

Fig.A.6.1.107 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 1 GHz -2.5 GHz)

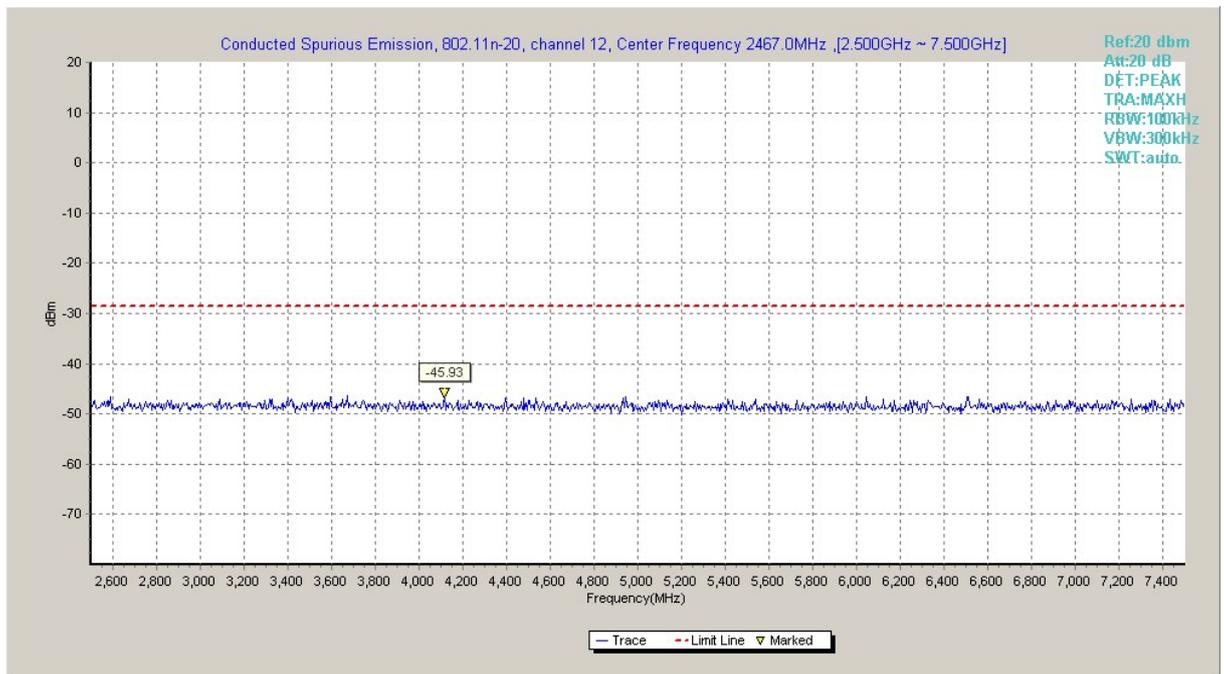


Fig.A.6.1.108 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 2.5 GHz -7.5 GHz)

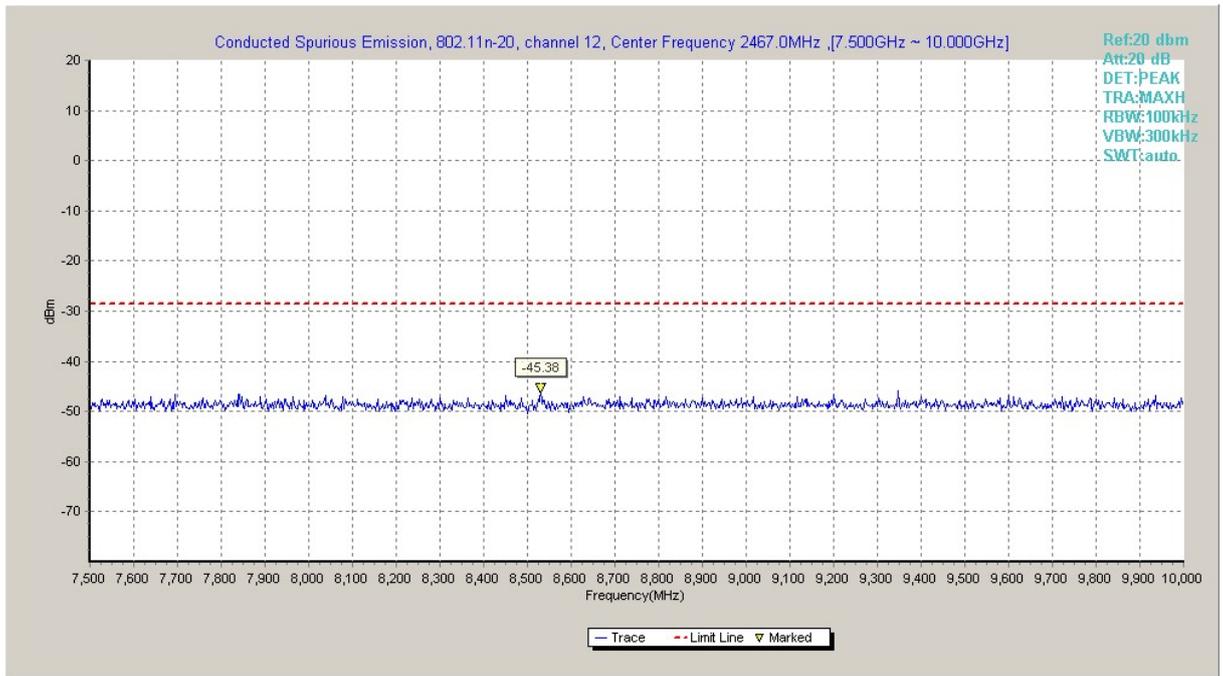


Fig.A.6.1.109 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 7.5 GHz -10 GHz)

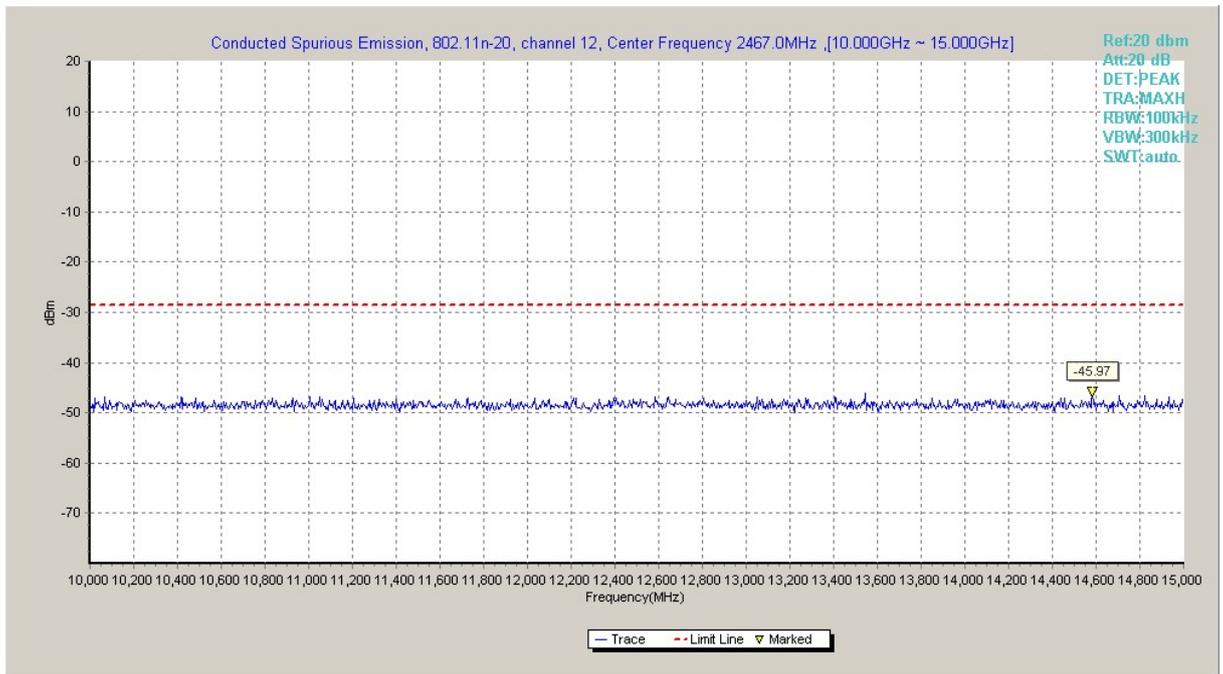


Fig.A.6.1.110 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 10 GHz -15 GHz)

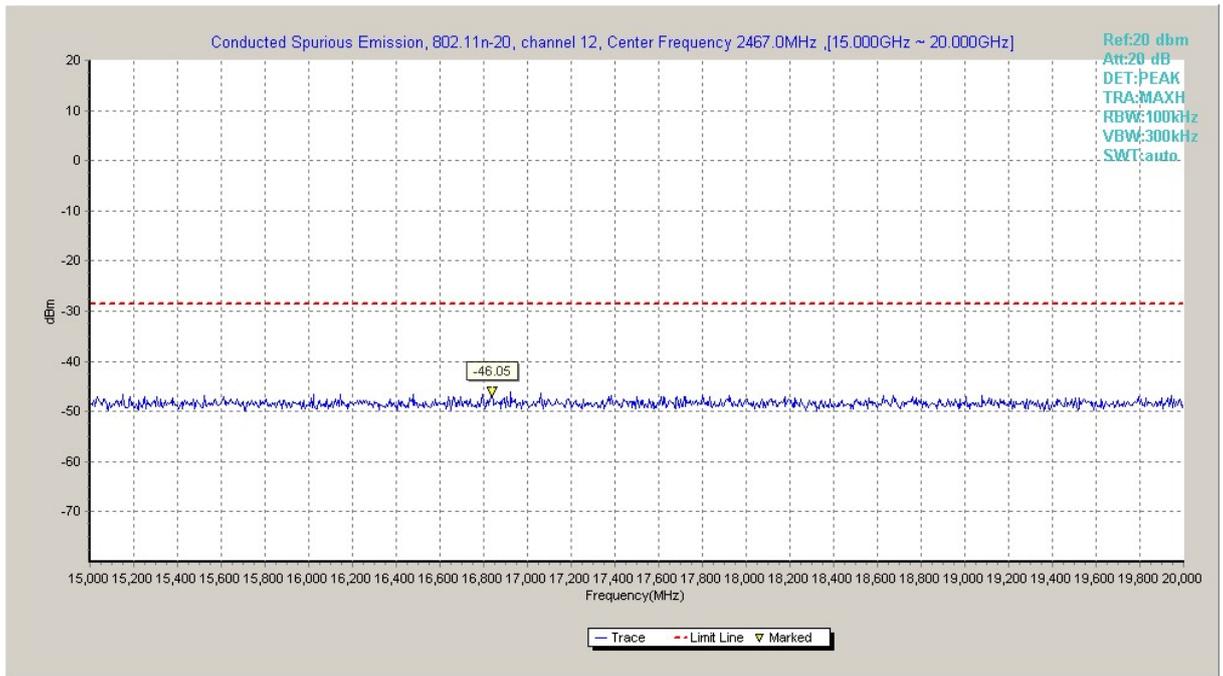


Fig.A.6.1.111 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 15 GHz -20 GHz)

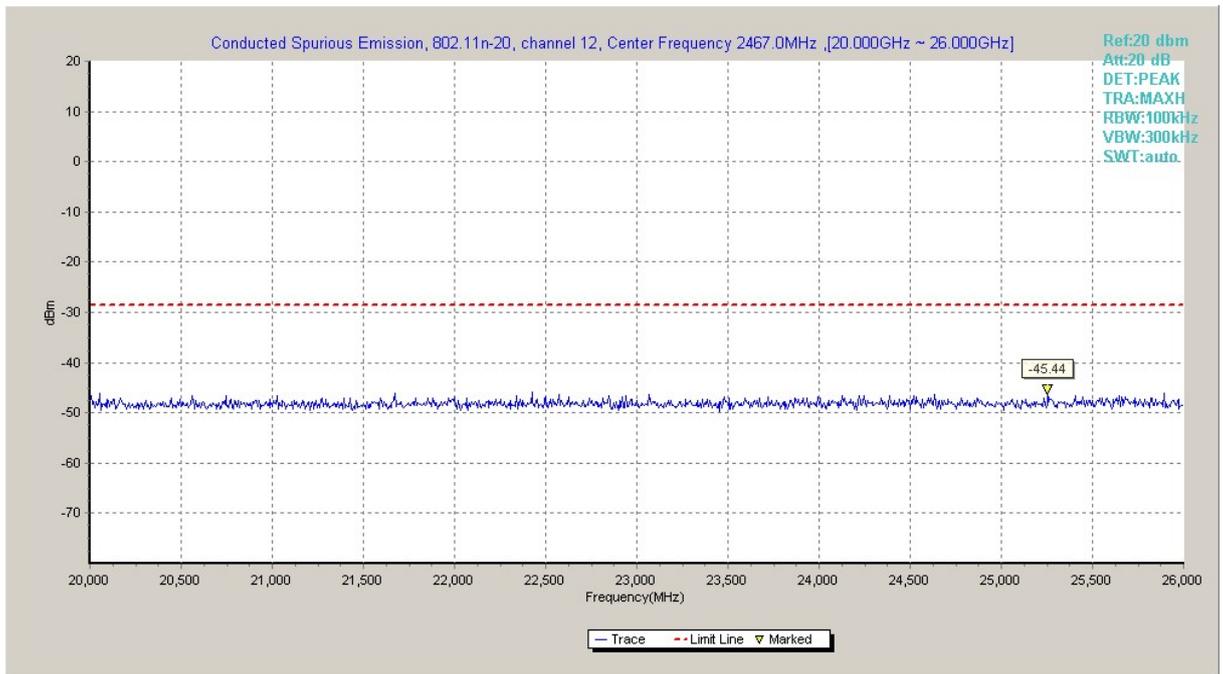


Fig.A.6.1.112 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 20 GHz -26 GHz)

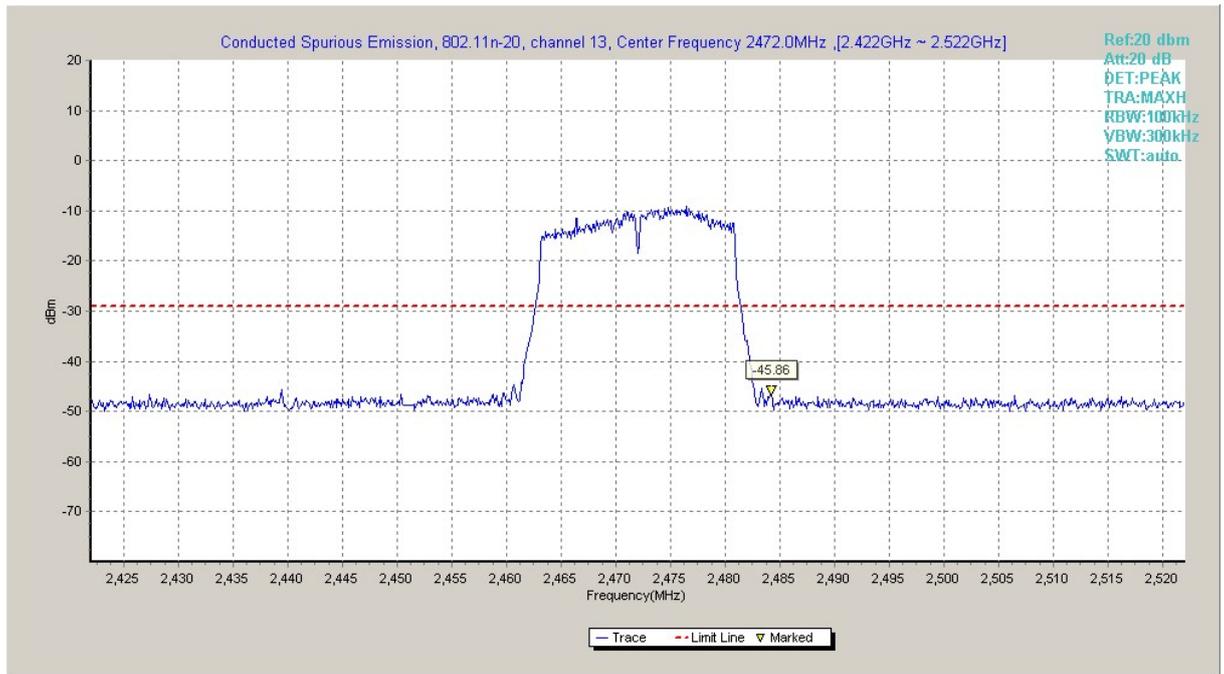


Fig.A.6.1.113 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, Center Frequency)

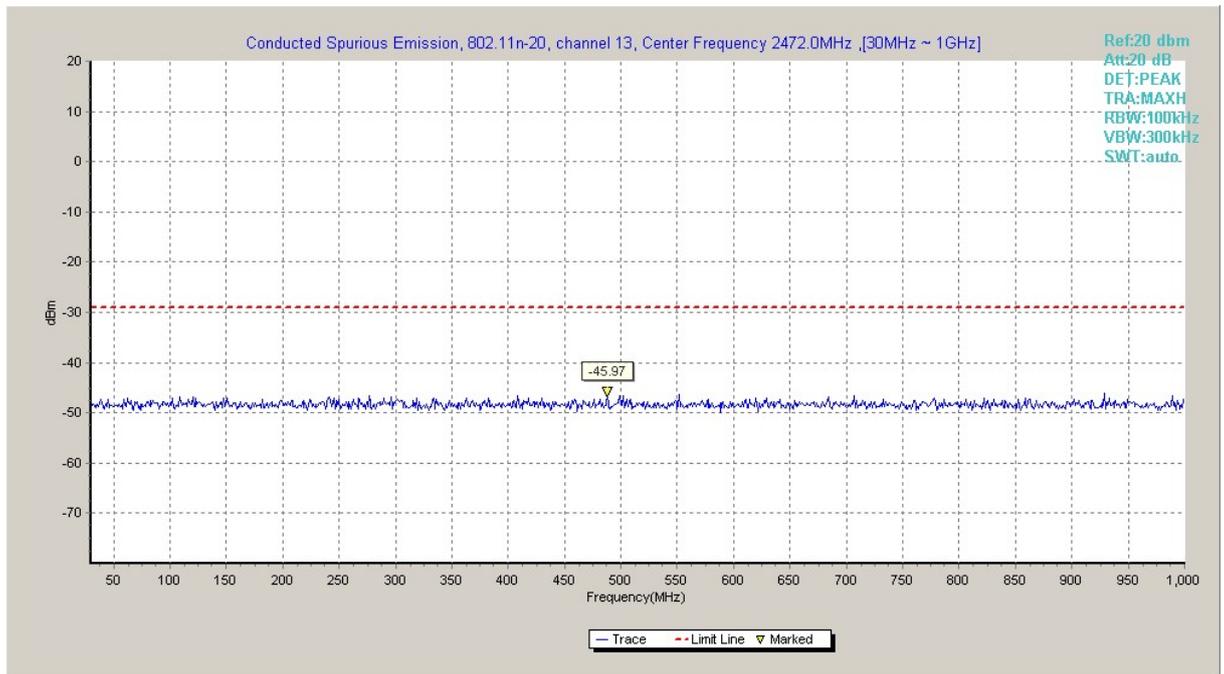


Fig.A.6.1.114 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 30 MHz-1 GHz)

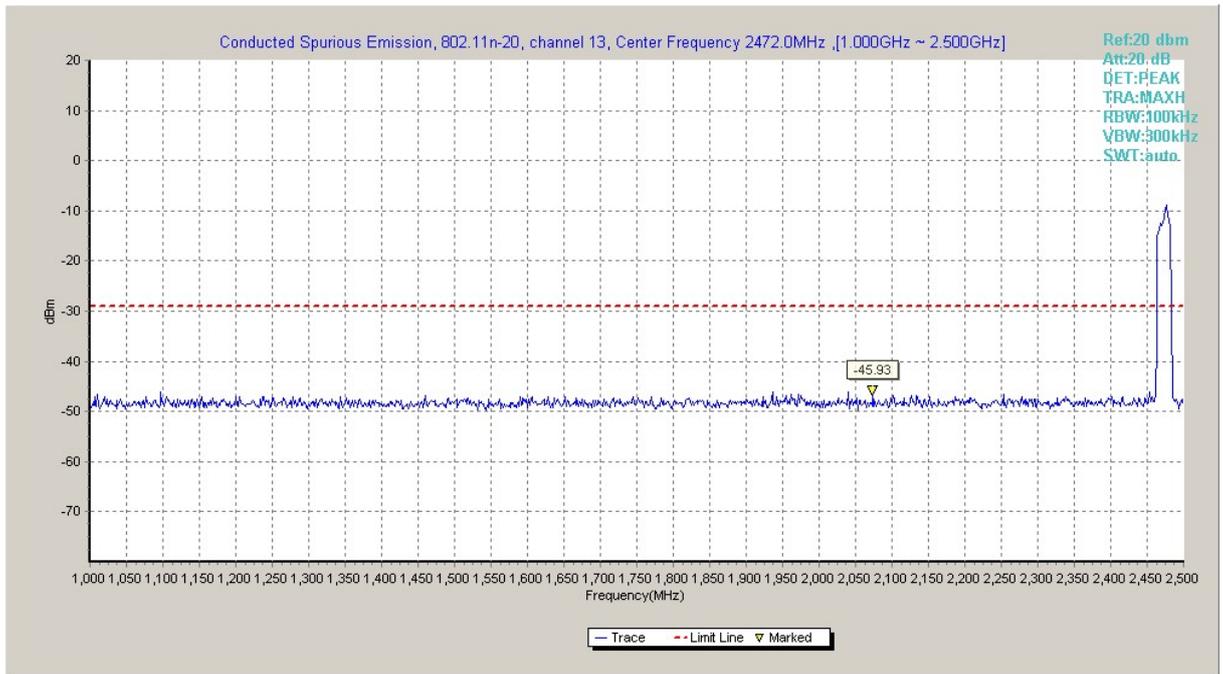


Fig.A.6.1.115 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 1 GHz -2.5 GHz)

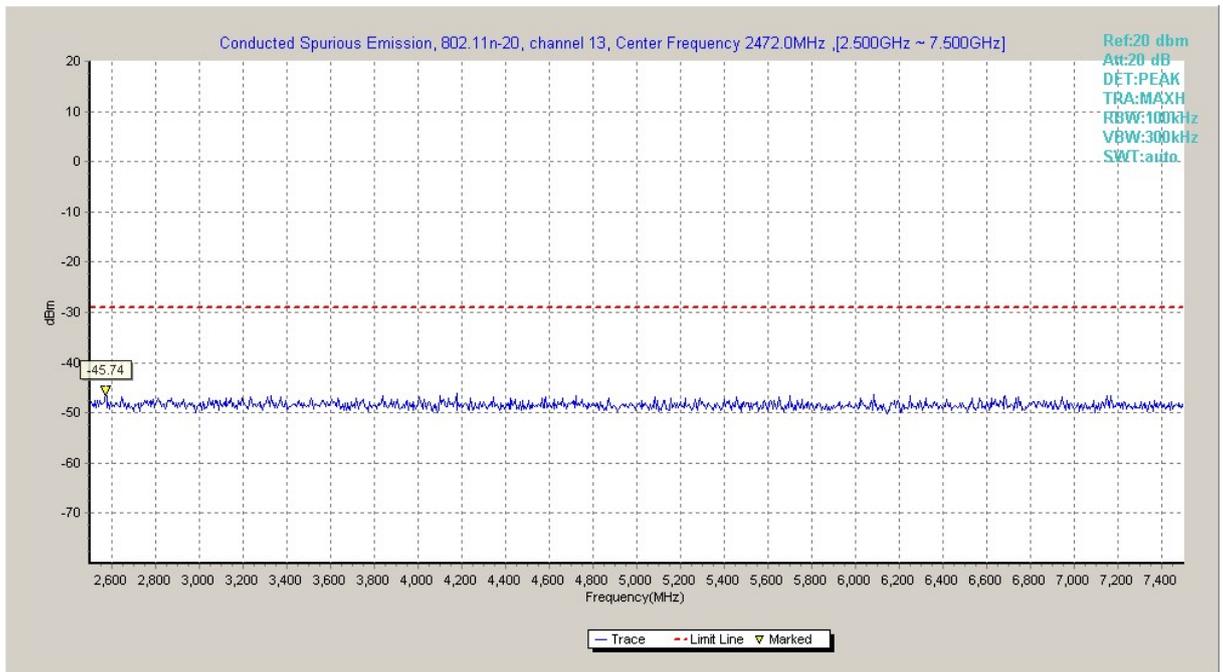


Fig.A.6.1.116 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 2.5 GHz -7.5 GHz)

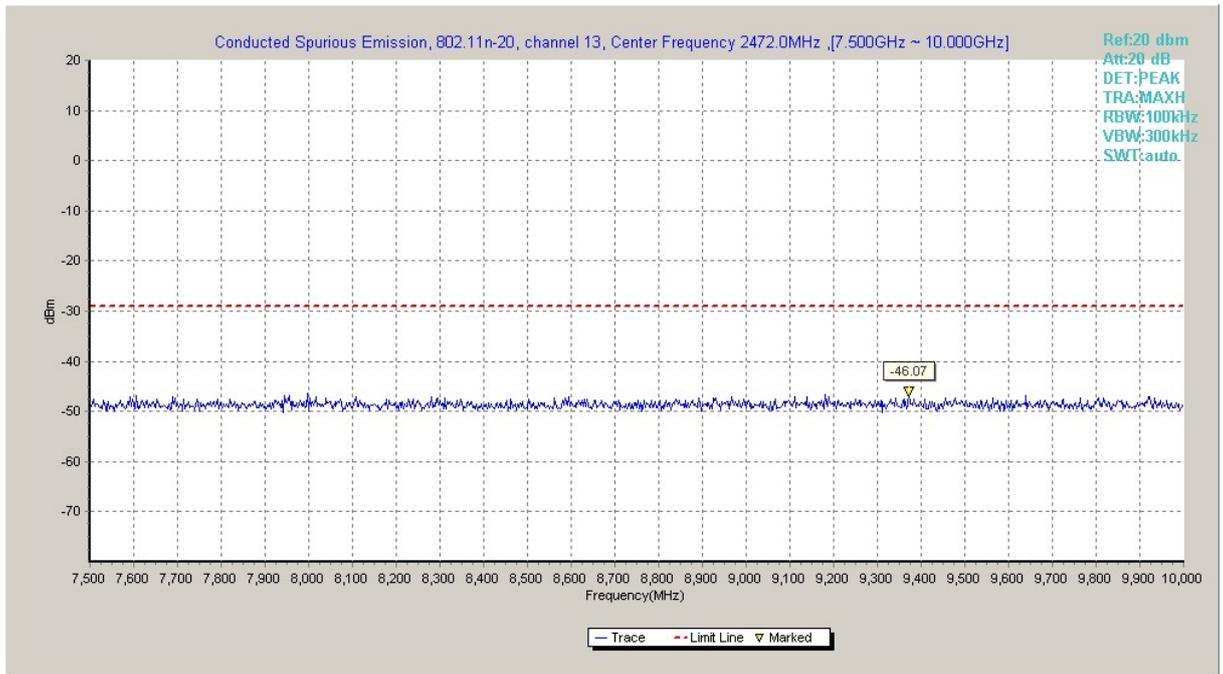


Fig.A.6.1.117 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 7.5 GHz -10 GHz)

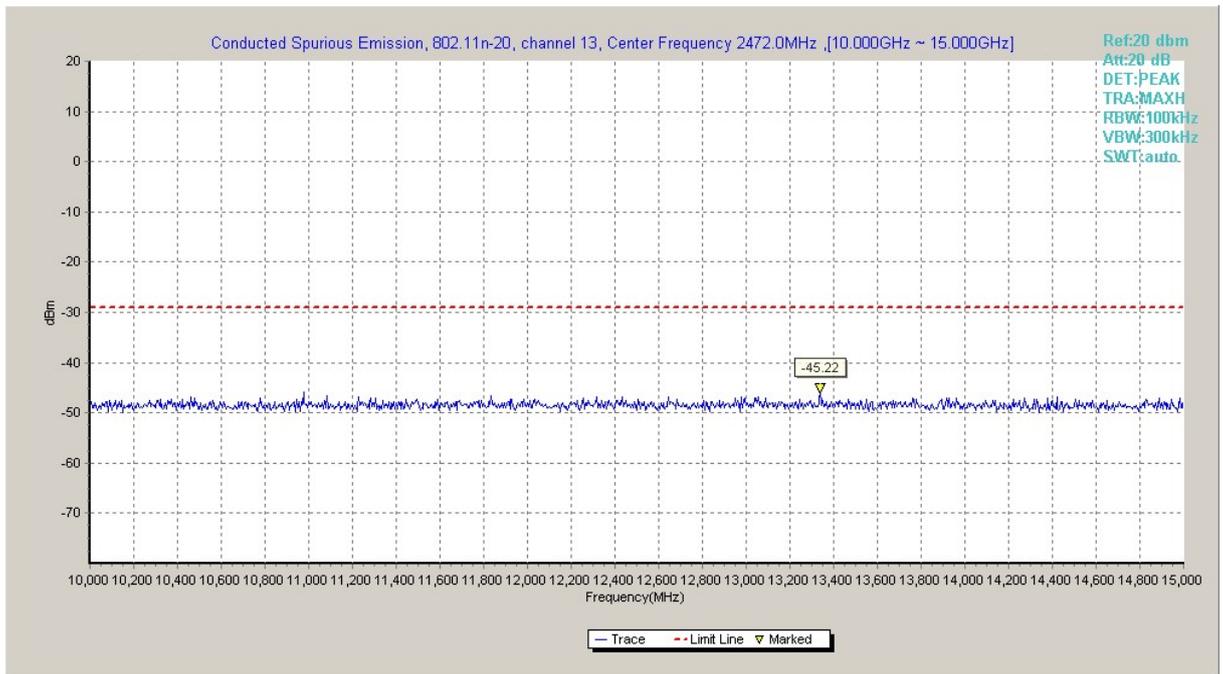


Fig.A.6.1.118 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 10 GHz -15 GHz)

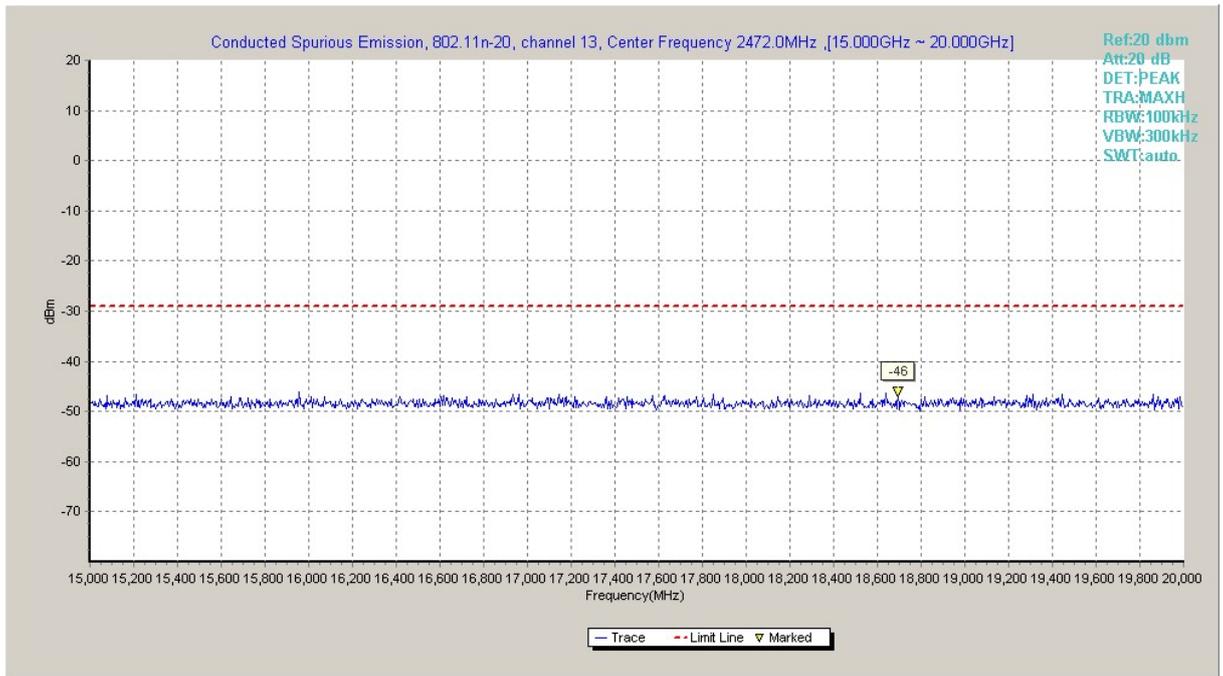


Fig.A.6.1.119 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 15 GHz -20 GHz)

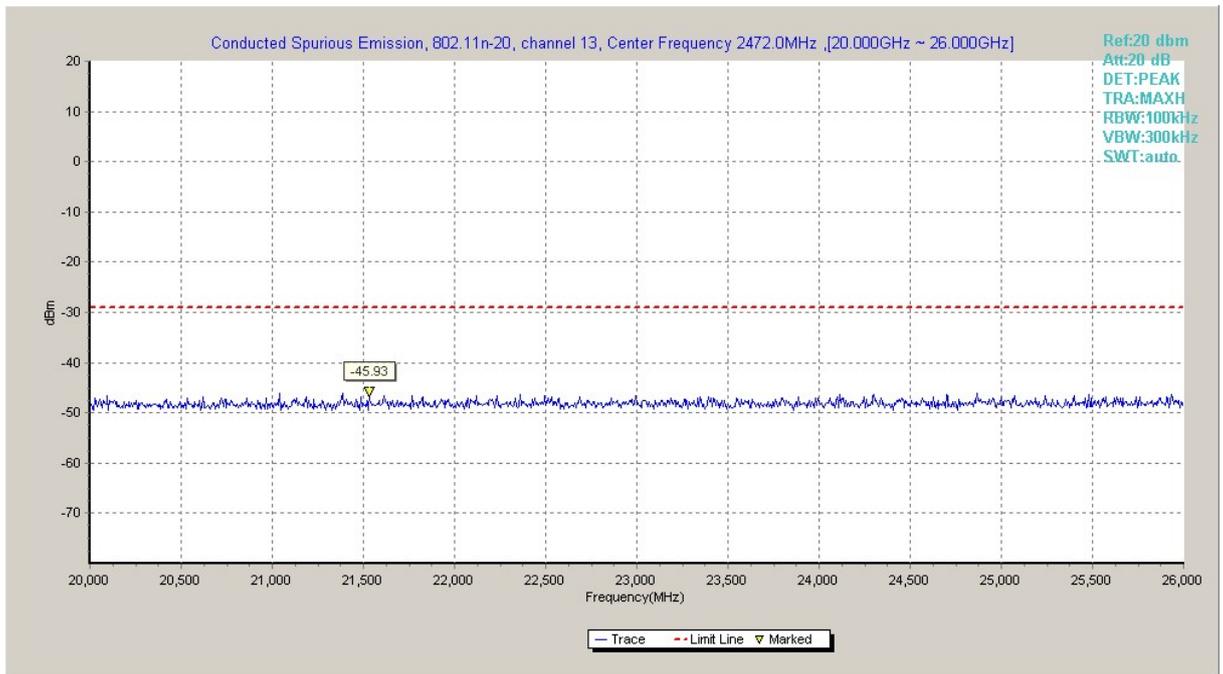


Fig.A.6.1.120 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 20 GHz -26 GHz)

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(μ V/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/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

EUT ID: EUT1

Measurement Results:

802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.1	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.2	P
	Power(ch2)	2.38GHz ~2.43GHz	Fig.A.6.2.3	P
	Power(ch10)	2.45GHz ~2.5GHz	Fig.A.6.2.4	P
	Power(ch12)	2.45GHz ~2.5GHz	Fig.A.6.2.5	P
	Power(ch13)	2.45GHz ~2.5GHz	Fig.A.6.2.6	P

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.7	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.8	P
	Power(ch2)	2.38GHz ~2.43GHz	Fig.A.6.2.9	P
	Power(ch10)	2.45GHz ~2.5GHz	Fig.A.6.2.10	P
	Power(ch12)	2.45GHz ~2.5GHz	Fig.A.6.2.11	P
	Power(ch13)	2.45GHz ~2.5GHz	Fig.A.6.2.12	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.13	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.14	P
	Power(ch2)	2.38GHz ~2.43GHz	Fig.A.6.2.15	P
	Power(ch10)	2.45GHz ~2.5GHz	Fig.A.6.2.16	P
	Power(ch12)	2.45GHz ~2.5GHz	Fig.A.6.2.17	P
	Power(ch13)	2.45GHz ~2.5GHz	Fig.A.6.2.18	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:

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

802.11b-Average

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2382.900	46.28	2.9	32.0	11.46	54.0	7.7	H	155	175
2386.800	46.29	2.9	32.0	11.47	54.0	7.7	H	155	194
4824.000	37.81	-35.2	34.1	38.96	54.0	16.2	H	155	215
7236.000	37.97	-32.4	35.8	34.62	54.0	16.0	H	155	196
9648.000	40.34	-30.1	36.8	33.70	54.0	13.7	H	155	241
12060.000	41.67	-31.0	38.9	33.79	54.0	12.3	H	155	259

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2421.600	46.93	2.9	32.0	12.07	54.0	7.1	H	155	24
2451.800	47.15	2.9	32.0	12.26	54.0	6.9	H	155	336
4874.000	36.65	-35.5	34.1	38.06	54.0	17.4	H	155	248
7311.000	37.93	-31.6	35.8	33.73	54.0	16.1	H	155	268
9748.000	40.44	-31.3	36.9	34.82	54.0	13.6	H	155	290
12185.000	41.74	-29.1	39.0	31.89	54.0	12.3	H	155	300

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.34	2.9	32.0	11.41	54.0	7.7	H	155	170
2485.300	46.38	2.9	32.0	11.45	54.0	7.6	H	155	150
4924.000	42.03	-35.2	34.1	43.11	54.0	12.0	H	155	20
7386.000	38.88	-31.2	35.8	34.30	54.0	15.1	H	155	180
9848.000	41.33	-30.5	37.0	34.86	54.0	12.7	H	155	202
12310.000	42.75	-31.6	39.0	35.32	54.0	11.3	H	155	8

Ch12

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.700	46.39	2.9	32.0	11.46	54.0	7.6	H	155	175
2486.000	46.37	2.9	32.0	11.44	54.0	7.6	H	155	194
4934.000	38.84	-35.1	34.1	39.82	54.0	15.2	H	155	215
7401.000	38.92	-31.4	35.8	34.52	54.0	15.1	H	155	196
9868.000	41.26	-30.0	37.0	34.24	54.0	12.7	H	155	241
12335.000	42.66	-31.7	39.0	35.31	54.0	11.3	H	155	259

Ch13

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.37	2.9	32.0	11.44	54.0	7.6	H	155	86
2489.200	46.43	2.9	32.0	11.50	54.0	7.6	H	155	107
4944.000	39.88	-35.0	34.1	40.78	54.0	14.1	H	155	130
7416.000	38.92	-31.6	35.8	34.69	54.0	15.1	H	155	152
9888.000	41.32	-29.5	37.1	33.76	54.0	12.7	H	155	174
12360.000	42.59	-31.1	39.0	34.59	54.0	11.4	H	155	195

802.11b-Peak

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2375.324	60.07	2.9	32.0	25.26	74.0	13.9	V	155	176
2383.388	60.05	2.9	32.0	25.23	74.0	14.0	H	155	198
4824.000	43.66	-35.2	34.1	44.81	74.0	30.3	V	155	220
7236.000	46.37	-32.4	35.8	43.02	74.0	27.6	H	155	198
9648.000	47.35	-30.1	36.8	40.71	74.0	26.6	H	155	242
12060.000	47.92	-31.0	38.9	40.04	74.0	26.1	V	155	264

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2372.000	47.90	-26.9	32.0	42.81	74.0	26.1	H	155	22
2507.800	48.41	-26.4	32.0	42.84	74.0	25.6	H	155	330
4874.000	42.61	-35.5	34.1	44.02	74.0	31.4	H	155	242
7311.000	44.24	-31.6	35.8	40.03	74.0	29.8	V	155	264
9748.000	44.83	-31.3	36.9	39.20	74.0	29.2	V	155	286
12185.000	47.70	-29.1	39.0	37.85	74.0	26.3	V	155	308

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2495.090	60.62	2.9	32.0	25.68	74.0	13.4	H	155	176
2497.195	60.48	2.9	32.0	25.54	74.0	13.5	H	155	154
4924.000	47.18	-35.2	34.1	48.25	74.0	26.8	V	155	22
7386.000	46.06	-31.2	35.8	41.48	74.0	27.9	V	155	176
9848.000	46.66	-30.5	37.0	40.19	74.0	27.3	H	155	198
12310.000	50.20	-31.6	39.0	42.77	74.0	23.8	H	155	0

Ch12

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2492.180	60.72	2.9	32.0	25.78	74.0	13.3	V	155	176
2494.455	61.16	2.9	32.0	26.22	74.0	12.8	H	155	198
4934.000	45.34	-35.1	34.1	46.32	74.0	28.7	V	155	220
7401.000	47.01	-31.4	35.8	42.61	74.0	27.0	H	155	198
9868.000	47.91	-30.0	37.0	40.90	74.0	26.1	H	155	242
12335.000	49.78	-31.7	39.0	42.43	74.0	24.2	V	155	264

Ch13

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2486.945	60.43	2.9	32.0	25.50	74.0	13.6	V	155	88
2491.925	60.27	2.9	32.0	25.33	74.0	13.7	H	155	110
4944.000	46.44	-35.0	34.1	47.35	74.0	27.6	V	155	132
7416.000	43.92	-31.6	35.8	39.69	74.0	30.1	H	155	154
9888.000	46.56	-29.5	37.1	39.01	74.0	27.4	V	155	176
12360.000	45.24	-31.1	39.0	37.24	74.0	28.8	V	155	198

802.11g - Average

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2386.600	46.34	2.9	32.0	11.52	54.0	7.7	H	155	86
2389.300	46.39	2.9	32.0	11.56	54.0	7.6	H	155	107
4824.000	33.13	-35.2	34.1	34.27	54.0	20.9	H	155	130
7236.000	37.15	-32.4	35.8	33.79	54.0	16.9	H	155	152
9648.000	40.55	-30.1	36.8	33.91	54.0	13.4	H	155	174
12060.000	41.76	-31.0	38.9	33.88	54.0	12.2	H	155	195

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2409.400	46.54	2.9	32.0	11.69	54.0	7.5	H	155	5
2464.400	46.68	2.9	32.0	11.78	54.0	7.3	H	155	25
4874.000	32.93	-35.5	34.1	34.34	54.0	21.1	H	155	356
7311.000	38.09	-31.6	35.8	33.89	54.0	15.9	H	155	350
9748.000	39.43	-31.3	36.9	33.81	54.0	14.6	H	155	185
12185.000	43.83	-29.1	39.0	33.98	54.0	10.2	H	155	187

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.600	46.49	2.9	32.0	11.57	54.0	7.5	H	155	135
2485.800	46.48	2.9	32.0	11.55	54.0	7.5	H	155	160
4924.500	33.54	-35.2	34.1	34.62	54.0	20.5	H	155	92
7386.000	38.57	-31.2	35.8	33.99	54.0	15.4	H	155	115
9847.500	40.24	-30.6	37.0	33.78	54.0	13.8	H	155	112
12310.500	41.60	-31.6	39.0	34.19	54.0	12.4	H	155	85

Ch12

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2495.400	46.42	2.9	32.0	11.48	54.0	7.6	H	155	5
2496.500	46.47	2.9	32.0	11.53	54.0	7.5	H	155	25
4933.500	33.56	-35.1	34.1	34.55	54.0	20.4	H	155	356
7601.000	38.45	-31.1	35.8	33.77	54.0	15.6	H	155	350
9868.500	40.88	-30.0	37.0	33.85	54.0	13.1	H	155	185
12334.500	41.62	-31.7	39.0	34.28	54.0	12.4	H	155	187

Ch13

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2489.600	46.45	2.9	32.0	11.52	54.0	7.6	H	155	20
2493.400	46.47	2.9	32.0	11.54	54.0	7.5	H	155	248
4944.000	33.68	-35.0	34.1	34.58	54.0	20.3	H	155	49
7416.000	38.23	-31.6	35.8	34.00	54.0	15.8	H	155	335
9888.000	41.53	-29.5	37.1	33.97	54.0	12.5	H	155	180
12360.000	42.42	-31.1	39.0	34.43	54.0	11.6	H	155	8



802.11g - Peak

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2388.624	60.77	2.9	32.0	25.95	74.0	13.2	V	155	88
2389.604	60.92	2.9	32.0	26.10	74.0	13.1	H	155	110
4824.000	40.08	-35.2	34.1	41.23	74.0	33.9	V	155	132
7236.000	42.71	-32.4	35.8	39.35	74.0	31.3	H	155	154
9648.000	46.10	-30.1	36.8	39.46	74.0	27.9	V	155	176
12060.000	45.71	-31.0	38.9	37.82	74.0	28.3	V	155	198

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2377.800	48.04	-26.5	32.0	42.54	74.0	26.0	H	155	0
2506.200	48.57	-26.4	32.0	42.97	74.0	25.4	H	155	22
4874.000	39.40	-35.5	34.1	40.81	74.0	34.6	H	155	352
7311.000	43.82	-31.6	35.8	39.62	74.0	30.2	V	155	352
9748.000	44.75	-31.3	36.9	39.13	74.0	29.2	V	155	176
12185.000	47.97	-29.1	39.0	38.12	74.0	26.0	V	155	176

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	62.13	2.9	32.0	27.20	74.0	11.9	H	155	132
2483.970	61.55	2.9	32.0	26.62	74.0	12.5	H	155	154
4924.000	40.39	-35.2	34.1	41.47	74.0	33.6	V	155	88
7386.000	44.32	-31.2	35.8	39.74	74.0	29.7	H	155	110
9848.000	46.05	-30.5	37.0	39.58	74.0	27.9	V	155	110
12310.000	44.08	-31.6	39.0	36.65	74.0	29.9	V	155	88



Ch12

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.780	60.89	2.9	32.0	25.96	74.0	13.1	H	155	0
2489.150	60.68	2.9	32.0	25.75	74.0	13.3	H	155	22
4933.000	40.40	-35.1	34.1	41.39	74.0	33.6	H	155	352
7601.000	45.11	-31.1	35.8	40.44	74.0	28.9	V	155	352
9868.000	46.21	-30.0	37.0	39.19	74.0	27.8	V	155	176
12334.000	45.18	-31.7	39.0	37.86	74.0	28.8	V	155	176

Ch13

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2487.310	60.72	2.9	32.0	25.79	74.0	13.3	H	155	22
2495.595	60.74	2.9	32.0	25.80	74.0	13.3	H	155	242
4944.000	40.74	-35.0	34.1	41.65	74.0	33.3	V	155	44
7416.000	43.44	-31.6	35.8	39.21	74.0	30.6	H	155	330
9888.000	46.23	-29.5	37.1	38.67	74.0	27.8	H	155	176
12360.000	45.56	-31.1	39.0	37.57	74.0	28.4	H	155	0

802.11n-HT20-Average

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.200	46.37	2.9	32.0	11.55	54.0	7.6	H	155	135
2388.700	46.37	2.9	32.0	11.55	54.0	7.6	H	155	160
4824.000	33.09	-35.2	34.1	34.24	54.0	20.9	H	155	92
7236.000	37.19	-32.4	35.8	33.83	54.0	16.8	H	155	115
9648.000	40.55	-30.1	36.8	33.91	54.0	13.5	H	155	112
12060.000	41.83	-31.0	38.9	33.94	54.0	12.2	H	155	85

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2407.200	46.57	2.9	32.0	11.73	54.0	7.4	H	155	20
2462.900	47.07	2.9	32.0	12.16	54.0	6.9	H	155	248
4873.500	32.95	-35.5	34.1	34.37	54.0	21.0	H	155	49
7311.000	38.07	-31.6	35.8	33.87	54.0	15.9	H	155	335
9748.500	39.49	-31.3	36.9	33.87	54.0	14.5	H	155	180
12184.500	43.91	-29.1	39.0	34.06	54.0	10.1	H	155	8

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.46	2.9	32.0	11.53	54.0	7.5	H	155	175
2485.000	46.47	2.9	32.0	11.54	54.0	7.5	H	155	5
4924.500	33.57	-35.2	34.1	34.64	54.0	20.4	H	155	26
7386.000	38.74	-31.2	35.8	34.16	54.0	15.3	H	155	355
9847.500	40.37	-30.6	37.0	33.91	54.0	13.6	H	155	6
12310.500	41.69	-31.6	39.0	34.27	54.0	12.3	H	155	12

Ch12

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.41	2.9	32.0	11.48	54.0	7.6	H	155	4
2485.200	46.39	2.9	32.0	11.47	54.0	7.6	H	155	2
4933.500	33.82	-35.1	34.1	34.81	54.0	20.2	H	155	25
7401.000	38.44	-31.4	35.8	34.04	54.0	15.6	H	155	350
9868.500	40.84	-30.0	37.0	33.81	54.0	13.2	H	155	92
12334.500	41.73	-31.7	39.0	34.40	54.0	12.3	H	155	85

Ch13

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2491.100	46.43	2.9	32.0	11.49	54.0	7.6	H	155	20
2496.800	46.43	2.9	32.0	11.49	54.0	7.6	H	155	45
4944.000	33.68	-35.0	34.1	34.59	54.0	20.3	H	155	240
7416.000	38.28	-31.6	35.8	34.05	54.0	15.7	H	155	180
9888.000	41.48	-29.5	37.1	33.92	54.0	12.5	H	155	85
12360.000	42.55	-31.1	39.0	34.56	54.0	11.4	H	155	25

802.11n-HT20-Peak

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2334.080	59.90	2.8	31.9	25.14	74.0	14.1	H	155	132
2354.156	60.72	2.8	31.9	25.93	74.0	13.3	H	155	154
4824.000	40.61	-35.2	34.1	41.75	74.0	33.4	V	155	88
7236.000	41.91	-32.4	35.8	38.56	74.0	32.1	H	155	110
9648.000	45.65	-30.1	36.8	39.01	74.0	28.3	V	155	110
12060.000	45.84	-31.0	38.9	37.96	74.0	28.2	V	155	88

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2376.600	48.76	-26.5	32.0	43.34	74.0	25.2	H	155	22
2518.600	48.57	-26.7	32.0	43.24	74.0	25.4	H	155	242
4874.000	39.50	-35.5	34.1	40.91	74.0	34.5	V	155	44
7311.000	43.46	-31.6	35.8	39.26	74.0	30.5	H	155	330
9748.000	45.03	-31.3	36.9	39.41	74.0	29.0	H	155	176
12185.000	47.47	-29.1	39.0	37.62	74.0	26.5	H	155	0

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.240	62.14	2.9	32.0	27.21	74.0	11.9	H	155	176
2485.150	61.34	2.9	32.0	26.41	74.0	12.7	H	155	0
4924.000	40.82	-35.2	34.1	41.90	74.0	33.2	V	155	22
7386.000	44.65	-31.2	35.8	40.07	74.0	29.4	V	155	352
9848.000	46.14	-30.5	37.0	39.67	74.0	27.9	V	155	0
12310.000	45.29	-31.6	39.0	37.86	74.0	28.7	V	155	0

Ch12

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2490.335	60.96	2.9	32.0	26.03	74.0	13.0	H	155	0
2498.765	61.02	2.9	32.0	26.08	74.0	13.0	H	155	0
4934.000	41.46	-35.1	34.1	42.44	74.0	32.5	V	155	22
7401.000	44.38	-31.4	35.8	39.98	74.0	29.6	V	155	352
9868.000	46.35	-30.0	37.0	39.33	74.0	27.7	V	155	88
12335.000	44.70	-31.7	39.0	37.35	74.0	29.3	V	155	88

Ch13

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.525	61.15	2.9	32.0	26.22	74.0	12.9	H	155	22
2484.385	60.65	2.9	32.0	25.73	74.0	13.3	H	155	44
4944.000	40.69	-35.0	34.1	41.60	74.0	33.3	H	155	242
7616.000	44.14	-31.0	35.8	39.36	74.0	29.9	H	155	176
9888.000	46.08	-29.5	37.1	38.52	74.0	27.9	H	155	88
12360.000	45.99	-31.1	39.0	38.00	74.0	28.0	V	155	22

Test graphs as below:

RE - Power-2.31GHz-2.45GHz

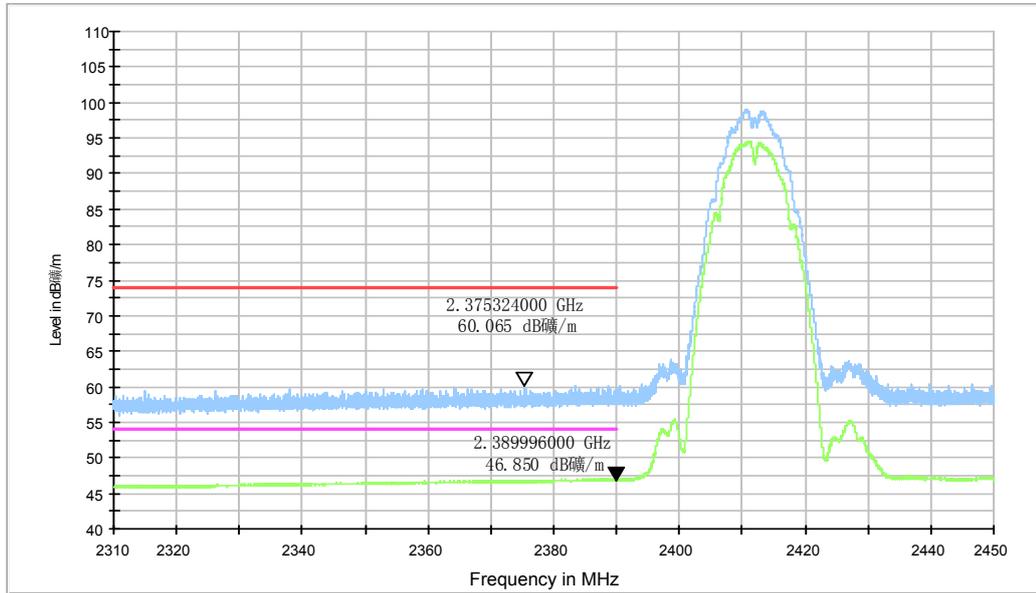


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.43GHz

RE - Power-2.45GHz-2.5GHz

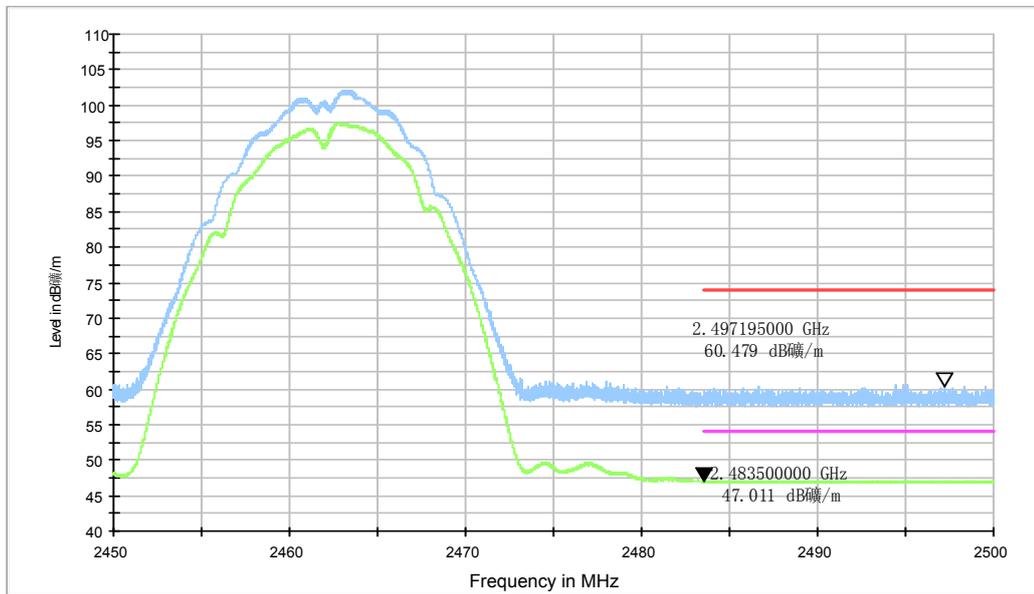


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

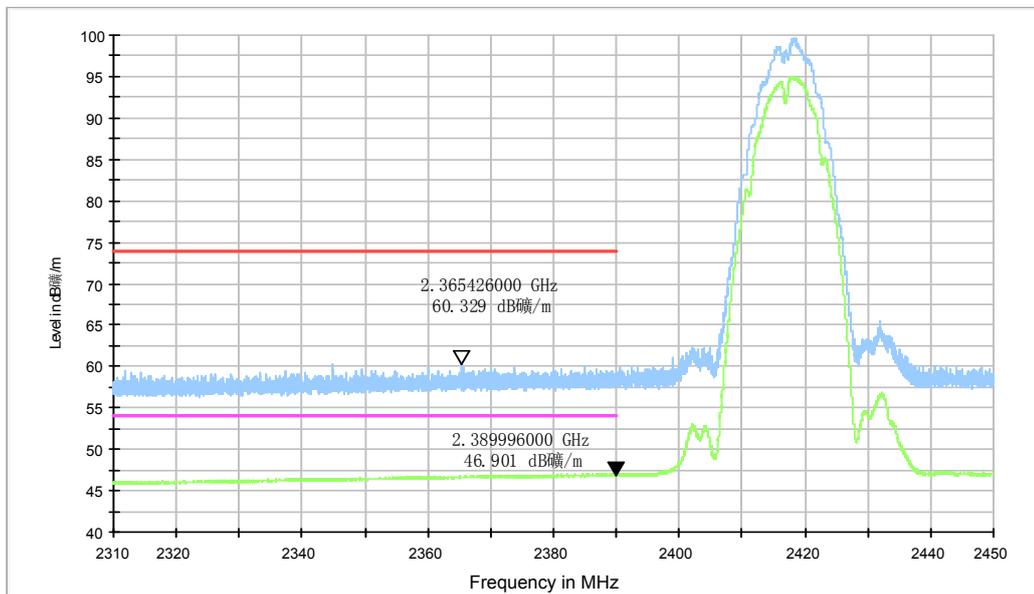


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch2, 2.38 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

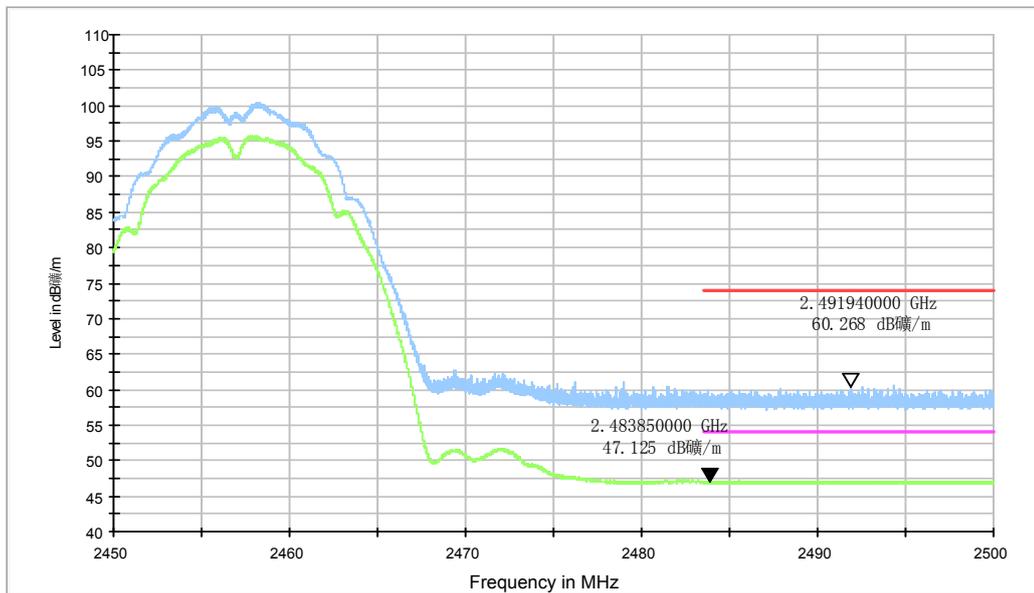


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch10, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

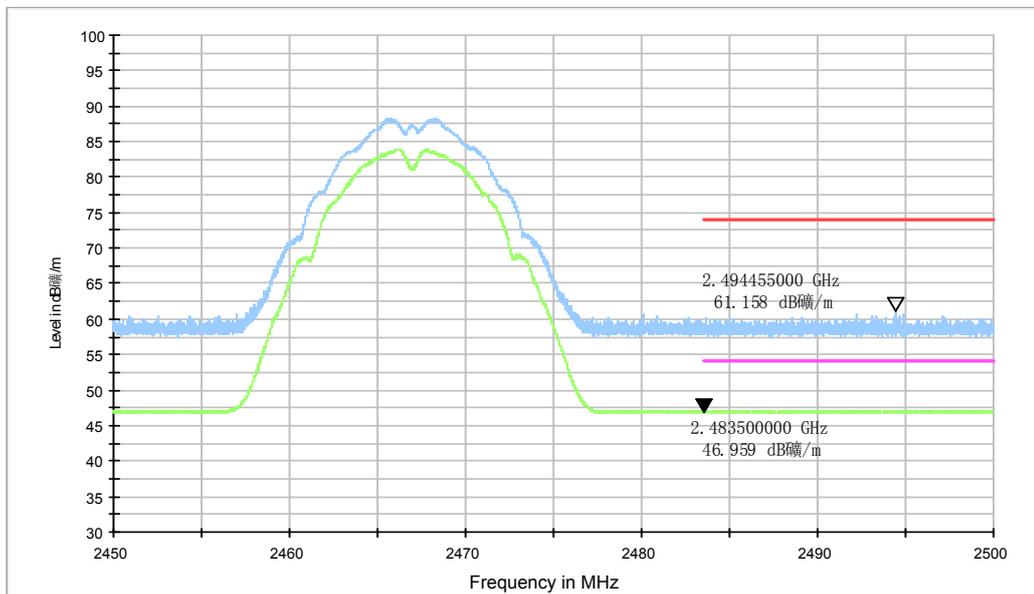


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch12, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

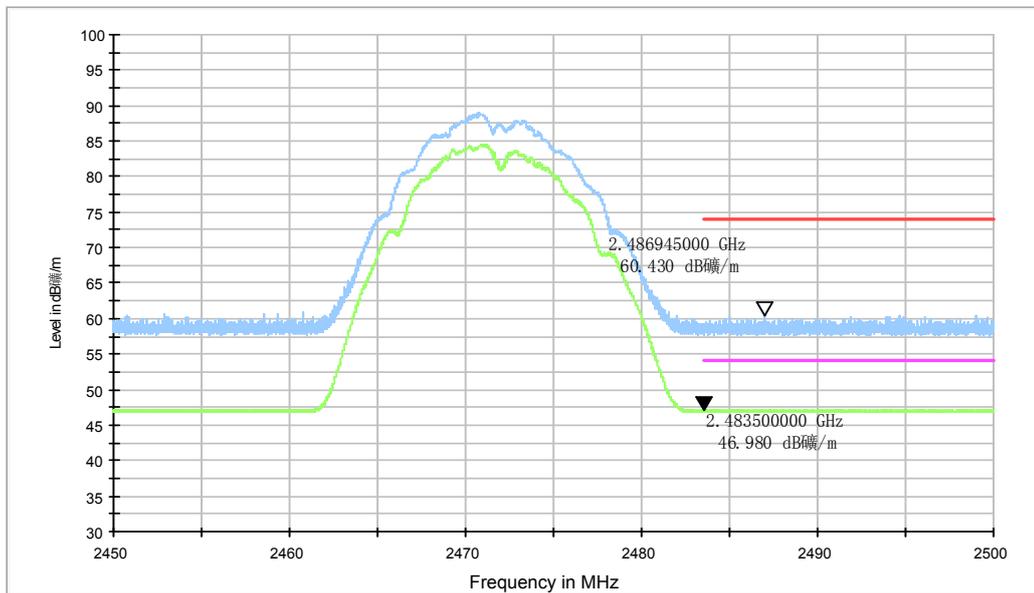


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch13, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

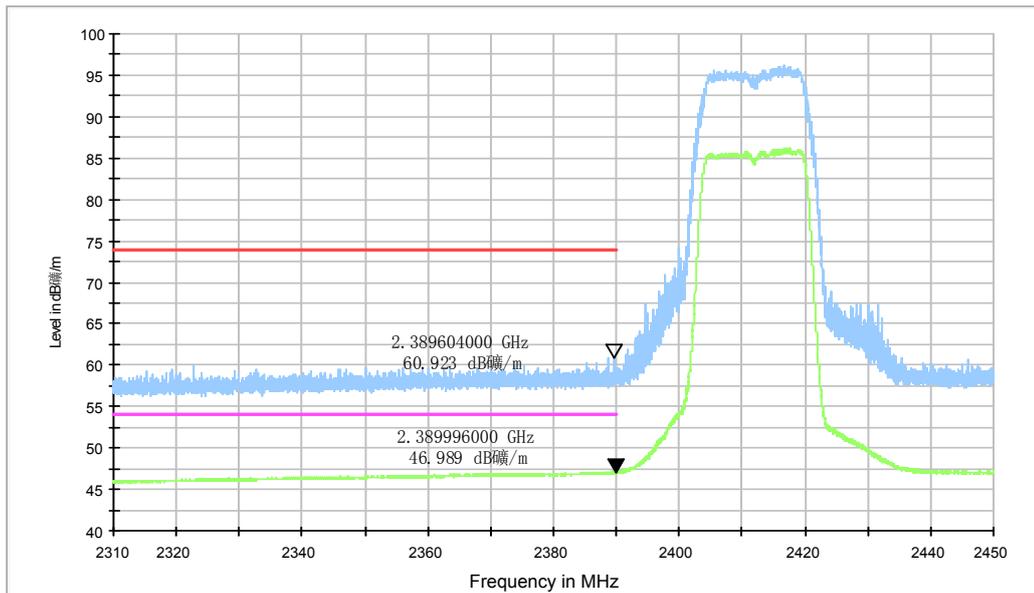


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

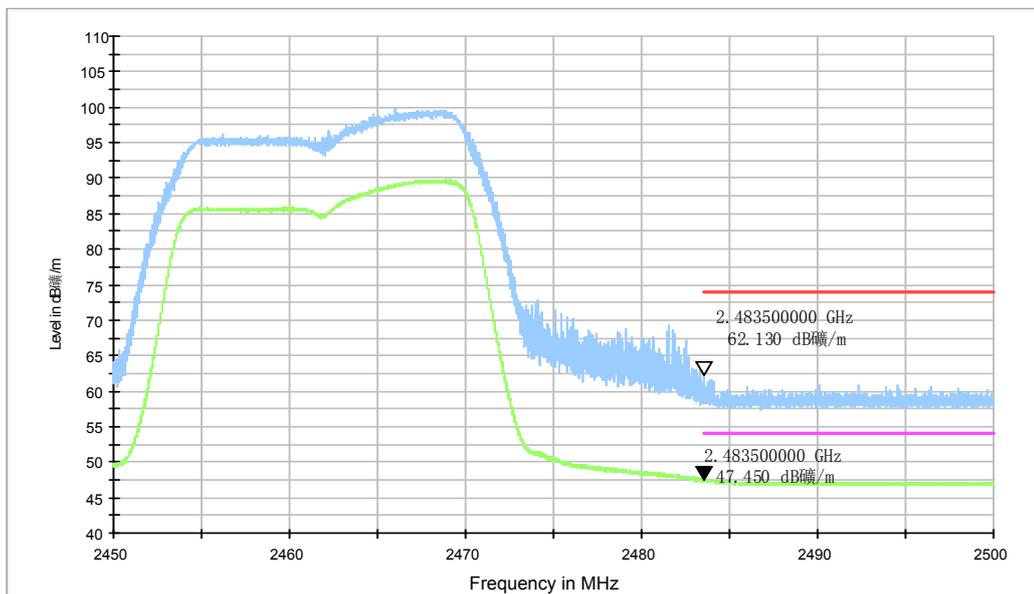


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

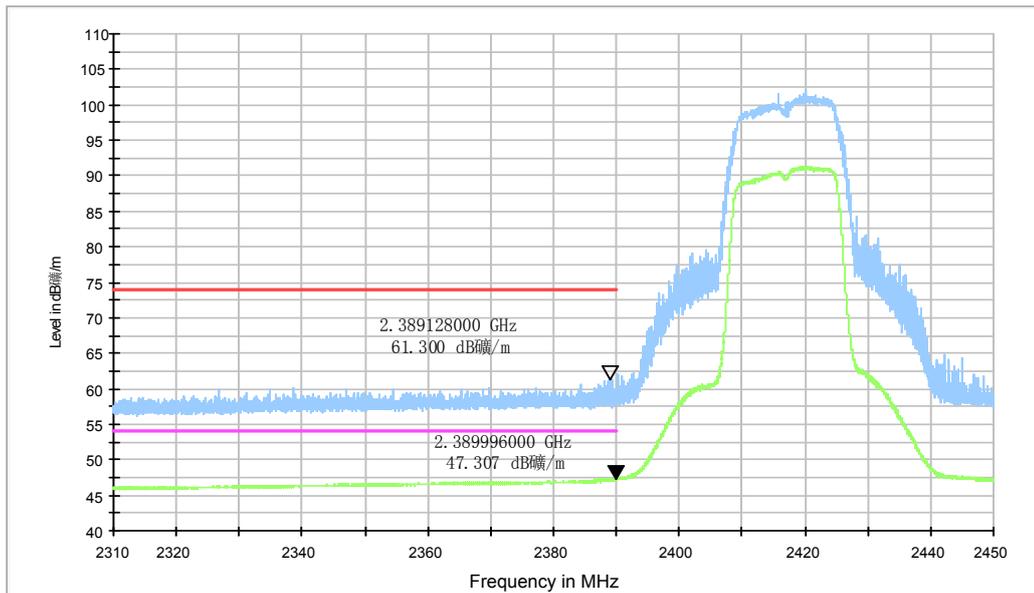


Fig.A.6.2.9 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch2, 2.38 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

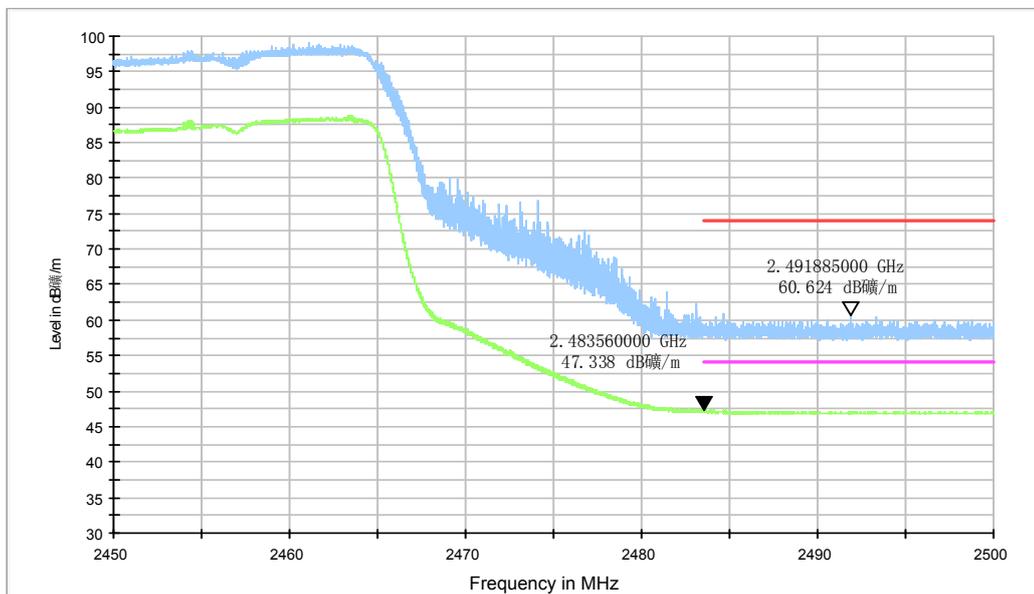


Fig.A.6.2.10 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch10, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

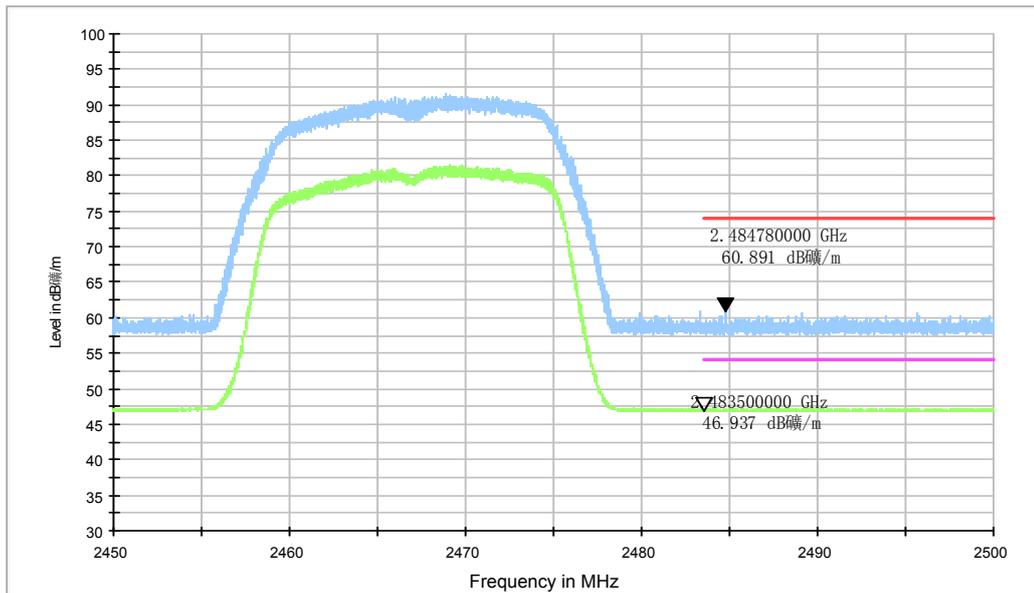


Fig.A.6.2.11 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch12, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

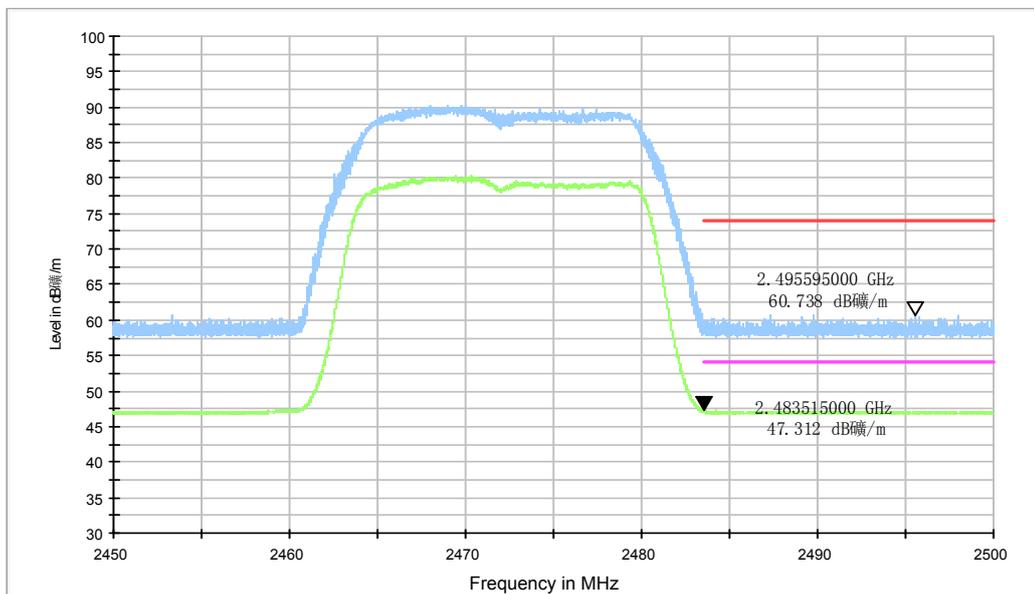


Fig.A.6.2.12 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch13, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

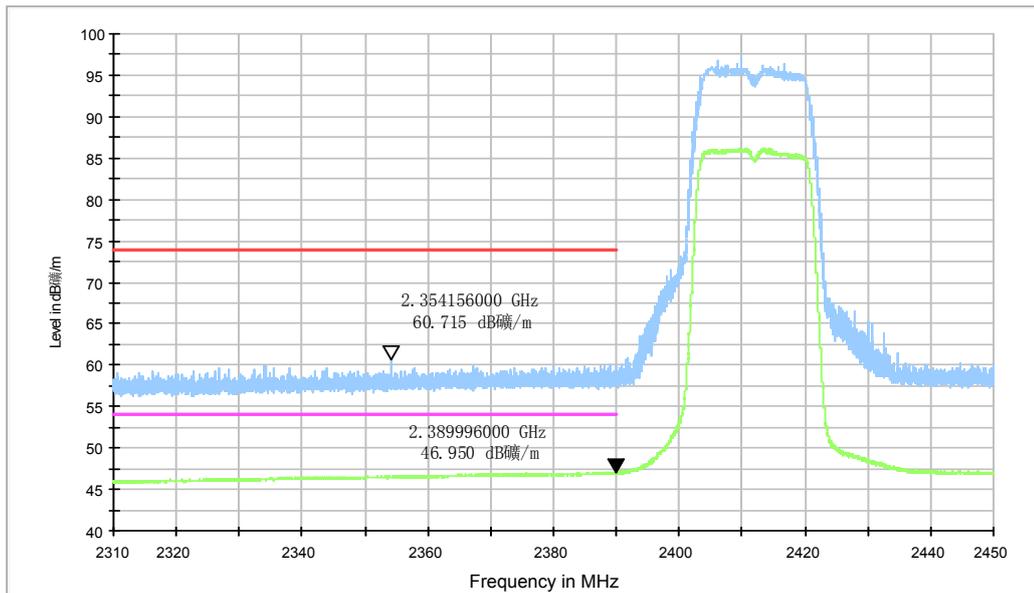


Fig.A.6.2.13 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

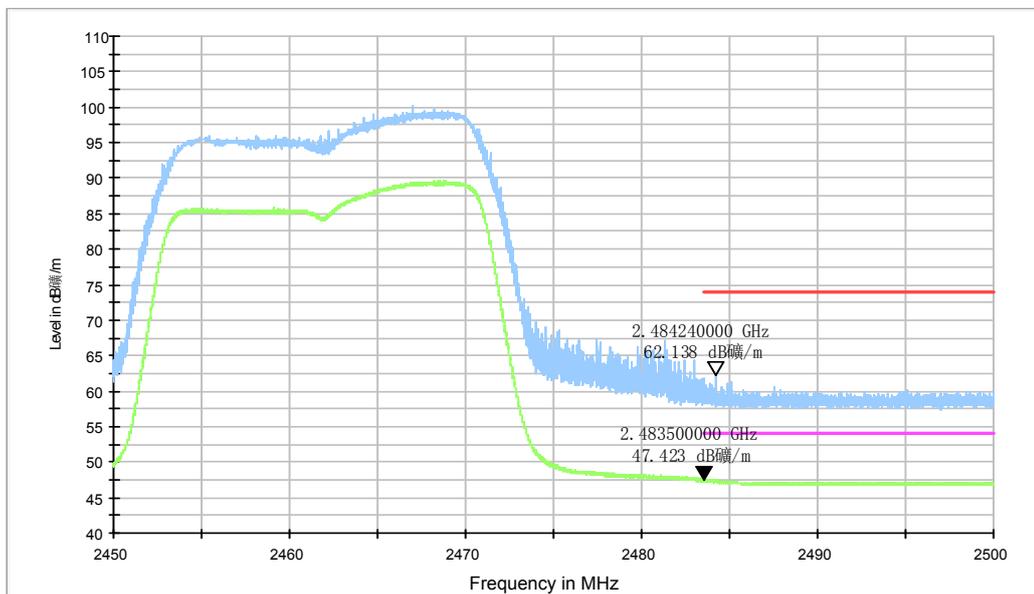


Fig.A.6.2.14 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

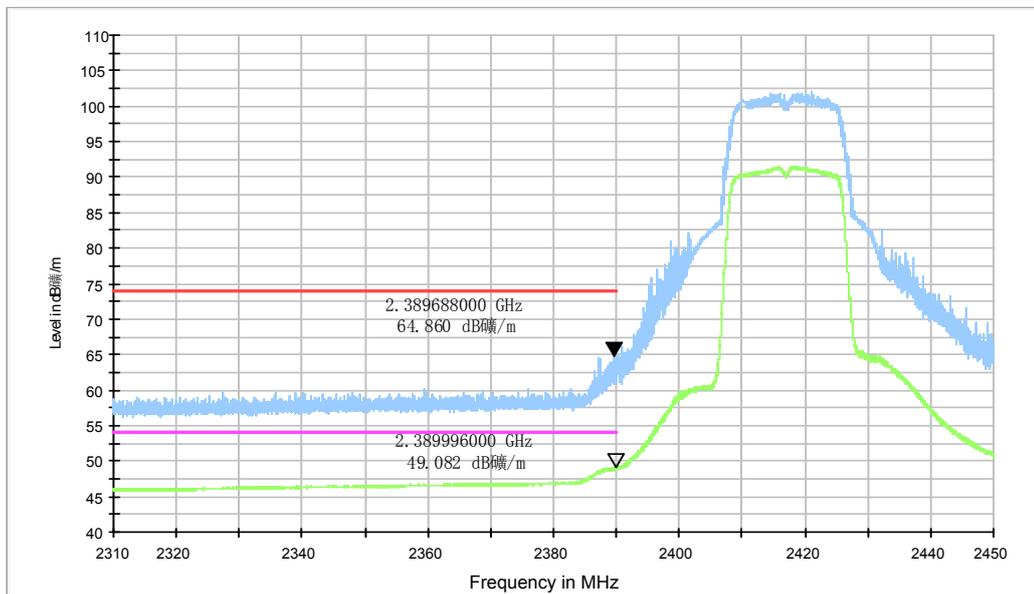


Fig.A.6.2.15 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch2, 2.38 GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

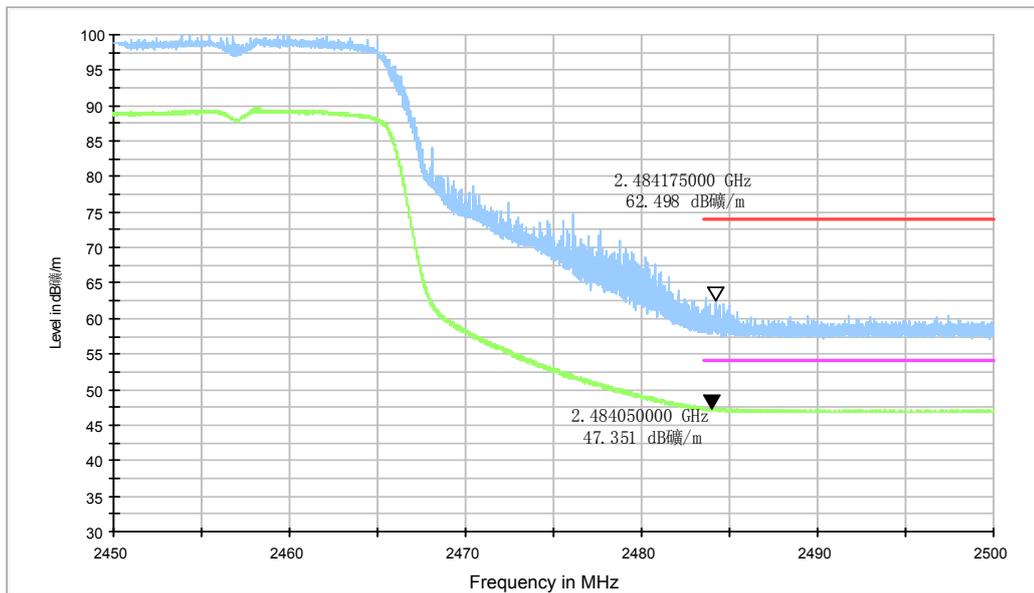


Fig.A.6.2.16 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch10, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

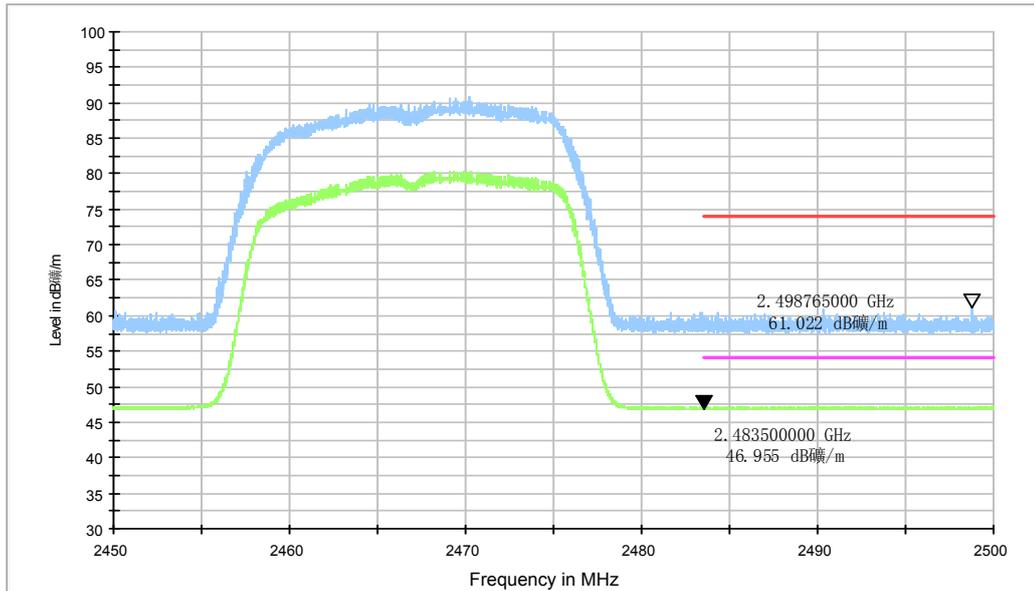


Fig.A.6.2.17 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch12, 2.45 GHz - 2.50GHz

RE - Power-2.45GHz-2.5GHz

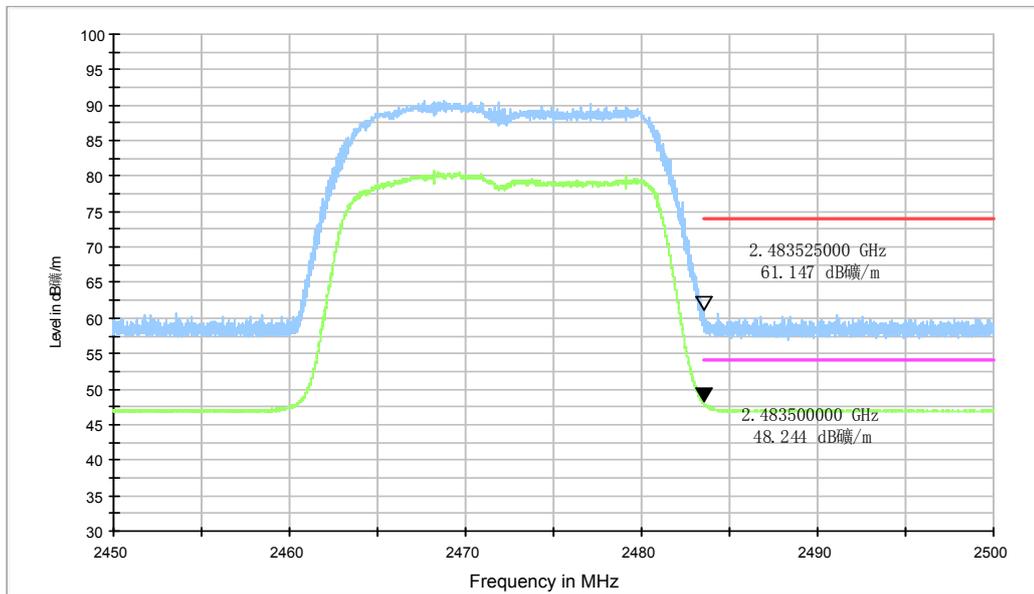


Fig.A.6.2.18 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch13, 2.45 GHz - 2.50GHz

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		
		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		
		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:

Traffic:

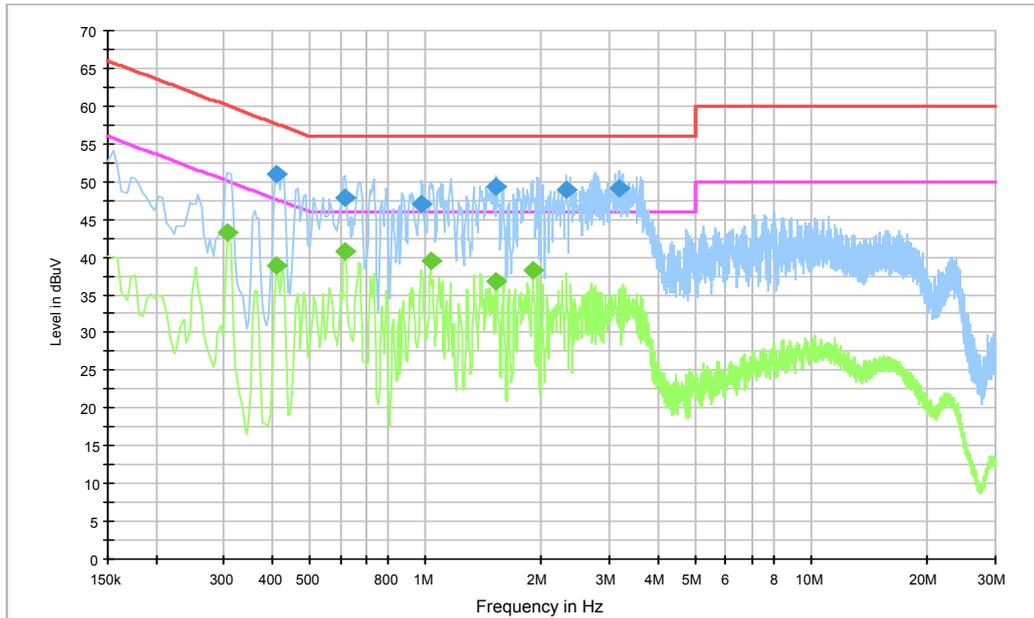


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.411000	51.1	10000	9.000	On	L1	20.0	6.6	57.6
0.618000	47.9	10000	9.000	On	L1	20.0	8.1	56.0
0.973500	46.9	10000	9.000	On	L1	19.9	9.1	56.0
1.527000	49.3	10000	9.000	On	L1	19.8	6.7	56.0
2.319000	48.8	10000	9.000	On	L1	19.8	7.2	56.0
3.169500	49.2	10000	9.000	On	L1	19.8	6.8	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.307500	43.3	10000.	9.000	On	L1	20.0	6.8	50.0
0.411000	38.8	10000.	9.000	On	L1	20.0	8.8	47.6
0.618000	40.8	10000.	9.000	On	L1	20.0	5.2	46.0
1.027500	39.5	10000.	9.000	On	L1	19.9	6.5	46.0
1.527000	36.8	10000.	9.000	On	L1	19.8	9.2	46.0
1.896000	38.2	10000.	9.000	On	L1	19.8	7.8	46.0

Idle:

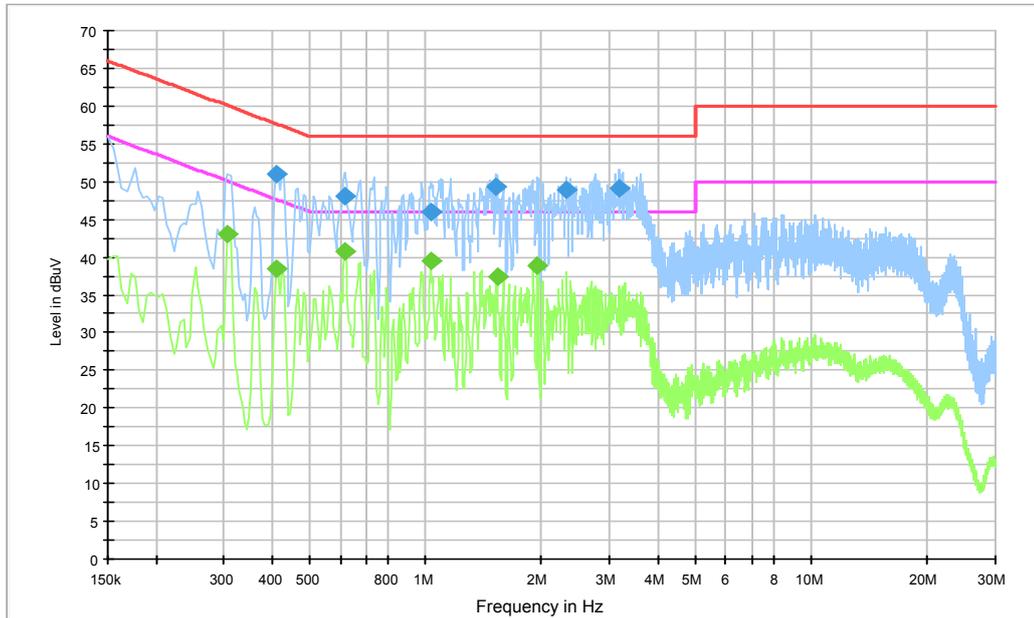


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.411000	50.9	10000	9.000	On	L1	20.0	6.7	57.6
0.618000	48.0	10000	9.000	On	L1	20.0	8.0	56.0
1.032000	46.0	10000	9.000	On	L1	19.9	10.0	56.0
1.527000	49.3	10000	9.000	On	L1	19.8	6.7	56.0
2.319000	48.8	10000	9.000	On	L1	19.8	7.2	56.0
3.169500	49.0	10000	9.000	On	L1	19.8	7.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.307500	43.1	10000.	9.000	On	L1	20.0	6.9	50.0
0.411000	38.5	10000.	9.000	On	L1	20.0	9.1	47.6
0.618000	40.8	10000.	9.000	On	L1	20.0	5.2	46.0
1.027500	39.5	10000.	9.000	On	L1	19.9	6.5	46.0
1.531500	37.3	10000.	9.000	On	L1	19.8	8.7	46.0
1.954500	38.9	10000.	9.000	On	L1	19.8	7.1	46.0

ANNEX B: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p> 		
<hr/> <p>Certificate of Accreditation to ISO/IEC 17025:2005</p> <hr/>		
<p>NVLAP LAB CODE: 600118-0</p>		
<p>Telecommunication Technology Labs, CAICT Beijing China</p>		
<p><i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i></p>		
<p>Electromagnetic Compatibility & Telecommunications</p>		
<p><i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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></p>		
<hr/> <p>2018-09-28 through 2019-09-30 <i>Effective Dates</i></p>		 <hr/> <p><i>For the National Voluntary Laboratory Accreditation Program</i></p>

END OF REPORT