

Fig. 109 Transmitter Spurious Emission (802. 11n-HT40, 5590MHz)

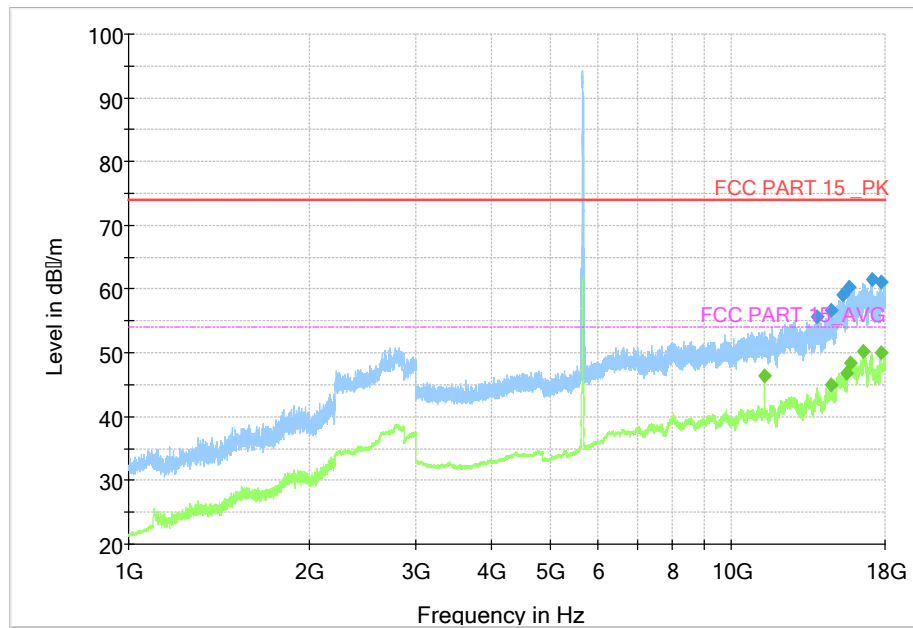


Fig. 110 Transmitter Spurious Emission (802. 11n-HT40, 5670MHz)

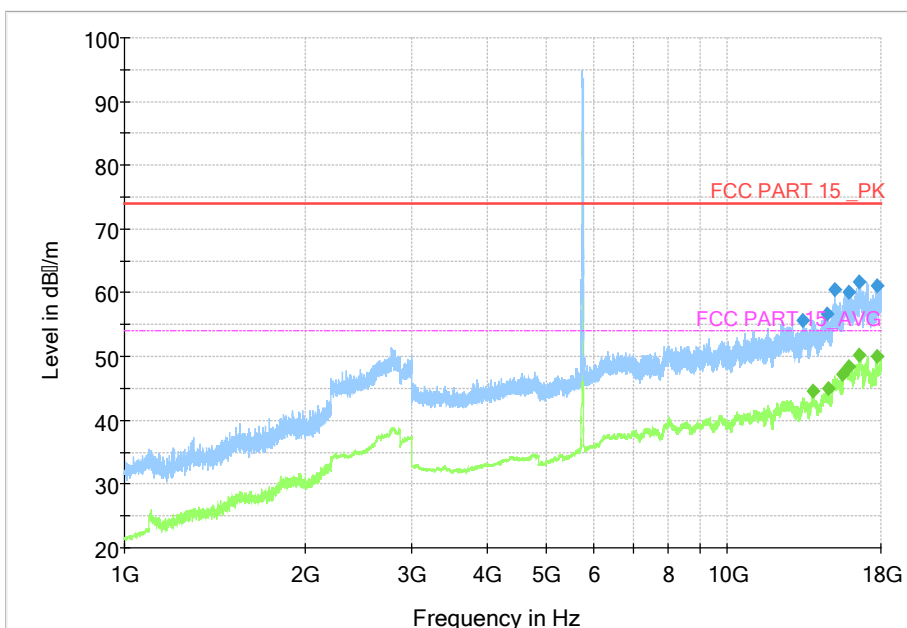


Fig. 111 Transmitter Spurious Emission (802. 11n-HT40, 5755MHz)

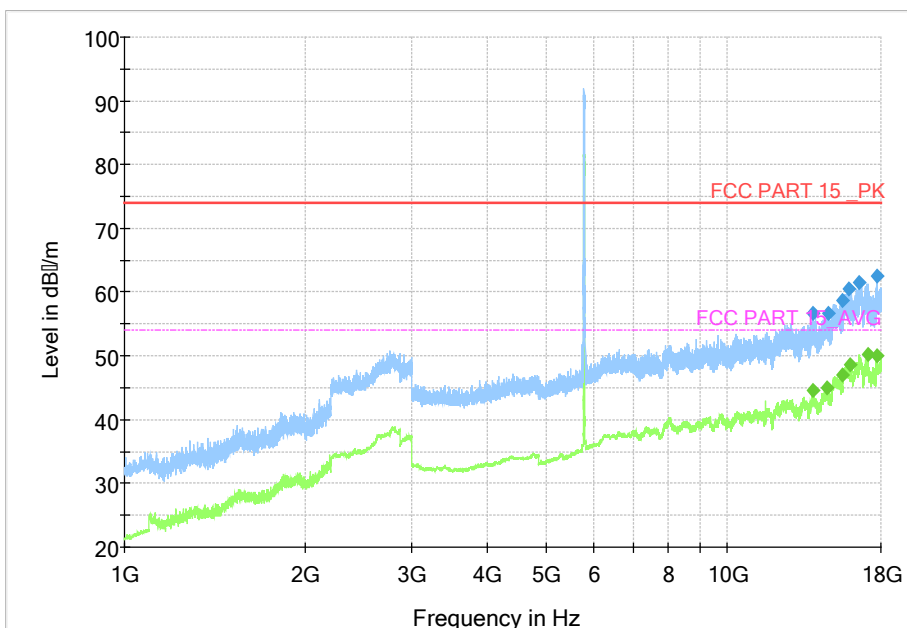


Fig. 112 Transmitter Spurious Emission (802. 11n-HT40, 5795MHz)

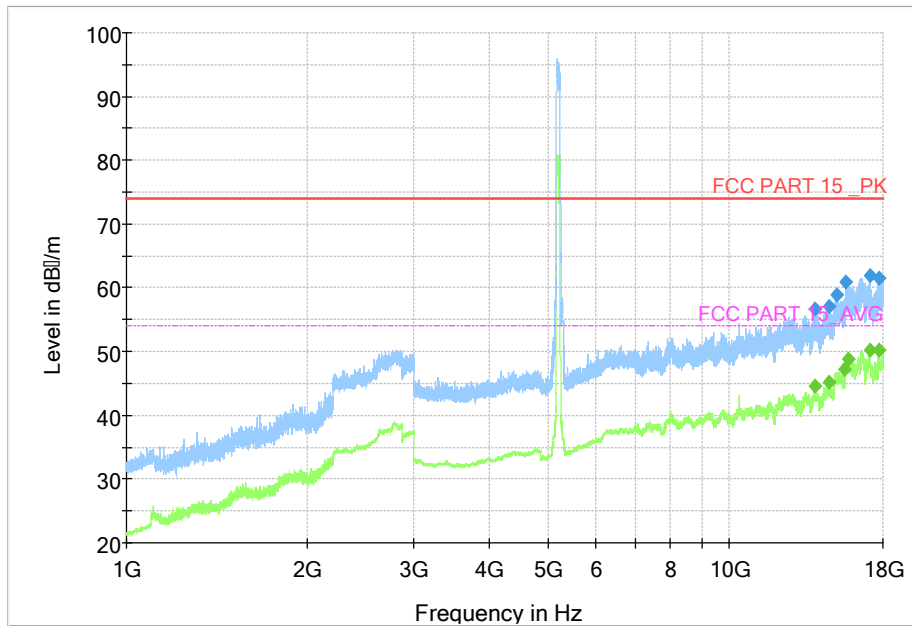


Fig. 113 Transmitter Spurious Emission (802. 11ac-VHT80, 5210MHz)

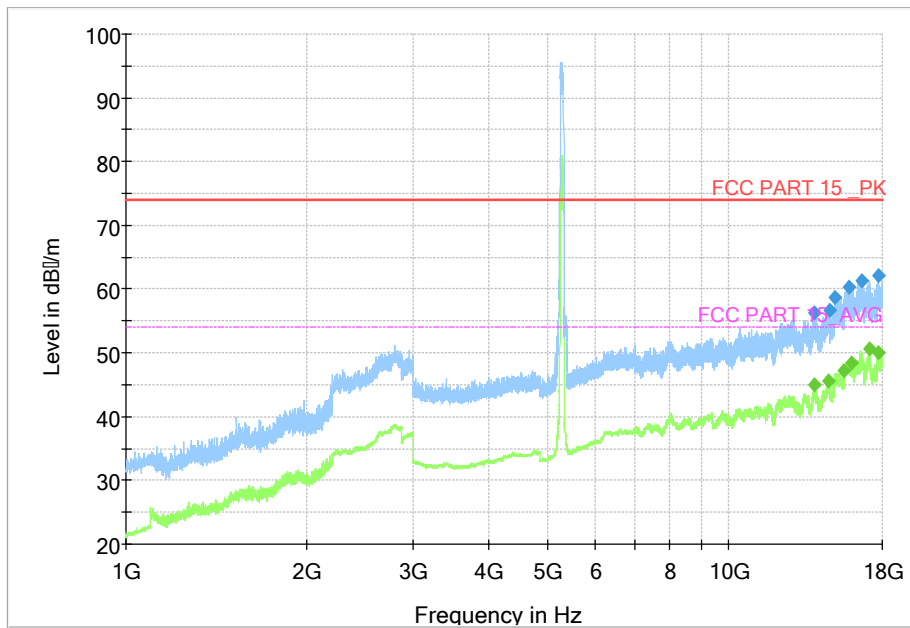


Fig. 114 Transmitter Spurious Emission (802. 11ac-VHT80, 5290MHz)

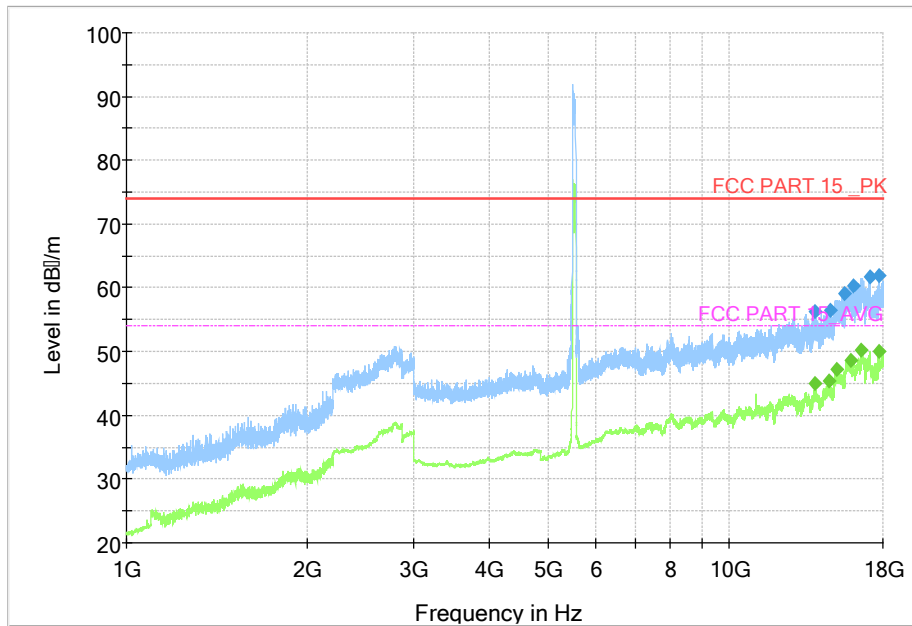


Fig. 115 Transmitter Spurious Emission (802. 11ac-VHT80, 5530MHz)

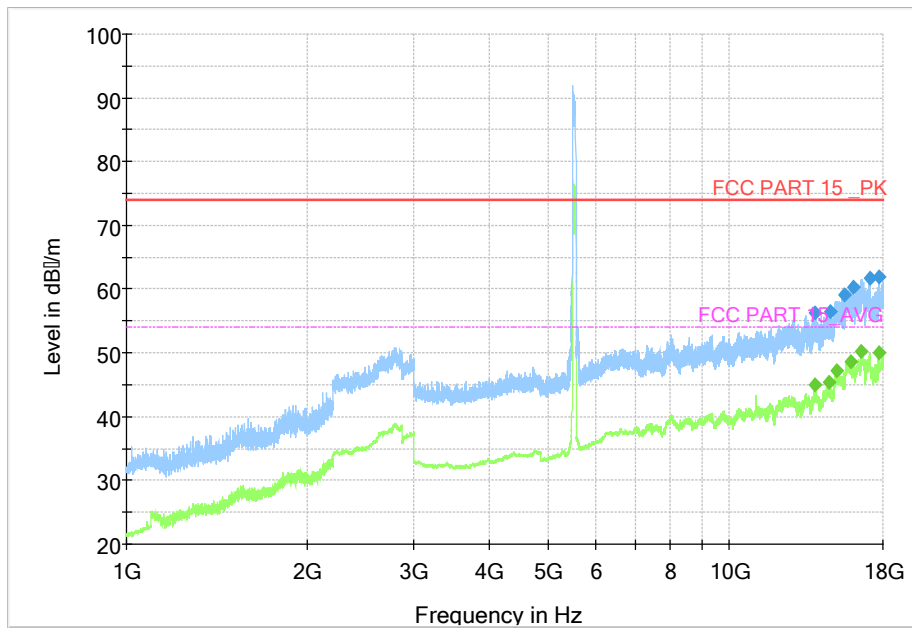


Fig. 116 Transmitter Spurious Emission (802. 11ac-VHT80, 5610MHz)

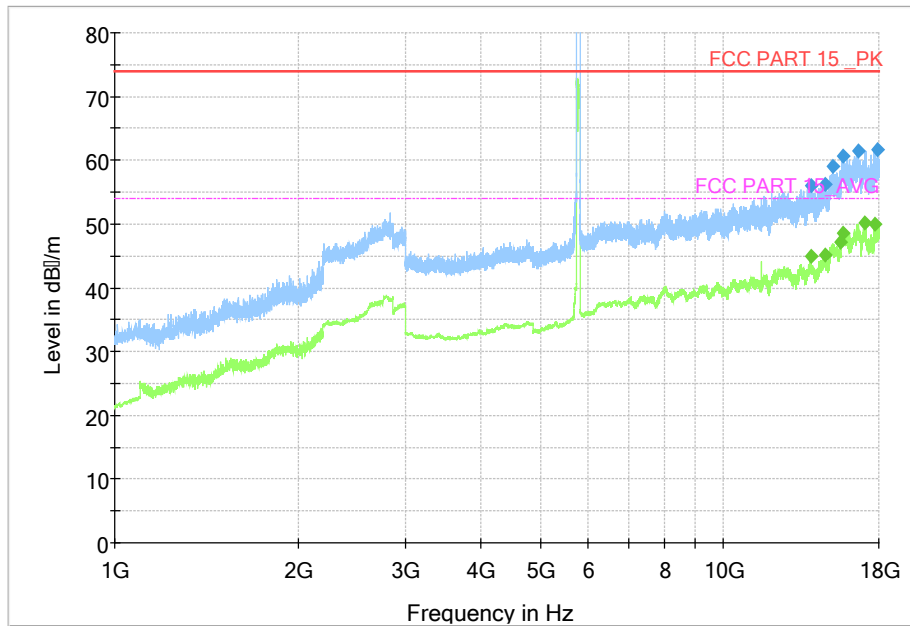


Fig. 117 Transmitter Spurious Emission (802. 11ac-VHT80, 5775MHz)

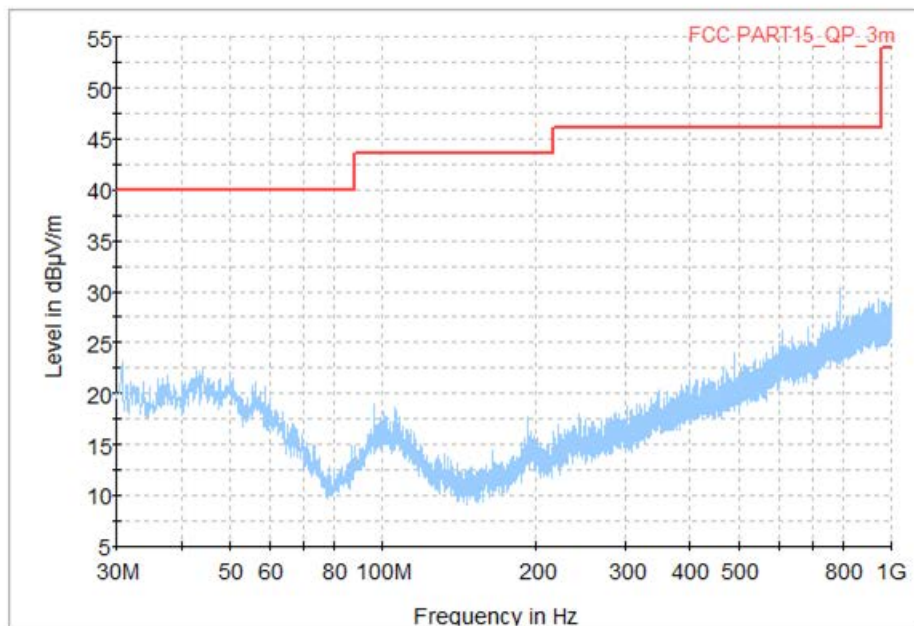


Fig. 118 Transmitter Spurious Emission (All channel, 30MHz~1GHz)

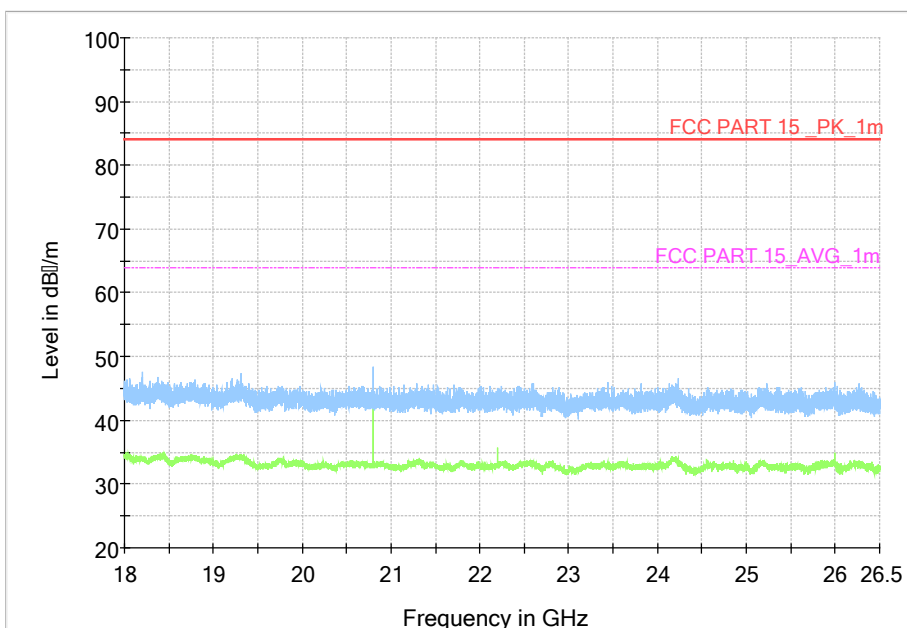


Fig. 119 Transmitter Spurious Emission (All channel, 18GHz~26.5GHz)

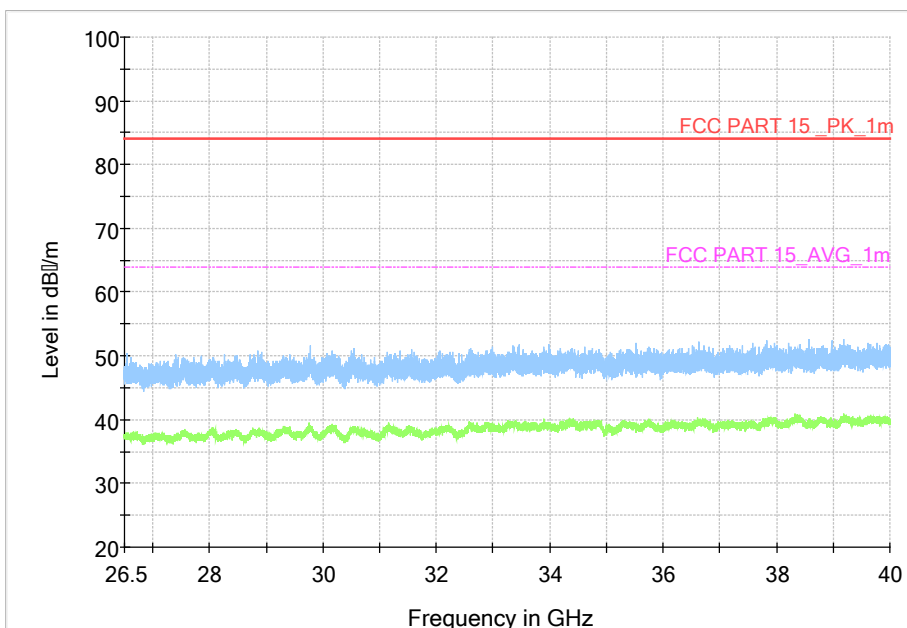


Fig. 120 Transmitter Spurious Emission (All channel, 26.5GHz~40GHz)

**Worst Case Result**

**802.11a CH36**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
13360.000000	56.65	74.00	17.35	V	19.6
14707.000000	58.67	74.00	15.33	V	20.7
15576.000000	57.33	74.00	16.67	H	21.0
15679.500000	58.22	74.00	15.78	H	21.3
16716.000000	57.87	74.00	16.13	V	21.8
17721.500000	57.16	74.00	16.84	V	22.9

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
13949.000000	45.06	54.00	8.94	H	19.7
14546.000000	46.00	54.00	8.00	H	20.4
15575.000000	45.74	54.00	8.26	H	21.0
15666.000000	47.06	54.00	6.94	H	21.3
16644.000000	46.99	54.00	7.01	H	22.4
17689.500000	46.12	54.00	7.88	V	22.8

**802.11a CH52**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
12915.500000	57.15	74.00	16.85	H	20.0
14553.000000	57.69	74.00	16.31	V	20.4
15161.000000	57.18	74.00	16.82	V	20.2
15704.000000	58.94	74.00	15.06	V	21.3
16866.500000	58.18	74.00	15.82	V	22.4
17683.000000	57.58	74.00	16.42	H	22.7

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
12540.000000	45.06	54.00	8.94	V	20.0
13959.000000	45.12	54.00	8.88	V	19.7
14557.500000	46.37	54.00	7.63	V	20.4
15654.000000	47.34	54.00	6.66	H	21.3
16614.500000	47.04	54.00	6.96	V	22.7
17701.000000	46.22	54.00	7.78	V	22.9

**802.11a CH100**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
13941.500000	56.54	74.00	17.46	V	19.7
14604.000000	57.33	74.00	16.67	V	20.6
15236.500000	57.21	74.00	16.79	V	20.3
16179.500000	58.83	74.00	15.17	H	22.5
16865.500000	58.71	74.00	15.29	H	22.3
17887.500000	57.70	74.00	16.30	H	23.8

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
12890.500000	45.26	54.00	8.74	V	19.9
13943.500000	45.38	54.00	8.62	V	19.7
14547.000000	46.16	54.00	7.84	V	20.4
15574.500000	46.32	54.00	7.68	V	21.0
16622.000000	47.12	54.00	6.88	V	22.7
17721.500000	46.26	54.00	7.74	V	22.9

**802.11a CH157**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
14693.500000	58.42	74.00	15.58	H	20.7
15138.000000	57.57	74.00	16.43	H	20.1
15658.500000	58.97	74.00	15.03	H	21.3
16989.000000	58.88	74.00	15.12	V	22.9
17903.500000	57.61	74.00	16.39	V	24.0
14693.500000	58.42	74.00	15.58	H	20.7

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
13984.000000	45.08	54.00	8.92	V	19.6
14554.500000	46.25	54.00	7.75	V	20.4
15576.500000	46.28	54.00	7.72	H	21.1
15668.000000	47.38	54.00	6.62	V	21.3
16593.000000	47.13	54.00	6.87	H	22.8
17699.500000	46.41	54.00	7.59	V	22.9



**802.11n HT40 CH38**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
13976.500000	56.44	74.00	17.56	V	19.6
14543.000000	57.77	74.00	16.23	V	20.4
15551.000000	57.65	74.00	16.35	V	20.8
16225.500000	58.68	74.00	15.32	V	22.3
16673.000000	58.90	74.00	15.10	H	22.1
17900.000000	58.28	74.00	15.72	V	24.0

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
14011.500000	45.34	54.00	8.66	V	19.5
14563.500000	46.36	54.00	7.64	V	20.4
15568.000000	46.34	54.00	7.66	V	21.0
15658.000000	47.57	54.00	6.43	H	21.3
16592.500000	47.39	54.00	6.61	H	22.8
17699.500000	46.52	54.00	7.48	V	22.9

**802.11n HT40 CH62**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
14010.500000	57.10	74.00	16.90	V	19.5
14590.000000	57.09	74.00	16.91	H	20.5
15553.500000	57.71	74.00	16.29	V	20.8
16146.500000	58.85	74.00	15.15	V	22.3
16634.500000	58.51	74.00	15.49	V	22.5
17944.500000	57.81	74.00	16.19	V	23.5

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
14004.000000	45.52	54.00	8.48	H	19.5
14560.000000	46.51	54.00	7.49	V	20.4
15575.500000	46.47	54.00	7.53	H	21.0
15659.500000	47.53	54.00	6.47	H	21.3
16640.000000	47.48	54.00	6.52	V	22.5
17700.000000	46.60	54.00	7.40	V	22.9

**802.11n HT40 CH110**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
14025.500000	57.42	74.00	16.58	H	19.4
14682.000000	57.44	74.00	16.56	H	20.7
15575.000000	57.64	74.00	16.36	H	21.0
16162.500000	59.46	74.00	14.54	H	22.4
16589.000000	59.36	74.00	14.64	H	22.8
17699.500000	58.44	74.00	15.56	V	22.9

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
14019.000000	45.28	54.00	8.72	V	19.5
14688.500000	46.44	54.00	7.56	H	20.7
15575.000000	46.72	54.00	7.28	H	21.0
15663.000000	47.58	54.00	6.42	V	21.3
16646.500000	47.45	54.00	6.55	V	22.4
17700.000000	46.65	54.00	7.35	H	22.9

**802.11n HT40 CH151**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
13997.500000	56.77	74.00	17.23	V	19.6
14536.000000	57.14	74.00	16.86	H	20.4
15552.000000	57.58	74.00	16.42	H	20.8
15670.000000	58.42	74.00	15.58	H	21.3
16596.500000	59.51	74.00	14.49	H	22.9
17699.000000	58.74	74.00	15.26	H	22.9

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
13960.500000	45.29	54.00	8.71	H	19.7
14559.000000	46.63	54.00	7.37	H	20.4
15576.500000	46.57	54.00	7.43	H	21.1
15649.500000	47.72	54.00	6.28	H	21.3
16590.000000	47.57	54.00	6.43	H	22.8
17700.500000	46.77	54.00	7.23	H	22.9

**802.11ac VHT80 CH42**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
13600.000000	56.18	74.00	17.82	H	18.9
14564.500000	57.29	74.00	16.71	V	20.4
15315.000000	56.37	74.00	17.63	H	20.2
16261.000000	58.40	74.00	15.60	H	21.9
17060.500000	58.56	74.00	15.44	H	22.0
17917.000000	57.29	74.00	16.71	V	23.8

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
14014.500000	44.82	54.00	9.18	V	19.5
14677.500000	45.64	54.00	8.36	V	20.7
15572.000000	45.59	54.00	8.41	V	21.0
15646.000000	46.73	54.00	7.27	V	21.3
16593.500000	46.55	54.00	7.45	H	22.8
17700.500000	45.89	54.00	8.11	V	22.9

**802.11ac VHT80 CH106**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
13858.000000	56.63	74.00	17.37	V	19.6
14760.500000	57.32	74.00	16.68	V	20.8
14956.000000	56.87	74.00	17.13	H	20.3
15630.500000	58.52	74.00	15.48	H	21.3
16712.500000	57.83	74.00	16.17	H	21.8
17686.500000	56.84	74.00	17.16	H	22.8

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
13944.500000	44.82	54.00	9.18	H	19.7
14556.500000	45.90	54.00	8.10	V	20.4
15575.500000	45.56	54.00	8.44	H	21.0
15649.000000	46.85	54.00	7.15	H	21.3
16632.000000	46.64	54.00	7.36	V	22.5
17701.000000	46.02	54.00	7.98	H	22.9

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

### A.9. Radiated Spurious Emissions < 30MHz

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

Frequency (MHz)	Field strength (μV/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.

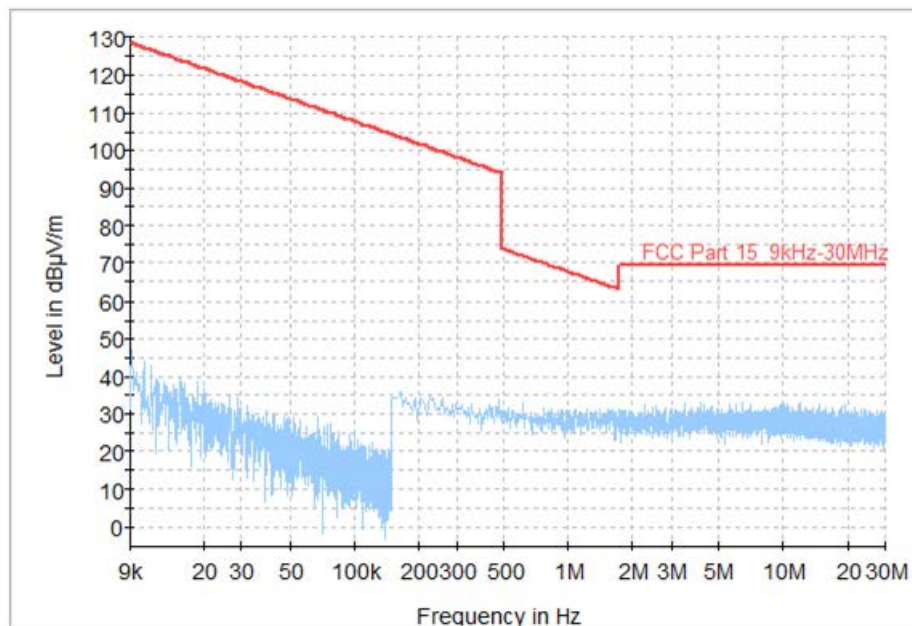
Note: The measurement distance during the test is 3m. The limit used in plots recalculated based on the extrapolation factor of 40 dB/decade.

**Measurement Result(Worst case):**

Mode	Frequency Range	Test Results	Conclusion
All Channel	9 kHz ~30 MHz	Fig.121	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 121 Radiated Spurious Emission (All Channel, 9 kHz ~30 MHz)**

### A.10. AC Power Line Conducted Emission

**Test Condition:**

Voltage (V)	Frequency (Hz)
120	60

**Measurement Result and limit:**

RLAN (Quasi-peak Limit)-AE1

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.122	Fig.123	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.

RLAN (Average Limit)-AE1

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig 122	Fig 123	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.

**Note:** The measurement results include the L1 and N measurements.

**Conclusion: PASS**

**Test graphs as below:**

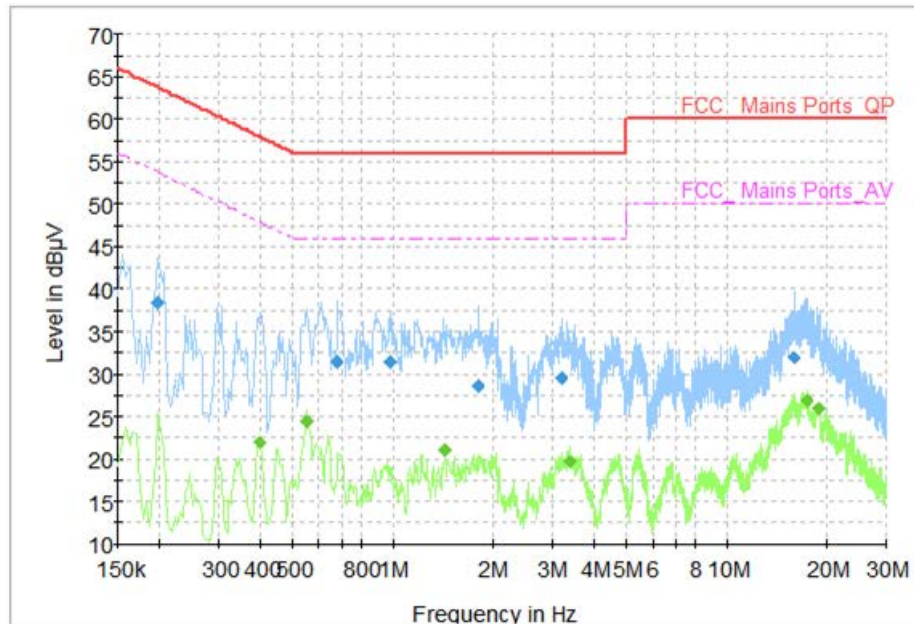


Fig. 122 AC Power line Conducted Emission (802.11n, AE1, 120V)

**Measurement Result: Quasi Peak**

Frequency (MHz)	Quasi Peak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	38.41	63.69	25.29	N	ON	9.6
0.678000	31.52	56.00	24.48	N	ON	9.7
0.982000	31.42	56.00	24.58	N	ON	9.7
1.794000	28.54	56.00	27.46	N	ON	9.7
3.178000	29.45	56.00	26.55	N	ON	9.7
15.794000	31.94	60.00	28.06	L1	ON	10.1

**Measurement Result: Average**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.398000	21.91	47.90	25.99	N	ON	9.6
0.550000	24.32	46.00	21.68	N	ON	9.7
1.426000	21.07	46.00	24.93	L1	ON	9.7
3.382000	19.71	46.00	26.29	N	ON	9.7
17.262000	26.89	50.00	23.11	N	ON	10.2
18.758000	25.86	50.00	24.14	N	ON	10.3

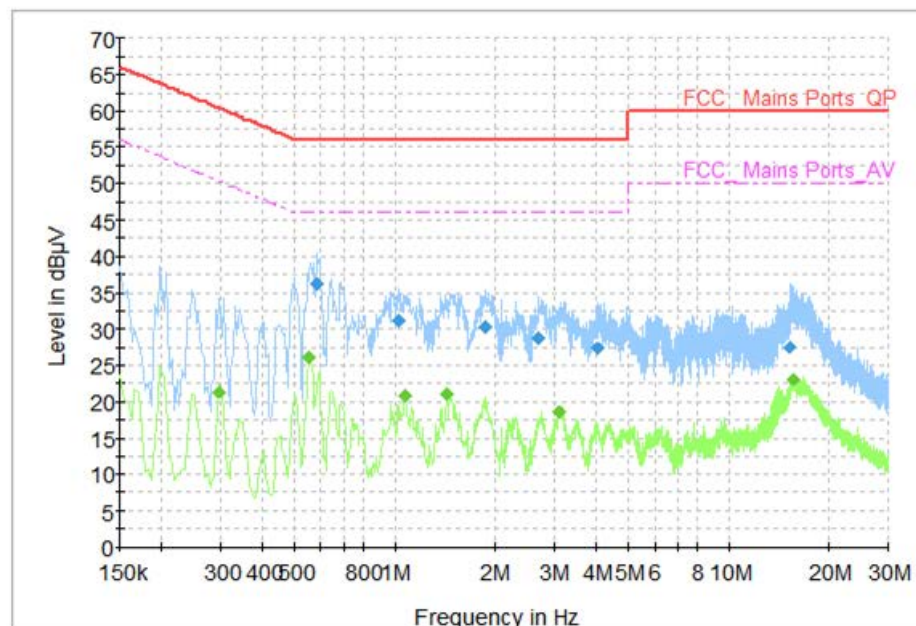


Fig. 123 AC Power line Conducted Emission (Idle, AE1, 120V)

**Measurement Result: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.582000	36.23	56.00	19.77	N	ON	9.7
1.022000	31.27	56.00	24.73	N	ON	9.7
1.850000	30.27	56.00	25.73	L1	ON	9.7
2.686000	28.69	56.00	27.31	N	ON	9.7
4.042000	27.33	56.00	28.67	N	ON	9.7
15.106000	27.56	60.00	32.44	L1	ON	10.1

**Measurement Result: Average**

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.298000	21.38	50.30	28.92	L1	ON	9.7
0.554000	26.06	46.00	19.94	L1	ON	9.7
1.070000	20.79	46.00	25.21	L1	ON	9.7
1.426000	20.99	46.00	25.01	L1	ON	9.7
3.114000	18.60	46.00	27.40	L1	ON	9.7
15.566000	23.03	50.00	26.97	N	ON	10.0

## A.11. Frequency Stability

Manufacturers ensured the EUT meet the requirement of frequency stability, such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### Measurement Result:

Mode	Channel	Condition		Frequency	Conclusion
802.11a	5180 MHz (CH36)	T nom	V nom	5179.9831	<b>P</b>
		T max	V nom	5179.9853	<b>P</b>
		T min	V nom	5179.9845	<b>P</b>
		T nom	V max	5179.9831	<b>P</b>
		T nom	V min	5179.9773	<b>P</b>
802.11n HT40	5550 MHz (CH110)	T nom	V nom	5549.9131	<b>P</b>
		T max	V nom	5549.9638	<b>P</b>
		T min	V nom	5549.9684	<b>P</b>
		T nom	V max	5549.9658	<b>P</b>
		T nom	V min	5549.9652	<b>P</b>
802.11ac VHT80	5690 MHz (CH138)	T nom	V nom	5689.9831	<b>P</b>
		T max	V nom	5689.9752	<b>P</b>
		T min	V nom	5689.9754	<b>P</b>
		T nom	V max	5689.9842	<b>P</b>
		T nom	V min	5689.9753	<b>P</b>

## A.12. Power control

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500mW).

**\*\*\* END OF REPORT BODY \*\*\***