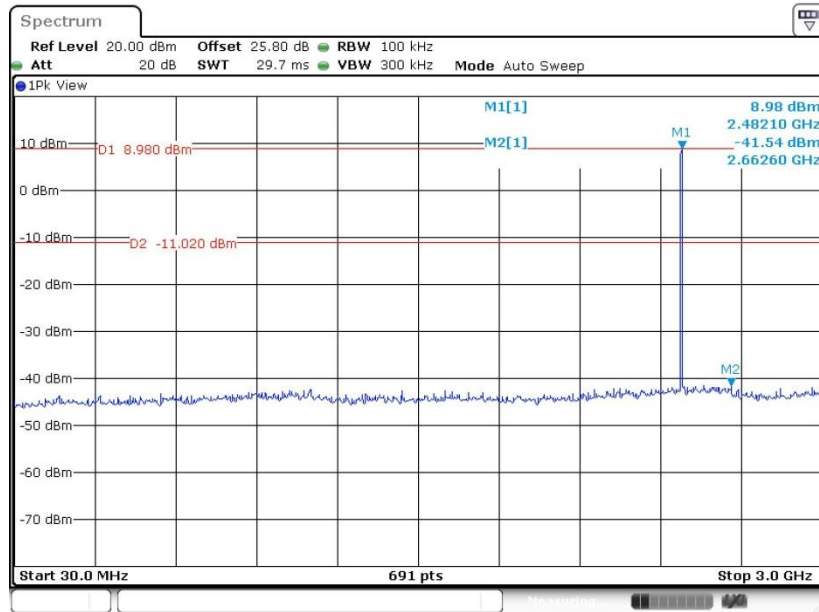


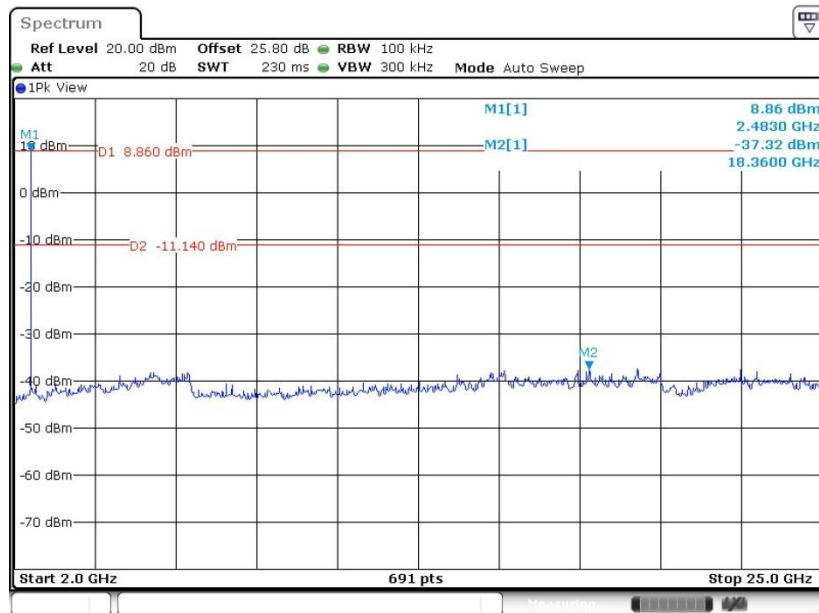


CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 16.SEP.2019 13:08:13

CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 16.SEP.2019 13:08:41



### 3.8 Radiated Band Edges and Spurious Emission Measurement

#### 3.8.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009 – 0.490   | 2400/F(kHz)                       | 300                           |
| 0.490 – 1.705   | 24000/F(kHz)                      | 30                            |
| 1.705 – 30.0    | 30                                | 30                            |
| 30 – 88         | 100                               | 3                             |
| 88 – 216        | 150                               | 3                             |
| 216 - 960       | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

#### 3.8.2 Measuring Instruments

See list of measuring equipment of this test report.



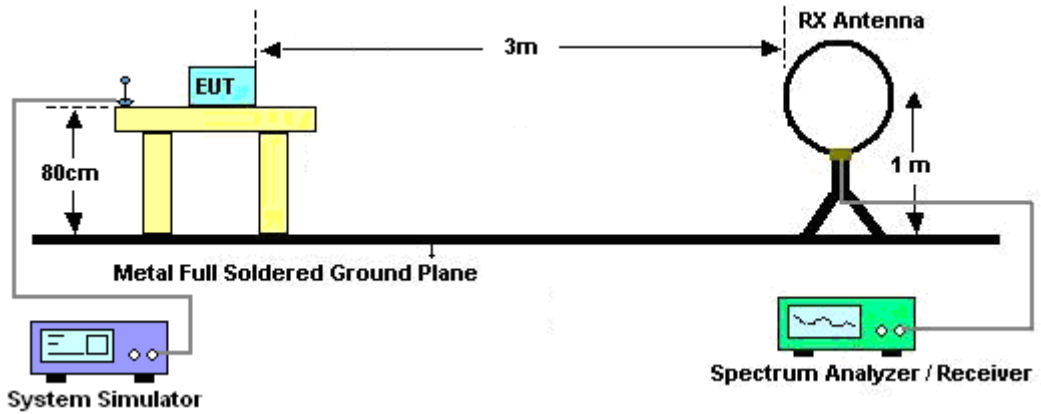
### 3.8.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz, RBW=1MHz for  $f > 1$ GHz ; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
  - (3) For average measurement: use duty cycle correction factor method per 15.35(c).  
Duty cycle = On time/100 milliseconds  
On time =  $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$   
Where  $N_1$  is number of type 1 pulses,  $L_1$  is length of type 1 pulses, etc.  
Average Emission Level = Peak Emission Level +  $20 * \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

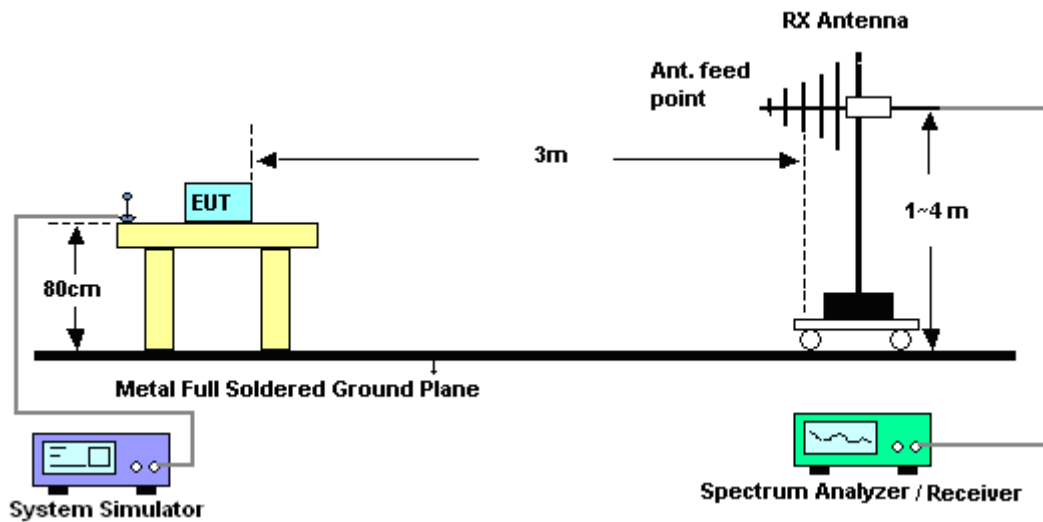
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.79dB for Sample 1, Sample 2, Sample 3)( -24.73dB for Sample 4) derived from  $20 \log(\text{dwell time}/100\text{ms})$ . This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

### 3.8.4 Test Setup

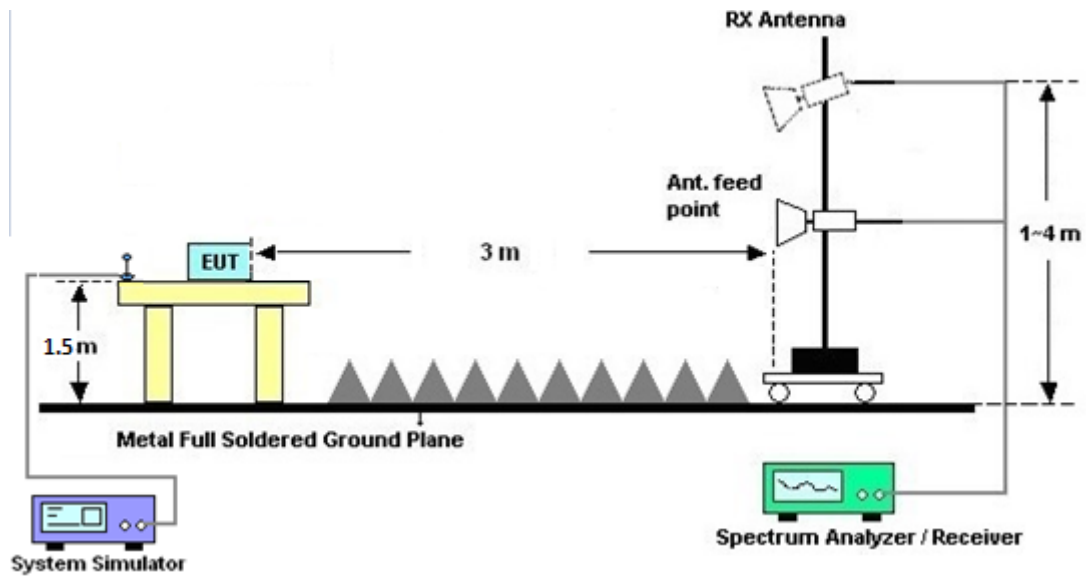
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

### 3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

### 3.8.7 Duty Cycle

Please refer to Appendix E.

### 3.8.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Please refer to Appendix C and D.



### 3.9 AC Conducted Emission Measurement

#### 3.9.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | Quasi-peak                   | Average   |
| 0.15-0.5                    | 66 to 56*                    | 56 to 46* |
| 0.5-5                       | 56                           | 46        |
| 5-30                        | 60                           | 50        |

\*Decreases with the logarithm of the frequency.

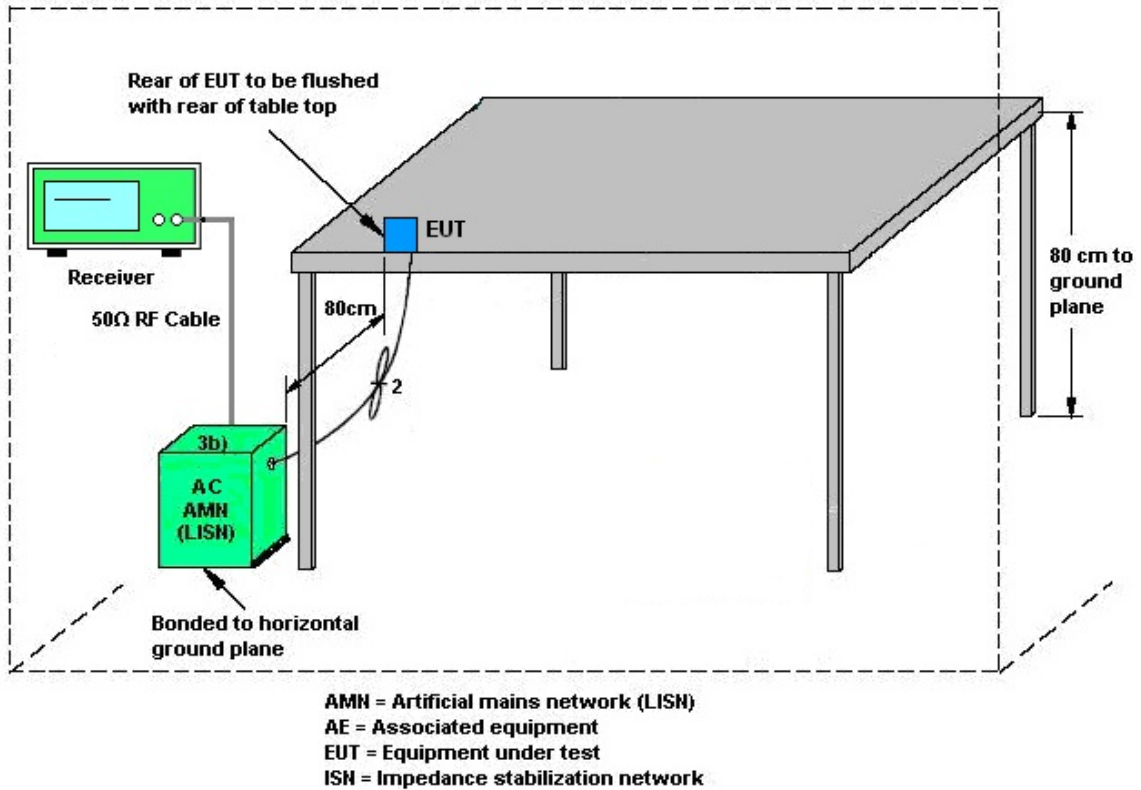
#### 3.9.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.9.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.9.4 Test Setup



### 3.9.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



## **3.10 Antenna Requirements**

### **3.10.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

### **3.10.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.10.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.





## 4 List of Measuring Equipment

| Instrument                          | Manufacturer    | Model No.                   | Serial No.       | Characteristics | Calibration Date | Test Date                   | Due Date      | Remark                |
|-------------------------------------|-----------------|-----------------------------|------------------|-----------------|------------------|-----------------------------|---------------|-----------------------|
| Power Sensor                        | DARE            | RPR3006W                    | RPR6W-1901027    | 10MHz~6GHz      | Jun. 27, 2019    | Sep. 16, 2019               | Jun. 26, 2020 | Conducted (TH01-CA)   |
| Power Sensor                        | Anritsu         | MA2411B                     | 1726149          | 300MHz~40GHz    | Aug. 15, 2019    | Sep. 16, 2019               | Aug. 14, 2020 | Conducted (TH01-CA)   |
| Power Meter                         | Anritsu         | ML2495A                     | 1804004          | N/A             | Aug. 14, 2019    | Sep. 16, 2019               | Aug. 13, 2020 | Conducted (TH01-CA)   |
| Spectrum Analyzer                   | Rohde & Schwarz | FSV 40                      | 101545           | 10Hz~40GHz      | May 17, 2019     | Sep. 16, 2019               | May 16, 2020  | Conducted (TH01-CA)   |
| Switch Box & RF Cable               | EM              | EMSW18                      | SW1070902        | N/A             | Apr. 07, 2019    | Sep. 16, 2019               | Apr. 06, 2020 | Conducted (TH01-CA)   |
| LISN                                | TESEQ           | NNB51                       | 47407            | N/A             | Jun. 26, 2019    | Aug. 20, 2019               | Jun. 25, 2020 | Conduction (CO01-CA)  |
| EMI Test Receiver                   | R&S             | ESR7                        | 102177           | 9KHz~7GHz       | Jun. 27, 2019    | Aug. 20, 2019               | Jun. 26, 2020 | Conduction (CO01-CA)  |
| Pulse limiter with 10dB attenuation | R&S             | VTSD 9561-F N               | 9561-F-N00412    | N/A             | Jun. 11, 2019    | Aug. 20, 2019               | Jun. 10, 2020 | Conduction (CO01-CA)  |
| Test Software                       | EMC32           | N/A                         | N/A              | N/A             | N/A              | Aug. 20, 2019               | N/A           | Conduction (CO01-CA)  |
| Bilog Antenna                       | TESEQ           | 6111D                       | 50392            | 30MHz~1GHz      | May 15, 2019     | Aug. 09, 2019~Sep. 12, 2019 | May 14, 2020  | Radiation (03CH02-CA) |
| Horn Antenna                        | SCHWARZBECK     | BBHA 9120D                  | 01894            | 1GHz~18GHz      | Jul. 22, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Jul. 21, 2020 | Radiation (03CH02-CA) |
| Amplifier                           | SONOMA          | 310N                        | 372241           | N/A             | Jul. 26, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Jul. 25, 2020 | Radiation (03CH02-CA) |
| Preamplifier                        | Keysight        | 83017A                      | MY53270321       | 1GHz~26.5GHz    | Sep. 27, 2018    | Aug. 09, 2019~Sep. 12, 2019 | Sep. 26, 2019 | Radiation (03CH02-CA) |
| Preamplifier                        | Jet-Power       | JPA0118-55-303              | 1710001800055007 | 1GHz~18GHz      | Apr. 01, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Mar. 31, 2020 | Radiation (03CH02-CA) |
| EMI Test Receiver                   | R&S             | ESU26                       | 100049           | 20Hz~26.5GHz    | Jul. 31, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Jul. 30, 2020 | Radiation (03CH02-CA) |
| Filter                              | Wainwright      | WLK12-1200-1272-11000-40SS  | SN2              | 1.2G Low Pass   | Aug. 02, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Aug. 01, 2020 | Radiation (03CH02-CA) |
| Filter                              | Wainwright      | WHKX12-2700-3000-18000-60ST | SN10             | 3G Highpass     | Aug. 02, 2019    | Aug. 09, 2019~Sep. 12, 2019 | Aug. 01, 2020 | Radiation (03CH02-CA) |
| Antenna Mast                        | ChainTek        | MBS-520-1                   | N/A              | 1m~4m           | N/A              | Aug. 09, 2019~Sep. 12, 2019 | N/A           | Radiation (03CH02-CA) |
| Turn Table                          | ChainTek        | T-200-S-1                   | N/A              | 0~360 Degree    | N/A              | Aug. 09, 2019~Sep. 12, 2019 | N/A           | Radiation (03CH02-CA) |

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 1.7 |
|---|-----|

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.4 |
|---|-----|

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 6.5 |
|---|-----|

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 6.3 |
|---|-----|

**Appendix A. Test Result of Conducted Test Items**

|                |              |                    |       |    |
|----------------|--------------|--------------------|-------|----|
| Test Engineer: | Jordan Huang | Temperature:       | 21~25 | °C |
| Test Date:     | 2019/9/16    | Relative Humidity: | 51~54 | %  |

| <b>TEST RESULTS DATA</b>  |           |     |     |             |               |                     |  |  |           |
|---|-----------|-----|-----|-------------|---------------|---------------------|--|--|-----------|
| <b>20dB and 99% Occupied Bandwidth and Hopping Channel Separation</b> |           |     |     |             |               |                     |  |  |           |
| Mod.  | Data Rate | NTX | CH. | Freq. (MHz) | 20db BW (MHz) | 99% Bandwidth (MHz) | Hopping Channel Separation Measurement (MHz) | Hopping Channel Separation Measurement Limit (MHz) | Pass/Fail |
| DH  | 1Mbps     | 1   | 0   | 2402        | 0.952         | 0.889               | 0.999  | 0.6348   | Pass      |
| DH  | 1Mbps     | 1   | 39  | 2441        | 0.952         | 0.886               | 1.164  | 0.6348   | Pass      |
| DH  | 1Mbps     | 1   | 78  | 2480        | 0.955         | 0.886               | 0.994  | 0.6367   | Pass      |
| 2DH   | 2Mbps     | 1   | 0   | 2402        | 1.276         | 1.169               | 0.999  | 0.8509   | Pass      |
| 2DH   | 2Mbps     | 1   | 39  | 2441        | 1.276         | 1.169               | 1.168  | 0.8509   | Pass      |
| 2DH   | 2Mbps     | 1   | 78  | 2480        | 1.281         | 1.169               | 1.033  | 0.8539   | Pass      |
| 3DH   | 3Mbps     | 1   | 0   | 2402        | 1.294         | 1.172               | 1.164  | 0.8625   | Pass      |
| 3DH   | 3Mbps     | 1   | 39  | 2441        | 1.289         | 1.169               | 1.007  | 0.8596   | Pass      |
| 3DH   | 3Mbps     | 1   | 78  | 2480        | 1.294         | 1.175               | 1.164  | 0.8625   | Pass      |

| <b>TEST RESULTS DATA</b> |                             |                                |                              |                  |              |           |
|--------------------------|-----------------------------|--------------------------------|------------------------------|------------------|--------------|-----------|
| <b>Dwell Time</b>        |                             |                                |                              |                  |              |           |
| Mod.                     | Hopping Channel Number Rate | Hops Over Occupancy Time(hops) | Package Transfer Time (msec) | Dwell Time (sec) | Limits (sec) | Pass/Fail |
| Nomal                    | 79                          | 106.67                         | 2.90                         | 0.31             | 0.4          | Pass      |
| AFH                      | 20                          | 53.33                          | 2.90                         | 0.15             | 0.4          | Pass      |

| <b>TEST RESULTS DATA</b> |     |     |                  |                   |             |
|--------------------------|-----|-----|------------------|-------------------|-------------|
| <b>Peak Power Table</b>  |     |     |                  |                   |             |
| DH                       | CH. | NTX | Peak Power (dBm) | Power Limit (dBm) | Test Result |
| DH5                      | 0   | 1   | 11.10            | 20.97             | Pass        |
|                          | 39  | 1   | 11.11            | 20.97             | Pass        |
|                          | 78  | 1   | <b>11.52</b>     | 20.97             | Pass        |
| 2DH5                     | 0   | 1   | 10.75            | 20.97             | Pass        |
|                          | 39  | 1   | 10.79            | 20.97             | Pass        |
|                          | 78  | 1   | <b>11.22</b>     | 20.97             | Pass        |
| 3DH5                     | 0   | 1   | 10.96            | 20.97             | Pass        |
|                          | 39  | 1   | 11.10            | 20.97             | Pass        |
|                          | 78  | 1   | <b>11.58</b>     | 20.97             | Pass        |

| <b>TEST RESULTS DATA</b>                    |     |     |                     |                  |
|---|-----|-----|---------------------|------------------|
| <b>Average Power Table (Reporting Only)</b> |     |     |                     |                  |
| DH  | CH. | NTX | Average Power (dBm) | Duty Factor (dB) |
| DH5   | 0   | 1   | 10.04               | 1.17             |
|   | 39  | 1   | 10.08               | 1.17             |
|   | 78  | 1   | <b>10.64</b>        | 1.17             |
| 2DH5  | 0   | 1   | 7.84                | 1.18             |
|   | 39  | 1   | 7.91                | 1.18             |
|   | 78  | 1   | <b>8.51</b>         | 1.18             |
| 3DH5  | 0   | 1   | 7.82                | 1.19             |
|   | 39  | 1   | 7.91                | 1.19             |
|   | 78  | 1   | <b>8.51</b>         | 1.19             |

| <b>TEST RESULTS DATA</b>           |                                      |                  |           |
|------------------------------------|--------------------------------------|------------------|-----------|
| <b>Number of Hopping Frequency</b> |                                      |                  |           |
| Number of Hopping (Channel)        | Adaptive Frequency Hopping (Channel) | Limits (Channel) | Pass/Fail |
| 79                                 | 20                                   | > 15             | Pass      |



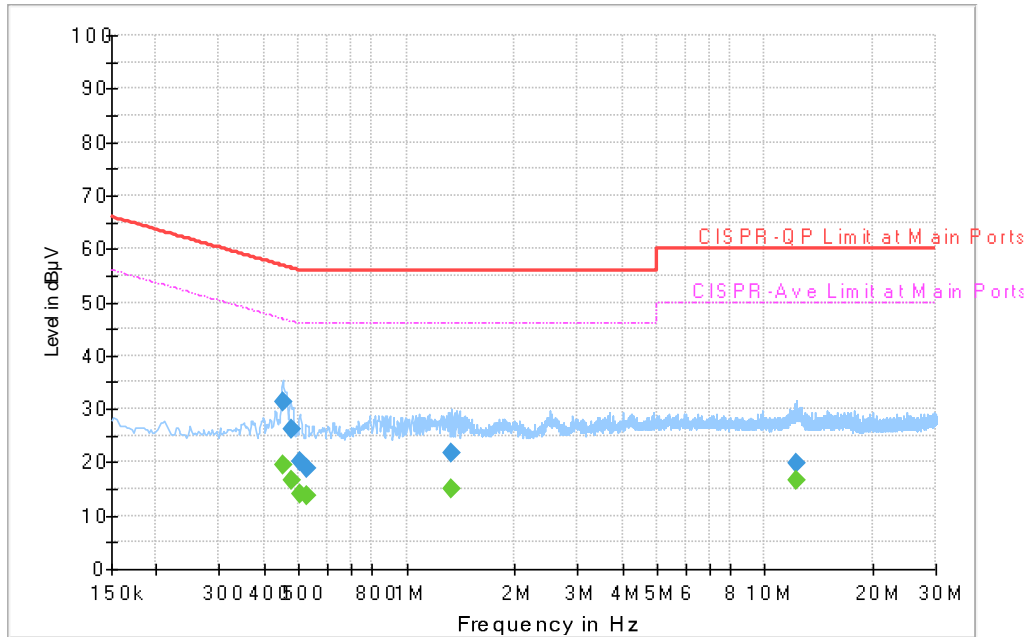
## Appendix B. AC Conducted Emission Test Results

|                 |           |                     |         |
|-----------------|-----------|---------------------|---------|
| Test Engineer : | Eric Jeng | Temperature :       | 22~25°C |
|                 |           | Relative Humidity : | 52~55%  |

## EUT Information

Test Site : CO01-CA  
 Project No : 190805001  
 TestMode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Line

Full Spectrum



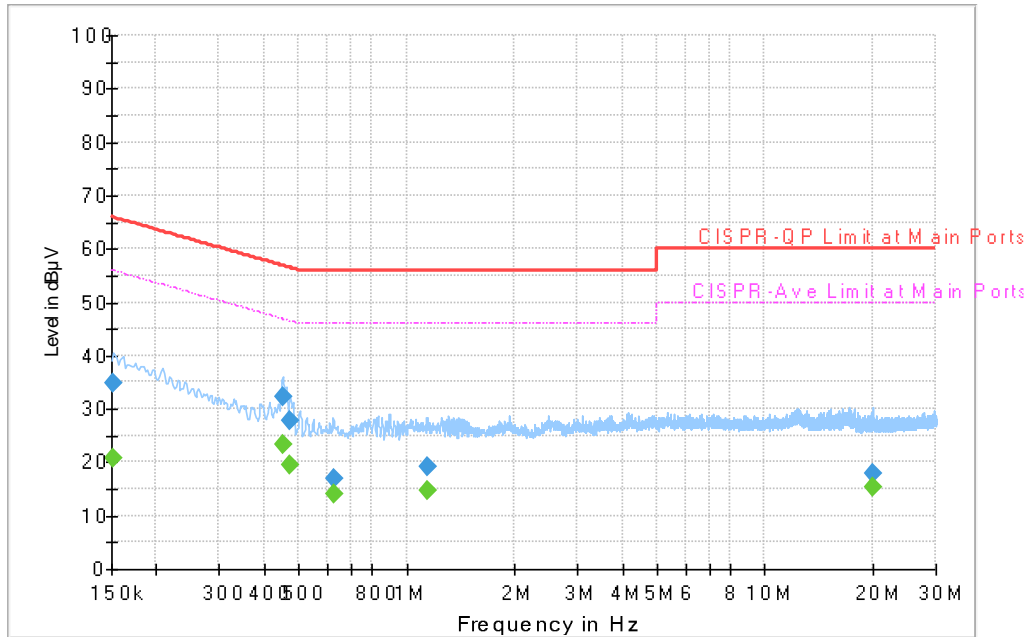
## Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.451572        | ---              | 19.43           | 46.85        | 27.42       | L1   | OFF    | 20.0       |
| 0.451572        | 31.34            | ---             | 56.85        | 25.51       | L1   | OFF    | 20.0       |
| 0.475080        | ---              | 16.74           | 46.43        | 29.69       | L1   | OFF    | 20.0       |
| 0.475080        | 26.07            | ---             | 56.43        | 30.36       | L1   | OFF    | 20.0       |
| 0.505878        | ---              | 14.06           | 46.00        | 31.94       | L1   | OFF    | 20.0       |
| 0.505878        | 20.13            | ---             | 56.00        | 35.87       | L1   | OFF    | 20.0       |
| 0.525228        | ---              | 13.70           | 46.00        | 32.30       | L1   | OFF    | 20.0       |
| 0.525228        | 18.76            | ---             | 56.00        | 37.24       | L1   | OFF    | 20.0       |
| 1.336884        | ---              | 14.89           | 46.00        | 31.11       | L1   | OFF    | 20.0       |
| 1.336884        | 21.87            | ---             | 56.00        | 34.13       | L1   | OFF    | 20.0       |
| 12.297948       | ---              | 16.72           | 50.00        | 33.28       | L1   | OFF    | 20.2       |
| 12.297948       | 19.91            | ---             | 60.00        | 40.09       | L1   | OFF    | 20.2       |

## EUT Information

Test Site : CO01-CA  
 Project No : 190805001  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Neutral

Full Spectrum



## Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.151418        | ---              | 20.85           | 55.92        | 35.07       | N    | OFF    | 20.0       |
| 0.151418        | 34.86            | ---             | 65.92        | 31.06       | N    | OFF    | 20.0       |
| 0.451410        | ---              | 23.23           | 46.85        | 23.62       | N    | OFF    | 20.0       |
| 0.451410        | 32.16            | ---             | 56.85        | 24.69       | N    | OFF    | 20.0       |
| 0.472920        | ---              | 19.51           | 46.46        | 26.95       | N    | OFF    | 20.0       |
| 0.472920        | 27.95            | ---             | 56.46        | 28.51       | N    | OFF    | 20.0       |
| 0.627000        | ---              | 13.99           | 46.00        | 32.01       | N    | OFF    | 20.0       |
| 0.627000        | 16.92            | ---             | 56.00        | 39.08       | N    | OFF    | 20.0       |
| 1.139280        | ---              | 14.65           | 46.00        | 31.35       | N    | OFF    | 20.0       |
| 1.139280        | 19.06            | ---             | 56.00        | 36.94       | N    | OFF    | 20.0       |
| 19.954500       | ---              | 15.33           | 50.00        | 34.67       | N    | OFF    | 20.3       |
| 19.954500       | 17.76            | ---             | 60.00        | 42.24       | N    | OFF    | 20.3       |



### Appendix C. Radiated Spurious Emission

|                 |         |                     |         |
|-----------------|---------|---------------------|---------|
| Test Engineer : | HAO SYU | Temperature :       | 23~26°C |
|                 |         | Relative Humidity : | 41~49%  |

<Sample 1>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                     | Note  | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/<br>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) |   |
|------------------------|---|----------------------|---------------------|-------------------------|---------------------------------|---------------------------|-------------------------------|------------------------|----------------------------|----------------------|-------------------------|-----------------------|---------------|---|
| BT<br>CH 78<br>2480MHz | *   | 2480                 | 88.28               | -                       | -                               | 84.35                     | 27.56                         | 7.49                   | 31.12                      | 358                  | 71                      | P                     | H             |   |
|                        | *   | 2480                 | 63.49               | -                       | -                               | -                         | -                             | -                      | -                          | -                    | -                       | A                     | H             |   |
|                        |   | 2486.8               | 48.05               | -25.95                  | 74                              | 44.09                     | 27.58                         | 7.5                    | 31.12                      | 358                  | 71                      | P                     | H             |   |
|                        |   | 2486.8               | 23.26               | -30.74                  | 54                              | -                         | -                             | -                      | -                          | -                    | -                       | A                     | H             |   |
|                        | *   | 2480                 | 104.65              | -                       | -                               | 100.68                    | 27.6                          | 7.49                   | 31.12                      | 100                  | 300                     | P                     | V             |   |
|                        | *   | 2480                 | 79.86               | -                       | -                               | -                         | -                             | -                      | -                          | -                    | -                       | -                     | A             | V |
|                        |   | 2483.52              | 50.98               | -23.02                  | 74                              | 46.99                     | 27.61                         | 7.5                    | 31.12                      | 100                  | 300                     | P                     | V             |   |
|                        |   | 2483.52              | 26.19               | -27.81                  | 54                              | -                         | -                             | -                      | -                          | -                    | -                       | -                     | 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

BT (Harmonic @ 3m)

| BT                     | 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) |
| BT<br>CH 78<br>2480MHz |   | 4960      | 40.86      | -33.14     | 74         | 57.17      | 31.44          | 11.44     | 59.19         | 100     | 0         | P         | H     |
|                        |   | 4960      | 16.07      | -37.93     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 7440      | 44.68      | -29.32     | 74         | 53.3       | 36.27          | 14.23     | 59.12         | 100     | 0         | P         | H     |
|                        |   | 7440      | 19.89      | -34.11     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 4960      | 45.44      | -28.56     | 74         | 61.52      | 31.67          | 11.44     | 59.19         | 100     | 0         | P         | V     |
|                        |   | 4960      | 20.65      | -33.35     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
|                        |   | 7440      | 46.01      | -27.99     | 74         | 54.56      | 36.34          | 14.23     | 59.12         | 100     | 0         | P         | V     |
|                        |   | 7440      | 21.22      | -32.78     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
| Remark                 | 1. No other spurious found.<br>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  | Path   | 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<br>BT<br>LF |  | 30.97     | 21.68      | -18.32 | 40    | 28.85  | 24.31    | 0.95   | 32.43  | -      | -       | P     | H     |
|                    |  | 259.89    | 19.99      | -26.01 | 46    | 29.42  | 20.18    | 2.83   | 32.44  | -      | -       | P     | H     |
|                    |  | 474.26    | 24.84      | -21.16 | 46    | 30.36  | 23.59    | 3.59   | 32.7   | -      | -       | P     | H     |
|                    |  | 670.2     | 29.28      | -16.72 | 46    | 31.38  | 26.5     | 4.25   | 32.85  | -      | -       | P     | H     |
|                    |  | 753.62    | 30.34      | -15.66 | 46    | 30.48  | 28.13    | 4.47   | 32.74  | -      | -       | P     | H     |
|                    |  | 959.26    | 34.53      | -11.47 | 46    | 29.86  | 30.99    | 5.08   | 31.4   | -      | -       | P     | H     |
|                    |  | 32.91     | 22.24      | -17.76 | 40    | 30.07  | 23.62    | 0.98   | 32.43  | -      | -       | P     | V     |
|                    |  | 141.55    | 17.06      | -26.44 | 43.5  | 29.79  | 17.6     | 2.07   | 32.4   | -      | -       | P     | V     |
|                    |  | 427.7     | 23.61      | -22.39 | 46    | 30.01  | 22.9     | 3.34   | 32.64  | -      | -       | P     | V     |
|                    |  | 568.35    | 27.38      | -18.62 | 46    | 30.4   | 26.1     | 3.7    | 32.82  | -      | -       | P     | V     |
|                    |  | 791.45    | 30.43      | -15.57 | 46    | 30.27  | 28.17    | 4.58   | 32.59  | -      | -       | P     | V     |
|                    | 953.44   | 34.18     | -11.82     | 46     | 29.74 | 30.87  | 5.03     | 31.46  | -      | -      | P       | V     |       |
| Remark             | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |       |        |          |        |        |        |         |       |       |



<Sample 2>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                     | Note  | Frequency | Level            | Over   | Limit            | Read           | Antenna  | Path   | Preamp | Ant    | Table   | Peak  | Pol.  |
|------------------------|---|-----------|------------------|--------|------------------|----------------|----------|--------|--------|--------|---------|-------|-------|
|                        |   |           |                  | Limit  | Line             | Level          | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
|                        |   | ( MHz )   | ( dB $\mu$ V/m ) | ( dB ) | ( dB $\mu$ V/m ) | ( dB $\mu$ V ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| BT<br>CH 78<br>2480MHz | *   | 2480      | 88.41            | -      | -                | 84.48          | 27.56    | 7.49   | 31.12  | 399    | 57      | P     | H     |
|                        | *   | 2480      | 63.62            | -      | -                | -              | -        | -      | -      | -      | -       | A     | H     |
|                        |   | 2499.04   | 47.29            | -26.71 | 74               | 43.26          | 27.62    | 7.52   | 31.11  | 399    | 57      | P     | H     |
|                        |   | 2499.04   | 22.5             | -31.5  | 54               | -              | -        | -      | -      | -      | -       | A     | H     |
|                        | *   | 2480      | 104.33           | -      | -                | 100.36         | 27.6     | 7.49   | 31.12  | 104    | 297     | P     | V     |
|                        | *   | 2480      | 79.54            | -      | -                | -              | -        | -      | -      | -      | -       | A     | V     |
|                        |   | 2483.56   | 50.33            | -23.67 | 74               | 46.34          | 27.61    | 7.5    | 31.12  | 104    | 297     | P     | V     |
|                        |   | 2483.56   | 25.54            | -28.46 | 54               | -              | -        | -      | -      | -      | -       | 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

BT (Harmonic @ 3m)

| BT                     | 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) |
| BT<br>CH 78<br>2480MHz |   | 4960      | 40.84      | -33.16     | 74         | 57.15      | 31.44          | 11.44     | 59.19         | 100     | 0         | P         | H     |
|                        |   | 4960      | 16.05      | -37.95     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 7440      | 45.17      | -28.83     | 74         | 53.79      | 36.27          | 14.23     | 59.12         | 100     | 0         | P         | H     |
|                        |   | 7440      | 20.38      | -33.62     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 4960      | 41.76      | -32.24     | 74         | 57.84      | 31.67          | 11.44     | 59.19         | 100     | 0         | P         | V     |
|                        |   | 4960      | 16.97      | -37.03     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
|                        |   | 7440      | 46.27      | -27.73     | 74         | 54.82      | 36.34          | 14.23     | 59.12         | 100     | 0         | P         | V     |
|                        |   | 7440      | 21.48      | -32.52     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
| Remark                 | <ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> </ol> |           |            |            |            |            |                |           |               |         |           |           |       |



Emission below 1GHz

2.4GHz BT (LF)

| BT                 | Note   | Frequency | Level      | Over   | Limit | Read   | Antenna  | Path   | 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<br>BT<br>LF |  | 31.94     | 20.54      | -19.46 | 40    | 28.21  | 23.83    | 0.97   | 32.47  | -      | -       | P     | H     |
|                    |  | 123.12    | 16.97      | -26.53 | 43.5  | 29.99  | 17.6     | 1.8    | 32.42  | -      | -       | P     | H     |
|                    |  | 425.76    | 22.05      | -23.95 | 46    | 28.32  | 22.9     | 3.32   | 32.49  | -      | -       | P     | H     |
|                    |  | 570.29    | 25.91      | -20.09 | 46    | 28.68  | 26.09    | 3.71   | 32.57  | -      | -       | P     | H     |
|                    |  | 745.86    | 29.57      | -16.43 | 46    | 29.31  | 28.2     | 4.46   | 32.4   | -      | -       | P     | H     |
|                    |  | 950.53    | 33.02      | -12.98 | 46    | 28.36  | 30.81    | 5.01   | 31.16  | 100    | 0       | P     | H     |
|                    |  | 30.97     | 21.72      | -18.28 | 40    | 28.93  | 24.31    | 0.95   | 32.47  | -      | -       | P     | V     |
|                    |  | 237.58    | 16.16      | -29.84 | 46    | 28.87  | 17.01    | 2.69   | 32.41  | -      | -       | P     | V     |
|                    |  | 424.79    | 21.69      | -24.31 | 46    | 27.99  | 22.89    | 3.3    | 32.49  | -      | -       | P     | V     |
|                    |  | 613.94    | 25.75      | -20.25 | 46    | 28.7   | 25.68    | 3.94   | 32.57  | -      | -       | P     | V     |
|                    |  | 724.52    | 29.29      | -16.71 | 46    | 29.9   | 27.37    | 4.46   | 32.44  | -      | -       | P     | V     |
|                    | 949.56   | 32.93     | -13.07     | 46     | 28.31 | 30.79  | 5.01     | 31.18  | 100    | 0      | P       | V     |       |
| Remark             | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |       |        |          |        |        |        |         |       |       |



<Sample 3>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                     | 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) |
| BT<br>CH00<br>2402MHz  |      | 2382.135  | 46.36      | -27.64 | 74         | 42.93    | 27.27    | 7.33   | 31.17  | 230    | 4       | P     | H     |
|                        |      | 2382.135  | 21.57      | -32.43 | 54         | -        | -        | -      | -      | -      | -       | A     | H     |
|                        | *    | 2402      | 100.69     | -      | -          | 97.17    | 27.32    | 7.36   | 31.16  | 230    | 4       | P     | H     |
|                        | *    | 2402      | 75.9       | -      | -          | -        | -        | -      | -      | -      | -       | A     | H     |
|                        |      | 2383.71   | 51.69      | -22.31 | 74         | 48.18    | 27.34    | 7.34   | 31.17  | 100    | 247     | P     | V     |
|                        |      | 2383.71   | 26.9       | -27.1  | 54         | -        | -        | -      | -      | -      | -       | A     | V     |
|                        | *    | 2402      | 103.61     | -      | -          | 100.02   | 27.39    | 7.36   | 31.16  | 100    | 247     | P     | V     |
|                        | *    | 2402      | 78.82      | -      | -          | -        | -        | -      | -      | -      | -       | A     | V     |
| BT<br>CH 39<br>2441MHz |      | 2376.78   | 51.51      | -22.49 | 74         | 48.11    | 27.25    | 7.33   | 31.18  | 292    | 28      | P     | H     |
|                        |      | 2376.78   | 26.72      | -27.28 | 54         | -        | -        | -      | -      | -      | -       | A     | H     |
|                        | *    | 2441      | 90.94      | -      | -          | 87.21    | 27.44    | 7.43   | 31.14  | 292    | 28      | P     | H     |
|                        | *    | 2441      | 66.15      | -      | -          | -        | -        | -      | -      | -      | -       | A     | H     |
|                        |      | 2498.67   | 51.49      | -22.51 | 74         | 47.46    | 27.62    | 7.52   | 31.11  | 292    | 28      | P     | H     |
|                        |      | 2498.67   | 26.7       | -27.3  | 54         | -        | -        | -      | -      | -      | -       | A     | H     |
|                        |      | 2381.96   | 51.6       | -22.4  | 74         | 48.11    | 27.33    | 7.33   | 31.17  | 101    | 299     | P     | V     |
|                        |      | 2381.96   | 26.81      | -27.19 | 54         | -        | -        | -      | -      | -      | -       | A     | V     |
|                        | *    | 2441      | 104.61     | -      | -          | 100.83   | 27.49    | 7.43   | 31.14  | 101    | 299     | P     | V     |
|                        | *    | 2441      | 79.82      | -      | -          | -        | -        | -      | -      | -      | -       | A     | V     |
|                        |      | 2497.69   | 51.86      | -22.14 | 74         | 47.8     | 27.65    | 7.52   | 31.11  | 101    | 299     | P     | V     |
|                        |      | 2497.69   | 27.07      | -26.93 | 54         | -        | -        | -      | -      | -      | -       | A     | V     |



|                                 |   |         |        |        |    |        |       |      |       |     |     |   |   |
|---------------------------------|---|---------|--------|--------|----|--------|-------|------|-------|-----|-----|---|---|
| <b>BT<br/>CH 78<br/>2480MHz</b> | *   | 2480    | 90.02  | -      | -  | 86.09  | 27.56 | 7.49 | 31.12 | 361 | 354 | P | H |
|                                 | *   | 2480    | 65.23  | -      | -  | -      | -     | -    | -     | -   | -   | A | H |
|                                 |   | 2495.48 | 47.34  | -26.66 | 74 | 43.32  | 27.61 | 7.52 | 31.11 | 361 | 354 | P | H |
|                                 |   | 2495.48 | 22.55  | -31.45 | 54 | -      | -     | -    | -     | -   | -   | A | H |
|                                 | *   | 2480    | 104.53 | -      | -  | 100.56 | 27.6  | 7.49 | 31.12 | 100 | 300 | P | V |
|                                 | *   | 2480    | 79.74  | -      | -  | -      | -     | -    | -     | -   | -   | A | V |
|                                 |   | 2483.68 | 53.81  | -20.19 | 74 | 49.82  | 27.61 | 7.5  | 31.12 | 100 | 300 | P | V |
|                                 |   | 2483.68 | 29.02  | -24.98 | 54 | -      | -     | -    | -     | -   | -   | A | V |
| <b>Remark</b>                   | <ol style="list-style-type: none"> <li>1. No other spurious found.</li> <li>2. All results are PASS against Peak and Average limit line.</li> </ol> |         |        |        |    |        |       |      |       |     |     |   |   |



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

| BT                     | 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) |
| BT<br>CH 00<br>2402MHz |   | 4804      | 39.56      | -34.44     | 74         | 55.64      | 31.22          | 11.86     | 59.16         | 100     | 0         | P         | H     |
|                        |   | 4804      | 14.77      | -39.23     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 4804      | 39.64      | -34.36     | 74         | 55.58      | 31.36          | 11.86     | 59.16         | 100     | 0         | P         | V     |
|                        |   | 4804      | 14.85      | -39.15     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
| BT<br>CH 39<br>2441MHz |   | 4960      | 38.75      | -35.25     | 74         | 55.06      | 31.44          | 11.44     | 59.19         | 100     | 0         | P         | H     |
|                        |   | 4960      | 13.96      | -40.04     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 7440      | 44.98      | -29.02     | 74         | 53.6       | 36.27          | 14.23     | 59.12         | 100     | 0         | P         | H     |
|                        |   | 7440      | 20.19      | -33.81     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 4960      | 39.63      | -34.37     | 74         | 55.71      | 31.67          | 11.44     | 59.19         | 100     | 0         | P         | V     |
|                        |   | 4960      | 14.84      | -39.16     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
|                        |   | 7440      | 45.11      | -28.89     | 74         | 53.66      | 36.34          | 14.23     | 59.12         | 100     | 0         | P         | V     |
|                        |   | 7440      | 20.32      | -33.68     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
| BT<br>CH 78<br>2480MHz |   | 4960      | 39.14      | -34.86     | 74         | 55.45      | 31.44          | 11.44     | 59.19         | 100     | 0         | P         | H     |
|                        |   | 4960      | 14.35      | -39.65     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 7440      | 45.74      | -28.26     | 74         | 54.36      | 36.27          | 14.23     | 59.12         | 100     | 0         | P         | H     |
|                        |   | 7440      | 20.95      | -33.05     | 54         | -          | -              | -         | -             | -       | -         | A         | H     |
|                        |   | 4960      | 40.65      | -33.35     | 74         | 56.73      | 31.67          | 11.44     | 59.19         | 100     | 0         | P         | V     |
|                        |   | 4960      | 15.86      | -38.14     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
|                        |   | 7440      | 47.05      | -26.95     | 74         | 55.6       | 36.34          | 14.23     | 59.12         | 100     | 0         | P         | V     |
|                        |   | 7440      | 22.26      | -31.74     | 54         | -          | -              | -         | -             | -       | -         | A         | V     |
| Remark                 | 1. No other spurious found.<br>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  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|--------------------|--|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
|                    |  | ( MHz )   | ( dBμV/m ) | ( dB ) | Limit      | Line     | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
|                    |  |           |            |        | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 2.4GHz<br>BT<br>LF |  | 71.71     | 17.11      | -22.89 | 40         | 35.48    | 12.57    | 1.51   | 32.45  | -      | -       | P       | H       |
|                    |  | 258.92    | 18.2       | -27.8  | 46         | 27.78    | 20.01    | 2.82   | 32.41  | -      | -       | P       | H       |
|                    |  | 403.45    | 20.42      | -25.58 | 46         | 27.84    | 21.94    | 3.11   | 32.47  | -      | -       | P       | H       |
|                    |  | 576.11    | 26.07      | -19.93 | 46         | 29.03    | 25.88    | 3.74   | 32.58  | -      | -       | P       | H       |
|                    |  | 749.74    | 29.06      | -16.94 | 46         | 28.79    | 28.2     | 4.46   | 32.39  | -      | -       | P       | H       |
|                    |  | 935.98    | 32.79      | -13.21 | 46         | 28.8     | 30.34    | 4.99   | 31.34  | 100    | 0       | P       | H       |
|                    |  | 31.94     | 22.55      | -17.45 | 40         | 30.22    | 23.83    | 0.97   | 32.47  | -      | -       | P       | V       |
|                    |  | 70.74     | 23.88      | -16.12 | 40         | 42.33    | 12.47    | 1.53   | 32.45  | -      | -       | P       | V       |
|                    |  | 334.58    | 19.44      | -26.56 | 46         | 29.11    | 19.89    | 2.87   | 32.43  | -      | -       | P       | V       |
|                    |  | 570.29    | 25.46      | -20.54 | 46         | 28.23    | 26.09    | 3.71   | 32.57  | -      | -       | P       | V       |
|                    |  | 741.98    | 28.83      | -17.17 | 46         | 28.69    | 28.08    | 4.46   | 32.4   | -      | -       | P       | V       |
|                    | 958.29   | 32.36     | -13.64     | 46     | 27.42      | 30.97    | 5.06     | 31.09  | 100    | 0      | P       | V       |         |
| Remark             | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |            |          |          |        |        |        |         |         |         |





<Sample 4>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                     | 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 ) |
| BT<br>CH 78<br>2480MHz | *   | 2480      | 94         | -      | -          | 90.07    | 27.56    | 7.49   | 31.12  | 287    | 23      | P       | H       |
|                        | *   | 2480      | 69.27      | -      | -          | -        | -        | -      | -      | -      | -       | A       | H       |
|                        |   | 2494.04   | 47.36      | -26.64 | 74         | 43.35    | 27.6     | 7.52   | 31.11  | 287    | 23      | P       | H       |
|                        |   | 2494.04   | 22.63      | -31.37 | 54         | -        | -        | -      | -      | -      | -       | A       | H       |
|                        | *   | 2480      | 105.36     | -      | -          | 101.39   | 27.6     | 7.49   | 31.12  | 100    | 302     | P       | V       |
|                        | *   | 2480      | 80.63      | -      | -          | -        | -        | -      | -      | -      | -       | A       | V       |
|                        |   | 2483.8    | 53.34      | -20.66 | 74         | 49.35    | 27.61    | 7.5    | 31.12  | 100    | 302     | P       | V       |
|                        |   | 2483.8    | 28.61      | -25.39 | 54         | -        | -        | -      | -      | -      | -       | 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

BT (Harmonic @ 3m)

| BT                     | 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 ) |
| BT<br>CH 78<br>2480MHz |   | 4960      | 40.08      | -33.92     | 74         | 56.39      | 31.44          | 11.44     | 59.19         | 100     | 0         | P         | H       |
|                        |   | 4960      | 15.35      | -38.65     | 54         | -          | -              | -         | -             | -       | -         | A         | H       |
|                        |   | 7440      | 45.5       | -28.5      | 74         | 54.12      | 36.27          | 14.23     | 59.12         | 100     | 0         | P         | H       |
|                        |   | 7440      | 20.77      | -33.23     | 54         | -          | -              | -         | -             | -       | -         | A         | H       |
|                        |   | 4960      | 41.73      | -32.27     | 74         | 57.81      | 31.67          | 11.44     | 59.19         | 100     | 0         | P         | V       |
|                        |   | 4960      | 17         | -37        | 54         | -          | -              | -         | -             | -       | -         | A         | V       |
|                        |   | 7440      | 44.67      | -29.33     | 74         | 53.22      | 36.34          | 14.23     | 59.12         | 100     | 0         | P         | V       |
|                        |   | 7440      | 19.94      | -34.06     | 54         | -          | -              | -         | -             | -       | -         | A         | V       |
| Remark                 | 1. No other spurious found.<br>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  | Path   | 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<br>BT<br>LF |  | 140.58    | 15.41      | -28.09 | 43.5  | 28.16  | 17.6     | 2.07   | 32.42  | -      | -       | P     | H     |
|                    |  | 265.71    | 19.24      | -26.76 | 46    | 28.69  | 20.13    | 2.83   | 32.41  | -      | -       | P     | H     |
|                    |  | 472.32    | 23.27      | -22.73 | 46    | 28.65  | 23.55    | 3.59   | 32.52  | -      | -       | P     | H     |
|                    |  | 652.74    | 26.78      | -19.22 | 46    | 28.75  | 26.45    | 4.14   | 32.56  | -      | -       | P     | H     |
|                    |  | 741.01    | 29.11      | -16.89 | 46    | 29.01  | 28.04    | 4.46   | 32.4   | -      | -       | P     | H     |
|                    |  | 958.29    | 31.36      | -14.64 | 46    | 26.42  | 30.97    | 5.06   | 31.09  | 100    | 0       | P     | H     |
|                    |  | 132.82    | 15.89      | -27.61 | 43.5  | 28.67  | 17.7     | 1.95   | 32.43  |        |         | P     | V     |
|                    |  | 264.74    | 18.56      | -27.44 | 46    | 27.86  | 20.29    | 2.82   | 32.41  |        |         | P     | V     |
|                    |  | 476.2     | 23.04      | -22.96 | 46    | 28.38  | 23.6     | 3.59   | 32.53  |        |         | P     | V     |
|                    |  | 638.19    | 27.43      | -18.57 | 46    | 29.48  | 26.46    | 4.06   | 32.57  |        |         | P     | V     |
|                    |  | 794.36    | 29.28      | -16.72 | 46    | 28.78  | 28.11    | 4.6    | 32.21  |        |         | P     | V     |
|                    | 953.44   | 32.51     | -13.49     | 46     | 27.75 | 30.87  | 5.03     | 31.14  | 100    | 0      | 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>Peak</b> or <b>Average</b>  |
| H/V | <b>Horizontal</b> or <b>Vertical</b>   |



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

| BT      | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Path   | Preamp | Ant    | Table   | Peak    | Pol.    |
|---------|------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
|         |      | ( MHz )   | ( dBµV/m ) | ( dB ) | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
|         |      |           |            |        | ( dBµV/m ) | ( dBµV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| BT      |      | 2390      | 55.45      | -18.55 | 74         | 54.51    | 32.22    | 4.58   | 35.86  | 103    | 308     | P       | H       |
| CH 00   |      | 2390      | 43.54      | -10.46 | 54         | 42.6     | 32.22    | 4.58   | 35.86  | 103    | 308     | A       | H       |
| 2402MHz |      |           |            |        |            |          |          |        |        |        |         |         |         |

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. Radiated Spurious Emission Plots

|                 |         |                     |         |
|-----------------|---------|---------------------|---------|
| Test Engineer : | HAO SYU | Temperature :       | 23~26°C |
|                 |         | Relative Humidity : | 41~49%  |

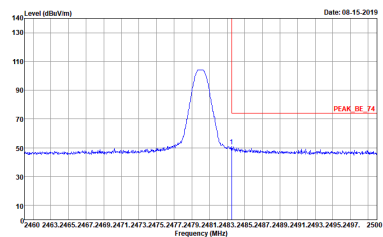
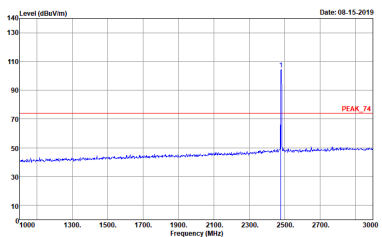
<Sample 1>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |   |
|------|--|---|
|      | BT CH78 2480MHz  |   |
|      | Horizontal   | Fundamental   |
| Peak | <p>Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-4F_01894 HORIZONTAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 11<br/>           Plane : Y_StandAlone</p> | <p>Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 91200-4F_01894 HORIZONTAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 11<br/>           Plane : Y_StandAlone</p> |

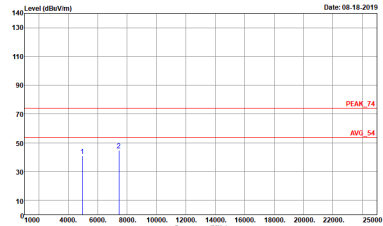
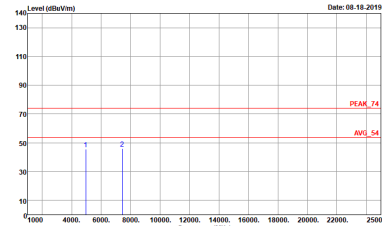


|      |  |  |
|------|--|--|
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |  |
|      | BT CH78 2480MHz  |  |
|      | Vertical   | Fundamental  |
| Peak |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_BE_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : II<br/>         Plane : -Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : II<br/>         Plane : -Y_StandAlone</p> |



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

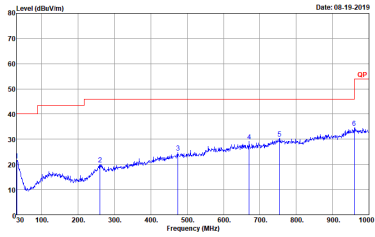
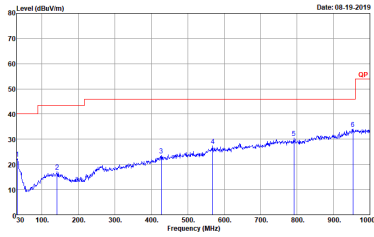
|                      |   |  |
|----------------------|---|--|
| BT                   | 2.4GHz 2400~2483.5MHz Harmonic @ 3m   |  |
|                      | BT CH78 2480MHz   |  |
|                      | Horizontal  | Vertical   |
| <p>Peak<br/>Avg.</p> |  <p>Site : 03CH02-CA<br/>Condition : PEAK_74 3m HORN 9120D-1HF_01894 HORIZONTAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 11<br/>Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>Condition : PEAK_74 3m HORN 9120D-1HF_01894 VERTICAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 11<br/>Plane : Y_StandAlone</p> |





Emission below 1GHz

2.4GHz BT (LF)

| BT                   | 2.4GHz 2400~2483.5MHz   |  |
|----------------------|---|--|
|                      | BT LF   |  |
|                      | Horizontal  | Vertical   |
| <p>QP /<br/>Peak</p> |  <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 HORIZONTAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 19</p> |  <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 VERTICAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 19</p> |



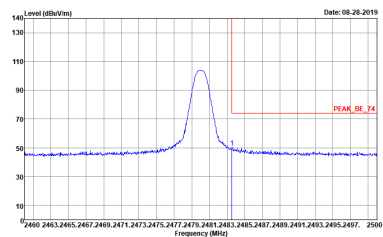
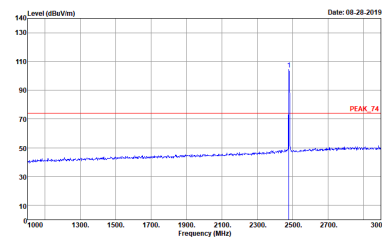
<Sample 2>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                 | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |   |
|--------------------|---|---|
|                    | BT CH78 2480MHz   |   |
|                    | Horizontal  | Fundamental   |
| <p><b>Peak</b></p> | <p style="text-align: right;">Date: 08-28-2019</p> <p style="text-align: right;">PEAK_BE_74</p> <p>Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL<br/>           RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 10<br/>           Plane : -Y_StandAlone</p> | <p style="text-align: right;">Date: 08-28-2019</p> <p style="text-align: right;">PEAK_74</p> <p>Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 91200-HF_01894 HORIZONTAL<br/>           RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 10<br/>           Plane : -Y_StandAlone</p> |

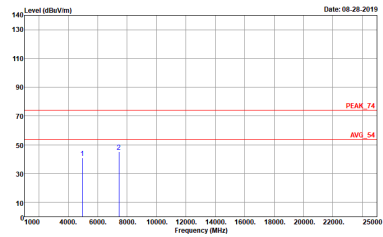
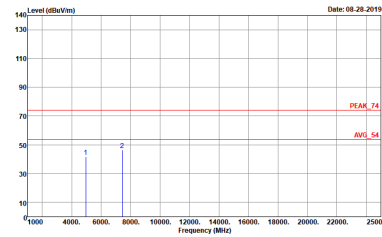


|      |  |  |
|------|--|--|
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |  |
|      | BT CH78 2480MHz  |  |
|      | Vertical   | Fundamental  |
| Peak |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_BE_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 10<br/>         Plane : -Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 10<br/>         Plane : -Y_StandAlone</p> |



2.4GHz 2400~2483.5MHz

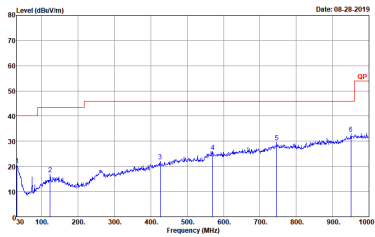
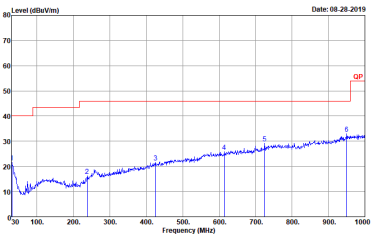
BT (Harmonic @ 3m)

|                 |   |  |
|-----------------|---|--|
| BT              | 2.4GHz 2400~2483.5MHz Harmonic @ 3m   |  |
| BT CH78 2480MHz |   |  |
| Horizontal      |   | Vertical   |
| Peak<br>Avg.    |  <p>Site : 03CH02-CA<br/>Condition : PEAK_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 10<br/>Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>Condition : PEAK_74 3m HORN 91200-1HF_01894 VERTICAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 10<br/>Plane : Y_StandAlone</p> |



Emission below 1GHz

2.4GHz BT (LF)

| BT                   | 2.4GHz 2400~2483.5MHz   |  |
|----------------------|---|--|
| BT LF                |   |  |
| Horizontal           |   | Vertical   |
| <p>QP /<br/>Peak</p> |  <p>Site : 03CH02-CA<br/>Condition : QP 3m BILOG 6111D-LF_50392 HORIZONTAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 18</p> |  <p>Site : 03CH02-CA<br/>Condition : QP 3m BILOG 6111D-LF_50392 VERTICAL<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 18</p> |



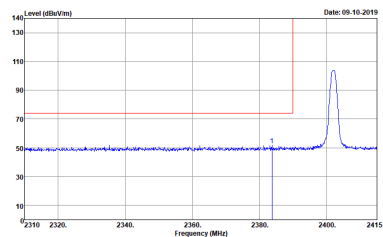
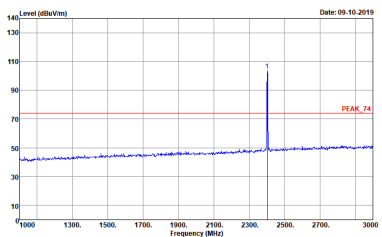
<Sample 3>

2.4GHz 2400~2483.5MHz

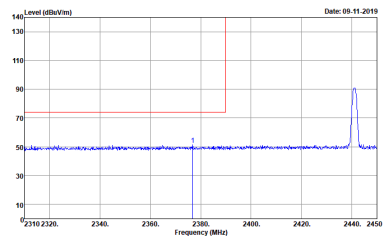
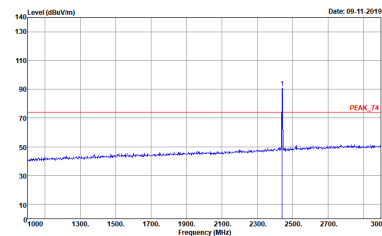
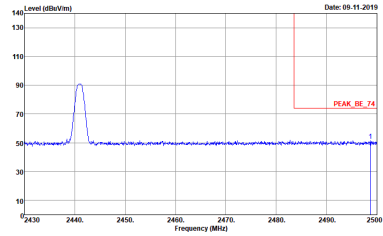
BT (Band Edge @ 3m)

| BT                 | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |  |
|--------------------|---|--|
|                    | BT CH00 2402MHz   |  |
|                    | Horizontal  | Fundamental  |
| <p><b>Peak</b></p> | <p>           Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 HORIZONTAL<br/>           : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 1<br/>           Plane : &gt;Y_StandAlone         </p> | <p>           Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL<br/>           : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 1<br/>           Plane : &gt;Y_StandAlone         </p> |



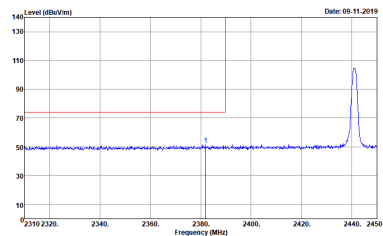
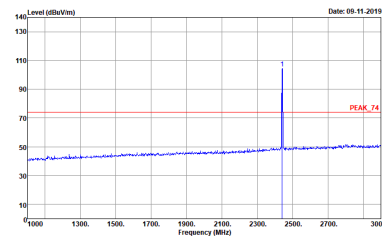
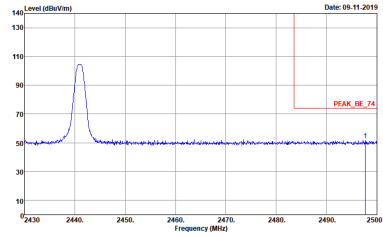
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |  |
|------|--|--|
|      | BT CH00 2402MHz  |  |
|      | Vertical   | Fundamental  |
| Peak |  <p>Site : 03CH02-CA<br/>Condition : PEAK_BE_74 3m HORN 91200-JHF_01894 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 1<br/>Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>Condition : PEAK_74 3m HORN 91200-JHF_01894 VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 190805001<br/>Mode : 1<br/>Plane : Y_StandAlone</p> |



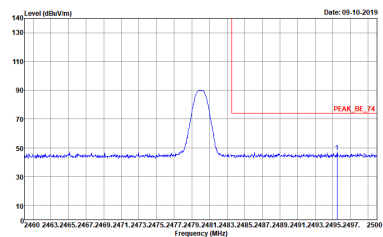
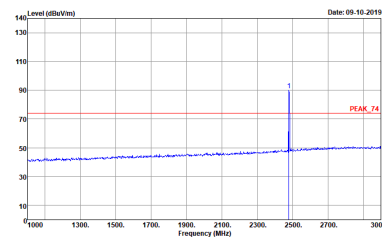
| BT              | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |   |
|-----------------|---|---|
| BT CH39 2441MHz |   |   |
| Horizontal      |   | Fundamental   |
| Peak            |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p>   |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 91200-HF_01894 HORIZONTAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p> |
| Peak            |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p> | Left blank  |



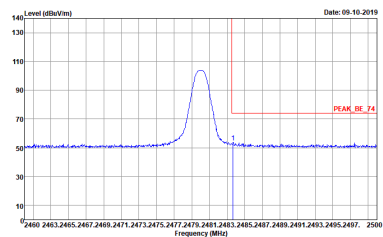
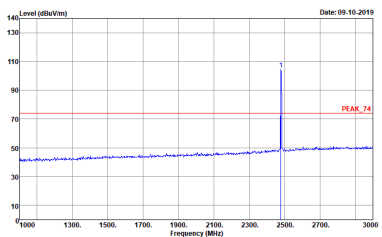


| BT              | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |   |
|-----------------|---|---|
| BT CH39 2441MHz |   |   |
| Vertical        |   | Fundamental   |
| Peak            |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p>   |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 91200-HF_01894 VERTICAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p> |
| Peak            |  <p>           Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL<br/>           RBW:1000.000kHz VBW:3000.000kHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : Z<br/>           Plane : V_StandAlone         </p> | Left blank  |



|      |   |   |
|------|---|---|
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |   |
|      | BT CH78 2480MHz   |   |
|      | Horizontal  | Fundamental   |
| Peak |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_BE_74 3m HORN 91200-JF_01894 HORIZONTAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 3<br/>         Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-JF_01894 HORIZONTAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 3<br/>         Plane : Y_StandAlone</p> |

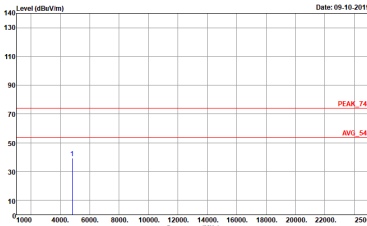
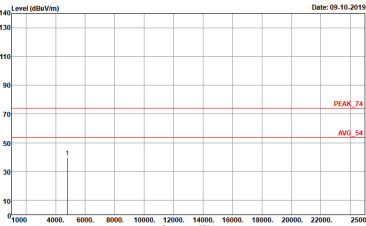


|      |   |   |
|------|---|---|
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m  |   |
|      | BT CH78 2480MHz   |   |
|      | Vertical  | Fundamental   |
| Peak |  <p>             Site : 03CH02-CA<br/>             Condition : PEAK_BE_74 3m HORN 91200-JF_01894 VERTICAL<br/>             RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>             Detector : Peak<br/>             Project : 190805001<br/>             Mode : 3<br/>             Plane : Y_StandAlone           </p> |  <p>             Site : 03CH02-CA<br/>             Condition : PEAK_74 3m HORN 91200-JF_01894 VERTICAL<br/>             RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>             Detector : Peak<br/>             Project : 190805001<br/>             Mode : 3<br/>             Plane : Y_StandAlone           </p> |

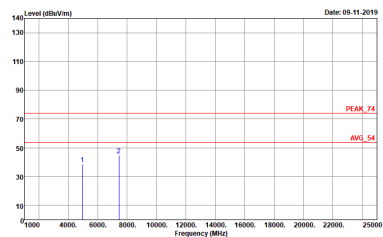
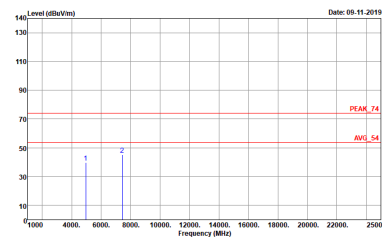


2.4GHz 2400~2483.5MHz

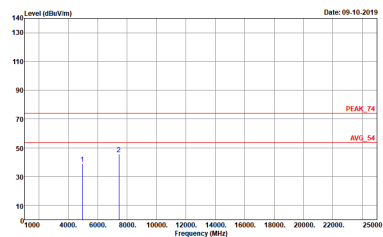
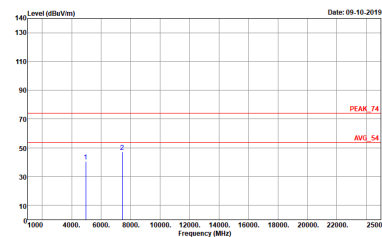
BT (Harmonic @ 3m)

|              |  |   |
|--------------|--|---|
| BT           | 2.4GHz 2400~2483.5MHz Harmonic @ 3m  |   |
|              | BT CH00 2402MHz  |   |
|              | Horizontal   | Vertical  |
| Peak<br>Avg. |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 1<br/>         Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 1<br/>         Plane : Y_StandAlone</p> |



|                                       |   |  |
|---------------------------------------|---|--|
| BT                                    | 2.4GHz 2400~2483.5MHz Harmonic @ 3m   |  |
|                                       | BT CH39 2441MHz   |  |
|                                       | Horizontal  | Vertical   |
| <p><b>Peak</b></p> <p><b>Avg.</b></p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 2<br/>         Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 VERTICAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 2<br/>         Plane : Y_StandAlone</p> |



|                                       |   |  |
|---------------------------------------|---|--|
| BT                                    | 2.4GHz 2400~2483.5MHz Harmonic @ 3m   |  |
|                                       | BT CH78 2480MHz   |  |
|                                       | Horizontal  | Vertical   |
| <p><b>Peak</b></p> <p><b>Avg.</b></p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 3<br/>         Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 VERTICAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 3<br/>         Plane : Y_StandAlone</p> |



Emission below 1GHz

2.4GHz BT (LF)

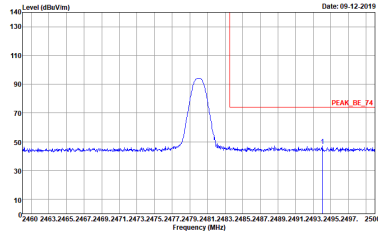
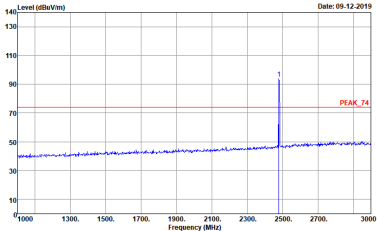
| BT                   | 2.4GHz 2400~2483.5MHz   |   |
|----------------------|---|---|
| BT LF                |   |   |
| Horizontal           |   | Vertical  |
| <p>QP /<br/>Peak</p> | <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 HORIZONTAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 16<br/>           Plane : Y_StandAlone</p> | <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 VERTICAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 16<br/>           Plane : Y_StandAlone</p> |



<Sample 4>

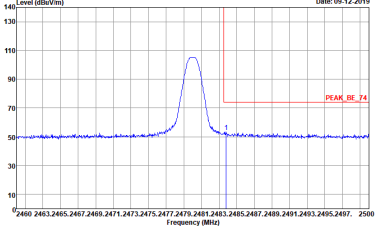
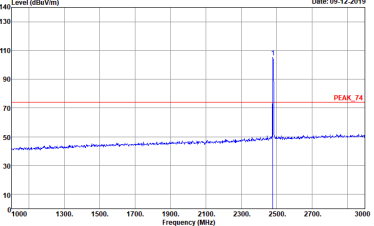
2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

| BT                 | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |  |
|--------------------|--|--|
|                    | BT CH78 2480MHz  |  |
|                    | Horizontal   | Fundamental  |
| <p><b>Peak</b></p> |  <p>Date: 09-12-2019</p> <p>Site : 03CH02-CA<br/>           Condition : PEAK_BE_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>           RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 12<br/>           Plane : -Y_StandAlone</p> |  <p>Date: 09-12-2019</p> <p>Site : 03CH02-CA<br/>           Condition : PEAK_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>           RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 12<br/>           Plane : -Y_StandAlone</p> |



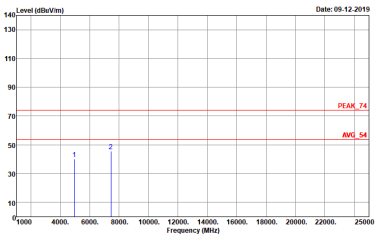
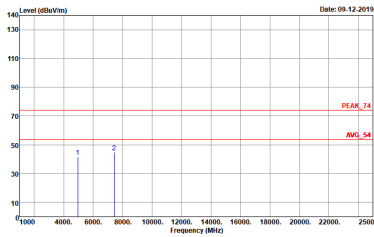


|      |  |  |
|------|--|--|
| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m   |  |
|      | BT CH78 2480MHz  |  |
|      | Vertical   | Fundamental  |
| Peak |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_BE_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 12<br/>         Plane : -Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-JHF_01894 VERTICAL<br/>         RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 12<br/>         Plane : -Y_StandAlone</p> |



2.4GHz 2400~2483.5MHz

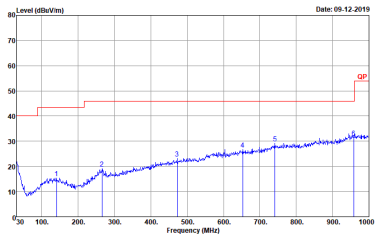
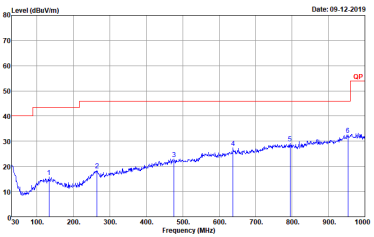
BT (Harmonic @ 3m)

|                 |  |   |
|-----------------|--|---|
| BT              | 2.4GHz 2400~2483.5MHz Harmonic @ 3m  |   |
| BT CH78 2480MHz |  |   |
| Horizontal      |  | Vertical  |
| Peak<br>Avg.    |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 HORIZONTAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 12<br/>         Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>         Condition : PEAK_74 3m HORN 91200-1HF_01894 VERTICAL<br/>         Detector : Peak<br/>         Project : 190805001<br/>         Mode : 12<br/>         Plane : Y_StandAlone</p> |



Emission below 1GHz

2.4GHz BT (LF)

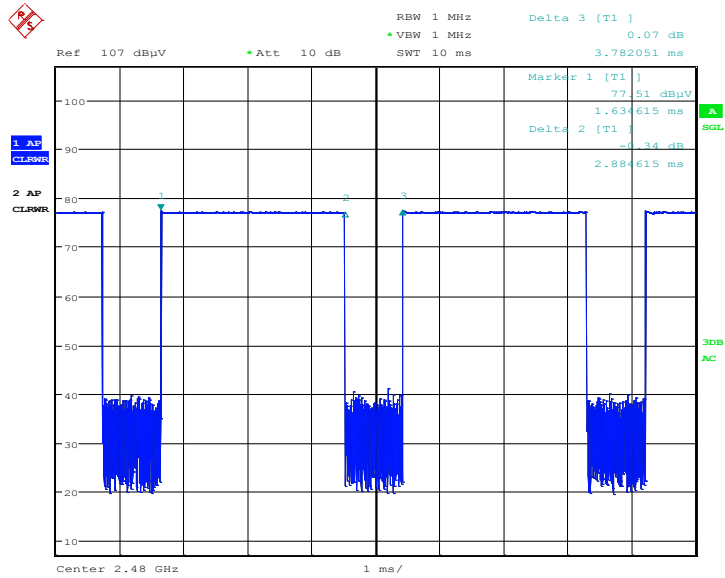
| BT                   | 2.4GHz 2400~2483.5MHz   |  |
|----------------------|---|--|
| BT LF                |   |  |
| Horizontal           |   | Vertical   |
| <p>QP /<br/>Peak</p> |  <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 HORIZONTAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 20<br/>           Plane : Y_StandAlone</p> |  <p>Site : 03CH02-CA<br/>           Condition : QP 3m B1LOG 6111D-LF_50392 VERTICAL<br/>           Detector : Peak<br/>           Project : 190805001<br/>           Mode : 20<br/>           Plane : Y_StandAlone</p> |



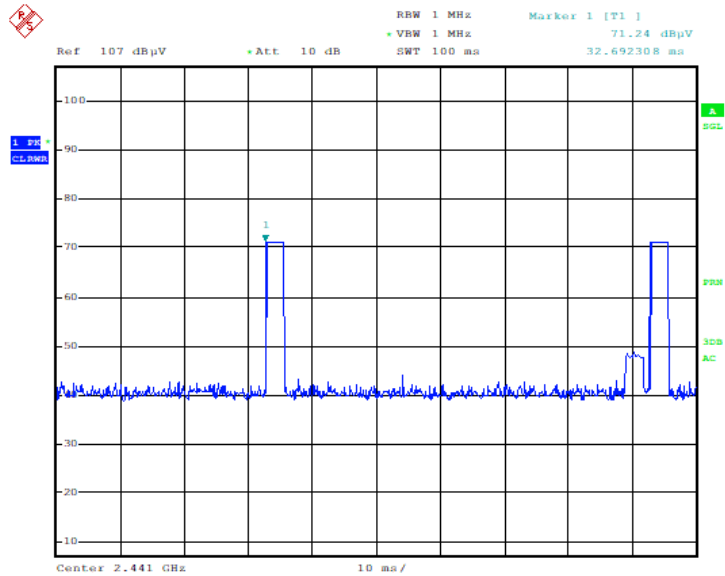
# Appendix E. Duty Cycle Plots

<Sample 1>

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

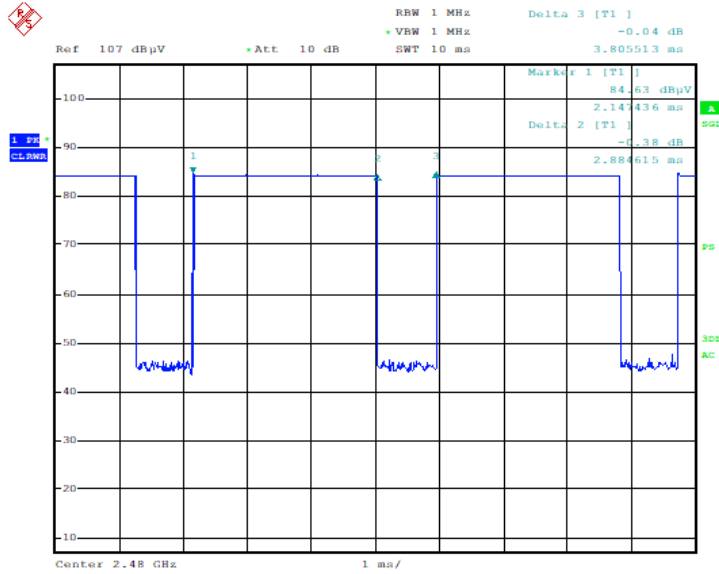


on time (Count Pulses) Plot on Channel 39

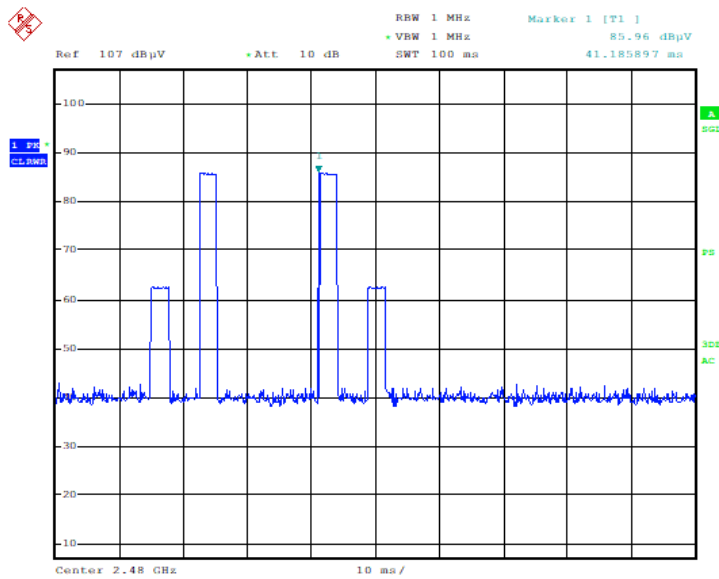


<Sample 2>

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



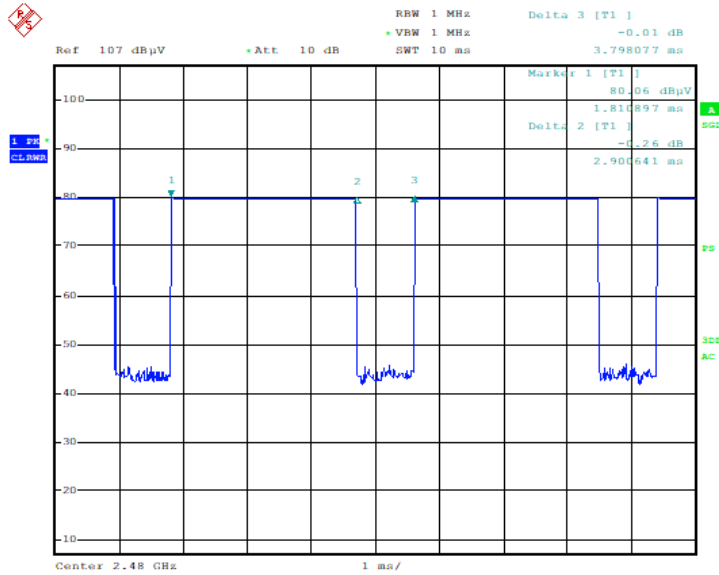
on time (Count Pulses) Plot on Channel 39



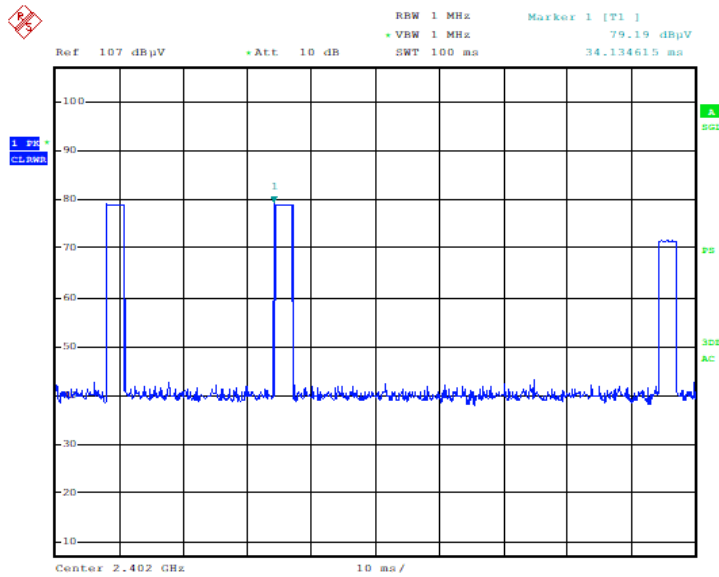


<Sample 3>

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

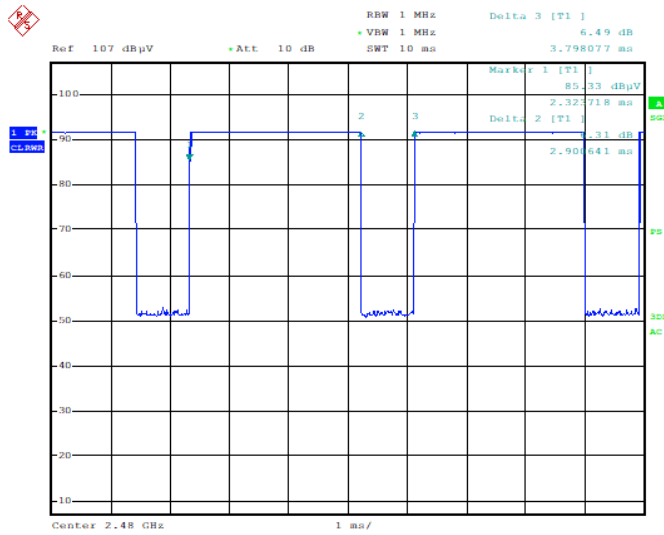


on time (Count Pulses) Plot on Channel 39

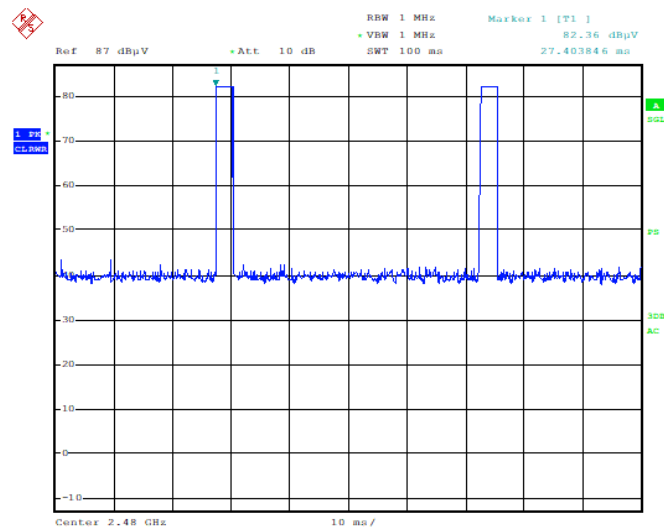


<Sample 4>

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



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.



**Duty Cycle Correction Factor Consideration for AFH mode:**

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period.  $[100\text{ms} / 57.6\text{ms}] = 2$  hops

Thus, the maximum possible ON time:

$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(5.76 \text{ ms}/100\text{ms}) = -24.79 \text{ dB}$$

—————THE END—————