Appendix A. Radiated Spurious Emission

Test Engineer :	Tsung Lee and Stan Hsieh	Temperature :	21~23°C
		Relative Humidity :	46~49%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

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)
BT CH00 2402MHz		2351.34	42.95	-31.05	74	43.77	27.1	5.33	33.25	302	53	P	H
		2351.34	18.16	-35.84	54	-	-	-	-	-	-	A	H
	*	2402.17	98.54	-	-	99.14	27.23	5.39	33.22	302	53	P	H
	*	2402.17	73.75	-	-	-	-	-	-	-	-	A	H
													H
													H
		2369.41	43.5	-30.5	74	44.16	27.19	5.39	33.24	100	103	P	V
		2369.41	18.71	-35.29	54	-	-	-	-	-	-	A	V
	*	2402.04	98.11	-	-	98.71	27.23	5.39	33.22	100	103	P	V
	*	2402.04	73.32	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2346.29	42.82	-31.18	74	43.64	27.1	5.33	33.25	262	56	P	H
		2346.29	18.03	-35.97	54	-	-	-	-	-	-	A	H
	*	2441.1	98.93	-	-	99.34	27.37	5.42	33.2	262	56	P	H
	*	2441.1	74.14	-	-	-	-	-	-	-	-	A	H
		2488.79	43.01	-30.99	74	43.23	27.5	5.46	33.18	262	56	P	H
		2488.79	18.22	-35.78	54	-	-	-	-	-	-	A	H
		2389.61	42.46	-31.54	74	43.08	27.23	5.39	33.24	100	103	P	V
		2389.61	17.67	-36.33	54	-	-	-	-	-	-	A	V
	*	2441.1	98.12	-	-	98.53	27.37	5.42	33.2	100	103	P	V
	*	2441.1	73.33	-	-	-	-	-	-	-	-	A	V
		2488.98	42.55	-31.45	74	42.77	27.5	5.46	33.18	100	103	P	V
		2488.98	17.76	-36.24	54	-	-	-	-	-	-	A	V

BT CH 78 2480MHz	*	2479.84	97.27	-	-	97.55	27.46	5.44	33.18	291	53	P	H
	*	2479.84	72.48	-	-	-	-	-	-	-	-	A	H
		2483.83	42.62	-31.38	74	42.88	27.46	5.46	33.18	291	53	P	H
		2483.83	17.83	-36.17	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.84	96.01	-	-	96.29	27.46	5.44	33.18	100	102	P	V
	*	2479.84	71.22	-	-	-	-	-	-	-	-	A	V
		2485.58	42.63	-31.37	74	42.89	27.46	5.46	33.18	100	102	P	V
		2485.58	17.84	-36.16	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		4805	35.09	-38.91	74	56.73	31.42	7.58	60.64	100	0	P	H
		4805	10.3	-43.7	54	-	-	-	-	-	-	A	H
													H
													H
		4805	35.33	-38.67	74	56.97	31.42	7.58	60.64	100	0	P	V
		4805	10.54	-43.46	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4883	35.73	-38.27	74	56.87	31.56	7.82	60.52	100	0	P	H
		4883	10.94	-43.06	54	-	-	-	-	-	-	A	H
		7322	41.58	-32.42	74	56.83	36.22	9.51	60.98	100	0	P	H
		7322	16.79	-37.21	54	-	-	-	-	-	-	A	H
		4883	36.87	-37.13	74	58.01	31.56	7.82	60.52	100	0	P	V
		4883	12.08	-41.92	54	-	-	-	-	-	-	A	V
		7322	42.7	-31.3	74	57.95	36.22	9.51	60.98	100	0	P	V
		7322	17.91	-36.09	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4961	37.52	-36.48	74	58.22	31.73	7.93	60.36	100	0	P	H
		4961	12.73	-41.27	54	-	-	-	-	-	-	A	H
		7440	41.68	-32.32	74	56.92	36.49	9.61	61.34	100	0	P	H
		7440	16.89	-37.11	54	-	-	-	-	-	-	A	H
		4961	38.15	-35.85	74	58.85	31.73	7.93	60.36	100	0	P	V
		4961	13.36	-40.64	54	-	-	-	-	-	-	A	V
		7440	43.49	-30.51	74	58.73	36.49	9.61	61.34	100	0	P	V
		7440	18.7	-35.3	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 (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)
2.4GHz BT LF		56.73	25.49	-14.51	40	50.29	7.03	0.93	32.76	-	-	P	H
		105.87	27.74	-15.76	43.5	48.24	11	1.14	32.64	-	-	P	H
		176.61	28.68	-14.82	43.5	50.26	9.65	1.48	32.71	-	-	P	H
		687.8	27.29	-18.71	46	36.96	20.5	2.82	32.99	-	-	P	H
		756.4	31.26	-14.74	46	39.61	21.67	2.91	32.93	-	-	P	H
		825	39.07	-6.93	46	46.44	22.3	3.07	32.74	100	2	P	H
													H
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		32.97	27.85	-12.15	40	41.63	18.38	0.65	32.81	-	-	P	V
		40.8	30.28	-9.72	40	48.49	13.94	0.65	32.8	115	88	P	V
		57	25.44	-14.56	40	50.24	7.03	0.93	32.76	-	-	P	V
		733.3	24.92	-21.08	46	33.69	21.27	2.91	32.95	-	-	P	V
		756.4	25.62	-20.38	46	33.97	21.67	2.91	32.93	-	-	P	V
		825	34.28	-11.72	46	41.65	22.3	3.07	32.74	-	-	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 Ant. 1+2	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)
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".