

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 (Y axis) and the loop antenna is vertical, the others are vertical and horizontal. and the worst case was recorded.

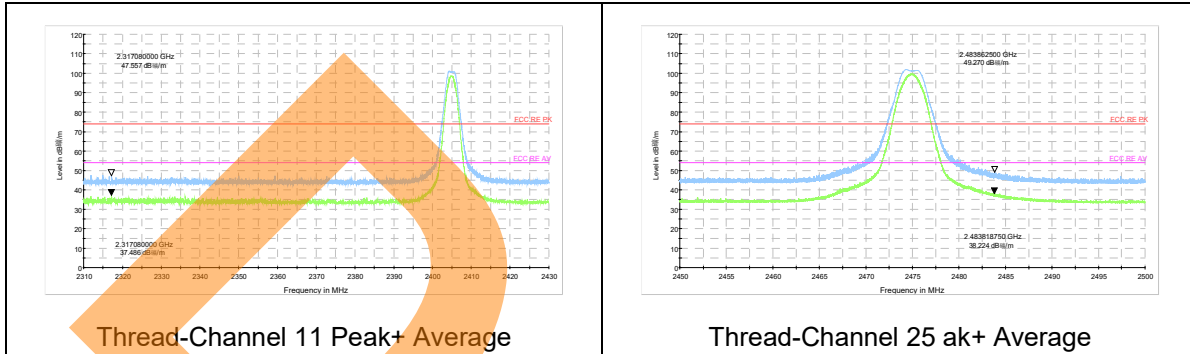
Draft

1. Unwanted Emission

1.1. Thread

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.

The signal beyond the limit is carrier.

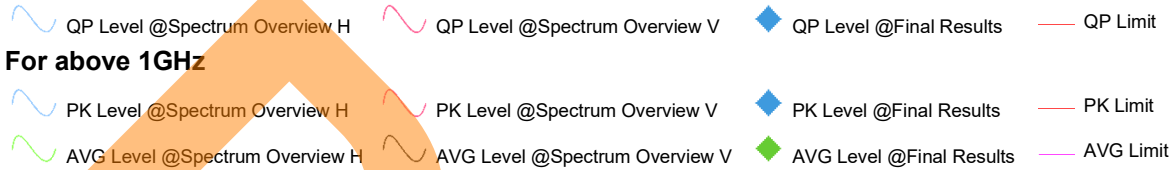


Result of RE

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier.
The Radiates Emission from 18GHz to 26.5GHz are more than 20dB below the limit are not reported.

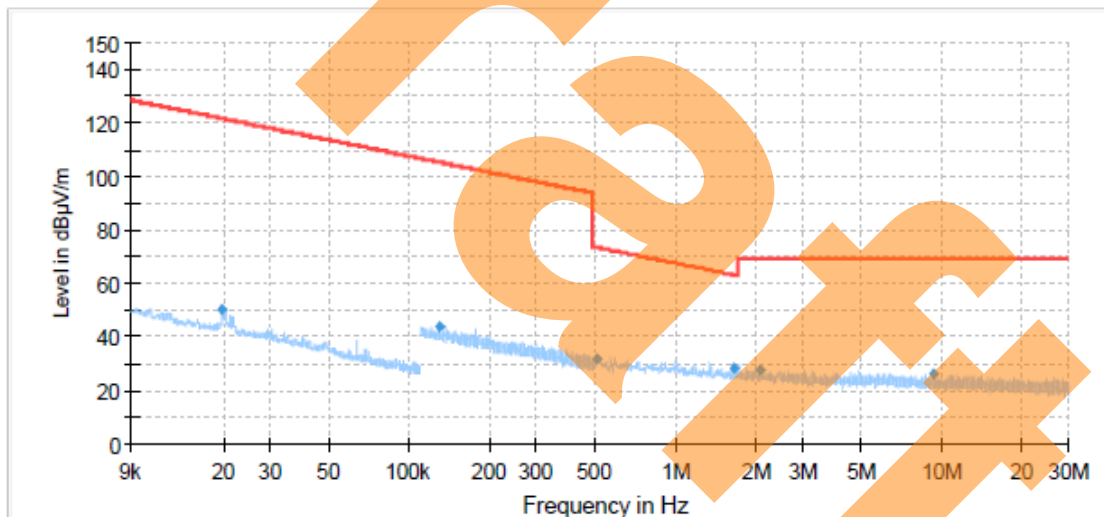
Remark:

1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Margin = Limit – Quasi-Peak/ MAX Peak/ Average
3. The following graphs display the maximum values of horizontal and vertical by software.
4. For below 1GHz



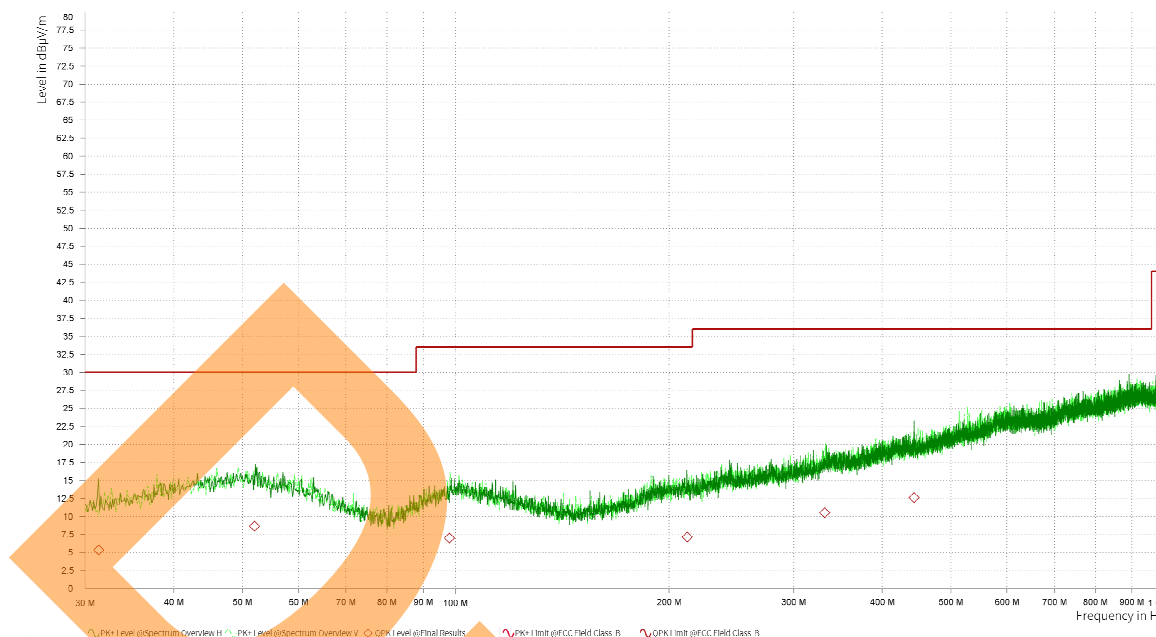
Continuous TX mode:

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 was recorded in this report.



Radiates Emission from 9kHz to 30MHz

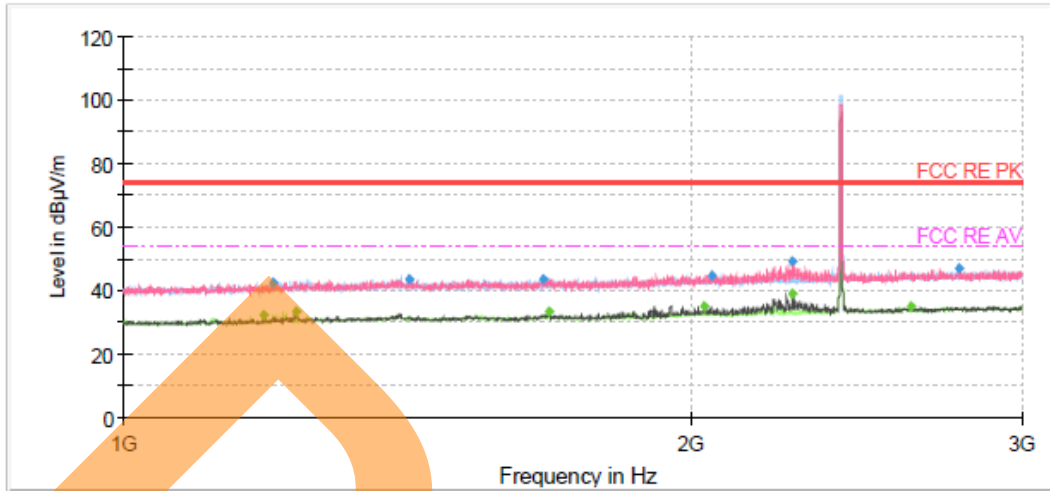
Spectrum Overview H/V



Radiates Emission from 30MHz to 1GHz

Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
31.358	5.32	30.00	24.68	-11.91	H	176.9	1.86	120.000	1.000
52.009	8.64	30.00	21.36	-8.24	H	165.5	2.25	120.000	1.000
97.976	6.99	33.50	26.51	-10.02	V	46.8	1.14	120.000	1.000
212.200	7.15	33.50	26.35	-9.65	H	19.3	1.14	120.000	1.000
331.748	10.51	36.00	25.49	-6.31	V	130.7	1.17	120.000	1.000
443.583	12.58	36.00	23.42	-4.32	H	97.4	1.14	120.000	1.000

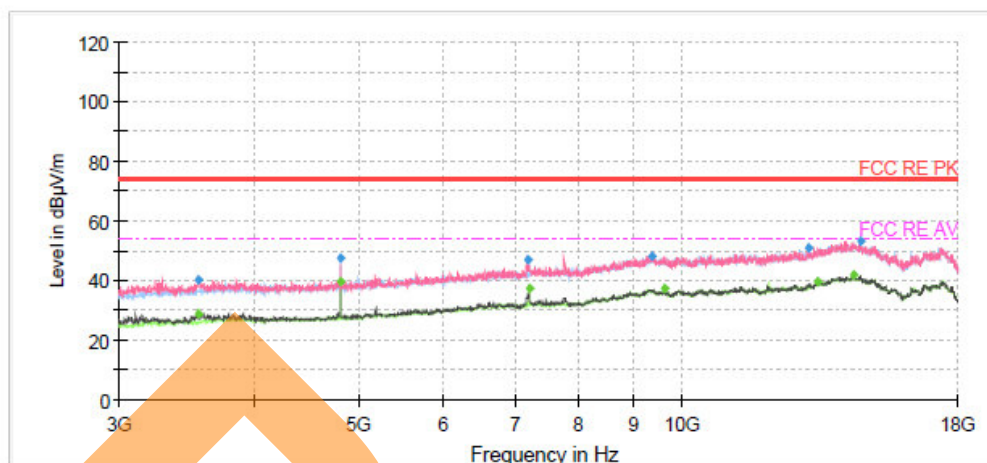
Thread CH11



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)
1186.25	---	32.08	54.00	21.92	500.00	100.0	V	163.00	-6
1200.25	42.39	---	74.00	31.61	500.00	100.0	V	170.00	-6
1233.25	---	33.58	54.00	20.42	500.00	100.0	V	183.00	-6
1419.25	43.73	---	74.00	30.27	500.00	100.0	H	291.00	-4
1669.50	43.84	---	74.00	30.16	500.00	200.0	H	147.00	-4
1681.00	---	33.17	54.00	20.83	500.00	200.0	V	354.00	-4
2034.00	---	35.37	54.00	18.63	500.00	200.0	V	178.00	-2
2051.75	44.95	---	74.00	29.05	500.00	100.0	V	0.00	-2
2264.25	49.18	---	74.00	24.82	500.00	200.0	V	0.00	-1
2264.25	---	38.89	54.00	15.11	500.00	200.0	V	0.00	-1
2617.00	---	35.11	54.00	18.89	500.00	100.0	V	157.00	0
2778.75	46.85	---	74.00	27.15	500.00	100.0	V	170.00	0

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

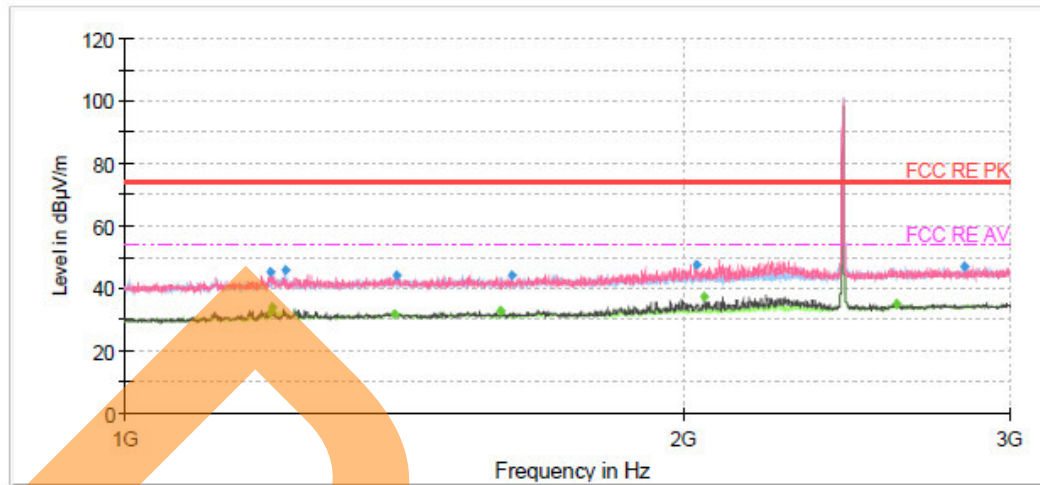


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3553.13	---	29.02	54.00	24.98	500.00	100.0	V	267.00	-8
3558.75	40.12	---	74.00	33.88	500.00	100.0	V	267.00	-8
4809.38	---	39.56	54.00	14.44	500.00	200.0	H	56.00	-4
4811.25	47.79	---	74.00	26.21	500.00	200.0	H	56.00	-4
7170.00	46.90	---	74.00	27.10	500.00	100.0	V	106.00	0
7215.00	---	37.37	54.00	16.63	500.00	100.0	H	320.00	0
9345.00	48.34	---	74.00	25.66	500.00	100.0	V	252.00	5
9616.88	---	37.39	54.00	16.61	500.00	200.0	V	349.00	5
13095.00	50.72	---	74.00	23.28	500.00	100.0	H	269.00	7
13346.25	---	39.38	54.00	14.62	500.00	200.0	H	210.00	7
14405.63	---	41.82	54.00	12.18	500.00	200.0	H	64.00	9
14598.75	53.19	---	74.00	20.81	500.00	100.0	H	276.00	9

Radiates Emission from 3GHz to 18GHz

Thread CH18

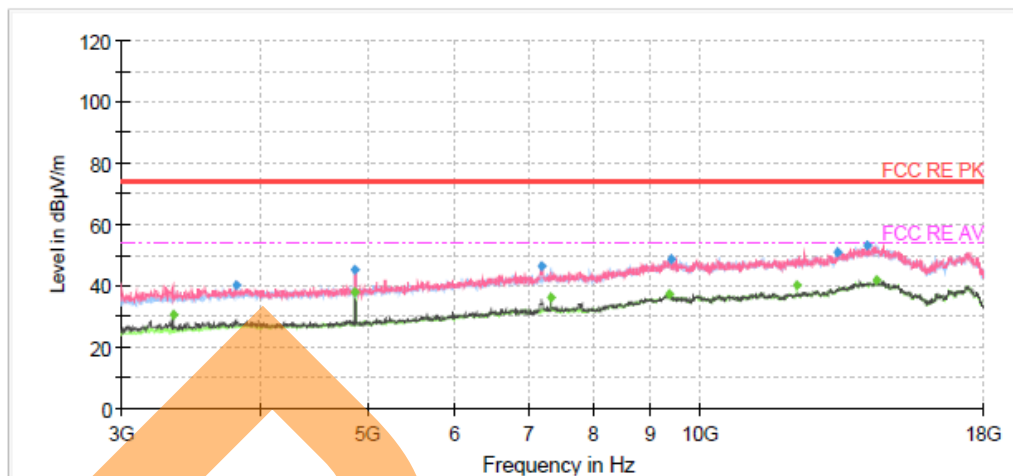


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1198.25	45.49	---	74.00	28.51	500.00	100.0	V	162.00	-6
1198.50	---	32.32	54.00	21.68	500.00	100.0	V	162.00	-6
1201.50	---	34.22	54.00	19.78	500.00	200.0	H	223.00	-6
1219.00	45.83	---	74.00	28.17	500.00	100.0	H	44.00	-6
1397.25	---	31.84	54.00	22.16	500.00	200.0	H	69.00	-4
1402.75	43.97	---	74.00	30.03	500.00	100.0	V	0.00	-4
1594.75	---	32.96	54.00	21.04	500.00	100.0	H	219.00	-4
1615.75	44.30	---	74.00	29.70	500.00	200.0	V	213.00	-4
2035.25	47.72	---	74.00	26.28	500.00	200.0	V	174.00	-2
2051.25	---	37.58	54.00	16.42	500.00	200.0	V	174.00	-2
2604.75	---	35.11	54.00	18.89	500.00	100.0	V	162.00	0
2834.25	47.05	---	74.00	26.95	500.00	200.0	H	146.00	0

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

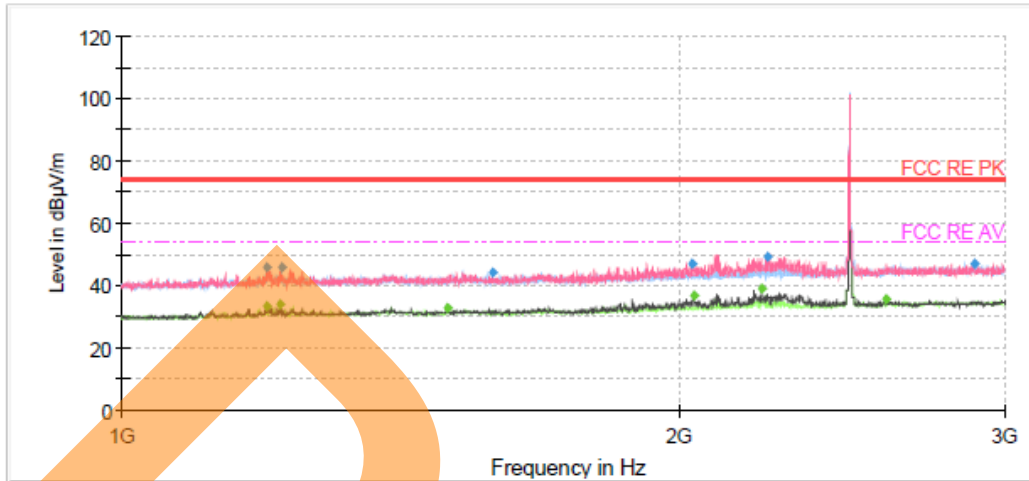


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3335.63	---	30.42	54.00	23.58	500.00	100.0	V	267.00	-9
3800.63	40.33	---	74.00	33.67	500.00	100.0	V	172.00	-7
4878.75	---	37.96	54.00	16.04	500.00	200.0	H	43.00	-4
4878.75	45.56	---	74.00	28.44	500.00	200.0	H	43.00	-4
7170.00	46.22	---	74.00	27.78	500.00	100.0	V	79.00	0
7318.13	---	36.39	54.00	17.61	500.00	200.0	H	348.00	0
9378.75	---	37.17	54.00	16.83	500.00	100.0	V	43.00	5
9393.75	48.49	---	74.00	25.51	500.00	200.0	H	11.00	5
12196.88	---	39.97	54.00	14.03	500.00	200.0	H	72.00	6
13297.50	51.22	---	74.00	22.78	500.00	100.0	V	0.00	7
14122.50	53.28	---	74.00	20.72	500.00	200.0	V	215.00	9
14401.88	---	41.90	54.00	12.10	500.00	100.0	V	209.00	9

Radiates Emission from 3GHz to 18GHz

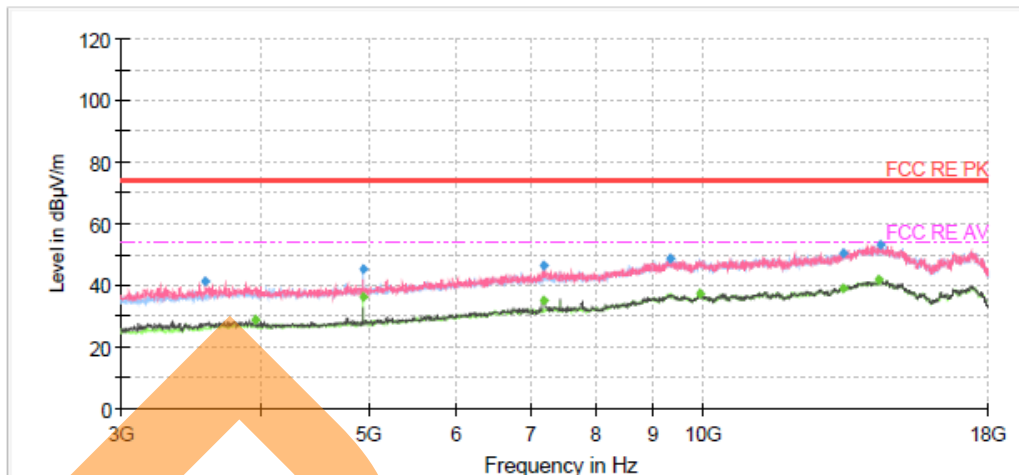
Thread CH25



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)
1198.25	45.86	---	74.00	28.14	500.00	100.0	V	118.00	-6
1198.50	---	33.17	54.00	20.83	500.00	100.0	V	118.00	-6
1218.75	---	34.16	54.00	19.84	500.00	200.0	H	125.00	-6
1219.00	45.65	---	74.00	28.35	500.00	200.0	H	222.00	-6
1498.25	---	33.00	54.00	21.00	500.00	200.0	H	236.00	-4
1585.50	44.17	---	74.00	29.83	500.00	100.0	V	29.00	-4
2033.25	46.99	---	74.00	27.01	500.00	200.0	V	174.00	-2
2036.25	---	36.95	54.00	17.05	500.00	200.0	V	174.00	-2
2216.25	---	38.84	54.00	15.16	500.00	200.0	V	5.00	-1
2232.25	49.22	---	74.00	24.78	500.00	100.0	V	1.00	-1
2585.75	---	35.71	54.00	18.29	500.00	100.0	V	163.00	0
2888.50	47.02	---	74.00	26.98	500.00	200.0	H	0.00	1

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



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)
3570.00	41.13	---	74.00	32.87	500.00	100.0	V	184.00	-8
3952.50	---	28.59	54.00	25.41	500.00	100.0	V	170.00	-7
4948.13	---	36.39	54.00	17.61	500.00	200.0	H	42.00	-4
4948.13	45.00	---	74.00	29.00	500.00	200.0	H	42.00	-4
7171.88	46.22	---	74.00	27.78	500.00	100.0	V	99.00	0
7185.00	---	35.01	54.00	18.99	500.00	100.0	V	92.00	0
9339.38	48.56	---	74.00	25.44	500.00	200.0	V	356.00	5
9901.88	---	37.52	54.00	16.48	500.00	200.0	V	0.00	4
13310.63	50.57	---	74.00	23.43	500.00	100.0	V	170.00	7
13346.25	---	39.22	54.00	14.78	500.00	200.0	V	347.00	7
14371.88	---	41.85	54.00	12.15	500.00	100.0	V	1.00	9
14394.38	53.42	---	74.00	20.58	500.00	100.0	V	0.00	9

Radiates Emission from 3GHz to 18GHz

2. Conducted Emission

2.1. Thread

The equipment is not connected to the public network, so test items do not apply.

Draft