Appendix A. Radiated Spurious Emission

Test Engineer :	Kyle Jhuang	Temperature :	25~26°C
		Relative Humidity :	50~51%

15C 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		2376.69	47.78	-26.22	74	44.11	32.73	4.6	33.66	107	295	P	H
		2376.69	23.05	-30.95	54	-	-	-	-	-	-	A	H
	*	2401.91	103.78	-	-	100.04	32.77	4.62	33.65	107	295	P	H
	*	2401.91	79.05	-	-	-	-	-	-	-	-	A	H
													H
													H
		2389.56	46.61	-27.39	74	42.87	32.77	4.62	33.65	103	1	P	V
		2389.56	21.88	-32.12	54	-	-	-	-	-	-	A	V
	*	2402.04	101.01	-	-	97.27	32.77	4.62	33.65	103	1	P	V
	*	2402.04	76.28	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2359.02	48.27	-25.73	74	44.65	32.7	4.6	33.68	107	296	P	H
		2359.02	23.54	-30.46	54	-	-	-	-	-	-	A	H
	*	2440.91	104.2	-	-	100.23	32.89	4.68	33.6	107	296	P	H
	*	2440.91	79.47	-	-	-	-	-	-	-	-	A	H
		2491.26	47.51	-26.49	74	43.34	33	4.73	33.56	107	296	P	H
		2491.26	22.78	-31.22	54	-	-	-	-	-	-	A	H
		2354.84	46.7	-27.3	74	43.11	32.7	4.57	33.68	100	0	P	V
		2354.84	21.97	-32.03	54	-	-	-	-	-	-	A	V
	*	2440.91	99.48	-	-	95.51	32.89	4.68	33.6	100	0	P	V
	*	2440.91	74.75	-	-	-	-	-	-	-	-	A	V
		2495.82	47.29	-26.71	74	43.12	33	4.73	33.56	100	0	P	V
		2495.82	22.56	-31.44	54	-	-	-	-	-	-	A	V

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 CH 78 2480MHz	*	2479.98	102.2	-	-	98.08	32.96	4.73	33.57	134	299	P	H
	*	2479.98	77.47	-	-	-	-	-	-	-	-	A	H
		2483.5	59.22	-14.78	74	55.1	32.96	4.73	33.57	134	299	P	H
		2483.5	34.49	-19.51	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.98	99.71	-	-	95.59	32.96	4.73	33.57	110	124	P	V
	*	2479.98	74.98	-	-	-	-	-	-	-	-	A	V
		2483.5	56.64	-17.36	74	52.52	32.96	4.73	33.57	110	124	P	V
		2483.5	31.91	-22.09	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 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	43.81	-30.19	74	60.87	35.04	6.54	58.64	100	0	P	H
		4805	19.08	-34.92	54	-	-	-	-	-	-	A	H
													H
													H
		4805	43.39	-30.61	74	60.45	35.04	6.54	58.64	100	0	P	V
		4805	18.66	-35.34	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4881	42.68	-31.32	74	59.6	35.02	6.58	58.52	100	0	P	H
		4881	17.95	-36.05	54	-	-	-	-	-	-	A	H
		7323	41.82	-32.18	74	55.37	36.4	8.24	58.19	100	0	P	H
		7323	17.09	-36.91	54	-	-	-	-	-	-	A	H
		4881	41.1	-32.9	74	58.02	35.02	6.58	58.52	100	0	P	V
		4881	16.37	-37.63	54	-	-	-	-	-	-	A	V
		7323	42.54	-31.46	74	56.09	36.4	8.24	58.19	100	0	P	V
		7323	17.81	-36.19	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4959	41.72	-32.28	74	58.46	35.01	6.61	58.36	100	0	P	H
		4959	16.99	-37.01	54	-	-	-	-	-	-	A	H
		7440	41.06	-32.94	74	54.64	36.47	8.36	58.41	100	0	P	H
		7440	16.33	-37.67	54	-	-	-	-	-	-	A	H
		4959	40.62	-33.38	74	57.36	35.01	6.61	58.36	100	0	P	V
		4959	15.89	-38.11	54	-	-	-	-	-	-	A	V
		7440	41.26	-32.74	74	54.84	36.47	8.36	58.41	100	0	P	V
		7440	16.53	-37.47	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 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		64.83	22.55	-17.45	40	47.44	6	0.9	31.79			P	H
		110.73	26.8	-16.7	43.5	46.39	11.05	1.14	31.78			P	H
		153.66	27.62	-15.88	43.5	47.32	10.8	1.28	31.78			P	H
		666.8	26.24	-19.76	46	35.38	20.3	2.6	32.04			P	H
		833.4	30.93	-15.07	46	36.81	22.99	2.89	31.76	100	169	P	H
		918.1	27.54	-18.46	46	31.96	23.83	3.03	31.28			P	H
													H
													H
													H
													H
													H
													H
		111.27	28.35	-15.15	43.5	47.78	11.2	1.15	31.78			P	V
		155.01	28.67	-14.83	43.5	48.36	10.8	1.29	31.78			P	V
		166.35	22.8	-20.7	43.5	43.47	9.76	1.35	31.78			P	V
		560.4	19.28	-26.72	46	28.84	20.07	2.35	31.98			P	V
		666.8	28.01	-17.99	46	37.15	20.3	2.6	32.04			P	V
		913.2	38.5	-7.5	46	43.15	23.65	3.02	31.32	100	13	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 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".