



Appendix A. Radiated Spurious Emission

Test Engineer :	Karl Hou, Kyle Jhuang and Jet Lui	Temperature :	25~26°C
		Relative Humidity :	50~51%

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	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)	
BT CH00 2402MHz		2388.39	46.34	-27.66	74	42.6	32.77	4.62	33.65	100	359	P	H	
		2388.39	21.61	-32.39	54	-	-	-	-	-	-	A	H	
	*	2402	103.95	-	-	100.21	32.77	4.62	33.65	100	359	P	H	
	*	2402	79.22	-	-	-	-	-	-	-	-	A	H	
													H	
														H
			2338.08	46.17	-27.83	74	42.63	32.66	4.57	33.69	184	234	P	V
			2338.08	21.44	-32.56	54	-	-	-	-	-	-	A	V
	*		2402	97.5	-	-	93.76	32.77	4.62	33.65	184	234	P	V
	*		2402	72.77	-	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		2347.05	46.33	-27.67	74	42.79	32.66	4.57	33.69	100	358	P	H	
		2347.05	21.6	-32.4	54	-	-	-	-	-	-	A	H	
	*	2441	109.32	-	-	105.35	32.89	4.68	33.6	100	358	P	H	
	*	2441	84.59	-	-	-	-	-	-	-	-	A	H	
			2484.42	47.28	-26.72	74	43.16	32.96	4.73	33.57	100	358	P	H
			2484.42	22.55	-31.45	54	-	-	-	-	-	-	A	H
			2382.58	45.9	-28.1	74	42.21	32.73	4.62	33.66	104	222	P	V
			2382.58	21.17	-32.83	54	-	-	-	-	-	-	A	V
	*		2441	101.56	-	-	97.59	32.89	4.68	33.6	104	222	P	V
	*		2441	76.83	-	-	-	-	-	-	-	-	A	V
			2485.94	46.55	-27.45	74	42.43	32.96	4.73	33.57	104	222	P	V
			2485.94	21.82	-32.18	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	102.46	-	-	98.34	32.96	4.73	33.57	120	347	P	H
	*	2480	77.73	-	-	-	-	-	-	-	-	A	H
		2483.48	59.69	-14.31	74	55.57	32.96	4.73	33.57	120	347	P	H
		2483.48	34.96	-19.04	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	98.3	-	-	94.18	32.96	4.73	33.57	103	224	P	V
	*	2480	73.57	-	-	-	-	-	-	-	-	A	V
		2483.48	55.71	-18.29	74	51.59	32.96	4.73	33.57	103	224	P	V
		2483.48	30.98	-23.02	54	-	-	-	-	-	-	A	V
													V
													V
Remark	<ol style="list-style-type: none"> 1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 												



15C 2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)	
BT CH 00 2402MHz		4803	39.68	-34.32	74	56.76	35.04	6.52	58.64	100	0	P	H	
		4803	14.95	-39.05	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4803	39.65	-34.35	74	56.73	35.04	6.52	58.64	100	0	P	V	
		4803	14.92	-39.08	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4881	39.41	-34.59	74	56.33	35.02	6.58	58.52	100	0	P	H	
		4881	14.68	-39.32	54	-	-	-	-	-	-	A	H	
		7323	41.43	-32.57	74	54.98	36.4	8.24	58.19	100	0	P	H	
		7323	16.7	-37.3	54	-	-	-	-	-	-	A	H	
		4881	39.17	-34.83	74	56.09	35.02	6.58	58.52	100	0	P	V	
		4881	14.44	-39.56	54	-	-	-	-	-	-	A	V	
		7323	41.3	-32.7	74	54.85	36.4	8.24	58.19	100	0	P	V	
		7323	16.57	-37.43	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4959	39.94	-34.06	74	56.68	35.01	6.61	58.36	100	0	P	H	
		4959	15.21	-38.79	54	-	-	-	-	-	-	A	H	
		7440	41.3	-32.7	74	54.88	36.47	8.36	58.41	100	0	P	H	
		7440	16.57	-37.43	54	-	-	-	-	-	-	A	H	
		4959	40.41	-33.59	74	57.15	35.01	6.61	58.36	100	0	P	V	
		4959	15.68	-38.32	54	-	-	-	-	-	-	A	V	
		7440	40.38	-33.62	74	53.96	36.47	8.36	58.41	100	0	P	V	
		7440	15.65	-38.35	54	-	-	-	-	-	-	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



15C Emission below 1GHz

2.4GHz BT

(LF @ 3m)

BT	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 BT LF		82.65	27.18	-12.82	40	50.48	7.5	0.99	31.79			P	H	
	!	249.78	41.76	-4.24	46	59.49	12.4	1.64	31.77			P	H	
	!	253.02	41.83	-4.17	46	59.1	12.85	1.65	31.77	112	206	P	H	
		313.3	33.51	-12.49	46	50.14	13.33	1.81	31.77			P	H	
		339.2	32.47	-13.53	46	48.31	14.07	1.87	31.78			P	H	
		731.9	32.3	-13.7	46	39.63	21.96	2.71	32			P	H	
														H
														H
														H
														H
														H
														H
		!	30.81	36.27	-3.73	40	49	18.38	0.71	31.82	124	225	P	V
		!	44.58	35	-5	40	55.62	10.4	0.78	31.8			P	V
			249.78	33.76	-12.24	46	51.49	12.4	1.64	31.77			P	V
			316.8	29.13	-16.87	46	45.71	13.37	1.82	31.77			P	V
			731.9	38.06	-7.94	46	45.39	21.96	2.71	32			P	V
			756.4	35.27	-10.73	46	42.28	22.2	2.76	31.97			P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



Note symbol for Part 15C rule

15C 2.4GHz 2400~2483.5MHz

15C band 4 - 5725~5850MHz

*	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.
@	Frequency falls in non-restricted band is passed and tested by conducted band edges and spurious emission measurement in the test report.
#	Peak measured value is under 20dB and complies with the average limit, so it is unnecessary to perform an average measurement per clause 6.5.4.2 of ANSI C63.10.
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”.