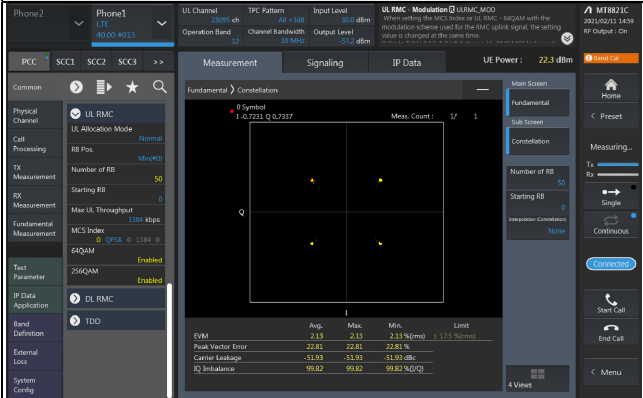


## LTE Band 12

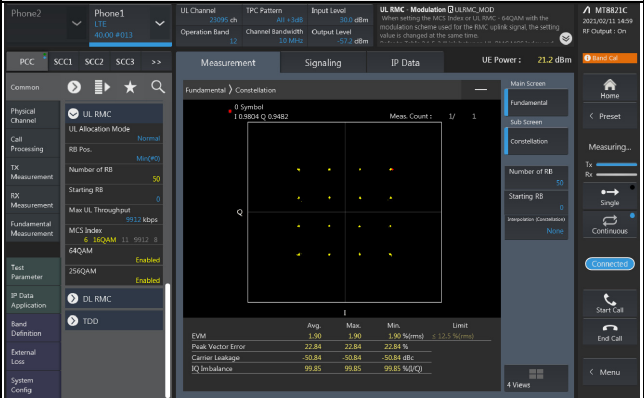
### Spectrum Plot of Measurement Value

Channel: 23095 / Frequency (MHz): 707.5MHz

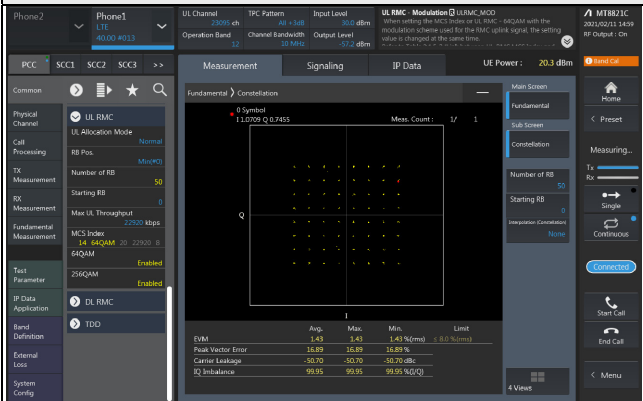
#### QPSK



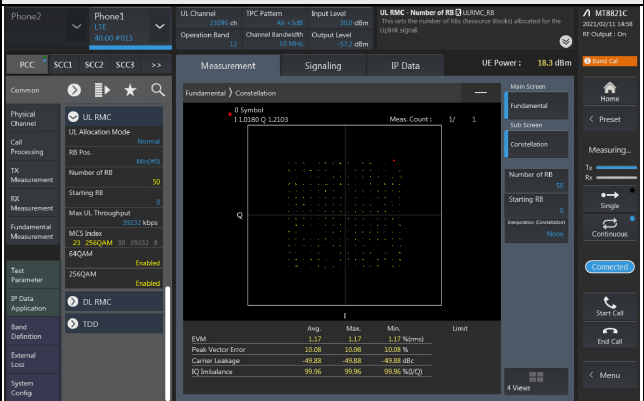
#### 16QAM



#### 64QAM



#### 256QAM

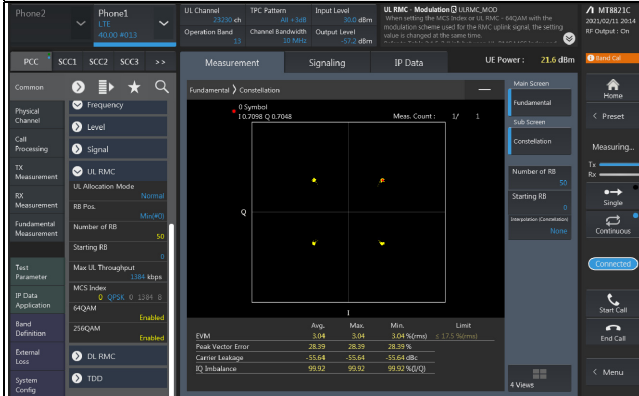


## LTE Band 13

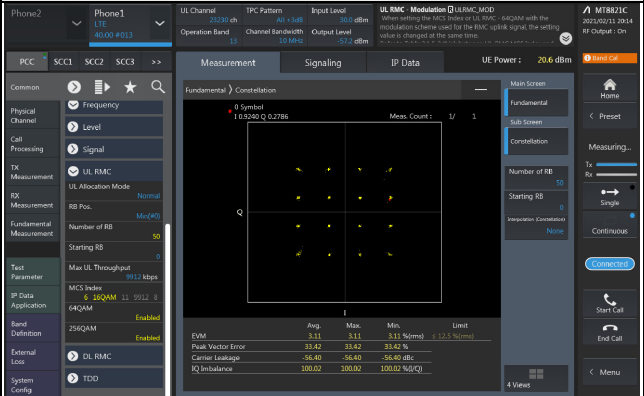
### Spectrum Plot of Measurement Value

Channel: 23230 / Frequency (MHz): 782.0MHz

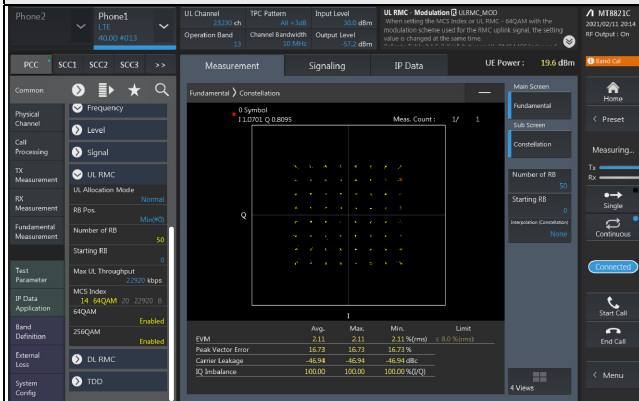
#### QPSK



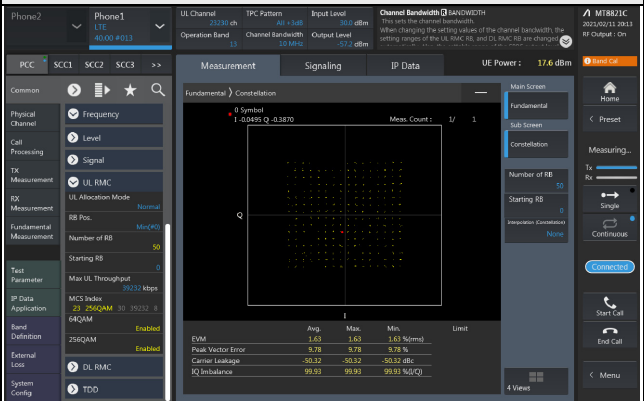
#### 16QAM



#### 64QAM



#### 256QAM



### 4.3 Frequency Stability Measurement

#### 4.3.1 Limits of Frequency Stability Measurement

For n66, LTE Band 2, LTE Band 7, LTE Band 12 and LTE Band 13

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

For LTE Band 5

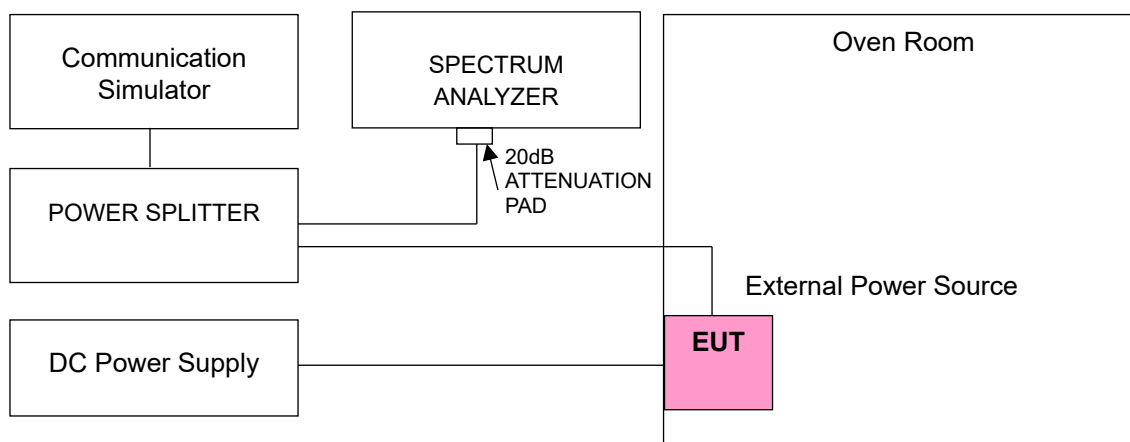
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

#### 4.3.2 Test Procedure

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

### 4.3.3 Test Setup



#### 4.3.4 Test Results

##### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                      |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 5 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1712.500001              | 0.001                 | 1777.500000     | -0.001                |
| 3.85               | 1712.500001              | 0.001                 | 1777.500000     | -0.002                |
| 3.40               | 1712.499998              | -0.001                | 1777.500000     | -0.002                |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

##### Frequency Error vs. Temperature

| Temp. (°C) | n66                      |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 5 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1712.500002              | 0.001                 | 1777.500000     | 0.001                 |
| -20        | 1712.500002              | 0.001                 | 1777.500000     | 0.002                 |
| -10        | 1712.499996              | -0.002                | 1777.500000     | 0.001                 |
| 0          | 1712.500003              | 0.002                 | 1777.500000     | 0.001                 |
| 10         | 1712.499997              | -0.002                | 1777.500000     | -0.002                |
| 20         | 1712.499997              | -0.002                | 1777.500000     | 0.001                 |
| 30         | 1712.499997              | -0.002                | 1777.500000     | 0.002                 |
| 40         | 1712.500001              | 0.001                 | 1777.500000     | -0.001                |
| 50         | 1712.499996              | -0.002                | 1777.500000     | -0.001                |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                       |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 10 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1715.000001               | 0.001                 | 1774.999996     | -0.002                |
| 3.85               | 1715.000001               | 0.001                 | 1774.999998     | -0.001                |
| 3.40               | 1715.000002               | 0.001                 | 1775.000004     | 0.002                 |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | n66                       |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 10 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1715.000004               | 0.002                 | 1775.000001     | 0.001                 |
| -20        | 1714.999996               | -0.002                | 1775.000002     | 0.001                 |
| -10        | 1715.000002               | 0.001                 | 1774.999997     | -0.002                |
| 0          | 1715.000004               | 0.002                 | 1774.999998     | -0.001                |
| 10         | 1715.000003               | 0.002                 | 1775.000001     | 0.001                 |
| 20         | 1714.999999               | -0.001                | 1775.000002     | 0.001                 |
| 30         | 1715.000001               | 0.001                 | 1775.000004     | 0.002                 |
| 40         | 1714.999997               | -0.002                | 1775.000001     | 0.001                 |
| 50         | 1714.999999               | -0.001                | 1775.000003     | 0.002                 |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                       |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 15 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1717.499997               | -0.002                | 1772.499997     | -0.002                |
| 3.85               | 1717.500002               | 0.001                 | 1772.500004     | 0.002                 |
| 3.40               | 1717.499997               | -0.002                | 1772.500004     | 0.002                 |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | n66                       |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 15 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1717.500001               | 0.001                 | 1772.499997     | -0.002                |
| -20        | 1717.500004               | 0.002                 | 1772.500004     | 0.002                 |
| -10        | 1717.499998               | -0.001                | 1772.500003     | 0.002                 |
| 0          | 1717.499997               | -0.002                | 1772.499997     | -0.002                |
| 10         | 1717.500003               | 0.002                 | 1772.499998     | -0.001                |
| 20         | 1717.500001               | 0.001                 | 1772.500001     | 0.001                 |
| 30         | 1717.499998               | -0.001                | 1772.499996     | -0.002                |
| 40         | 1717.500002               | 0.001                 | 1772.499996     | -0.002                |
| 50         | 1717.500001               | 0.001                 | 1772.499996     | -0.002                |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                       |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 20 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1720.000002               | 0.001                 | 1769.999997     | -0.002                |
| 3.85               | 1719.999996               | -0.002                | 1769.999996     | -0.002                |
| 3.40               | 1720.000003               | 0.002                 | 1769.999997     | -0.002                |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | n66                       |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 20 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1720.000001               | 0.001                 | 1769.999999     | -0.001                |
| -20        | 1719.999998               | -0.001                | 1769.999996     | -0.002                |
| -10        | 1720.000002               | 0.001                 | 1769.999996     | -0.002                |
| 0          | 1719.999998               | -0.001                | 1770.000001     | 0.001                 |
| 10         | 1719.999997               | -0.002                | 1770.000003     | 0.002                 |
| 20         | 1720.000001               | 0.001                 | 1769.999997     | -0.002                |
| 30         | 1719.999997               | -0.002                | 1770.000002     | 0.001                 |
| 40         | 1720.000001               | 0.001                 | 1770.000001     | 0.001                 |
| 50         | 1720.000001               | 0.001                 | 1769.999996     | -0.002                |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                       |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 30 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1724.999997               | -0.002                | 1764.999998     | -0.001                |
| 3.85               | 1724.999997               | -0.002                | 1764.999996     | -0.002                |
| 3.40               | 1724.999999               | -0.001                | 1764.999999     | -0.001                |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | n66                       |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 30 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1724.999998               | -0.001                | 1764.999997     | -0.002                |
| -20        | 1725.000004               | 0.002                 | 1765.000003     | 0.002                 |
| -10        | 1725.000001               | 0.001                 | 1764.999997     | -0.002                |
| 0          | 1725.000001               | 0.001                 | 1765.000001     | 0.001                 |
| 10         | 1725.000004               | 0.002                 | 1765.000004     | 0.002                 |
| 20         | 1724.999998               | -0.001                | 1764.999997     | -0.002                |
| 30         | 1725.000003               | 0.002                 | 1765.000001     | 0.001                 |
| 40         | 1724.999997               | -0.002                | 1765.000004     | 0.002                 |
| 50         | 1725.000002               | 0.001                 | 1764.999998     | -0.001                |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | n66                       |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 40 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.40               | 1729.999997               | -0.002                | 1759.999998     | -0.001                |
| 3.85               | 1730.000004               | 0.002                 | 1759.999996     | -0.002                |
| 3.40               | 1729.999997               | -0.002                | 1759.999998     | -0.001                |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | n66                       |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 40 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1729.999999               | -0.001                | 1759.999998     | -0.001                |
| -20        | 1729.999998               | -0.001                | 1760.000004     | 0.002                 |
| -10        | 1729.999997               | -0.002                | 1760.000002     | 0.001                 |
| 0          | 1729.999997               | -0.002                | 1760.000002     | 0.001                 |
| 10         | 1730.000003               | 0.002                 | 1759.999999     | -0.001                |
| 20         | 1729.999996               | -0.002                | 1760.000002     | 0.001                 |
| 30         | 1730.000002               | 0.001                 | 1759.999999     | -0.001                |
| 40         | 1730.000002               | 0.001                 | 1760.000004     | 0.002                 |
| 50         | 1730.000003               | 0.002                 | 1759.999999     | -0.001                |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2                |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 1.4 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1850.700001               | 0.000648              | 1909.300000     | 0.001833              |
| 3.40               | 1850.700001               | 0.000648              | 1909.300002     | 0.000943              |
| 4.40               | 1850.700001               | 0.000648              | 1909.300002     | 0.001152              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2                |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 1.4 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1850.700003               | 0.001837              | 1909.300002     | 0.001257              |
| -20        | 1850.700002               | 0.001081              | 1909.300001     | 0.000733              |
| -10        | 1850.700002               | 0.001189              | 1909.300004     | 0.001833              |
| 0          | 1850.700003               | 0.001351              | 1909.300003     | 0.001309              |
| 10         | 1850.699998               | -0.000919             | 1909.299997     | -0.001467             |
| 20         | 1850.699999               | -0.000540             | 1909.299999     | -0.000629             |
| 30         | 1850.699998               | -0.001189             | 1909.299998     | -0.001048             |
| 40         | 1850.699999               | -0.000811             | 1909.299999     | -0.000733             |
| 50         | 1850.699997               | -0.001783             | 1909.299999     | -0.000681             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2             |                       |                 |                       |
|--------------------|------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 3MHz |                       |                 |                       |
|                    | Low Channel            |                       | High Channel    |                       |
|                    | Frequency (MHz)        | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1851.500003            | 0.001458              | 1908.500004     | 0.001834              |
| 3.40               | 1851.500002            | 0.000918              | 1908.500002     | 0.001205              |
| 4.40               | 1851.500003            | 0.001782              | 1908.500004     | 0.002043              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2             |                       |                 |                       |
|------------|------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 3MHz |                       |                 |                       |
|            | Low Channel            |                       | High Channel    |                       |
|            | Frequency (MHz)        | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1851.500001            | 0.000648              | 1908.500004     | 0.002043              |
| -20        | 1851.500004            | 0.002106              | 1908.500003     | 0.001782              |
| -10        | 1851.500003            | 0.001782              | 1908.500002     | 0.000891              |
| 0          | 1851.500001            | 0.000702              | 1908.500002     | 0.001153              |
| 10         | 1851.499997            | -0.001512             | 1908.499999     | -0.000681             |
| 20         | 1851.499999            | -0.000648             | 1908.499997     | -0.001572             |
| 30         | 1851.499997            | -0.001404             | 1908.499998     | -0.000891             |
| 40         | 1851.499999            | -0.000540             | 1908.499998     | -0.000891             |
| 50         | 1851.499996            | -0.002052             | 1908.499998     | -0.001310             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2              |                       |                 |                       |
|--------------------|-------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 5 MHz |                       |                 |                       |
|                    | Low Channel             |                       | High Channel    |                       |
|                    | Frequency (MHz)         | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1852.500002             | 0.001242              | 1907.500001     | 0.000682              |
| 3.40               | 1852.500003             | 0.001727              | 1907.500004     | 0.002097              |
| 4.40               | 1852.500003             | 0.001511              | 1907.500004     | 0.002097              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2              |                       |                 |                       |
|------------|-------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 5 MHz |                       |                 |                       |
|            | Low Channel             |                       | High Channel    |                       |
|            | Frequency (MHz)         | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1852.500003             | 0.001835              | 1907.500001     | 0.000577              |
| -20        | 1852.500002             | 0.000918              | 1907.500004     | 0.002097              |
| -10        | 1852.500003             | 0.001835              | 1907.500002     | 0.000839              |
| 0          | 1852.500003             | 0.001565              | 1907.500002     | 0.001258              |
| 10         | 1852.499997             | -0.001565             | 1907.499998     | -0.001258             |
| 20         | 1852.499998             | -0.001242             | 1907.499997     | -0.001415             |
| 30         | 1852.499998             | -0.000972             | 1907.499997     | -0.001468             |
| 40         | 1852.499996             | -0.002051             | 1907.499997     | -0.001468             |
| 50         | 1852.499999             | -0.000756             | 1907.499997     | -0.001835             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 10 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1855.000004              | 0.002102              | 1905.000001     | 0.000577              |
| 3.40               | 1855.000003              | 0.001617              | 1905.000002     | 0.000787              |
| 4.40               | 1855.000002              | 0.001078              | 1905.000002     | 0.001155              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 10 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1855.000002              | 0.000916              | 1905.000002     | 0.000840              |
| -20        | 1855.000001              | 0.000755              | 1905.000001     | 0.000682              |
| -10        | 1855.000002              | 0.000809              | 1905.000003     | 0.001522              |
| 0          | 1855.000001              | 0.000647              | 1905.000003     | 0.001417              |
| 10         | 1854.999998              | -0.001348             | 1904.999999     | -0.000525             |
| 20         | 1854.999996              | -0.002102             | 1904.999999     | -0.000735             |
| 30         | 1854.999997              | -0.001671             | 1904.999999     | -0.000630             |
| 40         | 1854.999997              | -0.001402             | 1904.999998     | -0.001102             |
| 50         | 1854.999999              | -0.000755             | 1904.999998     | -0.000945             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 15 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1857.500004              | 0.002046              | 1902.500002     | 0.000788              |
| 3.40               | 1857.500003              | 0.001561              | 1902.500003     | 0.001787              |
| 4.40               | 1857.500002              | 0.001184              | 1902.500002     | 0.001051              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 15 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1857.500004              | 0.001884              | 1902.500002     | 0.000841              |
| -20        | 1857.500001              | 0.000592              | 1902.500004     | 0.001945              |
| -10        | 1857.500004              | 0.001938              | 1902.500002     | 0.000894              |
| 0          | 1857.500004              | 0.001992              | 1902.500003     | 0.001419              |
| 10         | 1857.499998              | -0.001184             | 1902.499998     | -0.001051             |
| 20         | 1857.499997              | -0.001615             | 1902.499999     | -0.000736             |
| 30         | 1857.499999              | -0.000538             | 1902.499998     | -0.001156             |
| 40         | 1857.499996              | -0.001992             | 1902.499998     | -0.001209             |
| 50         | 1857.499996              | -0.001992             | 1902.499999     | -0.000736             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 2               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth 20 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 1860.000003              | 0.001559              | 1900.000001     | 0.000579              |
| 3.40               | 1860.000002              | 0.001022              | 1900.000002     | 0.001211              |
| 4.40               | 1860.000002              | 0.000860              | 1900.000004     | 0.002053              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth 20 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 1860.000003              | 0.001398              | 1900.000002     | 0.000842              |
| -20        | 1860.000002              | 0.000806              | 1900.000002     | 0.001053              |
| -10        | 1860.000004              | 0.002151              | 1900.000001     | 0.000579              |
| 0          | 1860.000003              | 0.001613              | 1900.000002     | 0.000789              |
| 10         | 1859.999998              | -0.000968             | 1899.999996     | -0.001895             |
| 20         | 1859.999999              | -0.000591             | 1899.999998     | -0.000947             |
| 30         | 1859.999997              | -0.001720             | 1899.999999     | -0.000789             |
| 40         | 1859.999997              | -0.001667             | 1899.999999     | -0.000632             |
| 50         | 1859.999998              | -0.001075             | 1899.999997     | -0.001421             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 5                 |                       |                 |                       |
|--------------------|----------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 1.4 MHz |                       |                 |                       |
|                    | Low Channel                |                       | High Channel    |                       |
|                    | Frequency (MHz)            | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 824.700002                 | 0.002789              | 848.300002      | 0.002476              |
| 3.40               | 824.700003                 | 0.003638              | 848.300002      | 0.002240              |
| 4.40               | 824.700001                 | 0.001334              | 848.300001      | 0.001415              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 5                 |                       |                 |                       |
|------------|----------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 1.4 MHz |                       |                 |                       |
|            | Low Channel                |                       | High Channel    |                       |
|            | Frequency (MHz)            | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 824.700004                 | 0.004608              | 848.300004      | 0.004480              |
| -20        | 824.700004                 | 0.004486              | 848.300003      | 0.003301              |
| -10        | 824.700002                 | 0.002183              | 848.300003      | 0.004008              |
| 0          | 824.700002                 | 0.002546              | 848.300003      | 0.003654              |
| 10         | 824.699997                 | -0.004123             | 848.299997      | -0.003301             |
| 20         | 824.699997                 | -0.004244             | 848.299998      | -0.002358             |
| 30         | 824.699999                 | -0.001334             | 848.299996      | -0.004362             |
| 40         | 824.699999                 | -0.001455             | 848.299998      | -0.001886             |
| 50         | 824.699998                 | -0.001940             | 848.299998      | -0.002358             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 5               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 3 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 825.500003               | 0.003998              | 847.500003      | 0.003776              |
| 3.40               | 825.500003               | 0.003634              | 847.500004      | 0.004602              |
| 4.40               | 825.500002               | 0.002786              | 847.500002      | 0.001888              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 5               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 3 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 825.500004               | 0.004846              | 847.500002      | 0.002596              |
| -20        | 825.500004               | 0.004724              | 847.500004      | 0.004248              |
| -10        | 825.500002               | 0.002059              | 847.500001      | 0.001180              |
| 0          | 825.500003               | 0.003513              | 847.500002      | 0.002832              |
| 10         | 825.499998               | -0.002786             | 847.499997      | -0.003776             |
| 20         | 825.499999               | -0.001211             | 847.499998      | -0.002360             |
| 30         | 825.499997               | -0.003755             | 847.499999      | -0.001534             |
| 40         | 825.499998               | -0.002665             | 847.499997      | -0.003422             |
| 50         | 825.499996               | -0.004724             | 847.499996      | -0.004248             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 5               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 5 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 826.500004               | 0.004235              | 846.500003      | 0.003662              |
| 3.40               | 826.500002               | 0.002420              | 846.500003      | 0.003544              |
| 4.40               | 826.500002               | 0.002541              | 846.500002      | 0.002717              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 5               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 5 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 826.500002               | 0.002541              | 846.500003      | 0.003898              |
| -20        | 826.500003               | 0.003267              | 846.500004      | 0.004725              |
| -10        | 826.500001               | 0.001331              | 846.500002      | 0.001772              |
| 0          | 826.500001               | 0.001694              | 846.500002      | 0.001890              |
| 10         | 826.499997               | -0.003509             | 846.499998      | -0.002008             |
| 20         | 826.499997               | -0.003146             | 846.499997      | -0.003071             |
| 30         | 826.499997               | -0.003872             | 846.499997      | -0.003308             |
| 40         | 826.499996               | -0.004598             | 846.499997      | -0.004017             |
| 50         | 826.499997               | -0.003872             | 846.499999      | -0.001536             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 5                |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 10 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 829.000001                | 0.001689              | 844.000004      | 0.004502              |
| 3.40               | 829.000004                | 0.004704              | 844.000001      | 0.001185              |
| 4.40               | 829.000004                | 0.004825              | 844.000004      | 0.004621              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 5                |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 10 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 829.000004                | 0.004463              | 844.000004      | 0.004147              |
| -20        | 829.000002                | 0.002654              | 844.000003      | 0.003199              |
| -10        | 829.000003                | 0.003378              | 844.000004      | 0.004265              |
| 0          | 829.000002                | 0.002413              | 844.000004      | 0.004621              |
| 10         | 828.999998                | -0.002051             | 843.999997      | -0.003791             |
| 20         | 828.999998                | -0.003016             | 843.999997      | -0.003910             |
| 30         | 828.999996                | -0.004704             | 843.999999      | -0.001540             |
| 40         | 828.999999                | -0.001689             | 843.999999      | -0.001185             |
| 50         | 828.999998                | -0.002533             | 843.999997      | -0.003555             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 7               |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 5 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 2502.500002              | 0.000679              | 2567.500001     | 0.000389              |
| 3.40               | 2502.500002              | 0.000879              | 2567.500001     | 0.000545              |
| 4.40               | 2502.500002              | 0.000759              | 2567.500001     | 0.000389              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 7               |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 5 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 2502.500004              | 0.001558              | 2567.500003     | 0.000974              |
| -20        | 2502.500002              | 0.000759              | 2567.500001     | 0.000467              |
| -10        | 2502.500001              | 0.000400              | 2567.500004     | 0.001441              |
| 0          | 2502.500004              | 0.001558              | 2567.500001     | 0.000506              |
| 10         | 2502.499998              | -0.000799             | 2567.499996     | -0.001441             |
| 20         | 2502.499997              | -0.001199             | 2567.499999     | -0.000389             |
| 30         | 2502.499999              | -0.000440             | 2567.499999     | -0.000467             |
| 40         | 2502.499998              | -0.000919             | 2567.499996     | -0.001519             |
| 50         | 2502.499999              | -0.000599             | 2567.499998     | -0.000935             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 7                |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 10 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 2505.000002               | 0.000758              | 2565.000001     | 0.000468              |
| 3.40               | 2505.000003               | 0.001277              | 2565.000002     | 0.000819              |
| 4.40               | 2505.000001               | 0.000519              | 2565.000004     | 0.001559              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 7                |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 10 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 2505.000002               | 0.000918              | 2565.000002     | 0.000936              |
| -20        | 2505.000002               | 0.000599              | 2565.000004     | 0.001559              |
| -10        | 2505.000002               | 0.000599              | 2565.000002     | 0.000624              |
| 0          | 2505.000004               | 0.001437              | 2565.000004     | 0.001559              |
| 10         | 2504.999998               | -0.000878             | 2564.999998     | -0.000663             |
| 20         | 2504.999999               | -0.000479             | 2564.999996     | -0.001442             |
| 30         | 2504.999999               | -0.000479             | 2564.999999     | -0.000390             |
| 40         | 2504.999998               | -0.000758             | 2564.999997     | -0.001248             |
| 50         | 2504.999997               | -0.001357             | 2564.999997     | -0.001092             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 7                |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 15 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 2507.500004               | 0.001436              | 2562.500003     | 0.000976              |
| 3.40               | 2507.500002               | 0.000718              | 2562.500001     | 0.000546              |
| 4.40               | 2507.500001               | 0.000558              | 2562.500003     | 0.001132              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 7                |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 15 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 2507.500003               | 0.001356              | 2562.500002     | 0.000624              |
| -20        | 2507.500001               | 0.000518              | 2562.500002     | 0.000820              |
| -10        | 2507.500002               | 0.000798              | 2562.500003     | 0.001093              |
| 0          | 2507.500001               | 0.000479              | 2562.500002     | 0.000741              |
| 10         | 2507.499996               | -0.001476             | 2562.499999     | -0.000468             |
| 20         | 2507.499996               | -0.001555             | 2562.499998     | -0.000820             |
| 30         | 2507.499997               | -0.001037             | 2562.499998     | -0.000976             |
| 40         | 2507.499999               | -0.000439             | 2562.499998     | -0.000624             |
| 50         | 2507.499996               | -0.001515             | 2562.499998     | -0.000702             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 7                |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 20 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 2510.000001               | 0.000518              | 2560.000003     | 0.001328              |
| 3.40               | 2510.000004               | 0.001594              | 2560.000001     | 0.000391              |
| 4.40               | 2510.000003               | 0.000996              | 2560.000002     | 0.000938              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 7                |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 20 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 2510.000003               | 0.001235              | 2560.000002     | 0.000898              |
| -20        | 2510.000004               | 0.001554              | 2560.000001     | 0.000469              |
| -10        | 2510.000002               | 0.000637              | 2560.000004     | 0.001523              |
| 0          | 2510.000002               | 0.000677              | 2560.000003     | 0.001328              |
| 10         | 2509.999996               | -0.001514             | 2559.999998     | -0.000820             |
| 20         | 2509.999999               | -0.000518             | 2559.999999     | -0.000469             |
| 30         | 2509.999996               | -0.001474             | 2559.999999     | -0.000547             |
| 40         | 2509.999997               | -0.001394             | 2559.999997     | -0.001055             |
| 50         | 2509.999999               | -0.000438             | 2559.999996     | -0.001484             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 12                |                       |                 |                       |
|--------------------|----------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 1.4 MHz |                       |                 |                       |
|                    | Low Channel                |                       | High Channel    |                       |
|                    | Frequency (MHz)            | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 699.700004                 | 0.005002              | 715.300002      | 0.003076              |
| 3.40               | 699.700003                 | 0.004716              | 715.300004      | 0.005592              |
| 4.40               | 699.700001                 | 0.001858              | 715.300002      | 0.002936              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 12                |                       |                 |                       |
|------------|----------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 1.4 MHz |                       |                 |                       |
|            | Low Channel                |                       | High Channel    |                       |
|            | Frequency (MHz)            | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 699.700002                 | 0.002573              | 715.300004      | 0.005312              |
| -20        | 699.700002                 | 0.002144              | 715.300002      | 0.002516              |
| -10        | 699.700003                 | 0.003573              | 715.300002      | 0.002516              |
| 0          | 699.700001                 | 0.001858              | 715.300004      | 0.004893              |
| 10         | 699.699998                 | -0.002430             | 715.299996      | -0.005312             |
| 20         | 699.699997                 | -0.004859             | 715.299997      | -0.004753             |
| 30         | 699.699999                 | -0.001572             | 715.299997      | -0.003635             |
| 40         | 699.699998                 | -0.002573             | 715.299999      | -0.001398             |
| 50         | 699.699997                 | -0.004145             | 715.299997      | -0.004893             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 12              |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 3 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 700.500004               | 0.004996              | 714.500002      | 0.003219              |
| 3.40               | 700.500001               | 0.001856              | 714.500002      | 0.002379              |
| 4.40               | 700.500001               | 0.001856              | 714.500003      | 0.004759              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 12              |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 3 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 700.500003               | 0.004854              | 714.500004      | 0.004899              |
| -20        | 700.500004               | 0.005567              | 714.500003      | 0.004619              |
| -10        | 700.500002               | 0.002284              | 714.500004      | 0.005598              |
| 0          | 700.500001               | 0.001999              | 714.500003      | 0.004059              |
| 10         | 700.499998               | -0.003426             | 714.499998      | -0.003499             |
| 20         | 700.499997               | -0.003712             | 714.499996      | -0.005318             |
| 30         | 700.499997               | -0.004425             | 714.499997      | -0.003919             |
| 40         | 700.499996               | -0.005425             | 714.499999      | -0.001959             |
| 50         | 700.499997               | -0.003712             | 714.499998      | -0.002239             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 12              |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 5 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 701.500001               | 0.001853              | 713.500004      | 0.005466              |
| 3.40               | 701.500002               | 0.003136              | 713.500001      | 0.001542              |
| 4.40               | 701.500003               | 0.003849              | 713.500003      | 0.004485              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 12              |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 5 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 701.500002               | 0.003279              | 713.500003      | 0.004765              |
| -20        | 701.500004               | 0.005702              | 713.500001      | 0.001962              |
| -10        | 701.500004               | 0.005560              | 713.500003      | 0.003924              |
| 0          | 701.500001               | 0.001853              | 713.500001      | 0.001402              |
| 10         | 701.499998               | -0.003421             | 713.499999      | -0.001822             |
| 20         | 701.499997               | -0.004989             | 713.499997      | -0.004345             |
| 30         | 701.499999               | -0.001568             | 713.499996      | -0.005186             |
| 40         | 701.499998               | -0.002566             | 713.499997      | -0.004064             |
| 50         | 701.499996               | -0.005560             | 713.499999      | -0.001542             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 12               |                       |                 |                       |
|--------------------|---------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 10 MHz |                       |                 |                       |
|                    | Low Channel               |                       | High Channel    |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 704.000002                | 0.003267              | 711.000004      | 0.005345              |
| 3.40               | 704.000001                | 0.001420              | 711.000003      | 0.004360              |
| 4.40               | 704.000002                | 0.002699              | 711.000002      | 0.002250              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 12               |                       |                 |                       |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 10 MHz |                       |                 |                       |
|            | Low Channel               |                       | High Channel    |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 704.000003                | 0.004545              | 711.000001      | 0.001688              |
| -20        | 704.000002                | 0.002557              | 711.000001      | 0.001969              |
| -10        | 704.000003                | 0.004261              | 711.000002      | 0.002672              |
| 0          | 704.000002                | 0.002557              | 711.000004      | 0.005063              |
| 10         | 703.999998                | -0.002557             | 710.999999      | -0.001406             |
| 20         | 703.999998                | -0.002557             | 710.999997      | -0.004641             |
| 30         | 703.999996                | -0.005682             | 710.999996      | -0.005345             |
| 40         | 703.999997                | -0.004972             | 710.999998      | -0.003376             |
| 50         | 703.999997                | -0.003977             | 710.999997      | -0.003797             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 13              |                       |                 |                       |
|--------------------|--------------------------|-----------------------|-----------------|-----------------------|
|                    | Channel Bandwidth: 5 MHz |                       |                 |                       |
|                    | Low Channel              |                       | High Channel    |                       |
|                    | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 3.85               | 779.500004               | 0.004747              | 784.500003      | 0.003187              |
| 3.40               | 779.500001               | 0.001283              | 784.500002      | 0.001912              |
| 4.40               | 779.500003               | 0.004362              | 784.500003      | 0.003314              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 13              |                       |                 |                       |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
|            | Channel Bandwidth: 5 MHz |                       |                 |                       |
|            | Low Channel              |                       | High Channel    |                       |
|            | Frequency (MHz)          | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30        | 779.500003               | 0.004105              | 784.500004      | 0.004844              |
| -20        | 779.500003               | 0.004362              | 784.500002      | 0.002422              |
| -10        | 779.500004               | 0.005131              | 784.500003      | 0.003952              |
| 0          | 779.500002               | 0.002309              | 784.500001      | 0.001402              |
| 10         | 779.499997               | -0.003335             | 784.499996      | -0.005099             |
| 20         | 779.499998               | -0.002822             | 784.499999      | -0.001275             |
| 30         | 779.499998               | -0.003079             | 784.499998      | -0.002422             |
| 40         | 779.499998               | -0.002437             | 784.499997      | -0.003314             |
| 50         | 779.499996               | -0.004747             | 784.499997      | -0.003824             |

#### Frequency Error vs. Voltage

| Voltage<br>(Volts) | LTE Band 13               |                       |
|--------------------|---------------------------|-----------------------|
|                    | Channel Bandwidth: 10 MHz |                       |
|                    | Frequency (MHz)           | Frequency Error (ppm) |
| 3.85               | 782.000004                | 0.004476              |
| 3.40               | 782.000003                | 0.003581              |
| 4.40               | 782.000004                | 0.005115              |

Note: The applicant defined the normal working voltage is from 3.40Vdc to 4.40Vdc.

#### Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 13               |                       |
|------------|---------------------------|-----------------------|
|            | Channel Bandwidth: 10 MHz |                       |
|            | Frequency (MHz)           | Frequency Error (ppm) |
| -30        | 782.000002                | 0.002302              |
| -20        | 782.000002                | 0.002174              |
| -10        | 782.000002                | 0.002558              |
| 0          | 782.000002                | 0.003069              |
| 10         | 781.999999                | -0.001662             |
| 20         | 781.999997                | -0.004476             |
| 30         | 781.999998                | -0.002430             |
| 40         | 781.999997                | -0.003581             |
| 50         | 781.999999                | -0.001407             |