



Appendix A. Radiated Spurious Emission

Test Engineer :	Stan Hsieh, Nick Tu, and Ken Wu	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.	
		(MHz)	(dBμV/m)	(dB)	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		2336.91	56.85	-17.15	74	51.36	32.11	7.6	34.22	100	316	P	H	
		2336.91	32.09	-21.91	54	-	-	-	-	-	-	A	H	
	*	2402.17	105.7	-	-	100.07	32.18	7.75	34.3	100	316	P	H	
	*	2402.17	80.94	-	-	-	-	-	-	-	-	A	H	
													H	
														H
			2382.67	58.89	-15.11	74	53.25	32.16	7.75	34.27	300	245	P	V
			2382.67	34.13	-19.87	54	-	-	-	-	-	-	A	V
	*		2402.17	106.68	-	-	101.05	32.18	7.75	34.3	300	245	P	V
	*		2402.17	81.92	-	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		2386.57	56.03	-17.97	74	50.37	32.18	7.75	34.27	100	20	P	H	
		2386.57	31.27	-22.73	54	-	-	-	-	-	-	A	H	
	*	2441.1	103.87	-	-	98.19	32.24	7.83	34.39	100	20	P	H	
	*	2441.1	79.11	-	-	-	-	-	-	-	-	A	H	
			2486.7	46.78	-27.22	74	41.02	32.28	7.91	34.43	100	20	P	H
			2486.7	22.02	-31.98	54	-	-	-	-	-	-	A	H
			2386	52.53	-21.47	74	46.87	32.18	7.75	34.27	125	335	P	V
			2386	27.77	-26.23	54	-	-	-	-	-	-	A	V
	*		2441.1	106.17	-	-	100.49	32.24	7.83	34.39	125	335	P	V
	*		2441.1	81.41	-	-	-	-	-	-	-	-	A	V
			2492.21	49.37	-24.63	74	43.64	32.3	7.91	34.48	125	335	P	V
			2492.21	24.61	-29.39	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480.05	104.26	-	-	98.5	32.28	7.91	34.43	105	304	P	H
	*	2480.05	79.5	-	-	-	-	-	-	-	-	A	H
		2483.5	59.27	-14.73	74	53.51	32.28	7.91	34.43	105	304	P	H
		2483.5	34.51	-19.49	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480.05	108.58	-	-	102.82	32.28	7.91	34.43	293	282	P	V
	*	2480.05	83.82	-	-	-	-	-	-	-	-	A	V
		2483.5	64.16	-9.84	74	58.4	32.28	7.91	34.43	293	282	P	V
		2483.5	39.4	-14.6	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.	
		(MHz)	(dBμV/m)	(dB)	Limit	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
					Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH 00 2402MHz		4806	55.67	-18.33	74	69.27	34.25	11.11	58.96	100	0	P	H	
		4806	30.91	-23.09	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4806	57.71	-16.29	74	71.31	34.25	11.11	58.96	100	0	P	V	
		4806	32.95	-21.05	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4884	55.25	-18.75	74	68.57	34.3	11.21	58.83	100	0	P	H	
		4884	30.49	-23.51	54	-	-	-	-	-	-	A	H	
		7320	57.78	-16.22	74	64.84	35.6	15.08	57.74	100	0	P	H	
		7320	33.02	-20.98	54	-	-	-	-	-	-	A	H	
		4884	57.28	-16.72	74	70.6	34.3	11.21	58.83	100	0	P	V	
		4884	32.52	-21.48	54	-	-	-	-	-	-	A	V	
		7320	58.31	-15.69	74	65.37	35.6	15.08	57.74	100	0	P	V	
		7320	33.55	-20.45	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4962	60.88	-13.12	74	73.85	34.37	11.32	58.66	100	0	P	H	
		4962	36.12	-17.88	54	-	-	-	-	-	-	A	H	
		7440	60.73	-13.27	74	67.85	35.6	15.13	57.85	100	0	P	H	
		7440	35.97	-18.03	54	-	-	-	-	-	-	A	H	
		4962	60.29	-13.71	74	73.26	34.37	11.32	58.66	100	0	P	V	
		4962	35.53	-18.47	54	-	-	-	-	-	-	A	V	
		7440	60.4	-13.6	74	67.52	35.6	15.13	57.85	100	0	P	V	
		7440	35.64	-18.36	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)	Limit	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
					Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		38.64	22.31	-17.69	40	37.32	14.44	1.77	31.22	-	-	P	H	
		52.68	18.8	-21.2	40	40.63	7.6	1.77	31.2	-	-	P	H	
		220.89	19.09	-26.91	46	37.75	9.38	2.96	31	-	-	P	H	
		454	20.39	-25.61	46	30.19	17.34	3.63	30.77	-	-	P	H	
		659.8	24.27	-21.73	46	30.23	20.3	4.22	30.48	-	-	P	H	
		951	28.95	-17.05	46	29.98	24.43	4.94	30.4	119	266	P	H	
														H
														H
														H
														H
														H
														H
			39.18	28.97	-11.03	40	43.96	14.44	1.77	31.2	-	-	P	V
			57.81	31.7	-8.3	40	55.03	6.16	1.77	31.26	188	55	P	V
			90.75	23.31	-20.19	43.5	43.55	8.8	2.06	31.1	-	-	P	V
			481.3	20.79	-25.21	46	30.18	17.63	3.77	30.79	-	-	P	V
			748.7	26.79	-19.21	46	30.6	22.11	4.48	30.4	-	-	P	V
			934.2	28.88	-17.12	46	30.15	24.3	4.8	30.37	-	-	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”.