

Fig.A.6.1.79 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 15 GHz-20 GHz)

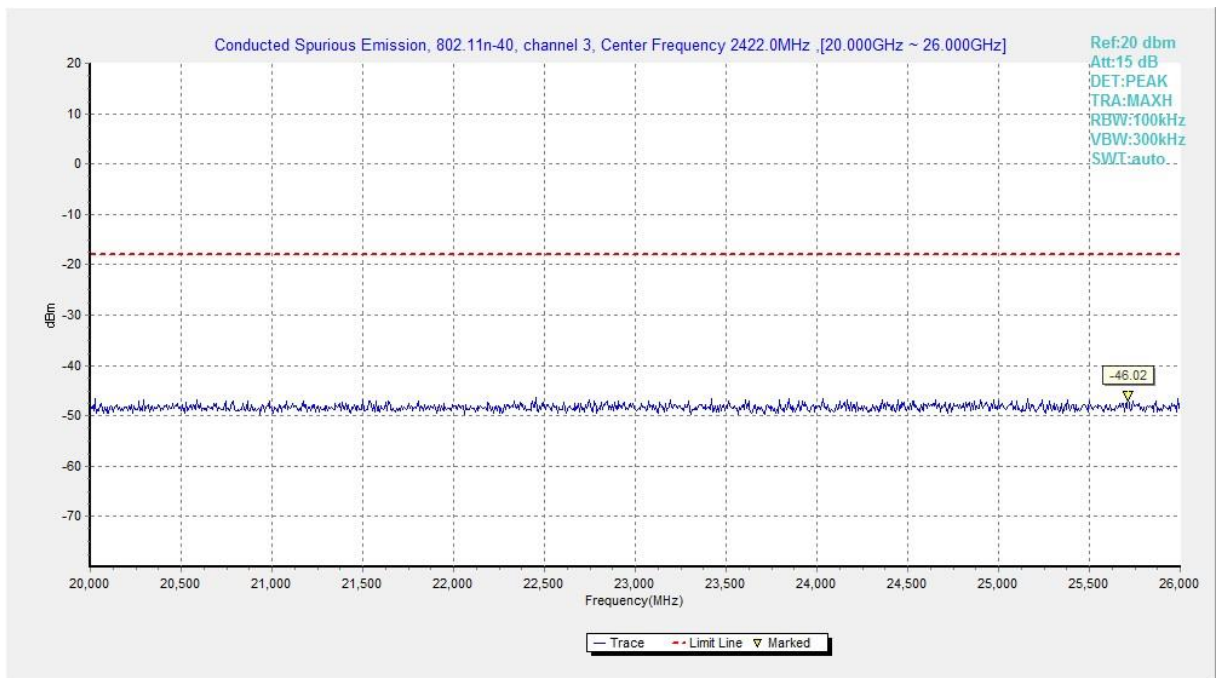


Fig.A.6.1.80 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 20 GHz-26 GHz)

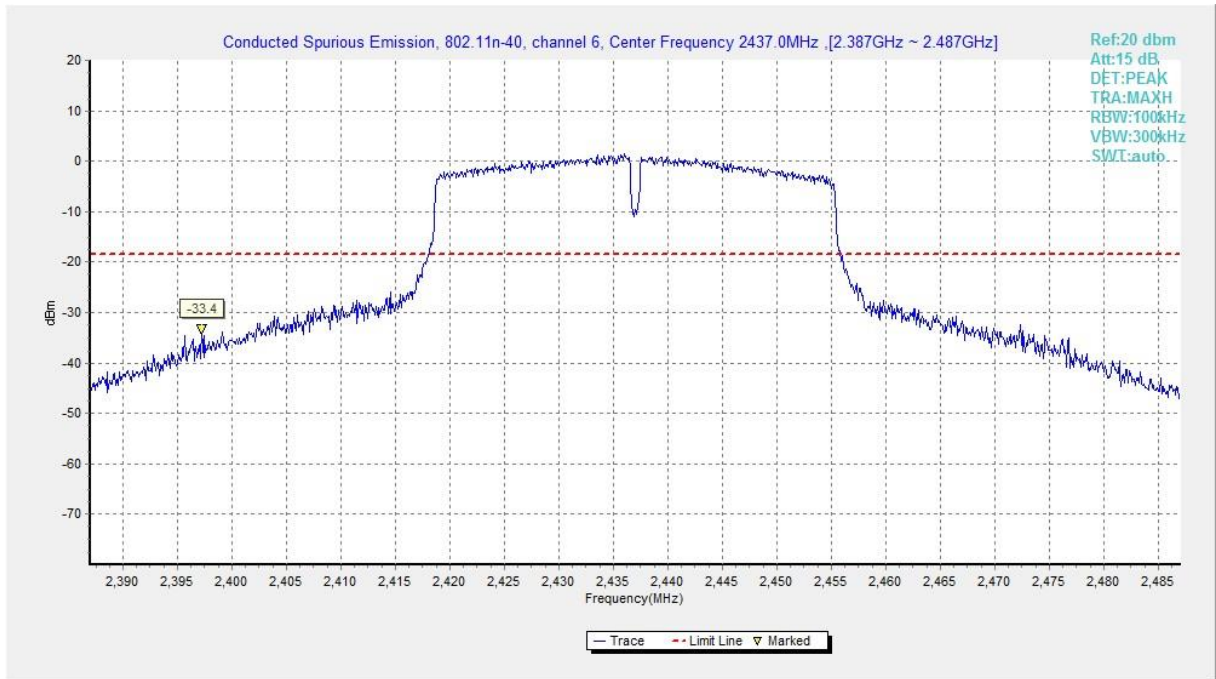


Fig.A.6.1.81 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, Center Frequency)

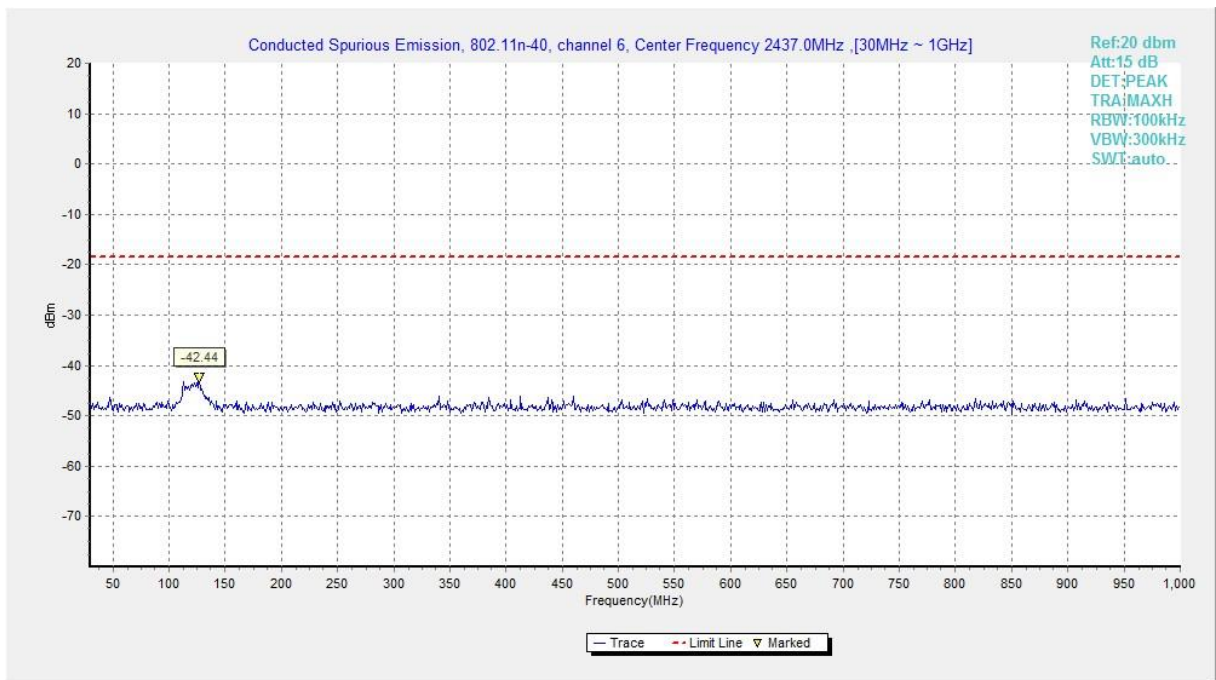


Fig.A.6.1.82 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 30 MHz-1 GHz)

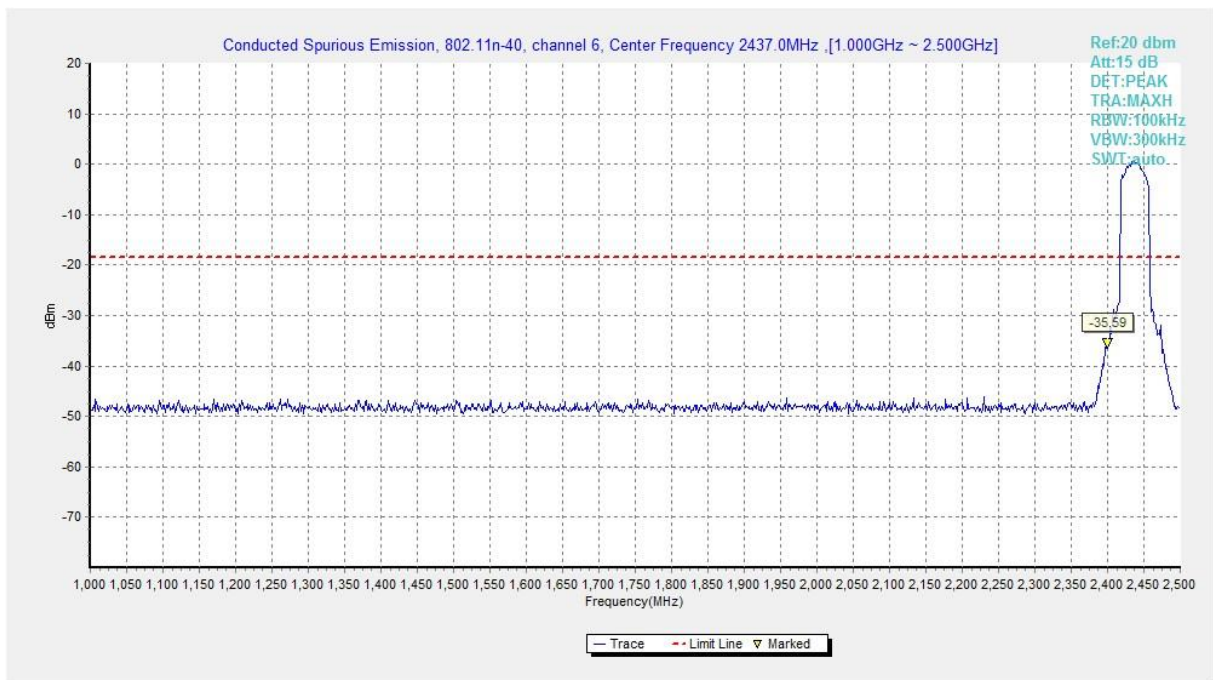


Fig.A.6.1.83 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 1 GHz-2.5 GHz)

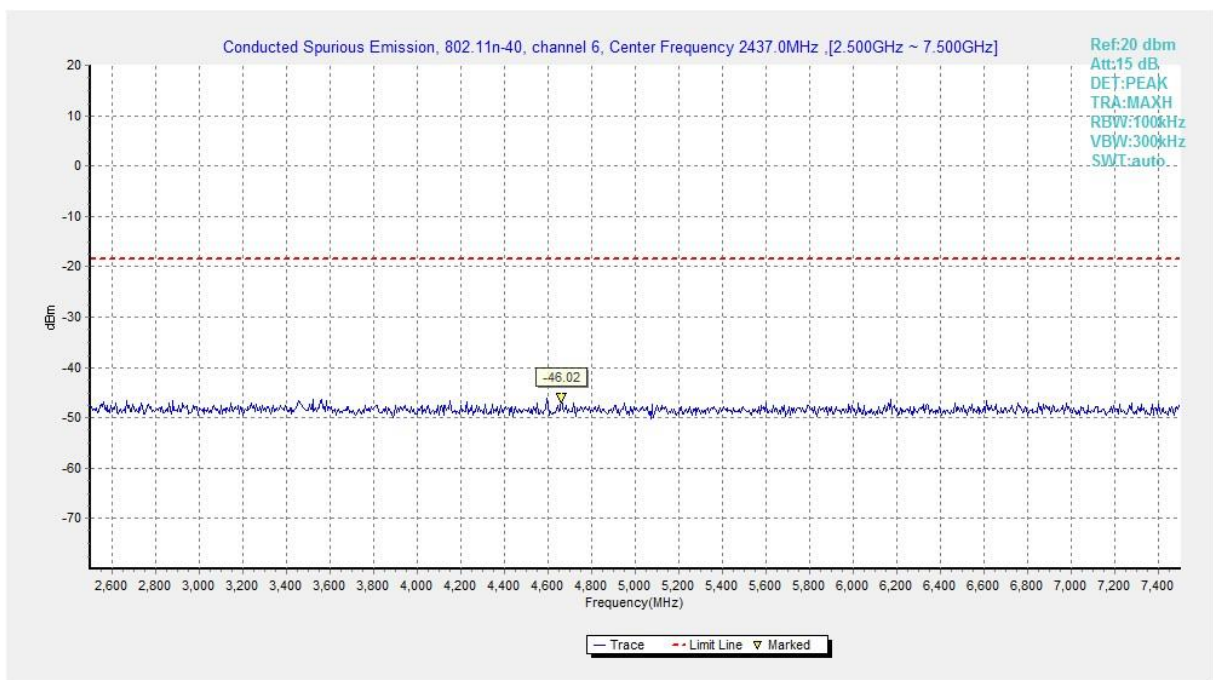


Fig.A.6.1.84 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)

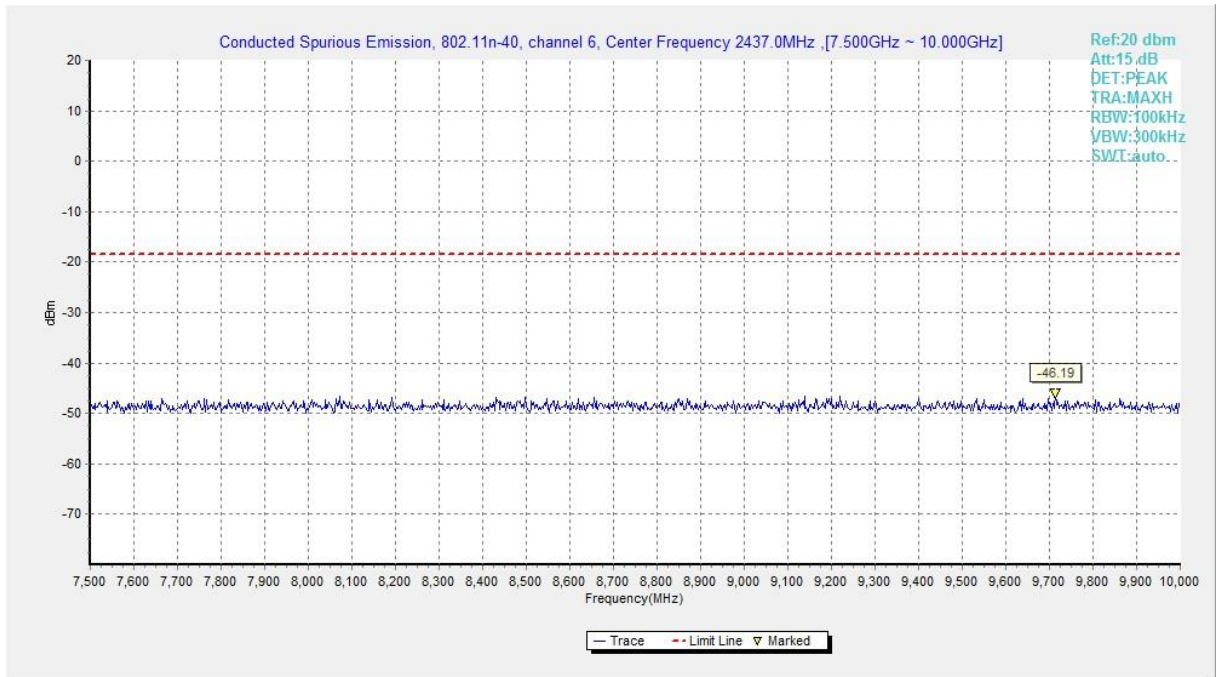


Fig.A.6.1.85 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)

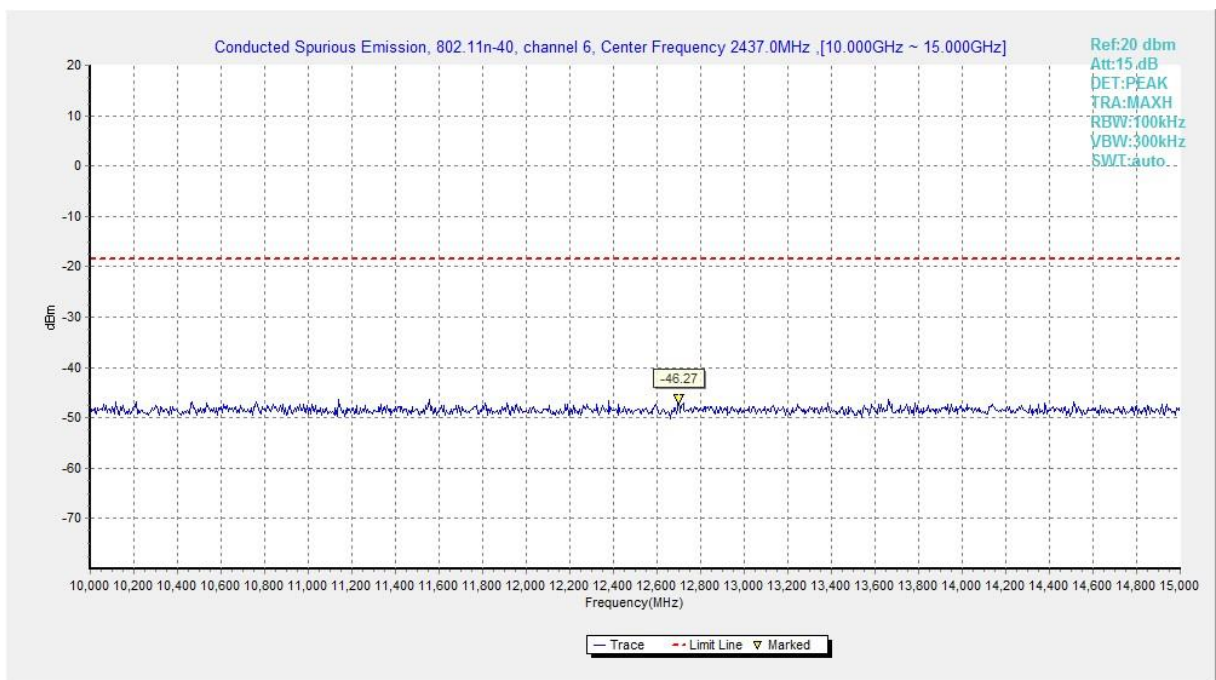


Fig.A.6.1.86 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 10 GHz-15 GHz)

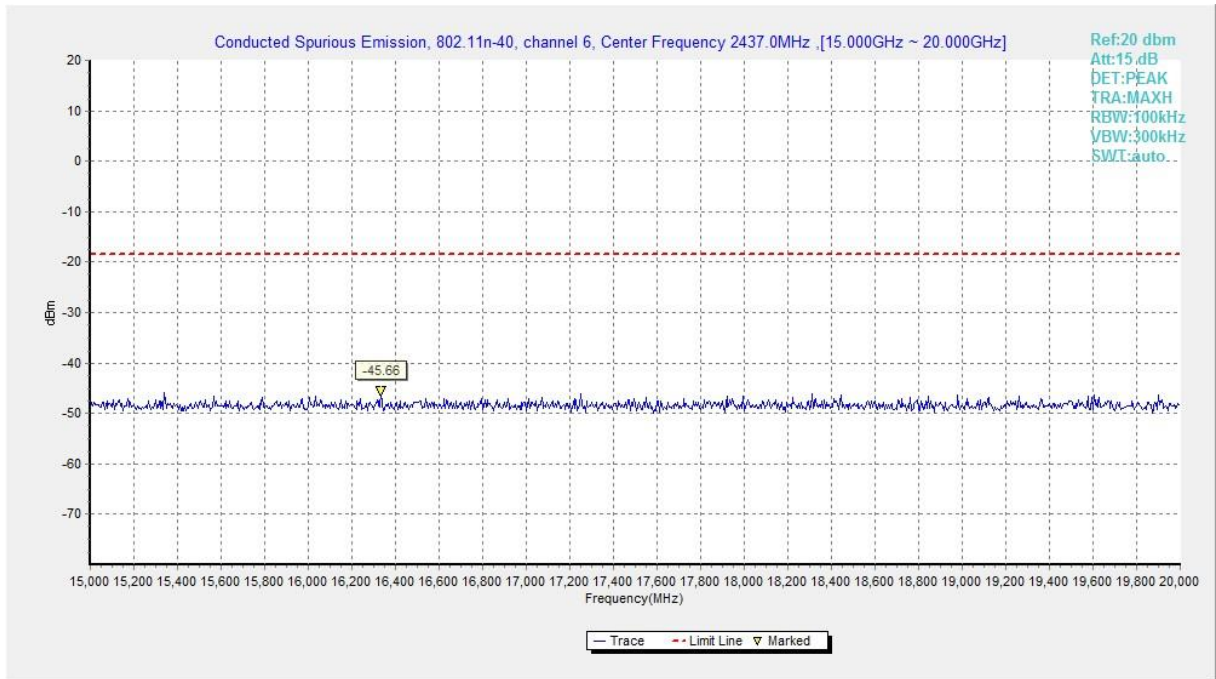


Fig.A.6.1.87 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 15 GHz-20 GHz)

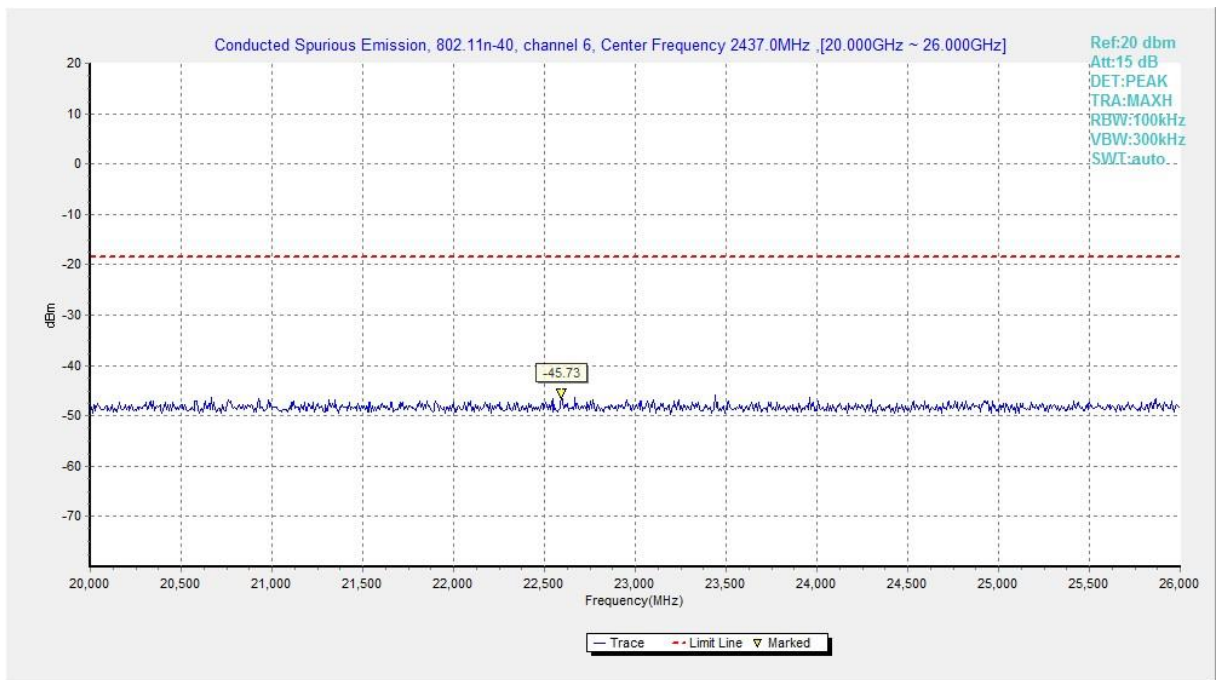


Fig.A.6.1.88 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 20 GHz-26 GHz)

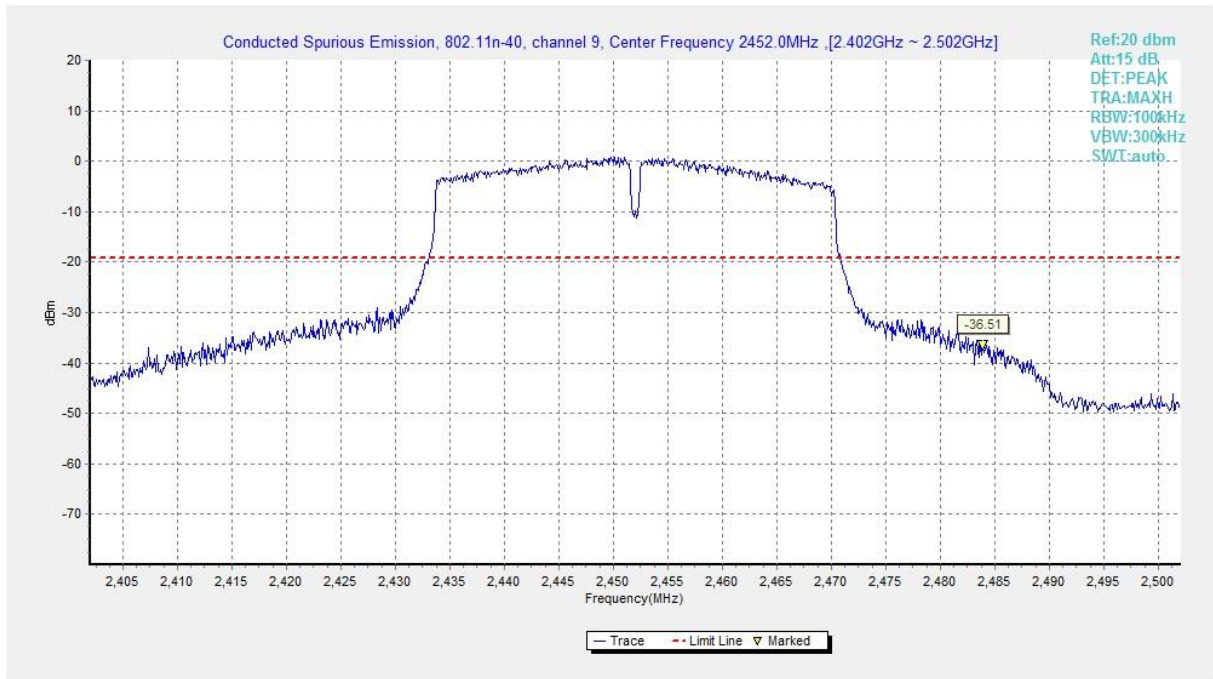


Fig.A.6.1.89 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)

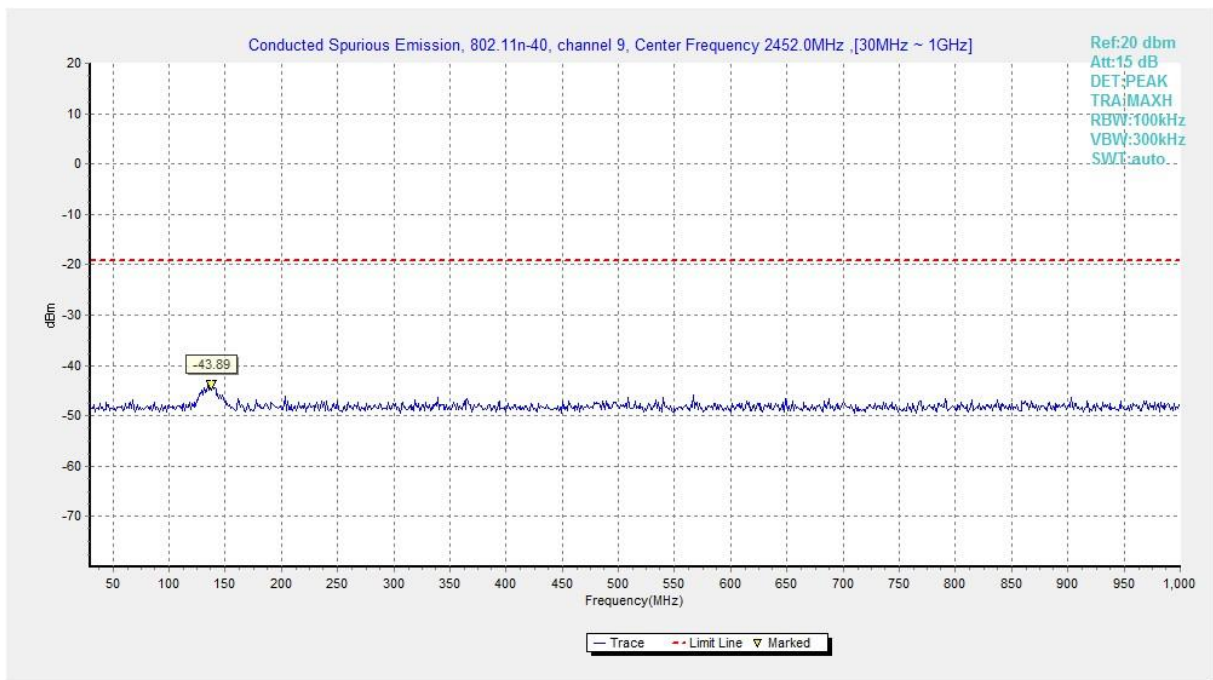


Fig.A.6.1.90 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-1 GHz)

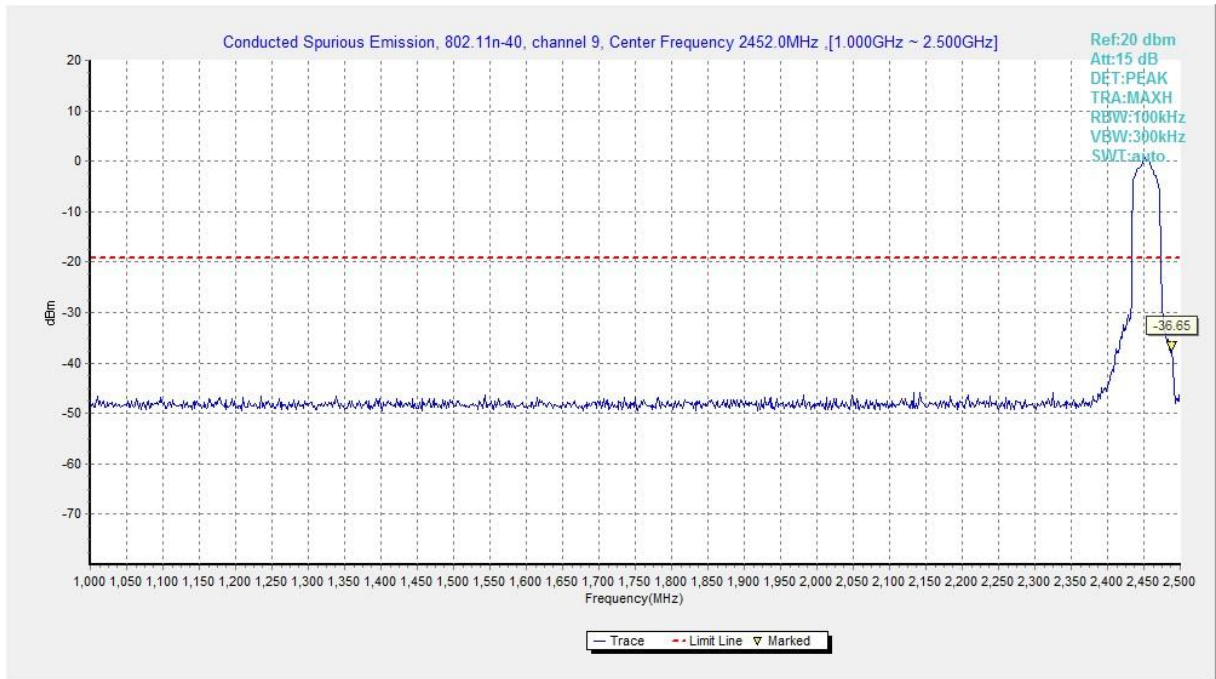


Fig.A.6.1.91 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)

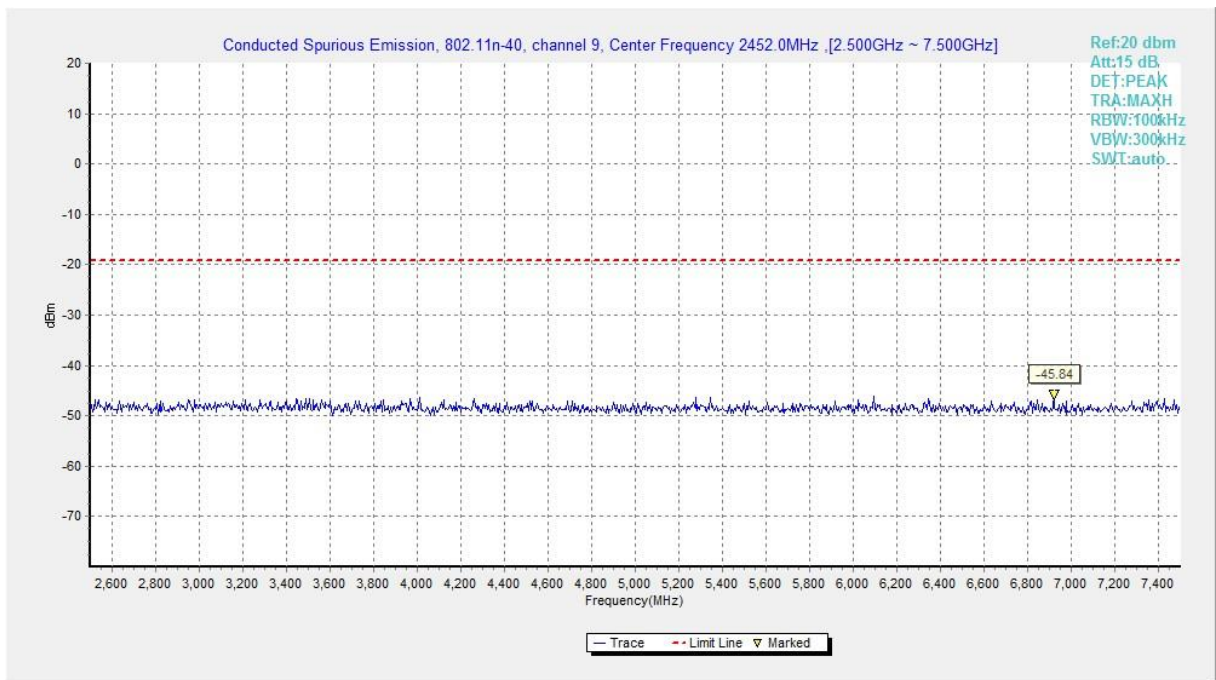


Fig.A.6.1.92 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)

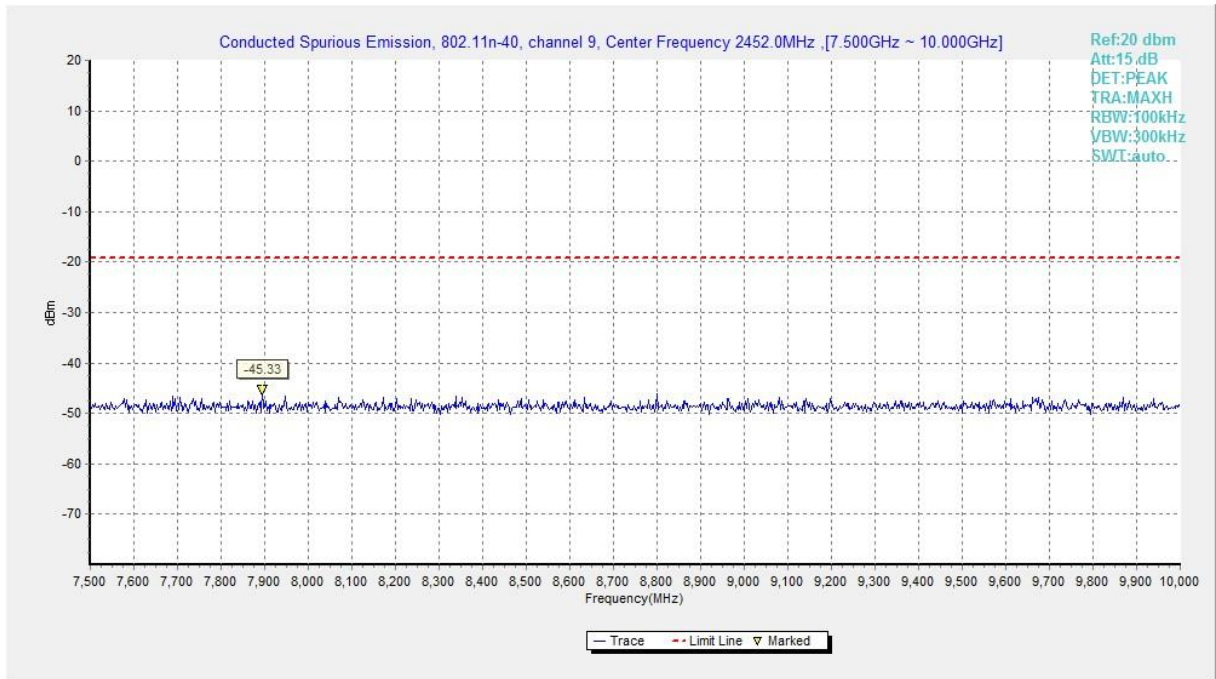


Fig.A.6.1.93 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)

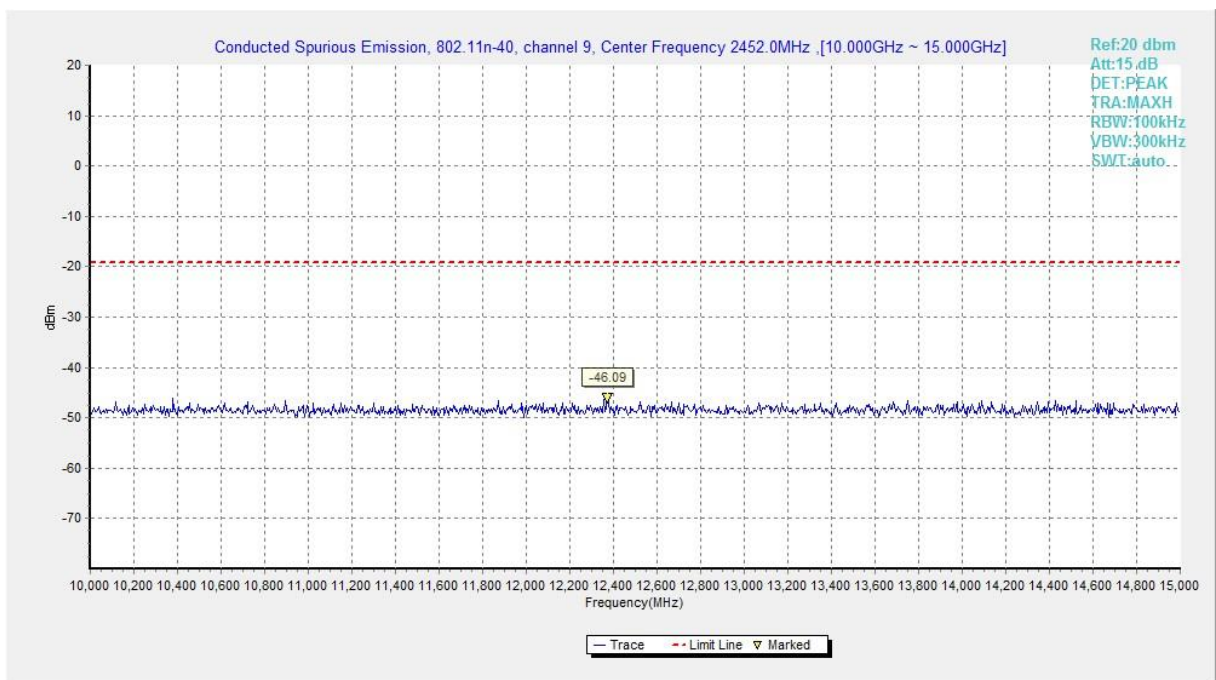


Fig.A.6.1.94 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 10 GHz-15 GHz)

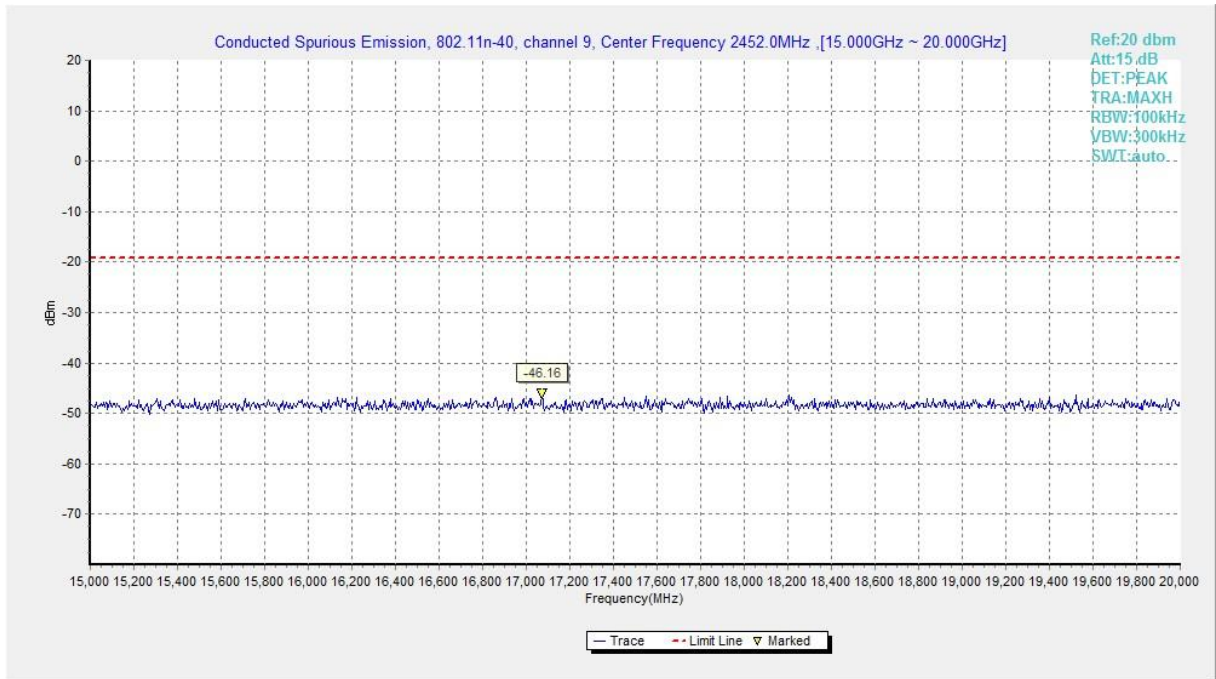


Fig.A.6.1.95 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 15 GHz-20 GHz)

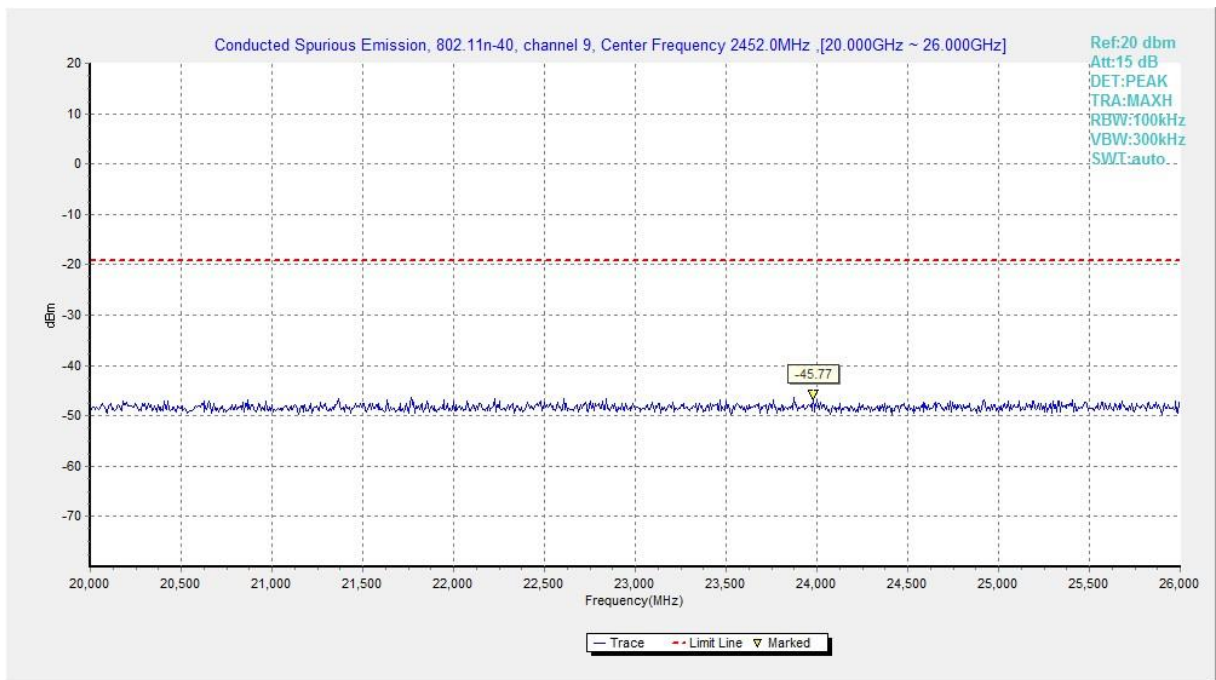


Fig.A.6.1.96 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 20 GHz-26 GHz)

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(μ V/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 for Set.1:
802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.31GHz~2.45GHz---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~2.45GHz---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~2.45GHz---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~2.45GHz---L	Fig.A.6.2.7	P
	9	2.45GHz~2.50GHz---H	Fig.A.6.2.8	P

Conclusion: Pass

Note:

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:

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

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)
2388.106	60.47	3.5	31.9	25.11	74.0	13.5	H
2389.870	60.10	3.5	31.9	24.74	74.0	13.9	H
4824.000	39.53	-26.0	33.9	31.62	74.0	34.5	H
7236.000	42.00	-24.2	35.6	30.59	74.0	32.0	V
9648.000	45.29	-24.3	37.0	32.60	74.0	28.7	H
12060.000	47.86	-22.4	38.9	31.37	74.0	26.1	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)
2333.600	43.51	-31.7	27.6	47.58	74.0	30.5	H
2511.600	44.11	-30.0	27.7	46.42	74.0	29.9	H
4874.000	39.37	-26.3	34.0	31.73	74.0	34.6	H
7311.000	41.73	-25.0	35.6	31.14	74.0	32.3	H
9748.000	45.67	-24.1	37.1	32.68	74.0	28.3	V
12185.000	48.21	-22.5	38.9	31.83	74.0	25.8	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)
2484.450	60.39	3.4	32.0	25.00	74.0	13.6	H
2485.025	60.74	3.4	32.0	25.36	74.0	13.3	H
4924.000	42.27	-26.5	34.0	34.82	74.0	31.7	H
7386.000	44.04	-24.6	35.6	33.00	74.0	30.0	H
9848.000	45.37	-24.0	37.2	32.20	74.0	28.6	H
12310.000	48.35	-21.3	38.9	30.72	74.0	25.6	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)
2383.752	60.56	3.5	31.9	25.21	74.0	13.4	H
2389.184	60.79	3.5	31.9	25.43	74.0	13.2	H
4824.000	39.97	-26.0	33.9	32.06	74.0	34.0	V
7236.000	42.27	-24.2	35.6	30.86	74.0	31.7	V
9648.000	44.44	-24.3	37.0	31.76	74.0	29.6	H
12060.000	48.75	-22.4	38.9	32.26	74.0	25.2	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)
2348.400	42.61	-31.6	27.6	46.52	74.0	31.4	H
2506.800	43.58	-30.0	27.7	45.85	74.0	30.4	H
4874.000	40.01	-26.3	34.0	32.37	74.0	34.0	H
7311.000	42.69	-25.0	35.6	32.10	74.0	31.3	H
9748.000	44.58	-24.1	37.1	31.59	74.0	29.4	H
12185.000	48.04	-22.5	38.9	31.66	74.0	26.0	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)
2484.295	60.18	3.4	32.0	24.79	74.0	13.8	H
2485.410	60.79	3.4	32.0	25.40	74.0	13.2	H
4924.000	41.35	-26.5	34.0	33.90	74.0	32.7	H
7386.000	42.00	-24.6	35.6	30.96	74.0	32.0	V
9848.000	45.80	-24.0	37.2	32.62	74.0	28.2	V
12310.000	49.11	-21.3	38.9	31.47	74.0	24.9	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)
2385.516	60.38	3.5	31.9	25.02	74.0	13.6	H
2388.372	60.55	3.5	31.9	25.20	74.0	13.4	H
4824.000	40.99	-26.0	33.9	33.09	74.0	33.0	V
7236.000	42.83	-24.2	35.6	31.42	74.0	31.2	V
9648.000	44.38	-24.3	37.0	31.69	74.0	29.6	V
12060.000	48.03	-22.4	38.9	31.54	74.0	26.0	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)
2341.200	42.80	-31.6	27.6	46.79	74.0	31.2	H
2519.200	44.57	-30.1	27.8	46.95	74.0	29.4	H
4874.000	40.16	-26.3	34.0	32.51	74.0	33.8	V
7311.000	41.43	-25.0	35.6	30.84	74.0	32.6	H
9748.000	44.55	-24.1	37.1	31.56	74.0	29.4	H
12185.000	49.05	-22.5	38.9	32.67	74.0	25.0	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)
2483.650	60.71	3.4	32.0	25.32	74.0	13.3	H
2484.975	60.85	3.4	32.0	25.46	74.0	13.2	H
4924.000	41.52	-26.5	34.0	34.07	74.0	32.5	H
7386.000	42.62	-24.6	35.6	31.58	74.0	31.4	V
9848.000	44.98	-24.0	37.2	31.80	74.0	29.0	V
12310.000	48.24	-21.3	38.9	30.61	74.0	25.8	H

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)
2384.004	60.75	3.5	31.9	25.40	74.0	13.3	H
2385.880	60.62	3.5	31.9	25.26	74.0	13.4	H
4844.000	39.75	-26.2	33.9	32.04	74.0	34.3	V
7266.000	43.68	-24.4	35.6	32.43	74.0	30.3	V
9688.000	44.74	-24.1	37.0	31.84	74.0	29.3	H
12110.000	49.33	-22.1	38.9	32.54	74.0	24.7	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)
2338.200	43.14	-31.7	27.6	47.16	74.0	30.9	H
2518.600	44.11	-30.1	27.8	46.49	74.0	29.9	H
4874.000	40.51	-26.3	34.0	32.86	74.0	33.5	V
7311.000	41.51	-25.0	35.6	30.92	74.0	32.5	H
9748.000	45.67	-24.1	37.1	32.68	74.0	28.3	V
12185.000	48.23	-22.5	38.9	31.85	74.0	25.8	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)
2483.615	60.29	3.4	32.0	24.89	74.0	13.7	H
2483.680	60.62	3.4	32.0	25.22	74.0	13.4	H
4904.000	41.53	-26.4	34.0	33.91	74.0	32.5	V
7356.000	43.71	-24.6	35.6	32.73	74.0	30.3	V
9808.000	45.68	-23.9	37.2	32.39	74.0	28.3	H
12260.000	48.56	-21.5	38.9	31.15	74.0	25.4	H

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)
2383.093	46.95	3.5	31.9	11.60	54.0	7.0	H
2388.109	47.00	3.5	31.9	11.64	54.0	7.0	H
4824.000	28.86	-26.0	33.9	20.95	54.0	25.1	V
7236.000	31.60	-24.2	35.6	20.20	54.0	22.4	H
9648.000	33.54	-24.3	37.0	20.85	54.0	20.5	H
12060.000	36.78	-22.4	38.9	20.29	54.0	17.2	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)
2422.062	47.97	3.4	31.9	12.64	54.0	6.0	H
2448.814	48.61	3.5	31.9	13.17	54.0	5.4	H
4874.000	28.73	-26.3	34.0	21.08	54.0	25.3	H
7311.000	30.43	-25.0	35.6	19.84	54.0	23.6	H
9747.750	33.72	-24.1	37.1	20.73	54.0	20.3	V
12185.250	36.57	-22.5	38.9	20.19	54.0	17.4	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)
2484.116	46.90	3.4	32.0	11.51	54.0	7.1	H
2484.971	46.90	3.4	32.0	11.52	54.0	7.1	H
4923.750	34.74	-26.5	34.0	27.30	54.0	19.3	V
7386.000	32.14	-24.6	35.6	21.10	54.0	21.9	V
9848.250	34.10	-24.0	37.2	20.92	54.0	19.9	V
12309.750	37.46	-21.3	38.9	19.82	54.0	16.5	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)
2388.489	47.21	3.5	31.9	11.85	54.0	6.8	H
2389.097	47.22	3.5	31.9	11.86	54.0	6.8	H
4824.000	30.28	-26.0	33.9	22.38	54.0	23.7	V
7236.000	32.37	-24.2	35.6	20.96	54.0	21.6	H
9648.000	33.85	-24.3	37.0	21.17	54.0	20.1	H
12060.000	36.98	-22.4	38.9	20.49	54.0	17.0	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)
2421.720	48.13	3.4	31.9	12.80	54.0	5.9	H
2452.101	48.08	3.5	31.9	12.64	54.0	5.9	H
4874.250	30.19	-26.3	34.0	22.54	54.0	23.8	H
7311.000	31.15	-25.0	35.6	20.57	54.0	22.8	H
9747.750	34.24	-24.1	37.1	21.25	54.0	19.8	H
12185.250	36.93	-22.5	38.9	20.55	54.0	17.1	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)
2483.565	47.03	3.4	32.0	11.64	54.0	7.0	H
2484.078	47.00	3.4	32.0	11.60	54.0	7.0	H
4923.750	30.52	-26.5	34.0	23.07	54.0	23.5	V
7386.000	32.12	-24.6	35.6	21.09	54.0	21.9	H
9848.000	34.25	-24.0	37.2	21.07	54.0	19.7	V
12309.750	37.57	-21.3	38.9	19.94	54.0	16.4	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)
2387.976	47.17	3.5	31.9	11.81	54.0	6.8	H
2389.363	47.20	3.5	31.9	11.84	54.0	6.8	H
4824.000	30.35	-26.0	33.9	22.44	54.0	23.6	V
7236.000	32.59	-24.2	35.6	21.18	54.0	21.4	V
9648.000	33.98	-24.3	37.0	21.29	54.0	20.0	V
12060.000	37.14	-22.4	38.9	20.65	54.0	16.9	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)
2421.891	47.52	3.4	31.9	12.19	54.0	6.5	H
2451.835	47.56	3.5	31.9	12.12	54.0	6.4	H
4874.250	30.89	-26.3	34.0	23.24	54.0	23.1	H
7311.000	31.64	-25.0	35.6	21.06	54.0	22.4	V
9747.750	34.65	-24.1	37.1	21.66	54.0	19.4	H
12185.250	37.24	-22.5	38.9	20.86	54.0	16.8	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)
2483.736	47.05	3.4	32.0	11.65	54.0	7.0	H
2485.047	47.06	3.4	32.0	11.68	54.0	6.9	H
4923.750	30.85	-26.5	34.0	23.41	54.0	23.1	V
7386.000	32.43	-24.6	35.6	21.39	54.0	21.6	V
9848.250	34.45	-24.0	37.2	21.27	54.0	19.6	V
12309.750	37.69	-21.3	38.9	20.05	54.0	16.3	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)
2389.287	47.05	3.5	31.9	11.69	54.0	7.0	H
2389.591	47.05	3.5	31.9	11.69	54.0	7.0	H
4844.250	30.67	-26.2	33.9	22.96	54.0	23.3	H
7266.000	32.64	-24.4	35.6	21.39	54.0	21.4	H
9687.750	34.26	-24.1	37.0	21.36	54.0	19.7	H
12110.250	37.34	-22.1	38.9	20.56	54.0	16.7	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)
2412.638	48.64	3.4	31.9	13.34	54.0	5.4	H
2461.487	48.00	3.5	32.0	12.58	54.0	6.0	H
4874.250	30.61	-26.3	34.0	22.97	54.0	23.4	V
7311.000	31.64	-25.0	35.6	21.05	54.0	22.4	H
9747.750	34.54	-24.1	37.1	21.55	54.0	19.5	V
12185.250	37.24	-22.5	38.9	20.86	54.0	16.8	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)
2483.793	46.65	3.4	32.0	11.25	54.0	7.4	H
2484.363	46.97	3.4	32.0	11.58	54.0	7.0	H
4904.250	31.63	-26.4	34.0	24.02	54.0	22.4	H
7356.000	33.01	-24.6	35.6	22.03	54.0	21.0	H
9807.750	34.57	-23.9	37.2	21.27	54.0	19.4	V
12260.250	37.96	-21.5	38.9	20.54	54.0	16.0	V

Test graphs as below:

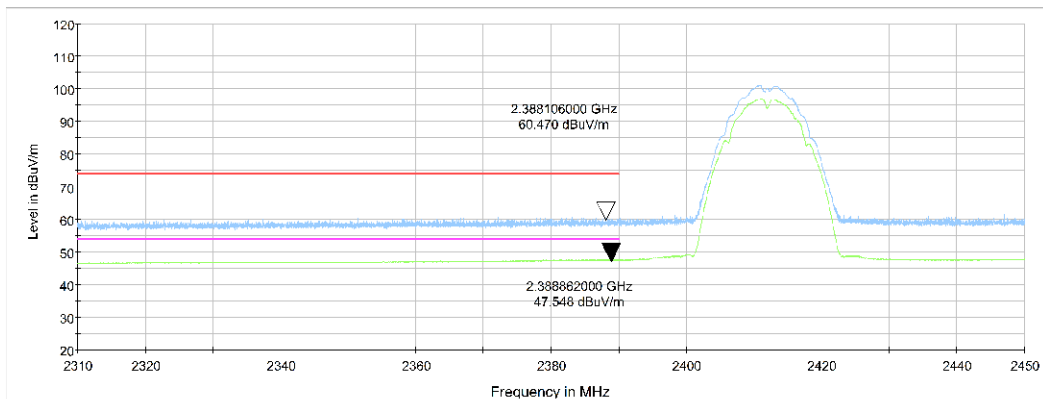


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz - 2.45GHz

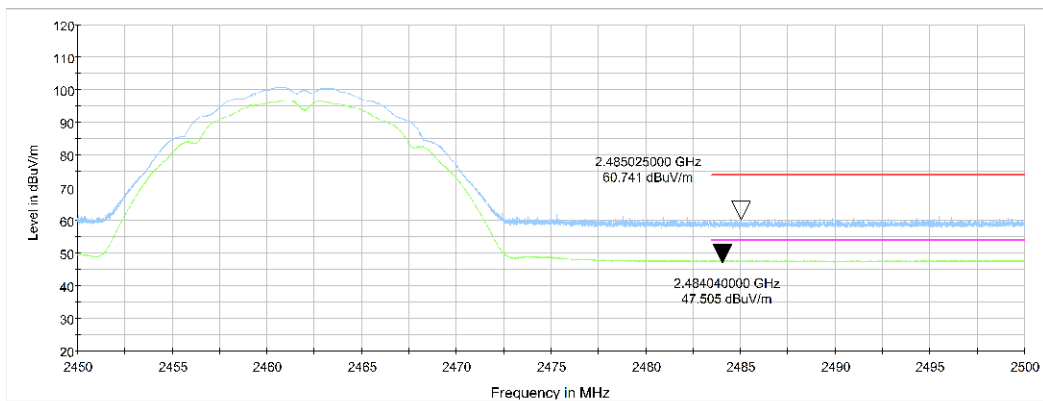


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

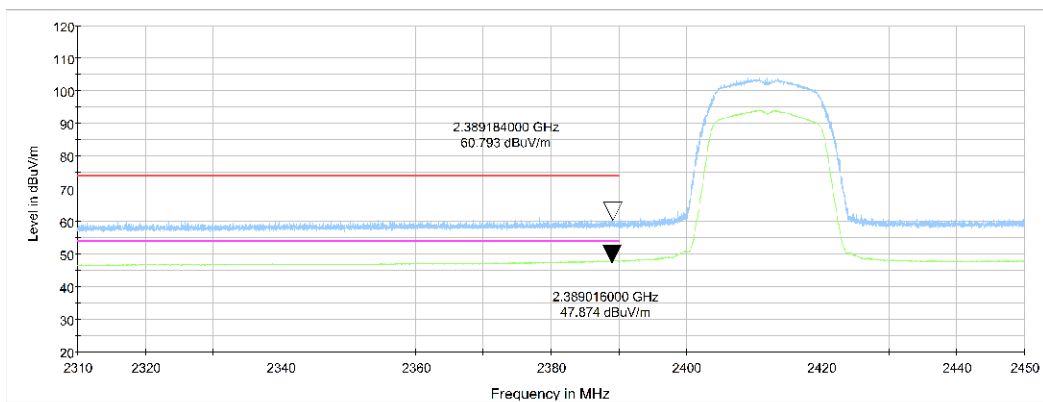


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz

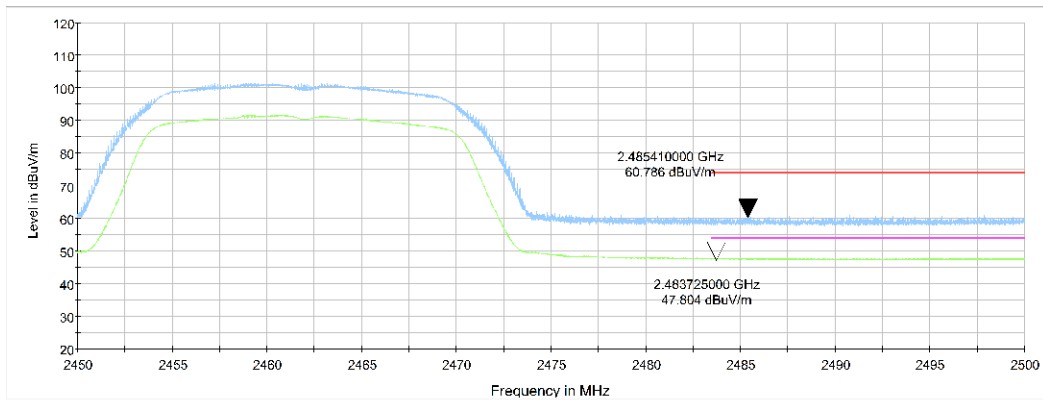


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

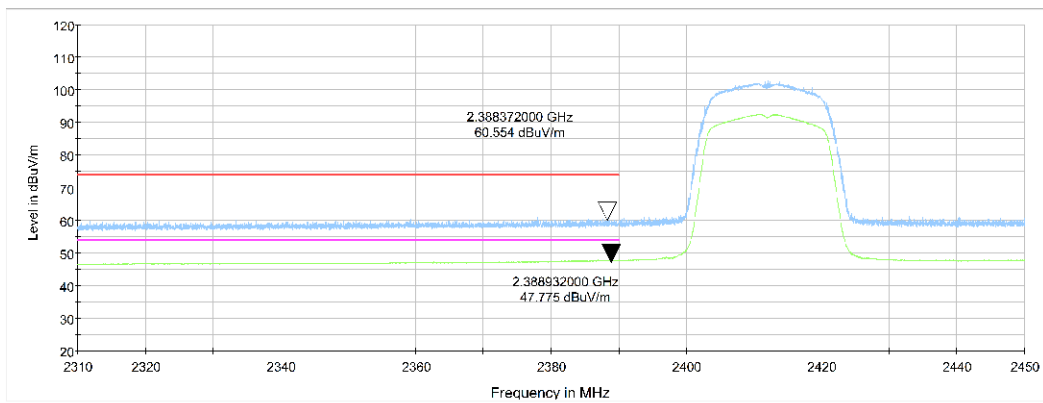


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

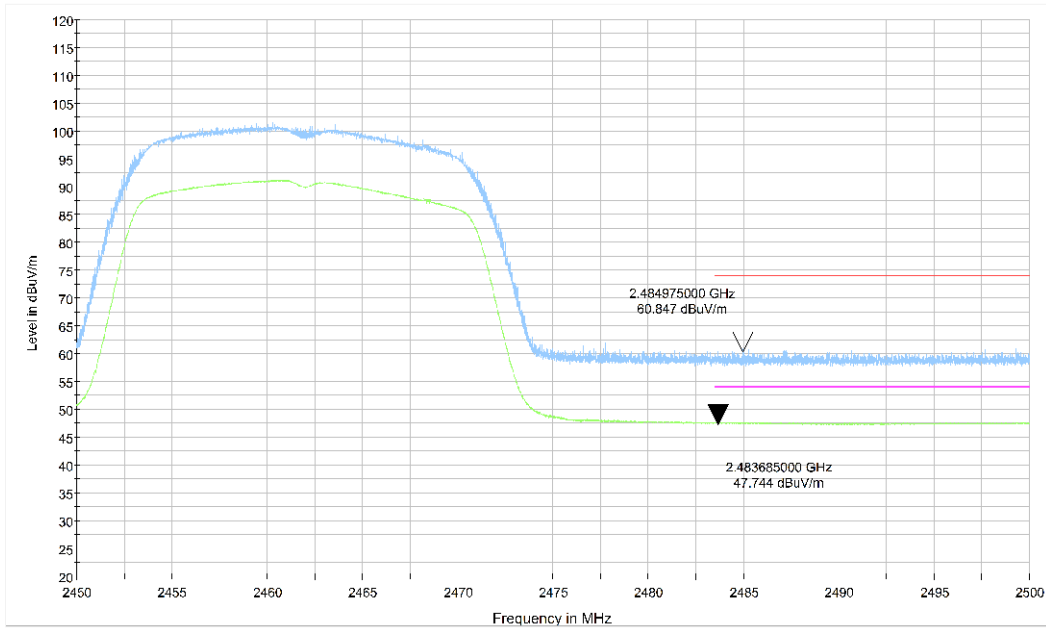


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

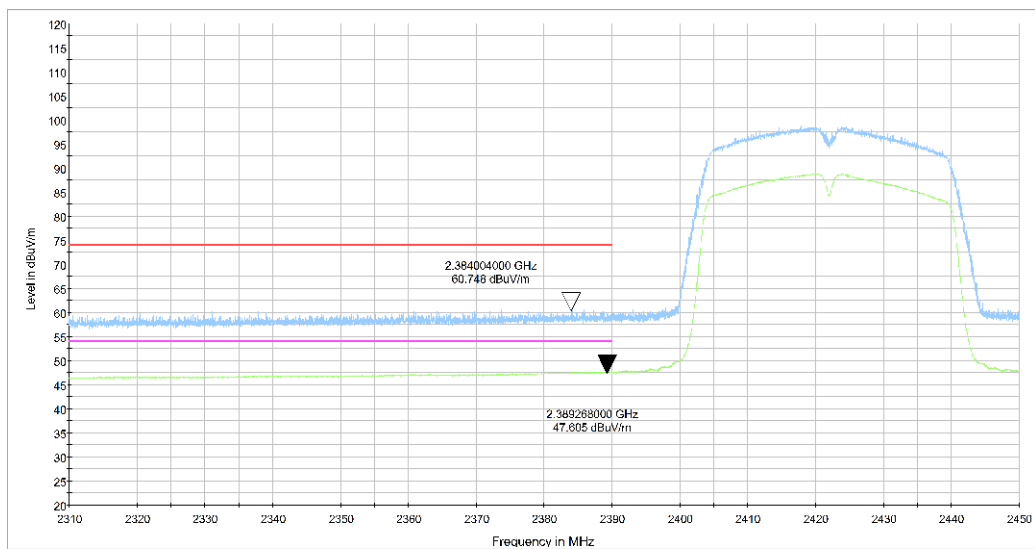


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.45GHz

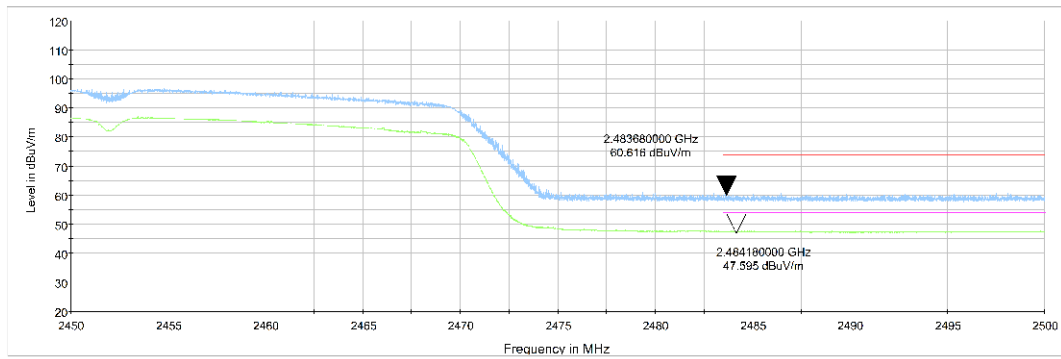


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

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 (dB μ V)	Result (dB μ V)		Conclusion
		With charger AE1-1		
		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 charger AE1-1		
		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 for Set.1-1:

The measurement results showed here are worst cases of the combinations of different cables

Result for Traffic:

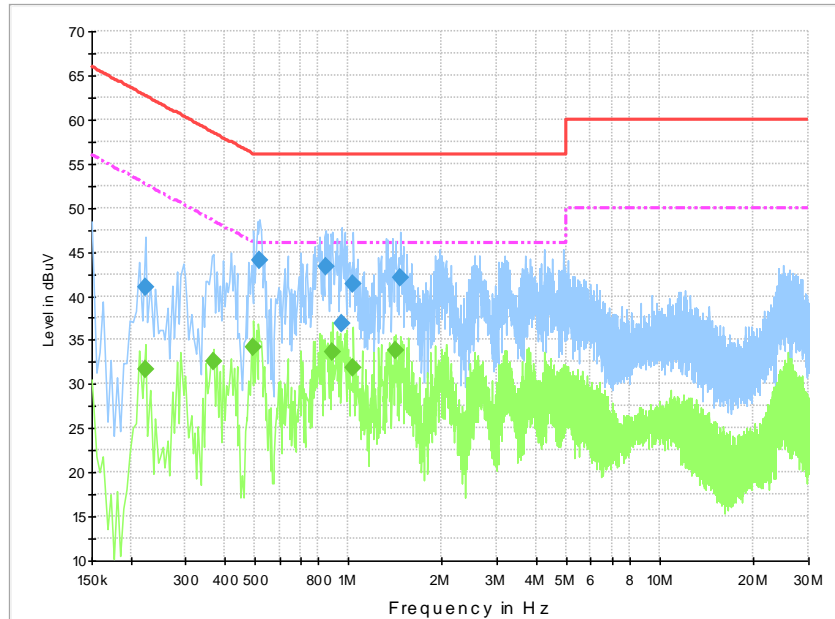


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.222000	41.0	5000.0	9.000	On	L1	19.9	21.8	62.7
0.519000	44.0	5000.0	9.000	On	L1	19.9	12.0	56.0
0.843000	43.2	5000.0	9.000	On	L1	19.8	12.8	56.0
0.955500	37.0	5000.0	9.000	On	N	19.8	19.0	56.0
1.036500	41.3	5000.0	9.000	On	L1	19.7	14.7	56.0
1.464000	42.0	5000.0	9.000	On	L1	19.7	14.0	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.222000	31.8	5000.0	9.000	On	L1	19.9	21.0	52.7
0.370500	32.6	5000.0	9.000	On	L1	19.9	15.9	48.5
0.496500	34.2	5000.0	9.000	On	L1	19.9	11.8	46.1
0.888000	33.6	5000.0	9.000	On	L1	19.7	12.4	46.0
1.036500	31.9	5000.0	9.000	On	L1	19.7	14.1	46.0
1.414500	33.8	5000.0	9.000	On	L1	19.7	12.2	46.0

Result for Idle:

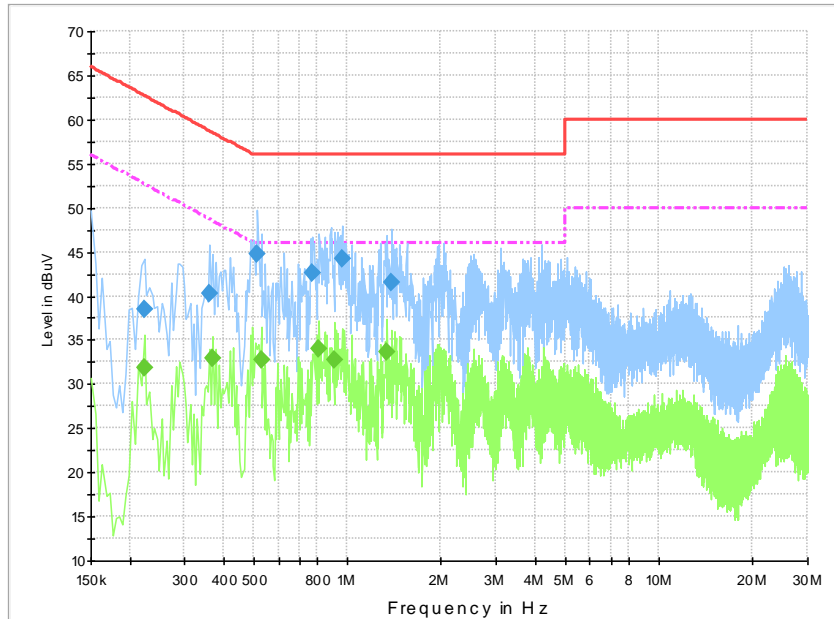


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.222000	38.4	5000.0	9.000	On	N	19.9	24.3	62.7
0.361500	40.2	5000.0	9.000	On	L1	19.9	18.5	58.7
0.514500	44.8	5000.0	9.000	On	L1	19.9	11.2	56.0
0.775500	42.7	5000.0	9.000	On	L1	19.8	13.3	56.0
0.960000	44.2	5000.0	9.000	On	L1	19.8	11.8	56.0
1.392000	41.6	5000.0	9.000	On	L1	19.7	14.4	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.222000	31.8	5000.0	9.000	On	L1	19.9	20.9	52.7
0.370500	32.9	5000.0	9.000	On	L1	19.9	15.5	48.5
0.528000	32.7	5000.0	9.000	On	L1	19.8	13.3	46.0
0.811500	34.0	5000.0	9.000	On	L1	19.8	12.0	46.0
0.910500	32.8	5000.0	9.000	On	L1	19.7	13.2	46.0
1.342500	33.6	5000.0	9.000	On	L1	19.7	12.4	46.0

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 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