



Appendix A. Radiated Spurious Emission

Test Engineer :	Nick Yu, Ken Wu, and Bill Kuo	Temperature :	21~23°C
		Relative Humidity :	56~60%

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 CH00 2402MHz		2325.6	47.78	-26.22	74	48.84	27.05	5.95	34.06	212	55	P	H
		2325.6	23.02	-30.98	54	-	-	-	-	-	-	A	H
	*	2402.17	98.27	-	-	99.07	27.23	6.01	34.04	212	55	P	H
	*	2402.17	73.51	-	-	-	-	-	-	-	-	A	H
													H
													H
		2325.08	47.39	-26.61	74	48.45	27.05	5.95	34.06	271	98	P	V
		2325.08	22.63	-31.37	54	-	-	-	-	-	-	A	V
	*	2401.91	97.38	-	-	98.18	27.23	6.01	34.04	271	98	P	V
	*	2401.91	72.62	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2364.34	49.81	-24.19	74	50.7	27.14	6.01	34.04	183	56	P	H
		2364.34	25.05	-28.95	54	-	-	-	-	-	-	A	H
	*	2441.1	97.58	-	-	98.19	27.37	6.04	34.02	183	56	P	H
	*	2441.1	72.82	-	-	-	-	-	-	-	-	A	H
		2485.37	43.42	-30.58	74	43.88	27.46	6.09	34.01	183	56	P	H
		2485.37	18.66	-35.34	54	-	-	-	-	-	-	A	H
		2363.96	48.52	-25.48	74	49.42	27.14	6.01	34.05	100	21	P	V
		2363.96	23.76	-30.24	54	-	-	-	-	-	-	A	V
	*	2441.1	96.37	-	-	96.98	27.37	6.04	34.02	100	21	P	V
	*	2441.1	71.61	-	-	-	-	-	-	-	-	A	V
		2488.79	42.55	-31.45	74	42.97	27.5	6.09	34.01	100	21	P	V
		2488.79	17.79	-36.21	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480.19	98.71	-	-	99.19	27.46	6.07	34.01	197	58	P	H
	*	2480.19	73.95	-	-	-	-	-	-	-	-	A	H
		2489.78	56.17	-17.83	74	56.59	27.5	6.09	34.01	197	58	P	H
		2489.78	31.41	-22.59	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.19	96.94	-	-	97.42	27.46	6.07	34.01	100	20	P	V
	*	2480.19	72.18	-	-	-	-	-	-	-	-	A	V
		2489.85	53.82	-20.18	74	54.24	27.5	6.09	34.01	100	20	P	V
		2489.85	29.06	-24.94	54	-	-	-	-	-	-	A	V
													V
													V
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	37.04	-36.96	74	62.18	31.3	8.65	65.09	100	0	P	H
		4806	12.28	-41.72	54	-	-	-	-	-	-	A	H
													H
													H
		4806	36.64	-37.36	74	61.78	31.3	8.65	65.09	100	0	P	V
		4806	11.88	-42.12	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4884	37.53	-36.47	74	62.4	31.41	8.74	65.02	100	0	P	H
		4884	12.77	-41.23	54	-	-	-	-	-	-	A	H
		7320	40.38	-33.62	74	58.74	36.32	10.39	65.07	100	0	P	H
		7320	15.62	-38.38	54	-	-	-	-	-	-	A	H
		4884	38.72	-35.28	74	63.59	31.41	8.74	65.02	100	0	P	V
		4884	13.96	-40.04	54	-	-	-	-	-	-	A	V
		7320	39.99	-34.01	74	58.35	36.32	10.39	65.07	100	0	P	V
		7320	15.23	-38.77	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	38.67	-35.33	74	63.23	31.54	8.83	64.93	100	0	P	H
		4962	13.91	-40.09	54	-	-	-	-	-	-	A	H
		7440	40.09	-33.91	74	58.07	36.59	10.52	65.09	100	0	P	H
		7440	15.33	-38.67	54	-	-	-	-	-	-	A	H
		4962	37.64	-36.36	74	62.2	31.54	8.83	64.93	100	0	P	V
		4962	12.88	-41.12	54	-	-	-	-	-	-	A	V
		7440	40.85	-33.15	74	58.83	36.59	10.52	65.09	100	0	P	V
		7440	16.09	-37.91	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		92.91	34.81	-8.69	43.5	55.75	9.56	1.28	31.78	-	-	P	H	
		216.03	45.5	-0.5	46	65.19	10.3	1.79	31.78	100	242	QP	H	
	*	216.03	48.77	2.77	46	68.46	10.3	1.79	31.78	100	242	P	H	
		264.09	35.75	-10.25	46	51.94	13.64	1.94	31.77	-	-	P	H	
		360.2	36.34	-9.66	46	50.5	15.45	2.17	31.78	-	-	P	H	
		552	36.11	-9.89	46	46.67	18.64	2.77	31.97	-	-	P	H	
		743.8	36.24	-9.76	46	43.59	21.39	3.25	31.99	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
		92.91	33.83	-9.67	43.5	54.77	9.56	1.28	31.78	31.78	-	-	P	V
		216.03	44.68	-1.32	46	64.37	10.3	1.79	31.78	31.78	139	110	QP	V
	*	216.03	46.98	0.98	46	66.67	10.3	1.79	31.78	31.78	139	110	P	V
		264.09	35.18	-10.82	46	51.37	13.64	1.94	31.77	31.77	-	-	P	V
		360.2	37.02	-8.98	46	51.18	15.45	2.17	31.78	31.78	-	-	P	V
		552	37.17	-8.83	46	47.73	18.64	2.77	31.97	31.97	-	-	P	V
		997.2	34.91	-19.09	54	37.78	24.01	3.78	30.66	30.66	-	-	P	V
														V
														V
														V
														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 per 15.209(c).
!	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	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”.