



Appendix B. Radiated Spurious Emission

Test Engineer :	Bill Chang	Temperature :	22~24°C
		Relative Humidity :	55~58%

Band 1 - 5150~5250MHz

WIFI 802.11a (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)	
802.11a CH 36 5180MHz		5147.15	51.63	-22.37	74	44.5	31.72	8.95	33.54	368	253	P	H	
		5150	42.55	-11.45	54	35.42	31.72	8.95	33.54	368	253	A	H	
	*	5178	101.47	-	-	94.29	31.75	8.97	33.54	368	253	P	H	
	*	5178	95.82	-	-	88.64	31.75	8.97	33.54	368	253	A	H	
													H	
														H
			5149.7	55.89	-18.11	74	48.76	31.72	8.95	33.54	248	342	P	V
			5150	45.8	-8.2	54	38.67	31.72	8.95	33.54	248	342	A	V
	*		5180	104.75	-	-	97.57	31.75	8.97	33.54	248	342	P	V
	*		5180	99.71	-	-	92.53	31.75	8.97	33.54	248	342	A	V
														V
														V
802.11a CH 44 5220MHz		5078.75	50.51	-23.49	74	43.48	31.67	8.89	33.53	364	251	P	H	
		5059.85	40.76	-13.24	54	33.75	31.65	8.89	33.53	364	251	A	H	
	*	5218	101.79	-	-	94.58	31.77	8.98	33.54	364	251	P	H	
	*	5218	96.83	-	-	89.62	31.77	8.98	33.54	364	251	A	H	
			5355.61	49.03	-24.97	74	41.61	31.88	9.08	33.54	364	251	P	H
			5459.89	39.5	-14.5	54	31.87	31.96	9.22	33.55	364	251	A	H
			5145.65	52.85	-21.15	74	45.72	31.72	8.95	33.54	243	353	P	V
			5138.3	42.7	-11.3	54	35.58	31.71	8.95	33.54	243	353	A	V
	*		5219	107.23	-	-	100.02	31.77	8.98	33.54	243	353	P	V
	*		5219	101.89	-	-	94.68	31.77	8.98	33.54	243	353	A	V
			5351.87	49.39	-24.61	74	41.97	31.88	9.08	33.54	243	353	P	V
			5380	40.86	-13.14	54	33.37	31.91	9.13	33.55	243	353	A	V



802.11a CH 48 5240MHz	*	5242	99.98	-	-	92.73	31.8	8.99	33.54	379	254	P	H
	*	5242	95.61	-	-	88.36	31.8	8.99	33.54	379	254	A	H
		5446.25	48.21	-25.79	74	40.58	31.96	9.22	33.55	379	254	P	H
		5399.72	39.13	-14.87	54	31.63	31.92	9.13	33.55	379	254	A	H
													H
													H
	*	5241	104.53	-	-	97.3	31.79	8.98	33.54	234	348	P	V
	*	5241	100.12	-	-	92.89	31.79	8.98	33.54	234	348	A	V
		5355.5	49.99	-24.01	74	42.57	31.88	9.08	33.54	234	348	P	V
		5400	40.15	-13.85	54	32.65	31.92	9.13	33.55	234	348	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E band 1 5150~5250MHz
WIFI 802.11a (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)
802.11a CH 36 5180MHz		10360	49.83	-24.17	74	30.94	39.94	13.09	34.14	100	0	P	H
		15540	49.19	-24.81	74	30.09	38.33	16.55	35.78	100	0	P	H
													H
													H
		10360	49.31	-24.69	74	30.42	39.94	13.09	34.14	100	0	P	V
		15540	49.1	-24.9	74	30	38.33	16.55	35.78	100	0	P	V
													V
													V
802.11a CH 44 5220MHz		10440	49.42	-24.58	74	30.43	40.02	13.11	34.14	100	0	P	H
		15660	49.96	-24.04	74	31.11	38.09	16.56	35.8	100	0	P	H
													H
													H
		10440	49.32	-24.68	74	30.33	40.02	13.11	34.14	100	0	P	V
		15660	49.25	-24.75	74	30.4	38.09	16.56	35.8	100	0	P	V
													V
													V
802.11a CH 48 5240MHz		10480	49.43	-24.57	74	30.38	40.08	13.11	34.14	100	0	P	H
		15720	49.31	-24.69	74	30.59	37.95	16.57	35.8	100	0	P	H
													H
													H
		10480	50.18	-23.82	74	31.13	40.08	13.11	34.14	100	0	P	V
		15720	49.48	-24.52	74	30.76	37.95	16.57	35.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Emission below 1GHz

WIFI 802.11a (LF @ 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)	
802.11a LF		76.17	32.78	-7.22	40	56	7.53	1.04	31.79	125	80	P	H	
		101.82	30.27	-13.23	43.5	50.17	10.6	1.28	31.78	-	-	P	H	
		217.65	31.98	-14.02	46	51.71	10.26	1.79	31.78	-	-	P	H	
		304.2	21.75	-24.25	46	37.47	13.93	2.11	31.76	-	-	P	H	
		558.3	20.5	-25.5	46	31.27	18.44	2.77	31.98	-	-	P	H	
		940.5	26.34	-19.66	46	29.66	24.11	3.68	31.11	-	-	P	H	
														H
														H
														H
														H
														H
														H
			39.99	31.61	-8.39	40	48.26	14.5	0.67	31.82	-	-	P	V
			76.17	35.89	-4.11	40	59.11	7.53	1.04	31.79	100	50	P	V
			93.72	31.7	-11.8	43.5	52.52	9.68	1.28	31.78	-	-	P	V
			425.3	20.17	-25.83	46	32.66	16.92	2.41	31.82	-	-	P	V
			708.1	23.04	-22.96	46	31.17	20.76	3.14	32.03	-	-	P	V
			927.9	26.09	-19.91	46	29.79	23.83	3.68	31.21	-	-	P	V
													V	
													V	
													V	
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													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		(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”.