# Appendix A. Radiated Spurious Emission

Test Engineer :	Derreck Chen	Temperature :	23~25°C
		Relative Humidity :	48~51%

#### 15C 2.4GHz 2400~2483.5MHz

### WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
		2383.89	58.42	-15.58	74	52.78	32.16	7.75	34.27	100	0	Р	Н
		2335.92	45.69	-8.31	54	40.2	32.11	7.6	34.22	100	0	Α	Н
	*	2412	58.82	-	-	53.17	32.2	7.75	34.3	100	0	Р	Н
	*	2412	45.97	-	-	40.32	32.2	7.75	34.3	100	0	Α	Н
802.11b													Н
CH 01													Н
2412MHz		2330.25	57.87	-16.13	74	52.4	32.09	7.6	34.22	100	0	Р	V
		2342.4	45.7	-8.3	54	40.16	32.11	7.68	34.25	100	0	Α	V
	*	2412	58.52	-	-	52.87	32.2	7.75	34.3	100	0	Р	V
	*	2412	45.78	-	-	40.13	32.2	7.75	34.3	100	0	Α	V
													V
													V
		2371.56	58.08	-15.92	74	52.51	32.16	7.68	34.27	100	0	Р	Н
		2320.98	45.72	-8.28	54	40.25	32.09	7.6	34.22	100	0	Α	Н
	*	2437	59.25	-	-	53.53	32.24	7.83	34.35	100	0	Р	Н
	*	2437	46.11	-	-	40.39	32.24	7.83	34.35	100	0	Α	Н
000 441		2484.36	58.19	-15.81	74	52.43	32.28	7.91	34.43	100	0	Р	Н
802.11b CH 06		2484.76	45.73	-8.27	54	39.97	32.28	7.91	34.43	100	0	Α	Н
2437MHz		2353.83	58.2	-15.8	74	52.64	32.13	7.68	34.25	100	0	Р	V
2-107 1911 12		2318.28	45.85	-8.15	54	40.38	32.09	7.6	34.22	100	0	Α	V
	*	2437	59.15	ı	-	53.43	32.24	7.83	34.35	100	0	Р	V
	*	2437	45.85	-	-	40.13	32.24	7.83	34.35	100	0	Α	V
		2486.8	58.54	-15.46	74	52.78	32.28	7.91	34.43	100	0	Р	V
		2492.36	45.9	-8.1	54	40.17	32.3	7.91	34.48	100	0	Α	V

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	(dBµV/m)	(dBµV)	( dB/m )	(dB)	(dB)	( cm )	( deg )	(P/A)	(H/V)
	*	2462	58.95	-	-	53.17	32.26	7.91	34.39	100	0	Р	Н
	*	2462	45.87	1	-	40.09	32.26	7.91	34.39	100	0	Α	Н
		2492.32	58.07	-15.93	74	52.34	32.3	7.91	34.48	100	0	Р	Н
		2486.88	46.01	-7.99	54	40.25	32.28	7.91	34.43	100	0	Α	Н
000 441													Н
802.11b CH 11													Н
2462MHz	*	2462	58.81	1	1	53.03	32.26	7.91	34.39	100	0	Р	V
2402141112	*	2462	45.84	1	1	40.06	32.26	7.91	34.39	100	0	Α	V
		2498.92	58.18	-15.82	74	52.45	32.3	7.91	34.48	100	0	Р	V
		2499.04	45.77	-8.23	54	40.04	32.3	7.91	34.48	100	0	Α	V
													V
													V
	1. No	o other spurious	s found.										
Remark		·											

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## WIFI 802.11b (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	( deg )	(P/A)	(H/V
		4824	40.79	-33.21	74	54.3	34.26	11.16	58.93	100	0	Р	Н
													Н
													Н
802.11b													Н
CH 01		4824	40.59	-33.41	74	54.1	34.26	11.16	58.93	100	0	Р	V
2412MHz													V
													V
													V
		4872	40.75	-33.25	74	54.07	34.3	11.21	58.83	100	0	Р	Н
		7311	43.39	-30.61	74	50.44	35.6	15.08	57.73	100	0	Р	Н
													Н
802.11b													Н
CH 06		4872	41.43	-32.57	74	54.75	34.3	11.21	58.83	100	0	Р	V
2437MHz		7311	42.63	-31.37	74	49.68	35.6	15.08	57.73	100	0	Р	V
													V
													٧
		4926	41.19	-32.81	74	54.31	34.34	11.27	58.73	100	0	Р	Н
		7386	42.99	-31.01	74	50.05	35.6	15.14	57.8	100	0	Р	Н
000 441-													Н
802.11b													Н
CH 11 2462MHz		4926	40.55	-33.45	74	53.67	34.34	11.27	58.73	100	0	Р	V
2402WITI2		7386	42.73	-31.27	74	49.79	35.6	15.14	57.8	100	0	Р	V
													٧
													V

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## 15C 2.4GHz 2400~2483.5MHz WIFI 802.11g (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	(dB)	( cm )	( deg )	(P/A)	(H/V)
		2370.48	58.55	-15.45	74	52.98	32.16	7.68	34.27	100	0	Р	Н
		2366.16	45.89	-8.11	54	40.35	32.13	7.68	34.27	100	0	Α	Н
	*	2412	58.76	-15.24	-	-	32.2	7.75	34.3	100	0	Р	Н
	*	2412	45.83	-8.17	-	-	32.2	7.75	34.3	100	0	Α	Н
802.11g													Н
CH 01													Н
2412MHz		2376.33	58.55	-15.45	74	52.98	32.16	7.68	34.27	100	0	Р	V
		2368.95	45.67	-8.33	54	40.1	32.16	7.68	34.27	100	0	Α	V
	*	2412	58.92	-15.08	-	-	32.2	7.75	34.3	100	0	Р	V
	*	2412	45.83	-8.17	-	-	32.2	7.75	34.3	100	0	Α	V
													V
													V
		2388.03	58.5	-15.5	74	52.84	32.18	7.75	34.27	100	0	Р	Н
		2340.15	45.71	-8.29	54	40.17	32.11	7.68	34.25	100	0	Α	Н
	*	2437	59.21	-14.79	-	-	32.24	7.83	34.35	100	0	Р	Н
	*	2437	45.87	-8.13	-	1	32.24	7.83	34.35	100	0	Α	Н
000 44		2489	58.64	-15.36	74	52.86	32.3	7.91	34.43	100	0	Р	Н
802.11g CH 06		2488.88	45.68	-8.32	54	39.9	32.3	7.91	34.43	100	0	Α	Н
2437MHz		2313.06	58.04	-15.96	74	52.56	32.07	7.6	34.19	100	0	Р	٧
2407111112		2334.39	45.69	-8.31	54	40.22	32.09	7.6	34.22	100	0	Α	V
	*	2437	58.58	-15.42	-	1	32.24	7.83	34.35	100	0	Р	V
	*	2437	45.86	-8.14	-	1	32.24	7.83	34.35	100	0	Α	V
		2488.8	58.16	-15.84	74	52.38	32.3	7.91	34.43	100	0	Р	V
		2496.32	45.9	-8.1	54	40.17	32.3	7.91	34.48	100	0	Α	V

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	(dB)	( cm )	( deg )	(P/A)	(H/V)
	*	2462	58.47	-	-	52.69	32.26	7.91	34.39	100	0	Р	Н
	*	2462	45.95	-	-	40.17	32.26	7.91	34.39	100	0	Α	Н
		2488.72	58.42	-15.58	74	52.64	32.3	7.91	34.43	100	0	Р	Н
		2491.36	45.89	-8.11	54	40.11	32.3	7.91	34.43	100	0	Α	Н
000 44													Н
802.11g CH 11													Н
2462MHz	*	2462	58.75	ı	-	52.97	32.26	7.91	34.39	100	0	Р	V
240211112	*	2462	45.89	-	-	40.11	32.26	7.91	34.39	100	0	Α	V
		2485.36	58	-16	74	52.24	32.28	7.91	34.43	100	0	Р	V
		2494.84	45.88	-8.12	54	40.15	32.3	7.91	34.48	100	0	Α	V
													V
													V
	1. No	o other spurious	s found.										
Remark		No other spurious found.  All results are PASS against Peak and Average limit line.											

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## WIFI 802.11g (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	(dB)	( cm )	( deg )	(P/A)	(H/V
		4824	40.56	-33.44	74	54.07	34.26	11.16	58.93	100	0	Р	Н
													Н
000 44													Н
802.11g													Н
CH 01		4824	40.43	-33.57	74	53.94	34.26	11.16	58.93	100	0	Р	V
2412MHz													V
													V
													٧
		4873	40.61	-33.39	74	53.93	34.3	11.21	58.83	100	0	Р	Н
		7311	42.96	-31.04	74	50.01	35.6	15.08	57.73	100	0	Р	Н
													Н
802.11g													Н
CH 06 2437MHz		4873	41.36	-32.64	74	54.68	34.3	11.21	58.83	100	0	Р	V
2437 WITIZ		7311	42.37	-31.63	74	49.42	35.6	15.08	57.73	100	0	Р	V
													V
													V
		4924	41.09	-32.91	74	54.21	34.34	11.27	58.73	100	0	Р	Н
		7386	42.71	-31.29	74	49.77	35.6	15.14	57.8	100	0	Р	Н
802.11g													Н
CH 11													Н
2462MHz		4925	40.41	-33.59	74	53.53	34.34	11.27	58.73	100	0	Р	V
		7386	42.63	-31.37	74	49.69	35.6	15.14	57.8	100	0	Р	V
													V
													V

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## 15C 2.4GHz 2400~2483.5MHz WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
		2342.13	57.96	-16.04	74	52.42	32.11	7.68	34.25	100	0	Р	Н
		2352.48	46.42	-7.58	54	40.86	32.13	7.68	34.25	100	0	Α	Н
	*	2422	58.28	-	-	52.58	32.22	7.83	34.35	100	0	Р	Н
	*	2422	46.4	-	-	40.7	32.22	7.83	34.35	100	0	Α	Н
802.11n		2488.12	57.81	-16.19	74	52.03	32.3	7.91	34.43	100	0	Р	Н
HT40		2490.84	46.17	-7.83	54	40.39	32.3	7.91	34.43	100	0	Α	Н
CH 03		2355.81	58.72	-15.28	74	53.16	32.13	7.68	34.25	100	0	Р	٧
2422MHz		2354.01	46.35	-7.65	54	40.79	32.13	7.68	34.25	100	0	Α	٧
	*	2422	58.91	-	-	53.21	32.22	7.83	34.35	100	0	Р	V
	*	2422	46.71	-	-	41.01	32.22	7.83	34.35	100	0	Α	V
		2490.36	57.88	-16.12	74	52.1	32.3	7.91	34.43	100	0	Р	V
		2492	46.33	-7.67	54	40.6	32.3	7.91	34.48	100	0	Α	V
		2311.53	58.69	-15.31	74	53.21	32.07	7.6	34.19	100	0	Р	Н
		2329.53	46.24	-7.76	54	40.77	32.09	7.6	34.22	100	0	Α	Н
	*	2437	58.7	-	-	52.98	32.24	7.83	34.35	100	0	Р	Н
	*	2437	46.25	-	-	40.53	32.24	7.83	34.35	100	0	Α	Н
802.11n		2484	58.73	-15.27	74	52.97	32.28	7.91	34.43	100	0	Р	Н
HT40		2487.2	46.57	-7.43	54	40.81	32.28	7.91	34.43	100	0	Α	Н
CH 06		2369.04	58.53	-15.47	74	52.96	32.16	7.68	34.27	100	0	Р	V
2437MHz		2341.95	46.33	-7.67	54	40.79	32.11	7.68	34.25	100	0	Α	V
	*	2437	58.22	-	-	52.5	32.24	7.83	34.35	100	0	Р	٧
	*	2437	46.61	-	-	40.89	32.24	7.83	34.35	100	0	Α	V
		2484.12	58.31	-15.69	74	52.55	32.28	7.91	34.43	100	0	Р	V
		2499.68	46.24	-7.76	54	40.51	32.3	7.91	34.48	100	0	Α	٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	(dB)	( cm )	( deg )	(P/A)	(H/V)
		2386.59	58.94	-15.06	74	53.28	32.18	7.75	34.27	100	0	Р	Н
		2347.44	46.29	-7.71	54	40.75	32.11	7.68	34.25	100	0	Α	Н
	*	2452	58.64	-	-	52.96	32.24	7.83	34.39	100	0	Р	Н
	*	2452	46.66	-	-	40.98	32.24	7.83	34.39	100	0	Α	Н
802.11n		2494.28	58.32	-15.68	74	52.59	32.3	7.91	34.48	100	0	Р	Н
HT40		2488.04	46.47	-7.53	54	40.69	32.3	7.91	34.43	100	0	Α	Н
CH 09		2341.23	58.96	-15.04	74	53.42	32.11	7.68	34.25	100	0	Р	٧
2452MHz		2311.8	46.12	-7.88	54	40.64	32.07	7.6	34.19	100	0	Α	٧
	*	2452.021	56.71	-	-	51.03	32.24	7.83	34.39	100	0	Р	٧
	*	2452.021	45.54	-	-	39.86	32.24	7.83	34.39	100	0	Α	٧
		2484.88	59.26	-14.74	74	53.5	32.28	7.91	34.43	100	0	Р	٧
		2489.36	46.32	-7.68	54	40.54	32.3	7.91	34.43	100	0	Α	٧
Remark	No other spurious found.     All results are PASS against Peak and Average limit line.												

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## WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Bal
	Note	Frequency	Levei		Line				•	Pos	Pos		POI
Ant.		( MHz )	( dBµV/m )	Limit (dB)	( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor (dB)	(cm)		Avg. (P/A)	(H/V
•		4842	40.35	-33.65	74	53.8	34.28	11.16	58.89	100	0	P	Н
		7266	43.3	-30.7	74	50.33	35.6	15.06	57.69	100	0	Р	Н
802.11n													Н
HT40													Н
CH 03		4842	40.72	-33.28	74	54.17	34.28	11.16	58.89	100	0	Р	V
2422MHz		7266	44.43	-29.57	74	51.46	35.6	15.06	57.69	100	0	Р	V
													V
													V
		4872	40.54	-33.46	74	53.86	34.3	11.21	58.83	100	0	Р	Н
		7311	43.16	-30.84	74	50.21	35.6	15.08	57.73	100	0	Р	Н
802.11n													Н
HT40													Н
CH 06		4872	41.27	-32.73	74	54.59	34.3	11.21	58.83	100	0	Р	V
2437MHz		7311	42.39	-31.61	74	49.44	35.6	15.08	57.73	100	0	Р	V
													V
													V
		4902	41.11	-32.89	74	54.27	34.33	11.27	58.76	100	0	Р	Н
		7356	46.37	-27.63	74	53.43	35.6	15.11	57.77	100	0	Р	Н
802.11n													Н
HT40													Н
CH 09		4902	41.46	-32.54	74	54.62	34.33	11.27	58.76	100	0	Р	V
2452MHz		7356	43.4	-30.6	74	50.46	35.6	15.11	57.77	100	0	Р	V
													V
													V

2. All results are PASS against Peak and Average limit line.

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### 15C Emission below 1GHz

## 2.4GHz WIFI 802.11n HT40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
		96.96	16.91	-26.59	43.5	36.27	9.68	2.06	31.1			Р	Н
		148.8	23.7	-19.8	43.5	41.11	11.08	2.61	31.1			Р	Н
		257.34	21.35	-24.65	46	35.87	13.52	2.96	31			Р	Н
		349.7	17.18	-28.82	46	30.44	14.4	3.39	31.05			Р	Н
		559.7	21.99	-24.01	46	28.74	20	4.01	30.76			Р	Н
		941.9	26.65	-19.35	46	27.77	24.32	4.94	30.38	257	12	Р	Н
													Н
													Н
													Н
													Н
2.4GHz													Н
802.11n													Н
HT40		65.1	10	-30	40	33.14	6	2.06	31.2			Р	V
LF		154.47	12.42	-31.08	43.5	30.24	10.72	2.61	31.15			Р	٧
		259.23	18.39	-27.61	46	32.59	13.84	2.96	31			Р	V
		419	18.92	-27.08	46	29.55	16.65	3.52	30.8			Р	V
		618.5	23.25	-22.75	46	29.56	20.17	4.08	30.56			Р	V
		892.2	29.82	-16.18	46	32.52	22.96	4.66	30.32	145	228	Р	V
													V
													٧
													V
													V
													V
													V
Remark		other spurious		mit line.									

SPORTON INTERNATIONAL INC.

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## 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 <b>over limit</b> line.
P/A	Peak or Average
H/V	Horizontal or Vertical

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dB <sub>µ</sub> V)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	Р	Н
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	Α	Н

1. Level( $dB\mu V/m$ ) =

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

2. Over Limit(dB) = Level(dB $\mu$ V/m) – Limit Line(dB $\mu$ V/m)

#### For Peak Limit @ 2390MHz:

- Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 54.51(dB\mu V) 35.86 (dB)$
- $= 55.45 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level( $dB\mu V/m$ ) Limit Line( $dB\mu V/m$ )
- $= 55.45(dB\mu V/m) 74(dB\mu V/m)$
- = -18.55(dB)

#### For Average Limit @ 2390MHz:

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

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

SPORTON INTERNATIONAL INC.

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## 15C 2.4GHz 2400~2483.5MHz WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	( deg )	(P/A)	(H/V)
		2344.02	58.52	-15.48	74	52.98	32.11	7.68	34.25	100	0	Р	Н
		2339.88	46.41	-7.59	54	40.95	32.11	7.6	34.25	100	0	Α	Н
	*	2412.024	56.28	-	-	50.63	32.2	7.75	34.3	100	0	Р	Н
	*	2412.024	45.5	-	-	39.85	32.2	7.75	34.3	100	0	Α	Н
802.11n													Н
HT20													Н
CH 01		2348.79	59.11	-14.89	74	53.57	32.11	7.68	34.25	100	0	Р	V
2412MHz		2376.96	46.38	-7.62	54	40.81	32.16	7.68	34.27	100	0	Α	V
	*	2412.024	55.78	-	-	50.13	32.2	7.75	34.3	100	0	Р	V
	*	2412.024	45.62	-	-	39.97	32.2	7.75	34.3	100	0	Α	V
													V
													٧
		2350.05	58.29	-15.71	74	52.75	32.11	7.68	34.25	100	0	Р	Н
		2322.96	46.32	-7.68	54	40.85	32.09	7.6	34.22	100	0	Α	Н
	*	2437	56.5	-	-	50.78	32.24	7.83	34.35	100	0	Р	Н
	*	2437	45.49	-	-	39.77	32.24	7.83	34.35	100	0	Α	Н
802.11n		2488.76	58.45	-15.55	74	52.67	32.3	7.91	34.43	100	0	Р	Н
HT20		2488.96	46.36	-7.64	54	40.58	32.3	7.91	34.43	100	0	Α	Н
CH 06		2369.13	58.71	-15.29	74	53.14	32.16	7.68	34.27	100	0	Р	V
2437MHz		2368.41	46.36	-7.64	54	40.82	32.13	7.68	34.27	100	0	Α	V
	*	2437	56.62	-	-	50.9	32.24	7.83	34.35	100	0	Р	V
	*	2437	45.38	-	-	39.66	32.24	7.83	34.35	100	0	Α	V
		2499.24	58.73	-15.27	74	53	32.3	7.91	34.48	100	0	Р	٧
		2498.92	46.29	-7.71	54	40.56	32.3	7.91	34.48	100	0	Α	٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	(dBµV/m)	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	( deg )	(P/A)	(H/V)
	*	2462.041	56.42	-	-	50.64	32.26	7.91	34.39	100	0	Р	Н
	*	2462.041	45.73	-	-	39.95	32.26	7.91	34.39	100	0	Α	Н
		2484.04	58.86	-15.14	74	53.1	32.28	7.91	34.43	100	0	Р	Н
		2485.56	46.21	-7.79	54	40.45	32.28	7.91	34.43	100	0	Α	Н
802.11n													Н
HT20													Н
CH 11	*	2462.041	56.32	-	1	50.54	32.26	7.91	34.39	100	0	Р	V
2462MHz	*	2462.041	45.64	-	1	39.86	32.26	7.91	34.39	100	0	Α	V
		2494.8	58.22	-15.78	74	52.49	32.3	7.91	34.48	100	0	Р	V
		2484.28	46.48	-7.52	54	40.72	32.28	7.91	34.43	100	0	Α	V
													V
													V
	1. No	o other spurious	s found.										
Remark		I results are PA		Peak and	Average lim	it line.							

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## WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	(dB)	( cm )	( deg )	(P/A)	(H/V
		4824	40.63	-33.37	74	54.14	34.26	11.16	58.93	100	0	Р	Н
													Н
802.11n													Н
HT20													Н
CH 01		4824	40.39	-33.61	74	53.9	34.26	11.16	58.93	100	0	Р	V
2412MHz													V
													V
													V
		4872	40.52	-33.48	74	53.84	34.3	11.21	58.83	100	0	Р	Н
		7311	43.25	-30.75	74	50.3	35.6	15.08	57.73	100	0	Р	Н
802.11n													Н
HT20													Н
CH 06		4872	41.35	-32.65	74	54.67	34.3	11.21	58.83	100	0	Р	V
2437MHz		7311	42.51	-31.49	74	49.56	35.6	15.08	57.73	100	0	Р	V
													V
													V
		4926	41.24	-32.76	74	54.36	34.34	11.27	58.73	100	0	Р	Н
		7386	43.18	-30.82	74	50.24	35.6	15.14	57.8	100	0	Р	Н
802.11n													Н
HT20													Н
CH 11		4926	40.84	-33.16	74	53.96	34.34	11.27	58.73	100	0	Р	V
2462MHz		7386	42.87	-31.13	74	49.93	35.6	15.14	57.8	100	0	Р	V
													V
													V

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### 15C Emission below 1GHz

## 2.4GHz WIFI 802.11n HT20 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	(dB)	( cm )	( deg )	(P/A)	(H/V
		40.53	28.36	-11.64	40	44.49	13.3	1.77	31.2	135	111	Р	Н
		141.24	22.67	-20.83	43.5	39.66	11.5	2.61	31.1			Р	Н
		298.92	32.85	-13.15	46	47.51	13.19	3.16	31.01			Р	Н
		377	29.38	-16.62	46	41.96	15.04	3.39	31.01			Р	Н
		420.4	25.93	-20.07	46	36.4	16.7	3.63	30.8			Р	Н
		967.1	29.74	-24.26	54	30.36	24.77	4.94	30.33			Р	Н
													Н
													Н
													Н
													Н
2.4GHz													Н
802.11n													Н
HT20		40.8	26.97	-13.03	40	43.1	13.3	1.77	31.2	100	244	Р	٧
LF		119.91	20.22	-23.28	43.5	37.54	11.4	2.38	31.1			Р	V
		298.92	29	-17	46	43.66	13.19	3.16	31.01			Р	V
		324.5	26.09	-19.91	46	40.21	13.6	3.28	31			Р	V
		540.8	29.28	-16.72	46	37.31	18.72	4.01	30.76			Р	V
		647.2	28.85	-17.15	46	34.74	20.4	4.22	30.51			Р	V
													V
													V
													V
													V
													٧
													V

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## 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 <b>over limit</b> line.									
P/A	Peak or Average									
H/V	Horizontal or Vertical									

SPORTON INTERNATIONAL INC.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	Р	Н
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	Α	Н

1. Level( $dB\mu V/m$ ) =

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

2. Over Limit(dB) = Level(dB $\mu$ V/m) – Limit Line(dB $\mu$ V/m)

#### For Peak Limit @ 2390MHz:

- Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 54.51(dB\mu V) 35.86 (dB)$
- $= 55.45 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level(dBµV/m) Limit Line(dBµV/m)
- $= 55.45(dB\mu V/m) 74(dB\mu V/m)$
- = -18.55(dB)

#### For Average Limit @ 2390MHz:

- Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 42.6(dB\mu V) 35.86 (dB)$
- $= 43.54 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level( $dB\mu V/m$ ) Limit Line( $dB\mu V/m$ )
- $= 43.54(dB\mu V/m) 54(dB\mu V/m)$
- = -10.46(dB)

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

SPORTON INTERNATIONAL INC.

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