



Appendix B. Radiated Spurious Emission

測試工程師：	Bill Chang, Ken Wu and J.C. Liang	溫度：	20~23°C
		相對溼度：	54~56%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (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)
802.11b CH 01 2412MHz		2346.81	50.44	-23.56	74	51.61	26.87	5.95	33.99	198	305	P	H
		2390	39.68	-14.32	54	40.64	27.01	6.01	33.98	198	305	A	H
	*	2412	96.18	-	-	97.06	27.06	6.04	33.98	198	305	P	H
	*	2412	93.71	-	-	94.59	27.06	6.04	33.98	198	305	A	H
													H
													H
		2357.25	50.57	-23.43	74	51.7	26.91	5.95	33.99	349	315	P	V
		2389.47	39.8	-14.2	54	40.77	27.01	6.01	33.99	349	315	A	V
	*	2410.604	91.55	-	-	92.43	27.06	6.04	33.98	349	315	P	V
	*	2410.771	88.98	-	-	89.86	27.06	6.04	33.98	349	315	A	V
													V
													V
802.11b CH 06 2437MHz		2382.9	50.29	-23.71	74	51.31	26.96	6.01	33.99	222	305	P	H
		2389.74	39.54	-14.46	54	40.51	27.01	6.01	33.99	222	305	A	H
	*	2437	94.42	-	-	95.19	27.16	6.04	33.97	222	305	P	H
	*	2437	91.91	-	-	92.68	27.16	6.04	33.97	222	305	A	H
		2490.96	51.09	-22.91	74	51.65	27.3	6.09	33.95	222	305	P	H
		2484.36	39.91	-14.09	54	40.52	27.25	6.09	33.95	222	305	A	H
		2321.97	50.67	-23.33	74	51.96	26.82	5.89	34	103	333	P	V
		2384.97	39.52	-14.48	54	40.54	26.96	6.01	33.99	103	333	A	V
	*	2437	93.69	-	-	94.46	27.16	6.04	33.97	103	333	P	V
	*	2437	91.11	-	-	91.88	27.16	6.04	33.97	103	333	A	V
		2486.68	51.58	-22.42	74	52.19	27.25	6.09	33.95	103	333	P	V
		2485.44	40.05	-13.95	54	40.66	27.25	6.09	33.95	103	333	A	V



802.11b CH 11 2462MHz	*	2462	92.85	-	-	93.54	27.2	6.07	33.96	192	305	P	H
	*	2462	90.36	-	-	91.05	27.2	6.07	33.96	192	305	A	H
		2496.44	51.49	-22.51	74	52.04	27.3	6.09	33.94	192	305	P	H
		2483.6	39.98	-14.02	54	40.59	27.25	6.09	33.95	192	305	A	H
													H
													H
	*	2462	93.99	-	-	94.68	27.2	6.07	33.96	107	334	P	V
	*	2462	91.37	-	-	92.06	27.2	6.07	33.96	107	334	A	V
		2490.84	52.03	-21.97	74	52.59	27.3	6.09	33.95	107	334	P	V
		2484.76	40.05	-13.95	54	40.66	27.25	6.09	33.95	107	334	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	44.32	-29.68	74	69.62	31.12	8.65	65.07	100	0	P	H
													H
													H
													H
		4824	36.71	-37.29	74	62.01	31.12	8.65	65.07	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	44.58	-29.42	74	69.7	31.21	8.69	65.02	100	0	P	H
		7311	44.92	-29.08	74	63.51	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	36.89	-37.11	74	62.01	31.21	8.69	65.02	100	0	P	V
		7311	42	-32	74	60.59	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	42.07	-31.93	74	66.96	31.29	8.79	64.97	100	0	P	H
		7386	43.1	-30.9	74	61.43	36.27	10.48	65.08	100	0	P	H
													H
													H
		4924	34.88	-39.12	74	59.77	31.29	8.79	64.97	100	0	P	V
		7386	39.54	-34.46	74	57.87	36.27	10.48	65.08	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		2372.64	50.43	-23.57	74	51.45	26.96	6.01	33.99	221	305	P	H
		2387.85	40.83	-13.17	54	41.8	27.01	6.01	33.99	221	305	A	H
	*	2412	97.95	-	-	98.83	27.06	6.04	33.98	221	305	P	H
	*	2412	90.56	-	-	91.44	27.06	6.04	33.98	221	305	A	H
													H
													H
		2357.52	51.19	-22.81	74	52.32	26.91	5.95	33.99	147	334	P	V
		2371.2	40.48	-13.52	54	41.5	26.96	6.01	33.99	147	334	A	V
	*	2412	94.01	-	-	94.89	27.06	6.04	33.98	147	334	P	V
	*	2412	86.82	-	-	87.7	27.06	6.04	33.98	147	334	A	V
													V
													V
802.11g CH 06 2437MHz		2331.69	50.42	-23.58	74	51.65	26.82	5.95	34	345	226	P	H
		2383.89	40.87	-13.13	54	41.89	26.96	6.01	33.99	345	226	A	H
	*	2437	100.22	-	-	100.99	27.16	6.04	33.97	345	226	P	H
	*	2437	92.81	-	-	93.58	27.16	6.04	33.97	345	226	A	H
		2488.96	51.25	-22.75	74	51.81	27.3	6.09	33.95	345	226	P	H
		2484.04	41.58	-12.42	54	42.19	27.25	6.09	33.95	345	226	A	H
		2366.7	51	-23	74	52.07	26.91	6.01	33.99	125	332	P	V
		2373.99	40.38	-13.62	54	41.4	26.96	6.01	33.99	125	332	A	V
	*	2437	96.29	-	-	97.06	27.16	6.04	33.97	125	332	P	V
	*	2437	88.92	-	-	89.69	27.16	6.04	33.97	125	332	A	V
		2484.52	51.15	-22.85	74	51.76	27.25	6.09	33.95	125	332	P	V
		2485.96	41.45	-12.55	54	42.06	27.25	6.09	33.95	125	332	A	V



802.11g CH 11 2462MHz	*	2462	97.92	-	-	98.61	27.2	6.07	33.96	362	234	P	H
	*	2462	90.21	-	-	90.9	27.2	6.07	33.96	362	234	A	H
		2483.84	54.28	-19.72	74	54.89	27.25	6.09	33.95	362	234	P	H
		2483.52	44.26	-9.74	54	44.87	27.25	6.09	33.95	362	234	A	H
													H
													H
	*	2462	94.94	-	-	95.63	27.2	6.07	33.96	111	333	P	V
	*	2462	87.29	-	-	87.98	27.2	6.07	33.96	111	333	A	V
		2483.92	54.54	-19.46	74	55.15	27.25	6.09	33.95	111	333	P	V
		2483.52	44.01	-9.99	54	44.62	27.25	6.09	33.95	111	333	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	41.12	-32.88	74	66.42	31.12	8.65	65.07	100	0	P	H
													H
													H
													H
		4824	34.21	-39.79	74	59.51	31.12	8.65	65.07	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	43.37	-30.63	74	68.49	31.21	8.69	65.02	100	0	P	H
		7311	44.77	-29.23	74	63.36	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	34.47	-39.53	74	59.59	31.21	8.69	65.02	100	0	P	V
		7311	41.73	-32.27	74	60.32	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	40.44	-33.56	74	65.33	31.29	8.79	64.97	100	0	P	H
		7386	43.56	-30.44	74	61.89	36.27	10.48	65.08	100	0	P	H
													H
													H
		4924	33.51	-40.49	74	58.4	31.29	8.79	64.97	100	0	P	V
		7386	38.14	-35.86	74	56.47	36.27	10.48	65.08	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

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)
2.4GHz 802.11g LF		43.23	23.07	-16.93	40	36.15	18.06	0.67	31.81	-	-	P	H
		104.25	27.88	-15.62	43.5	41.73	16.65	1.28	31.78	-	-	P	H
		216.03	33.99	-12.01	46	47.78	16.2	1.79	31.78	177	36	P	H
		320.3	26.47	-19.53	46	35.86	20.27	2.11	31.77	-	-	P	H
		745.9	29.48	-16.52	46	30.59	27.62	3.25	31.98	-	-	P	H
		957.3	33.5	-12.5	46	30.22	30.58	3.68	30.98	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
		43.5	35.62	-4.38	40	48.7	18.06	0.67	31.81	190	342	P	V
		151.23	26.49	-17.01	43.5	39.46	17.35	1.46	31.78	-	-	P	V
		201.45	30.03	-13.47	43.5	44.13	16.04	1.64	31.78	-	-	P	V
		314.7	23.66	-22.34	46	33.19	20.13	2.11	31.77	-	-	P	V
		705.3	29.1	-16.9	46	31.19	26.8	3.14	32.03	-	-	P	V
		943.3	33.5	-12.5	46	30.47	30.44	3.68	31.09	-	-	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.
!	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”.



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.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2378.94	50.45	-23.55	74	51.47	26.96	6.01	33.99	200	26	P	H
		2390	39.93	-14.07	54	40.89	27.01	6.01	33.98	200	26	A	H
	*	2410.688	98.68	-	-	99.56	27.06	6.04	33.98	200	26	P	H
	*	2410.771	96.18	-	-	97.06	27.06	6.04	33.98	200	26	A	H
													H
													H
		2358.33	50.78	-23.22	74	51.91	26.91	5.95	33.99	261	42	P	V
		2390	39.78	-14.22	54	40.74	27.01	6.01	33.98	261	42	A	V
	*	2413.36	92.22	-	-	93.1	27.06	6.04	33.98	261	42	P	V
	*	2413.36	89.73	-	-	90.61	27.06	6.04	33.98	261	42	A	V
													V
													V
802.11b CH 06 2437MHz		2387.4	50.8	-23.2	74	51.77	27.01	6.01	33.99	224	26	P	H
		2389.47	39.7	-14.3	54	40.67	27.01	6.01	33.99	224	26	A	H
	*	2438.243	98.07	-	-	98.84	27.16	6.04	33.97	224	26	P	H
	*	2438.243	95.56	-	-	96.33	27.16	6.04	33.97	224	26	A	H
		2485.28	50.84	-23.16	74	51.45	27.25	6.09	33.95	224	26	P	H
		2483.76	40.46	-13.54	54	41.07	27.25	6.09	33.95	224	26	A	H
		2382.81	50.07	-23.93	74	51.09	26.96	6.01	33.99	100	260	P	V
		2388.3	39.68	-14.32	54	40.65	27.01	6.01	33.99	100	260	A	V
	*	2435.738	91.31	-	-	92.13	27.11	6.04	33.97	100	260	P	V
	*	2435.738	88.78	-	-	89.6	27.11	6.04	33.97	100	260	A	V
		2496.16	51.9	-22.1	74	52.45	27.3	6.09	33.94	100	260	P	V
		2485.32	40.11	-13.89	54	40.72	27.25	6.09	33.95	100	260	A	V



802.11b CH 11 2462MHz	*	2463.543	99.94	-	-	100.63	27.2	6.07	33.96	170	26	P	H
	*	2463.376	97.44	-	-	98.13	27.2	6.07	33.96	170	26	A	H
		2483.52	51.96	-22.04	74	52.57	27.25	6.09	33.95	170	26	P	H
		2483.52	41.57	-12.43	54	42.18	27.25	6.09	33.95	170	26	A	H
													H
													H
	*	2460.705	92.37	-	-	93.06	27.2	6.07	33.96	100	263	P	V
	*	2460.788	89.89	-	-	90.58	27.2	6.07	33.96	100	263	A	V
		2487.68	50.88	-23.12	74	51.44	27.3	6.09	33.95	100	263	P	V
		2483.56	40.31	-13.69	54	40.92	27.25	6.09	33.95	100	263	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. 2	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	45.15	-28.85	74	70.45	31.12	8.65	65.07	100	0	P	H
													H
													H
													H
		4824	36.21	-37.79	74	61.51	31.12	8.65	65.07	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	44.73	-29.27	74	69.85	31.21	8.69	65.02	100	0	P	H
		7311	42.05	-31.95	74	60.64	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	36.29	-37.71	74	61.41	31.21	8.69	65.02	100	0	P	V
		7311	38.39	-35.61	74	56.98	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	45.85	-28.15	74	70.74	31.29	8.79	64.97	100	0	P	H
		7386	41.95	-32.05	74	60.28	36.27	10.48	65.08	100	0	P	H
													H
													H
		4924	38.6	-35.4	74	63.49	31.29	8.79	64.97	100	0	P	V
		7386	39.09	-34.91	74	57.42	36.27	10.48	65.08	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. 2	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	51.37	-22.63	74	52.33	27.01	6.01	33.98	157	24	P	H
		2390	41.75	-12.25	54	42.71	27.01	6.01	33.98	157	24	A	H
	*	2412	100.53	-	-	101.41	27.06	6.04	33.98	157	24	P	H
	*	2412	93.11	-	-	93.99	27.06	6.04	33.98	157	24	A	H
													H
													H
		2345.46	50.36	-23.64	74	51.53	26.87	5.95	33.99	241	277	P	V
		2389.83	40.66	-13.34	54	41.62	27.01	6.01	33.98	241	277	A	V
	*	2412	93.68	-	-	94.56	27.06	6.04	33.98	241	277	P	V
	*	2412	86.15	-	-	87.03	27.06	6.04	33.98	241	277	A	V
													V
													V
802.11g CH 06 2437MHz		2332.68	50.96	-23.04	74	52.19	26.82	5.95	34	152	28	P	H
		2370.48	40.48	-13.52	54	41.5	26.96	6.01	33.99	152	28	A	H
	*	2437	99.42	-	-	100.19	27.16	6.04	33.97	152	28	P	H
	*	2437	91.84	-	-	92.61	27.16	6.04	33.97	152	28	A	H
		2486.48	51.29	-22.71	74	51.9	27.25	6.09	33.95	152	28	P	H
		2486.52	41.75	-12.25	54	42.36	27.25	6.09	33.95	152	28	A	H
		2318.73	50.27	-23.73	74	51.56	26.82	5.89	34	100	238	P	V
		2380.2	40.41	-13.59	54	41.43	26.96	6.01	33.99	100	238	A	V
	*	2437	93.92	-	-	94.69	27.16	6.04	33.97	100	238	P	V
	*	2437	86.25	-	-	87.02	27.16	6.04	33.97	100	238	A	V
		2490.4	51.31	-22.69	74	51.87	27.3	6.09	33.95	100	238	P	V
		2488.36	41.12	-12.88	54	41.68	27.3	6.09	33.95	100	238	A	V



802.11g CH 11 2462MHz	*	2462	100.59	-	-	101.28	27.2	6.07	33.96	113	47	P	H
	*	2462	92.67	-	-	93.36	27.2	6.07	33.96	113	47	A	H
		2492.8	52.12	-21.88	74	52.67	27.3	6.09	33.94	113	47	P	H
		2487.6	41.78	-12.22	54	42.34	27.3	6.09	33.95	113	47	A	H
													H
													H
	*	2462	95.33	-	-	96.02	27.2	6.07	33.96	100	293	P	V
	*	2462	87.77	-	-	88.46	27.2	6.07	33.96	100	293	A	V
		2488.08	51.02	-22.98	74	51.58	27.3	6.09	33.95	100	293	P	V
		2488.96	40.89	-13.11	54	41.45	27.3	6.09	33.95	100	293	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. 2	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	43.05	-30.95	74	68.35	31.12	8.65	65.07	100	0	P	H
													H
													H
													H
		4824	34.14	-39.86	74	59.44	31.12	8.65	65.07	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	43.14	-30.86	74	68.26	31.21	8.69	65.02	100	0	P	H
		7311	41.96	-32.04	74	60.55	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	34.81	-39.19	74	59.93	31.21	8.69	65.02	100	0	P	V
		7311	38.03	-35.97	74	56.62	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	42.63	-31.37	74	67.52	31.29	8.79	64.97	100	0	P	H
		7386	41.23	-32.77	74	59.56	36.27	10.48	65.08	100	0	P	H
													H
													H
		4924	36.8	-37.2	74	61.69	31.29	8.79	64.97	100	0	P	V
		7386	38.83	-35.17	74	57.16	36.27	10.48	65.08	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		43.23	22.64	-17.36	40	35.72	18.06	0.67	31.81	-	-	P	H
		102.9	26.47	-17.03	43.5	40.54	16.43	1.28	31.78	-	-	P	H
		216.03	29.69	-16.31	46	43.48	16.2	1.79	31.78	138	64	P	H
		317.5	24.4	-21.6	46	33.88	20.18	2.11	31.77	-	-	P	H
		717.2	29.06	-16.94	46	30.91	27.03	3.14	32.02	-	-	P	H
		976.2	33.46	-20.54	54	29.96	30.55	3.78	30.83	-	-	P	H
													H
													H
													H
													H
													H
													H
		43.5	35.06	-4.94	40	48.14	18.06	0.67	31.81	200	148	P	V
		123.15	21.91	-21.59	43.5	34.62	17.79	1.28	31.78	-	-	P	V
		201.45	25.94	-17.56	43.5	40.04	16.04	1.64	31.78	-	-	P	V
		374.2	23.91	-22.09	46	31.64	21.74	2.32	31.79	-	-	P	V
		692	28.59	-17.41	46	30.88	26.61	3.14	32.04	-	-	P	V
		939.8	33.55	-12.45	46	30.65	30.33	3.68	31.11	-	-	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	H orizontal or V ertical

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.	
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

3. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

4. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

3. 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)

4. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

3. 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)

4. 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”.



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	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)
802.11n HT20 CH 01 2412MHz		2389.83	54.06	-19.94	74	55.02	27.01	6.01	33.98	178	352	P	H
		2390	43.99	-10.01	54	44.95	27.01	6.01	33.98	178	352	A	H
	*	2412	104.21	-	-	105.09	27.06	6.04	33.98	178	352	P	H
	*	2412	97.15	-	-	98.03	27.06	6.04	33.98	178	352	A	H
													H
													H
		2385.06	50.77	-23.23	74	51.79	26.96	6.01	33.99	291	55	P	V
		2389.65	40.94	-13.06	54	41.91	27.01	6.01	33.99	291	55	A	V
	*	2412	98.05	-	-	98.93	27.06	6.04	33.98	291	55	P	V
	*	2412	90.9	-	-	91.78	27.06	6.04	33.98	291	55	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2324.85	51.55	-22.45	74	52.78	26.82	5.95	34	100	240	P	H
		2389.56	41.2	-12.8	54	42.17	27.01	6.01	33.99	100	240	A	H
	*	2437	103.78	-	-	104.55	27.16	6.04	33.97	100	240	P	H
	*	2437	96.31	-	-	97.08	27.16	6.04	33.97	100	240	A	H
		2484.12	52.17	-21.83	74	52.78	27.25	6.09	33.95	100	240	P	H
		2485.68	41.93	-12.07	54	42.54	27.25	6.09	33.95	100	240	A	H
		2341.59	50.42	-23.58	74	51.59	26.87	5.95	33.99	221	34	P	V
		2390	40.75	-13.25	54	41.71	27.01	6.01	33.98	221	34	A	V
	*	2437	97.98	-	-	98.75	27.16	6.04	33.97	221	34	P	V
	*	2437	91.06	-	-	91.83	27.16	6.04	33.97	221	34	A	V
		2484.8	52.04	-21.96	74	52.65	27.25	6.09	33.95	221	34	P	V
		2484.92	41.89	-12.11	54	42.5	27.25	6.09	33.95	221	34	A	V



802.11n HT20 CH 11 2462MHz	*	2462	103.11	-	-	103.8	27.2	6.07	33.96	128	236	P	H
	*	2462	95.68	-	-	96.37	27.2	6.07	33.96	128	236	A	H
		2484.4	64.09	-9.91	74	64.7	27.25	6.09	33.95	128	236	P	H
		2483.76	51.72	-2.28	54	52.33	27.25	6.09	33.95	128	236	A	H
													H
													H
	*	2462	99.93	-	-	100.62	27.2	6.07	33.96	310	73	P	V
	*	2462	92.25	-	-	92.94	27.2	6.07	33.96	310	73	A	V
		2484.36	62.97	-11.03	74	63.58	27.25	6.09	33.95	310	73	P	V
		2483.52	49.42	-4.58	54	50.03	27.25	6.09	33.95	310	73	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 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11n HT20 CH 01 2412MHz		4824	44	-30	74	69.3	31.12	8.65	65.07	100	0	P	H
													H
													H
													H
		4824	37.43	-36.57	74	62.73	31.12	8.65	65.07	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	44.75	-29.25	74	69.87	31.21	8.69	65.02	100	0	P	H
		7311	45.08	-28.92	74	63.67	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	36.12	-37.88	74	61.24	31.21	8.69	65.02	100	0	P	V
		7311	42.82	-31.18	74	61.41	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	45.78	-28.22	74	70.67	31.29	8.79	64.97	100	0	P	H
		7386	46.46	-27.54	74	64.79	36.27	10.48	65.08	100	0	P	H
													H
													H
		4924	36.12	-37.88	74	61.01	31.29	8.79	64.97	100	0	P	V
		7386	42.2	-31.8	74	60.53	36.27	10.48	65.08	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 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	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)
802.11n HT40 CH 03 2422MHz		2390	54.71	-19.29	74	55.67	27.01	6.01	33.98	280	238	P	H
		2390	47.85	-6.15	54	48.81	27.01	6.01	33.98	280	238	A	H
	*	2422	101.29	-	-	102.11	27.11	6.04	33.97	280	238	P	H
	*	2422	93.96	-	-	94.78	27.11	6.04	33.97	280	238	A	H
		2484.76	51.46	-22.54	74	52.07	27.25	6.09	33.95	280	238	P	H
		2483.92	42.46	-11.54	54	43.07	27.25	6.09	33.95	280	238	A	H
		2318.46	50.07	-23.93	74	51.36	26.82	5.89	34	100	255	P	V
		2389.74	43.01	-10.99	54	43.98	27.01	6.01	33.99	100	255	A	V
	*	2422	94.67	-	-	95.49	27.11	6.04	33.97	100	255	P	V
	*	2422	87.73	-	-	88.55	27.11	6.04	33.97	100	255	A	V
		2494.16	51.79	-22.21	74	52.34	27.3	6.09	33.94	100	255	P	V
		2483.92	42.34	-11.66	54	42.95	27.25	6.09	33.95	100	255	A	V
802.11n HT40 CH 06 2437MHz		2368.14	50.97	-23.03	74	52.04	26.91	6.01	33.99	100	238	P	H
		2389.83	42.37	-11.63	54	43.33	27.01	6.01	33.98	100	238	A	H
	*	2437	100.37	-	-	101.14	27.16	6.04	33.97	100	238	P	H
	*	2437	93.57	-	-	94.34	27.16	6.04	33.97	100	238	A	H
		2484.72	52.59	-21.41	74	53.2	27.25	6.09	33.95	100	238	P	H
		2484.2	43.83	-10.17	54	44.44	27.25	6.09	33.95	100	238	A	H
		2317.92	50.51	-23.49	74	51.8	26.82	5.89	34	100	253	P	V
		2383.44	41.52	-12.48	54	42.54	26.96	6.01	33.99	100	253	A	V
	*	2437	93.95	-	-	94.72	27.16	6.04	33.97	100	253	P	V
	*	2437	87.2	-	-	87.97	27.16	6.04	33.97	100	253	A	V
		2497.6	50.81	-23.19	74	51.36	27.3	6.09	33.94	100	253	P	V
		2484.28	42.36	-11.64	54	42.97	27.25	6.09	33.95	100	253	A	V



802.11n HT40 CH 09 2452MHz		2384.43	51.29	-22.71	74	52.31	26.96	6.01	33.99	100	239	P	H
		2366.07	41.53	-12.47	54	42.6	26.91	6.01	33.99	100	239	A	H
	*	2452	99.9	-	-	100.63	27.16	6.07	33.96	100	239	P	H
	*	2452	92.65	-	-	93.38	27.16	6.07	33.96	100	239	A	H
		2484.08	54.82	-19.18	74	55.43	27.25	6.09	33.95	100	239	P	H
		2484.04	46.01	-7.99	54	46.62	27.25	6.09	33.95	100	239	A	H
		2372.01	50.67	-23.33	74	51.69	26.96	6.01	33.99	100	301	P	V
		2382.18	41.45	-12.55	54	42.47	26.96	6.01	33.99	100	301	A	V
	*	2452	94.31	-	-	95.04	27.16	6.07	33.96	100	301	P	V
	*	2452	87.57	-	-	88.3	27.16	6.07	33.96	100	301	A	V
		2484.44	53.76	-20.24	74	54.37	27.25	6.09	33.95	100	301	P	V
		2484.64	44.28	-9.72	54	44.89	27.25	6.09	33.95	100	301	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11n HT40 CH 03 2422MHz		4844	43.31	-30.69	74	68.53	31.15	8.69	65.06	100	0	P	H
		7266	44.7	-29.3	74	63.41	36.01	10.34	65.06	100	0	P	H
													H
													H
		4844	34.46	-39.54	74	59.68	31.15	8.69	65.06	100	0	P	V
		7266	40.07	-33.93	74	58.78	36.01	10.34	65.06	100	0	P	V
													V
													V
802.11n HT40 CH 06 2437MHz		4874	44.76	-29.24	74	69.88	31.21	8.69	65.02	100	0	P	H
		7311	44.14	-29.86	74	62.73	36.08	10.39	65.06	100	0	P	H
													H
													H
		4874	36.82	-37.18	74	61.94	31.21	8.69	65.02	100	0	P	V
		7311	39.34	-34.66	74	57.93	36.08	10.39	65.06	100	0	P	V
													V
													V
802.11n HT40 CH 09 2452MHz		4904	42.78	-31.22	74	67.77	31.26	8.74	64.99	100	0	P	H
		7356	42.81	-31.19	74	61.24	36.2	10.44	65.07	100	0	P	H
													H
													H
		4904	36.41	-37.59	74	61.4	31.26	8.74	64.99	100	0	P	V
		7356	39.63	-34.37	74	58.06	36.2	10.44	65.07	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

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)
2.4GHz 802.11n HT20 LF		42.96	22.68	-17.32	40	35.2	18.62	0.67	31.81	-	-	P	H
		101.55	26.98	-16.52	43.5	41.16	16.32	1.28	31.78	-	-	P	H
		216.03	30.07	-15.93	46	43.86	16.2	1.79	31.78	-	-	P	H
		314.7	24.04	-21.96	46	33.57	20.13	2.11	31.77	-	-	P	H
		642.3	27.81	-18.19	46	30.77	26.12	2.96	32.04	-	-	P	H
		943.3	33.11	-12.89	46	30.08	30.44	3.68	31.09	100	83	P	H
													H
													H
													H
													H
													H
													H
		43.5	35.25	-4.75	40	48.33	18.06	0.67	31.81	220	150	P	V
		138.81	27.05	-16.45	43.5	39.46	17.91	1.46	31.78	-	-	P	V
		201.45	26.2	-17.3	43.5	40.3	16.04	1.64	31.78	-	-	P	V
		311.9	23.47	-22.53	46	33.07	20.05	2.11	31.76	-	-	P	V
		694.8	28.63	-17.37	46	30.89	26.64	3.14	32.04	-	-	P	V
		996.5	33.82	-20.18	54	30.2	30.51	3.78	30.67	-	-	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+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

5. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

6. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

5. 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)

6. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

5. 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)

6. 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”.