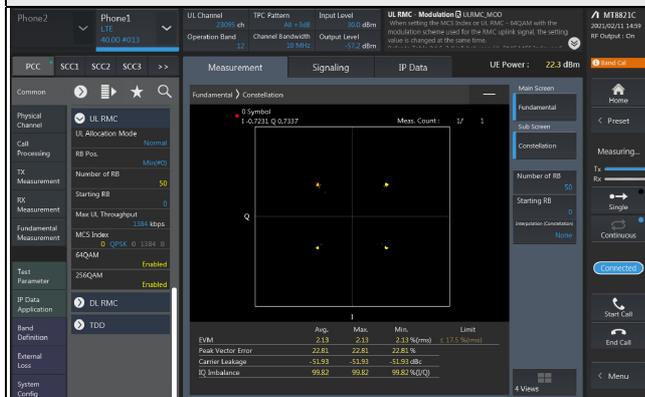


## LTE Band 12

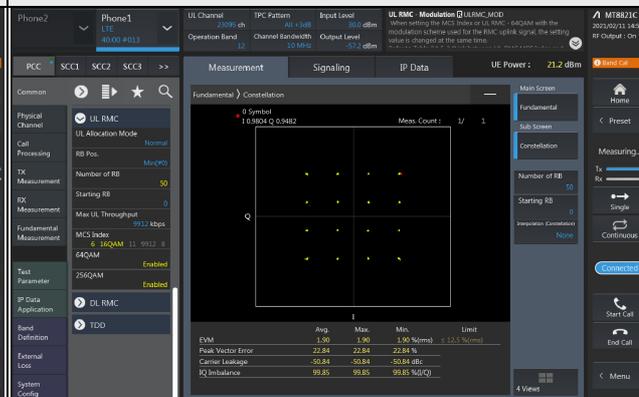
### Spectrum Plot of Measurement Value

Channel: 23095 / Frequency (MHz): 707.5MHz

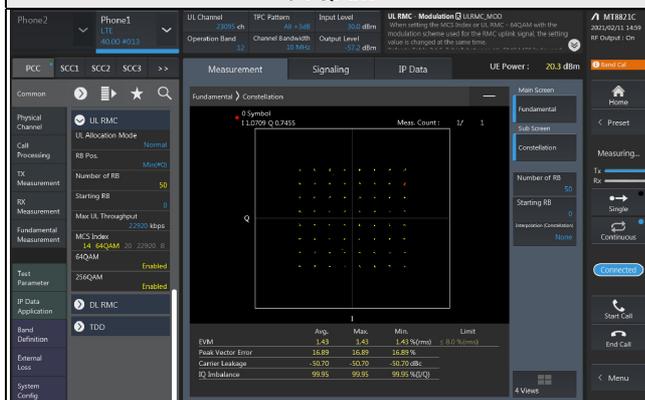
#### QPSK



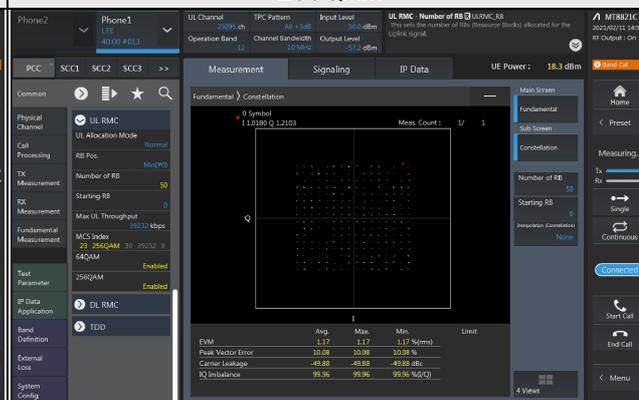
#### 16QAM



#### 64QAM



#### 256QAM

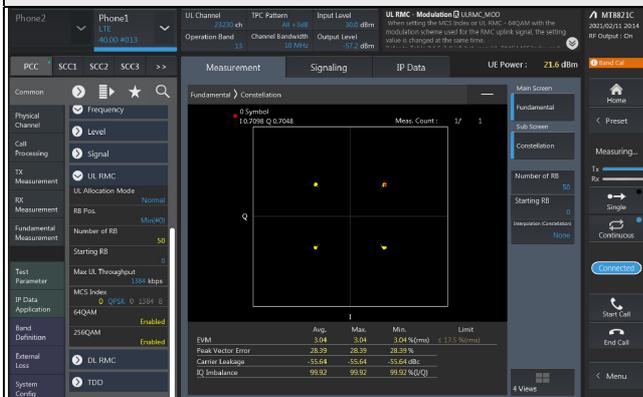


## LTE Band 13

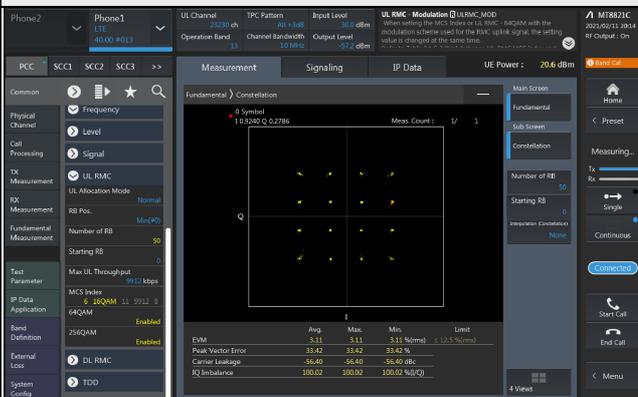
### Spectrum Plot of Measurement Value

Channel: 23230 / Frequency (MHz): 782.0MHz

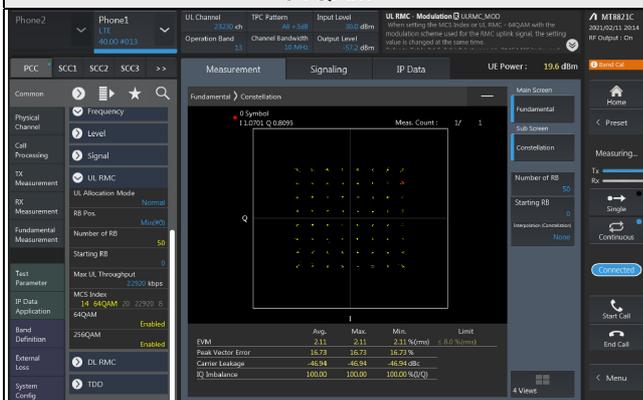
#### QPSK



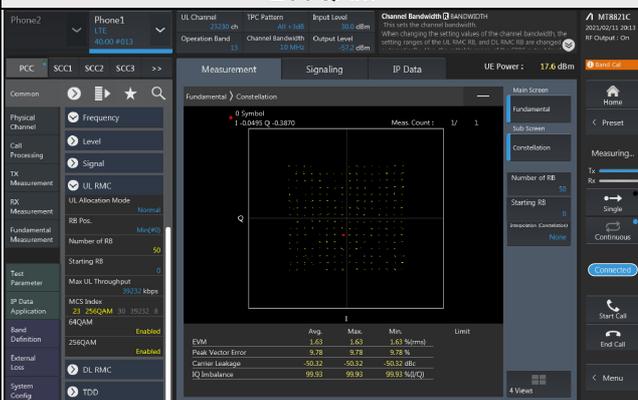
#### 16QAM



#### 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

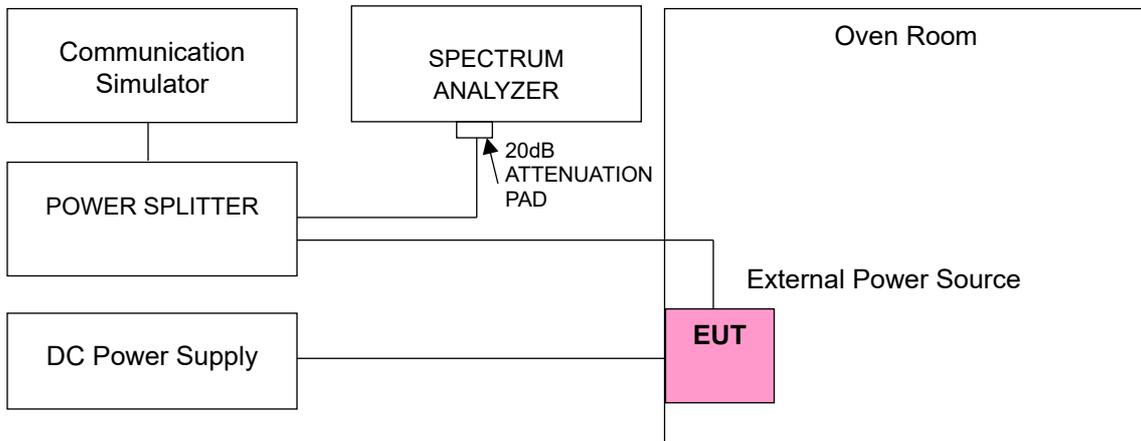
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

#### 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  $\pm 0.5$  °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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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