



Appendix A. Radiated Spurious Emission

Test Engineer :	Tsung Lee, Stan Hsieh, and Ray Lee	Temperature :	20~22°C
		Relative Humidity :	41~43%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 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 CH00 2402MHz		2325.34	48.82	-25.18	74	49.7	27.05	5.33	33.26	107	295	P	H
		2325.34	24.06	-29.94	54	-	-	-	-	-	-	A	H
	*	2402.04	98.51	-	-	99.11	27.23	5.39	33.22	107	295	P	H
	*	2402.04	73.75	-	-	-	-	-	-	-	-	A	H
													H
													H
		2325.34	47.87	-26.13	74	48.75	27.05	5.33	33.26	319	247	P	V
		2325.34	23.11	-30.89	54	-	-	-	-	-	-	A	V
	*	2402.04	97.74	-	-	98.34	27.23	5.39	33.22	319	247	P	V
	*	2402.04	72.98	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2364.15	50.02	-23.98	74	50.74	27.14	5.39	33.25	100	294	P	H
		2364.15	25.26	-28.74	54	-	-	-	-	-	-	A	H
	*	2441.1	99.37	-	-	99.78	27.37	5.42	33.2	100	294	P	H
	*	2441.1	74.61	-	-	-	-	-	-	-	-	A	H
		2484.99	43.89	-30.11	74	44.15	27.46	5.46	33.18	100	294	P	H
		2484.99	19.13	-34.87	54	-	-	-	-	-	-	A	H
		2364.53	47.28	-26.72	74	47.99	27.14	5.39	33.24	356	247	P	V
		2364.53	22.52	-31.48	54	-	-	-	-	-	-	A	V
	*	2441.1	99.25	-	-	99.66	27.37	5.42	33.2	356	247	P	V
	*	2441.1	74.49	-	-	-	-	-	-	-	-	A	V
		2486.13	42.63	-31.37	74	42.89	27.46	5.46	33.18	356	247	P	V
		2486.13	17.87	-36.13	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2479.98	99.92	-	-	100.2	27.46	5.44	33.18	100	292	P	H
	*	2479.98	75.16	-	-	-	-	-	-	-	-	A	H
		2489.57	56.78	-17.22	74	57	27.5	5.46	33.18	100	292	P	H
		2489.57	32.02	-21.98	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.98	98.74	-	-	99.02	27.46	5.44	33.18	337	248	P	V
	*	2479.98	73.98	-	-	-	-	-	-	-	-	A	V
		2483.5	54.96	-19.04	74	55.22	27.46	5.46	33.18	337	248	P	V
		2483.5	30.2	-23.8	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		4804	38.83	-35.17	74	60.47	31.42	7.58	60.64	100	0	P	H
													H
													H
													H
		4804	41.86	-32.14	74	63.5	31.42	7.58	60.64	100	0	P	V
													V
													V
													V
BT CH 39 2441MHz		4882	38.65	-35.35	74	59.79	31.56	7.82	60.52	100	0	P	H
		7323	43.77	-30.23	74	59.02	36.22	9.51	60.98	100	0	P	H
													H
													H
		4882	43.72	-30.28	74	64.86	31.56	7.82	60.52	100	0	P	V
		7323	41.27	-32.73	74	56.52	36.22	9.51	60.98	100	0	P	V
													V
													V
BT CH 78 2480MHz		4960	40.21	-33.79	74	60.91	31.73	7.93	60.36	100	0	P	H
		7440	42.82	-31.18	74	58.06	36.49	9.61	61.34	100	0	P	H
													H
													H
		4960	42.08	-31.92	74	62.78	31.73	7.93	60.36	100	0	P	V
		7440	43.36	-30.64	74	58.6	36.49	9.61	61.34	100	0	P	V
													V
													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 (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)
2.4GHz BT LF		119.91	37.96	-5.54	43.5	51.77	17.7	1.14	32.65	-	-	P	H
		167.97	35.46	-8.04	43.5	50.58	16.1	1.48	32.7	-	-	P	H
		206.85	35.96	-7.54	43.5	50.94	16.13	1.62	32.73	-	-	P	H
		311.9	40.76	-5.24	46	51.57	20.05	1.88	32.74	100	327	P	H
		796.3	34.81	-11.19	46	36.47	28.25	2.97	32.88	-	-	P	H
		815.9	35.51	-10.49	46	36.74	28.49	3.07	32.79	-	-	P	H
													H
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													H
													H
		34.86	34.63	-5.37	40	43.69	23.1	0.65	32.81	-	-	P	V
		45.12	34.93	-5.07	40	49.72	17.07	0.93	32.79	-	-	P	V
		51.6	35.19	-4.81	40	52.43	14.6	0.93	32.77	100	21	P	V
		870.5	31.59	-14.41	46	31.89	29.02	3.16	32.48	-	-	P	V
		923	31.62	-14.38	46	30.62	29.86	3.2	32.06	-	-	P	V
		949.6	32.21	-13.79	46	30.08	30.6	3.29	31.76	-	-	P	V
													V
													V
													V
													V
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												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.
!	Test result is over limit line.
P/A	Peak or Average
H/V	H orizontal or V ertical

A calculation example for radiated spurious emission is shown as below:

WIFI Ant. 1+2	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)
802.11b CH 01		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
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”.