# Appendix B. Radiated Spurious Emission

**15C 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 | | 2389.17 | 43.33 | -30.67 | 74 | 43.1 | 27.03 | 6.57 | 33.37 | 101 | 0 | P | H |
| | | 2389.17 | 18.48 | -35.52 | 54 | - | - | - | - | - | - | A | H |
| | * | 2402.04 | 99.45 | - | - | 99.2 | 27.03 | 6.57 | 33.35 | 101 | 0 | P | H |
| | * | 2402.04 | 74.6 | - | - | - | - | - | - | - | - | A | H |
| | | 2382.15 | 40.64 | -33.36 | 74 | 40.45 | 26.99 | 6.57 | 33.37 | 109 | 129 | P | V |
| | | 2382.15 | 15.79 | -38.21 | 54 | - | - | - | - | - | - | A | V |
| | * | 2402.04 | 94.15 | - | - | 93.9 | 27.03 | 6.57 | 33.35 | 109 | 129 | P | V |
| | * | 2402.04 | 69.3 | - | - | - | - | - | - | - | - | A | V |
| BT CH 39 2441MHz | | 2369.09 | 40.04 | -33.96 | 74 | 39.81 | 26.99 | 6.62 | 33.38 | 120 | 4 | P | H |
| | | 2369.09 | 15.19 | -38.81 | 54 | - | - | - | - | - | - | A | H |
| | * | 2441.1 | 101.25 | - | - | 100.6 | 27.17 | 6.79 | 33.31 | 120 | 4 | P | H |
| | * | 2441.1 | 76.4 | - | - | - | - | - | - | - | - | A | H |
| | | 2485.18 | 40.82 | -33.18 | 74 | 39.82 | 27.26 | 7.01 | 33.27 | 120 | 4 | P | H |
| | | 2485.18 | 15.97 | -38.03 | 54 | - | - | - | - | - | - | A | H |
| | | 2387.71 | 40.99 | -33.01 | 74 | 40.76 | 27.03 | 6.57 | 33.37 | 107 | 142 | P | V |
| | | 2387.71 | 16.14 | -37.86 | 54 | - | - | - | - | - | - | A | V |
| | * | 2440.91 | 92.58 | - | - | 91.93 | 27.17 | 6.79 | 33.31 | 107 | 142 | P | V |
| | * | 2440.91 | 67.73 | - | - | - | - | - | - | - | - | A | V |
| | | 2492.59 | 41.53 | -32.47 | 74 | 40.48 | 27.3 | 7.01 | 33.26 | 107 | 142 | P | V |
| | | 2492.59 | 16.68 | -37.32 | 54 | - | - | - | - | - | - | A | V |

| 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 | * | 2479.84 | 100.19 | - | - | 99.19 | 27.26 | 7.01 | 33.27 | 117 | 9 | P | H |
| | * | 2479.84 | 75.34 | - | - | - | - | - | - | - | - | A | H |
| | | 2483.69 | 46.52 | -27.48 | 74 | 45.52 | 27.26 | 7.01 | 33.27 | 117 | 9 | P | H |
| | | 2483.69 | 21.67 | -32.33 | 54 | - | - | - | - | - | - | A | H |
| | * | 2479.91 | 93.78 | - | - | 92.78 | 27.26 | 7.01 | 33.27 | 100 | 118 | P | V |
| | * | 2479.91 | 68.93 | - | - | - | - | - | - | - | - | A | V |
| | | 2485.37 | 43.31 | -30.69 | 74 | 42.31 | 27.26 | 7.01 | 33.27 | 100 | 118 | P | V |
| | | 2485.37 | 18.46 | -35.54 | 54 | - | - | - | - | - | - | A | V |
| Remark | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. | | | | | | | | | | | | |

**15C 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 | | 4803 | 41.23 | -32.77 | 74 | 55.05 | 31.03 | 10.53 | 55.38 | 100 | 0 | P | H |
| | | 4803 | 40.64 | -33.36 | 74 | 54.46 | 31.03 | 10.53 | 55.38 | 100 | 0 | P | V |
| BT CH 39 2441MHz | | 4881 | 42.16 | -31.84 | 74 | 55.78 | 31.13 | 10.67 | 55.42 | 100 | 0 | P | H |
| | | 7311 | 46.99 | -27.01 | 74 | 52.84 | 36.11 | 13.63 | 55.59 | 100 | 0 | P | H |
| | | 4881 | 41.75 | -32.25 | 74 | 55.37 | 31.13 | 10.67 | 55.42 | 100 | 0 | P | V |
| | | 7311 | 46.86 | -27.14 | 74 | 52.71 | 36.11 | 13.63 | 55.59 | 100 | 0 | P | V |
| BT CH 78 2480MHz | | 4959 | 41.63 | -32.37 | 74 | 55.09 | 31.25 | 10.77 | 55.48 | 100 | 0 | P | H |
| | | 7440 | 47.35 | -26.65 | 74 | 52.63 | 36.47 | 13.7 | 55.45 | 100 | 0 | P | H |
| | | 4959 | 42.57 | -31.43 | 74 | 56.03 | 31.25 | 10.77 | 55.48 | 100 | 0 | P | V |
| | | 7440 | 46.85 | -27.15 | 74 | 52.13 | 36.47 | 13.7 | 55.45 | 100 | 0 | P | V |
| Remark | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. | | | | | | | | | | | | |

**15C 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 | | 52.68 | 24.19 | -15.81 | 40 | 46.79 | 8.22 | 0.98 | 31.8 | 115 | 48 | P | H |
| | | 186.87 | 26.19 | -17.31 | 43.5 | 46.88 | 9.2 | 1.89 | 31.78 | | | P | H |
| | | 295.14 | 21.65 | -24.35 | 46 | 37.28 | 13.7 | 2.43 | 31.76 | | | P | H |
| | | 431.6 | 18.53 | -27.47 | 46 | 30.45 | 16.97 | 2.94 | 31.83 | | | P | H |
| | | 736.1 | 24.67 | -21.33 | 46 | 31.47 | 21.33 | 3.87 | 32 | | | P | H |
| | | 940.5 | 26.76 | -19.24 | 46 | 29.79 | 23.66 | 4.42 | 31.11 | | | P | H |
| | | 32.7 | 22.52 | -17.48 | 40 | 34.99 | 18.5 | 0.86 | 31.83 | 134 | 246 | P | V |
| | | 52.14 | 14.78 | -25.22 | 40 | 37.38 | 8.22 | 0.98 | 31.8 | | | P | V |
| | | 295.95 | 14.69 | -31.31 | 46 | 30.3 | 13.72 | 2.43 | 31.76 | | | P | V |
| | | 640.2 | 23.11 | -22.89 | 46 | 31.43 | 20.1 | 3.62 | 32.04 | | | P | V |
| | | 772.5 | 27.47 | -18.53 | 46 | 33.64 | 21.82 | 3.96 | 31.95 | | | P | V |
| | | 962.2 | 27.46 | -26.54 | 54 | 30.06 | 23.85 | 4.49 | 30.94 | | | P | V |
| **Remark** | 1. No other spurious found.<br>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 | **P**eak or **A**verage |
| H/V | **H**orizontal or **V**ertical |

**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 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".**