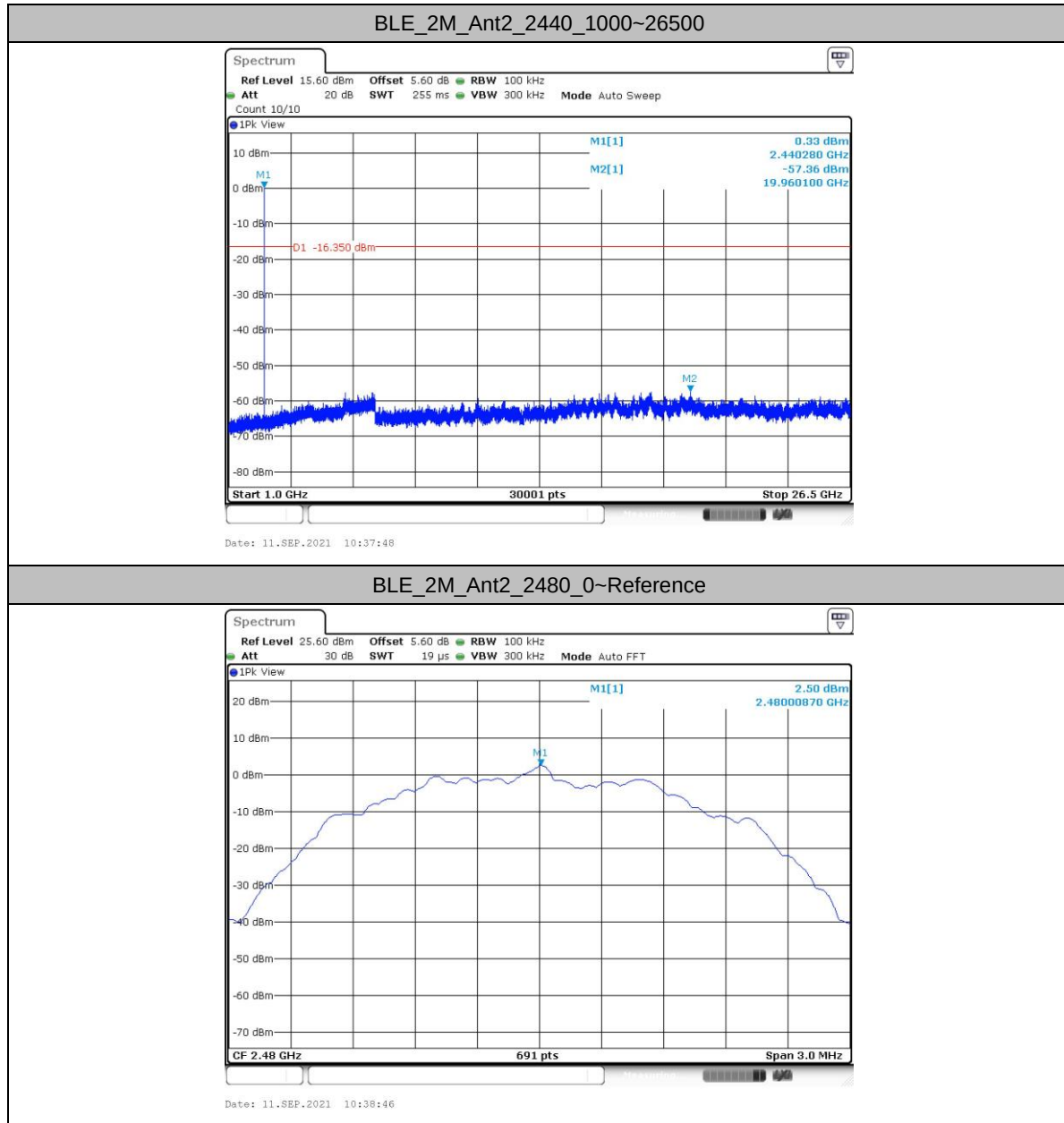
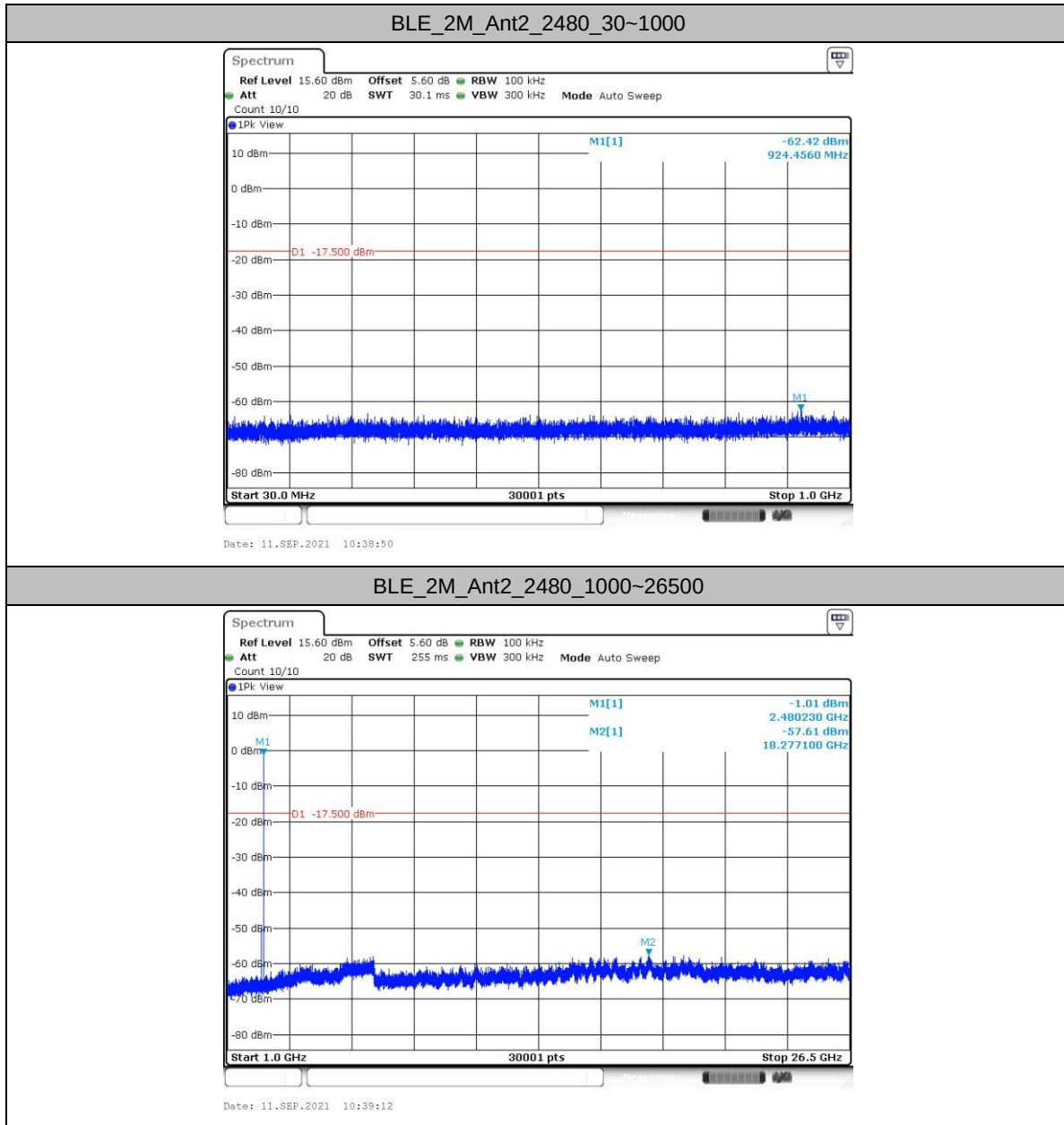
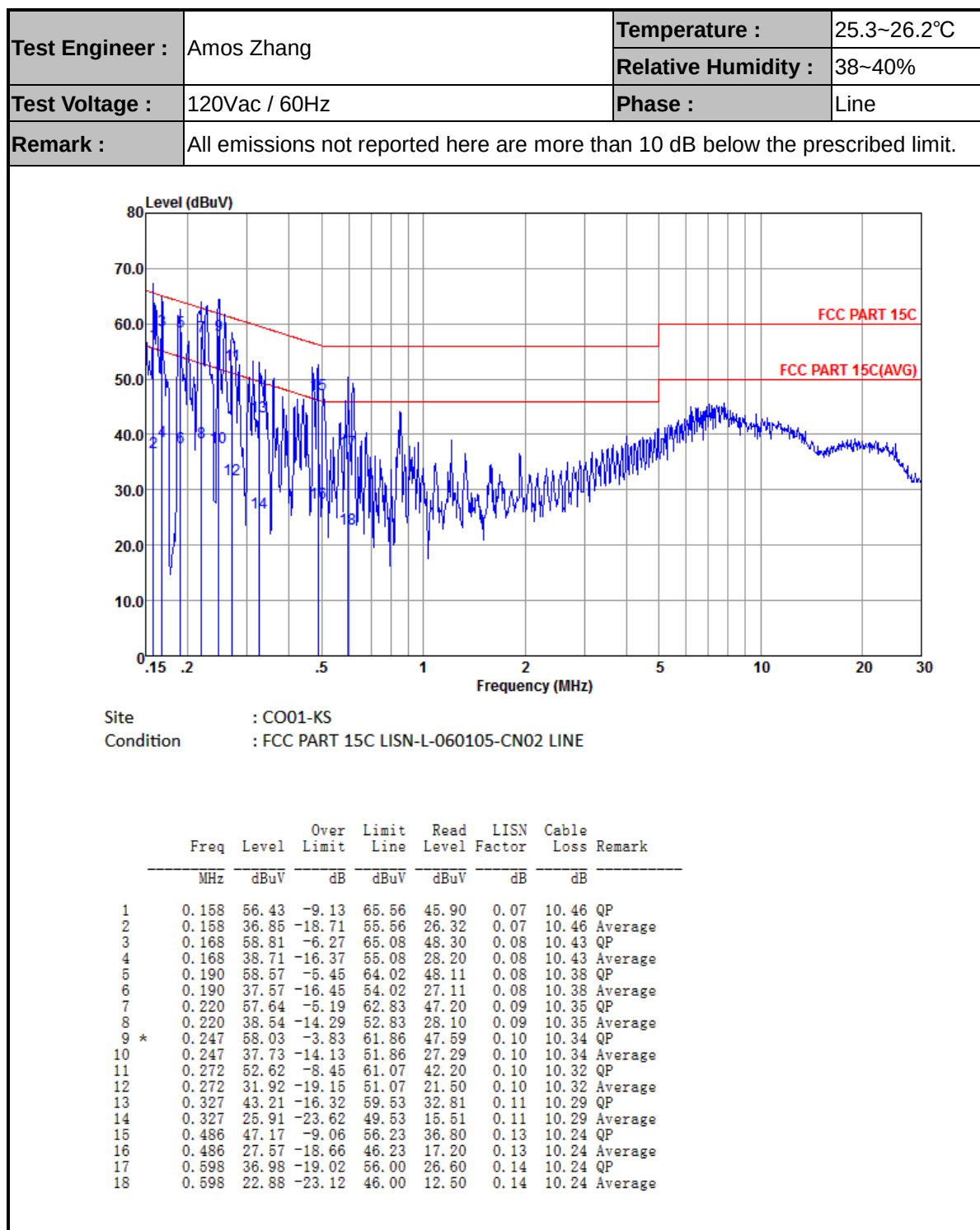






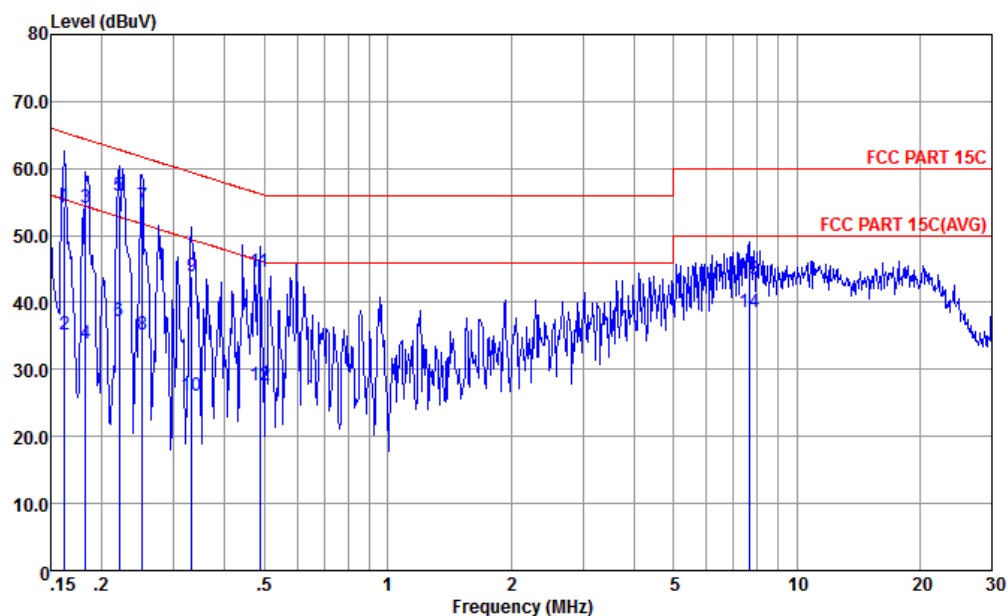


## Appendix B. AC Conducted Emission Test Results





|                 |                                                                                 |                     |             |
|-----------------|---------------------------------------------------------------------------------|---------------------|-------------|
| Test Engineer : | Amos Zhang                                                                      | Temperature :       | 25.3~26.2°C |
|                 |                                                                                 | Relative Humidity : | 38~40%      |
| Test Voltage :  | 120Vac / 60Hz                                                                   | Phase :             | Neutral     |
| Remark :        | All emissions not reported here are more than 10 dB below the prescribed limit. |                     |             |



Site : CO01-KS  
Condition : FCC PART 15C LISN-N-060105-CN02 NEUTRAL

|     | Freq  | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|-----|-------|-------|--------|-------|-------|--------|-------|---------|
|     | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|     |       |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1   | 0.162 | 54.40 | -10.94 | 65.34 | 43.80 | 0.15   | 10.45 | QP      |
| 2   | 0.162 | 35.10 | -20.24 | 55.34 | 24.50 | 0.15   | 10.45 | Average |
| 3   | 0.182 | 54.16 | -10.21 | 64.37 | 43.60 | 0.16   | 10.40 | QP      |
| 4   | 0.182 | 33.86 | -20.51 | 54.37 | 23.30 | 0.16   | 10.40 | Average |
| 5 * | 0.221 | 56.02 | -6.77  | 62.79 | 45.50 | 0.17   | 10.35 | QP      |
| 6   | 0.221 | 37.12 | -15.67 | 52.79 | 26.60 | 0.17   | 10.35 | Average |
| 7   | 0.251 | 54.32 | -7.41  | 61.73 | 43.81 | 0.18   | 10.33 | QP      |
| 8   | 0.251 | 35.32 | -16.41 | 51.73 | 24.81 | 0.18   | 10.33 | Average |
| 9   | 0.332 | 43.99 | -15.41 | 59.40 | 33.50 | 0.20   | 10.29 | QP      |
| 10  | 0.332 | 25.99 | -23.41 | 49.40 | 15.50 | 0.20   | 10.29 | Average |
| 11  | 0.486 | 44.67 | -11.56 | 56.23 | 34.20 | 0.23   | 10.24 | QP      |
| 12  | 0.486 | 27.67 | -18.56 | 46.23 | 17.20 | 0.23   | 10.24 | Average |
| 13  | 7.646 | 43.55 | -16.45 | 60.00 | 32.21 | 1.03   | 10.31 | QP      |
| 14  | 7.646 | 38.45 | -11.55 | 50.00 | 27.11 | 1.03   | 10.31 | Average |

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



## Appendix C. Radiated Spurious Emission

For Bluetooth LE 1Mbps

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

| BLE ANT1          | Note                                                         | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Path Loss | Preamp 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 ) |
| BLE CH 00 2402MHz |                                                              | 2369.41   | 52.94      | -21.06     | 74         | 49.5       | 30.48          | 7.69      | 34.73         | 153     | 304       | P         | H       |
|                   |                                                              | 2374.22   | 42.95      | -11.05     | 54         | 39.51      | 30.48          | 7.69      | 34.73         | 153     | 304       | A         | H       |
|                   | *                                                            | 2402      | 95.03      | -          | -          | 91.52      | 30.5           | 7.72      | 34.71         | 153     | 304       | P         | H       |
|                   | *                                                            | 2402      | 94.57      | -          | -          | 91.06      | 30.5           | 7.72      | 34.71         | 153     | 304       | A         | H       |
|                   |                                                              | 2324.82   | 53.06      | -20.94     | 74         | 49.81      | 30.43          | 7.6       | 34.78         | 393     | 37        | P         | V       |
|                   |                                                              | 2347.57   | 42.92      | -11.08     | 54         | 39.6       | 30.45          | 7.63      | 34.76         | 393     | 37        | A         | V       |
|                   | *                                                            | 2402      | 92.09      | -          | -          | 88.58      | 30.5           | 7.72      | 34.71         | 393     | 37        | P         | V       |
|                   | *                                                            | 2402      | 91.71      | -          | -          | 88.2       | 30.5           | 7.72      | 34.71         | 393     | 37        | A         | V       |
| BLE CH 39 2480MHz |                                                              | 2486.56   | 53.28      | -20.72     | 74         | 49.19      | 30.86          | 7.86      | 34.63         | 198     | 313       | P         | H       |
|                   |                                                              | 2483.62   | 43.64      | -10.36     | 54         | 39.55      | 30.86          | 7.86      | 34.63         | 198     | 313       | A         | H       |
|                   | *                                                            | 2480      | 90.92      | -          | -          | 86.83      | 30.86          | 7.86      | 34.63         | 198     | 313       | P         | H       |
|                   | *                                                            | 2480      | 90.39      | -          | -          | 86.3       | 30.86          | 7.86      | 34.63         | 198     | 313       | A         | H       |
|                   |                                                              | 2496.64   | 53.7       | -20.3      | 74         | 49.48      | 30.93          | 7.89      | 34.6          | 297     | 31        | P         | V       |
|                   |                                                              | 2490.7    | 43.5       | -10.5      | 54         | 39.28      | 30.93          | 7.89      | 34.6          | 297     | 31        | A         | V       |
|                   | *                                                            | 2480      | 88.68      | -          | -          | 84.59      | 30.86          | 7.86      | 34.63         | 297     | 31        | P         | V       |
|                   | *                                                            | 2480      | 88.13      | -          | -          | 84.04      | 30.86          | 7.86      | 34.63         | 297     | 31        | A         | V       |
| Remark            | 1. No other spurious found.                                  |           |            |            |            |            |                |           |               |         |           |           |         |
|                   | 2. All results are PASS against Peak and Average limit line. |           |            |            |            |            |                |           |               |         |           |           |         |



## 2.4GHz 2400~2483.5MHz

## BLE (Harmonic @ 3m)

| BLE<br>ANT1             | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| BLE<br>CH 00<br>2402MHz |                                                                                             | 4806                 | 41.84               | -32.16                  | 74                          | 56.12                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4806                 | 41.66               | -32.34                  | 74                          | 55.94                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 19<br>2440MHz |                                                                                             | 4878                 | 41.25               | -32.75                  | 74                          | 55.31                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7320                 | 43.95               | -30.05                  | 74                          | 54.07                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4878                 | 40.98               | -33.02                  | 74                          | 55.04                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7320                 | 43.81               | -30.19                  | 74                          | 53.93                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 4962                 | 42.86               | -31.14                  | 74                          | 56.66                     | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7440                 | 43.75               | -30.25                  | 74                          | 53.82                     | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4962                 | 42.16               | -31.84                  | 74                          | 55.96                     | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7440                 | 44.38               | -29.62                  | 74                          | 54.45                     | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | V               |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         |                 |



## 2.4GHz 2400~2483.5MHz

## BLE (Band Edge @ 3m)

| BLE                     | Note                                                                                        | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|-------------------------|---------------------------------------------------------------------------------------------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| ANT2                    |                                                                                             |           |            | 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<br>CH 00<br>2402MHz |                                                                                             | 2345.62   | 52.65      | -21.35 | 74         | 49.33    | 30.45    | 7.63   | 34.76  | 235    | 328     | P       | H       |
|                         |                                                                                             | 2332.23   | 42.73      | -11.27 | 54         | 39.48    | 30.43    | 7.6    | 34.78  | 235    | 328     | A       | H       |
|                         | *                                                                                           | 2402      | 85.9       | -      | -          | 82.39    | 30.5     | 7.72   | 34.71  | 235    | 328     | P       | H       |
|                         | *                                                                                           | 2402      | 85.43      | -      | -          | 81.92    | 30.5     | 7.72   | 34.71  | 235    | 328     | A       | H       |
|                         |                                                                                             | 2336.26   | 52.55      | -21.45 | 74         | 49.23    | 30.45    | 7.63   | 34.76  | 334    | 5       | P       | V       |
|                         |                                                                                             | 2372.27   | 42.68      | -11.32 | 54         | 39.24    | 30.48    | 7.69   | 34.73  | 334    | 5       | A       | V       |
|                         | *                                                                                           | 2402      | 84.5       | -      | -          | 80.99    | 30.5     | 7.72   | 34.71  | 334    | 5       | P       | V       |
|                         | *                                                                                           | 2402      | 83.84      | -      | -          | 80.33    | 30.5     | 7.72   | 34.71  | 334    | 5       | A       | V       |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 2488.84   | 53.94      | -20.06 | 74         | 49.75    | 30.93    | 7.89   | 34.63  | 221    | 318     | P       | H       |
|                         |                                                                                             | 2496.82   | 43.57      | -10.43 | 54         | 39.35    | 30.93    | 7.89   | 34.6   | 221    | 318     | A       | H       |
|                         | *                                                                                           | 2480      | 84.69      | -      | -          | 80.6     | 30.86    | 7.86   | 34.63  | 221    | 318     | P       | H       |
|                         | *                                                                                           | 2480      | 84.02      | -      | -          | 79.93    | 30.86    | 7.86   | 34.63  | 221    | 318     | A       | H       |
|                         |                                                                                             | 2494.36   | 53.35      | -20.65 | 74         | 49.13    | 30.93    | 7.89   | 34.6   | 388    | 351     | P       | V       |
|                         |                                                                                             | 2496.34   | 43.43      | -10.57 | 54         | 39.21    | 30.93    | 7.89   | 34.6   | 388    | 351     | A       | V       |
|                         | *                                                                                           | 2480      | 83.62      | -      | -          | 79.53    | 30.86    | 7.86   | 34.63  | 388    | 351     | P       | V       |
|                         | *                                                                                           | 2480      | 82.83      | -      | -          | 78.74    | 30.86    | 7.86   | 34.63  | 388    | 351     | A       | V       |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |        |            |          |          |        |        |        |         |         |         |



## 2.4GHz 2400~2483.5MHz

## BLE (Harmonic @ 3m)

| BLE<br>ANT2             | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>(P/A) | Pol.<br>(H/V) |
|-------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-----------------------|---------------|
| BLE<br>CH 00<br>2402MHz |                                                                                             | 4806                 | 41.17               | -32.83                  | 74                          | 55.45                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                     | H             |
|                         |                                                                                             | 4806                 | 41.56               | -32.44                  | 74                          | 55.84                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                     | V             |
| BLE<br>CH 19<br>2440MHz |                                                                                             | 4878                 | 41.37               | -32.63                  | 74                          | 55.43                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                     | H             |
|                         |                                                                                             | 7320                 | 44.18               | -29.82                  | 74                          | 54.3                      | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                     | H             |
|                         |                                                                                             | 4878                 | 40.78               | -33.22                  | 74                          | 54.84                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                     | V             |
|                         |                                                                                             | 7320                 | 43.53               | -30.47                  | 74                          | 53.65                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                     | V             |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 4962                 | 42.5                | -31.5                   | 74                          | 56.3                      | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                     | H             |
|                         |                                                                                             | 7440                 | 44.52               | -29.48                  | 74                          | 54.59                     | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                     | H             |
|                         |                                                                                             | 4962                 | 42.6                | -31.4                   | 74                          | 56.4                      | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                     | V             |
|                         |                                                                                             | 7440                 | 43.34               | -30.66                  | 74                          | 53.41                     | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                     | V             |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                       |               |



## Emission below 1GHz

## 2.4GHz BLE (LF)

| BLE                 | Note                                                                       | Frequency | Level      | Over<br>Limit | Limit<br>Line | Read<br>Level | Antenna<br>Factor | Path<br>Loss | Preamp<br>Factor | Ant<br>Pos | Table<br>Pos | Peak<br>Avg. | Pol.  |
|---------------------|----------------------------------------------------------------------------|-----------|------------|---------------|---------------|---------------|-------------------|--------------|------------------|------------|--------------|--------------|-------|
|                     |                                                                            | ( MHz )   | ( dBμV/m ) | ( dB )        | ( dBμV/m )    | (dBμV)        | ( dB/m )          | ( dB )       | ( dB )           | ( cm )     | ( deg )      | (P/A)        | (H/V) |
| 2.4GHz<br>BLE<br>LF |                                                                            | 44.55     | 23.39      | -16.61        | 40            | 37.97         | 17.3              | 1.02         | 32.9             | 200        | 360          | P            | H     |
|                     |                                                                            | 209.45    | 20.43      | -23.07        | 43.5          | 34.43         | 16.9              | 2.2          | 33.1             | -          | -            | P            | H     |
|                     |                                                                            | 423.82    | 23.04      | -22.96        | 46            | 29.52         | 23.13             | 3.14         | 32.75            | -          | -            | P            | H     |
|                     |                                                                            | 614.91    | 25.81      | -20.19        | 46            | 28.97         | 25.62             | 3.78         | 32.56            | -          | -            | P            | H     |
|                     |                                                                            | 726.46    | 26.78      | -19.22        | 46            | 29.29         | 26.12             | 4.12         | 32.75            | -          | -            | P            | H     |
|                     |                                                                            | 821.52    | 27.2       | -18.8         | 46            | 28.33         | 27.03             | 4.38         | 32.54            | -          | -            | P            | H     |
|                     |                                                                            | 43.58     | 34.18      | -5.82         | 40            | 48.24         | 17.82             | 1            | 32.88            | 100        | 0            | P            | V     |
|                     |                                                                            | 66.86     | 20.3       | -19.7         | 40            | 38.87         | 13.26             | 1.23         | 33.06            | -          | -            | P            | V     |
|                     |                                                                            | 175.5     | 20.14      | -23.36        | 43.5          | 34.19         | 16.89             | 2.01         | 32.95            | -          | -            | P            | V     |
|                     |                                                                            | 366.59    | 22.03      | -23.97        | 46            | 30.15         | 21.83             | 2.92         | 32.87            | -          | -            | P            | V     |
|                     |                                                                            | 612       | 25.66      | -20.34        | 46            | 28.84         | 25.59             | 3.78         | 32.55            | -          | -            | P            | V     |
|                     |                                                                            | 839.95    | 27.35      | -18.65        | 46            | 28.37         | 27.14             | 4.42         | 32.58            | -          | -            | P            | V     |
| Remark              | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |               |               |               |                   |              |                  |            |              |              |       |



For Bluetooth LE 2Mbps

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

| BLE<br>1                | Note                                                         | Frequency | Level      | Over<br>Limit | Limit<br>Line | Read<br>Level | Antenna<br>Factor | Path<br>Loss | Preamp<br>Factor | Ant<br>Pos | Table<br>Pos | Peak<br>Avg. | Pol.    |
|-------------------------|--------------------------------------------------------------|-----------|------------|---------------|---------------|---------------|-------------------|--------------|------------------|------------|--------------|--------------|---------|
|                         |                                                              | ( MHz )   | ( dBμV/m ) | ( dB )        | ( dBμV/m )    | ( dBμV )      | ( dB/m )          | ( dB )       | ( dB )           | ( cm )     | ( deg )      | ( P/A )      | ( H/V ) |
| BLE<br>CH 00<br>2402MHz |                                                              | 2368.37   | 52.64      | -21.36        | 74            | 49.25         | 30.46             | 7.66         | 34.73            | 126        | 309          | P            | H       |
|                         |                                                              | 2351.86   | 43.53      | -10.47        | 54            | 40.17         | 30.46             | 7.66         | 34.76            | 126        | 309          | A            | H       |
|                         | *                                                            | 2402      | 95.27      | -             | -             | 91.76         | 30.5              | 7.72         | 34.71            | 126        | 309          | P            | H       |
|                         | *                                                            | 2402      | 93.89      | -             | -             | 90.38         | 30.5              | 7.72         | 34.71            | 126        | 309          | A            | H       |
|                         |                                                              | 2358.88   | 52.5       | -21.5         | 74            | 49.14         | 30.46             | 7.66         | 34.76            | 391        | 36           | P            | V       |
|                         |                                                              | 2375.26   | 43.42      | -10.58        | 54            | 39.98         | 30.48             | 7.69         | 34.73            | 391        | 36           | A            | V       |
|                         | *                                                            | 2402      | 91.9       | -             | -             | 88.39         | 30.5              | 7.72         | 34.71            | 391        | 36           | P            | V       |
|                         | *                                                            | 2402      | 90.6       | -             | -             | 87.09         | 30.5              | 7.72         | 34.71            | 391        | 36           | A            | V       |
| BLE<br>CH 39<br>2480MHz |                                                              | 2483.74   | 53.44      | -20.56        | 74            | 49.35         | 30.86             | 7.86         | 34.63            | 281        | 314          | P            | H       |
|                         |                                                              | 2493.76   | 44.25      | -9.75         | 54            | 40.03         | 30.93             | 7.89         | 34.6             | 281        | 314          | A            | H       |
|                         | *                                                            | 2480      | 90.92      | -             | -             | 86.83         | 30.86             | 7.86         | 34.63            | 281        | 314          | P            | H       |
|                         | *                                                            | 2480      | 89.48      | -             | -             | 85.39         | 30.86             | 7.86         | 34.63            | 281        | 314          | A            | H       |
|                         |                                                              | 2493.04   | 53.28      | -20.72        | 74            | 49.06         | 30.93             | 7.89         | 34.6             | 369        | 31           | P            | V       |
|                         |                                                              | 2490.82   | 44.16      | -9.84         | 54            | 39.94         | 30.93             | 7.89         | 34.6             | 369        | 31           | A            | V       |
|                         | *                                                            | 2480      | 87.78      | -             | -             | 83.69         | 30.86             | 7.86         | 34.63            | 369        | 31           | P            | V       |
|                         | *                                                            | 2480      | 86.45      | -             | -             | 82.36         | 30.86             | 7.86         | 34.63            | 369        | 31           | A            | V       |
| Remark                  | 1. No other spurious found.                                  |           |            |               |               |               |                   |              |                  |            |              |              |         |
|                         | 2. All results are PASS against Peak and Average limit line. |           |            |               |               |               |                   |              |                  |            |              |              |         |



## 2.4GHz 2400~2483.5MHz

## BLE (Harmonic @ 3m)

| BLE<br>1                | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| BLE<br>CH 00<br>2402MHz |                                                                                             | 4806                 | 40.86               | -33.14                  | 74                          | 55.14                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4806                 | 41.02               | -32.98                  | 74                          | 55.3                      | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 19<br>2440MHz |                                                                                             | 4878                 | 40.84               | -33.16                  | 74                          | 54.9                      | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7320                 | 42.77               | -31.23                  | 74                          | 52.89                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4878                 | 41.47               | -32.53                  | 74                          | 55.53                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7320                 | 42.98               | -31.02                  | 74                          | 53.1                      | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 4962                 | 42                  | -32                     | 74                          | 55.8                      | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7440                 | 43.23               | -30.77                  | 74                          | 53.3                      | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4962                 | 42.57               | -31.43                  | 74                          | 56.37                     | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7440                 | 43.33               | -30.67                  | 74                          | 53.4                      | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | V               |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         |                 |



## 2.4GHz 2400~2483.5MHz

## BLE (Band Edge @ 3m)

| BLE                     | Note                                                                                        | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|-------------------------|---------------------------------------------------------------------------------------------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| 2                       |                                                                                             |           |            | 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<br>CH 00<br>2402MHz |                                                                                             | 2353.81   | 52.47      | -21.53 | 74         | 49.11    | 30.46    | 7.66   | 34.76  | 188    | 332     | P       | H       |
|                         |                                                                                             | 2369.8    | 43.37      | -10.63 | 54         | 39.93    | 30.48    | 7.69   | 34.73  | 188    | 332     | A       | H       |
|                         | *                                                                                           | 2402      | 86.18      | -      | -          | 82.67    | 30.5     | 7.72   | 34.71  | 188    | 332     | P       | H       |
|                         | *                                                                                           | 2402      | 84.88      | -      | -          | 81.37    | 30.5     | 7.72   | 34.71  | 188    | 332     | A       | H       |
|                         |                                                                                             | 2310.78   | 52.72      | -21.28 | 74         | 49.51    | 30.41    | 7.58   | 34.78  | 333    | 5       | P       | V       |
|                         |                                                                                             | 2374.74   | 43.41      | -10.59 | 54         | 39.97    | 30.48    | 7.69   | 34.73  | 333    | 5       | A       | V       |
|                         | *                                                                                           | 2402      | 84.3       | -      | -          | 80.79    | 30.5     | 7.72   | 34.71  | 333    | 5       | P       | V       |
|                         | *                                                                                           | 2402      | 82.77      | -      | -          | 79.26    | 30.5     | 7.72   | 34.71  | 333    | 5       | A       | V       |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 2486.02   | 54.25      | -19.75 | 74         | 50.16    | 30.86    | 7.86   | 34.63  | 221    | 317     | P       | H       |
|                         |                                                                                             | 2488.12   | 44.03      | -9.97  | 54         | 39.84    | 30.93    | 7.89   | 34.63  | 221    | 317     | A       | H       |
|                         | *                                                                                           | 2480      | 85         | -      | -          | 80.91    | 30.86    | 7.86   | 34.63  | 221    | 317     | P       | H       |
|                         | *                                                                                           | 2480      | 83.55      | -      | -          | 79.46    | 30.86    | 7.86   | 34.63  | 221    | 317     | A       | H       |
|                         |                                                                                             | 2496.94   | 53.06      | -20.94 | 74         | 48.84    | 30.93    | 7.89   | 34.6   | 283    | 339     | P       | V       |
|                         |                                                                                             | 2498.32   | 44.07      | -9.93  | 54         | 39.85    | 30.93    | 7.89   | 34.6   | 283    | 339     | A       | V       |
|                         | *                                                                                           | 2480      | 81.5       | -      | -          | 77.41    | 30.86    | 7.86   | 34.63  | 283    | 339     | P       | V       |
|                         | *                                                                                           | 2480      | 80.15      | -      | -          | 76.06    | 30.86    | 7.86   | 34.63  | 283    | 339     | A       | V       |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |        |            |          |          |        |        |        |         |         |         |



## 2.4GHz 2400~2483.5MHz

## BLE (Harmonic @ 3m)

| BLE<br>2                | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Path<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| BLE<br>CH 00<br>2402MHz |                                                                                             | 4806                 | 41.52               | -32.48                  | 74                          | 55.8                      | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4806                 | 42.08               | -31.92                  | 74                          | 56.36                     | 34.58                         | 11.18                  | 60.04                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 19<br>2440MHz |                                                                                             | 4878                 | 41.44               | -32.56                  | 74                          | 55.5                      | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7320                 | 43.96               | -30.04                  | 74                          | 54.08                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4878                 | 41.69               | -32.31                  | 74                          | 55.75                     | 34.69                         | 11.28                  | 60.03                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7320                 | 43.19               | -30.81                  | 74                          | 53.31                     | 36.67                         | 13.73                  | 60.52                      | 300                  | 0                       | P                       | V               |
| BLE<br>CH 39<br>2480MHz |                                                                                             | 4962                 | 42.28               | -31.72                  | 74                          | 56.08                     | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 7440                 | 43.43               | -30.57                  | 74                          | 53.5                      | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | H               |
|                         |                                                                                             | 4962                 | 42.23               | -31.77                  | 74                          | 56.03                     | 34.82                         | 11.39                  | 60.01                      | 300                  | 0                       | P                       | V               |
|                         |                                                                                             | 7440                 | 44.59               | -29.41                  | 74                          | 54.66                     | 36.62                         | 13.85                  | 60.54                      | 300                  | 0                       | P                       | V               |
| Remark                  | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                        |                            |                      |                         |                         |                 |



## Emission below 1GHz

## 2.4GHz BLE (LF)

| BLE                 | Note                                                                       | Frequency | Level      | Over   | Limit      | Read   | Antenna  | Path   | 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<br>BLE<br>LF |                                                                            | 44.55     | 23.53      | -16.47 | 40         | 38.11  | 17.3     | 1.02   | 32.9   | 200    | 0       | P     | H     |
|                     |                                                                            | 119.24    | 16.46      | -27.04 | 43.5       | 29.8   | 17.87    | 1.65   | 32.86  | -      | -       | P     | H     |
|                     |                                                                            | 158.04    | 19.58      | -23.92 | 43.5       | 33.21  | 17.31    | 1.91   | 32.85  | -      | -       | P     | H     |
|                     |                                                                            | 208.48    | 19.75      | -23.75 | 43.5       | 33.81  | 16.84    | 2.2    | 33.1   | -      | -       | P     | H     |
|                     |                                                                            | 326.82    | 23.64      | -22.36 | 46         | 32.94  | 20.85    | 2.75   | 32.9   | -      | -       | P     | H     |
|                     |                                                                            | 576.11    | 26.12      | -19.88 | 46         | 29.32  | 25.69    | 3.66   | 32.55  | -      | -       | P     | H     |
|                     |                                                                            | 42.61     | 31.76      | -8.24  | 40         | 45.29  | 18.34    | 0.99   | 32.86  | 100    | 360     | P     | V     |
|                     |                                                                            | 64.92     | 17.3       | -22.7  | 40         | 35.89  | 13.3     | 1.21   | 33.1   | -      | -       | P     | V     |
|                     |                                                                            | 174.53    | 20.3       | -23.2  | 43.5       | 34.33  | 16.91    | 2.01   | 32.95  | -      | -       | P     | V     |
|                     |                                                                            | 457.77    | 23.96      | -22.04 | 46         | 29.67  | 23.74    | 3.27   | 32.72  | -      | -       | P     | V     |
|                     |                                                                            | 627.52    | 26.2       | -19.8  | 46         | 29.27  | 25.72    | 3.82   | 32.61  | -      | -       | P     | V     |
|                     |                                                                            | 765.26    | 27.97      | -18.03 | 46         | 29.76  | 26.62    | 4.23   | 32.64  | -      | -       | P     | V     |
| Remark              | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |            |        |          |        |        |        |         |       |       |

**Note symbol**

|     |                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *   | <b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. |
| !   | Test result is <b>over limit</b> line.                                                                                                                   |
| P/A | <b>P</b> eak or <b>A</b> verage                                                                                                                          |
| H/V | <b>H</b> orizontal or <b>V</b> ertical                                                                                                                   |



A calculation example for radiated spurious emission is shown as below:

| BLE                     | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | 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<br>CH 00<br>2402MHz |      | 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. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)

2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path 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) + Path 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)

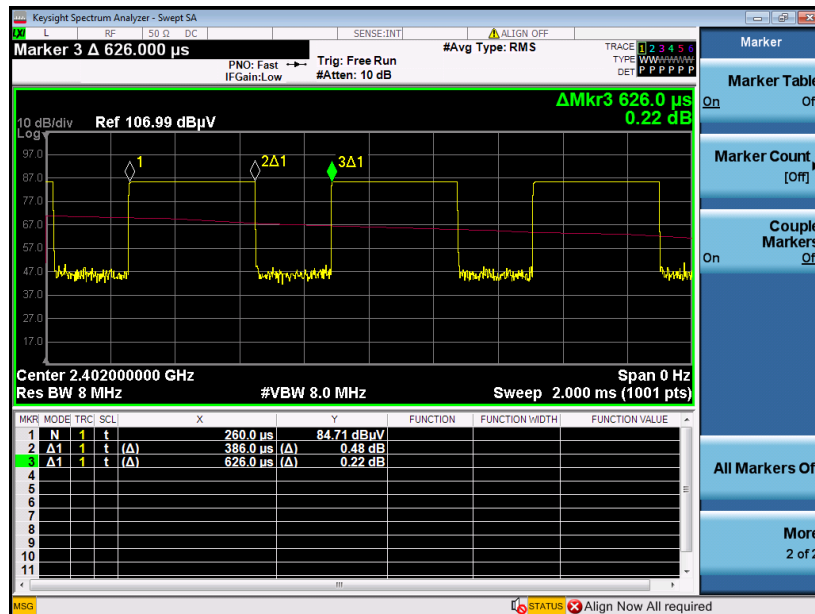
= -10.46(dB)

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

## Appendix D. Duty Cycle Plots

| Band               | Duty Cycle(%) | T(ms) | 1/T(kHz) | VBW Setting |
|--------------------|---------------|-------|----------|-------------|
| Bluetooth LE 1Mbps | 61.66         | 0.386 | 2.591    | 2.7kHz      |
| Bluetooth LE 2Mbps | 32.37         | 0.202 | 4.950    | 5.1kHz      |

Bluetooth LE 1Mbps



## Bluetooth LE 2Mbps

