

Appendix A: Test Results of Bluetooth LE

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Appendix A.1: Test Results of 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.724	2401.644	2402.368	0.5	PASS
		2440	0.752	2439.624	2440.376	0.5	PASS
		2480	0.736	2479.628	2480.364	0.5	PASS

Test Graphs

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



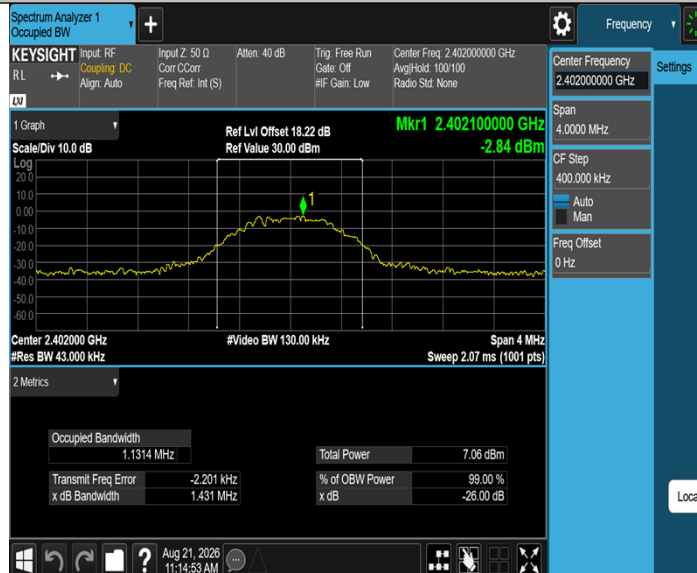
Appendix A.2: Test Results of 99% Bandwidth

Test Result

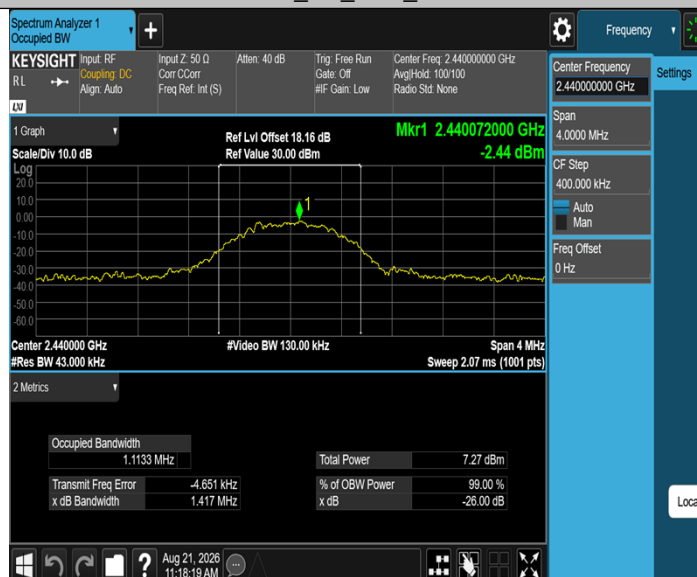
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.1314	2401.4321	2402.5635	---	PASS
		2440	1.1133	2439.4387	2440.5520	---	PASS
		2480	1.1214	2479.4435	2480.5649	---	PASS

Test Graphs

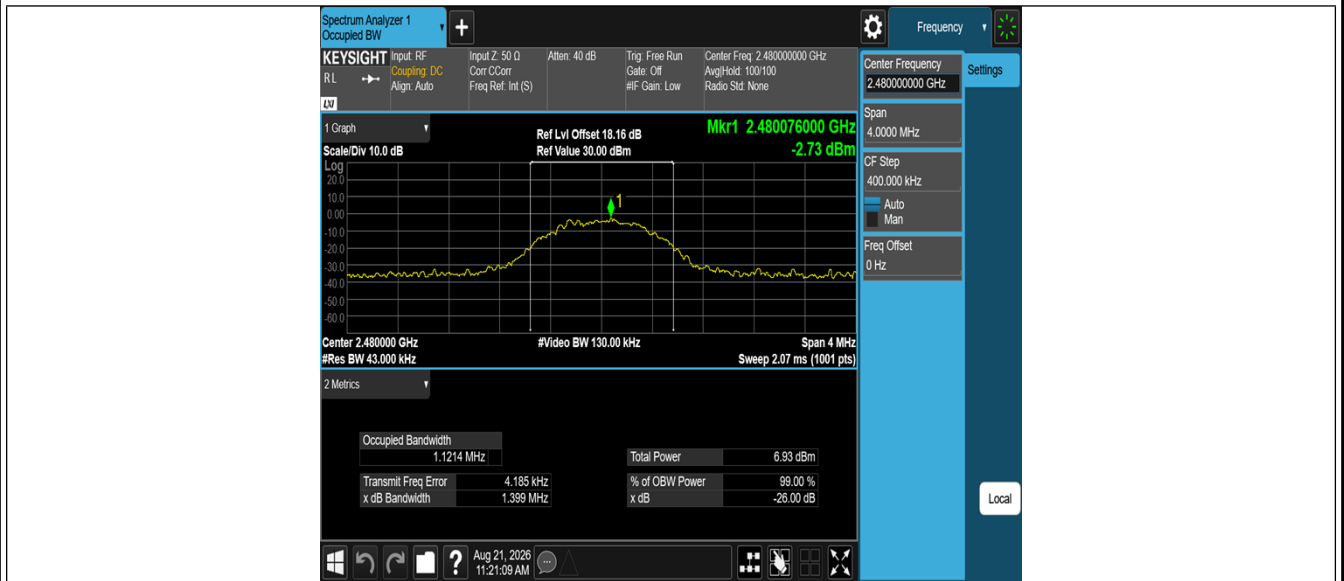
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



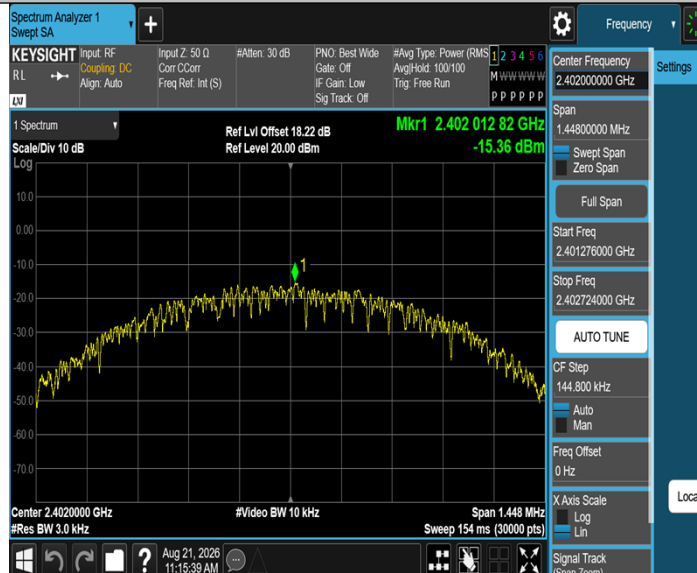
Appendix A.3: Test Results of Conducted Power Spectral Density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.36	≤8.00	PASS
		2440	-15.25	≤8.00	PASS
		2480	-15.68	≤8.00	PASS

Test Graphs

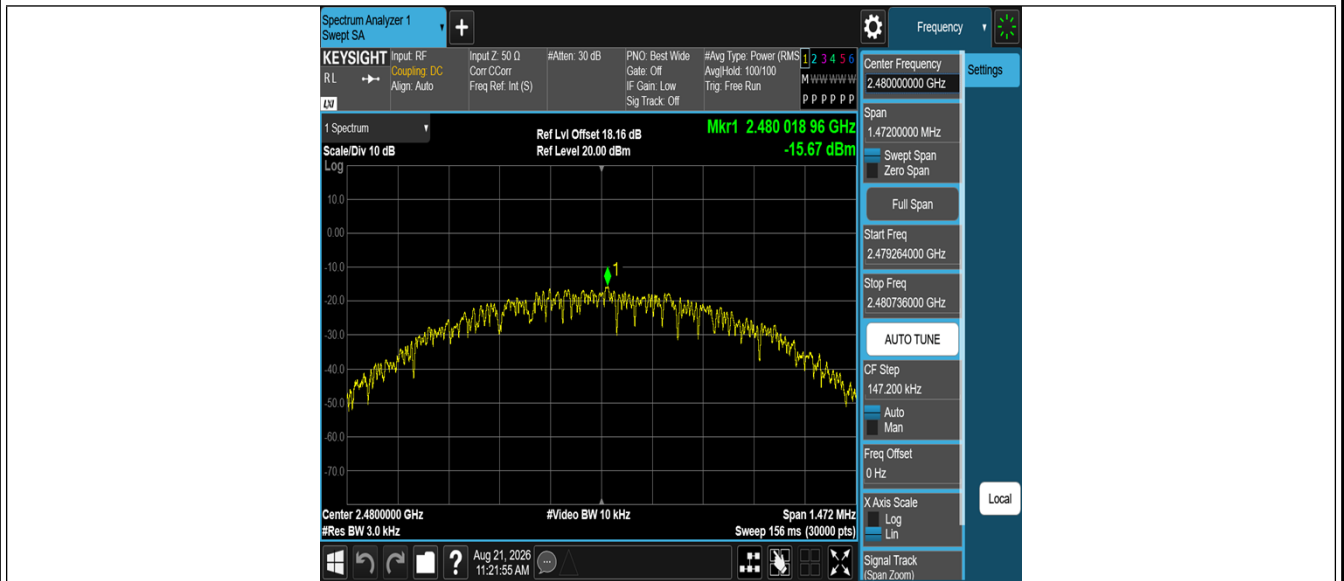
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix A.4: Test Results of Band Edge Measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.15	-42.36	≤-20.15	PASS
		High	2480	-0.53	-38.80	≤-20.54	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



Appendix A.5: Test Results of Conducted Spurious Emission

Test Result

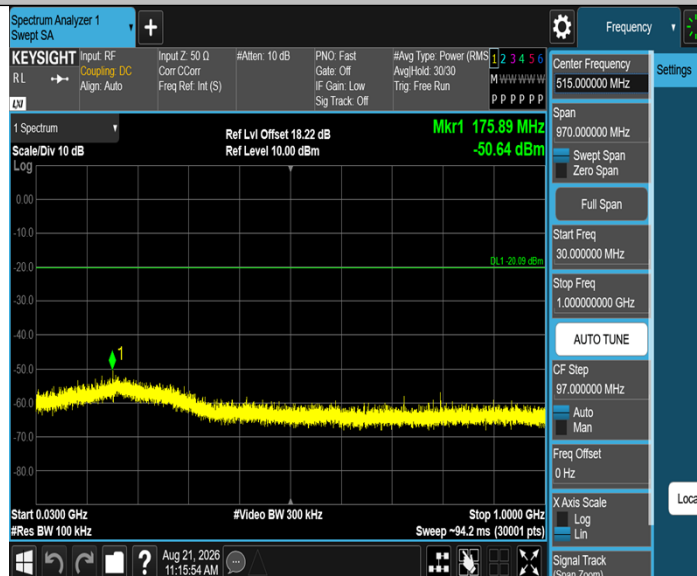
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.09	-0.09	---	PASS
			30~1000	-0.09	-50.64	≤-20.09	PASS
			1000~26500	-0.09	-38.19	≤-20.09	PASS
		2440	Reference	-0.12	-0.12	---	PASS
			30~1000	-0.12	-51.94	≤-20.12	PASS
			1000~26500	-0.12	-39.46	≤-20.12	PASS
		2480	Reference	-0.68	-0.68	---	PASS
			30~1000	-0.68	-51.96	≤-20.68	PASS
			1000~26500	-0.68	-41.52	≤-20.68	PASS

Test Graphs

BLE_1M_Ant1_2402_0~Reference



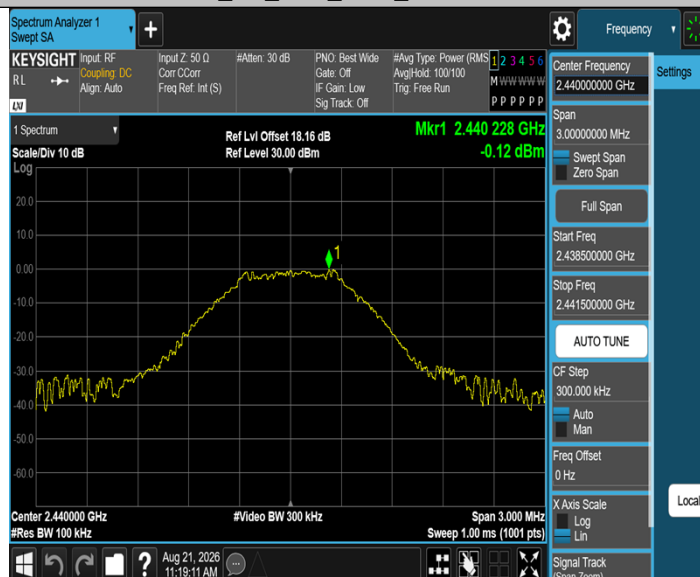
BLE_1M_Ant1_2402_30~1000



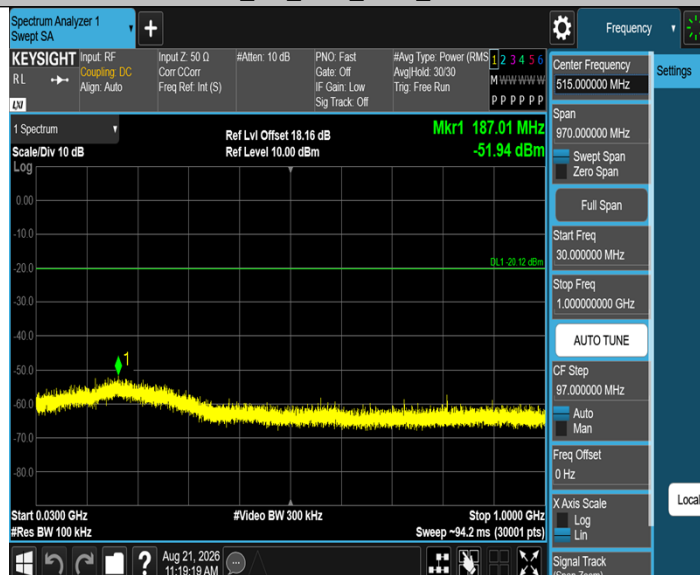
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference



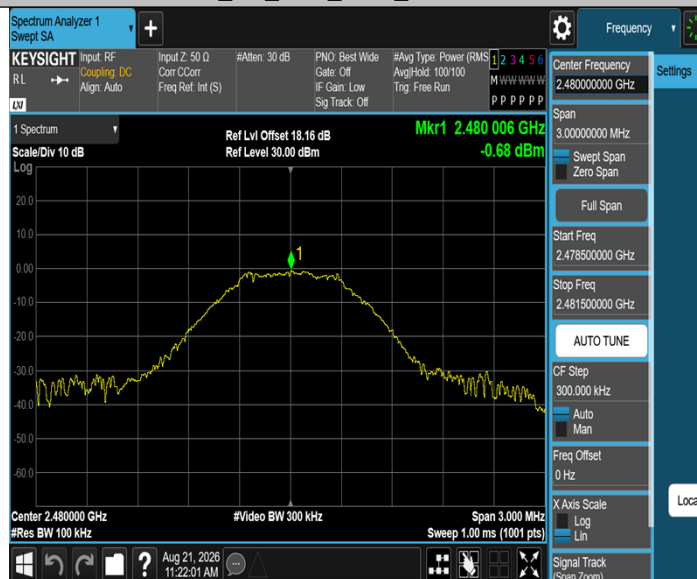
BLE_1M_Ant1_2440_30~1000



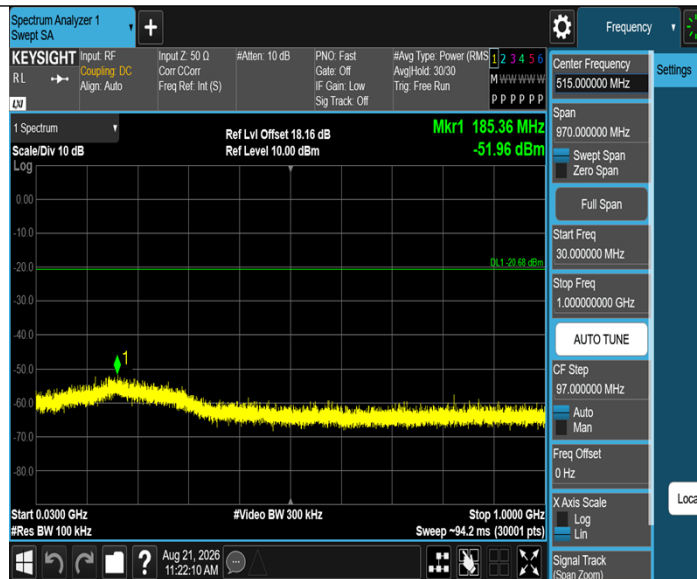
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



Appendix A.6: Test Results of Radiated Spurious Emissions

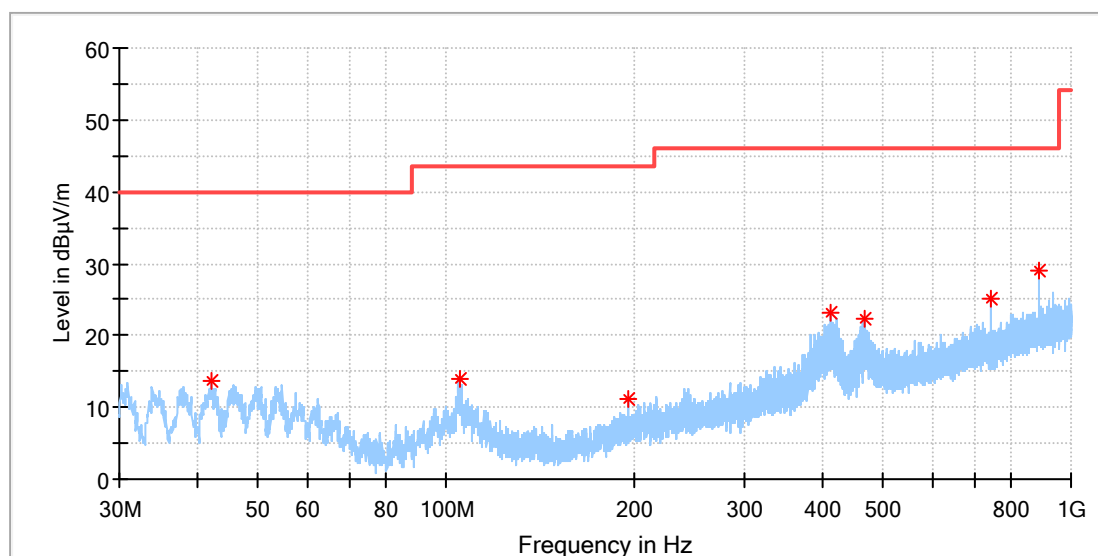
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30MHz - 1GHz

EUT Information

EUT Name:	Wireless thermal printer
Model:	NPR1
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	27227256/A004319300-006
Test Voltage:	Battery
Remark:	Temp 21.8°C Humi:49%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

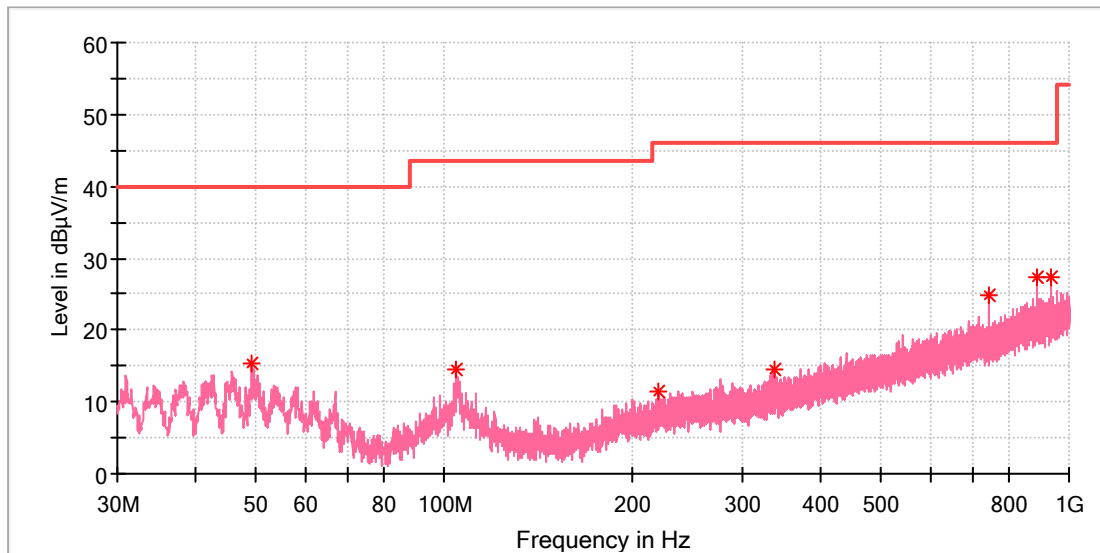
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.017222	13.67	40.00	26.33	100.0	H	146.0	-19.7
105.282778	14.05	43.50	29.45	100.0	H	131.0	-18.9
195.385000	11.16	43.50	32.34	100.0	H	5.0	-19.3
411.695000	23.14	46.00	22.86	100.0	H	155.0	-13.5
466.500000	22.27	46.00	23.73	100.0	H	163.0	-12.4
742.518889	25.20	46.00	20.80	100.0	H	74.0	-7.2
890.982778	28.92	46.00	17.08	100.0	H	14.0	-4.9

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EUT Information

EUT Name: Wireless thermal printer
Model: NPR1
Test Mode: BLE 1M_Mid channel
Order No/Sample No: 27227256/A004319300-006
Test Voltage: Battery
Remark: Temp 21.8°C Humi:49%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

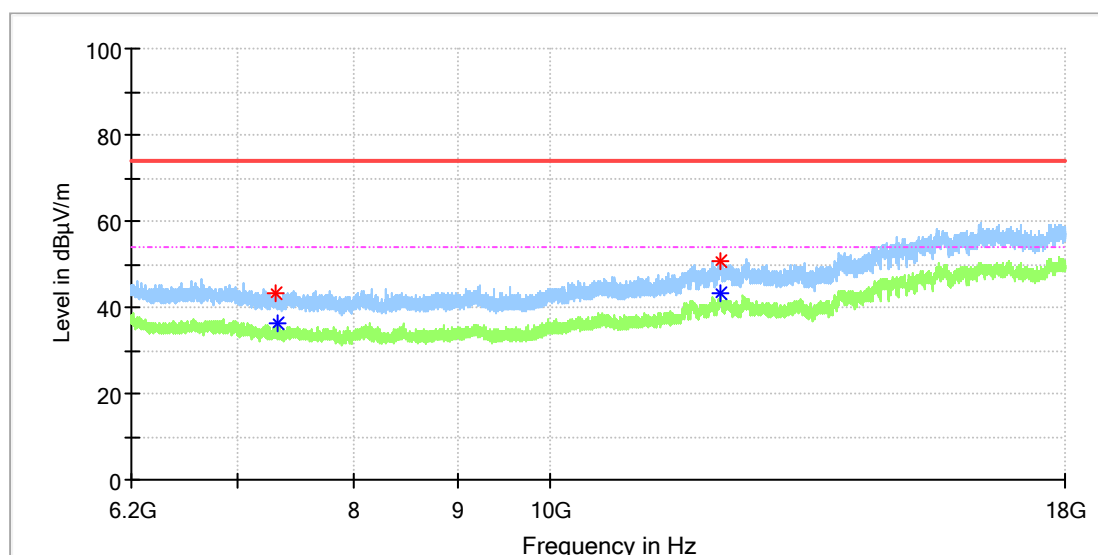
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
49.238333	15.37	40.00	24.63	100.0	V	171.0	-18.4
104.743889	14.50	43.50	29.00	100.0	V	50.0	-18.9
219.742778	11.40	46.00	34.60	100.0	V	43.0	-18.6
337.705556	14.61	46.00	31.39	100.0	V	279.0	-15.1
742.518889	24.86	46.00	21.14	100.0	V	35.0	-7.2
890.982778	27.22	46.00	18.78	100.0	V	250.0	-4.9
936.950000	27.32	46.00	18.68	100.0	V	272.0	-4.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

EUT Information

EUT Name:	Wireless thermal printer
Model:	NPR1
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	27227256/A004319300-006
Test Voltage:	Battery
Remark:	Temp 21.8°C Humi:49%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
7315.100000	43.41	---	74.00	30.59	150.0	H	0.0	8.2
7319.525000	---	36.19	54.00	17.81	150.0	H	0.0	8.2
12142.775000	50.73	---	74.00	23.27	150.0	H	47.0	16.5
12154.575000	---	43.07	54.00	10.93	150.0	H	32.0	16.5

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EUT Information

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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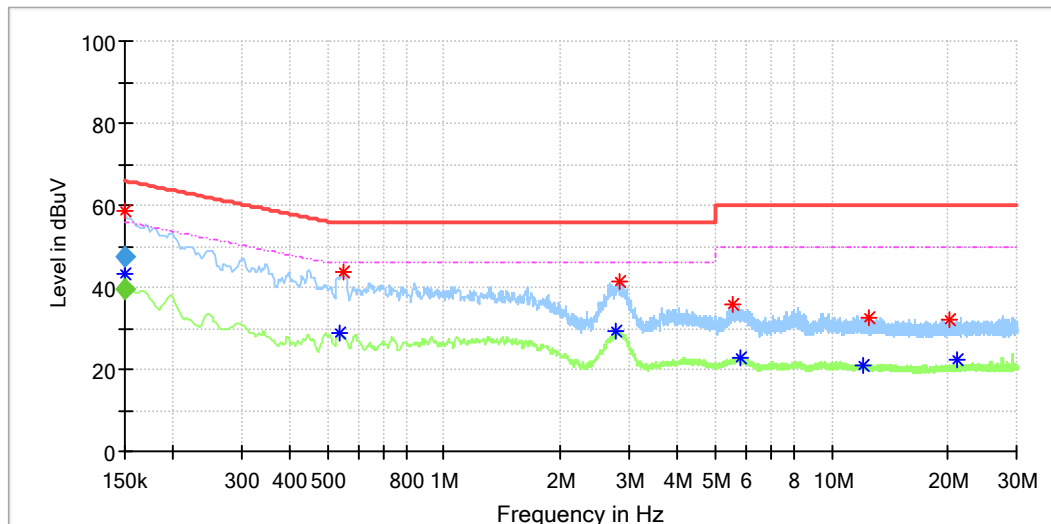
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
100.000000	100.000000	100.000000	100.000000	100.000000	100.000000		100.000000	100.000000

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
93.7	122.0	118.0	120.0	2.0	100	V	135	0.0

Appendix A.8: Test Results of Conducted Emission on AC Mains

EUT Information

EUT Name:	Wireless thermal printer
Model:	NPR1
Sample No:	A004319300-002
Test Mode:	Normal working with BLE Connecting
Test Voltage:	AC 120V/60Hz
Remark:	Temp:24.0 ; Humi:51.1%
Test standard:	FCC PART 15
Tested By:	Charron Chen
Reviewed by:	Charlie Zha



Critical Freqs

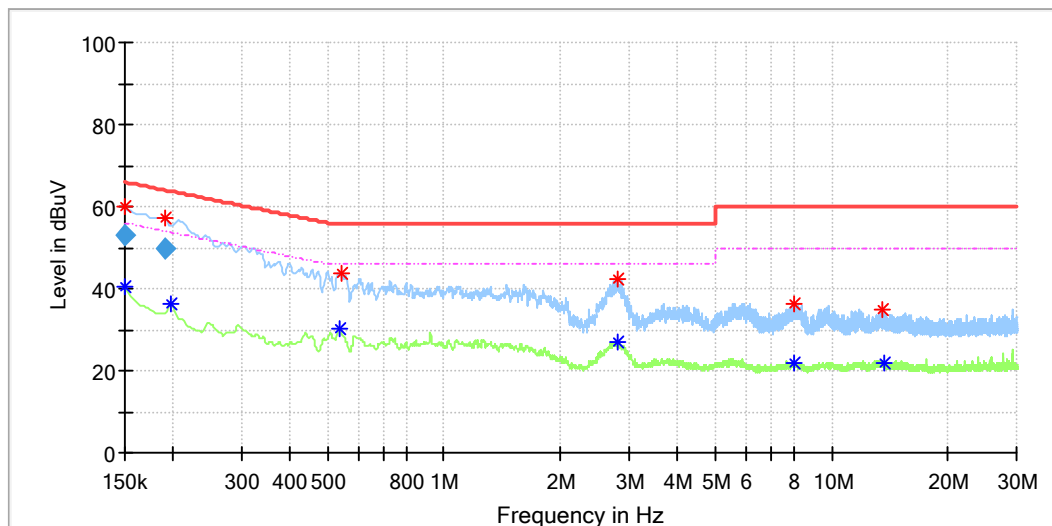
Frequency (MHz)	MaxPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.150	58.4	---	66.00	7.62	L1	9.5
0.150	---	43.4	56.00	12.65	L1	9.5
0.538	---	28.9	46.00	17.11	L1	9.5
0.548	43.7	---	56.00	12.28	L1	9.5
2.767	---	29.5	46.00	16.53	L1	9.6
2.841	41.3	---	56.00	14.69	L1	9.6
5.560	36.0	---	60.00	23.99	L1	9.8
5.836	---	22.8	50.00	27.15	L1	9.8
12.120	---	20.8	50.00	29.24	L1	9.8
12.510	32.7	---	60.00	27.25	L1	9.7
20.187	32.0	---	60.00	28.04	L1	9.8
21.162	---	22.4	50.00	27.63	L1	9.8

Final Result

Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150	---	39.4	56.00	16.63	1000.0	9.0	L1	9.5
0.150	47.3	---	66.00	18.66	1000.0	9.0	L1	9.5

EUT Information

EUT Name: Wireless thermal printer
Model: NPR1
Sample No: A004319300-002
Test Mode: Normal working with BLE Connecting
Test Voltage: AC 120V/60Hz
Remark: Temp:24.0 ; Humi:51.1%
Test standard: FCC PART 15
Tested By: Charron Chen
Reviewed by: Charlie Zha



Critical_Freqs

Frequency (MHz)	MaxPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.150	60.0	---	66.00	6.05	N	9.7
0.150	---	40.4	56.00	15.57	N	9.7
0.190	57.1	---	64.05	6.97	N	9.9
0.197	---	36.1	53.73	17.66	N	9.9
0.536	---	30.4	46.00	15.60	N	9.9
0.541	43.6	---	56.00	12.35	N	9.9
2.804	42.2	---	56.00	13.84	N	9.8
2.812	---	27.1	46.00	18.86	N	9.8
7.961	---	22.0	50.00	28.03	N	9.8
8.023	36.4	---	60.00	23.57	N	9.8
13.585	34.7	---	60.00	25.26	N	9.6
13.672	---	21.9	50.00	28.06	N	9.6

Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150	53.0	---	66.00	13.02	1000.0	9.0	N	9.7
0.190	49.8	---	64.05	14.23	1000.0	9.0	N	9.9