



Appendix A. Radiated Spurious Emission

Test Engineer :	Nick Yu, Ken Wu and Derreck Chen	Temperature :	21~23°C
		Relative Humidity :	47~49%

15C 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		2389.92	61.56	-12.44	74	56.77	32.18	6.91	34.3	109	62	P	H
		2390	52.5	-1.5	54	47.71	32.18	6.91	34.3	109	62	A	H
	*	2410.604	111.27	-	-	106.44	32.2	6.93	34.3	109	62	P	H
	*	2411.189	107	-	-	102.17	32.2	6.93	34.3	109	62	A	H
													H
													H
		2389.38	58.81	-15.19	74	53.99	32.18	6.91	34.27	176	131	P	V
		2390	46.1	-7.9	54	41.31	32.18	6.91	34.3	176	131	A	V
	*	2410.521	104.9	-	-	100.07	32.2	6.93	34.3	176	131	P	V
	*	2411.189	100.61	-	-	95.78	32.2	6.93	34.3	176	131	A	V
													V
													V
802.11b CH 06 2437MHz		2384.25	58.69	-15.31	74	53.89	32.16	6.91	34.27	106	58	P	H
		2377.23	44.75	-9.25	54	39.99	32.16	6.87	34.27	106	58	A	H
	*	2435.738	111.03	-	-	106.21	32.22	6.95	34.35	106	58	P	H
	*	2436.239	106.91	-	-	102.09	32.22	6.95	34.35	106	58	A	H
		2488.76	59.12	-14.88	74	54.25	32.3	7	34.43	106	58	P	H
		2483.64	45.29	-8.71	54	40.44	32.28	7	34.43	106	58	A	H
		2346.81	57.74	-16.26	74	53.04	32.11	6.84	34.25	173	131	P	V
		2385.33	44.27	-9.73	54	39.47	32.16	6.91	34.27	173	131	A	V
	*	2435.655	105.29	-	-	100.47	32.22	6.95	34.35	173	131	P	V
	*	2436.239	101.27	-	-	96.45	32.22	6.95	34.35	173	131	A	V
		2494.08	58.44	-15.56	74	53.62	32.3	7	34.48	173	131	P	V
		2483.96	44.52	-9.48	54	39.67	32.28	7	34.43	173	131	A	V



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 11 2462MHz	*	2460.788	110.53	-	-	105.68	32.26	6.98	34.39	106	60	P	H
	*	2461.289	106.55	-	-	101.7	32.26	6.98	34.39	106	60	A	H
		2483.92	62.4	-11.6	74	57.55	32.28	7	34.43	106	60	P	H
		2483.52	52.97	-1.03	54	48.12	32.28	7	34.43	106	60	A	H
													H
													H
	*	2463.376	104.67	-	-	99.82	32.26	6.98	34.39	167	129	P	V
	*	2462.792	100.67	-	-	95.82	32.26	6.98	34.39	167	129	A	V
		2490.48	59.51	-14.49	74	54.64	32.3	7	34.43	167	129	P	V
		2483.52	47.43	-6.57	54	42.58	32.28	7	34.43	167	129	A	V
													V
													V
Remark		1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



15C 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	51.1	-22.9	74	66.99	34.26	8.78	58.93	100	0	P	H
													H
													H
													H
		4824	49.61	-24.39	74	65.5	34.26	8.78	58.93	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	47.66	-26.34	74	63.31	34.3	8.88	58.83	100	0	P	H
		7311	52.65	-21.35	74	63.79	35.6	10.99	57.73	100	38	P	H
		7311	44.08	-9.92	54	55.22	35.6	10.99	57.73	100	38	A	H
													H
		4874	44.79	-29.21	74	60.44	34.3	8.88	58.83	100	0	P	V
		7311	56.26	-17.74	74	67.4	35.6	10.99	57.73	121	171	P	V
		7311	48.44	-5.56	54	59.58	35.6	10.99	57.73	121	171	A	V
													V
802.11b CH 11 2462MHz		4924	50.94	-23.06	74	66.29	34.34	9.04	58.73	100	0	P	H
		7386	46.97	-27.03	74	58.1	35.6	11.07	57.8	100	0	P	H
													H
													H
		4924	48.3	-25.7	74	63.65	34.34	9.04	58.73	100	0	P	V
		7386	50.51	-23.49	74	61.64	35.6	11.07	57.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		2389.92	70.32	-3.68	74	65.53	32.18	6.91	34.3	108	50	P	H
		2389.65	48	-6	54	43.18	32.18	6.91	34.27	108	50	A	H
	*	2407.933	107.1	-	-	102.27	32.2	6.93	34.3	108	50	P	H
	*	2408.851	96.42	-	-	91.59	32.2	6.93	34.3	108	50	A	H
													H
													H
		2386.86	65.69	-8.31	74	60.87	32.18	6.91	34.27	176	131	P	V
		2388.93	45.92	-8.08	54	41.1	32.18	6.91	34.27	176	131	A	V
	*	2408.434	102.69	-	-	97.86	32.2	6.93	34.3	176	131	P	V
	*	2409.102	91.65	-	-	86.82	32.2	6.93	34.3	176	131	A	V
													V
													V
802.11g CH 06 2437MHz		2388.57	70.05	-3.95	74	65.23	32.18	6.91	34.27	109	45	P	H
		2389.83	49.8	-4.2	54	45.01	32.18	6.91	34.3	109	45	A	H
	*	2434.82	111.87	-	-	107.05	32.22	6.95	34.35	109	45	P	H
	*	2434.402	101.14	-	-	96.32	32.22	6.95	34.35	109	45	A	H
		2487.6	73.05	-0.95	74	68.18	32.3	7	34.43	109	45	P	H
		2483.68	50.8	-3.2	54	45.95	32.28	7	34.43	109	45	A	H
		2386.86	65.23	-8.77	74	60.41	32.18	6.91	34.27	173	130	P	V
		2389.83	46.89	-7.11	54	42.1	32.18	6.91	34.3	173	130	A	V
	*	2434.569	106.65	-	-	101.83	32.22	6.95	34.35	173	130	P	V
	*	2433.149	96.11	-	-	91.29	32.22	6.95	34.35	173	130	A	V
		2486.12	68.77	-5.23	74	63.92	32.28	7	34.43	173	130	P	V
		2483.56	47.86	-6.14	54	43.01	32.28	7	34.43	173	130	A	V



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 11 2462MHz	*	2461.957	108.16	-	-	103.31	32.26	6.98	34.39	107	45	P	H
	*	2463.543	96.51	-	-	91.66	32.26	6.98	34.39	107	45	A	H
		2483.56	72.01	-1.99	74	67.16	32.28	7	34.43	107	45	P	H
		2483.84	48.43	-5.57	54	43.58	32.28	7	34.43	107	45	A	H
													H
													H
	*	2463.961	102.2	-	-	97.35	32.26	6.98	34.39	170	131	P	V
	*	2465.046	90.86	-	-	86.01	32.26	6.98	34.39	170	131	A	V
		2485.56	64.83	-9.17	74	59.98	32.28	7	34.43	170	131	P	V
		2485.48	45.79	-8.21	54	40.94	32.28	7	34.43	170	131	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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	45.54	-28.46	74	61.43	34.26	8.78	58.93	100	0	P	H
													H
													H
													H
		4824	42.11	-31.89	74	58	34.26	8.78	58.93	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	45.97	-28.03	74	61.62	34.3	8.88	58.83	100	0	P	H
		7311	46.6	-27.4	74	57.74	35.6	10.99	57.73	100	0	P	H
													H
													H
		4874	43.77	-30.23	74	59.42	34.3	8.88	58.83	100	0	P	V
		7311	52.74	-21.26	74	63.88	35.6	10.99	57.73	100	330	P	V
		7311	40.61	-13.39	54	51.75	35.6	10.99	57.73	100	330	A	V
													V
802.11g CH 11 2462MHz		4924	47.76	-26.24	74	63.11	34.34	9.04	58.73	100	0	P	H
		7386	52.98	-21.02	74	64.11	35.6	11.07	57.8	100	38	P	H
		7386	35.29	-18.71	54	46.42	35.6	11.07	57.8	100	38	A	H
													H
		4924	46.03	-27.97	74	61.38	34.34	9.04	58.73	100	0	P	V
		7386	48.69	-25.31	74	59.82	35.6	11.07	57.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		2389.92	72.6	-1.4	74	67.81	32.18	6.91	34.3	109	60	P	H
		2390	48.92	-5.08	54	44.13	32.18	6.91	34.3	109	60	A	H
	*	2408.768	106.87	-	-	102.04	32.2	6.93	34.3	109	60	P	H
	*	2408.1	96.56	-	-	91.73	32.2	6.93	34.3	109	60	A	H
													H
													H
		2387.94	67.74	-6.26	74	62.92	32.18	6.91	34.27	176	131	P	V
		2389.92	45.97	-8.03	54	41.18	32.18	6.91	34.3	176	131	A	V
	*	2407.431	101.97	-	-	97.14	32.2	6.93	34.3	176	131	P	V
	*	2408.434	91.69	-	-	86.86	32.2	6.93	34.3	176	131	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2387.94	67.65	-6.35	74	62.83	32.18	6.91	34.27	108	50	P	H
		2389.74	47.24	-6.76	54	42.42	32.18	6.91	34.27	108	50	A	H
	*	2440.915	111.14	-	-	106.34	32.24	6.95	34.39	108	50	P	H
	*	2433.817	100.47	-	-	95.65	32.22	6.95	34.35	108	50	A	H
		2483.56	70.04	-3.96	74	65.19	32.28	7	34.43	108	50	P	H
		2484.64	48.39	-5.61	54	43.54	32.28	7	34.43	108	50	A	H
		2388.93	62.19	-11.81	74	57.37	32.18	6.91	34.27	173	131	P	V
		2387.58	45.65	-8.35	54	40.83	32.18	6.91	34.27	173	131	A	V
	*	2433.4	106.09	-	-	101.27	32.22	6.95	34.35	173	131	P	V
	*	2433.316	94.97	-	-	90.15	32.22	6.95	34.35	173	131	A	V
		2486.56	62.87	-11.13	74	58.02	32.28	7	34.43	173	131	P	V
		2485.04	46.32	-7.68	54	41.47	32.28	7	34.43	173	131	A	V



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 11 2462MHz	*	2458.366	106.26	-	-	101.41	32.26	6.98	34.39	105	41	P	H
	*	2458.45	95.59	-	-	90.74	32.26	6.98	34.39	105	41	A	H
		2484.68	72.57	-1.43	74	67.72	32.28	7	34.43	105	41	P	H
		2483.6	49.57	-4.43	54	44.72	32.28	7	34.43	105	41	A	H
													H
													H
	*	2458.867	100.56	-	-	95.71	32.26	6.98	34.39	176	131	P	V
	*	2465.548	90.22	-	-	85.37	32.26	6.98	34.39	176	131	A	V
		2484.92	69.55	-4.45	74	64.7	32.28	7	34.43	176	131	P	V
		2484.84	47.8	-6.2	54	42.95	32.28	7	34.43	176	131	A	V
													V
													V
Remark - No other spurious found. - All results are PASS against Peak and Average limit line.													



15C 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	45.21	-28.79	74	61.1	34.26	8.78	58.93	100	0	P	H
													H
													H
													H
		4824	42.03	-31.97	74	57.92	34.26	8.78	58.93	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	47.08	-26.92	74	62.73	34.3	8.88	58.83	100	0	P	H
		7311	50.71	-23.29	74	61.85	35.6	10.99	57.73	100	0	P	H
													H
													H
		4874	43.62	-30.38	74	59.27	34.3	8.88	58.83	100	0	P	V
		7311	49.7	-24.3	74	60.84	35.6	10.99	57.73	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	48.7	-25.3	74	64.05	34.34	9.04	58.73	100	0	P	H
		7386	48.56	-25.44	74	59.69	35.6	11.07	57.8	100	0	P	H
													H
													H
		4924	44.59	-29.41	74	59.94	34.34	9.04	58.73	100	0	P	V
		7386	50.02	-23.98	74	61.15	35.6	11.07	57.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		62.94	23.89	-16.11	40	48.35	6	0.78	31.24			P	H
		122.07	34.96	-8.54	43.5	53.47	11.48	1.11	31.1	109	218	P	H
		240.6	27.42	-18.58	46	45.49	11.4	1.53	31			P	H
		397.3	28.63	-17.37	46	41.58	15.82	2.14	30.91			P	H
		617.8	23.5	-22.5	46	31.18	20.14	2.74	30.56			P	H
		839.7	27.85	-18.15	46	31.79	23.2	3.24	30.38			P	H
													H
													H
													H
													H
													H
													H
		50.79	29.1	-10.9	40	51.2	8.4	0.7	31.2	139	264	P	V
		159.06	31.29	-12.21	43.5	50.72	10.54	1.22	31.19			P	V
		259.23	16	-30	46	31.58	13.84	1.58	31			P	V
		400.1	24.69	-21.31	46	37.52	15.93	2.14	30.9			P	V
		693.4	23.94	-22.06	46	30.88	20.54	2.93	30.41			P	V
		963.6	28.14	-25.86	54	30.29	24.73	3.47	30.35			P	V
													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 per 15.209(c).
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



15C 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 11 2462MHz	*	2462	108.21	-	-	103.36	32.26	6.98	34.39	108	245	P	H
	*	2462	104.07	-	-	99.22	32.26	6.98	34.39	108	245	A	H
		2483.6	61.14	-12.86	74	56.29	32.28	7	34.43	108	245	P	H
		2483.52	52.06	-1.94	54	47.21	32.28	7	34.43	108	245	A	H
													H
													H
	*	2461	107.03	-	-	102.18	32.26	6.98	34.39	100	276	P	V
	*	2461	103.1	-	-	98.25	32.26	6.98	34.39	100	276	A	V
		2484.76	60.51	-13.49	74	55.66	32.28	7	34.43	100	276	P	V
		2483.52	49.85	-4.15	54	45	32.28	7	34.43	100	276	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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 11 2462MHz		4924	52.09	-21.91	74	67.44	34.34	9.04	58.73	100	311	P	H
		4924	45.74	-8.26	54	61.09	34.34	9.04	58.73	100	311	A	H
		7386	56.74	-17.26	74	67.87	35.6	11.07	57.8	100	57	P	H
		7386	53.55	-0.45	54	64.68	35.6	11.07	57.8	100	57	A	H
		4924	49.76	-24.24	74	65.11	34.34	9.04	58.73	100	0	P	V
		7386	55.57	-18.43	74	66.7	35.6	11.07	57.8	136	309	P	V
		7386	53.44	-0.56	54	64.57	35.6	11.07	57.8	136	309	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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 06 2437MHz		2384.61	65.48	-8.52	74	60.68	32.16	6.91	34.27	176	309	P	H
		2388.93	46.28	-7.72	54	41.46	32.18	6.91	34.27	176	309	A	H
	*	2436	109.95	-	-	105.13	32.22	6.95	34.35	176	309	P	H
	*	2436	98.93	-	-	94.11	32.22	6.95	34.35	176	309	A	H
		2487.44	72.54	-1.46	74	67.69	32.28	7	34.43	176	309	P	H
		2483.68	47.83	-6.17	54	42.98	32.28	7	34.43	176	309	A	H
		2388.12	68.61	-5.39	74	63.79	32.18	6.91	34.27	100	267	P	V
		2389.56	47.96	-6.04	54	43.14	32.18	6.91	34.27	100	267	A	V
	*	2438	111.41	-	-	106.57	32.24	6.95	34.35	100	267	P	V
	*	2438	100.43	-	-	95.59	32.24	6.95	34.35	100	267	A	V
		2487.76	72.43	-1.57	74	67.56	32.3	7	34.43	100	267	P	V
		2484	48.49	-5.51	54	43.64	32.28	7	34.43	100	267	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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 06 2437MHz		4874	50.23	-23.77	74	65.88	34.3	8.88	58.83	100	0	P	H
		7311	61.98	-12.02	74	73.12	35.6	10.99	57.73	101	328	P	H
		7311	50.07	-3.93	54	61.21	35.6	10.99	57.73	101	328	A	H
													H
		4874	46.26	-27.74	74	61.91	34.3	8.88	58.83	100	0	P	V
		7311	61.63	-12.37	74	72.77	35.6	10.99	57.73	136	298	P	V
		7311	51.25	-2.75	54	62.39	35.6	10.99	57.73	136	298	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		62.13	17.24	-22.76	40	41.72	6	0.78	31.26			P	H
		170.67	23.28	-20.22	43.5	43.53	9.62	1.23	31.1			P	H
		279.21	33.83	-12.17	46	50.29	12.81	1.64	30.91	127	23	P	H
		435.8	19.1	-26.9	46	30.61	16.95	2.26	30.72			P	H
		680.1	22.87	-23.13	46	29.91	20.5	2.9	30.44			P	H
		984.6	28.27	-25.73	54	30.13	24.91	3.49	30.26			P	H
													H
													H
													H
													H
													H
													H
		42.15	26.38	-13.62	40	45.04	11.9	0.64	31.2	171	21	P	V
		184.71	19.77	-23.73	43.5	40.69	8.82	1.26	31			P	V
		291.63	19.11	-26.89	46	35.37	13.12	1.71	31.09			P	V
		351.1	24.89	-21.11	46	39.53	14.43	1.98	31.05			P	V
		722.1	23.92	-22.08	46	29.77	21.56	2.99	30.4			P	V
		973.4	27.49	-26.51	54	29.44	24.88	3.48	30.31			P	V
													V
													V
													V
													V
													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 per 15.209(c).
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



15C 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		2388.66	70.69	-3.31	74	65.87	32.18	6.91	34.27	113	252	P	H
		2389.83	47.83	-6.17	54	43.04	32.18	6.91	34.3	113	252	A	H
	*	2414	108.7	-	-	103.87	32.2	6.93	34.3	113	252	P	H
	*	2414	97.72	-	-	92.89	32.2	6.93	34.3	113	252	A	H
													H
													H
		2384.7	58.15	-15.85	74	53.35	32.16	6.91	34.27	132	158	P	V
		2388.93	45.05	-8.95	54	40.23	32.18	6.91	34.27	132	158	A	V
	*	2411	97.27	-	-	92.44	32.2	6.93	34.3	132	158	P	V
	*	2411	87.27	-	-	82.44	32.2	6.93	34.3	132	158	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2390	60.09	-13.91	74	55.3	32.18	6.91	34.3	108	48	P	H
		2389.83	46.28	-7.72	54	41.49	32.18	6.91	34.3	108	48	A	H
	*	2435	107.74	-	-	102.92	32.22	6.95	34.35	108	48	P	H
	*	2435	96.87	-	-	92.05	32.22	6.95	34.35	108	48	A	H
		2484.84	64.21	-9.79	74	59.36	32.28	7	34.43	108	48	P	H
		2483.64	47.73	-6.27	54	42.88	32.28	7	34.43	108	48	A	H
		2385.24	57.86	-16.14	74	53.06	32.16	6.91	34.27	165	65	P	V
		2381.64	44.95	-9.05	54	40.15	32.16	6.91	34.27	165	65	A	V
	*	2438	97.63	-	-	92.79	32.24	6.95	34.35	165	65	P	V
	*	2438	87.06	-	-	82.22	32.24	6.95	34.35	165	65	A	V
		2485.04	58.88	-15.12	74	54.03	32.28	7	34.43	165	65	P	V
		2483.92	45.46	-8.54	54	40.61	32.28	7	34.43	165	65	A	V



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 11 2462MHz	*	2464	107.19	-	-	102.34	32.26	6.98	34.39	110	58	P	H
	*	2464	96.67	-	-	91.82	32.26	6.98	34.39	110	58	A	H
		2484.36	72.51	-1.49	74	67.66	32.28	7	34.43	110	58	P	H
		2483.68	47.84	-6.16	54	42.99	32.28	7	34.43	110	58	A	H
													H
													H
	*	2462	99.92	-	-	95.07	32.26	6.98	34.39	170	164	P	V
	*	2462	87.68	-	-	82.83	32.26	6.98	34.39	170	164	A	V
		2484.04	65.71	-8.29	74	60.86	32.28	7	34.43	170	164	P	V
		2483.72	45.27	-8.73	54	40.42	32.28	7	34.43	170	164	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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	42.1	-31.9	74	57.99	34.26	8.78	58.93	100	0	P	H
													H
													H
													H
		4824	42.76	-31.24	74	58.65	34.26	8.78	58.93	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	43.96	-30.04	74	59.61	34.3	8.88	58.83	100	0	P	H
		7311	47.96	-26.04	74	59.1	35.6	10.99	57.73	100	0	P	H
													H
													H
		4874	41.63	-32.37	74	57.28	34.3	8.88	58.83	100	0	P	V
		7311	50.11	-23.89	74	61.25	35.6	10.99	57.73	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	42.71	-31.29	74	58.06	34.34	9.04	58.73	100	0	P	H
		7386	42.45	-31.55	74	53.58	35.6	11.07	57.8	100	0	P	H
													H
													H
		4924	41.51	-32.49	74	56.86	34.34	9.04	58.73	100	0	P	V
		7386	48.18	-25.82	74	59.31	35.6	11.07	57.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15C 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		39.72	33.77	-6.23	40	50.35	14	0.62	31.2	102	236	P	H
		99.39	23.86	-19.64	43.5	43.57	10.4	0.99	31.1			P	H
		239.25	28.14	-17.86	46	46.31	11.3	1.53	31			P	H
		360.9	25.4	-20.6	46	39.72	14.72	2.06	31.1			P	H
		603.1	22.4	-23.6	46	30.6	19.69	2.7	30.59			P	H
		944.7	28.24	-17.76	46	30.83	24.35	3.45	30.39			P	H
													H
													H
													H
													H
													H
													H
		51.87	17.94	-22.06	40	40.83	7.6	0.71	31.2			P	V
		157.98	30.89	-12.61	43.5	50.27	10.58	1.22	31.18	171	253	P	V
		247.35	16.94	-29.06	46	34.31	12.1	1.53	31			P	V
		402.9	24.61	-21.39	46	37.37	15.98	2.15	30.89			P	V
		716.5	24.11	-21.89	46	30.25	21.28	2.98	30.4			P	V
		934.2	27.52	-18.48	46	30.17	24.3	3.42	30.37			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	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”.