



## Appendix A. Radiated Spurious Emission

Test Engineer :	Donny Tang	Temperature :	22~25°C
		Relative Humidity :	42~45%

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 )	( dB $\mu$ V/m )	( dB )	( dB $\mu$ V/m )	( dB $\mu$ V )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
BT CH00 2402MHz		2389.3	48.86	-25.14	74	45.4	31.94	6.17	34.65	123	81	P	H	
		2389.3	24.24	-29.76	54	-	-	-	-	-	-	A	H	
	*	2402.04	95.31	-	-	91.8	31.94	6.21	34.64	123	81	P	H	
		2402.04	70.69	-	-	-	-	-	-	-	-	A	H	
													H	
														H
			2389.82	49.09	-24.91	74	45.58	31.94	6.21	34.64	101	220	P	V
			2389.82	24.47	-29.53	54	-	-	-	-	-	-	A	V
	*		2402.04	96.01	-	-	92.5	31.94	6.21	34.64	101	220	P	V
			2402.04	71.39	-	-	-	-	-	-	-	-	A	V
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



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 39 2441MHz		2347.05	47.5	-26.5	74	44.1	31.91	6.14	34.65	100	88	P	H
		2347.05	22.88	-31.12	54	-	-	-	-	-	-	A	H
	*	2441.1	94.45	-	-	90.85	31.97	6.27	34.64	100	88	P	H
		2441.1	69.83	-	-	-	-	-	-	-	-	A	H
		2492.21	47.28	-26.72	74	43.57	32	6.34	34.63	100	88	P	H
		2492.21	22.66	-31.34	54	-	-	-	-	-	-	A	H
		2342.68	47.66	-26.34	74	44.26	31.91	6.14	34.65	103	173	P	V
		2342.68	23.04	-30.96	54	-	-	-	-	-	-	A	V
	*	2440.91	97.41	-	-	93.81	31.97	6.27	34.64	103	173	P	V
		2440.91	72.79	-	-	-	-	-	-	-	-	A	V
		2491.07	48.03	-25.97	74	44.36	32	6.3	34.63	103	173	P	V
		2491.07	23.41	-30.59	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz	*	2479.98	93.93	-	-	90.27	31.99	6.3	34.63	118	88	P	H
		2479.98	69.31	-	-	-	-	-	-	-	-	A	H
		2483.55	54.25	-19.75	74	50.59	31.99	6.3	34.63	118	88	P	H
		2483.55	29.63	-24.37	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.84	96.32	-	-	92.66	31.99	6.3	34.63	100	155	P	V
		2479.84	71.7	-	-	-	-	-	-	-	-	A	V
		2483.9	55.02	-18.98	74	51.36	31.99	6.3	34.63	100	155	P	V
		2483.9	30.4	-23.6	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 Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
					( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)	
BT CH 00 2402MHz		4806	58.05	-15.95	74	76.04	34.35	8.52	60.86	100	0	P	H	
		4806	33.43	-20.57	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4806	53.19	-20.81	74	71.18	34.35	8.52	60.86	100	0	P	V	
		4806	28.57	-25.43	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4884	61.32	-12.68	74	78.84	34.4	8.77	60.69	100	0	P	H	
		4884	36.7	-17.3	54	-	-	-	-	-	-	A	H	
		7323	43.5	-30.5	74	56.35	35.73	11.95	60.53	100	0	P	H	
		7323	18.88	-35.12	54	-	-	-	-	-	-	A	H	
		4884	55.67	-18.33	74	73.19	34.4	8.77	60.69	100	0	P	V	
		4884	31.05	-22.95	54	-	-	-	-	-	-	A	V	
		7323	48.95	-25.05	74	61.8	35.73	11.95	60.53	100	0	P	V	
		7323	24.33	-29.67	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4962	57.83	-16.17	74	74.82	34.47	9.02	60.48	100	0	P	H	
		4962	33.21	-20.79	54	-	-	-	-	-	-	A	H	
		7440	42.04	-31.96	74	54.9	35.71	12.01	60.58	100	0	P	H	
		7440	17.42	-36.58	54	-	-	-	-	-	-	A	H	
		4962	55.72	-18.28	74	72.71	34.47	9.02	60.48	100	0	P	V	
		4962	31.1	-22.9	54	-	-	-	-	-	-	A	V	
		7440	44.85	-29.15	74	57.71	35.71	12.01	60.58	100	0	P	V	
		7440	20.23	-33.77	54	-	-	-	-	-	-	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													





**Note symbol**

*	<b>Fundamental Frequency</b> 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 <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>



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”.**