

ANNEX A: Test Result

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 lie-down position (X axis) and the loop antenna is coplanar, the others are vertical and horizontal. and the worst case was recorded.

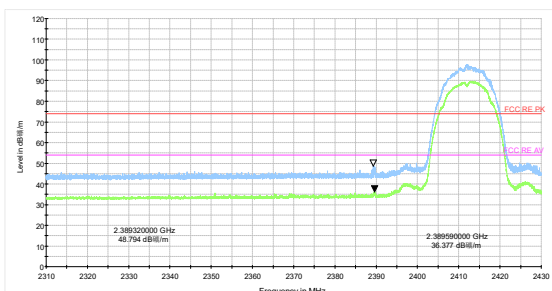
1. Unwanted Emission

1.1. Wi-Fi 2.4GHz

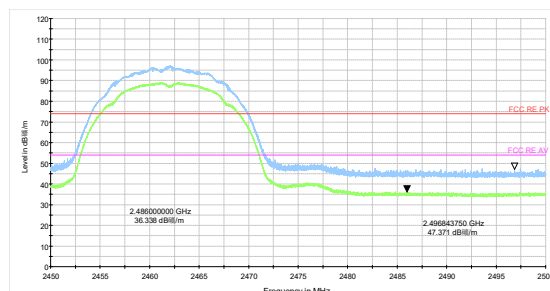
The following graphs display the maximum values of horizontal and vertical by software.
Blue trace uses the peak detection, Green trace uses the average detection.

A symbol ($\text{dB}\mu\text{V/m}$) in the test plot below means ($\text{dB}\mu\text{V/m}$)

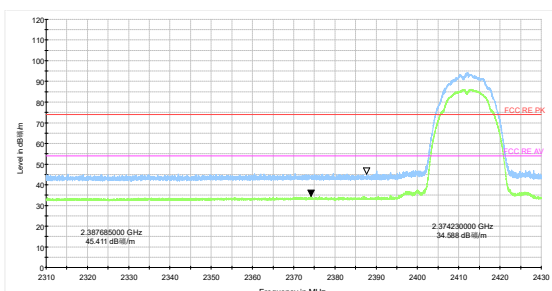
The signal beyond the limit is carrier.



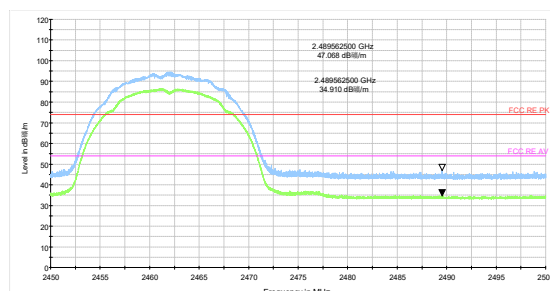
802.11b-Channel 1 Peak+ Average



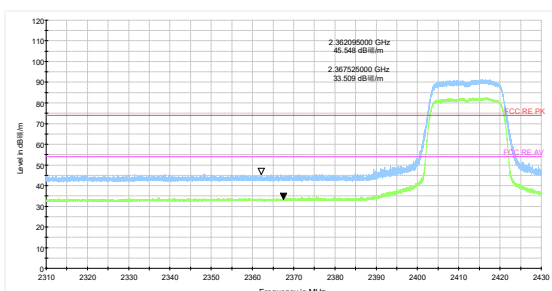
802.11b-Channel 11 Peak+ Average



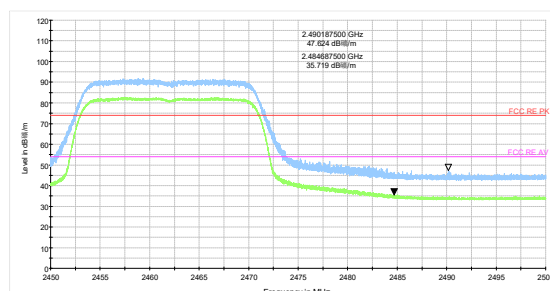
802.11g-Channel 1 Peak+ Average



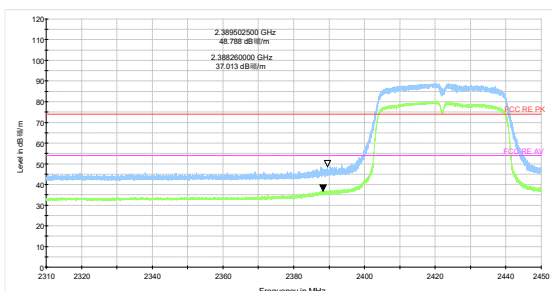
802.11g-Channel 11 Peak+ Average



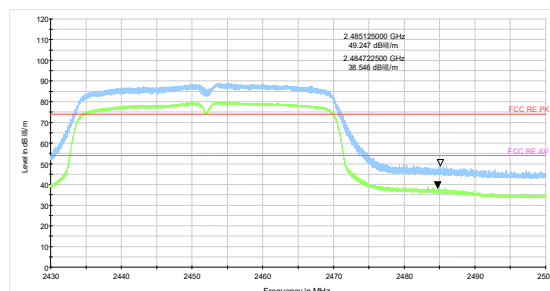
802.11n HT20-Channel 1 Peak+ Average



802.11n HT20-Channel 11 Peak+ Average



802.11n HT40-Channel 3 Peak+ Average



802.11n HT40-Channel 9 Peak+ Average

Result of RE

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier.

The Radiates Emission from 9kHz to 30MHz and 18GHz to 26.5GHz are more than 20dB below the limit are not reported.

Remark:

1. **Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)**
2. **Margin = Limit – Quasi-Peak/ MAX Peak/ Average**
3. **A symbol (dB μ V/m) in the test plot below means (dB μ V/m)**
4. **The following graphs display the maximum values of coaxial and coplanar for 9k-30MHz; horizontal and vertical for above 30MHz by software.**
5. **For below 1GHz**

 QP Level @Spectrum Overview H
  QP Level @Spectrum Overview V
  QP Level @Final Results
  QP Limit

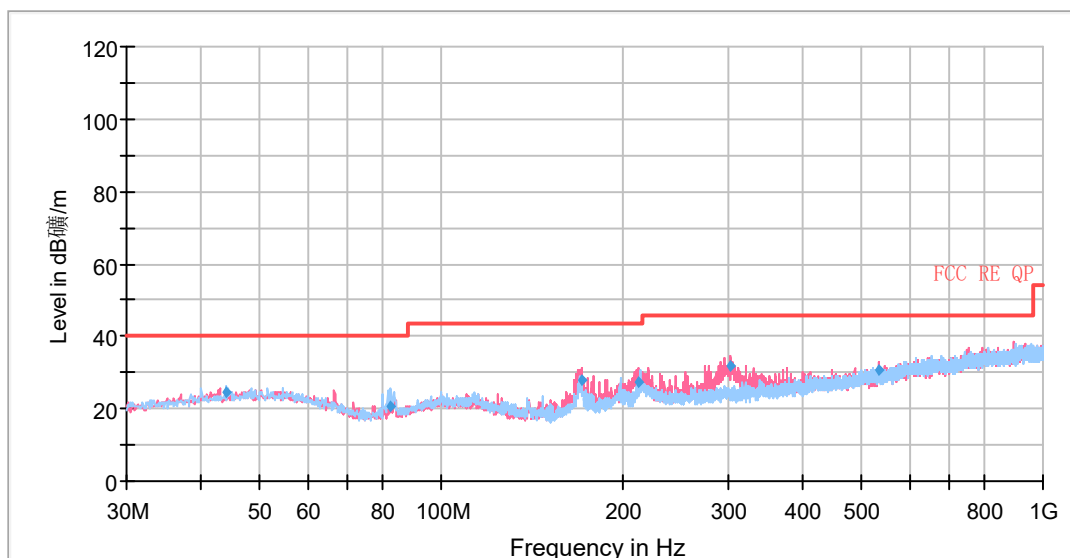
For above 1GHz

 PK Level @Spectrum Overview H
  PK Level @Spectrum Overview V
  PK Level @Final Results
  PK Limit

 AVG Level @Spectrum Overview H
  AVG Level @Spectrum Overview V
  AVG Level @Final Results
  AVG Limit

Continuous TX mode:

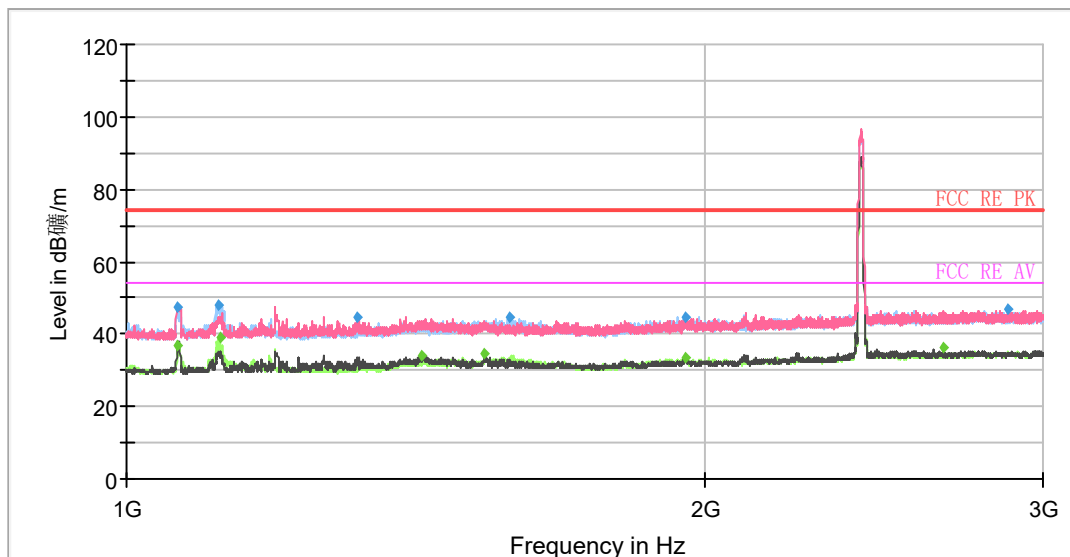
During the test, the Radiates Emission from 9kHz to 1GHz was performed in all modes with all channels, the test data of the worst-case condition (802.11 n 20MHz) was recorded in this report.



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
43.94	24.31	40.00	15.69	1000.00	120.000	100.0	H
82.62	20.85	40.00	19.15	1000.00	120.000	100.0	H
171.26	28.15	43.50	15.35	1000.00	120.000	100.0	V
213.33	27.13	43.50	16.37	1000.00	120.000	100.0	V
302.09	31.76	46.00	14.24	1000.00	120.000	100.0	V
532.10	30.60	46.00	15.40	1000.00	120.000	100.0	V

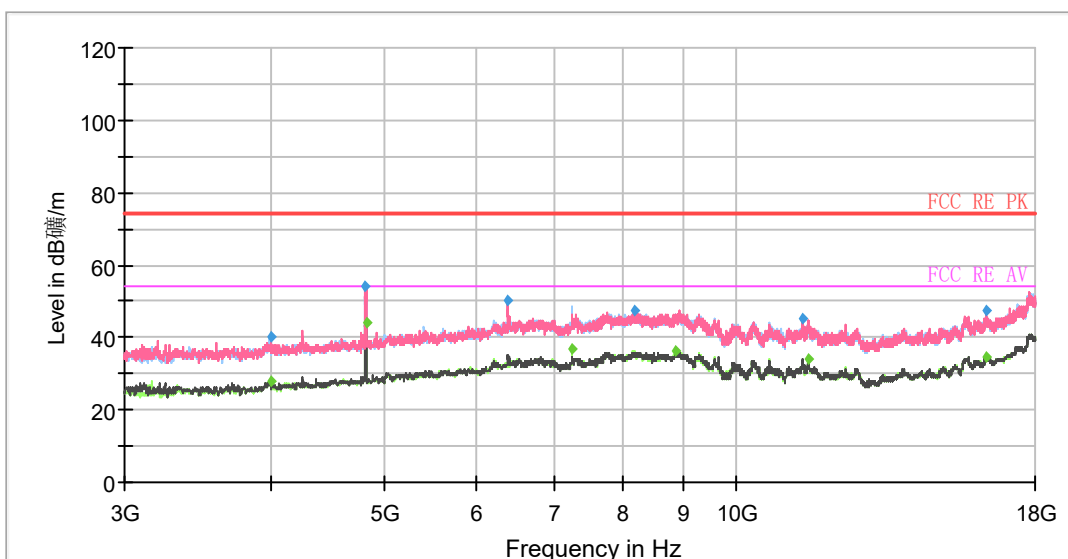
802.11b CH1



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

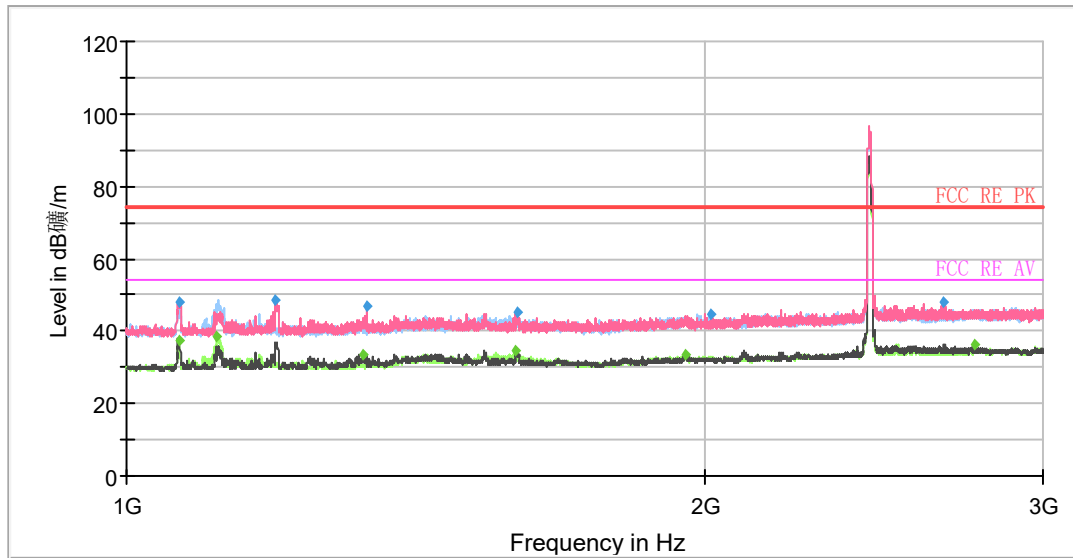
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1062.25	47.57	---	74.00	26.43	500.00	200.0	V	289.00	-12
1062.50	---	37.10	54.00	16.90	500.00	200.0	V	289.00	-12
1116.00	48.18	---	74.00	25.82	500.00	100.0	H	236.00	-12
1118.00	---	39.22	54.00	14.78	500.00	100.0	H	128.00	-12
1318.00	44.53	---	74.00	29.47	500.00	100.0	V	176.00	-11
1425.00	---	34.31	54.00	19.69	500.00	200.0	V	120.00	-11
1536.75	---	34.38	54.00	19.62	500.00	200.0	V	259.00	-11
1582.25	44.55	---	74.00	29.45	500.00	100.0	H	342.00	-11
1953.75	---	33.44	54.00	20.56	500.00	100.0	H	236.00	-8
1954.75	44.69	---	74.00	29.31	500.00	100.0	V	42.00	-8
2663.00	---	36.38	54.00	17.62	500.00	100.0	V	20.00	-5
2877.00	46.78	---	74.00	27.22	500.00	100.0	V	162.00	-5



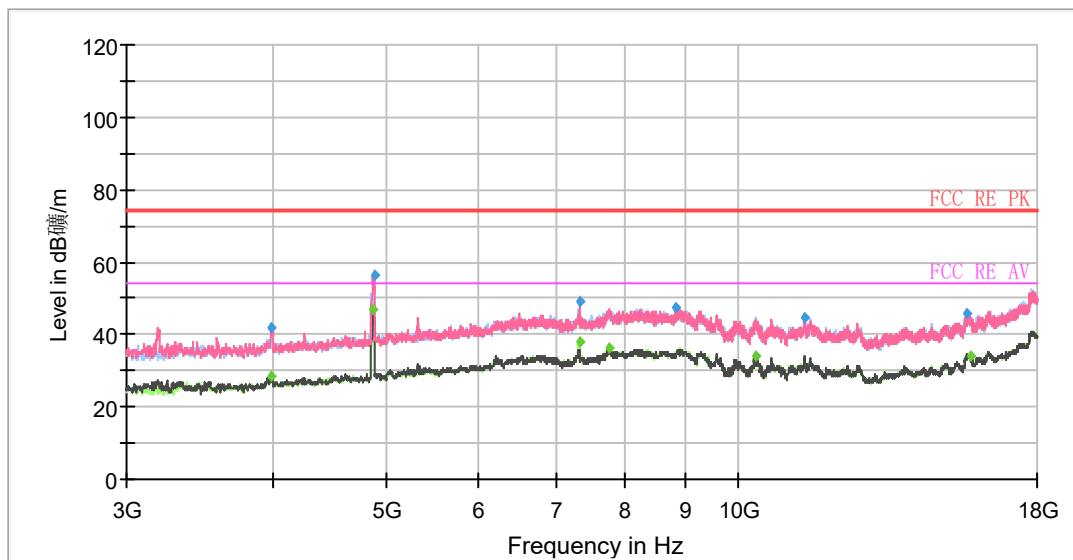
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3999.38	---	28.12	54.00	25.88	500.00	100.0	V	124.00	-11
3999.38	40.20	---	74.00	33.80	500.00	100.0	V	124.00	-11
4820.63	54.26	---	74.00	19.74	500.00	100.0	V	152.00	-10
4824.38	---	44.29	54.00	9.71	500.00	100.0	V	152.00	-10
6375.00	50.07	---	74.00	23.93	500.00	100.0	V	323.00	-4
7241.25	---	36.95	54.00	17.05	500.00	100.0	H	221.00	-1
8169.38	47.38	---	74.00	26.62	500.00	100.0	V	34.00	1
8861.25	---	36.20	54.00	17.80	500.00	100.0	H	205.00	1
11383.13	45.15	---	74.00	28.85	500.00	100.0	H	356.00	5
11503.13	---	34.31	54.00	19.69	500.00	100.0	V	7.00	6
16336.88	---	34.65	54.00	19.35	500.00	100.0	H	316.00	8
16351.88	47.24	---	74.00	26.76	500.00	100.0	V	354.00	8

802.11b CH6

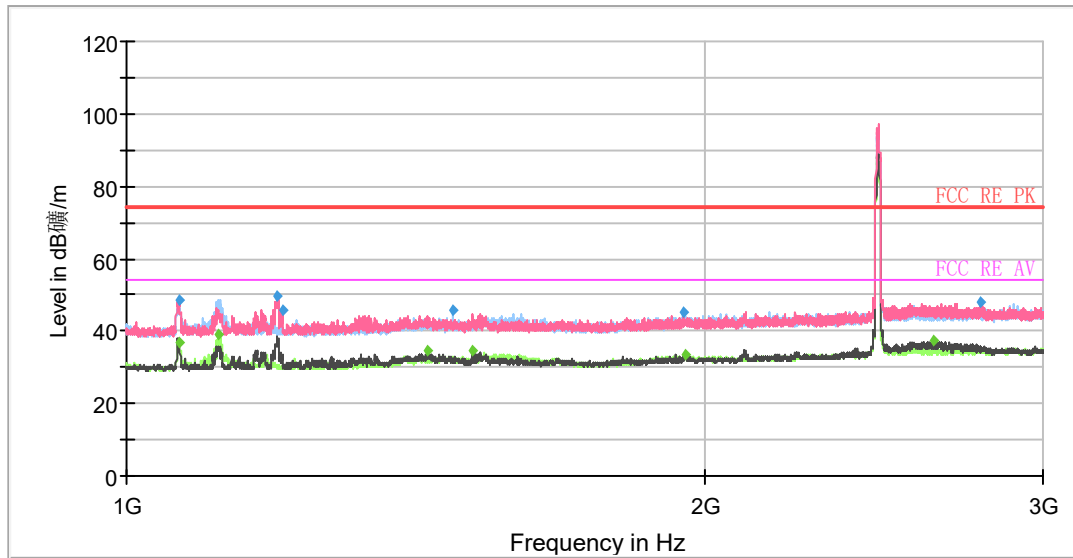


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

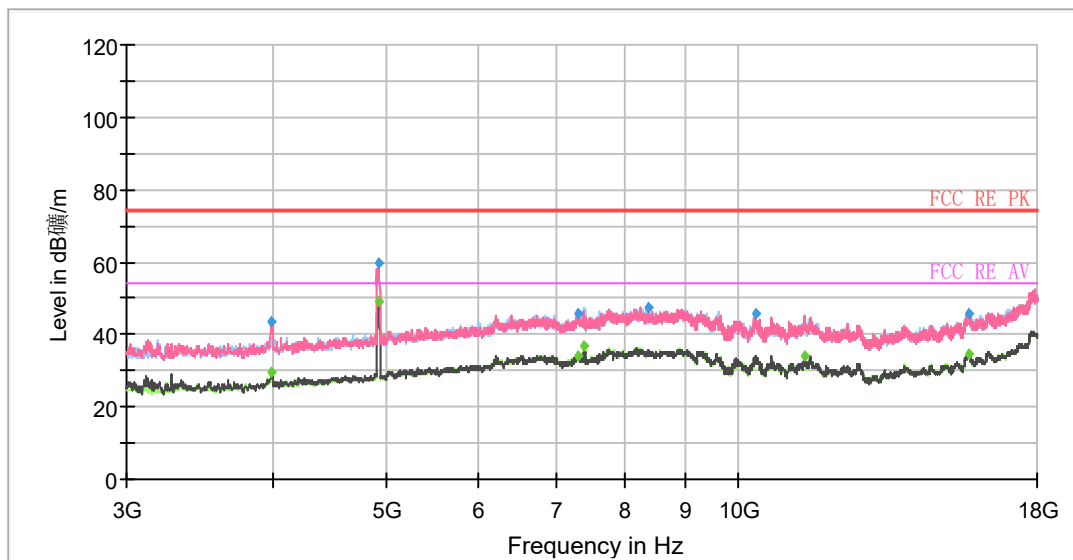


Radiates Emission from 3GHz to 18GHz

802.11b CH11

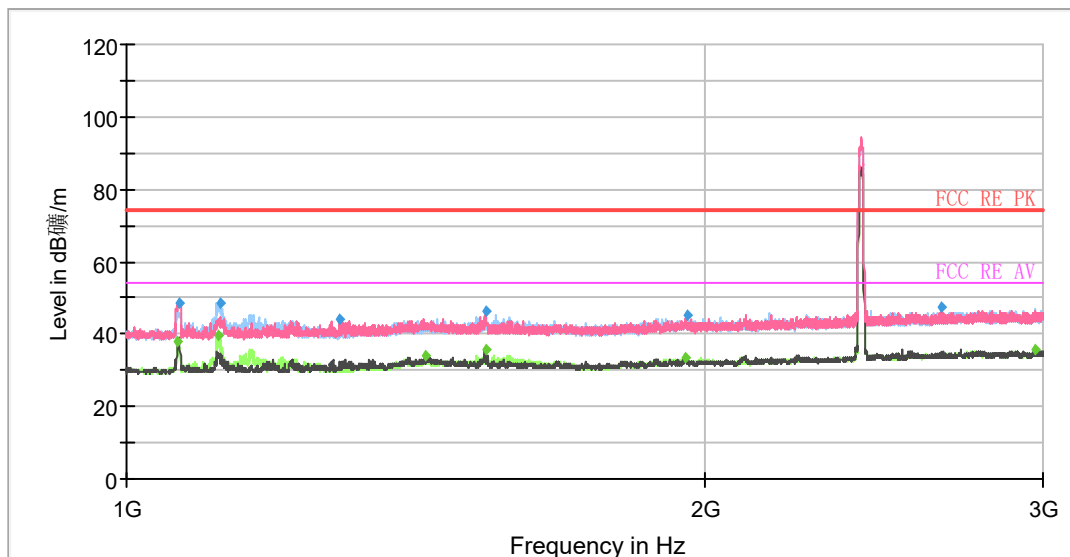


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz



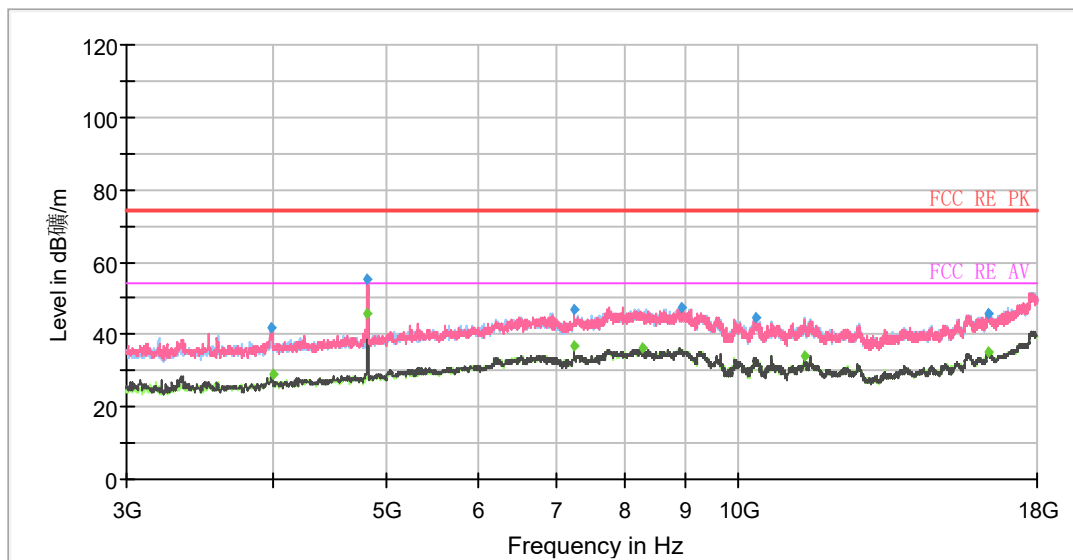
Radiates Emission from 3GHz to 18GHz

802.11g CH1



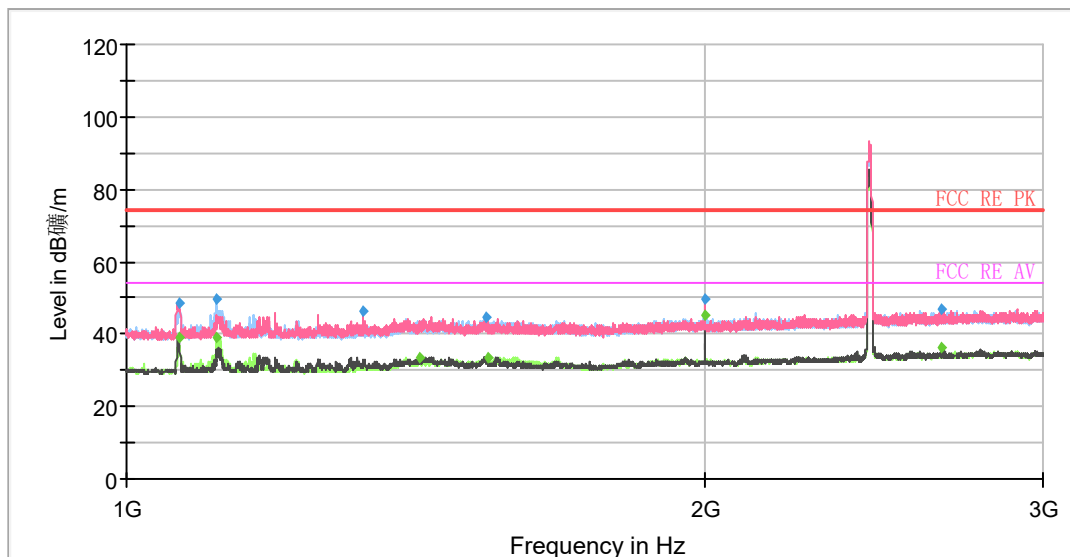
Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

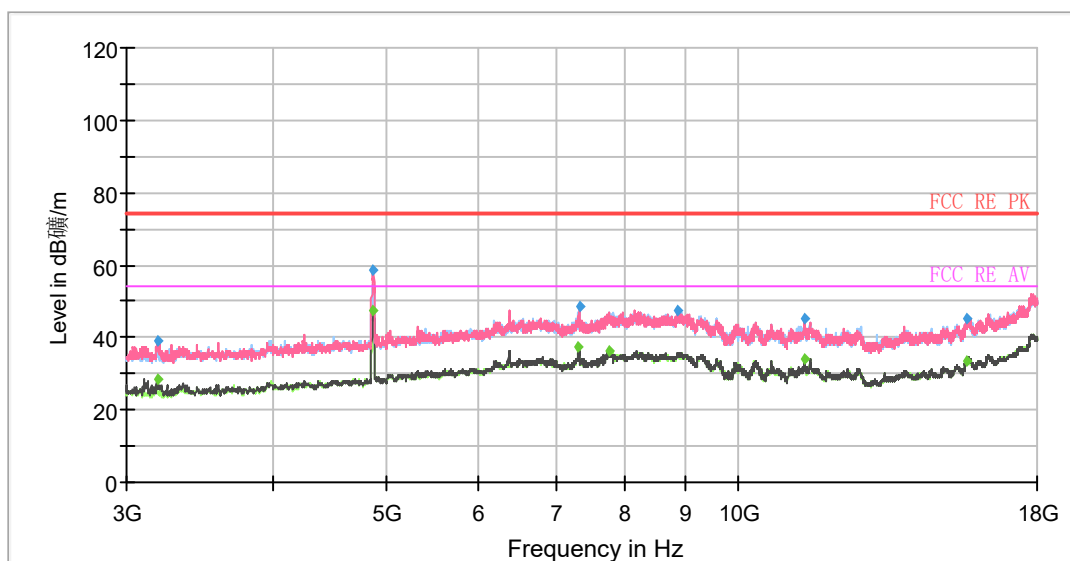


Radiates Emission from 3GHz to 18GHz

802.11g CH6

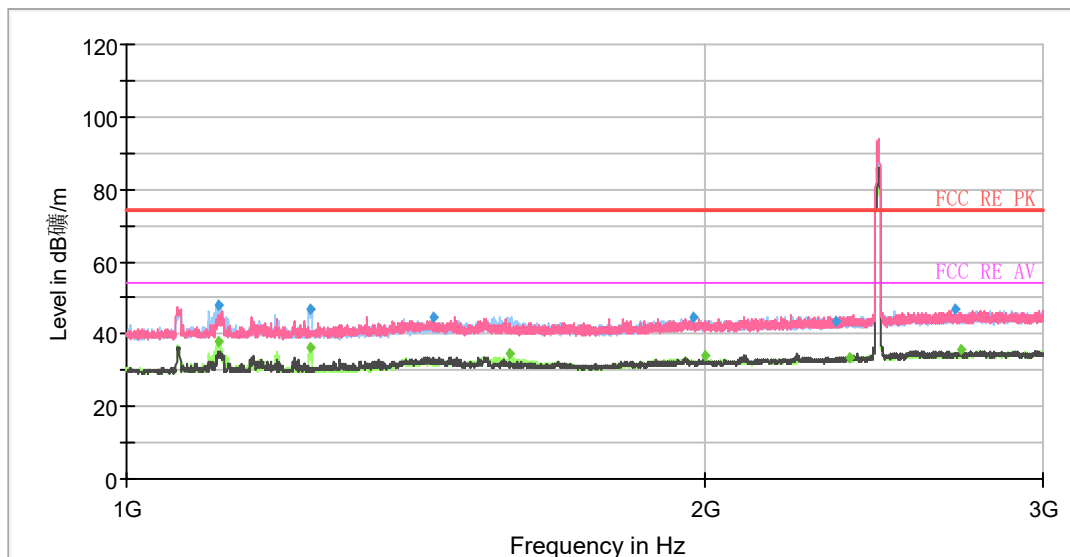


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

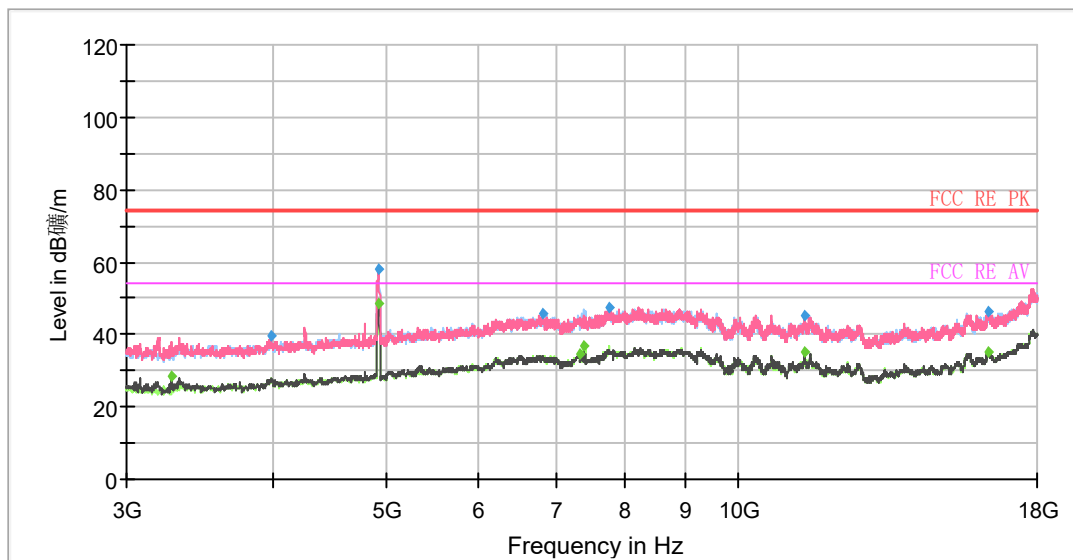


Radiates Emission from 3GHz to 18GHz

802.11g CH11

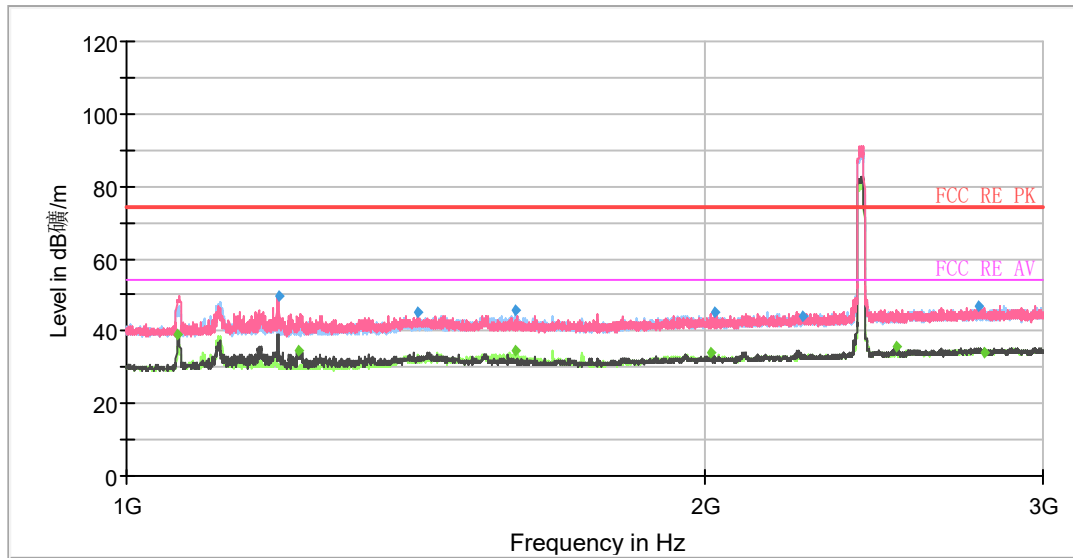


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

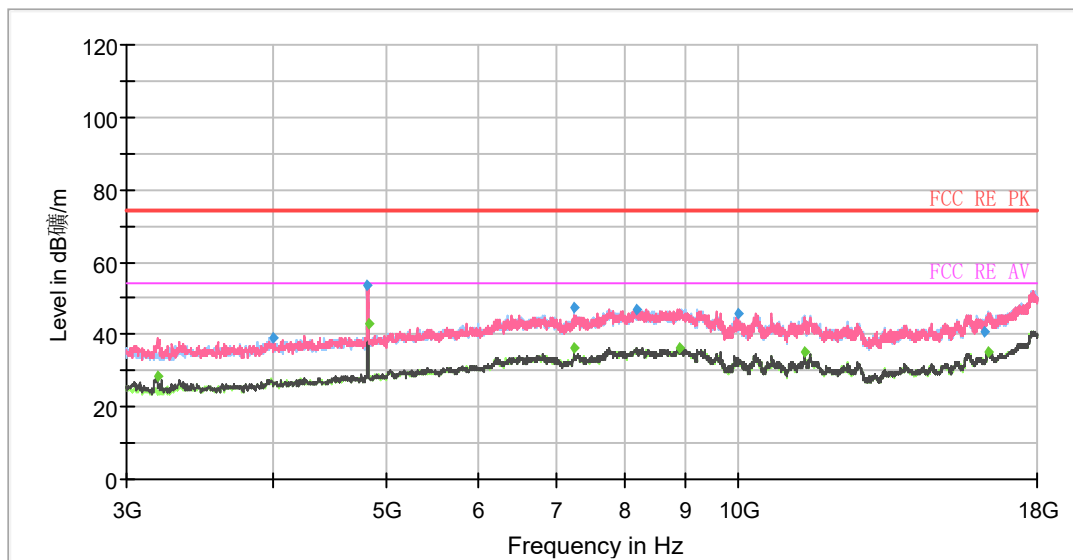


Radiates Emission from 3GHz to 18GHz

802.11n (HT20) CH1

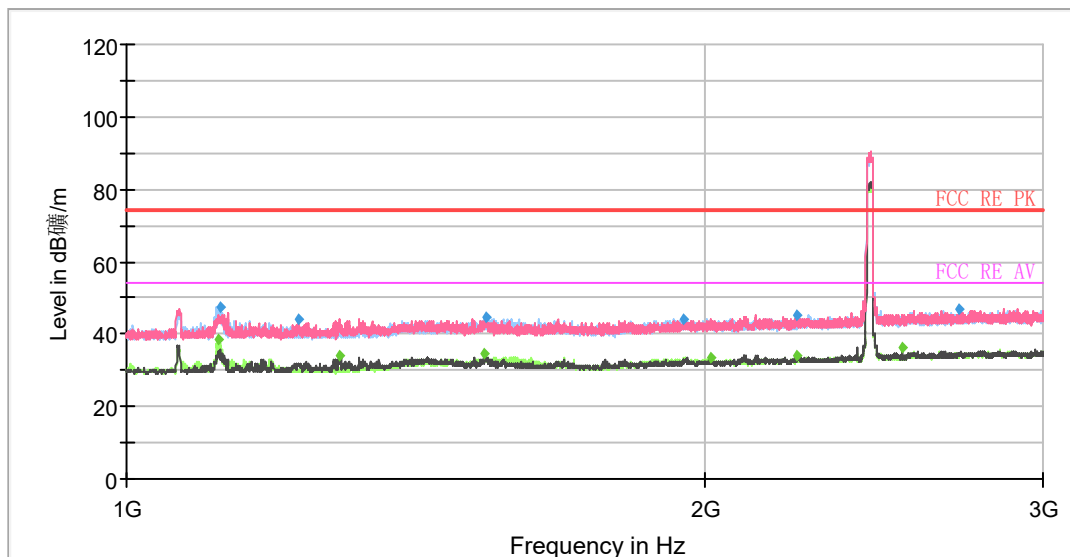


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

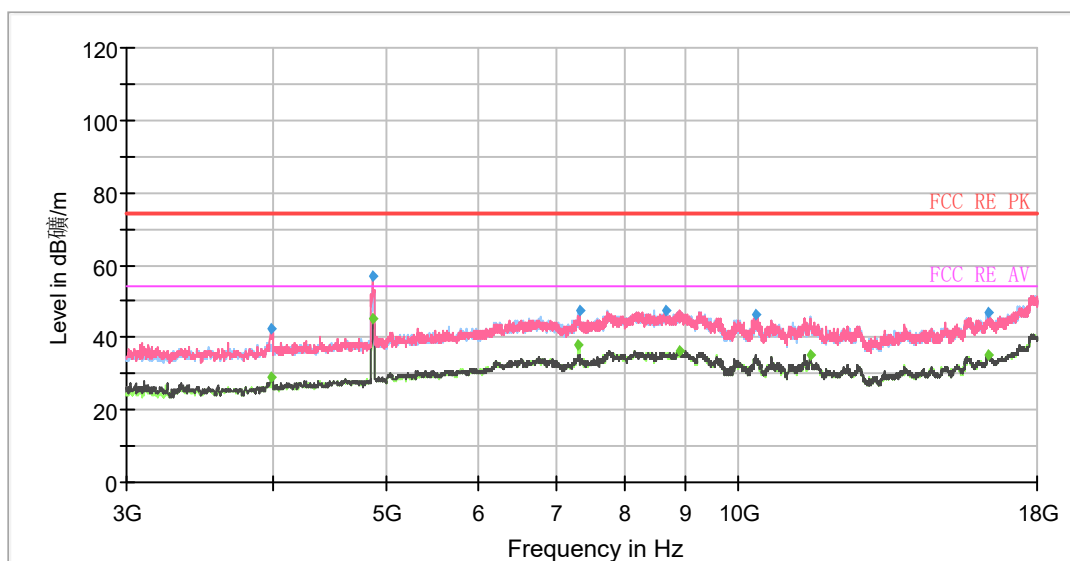


Radiates Emission from 3GHz to 18GHz

802.11n (HT20) CH6

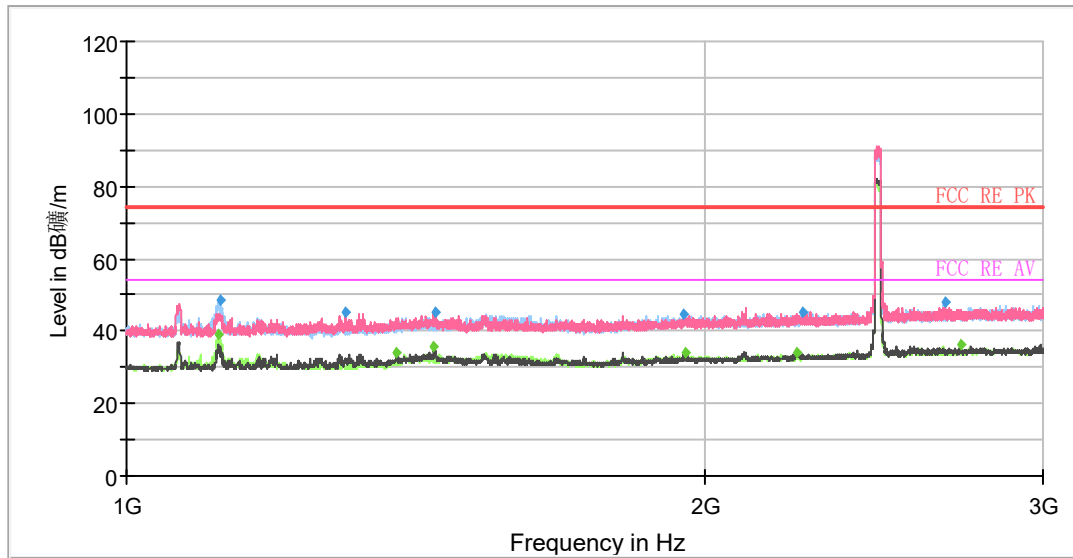


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz



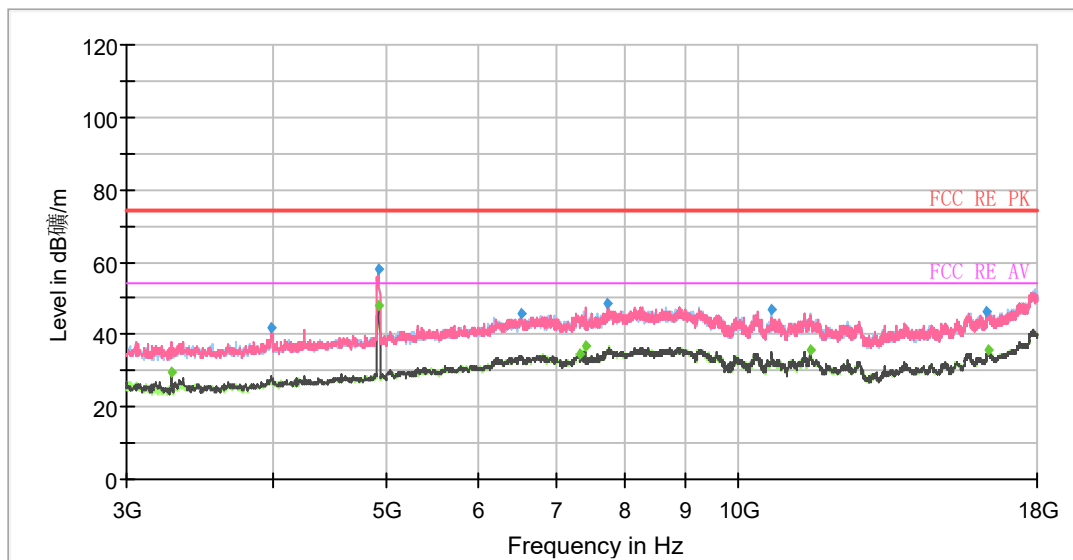
Radiates Emission from 3GHz to 18GHz

802.11n (HT20) CH11



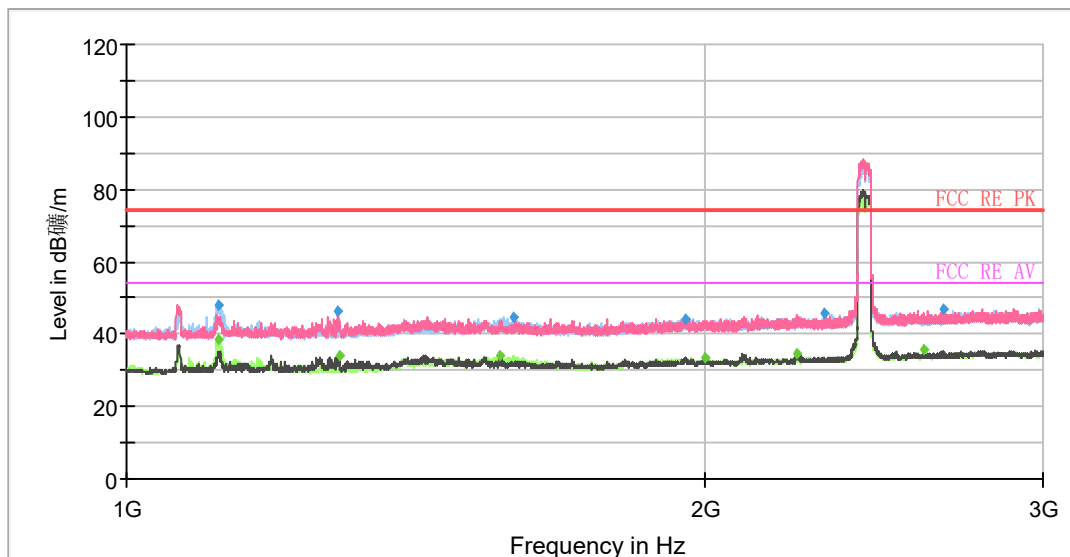
Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz



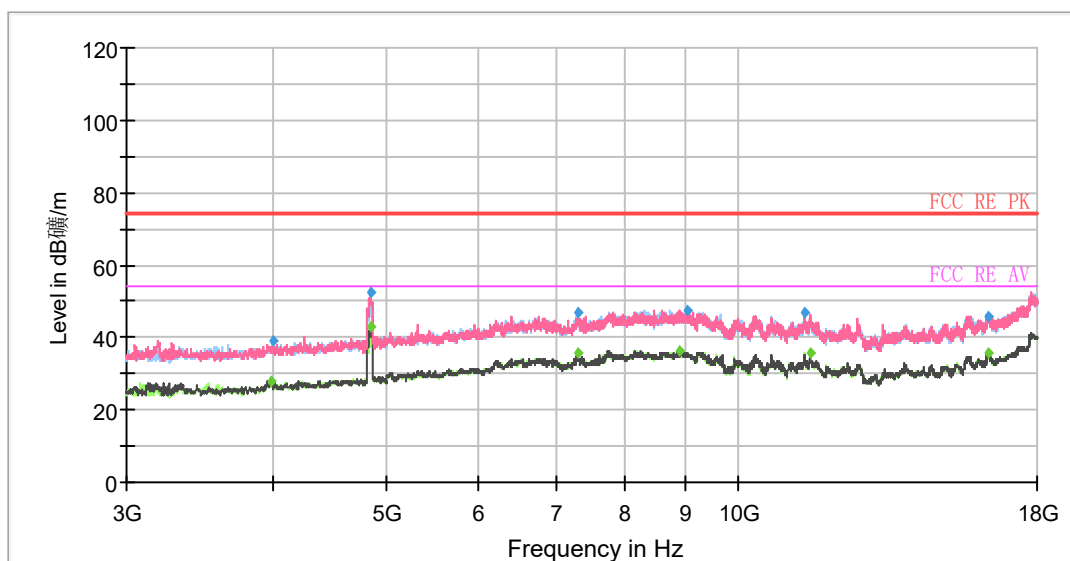
Radiates Emission from 3GHz to 18GHz

802.11n (HT40) CH3



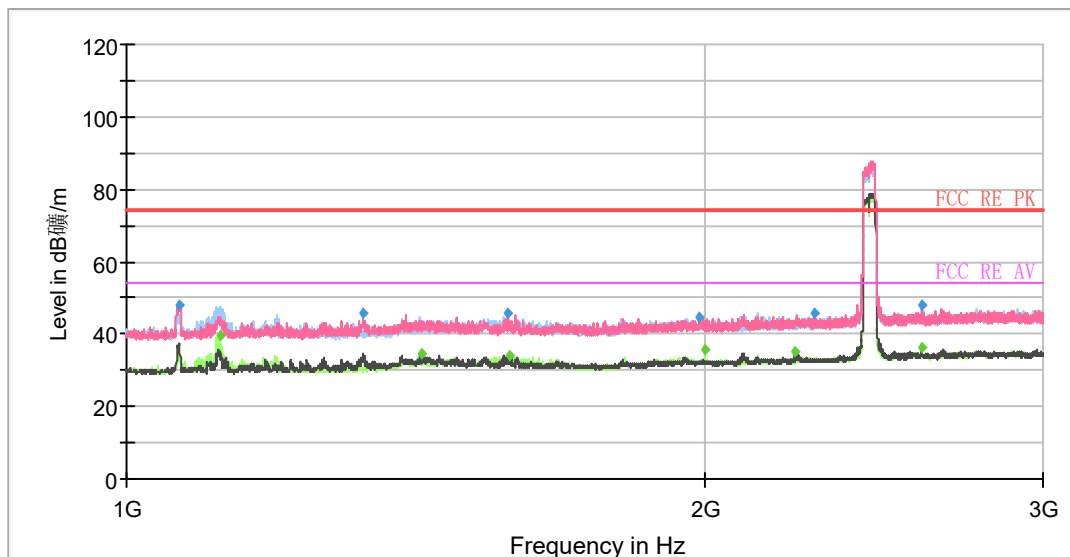
Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

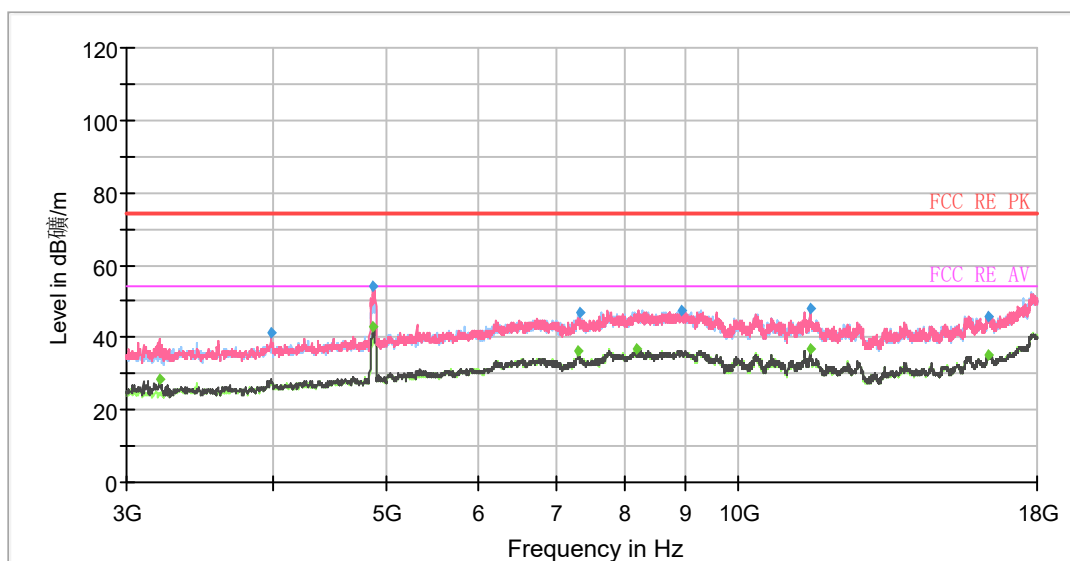


Radiates Emission from 3GHz to 18GHz

802.11n (HT40) CH6

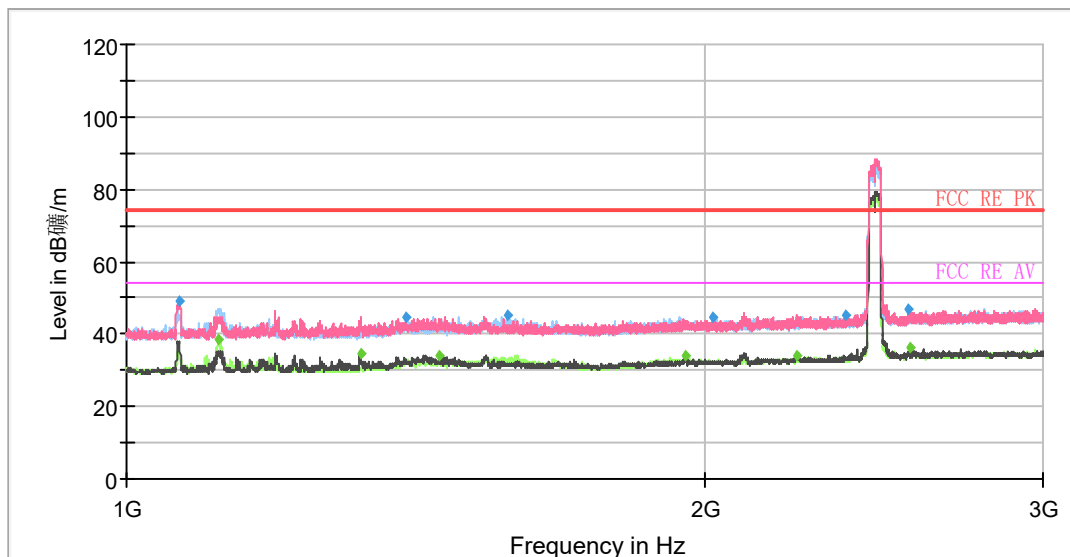


Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

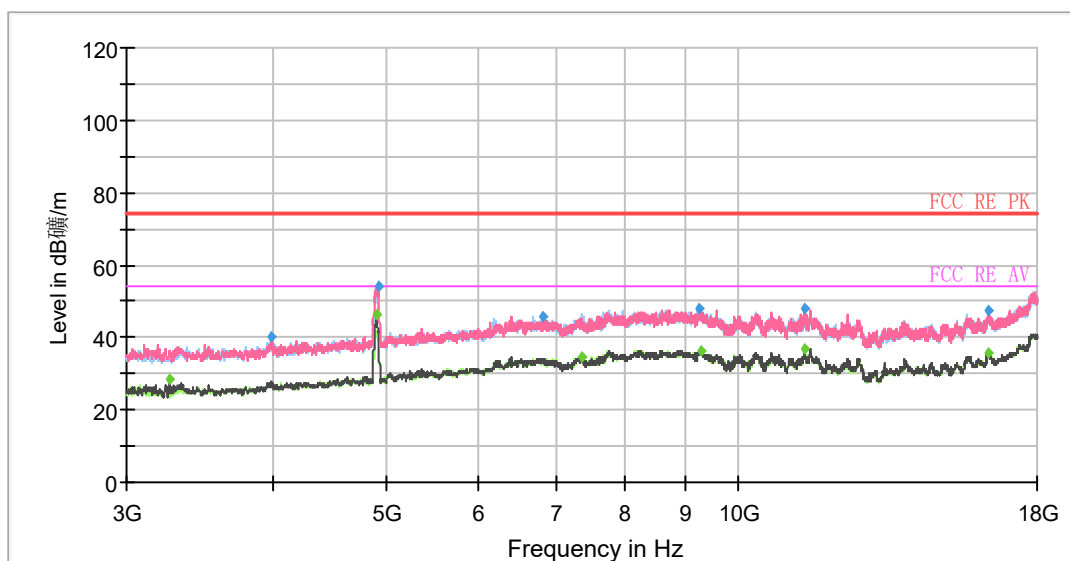


Radiates Emission from 3GHz to 18GHz

802.11n (HT40) CH9



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

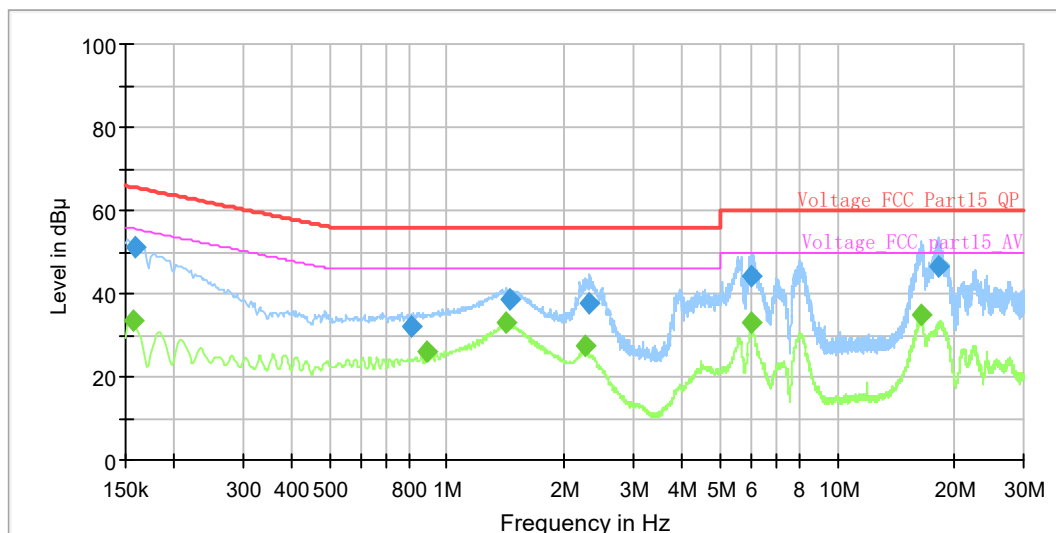


Radiates Emission from 3GHz to 18GHz

2. Conducted Emission

2.1. Wi-Fi 2.4GHz

During the test, the Conducted Emission was performed in all modes with all channel. The test data of the worst-case condition (802.11n 20MHz) was recorded in this report.

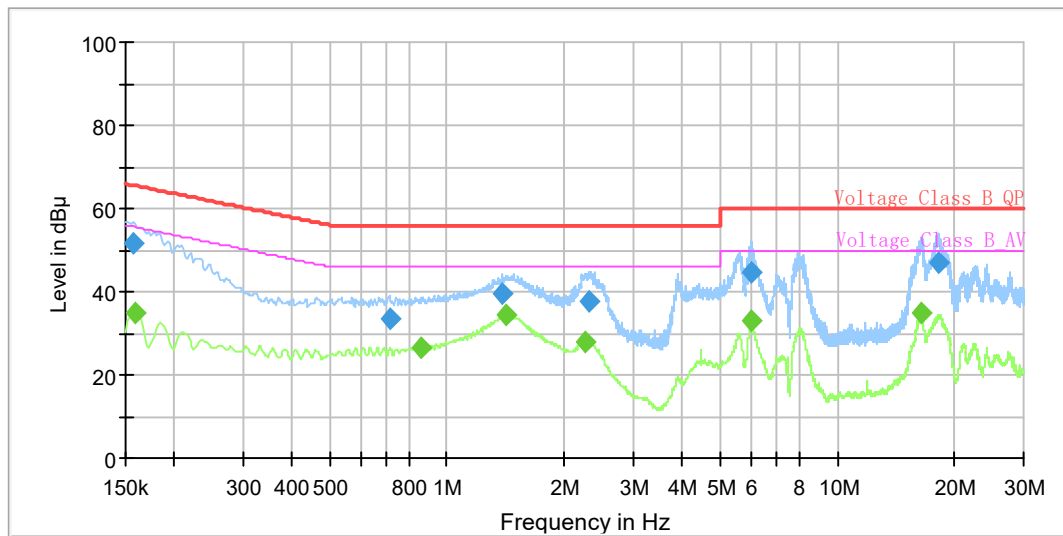


Final Result

Frequency (MHz)	QuasiPeak (dBμ V)	Average (dBμ V)	Limit (dBμ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.156750	---	33.56	55.63	22.07	1000.0	9.000	L1	ON	20.9
0.159000	51.20	---	65.52	14.32	1000.0	9.000	L1	ON	20.9
0.807000	31.98	---	56.00	24.02	1000.0	9.000	L1	ON	20.3
0.885750	---	25.94	46.00	20.06	1000.0	9.000	L1	ON	20.3
1.414500	---	32.90	46.00	13.10	1000.0	9.000	L1	ON	19.9
1.446000	38.59	---	56.00	17.41	1000.0	9.000	L1	ON	19.9
2.247000	---	27.27	46.00	18.73	1000.0	9.000	L1	ON	19.6
2.307750	37.61	---	56.00	18.39	1000.0	9.000	L1	ON	19.6
6.024750	---	32.99	50.00	17.01	1000.0	9.000	L1	ON	19.4
6.045000	44.41	---	60.00	15.59	1000.0	9.000	L1	ON	19.4
16.395000	---	34.65	50.00	15.35	1000.0	9.000	L1	ON	19.5
18.255750	46.51	---	60.00	13.49	1000.0	9.000	L1	ON	19.6

Remark: Correct factor=cable loss + LISN factor

L line Conducted Emission from 150 kHz to 30 MHz



Final Result

Frequency (MHz)	QuasiPeak (dBμ V)	Average (dBμ V)	Limit (dBμ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.156750	51.85	---	65.63	13.79	1000.0	9.000	N	20.9
0.159000	---	35.05	55.52	20.46	1000.0	9.000	N	20.9
0.712500	33.30	---	56.00	22.70	1000.0	9.000	N	20.6
0.861000	---	26.37	46.00	19.63	1000.0	9.000	N	20.3
1.385250	39.74	---	56.00	16.26	1000.0	9.000	N	19.9
1.416750	---	34.44	46.00	11.56	1000.0	9.000	N	19.9
2.249250	---	28.05	46.00	17.95	1000.0	9.000	N	19.6
2.323500	37.69	---	56.00	18.31	1000.0	9.000	N	19.6
6.011250	44.73	---	60.00	15.27	1000.0	9.000	N	19.4
6.022500	---	32.97	50.00	17.03	1000.0	9.000	N	19.4
16.464750	---	34.91	50.00	15.09	1000.0	9.000	N	19.6
18.073500	47.15	---	60.00	12.85	1000.0	9.000	N	19.6

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 kHz to 30 MHz