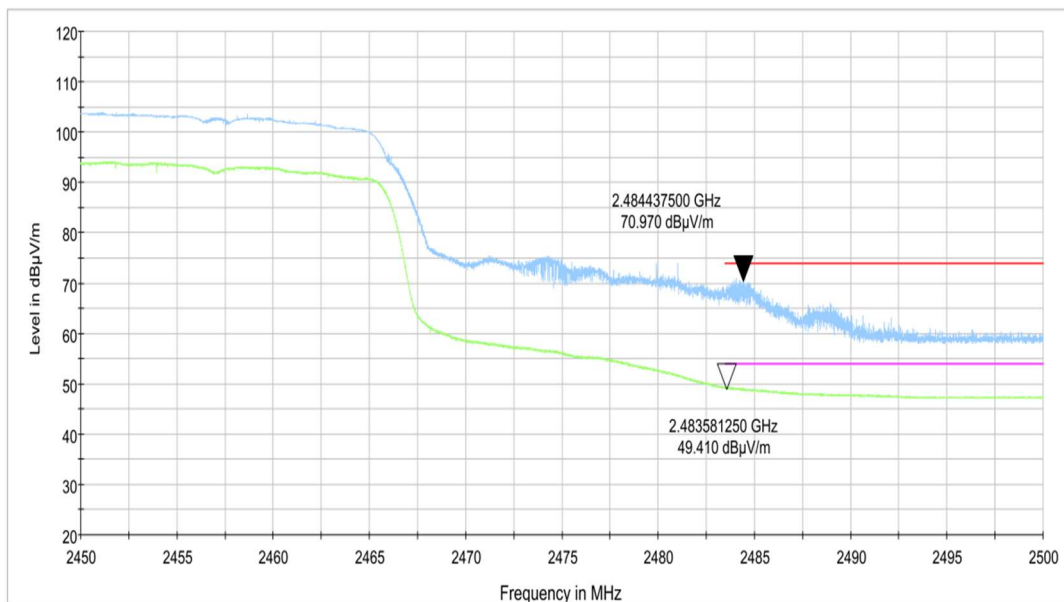


Fig.A.6.2.12 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch10, 2.45 GHz - 2.50GHz

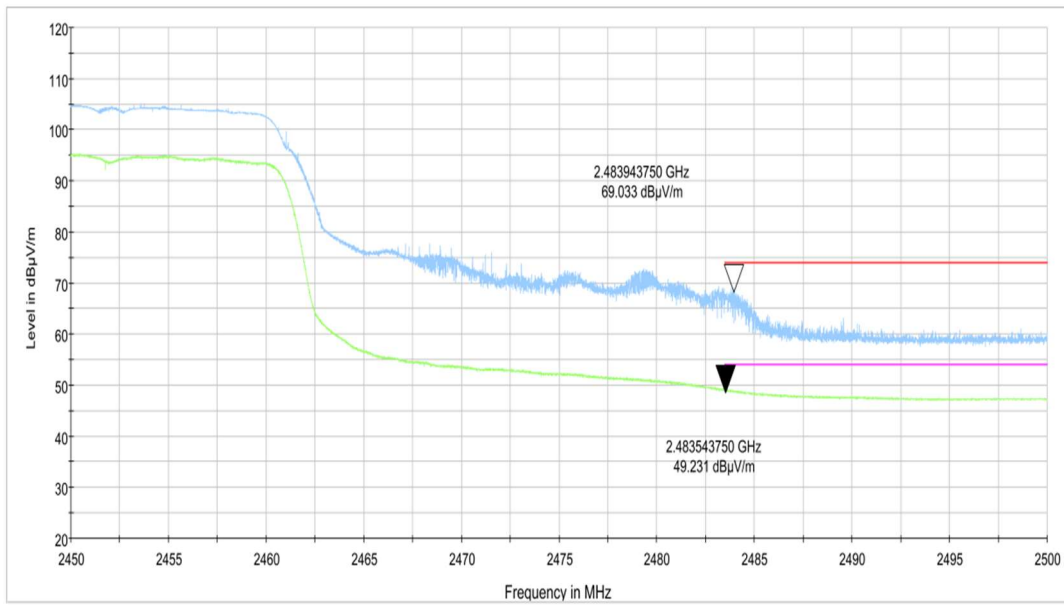


Fig.A.6.2.13 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch9, 2.45 GHz - 2.50GHz

A.7. AC Power-line Conducted Emission

Method of Measurement: See ANSI C63.10-2013-clause 6.2

See Clause 6.2 of ANSI C63.10-2013 specifically.

See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

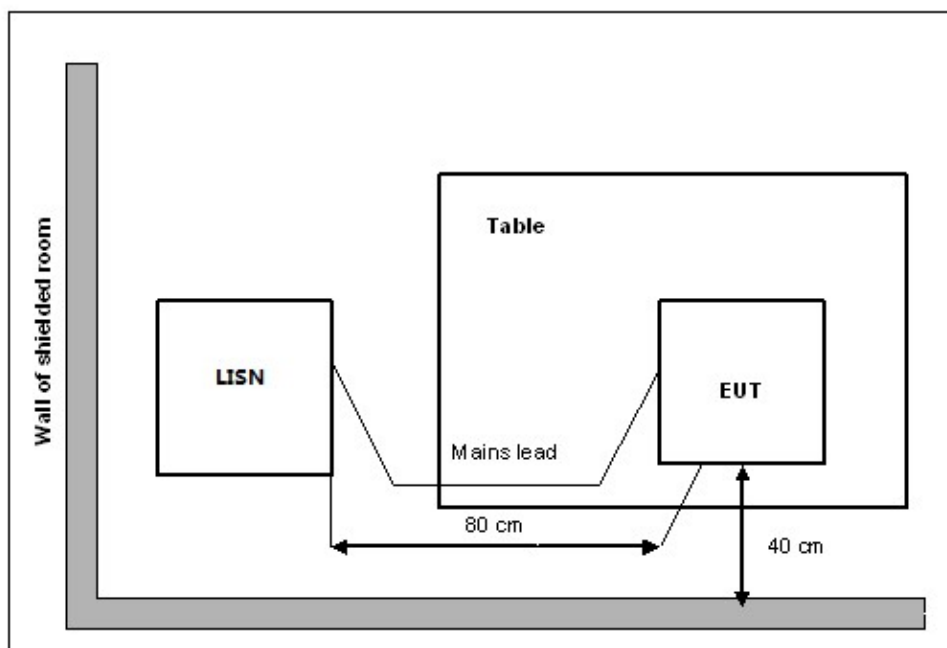
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Setup



Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With Adapter		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)		Conclusion
		With Adapter		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Conclusion: Pass
Test graphs as below:

Result for Traffic:

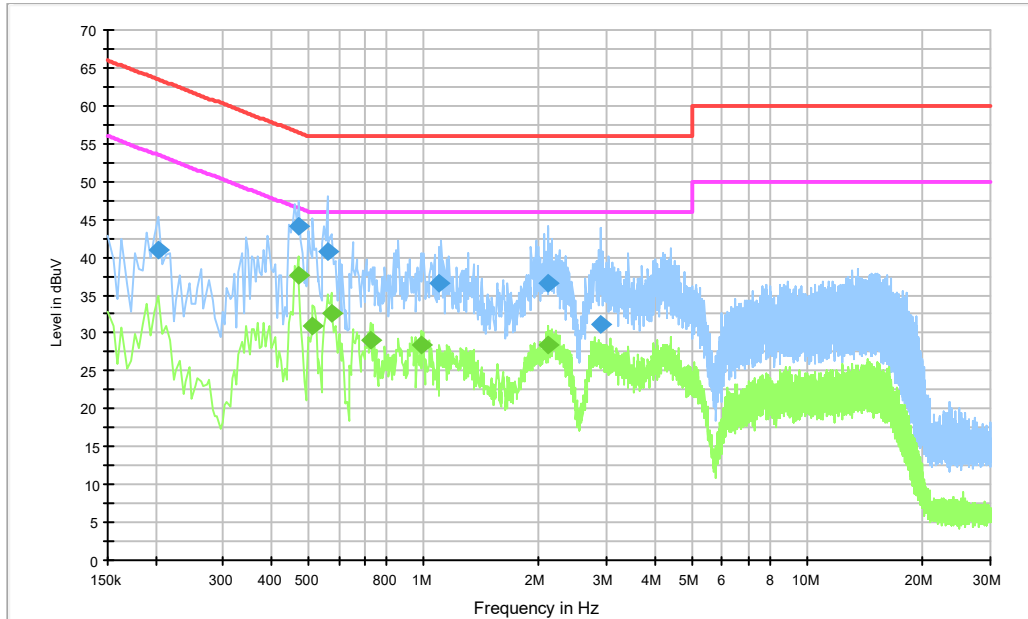


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.204000	40.9	3000.0	9.000	On	L1	27.5	22.6	63.4
0.474000	44.0	3000.0	9.000	On	N	23.6	12.4	56.4
0.559500	40.8	3000.0	9.000	On	N	22.9	15.2	56.0
1.099500	36.6	3000.0	9.000	On	N	20.2	19.4	56.0
2.116500	36.7	3000.0	9.000	On	N	20.0	19.3	56.0
2.881500	31.1	3000.0	9.000	On	L1	19.9	24.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.469500	37.7	3000.0	9.000	On	N	23.7	8.8	46.5
0.514500	31.0	3000.0	9.000	On	L1	23.3	15.0	46.0
0.573000	32.6	3000.0	9.000	On	L1	22.8	13.4	46.0
0.726000	29.0	3000.0	9.000	On	N	21.7	17.0	46.0
0.982500	28.5	3000.0	9.000	On	N	20.3	17.5	46.0
2.116500	28.5	3000.0	9.000	On	N	20.0	17.5	46.0

Note: The measurement results showed here are worst cases of the combinations of different Adapters and USB cables.

Result for Idle:

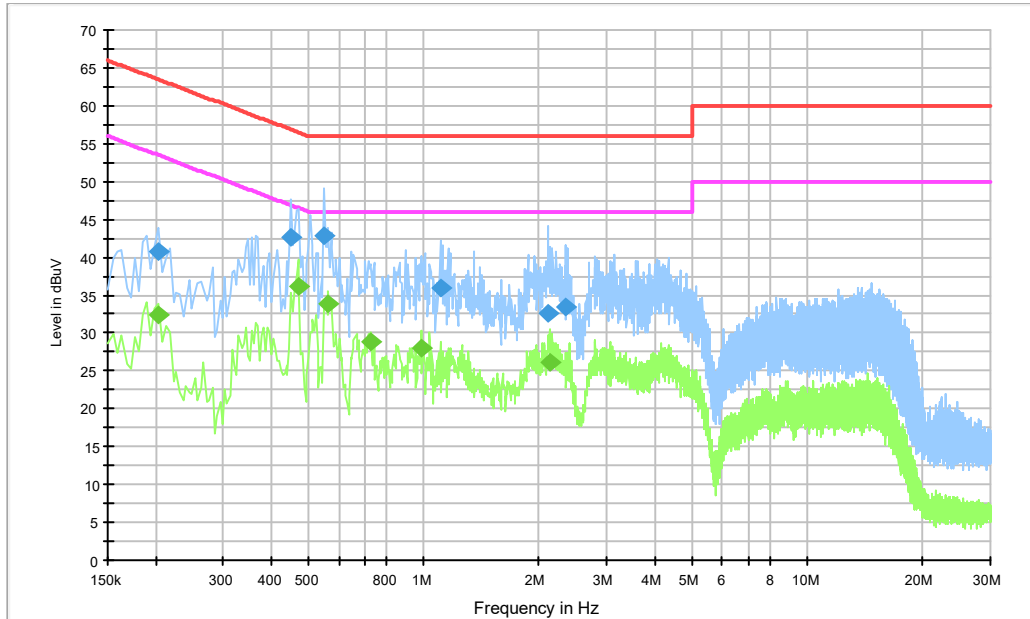


Fig.A.7.2 AC Powerline Conducted Emission-Idle

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.204000	40.7	3000.0	9.000	On	L1	27.5	22.7	63.4
0.451500	42.6	3000.0	9.000	On	N	23.9	14.3	56.8
0.550500	42.9	3000.0	9.000	On	N	22.9	13.1	56.0
1.104000	36.0	3000.0	9.000	On	N	20.2	20.0	56.0
2.103000	32.5	3000.0	9.000	On	L1	20.0	23.5	56.0
2.350500	33.5	3000.0	9.000	On	N	19.9	22.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.204000	32.4	3000.0	9.000	On	L1	27.5	21.0	53.4
0.469500	36.1	3000.0	9.000	On	N	23.7	10.4	46.5
0.564000	33.8	3000.0	9.000	On	L1	22.8	12.2	46.0
0.726000	28.8	3000.0	9.000	On	N	21.7	17.2	46.0
0.987000	28.1	3000.0	9.000	On	N	20.3	17.9	46.0
2.125500	26.2	3000.0	9.000	On	L1	20.0	19.8	46.0

Note: The measurement results showed here are worst cases of the combinations of different Adapters and USB cables.

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

United States Department of Commerce National Institute of Standards and Technology	
 	
<hr/> Certificate of Accreditation to ISO/IEC 17025:2017 <hr/>	
NVLAP LAB CODE: 600118-0	
Telecommunication Technology Labs, CAICT Beijing China	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
Electromagnetic Compatibility & Telecommunications	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i>	
<hr/> 2021-09-29 through 2022-09-30 <i>Effective Dates</i>	 For the National Voluntary Laboratory Accreditation Program

END OF REPORT