



Appendix B. Radiated Spurious Emission

Test Engineer :	Derreck Chen	Temperature :	22~23°C
		Relative Humidity :	45~47%

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		2389.83	54.98	-19.02	74	55.78	27.23	6.01	34.04	148	128	P	H
		2390	48.29	-5.71	54	49.09	27.23	6.01	34.04	148	128	A	H
	*	2410.855	106.3	-	-	107.02	27.28	6.04	34.04	148	128	P	H
	*	2410.938	103.83	-	-	104.55	27.28	6.04	34.04	148	128	A	H
													H
													H
		2389.38	54.48	-19.52	74	55.28	27.23	6.01	34.04	139	331	P	V
		2390	46.46	-7.54	54	47.26	27.23	6.01	34.04	139	331	A	V
	*	2410.855	105.38	-	-	106.1	27.28	6.04	34.04	139	331	P	V
	*	2410.855	102.89	-	-	103.61	27.28	6.04	34.04	139	331	A	V
													V
													V
802.11b CH 06 2437MHz		2387.67	53.18	-20.82	74	53.98	27.23	6.01	34.04	145	127	P	H
		2389.11	42.1	-11.9	54	42.9	27.23	6.01	34.04	145	127	A	H
	*	2435.905	106.26	-	-	106.93	27.32	6.04	34.03	145	127	P	H
	*	2435.989	103.75	-	-	104.42	27.32	6.04	34.03	145	127	A	H
		2492.24	53.82	-20.18	74	54.23	27.5	6.09	34	145	127	P	H
		2483.52	42.53	-11.47	54	42.99	27.46	6.09	34.01	145	127	A	H
		2383.98	52.65	-21.35	74	53.49	27.19	6.01	34.04	100	86	P	V
		2388.57	42.04	-11.96	54	42.84	27.23	6.01	34.04	100	86	A	V
	*	2435.822	103.95	-	-	104.62	27.32	6.04	34.03	100	86	P	V
	*	2435.822	101.47	-	-	102.14	27.32	6.04	34.03	100	86	A	V
		2484	53.02	-20.98	74	53.48	27.46	6.09	34.01	100	86	P	V
		2485	42.37	-11.63	54	42.83	27.46	6.09	34.01	100	86	A	V



802.11b CH 11 2462MHz	*	2463.209	105.54	-	-	106.08	27.41	6.07	34.02	121	120	P	H
	*	2460.955	103.16	-	-	103.7	27.41	6.07	34.02	121	120	A	H
		2483.68	58.4	-15.6	74	58.86	27.46	6.09	34.01	121	120	P	H
		2483.52	51.59	-2.41	54	52.05	27.46	6.09	34.01	121	120	A	H
													H
													H
	*	2463.209	105.1	-	-	105.64	27.41	6.07	34.02	102	84	P	V
	*	2463.293	102.64	-	-	103.18	27.41	6.07	34.02	102	84	A	V
		2483.6	57.46	-16.54	74	57.92	27.46	6.09	34.01	102	84	P	V
		2483.52	50.53	-3.47	54	50.99	27.46	6.09	34.01	102	84	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	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		4824	44.94	-29.06	74	38.52	31.32	33.55	8.65	150	0	P	H
													H
													H
													H
		4824	52.51	-21.49	74	46.09	31.32	33.55	8.65	234	58	P	V
		4824	50.15	-3.85	54	43.73	31.32	33.55	8.65	234	58	A	V
													V
													V
802.11b CH 06 2437MHz		4874	46.05	-27.95	74	39.49	31.41	8.69	33.54	150	0	P	H
		7311	50.11	-23.89	74	37.88	36.28	10.39	34.44	150	0	P	H
													H
													H
		4874	51.97	-22.03	74	45.41	31.41	8.69	33.54	193	56	P	V
		4874	49.94	-4.06	54	43.38	31.41	8.69	33.54	193	56	A	V
		7311	50.27	-23.73	74	38.04	36.28	10.39	34.44	150	0	P	V
													V
802.11b CH 11 2462MHz		4924	46.04	-27.96	74	39.3	31.49	8.79	33.54	150	0	P	H
		7386	50.94	-23.06	74	38.47	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	51.78	-22.22	74	45.04	31.49	8.79	33.54	179	51	P	V
		4924	50.08	-3.92	54	43.34	31.49	8.79	33.54	179	51	A	V
		7386	50.95	-23.05	74	38.48	36.47	10.48	34.48	150	0	P	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	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)
802.11g CH 01 2412MHz		2389.74	69.13	-4.87	74	69.93	27.23	6.01	34.04	151	129	P	H
		2388.57	52.25	-1.75	54	53.05	27.23	6.01	34.04	151	129	A	H
	*	2410	105.51	-	-	106.23	27.28	6.04	34.04	151	129	P	H
	*	2410	97.83	-	-	98.55	27.28	6.04	34.04	151	129	A	H
													H
													H
		2387.94	70.48	-3.52	74	71.28	27.23	6.01	34.04	102	247	P	V
		2389.83	51.48	-2.52	54	52.28	27.23	6.01	34.04	102	247	A	V
	*	2414	104.03	-	-	104.75	27.28	6.04	34.04	102	247	P	V
	*	2414	96.09	-	-	96.81	27.28	6.04	34.04	102	247	A	V
													V
													V
802.11g CH 06 2437MHz		2388.48	64.36	-9.64	74	65.16	27.23	6.01	34.04	146	128	P	H
		2389.56	46.89	-7.11	54	47.69	27.23	6.01	34.04	146	128	A	H
	*	2439	107.97	-	-	108.59	27.37	6.04	34.03	146	128	P	H
	*	2439	100.31	-	-	100.93	27.37	6.04	34.03	146	128	A	H
		2486.88	66.17	-7.83	74	66.63	27.46	6.09	34.01	146	128	P	H
		2484.68	48.46	-5.54	54	48.92	27.46	6.09	34.01	146	128	A	H
		2388.48	64.41	-9.59	74	65.21	27.23	6.01	34.04	100	80	P	V
		2389.74	47.17	-6.83	54	47.97	27.23	6.01	34.04	100	80	A	V
	*	2439	106.87	-	-	107.49	27.37	6.04	34.03	100	80	P	V
	*	2439	98.37	-	-	98.99	27.37	6.04	34.03	100	80	A	V
		2484.4	63.29	-10.71	74	63.75	27.46	6.09	34.01	100	80	P	V
		2483.52	47.56	-6.44	54	48.02	27.46	6.09	34.01	100	80	A	V



802.11g CH 11 2462MHz	*	2464	105.15	-	-	105.69	27.41	6.07	34.02	118	129	P	H
	*	2464	97.69	-	-	98.23	27.41	6.07	34.02	118	129	A	H
		2483.76	71.85	-2.15	74	72.31	27.46	6.09	34.01	118	129	P	H
		2483.88	52.49	-1.51	54	52.95	27.46	6.09	34.01	118	129	A	H
													H
													H
	*	2464	104.26	-	-	104.8	27.41	6.07	34.02	104	236	P	V
	*	2464	96.41	-	-	96.95	27.41	6.07	34.02	104	236	A	V
		2484.12	70.27	-3.73	74	70.73	27.46	6.09	34.01	104	236	P	V
		2483.52	52.04	-1.96	54	52.5	27.46	6.09	34.01	104	236	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	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)
802.11g CH 01 2412MHz		4824	44.81	-29.19	74	38.39	31.32	8.65	33.55	150	0	P	H
													H
													H
													H
		4824	48.37	-25.63	74	41.95	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	44.7	-29.3	74	38.14	31.41	8.69	33.54	150	0	P	H
		7311	50.12	-23.88	74	37.89	36.28	10.39	34.44	150	0	P	H
													H
													H
		4874	49.02	-24.98	74	42.46	31.41	8.69	33.54	150	0	P	V
		7311	50.65	-23.35	74	38.42	36.28	10.39	34.44	150	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	44.72	-29.28	74	37.98	31.49	8.79	33.54	150	0	P	H
		7386	50.38	-23.62	74	37.91	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	47.23	-26.77	74	40.49	31.49	8.79	33.54	150	0	P	V
		7386	50.12	-23.88	74	37.65	36.47	10.48	34.48	150	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 HT20 (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)
802.11n HT20 CH 01 2412MHz		2388.84	73.69	-0.31	74	74.49	27.23	6.01	34.04	164	204	P	H
		2390	51.62	-2.38	54	52.42	27.23	6.01	34.04	164	204	A	H
	*	2412	105.63	-	-	106.35	27.28	6.04	34.04	164	204	P	H
	*	2412	97.93	-	-	98.65	27.28	6.04	34.04	164	204	A	H
													H
													H
		2389.83	65.77	-8.23	74	66.57	27.23	6.01	34.04	380	110	P	V
		2389.56	45.03	-8.97	54	45.83	27.23	6.01	34.04	380	110	A	V
	*	2412	98.2	-	-	98.92	27.28	6.04	34.04	380	110	P	V
	*	2412	90.09	-	-	90.81	27.28	6.04	34.04	380	110	A	V
													V
													V
802.11n HT20 CH 06 2437MHz													H
													H
													H
													H
													H
													H
													V
													V
													V
													V
													V
													V



802.11n HT20 CH 11 2462MHz	*	2462	101.79	-	-	102.33	27.41	6.07	34.02	303	130	P	H
	*	2462	93.76	-	-	94.3	27.41	6.07	34.02	303	130	A	H
		2483.56	65.88	-8.12	74	66.34	27.46	6.09	34.01	303	130	P	H
		2483.92	47.77	-6.23	54	48.23	27.46	6.09	34.01	303	130	A	H
													H
													H
	*	2462	106.1	-	-	106.64	27.41	6.07	34.02	190	237	P	V
	*	2462	97.47	-	-	98.01	27.41	6.07	34.02	190	237	A	V
		2486.52	71.57	-2.43	74	72.03	27.46	6.09	34.01	190	237	P	V
		2484.44	52.88	-1.12	54	53.34	27.46	6.09	34.01	190	237	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	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)
802.11n HT20 CH 01 2412MHz		4824	45.56	-28.44	74	39.14	31.32	8.65	33.55	150	0	P	H
													H
													H
													H
		4824	45.22	-28.78	74	38.8	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz													H
													H
													H
													H
													V
													V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	45.19	-28.81	74	38.45	31.49	8.79	33.54	150	0	P	H
		7385	38.13	-35.87	74	25.66	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	45.92	-28.08	74	39.18	31.49	8.79	33.54	150	0	P	V
		7385	37.52	-36.48	74	25.05	36.47	10.48	34.48	150	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		35.4	17.31	-22.69	40	33.31	15.16	0.67	31.83			P	H
		131.25	12.93	-30.57	43.5	31.75	11.5	1.46	31.78			P	H
		263.82	18.15	-27.85	46	35.13	12.85	1.94	31.77			P	H
		442.8	22.39	-23.61	46	35.46	16.36	2.41	31.84			P	H
		607.3	21.12	-24.88	46	31.51	18.69	2.96	32.04			P	H
		922.3	23.87	-22.13	46	31.38	20.2	3.55	31.26	141	104	P	H
													H
													H
													H
													H
													H
													H
		57.54	16.6	-23.4	40	41.77	5.59	1.04	31.8			P	V
		147.18	15.12	-28.38	43.5	35.27	10.17	1.46	31.78			P	V
		228.45	12.25	-33.75	46	32.98	9.25	1.79	31.77			P	V
		370	17.28	-28.72	46	31.95	14.8	2.32	31.79			P	V
		596.1	20.2	-25.8	46	30.9	18.44	2.89	32.03			P	V
		926.5	22.69	-23.31	46	30.03	20.2	3.68	31.22	194	174	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 per 15.209(c).
!	Test result is over limit line.
P/A	P eak or A verage
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.	
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”.



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		2389.65	56.61	-17.39	74	57.41	27.23	6.01	34.04	276	189	P	H
		2390	49.65	-4.35	54	50.45	27.23	6.01	34.04	276	189	A	H
	*	2413.277	107.76	-	-	108.48	27.28	6.04	34.04	276	189	P	H
	*	2413.277	105.28	-	-	106	27.28	6.04	34.04	276	189	A	H
													H
													H
		2386.77	53.08	-20.92	74	53.88	27.23	6.01	34.04	392	115	P	V
		2390	44.52	-9.48	54	45.32	27.23	6.01	34.04	392	115	A	V
	*	2413.193	102.14	-	-	102.86	27.28	6.04	34.04	392	115	P	V
	*	2413.193	99.64	-	-	100.36	27.28	6.04	34.04	392	115	A	V
													V
													V
802.11b CH 06 2437MHz		2362.74	52.92	-21.08	74	53.88	27.14	5.95	34.05	267	188	P	H
		2387.76	42.01	-11.99	54	42.81	27.23	6.01	34.04	267	188	A	H
	*	2438.159	108.16	-	-	108.78	27.37	6.04	34.03	267	188	P	H
	*	2438.159	105.66	-	-	106.28	27.37	6.04	34.03	267	188	A	H
		2496.28	53.57	-20.43	74	53.98	27.5	6.09	34	267	188	P	H
		2484.08	42.82	-11.18	54	43.28	27.46	6.09	34.01	267	188	A	H
		2378.85	52.38	-21.62	74	53.22	27.19	6.01	34.04	122	353	P	V
		2389.29	41.55	-12.45	54	42.35	27.23	6.01	34.04	122	353	A	V
	*	2438.243	95.75	-	-	96.37	27.37	6.04	34.03	122	353	P	V
	*	2438.243	93.28	-	-	93.9	27.37	6.04	34.03	122	353	A	V
		2492.92	53.37	-20.63	74	53.78	27.5	6.09	34	122	353	P	V
		2492.84	41.98	-12.02	54	42.39	27.5	6.09	34	122	353	A	V



802.11b CH 11 2462MHz	*	2460.788	108.35	-	-	108.89	27.41	6.07	34.02	294	186	P	H
	*	2460.872	105.83	-	-	106.37	27.41	6.07	34.02	294	186	A	H
		2483.6	57.38	-16.62	74	57.84	27.46	6.09	34.01	294	186	P	H
		2483.52	51.46	-2.54	54	51.92	27.46	6.09	34.01	294	186	A	H
													H
													H
	*	2463.293	95.99	-	-	96.53	27.41	6.07	34.02	153	356	P	V
	*	2463.209	93.5	-	-	94.04	27.41	6.07	34.02	153	356	A	V
		2489.88	53.04	-20.96	74	53.46	27.5	6.09	34.01	153	356	P	V
		2483.52	43.15	-10.85	54	43.61	27.46	6.09	34.01	153	356	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	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		4824	55.95	-18.05	74	49.53	31.32	8.65	33.55	254	167	P	H
		4824	53.98	-0.02	54	47.56	31.32	8.65	33.55	254	167	A	H
													H
													H
		4824	47.34	-26.66	74	40.92	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4872	53.66	-20.34	74	47.1	31.41	8.69	33.54	150	0	P	H
		7310	39.72	-34.28	74	27.49	36.28	10.39	34.44	150	0	P	H
													H
													H
		4872	45.77	-28.23	74	39.21	31.41	8.69	33.54	150	0	P	V
		7310	39.39	-34.61	74	27.16	36.28	10.39	34.44	150	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	51.18	-22.82	74	44.44	31.49	8.79	33.54	150	0	P	H
		7385	39.91	-34.09	74	27.44	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	45.04	-28.96	74	38.3	31.49	8.79	33.54	150	0	P	V
		7385	39.86	-34.14	74	27.39	36.47	10.48	34.48	150	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	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)
802.11g CH 01 2412MHz		2390	72.76	-1.24	74	73.56	27.23	6.01	34.04	305	194	P	H
		2389.47	52.77	-1.23	54	53.57	27.23	6.01	34.04	305	194	A	H
	*	2412.024	107.65	-	-	108.37	27.28	6.04	34.04	305	194	P	H
	*	2410	99.8	-	-	100.52	27.28	6.04	34.04	305	194	A	H
													H
													H
		2389.74	67.09	-6.91	74	67.89	27.23	6.01	34.04	392	116	P	V
		2390	46.11	-7.89	54	46.91	27.23	6.01	34.04	392	116	A	V
	*	2414	101.02	-	-	101.74	27.28	6.04	34.04	392	116	P	V
	*	2414	93.51	-	-	94.23	27.28	6.04	34.04	392	116	A	V
													V
													V
802.11g CH 06 2437MHz		2388.75	64.27	-9.73	74	65.07	27.23	6.01	34.04	269	192	P	H
		2389.11	48.35	-5.65	54	49.15	27.23	6.01	34.04	269	192	A	H
	*	2439	110.41	-	-	111.03	27.37	6.04	34.03	269	192	P	H
	*	2439	102.69	-	-	103.31	27.37	6.04	34.03	269	192	A	H
		2484.96	66.72	-7.28	74	67.18	27.46	6.09	34.01	269	192	P	H
		2484.2	50.4	-3.6	54	50.86	27.46	6.09	34.01	269	192	A	H
		2388.57	54.87	-19.13	74	55.67	27.23	6.01	34.04	377	100	P	V
		2389.2	43.4	-10.6	54	44.2	27.23	6.01	34.04	377	100	A	V
	*	2439	104.04	-	-	104.66	27.37	6.04	34.03	377	100	P	V
	*	2439	95.76	-	-	96.38	27.37	6.04	34.03	377	100	A	V
		2484.16	59.22	-14.78	74	59.68	27.46	6.09	34.01	377	100	P	V
		2483.6	45.76	-8.24	54	46.22	27.46	6.09	34.01	377	100	A	V



802.11g CH 11 2462MHz	*	2457.698	106	-	-	106.54	27.41	6.07	34.02	292	188	P	H
	*	2458.199	98.17	-	-	98.71	27.41	6.07	34.02	292	188	A	H
		2483.8	71.15	-2.85	74	71.61	27.46	6.09	34.01	292	188	P	H
		2484.92	52.39	-1.61	54	52.85	27.46	6.09	34.01	292	188	A	H
													H
													H
	*	2457.865	100.32	-	-	100.86	27.41	6.07	34.02	377	117	P	V
	*	2459.118	92.28	-	-	92.82	27.41	6.07	34.02	377	117	A	V
		2483.52	64.5	-9.5	74	64.96	27.46	6.09	34.01	377	117	P	V
		2485.36	46.7	-7.3	54	47.16	27.46	6.09	34.01	377	117	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	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)
802.11g CH 01 2412MHz		4824	52.51	-21.49	74	46.09	31.32	8.65	33.55	150	0	P	H
													H
													H
													H
		4824	44.65	-29.35	74	38.23	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4872	51.04	-22.96	74	44.48	31.41	8.69	33.54	150	0	P	H
		7310	37.51	-36.49	74	25.28	36.28	10.39	34.44	150	0	P	H
													H
													H
		4872	45.29	-28.71	74	38.73	31.41	8.69	33.54	150	0	P	V
		7310	37.82	-36.18	74	25.59	36.28	10.39	34.44	150	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	44.89	-29.11	74	38.15	31.49	8.79	33.54	150	0	P	H
		7385	38.99	-35.01	74	26.52	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	45.08	-28.92	74	38.34	31.49	8.79	33.54	150	0	P	V
		7386	39.04	-34.96	74	26.57	36.47	10.48	34.48	150	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 HT20 (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)
802.11n HT20 CH 01 2412MHz		2388.3	72.5	-1.5	74	73.3	27.23	6.01	34.04	160	211	P	H
		2389.56	52.83	-1.17	54	53.63	27.23	6.01	34.04	160	211	A	H
	*	2412	107.51	-	-	108.23	27.28	6.04	34.04	160	211	P	H
	*	2412	98.85	-	-	99.57	27.28	6.04	34.04	160	211	A	H
													H
													H
		2390	62.95	-11.05	74	63.75	27.23	6.01	34.04	380	108	P	V
		2389.56	45.94	-8.06	54	46.74	27.23	6.01	34.04	380	108	A	V
	*	2410	99.42	-	-	100.14	27.28	6.04	34.04	380	108	P	V
	*	2410	91.13	-	-	91.85	27.28	6.04	34.04	380	108	A	V
													V
													V
802.11n HT20 CH 11 2462MHz	*	2462	108.21	-	-	108.75	27.41	6.07	34.02	292	187	P	H
	*	2462	98.76	-	-	99.3	27.41	6.07	34.02	292	187	A	H
		2484.24	70.84	-3.16	74	71.3	27.46	6.09	34.01	292	187	P	H
		2484.48	53.41	-0.59	54	53.87	27.46	6.09	34.01	292	187	A	H
													H
													H
	*	2462	98.35	-	-	98.89	27.41	6.07	34.02	103	189	P	V
	*	2462	90.17	-	-	90.71	27.41	6.07	34.02	103	189	A	V
		2483.8	62.5	-11.5	74	62.96	27.46	6.09	34.01	103	189	P	V
		2483.56	44.66	-9.34	54	45.12	27.46	6.09	34.01	103	189	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	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)
802.11n HT20 CH 01 2412MHz		4824	45.16	-28.84	74	38.74	31.32	8.65	33.55	150	0	P	H
													H
													H
													H
		4824	45.52	-28.48	74	39.1	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	47.41	-26.59	74	40.67	31.49	8.79	33.54	150	0	P	H
		7385	39.23	-34.77	74	26.76	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	45.47	-28.53	74	38.73	31.49	8.79	33.54	150	0	P	V
		7385	38.4	-35.6	74	25.93	36.47	10.48	34.48	150	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		40.8	22.89	-17.11	40	41.82	12.22	0.67	31.82	124	96	P	H
		106.95	21.06	-22.44	43.5	40.5	11.06	1.28	31.78			P	H
		168.51	16.32	-27.18	43.5	37.57	8.89	1.64	31.78			P	H
		381.9	27.11	-18.89	46	41.62	14.96	2.32	31.79			P	H
		687.1	23.2	-22.8	46	33.2	18.9	3.14	32.04			P	H
		820.8	23.86	-22.14	46	32.18	20.1	3.4	31.82			P	H
													H
													H
													H
													H
													H
													H
		47.82	23.34	-16.66	40	45.61	8.49	1.04	31.8	183	152	P	V
		115.32	21.71	-21.79	43.5	40.9	11.31	1.28	31.78			P	V
		177.15	22.27	-21.23	43.5	43.95	8.46	1.64	31.78			P	V
		451.9	25.27	-20.73	46	38.03	16.52	2.57	31.85			P	V
		714.4	21.16	-24.84	46	30.76	19.28	3.14	32.02			P	V
		899.9	24.49	-21.51	46	32.27	20.1	3.55	31.43			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 per 15.209(c).
!	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.	
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”.



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz		2387.94	68.55	-5.45	74	69.35	27.23	6.01	34.04	177	223	P	H
		2389.47	51.86	-2.14	54	52.66	27.23	6.01	34.04	177	223	A	H
	*	2413.778	104.07	-	-	104.79	27.28	6.04	34.04	177	223	P	H
	*	2408.517	96.01	-	-	96.73	27.28	6.04	34.04	177	223	A	H
													H
													H
		2385.06	69.43	-4.57	74	70.27	27.19	6.01	34.04	100	109	P	V
		2389.83	52.4	-1.6	54	53.2	27.23	6.01	34.04	100	109	A	V
	*	2410.02	107.21	-	-	107.93	27.28	6.04	34.04	100	109	P	V
	*	2415.448	98.62	-	-	99.33	27.28	6.04	34.03	100	109	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2389.11	66.56	-7.44	74	67.36	27.23	6.01	34.04	242	223	P	H
		2389.47	51.78	-2.22	54	52.58	27.23	6.01	34.04	242	223	A	H
	*	2437	108.86	-	-	109.48	27.37	6.04	34.03	242	223	P	H
	*	2437	101.35	-	-	101.97	27.37	6.04	34.03	242	223	A	H
		2486.56	66.82	-7.18	74	67.28	27.46	6.09	34.01	242	223	P	H
		2484.6	51.45	-2.55	54	51.91	27.46	6.09	34.01	242	223	A	H
		2386.32	64.21	-9.79	74	65.01	27.23	6.01	34.04	100	118	P	V
		2389.74	50.48	-3.52	54	51.28	27.23	6.01	34.04	100	118	A	V
	*	2437	111.89	-	-	112.51	27.37	6.04	34.03	100	118	P	V
	*	2437	103.22	-	-	103.84	27.37	6.04	34.03	100	118	A	V
		2487.48	69.05	-4.95	74	69.51	27.46	6.09	34.01	100	118	P	V
		2483.64	52.92	-1.08	54	53.38	27.46	6.09	34.01	100	118	A	V



802.11n HT20 CH 11 2462MHz	*	2462	102.39	-	-	102.93	27.41	6.07	34.02	164	220	P	H
	*	2462	94.49	-	-	95.03	27.41	6.07	34.02	164	220	A	H
		2484.44	66.94	-7.06	74	67.4	27.46	6.09	34.01	164	220	P	H
		2483.76	49.45	-4.55	54	49.91	27.46	6.09	34.01	164	220	A	H
													H
													H
	*	2462	107.35	-	-	107.89	27.41	6.07	34.02	100	117	P	V
	*	2462	98.08	-	-	98.62	27.41	6.07	34.02	100	117	A	V
		2485.72	72.99	-1.01	74	73.45	27.46	6.09	34.01	100	117	P	V
		2485.24	53.51	-0.49	54	53.97	27.46	6.09	34.01	100	117	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	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)
802.11n HT20 CH 01 2412MHz		4824	43.79	-30.21	74	37.37	31.32	8.65	33.55	150	0	P	H
													H
													H
													H
		4824	47.4	-26.6	74	40.98	31.32	8.65	33.55	150	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	44.8	-29.2	74	38.24	31.41	8.69	33.54	150	0	P	H
		7311	50.4	-23.6	74	38.17	36.28	10.39	34.44	150	0	P	H
													H
													H
		4874	50.7	-23.3	74	44.14	31.41	8.69	33.54	150	0	P	V
		7311	50.81	-23.19	74	38.58	36.28	10.39	34.44	150	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	45.51	-28.49	74	38.77	31.49	8.79	33.54	150	0	P	H
		7386	50.66	-23.34	74	38.19	36.47	10.48	34.48	150	0	P	H
													H
													H
		4924	45.73	-28.27	74	38.99	31.49	8.79	33.54	150	0	P	V
		7386	50.98	-23.02	74	38.51	36.47	10.48	34.48	150	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		35.13	23.64	-16.36	40	39.48	15.32	0.67	31.83	119	137	P	H
		113.16	24.27	-19.23	43.5	43.47	11.3	1.28	31.78			P	H
		250.05	24.41	-21.59	46	42.23	12.01	1.94	31.77			P	H
		538.7	23.24	-22.76	46	34.01	18.41	2.77	31.95			P	H
		722.8	24.55	-21.45	46	33.84	19.58	3.14	32.01			P	H
		899.9	27.26	-18.74	46	35.04	20.1	3.55	31.43			P	H
													H
													H
													H
													H
													H
													H
		74.55	19.68	-20.32	40	44.75	5.68	1.04	31.79			P	V
		138.81	19.67	-23.83	43.5	39.25	10.74	1.46	31.78			P	V
		283.8	20.51	-25.49	46	37.75	12.58	1.94	31.76			P	V
		399.4	31.13	-14.87	46	44.94	15.67	2.32	31.8	191	226	P	V
		624.8	25.56	-20.44	46	35.64	19	2.96	32.04			P	V
		899.9	24.49	-21.51	46	32.27	20.1	3.55	31.43			P	V
													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

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”.