



Appendix A. Radiated Spurious Emission

Test Engineer :	Nick Yu, Stan Hsieh, Ken Wu, and James Chiu	Temperature :	21~23 °C
		Relative Humidity :	47~49%

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				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		2311.3	48.29	-25.71	74	42.81	32.07	7.6	34.19	105	206	P	H
		2311.3	23.53	-30.47	54	-	-	-	-	-	-	A	H
	*	2402	100.11	-	-	94.48	32.18	7.75	34.3	105	206	P	H
	*	2402	75.35	-	-	-	-	-	-	-	-	A	H
													H
													H
		2382.28	48.41	-25.59	74	42.77	32.16	7.75	34.27	100	167	P	V
		2382.28	23.65	-30.35	54	-	-	-	-	-	-	A	V
	*	2401.91	101.51	-	-	95.88	32.18	7.75	34.3	100	167	P	V
	*	2401.91	76.75	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2329.76	48.01	-25.99	74	42.54	32.09	7.6	34.22	398	118	P	H
		2329.76	23.25	-30.75	54	-	-	-	-	-	-	A	H
	*	2441.1	100.49	-	-	94.81	32.24	7.83	34.39	398	118	P	H
	*	2441.1	75.73	-	-	-	-	-	-	-	-	A	H
		2493.16	48.18	-25.82	74	42.45	32.3	7.91	34.48	398	118	P	H
		2493.16	23.42	-30.58	54	-	-	-	-	-	-	A	H
		2345.53	49.29	-24.71	74	43.75	32.11	7.68	34.25	100	165	P	V
		2345.53	24.53	-29.47	54	-	-	-	-	-	-	A	V
	*	2441.1	101.42	-	-	95.74	32.24	7.83	34.39	100	165	P	V
	*	2441.1	76.66	-	-	-	-	-	-	-	-	A	V
		2494.3	47.76	-26.24	74	42.03	32.3	7.91	34.48	100	165	P	V
		2494.3	23	-31	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480.05	100.26	-	-	94.5	32.28	7.91	34.43	353	172	P	H
	*	2480.05	75.5	-	-	-	-	-	-	-	-	A	H
		2495.52	49.42	-24.58	74	43.69	32.3	7.91	34.48	353	172	P	H
		2495.52	24.66	-29.34	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.05	101.54	-	-	95.78	32.28	7.91	34.43	100	169	P	V
	*	2480.05	76.78	-	-	-	-	-	-	-	-	A	V
		2499.58	49.15	-24.85	74	43.42	32.3	7.91	34.48	100	169	P	V
		2499.58	24.39	-29.61	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	41.27	-32.73	74	54.87	34.25	11.11	58.96	100	0	P	H
		4806	16.51	-37.49	54	-	-	-	-	-	-	A	H
													H
													H
		4806	41.16	-32.84	74	54.76	34.25	11.11	58.96	100	0	P	V
		4806	16.4	-37.6	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4884	43.01	-30.99	74	56.33	34.3	11.21	58.83	100	0	P	H
		4884	18.25	-35.75	54	-	-	-	-	-	-	A	H
		7320	42.87	-31.13	74	49.93	35.6	15.08	57.74	100	0	P	H
		7320	18.11	-35.89	54	-	-	-	-	-	-	A	H
		4884	40.95	-33.05	74	54.27	34.3	11.21	58.83	100	0	P	V
		4884	16.19	-37.81	54	-	-	-	-	-	-	A	V
		7320	42.77	-31.23	74	49.83	35.6	15.08	57.74	100	0	P	V
		7320	18.01	-35.99	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	42.09	-31.91	74	55.06	34.37	11.32	58.66	100	0	P	H
		7440	44.34	-29.66	74	51.46	35.6	15.13	57.85	100	0	P	H
													H
													H
		4962	42.74	-31.26	74	55.71	34.37	11.32	58.66	100	0	P	V
		7440	43.77	-30.23	74	50.89	35.6	15.13	57.85	100	0	P	V
													V
													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		83.46	29.79	-10.21	40	51.2	7.66	2.06	31.13	-	-	P	H
		130.71	29.12	-14.38	43.5	45.94	11.9	2.38	31.1	-	-	P	H
		280.83	35.08	-10.92	46	49.99	12.83	3.16	30.9	-	-	P	H
		374.9	34.96	-11.04	46	47.59	15	3.39	31.02	-	-	P	H
		435.1	38.5	-7.5	46	48.64	16.95	3.63	30.72	100	58	P	H
		743.1	35.86	-10.14	46	39.61	22.17	4.48	30.4	-	-	P	H
													H
													H
													H
													H
													H
													H
		38.1	32.23	-7.77	40	46.82	14.88	1.77	31.24	-	-	P	V
		82.11	33.86	-6.14	40	55.51	7.44	2.06	31.15	-	-	P	V
		104.79	32.34	-11.16	43.5	50.61	10.5	2.38	31.15	-	-	P	V
		433	41.7	-4.3	46	51.88	16.93	3.63	30.74	122	241	P	V
		491.8	36.62	-9.38	46	45.61	17.92	3.77	30.68	-	-	P	V
		800.5	40.47	-5.53	46	44.15	22	4.62	30.3	-	-	P	V
													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”.