

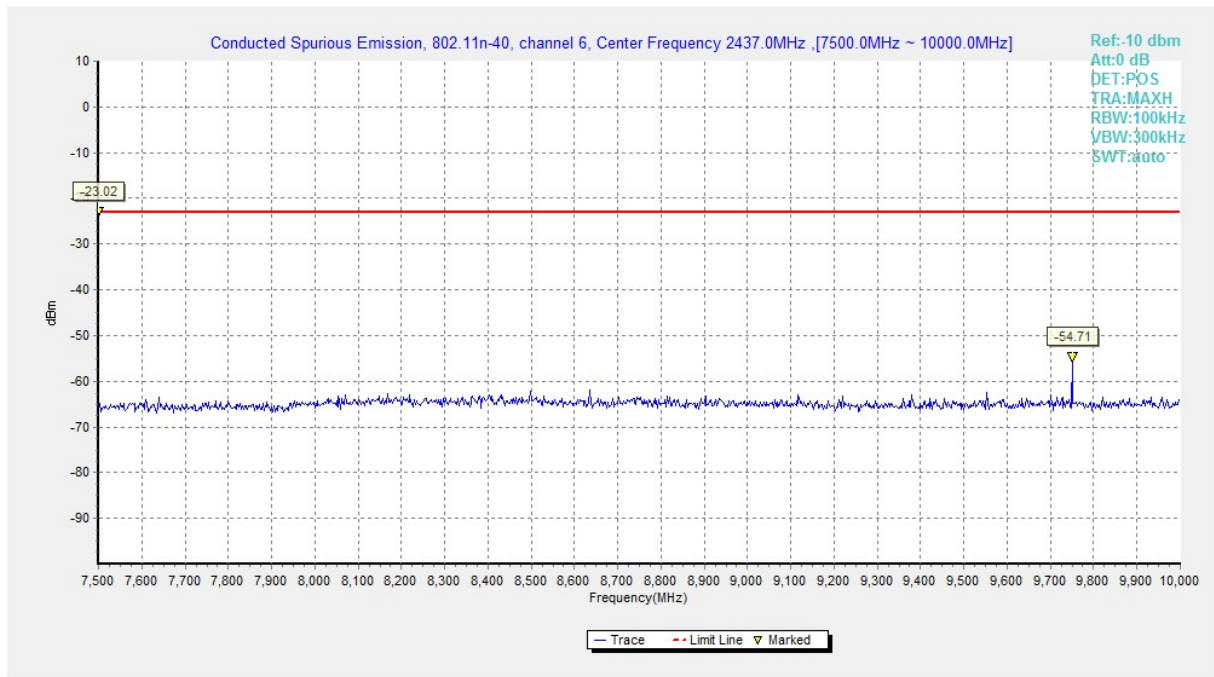


Fig.A.6.1.85 Conducted Spurious Emission (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)

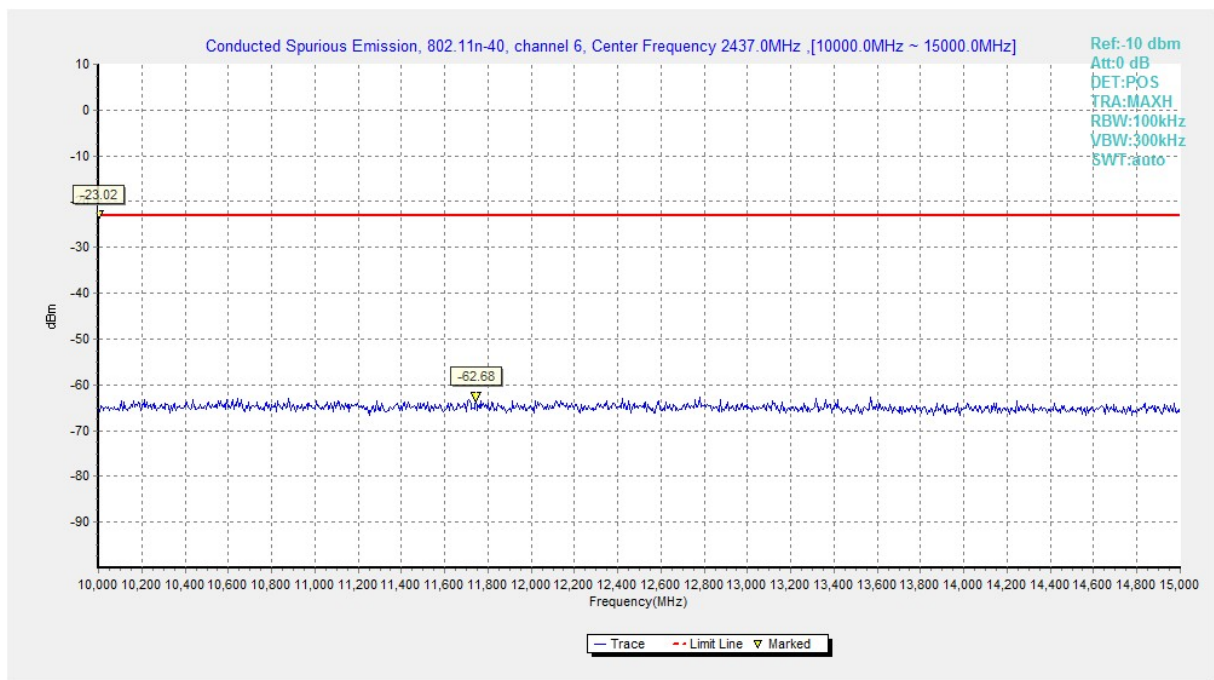


Fig.A.6.1.86 Conducted Spurious Emission (802.11n-HT40, Ch6, 10 GHz-15 GHz)

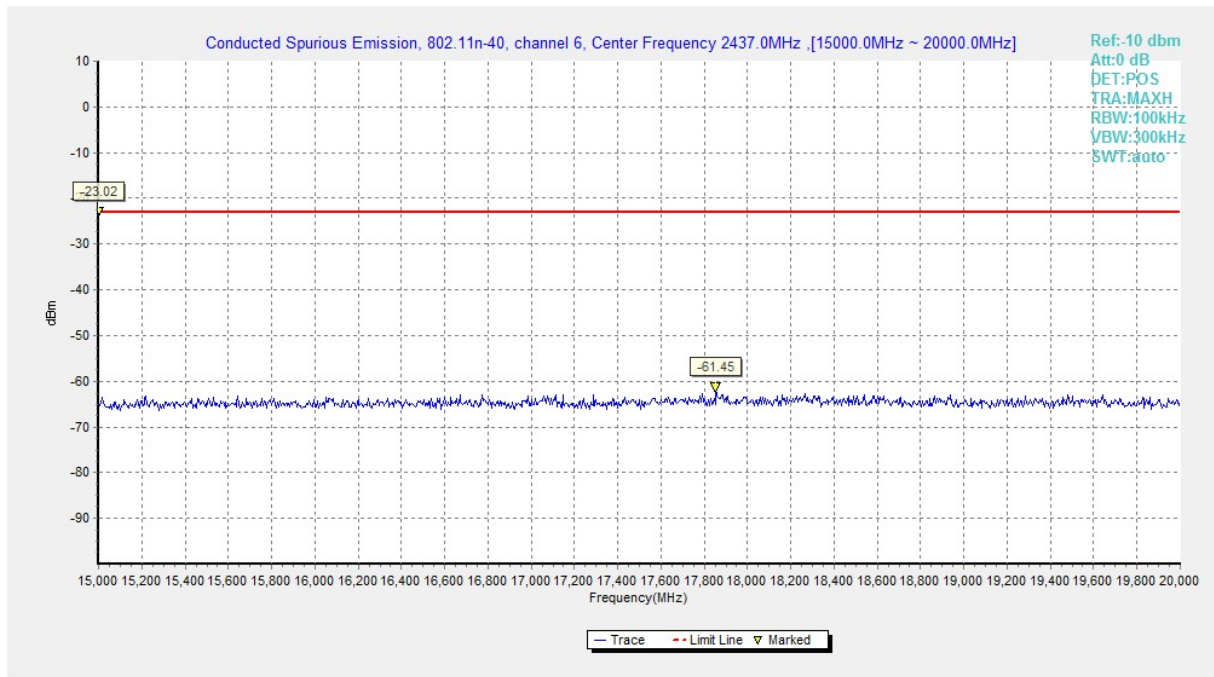


Fig.A.6.1.87 Conducted Spurious Emission (802.11n-HT40, Ch6, 15 GHz-20 GHz)

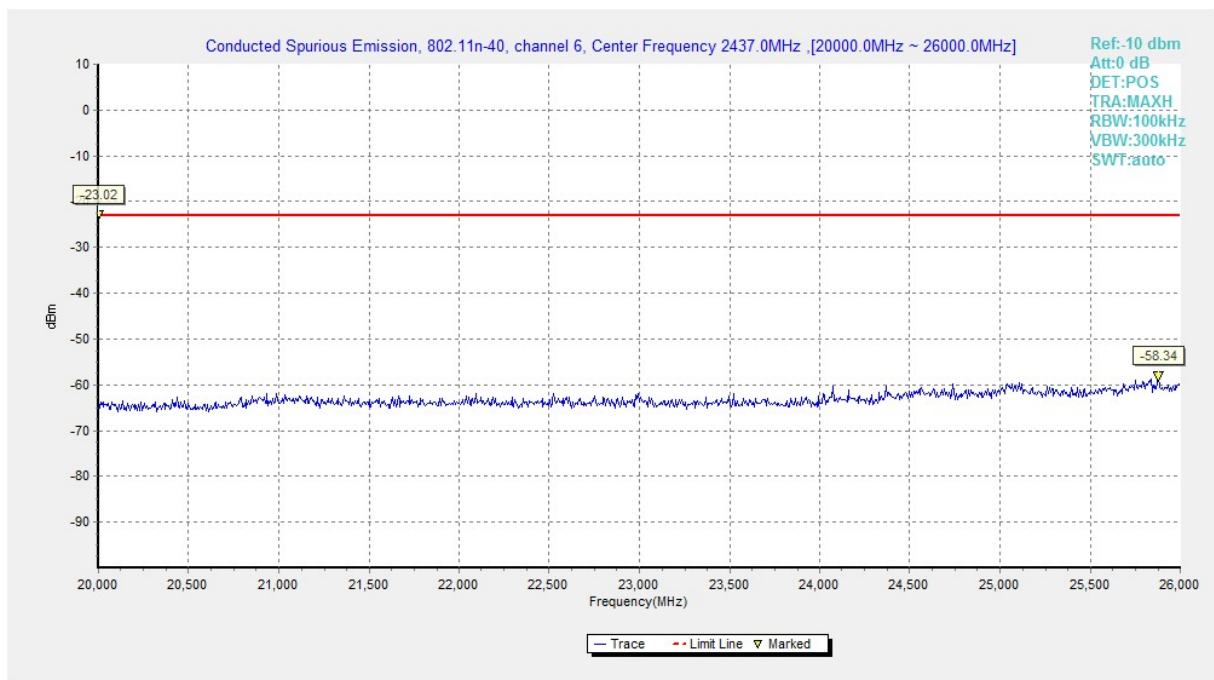


Fig.A.6.1.88 Conducted Spurious Emission (802.11n-HT40, Ch6, 20 GHz-26 GHz)

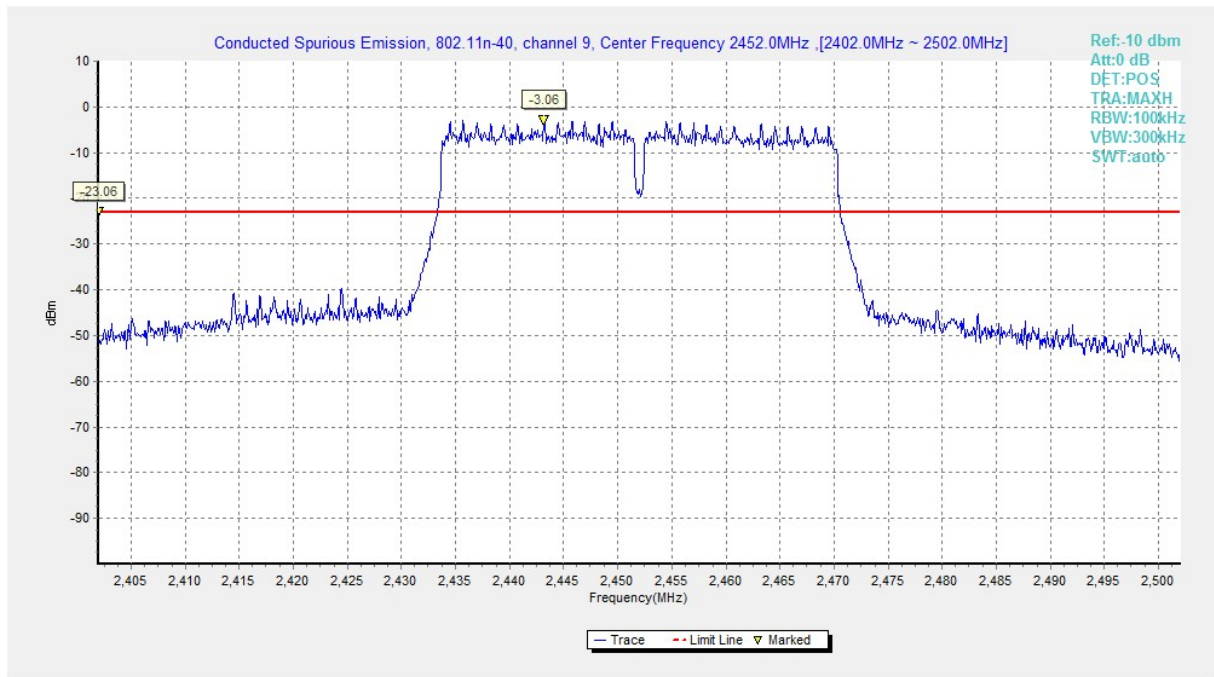


Fig.A.6.1.89 Conducted Spurious Emission (802.11n-HT40, Ch9, Center Frequency)

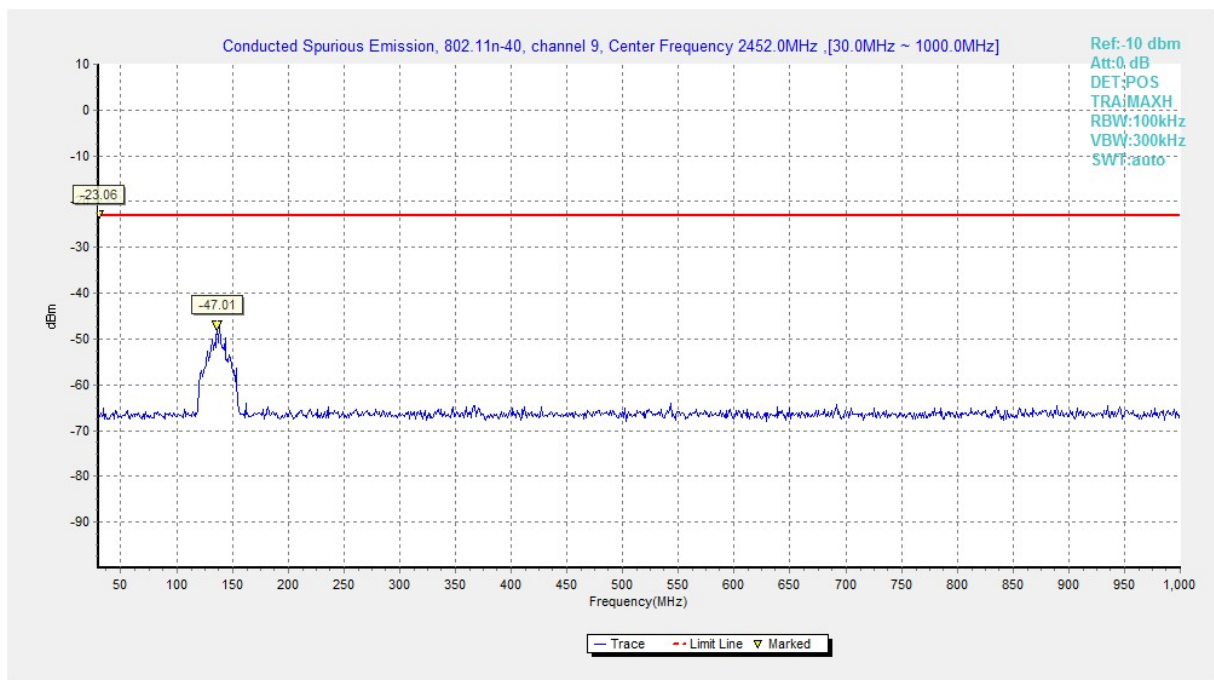


Fig.A.6.1.90 Conducted Spurious Emission (802.11n-HT40, Ch9, 30 MHz-1 GHz)

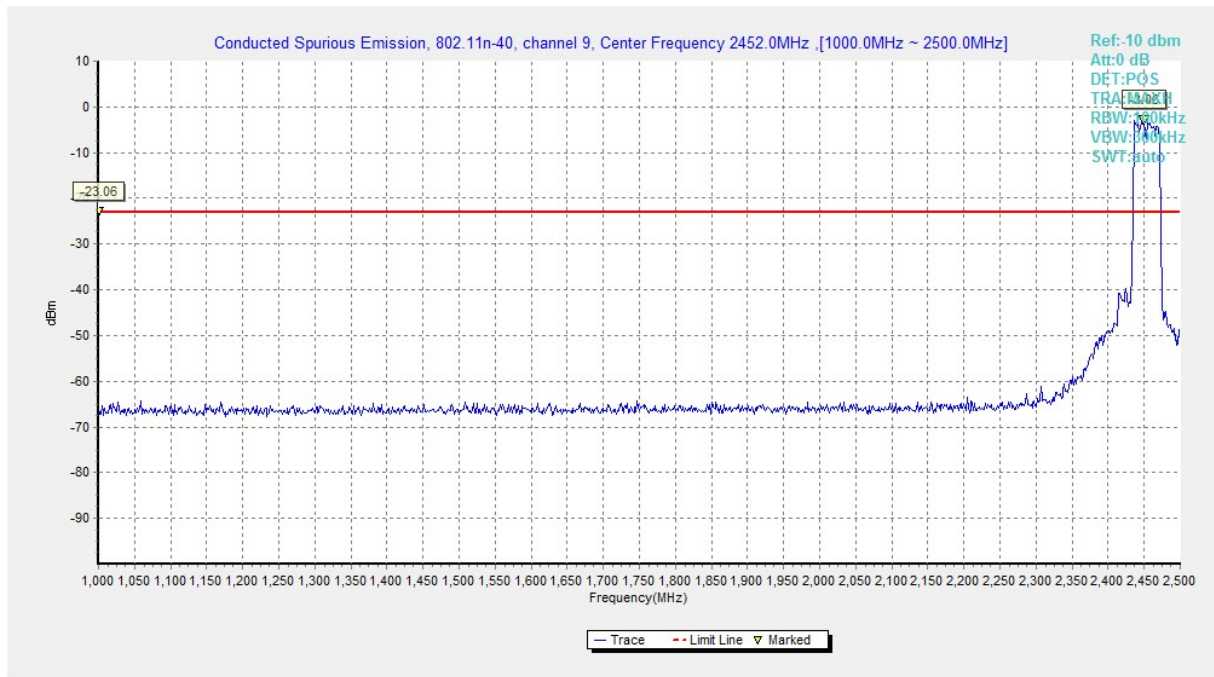


Fig.A.6.1.91 Conducted Spurious Emission (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)

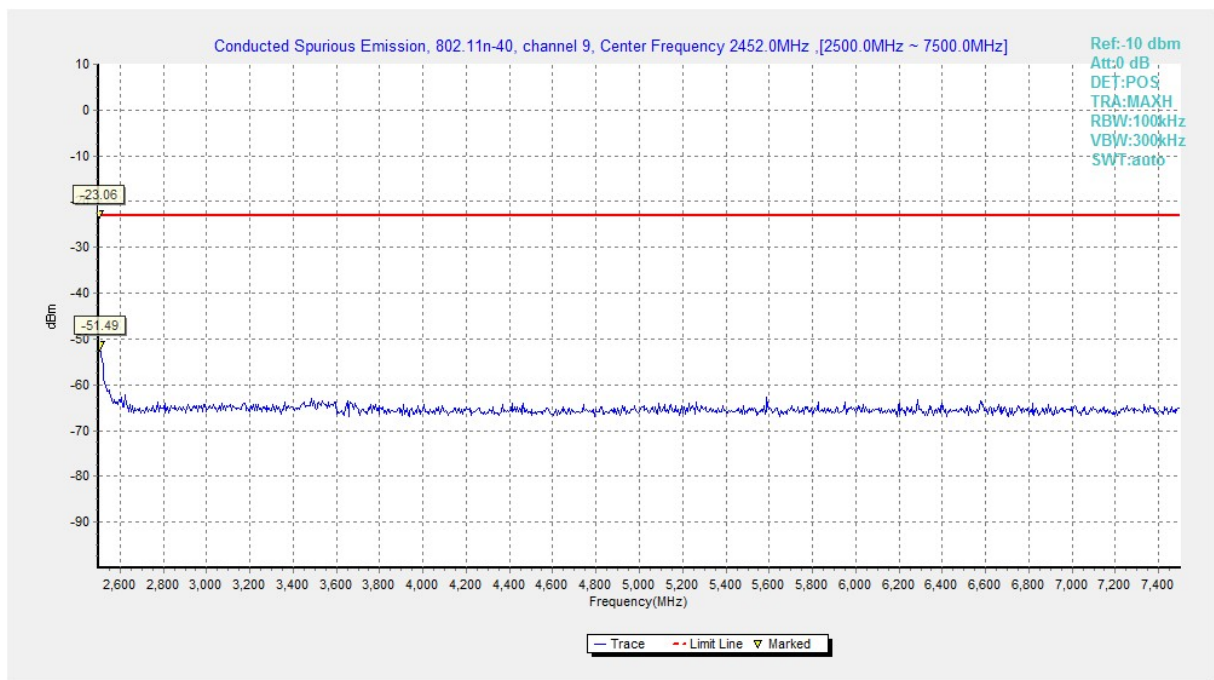


Fig.A.6.1.92 Conducted Spurious Emission (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)

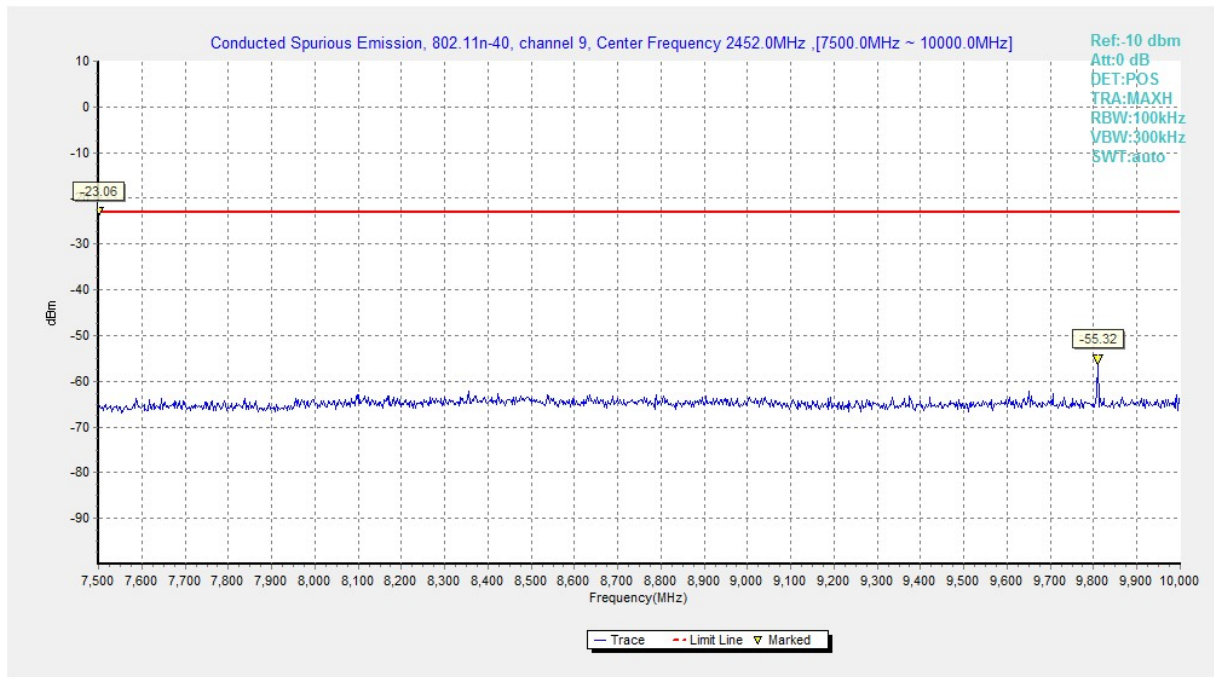


Fig.A.6.1.93 Conducted Spurious Emission (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)

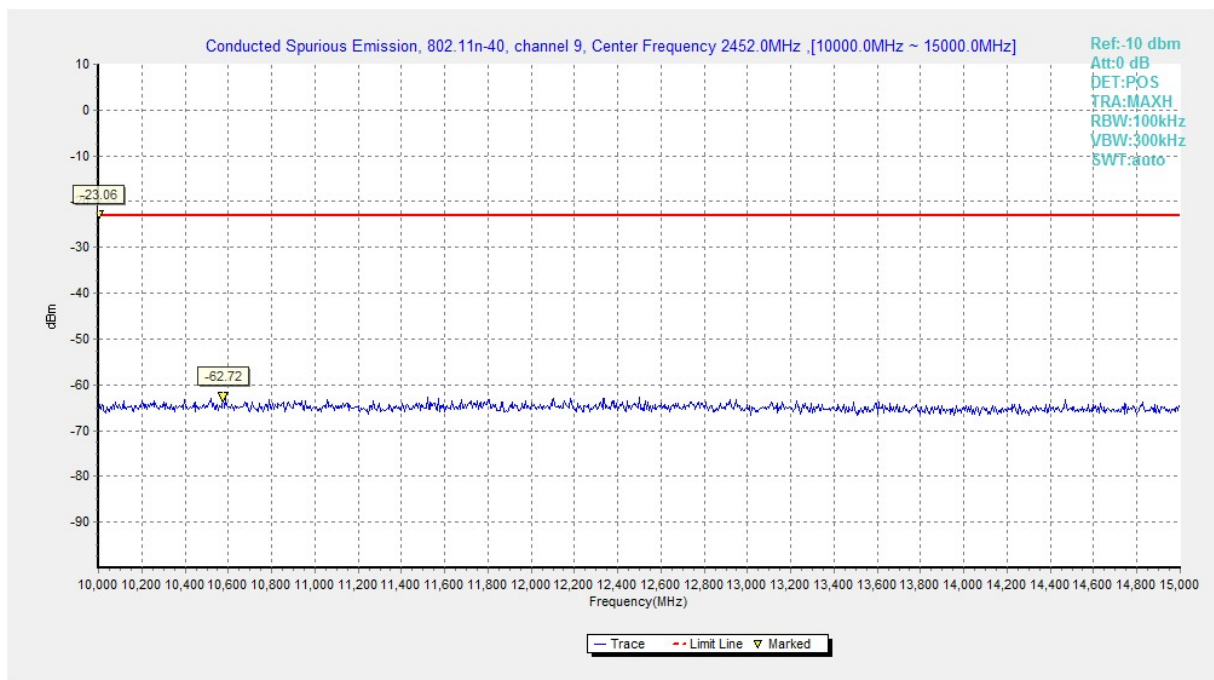


Fig.A.6.1.94 Conducted Spurious Emission (802.11n-HT40, Ch9, 10 GHz-15 GHz)

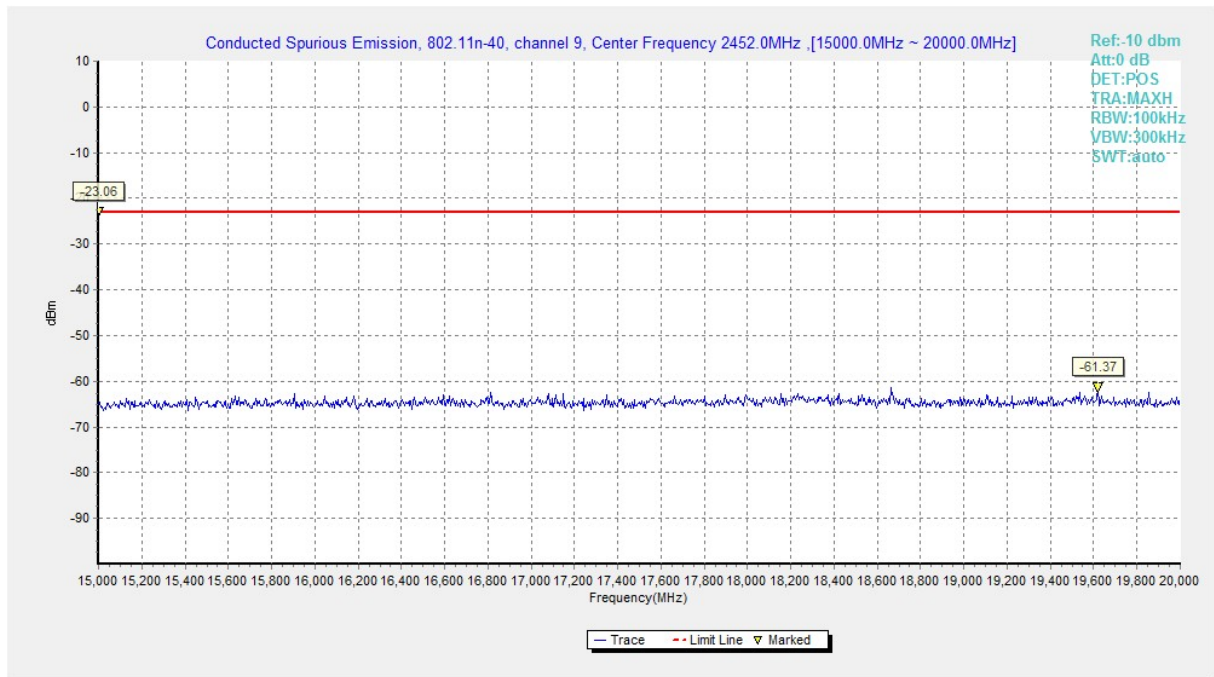


Fig.A.6.1.95 Conducted Spurious Emission (802.11n-HT40, Ch9, 15 GHz-20 GHz)

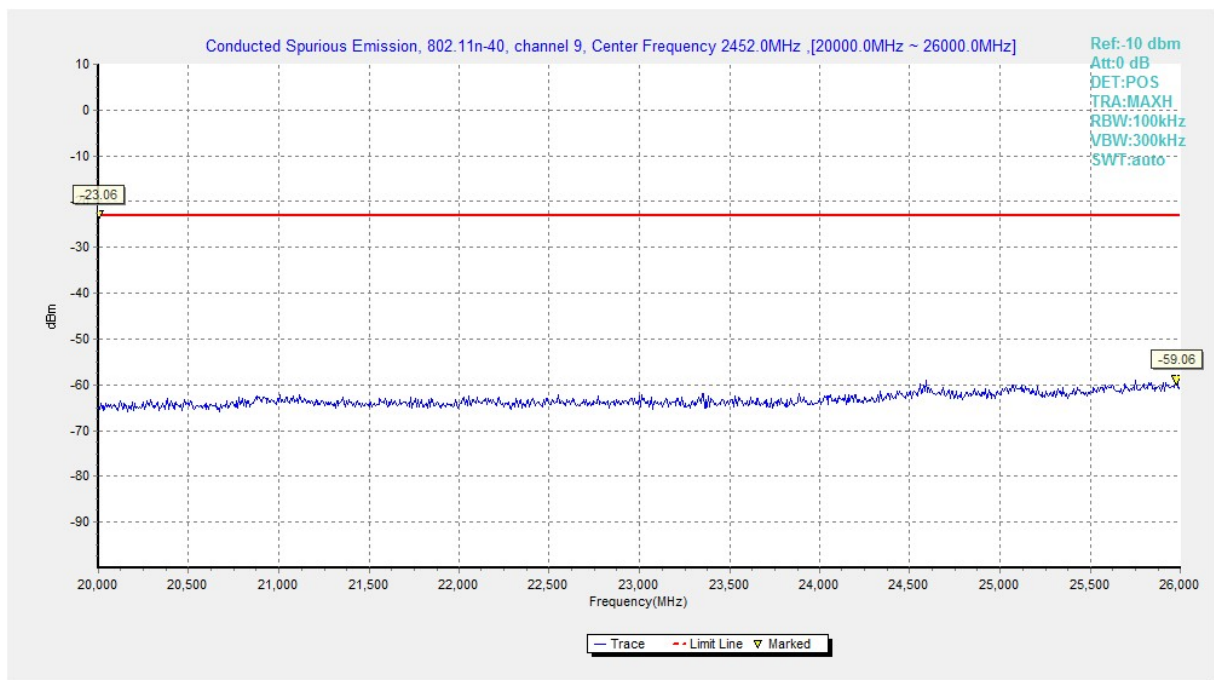


Fig.A.6.1.96 Conducted Spurious Emission (802.11n-HT40, Ch9, 20 GHz-26 GHz)

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

Modulation type and data rate tested:

802.11b	802.11g	802.11n-HT20	802.11n-HT40
11Mbps(CCK)	24Mbps(OFDM)	MCS7(OFDM)	MCS5(OFDM)

Measurement Results:
802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.45GHz	Fig.A.6.2.1	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.2	P
		3 GHz ~ 18 GHz	Fig.A.6.2.3	P
	6	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
		18 GHz~ 26.5 GHz	Fig.A.6.2.7	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.8	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.9	P
		3 GHz ~ 18 GHz	Fig.A.6.2.10	P

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power	2.38GHz ~2.43GHz	Fig.A.6.2.11	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.12	P
		3 GHz ~ 18 GHz	Fig.A.6.2.13	P
	6	30 MHz ~1 GHz	Fig.A.6.2.14	P
		1 GHz ~ 3 GHz	Fig.A.6.2.15	P
		3 GHz ~ 18 GHz	Fig.A.6.2.16	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.17	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.18	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.19	P
		3 GHz ~ 18 GHz	Fig.A.6.2.20	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	Power	2.38GHz ~2.45GHz	Fig.A.6.2.21	P
	1	1 GHz ~ 3 GHz	Fig.A.6.2.22	P
		3 GHz ~ 18 GHz	Fig.A.6.2.23	P
	6	30 MHz ~1 GHz	Fig.A.6.2.24	P
		1 GHz ~ 3 GHz	Fig.A.6.2.25	P
		3 GHz ~ 18 GHz	Fig.A.6.2.26	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.27	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.28	P
	11	1 GHz ~ 3 GHz	Fig.A.6.2.29	P
		3 GHz ~ 18 GHz	Fig.A.6.2.30	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	Power	2.38GHz ~2.45GHz	Fig.A.6.2.31	P
	3	1 GHz ~ 3 GHz	Fig.A.6.2.32	P
		3 GHz ~ 18 GHz	Fig.A.6.2.33	P
	6	30 MHz ~1 GHz	Fig.A.6.2.34	P
		1 GHz ~ 3 GHz	Fig.A.6.2.35	P
		3 GHz ~ 18 GHz	Fig.A.6.2.36	P
		18 GHz~ 26.5 GHz	Fig.A.6.2.37	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.38	P
	9	1 GHz ~ 3 GHz	Fig.A.6.2.39	P
		3 GHz ~ 18 GHz	Fig.A.6.2.40	P

Conclusion: Pass

Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
$f \leq 1\text{GHz}$	3.9
$f > 1\text{GHz}$	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= $P_{Mea}+A_{Rpl}= P_{Mea}+\text{Cable Loss}+\text{Antenna Factor}$

802.11b
Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2390.000	32.7	-38.8	27.7	43.800	H
17980.500	43.2	-17.7	45.6	15.300	H
17988.000	43.2	-17.7	45.6	15.300	H
17977.500	43.2	-17.7	45.6	15.300	V
17983.500	43.2	-17.7	45.6	15.300	V
17986.500	43.1	-17.7	45.6	15.200	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17976.000	43.2	-17.7	45.6	15.300	H
17982.000	43.1	-17.7	45.6	15.200	V
17979.000	43.0	-17.7	45.6	15.100	H
17980.500	43.0	-17.7	45.6	15.100	H
17992.500	43.0	-17.7	45.6	15.100	V
17986.500	43.0	-17.7	45.6	15.100	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.500	35.1	-38.9	27.7	46.300	V
17980.500	42.9	-17.7	45.6	15.000	H
17982.000	42.7	-17.7	45.6	14.800	H
17986.500	42.7	-17.7	45.6	14.800	V
17967.000	42.7	-17.7	45.6	14.800	H
17992.500	42.6	-17.7	45.6	14.700	V

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2389.970	40.4	-38.8	27.7	51.500	V
17979.000	42.8	-17.7	45.6	14.900	V
17965.500	42.7	-17.7	45.6	14.800	V
17983.500	42.7	-17.7	45.6	14.800	H
17982.000	42.6	-17.7	45.6	14.700	V
17973.000	42.6	-17.7	45.6	14.700	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17982.000	41.1	-17.7	45.6	13.200	H
17811.000	40.2	-18.5	45.6	13.100	V
17803.500	40.2	-18.5	45.6	13.100	H
17989.500	40.2	-17.7	45.6	12.300	V
17965.500	40.1	-17.7	45.6	12.200	V
17779.500	40.1	-18.5	45.6	13.000	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.500	45.4	-38.9	27.7	56.600	H
17982.000	40.5	-17.7	45.6	12.600	V
17992.500	40.4	-17.7	45.6	12.500	H
17782.500	40.3	-18.5	45.6	13.200	V
17989.500	40.3	-17.7	45.6	12.400	V
17986.500	40.2	-17.7	45.6	12.300	V

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2390.000	36.2	-38.8	27.7	47.300	H
17995.500	40.2	-17.7	45.6	12.300	V
17998.500	40.2	-17.7	45.6	12.300	V
17782.500	40.2	-18.5	45.6	13.100	H
17766.000	40.2	-18.5	45.6	13.100	V
17992.500	40.1	-17.7	45.6	12.200	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17979.000	40.5	-17.7	45.6	12.600	V
17982.000	40.3	-17.7	45.6	12.400	H
17965.500	40.3	-17.7	45.6	12.400	V
17992.500	40.2	-17.7	45.6	12.300	V
17809.500	40.2	-18.5	45.6	13.100	H
17766.000	40.0	-18.5	45.6	12.900	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.500	38.6	-38.9	27.7	49.800	V
17779.500	40.2	-18.5	45.6	13.100	H
17982.000	40.2	-17.7	45.6	12.300	V
17835.000	40.1	-18.5	45.6	13.000	V
17806.500	40.1	-18.5	45.6	13.000	V
17995.500	40.1	-17.7	45.6	12.200	H

802.11n-HT40
Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2390.000	41.7	-38.8	27.7	52.800	H
17779.500	40.0	-18.5	45.6	12.900	V
17982.000	40.0	-17.7	45.6	12.100	V
17809.500	39.9	-18.5	45.6	12.800	H
17989.500	39.9	-17.7	45.6	12.000	V
17995.500	39.9	-17.7	45.6	12.000	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17979.000	40.3	-17.7	45.6	12.400	V
17982.000	40.2	-17.7	45.6	12.300	H
17779.500	40.1	-18.5	45.6	13.000	V
17965.500	40.1	-17.7	45.6	12.200	V
17809.500	40.0	-18.5	45.6	12.900	H
17995.500	39.9	-17.7	45.6	12.000	V

Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.500	35.2	-38.9	27.7	46.400	V
17766.000	39.9	-18.5	45.6	12.800	H
17982.000	39.9	-17.7	45.6	12.000	V
17992.500	39.9	-17.7	45.6	12.000	V
17998.500	39.8	-17.7	45.6	11.900	V
17776.500	39.8	-18.5	45.6	12.700	H

Test graphs as below:

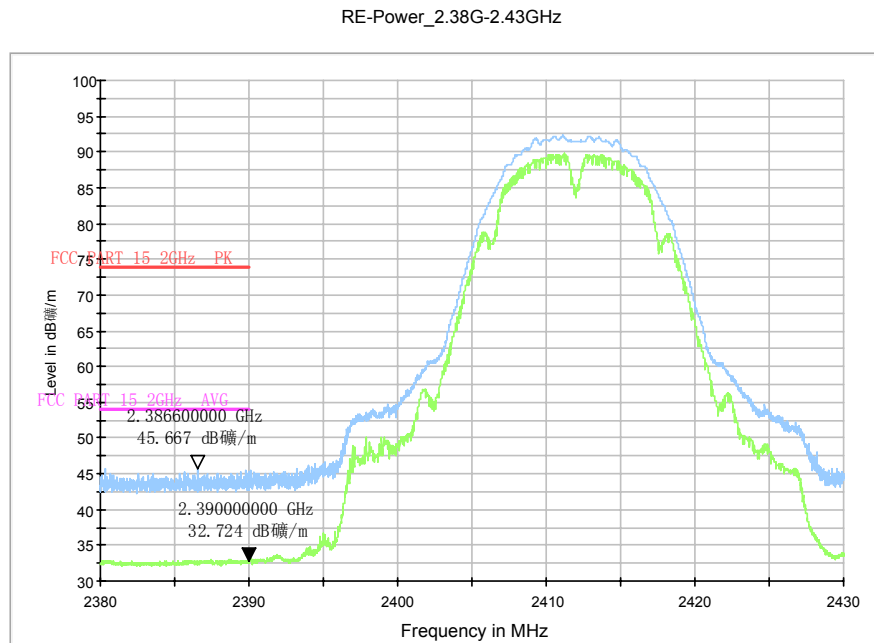


Fig.A.6.2.1 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz – 2.45GHz

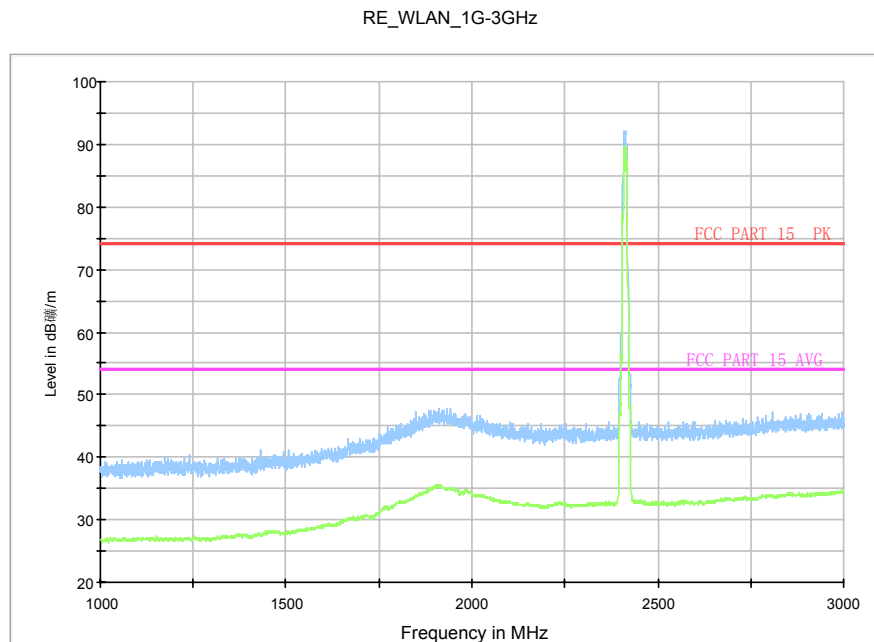


Fig.A.6.2.2 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

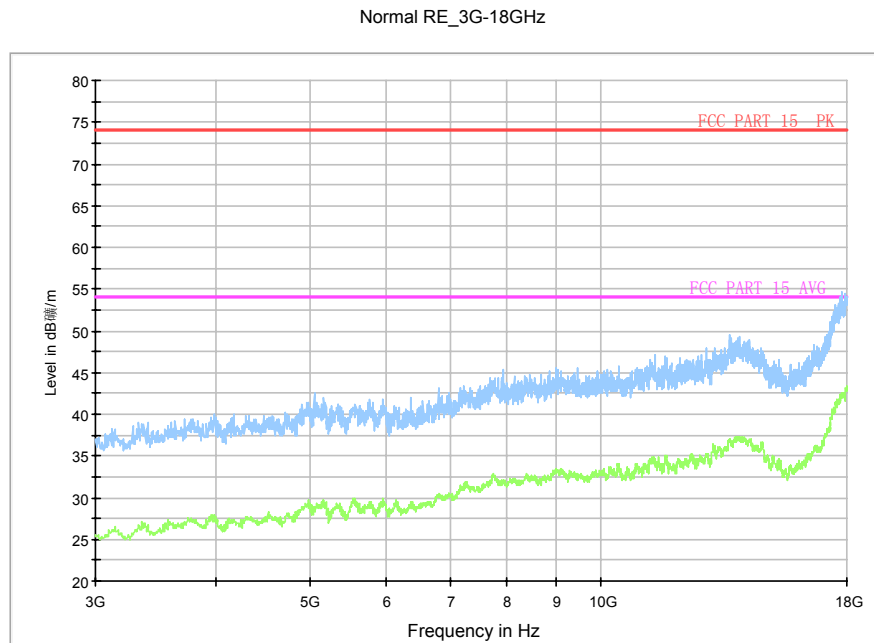


Fig.A.6.2.3 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

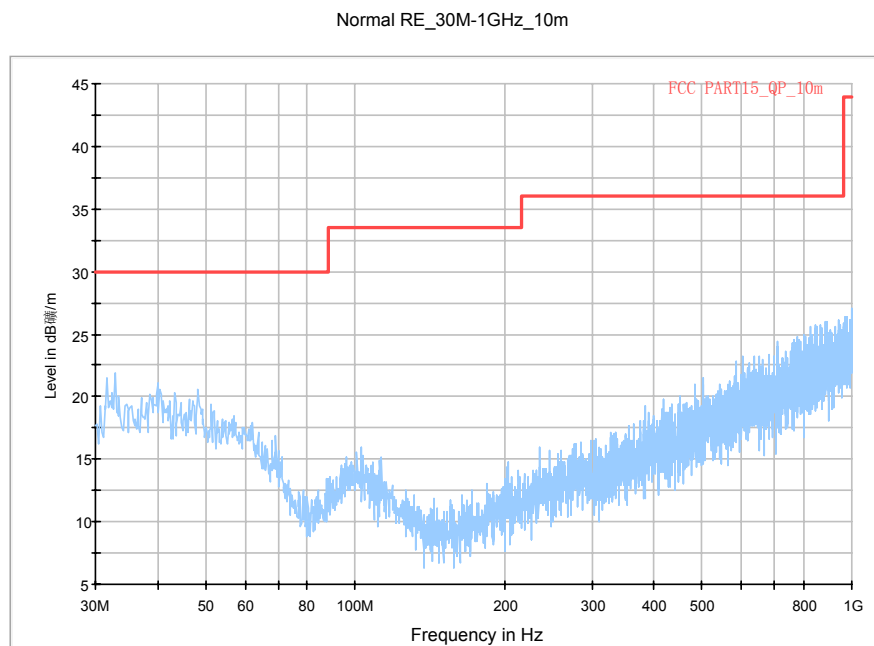


Fig.A.6.2.4 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

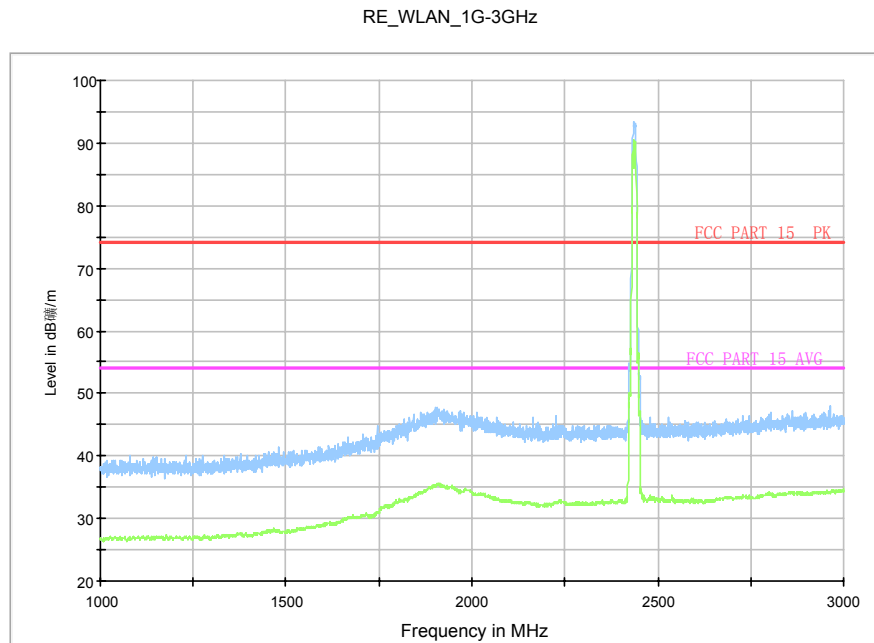


Fig.A.6.2.5 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

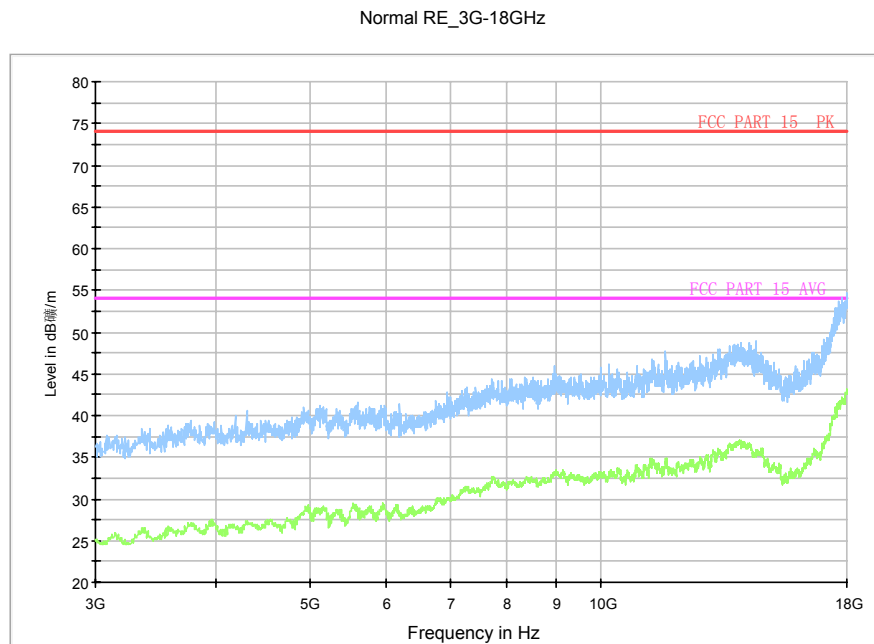


Fig.A.6.2.6 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

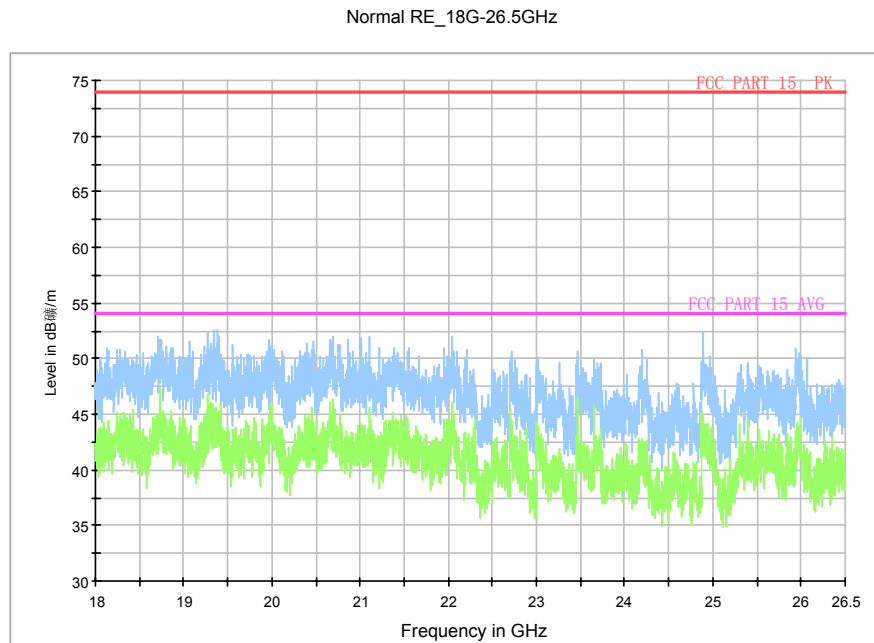


Fig.A.6.2.7 Radiated Spurious Emission (802.11b, Ch6, 18GHz – 26.5GHz)

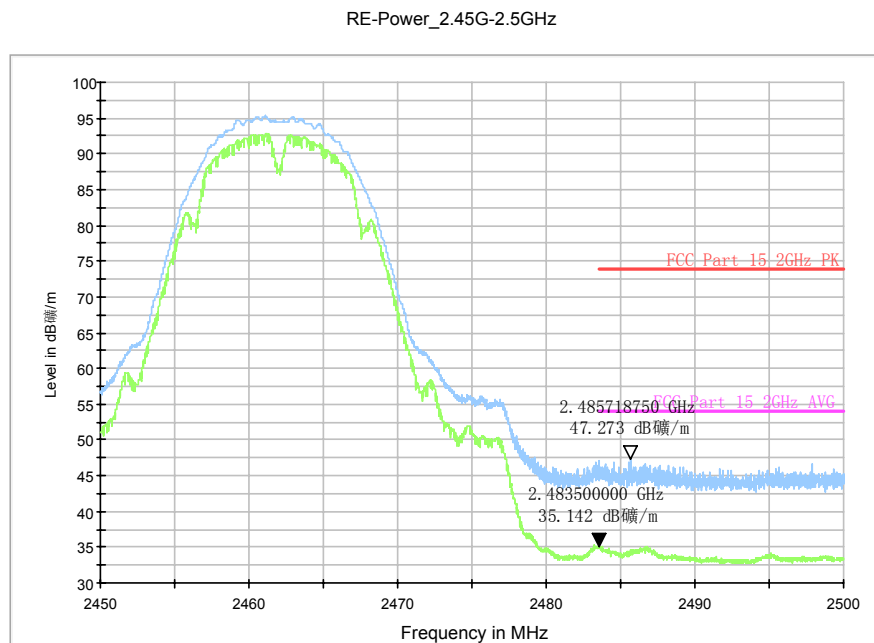


Fig.A.6.2.8 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

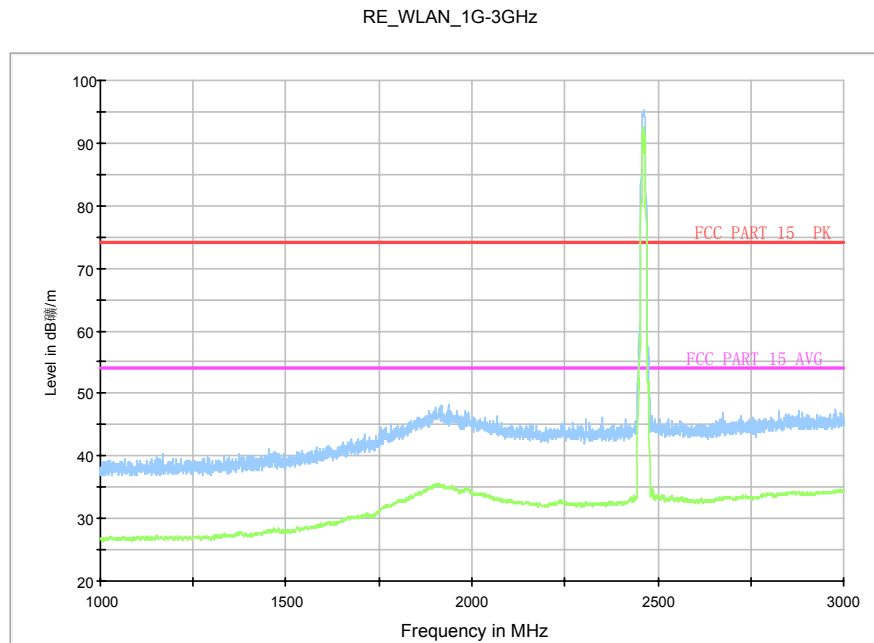


Fig.A.6.2.9 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

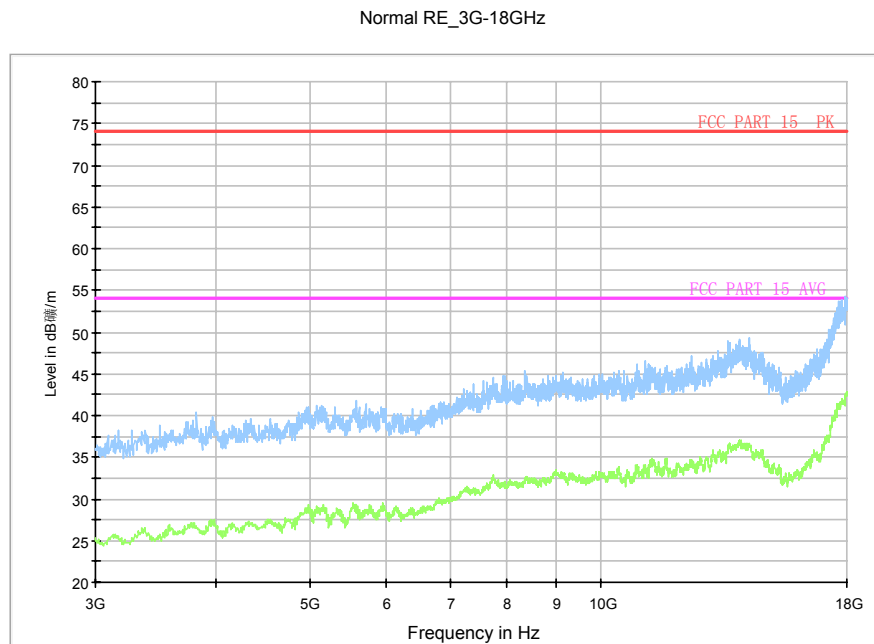


Fig.A.6.2.10 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

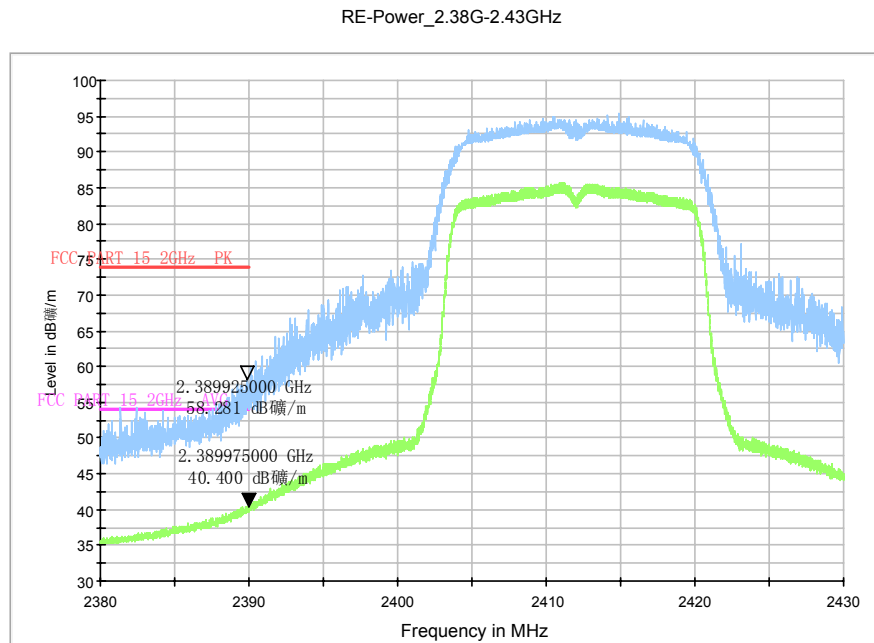


Fig.A.6.2.11 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

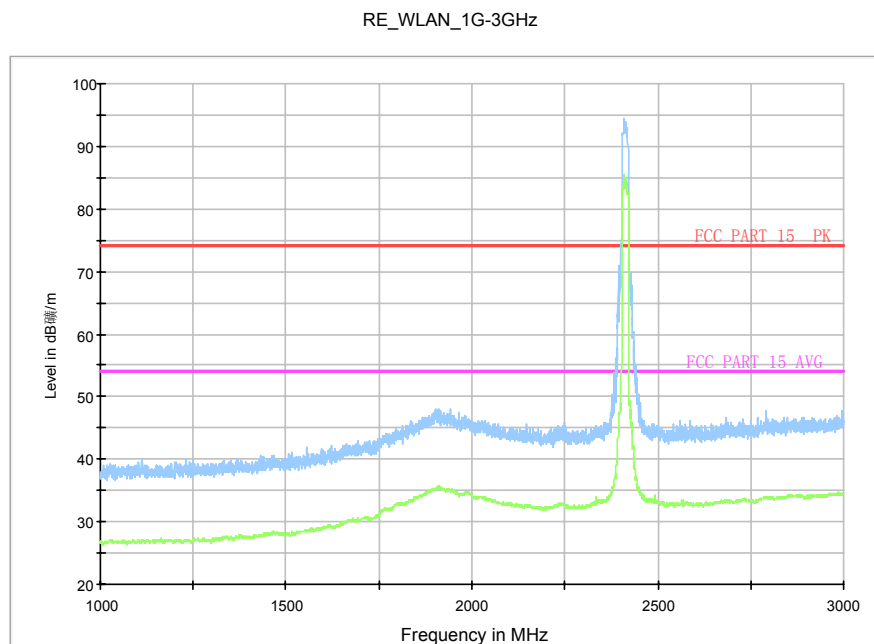


Fig.A.6.2.12 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

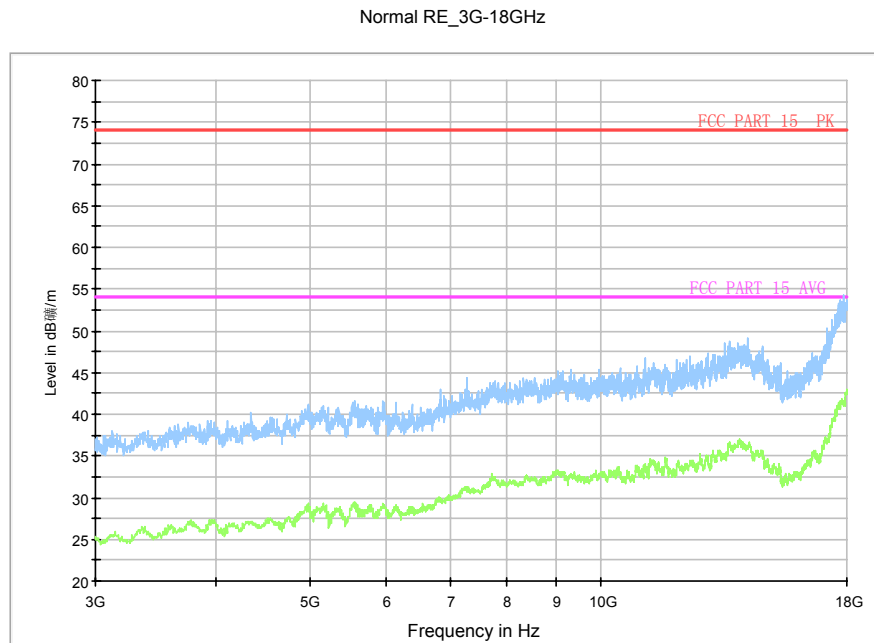


Fig.A.6.2.13 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

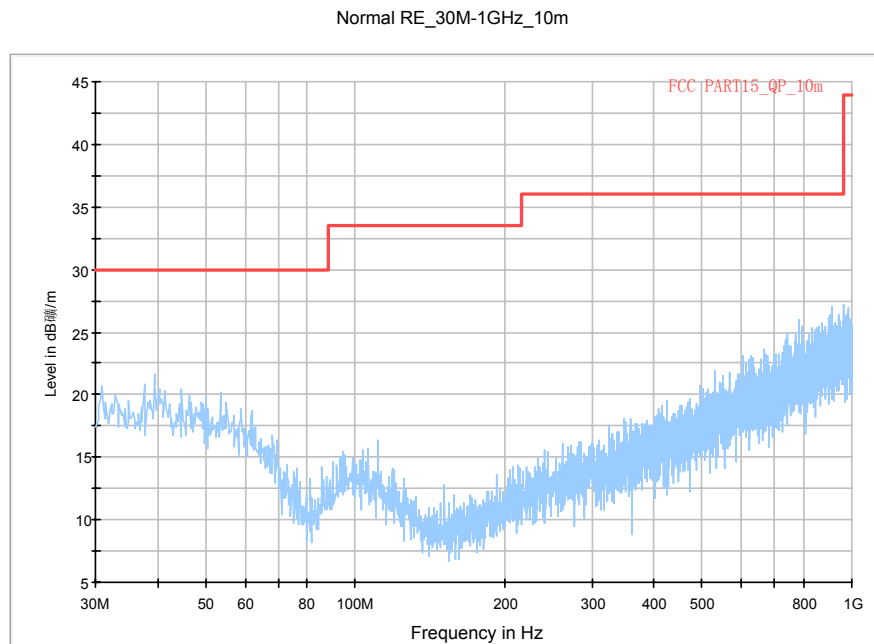


Fig.A.6.2.14 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

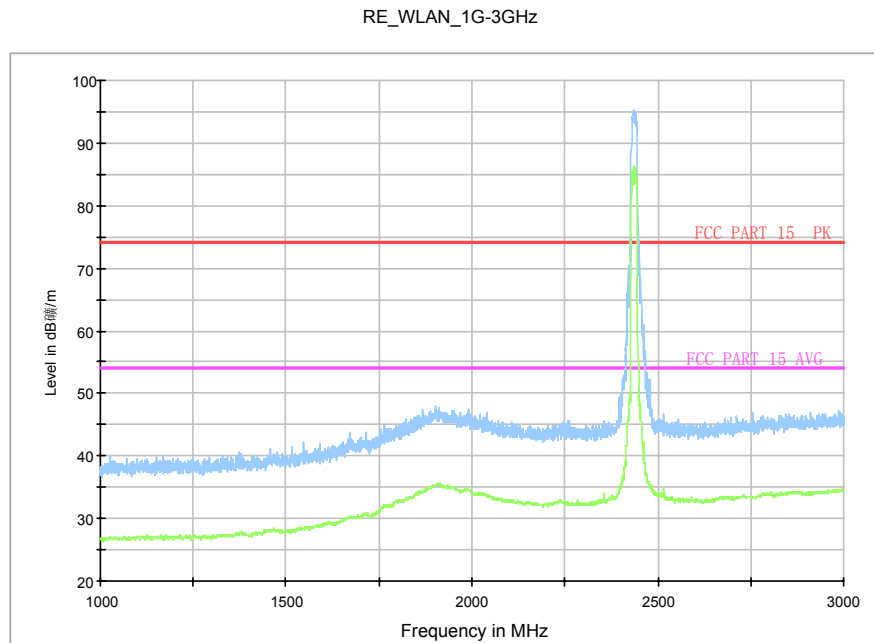


Fig.A.6.2.15 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

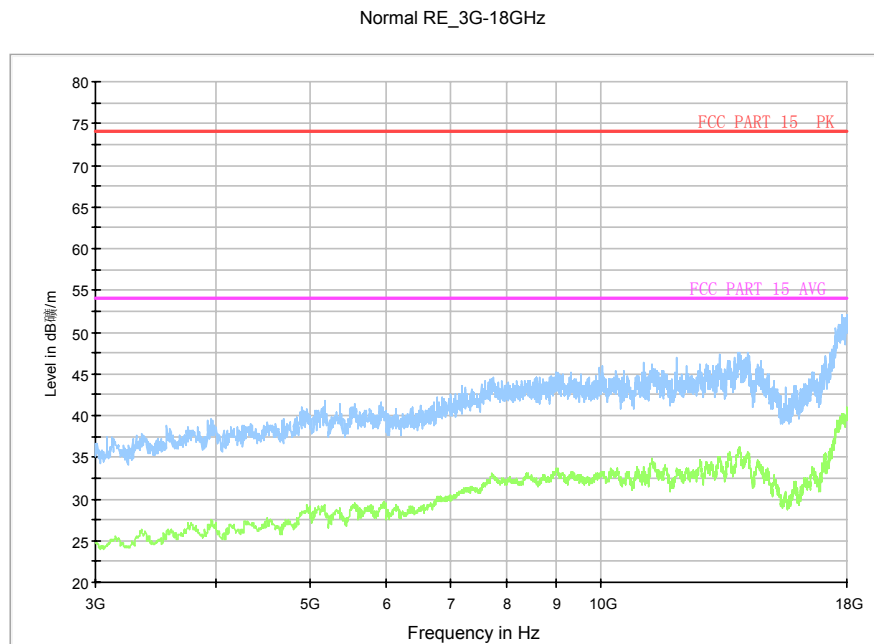


Fig.A.6.2.16 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

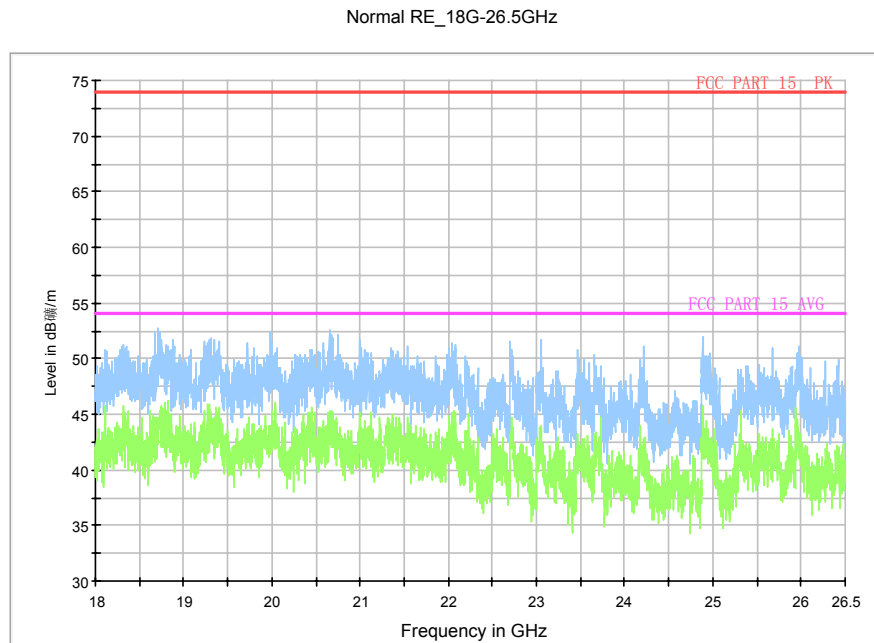


Fig.A.6.2.17 Radiated Spurious Emission (802.11g, Ch6, 18GHz – 26.5GHz)

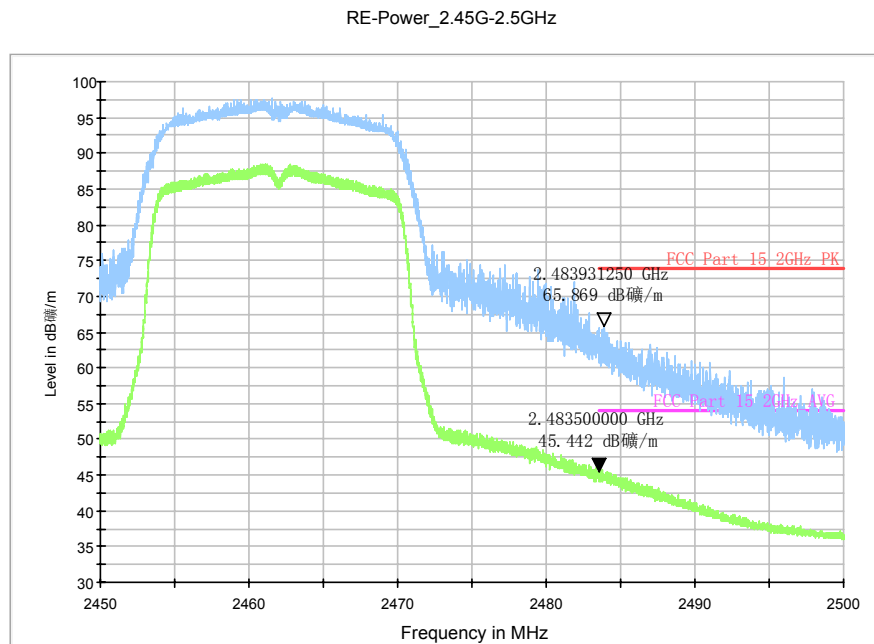


Fig.A.6.2.18 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

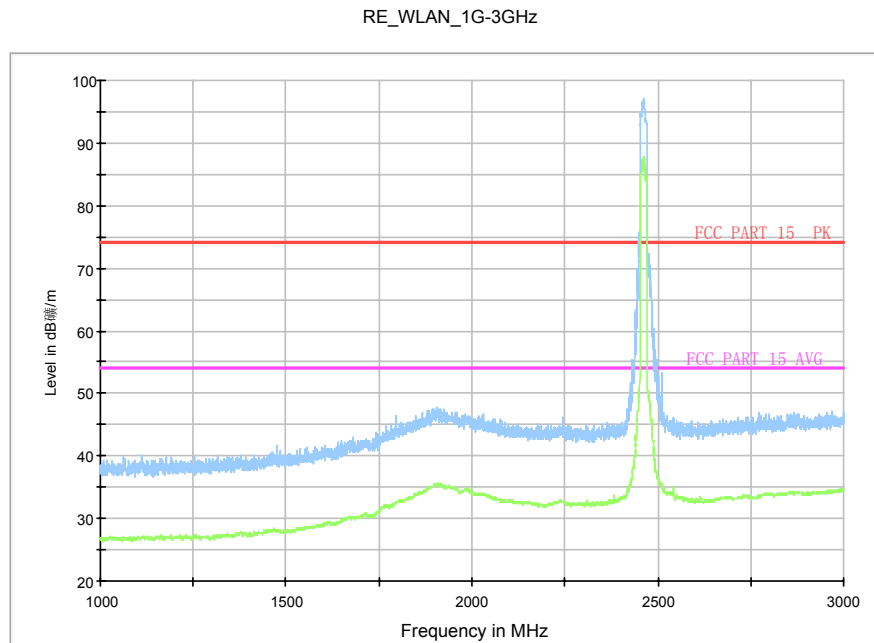


Fig.A.6.2.19 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

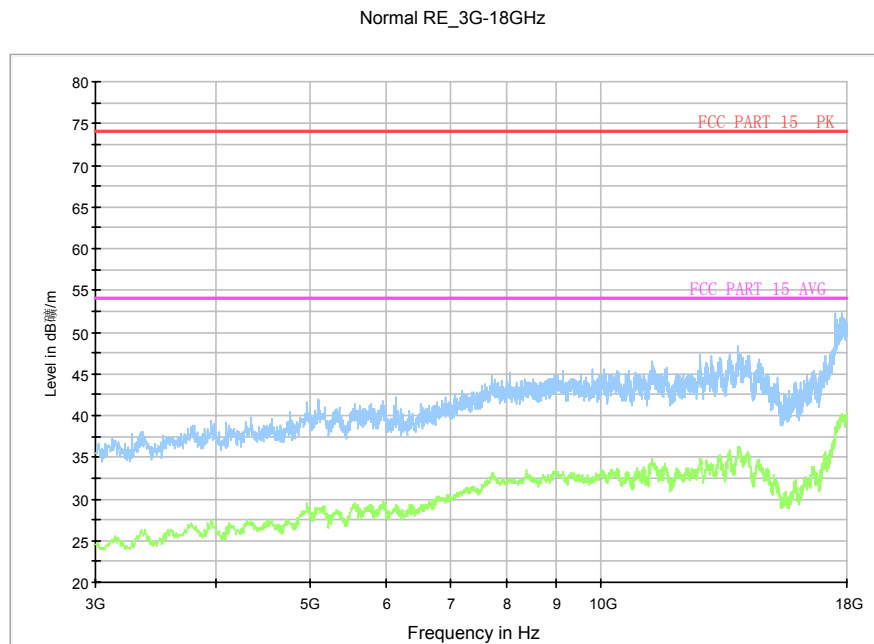


Fig.A.6.2.20 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

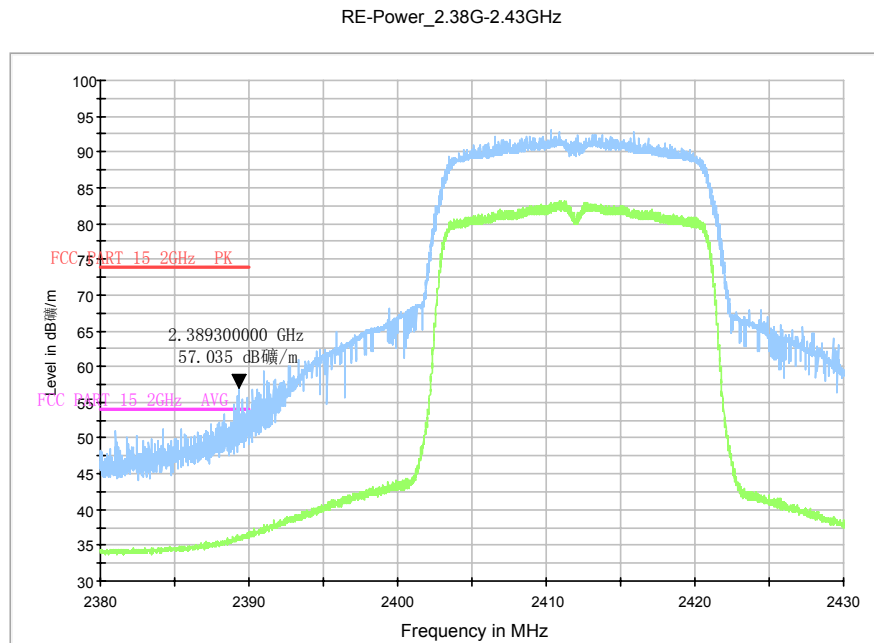


Fig.A.6.2.21 Radiated Spurious Emission (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

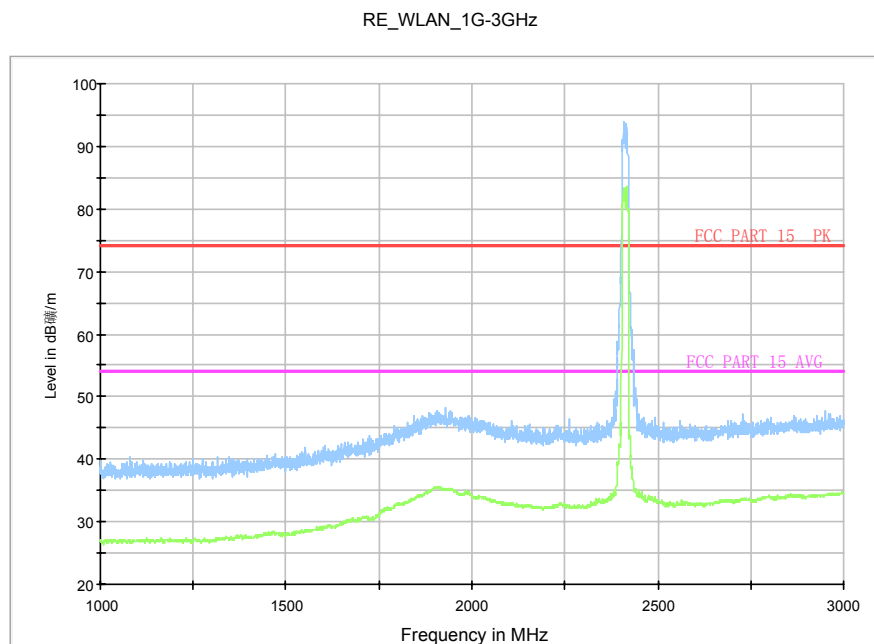


Fig.A.6.2.22 Radiated Spurious Emission (802.11n-HT20, Ch1, 1 GHz-3 GHz)

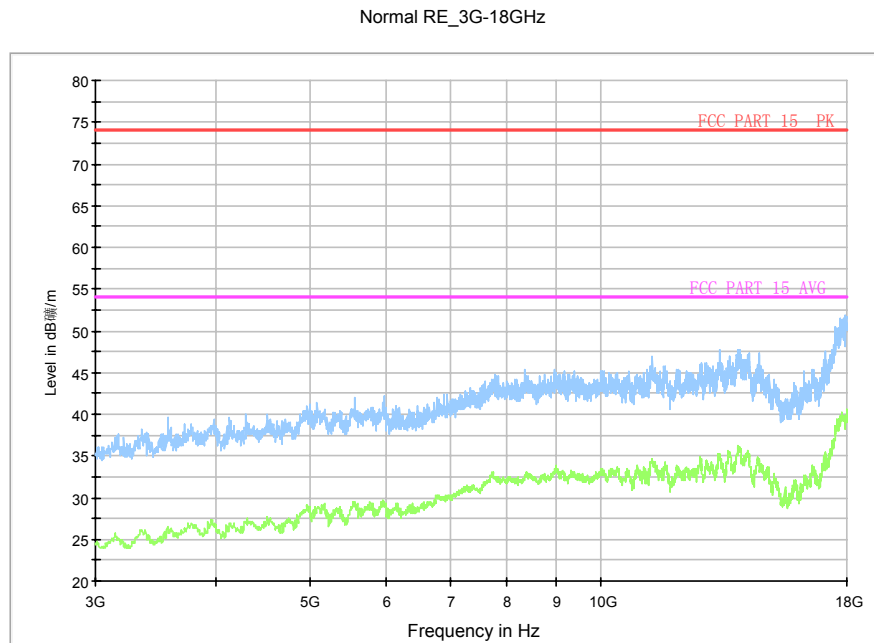


Fig.A.6.2.23 Radiated Spurious Emission (802.11n-HT20, Ch1, 3 GHz-18 GHz)

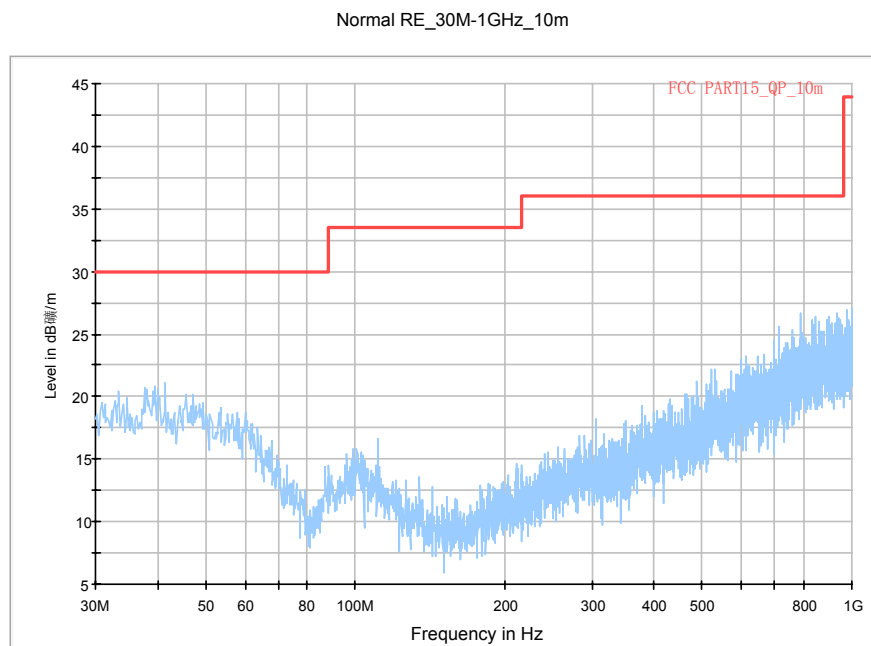


Fig.A.6.2.24 Radiated Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

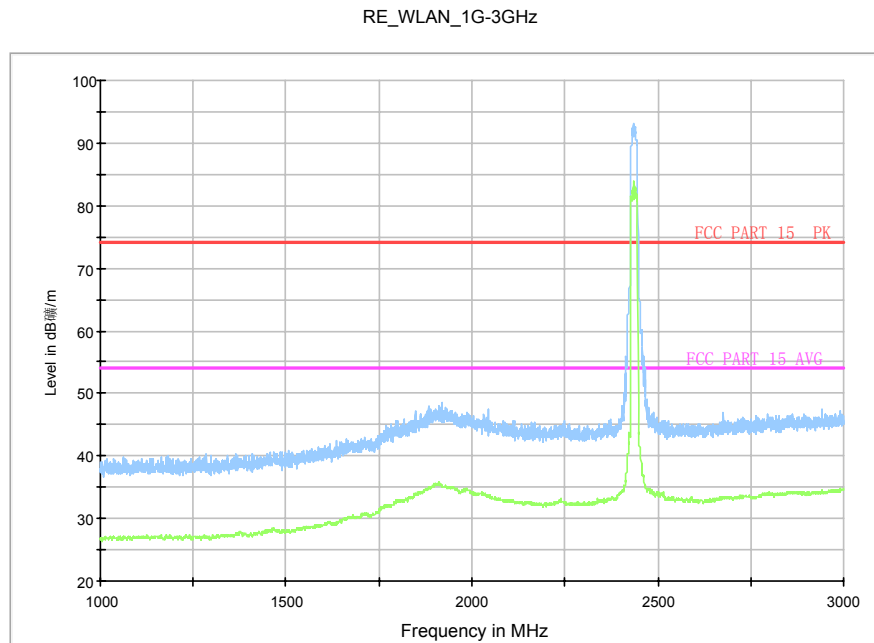


Fig.A.6.2.25 Radiated Spurious Emission (802.11n-HT20, Ch6, 1 GHz-3 GHz)

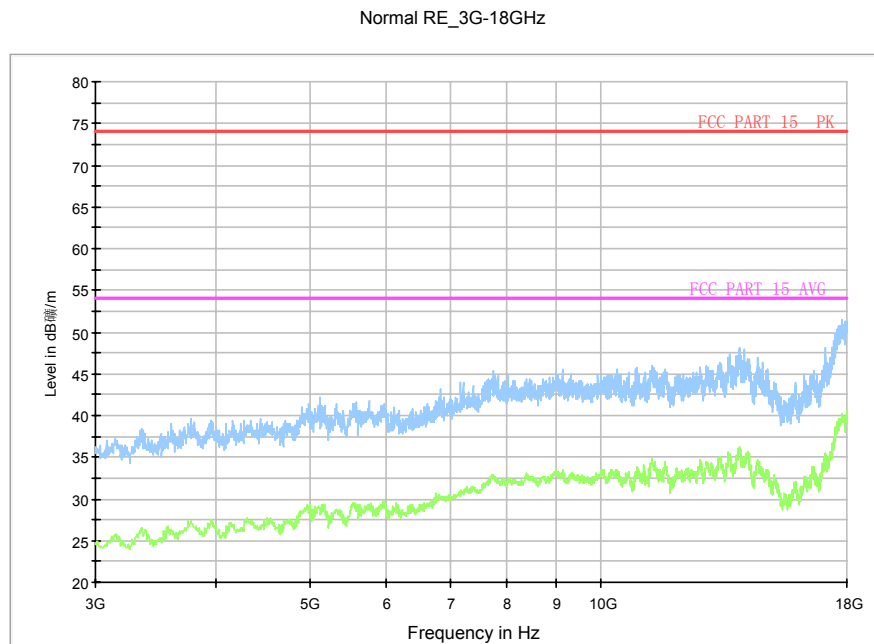


Fig.A.6.2.26 Radiated Spurious Emission (802.11n-HT20, Ch6, 3 GHz-18 GHz)

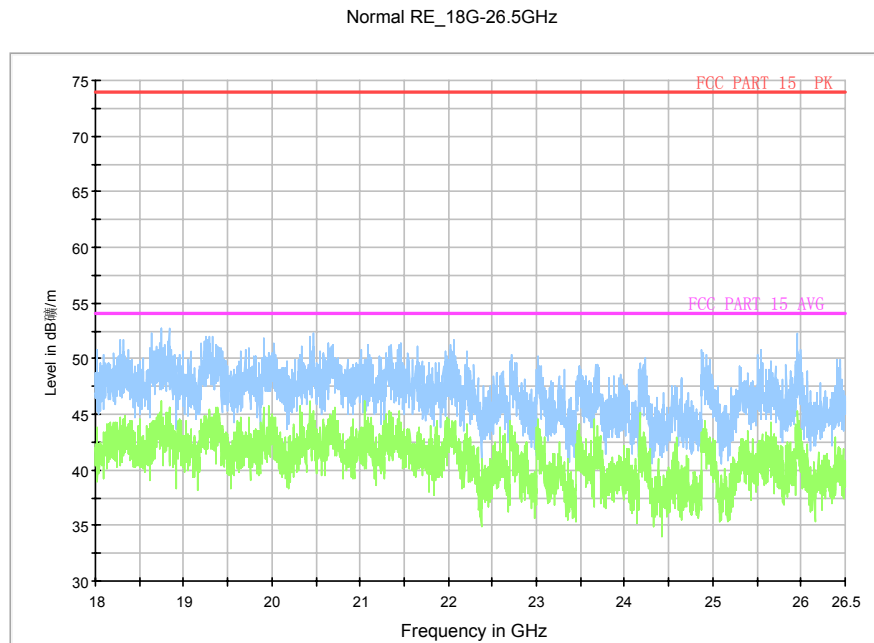


Fig.A.6.2.27 Radiated Spurious Emission (802.11n-HT20, Ch6, 18GHz – 26.5GHz)

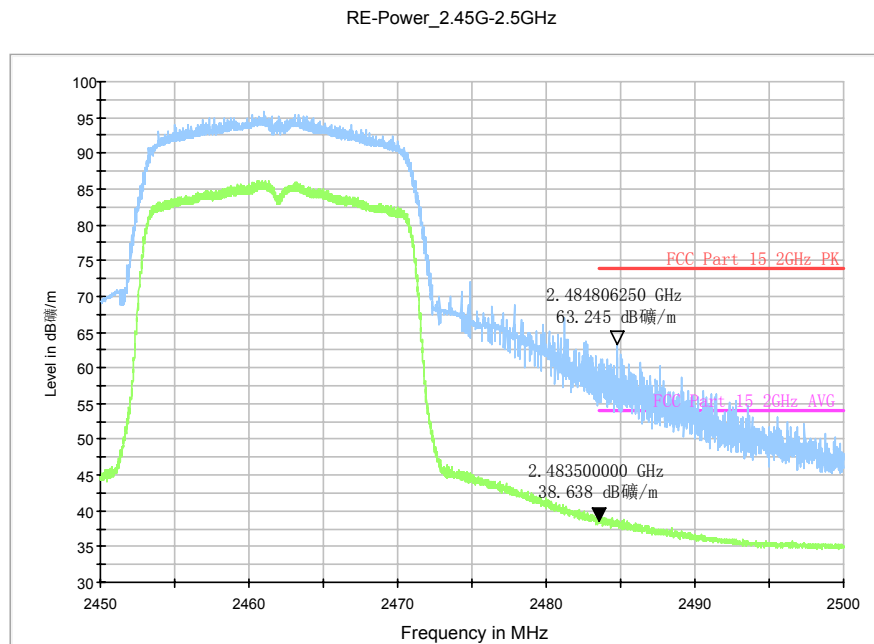


Fig.A.6.2.28 Radiated Spurious Emission (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

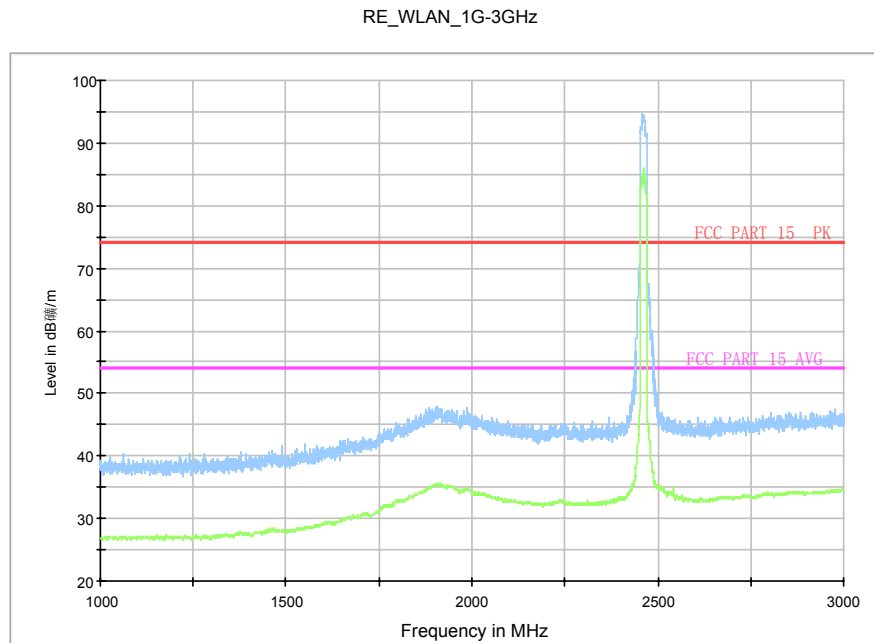


Fig.A.6.2.29 Radiated Spurious Emission (802.11n-HT20, Ch11, 1 GHz-3 GHz)

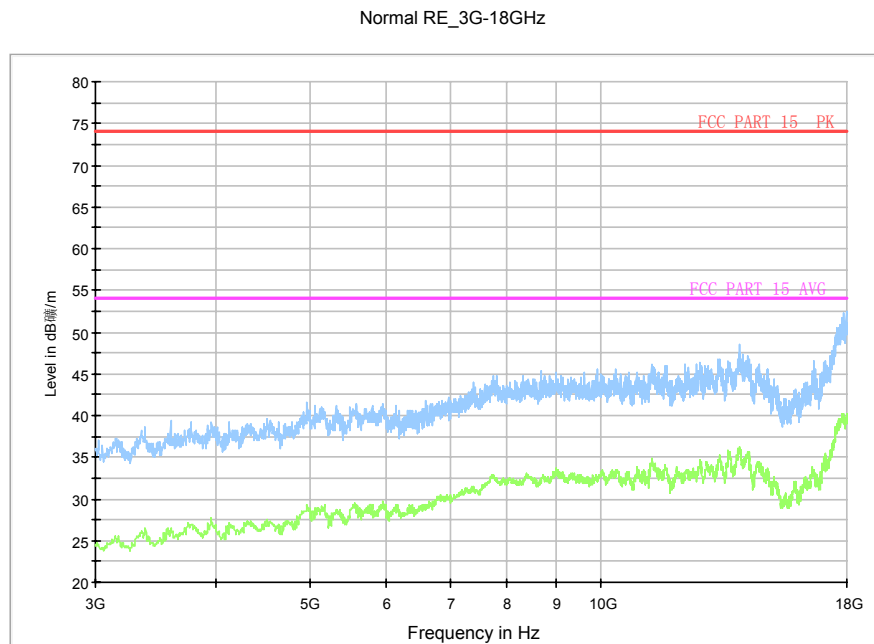


Fig.A.6.2.30 Radiated Spurious Emission (802.11n-HT20, Ch11, 3 GHz-18 GHz)

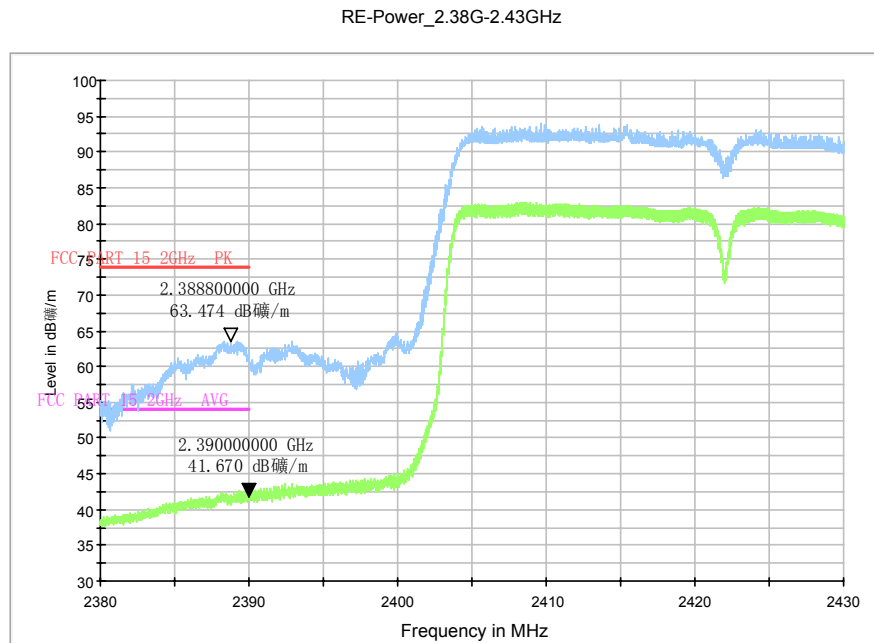


Fig.A.6.2.31 Radiated Spurious Emission (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.45GHz

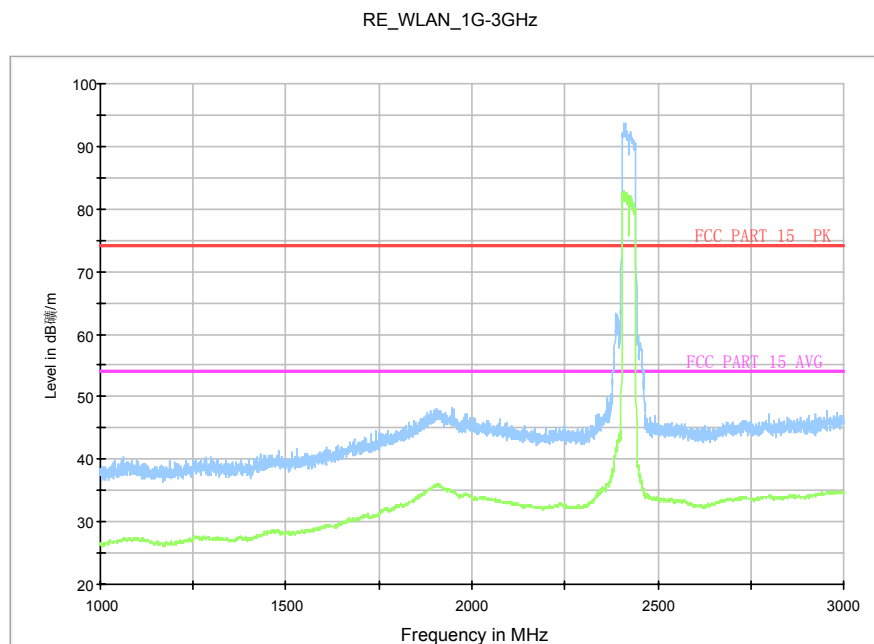


Fig.A.6.2.32 Radiated Spurious Emission (802.11n-HT40, ch3, 1 GHz-3 GHz)

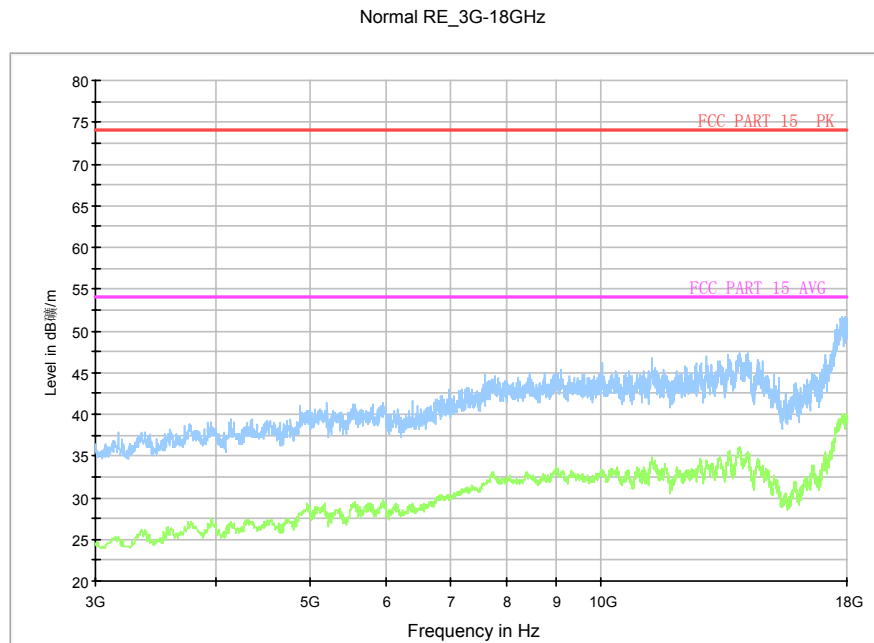


Fig.A.6.2.33 Radiated Spurious Emission (802.11n-HT40, ch3, 3 GHz-18 GHz)

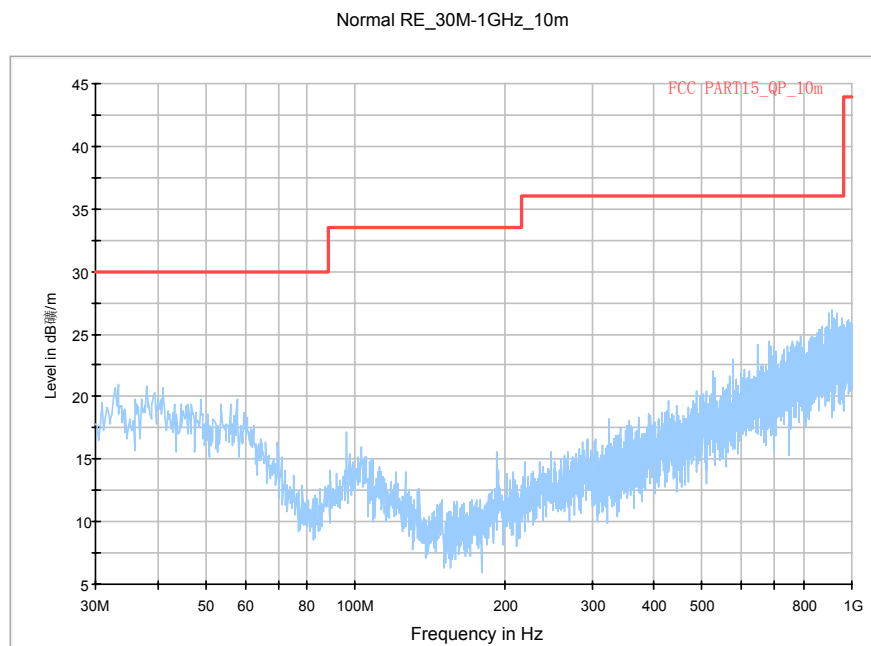


Fig.A.6.2.34 Radiated Spurious Emission (802.11n-HT40, Ch6, 30 MHz-1 GHz)

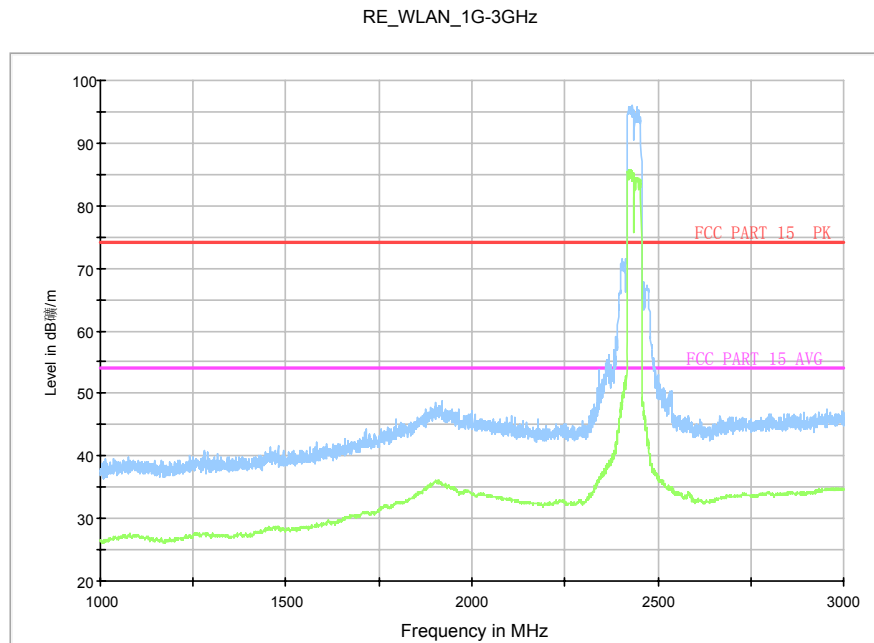


Fig.A.6.2.35 Radiated Spurious Emission (802.11n-HT40, Ch6, 1 GHz-3 GHz)

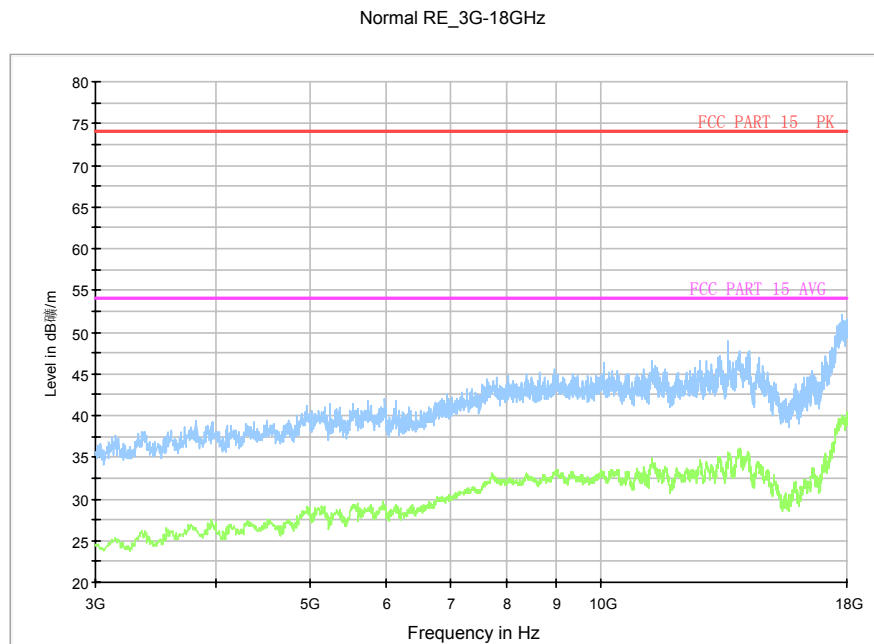


Fig.A.6.2.36 Radiated Spurious Emission (802.11n-HT40, Ch6, 3 GHz-18 GHz)

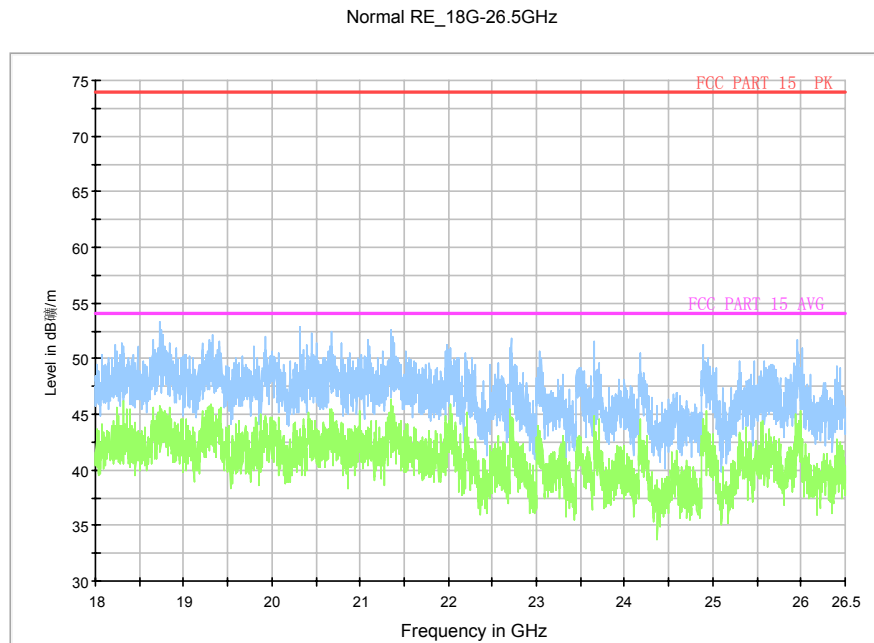


Fig.A.6.2.37 Radiated Spurious Emission (802.11n-HT40, Ch6, 18GHz – 26.5GHz)

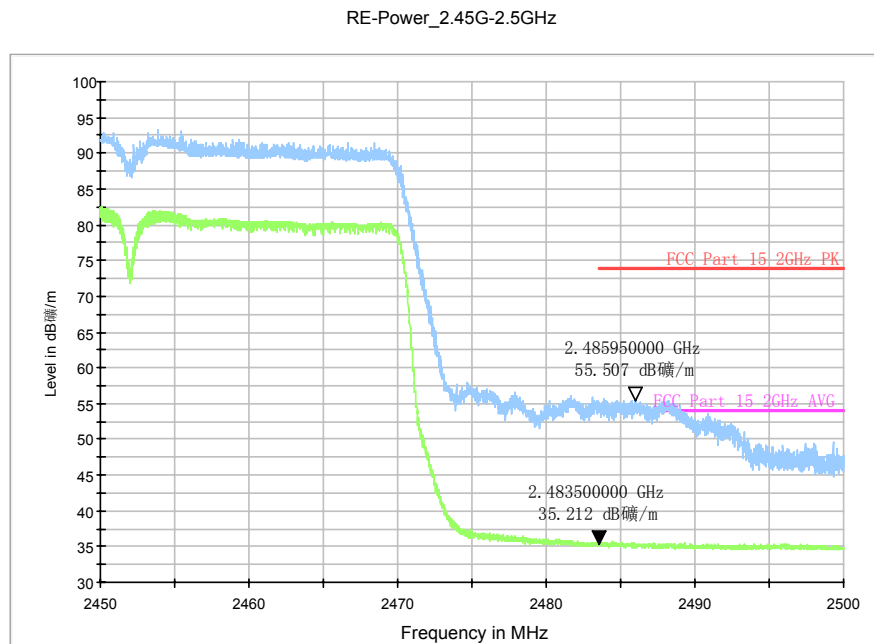


Fig.A.6.2.38 Radiated Spurious Emission (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

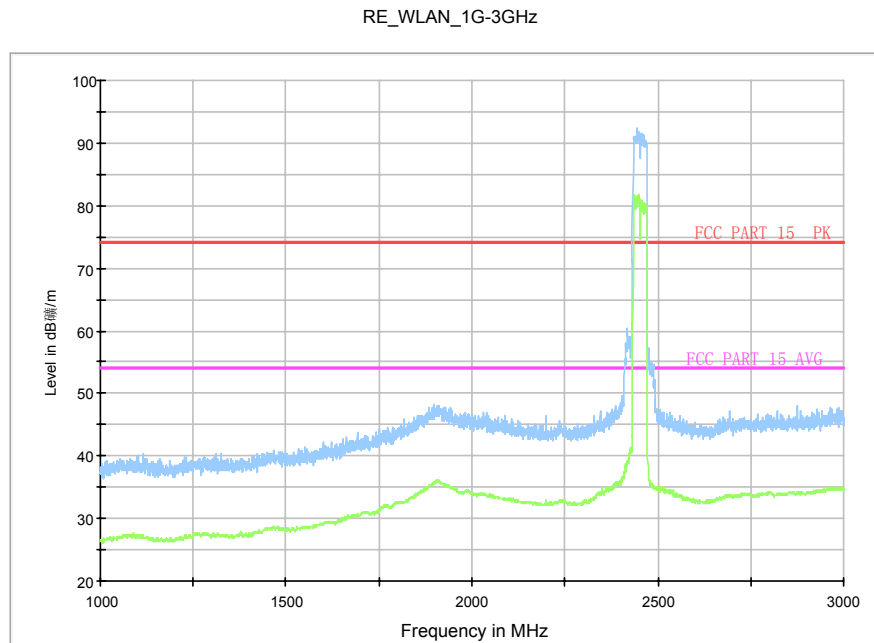


Fig.A.6.2.39 Radiated Spurious Emission (802.11n-HT40, ch9, 1 GHz-3 GHz)

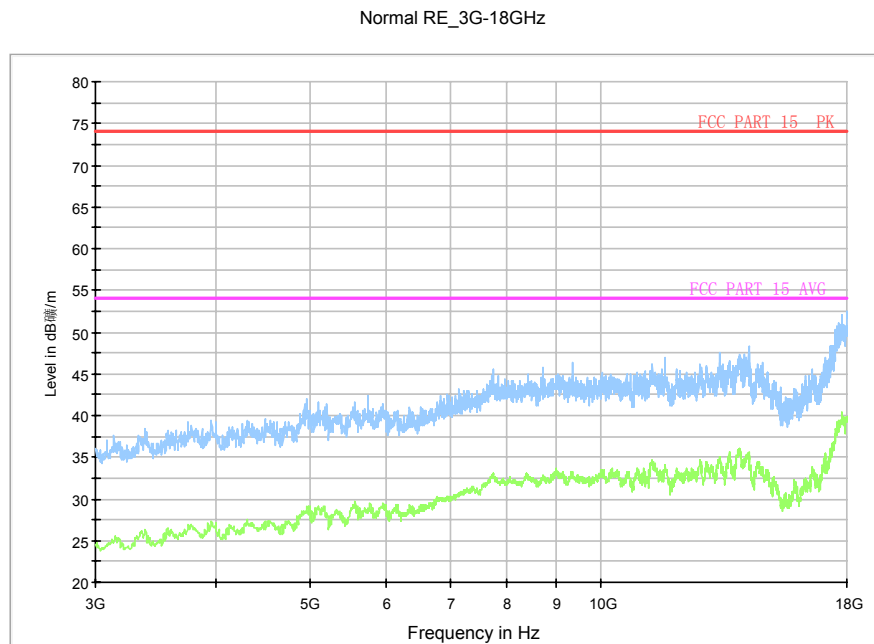


Fig.A.6.2.40 Radiated Spurious Emission (802.11n-HT40, ch9, 3 GHz-18 GHz)

A.7. 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 (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

Measurement uncertainty:

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

Test graphs as below:

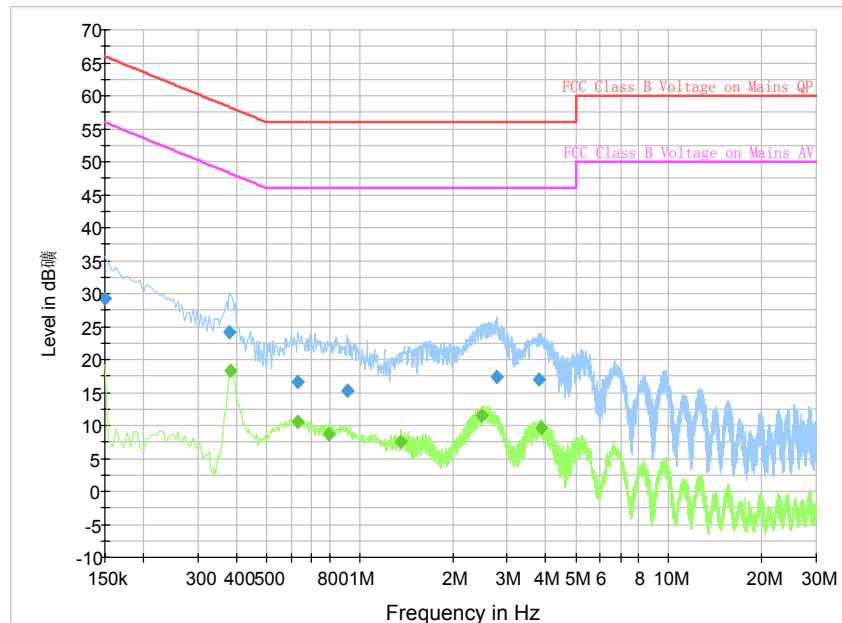


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	29.3	GND	L1	9.8	36.7	66.0
0.379500	24.2	GND	L1	9.8	34.1	58.3
0.631500	16.6	GND	L1	9.8	39.4	56.0
0.910500	15.3	GND	L1	9.7	40.7	56.0
2.778000	17.3	GND	N	9.7	38.7	56.0
3.808500	17.0	GND	N	9.7	39.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.384000	18.3	GND	N	9.8	29.9	48.2
0.631500	10.5	GND	N	9.8	35.5	46.0
0.793500	8.6	GND	L1	9.8	37.4	46.0
1.365000	7.5	GND	L1	9.7	38.5	46.0
2.485500	11.5	GND	L1	9.7	34.5	46.0
3.876000	9.6	GND	L1	9.7	36.4	46.0

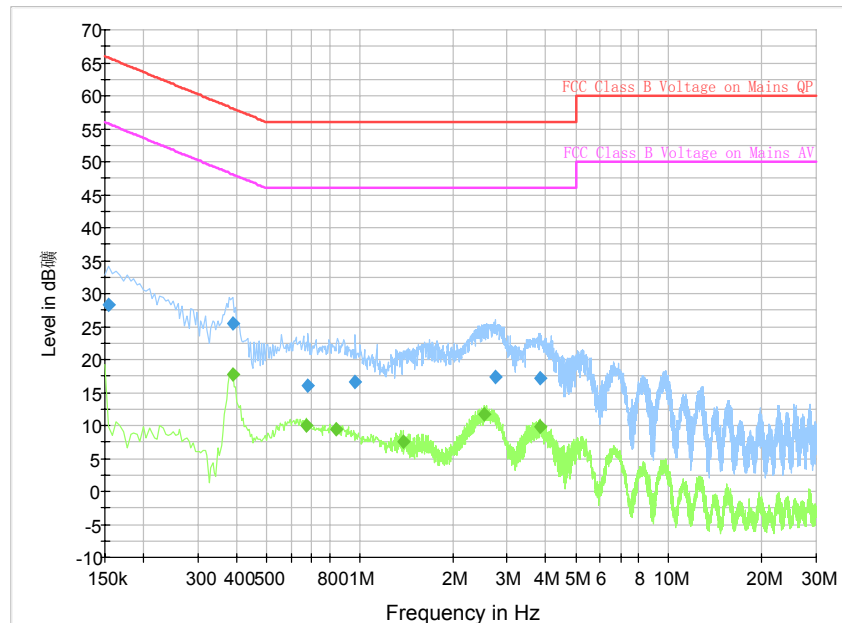


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	28.2	GND	N	9.8	37.5	65.8
0.388500	25.4	GND	N	9.8	32.7	58.1
0.681000	16.0	GND	L1	9.8	40.0	56.0
0.969000	16.7	GND	N	9.7	39.3	56.0
2.755500	17.4	GND	N	9.7	38.6	56.0
3.826500	17.1	GND	N	9.7	38.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.388500	17.7	GND	N	9.8	30.4	48.1
0.672000	10.0	GND	N	9.8	36.0	46.0
0.843000	9.4	GND	N	9.7	36.6	46.0
1.383000	7.5	GND	L1	9.7	38.5	46.0
2.526000	11.6	GND	L1	9.7	34.4	46.0
3.844500	9.9	GND	L1	9.7	36.1	46.0