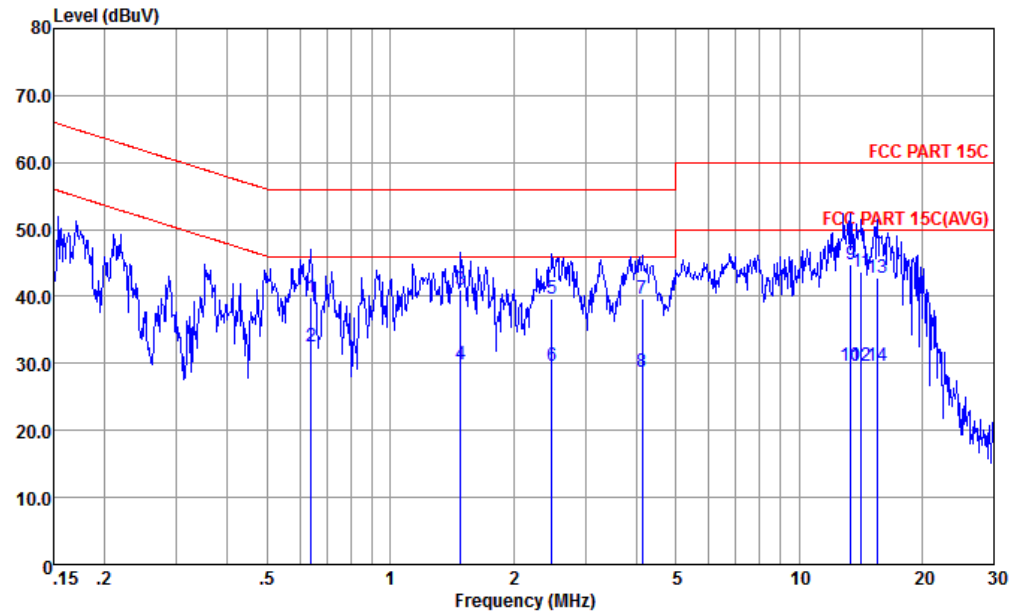




Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : CO01-KS
Condition : FCC PART 15C LISN-N-181119-060105 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.641	39.88	-16.12	56.00	29.50	0.14	10.24	QP
2 *	0.641	32.58	-13.42	46.00	22.20	0.14	10.24	Average
3	1.487	40.97	-15.03	56.00	30.60	0.14	10.23	QP
4	1.487	29.97	-16.03	46.00	19.60	0.14	10.23	Average
5	2.487	39.69	-16.31	56.00	29.30	0.16	10.23	QP
6	2.487	29.69	-16.31	46.00	19.30	0.16	10.23	Average
7	4.136	39.63	-16.37	56.00	29.21	0.17	10.25	QP
8	4.136	28.73	-17.27	46.00	18.31	0.17	10.25	Average
9	13.408	44.71	-15.29	60.00	34.20	0.13	10.38	QP
10	13.408	29.71	-20.29	50.00	19.20	0.13	10.38	Average
11	14.213	43.72	-16.28	60.00	33.20	0.13	10.39	QP
12	14.213	29.72	-20.28	50.00	19.20	0.13	10.39	Average
13	15.552	42.73	-17.27	60.00	32.20	0.12	10.41	QP
14	15.552	29.73	-20.27	50.00	19.20	0.12	10.41	Average



Appendix B. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2312.73	52.61	-21.39	74	47.22	31.16	6.03	31.8	229	122	P	H
		2312.73	27.82	-26.18	54	-	-	-	-	-	-	A	H
	*	2402	97.96	-	-	92.32	31.3	6.14	31.8	229	122	P	H
	*	2402	73.17	-	-	-	-	-	-	-	-	A	H
		2373.57	52.72	-21.28	74	47.15	31.27	6.1	31.8	300	75	P	V
		2373.57	27.93	-26.07	54	-	-	-	-	-	-	A	V
	*	2402	103.51	-	-	97.87	31.3	6.14	31.8	300	75	P	V
	*	2402	78.72	-	-	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		2486.56	52.23	-21.77	74	46.43	31.44	6.16	31.8	229	122	P	H
		2486.56	27.44	-26.56	54	-	-	-	-	-	-	A	H
	*	2480	99.15	-	-	93.35	31.44	6.16	31.8	229	122	P	H
	*	2480	74.36	-	-	-	-	-	-	-	-	A	H
		2485.23	52.78	-21.22	74	46.98	31.44	6.16	31.8	300	75	P	V
		2485.23	27.99	-26.01	54	-	-	-	-	-	-	A	V
	*	2480	99.92	-	-	94.12	31.44	6.16	31.8	300	75	P	V
	*	2480	75.13	-	-	-	-	-	-	-	-	A	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 00 2402MHz		4806	39.13	-34.87	74	56.65	35.66	8.41	61.59	150	360	P	H
		4806	39.9	-34.1	74	57.42	35.66	8.41	61.59	150	360	P	V
BT CH 39 2441MHz		4884	41.91	-32.09	74	59.32	35.61	8.59	61.61	100	360	P	H
		7320	40.59	-33.41	74	56.63	35.9	10.4	62.34	100	360	P	H
		4884	40.7	-33.3	74	58.11	35.61	8.59	61.61	100	360	P	V
		7320	41.31	-32.69	74	57.35	35.9	10.4	62.34	100	360	P	V
BT CH 78 2480MHz		4962	41.2	-32.8	74	58.53	35.54	8.77	61.64	100	360	P	H
		7440	40.54	-33.46	74	56.53	35.97	10.44	62.4	100	360	P	H
		4962	40.78	-33.22	74	58.11	35.54	8.77	61.64	100	360	P	V
		7440	39.8	-34.2	74	55.79	35.97	10.44	62.4	100	360	P	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	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		30	26.57	-13.43	40	31.37	25.2	0.66	30.66	100	0	P	H
		339.43	22.19	-23.81	46	30.3	20.16	2.34	30.61	-	-	P	H
		612	28	-18	46	29.69	25.69	2.9	30.28	-	-	P	H
		776.9	30.78	-15.22	46	29.65	27.86	3.29	30.02	-	-	P	H
		817.64	31.29	-14.71	46	29.51	28.42	3.36	30	-	-	P	H
		995.15	33.85	-20.15	54	29.96	30.05	3.7	29.86	-	-	P	H
		30.97	25.9	-14.1	40	31.25	24.65	0.66	30.66	-	-	P	V
		233.7	19.83	-26.17	46	31.97	16.74	1.84	30.72	-	-	P	V
		493.66	25.29	-20.71	46	29.31	23.65	2.62	30.29	-	-	P	V
		573.2	27.32	-18.68	46	29.61	25.11	2.96	30.36	-	-	P	V
		775.93	30.68	-15.32	46	29.58	27.84	3.29	30.03	-	-	P	V
		901.06	32.56	-13.44	46	29.74	29.01	3.54	29.73	100	0	P	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 CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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)

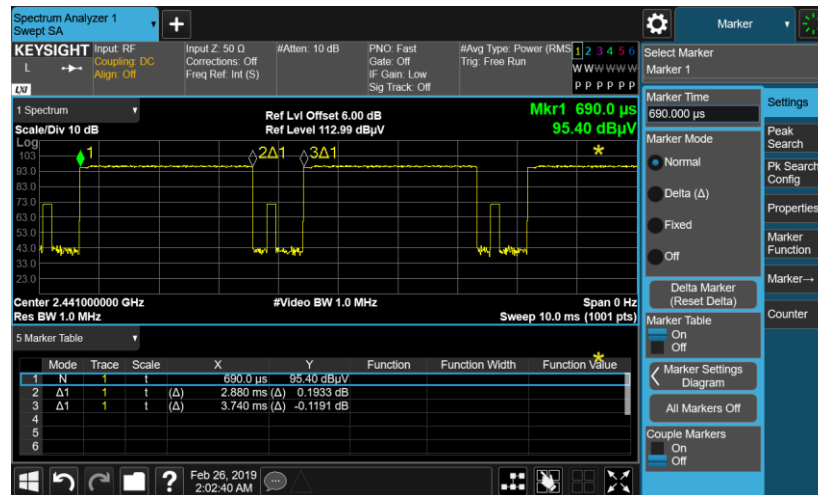
= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

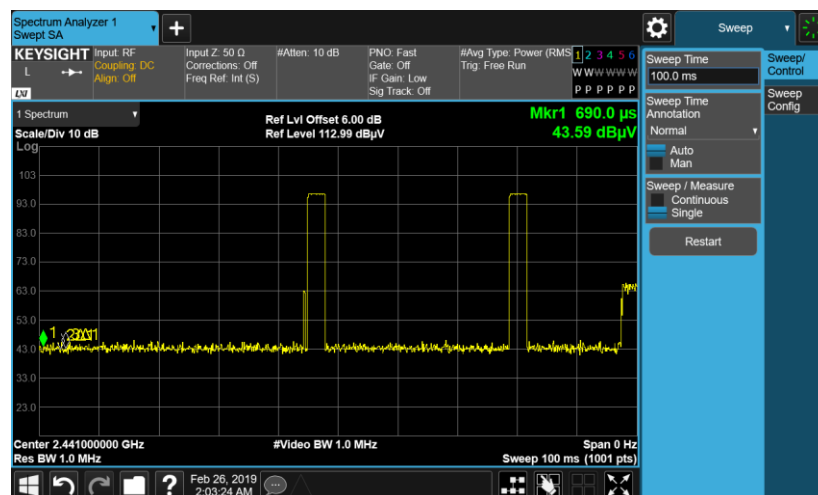
Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix C. Duty Cycle Plots

3DH5 on time (One Pulse) Plot on Channel 39



3DH5 on time (Count Pulses) Plot on Channel 39



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. 3DH5 has the highest duty cycle worst case and is reported.