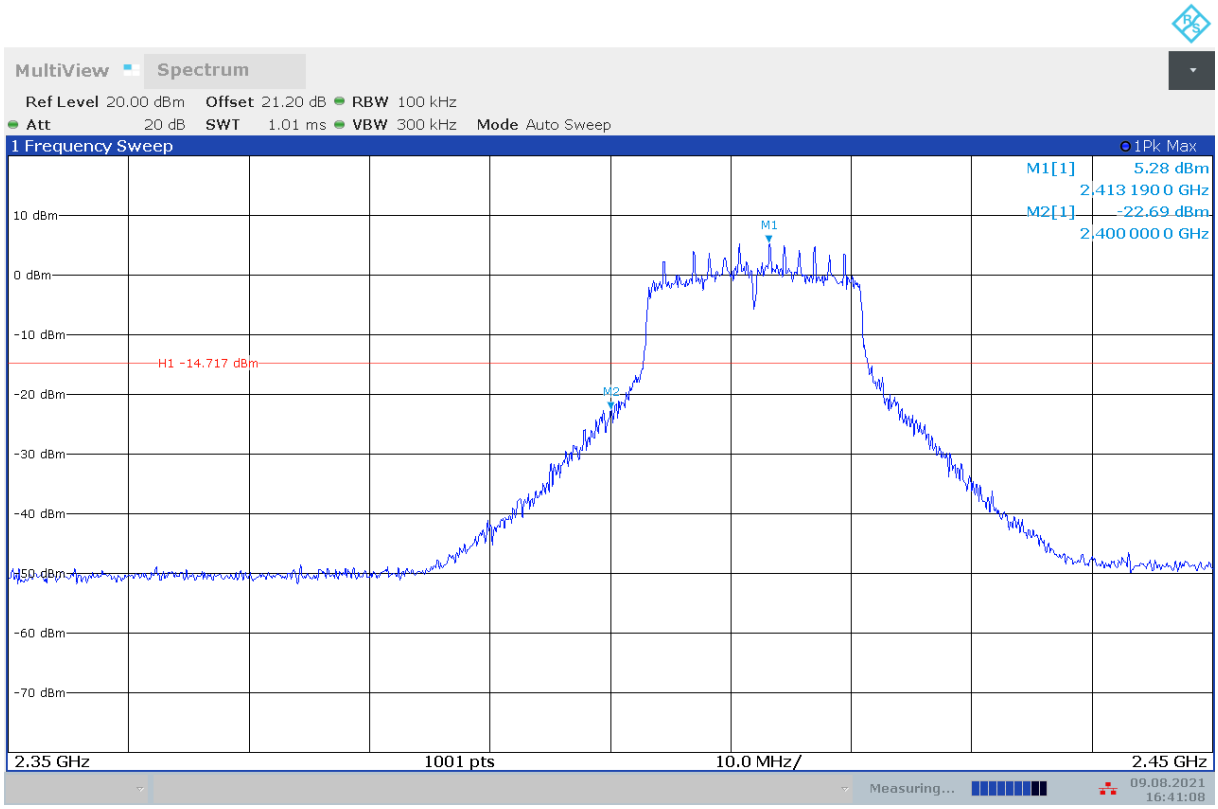


Fig.A.5.5 Band Edges (802.11n-HT20, Ch 1)

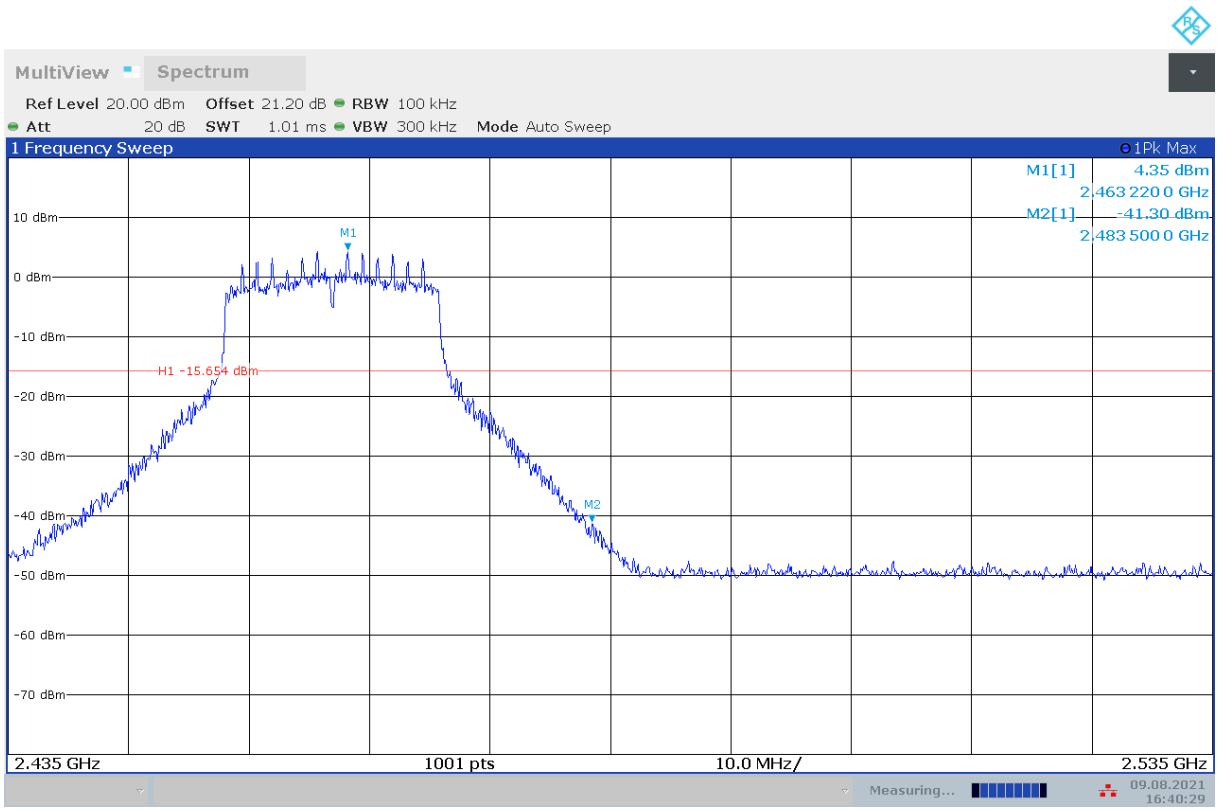


Fig.A.5.6 Band Edges (802.11n-HT20, Ch 11)

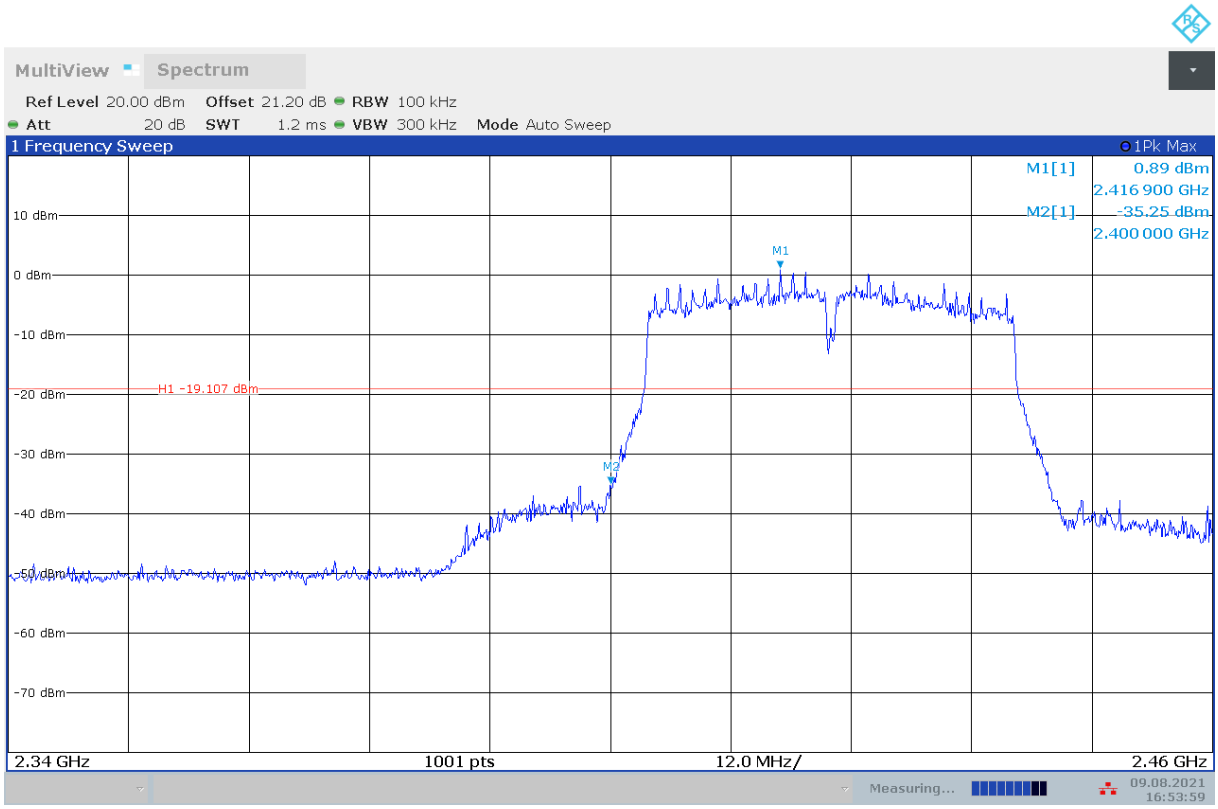


Fig.A.5.7 Band Edges (802.11n-HT40, Ch 3)

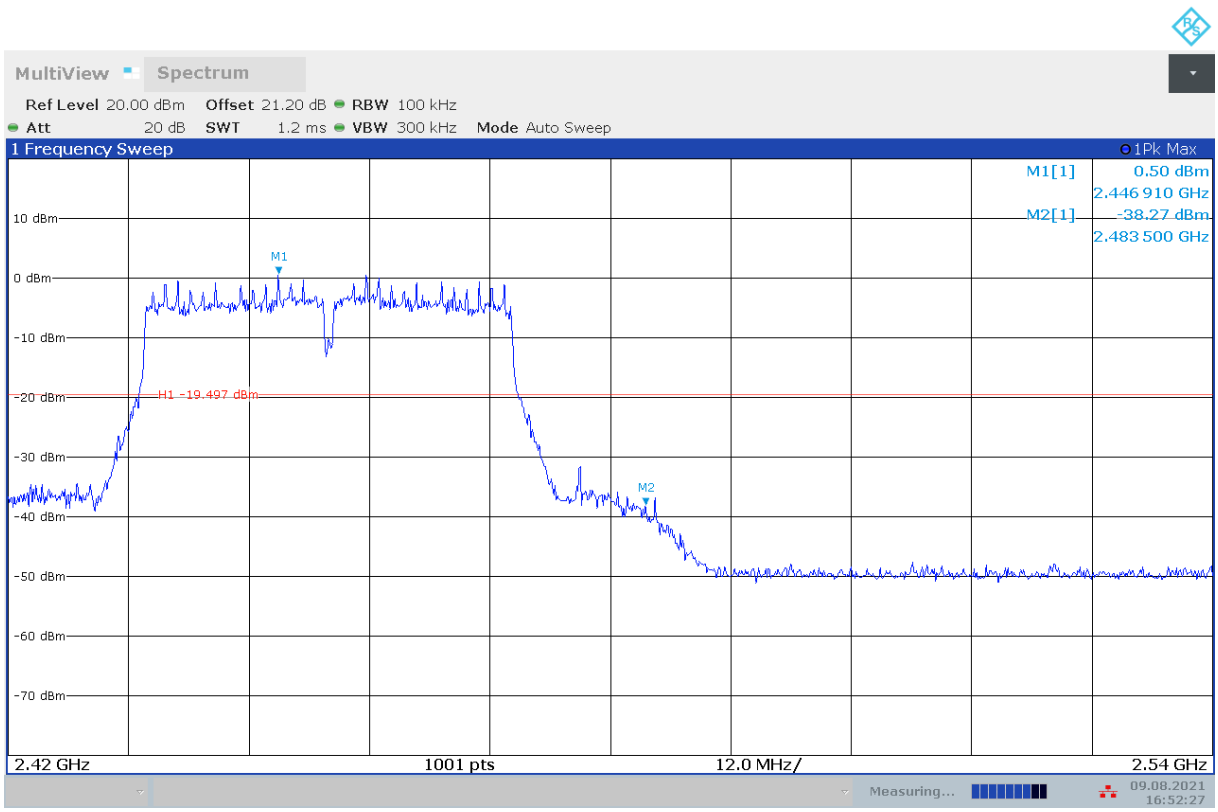


Fig.A.5.8 Band Edges (802.11n-HT40, Ch 9)

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: EUT2

Measurement Results:

MIMO-chain2

802.11b mode

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

802.11g mode

MODE	Channel	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

802.11n-HT20 mode

MODE	Channel	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

802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.422 GHz	Fig.A.6.1.19	P
		30 MHz ~ 26 GHz	Fig.A.6.1.20	P
	6	2.437 GHz	Fig.A.6.1.21	P
		30 MHz ~ 26 GHz	Fig.A.6.1.22	P
	9	2.452 GHz	Fig.A.6.1.23	P
		30 MHz ~ 26 GHz	Fig.A.6.1.24	P

Both of the chain1 and chain2 are measured, as the power of chain2 is the worse case, so the results of chain2 are reflected in the report.

Conclusion: Pass

Test graphs as below:

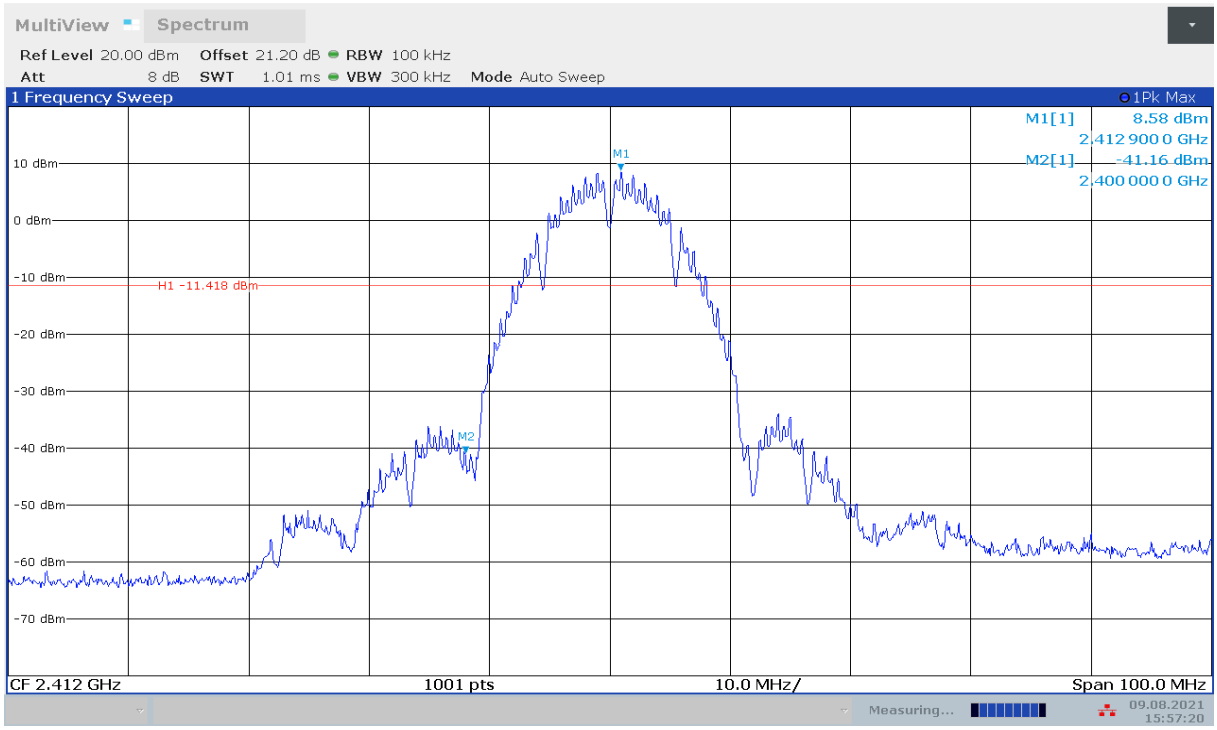


Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)

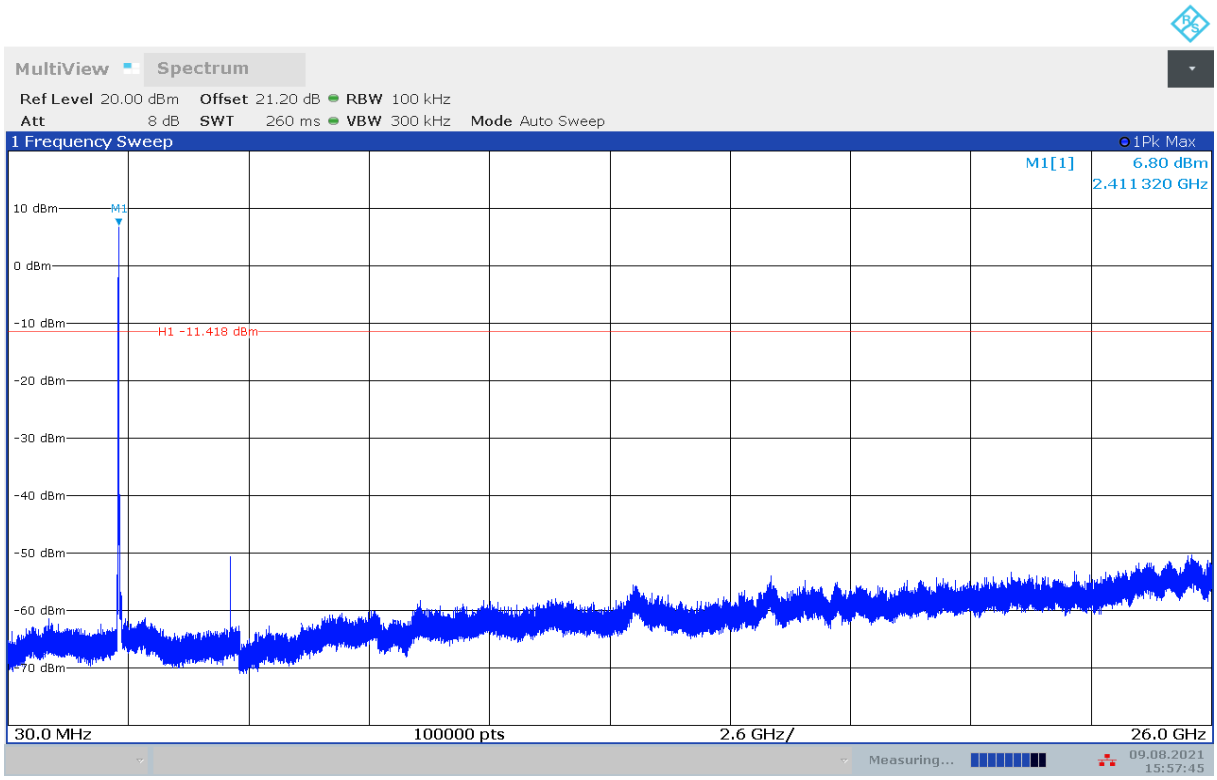


Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-26 GHz)

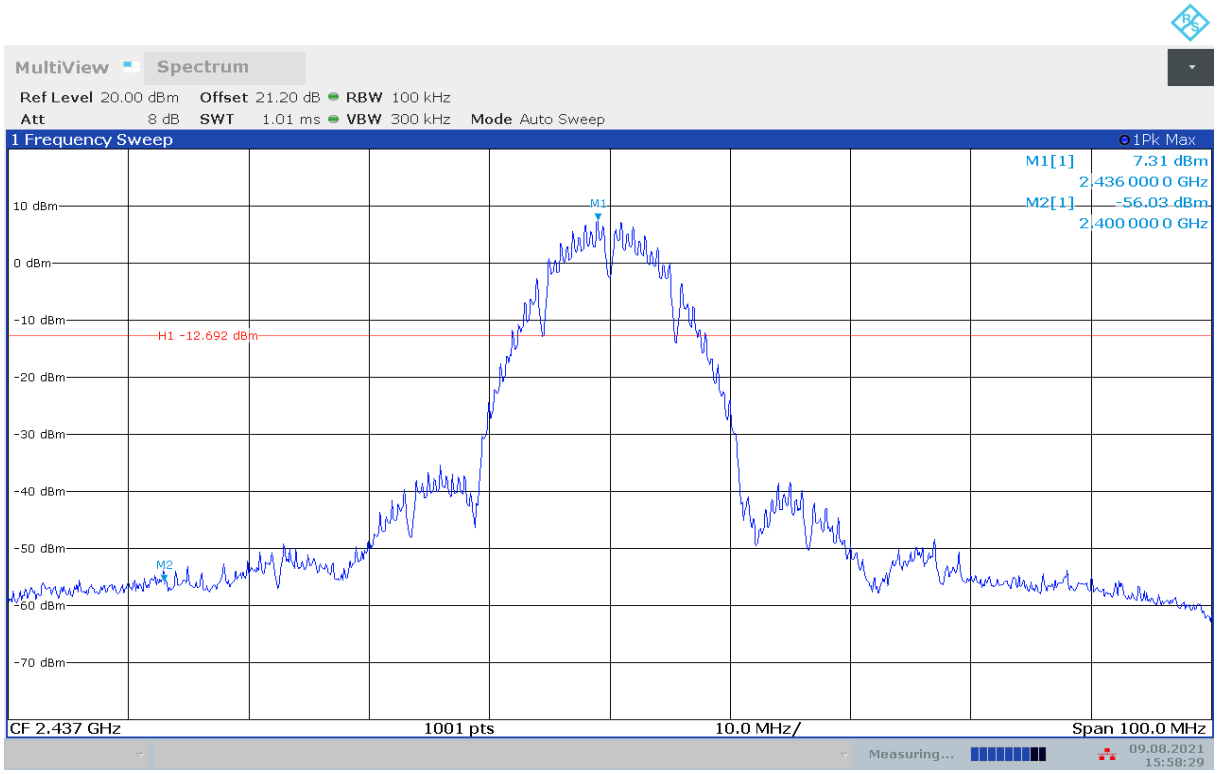


Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)

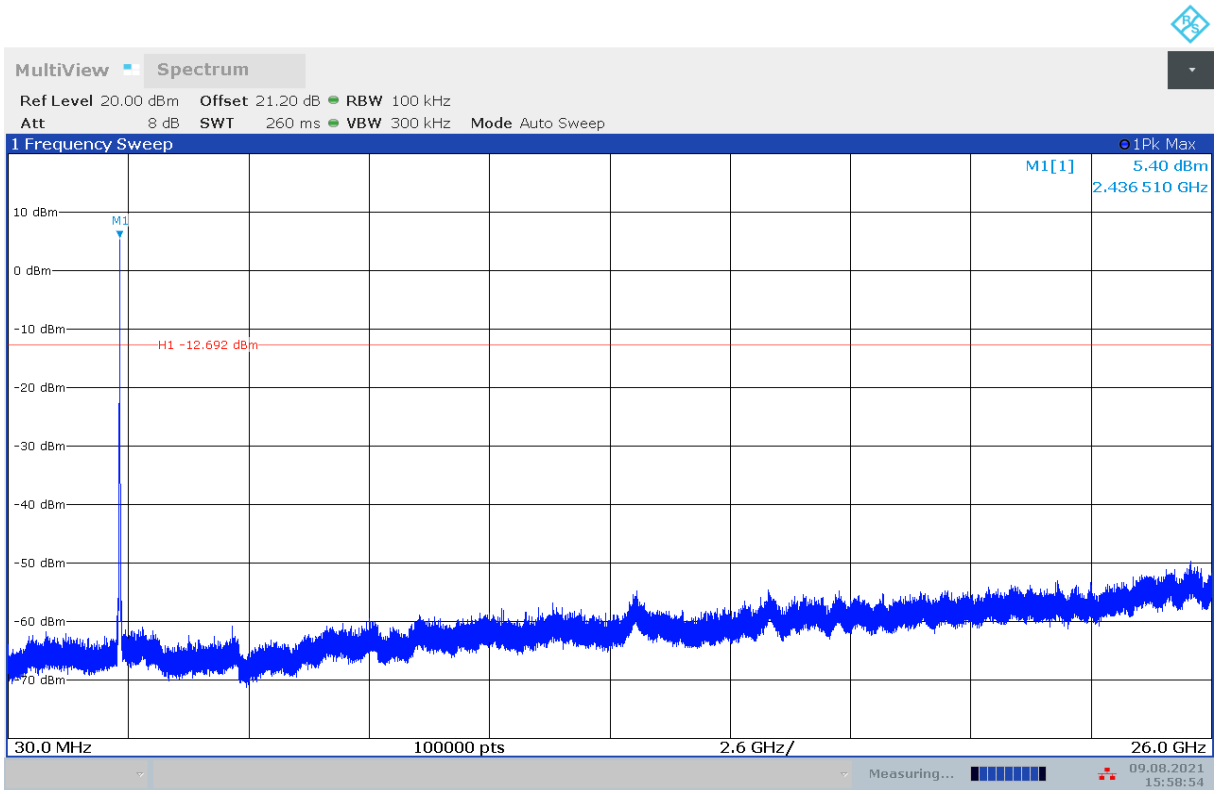


Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-26 GHz)

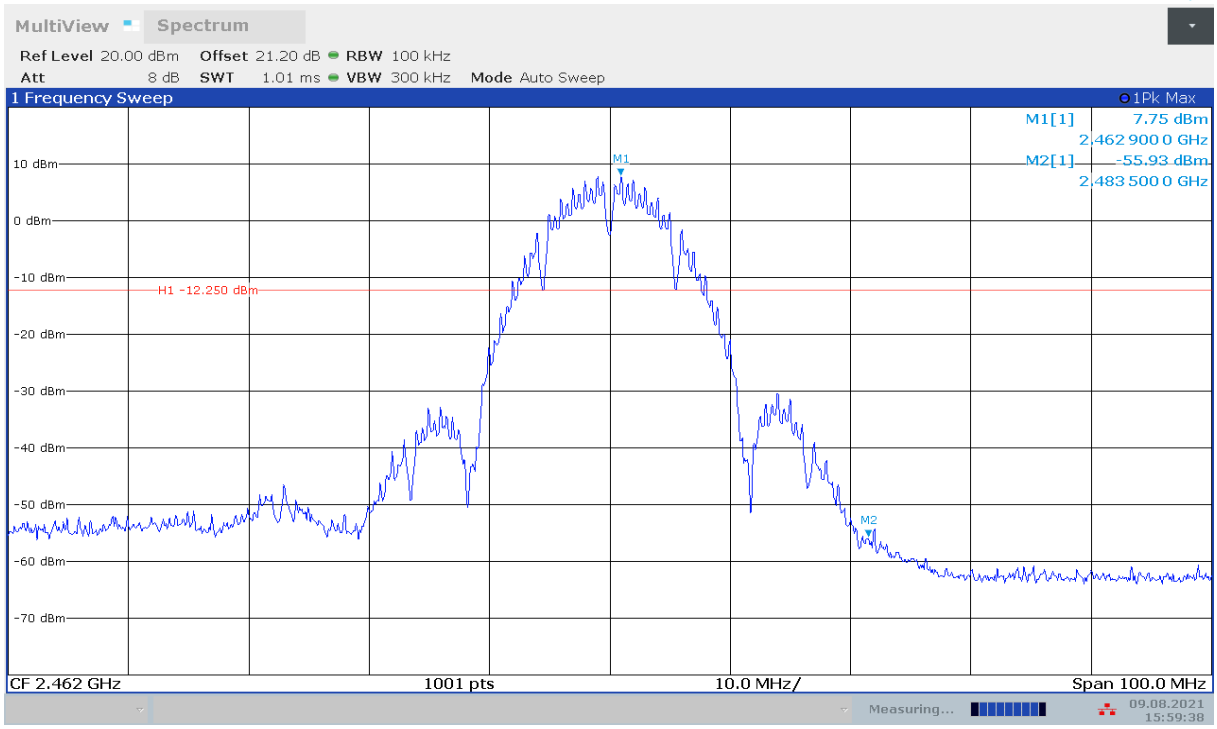


Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)

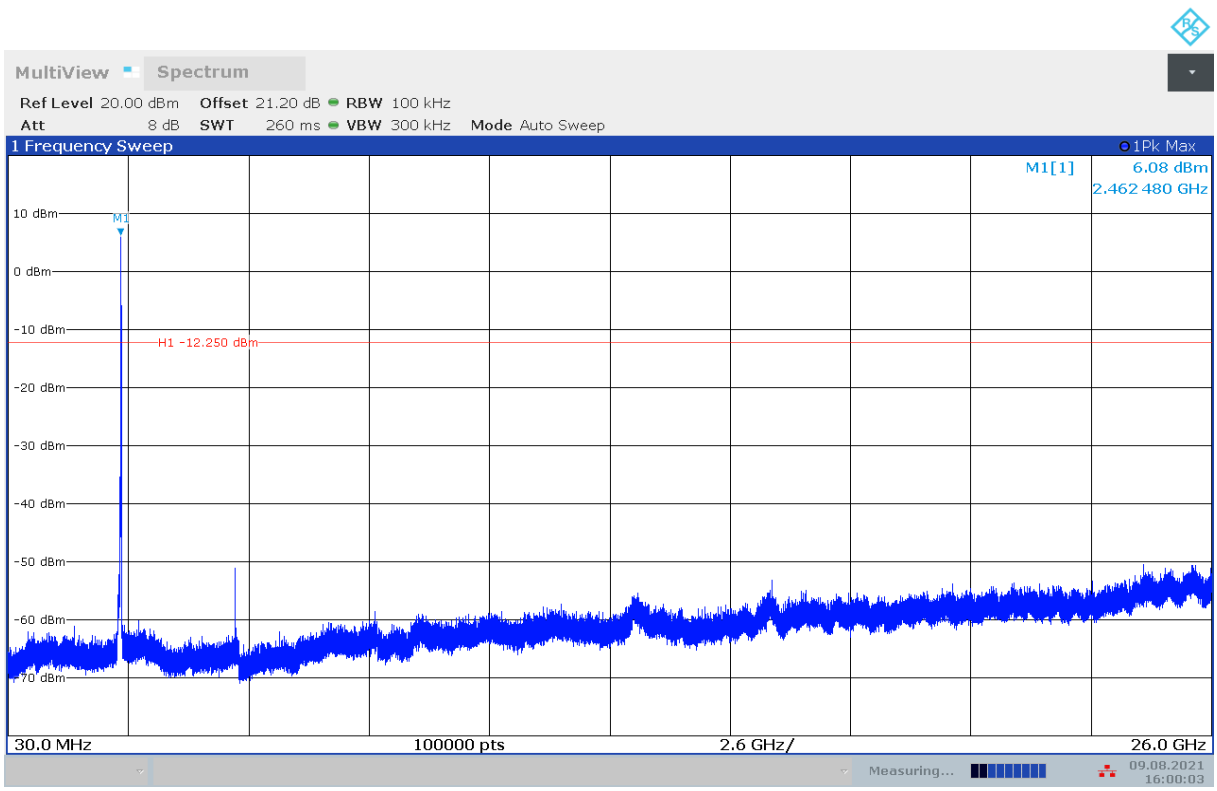


Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-26 GHz)

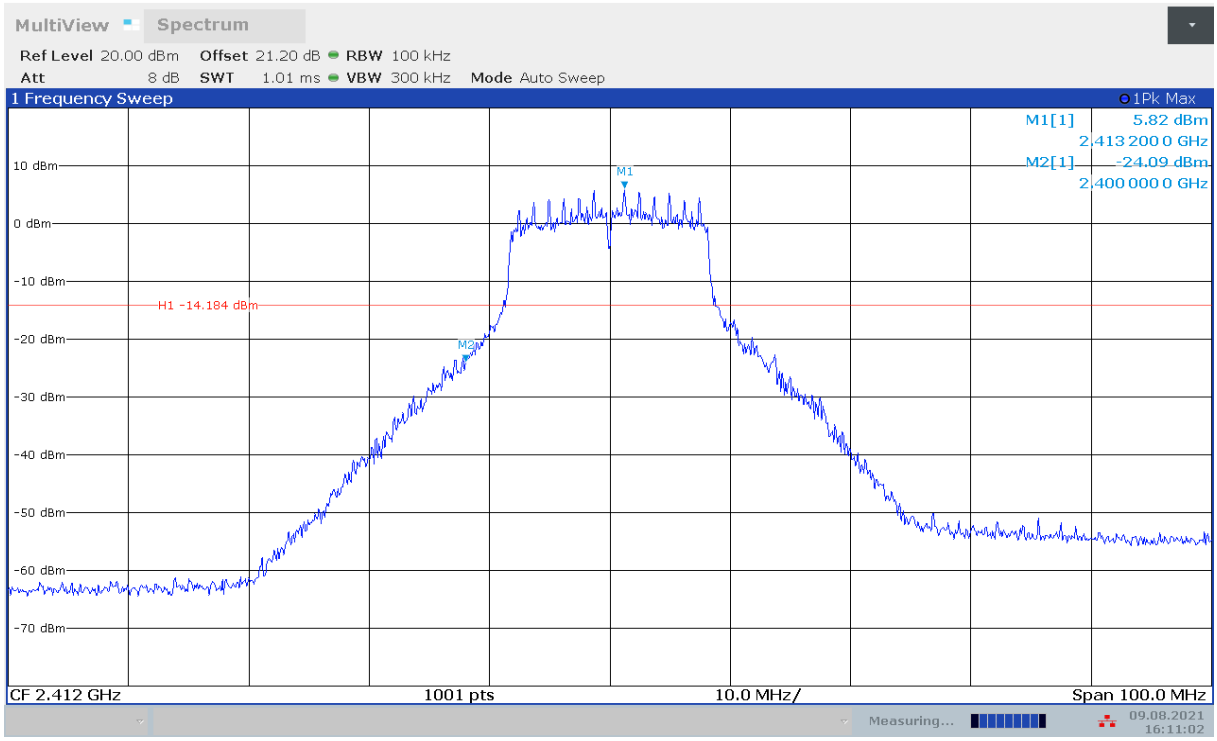


Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)

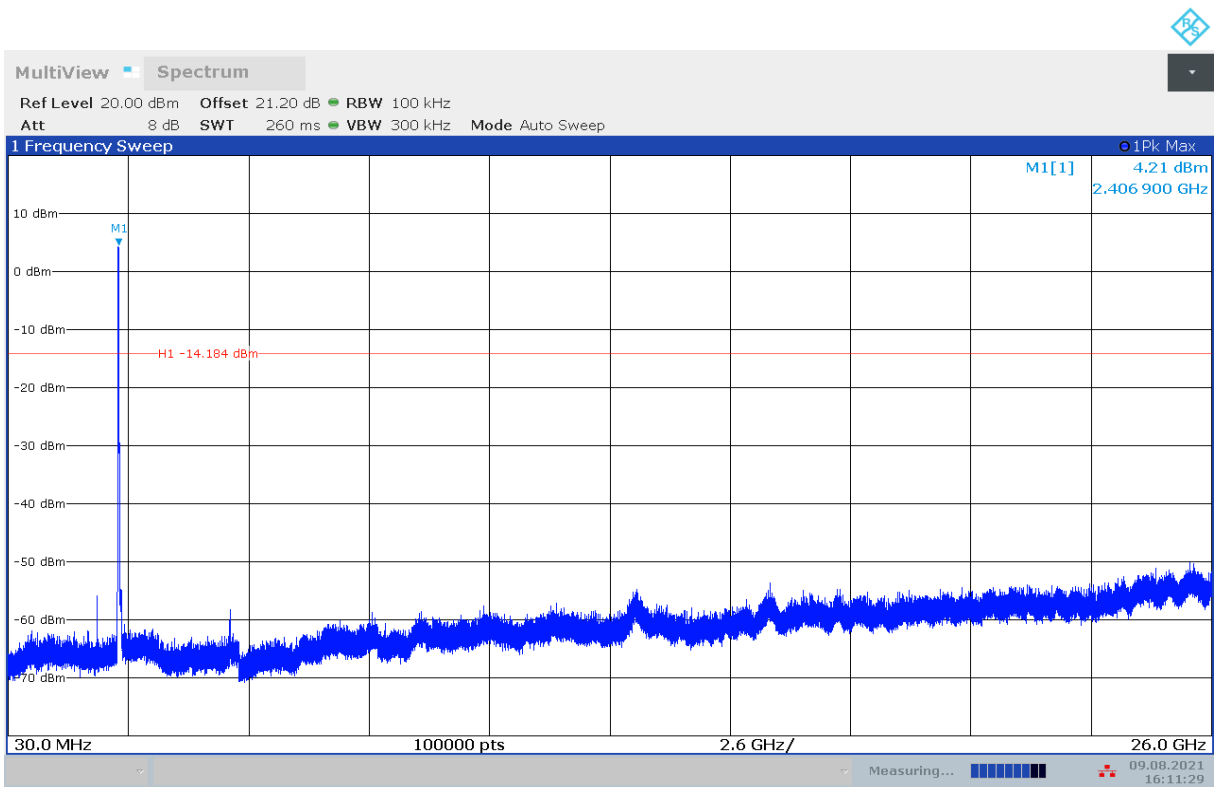


Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-26 GHz)

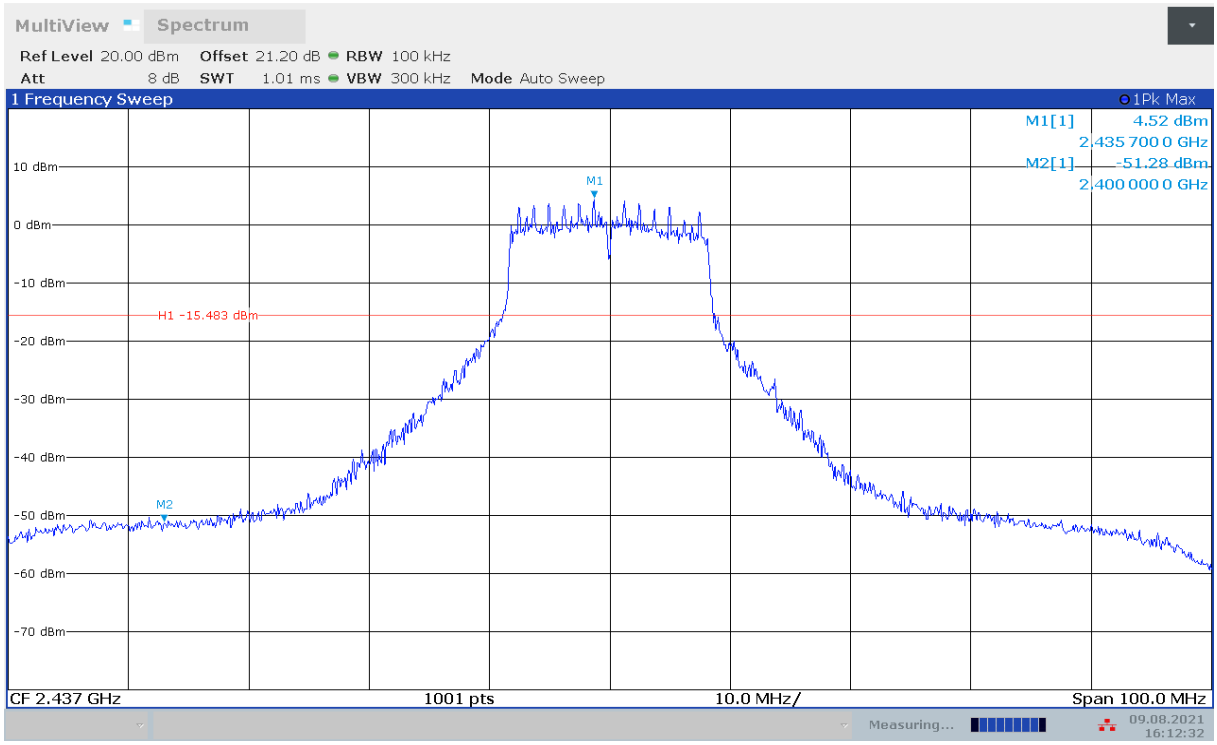


Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11g, Ch6, Center Frequency)

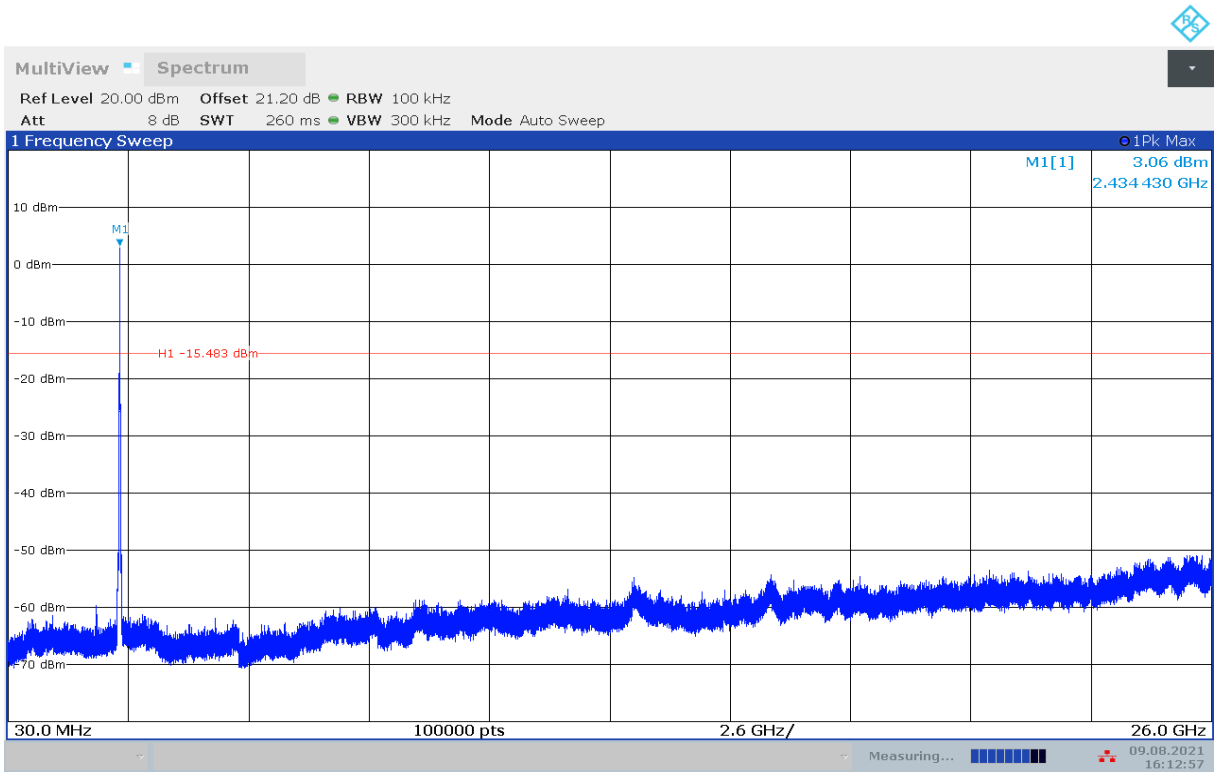


Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 30 MHz-26 GHz)

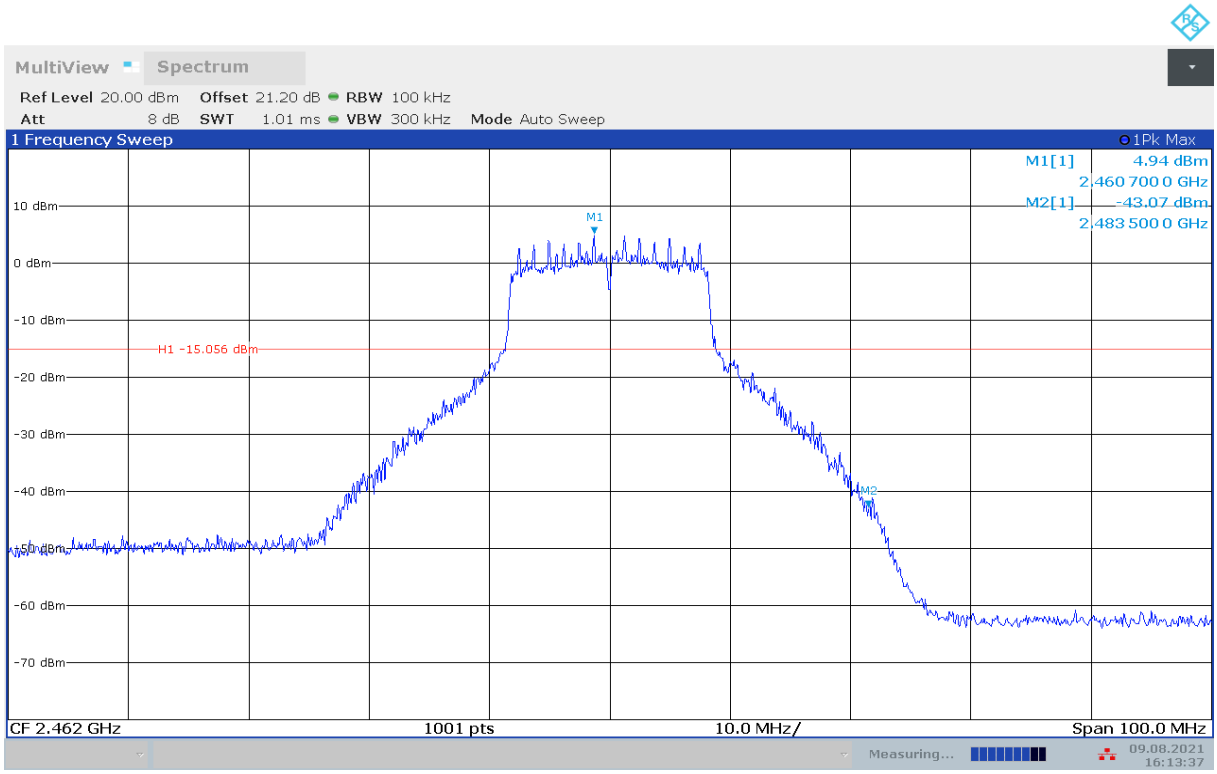


Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11g, Ch11, Center Frequency)

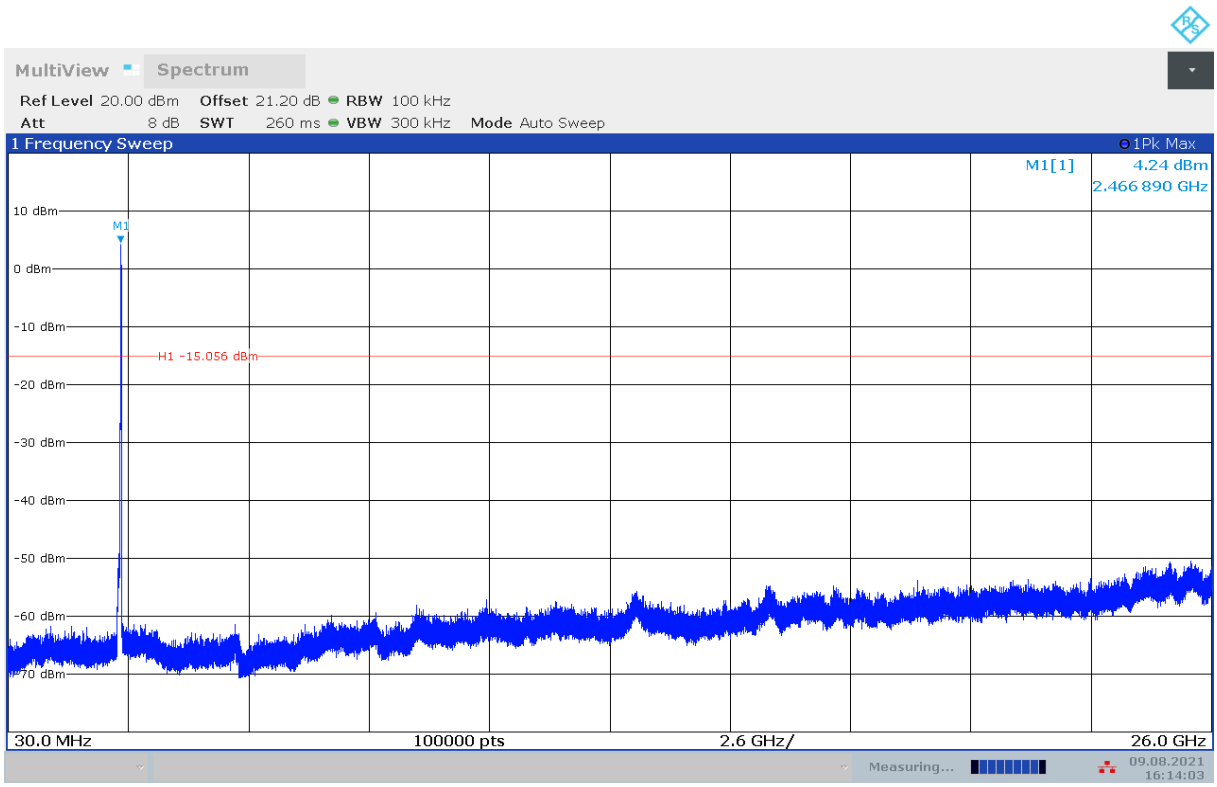


Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 30 MHz-26 GHz)

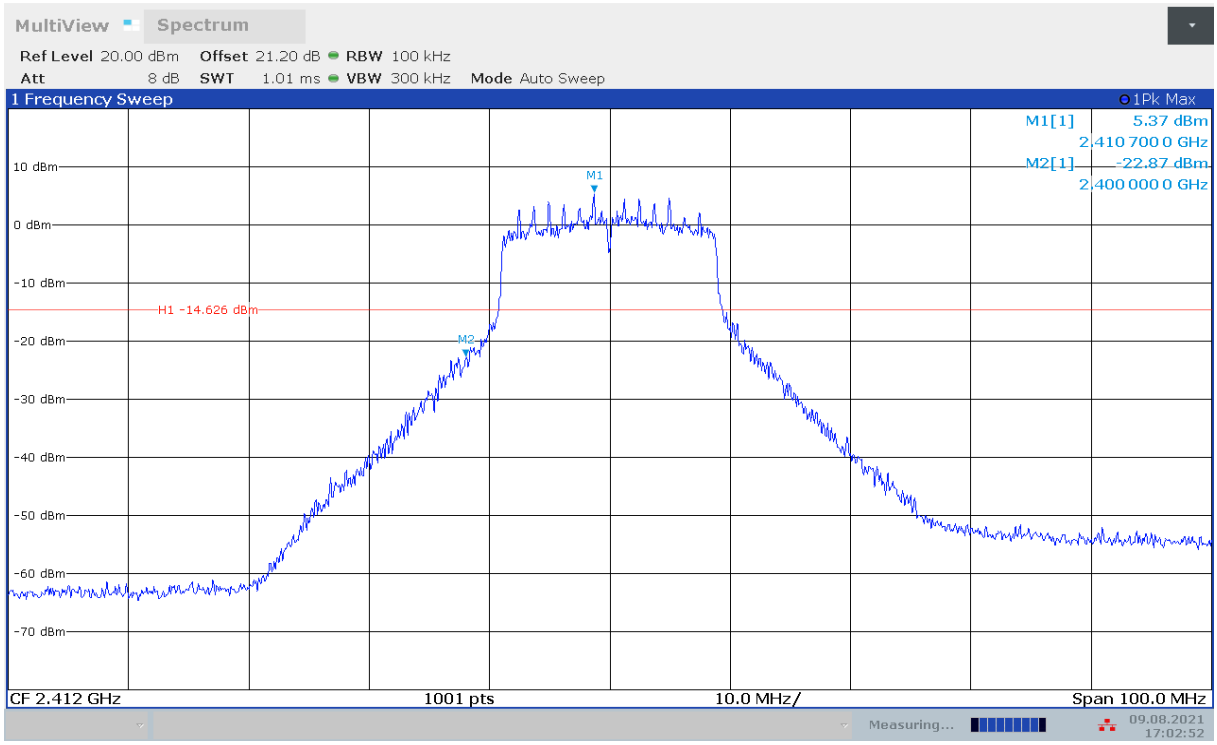


Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, Center Frequency)

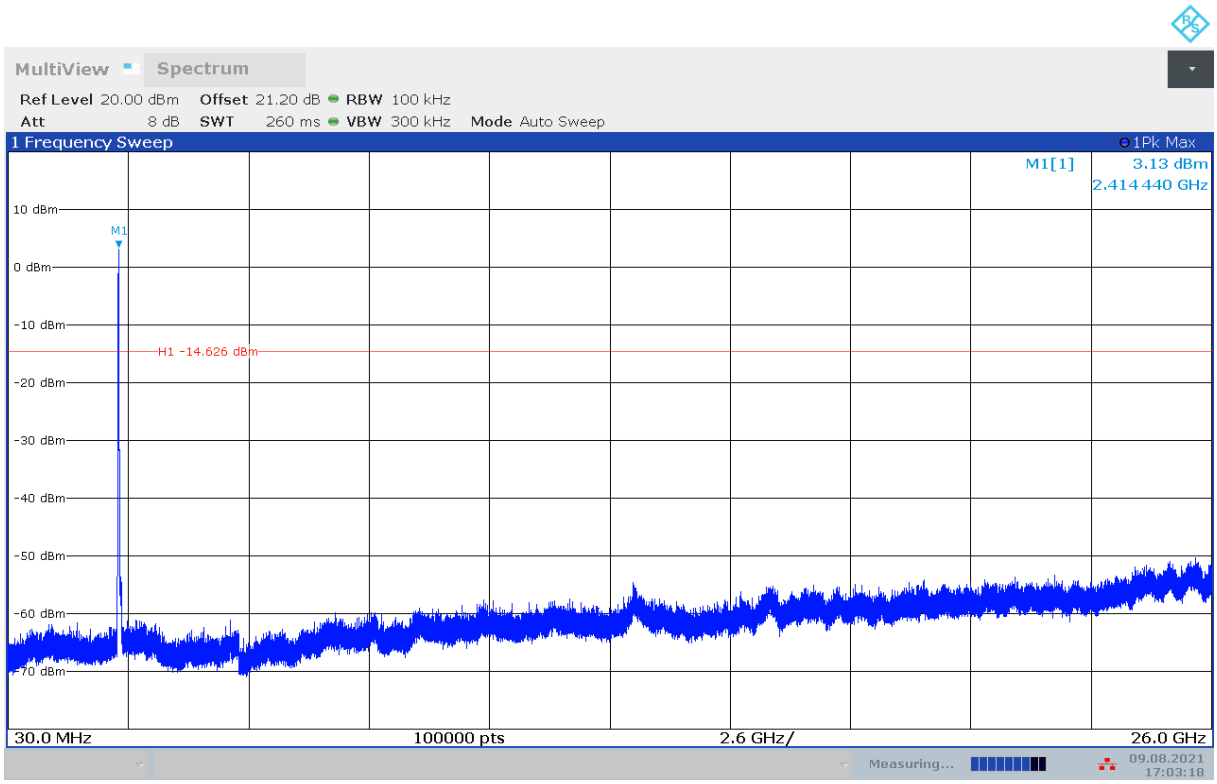


Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 30 MHz-26 GHz)

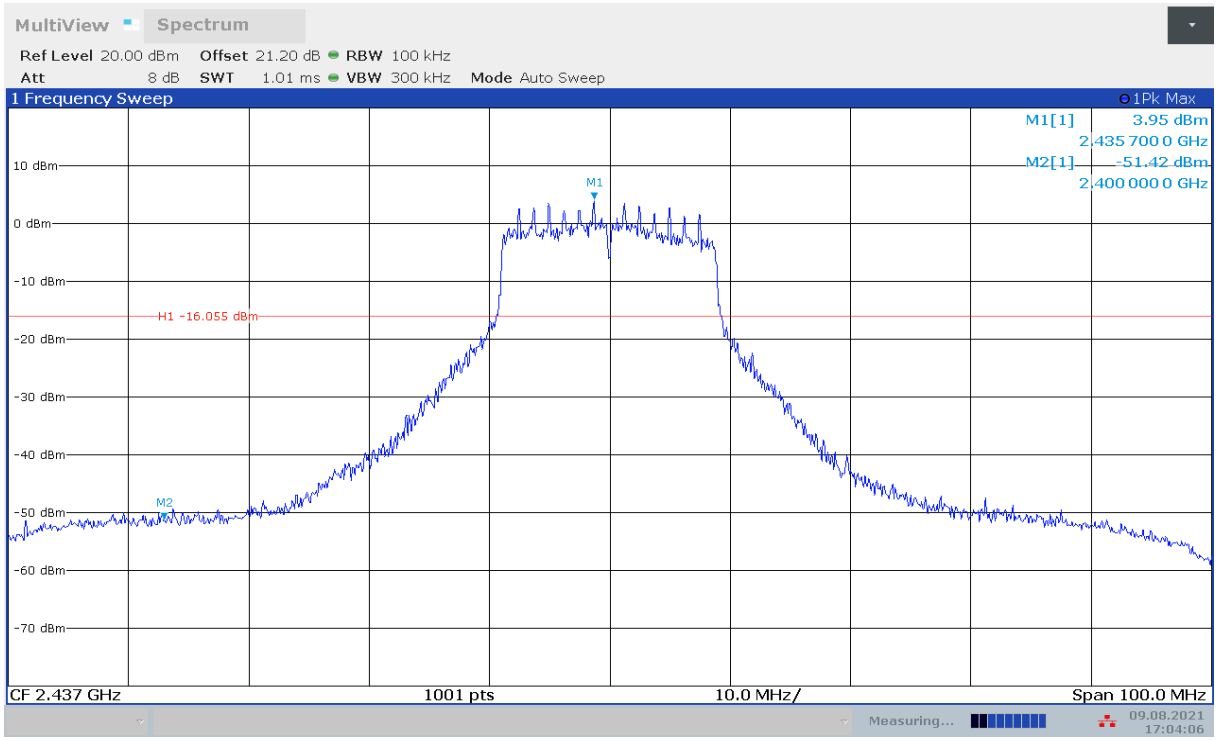


Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, Center Frequency)

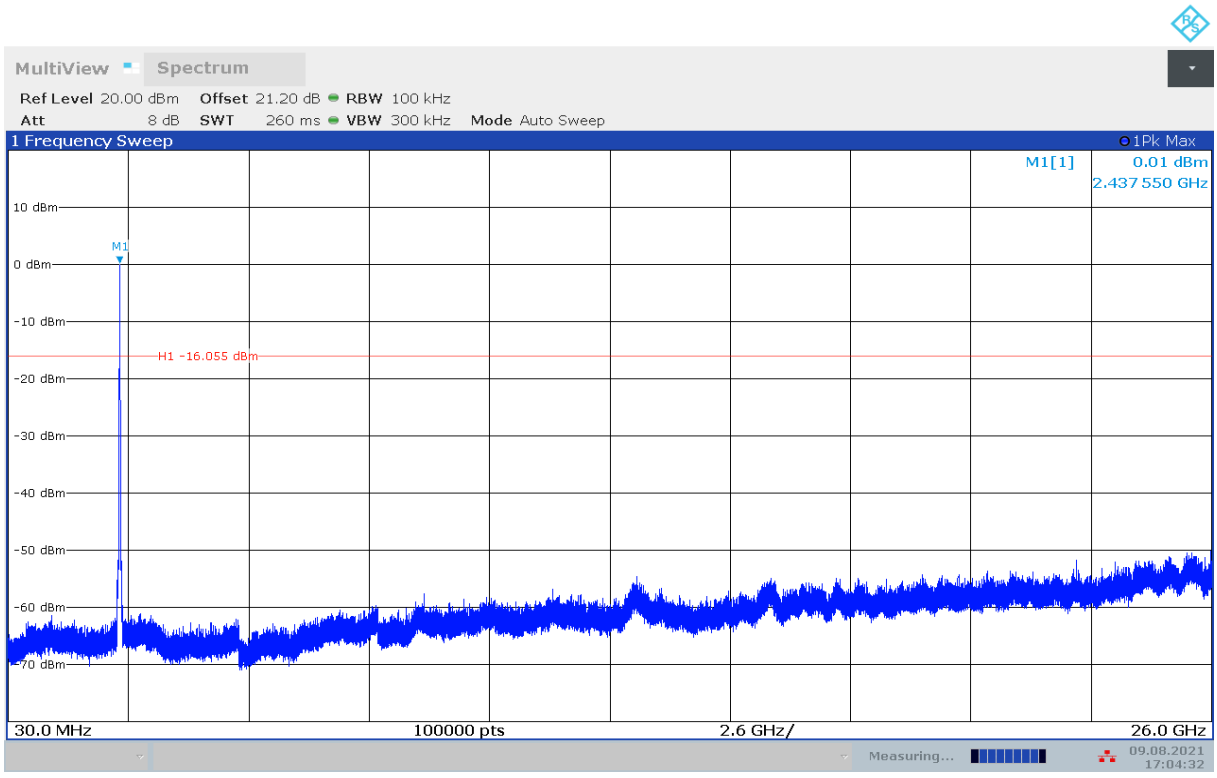


Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 30 MHz-26 GHz)

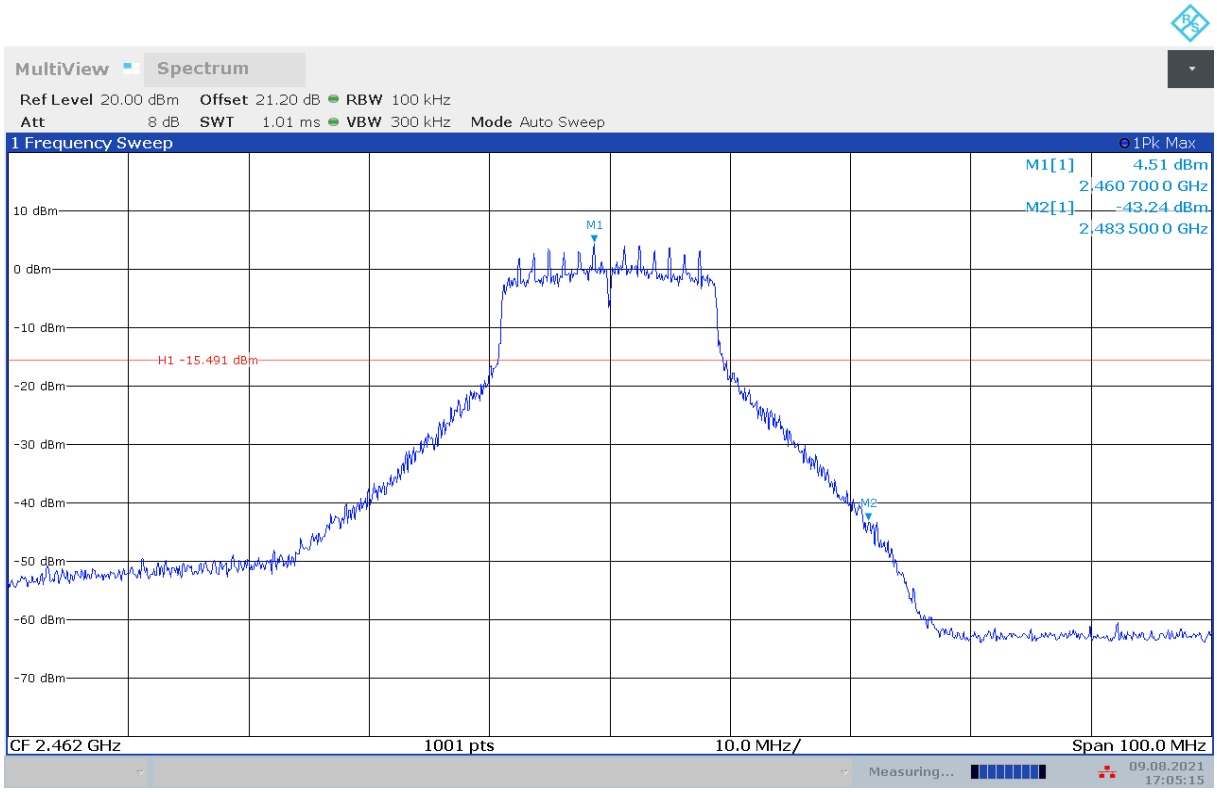


Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, Center Frequency)

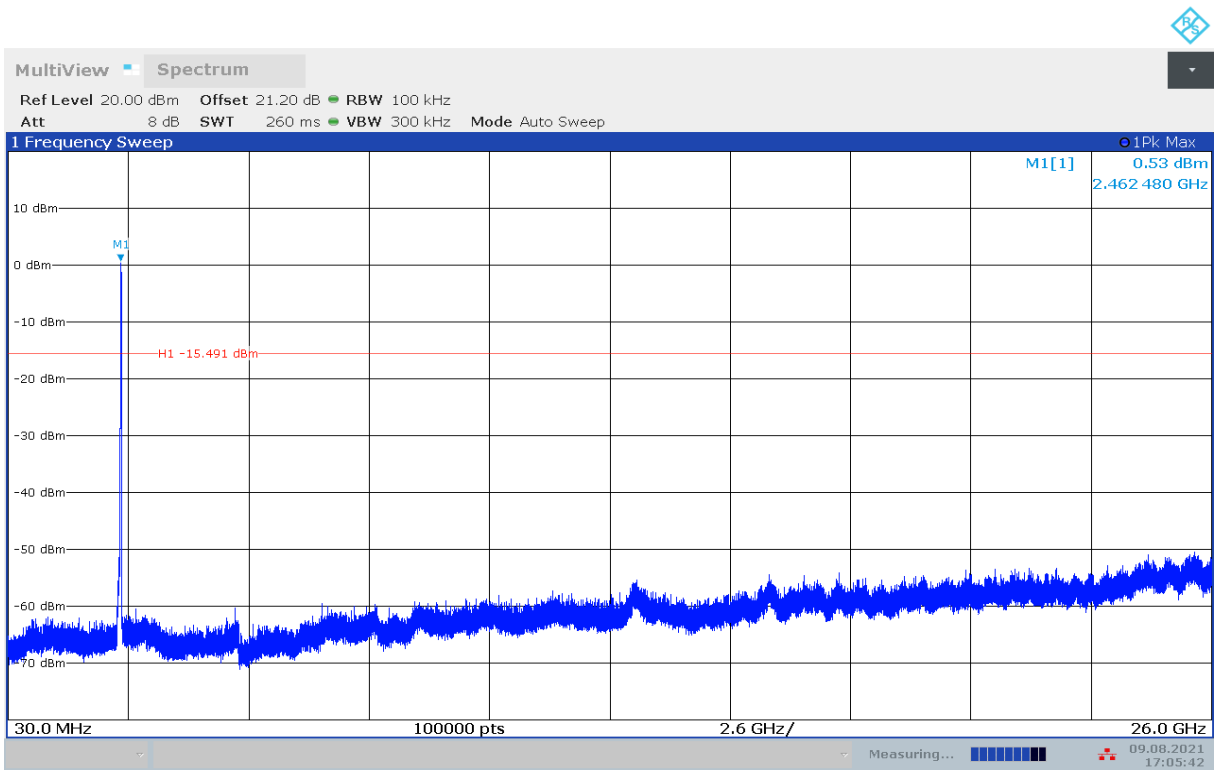


Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 30 MHz-26 GHz)

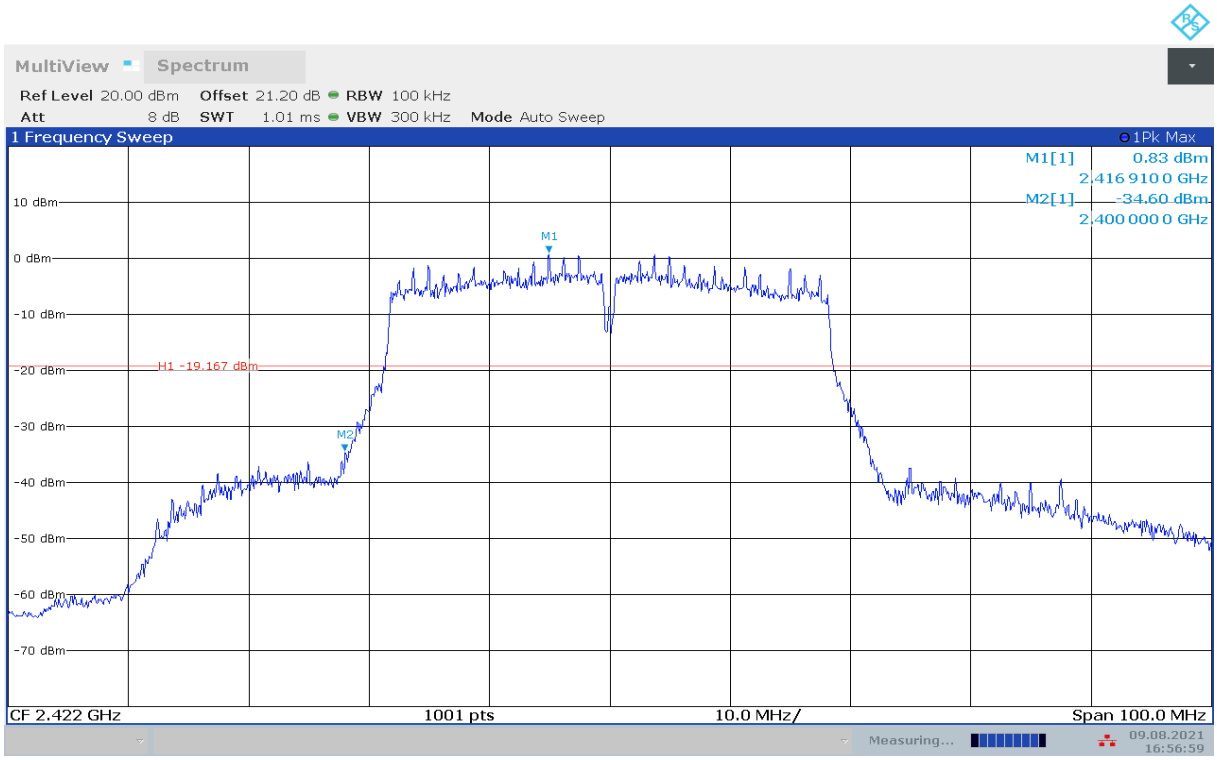


Fig.A.6.1.19 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, Center Frequency)

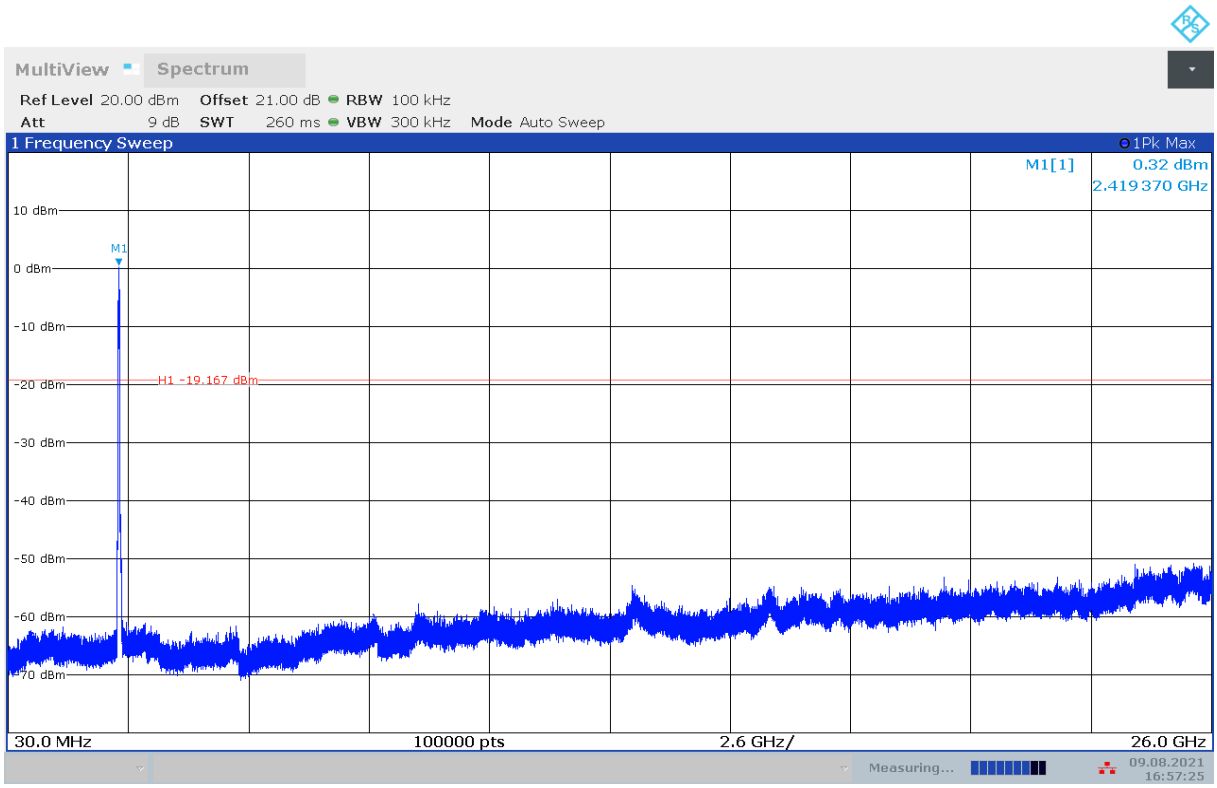


Fig.A.6.1.20 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 30 MHz-26 GHz)

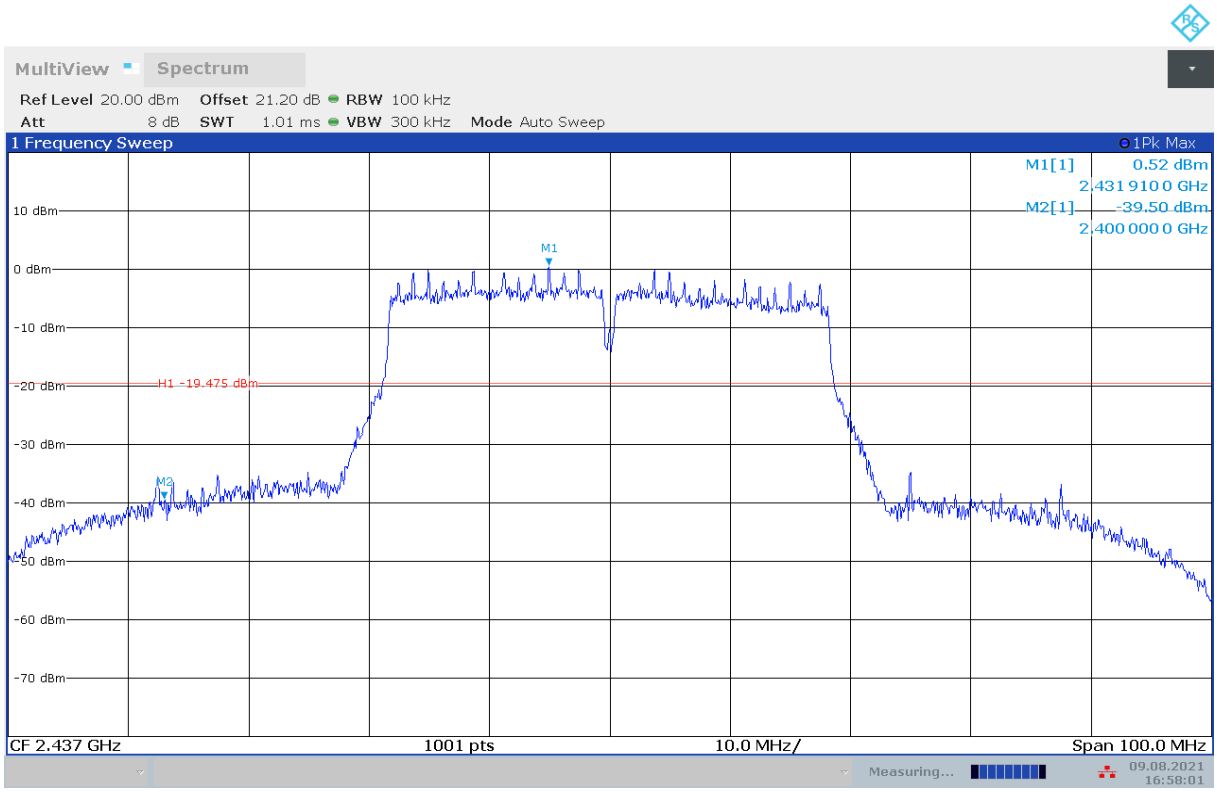


Fig.A.6.1.21 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, Center Frequency)

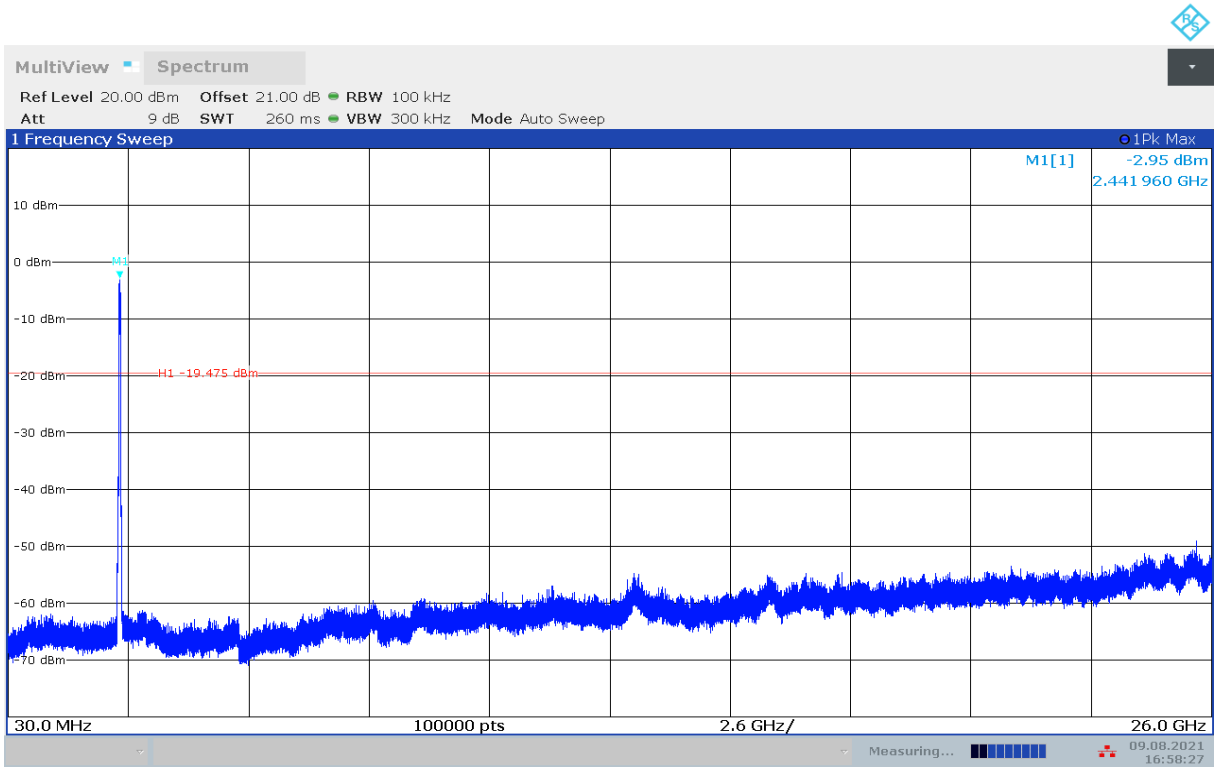


Fig.A.6.1.22 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 30 MHz-26 GHz)

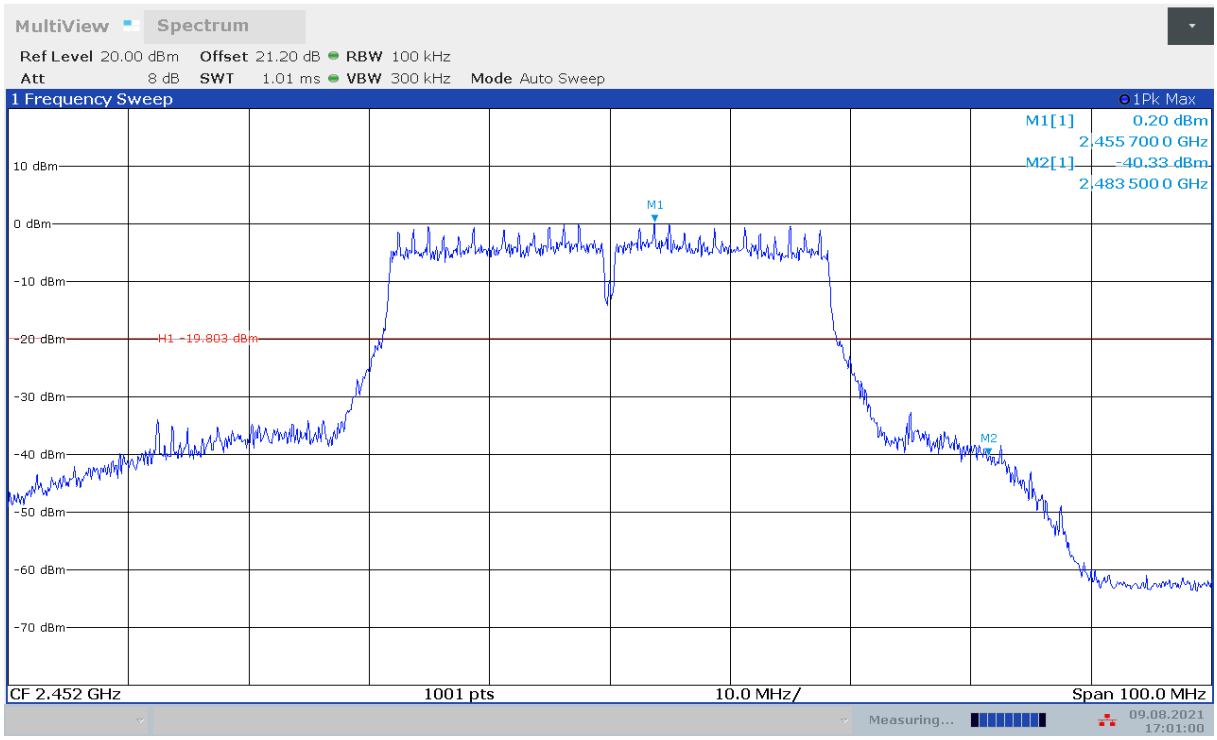


Fig.A.6.1.23 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)

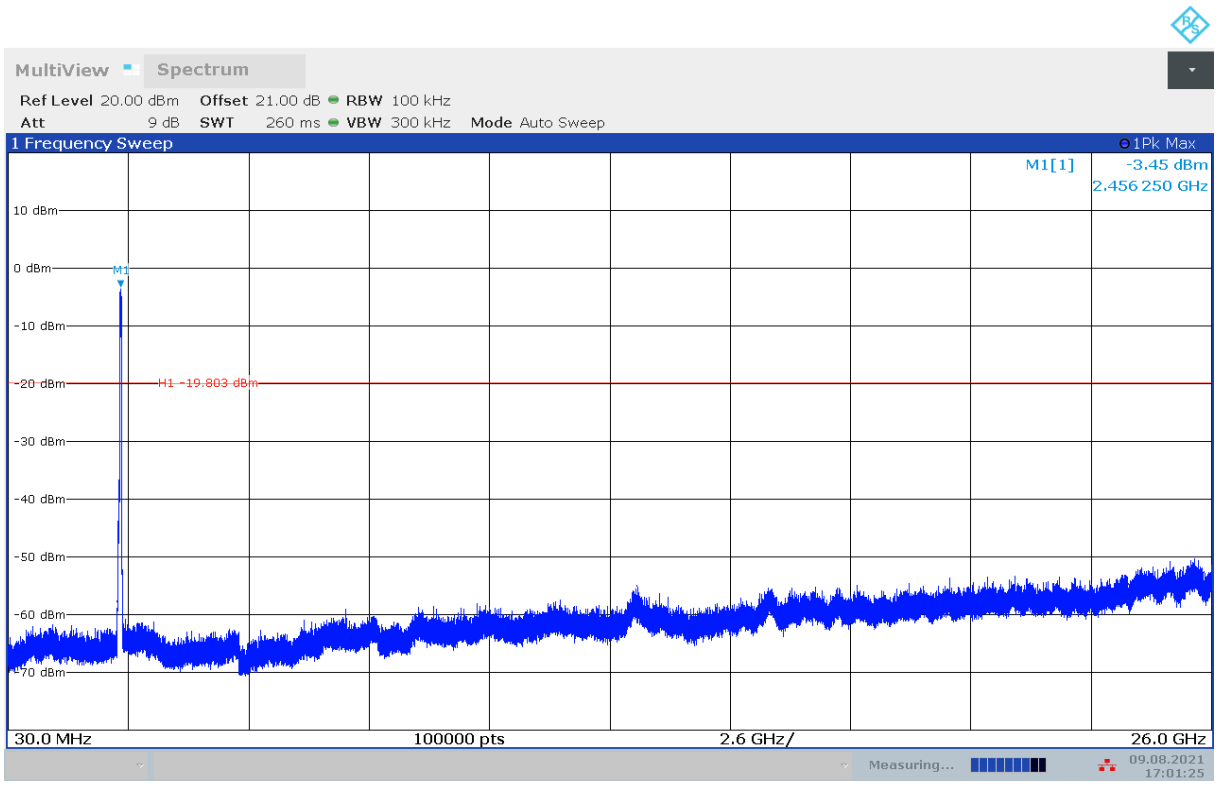


Fig.A.6.1.24 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-26 GHz)

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)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

EUT ID: EUT1

Measurement results:

Chain 1, Chain 2, MIMO

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**
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.4	**P**

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.31GHz~2.43GHz---L	Fig.A.6.2.5	**P**
	11	2.45GHz~2.50GHz---H	Fig.A.6.2.6	**P**

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.31GHz~2.43GHz---L	Fig.A.6.2.7	**P**
	9	2.45GHz~2.50GHz---H	Fig.A.6.2.8	**P**

Conclusion: Pass

Note1：All combinations were tested and only the worst results are shown in this report.

Note2:

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:

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

Worst cases,
802.11b, Chain 1
802.11g, 802.11n HT20, 802.11n HT40, MIMO

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)
2385.688	67.62	2.62	27.66	37.34	74.00	6.38	V
2388.015	66.04	2.62	27.66	35.76	74.00	7.96	V
4823.961	42.51	-37.83	32.06	48.28	74.00	31.49	H
7237.500	45.11	-36.90	35.78	46.23	74.00	28.89	V
9647.812	49.85	-35.74	37.80	47.79	74.00	24.15	H
12060.000	48.29	-34.44	39.06	43.67	74.00	25.71	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)
2374.125	38.59	2.62	27.65	8.32	74.00	35.41	V
2500.875	38.24	2.75	27.70	8.32	74.00	35.76	V
4874.062	42.75	-37.78	32.19	48.35	74.00	31.25	V
7311.094	42.24	-36.89	35.96	43.18	74.00	31.76	V
9747.656	50.90	-35.67	37.80	48.77	74.00	23.10	H
12185.156	48.34	-34.75	38.99	44.11	74.00	25.66	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)
2484.519	63.60	2.65	27.69	33.25	74.00	10.40	H
2486.594	66.00	2.67	27.70	35.64	74.00	8.00	V
4923.750	41.58	-38.13	32.31	47.40	74.00	32.42	V
7387.968	45.66	-36.75	36.14	46.27	74.00	28.34	V
9847.969	50.09	-35.61	37.80	47.91	74.00	23.91	H
12309.984	47.88	-34.70	38.91	43.66	74.00	26.12	H

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)
2384.358	64.33	2.62	27.66	34.05	74.00	9.67	V
2388.715	64.37	2.62	27.66	34.08	74.00	9.63	V
4823.906	40.80	-37.83	32.06	46.58	74.00	33.20	V
7236.094	43.04	-36.90	35.78	44.17	74.00	30.96	V
9647.812	50.89	-35.74	37.80	48.83	74.00	23.11	V
12060.000	47.02	-34.44	39.06	42.40	74.00	26.98	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)
2369.375	37.66	2.62	27.65	8.32	74.00	36.34	V
2500.500	38.76	2.75	27.70	8.32	74.00	35.24	H
4874.062	39.85	-37.78	32.19	45.44	74.00	34.15	H
7311.094	41.23	-36.89	35.96	42.17	74.00	32.77	V
9748.125	50.08	-35.67	37.80	47.95	74.00	23.92	V
12185.156	46.85	-34.75	38.99	42.62	74.00	27.15	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)
2483.894	67.33	2.65	27.69	36.99	74.00	6.67	H
2485.600	63.89	2.66	27.69	33.53	74.00	10.11	V
4924.219	39.78	-38.14	32.31	45.60	74.00	34.22	H
7386.094	42.88	-36.76	36.13	43.50	74.00	31.12	H
9848.438	50.64	-35.61	37.80	48.45	74.00	23.36	V
12309.844	47.09	-34.70	38.91	42.87	74.00	26.91	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)
2388.242	65.56	2.62	27.66	35.28	74.00	8.44	H
2389.537	66.02	2.62	27.66	35.74	74.00	7.98	H
4822.500	41.49	-37.82	32.05	47.26	74.00	32.51	V
7245.469	44.85	-36.89	35.80	45.94	74.00	29.15	V
9647.812	50.10	-35.74	37.80	48.03	74.00	23.90	V
12060.000	48.05	-34.44	39.06	43.43	74.00	25.95	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)
2370.375	38.64	2.62	27.65	8.32	74.00	35.36	V
2500.750	39.02	2.75	27.70	8.32	74.00	34.98	V
4874.062	40.66	-37.78	32.19	46.26	74.00	33.34	V
7311.094	43.54	-36.89	35.96	44.48	74.00	30.46	H
9747.656	50.42	-35.67	37.80	48.29	74.00	23.58	V
12185.156	47.68	-34.75	38.99	43.44	74.00	26.32	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)
2485.750	63.37	2.66	27.69	33.02	74.00	10.63	V
2486.350	61.84	2.67	27.70	31.48	74.00	12.16	H
4924.219	40.55	-38.14	32.31	46.38	74.00	33.45	V
7386.094	42.18	-36.76	36.13	42.81	74.00	31.82	H
9847.969	50.52	-35.61	37.80	48.33	74.00	23.48	H
12309.844	47.61	-34.70	38.91	43.40	74.00	26.39	V

802.11n-HT40

Ch3

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)
2388.557	65.41	2.62	27.66	35.13	74.00	8.59	V
2388.628	65.30	2.62	27.66	35.02	74.00	8.70	V
4844.062	39.16	-37.86	32.11	44.91	74.00	34.84	H
7266.094	42.87	-36.86	35.85	43.88	74.00	31.13	V
9688.125	50.00	-35.70	37.80	47.90	74.00	24.00	H
12110.156	47.38	-34.43	39.03	42.78	74.00	26.62	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)
2376.125	40.12	2.62	27.65	8.32	74.00	33.88	H
2499.250	38.60	2.75	27.70	8.32	74.00	35.40	V
4874.062	38.48	-37.78	32.19	44.08	74.00	35.52	H
7311.094	42.50	-36.89	35.96	43.44	74.00	31.50	H
9747.656	49.96	-35.67	37.80	47.83	74.00	24.04	V
12185.156	47.12	-34.75	38.99	42.88	74.00	26.88	V

Ch9

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)
2484.519	62.58	2.65	27.69	32.23	74.00	11.42	V
2486.144	61.07	2.66	27.70	30.71	74.00	12.93	V
4904.062	40.88	-37.94	32.26	46.55	74.00	33.12	V
7356.094	42.03	-36.89	36.06	42.85	74.00	31.97	H
9809.125	51.04	-35.66	37.80	48.90	74.00	22.96	V
12260.156	47.76	-34.75	38.94	43.57	74.00	26.24	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)
2388.700	45.68	2.62	27.66	15.40	54.00	8.32	H
2390.000	45.53	2.62	27.66	15.25	54.00	8.47	H
4823.750	36.30	-37.83	32.06	42.08	54.00	17.70	H
7236.250	31.67	-36.90	35.78	32.79	54.00	22.33	V
9648.125	45.19	-35.74	37.80	43.12	54.00	8.81	V
1206.000	36.48	1.88	24.04	10.55	54.00	17.52	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)
2416.850	46.02	2.63	27.67	15.72	54.00	7.98	H
2455.375	46.45	2.61	27.68	16.15	54.00	7.55	H
4873.750	34.81	-37.78	32.18	40.41	54.00	19.19	H
7311.250	31.70	-36.89	35.96	32.64	54.00	22.30	H
9748.125	43.80	-35.67	37.80	41.67	54.00	10.20	V
12785.000	36.74	-34.45	39.03	32.16	54.00	17.26	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	45.74	2.64	27.69	15.41	54.00	8.26	H
2485.100	45.53	2.66	27.69	15.18	54.00	8.47	H
4923.750	33.93	-38.13	32.31	39.75	54.00	20.07	H
7388.125	32.44	-36.75	36.14	33.05	54.00	21.56	H
9848.125	43.69	-35.61	37.80	41.51	54.00	10.31	H
12310.000	36.68	-34.70	38.91	32.46	54.00	17.32	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)
2388.425	48.85	2.62	27.66	18.56	54.00	5.15	H
2388.925	49.10	2.62	27.66	18.82	54.00	4.90	H
4823.750	29.45	-37.83	32.06	35.23	54.00	24.55	V
7236.250	31.98	-36.90	35.78	33.11	54.00	22.02	H
9648.125	45.17	-35.74	37.80	43.11	54.00	8.83	V
12060.000	36.32	-34.44	39.06	31.70	54.00	17.68	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)
2414.625	47.23	2.63	27.67	16.93	54.00	6.78	H
2456.750	47.30	2.61	27.68	17.01	54.00	6.70	H
4873.750	29.46	-37.78	32.18	35.06	54.00	24.54	H
7311.250	31.67	-36.89	35.96	32.61	54.00	22.33	H
9748.125	44.31	-35.67	37.80	42.18	54.00	9.69	V
12185.000	36.63	-34.75	38.99	32.40	54.00	17.37	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	47.25	2.64	27.69	16.91	54.00	6.75	H
2483.537	47.11	2.64	27.69	16.77	54.00	6.89	H
4923.750	29.06	-38.13	32.31	34.88	54.00	24.94	V
7386.250	32.38	-36.76	36.13	33.00	54.00	21.62	V
9848.125	45.92	-35.61	37.80	43.73	54.00	8.08	H
12310.000	36.53	-34.70	38.91	32.31	54.00	17.47	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)
2389.925	50.09	2.62	27.66	19.80	54.00	3.91	H
2390.000	49.98	2.62	27.66	19.70	54.00	4.02	H
4824.375	29.05	-37.83	32.06	34.82	54.00	24.95	H
7236.250	31.64	-36.90	35.78	32.77	54.00	22.36	H
9648.125	44.43	-35.74	37.80	42.36	54.00	9.57	V
12060.000	36.34	-34.44	39.06	31.72	54.00	17.66	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)
2415.200	47.57	2.63	27.67	17.28	54.00	6.43	H
2456.800	47.07	2.61	27.68	16.78	54.00	6.93	H
4877.500	29.42	-37.77	32.19	35.00	54.00	24.58	V
7311.250	31.75	-36.89	35.96	32.69	54.00	22.25	V
9748.125	45.45	-35.67	37.80	43.32	54.00	8.55	V
12185.000	36.67	-34.75	38.99	32.44	54.00	17.33	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)
2483.500	48.11	2.64	27.69	17.77	54.00	5.89	H
2484.600	47.02	2.65	27.69	16.67	54.00	6.98	H
4924.375	28.87	-38.14	32.31	34.70	54.00	25.13	V
7386.250	32.46	-36.76	36.13	33.09	54.00	21.54	H
9848.125	44.80	-35.61	37.80	42.61	54.00	9.20	H
12310.000	36.43	-34.70	38.91	32.21	54.00	17.57	V

802.11n-HT40

Ch3

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)
2389.150	51.64	2.62	27.66	21.36	54.00	2.36	H
2389.600	51.76	2.62	27.66	21.48	54.00	2.24	H
4843.750	28.50	-37.86	32.11	34.25	54.00	25.50	V
7266.250	31.70	-36.86	35.85	32.71	54.00	22.30	V
9688.125	44.67	-35.70	37.80	42.57	54.00	9.33	V
12110.000	36.16	-34.43	39.03	31.56	54.00	17.84	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)
2405.875	50.37	2.63	27.67	20.08	54.00	3.63	H
2474.850	48.58	2.58	27.69	18.31	54.00	5.42	H
4873.750	29.38	-37.78	32.18	34.98	54.00	24.62	H
7311.250	31.91	-36.89	35.96	32.85	54.00	22.09	V
9748.125	45.43	-35.67	37.80	43.30	54.00	8.57	H
12185.000	36.62	-34.75	38.99	32.38	54.00	17.38	H

Ch9

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	47.27	2.64	27.69	16.93	54.00	6.73	H
2484.125	47.02	2.65	27.69	16.68	54.00	6.98	H
4903.750	29.01	-37.94	32.26	34.69	54.00	24.99	H
7356.250	32.09	-36.89	36.06	32.92	54.00	21.91	V
9808.125	45.64	-35.66	37.80	43.50	54.00	8.36	V
12260.000	36.91	-34.75	38.94	32.72	54.00	17.09	V

Test graphs as below:

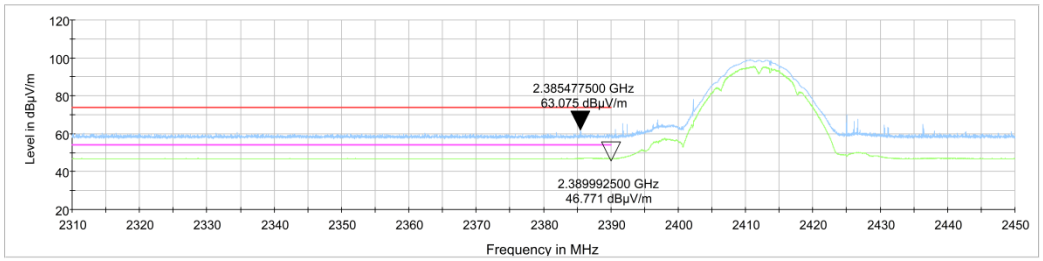


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.45GHz

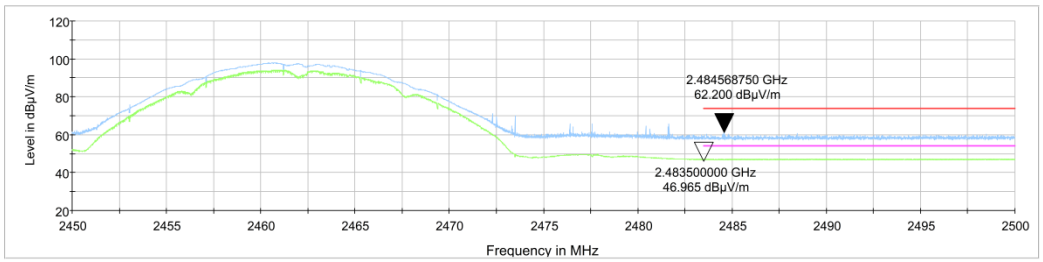


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

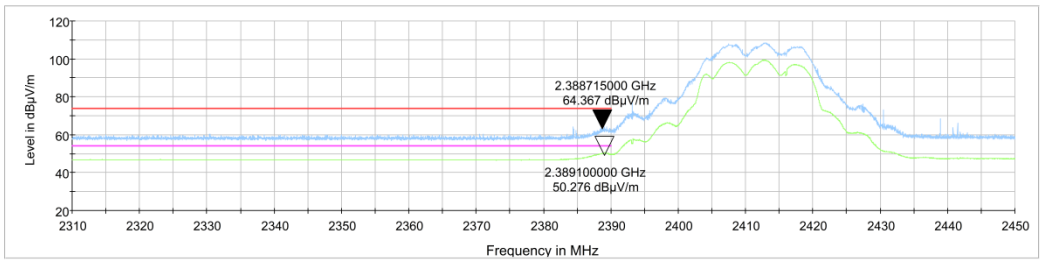


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz

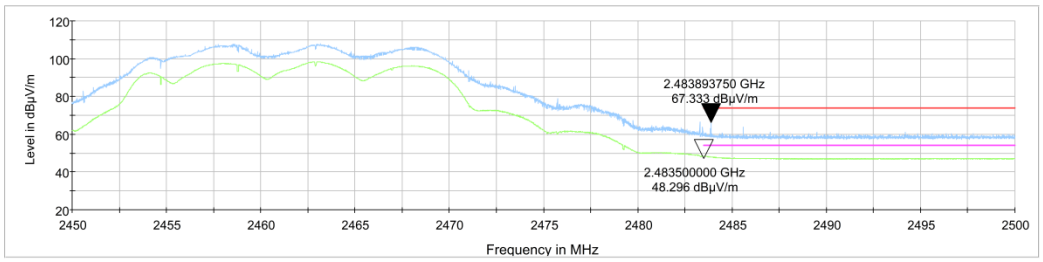


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

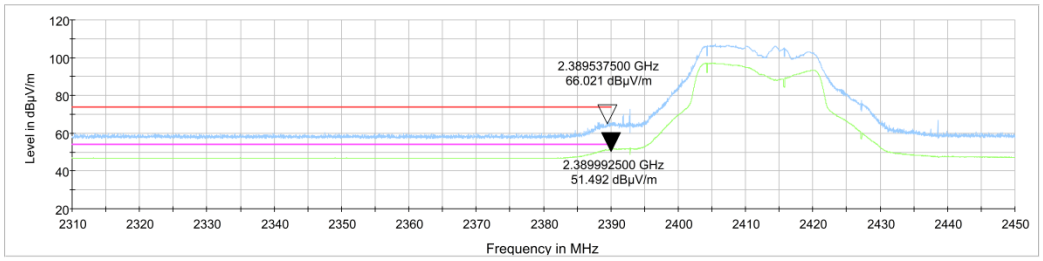


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

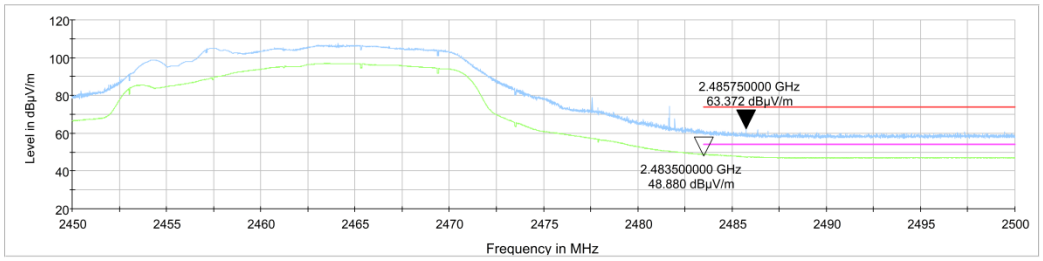


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

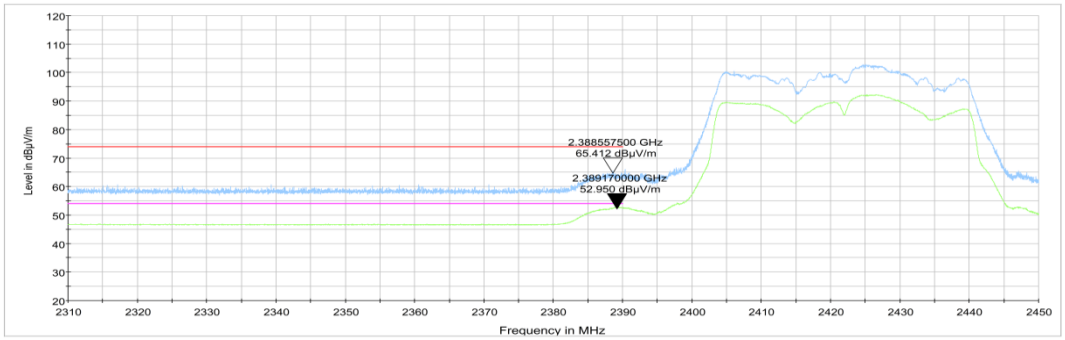


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.45GHz

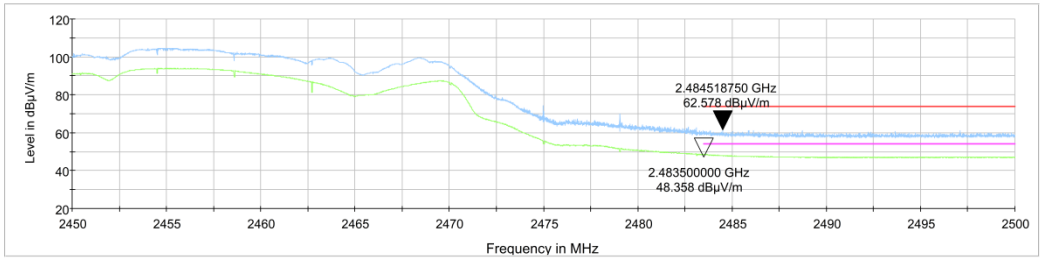


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

A.7. AC Power-line Conducted Emission

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

1 The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.

2 If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.

3 The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.

4 If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

5 If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.36 Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		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 (dBμV)	Result (dBμV)		Conclusion
		With charger		
		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:

Measurement results:

Result for Traffic:

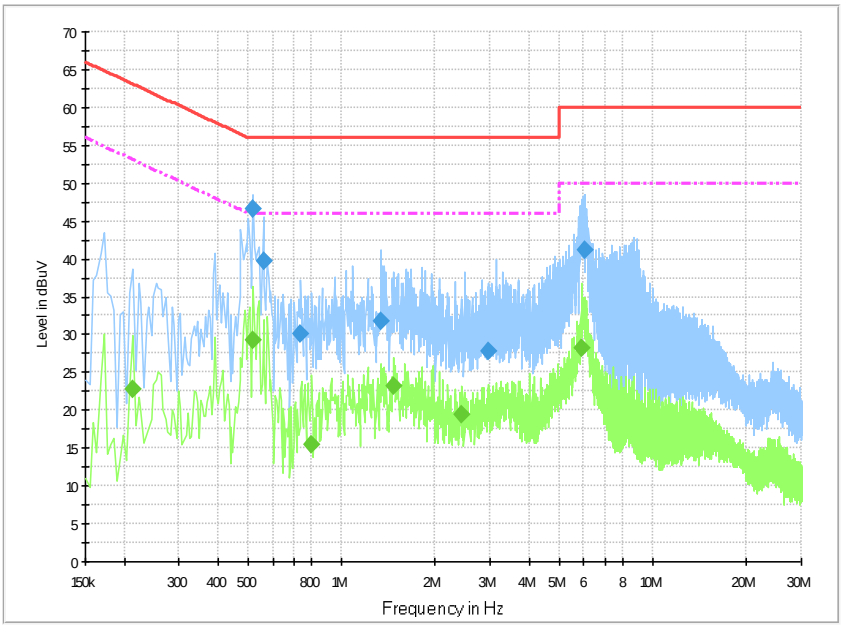


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.519000	46.6	5000.0	9.000	On	L1	19.8	9.4	56.0
0.559500	39.7	5000.0	9.000	On	N	19.8	16.3	56.0
0.739500	30.2	5000.0	9.000	On	N	19.7	25.8	56.0
1.333500	31.8	5000.0	9.000	On	N	19.6	24.2	56.0
2.971500	27.7	5000.0	9.000	On	N	19.6	28.3	56.0
6.054000	41.1	5000.0	9.000	On	N	19.6	18.9	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.213000	22.8	5000.0	9.000	On	L1	19.7	30.3	53.1
0.519000	29.3	5000.0	9.000	On	L1	19.8	16.7	46.0
0.802500	15.4	5000.0	9.000	On	N	19.7	30.6	46.0
1.468500	23.1	5000.0	9.000	On	N	19.6	22.9	46.0
2.440500	19.5	5000.0	9.000	On	L1	19.7	26.5	46.0
5.937000	28.3	5000.0	9.000	On	N	19.7	21.7	50.0

Note2: The measurement results showed here are worst cases.

Measurement results:

Result for Idle:

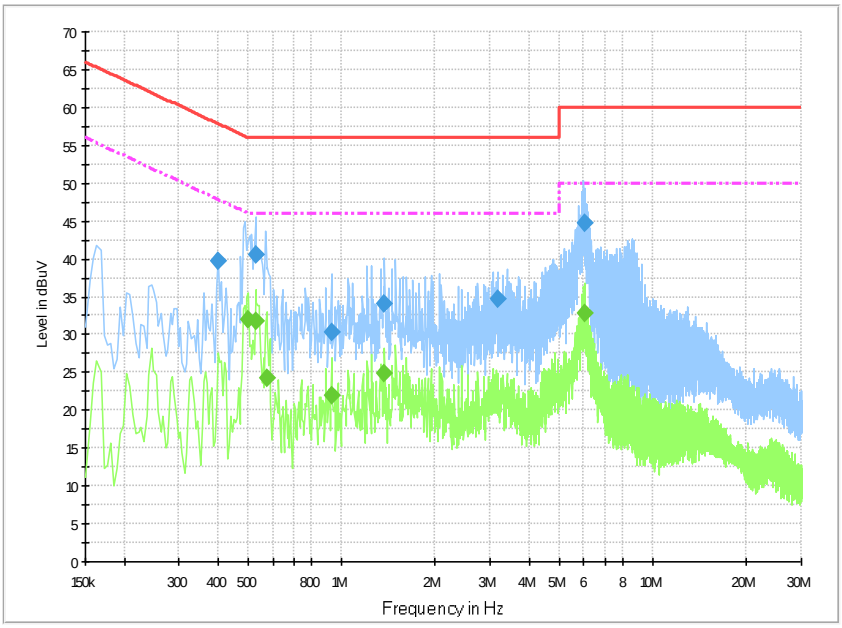


Fig.A.7.2 AC Powerline Conducted Emission-Idle

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.402000	39.6	5000.0	9.000	On	L1	19.8	18.2	57.8
0.528000	40.5	5000.0	9.000	On	N	19.8	15.5	56.0
0.928500	30.4	5000.0	9.000	On	N	19.7	25.6	56.0
1.374000	34.0	5000.0	9.000	On	N	19.6	22.0	56.0
3.183000	34.6	5000.0	9.000	On	L1	19.7	21.4	56.0
6.045000	44.7	5000.0	9.000	On	L1	19.6	15.3	60.0

Final Result 2

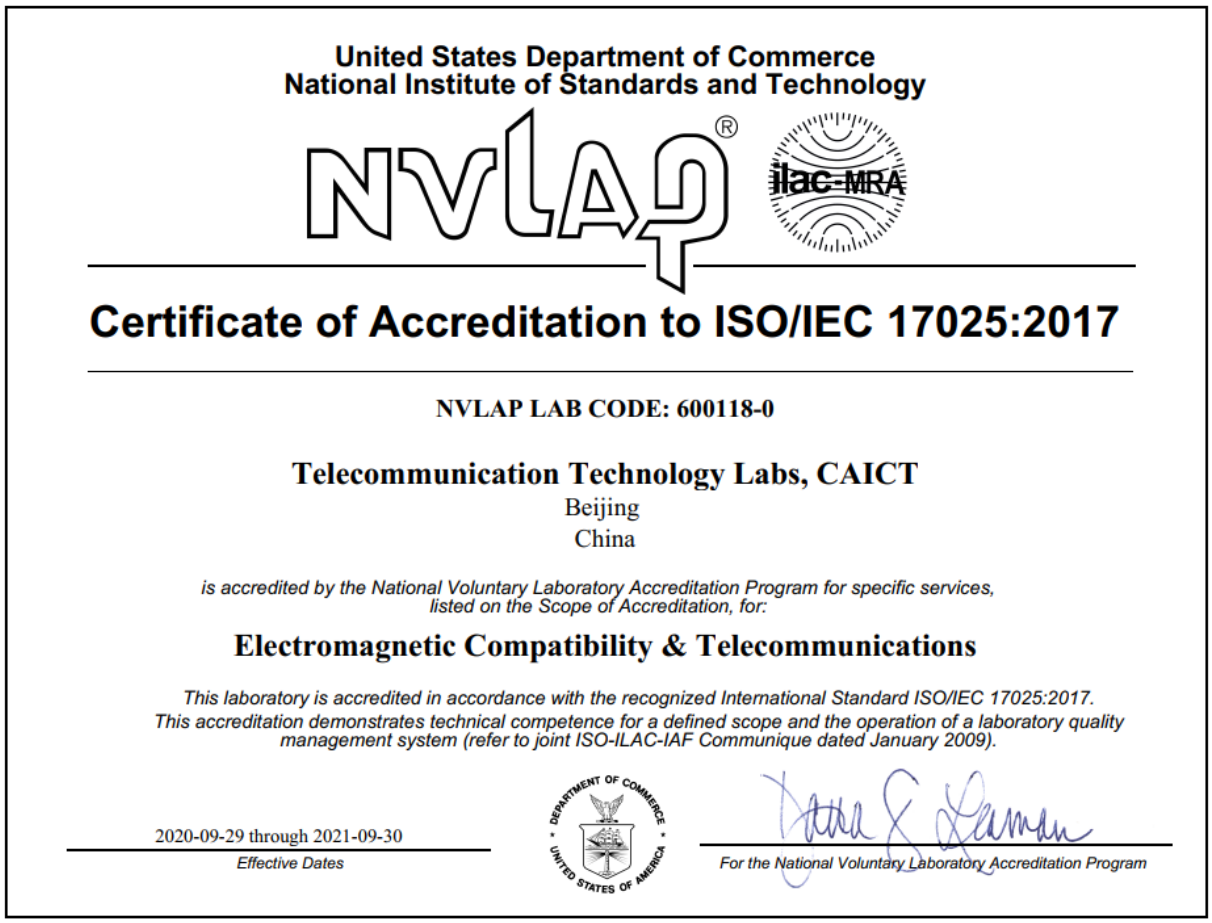
Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.501000	31.9	5000.0	9.000	On	N	19.8	14.1	46.0
0.528000	31.9	5000.0	9.000	On	N	19.8	14.1	46.0
0.573000	24.3	5000.0	9.000	On	L1	19.8	21.7	46.0
0.928500	21.9	5000.0	9.000	On	N	19.7	24.1	46.0
1.374000	24.9	5000.0	9.000	On	N	19.6	21.1	46.0
6.045000	32.8	5000.0	9.000	On	L1	19.6	17.2	50.0

Note2: The measurement results showed here are worst cases.

ANNEX B: EUT parameters

Disclaimer: The 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
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Telecommunication Technology Labs, CAICT
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China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

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).

2020-09-29 through 2021-09-30
Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Voluntary Laboratory Accreditation Program

END OF REPORT