



Appendix B. Radiated Spurious Emission

Test Engineer :	Citta Ke	Temperature :	21~23°C
		Relative Humidity :	51~54%

<Sample 1>

Band 4 - 5725~5850MHz

WIFI 802.11a (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)
802.11a CH 149 5745MHz		5714.52	60.04	-13.96	74	50.36	32.23	11.61	34.16	100	269	P	H
		5724.36	74.05	-4.25	78.3	64.34	32.26	11.61	34.16	100	269	P	H
		5714.92	46.8	-7.2	54	37.12	32.23	11.61	34.16	100	269	A	H
	*	5743	104.58	-	-	94.81	32.29	11.64	34.16	100	269	P	H
	*	5743	95.14	-	-	85.37	32.29	11.64	34.16	100	269	A	H
													H
													H
													H
		5712.2	63.67	-10.33	74	53.99	32.23	11.61	34.16	100	198	P	V
		5724.92	75.71	-2.59	78.3	66	32.26	11.61	34.16	100	198	P	V
		5715	49.31	-4.69	54	39.63	32.23	11.61	34.16	100	198	A	V
	*	5744	109.04	-	-	99.27	32.29	11.64	34.16	100	198	P	V
	*	5744	100.09	-	-	90.32	32.29	11.64	34.16	100	198	A	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 4 5725~5850MHz****WIFI 802.11a (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)
802.11a CH 149 5745MHz		11490	47.62	-26.38	74	47.86	40.21	17.73	58.18	100	0	P	H
		17235	47.07	-26.93	74	42.4	41.56	20.8	57.69	100	0	P	H
													H
													H
		11490	47.56	-26.44	74	47.8	40.21	17.73	58.18	100	0	P	V
		17235	48.37	-25.63	74	43.7	41.56	20.8	57.69	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

5GHz WIFI 802.11a (LF @ 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)	
5GHz 802.11a LF		78.87	34.01	-5.99	40	55.85	7.2	1.39	30.43	160	110	P	H	
		131.52	32.3	-11.2	43.5	49.15	11.64	1.89	30.38	-	-	P	H	
		263.28	27.88	-18.12	46	42	13.74	2.34	30.2	-	-	P	H	
		416.2	26.76	-19.24	46	38.11	15.62	3.03	30	-	-	P	H	
		739.6	29.93	-16.07	46	33.33	22.02	4.05	29.47	-	-	P	H	
		960.8	33.73	-20.27	54	33.15	25.06	4.58	29.06	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
		87.78	33.4	-6.6	40	53.91	8.52	1.39	30.42	-	-	P	V	
		158.25	36.76	-6.74	43.5	54.41	10.81	1.89	30.35	-	-	P	V	
		214.95	37.98	-5.52	43.5	56.9	9.15	2.21	30.28	208	176	P	V	
		370.7	26.66	-19.34	46	38.9	14.89	2.94	30.07	-	-	P	V	
		757.1	30.3	-15.7	46	33.56	22.14	4.05	29.45	-	-	P	V	
		948.2	33.95	-12.05	46	33.74	24.73	4.58	29.1	-	-	P	V	
														V
														V
														V
														V
														V
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



<Sample 2>

Band 4 - 5725~5850MHz

WIFI 802.11a (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)
802.11a CH 149 5745MHz		5714.36	63.71	-10.29	74	54.03	32.23	11.61	34.16	100	270	P	H
		5724.76	74.73	-3.57	78.3	65.02	32.26	11.61	34.16	100	270	P	H
		5714.84	46.93	-7.07	54	37.25	32.23	11.61	34.16	100	270	A	H
	*	5747	106.05	-	-	96.28	32.29	11.64	34.16	100	270	P	H
	*	5747	96.34	-	-	86.57	32.29	11.64	34.16	100	270	A	H
													H
													H
													H
		5713.4	65.73	-8.27	74	56.05	32.23	11.61	34.16	100	201	P	V
		5724.2	75.63	-2.67	78.3	65.92	32.26	11.61	34.16	100	201	P	V
		5715	49.43	-4.57	54	39.75	32.23	11.61	34.16	100	201	A	V
	*	5747	110.29	-	-	100.52	32.29	11.64	34.16	100	201	P	V
	*	5747	100.95	-	-	91.18	32.29	11.64	34.16	100	201	A	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 4 5725~5850MHz****WIFI 802.11a (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)
802.11a CH 149 5745MHz		11490	47.26	-26.74	74	47.5	40.21	17.73	58.18	100	0	P	H
		17232	48.8	-25.2	74	44.13	41.56	20.8	57.69	100	0	P	H
													H
													H
		11490	46.83	-27.17	74	47.07	40.21	17.73	58.18	100	0	P	V
		17232	47.94	-26.06	74	43.27	41.56	20.8	57.69	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
5GHz WIFI 802.11a (LF @ 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)
5GHz 802.11a LF		53.49	29.74	-10.26	40	51.54	7.28	1.39	30.47	100	48	P	H
		113.43	26.5	-17	43.5	43.99	11.27	1.64	30.4	-	-	P	H
		260.04	20.76	-25.24	46	34.73	13.9	2.34	30.21	-	-	P	H
		429.5	24.3	-21.7	46	34.99	16.24	3.03	29.96	-	-	P	H
		564.6	27.28	-18.72	46	33.57	19.96	3.46	29.71	-	-	P	H
		958.7	33.77	-12.23	46	33.24	25.02	4.58	29.07	-	-	P	H
													H
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													H
													H
													H
		83.19	33.18	-6.82	40	54.41	7.81	1.39	30.43	177	341	P	V
		140.97	34.19	-9.31	43.5	51.22	11.45	1.89	30.37	-	-	P	V
		203.88	34.79	-8.71	43.5	53.92	9.07	2.09	30.29	-	-	P	V
		507.9	24.95	-21.05	46	33.55	17.89	3.31	29.8	-	-	P	V
		791.4	29.83	-16.17	46	33.01	22.06	4.17	29.41	-	-	P	V
		948.9	33.7	-12.3	46	33.49	24.73	4.58	29.1	-	-	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”.