



## Appendix A. Radiated Spurious Emission

Test Engineer :	James Chiu and Jesse Wang	Temperature :	24~26°C
		Relative Humidity :	54~59%

## 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		2388.435	56.73	-17.27	74	51.68	32.08	7.31	34.34	109	21	P	H
		2388.435	31.97	-22.03	54	-	-	-	-	-	-	A	H
	*	2402	101.54	-	-	96.46	32.08	7.31	34.31	109	21	P	H
	*	2402	76.78	-	-	-	-	-	-	-	-	A	H
													H
													H
		2342.76	52.58	-21.42	74	47.74	32.01	7.24	34.41	280	329	P	V
		2342.76	27.82	-26.18	54	-	-	-	-	-	-	A	V
	*	2402	100.61	-	-	95.53	32.08	7.31	34.31	280	329	P	V
	*	2402	75.85	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2388.4	53.77	-20.23	74	48.72	32.08	7.31	34.34	106	95	P	H
		2388.4	29.01	-24.99	54	-	-	-	-	-	-	A	H
	*	2442	99.81	-	-	94.56	32.14	7.36	34.25	106	95	P	H
	*	2442	75.05	-	-	-	-	-	-	-	-	A	H
		2496.71	45.1	-28.9	74	39.66	32.2	7.4	34.16	106	95	P	H
		2496.71	20.34	-33.66	54	-	-	-	-	-	-	A	H
		2388.26	53.11	-20.89	74	48.06	32.08	7.31	34.34	306	335	P	V
		2388.26	28.35	-25.65	54	-	-	-	-	-	-	A	V
	*	2442	101.01	-	-	95.76	32.14	7.36	34.25	306	335	P	V
	*	2442	76.25	-	-	-	-	-	-	-	-	A	V
		2485.51	45.23	-28.77	74	39.82	32.18	7.4	34.17	306	335	P	V
		2485.51	20.47	-33.53	54	-	-	-	-	-	-	A	V



<b>BT CH 78 2480MHz</b>	*	2480	101.16	-	-	95.76	32.18	7.4	34.18	147	24	P	H
	*	2480	76.4	-	-	-	-	-	-	-	-	A	H
		2484.36	52.29	-21.71	74	46.89	32.18	7.4	34.18	147	24	P	H
		2484.36	27.53	-26.47	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	101.78	-	-	96.38	32.18	7.4	34.18	332	334	P	V
	*	2480	77.02	-	-	-	-	-	-	-	-	A	V
		2484.04	51.73	-22.27	74	46.33	32.18	7.4	34.18	332	334	P	V
		2484.04	26.97	-27.03	54	-	-	-	-	-	-	A	V
													V
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<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## 2.4GHz 2400~2483.5MHz

## BT (Harmonic @ 3m)

BT	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BT CH 00 2402MHz		4806	42.4	-31.6	74	55.55	34.1	11.83	59.08	100	0	P	H
		4806	17.64	-36.36	54	-	-	-	-	-	-	A	H
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													H
		4806	41.31	-32.69	74	54.46	34.1	11.83	59.08	100	0	P	V
		4806	16.55	-37.45	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4884	44.13	-29.87	74	57.44	34.1	11.53	58.94	100	0	P	H
		4884	19.37	-34.63	54	-	-	-	-	-	-	A	H
		7320	47.92	-26.08	74	55.97	36.1	13.81	57.96	100	0	P	H
		7320	23.16	-30.84	54	-	-	-	-	-	-	A	H
		4884	43.57	-30.43	74	56.88	34.1	11.53	58.94	100	0	P	V
		4884	18.81	-35.19	54	-	-	-	-	-	-	A	V
		7320	48.31	-25.69	74	56.36	36.1	13.81	57.96	100	0	P	V
		7320	23.55	-30.45	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	44.89	-29.11	74	58.34	34.1	11.22	58.77	100	0	P	H
		4962	20.13	-33.87	54	-	-	-	-	-	-	A	H
		7440	47.68	-26.32	74	55.59	36.17	14.05	58.13	100	0	P	H
		7440	22.92	-31.08	54	-	-	-	-	-	-	A	H
		4962	44.84	-29.16	74	58.29	34.1	11.22	58.77	100	0	P	V
		4962	20.08	-33.92	54	-	-	-	-	-	-	A	V
		7440	48.02	-25.98	74	55.93	36.17	14.05	58.13	100	0	P	V
		7440	23.26	-30.74	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



## 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		30	27.99	-12.01	40	32.27	26	1.07	31.35	-	-	P	H
		166.89	22.17	-21.33	43.5	35.58	16.3	1.78	31.49	-	-	P	H
		252.21	28.26	-17.74	46	38.36	19.2	2.07	31.37	-	-	P	H
		336.4	29.03	-16.97	46	37.03	20.82	2.41	31.23	-	-	P	H
		420.4	37.99	-8.01	46	43.56	22.68	2.89	31.14	100	0	P	H
		897.1	33.55	-12.45	46	30.94	28.98	4.17	30.54	-	-	P	H
													H
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													H
		30.27	28.28	-11.72	40	32.56	26	1.07	31.35	100	0	P	V
		147.18	19.47	-24.03	43.5	31.41	17.78	1.78	31.5	-	-	P	V
		252.21	28.87	-17.13	46	38.97	19.2	2.07	31.37	-	-	P	V
		336.4	24.4	-21.6	46	32.4	20.82	2.41	31.23	-	-	P	V
		420.4	33.53	-12.47	46	39.1	22.68	2.89	31.14	-	-	P	V
		857.9	33.41	-12.59	46	31.12	28.75	4.1	30.56	-	-	P	V
													V
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Remark	1. No other spurious found. 2. All results are PASS against 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.
!	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

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”.