Appendix A.   Radiated Spurious Emission

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : NM80PFH100

Page Number   : A1 of A7

Report Issued Date : Oct. 08, 2014

Report Version   : Rev. 01

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		2384.88	42.4	-31.6	74	38.75	32.73	4.58	33.66	100	83	P	H
		2384.88	17.61	-36.39	54	-	-	-	-	-	-	A	H
	*	2402	99.17	-	-	95.47	32.77	4.58	33.65	100	83	P	H
	*	2402	74.38	-	-	-	-	-	-	-	-	A	H
													H
BT CH00 2402MHz													H
		2362.52	42.32	-31.68	74	38.73	32.7	4.57	33.68	100	147	P	V
		2362.52	17.53	-36.47	54	-	-	-	-	-	-	A	V
	*	2402	95.43	-	-	91.73	32.77	4.58	33.65	100	147	P	V
	*	2402	70.64	-	-	-	-	-	-	-	-	A	V
													V
													V

SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
FCC ID : NM80PFH100

Page Number   : A2 of A7
Report Issued Date : Oct. 08, 2014
Report Version   : Rev. 01

BT CH 39 2441MHz		2344.2	41.96	-32.04	74	38.44	32.66	4.55	33.69	100	86	P	H
		2344.2	17.17	-36.83	54	-	-	-	-	-	-	A	H
	*	2441	101.6	-	-	97.7	32.89	4.61	33.6	100	86	P	H
	*	2441	76.81	-	-	-	-	-	-	-	-	A	H
		2489.17	42.56	-31.44	74	38.48	33	4.64	33.56	100	86	P	H
		2489.17	17.77	-36.23	54	-	-	-	-	-	-	A	H
		2319.88	42.25	-31.75	74	38.8	32.62	4.53	33.7	100	354	P	V
		2319.88	17.46	-36.54	54	-	-	-	-	-	-	A	V
	*	2441	97.34	-	-	93.44	32.89	4.61	33.6	100	354	P	V
	*	2441	72.55	-	-	-	-	-	-	-	-	A	V
		2491.45	42.71	-31.29	74	38.63	33	4.64	33.56	100	354	P	V
		2491.45	17.92	-36.08	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz	*	2480	98.91	-	-	94.88	32.96	4.64	33.57	100	42	P	H
	*	2480	74.12	-	-	-	-	-	-	-	-	A	H
		2483.5	59.77	-14.23	74	55.74	32.96	4.64	33.57	100	42	P	H
		2483.5	34.98	-19.02	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	95.35	-	-	91.32	32.96	4.64	33.57	100	354	P	V
	*	2480	70.56	-	-	-	-	-	-	-	-	A	V
		2483.5	56.41	-17.59	74	52.38	32.96	4.64	33.57	100	354	P	V
		2483.5	31.62	-22.38	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
FCC ID : NM80PFH100

Page Number   : A3 of A7
Report Issued Date : Oct. 08, 2014
Report Version   : Rev. 01

15C 2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		4804	37.35	-36.65	74	54.43	35.04	6.52	58.64	100	0	P	H
		4804	12.56	-41.44	54	-	-	-	-	-	-	A	H
													H
													H
		4804	36.78	-37.22	74	53.86	35.04	6.52	58.64	100	0	P	V
		4804	11.99	-42.01	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4882	37.18	-36.82	74	54.1	35.02	6.58	58.52	100	0	P	H
		4882	12.39	-41.61	54	-	-	-	-	-	-	A	H
		7323	39.05	-34.95	74	52.6	36.4	8.24	58.19	100	0	P	H
		7323	14.26	-39.74	54	-	-	-	-	-	-	A	H
		4882	36.43	-37.57	74	53.35	35.02	6.58	58.52	100	0	P	V
		4882	11.64	-42.36	54	-	-	-	-	-	-	A	V
		7323	38.99	-35.01	74	52.54	36.4	8.24	58.19	100	0	P	V
		7323	14.2	-39.8	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	37.78	-36.22	74	54.52	35.01	6.61	58.36	100	0	P	H
		4960	12.99	-41.01	54	-	-	-	-	-	-	A	H
		7440	38.12	-35.88	74	51.7	36.47	8.36	58.41	100	0	P	H
		7440	13.33	-40.67	54	-	-	-	-	-	-	A	H
		4960	37.63	-36.37	74	54.37	35.01	6.61	58.36	100	0	P	V
		4960	12.84	-41.16	54	-	-	-	-	-	-	A	V
		7440	38.31	-35.69	74	51.89	36.47	8.36	58.41	100	0	P	V
		7440	13.52	-40.48	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C Emission below 1GHz
2.4GHz BT
(LF @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		130.44	19.3	-24.2	43.5	37.87	11.98	1.23	31.78			P	H
		220.62	15.88	-30.12	46	36.73	9.38	1.55	31.78			P	H
		243.84	10.04	-35.96	46	28.49	11.7	1.62	31.77			P	H
		430.2	18.71	-27.29	46	31.54	16.91	2.09	31.83			P	H
		765.5	22.12	-23.88	46	29.16	22.15	2.77	31.96			P	H
		905.5	23.97	-22.03	46	28.88	23.46	3.01	31.38	197	205	P	H
													H
													H
													H
													H
													H
2.4GHz BT LF													H
		98.31	20.86	-22.64	43.5	41.63	9.92	1.09	31.78	108	56	P	V
		153.66	16.75	-26.75	43.5	36.45	10.8	1.28	31.78			P	V
		230.34	13.76	-32.24	46	33.73	10.22	1.58	31.77			P	V
		370.7	14.01	-31.99	46	28.96	14.9	1.94	31.79			P	V
		476.4	16.86	-29.14	46	28.93	17.62	2.18	31.87			P	V
		817.3	22.95	-23.05	46	29.38	22.54	2.86	31.83			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
FCC ID : NM80PFH100

Page Number : A5 of A7
Report Issued Date : Oct. 08, 2014
Report Version : Rev. 01

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).	
!	Test result is **over limit** line.	
P/A	**P**eak or **A**verage	
H/V	**H**orizontal or **V**ertical	

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

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		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. Level(dBμV/m) =

   Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable 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) + Cable 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".

SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
FCC ID : NM80PFH100

Page Number   : A7 of A7
Report Issued Date : Oct. 08, 2014
Report Version   : Rev. 01