Appendix A. Radiated Spurious Emission

Test Engineer :	Ken Wu, Jesse Wang, and James Chiu	Temperature :	21~24°C
		Relative Humidity :	50~54%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 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 CH00 2402MHz		2311.995	44.93	-29.07	74	40.77	31.93	7.18	34.95	102	66	P	H
		2311.995	20.14	-33.86	54	-	-	-	-	-	-	A	H
	*	2402	105.05	-	-	100.53	32.19	7.31	34.98	102	66	P	H
	*	2402	80.26	-	-	-	-	-	-	-	-	A	H
													H
													H
		2366.805	44.91	-29.09	74	40.55	32.09	7.24	34.97	344	263	P	V
		2366.805	20.12	-33.88	54	-	-	-	-	-	-	A	V
	*	2402	103.56	-	-	99.04	32.19	7.31	34.98	344	263	P	V
	*	2402	78.77	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2323.58	44.88	-29.12	74	40.68	31.98	7.18	34.96	269	65	P	H
		2323.58	20.09	-33.91	54	-	-	-	-	-	-	A	H
	*	2441	104.42	-	-	99.71	32.34	7.36	34.99	269	65	P	H
	*	2441	79.63	-	-	-	-	-	-	-	-	A	H
		2488.66	45.02	-28.98	74	40.12	32.5	7.4	35	269	65	P	H
		2488.66	20.23	-33.77	54	-	-	-	-	-	-	A	H
		2375.8	44.23	-29.77	74	39.82	32.14	7.24	34.97	373	267	P	V
		2375.8	19.44	-34.56	54	-	-	-	-	-	-	A	V
	*	2441	103.58	-	-	98.87	32.34	7.36	34.99	373	267	P	V
	*	2441	78.79	-	-	-	-	-	-	-	-	A	V
		2497.9	44.61	-29.39	74	39.72	32.5	7.4	35.01	373	267	P	V
		2497.9	19.82	-34.18	54	-	-	-	-	-	-	A	V

BT CH 78 2480MHz	*	2480	103.65	-	-	98.8	32.45	7.4	35	215	66	P	H
	*	2480	78.86	-	-	-	-	-	-	-	-	A	H
		2483.56	49.78	-24.22	74	44.93	32.45	7.4	35	215	66	P	H
		2483.56	24.99	-29.01	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	103.31	-	-	98.46	32.45	7.4	35	329	256	P	V
	*	2480	78.52	-	-	-	-	-	-	-	-	A	V
		2483.68	50.4	-23.6	74	45.55	32.45	7.4	35	329	256	P	V
		2483.68	25.61	-28.39	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		4804	41.11	-32.89	74	54.68	33.68	11.83	59.08	100	0	P	H
		4804	16.32	-37.68	54	-	-	-	-	-	-	A	H
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													H
		4804	39.67	-34.33	74	53.24	33.68	11.83	59.08	100	0	P	V
		4804	14.88	-39.12	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4882	37.08	-36.92	74	50.95	33.54	11.53	58.94	100	0	P	H
		4882	12.29	-41.71	54	-	-	-	-	-	-	A	H
		7323	38.02	-35.98	74	47.52	34.65	13.81	57.96	100	0	P	H
		7323	13.23	-40.77	54	-	-	-	-	-	-	A	H
		4882	36.93	-37.07	74	50.8	33.54	11.53	58.94	100	0	P	V
		4882	12.14	-41.86	54	-	-	-	-	-	-	A	V
		7323	37.97	-36.03	74	47.47	34.65	13.81	57.96	100	0	P	V
		7323	13.18	-40.82	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	40.59	-33.41	74	54.77	33.37	11.22	58.77	100	0	P	H
		4960	15.8	-38.2	54	-	-	-	-	-	-	A	H
		7440	40.02	-33.98	74	49.77	34.33	14.05	58.13	100	0	P	H
		7440	15.23	-38.77	54	-	-	-	-	-	-	A	H
		4960	39.55	-34.45	74	53.73	33.37	11.22	58.77	100	0	P	V
		4960	14.76	-39.24	54	-	-	-	-	-	-	A	V
		7440	39.73	-34.27	74	49.48	34.33	14.05	58.13	100	0	P	V
		7440	14.94	-39.06	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		30.27	27.96	-12.04	40	32.24	26	1.07	31.35	100	0	P	H
		81.84	24.77	-15.23	40	41.02	14.02	1.28	31.55	-	-	P	H
		181.2	29.22	-14.28	43.5	43.43	15.41	1.87	31.49	-	-	P	H
		332.9	28.73	-17.27	46	36.84	20.72	2.41	31.24	-	-	P	H
		694.8	29.56	-16.44	46	30.29	26.34	3.65	30.72	-	-	P	H
		949.6	33.36	-12.64	46	29.62	30.2	4.07	30.53	-	-	P	H
													H
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													H
													H
													H
		35.94	34.32	-5.68	40	41.96	22.72	1.07	31.43	100	78	P	V
		49.98	29.41	-10.59	40	44.84	15.1	1.07	31.6	-	-	P	V
		62.67	25.91	-14.09	40	44	12.21	1.28	31.58	-	-	P	V
		443.5	24.99	-21.01	46	30.19	23.01	2.89	31.1	-	-	P	V
		737.5	30.35	-15.65	46	30.28	27	3.74	30.67	-	-	P	V
		947.5	34.06	-11.94	46	30.37	30.15	4.07	30.53	-	-	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".