

Fig.26 Conducted Spurious Emission (1GHz-26.5GHz, 802.11ax-HE20, CH11)

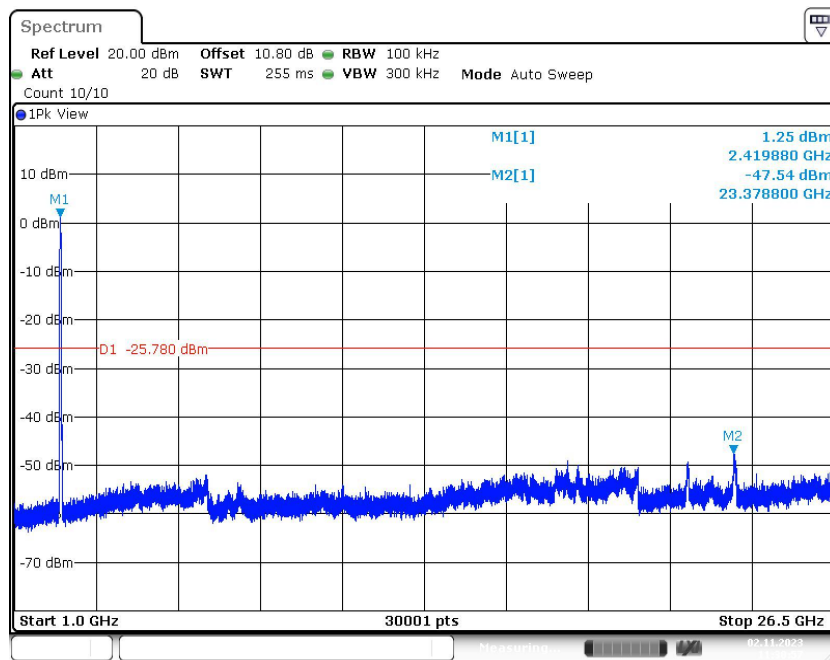


Fig.27 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH3)

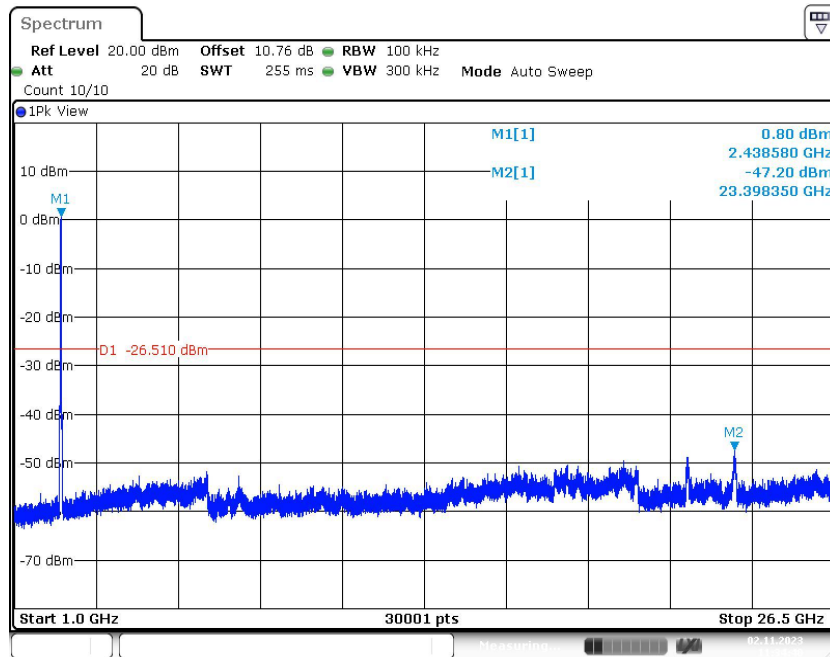


Fig.28 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH6)

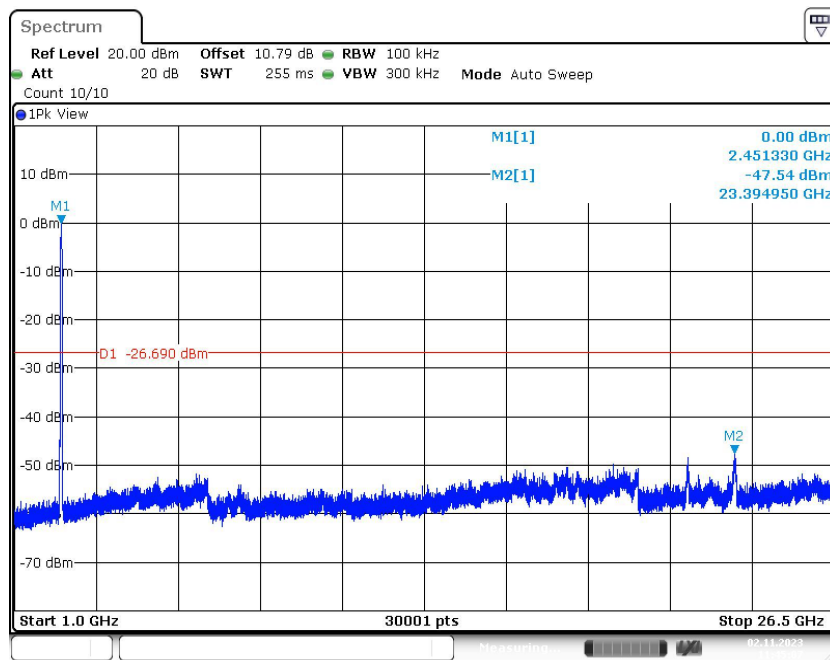


Fig.29 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH9)

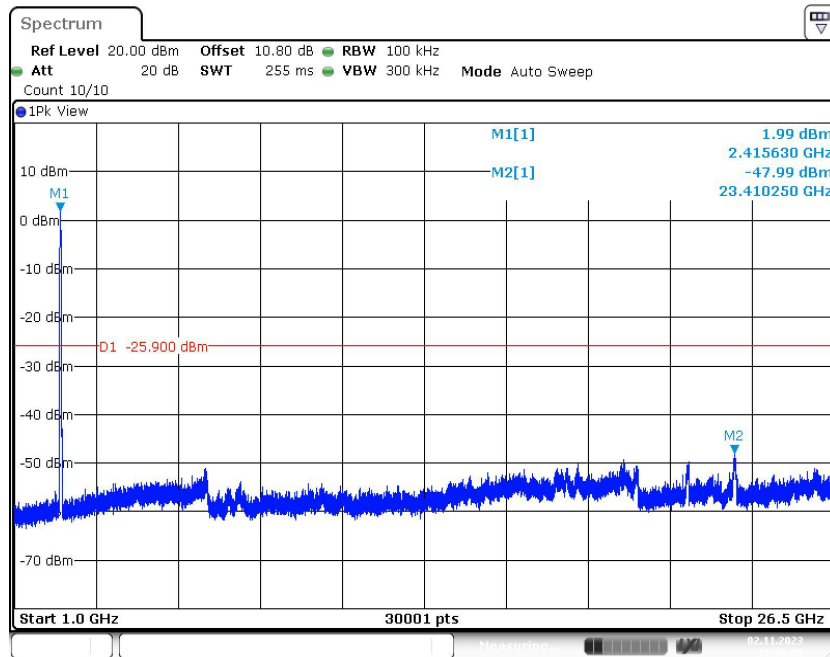


Fig.30 Conducted Spurious Emission (1GHz-26.5GHz, 802.11-VHT40, CH3)

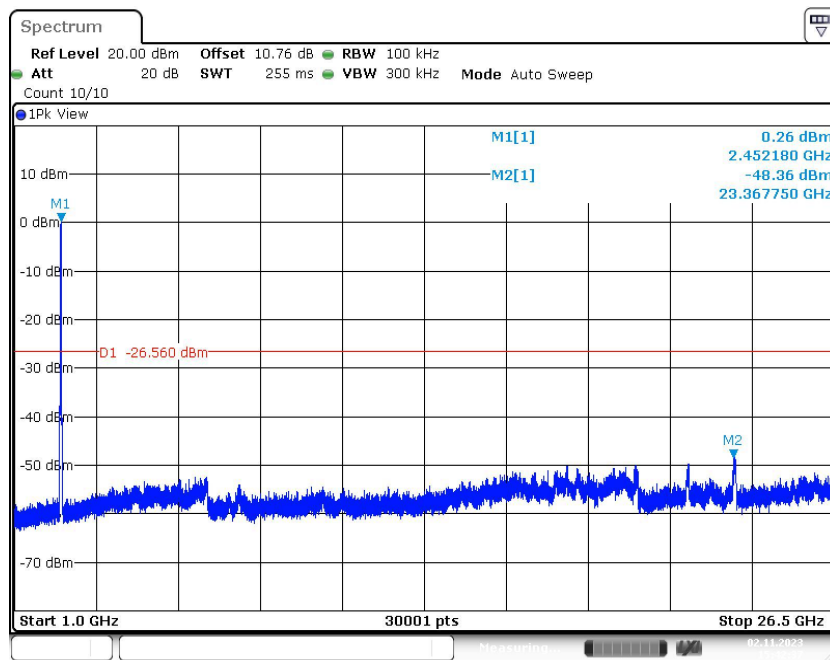


Fig.31 Conducted Spurious Emission (1GHz-26.5GHz, 802.11-VHT40, CH6)

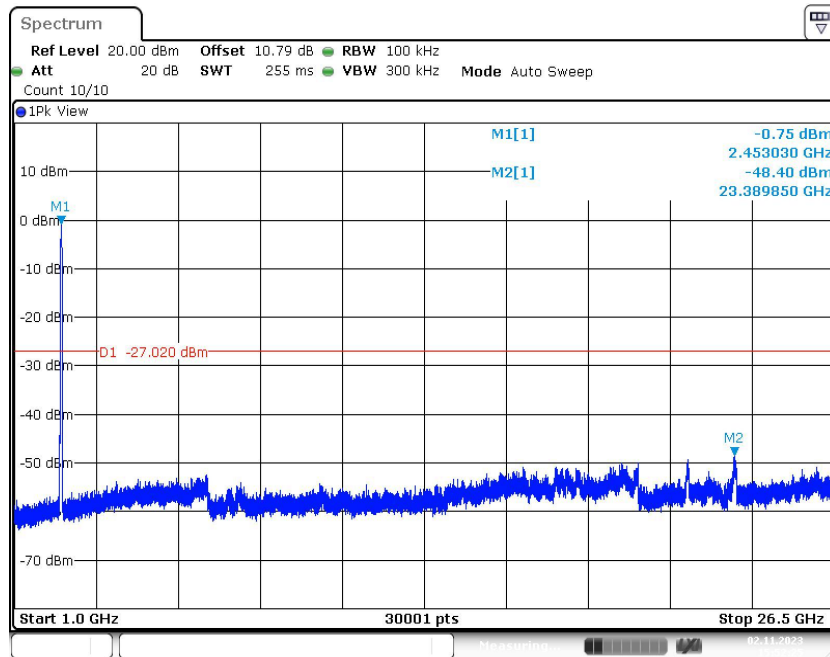


Fig.32 Conducted Spurious Emission (1GHz-26.5GHz, 802.11-VHT40, CH9)

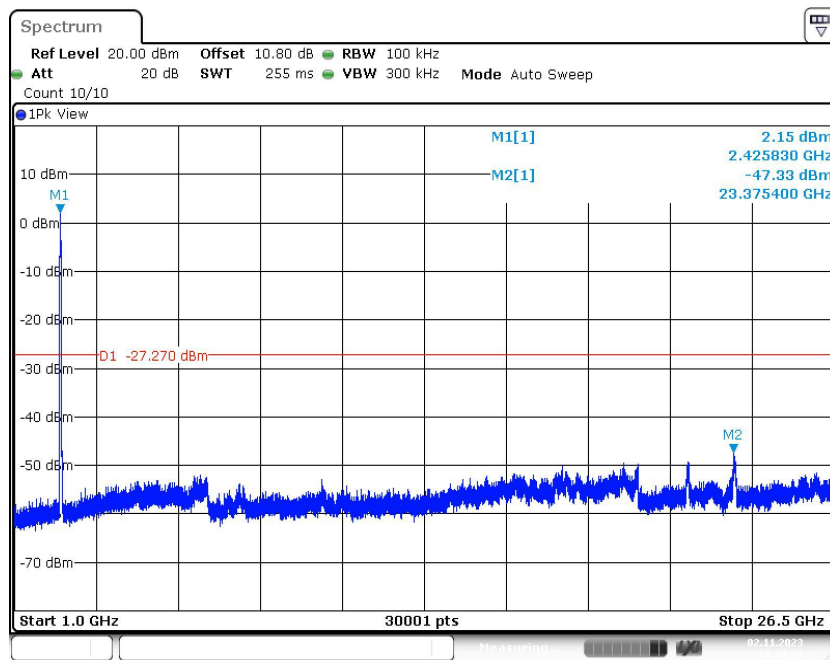


Fig.33 Conducted Spurious Emission (1GHz-26.5GHz, 802.11ax-HE40, CH3)

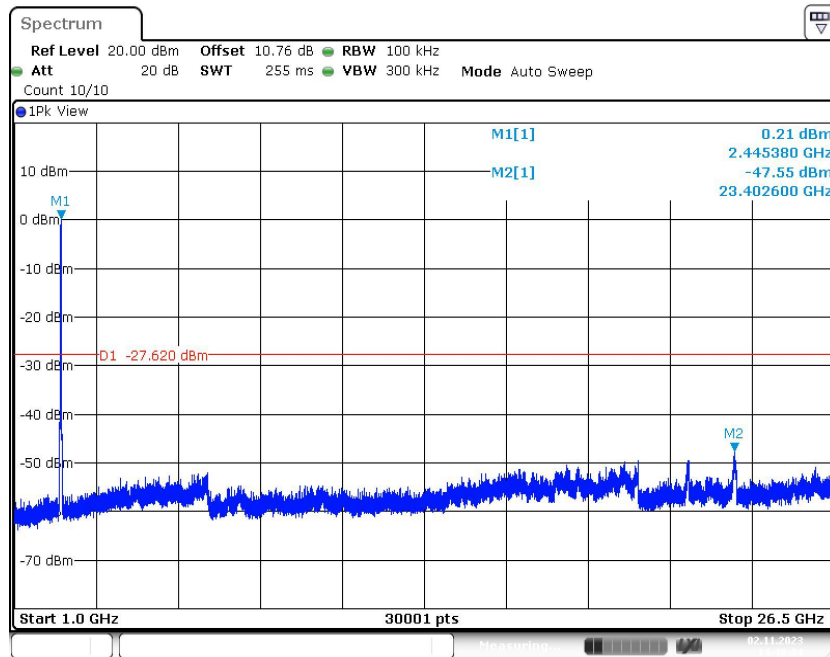


Fig.34 Conducted Spurious Emission (1GHz-26.5GHz, 802.11ax-HE40, CH6)

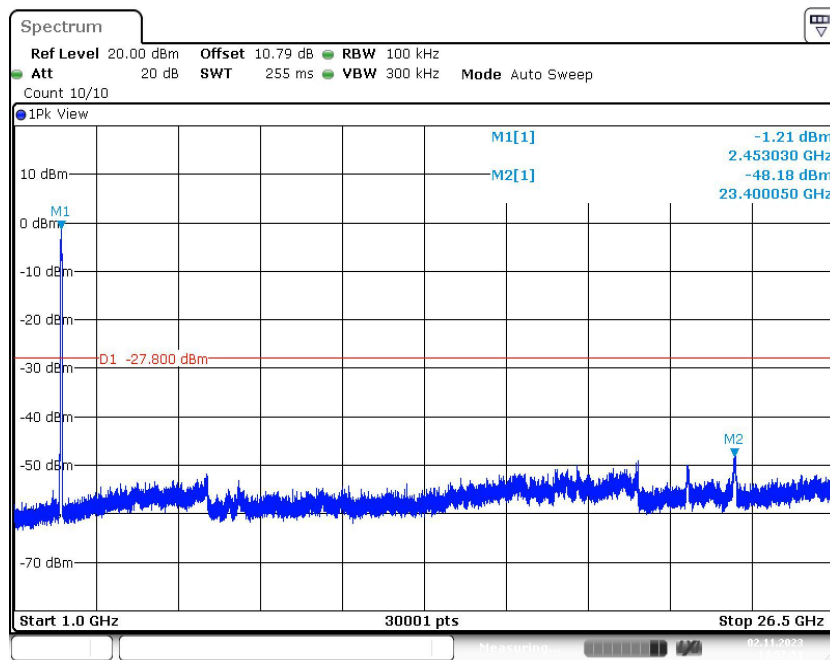


Fig.35 Conducted Spurious Emission (1GHz-26.5GHz, 802.11ax-HE40, CH9)

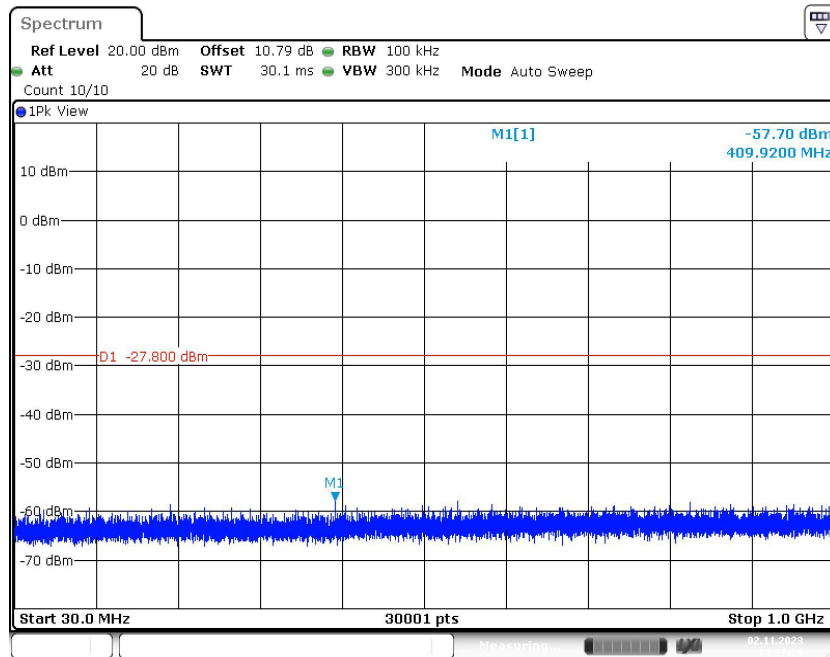


Fig.36 Conducted Spurious Emission (All Channels, 30MHz -1GHz)



A.6 Radiated Emission

Method of Measurement: See ANSI C63.10-clause 11.11&11.12.

Measurement Limit:

Standard	Limit (dBm)
FCC 47 CFR Part 15.247, 15.205, 15.209	20dBm 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)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(µV/m)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic. The measurement results include the horizontal polarization and vertical polarization measurements. For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases were recorded in this report.



Measurement Results:

Mode	Frequency (MHz)	Frequency Range	Test Results	Conclusion
802.11n- HT20	2412(CH1)	1 GHz ~18 GHz	Fig.37	P
	2437(CH6)	1 GHz ~18 GHz	Fig.38	P
	2462(CH11)	1 GHz ~18 GHz	Fig.39	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.40	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.41	P
802.11- VHT20	2412(CH1)	1 GHz ~18 GHz	Fig.42	P
	2437(CH6)	1 GHz ~18 GHz	Fig.43	P
	2462(CH11)	1 GHz ~18 GHz	Fig.44	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.45	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.46	P
802.11ax -HE20	2412(CH1)	1 GHz ~18 GHz	Fig.47	P
	2437(CH6)	1 GHz ~18 GHz	Fig.48	P
	2462(CH11)	1 GHz ~18 GHz	Fig.49	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.50	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.51	P
802.11n- HT40	2422(CH3)	1 GHz ~18 GHz	Fig.52	P
	2437(CH6)	1 GHz ~18 GHz	Fig.53	P
	2452(CH9)	1 GHz ~18 GHz	Fig.54	P
	Restricted Band (CH3)	2.38 GHz ~ 2.45 GHz	Fig.55	P
	Restricted Band (CH9)	2.45 GHz ~ 2.5 GHz	Fig.56	P
802.11- VHT40	2422(CH3)	1 GHz ~18 GHz	Fig.57	P
	2437(CH6)	1 GHz ~18 GHz	Fig.58	P
	2452(CH9)	1 GHz ~18 GHz	Fig.59	P
	Restricted Band (CH3)	2.38 GHz ~ 2.45 GHz	Fig.60	P
	Restricted Band (CH9)	2.45 GHz ~ 2.5 GHz	Fig.61	P
802.11ax -HE40	2422(CH3)	1 GHz ~18 GHz	Fig.62	P
	2437(CH6)	1 GHz ~18 GHz	Fig.63	P
	2452(CH9)	1 GHz ~18 GHz	Fig.64	P
	Restricted Band (CH3)	2.38 GHz ~ 2.45 GHz	Fig.65	P
	Restricted Band (CH9)	2.45 GHz ~ 2.5 GHz	Fig.66	P
/	All Channels	9 kHz ~30 MHz	Fig.67	P
		30 MHz ~1 GHz	Fig.68	P
		18 GHz ~26.5 GHz	Fig.69	P



Worst-Case Result:

802.11n-HT20 CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10326.428572	48.97	74.00	25.03	V	10.5
11847.857143	50.05	74.00	23.95	V	12.4
12903.428572	50.76	74.00	23.24	V	13.2
14821.714286	53.11	74.00	20.89	H	15.2
16574.142857	55.59	74.00	18.41	V	18.7
17893.285714	57.32	74.00	16.68	H	21.8

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10326.428572	36.44	54.00	17.56	V	10.5
11847.857143	37.12	54.00	16.88	V	12.4
12903.428572	38.38	54.00	15.62	V	13.2
14821.714286	39.63	54.00	14.37	H	15.2
16574.142857	42.95	54.00	11.05	V	18.7
17893.285714	45.11	54.00	8.89	H	21.8

802.11-VHT20 CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10922.571429	48.55	74.00	25.45	H	10.5
11930.571429	48.64	74.00	25.36	H	12.3
12895.285714	50.61	74.00	23.39	H	13.2
14833.285714	51.78	74.00	22.22	V	15.2
16588.285714	55.91	74.00	18.09	H	18.8
17994.428571	56.96	74.00	17.04	H	21.5

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10922.571429	36.08	54.00	17.92	H	10.5
11930.571429	36.39	54.00	17.61	H	12.3
12895.285714	38.40	54.00	15.60	H	13.2
14833.285714	39.73	54.00	14.27	V	15.2
16588.285714	42.94	54.00	11.06	H	18.8
17994.428571	44.80	54.00	9.20	H	21.5



802.11ax-HE20 CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
9455.142857	46.28	74.00	27.72	V	8.1
10454.142857	48.83	74.00	25.17	V	9.8
11990.142857	48.38	74.00	25.62	H	11.9
14817.857143	52.02	74.00	21.98	H	15.2
16553.571429	56.32	74.00	17.68	H	18.6
17862.000000	57.27	74.00	16.73	H	21.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
9455.142857	34.23	54.00	19.77	V	8.1
10454.142857	35.96	54.00	18.04	V	9.8
11990.142857	36.52	54.00	17.48	H	11.9
14817.857143	39.53	54.00	14.47	H	15.2
16553.571429	43.02	54.00	10.98	H	18.6
17862.000000	44.56	54.00	9.44	H	21.9

802.11n-HT40 CH6 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10427.571429	48.63	74.00	25.37	H	9.9
11680.714286	50.44	74.00	23.56	H	11.6
12970.714286	49.48	74.00	24.52	H	13.1
14879.571429	52.33	74.00	21.67	H	15.3
16652.142857	55.37	74.00	18.63	H	19.2
17889.000000	57.30	74.00	16.70	V	21.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
10427.571429	35.90	54.00	18.10	H	9.9
11680.714286	37.00	54.00	17.00	H	11.6
12970.714286	37.26	54.00	16.74	H	13.1
14879.571429	40.17	54.00	13.83	H	15.3
16652.142857	42.90	54.00	11.10	H	19.2
17889.000000	45.02	54.00	8.98	V	21.9



802.11-VHT40 CH9 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10429.714286	49.45	74.00	24.55	H	9.9
11229.857143	47.63	74.00	26.37	V	10.8
12833.571429	50.11	74.00	23.89	V	13.2
14831.142857	51.95	74.00	22.05	H	15.2
16572.000000	55.25	74.00	18.75	V	18.7
17907.428571	57.31	74.00	16.69	V	21.8

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10429.714286	35.84	54.00	18.16	H	9.9
11229.857143	35.52	54.00	18.48	V	10.8
12833.571429	37.83	54.00	16.17	V	13.2
14831.142857	39.98	54.00	14.02	H	15.2
16572.000000	43.11	54.00	10.89	V	18.7
17907.428571	45.13	54.00	8.87	V	21.8

802.11ax-HE40 CH6 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
12900.000000	51.07	74.00	22.93	V	13.2
13797.857143	50.81	74.00	23.19	V	13.4
14917.714286	51.86	74.00	22.14	V	15.3
15900.857143	52.89	74.00	21.11	V	15.7
16909.285714	54.71	74.00	19.29	V	19.0
17897.142857	56.96	74.00	17.04	V	21.8

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
12900.000000	38.56	54.00	15.44	V	13.2
13797.857143	37.56	54.00	16.44	V	13.4
14917.714286	40.29	54.00	13.71	V	15.3
15900.857143	40.76	54.00	13.24	V	15.7
16909.285714	42.57	54.00	11.43	V	19.0
17897.142857	45.12	54.00	8.88	V	21.8

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and Antenna Factor, 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} +Cable Loss +Antenna Factor-Gain of the preamplifier.

See below for test graphs.

Conclusion: PASS

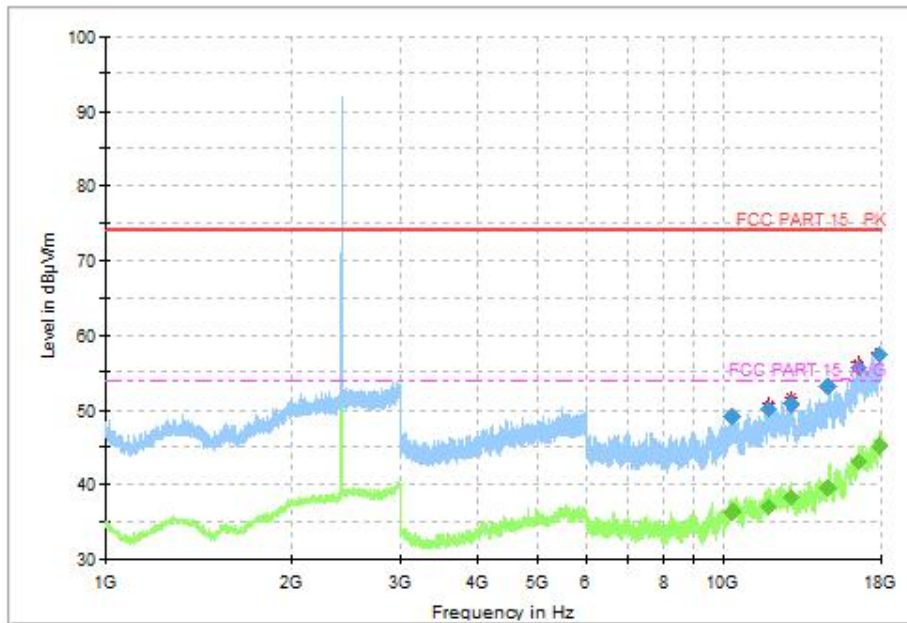


Fig.37 Radiated Spurious Emission (802.11n-HT20, CH1, 1GHz-18GHz, MIMO)

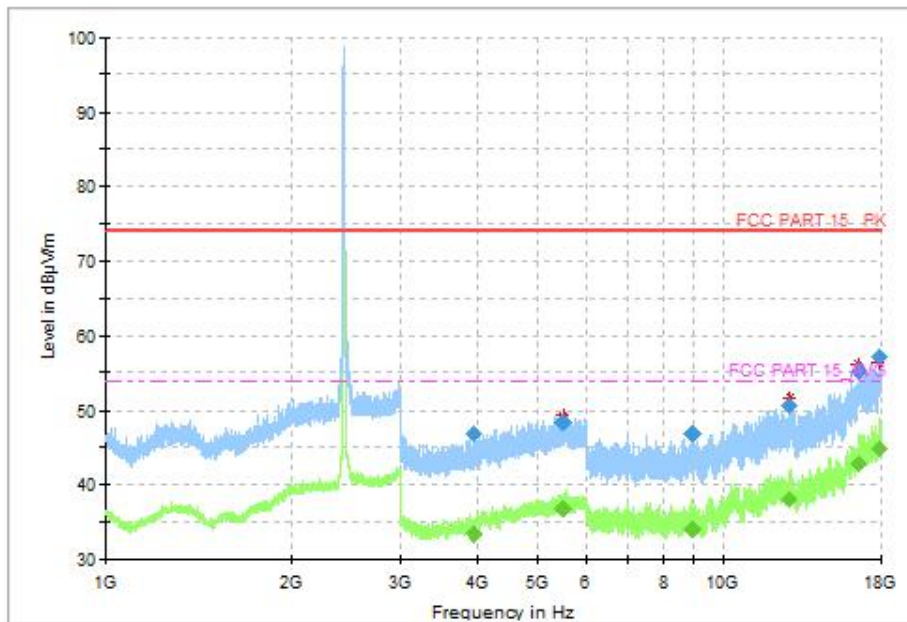


Fig.38 Radiated Spurious Emission (802.11n-HT20, CH6, 1GHz-18GHz, MIMO)

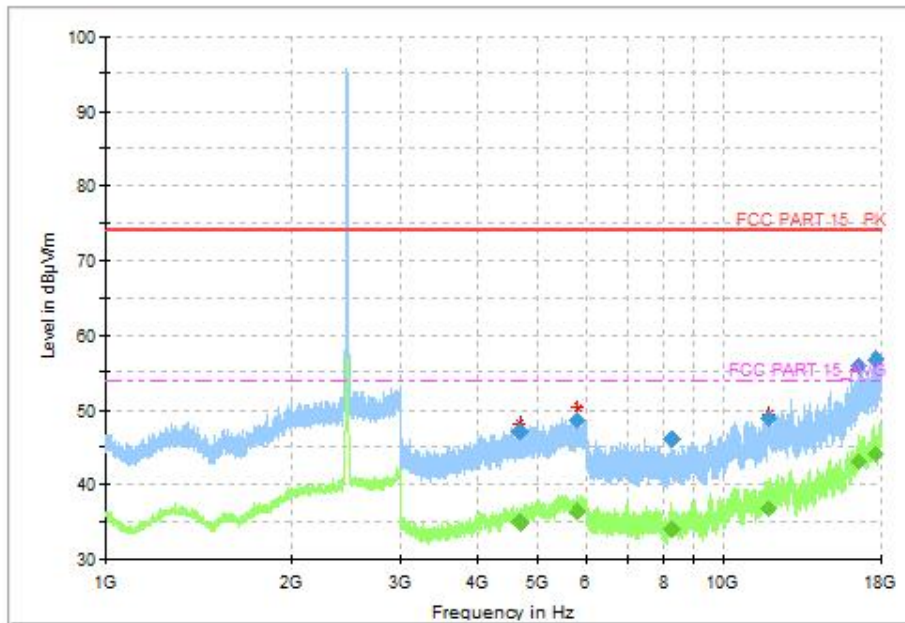


Fig.39 Radiated Spurious Emission (802.11n-HT20, CH11, 1GHz-18GHz, MIMO)

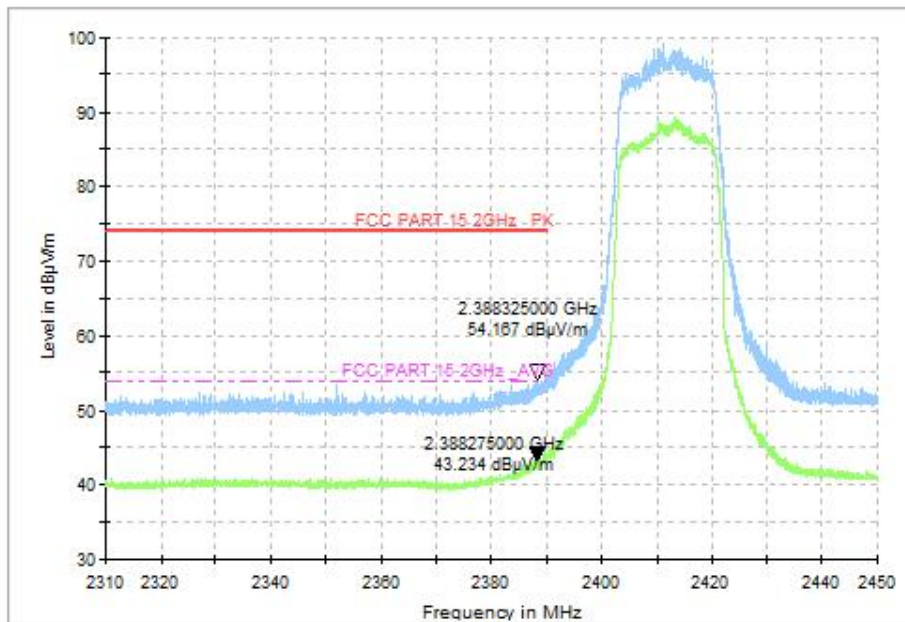


Fig.40 Radiated Restricted Band (802.11n-HT20, CH1, 2.38GHz~2.45GHz, MIMO)

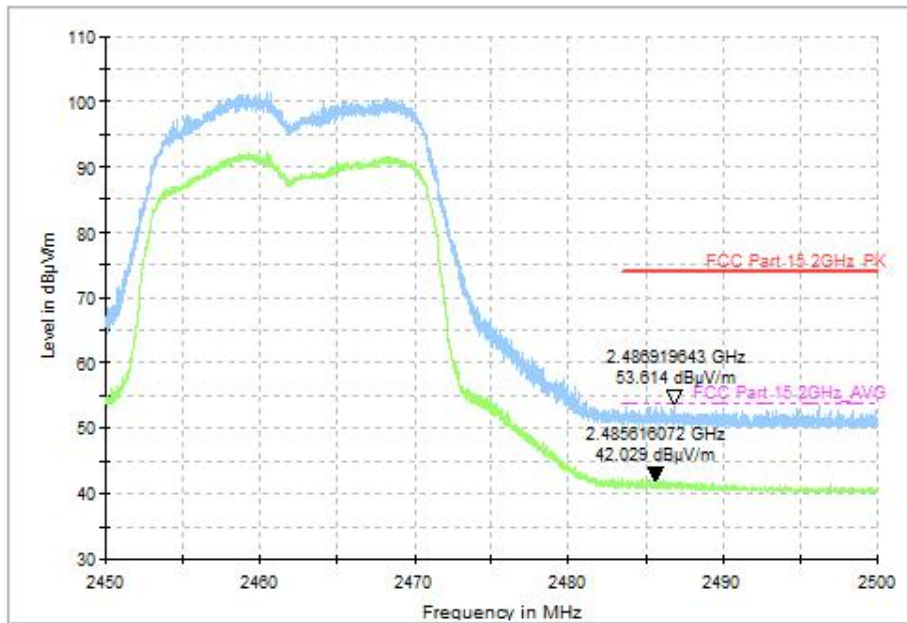


Fig.41 Radiated Restricted Band (802.11n-HT20, CH11, 2.45GHz~2.50GHz, MIMO)

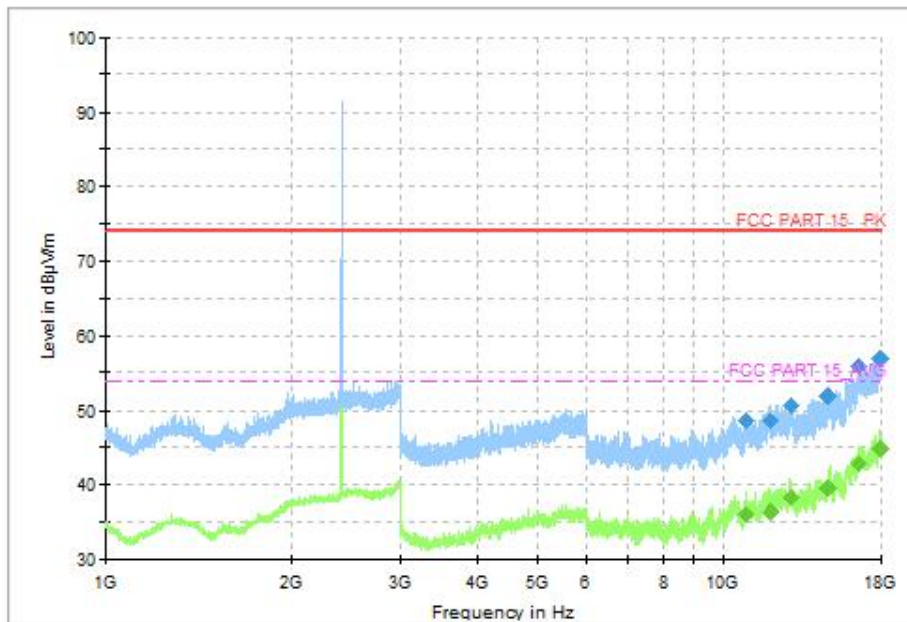


Fig.42 Radiated Spurious Emission (802.11-VHT20, CH1, 1GHz-18GHz, MIMO)

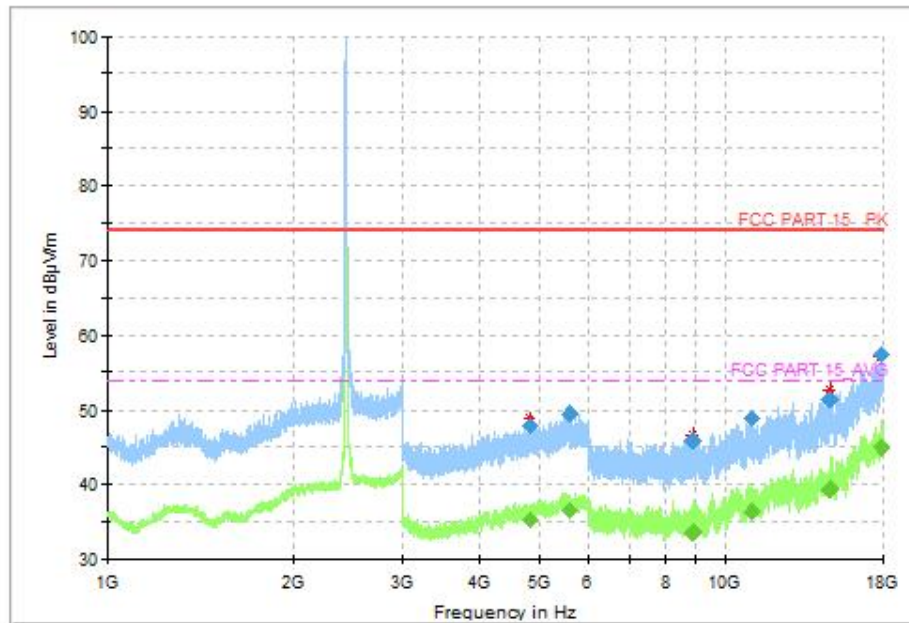


Fig.43 Radiated Spurious Emission (802.11-VHT20, CH6, 1GHz-18GHz, MIMO)

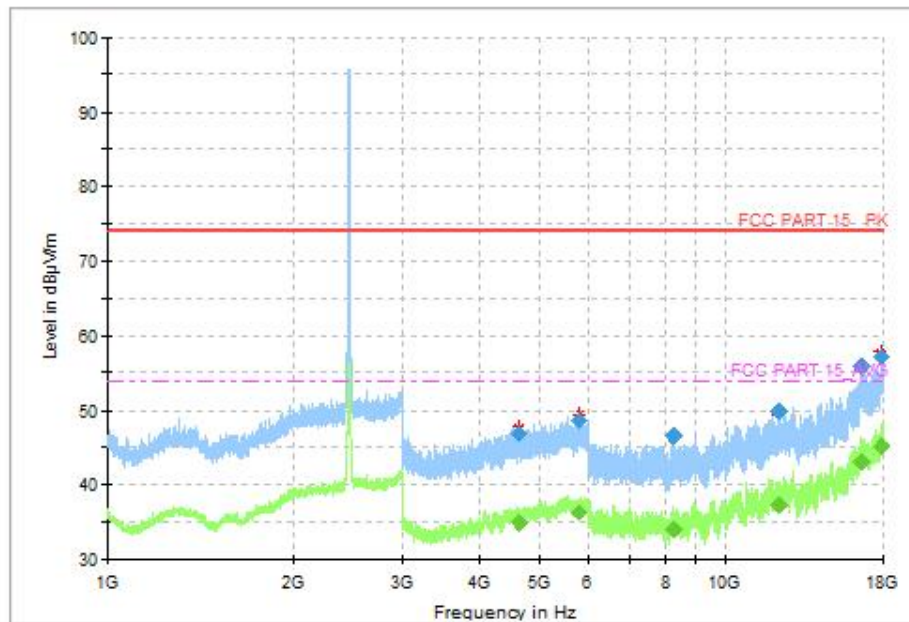


Fig.44 Radiated Spurious Emission (802.11-VHT20, CH11, 1GHz-18GHz, MIMO)

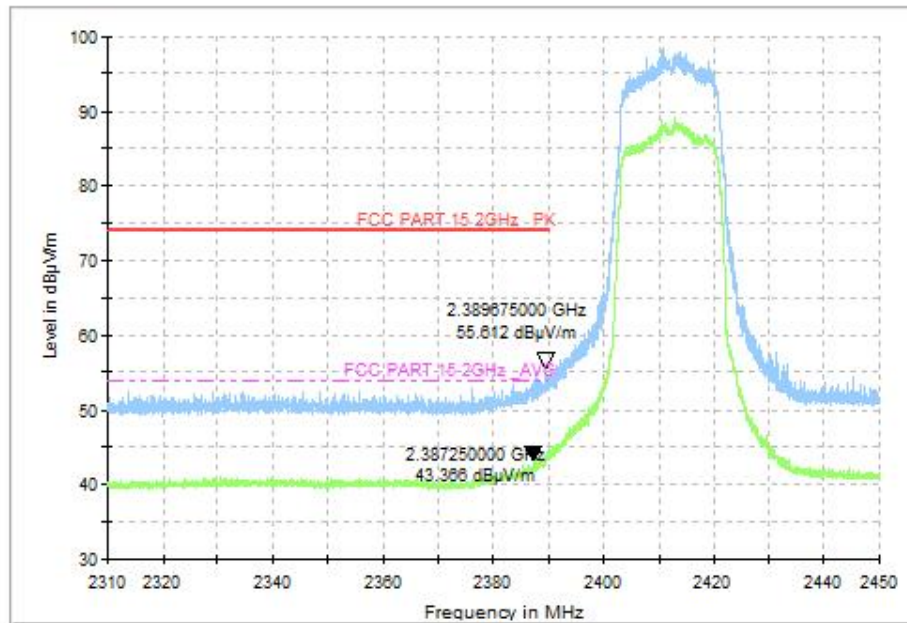


Fig.45 Radiated Restricted Band (802.11-VHT20, CH1, 2.38GHz~2.45GHz, MIMO)

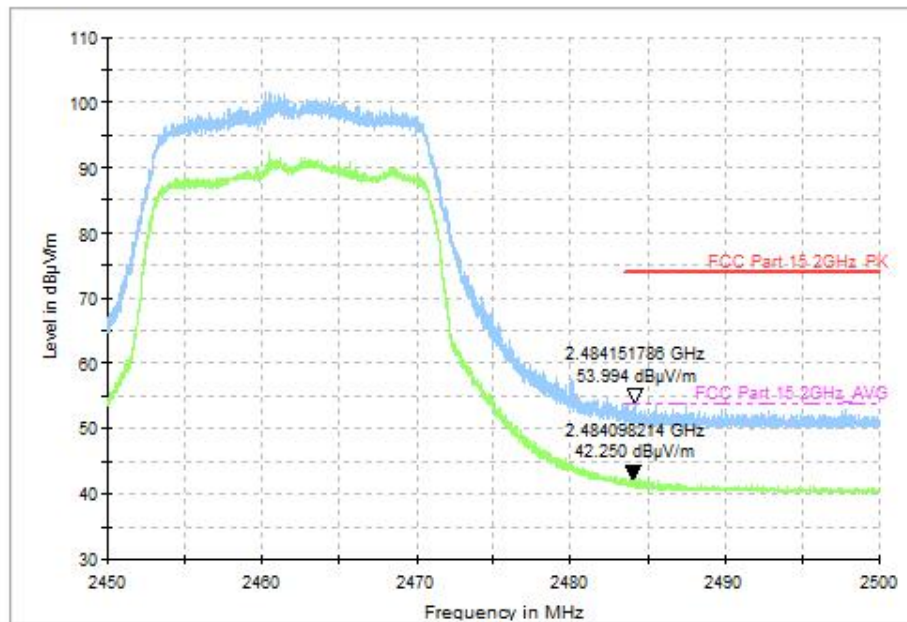


Fig.46 Radiated Restricted Band (802.11-VHT20, CH11, 2.45GHz~2.50GHz, MIMO)

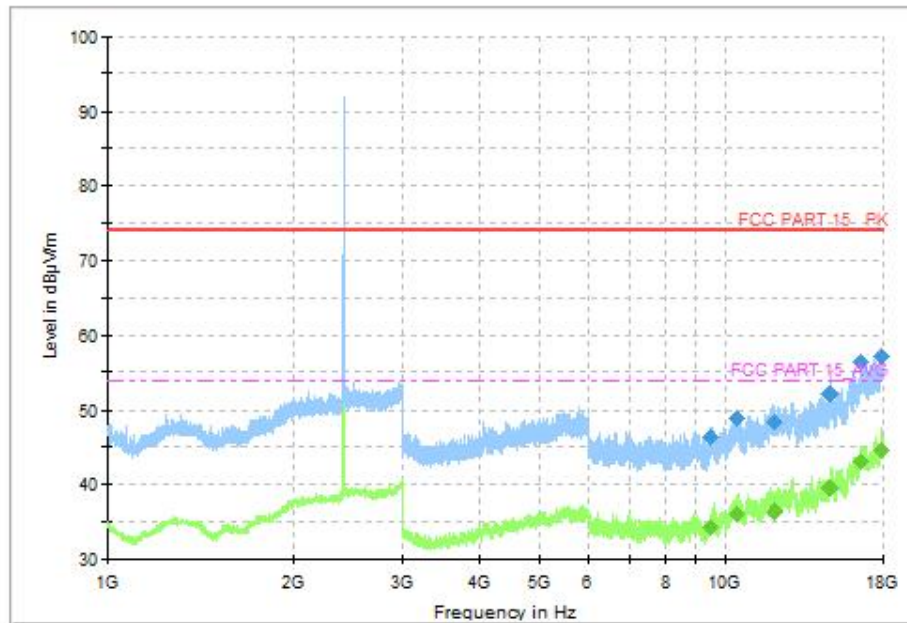


Fig.47 Radiated Spurious Emission (802.11ax-HE20, CH1, 1GHz-18GHz, MIMO)

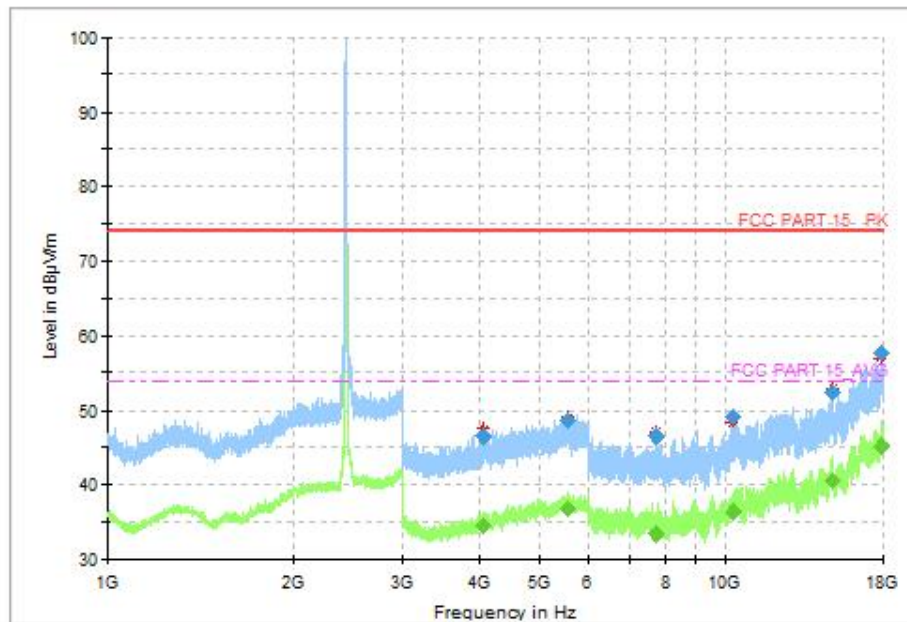


Fig.48 Radiated Spurious Emission (802.11ax-HE20, CH6, 1GHz-18GHz, MIMO)

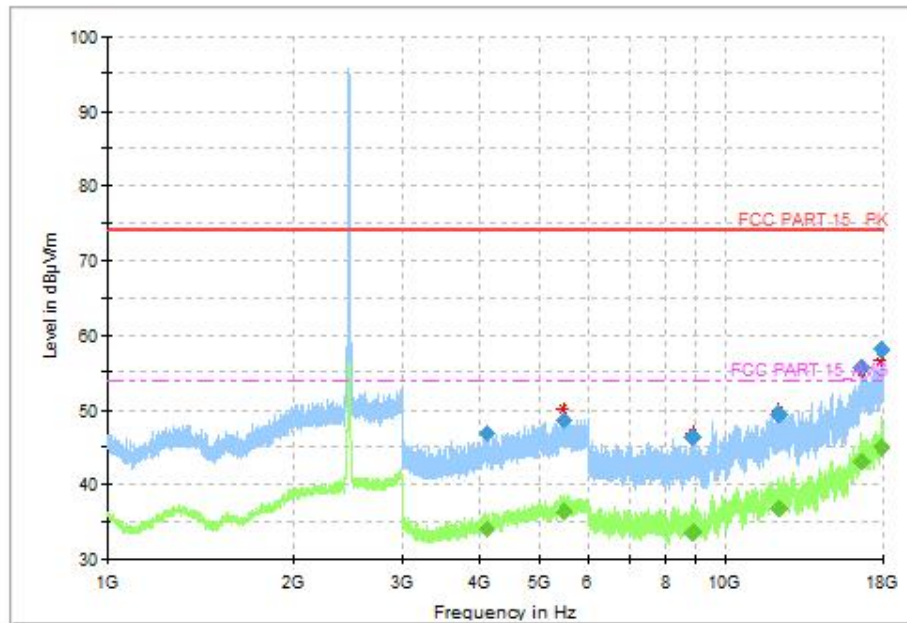


Fig.49 Radiated Spurious Emission (802.11ax-HE20, CH11, 1GHz-18GHz, MIMO)

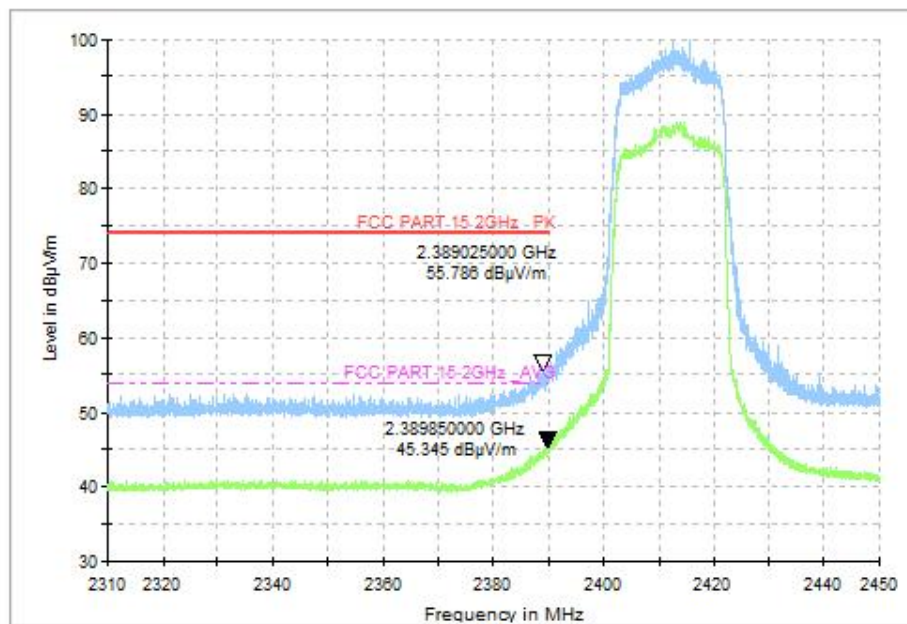


Fig.50 Radiated Restricted Band (802.11ax-HE20, CH1, 2.38GHz~2.45GHz, MIMO)

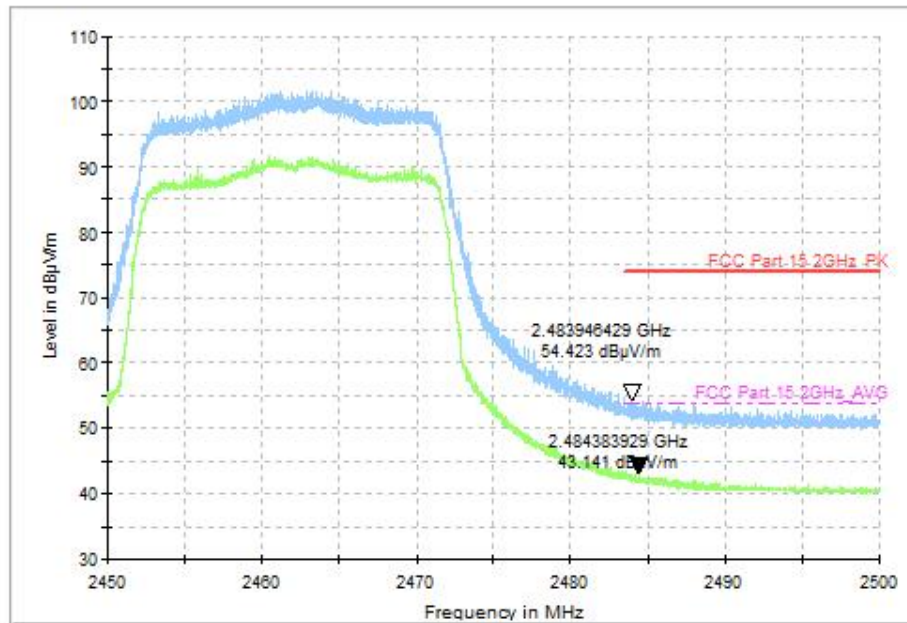


Fig.51 Radiated Restricted Band (802.11ax-HE20, CH11, 2.45GHz~2.50GHz, MIMO)

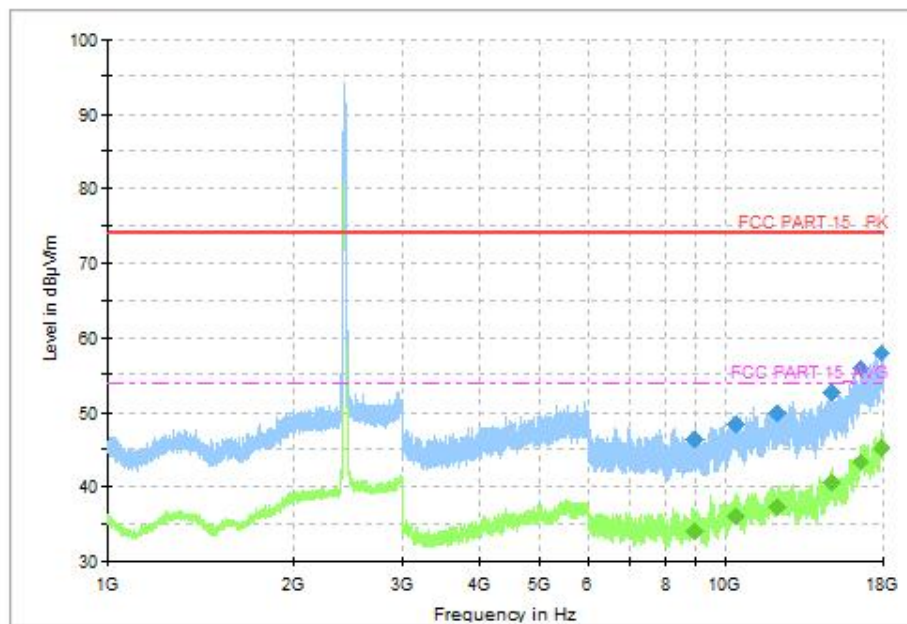


Fig.52 Radiated Spurious Emission (802.11n-HT40, CH3, 1GHz-18GHz, MIMO)

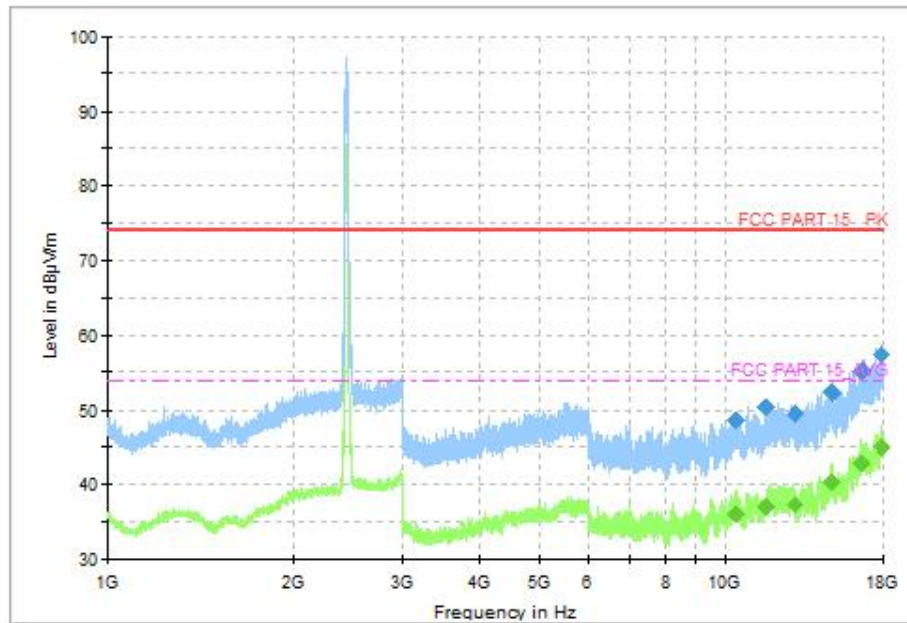


Fig.53 Radiated Spurious Emission (802.11n-HT40, CH6, 1GHz-18GHz, MIMO)

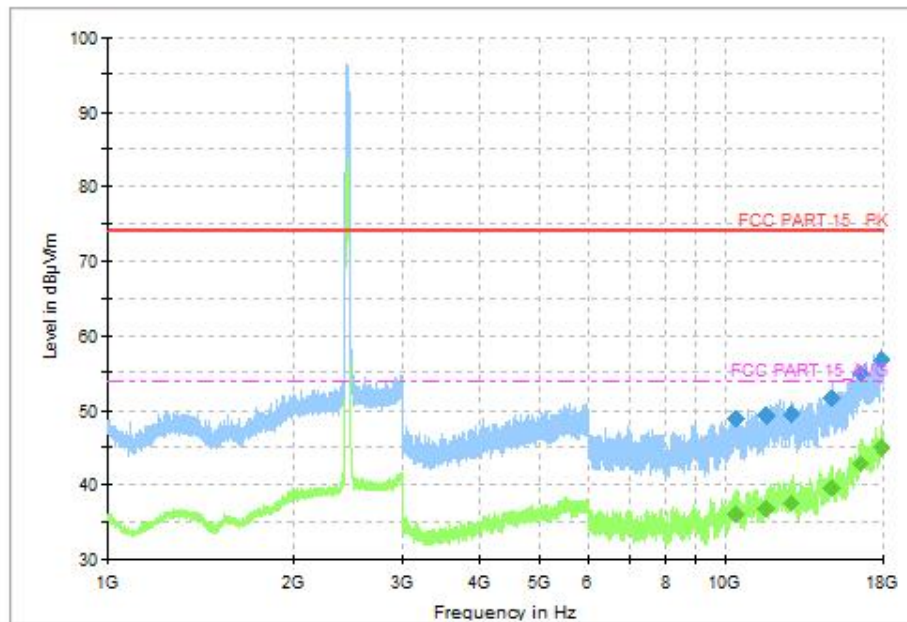


Fig.54 Radiated Spurious Emission (802.11n-HT40, CH9, 1GHz-18GHz, MIMO)

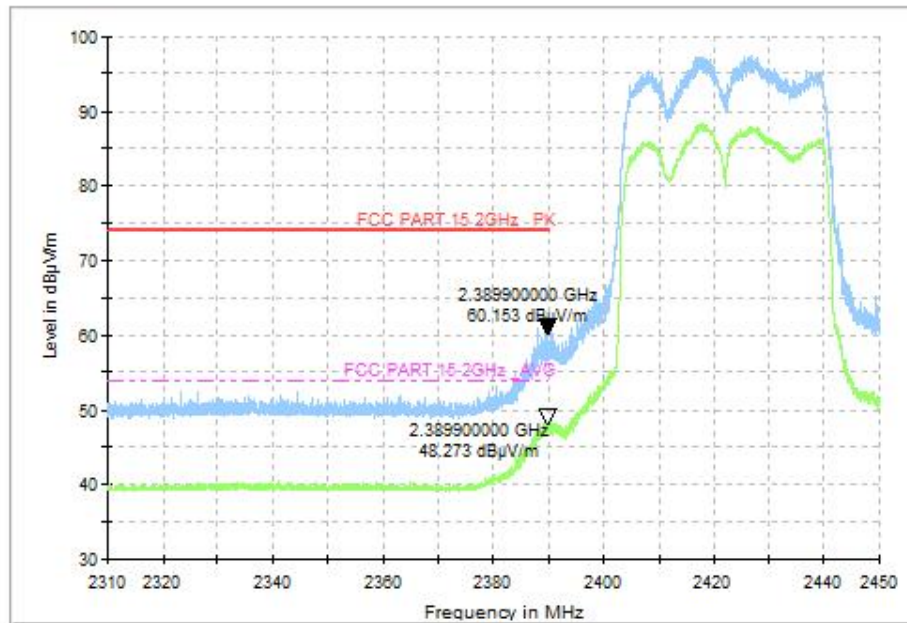


Fig.55 Radiated Restricted Band (802.11n-HT40, CH3, 2.38GHz~2.45GHz, MIMO)

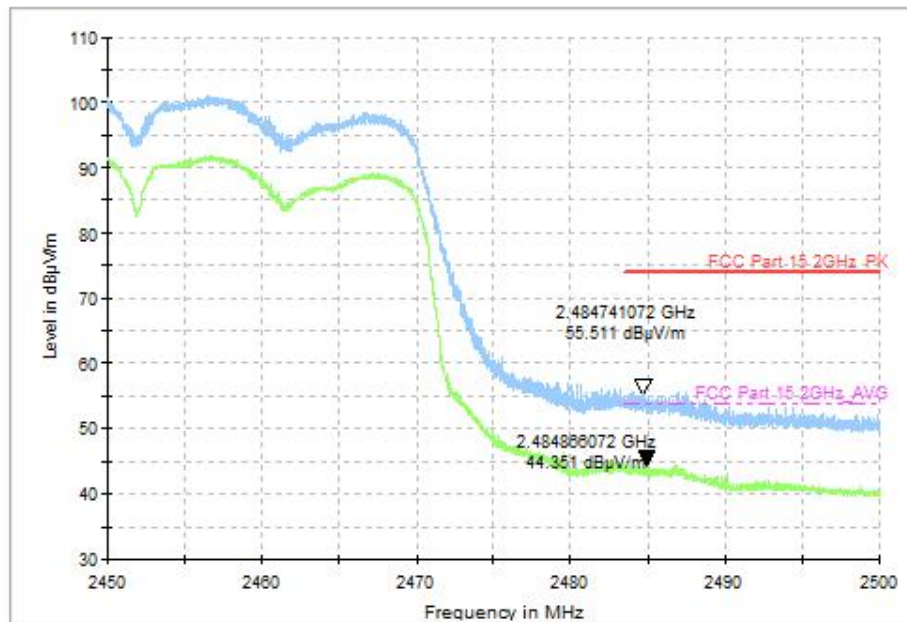


Fig.56 Radiated Restricted Band (802.11n-HT40, CH9, 2.45GHz~2.50GHz, MIMO)

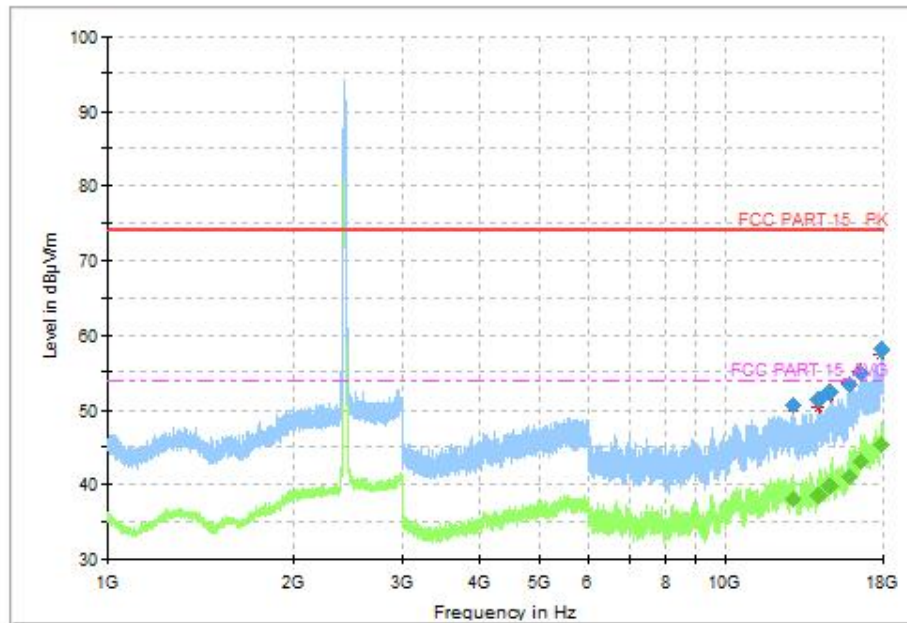


Fig.57 Radiated Spurious Emission (802.11-VHT40, CH3, 1GHz-18GHz, MIMO)

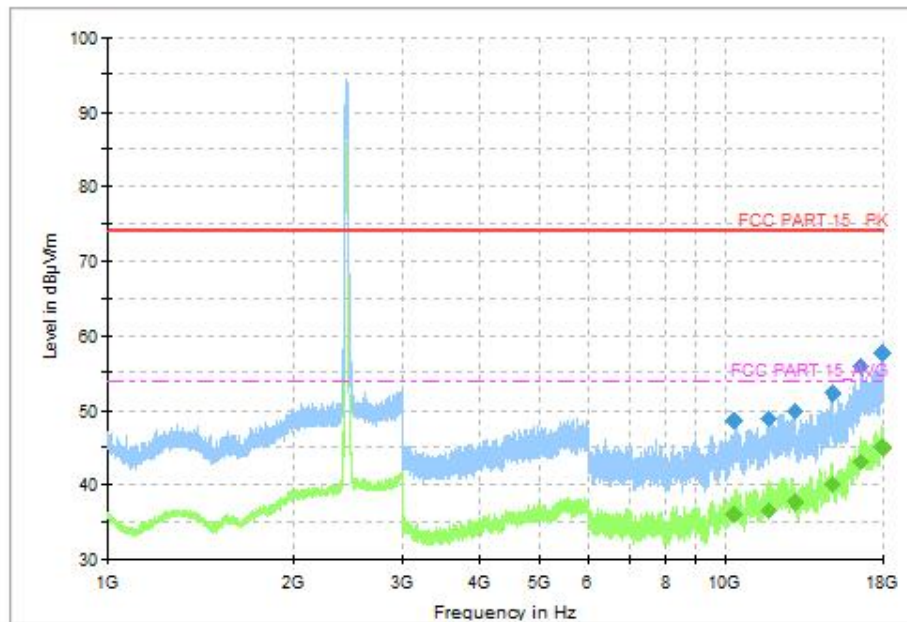


Fig.58 Radiated Spurious Emission (802.11-VHT40, CH6, 1GHz-18GHz, MIMO)

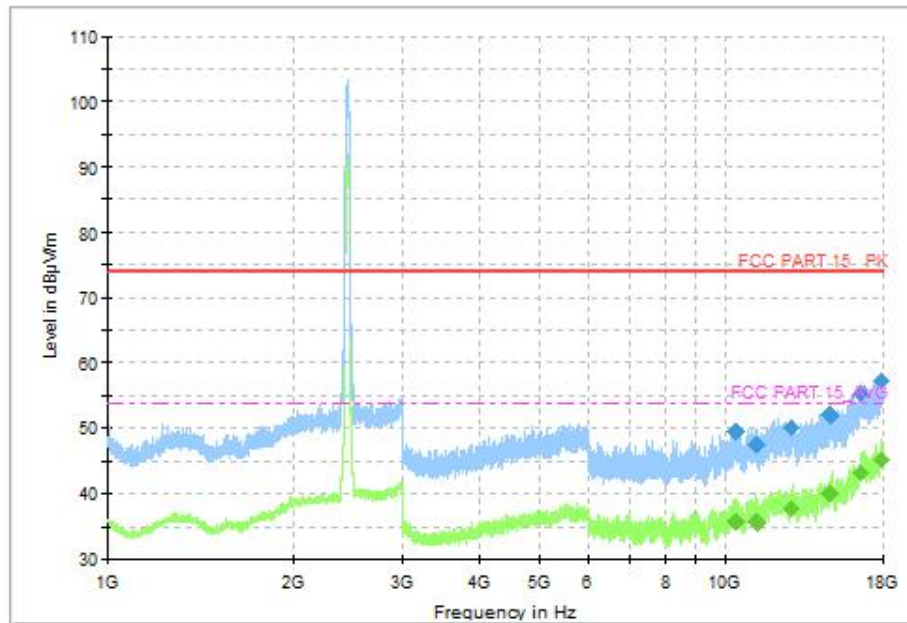


Fig.59 Radiated Spurious Emission (802.11-VHT40, CH9, 1GHz-18GHz, MIMO)

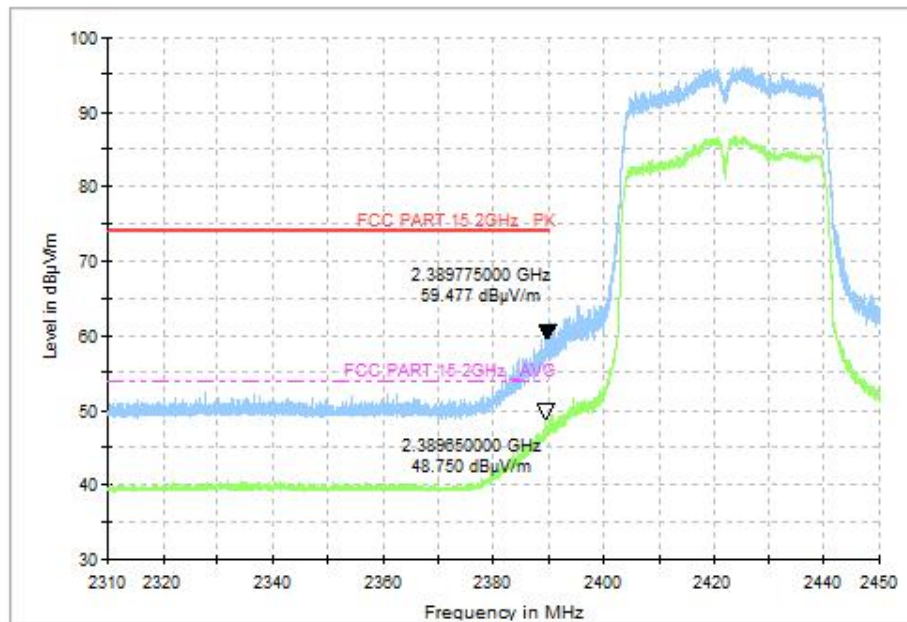


Fig.60 Radiated Restricted Band (802.11-VHT40, CH3, 2.38GHz~2.45GHz, MIMO)

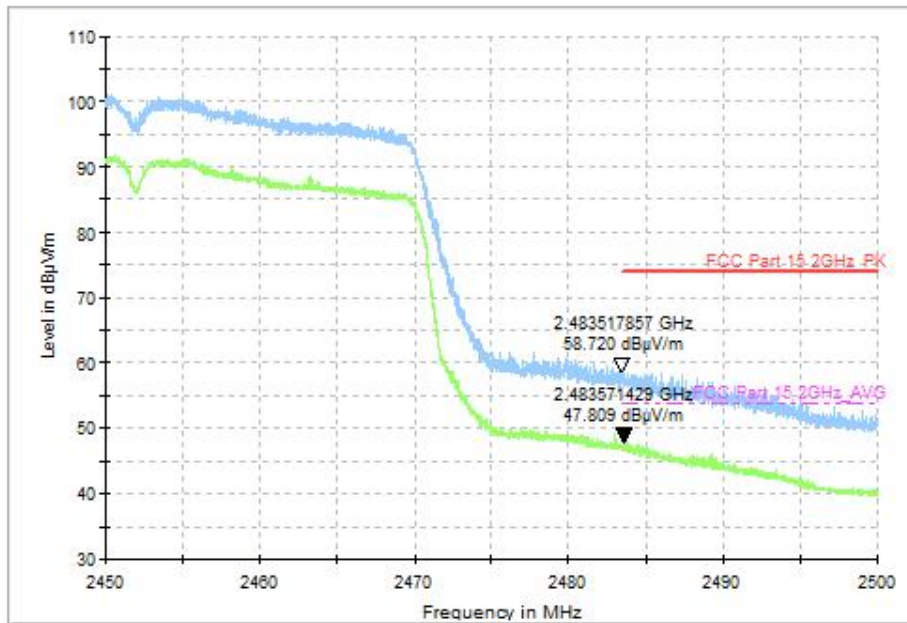


Fig.61 Radiated Restricted Band (802.11-VHT40, CH9, 2.45GHz~2.50GHz, MIMO)

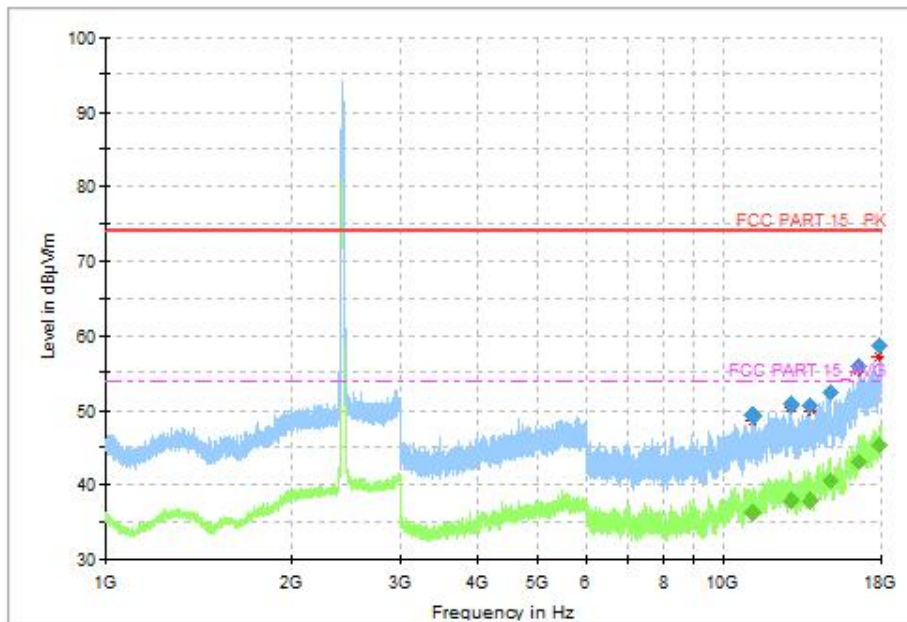


Fig.62 Radiated Spurious Emission (802.11ax-HE40, CH3, 1GHz-18GHz, MIMO)

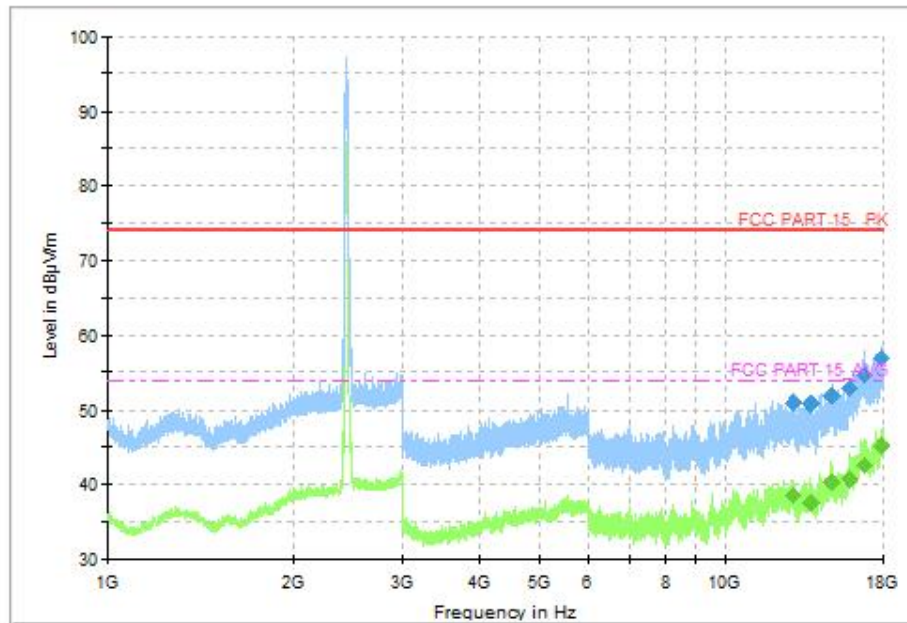


Fig.63 Radiated Spurious Emission (802.11ax-HE40, CH6, 1GHz-18GHz, MIMO)

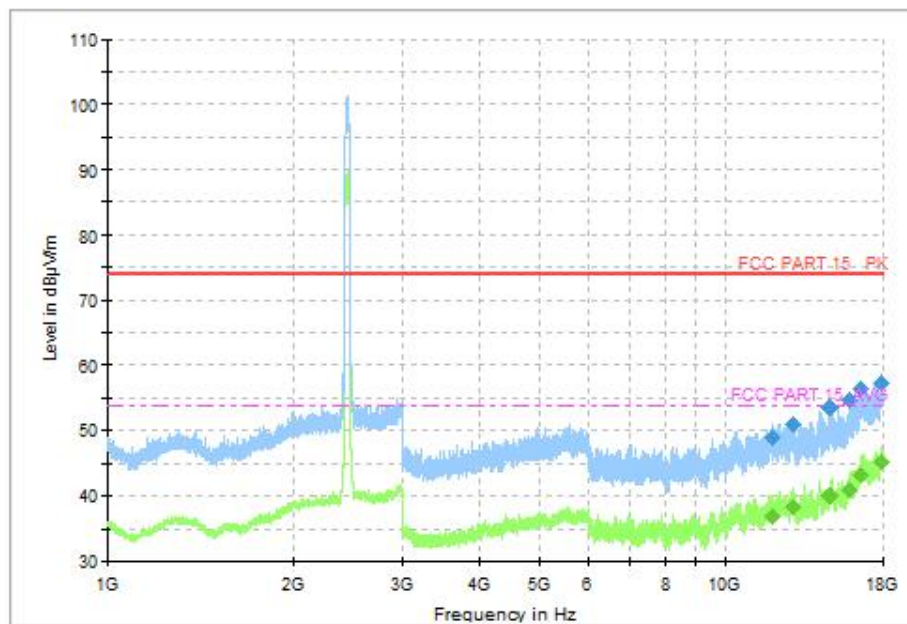


Fig.64 Radiated Spurious Emission (802.11ax-HE40, CH9, 1GHz-18GHz, MIMO)

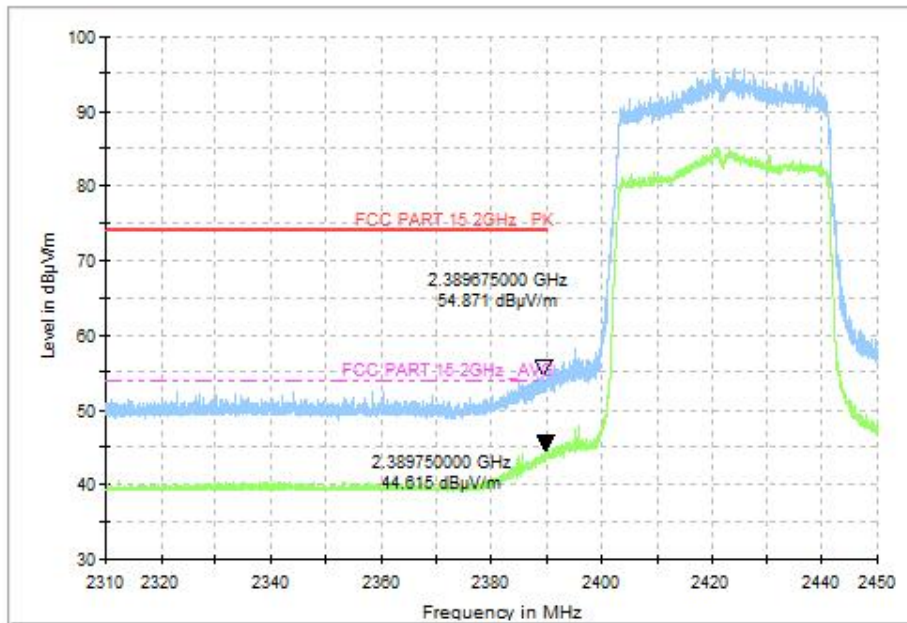


Fig.65 Radiated Restricted Band (802.11ax-HE40, CH3, 2.38GHz~2.45GHz, MIMO)

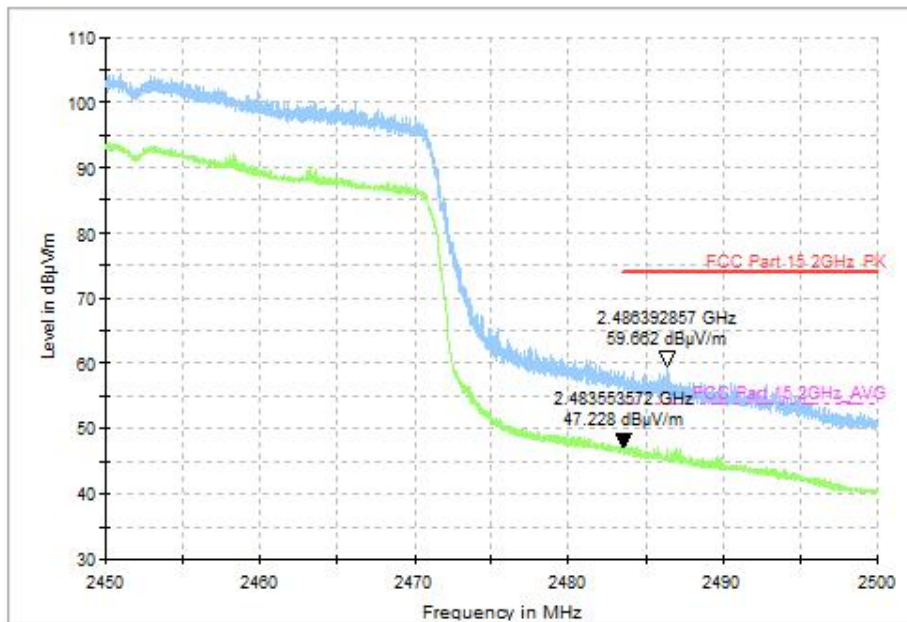


Fig.66 Radiated Restricted Band (802.11ax-HE40, CH9, 2.45GHz~2.50GHz, MIMO)

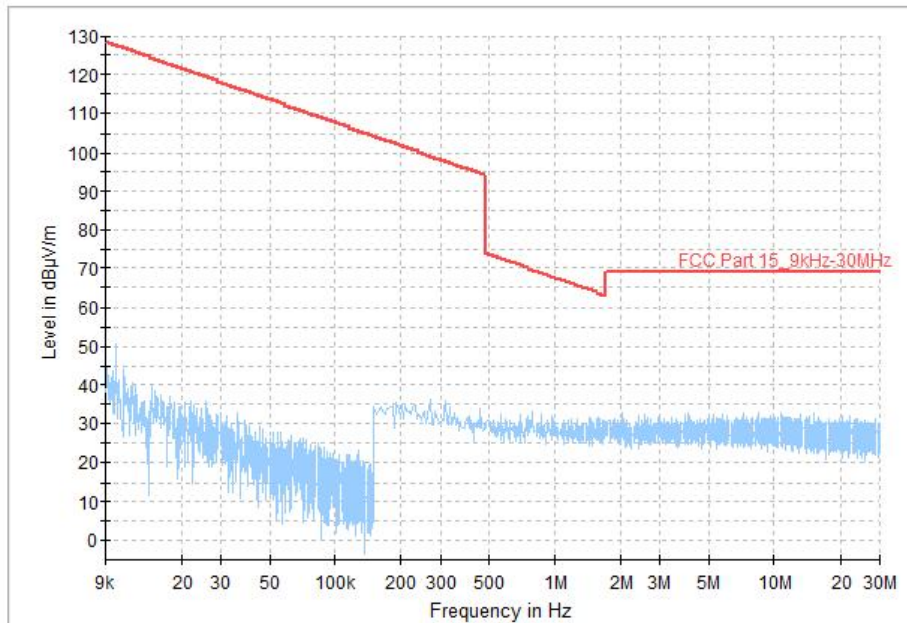


Fig.67 Radiated Spurious Emission (All Channels, 9kHz-30MHz, MIMO)

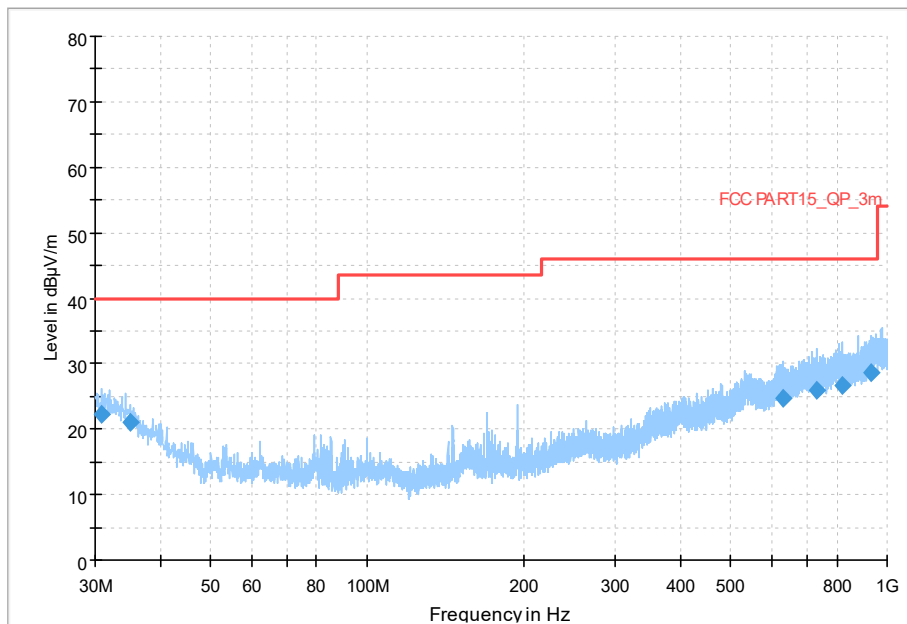


Fig.68 Radiated Spurious Emission (All Channels, 30MHz-1GHz, MIMO)

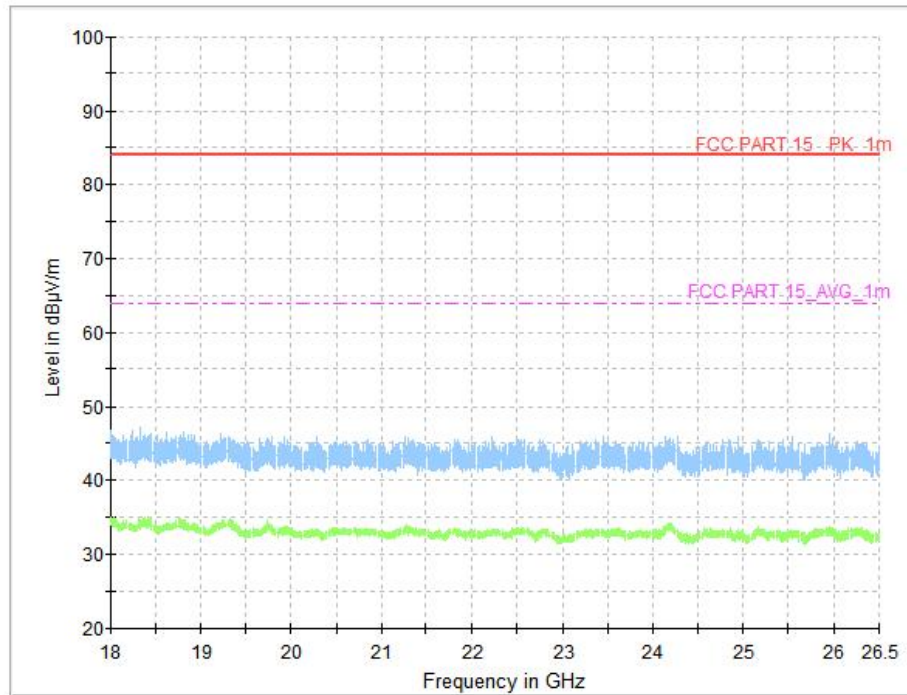


Fig.69 Radiated Spurious Emission (All Channels, 18GHz-26.5GHz, MIMO)



A.7 AC Power line Conducted Emission

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

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Average-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
			Traffic	Idle	
0.15 to 0.5	66 to 56	56 to 46	Fig.70	Fig.71	P
0.5 to 5	56	46			
5 to 30	60	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.

See below for test graphs.

Conclusion: PASS

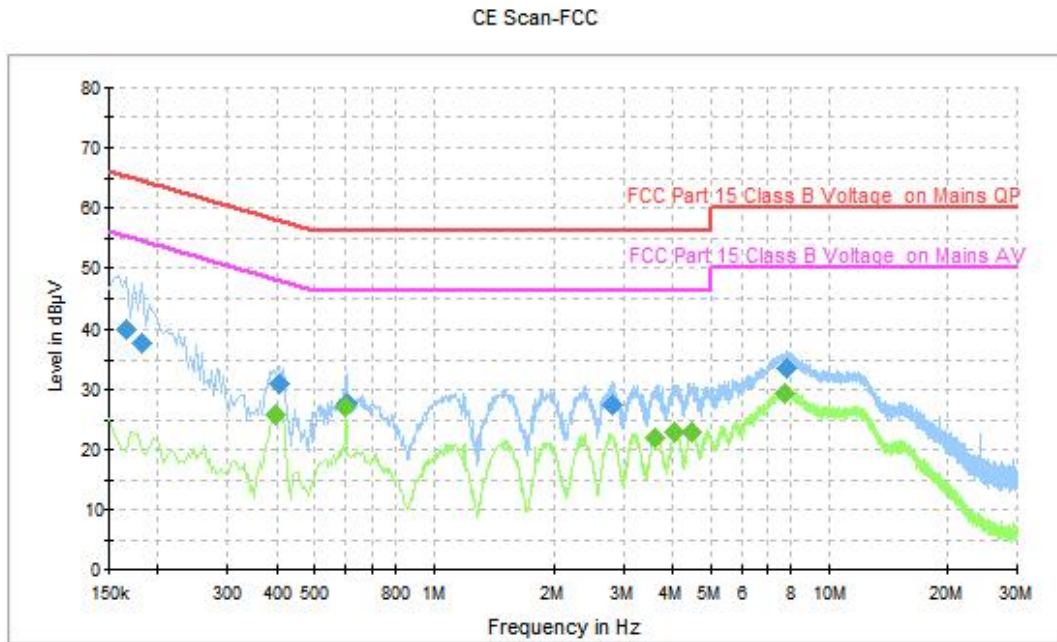


Fig.70 AC Power line Conducted Emission (Traffic)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	PE	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.166000	40.1	GND	N	9.8	25.1	65.2
0.182000	37.7	GND	N	9.8	36.7	64.4
0.406000	30.9	GND	N	9.8	26.8	57.7
0.602000	27.8	GND	L1	9.8	28.2	56.0
2.826000	27.4	GND	L1	9.8	28.6	56.0
7.822000	33.5	GND	N	9.7	26.5	60.0

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.398000	25.9	GND	L1	9.8	22.0	47.9
0.598000	27.1	GND	L1	9.8	18.9	46.0
3.602000	22.0	GND	L1	9.8	24.0	46.0
4.066000	22.8	GND	L1	9.8	23.2	46.0
4.458000	22.8	GND	L1	9.8	23.2	46.0
7.702000	29.2	GND	N	9.8	20.8	50.0

CE Scan-FCC

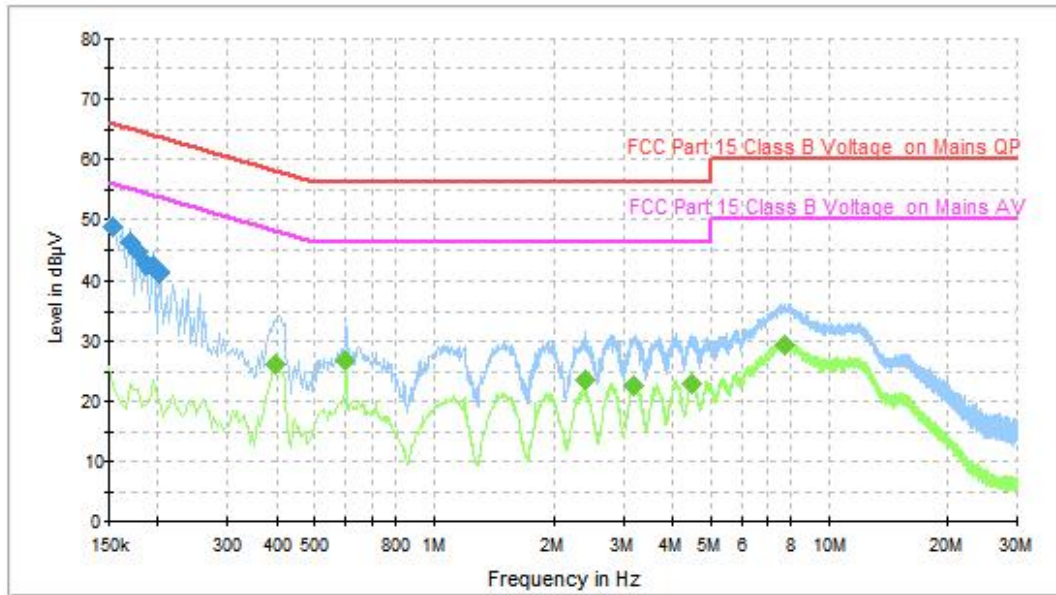


Fig.71 AC Power line Conducted Emission (Idle)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	PE	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.154000	48.8	GND	N	9.8	17.0	65.8
0.170000	46.2	GND	N	9.8	18.8	65.0
0.178000	44.6	GND	N	9.8	20.0	64.6
0.186000	42.7	GND	N	9.8	21.5	64.2
0.194000	42.3	GND	N	9.8	21.5	63.9
0.202000	41.2	GND	N	9.8	22.3	63.5

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.398000	26.0	GND	L1	9.8	21.9	47.9
0.598000	26.9	GND	L1	9.8	19.1	46.0
2.394000	23.4	GND	L1	9.8	22.6	46.0
3.206000	22.5	GND	L1	9.8	23.5	46.0
4.470000	22.8	GND	L1	9.8	23.2	46.0
7.746000	29.3	GND	L1	9.8	20.7	50.0

END OF REPORT