



Appendix A. Radiated Spurious Emission

Test Engineer :	Bill Chang and Ian Liang	Temperature :	25~26°C
		Relative Humidity :	50~51%

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.	
		(MHz)	(dBμV/m)	(dB)	Limit Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2360.18	43.59	-30.41	74	43.43	26.94	6.62	33.4	133	239	P	H	
		2360.18	18.8	-35.2	54	-	-	-	-	-	-	A	H	
	*	2401.91	100.32	-	-	100.07	27.03	6.57	33.35	133	239	P	H	
	*	2401.91	75.53	-	-	-	-	-	-	-	-	A	H	
													H	
														H
			2355.37	41.36	-32.64	74	41.16	26.94	6.66	33.4	100	192	P	V
			2355.37	16.57	-37.43	54	-	-	-	-	-	-	A	V
	*		2401.91	96.25	-	-	96	27.03	6.57	33.35	100	192	P	V
	*		2401.91	71.46	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2376.31	41.52	-32.48	74	41.29	26.99	6.62	33.38	130	237	P	H	
		2376.31	16.73	-37.27	54	-	-	-	-	-	-	A	H	
	*	2440.91	101.13	-	-	100.48	27.17	6.79	33.31	130	237	P	H	
	*	2440.91	76.34	-	-	-	-	-	-	-	-	A	H	
			2487.84	44.47	-29.53	74	43.42	27.3	7.01	33.26	130	237	P	H
			2487.84	19.68	-34.32	54	-	-	-	-	-	-	A	H
			2372.7	41.6	-32.4	74	41.37	26.99	6.62	33.38	100	192	P	V
			2372.7	16.81	-37.19	54	-	-	-	-	-	-	A	V
	*		2441.1	96.78	-	-	96.13	27.17	6.79	33.31	100	192	P	V
	*		2441.1	71.99	-	-	-	-	-	-	-	-	A	V
		2495.06	41.67	-32.33	74	40.62	27.3	7.01	33.26	100	192	P	V	
		2495.06	16.88	-37.12	54	-	-	-	-	-	-	A	V	



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 CH 78 2480MHz	*	2479.91	102.77	-	-	101.77	27.26	7.01	33.27	102	240	P	H	
	*	2479.91	77.98	-	-	-	-	-	-	-	-	A	H	
		2483.62	45.51	-28.49	74	44.51	27.26	7.01	33.27	102	240	P	H	
		2483.62	20.72	-33.28	54	-	-	-	-	-	-	A	H	
													H	
													H	
	*	2480.12	96.77	-	-	95.77	27.26	7.01	33.27	118	195	P	V	
	*	2480.12	71.98	-	-	-	-	-	-	-	-	-	A	V
		2483.5	43.05	-30.95	74	42.05	27.26	7.01	33.27	118	195	P	V	
		2483.5	18.26	-35.74	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		4804	43.02	-30.98	74	56.84	31.03	10.53	55.38	100	0	P	H
													H
													H
													H
		4804	45.11	-28.89	74	58.93	31.03	10.53	55.38	100	0	P	V
													V
													V
													V
BT CH 39 2441MHz		4882	45.23	-28.77	74	58.85	31.13	10.67	55.42	100	0	P	H
		7323	49.87	-24.13	74	55.66	36.15	13.63	55.57	100	0	P	H
													H
													H
		4882	46.89	-27.11	74	60.51	31.13	10.67	55.42	100	0	P	V
		7323	50.26	-23.74	74	56.05	36.15	13.63	55.57	100	0	P	V
													V
													V
BT CH 78 2480MHz		4960	46.02	-27.98	74	59.48	31.25	10.77	55.48	100	0	P	H
		7440	49.32	-24.68	74	54.6	36.47	13.7	55.45	100	0	P	H
													H
													H
		4960	46.8	-27.2	74	60.26	31.25	10.77	55.48	100	0	P	V
		7440	50.52	-23.48	74	55.8	36.47	13.7	55.45	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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		32.97	25.84	-14.16	40	38.31	18.5	0.86	31.83	125	39	P	H	
		149.07	17.16	-26.34	43.5	35.41	11.85	1.68	31.78			P	H	
		297.57	17.72	-28.28	46	33.28	13.76	2.44	31.76			P	H	
		374.9	17.72	-28.28	46	30.91	15.86	2.74	31.79			P	H	
		724.2	23.07	-22.93	46	30.15	21.09	3.84	32.01			P	H	
		873.3	25.11	-20.89	46	29.57	22.84	4.26	31.56			P	H	
														H
														H
														H
														H
														H
														H
														H
			35.94	29.92	-10.08	40	43.84	16.98	0.92	31.82	134	273	P	V
			108.03	16.66	-26.84	43.5	35.84	11.18	1.42	31.78			P	V
			273.54	18.47	-27.53	46	34.56	13.36	2.32	31.77			P	V
			328	16.16	-29.84	46	30.74	14.64	2.55	31.77			P	V
			529.6	19.4	-26.6	46	29.53	18.54	3.26	31.93			P	V
			841.8	25.11	-20.89	46	30.05	22.61	4.16	31.71			P	V
														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	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

- Level(dBμV/m) =
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

- 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)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- 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)
- 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”.