



Appendix A. Radiated Spurious Emission

Test Engineer :	Derreck Chen	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.	
		(MHz)	(dBμV/m)	(dB)	Limit Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2316.63	47.86	-26.14	74	43.21	32.07	6.8	34.22	100	0	P	H	
		2316.63	0.12	-53.88	54	-	-	-	-	-	-	A	H	
	*	2402	44.75	-	-	39.96	32.18	6.91	34.3	100	0	P	H	
	*	2402	-2.99	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2327.68	46.57	-27.43	74	41.9	32.09	6.8	34.22	100	0	P	V
			2327.68	-1.17	-55.17	54	-	-	-	-	-	-	A	V
	*		2402	45.52	-	-	40.73	32.18	6.91	34.3	100	0	P	V
	*		2402	-2.22	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2363.96	47.24	-26.76	74	42.49	32.13	6.87	34.25	100	0	P	H	
		2363.96	-0.5	-54.5	54	-	-	-	-	-	-	A	H	
	*	2441	44.24	-	-	39.44	32.24	6.95	34.39	100	0	P	H	
	*	2441	-3.5	-	-	-	-	-	-	-	-	A	H	
			2487.27	46.52	-27.48	74	41.67	32.28	7	34.43	100	0	P	H
			2487.27	-1.22	-55.22	54	-	-	-	-	-	-	A	H
			2340.78	46.87	-27.13	74	42.17	32.11	6.84	34.25	100	0	P	V
			2340.78	-0.87	-54.87	54	-	-	-	-	-	-	A	V
	*		2441	45.21	-	-	40.41	32.24	6.95	34.39	100	0	P	V
	*		2441	-2.53	-	-	-	-	-	-	-	-	A	V
		2494.49	46.49	-27.51	74	41.67	32.3	7	34.48	100	0	P	V	
		2494.49	-1.25	-55.25	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	*	2480	44.47	-	-	39.62	32.28	7	34.43	100	0	P	H	
	*	2480	-3.27	-	-	-	-	-	-	-	-	A	H	
		2498.04	47.5	-26.5	74	42.68	32.3	7	34.48	100	0	P	H	
		2498.04	-0.24	-54.24	54	-	-	-	-	-	-	A	H	
													H	
														H
	*	2480	44.55	-	-	39.7	32.28	7	34.43	100	0	P	V	
	*	2480	-3.19	-	-	-	-	-	-	-	-	-	A	V
		2497.97	44.92	-29.08	74	40.1	32.3	7	34.48	100	0	P	V	
		2497.97	-2.82	-56.82	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	40.63	-33.37	74	54.23	34.25	11.11	58.96	100	0	P	H	
		4806	-7.11	-61.11	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4806	41.44	-32.56	74	55.04	34.25	11.11	58.96	100	0	P	V	
		4806	-6.3	-60.3	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4884	41.24	-32.76	74	54.56	34.3	11.21	58.83	100	0	P	H	
		4884	-6.5	-60.5	54	-	-	-	-	-	-	A	H	
		7323	42.19	-31.81	74	49.25	35.6	15.08	57.74	100	0	P	H	
		7323	-5.55	-59.55	54	-	-	-	-	-	-	A	H	
		4884	42.04	-31.96	74	55.36	34.3	11.21	58.83	100	0	P	V	
		4884	-5.7	-59.7	54	-	-	-	-	-	-	A	V	
		7323	41.73	-32.27	74	48.79	35.6	15.08	57.74	100	0	P	V	
		7323	-6.01	-60.01	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4962	40.92	-33.08	74	53.89	34.37	11.32	58.66	100	0	P	H	
		4962	-6.82	-60.82	54	-	-	-	-	-	-	A	H	
		7440	42.02	-31.98	74	49.14	35.6	15.13	57.85	100	0	P	H	
		7440	-5.72	-59.72	54	-	-	-	-	-	-	A	H	
		4962	41.72	-32.28	74	54.69	34.37	11.32	58.66	100	0	P	V	
		4962	-6.02	-60.02	54	-	-	-	-	-	-	A	V	
		7440	41.14	-32.86	74	48.26	35.6	15.13	57.85	100	0	P	V	
		7440	-6.6	-60.6	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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		74.28	9.06	-30.94	40	31.4	6.8	2.06	31.2			P	H	
		118.83	20.36	-23.14	43.5	37.74	11.35	2.38	31.11			P	H	
		240.06	14.12	-31.88	46	30.76	11.4	2.96	31			P	H	
		415.5	20.36	-25.64	46	31.21	16.45	3.52	30.82			P	H	
		568.8	22.22	-23.78	46	29.18	19.75	4.01	30.72			P	H	
		866.3	25.74	-20.26	46	28.37	23.08	4.66	30.37	102	23	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			65.91	10.28	-29.72	40	33.36	6.08	2.06	31.22			P	V
			154.47	12.42	-31.08	43.5	30.24	10.72	2.61	31.15			P	V
			245.46	16.79	-29.21	46	32.93	11.9	2.96	31			P	V
			396.6	27.36	-18.64	46	38.98	15.78	3.52	30.92			P	V
			666.8	30.09	-15.91	46	35.85	20.36	4.35	30.47			P	V
			897.1	32.59	-13.41	46	35.13	23.11	4.66	30.31	198	269	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”.