

### 802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
2389.230	58.0	-38.8	27.7	69.100	H
17916.500	62.6	-17.7	45.6	34.700	V
17898.500	62.5	-18.5	45.6	35.400	V
17931.000	62.2	-17.7	45.6	34.300	V
17956.000	62.2	-17.7	45.6	34.300	H
17579.500	62.0	-18.9	45.6	35.300	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17902.000	62.2	-18.5	45.6	35.100	H
17797.000	62.2	-18.5	45.6	35.100	V
17927.000	62.2	-17.7	45.6	34.300	V
17677.500	62.1	-18.9	45.6	35.400	H
17809.500	62.0	-18.5	45.6	34.900	H
17971.000	61.9	-17.7	45.6	34.000	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
2485.275	59.7	-38.9	27.7	70.900	V
17973.000	63.9	-17.7	45.6	36.000	H
17954.000	62.0	-17.7	45.6	34.100	V
17741.500	62.0	-18.5	45.6	34.900	H
17880.000	62.0	-18.5	45.6	34.900	H
17615.500	62.0	-18.9	45.6	35.300	V

### 802.11n-HT40

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
2381.430	58.3	-38.8	27.7	69.400	H
17759.500	62.7	-18.5	45.6	35.600	H
17955.000	62.6	-17.7	45.6	34.700	V
17729.000	62.4	-18.9	45.6	35.700	H
17722.500	62.4	-18.9	45.6	35.700	V
17874.500	62.3	-18.5	45.6	35.200	H

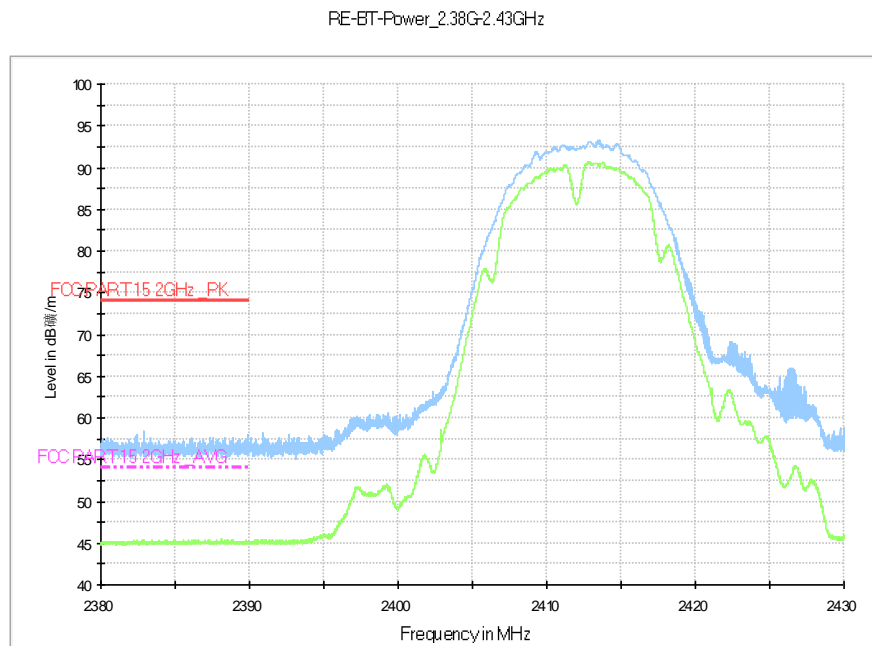
Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17876.000	63.6	-18.5	45.6	36.500	V
17861.000	63.0	-18.5	45.6	35.900	H
17919.500	62.8	-17.7	45.6	34.900	V
17873.500	62.4	-18.5	45.6	35.300	H
17904.000	62.3	-18.5	45.6	35.200	H
17950.000	62.3	-17.7	45.6	34.400	V

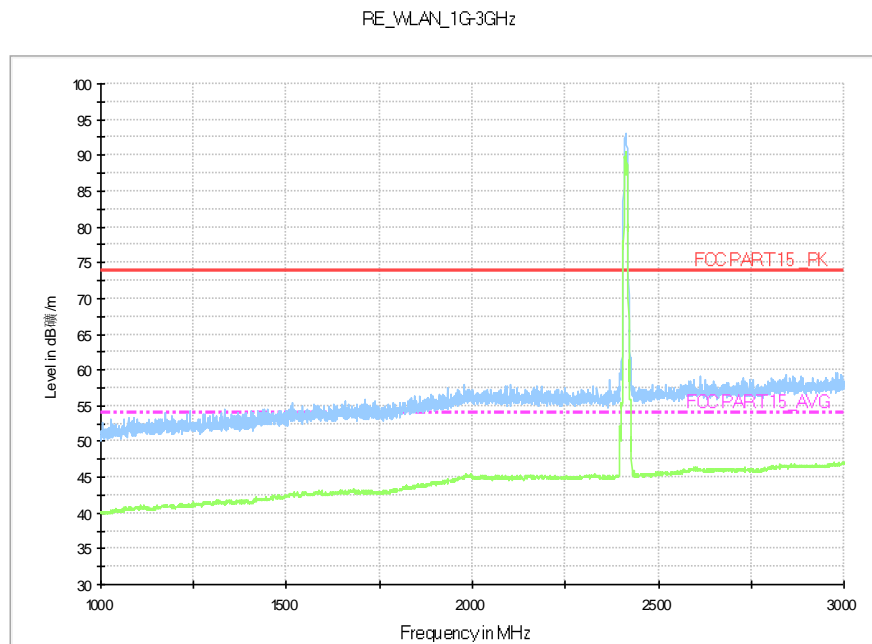
Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
2485.865	60.6	-38.9	27.7	71.800	H
17733.000	62.3	-18.9	45.6	35.600	H
17982.500	62.3	-17.7	45.6	34.400	V
17967.500	62.0	-17.7	45.6	34.100	H
17929.000	62.0	-17.7	45.6	34.100	V
17956.000	62.0	-17.7	45.6	34.100	H

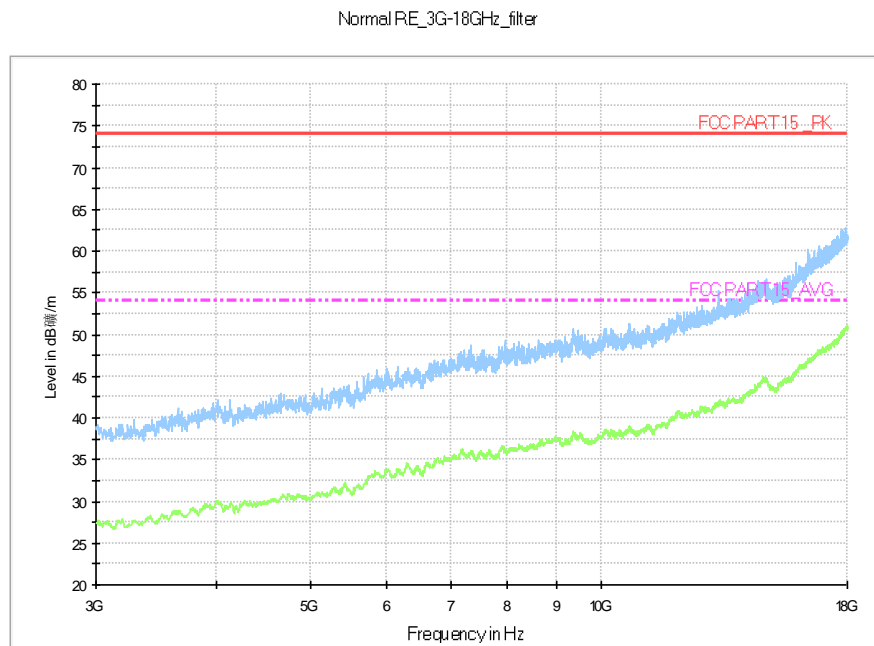
Test graphs as below:



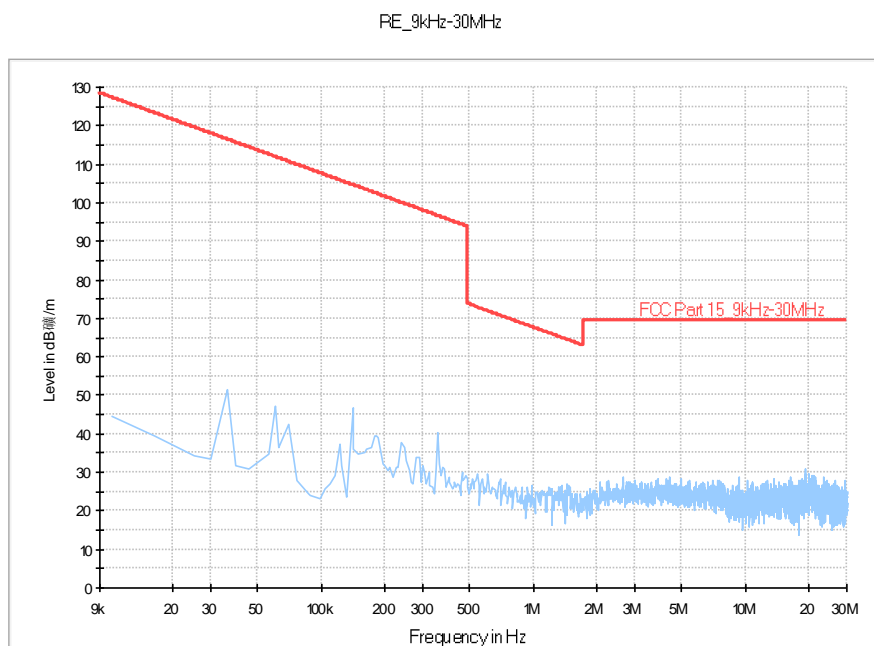
**Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.45GHz**



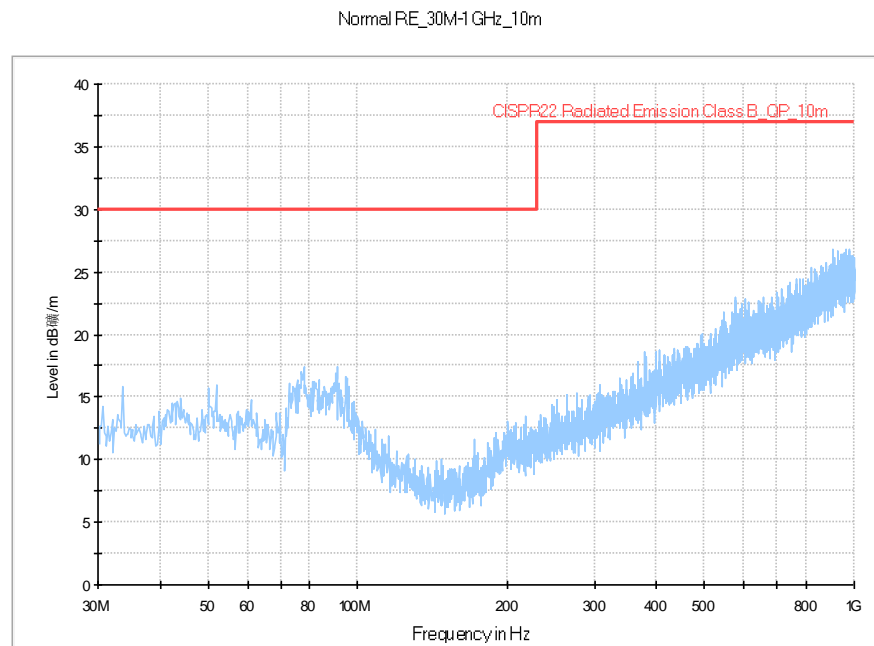
**Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (802.11b, Ch1, 1 GHz-3 GHz)**



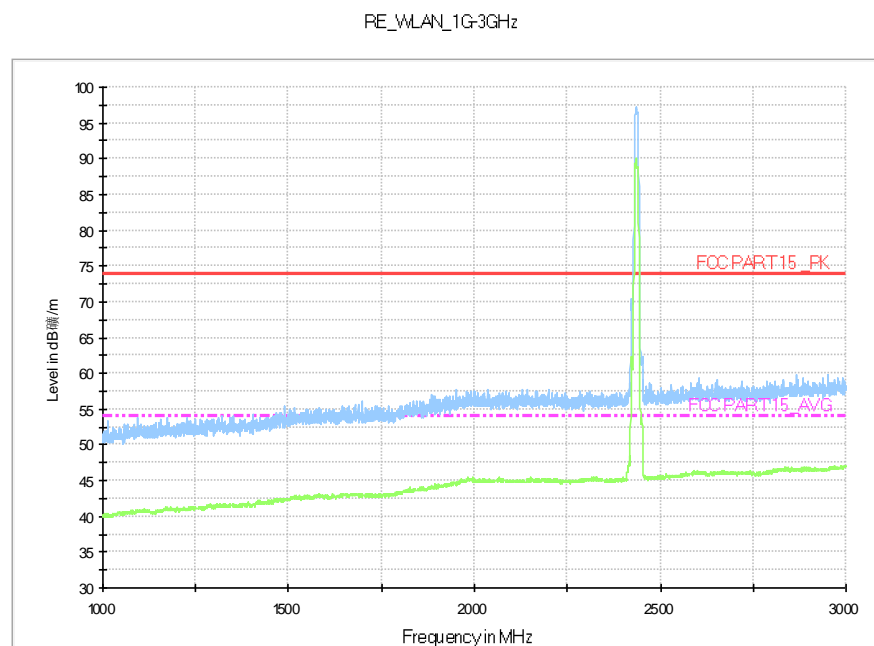
**Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (802.11b, Ch1, 3 GHz-18 GHz)**



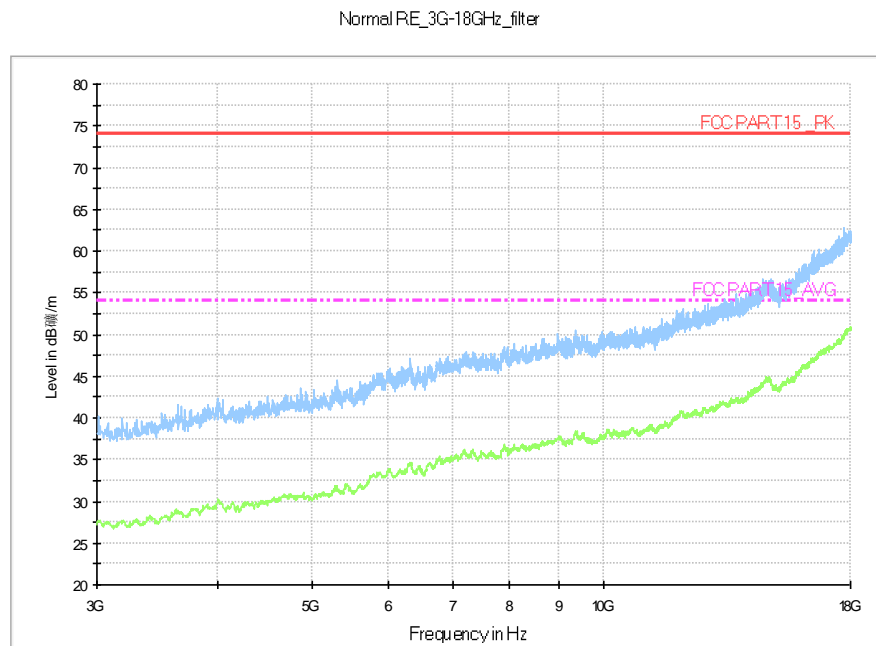
**Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 9 kHz-30 MHz)**



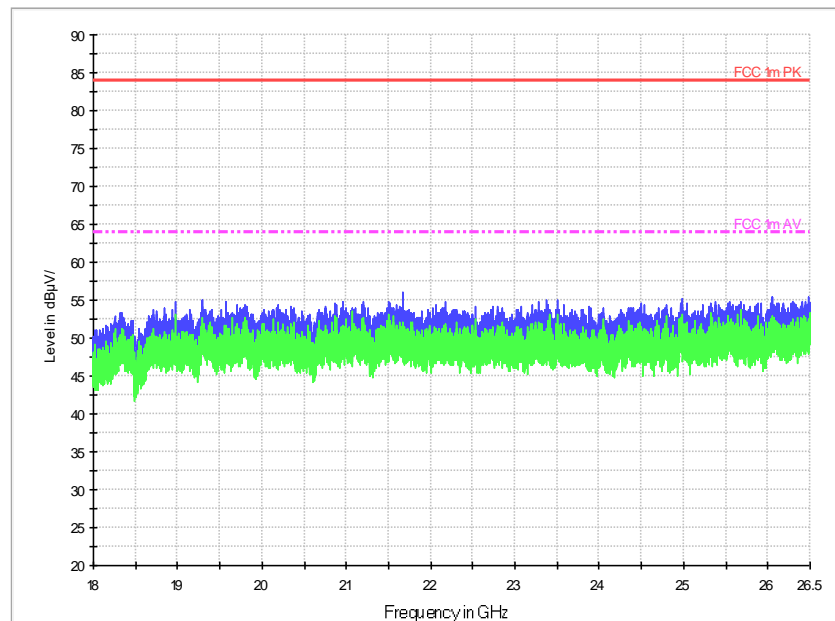
**Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 30 MHz-1 GHz)**



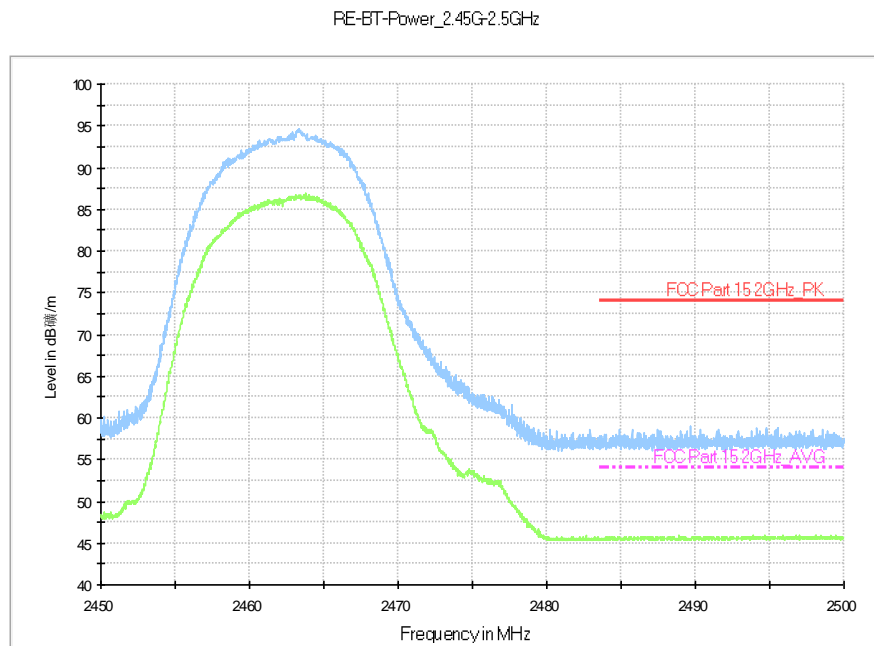
**Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 1 GHz-3 GHz)**



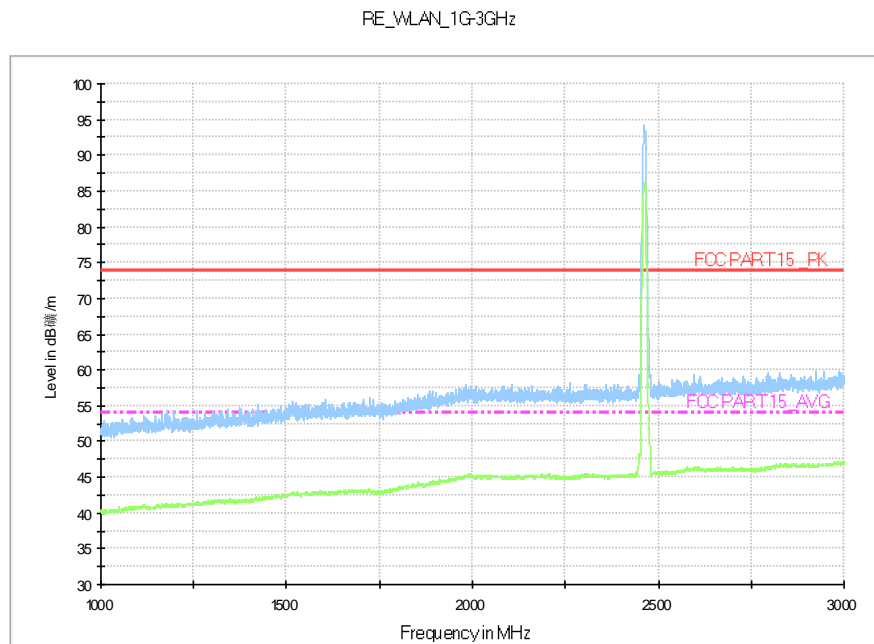
**Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 3 GHz-18 GHz)**



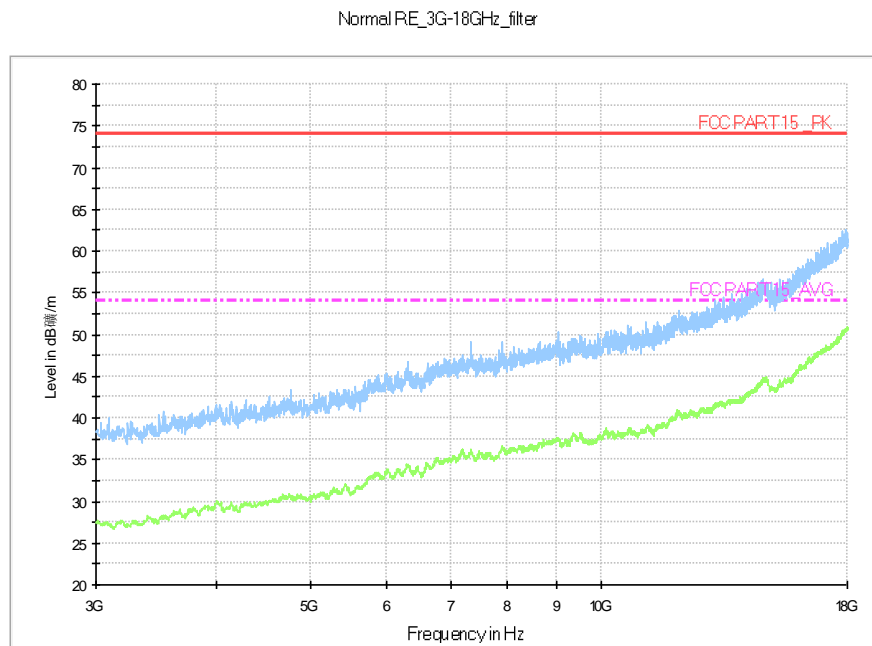
**Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (802.11b, Ch6, 18GHz – 26.5GHz)**



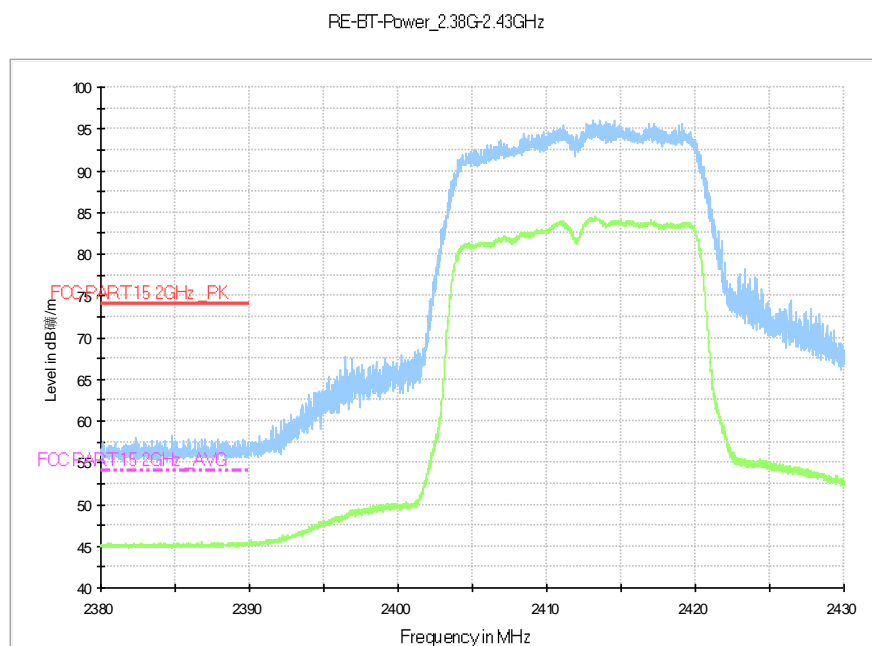
**Fig.A.6.2.9 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz**



**Fig.A.6.2.10 Transmitter Spurious Emission - Radiated (802.11b, Ch11, 1 GHz-3 GHz)**

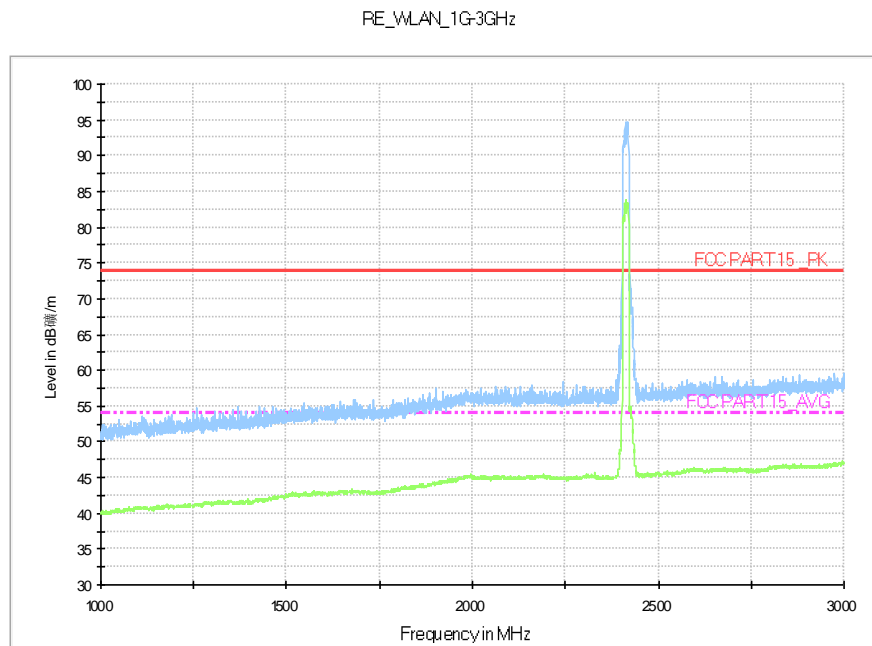


**Fig.A.6.2.11 Transmitter Spurious Emission - Radiated (802.11b, Ch11, 3 GHz-18 GHz)**

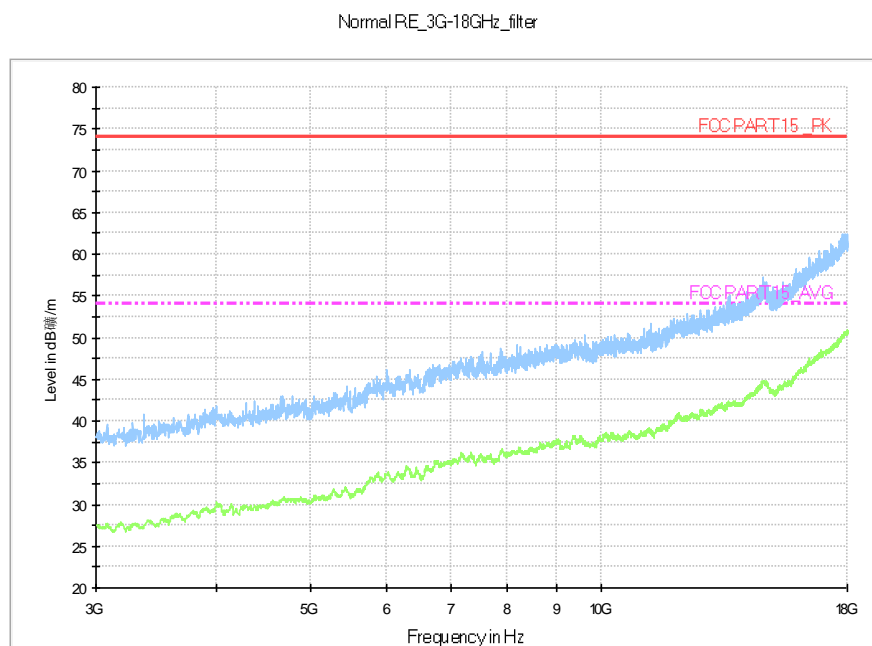


**Fig.A.6.2.12 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz**

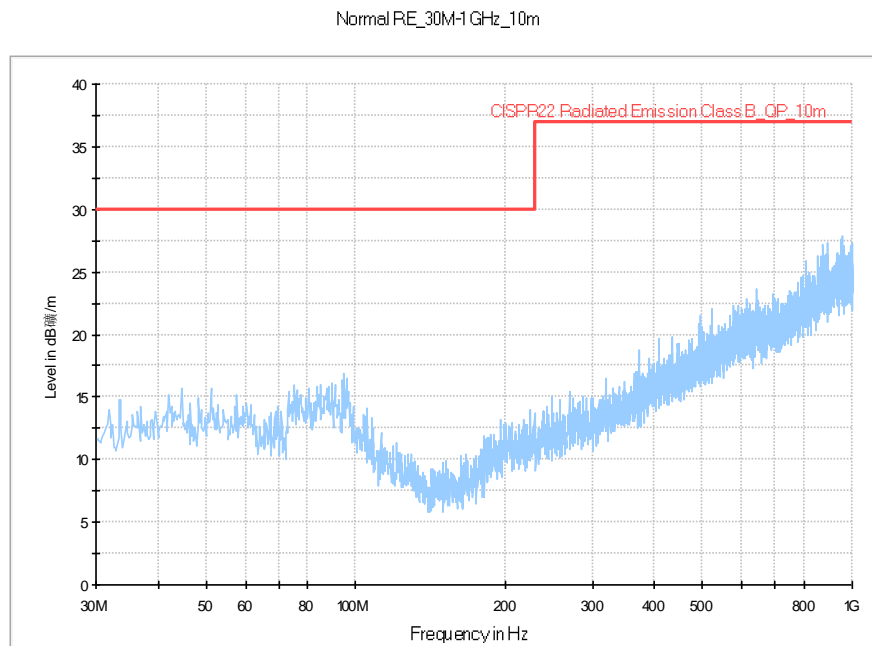




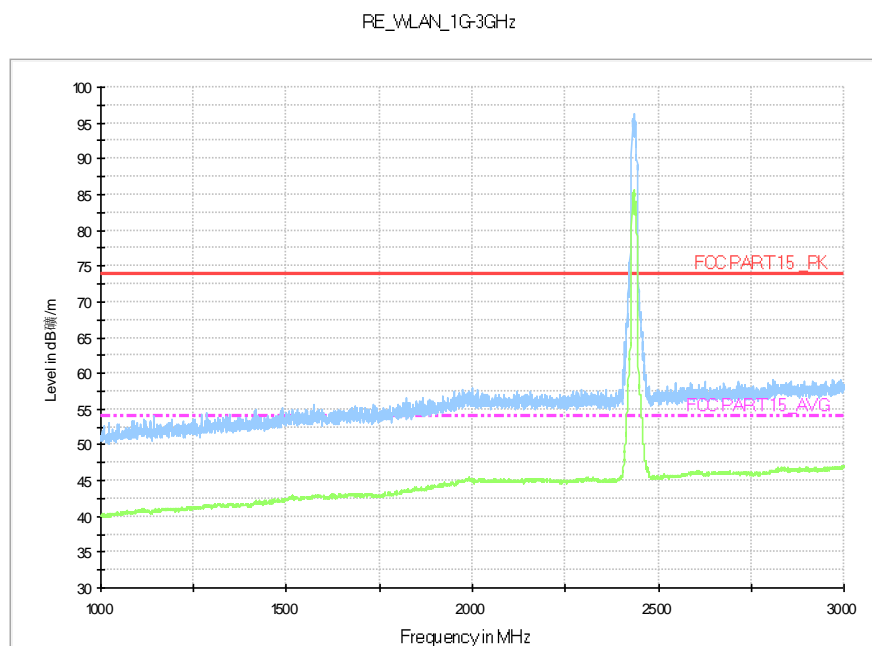
**Fig.A.6.2.13 Transmitter Spurious Emission - Radiated (802.11g, Ch1, 1 GHz-3 GHz)**



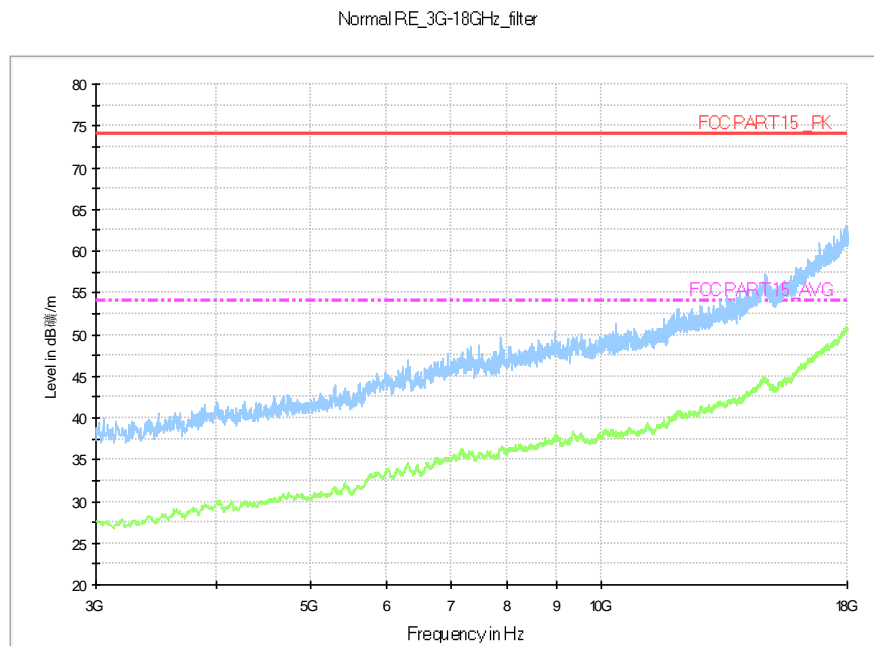
**Fig.A.6.2.14 Transmitter Spurious Emission - Radiated (802.11g, Ch1, 3 GHz-18 GHz)**



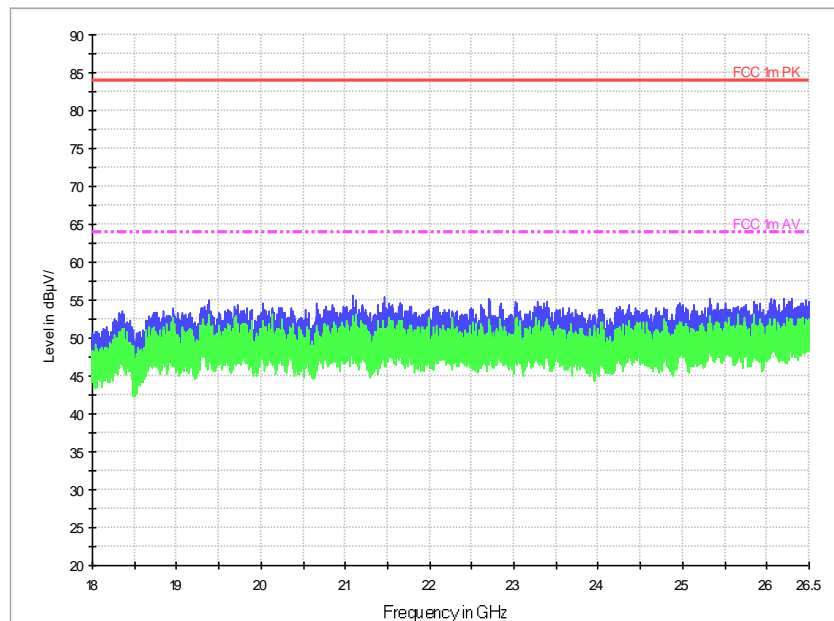
**Fig.A.6.2.15 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 30 MHz-1 GHz)**



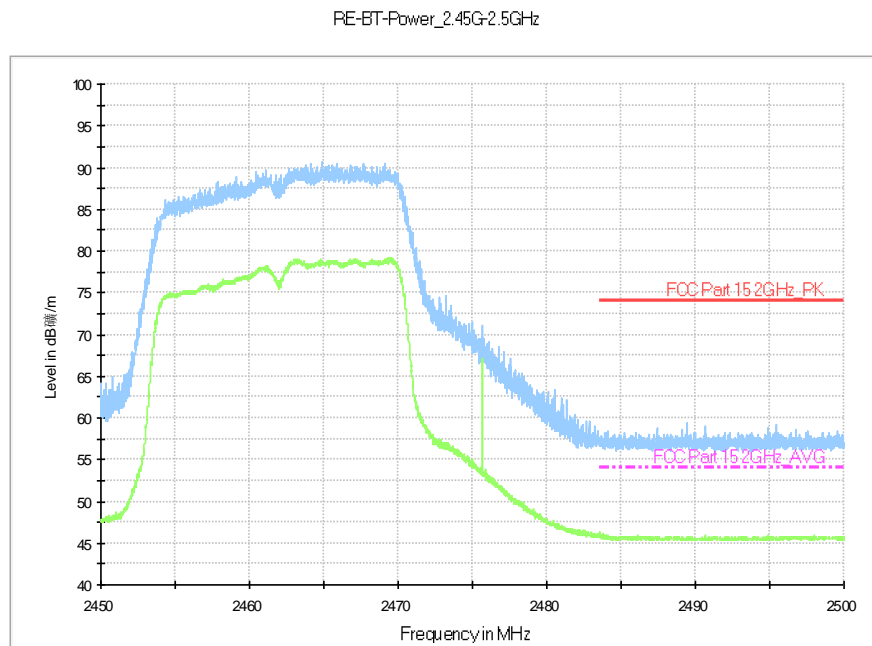
**Fig.A.6.2.16 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 1 GHz-3 GHz)**



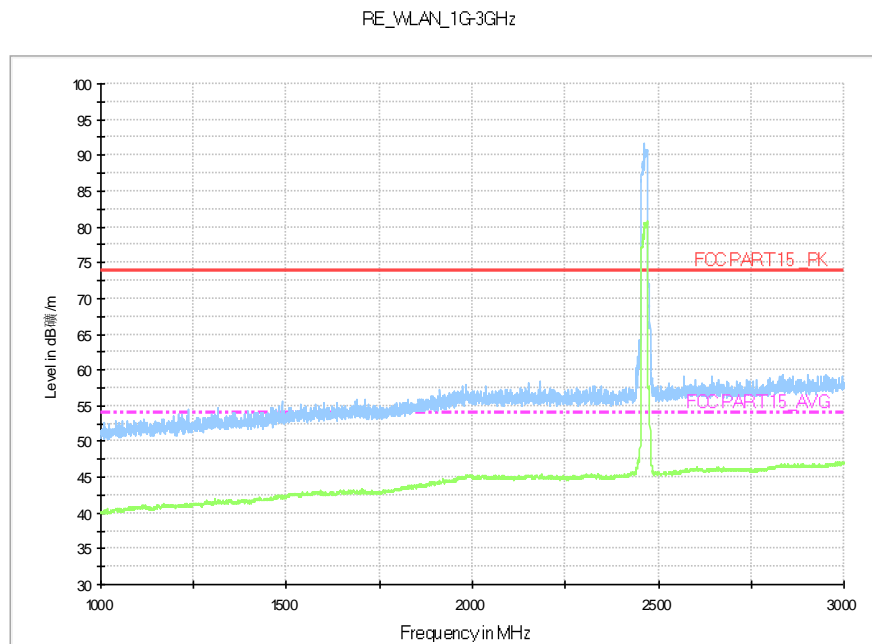
**Fig.A.6.2.17 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 3 GHz-18 GHz)**



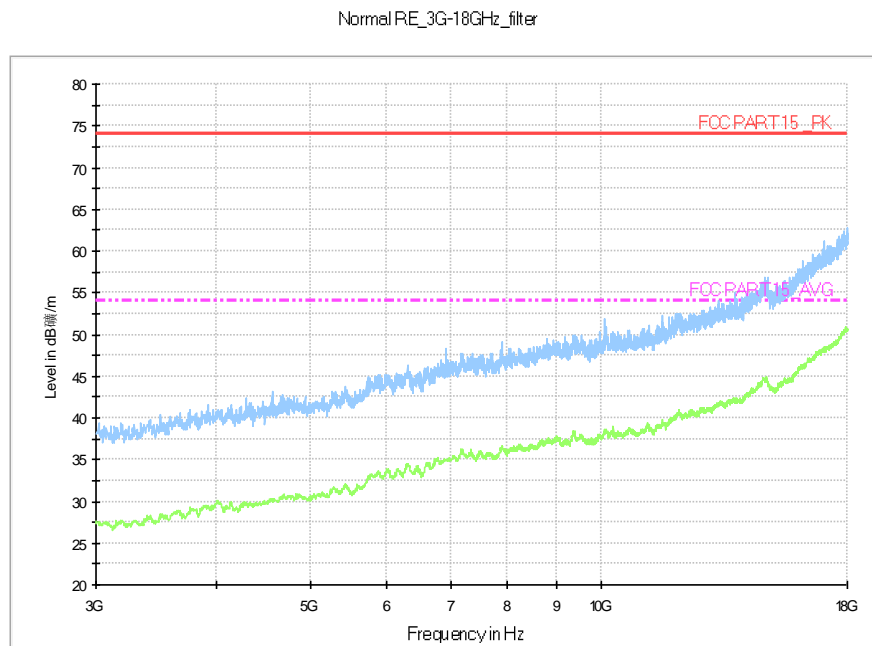
**Fig.A.6.2.18 Transmitter Spurious Emission - Radiated (802.11g, Ch6, 18GHz – 26.5GHz)**



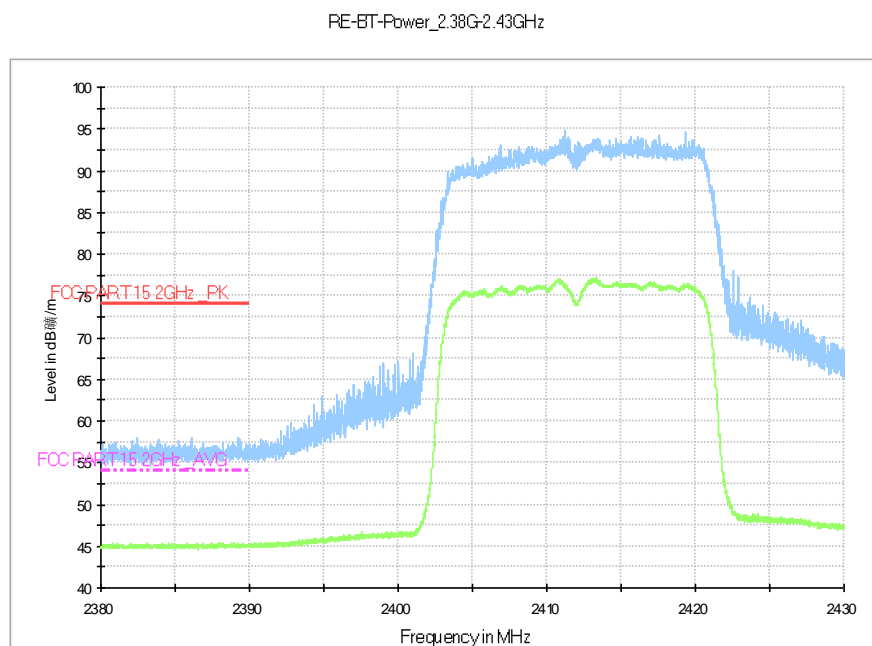
**Fig.A.6.2.19 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz**



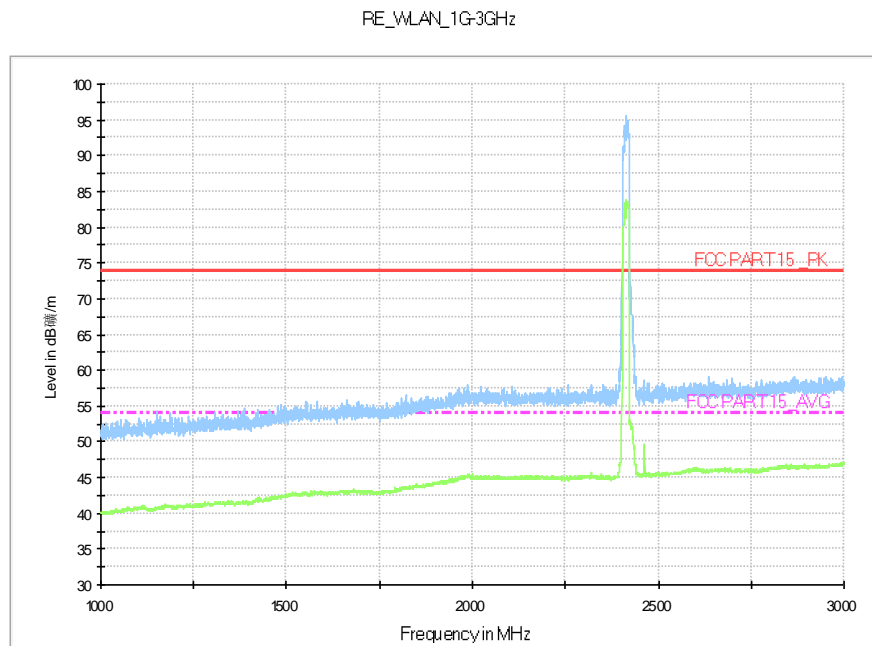
**Fig.A.6.2.20 Transmitter Spurious Emission - Radiated (802.11g, Ch11, 1 GHz-3 GHz)**



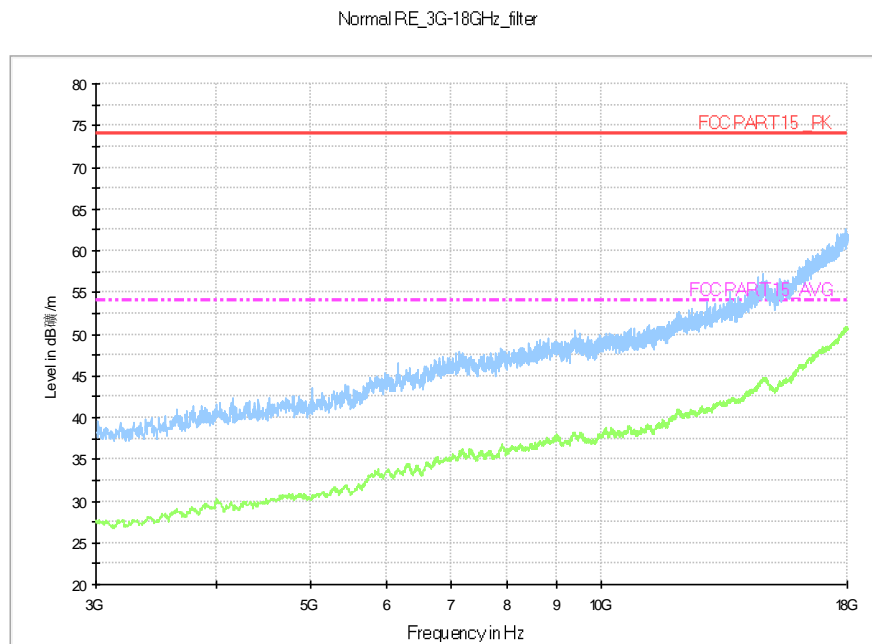
**Fig.A.6.2.21 Transmitter Spurious Emission - Radiated (802.11g, Ch11, 3 GHz-18 GHz)**



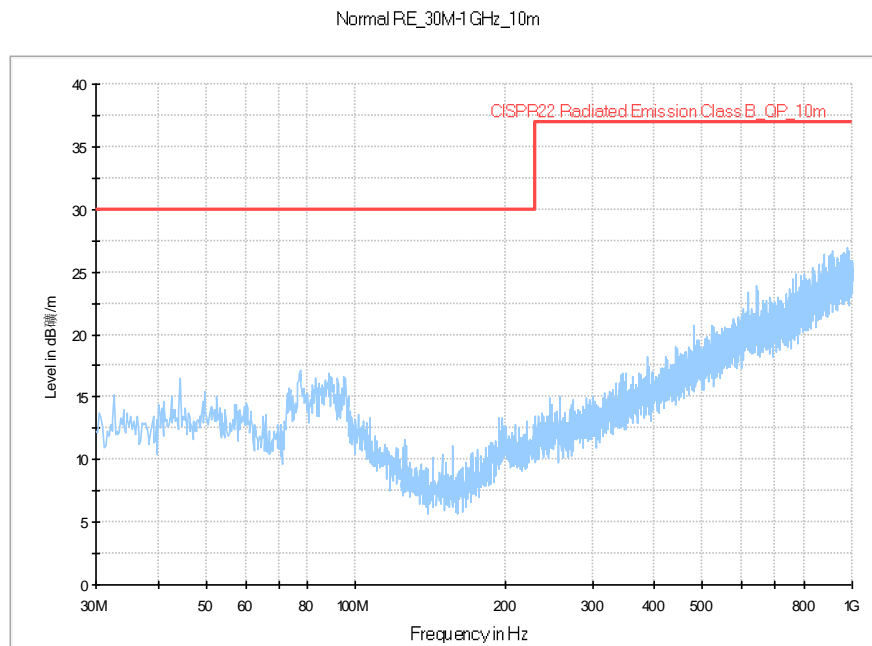
**Fig.A.6.2.22 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz**



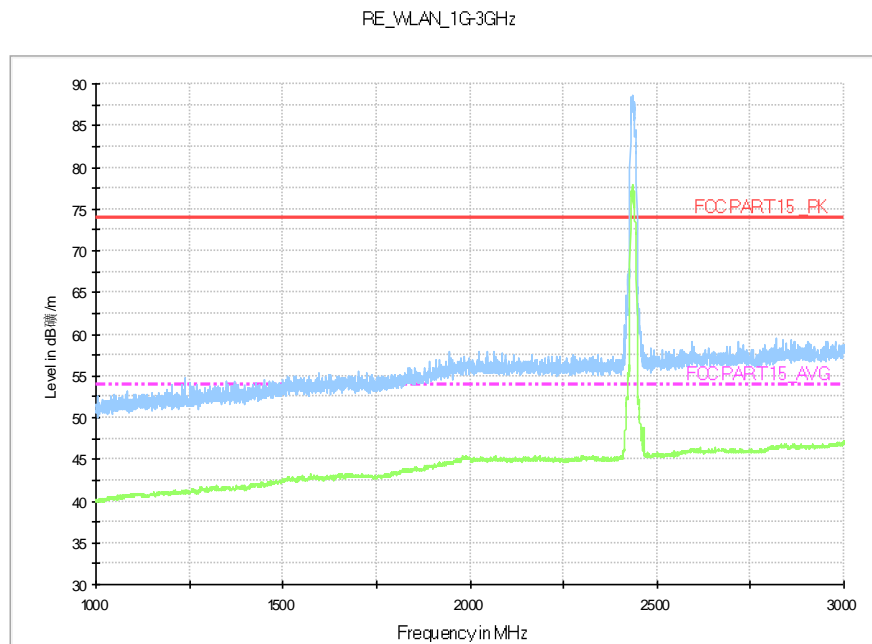
**Fig.A.6.2.23 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch1, 1 GHz-3 GHz)**



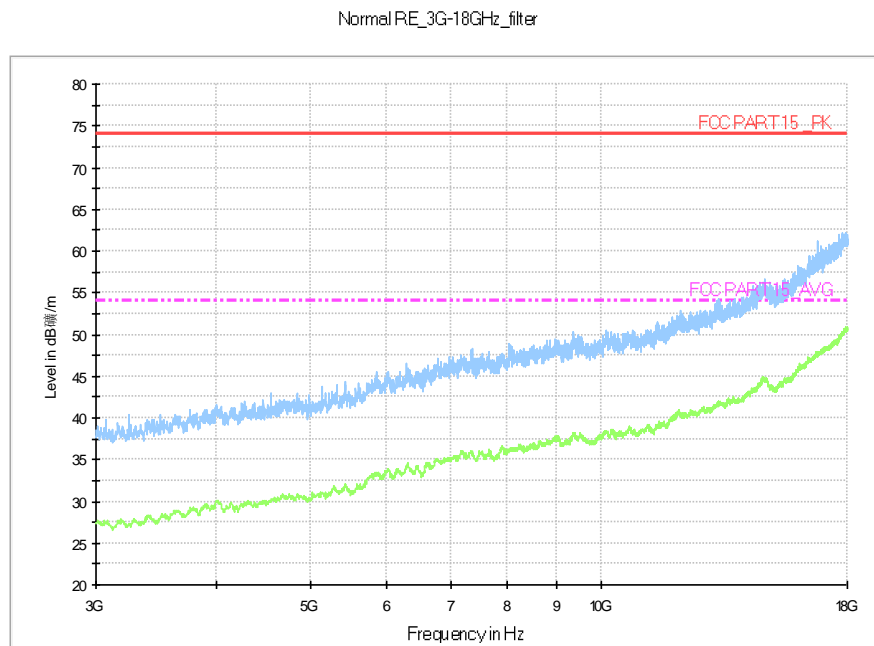
**Fig.A.6.2.24 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch1, 3 GHz-18 GHz)**



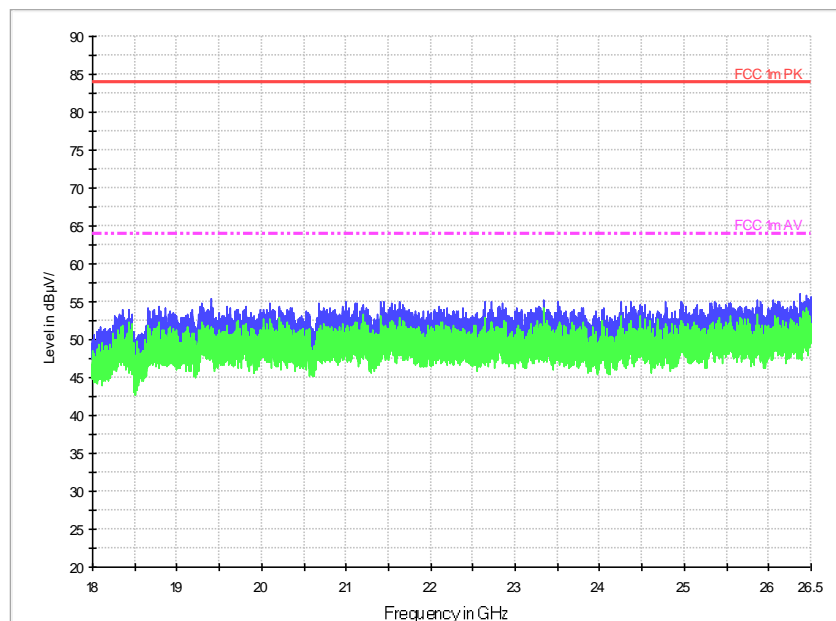
**Fig.A.6.2.25 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 30 MHz-1 GHz)**



**Fig.A.6.2.26 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 1 GHz-3 GHz)**

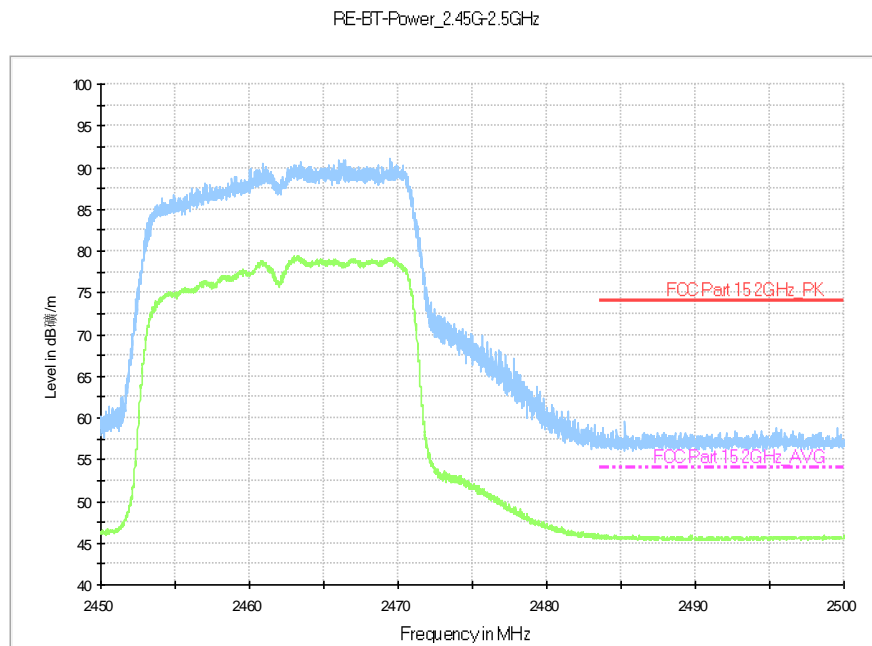


**Fig.A.6.2.27 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 3 GHz-18 GHz)**

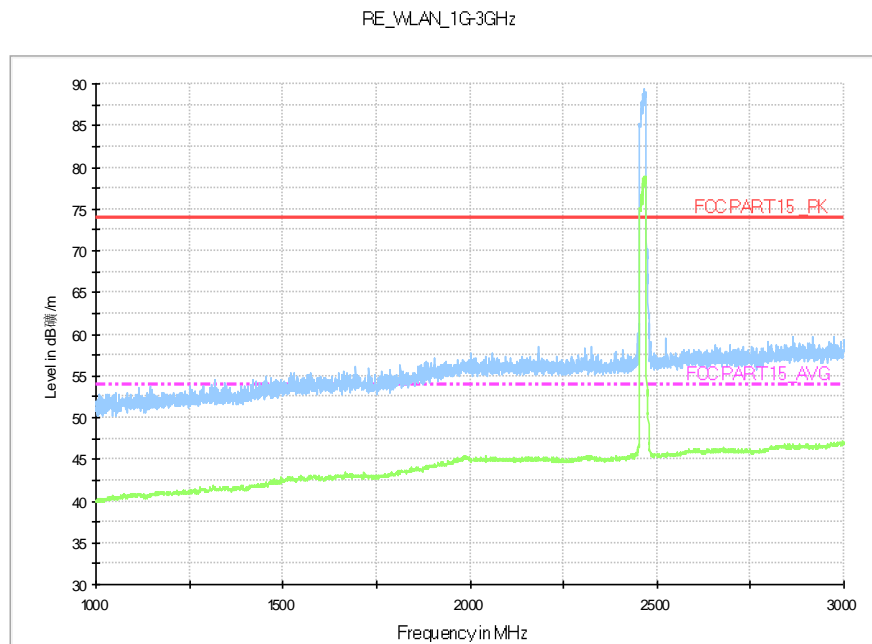


**Fig.A.6.2.28 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch6, 18GHz – 26.5GHz)**

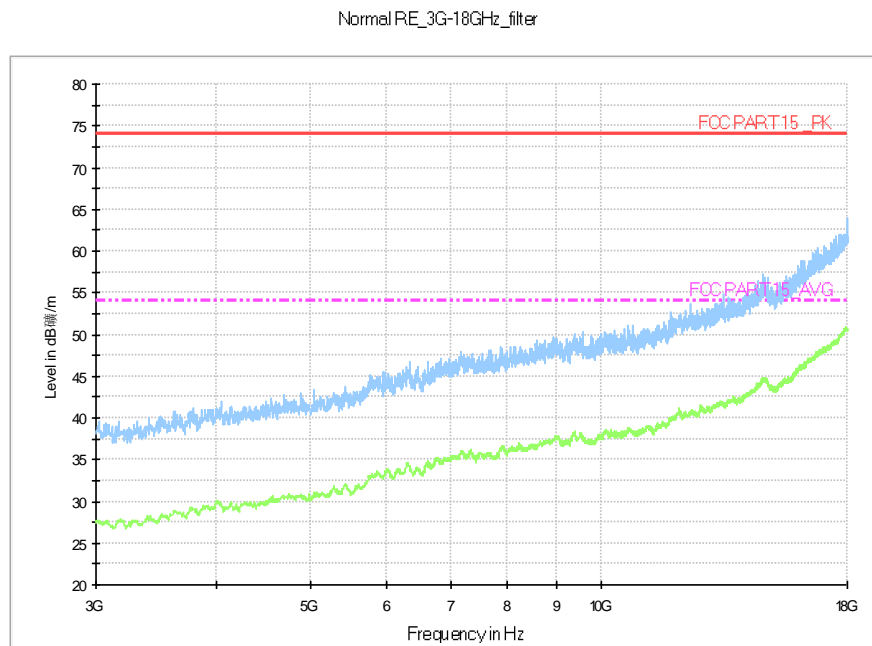




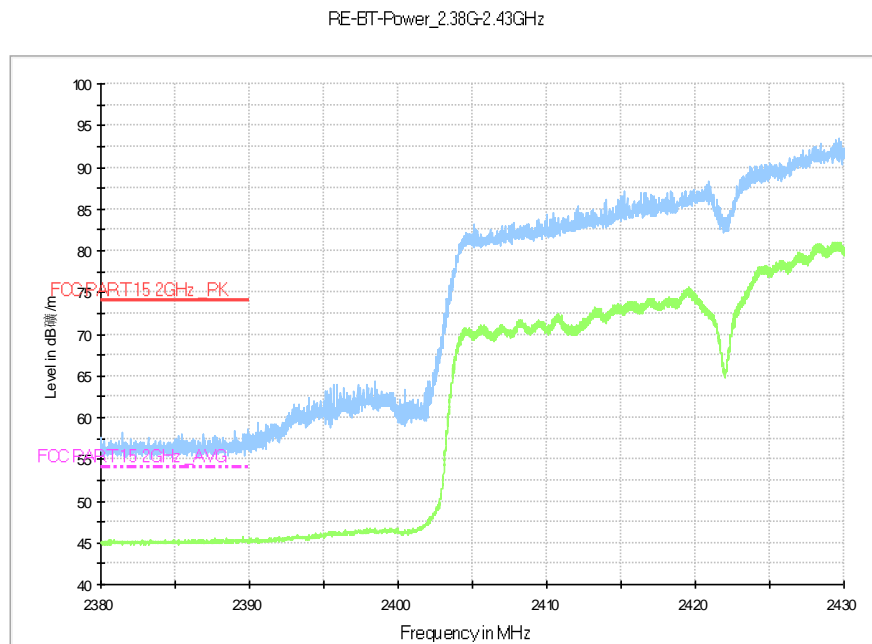
**Fig.A.6.2.29 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz**



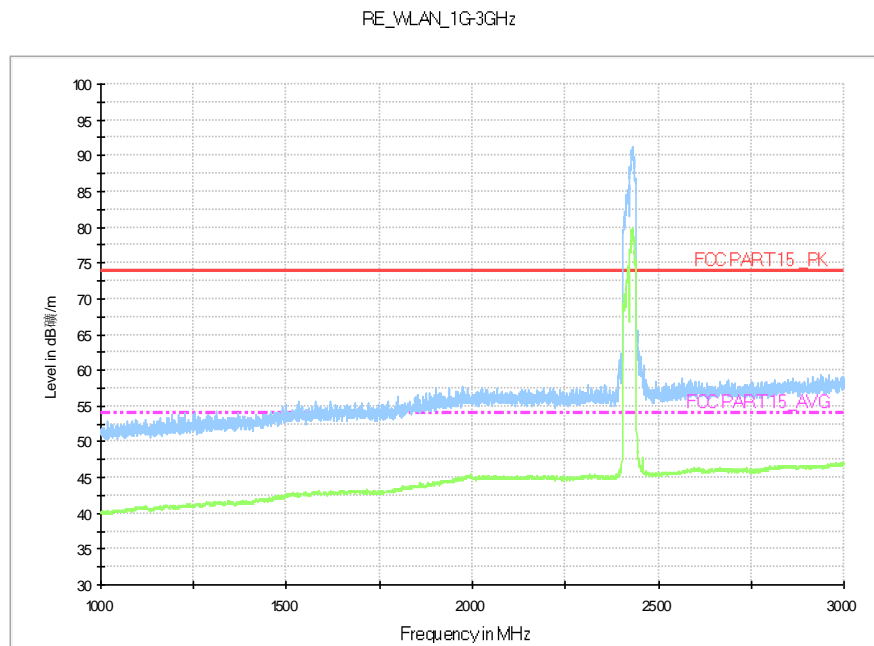
**Fig.A.6.2.30 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch11, 1 GHz-3 GHz)**



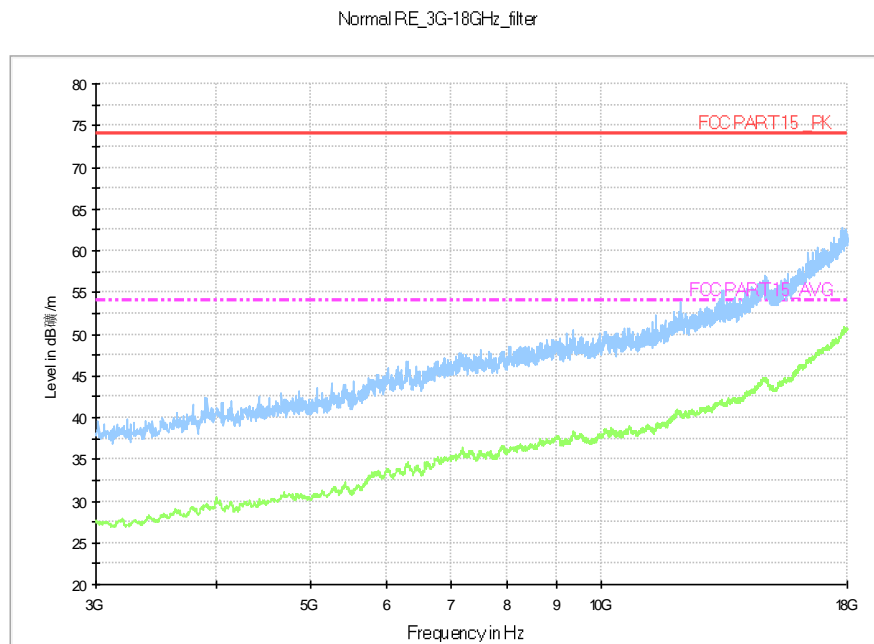
**Fig.A.6.2.31 Transmitter Spurious Emission - Radiated (802.11n-HT20, Ch11, 3 GHz-18 GHz)**



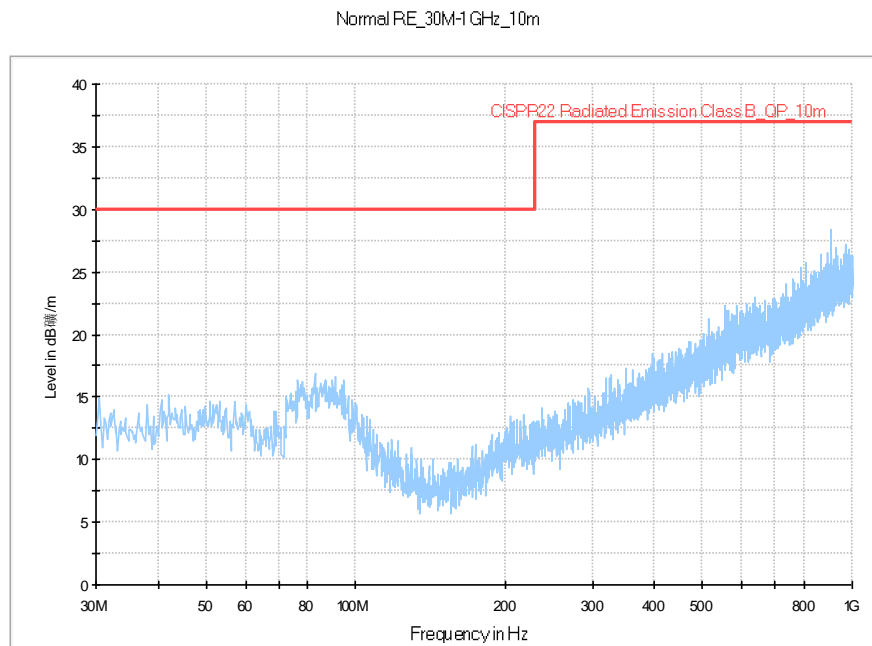
**Fig.A.6.2.32 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.45GHz**



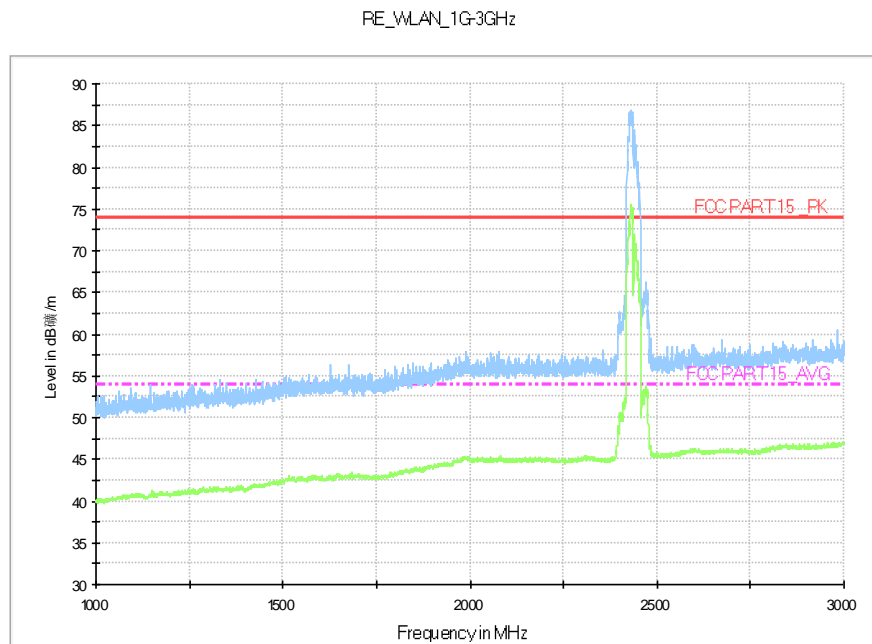
**Fig.A.6.2.33 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch3, 1 GHz-3 GHz)**



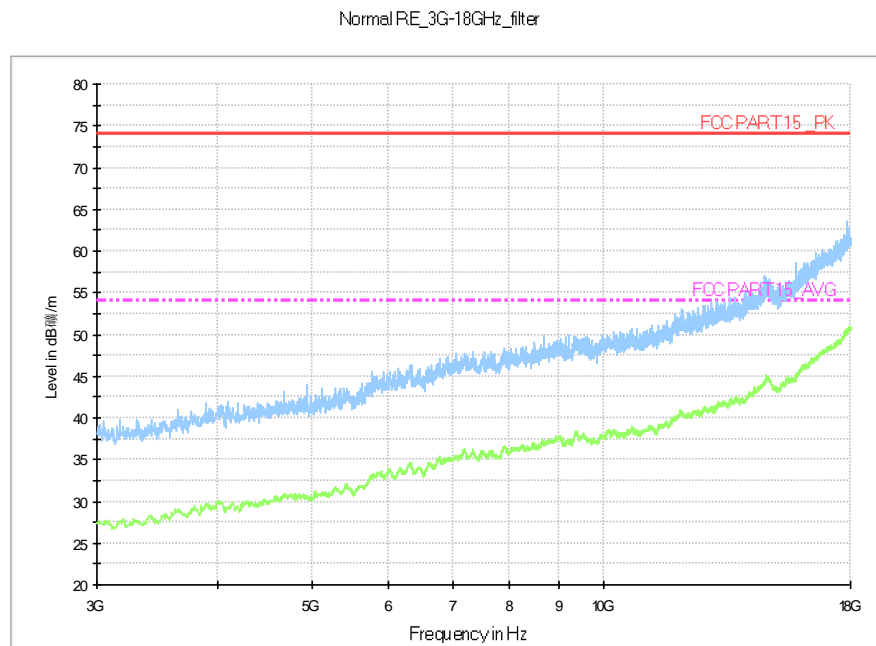
**Fig.A.6.2.34 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch3, 3 GHz-18 GHz)**



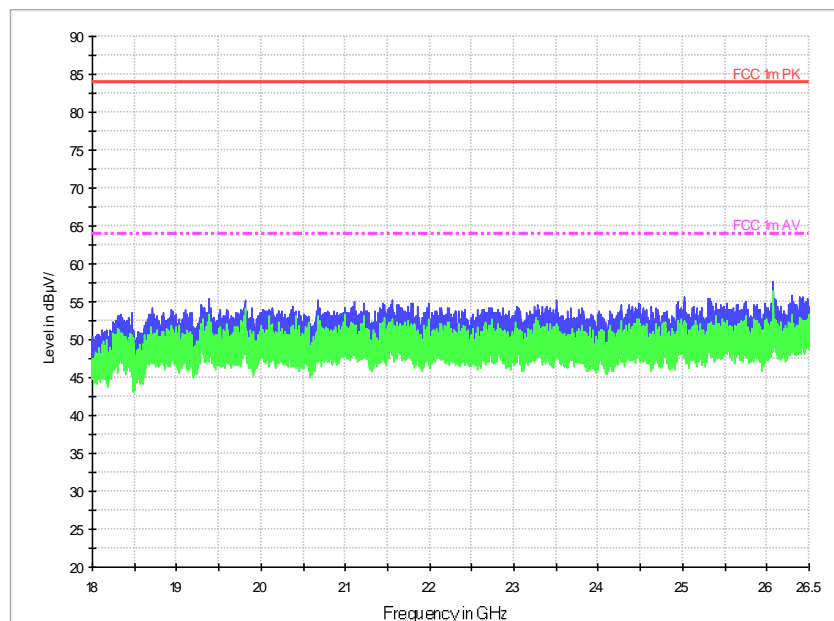
**Fig.A.6.2.35 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 30 MHz-1 GHz)**



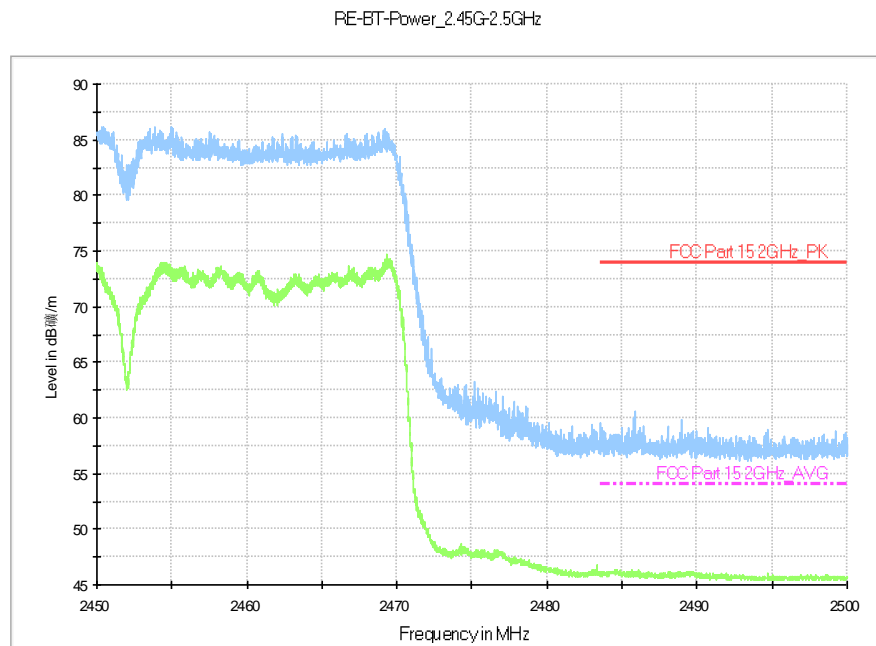
**Fig.A.6.2.36 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 1 GHz-3 GHz)**



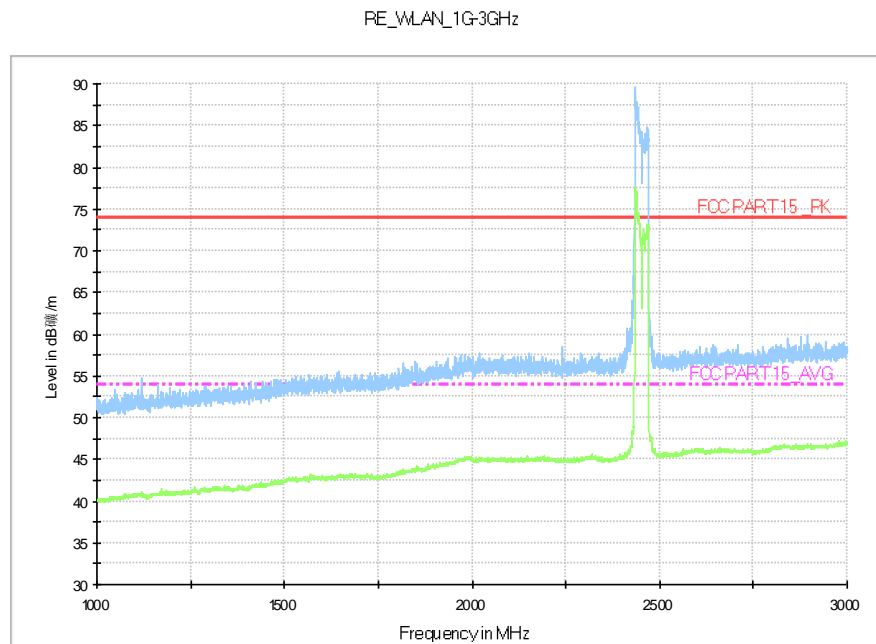
**Fig.A.6.2.37 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 3 GHz-18 GHz)**



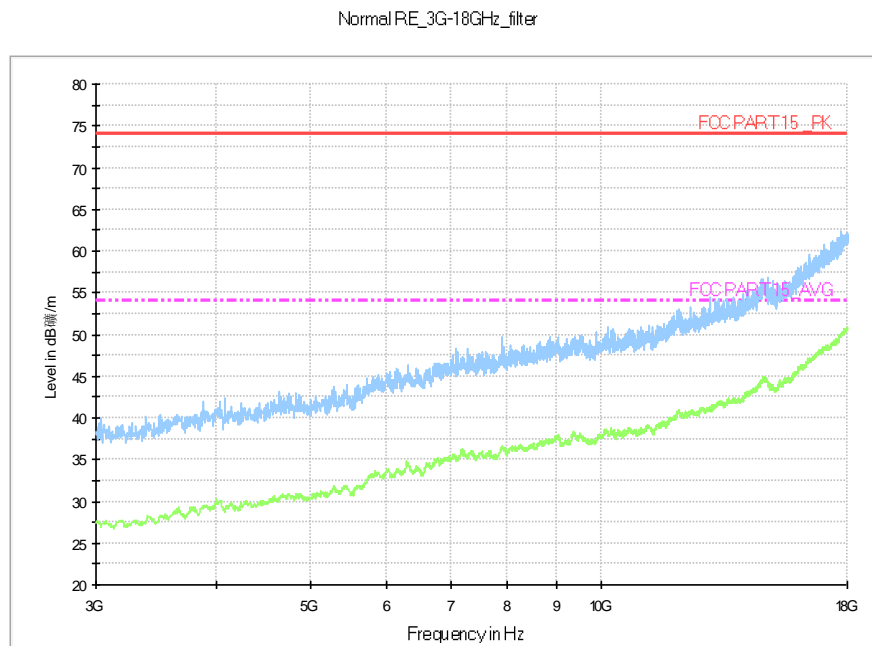
**Fig.A.6.2.38 Transmitter Spurious Emission - Radiated (802.11n-HT40, Ch6, 18GHz – 26.5GHz)**



**Fig.A.6.2.39 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz**



**Fig.A.6.2.40 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch9, 1 GHz-3 GHz)**



**Fig.A.6.2.41 Transmitter Spurious Emission - Radiated (802.11n-HT40, ch9, 3 GHz-18 GHz)**

## **A.7. AC Power-line Conducted Emission**

### **Method of Measurement: See ANSI C63.10-2013-clause 6.2**

- 1 The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
- 2 If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
- 3 The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
- 4 If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.
- 5 If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.<sup>36</sup> Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

### **Test Condition:**

<b>Voltage (V)</b>	<b>Frequency (Hz)</b>
120	60



### Measurement Result and limit:

WLAN (Quasi-peak Limit)

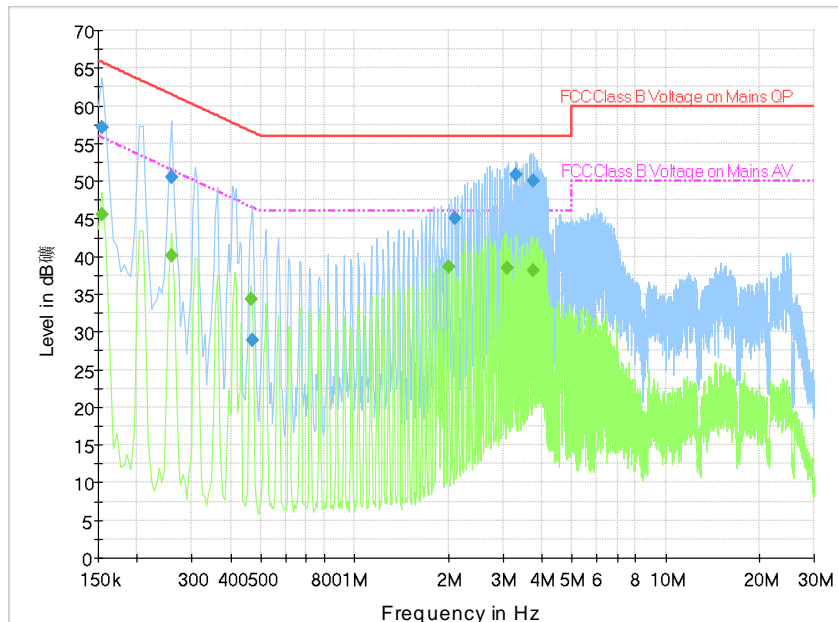
Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

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

**Conclusion: Pass**

Test graphs as below:



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

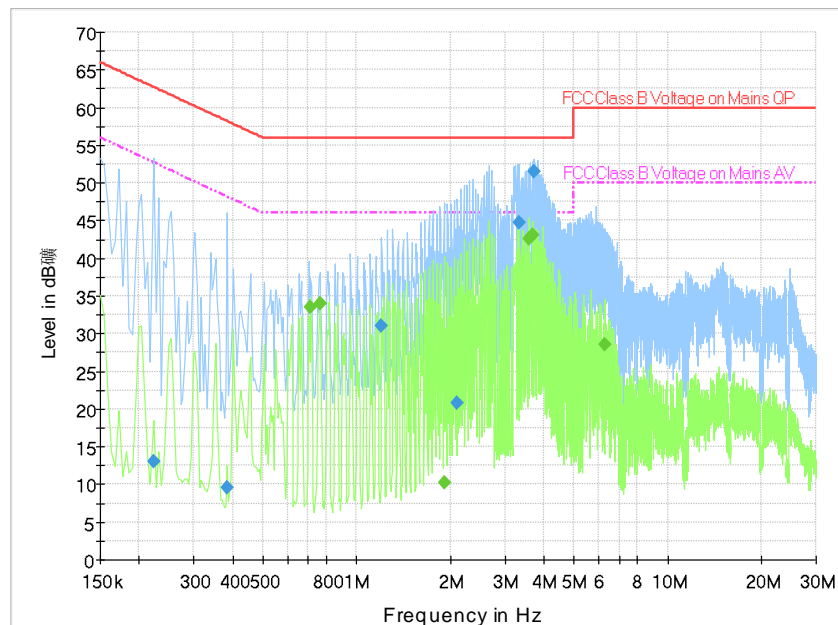
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.222000	13.1	2000.0	9.000	On	L1	19.8	49.6	62.7
0.384000	9.6	2000.0	9.000	On	L1	19.9	48.6	58.2
1.203000	31.0	2000.0	9.000	On	L1	19.7	25.0	56.0
2.107500	20.9	2000.0	9.000	On	L1	19.6	35.1	56.0
3.336000	44.7	2000.0	9.000	On	L1	19.4	11.3	56.0
3.718500	51.5	2000.0	9.000	On	L1	19.5	4.5	56.0

## Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.712500	33.6	2000.0	9.000	On	N	19.8	12.4	46.0
0.762000	34.1	2000.0	9.000	On	N	19.8	11.9	46.0
1.909500	10.3	2000.0	9.000	On	L1	19.7	35.7	46.0
3.570000	42.6	2000.0	9.000	On	L1	19.5	3.4	46.0
3.673500	43.1	2000.0	9.000	On	L1	19.5	2.9	46.0
6.270000	28.5	2000.0	9.000	On	L1	19.6	21.5	50.0



**Fig.A.7.2 AC Powerline Conducted Emission-Iidle**

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	57.1	2000.0	9.000	On	N	20.0	8.7	65.8
0.258000	50.4	2000.0	9.000	On	N	19.8	11.1	61.5
0.469500	28.9	2000.0	9.000	On	L1	19.9	27.6	56.5
2.103000	45.0	2000.0	9.000	On	L1	19.6	11.0	56.0
3.286500	50.9	2000.0	9.000	On	L1	19.4	5.1	56.0
3.745500	50.0	2000.0	9.000	On	L1	19.5	6.0	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	45.5	2000.0	9.000	On	N	20.0	10.3	55.8
0.258000	40.2	2000.0	9.000	On	N	19.8	11.3	51.5
0.465000	34.3	2000.0	9.000	On	N	19.9	12.3	46.6
2.004000	38.7	2000.0	9.000	On	L1	19.7	7.3	46.0
3.079500	38.5	2000.0	9.000	On	L1	19.2	7.5	46.0
3.745500	38.1	2000.0	9.000	On	L1	19.5	7.9	46.0

## **ANNEX B: Accreditation Certificate**

<div></div> <div><p><b>China National Accreditation Service for Conformity Assessment</b></p><p><b>LABORATORY ACCREDITATION CERTIFICATE</b></p><p><b>(No. CNAS L0570 )</b></p><p><b>Telecommunication Technology Labs,</b> <b>Academy of Telecommunication Research, MIIT</b> <u>No.52, Huayuan North Road, Haidian District, Beijing, China</u> <u>No.51, Xueyuan Road, Haidian District, Beijing, China</u></p><p><i>to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing and calibration.</i></p><p><i>The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.</i></p><p>Date of Issue: 2014-10-29 Date of Expiry: 2017-06-19 Date of Initial Accreditation: 1998-07-03</p><div></div><p>Signed on behalf of China National Accreditation Service for Conformity Assessment</p><p><small>China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC MRA).</small></p><div><div>No.CNAS AL 2</div><div>0011149</div></div></div>
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