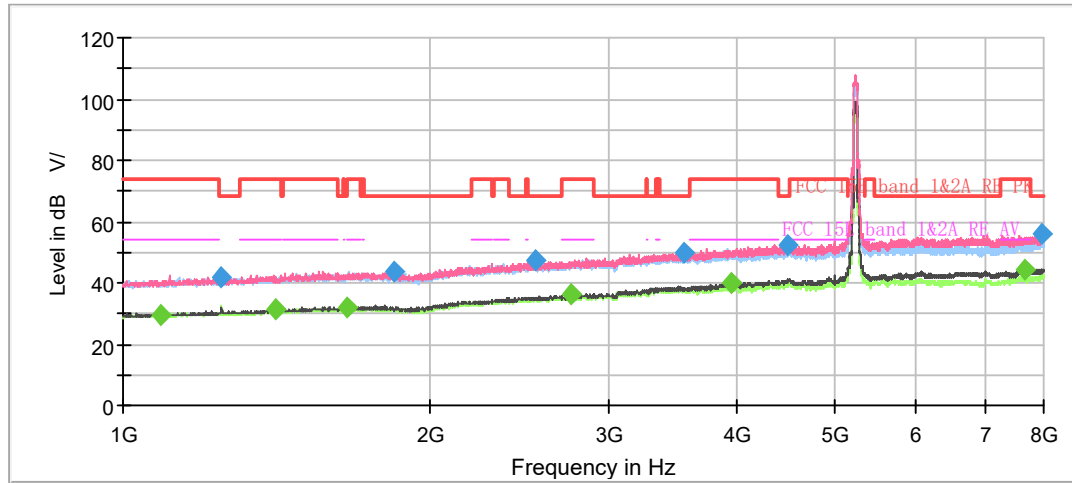


802.11n (HT40) CH46



Radiates Emission from 1GHz to 8GHz



Note: The signal beyond the limit is carrier.

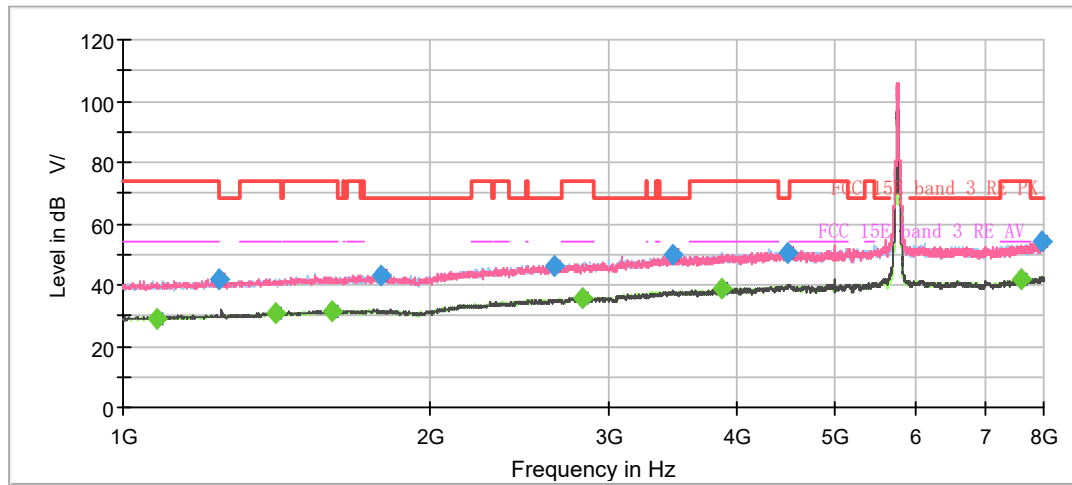
Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1091.000000	---	29.78	54.00	24.22	500.0	100.0	V	183.0	-9.4
1248.500000	41.60	---	68.20	26.60	500.0	100.0	V	155.0	-8.3
1411.250000	---	31.20	54.00	22.80	500.0	100.0	V	251.0	-7.4
1660.625000	---	32.22	54.00	21.78	500.0	100.0	V	187.0	-6.1
1847.000000	43.90	---	68.20	24.30	500.0	200.0	V	227.0	-5.1
2538.250000	47.16	---	68.20	21.04	500.0	100.0	V	304.0	-2.3
2750.875000	---	36.08	54.00	17.92	500.0	100.0	V	222.0	-1.6
3547.125000	49.71	---	68.20	18.49	500.0	200.0	V	254.0	1.4
3956.625000	---	39.82	54.00	14.18	500.0	200.0	V	100.0	2.7
4481.625000	52.32	---	68.20	15.88	500.0	200.0	V	32.0	4.2
7676.250000	---	44.05	54.00	9.95	500.0	200.0	V	26.0	7.8
7961.500000	55.77	---	68.20	12.43	500.0	100.0	V	0.0	8.3

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

2. Margin = Limit –MAX Peak/ Average

802.11n (HT40) CH151



Radiates Emission from 1GHz to 8GHz



Note: The signal beyond the limit is carrier.

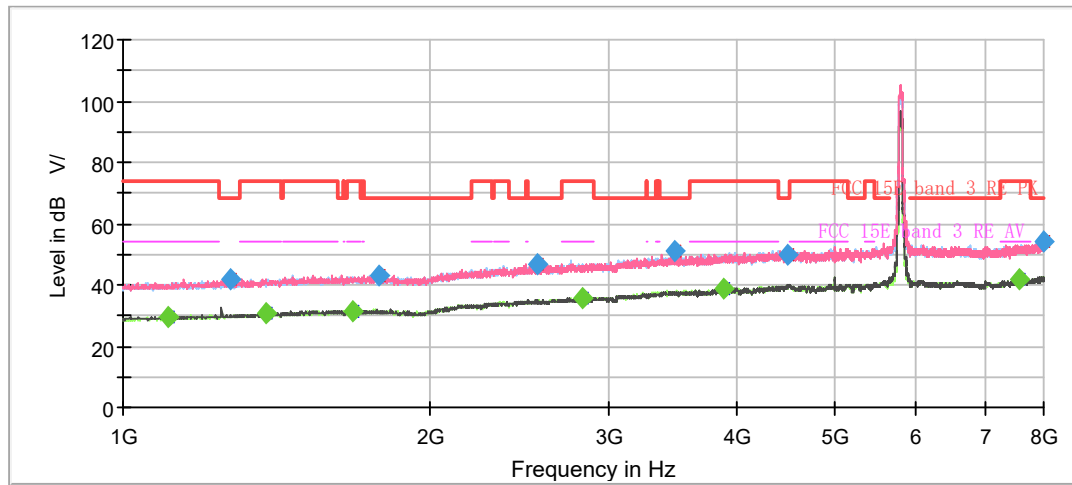
Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1079.625000	---	29.22	54.00	24.78	500.0	100.0	H	21.0	-9.5
1240.625000	41.63	---	68.20	26.57	500.0	100.0	H	111.0	-8.3
1409.500000	---	30.69	54.00	23.31	500.0	200.0	V	183.0	-7.4
1605.500000	---	31.63	54.00	22.37	500.0	100.0	V	143.0	-6.3
1792.750000	43.23	---	68.20	24.97	500.0	200.0	V	230.0	-5.4
2647.625000	46.30	---	68.20	21.90	500.0	200.0	V	43.0	-1.9
2822.625000	---	35.67	54.00	18.33	500.0	100.0	V	186.0	-1.3
3459.625000	49.76	---	68.20	18.44	500.0	200.0	V	117.0	1.1
3866.500000	---	38.73	54.00	15.27	500.0	200.0	H	343.0	2.4
4489.500000	50.24	---	68.20	17.96	500.0	100.0	V	352.0	4.3
7594.875000	---	41.76	54.00	12.24	500.0	200.0	H	163.0	7.4
7972.000000	53.88	---	68.20	14.32	500.0	100.0	V	271.0	8.4

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

2. Margin = Limit –MAX Peak/ Average

802.11n (HT40) CH159



Radiates Emission from 1GHz to 8GHz



Note: The signal beyond the limit is carrier.

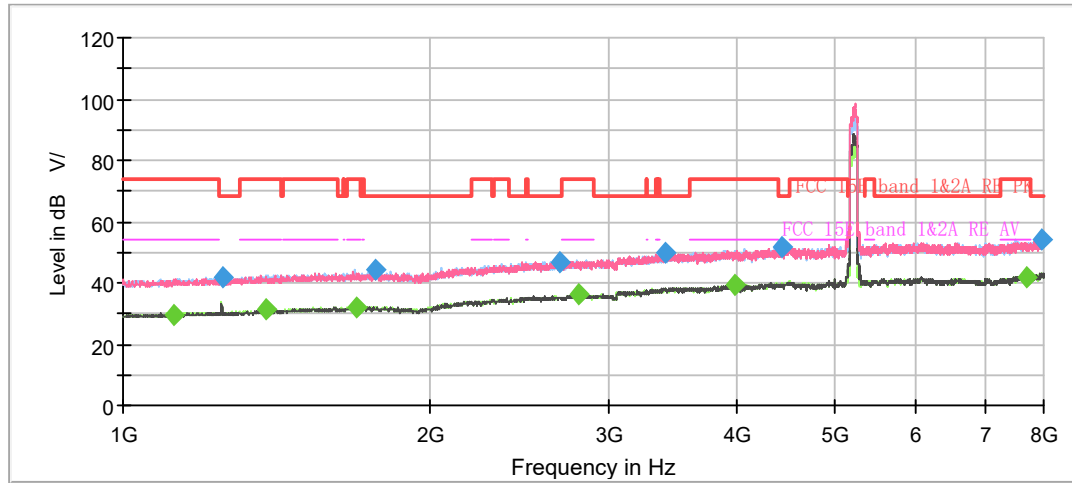
Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1107.625000	---	29.41	54.00	24.59	500.0	100.0	H	137.0	-9.2
1275.625000	41.55	---	68.20	26.65	500.0	200.0	V	0.0	-8.2
1381.500000	---	30.71	54.00	23.29	500.0	100.0	V	271.0	-7.5
1682.500000	---	31.58	54.00	22.42	500.0	100.0	H	198.0	-6.0
1785.750000	43.22	---	68.20	24.98	500.0	200.0	V	235.0	-5.5
2543.500000	46.92	---	68.20	21.28	500.0	200.0	H	330.0	-2.3
2825.250000	---	35.78	54.00	18.22	500.0	200.0	H	148.0	-1.2
3480.625000	50.83	---	68.20	17.37	500.0	100.0	H	198.0	1.2
3888.375000	---	38.95	54.00	15.05	500.0	200.0	V	133.0	2.4
4477.250000	50.10	---	68.20	18.10	500.0	200.0	H	275.0	4.2
7561.625000	---	41.89	54.00	12.11	500.0	200.0	H	306.0	7.4
7986.000000	53.94	---	68.20	14.26	500.0	100.0	H	181.0	8.4

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

2. Margin = Limit –MAX Peak/ Average

802.11ac (VHT80) CH42



Radiates Emission from 1GHz to 8GHz



Note: The signal beyond the limit is carrier.

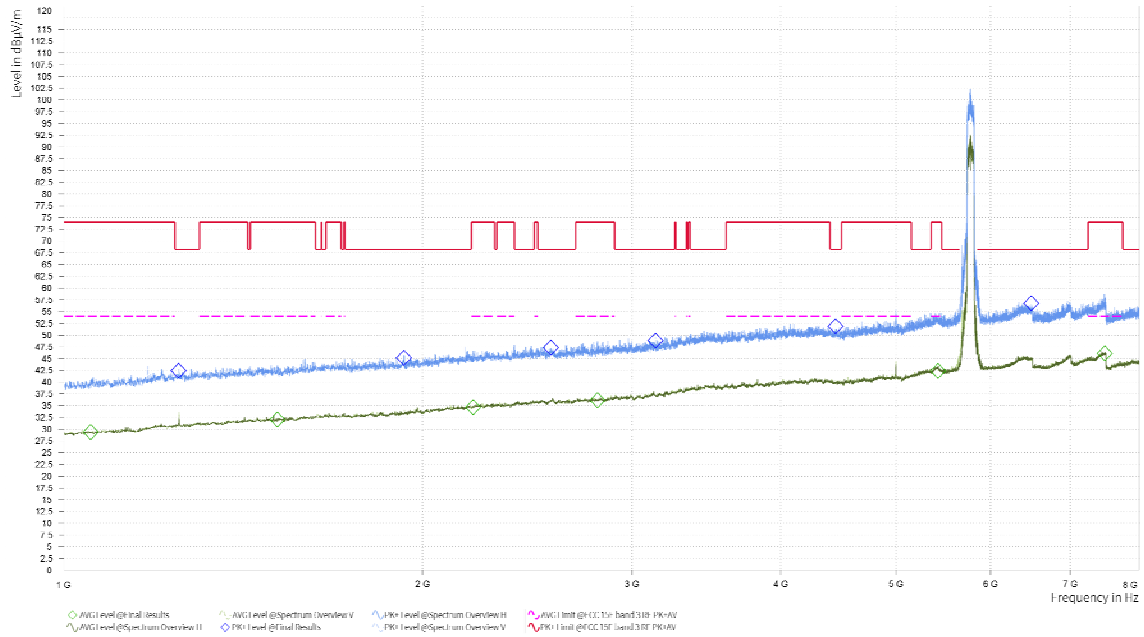
Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1119.875000	---	29.50	54.00	24.50	500.0	100.0	H	152.0	-9.2
1250.250000	42.01	---	68.20	26.19	500.0	200.0	H	327.0	-8.3
1381.500000	---	31.32	54.00	22.68	500.0	100.0	H	66.0	-7.5
1693.000000	---	31.96	54.00	22.04	500.0	100.0	V	330.0	-5.9
1770.000000	44.04	---	68.20	24.16	500.0	100.0	H	215.0	-5.5
2687.000000	46.97	---	68.20	21.23	500.0	100.0	H	31.0	-1.8
2799.000000	---	36.04	54.00	17.96	500.0	100.0	H	215.0	-1.4
3401.875000	49.68	---	68.20	18.52	500.0	100.0	V	278.0	0.9
3987.250000	---	39.22	54.00	14.78	500.0	100.0	H	4.0	2.9
4431.750000	51.70	---	68.20	16.50	500.0	100.0	H	9.0	3.9
7684.125000	---	42.09	54.00	11.91	500.0	200.0	H	0.0	7.8
7953.625000	54.41	---	68.20	13.79	500.0	100.0	V	200.0	8.3

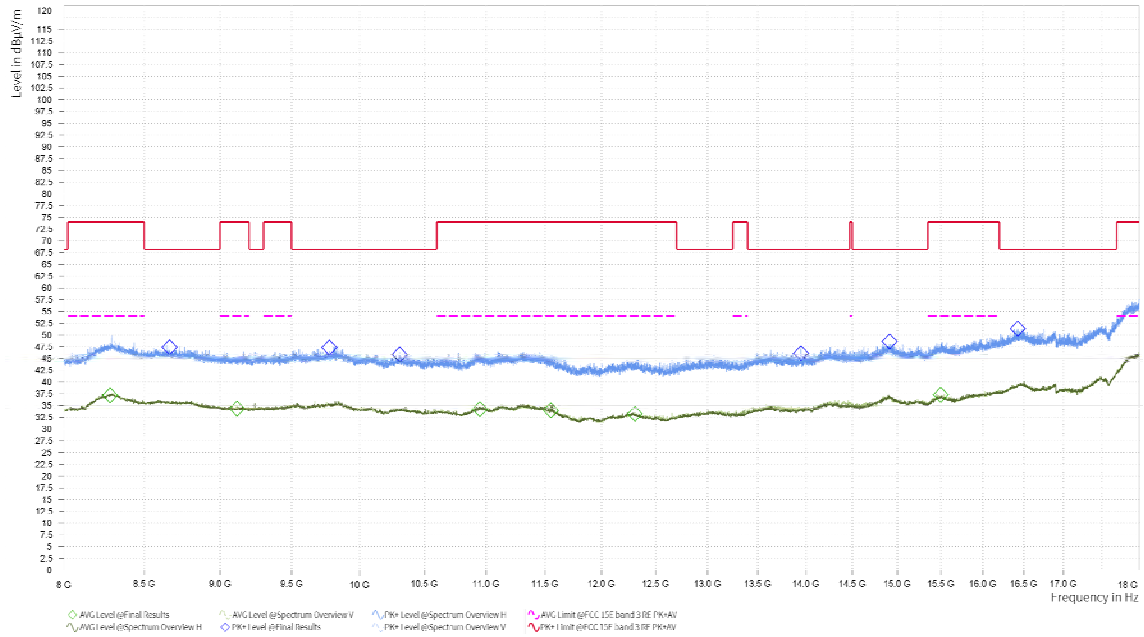
Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit –MAX Peak/ Average

802.11ac (VHT80) CH155



Radiates Emission from 1GHz to 8GHz



Note: The signal beyond the limit is carrier.

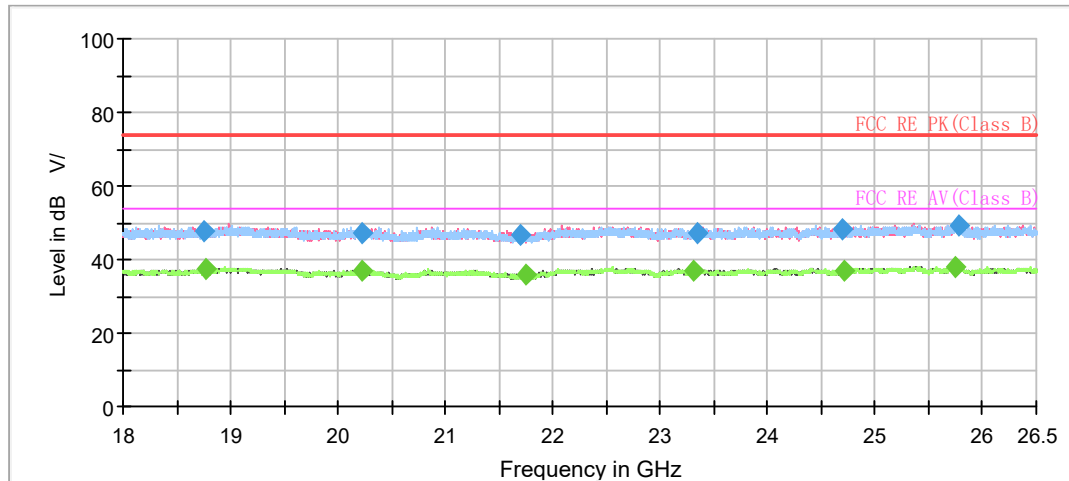
Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	MaxPeak (dBμV/m)	MaxPeak Limit (dBμV/m)	MaxPeak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Meas. Time (s)	Pol	Azimuth (deg)	Height (m)	Corr. (dB/m)
1,053.375	--	74.00	--	29.37	54.00	24.63	1.000	H	242.4	2.00	-6.46
1,248.500	42.44	68.20	25.76	--	--	--	1.000	V	250.4	1.00	-4.38
1,511.000	--	74.00	--	32.03	54.00	21.97	1.000	H	285.5	2.00	-2.41
1,930.125	45.13	68.20	23.07	--	--	--	1.000	H	142.5	2.00	0.15
2,206.625	--	74.00	--	34.61	54.00	19.39	1.000	H	92.8	2.00	1.80
2,564.500	47.31	68.20	20.89	--	--	--	1.000	H	163.8	2.00	3.13
2,806.000	--	74.00	--	36.13	54.00	17.87	1.000	H	206.4	2.00	3.68
3,139.375	48.79	68.20	19.41	--	--	--	1.000	V	150.7	1.00	4.73
4,448.375	51.84	68.20	16.36	--	--	--	1.000	H	328.4	2.00	8.15
5,422.250	--	74.00	--	42.37	54.00	11.63	1.000	H	170.9	2.00	11.49
6,492.375	56.73	68.20	11.47	--	--	--	1.000	V	307.8	1.00	12.88
7,485.500	--	74.00	--	46.10	54.00	7.90	1.000	H	56.8	2.00	13.18

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

2. Margin = Limit –MAX Peak/ Average

During the test, the Radiates Emission from 18GHz to 40GHz was performed in all modes with all channels, 802.11ac (HT80), Channel 155 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

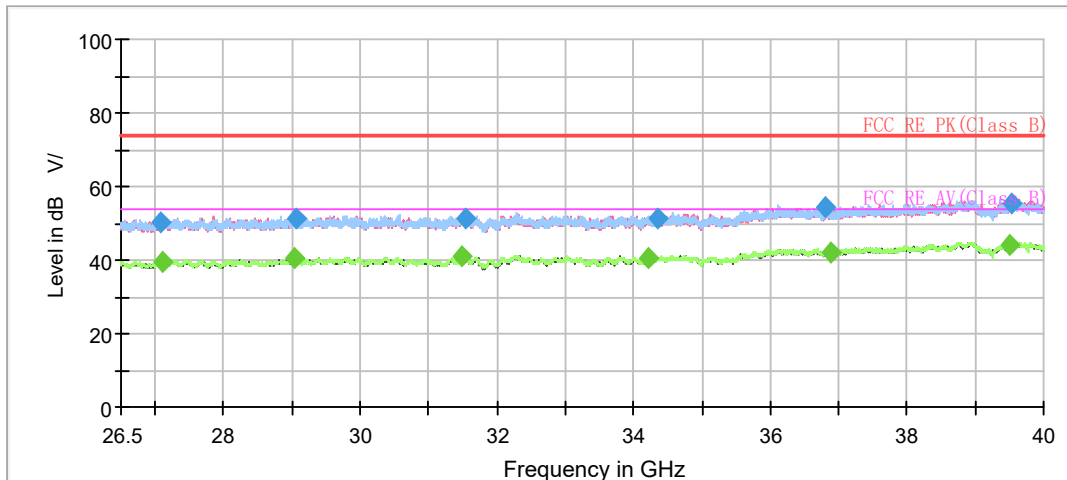


Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18745.097500	47.87	---	74.00	26.13	500.0	200.0	H	253.0	-4.5
18766.028750	---	37.20	54.00	16.80	500.0	100.0	V	64.0	-4.4
20220.081250	47.38	---	74.00	26.62	500.0	100.0	V	180.0	-4.4
20230.366250	---	36.74	54.00	17.26	500.0	200.0	H	77.0	-4.4
21703.365000	46.92	---	74.00	27.08	500.0	200.0	V	292.0	-3.9
21757.445000	---	35.83	54.00	18.17	500.0	100.0	V	125.0	-3.8
23305.775000	---	36.87	54.00	17.13	500.0	100.0	V	134.0	-2.8
23341.382500	47.31	---	74.00	26.69	500.0	200.0	V	1.0	-2.8
24694.660000	48.09	---	74.00	25.91	500.0	200.0	H	0.0	-2.2
24713.698750	---	37.17	54.00	16.83	500.0	100.0	V	64.0	-2.2
25747.513750	---	37.95	54.00	16.05	500.0	200.0	H	110.0	-1.3
25783.495000	49.28	---	74.00	24.72	500.0	100.0	V	101.0	-1.3

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

2. Margin = Limit-MAX Peak/ Average



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
27087.973750	50.35	---	74.00	23.65	500.0	200.0	V	315.0	0.3
27098.148750	---	39.71	54.00	14.29	500.0	100.0	V	89.0	0.3
29048.051250	---	40.58	54.00	13.42	500.0	200.0	H	0.0	1.0
29066.655000	51.15	---	74.00	22.85	500.0	200.0	V	305.0	1.0
31492.387500	---	41.02	54.00	12.98	500.0	200.0	H	126.0	0.0
31532.573750	51.34	---	74.00	22.66	500.0	200.0	H	19.0	-0.2
34205.877500	---	40.53	54.00	13.47	500.0	100.0	V	160.0	0.9
34361.308750	51.38	---	74.00	22.62	500.0	200.0	H	155.0	1.4
36803.515000	54.35	---	74.00	19.65	500.0	100.0	V	216.0	4.2
36882.017500	---	42.24	54.00	11.76	500.0	200.0	H	84.0	4.2
39507.947500	---	44.25	54.00	9.75	500.0	100.0	V	117.0	6.1
39542.622500	55.57	---	74.00	18.43	500.0	200.0	H	231.0	5.9

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

2. Margin = Limit-MAX Peak/ Average

5.6. Conducted Emission

Ambient condition

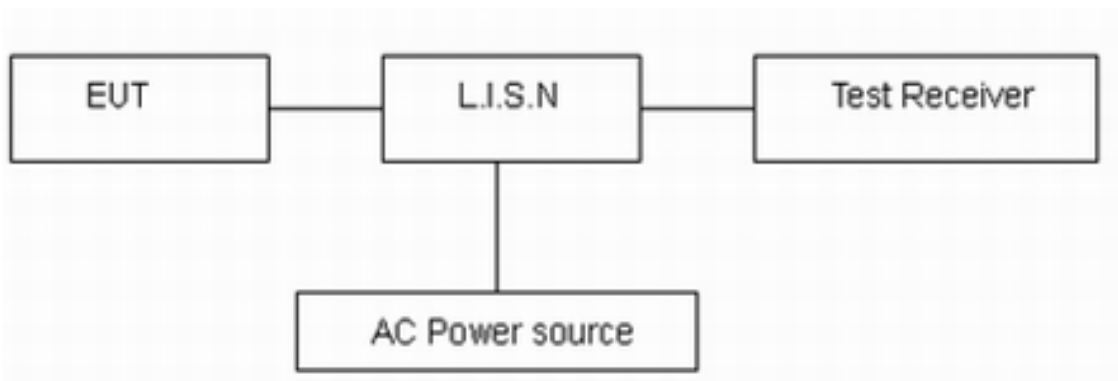
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

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. Connect the AC power line of the EUT to the LISN Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9kHz, 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

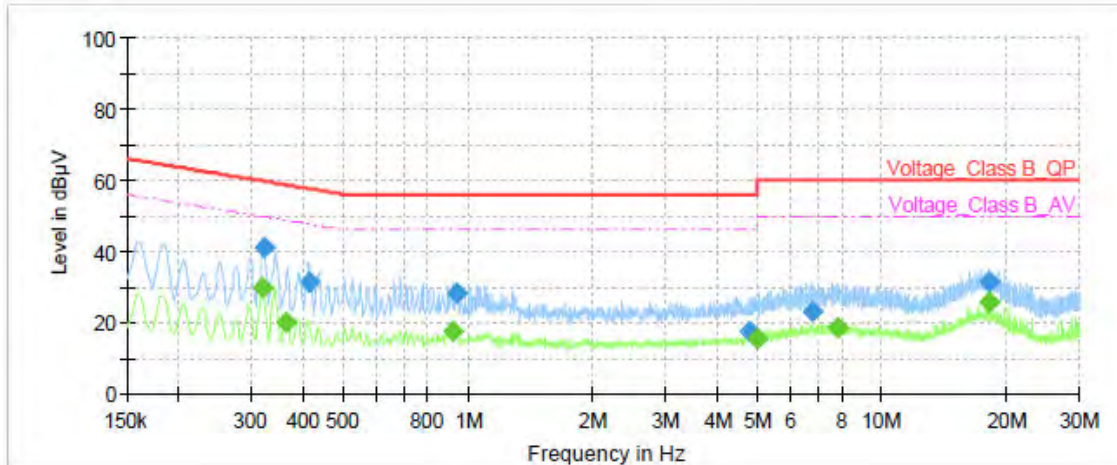
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

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:

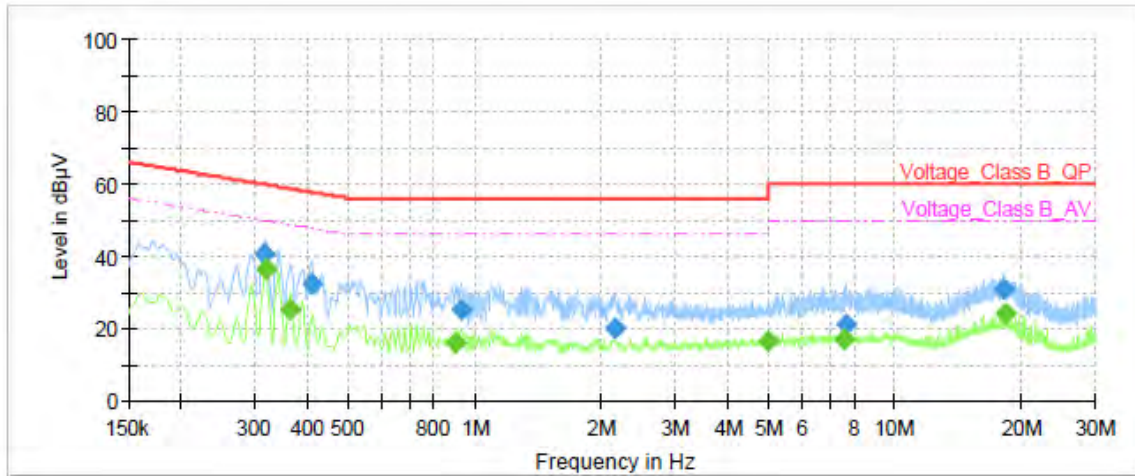
Following plots, Blue trace uses the peak detection and Green trace uses the average detection. During the test, the Conducted Emission was performed in all modes with all channels, 802.11ac (HT80), Channel 155 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.32	---	29.68	49.74	20.06	1000.0	9.000	L1	ON	21.0
0.32	41.24	---	59.68	18.44	1000.0	9.000	L1	ON	21.0
0.36	---	20.12	48.64	28.52	1000.0	9.000	L1	ON	21.0
0.41	31.38	---	57.58	26.20	1000.0	9.000	L1	ON	21.0
0.92	---	17.53	46.00	28.47	1000.0	9.000	L1	ON	20.3
0.94	28.07	---	56.00	27.93	1000.0	9.000	L1	ON	20.3
4.79	17.41	---	56.00	38.59	1000.0	9.000	L1	ON	19.5
4.99	---	15.64	46.00	30.36	1000.0	9.000	L1	ON	19.5
6.80	22.92	---	60.00	37.08	1000.0	9.000	L1	ON	19.5
7.78	---	18.41	50.00	31.59	1000.0	9.000	L1	ON	19.5
18.24	31.24	---	60.00	28.76	1000.0	9.000	L1	ON	19.7
18.24	---	25.58	50.00	24.42	1000.0	9.000	L1	ON	19.7

Remark: Correct factor=cable loss + LISN factor

L line Conducted Emission from 150 KHz to 30 MHz



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.32	40.76	---	59.80	19.04	1000.0	9.000	N	ON	21.0
0.32	---	36.37	49.74	13.37	1000.0	9.000	N	ON	21.0
0.36	---	25.05	48.64	23.59	1000.0	9.000	N	ON	21.0
0.41	32.11	---	57.67	25.56	1000.0	9.000	N	ON	21.0
0.90	---	15.71	46.00	30.29	1000.0	9.000	N	ON	20.3
0.93	25.00	---	56.00	31.00	1000.0	9.000	N	ON	20.3
2.16	20.09	---	56.00	35.91	1000.0	9.000	N	ON	19.7
4.98	---	16.17	46.00	29.83	1000.0	9.000	N	ON	19.5
7.61	---	16.95	50.00	33.05	1000.0	9.000	N	ON	19.5
7.65	21.12	---	60.00	38.88	1000.0	9.000	N	ON	19.5
18.24	31.02	---	60.00	28.98	1000.0	9.000	N	ON	19.7
18.31	---	23.96	50.00	26.04	1000.0	9.000	N	ON	19.7

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 KHz to 30 MHz

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Power sensor	R&S	NRP18S	101954	2023-05-12	2024-05-11
Spectrum Analyzer	KEYSIGHT	N9020A	MY51330870	2023-05-12	2024-05-11
DC Power Supply	UNI-T	UTP1306S+	2205D0517426	2023-12-05	2024-12-04
Temperature Chamber	ESPEC	SU-242	93000506	2023-12-05	2024-12-04
Unwanted Emission					
Antenna Tower	ETS	2175	00095628	/	/
EMI Test Receiver	R&S	ESR	102389	2023-05-12	2024-05-11
Signal Analyzer	R&S	FSV40	101298	2023-05-12	2024-05-11
Signal Analyzer	R&S	FSV3044	103495	2023-09-19	2024-09-18
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2023-04-16	2026-04-15
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1023	2023-07-14	2026-07-13
Horn Antenna	R&S	HF907	102723	2021-07-24	2024-07-23
Amplifier	R&S	SCU18	10034	2023-05-12	2024-05-11
Horn Antenna	ETS-Lindgren	3160-09	00102643	2021-10-10	2024-10-09
Horn Antenna	STEATITE	QSH-SL-26-40-K-15	16779	2023-01-17	2026-01-16
Amplifier	MicroWave	KLNA-18040050	220826001	2023-05-12	2024-05-11
Software	R&S	EMC32	9.26.01	/	/
Conducted Emission					
Artificial main network	R&S	ENV216	102191	2022-12-10	2024-12-09
EMI Test Receiver	R&S	ESR	101667	2023-05-12	2024-05-11
Software	R&S	EMC32	10.35.10	/	/

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

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