



Appendix B. Radiated Spurious Emission

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

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		2389	56.32	-17.68	74	57.12	27.23	34.04	6.01	351	148	P	H
		2390	49.63	-4.37	54	50.43	27.23	34.04	6.01	351	148	A	H
	*	2412	104.93	-	-	105.65	27.28	34.04	6.04	351	148	P	H
	*	2412	102.47	-	-	103.19	27.28	34.04	6.04	351	148	A	H
													H
													H
		2390	53.59	-20.41	74	54.39	27.23	34.04	6.01	107	271	P	V
		2390	45.4	-8.6	54	46.2	27.23	34.04	6.01	107	271	A	V
	*	2412	99.06	-	-	99.78	27.28	34.04	6.04	107	271	P	V
	*	2412	96.61	-	-	97.33	27.28	34.04	6.04	107	271	A	V
													V
													V
		2384.61	52.8	-21.2	74	53.64	27.19	34.04	6.01	342	149	P	H
		2387.31	41.87	-12.13	54	42.67	27.23	34.04	6.01	342	149	A	H
802.11b CH 06 2437MHz	*	2437	106.11	-	-	106.73	27.37	34.03	6.04	342	149	P	H
	*	2437	103.59	-	-	104.21	27.37	34.03	6.04	342	149	A	H
		2498.96	53.1	-20.9	74	53.51	27.5	34	6.09	342	149	P	H
		2492.68	42.12	-11.88	54	42.53	27.5	34	6.09	342	149	A	H
		2376.69	52.4	-21.6	74	53.24	27.19	34.04	6.01	100	271	P	V
		2388.21	41.5	-12.5	54	42.3	27.23	34.04	6.01	100	271	A	V
	*	2437	99.6	-	-	100.22	27.37	34.03	6.04	100	271	P	V
	*	2437	97.11	-	-	97.73	27.37	34.03	6.04	100	271	A	V
		2497.72	53.11	-20.89	74	53.52	27.5	34	6.09	100	271	P	V
		2495.56	41.88	-12.12	54	42.29	27.5	34	6.09	100	271	A	V



802.11b CH 11 2462MHz	*	2462	106.78	-	-	107.32	27.41	34.02	6.07	380	150	P	H
	*	2462	104.28	-	-	104.82	27.41	34.02	6.07	380	150	A	H
		2483.76	58.51	-15.49	74	58.97	27.46	34.01	6.09	380	150	P	H
		2483.52	53.77	-0.23	54	54.23	27.46	34.01	6.09	380	150	A	H
													H
													H
	*	2462	100.95	-	-	101.49	27.41	34.02	6.07	100	270	P	V
	*	2462	98.37	-	-	98.91	27.41	34.02	6.07	100	270	A	V
		2483.96	55.45	-18.55	74	55.91	27.46	34.01	6.09	100	270	P	V
		2483.52	49.23	-4.77	54	49.69	27.46	34.01	6.09	100	270	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	50.75	-23.25	74	44.33	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	46.49	-27.51	74	40.07	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4876	51.37	-22.63	74	44.81	31.41	33.54	8.69	100	0	P	H
		7310	50.61	-23.39	74	38.38	36.28	34.44	10.39	100	0	P	H
													H
													H
		4872	47.28	-26.72	74	40.72	31.41	33.54	8.69	100	0	P	V
		7310	50.56	-23.44	74	38.33	36.28	34.44	10.39	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	57.82	-16.18	74	51.08	31.49	33.54	8.79	108	177	P	H
		4924	53.3	-0.7	54	46.56	31.49	33.54	8.79	108	177	A	H
		7386	50.68	-23.32	74	38.21	36.47	34.48	10.48	100	0	P	H
													H
		4924	46.86	-27.14	74	40.12	31.49	33.54	8.79	100	0	P	V
		7386	50.5	-23.5	74	38.03	36.47	34.48	10.48	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		2389.11	70.92	-3.08	74	71.72	27.23	34.04	6.01	138	11	P	H
		2389.83	52.56	-1.44	54	53.36	27.23	34.04	6.01	138	11	A	H
	*	2412	104.39	-	-	105.11	27.28	34.04	6.04	138	11	P	H
	*	2412	97.08	-	-	97.8	27.28	34.04	6.04	138	11	A	H
													H
													H
		2388.66	67.06	-6.94	74	67.86	27.23	34.04	6.01	111	267	P	V
		2390	49.56	-4.44	54	50.36	27.23	34.04	6.01	111	267	A	V
	*	2412	100.73	-	-	101.45	27.28	34.04	6.04	111	267	P	V
	*	2412	92.96	-	-	93.68	27.28	34.04	6.04	111	267	A	V
													V
													V
802.11g CH 06 2437MHz		2387.76	64.39	-9.61	74	65.19	27.23	34.04	6.01	380	149	P	H
		2386.59	46.62	-7.38	54	47.42	27.23	34.04	6.01	380	149	A	H
	*	2437	108.47	-	-	109.09	27.37	34.03	6.04	380	149	P	H
	*	2437	100.07	-	-	100.69	27.37	34.03	6.04	380	149	A	H
		2487.6	66.26	-7.74	74	66.68	27.5	34.01	6.09	380	149	P	H
		2484.6	47.9	-6.1	54	48.36	27.46	34.01	6.09	380	149	A	H
		2388.93	61.15	-12.85	74	61.95	27.23	34.04	6.01	109	272	P	V
		2388.48	44.64	-9.36	54	45.44	27.23	34.04	6.01	109	272	A	V
	*	2437	102.69	-	-	103.31	27.37	34.03	6.04	109	272	P	V
	*	2437	94.73	-	-	95.35	27.37	34.03	6.04	109	272	A	V
		2483.52	60.83	-13.17	74	61.29	27.46	34.01	6.09	109	272	P	V
		2483.52	44.74	-9.26	54	45.2	27.46	34.01	6.09	109	272	A	V



802.11g CH 11 2462MHz	*	2462	105.99	-	-	106.53	27.41	34.02	6.07	347	150	P	H
	*	2462	98.65	-	-	99.19	27.41	34.02	6.07	347	150	A	H
		2483.76	71.97	-2.03	74	72.43	27.46	34.01	6.09	347	150	P	H
		2483.64	52.96	-1.04	54	53.42	27.46	34.01	6.09	347	150	A	H
													H
													H
	*	2462	100.95	-	-	101.49	27.41	34.02	6.07	100	268	P	V
	*	2462	93.7	-	-	94.24	27.41	34.02	6.07	100	268	A	V
		2485.32	69.74	-4.26	74	70.2	27.46	34.01	6.09	100	268	P	V
		2483.76	49.32	-4.68	54	49.78	27.46	34.01	6.09	100	268	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	47.25	-26.75	74	40.83	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	44.47	-29.53	74	38.05	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	48.78	-25.22	74	42.22	31.41	33.54	8.69	100	0	P	H
		7311	50.43	-23.57	74	38.2	36.28	34.44	10.39	100	0	P	H
													H
													H
		4874	45.01	-28.99	74	38.45	31.41	33.54	8.69	100	0	P	V
		7311	50.8	-23.2	74	38.57	36.28	34.44	10.39	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	50.76	-23.24	74	44.02	31.49	33.54	8.79	100	0	P	H
		7386	50.68	-23.32	74	38.21	36.47	34.48	10.48	100	0	P	H
													H
													H
		4924	45.39	-28.61	74	38.65	31.49	33.54	8.79	100	0	P	V
		7386	50.6	-23.4	74	38.13	36.47	34.48	10.48	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 HT20 (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)
802.11n HT20 CH 01 2412MHz		2387.31	69.85	-4.15	74	70.65	27.23	34.04	6.01	169	11	P	H
		2389.83	52.17	-1.83	54	52.97	27.23	34.04	6.01	169	11	A	H
	*	2412	104.35	-	-	105.07	27.28	34.04	6.04	169	11	P	H
	*	2412	96.87	-	-	97.59	27.28	34.04	6.04	169	11	A	H
													H
													H
		2389.83	67.91	-6.09	74	68.71	27.23	34.04	6.01	111	268	P	V
		2389.38	50.1	-3.9	54	50.9	27.23	34.04	6.01	111	268	A	V
	*	2412	100.5	-	-	101.22	27.28	34.04	6.04	111	268	P	V
	*	2412	92.4	-	-	93.12	27.28	34.04	6.04	111	268	A	V
													V
													V
802.11n HT20 CH 11 2462MHz	*	2462	105.04	-	-	105.58	27.41	34.02	6.07	338	150	P	H
	*	2462	97.37	-	-	97.91	27.41	34.02	6.07	338	150	A	H
		2483.64	72.81	-1.19	74	73.27	27.46	34.01	6.09	338	150	P	H
		2483.96	52.32	-1.68	54	52.78	27.46	34.01	6.09	338	150	A	H
													H
													H
	*	2462	99.77	-	-	100.31	27.41	34.02	6.07	100	269	P	V
	*	2462	91.99	-	-	92.53	27.41	34.02	6.07	100	269	A	V
		2484.28	66.03	-7.97	74	66.49	27.46	34.01	6.09	100	269	P	V
		2483.64	47.25	-6.75	54	47.71	27.46	34.01	6.09	100	269	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	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	47.95	-26.05	74	41.53	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	45.14	-28.86	74	38.72	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	50.03	-23.97	74	43.29	31.49	33.54	8.79	100	0	P	H
		7386	50.37	-23.63	74	37.9	36.47	34.48	10.48	100	0	P	H
													H
													H
		4924	45.08	-28.92	74	38.34	31.49	33.54	8.79	100	0	P	V
		7386	50.56	-23.44	74	38.09	36.47	34.48	10.48	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 802.11b (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 802.11b LF		66.45	18.75	-21.25	40	44.58	4.92	31.79	1.04	-	-	P	H
		172.02	24.59	-18.91	43.5	46.05	8.68	31.78	1.64	217	21	P	H
		239.52	16.74	-29.26	46	36.08	10.64	31.77	1.79	-	-	P	H
		444.9	22.51	-23.49	46	35.38	16.4	31.84	2.57	-	-	P	H
		624.8	25.98	-20.02	46	36.06	19	32.04	2.96	-	-	P	H
		836.9	23.68	-22.32	46	31.85	20.17	31.74	3.4	-	-	P	H
													H
													H
													H
													H
													H
													H
		65.1	21.88	-18.12	40	47.73	4.9	31.79	1.04	108	308	P	V
		163.11	17.32	-26.18	43.5	38.35	9.29	31.78	1.46	-	-	P	V
		270.3	17.68	-28.32	46	35.11	12.4	31.77	1.94	-	-	P	V
		399.4	19.78	-26.22	46	33.59	15.67	31.8	2.32	-	-	P	V
		646.5	21.69	-24.31	46	31.61	19.1	32.04	3.02	-	-	P	V
		960.1	28.5	-25.5	54	35.38	20.4	30.96	3.68	-	-	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 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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
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 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		2390	56.4	-17.6	74	57.2	27.23	34.04	6.01	144	149	P	H
		2390	49.1	-4.9	54	49.9	27.23	34.04	6.01	144	149	A	H
	*	2412	105.43	-	-	106.15	27.28	34.04	6.04	144	149	P	H
	*	2412	102.99	-	-	103.71	27.28	34.04	6.04	144	149	A	H
													H
													H
		2388.84	52.76	-21.24	74	53.56	27.23	34.04	6.01	380	106	P	V
		2390	44.07	-9.93	54	44.87	27.23	34.04	6.01	380	106	A	V
	*	2412	97.92	-	-	98.64	27.28	34.04	6.04	380	106	P	V
	*	2412	95.29	-	-	96.01	27.28	34.04	6.04	380	106	A	V
													V
													V
802.11b CH 06 2437MHz		2359.32	52.93	-21.07	74	53.89	27.14	34.05	5.95	236	159	P	H
		2387.94	41.92	-12.08	54	42.72	27.23	34.04	6.01	236	159	A	H
	*	2437	105.52	-	-	106.14	27.37	34.03	6.04	236	159	P	H
	*	2437	103.05	-	-	103.67	27.37	34.03	6.04	236	159	A	H
		2492.76	53.72	-20.28	74	54.13	27.5	34	6.09	236	159	P	H
		2490.44	42.37	-11.63	54	42.79	27.5	34.01	6.09	236	159	A	H
		2379.75	52.19	-21.81	74	53.03	27.19	34.04	6.01	307	23	P	V
		2389.47	41.42	-12.58	54	42.22	27.23	34.04	6.01	307	23	A	V
	*	2437	94.65	-	-	95.27	27.37	34.03	6.04	307	23	P	V
	*	2437	92.39	-	-	93.01	27.37	34.03	6.04	307	23	A	V
		2493.48	53.49	-20.51	74	53.9	27.5	34	6.09	307	23	P	V
		2494.2	41.8	-12.2	54	42.21	27.5	34	6.09	307	23	A	V



802.11b CH 11 2462MHz	*	2462	106.21	-	-	106.75	27.41	34.02	6.07	257	155	P	H
	*	2462	103.65	-	-	104.19	27.41	34.02	6.07	257	155	A	H
		2483.84	58.05	-15.95	74	58.51	27.46	34.01	6.09	257	155	P	H
		2483.52	52.06	-1.94	54	52.52	27.46	34.01	6.09	257	155	A	H
													H
													H
	*	2462	95	-	-	95.54	27.41	34.02	6.07	186	23	P	V
	*	2462	92.51	-	-	93.05	27.41	34.02	6.07	186	23	A	V
		2483.64	53.33	-20.67	74	53.79	27.46	34.01	6.09	186	23	P	V
		2483.52	43.54	-10.46	54	44	27.46	34.01	6.09	186	23	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	50.72	-23.28	74	44.3	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	46.84	-27.16	74	40.42	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	57.18	-16.82	74	50.62	31.41	33.54	8.69	113	168	P	H
		4874	52.85	-1.15	54	46.29	31.41	33.54	8.69	113	168	A	H
		7311	50.26	-23.74	74	38.03	36.28	34.44	10.39	100	0	P	H
													H
		4874	47.77	-26.23	74	41.21	31.41	33.54	8.69	100	0	P	V
		7311	50.41	-23.59	74	38.18	36.28	34.44	10.39	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4926	50.46	-23.54	74	43.72	31.49	33.54	8.79	150	0	P	H
		7386	50.75	-23.25	74	38.28	36.47	34.48	10.48	150	0	P	H
													H
													H
		4924	46.34	-27.66	74	39.6	31.49	33.54	8.79	150	0	P	V
		7386	50.8	-23.2	74	38.33	36.47	34.48	10.48	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 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		2386.68	71.66	-2.34	74	72.46	27.23	34.04	6.01	145	150	P	H
		2389.11	53.58	-0.42	54	54.38	27.23	34.04	6.01	145	150	A	H
	*	2412	106.63	-	-	107.35	27.28	34.04	6.04	145	150	P	H
	*	2412	98.66	-	-	99.38	27.28	34.04	6.04	145	150	A	H
													H
													H
		2389.83	63.85	-10.15	74	64.65	27.23	34.04	6.01	362	112	P	V
		2389.38	47.85	-6.15	54	48.65	27.23	34.04	6.01	362	112	A	V
	*	2412	99.38	-	-	100.1	27.28	34.04	6.04	362	112	P	V
	*	2412	91.15	-	-	91.87	27.28	34.04	6.04	362	112	A	V
													V
													V
802.11g CH 06 2437MHz		2388.12	61.36	-12.64	74	62.16	27.23	34.04	6.01	203	154	P	H
		2389.92	43.67	-10.33	54	44.47	27.23	34.04	6.01	203	154	A	H
	*	2437	108.24	-	-	108.86	27.37	34.03	6.04	203	154	P	H
	*	2437	99.36	-	-	99.98	27.37	34.03	6.04	203	154	A	H
		2484.28	64.38	-9.62	74	64.84	27.46	34.01	6.09	203	154	P	H
		2483.52	44.97	-9.03	54	45.43	27.46	34.01	6.09	203	154	A	H
		2389.92	53.35	-20.65	74	54.15	27.23	34.04	6.01	377	5	P	V
		2389.29	41.53	-12.47	54	42.33	27.23	34.04	6.01	377	5	A	V
	*	2437	98.1	-	-	98.72	27.37	34.03	6.04	377	5	P	V
	*	2437	89.28	-	-	89.9	27.37	34.03	6.04	377	5	A	V
		2484.72	52.96	-21.04	74	53.42	27.46	34.01	6.09	377	5	P	V
		2483.76	41.91	-12.09	54	42.37	27.46	34.01	6.09	377	5	A	V



802.11g CH 11 2462MHz	*	2462	107.01	-	-	107.55	27.41	34.02	6.07	189	166	P	H
	*	2462	98.87	-	-	99.41	27.41	34.02	6.07	189	166	A	H
		2483.68	72.56	-1.44	74	73.02	27.46	34.01	6.09	189	166	P	H
		2483.8	52.79	-1.21	54	53.25	27.46	34.01	6.09	189	166	A	H
													H
													H
	*	2462	99	-	-	99.54	27.41	34.02	6.07	181	163	P	V
	*	2462	90.44	-	-	90.98	27.41	34.02	6.07	181	163	A	V
		2483.88	61.71	-12.29	74	62.17	27.46	34.01	6.09	181	163	P	V
		2484.48	45.85	-8.15	54	46.31	27.46	34.01	6.09	181	163	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	47.74	-26.26	74	41.32	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	45.01	-28.99	74	38.59	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	49.45	-24.55	74	42.89	31.41	33.54	8.69	100	0	P	H
		7311	50.05	-23.95	74	37.82	36.28	34.44	10.39	100	0	P	H
													H
													H
		4874	45.76	-28.24	74	39.2	31.41	33.54	8.69	100	0	P	V
		7311	50.13	-23.87	74	37.9	36.28	34.44	10.39	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	46.05	-27.95	74	39.31	31.49	33.54	8.79	100	0	P	H
		7386	50.33	-23.67	74	37.86	36.47	34.48	10.48	100	0	P	H
													H
													H
		4924	45.17	-28.83	74	38.43	31.49	33.54	8.79	100	0	P	V
		7386	50.65	-23.35	74	38.18	36.47	34.48	10.48	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 HT20 (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)
802.11n HT20 CH 01 2412MHz		2389.29	69.83	-4.17	74	70.63	27.23	34.04	6.01	146	148	P	H
		2388.93	53.31	-0.69	54	54.11	27.23	34.04	6.01	146	148	A	H
	*	2412	105.77	-	-	106.49	27.28	34.04	6.04	146	148	P	H
	*	2412	97.9	-	-	98.62	27.28	34.04	6.04	146	148	A	H
													H
													H
		2389.38	62.21	-11.79	74	63.01	27.23	34.04	6.01	100	95	P	V
		2390	45.58	-8.42	54	46.38	27.23	34.04	6.01	100	95	A	V
	*	2412	95.71	-	-	96.43	27.28	34.04	6.04	100	95	P	V
	*	2412	88.48	-	-	89.2	27.28	34.04	6.04	100	95	A	V
													V
													V
802.11n HT20 CH 11 2462MHz	*	2462	105.37	-	-	105.91	27.41	34.02	6.07	159	143	P	H
	*	2462	97.52	-	-	98.06	27.41	34.02	6.07	159	143	A	H
		2485	70.86	-3.14	74	71.32	27.46	34.01	6.09	159	143	P	H
		2483.56	51.86	-2.14	54	52.32	27.46	34.01	6.09	159	143	A	H
													H
													H
	*	2462	96.3	-	-	96.84	27.41	34.02	6.07	177	166	P	V
	*	2462	88.66	-	-	89.2	27.41	34.02	6.07	177	166	A	V
		2485.16	60.67	-13.33	74	61.13	27.46	34.01	6.09	177	166	P	V
		2483.88	44.3	-9.7	54	44.76	27.46	34.01	6.09	177	166	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. 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	48	-26	74	41.58	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	45.03	-28.97	74	38.61	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	46.7	-27.3	74	39.96	31.49	33.54	8.79	100	0	P	H
		7386	50.46	-23.54	74	37.99	36.47	34.48	10.48	100	0	P	H
													H
													H
		4924	45.09	-28.91	74	38.35	31.49	33.54	8.79	100	0	P	V
		7386	50.02	-23.98	74	37.55	36.47	34.48	10.48	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 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)
2.4GHz 802.11g LF		66.45	18.75	-21.25	40	44.58	4.92	31.79	1.04	-	-	P	H
		172.02	24.59	-18.91	43.5	46.05	8.68	31.78	1.64	228	104	P	H
		250.05	23.19	-22.81	46	41.01	12.01	31.77	1.94	-	-	P	H
		387.5	20.24	-25.76	46	34.59	15.12	31.79	2.32	-	-	P	H
		624.8	25.98	-20.02	46	36.06	19	32.04	2.96	-	-	P	H
		836.9	23.68	-22.32	46	31.85	20.17	31.74	3.4	-	-	P	H
													H
													H
													H
													H
													H
													H
		85.35	20.31	-19.69	40	43.15	7.67	31.79	1.28	-	-	P	V
		172.02	29.8	-13.7	43.5	51.26	8.68	31.78	1.64	108	301	P	V
		250.05	17.94	-28.06	46	35.76	12.01	31.77	1.94	-	-	P	V
		332.9	19.47	-26.53	46	35.41	13.66	31.77	2.17	-	-	P	V
		721.4	21.09	-24.91	46	30.42	19.54	32.01	3.14	-	-	P	V
		1000	24.25	-29.75	54	30.51	20.6	30.64	3.78	-	-	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 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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
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 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		2389.92	68.99	-5.01	74	69.79	27.23	34.04	6.01	161	226	P	H
		2390	50.7	-3.3	54	51.5	27.23	34.04	6.01	161	226	A	H
	*	2412	101.66	-	-	102.38	27.28	34.04	6.04	161	226	P	H
	*	2412	93.93	-	-	94.65	27.28	34.04	6.04	161	226	A	H
													H
													H
		2388.48	69.21	-4.79	74	70.01	27.23	34.04	6.01	331	129	P	V
		2389.65	53.51	-0.49	54	54.31	27.23	34.04	6.01	331	129	A	V
	*	2412	107.44	-	-	108.16	27.28	34.04	6.04	331	129	P	V
	*	2412	99.31	-	-	100.03	27.28	34.04	6.04	331	129	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2388.93	67.05	-6.95	74	67.85	27.23	34.04	6.01	252	232	P	H
		2389.47	51.92	-2.08	54	52.72	27.23	34.04	6.01	252	232	A	H
	*	2437	110.54	-	-	111.16	27.37	34.03	6.04	252	232	P	H
	*	2437	102.09	-	-	102.71	27.37	34.03	6.04	252	232	A	H
		2485.28	69.17	-4.83	74	69.63	27.46	34.01	6.09	252	232	P	H
		2483.92	50.95	-3.05	54	51.41	27.46	34.01	6.09	252	232	A	H
		2389.11	67.9	-6.1	74	68.7	27.23	34.04	6.01	311	129	P	V
		2389.56	51.3	-2.7	54	52.1	27.23	34.04	6.01	311	129	A	V
	*	2433.817	110.66	-	-	111.33	27.32	34.03	6.04	311	129	P	V
	*	2434.82	102.84	-	-	103.51	27.32	34.03	6.04	311	129	A	V
		2485.6	68.08	-5.92	74	68.54	27.46	34.01	6.09	311	129	P	V
		2484.36	51.47	-2.53	54	51.93	27.46	34.01	6.09	311	129	A	V



802.11n HT20 CH 11 2462MHz	*	2458.199	106.6	-	-	107.14	27.41	34.02	6.07	248	233	P	H
	*	2457.949	97.71	-	-	98.25	27.41	34.02	6.07	248	233	A	H
		2485.68	67.74	-6.26	74	68.2	27.46	34.01	6.09	248	233	P	H
		2484.6	51.49	-2.51	54	51.95	27.46	34.01	6.09	248	233	A	H
													H
													H
	*	2465.213	106.72	-	-	107.26	27.41	34.02	6.07	318	129	P	V
	*	2459.118	98.15	-	-	98.69	27.41	34.02	6.07	318	129	A	V
		2485.36	68.57	-5.43	74	69.03	27.46	34.01	6.09	318	129	P	V
		2484.6	53.51	-0.49	54	53.97	27.46	34.01	6.09	318	129	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 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	44.85	-29.15	74	38.43	31.32	33.55	8.65	100	0	P	H
													H
													H
													H
		4824	48.17	-25.83	74	41.75	31.32	33.55	8.65	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	46.4	-27.6	74	39.84	31.41	33.54	8.69	100	0	P	H
		7311	49.39	-24.61	74	37.16	36.28	34.44	10.39	100	0	P	H
													H
													H
		4874	50.35	-23.65	74	43.79	31.41	33.54	8.69	100	0	P	V
		7311	50.58	-23.42	74	38.35	36.28	34.44	10.39	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	46.25	-27.75	74	39.51	31.49	33.54	8.79	100	0	P	H
		7386	50.57	-23.43	74	38.1	36.47	34.48	10.48	100	0	P	H
													H
													H
		4924	46.59	-27.41	74	39.85	31.49	33.54	8.79	100	0	P	V
		7386	50.23	-23.77	74	37.76	36.47	34.48	10.48	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 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)
2.4GHz 802.11n HT20 LF		66.45	18.75	-21.25	40	44.58	4.92	31.79	1.04	-	-	P	H
		149.88	11.94	-31.56	43.5	32.25	10.01	31.78	1.46	-	-	P	H
		210.36	13.74	-29.76	43.5	35.37	8.36	31.78	1.79	-	-	P	H
		437.9	20.23	-25.77	46	33.31	16.34	31.83	2.41	-	-	P	H
		687.1	21.51	-24.49	46	31.51	18.9	32.04	3.14	-	-	P	H
		935.6	26.07	-19.93	46	33.17	20.37	31.15	3.68	107	29	P	H
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		60.51	13.31	-26.69	40	38.92	5.15	31.8	1.04	-	-	P	V
		109.38	11.28	-32.22	43.5	30.53	11.25	31.78	1.28	-	-	P	V
		229.53	9.8	-36.2	46	30.36	9.42	31.77	1.79	-	-	P	V
		426.7	16.84	-29.16	46	29.68	16.57	31.82	2.41	-	-	P	V
		671.7	18.74	-27.26	46	28.86	18.9	32.04	3.02	-	-	P	V
		812.4	21.12	-24.88	46	29.63	19.95	31.86	3.4	100	304	P	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.
!	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 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)
802.11b CH 01		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
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”.