



Appendix B. Radiated Spurious Emission

Test Engineer :	Peter Chiu, Nick Yu, Ricky Su, Citta Ke and Karl Hou	Temperature :	21~23°C
		Relative Humidity :	55~57%

<CDD Modes>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	58.89	-15.11	74	55.88	27.05	7.45	31.49	300	48	P	H
		2387.28	50.82	-3.18	54	47.81	27.05	7.45	31.49	300	48	A	H
	*	2412	107.16	-	-	104.11	27.09	7.45	31.49	300	48	P	H
	*	2412	102.78	-	-	99.73	27.09	7.45	31.49	300	48	A	H
													H
													H
		2386.97	58.41	-15.59	74	55.4	27.05	7.45	31.49	100	117	P	V
		2387.28	49.22	-4.78	54	46.21	27.05	7.45	31.49	100	117	A	V
	*	2412	105.43	-	-	102.38	27.09	7.45	31.49	100	117	P	V
	*	2412	101.28	-	-	98.23	27.09	7.45	31.49	100	117	A	V
													V
													V
802.11b CH 02 2417MHz		2389.66	56.49	-17.51	74	53.48	27.05	7.45	31.49	298	47	P	H
		2389.94	47.14	-6.86	54	44.13	27.05	7.45	31.49	298	47	A	H
	*	2417	106.79	-	-	103.73	27.09	7.45	31.48	298	47	P	H
	*	2417	102.55	-	-	99.49	27.09	7.45	31.48	298	47	A	H
												P	H
												A	H
		2387.98	55.97	-18.03	74	52.96	27.05	7.45	31.49	100	130	P	V
		2389.94	46.55	-7.45	54	43.54	27.05	7.45	31.49	100	130	A	V
	*	2417	105.28	-	-	102.22	27.09	7.45	31.48	100	130	P	V
	*	2417	101.02	-	-	97.96	27.09	7.45	31.48	100	130	A	V
												P	V
												A	V



802.11b CH 06 2437MHz		2369.36	55.51	-18.49	74	52.62	27.01	7.37	31.49	293	66	P	H
		2389.94	44.03	-9.97	54	41.02	27.05	7.45	31.49	293	66	A	H
	*	2437	106.48	-	-	103.29	27.18	7.49	31.48	293	66	P	H
	*	2437	102.22	-	-	99.03	27.18	7.49	31.48	293	66	A	H
		2494.26	55.89	-18.11	74	52.52	27.3	7.53	31.46	293	66	P	H
		2483.69	44.21	-9.79	54	40.89	27.26	7.53	31.47	293	66	A	H
		2365.44	56.06	-17.94	74	53.21	26.97	7.37	31.49	100	118	P	V
		2389.94	44.11	-9.89	54	41.1	27.05	7.45	31.49	100	118	A	V
	*	2437	107.62	-	-	104.43	27.18	7.49	31.48	100	118	P	V
	*	2437	103.42	-	-	100.23	27.18	7.49	31.48	100	118	A	V
		2483.9	56.52	-17.48	74	53.2	27.26	7.53	31.47	100	118	P	V
		2483.76	44.25	-9.75	54	40.93	27.26	7.53	31.47	100	118	A	V
802.11b CH 10 2457MHz	*	2457	108.65	-	-	105.41	27.22	7.49	31.47	320	59	P	H
	*	2457	104.34	-	-	101.1	27.22	7.49	31.47	320	59	A	H
		2483.92	57.23	-16.77	74	53.91	27.26	7.53	31.47	320	59	P	H
		2483.8	46.26	-7.74	54	42.94	27.26	7.53	31.47	320	59	A	H
												P	H
												A	H
	*	2457	107.26	-	-	104.02	27.22	7.49	31.47	100	112	P	V
	*	2457	103.17	-	-	99.93	27.22	7.49	31.47	100	112	A	V
		2483.5	56.62	-17.38	74	53.3	27.26	7.53	31.47	100	112	P	V
		2483.74	46.27	-7.73	54	42.95	27.26	7.53	31.47	100	112	A	V
												P	V
												A	V



802.11b CH 11 2462MHz	*	2462	106.24	-	-	102.96	27.22	7.53	31.47	314	62	P	H
	*	2462	102.86	-	-	99.58	27.22	7.53	31.47	314	62	A	H
		2483.52	58.96	-15.04	74	55.64	27.26	7.53	31.47	314	62	P	H
		2483.52	50.26	-3.74	54	46.94	27.26	7.53	31.47	314	62	A	H
													H
													H
	*	2462	105.32	-	-	102.04	27.22	7.53	31.47	100	104	P	V
	*	2462	101.05	-	-	97.77	27.22	7.53	31.47	100	104	A	V
		2483.6	58.18	-15.82	74	54.86	27.26	7.53	31.47	100	104	P	V
		2483.52	49.84	-4.16	54	46.52	27.26	7.53	31.47	100	104	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	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)
802.11b CH 01 2412MHz		4824	41.98	-32.02	74	58.12	31.26	10.74	58.14	100	0	P	H
													H
													H
													H
		4824	39.92	-34.08	74	56.06	31.26	10.74	58.14	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4872	41.94	-32.06	74	57.82	31.33	10.89	58.1	100	0	P	H
		7308	48.34	-25.66	74	57.18	36.07	14.18	59.09	100	0	P	H
													H
													H
		4872	38.76	-35.24	74	54.64	31.33	10.89	58.1	100	0	P	V
		7308	45.86	-28.14	74	54.7	36.07	14.18	59.09	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4926	43.71	-30.29	74	59.33	31.4	11.04	58.06	100	0	P	H
		7386	45.11	-28.89	74	53.67	36.31	14.27	59.14	100	0	P	H
													H
													H
		4926	43.23	-30.77	74	58.85	31.4	11.04	58.06	100	0	P	V
		7386	44.44	-29.56	74	53	36.31	14.27	59.14	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	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)
802.11g CH 01 2412MHz		2390	63.92	-10.08	74	60.91	27.05	7.45	31.49	299	49	P	H
		2390	52.43	-1.57	54	49.42	27.05	7.45	31.49	299	49	A	H
	*	2412	105.48	-	-	102.43	27.09	7.45	31.49	299	49	P	H
	*	2412	95.9	-	-	92.85	27.09	7.45	31.49	299	49	A	H
													H
													H
		2389.8	62.79	-11.21	74	59.78	27.05	7.45	31.49	100	130	P	V
		2390	50.87	-3.13	54	47.86	27.05	7.45	31.49	100	130	A	V
	*	2412	103.85	-	-	100.8	27.09	7.45	31.49	100	130	P	V
	*	2412	93.88	-	-	90.83	27.09	7.45	31.49	100	130	A	V
													V
													V
802.11g CH 02 2417MHz		2389.8	62.2	-11.8	74	59.19	27.05	7.45	31.49	299	47	P	H
		2389.94	52.5	-1.5	54	49.49	27.05	7.45	31.49	299	47	A	H
	*	2417	106.8	-	-	103.74	27.09	7.45	31.48	299	47	P	H
	*	2417	97.2	-	-	94.14	27.09	7.45	31.48	299	47	A	H
												P	H
												A	H
		2389.8	60.82	-13.18	74	57.81	27.05	7.45	31.49	100	130	P	V
		2389.94	50.19	-3.81	54	47.18	27.05	7.45	31.49	100	130	A	V
	*	2417	104.82	-	-	101.76	27.09	7.45	31.48	100	130	P	V
	*	2417	95.31	-	-	92.25	27.09	7.45	31.48	100	130	A	V
												P	V
												A	V



802.11g CH 06 2437MHz		2389.52	56.89	-17.11	74	53.88	27.05	7.45	31.49	291	67	P	H
		2389.66	45.17	-8.83	54	42.16	27.05	7.45	31.49	291	67	A	H
	*	2437	105.55	-	-	102.36	27.18	7.49	31.48	291	67	P	H
	*	2437	95.99	-	-	92.8	27.18	7.49	31.48	291	67	A	H
		2484.81	56.08	-17.92	74	52.76	27.26	7.53	31.47	291	67	P	H
		2483.55	45.3	-8.7	54	41.98	27.26	7.53	31.47	291	67	A	H
		2389.38	57.19	-16.81	74	54.18	27.05	7.45	31.49	100	117	P	V
		2389.94	45.86	-8.14	54	42.85	27.05	7.45	31.49	100	117	A	V
	*	2437	107.22	-	-	104.03	27.18	7.49	31.48	100	117	P	V
	*	2437	97.33	-	-	94.14	27.18	7.49	31.48	100	117	A	V
		2483.62	56.1	-17.9	74	52.78	27.26	7.53	31.47	100	117	P	V
		2483.5	45.56	-8.44	54	42.24	27.26	7.53	31.47	100	117	A	V
802.11g CH 10 2457MHz	*	2457	107.89	-	-	104.65	27.22	7.49	31.47	312	64	P	H
	*	2457	97.98	-	-	94.74	27.22	7.49	31.47	312	64	A	H
		2483.98	64.04	-9.96	74	60.72	27.26	7.53	31.47	312	64	P	H
		2483.62	52.7	-1.3	54	49.38	27.26	7.53	31.47	312	64	A	H
												P	H
												A	H
	*	2457	105.58	-	-	102.34	27.22	7.49	31.47	100	117	P	V
	*	2457	95.96	-	-	92.72	27.22	7.49	31.47	100	117	A	V
		2483.5	64.77	-9.23	74	61.45	27.26	7.53	31.47	100	117	P	V
		2483.56	52.54	-1.46	54	49.22	27.26	7.53	31.47	100	117	A	V
												P	V
												A	V



802.11g CH 11 2462MHz	*	2462	107.44	-	-	104.16	27.22	7.53	31.47	313	65	P	H
	*	2456	97.86	-	-	94.62	27.22	7.49	31.47	313	65	A	H
		2484	64.46	-9.54	74	61.14	27.26	7.53	31.47	313	65	P	H
		2483.52	51.48	-2.52	54	48.16	27.26	7.53	31.47	313	65	A	H
													H
													H
	*	2462	105.38	-	-	102.1	27.22	7.53	31.47	100	104	P	V
	*	2462	95.7	-	-	92.42	27.22	7.53	31.47	100	104	A	V
		2483.6	63.81	-10.19	74	60.49	27.26	7.53	31.47	100	104	P	V
		2483.6	50.93	-3.07	54	47.61	27.26	7.53	31.47	100	104	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	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)
802.11g CH 01 2412MHz		4824	38.59	-35.41	74	54.73	31.26	10.74	58.14	100	0	P	H
													H
													H
													H
		4824	37.45	-36.55	74	53.59	31.26	10.74	58.14	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4872	38.94	-35.06	74	54.82	31.33	10.89	58.1	100	0	P	H
		7308	60.81	-13.19	74	69.65	36.07	14.18	59.09	243	25	P	H
		7308	43.96	-10.04	54	52.8	36.07	14.18	59.09	243	25	A	H
													H
		4872	37.81	-36.19	74	53.69	31.33	10.89	58.1	100	0	P	V
		7308	58.68	-15.32	74	67.52	36.07	14.18	59.09	317	341	P	V
		7308	42.82	-11.18	54	51.66	36.07	14.18	59.09	317	341	A	V
													V
802.11g CH 11 2462MHz		4926	40.36	-33.64	74	55.98	31.4	11.04	58.06	100	0	P	H
		7386	43.55	-30.45	74	52.11	36.31	14.27	59.14	100	0	P	H
													H
													H
		4926	39.16	-34.84	74	54.78	31.4	11.04	58.06	100	0	P	V
		7386	43.03	-30.97	74	51.59	36.31	14.27	59.14	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant. 1	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)
2.4GHz 802.11g LF		30	22.93	-17.07	40	28.81	25.8	0.78	32.46	-	-	P	H
		237.09	23.8	-22.2	46	36.98	17.33	1.83	32.34	-	-	P	H
		286.77	23.73	-22.27	46	34.49	19.24	2.25	32.25	-	-	P	H
		793.5	30.17	-15.83	46	30.47	27.77	4.14	32.21	-	-	P	H
		878.2	31.52	-14.48	46	30.01	28.77	4.45	31.71	-	-	P	H
		949.6	34	-12	46	30.08	30.3	4.75	31.13	100	81	P	H
													H
													H
													H
													H
													H
													H
		32.43	29.18	-10.82	40	36.68	24.18	0.78	32.46	100	124	P	V
		83.73	27.72	-12.28	40	45.07	14.03	1.06	32.44	-	-	P	V
		237.63	23.18	-22.82	46	36.27	17.42	1.83	32.34	-	-	P	V
		833.4	31	-15	46	30.38	28.33	4.28	31.99	-	-	P	V
		902.7	32.23	-13.77	46	30.19	28.98	4.6	31.54	-	-	P	V
		955.2	33.7	-12.3	46	29.81	30.23	4.75	31.09	-	-	P	V
													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.
!	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		(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”.