Appendix A. Radiated Spurious Emission

Test Engineer :	Tsung Lee and Stan Hsieh	Temperature :	22~24°C
		Relative Humidity :	49~51%

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)
BT CH00 2402MHz		2388.65	42.69	-31.31	74	43.31	27.23	5.39	33.24	371	318	P	H
		2388.65	17.93	-36.07	54	-	-	-	-	-	-	A	H
	*	2402.17	79.87	-	-	80.47	27.23	5.39	33.22	371	318	P	H
	*	2402.17	55.11	-	-	-	-	-	-	-	-	A	H
													H
													H
		2370.97	42.83	-31.17	74	43.49	27.19	5.39	33.24	121	131	P	V
		2370.97	18.07	-35.93	54	-	-	-	-	-	-	A	V
	*	2402.04	72.94	-	-	73.54	27.23	5.39	33.22	121	131	P	V
	*	2402.04	48.18	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2351.8	42.81	-31.19	74	43.59	27.14	5.33	33.25	360	321	P	H
		2351.8	18.05	-35.95	54	-	-	-	-	-	-	A	H
	*	2441.1	83.22	-	-	83.63	27.37	5.42	33.2	360	321	P	H
	*	2441.1	58.46	-	-	-	-	-	-	-	-	A	H
		2494.68	42.07	-31.93	74	42.28	27.5	5.46	33.17	360	321	P	H
		2494.68	17.31	-36.69	54	-	-	-	-	-	-	A	H
		2331.28	42.5	-31.5	74	43.38	27.05	5.33	33.26	100	125	P	V
		2331.28	17.74	-36.26	54	-	-	-	-	-	-	A	V
	*	2441.1	79.19	-	-	79.6	27.37	5.42	33.2	100	125	P	V
	*	2441.1	54.43	-	-	-	-	-	-	-	-	A	V
		2491.26	42.11	-31.89	74	42.33	27.5	5.46	33.18	100	125	P	V
		2491.26	17.35	-36.65	54	-	-	-	-	-	-	A	V

BT CH 78 2480MHz	*	2480.12	85.93	-	-	86.21	27.46	5.44	33.18	351	319	P	H
	*	2480.12	61.17	-	-	-	-	-	-	-	-	A	H
		2483.62	45.93	-28.07	74	46.19	27.46	5.46	33.18	351	319	P	H
		2483.62	21.17	-32.83	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.05	83.29	-	-	83.57	27.46	5.44	33.18	111	126	P	V
	*	2480.05	58.53	-	-	-	-	-	-	-	-	A	V
		2483.5	43.86	-30.14	74	44.12	27.46	5.46	33.18	111	126	P	V
		2483.5	19.1	-34.9	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 00 2402MHz		4806	35.69	-38.31	74	57.33	31.42	7.58	60.64	100	0	P	H
		4806	10.93	-43.07	54	-	-	-	-	-	-	A	H
													H
													H
		4806	36.54	-37.46	74	58.18	31.42	7.58	60.64	100	0	P	V
		4806	11.78	-42.22	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4884	35.57	-38.43	74	56.71	31.56	7.82	60.52	100	0	P	H
		4884	10.81	-43.19	54	-	-	-	-	-	-	A	H
		7320	41.37	-32.63	74	56.64	36.22	9.49	60.98	100	0	P	H
		7320	16.61	-37.39	54	-	-	-	-	-	-	A	H
		4884	37.68	-36.32	74	58.82	31.56	7.82	60.52	100	0	P	V
		4884	12.92	-41.08	54	-	-	-	-	-	-	A	V
		7320	41.17	-32.83	74	56.44	36.22	9.49	60.98	100	0	P	V
		7320	16.41	-37.59	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	36.49	-37.51	74	57.07	31.73	8.05	60.36	100	0	P	H
		4962	11.73	-42.27	54	-	-	-	-	-	-	A	H
		7440	40.93	-33.07	74	56.17	36.49	9.61	61.34	100	0	P	H
		7440	16.17	-37.83	54	-	-	-	-	-	-	A	H
		4962	36.03	-37.97	74	56.61	31.73	8.05	60.36	100	0	P	V
		4962	11.27	-42.73	54	-	-	-	-	-	-	A	V
		7440	40.97	-33.03	74	56.21	36.49	9.61	61.34	100	0	P	V
		7440	16.21	-37.79	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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)
2.4GHz BT LF		71.04	24.28	-15.72	40	49.25	6.82	0.93	32.72	-	-	P	H
		188.49	35.19	-8.31	43.5	57.03	9.4	1.48	32.72	-	-	P	H
		256.26	40.59	-5.41	46	58.1	13.46	1.76	32.73	101	225	P	H
		345.5	34.92	-11.08	46	50.69	15.07	1.94	32.78	-	-	P	H
		479.9	36.69	-9.31	46	49.45	17.84	2.3	32.9	-	-	P	H
		518.4	38.29	-7.71	46	50.51	18.39	2.33	32.94	-	-	P	H
													H
													H
													H
													H
													H
													H
		31.89	32.11	-7.89	40	45.36	18.92	0.65	32.82	-	-	P	V
		51.06	34.63	-5.37	40	57.59	8.89	0.93	32.78	120	99	P	V
		79.41	25.9	-14.1	40	49.78	7.88	0.93	32.69	-	-	P	V
		365.1	32.21	-13.79	46	47.3	15.58	2.13	32.8	-	-	P	V
		479.9	34.2	-11.8	46	46.96	17.84	2.3	32.9	-	-	P	V
		518.4	33.12	-12.88	46	45.34	18.39	2.33	32.94	-	-	P	V
													V
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													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	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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 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".