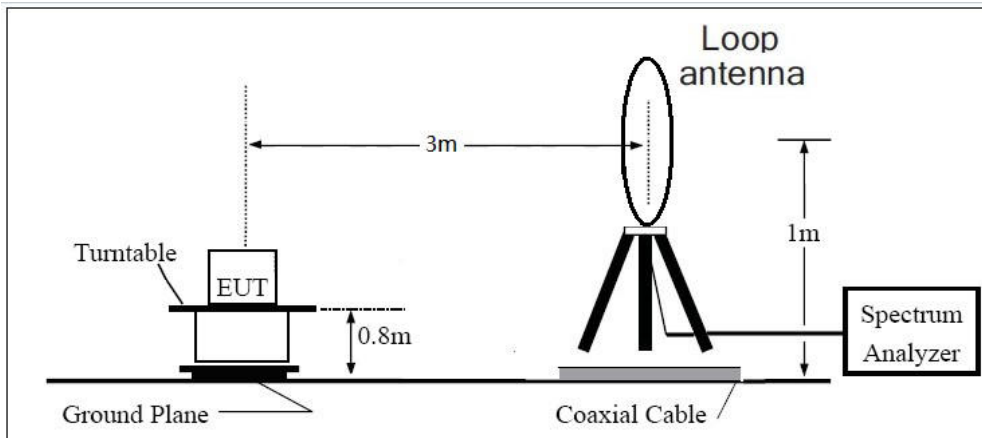
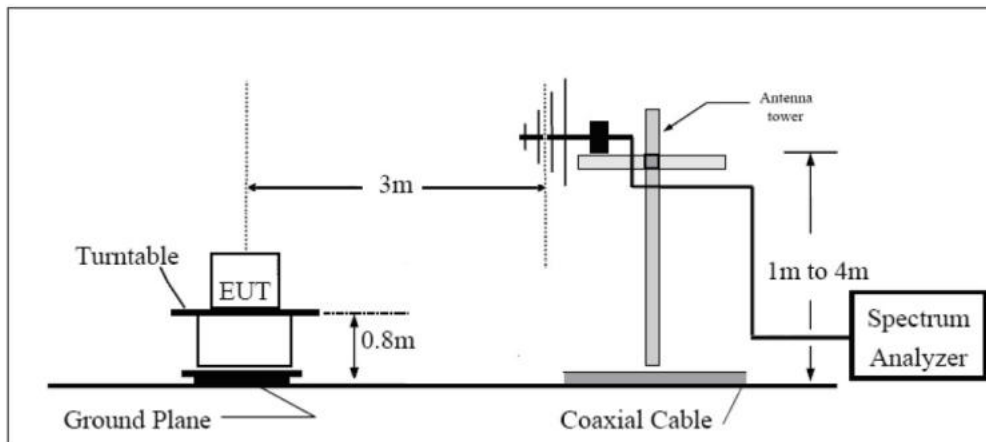


Test setup

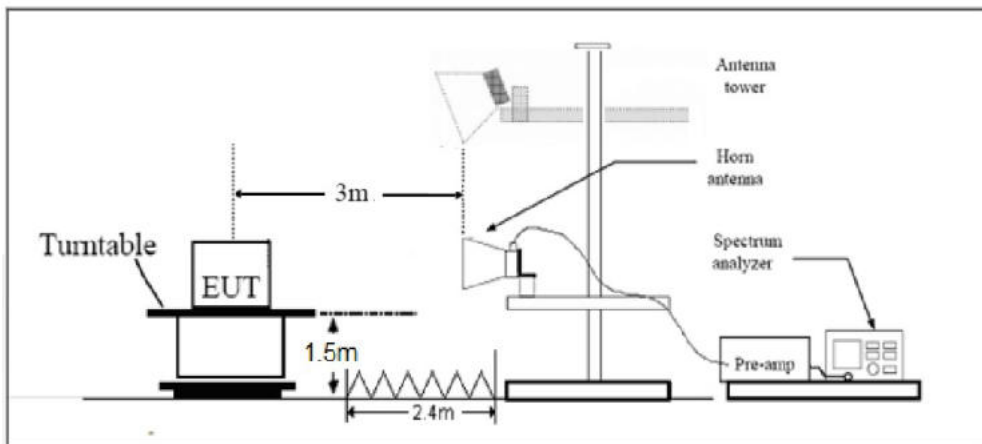
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 15.247(d) specifies that “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(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74 dBuV/m

Average Limit=54 dBuV/m

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Measurement Uncertainty

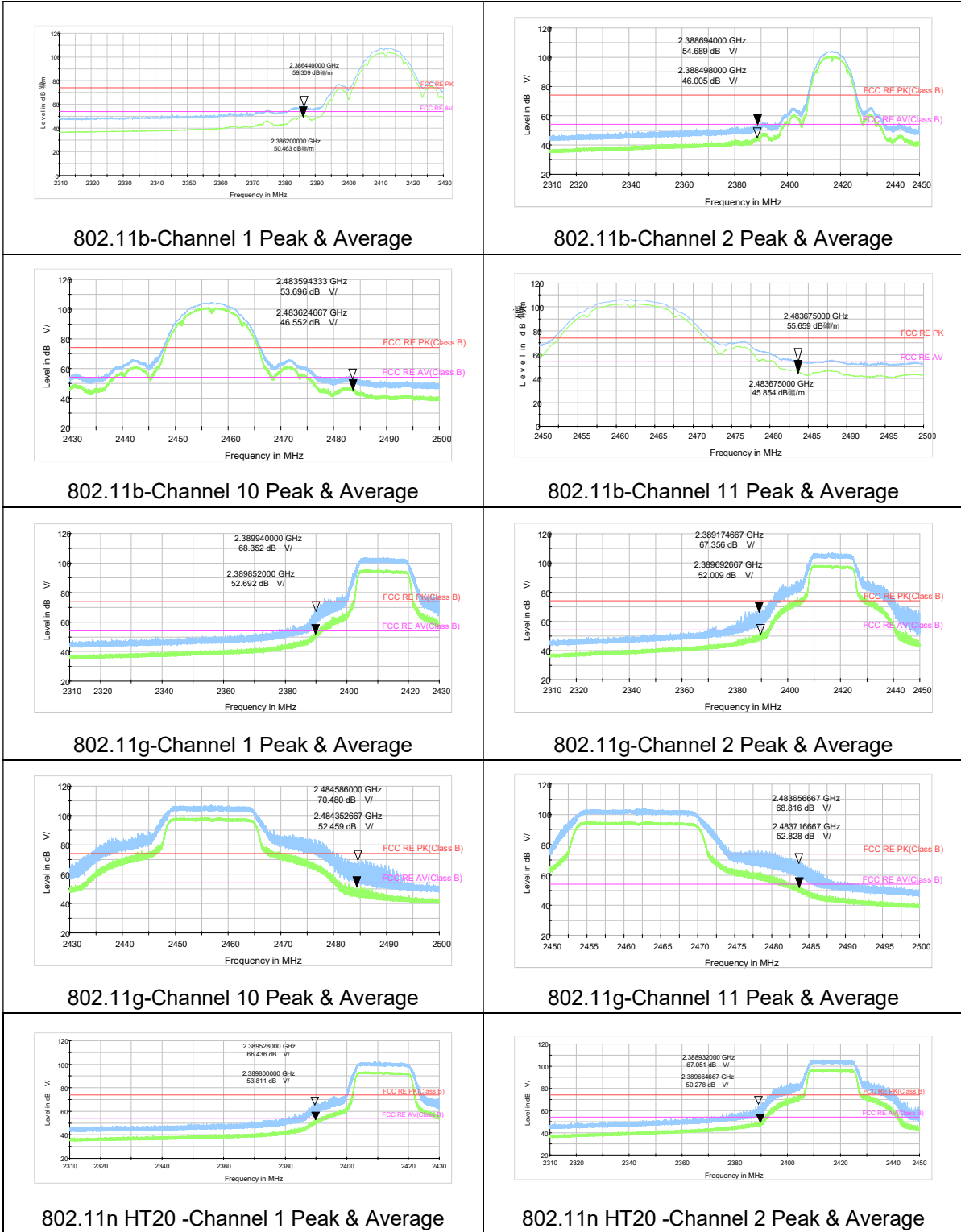
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

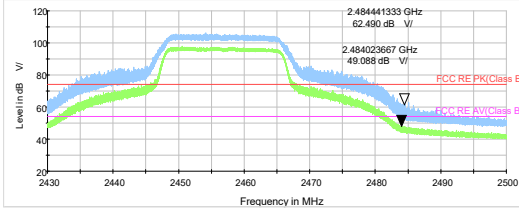
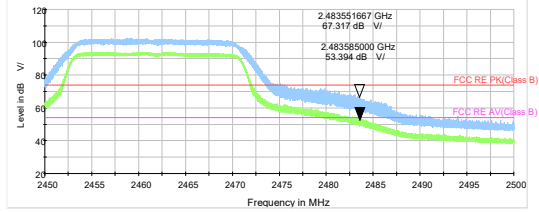
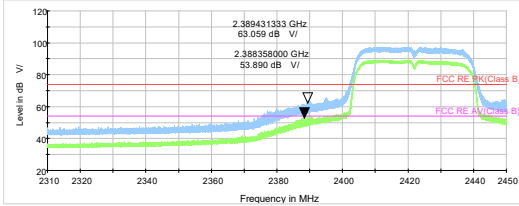
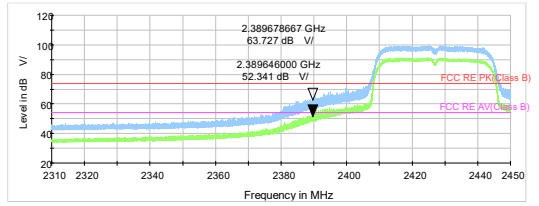
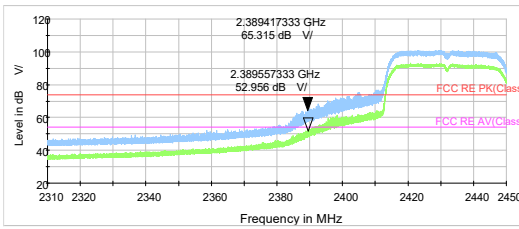
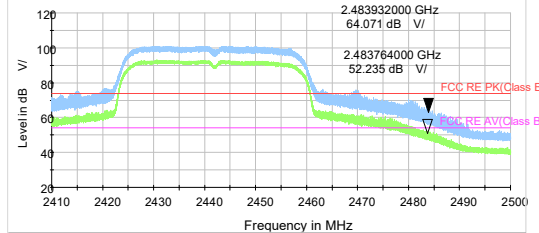
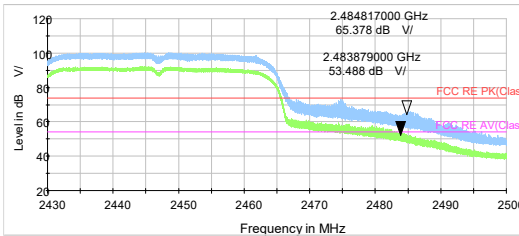
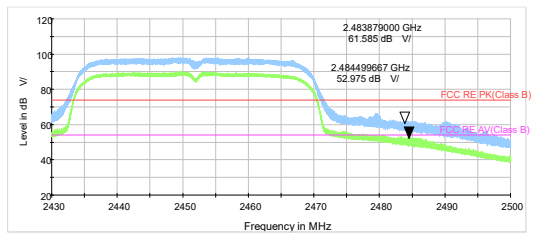
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.17 dB
200MHz-1GHz	4.84 dB
1-18GHz	4.35 dB
18-26.5GHz	5.90 dB
26.5GHz~40GHz	5.92 dB

Test Results:

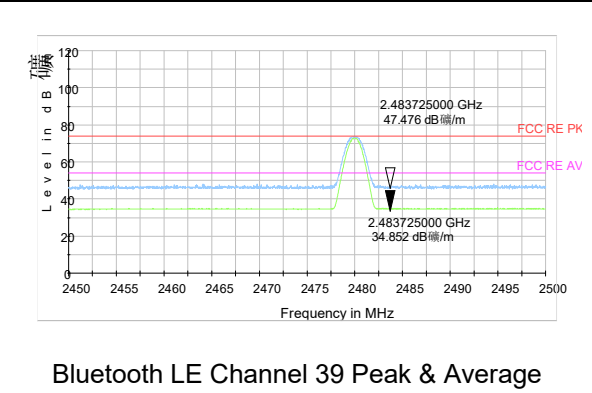
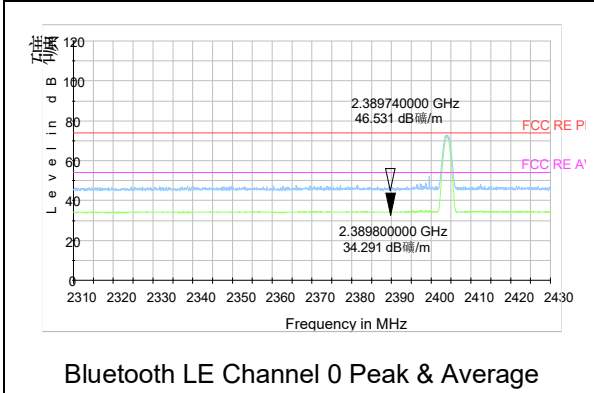
A font (dB_{μV/m})in the test plot =(dB μ V/m)

A font (dB V/)in the test plot =(dB μ V/m)




802.11n HT20 -Channel 10 Peak & Average

802.11n HT20 -Channel 11 Peak & Average

802.11n HT40 -Channel 3 Peak & Average

802.11n HT40 -Channel 4 Peak & Average

802.11n HT40 -Channel 5 Peak & Average

802.11n HT40 -Channel 7 Peak & Average

802.11n HT40 -Channel 8 Peak & Average

802.11n HT40 -Channel 9 Peak & Average

During the test, the preliminary test was performed in both data rate for BLE, 1Mbps was selected as the worst case. The test data of the worst-case condition was recorded in this report



Result of RE

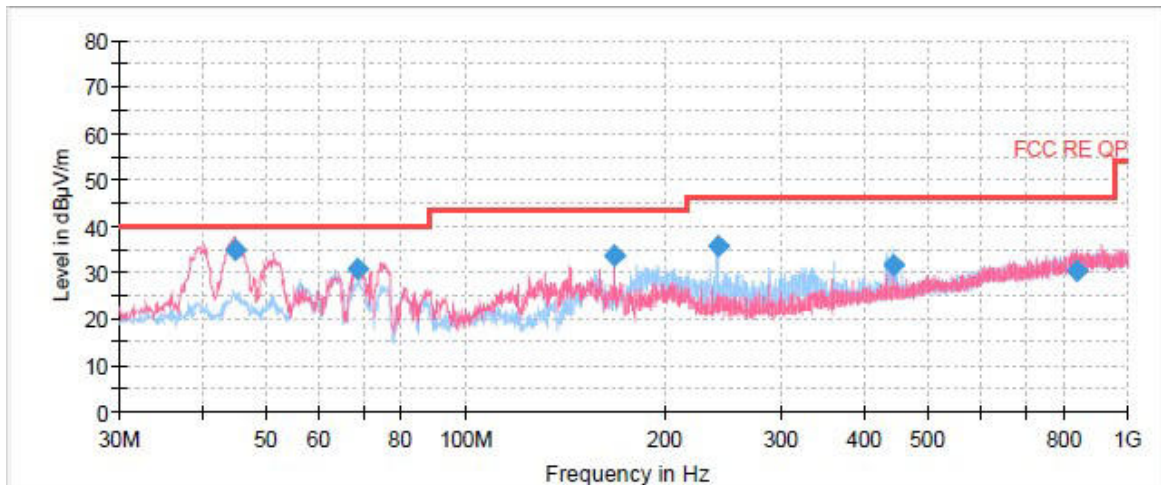
Test result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the Emissions in the frequency band 9kHz-30MHz are more than 20dB below the limit are not reported.

The following graphs display the maximum values of horizontal and vertical by software.
For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11n (HT40) CH3 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Continuous TX mode:



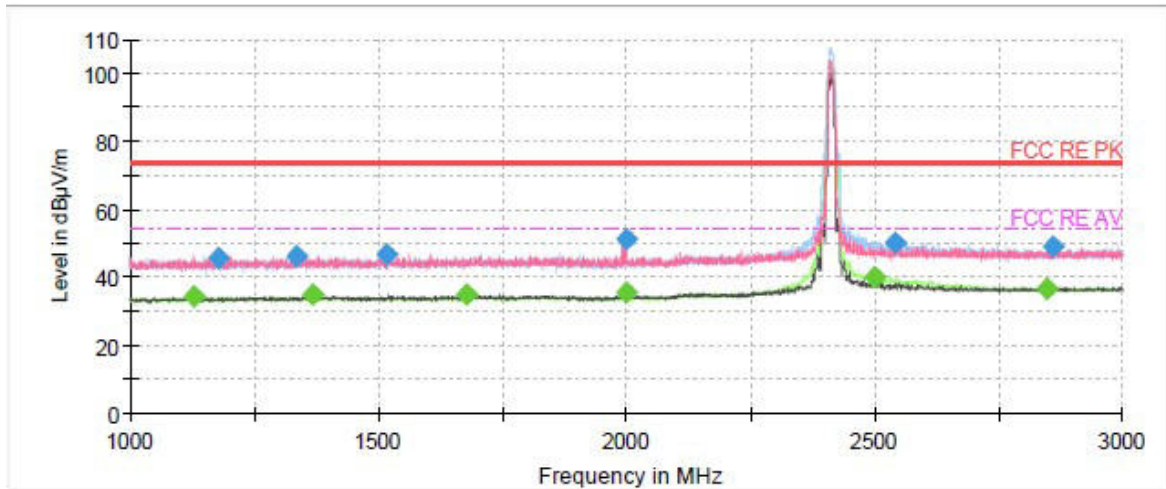
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
44.913750	34.81	100.0	V	90.0	14.1	5.19	40.00
68.921250	30.97	100.0	V	268.0	10.6	9.03	40.00
167.982500	33.55	100.0	V	198.0	10.0	9.95	43.50
240.005000	35.77	105.0	H	180.0	13.7	10.23	46.00
444.068750	31.74	100.0	H	26.0	18.4	14.26	46.00
839.828750	30.23	225.0	H	232.0	24.1	15.77	46.00

Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak

802.11b CH1

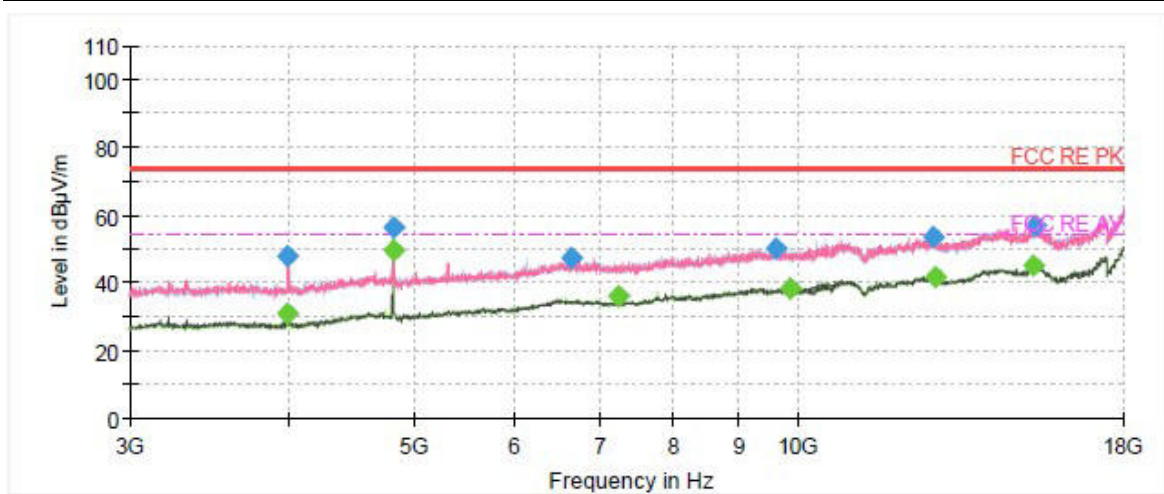


Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1128.500000	---	34.28	54.00	19.72	200.0	V	12.0	-10.5
1176.500000	45.69	---	74.00	28.31	200.0	V	17.0	-10.4
1334.500000	46.32	---	74.00	27.68	200.0	V	70.0	-9.7
1369.500000	---	34.78	54.00	19.22	100.0	V	357.0	-9.6
1515.250000	46.54	---	74.00	27.46	200.0	H	241.0	-9.1
1676.250000	---	35.17	54.00	18.83	200.0	V	62.0	-8.7
1998.250000	---	35.57	54.00	18.43	200.0	V	207.0	-8.2
1998.250000	51.39	---	74.00	22.61	200.0	V	207.0	-8.2
2499.500000	---	40.18	54.00	13.82	100.0	H	14.0	-6.3
2539.750000	50.34	---	74.00	23.66	100.0	H	2.0	-6.2
2848.000000	---	36.82	54.00	17.18	100.0	H	67.0	-6.1
2859.500000	48.85	---	74.00	25.15	200.0	V	29.0	-6.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)



Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3990.000000	48.05	---	74.00	25.95	100.0	H	227.0	-13.4
3991.875000	---	30.76	54.00	23.24	200.0	V	15.0	-13.3
4822.500000	56.13	---	74.00	17.87	200.0	V	354.0	-10.7
4822.500000	---	49.61	54.00	4.39	200.0	V	354.0	-10.7
6663.750000	47.26	---	74.00	26.74	100.0	V	250.0	-3.5
7233.750000	---	36.33	54.00	17.67	200.0	V	36.0	-4.6
9609.375000	49.94	---	74.00	24.06	200.0	V	92.0	-2.3
9853.125000	---	38.57	54.00	15.43	100.0	H	9.0	-1.8
12791.250000	53.31	---	74.00	20.69	200.0	H	226.0	2.1
12808.125000	---	41.55	54.00	12.45	100.0	H	150.0	2.1
15305.625000	---	44.93	54.00	9.07	100.0	H	13.0	5.7
15352.500000	57.08	---	74.00	16.92	200.0	H	150.0	5.8

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)