

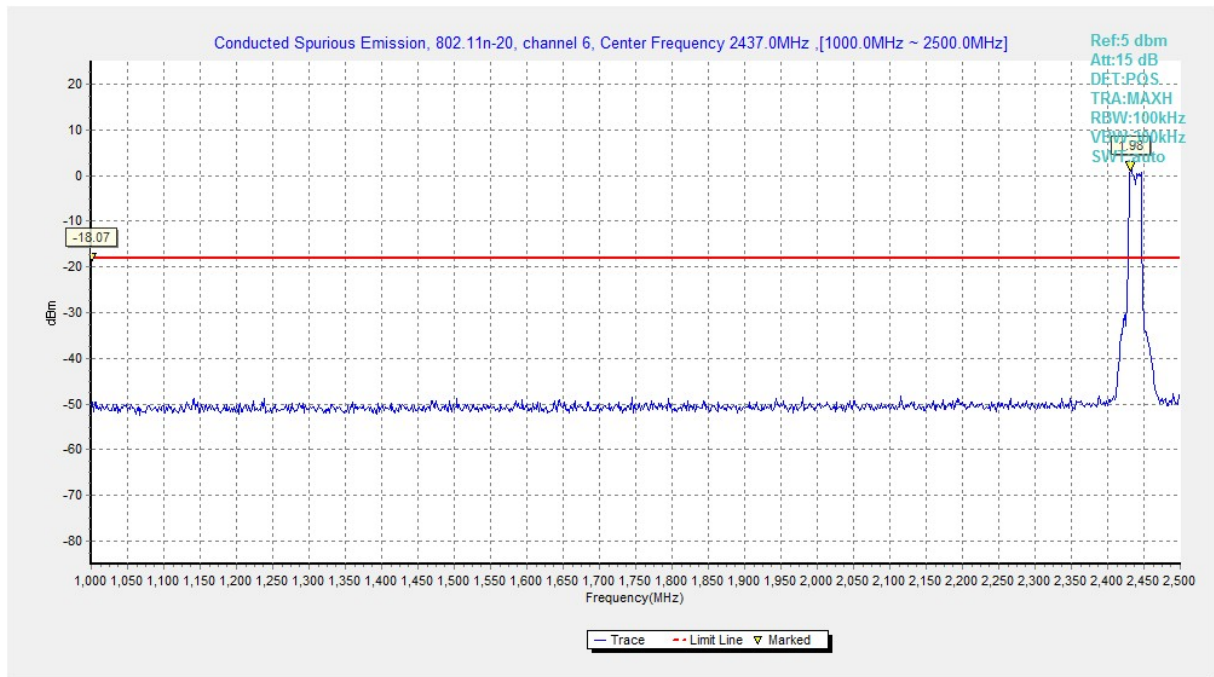


Fig.A.6.1.59 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)

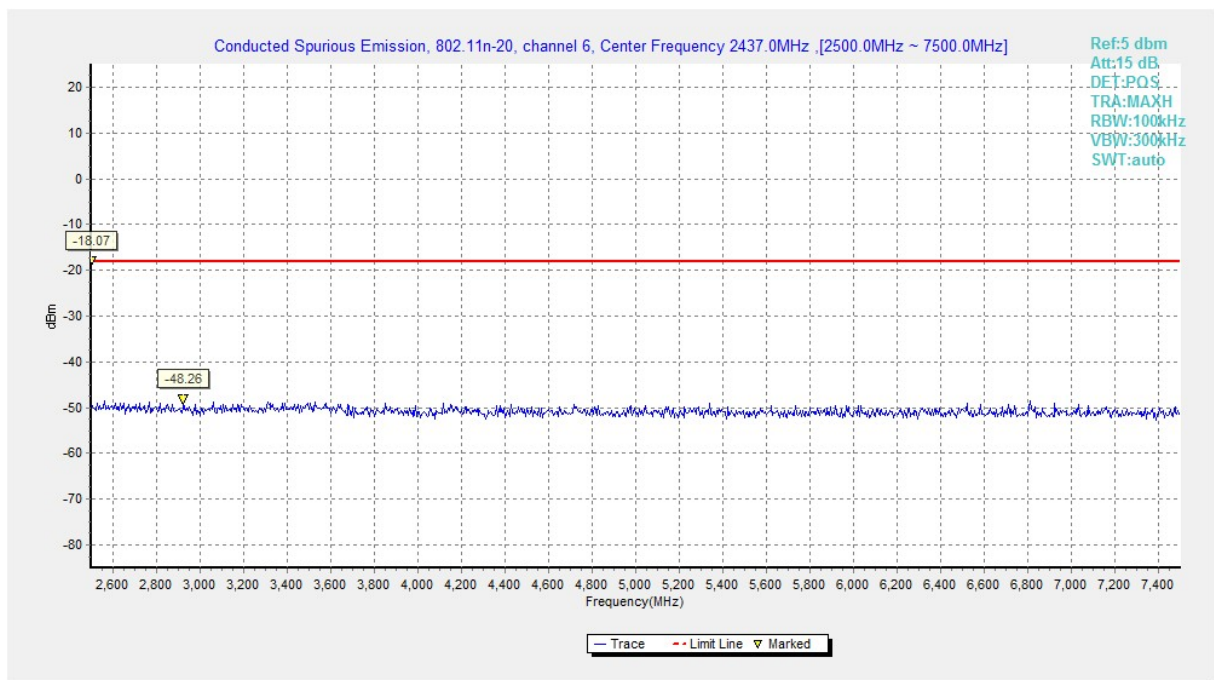


Fig.A.6.1.60 Conducted Spurious Emission (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)

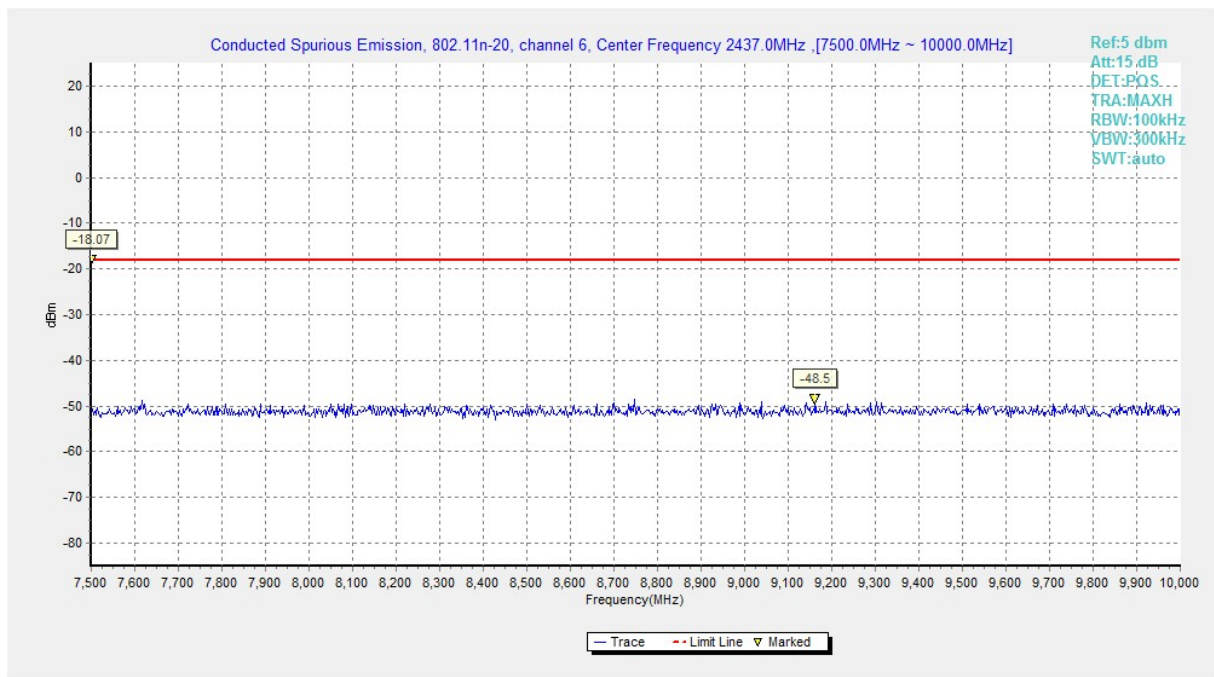


Fig.A.6.1.61 Conducted Spurious Emission (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)

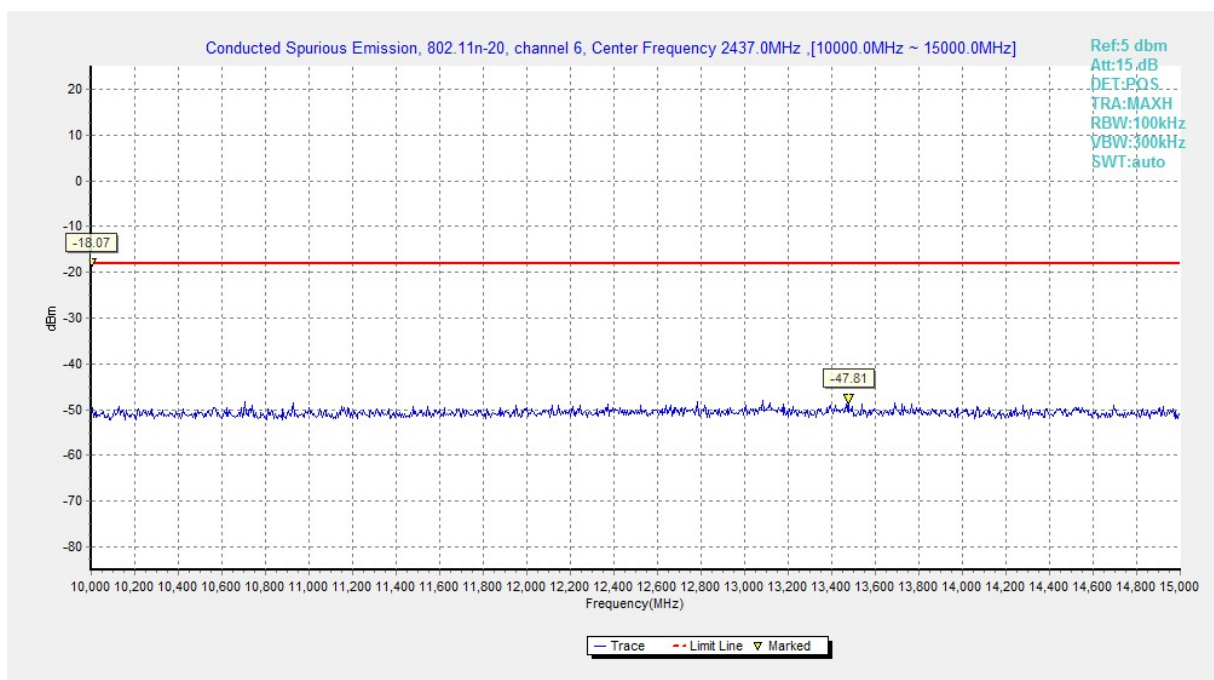


Fig.A.6.1.62 Conducted Spurious Emission (802.11n-HT20, Ch6, 10 GHz-15 GHz)

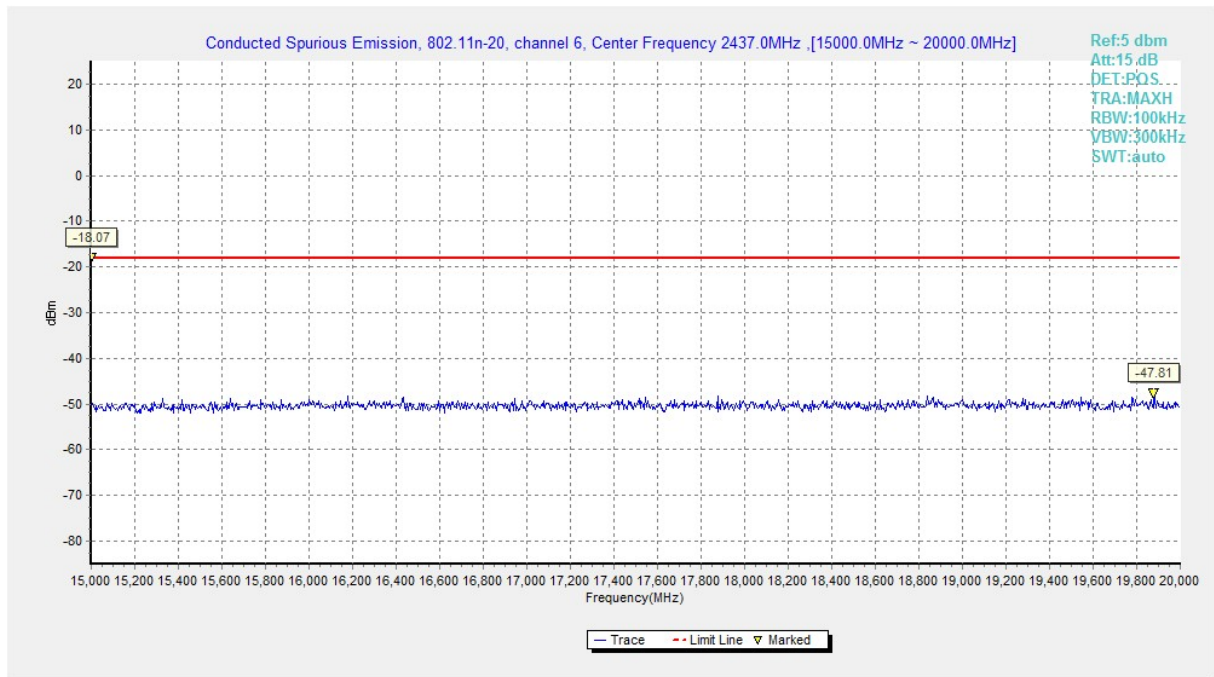


Fig.A.6.1.63 Conducted Spurious Emission (802.11n-HT20, Ch6, 15 GHz-20 GHz)

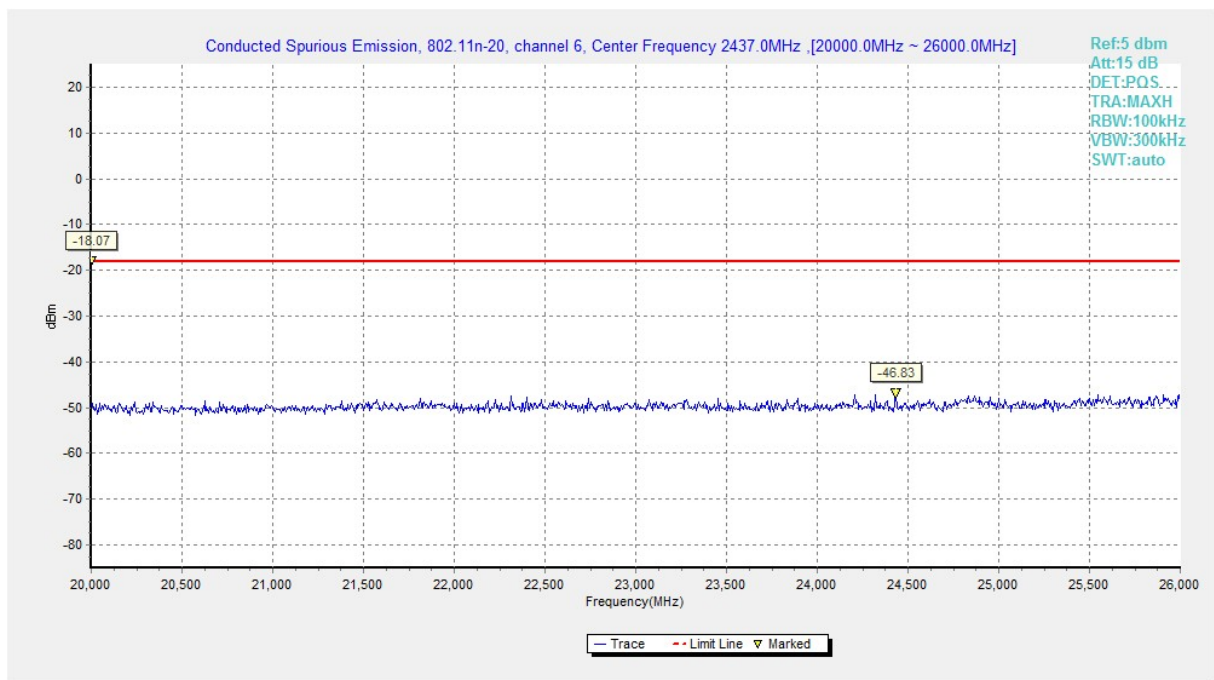


Fig.A.6.1.64 Conducted Spurious Emission (802.11n-HT20, Ch6, 20 GHz-26 GHz)

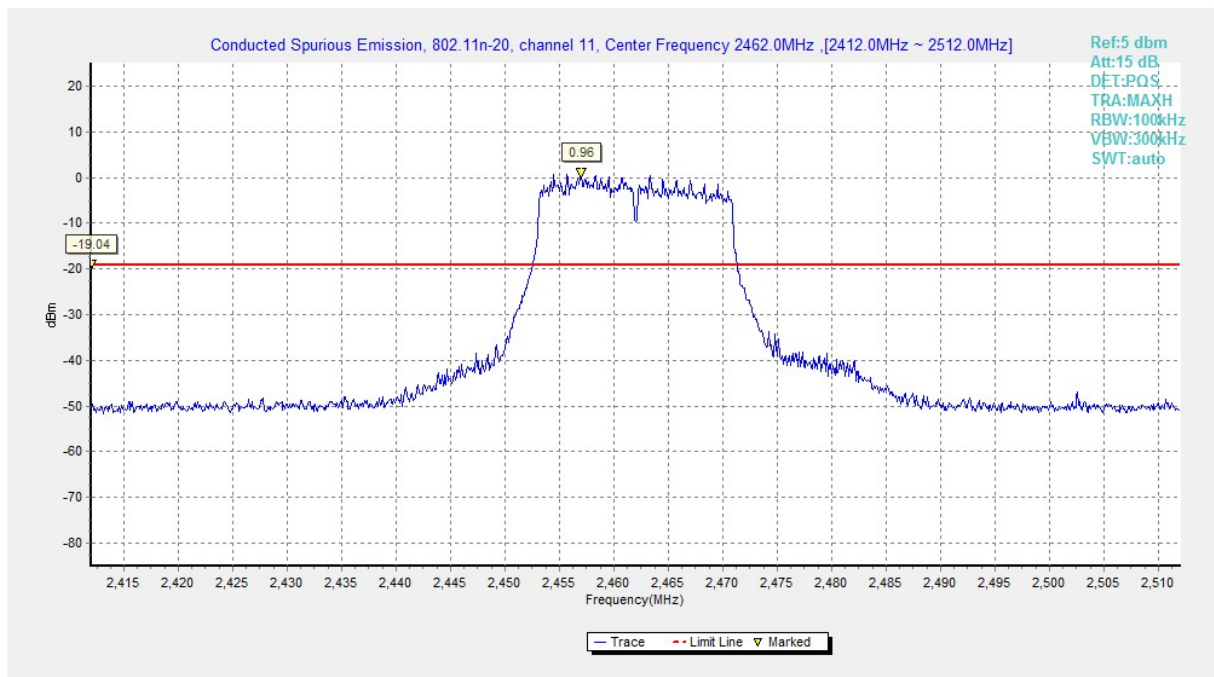


Fig.A.6.1.65 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

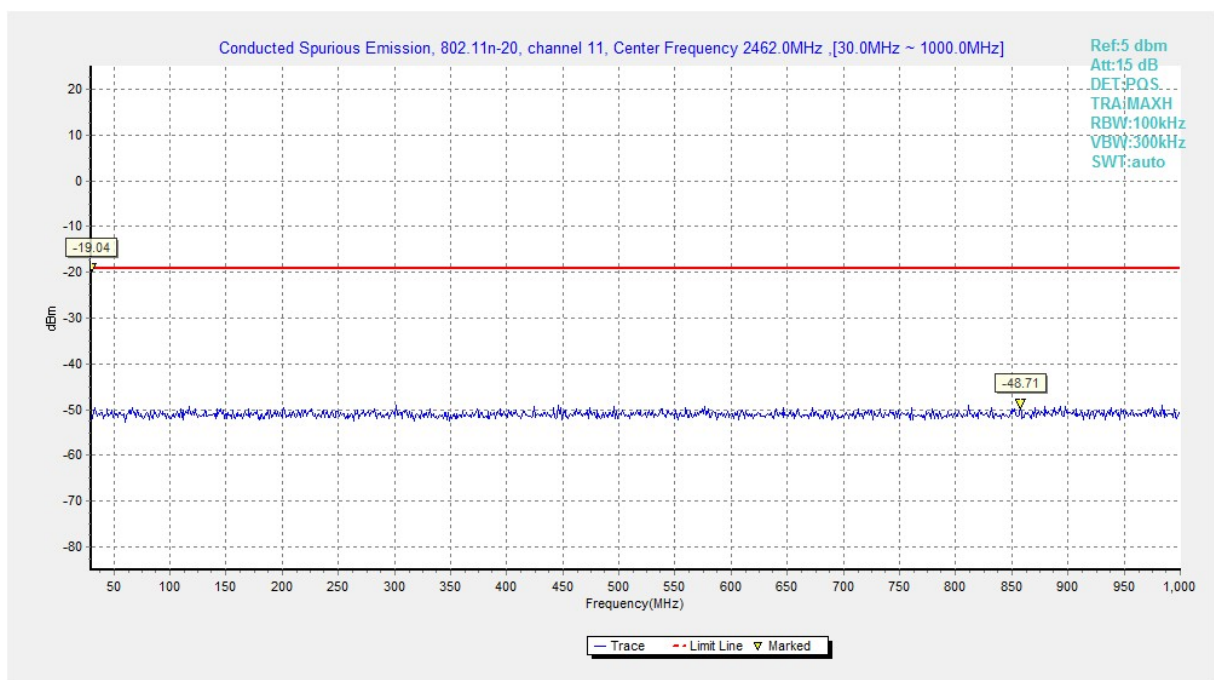


Fig.A.6.1.66 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

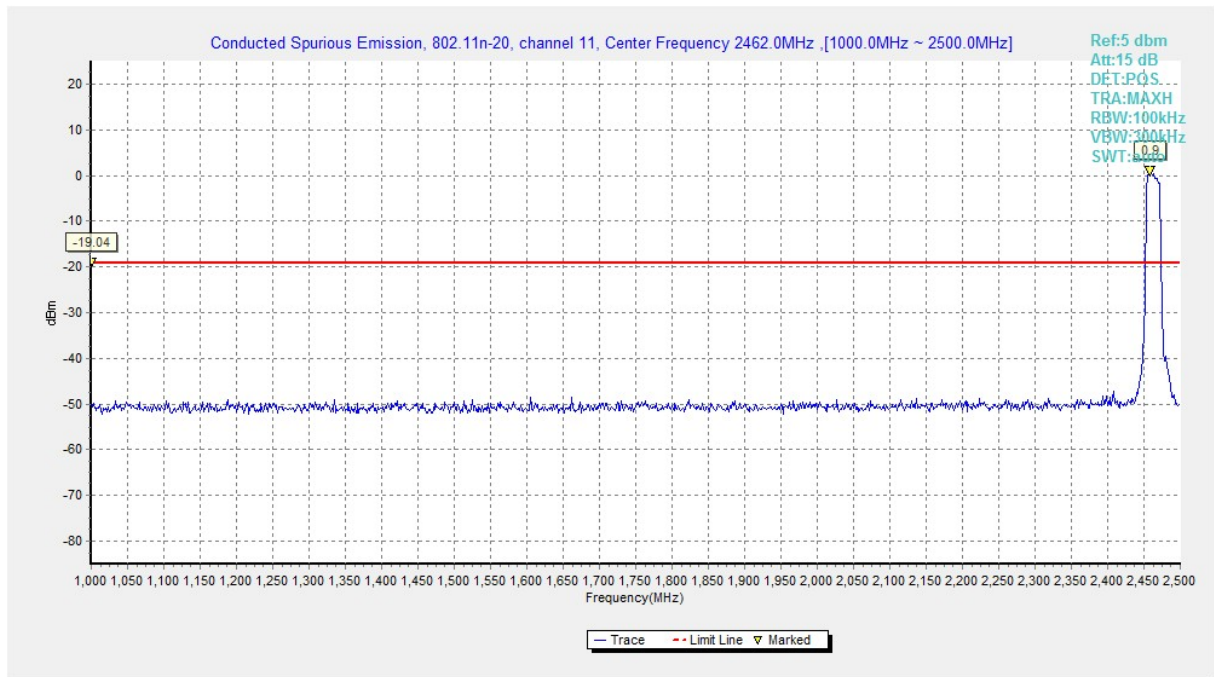


Fig.A.6.1.67 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)

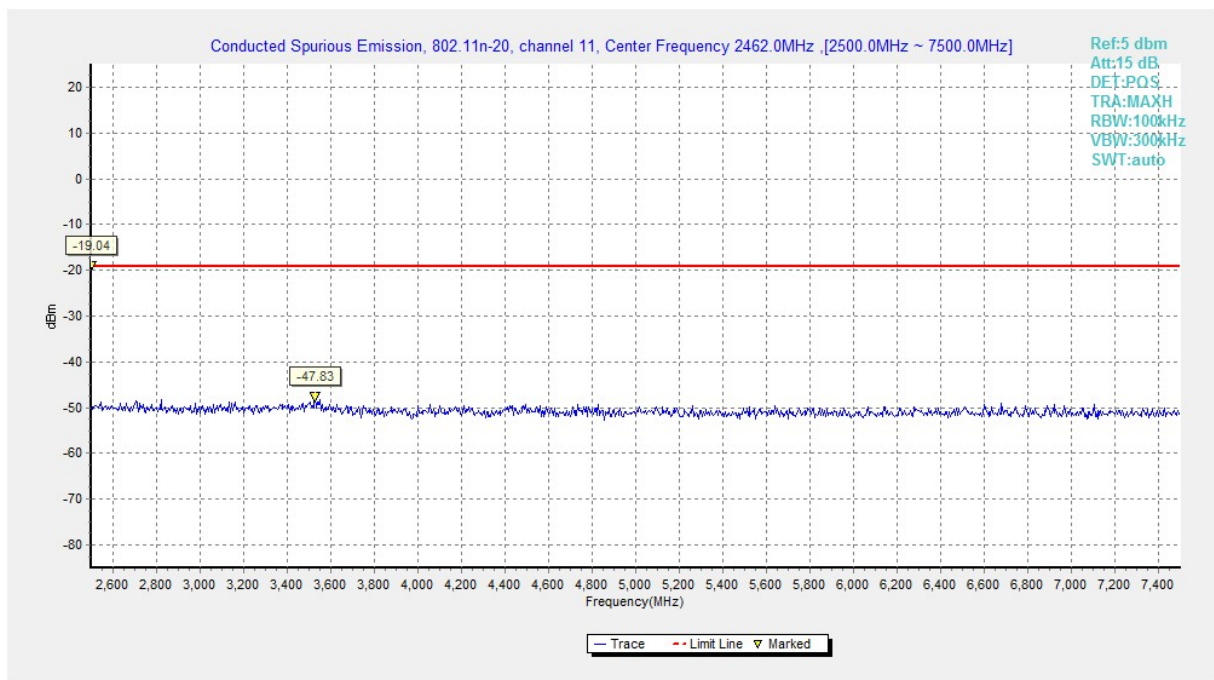


Fig.A.6.1.68 Conducted Spurious Emission (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)

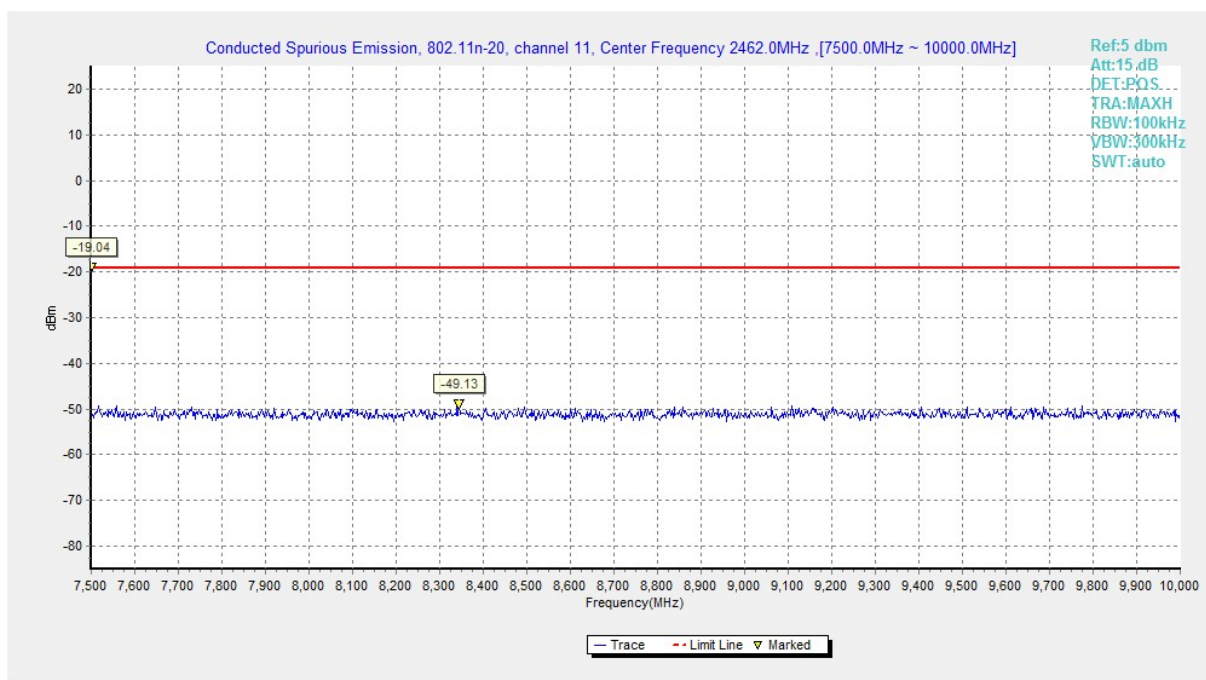


Fig.A.6.1.69 Conducted Spurious Emission (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

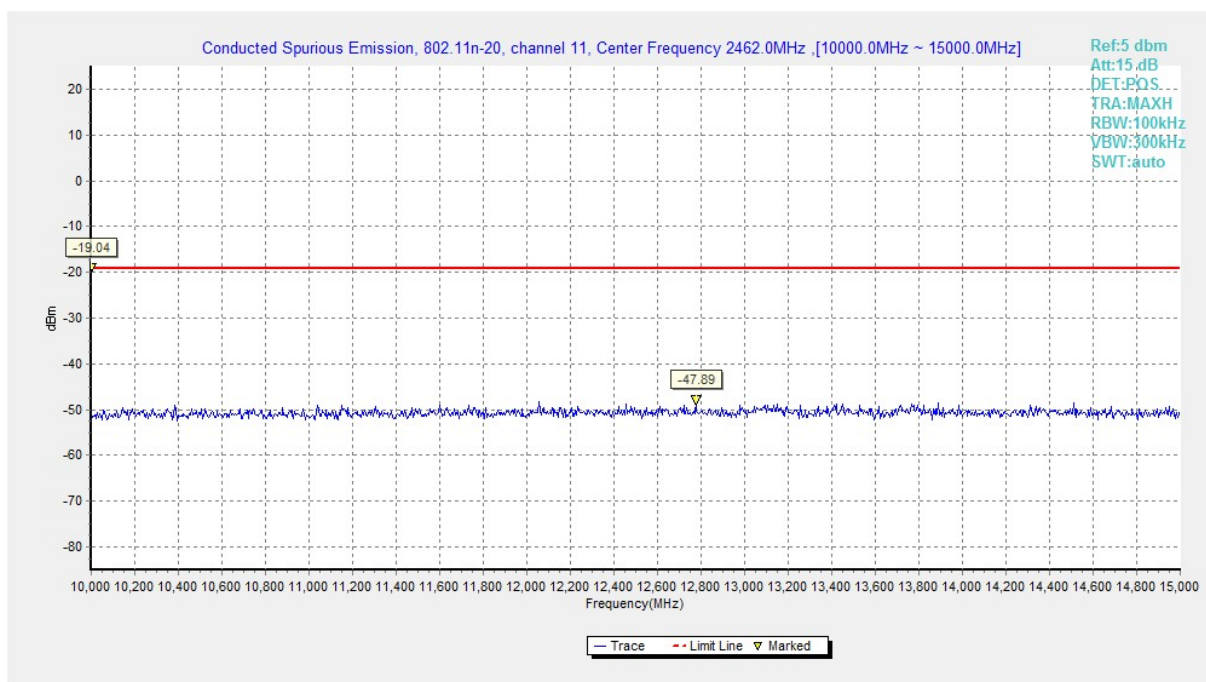


Fig.A.6.1.70 Conducted Spurious Emission (802.11n-HT20, Ch11, 10 GHz-15 GHz)

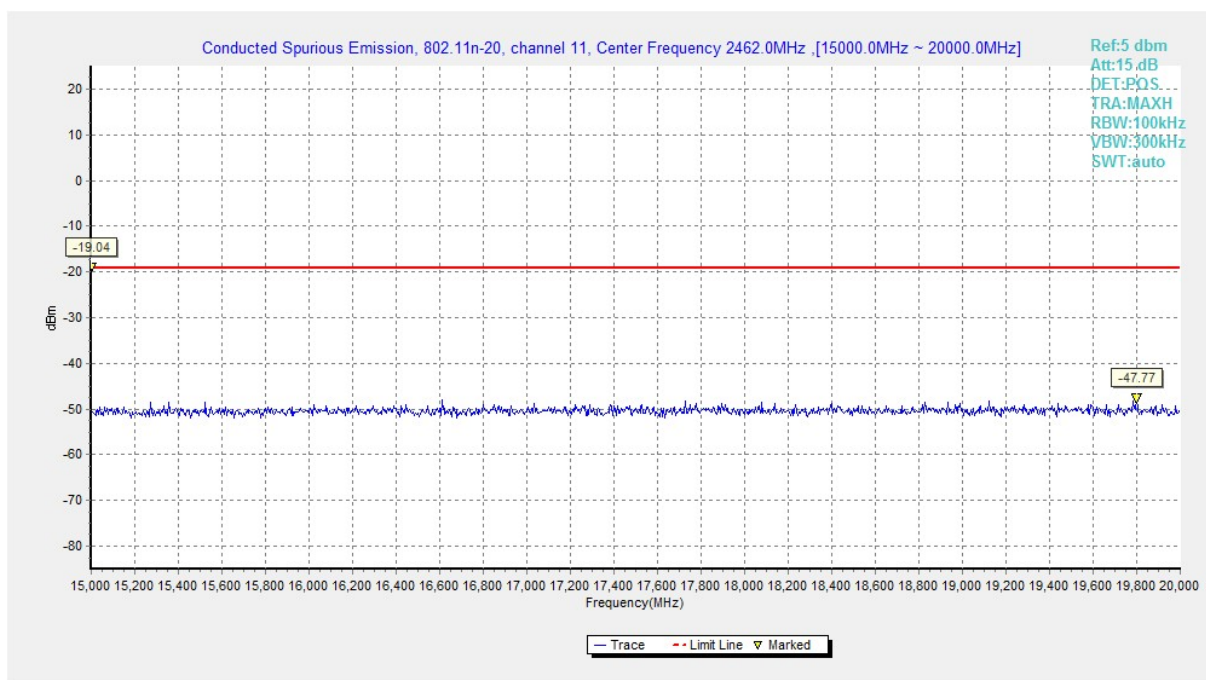


Fig.A.6.1.71 Conducted Spurious Emission (802.11n-HT20, Ch11, 15 GHz-20 GHz)

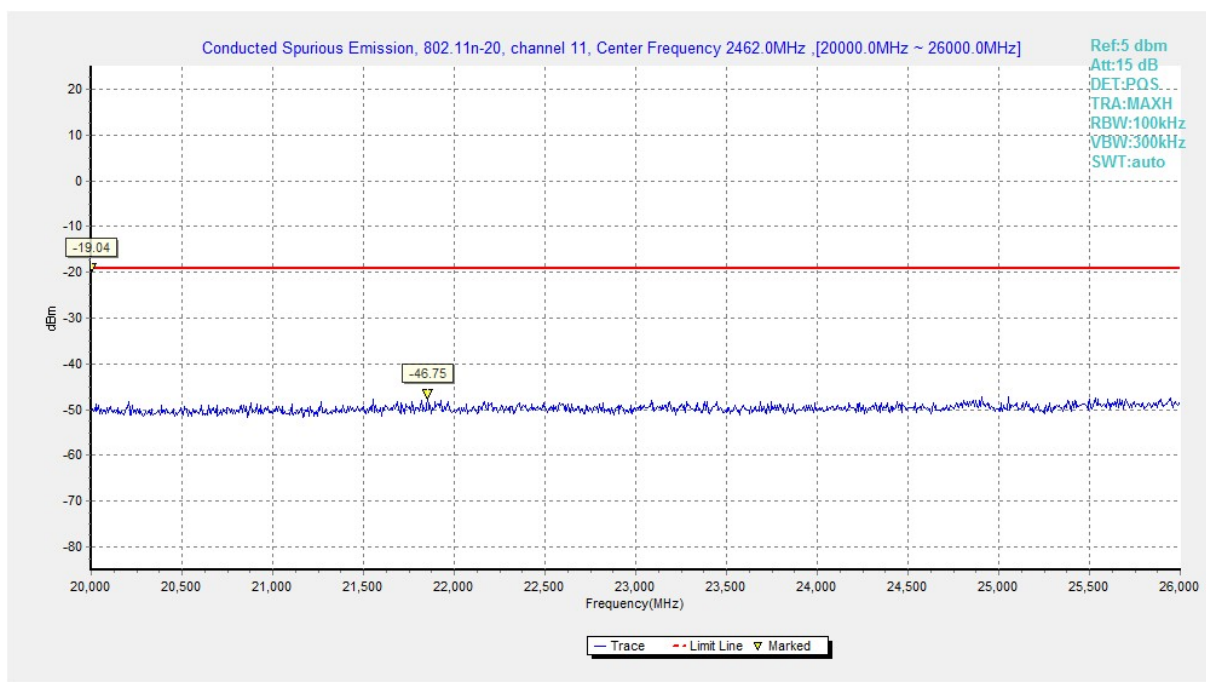


Fig.A.6.1.72 Conducted Spurious Emission (802.11n-HT20, Ch11, 20 GHz-26 GHz)

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
5.5Mbps(CCK)	6Mbps(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

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
2389.400	46.8	-38.8	27.7	57.900	V
17916.000	55.0	-17.7	45.6	27.100	V
17976.000	54.8	-17.7	45.6	26.900	V
17965.500	54.6	-17.7	45.6	26.700	V
17980.500	54.5	-17.7	45.6	26.600	H
18000.000	54.2	-17.7	44.5	27.400	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17989.500	55.9	-17.7	45.6	28.000	V
17955.000	54.4	-17.7	45.6	26.500	V
17992.500	54.4	-17.7	45.6	26.500	V
17995.500	54.3	-17.7	45.6	26.400	V
18000.000	54.1	-17.7	44.5	27.300	H
17773.500	54.0	-18.5	45.6	26.900	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2484.300	49.8	-38.9	27.7	61.000	V
17995.500	55.1	-17.7	45.6	27.200	V
17904.000	55.0	-18.5	45.6	27.900	H
17986.500	54.2	-17.7	45.6	26.300	V
17649.000	54.0	-18.9	45.6	27.300	V
17979.000	54.0	-17.7	45.6	26.100	V

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2389.775	51.8	-38.8	27.7	62.900	V
17965.500	55.4	-17.7	45.6	27.500	V
17991.000	55.1	-17.7	45.6	27.200	V
17962.500	54.4	-17.7	45.6	26.500	V
17995.500	54.0	-17.7	45.6	26.100	V
17923.500	54.0	-17.7	45.6	26.100	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17905.500	55.3	-18.5	45.6	28.200	V
17991.000	54.3	-17.7	45.6	26.400	H
17983.500	54.2	-17.7	45.6	26.300	V
17740.500	54.2	-18.5	45.6	27.100	H
17997.000	54.0	-17.7	45.6	26.100	V
17988.000	54.0	-17.7	45.6	26.100	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.780	64.0	-38.9	27.7	75.200	V
17946.000	54.7	-17.7	45.6	26.800	H
17967.000	54.5	-17.7	45.6	26.600	V
17995.500	54.2	-17.7	45.6	26.300	H
17952.000	54.1	-17.7	45.6	26.200	V
17829.000	54.0	-18.5	45.6	26.900	V

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2389.890	48.6	-38.8	27.7	59.700	V
17998.500	55.2	-17.7	45.6	27.300	H
17992.500	55.0	-17.7	45.6	27.100	V
17809.500	54.3	-18.5	45.6	27.200	V
17965.500	54.2	-17.7	45.6	26.300	V
17988.000	54.2	-17.7	45.6	26.300	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17985.000	55.5	-17.7	45.6	27.600	V
18000.000	54.6	-17.7	44.5	27.800	V
17997.000	54.5	-17.7	45.6	26.600	V
17977.500	54.2	-17.7	45.6	26.300	V
17911.500	54.1	-18.5	45.6	27.000	V
17995.500	54.0	-17.7	45.6	26.100	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
2483.760	59.8	-38.9	27.7	71.000	V
17869.500	54.5	-18.5	45.6	27.400	V
17977.500	54.4	-17.7	45.6	26.500	V
17986.500	54.0	-17.7	45.6	26.100	V
17994.000	53.9	-17.7	45.6	26.000	V
17992.500	53.9	-17.7	45.6	26.000	H

Test graphs as below:

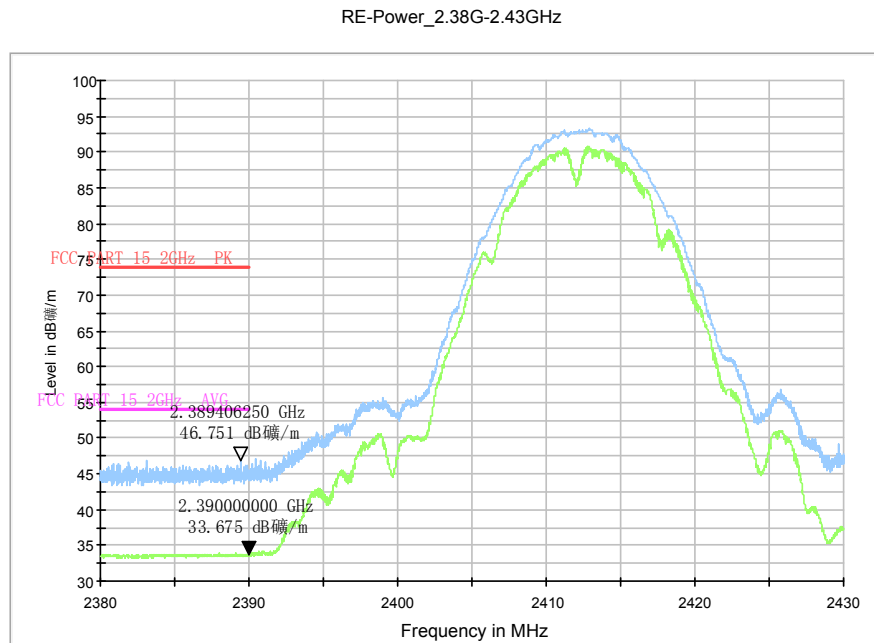


Fig.A.6.2.1 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz – 2.45GHz

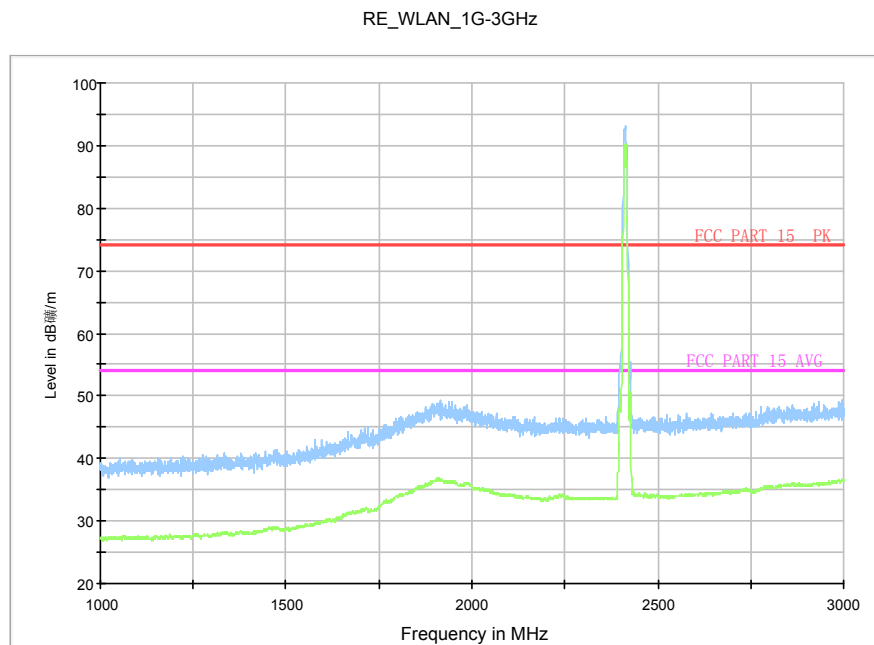


Fig.A.6.2.2 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

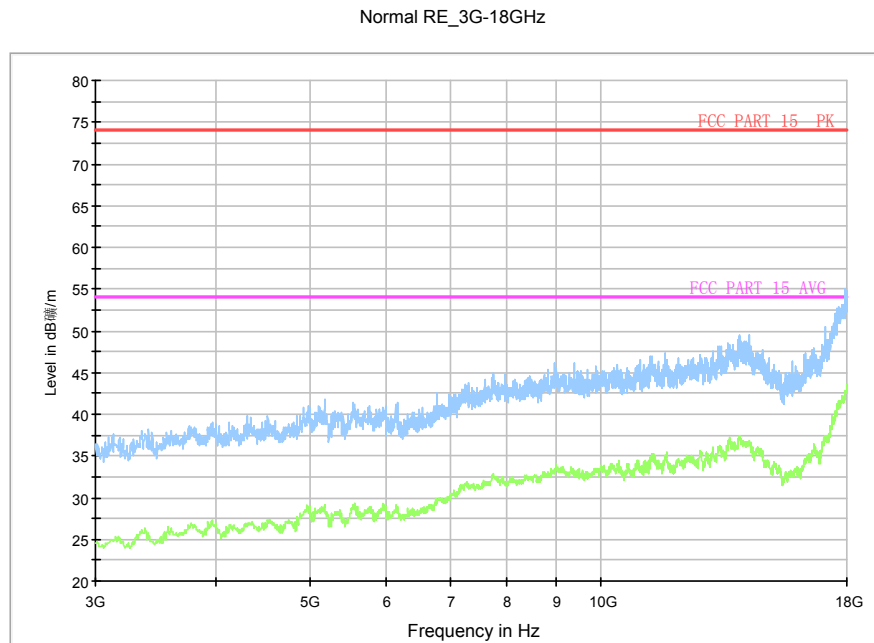


Fig.A.6.2.3 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

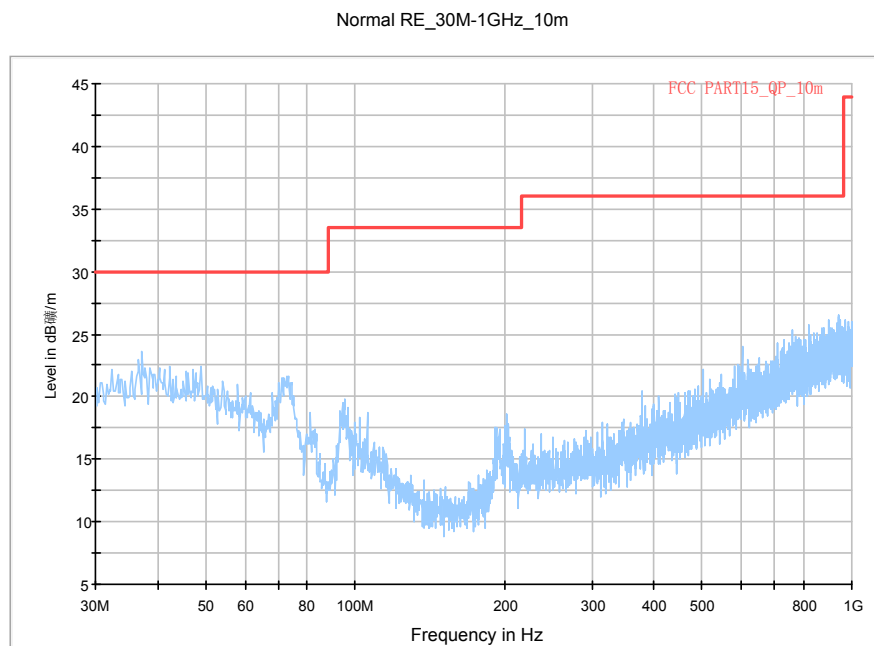


Fig.A.6.2.4 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

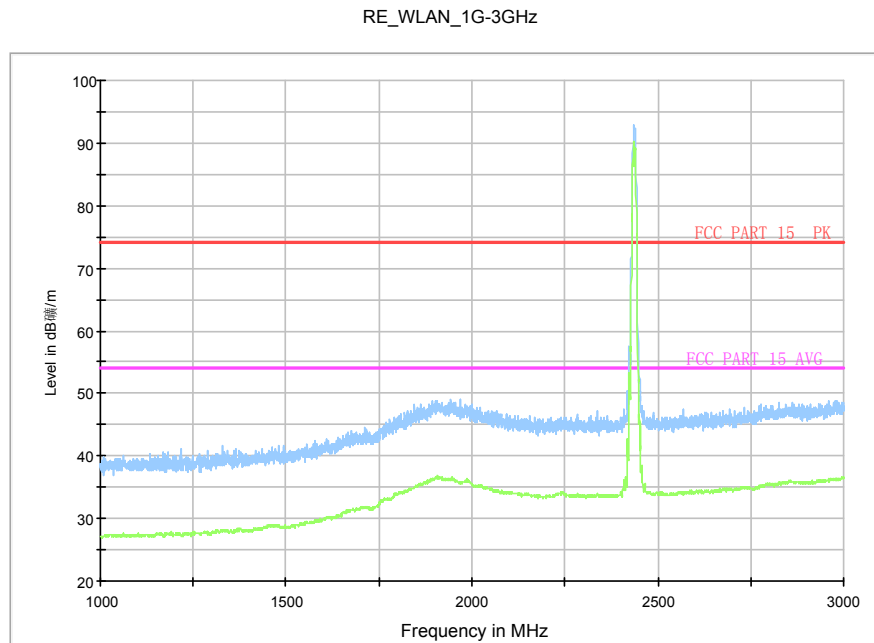


Fig.A.6.2.5 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

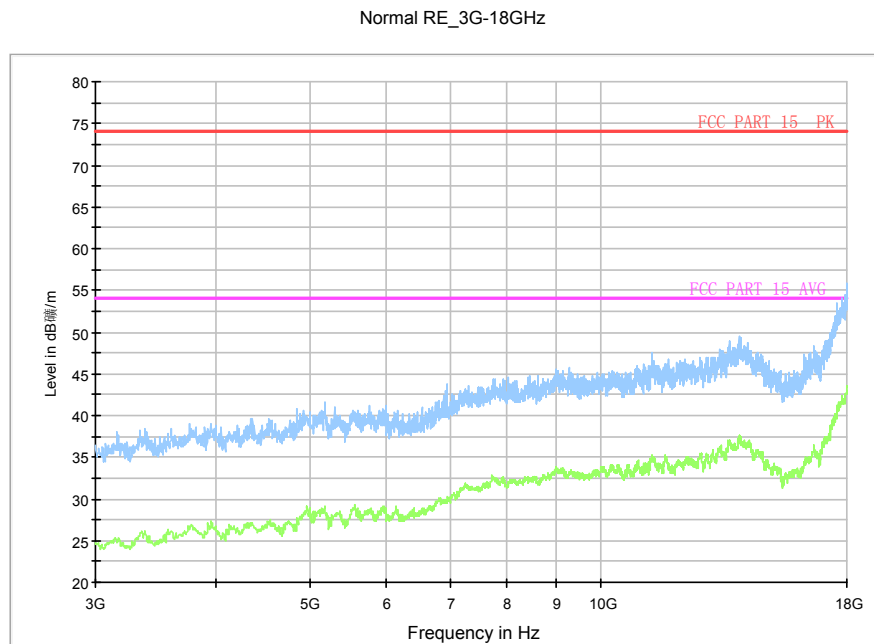


Fig.A.6.2.6 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

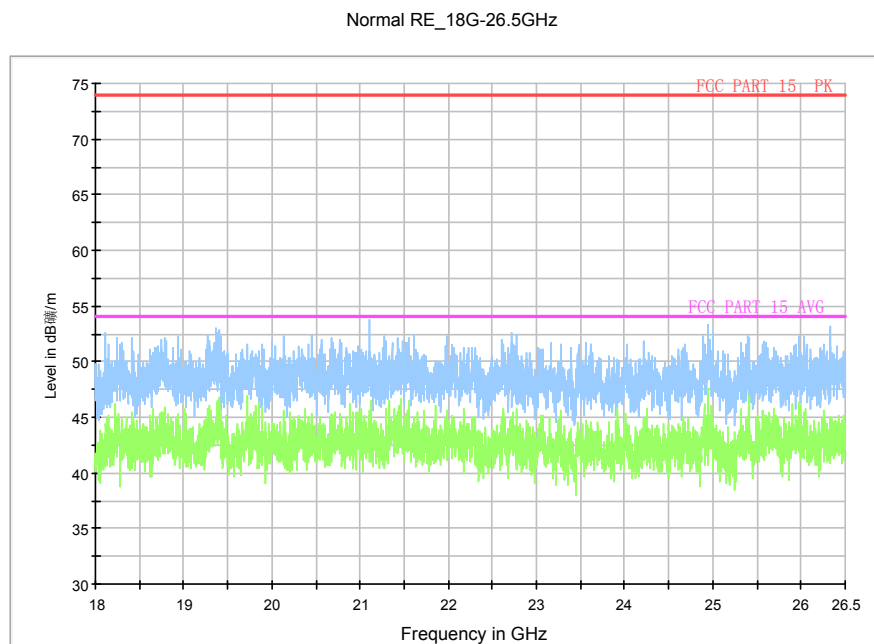


Fig.A.6.2.7 Radiated Spurious Emission (802.11b, Ch6, 18GHz – 26.5GHz)

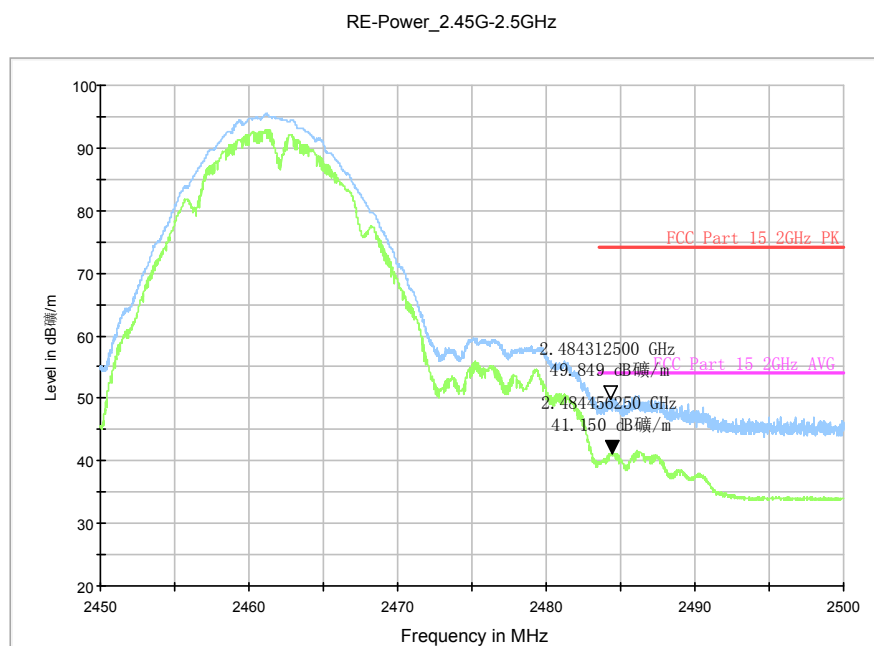


Fig.A.6.2.8 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

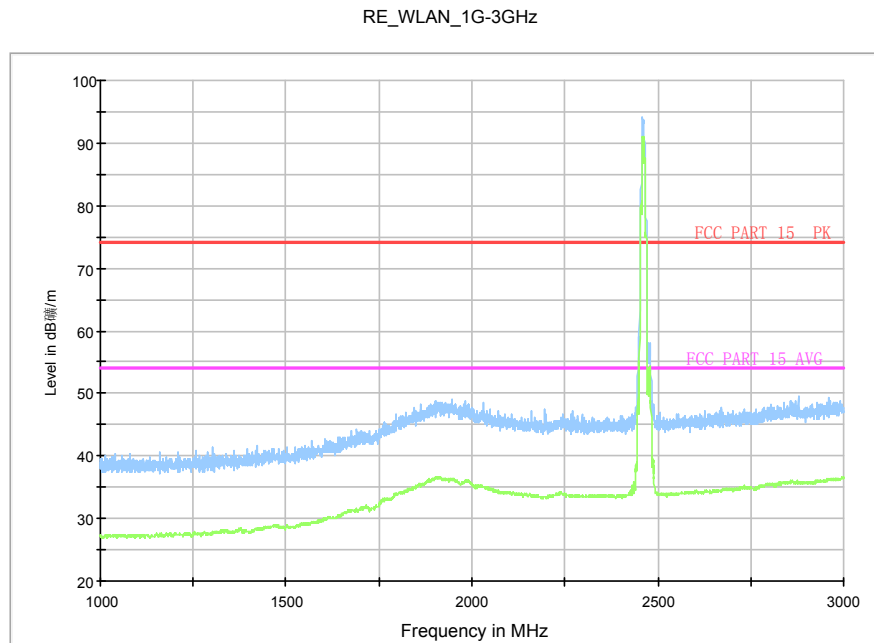


Fig.A.6.2.9 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

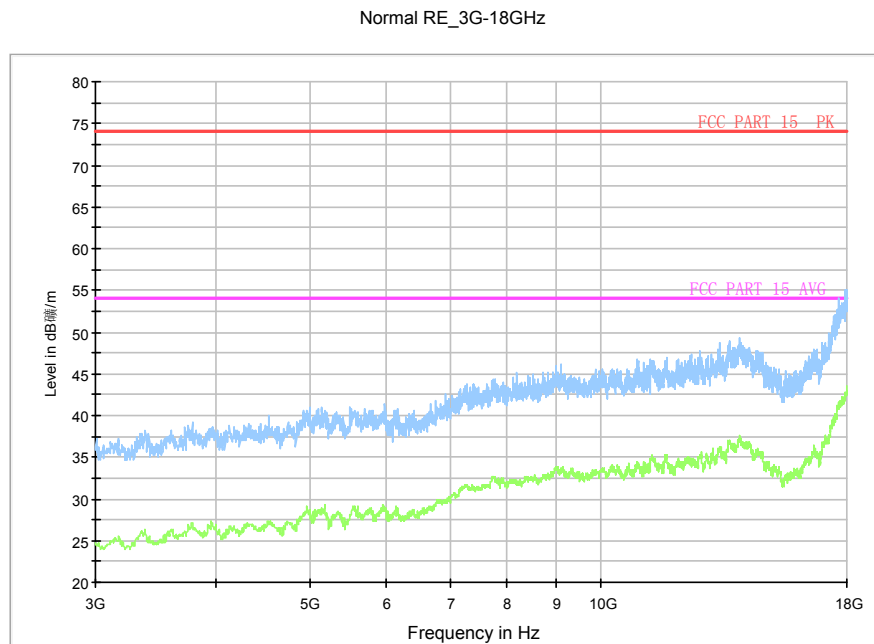


Fig.A.6.2.10 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

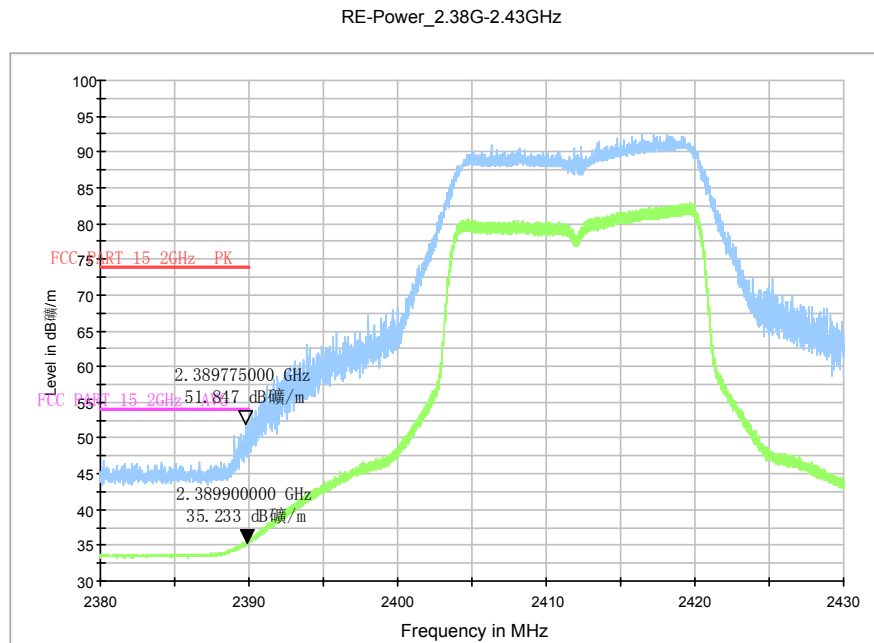


Fig.A.6.2.11 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

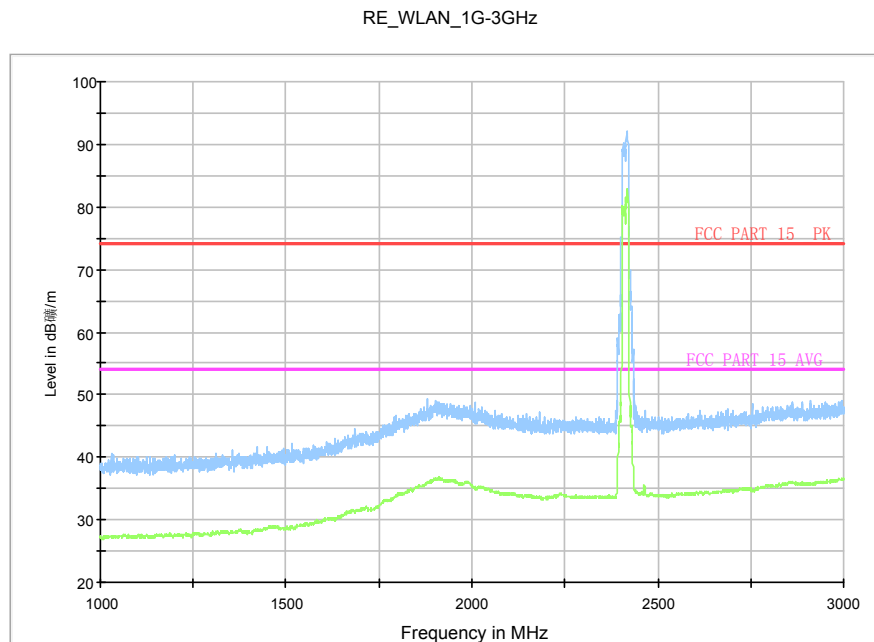


Fig.A.6.2.12 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

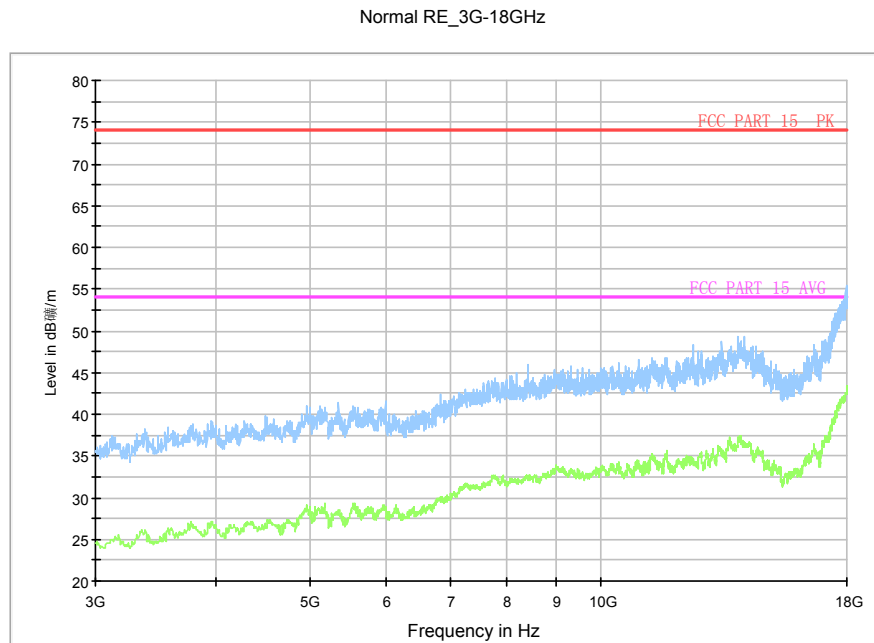


Fig.A.6.2.13 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

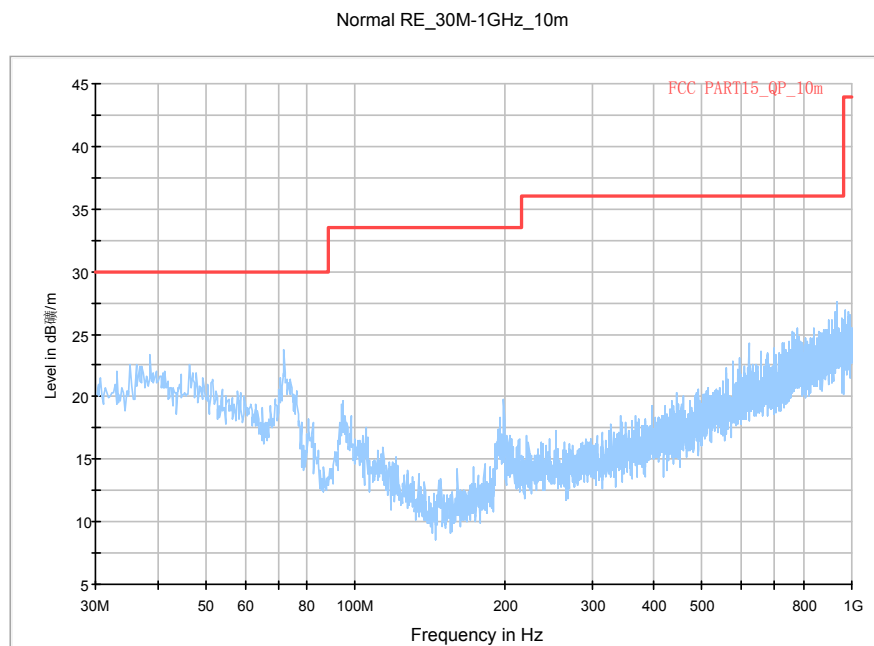


Fig.A.6.2.14 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

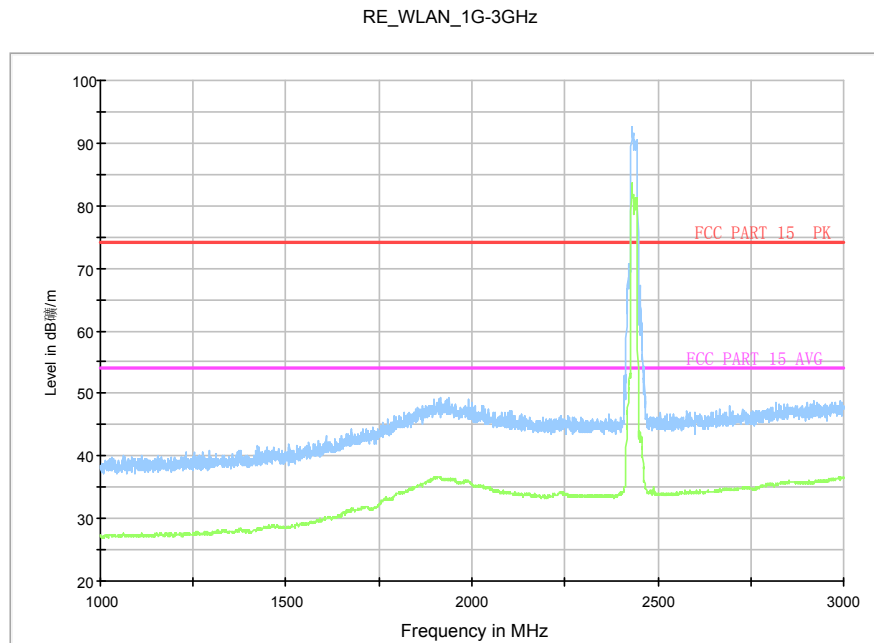


Fig.A.6.2.15 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

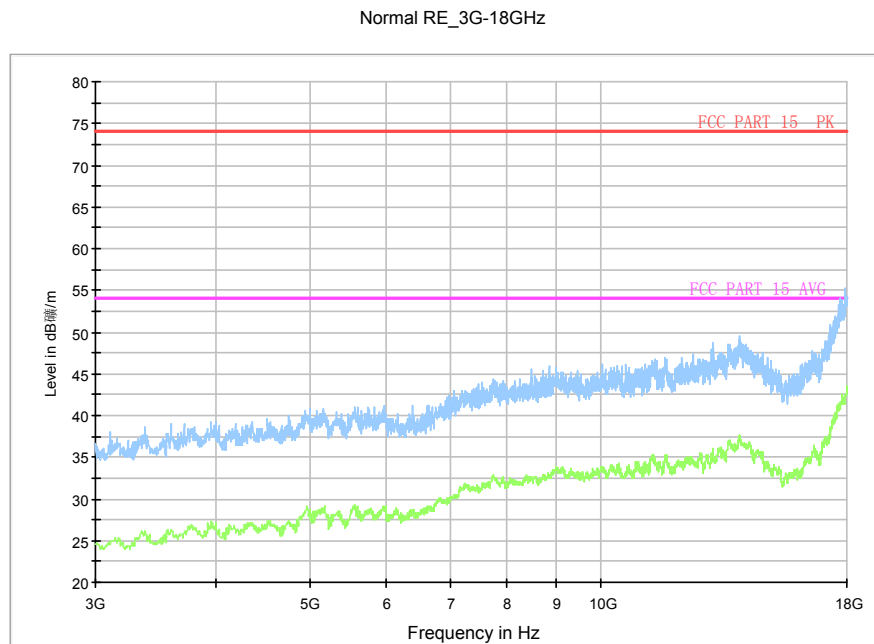


Fig.A.6.2.16 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

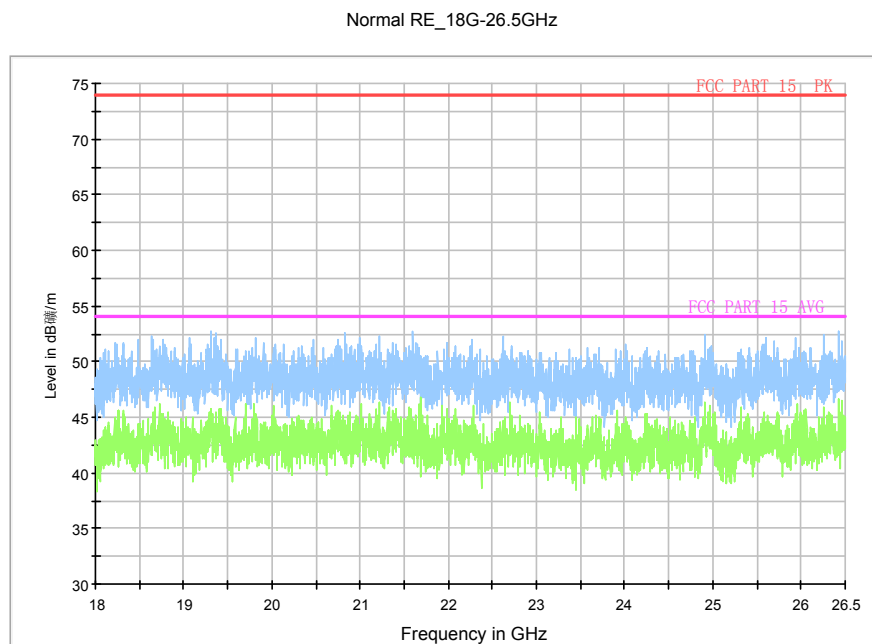


Fig.A.6.2.17 Radiated Spurious Emission (802.11g, Ch6, 18GHz – 26.5GHz)

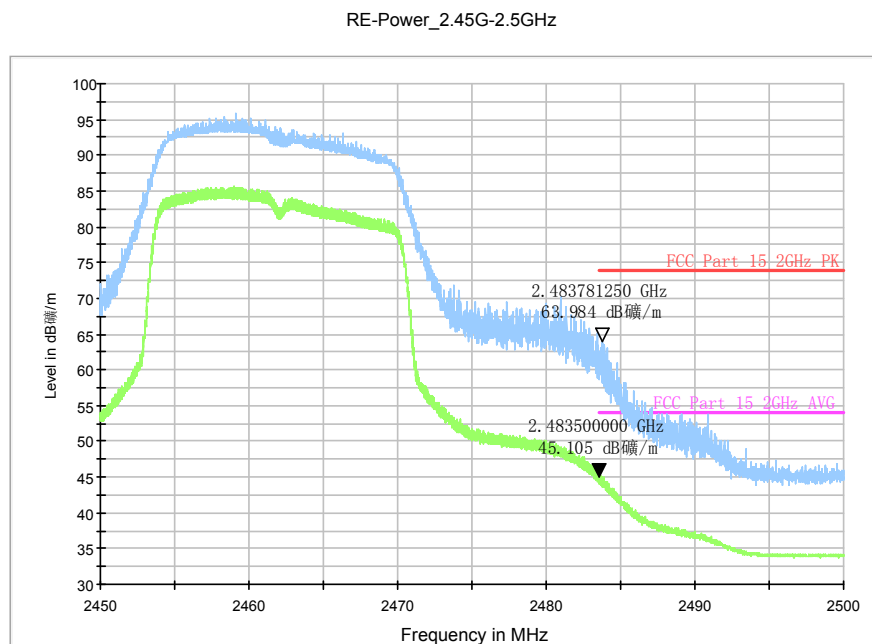


Fig.A.6.2.18 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

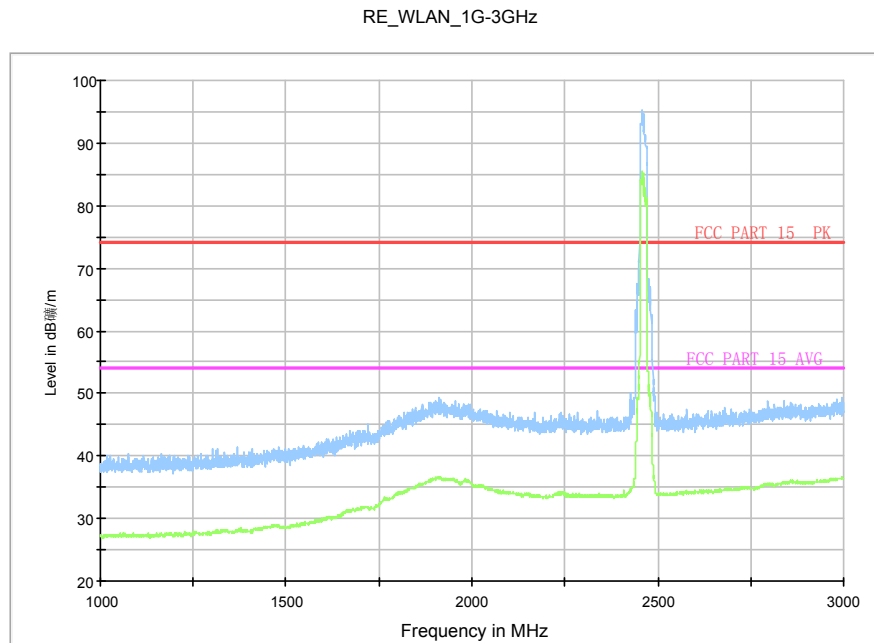


Fig.A.6.2.19 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

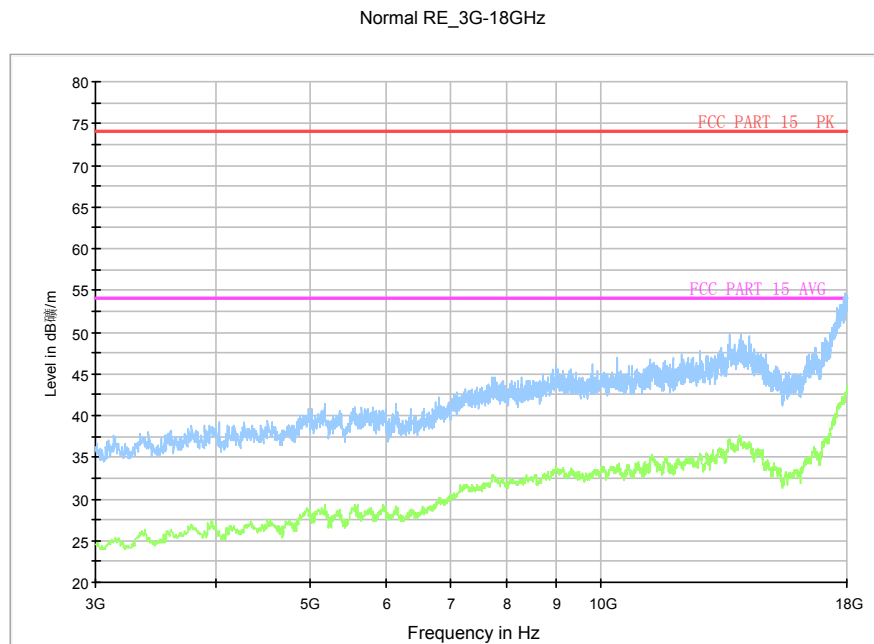


Fig.A.6.2.20 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

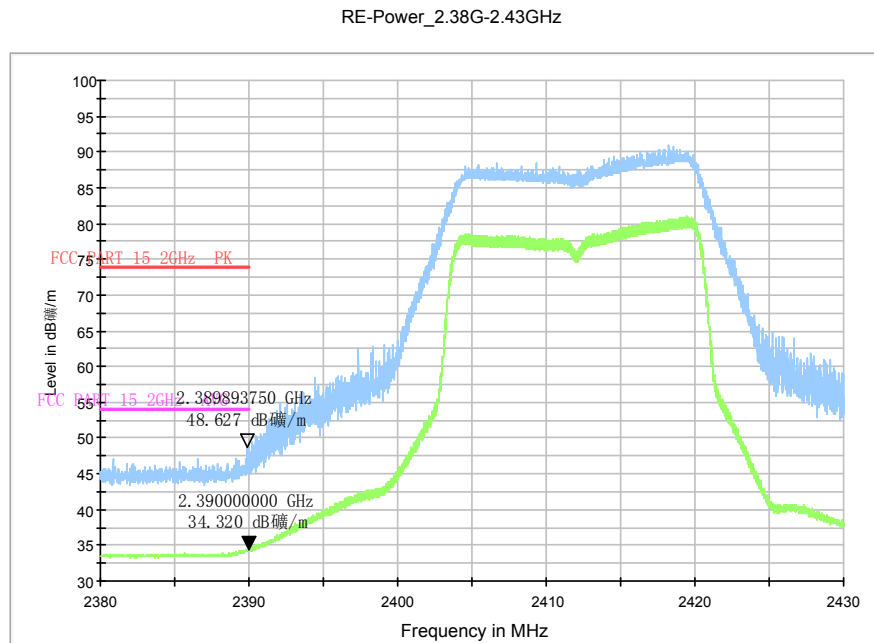


Fig.A.6.2.21 Radiated Spurious Emission (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

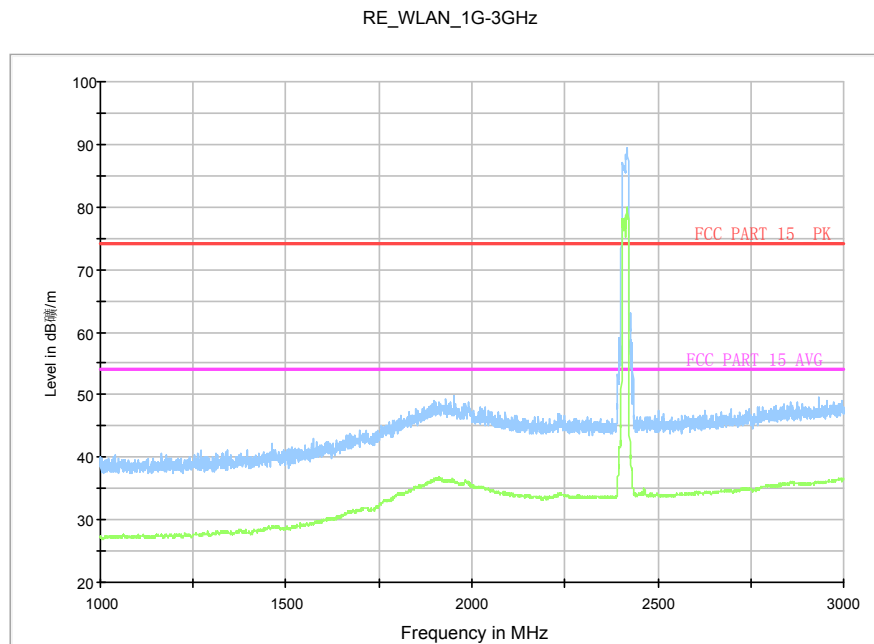


Fig.A.6.2.22 Radiated Spurious Emission (802.11n-HT20, Ch1, 1 GHz-3 GHz)

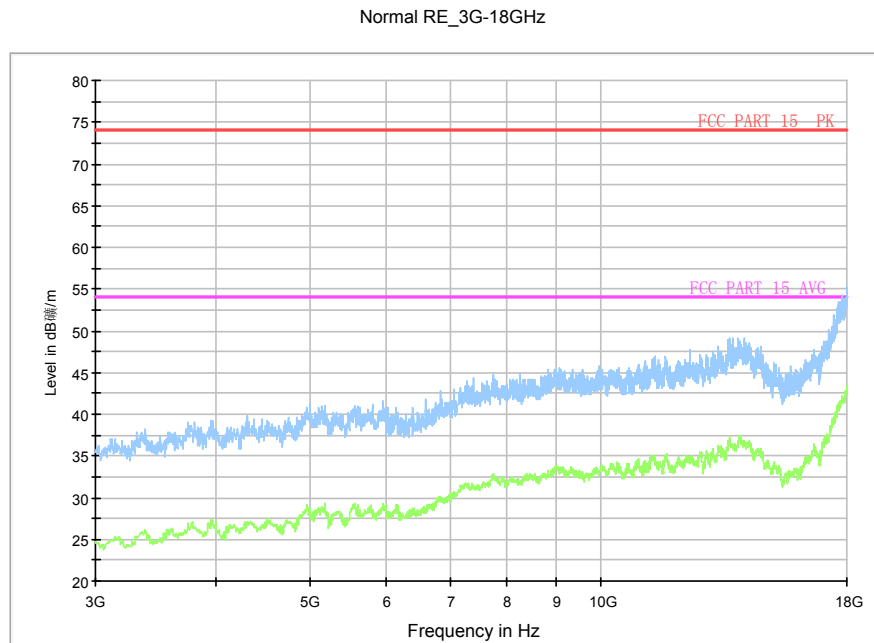


Fig.A.6.2.23 Radiated Spurious Emission (802.11n-HT20, Ch1, 3 GHz-18 GHz)

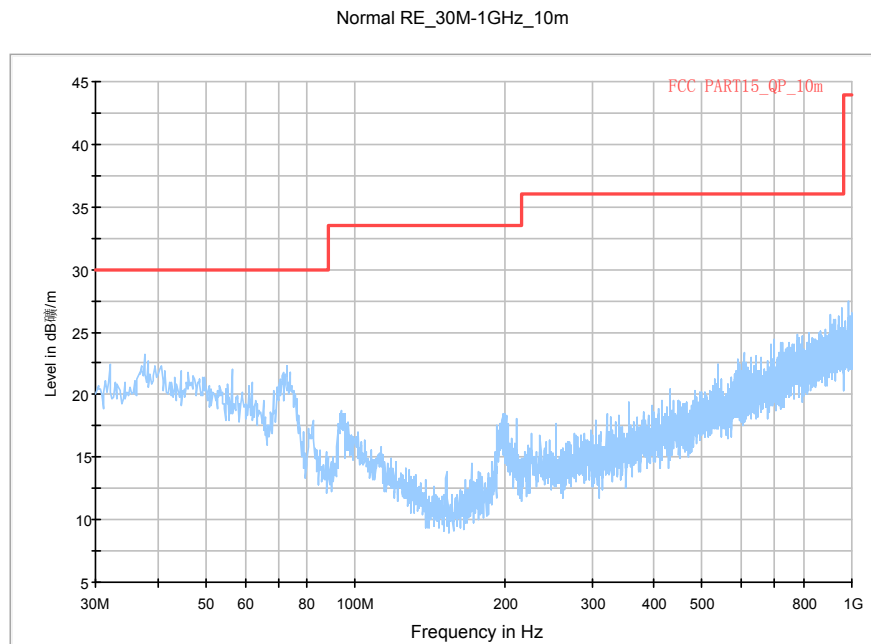


Fig.A.6.2.24 Radiated Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

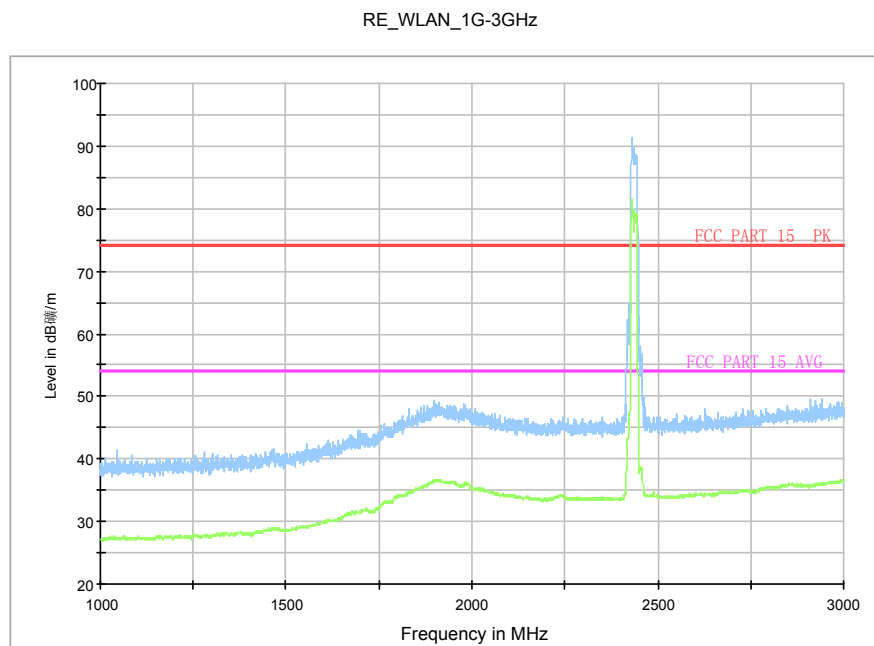


Fig.A.6.2.25 Radiated Spurious Emission (802.11n-HT20, Ch6, 1 GHz-3 GHz)

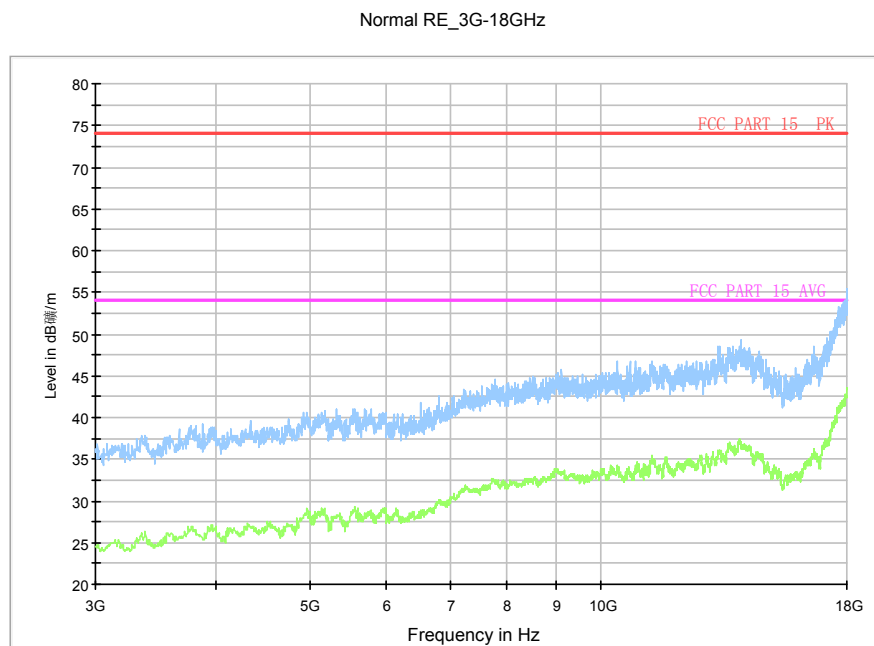


Fig.A.6.2.26 Radiated Spurious Emission (802.11n-HT20, Ch6, 3 GHz-18 GHz)

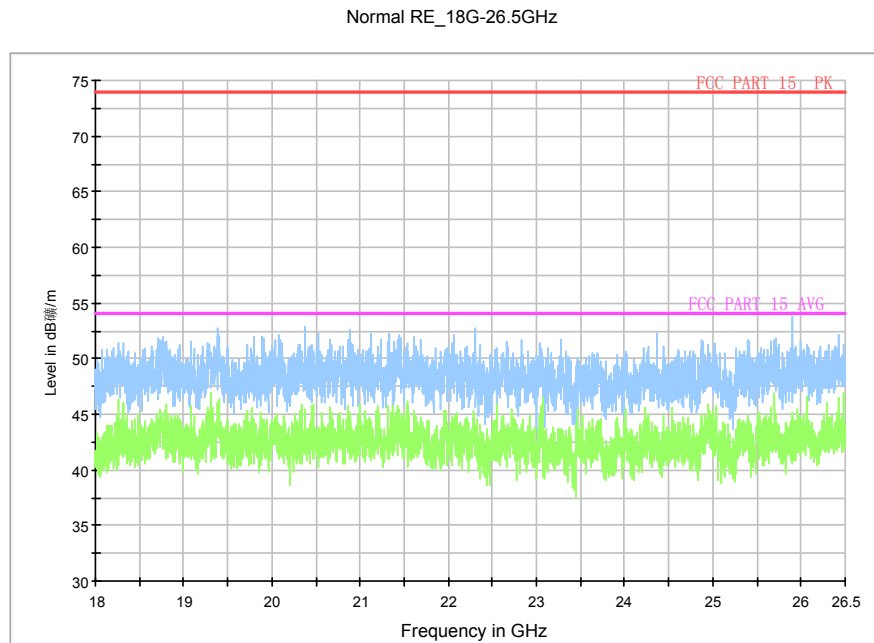


Fig.A.6.2.27 Radiated Spurious Emission (802.11n-HT20, Ch6, 18GHz – 26.5GHz)

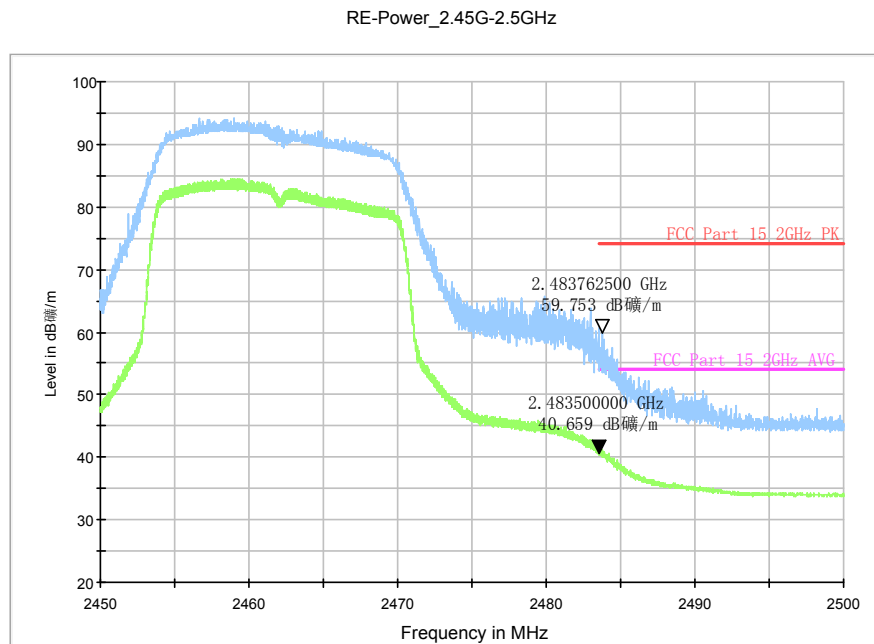


Fig.A.6.2.28 Radiated Spurious Emission (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

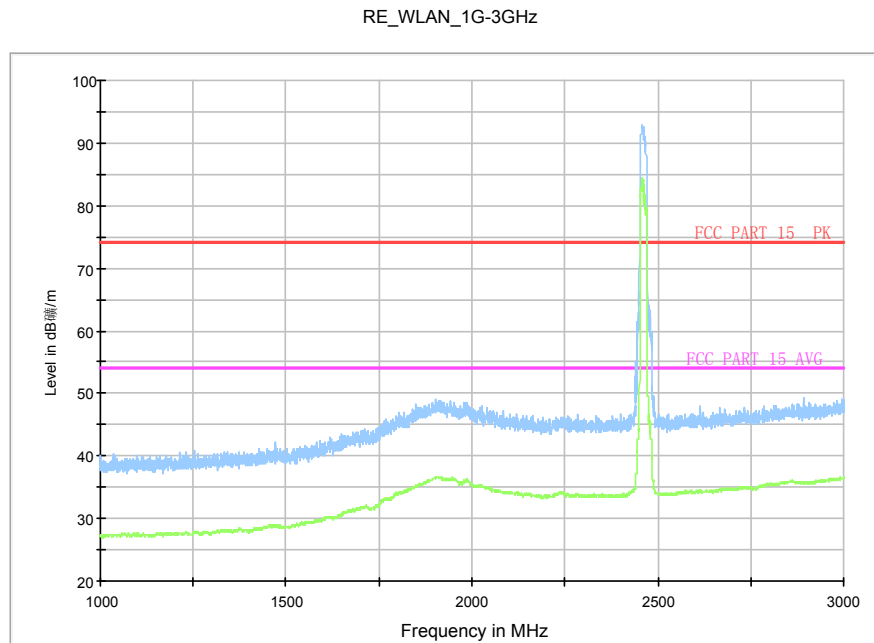


Fig.A.6.2.29 Radiated Spurious Emission (802.11n-HT20, Ch11, 1 GHz-3 GHz)

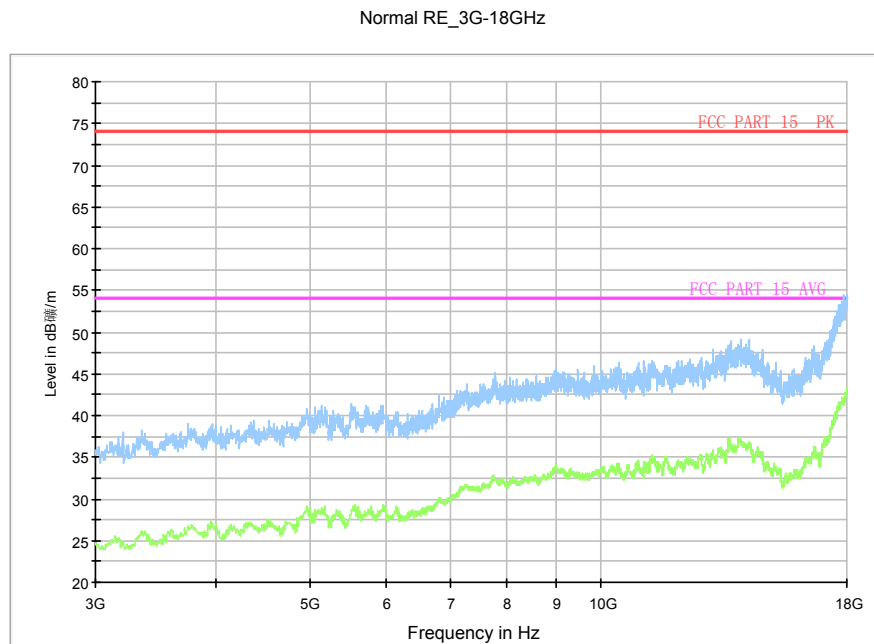


Fig.A.6.2.30 Radiated Spurious Emission (802.11n-HT20, Ch11, 3 GHz-18 GHz)

A.7. Spurious Emissions Radiated < 30MHz

Measurement Limit:

Frequency (MHz)	Field strength($\mu\text{V/m}$)	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

Conclusion: PASS

Test graphs as below:

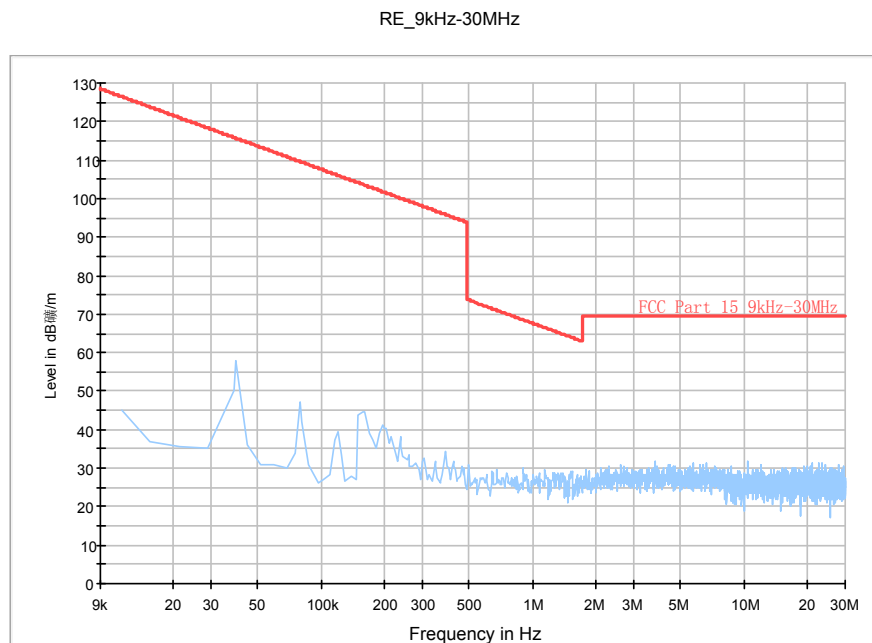


Fig.A.7.1 Radiated Spurious Emission (802.11b, 9 kHz ~30 MHz)

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 (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.8.1	Fig.A.8.2	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.8.1	Fig.A.8.2	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:

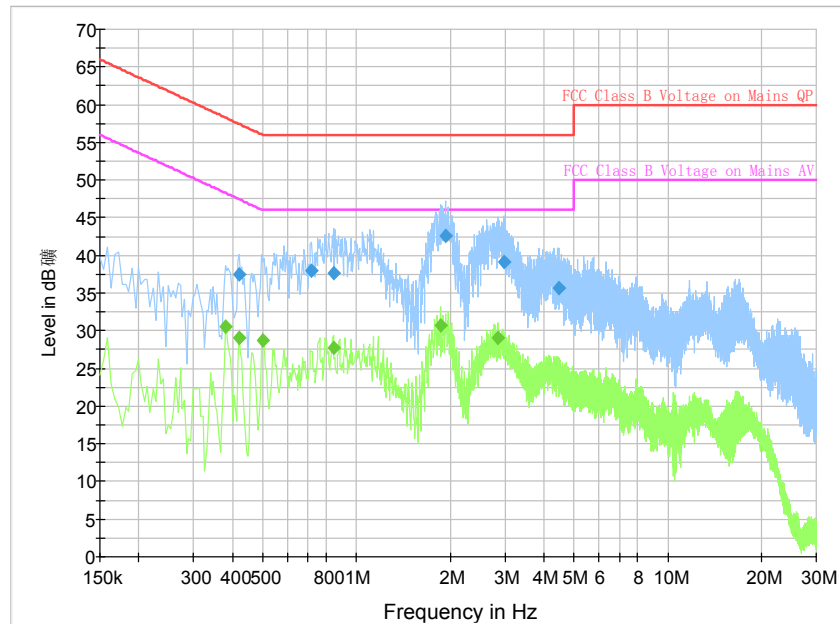


Fig.A.8.1 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.420000	37.4	GND	L1	9.8	20.1	57.4
0.717000	38.0	GND	L1	9.8	18.0	56.0
0.843000	37.7	GND	L1	9.8	18.3	56.0
1.927500	42.6	GND	L1	9.7	13.4	56.0
2.971500	39.2	GND	L1	9.7	16.8	56.0
4.470000	35.6	GND	L1	9.7	20.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.379500	30.5	GND	L1	9.8	17.8	48.3
0.420000	29.1	GND	L1	9.8	18.3	47.4
0.501000	28.7	GND	L1	9.8	17.4	46.0
0.843000	27.7	GND	L1	9.8	18.3	46.0
1.860000	30.8	GND	L1	9.7	15.2	46.0
2.845500	29.1	GND	L1	9.7	16.9	46.0

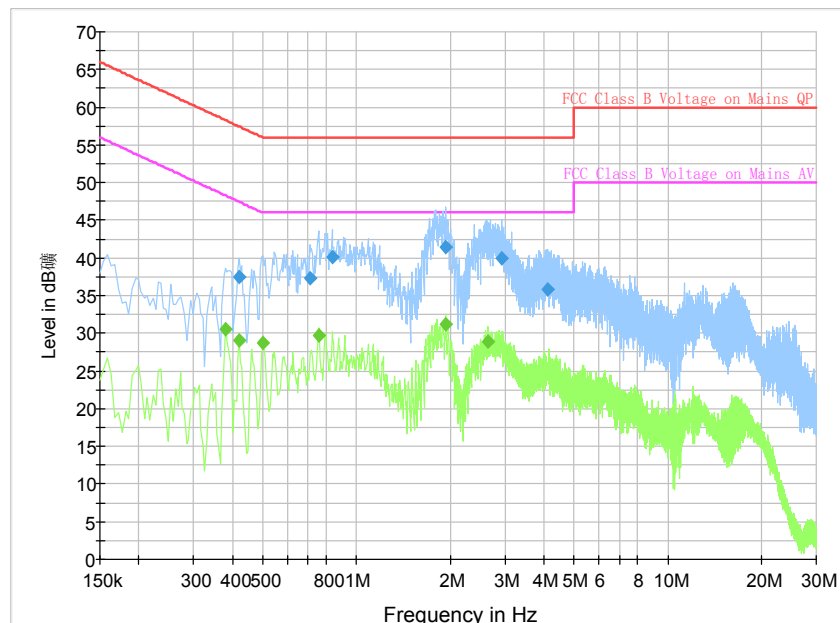


Fig.A.8.2 AC Powerline Conducted Emission-Idle

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.420000	37.4	GND	L1	9.8	20.0	57.4
0.708000	37.4	GND	L1	9.8	18.6	56.0
0.834000	40.1	GND	L1	9.8	15.9	56.0
1.936500	41.5	GND	L1	9.7	14.5	56.0
2.922000	39.9	GND	L1	9.7	16.1	56.0
4.128000	35.8	GND	L1	9.7	20.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.379500	30.6	GND	L1	9.8	17.7	48.3
0.420000	29.1	GND	L1	9.8	18.4	47.4
0.501000	28.7	GND	L1	9.8	17.3	46.0
0.757500	29.7	GND	L1	9.8	16.3	46.0
1.936500	31.2	GND	L1	9.7	14.8	46.0
2.638500	28.8	GND	L1	9.7	17.2	46.0

*** END OF REPORT BODY ***