

Fig.A.6.1.35 Conducted Spurious Emission (802.11g, Ch6, 1 GHz-2.5 GHz)

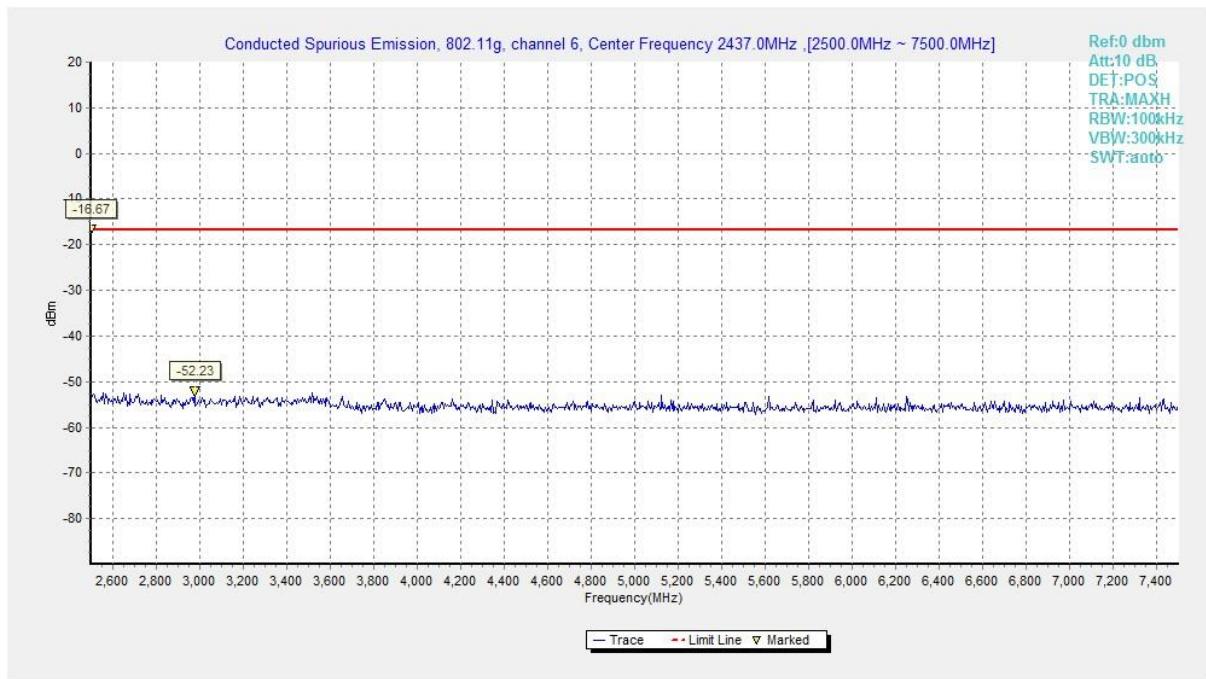
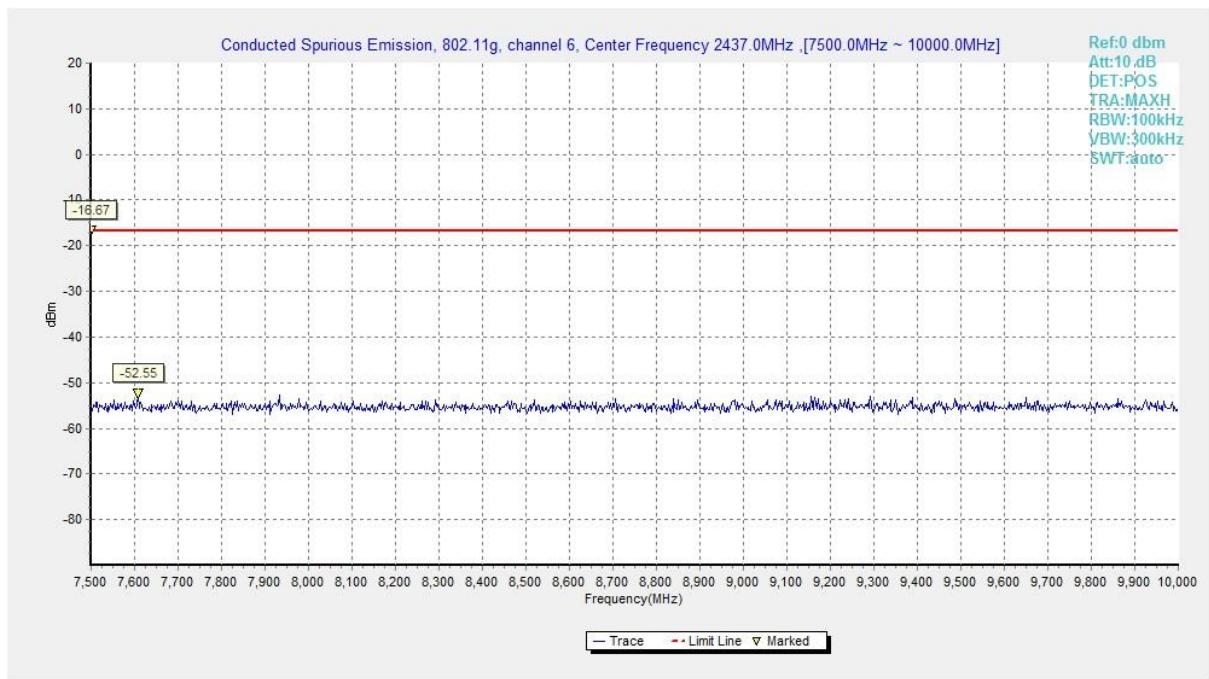
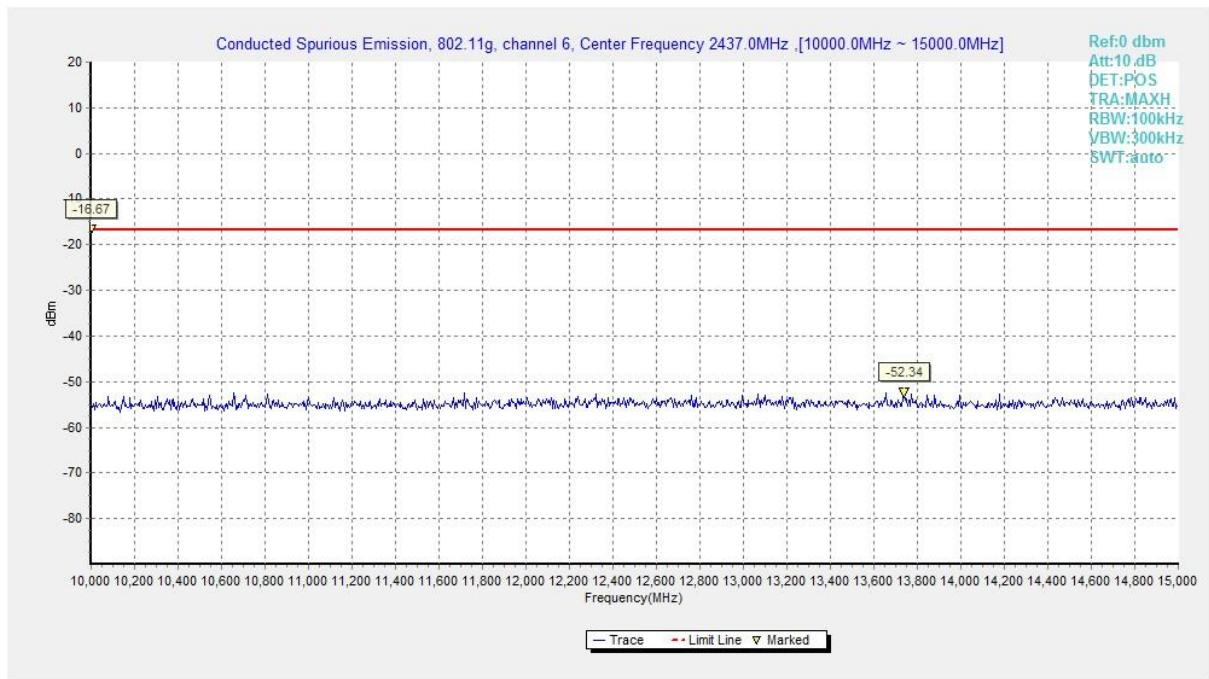


Fig.A.6.1.36 Conducted Spurious Emission (802.11g, Ch6, 2.5 GHz-7.5 GHz)

**Fig.A.6.1.37 Conducted Spurious Emission (802.11g, Ch6, 7.5 GHz-10 GHz)****Fig.A.6.1.38 Conducted Spurious Emission (802.11g, Ch6, 10 GHz-15 GHz)**

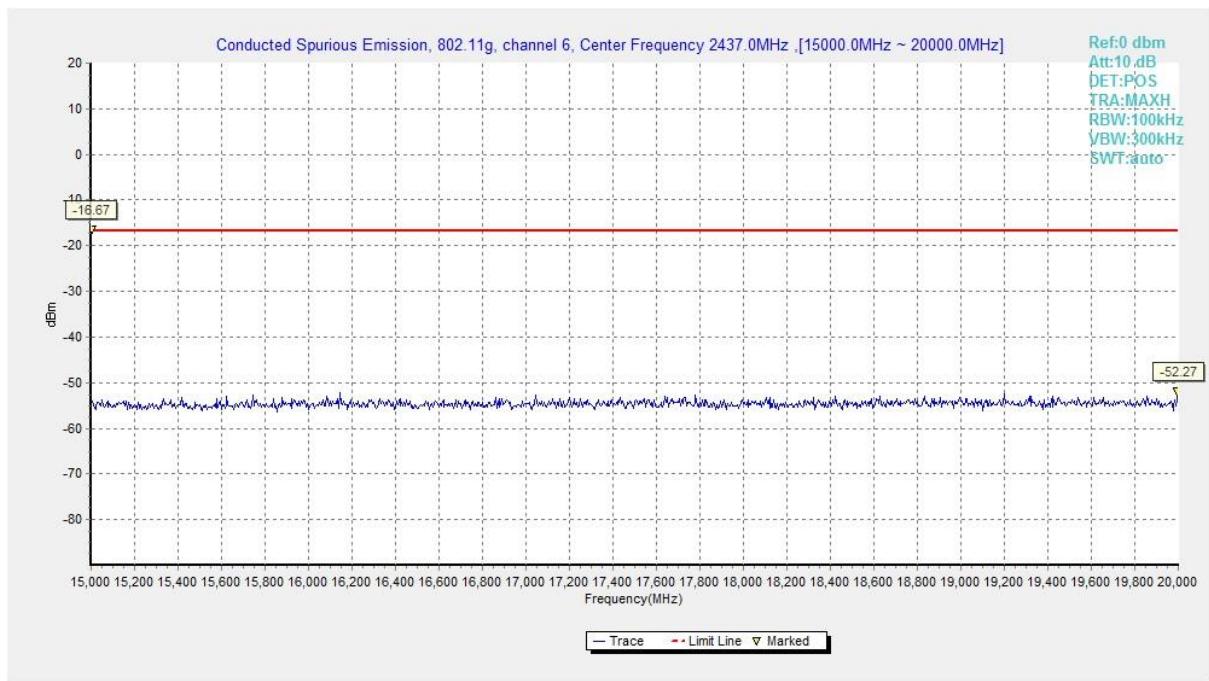


Fig.A.6.1.39 Conducted Spurious Emission (802.11g, Ch6, 15 GHz-20 GHz)

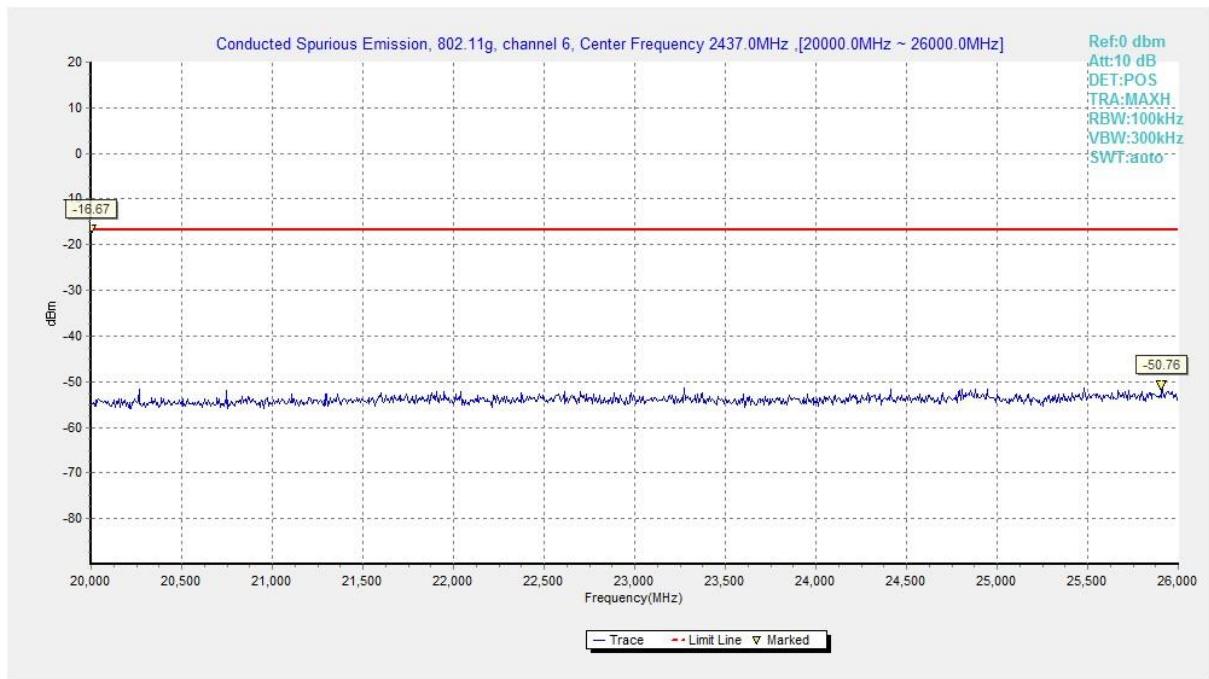


Fig.A.6.1.40 Conducted Spurious Emission (802.11g, Ch6, 20 GHz-26 GHz)

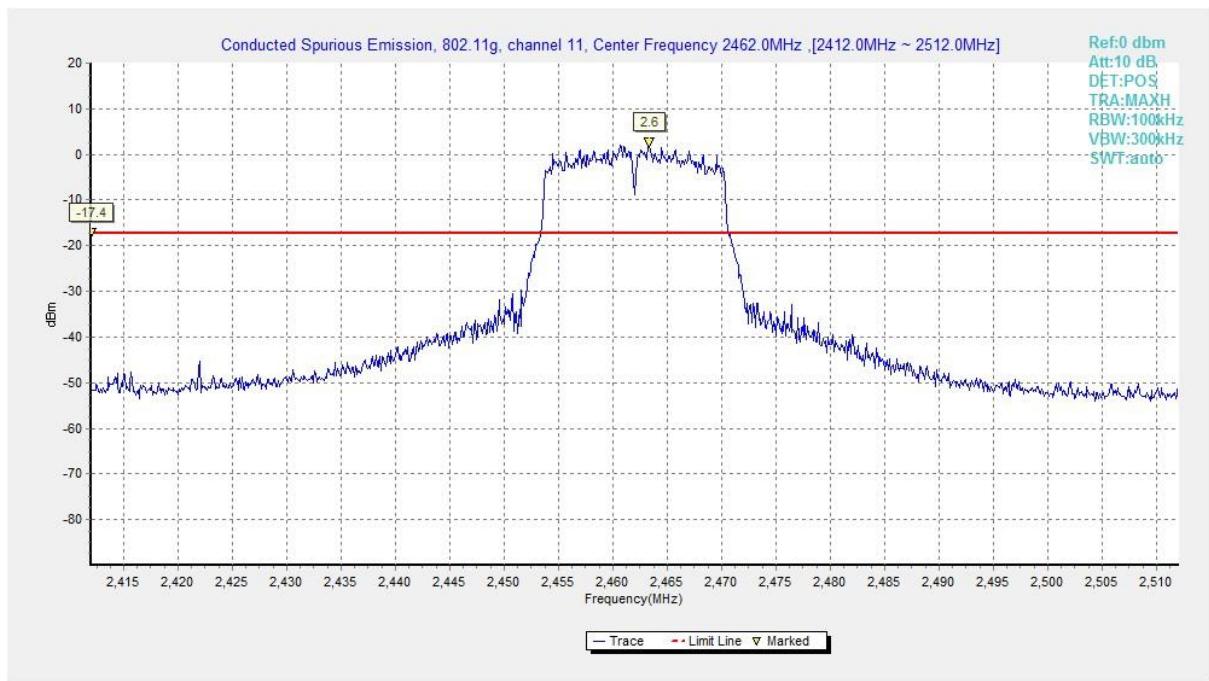


Fig.A.6.1.41 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

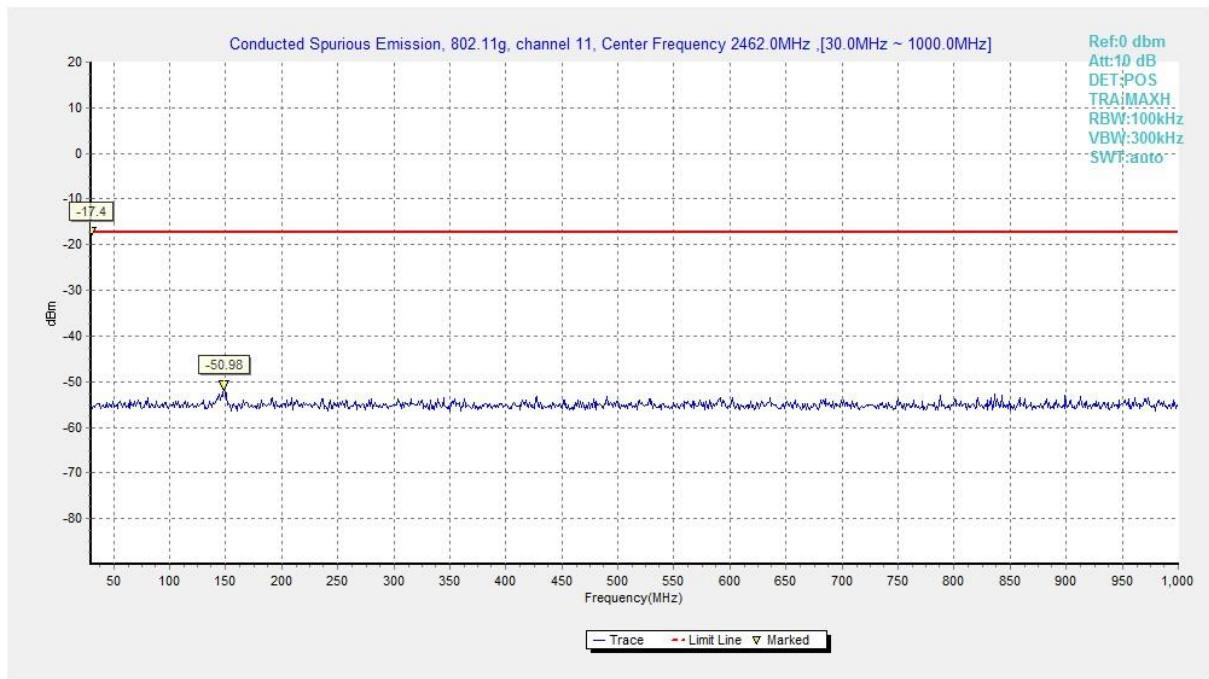


Fig.A.6.1.42 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

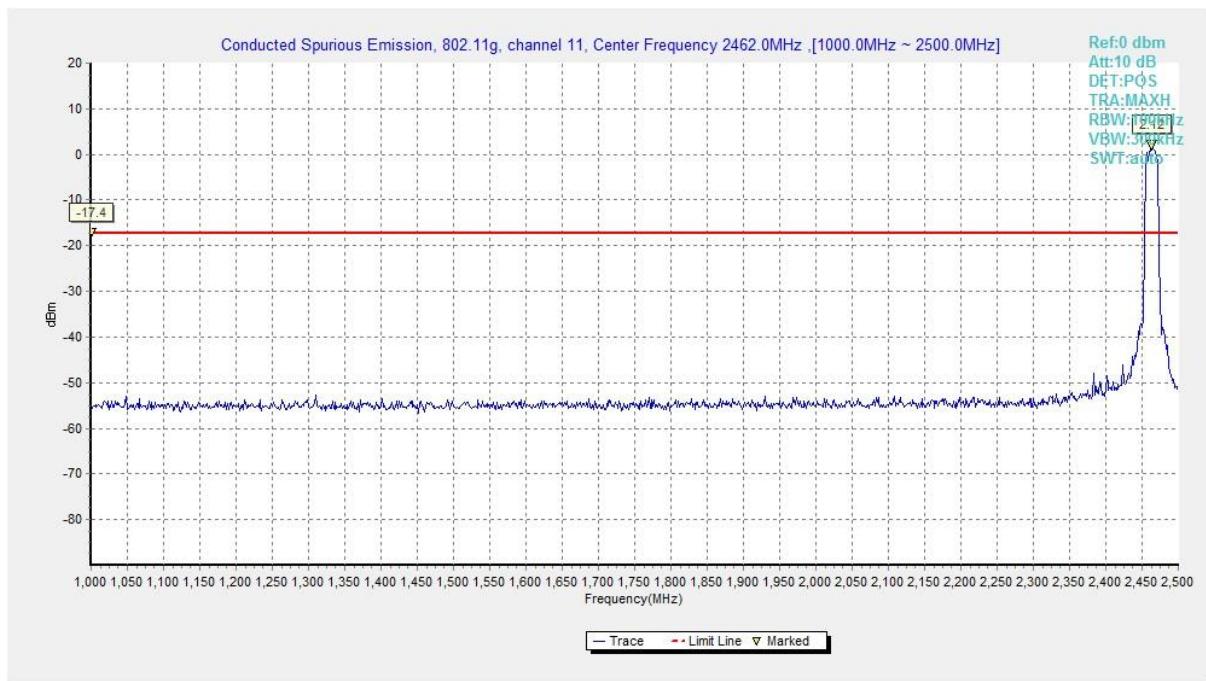


Fig.A.6.1.43 Conducted Spurious Emission (802.11g, Ch11, 1 GHz-2.5 GHz)

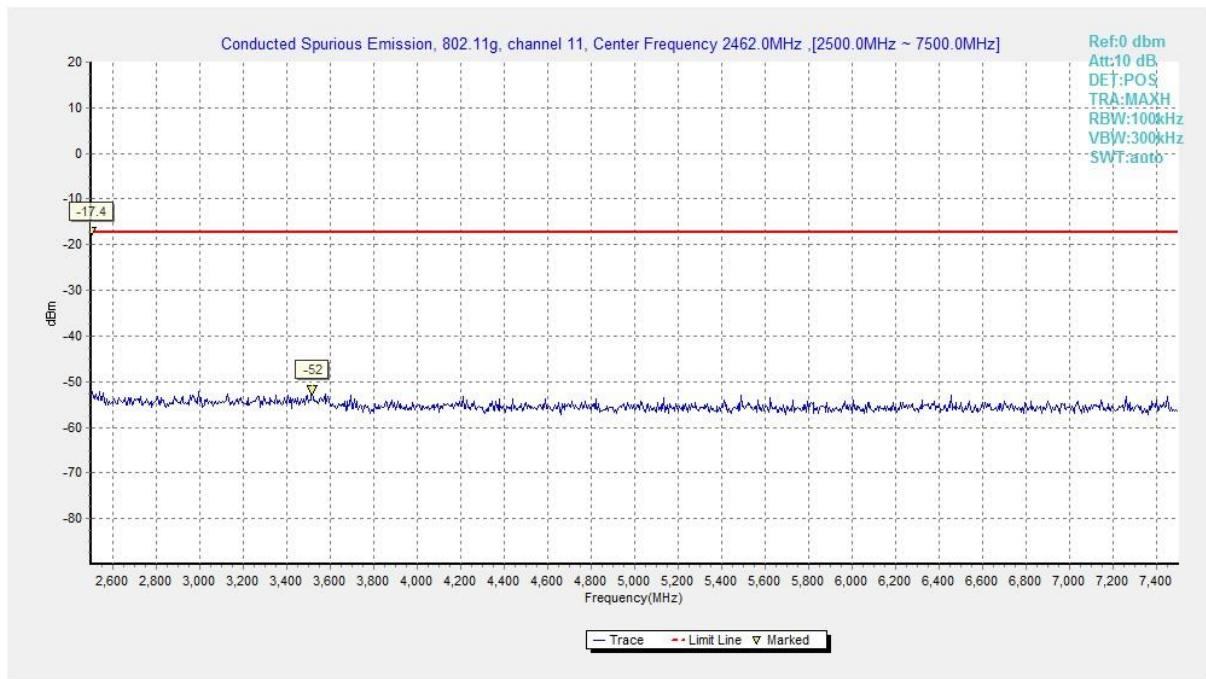
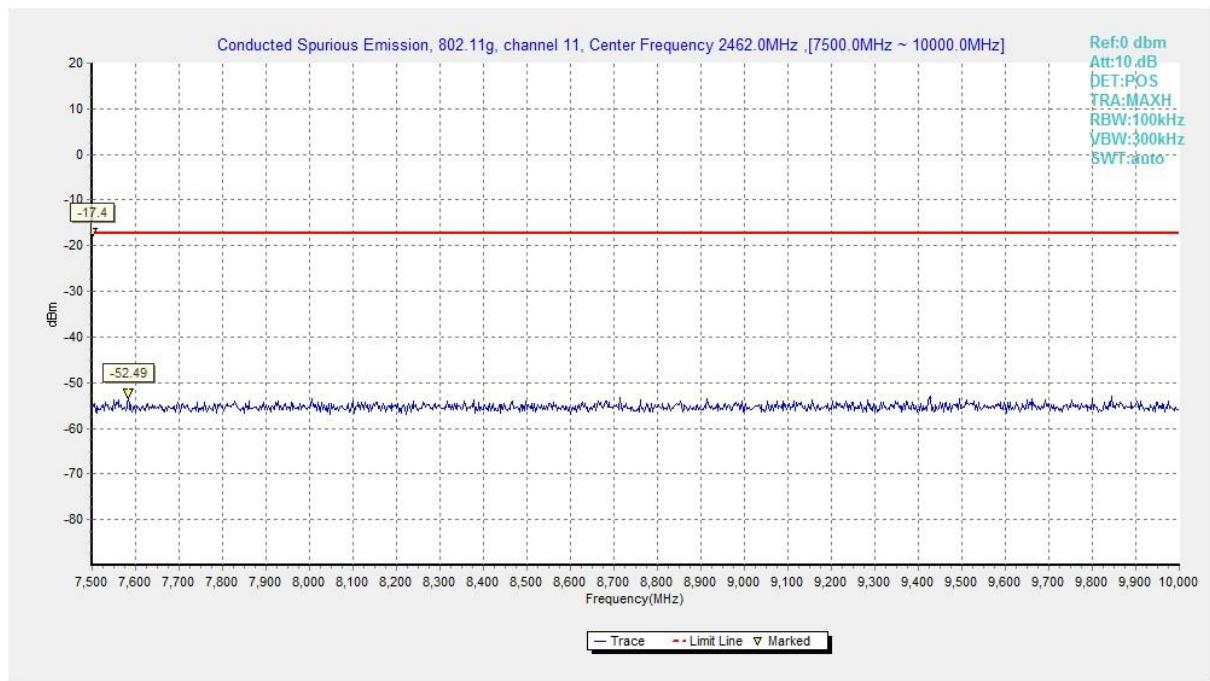
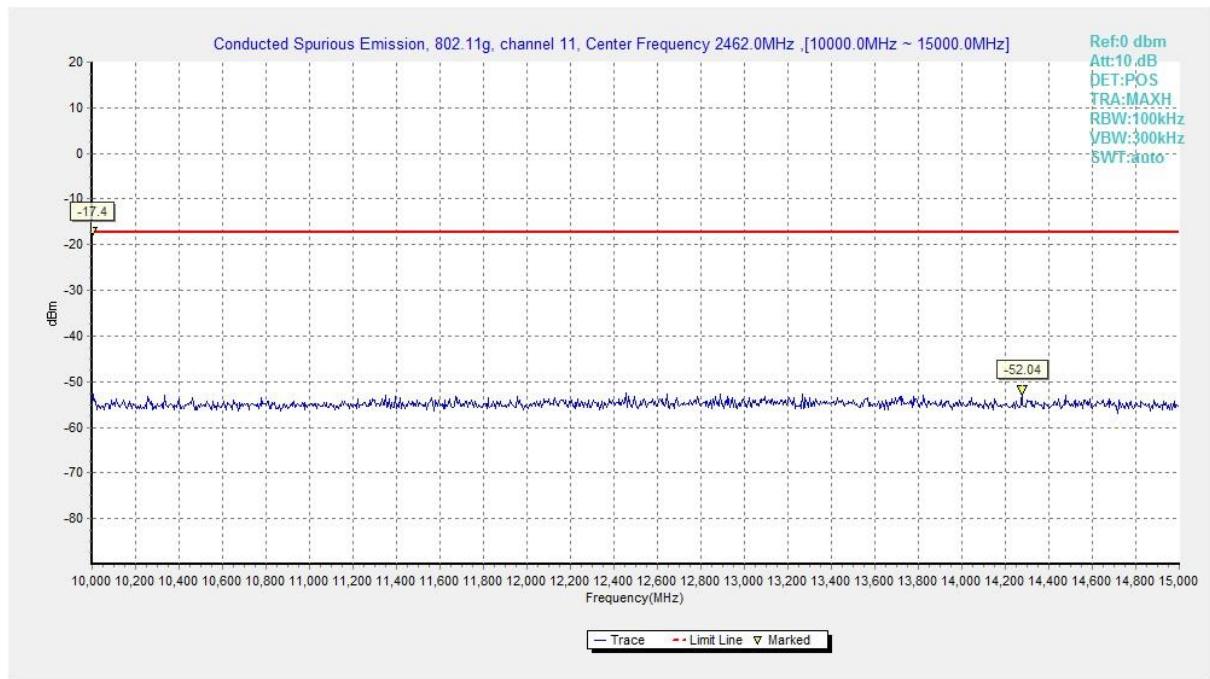


Fig.A.6.1.44 Conducted Spurious Emission (802.11g, Ch11, 2.5 GHz-7.5 GHz)


Fig.A.6.1.45 Conducted Spurious Emission (802.11g, Ch11, 7.5 GHz-10 GHz)

Fig.A.6.1.46 Conducted Spurious Emission (802.11g, Ch11, 10 GHz-15 GHz)

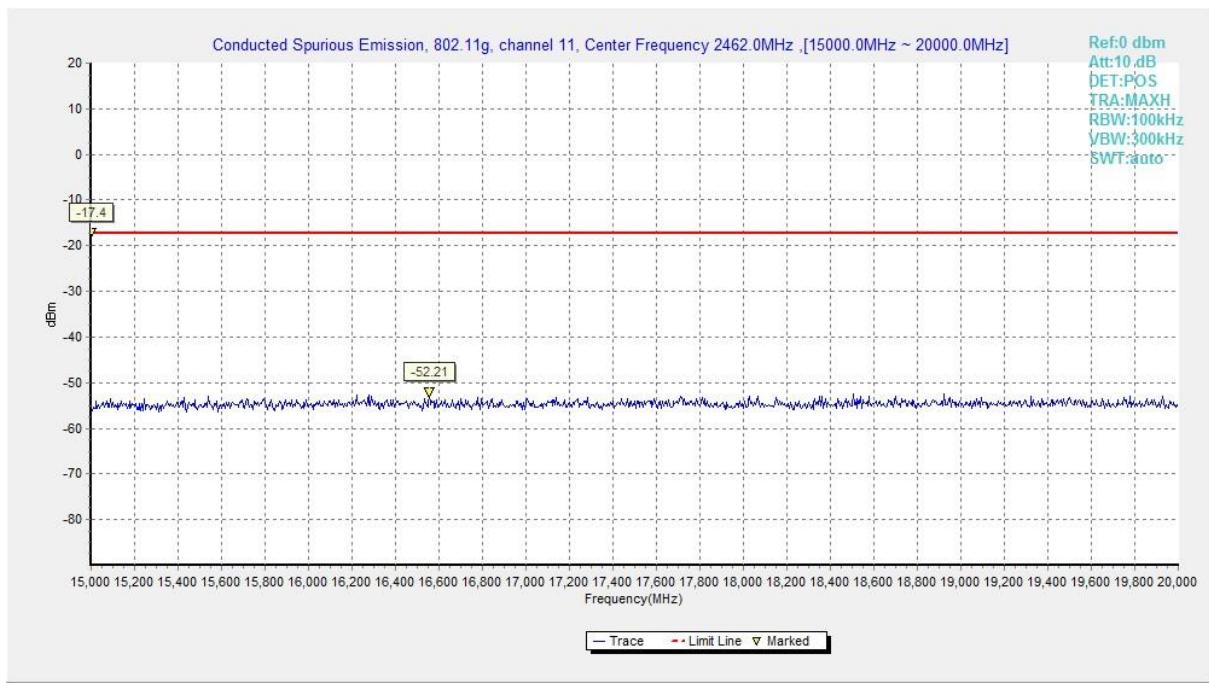


Fig.A.6.1.47 Conducted Spurious Emission (802.11g, Ch11, 15 GHz-20 GHz)

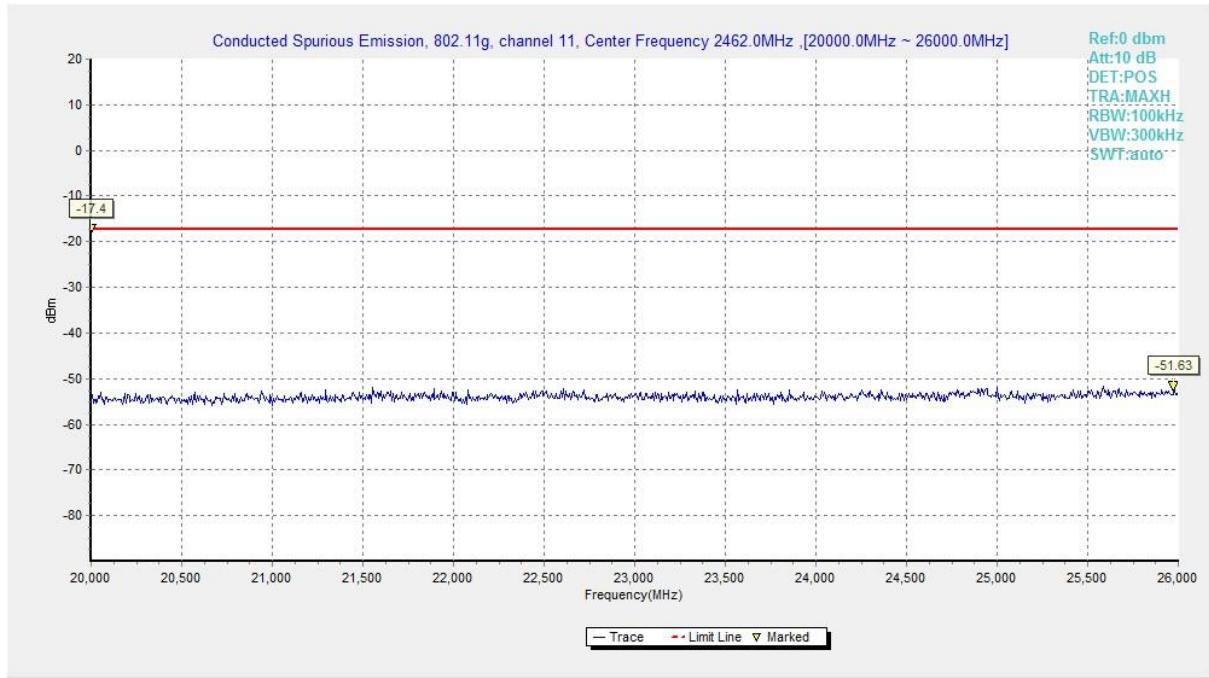


Fig.A.6.1.48 Conducted Spurious Emission (802.11g, Ch11, 20 GHz-26 GHz)

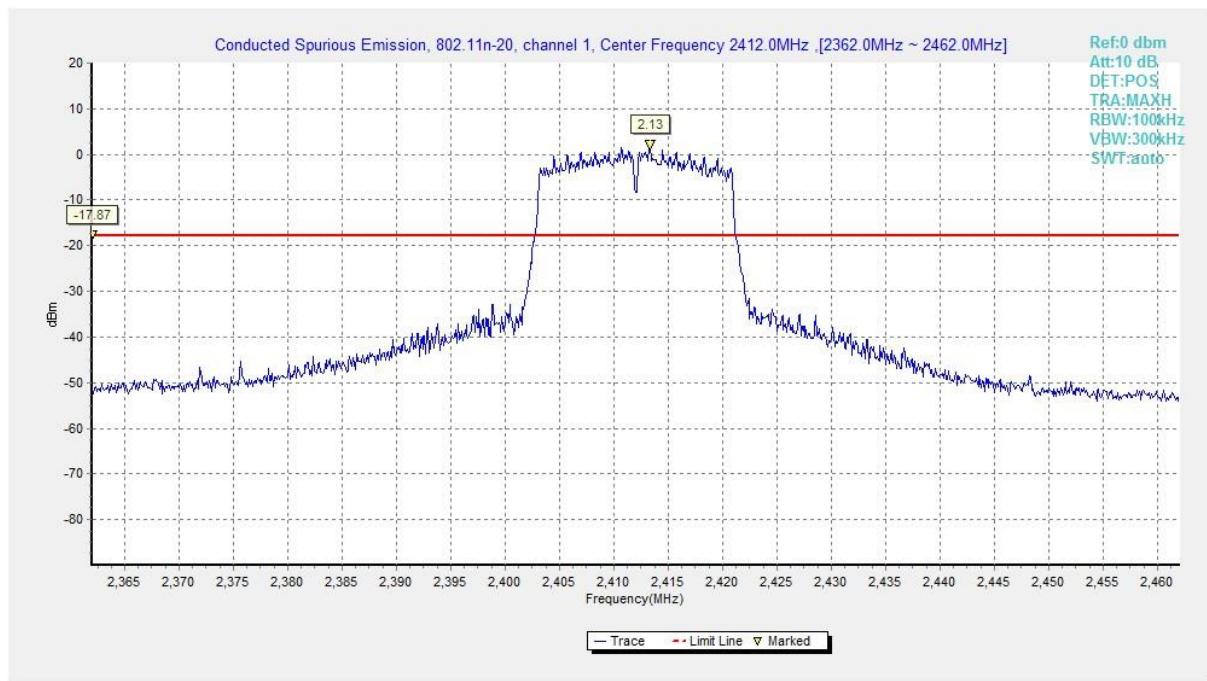


Fig.A.6.1.49 Conducted Spurious Emission (802.11n-HT20, Ch1, Center Frequency)

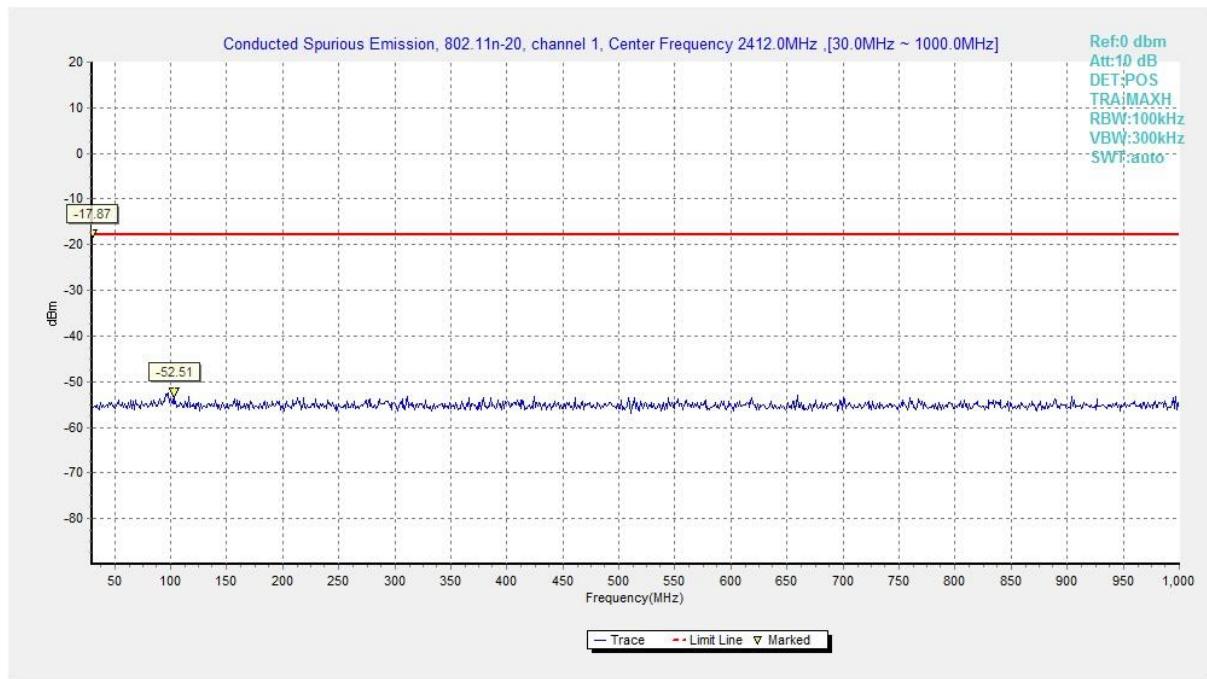


Fig.A.6.1.50 Conducted Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

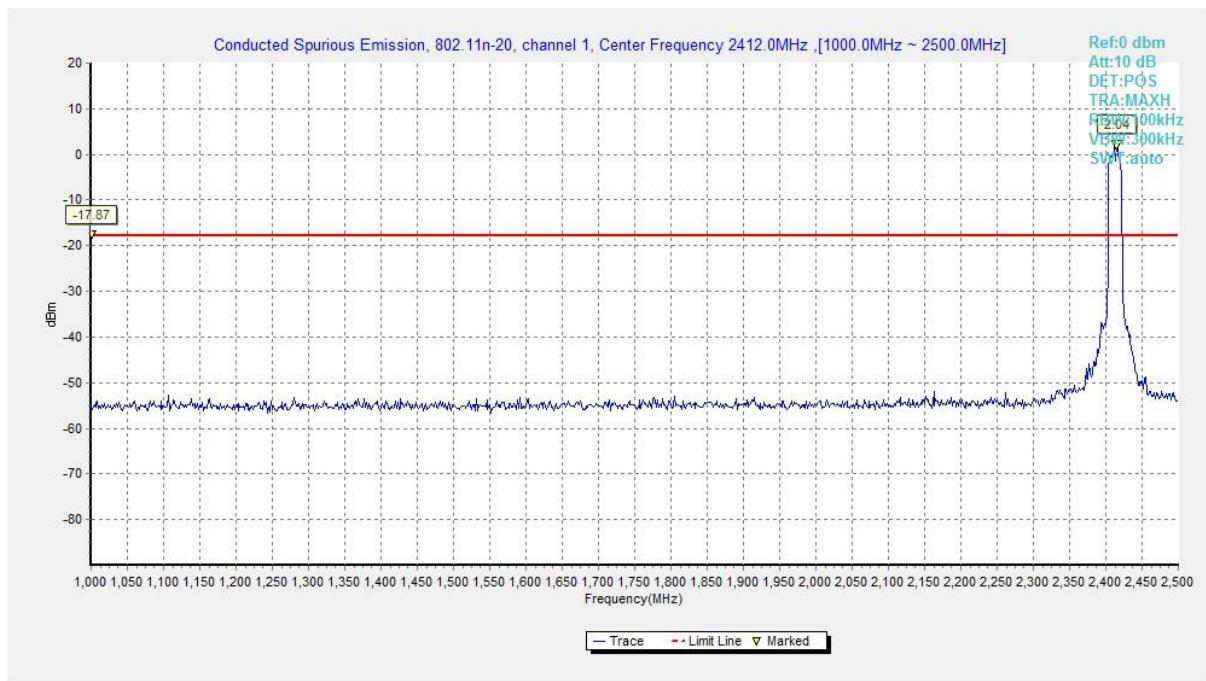


Fig.A.6.1.51 Conducted Spurious Emission (802.11n-HT20, Ch1, 1 GHz-2.5 GHz)

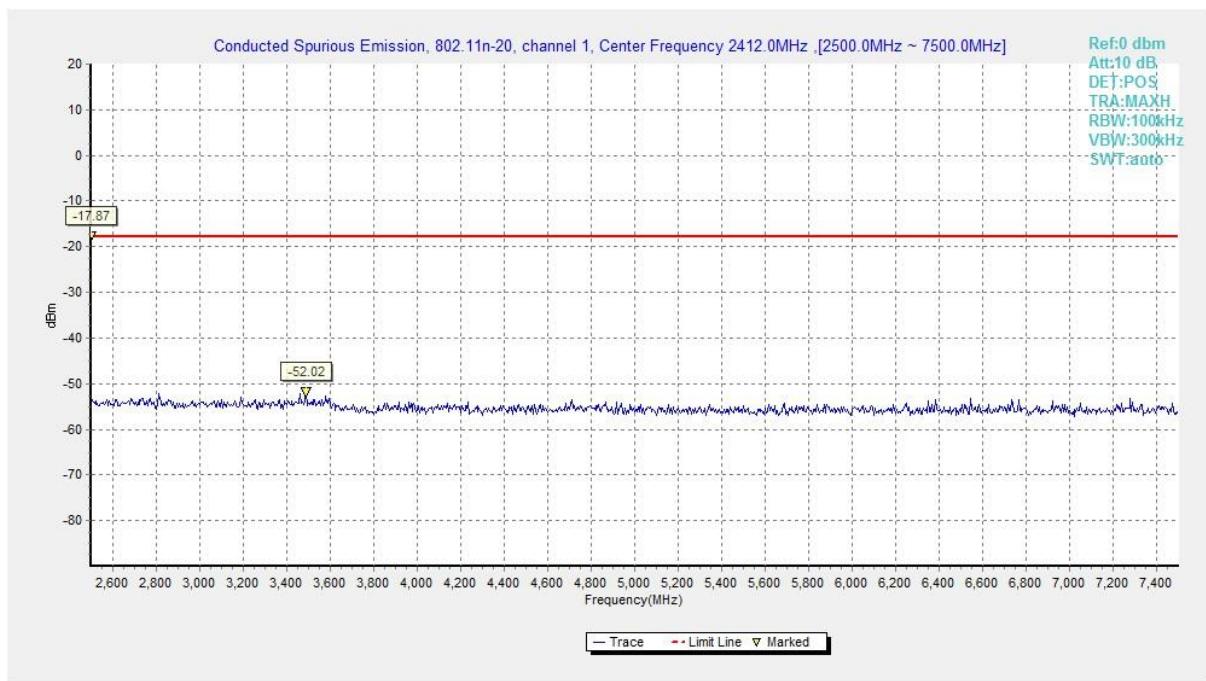


Fig.A.6.1.52 Conducted Spurious Emission (802.11n-HT20, Ch1, 2.5 GHz-7.5 GHz)

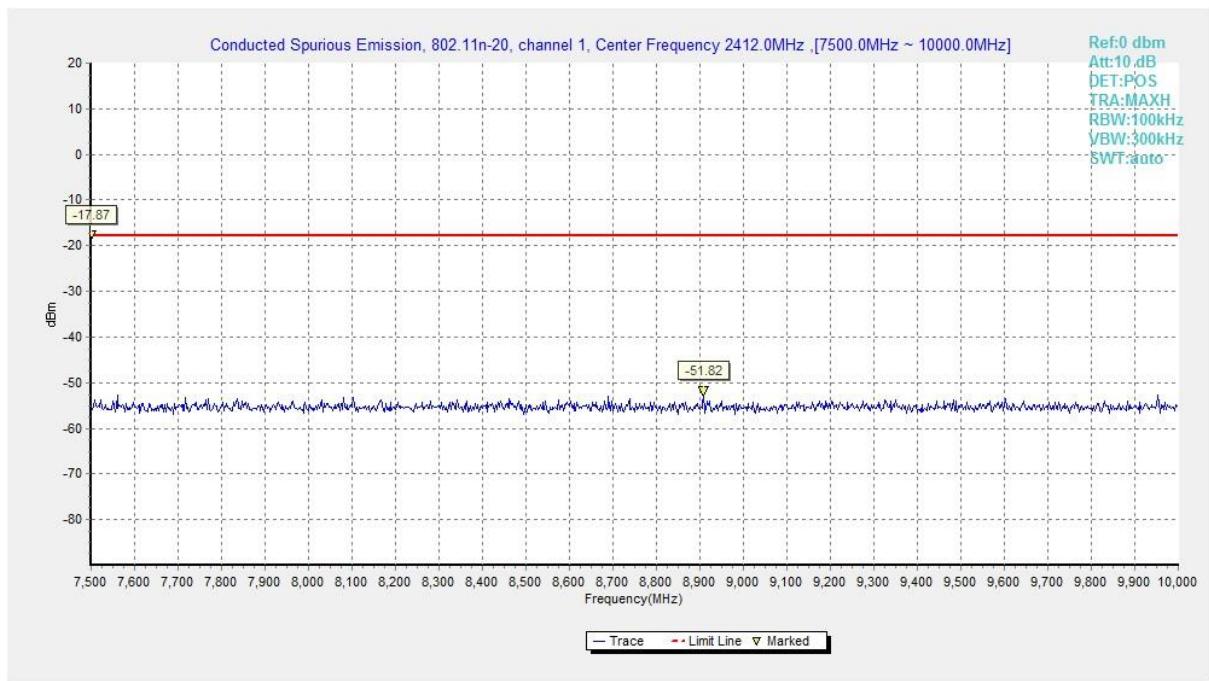


Fig.A.6.1.53 Conducted Spurious Emission (802.11n-HT20, Ch1, 7.5 GHz-10 GHz)

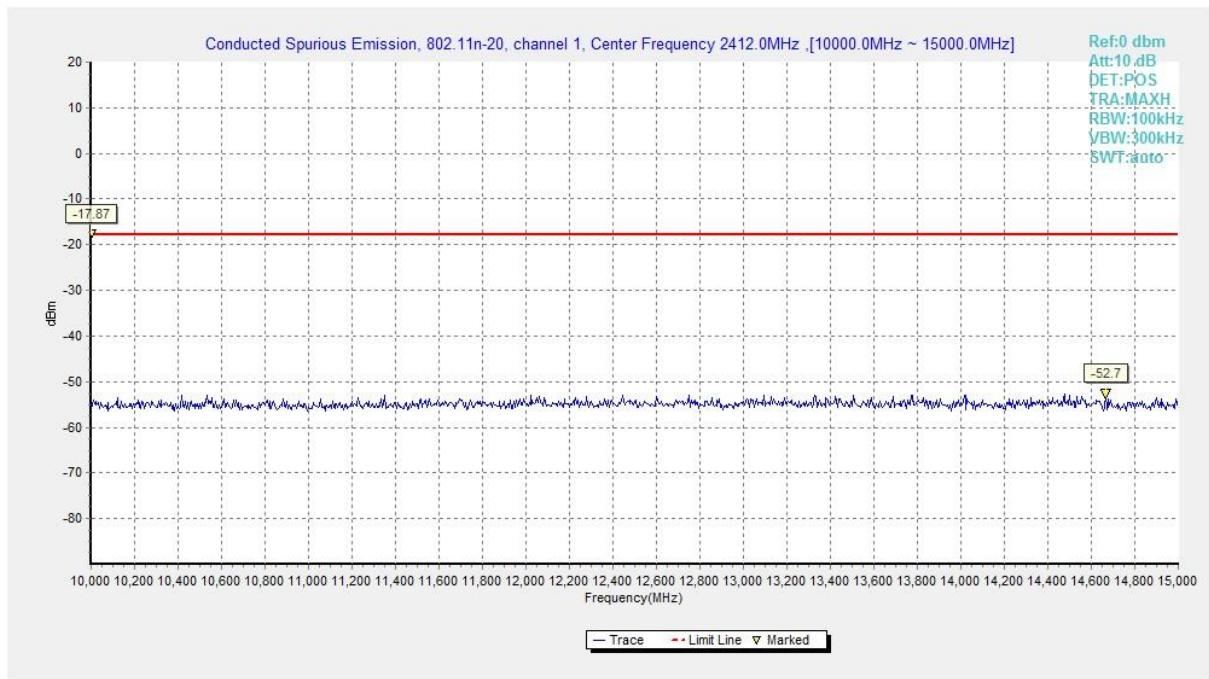


Fig.A.6.1.54 Conducted Spurious Emission (802.11n-HT20, Ch1, 10 GHz-15 GHz)

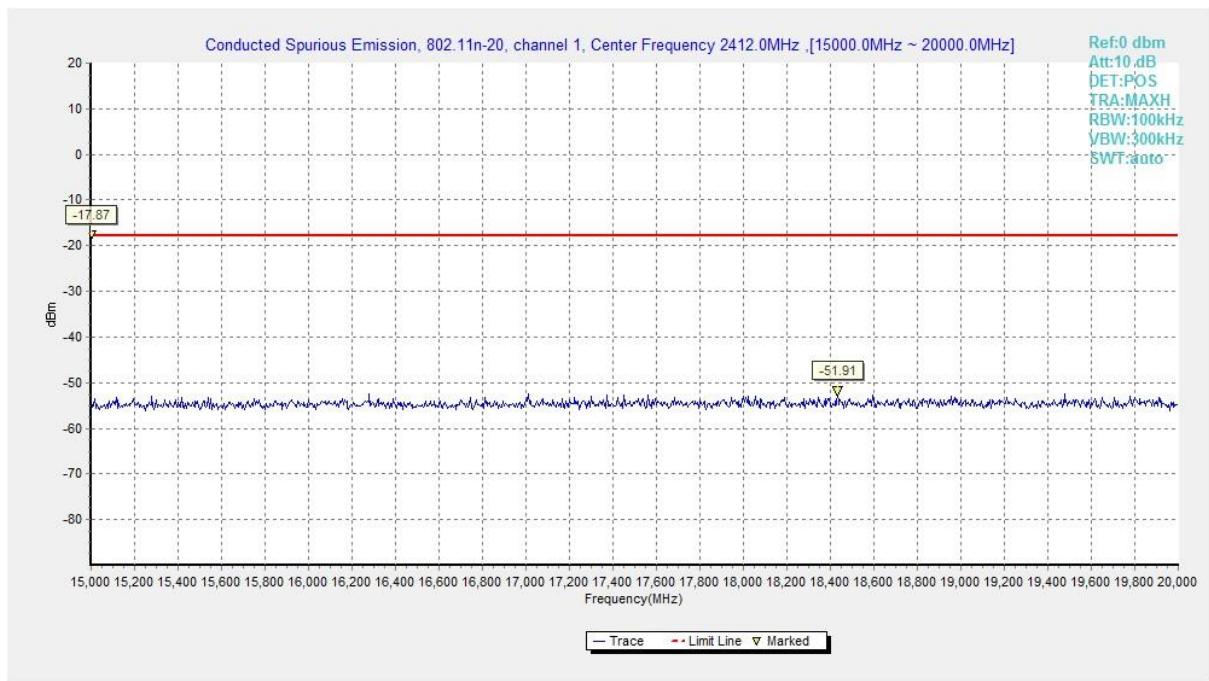


Fig.A.6.1.55 Conducted Spurious Emission (802.11n-HT20, Ch1, 15 GHz-20 GHz)

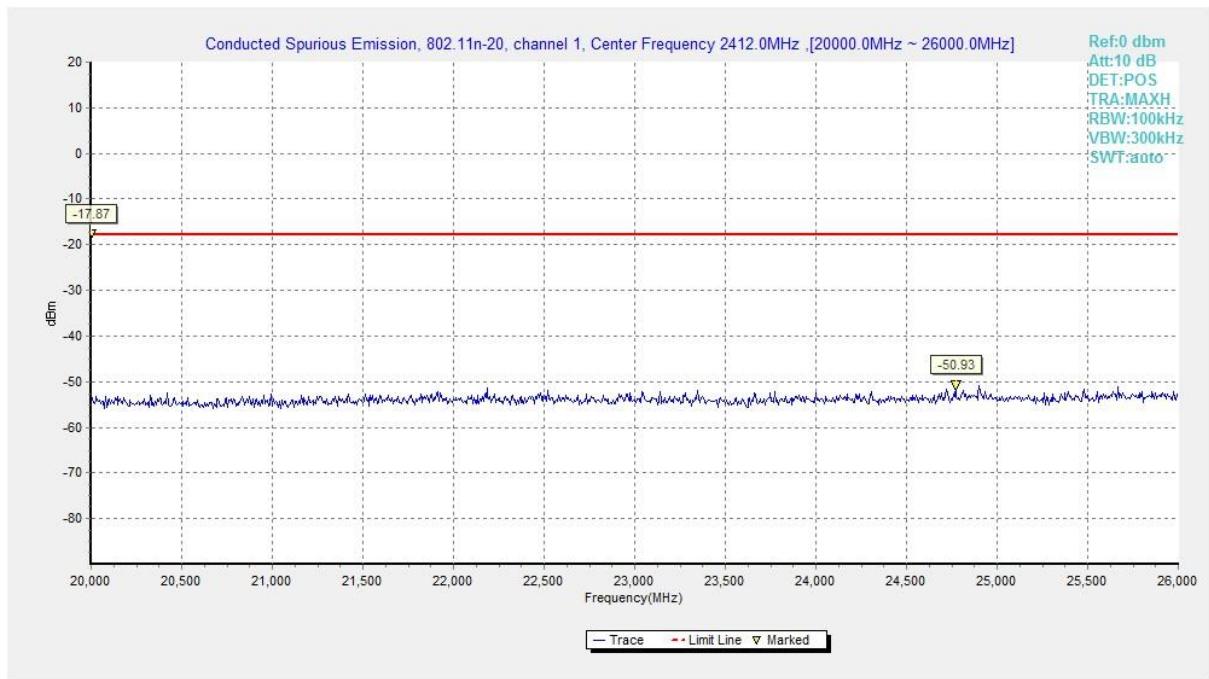


Fig.A.6.1.56 Conducted Spurious Emission (802.11n-HT20, Ch1, 20 GHz-26 GHz)

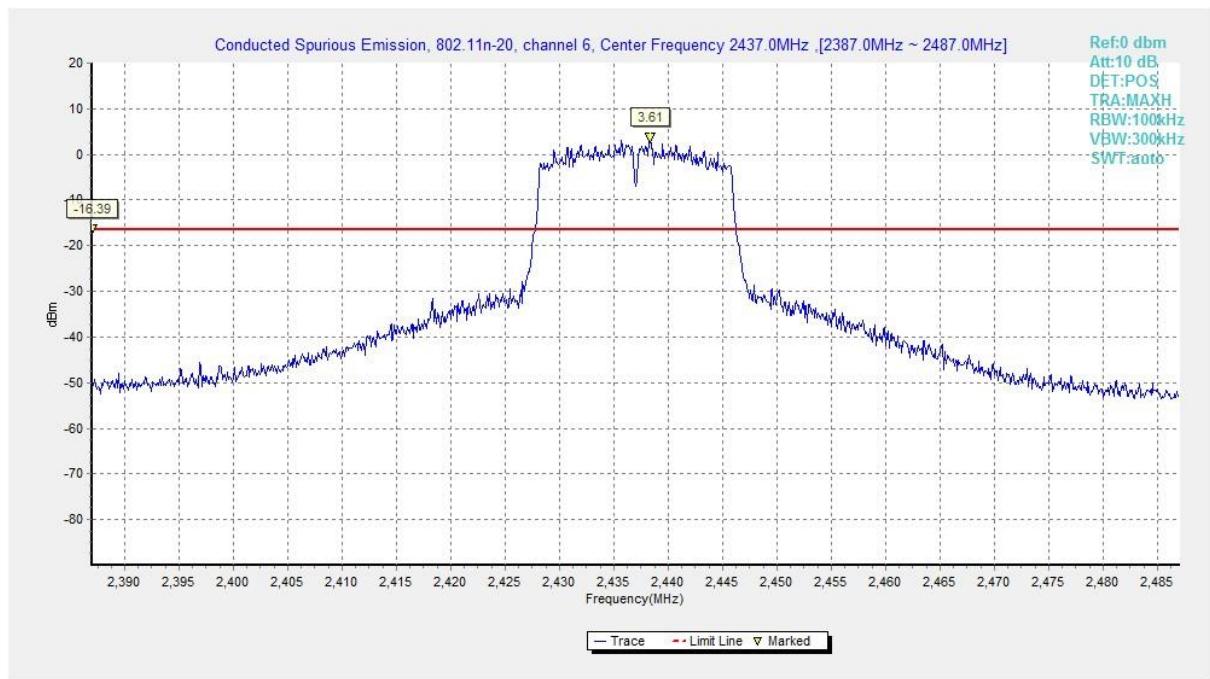


Fig.A.6.1.57 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)

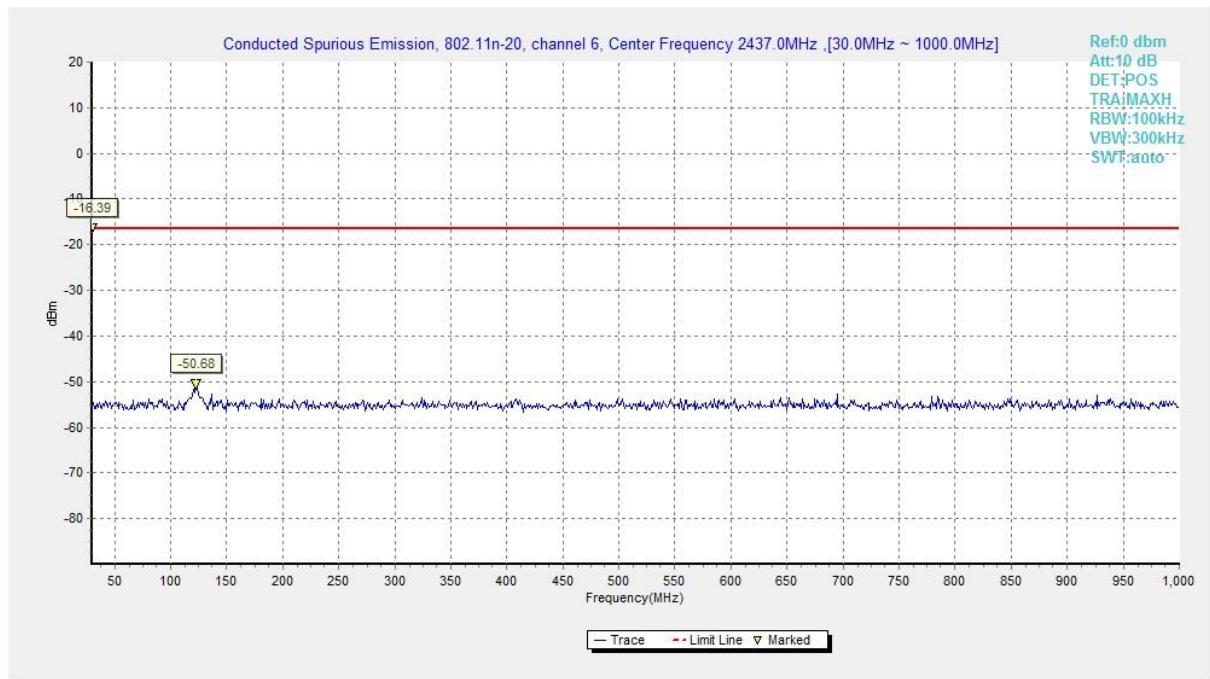


Fig.A.6.1.58 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

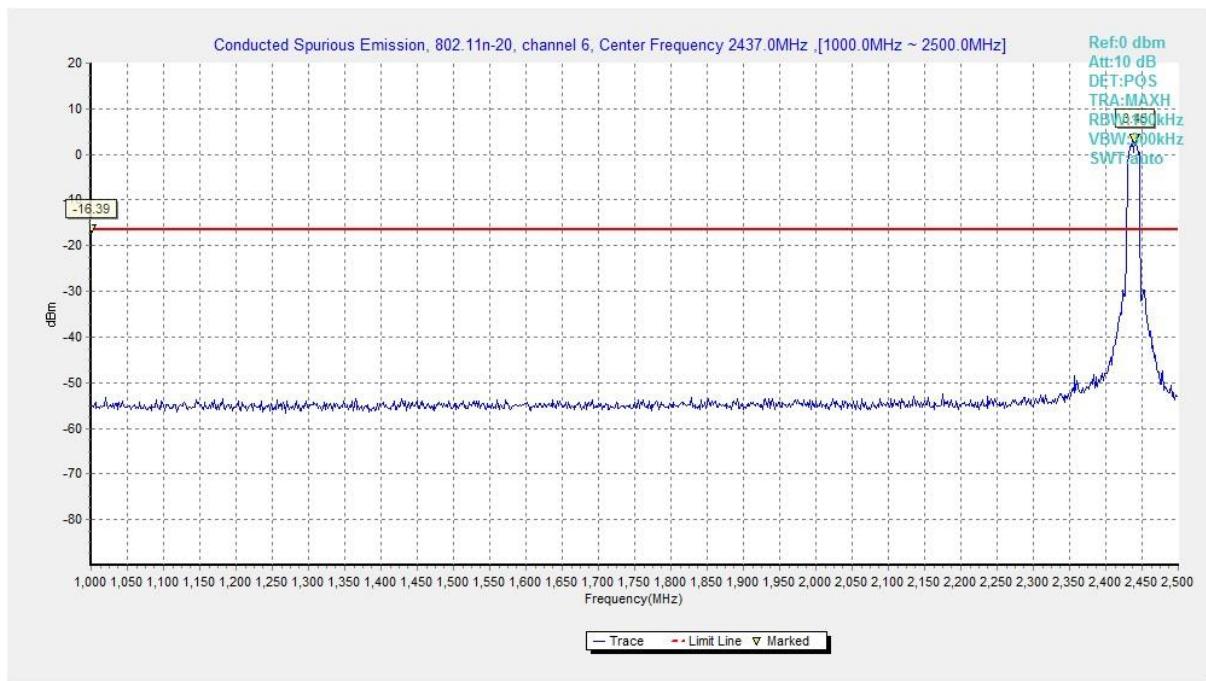


Fig.A.6.1.59 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)

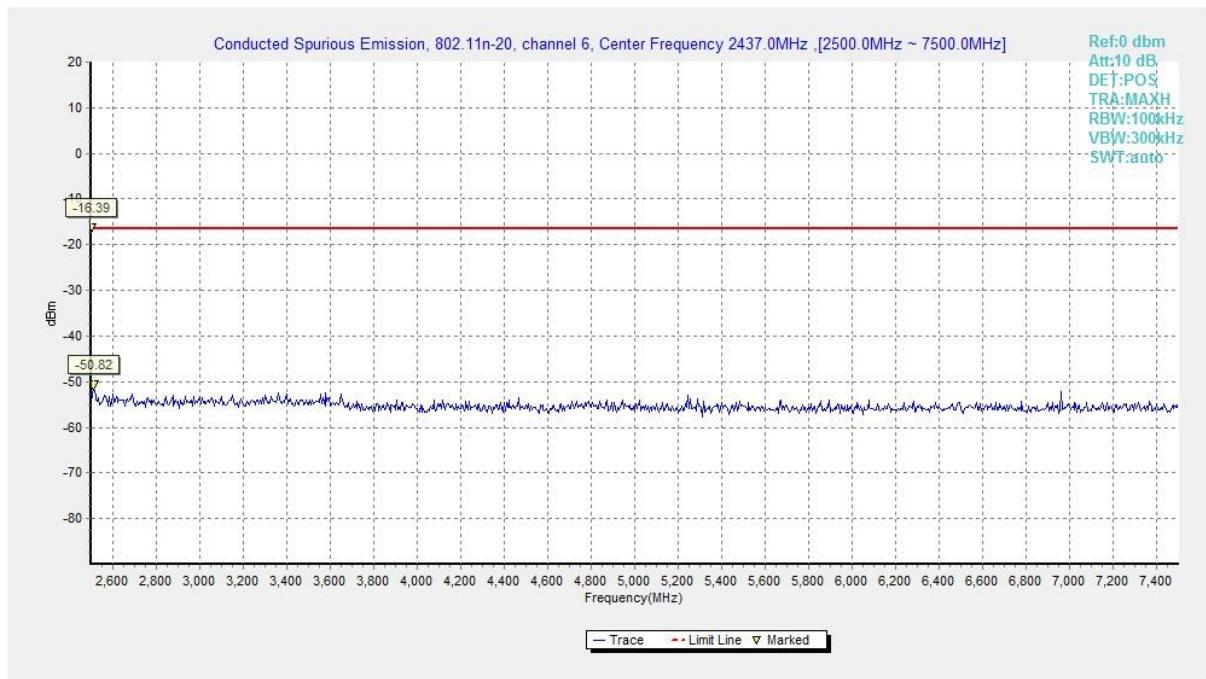


Fig.A.6.1.60 Conducted Spurious Emission (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)

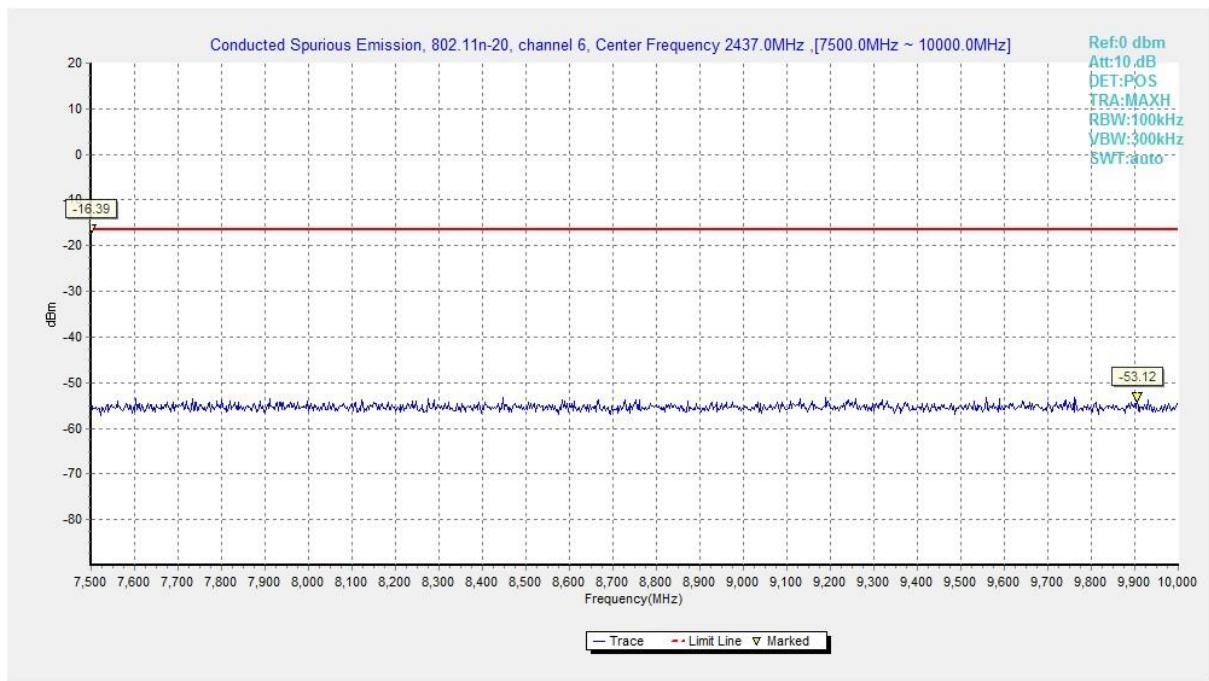


Fig.A.6.1.61 Conducted Spurious Emission (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)

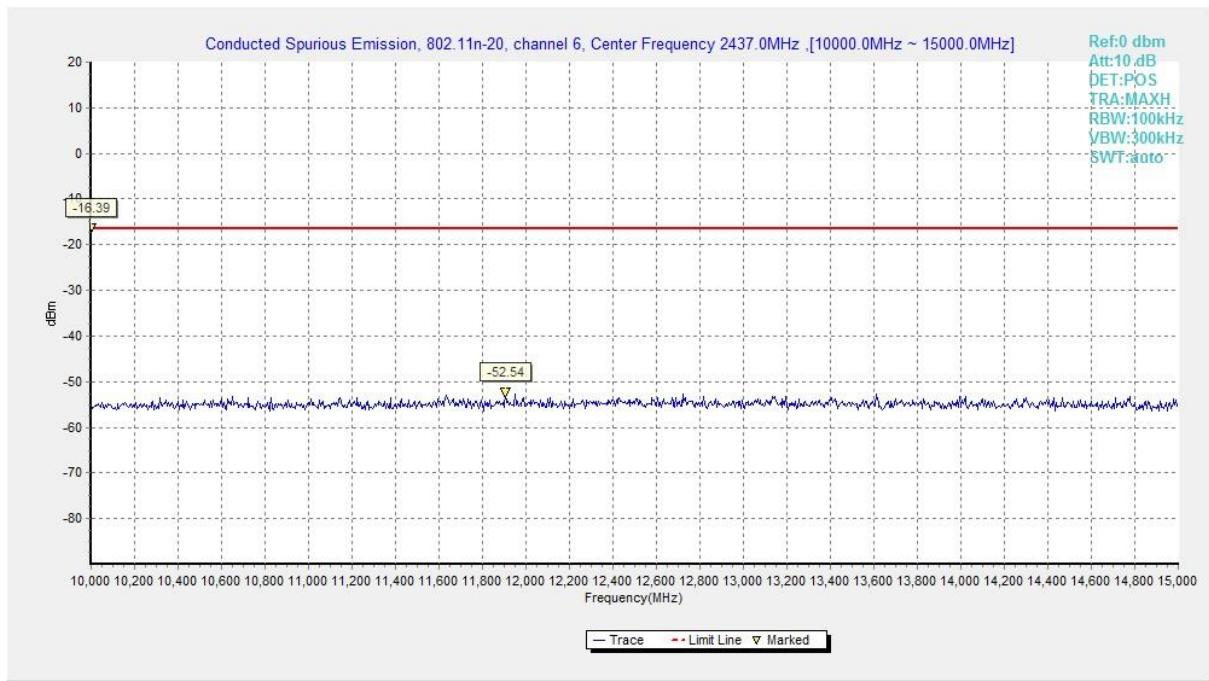


Fig.A.6.1.62 Conducted Spurious Emission (802.11n-HT20, Ch6, 10 GHz-15 GHz)

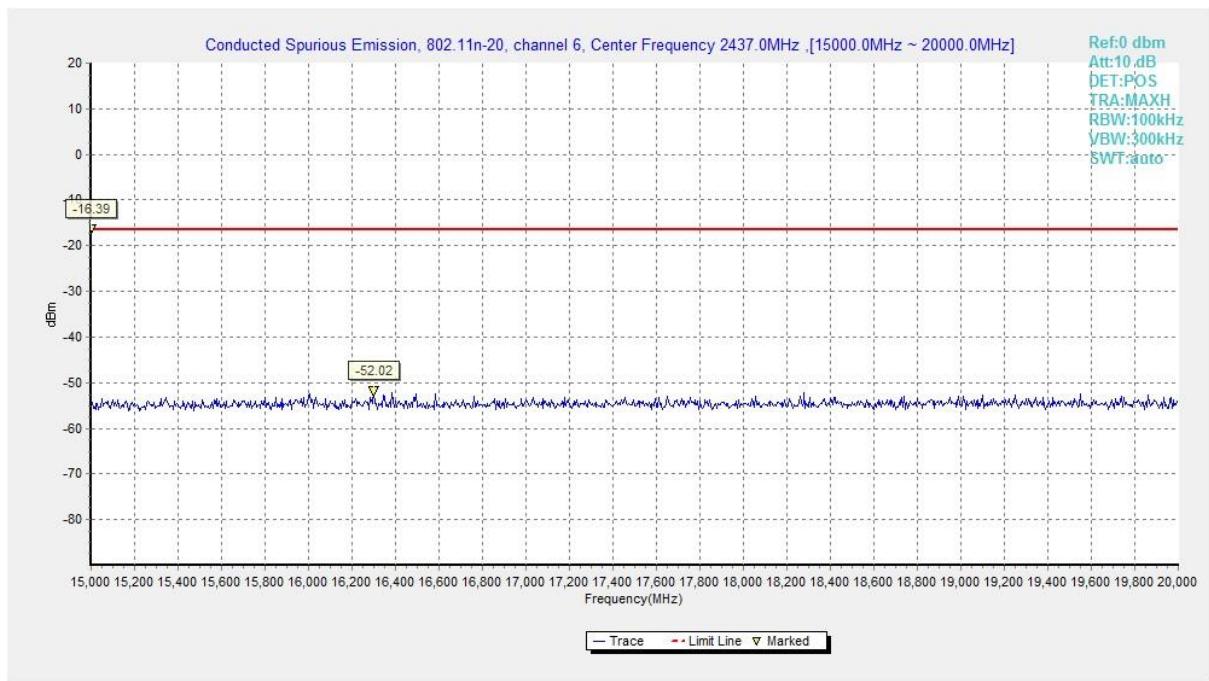


Fig.A.6.1.63 Conducted Spurious Emission (802.11n-HT20, Ch6, 15 GHz-20 GHz)

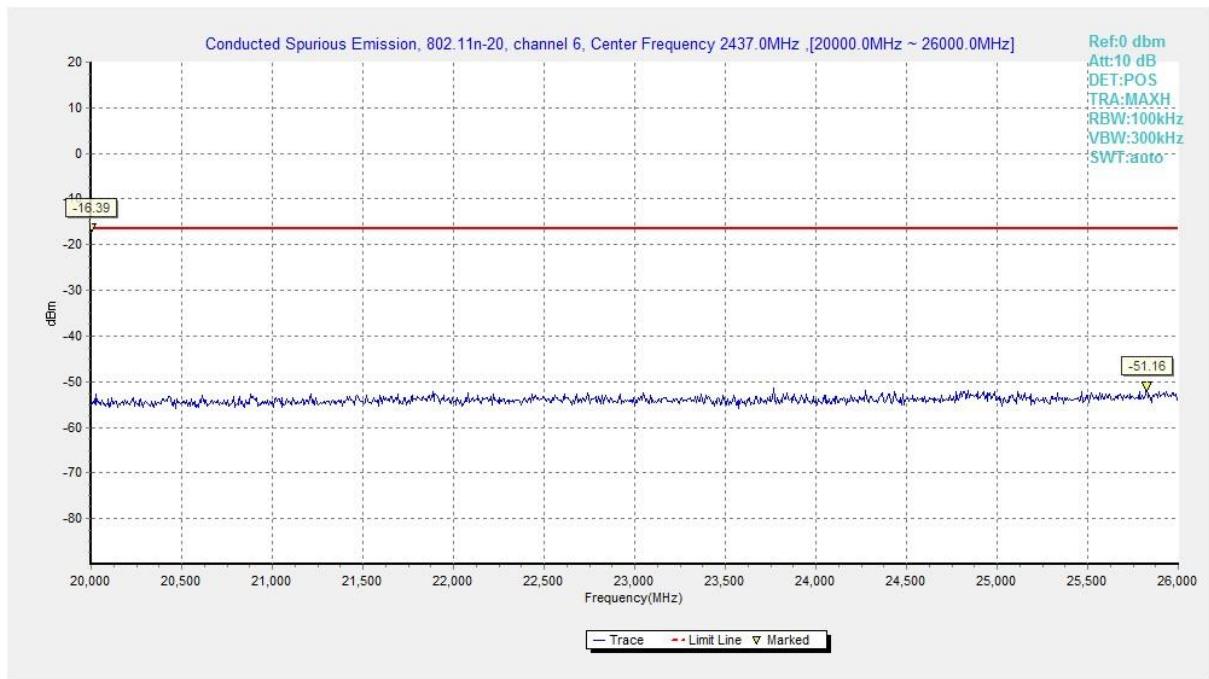


Fig.A.6.1.64 Conducted Spurious Emission (802.11n-HT20, Ch6, 20 GHz-26 GHz)

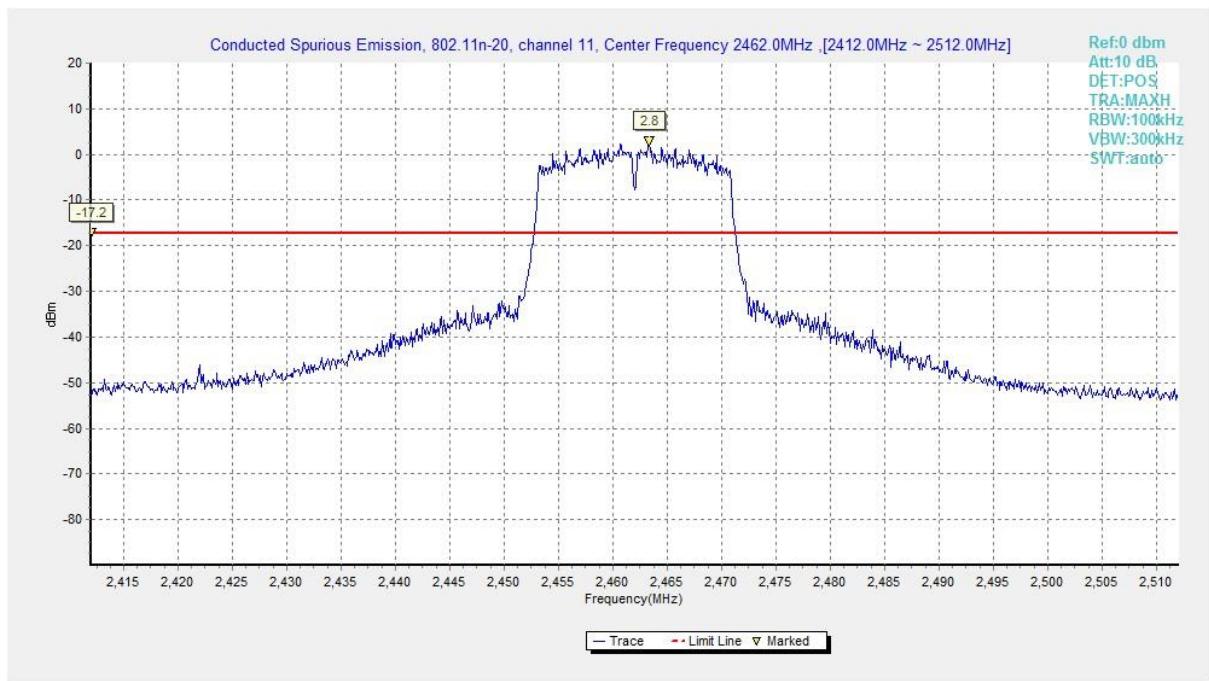


Fig.A.6.1.65 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

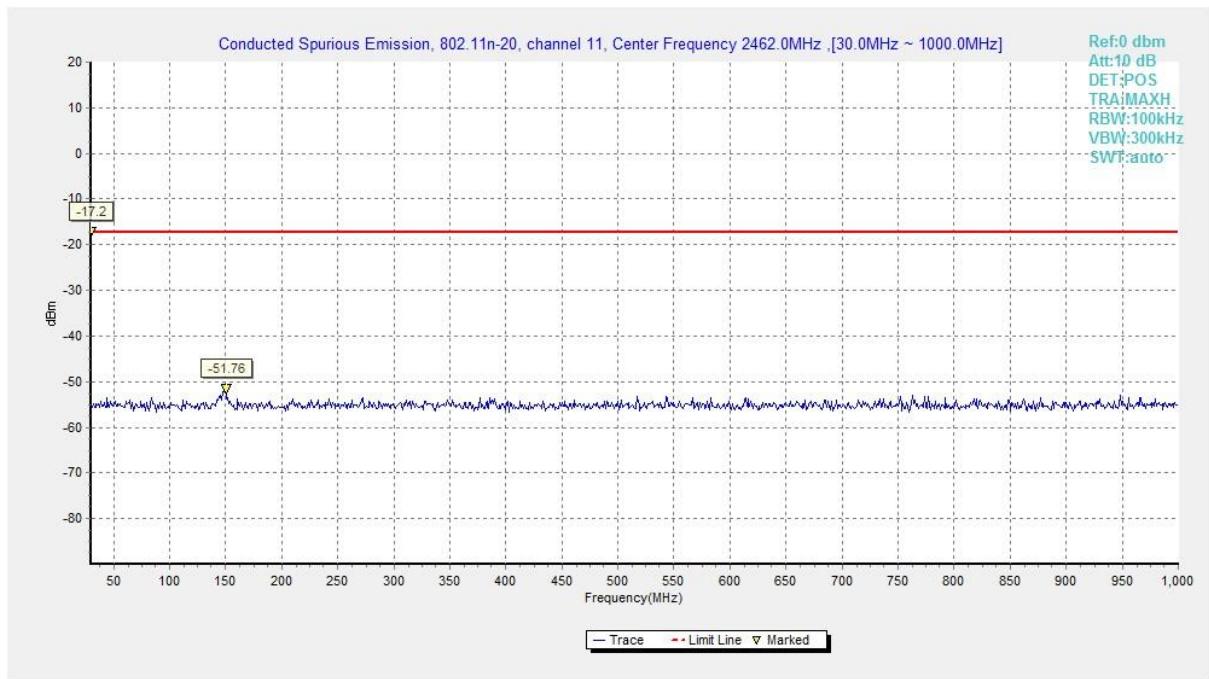


Fig.A.6.1.66 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

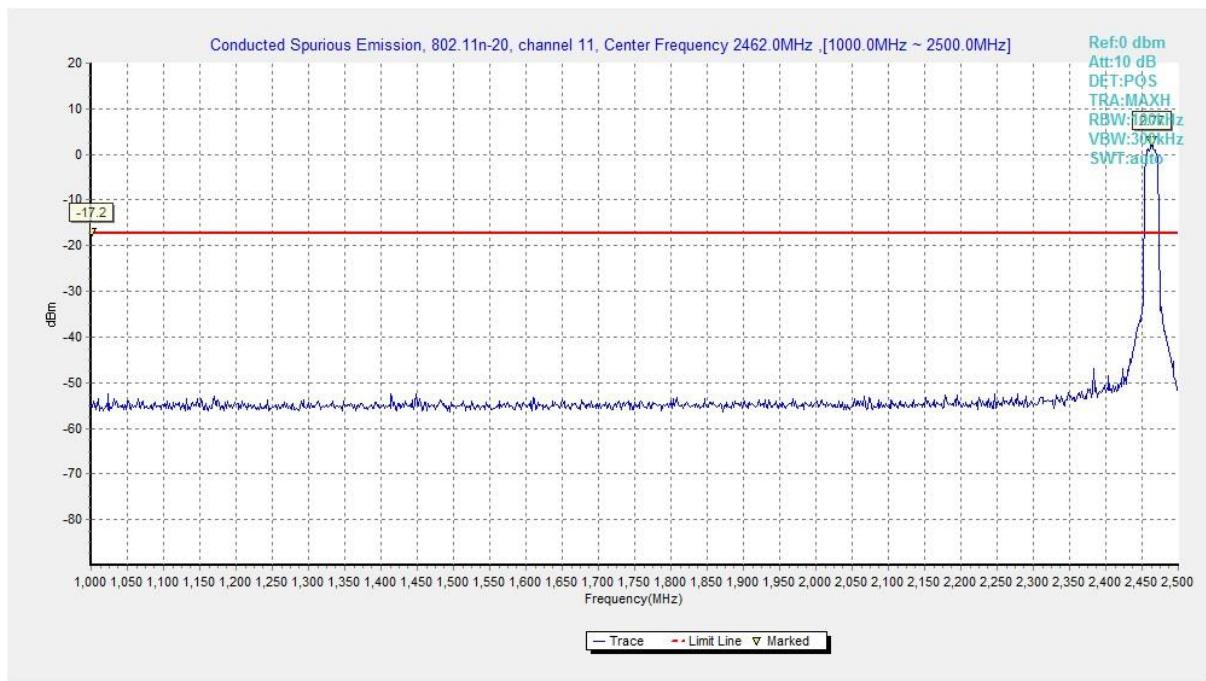


Fig.A.6.1.67 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)

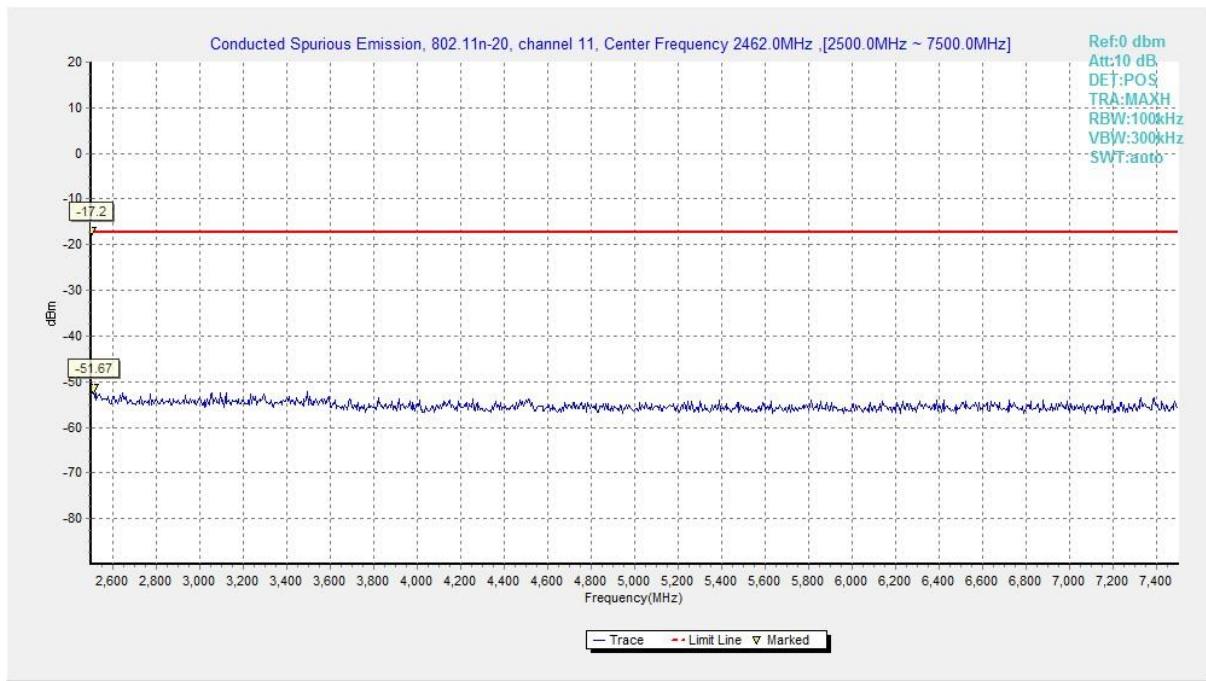


Fig.A.6.1.68 Conducted Spurious Emission (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)

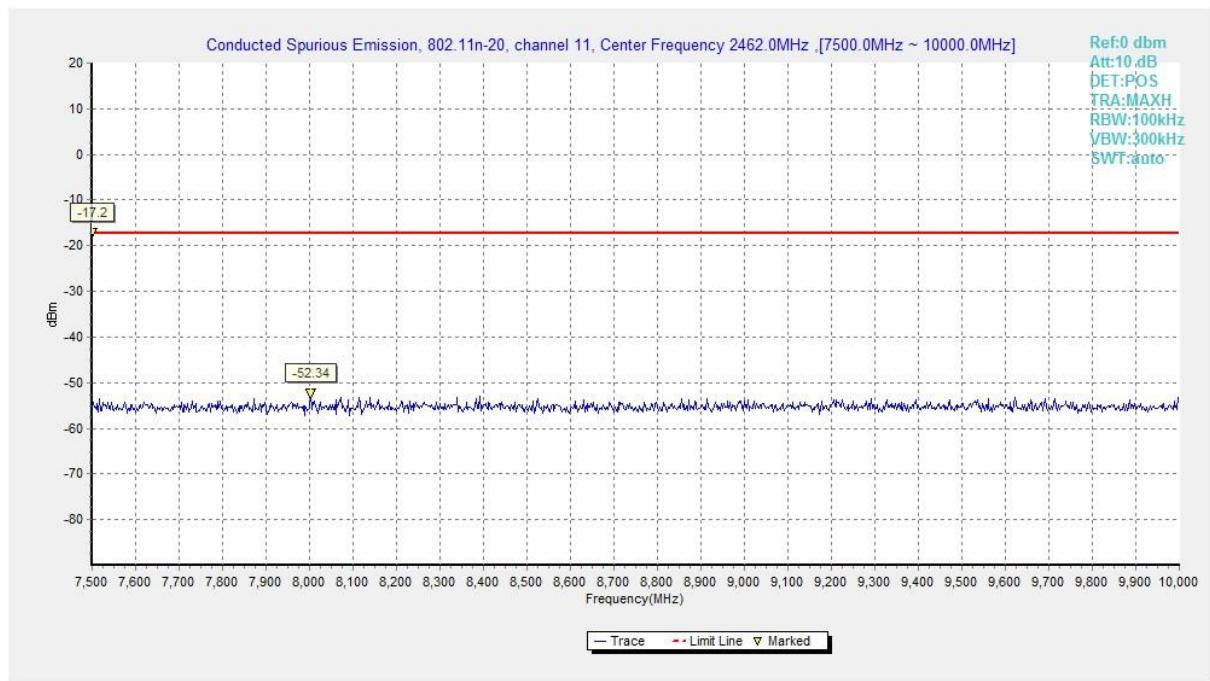


Fig.A.6.1.69 Conducted Spurious Emission (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

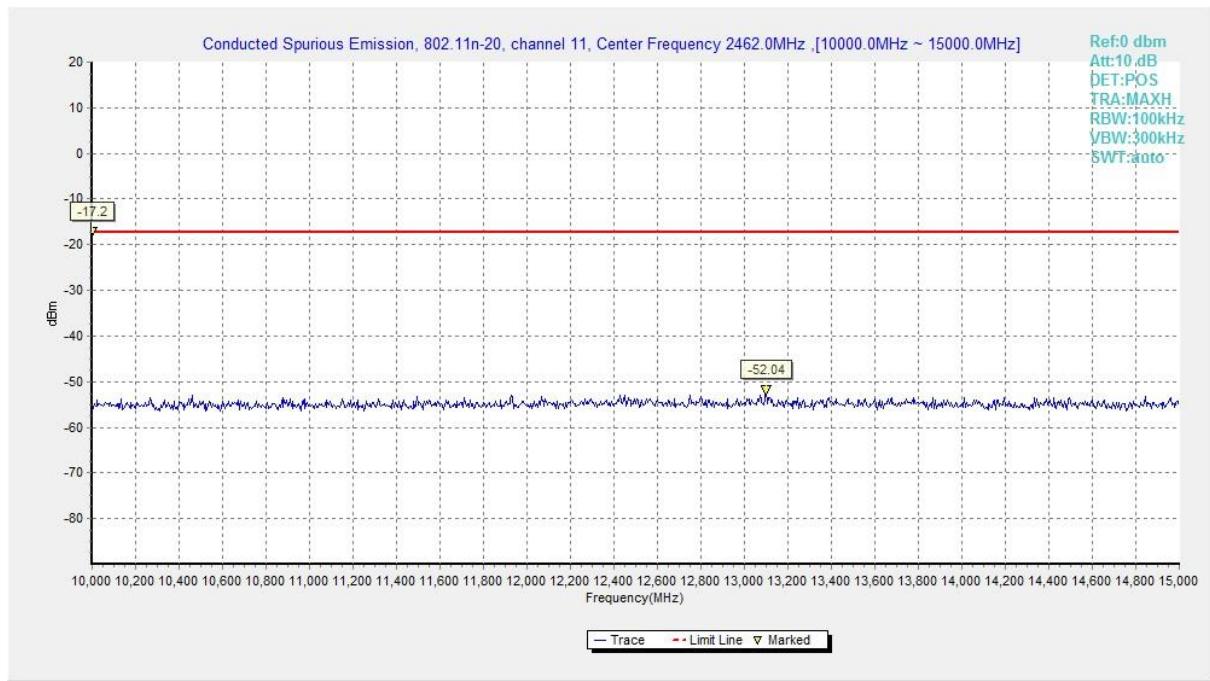


Fig.A.6.1.70 Conducted Spurious Emission (802.11n-HT20, Ch11, 10 GHz-15 GHz)

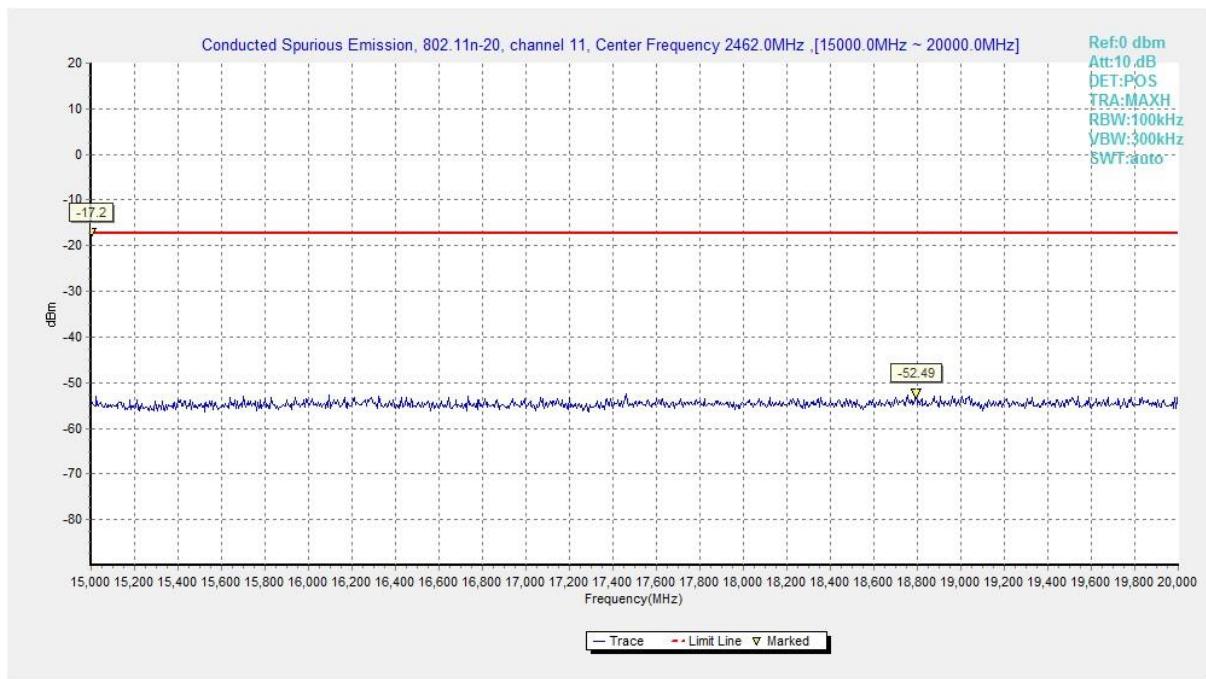


Fig.A.6.1.71 Conducted Spurious Emission (802.11n-HT20, Ch11, 15 GHz-20 GHz)

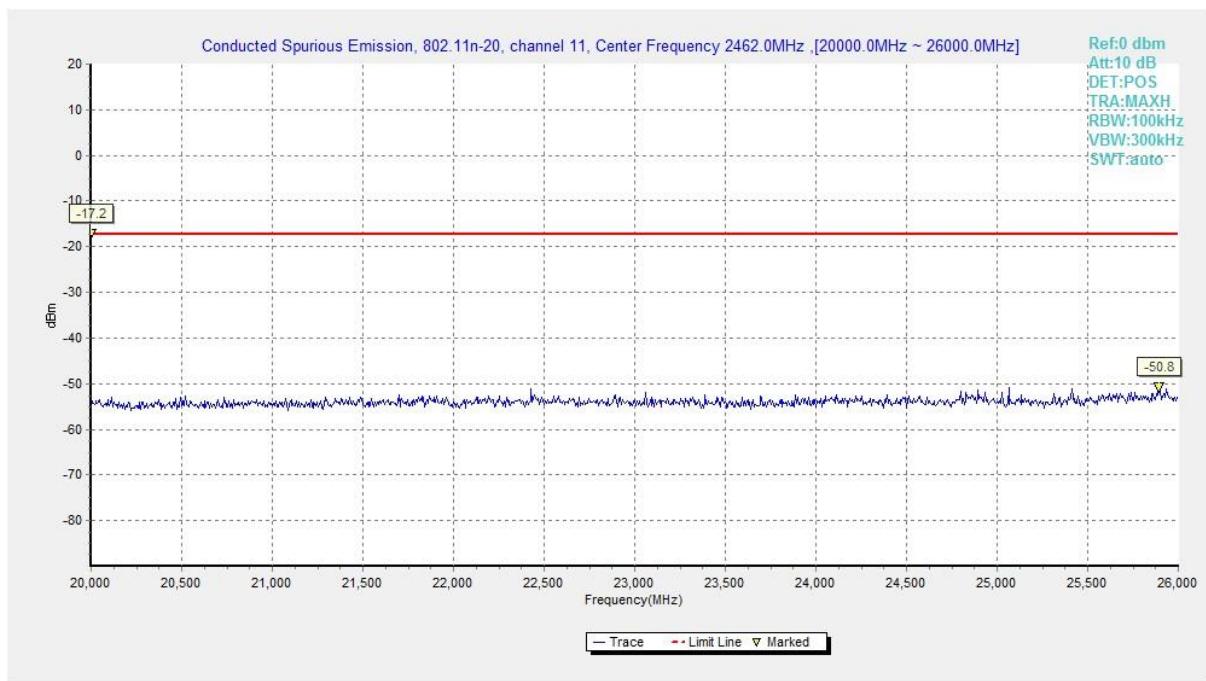


Fig.A.6.1.72 Conducted Spurious Emission (802.11n-HT20, Ch11, 20 GHz-26 GHz)

A.6.2 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)	54Mbps(OFDM)	MCS5(OFDM)

Measurement Results:
802.11b/g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	Power	Fig.A.6.2.1	P
		1 GHz ~ 3 GHz	Fig.A.6.2.2	P
		3 GHz ~ 18 GHz	Fig.A.6.2.3	P
	6	30 MHz ~1 GHz	Fig.A.6.2.4	P
		1 GHz ~ 3 GHz	Fig.A.6.2.5	P
		3 GHz ~ 18 GHz	Fig.A.6.2.6	P
	11	Power	Fig.A.6.2.7	P
		1 GHz ~ 3 GHz	Fig.A.6.2.8	P
		3 GHz ~ 18 GHz	Fig.A.6.2.9	P
802.11g	1	Power	Fig.A.6.2.10	P
		1 GHz ~ 3 GHz	Fig.A.6.2.11	P
		3 GHz ~ 18 GHz	Fig.A.6.2.12	P
	6	30 MHz ~1 GHz	Fig.A.6.2.13	P
		1 GHz ~ 3 GHz	Fig.A.6.2.14	P
		3 GHz ~ 18 GHz	Fig.A.6.2.15	P
	11	Power	Fig.A.6.2.16	P
		1 GHz ~ 3 GHz	Fig.A.6.2.17	P
		3 GHz ~ 18 GHz	Fig.A.6.2.18	P

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	Power	Fig.A.6.2.19	P
		1 GHz ~ 3 GHz	Fig.A.6.2.20	P
		3 GHz ~ 18 GHz	Fig.A.6.2.21	P
	6	30 MHz ~1 GHz	Fig.A.6.2.22	P
		1 GHz ~ 3 GHz	Fig.A.6.2.23	P
		3 GHz ~ 18 GHz	Fig.A.6.2.24	P
	11	Power	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
/	All channels	18 GHz~ 26.5 GHz	Fig.A.6.2.28	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:

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

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2389.900	47.4	-38.8	27.7	58.500	H
17968.500	53.3	-17.7	45.6	25.400	V
17932.500	52.9	-17.7	45.6	25.000	H
17619.000	52.9	-18.9	45.6	26.200	V
17955.000	52.8	-17.7	45.6	24.900	H
17959.500	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
17944.500	54.2	-17.7	45.6	26.300	H
17814.000	53.6	-18.5	45.6	26.500	H
17947.500	53.4	-17.7	45.6	25.500	V
17745.000	53.1	-18.5	45.6	26.000	H
17989.500	53.0	-17.7	45.6	25.100	V
17961.000	53.0	-17.7	45.6	25.100	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2485.000	48.2	-38.9	27.7	59.400	V
17970.000	53.6	-17.7	45.6	25.700	H
17949.000	53.5	-17.7	45.6	25.600	H
17961.000	53.4	-17.7	45.6	25.500	V
17998.500	53.1	-17.7	45.6	25.200	H
17971.500	53.1	-17.7	45.6	25.200	H

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2389.037	57.7	-38.8	27.7	68.800	H
17970.000	53.8	-17.7	45.6	25.900	V
17935.500	52.9	-17.7	45.6	25.000	V
17971.500	52.9	-17.7	45.6	25.000	V
17994.000	52.9	-17.7	45.6	25.000	H
17989.500	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
17955.000	53.6	-17.7	45.6	25.700	V
17959.500	53.1	-17.7	45.6	25.200	V
17653.500	52.6	-18.9	45.6	25.900	H
17962.500	52.6	-17.7	45.6	24.700	H
17931.000	52.5	-17.7	45.6	24.600	V
17965.500	52.5	-17.7	45.6	24.600	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.600	60.5	-38.9	27.7	71.700	H
17968.500	53.4	-17.7	45.6	25.500	V
17989.500	53.2	-17.7	45.6	25.300	H
17946.000	53.2	-17.7	45.6	25.300	H
17943.000	53.1	-17.7	45.6	25.200	V
17887.500	53.0	-18.5	45.6	25.900	H

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2387.700	57.7	-38.8	27.7	68.800	H
17925.000	53.5	-17.7	45.6	25.600	V
17967.000	52.9	-17.7	45.6	25.000	H
17965.500	52.9	-17.7	45.6	25.000	H
17902.500	52.8	-18.5	45.6	25.700	H
17968.500	52.7	-17.7	45.6	24.800	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17932.500	53.8	-17.7	45.6	25.900	V
17970.000	53.7	-17.7	45.6	25.800	H
17995.500	53.7	-17.7	45.6	25.800	V
17976.000	53.4	-17.7	45.6	25.500	H
17946.000	53.3	-17.7	45.6	25.400	V
17938.500	53.2	-17.7	45.6	25.300	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.800	65.3	-38.9	27.7	76.500	V
17835.000	53.1	-18.5	45.6	26.000	H
17947.500	53.0	-17.7	45.6	25.100	V
17968.500	52.9	-17.7	45.6	25.000	H
17929.500	52.9	-17.7	45.6	25.000	V
17830.500	52.9	-18.5	45.6	25.800	H

Test graphs as below:

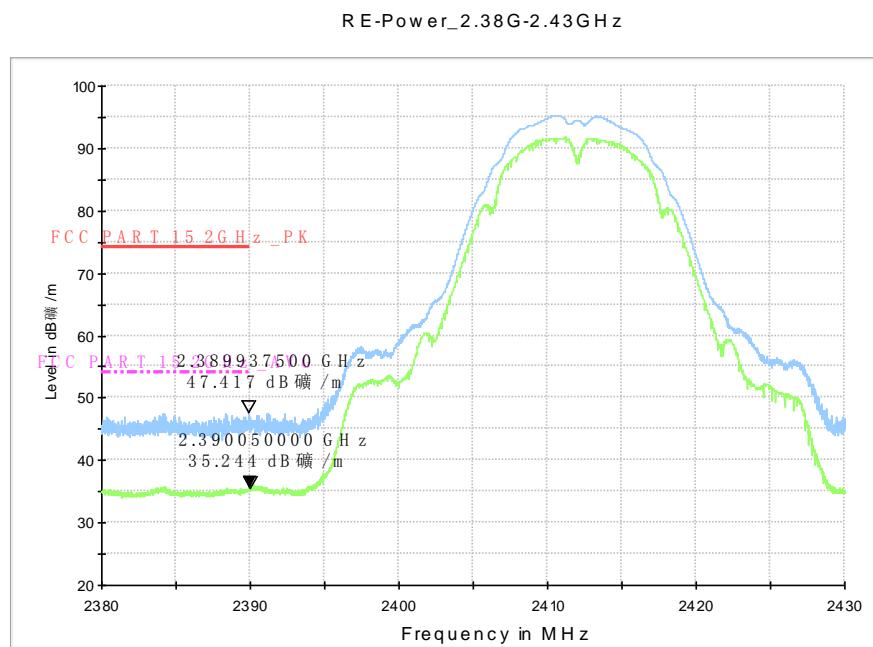


Fig.A.6.2.1 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 2.45GHz

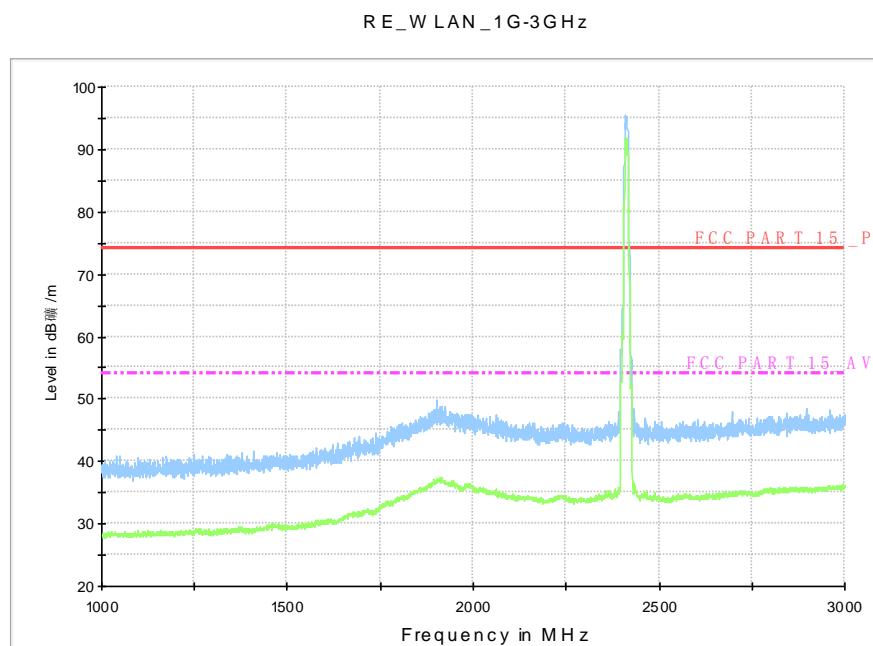


Fig.A.6.2.2 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

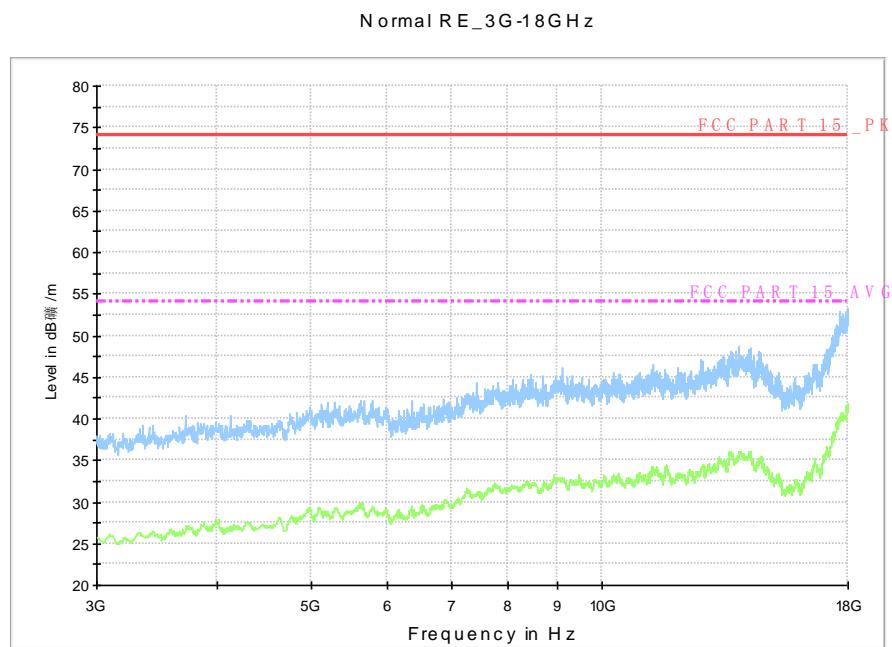


Fig.A.6.2.3 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

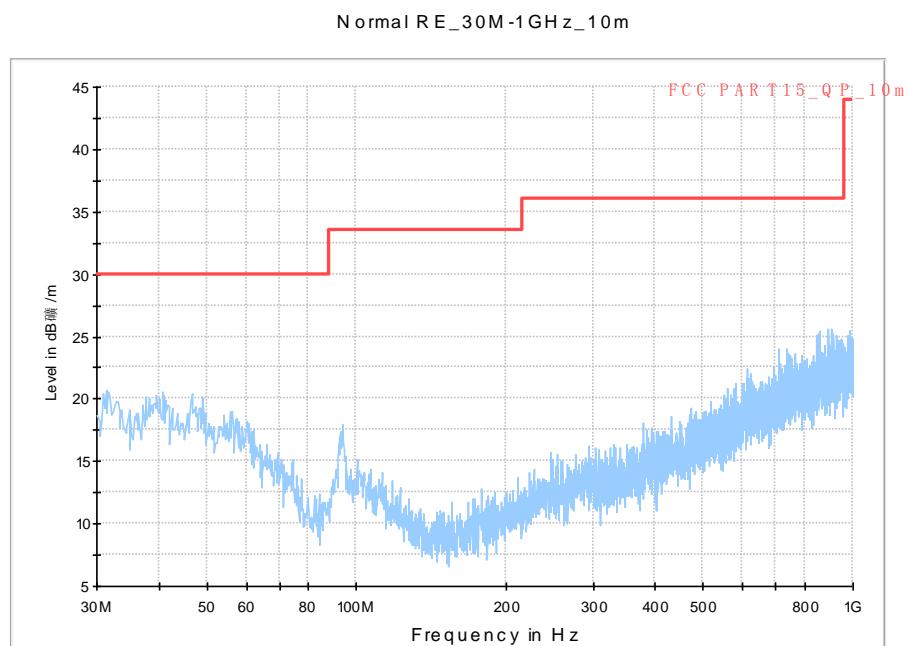


Fig.A.6.2.4 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

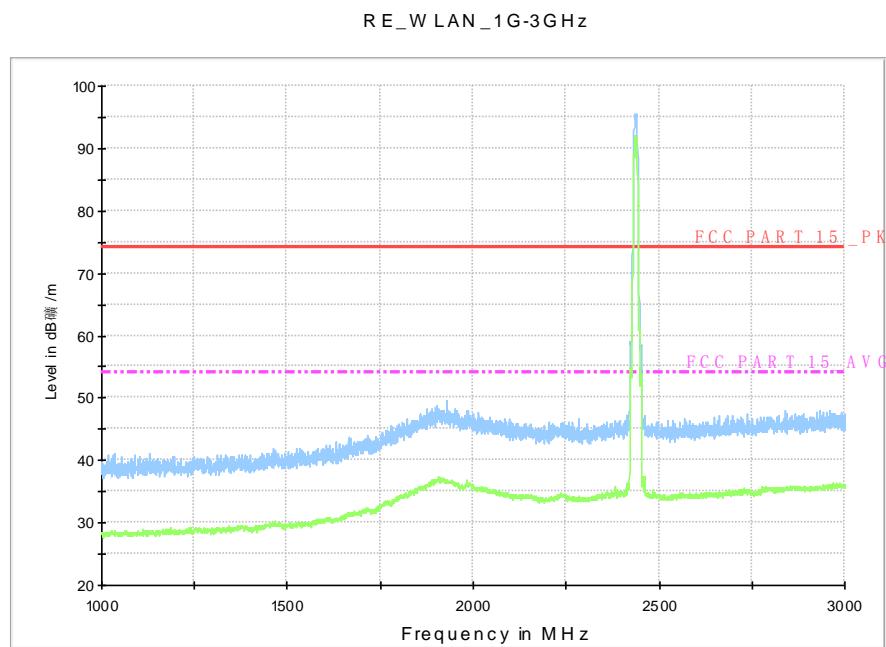


Fig.A.6.2.5 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

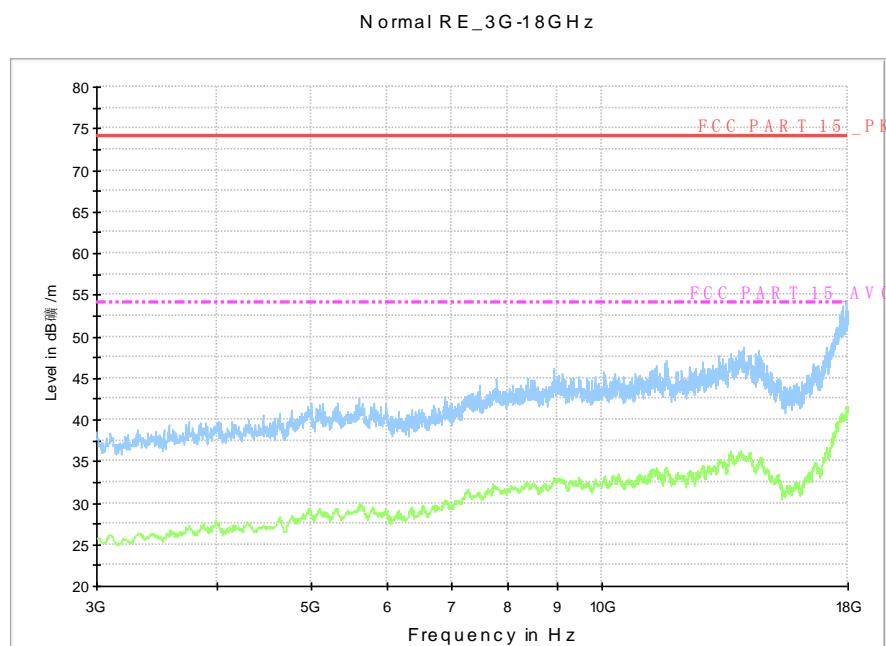


Fig.A.6.2.6 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

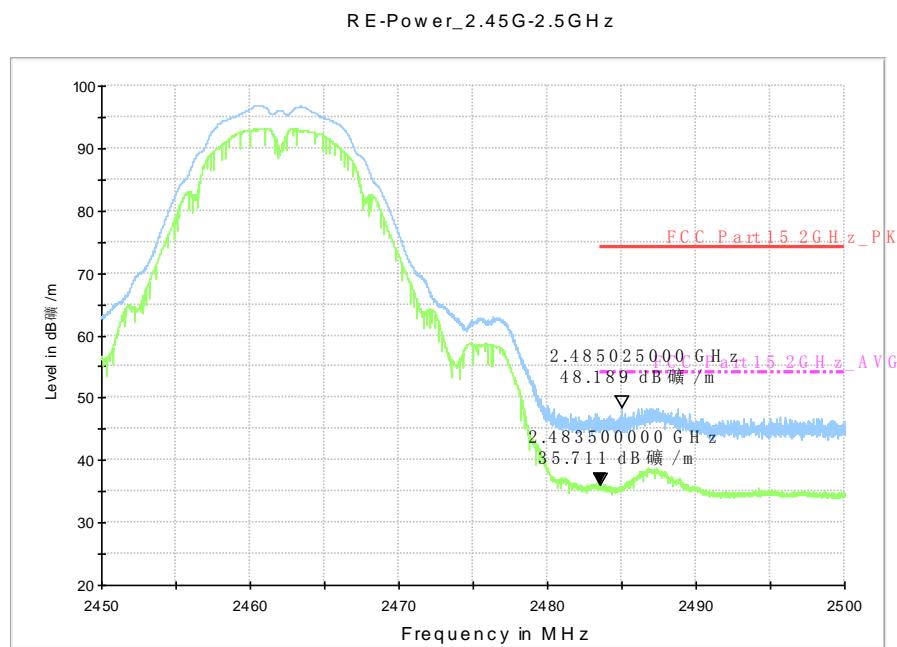


Fig.A.6.2.7 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

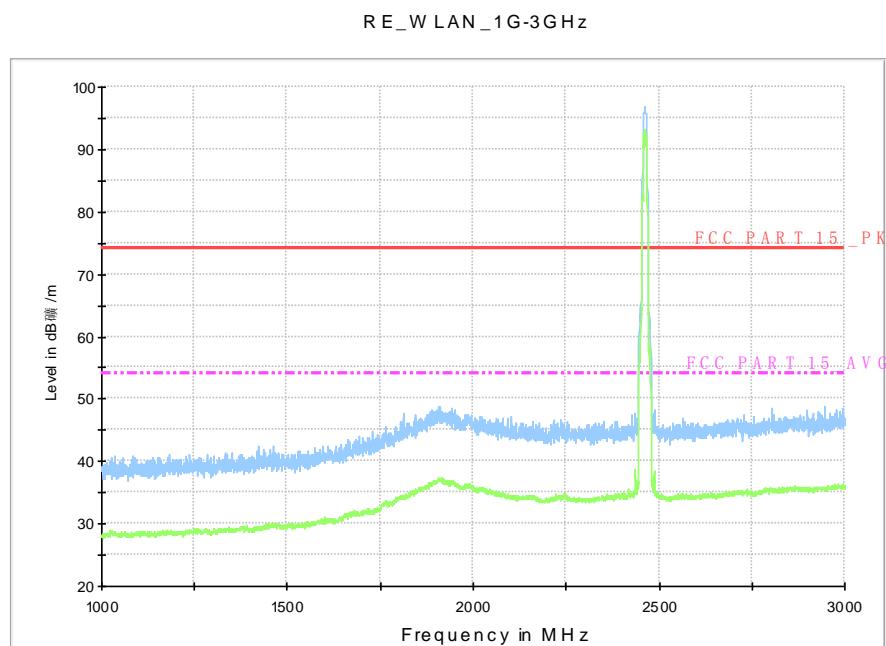


Fig.A.6.2.8 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

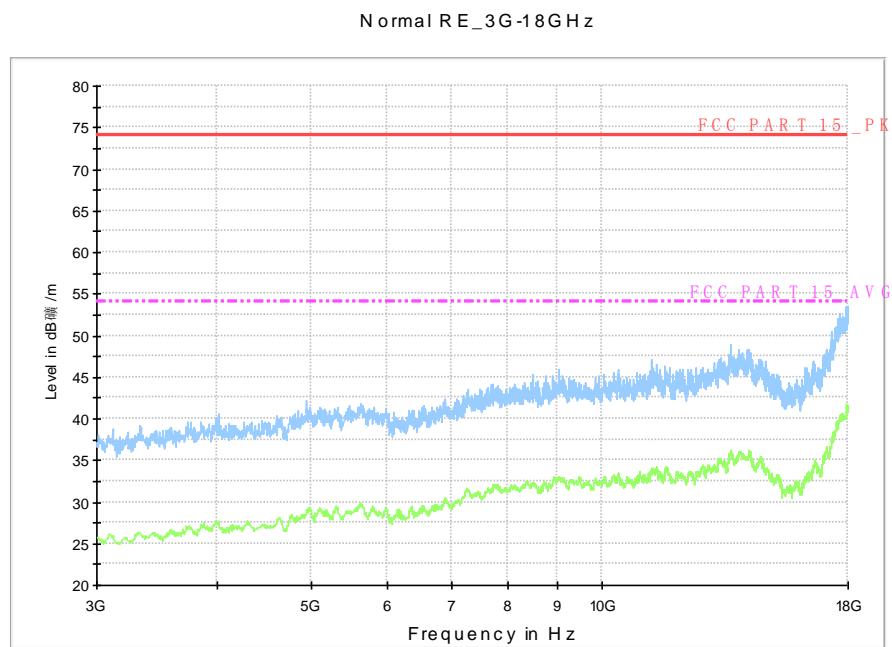


Fig.A.6.2.9 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

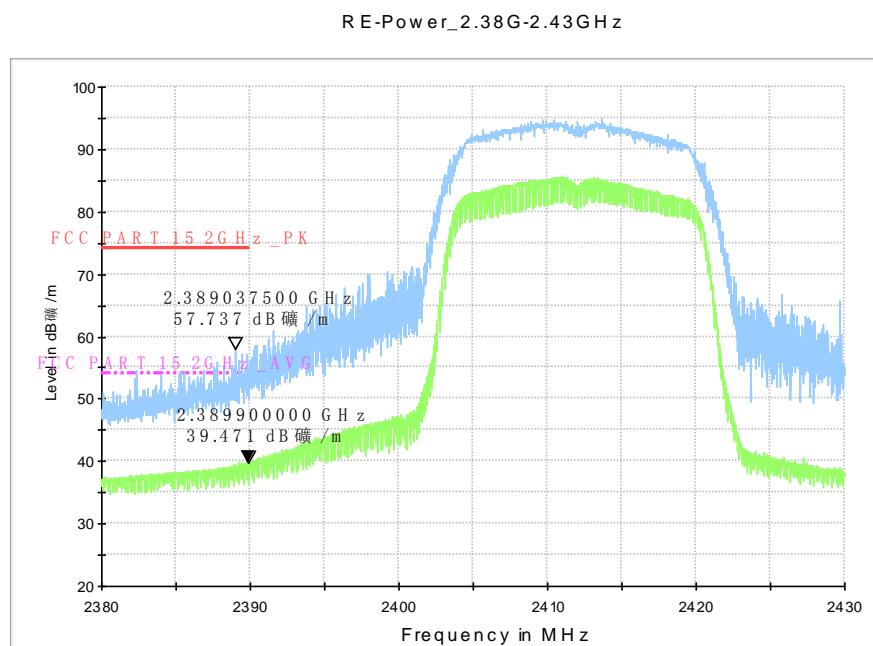


Fig.A.6.2.10 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

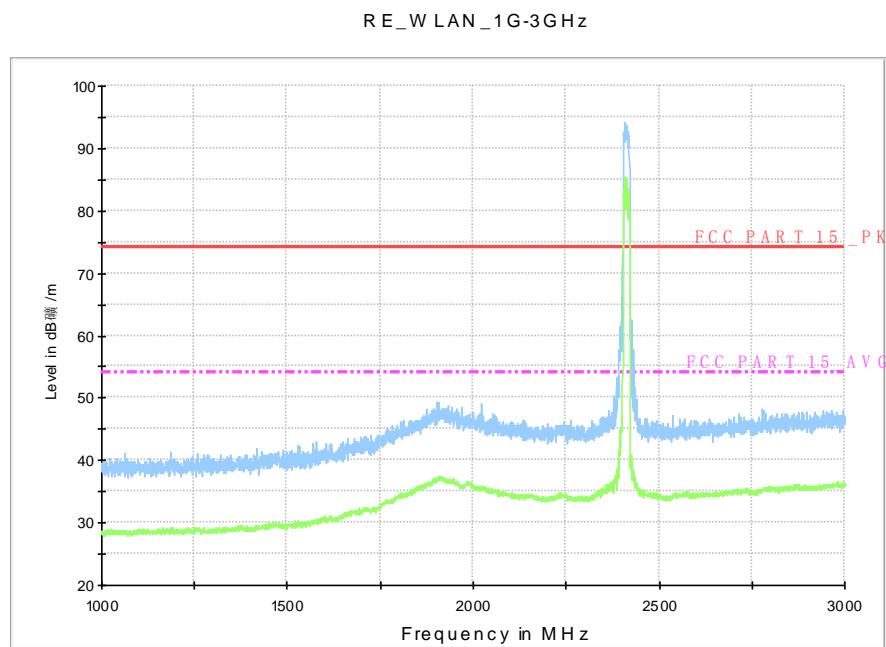


Fig.A.6.2.11 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

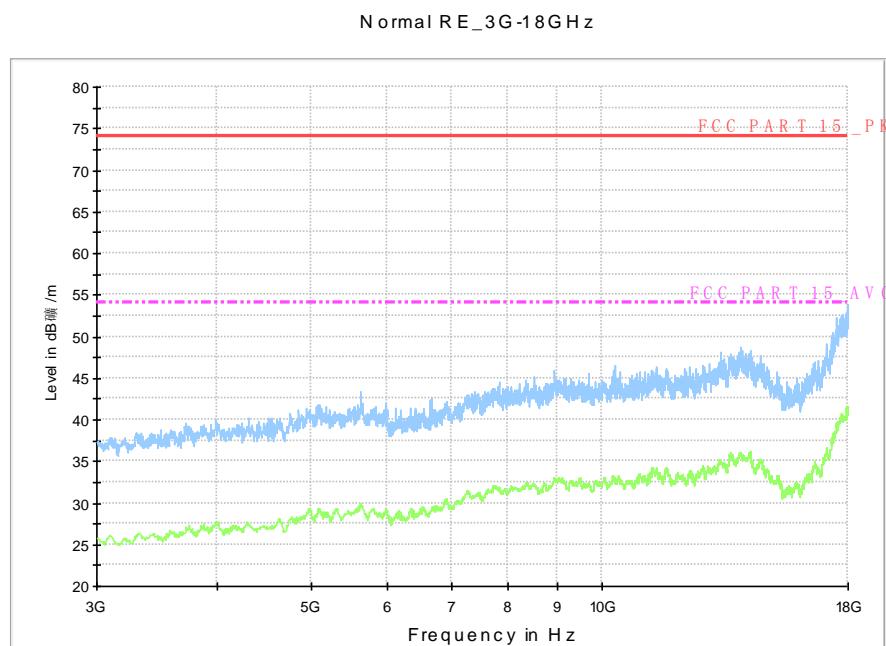


Fig.A.6.2.12 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

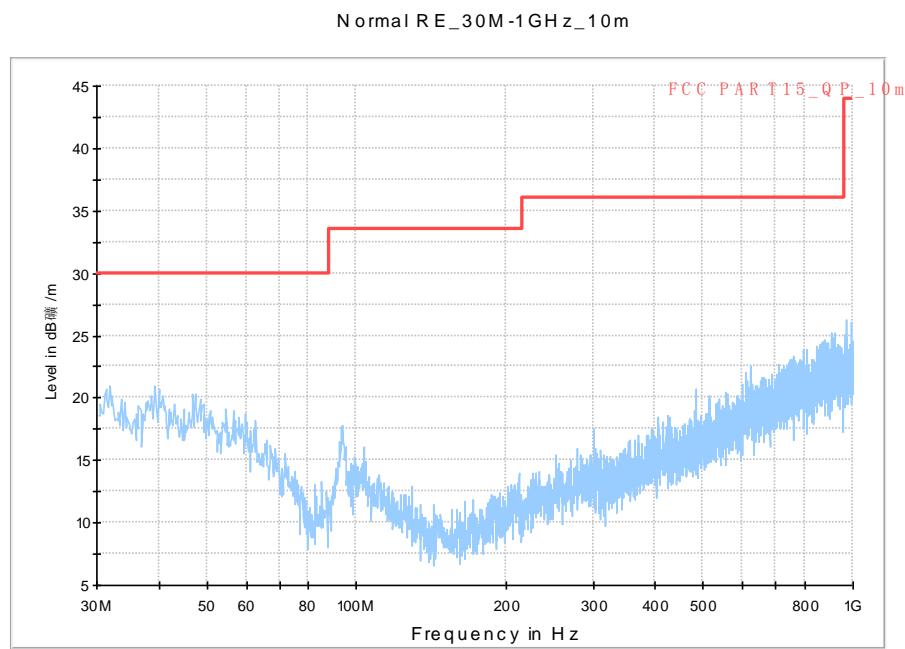


Fig.A.6.2.13 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

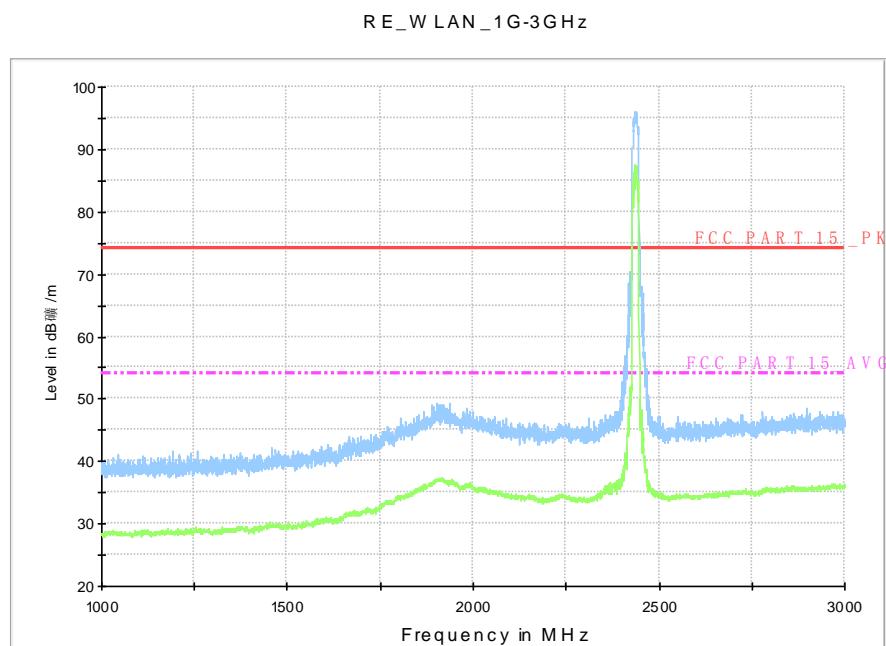


Fig.A.6.2.14 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

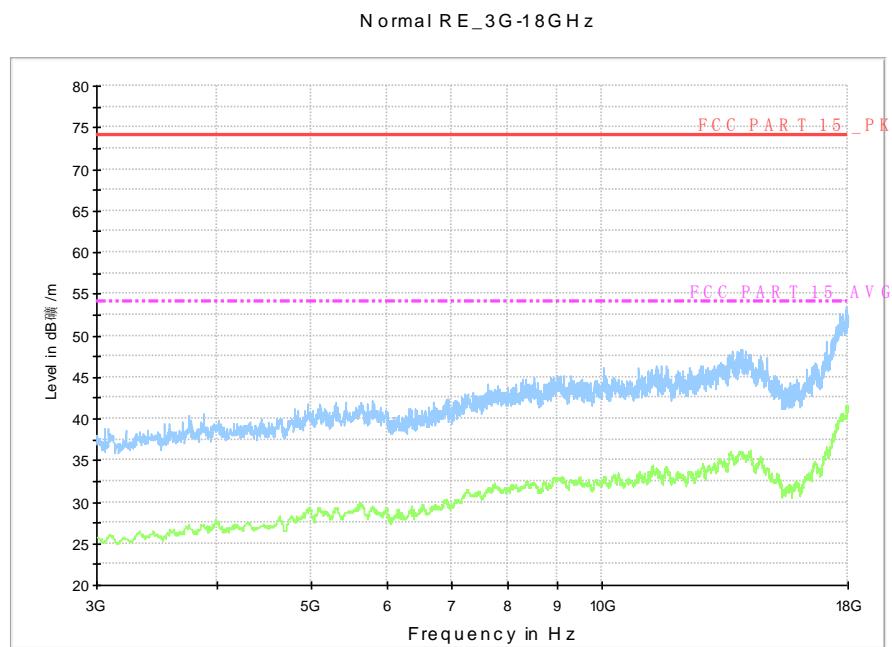


Fig.A.6.2.15 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

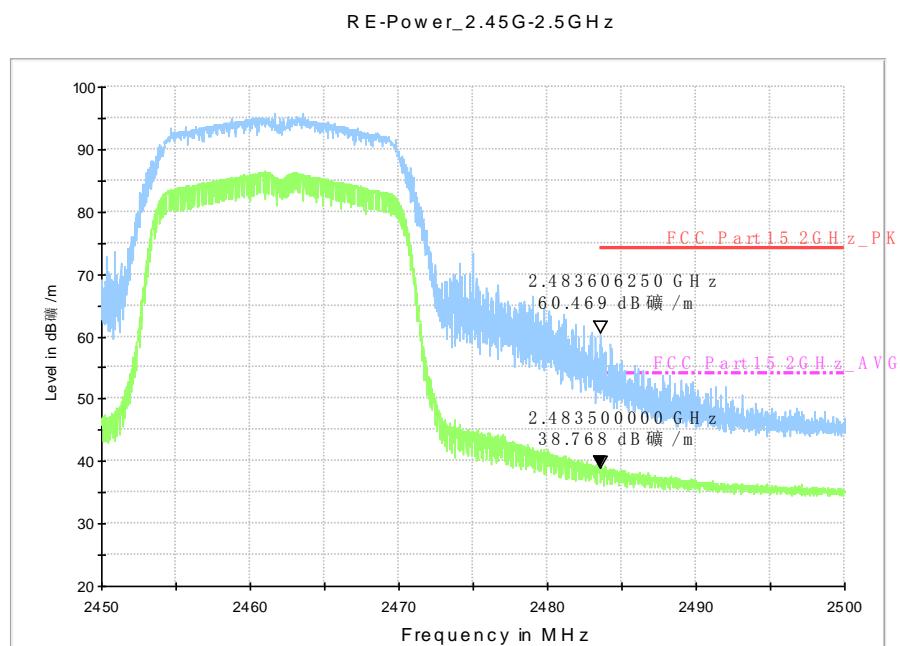


Fig.A.6.2.16 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

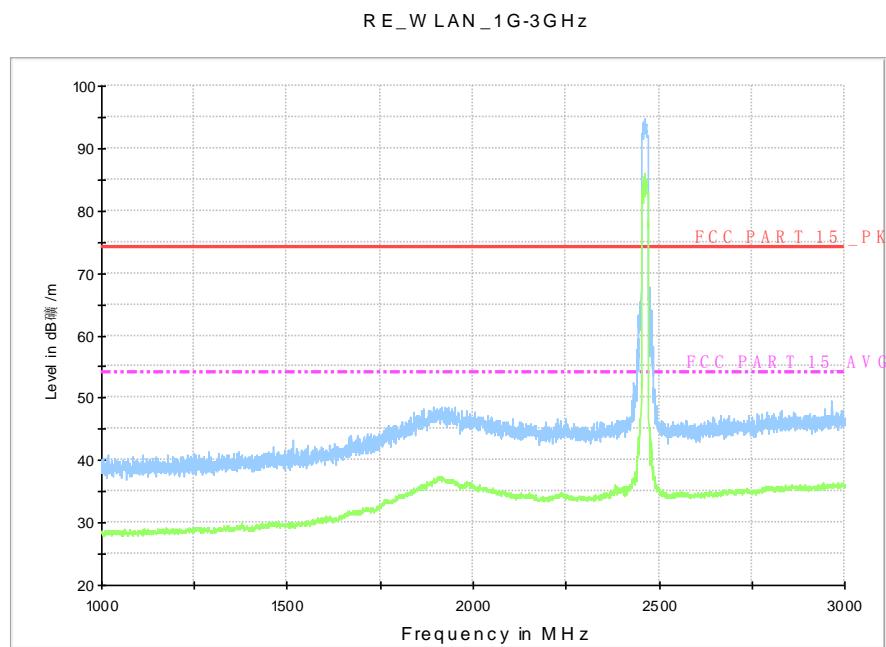


Fig.A.6.2.17 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

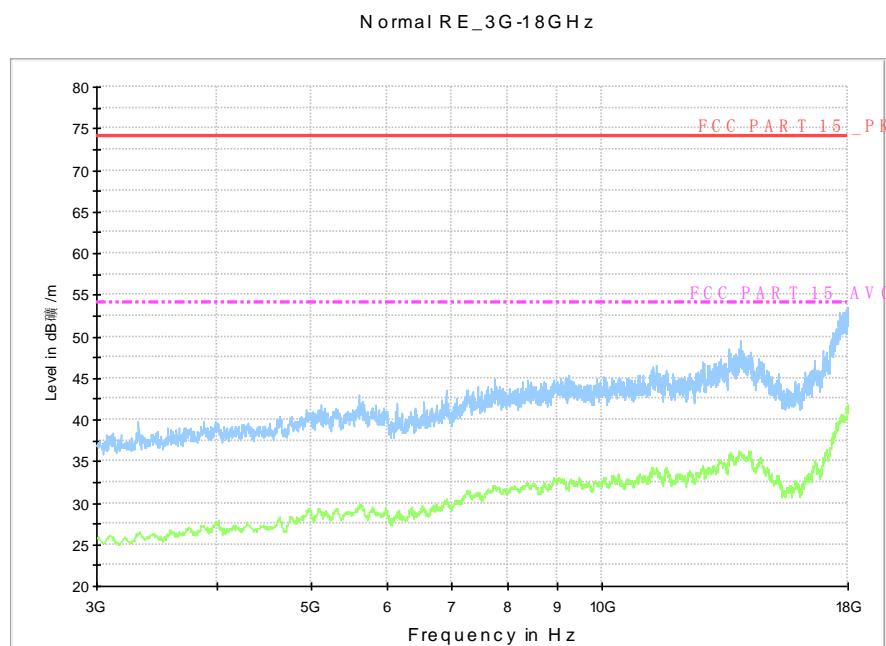


Fig.A.6.2.18 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

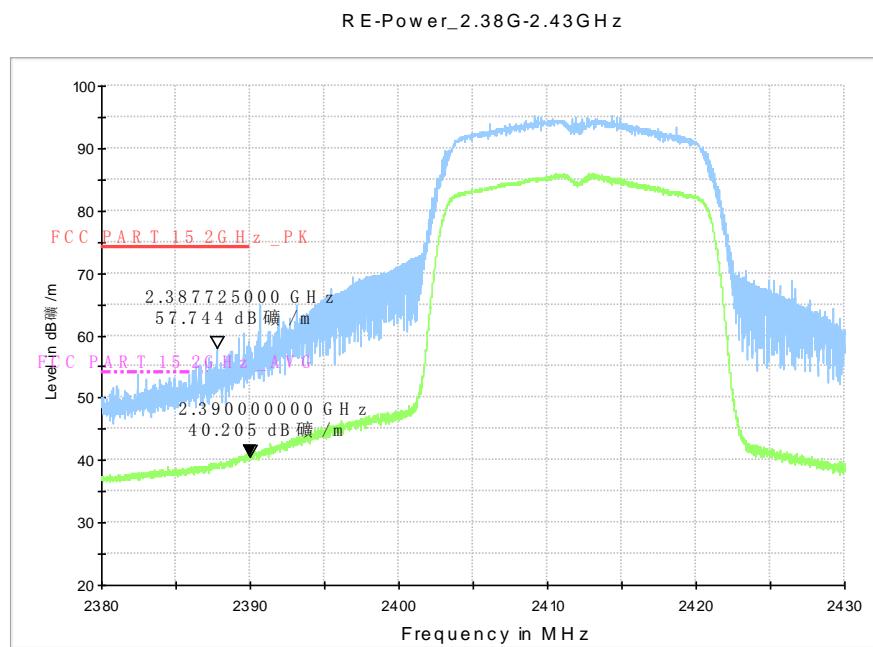


Fig.A.6.2.19 Radiated Spurious Emission (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

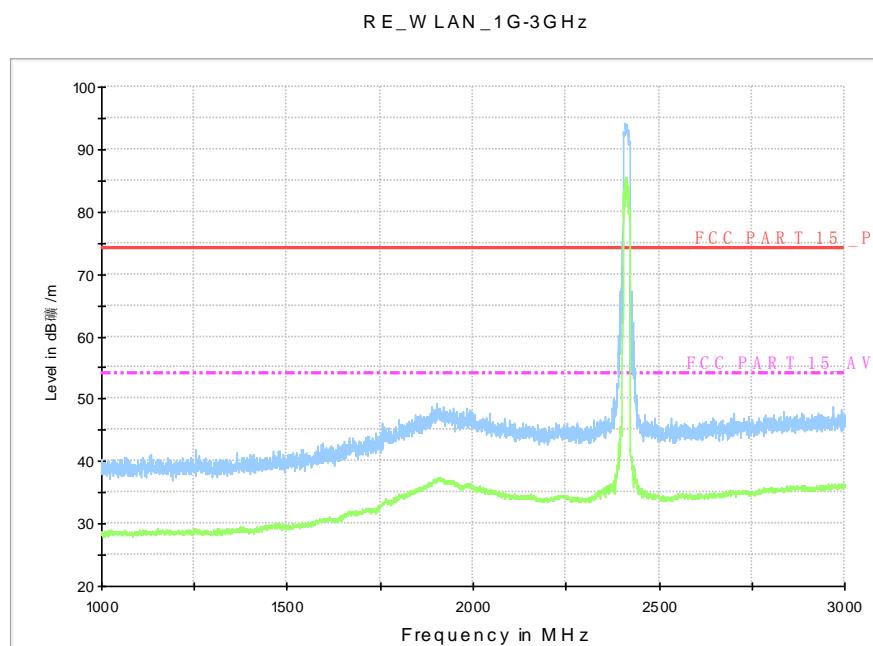


Fig.A.6.2.20 Radiated Spurious Emission (802.11n-HT20, Ch1, 1 GHz-3 GHz)

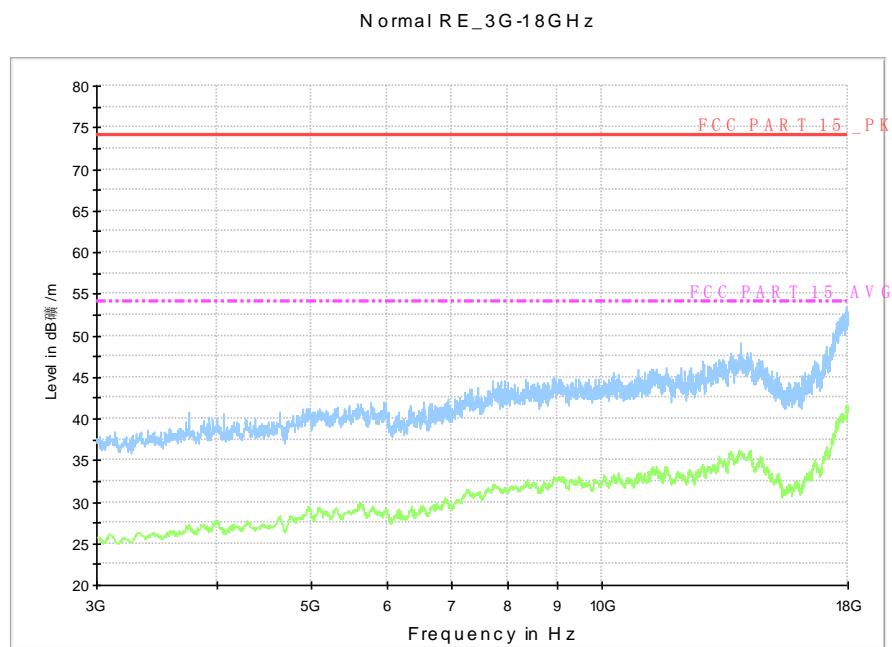


Fig.A.6.2.21 Radiated Spurious Emission (802.11n-HT20, Ch1, 3 GHz-18 GHz)

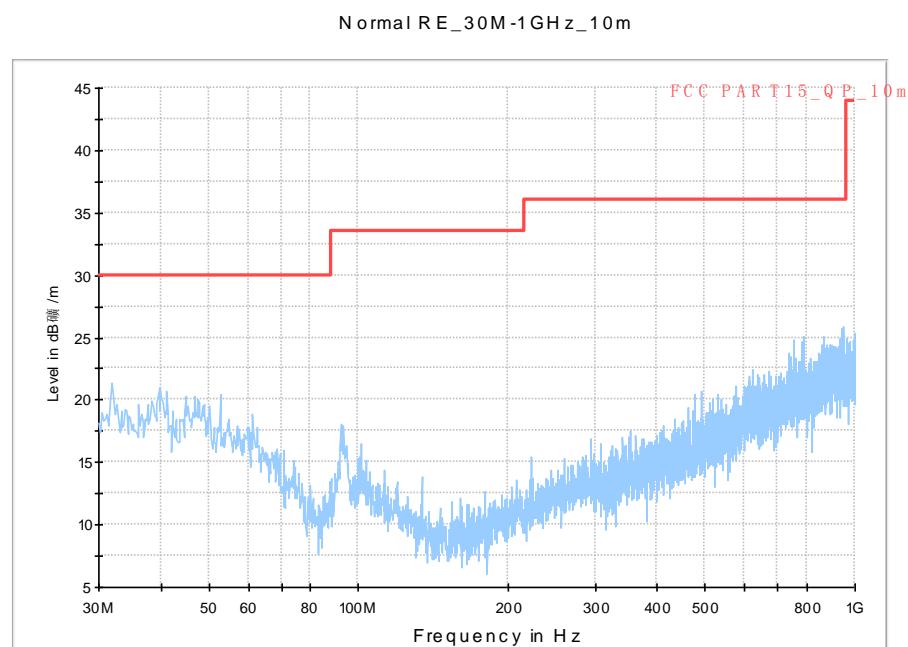


Fig.A.6.2.22 Radiated Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

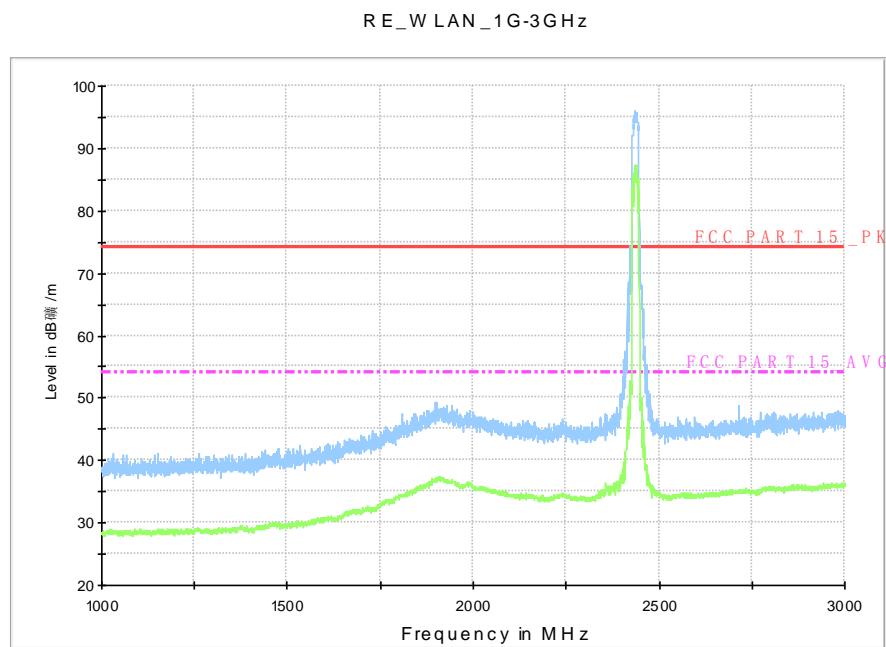


Fig.A.6.2.23 Radiated Spurious Emission (802.11n-HT20, Ch6, 1 GHz-3 GHz)

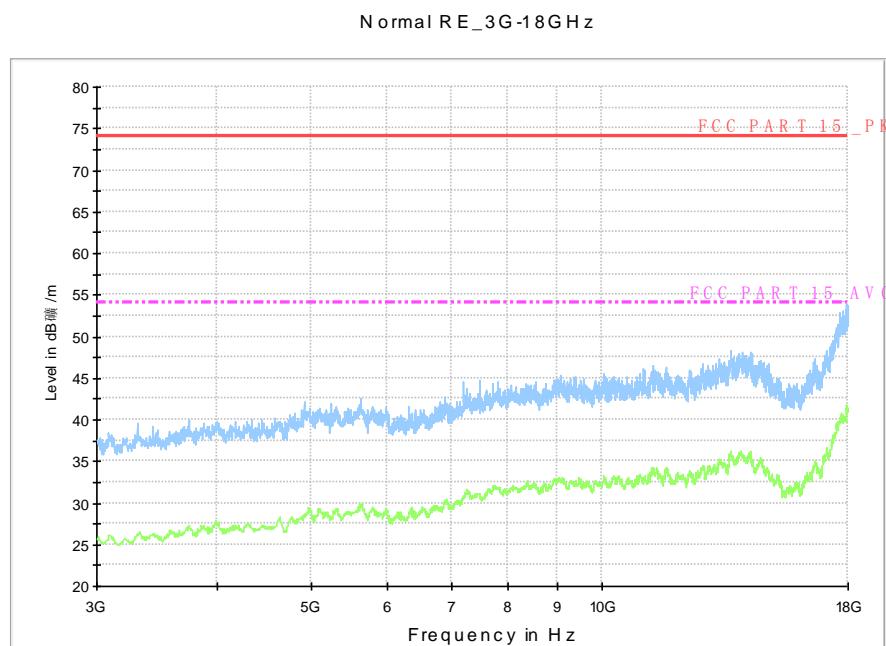


Fig.A.6.2.24 Radiated Spurious Emission (802.11n-HT20, Ch6, 3 GHz-18 GHz)

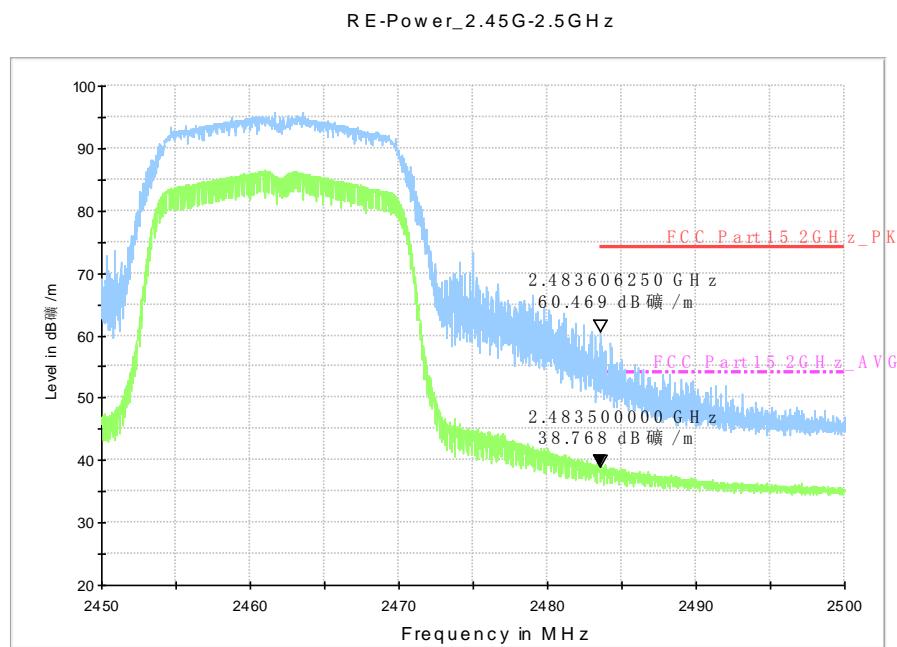


Fig.A.6.2.25 Radiated Spurious Emission (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

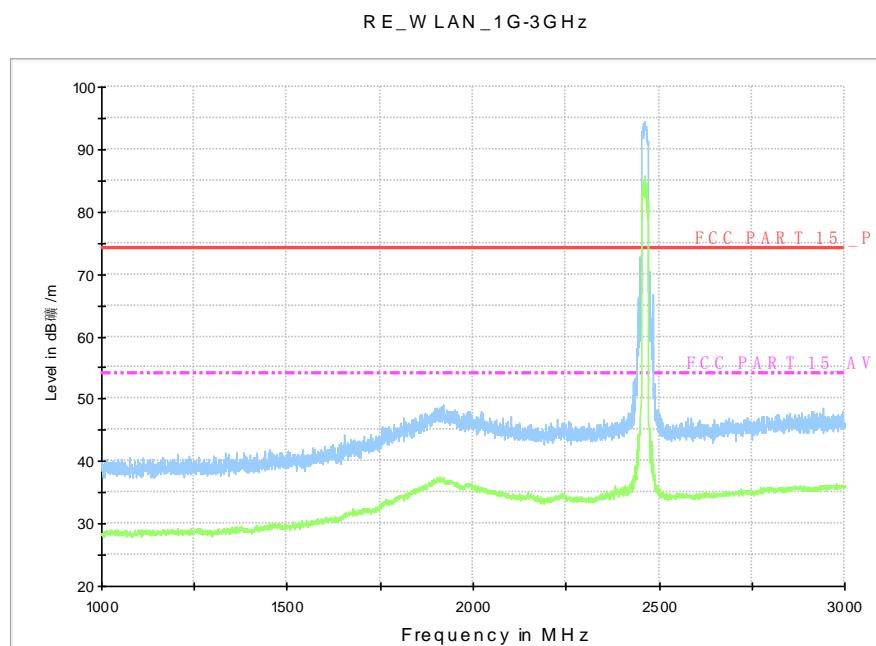


Fig.A.6.2.26 Radiated Spurious Emission (802.11n-HT20, Ch11, 1 GHz-3 GHz)

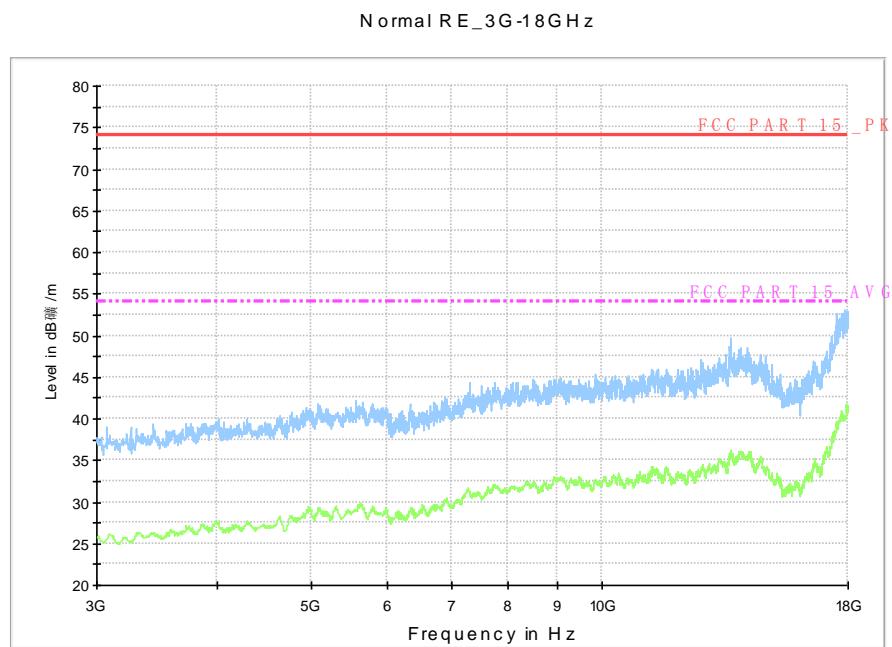


Fig.A.6.2.27 Radiated Spurious Emission (802.11n-HT20, Ch11, 3 GHz-18 GHz)

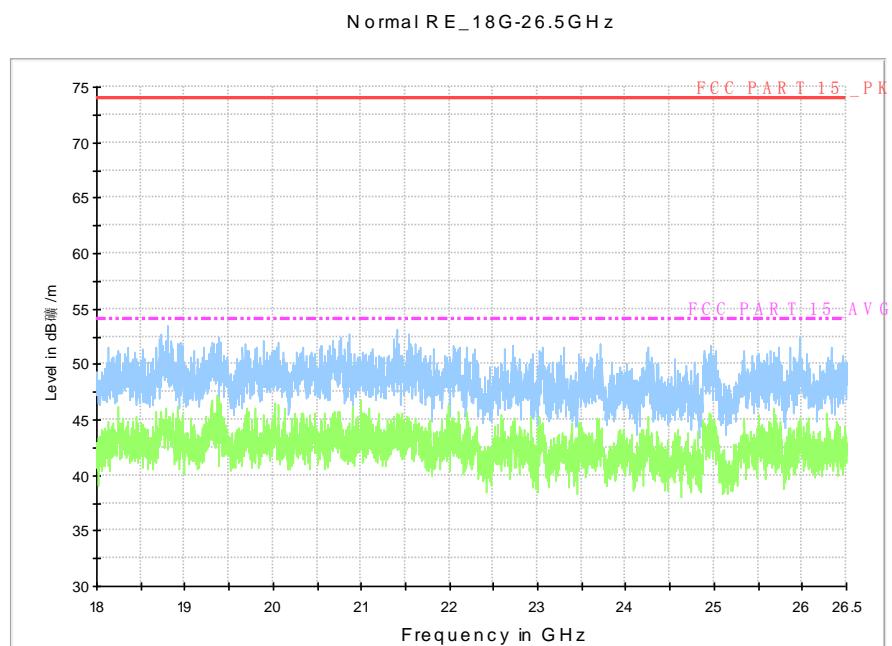


Fig.A.6.2.28 Radiated Spurious Emission (All channels): 18GHz – 26.5GHz

A.7. Spurious Emissions Radiated < 30MHz

Measurement Limit:

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

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.7.1	P
IDLE	9 kHz ~30 MHz	Fig.A.7.2	P

Conclusion: PASS

Test graphs as below:

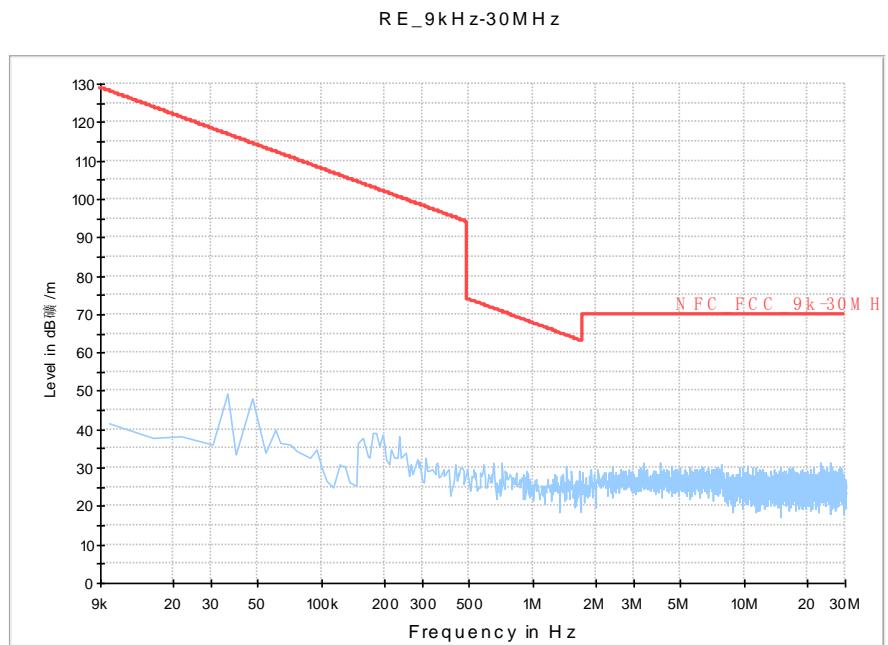


Fig.B.7.1 Radiated Spurious Emission (802.11b, 9 kHz ~30 MHz)

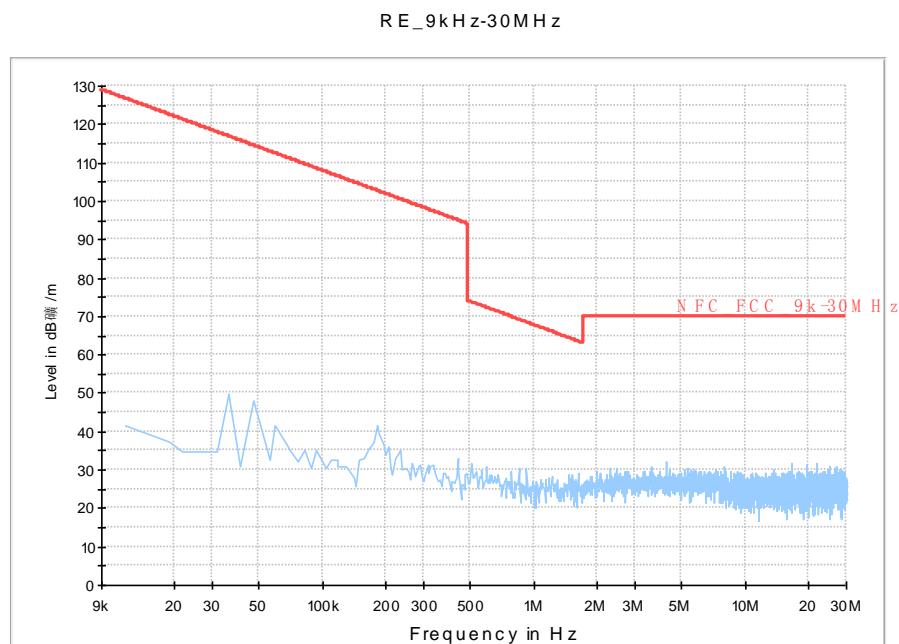


Fig.B.7.2 Radiated Spurious Emission (Idle, 9 kHz ~30 MHz)

A.8. AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	66 to 56				
0.5 to 5	56	Fig.A.8.1	Fig.A.8.2	P	
5 to 30	60				

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	56 to 46				
0.5 to 5	46	Fig.A.8.1	Fig.A.8.2	P	
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.

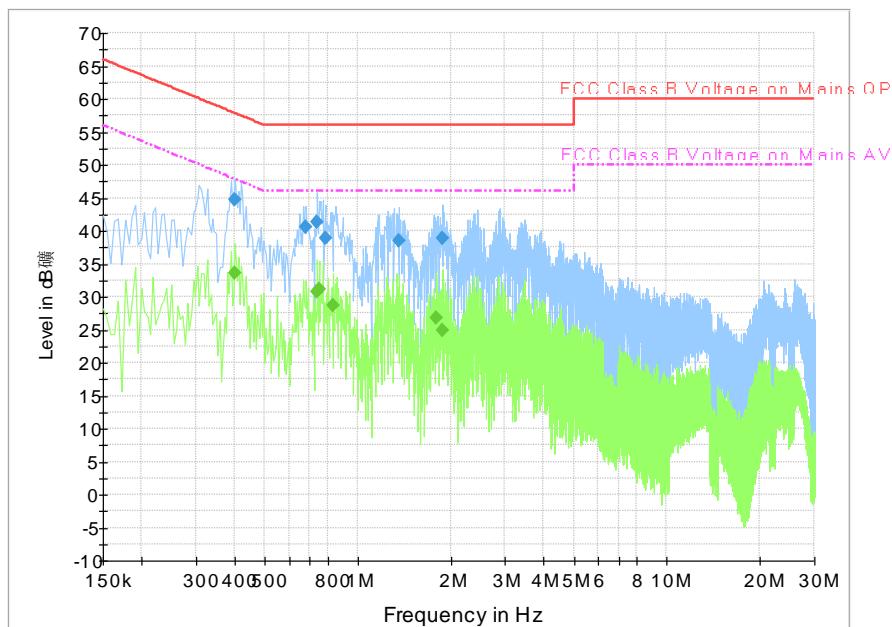
The measurement is made according to KDB558074.

Conclusion: Pass

Measurement uncertainty:

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

Test graphs as below:


Fig.A.8.1 AC Powerline Conducted Emission-802.11b

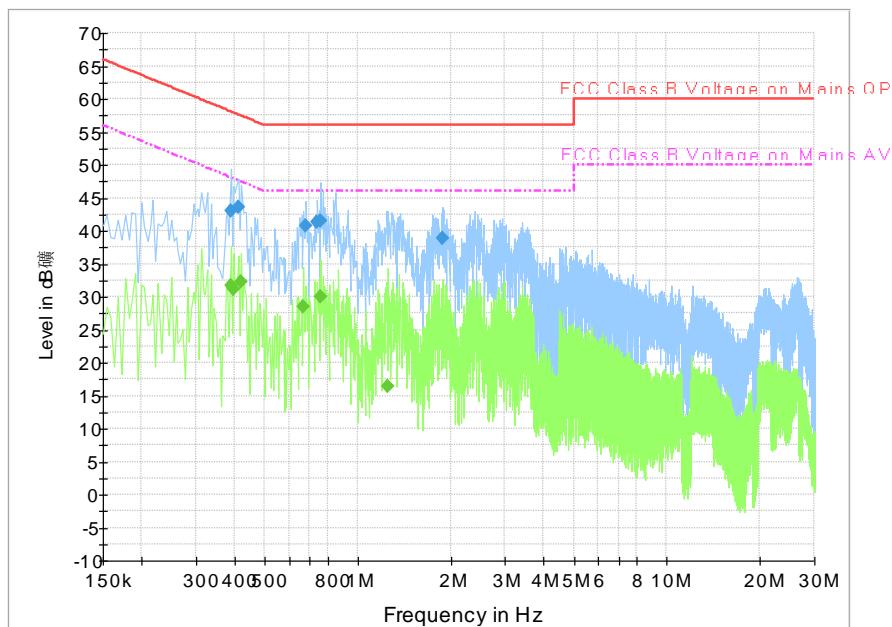
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.402000	44.7	GND	L1	9.8	13.1	57.8
0.681000	40.5	GND	L1	9.8	15.5	56.0
0.739500	41.3	GND	L1	9.8	14.7	56.0
0.784500	38.8	GND	L1	9.8	17.2	56.0
1.360500	38.6	GND	L1	9.7	17.4	56.0
1.878000	38.9	GND	L1	9.7	17.1	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.402000	33.6	GND	L1	9.8	14.2	47.8
0.739500	30.8	GND	L1	9.8	15.2	46.0
0.748500	31.1	GND	L1	9.8	14.9	46.0
0.834000	28.6	GND	L1	9.8	17.4	46.0
1.801500	26.8	GND	L1	9.7	19.2	46.0
1.878000	25.0	GND	L1	9.7	21.0	46.0


Fig.A.8.2 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 (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.388500	43.0	GND	L1	9.8	15.1	58.1
0.411000	43.6	GND	L1	9.8	14.0	57.6
0.681000	40.7	GND	L1	9.8	15.3	56.0
0.739500	41.3	GND	L1	9.8	14.8	56.0
0.757500	41.6	GND	L1	9.8	14.4	56.0
1.878000	38.9	GND	L1	9.7	17.1	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.388500	31.7	GND	L1	9.8	16.4	48.1
0.397500	31.1	GND	L1	9.8	16.8	47.9
0.420000	32.3	GND	L1	9.8	15.2	47.4
0.667500	28.6	GND	L1	9.8	17.4	46.0
0.757500	30.0	GND	L1	9.8	16.0	46.0
1.252500	16.4	GND	L1	9.7	29.6	46.0