



Appendix A. Radiated Spurious Emission

Test Engineer :	Derreck Chen, Nick Yu and Ken Wu	Temperature :	23~25°C
		Relative Humidity :	46~49%

15C 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)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2386.31	48.17	-25.83	74	42.51	32.18	7.75	34.27	100	17	P	H
		2386.31	23.38	-30.62	54	-	-	-	-	-	-	A	H
	*	2402.04	103.68	-	-	98.05	32.18	7.75	34.3	100	17	P	H
	*	2402.04	78.89	-	-	-	-	-	-	-	-	A	H
													H
													H
		2324.17	48.82	-25.18	74	43.35	32.09	7.6	34.22	104	87	P	V
		2324.17	24.03	-29.97	54	-	-	-	-	-	-	A	V
	*	2402.04	103.29	-	-	97.66	32.18	7.75	34.3	104	87	P	V
	*	2402.04	78.5	-	-	-	-	-	-	-	-	A	V
													V
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BT CH 39 2441MHz		2367.95	47.41	-26.59	74	41.87	32.13	7.68	34.27	124	20	P	H
		2367.95	22.62	-31.38	54	-	-	-	-	-	-	A	H
	*	2441.1	104.64	-	-	98.96	32.24	7.83	34.39	124	20	P	H
	*	2441.1	79.85	-	-	-	-	-	-	-	-	A	H
		2496.39	48.28	-25.72	74	42.55	32.3	7.91	34.48	124	20	P	H
		2496.39	23.49	-30.51	54	-	-	-	-	-	-	A	H
		2314.94	48.37	-25.63	74	42.92	32.07	7.6	34.22	100	86	P	V
		2314.94	23.58	-30.42	54	-	-	-	-	-	-	A	V
	*	2441.29	103.7	-	-	98.02	32.24	7.83	34.39	100	86	P	V
	*	2441.29	78.91	-	-	-	-	-	-	-	-	A	V
		2495.63	48.05	-25.95	74	42.32	32.3	7.91	34.48	100	86	P	V
		2495.63	23.26	-30.74	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2479.91	102.71	-	-	96.95	32.28	7.91	34.43	108	22	P	H
	*	2479.91	77.92	-	-	-	-	-	-	-	-	A	H
		2483.5	51.63	-22.37	74	45.87	32.28	7.91	34.43	108	22	P	H
		2483.5	26.84	-27.16	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.91	102.58	-	-	96.82	32.28	7.91	34.43	100	59	P	V
	*	2479.91	77.79	-	-	-	-	-	-	-	-	A	V
		2483.83	50.76	-23.24	74	45	32.28	7.91	34.43	100	59	P	V
		2483.83	25.97	-28.03	54	-	-	-	-	-	-	A	V
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Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		4806	43.37	-30.63	74	56.97	34.25	11.11	58.96	100	0	P	H
		4806	18.58	-35.42	54	-	-	-	-	-	-	A	H
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													H
		4806	48.32	-25.68	74	61.92	34.25	11.11	58.96	100	0	P	V
		4806	23.53	-30.47	54	-	-	-	-	-	-	A	V
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													V
BT CH 39 2441MHz		4884	42.74	-31.26	74	566.38	-500	11.21	34.85	100	0	P	H
		4884	17.95	-36.05	54	-	-	-	-	-	-	A	H
		7320	43.46	-30.54	74	564.11	-500	15.08	35.73	100	0	P	H
		7320	18.67	-35.33	54	-	-	-	-	-	-	A	H
		4884	47.3	-26.7	74	570.94	-500	11.21	34.85	100	0	P	V
		4884	22.51	-31.49	54	-	-	-	-	-	-	A	V
		7320	47.14	-26.86	74	567.79	-500	15.08	35.73	100	0	P	V
		7320	22.35	-31.65	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	42.48	-31.52	74	566.01	-500	11.32	34.85	100	0	P	H
		4962	17.69	-36.31	54	-	-	-	-	-	-	A	H
		7440	42.93	-31.07	74	563.58	-500	15.13	35.78	100	0	P	H
		7440	18.14	-35.86	54	-	-	-	-	-	-	A	H
		4962	45.4	-28.6	74	568.93	-500	11.32	34.85	100	0	P	V
		4962	20.61	-33.39	54	-	-	-	-	-	-	A	V
		7440	45.51	-28.49	74	566.16	-500	15.13	35.78	100	0	P	V
		7440	20.72	-33.28	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		77.79	27.27	-12.73	40	49.51	6.9	2.06	31.2			P	H
		168.24	22.82	-20.68	43.5	41.61	9.72	2.61	31.12			P	H
		229.8	36.18	-9.82	46	54.12	10.1	2.96	31	121	281	P	H
		397.3	27.28	-18.72	46	38.85	15.82	3.52	30.91			P	H
		685	29.9	-16.1	46	35.48	20.5	4.35	30.43			P	H
		960.1	38.07	-15.93	54	38.79	24.7	4.94	30.36			P	H
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		77.79	25.08	-14.92	40	47.32	6.9	2.06	31.2			P	V
		224.94	29.22	-16.78	46	47.56	9.7	2.96	31			P	V
		242.22	27.55	-18.45	46	43.99	11.6	2.96	31			P	V
		399.4	33.26	-12.74	46	44.74	15.9	3.52	30.9	241	12	P	V
		731.9	30.23	-15.77	46	34.18	22.04	4.41	30.4			P	V
		960.1	36.69	-17.31	54	37.41	24.7	4.94	30.36			P	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	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”.