



Appendix A. Radiated Spurious Emission

Test Engineer :	Ken Wu, Derreck Chen, and Nick Yu	Temperature :	21~23°C
		Relative Humidity :	47~49%

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2369.8	46.22	-27.78	74	41.46	32.16	6.87	34.27	106	42	P	H
		2369.8	21.46	-32.54	54	-	-	-	-	-	-	A	H
	*	2402.3	92.05	-	-	87.26	32.18	6.91	34.3	106	42	P	H
	*	2402.3	67.29	-	-	-	-	-	-	-	-	A	H
													H
													H
		2383.84	46.96	-27.04	74	42.16	32.16	6.91	34.27	100	343	P	V
		2383.84	22.2	-31.8	54	-	-	-	-	-	-	A	V
	*	2402.17	81.94	-	-	77.15	32.18	6.91	34.3	100	343	P	V
	*	2402.17	57.18	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2353.13	45.85	-28.15	74	41.13	32.13	6.84	34.25	112	59	P	H
		2353.13	21.09	-32.91	54	-	-	-	-	-	-	A	H
	*	2441.1	96.11	-	-	91.31	32.24	6.95	34.39	112	59	P	H
	*	2441.1	71.35	-	-	-	-	-	-	-	-	A	H
		2485.56	45.72	-28.28	74	40.87	32.28	7	34.43	112	59	P	H
		2485.56	20.96	-33.04	54	-	-	-	-	-	-	A	H
		2367.38	45.63	-28.37	74	40.9	32.13	6.87	34.27	139	327	P	V
		2367.38	20.87	-33.13	54	-	-	-	-	-	-	A	V
	*	2441.1	85.01	-	-	80.21	32.24	6.95	34.39	139	327	P	V
	*	2441.1	60.25	-	-	-	-	-	-	-	-	A	V
		2494.49	46.35	-27.65	74	41.53	32.3	7	34.48	139	327	P	V
		2494.49	21.59	-32.41	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480.12	97.03	-	-	92.18	32.28	7	34.43	106	65	P	H
	*	2480.12	72.27	-	-	-	-	-	-	-	-	A	H
		2492.3	46.66	-27.34	74	41.84	32.3	7	34.48	106	65	P	H
		2492.3	21.9	-32.1	54	-	-	-	-	-	-	A	H
													H
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	*	2479.98	85.47	-	-	80.62	32.28	7	34.43	100	304	P	V
	*	2479.98	60.71	-	-	-	-	-	-	-	-	A	V
		2495.8	46.4	-27.6	74	41.58	32.3	7	34.48	100	304	P	V
		2495.8	21.64	-32.36	54	-	-	-	-	-	-	A	V
													V
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Remark	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.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		4803	40.64	-33.36	74	56.62	34.25	8.73	58.96	100	0	P	H
		4803	15.88	-38.12	54	-	-	-	-	-	-	A	H
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													H
		4803	40.01	-33.99	74	55.99	34.25	8.73	58.96	100	0	P	V
		4803	15.25	-38.75	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		4881	41.13	-32.87	74	56.73	34.3	8.93	58.83	100	0	P	H
		4881	16.37	-37.63	54	-	-	-	-	-	-	A	H
		7323	41.82	-32.18	74	52.97	35.6	10.99	57.74	100	0	P	H
		7323	17.06	-36.94	54	-	-	-	-	-	-	A	H
		4881	40.34	-33.66	74	55.94	34.3	8.93	58.83	100	0	P	V
		4881	15.58	-38.42	54	-	-	-	-	-	-	A	V
		7323	41.25	-32.75	74	52.4	35.6	10.99	57.74	100	0	P	V
		7323	16.49	-37.51	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4959	41.61	-32.39	74	56.81	34.37	9.09	58.66	100	0	P	H
		4959	16.85	-37.15	54	-	-	-	-	-	-	A	H
		7440	40.59	-33.41	74	51.72	35.6	11.12	57.85	100	0	P	H
		7440	15.83	-38.17	54	-	-	-	-	-	-	A	H
		4959	42.27	-31.73	74	57.47	34.37	9.09	58.66	100	0	P	V
		4959	17.51	-36.49	54	-	-	-	-	-	-	A	V
		7440	40	-34	74	51.13	35.6	11.12	57.85	100	0	P	V
		7440	15.24	-38.76	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)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		41.88	13.61	-26.39	40	31.58	12.6	0.63	31.2			P	H
		138.27	28.25	-15.25	43.5	46.65	11.5	1.2	31.1			P	H
		261.93	30.85	-15.15	46	46.47	13.78	1.6	31	114	59	P	H
		426	27.54	-18.46	46	39.26	16.82	2.23	30.77			P	H
		694.8	26.49	-19.51	46	33.42	20.55	2.93	30.41			P	H
		924.4	32.08	-13.92	46	34.91	24.12	3.4	30.35			P	H
													H
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		32.7	29.18	-10.82	40	42.76	17.24	0.56	31.38	189	278	P	V
		173.64	30.2	-13.3	43.5	50.62	9.38	1.24	31.04			P	V
		287.31	26.79	-19.21	46	43.14	13.01	1.68	31.04			P	V
		348.3	32.07	-13.93	46	46.81	14.34	1.96	31.04			P	V
		568.8	32.39	-13.61	46	40.76	19.75	2.6	30.72			P	V
		853	27.17	-18.83	46	31.02	23.27	3.27	30.39			P	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+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”.