Appendix A. Radiated Spurious Emission

Test Engineer :	Kyle Jhuang and 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	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 CH00 2402MHz		2386.57	45.79	-28.21	74	42.05	32.77	4.62	33.65	100	201	P	H
		2386.57	21.06	-32.94	54	-	-	-	-	-	-	A	H
	*	2402	98.51	-	-	94.77	32.77	4.62	33.65	100	201	P	H
	*	2402	73.78	-	-	-	-	-	-	-	-	A	H
													H
													H
		2389.56	45.63	-28.37	74	41.89	32.77	4.62	33.65	103	117	P	V
		2389.56	20.9	-33.1	54	-	-	-	-	-	-	A	V
	*	2402	101.95	-	-	98.21	32.77	4.62	33.65	103	117	P	V
	*	2402	77.22	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2387.33	45.42	-28.58	74	41.68	32.77	4.62	33.65	200	182	P	H
		2387.33	20.69	-33.31	54	-	-	-	-	-	-	A	H
	*	2441	99.87	-	-	95.9	32.89	4.68	33.6	200	182	P	H
	*	2441	75.14	-	-	-	-	-	-	-	-	A	H
		2488.6	46.69	-27.31	74	42.52	33	4.73	33.56	200	182	P	H
		2488.6	21.96	-32.04	54	-	-	-	-	-	-	A	H
		2361.3	45.68	-28.32	74	42.06	32.7	4.6	33.68	100	122	P	V
		2361.3	20.95	-33.05	54	-	-	-	-	-	-	A	V
	*	2441	102.48	-	-	98.51	32.89	4.68	33.6	100	122	P	V
	*	2441	77.75	-	-	-	-	-	-	-	-	A	V
		2497.15	46.23	-27.77	74	42.06	33	4.73	33.56	100	122	P	V
		2497.15	21.5	-32.5	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	*	2480	99.57	-	-	95.45	32.96	4.73	33.57	117	163	P	H
	*	2480	74.84	-	-	-	-	-	-	-	-	A	H
		2483.5	57.79	-16.21	74	53.67	32.96	4.73	33.57	117	163	P	H
		2483.5	33.06	-20.94	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	102.92	-	-	98.8	32.96	4.73	33.57	100	125	P	V
	*	2480	78.19	-	-	-	-	-	-	-	-	A	V
		2483.5	61.5	-12.5	74	57.38	32.96	4.73	33.57	100	125	P	V
		2483.5	36.77	-17.23	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		4803	39.09	-34.91	74	56.17	35.04	6.52	58.64	100	0	P	H
		4803	14.36	-39.64	54	-	-	-	-	-	-	A	H
													H
													H
		4803	40.08	-33.92	74	57.16	35.04	6.52	58.64	100	0	P	V
		4803	15.35	-38.65	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4881	40.59	-33.41	74	57.51	35.02	6.58	58.52	100	0	P	H
		4881	15.86	-38.14	54	-	-	-	-	-	-	A	H
		7323	40.9	-33.1	74	54.45	36.4	8.24	58.19	100	0	P	H
		7323	16.17	-37.83	54	-	-	-	-	-	-	A	H
		4881	39.39	-34.61	74	56.31	35.02	6.58	58.52	100	0	P	V
		4881	14.66	-39.34	54	-	-	-	-	-	-	A	V
		7323	41.19	-32.81	74	54.74	36.4	8.24	58.19	100	0	P	V
		7323	16.46	-37.54	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	40.09	-33.91	74	56.83	35.01	6.61	58.36	100	0	P	H
		4960	15.36	-38.64	54	-	-	-	-	-	-	A	H
		7440	41.26	-32.74	74	54.84	36.47	8.36	58.41	100	0	P	H
		7440	16.53	-37.47	54	-	-	-	-	-	-	A	H
		4960	39.53	-34.47	74	56.27	35.01	6.61	58.36	100	0	P	V
		4960	14.8	-39.2	54	-	-	-	-	-	-	A	V
		7440	40.76	-33.24	74	54.34	36.47	8.36	58.41	100	0	P	V
		7440	16.03	-37.97	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		54.84	19.1	-20.9	40	43.66	6.4	0.84	31.8			P	H
		143.4	24.17	-19.33	43.5	43.19	11.5	1.26	31.78	102	189	P	H
		177.96	23	-20.5	43.5	44.35	9.03	1.4	31.78			P	H
		479.2	16.58	-29.42	46	28.58	17.68	2.19	31.87			P	H
		628.3	19.23	-26.77	46	28.3	20.45	2.52	32.04			P	H
		836.9	22.3	-23.7	46	28.03	23.11	2.9	31.74			P	H
													H
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													H
													H
													H
		57.27	27.81	-12.19	40	52.56	6.2	0.85	31.8	123	200	P	V
		97.5	15.82	-27.68	43.5	36.59	9.92	1.09	31.78			P	V
		212.52	15.15	-28.35	43.5	36.19	9.22	1.52	31.78			P	V
		610.8	19.6	-26.4	46	29.24	19.93	2.47	32.04			P	V
		806.1	22.2	-23.8	46	29.07	22.18	2.84	31.89			P	V
		929.3	23.85	-22.15	46	27.75	24.26	3.04	31.2			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".