



Appendix A. Radiated Spurious Emission

Test Engineer :	Donny Tang	Temperature :	22~24°C
		Relative Humidity :	47~50%

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)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2382.15	45.48	-28.52	74	42.03	31.93	6.17	34.65	115	53	P	H
		2382.15	20.69	-33.31	54	-	-	-	-	-	-	A	H
	*	2402.17	100.28	-	-	96.77	31.94	6.21	34.64	115	53	P	H
	*	2402.17	75.49	-	-	-	-	-	-	-	-	A	H
													H
													H
		2389.43	45.32	-28.68	74	41.86	31.94	6.17	34.65	109	263	P	V
		2389.43	20.53	-33.47	54	-	-	-	-	-	-	A	V
	*	2401.91	92.53	-	-	89.02	31.94	6.21	34.64	109	263	P	V
	*	2401.91	67.74	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2380.68	44.91	-29.09	74	41.46	31.93	6.17	34.65	116	59	P	H
		2380.68	20.12	-33.88	54	-	-	-	-	-	-	A	H
	*	2440.91	101.57	-	-	97.97	31.97	6.27	34.64	116	59	P	H
	*	2440.91	76.78	-	-	-	-	-	-	-	-	A	H
		2492.59	44.98	-29.02	74	41.27	32	6.34	34.63	116	59	P	H
		2492.59	20.19	-33.81	54	-	-	-	-	-	-	A	H
		2323.68	45.25	-28.75	74	41.9	31.9	6.1	34.65	116	258	P	V
		2323.68	20.46	-33.54	54	-	-	-	-	-	-	A	V
	*	2441.29	94.4	-	-	90.8	31.97	6.27	34.64	116	258	P	V
	*	2441.29	69.61	-	-	-	-	-	-	-	-	A	V
		2484.42	46.12	-27.88	74	42.46	31.99	6.3	34.63	116	258	P	V
		2484.42	21.33	-32.67	54	-	-	-	-	-	-	A	V



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 78 2480MHz	*	2479.84	96.61	-	-	92.95	31.99	6.3	34.63	134	60	P	H
	*	2479.84	71.82	-	-	-	-	-	-	-	-	A	H
		2483.5	57.62	-16.38	74	53.96	31.99	6.3	34.63	134	60	P	H
		2483.5	32.83	-21.17	54	-	-	-	-	-	-	A	H
													H
													H
	*	2479.91	90.25	-	-	86.59	31.99	6.3	34.63	103	254	P	V
	*	2479.91	65.46	-	-	-	-	-	-	-	-	A	V
		2483.5	49.97	-24.03	74	46.31	31.99	6.3	34.63	103	254	P	V
		2483.5	25.18	-28.82	54	-	-	-	-	-	-	A	V
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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		4803	43.15	-30.85	74	57.91	34.35	8.52	57.63	100	0	P	H
		4803	18.36	-35.64	54	-	-	-	-	-	-	A	H
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													H
		4803	46.21	-27.79	74	60.97	34.35	8.52	57.63	100	0	P	V
		4803	21.42	-32.58	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4881	43.15	-30.85	74	57.52	34.4	8.77	57.54	100	0	P	H
		4881	18.36	-35.64	54	-	-	-	-	-	-	A	H
		7323	42.82	-31.18	74	54.27	35.73	11.95	59.13	100	0	P	H
		7323	18.03	-35.97	54	-	-	-	-	-	-	A	H
		4884	45.75	-28.25	74	60.12	34.4	8.77	57.54	100	0	P	V
		4884	20.96	-33.04	54	-	-	-	-	-	-	A	V
		7323	43.66	-30.34	74	55.11	35.73	11.95	59.13	100	0	P	V
		7323	18.87	-35.13	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	42.59	-31.41	74	56.54	34.47	9.02	57.44	100	0	P	H
		4962	17.8	-36.2	54	-	-	-	-	-	-	A	H
		7440	42.29	-31.71	74	53.82	35.71	12.01	59.25	100	0	P	H
		7440	17.5	-36.5	54	-	-	-	-	-	-	A	H
		4962	45.29	-28.71	74	59.24	34.47	9.02	57.44	100	0	P	V
		4962	20.5	-33.5	54	-	-	-	-	-	-	A	V
		7440	42.44	-31.56	74	53.97	35.71	12.01	59.25	100	0	P	V
		7440	17.65	-36.35	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.
				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	16.95	-23.05	40	29.71	18.4	0.64	31.8			P	H
		135.3	16.4	-27.1	43.5	35.18	11.68	1.29	31.75			P	H
		150.96	16.21	-27.29	43.5	35.85	10.76	1.35	31.75			P	H
		662.6	21.91	-24.09	46	32.19	18.93	2.82	32.03			P	H
		835.5	25.75	-20.25	46	34.27	20.1	3.18	31.8	100	197	P	H
		891.5	24.52	-21.48	46	32.06	20.68	3.35	31.57			P	H
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													H
													H
													H
		31.89	16.39	-23.61	40	29.88	17.64	0.66	31.79			P	V
		49.17	17.1	-22.9	40	39.26	8.83	0.79	31.78			P	V
		113.7	12.5	-31	43.5	31.17	11.9	1.18	31.75			P	V
		796.3	22.65	-23.35	46	31.64	19.9	3.06	31.95			P	V
		828.5	22.54	-23.46	46	31.25	19.96	3.16	31.83			P	V
		938.4	24.88	-21.12	46	32.03	20.68	3.35	31.18	100	107	P	V
													V
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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

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”.