

emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

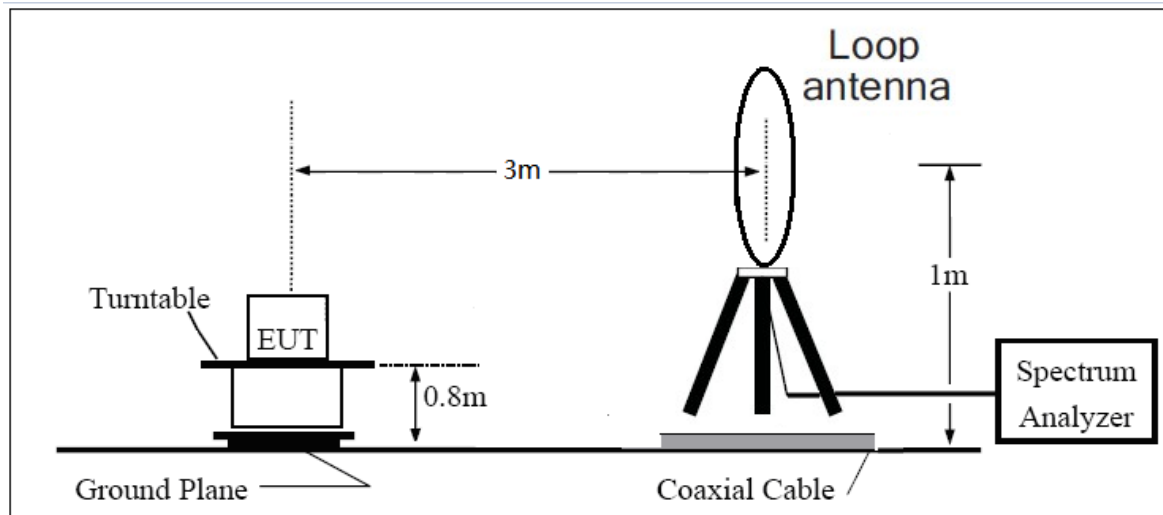
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Reduce the video bandwidth until no significant variations in the displayed signal are observed in subsequent traces, provided the video bandwidth is no less than 1 Hz. For regulatory requirements that specify averaging only over the transmit duration (e.g., digital transmission system [DTS] and Unlicensed National Information Infrastructure [U-NII]), the video bandwidth shall be greater than $[1 / (\text{minimum transmitter on time})]$ and no less than 1 Hz.

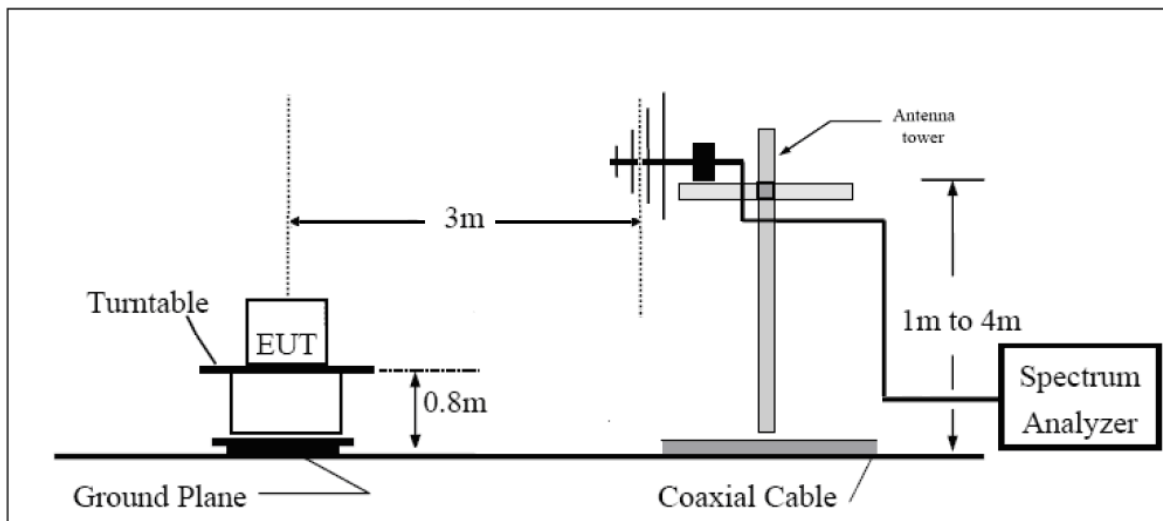
The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the loop antenna is vertical, others antenna are vertical and horizontal.

The test is in transmitting mode.

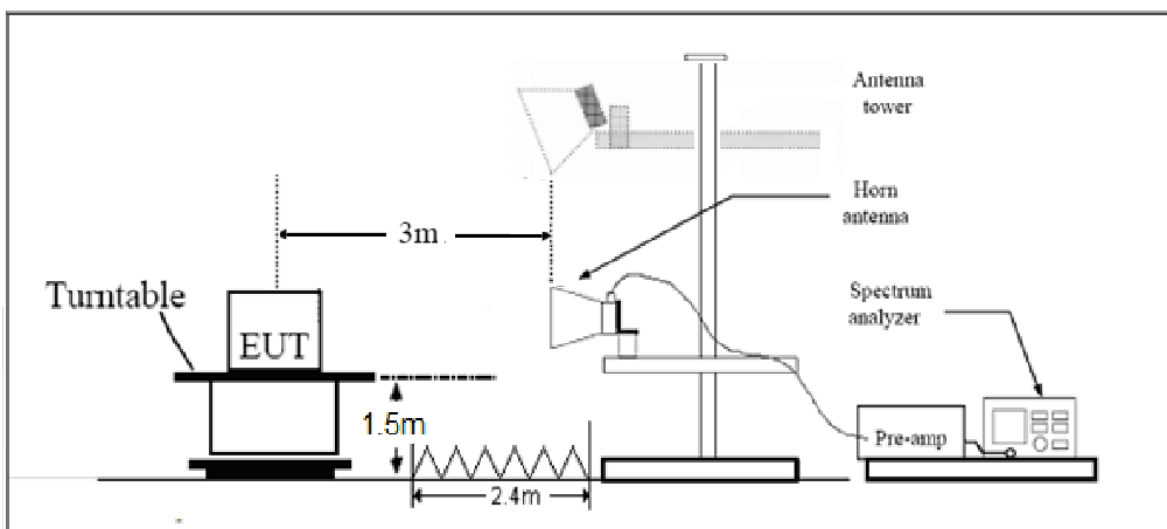
9kHz~~~30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

- (1) For transmitters operating in the 5725-5850 MHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2dBμV/m).
- (3) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2dBμV/m).
- (4) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2dBμV/m).
- (5) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27 dBm/MHz (68.2dBμV/m).

Note: the following formula is used to convert the EIRP to field strength

§1、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{meters}]) + 104.77$, where E = field strength and

d = distance at which field strength limit is specified in the rules;

§2、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for d = 3 meters

- (6) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency of emission (MHz)	Field strength(μV/m)	Field strength(dBμV/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

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 $k = 1.96$.

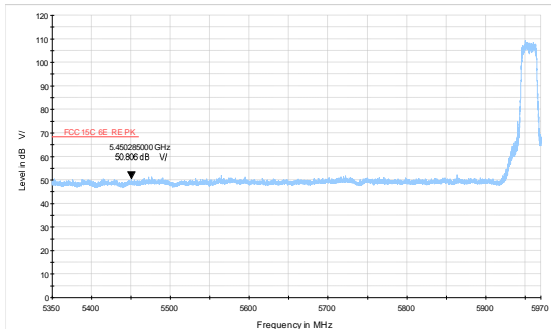
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.17 dB
200MHz-1GHz	4.84 dB
1-18GHz	4.35 dB
18-26.5GHz	5.90 dB
26.5GHz~40GHz	5.92 dB

Test Results:

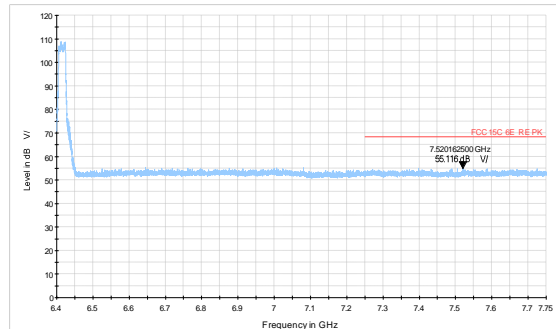
A symbol ($\text{dB } \mu\text{V}$) in the test plot below means ($\text{dB}\mu\text{V/m}$)

The signal beyond the limit is carrier.

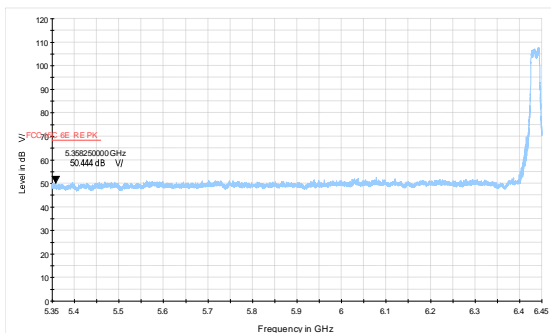
802.11ax HE20-Channel 1: Peak



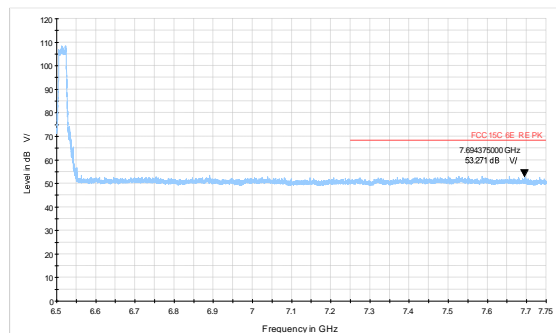
802.11ax HE20-Channel 93: Peak



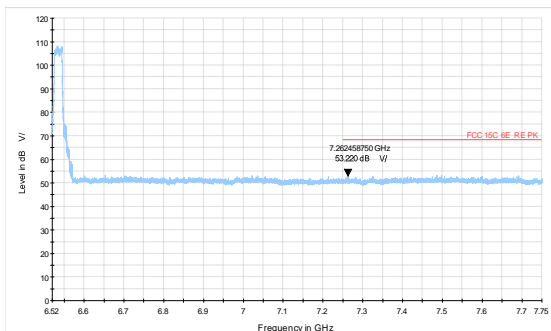
802.11ax HE20-Channel 97: Peak



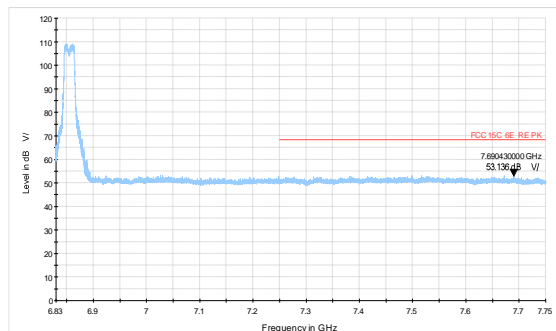
802.11ax HE20-Channel 113: Peak



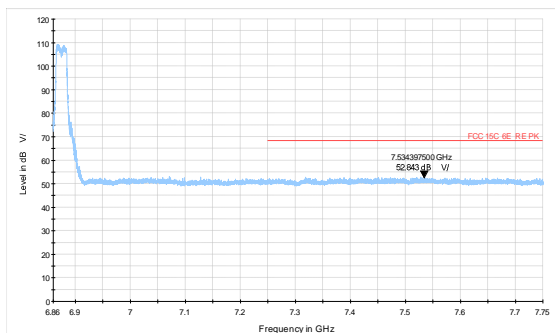
802.11ax HE20-Channel 117: Peak



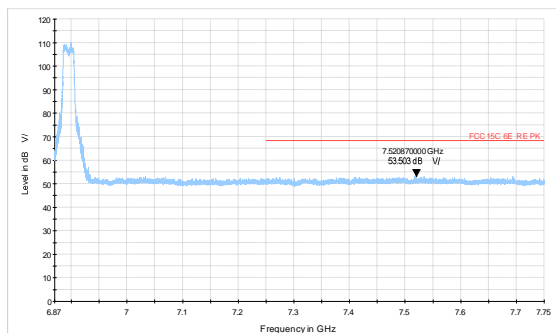
802.11ax HE20-Channel 181: Peak



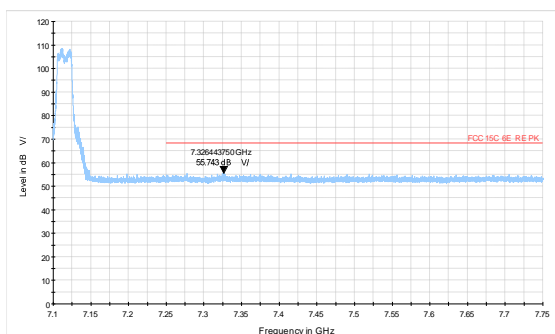
802.11ax HE20-Channel 185: Peak



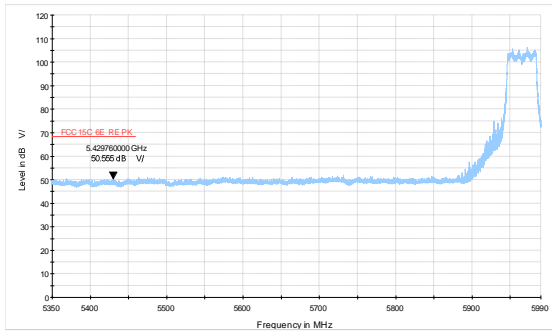
802.11ax HE20-Channel 189: Peak



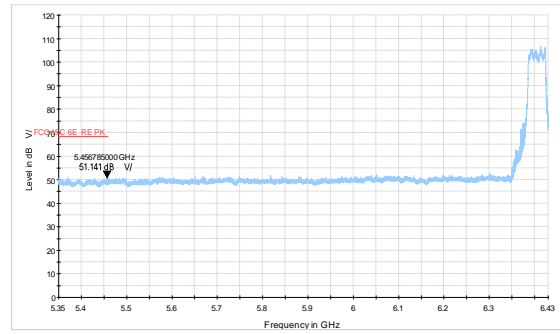
802.11ax HE20-Channel 233: Peak



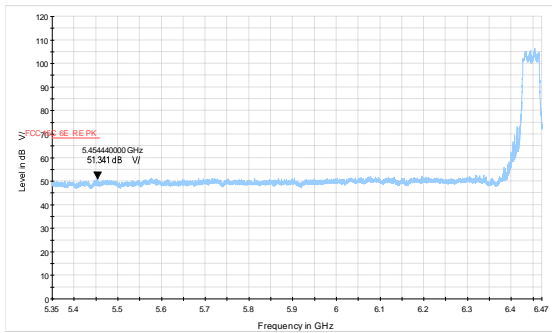
802.11ax HE40-Channel 3: Peak



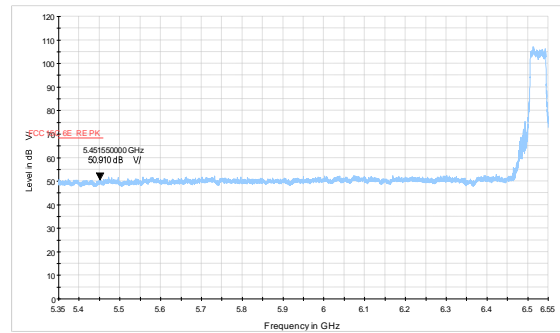
802.11ax HE40-Channel 91: Peak



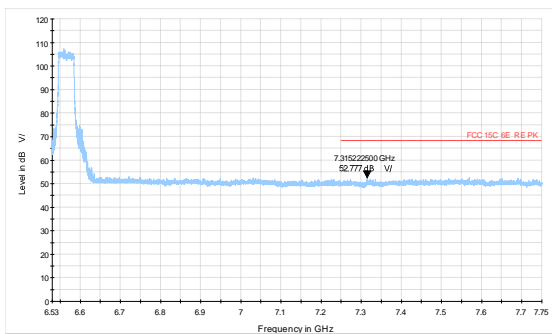
802.11ax HE40-Channel 99: Peak



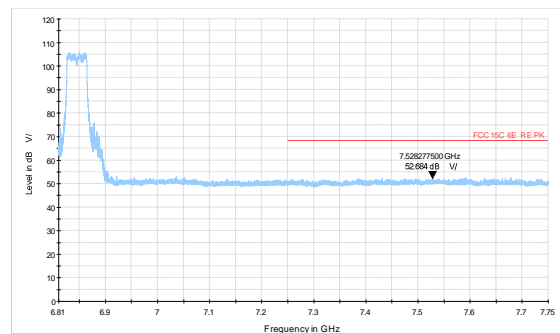
802.11ax HE40-Channel 115: Peak



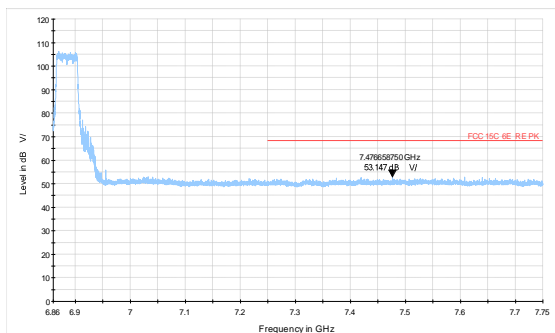
802.11ax HE40-Channel 123: Peak



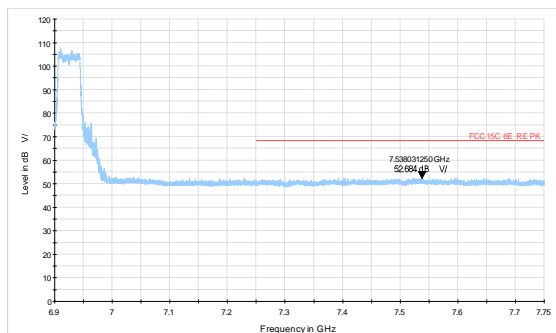
802.11ax HE40-Channel 179: Peak



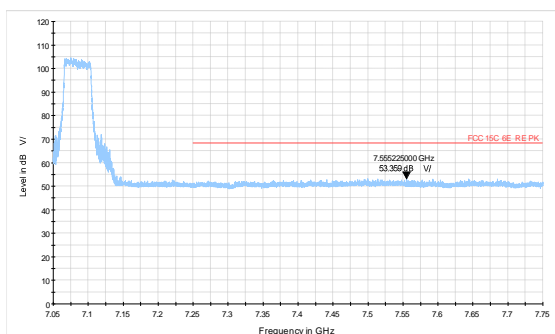
802.11ax HE40-Channel 187: Peak



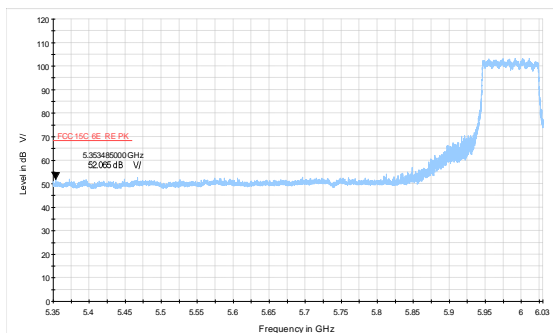
802.11ax HE40-Channel 195: Peak



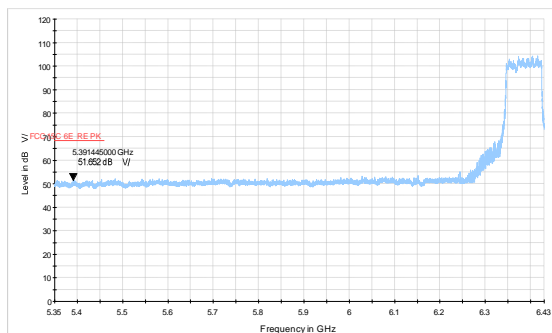
802.11ax HE40-Channel 227: Peak



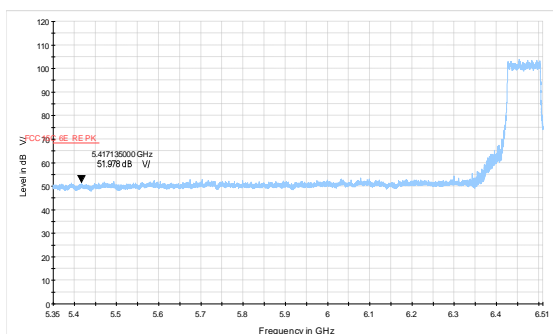
802.11ax HE80-Channel 7: Peak



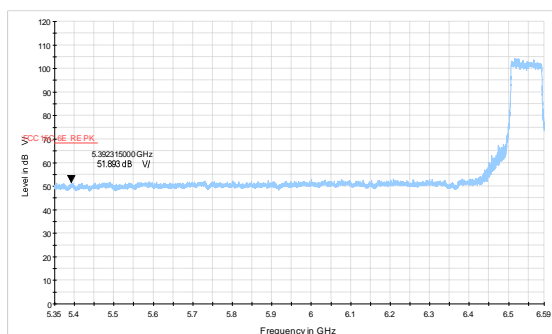
802.11ax HE80-Channel 87: Peak



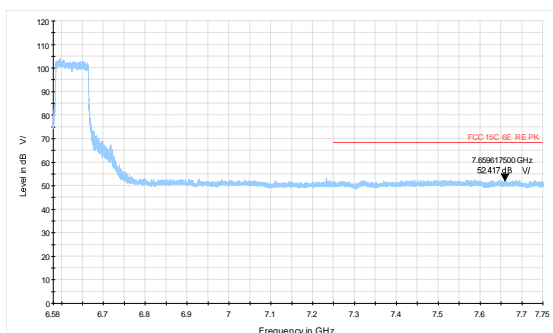
802.11ax HE80-Channel 103: Peak



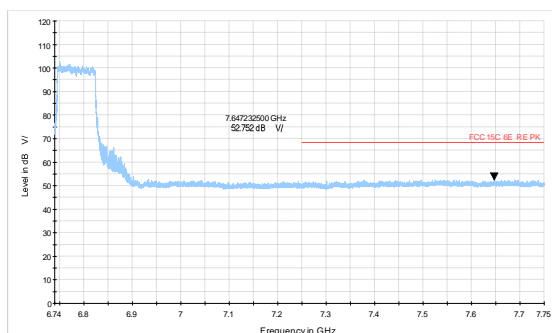
802.11ax HE80-Channel 119: Peak



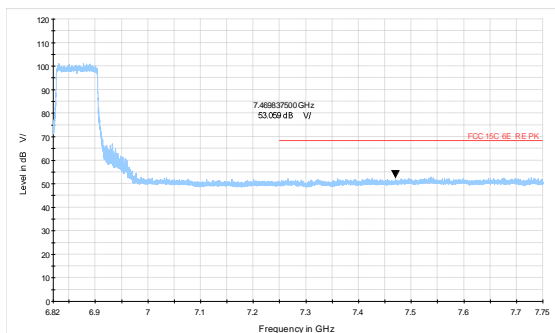
802.11ax HE80-Channel 135: Peak



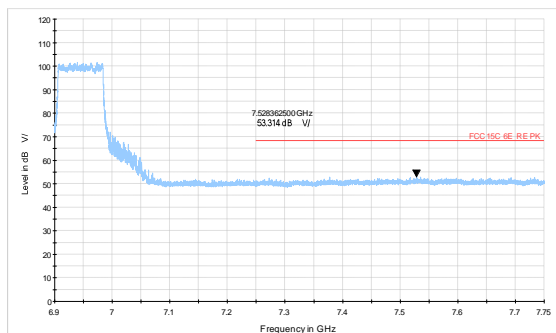
802.11ax HE80-Channel 167: Peak



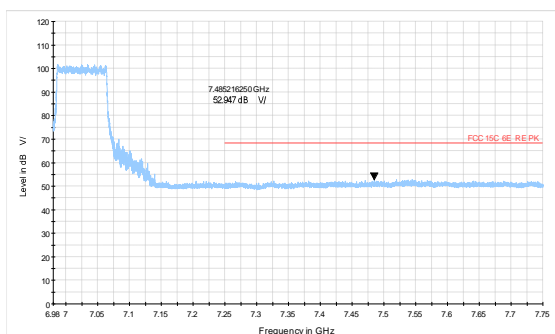
802.11ax HE80-Channel 183: Peak



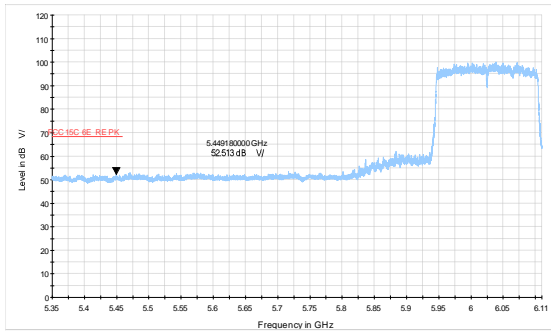
802.11ax HE80-Channel 199: Peak



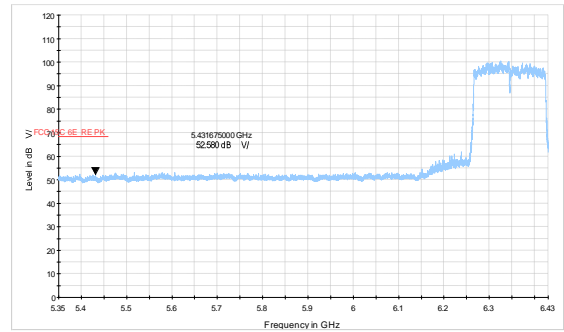
802.11ax HE80-Channel 215: Peak



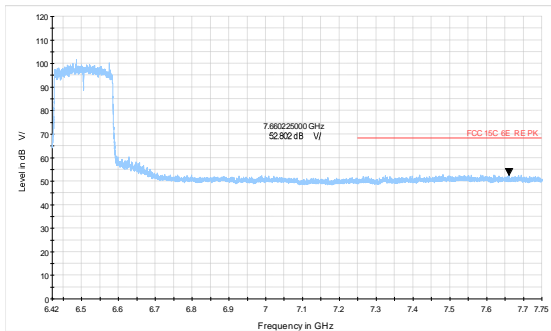
802.11ax HE160-Channel 15: Peak



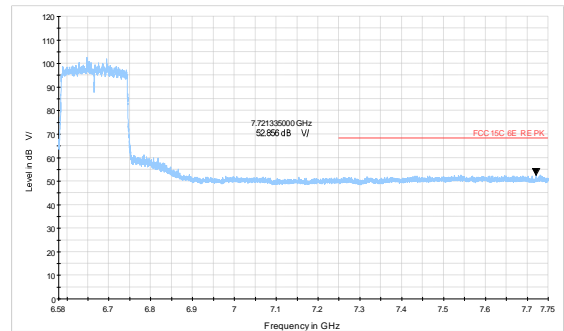
802.11ax HE160-Channel 79: Peak



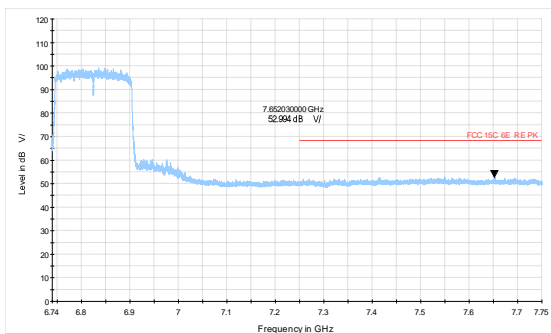
802.11ax HE160-Channel 111: Peak



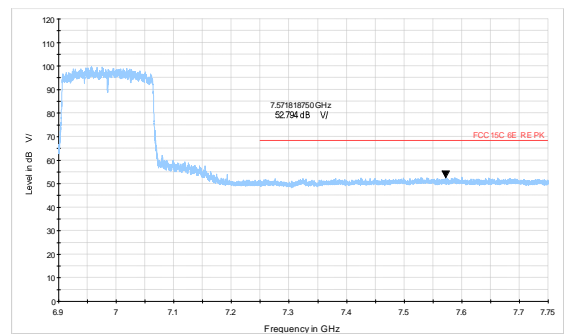
802.11ax HE143-Channel 143: Peak



802.11ax HE160-Channel 175: Peak



802.11ax HE160-Channel 207: Peak



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.









After the pretest, MIMO was selected as the worst antenna.

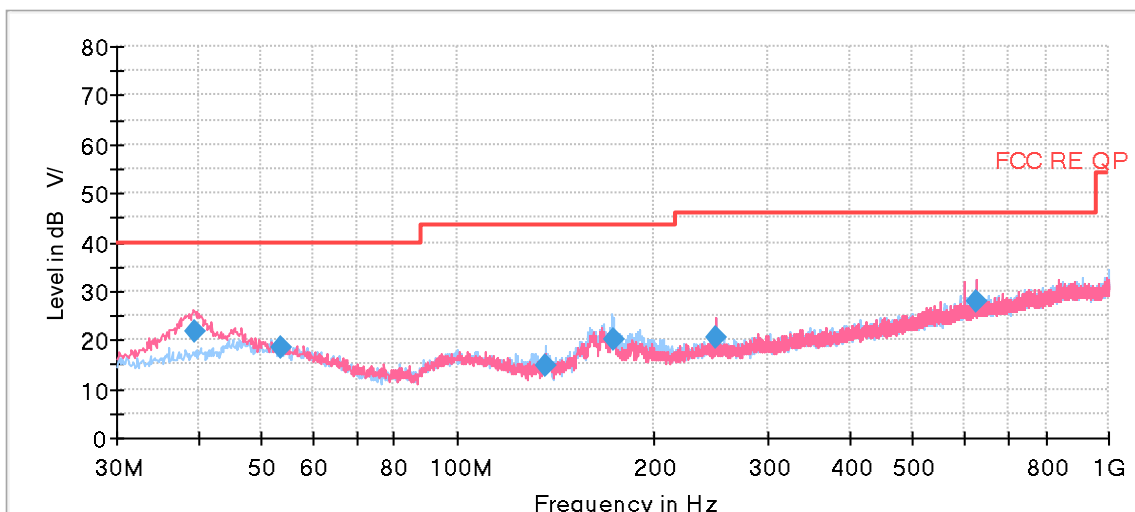
During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11ax (HE20), Channel 209 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Continuous TX mode:

Remark:

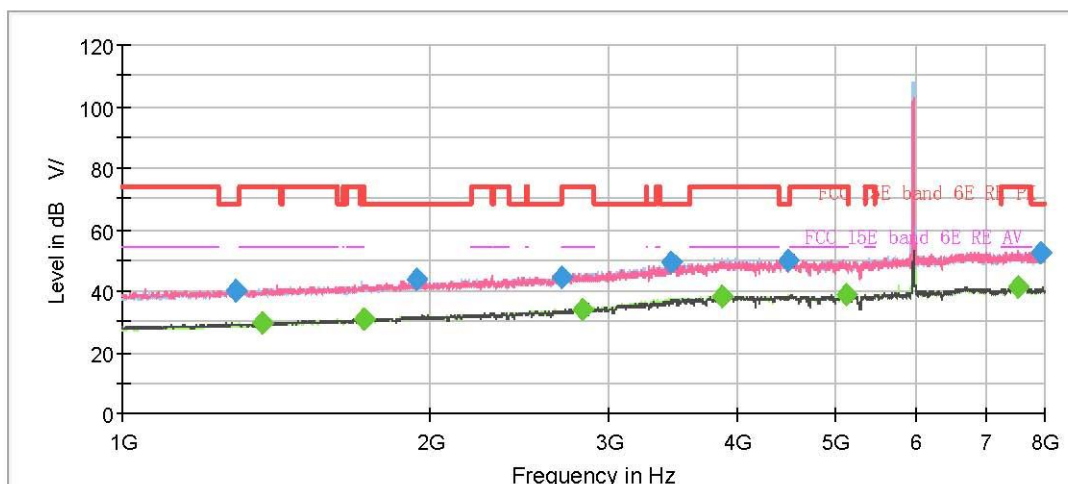
1. **Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)**
2. **Margin = Limit – Quasi-Peak**
3. **Margin = Limit –MAX Peak/ Average**
4. **A symbol ($\text{dB } \mu\text{V/m}$) in the test plot below means ($\text{dB}\mu\text{V/m}$)**

5.  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



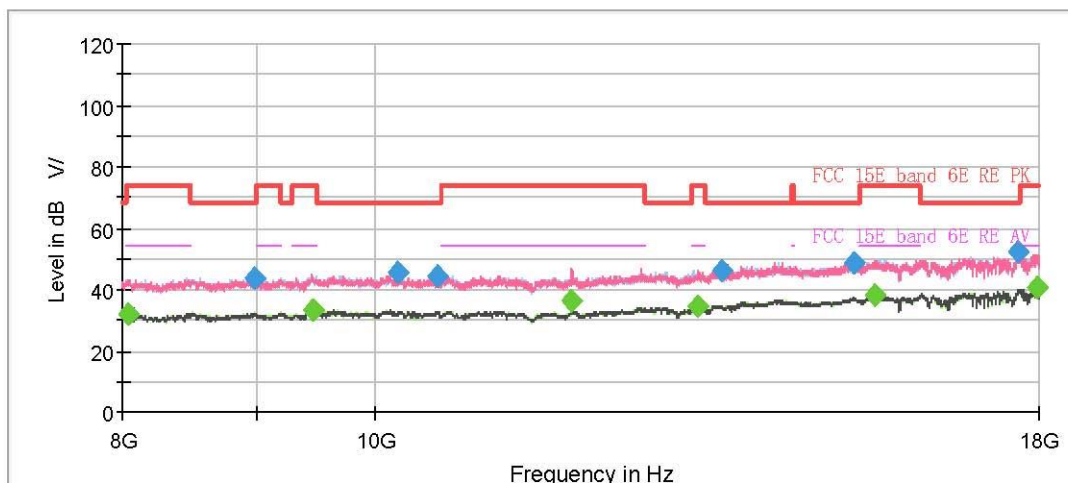
Frequency (MHz)	Quasi-Peak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
39.496250	21.66	40.00	18.34	100.0	V	0.0	19.6
53.771250	18.45	40.00	21.55	207.0	H	148.0	20.8
136.378750	14.79	43.50	28.71	225.0	H	269.0	15.6
173.641250	20.22	43.50	23.28	185.0	H	277.0	19.7
250.027500	20.43	46.00	25.57	325.0	H	289.0	20.5
625.095000	27.69	46.00	18.31	125.0	H	249.0	27.6

802.11ax HE20 CH1



Final Result

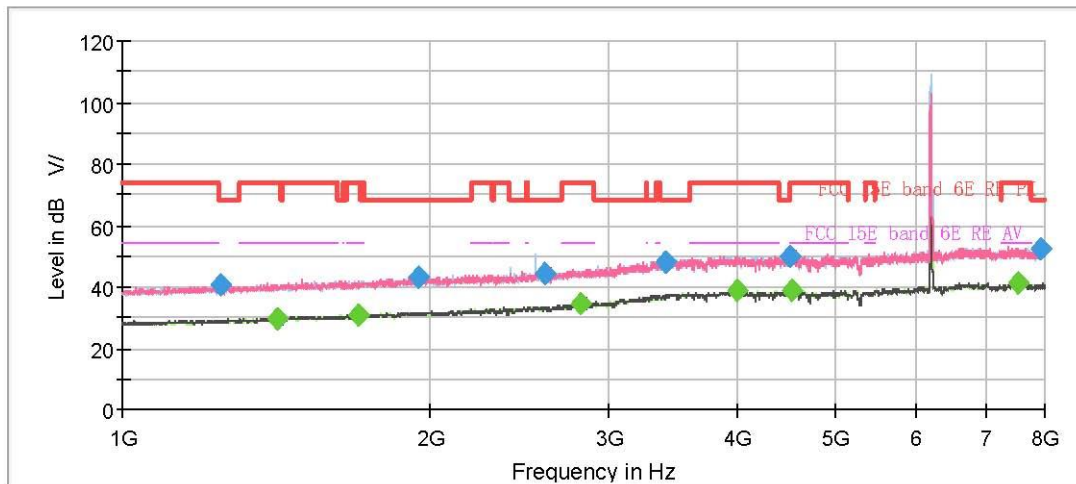
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1290.858750	39.78	---	68.20	28.42	500.0	200.0	V	35.0	-8.1
1368.956250	---	29.48	54.00	24.52	500.0	100.0	V	338.0	-7.6
1726.178750	---	30.99	54.00	23.01	500.0	100.0	V	332.0	-5.8
1938.887500	43.51	---	68.20	24.69	500.0	100.0	V	253.0	-4.7
2688.955000	44.57	---	68.20	23.63	500.0	100.0	H	127.0	-1.8
2822.778750	---	34.13	54.00	19.87	500.0	100.0	V	188.0	-1.2
3441.026250	49.16	---	68.20	19.04	500.0	100.0	H	205.0	1.1
3866.895000	---	38.30	54.00	15.70	500.0	100.0	H	0.0	2.5
4492.851250	50.14	---	68.20	18.06	500.0	200.0	H	163.0	4.3
5122.393750	---	38.59	54.00	15.41	500.0	200.0	V	103.0	5.2
7531.496250	---	41.32	54.00	12.68	500.0	100.0	V	146.0	7.4
7926.373750	52.60	---	68.20	15.60	500.0	100.0	H	78.0	8.2



Final Result

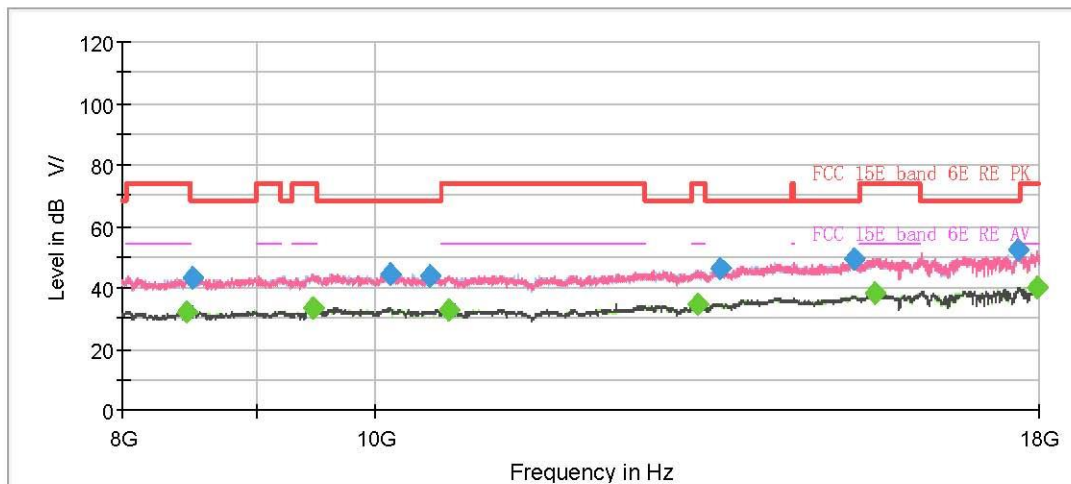
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
8042.500000	---	32.18	54.00	21.82	500.0	200.0	H	0.0	-1.5
8992.500000	43.90	---	68.20	24.30	500.0	200.0	H	210.0	-1.4
9465.000000	---	33.21	54.00	20.79	500.0	200.0	V	333.0	-0.3
10208.750000	45.81	---	68.20	22.39	500.0	100.0	H	108.0	-0.9
10578.750000	44.37	---	68.20	23.83	500.0	200.0	V	129.0	-0.8
11910.000000	---	36.61	54.00	17.39	500.0	100.0	V	56.0	0.4
13317.500000	---	34.25	54.00	19.75	500.0	200.0	V	277.0	3.3
13596.250000	46.30	---	68.20	21.90	500.0	200.0	V	111.0	3.7
15282.500000	48.79	---	68.20	19.41	500.0	100.0	V	242.0	5.9
15576.250000	---	37.92	54.00	16.08	500.0	200.0	H	173.0	6.6
17672.500000	52.13	---	68.20	16.07	500.0	100.0	H	108.0	10.2
17976.250000	---	40.40	54.00	13.60	500.0	100.0	H	281.0	10.9

802.11ax HE20 CH49



Final Result

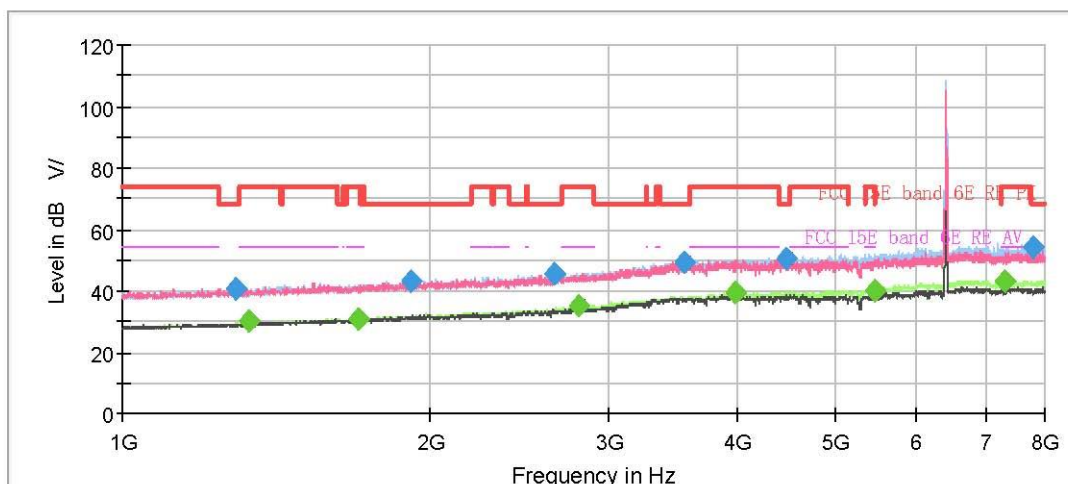
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1248.396250	40.41	---	68.20	27.79	500.0	100.0	V	359.0	-8.3
1414.246250	---	29.77	54.00	24.23	500.0	100.0	V	111.0	-7.4
1702.817500	---	30.63	54.00	23.37	500.0	100.0	H	191.0	-5.9
1948.380000	42.99	---	68.20	25.21	500.0	100.0	V	234.0	-4.6
2589.833750	44.57	---	68.20	23.63	500.0	100.0	H	88.0	-2.2
2804.942500	---	34.17	54.00	19.83	500.0	200.0	V	138.0	-1.4
3410.256250	47.76	---	68.20	20.44	500.0	200.0	V	72.0	1.0
3992.957500	---	38.53	54.00	15.47	500.0	200.0	H	40.0	2.9
4496.276250	49.59	---	68.20	18.61	500.0	100.0	H	19.0	4.3
4516.035000	---	38.84	54.00	15.16	500.0	100.0	V	302.0	4.3
7535.205000	---	41.29	54.00	12.71	500.0	100.0	V	111.0	7.4
7930.465000	52.22	---	68.20	15.98	500.0	200.0	V	120.0	8.2



Final Result

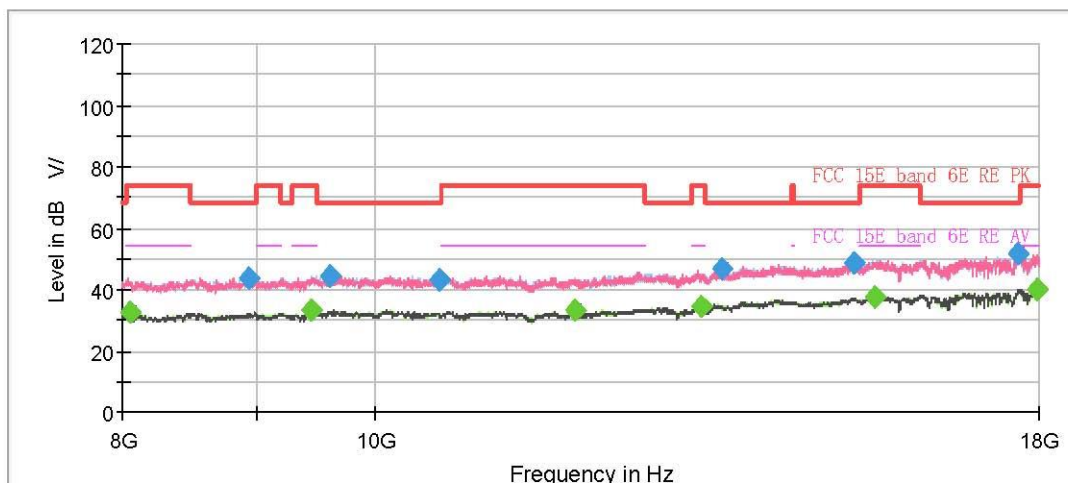
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
8468.750000	---	32.18	54.00	21.82	500.0	100.0	H	301.0	-1.7
8511.250000	43.35	---	68.20	24.85	500.0	100.0	V	166.0	-1.6
9461.250000	---	33.15	54.00	20.85	500.0	200.0	V	312.0	-0.3
10143.750000	44.37	---	68.20	23.83	500.0	200.0	H	20.0	-0.8
10501.250000	43.60	---	68.20	24.60	500.0	200.0	H	166.0	-0.9
10671.250000	---	32.92	54.00	21.08	500.0	200.0	H	173.0	-0.7
13300.000000	---	34.47	54.00	19.53	500.0	200.0	V	287.0	3.3
13587.500000	46.05	---	68.20	22.15	500.0	200.0	H	217.0	3.7
15292.500000	49.13	---	68.20	19.07	500.0	100.0	H	308.0	5.9
15556.250000	---	37.95	54.00	16.05	500.0	200.0	V	0.0	6.6
17681.250000	52.56	---	68.20	15.64	500.0	100.0	H	128.0	10.2
17976.250000	---	40.27	54.00	13.73	500.0	200.0	H	97.0	10.9

802.11ax HE20 CH93



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1288.750000	40.69	---	68.20	27.51	500.0	200.0	V	146.0	-8.1
1330.750000	---	29.88	54.00	24.12	500.0	100.0	V	332.0	-7.9
1700.875000	---	30.78	54.00	23.22	500.0	200.0	H	355.0	-5.9
1913.500000	43.25	---	68.20	24.95	500.0	100.0	V	296.0	-4.9
2650.250000	45.59	---	68.20	22.61	500.0	200.0	H	335.0	-1.9
2801.625000	---	34.79	54.00	19.22	500.0	200.0	H	347.0	-1.4
3544.500000	49.40	---	68.20	18.80	500.0	200.0	H	347.0	1.4
3989.000000	---	39.25	54.00	14.75	500.0	200.0	H	320.0	2.9
4471.125000	50.76	---	68.20	17.44	500.0	200.0	H	355.0	4.1
5449.375000	---	40.29	54.00	13.71	500.0	200.0	H	335.0	5.9
7319.250000	---	42.97	54.00	11.03	500.0	200.0	H	320.0	6.9
7804.000000	54.01	---	68.20	14.19	500.0	200.0	H	320.0	8.0



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
8050.000000	---	32.45	54.00	21.55	500.0	200.0	H	183.0	-1.5
8946.250000	43.71	---	68.20	24.49	500.0	100.0	H	170.0	-1.4
9457.500000	---	33.20	54.00	20.80	500.0	200.0	V	265.0	-0.3
9612.500000	44.26	---	68.20	23.94	500.0	200.0	H	46.0	-0.8
10582.500000	43.26	---	68.20	24.94	500.0	200.0	V	208.0	-0.8
11936.250000	---	33.18	54.00	20.82	500.0	200.0	H	39.0	0.3
13360.000000	---	34.40	54.00	19.60	500.0	200.0	V	303.0	3.3
13605.000000	46.64	---	68.20	21.56	500.0	200.0	V	103.0	3.7
15292.500000	48.41	---	68.20	19.79	500.0	100.0	H	0.0	5.9
15570.000000	---	37.83	54.00	16.17	500.0	100.0	V	84.0	6.6
17677.500000	52.00	---	68.20	16.20	500.0	200.0	H	77.0	10.2
17978.750000	---	40.21	54.00	13.79	500.0	200.0	V	341.0	10.9