



Appendix A. Radiated Spurious Emission

Test Engineer :	Stan Hsieh	Temperature :	21~23°C
		Relative Humidity :	46~48%

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.	
		(MHz)	(dBμV/m)	(dB)	Limit Line	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2389.3	48.34	-25.66	74	49.14	27.23	6.01	34.04	243	206	P	H	
		2389.3	23.58	-30.42	54	-	-	-	-	-	-	A	H	
	*	2402.3	96.25	-	-	97.05	27.23	6.01	34.04	243	206	P	H	
	*	2402.3	71.49	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2389.82	44.76	-29.24	74	45.56	27.23	6.01	34.04	150	174	P	V
			2389.82	20	-34	54	-	-	-	-	-	-	A	V
	*		2401.91	93.46	-	-	94.26	27.23	6.01	34.04	150	174	P	V
	*		2401.91	68.7	-	-	-	-	-	-	-	-	A	V
													V	
													V	
BT CH 39 2441MHz		2358.64	43.28	-30.72	74	44.24	27.14	5.95	34.05	264	208	P	H	
		2358.64	18.52	-35.48	54	-	-	-	-	-	-	A	H	
	*	2440.91	97.8	-	-	98.41	27.37	6.04	34.02	264	208	P	H	
	*	2440.91	73.04	-	-	-	-	-	-	-	-	A	H	
			2484.04	42.91	-31.09	74	43.37	27.46	6.09	34.01	264	208	P	H
			2484.04	18.15	-35.85	54	-	-	-	-	-	-	A	H
			2375.55	43.62	-30.38	74	44.46	27.19	6.01	34.04	159	86	P	V
			2375.55	18.86	-35.14	54	-	-	-	-	-	-	A	V
	*		2440.91	94.65	-	-	95.26	27.37	6.04	34.02	159	86	P	V
	*		2440.91	69.89	-	-	-	-	-	-	-	-	A	V
			2488.22	42.56	-31.44	74	42.98	27.5	6.09	34.01	159	86	P	V
		2488.22	17.8	-36.2	54	-	-	-	-	-	-	A	V	



BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH 78 2480MHz	*	2480.26	100.28	-	-	100.76	27.46	6.07	34.01	255	208	P	H	
	*	2480.26	75.52	-	-	-	-	-	-	-	-	A	H	
		2483.5	58.28	-15.72	74	58.74	27.46	6.09	34.01	255	208	P	H	
		2483.5	33.52	-20.48	54	-	-	-	-	-	-	A	H	
													H	
														H
	*	2480.26	98.01	-	-	98.49	27.46	6.07	34.01	178	274	P	V	
	*	2480.26	73.25	-	-	-	-	-	-	-	-	-	A	V
		2483.62	56.81	-17.19	74	57.27	27.46	6.09	34.01	178	274	P	V	
		2483.62	32.05	-21.95	54	-	-	-	-	-	-	A	V	
														V
														V
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		4806	33.4	-40.6	74	52.09	31.3	8.65	58.64	100	0	P	H	
		4806	8.64	-45.36	54	-	-	-	-	-	-	A	H	
													H	
													H	
		4806	34.04	-39.96	74	52.73	31.3	8.65	58.64	100	0	P	V	
		4806	9.28	-44.72	54	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		4884	33.38	-40.62	74	51.75	31.41	8.74	58.52	100	0	P	H	
		4884	8.62	-45.38	54	-	-	-	-	-	-	A	H	
		7320	39.38	-34.62	74	50.86	36.32	10.39	58.19	100	0	P	H	
		7320	14.62	-39.38	54	-	-	-	-	-	-	A	H	
		4884	32.99	-41.01	74	51.36	31.41	8.74	58.52	100	0	P	V	
		4884	8.23	-45.77	54	-	-	-	-	-	-	A	V	
		7320	40.22	-33.78	74	51.7	36.32	10.39	58.19	100	0	P	V	
		7320	15.46	-38.54	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz		4962	33.58	-40.42	74	51.57	31.54	8.83	58.36	100	0	P	H	
		4962	8.82	-45.18	54	-	-	-	-	-	-	A	H	
		7440	41.52	-32.48	74	52.82	36.59	10.52	58.41	100	0	P	H	
		7440	16.76	-37.24	54	-	-	-	-	-	-	A	H	
		4962	31.86	-42.14	74	49.85	31.54	8.83	58.36	100	0	P	V	
		4962	7.1	-46.9	54	-	-	-	-	-	-	A	V	
		7440	40.77	-33.23	74	52.07	36.59	10.52	58.41	100	0	P	V	
		7440	16.01	-37.99	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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		44.85	19.18	-20.82	40	40.35	9.97	0.67	31.81	142	33	P	H	
		162.03	12.2	-31.3	43.5	33.12	9.4	1.46	31.78			P	H	
		292.17	14.25	-31.75	46	31.11	12.79	2.11	31.76			P	H	
		311.2	14.71	-31.29	46	30.95	13.41	2.11	31.76			P	H	
		594	20.88	-25.12	46	31.56	18.46	2.89	32.03			P	H	
		701.8	22.43	-23.57	46	32.39	18.94	3.14	32.04			P	H	
														H
														H
														H
														H
														H
														H
														H
			49.71	17.69	-22.31	40	40.65	7.8	1.04	31.8	100	99	P	V
			128.82	15.38	-28.12	43.5	34.12	11.58	1.46	31.78			P	V
			257.61	13.97	-32.03	46	31.04	12.76	1.94	31.77			P	V
			318.9	15.37	-30.63	46	31.54	13.49	2.11	31.77			P	V
			637.4	20.87	-25.13	46	30.88	19.07	2.96	32.04			P	V
			987.4	22.95	-31.05	54	29.46	20.45	3.78	30.74			P	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 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

- 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”.