



Appendix A. Radiated Spurious Emission

<Sample 2>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	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)
BT CH00 2402MHz		2364.21	43.04	-30.96	74	43.76	27.14	5.39	33.25	369	333	P	H
		2364.21	18.28	-35.72	54	-	-	-	-	-	-	A	H
	*	2402	95.61	-	-	96.21	27.23	5.39	33.22	369	333	P	H
	*	2402	70.85	-	-	-	-	-	-	-	-	A	H
													H
													H
		2334.31	42.55	-31.45	74	43.43	27.05	5.33	33.26	221	346	P	V
		2334.31	17.79	-36.21	54	-	-	-	-	-	-	A	V
	*	2402	98.24	-	-	98.84	27.23	5.39	33.22	221	346	P	V
	*	2402	73.48	-	-	-	-	-	-	-	-	A	V
													V
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BT CH 39 2441MHz		2340.59	42.45	-31.55	74	43.27	27.1	5.33	33.25	123	315	P	H
		2340.59	17.69	-36.31	54	-	-	-	-	-	-	A	H
	*	2441	94.63	-	-	95.04	27.37	5.42	33.2	123	315	P	H
	*	2441	69.87	-	-	-	-	-	-	-	-	A	H
		2492.59	42.3	-31.7	74	42.51	27.5	5.46	33.17	123	315	P	H
		2492.59	17.54	-36.46	54	-	-	-	-	-	-	A	H
		2387.71	42.4	-31.6	74	43.02	27.23	5.39	33.24	231	315	P	V
		2387.71	17.64	-36.36	54	-	-	-	-	-	-	A	V
	*	2441	98.01	-	-	98.42	27.37	5.42	33.2	231	315	P	V
	*	2441	73.25	-	-	-	-	-	-	-	-	A	V
		2496.39	42.47	-31.53	74	42.68	27.5	5.46	33.17	231	315	P	V
		2496.39	17.71	-36.29	54	-	-	-	-	-	-	A	V



BT CH 78 2480MHz	*	2480	95.91	-	-	96.19	27.46	5.44	33.18	101	346	P	H
	*	2480	71.15	-	-	-	-	-	-	-	-	A	H
		2486.77	43.53	-30.47	74	43.79	27.46	5.46	33.18	101	346	P	H
		2486.77	18.77	-35.23	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	100.7	-	-	100.98	27.46	5.44	33.18	312	307	P	V
	*	2480	75.94	-	-	-	-	-	-	-	-	A	V
		2483.55	49.69	-24.31	74	49.95	27.46	5.46	33.18	312	307	P	V
		2483.55	24.93	-29.07	54	-	-	-	-	-	-	A	V
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Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)
BT CH 00 2402MHz		4806	36.09	-37.91	74	57.73	31.42	7.58	60.64	100	0	P	H
		4806	11.33	-42.67	54	-	-	-	-	-	-	A	H
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		4806	35.37	-38.63	74	57.01	31.42	7.58	60.64	100	0	P	V
		4806	10.61	-43.39	54	-	-	-	-	-	-	A	V
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													V
BT CH 39 2441MHz		4884	37.48	-36.52	74	58.62	31.56	7.82	60.52	100	0	P	H
		4884	12.72	-41.28	54	-	-	-	-	-	-	A	H
		7320	43.45	-30.55	74	58.72	36.22	9.49	60.98	100	0	P	H
		7320	18.69	-35.31	54	-	-	-	-	-	-	A	H
		4884	37.63	-36.37	74	58.77	31.56	7.82	60.52	100	0	P	V
		4884	12.87	-41.13	54	-	-	-	-	-	-	A	V
		7320	41.88	-32.12	74	57.15	36.22	9.49	60.98	100	0	P	V
		7320	17.12	-36.88	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4962	37.48	-36.52	74	58.06	31.73	8.05	60.36	100	0	P	H
		4962	12.72	-41.28	54	-	-	-	-	-	-	A	H
		7440	42.77	-31.23	74	58.01	36.49	9.61	61.34	100	0	P	H
		7440	18.01	-35.99	54	-	-	-	-	-	-	A	H
		4962	37.25	-36.75	74	57.83	31.73	8.05	60.36	100	0	P	V
		4962	12.49	-41.51	54	-	-	-	-	-	-	A	V
		7440	42.77	-31.23	74	58.01	36.49	9.61	61.34	100	0	P	V
		7440	18.01	-35.99	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz BT (LF)

BT	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)
2.4GHz BT LF		30	28.26	-11.74	40	40.43	20	0.65	32.82			P	H
		79.14	30.26	-9.74	40	54.14	7.88	0.93	32.69	111	269	P	H
		138.81	26.41	-17.09	43.5	45.84	11.91	1.33	32.67			P	H
		320.3	22.75	-23.25	46	39.25	14.37	1.88	32.75			P	H
		598.9	20.29	-25.71	46	31.18	19.57	2.57	33.03			P	H
		745.9	22.65	-23.35	46	31.16	21.52	2.91	32.94			P	H
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		32.16	34.51	-5.49	40	47.76	18.92	0.65	32.82	140	32	P	V
		79.95	33.31	-6.69	40	57.19	7.88	0.93	32.69			P	V
		139.35	25.7	-17.8	43.5	45.14	11.9	1.33	32.67			P	V
		320.3	20.61	-25.39	46	37.11	14.37	1.88	32.75			P	V
		451.2	20.49	-25.51	46	33.75	17.32	2.3	32.88			P	V
		782.3	24.76	-21.24	46	32.76	21.93	2.97	32.9			P	V
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Remark	1. No other spurious found. 2. All results are PASS against limit line.												



<Sample 1>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	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)
BT CH 78 2480MHz	*	2480	96.92	-	-	97.2	27.46	5.44	33.18	267	56	P	H
	*	2480	72.16	-	-	-	-	-	-	-	-	A	H
		2483.97	44.11	-29.89	74	44.37	27.46	5.46	33.18	267	56	P	H
		2483.97	19.35	-34.65	54	-	-	-	-	-	-	A	H
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													H
	*	2480	100.56	-	-	100.84	27.46	5.44	33.18	260	281	P	V
	*	2480	75.8	-	-	-	-	-	-	-	-	A	V
		2483.83	45.47	-28.53	74	45.73	27.46	5.46	33.18	260	281	P	V
		2483.83	20.71	-33.29	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)
BT CH 78 2480MHz		4962	37.5	-36.5	74	58.08	31.73	8.05	60.36	100	0	P	H
		4962	12.74	-41.26	54	-	-	-	-	-	-	A	H
		7440	42.66	-31.34	74	57.9	36.49	9.61	61.34	100	0	P	H
		7440	17.9	-36.1	54	-	-	-	-	-	-	A	H
		4962	36.93	-37.07	74	57.51	31.73	8.05	60.36	100	0	P	V
		4962	12.17	-41.83	54	-	-	-	-	-	-	A	V
		7440	43.71	-30.29	74	58.95	36.49	9.61	61.34	100	0	P	V
		7440	18.95	-35.05	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz BT (LF)

BT	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)
2.4GHz BT LF		30	26.23	-13.77	40	38.4	20	0.65	32.82	-	-	P	H
		75.36	31.75	-8.25	40	56.12	7.41	0.93	32.71	130	180	P	H
		141.24	30.92	-12.58	43.5	50.41	11.85	1.33	32.67	-	-	P	H
		329.4	23.98	-22.02	46	40.17	14.63	1.94	32.76	-	-	P	H
		461	20	-26	46	33.1	17.49	2.3	32.89	-	-	P	H
		742.4	24.94	-21.06	46	33.53	21.44	2.91	32.94	-	-	P	H
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		30	36.47	-3.53	40	48.64	20	0.65	32.82	153	252	P	V
		78.06	35.87	-4.13	40	59.88	7.76	0.93	32.7	-	-	P	V
		140.43	23.45	-20.05	43.5	42.92	11.87	1.33	32.67	-	-	P	V
		307.7	19.17	-26.83	46	36.01	14.02	1.88	32.74	-	-	P	V
		549.9	19.47	-26.53	46	31.27	18.7	2.47	32.97	-	-	P	V
		758.5	22.64	-23.36	46	30.97	21.69	2.91	32.93	-	-	P	V
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Remark	1. No other spurious found. 2. All results are PASS against limit line.												



<Sample 3>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	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)
BT CH 78 2480MHz	*	2480	95.94	-	-	96.22	27.46	5.44	33.18	113	319	P	H
	*	2480	71.18	-	-	-	-	-	-	-	-	A	H
		2484.53	43.56	-30.44	74	43.82	27.46	5.46	33.18	113	319	P	H
		2484.53	18.8	-35.2	54	-	-	-	-	-	-	A	H
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													H
	*	2480	100.42	-	-	100.7	27.46	5.44	33.18	254	318	P	V
	*	2480	75.66	-	-	-	-	-	-	-	-	A	V
		2483.52	48.2	-25.8	74	48.46	27.46	5.46	33.18	254	318	P	V
		2483.52	23.44	-30.56	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)
BT CH 78 2480MHz		4962	38.21	-35.79	74	58.79	31.73	8.05	60.36	100	0	P	H
		4962	13.45	-40.55	54	-	-	-	-	-	-	A	H
		7440	41.89	-32.11	74	57.13	36.49	9.61	61.34	100	0	P	H
		7440	17.13	-36.87	54	-	-	-	-	-	-	A	H
		4962	38.09	-35.91	74	58.67	31.73	8.05	60.36	100	0	P	V
		4962	13.33	-40.67	54	-	-	-	-	-	-	A	V
		7440	43.33	-30.67	74	58.57	36.49	9.61	61.34	100	0	P	V
		7440	18.57	-35.43	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz BT (LF)

BT	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)
2.4GHz BT LF		31.62	20.75	-19.25	40	34	18.92	0.65	32.82	-	-	P	H
		81.84	28.34	-11.66	40	51.97	8.12	0.93	32.68	166	43	P	H
		149.07	29.06	-14.44	43.5	48.78	11.63	1.33	32.68	-	-	P	H
		327.3	19.33	-26.67	46	35.6	14.55	1.94	32.76	-	-	P	H
		566.7	18.86	-27.14	46	30.29	18.99	2.57	32.99	-	-	P	H
		916	25.52	-20.48	46	30.9	23.55	3.2	32.13	-	-	P	H
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		30	31.53	-8.47	40	43.7	20	0.65	32.82	-	-	P	V
		47.82	25.41	-14.59	40	46.81	10.45	0.93	32.78	-	-	P	V
		81.57	31.76	-8.24	40	55.4	8.12	0.93	32.69	124	55	P	V
		319.6	17.96	-28.04	46	34.46	14.37	1.88	32.75	-	-	P	V
		352.5	19.06	-26.94	46	34.66	15.25	1.94	32.79	-	-	P	V
		931.4	25.27	-20.73	46	30.06	23.89	3.29	31.97	-	-	P	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 Ant. 1+2	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”.