



Appendix A. Radiated Spurious Emission

Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	Temperature :	23~25°C
		Relative Humidity :	48~51%

15C 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 CH 78 2480MHz	*	2480.05	99.79	-	-	94.03	32.28	7.91	34.43	294	360	P	H
	*	2480.05	75.03	-	-	-	-	-	-	-	-	A	H
		2483.55	48.36	-25.64	74	42.6	32.28	7.91	34.43	294	360	P	H
		2483.55	23.6	-30.4	54	-	-	-	-	-	-	A	H
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	*	2480.12	95.49	-	-	89.73	32.28	7.91	34.43	100	120	P	V
	*	2480.12	70.73	-	-	-	-	-	-	-	-	A	V
		2484.25	47.46	-26.54	74	41.7	32.28	7.91	34.43	100	120	P	V
		2484.25	22.7	-31.3	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 78 2480MHz		4962	45.22	-28.78	74	568.75	-500	11.32	34.85	100	0	P	H
		4962	20.46	-33.54	54	-	-	-	-	-	-	A	H
		7440	50.63	-23.37	74	571.28	-500	15.13	35.78	100	0	P	H
		7440	25.87	-28.13	54	-	-	-	-	-	-	A	H
		4962	44.1	-29.9	74	567.63	-500	11.32	34.85	100	0	P	V
		4962	19.34	-34.66	54	-	-	-	-	-	-	A	V
		7440	48.97	-25.03	74	569.62	-500	15.13	35.78	100	0	P	V
		7440	24.21	-29.79	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		99.12	37.37	-6.13	43.5	56.25	10.16	2.06	31.1			P	H
		197.94	39.95	-3.55	43.5	59.32	9.04	2.69	31.1			P	H
		297.03	40.73	-5.27	46	55.43	13.17	3.16	31.03			P	H
		431.6	40.08	-5.92	46	50.27	16.92	3.63	30.74			P	H
		664	42.63	-3.37	46	48.4	20.35	4.35	30.47	146	178	P	H
		846	30.22	-15.78	46	32.65	23.26	4.7	30.39			P	H
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		99.12	34.72	-8.78	43.5	53.6	10.16	2.06	31.1			P	V
		198.21	36.25	-7.25	43.5	55.62	9.04	2.69	31.1			P	V
		248.43	21.67	-24.33	46	37.51	12.2	2.96	31			P	V
		498.1	32.22	-13.78	46	41.09	17.98	3.77	30.62			P	V
		664	44.08	-1.92	46	49.85	20.35	4.35	30.47	168	217	P	V
		896.4	28.97	-17.03	46	31.54	23.08	4.66	30.31			P	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 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 CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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”.