



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.	
		(MHz)	(dBμV/m)	(dB)	Limit	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
					Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2384.025	57.88	-16.12	74	53.02	31.89	7.31	34.34	248	187	P	H	
		2384.025	33.15	-20.85	54	-	-	-	-	-	-	A	H	
	*	2402	100.97	-	-	96.04	31.93	7.31	34.31	248	187	P	H	
		2402	76.24	-	-	-	-	-	-	-	-	A	H	
													H	
														H
			2384.13	54.97	-19.03	74	50.11	31.89	7.31	34.34	280	280	P	V
			2384.13	30.24	-23.76	54	-	-	-	-	-	-	A	V
	*		2402	96.53	-	-	91.6	31.93	7.31	34.31	280	280	P	V
			2402	71.8	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2387.56	58.05	-15.95	74	53.15	31.93	7.31	34.34	273	186	P	H	
		2387.56	33.32	-20.68	54	-	-	-	-	-	-	A	H	
	*	2441	99.95	-	-	94.77	32.07	7.36	34.25	273	186	P	H	
		2441	75.22	-	-	-	-	-	-	-	-	A	H	
		2488.59	45.45	-28.55	74	40.02	32.2	7.4	34.17	273	186	P	H	
		2488.59	20.72	-33.28	54	-	-	-	-	-	-	A	H	
		2355.5	55.58	-18.42	74	50.89	31.84	7.24	34.39	302	281	P	V	
		2355.5	30.85	-23.15	54	-	-	-	-	-	-	A	V	
	*		2441	96.22	-	-	91.04	32.07	7.36	34.25	302	281	P	V
			2441	71.49	-	-	-	-	-	-	-	A	V	
			2497.2	46.14	-27.86	74	40.69	32.2	7.4	34.15	302	281	P	V
			2497.2	21.41	-32.59	54	-	-	-	-	-	A	V	



BT CH 78 2480MHz	*	2480	98.55	-	-	93.17	32.16	7.4	34.18	238	182	P	H
		2480	73.82	-	-	-	-	-	-	-	-	A	H
		2491.8	45.98	-28.02	74	40.54	32.2	7.4	34.16	238	182	P	H
		2491.8	21.25	-32.75	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	93.29	-	-	87.91	32.16	7.4	34.18	265	281	P	V
		2480	68.56	-	-	-	-	-	-	-	-	A	V
		2492.64	46.45	-27.55	74	41.01	32.2	7.4	34.16	265	281	P	V
		2492.64	21.72	-32.28	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 (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		4806	52.97	-21.03	74	66.03	34.19	11.83	59.08	100	0	P	H	
		4806	28.24	-25.76	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4806	45.27	-28.73	74	58.33	34.19	11.83	59.08	100	0	P	V	
		4806	20.54	-33.46	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4884	53.13	-20.87	74	66.31	34.23	11.53	58.94	100	0	P	H	
		4884	28.4	-25.6	54	-	-	-	-	-	-	A	H	
		7320	50.23	-23.77	74	58.78	35.6	13.81	57.96	100	0	P	H	
		7320	25.5	-28.5	54	-	-	-	-	-	-	A	H	
		4884	46.01	-27.99	74	59.19	34.23	11.53	58.94	100	0	P	V	
		4884	21.28	-32.72	54	-	-	-	-	-	-	A	V	
		7326	43.6	-30.4	74	52.15	35.6	13.81	57.96	100	0	P	V	
		7326	18.87	-35.13	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4962	54.58	-19.42	74	67.85	34.28	11.22	58.77	100	0	P	H	
		4962	29.85	-24.15	54	-	-	-	-	-	-	A	H	
		7440	49.79	-24.21	74	58.27	35.6	14.05	58.13	100	0	P	H	
		7440	25.06	-28.94	54	-	-	-	-	-	-	A	H	
		4962	47.95	-26.05	74	61.22	34.28	11.22	58.77	100	0	P	V	
		4962	23.22	-30.78	54	-	-	-	-	-	-	A	V	
		7440	43.67	-30.33	74	52.15	35.6	14.05	58.13	100	0	P	V	
		7440	18.94	-35.06	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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		30.27	28.17	-11.83	40	32.45	26	1.07	31.35	100	0	P	H	
		131.79	19.06	-24.44	43.5	30.78	18.24	1.55	31.51	-	-	P	H	
		278.13	21.73	-24.27	46	31.41	19.32	2.32	31.32	-	-	P	H	
		426.7	24.76	-21.24	46	30.22	22.78	2.89	31.13	-	-	P	H	
		683.6	29.34	-16.66	46	30.19	26.24	3.65	30.74	-	-	P	H	
		944.7	33.04	-12.96	46	29.42	30.08	4.07	30.53	-	-	P	H	
														H
														H
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														H
														H
			30	27	-13	40	31.28	26	1.07	31.35	-	-	P	V
			129.9	19.55	-23.95	43.5	31.21	18.3	1.55	31.51	-	-	P	V
			258.42	21.5	-24.5	46	30.99	19.8	2.07	31.36	-	-	P	V
			401.5	24.81	-21.19	46	30.88	22.43	2.67	31.17	-	-	P	V
			603.8	28.93	-17.07	46	30.95	25.44	3.36	30.82	-	-	P	V
			883.8	35.14	-10.86	46	32.62	28.9	4.17	30.55	100	0	P	V
														V
														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.
!	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

- Level(dBμV/m) =
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

- 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)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- 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)
- 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”.