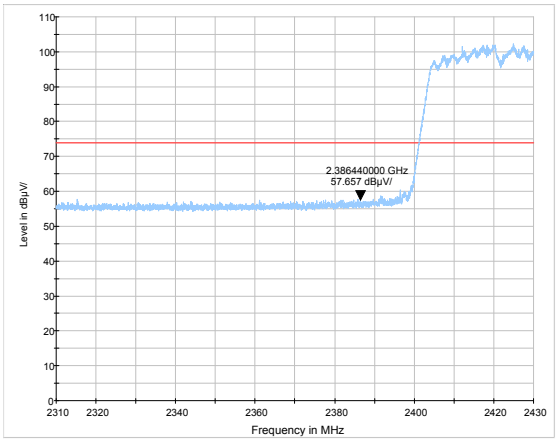
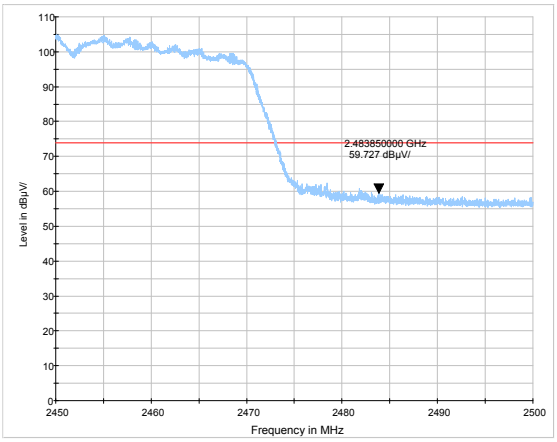
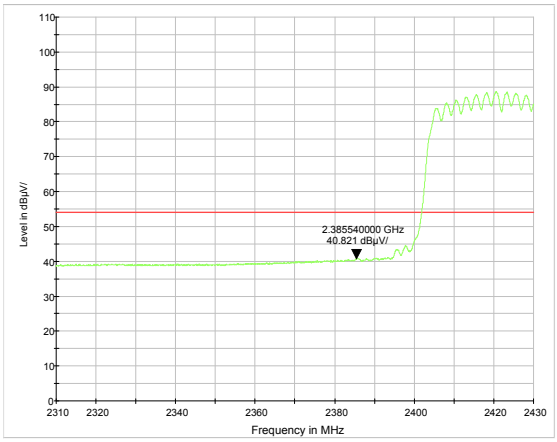
802.11n HT40 -Channel 3: Peak



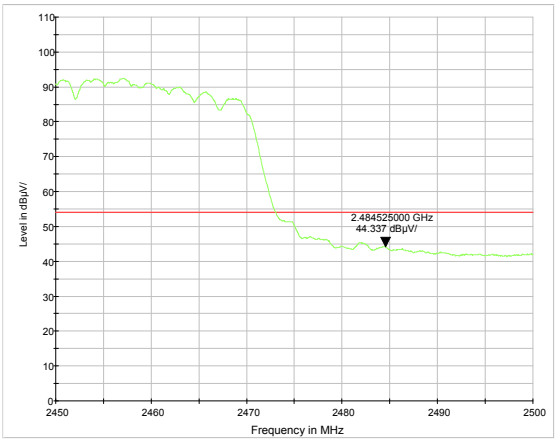
802.11n HT40-Channel 9: Peak



802.11n HT40-Channel 3: Average



802.11n HT40-Channel 9: Average



5.7. Radiates Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	102.5kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013.The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.
Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

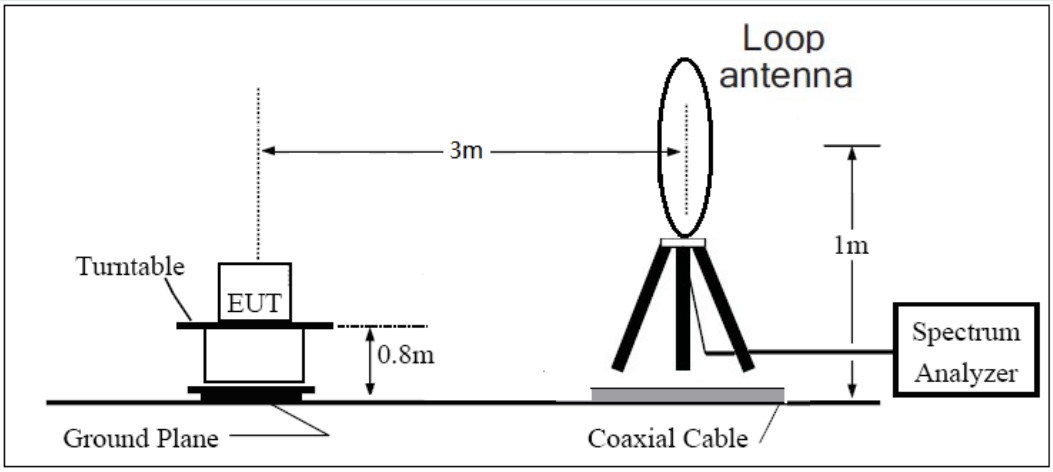
During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
Set the spectrum analyzer in the following:
Below 1GHz (detector: Peak and Quasi-Peak)
RBW=100 kHz / VBW=300 kHz / Sweep=AUTO
Above 1GHz (detector: Peak):
(a) PEAK: RBW=1MHz / VBW=3MHz/ Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

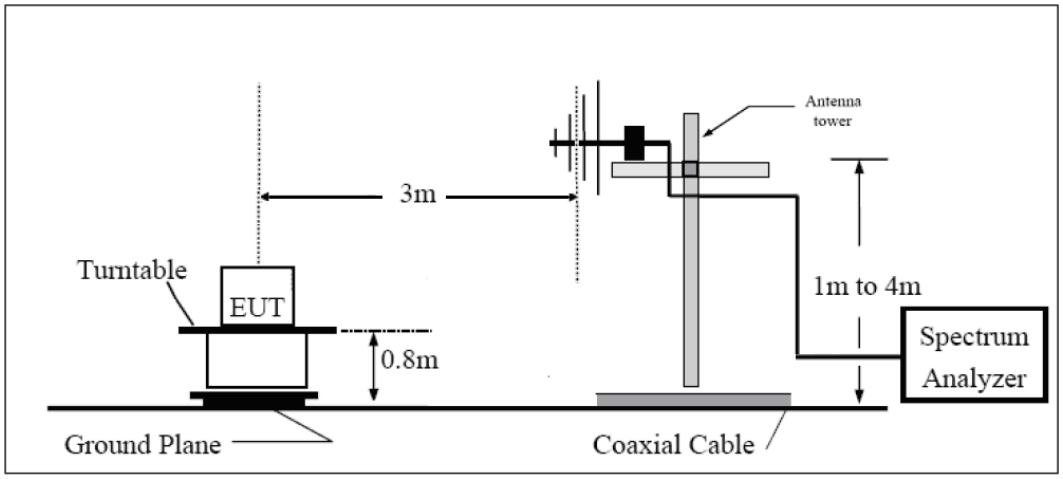
The test is in transmitting mode.

Test setup

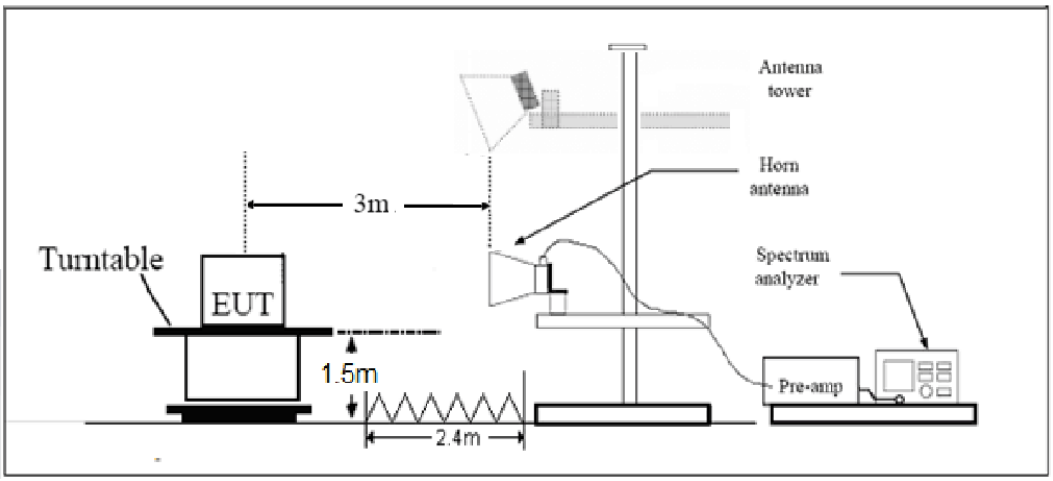
9KHz ~ 30MHz



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.

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	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

Test result

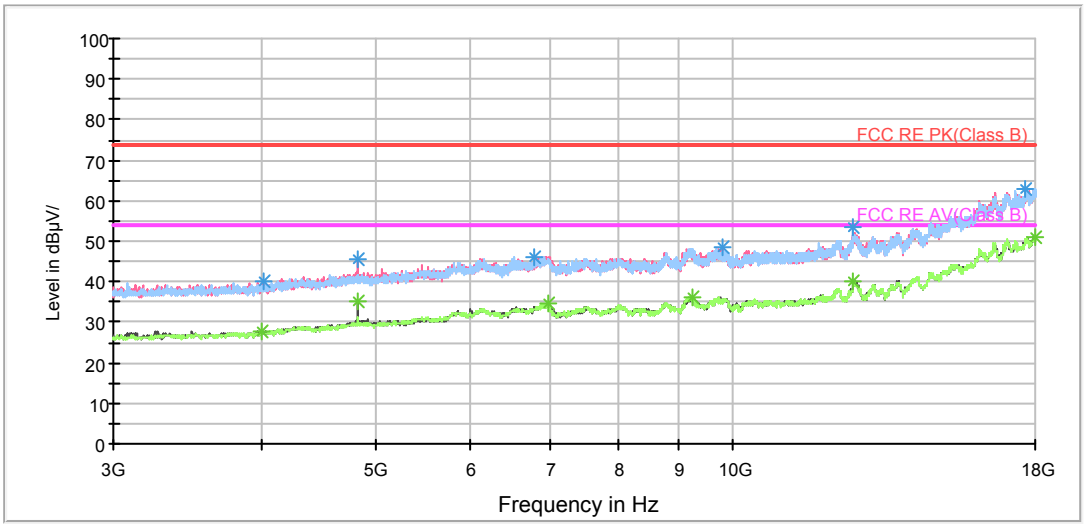
Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

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.

SISO Antenna 1

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4016.250000	40.3	102.0	V	348.0	41.5	-1.2	33.7	74
4824.375000	45.4	202.0	V	291.0	44.0	1.4	28.6	74
6804.375000	46.2	102.0	H	153.0	40.4	5.8	27.8	74
9796.875000	48.4	102.0	V	96.0	38.4	10.0	25.6	74
12639.375000	53.6	202.0	H	322.0	39.1	14.5	20.4	74
17675.625000	63.0	102.0	V	211.0	38.5	24.5	11.0	74

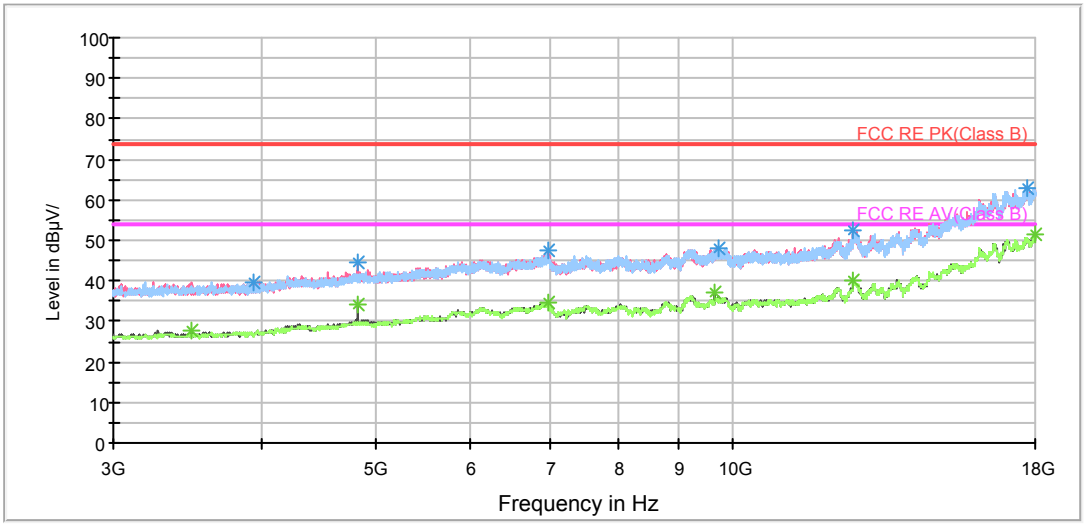
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3999.375000	28.0	102.0	V	0.0	29.1	-1.1	26.0	54
4822.500000	35.4	202.0	V	0.0	34.1	1.3	18.6	54
6997.500000	34.6	202.0	V	244.0	28.1	6.5	19.4	54
9232.500000	36.2	202.0	H	0.0	26.3	9.9	17.8	54
12648.750000	40.1	102.0	H	0.0	25.9	14.2	13.9	54
18000.000000	51.2	102.0	V	234.0	25.7	25.5	2.8	54

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

SISO Antenna 2

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3933.750000	39.8	202.0	V	57.0	40.9	-1.1	34.2	74
4822.500000	44.7	202.0	V	218.0	43.4	1.3	29.3	74
6995.625000	47.6	202.0	V	0.0	41.1	6.5	26.4	74
9736.875000	47.9	202.0	H	342.0	38.0	9.9	26.1	74
12650.625000	52.4	202.0	V	0.0	38.3	14.1	21.6	74
17692.500000	62.7	102.0	V	114.0	38.1	24.6	11.3	74

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

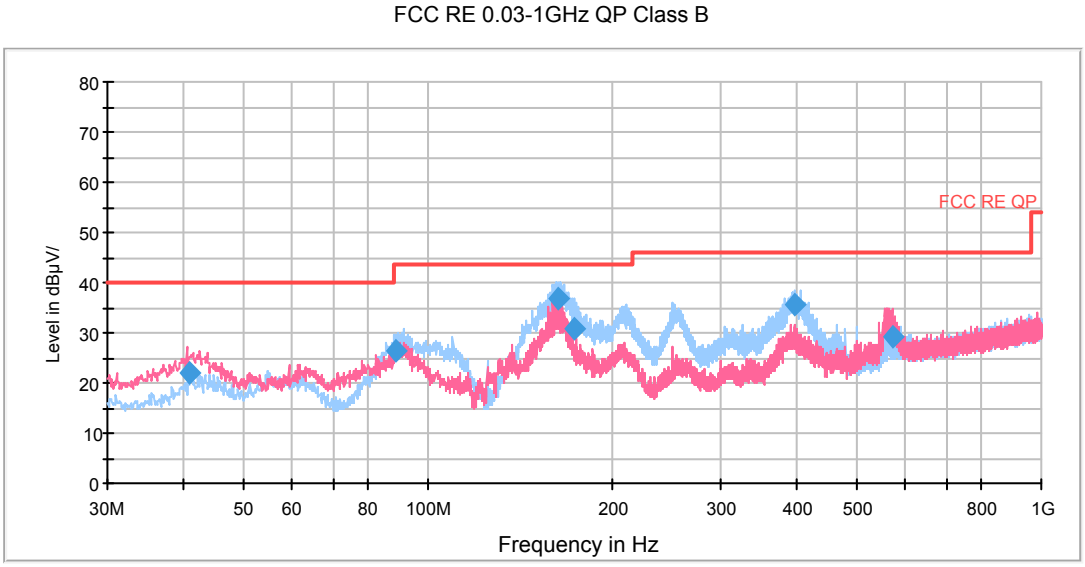
Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3498.750000	27.9	202.0	V	293.0	30.0	-2.1	26.1	54
4822.500000	34.4	202.0	V	218.0	33.1	1.3	19.6	54
6993.750000	34.7	202.0	V	126.0	28.2	6.5	19.3	54
9648.750000	36.9	202.0	V	0.0	27.1	9.8	17.1	54
12648.750000	40.1	102.0	V	0.0	25.9	14.2	13.9	54
17998.125000	51.4	102.0	H	199.0	26.0	25.4	2.6	54

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

After the pre test, Antenna 2 was selected as the worst antenna.

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11b, Channel 11 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

Antenna 1 802.11b CH1

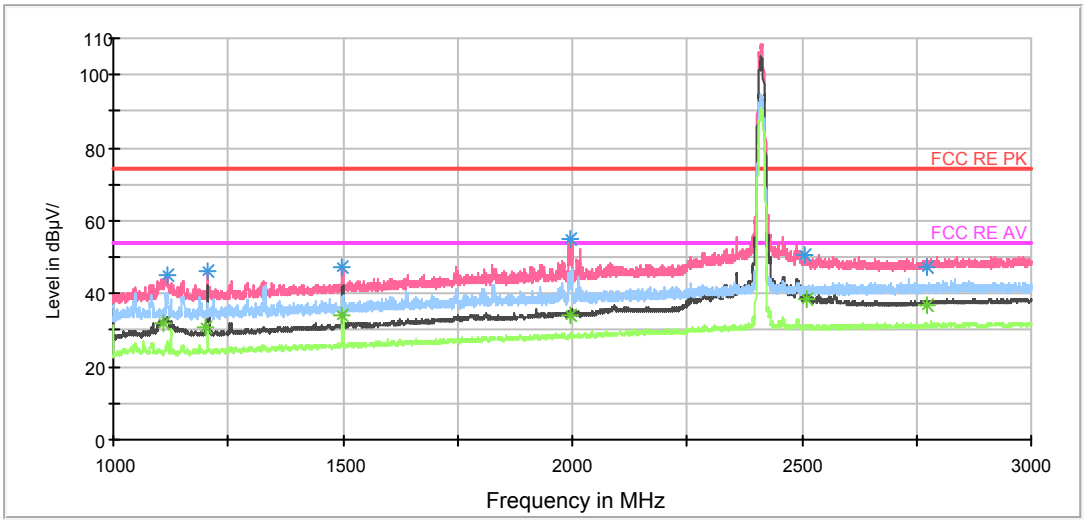
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1116.250000	44.9	100.0	V	0.0	53.5	-8.6	29.1	74
1206.250000	46.2	100.0	V	234.0	54.3	-8.1	27.8	74
1499.750000	47.5	100.0	V	0.0	53.9	-6.4	26.5	74
1996.250000	55.1	100.0	V	291.0	58.7	-3.6	18.9	74
2506.500000	50.4	100.0	V	322.0	51.3	-0.9	23.6	74
2772.000000	47.1	100.0	V	0.0	47.7	-0.6	26.9	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1108.500000	32.1	100.0	V	359.0	40.8	-8.7	21.9	54
1201.500000	31.0	100.0	V	322.0	39.2	-8.2	23.0	54
1499.000000	34.3	100.0	V	357.0	40.7	-6.4	19.7	54
1995.250000	34.3	100.0	V	336.0	37.9	-3.6	19.7	54
2509.750000	38.3	100.0	V	312.0	39.2	-0.9	15.7	54
2775.000000	37.1	100.0	V	0.0	37.6	-0.5	16.9	54

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

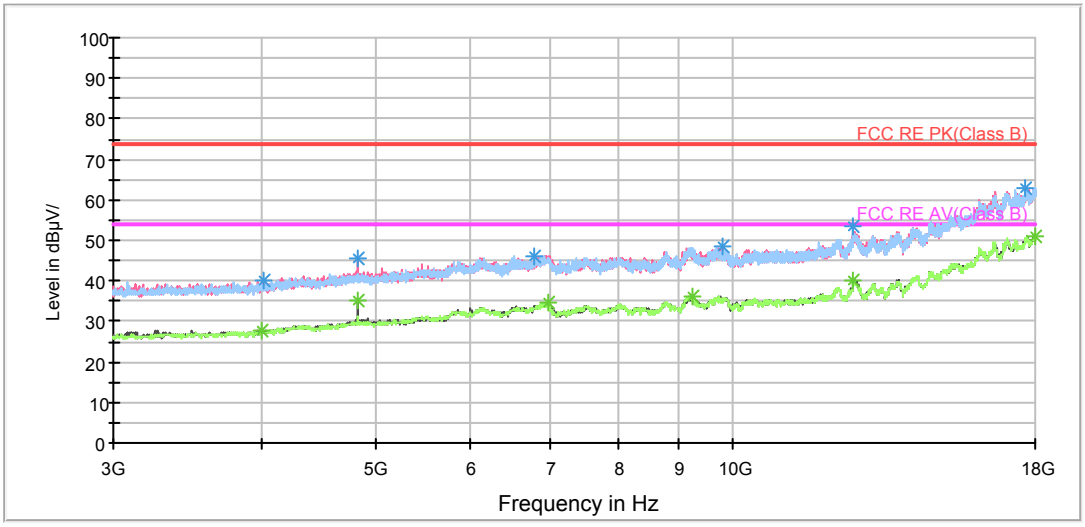
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

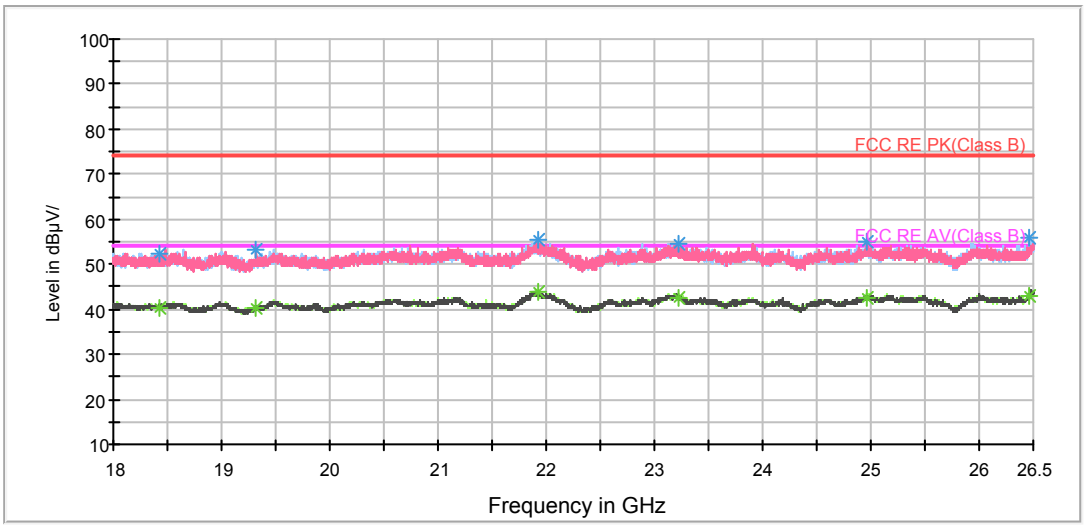
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11b CH6

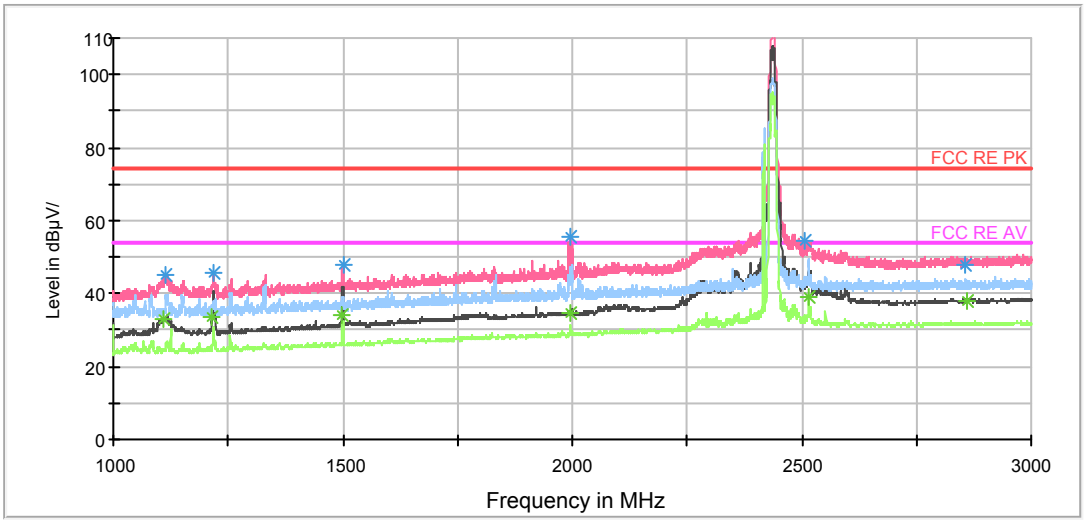
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1115.250000	45.3	100.0	V	0.0	53.9	-8.6	28.7	74
1218.500000	45.4	100.0	V	229.0	53.5	-8.1	28.6	74
1500.000000	47.9	100.0	V	0.0	54.3	-6.4	26.1	74
1995.250000	55.4	100.0	V	298.0	59.0	-3.6	18.6	74
2506.250000	54.2	100.0	V	250.0	55.1	-0.9	19.8	74
2856.000000	48.0	100.0	V	53.0	48.5	-0.5	26.0	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1110.750000	33.2	100.0	V	0.0	41.8	-8.6	20.8	54
1215.500000	33.5	100.0	V	0.0	41.6	-8.1	20.5	54
1499.000000	34.0	100.0	V	0.0	40.4	-6.4	20.0	54
1994.250000	34.7	100.0	V	298.0	38.3	-3.6	19.3	54
2515.500000	39.3	100.0	H	161.0	40.2	-0.9	14.7	54
2859.000000	37.9	100.0	V	357.0	38.3	-0.4	16.1	54

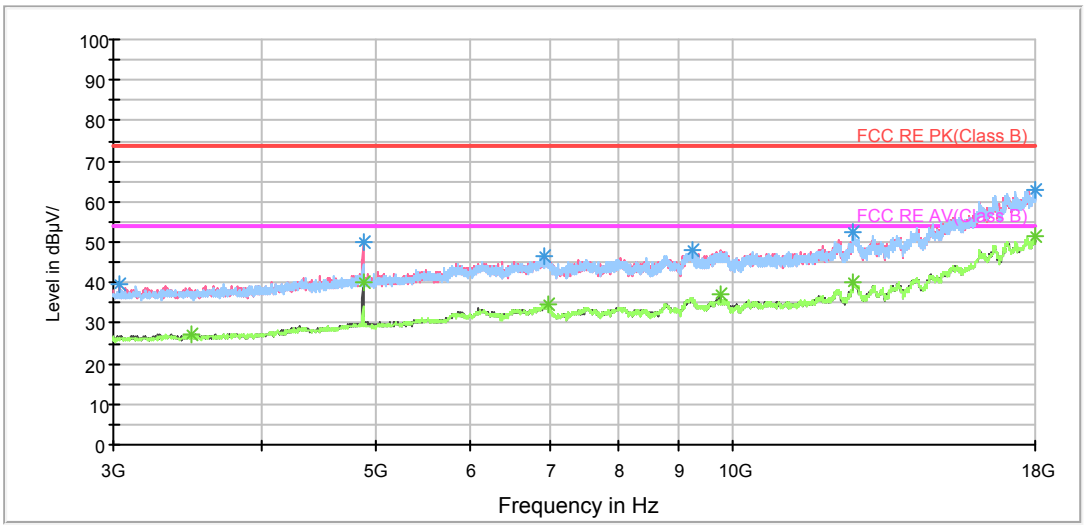
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



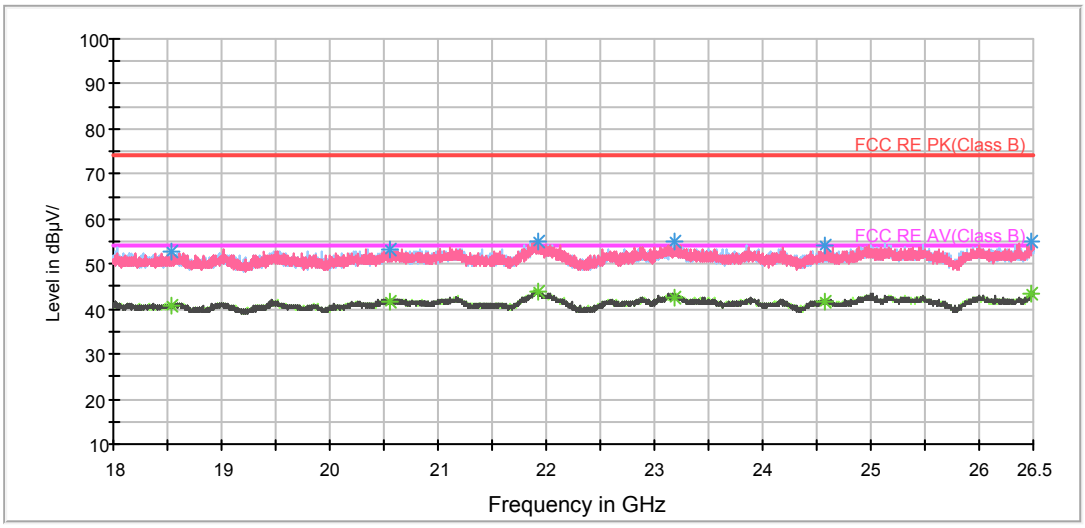
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11b CH11

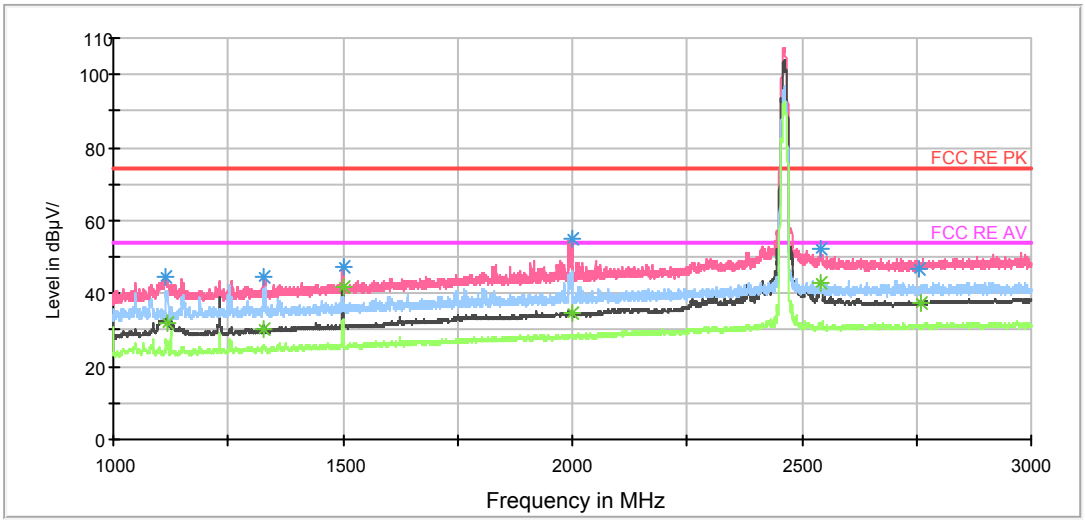
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1115.250000	44.5	100.0	V	359.0	53.1	-8.6	29.5	74
1327.750000	44.7	100.0	V	292.0	52.2	-7.5	29.3	74
1500.000000	47.1	100.0	V	359.0	53.5	-6.4	26.9	74
1999.750000	54.9	100.0	V	357.0	58.5	-3.6	19.1	74
2540.000000	52.1	100.0	V	304.0	53.0	-0.9	21.9	74
2755.500000	46.9	100.0	V	359.0	47.5	-0.6	27.1	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1119.250000	32.0	100.0	V	359.0	40.6	-8.6	22.0	54
1327.750000	30.2	100.0	V	292.0	37.7	-7.5	23.8	54
1500.000000	41.8	100.0	V	359.0	48.2	-6.4	12.2	54
1999.500000	34.9	100.0	V	0.0	38.5	-3.6	19.1	54
2540.000000	43.0	100.0	V	304.0	43.9	-0.9	11.0	54
2758.500000	37.3	100.0	V	316.0	37.9	-0.6	16.7	54

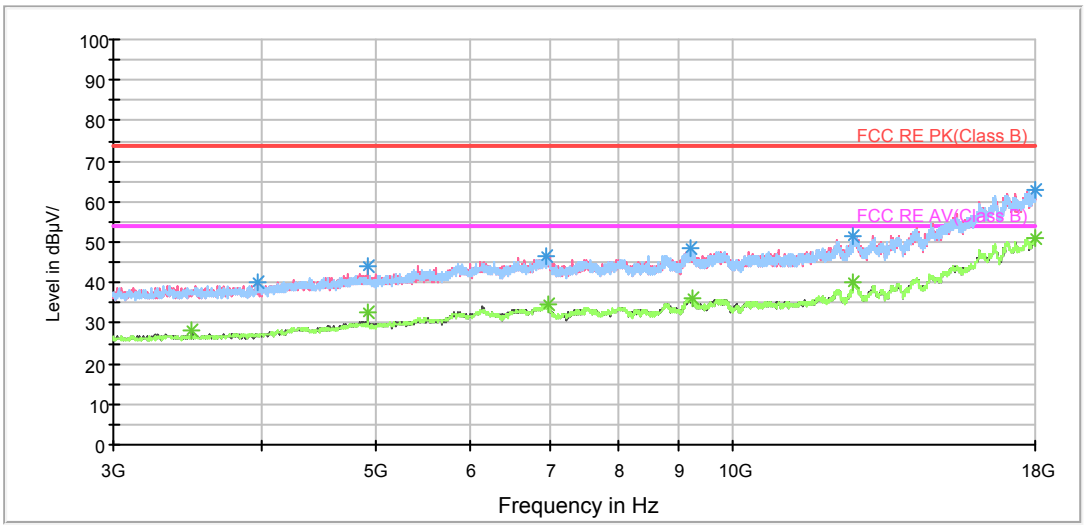
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



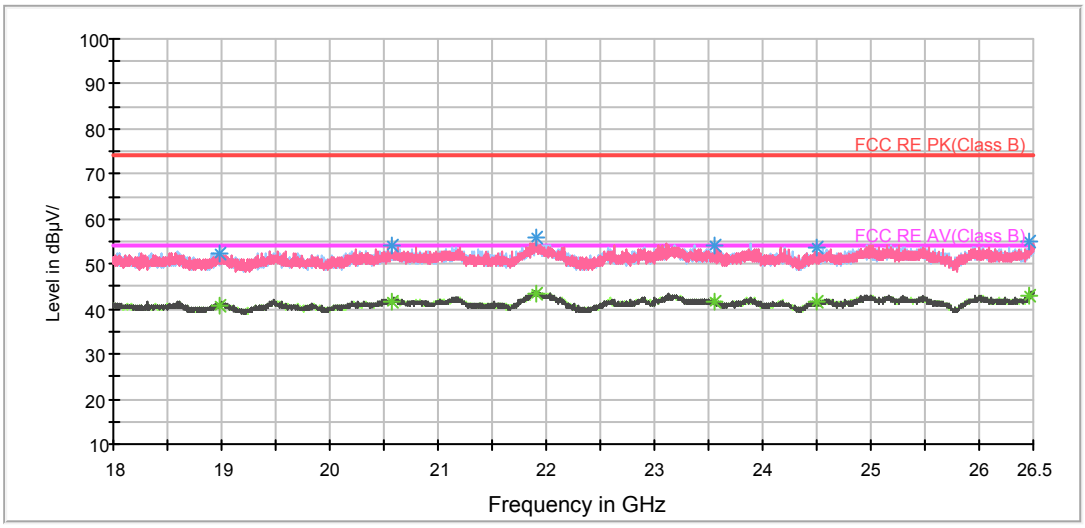
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11g CH1

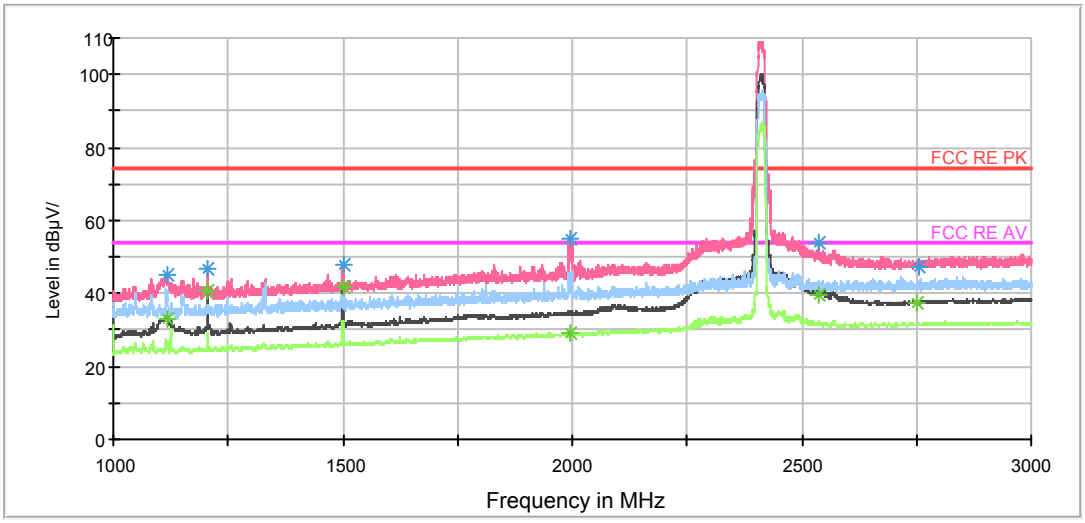
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1118.250000	45.3	100.0	V	0.0	53.9	-8.6	28.7	74
1205.750000	46.8	100.0	V	230.0	54.9	-8.1	27.2	74
1500.250000	47.8	100.0	V	0.0	54.2	-6.4	26.2	74
1993.750000	54.9	100.0	V	359.0	58.5	-3.6	19.1	74
2535.500000	53.8	100.0	V	251.0	54.7	-0.9	20.2	74
2753.750000	47.1	100.0	V	251.0	47.7	-0.6	26.9	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1118.000000	33.0	100.0	V	0.0	41.6	-8.6	21.0	54
1205.750000	40.6	100.0	V	230.0	48.7	-8.1	13.4	54
1500.000000	41.8	100.0	V	0.0	48.2	-6.4	12.2	54
1994.000000	29.0	100.0	H	98.0	32.6	-3.6	25.0	54
2536.000000	39.8	100.0	V	251.0	40.7	-0.9	14.2	54
2752.250000	37.3	100.0	V	353.0	37.9	-0.6	16.7	54

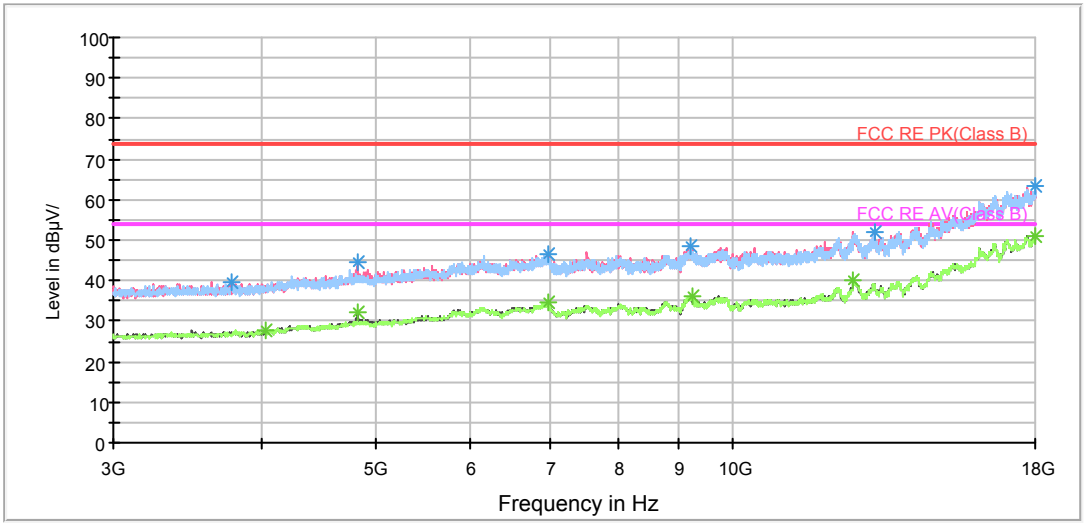
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



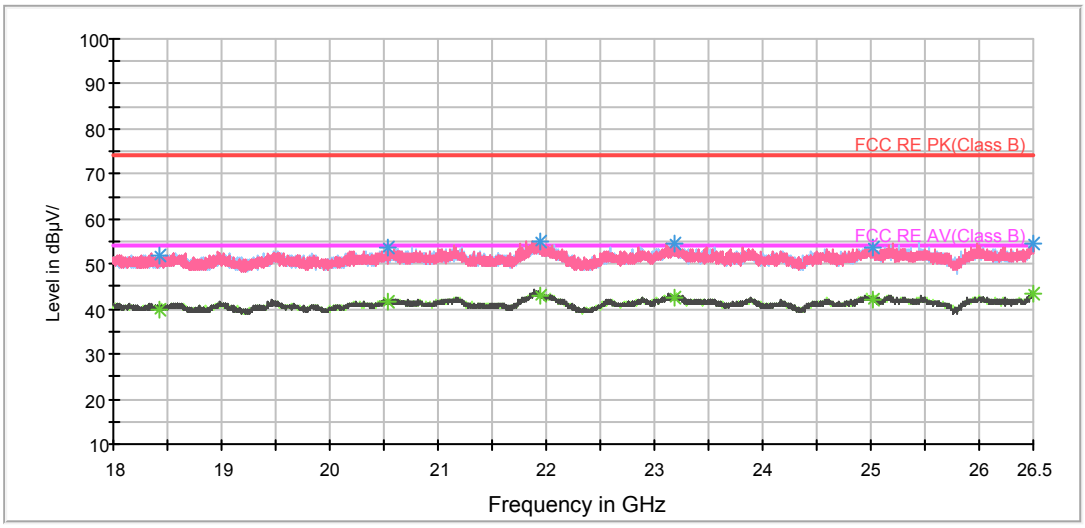
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11g CH6

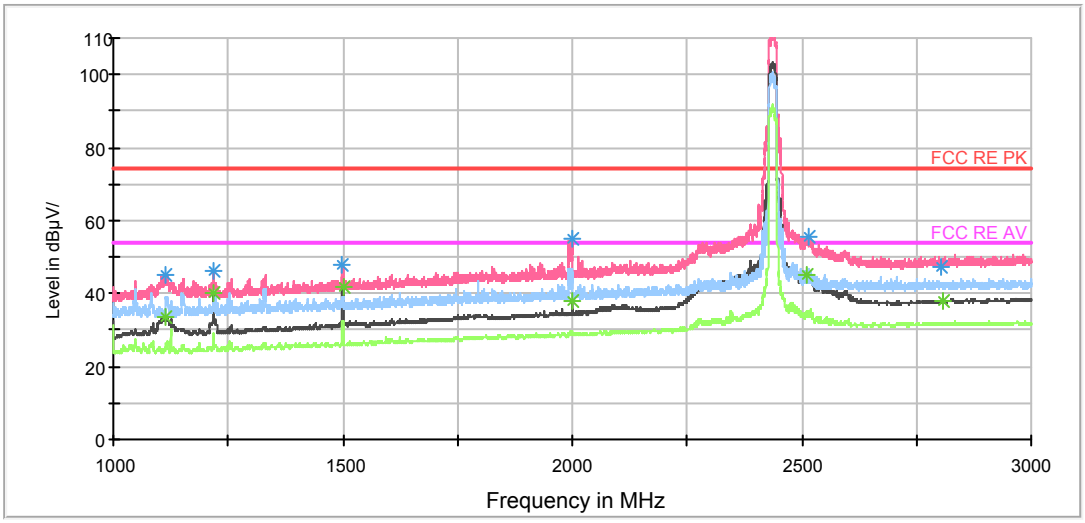
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1113.250000	45.1	100.0	V	0.0	53.7	-8.6	28.9	74
1218.000000	46.3	100.0	V	235.0	54.4	-8.1	27.7	74
1499.750000	47.6	100.0	V	0.0	54.0	-6.4	26.4	74
1999.500000	54.8	100.0	V	295.0	58.4	-3.6	19.2	74
2514.500000	55.4	100.0	V	245.0	56.3	-0.9	18.6	74
2805.500000	47.5	100.0	V	325.0	48.1	-0.6	26.5	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1114.500000	33.4	100.0	V	0.0	42.0	-8.6	20.6	54
1218.500000	40.3	100.0	V	354.0	48.4	-8.1	13.7	54
1500.000000	41.8	100.0	V	0.0	48.2	-6.4	12.2	54
1999.250000	37.7	100.0	V	295.0	41.3	-3.6	16.3	54
2511.000000	45.0	100.0	V	245.0	45.9	-0.9	9.0	54
2808.500000	37.9	100.0	V	343.0	38.5	-0.6	16.1	54

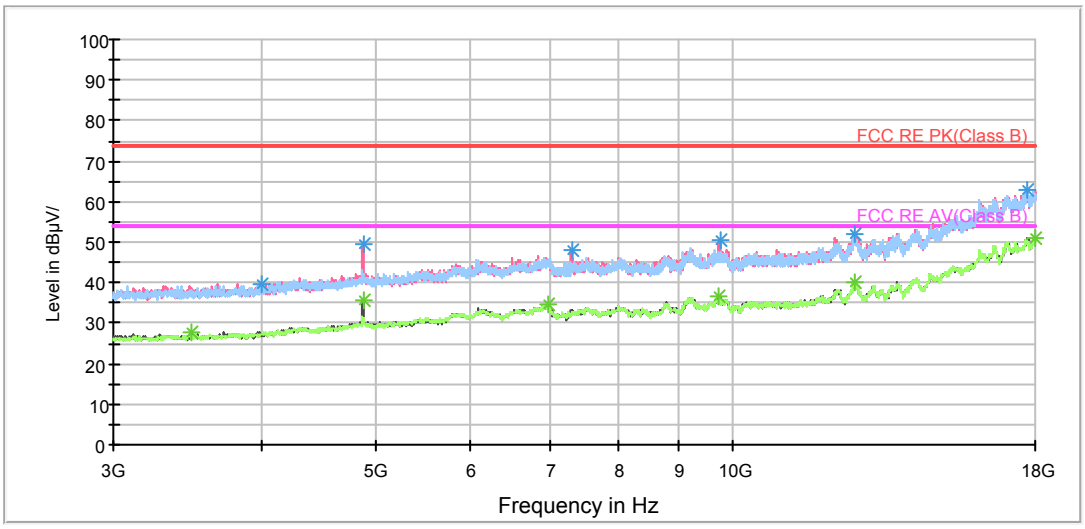
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



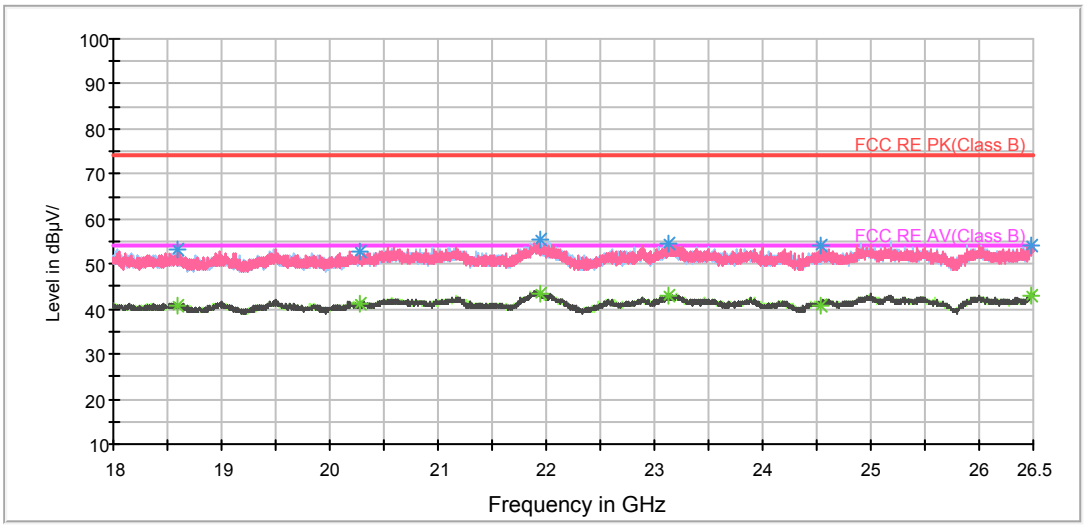
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11g CH11

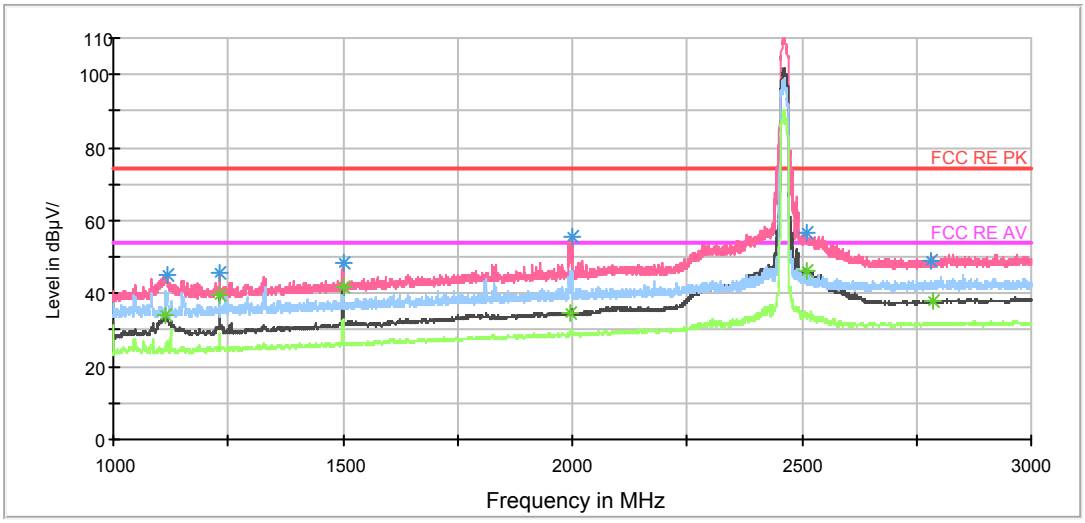
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1116.750000	45.0	100.0	V	0.0	53.6	-8.6	29.0	74
1230.750000	45.4	100.0	V	144.0	53.4	-8.0	28.6	74
1500.000000	48.3	100.0	V	359.0	54.7	-6.4	25.7	74
1999.750000	55.7	100.0	V	352.0	59.3	-3.6	18.3	74
2511.500000	56.6	100.0	V	249.0	57.5	-0.9	17.4	74
2783.500000	48.7	100.0	V	0.0	49.2	-0.5	25.3	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1114.000000	34.2	100.0	V	0.0	42.8	-8.6	19.8	54
1230.750000	39.5	100.0	V	144.0	47.5	-8.0	14.5	54
1500.000000	41.9	100.0	V	359.0	48.3	-6.4	12.1	54
1994.250000	34.5	100.0	V	290.0	38.1	-3.6	19.5	54
2508.750000	46.4	100.0	V	249.0	47.3	-0.9	7.6	54
2784.750000	37.8	100.0	V	239.0	38.3	-0.5	16.2	54

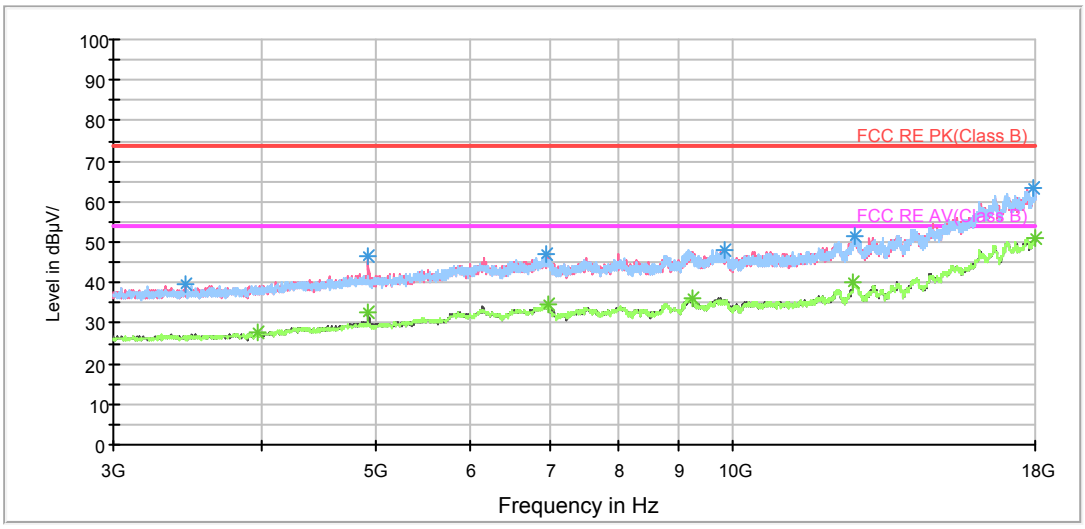
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



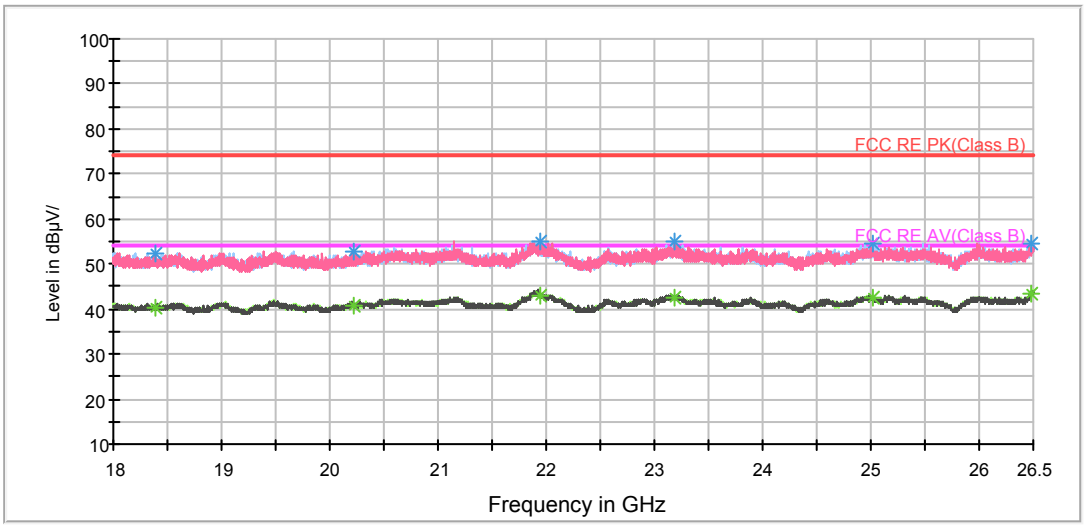
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT20) CH1

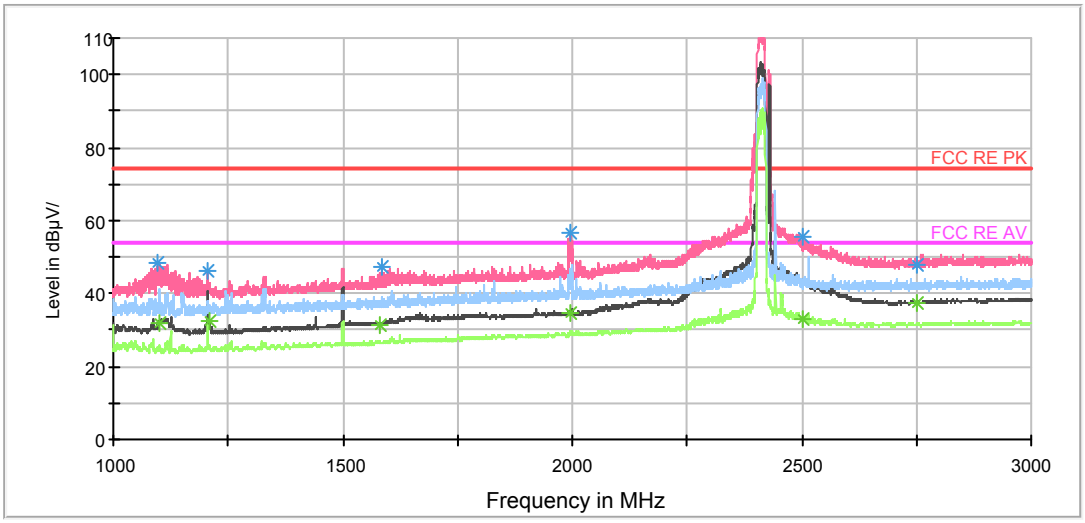
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1098.250000	48.2	100.0	V	0.0	57.0	-8.8	25.8	74
1206.000000	46.0	100.0	V	202.0	54.1	-8.1	28.0	74
1583.500000	47.1	100.0	V	192.0	53.1	-6.0	26.9	74
1995.500000	56.5	100.0	V	292.0	60.1	-3.6	17.5	74
2502.750000	55.5	100.0	V	202.0	56.4	-0.9	18.5	74
2749.500000	48.0	100.0	V	323.0	48.6	-0.6	26.0	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1101.500000	31.9	100.0	V	0.0	40.6	-8.7	22.1	54
1208.250000	32.4	100.0	V	233.0	40.5	-8.1	21.6	54
1582.250000	31.5	100.0	V	202.0	37.5	-6.0	22.5	54
1996.500000	34.9	100.0	V	302.0	38.5	-3.6	19.1	54
2501.250000	32.8	100.0	H	43.0	33.7	-0.9	21.2	54
2752.250000	37.3	100.0	V	283.0	37.9	-0.6	16.7	54

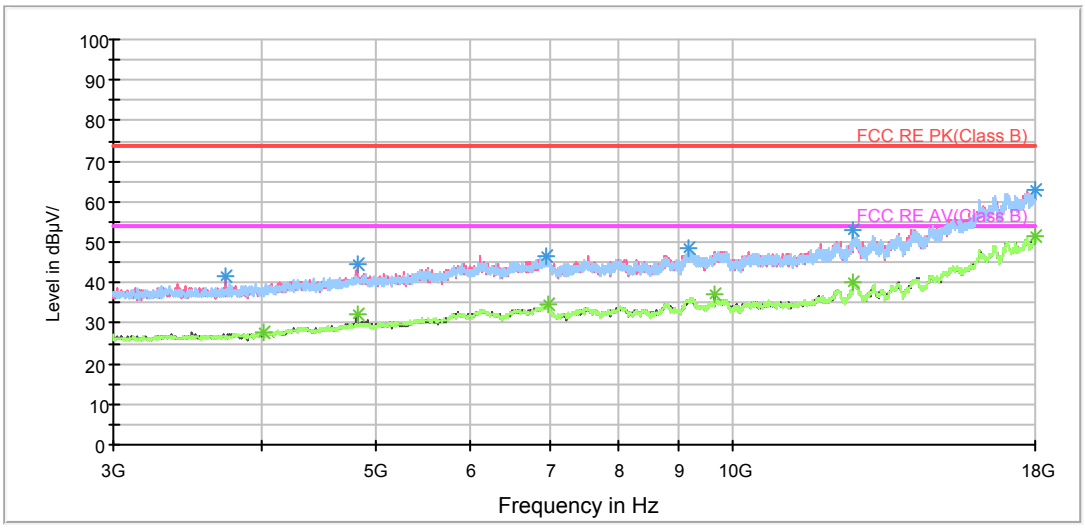
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



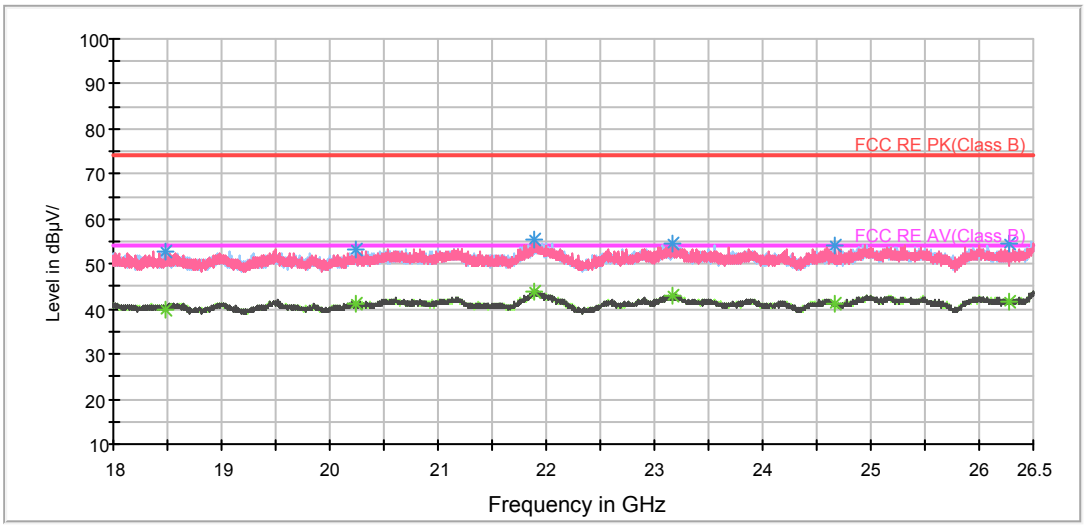
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT20) CH6

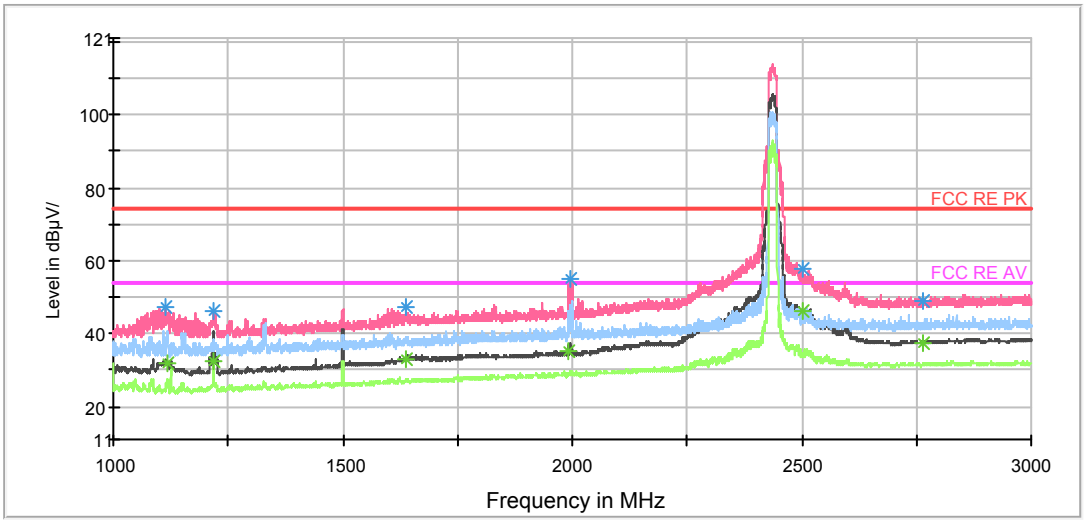
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1114.250000	47.3	100.0	V	0.0	55.9	-8.6	26.7	74
1218.500000	46.4	100.0	V	358.0	54.5	-8.1	27.6	74
1636.500000	47.1	100.0	V	180.0	52.8	-5.7	26.9	74
1996.750000	54.9	100.0	V	291.0	58.5	-3.6	19.1	74
2500.500000	57.6	100.0	V	252.0	58.5	-0.9	16.4	74
2763.750000	49.1	100.0	V	310.0	49.7	-0.6	24.9	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
---	---	---		---	---	---	---	54
1117.500000	32.0	100.0	V	356.0	40.6	-8.6	22.0	54
1220.000000	32.7	100.0	V	149.0	40.8	-8.1	21.3	54
1639.500000	32.9	100.0	V	212.0	38.6	-5.7	21.1	54
1992.750000	35.4	100.0	V	301.0	39.0	-3.6	18.6	54
2500.500000	46.1	100.0	V	252.0	47.0	-0.9	7.9	54

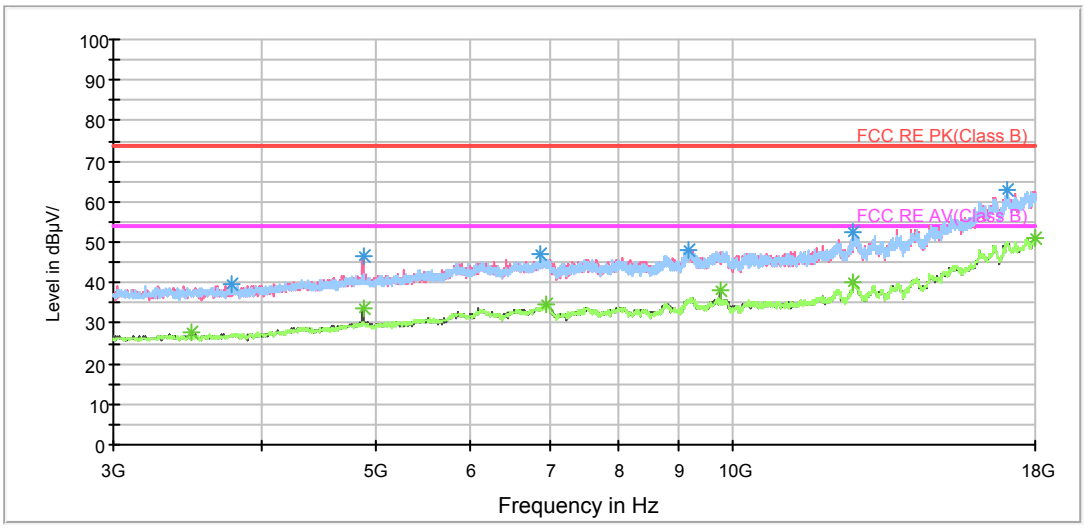
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



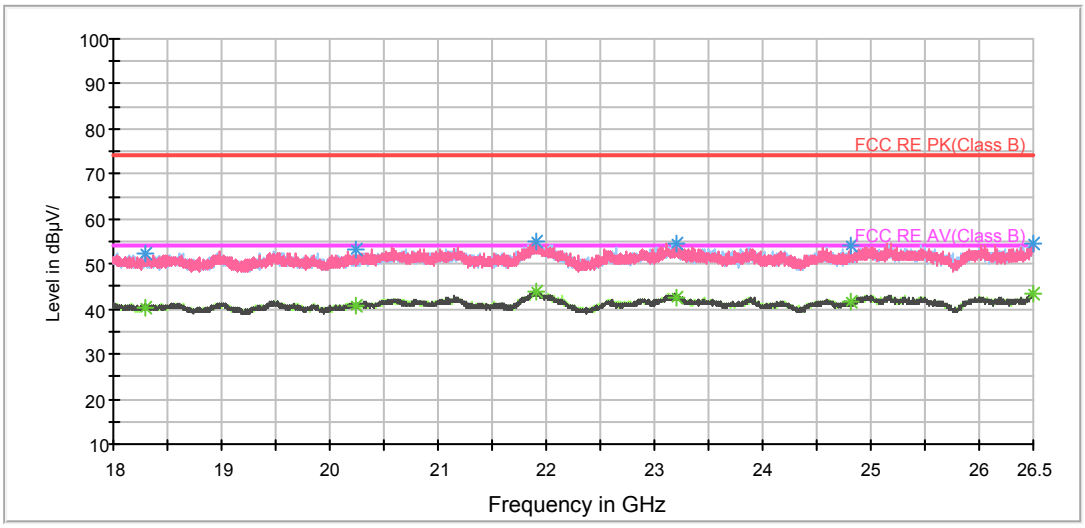
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT20) CH11

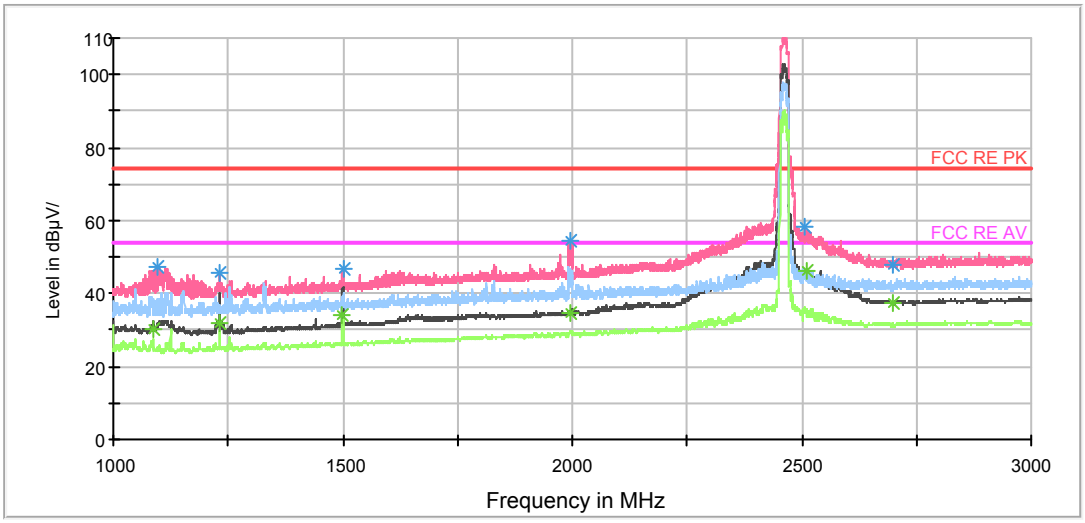
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1095.500000	47.5	30.8	100.0	V	56.3	**-8.8**	26.5	74
1230.750000	45.7	39.9	100.0	V	53.7	**-8.0**	28.3	74
1500.000000	47.0	41.7	100.0	V	53.4	**-6.4**	27.0	74
1994.000000	54.3	34.8	100.0	V	57.9	**-3.6**	19.7	74
2505.750000	58.2	46.4	100.0	V	59.1	**-0.9**	15.8	74
2696.750000	47.7	37.4	100.0	V	48.5	**-0.8**	26.3	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1095.500000	30.8	30.8	100.0	V	39.6	-8.8	23.2	54
1230.750000	39.9	39.9	100.0	V	47.9	-8.0	14.1	54
1500.000000	41.7	41.7	100.0	V	48.1	-6.4	12.3	54
1994.000000	34.8	34.8	100.0	V	38.4	-3.6	19.2	54
2505.750000	46.4	46.4	100.0	V	47.3	-0.9	7.6	54
2696.750000	37.4	37.4	100.0	V	38.2	-0.8	16.6	54

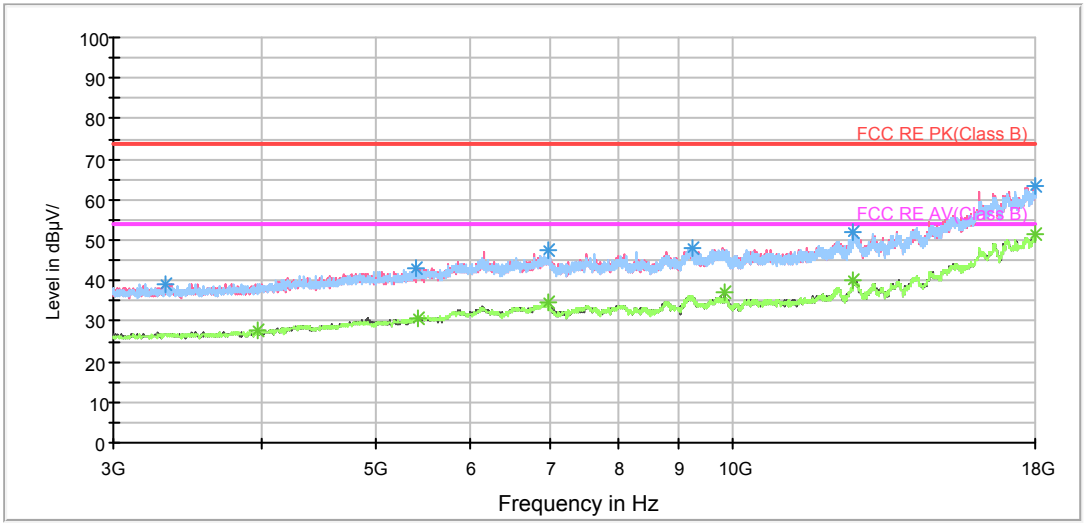
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



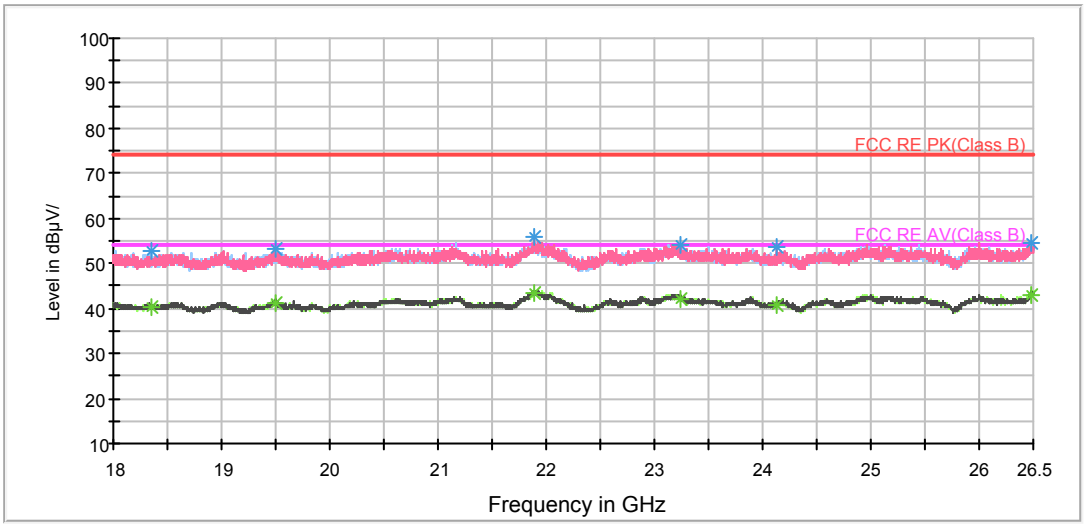
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT40) CH3

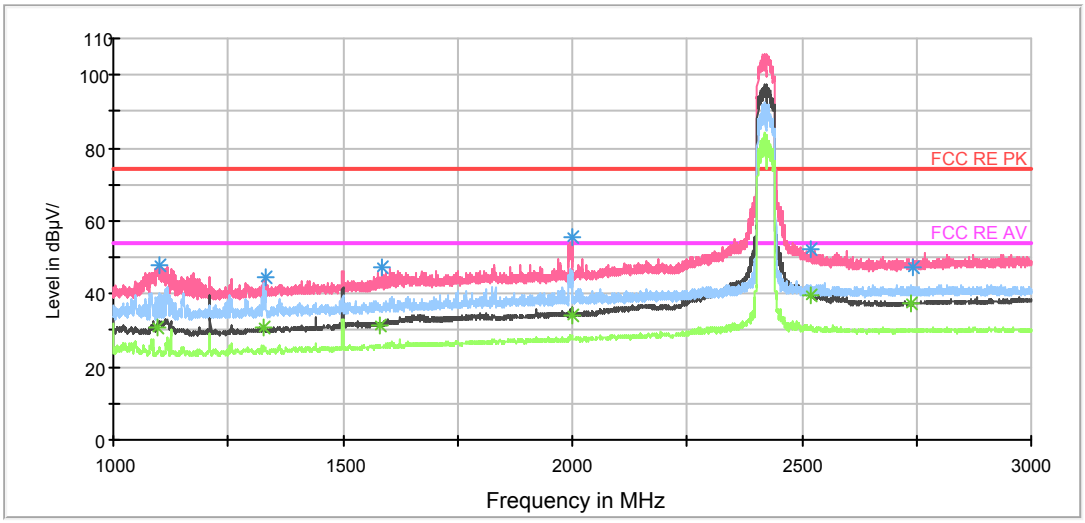
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1102.500000	48.0	100.0	V	0.0	56.7	-8.7	26.0	74
1329.750000	44.7	100.0	V	326.0	52.2	-7.5	29.3	74
1585.250000	47.2	100.0	V	276.0	53.1	-5.9	26.8	74
1998.000000	55.5	100.0	V	296.0	59.1	-3.6	18.5	74
2520.000000	52.2	100.0	V	246.0	53.1	-0.9	21.8	74
2741.250000	47.1	100.0	V	0.0	47.7	-0.6	26.9	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1097.250000	30.9	100.0	V	0.0	39.7	-8.8	23.1	54
1325.750000	30.9	100.0	V	326.0	38.4	-7.5	23.1	54
1582.250000	31.5	100.0	V	202.0	37.5	-6.0	22.5	54
1998.250000	34.4	100.0	V	296.0	38.0	-3.6	19.6	54
2518.750000	39.6	100.0	V	0.0	40.5	-0.9	14.4	54
2739.500000	37.3	100.0	V	276.0	37.9	-0.6	16.7	54

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

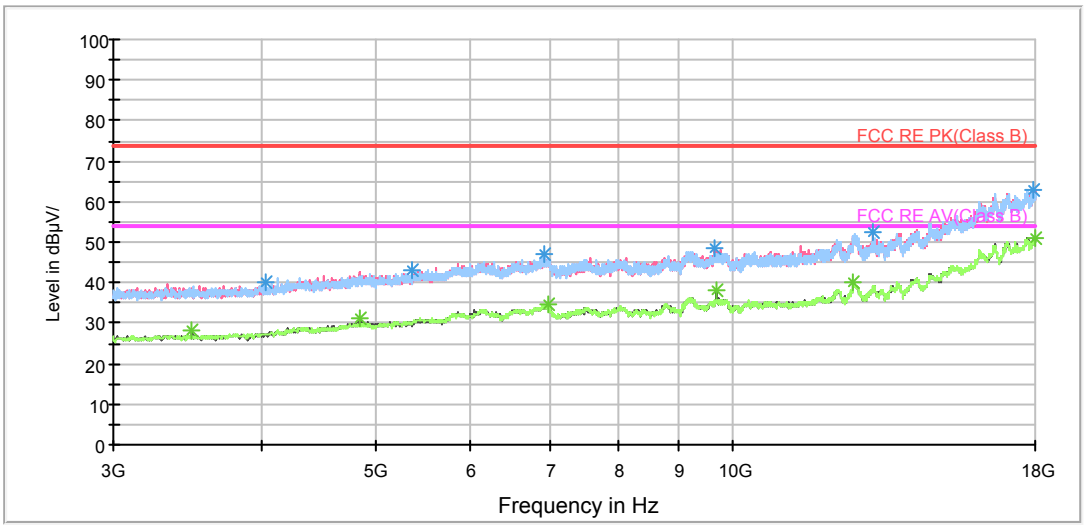
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

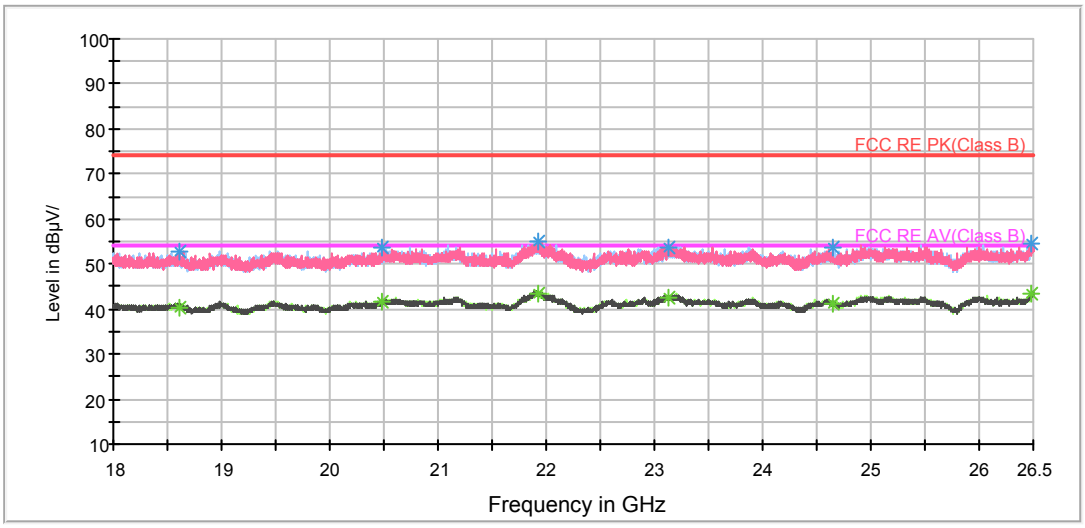
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT40) CH6

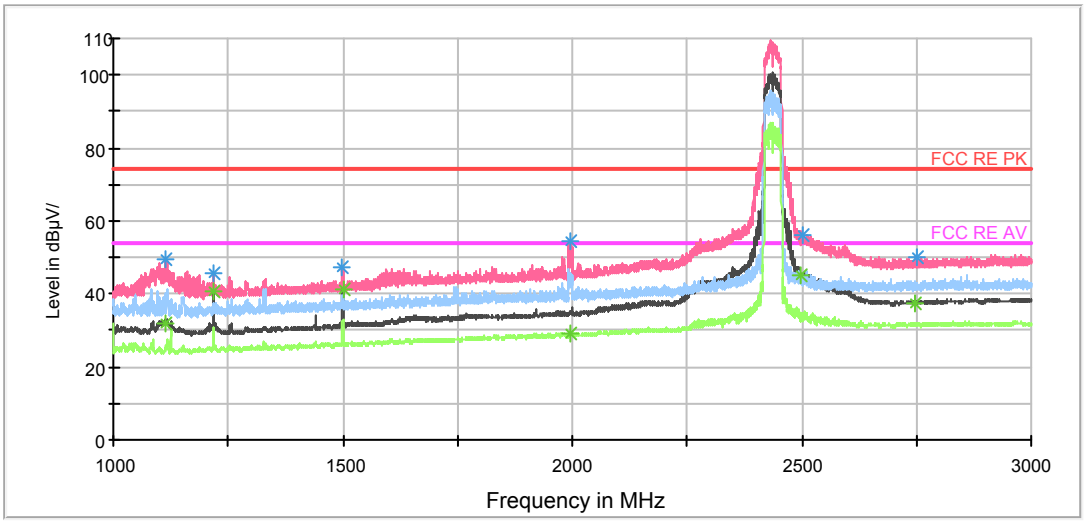
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1114.750000	49.3	100.0	V	0.0	57.9	-8.6	24.7	74
1218.250000	45.4	100.0	V	0.0	53.5	-8.1	28.6	74
1499.500000	47.4	100.0	V	0.0	53.8	-6.4	26.6	74
1993.750000	54.6	100.0	V	294.0	58.2	-3.6	19.4	74
2500.000000	56.1	100.0	V	246.0	57.0	-0.9	17.9	74
2753.250000	50.3	100.0	V	0.0	50.9	-0.6	23.7	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1112.250000	32.1	100.0	V	0.0	40.7	-8.6	21.9	54
1218.500000	40.9	100.0	V	353.0	49.0	-8.1	13.1	54
1500.000000	41.3	100.0	V	0.0	47.7	-6.4	12.7	54
1993.750000	29.1	100.0	H	156.0	32.7	-3.6	24.9	54
2499.750000	44.9	100.0	V	246.0	45.8	-0.9	9.1	54
2746.500000	37.4	100.0	V	215.0	38.0	-0.6	16.6	54

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

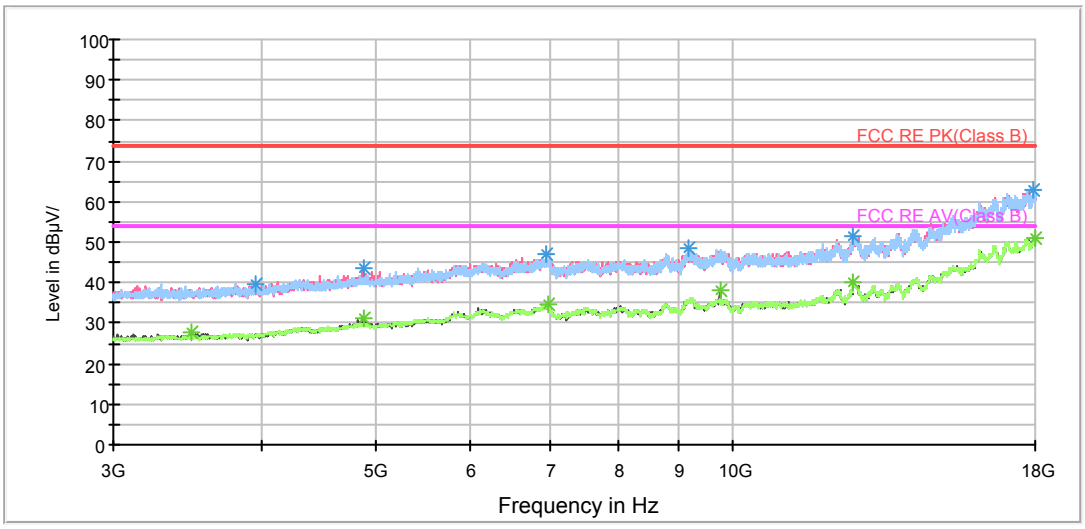
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

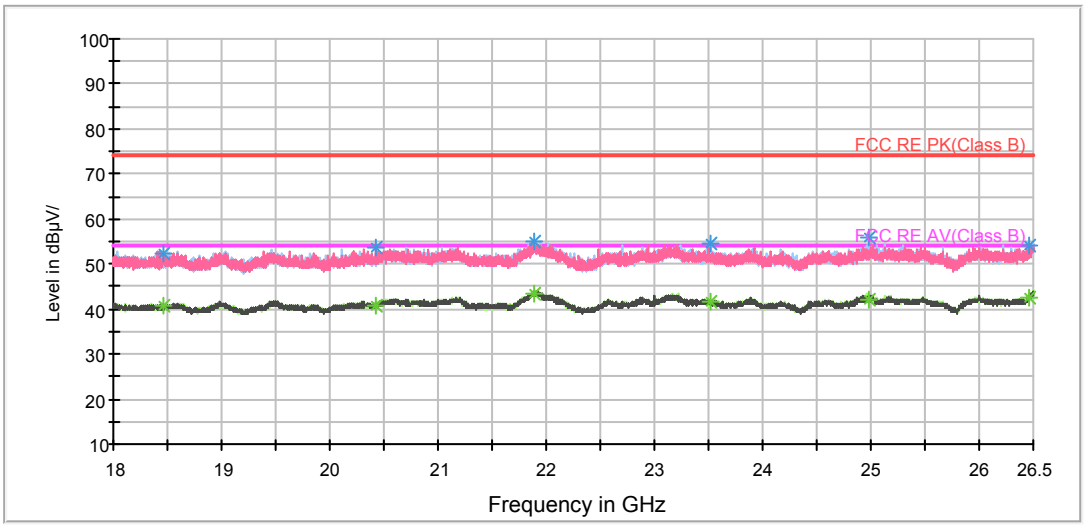
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

802.11n (HT40) CH9

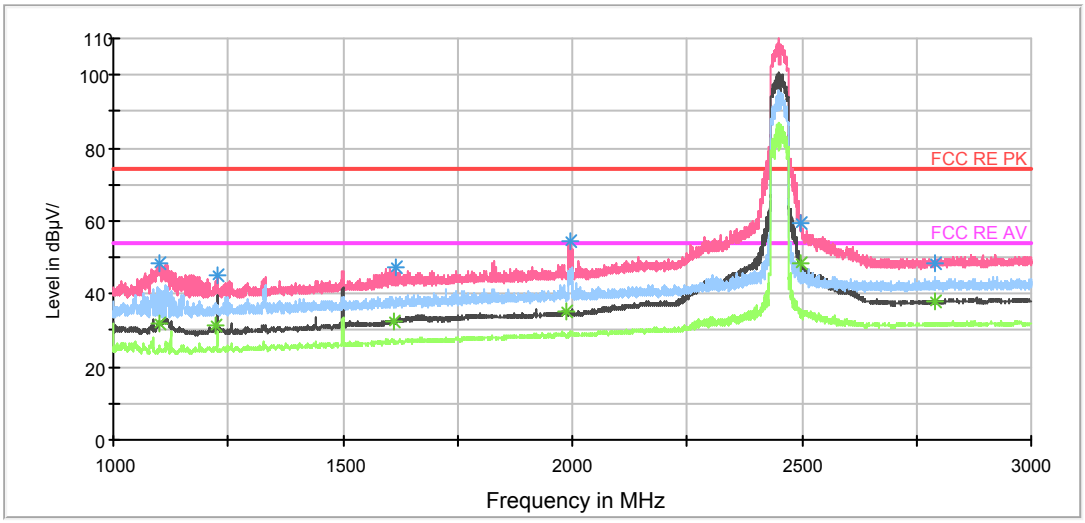
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1101.750000	48.6	100.0	V	0.0	57.3	-8.7	25.4	74
1226.250000	45.2	100.0	V	206.0	53.3	-8.1	28.8	74
1615.250000	47.0	100.0	V	358.0	52.7	-5.7	27.0	74
1993.500000	54.4	100.0	V	302.0	58.0	-3.6	19.6	74
2498.750000	59.5	100.0	V	246.0	60.4	-0.9	14.5	74
2790.500000	48.6	100.0	V	0.0	49.1	-0.5	25.4	74

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

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1099.250000	32.0	100.0	V	0.0	40.8	-8.8	22.0	54
1223.000000	31.1	100.0	V	236.0	39.2	-8.1	22.9	54
1610.750000	32.3	100.0	V	184.0	38.1	-5.8	21.7	54
1989.000000	35.1	100.0	V	195.0	38.7	-3.6	18.9	54
2497.750000	48.6	100.0	V	246.0	49.5	-0.9	5.4	54
2789.500000	37.9	100.0	V	216.0	38.4	-0.5	16.1	54

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

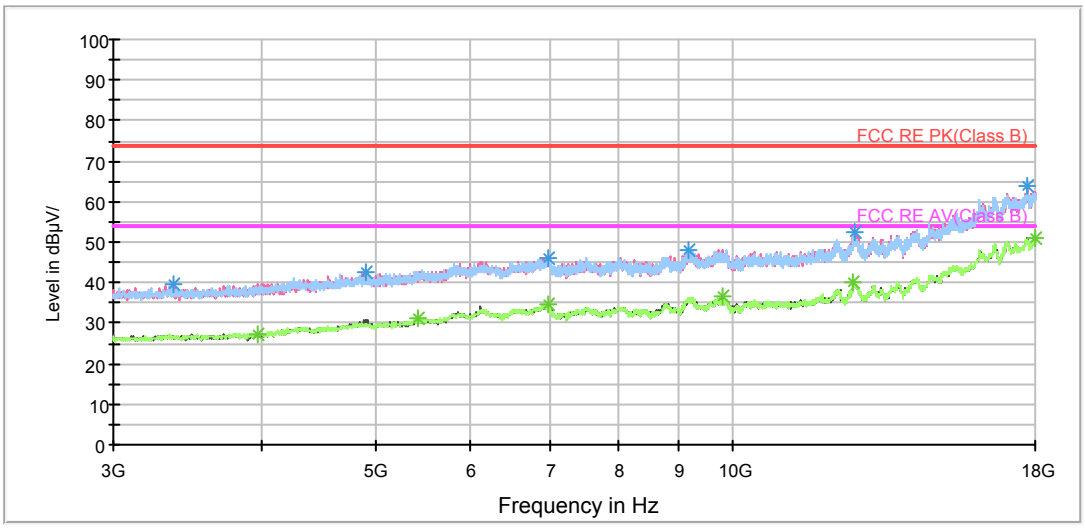
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

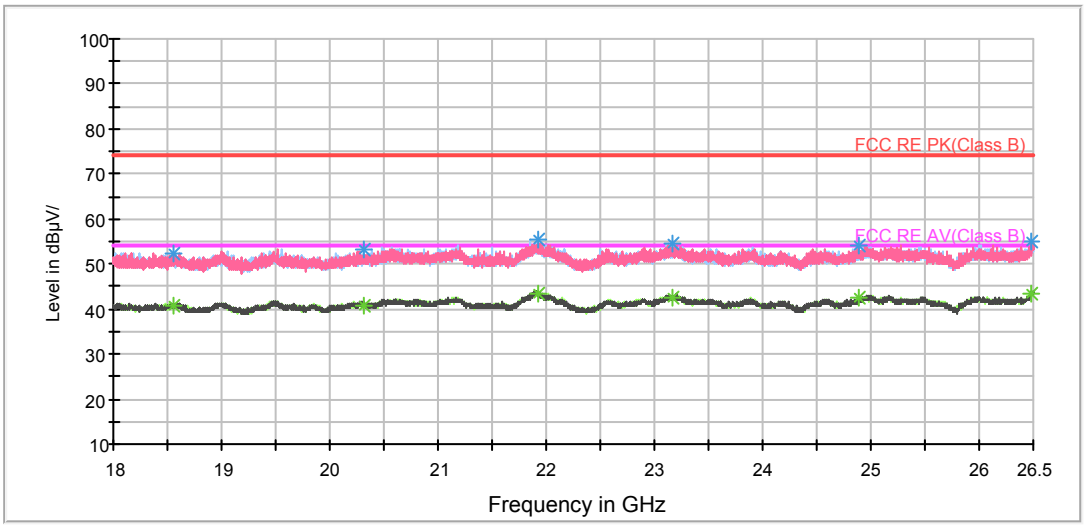
Radiates Emission from 1GHz to 3GHz

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

5.8. Conducted Emission

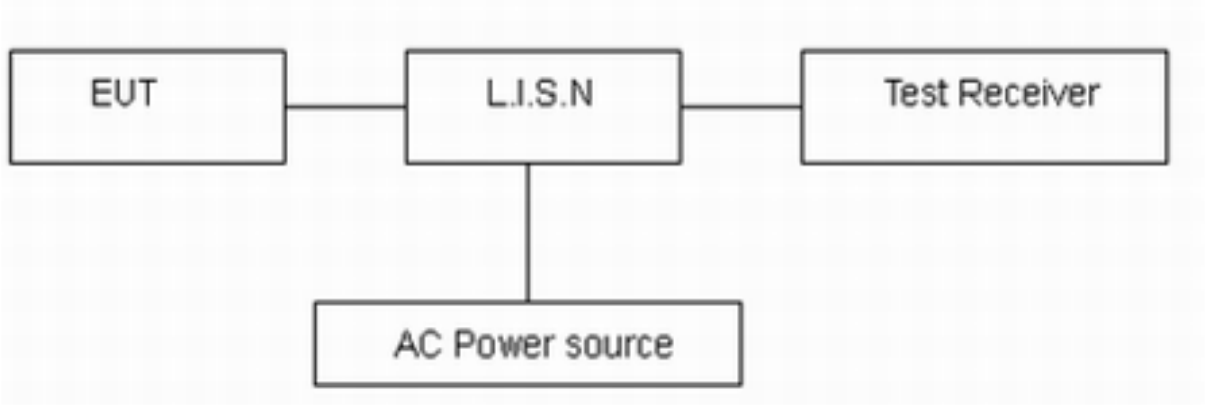
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.
The test is in transmitting mode.

Test Setup



Note: AC Power source is used to change the voltage 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

Measurement Uncertainty

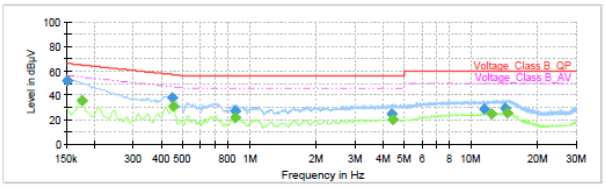
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U= 2.69 dB.

Test Results:

Following plots, Blue trace uses the peak detection and Green trace uses the average detection. During the test, the Conducted Emission was performed in all modes with all channels, 802.11b, Channel 11 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

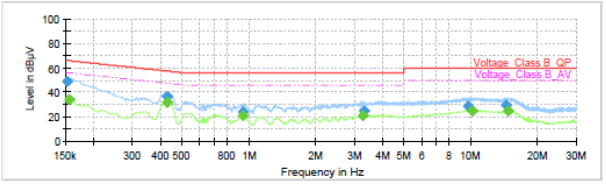
802.11b, Channel No.: 11

L Line



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	51.81	---	66.00	14.19	1000.0	9.000	L1	ON	19.1
0.174750	---	35.85	54.73	18.88	1000.0	9.000	L1	ON	19.2
0.447000	37.67	---	56.93	19.26	1000.0	9.000	L1	ON	19.2
0.451500	---	31.12	46.85	15.73	1000.0	9.000	L1	ON	19.2
0.858750	27.46	---	56.00	28.54	1000.0	9.000	L1	ON	19.2
0.861000	---	21.64	46.00	24.36	1000.0	9.000	L1	ON	19.2
4.391250	24.67	---	56.00	31.33	1000.0	9.000	L1	ON	19.1
4.431750	---	19.95	46.00	26.05	1000.0	9.000	L1	ON	19.1
11.447250	28.68	---	60.00	31.32	1000.0	9.000	L1	ON	19.4
12.358500	---	24.51	50.00	25.49	1000.0	9.000	L1	ON	19.4
14.298000	29.77	---	60.00	30.23	1000.0	9.000	L1	ON	19.5
14.640000	---	25.28	50.00	24.72	1000.0	9.000	L1	ON	19.5

N Line



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.152250	48.62	---	65.88	17.26	1000.0	9.000	N	ON	19.1
0.154500	---	33.95	55.75	21.81	1000.0	9.000	N	ON	19.1
0.429000	---	31.95	47.27	15.32	1000.0	9.000	N	ON	19.2
0.429000	36.10	---	57.27	21.17	1000.0	9.000	N	ON	19.2
0.935250	---	20.56	46.00	25.44	1000.0	9.000	N	ON	19.2
0.942000	24.20	---	56.00	31.80	1000.0	9.000	N	ON	19.2
3.257250	---	20.61	46.00	25.39	1000.0	9.000	N	ON	19.1
3.304500	24.80	---	56.00	31.20	1000.0	9.000	N	ON	19.1
9.717000	28.85	---	60.00	31.15	1000.0	9.000	N	ON	19.4
10.160250	---	24.62	50.00	25.38	1000.0	9.000	N	ON	19.4
14.433000	29.26	---	60.00	30.74	1000.0	9.000	N	ON	19.5
14.750250	---	24.98	50.00	25.02	1000.0	9.000	N	ON	19.5

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
BT Base Station Simulator	R&S	CBT	100271	2017-05-14	2018-05-13
Spectrum Analyzer	R&S	FSV30	100815	2016-12-16	2017-12-15
EMI Test Receiver	R&S	ESCI	100948	2017-05-20	2018-05-19
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-201	2014-12-06	2017-12-05
Double Ridged Waveguide Horn Antenna	R&S	HF907	100126	2014-12-06	2017-12-05
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-02-18	2020-02-17
Standard Gain Horn	ETS-Lindgren	3160-09	00102644	2015-01-30	2018-01-29
EMI Test Receiver	R&S	ESCS30	100138	2016-12-16	2017-12-15
LISN	R&S	ENV216	101171	2016-12-16	2019-12-15
Spectrum Analyzer	Agilent	N9010A	MY47191109	2017-05-20	2018-05-19
RF Cable	Agilent	SMA 15cm	0001	2017-08-04	2018-02-03

*******END OF REPORT *******

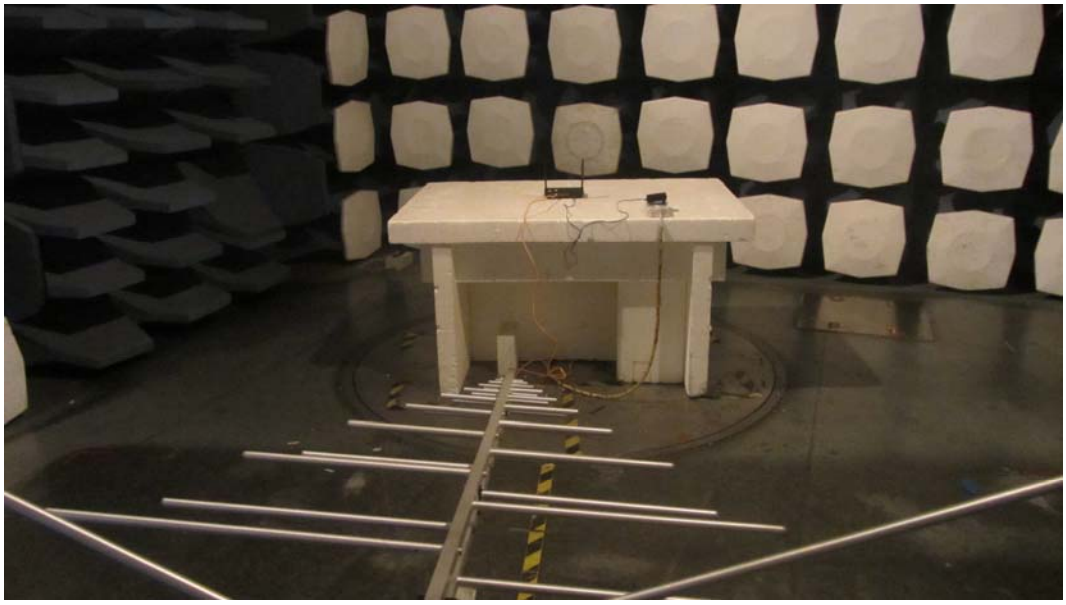
ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance

Picture 1-1: EUT

Picture 1 EUT and Accessory

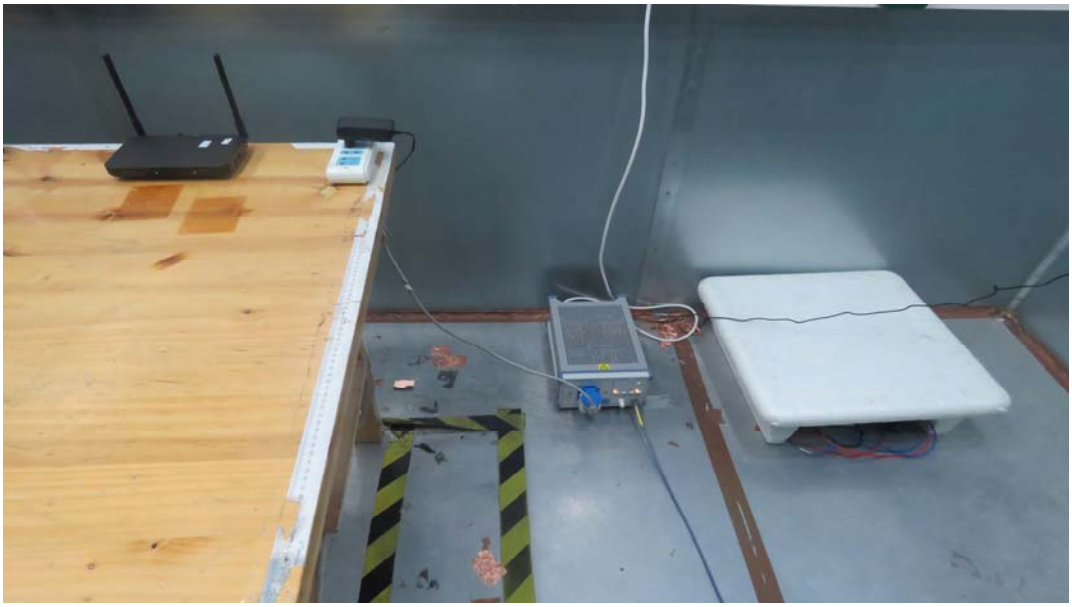
A.2 Test Setup



30M Hz-1GHz

Above 1GHz

Picture 2 Radiated Emission Test Setup



Picture 3 Conducted Emission Test Setup