



Appendix A. Radiated Spurious Emission

15C 2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	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)
BLE CH 00 2402MHz		2355	49.5	-24.5	74	49.11	27.04	7.31	33.96	366	181	P	H
		2388.21	36.84	-17.16	54	36.33	27.13	7.38	34	366	181	A	H
	*	2402	96.52	-	-	96.01	27.13	7.38	34	366	181	P	H
	*	2402	95.47	-	-	94.96	27.13	7.38	34	366	181	A	H
													H
													H
		2356.26	48.81	-25.19	74	48.42	27.04	7.31	33.96	273	174	P	V
		2388.3	36.82	-17.18	54	36.31	27.13	7.38	34	273	174	A	V
	*	2402	95.17	-	-	94.66	27.13	7.38	34	273	174	P	V
	*	2402	94.13	-	-	93.62	27.13	7.38	34	273	174	A	V
													V
													V
BLE CH 19 2440MHz		2380.02	49.1	-24.9	74	48.61	27.09	7.38	33.98	354	181	P	H
		2385.87	36.72	-17.28	54	36.21	27.13	7.38	34	354	181	A	H
	*	2440	93.76	-	-	93.1	27.27	7.44	34.05	354	181	P	H
	*	2440	92.67	-	-	92.01	27.27	7.44	34.05	354	181	A	H
		2491	49.47	-24.53	74	48.61	27.4	7.56	34.1	354	181	P	H
		2493.6	36.96	-17.04	54	36.1	27.4	7.56	34.1	354	181	A	H
		2322.87	49.11	-24.89	74	48.85	26.95	7.24	33.93	149	185	P	V
		2379.12	36.75	-17.25	54	36.26	27.09	7.38	33.98	149	185	A	V
	*	2440	92.75	-	-	92.09	27.27	7.44	34.05	149	185	P	V
	*	2440.08	91.65	-	-	90.99	27.27	7.44	34.05	149	185	A	V
		2496.08	49.08	-24.92	74	48.22	27.4	7.56	34.1	149	185	P	V
		2499.88	37.33	-16.67	54	36.47	27.4	7.56	34.1	149	185	A	V



BLE CH 39 2480MHz	*	2480	90.74	-	-	89.96	27.36	7.5	34.08	300	194	P	H
	*	2480	89.58	-	-	88.8	27.36	7.5	34.08	300	194	A	H
		2490.76	49.13	-24.87	74	48.27	27.4	7.56	34.1	300	194	P	H
		2483.52	37.34	-16.66	54	36.56	27.36	7.5	34.08	300	194	A	H
													H
													H
	*	2480	90.51	-	-	89.73	27.36	7.5	34.08	141	192	P	V
	*	2480	89.36	-	-	88.58	27.36	7.5	34.08	141	192	A	V
		2495.6	49.58	-24.42	74	48.72	27.4	7.56	34.1	141	192	P	V
		2483.52	37.35	-16.65	54	36.57	27.36	7.5	34.08	141	192	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

BLE (Harmonic @ 3m)

BLE	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)
BLE CH 00 2402MHz		4806	50.82	-23.18	74	67.53	31.3	10.63	58.64	100	0	P	H
													H
													H
													H
		4806	50.86	-23.14	74	67.57	31.3	10.63	58.64	100	0	P	V
													V
													V
													V
BLE CH 19 2440MHz		4881	50.92	-23.08	74	67.35	31.41	10.68	58.52	100	0	P	H
		7320	50.54	-23.46	74	59.19	36.26	13.28	58.19	100	0	P	H
													H
													H
		4881	49.41	-24.59	74	65.84	31.41	10.68	58.52	100	0	P	V
		7320	50.77	-23.23	74	59.42	36.26	13.28	58.19	100	0	P	V
													V
													V
BLE CH 39 2480MHz		4959	43.72	-30.28	74	59.81	31.54	10.73	58.36	100	0	P	H
		7440	51.29	-22.71	74	59.81	36.5	13.39	58.41	181	170	P	H
		7440	43.27	-10.73	54	51.79	36.5	13.39	58.41	181	170	A	H
													H
		4962	45.57	-28.43	74	61.66	31.54	10.73	58.36	100	0	P	V
		7440	51.15	-22.85	74	59.67	36.5	13.39	58.41	100	253	P	V
		7440	43.4	-10.6	54	51.92	36.5	13.39	58.41	100	253	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



LP0002 Emission below 1GHz

2.4GHz BLE (LF @ 3m)

BLE	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 BLE LF		119.37	27.47	-16.03	43.5	44.79	11.43	1.64	30.39	100	0	P	H
		159.87	25.72	-17.78	43.5	43.47	10.7	1.89	30.34	-	-	P	H
		201.72	24.61	-18.89	43.5	43.76	9.06	2.09	30.3	-	-	P	H
		432.3	18.5	-27.5	46	29	16.43	3.03	29.96	-	-	P	H
		573	22.77	-23.23	46	29.03	19.78	3.66	29.7	-	-	P	H
		699	24.45	-21.55	46	29.64	20.44	3.88	29.51	-	-	P	H
													H
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													H
													H
													H
		41.07	35.35	-4.65	40	51.36	13.3	1.03	30.34	100	0	P	V
		88.32	32.12	-11.38	43.5	52.63	8.52	1.39	30.42	-	-	P	V
		211.17	35.87	-7.63	43.5	54.82	9.12	2.21	30.28	-	-	P	V
		350.4	23.58	-22.42	46	36.53	14.38	2.76	30.09	-	-	P	V
		505.1	28.26	-17.74	46	36.86	17.89	3.31	29.8	-	-	P	V
		582.8	28.24	-17.76	46	34.66	19.61	3.66	29.69	-	-	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.
!	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”.