



Appendix A. Radiated Spurious Emission

Test Engineer :	Ken Wu	Temperature :	21~23°C
		Relative Humidity :	44~46%

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		2386.18	48.9	-25.1	74	43.24	32.18	7.75	34.27	382	335	P	H
		2386.18	24.14	-29.86	54	-	-	-	-	-	-	A	H
	*	2402.04	100.35	-	-	94.72	32.18	7.75	34.3	382	335	P	H
	*	2402.04	75.59	-	-	-	-	-	-	-	-	A	H
													H
													H
		2353.16	49.35	-24.65	74	43.79	32.13	7.68	34.25	159	5	P	V
		2353.16	24.59	-29.41	54	-	-	-	-	-	-	A	V
	*	2402.04	107.34	-	-	101.71	32.18	7.75	34.3	159	5	P	V
	*	2402.04	82.58	-	-	-	-	-	-	-	-	A	V
													V
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BT CH 39 2441MHz		2366.05	48.25	-25.75	74	42.71	32.13	7.68	34.27	138	334	P	H
		2366.05	23.49	-30.51	54	-	-	-	-	-	-	A	H
	*	2441.1	101.82	-	-	96.14	32.24	7.83	34.39	138	334	P	H
	*	2441.1	77.06	-	-	-	-	-	-	-	-	A	H
		2492.21	48.32	-25.68	74	42.59	32.3	7.91	34.48	138	334	P	H
		2492.21	23.56	-30.44	54	-	-	-	-	-	-	A	H
		2360.54	48.82	-25.18	74	43.26	32.13	7.68	34.25	311	360	P	V
		2360.54	24.06	-29.94	54	-	-	-	-	-	-	A	V
	*	2441.1	108.58	-	-	102.9	32.24	7.83	34.39	311	360	P	V
	*	2441.1	83.82	-	-	-	-	-	-	-	-	A	V
		2497.15	47.91	-26.09	74	42.18	32.3	7.91	34.48	311	360	P	V
		2497.15	23.15	-30.85	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2479.98	99.87	-	-	94.11	32.28	7.91	34.43	156	345	P	H
	*	2479.98	75.11	-	-	-	-	-	-	-	-	A	H
		2483.83	49.94	-24.06	74	44.18	32.28	7.91	34.43	156	345	P	H
		2483.83	25.18	-28.82	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.05	105.55	-	-	99.79	32.28	7.91	34.43	398	0	P	V
	*	2480.05	80.79	-	-	-	-	-	-	-	-	A	V
		2483.5	57.42	-16.58	74	51.66	32.28	7.91	34.43	398	0	P	V
		2483.5	32.66	-21.34	54	-	-	-	-	-	-	A	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		4806	48.17	-25.83	74	62.48	34.25	11.11	59.67	100	0	P	H
		4806	23.41	-30.59	54	-	-	-	-	-	-	A	H
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		4806	45.34	-28.66	74	59.65	34.25	11.11	59.67	100	0	P	V
		4806	20.58	-33.42	54	-	-	-	-	-	-	A	V
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													V
BT CH 39 2441MHz		4882	47.79	-26.21	74	61.85	34.3	11.21	59.57	100	0	P	H
		4882	23.03	-30.97	54	-	-	-	-	-	-	A	H
		7323	43.39	-30.61	74	51.2	35.6	15.08	58.49	100	0	P	H
		7323	18.63	-35.37	54	-	-	-	-	-	-	A	H
		4882	45.46	-28.54	74	59.52	34.3	11.21	59.57	100	0	P	V
		4882	20.7	-33.3	54	-	-	-	-	-	-	A	V
		7323	45.9	-28.1	74	53.71	35.6	15.08	58.49	100	0	P	V
		7323	21.14	-32.86	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	49.69	-24.31	74	63.45	34.37	11.32	59.45	100	0	P	H
		4962	24.93	-29.07	54	-	-	-	-	-	-	A	H
		7440	42.76	-31.24	74	50.67	35.6	15.13	58.64	100	0	P	H
		7440	18	-36	54	-	-	-	-	-	-	A	H
		4962	46.6	-27.4	74	60.36	34.37	11.32	59.45	100	0	P	V
		4962	21.84	-32.16	54	-	-	-	-	-	-	A	V
		7440	43.21	-30.79	74	51.12	35.6	15.13	58.64	100	0	P	V
		7440	18.45	-35.55	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		97.23	27.86	-15.64	43.5	47.22	9.68	2.06	31.1	173	155	P	H
		141.24	26.1	-17.4	43.5	43.09	11.5	2.61	31.1			P	H
		167.97	23.9	-19.6	43.5	42.67	9.74	2.61	31.12			P	H
		500.2	21.23	-24.77	46	29.94	18	3.89	30.6			P	H
		741	26.63	-19.37	46	30.36	22.19	4.48	30.4			P	H
		988.8	29.47	-24.53	54	29.84	24.84	5.03	30.24			P	H
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													H
													H
		40.8	27.27	-12.73	40	43.4	13.3	1.77	31.2	145	52	P	V
		81.3	26.62	-13.38	40	48.51	7.22	2.06	31.17			P	V
		102.36	26.91	-16.59	43.5	45.19	10.46	2.38	31.12			P	V
		464.5	21	-25	46	30.58	17.45	3.77	30.8			P	V
		624.1	24.33	-21.67	46	30.39	20.27	4.22	30.55			P	V
		741	26.34	-19.66	46	30.07	22.19	4.48	30.4			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”.