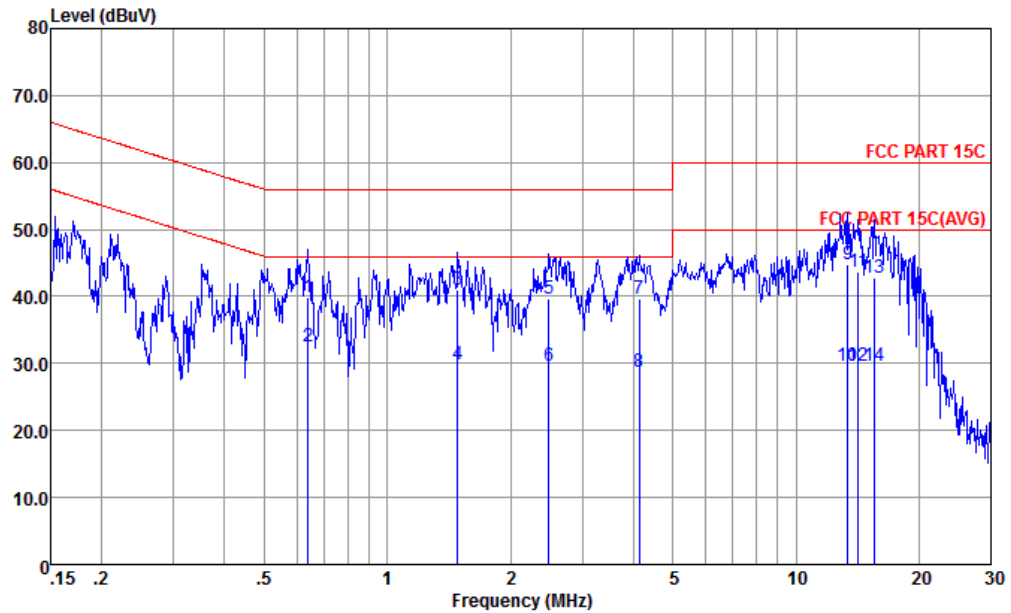




| | | | |
|-----------------|---------------|---------------------|-------------|
| Test Engineer : | Amos Zhang | Temperature : | 25.3~26.2°C |
| | | Relative Humidity : | 38~40% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |



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

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|-----|--------|-------|------------|------------|------------|-------------|------------|---------|
| | 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 (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 | | 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. |
|--------------------|--|-----------|------------|--------|-------|--------|----------|--------|--------|--------|---------|-------|-------|
| | | (MHz) | (dBμV/m) | (dB) | Limit | Level | Factor | Loss | Factor | Pos | Pos | Avg. | |
| | | | | | Line | (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 | | 2390 | 55.45 | -18.55 | 74 | 54.51 | 32.22 | 4.58 | 35.86 | 103 | 308 | P | H |
| CH 01 | | 2390 | 43.54 | -10.46 | 54 | 42.6 | 32.22 | 4.58 | 35.86 | 103 | 308 | A | H |
| 2412MHz | | | | | | | | | | | | | |

- 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)

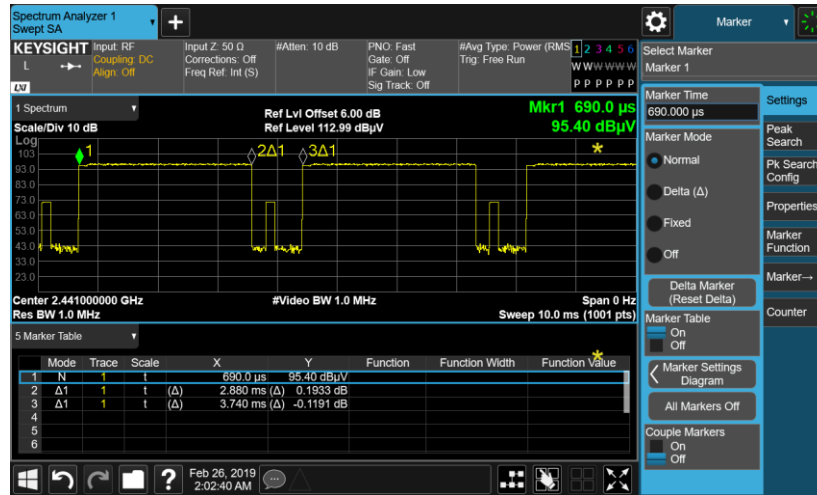
For Average Limit @ 2390MHz:

- 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)

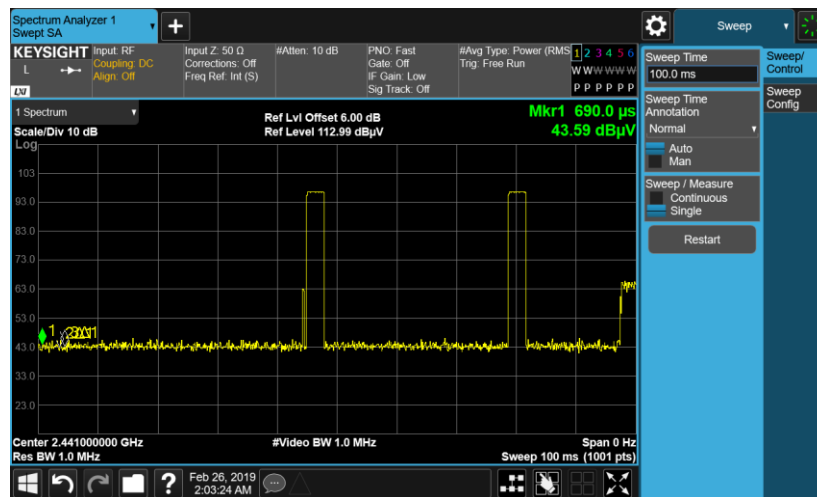
Both peak and average measured complies with the limit line, so test result is “PASS”.

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.