

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.

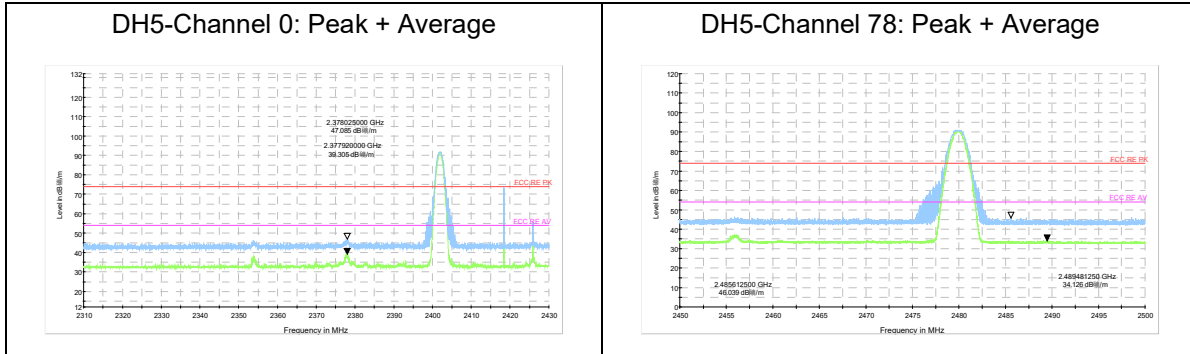
1. Unwanted Emission

1.1. Bluetooth

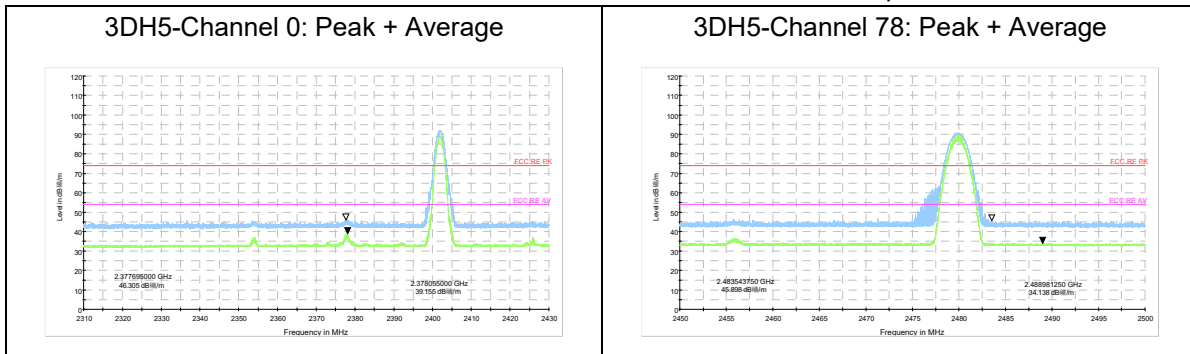
The following graphs display the maximum values of horizontal and vertical by software. Blue trace uses the peak detection, Green trace uses the average detection.

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

The signal beyond the limit is carrier.



The bandage was performed in all EDR mode (2DH5 and 3DH5), 3DH5 was selected as the worse condition. The test data of the worst-case condition was recorded in this report.



Result of RE

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

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

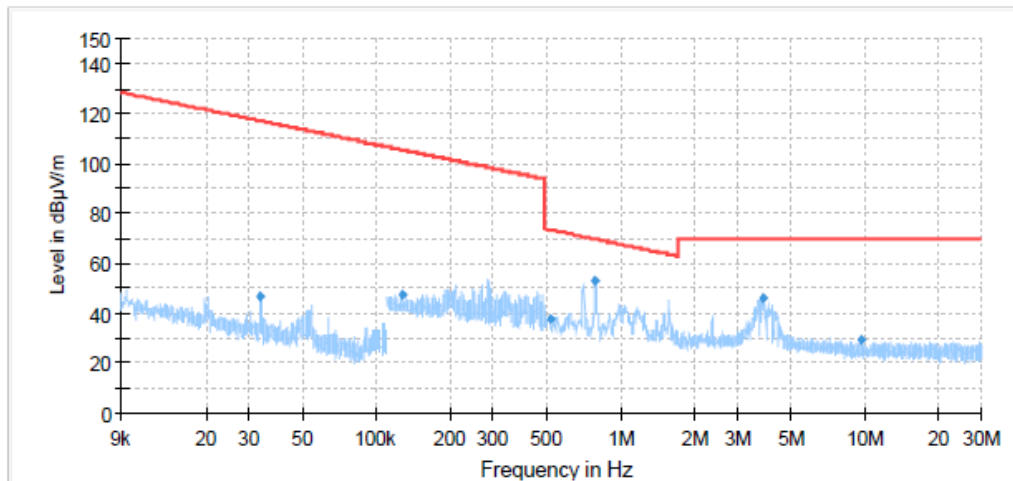
For above 1GHz

 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:

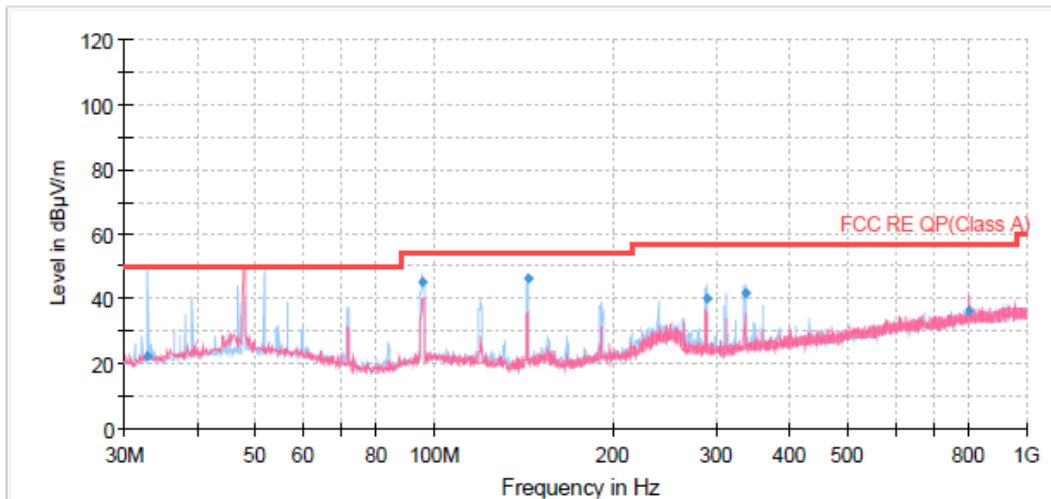
During the test, the Radiates Emission from 9kHz to 1GHz was performed in all modes with all channels. The test data of the worst-case condition (3DH5-Channel 39) was recorded in this report.



Final Result

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Azimuth (deg)	Corr. (dB/m)
0.03	46.57	117.08	70.51	500.00	303.00	17
0.13	47.19	105.56	58.37	150.00	0.00	17
0.51	37.87	73.42	35.54	150.00	0.00	17
0.79	53.36	69.66	16.30	150.00	12.00	17
3.81	45.84	69.50	23.66	150.00	333.00	17
9.61	28.98	69.50	40.52	150.00	34.00	17

Radiates Emission from 9kHz to 30MHz

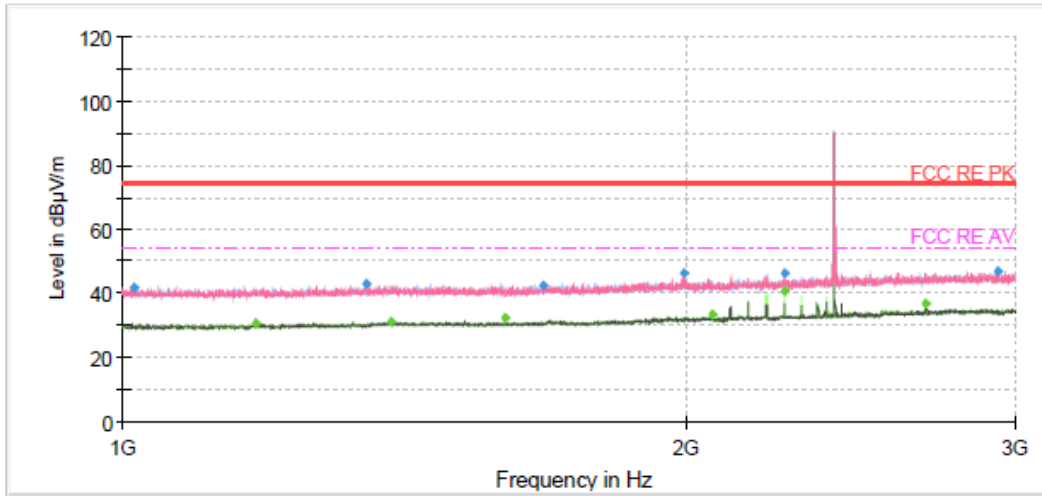


Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.91	22.38	49.50	27.12	1000.00	100.0	H	6.00	17
95.60	45.43	54.00	8.57	1000.00	100.0	H	131.00	18
143.73	46.30	54.00	7.70	1000.00	200.0	H	131.00	15
288.02	40.06	56.90	16.84	1000.00	100.0	H	21.00	21
336.16	42.08	56.90	14.82	1000.00	100.0	H	21.00	22
800.06	36.53	56.90	20.37	1000.00	200.0	V	44.00	30

Radiates Emission from 30MHz to 1GHz

DH5-Channel 0

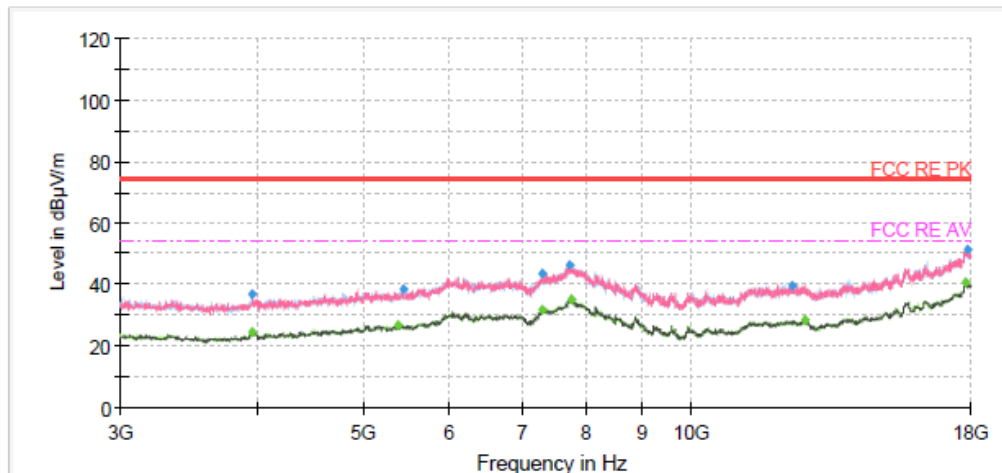


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1014.25	42.09	---	74.00	31.91	500.00	100.0	V	276.00	-12
1177.25	---	30.45	54.00	23.55	500.00	200.0	H	206.00	-12
1350.25	42.78	---	74.00	31.22	500.00	100.0	H	0.00	-11
1390.75	---	31.09	54.00	22.91	500.00	100.0	H	26.00	-11
1601.25	---	32.46	54.00	21.54	500.00	100.0	H	33.00	-11
1678.50	42.57	---	74.00	31.43	500.00	100.0	H	73.00	-10
1994.25	46.25	---	74.00	27.75	500.00	200.0	V	246.00	-8
2065.75	---	33.57	54.00	20.43	500.00	200.0	V	0.00	-8
2257.75	46.13	---	74.00	27.87	500.00	200.0	H	219.00	-7
2257.75	---	40.51	54.00	13.49	500.00	200.0	H	219.00	-7
2690.00	---	36.72	54.00	17.28	500.00	100.0	H	33.00	-5
2938.50	46.86	---	74.00	27.14	500.00	200.0	V	3.00	-5

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

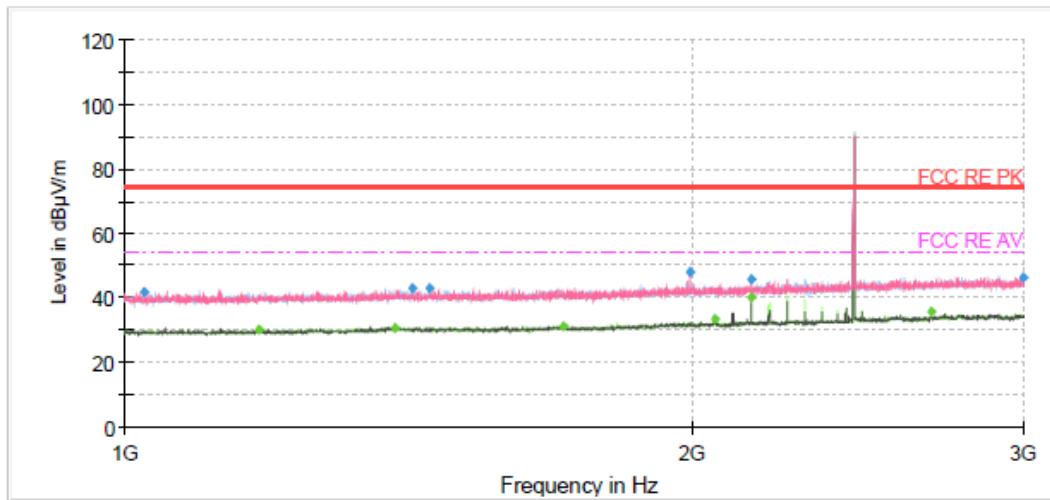


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3961.88	---	24.45	54.00	29.55	500.00	100.0	V	328.00	-11
3961.88	36.95	---	74.00	37.05	500.00	200.0	H	356.00	-11
5381.25	---	26.77	54.00	27.23	500.00	100.0	H	165.00	-8
5435.63	38.32	---	74.00	35.68	500.00	200.0	V	16.00	-8
7282.50	---	31.64	54.00	22.36	500.00	100.0	H	0.00	-1
7282.50	43.33	---	74.00	30.67	500.00	100.0	V	349.00	-1
7738.13	46.48	---	74.00	27.52	500.00	200.0	V	355.00	1
7745.63	---	35.00	54.00	19.00	500.00	100.0	H	262.00	1
12343.13	39.74	---	74.00	34.26	500.00	100.0	V	220.00	6
12703.13	---	28.44	54.00	25.56	500.00	200.0	H	114.00	5
17827.50	---	40.66	54.00	13.34	500.00	200.0	V	40.00	15
17833.13	51.60	---	74.00	22.40	500.00	100.0	H	61.00	15

Radiates Emission from 3GHz to 18GHz

DH5-Channel 39

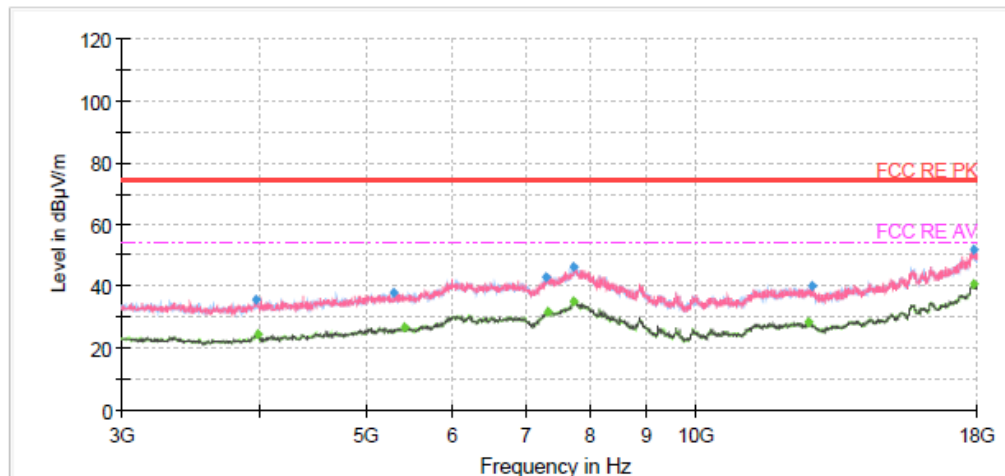


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1024.25	41.63	---	74.00	32.37	500.00	100.0	H	8.00	-12
1177.75	---	30.41	54.00	23.59	500.00	100.0	V	359.00	-12
1392.00	---	30.91	54.00	23.09	500.00	100.0	V	358.00	-11
1420.75	42.79	---	74.00	31.21	500.00	200.0	H	225.00	-11
1451.00	43.21	---	74.00	30.79	500.00	100.0	H	159.00	-11
1708.00	---	31.48	54.00	22.52	500.00	200.0	H	347.00	-10
1996.50	47.73	---	74.00	26.27	500.00	200.0	V	205.00	-8
2056.00	---	33.69	54.00	20.31	500.00	200.0	V	135.00	-8
2152.00	45.49	---	74.00	28.51	500.00	200.0	H	253.00	-7
2152.00	---	40.04	54.00	13.96	500.00	200.0	V	135.00	-7
2679.75	---	35.71	54.00	18.29	500.00	100.0	H	29.00	-5
2999.50	46.52	---	74.00	27.48	500.00	200.0	H	30.00	-4

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

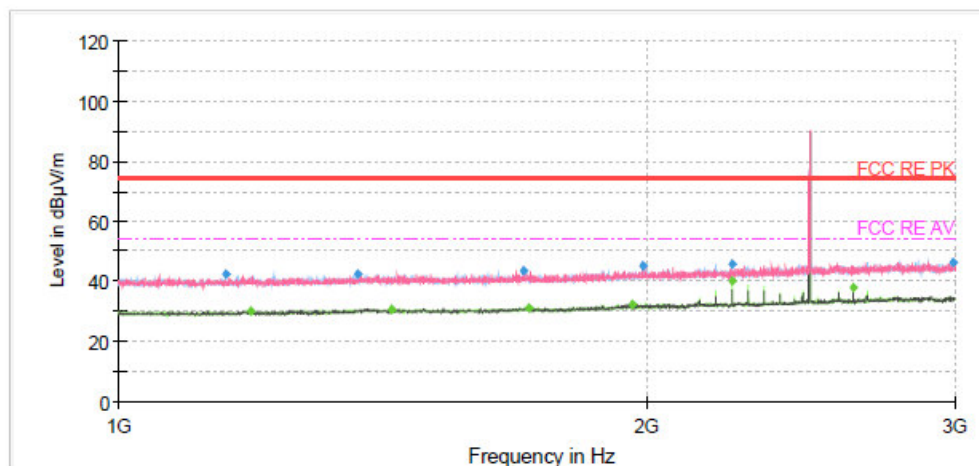


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3969.38	35.46	---	74.00	38.54	500.00	200.0	H	174.00	-11
3990.00	---	24.48	54.00	29.52	500.00	100.0	H	73.00	-11
5302.50	38.07	---	74.00	35.93	500.00	100.0	V	357.00	-9
5433.75	---	26.52	54.00	27.48	500.00	200.0	H	327.00	-8
7293.75	43.15	---	74.00	30.85	500.00	100.0	H	0.00	0
7308.75	---	31.63	54.00	22.37	500.00	200.0	H	111.00	-1
7730.63	46.50	---	74.00	27.50	500.00	100.0	V	14.00	1
7734.38	---	35.14	54.00	18.86	500.00	100.0	V	359.00	1
12648.75	---	28.33	54.00	25.67	500.00	200.0	H	346.00	5
12750.00	39.95	---	74.00	34.05	500.00	100.0	V	330.00	5
17831.25	52.02	---	74.00	21.98	500.00	200.0	H	306.00	15
17842.50	---	40.84	54.00	13.16	500.00	100.0	H	0.00	15

Radiates Emission from 3GHz to 18GHz

DH5-Channel 78

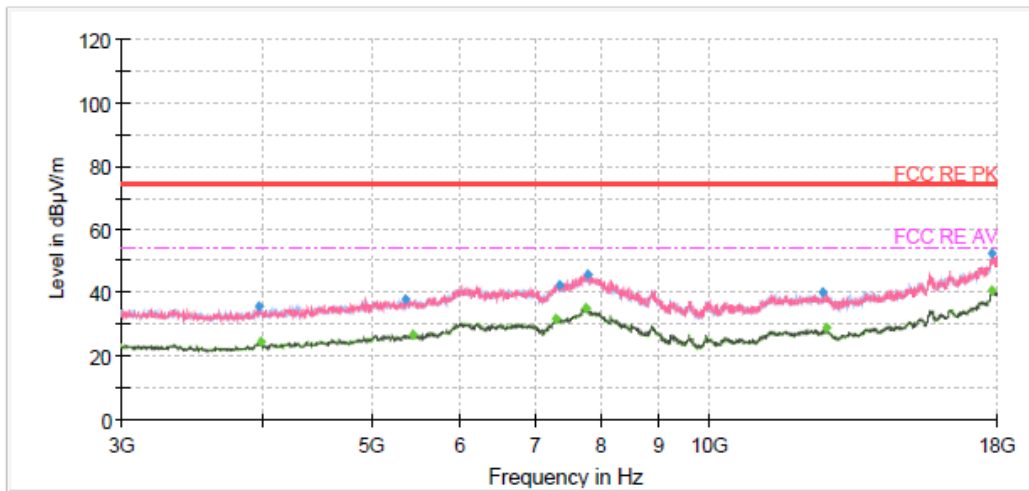


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1151.25	42.51	---	74.00	31.49	500.00	200.0	H	358.00	-12
1189.50	---	30.33	54.00	23.67	500.00	100.0	H	231.00	-12
1367.25	42.56	---	74.00	31.44	500.00	200.0	H	288.00	-11
1430.50	---	30.94	54.00	23.06	500.00	100.0	V	340.00	-11
1702.25	43.31	---	74.00	30.69	500.00	100.0	H	161.00	-10
1712.00	---	31.28	54.00	22.72	500.00	100.0	V	286.00	-10
1962.50	---	32.37	54.00	21.63	500.00	200.0	V	10.00	-8
1992.75	45.23	---	74.00	28.77	500.00	100.0	H	8.00	-8
2240.00	45.82	---	74.00	28.18	500.00	200.0	H	248.00	-7
2240.00	---	40.02	54.00	13.98	500.00	100.0	H	174.00	-7
2624.00	---	37.77	54.00	16.23	500.00	100.0	H	188.00	-6
2991.25	46.39	---	74.00	27.61	500.00	100.0	H	119.00	-4

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz



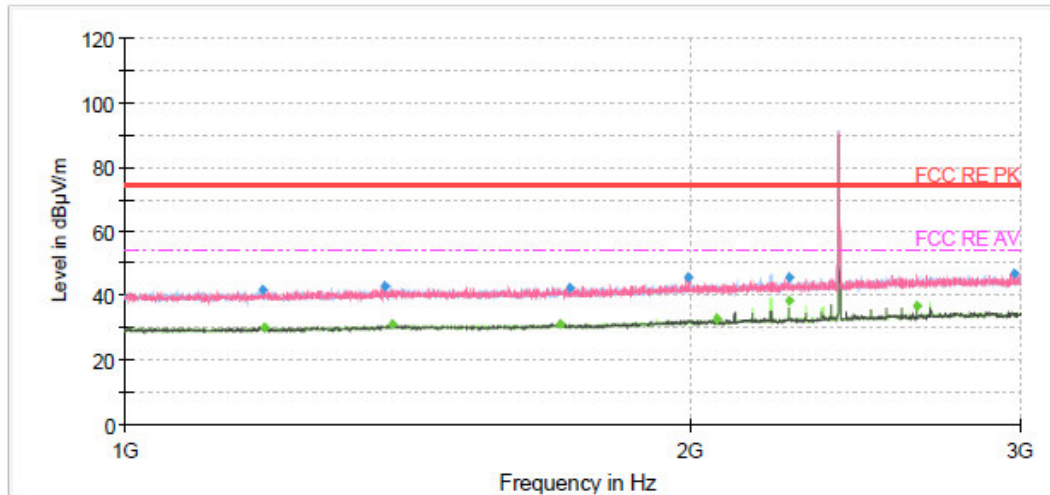
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3965.63	35.63	---	74.00	38.37	500.00	100.0	V	328.00	-11
3982.50	---	24.40	54.00	29.60	500.00	100.0	H	44.00	-11
5351.25	37.89	---	74.00	36.11	500.00	100.0	V	128.00	-8
5441.25	---	26.71	54.00	27.29	500.00	100.0	V	0.00	-8
7303.13	---	31.82	54.00	22.18	500.00	200.0	H	223.00	-1
7344.38	42.48	---	74.00	31.52	500.00	200.0	H	0.00	-1
7741.88	---	35.23	54.00	18.77	500.00	200.0	V	2.00	1
7773.75	45.71	---	74.00	28.29	500.00	100.0	H	0.00	1
12588.75	40.03	---	74.00	33.97	500.00	200.0	V	0.00	5
12663.75	---	28.87	54.00	25.13	500.00	200.0	H	296.00	5
17818.13	52.38	---	74.00	21.62	500.00	200.0	V	87.00	15
17825.63	---	40.69	54.00	13.31	500.00	200.0	V	166.00	15

Radiates Emission from 3GHz to 18GHz

The Radiates Emission was performed in all EDR mode (2DH5 and 3DH5), 3DH5 was selected as the worse condition. The test data of the worst-case condition was recorded in this report.

3DH5-Channel 0

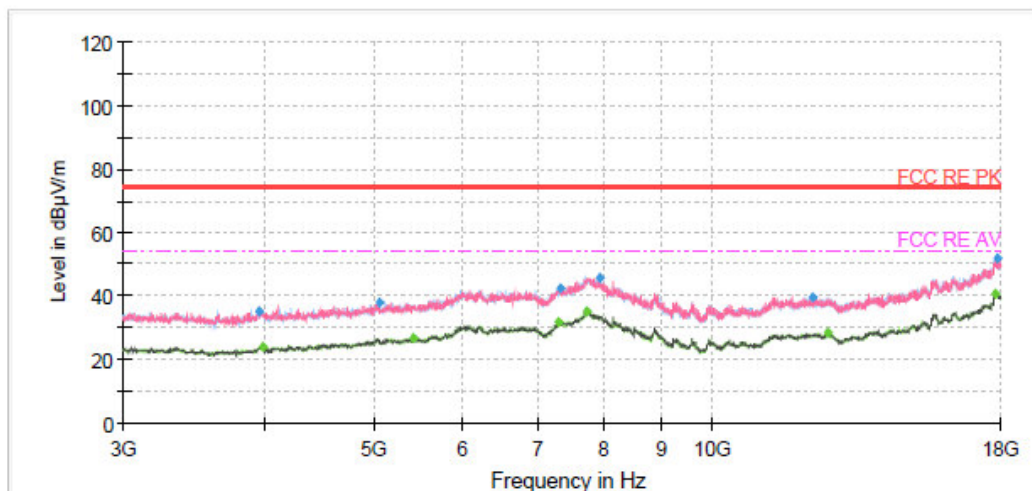


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1183.00	41.87	---	74.00	32.13	500.00	100.0	V	214.00	-12
1187.75	---	30.16	54.00	23.84	500.00	200.0	V	12.00	-12
1375.00	42.82	---	74.00	31.18	500.00	200.0	V	2.00	-11
1387.75	---	31.02	54.00	22.98	500.00	200.0	V	0.00	-11
1706.75	---	31.46	54.00	22.54	500.00	200.0	H	250.00	-10
1724.50	42.60	---	74.00	31.40	500.00	100.0	V	358.00	-10
1997.00	45.94	---	74.00	28.06	500.00	200.0	V	218.00	-8
2066.25	---	32.99	54.00	21.01	500.00	200.0	V	45.00	-8
2258.00	45.54	---	74.00	28.46	500.00	100.0	H	63.00	-7
2258.00	---	38.73	54.00	15.27	500.00	200.0	H	264.00	-7
2642.25	---	36.96	54.00	17.04	500.00	100.0	H	8.00	-5
2976.00	46.85	---	74.00	27.15	500.00	100.0	V	357.00	-4

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

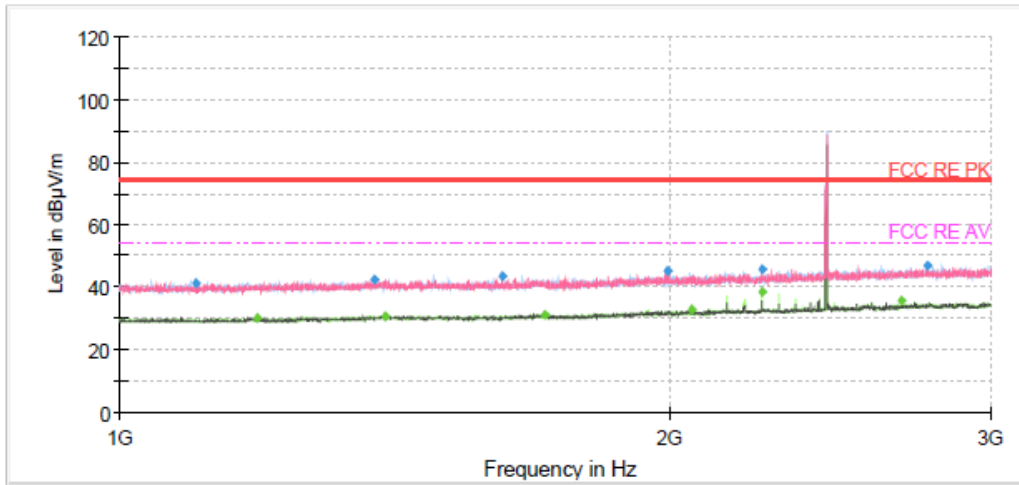


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3963.75	35.39	---	74.00	38.61	500.00	200.0	V	0.00	-11
3984.38	---	24.28	54.00	29.72	500.00	200.0	H	300.00	-11
5058.75	38.16	---	74.00	35.84	500.00	100.0	H	0.00	-9
5418.75	---	26.77	54.00	27.23	500.00	100.0	V	283.00	-8
7288.13	---	31.79	54.00	22.21	500.00	200.0	V	1.00	0
7312.50	42.52	---	74.00	31.48	500.00	100.0	V	359.00	-1
7736.25	---	35.29	54.00	18.71	500.00	100.0	V	283.00	1
7948.13	45.96	---	74.00	28.04	500.00	200.0	H	321.00	1
12241.88	39.91	---	74.00	34.09	500.00	200.0	H	321.00	6
12654.38	---	28.41	54.00	25.59	500.00	200.0	V	1.00	5
17825.63	---	40.91	54.00	13.09	500.00	200.0	V	2.00	15
17833.13	52.13	---	74.00	21.87	500.00	200.0	H	225.00	15

Radiates Emission from 3GHz to 18GHz

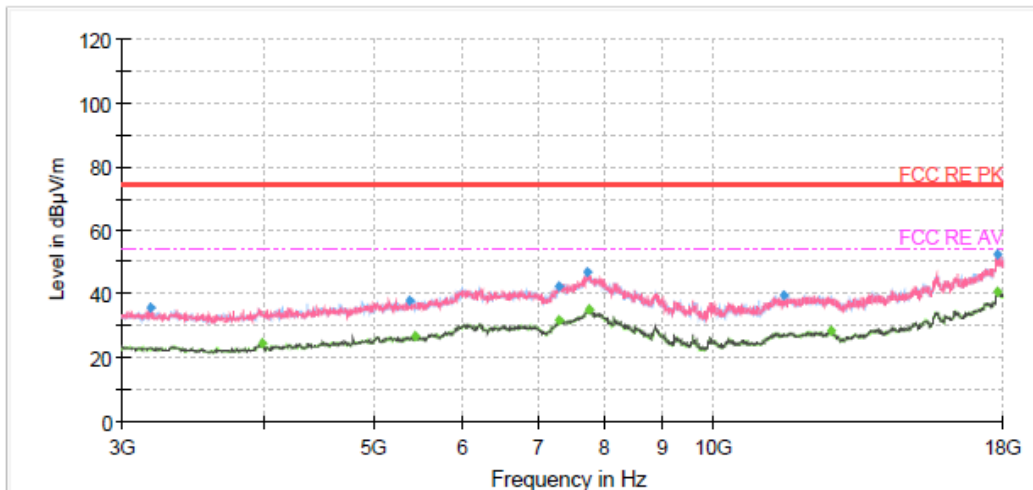
3DH5-Channel 39



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)
1100.75	41.57	---	74.00	32.43	500.00	100.0	V	168.00	-12
1188.00	---	30.07	54.00	23.93	500.00	200.0	H	345.00	-12
1379.75	42.24	---	74.00	31.76	500.00	200.0	H	299.00	-11
1398.00	---	30.95	54.00	23.05	500.00	100.0	H	349.00	-11
1618.75	43.51	---	74.00	30.49	500.00	100.0	V	338.00	-10
1708.00	---	31.53	54.00	22.47	500.00	200.0	H	340.00	-10
1996.25	45.14	---	74.00	28.86	500.00	200.0	V	25.00	-8
2056.00	---	33.01	54.00	20.99	500.00	100.0	H	78.00	-8
2247.50	45.70	---	74.00	28.30	500.00	200.0	H	232.00	-7
2247.75	---	38.68	54.00	15.32	500.00	200.0	H	260.00	-7
2680.00	---	35.55	54.00	18.45	500.00	100.0	H	45.00	-5
2770.00	47.15	---	74.00	26.85	500.00	100.0	H	133.00	-5

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

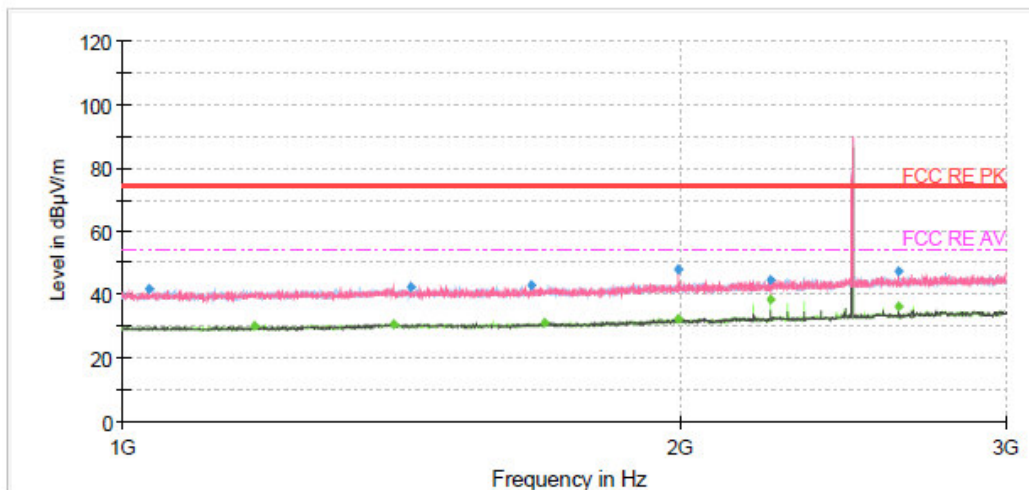


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3172.50	35.80	---	74.00	38.20	500.00	200.0	V	2.00	-14
3984.38	---	24.51	54.00	29.49	500.00	100.0	V	110.00	-11
5375.63	38.22	---	74.00	35.78	500.00	200.0	H	310.00	-8
5439.38	---	26.89	54.00	27.11	500.00	200.0	V	7.00	-8
7291.88	---	31.83	54.00	22.17	500.00	100.0	H	8.00	0
7301.25	42.60	---	74.00	31.40	500.00	100.0	V	0.00	0
7730.63	46.61	---	74.00	27.39	500.00	200.0	V	336.00	1
7741.88	---	35.08	54.00	18.92	500.00	200.0	V	163.00	1
11505.00	39.80	---	74.00	34.20	500.00	200.0	V	15.00	6
12669.38	---	28.44	54.00	25.56	500.00	200.0	H	226.00	5
17780.63	52.55	---	74.00	21.45	500.00	100.0	H	181.00	14
17797.50	---	40.98	54.00	13.02	500.00	100.0	H	306.00	15

Radiates Emission from 3GHz to 18GHz

3DH5-Channel 78

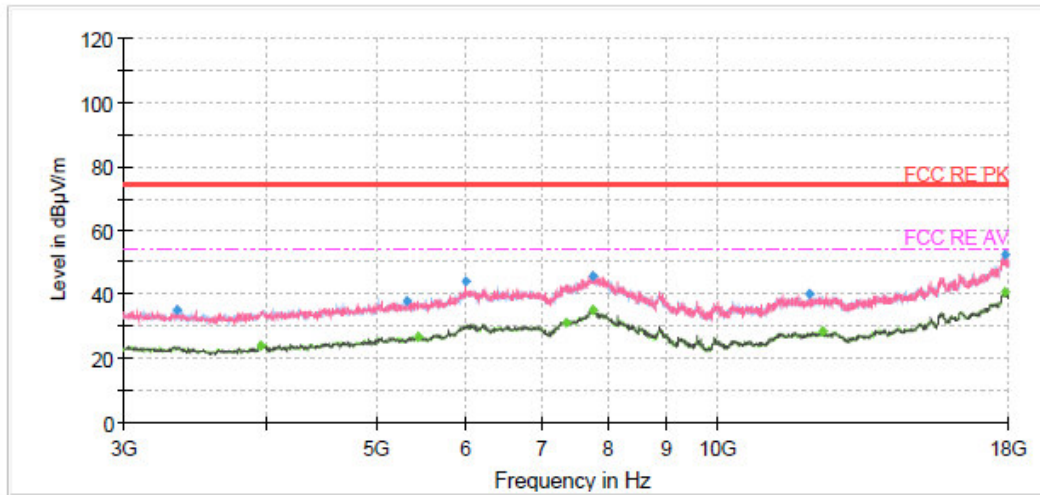


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1032.25	41.80	---	74.00	32.20	500.00	200.0	V	306.00	-12
1178.75	---	30.18	54.00	23.82	500.00	200.0	H	315.00	-12
1402.25	---	30.97	54.00	23.03	500.00	100.0	V	0.00	-11
1429.50	42.63	---	74.00	31.37	500.00	100.0	H	0.00	-11
1663.00	42.81	---	74.00	31.19	500.00	100.0	H	179.00	-10
1691.50	---	31.21	54.00	22.79	500.00	200.0	V	32.00	-10
1995.00	---	32.42	54.00	21.58	500.00	200.0	H	87.00	-8
1995.50	48.02	---	74.00	25.98	500.00	100.0	V	206.00	-8
2239.75	44.93	---	74.00	29.07	500.00	200.0	H	256.00	-7
2240.00	---	38.74	54.00	15.26	500.00	100.0	H	68.00	-7
2623.75	---	36.45	54.00	17.55	500.00	100.0	H	191.00	-6
2624.25	47.61	---	74.00	26.39	500.00	100.0	V	178.00	-6

Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

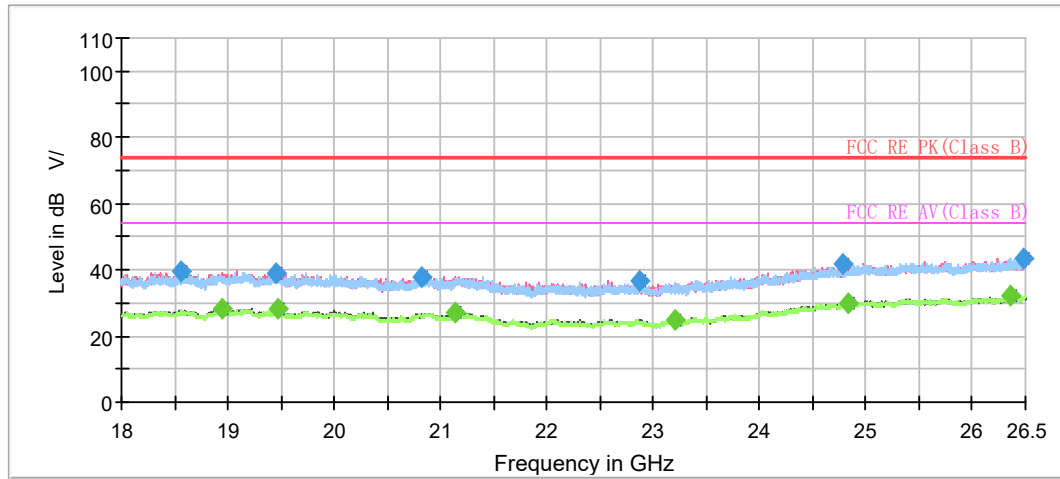


Final Result

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	35.43	---	74.00	38.57	500.00	100.0	V	220.00	-13
3963.75	---	24.20	54.00	29.80	500.00	100.0	V	205.00	-11
5325.00	37.90	---	74.00	36.10	500.00	200.0	V	61.00	-8
5450.63	---	26.93	54.00	27.07	500.00	200.0	H	351.00	-8
5992.50	44.01	---	74.00	29.99	500.00	200.0	V	120.00	-6
7338.75	---	31.53	54.00	22.47	500.00	200.0	V	120.00	-1
7741.88	---	35.17	54.00	18.83	500.00	200.0	H	307.00	1
7755.00	46.03	---	74.00	27.97	500.00	200.0	V	120.00	1
12026.25	40.25	---	74.00	33.75	500.00	100.0	H	324.00	6
12365.63	---	28.35	54.00	25.65	500.00	200.0	H	354.00	6
17835.00	---	40.76	54.00	13.24	500.00	200.0	V	4.00	15
17851.88	52.26	---	74.00	21.74	500.00	100.0	V	359.00	15

Radiates Emission from 3GHz to 18GHz

During the test, the Radiates Emission from 18GHz to 26.5GHz was performed in all modes with all channels. The test data of the worst-case condition (3DH5-Channel 39) was recorded in this report.



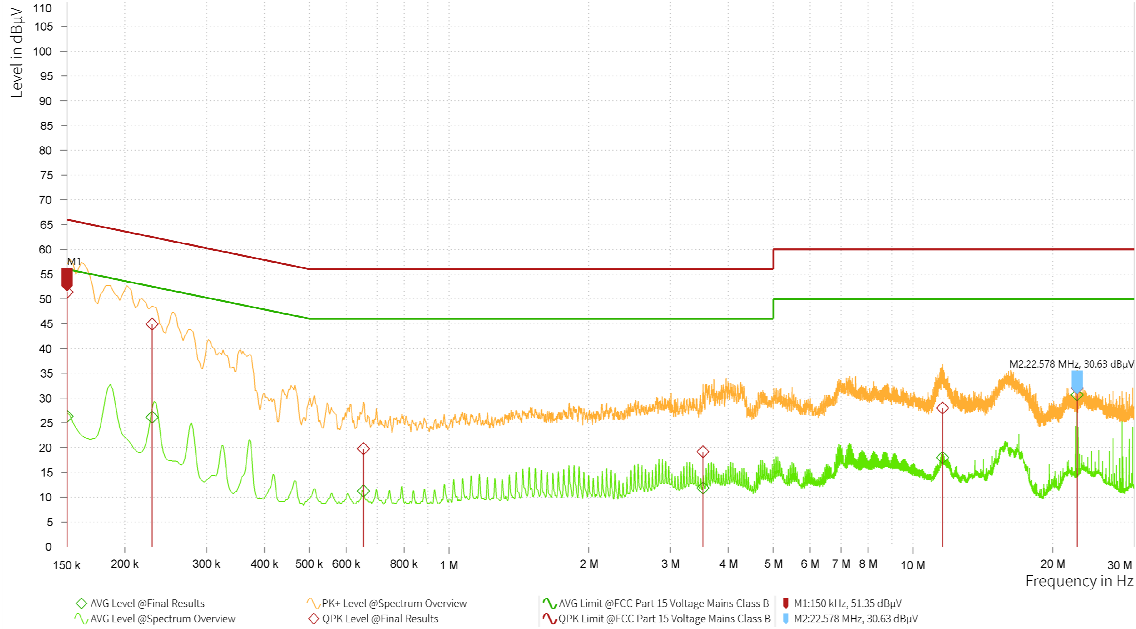
Radiates Emission from 18GHz to 26.5GHz

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)
18552.500000	39.25	---	74.00	34.75	500.0	100.0	V	36.0	-4.7
18941.375000	---	28.09	54.00	25.91	500.0	100.0	V	162.0	-4.9
19454.562500	39.17	---	74.00	34.83	500.0	100.0	V	259.0	-4.8
19466.250000	---	28.23	54.00	25.77	500.0	100.0	V	36.0	-4.8
20819.875000	38.05	---	74.00	35.95	500.0	100.0	V	36.0	-3.9
21142.875000	---	26.83	54.00	27.17	500.0	100.0	H	125.0	-3.7
22870.500000	36.65	---	74.00	37.35	500.0	100.0	H	203.0	-5.5
23210.500000	---	25.08	54.00	28.92	500.0	100.0	V	0.0	-5.7
24784.062500	41.51	---	74.00	32.49	500.0	100.0	H	105.0	-1.7
24834.000000	---	29.79	54.00	24.21	500.0	100.0	H	350.0	-1.6
26362.937500	---	32.41	54.00	21.59	500.0	100.0	V	162.0	0.5
26481.937500	43.41	---	74.00	30.59	500.0	100.0	V	259.0	0.8

2. Conducted Emission

2.1. Bluetooth

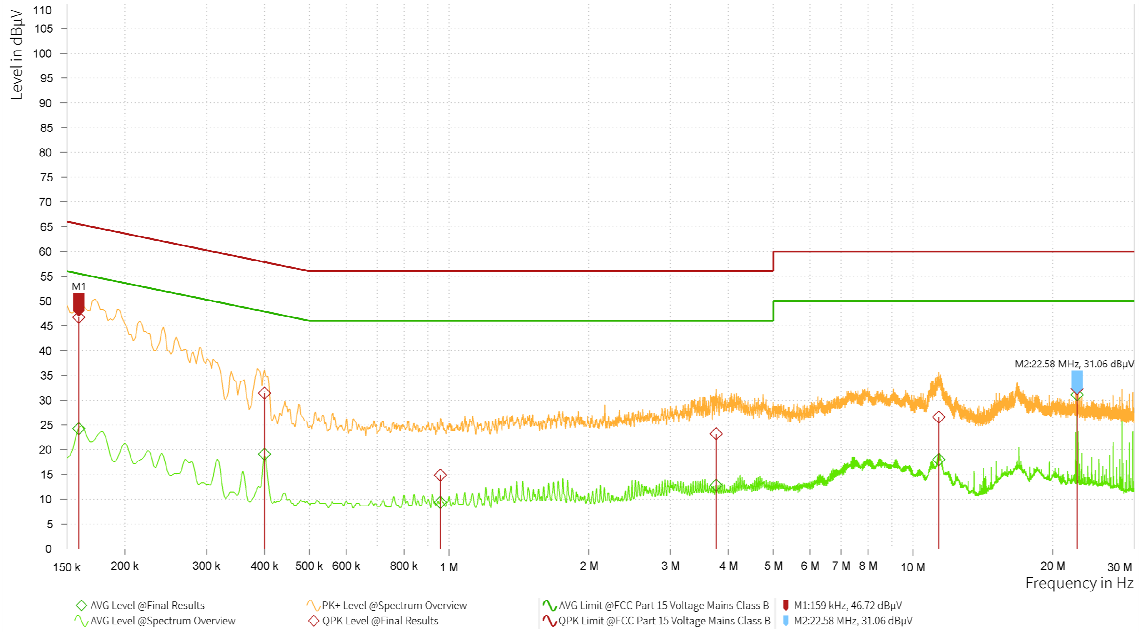
During the test, the Conducted Emission was performed in all modes with all channels. The test data of the worst-case condition (3DH5-Channel 39) was recorded in this report.



Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.150	51.35	66.00	14.65	26.31	56.00	29.69	20.90	L1	9.000	1.000
0.229	44.91	62.49	17.59	26.14	52.49	26.36	21.00	L1	9.000	1.000
0.654	19.77	56.00	36.23	11.26	46.00	34.74	20.62	L1	9.000	1.000
3.525	19.17	56.00	36.83	11.86	46.00	34.14	19.45	L1	9.000	1.000
11.589	27.99	60.00	32.01	17.98	50.00	32.02	19.42	L1	9.000	1.000
22.578	32.04	60.00	27.96	30.63	50.00	19.37	19.72	L1	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

L line Conducted Emission from 150 kHz to 30 MHz



Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	AVG Level [dBµV]	AVG Limit [dBµV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.159	46.72	65.52	18.80	24.24	55.52	31.28	20.91	N	9.000	1.000
0.400	31.38	57.86	26.48	19.07	47.86	28.79	20.89	N	9.000	1.000
0.958	14.85	56.00	41.15	9.35	46.00	36.65	20.20	N	9.000	1.000
3.766	23.21	56.00	32.79	12.80	46.00	33.20	19.45	N	9.000	1.000
11.371	26.58	60.00	33.42	17.97	50.00	32.03	19.44	N	9.000	1.000
22.580	32.29	60.00	27.71	31.06	50.00	18.94	19.77	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 kHz to 30 MHz