

Bluetooth Low Energy

Test Engineer:	Jacob Zhang	Temperature:	20~26	°C
Test Date:	2022/2/16~2022/3/22	Relative Humidity:	40~51	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.025	0.622	0.50	Pass
BLE	1Mbps	1	19	2440	1.021	0.634	0.50	Pass
BLE	1Mbps	1	39	2480	1.017	0.622	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	1Mbps	1	0	2402	11.95	30.00	2.33	14.28	36.00	Pass
BLE	1Mbps	1	19	2440	11.67	30.00	2.33	14.00	36.00	Pass
BLE	1Mbps	1	39	2480	8.73	30.00	2.33	11.06	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE	1Mbps	1	0	2402	0.77	10.83
BLE	1Mbps	1	19	2440	0.77	10.48
BLE	1Mbps	1	39	2480	0.77	7.52

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	12.27	-3.36	2.33	8.00	Pass
BLE	1Mbps	1	19	2440	12.29	-3.91	2.33	8.00	Pass
BLE	1Mbps	1	39	2480	8.05	-7.89	2.33	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

Bluetooth Low Energy

Test Engineer:	Jacob Zhang	Temperature:	20~26	°C
Test Date:	2022/2/16~2022/3/22	Relative Humidity:	40~51	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	2Mbps	1	0	2402	2.014	1.104	0.50	Pass
BLE	2Mbps	1	19	2440	2.010	1.100	0.50	Pass
BLE	2Mbps	1	38	2480	2.014	1.100	0.50	Pass
BLE	2Mbps	1	39	2480	2.010	1.096	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	2Mbps	1	0	2402	12.97	30.00	2.33	15.30	36.00	Pass
BLE	2Mbps	1	19	2440	12.44	30.00	2.33	14.77	36.00	Pass
BLE	2Mbps	1	38	2480	11.89	30.00	2.33	14.22	36.00	Pass
BLE	2Mbps	1	39	2480	8.77	30.00	2.33	11.10	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE	2Mbps	1	0	2402	2.48	11.62
BLE	2Mbps	1	19	2440	2.48	11.11
BLE	2Mbps	1	38	2480	2.48	10.83
BLE	2Mbps	1	39	2480	2.48	7.75

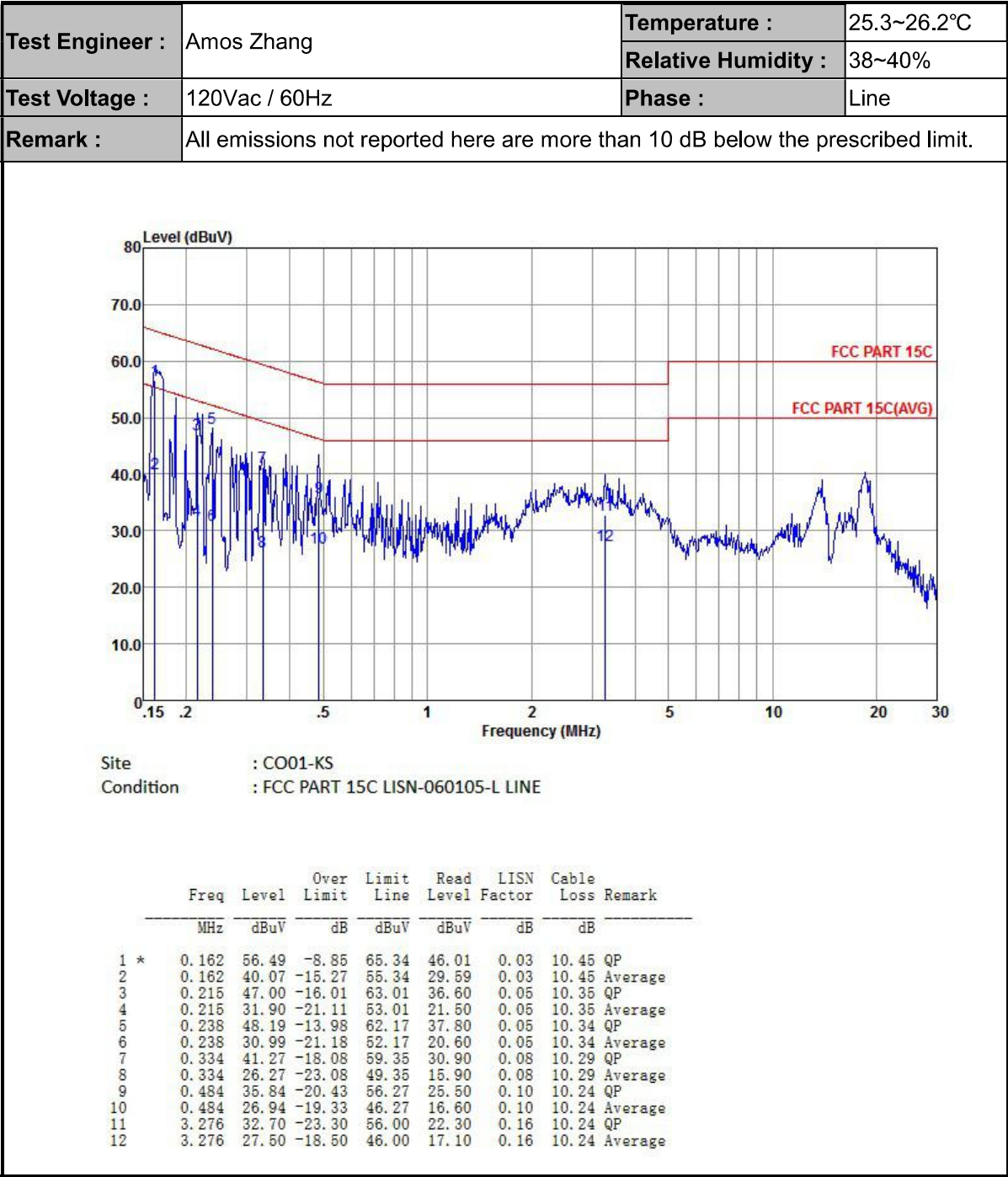
TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	2Mbps	1	0	2402	12.46	-4.77	2.33	8.00	Pass
BLE	2Mbps	1	19	2440	12.35	-5.28	2.33	8.00	Pass
BLE	2Mbps	1	38	2480	11.04	-6.13	2.33	8.00	Pass
BLE	2Mbps	1	39	2480	8.91	-9.32	2.33	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

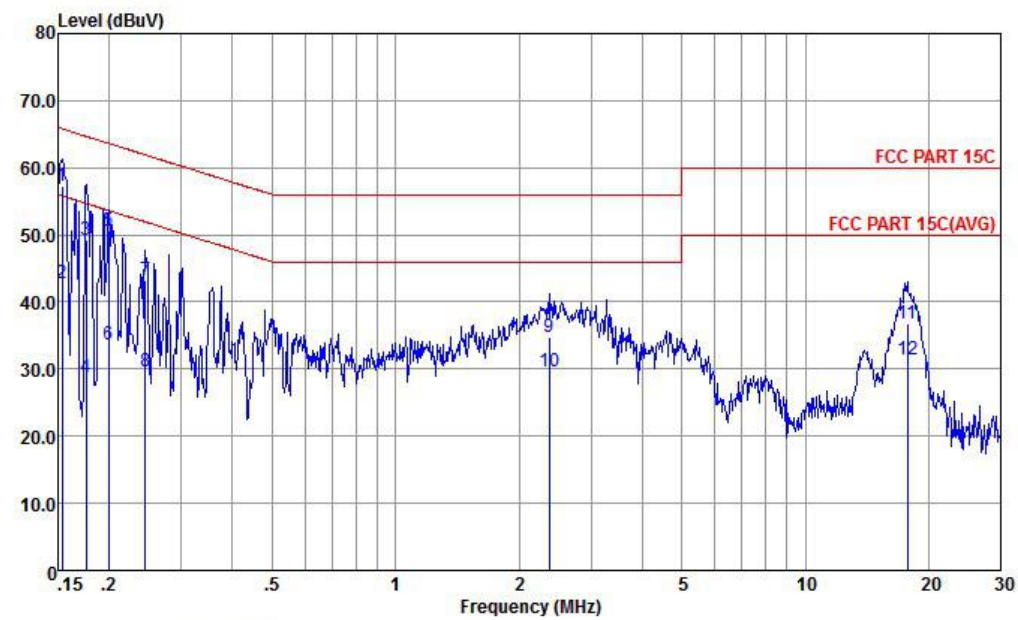


Appendix B. AC Conducted Emission Test Results





Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-060105-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1 *	0.153	57.18	-8.64	65.82	46.60	0.11	10.47	QP
2	0.153	42.88	-12.94	55.82	32.30	0.11	10.47	Average
3	0.176	49.32	-15.36	64.68	38.80	0.10	10.42	QP
4	0.176	28.72	-25.96	54.68	18.20	0.10	10.42	Average
5	0.200	50.56	-13.06	63.62	40.10	0.10	10.36	QP
6	0.200	33.67	-19.95	53.62	23.21	0.10	10.36	Average
7	0.246	43.34	-18.57	61.91	32.90	0.10	10.34	QP
8	0.246	29.74	-22.17	51.91	19.30	0.10	10.34	Average
9	2.371	34.68	-21.32	56.00	24.31	0.14	10.23	QP
10	2.371	29.68	-16.32	46.00	19.31	0.14	10.23	Average
11	17.755	36.78	-23.22	60.00	25.90	0.43	10.45	QP
12	17.755	31.48	-18.52	50.00	20.60	0.43	10.45	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



Appendix C. Radiated Spurious Emission

Test Engineer :	Henry LI	Temperature :	22~23°C
		Relative Humidity :	41~42%

Channel	Power setting
BLE-1Mbps--CH00	11
BLE-1Mbps--CH19	11
BLE-1Mbps--CH39	10
BLE-2Mbps--CH00	11
BLE-2Mbps--CH19	11
BLE-2Mbps--CH38	11
BLE-2Mbps--CH39	10



2.4GHz 2400~2483.5MHz

BLE 1Mbps (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2389.3	52.17	-21.83	74	49.05	32.88	7.1	36.86	314	252	P	H
		2389.95	41.71	-12.29	54	38.59	32.88	7.1	36.86	314	252	A	H
	*	2404	109.42	-	-	106.24	32.9	7.13	36.85	314	252	P	H
	*	2404	108.28	-	-	105.1	32.9	7.13	36.85	314	252	A	H
		2382.8	51.75	-22.25	74	48.66	32.86	7.1	36.87	336	154	P	V
		2385.14	40	-14	54	36.91	32.86	7.1	36.87	336	154	A	V
	*	2404	102.96	-	-	99.78	32.9	7.13	36.85	336	154	P	V
	*	2404	101.91	-	-	98.73	32.9	7.13	36.85	336	154	A	V
BLE CH 39 2480MHz		2483.5	63.59	-10.41	74	60.18	32.98	7.25	36.82	295	260	P	H
		2483.5	52.38	-1.62	54	48.97	32.98	7.25	36.82	295	260	A	H
	*	2480	106.97	-	-	103.56	32.98	7.25	36.82	295	260	P	H
	*	2480	104.85	-	-	101.44	32.98	7.25	36.82	295	260	A	H
		2483.68	55.74	-18.26	74	52.33	32.98	7.25	36.82	396	360	P	V
		2483.5	45.08	-8.92	54	41.67	32.98	7.25	36.82	396	360	A	V
	*	2480	98.54	-	-	95.13	32.98	7.25	36.82	396	360	P	V
	*	2480	96.54	-	-	93.13	32.98	7.25	36.82	396	360	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
BLE 1Mbps (Harmonic @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		4800	47.11	-26.89	74	68.09	34.19	10.2	65.37	300	0	P	H
		4800	42.5	-31.5	74	63.48	34.19	10.2	65.37	100	0	P	V
BLE CH 19 2440MHz		4875	50.47	-23.53	74	71.37	34.23	10.29	65.42	100	119	P	H
		4875	47.24	-6.76	54	68.14	34.23	10.29	65.42	100	119	A	H
		7320	43.73	-30.27	74	61.1	35.87	12.72	65.96	300	0	P	H
		4875	45.43	-28.57	74	66.33	34.23	10.29	65.42	100	0	P	V
		7320	43.73	-30.27	74	61.1	35.87	12.72	65.96	100	0	P	V
BLE CH 39 2480MHz		4965	49.26	-24.74	74	70.04	34.28	10.41	65.47	100	215	P	H
		4965	47.13	-6.87	54	67.91	34.28	10.41	65.47	100	215	A	H
		7440	43.07	-30.93	74	60.7	35.89	12.79	66.31	300	0	P	H
		4965	45.98	-28.02	74	66.76	34.28	10.41	65.47	100	0	P	V
		7440	42.89	-31.11	74	60.52	35.89	12.79	66.31	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BLE 2Mbps (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2389.69	53.48	-20.52	74	50.36	32.88	7.1	36.86	315	252	P	H
		2389.82	41.32	-12.68	54	38.2	32.88	7.1	36.86	315	252	A	H
	*	2404	109.47	-	-	106.29	32.9	7.13	36.85	315	252	P	H
	*	2404	107.76	-	-	104.58	32.9	7.13	36.85	315	252	A	H
		2363.56	50.22	-23.78	74	47.2	32.83	7.07	36.88	335	154	P	V
		2389.17	40.2	-13.8	54	37.08	32.88	7.1	36.86	335	154	A	V
	*	2404	102.8	-	-	99.62	32.9	7.13	36.85	335	154	P	V
	*	2404	100.92	-	-	97.74	32.9	7.13	36.85	335	154	A	V
BLE CH 38 2478MHz		2483.68	63.73	-10.27	74	60.32	32.98	7.25	36.82	372	303	P	H
		2483.5	48.12	-5.88	54	44.71	32.98	7.25	36.82	372	303	A	H
	*	2478	110.56	-	-	107.15	32.98	7.25	36.82	372	303	P	H
	*	2478	108.6	-	-	105.19	32.98	7.25	36.82	372	303	A	H
		2485.18	55.45	-18.55	74	52.04	32.98	7.25	36.82	344	209	P	V
		2483.5	42.55	-11.45	54	39.14	32.98	7.25	36.82	344	209	A	V
	*	2478	101.4	-	-	97.99	32.98	7.25	36.82	344	209	P	V
	*	2478	99.39	-	-	95.98	32.98	7.25	36.82	344	209	A	V



BLE CH 39 2480MHz		2483.62	63.04	-10.96	74	59.63	32.98	7.25	36.82	295	262	P	H
		2483.5	52.67	-1.33	54	49.26	32.98	7.25	36.82	295	262	A	H
	*	2480	106.54	-	-	103.13	32.98	7.25	36.82	295	262	P	H
	*	2480	104.76	-	-	101.35	32.98	7.25	36.82	295	262	A	H
		2483.5	54.4	-19.6	74	50.99	32.98	7.25	36.82	248	360	P	V
		2483.5	44.39	-9.61	54	40.98	32.98	7.25	36.82	248	360	A	V
	*	2480	97.08	-	-	93.67	32.98	7.25	36.82	248	360	P	V
	*	2480	95.26	-	-	91.85	32.98	7.25	36.82	248	360	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz
BLE 2Mbps (Harmonic @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		4800	45.74	-28.26	74	66.72	34.19	10.2	65.37	300	0	P	H
		4800	42.85	-31.15	74	63.83	34.19	10.2	65.37	100	0	P	V
BLE CH 19 2440MHz		4875	49.52	-24.48	74	70.42	34.23	10.29	65.42	300	0	P	H
		4875	46.57	-7.43	54	67.47	34.23	10.29	65.42	100	119	A	H
		7320	42.86	-31.14	74	60.23	35.87	12.72	65.96	300	0	P	H
		4875	44.42	-29.58	74	65.32	34.23	10.29	65.42	100	0	P	V
		7320	43.7	-30.3	74	61.07	35.87	12.72	65.96	100	0	P	V
BLE CH 38 2478MHz		4950	48.16	-25.84	74	68.96	34.27	10.39	65.46	300	0	P	H
		7440	42.93	-31.07	74	60.56	35.89	12.79	66.31	300	0	P	H
		4950	47.34	-26.66	74	68.14	34.27	10.39	65.46	100	0	P	V
		7440	43	-31	74	60.63	35.89	12.79	66.31	100	0	P	V



BLE CH 39 2480MHz		4965	49.47	-24.53	74	70.25	34.28	10.41	65.47	100	168	P	H
		4965	46.54	-7.46	54	67.32	34.28	10.41	65.47	100	168	A	H
		7440	42.93	-31.07	74	60.56	35.89	12.79	66.31	300	0	P	H
		4965	45.36	-28.64	74	66.14	34.28	10.41	65.47	100	0	P	V
		7440	43.58	-30.42	74	61.21	35.89	12.79	66.31	100	0	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBμV/m)	Limit (dB)	Line (dBμV/m)	Level (dBμV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	Pol. (H/V)
2.4GHz BLE LF		167.74	16.2	-27.3	43.5	30.06	17.08	1.97	32.91	-	-	P	H
		239.52	18.25	-27.75	46	30.25	18.74	2.36	33.1	-	-	P	H
		335.55	18.94	-27.06	46	28	21.05	2.79	32.9	-	-	P	H
		408.3	21.65	-24.35	46	28.49	22.86	3.08	32.78	-	-	P	H
		566.41	24.89	-21.11	46	28.06	25.77	3.63	32.57	-	-	P	H
		759.44	27.76	-18.24	46	29.62	26.58	4.22	32.66	-	-	P	H
		167.74	18.51	-24.99	43.5	32.37	17.08	1.97	32.91	-	-	P	V
		216.24	17.09	-28.91	46	30.64	17.31	2.24	33.1	-	-	P	V
		320.03	18.86	-27.14	46	28.36	20.68	2.72	32.9	-	-	P	V
		492.69	22.2	-23.8	46	27.23	24.36	3.39	32.78	-	-	P	V
		659.53	26.36	-19.64	46	29.3	25.86	3.92	32.72	-	-	P	V
		797.27	27.8	-18.2	46	29.12	26.88	4.31	32.51	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

Note symbol

-L	Low channel location
-R	High channel location



2.4GHz 2400~2483.5MHz

BLE 2Mbps (Band Edge @ 3m)

	BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m
	ANT	BLE CH39 2480MHZ
	1	Horizontal Fundamental
Peak	No. 100B Pengji North Road Kunshan Economic & Technical Development Zone Jiangsu China tel: +86-512-37900308 fax: +86-512-37900308 http://www.spearfun.com.cn Date: 5 Level [dBm] Freq Level Limit Line Level Factor Loss Factor A/Pow T/Fee Remark Pol/Phas M1: dBm/W -58 dBm/W -58W -58W -dB -dB cm deg 1 2483.62 63.04 -15.56 14.00 31.63 32.99 7.25 36.87 295 252 Peak HBR120M7	No. 100B Pengji North Road Kunshan Economic & Technical Development Zone Jiangsu China tel: +86-512-37900308 fax: +86-512-37900308 http://www.spearfun.com.cn Date: 7 Level [dBm] Freq Level Limit Line Level Factor Loss Factor A/Pow T/Fee Remark Pol/Phas M1: dBm/W -58 dBm/W -58W -58W -dB -dB cm deg 1 * 2483.03 106.54 22.54 14.00 163.13 32.99 7.25 36.82 295 262 Peak HBR120M7
Avg.	No. 100B Pengji North Road Kunshan Economic & Technical Development Zone Jiangsu China tel: +86-512-37900308 fax: +86-512-37900308 http://www.spearfun.com.cn Date: 6 Level [dBm] Freq Level Limit Line Level Factor Loss Factor A/Pow T/Fee Remark Pol/Phas M1: dBm/W -58 dBm/W -58W -58W -dB -dB cm deg 1 2483.50 57.67 -1.33 34.00 41.26 32.99 7.25 36.82 295 252 Average HBR120M7	No. 100B Pengji North Road Kunshan Economic & Technical Development Zone Jiangsu China tel: +86-512-37900308 fax: +86-512-37900308 http://www.spearfun.com.cn Date: 8 Level [dBm] Freq Level Limit Line Level Factor Loss Factor A/Pow T/Fee Remark Pol/Phas M1: dBm/W -58 dBm/W -58W -58W -dB -dB cm deg 1 * 2483.03 104.76 55.76 34.00 161.25 32.99 7.25 36.82 295 262 Average HBR120M7



Sporton International Inc. (Kunshan)
TEL : +86-512-57900158
FAX : +86-512-57900958
FCC ID: 2AC7Z-ESPS3WROOM1U



2.4GHz 2400~2483.5MHz
BLE 2Mbps (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH39 2480MHz	
1	Horizontal	Vertical
Peak	No. 1008 Pengzi North Road Kunshan Economic & Technological Development Zone, Suzhou, China Tel: +86-512-57900158 Fax: +86-512-57900958 http://www.sporton.com.cn Date: 13 117 105.3 93.8 81.8 69.2 56.5 43.9 31.4 18.7 0 2400 3000 3600 4200 4800 5400 6000 6600 7200 7800 8400 9000 Site: : 030405-45 Condition: : FCC PART 15C 30 3317 2M 1000V HORIZONTAL Project: : R08-1000-0000Hz V08-1000-0000Hz SRT Auto Model: : J610-1000 Mode: : A Plane: : E File: : dirrectivity IMEI: : 85 PowerSetting: : 10 Unit Level Bandwidth Gain Preamp A/Pen T/Freq Remark Pd/Phas dBm/100kHz dB dBm/100kHz dBm dB cm deg 1 4900.00 49.47 24.52 74.00 70.25 24.28 16.41 65.47 100 100 Peak 888-12067 2 4900.00 46.54 -17.46 54.00 41.25 20.29 10.41 60.47 100 100 Average 888-12067 3 1480.00 42.93 -31.87 74.00 61.50 20.89 12.79 66.31 300 300 9 Peak 888-12067	No. 1008 Pengzi North Road Kunshan Economic & Technological Development Zone, Suzhou, China Tel: +86-512-57900158 Fax: +86-512-57900958 http://www.sporton.com.cn Date: 14 117 105.3 93.8 81.8 69.2 56.5 43.9 31.4 18.7 0 2400 3000 3600 4200 4800 5400 6000 6600 7200 7800 8400 9000 Site: : 030405-45 Condition: : FCC PART 15C 30 3317 2M 1000V VERTICAL Project: : R08-1000-0000Hz V08-1000-0000Hz SRT Auto Model: : J610-1000 Mode: : A Plane: : E File: : dirrectivity IMEI: : 85 PowerSetting: : 10 Unit Level Bandwidth Gain Preamp A/Pen T/Freq Remark Pd/Phas dBm/100kHz dB dBm/100kHz dBm dB cm deg 1 4900.00 45.35 -28.54 74.00 66.14 20.28 16.41 63.47 100 100 9 Peak 888-12067 2 1480.00 43.93 -30.82 74.00 61.27 21.89 12.79 64.31 100 100 0 Peak 888-12067

No. 1008 Pengzi North Road Kunshan
Economic & Technological Development Zone, Suzhou, China
Tel: +86-512-57900158
Fax: +86-512-57900958
http://www.sporton.com.cn

Date: 14

117

105.3

93.8

81.8

69.2

56.5

43.9

31.4

18.7

0

2400

3000

3600

4200

4800

5400

6000

6600

7200

7800

8400

9000

Site: : 030405-45

Condition: : FCC PART 15C 30 3317 2M 1000V VERTICAL

Project: : R08-1000-0000Hz V08-1000-0000Hz SRT Auto

Model: : J610-1000

Mode: : A

Plane: : E

File: : dirrectivity

IMEI: : 85

PowerSetting: : 10

Unit

Level

Bandwidth

Gain

Preamp

A/Pen

T/Freq

Remark

Pd/Phas

dBm/100kHz

dB

dBm/100kHz

dBm

dB

cm

deg

1

4900.00

45.20

-20.84

74.00

64.14

24.28

16.41

61.47

100

100

0 Peak

VERTICAL

2

1480.00

43.26

-20.42

74.00

61.20

20.89

12.79

66.31

100

100

0 Peak

VERTICAL



Emission below 1GHz
2.4GHz BLE (LF)

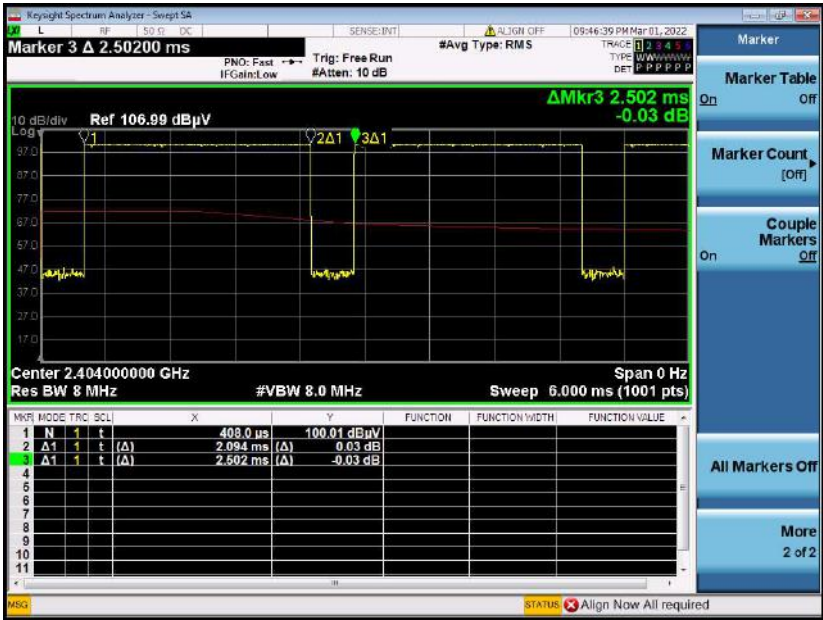
BLE	2.4GHz 2400~2483.5MHz																																																																																																																																																						
ANT	BLE LF																																																																																																																																																						
1	Horizontal	Vertical																																																																																																																																																					
QP / Peak	No. 1008 Pengzi North Road Kunshan Economic & Industrial Development Zone, Jiangsu, China Tel: +86-512-57900158 Fax: +86-512-57900958 http://www.sporton.com.cn Date: 15 Site: 030807-KS Condition: F2D PRT1 100.0m DBL61110 DB23188 HORIZONTAL Project: 230110100 Room: 2 Plane: 0 Full-Directivity: 0 IME1: 03 <table><tr><th>Line</th><th>Level</th><th>Limit</th><th>Level Factor</th><th>Cable Factor</th><th>A/Pin</th><th>T/Fac</th><th>Remark</th><th>Pol/Phas</th></tr><tr><td>1</td><td>167.16</td><td>16.30</td><td>-27.30</td><td>42.00</td><td>35.06</td><td>1.97</td><td>32.91</td><td>Peak</td><td>H80 (200)</td></tr><tr><td>2</td><td>239.32</td><td>18.20</td><td>-27.75</td><td>46.00</td><td>38.20</td><td>18.74</td><td>2.36</td><td>33.10</td><td>Peak</td><td>H80 (200)</td></tr><tr><td>3</td><td>236.16</td><td>18.80</td><td>-27.60</td><td>46.00</td><td>38.80</td><td>17.00</td><td>2.19</td><td>32.96</td><td>Peak</td><td>H80 (200)</td></tr><tr><td>4</td><td>400.30</td><td>17.40</td><td>-28.40</td><td>46.00</td><td>38.40</td><td>18.00</td><td>2.08</td><td>32.78</td><td>Peak</td><td>H80 (200)</td></tr><tr><td>5</td><td>358.41</td><td>18.80</td><td>-27.11</td><td>46.00</td><td>38.80</td><td>16.77</td><td>1.83</td><td>32.97</td><td>Peak</td><td>H80 (200)</td></tr><tr><td>6</td><td>239.44</td><td>17.16</td><td>-28.14</td><td>46.00</td><td>37.16</td><td>16.98</td><td>4.22</td><td>32.86</td><td>Peak</td><td>H80 (200)</td></tr></table>	Line	Level	Limit	Level Factor	Cable Factor	A/Pin	T/Fac	Remark	Pol/Phas	1	167.16	16.30	-27.30	42.00	35.06	1.97	32.91	Peak	H80 (200)	2	239.32	18.20	-27.75	46.00	38.20	18.74	2.36	33.10	Peak	H80 (200)	3	236.16	18.80	-27.60	46.00	38.80	17.00	2.19	32.96	Peak	H80 (200)	4	400.30	17.40	-28.40	46.00	38.40	18.00	2.08	32.78	Peak	H80 (200)	5	358.41	18.80	-27.11	46.00	38.80	16.77	1.83	32.97	Peak	H80 (200)	6	239.44	17.16	-28.14	46.00	37.16	16.98	4.22	32.86	Peak	H80 (200)	No. 1008 Pengzi North Road Kunshan Economic & Industrial Development Zone, Jiangsu, China Tel: +86-512-57900158 Fax: +86-512-57900958 http://www.sporton.com.cn Date: 16 Site: 030807-KS Condition: F2D PRT1 100.0m DBL61110 DB23188 VERTICAL Project: 230110100 Room: 2 Plane: 0 Full-Directivity: 0 IME1: 03 <table><tr><th>Line</th><th>Level</th><th>Limit</th><th>Level Factor</th><th>Cable Factor</th><th>A/Pin</th><th>T/Fac</th><th>Remark</th><th>Pol/Phas</th></tr><tr><td>1</td><td>167.24</td><td>18.10</td><td>-28.99</td><td>42.00</td><td>32.30</td><td>17.08</td><td>1.92</td><td>32.91</td><td>Peak</td><td>VERTICAL</td></tr><tr><td>2</td><td>216.24</td><td>17.00</td><td>-29.71</td><td>46.00</td><td>36.64</td><td>17.21</td><td>2.24</td><td>33.10</td><td>Peak</td><td>VERTICAL</td></tr><tr><td>3</td><td>100.03</td><td>18.10</td><td>-29.14</td><td>46.00</td><td>38.10</td><td>16.68</td><td>3.22</td><td>32.80</td><td>Peak</td><td>VERTICAL</td></tr><tr><td>4</td><td>400.30</td><td>17.40</td><td>-28.40</td><td>46.00</td><td>37.70</td><td>16.36</td><td>3.39</td><td>32.78</td><td>Peak</td><td>VERTICAL</td></tr><tr><td>5</td><td>409.03</td><td>16.36</td><td>-29.64</td><td>46.00</td><td>36.36</td><td>16.86</td><td>3.92</td><td>32.72</td><td>Peak</td><td>VERTICAL</td></tr><tr><td>6</td><td>197.27</td><td>17.00</td><td>-29.20</td><td>46.00</td><td>36.12</td><td>16.88</td><td>4.31</td><td>32.57</td><td>Peak</td><td>VERTICAL</td></tr></table>	Line	Level	Limit	Level Factor	Cable Factor	A/Pin	T/Fac	Remark	Pol/Phas	1	167.24	18.10	-28.99	42.00	32.30	17.08	1.92	32.91	Peak	VERTICAL	2	216.24	17.00	-29.71	46.00	36.64	17.21	2.24	33.10	Peak	VERTICAL	3	100.03	18.10	-29.14	46.00	38.10	16.68	3.22	32.80	Peak	VERTICAL	4	400.30	17.40	-28.40	46.00	37.70	16.36	3.39	32.78	Peak	VERTICAL	5	409.03	16.36	-29.64	46.00	36.36	16.86	3.92	32.72	Peak	VERTICAL	6	197.27	17.00	-29.20	46.00	36.12	16.88	4.31	32.57	Peak	VERTICAL
Line	Level	Limit	Level Factor	Cable Factor	A/Pin	T/Fac	Remark	Pol/Phas																																																																																																																																															
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Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
Bluetooth LE 1Mbps	83.69	2.094	0.478	0.51KHz
Bluetooth LE 2Mbps	56.53	1.06	0.943	1KHz

Bluetooth LE 1Mbps





Bluetooth LE 2Mbps

