Appendix A. Radiated Spurious Emission

Test Engineer :	Citta Ke, Kyle Jhuang, Karl Hou and Nick Yu	Temperature :	21~22°C
		Relative Humidity :	49~50%

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		2321.83	47.79	-26.21	74	41.84	33.11	6.54	33.7	245	330	P	H
		2321.83	23.06	-30.94	54	-	-	-	-	-	-	A	H
	*	2402	91.18	-	-	85.16	33.02	6.65	33.65	245	330	P	H
	*	2402	66.45	-	-	-	-	-	-	-	-	A	H
													H
													H
		2348.35	48.19	-25.81	74	42.2	33.09	6.59	33.69	253	268	P	V
		2348.35	23.46	-30.54	54	-	-	-	-	-	-	A	V
	*	2402	94.79	-	-	88.77	33.02	6.65	33.65	253	268	P	V
	*	2402	70.06	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2312.28	47.73	-26.27	74	41.78	33.13	6.54	33.72	136	295	P	H
		2312.28	23	-31	54	-	-	-	-	-	-	A	H
	*	2441	92.71	-	-	86.65	32.96	6.7	33.6	136	295	P	H
	*	2441	67.98	-	-	-	-	-	-	-	-	A	H
		2488.03	47.4	-26.6	74	41.3	32.9	6.76	33.56	136	295	P	H
		2488.03	22.67	-31.33	54	-	-	-	-	-	-	A	H
		2368.71	48.51	-25.49	74	42.48	33.04	6.65	33.66	196	290	P	V
		2368.71	23.78	-30.22	54	-	-	-	-	-	-	A	V
	*	2441	94.24	-	-	88.18	32.96	6.7	33.6	196	290	P	V
	*	2441	69.51	-	-	-	-	-	-	-	-	A	V
		2495.25	47.61	-26.39	74	41.46	32.9	6.81	33.56	196	290	P	V
		2495.25	22.88	-31.12	54	-	-	-	-	-	-	A	V

BT CH 78 2480MHz	*	2480	91.66	-	-	85.55	32.92	6.76	33.57	157	298	P	H
	*	2480	66.93	-	-	-	-	-	-	-	-	A	H
		2483.5	51.05	-22.95	74	44.94	32.92	6.76	33.57	157	298	P	H
		2483.5	26.32	-27.68	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	94.28	-	-	88.17	32.92	6.76	33.57	262	268	P	V
	*	2480	69.55	-	-	-	-	-	-	-	-	A	V
		2483.5	52.18	-21.82	74	46.07	32.92	6.76	33.57	262	268	P	V
		2483.5	27.45	-26.55	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		4803	39.37	-34.63	74	55.85	32.51	9.65	58.64	100	0	P	H
		4803	14.64	-39.36	54	-	-	-	-	-	-	A	H
													H
													H
		4803	39.36	-34.64	74	55.84	32.51	9.65	58.64	100	0	P	V
		4803	14.63	-39.37	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4881	39.4	-34.6	74	55.6	32.58	9.74	58.52	100	0	P	H
		4881	14.67	-39.33	54	-	-	-	-	-	-	A	H
		7323	40.77	-33.23	74	53.04	34.07	11.85	58.19	100	0	P	H
		7323	16.04	-37.96	54	-	-	-	-	-	-	A	H
		4881	40.87	-33.13	74	57.07	32.58	9.74	58.52	100	0	P	V
		4881	16.14	-37.86	54	-	-	-	-	-	-	A	V
		7323	41.42	-32.58	74	53.69	34.07	11.85	58.19	100	0	P	V
		7323	16.69	-37.31	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4959	39.4	-34.6	74	55.26	32.67	9.83	58.36	100	0	P	H
		4959	14.67	-39.33	54	-	-	-	-	-	-	A	H
		7440	40.94	-33.06	74	53.2	34.09	12.06	58.41	100	0	P	H
		7440	16.21	-37.79	54	-	-	-	-	-	-	A	H
		4959	38.87	-35.13	74	54.73	32.67	9.83	58.36	100	0	P	V
		4959	14.14	-39.86	54	-	-	-	-	-	-	A	V
		7440	40.57	-33.43	74	52.83	34.09	12.06	58.41	100	0	P	V
		7440	15.84	-38.16	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		107.22	32.86	-10.64	43.5	51	10.78	1.48	30.4	106	50	P	H
		162.57	28.69	-14.81	43.5	47.26	10.08	1.71	30.36			P	H
		179.85	24.81	-18.69	43.5	44.3	8.97	1.89	30.35			P	H
		431.6	21.66	-24.34	46	32	16.92	2.68	29.94			P	H
		473.6	18.92	-27.08	46	28.45	17.56	2.77	29.86			P	H
		741.7	24.02	-21.98	46	27.72	22.2	3.54	29.44			P	H
													H
													H
													H
													H
													H
													H
		80.49	23.48	-16.52	40	45.59	7.1	1.22	30.43			P	V
		105.87	28	-15.5	43.5	46.27	10.66	1.48	30.41	155	25	P	V
		239.25	17.33	-28.67	46	34.27	11.3	2.02	30.26			P	V
		359.5	15.91	-30.09	46	28.91	14.6	2.46	30.06			P	V
		645.1	22.37	-23.63	46	28.19	20.4	3.33	29.55			P	V
		839	25.42	-20.58	46	27.75	23.17	3.78	29.28			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".