



Appendix A. Radiated Spurious Emission

Test Engineer :	Jesse Wang and James Chiu	Temperature :	22~23°C
		Relative Humidity :	45~52%

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		2388.855	53.78	-20.22	74	48.87	31.93	7.31	34.33	147	292	P	H
		2388.855	29.02	-24.98	54	-	-	-	-	-	-	A	H
	*	2402	99.29	-	-	94.36	31.93	7.31	34.31	147	292	P	H
	*	2402	74.53	-	-	-	-	-	-	-	-	A	H
													H
													H
		2388.96	53.74	-20.26	74	48.83	31.93	7.31	34.33	304	113	P	V
		2388.96	28.98	-25.02	54	-	-	-	-	-	-	A	V
	*	2402	99.87	-	-	94.94	31.93	7.31	34.31	304	113	P	V
	*	2402	75.11	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2389.1	54.19	-19.81	74	49.28	31.93	7.31	34.33	100	275	P	H
		2389.1	29.43	-24.57	54	-	-	-	-	-	-	A	H
	*	2442	100.39	-	-	95.21	32.07	7.36	34.25	100	275	P	H
	*	2442	75.63	-	-	-	-	-	-	-	-	A	H
		2491.67	46.63	-27.37	74	41.19	32.2	7.4	34.16	100	275	P	H
		2491.67	21.87	-32.13	54	-	-	-	-	-	-	A	H
		2388.96	55.44	-18.56	74	50.53	31.93	7.31	34.33	349	116	P	V
		2388.96	30.68	-23.32	54	-	-	-	-	-	-	A	V
	*	2442	100.98	-	-	95.8	32.07	7.36	34.25	349	116	P	V
	*	2442	76.22	-	-	-	-	-	-	-	-	A	V
		2484.6	45.26	-28.74	74	39.88	32.16	7.4	34.18	349	116	P	V
		2484.6	20.5	-33.5	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	101.07	-	-	95.69	32.16	7.4	34.18	111	294	P	H
	*	2480	76.31	-	-	-	-	-	-	-	-	A	H
		2483.76	50.81	-23.19	74	45.43	32.16	7.4	34.18	111	294	P	H
		2483.76	26.05	-27.95	54	-	-	-	-	-	-	A	H
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													H
	*	2480	101.51	-	-	96.13	32.16	7.4	34.18	300	127	P	V
	*	2480	76.75	-	-	-	-	-	-	-	-	A	V
		2494.64	54.44	-19.56	74	49	32.2	7.4	34.16	300	127	P	V
		2494.64	29.68	-24.32	54	-	-	-	-	-	-	A	V
													V
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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	50.95	-23.05	74	64.01	34.19	11.83	59.08	100	0	P	H
		4804	26.19	-27.81	54	-	-	-	-	-	-	A	H
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		4804	50.51	-23.49	74	63.57	34.19	11.83	59.08	100	0	P	V
		4804	25.75	-28.25	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4882	45.05	-28.95	74	58.23	34.23	11.53	58.94	100	0	P	H
		4882	20.29	-33.71	54	-	-	-	-	-	-	A	H
		7323	46.47	-27.53	74	55.02	35.6	13.81	57.96	100	0	P	H
		7323	21.71	-32.29	54	-	-	-	-	-	-	A	H
		4882	40.53	-33.47	74	53.71	34.23	11.53	58.94	100	0	P	V
		4882	15.77	-38.23	54	-	-	-	-	-	-	A	V
		7323	48.57	-25.43	74	57.12	35.6	13.81	57.96	100	0	P	V
		7323	23.81	-30.19	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	49.99	-24.01	74	63.26	34.28	11.22	58.77	100	0	P	H
		4960	25.23	-28.77	54	-	-	-	-	-	-	A	H
		7440	47.29	-26.71	74	55.77	35.6	14.05	58.13	100	0	P	H
		7440	22.53	-31.47	54	-	-	-	-	-	-	A	H
		4960	44.15	-29.85	74	57.42	34.28	11.22	58.77	100	0	P	V
		4960	19.39	-34.61	54	-	-	-	-	-	-	A	V
		7440	49.56	-24.44	74	58.04	35.6	14.05	58.13	100	0	P	V
		7440	24.8	-29.2	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	27.69	-12.31	40	31.97	26	1.07	31.35	-	-	P	H
		84	23.57	-16.43	40	39.46	14.38	1.28	31.55	-	-	P	H
		252.21	37.38	-8.62	46	47.48	19.2	2.07	31.37	100	0	P	H
		336.4	26.18	-19.82	46	34.18	20.82	2.41	31.23	-	-	P	H
		420.4	36.46	-9.54	46	42.03	22.68	2.89	31.14	-	-	P	H
		971.3	33.88	-20.12	54	30.1	30.24	4.07	30.53	-	-	P	H
													H
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		30	29.91	-10.09	40	34.19	26	1.07	31.35	-	-	P	V
		72.66	29.99	-10.01	40	47.24	13.03	1.28	31.56	-	-	P	V
		252.21	36.02	-9.98	46	46.12	19.2	2.07	31.37	100	0	P	V
		420.4	30.84	-15.16	46	36.41	22.68	2.89	31.14	-	-	P	V
		588.4	33.24	-12.76	46	35.5	25.22	3.36	30.84	-	-	P	V
		970.6	34.36	-19.64	54	30.58	30.24	4.07	30.53	-	-	P	V
													V
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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	Peak or Average
H/V	Horizontal or Vertical

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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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”.