Appendix A. Radiated Spurious Emission

Test Engineer :	Kyle Jhuang, Citta Ke, and Karl Hou	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.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2357.71	45.79	-28.21	74	42.17	32.7	4.6	33.68	129	165	P	H
		2357.71	20.99845	-33.0016	54	-	-	-	-	-	-	A	H
	*	2402.04	93.55	-	-	89.81	32.77	4.62	33.65	129	165	P	H
	*	2402.04	68.75845	-	-	-	-	-	-	-	-	A	H
													H
													H
		2323.39	46.27	-27.73	74	42.8	32.62	4.55	33.7	128	88	P	V
		2323.39	21.47845	-32.5216	54	-	-	-	-	-	-	A	V
	*	2401.91	87.76	-	-	84.02	32.77	4.62	33.65	128	88	P	V
	*	2401.91	62.96845	-	-	-	-	-	-	-	-	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.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 39 2441MHz		2345.34	45.41	-28.59	74	41.87	32.66	4.57	33.69	100	166	P	H
	*	2440.91	95.99	-	-	92.02	32.89	4.68	33.6	100	166	P	H
		2484.23	45.93	-28.07	74	41.81	32.96	4.73	33.57	100	166	P	H
													H
													H
													H
		2373.46	46.45	-27.55	74	42.78	32.73	4.6	33.66	103	89	P	V
	*	2441.1	90.26	-	-	86.29	32.89	4.68	33.6	103	89	P	V
		2494.3	46.11	-27.89	74	41.94	33	4.73	33.56	103	89	P	V
													V
													V
													V
BT CH 78 2480MHz	*	2479.98	92.2	-	-	88.08	32.96	4.73	33.57	100	161	P	H
	*	2479.98	67.40845	-	-	-	-	-	-	-	-	A	H
		2483.5	49.8	-24.2	74	45.68	32.96	4.73	33.57	100	161	P	H
		2483.5	25.00845	-28.9916	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.05	85.57	-	-	81.45	32.96	4.73	33.57	100	105	P	V
	*	2480.05	60.77845	-	-	-	-	-	-	-	-	A	V
		2490.69	45.89	-28.11	74	41.72	33	4.73	33.56	100	105	P	V
		2490.69	21.09845	-32.9016	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.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		4803	39.9	-34.1	74	56.98	35.04	6.52	58.64	100	0	P	H
													H
													H
													H
		4803	41.06	-32.94	74	58.14	35.04	6.52	58.64	100	0	P	V
													V
													V
													V
BT CH 39 2441MHz		4882	39.63	-34.37	74	56.55	35.02	6.58	58.52	100	0	P	H
		4882	14.84	-39.16	54	-	-	-	-	-	-	A	H
		7323	42.46	-31.54	74	56.01	36.4	8.24	58.19	100	0	P	H
		7323	17.67	-36.33	54	-	-	-	-	-	-	A	H
		4881	39.63	-34.37	74	56.55	35.02	6.58	58.52	100	0	P	V
		4881	14.84	-39.16	54	-	-	-	-	-	-	A	V
		7323	41.41	-32.59	74	54.96	36.4	8.24	58.19	100	0	P	V
		7323	16.62	-37.38	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	39.14	-34.86	74	55.88	35.01	6.61	58.36	100	0	P	H
		4960	14.35	-39.65	54	-	-	-	-	-	-	A	H
		7440	42.38	-31.62	74	55.96	36.47	8.36	58.41	100	0	P	H
		7440	17.59	-36.41	54	-	-	-	-	-	-	A	H
		4960	39.2	-34.8	74	55.94	35.01	6.61	58.36	100	0	P	V
		4960	14.41	-39.59	54	-	-	-	-	-	-	A	V
		7440	40.62	-33.38	74	54.2	36.47	8.36	58.41	100	0	P	V
		7440	15.83	-38.17	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.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		108.03	25.4	-18.1	43.5	45.27	10.78	1.13	31.78	-	-	P	H
		150.96	26.14	-17.36	43.5	45.85	10.8	1.27	31.78	100	58	P	H
		233.85	20.28	-25.72	46	39.88	10.58	1.59	31.77	-	-	P	H
		712.3	21.72	-24.28	46	29.98	21.08	2.68	32.02	-	-	P	H
		813.1	28.41	-17.59	46	35.03	22.39	2.85	31.86	-	-	P	H
		908.3	25.72	-20.28	46	30.59	23.48	3.01	31.36	-	-	P	H
													H
													H
													H
													H
													H
													H
		113.97	27.64	-15.86	43.5	46.61	11.65	1.16	31.78	-	-	P	V
		150.96	27.68	-15.82	43.5	47.39	10.8	1.27	31.78	-	-	P	V
		216.03	19.56	-26.44	46	40.55	9.26	1.53	31.78	-	-	P	V
		699	21.29	-24.71	46	30.01	20.67	2.65	32.04	-	-	P	V
		808.2	24.07	-21.93	46	30.86	22.24	2.85	31.88	-	-	P	V
		912.5	37.05	-8.95	46	41.75	23.61	3.02	31.33	122	67	P	V
													V
													V
													V
													V
													V
													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".