Appendix B. Radiated Spurious Emission

Test Engineer :	Elvis Chen, Stan Hsieh, Karl Hou, and Lewis He	Temperature :	23~25°C
		Relative Humidity :	45~47%

<For Sample 2>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2386.95	57.44	-16.56	74	58.06	27.23	5.39	33.24	344	304	P	H
		2386.77	49.8	-4.2	54	50.42	27.23	5.39	33.24	344	304	A	H
	*	2413.11	109.91	-	-	110.43	27.28	5.42	33.22	344	304	P	H
	*	2413.11	107.42	-	-	107.94	27.28	5.42	33.22	344	304	A	H
													H
													H
		2386.86	55.45	-18.55	74	56.07	27.23	5.39	33.24	100	69	P	V
		2386.68	47.73	-6.27	54	48.35	27.23	5.39	33.24	100	69	A	V
	*	2412.024	107.76	-	-	108.28	27.28	5.42	33.22	100	69	P	V
	*	2413.11	105.29	-	-	105.81	27.28	5.42	33.22	100	69	A	V
													V
													V
802.11b CH 06 2437MHz		2339.88	56.92	-17.08	74	57.74	27.1	5.33	33.25	333	301	P	H
		2380.92	44.45	-9.55	54	45.11	27.19	5.39	33.24	333	301	A	H
	*	2436.99	110.24	-	-	110.66	27.37	5.42	33.21	333	301	P	H
	*	2438.159	107.51	-	-	107.93	27.37	5.42	33.21	333	301	A	H
		2493.68	55.35	-18.65	74	55.56	27.5	5.46	33.17	333	301	P	H
		2492.68	44.52	-9.48	54	44.73	27.5	5.46	33.17	333	301	A	H
		2339.97	56.19	-17.81	74	57.01	27.1	5.33	33.25	100	68	P	V
		2380.56	44.12	-9.88	54	44.78	27.19	5.39	33.24	100	68	A	V
	*	2436.99	108.41	-	-	108.83	27.37	5.42	33.21	100	68	P	V
	*	2435.822	105.73	-	-	106.2	27.32	5.42	33.21	100	68	A	V
		2492.68	55.1	-18.9	74	55.31	27.5	5.46	33.17	100	68	P	V
		2492.8	45.66	-8.34	54	45.87	27.5	5.46	33.17	100	68	A	V

802.11b CH 11 2462MHz	*	2462.041	107.41	-	-	107.76	27.41	5.44	33.2	113	0	P	H
	*	2460.872	104.93	-	-	105.28	27.41	5.44	33.2	113	0	A	H
		2487.4	58.58	-15.42	74	58.84	27.46	5.46	33.18	113	0	P	H
		2487.6	51.63	-2.37	54	51.85	27.5	5.46	33.18	113	0	A	H
													H
													H
	*	2462.041	107.75	-	-	108.1	27.41	5.44	33.2	100	68	P	V
	*	2460.872	105.23	-	-	105.58	27.41	5.44	33.2	100	68	A	V
		2487.56	58.83	-15.17	74	59.05	27.5	5.46	33.18	100	68	P	V
		2487.56	51.23	-2.77	54	51.45	27.5	5.46	33.18	100	68	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	39.12	-34.88	74	60.69	31.46	7.58	60.61	100	0	P	H
		7236	44.42	-29.58	74	59.67	36.03	9.44	60.72	100	0	P	H
													H
													H
		4824	40.29	-33.71	74	61.86	31.46	7.58	60.61	100	0	P	V
		7236	44.28	-29.72	74	59.53	36.03	9.44	60.72	100	0	P	V
													V
													V
802.11b CH 06 2437MHz		4872	41.53	-32.47	74	62.79	31.56	7.7	60.52	100	0	P	H
		7308	44.1	-29.9	74	59.36	36.18	9.49	60.93	100	0	P	H
													H
													H
		4872	40.72	-33.28	74	61.98	31.56	7.7	60.52	100	0	P	V
		7308	43.27	-30.73	74	58.53	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4926	41.3	-32.7	74	62.13	31.66	7.93	60.42	100	0	P	H
		7386	42.21	-31.79	74	57.5	36.37	9.53	61.19	100	0	P	H
													H
													H
		4924	40.24	-33.76	74	61.07	31.66	7.93	60.42	100	0	P	V
		7386	43.04	-30.96	74	58.33	36.37	9.53	61.19	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		2389.56	66.98	-7.02	74	67.6	27.23	5.39	33.24	343	317	P	H
		2390	50.15	-3.85	54	50.75	27.23	5.39	33.22	343	317	A	H
	*	2413.533	106.5	-	-	107.02	27.28	5.42	33.22	343	317	P	H
	*	2413.95	98.38	-	-	98.9	27.28	5.42	33.22	343	317	A	H
													H
													H
		2389.38	61.86	-12.14	74	62.48	27.23	5.39	33.24	102	69	P	V
		2390	47.42	-6.58	54	48.02	27.23	5.39	33.22	102	69	A	V
	*	2410.264	104.13	-	-	104.65	27.28	5.42	33.22	102	69	P	V
	*	2410.598	95.72	-	-	96.24	27.28	5.42	33.22	102	69	A	V
													V
													V
802.11g CH 06 2437MHz		2384.7	57.75	-16.25	74	58.41	27.19	5.39	33.24	301	308	P	H
		2384.7	49.03	-4.97	54	49.69	27.19	5.39	33.24	301	308	A	H
	*	2432.147	110.65	-	-	111.12	27.32	5.42	33.21	301	308	P	H
	*	2430.478	102.72	-	-	103.19	27.32	5.42	33.21	301	308	A	H
		2484.76	58.44	-15.56	74	58.7	27.46	5.46	33.18	301	308	P	H
		2489.32	46.68	-7.32	54	46.9	27.5	5.46	33.18	301	308	A	H
		2384.52	56.94	-17.06	74	57.6	27.19	5.39	33.24	100	67	P	V
		2384.7	47.28	-6.72	54	47.94	27.19	5.39	33.24	100	67	A	V
	*	2435	109.4	-	-	109.87	27.32	5.42	33.21	100	67	P	V
	*	2435	101.25	-	-	101.72	27.32	5.42	33.21	100	67	A	V
		2485.36	60.52	-13.48	74	60.78	27.46	5.46	33.18	100	67	P	V
		2489.36	49.26	-4.74	54	49.48	27.5	5.46	33.18	100	67	A	V

802.11g CH 11 2462MHz	*	2460.196	103.81	-	-	104.16	27.41	5.44	33.2	115	360	P	H
	*	2460.281	95.74	-	-	96.09	27.41	5.44	33.2	115	360	A	H
		2483.6	67.66	-6.34	74	67.92	27.46	5.46	33.18	115	360	P	H
		2483.52	51.12	-2.88	54	51.38	27.46	5.46	33.18	115	360	A	H
													H
													H
	*	2460.196	103.51	-	-	103.86	27.41	5.44	33.2	128	69	P	V
	*	2460.11	95.96	-	-	96.31	27.41	5.44	33.2	128	69	A	V
		2483.56	68.7	-5.3	74	68.96	27.46	5.46	33.18	128	69	P	V
		2483.52	51.55	-2.45	54	51.81	27.46	5.46	33.18	128	69	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		4826	37.97	-36.03	74	59.54	31.46	7.58	60.61	100	0	P	H
													H
													H
													H
		4824	36.34	-37.66	74	57.91	31.46	7.58	60.61	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4872	37.82	-36.18	74	59.08	31.56	7.7	60.52	100	0	P	H
		7308	42.86	-31.14	74	58.12	36.18	9.49	60.93	100	0	P	H
													H
													H
		4872	38.09	-35.91	74	59.35	31.56	7.7	60.52	100	0	P	V
		7308	43.61	-30.39	74	58.87	36.18	9.49	60.93	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4926	38.19	-35.81	74	59.02	31.66	7.93	60.42	100	0	P	H
		7386	41.86	-32.14	74	57.15	36.37	9.53	61.19	100	0	P	H
													H
													H
		4926	37.42	-36.58	74	58.25	31.66	7.93	60.42	100	0	P	V
		7386	42.47	-31.53	74	57.76	36.37	9.53	61.19	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)
		2389.65	70.61	-3.39	74	71.23	27.23	5.39	33.24	342	312	P	H
		2390	52.76	-1.24	54	53.36	27.23	5.39	33.22	343	314	A	H
	*	2414	105.97	-	-	106.49	27.28	5.42	33.22	342	312	P	H
	*	2410	97.86	-	-	98.38	27.28	5.42	33.22	342	312	A	H
802.11n													H
HT20													H
CH 01		2388.57	65.75	-8.25	74	66.37	27.23	5.39	33.24	307	73	P	V
2412MHz		2390	49.91	-4.09	54	50.51	27.23	5.39	33.22	307	73	A	V
	*	2410	103.35	-	-	103.87	27.28	5.42	33.22	307	73	P	V
	*	2410	95.24	-	-	95.76	27.28	5.42	33.22	307	73	A	V
													V
													V
		2384.97	57.32	-16.68	74	57.98	27.19	5.39	33.24	376	306	P	H
		2385.24	48.38	-5.62	54	49.04	27.19	5.39	33.24	376	306	A	H
	*	2435	111.99	-	-	112.46	27.32	5.42	33.21	376	306	P	H
	*	2435	103.01	-	-	103.48	27.32	5.42	33.21	376	306	A	H
802.11n		2489.8	58.21	-15.79	74	58.43	27.5	5.46	33.18	376	306	P	H
HT20		2488.68	47.74	-6.26	54	47.96	27.5	5.46	33.18	376	306	A	H
CH 06		2340.42	56.1	-17.9	74	56.92	27.1	5.33	33.25	100	72	P	V
2437MHz		2385.24	46.48	-7.52	54	47.14	27.19	5.39	33.24	100	72	A	V
	*	2439	107.82	-	-	108.24	27.37	5.42	33.21	100	72	P	V
	*	2439	99.9	-	-	100.32	27.37	5.42	33.21	100	72	A	V
		2489.48	60.52	-13.48	74	60.74	27.5	5.46	33.18	100	72	P	V
		2488.72	49.35	-4.65	54	49.57	27.5	5.46	33.18	100	72	A	V

	*	2460.621	103.24	-	-	103.59	27.41	5.44	33.2	115	320	P	H
	*	2458.032	94.97	-	-	95.32	27.41	5.44	33.2	115	320	A	H
		2483.56	66.59	-7.41	74	66.85	27.46	5.46	33.18	115	320	P	H
		2483.52	49.79	-4.21	54	50.05	27.46	5.46	33.18	115	320	A	H
802.11n													H
HT20													H
CH 11	*	2456.029	102.76	-	-	103.11	27.41	5.44	33.2	129	69	P	V
2462MHz	*	2455.862	95.06	-	-	95.41	27.41	5.44	33.2	129	69	A	V
		2483.56	70.47	-3.53	74	70.73	27.46	5.46	33.18	129	69	P	V
		2483.52	52.02	-1.98	54	52.28	27.46	5.46	33.18	129	69	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)
		4824	36.28	-37.72	74	57.85	31.46	7.58	60.61	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	36.95	-37.05	74	58.52	31.46	7.58	60.61	100	0	P	V
2412MHz													V
													V
													V
		4872	39.1	-34.9	74	60.36	31.56	7.7	60.52	100	0	P	H
		7308	43.56	-30.44	74	58.82	36.18	9.49	60.93	100	0	P	H
802.11n													H
HT20													H
CH 06		4872	38.14	-35.86	74	59.4	31.56	7.7	60.52	100	0	P	V
2437MHz		7308	43.34	-30.66	74	58.6	36.18	9.49	60.93	100	0	P	V
													V
													V
		4926	38.64	-35.36	74	59.47	31.66	7.93	60.42	100	0	P	H
		7386	39.08	-34.92	74	54.37	36.37	9.53	61.19	100	0	P	H
802.11n													H
HT20													H
CH 11		4924	38.51	-35.49	74	59.34	31.66	7.93	60.42	100	0	P	V
2462MHz		7386	42	-32	74	57.29	36.37	9.53	61.19	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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		31.62	16.28	-23.72	40	29.53	18.92	0.65	32.82			P	H
		40.53	12.19	-27.81	40	30.4	13.94	0.65	32.8			P	H
		269.49	17.6	-28.4	46	35.07	13.5	1.76	32.73			P	H
		489.7	24.03	-21.97	46	36.6	18.01	2.33	32.91			P	H
		498.8	25.67	-20.33	46	38.09	18.17	2.33	32.92	124	33	P	H
		561.8	24.84	-21.16	46	36.45	18.91	2.47	32.99			P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		32.16	19.07	-20.93	40	32.32	18.92	0.65	32.82			P	V
LF		35.4	16.97	-23.03	40	32.39	16.74	0.65	32.81			P	V
		122.61	11.91	-31.59	43.5	31.5	11.92	1.14	32.65			P	V
		476.4	26.29	-19.71	46	39.12	17.77	2.3	32.9			P	V
		500.2	25.89	-20.11	46	38.28	18.2	2.33	32.92			P	V
		755.7	27.75	-18.25	46	36.11	21.66	2.91	32.93	125	32	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	**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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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".

<For Sample 1>

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)
		2389.38	67.91	-6.09	74	68.53	27.23	5.39	33.24	338	304	P	H
		2390	49.84	-4.16	54	50.44	27.23	5.39	33.22	338	304	A	H
	*	2410	105.95	-	-	106.47	27.28	5.42	33.22	338	304	P	H
	*	2410	96.9	-	-	97.42	27.28	5.42	33.22	338	304	A	H
802.11n													H
HT20													H
CH 01		2389.38	61.72	-12.28	74	62.34	27.23	5.39	33.24	298	21	P	V
2412MHz		2390	47.26	-6.74	54	47.86	27.23	5.39	33.22	298	21	A	V
	*	2410	105.93	-	-	106.45	27.28	5.42	33.22	298	21	P	V
	*	2410	94.88	-	-	95.4	27.28	5.42	33.22	298	21	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)
		4824	36.62	-37.38	74	58.19	31.46	7.58	60.61	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	38.48	-35.52	74	60.05	31.46	7.58	60.61	100	0	P	V
2412MHz													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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		30	26.64	-13.36	40	38.81	20	0.65	32.82			P	H
		80.76	31.31	-8.69	40	55.07	8	0.93	32.69	163	99	P	H
		140.16	26.88	-16.62	43.5	46.35	11.87	1.33	32.67			P	H
		307	24.35	-21.65	46	41.19	14.02	1.88	32.74			P	H
		335.7	23.22	-22.78	46	39.25	14.8	1.94	32.77			P	H
		745.9	24.04	-21.96	46	32.55	21.52	2.91	32.94			P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		31.89	32.4	-7.6	40	45.65	18.92	0.65	32.82			P	V
LF		78.87	35.53	-4.47	40	59.53	7.76	0.93	32.69	147	55	P	V
		140.97	23.4	-20.1	43.5	42.87	11.87	1.33	32.67			P	V
		305.6	18.75	-27.25	46	35.65	13.96	1.88	32.74			P	V
		332.9	17.57	-28.43	46	33.68	14.72	1.94	32.77			P	V
		951.7	25.83	-20.17	46	29.99	24.29	3.29	31.74			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	**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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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".

<For Sample 3>

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)
		2390	67.49	-6.51	74	68.09	27.23	5.39	33.22	200	270	P	H
		2390	50.68	-3.32	54	51.28	27.23	5.39	33.22	200	270	A	H
	*	2410	103.63	-	-	104.15	27.28	5.42	33.22	200	270	P	H
	*	2410	95.85	-	-	96.37	27.28	5.42	33.22	200	270	A	H
802.11n													H
HT20													H
CH 01		2388.75	66.67	-7.33	74	67.29	27.23	5.39	33.24	301	303	P	V
2412MHz		2390	50.19	-3.81	54	50.79	27.23	5.39	33.22	301	303	A	V
	*	2414	105.61	-	-	106.13	27.28	5.42	33.22	301	303	P	V
	*	2414	97.39	-	-	97.91	27.28	5.42	33.22	301	303	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)
		4824	35.11	-38.89	74	56.68	31.46	7.58	60.61	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	38.26	-35.74	74	59.83	31.46	7.58	60.61	100	0	P	V
2412MHz													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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		30.27	22.8	-17.2	40	34.97	20	0.65	32.82			P	H
		80.22	28.4	-11.6	40	52.16	8	0.93	32.69	116	90	P	H
		149.34	29.08	-14.42	43.5	48.8	11.63	1.33	32.68			P	H
		320.3	21.13	-24.87	46	37.63	14.37	1.88	32.75			P	H
		629	21.06	-24.94	46	31.51	19.95	2.62	33.02			P	H
		944.7	27.24	-18.76	46	31.58	24.19	3.29	31.82			P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		30.27	30.62	-9.38	40	42.79	20	0.65	32.82			P	V
LF		56.19	26.05	-13.95	40	50.54	7.34	0.93	32.76			P	V
		81.3	30.73	-9.27	40	54.37	8.12	0.93	32.69	136	355	P	V
		328.7	17.03	-28.97	46	33.24	14.61	1.94	32.76			P	V
		656.3	21.3	-24.7	46	31.39	20.25	2.67	33.01			P	V
		958	25.93	-20.07	46	30.04	24.27	3.29	31.67			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	**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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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".