

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/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	2.38GHz ~2.45GHz	Fig.A.6.2.1	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.2	P
		3 GHz ~ 18 GHz	Fig.A.6.2.3	P
	6	9 kHz ~30 MHz	Fig.A.6.2.4	P
		30 MHz ~1 GHz	Fig.A.6.2.5	P
		1 GHz ~ 3 GHz	Fig.A.6.2.6	P
		3 GHz ~ 18 GHz	Fig.A.6.2.7	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.8	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.9	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.10	P
		3 GHz ~ 18 GHz	Fig.A.6.2.11	P

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power	2.38GHz ~2.43GHz	Fig.A.6.2.12	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.13	P
		3 GHz ~ 18 GHz	Fig.A.6.2.14	P
	6	30 MHz ~1 GHz	Fig.A.6.2.15	P
		1 GHz ~ 3 GHz	Fig.A.6.2.16	P
		3 GHz ~ 18 GHz	Fig.A.6.2.17	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.18	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.19	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.20	P
		3 GHz ~ 18 GHz	Fig.A.6.2.21	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	Power	2.38GHz ~2.45GHz	Fig.A.6.2.22	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.23	P
		3 GHz ~ 18 GHz	Fig.A.6.2.24	P
	6	30 MHz ~1 GHz	Fig.A.6.2.25	P
		1 GHz ~ 3 GHz	Fig.A.6.2.26	P
		3 GHz ~ 18 GHz	Fig.A.6.2.27	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.28	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.29	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.30	P
		3 GHz ~ 18 GHz	Fig.A.6.2.31	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	Power	2.38GHz ~2.45GHz	Fig.A.6.2.32	P
	3	1 GHz ~ 3 GHz	Fig.A.6.2.33	P
		3 GHz ~ 18 GHz	Fig.A.6.2.34	P
	6	30 MHz ~1 GHz	Fig.A.6.2.35	P
		1 GHz ~ 3 GHz	Fig.A.6.2.36	P
		3 GHz ~ 18 GHz	Fig.A.6.2.37	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.38	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.39	P
	9	1 GHz ~ 3 GHz	Fig.A.6.2.40	P
		3 GHz ~ 18 GHz	Fig.A.6.2.41	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:

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

Average Result:
802.11b
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2379.800	46.85	2.9	32.1	11.93	54.0	7.2	H
2392.200	46.87	2.9	32.0	12.04	54.0	7.1	H
4824.000	37.27	-17.3	34.5	20.10	54.0	16.7	H
7236.000	38.35	-17.6	36.1	19.82	54.0	15.7	H
9648.000	39.51	-17.4	37.0	19.88	54.0	14.5	H
12060.000	41.63	-17.2	39.3	19.57	54.0	12.4	H

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Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2385.400	46.78	2.9	32.0	11.90	54.0	7.2	H
2484.500	46.90	2.9	32.7	11.24	54.0	7.1	H
4874.000	35.88	-18.3	34.5	19.70	54.0	18.1	H
7311.000	38.66	-18.6	36.1	21.20	54.0	15.3	H
9748.500	38.95	-17.3	37.2	19.08	54.0	15.0	H

12185.000	40.33	-17.7	39.2	18.79	54.0	13.7	H
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Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2485.200	47.91	2.9	32.7	12.26	54.0	6.1	H
2484.800	47.93	2.9	32.7	12.27	54.0	6.1	H
4924.000	37.46	-19.0	34.5	21.91	54.0	16.5	H
7386.400	37.10	-17.2	36.0	18.30	54.0	16.9	H
9848.000	39.70	-18.1	37.3	20.50	54.0	14.3	H
12310.500	40.84	-17.9	39.2	19.53	54.0	13.2	H

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2388.000	46.72	2.9	32.0	11.86	54.0	7.3	H
2386.600	46.75	2.9	32.0	11.88	54.0	7.2	H
4824.000	37.55	-17.3	34.5	20.37	54.0	16.4	H
7236.000	38.43	-17.6	36.1	19.90	54.0	15.6	H
9648.000	39.56	-17.4	37.0	19.93	54.0	14.4	H
12060.000	41.65	-17.2	39.3	19.59	54.0	12.4	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2386.300	47.36	2.9	32.0	12.48	54.0	6.6	H
2484.200	47.49	2.9	32.7	11.82	54.0	6.5	H
4875.000	36.55	-18.3	34.5	20.40	54.0	17.5	H
7311.000	37.21	-18.6	36.1	19.75	54.0	16.8	H
9748.500	39.78	-17.3	37.2	19.91	54.0	14.2	H
12184.500	40.94	-17.7	39.2	19.40	54.0	13.1	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2481.700	48.11	2.9	32.8	12.37	54.0	5.9	H
2482.600	48.08	2.9	32.8	12.37	54.0	5.9	H
4924.500	36.17	-19.0	34.5	20.62	54.0	17.8	H

7386.000	38.85	-17.3	36.0	20.06	54.0	15.2	H
9847.500	38.98	-18.1	37.3	19.78	54.0	15.0	H
12310.500	40.32	-17.9	39.2	19.01	54.0	13.7	H

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.000	47.42	2.9	32.0	12.57	54.0	6.6	H
2386.200	47.03	2.9	32.0	12.16	54.0	7.0	H
4824.000	37.56	-17.3	34.5	20.38	54.0	16.4	H
7236.000	38.56	-17.6	36.1	20.03	54.0	15.4	H
9648.000	39.60	-17.4	37.0	19.97	54.0	14.4	H
12060.000	41.67	-17.2	39.3	19.61	54.0	12.3	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2386.300	47.02	2.9	32.0	12.14	54.0	7.0	H
2483.800	48.24	2.9	32.8	12.55	54.0	5.8	H
4875.000	36.63	-18.3	34.5	20.48	54.0	17.4	H
7311.000	37.30	-18.6	36.1	19.84	54.0	16.7	H
9748.500	39.89	-17.3	37.2	20.02	54.0	14.1	H
12184.500	40.81	-17.7	39.2	19.27	54.0	13.2	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.800	47.97	2.9	32.8	12.29	54.0	6.0	H
2486.700	47.86	2.9	32.7	12.25	54.0	6.1	H
4924.000	36.18	-19.0	34.5	20.63	54.0	17.8	H
7386.000	38.92	-17.3	36.0	20.13	54.0	15.1	H
9848.000	38.99	-18.1	37.3	19.78	54.0	15.0	H
12310.000	40.37	-17.9	39.2	19.06	54.0	13.6	H

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Ch3

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2385.100	46.80	2.9	32.0	26.81	54.0	7.2	H
2388.900	46.83	2.9	32.0	26.71	54.0	7.2	H
4844.000	37.44	-17.5	34.5	20.48	54.0	16.6	H
7266.000	37.45	-18.8	36.1	20.11	54.0	16.6	H
9688.000	40.58	-16.5	37.1	19.99	54.0	13.4	H
12110.000	41.54	-17.3	39.3	19.58	54.0	12.5	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2386.200	47.19	2.9	32.0	12.32	54.0	6.8	H
2484.300	48.23	2.9	32.7	12.56	54.0	5.8	H
4874.500	36.68	-18.3	34.5	20.51	54.0	17.3	H
7311.000	37.20	-18.6	36.1	19.74	54.0	16.8	H
9748.000	39.78	-17.3	37.2	19.90	54.0	14.2	H
12185.000	40.87	-17.7	39.2	19.33	54.0	13.1	H

Ch9

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.400	48.17	2.9	32.8	12.48	54.0	5.8	H
2482.600	48.16	2.9	32.8	12.44	54.0	5.8	H
4904.000	36.15	-18.8	34.5	20.43	54.0	17.9	H
7356.000	38.11	-18.0	36.1	20.03	54.0	15.9	H
9808.000	38.14	-18.8	37.3	19.68	54.0	15.9	H
12206.000	40.71	-17.8	39.2	19.27	54.0	13.3	H

Peak Result:
802.11b
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.750	59.6	2.9	32.0	24.70	74.0	14.4	V
2386.692	60.0	2.9	32.0	25.10	74.0	14.0	V
17961.750	59.8	-13.6	40.8	32.63	74.0	14.2	V

17637.000	59.7	-13.0	41.1	31.63	74.0	14.3	V
17848.500	59.7	-13.5	40.9	32.25	74.0	14.3	H
17741.250	59.4	-13.3	41.0	31.65	74.0	14.6	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2364.000	49.9	-27.3	31.9	45.36	74.0	24.1	V
2519.200	51.1	-26.7	32.6	45.18	74.0	22.9	H
17581.500	59.9	-13.6	41.1	32.35	74.0	14.1	V
17997.000	59.8	-13.5	40.8	32.51	74.0	14.2	H
17690.250	59.7	-13.2	41.0	31.85	74.0	14.3	V
17605.500	59.5	-13.3	41.1	31.72	74.0	14.5	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.850	60.99	2.9	32.7	25.34	74.0	13.0	H
2483.880	60.87	2.9	32.8	25.19	74.0	13.1	H
17160.000	59.7	-14.8	41.3	33.20	74.0	14.3	H
17672.250	59.6	-13.1	41.1	31.61	74.0	14.4	V
17357.250	59.5	-14.3	41.2	32.60	74.0	14.5	H
17614.500	59.4	-13.2	41.1	31.54	74.0	14.6	V

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2382.422	59.4	2.9	32.0	24.54	74.0	14.6	V
2388.638	60.1	2.9	32.0	25.26	74.0	13.9	V
17733.750	60.2	-13.3	41.0	32.47	74.0	13.8	V
17642.250	59.8	-13.0	41.1	31.76	74.0	14.2	V
17771.250	59.7	-13.4	41.0	32.10	74.0	14.3	H
17616.750	59.6	-13.2	41.1	31.69	74.0	14.4	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2352.000	49.3	-27.8	31.7	45.40	74.0	24.7	V

2541.600	51.9	-26.8	33.0	45.77	74.0	22.1	H
17445.750	60.0	-14.8	41.2	33.65	74.0	14.0	V
17570.250	59.8	-13.7	41.1	32.30	74.0	14.2	H
17774.250	59.7	-13.4	41.0	32.05	74.0	14.3	V
17647.500	59.6	-13.0	41.1	31.58	74.0	14.4	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.800	62.5	2.9	32.7	26.88	74.0	11.5	V
2485.670	61.6	2.9	32.7	25.99	74.0	12.4	V
17964.000	59.9	-13.6	40.8	32.65	74.0	14.1	H
17291.250	59.9	-14.0	41.2	32.61	74.0	14.1	H
17703.750	59.8	-13.2	41.0	31.96	74.0	14.2	H
17847.000	59.6	-13.5	40.9	32.14	74.0	14.4	V

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.246	60.1	2.9	32.0	25.21	74.0	13.9	V
2386.048	59.8	2.9	32.0	24.97	74.0	14.2	V
17851.500	60.4	-13.5	40.9	32.94	74.0	13.6	H
17562.750	59.8	-13.8	41.1	32.39	74.0	14.2	V
17511.000	59.5	-14.3	41.2	32.66	74.0	14.5	V
17977.500	59.5	-13.6	40.8	32.32	74.0	14.5	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2353.200	49.3	-27.8	31.7	45.42	74.0	24.7	H
2518.800	51.4	-26.7	32.6	45.49	74.0	22.6	H
17722.500	60.1	-13.2	41.0	32.27	74.0	13.9	V
17572.500	59.9	-13.7	41.1	32.46	74.0	14.1	H
17291.250	59.9	-14.0	41.2	32.61	74.0	14.1	V
17898.000	59.5	-13.6	40.9	32.17	74.0	14.5	V

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.375	62.2	2.9	32.8	26.48	74.0	11.8	H
2484.000	62.0	2.9	32.7	26.29	74.0	12.0	H
17278.500	59.9	-14.0	41.2	32.71	74.0	14.1	H
17286.000	59.9	-13.9	41.2	32.61	74.0	14.1	V
17603.250	59.7	-13.3	41.1	31.93	74.0	14.3	H
17535.750	59.5	-14.1	41.2	32.45	74.0	14.5	V

802.11n-HT40

Ch3

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.204	59.9	2.9	32.0	25.03	74.0	14.1	V
2387.640	59.7	2.9	32.0	24.84	74.0	14.3	H
17711.250	59.8	-13.2	41.0	31.97	74.0	14.2	V
17652.000	59.6	-13.1	41.1	31.57	74.0	14.4	H
17580.000	59.6	-13.6	41.1	32.01	74.0	14.4	H
17731.500	59.5	-13.3	41.0	31.77	74.0	14.5	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2351.000	49.4	-27.8	31.7	45.44	74.0	24.6	V
2553.200	51.4	-26.8	33.1	45.15	74.0	22.6	V
17767.500	60.3	-13.4	41.0	32.69	74.0	13.7	V
17529.000	60.1	-14.1	41.2	33.07	74.0	13.9	V
17786.250	59.8	-13.4	41.0	32.21	74.0	14.2	H
17374.500	59.7	-14.4	41.2	32.95	74.0	14.3	H

Ch9

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.600	62.5	2.9	32.8	26.81	74.0	11.5	V
2484.750	62.4	2.9	32.7	26.71	74.0	11.6	V
17939.250	59.6	-13.6	40.8	32.31	74.0	14.4	H
17724.750	59.5	-13.2	41.0	31.76	74.0	14.5	H
17952.000	59.5	-13.6	40.8	32.27	74.0	14.5	V
17200.500	59.4	-14.5	41.2	32.68	74.0	14.6	V

Test graphs as below:

RE - Power-2.38GHz-2.45GHz

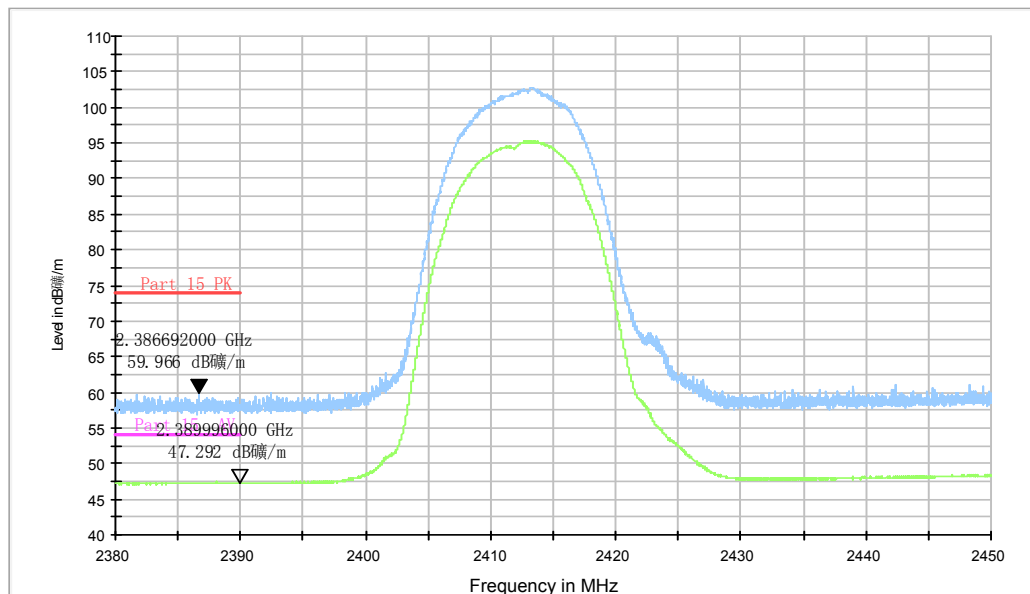


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.45GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

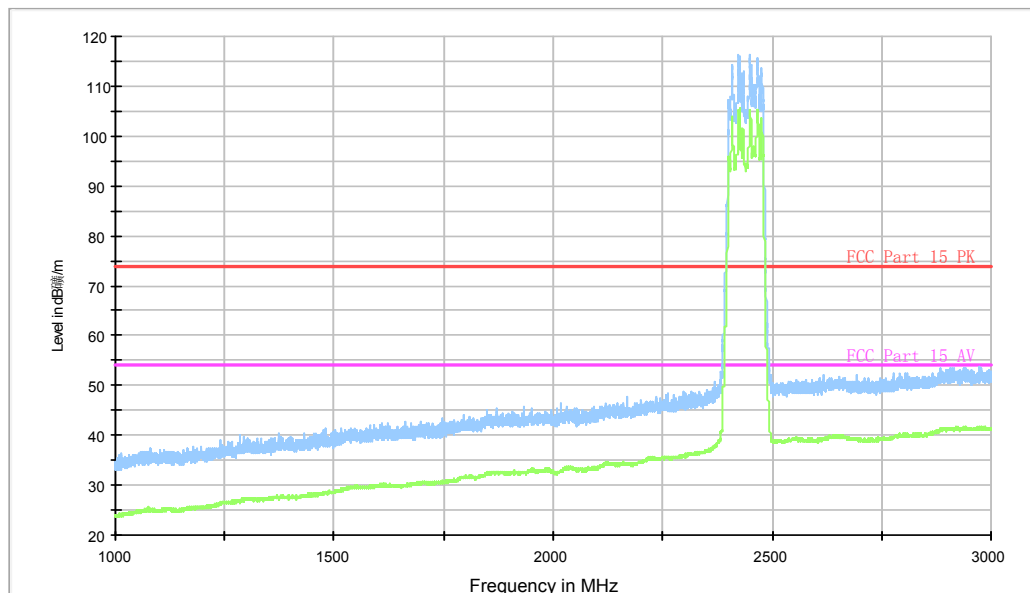


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (802.11b, Ch1, 1 GHz-3 GHz)

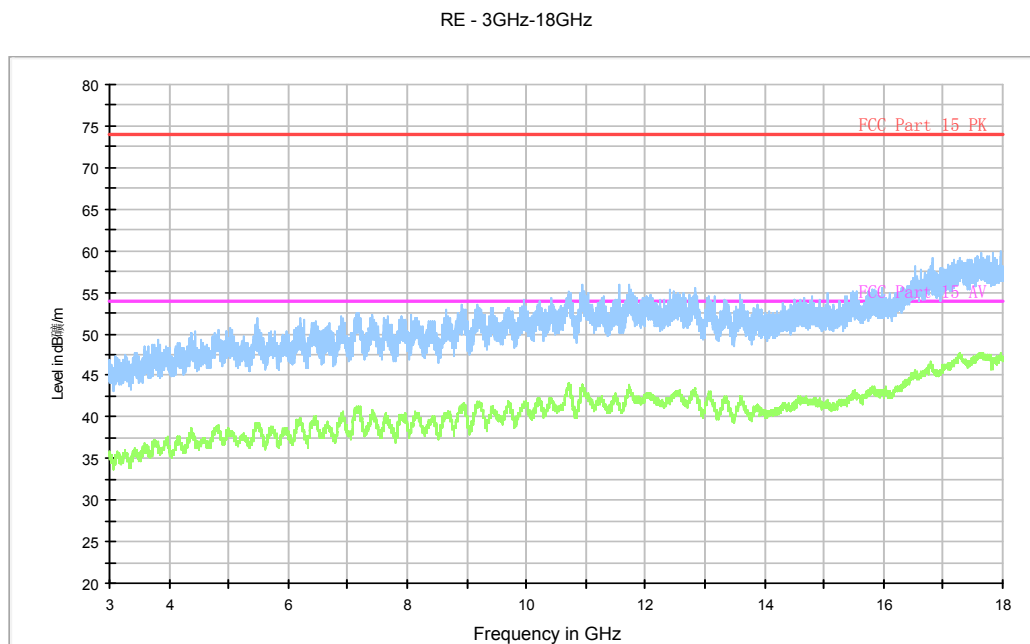


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (802.11b, Ch1, 3 GHz-18 GHz)

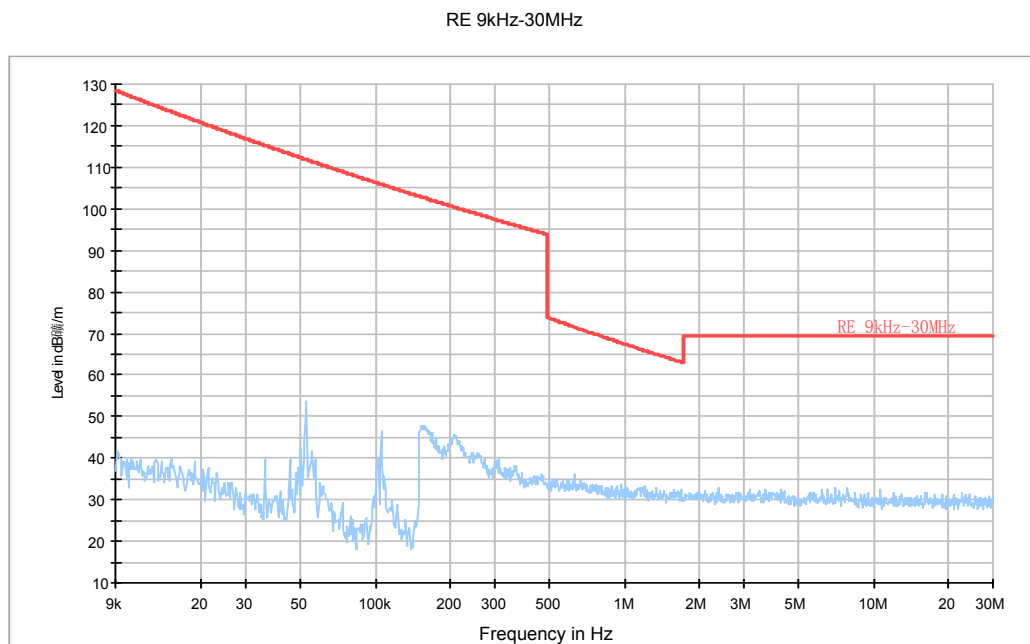


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 9kHz-30 MHz)

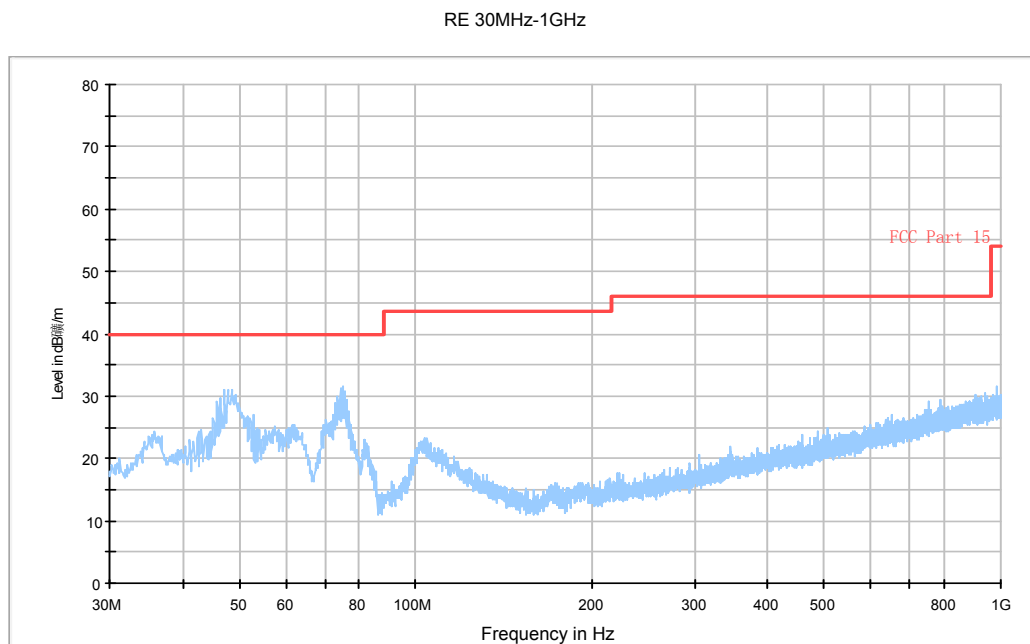


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 30 MHz-1 GHz)

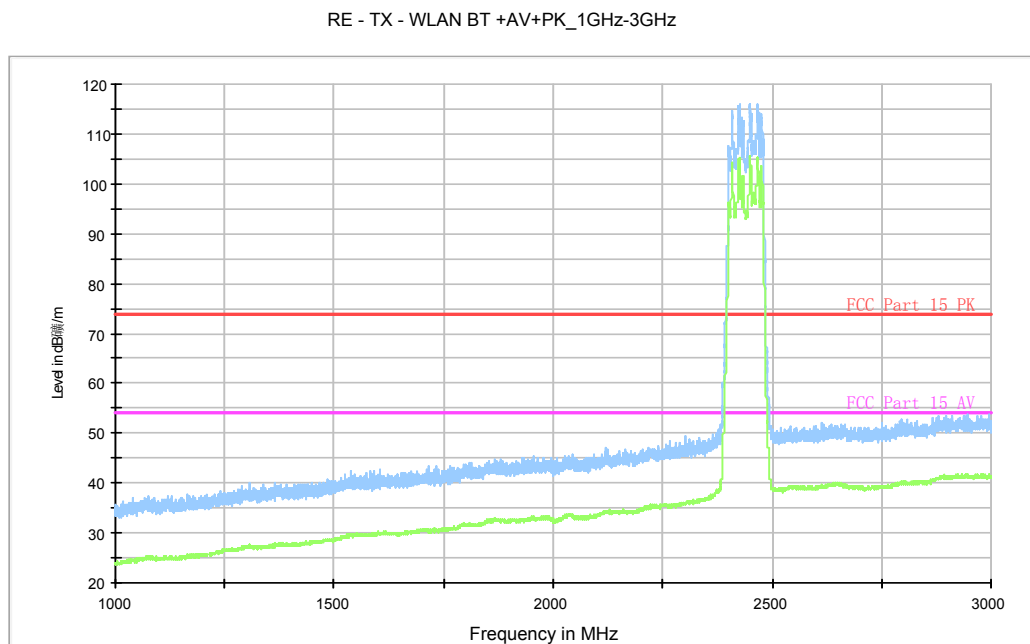


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 1 GHz-3 GHz)

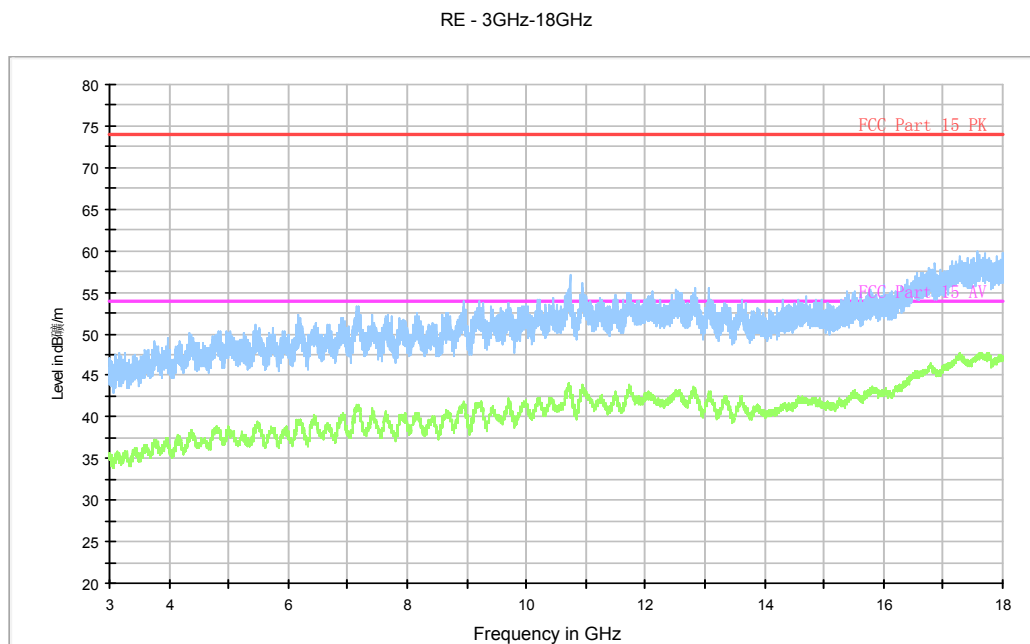


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 3 GHz-18 GHz)

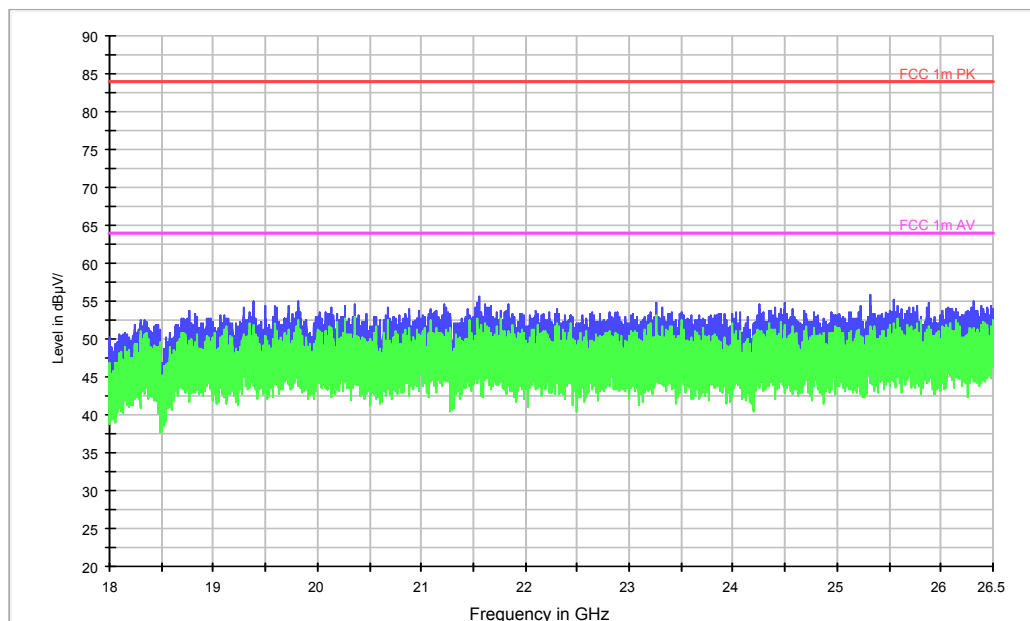


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 18GHz – 26.5GHz)

RE - Power-2.45GHz-2.5GHz

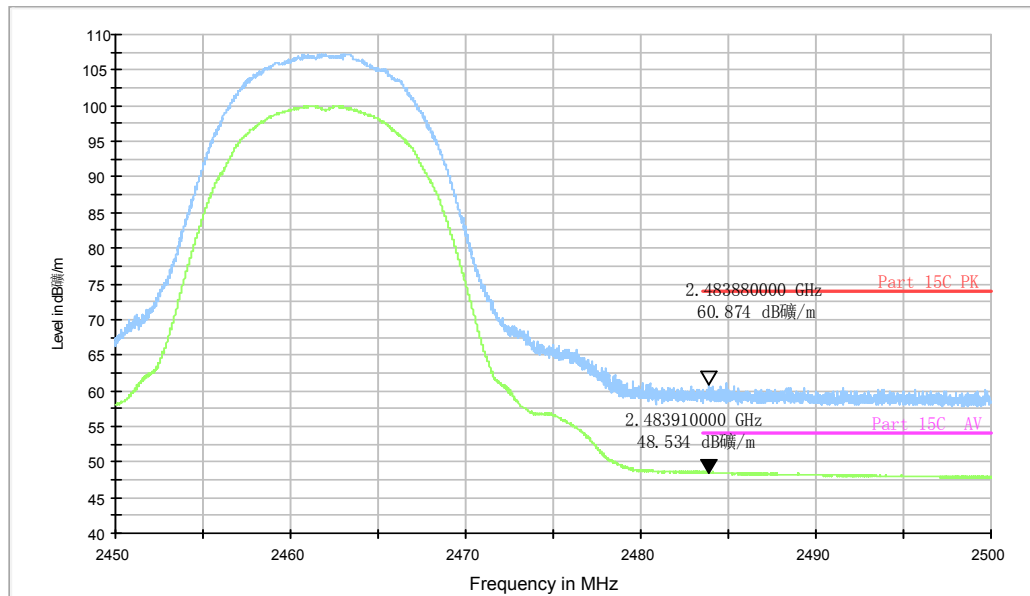


Fig.A.6.2.9 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

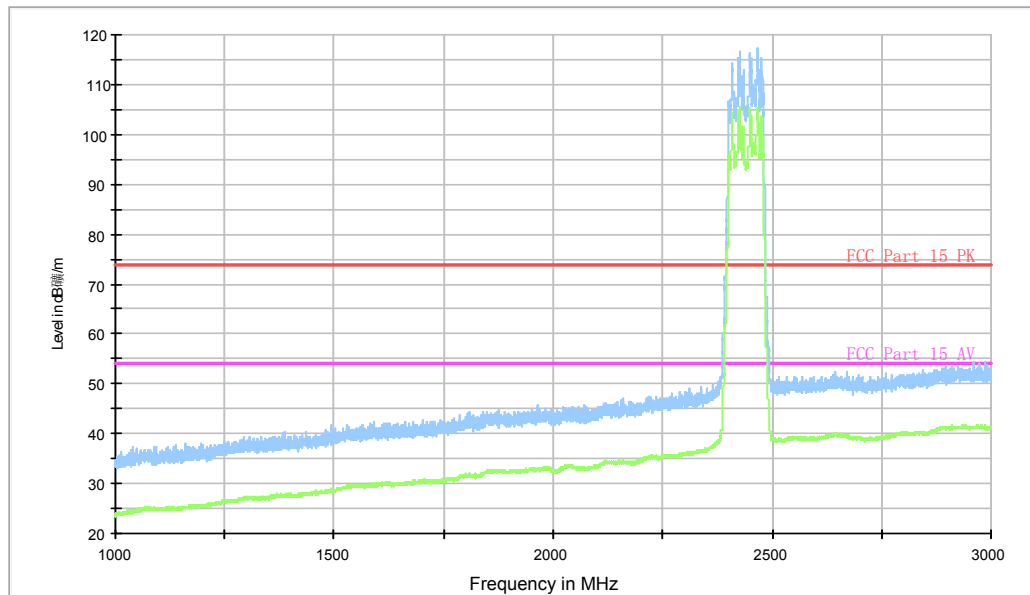


Fig.A.6.2.10 Transmitter Spurious Emission - Radiated (802.11b, Ch11, 1 GHz-3 GHz)

RE - 3GHz-18GHz

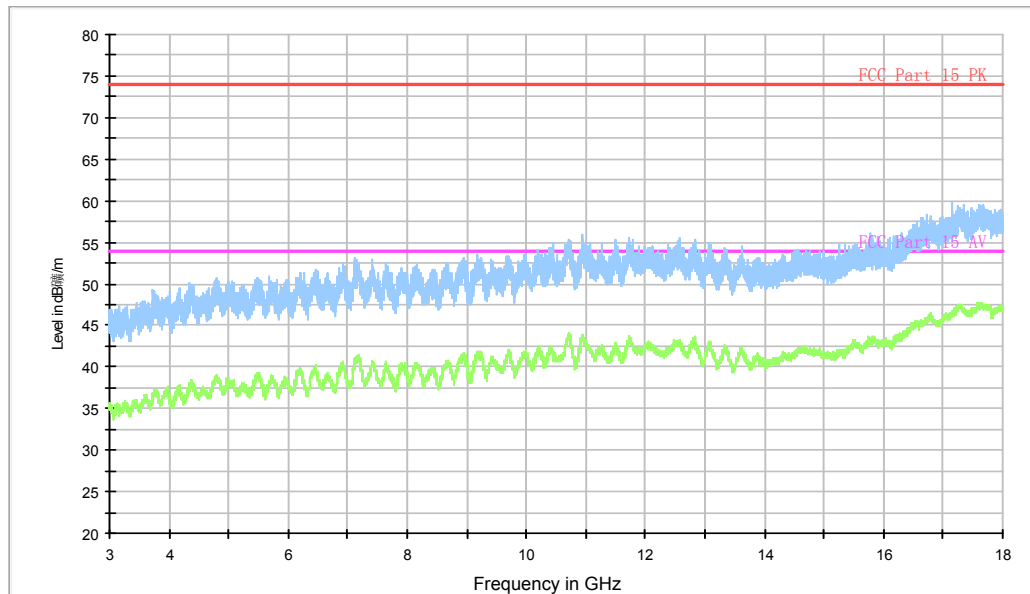


Fig.A.6.2.11 Transmitter Spurious Emission - Radiated (802.11b, Ch11, 3 GHz-18 GHz)

RE - Power-2.38GHz-2.45GHz

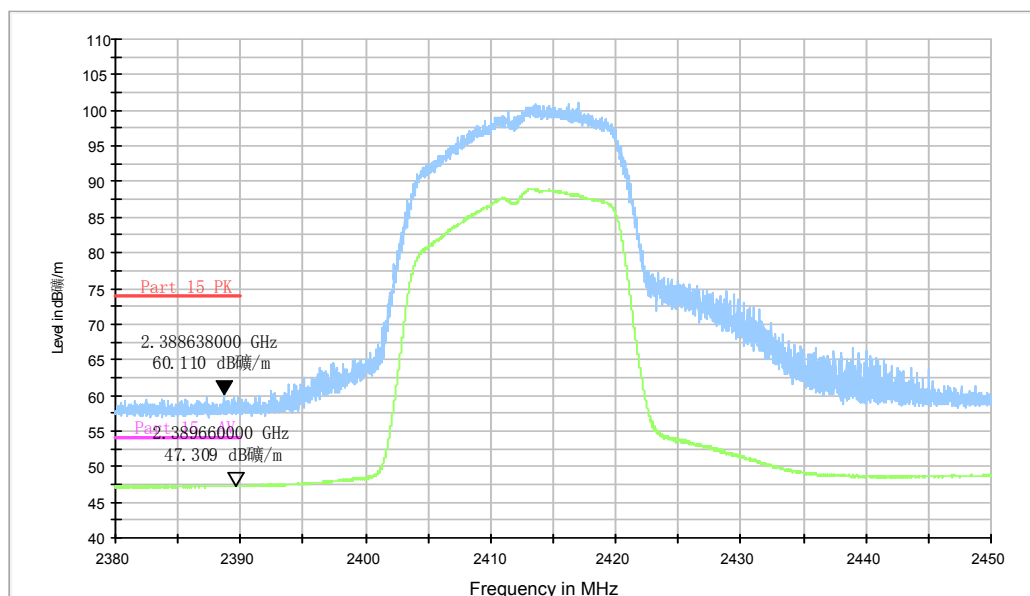


Fig.A.6.2.12 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

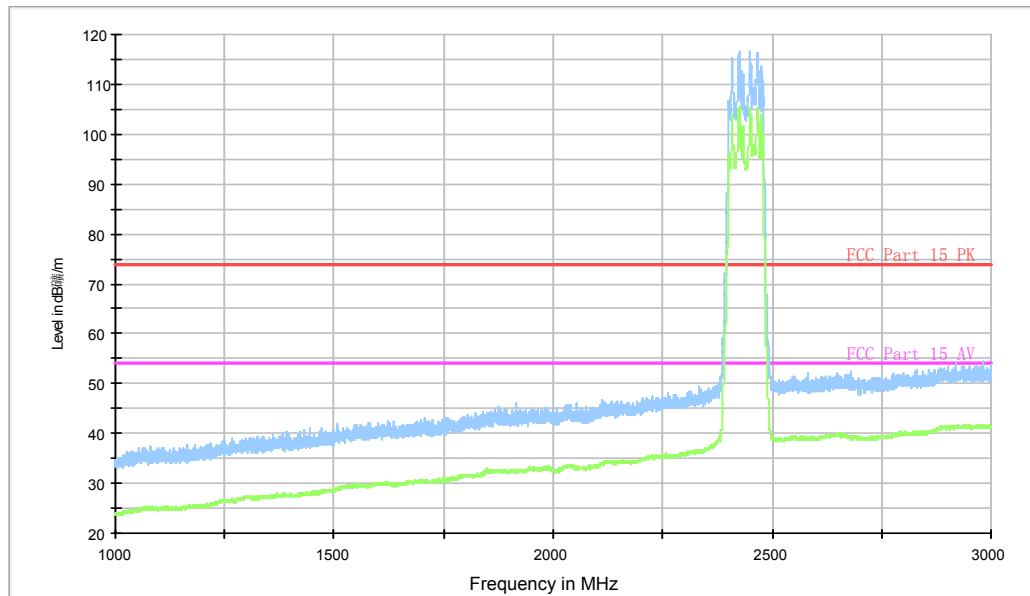


Fig.A.6.2.13 Transmitter Spurious Emission - Radiated (802.11g, Ch1, 1 GHz-3 GHz)

RE - 3GHz-18GHz

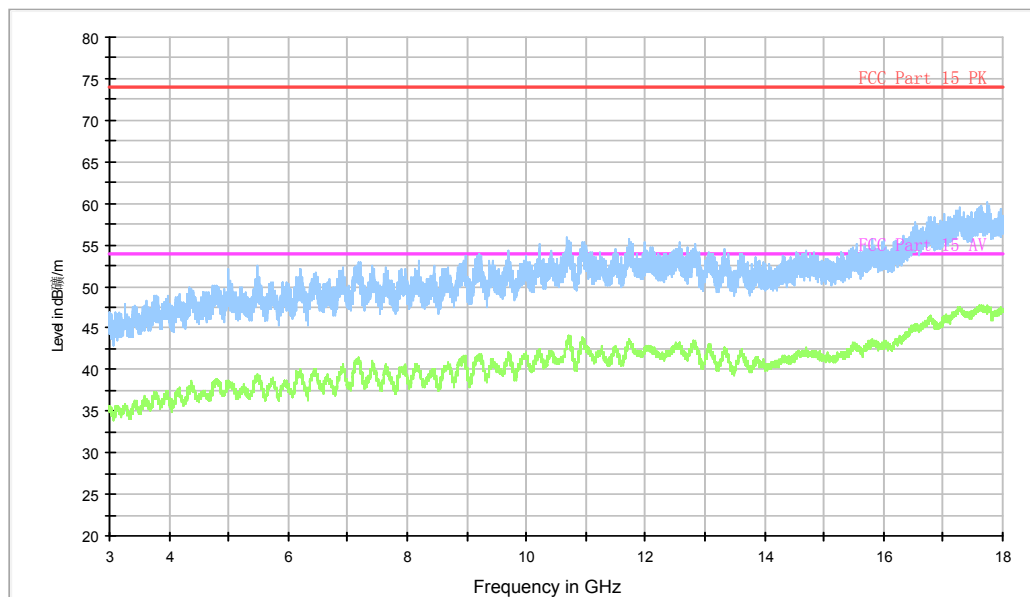


Fig.A.6.2.14 Transmitter Spurious Emission - Radiated (802.11g, Ch1, 3 GHz-18 GHz)

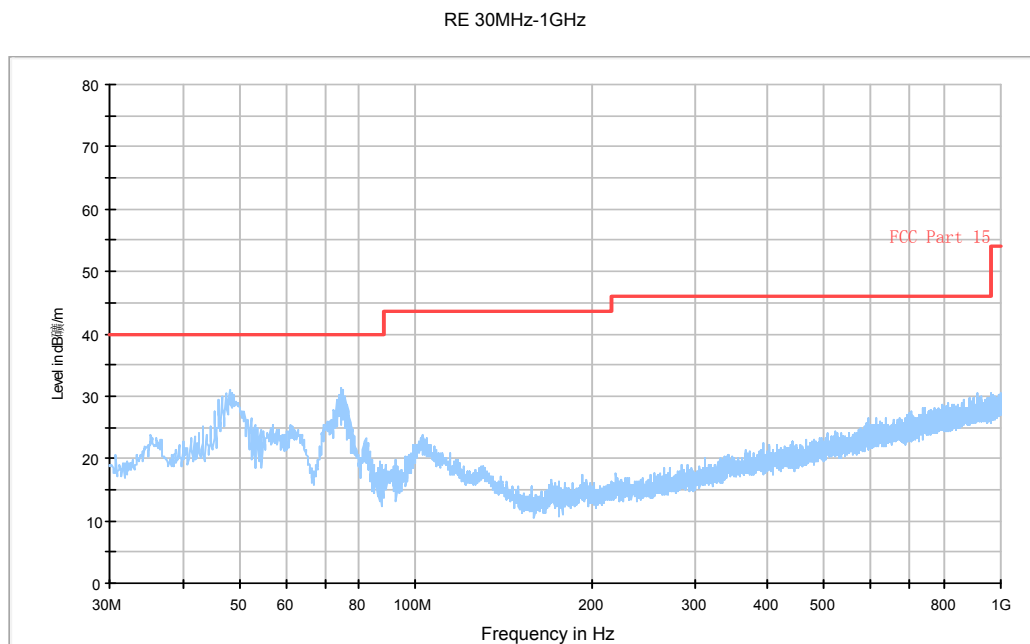


Fig.A.6.2.15 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 30 MHz-1 GHz)

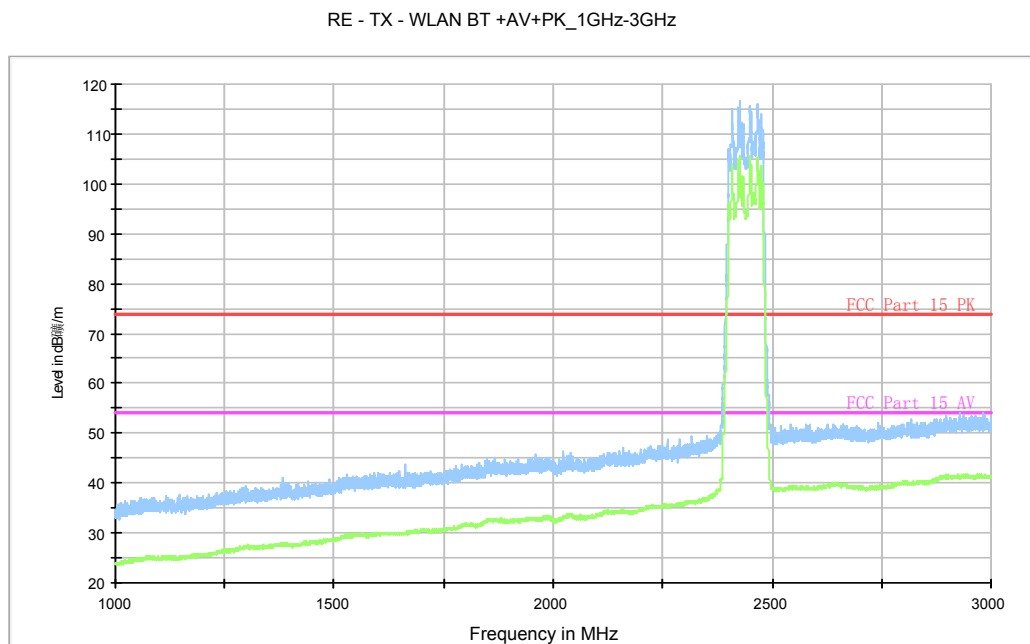


Fig.A.6.2.16 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 1 GHz-3 GHz)

RE - 3GHz-18GHz

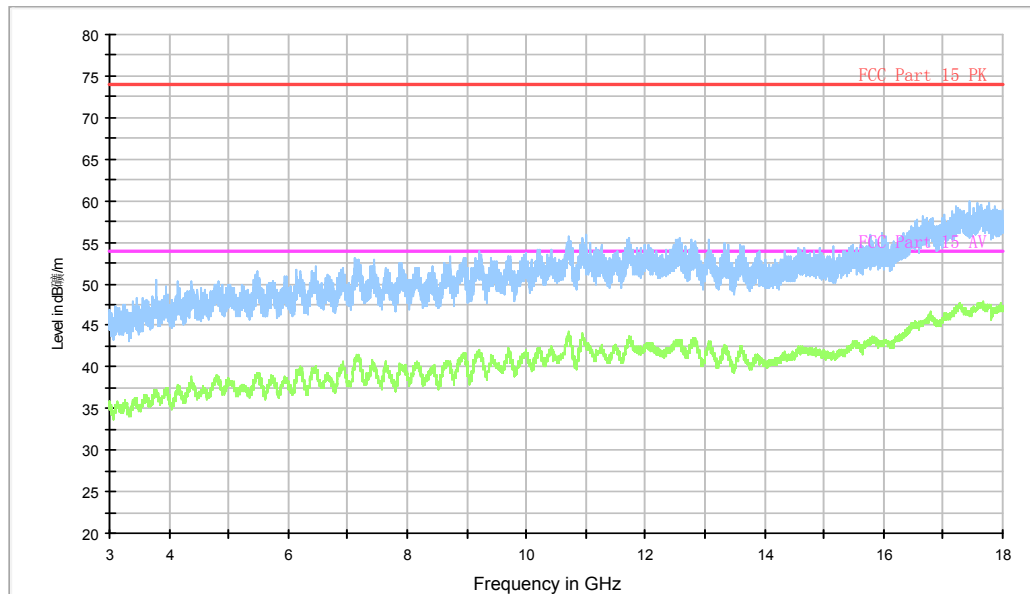


Fig.A.6.2.17 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 3 GHz-18 GHz)

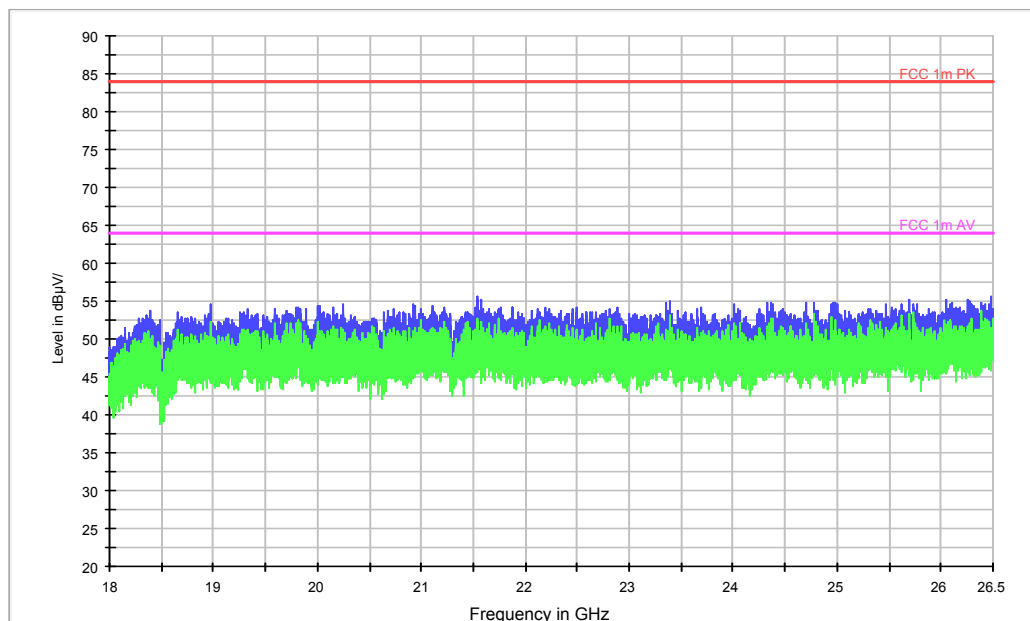


Fig.A.6.2.18 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 18GHz – 26.5GHz)

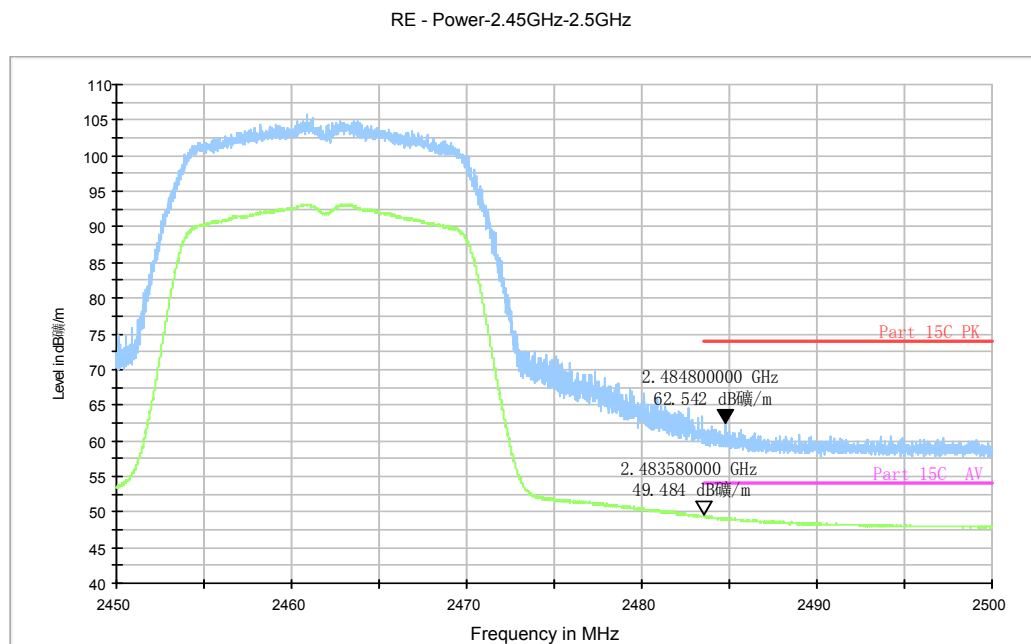


Fig.A.6.2.19 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

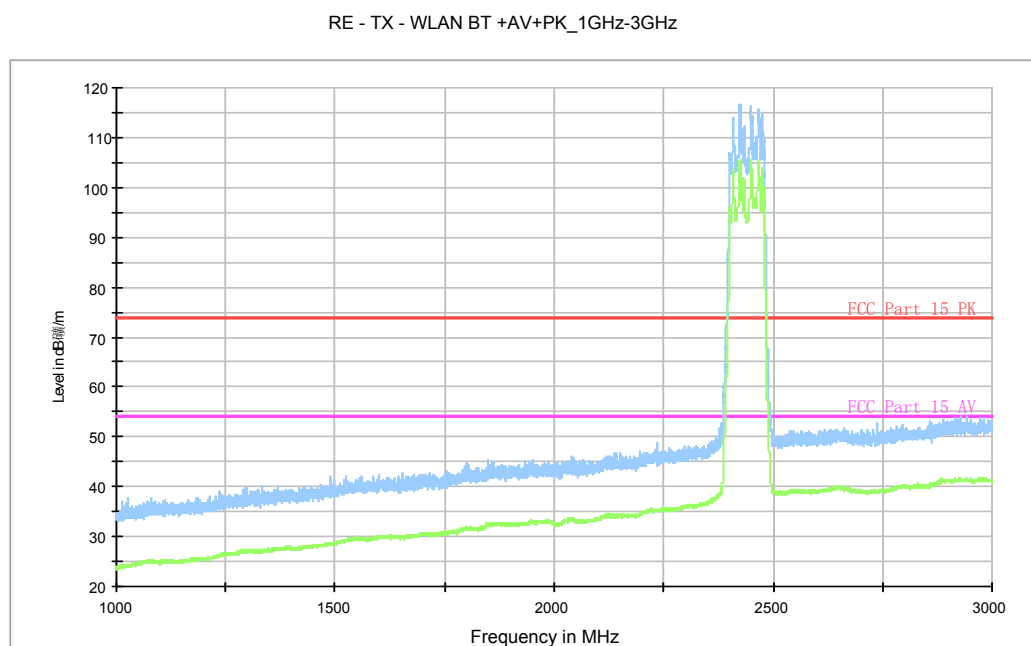


Fig.A.6.2.20 Transmitter Spurious Emission - Radiated (802.11g, Ch11, 1 GHz-3 GHz)

RE - 3GHz-18GHz

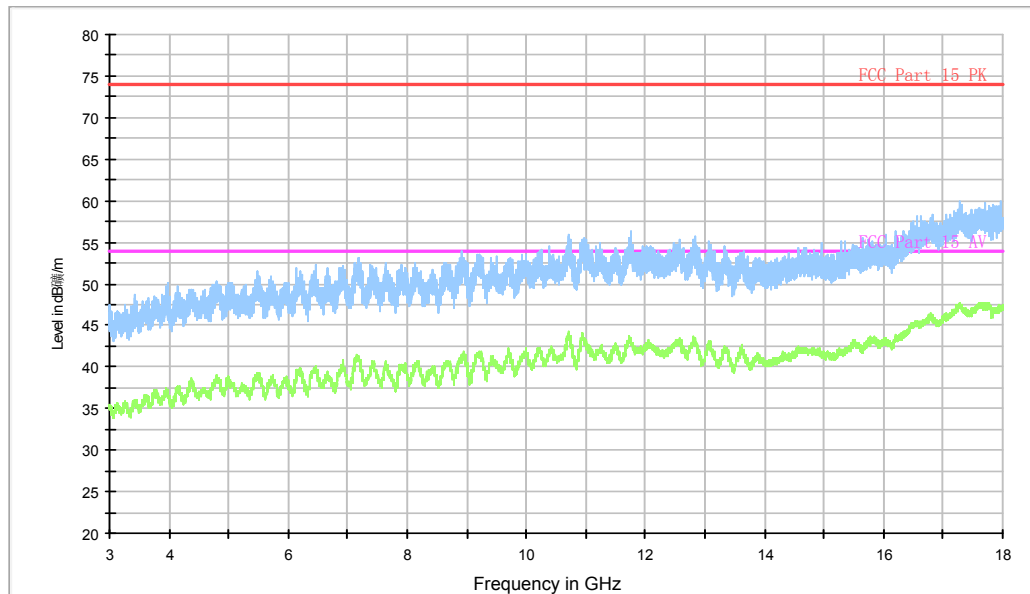


Fig.A.6.2.21 Transmitter Spurious Emission - Radiated (802.11g, Ch11, 3 GHz-18 GHz)

RE - Power-2.38GHz-2.45GHz

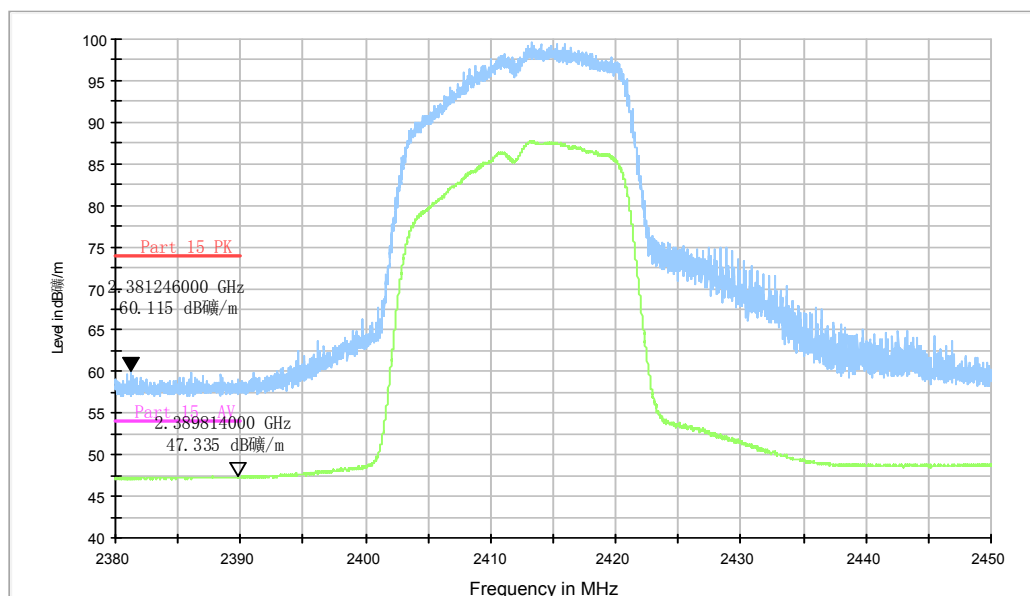


Fig.A.6.2.22 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

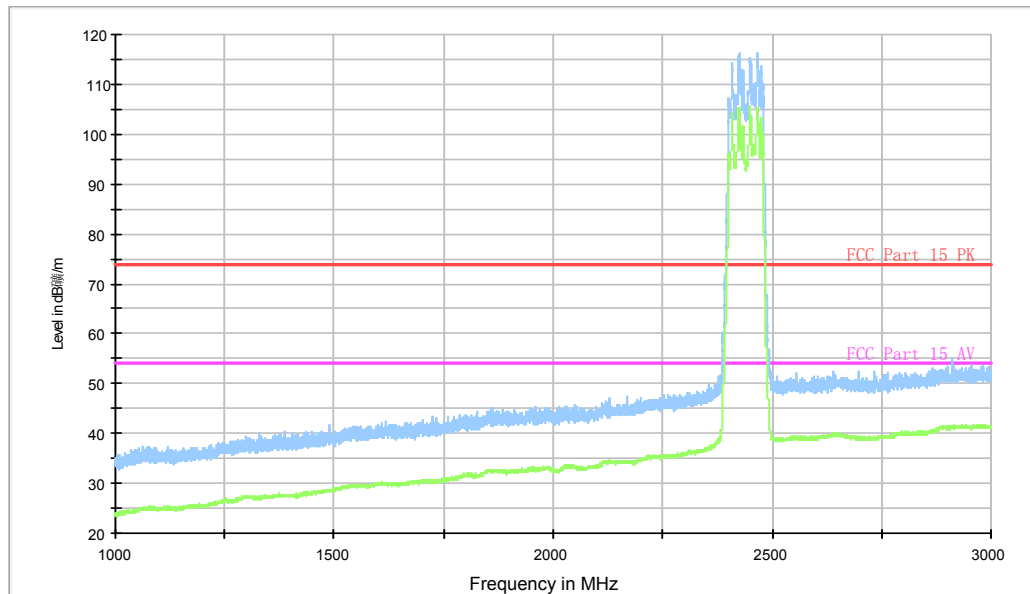


Fig.A.6.2.23 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch1, 1 GHz-3 GHz)

RE - 3GHz-18GHz

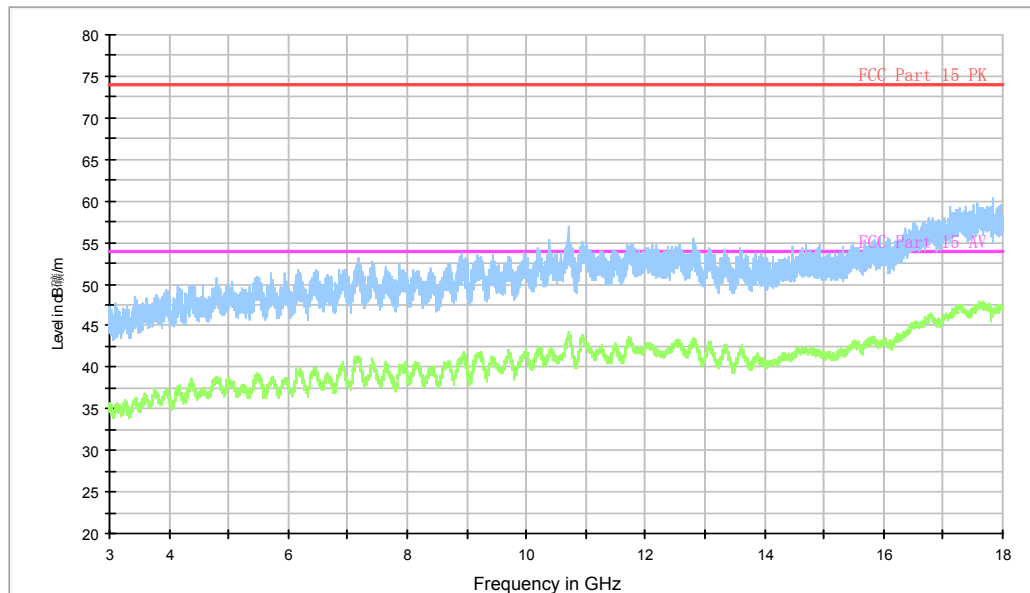


Fig.A.6.2.24 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch1, 3 GHz-18 GHz)

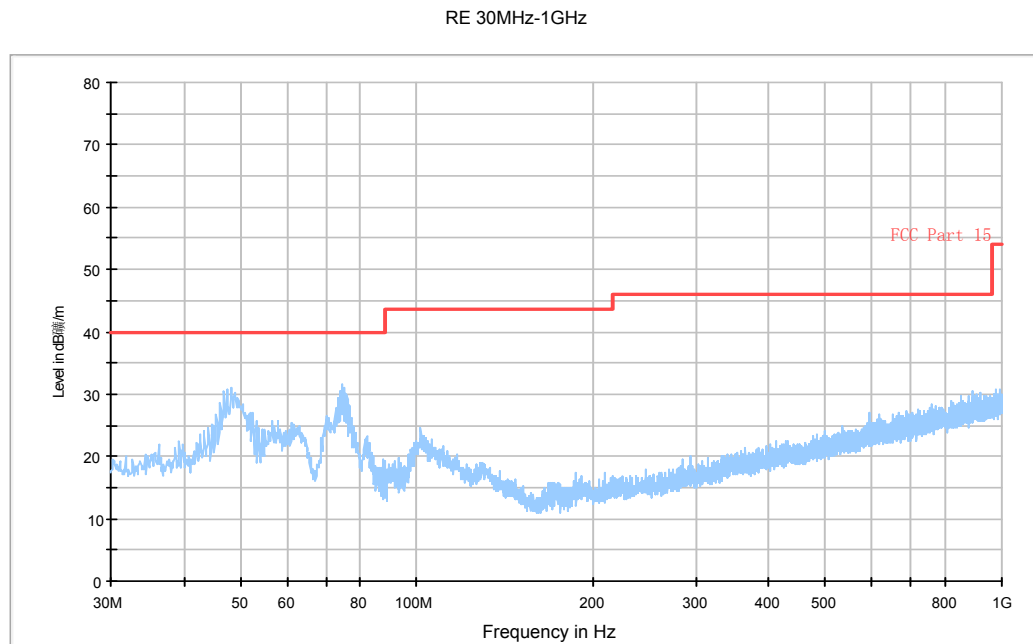


Fig.A.6.2.25 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 30 MHz-1 GHz)

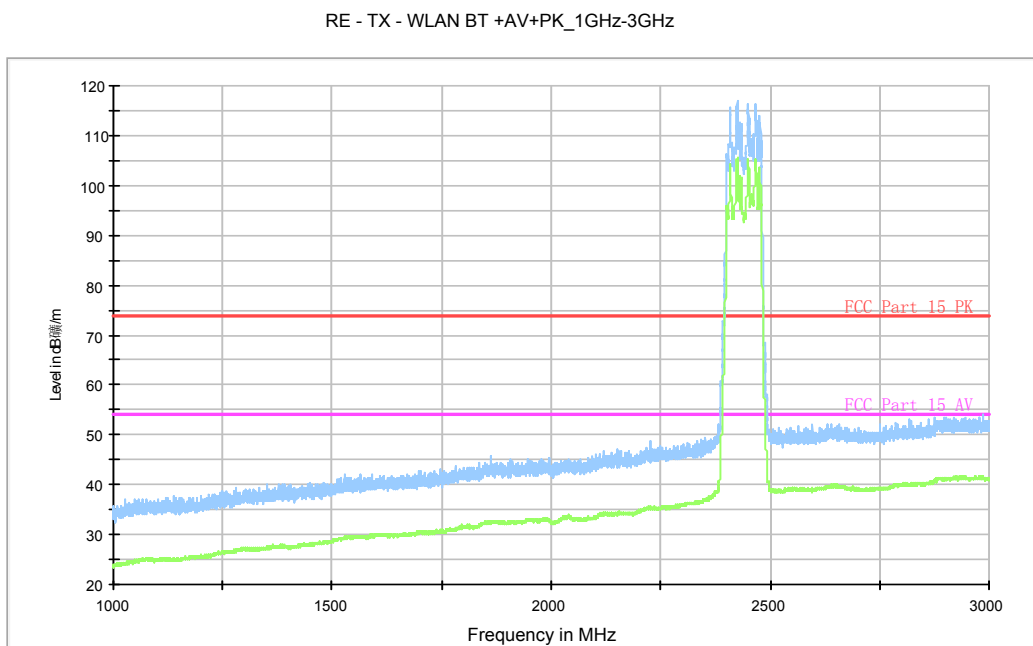


Fig.A.6.2.26 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 1 GHz-3 GHz)

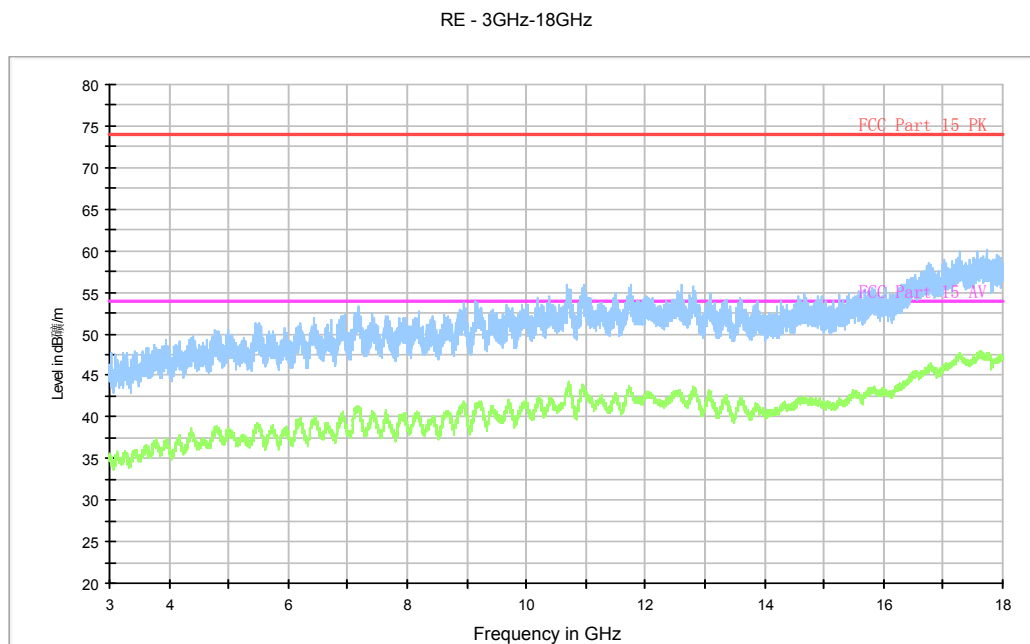


Fig.A.6.2.27 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 3 GHz-18 GHz)

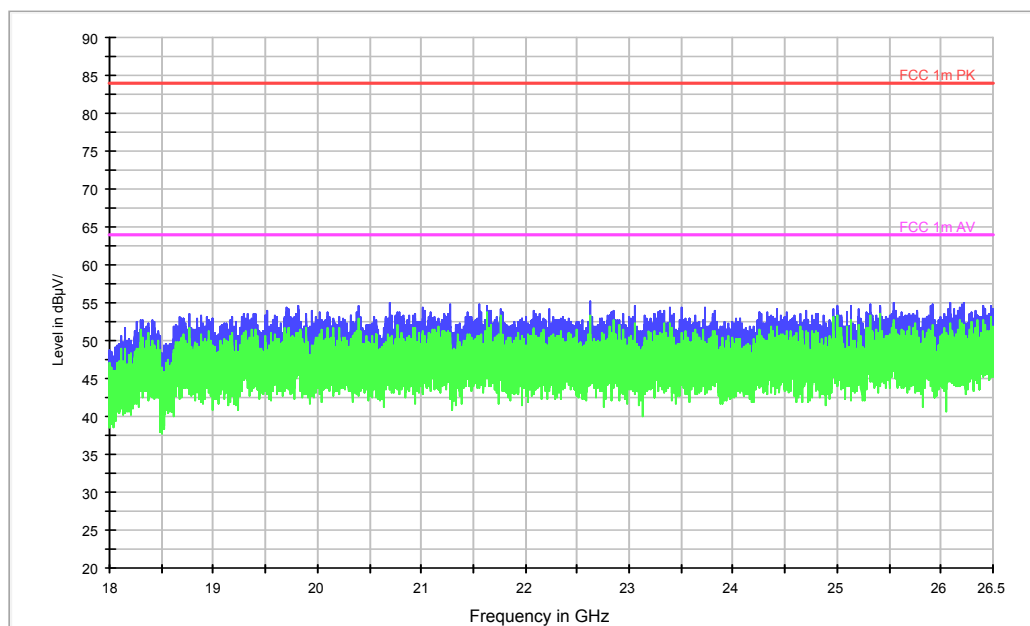


Fig.A.6.2.28 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 18GHz – 26.5GHz)

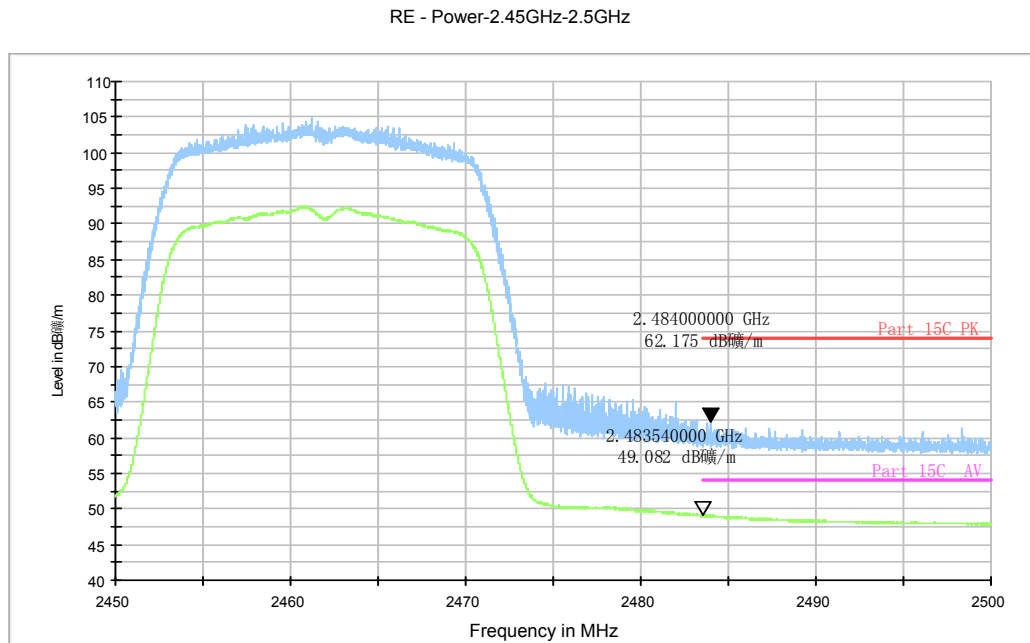


Fig.A.6.2.29 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

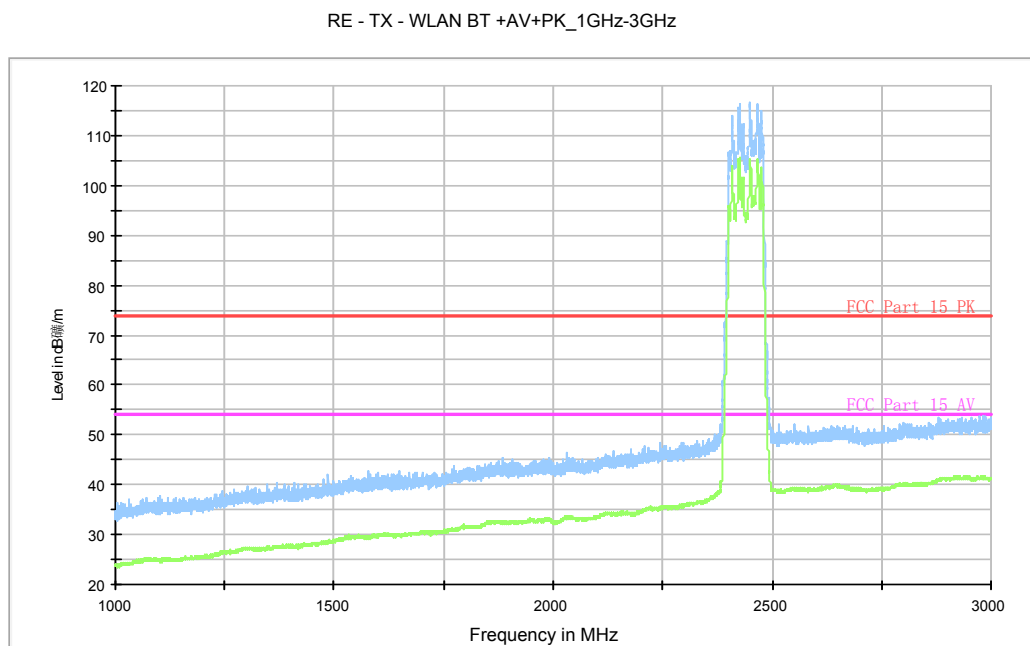


Fig.A.6.2.30 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch11, 1 GHz-3 GHz)

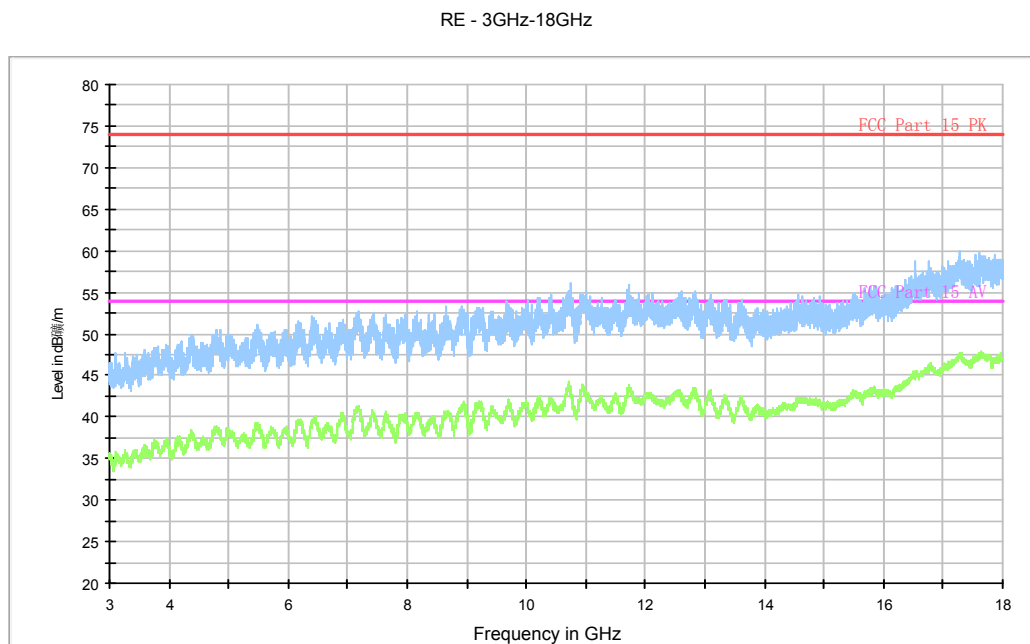


Fig.A.6.2.31 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch11, 3 GHz-18 GHz)

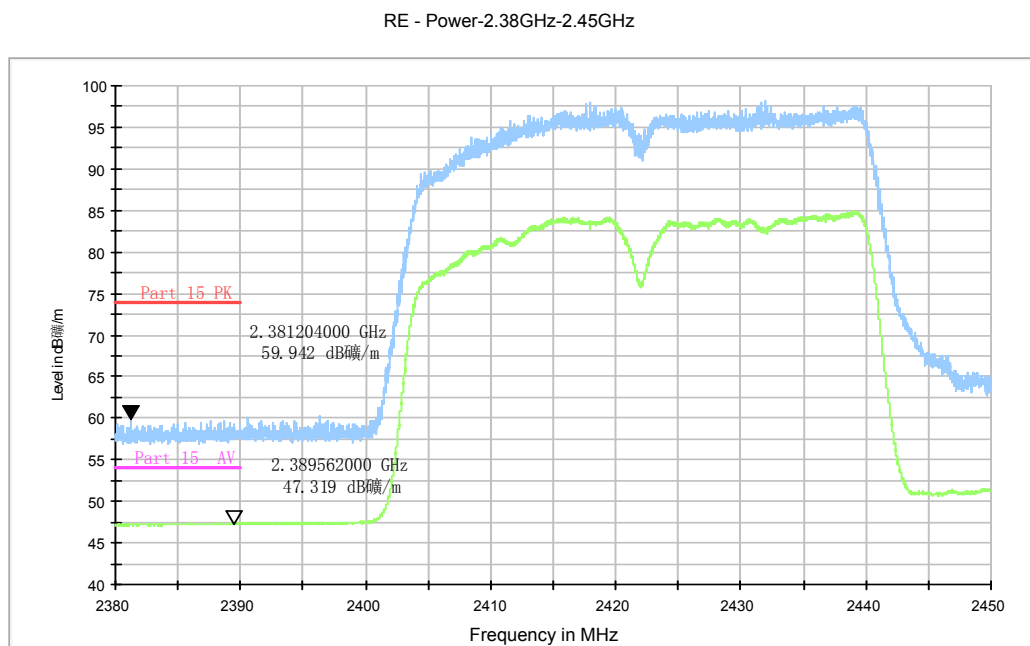


Fig.A.6.2.32 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.45GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

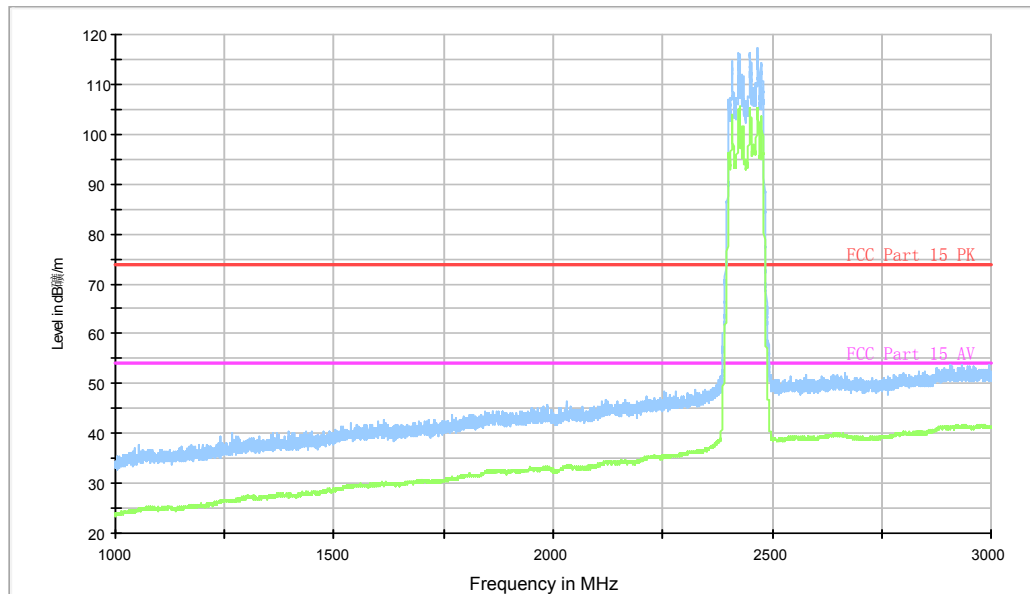


Fig.A.6.2.33 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch3, 1 GHz-3 GHz)

RE - 3GHz-18GHz

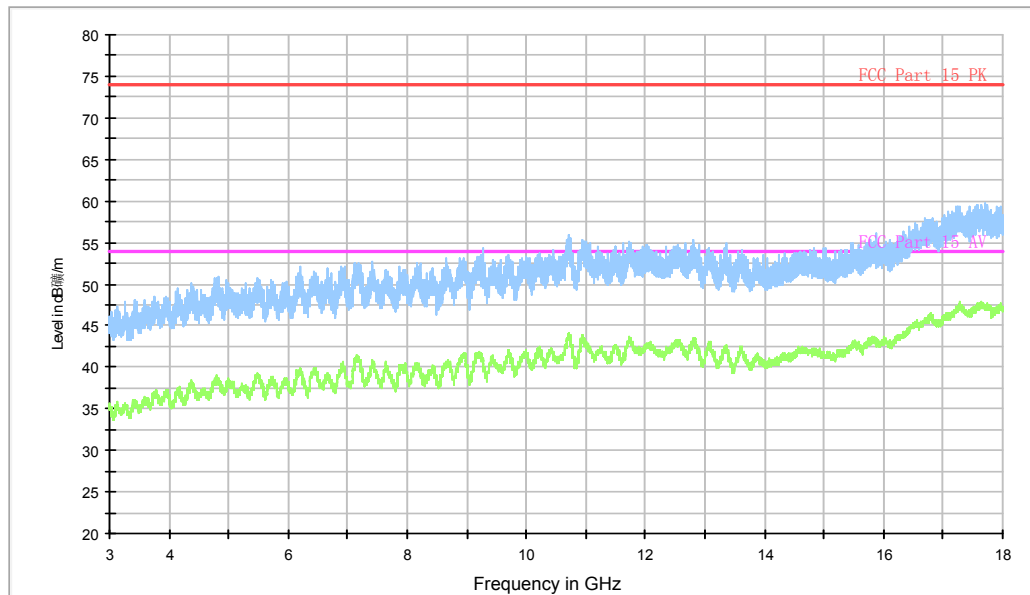


Fig.A.6.2.34 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch3, 3 GHz-18 GHz)

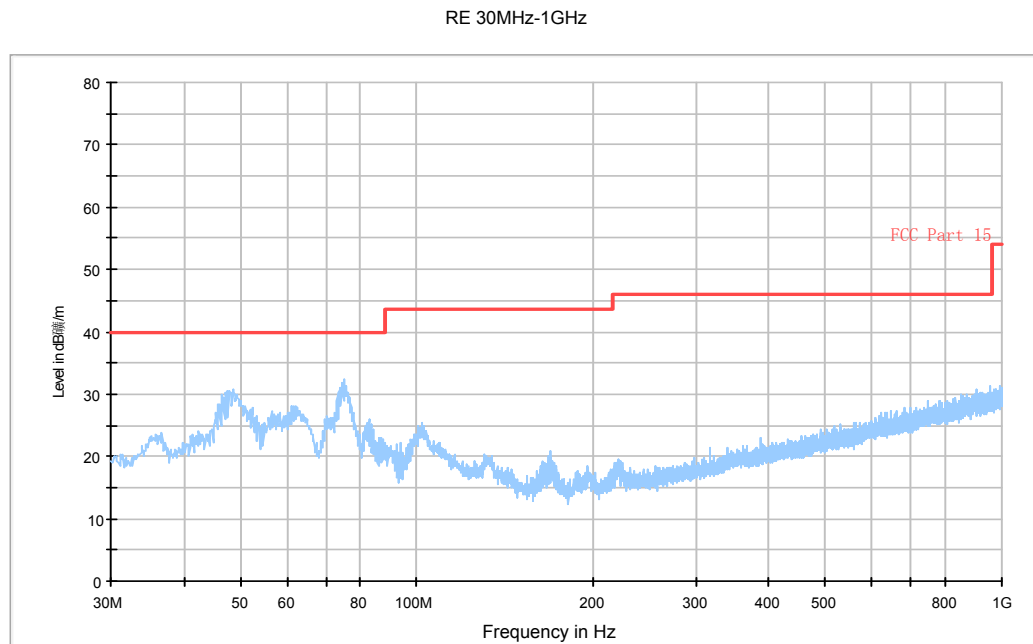


Fig.A.6.2.35 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 30 MHz-1 GHz)

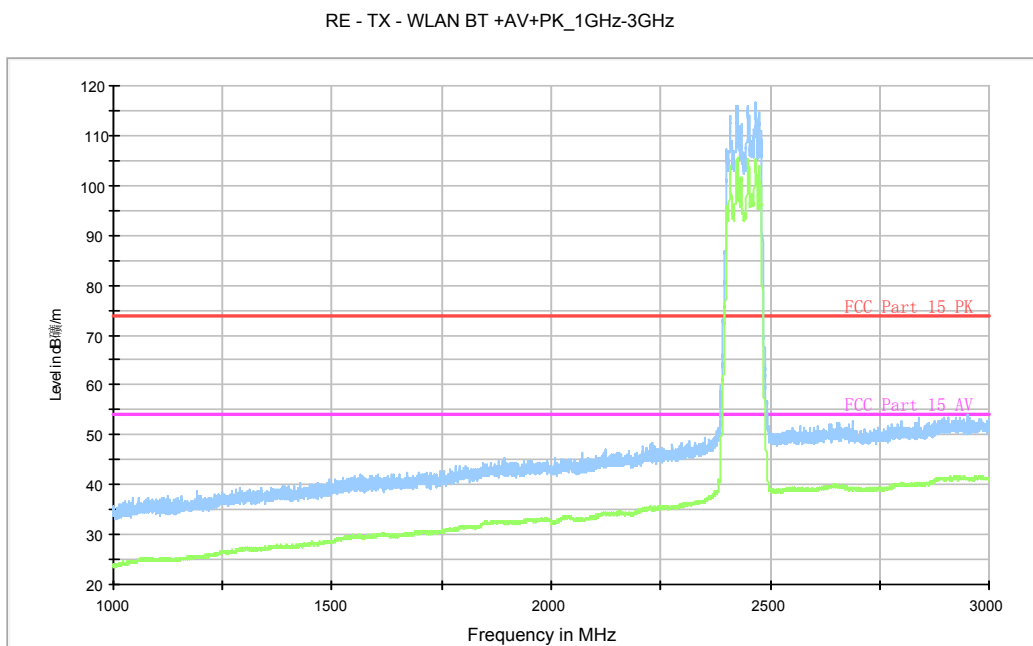


Fig.A.6.2.36 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 1 GHz-3 GHz)

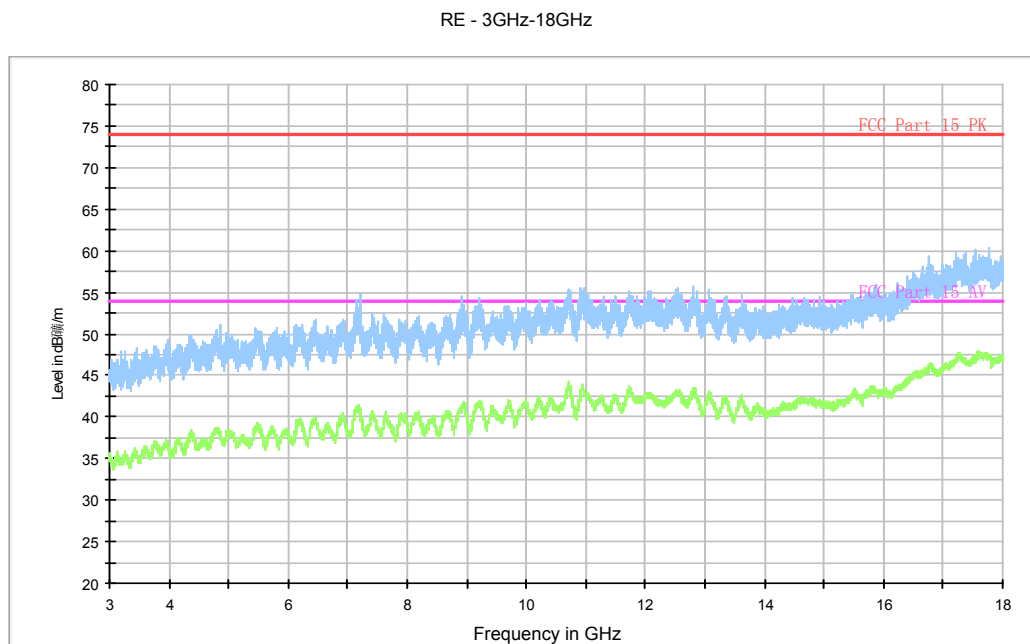


Fig.A.6.2.37 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 3 GHz-18 GHz)

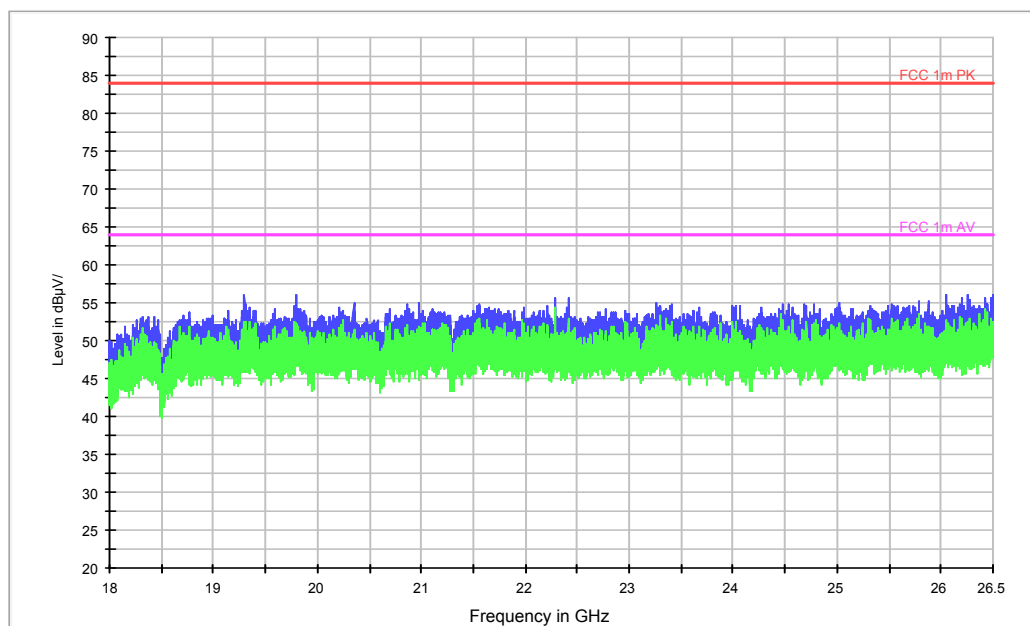


Fig.A.6.2.38 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 18GHz – 26.5GHz)

RE - Power-2.45GHz-2.5GHz

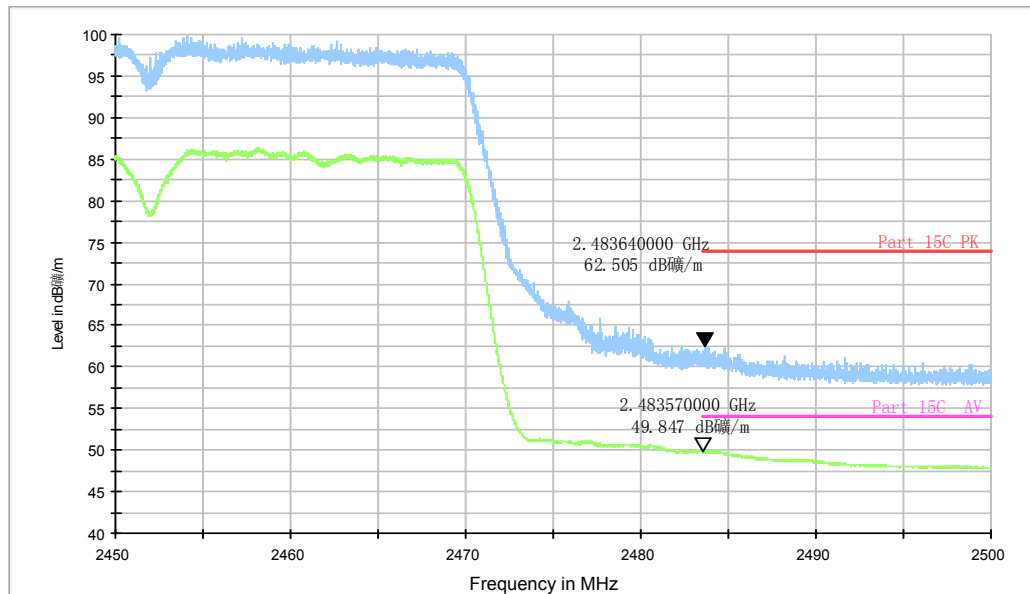


Fig.A.6.2.39 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

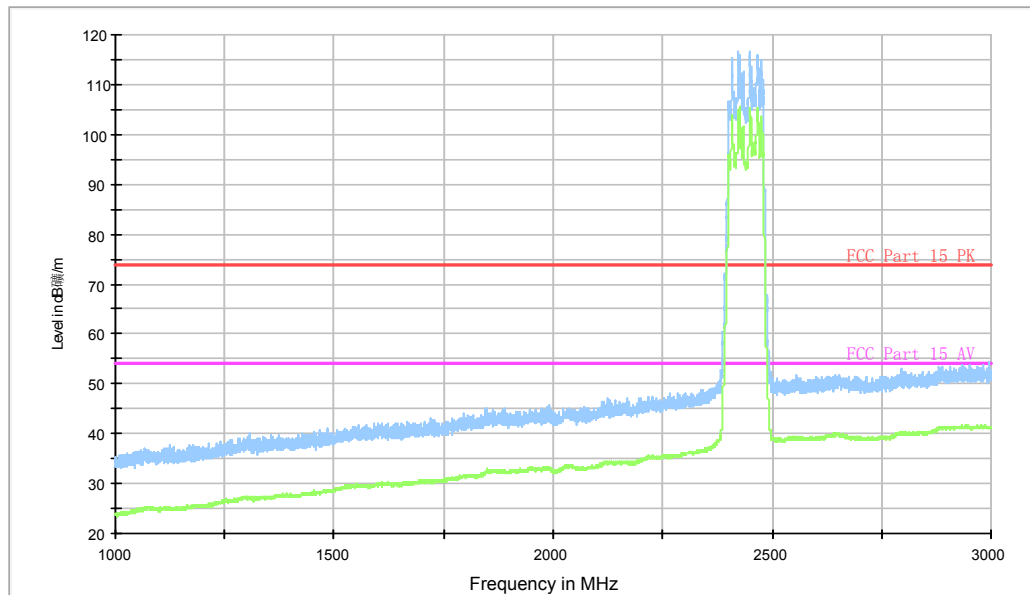


Fig.A.6.2.40 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch9, 1 GHz-3 GHz)

RE - 3GHz-18GHz

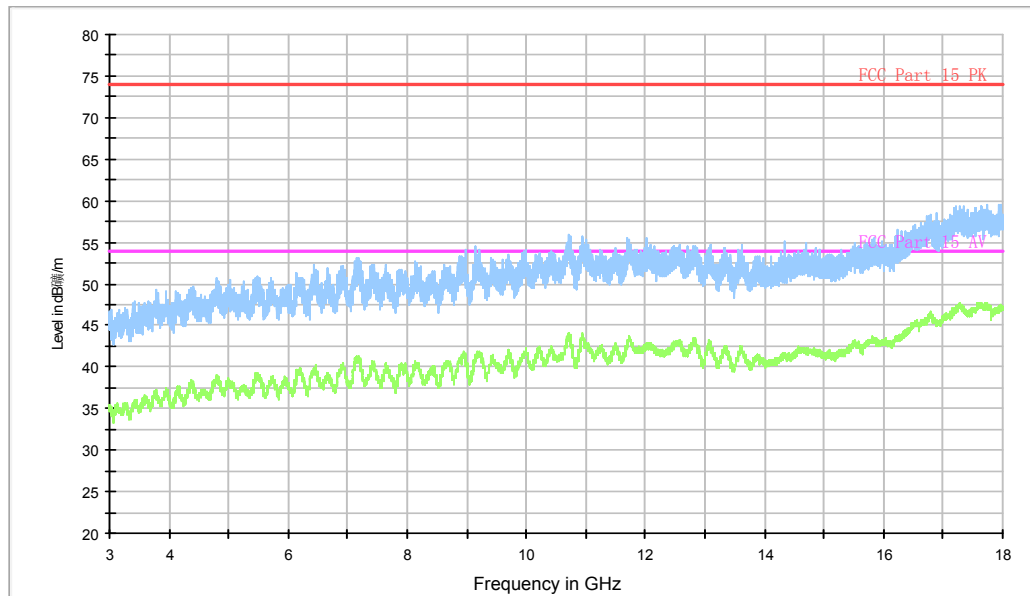


Fig.A.6.2.41 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch9, 3 GHz-18 GHz)

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.7.3	Fig.A.7.2 Fig.A.7.4	P
0.5 to 5	56	Fig.A.7.5 Fig.A.7.7	Fig.A.7.6 Fig.A.7.8	
5 to 30	60	Fig.A.7.9 Fig.A.7.11	Fig.A.7.10 Fig.A.7.12	
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.7.3	Fig.A.7.2 Fig.A.7.4	P
0.5 to 5	46	Fig.A.7.5 Fig.A.7.7	Fig.A.7.6 Fig.A.7.8	
5 to 30	50	Fig.A.7.9 Fig.A.7.11	Fig.A.7.10 Fig.A.7.12	
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:

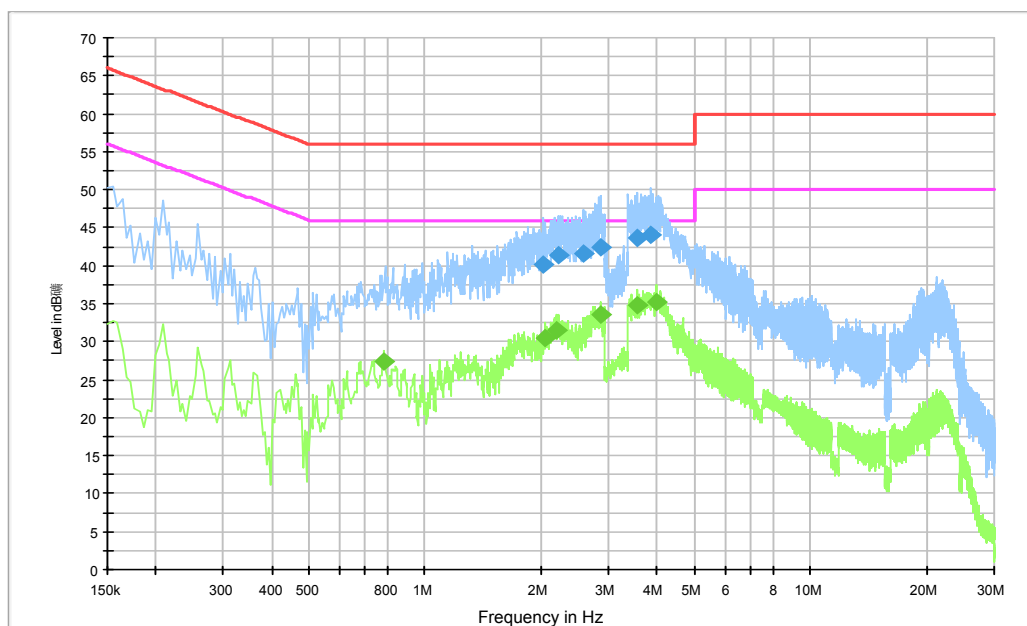


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.035500	40.1	GND	L1	10.4	15.9	56.0
2.220000	41.4	GND	L1	10.4	14.6	56.0
2.584500	41.5	GND	L1	10.4	14.5	56.0
2.854500	42.4	GND	L1	10.4	13.6	56.0
3.561000	43.7	GND	L1	10.4	12.3	56.0
3.871500	44.1	GND	L1	10.4	11.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.784500	27.3	GND	N	10.4	18.7	46.0
2.058000	30.4	GND	L1	10.4	15.6	46.0
2.193000	31.5	GND	L1	10.4	14.5	46.0
2.868000	33.5	GND	L1	10.4	12.5	46.0
3.561000	34.9	GND	L1	10.4	11.1	46.0
3.979500	35.1	GND	L1	10.4	10.9	46.0

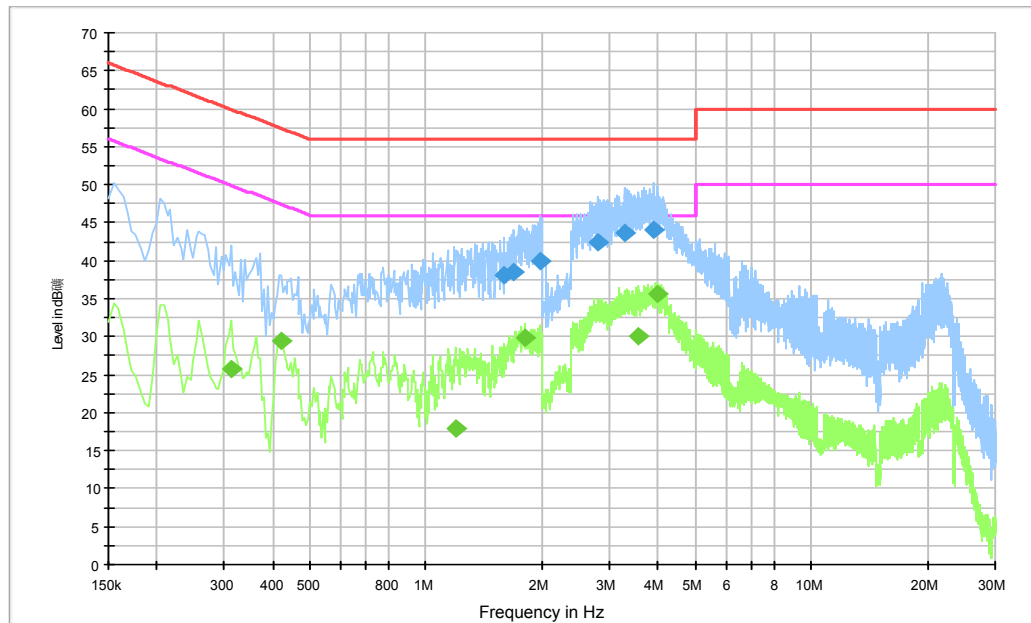


Fig.A.7.2 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.590000	38.0	GND	L1	10.3	18.0	56.0
1.684500	38.6	GND	L1	10.3	17.4	56.0
1.986000	39.9	GND	L1	10.4	16.1	56.0
2.800500	42.5	GND	L1	10.4	13.5	56.0
3.291000	43.6	GND	L1	10.4	12.4	56.0
3.880500	44.0	GND	L1	10.4	12.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.312000	25.7	GND	N	10.4	24.2	49.9
0.420000	29.4	GND	N	10.4	18.1	47.4
1.189500	18.0	GND	L1	10.3	28.0	46.0
1.797000	29.8	GND	L1	10.4	16.2	46.0
3.561000	30.0	GND	L1	10.4	16.0	46.0
3.966000	35.6	GND	L1	10.4	10.4	46.0

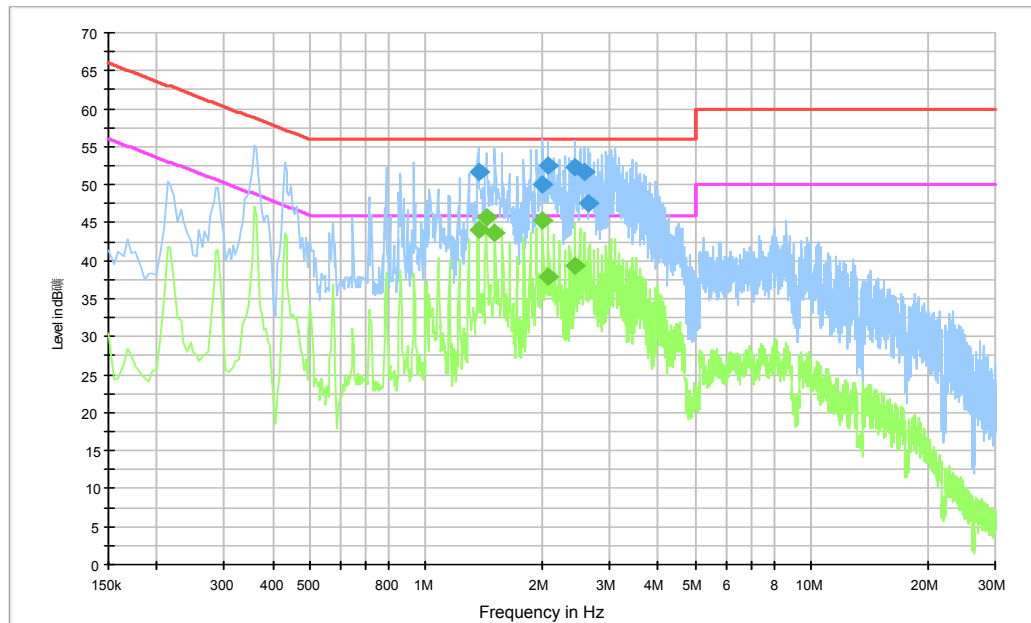


Fig.A.7.3 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.365000	51.7	GND	L1	10.3	4.3	56.0
1.999500	50.0	GND	L1	10.4	6.0	56.0
2.080500	52.5	GND	L1	10.4	3.5	56.0
2.440500	52.2	GND	L1	10.4	3.8	56.0
2.584500	51.7	GND	L1	10.4	4.3	56.0
2.643000	47.5	GND	N	10.5	8.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.365000	44.1	GND	L1	10.3	1.9	46.0
1.432500	45.7	GND	L1	10.3	0.3	46.0
1.509000	43.6	GND	L1	10.3	2.4	46.0
2.008500	45.2	GND	L1	10.4	0.8	46.0
2.080500	38.0	GND	L1	10.4	8.0	46.0
2.440500	39.2	GND	L1	10.4	6.8	46.0

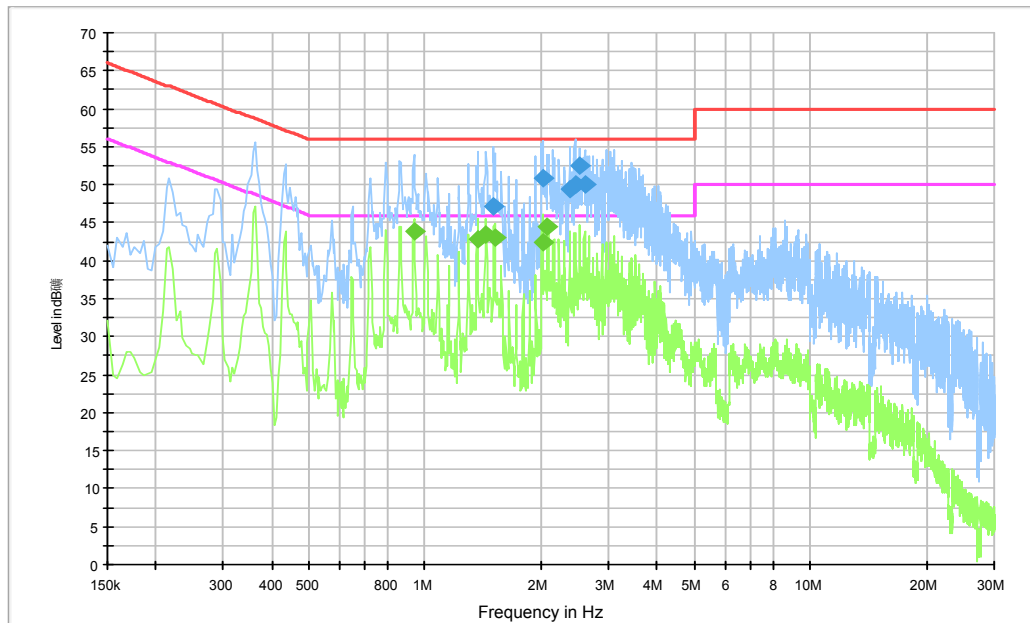


Fig.A.7.4 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.504500	47.1	GND	N	10.4	8.9	56.0
2.017500	50.9	GND	L1	10.4	5.1	56.0
2.377500	49.3	GND	L1	10.4	6.7	56.0
2.449500	50.0	GND	L1	10.4	6.0	56.0
2.517000	52.5	GND	L1	10.4	3.5	56.0
2.593500	50.0	GND	L1	10.4	6.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.937500	43.8	GND	L1	10.3	2.2	46.0
1.369500	42.9	GND	L1	10.3	3.1	46.0
1.437000	43.4	GND	L1	10.3	2.6	46.0
1.513500	42.9	GND	L1	10.3	3.1	46.0
2.017500	42.4	GND	L1	10.4	3.6	46.0
2.085000	44.5	GND	L1	10.4	1.5	46.0

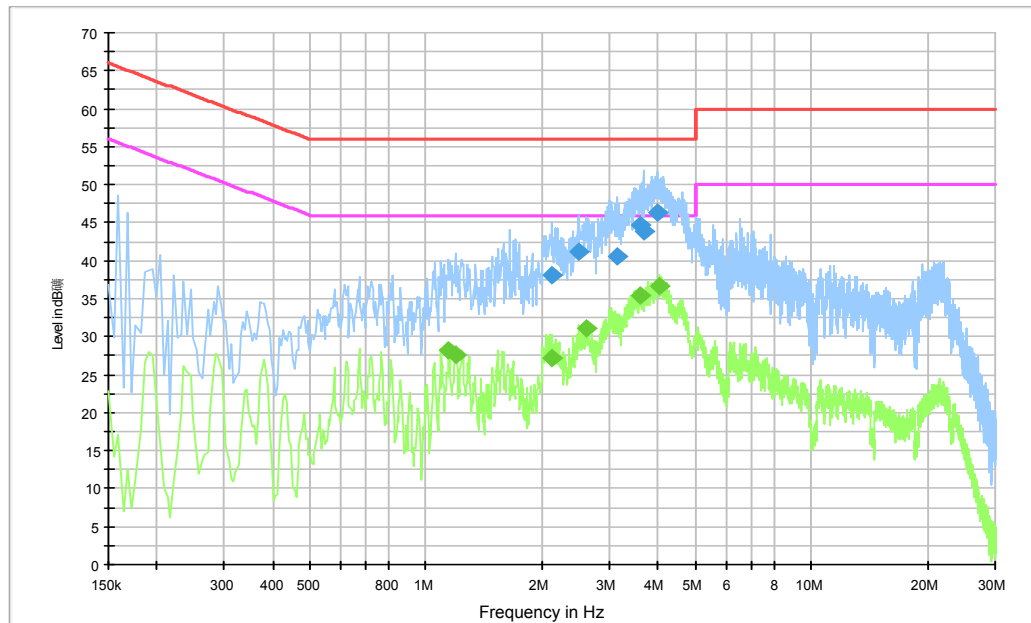


Fig.A.7.5 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.121000	38.1	GND	L1	10.4	17.9	56.0
2.494500	41.2	GND	L1	10.4	14.8	56.0
3.147000	40.5	GND	N	10.5	15.5	56.0
3.588000	44.6	GND	L1	10.4	11.4	56.0
3.660000	43.8	GND	N	10.5	12.2	56.0
3.997500	46.2	GND	L1	10.4	9.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.144500	28.1	GND	L1	10.3	17.9	46.0
1.189500	27.5	GND	L1	10.3	18.5	46.0
2.121000	27.1	GND	L1	10.4	18.9	46.0
2.598000	31.0	GND	L1	10.4	15.0	46.0
3.601500	35.4	GND	L1	10.4	10.6	46.0
4.047000	36.6	GND	L1	10.5	9.4	46.0

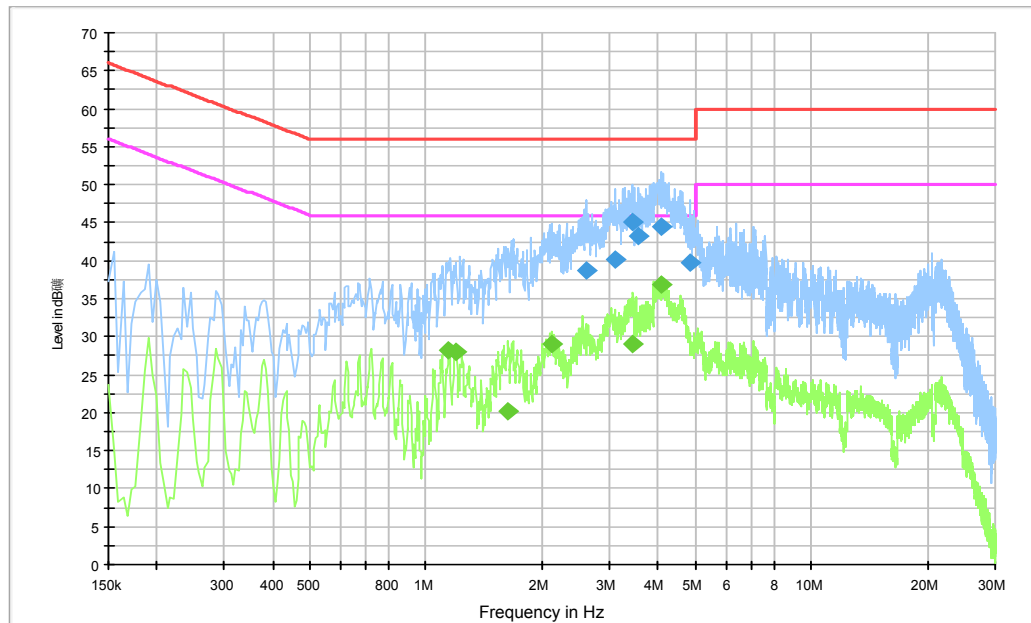


Fig.A.7.6 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.607000	38.7	GND	N	10.5	17.3	56.0
3.084000	40.2	GND	N	10.5	15.8	56.0
3.417000	45.0	GND	L1	10.4	11.0	56.0
3.574500	43.2	GND	N	10.5	12.8	56.0
4.092000	44.4	GND	N	10.5	11.6	56.0
4.825500	39.8	GND	N	10.6	16.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.144500	28.3	GND	L1	10.3	17.7	46.0
1.194000	27.9	GND	L1	10.3	18.1	46.0
1.630500	20.2	GND	L1	10.3	25.8	46.0
2.116500	29.1	GND	L1	10.4	16.9	46.0
3.453000	29.0	GND	L1	10.4	17.0	46.0
4.092000	36.9	GND	L1	10.5	9.1	46.0

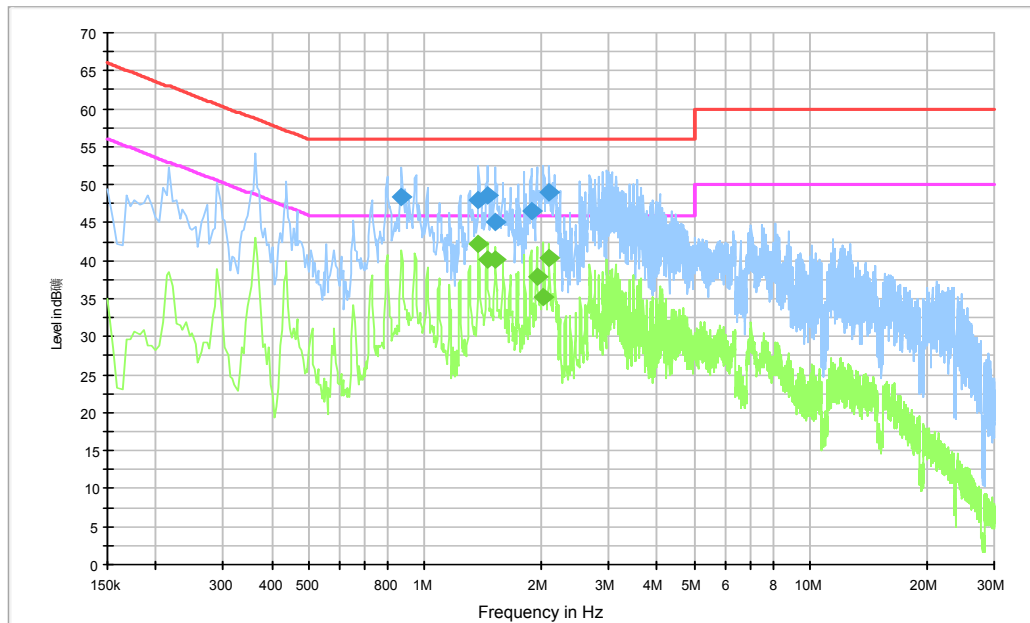


Fig.A.7.7 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.870000	48.5	GND	L1	10.3	7.5	56.0
1.378500	48.0	GND	L1	10.3	8.0	56.0
1.450500	48.6	GND	L1	10.3	7.4	56.0
1.522500	45.1	GND	L1	10.3	10.9	56.0
1.887000	46.5	GND	L1	10.4	9.5	56.0
2.098500	48.9	GND	L1	10.4	7.1	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.374000	42.2	GND	L1	10.3	3.8	46.0
1.450500	40.2	GND	L1	10.3	5.8	46.0
1.522500	40.2	GND	L1	10.3	5.8	46.0
1.959000	38.0	GND	L1	10.4	8.0	46.0
2.026500	35.3	GND	L1	10.4	10.7	46.0
2.098500	40.4	GND	L1	10.4	5.6	46.0

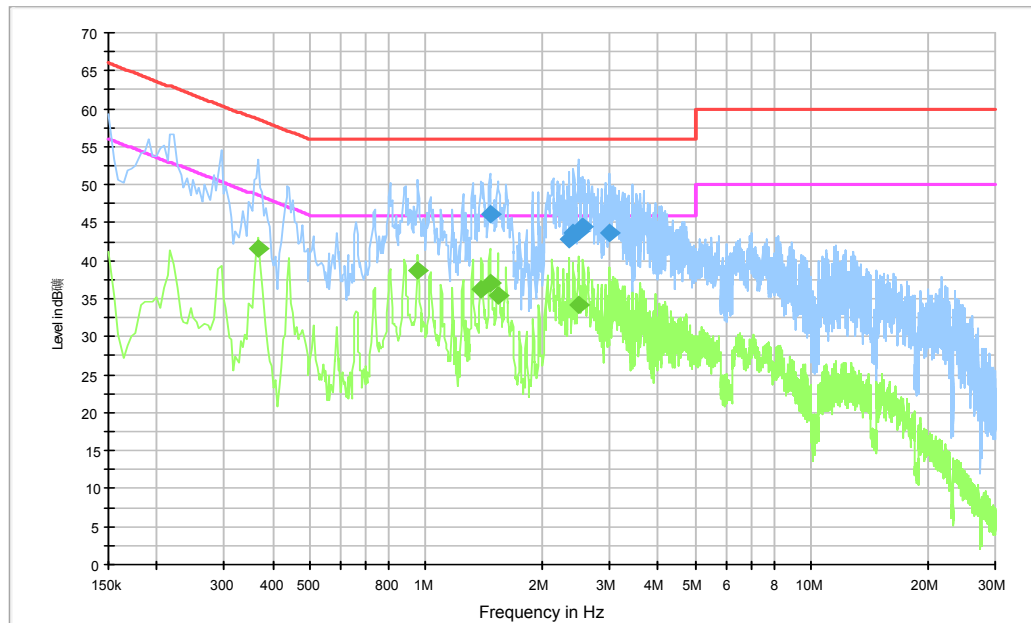


Fig.A.7.8 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.464000	46.2	GND	L1	10.3	9.8	56.0
2.346000	42.9	GND	L1	10.4	13.1	56.0
2.418000	43.7	GND	L1	10.4	12.3	56.0
2.494500	43.9	GND	L1	10.4	12.1	56.0
2.562000	44.5	GND	L1	10.4	11.5	56.0
3.003000	43.6	GND	L1	10.4	12.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.366000	41.5	GND	L1	10.3	7.1	48.6
0.951000	38.7	GND	L1	10.3	7.3	46.0
1.392000	36.2	GND	L1	10.3	9.8	46.0
1.464000	37.2	GND	L1	10.3	8.8	46.0
1.540500	35.5	GND	L1	10.3	10.5	46.0
2.494500	34.1	GND	L1	10.4	11.9	46.0

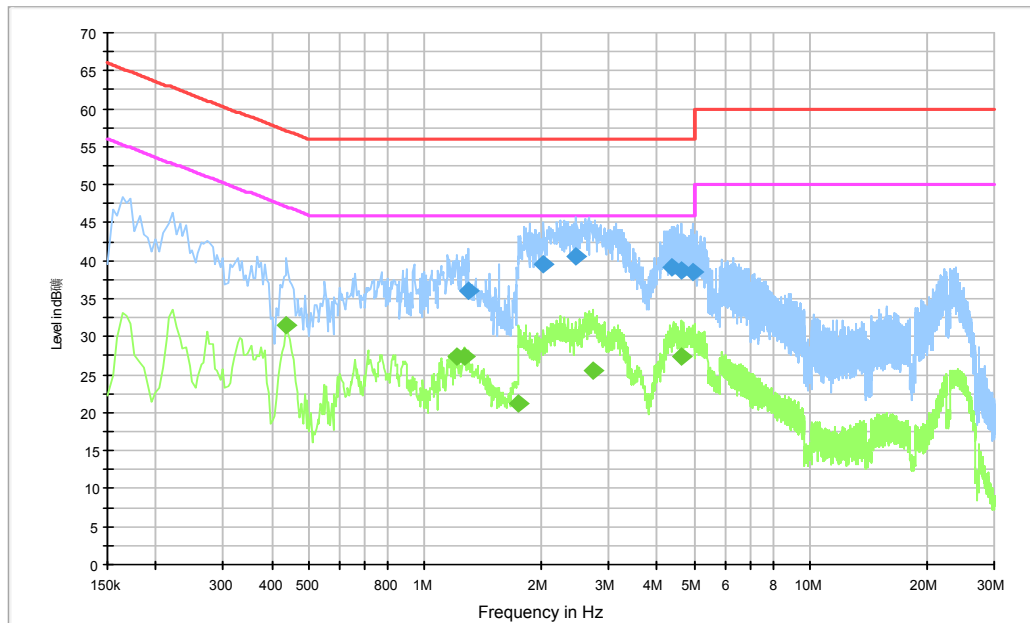


Fig.A.7.9 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.297500	36.0	GND	L1	10.3	20.0	56.0
2.035500	39.5	GND	L1	10.4	16.5	56.0
2.467500	40.6	GND	L1	10.4	15.4	56.0
4.353000	39.2	GND	L1	10.5	16.8	56.0
4.618500	38.8	GND	L1	10.5	17.2	56.0
4.929000	38.5	GND	L1	10.5	17.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.438000	31.5	GND	N	10.4	15.6	47.1
1.203000	27.3	GND	L1	10.3	18.7	46.0
1.261500	27.5	GND	L1	10.3	18.5	46.0
1.752000	21.3	GND	L1	10.3	24.7	46.0
2.728500	25.5	GND	L1	10.4	20.5	46.0
4.618500	27.3	GND	L1	10.5	18.7	46.0

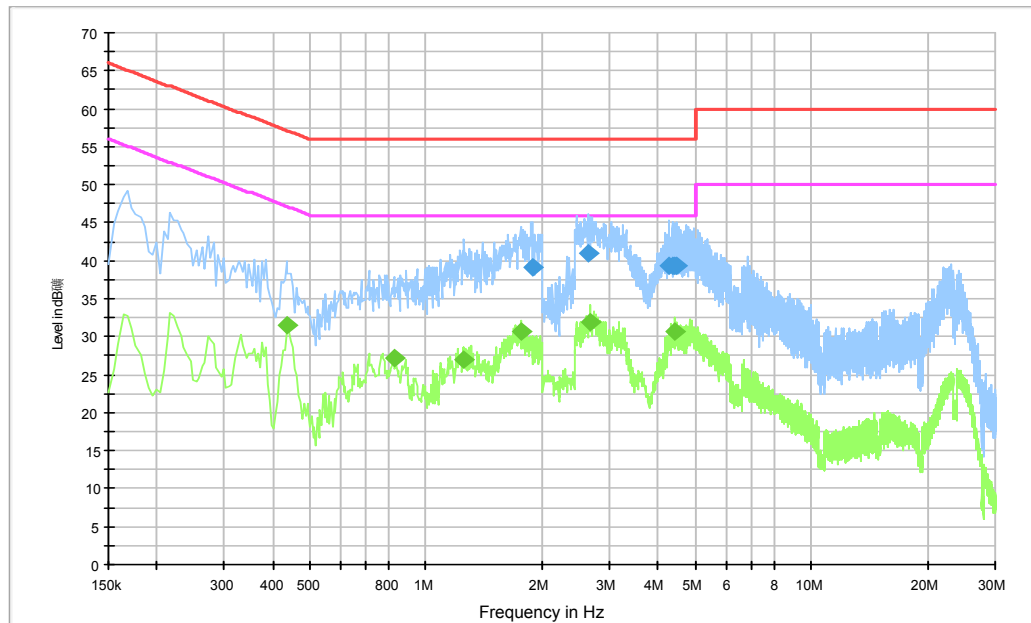


Fig.A.7.10 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.882500	39.2	GND	L1	10.4	16.8	56.0
2.638500	40.9	GND	L1	10.4	15.1	56.0
4.272000	39.2	GND	L1	10.5	16.8	56.0
4.380000	39.4	GND	L1	10.5	16.6	56.0
4.398000	39.3	GND	L1	10.5	16.7	56.0
4.447500	39.4	GND	L1	10.5	16.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.438000	31.5	GND	N	10.4	15.6	47.1
0.825000	27.2	GND	N	10.4	18.8	46.0
1.248000	26.9	GND	L1	10.3	19.1	46.0
1.756500	30.7	GND	L1	10.3	15.3	46.0
2.679000	31.9	GND	L1	10.4	14.1	46.0
4.438500	30.6	GND	L1	10.5	15.4	46.0

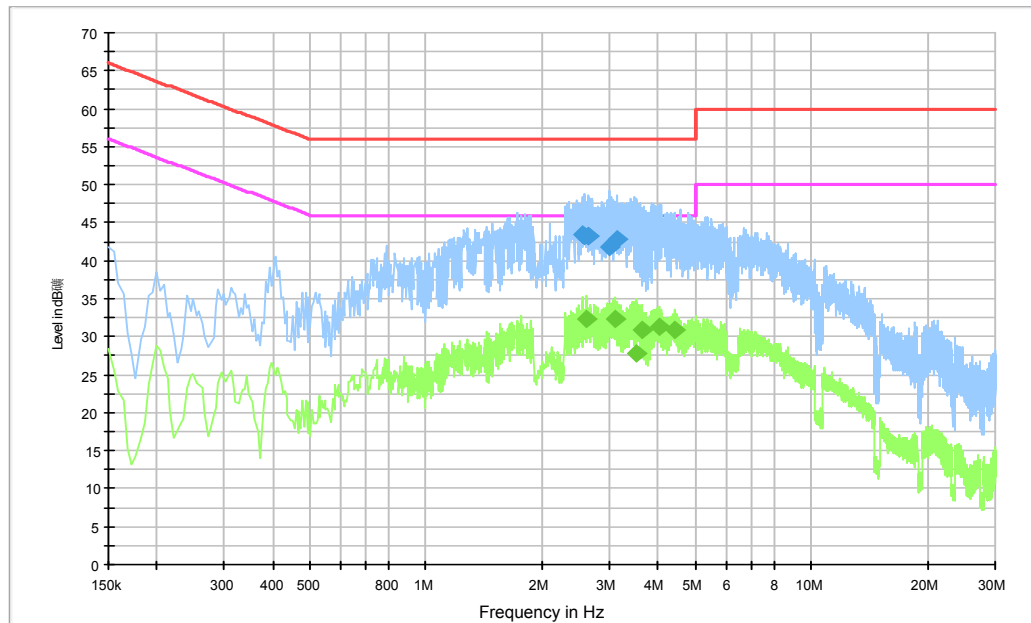


Fig.A.7.11 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.553000	43.4	GND	L1	10.4	12.6	56.0
2.575500	43.2	GND	L1	10.4	12.8	56.0
2.634000	43.2	GND	L1	10.4	12.8	56.0
2.652000	43.2	GND	L1	10.4	12.8	56.0
2.985000	41.8	GND	L1	10.4	14.2	56.0
3.120000	42.8	GND	L1	10.4	13.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.620500	32.3	GND	L1	10.4	13.7	46.0
3.079500	32.3	GND	L1	10.4	13.7	46.0
3.520500	27.7	GND	L1	10.4	18.3	46.0
3.628500	31.0	GND	L1	10.4	15.0	46.0
4.011000	31.3	GND	L1	10.5	14.7	46.0
4.420500	30.9	GND	L1	10.5	15.1	46.0

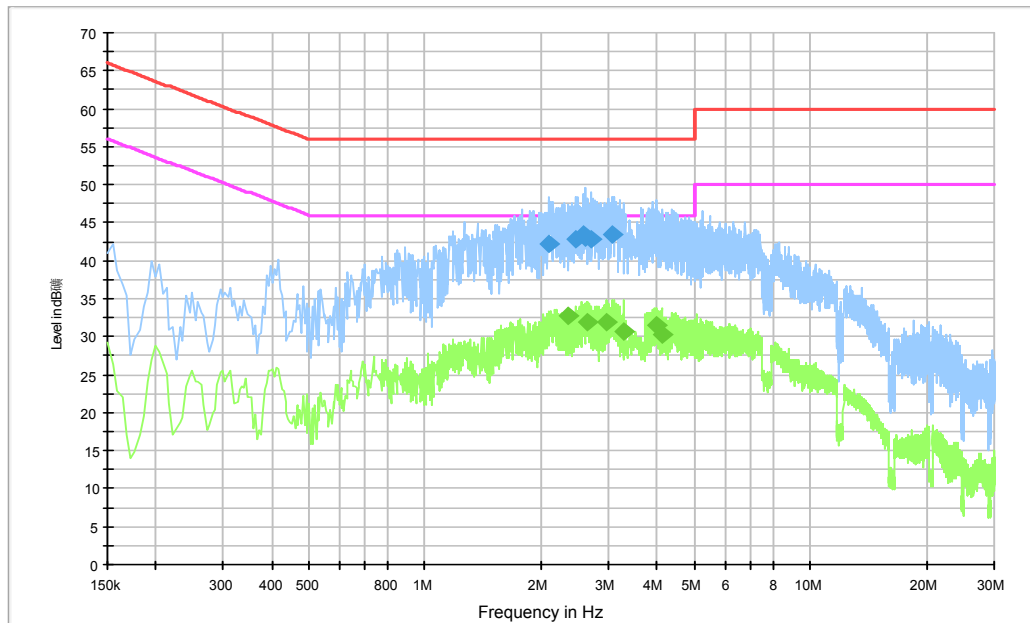


Fig.A.7.12 AC Powerline Conducted Emission-Iidle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.107500	42.3	GND	L1	10.4	13.7	56.0
2.472000	42.9	GND	L1	10.4	13.1	56.0
2.580000	43.5	GND	L1	10.4	12.5	56.0
2.607000	43.1	GND	L1	10.4	12.9	56.0
2.706000	42.9	GND	L1	10.4	13.1	56.0
3.057000	43.4	GND	L1	10.4	12.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.355000	32.7	GND	L1	10.4	13.3	46.0
2.647500	31.9	GND	L1	10.4	14.1	46.0
2.949000	32.0	GND	L1	10.4	14.0	46.0
3.282000	30.6	GND	L1	10.4	15.4	46.0
3.979500	31.5	GND	L1	10.4	14.5	46.0
4.105500	30.2	GND	L1	10.5	15.8	46.0

END OF REPORT