

Fig.25 Conducted Spurious Emission (CH39, 1GHz-26.5GHz), LE 1M

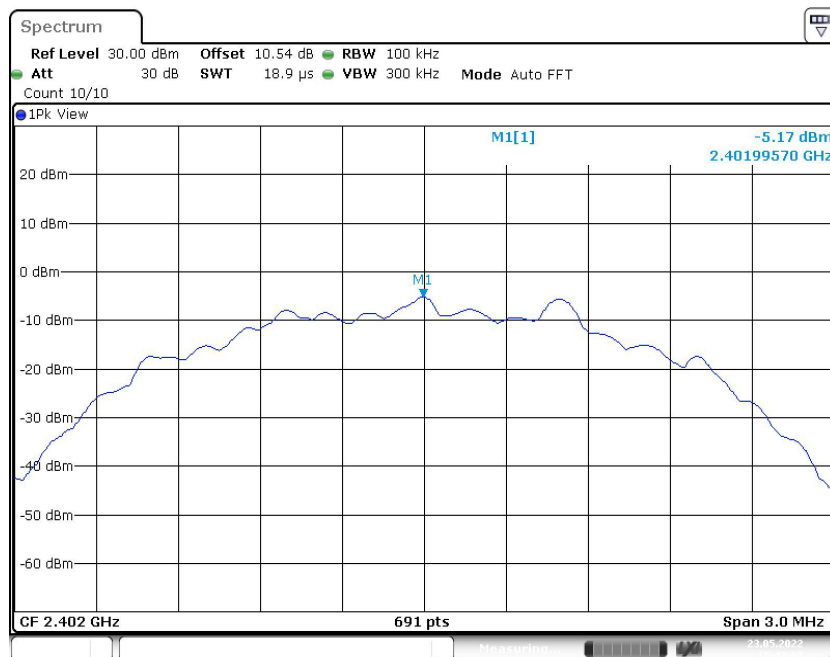


Fig.26 Conducted Spurious Emission (CH0, Center Frequency), LE 2M

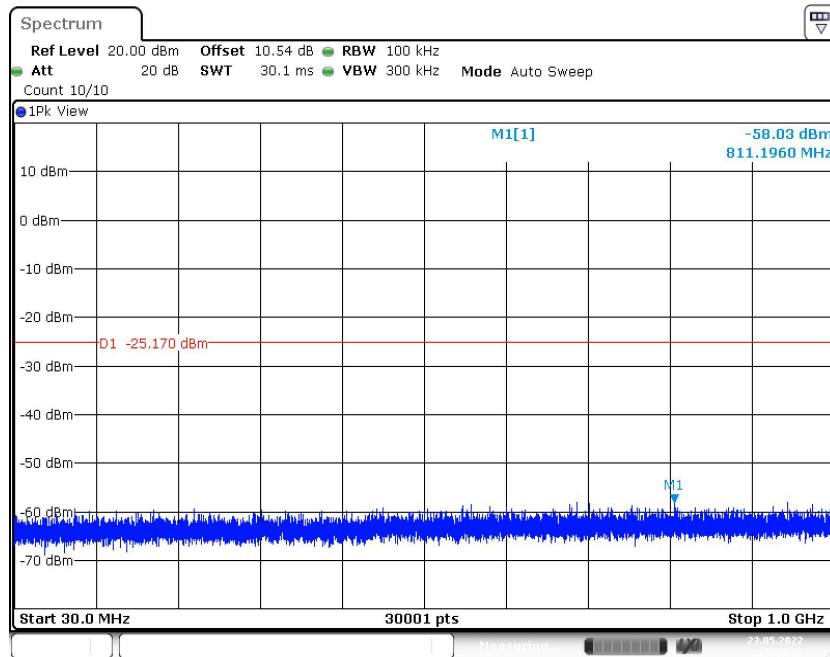


Fig.27 Conducted Spurious Emission (CH0, 30MHz -1GHz), LE 2M

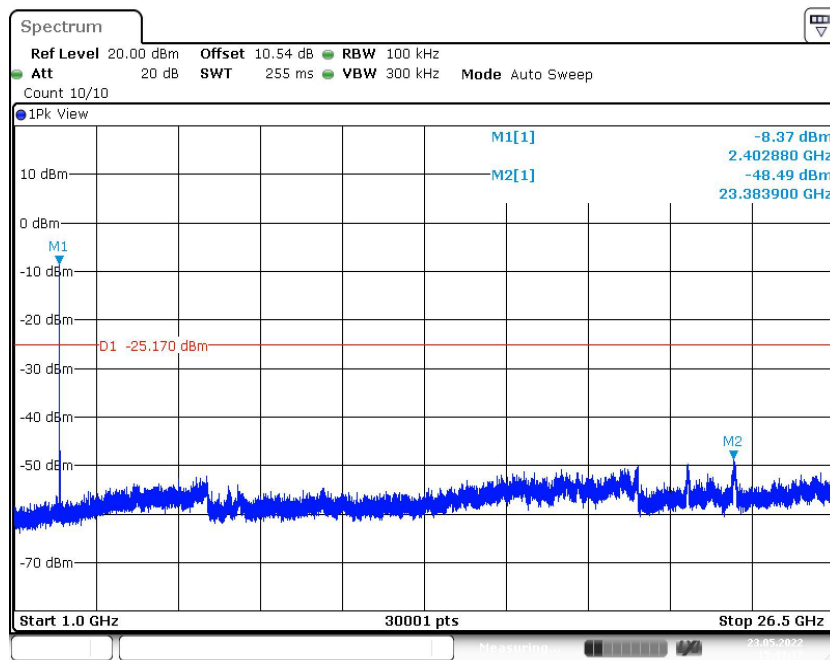


Fig.28 Conducted Spurious Emission (CH0, 1GHz-26.5GHz), LE 2M

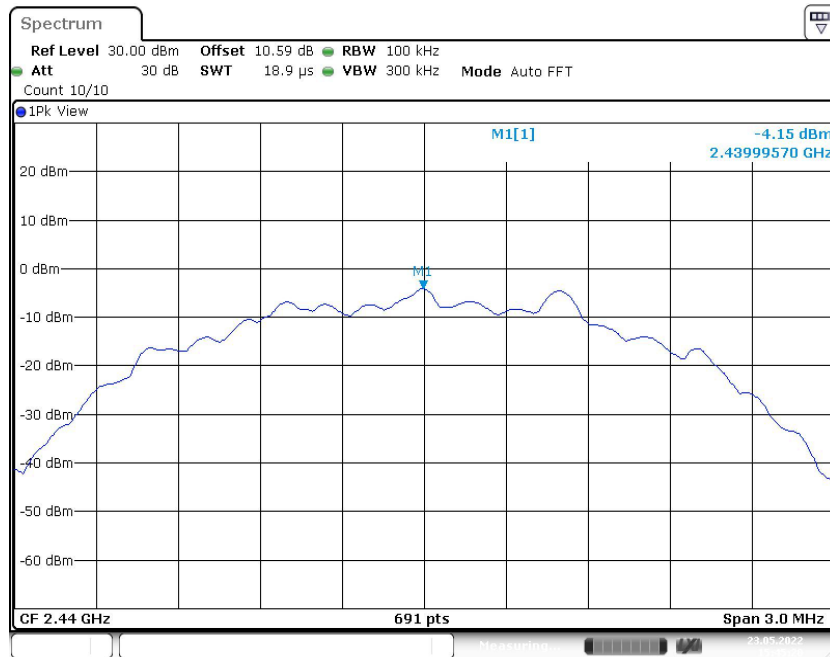


Fig.29 Conducted Spurious Emission (CH19, Center Frequency), LE 2M

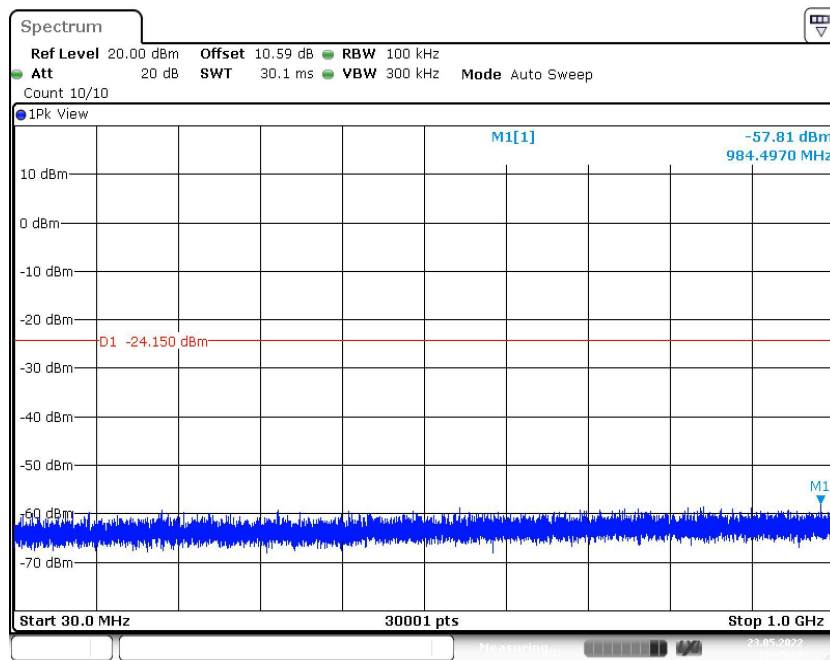
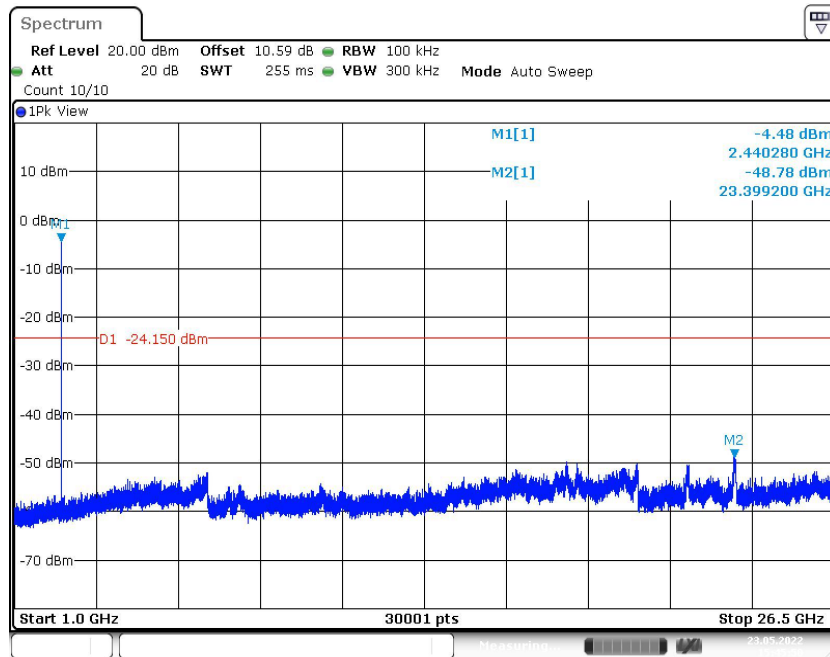
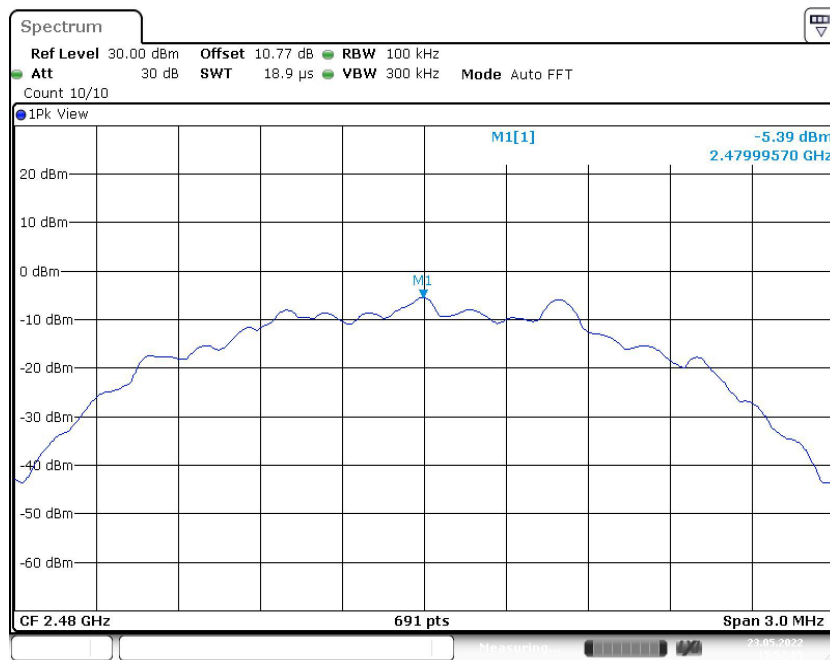


Fig.30 Conducted Spurious Emission (CH19, 30MHz -1GHz), LE 2M



**Fig.31 Conducted Spurious Emission (CH19, 1GHz-26.5GHz), LE 2M**



**Fig.32 Conducted Spurious Emission (CH39, Center Frequency), LE 2M**

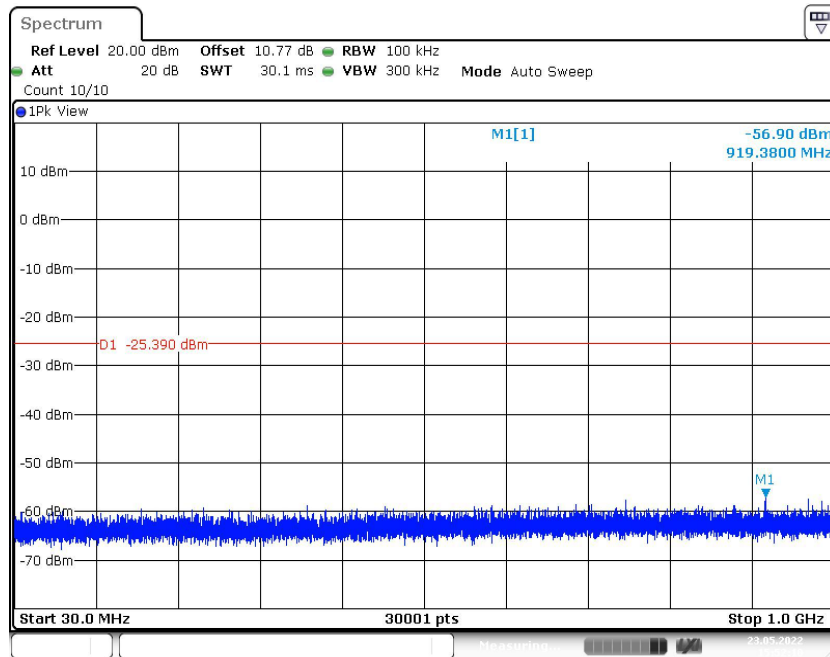


Fig.33 Conducted Spurious Emission (CH39, 30MHz -1GHz), LE 2M

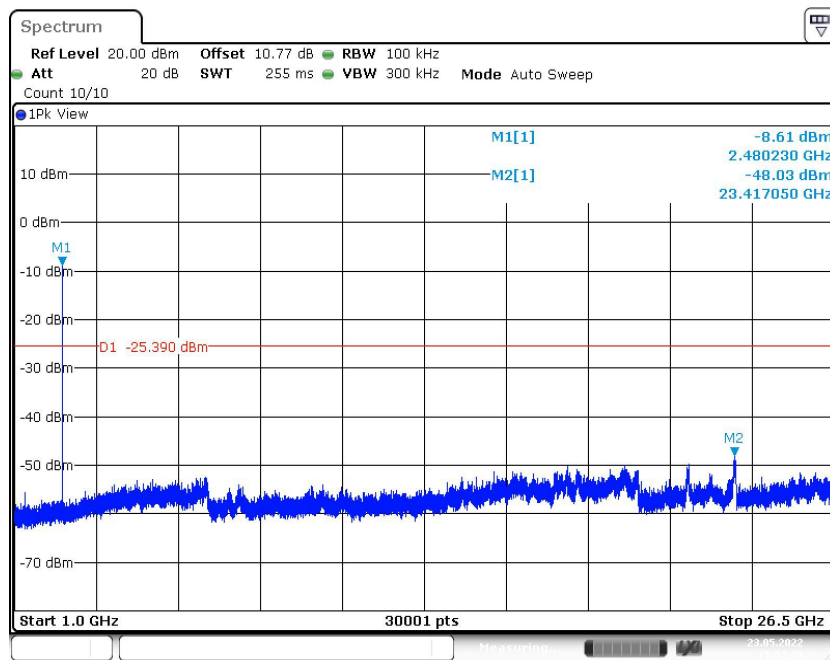


Fig.34 Conducted Spurious Emission (CH39, 1GHz-26.5GHz), LE 2M



**A.6 Transmitter Spurious Emission - Radiated**

**Method of Measurement: See ANSI C63.10-clause 11.11&11.12**

**Measurement Limit:**

Standard	Limit (dBm)
FCC 47 CFR Part 15.247, 15.205, 15.209	20dBm below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

**Limit in restricted band:**

Frequency of emission (MHz)	Field strength(µV/m)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**Test Condition:**

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

**Note:** According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic. The measurement results include the horizontal polarization and vertical polarization measurements.

**Measurement Results:**

Mode	Channel	Frequency Range	Test Results	Conclusion
LE 1M	0	1 GHz ~18 GHz	Fig.35	<b>P</b>
	19	1 GHz ~18 GHz	Fig.36	<b>P</b>
	39	1 GHz ~18 GHz	Fig.37	<b>P</b>
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.38	<b>P</b>
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.39	<b>P</b>
	All channels	9 kHz ~30 MHz	Fig.40	<b>P</b>
		30 MHz ~1 GHz	Fig.41	<b>P</b>
18 GHz ~ 26.5 GHz		Fig.42	<b>P</b>	
LE 2M	0	1 GHz ~18 GHz	Fig.43	<b>P</b>
	19	1 GHz ~18 GHz	Fig.44	<b>P</b>
	39	1 GHz ~18 GHz	Fig.45	<b>P</b>
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.46	<b>P</b>
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.47	<b>P</b>
	All channels	9 kHz ~30 MHz	Fig.48	<b>P</b>
		30 MHz ~1 GHz	Fig.49	<b>P</b>
18 GHz ~ 26.5 GHz		Fig.50	<b>P</b>	

**Worst Case Result:**

For LE 1M:

CH19 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
12877.714286	49.13	74.00	24.87	H	11.0
14837.571429	51.07	74.00	22.93	H	13.0
15917.571429	52.24	74.00	21.76	V	14.1
16624.714286	54.20	74.00	19.80	H	17.0
17042.142857	54.76	74.00	19.24	H	18.4
17873.571429	54.91	74.00	19.09	V	18.8

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
12877.714286	36.51	54.00	17.49	H	11.0
14837.571429	38.43	54.00	15.57	H	13.0
15917.571429	39.92	54.00	14.08	V	14.1
16624.714286	41.68	54.00	12.32	H	17.0
17042.142857	42.26	54.00	11.74	H	18.4
17873.571429	41.67	54.00	12.33	V	18.8



For LE 2M:  
CH19 (1-18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
13406.571429	48.20	74.00	25.80	H	11.5
14834.571429	50.72	74.00	23.28	H	12.9
15888.000000	51.76	74.00	22.24	H	14.0
16622.142857	54.58	74.00	19.42	V	17.0
16950.000000	55.31	74.00	18.69	V	18.2
17935.285714	55.32	74.00	18.68	H	19.0

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
13406.571429	35.91	54.00	18.09	H	11.5
14834.571429	38.40	54.00	15.60	H	12.9
15888.000000	39.71	54.00	14.29	H	14.0
16622.142857	41.64	54.00	12.36	V	17.0
16950.000000	42.52	54.00	11.48	V	18.2
17935.285714	42.72	54.00	11.28	H	19.0

**Note:**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and Antenna Factor, the gain of the preamplifier, the cable loss.  $P_{Mea}$  is the field strength recorded from the instrument.

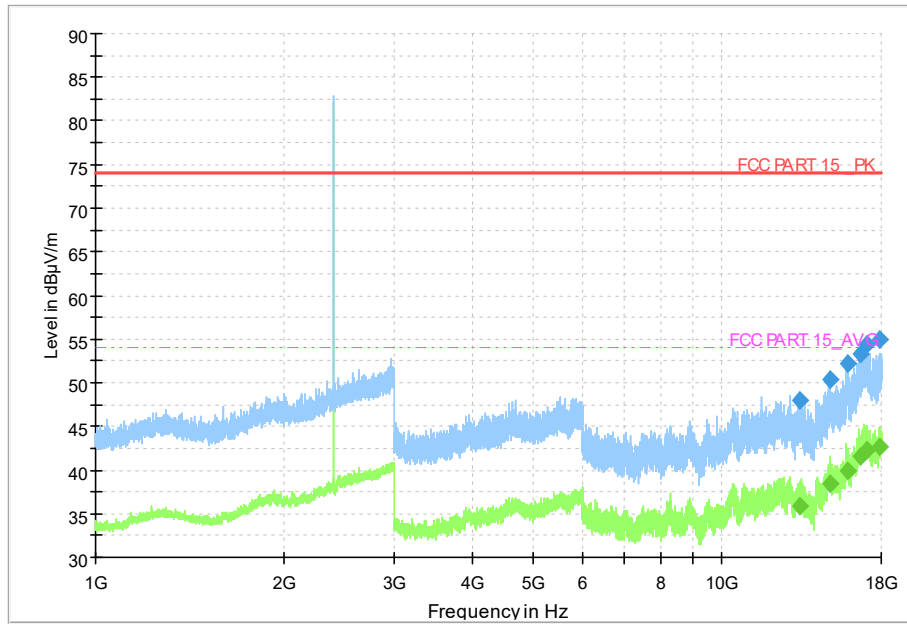
The measurement results are obtained as described below:

Result=  $P_{Mea}$  +Cable Loss +Antenna Factor-Gain of the preamplifier.

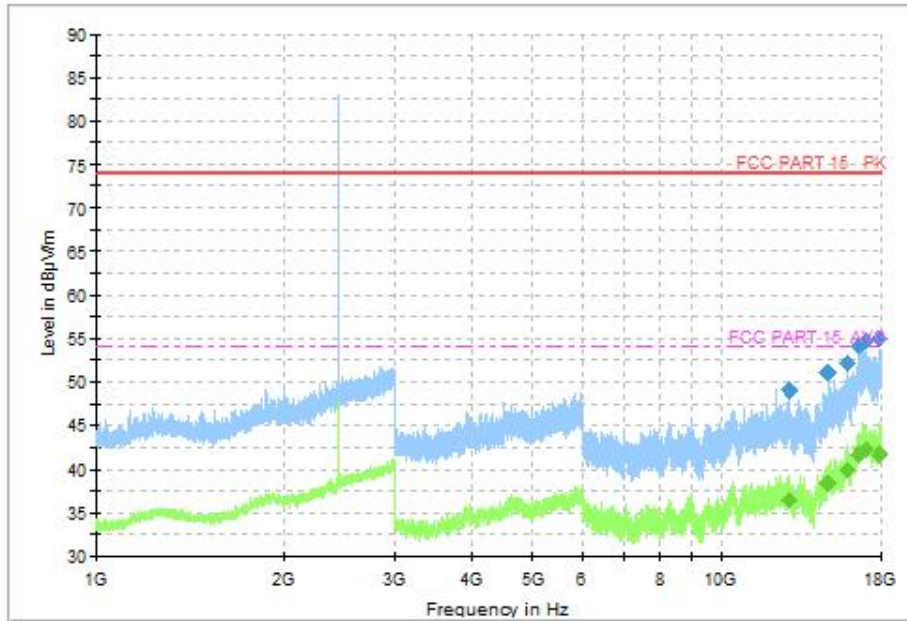
**See below for test graphs.**

**Conclusion: Pass**





**Fig.35 Radiated Spurious Emission (CH0, 1 GHz ~18GHz), LE 1M**



**Fig.36 Radiated Spurious Emission (CH19, 1 GHz ~18 GHz), LE 1M**

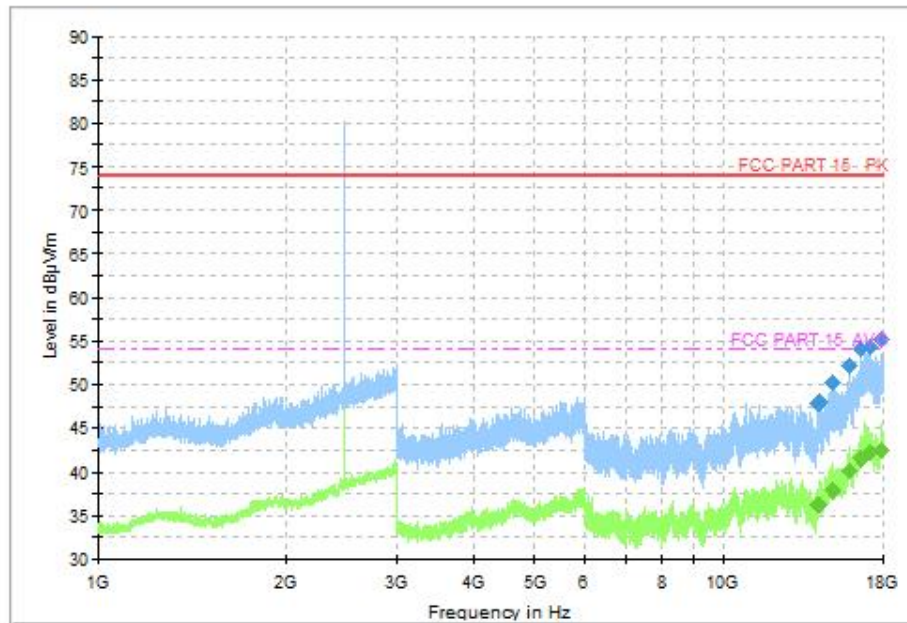


Fig.37 Radiated Spurious Emission (CH39, 1 GHz ~18 GHz), LE 1M

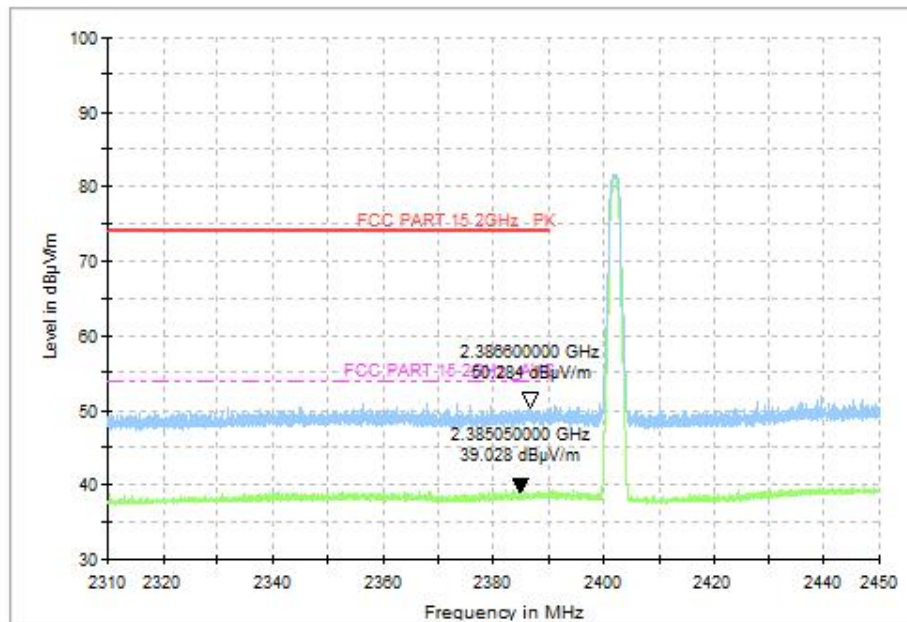


Fig.38 Radiated Band Edges (CH0, 2380GHz~2450GHz), LE 1M

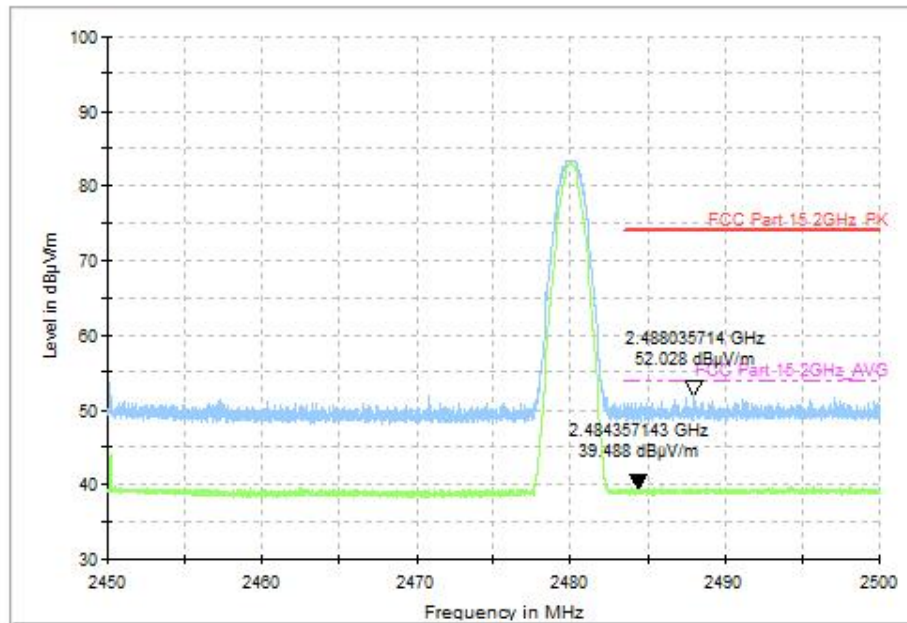


Fig.39 Radiated Band Edges (CH39, 2450GHz~2500GHz), LE 1M

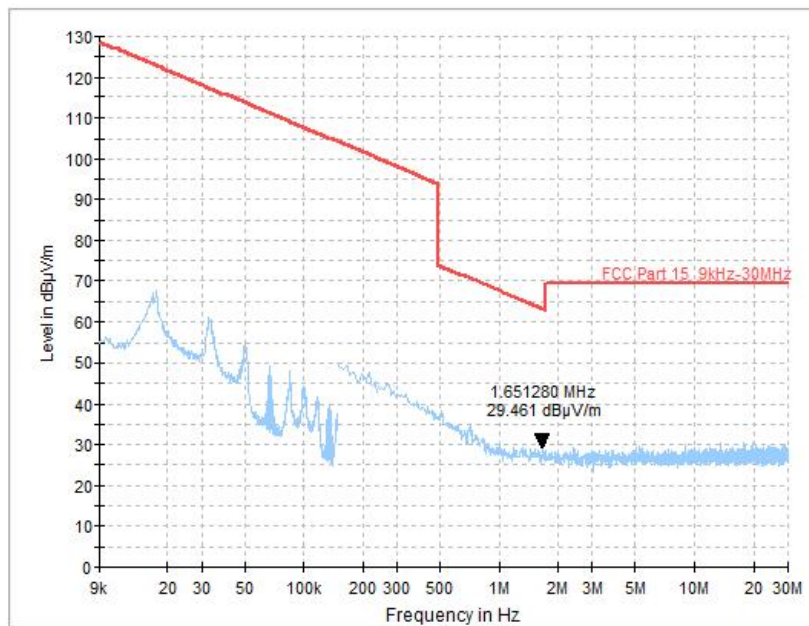
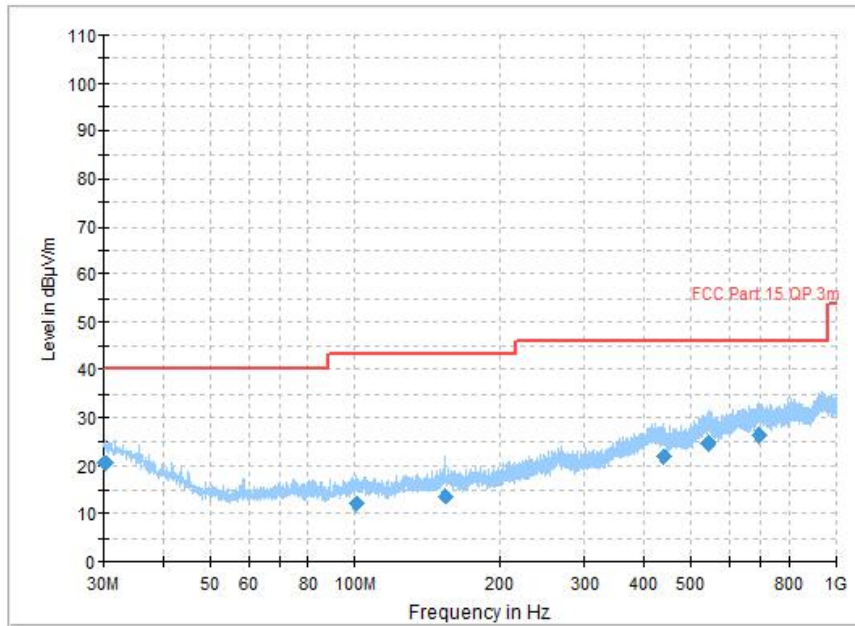
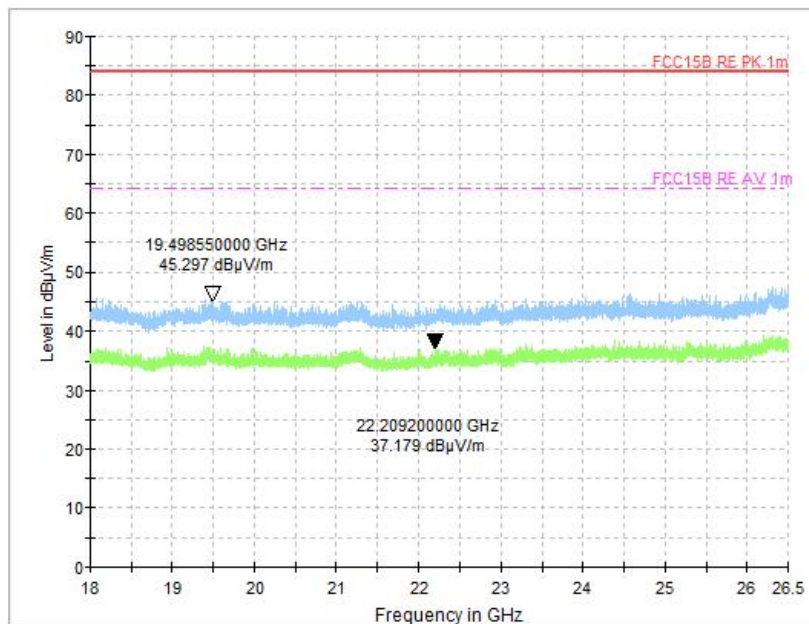


Fig.40 Radiated Spurious Emission (All Channels, 9 kHz-30 MHz), LE 1M



**Fig.41 Radiated Spurious Emission (All Channels, 30 MHz-1 GHz), LE 1M**



**Fig.42 Radiated Spurious Emission (All Channels, 18 GHz-26.5 GHz), LE 1M**

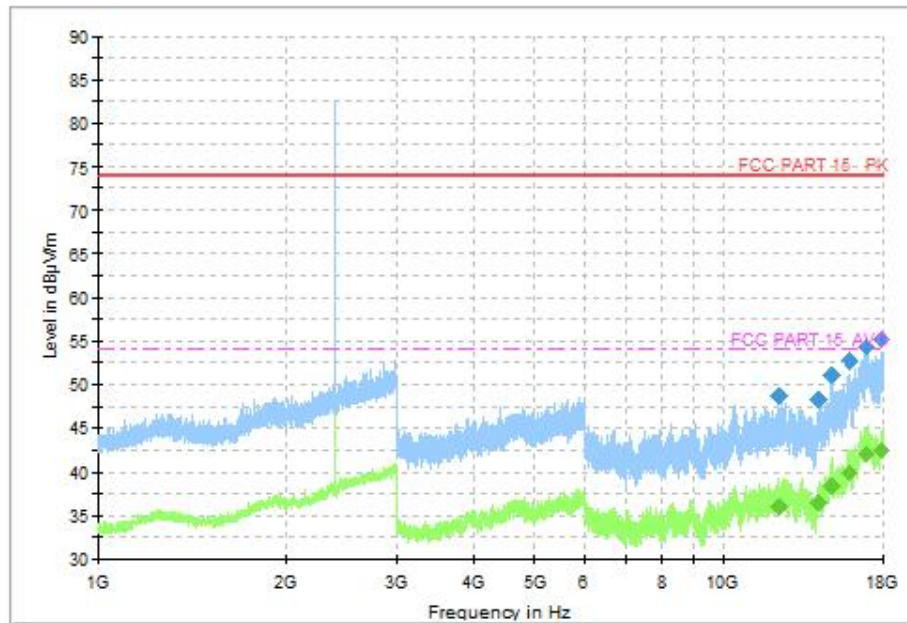


Fig.43 Radiated Spurious Emission (CH0, 1 GHz ~18 GHz), LE 2M

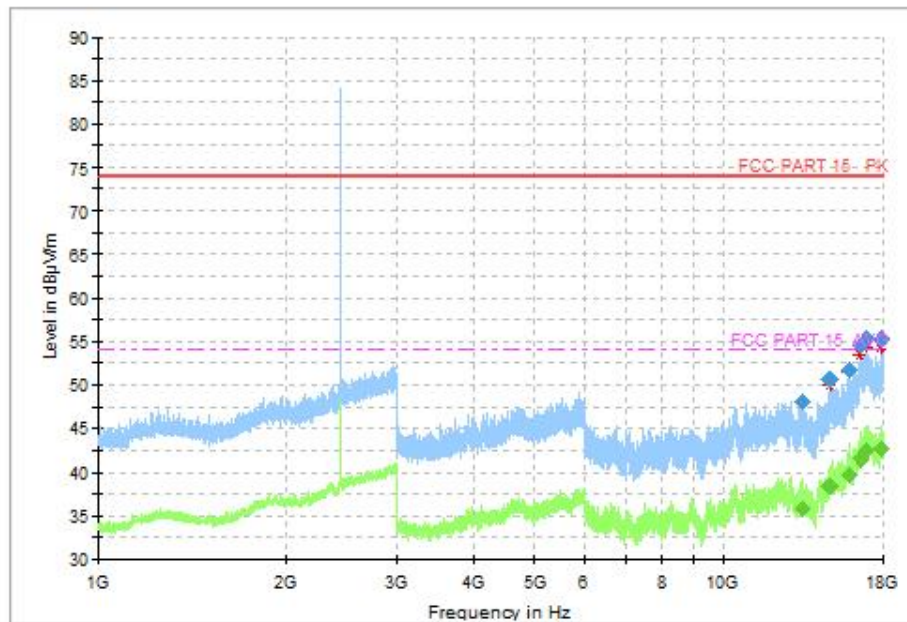


Fig.44 Radiated Spurious Emission (CH19, 1 GHz ~18 GHz), LE 2M

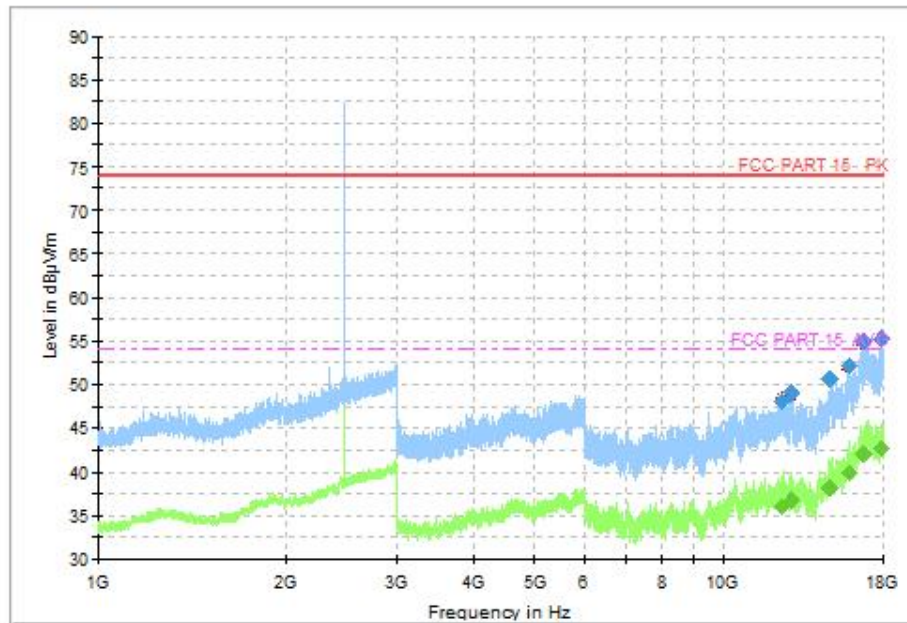


Fig.45 Radiated Spurious Emission (CH39, 1 GHz ~18 GHz), LE 2M

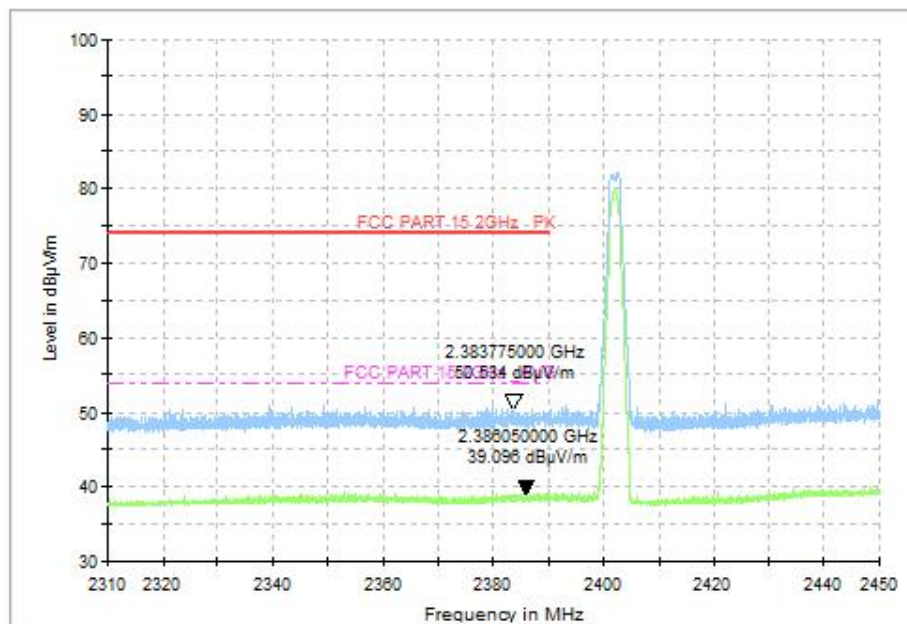
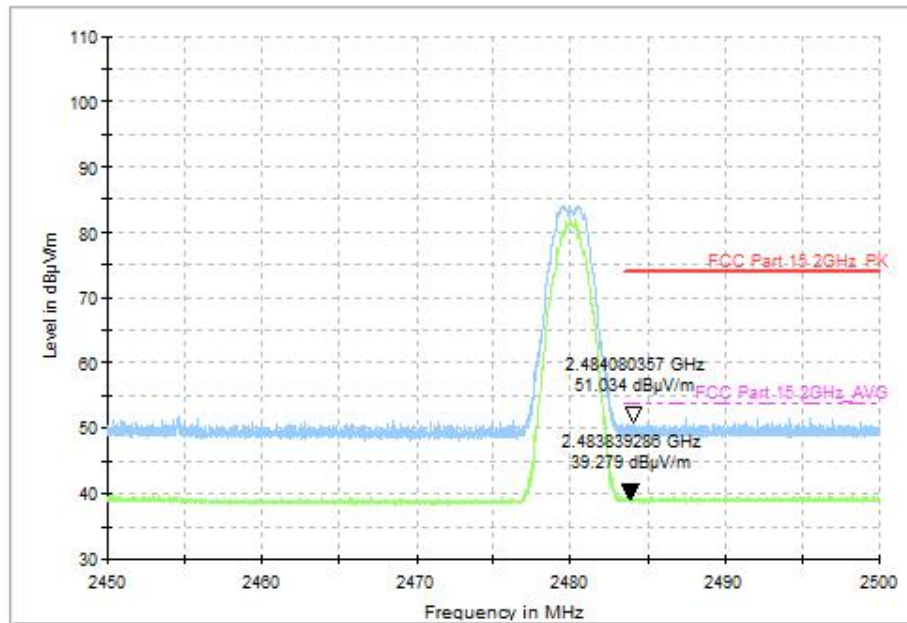
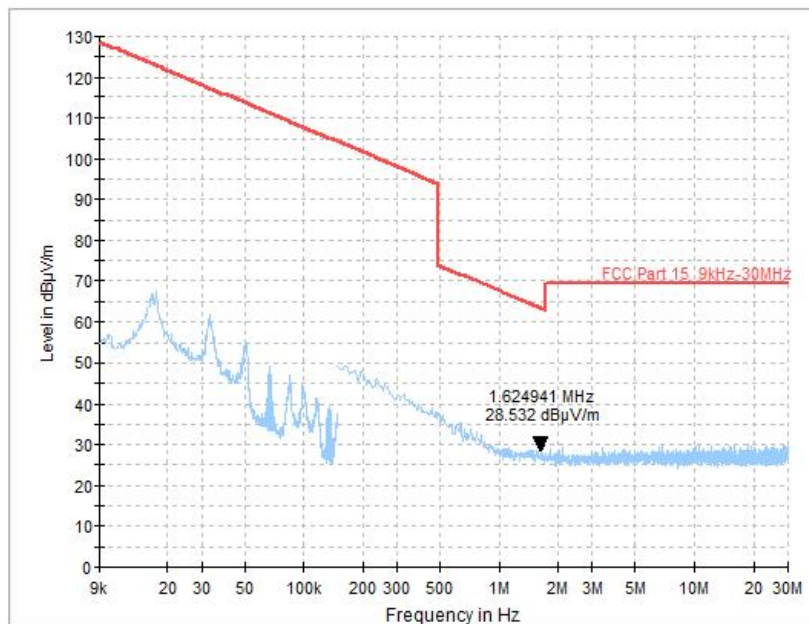


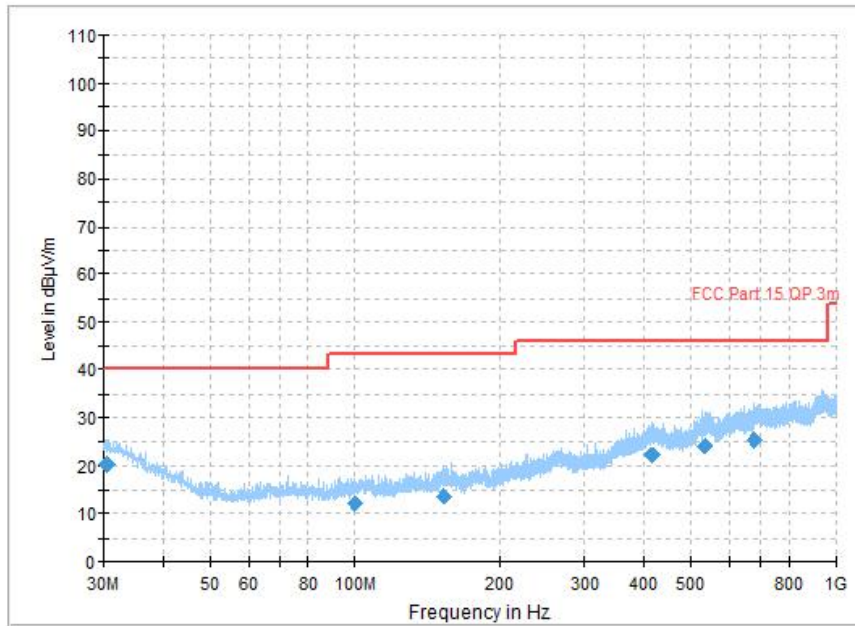
Fig.46 Radiated Band Edges (CH0, 2380GHz~2450GHz), LE 2M



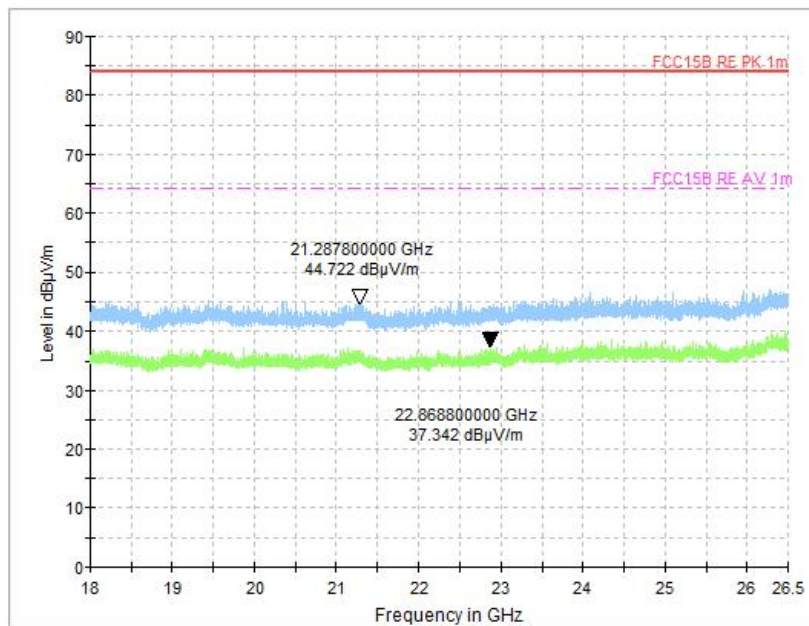
**Fig.47 Radiated Band Edges (CH39, 2450GHz~2500GHz), LE 2M**



**Fig.48 Radiated Spurious Emission (All Channels, 9 kHz-30 MHz), LE 2M**



**Fig.49 Radiated Spurious Emission (All Channels, 30 MHz-1 GHz), LE 2M**



**Fig.50 Radiated Spurious Emission (All Channels, 18 GHz-26.5 GHz), LE 2M**





### A.7 AC Power line Conducted Emission

Method of Measurement: See ANSI C63.10-clause 6.2

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

BLE-AE2, AE3

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
			Traffic	Idle	
0.15 to 0.5	66 to 56	56 to 46	Fig.51	Fig.52	<b>P</b>
0.5 to 5	56	46			
5 to 30	60	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Note:** The measurement results include the L1 and N measurements.

See below for test graphs.

Conclusion: Pass

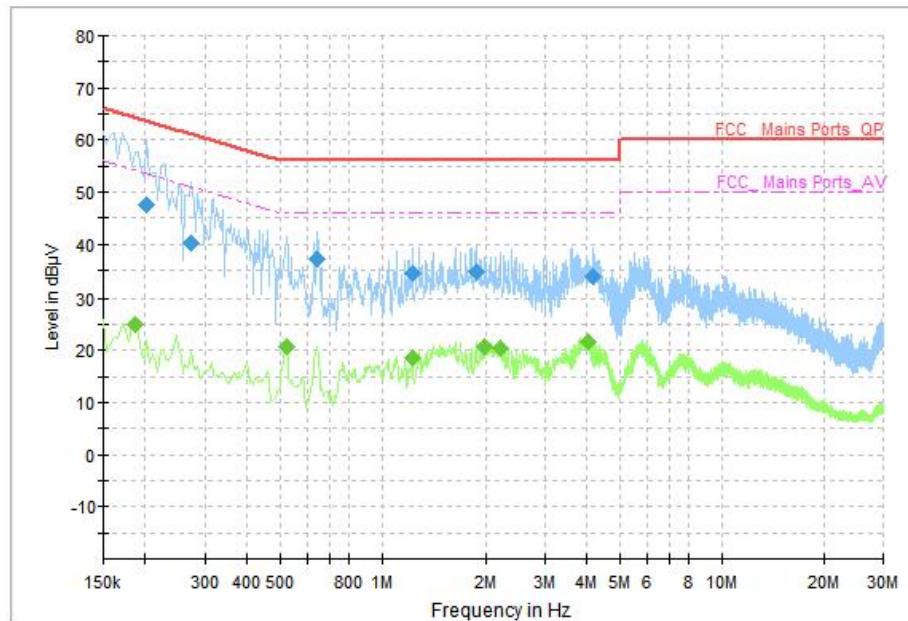


Fig.51 AC Power line Conducted Emission (Traffic)

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.202000	47.51	63.53	16.01	N	ON	10
0.274000	40.10	61.00	20.89	N	ON	10
0.646000	37.33	56.00	18.67	N	ON	10
1.230000	34.35	56.00	21.65	L1	ON	10
1.874000	34.88	56.00	21.12	L1	ON	10
4.150000	33.82	56.00	22.18	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.186000	24.86	54.21	29.36	N	ON	10
0.522000	20.55	46.00	25.45	N	ON	10
1.230000	18.61	46.00	27.39	L1	ON	10
1.998000	20.64	46.00	25.36	L1	ON	10
2.214000	20.24	46.00	25.76	N	ON	10
4.038000	21.70	46.00	24.30	L1	ON	10

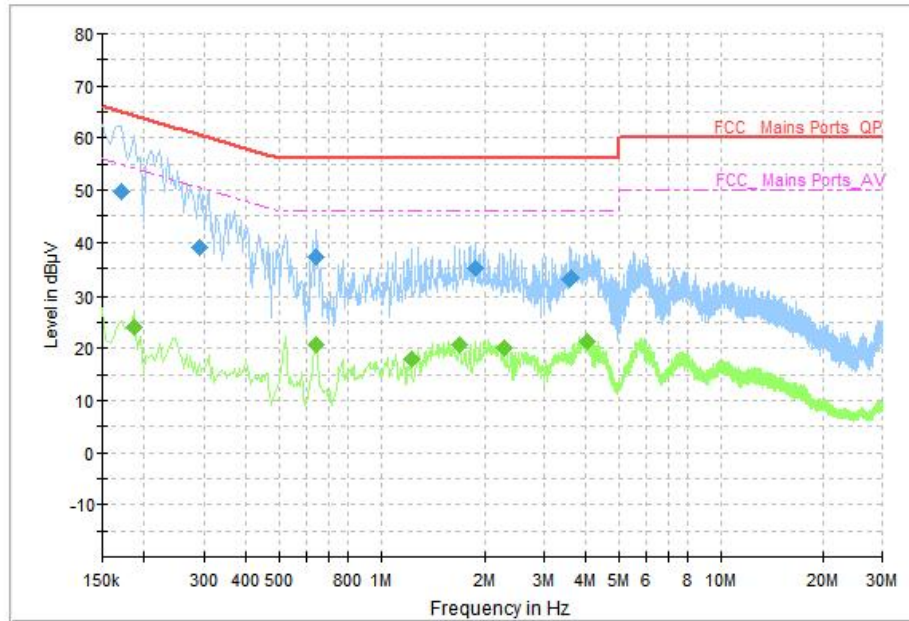


Fig.52 AC Power line Conducted Emission (Idle), LE 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	49.65	64.96	15.31	N	ON	10
0.290000	39.03	60.52	21.49	N	ON	10
0.646000	37.26	56.00	18.74	L1	ON	10
1.874000	34.95	56.00	21.05	L1	ON	10
3.562000	33.04	56.00	22.96	L1	ON	10
3.626000	33.32	56.00	22.68	N	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.186000	24.15	54.21	30.06	L1	ON	10
0.646000	20.64	46.00	25.36	L1	ON	10
1.226000	17.95	46.00	28.05	N	ON	10
1.694000	20.54	46.00	25.46	N	ON	10
2.282000	19.94	46.00	26.06	L1	ON	10
4.042000	21.35	46.00	24.65	N	ON	10

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