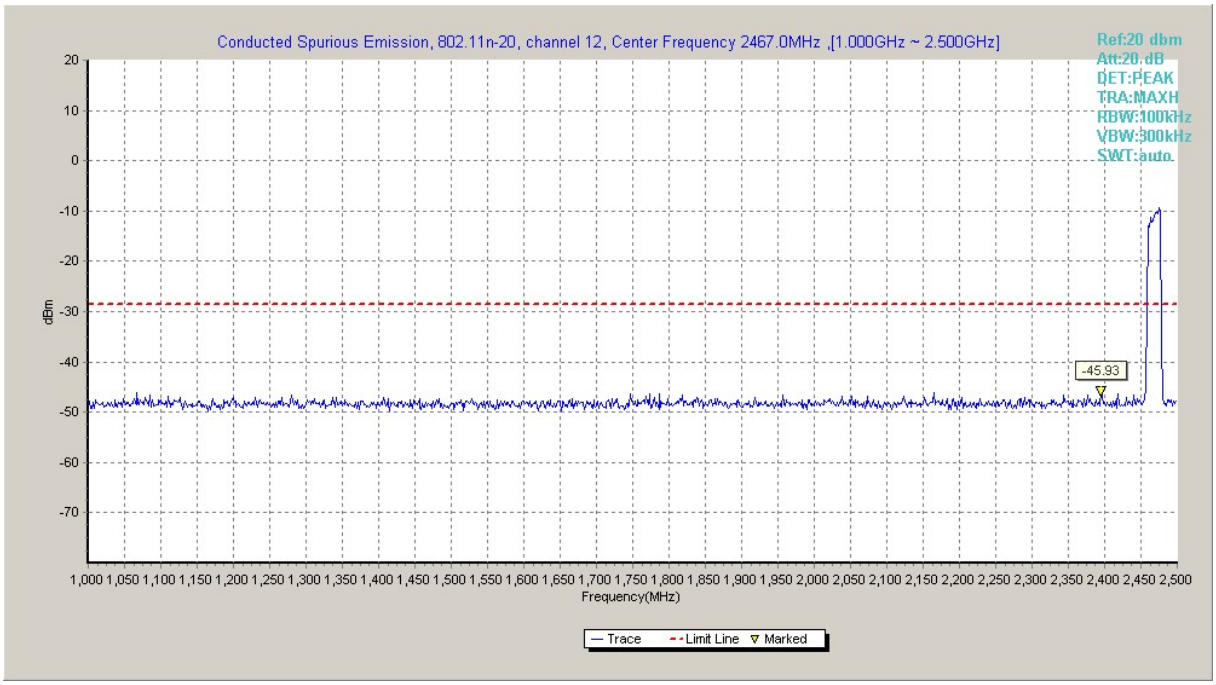


Fig.A.6.1.107 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 1 GHz -2.5 GHz)

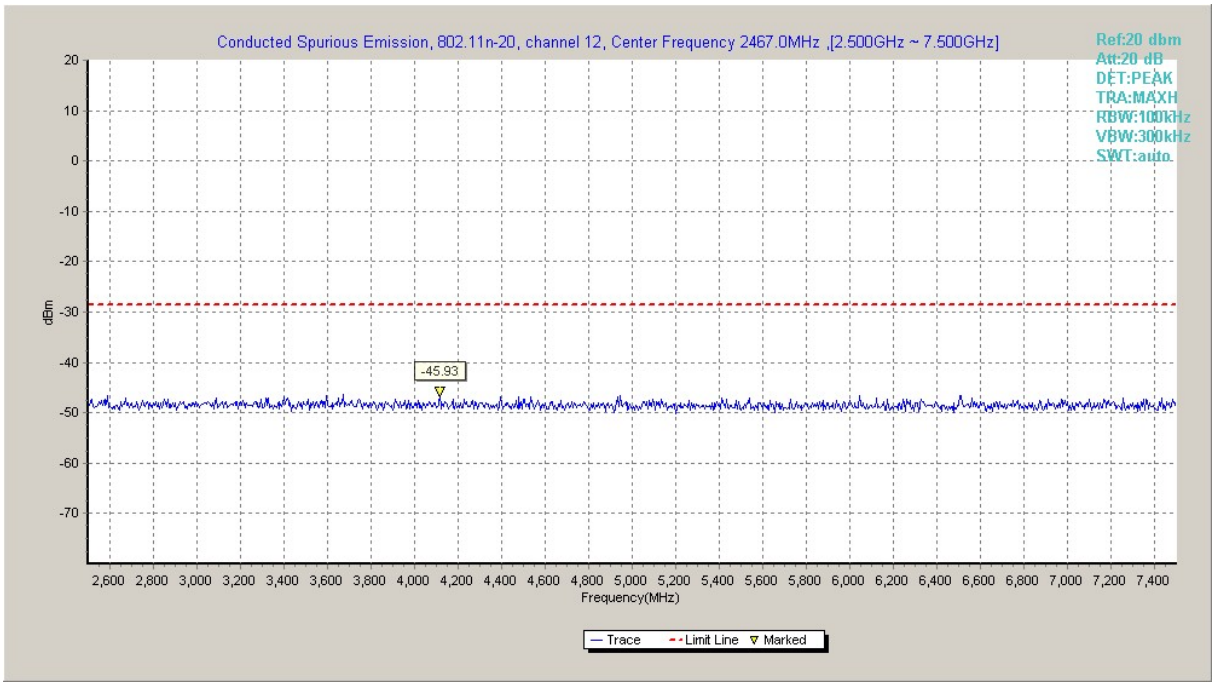


Fig.A.6.1.108 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 2.5 GHz -7.5 GHz)

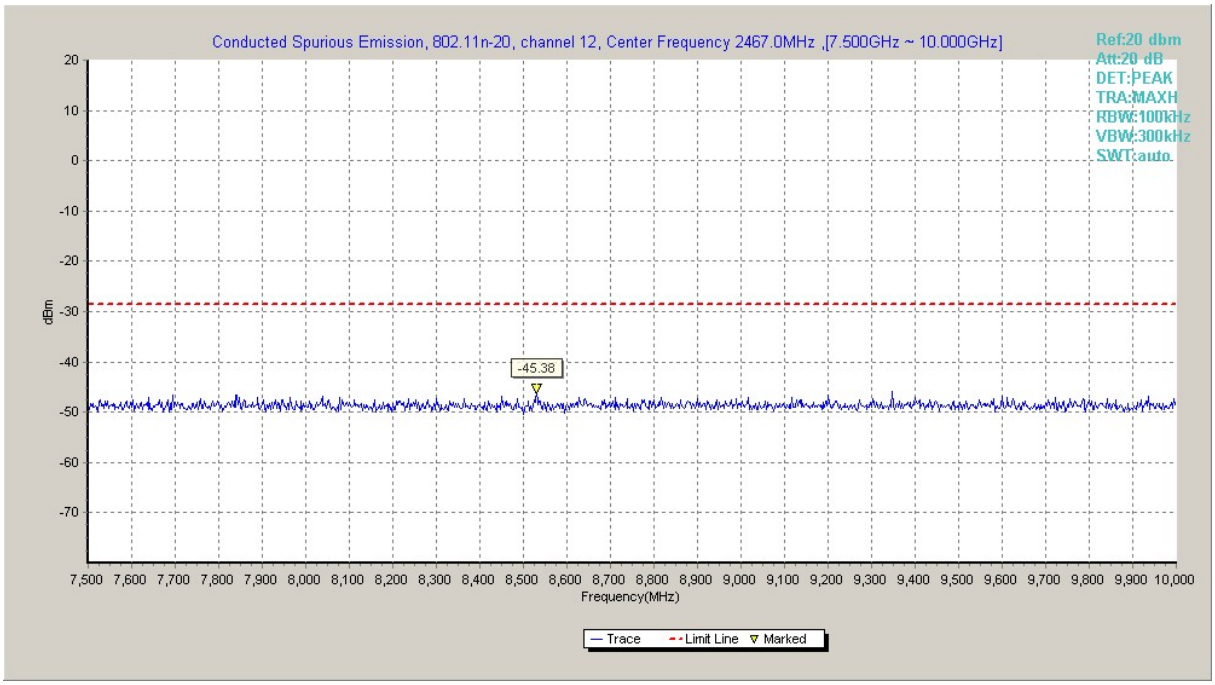


Fig.A.6.1.109 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 7.5 GHz -10 GHz)

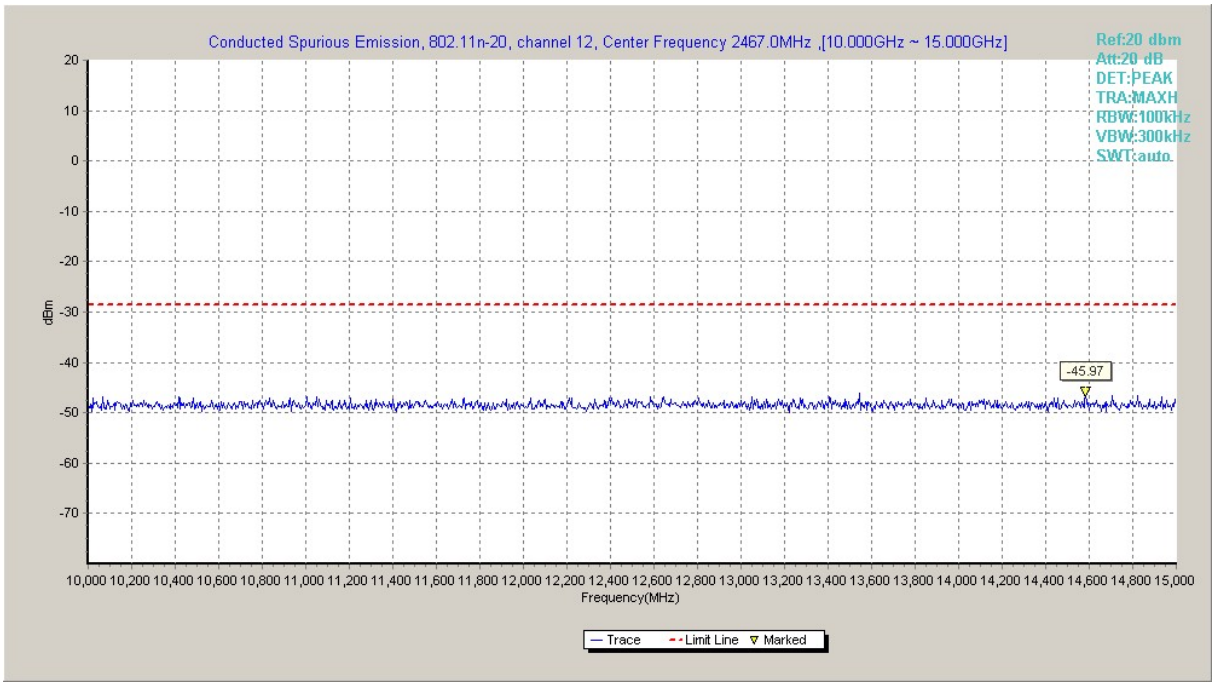


Fig.A.6.1.110 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 10 GHz -15 GHz)

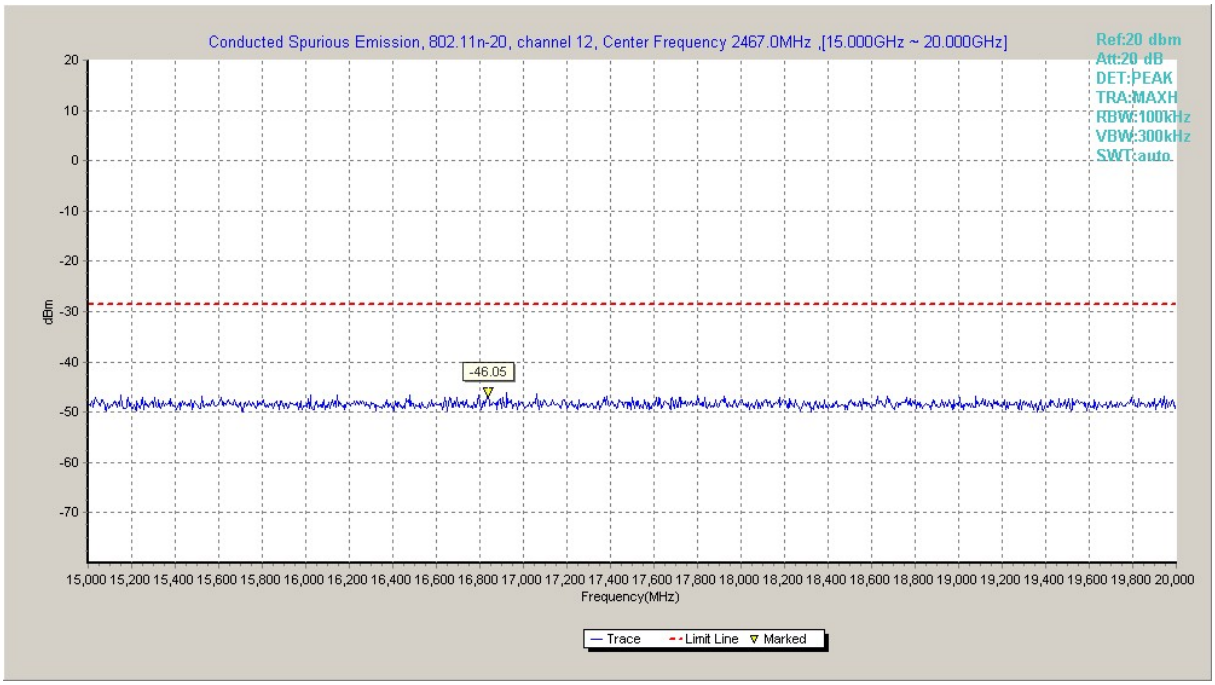


Fig.A.6.1.111 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 15 GHz -20 GHz)

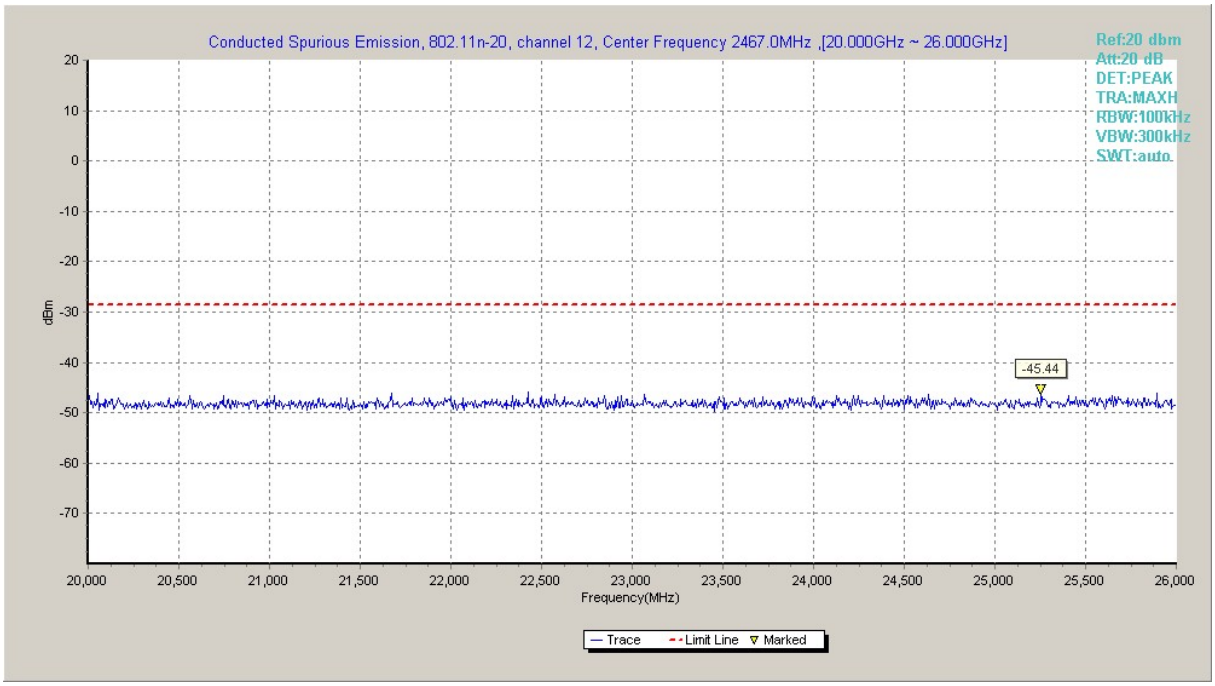


Fig.A.6.1.112 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch12, 20 GHz -26 GHz)

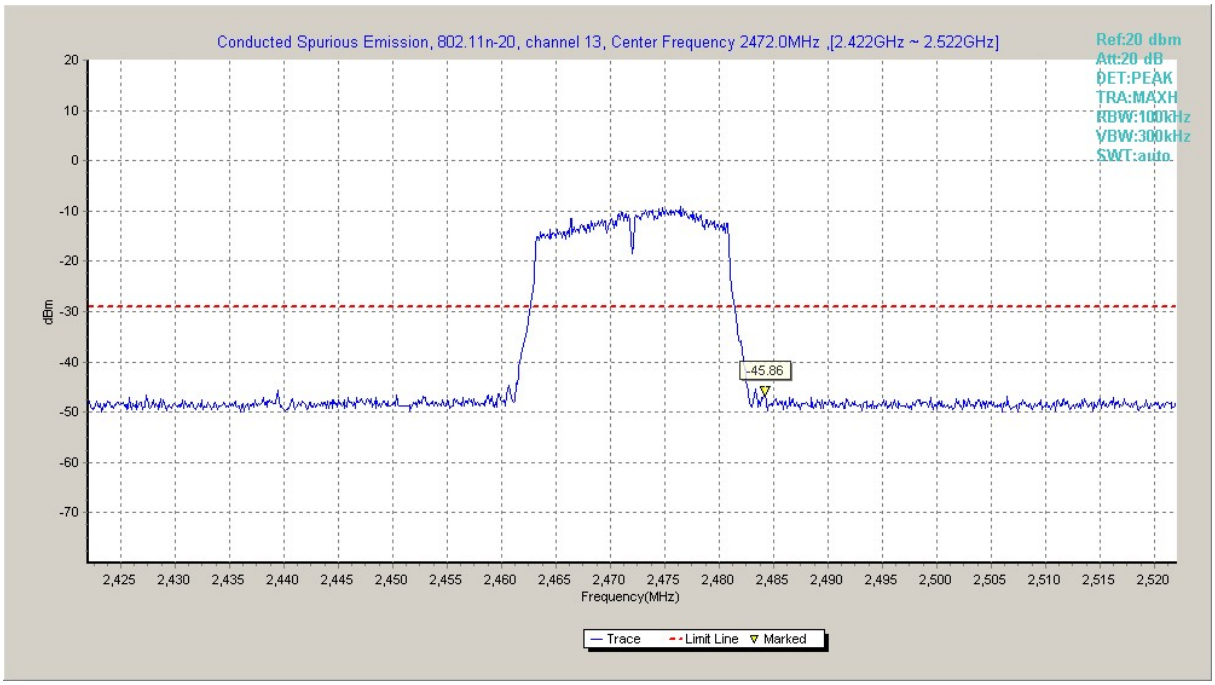


Fig.A.6.1.113 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, Center Frequency)

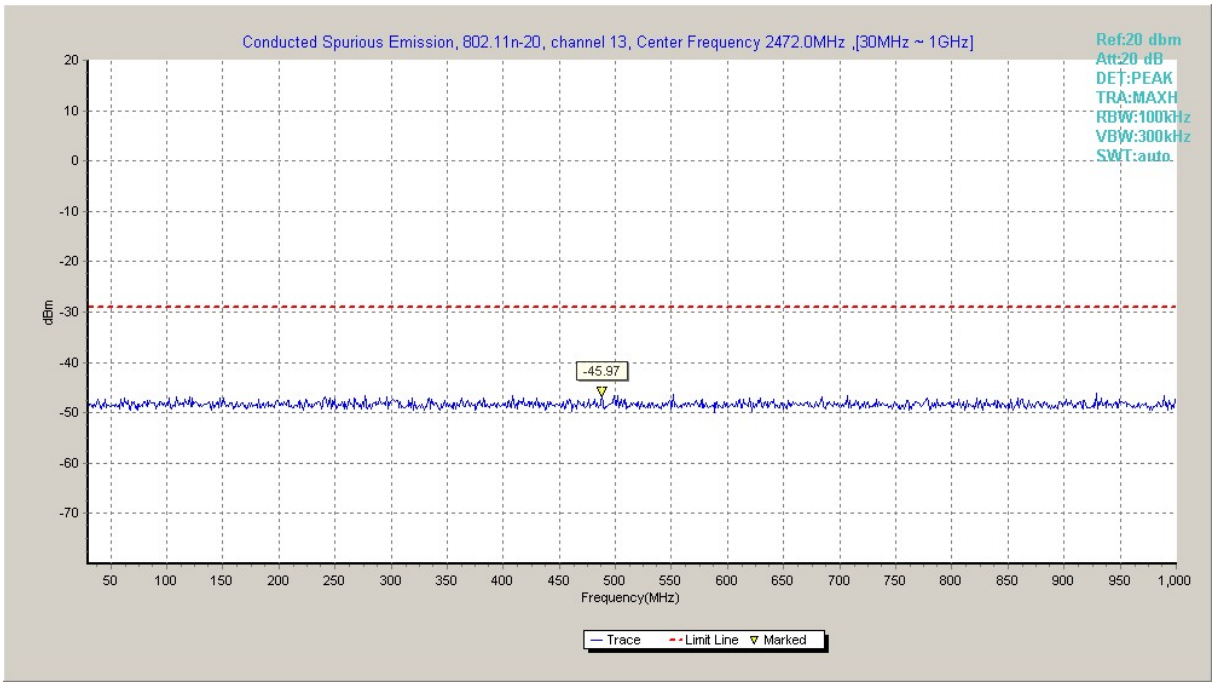


Fig.A.6.1.114 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 30 MHz-1 GHz)

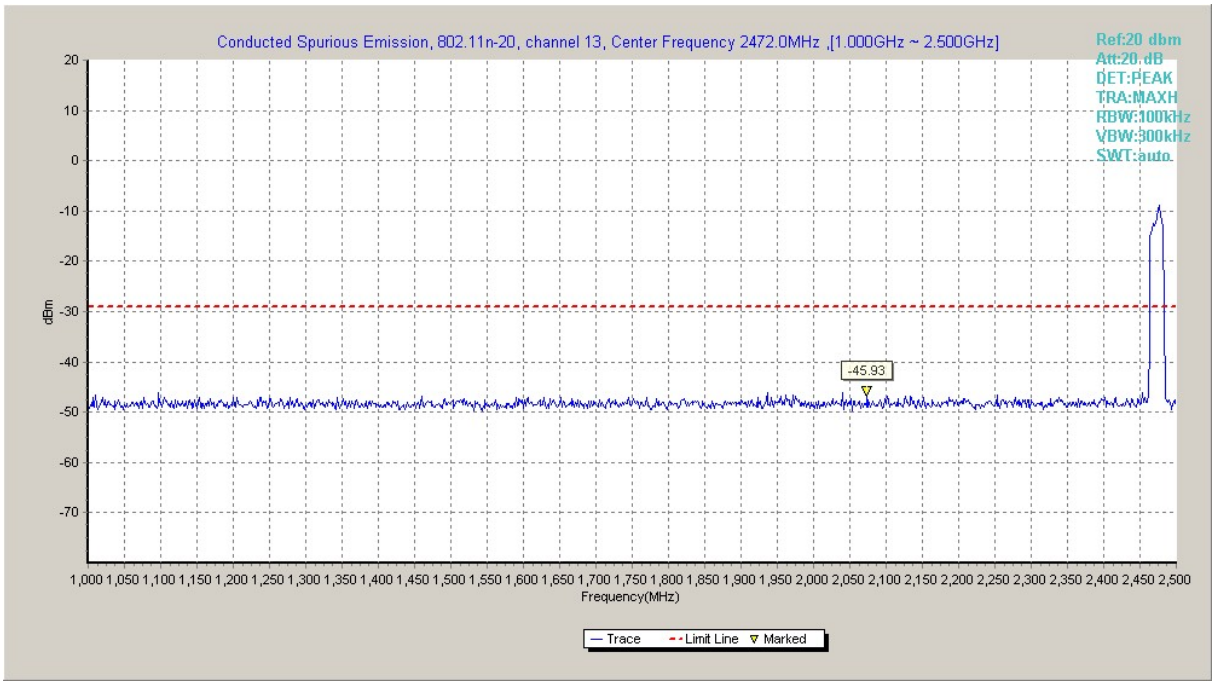


Fig.A.6.1.115 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 1 GHz -2.5 GHz)

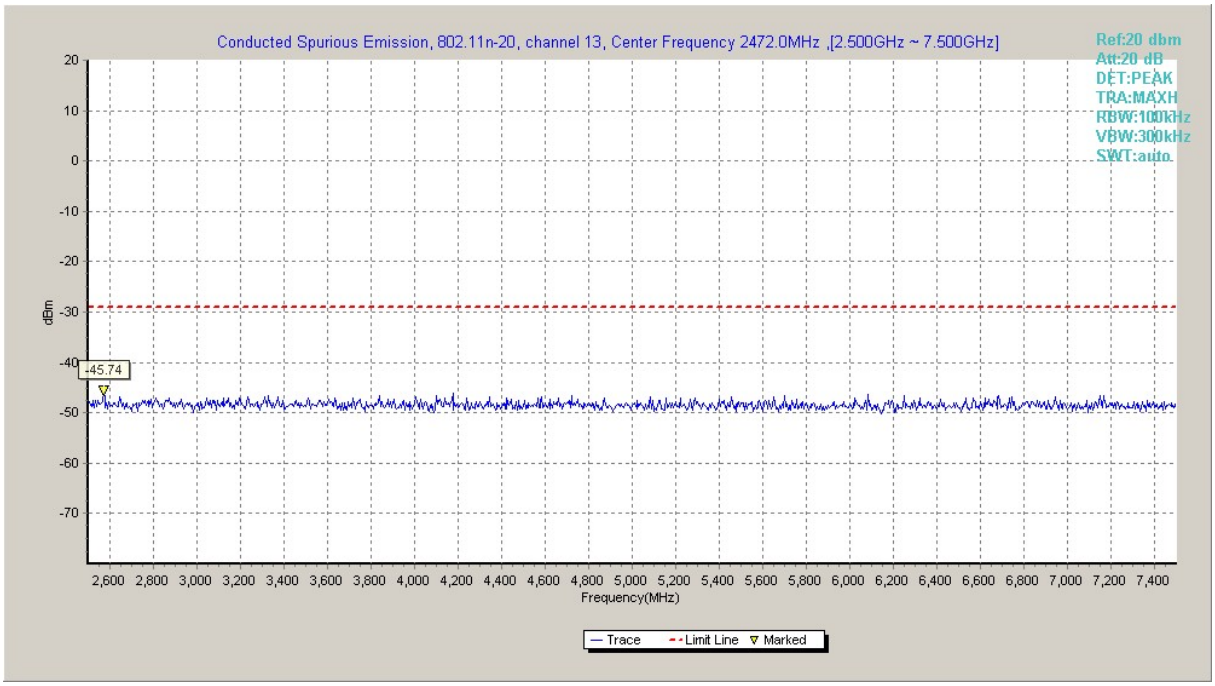


Fig.A.6.1.116 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 2.5 GHz -7.5 GHz)

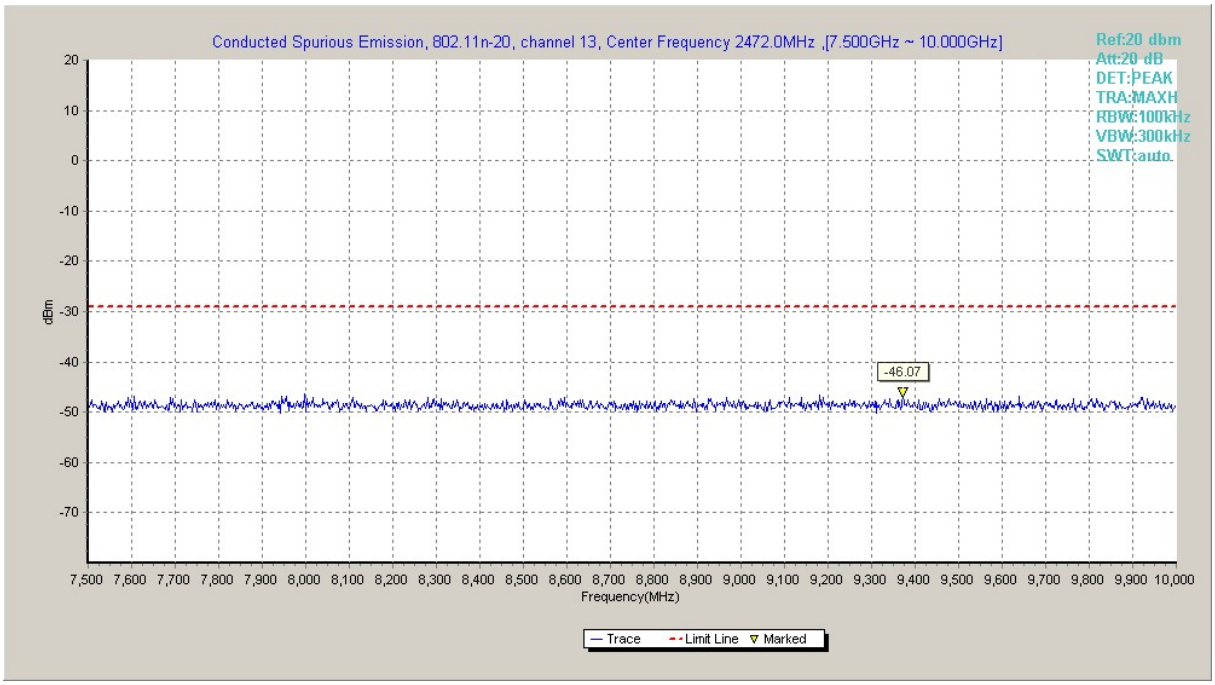


Fig.A.6.1.117 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 7.5 GHz -10 GHz)

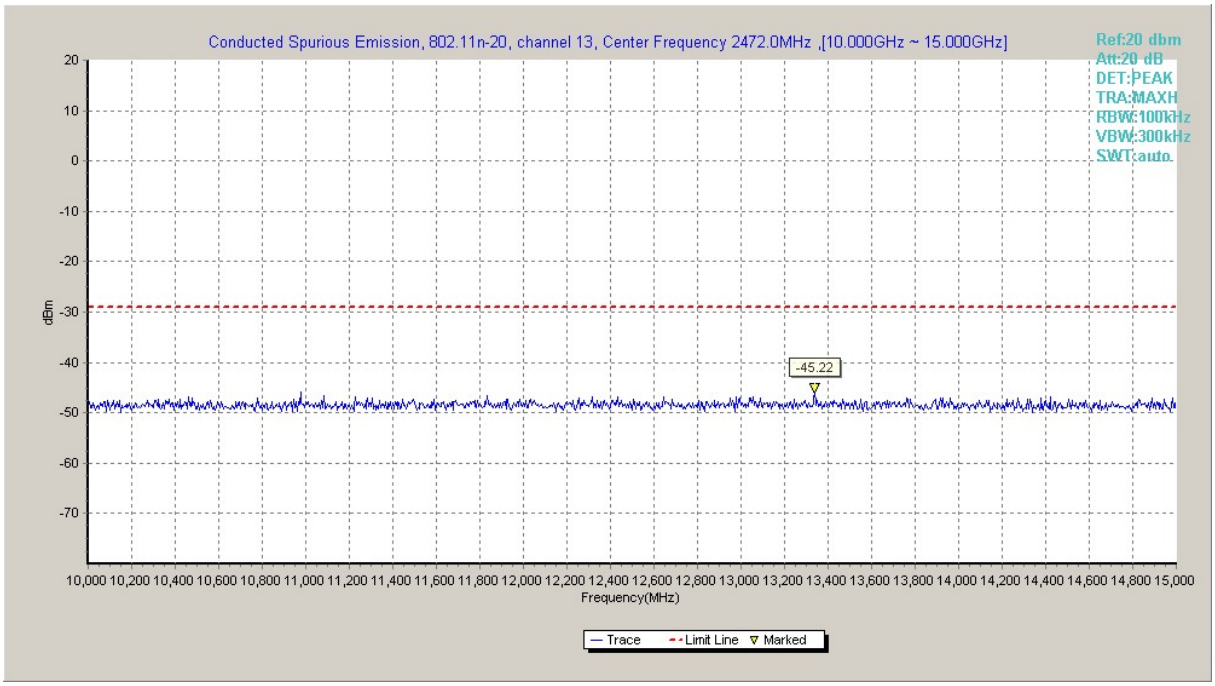


Fig.A.6.1.118 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 10 GHz -15 GHz)

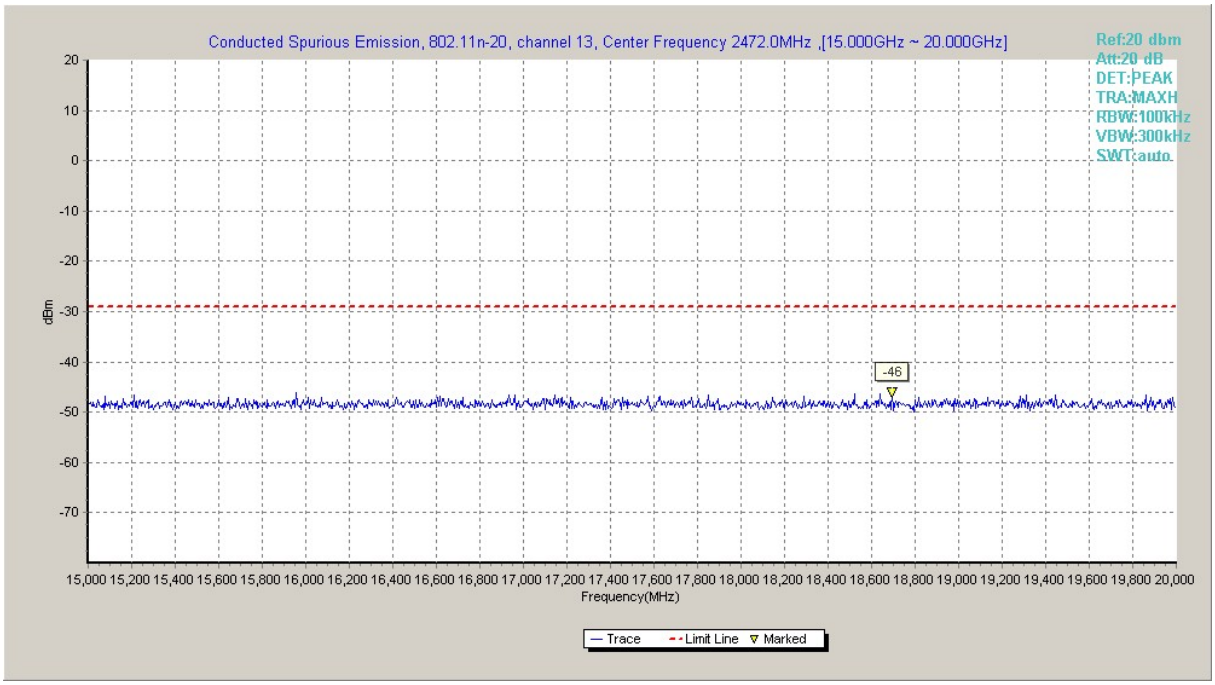


Fig.A.6.1.119 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 15 GHz -20 GHz)

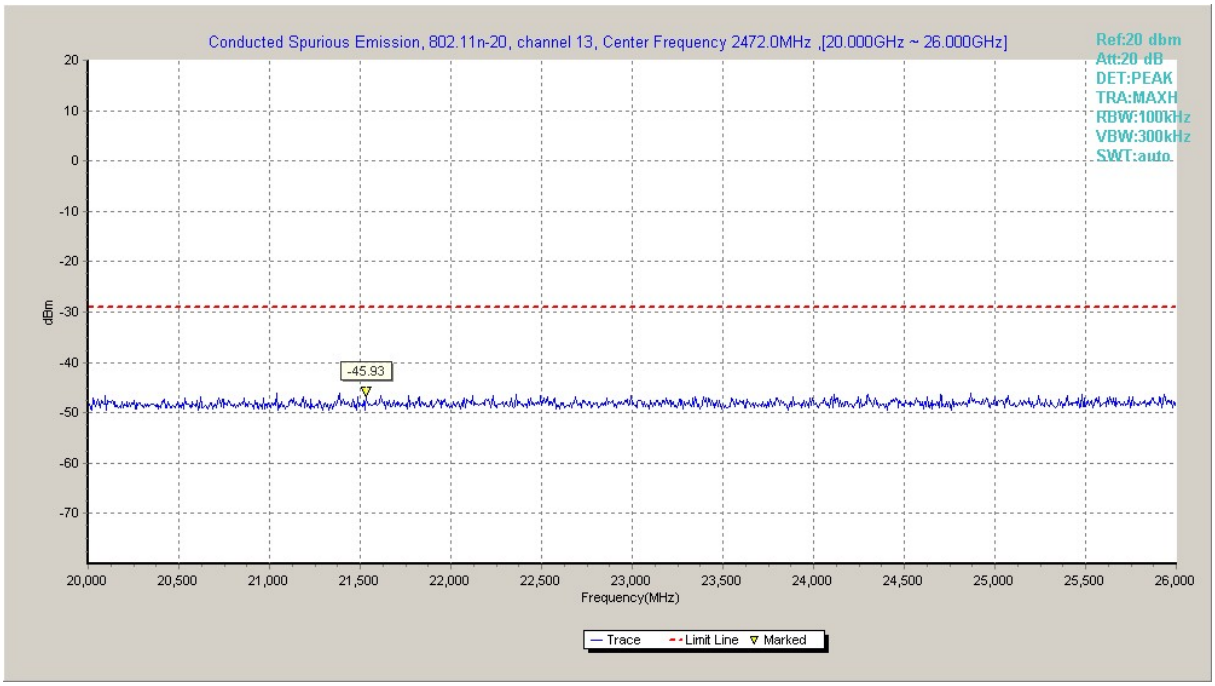


Fig.A.6.1.120 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch13, 20 GHz -26 GHz)

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(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

Test Condition

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

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

EUT ID: EUT1

Measurement Results:

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:

Result=P_{Mea}+A_{Rpl}= P_{Mea}+Cable Loss+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)
2385.600	46.30	2.9	32.0	11.48	54.0	7.7	H	155	18
2390.000	46.24	2.9	32.0	11.42	54.0	7.8	H	155	4
4824.000	40.11	-35.2	34.1	41.25	54.0	13.9	H	155	52
7236.000	38.11	-32.4	35.8	34.75	54.0	15.9	H	155	28
9648.000	40.29	-30.1	36.8	33.65	54.0	13.7	H	155	138
12060.000	41.59	-31.0	38.9	33.70	54.0	12.4	H	155	28

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)
2420.500	46.56	2.9	32.0	11.70	54.0	7.4	H	155	41
2455.100	46.53	2.9	32.0	11.63	54.0	7.5	H	155	62
4874.000	33.37	-35.5	34.1	34.79	54.0	20.6	H	155	87
7311.000	38.49	-31.6	35.8	34.29	54.0	15.5	H	155	231
9748.000	39.30	-31.3	36.9	33.68	54.0	14.7	H	155	285
12185.000	43.72	-29.1	39.0	33.87	54.0	10.3	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	46.43	2.9	32.0	11.51	54.0	7.6	H	155	40
2486.200	46.40	2.9	32.0	11.47	54.0	7.6	H	155	65
4924.000	41.77	-35.2	34.1	42.85	54.0	12.2	H	155	84
7386.000	38.94	-31.2	35.8	34.37	54.0	15.1	H	155	107
9848.000	40.17	-30.5	37.0	33.70	54.0	13.8	H	155	135
12310.000	41.45	-31.6	39.0	34.02	54.0	12.6	H	155	151

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)
2491.200	46.43	2.9	32.0	11.49	54.0	7.6	H	155	48
2492.600	46.44	2.9	32.0	11.51	54.0	7.6	H	155	72
4934.000	33.22	-35.1	34.1	34.20	54.0	20.8	H	155	8
7401.000	38.19	-31.4	35.8	33.79	54.0	15.8	H	155	20
9868.000	40.75	-30.0	37.0	33.73	54.0	13.3	H	155	358
12335.000	41.53	-31.7	39.0	34.19	54.0	12.5	H	155	26

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)
2485.900	46.46	2.9	32.0	11.53	54.0	7.5	H	155	86
2495.800	46.51	2.9	32.0	11.57	54.0	7.5	H	155	107
4964.000	33.42	-34.9	34.1	34.18	54.0	20.6	H	155	130
7446.000	37.10	-32.3	35.8	33.64	54.0	16.9	H	155	152
9928.000	40.89	-29.9	37.1	33.65	54.0	13.1	H	155	174
12410.000	43.49	-29.8	39.1	34.21	54.0	10.5	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)
2369.864	60.41	2.9	32.0	25.61	74.0	13.6	H	155	0
2378.040	60.64	2.9	32.0	25.83	74.0	13.4	H	155	22
4824.000	45.36	-35.2	34.1	46.51	74.0	28.6	V	155	0
7236.000	44.02	-32.4	35.8	40.66	74.0	30.0	H	155	44
9648.000	44.52	-30.1	36.8	37.88	74.0	29.5	H	155	66
12060.000	45.22	-31.0	38.9	37.33	74.0	28.8	V	155	110

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)
2369.200	47.31	-27.0	32.0	42.40	74.0	26.7	H	155	44
2508.800	47.79	-26.5	32.0	42.24	74.0	26.2	H	155	66
4874.000	39.38	-35.5	34.1	40.80	74.0	34.6	V	155	22
7311.000	44.81	-31.6	35.8	40.61	74.0	29.2	H	155	0
9748.000	44.41	-31.3	36.9	38.79	74.0	29.6	H	155	44
12185.000	47.20	-29.1	39.0	37.34	74.0	26.8	H	155	66

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)
2485.315	60.44	2.9	32.0	25.51	74.0	13.6	H	155	22
2492.325	60.36	2.9	32.0	25.42	74.0	13.6	H	155	44
4924.000	45.58	-35.2	34.1	46.66	74.0	28.4	V	155	66
7386.000	44.38	-31.2	35.8	39.80	74.0	29.6	V	155	0
9848.000	44.91	-30.5	37.0	38.44	74.0	29.1	H	155	44
12310.000	45.24	-31.6	39.0	37.81	74.0	28.8	H	155	22

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)
2489.235	60.83	2.9	32.0	25.90	74.0	13.2	H	155	22
2499.165	60.56	2.9	32.0	25.61	74.0	13.4	V	155	44
4934.000	39.73	-35.1	34.1	40.71	74.0	34.3	H	155	88
7401.000	44.03	-31.4	35.8	39.63	74.0	30.0	V	155	110
9868.000	47.02	-30.0	37.0	40.00	74.0	27.0	V	155	22
12335.000	44.56	-31.7	39.0	37.21	74.0	29.4	V	155	0

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)
2489.785	60.29	2.9	32.0	25.36	74.0	13.7	H	155	44
2496.545	60.66	2.9	32.0	25.72	74.0	13.3	H	155	0
4964.000	39.59	-34.9	34.1	40.35	74.0	34.4	V	155	22
7446.000	42.36	-32.3	35.8	38.90	74.0	31.6	V	155	88
9928.000	46.57	-29.9	37.1	39.33	74.0	27.4	H	155	22
12410.000	47.81	-29.8	39.1	38.53	74.0	26.2	V	155	44

802.11g - 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)
2387.700	46.40	2.9	32.0	11.58	54.0	7.6	H	155	86
2389.800	46.51	2.9	32.0	11.68	54.0	7.5	H	155	107
4824.000	32.97	-35.2	34.1	34.12	54.0	21.0	H	155	130
7236.000	36.97	-32.4	35.8	33.61	54.0	17.0	H	155	152
9648.000	40.39	-30.1	36.8	33.75	54.0	13.6	H	155	174
12060.000	41.60	-31.0	38.9	33.71	54.0	12.4	H	155	195

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)
2413.500	46.88	2.9	32.0	12.03	54.0	7.1	H	155	174
2459.500	47.87	2.9	32.0	12.97	54.0	6.1	H	155	202
4874.000	32.69	-35.5	34.1	34.11	54.0	21.3	H	155	201
7311.000	38.00	-31.6	35.8	33.80	54.0	16.0	H	155	200
9748.000	39.33	-31.3	36.9	33.71	54.0	14.7	H	155	245
12185.000	43.67	-29.1	39.0	33.81	54.0	10.3	H	155	267

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)
2484.500	46.59	2.9	32.0	11.66	54.0	7.4	H	155	265
2484.700	46.49	2.9	32.0	11.56	54.0	7.5	H	155	290
4924.000	33.24	-35.2	34.1	34.31	54.0	20.8	H	155	304
7386.000	38.42	-31.2	35.8	33.84	54.0	15.6	H	155	46
9848.000	40.16	-30.5	37.0	33.69	54.0	13.8	H	155	67
12310.000	41.47	-31.6	39.0	34.05	54.0	12.5	H	155	90

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)
2486.500	46.42	2.9	32.0	11.49	54.0	7.6	H	155	107
2488.500	46.42	2.9	32.0	11.49	54.0	7.6	H	155	132
4934.000	33.17	-35.1	34.1	34.15	54.0	20.8	H	155	152
7401.000	38.26	-31.4	35.8	33.86	54.0	15.7	H	155	174
9868.000	40.66	-30.0	37.0	33.64	54.0	13.3	H	155	195
12335.000	41.46	-31.7	39.0	34.12	54.0	12.5	H	155	217

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	46.53	2.9	32.0	11.60	54.0	7.5	H	155	130
2484.300	46.48	2.9	32.0	11.55	54.0	7.5	H	155	153
4964.000	33.39	-34.9	34.1	34.15	54.0	20.6	H	155	173
7446.000	37.07	-32.3	35.8	33.61	54.0	16.9	H	155	196
9928.000	40.90	-29.9	37.1	33.65	54.0	13.1	H	155	217
12410.000	43.47	-29.8	39.1	34.19	54.0	10.5	H	155	245

802.11g - 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)
2366.770	60.25	2.8	32.0	25.45	74.0	13.8	H	155	22
2388.764	60.33	2.9	32.0	25.50	74.0	13.7	H	155	44
4824.000	41.93	-35.2	34.1	43.08	74.0	32.1	H	155	0
7236.000	42.38	-32.4	35.8	39.02	74.0	31.6	V	155	66
9648.000	45.70	-30.1	36.8	39.06	74.0	28.3	V	155	22
12060.000	46.88	-31.0	38.9	38.99	74.0	27.1	V	155	0

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)
2377.200	48.18	-26.5	32.0	42.72	74.0	25.8	V	155	110
2500.200	48.15	-26.3	32.0	42.42	74.0	25.9	V	155	88
4874.000	39.55	-35.5	34.1	40.97	74.0	34.4	V	155	44
7311.000	44.12	-31.6	35.8	39.92	74.0	29.9	V	155	22
9748.000	44.48	-31.3	36.9	38.86	74.0	29.5	H	155	44
12185.000	47.48	-29.1	39.0	37.62	74.0	26.5	H	155	0

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)
2483.695	61.88	2.9	32.0	26.95	74.0	12.1	V	155	22
2484.085	61.58	2.9	32.0	26.65	74.0	12.4	V	155	44
4924.000	38.69	-35.2	34.1	39.76	74.0	35.3	H	155	66
7386.000	42.48	-31.2	35.8	37.90	74.0	31.5	V	155	110
9848.000	45.38	-30.5	37.0	38.91	74.0	28.6	H	155	132
12310.000	44.10	-31.6	39.0	36.67	74.0	29.9	H	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)
2484.515	60.27	2.9	32.0	25.35	74.0	13.7	V	155	110
2487.385	60.25	2.9	32.0	25.32	74.0	13.8	V	155	134
4934.000	39.84	-35.1	34.1	40.82	74.0	34.2	H	155	154
7401.000	44.13	-31.4	35.8	39.73	74.0	29.9	H	155	176
9868.000	46.99	-30.0	37.0	39.97	74.0	27.0	V	155	198
12335.000	44.84	-31.7	39.0	37.50	74.0	29.2	H	155	220

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)
2485.745	60.55	2.9	32.0	25.62	74.0	13.5	V	155	22
2487.630	60.61	2.9	32.0	25.68	74.0	13.4	V	155	44
4964.000	39.44	-34.9	34.1	40.20	74.0	34.6	V	155	0
7446.000	41.57	-32.3	35.8	38.10	74.0	32.4	V	155	0
9928.000	47.41	-29.9	37.1	40.16	74.0	26.6	H	155	22
12410.000	45.38	-29.8	39.1	36.10	74.0	28.6	H	155	176

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)
2387.100	46.38	2.9	32.0	11.56	54.0	7.6	H	155	41
2390.000	46.41	2.9	32.0	11.59	54.0	7.6	H	155	65
4824.000	33.05	-35.2	34.1	34.19	54.0	21.0	H	155	91
7236.000	37.09	-32.4	35.8	33.74	54.0	16.9	H	155	177
9648.000	40.45	-30.1	36.8	33.81	54.0	13.5	H	155	195
12060.000	41.61	-31.0	38.9	33.72	54.0	12.4	H	155	218

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)
2412.800	47.42	2.9	32.0	12.57	54.0	6.6	H	155	85
2465.500	47.38	2.9	32.0	12.47	54.0	6.6	H	155	55
4874.000	32.66	-35.5	34.1	34.08	54.0	21.3	H	155	51
7311.000	37.95	-31.6	35.8	33.75	54.0	16.0	H	155	34
9748.000	39.32	-31.3	36.9	33.70	54.0	14.7	H	155	67
12185.000	43.68	-29.1	39.0	33.82	54.0	10.3	H	155	154

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)
2484.100	46.67	2.9	32.0	11.75	54.0	7.3	H	155	135
2484.500	46.65	2.9	32.0	11.72	54.0	7.4	H	155	159
4924.000	33.16	-35.2	34.1	34.24	54.0	20.8	H	155	11
7386.000	38.39	-31.2	35.8	33.82	54.0	15.6	H	155	214
9848.000	40.22	-30.5	37.0	33.75	54.0	13.8	H	155	308
12310.000	41.49	-31.6	39.0	34.07	54.0	12.5	H	155	248

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)
2487.100	46.43	2.9	32.0	11.50	54.0	7.6	H	155	20
2491.900	46.42	2.9	32.0	11.48	54.0	7.6	H	155	45
4934.000	33.11	-35.1	34.1	34.09	54.0	20.9	H	155	240
7401.000	38.25	-31.4	35.8	33.85	54.0	15.7	H	155	180
9868.000	40.72	-30.0	37.0	33.70	54.0	13.3	H	155	85
12335.000	41.48	-31.7	39.0	34.14	54.0	12.5	H	155	25

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	46.89	2.9	32.0	11.97	54.0	7.1	H	155	175
2483.800	46.63	2.9	32.0	11.70	54.0	7.4	H	155	5
4964.000	33.46	-34.9	34.1	34.21	54.0	20.5	H	155	26
7446.000	37.12	-32.3	35.8	33.66	54.0	16.9	H	155	355
9928.000	40.87	-29.9	37.1	33.63	54.0	13.1	H	155	6
12410.000	43.48	-29.8	39.1	34.20	54.0	10.5	H	155	12

802.11n-HT20-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)
2359.238	60.00	2.8	31.9	25.21	74.0	14.0	H	155	44
2378.362	60.31	2.9	32.0	25.50	74.0	13.7	H	155	66
4824.000	38.74	-35.2	34.1	39.89	74.0	35.3	H	155	88
7236.000	41.92	-32.4	35.8	38.56	74.0	32.1	H	155	110
9648.000	45.36	-30.1	36.8	38.71	74.0	28.6	H	155	132
12060.000	45.35	-31.0	38.9	37.46	74.0	28.7	V	155	0

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)
2359.400	48.44	-27.6	31.9	44.09	74.0	25.6	H	155	0
2496.800	47.66	-25.3	32.0	41.00	74.0	26.3	H	155	22
4874.000	39.53	-35.5	34.1	40.94	74.0	34.5	H	155	66
7311.000	43.31	-31.6	35.8	39.11	74.0	30.7	V	155	88
9748.000	44.65	-31.3	36.9	39.03	74.0	29.3	V	155	110
12185.000	47.12	-29.1	39.0	37.27	74.0	26.9	H	155	352

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)
2483.855	64.63	2.9	32.0	29.70	74.0	9.4	V	155	246
2484.605	64.14	2.9	32.0	29.22	74.0	9.9	V	155	110
4924.000	39.92	-35.2	34.1	41.00	74.0	34.1	V	155	132
7386.000	42.55	-31.2	35.8	37.98	74.0	31.5	H	155	66
9848.000	45.17	-30.5	37.0	38.70	74.0	28.8	V	155	88
12310.000	44.22	-31.6	39.0	36.79	74.0	29.8	V	155	22

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)
2487.175	60.48	2.9	32.0	25.55	74.0	13.5	H	155	176
2495.140	60.51	2.9	32.0	25.57	74.0	13.5	H	155	0
4934.000	39.00	-35.1	34.1	39.98	74.0	35.0	V	155	22
7401.000	44.39	-31.4	35.8	39.99	74.0	29.6	H	155	352
9868.000	45.01	-30.0	37.0	37.99	74.0	29.0	V	155	0
12335.000	45.12	-31.7	39.0	37.77	74.0	28.9	V	155	0

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)
2498.245	60.76	2.9	32.0	25.81	74.0	13.2	V	155	44
2499.690	60.60	2.9	32.0	25.66	74.0	13.4	V	155	66
4964.000	39.53	-34.9	34.1	40.29	74.0	34.5	H	155	88
7446.000	41.78	-32.3	35.8	38.31	74.0	32.2	V	155	176
9928.000	45.25	-29.9	37.1	38.00	74.0	28.8	V	155	198
12410.000	46.92	-29.8	39.1	37.64	74.0	27.1	H	155	220

Test graphs as below:

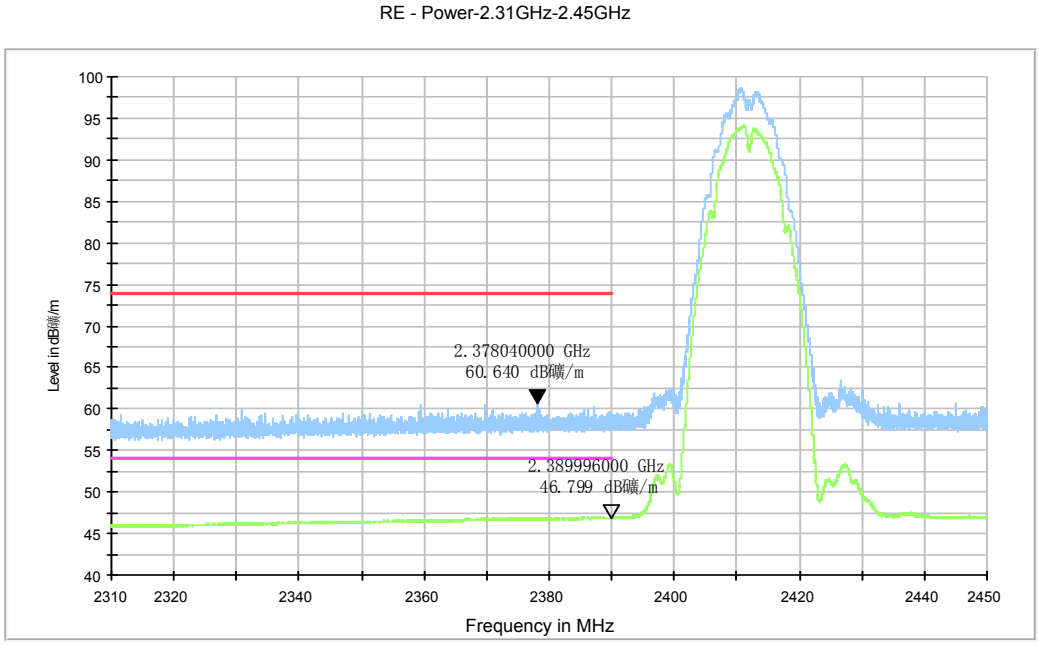


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

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

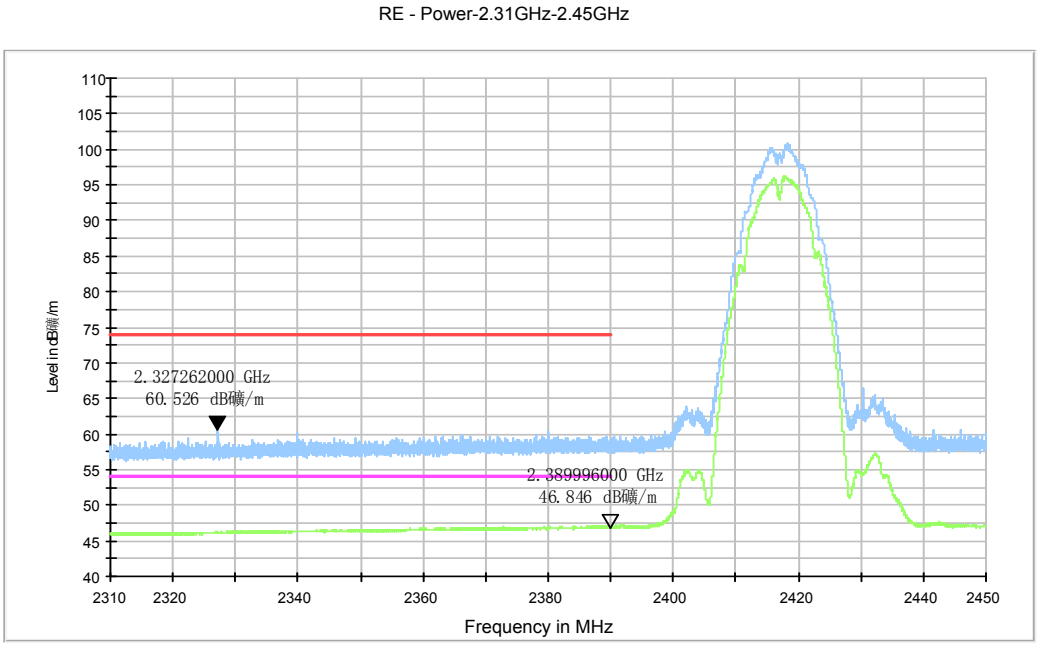


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch2, 2.31 GHz - 2.43GHz

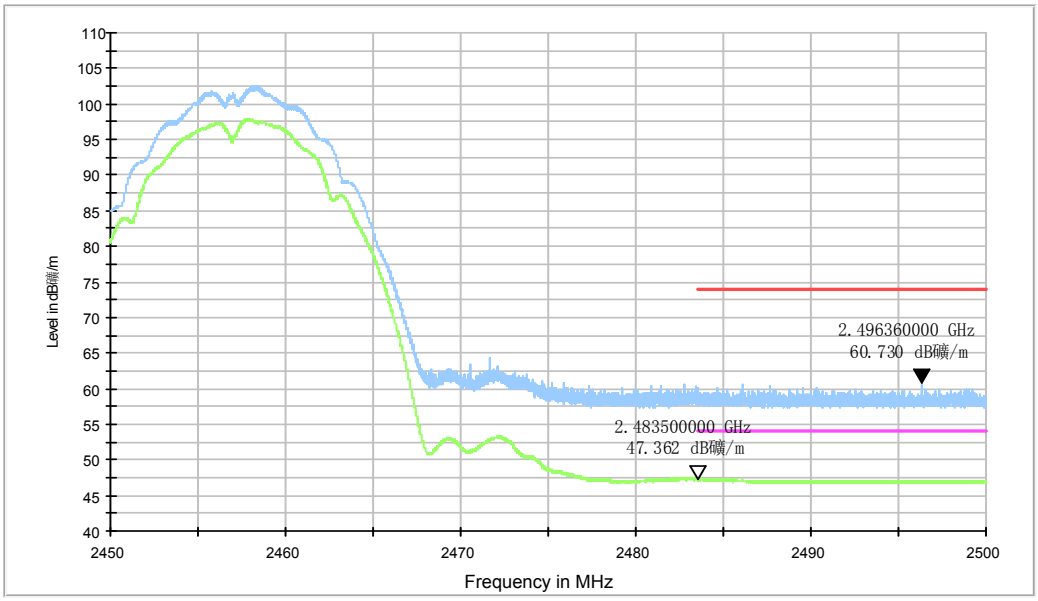


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch10, 2.45 GHz - 2.50GHz

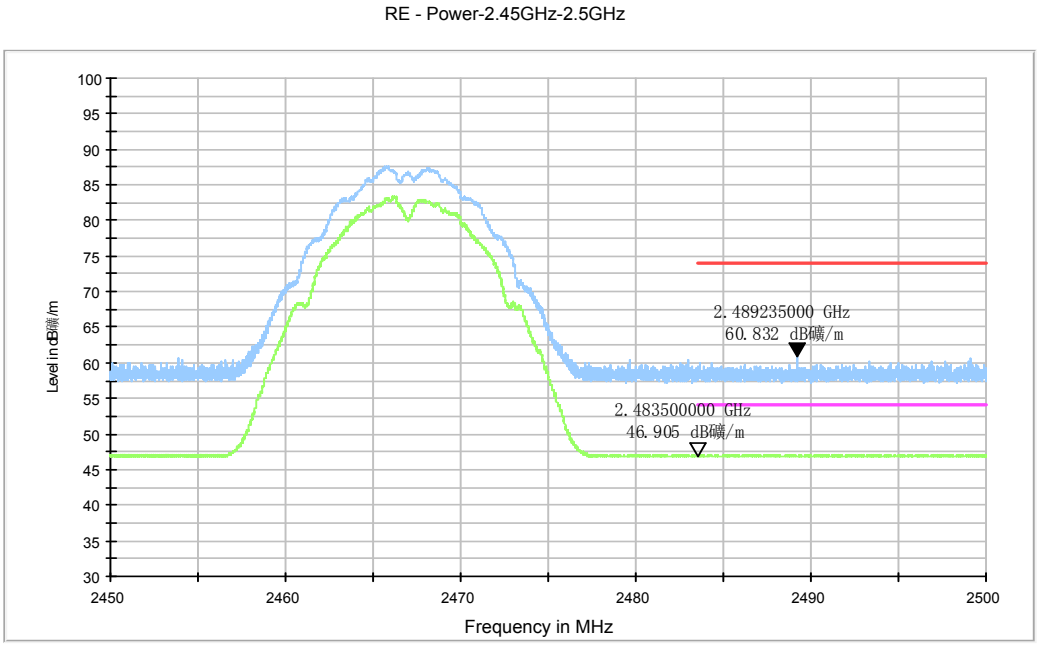


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch12, 2.45 GHz - 2.50GHz

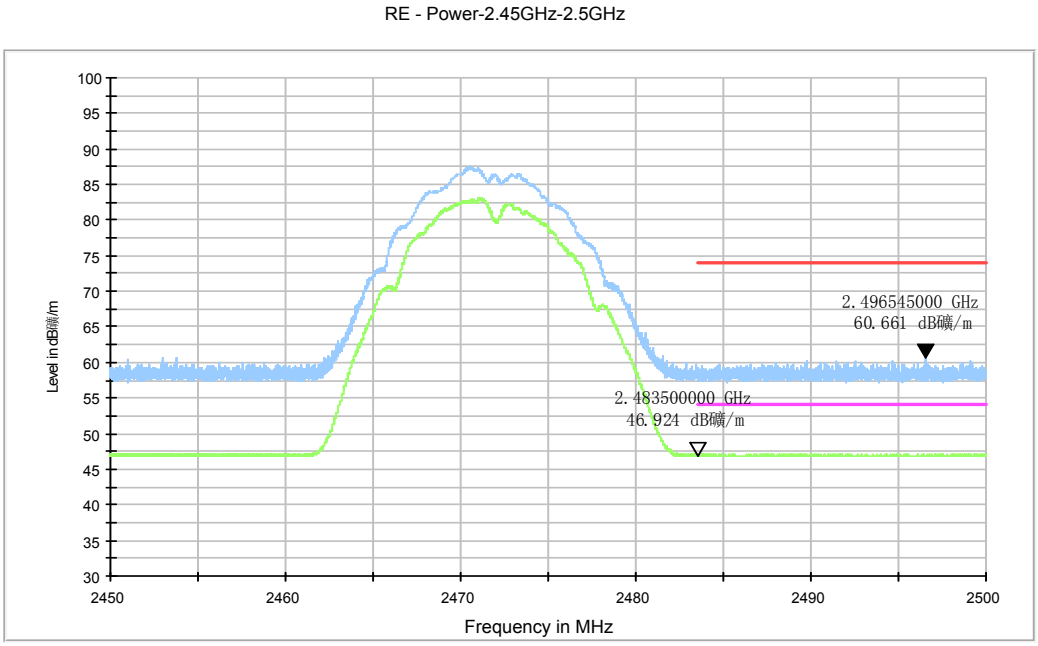


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch13, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

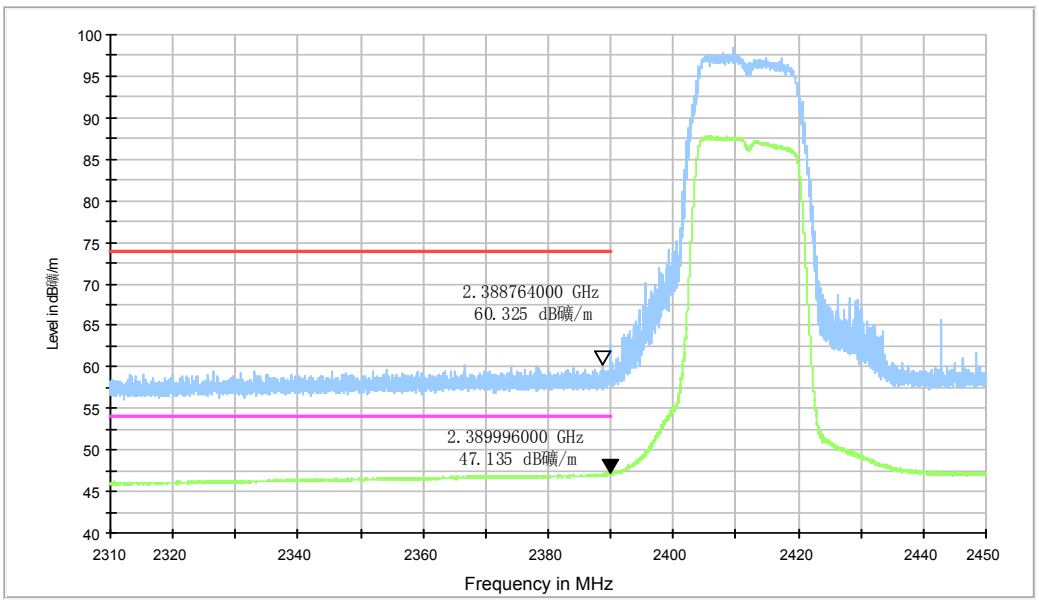


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

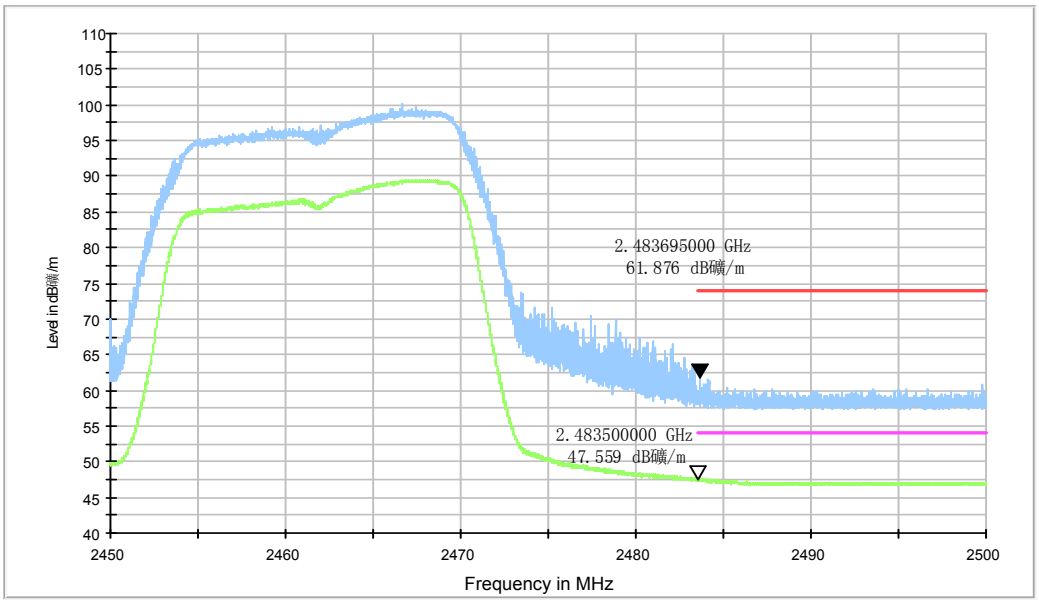


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

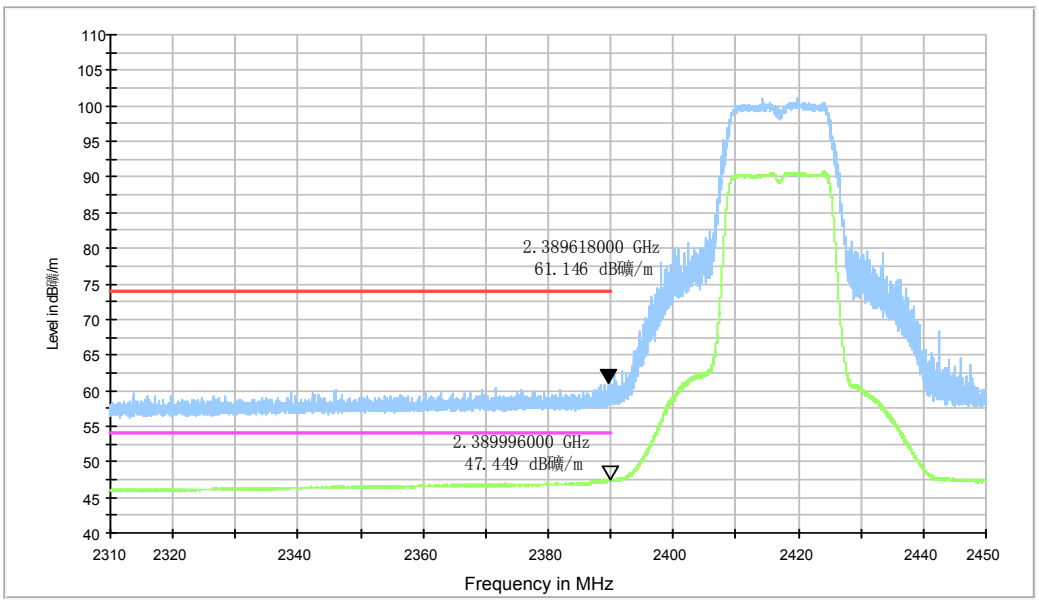


Fig.A.6.2.9 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch2, 2.31 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

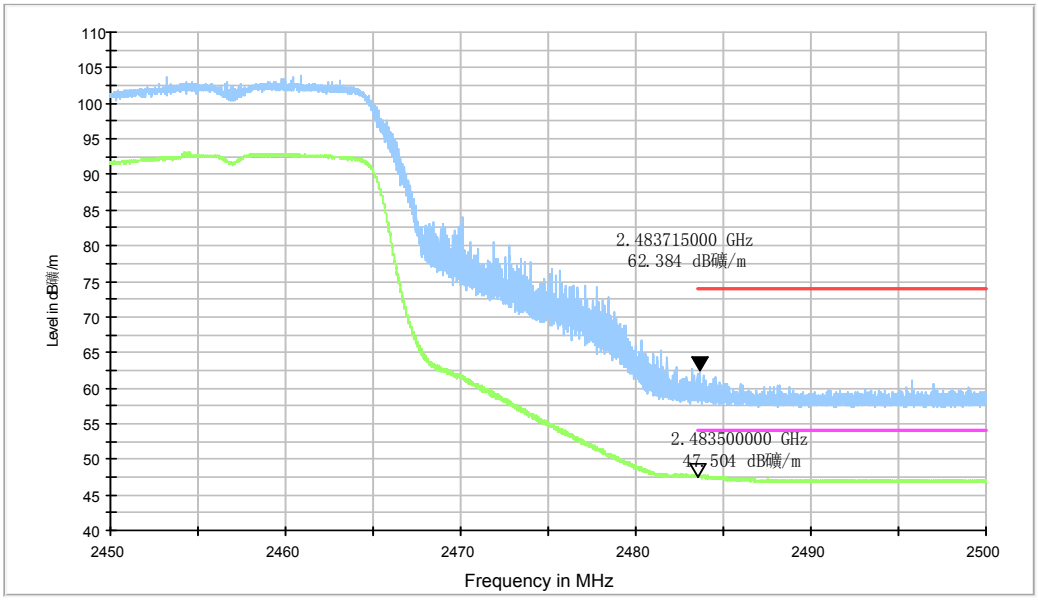


Fig.A.6.2.10 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch10, 2.45 GHz - 2.50GHz

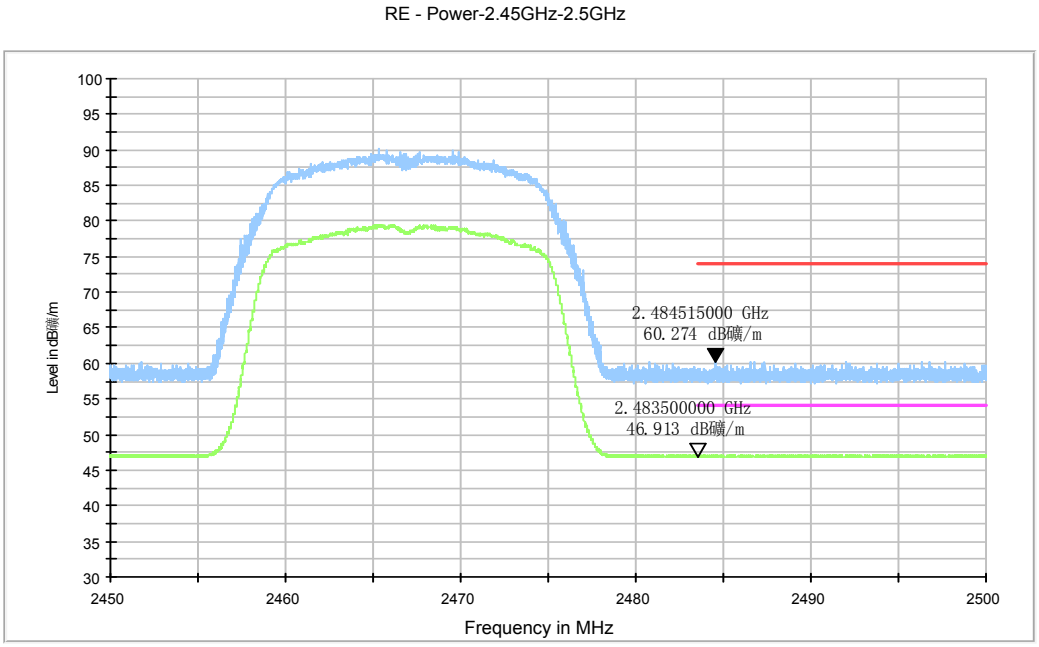


Fig.A.6.2.11 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch12, 2.45 GHz - 2.50GHz

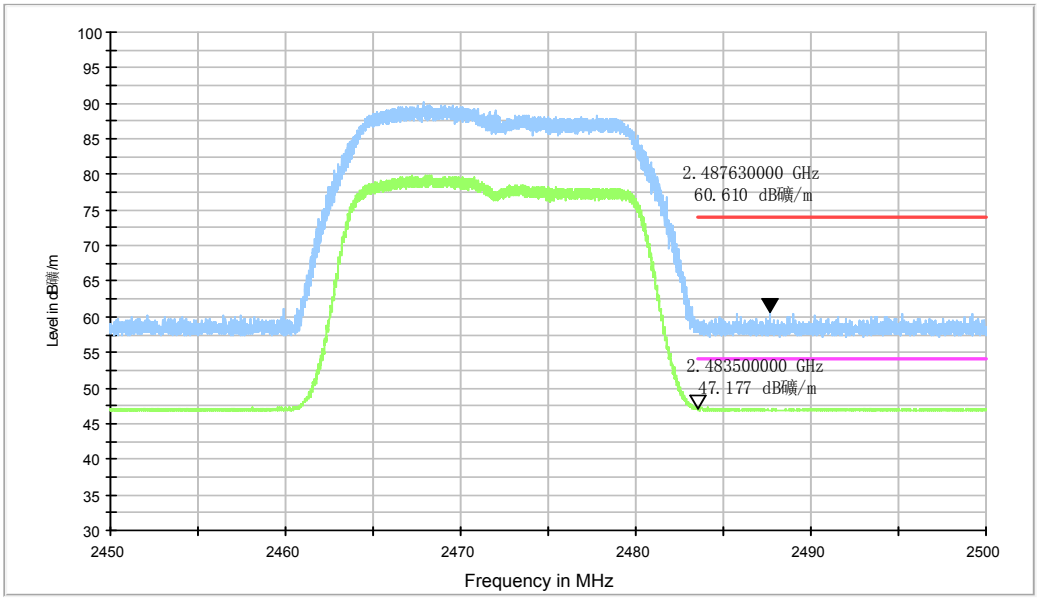


Fig.A.6.2.12 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch13, 2.45 GHz - 2.50GHz

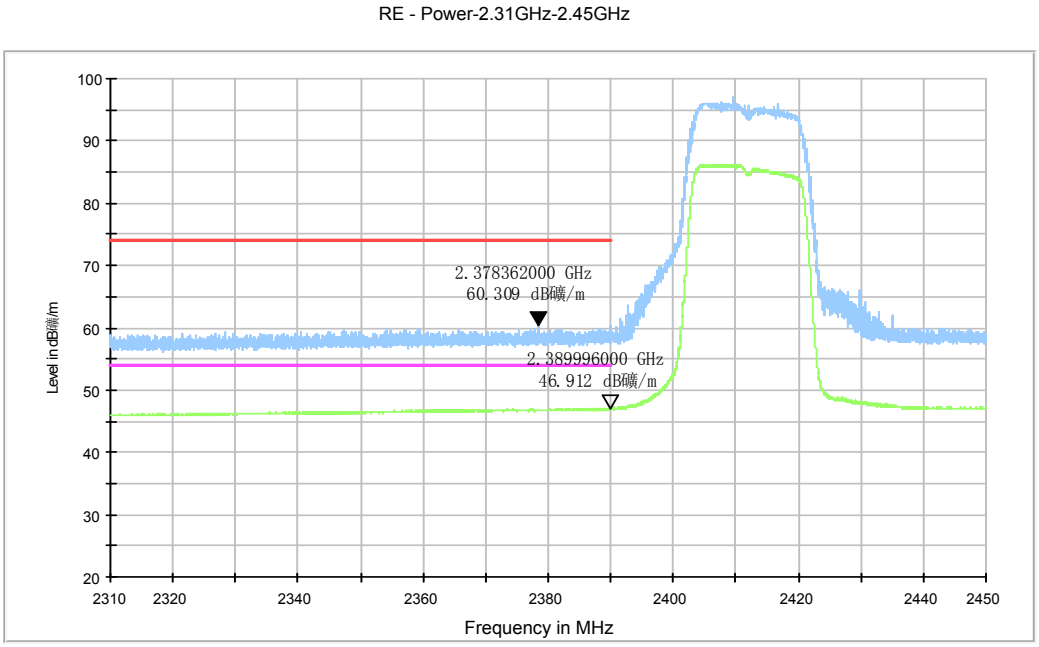


Fig.A.6.2.13 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

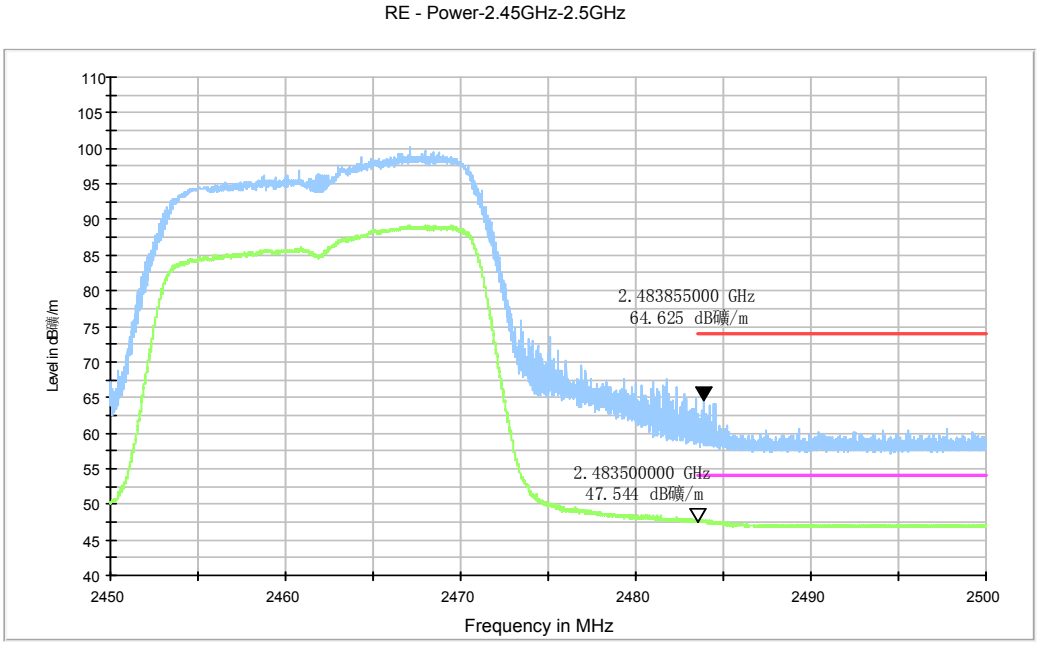


Fig.A.6.2.14 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

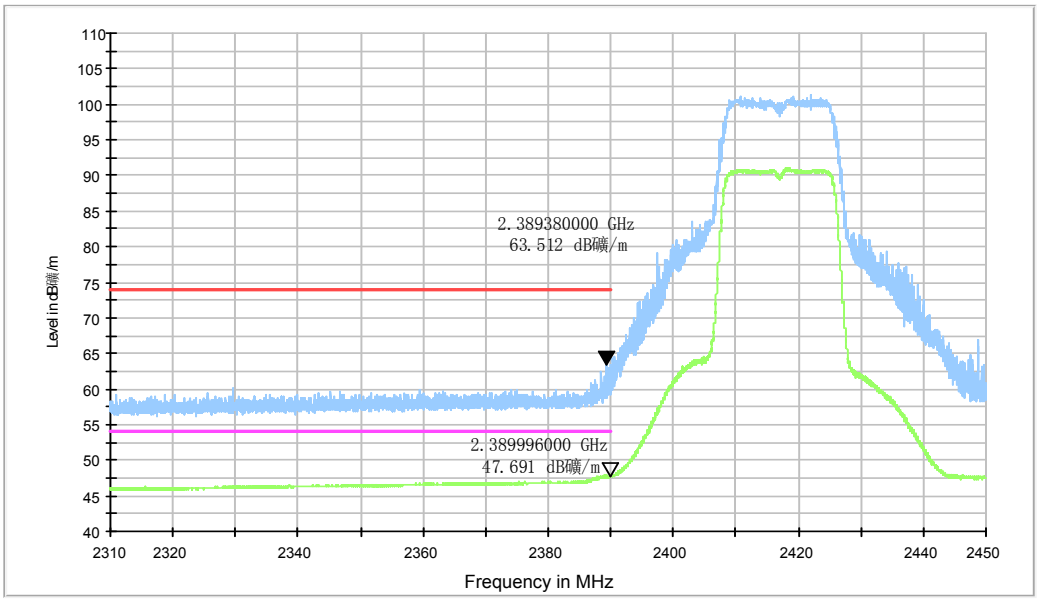


Fig.A.6.2.15 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch2, 2.31 GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

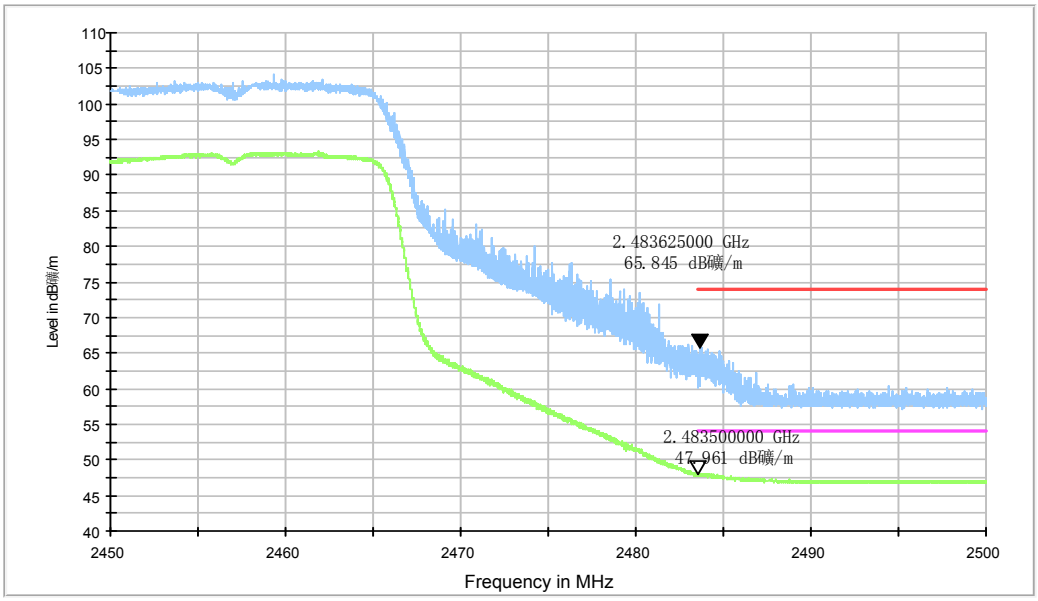


Fig.A.6.2.16 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch10, 2.45 GHz - 2.50GHz

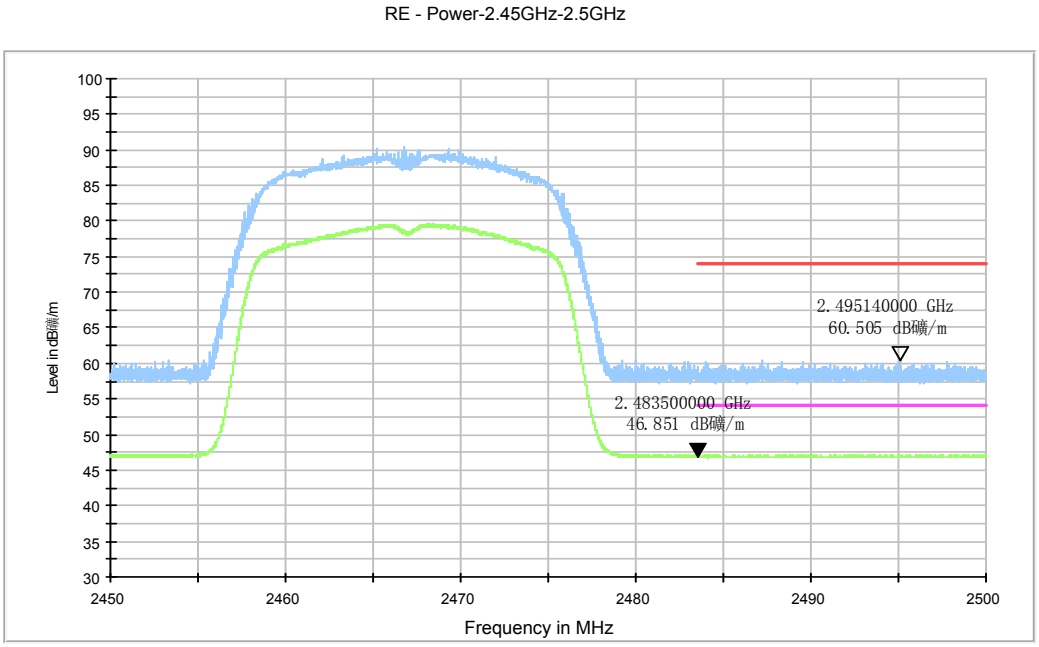


Fig.A.6.2.17 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch12, 2.45 GHz - 2.50GHz

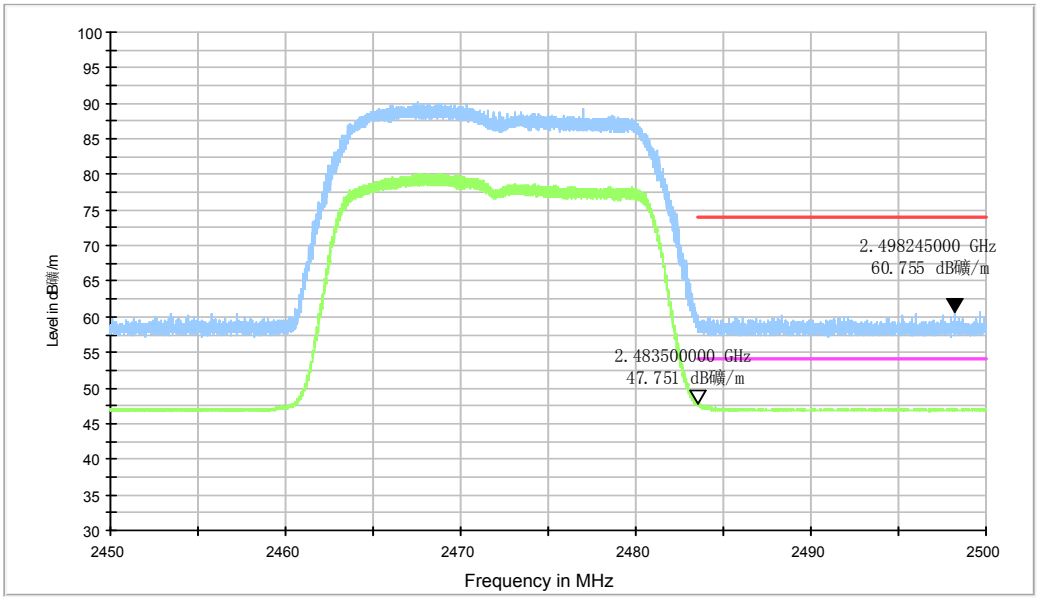


Fig.A.6.2.18 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch13, 2.45 GHz - 2.50GHz

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 (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: Pass

Test graphs as below:

Traffic:

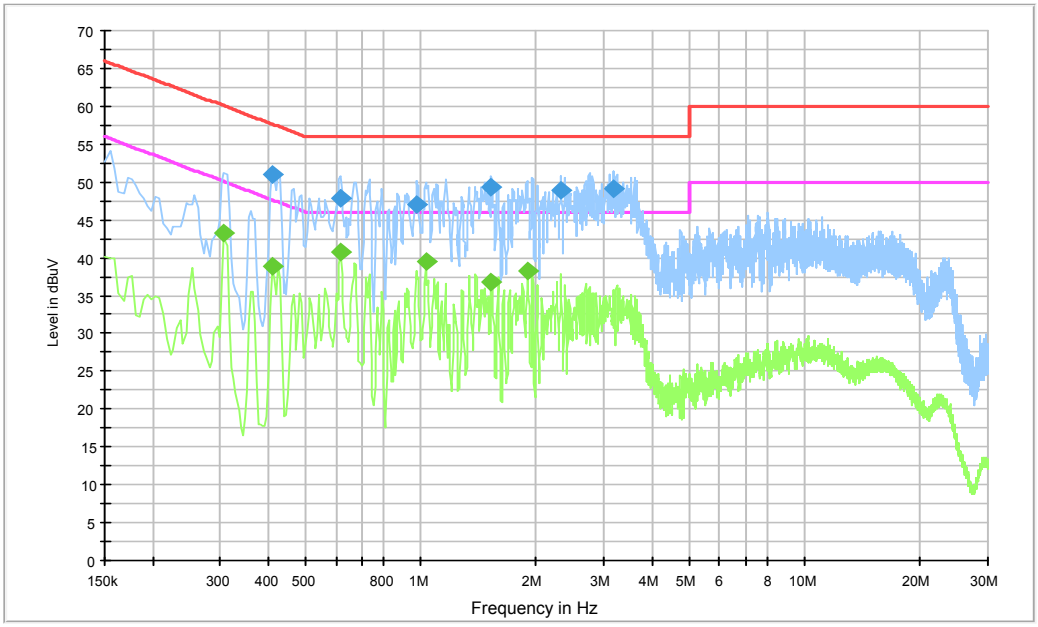


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
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 (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
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:

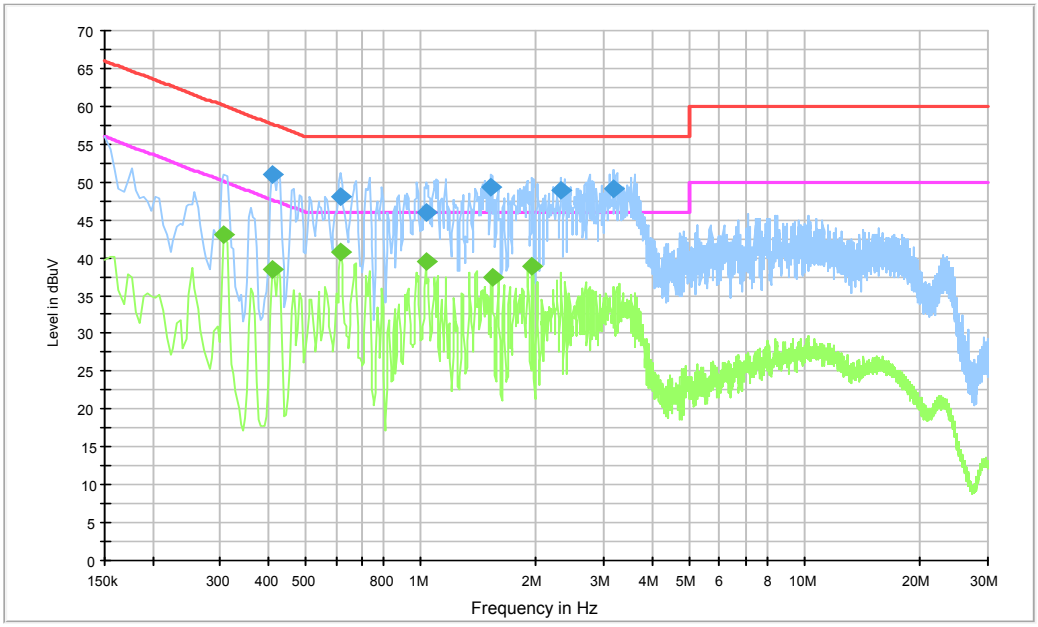


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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

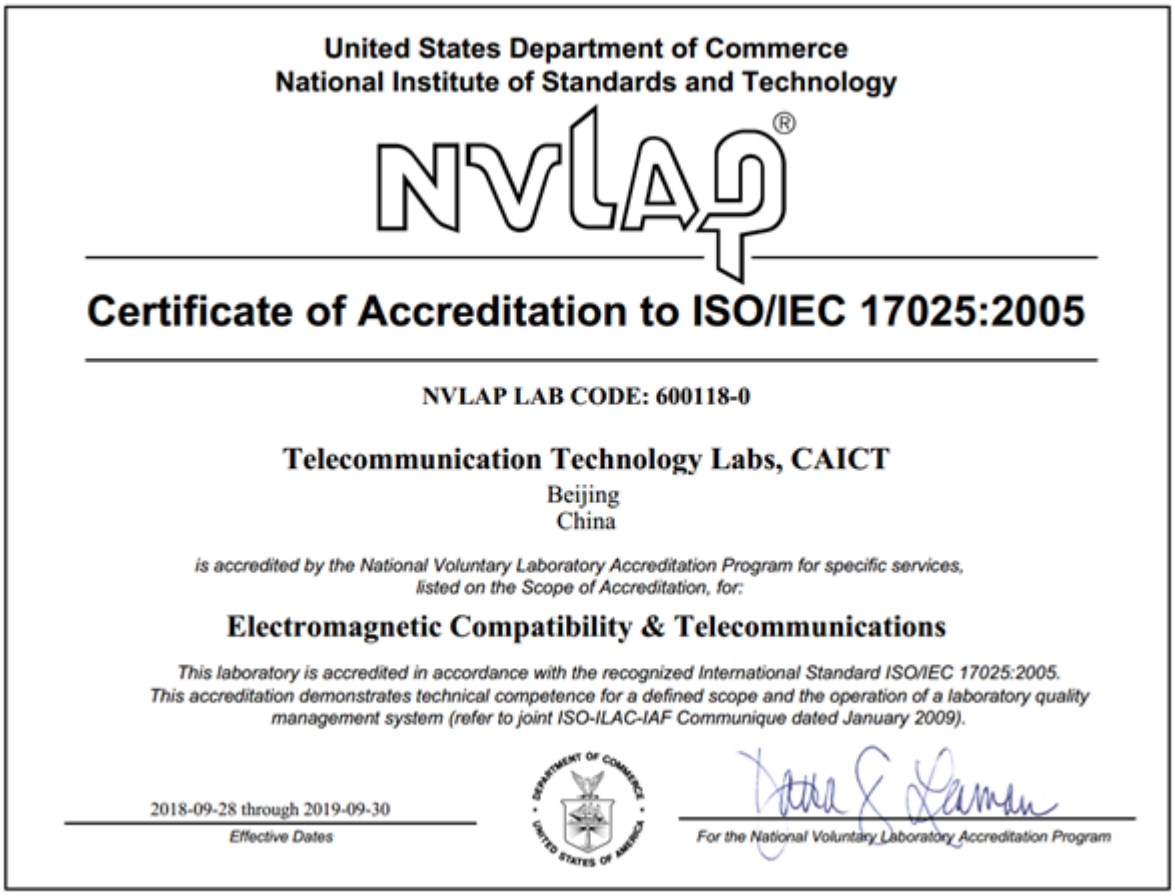
Final Result 1

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



United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

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

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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).

2018-09-28 through 2019-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

*****END OF REPORT*****