Appendix A. Radiated Spurious Emission

Test Engineer :	Karl Hou, Citta Ke, and Kyle Jhuang	Temperature :	25~26°C
		Relative Humidity :	50~51%

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		2356.8	52.38	-21.62	74	48.76	32.7	4.6	33.68	177	208	P	H
		2356.8	27.62	-26.38	54	-	-	-	-	-	-	A	H
	*	2401.91	106.38	-	-	102.64	32.77	4.62	33.65	177	208	P	H
	*	2401.91	81.62	-	-	-	-	-	-	-	-	A	H
													H
													H
		2356.41	52.3	-21.7	74	48.68	32.7	4.6	33.68	143	129	P	V
		2356.41	27.54	-26.46	54	-	-	-	-	-	-	A	V
	*	2401.91	104.71	-	-	100.97	32.77	4.62	33.65	143	129	P	V
	*	2401.91	79.95	-	-	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

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 CH 39 2441MHz		2389.61	49.48	-24.52	74	45.74	32.77	4.62	33.65	170	301	P	H
		2389.61	24.72	-29.28	54	-	-	-	-	-	-	A	H
	*	2440.91	107.65	-	-	103.68	32.89	4.68	33.6	170	301	P	H
	*	2440.91	82.89	-	-	-	-	-	-	-	-	A	H
		2486.51	50.1	-23.9	74	45.98	32.96	4.73	33.57	170	301	P	H
		2486.51	25.34	-28.66	54	-	-	-	-	-	-	A	H
		2388.28	46.67	-27.33	74	42.93	32.77	4.62	33.65	174	134	P	V
		2388.28	21.91	-32.09	54	-	-	-	-	-	-	A	V
	*	2440.91	104.96	-	-	100.99	32.89	4.68	33.6	174	134	P	V
	*	2440.91	80.2	-	-	-	-	-	-	-	-	A	V
		2486.51	51.85	-22.15	74	47.73	32.96	4.73	33.57	174	134	P	V
		2486.51	27.09	-26.91	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz	*	2479.84	108.42	-	-	104.3	32.96	4.73	33.57	166	300	P	H
	*	2479.84	83.66	-	-	-	-	-	-	-	-	A	H
		2483.5	64.83	-9.17	74	60.71	32.96	4.73	33.57	166	300	P	H
		2483.5	40.07	-13.93	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.12	105.21	-	-	101.09	32.96	4.73	33.57	172	137	P	V
	*	2480.12	80.45	-	-	-	-	-	-	-	-	A	V
		2483.5	61.63	-12.37	74	57.51	32.96	4.73	33.57	172	137	P	V
		2483.5	36.87	-17.13	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	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 CH 00 2402MHz		4805	49.12	-24.88	74	66.18	35.04	6.54	58.64	100	0	P	H
		4805	24.36	-29.64	54							A	H
													H
													H
		4805	49.4	-24.6	74	66.46	35.04	6.54	58.64	100	0	P	V
		4805	24.64	-29.36	54							A	V
													V
													V
BT CH 39 2441MHz		4883	49.37	-24.63	74	66.29	35.02	6.58	58.52	100	0	P	H
		4883	24.61	-29.39	54							A	H
		7323	43.04	-30.96	74	56.59	36.4	8.24	58.19	100	0	P	H
		7323	18.28	-35.72	54							A	H
		4883	48.58	-25.42	74	65.5	35.02	6.58	58.52	100	0	P	V
		4883	23.82	-30.18	54							A	V
		7323	49.58	-24.42	74	63.13	36.4	8.24	58.19	100	0	P	V
		7323	24.82	-29.18	54							A	V
BT CH 78 2480MHz		4959	46.79	-27.21	74	63.53	35.01	6.61	58.36	100	0	P	H
		4959	22.03	-31.97	54							A	H
		7440	43.19	-30.81	74	56.77	36.47	8.36	58.41	100	0	P	H
		7440	18.43	-35.57	54							A	H
		4961	47.36	-26.64	74	64.1	35.01	6.61	58.36	100	0	P	V
		4961	22.6	-31.4	54							A	V
		7440	47.98	-26.02	74	61.56	36.47	8.36	58.41	100	0	P	V
		7440	23.22	-30.78	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		97.77	25.34	-18.16	43.5	46.11	9.92	1.09	31.78	-	-	P	H
		167.43	32.33	-11.17	43.5	53.01	9.74	1.36	31.78	-	-	P	H
		245.46	27.56	-18.44	46	45.8	11.9	1.63	31.77	-	-	P	H
		332.9	36.36	-9.64	46	52.39	13.88	1.86	31.77	-	-	P	H
		429.5	41.05	-4.95	46	53.89	16.9	2.09	31.83	100	155	P	H
		908.3	34.82	-11.18	46	39.69	23.48	3.01	31.36	-	-	P	H
													H
													H
													H
													H
													H
													H
		62.67	30.21	-9.79	40	55.15	5.96	0.89	31.79	100	19	P	V
		93.45	27.84	-15.66	43.5	49.52	9.04	1.06	31.78	-	-	P	V
		140.97	26.67	-16.83	43.5	45.69	11.5	1.26	31.78	-	-	P	V
		332.9	32.04	-13.96	46	48.07	13.88	1.86	31.77	-	-	P	V
		499.5	27.97	-18.03	46	39.64	17.99	2.23	31.89	-	-	P	V
		666.8	31.5	-14.5	46	40.64	20.3	2.6	32.04	-	-	P	V
													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 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	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".