

Appendix B_Radiated Spurious Emission Data for BLE:

1.Radiated Spurious Emission and Restricted Band

Test Result

Radiated Spurious Emission:

For 9 kHz ~ 30 MHz

Note:

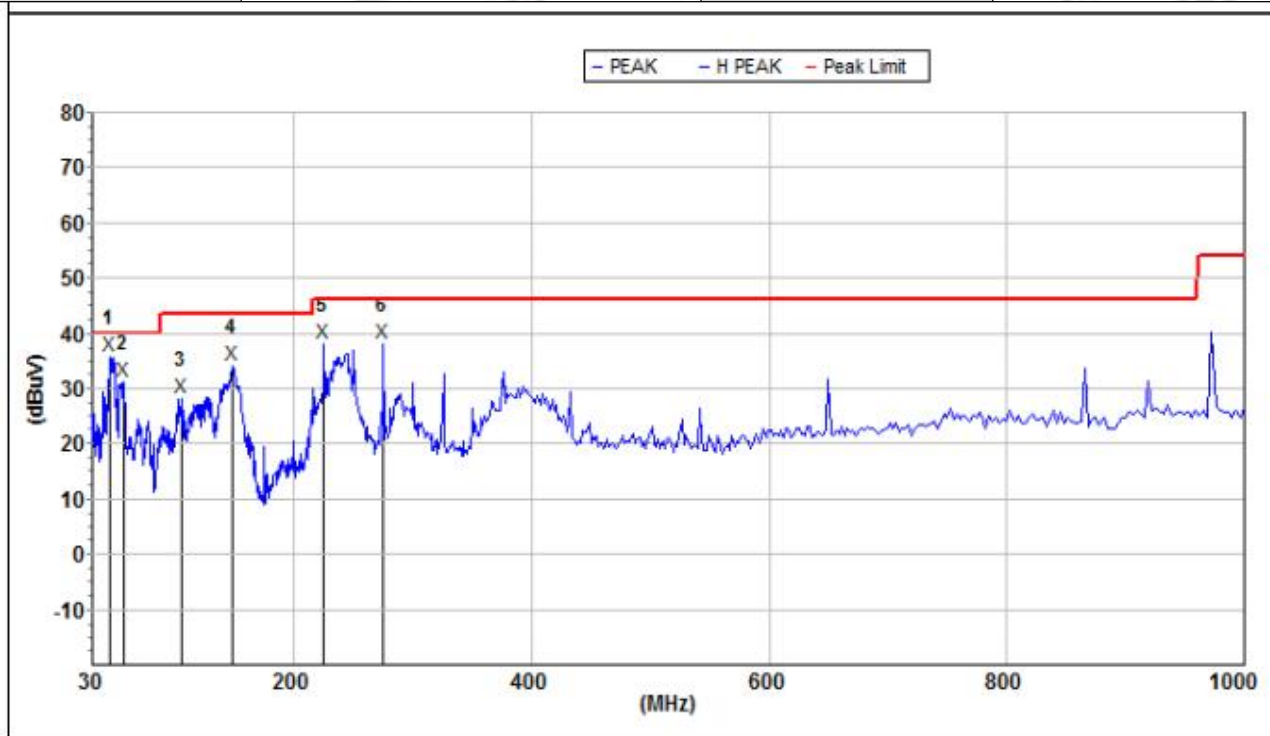
- 1.The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.
- 2.The all data rate modes had been test, but only worse test data was recorded in the test report.

Below 1GHz:

Note:

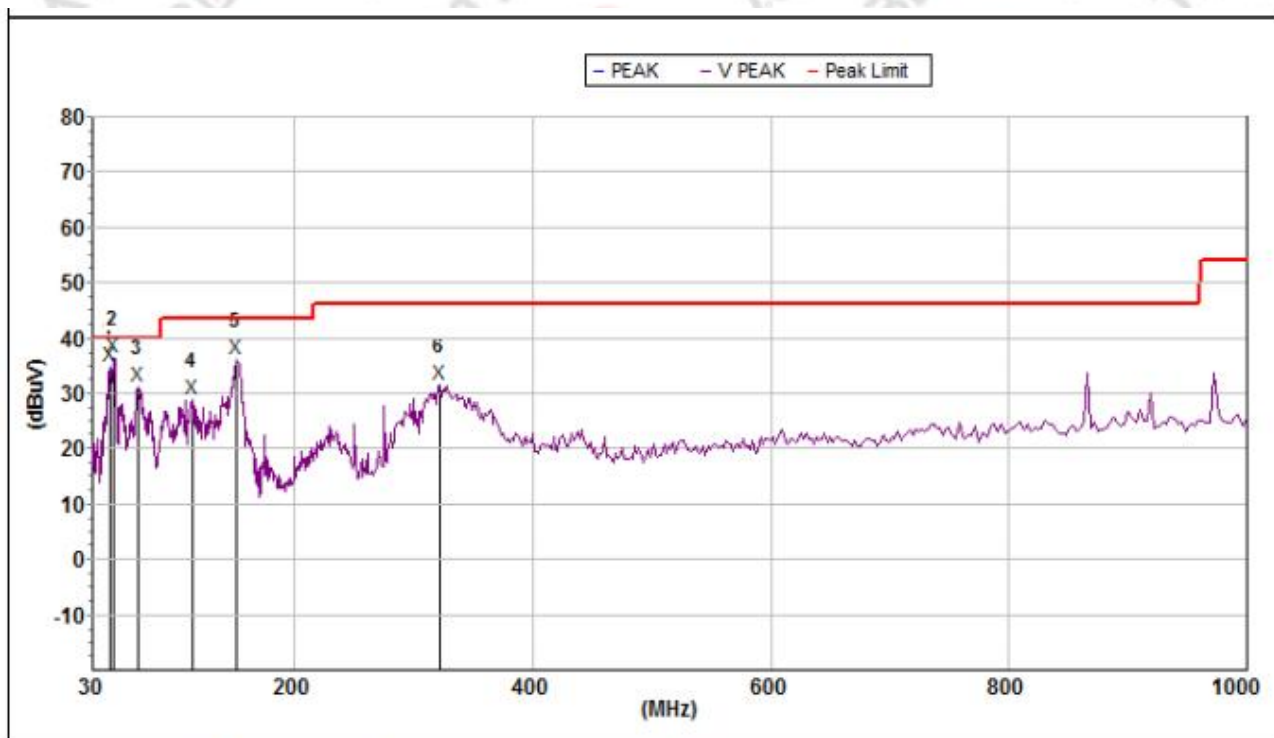
- 1.All modes have been tested, only worst (BLE_2M-TX-2440MHz)mode was recorded in the test report.
- 2.Emission Level (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
- 3.Correction Factor (dB/m) = Antenna Pol. Factor (dB/m) + Cable Factor (dB)-Amplifier Gain.
- 4.The emission levels of other frequencies were less than 20dB margin against the limit.
- 5.Margin value = Emission level-Limit value.

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Antenna Pol.	Horizontal



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	44.901	78.0	-42.2	35.8	40.0	4.2	H
2	56.593	74.4	-43.0	31.4	40.0	8.6	H
3	104.536	67.1	-38.7	28.4	43.5	15.1	H
4	148.441	69.1	-34.9	34.2	43.5	9.3	H
5	225.308	67.0	-28.7	38.3	46.0	7.7	H
6	275.157	65.2	-27.0	38.2	46.0	7.8	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Antenna Pol.	Vertical



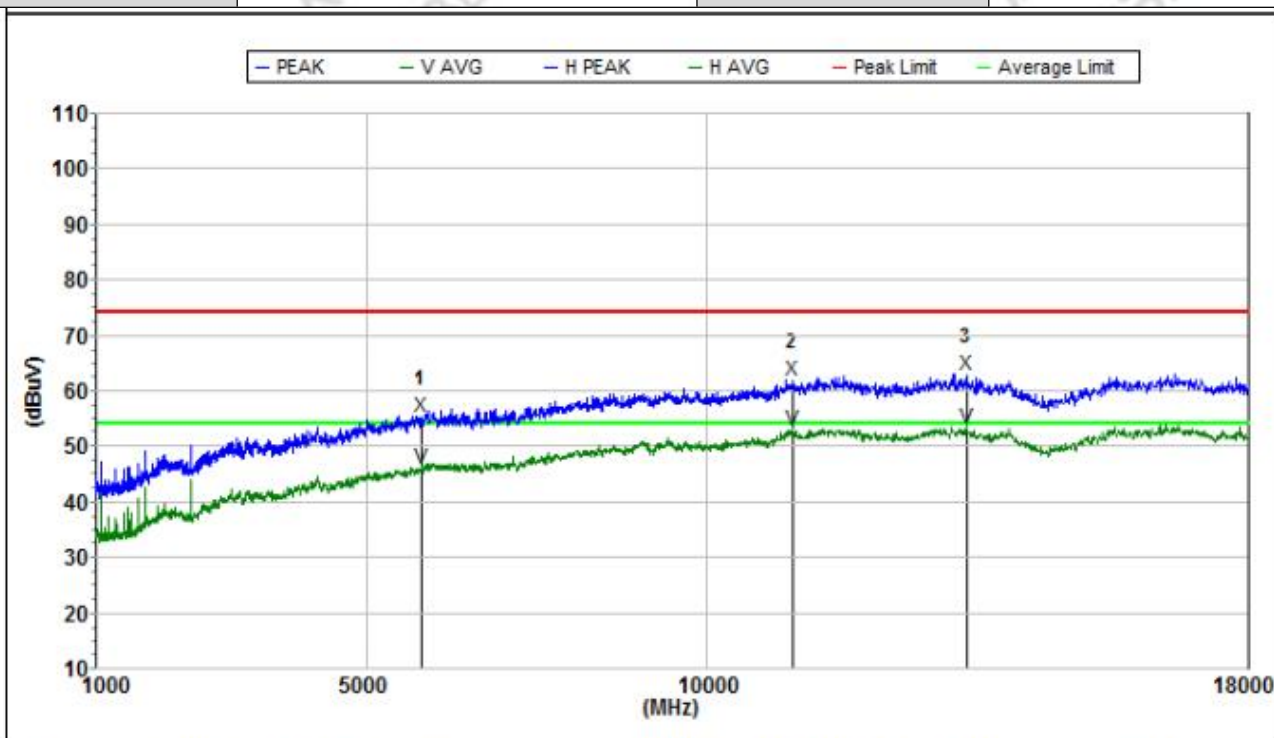
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	45.217	79.5	-44.6	34.9	40.0	5.1	V
2	48.332	80.8	-44.1	36.7	40.0	3.3	V
3	68.872	76.3	-44.9	31.4	40.0	8.6	V
4	113.714	61.1	-32.1	29.0	43.5	14.5	V
5	151.067	73.6	-37.4	36.2	43.5	7.3	V
6	322.189	58.1	-26.6	31.5	46.0	14.5	V

1GHz-18GHz:

Note:

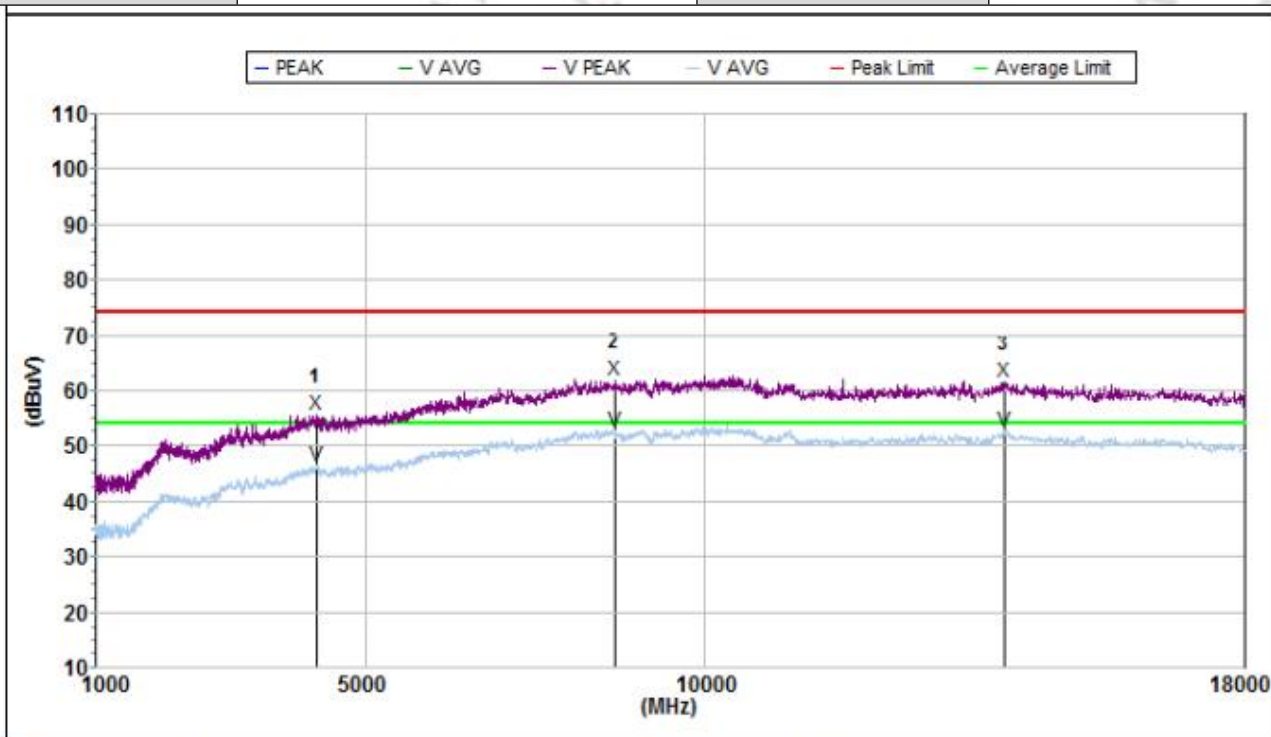
- 1.All modes have been tested.
- 2.In frequency ranges 18 ~25GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.
- 3.We used the filter to test and the main frequency was filtered out.
- 4.Emission Level (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
5. Correction Factor (dB/m) = Antenna Pol. Factor (dB/m) + Cable Factor (dB)-Amplifier Gain.
6. Margin value = Emission level-Limit value.
- 7.While performing the testing, the notch filter is used for avoiding test instrument overload.

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2402MHz	Antenna Pol.	Horizontal



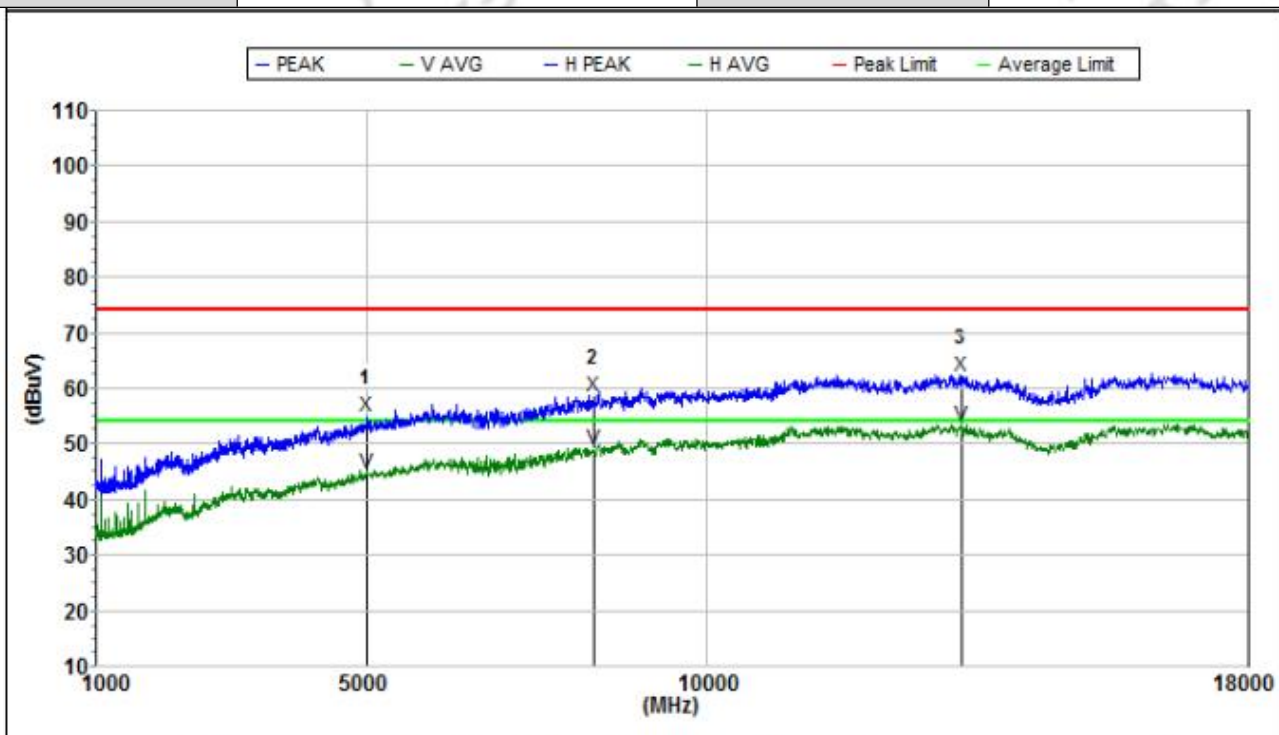
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5790.000	59.4	-3.9	55.5	74.0	18.5	H
2	11268.000	59.8	2.1	61.9	74.0	12.1	H
3	13842.000	60.6	2.5	63.1	74.0	10.9	H
Avg							
1	5790.000	50.2	-3.9	46.3	54.0	7.7	H
2	11268.000	50.9	2.1	53.0	54.0	1.0	H
3	13842.000	51.0	2.5	53.5	54.0	0.5	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2402MHz	Antenna Pol.	Vertical



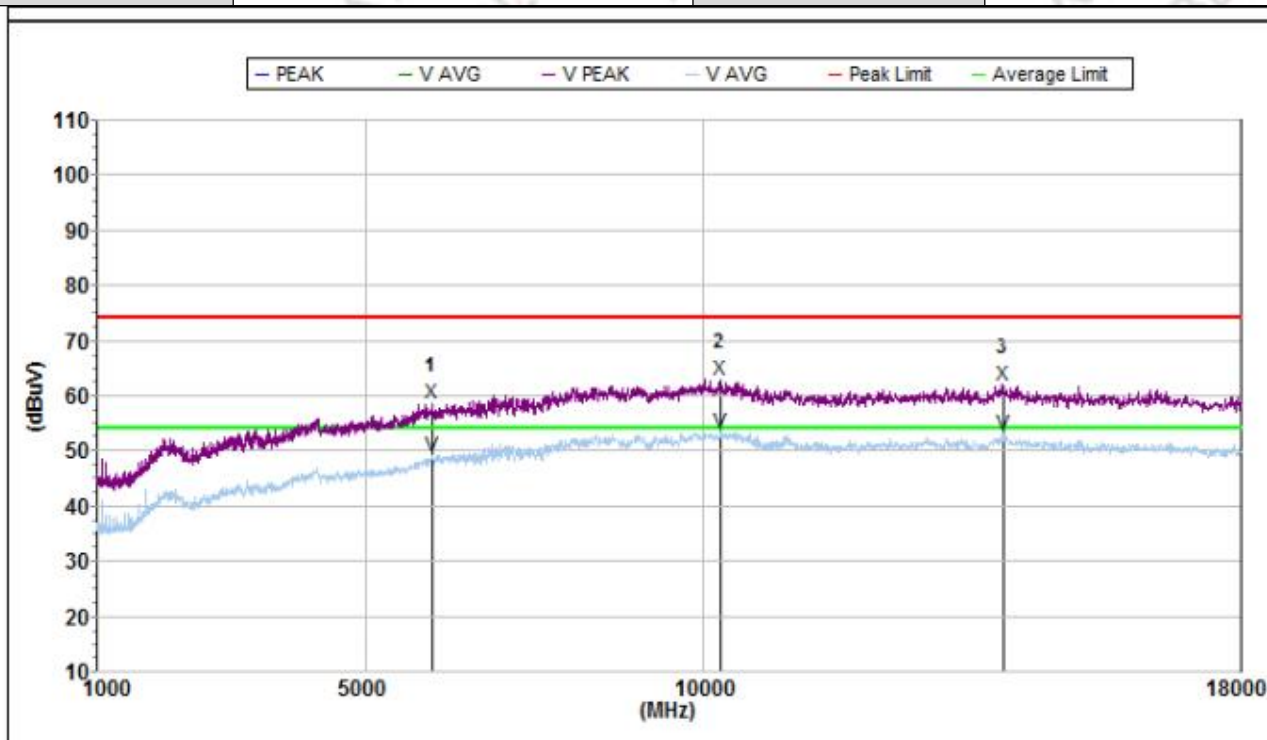
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	4270.000	60.9	-5.2	55.7	74.0	18.3	V
2	8670.000	59.8	2.3	62.1	74.0	11.9	V
3	14454.000	59.2	2.5	61.7	74.0	12.3	V
Avg							
1	4270.000	51.8	-5.2	46.6	54.0	7.4	V
2	8670.000	50.5	2.3	52.8	54.0	1.2	V
3	14454.000	50.1	2.5	52.6	54.0	1.4	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1MHz2440MHz	Antenna Pol.	Horizontal



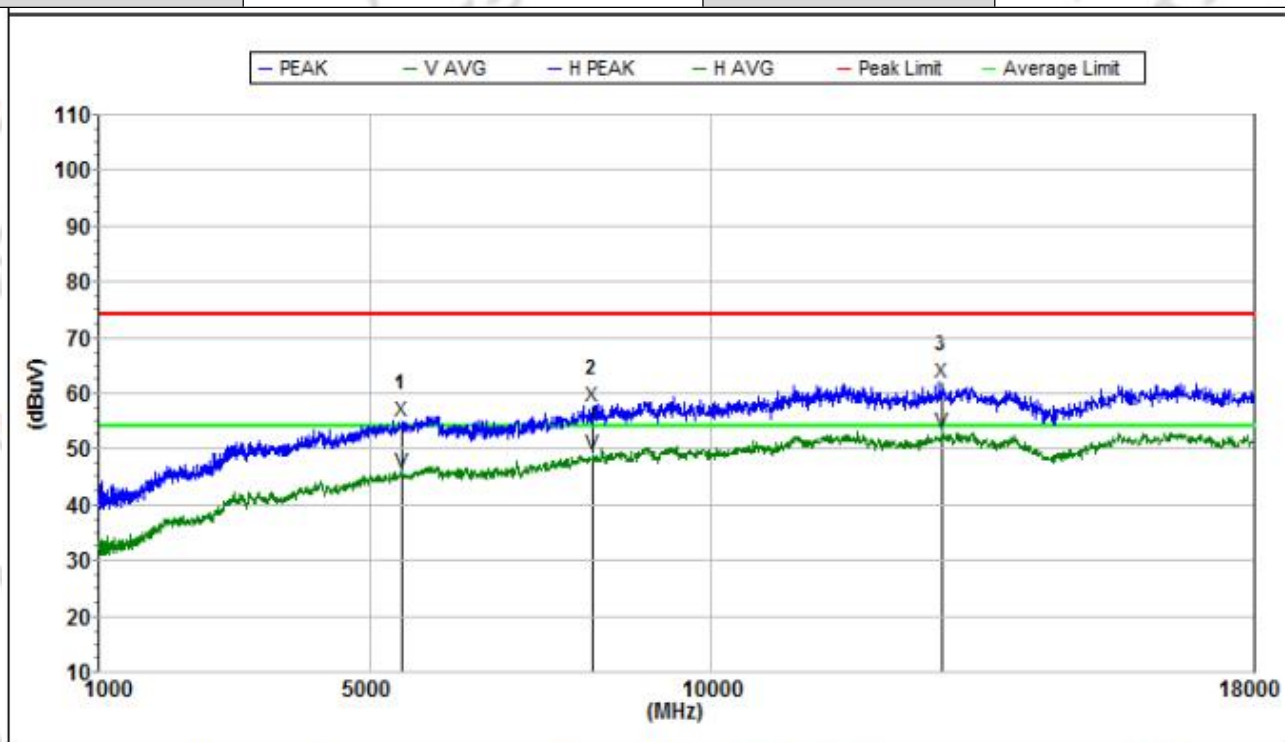
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5007.500	60.7	-5.5	55.2	74.0	18.8	H
2	8346.000	59.4	-0.7	58.7	74.0	15.3	H
3	13758.000	59.7	2.7	62.4	74.0	11.6	H
Avg							
1	5007.500	50.5	-5.5	45.0	54.0	9.0	H
2	8346.000	49.7	-0.7	49.0	54.0	5.0	H
3	13758.000	50.8	2.7	53.5	54.0	0.5	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1MHz2440MHz	Antenna Pol.	Vertical



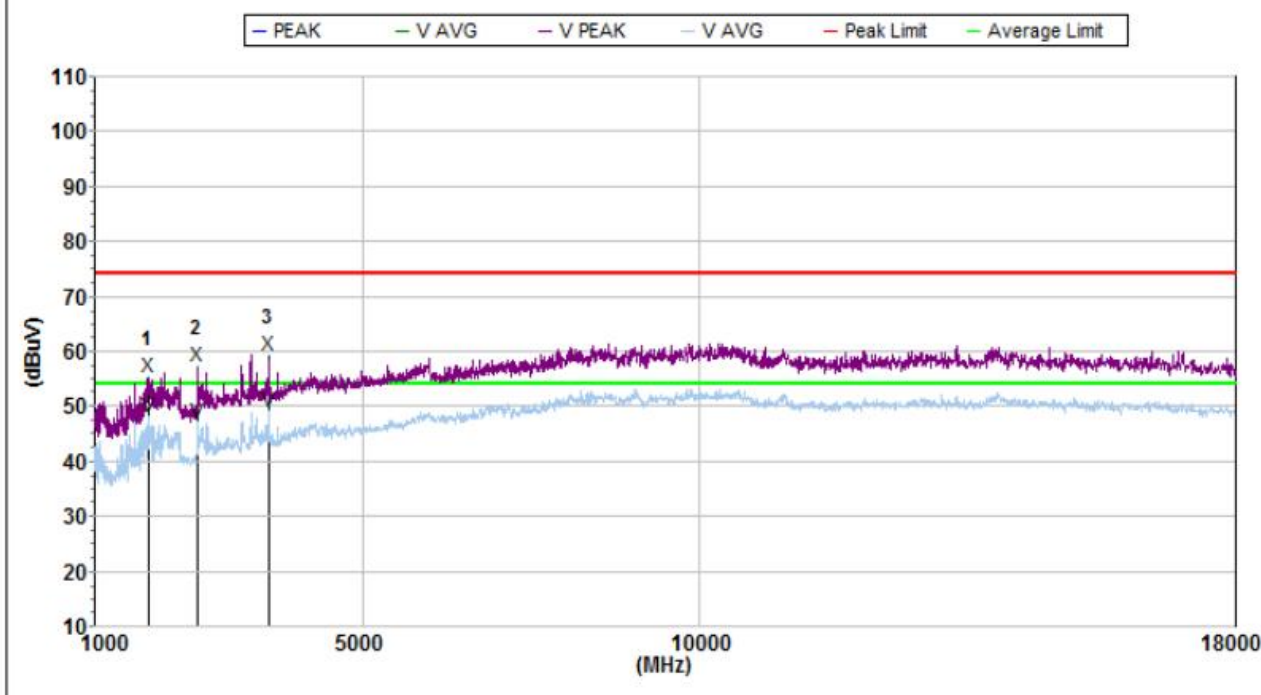
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5992.500	59.7	-1.1	58.6	74.0	15.4	V
2	10266.000	59.7	3.2	62.9	74.0	11.1	V
3	14478.000	59.6	2.5	62.1	74.0	11.9	V
Avg							
1	5992.500	50.1	-1.1	49.0	54.0	5.0	V
2	10266.000	50.3	3.2	53.5	54.0	0.5	V
3	14478.000	50.5	2.5	53.0	54.0	1.0	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1MHz2480MHz	Antenna Pol.	Horizontal



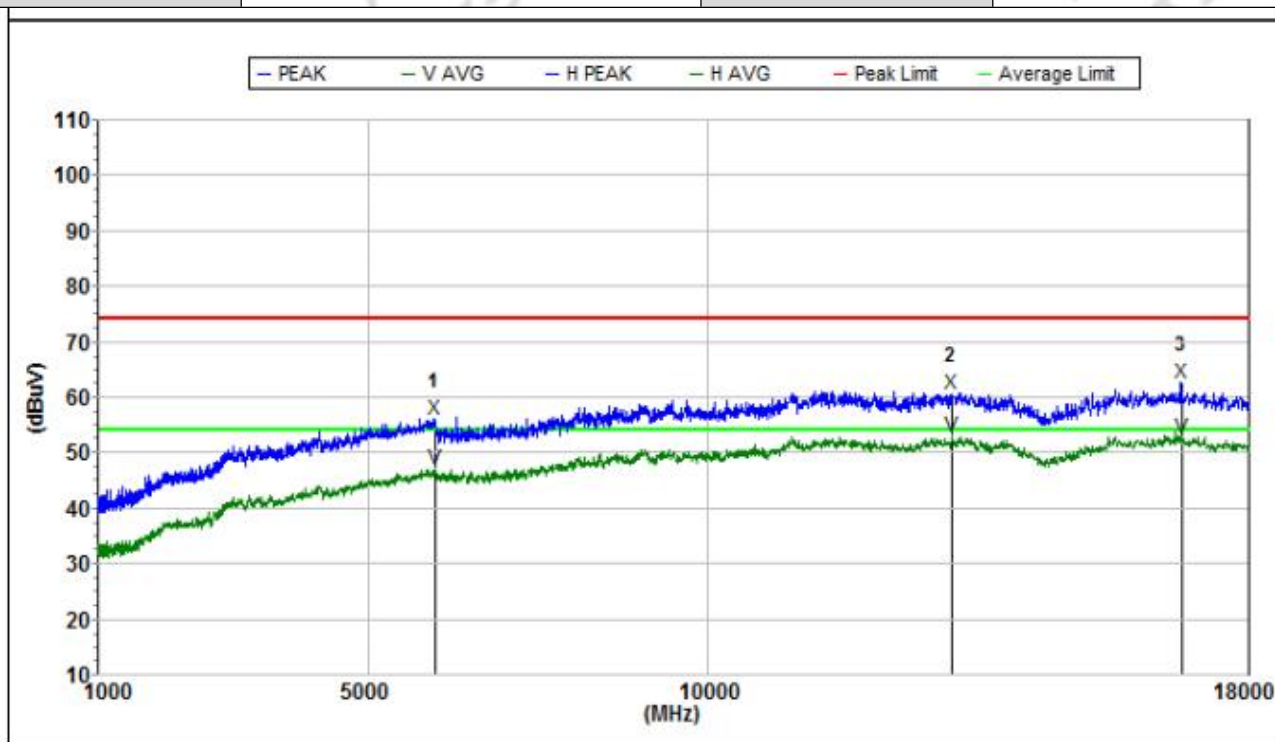
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5470.000	60.0	-4.9	55.1	74.0	18.9	H
2	8262.000	58.3	-0.7	57.6	74.0	16.4	H
3	13410.000	58.9	3.0	61.9	74.0	12.1	H
Avg							
1	5470.000	50.8	-4.9	45.9	54.0	8.1	H
2	8262.000	49.8	-0.7	49.1	54.0	4.9	H
3	13410.000	50.0	3.0	53.0	54.0	1.0	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1MHz2480MHz	Antenna Pol.	Vertical



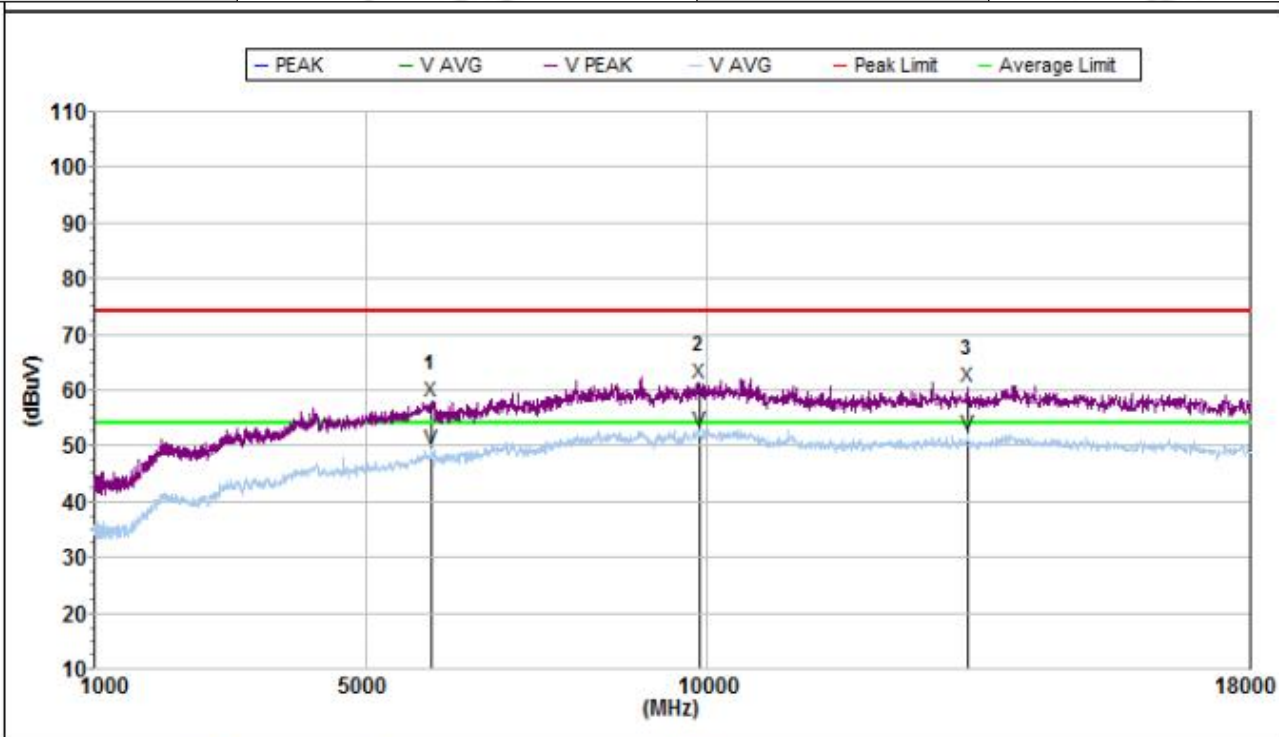
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Pol.
Peak:						
1	1795.008	55.3	74.0	18.7	-12.4	V
2	2530.000	57.3	74.0	16.7	-11.6	V
3	3590.000	59.5	74.0	14.5	-8.3	V
Avg						
1	1795.008	48.2	54.0	5.8	-12.4	V
2	2530.000	47.3	54.0	6.7	-11.6	V
3	3590.000	49.3	54.0	4.7	-8.3	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2404MHz	Antenna Pol.	Horizontal



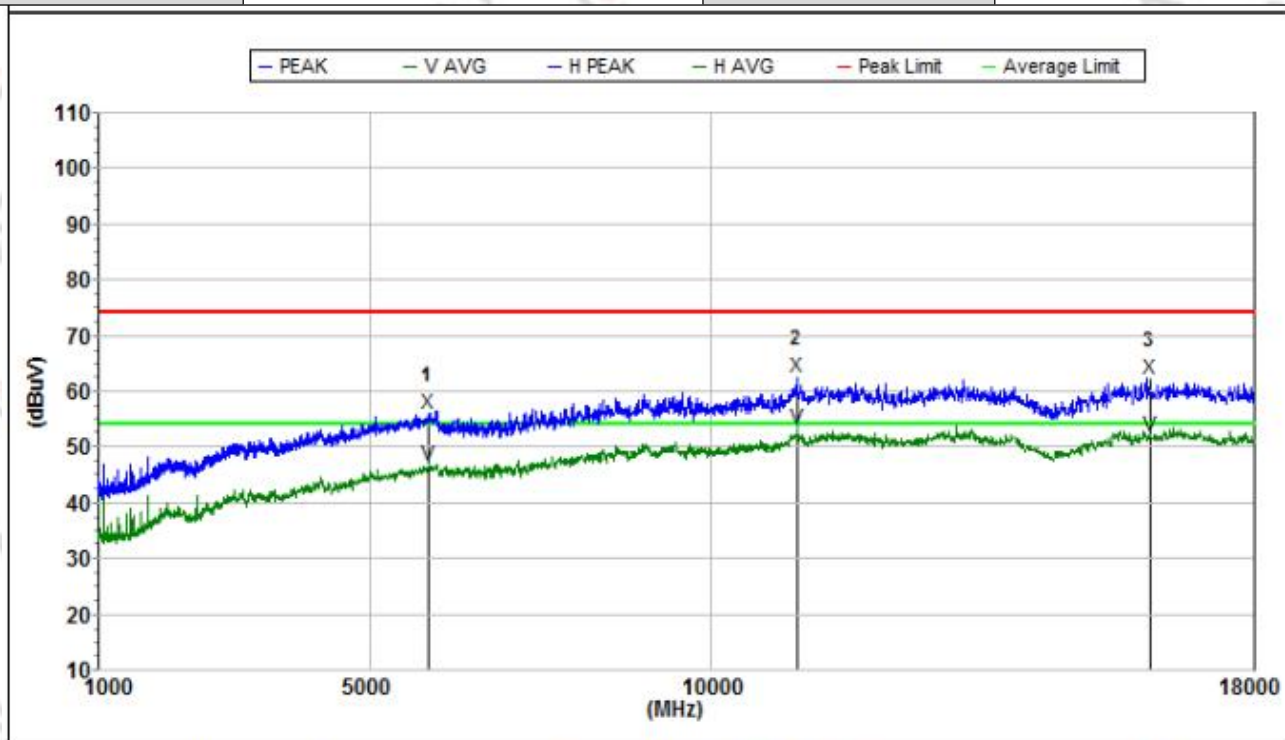
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5982.500	59.3	-3.2	56.1	74.0	17.9	H
2	13614.000	57.8	3.0	60.8	74.0	13.2	H
3	17016.000	58.5	4.0	62.5	74.0	11.5	H
Avg							
1	5982.500	50.3	-3.2	47.1	54.0	6.9	H
2	13614.000	50.2	3.0	53.2	54.0	0.8	H
3	17016.000	48.6	4.0	52.6	54.0	1.4	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2404MHz	Antenna Pol.	Vertical



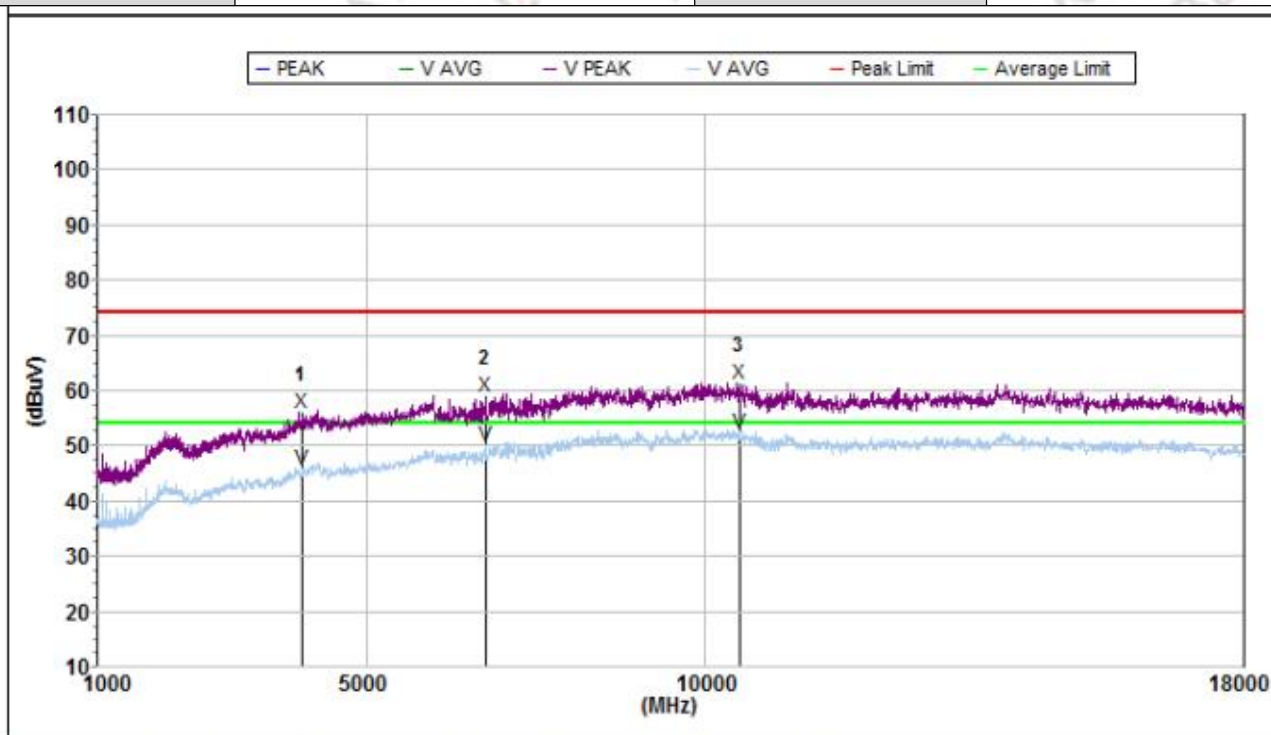
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5967.500	59.1	-1.2	57.9	74.0	16.1	V
2	9894.000	58.5	2.9	61.4	74.0	12.6	V
3	13848.000	59.5	1.3	60.8	74.0	13.2	V
Avg							
1	5967.500	50.7	-1.2	49.5	54.0	4.5	V
2	9894.000	50.0	2.9	52.9	54.0	1.1	V
3	13848.000	50.9	1.3	52.2	54.0	1.8	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2440MHz	Antenna Pol.	Horizontal



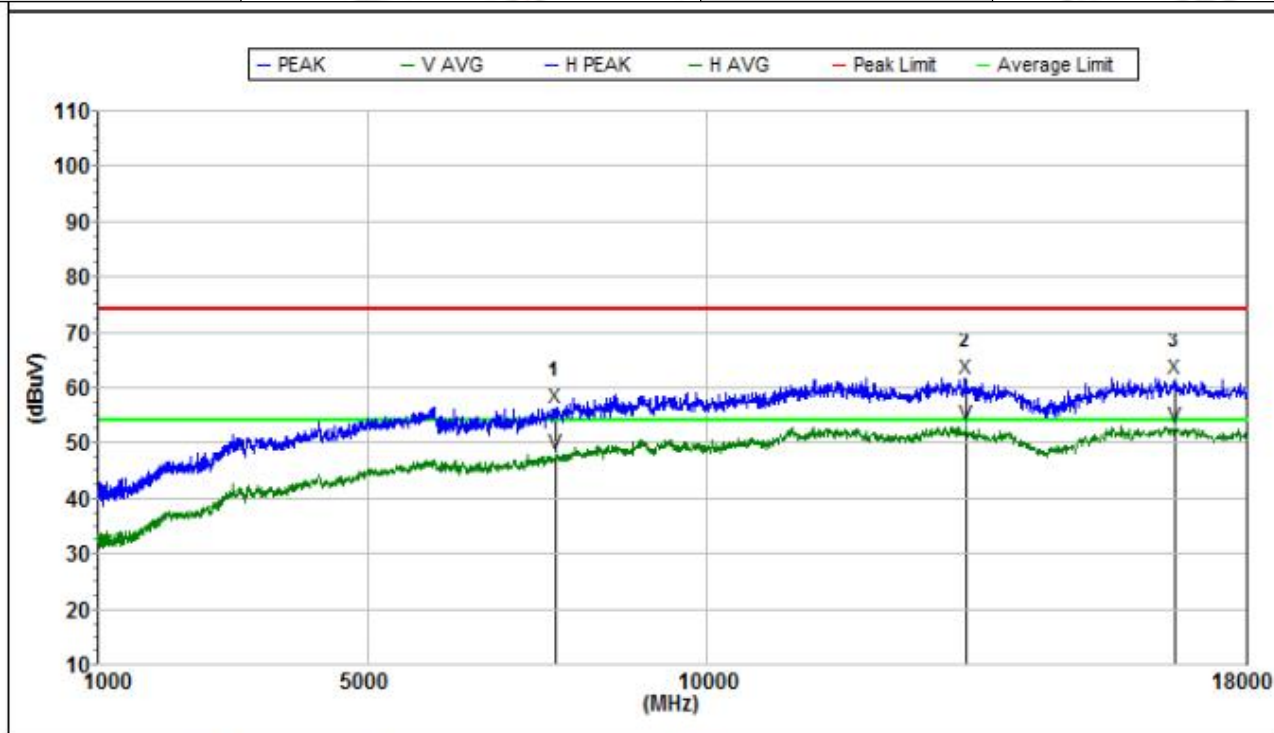
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5855.000	59.8	-3.6	56.2	74.0	17.8	H
2	11274.000	60.6	2.1	62.7	74.0	11.3	H
3	16470.000	58.7	3.6	62.3	74.0	11.7	H
Avg							
1	5855.000	50.6	-3.6	47.0	54.0	7.0	H
2	11274.000	51.2	2.1	53.3	54.0	0.7	H
3	16470.000	48.5	3.6	52.1	54.0	1.9	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2440MHz	Antenna Pol.	Vertical



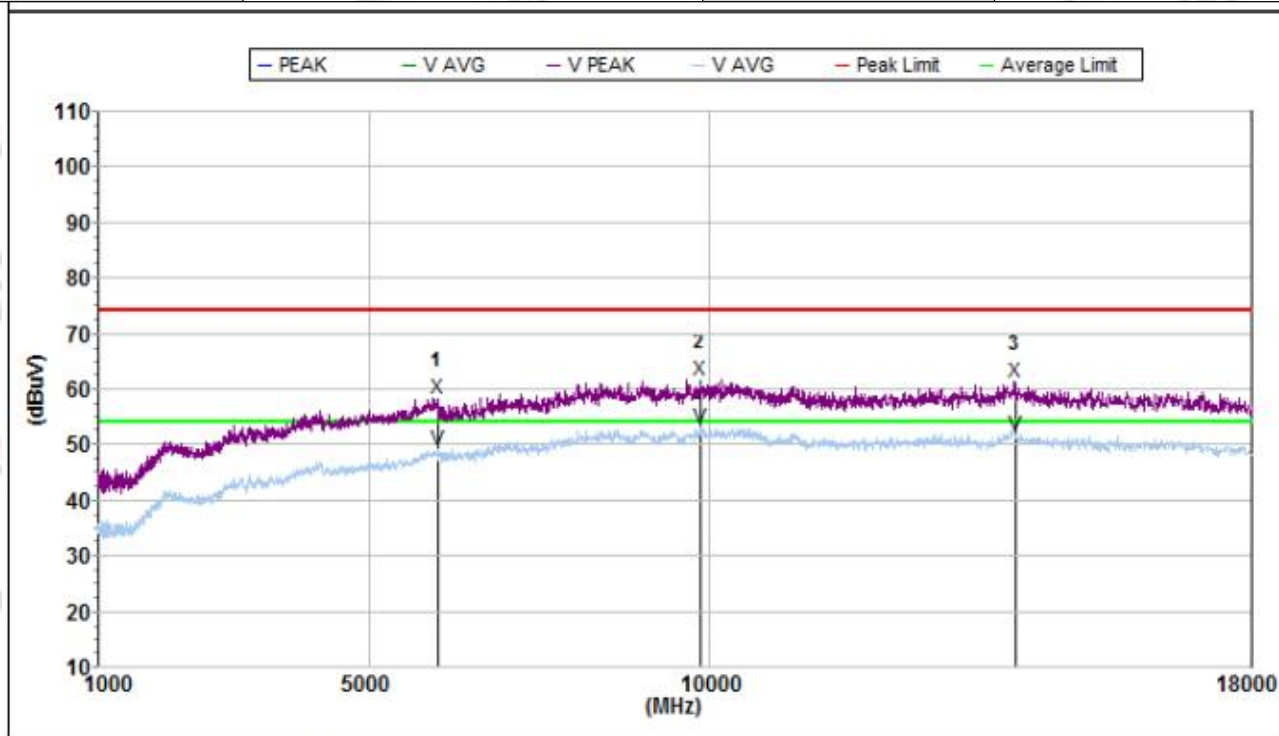
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	4040.000	61.3	-5.3	56.0	74.0	18.0	V
2	6768.000	58.6	0.4	59.0	74.0	15.0	V
3	10530.000	58.0	3.3	61.3	74.0	12.7	V
Avg							
1	4040.000	51.3	-5.3	46.0	54.0	8.0	V
2	6768.000	49.8	0.4	50.2	54.0	3.8	V
3	10530.000	49.2	3.3	52.5	54.0	1.5	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2478MHz	Antenna Pol.	Horizontal



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	7782.000	57.8	-1.4	56.4	74.0	17.6	H
2	13848.000	59.1	2.5	61.6	74.0	12.4	H
3	16926.000	57.8	3.9	61.7	74.0	12.3	H
Avg							
1	7782.000	49.5	-1.4	48.1	54.0	5.9	H
2	13848.000	50.9	2.5	53.4	54.0	0.6	H
3	16926.000	49.2	3.9	53.1	54.0	0.9	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2MHz-2478MHz	Antenna Pol.	Vertical



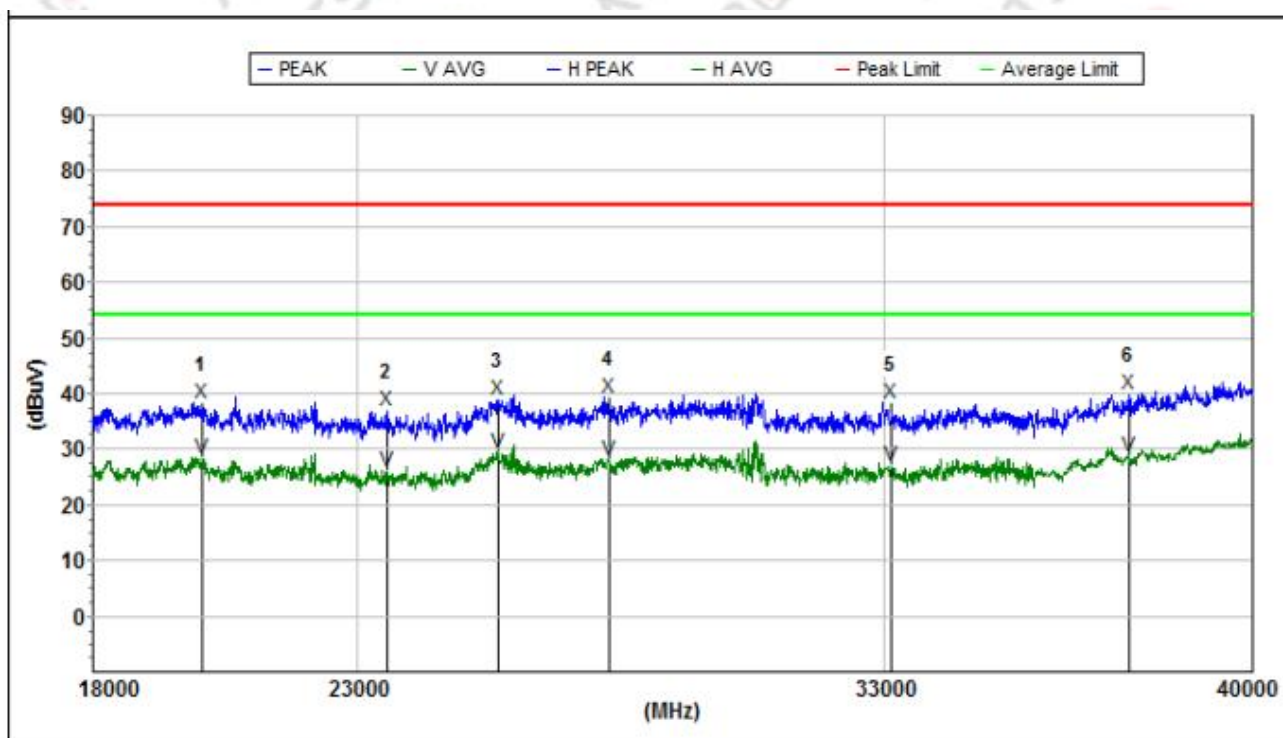
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	5997.500	59.3	-1.0	58.3	74.0	15.7	V
2	9888.000	58.6	2.9	61.5	74.0	12.5	V
3	14514.000	58.7	2.6	61.3	74.0	12.7	V
Avg							
1	5997.500	50.1	-1.0	49.1	54.0	4.9	V
2	9888.000	50.1	2.9	53.0	54.0	1.0	V
3	14514.000	49.3	2.6	51.9	54.0	2.1	V

18GHz-40GHz:

Note:

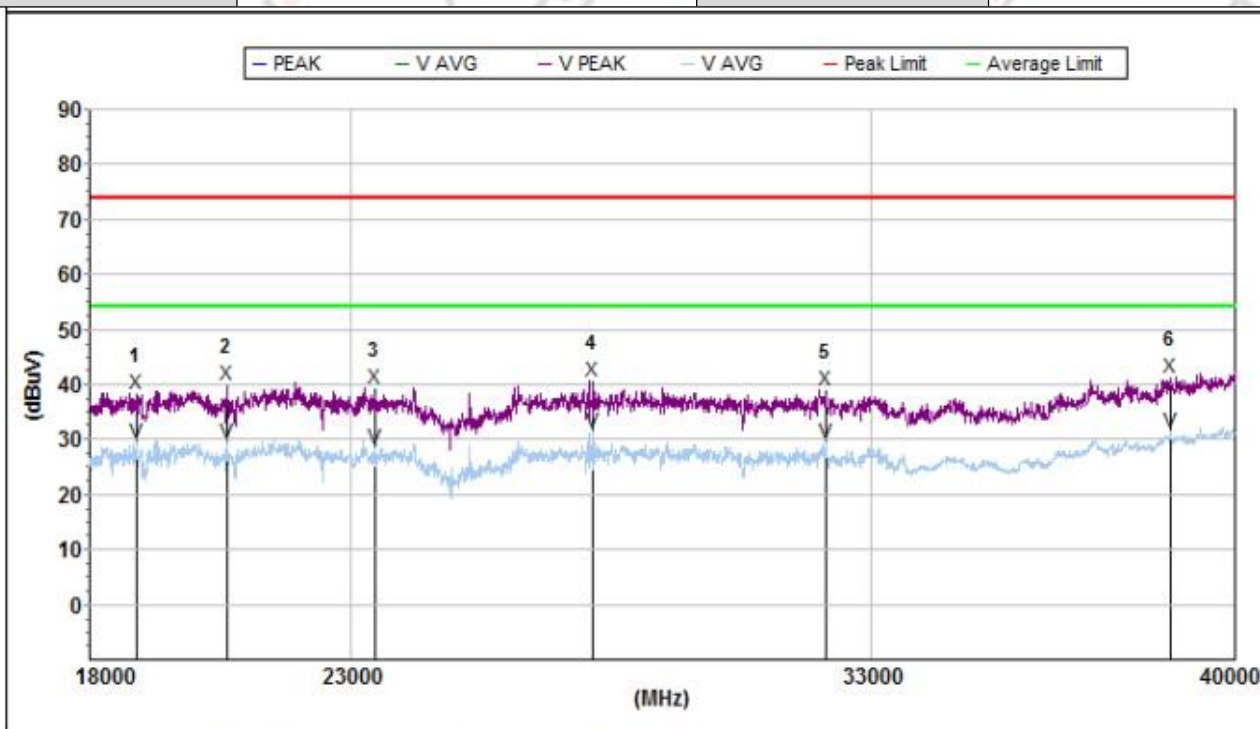
- 1.All modes have been tested, only worst (BLE_2M-2440MHz)mode was recorded in the test report.
- 2.While performing the testing, the notch filter is used for avoiding test instrument overload.

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Antenna Pol.	Horizontal



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	20068.000	59.9	-21.4	38.5	74.0	35.5	H
2	23577.000	58.7	-21.5	37.2	74.0	36.8	H
3	25689.000	56.8	-17.9	38.9	74.0	35.1	H
4	27790.000	56.3	-17.0	39.3	74.0	34.7	H
5	33136.000	55.5	-17.1	38.4	74.0	35.6	H
6	37668.000	56.7	-16.6	40.1	74.0	33.9	H
Avg							
1	20068.000	50.0	-21.4	28.6	54.0	25.4	H
2	23577.000	47.6	-21.5	26.1	54.0	27.9	H
3	25689.000	47.4	-17.9	29.5	54.0	24.5	H
4	27790.000	45.2	-17.0	28.2	54.0	25.8	H
5	33136.000	44.2	-17.1	27.1	54.0	26.9	H
6	37668.000	45.4	-16.6	28.8	54.0	25.2	H

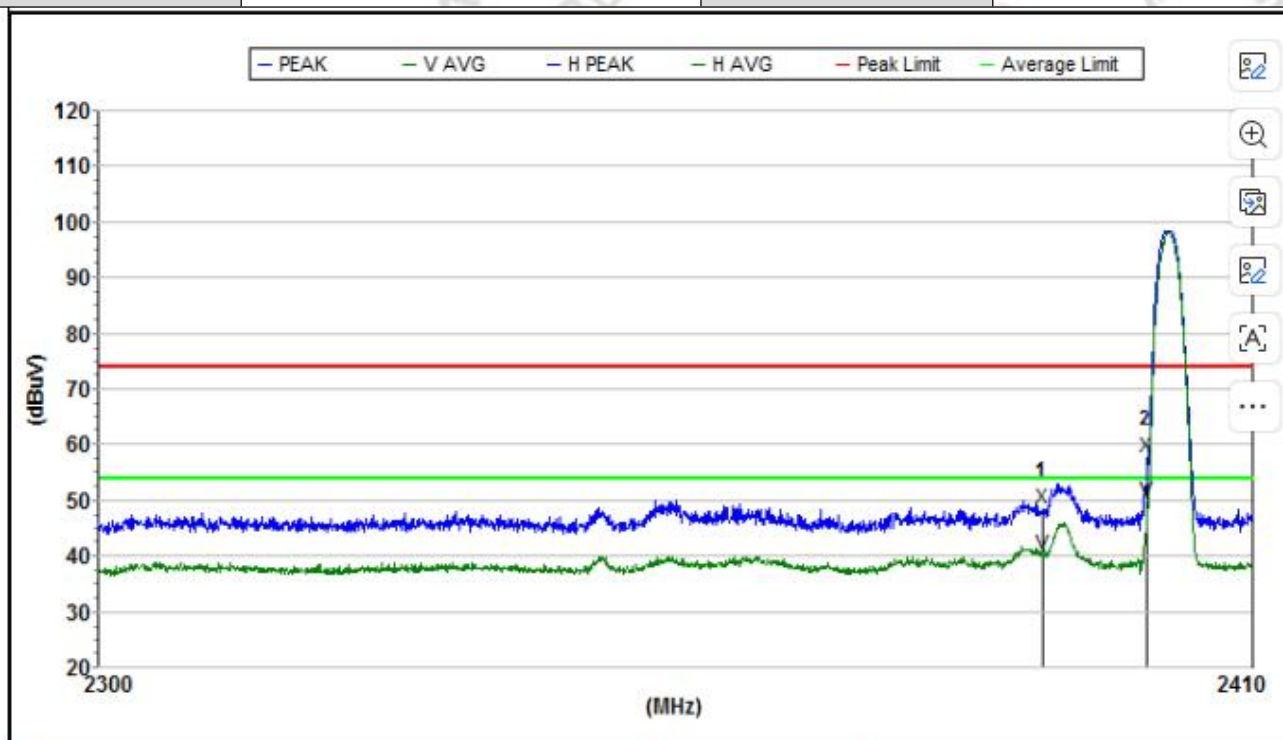
EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Antenna Pol.	Vertical



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	18891.000	38.2	0.0	38.2	74.0	35.8	V
2	20629.000	39.9	0.0	39.9	74.0	34.1	V
3	23478.000	39.2	0.0	39.2	74.0	34.8	V
4	27658.000	40.7	0.0	40.7	74.0	33.3	V
5	32135.000	39.0	0.0	39.0	74.0	35.0	V
6	38768.000	41.3	0.0	41.3	74.0	32.7	V
Avg							
1	18891.000	29.6	0.0	29.6	54.0	24.4	V
2	20629.000	29.4	0.0	29.4	54.0	24.6	V
3	23478.000	28.6	0.0	28.6	54.0	25.4	V
4	27658.000	31.5	0.0	31.5	54.0	22.5	V
5	32135.000	29.5	0.0	29.5	54.0	24.5	V
6	38768.000	31.4	0.0	31.4	54.0	22.6	V

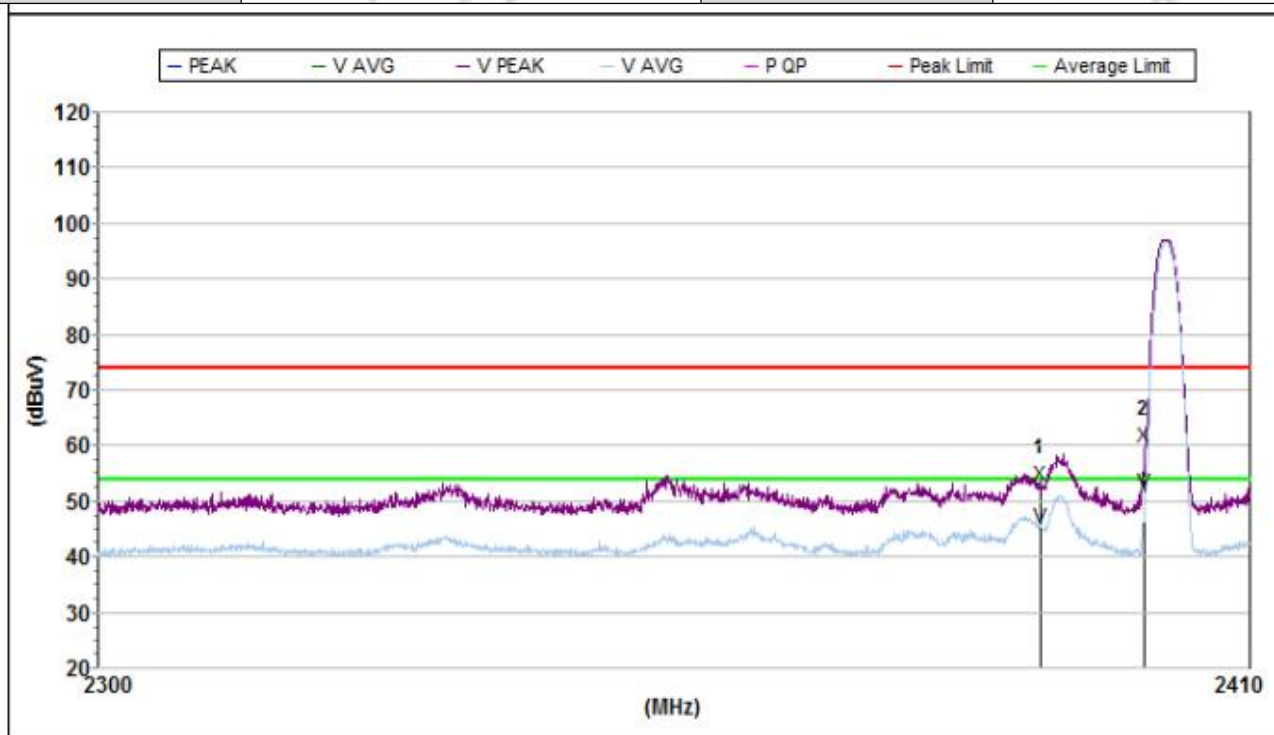
Restricted Band:

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2402MHz	Antenna Pol.	Horizontal



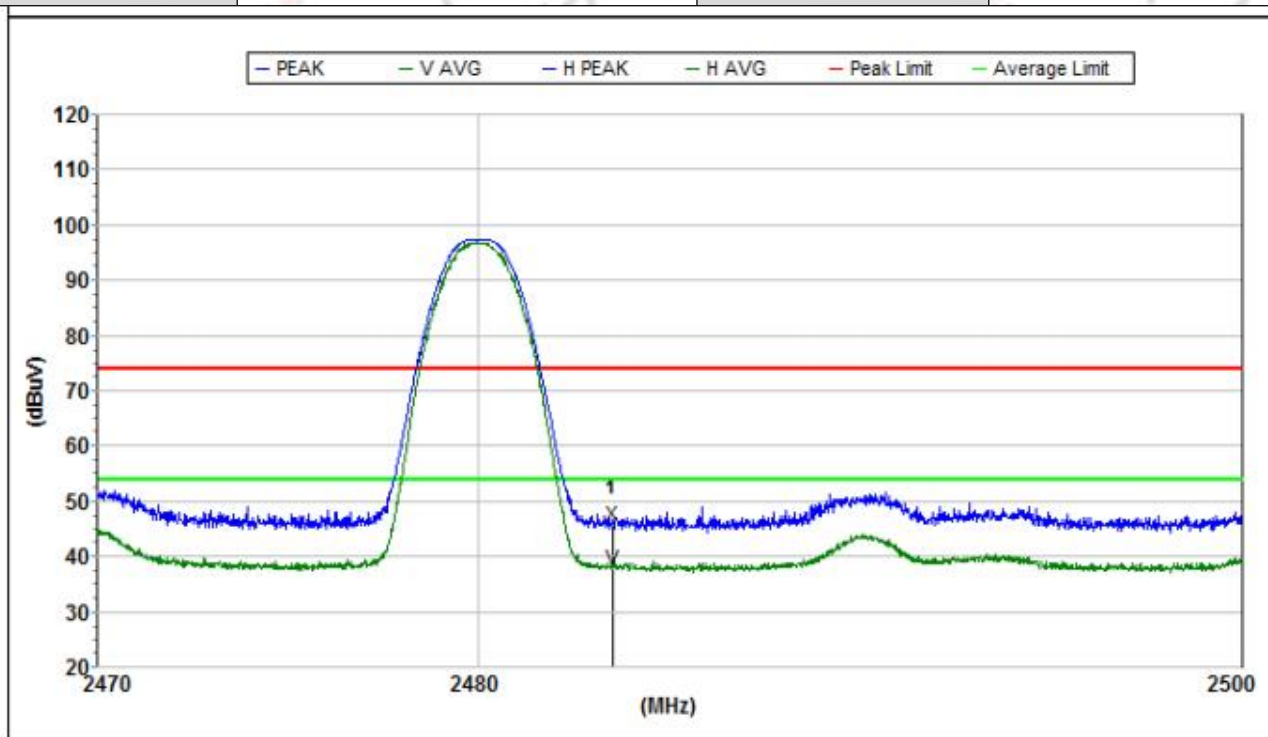
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2390.000	62.7	-14.2	48.5	74.0	25.5	H
2	2400.000	72.1	-14.2	57.9	74.0	16.1	H
Avg							
1	2390.000	54.5	-14.2	40.3	54.0	13.7	H
2	2400.000	64.1	-14.2	49.9	54.0	4.1	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2402MHz	Antenna Pol.	Vertical



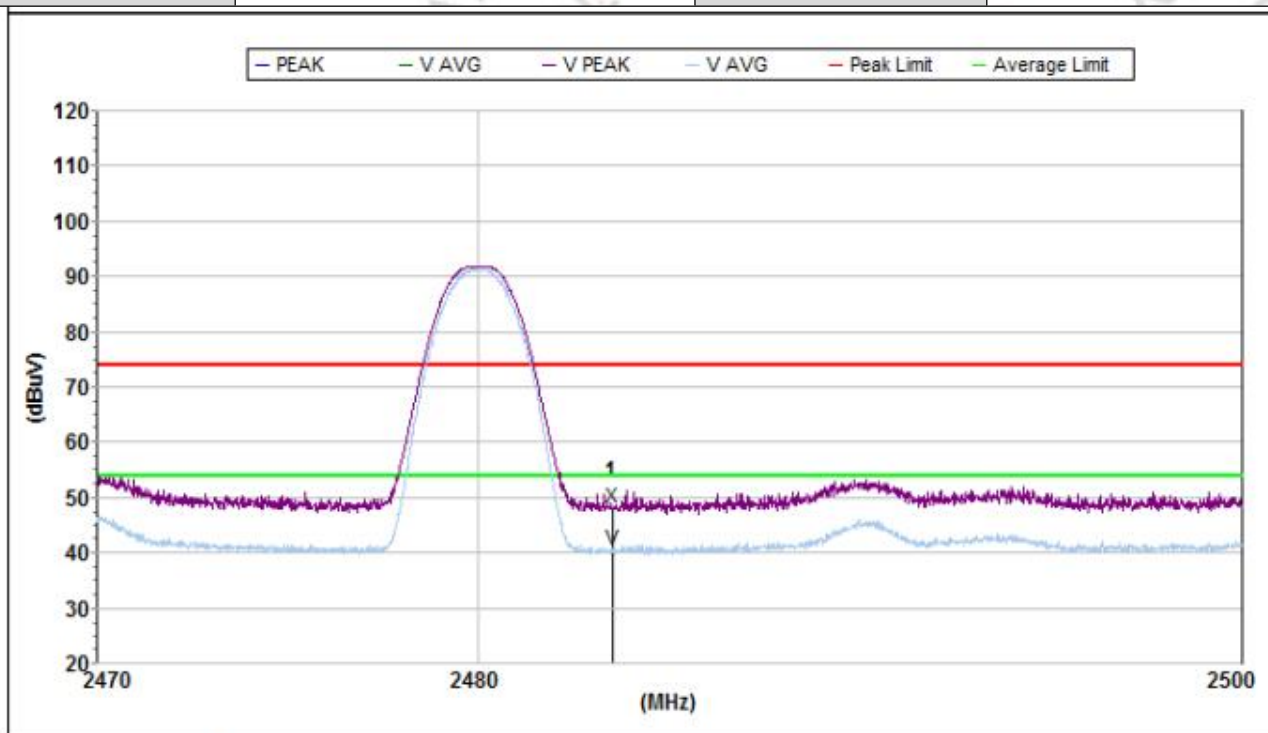
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2390.000	64.3	-11.3	53.0	74.0	21.0	V
2	2400.000	71.1	-11.4	59.7	74.0	14.3	V
Avg							
1	2390.000	56.6	-11.3	45.3	54.0	8.7	V
2	2400.000	63.1	-11.4	51.7	54.0	2.3	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2480MHz	Antenna Pol.	Horizontal



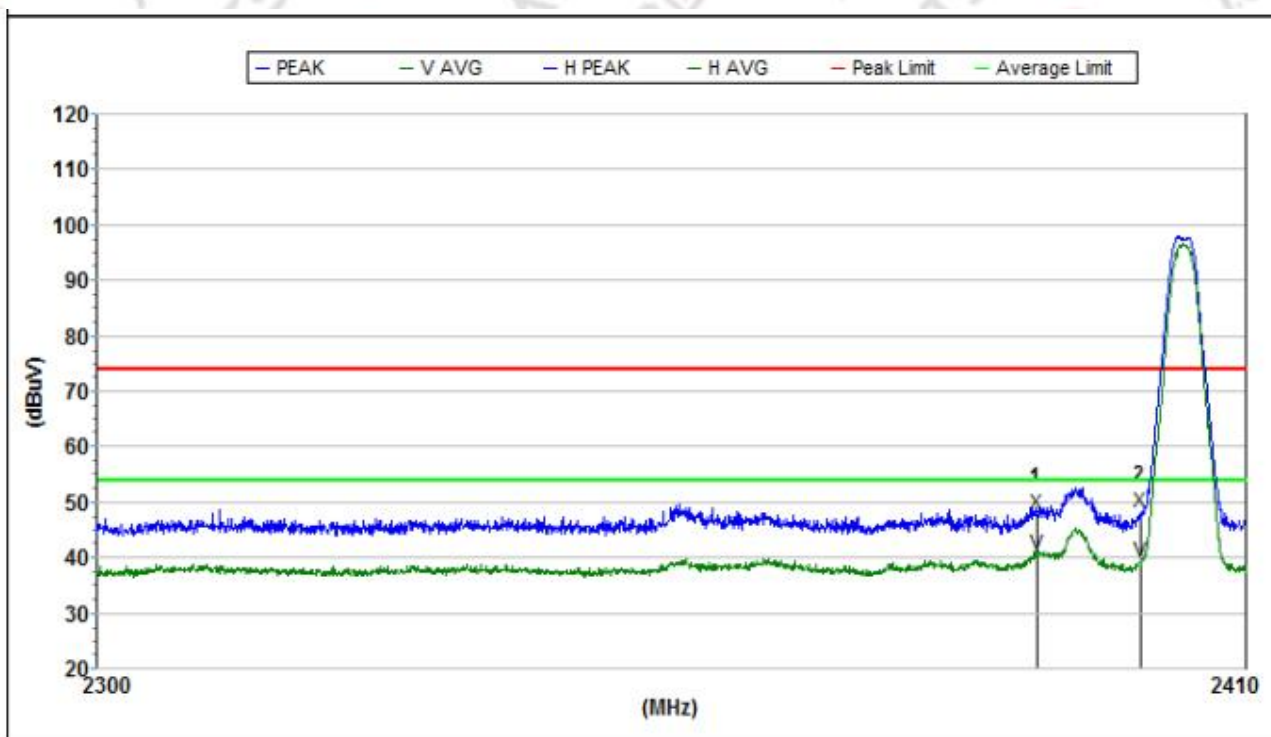
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2483.500	59.9	-14.3	45.6	74.0	28.4	H
Avg							
1	2483.500	52.1	-14.3	37.8	54.0	16.2	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-1M-2480MHZ	Antenna Pol.	Vertical



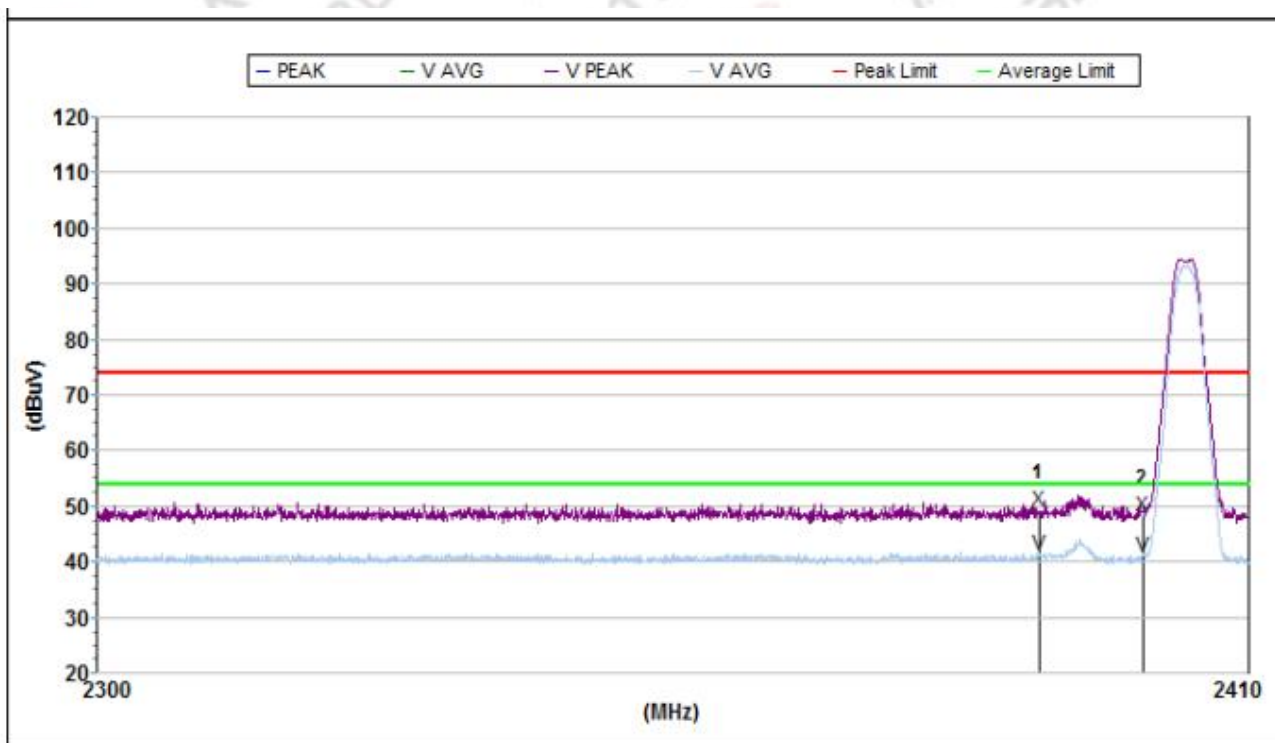
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2483.500	60.0	-11.7	48.3	74.0	25.7	V
Avg							
1	2483.500	52.4	-11.7	40.7	54.0	13.3	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2404MHz	Antenna Pol.	Horizontal



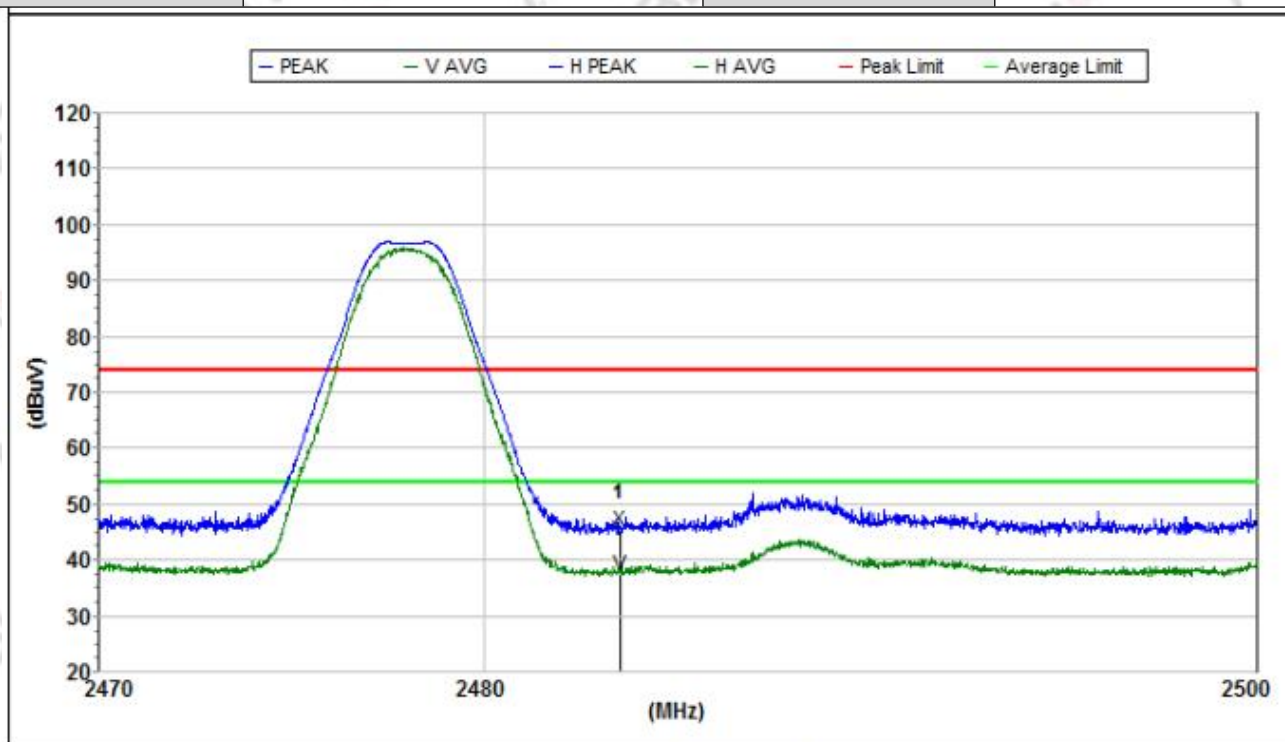
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2390.000	62.2	-14.2	48.0	74.0	26.0	H
2	2400.000	62.6	-14.2	48.4	74.0	25.6	H
Avg							
1	2390.000	54.8	-14.2	40.6	54.0	13.4	H
2	2400.000	53.6	-14.2	39.4	54.0	14.6	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2402MHz	Antenna Pol.	Vertical



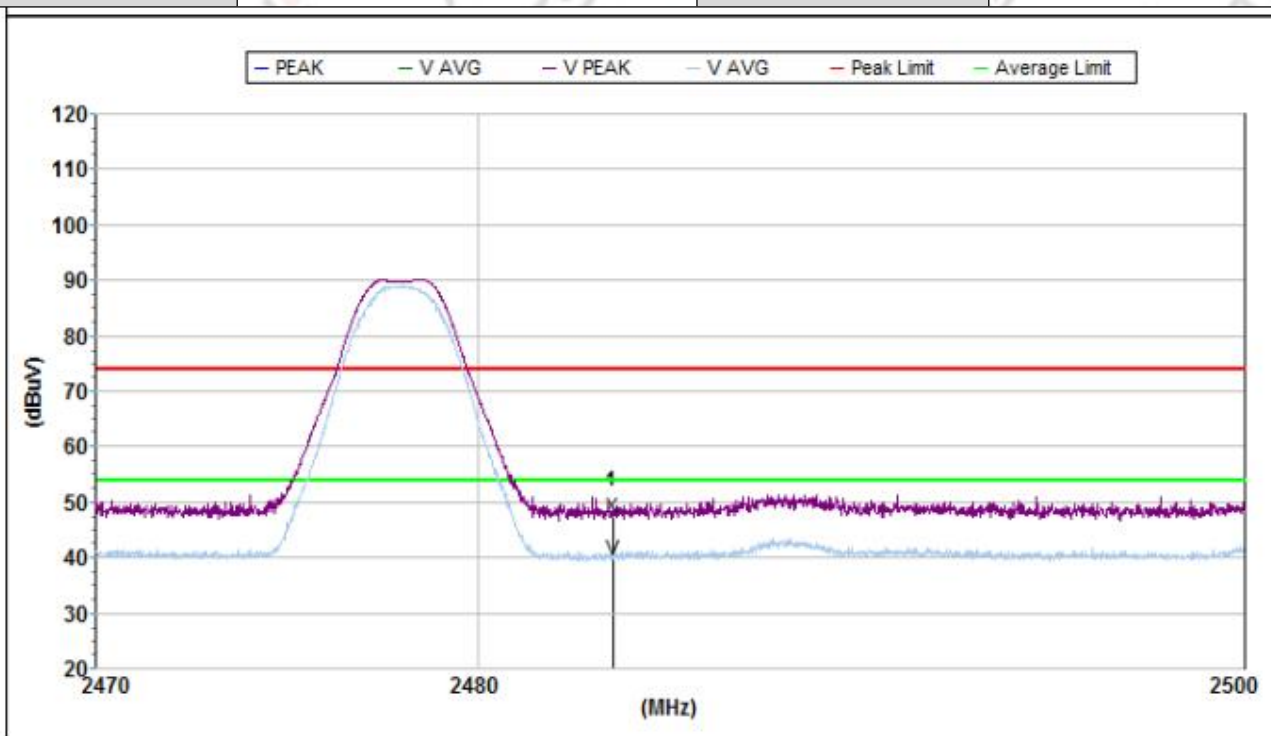
Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2390.000	60.5	-11.3	49.2	74.0	24.8	V
2	2400.000	59.7	-11.4	48.3	74.0	25.7	V
Avg							
1	2390.000	52.6	-11.3	41.3	54.0	12.7	V
2	2400.000	52.5	-11.4	41.1	54.0	12.9	V

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2478MHz	Antenna Pol.	Horizontal



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2483.500	59.5	-14.3	45.2	74.0	28.8	H
Avg							
1	2483.500	51.8	-14.3	37.5	54.0	16.5	H

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2478MHz	Antenna Pol.	Vertical



Mk.	Freq.(MHz)	Reading(dBuV/m)	Factor(dB)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Pol.
Peak:							
1	2483.500	58.9	-11.7	47.2	74.0	26.8	V
Avg							
1	2483.500	51.6	-11.7	39.9	54.0	14.1	V

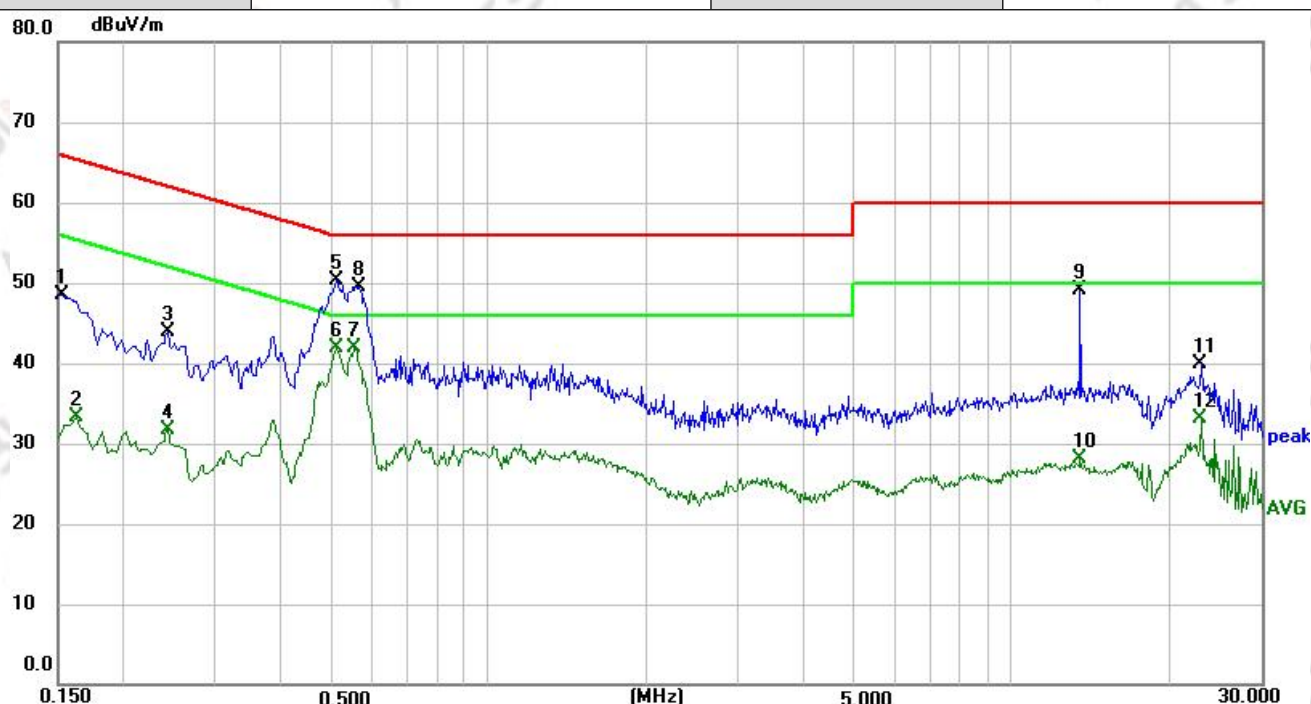
2.AC Power-Line Conducted Emission

Test Result

Note:

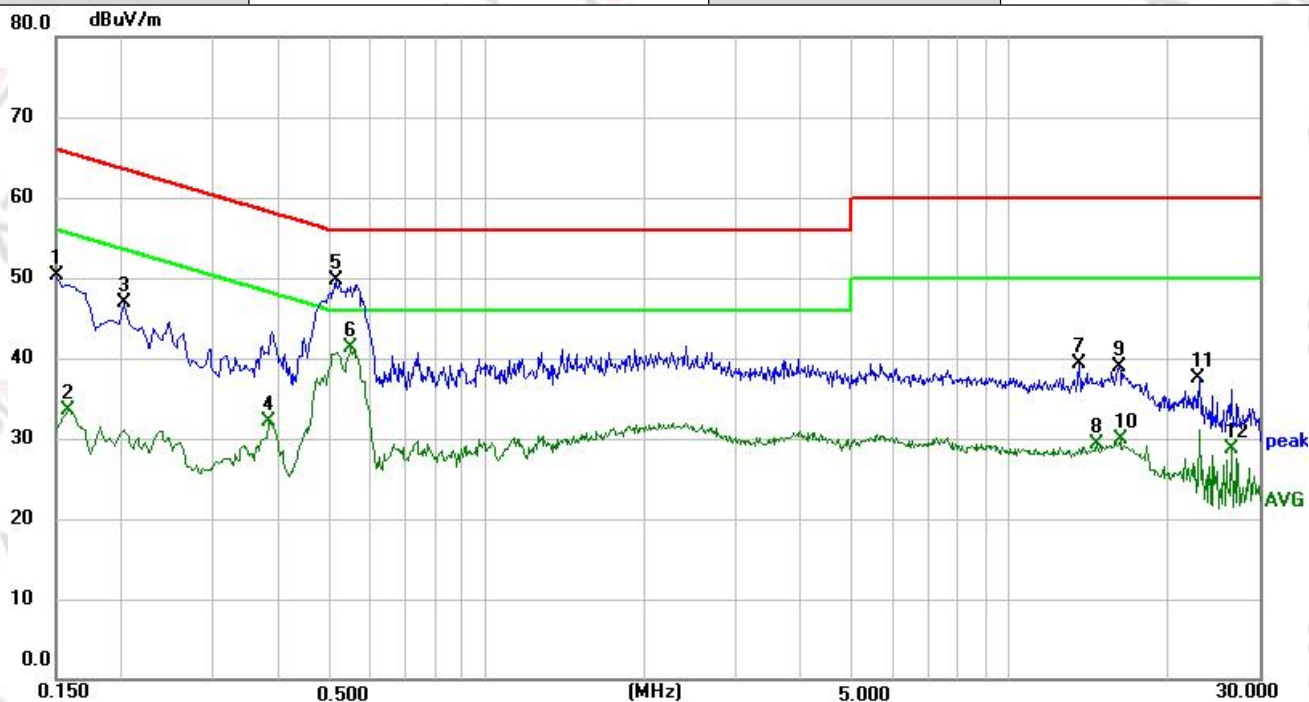
- 1.All modes have been tested, only worst mode(BLE-2M-2440MHz) was recorded in the test report.
- 2.Emission Level = Reading Value + Correction Factor .
3. Correction Factor = Insertion loss + Cable loss.
4. The emission levels of other frequencies were less than 20dB margin against the limit.
5. Margin value = Emission level-Limit value.

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Phase	L1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.1524	28.70	19.75	48.45	65.87	-17.42	peak	P	
2	0.1620	13.51	19.74	33.25	55.36	-22.11	AVG	P	
3	0.2420	24.18	19.73	43.91	62.03	-18.12	peak	P	
4	0.2420	12.01	19.73	31.74	52.03	-20.29	AVG	P	
5	0.5100	30.41	19.85	50.26	56.00	-5.74	peak	P	
6	0.5100	21.99	19.85	41.84	46.00	-4.16	AVG	P	
7 *	0.5540	22.07	19.88	41.95	46.00	-4.05	AVG	P	
8	0.5660	29.65	19.88	49.53	56.00	-6.47	peak	P	
9	13.5180	27.53	21.61	49.14	60.00	-10.86	peak	P	
10	13.5180	6.42	21.61	28.03	50.00	-21.97	AVG	P	
11	23.1299	15.35	24.51	39.86	60.00	-20.14	peak	P	
12	23.1299	8.68	24.51	33.19	50.00	-16.81	AVG	P	

EUT	DESKTOP TERMINAL	Model Name	Z108
Test Mode	BLE-2M-2440MHz	Phase	N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.1500	30.54	19.75	50.29	66.00	-15.71	peak	P	
2	0.1580	13.79	19.80	33.59	55.57	-21.98	AVG	P	
3	0.2020	26.81	20.02	46.83	63.53	-16.70	peak	P	
4	0.3820	12.26	19.75	32.01	48.24	-16.23	AVG	P	
5	0.5140	30.07	19.56	49.63	56.00	-6.37	peak	P	
6 *	0.5500	21.78	19.60	41.38	46.00	-4.62	AVG	P	
7	13.5540	17.92	21.33	39.25	60.00	-20.75	peak	P	
8	14.6460	7.76	21.48	29.24	50.00	-20.76	AVG	P	
9	16.1660	16.94	21.94	38.88	60.00	-21.12	peak	P	
10	16.2260	7.88	21.96	29.84	50.00	-20.16	AVG	P	
11	23.1299	13.44	24.07	37.51	60.00	-22.49	peak	P	
12	26.4860	3.68	24.96	28.64	50.00	-21.36	AVG	P	