

Fig. 89 Radiated Spurious Emission (802.11n-HT20, ch52, 1 GHz-6 GHz)

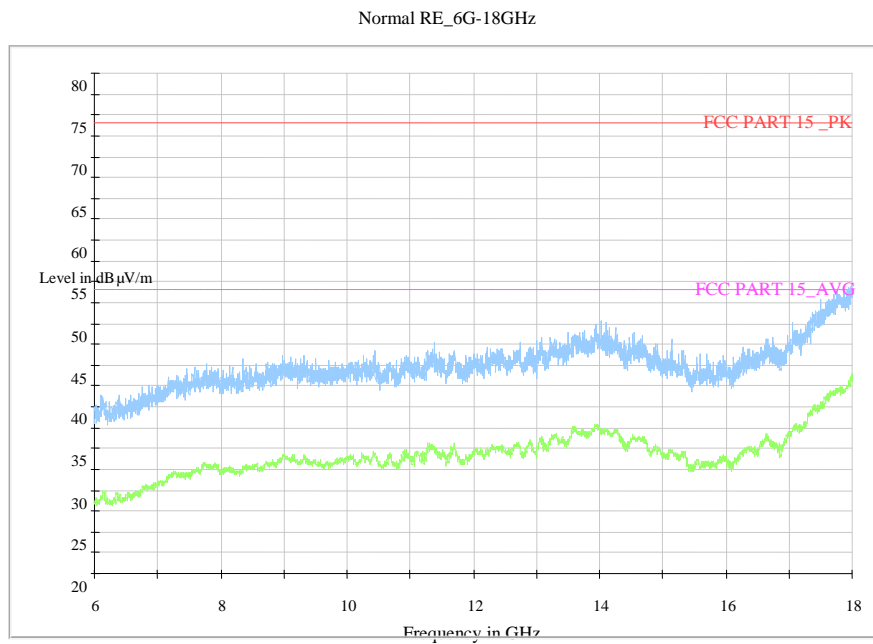


Fig. 90 Radiated Spurious Emission (802.11n-HT20, ch52, 6 GHz-18 GHz)

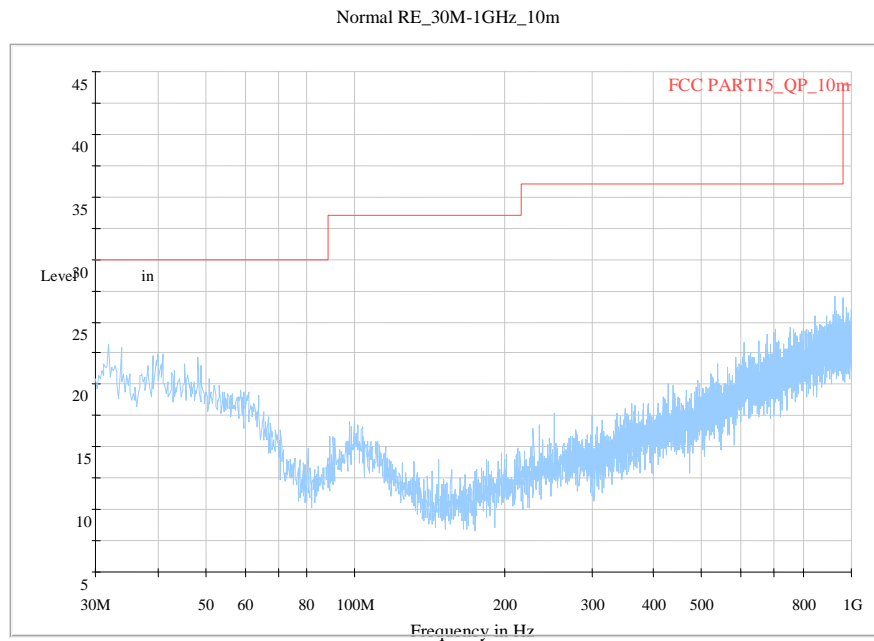


Fig. 91 Radiated Spurious Emission (802.11n-HT20, ch56, 30 MHz-1 GHz)

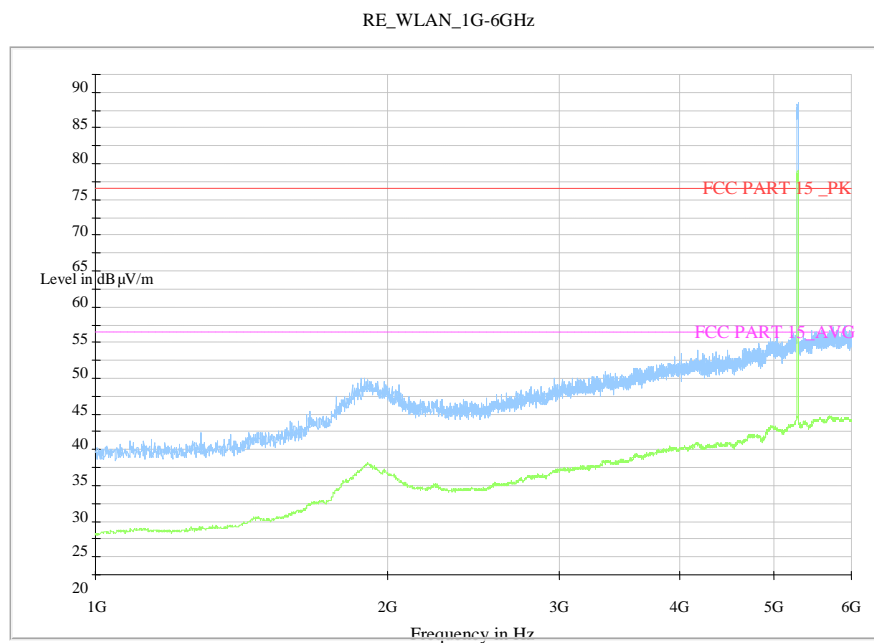


Fig. 92 Radiated Spurious Emission (802.11n-HT20, ch56, 1 GHz-6 GHz)

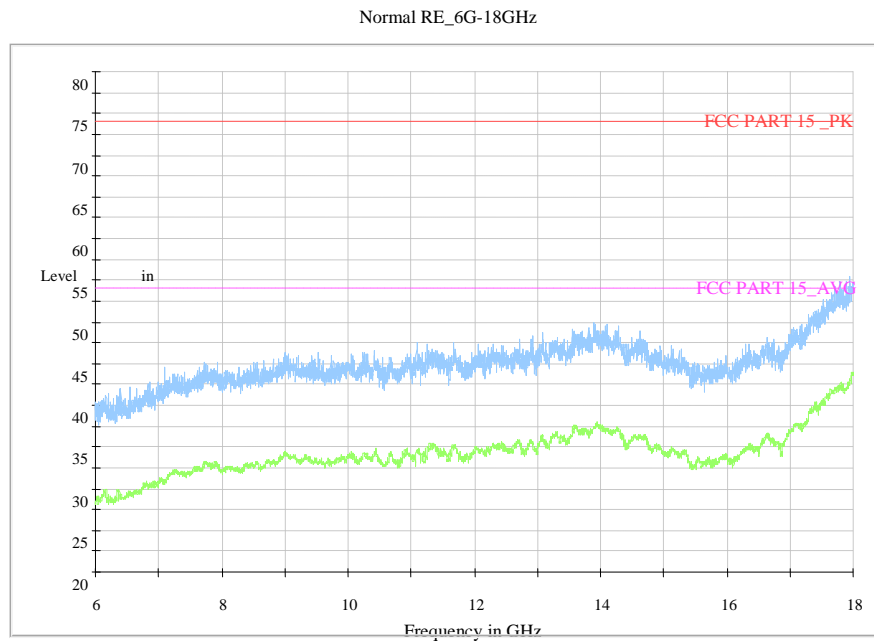


Fig. 93 Radiated Spurious Emission (802.11n-HT20, ch56, 6 GHz-18 GHz)

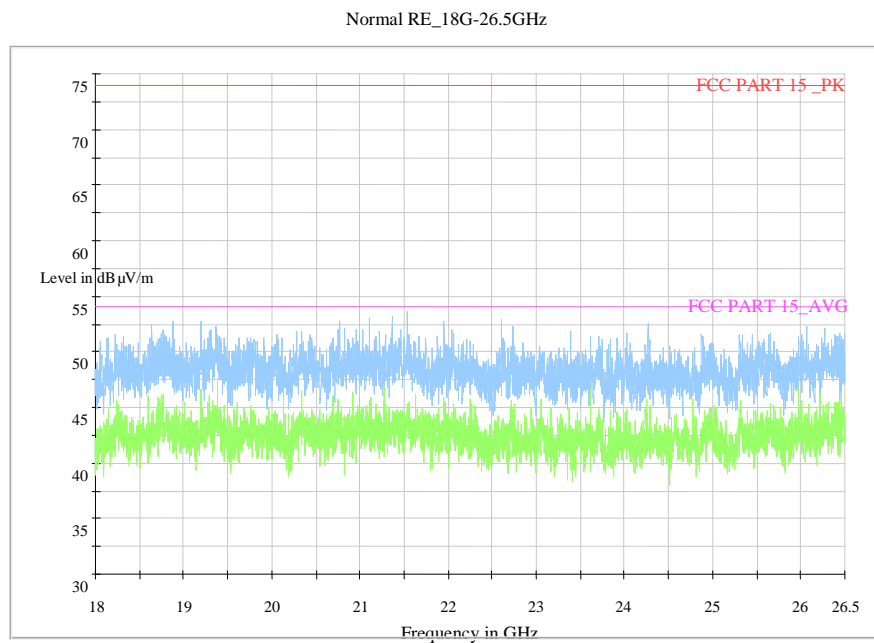


Fig. 94 Radiated Spurious Emission (802.11n-HT20, ch56, 18 GHz-26.5 GHz)

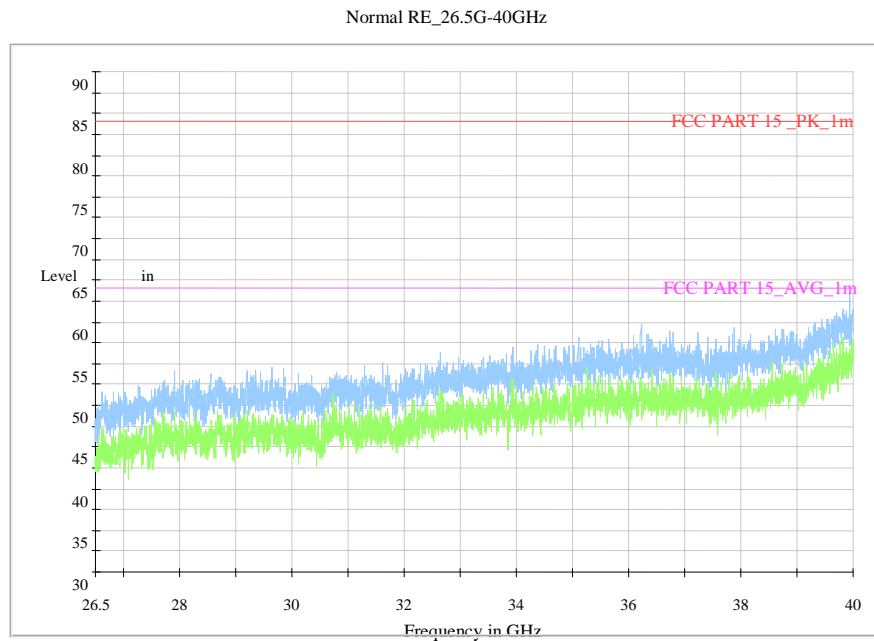


Fig. 95 Radiated Spurious Emission (802.11n-HT20, ch56, 26.5 GHz-40 GHz)

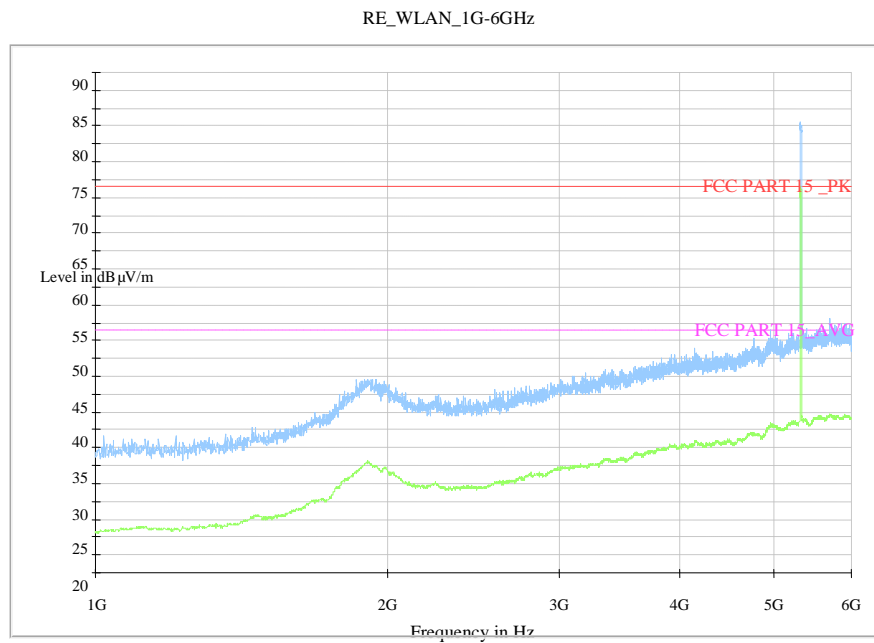


Fig. 96 Radiated Spurious Emission (802.11n-HT20, ch64, 1 GHz-6 GHz)

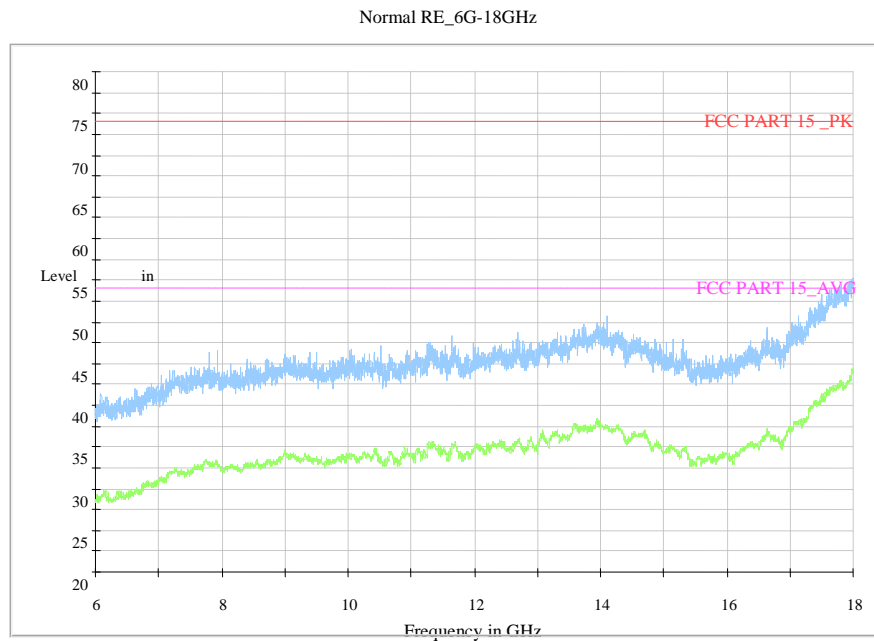


Fig. 97 Radiated Spurious Emission (802.11n-HT20, ch64, 6 GHz-18 GHz)

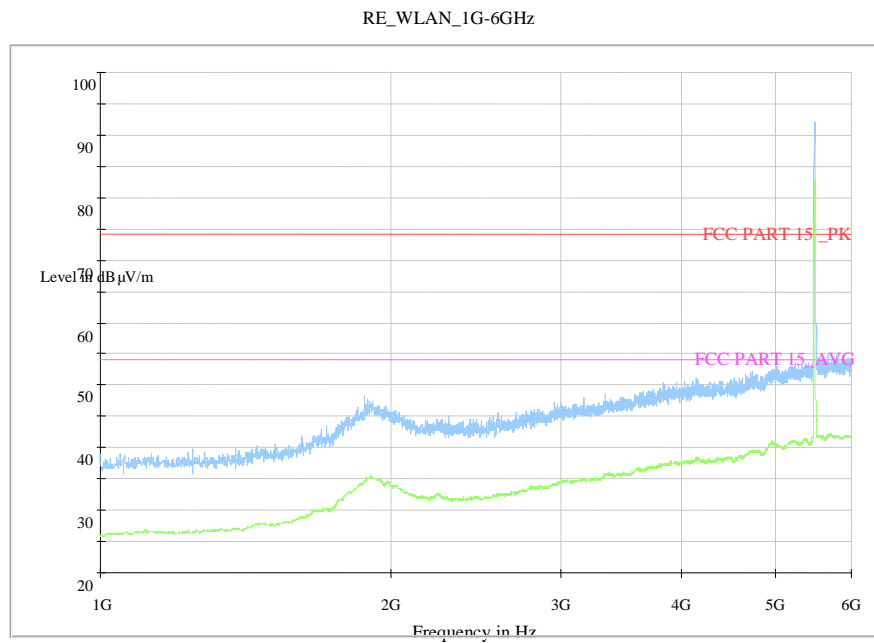


Fig. 98 Radiated Spurious Emission (802.11n-HT20, ch100, 1 GHz-6 GHz)

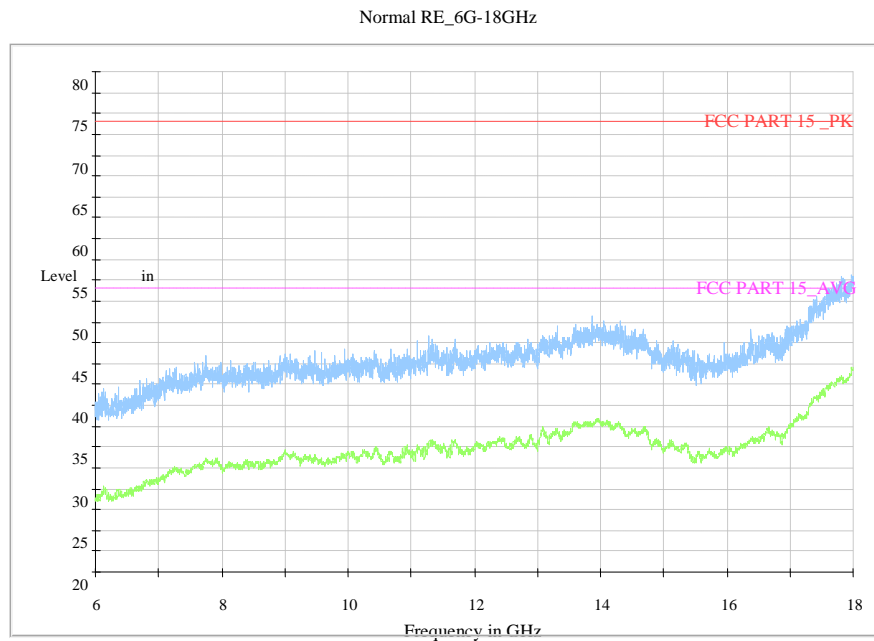


Fig. 99 Radiated Spurious Emission (802.11n-HT20, ch100, 6 GHz-18 GHz)

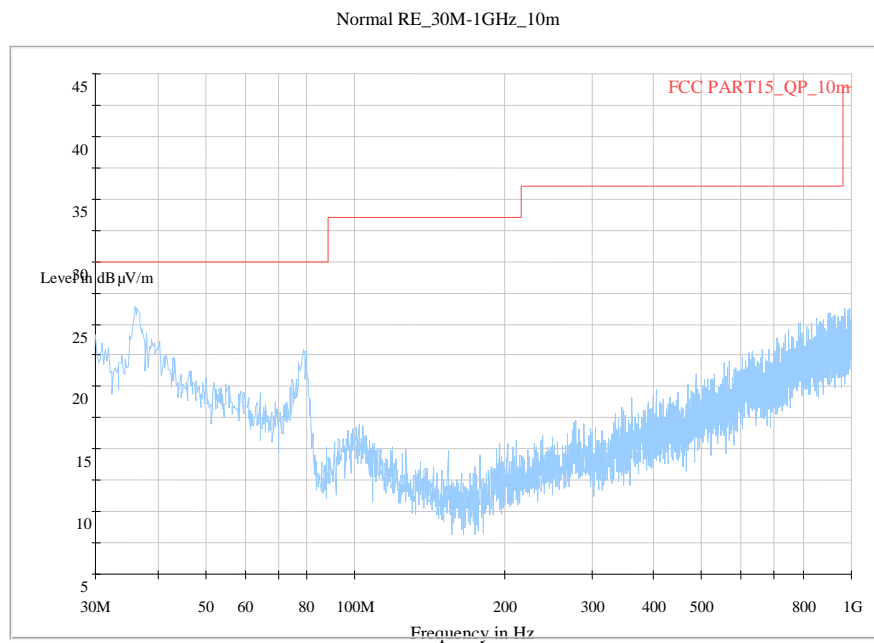


Fig. 100 Radiated Spurious Emission (802.11n-HT20, ch120, 30 MHz-1 GHz)

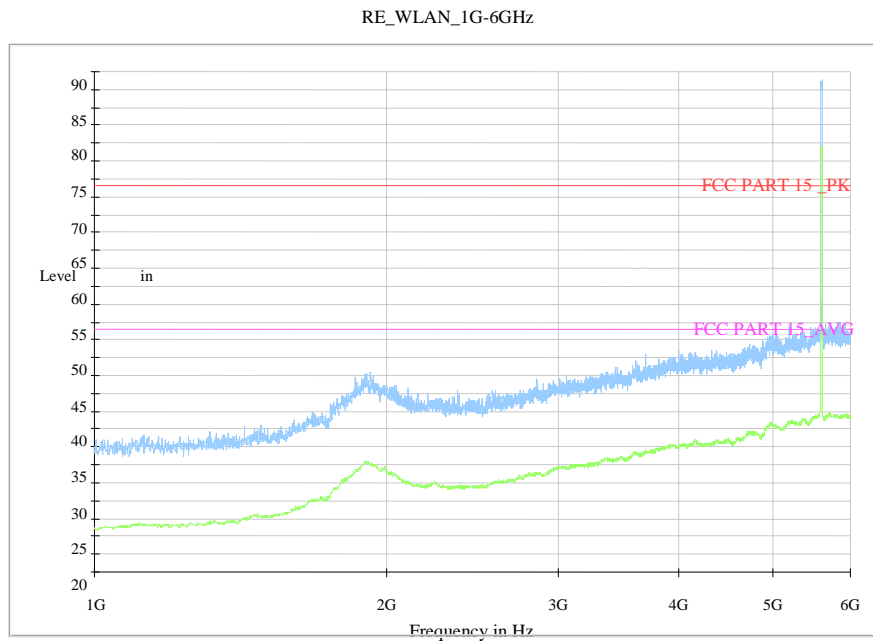


Fig. 101 Radiated Spurious Emission (802.11n-HT20, ch120, 1 GHz-6 GHz)

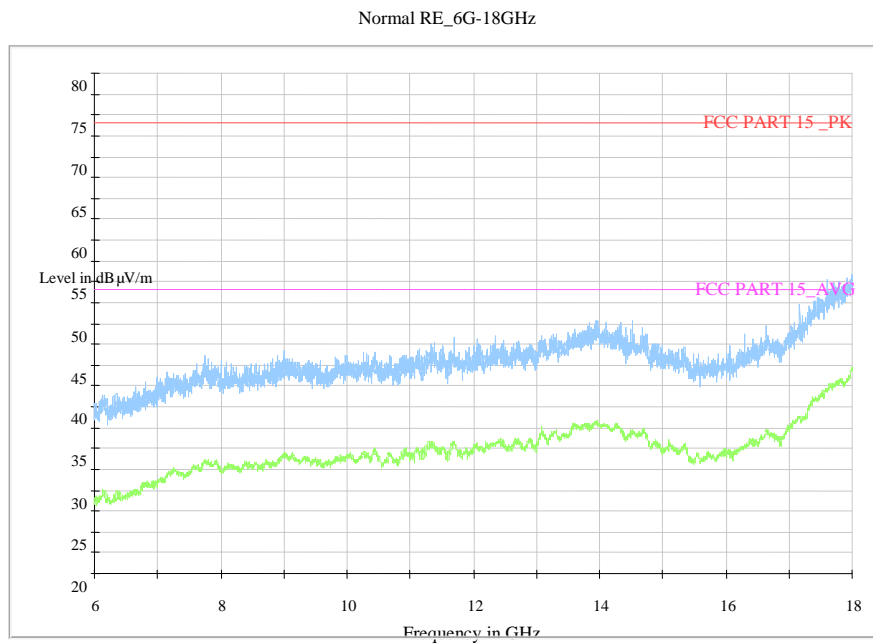


Fig. 102 Radiated Spurious Emission (802.11n-HT20, ch120, 6 GHz-18 GHz)

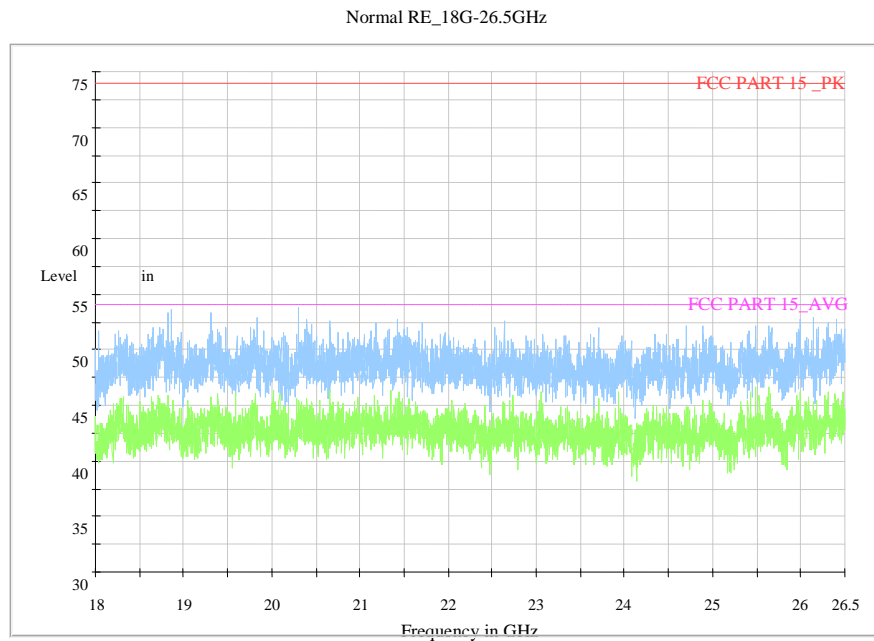


Fig. 103 Radiated Spurious Emission (802.11n-HT20, ch120, 18 GHz-26.5 GHz)

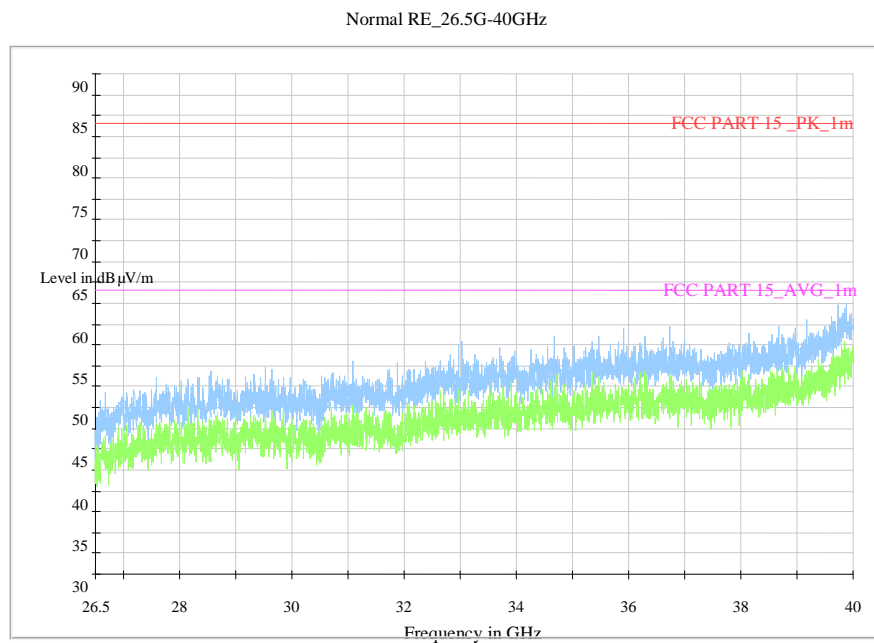


Fig. 104 Radiated Spurious Emission (802.11n-HT20, ch120, 26.5 GHz-40 GHz)

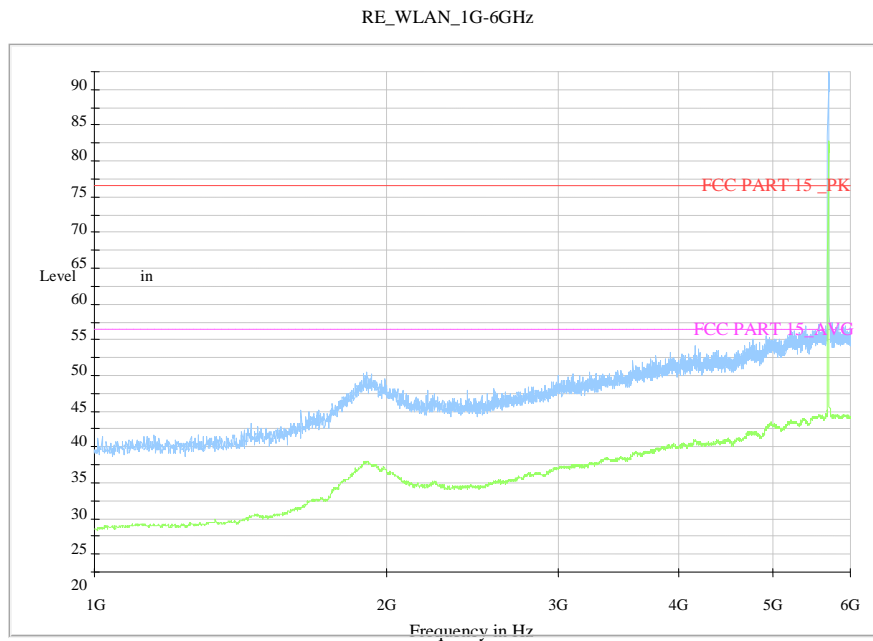


Fig. 105 Radiated Spurious Emission (802.11n-HT20, ch140, 1 GHz-6 GHz)

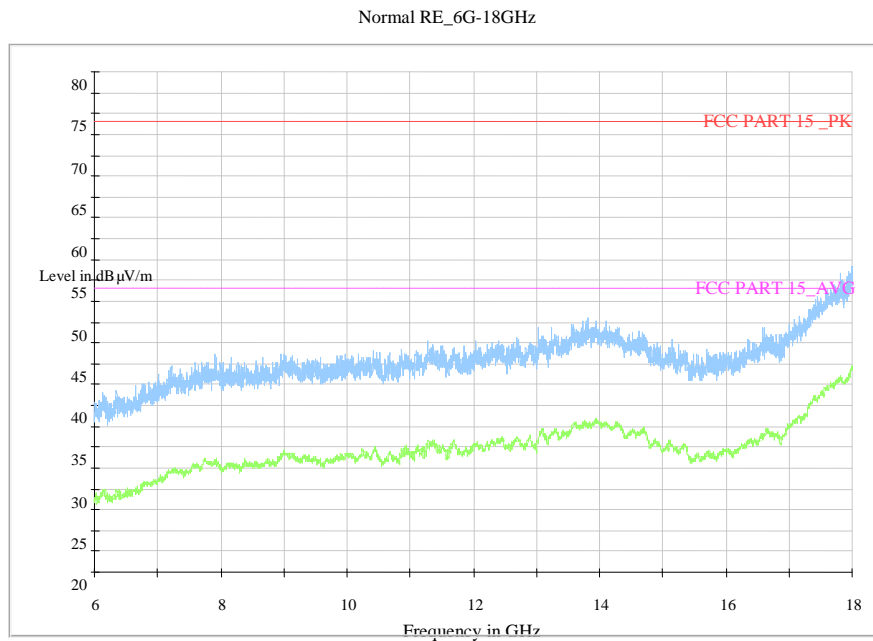


Fig. 106 Radiated Spurious Emission (802.11n-HT20, ch140, 6 GHz-18 GHz)

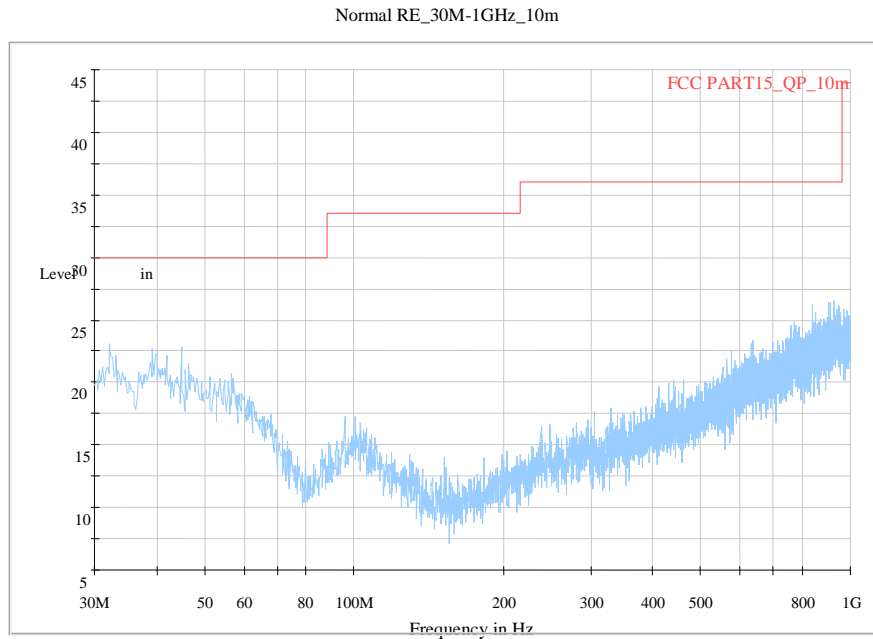


Fig. 107 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)

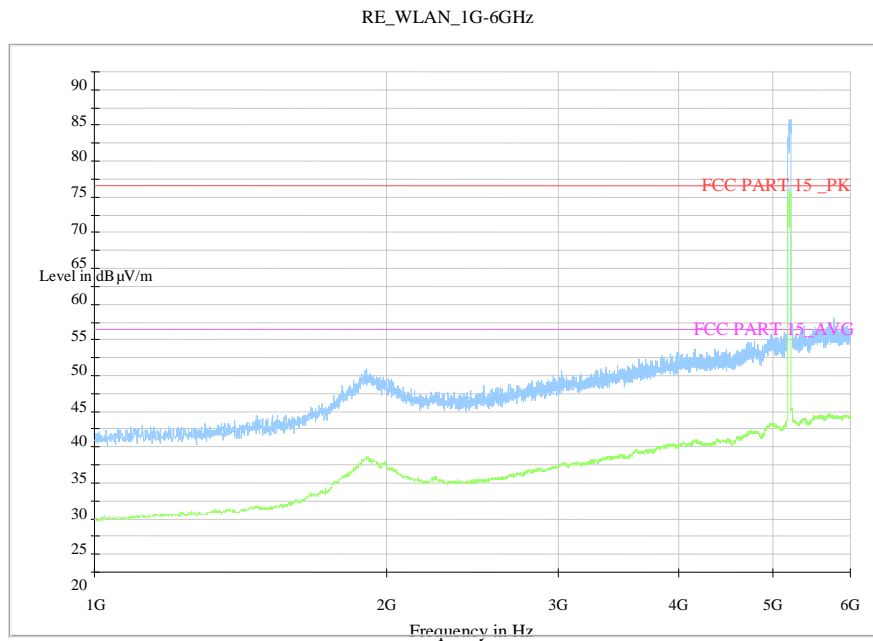


Fig. 108 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-6 GHz)

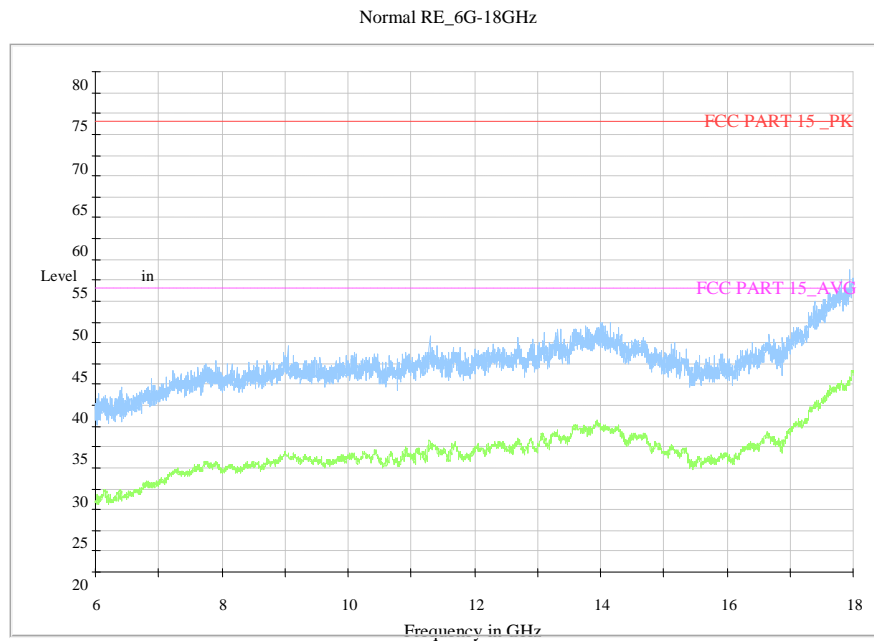


Fig. 109 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)

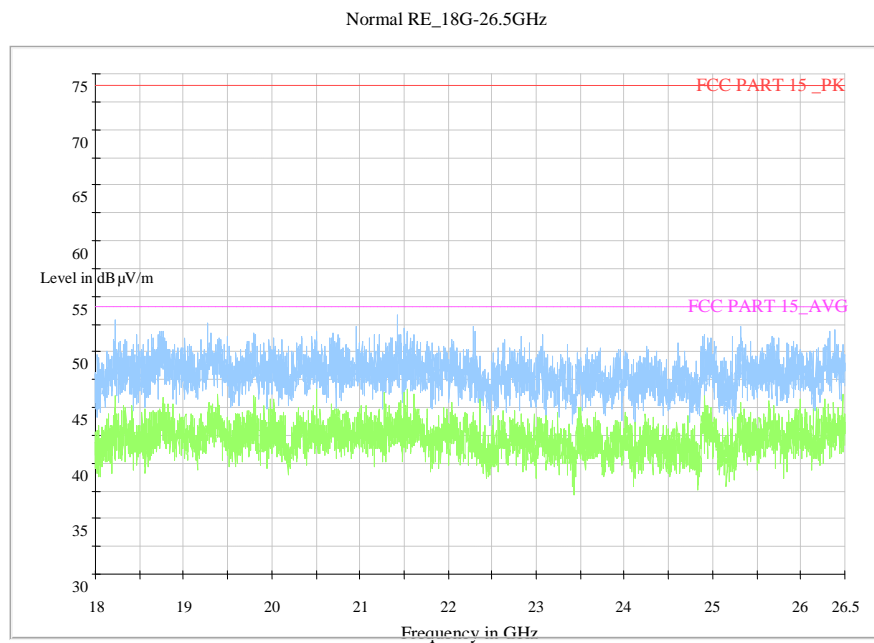


Fig. 110 Radiated Spurious Emission (802.11n-HT40, ch38, 18 GHz-26.5 GHz)

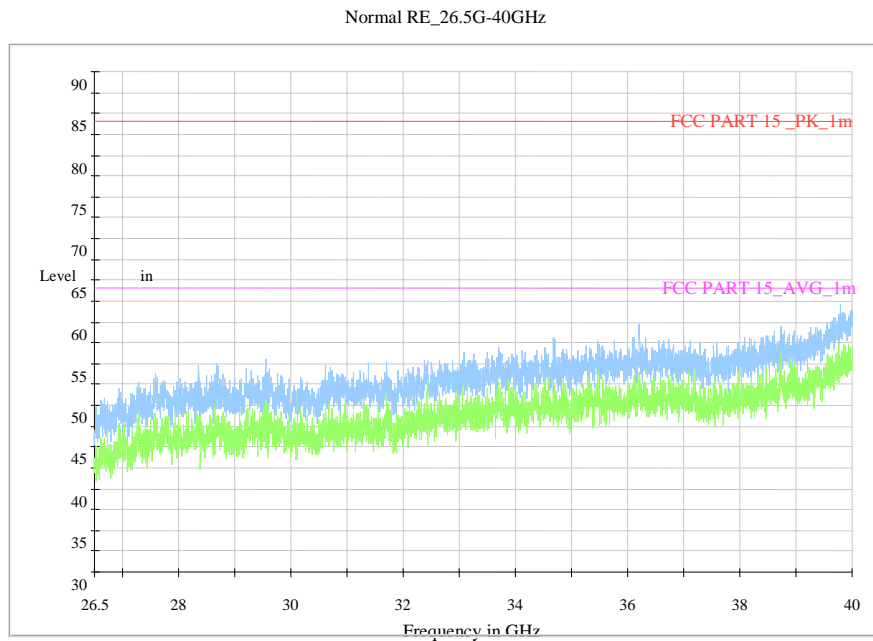


Fig. 111 Radiated Spurious Emission (802.11n-HT40, ch38, 26.5 GHz-40 GHz)

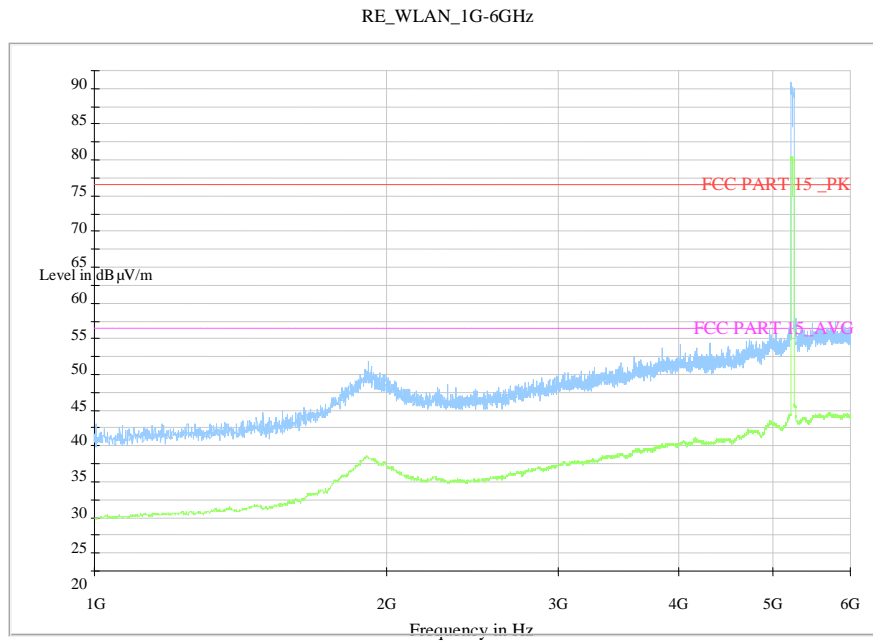


Fig. 112 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-6 GHz)

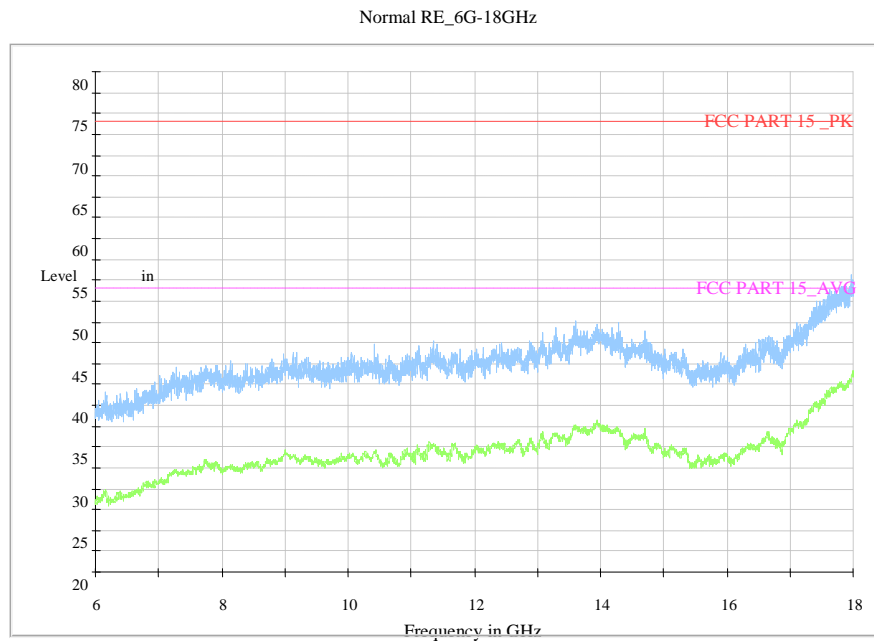


Fig. 113 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

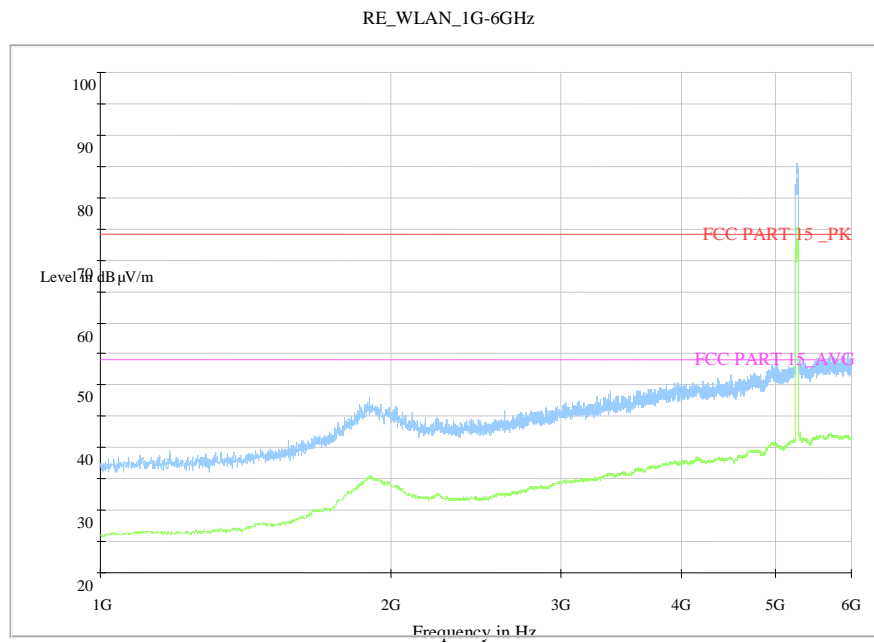


Fig. 114 Radiated Spurious Emission (802.11n-HT40, ch54, 1 GHz-6 GHz)

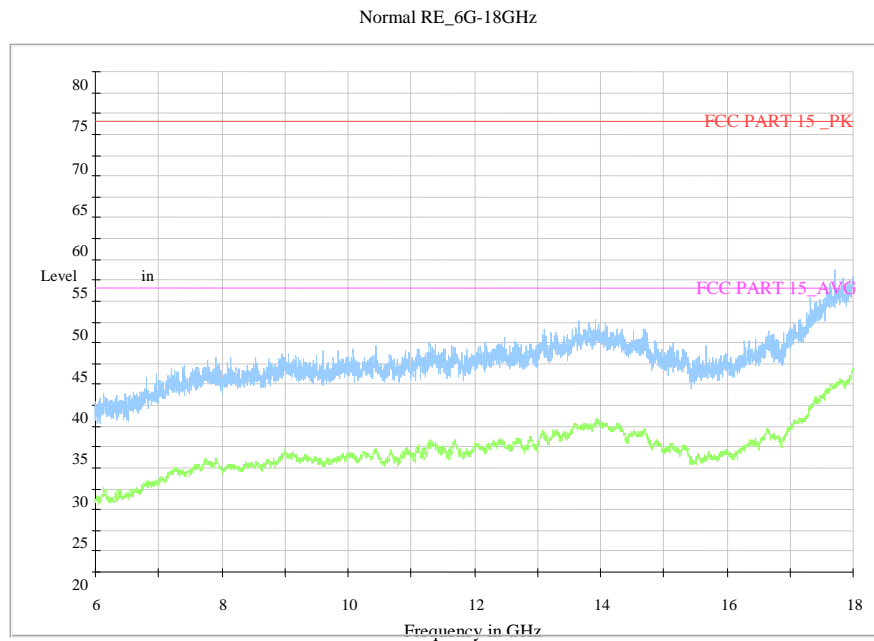


Fig. 115 Radiated Spurious Emission (802.11n-HT40, ch54, 6 GHz-18 GHz)

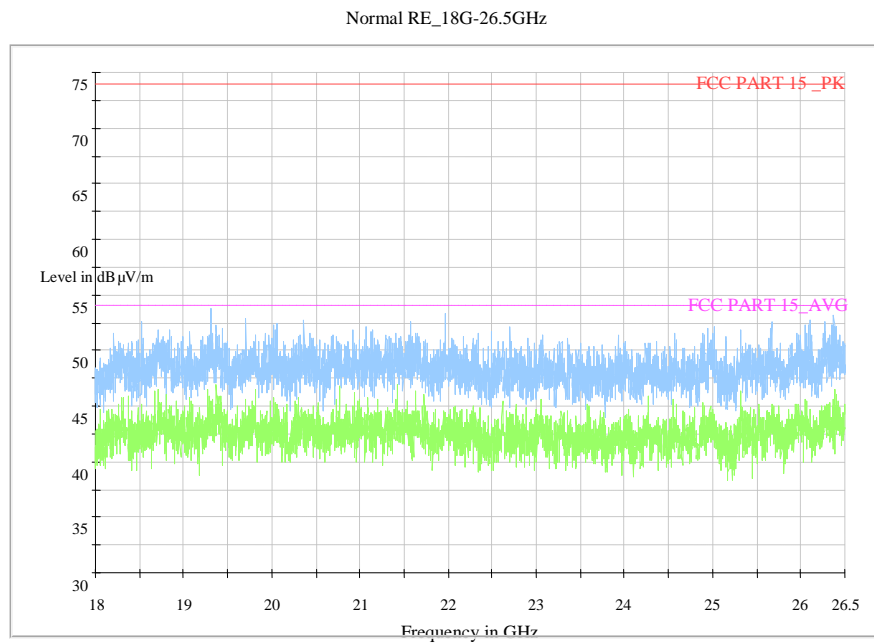


Fig. 116 Radiated Spurious Emission (802.11n-HT40, ch54, 18 GHz-26.5 GHz)

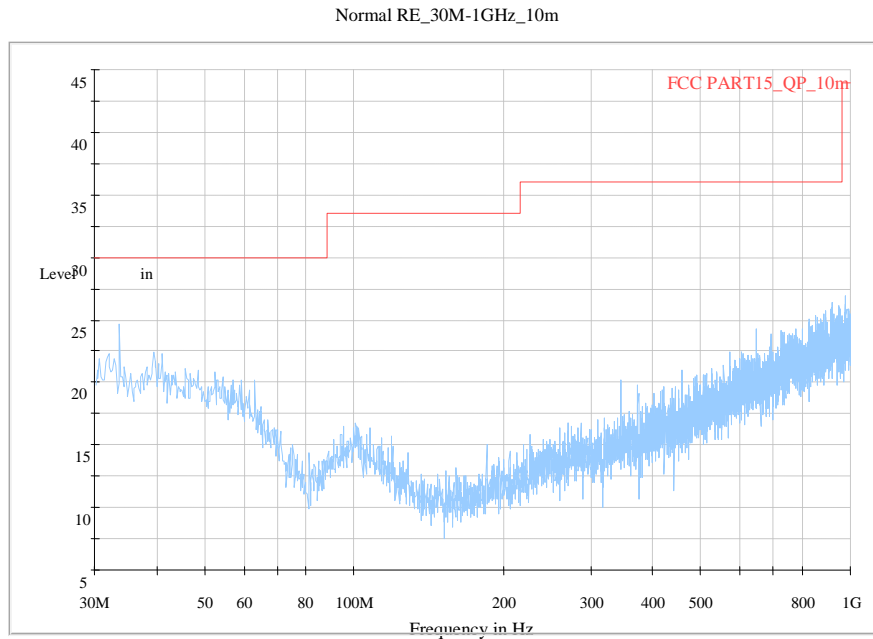


Fig. 117 Radiated Spurious Emission (802.11n-HT40, ch62, 30 MHz-1 GHz)

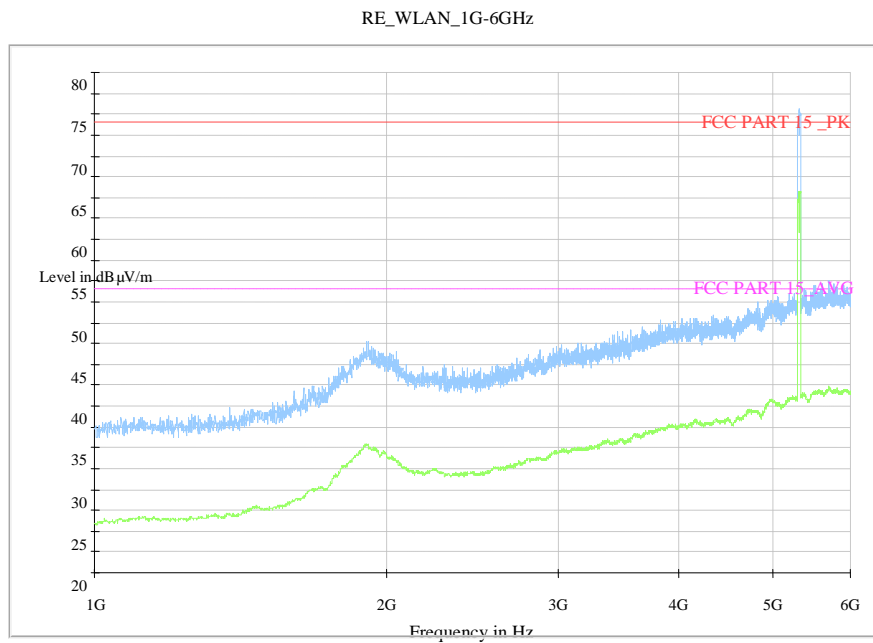


Fig. 118 Radiated Spurious Emission (802.11n-HT40, ch62, 1 GHz-6 GHz)

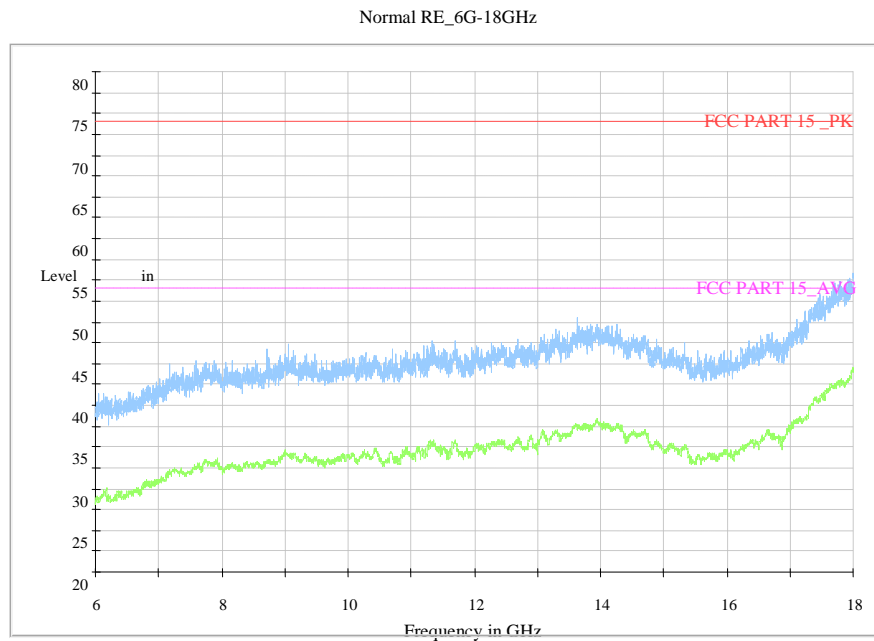


Fig. 119 Radiated Spurious Emission (802.11n-HT40, ch62, 6 GHz-18 GHz)

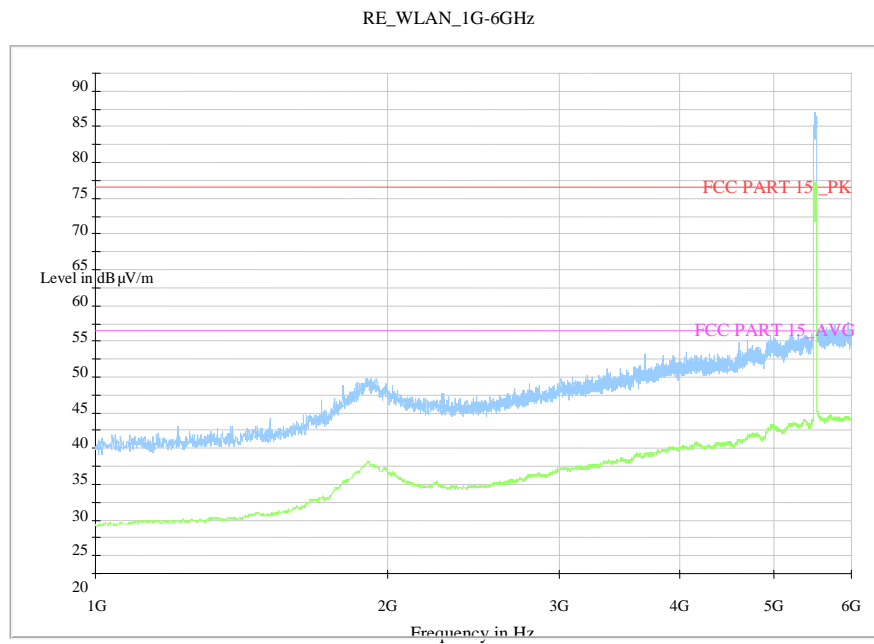


Fig. 120 Radiated Spurious Emission (802.11n-HT40, ch102, 1 GHz-6 GHz)

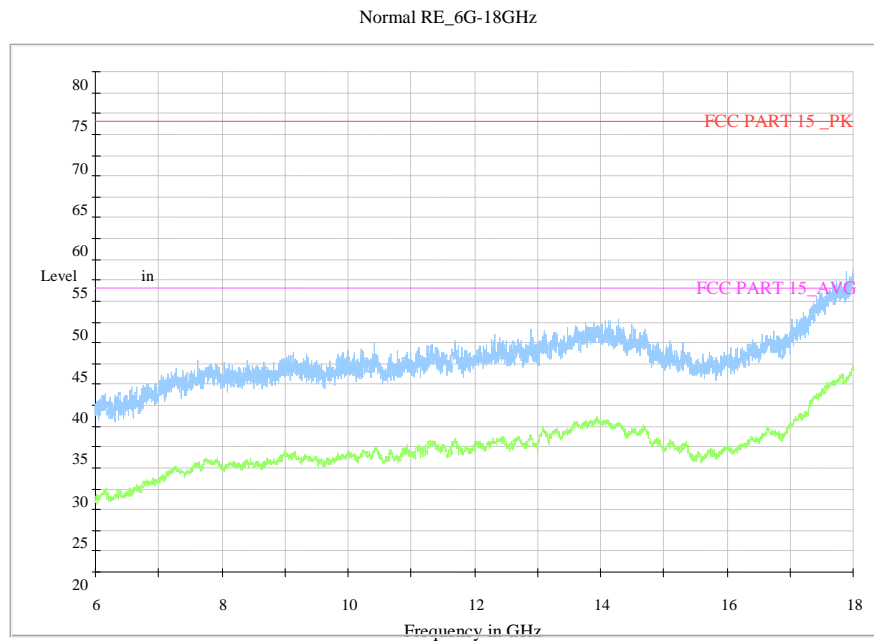


Fig. 121 Radiated Spurious Emission (802.11n-HT40, ch102, 6 GHz-18 GHz)

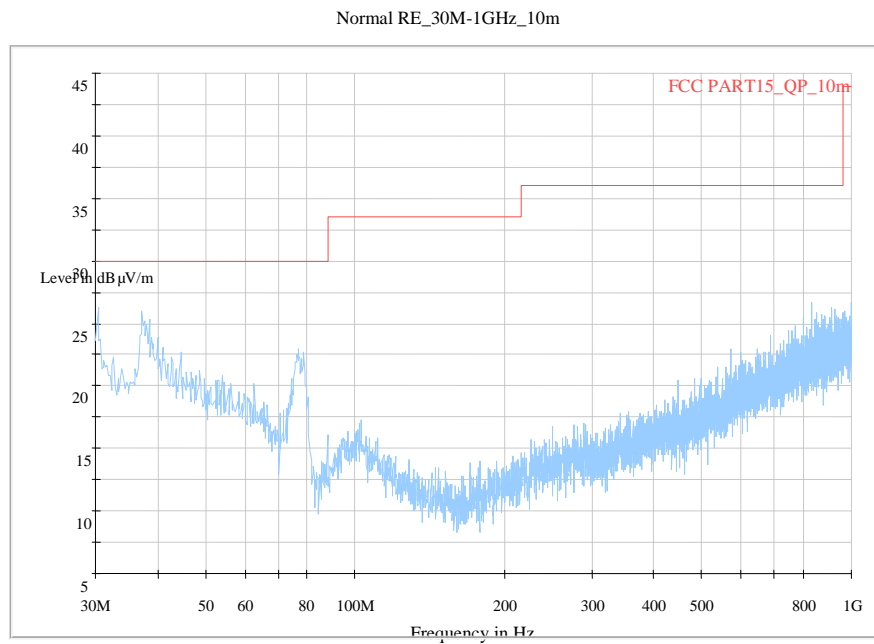


Fig. 122 Radiated Spurious Emission (802.11n-HT40, ch118, 30 MHz-1 GHz)

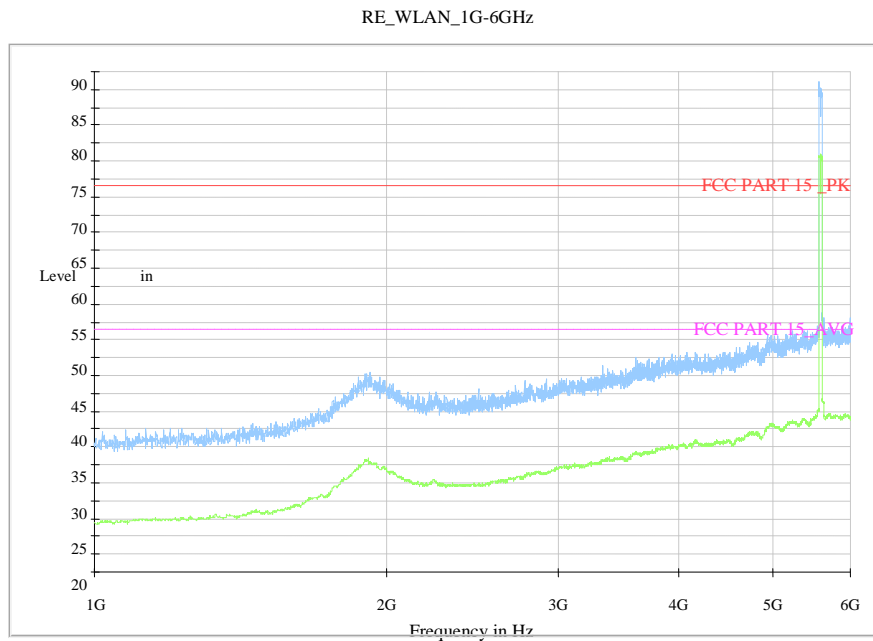


Fig. 123 Radiated Spurious Emission (802.11n-HT40, ch118, 1 GHz-6 GHz)

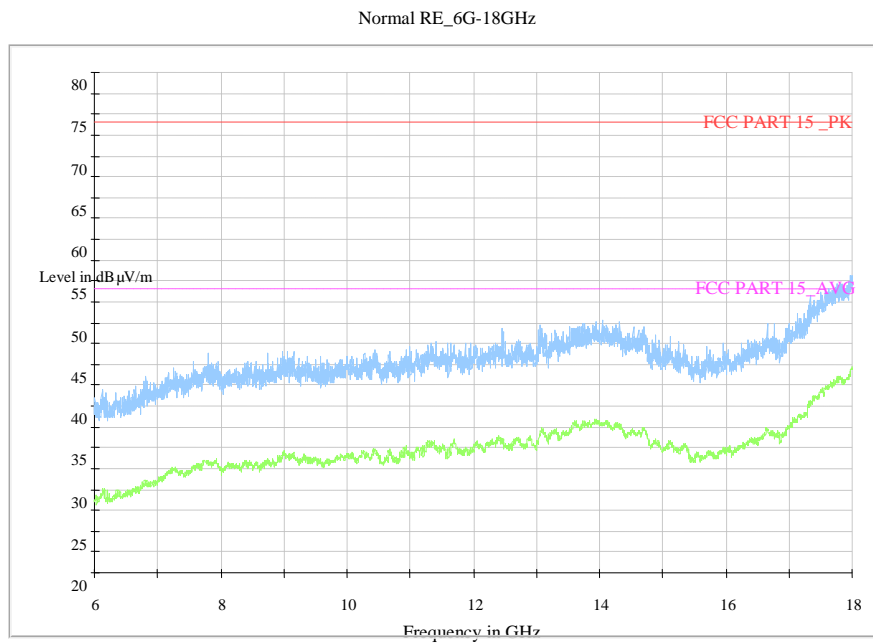


Fig. 124 Radiated Spurious Emission (802.11n-HT40, ch118, 6 GHz-18 GHz)

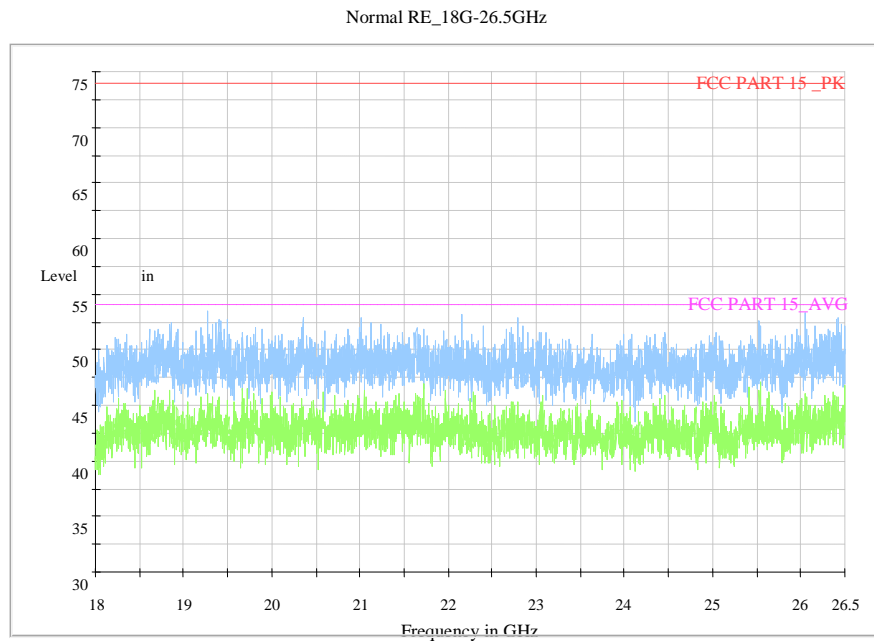


Fig. 125 Radiated Spurious Emission (802.11n-HT40, ch118, 18 GHz-26.5 GHz)

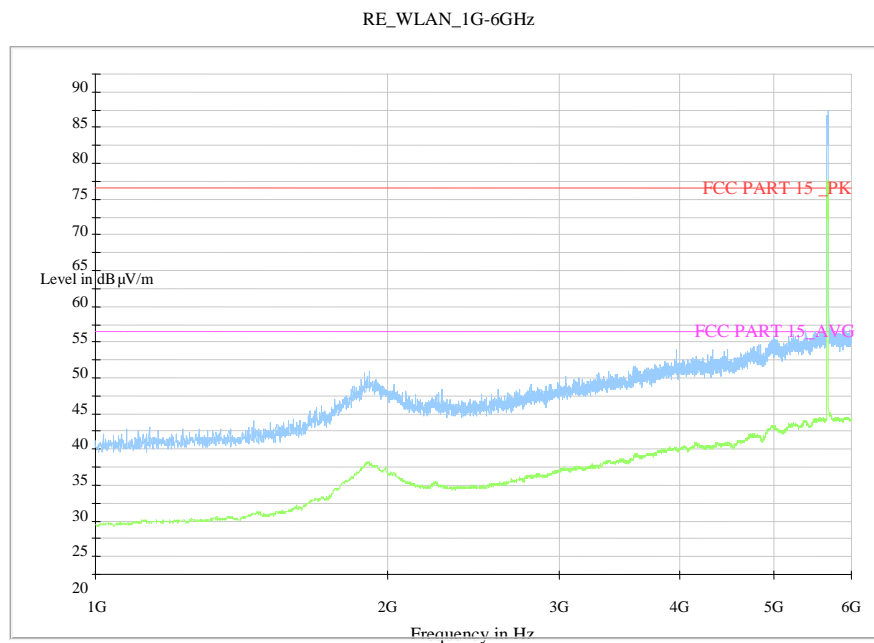


Fig. 126 Radiated Spurious Emission (802.11n-HT40, ch134, 1 GHz-6 GHz)

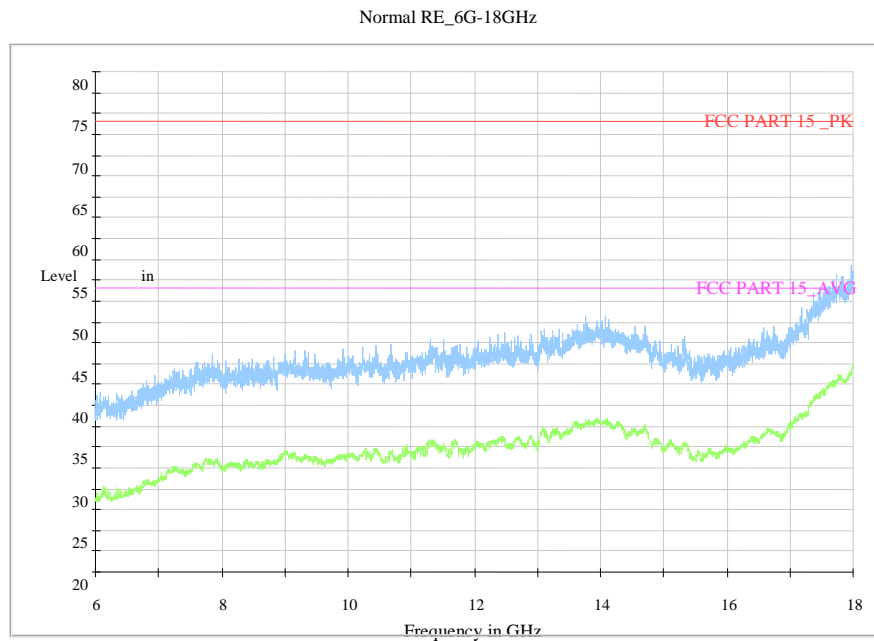


Fig. 127 Radiated Spurious Emission (802.11n-HT40, ch134, 6 GHz-18 GHz)

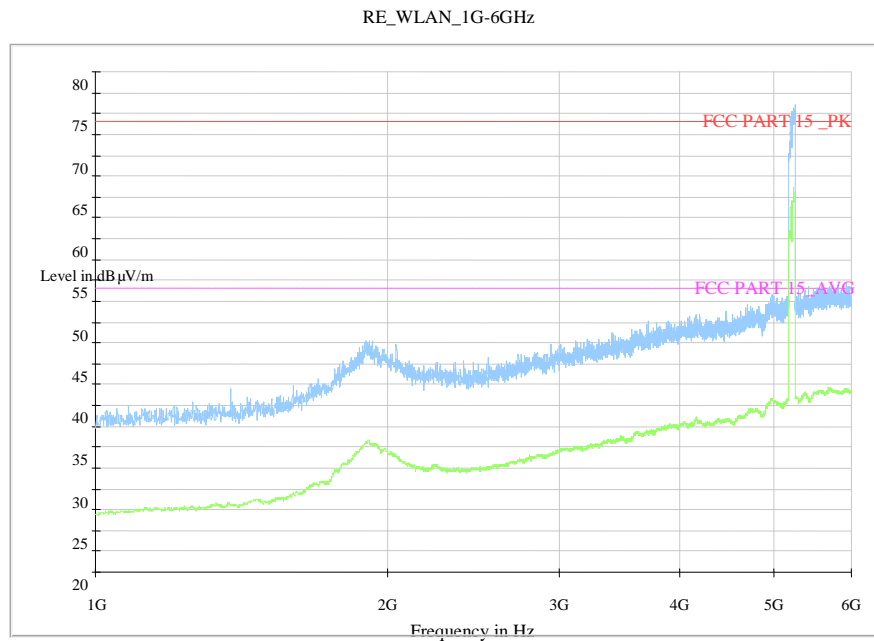


Fig. 128 Radiated Spurious Emission (802.11ac-HT80, ch42, 1 GHz-6 GHz)

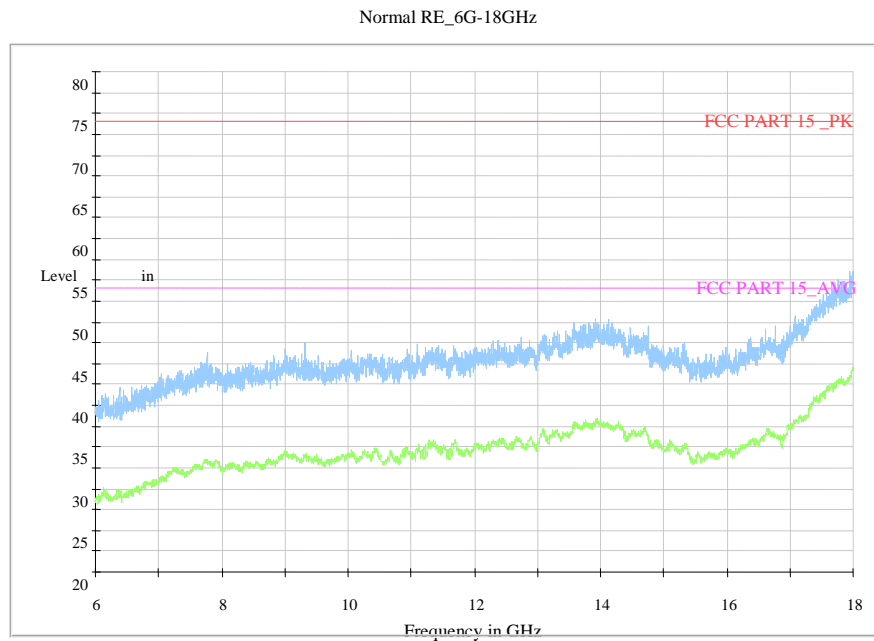


Fig. 129 Radiated Spurious Emission (802.11ac-HT80, ch42, 6 GHz-18 GHz)

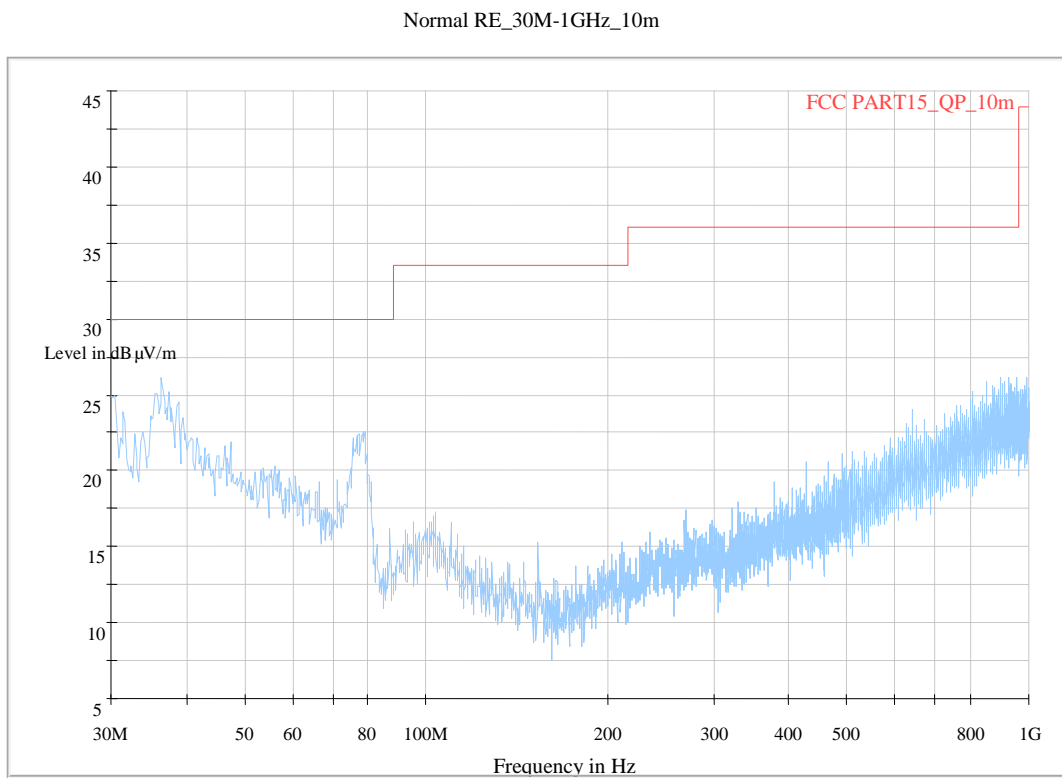


Fig. 130 Radiated Spurious Emission (802.11ac-HT80, ch58, 30 MHz-1 GHz)

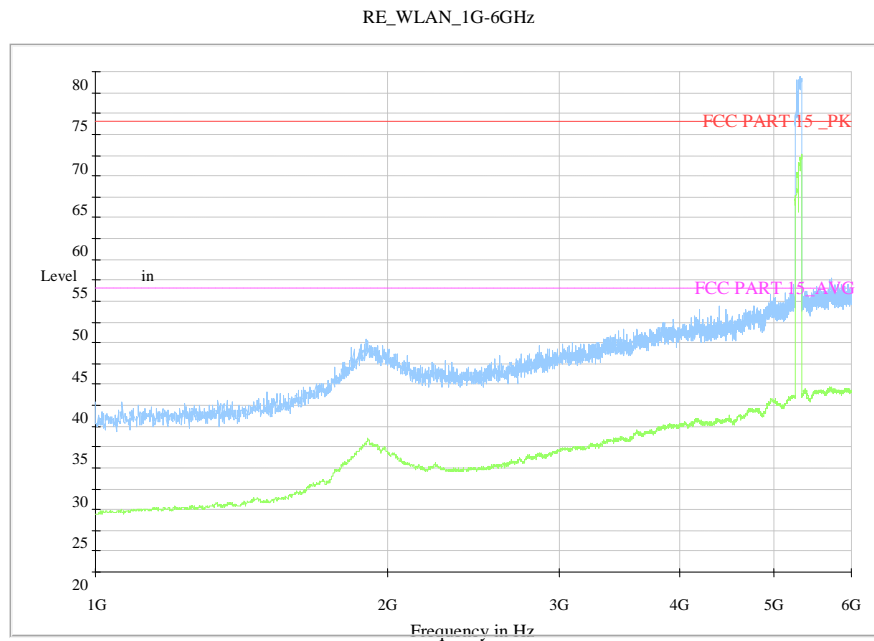


Fig. 131 Radiated Spurious Emission (802.11ac-HT80, ch58, 1 GHz-6 GHz)

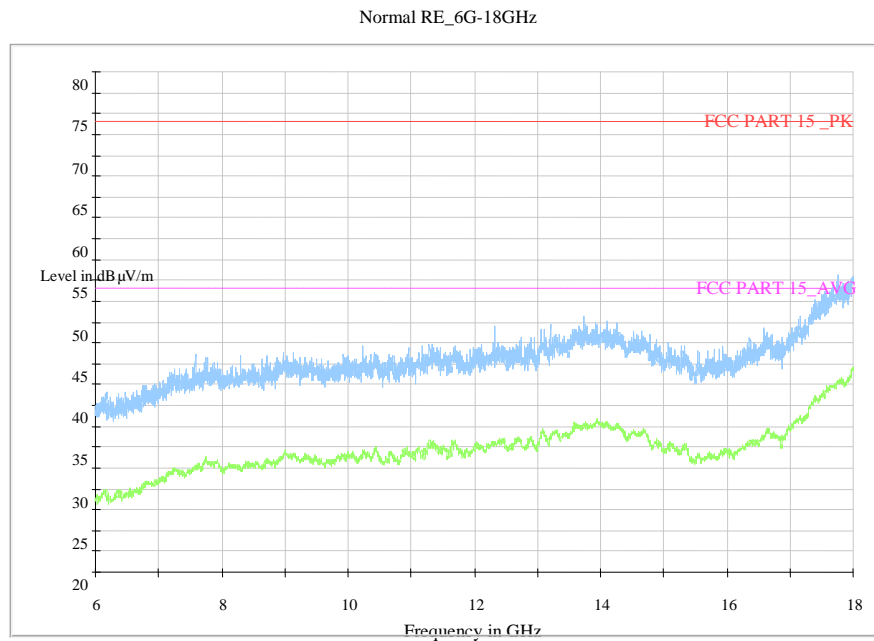


Fig. 132 Radiated Spurious Emission (802.11ac-HT80, ch58, 6 GHz-18 GHz)

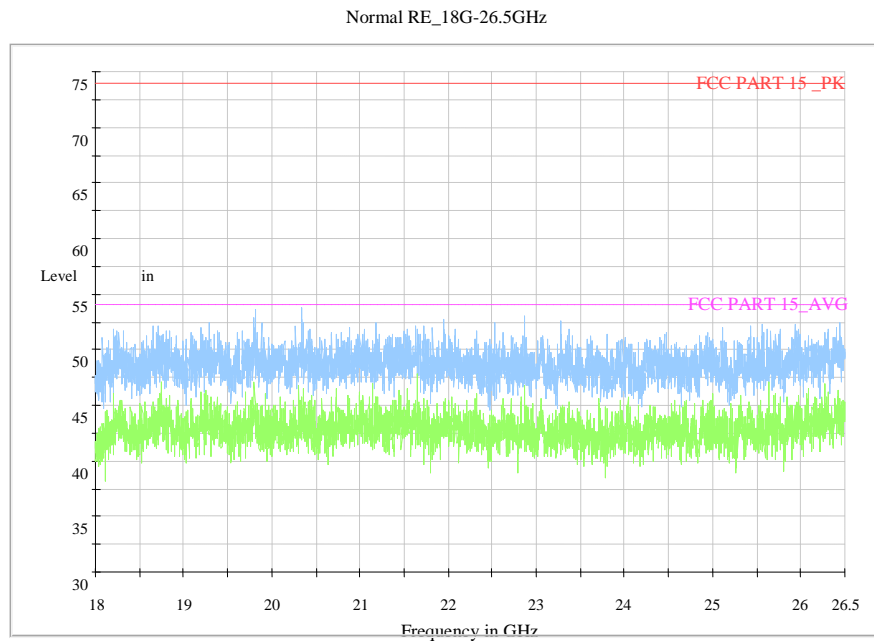


Fig. 133 Radiated Spurious Emission (802.11ac-HT80, ch58, 18 GHz-26.5 GHz)

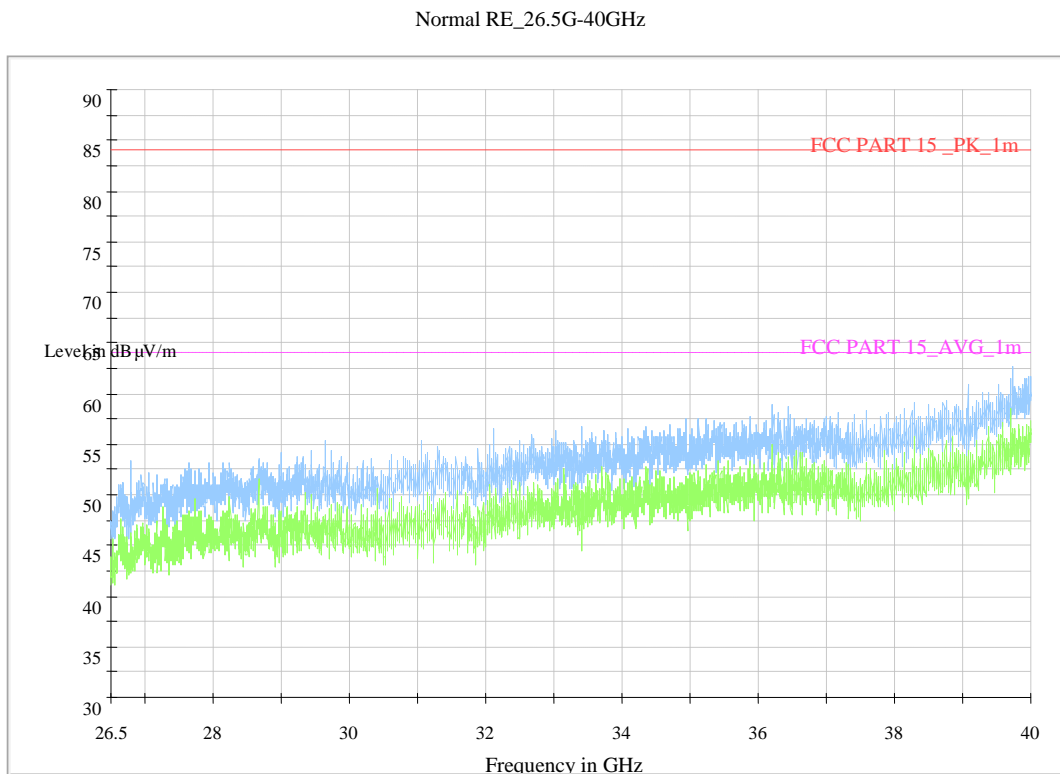


Fig. 134 Radiated Spurious Emission (802.11ac-HT80, ch58, 26.5 GHz-40 GHz)

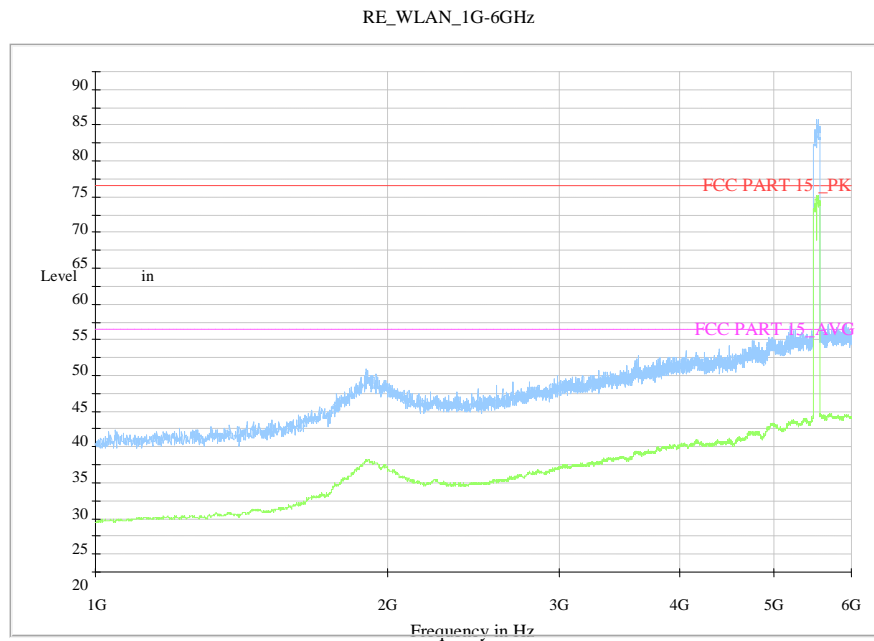


Fig. 135 Radiated Spurious Emission (802.11ac-HT80, ch106, 1 GHz-6 GHz)

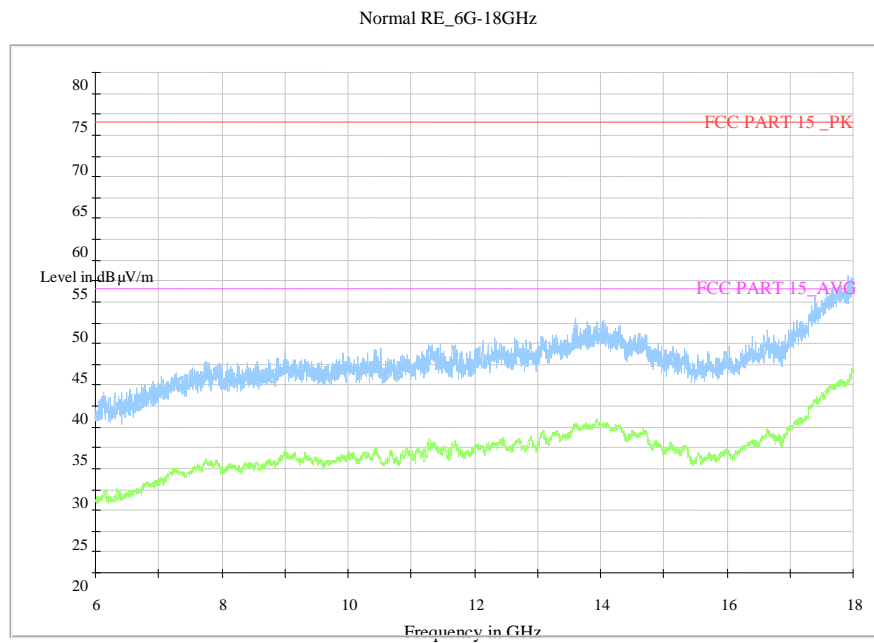


Fig. 136 Radiated Spurious Emission (802.11ac-HT80, ch106, 6 GHz-18 GHz)

A.7. Spurious Emissions Radiated < 30MHz

Measurement Limit(15.209, 9kHz-30MHz):

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

The measurement is made according to KDB 789033

Note: The measurement distance during the test is 3m. The limit used in plots is recalculated based on the extrapolation factor of 40 dB/decade.

Measurement uncertainty:

Expanded measurement uncertainty for this test item is $U = 2.6\text{dB}$, $k=2$.

Measurement Results:

Mode	Frequency Range	Test Results	Conclusion
802.11a	9 kHz ~30 MHz	Fig.137	P

Conclusion: PASS

Test graphs as below:

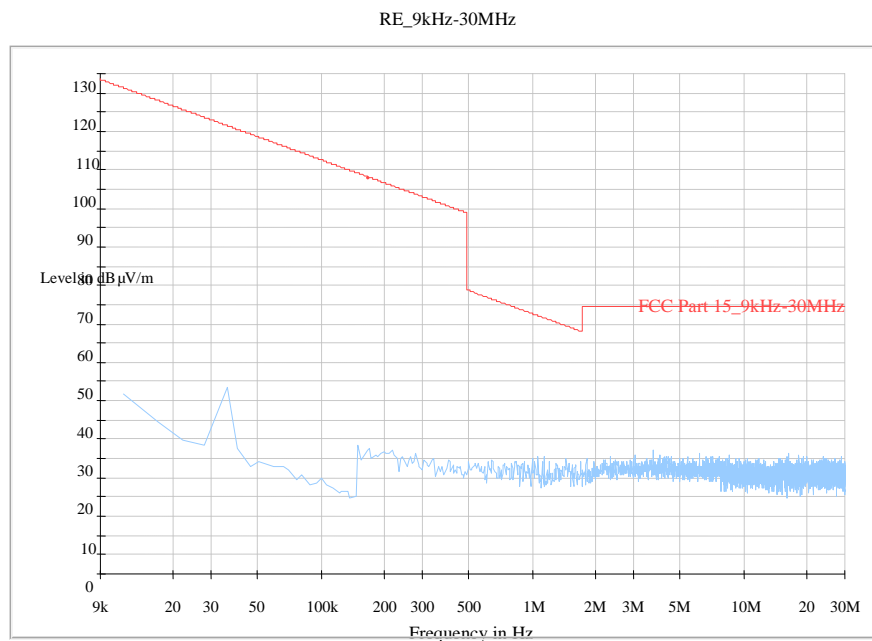


Fig. 137 Radiated Spurious Emission (802.11a, ch40, 9 kHz ~30 MHz)

A.8. Conducted Emission (150kHz- 30MHz)

Test Condition:

Voltage (V)	Frequency (Hz)
110	60

Measurement uncertainty:

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

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 138	Fig. 139	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 (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.138	Fig.139	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:

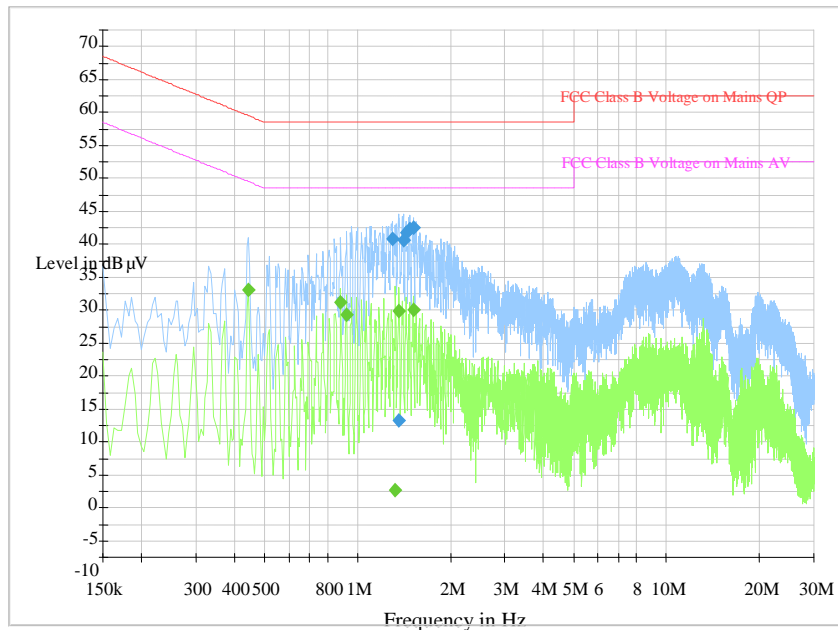


Fig. 138 Conducted Emission(802.11a, Ch40, TX)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.293000	38.3	GND	L1	9.7	17.7	56.0
1.356000	10.8	GND	L1	9.7	45.2	56.0
1.405500	38.1	GND	L1	9.7	17.9	56.0
1.437000	39.3	GND	L1	9.7	16.7	56.0
1.477500	39.9	GND	L1	9.7	16.1	56.0
1.513500	40.0	GND	L1	9.7	16.0	56.0

Measurement Result:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.442500	30.6	GND	L1	9.8	16.4	47.0
0.883500	28.6	GND	L1	9.7	17.4	46.0
0.924000	26.7	GND	L1	9.7	19.3	46.0
1.324500	0.3	GND	L1	9.7	45.7	46.0
1.365000	27.3	GND	L1	9.7	18.7	46.0
1.513500	27.5	GND	L1	9.7	18.5	46.0

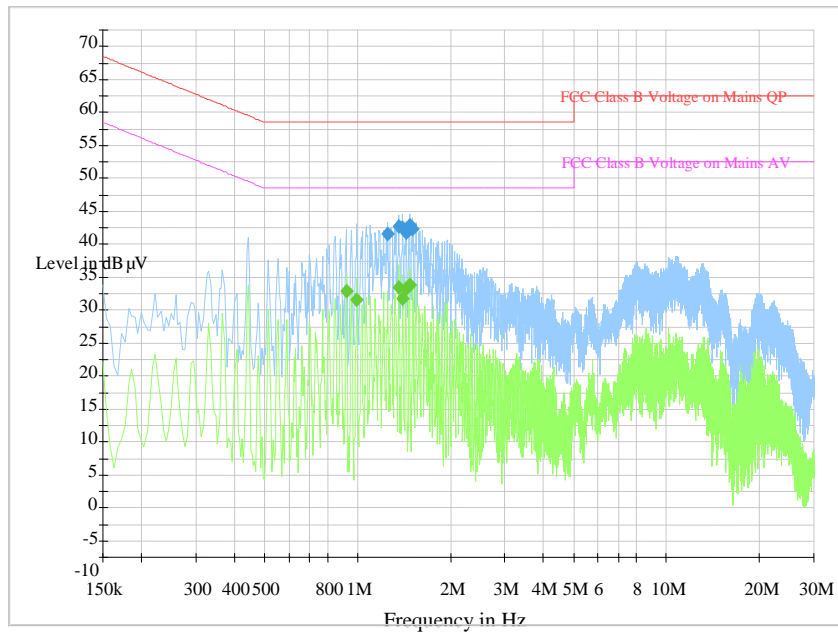


Fig. 139 Conducted Emission(802.11a, IDLE)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.252500	39.1	GND	L1	9.7	16.9	56.0
1.360500	40.2	GND	L1	9.7	15.8	56.0
1.401000	40.0	GND	L1	9.7	16.0	56.0
1.432500	39.3	GND	L1	9.7	16.7	56.0
1.473000	40.4	GND	L1	9.7	15.6	56.0
1.509000	39.9	GND	L1	9.7	16.1	56.0

Measurement Result:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.919500	30.3	GND	L1	9.7	15.7	46.0
0.996000	29.0	GND	L1	9.7	17.0	46.0
1.360500	31.0	GND	L1	9.7	15.0	46.0
1.401000	29.3	GND	L1	9.7	16.7	46.0
1.432500	30.7	GND	L1	9.7	15.3	46.0
1.473000	31.4	GND	L1	9.7	14.6	46.0

A.9. Peak Excursion

Measurement Limit:

Standard	Limit (dB)
FCC 47 CFR Part 15.407	13

The measurement is made according to KDB 789033, the method SA-1 is used for PPSD measurement.

Measurement Uncertainty:

Measurement Uncertainty	0.75 dB
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Measurement Result:

11a mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.140	14.23	Fig.141	14.24	Fig.142	14.26
Average(dBm)	Fig.143	6.28	Fig.144	6.32	Fig.145	6.44
Result (dB)	7.95		7.92		7.82	

Type	Test Result (dBm)					
	5260MHz (Ch52)		5280 MHz (Ch56)		5320 MHz (Ch64)	
Peak (dBm)	Fig.146	14.24	Fig.147	14.15	Fig.148	14.34
Average(dBm)	Fig.149	6.36	Fig.150	6.40	Fig.151	6.50
Result (dB)	7.88		7.75		7.84	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5580MHz (Ch126)		5700MHz (Ch140)	
Peak (dBm)	Fig.152	13.48	Fig.153	13.43	Fig.154	13.76
Average(dBm)	Fig.155	5.52	Fig.156	5.52	Fig.157	5.98
Result (dB)	7.96		7.91		7.78	

11n-HT20 mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.158	13.60	Fig.159	13.31	Fig.160	13.47
Average(dBm)	Fig.161	5.27	Fig.162	5.27	Fig.163	5.42
Result (dB)	8.33		8.04		8.05	



Type	Test Result (dBm)					
	5260MHz (Ch52)		5280 MHz (Ch56)		5320 MHz (Ch64)	
Peak (dBm)	Fig.164	13.49	Fig.165	13.60	Fig.166	13.39
Average(dBm)	Fig.167	5.31	Fig.168	5.24	Fig.169	5.28
Result (dB)	8.18		8.36		8.11	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5580MHz (Ch116)		5700MHz (Ch140)	
Peak (dBm)	Fig.170	12.50	Fig.171	12.50	Fig.172	12.98
Average(dBm)	Fig.173	4.69	Fig.174	4.54	Fig.175	5.18
Result (dB)	7.81		7.96		7.80	

11n-HT40 mode

Type	Peak Excursion							
	5190MHz (Ch38)		5230MHz (Ch46)		5270MHz (Ch54)		5310 MHz (Ch62)	
Peak (dBm)	Fig.176	9.75	Fig.177	10.07	Fig.178	10.01	Fig.179	9.88
Average(dBm)	Fig.180	1.34	Fig.181	1.37	Fig.182	1.68	Fig.183	1.66
Result (dB)	8.41		8.70		8.33		8.22	

Type	Test Result (dBm)					
	5510MHz (Ch102)		5550MHz (Ch110)		5670MHz (Ch134)	
Peak (dBm)	Fig.184	8.98	Fig.185	8.81	Fig.186	9.56
Average(dBm)	Fig.187	0.73	Fig.188	0.84	Fig.189	1.32
Result (dB)	8.25		7.97		8.24	

11ac-HT80 mode

Type	Test Result (dBm)					
	5210MHz (Ch42)		5290MHz (Ch58)		5530MHz (Ch106)	
Peak (dBm)	Fig.190	5.34	Fig.191	5.14	Fig.192	5.21
Average(dBm)	Fig.193	-2.67	Fig.194	-2.90	Fig.195	-3.23
Result (dB)	8.01		8.04		8.44	

Conclusion: PASS

Test graphs as below:



Fig. 140 Peak Excursions (802.11a, ch36, peak)



Fig. 141 Peak Excursions (802.11a, ch40, peak)



Fig. 142 Peak Excursions (802.11a, ch48, peak)



Fig. 143 Peak Excursions (802.11a, ch36, average)



Fig. 144 Peak Excursions (802.11a, ch40, average)



Fig. 145 Peak Excursions (802.11a, ch48, average)



Fig. 146 Peak Excursions (802.11a, ch52, peak)



Fig. 147 Peak Excursions (802.11a, ch56, peak)



Fig. 148 Peak Excursions (802.11a, ch64, peak)



Fig. 149 Peak Excursions (802.11a, ch52, average)



Fig. 150 Peak Excursions (802.11a, ch56, average)



Fig. 151 Peak Excursions (802.11a, ch64, average)



Fig. 152 Peak Excursions (802.11a, ch100, peak)



Fig. 153 Peak Excursions (802.11a, ch116, peak)



Fig. 154 Peak Excursions (802.11a, ch140, peak)



Fig. 155 Peak Excursions (802.11a, ch100, average)



Fig. 156 Peak Excursions (802.11a, ch116, average)



Fig. 157 Peak Excursions (802.11a, ch140, average)



Fig. 158 Peak Excursions (802.11n-HT20, ch36, peak)



Fig. 159 Peak Excursions (802.11n-HT20, ch40, peak)