

ANNEX A: Test Result

1. Radiates Emission

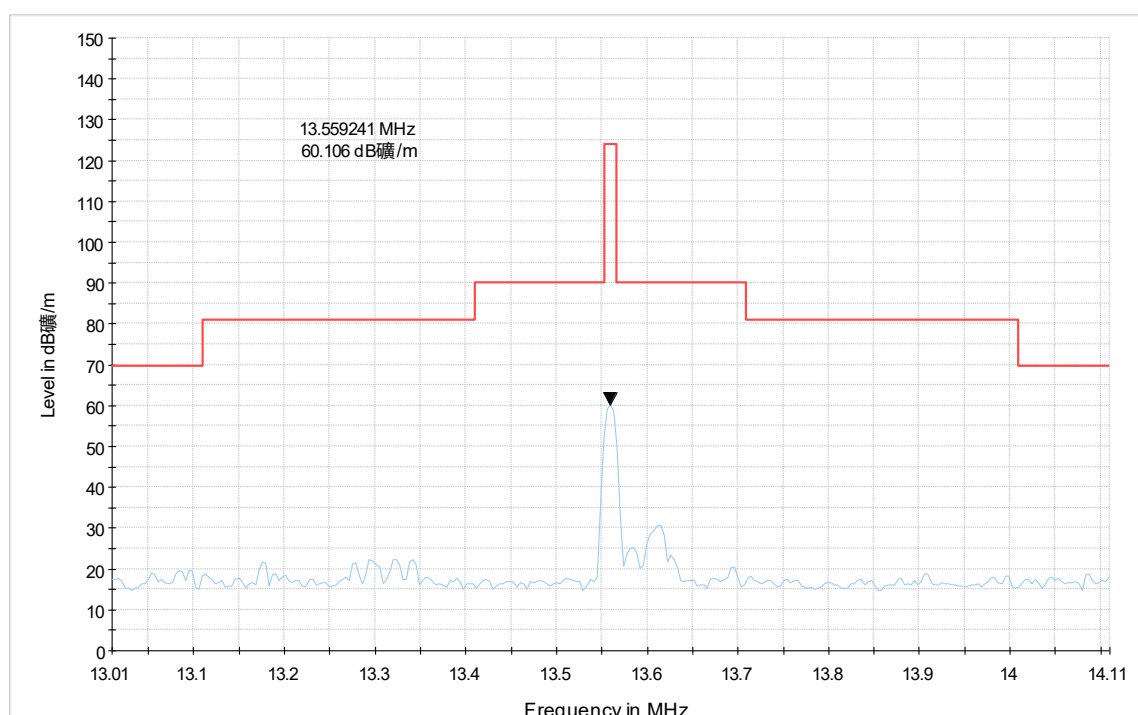
The test is in transmitting all mode, NFC-A was selected as the worst condition. The test data of the worst-case condition was recorded in this report.

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 lie-down position (X axis) and the loop antenna is coplanar, the other antennas are vertical and horizontal.

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

Configuration 1

In-band



Radiates Emission from 13.01MHz to 14.41MHz

Note: This graph displays the maximum values of coaxial and coplanar by software

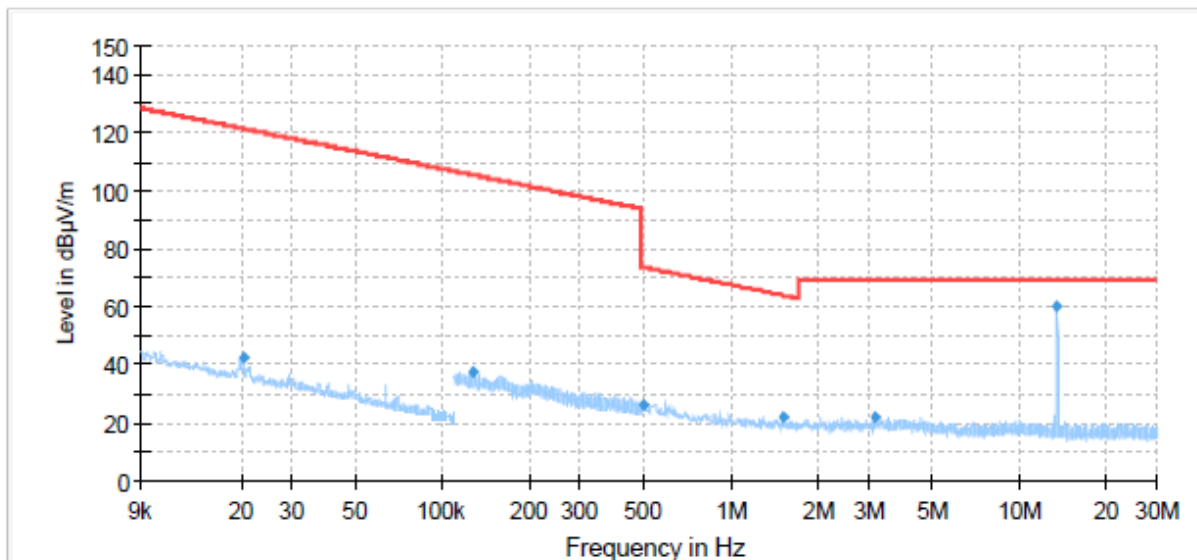
Out-of-band

The test is in transmitting all mode, NFC-A was selected as the worst condition. The test data of the worst-case condition was recorded in this report.

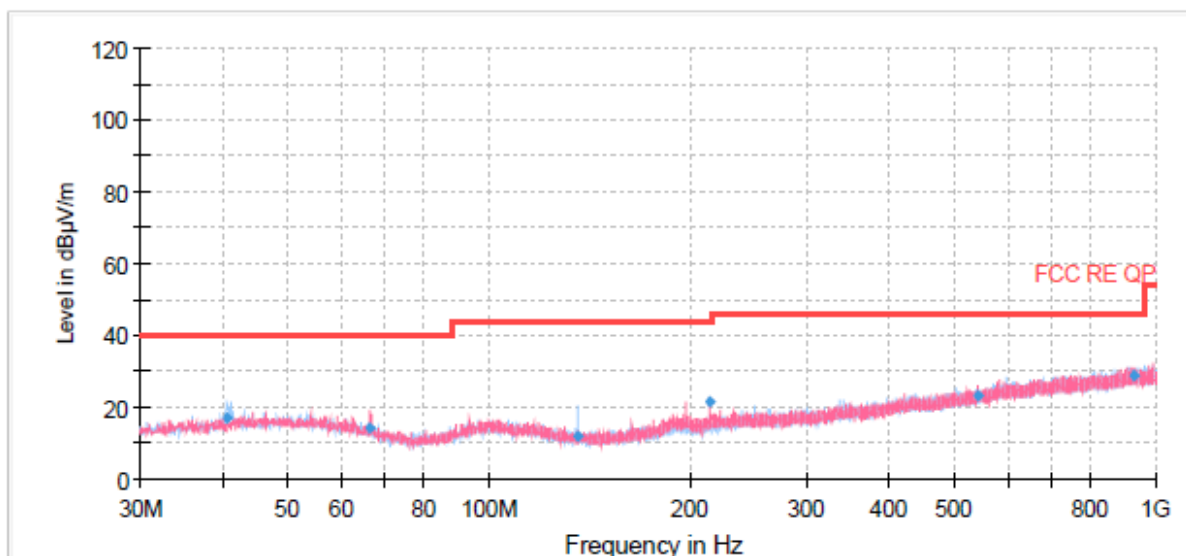
The following graphs display the maximum values of coaxial and coplanar for 9k-30MHz; horizontal and vertical for 30MHz to 1GHz by software.

For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

Configuration 1



Radiates Emission from 9kHz to 30MHz



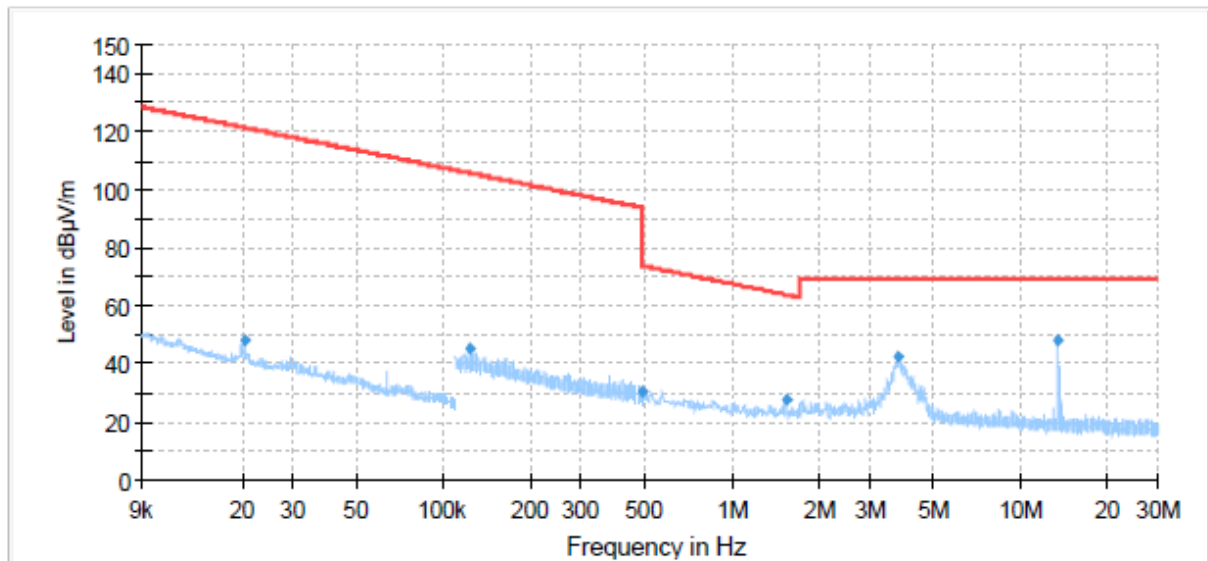
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
40.58	16.73	40.00	23.27	125.0	H	44.00	19
66.41	14.08	40.00	25.92	125.0	V	249.00	17
136.06	11.83	43.50	31.67	225.0	H	71.00	15
214.49	21.78	43.50	21.72	210.0	V	58.00	18
540.60	23.17	46.00	22.83	100.0	V	179.00	26
926.46	28.97	46.00	17.03	175.0	V	280.00	31

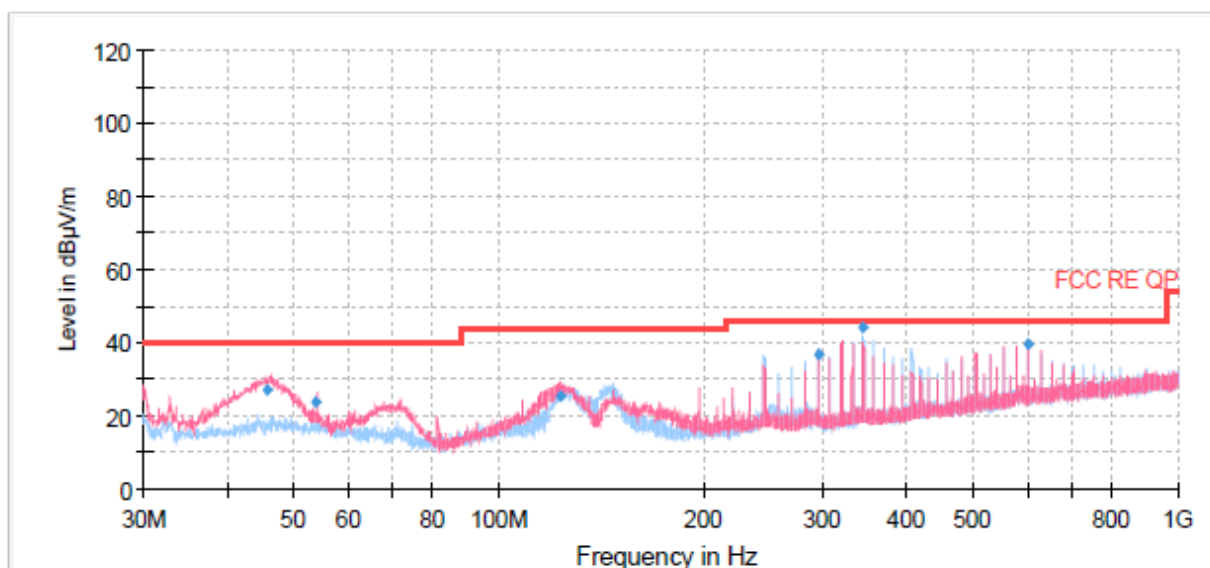
Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit – Quasi-Peak

Configuration 3



Radiates Emission from 9kHz to 30MHz



Radiates Emission from 30MHz to 1GHz

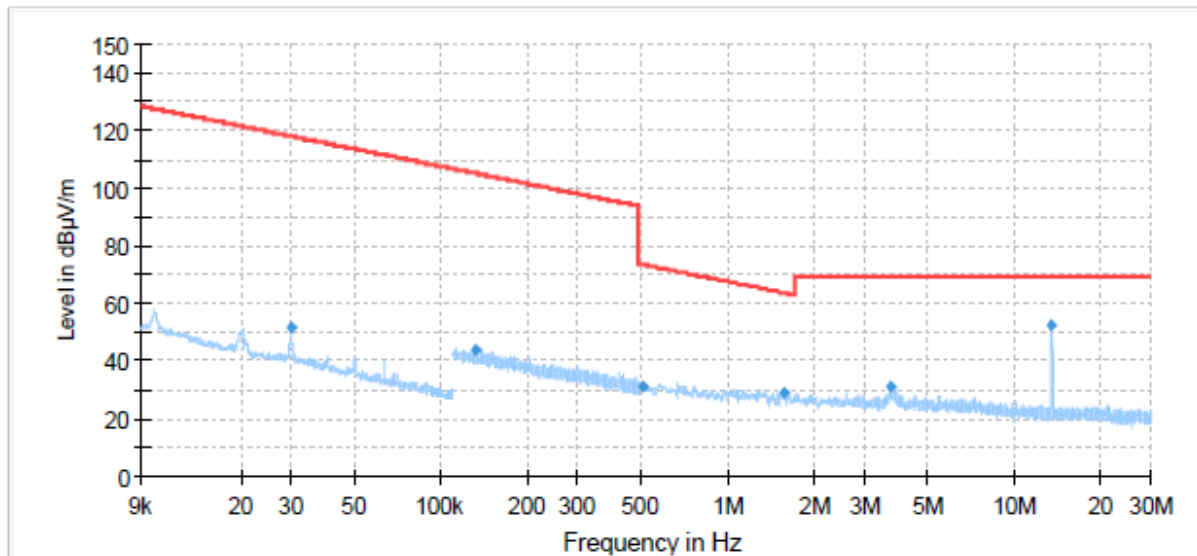
Note: This graph displays the maximum values of horizontal and vertical by software

Frequency (MHz)	Quasi-Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
45.63	27.02	40.00	12.98	100.0	V	62.00	20
53.63	23.98	40.00	16.02	100.0	V	86.00	20
123.06	25.62	43.50	17.88	100.0	V	158.00	16
295.34	36.69	46.00	9.31	124.0	H	218.00	21
344.55	44.15	46.00	1.85	101.0	H	82.00	22
603.15	39.62	46.00	6.38	101.0	V	326.00	27

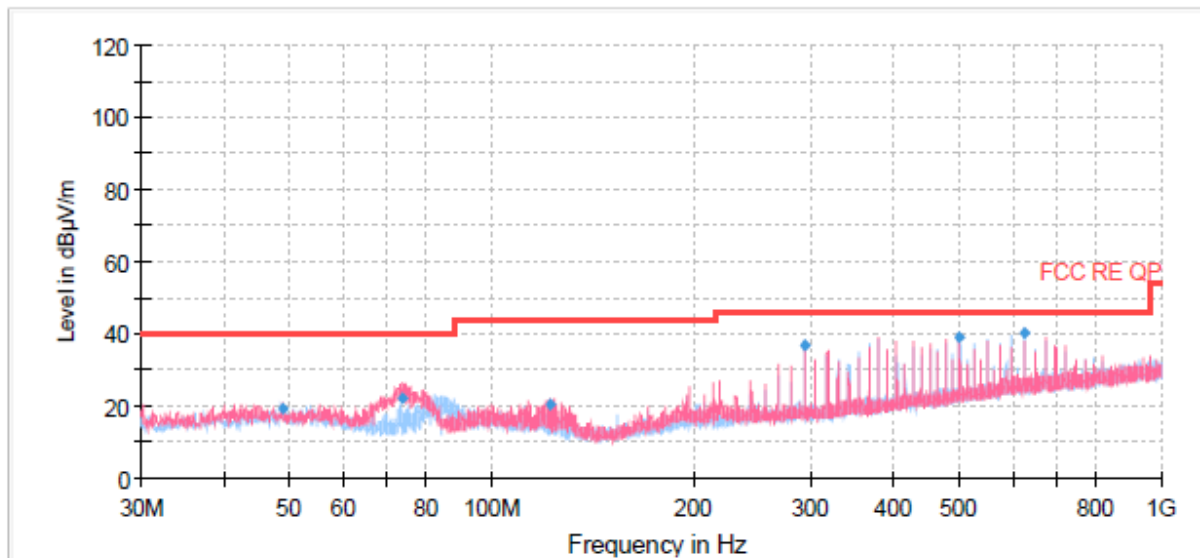
Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)

2. Margin = Limit – Quasi-Peak

Configuration 4



Radiates Emission from 9kHz to 30MHz



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)
48.77	19.40	40.00	20.60	100.0	V	31.00	20
73.84	22.10	40.00	17.90	100.0	V	174.00	15
122.00	20.50	43.50	23.00	200.0	V	142.00	17
293.11	36.68	46.00	9.32	100.0	V	306.00	21
500.60	39.20	46.00	6.80	200.0	H	294.00	25
622.62	39.97	46.00	6.03	200.0	H	318.00	28

Remark: 1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
 2. Margin = Limit – Quasi-Peak

2. Conducted Emission

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

Configuration 1



Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.182	41.19	64.42	23.23	24.94	54.42	29.47	21.03	L1	9.000	1.000
0.584	36.09	56.00	19.91	24.60	46.00	21.40	20.69	L1	9.000	1.000
1.779	25.63	56.00	30.37	15.54	46.00	30.46	19.72	L1	9.000	1.000
4.196	21.71	56.00	34.29	12.41	46.00	33.59	19.42	L1	9.000	1.000
7.406	25.60	60.00	34.40	15.85	50.00	34.15	19.41	L1	9.000	1.000
27.119	37.49	60.00	22.51	16.91	50.00	33.09	19.81	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: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.188	28.01	64.11	36.10	17.64	54.11	36.47	21.03	N	9.000	1.000
0.278	27.26	60.87	33.61	19.41	50.87	31.46	20.96	N	9.000	1.000
0.575	34.20	56.00	21.80	25.40	46.00	20.60	20.71	N	9.000	1.000
2.180	24.03	56.00	31.97	15.80	46.00	30.20	19.61	N	9.000	1.000
6.655	23.41	60.00	36.59	15.17	50.00	34.83	19.41	N	9.000	1.000
27.119	44.49	60.00	15.51	20.83	50.00	29.17	19.88	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 kHz to 30 MHz

Configuration 3



Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.211	28.45	63.18	34.72	19.67	53.18	33.50	21.01	L1	9.000	1.000
0.418	40.78	57.49	16.71	33.78	47.49	13.72	20.86	L1	9.000	1.000
0.886	29.13	56.00	26.87	20.10	46.00	25.90	20.25	L1	9.000	1.000
2.472	25.16	56.00	30.84	18.14	46.00	27.86	19.55	L1	9.000	1.000
7.760	33.09	60.00	26.91	22.26	50.00	27.74	19.41	L1	9.000	1.000
27.119	38.07	60.00	21.93	25.30	50.00	24.70	19.81	L1	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

L line Conducted Emission from 150 kHz to 30 MHz

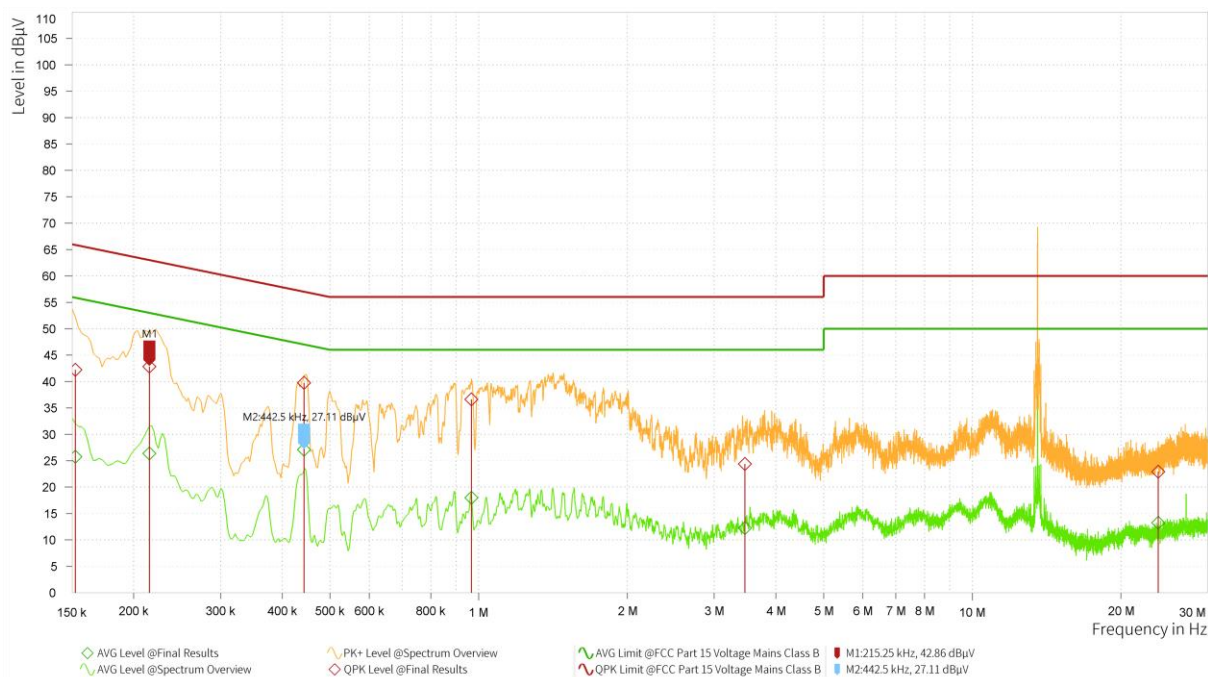


Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG: CAV Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.159	32.07	65.52	33.44	17.62	55.52	37.89	20.91	N	9.000	1.000
0.398	39.62	57.91	18.28	26.87	47.91	21.03	20.89	N	9.000	1.000
1.214	30.30	56.00	25.70	21.98	46.00	24.02	20.02	N	9.000	1.000
3.739	23.39	56.00	32.61	17.28	46.00	28.72	19.45	N	9.000	1.000
7.969	35.27	60.00	24.73	25.67	50.00	24.33	19.41	N	9.000	1.000
27.121	38.12	60.00	21.88	25.59	50.00	24.41	19.88	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 kHz to 30 MHz

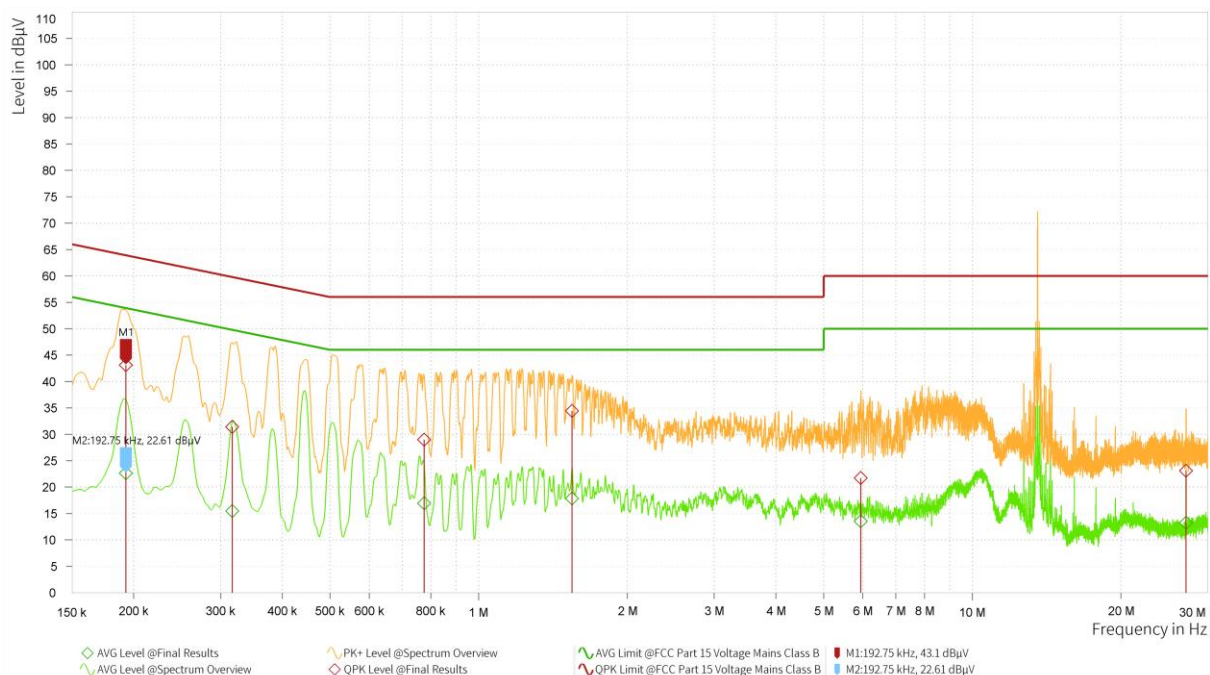
Configuration 4



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]
0.152	42.19	65.88	23.68	25.76	55.88	30.12	20.90	L1	9.000	1.000
0.215	42.86	63.00	20.14	26.37	53.00	26.63	21.00	L1	9.000	1.000
0.443	39.74	57.01	17.28	27.11	47.01	19.91	20.84	L1	9.000	1.000
0.967	36.62	56.00	19.38	17.99	46.00	28.01	20.19	L1	9.000	1.000
3.460	24.40	56.00	31.60	12.25	46.00	33.75	19.45	L1	9.000	1.000
23.811	22.91	60.00	37.09	13.25	50.00	36.75	19.78	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]
0.193	43.10	63.92	20.82	22.61	53.92	31.30	21.03	N	9.000	1.000
0.317	31.41	59.80	28.39	15.45	49.80	34.34	20.94	N	9.000	1.000
0.776	28.99	56.00	27.01	16.93	46.00	29.07	20.36	N	9.000	1.000
1.545	34.42	56.00	21.58	17.82	46.00	28.18	19.83	N	9.000	1.000
5.946	21.73	60.00	38.27	13.53	50.00	36.47	19.41	N	9.000	1.000
27.119	23.09	60.00	36.91	13.23	50.00	36.77	19.88	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line Conducted Emission from 150 kHz to 30 MHz