



Appendix A. Radiated Spurious Emission

Test Engineer :	Ken Wu, Jesse Wang, and James Chiu	Temperature :	21~24°C
		Relative Humidity :	50~54%

Band 1 - 5150~5250MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 38 5190MHz		5149.5	57.45	-16.55	74	47.63	33.69	11.21	35.08	217	48	P	H
		5147.68	50.13	-3.87	54	40.31	33.69	11.21	35.08	217	48	A	H
	*	5190	101.96	-	-	92.01	33.78	11.25	35.08	217	48	P	H
	*	5190	93.55	-	-	83.6	33.78	11.25	35.08	217	48	A	H
		5441.52	49.59	-24.41	74	38.36	34.43	11.89	35.09	217	48	P	H
		5358	41.8	-12.2	54	30.91	34.21	11.76	35.08	217	48	A	H
		5149.24	54.93	-19.07	74	45.11	33.69	11.21	35.08	200	73	P	V
		5149.76	49.28	-4.72	54	39.46	33.69	11.21	35.08	200	73	A	V
	*	5190	100.5	-	-	90.55	33.78	11.25	35.08	200	73	P	V
	*	5190	92.17	-	-	82.22	33.78	11.25	35.08	200	73	A	V
		5352.24	49.44	-24.56	74	38.55	34.21	11.76	35.08	200	73	P	V
		5456.64	41.22	-12.78	54	29.95	34.47	11.89	35.09	200	73	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT40 (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 HT40 CH 38 5190MHz		10380	45.36	-28.64	74	48.27	39.11	17.17	59.19	100	0	P	H	
		15570	46.7	-27.3	74	43.09	41.14	19.63	57.16	100	0	P	H	
													H	
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			10380	45.02	-28.98	74	47.93	39.11	17.17	59.19	100	0	P	V
			15570	46.25	-27.75	74	42.64	41.14	19.63	57.16	100	0	P	V
														V
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 1 5150~5250MHz

Emission below 1GHz

WIFI 802.11n HT40 (LF @ 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)
		30	28.15	-11.85	40	32.43	26	1.07	31.35	100	0	P	H
		48.36	24.04	-15.96	40	38.63	15.93	1.07	31.59	-	-	P	H
		209.28	26.79	-16.71	43.5	40.11	16.27	1.87	31.46	-	-	P	H
		454.7	26	-20	46	30.99	23.21	2.89	31.09	-	-	P	H
		668.9	29.1	-16.9	46	30.11	26.09	3.65	30.75	-	-	P	H
		952.4	33.35	-12.65	46	29.6	30.21	4.07	30.53	-	-	P	H
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802.11n													H
HT40													H
LF		35.94	33.61	-6.39	40	41.25	22.72	1.07	31.43	-	-	P	V
		38.91	34.45	-5.55	40	43.86	20.98	1.07	31.46	100	116	P	V
		62.13	26.2	-13.8	40	44.36	12.14	1.28	31.58	-	-	P	V
		475	26.36	-19.64	46	30.73	23.65	3.04	31.06	-	-	P	V
		808.9	30.99	-15.01	46	29.8	27.88	3.9	30.59	-	-	P	V
		918.8	33.13	-12.87	46	30.1	29.45	4.12	30.54	-	-	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	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

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

For Peak Limit @ 2390MHz:

- 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)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- 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)
- 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”.