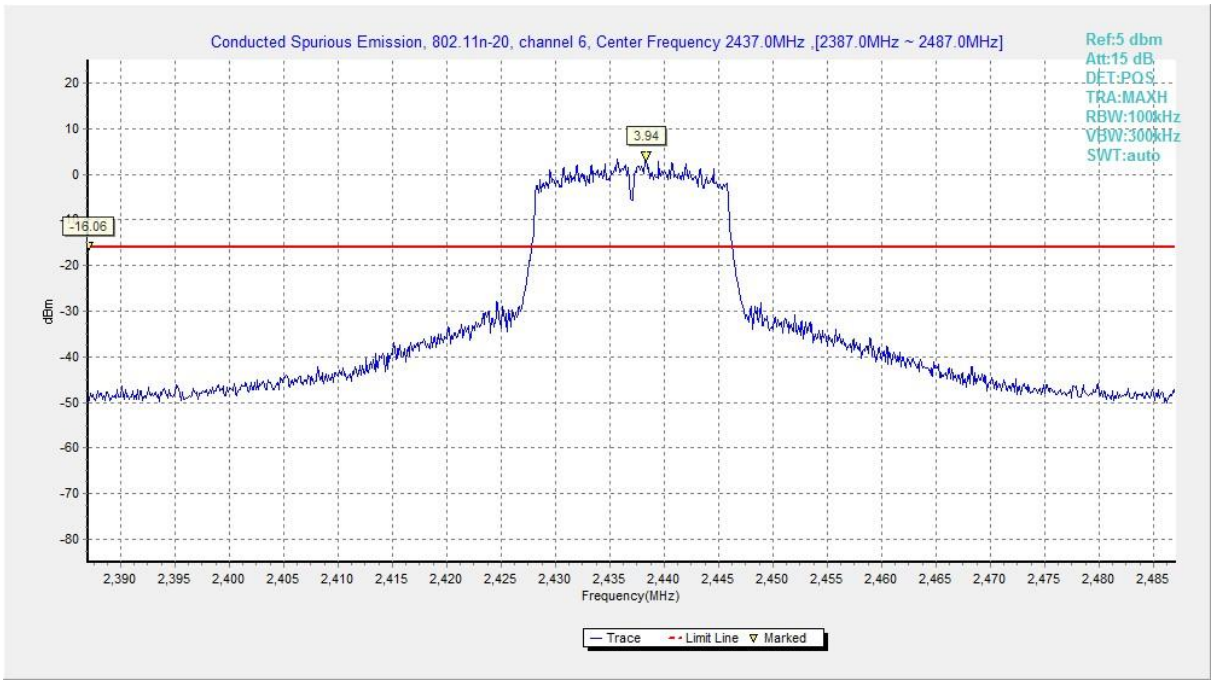

Fig.A.7.1.57 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)

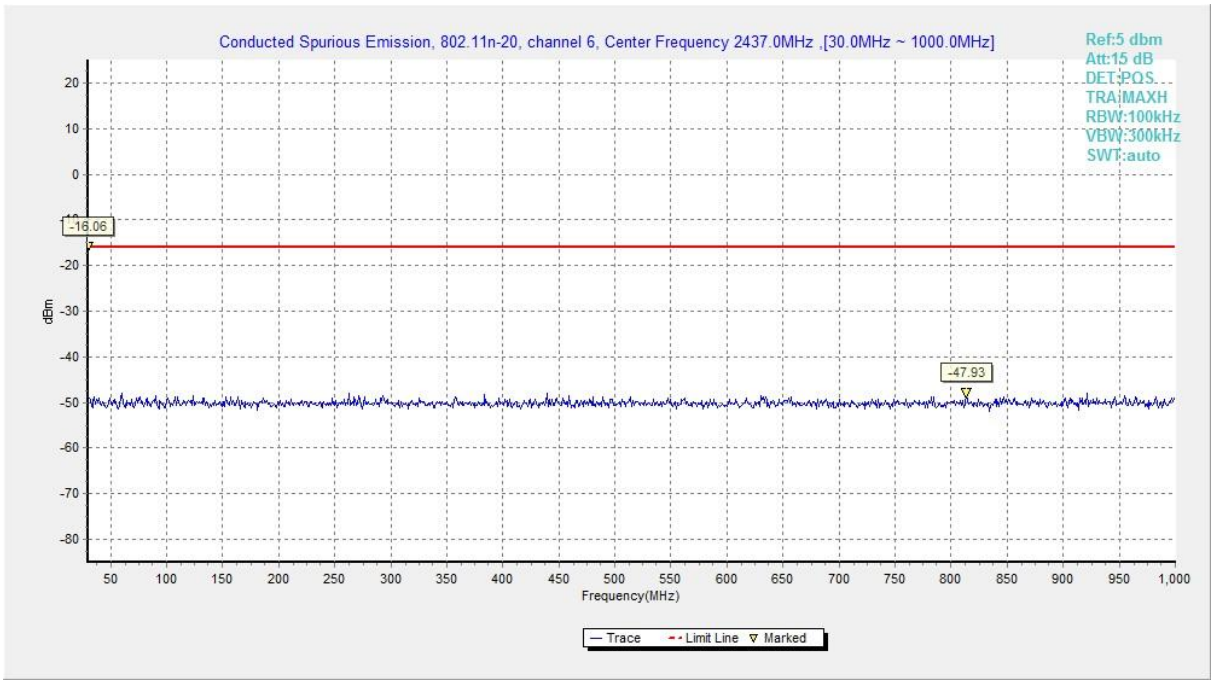

Fig.A.7.1.58 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

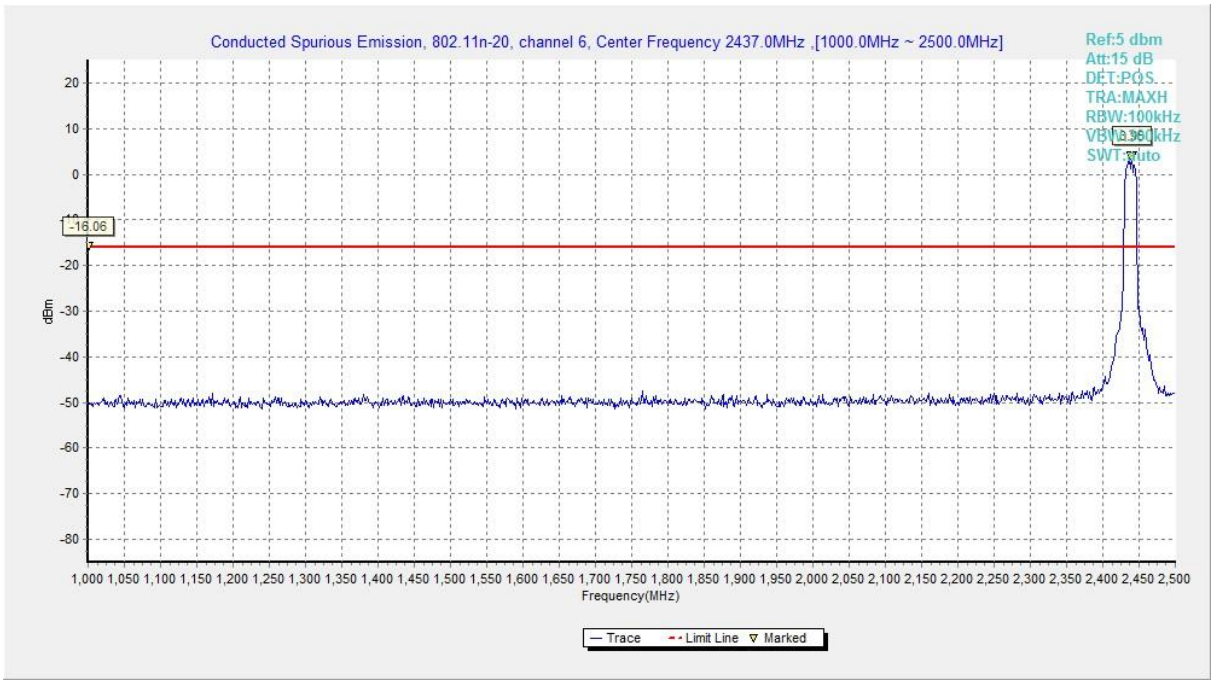

Fig.A.7.1.59 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)

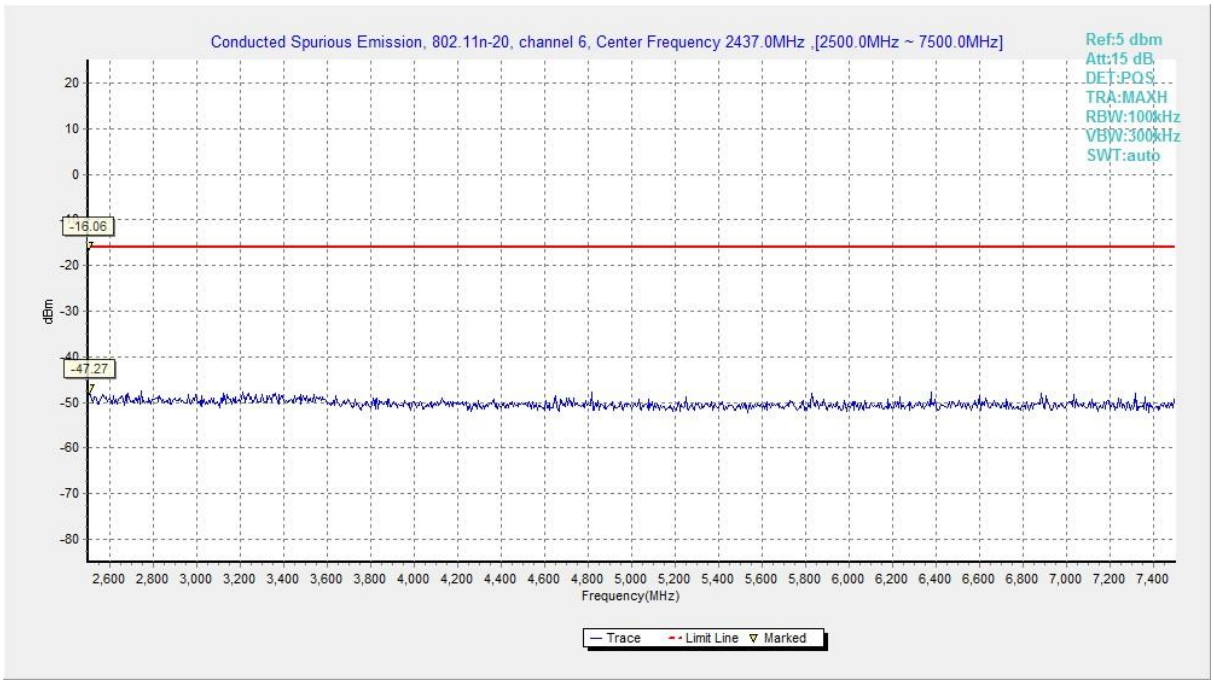

Fig.A.7.1.60 Conducted Spurious Emission (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)

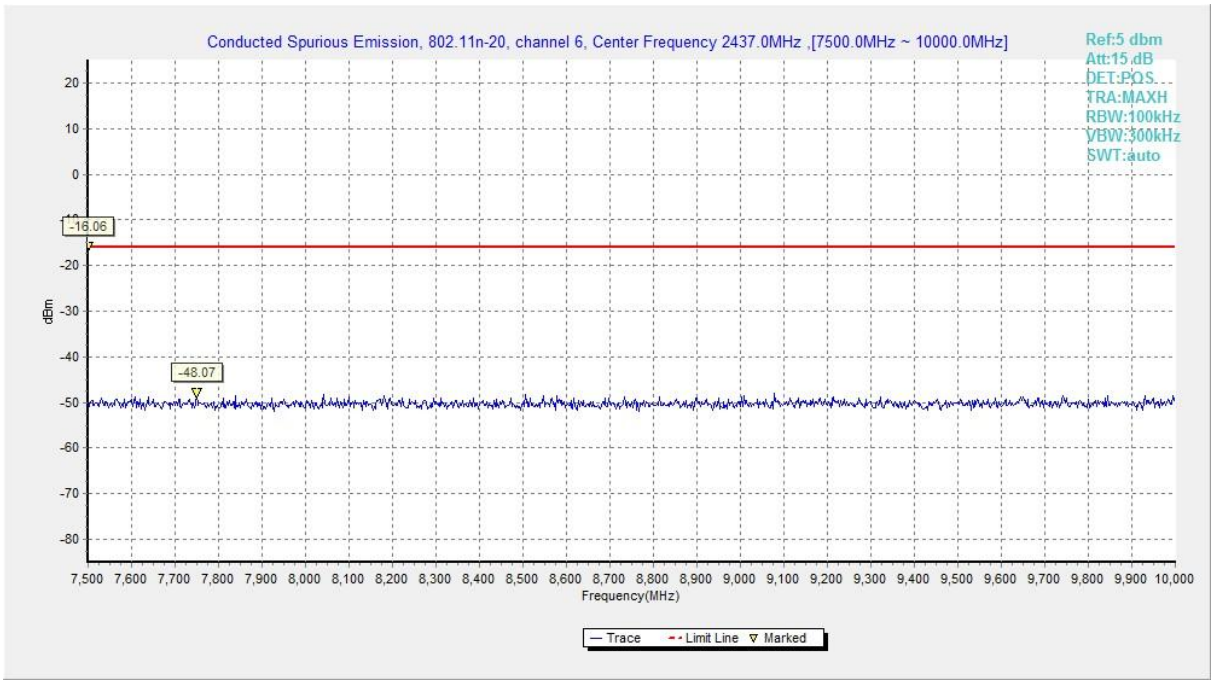

Fig.A.7.1.61 Conducted Spurious Emission (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)

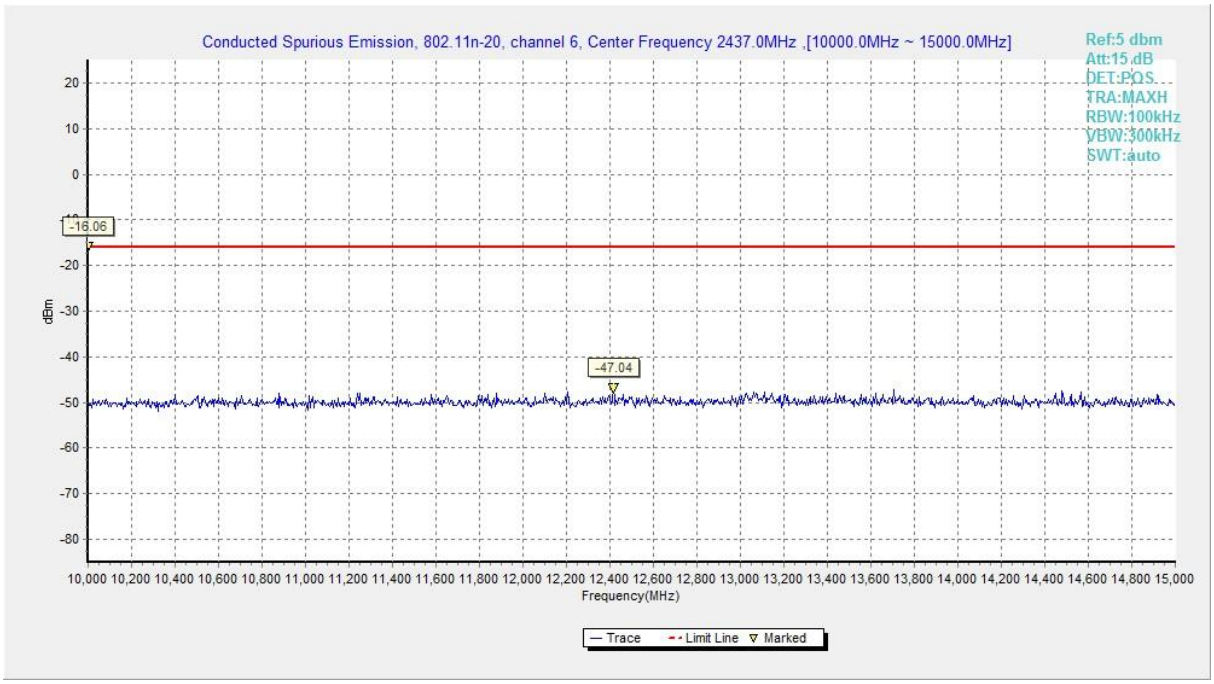

Fig.A.7.1.62 Conducted Spurious Emission (802.11n-HT20, Ch6, 10 GHz-15 GHz)

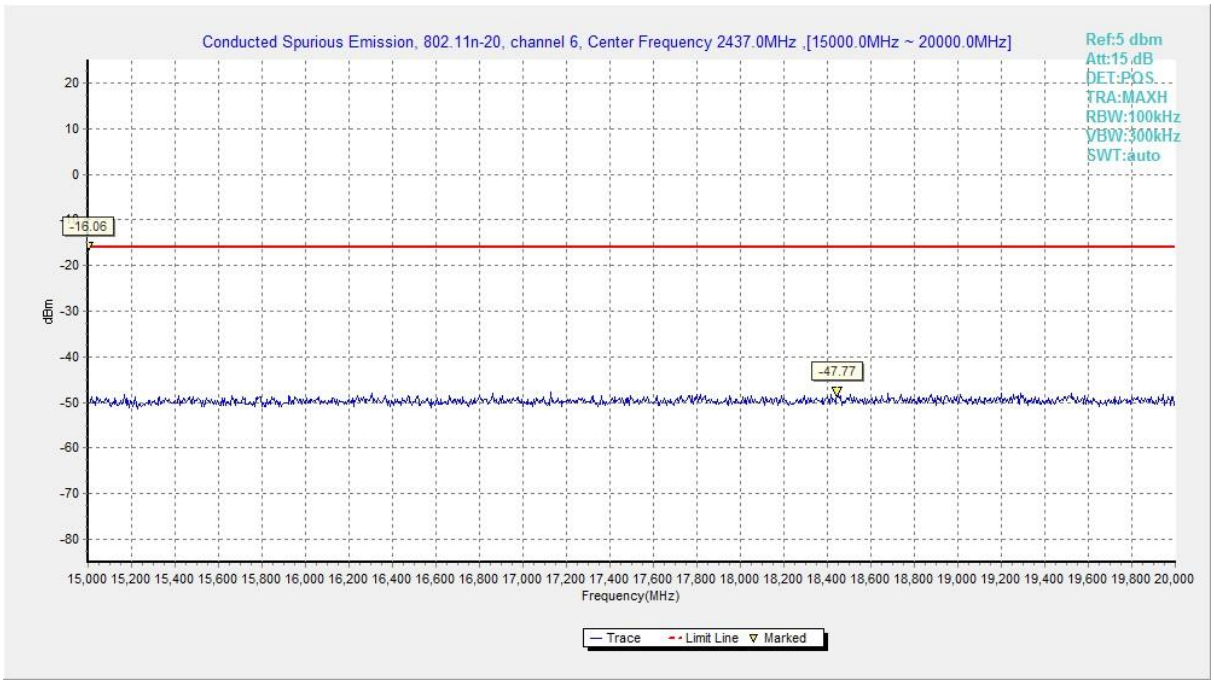

Fig.A.7.1.63 Conducted Spurious Emission (802.11n-HT20, Ch6, 15 GHz-20 GHz)

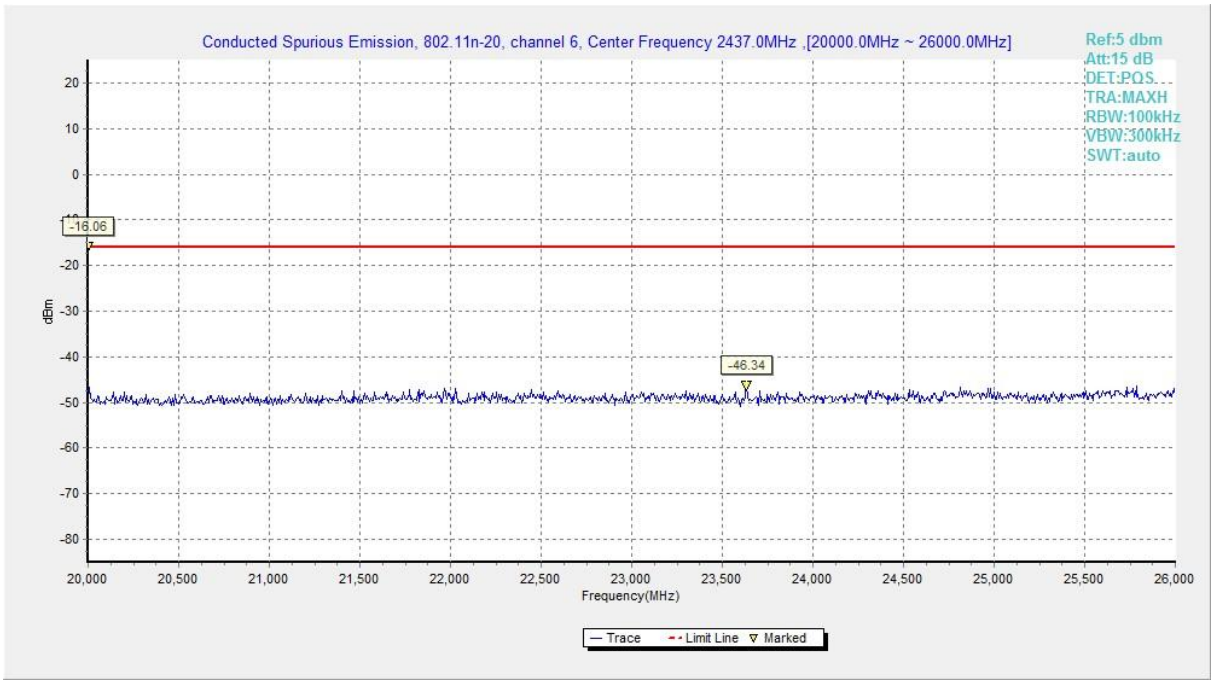

Fig.A.7.1.64 Conducted Spurious Emission (802.11n-HT20, Ch6, 20 GHz-26 GHz)

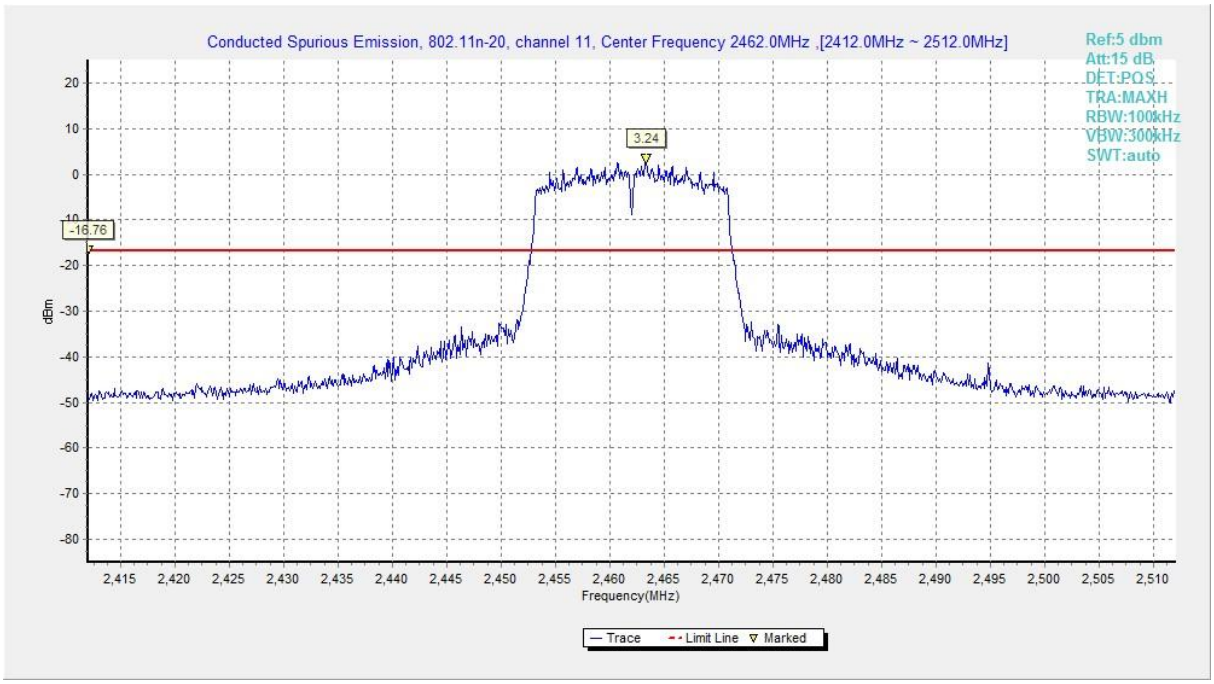

Fig.A.7.1.65 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

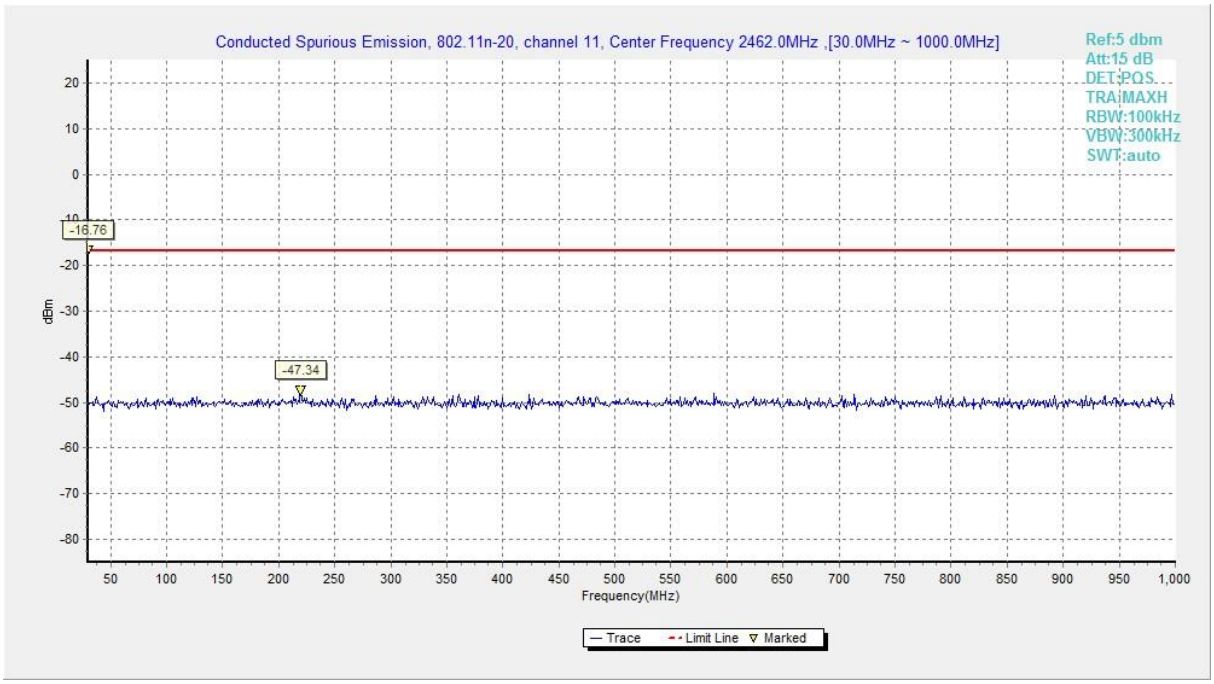

Fig.A.7.1.66 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

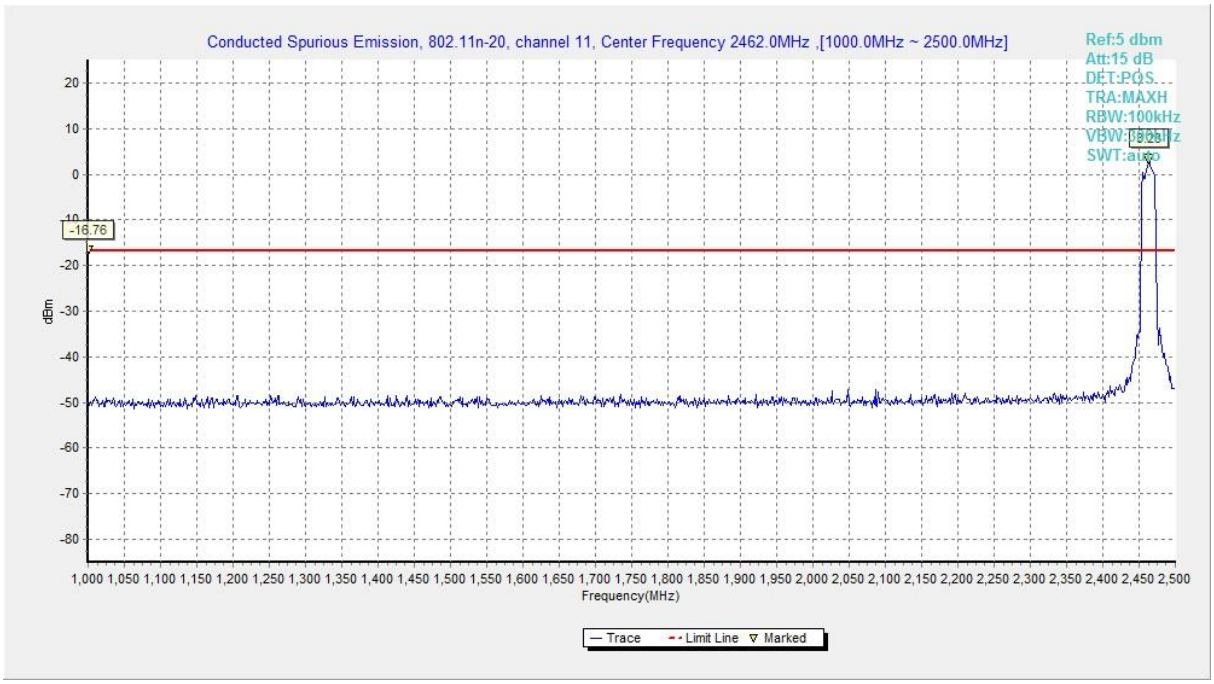

Fig.A.7.1.67 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)

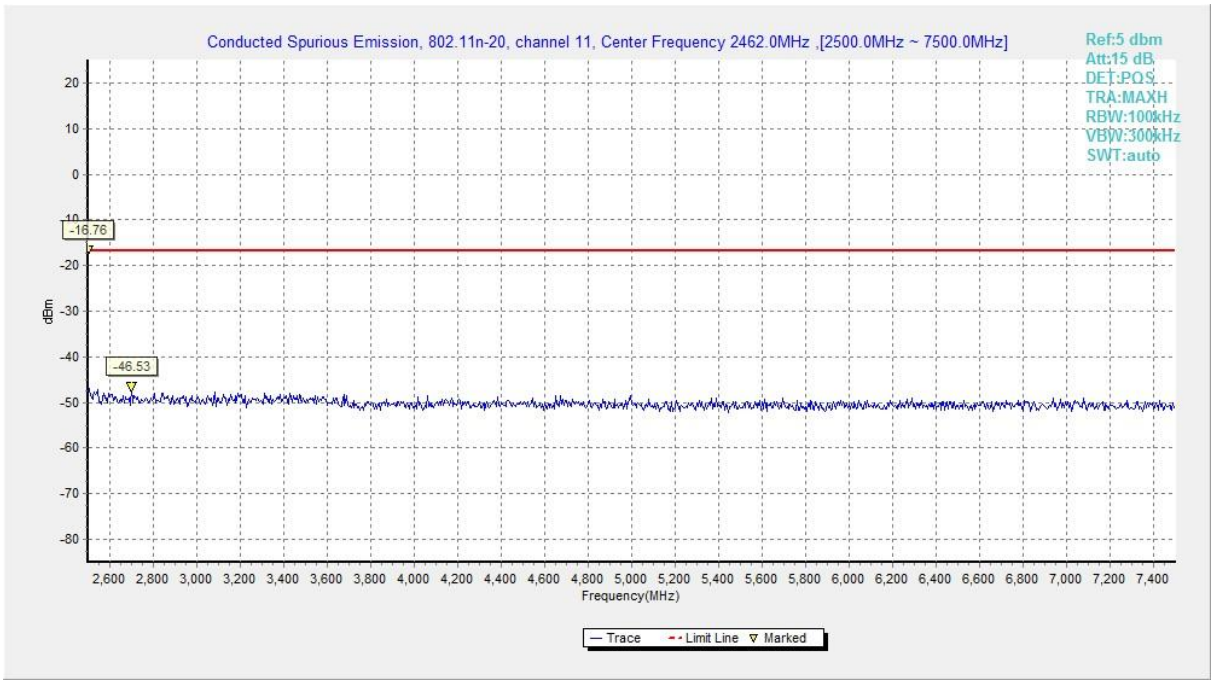

Fig.A.7.1.68 Conducted Spurious Emission (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)

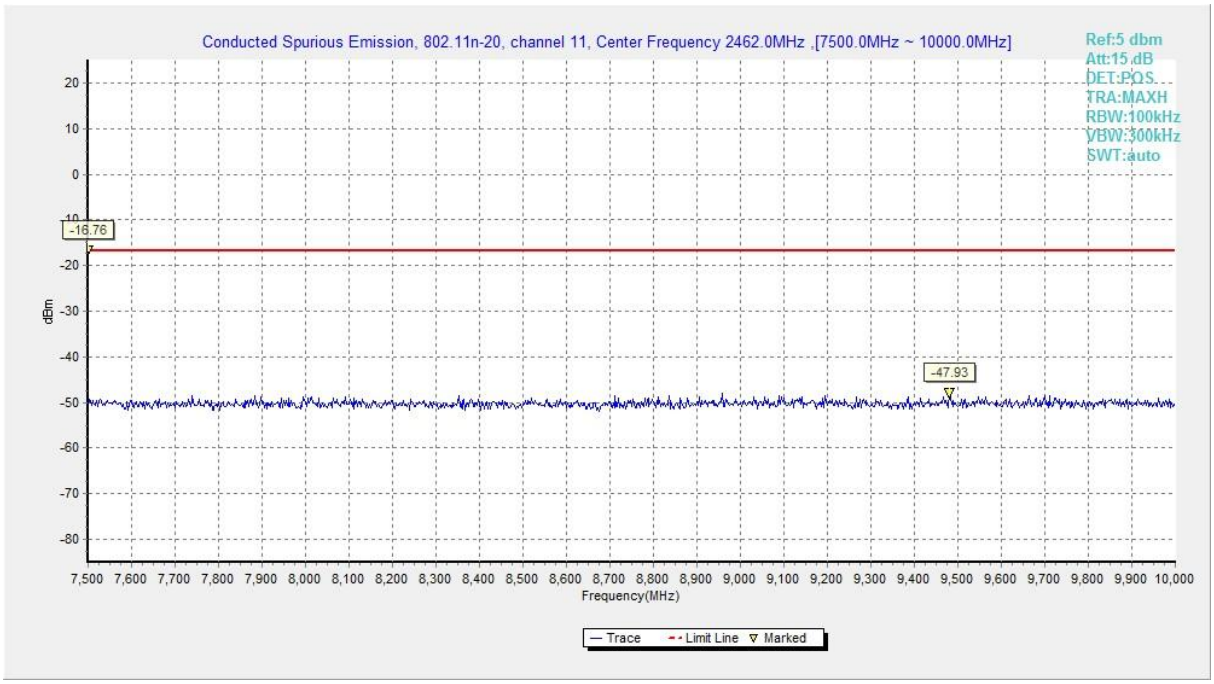

Fig.A.7.1.69 Conducted Spurious Emission (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

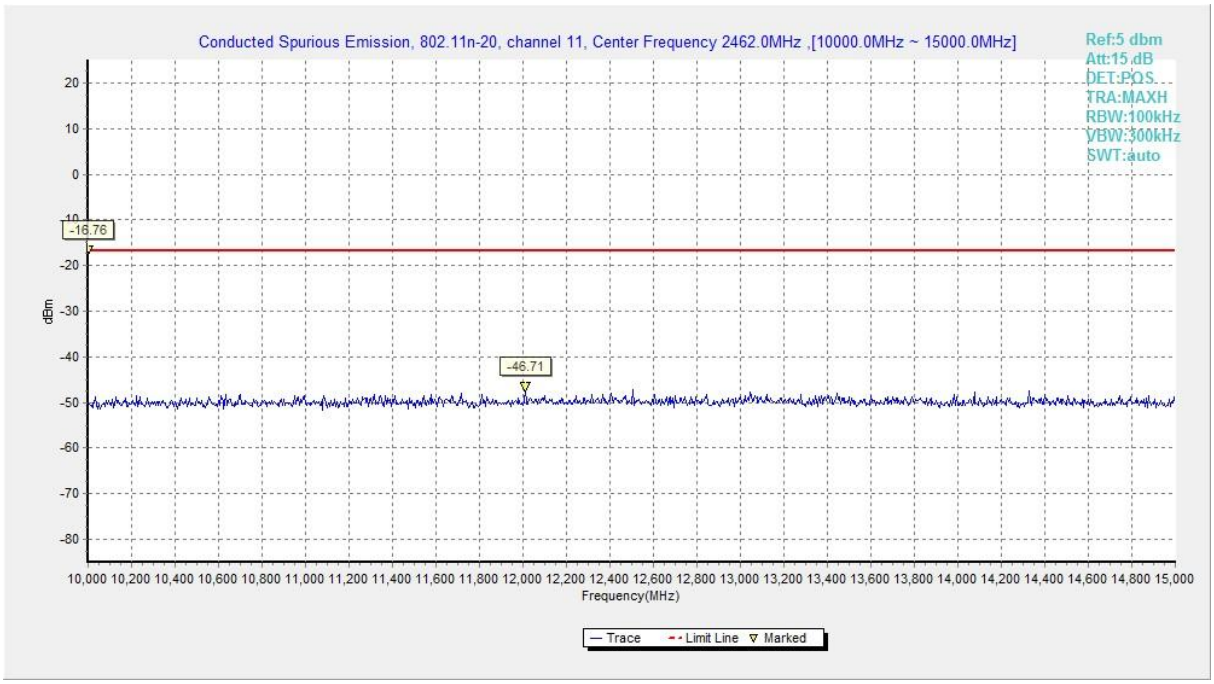

Fig.A.7.1.70 Conducted Spurious Emission (802.11n-HT20, Ch11, 10 GHz-15 GHz)

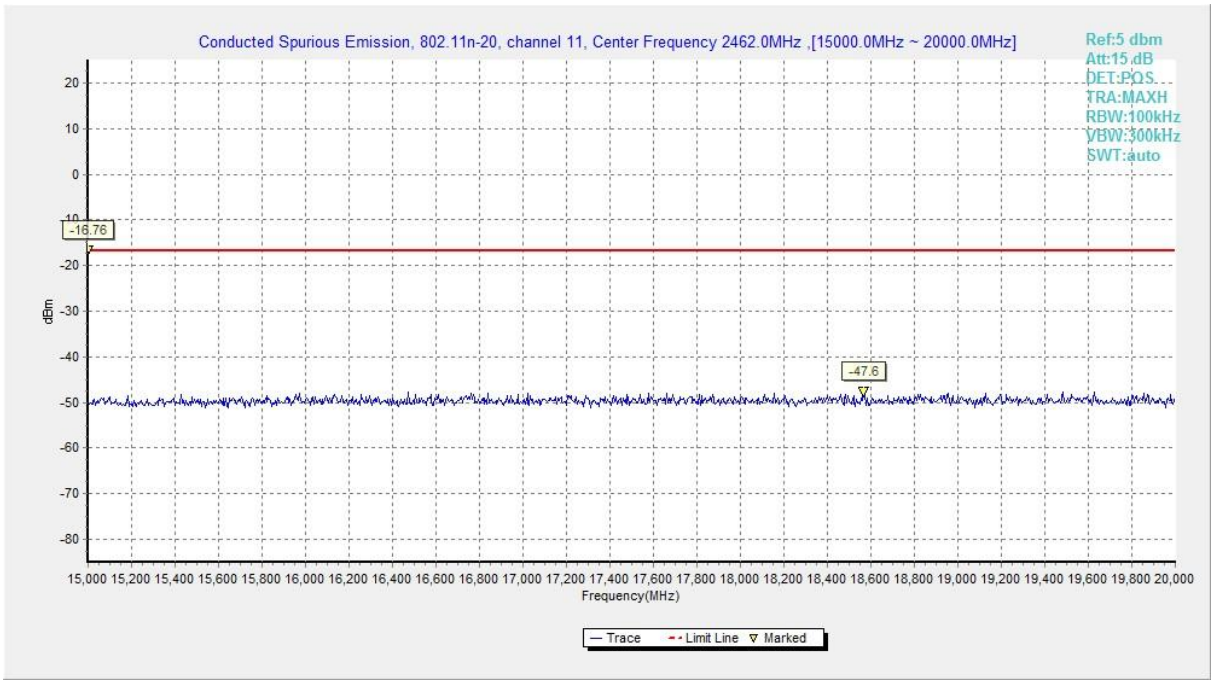

Fig.A.7.1.71 Conducted Spurious Emission (802.11n-HT20, Ch11, 15 GHz-20 GHz)

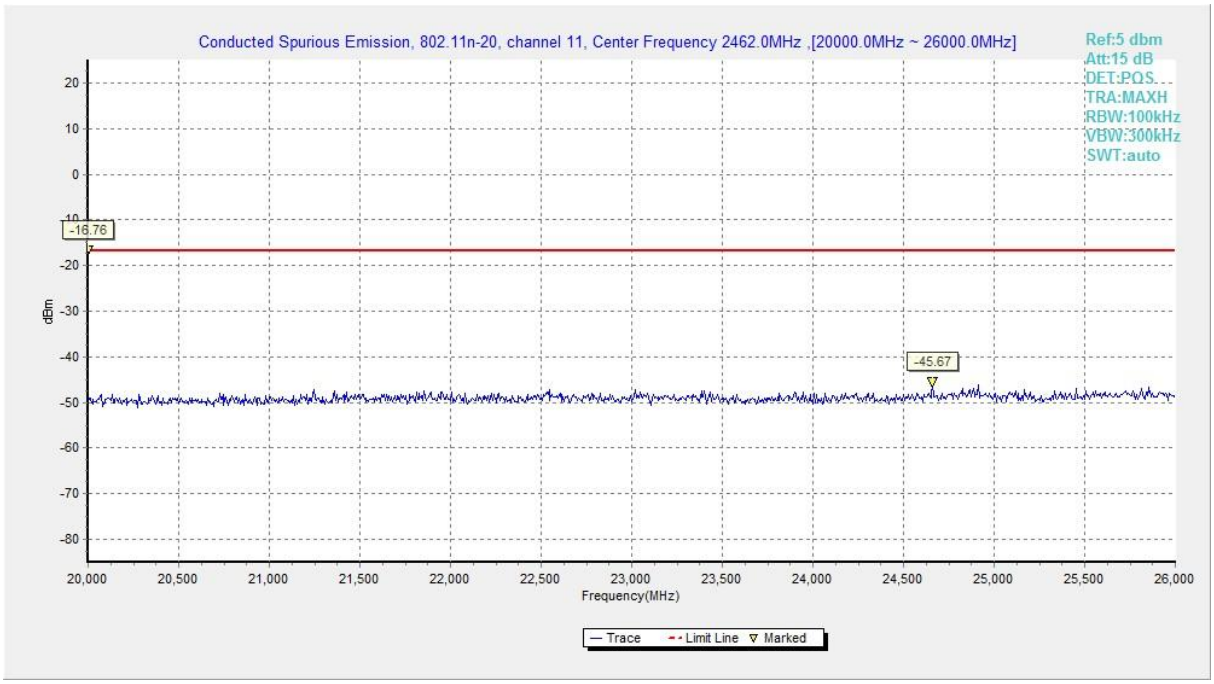

Fig.A.7.1.72 Conducted Spurious Emission (802.11n-HT20, Ch11, 20 GHz-26 GHz)

A.7.2 Transmitter Spurious Emission - Radiated

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)).
The measurement is made according to KDB558074.

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

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

Modulation type and data rate tested:

802.11b	802.11g	802.11n-HT20
11Mbps(CCK)	24Mbps(OFDM)	MCS3(OFDM)

Measurement Results:

802.11b/g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.45GHz	Fig.A.7.2.1	P
	1	30 MHz ~1 GHz	Fig.A.7.2.2	P
		1 GHz ~ 3 GHz	Fig.A.7.2.3	P
		3 GHz ~ 18 GHz	Fig.A.7.2.4	P
	6	30 MHz ~1 GHz	Fig.A.7.2.5	P
		1 GHz ~ 3 GHz	Fig.A.7.2.6	P
		3 GHz ~ 18 GHz	Fig.A.7.2.7	P
	Power	2.45GHz ~2.5GHz	Fig.A.7.2.8	P
	11	30 MHz ~1 GHz	Fig.A.7.2.9	P
		1 GHz ~ 3 GHz	Fig.A.7.2.10	P
		3 GHz ~ 18 GHz	Fig.A.7.2.11	P
802.11g	Power	2.38GHz ~2.43GHz	Fig.A.7.2.12	P
	1	30 MHz ~1 GHz	Fig.A.7.2.13	P
		1 GHz ~ 3 GHz	Fig.A.7.2.14	P
		3 GHz ~ 18 GHz	Fig.A.7.2.15	P
	6	30 MHz ~1 GHz	Fig.A.7.2.16	P
		1 GHz ~ 3 GHz	Fig.A.7.2.17	P
		3 GHz ~ 18 GHz	Fig.A.7.2.18	P
	Power	2.45GHz ~2.5GHz	Fig.A.7.2.19	P
	11	30 MHz ~1 GHz	Fig.A.7.2.20	P
		1 GHz ~ 3 GHz	Fig.A.7.2.21	P
		3 GHz ~ 18 GHz	Fig.A.7.2.22	P

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	Power	2.38GHz ~2.45GHz	Fig.A.7.2.23	P
	1	30 MHz ~1 GHz	Fig.A.7.2.24	P
		1 GHz ~ 3 GHz	Fig.A.7.2.25	P
		3 GHz ~ 18 GHz	Fig.A.7.2.26	P
	6	30 MHz ~1 GHz	Fig.A.7.2.27	P
		1 GHz ~ 3 GHz	Fig.A.7.2.28	P
		3 GHz ~ 18 GHz	Fig.A.7.2.29	P
	Power	2.45GHz ~2.5GHz	Fig.A.7.2.30	P
	11	30 MHz ~1 GHz	Fig.A.7.2.31	P
		1 GHz ~ 3 GHz	Fig.A.7.2.32	P
		3 GHz ~ 18 GHz	Fig.A.7.2.33	P
/	All channels	18 GHz~ 26.5 GHz	Fig.A.7.2.34	P

Conclusion: Pass

Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
f ≤ 1GHz	3.9
f>1GHz	4.3

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

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2390.000	47.3	-38.8	27.7	58.400	HORIZONTAL
17800.500	53.6	-18.5	45.6	26.500	VERTICAL
17955.000	52.1	-17.7	45.6	24.200	HORIZONTAL
17860.500	51.9	-18.5	45.6	24.800	VERTICAL
17809.500	51.8	-18.5	45.6	24.700	HORIZONTAL
17767.500	51.7	-18.5	45.6	24.600	HORIZONTAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17992.500	53.5	-17.7	45.6	25.600	HORIZONTAL
17947.500	53.2	-17.7	45.6	25.300	V
17949.000	53.2	-17.7	45.6	25.300	V
17934.000	53.1	-17.7	45.6	25.200	HORIZONTAL
17941.500	53.1	-17.7	45.6	25.200	V
17965.500	53.1	-17.7	45.6	25.200	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2390.000	57.7	-38.8	27.7	68.800	V
17715.000	53.3	-18.9	45.6	26.600	HORIZONTAL
17992.500	53.2	-17.7	45.6	25.300	HORIZONTAL
17959.500	53.0	-17.7	45.6	25.100	V
17952.000	52.9	-17.7	45.6	25.000	V
17979.000	52.9	-17.7	45.6	25.000	HORIZONTAL

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2390.000	57.7	-38.8	27.7	68.800	HORIZONTAL
17944.500	53.4	-17.7	45.6	25.500	V
17697.000	53.3	-18.9	45.6	26.600	HORIZONTAL
17790.000	53.2	-18.5	45.6	26.100	V
17976.000	53.2	-17.7	45.6	25.300	V
17973.000	53.0	-17.7	45.6	25.100	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17995.500	53.2	-17.7	45.6	25.300	HORIZONTAL
17961.000	53.2	-17.7	45.6	25.300	V
17955.000	53.0	-17.7	45.6	25.100	V
17949.000	53.0	-17.7	45.6	25.100	HORIZONTAL
17986.500	52.9	-17.7	45.6	25.000	V
17979.000	52.8	-17.7	45.6	24.900	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2483.500	62.8	-38.9	27.7	74.000	HORIZONTAL
17955.000	53.9	-17.7	45.6	26.000	HORIZONTAL
17959.500	53.4	-17.7	45.6	25.500	V
17970.000	53.1	-17.7	45.6	25.200	V
17979.000	53.1	-17.7	45.6	25.200	V
17922.000	53.1	-17.7	45.6	25.200	V

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2389.000	58.7	-38.8	27.7	69.800	V
17938.500	53.0	-17.7	45.6	25.100	V
17949.000	52.9	-17.7	45.6	25.000	HORIZONTAL
17962.500	52.9	-17.7	45.6	25.000	V
17956.500	52.8	-17.7	45.6	24.900	V
17941.500	52.8	-17.7	45.6	24.900	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17956.500	54.5	-17.7	45.6	26.600	V
17965.500	53.6	-17.7	45.6	25.700	HORIZONTAL
17970.000	53.5	-17.7	45.6	25.600	V
17877.000	53.1	-18.5	45.6	26.000	HORIZONTAL
17982.000	53.0	-17.7	45.6	25.100	V
17952.000	53.0	-17.7	45.6	25.100	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2483.000	65.3	-38.9	27.7	76.500	V
17970.000	53.7	-17.7	45.6	25.800	HORIZONTAL
17952.000	52.9	-17.7	45.6	25.000	HORIZONTAL
17968.500	52.9	-17.7	45.6	25.000	V
17979.000	52.9	-17.7	45.6	25.000	V
17926.500	52.6	-17.7	45.6	24.700	V

Test graphs as below:

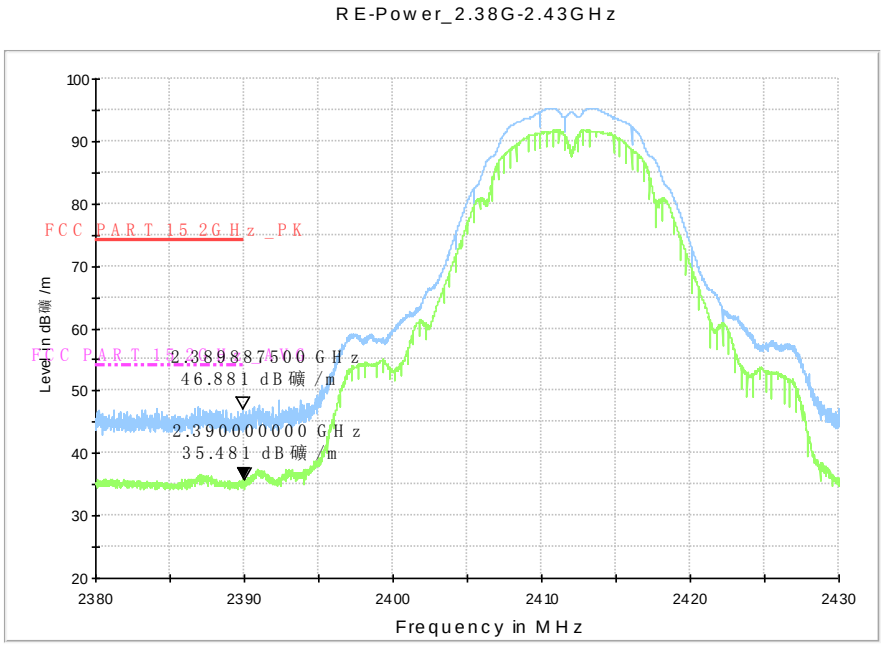

Fig.A.7.2.1 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz – 2.45GHz

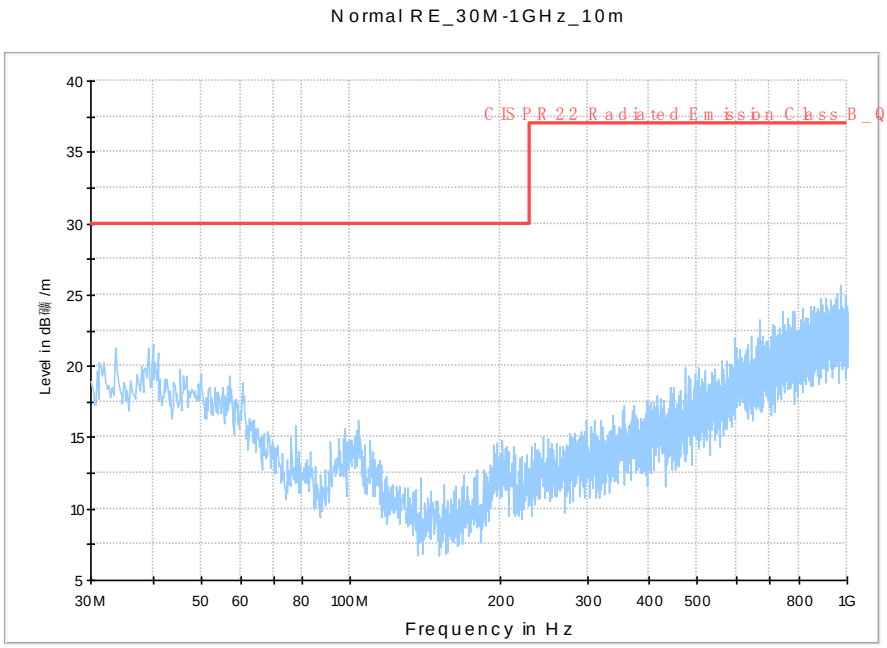

Fig.A.7.2.2 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

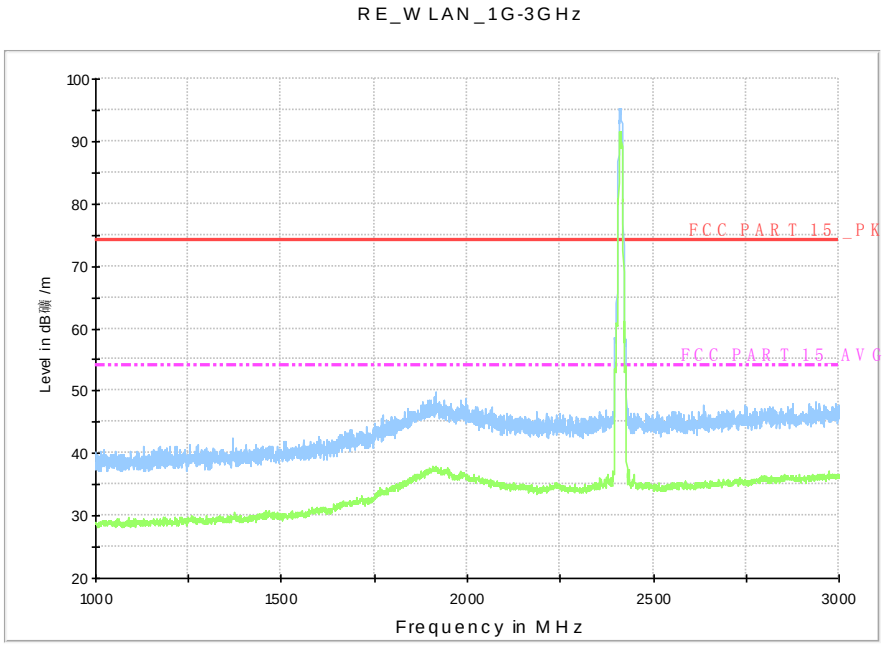

Fig.A.7.2.3 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

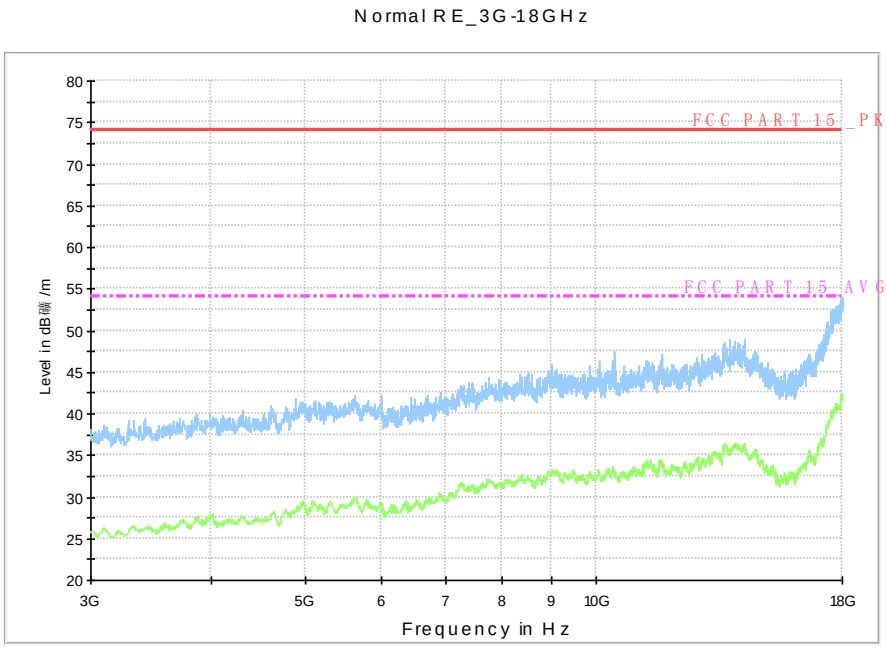

Fig.A.7.2.4 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

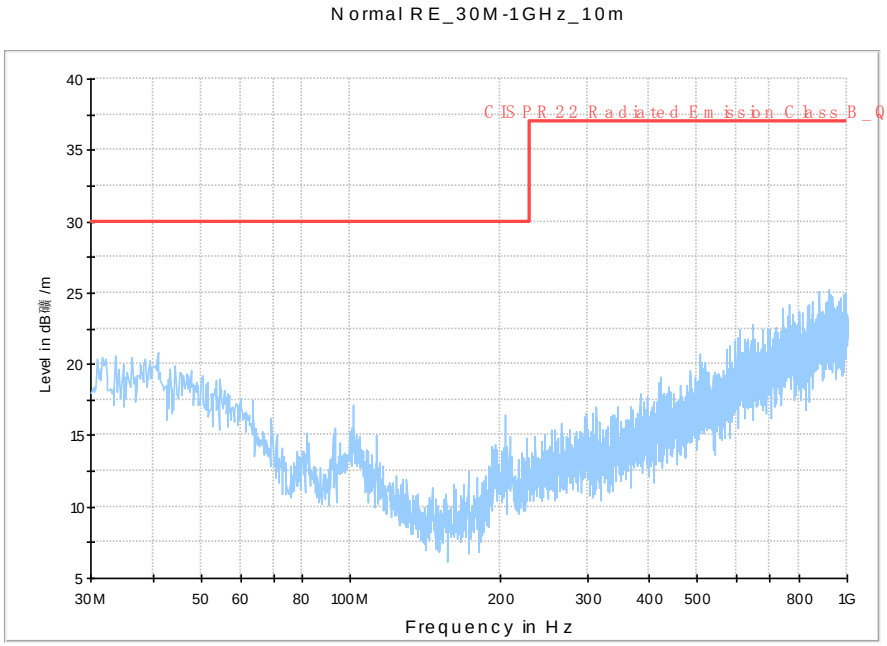

Fig.A.7.2.5 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

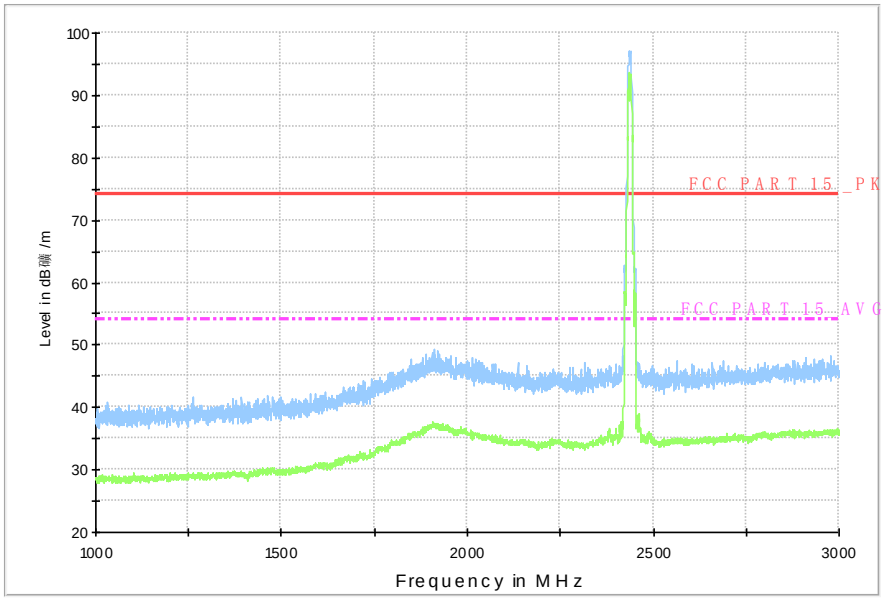

Fig.A.7.2.6 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

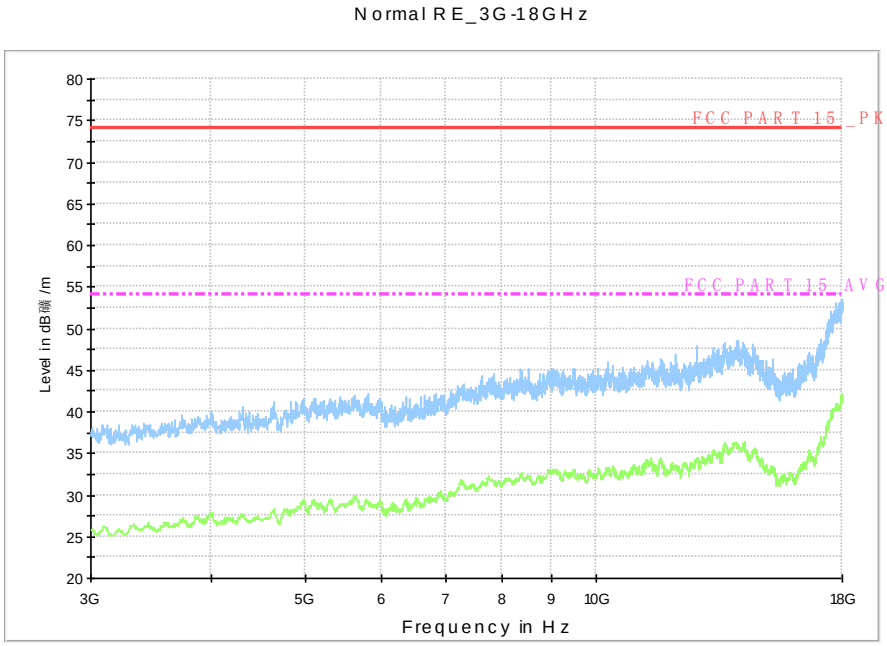

Fig.A.7.2.7 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

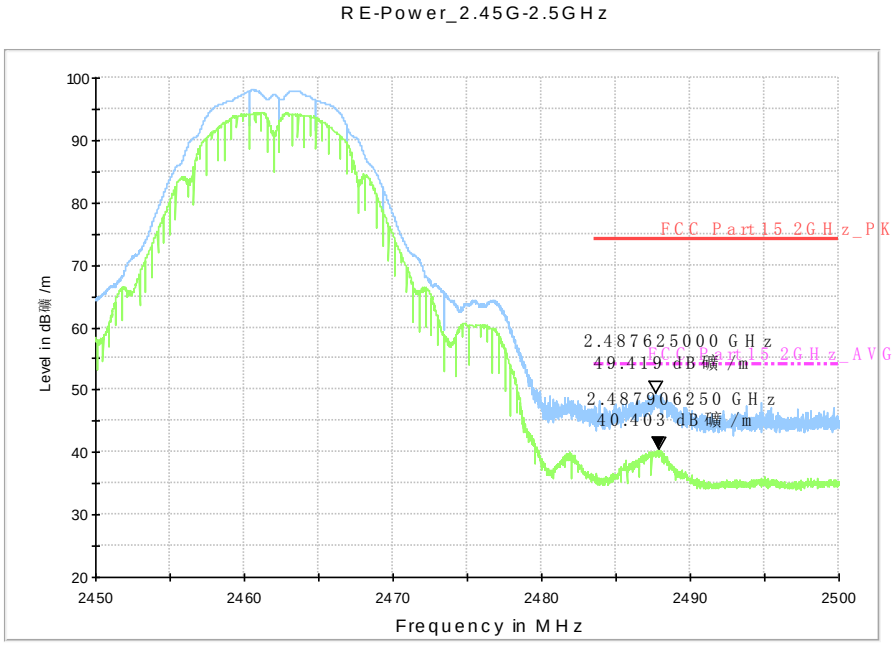

Fig.A.7.2.8 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

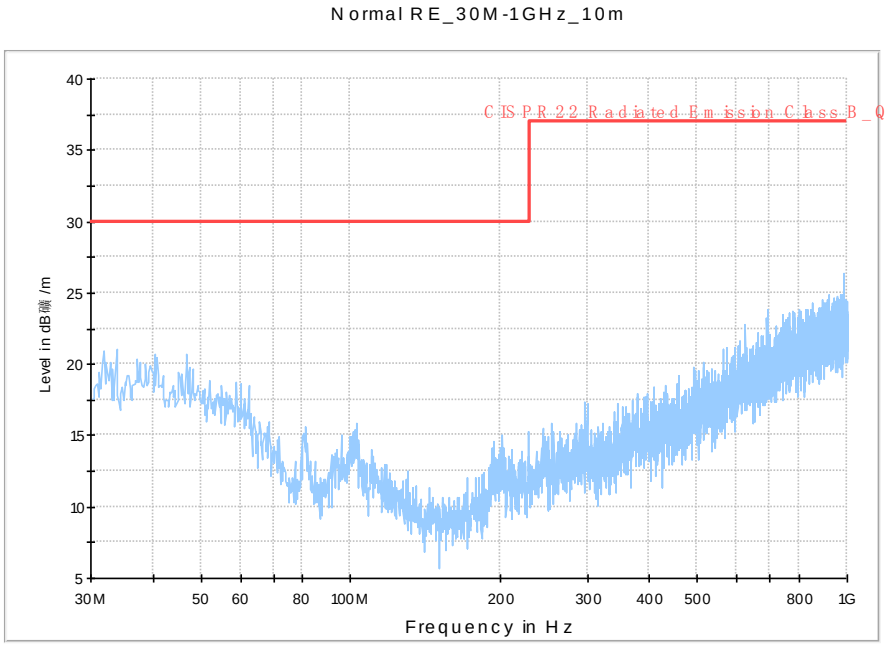

Fig.A.7.2.9 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

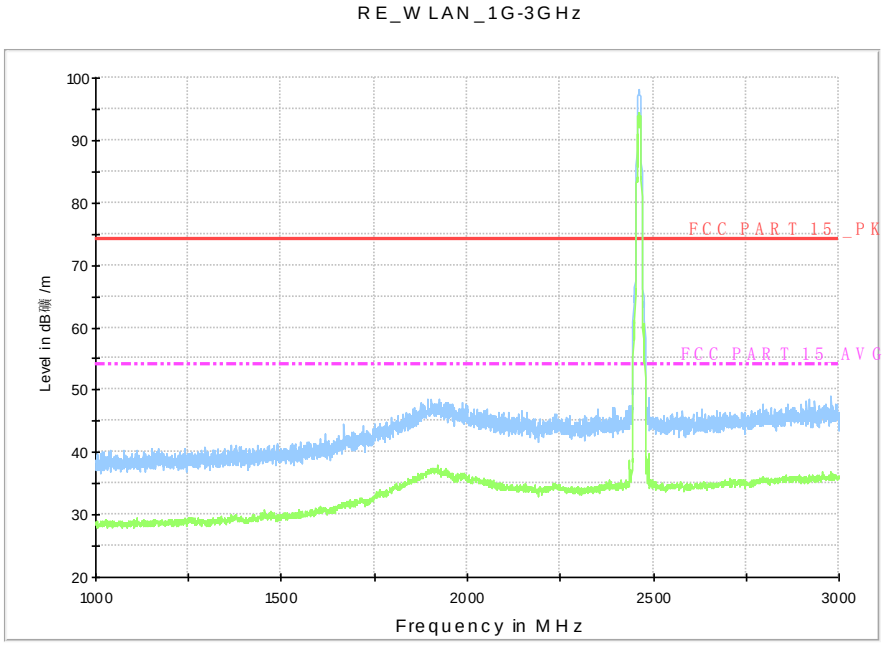

Fig.A.7.2.10 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

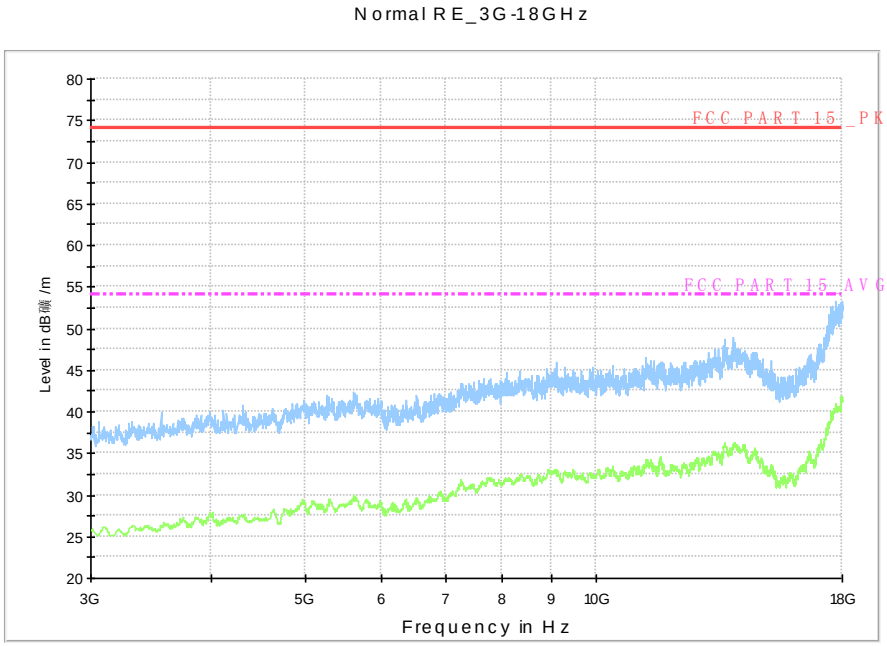

Fig.A.7.2.11 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

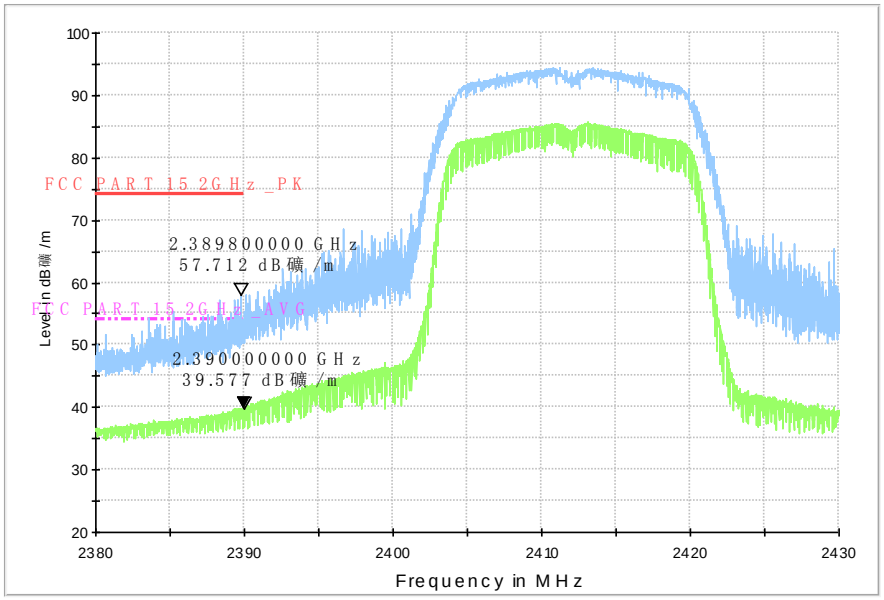

Fig.A.7.2.12 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

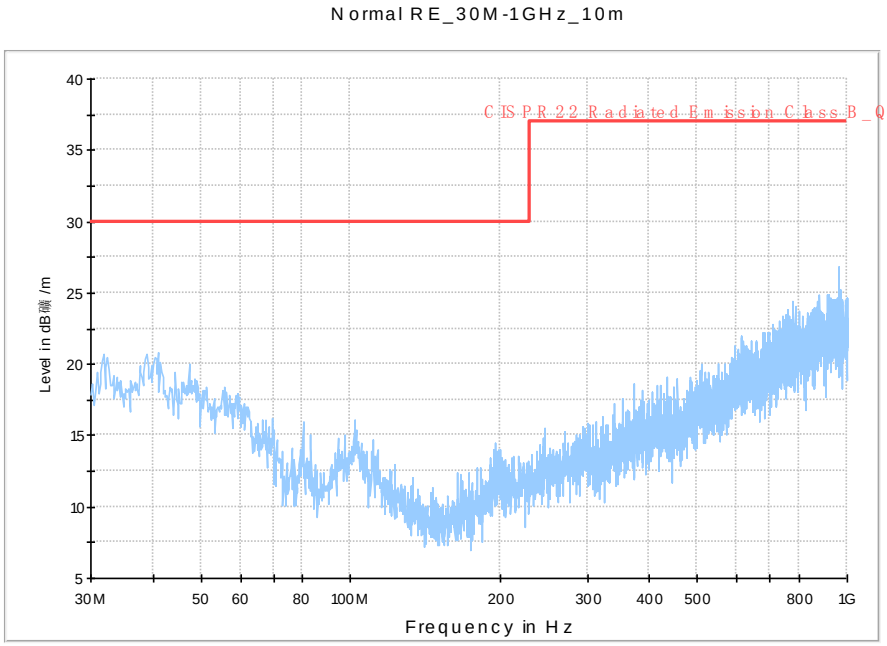

Fig.A.7.2.13 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

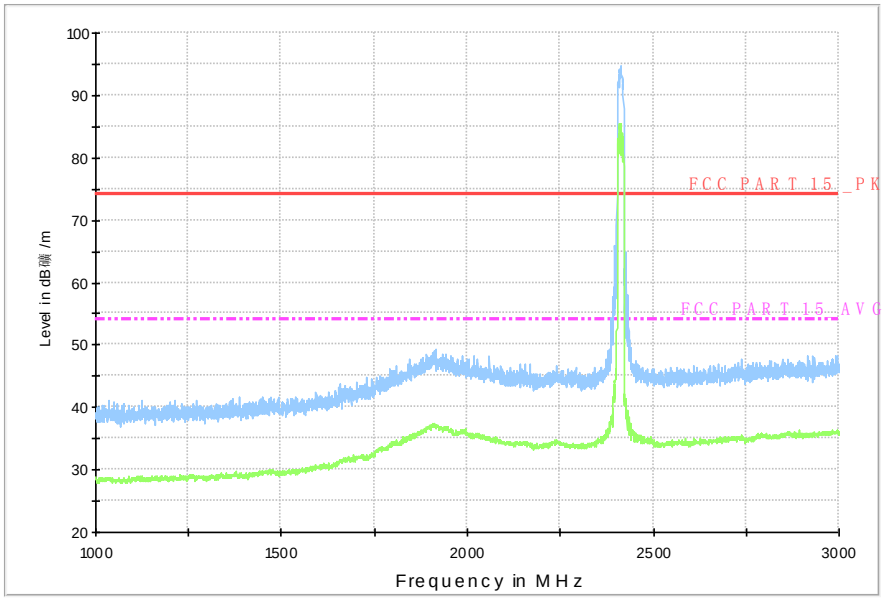

Fig.A.7.2.14 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

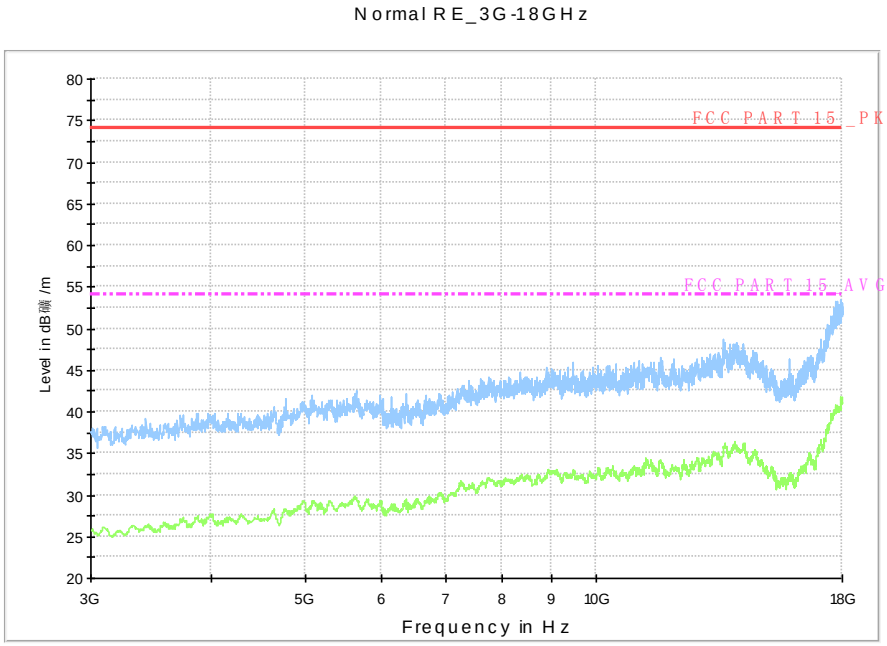

Fig.A.7.2.15 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

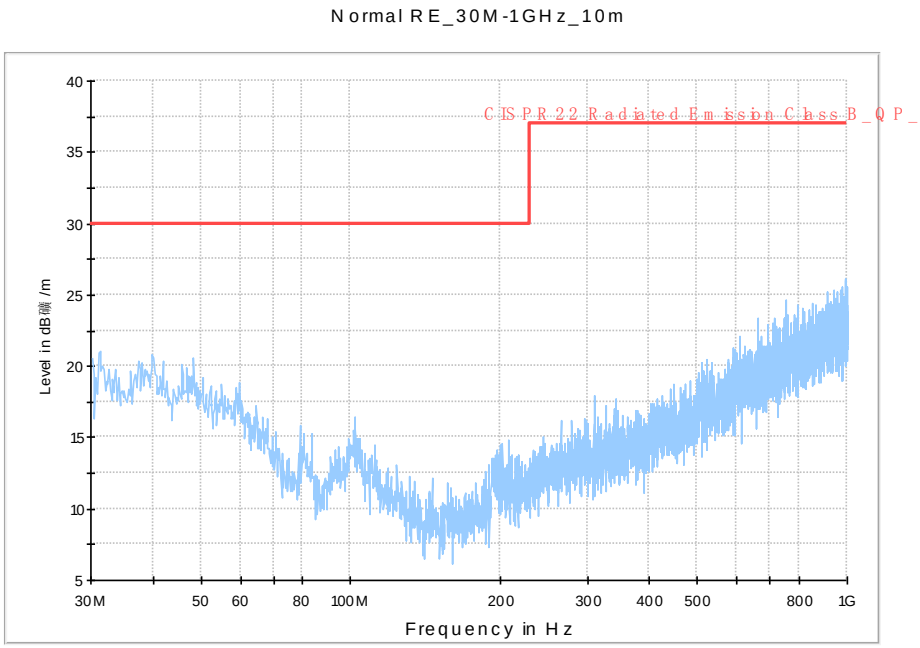

Fig.A.7.2.16 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

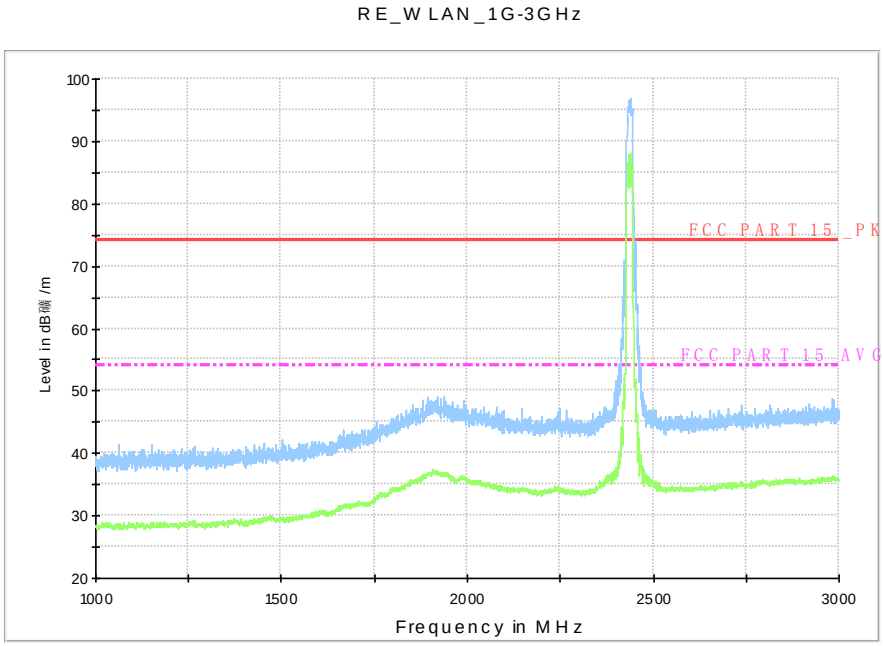

Fig.A.7.2.17 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

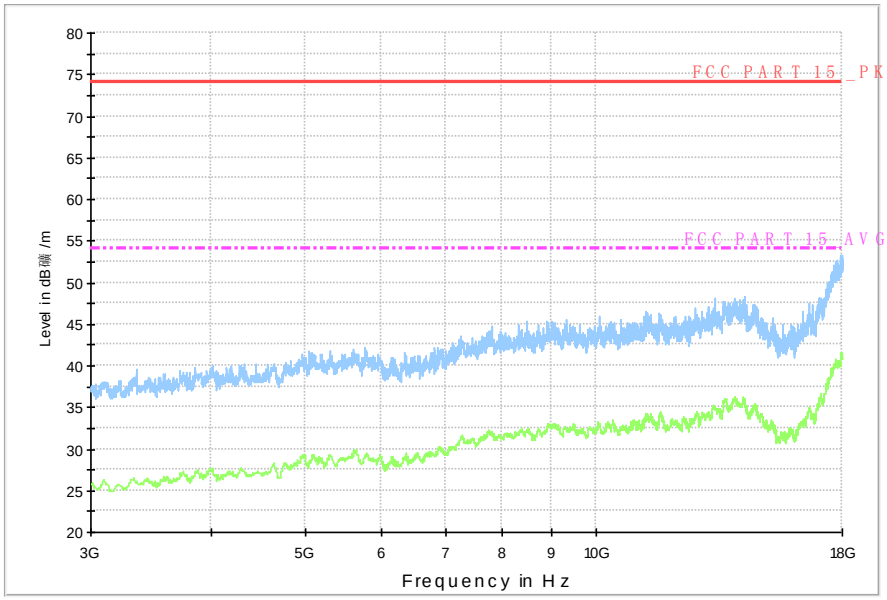

Fig.A.7.2.18 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

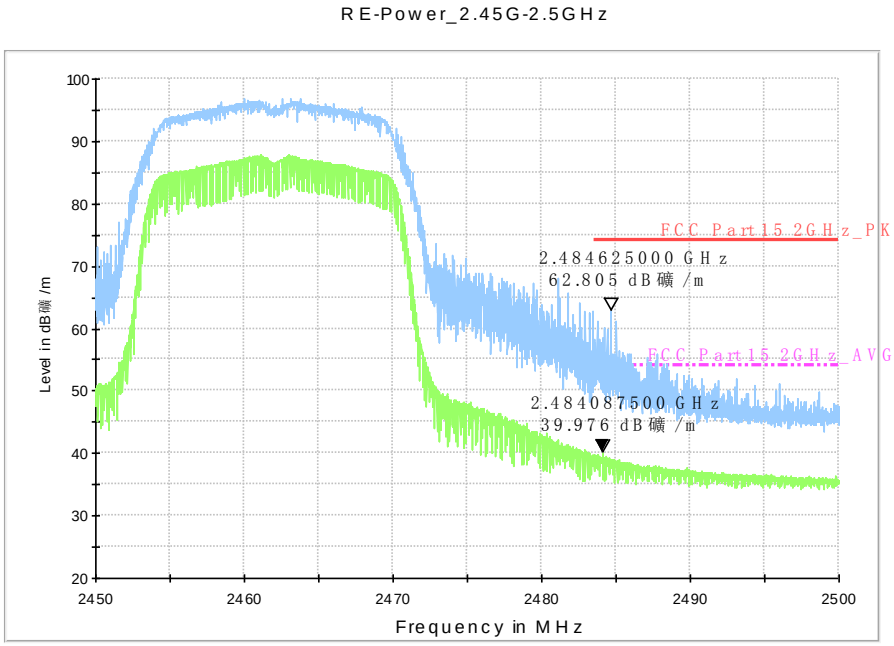

Fig.A.7.2.19 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

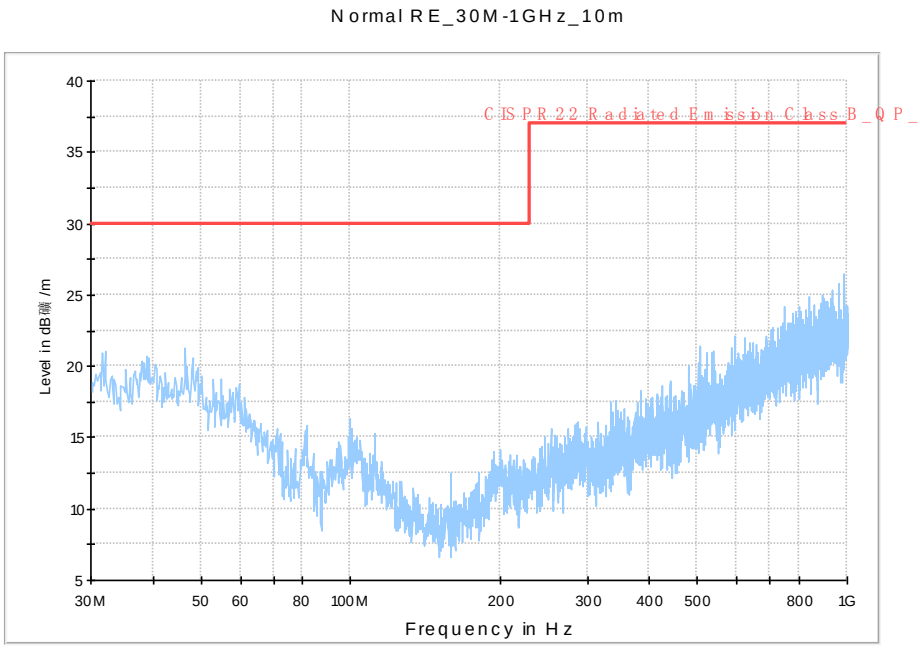

Fig.A.7.2.20 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

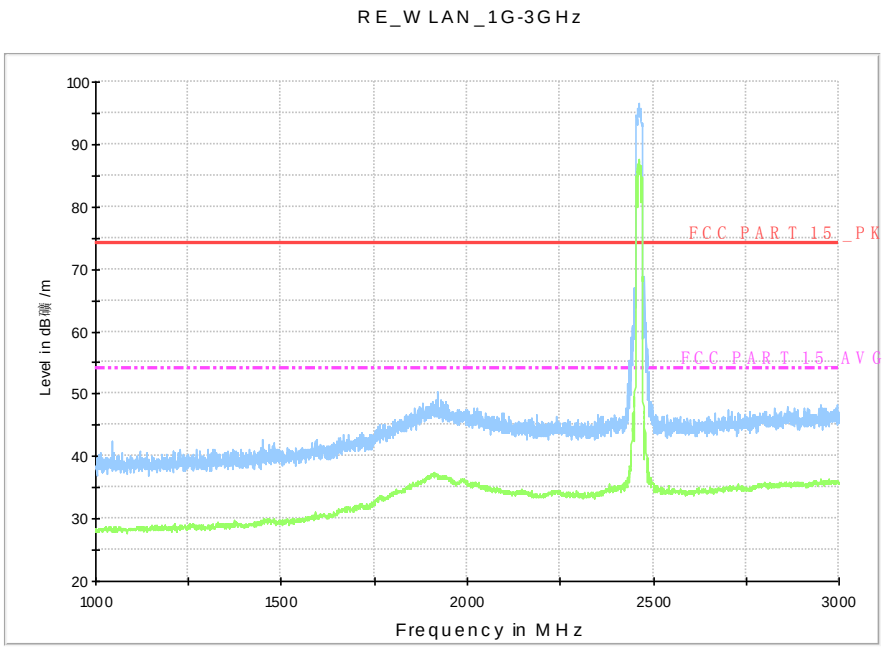

Fig.A.7.2.21 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

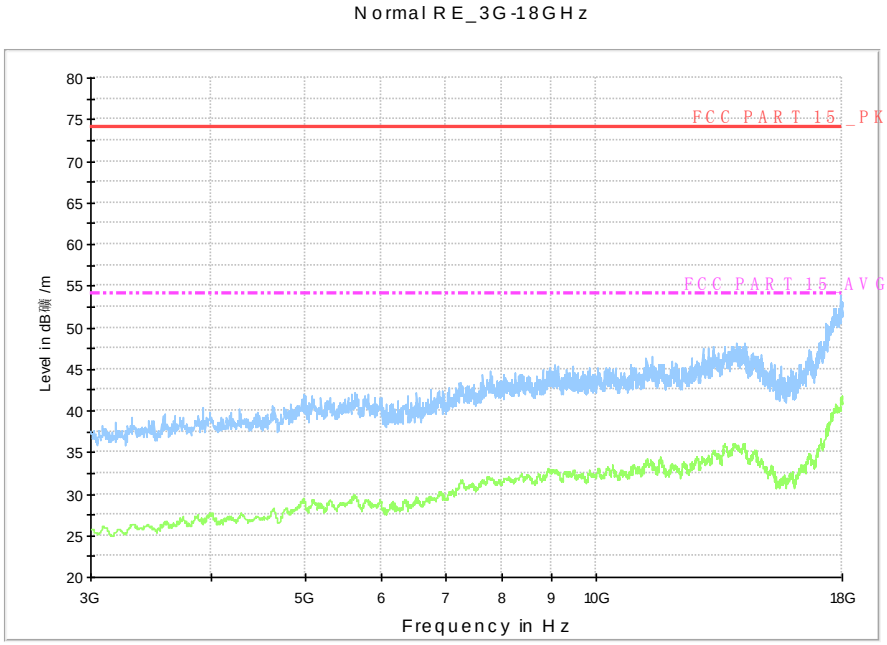

Fig.A.7.2.22 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

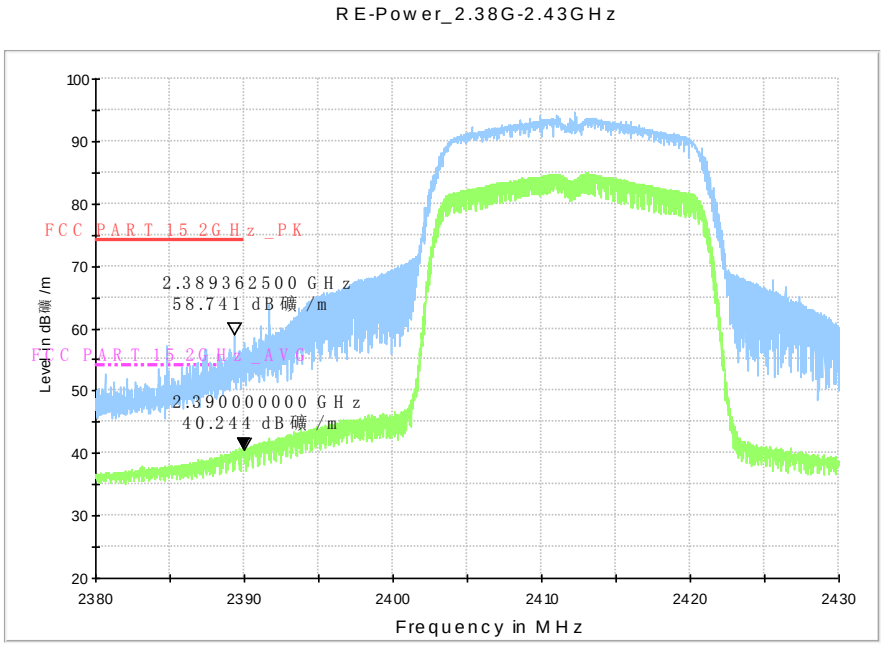

Fig.A.7.2.23 Radiated Spurious Emission (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

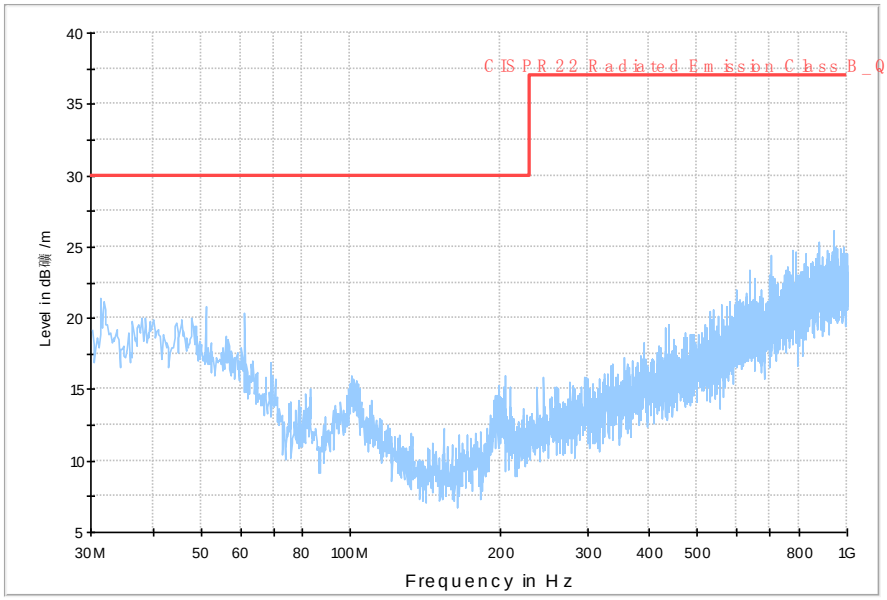

Fig.A.7.2.24 Radiated Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

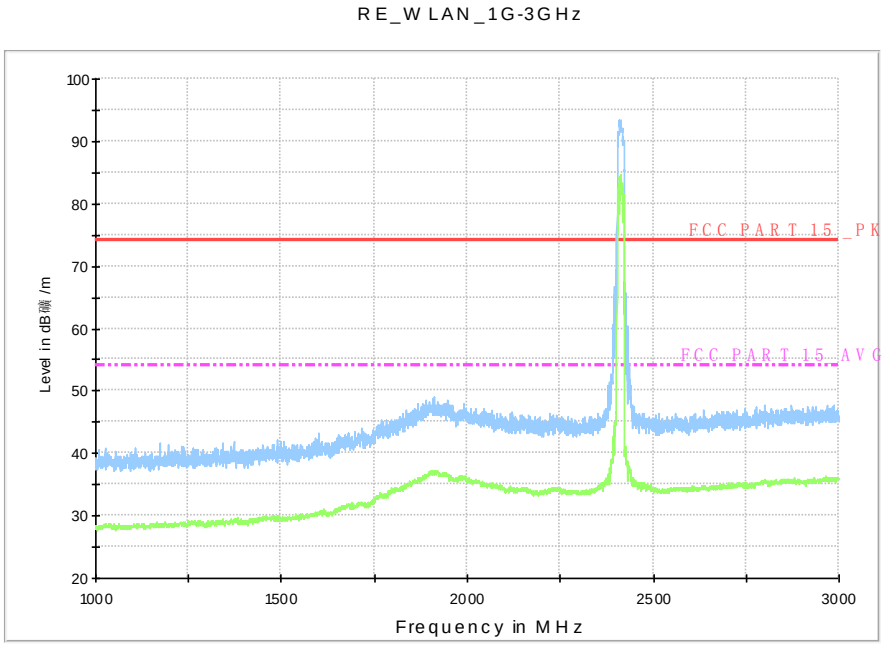

Fig.A.7.2.25 Radiated Spurious Emission (802.11n-HT20, Ch1, 1 GHz-3 GHz)

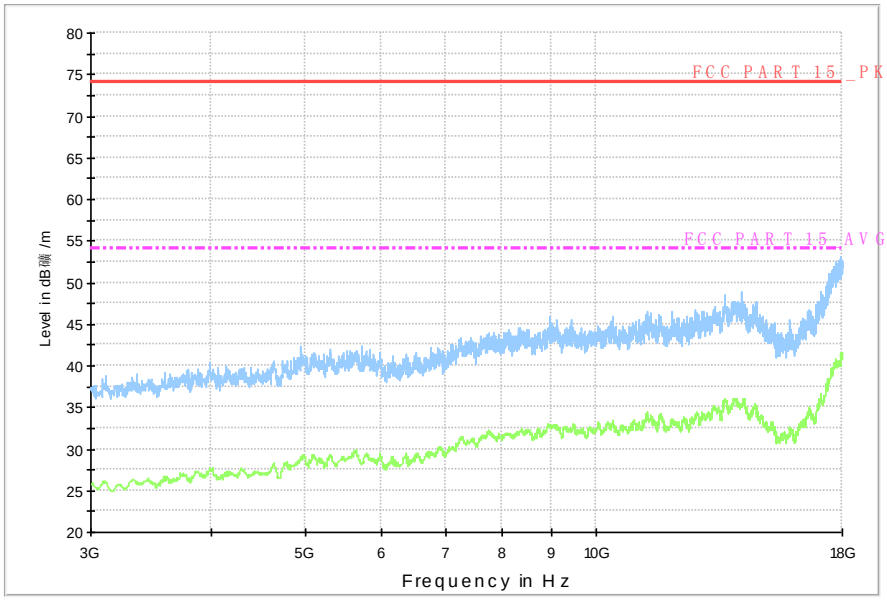

Fig.A.7.2.26 Radiated Spurious Emission (802.11n-HT20, Ch1, 3 GHz-18 GHz)

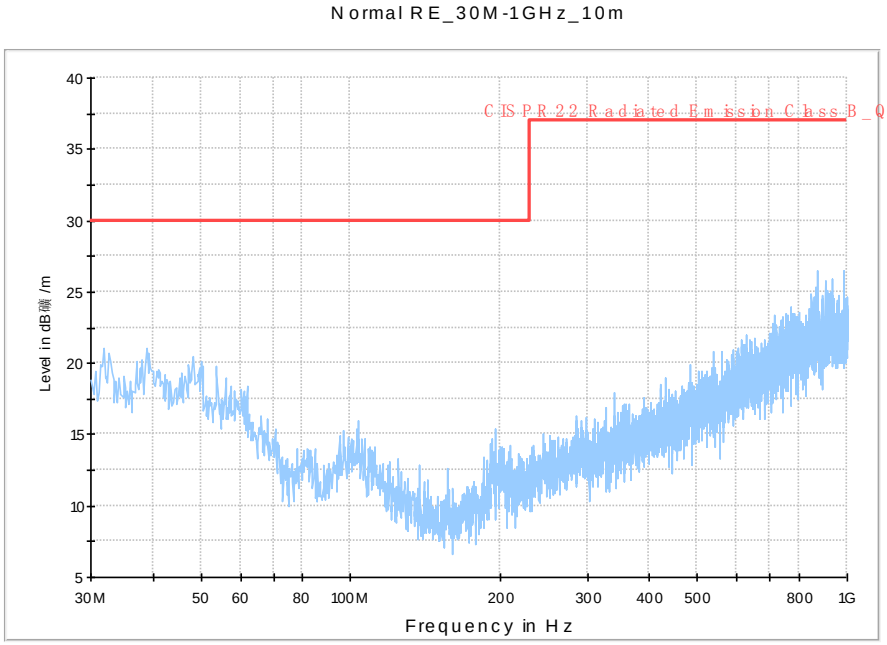

Fig.A.7.2.27 Radiated Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

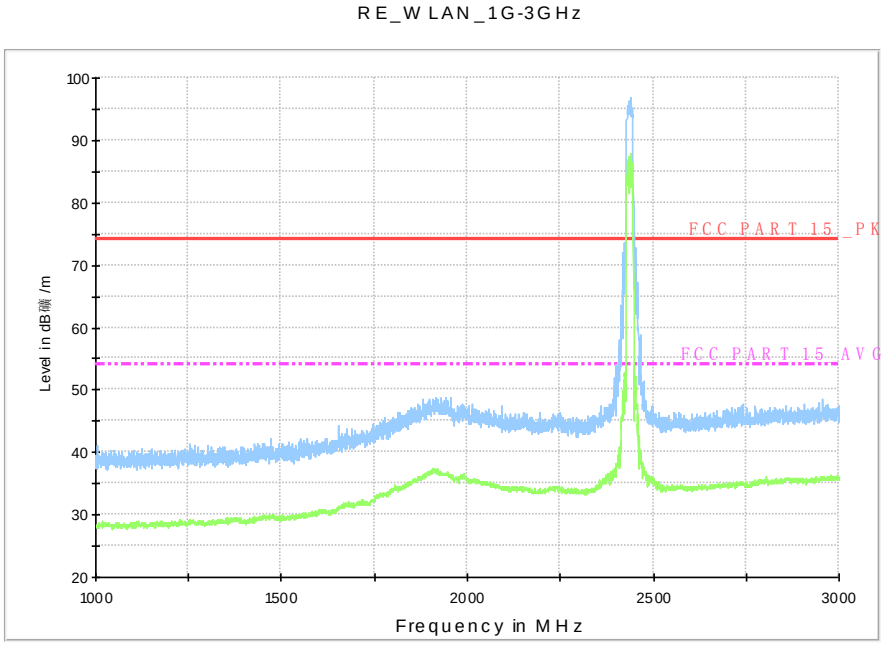

Fig.A.7.2.28 Radiated Spurious Emission (802.11n-HT20, Ch6, 1 GHz-3 GHz)

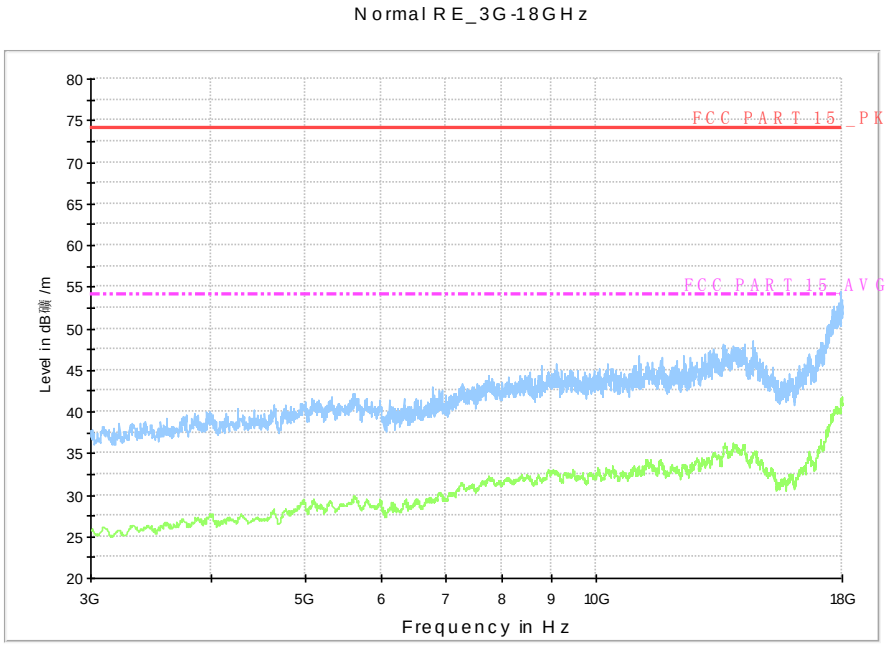

Fig.A.7.2.29 Radiated Spurious Emission (802.11n-HT20, Ch6, 3 GHz-18 GHz)

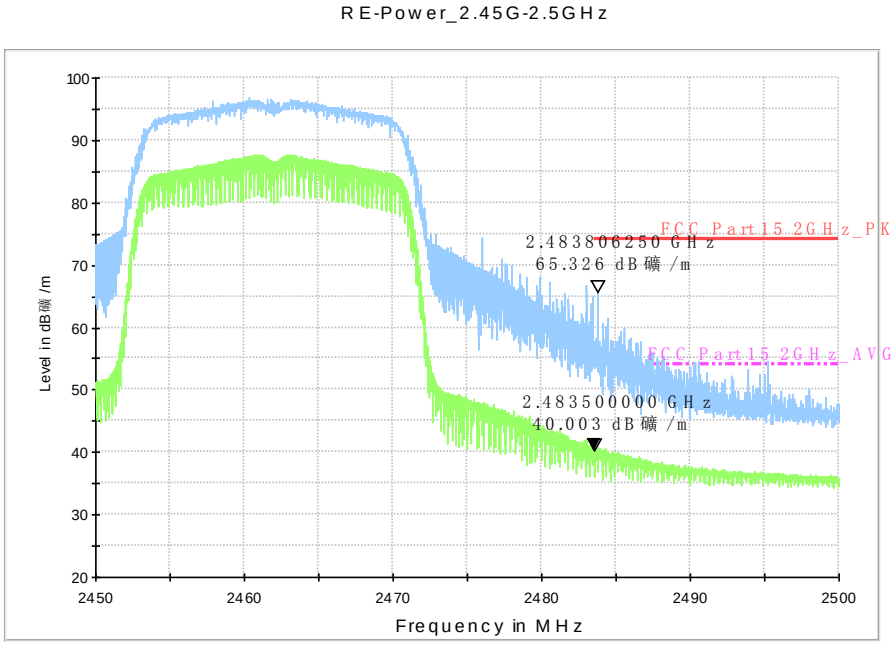

Fig.A.7.2.30 Radiated Spurious Emission (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

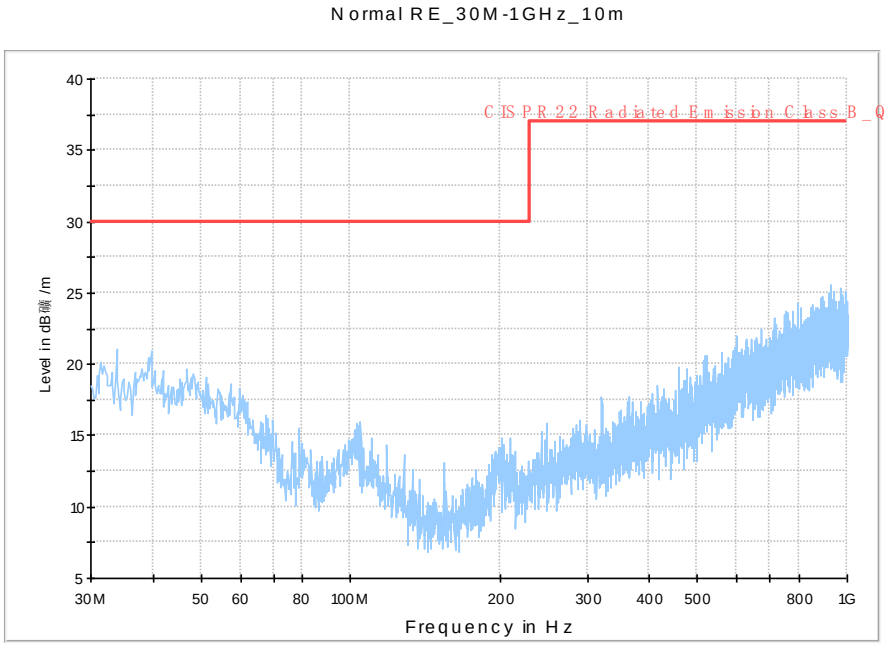

Fig.A.7.2.31 Radiated Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

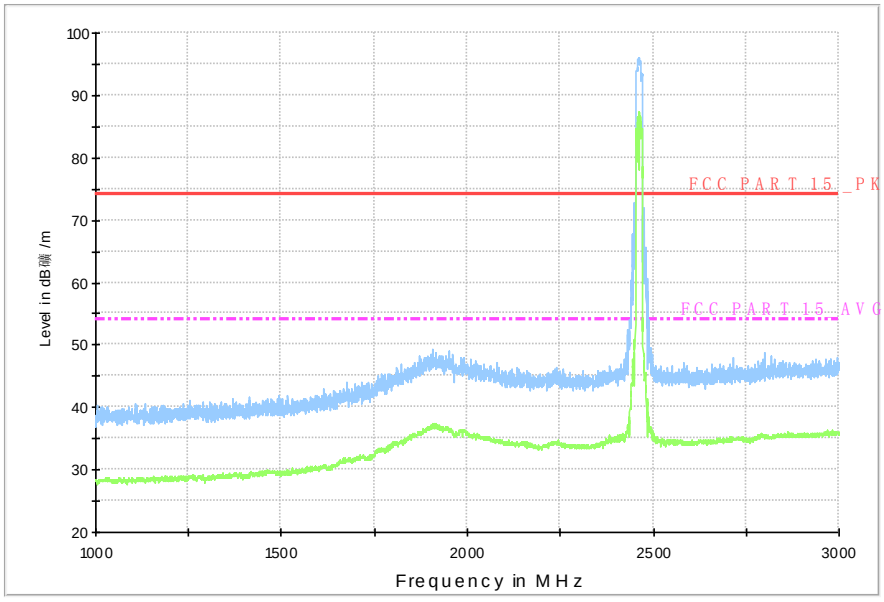

Fig.A.7.2.32 Radiated Spurious Emission (802.11n-HT20, Ch11, 1 GHz-3 GHz)

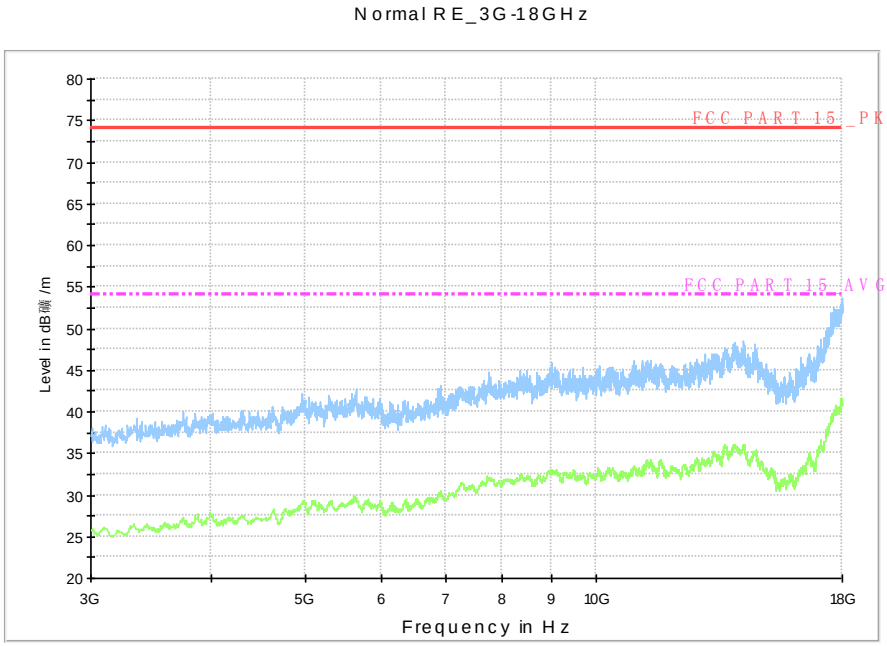

Fig.A.7.2.33 Radiated Spurious Emission (802.11n-HT20, Ch11, 3 GHz-18 GHz)

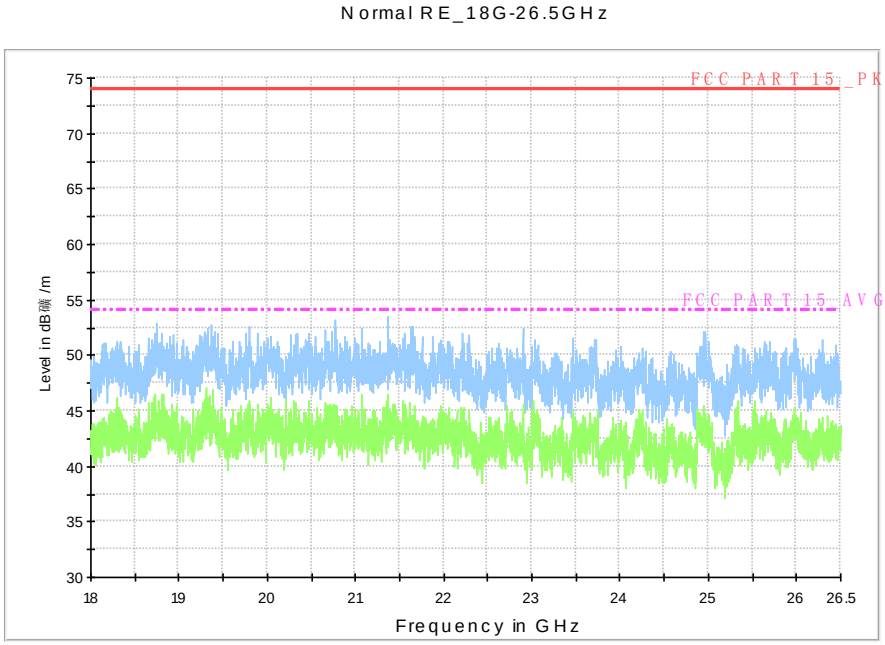

Fig.A.7.2.34 Radiated Spurious Emission (All channels): 18GHz – 26.5GHz

A.8. Spurious Emissions Radiated < 30MHz

Measurement Limit:

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

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)).

Measurement Results:

Mode	Frequency Range	Test Results	Conclusion
802.11b	9 kHz ~30 MHz	Fig.A.8.1	P
IDLE	9 kHz ~30 MHz	Fig.A.8.2	P

Conclusion: PASS

Test graphs as below:

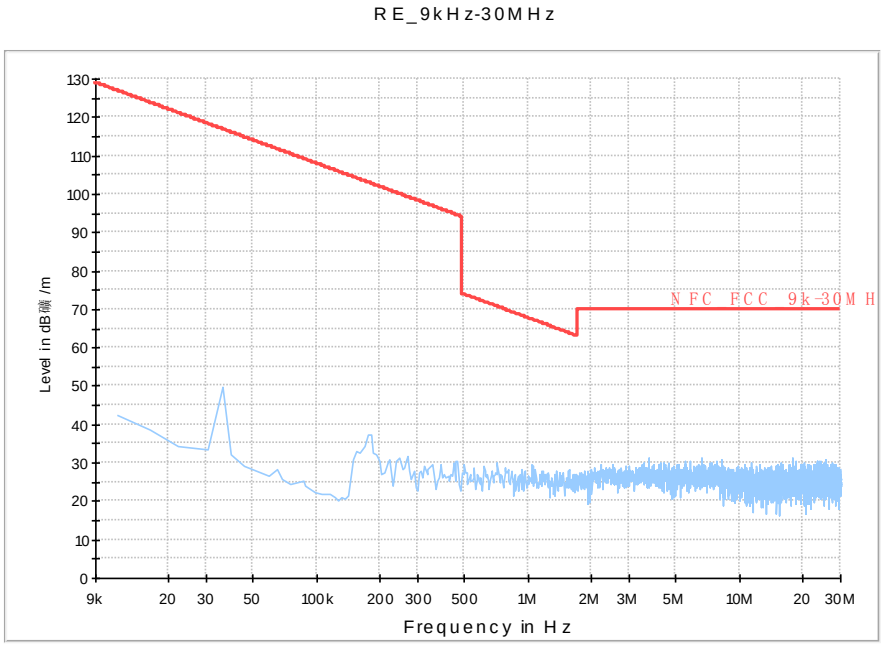

Fig.A.8.1 Radiated Spurious Emission (802.11b, 9 kHz ~30 MHz)

RE_9kHz-30MHz

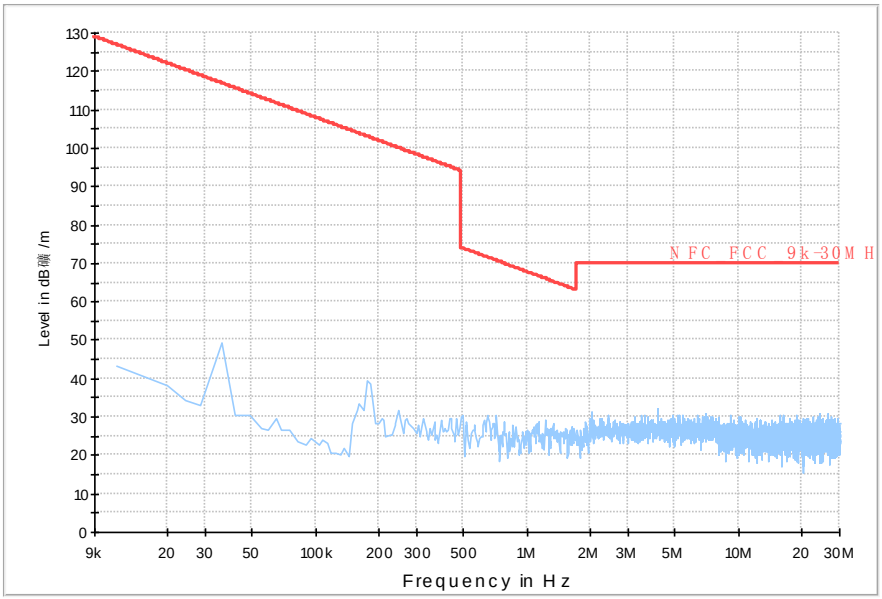

Fig.A.8.2 Radiated Spurious Emission (Idle, 9 kHz ~30 MHz)

A.9. AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
110	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.9.1	Fig.A.9.2	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.9.1	Fig.A.9.2	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.				

The measurement is made according to KDB558074.

Conclusion: Pass

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

Test graphs as below:

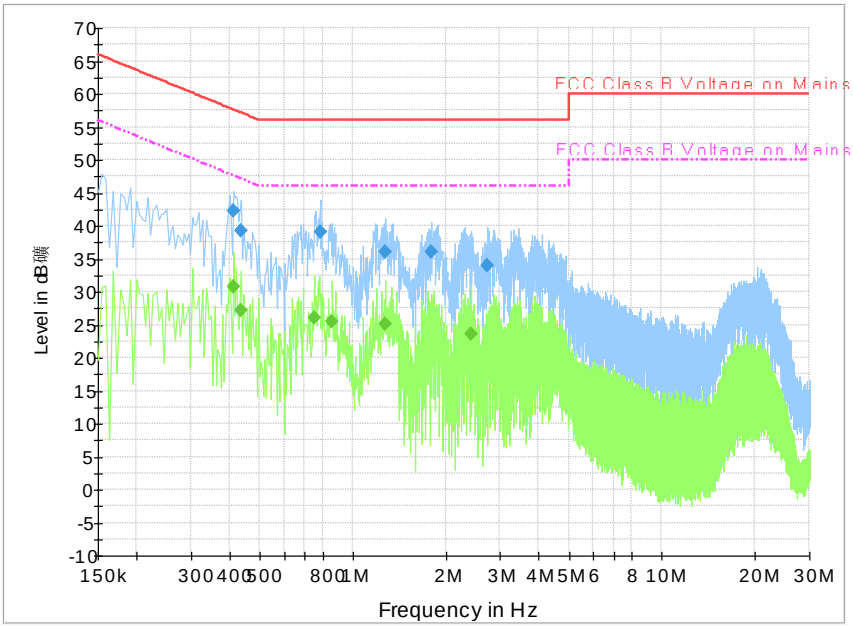

Fig.A.9.1 AC Powerline Conducted Emission-802.11b

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)
0.411000	42.2	GND	L1	9.8	15.4	57.6
0.433500	39.2	GND	L1	9.8	18.0	57.2
0.784500	39.1	GND	L1	9.8	16.9	56.0
1.275000	36.1	GND	L1	9.7	19.9	56.0
1.792500	36.0	GND	L1	9.7	20.0	56.0
2.733000	34.0	GND	L1	9.7	22.0	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.411000	30.8	GND	L1	9.8	16.8	47.6
0.433500	27.1	GND	L1	9.8	20.1	47.2
0.748500	26.0	GND	L1	9.8	20.0	46.0
0.856500	25.4	GND	L1	9.8	20.6	46.0
1.275000	25.2	GND	L1	9.7	20.8	46.0
2.404500	23.6	GND	L1	9.7	22.4	46.0