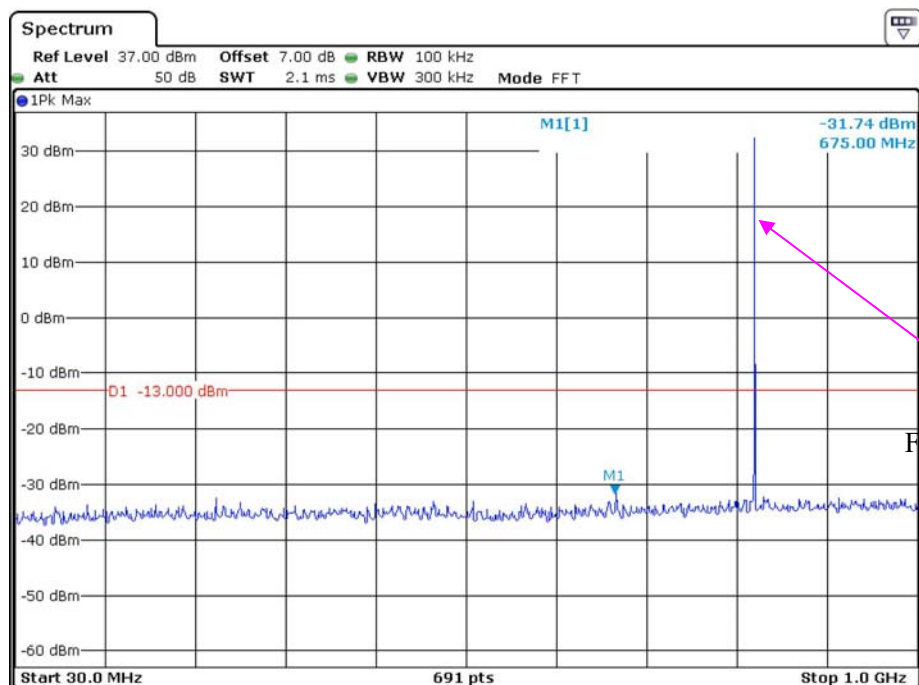
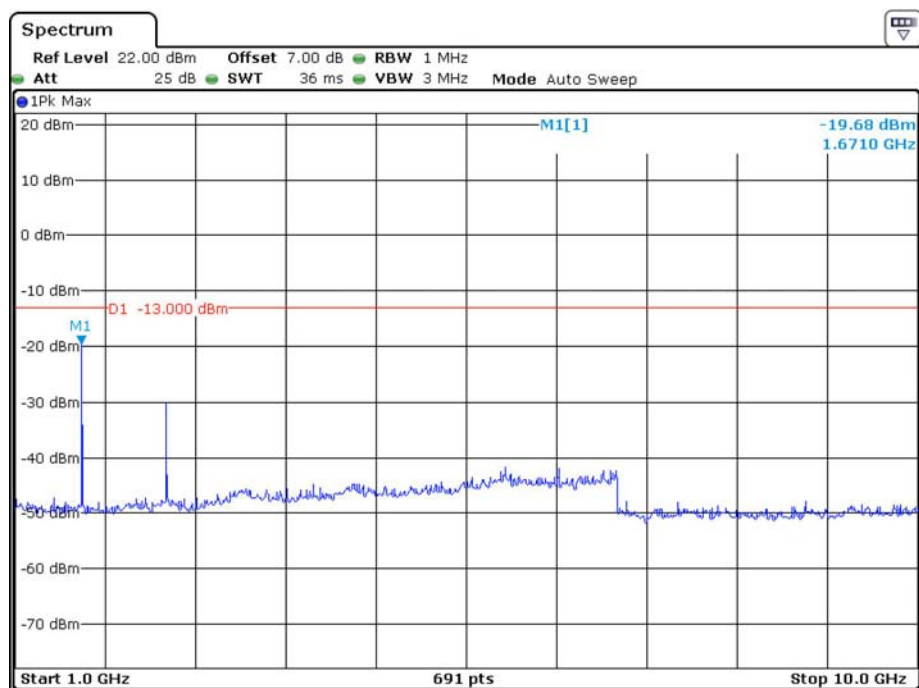


**Cellular Band  
Low Channel:****30 MHz – 1 GHz (GSM Mode)**

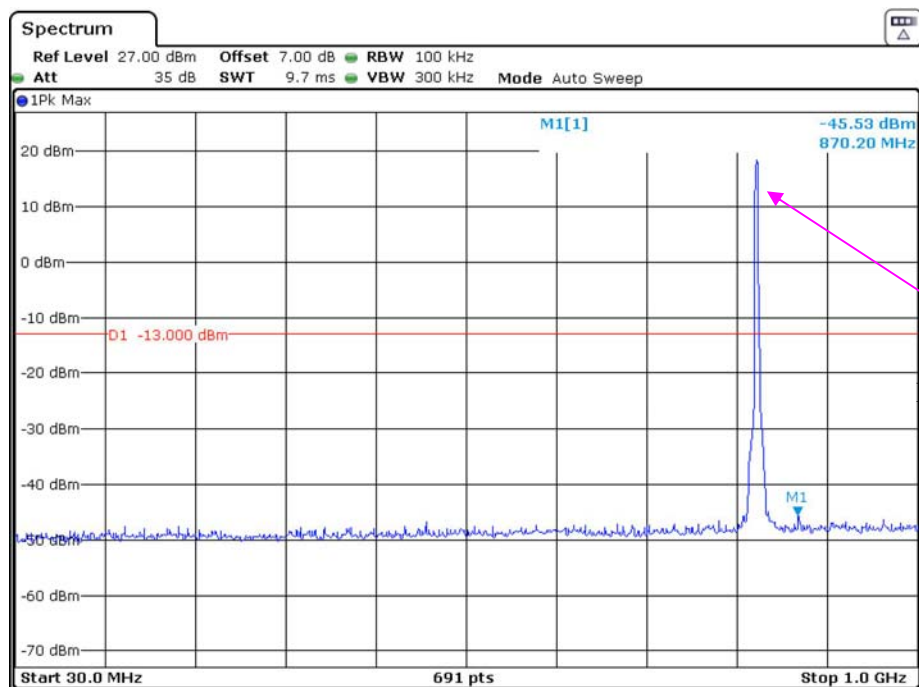
Date: 9.APR.2022 17:16:13

Fundamental test

**1 GHz – 10 GHz (GSM Mode)**

Date: 9.APR.2022 17:19:55

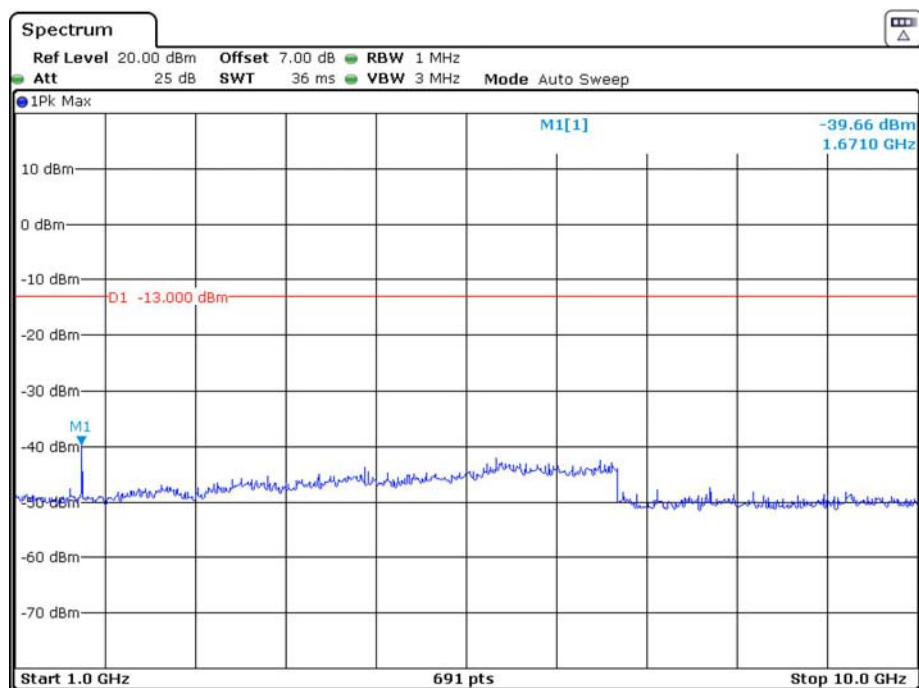
## 30 MHz – 1 GHz (WCDMA Mode)



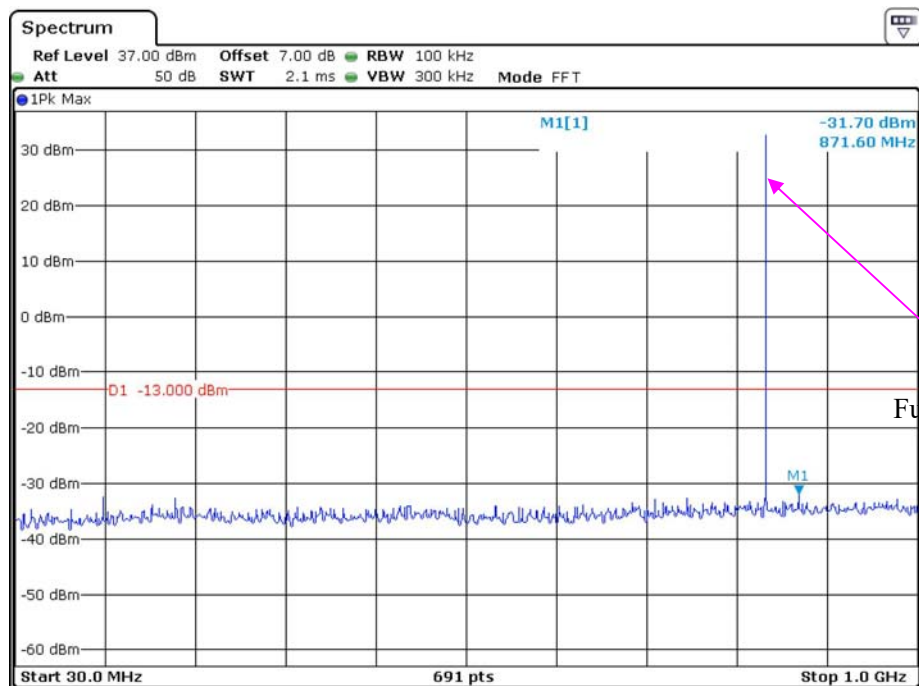
Date: 9.APR.2022 18:06:31

Fundamental test

## 1 GHz – 10 GHz (WCDMA Mode)

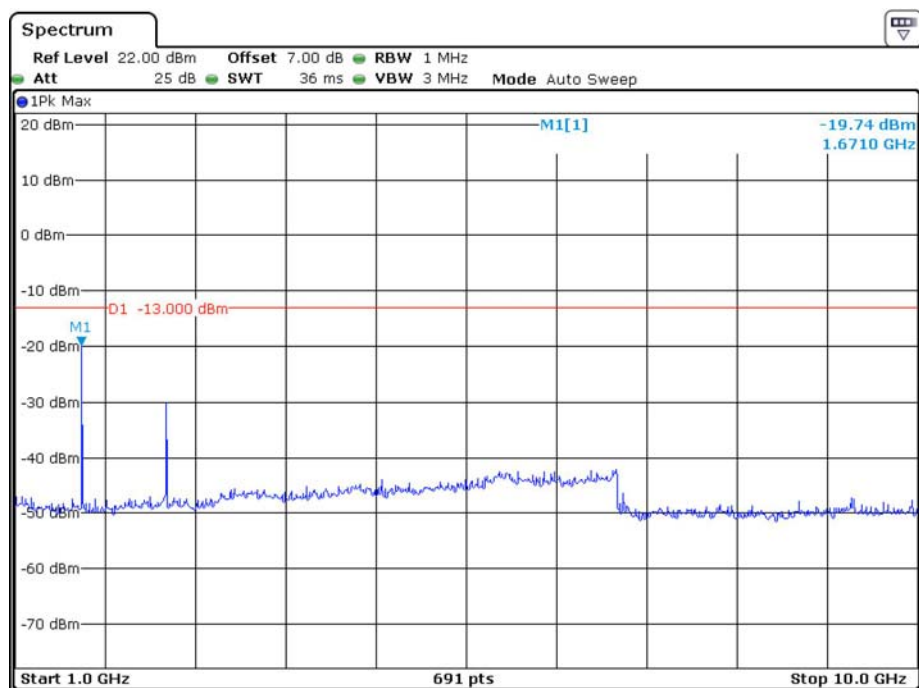


Date: 9.APR.2022 18:07:49

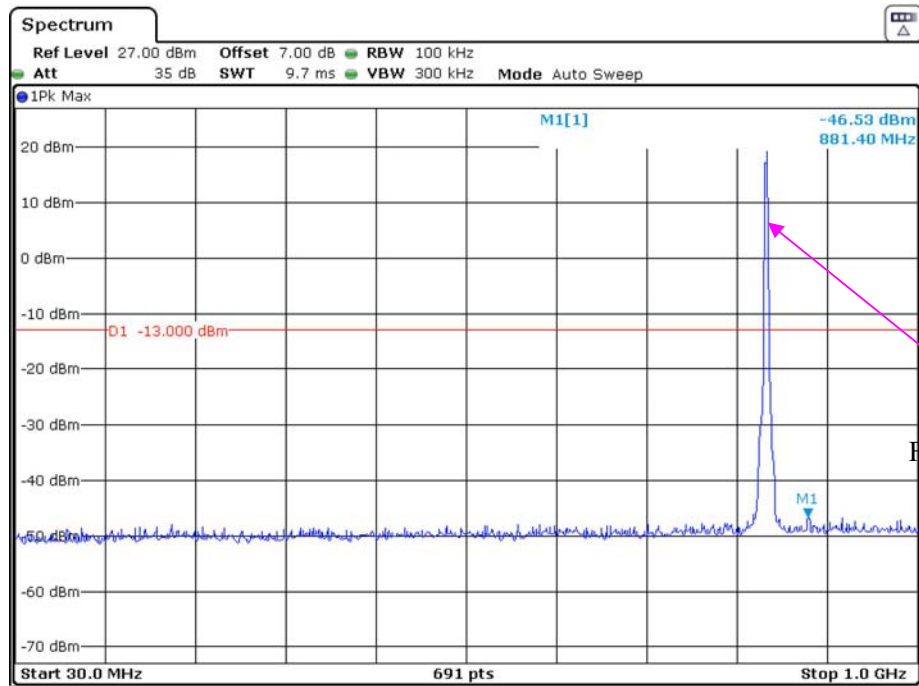
**Middle Channel:****30 MHz – 1 GHz (GSM Mode)**

Date: 9.APR.2022 17:15:31

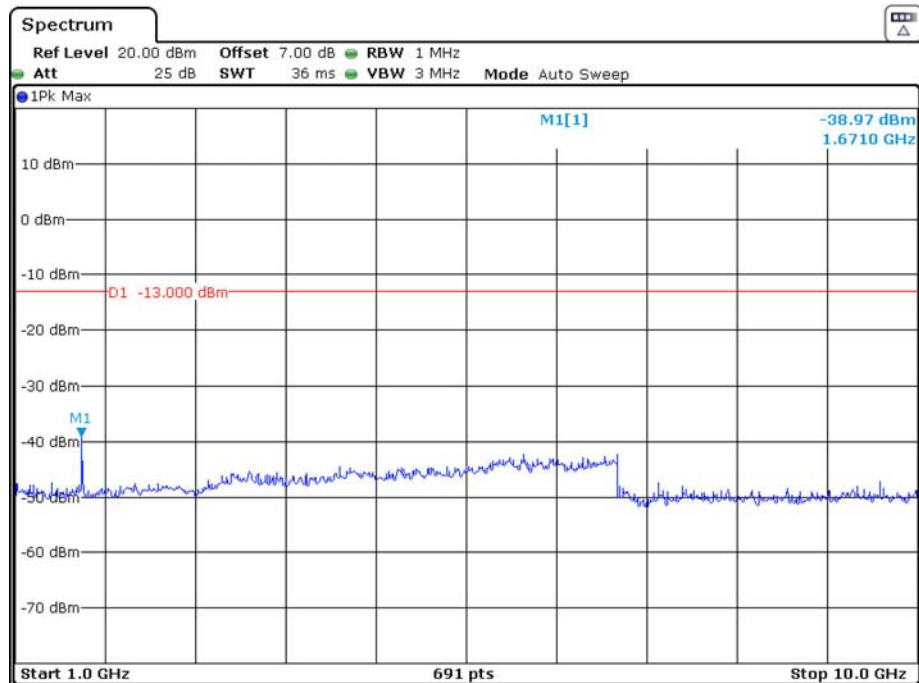
Fundamental test

**1 GHz – 10 GHz (GSM Mode)**

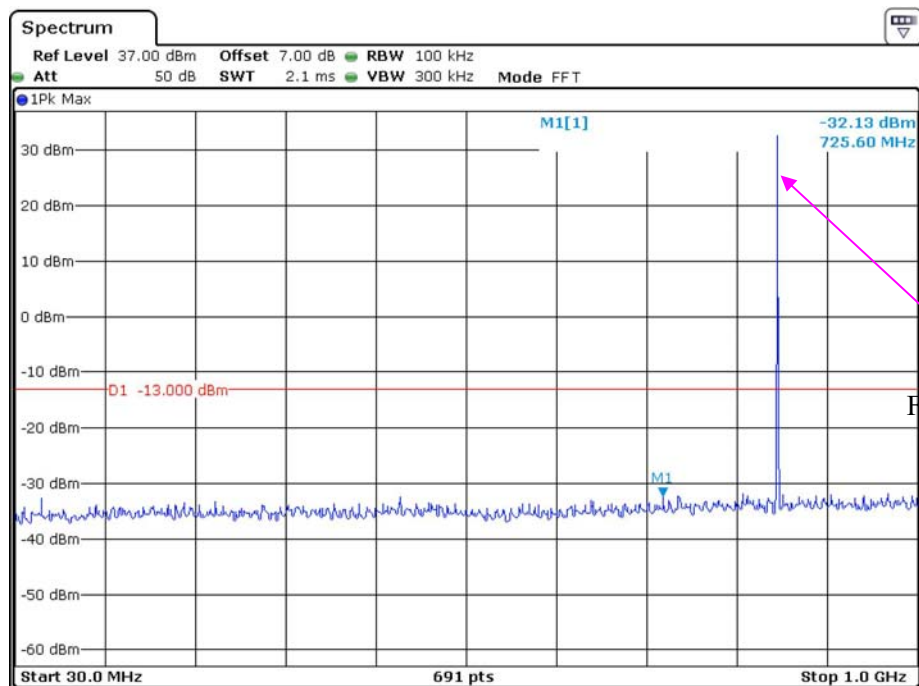
Date: 9.APR.2022 17:19:48

**30 MHz – 1 GHz (WCDMA Mode)**

Date: 9.APR.2022 18:06:45

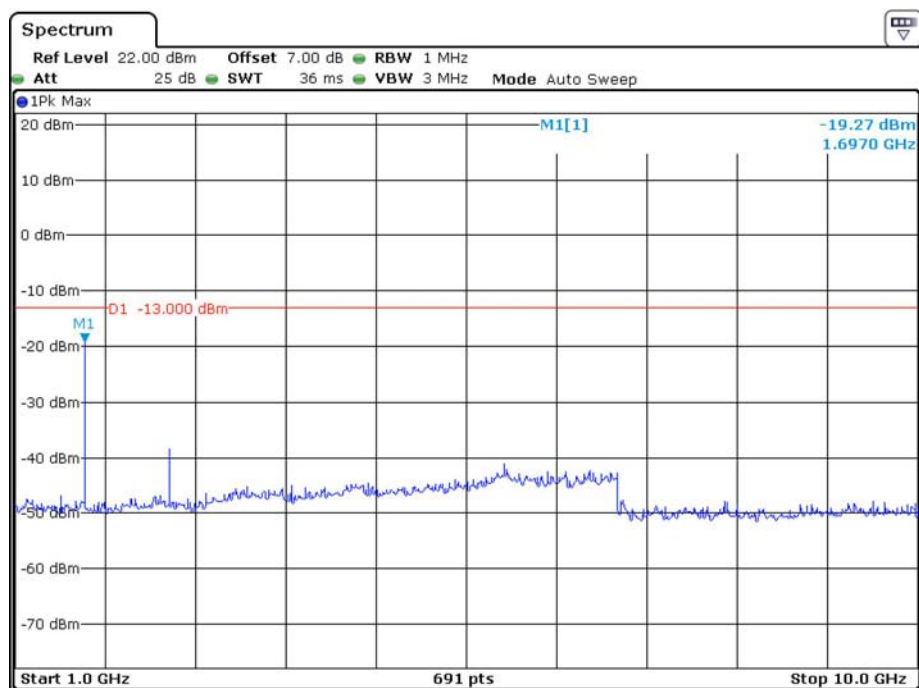
**1 GHz – 10 GHz (WCDMA Mode)**

Date: 9.APR.2022 18:07:40

**High Channel:****30 MHz – 1 GHz (GSM Mode)**

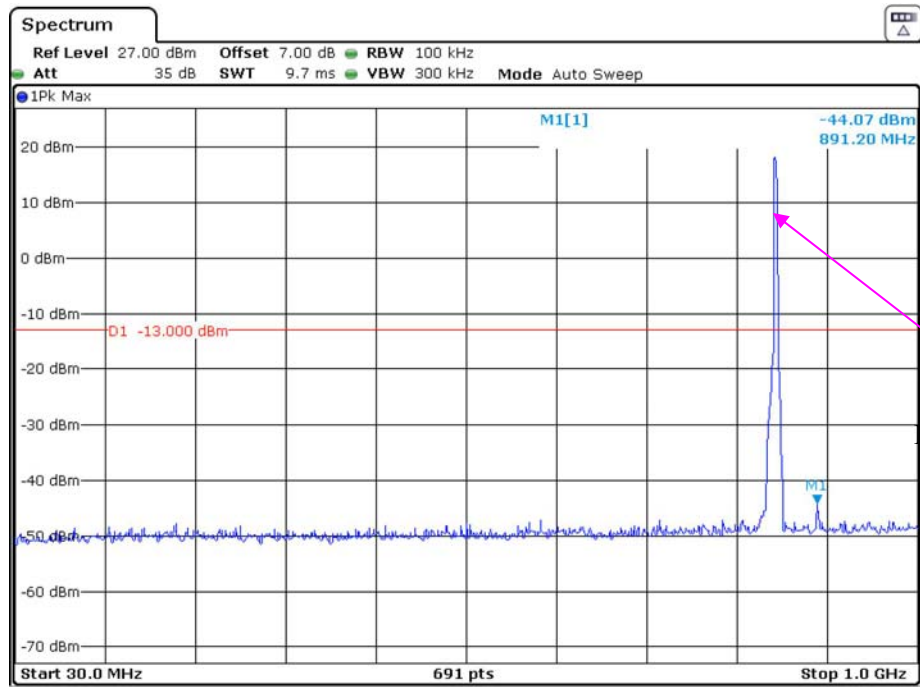
Date: 9.APR.2022 17:14:22

Fundamental test

**1 GHz – 10 GHz (GSM Mode)**

Date: 9.APR.2022 17:19:36

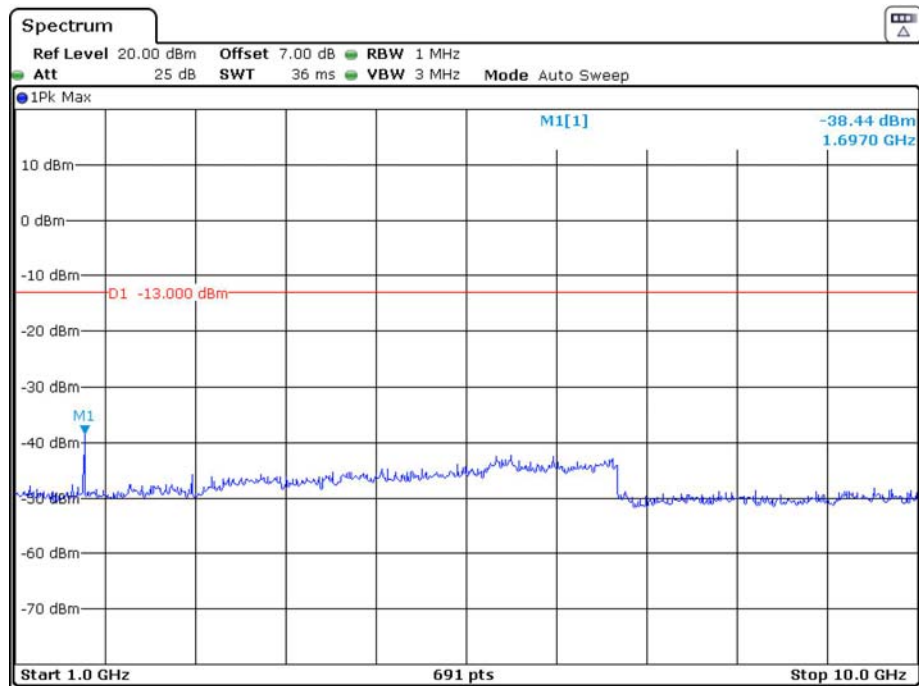
## 30 MHz – 1 GHz (WCDMA Mode)



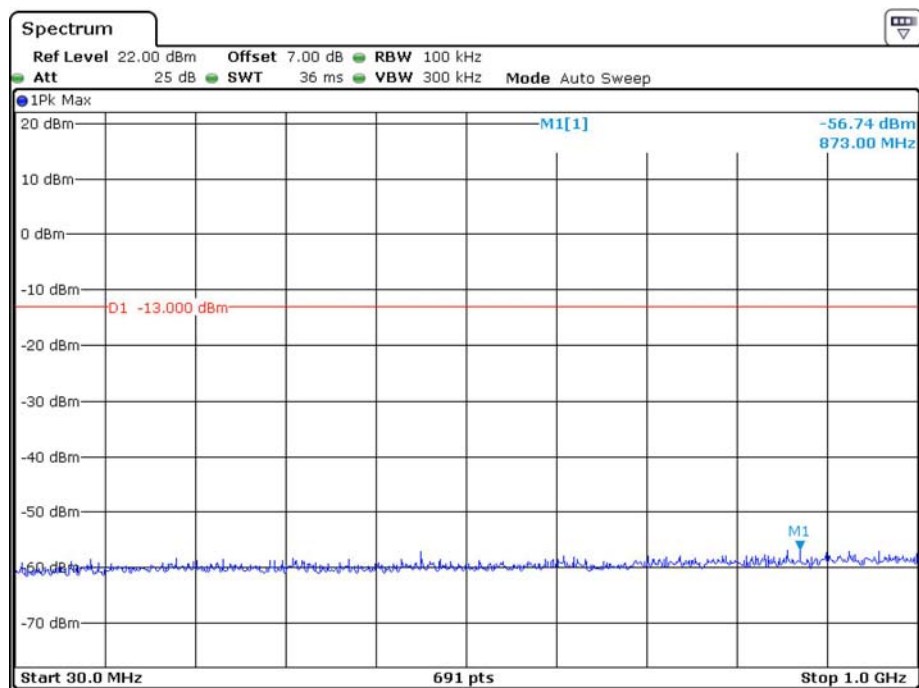
Date: 9.APR.2022 18:07:00

Fundamental test

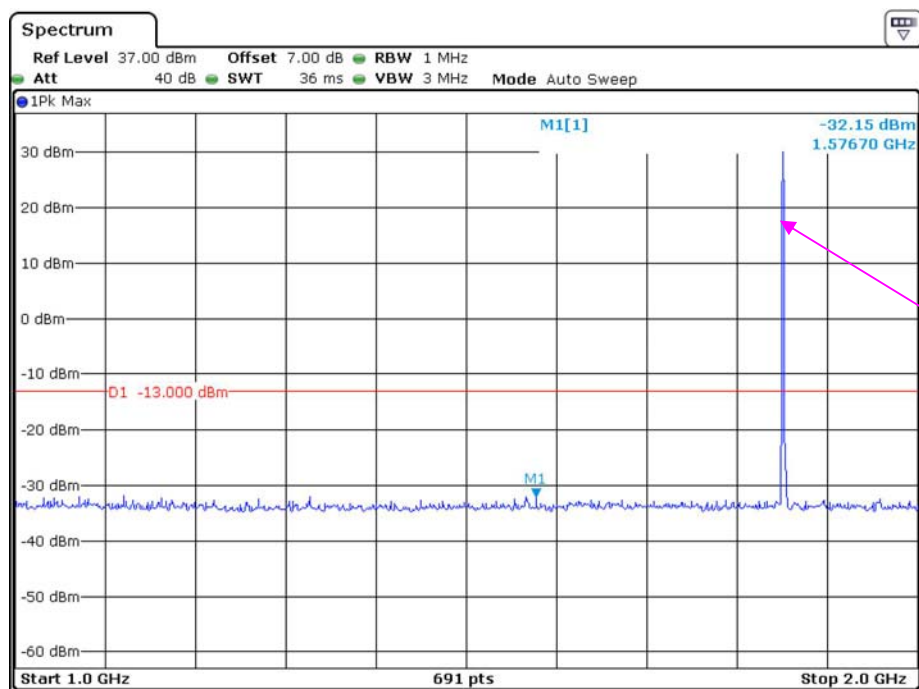
## 1 GHz – 10 GHz (WCDMA Mode)



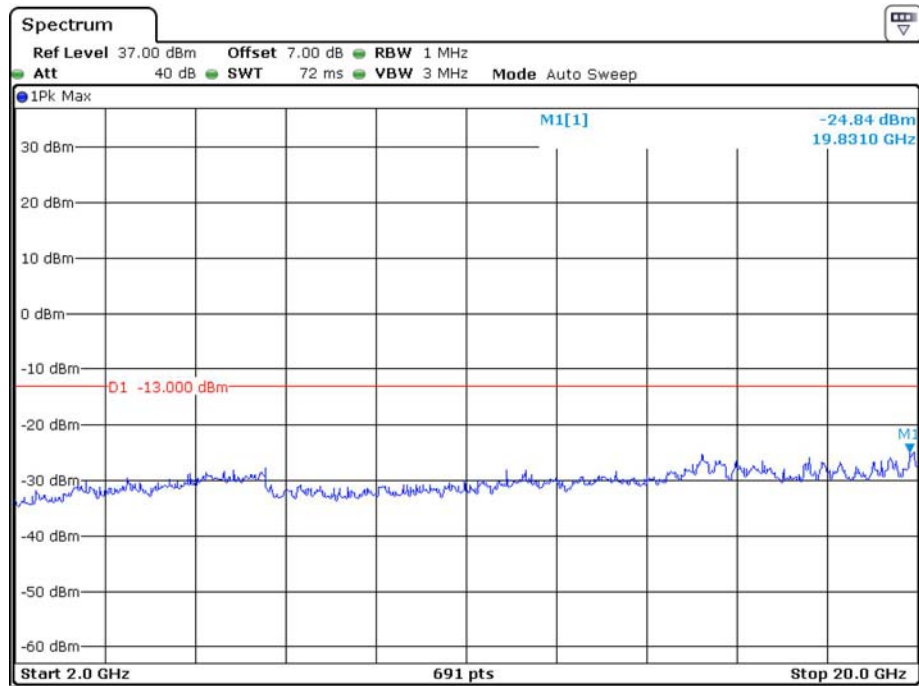
Date: 9.APR.2022 18:07:29

**PCS Band  
Low Channel:****30 MHz – 1 GHz (GSM Mode)**

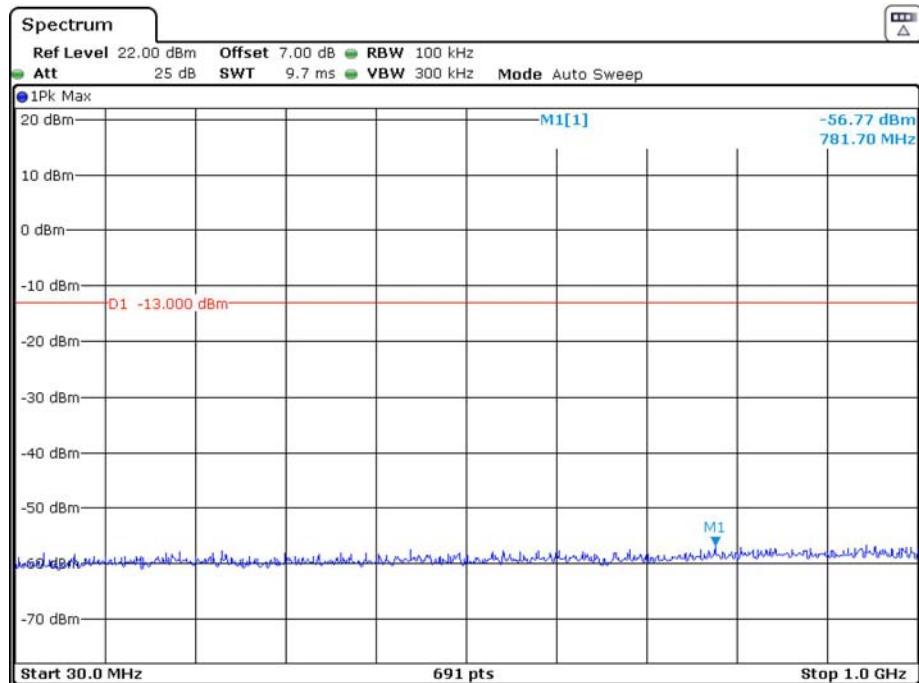
Date: 9.APR.2022 17:24:57

**1 GHz – 2 GHz (GSM Mode)**

Date: 9.APR.2022 17:26:22

**2 GHz – 20 GHz (GSM Mode)**

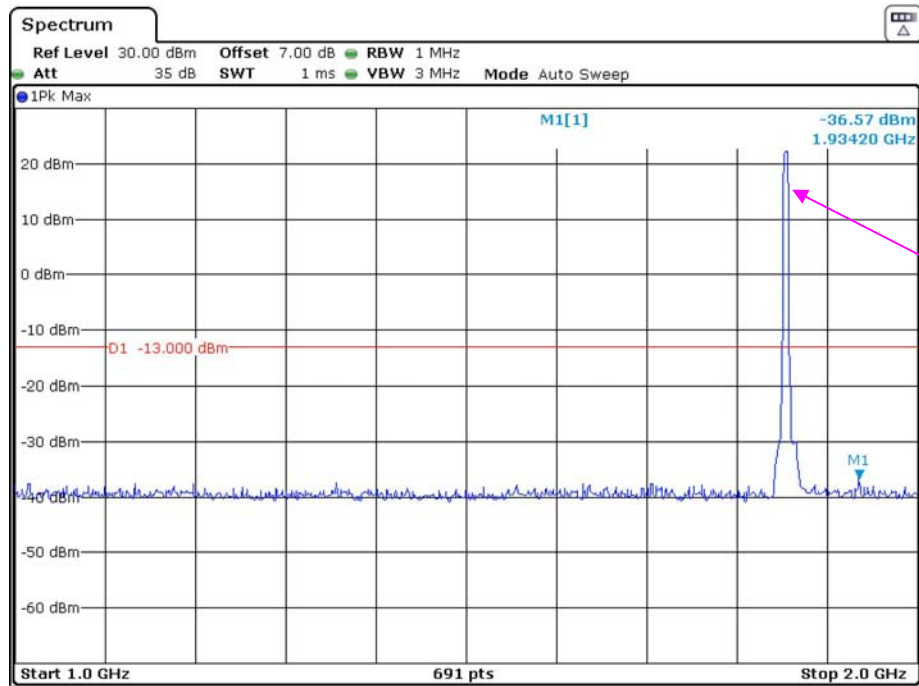
Date: 9.APR.2022 17:28:33

**30 MHz – 1 GHz (WCDMA Mode)**

Date: 9.APR.2022 17:44:05



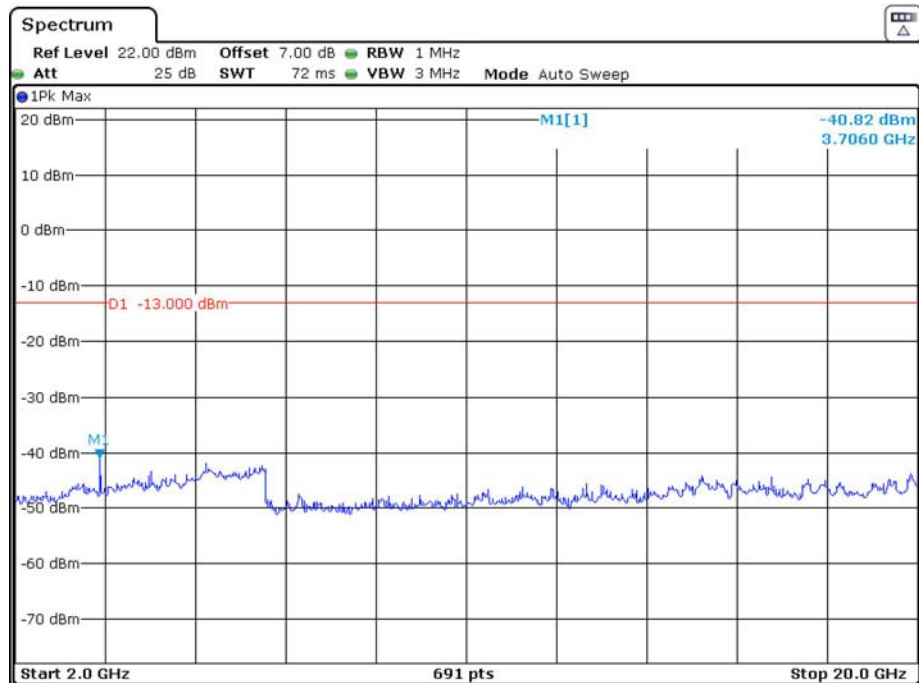
## 1 GHz – 2 GHz (WCDMA Mode)



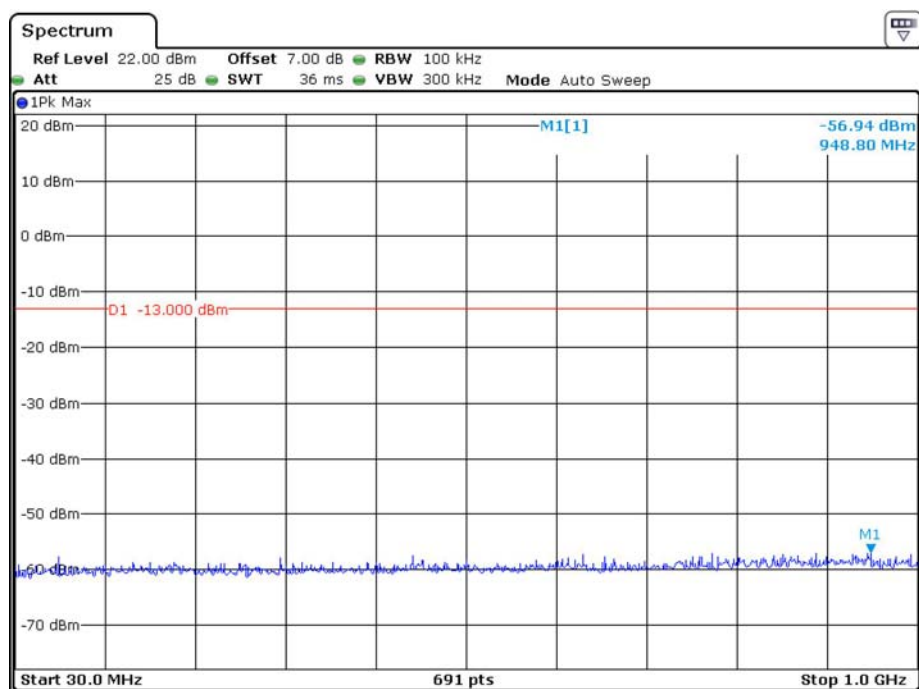
Date: 9.APR.2022 17:45:51

Fundamental test

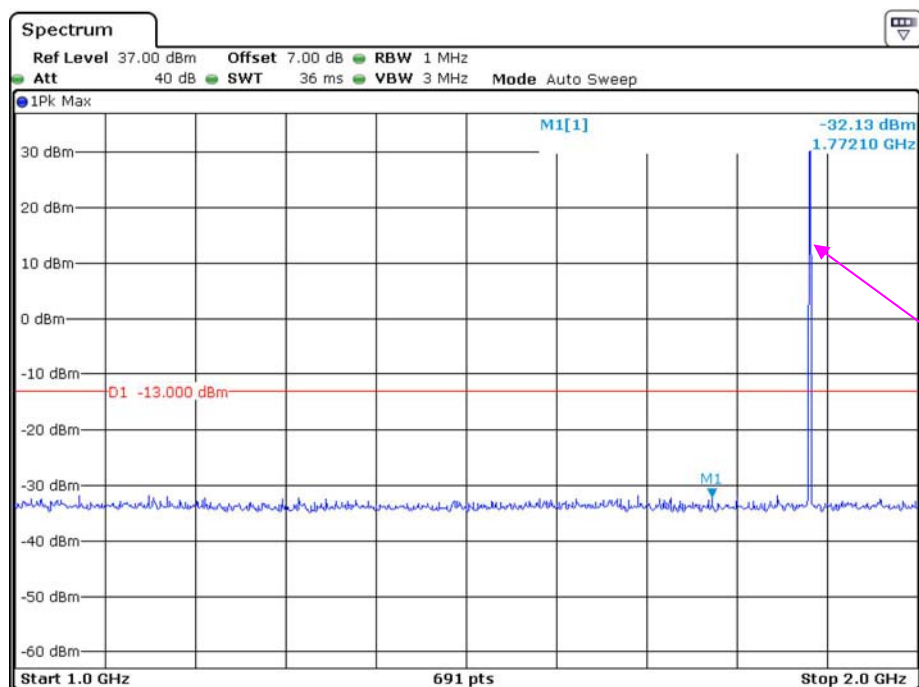
## 2 GHz – 20 GHz (WCDMA Mode)



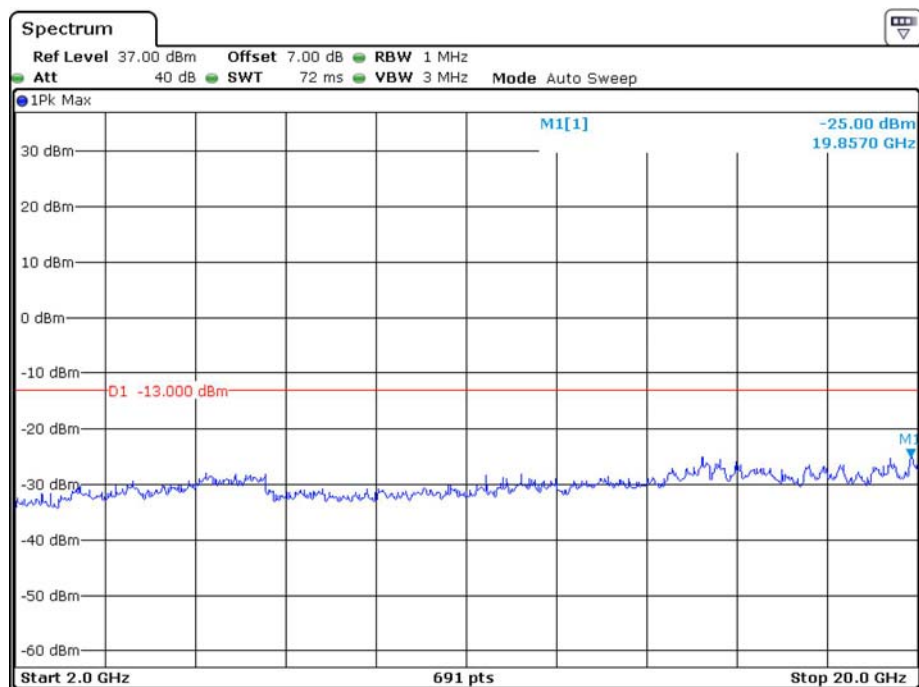
Date: 9.APR.2022 17:47:16

**Middle Channel:****30 MHz – 1 GHz (GSM Mode)**

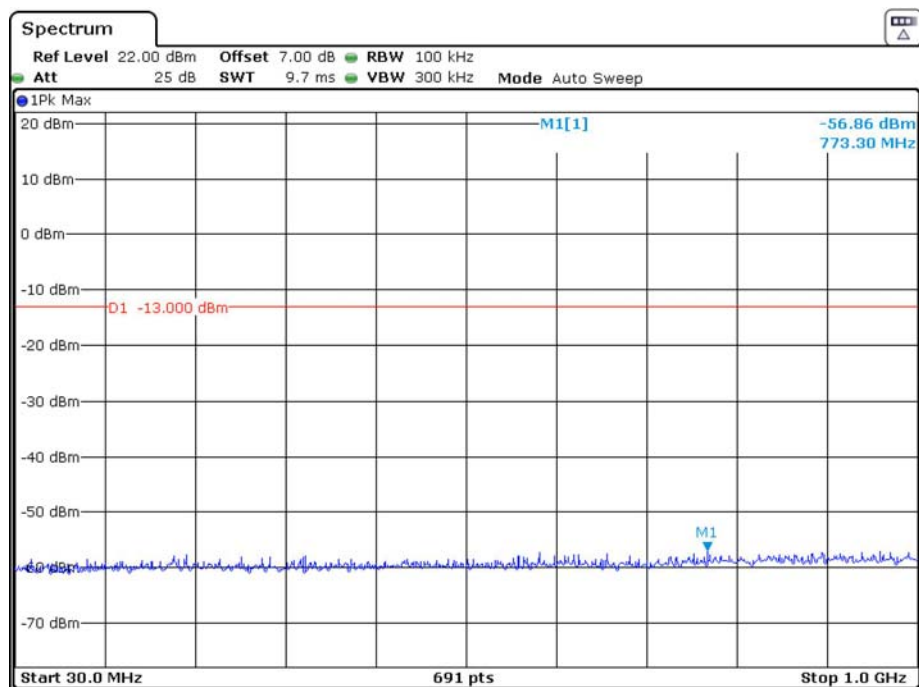
Date: 9.APR.2022 17:24:20

**1 GHz – 2 GHz (GSM Mode)**

Date: 9.APR.2022 17:27:21

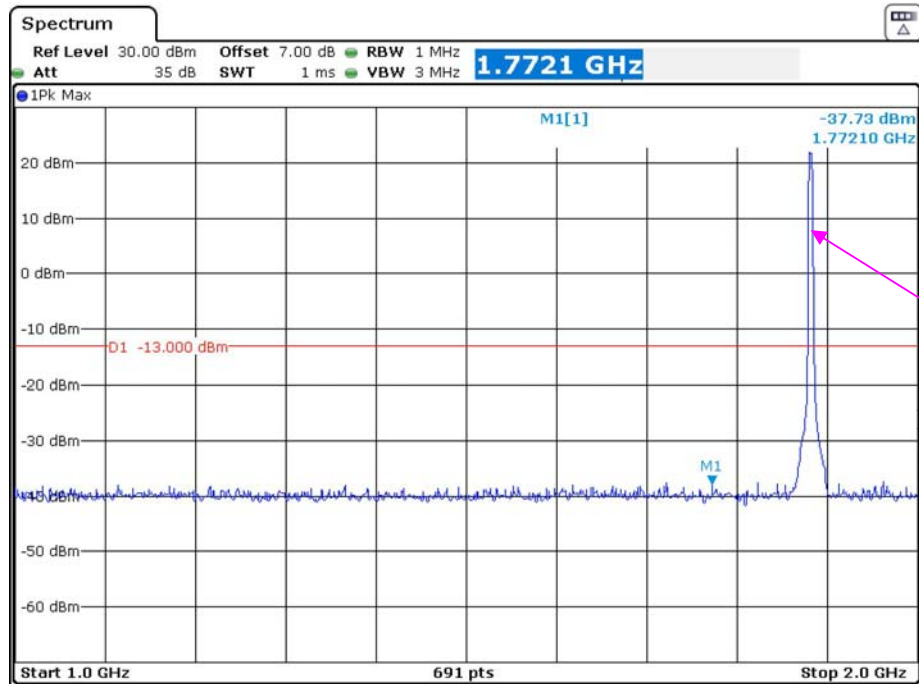
**2 GHz– 20 GHz (GSM Mode)**

Date: 9.APR.2022 17:28:17

**30 MHz – 1 GHz (WCDMA Mode)**

Date: 9.APR.2022 17:44:21

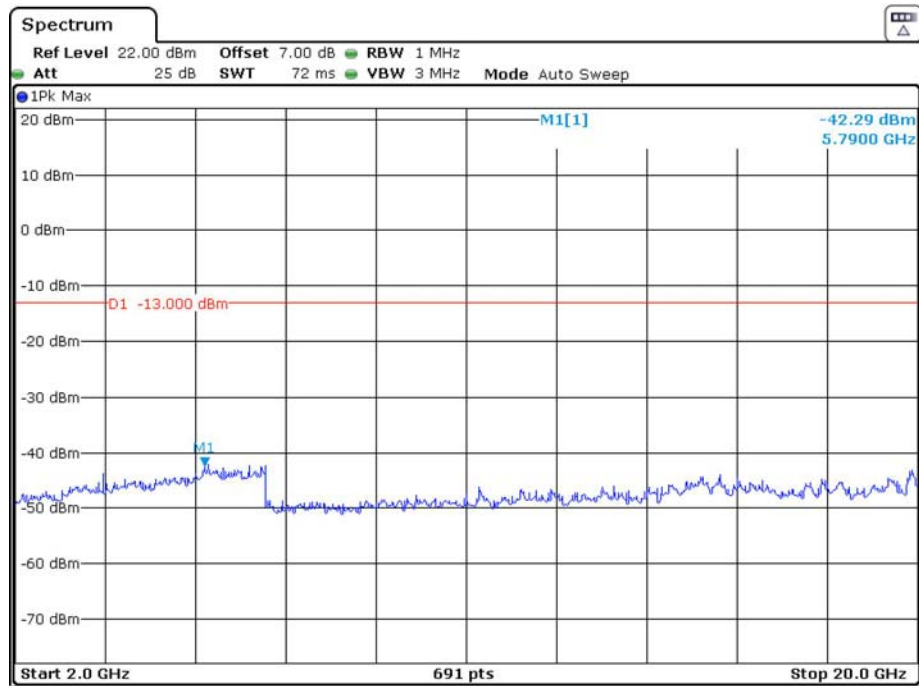
## 1 GHz – 2 GHz (WCDMA Mode)



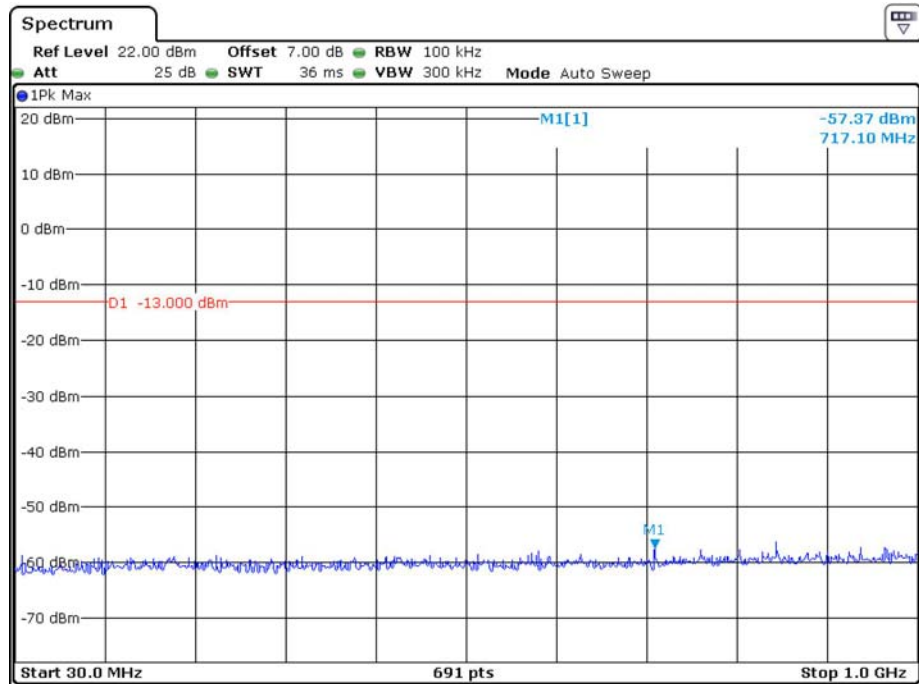
Date: 9.APR.2022 17:45:25

Fundamental test

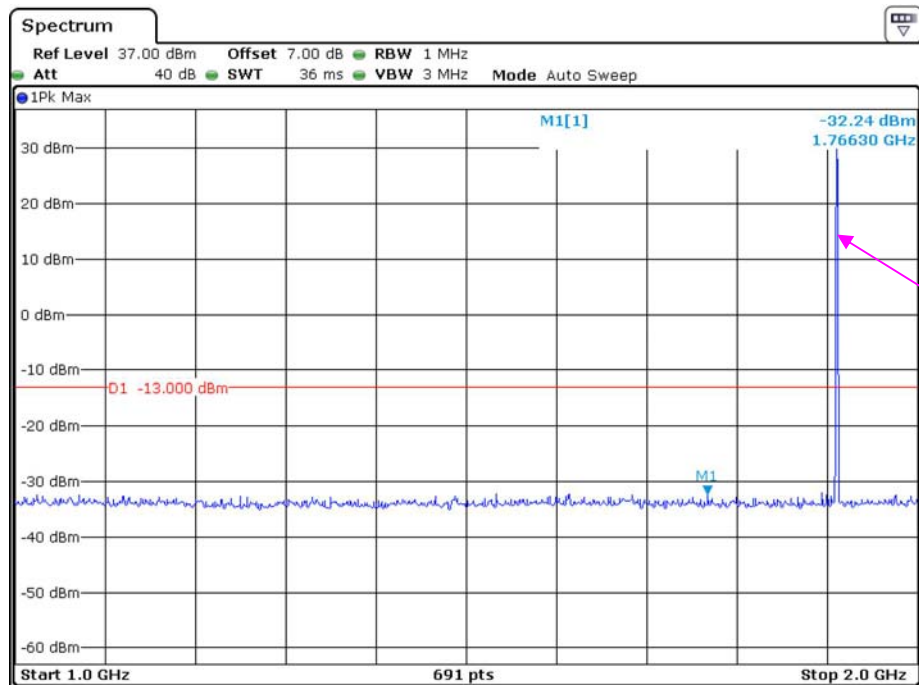
## 2 GHz – 20 GHz (WCDMA Mode)



Date: 9.APR.2022 17:47:01

**High Channel:****30 MHz – 1 GHz (GSM Mode)**

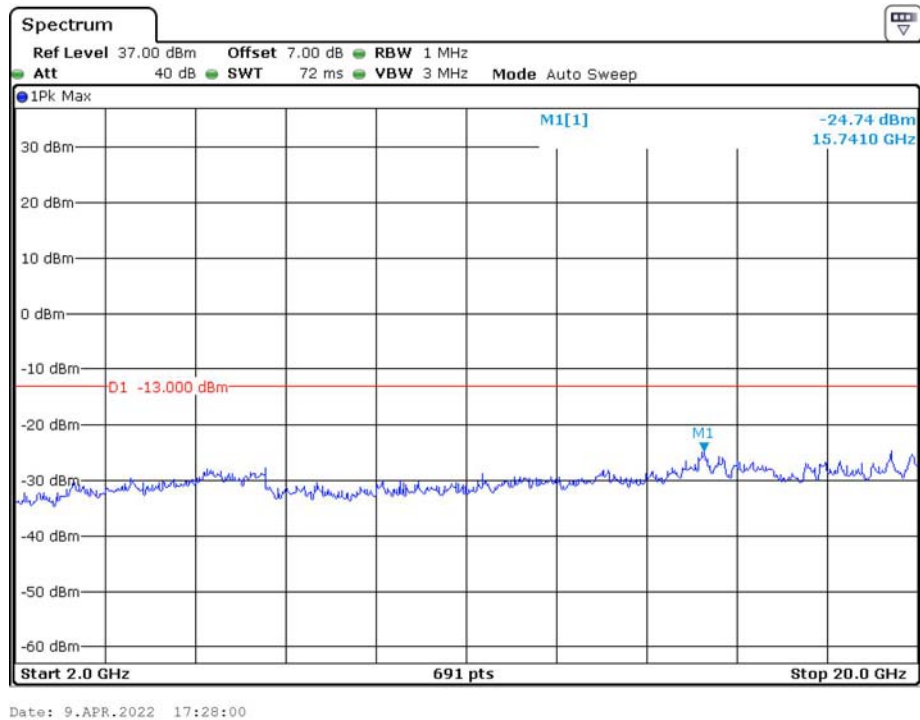
Date: 9.APR.2022 17:24:03

**1 GHz– 2 GHz (GSM Mode)**

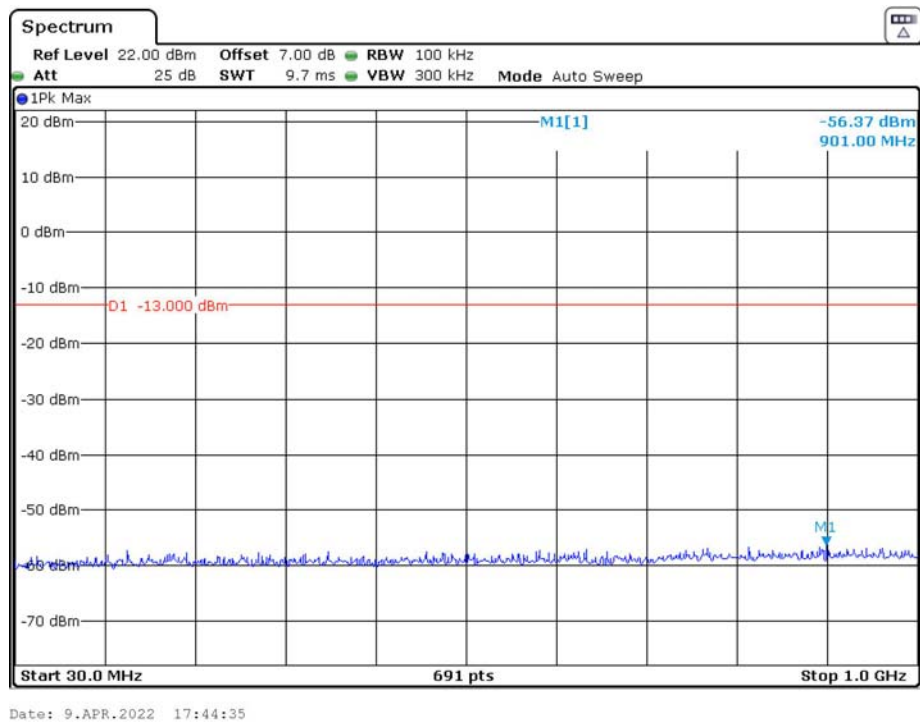
Date: 9.APR.2022 17:27:38

Fundamental test

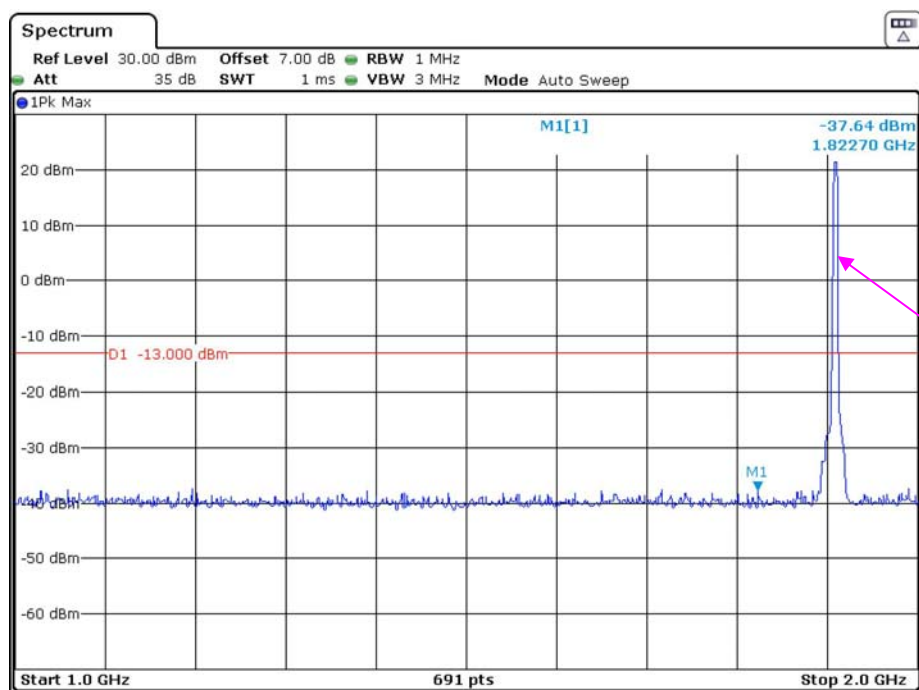
## 2 GHz– 20 GHz (GSM Mode)



## 30 MHz – 1 GHz (WCDMA Mode)



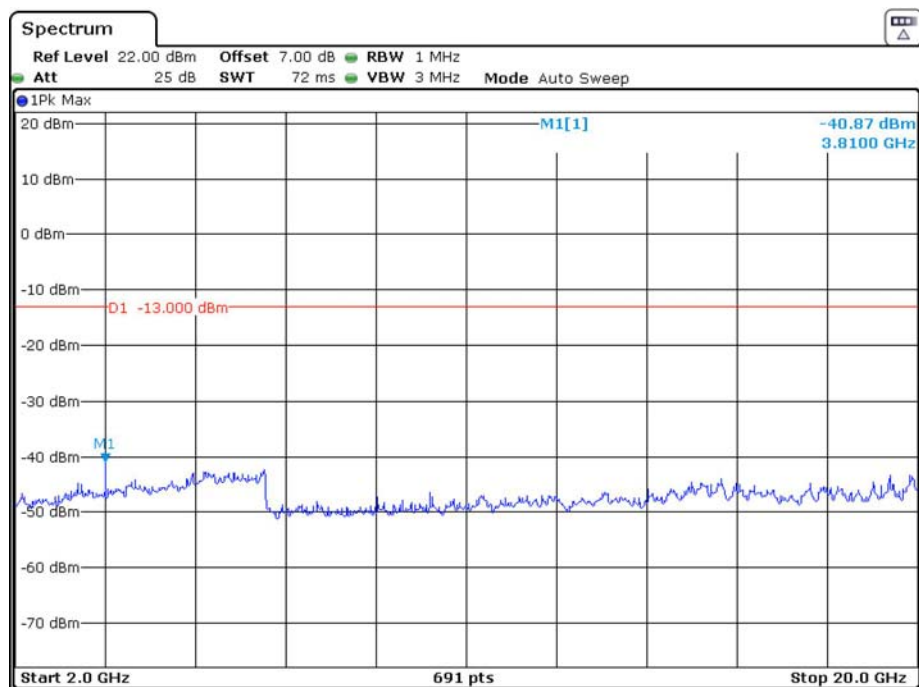
## 1 GHz – 2 GHz (WCDMA Mode)



Date: 9.APR.2022 17:46:22

Fundamental test

## 2GHz – 20 GHz (WCDMA Mode)



Date: 9.APR.2022 17:46:47

The test plots of LTE band please refer to the Appendix B.

## **FCC § 2.1053; § 22.917 (a); § 24.238 (a); § 27.53 - SPURIOUS RADIATED EMISSIONS**

### **Applicable Standard**

FCC § 2.1053, § 22.917(a) & § 24.238(a) & § 27.53.

### **Test Procedure**

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

### **Test Data**

#### **Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 25~26 °C  |
| <b>Relative Humidity:</b> | 55~58 %   |
| <b>ATM Pressure:</b>      | 101.0 kPa |

*The testing was performed by Leo Li from 2022-04-15 to 2022-04-18.*

*EUT operation mode: Transmitting (Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case Y-AXIS was recorded)*

*The worst case is as below:*



| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| GSM850                            |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-10GHz |                              |                     |               |                |                               |                            |                |                |
| Low channel                       |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.86                       | 247                 | 2.1           | H              | 6.6                           | -67.26                     | -13            | -54.26         |
| 235.82                            | -64.26                       | 112                 | 1.6           | V              | -1.4                          | -65.66                     | -13            | -52.66         |
| 1648.4                            | -53.20                       | 237                 | 1.6           | H              | 3.5                           | -49.70                     | -13            | -36.70         |
| 1648.4                            | -52.80                       | 14                  | 1.3           | V              | 3.1                           | -49.70                     | -13            | -36.70         |
| 2472.6                            | -49.80                       | 8                   | 1.8           | H              | 6.6                           | -43.20                     | -13            | -30.20         |
| 2472.6                            | -47.50                       | 132                 | 1.6           | V              | 5.8                           | -41.70                     | -13            | -28.70         |
| 3296.8                            | -51.20                       | 23                  | 2.0           | H              | 6.4                           | -44.80                     | -13            | -31.80         |
| 3296.8                            | -51.00                       | 359                 | 2.0           | V              | 5.7                           | -45.30                     | -13            | -32.30         |
| Middle channel                    |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.33                       | 165                 | 1.6           | H              | 6.6                           | -67.73                     | -13            | -54.73         |
| 235.82                            | -65.21                       | 247                 | 1.6           | V              | -1.4                          | -66.61                     | -13            | -53.61         |
| 1673.2                            | -51.90                       | 288                 | 1.7           | H              | 3.8                           | -48.10                     | -13            | -35.10         |
| 1673.2                            | -51.80                       | 195                 | 1.2           | V              | 3.1                           | -48.70                     | -13            | -35.70         |
| 2509.8                            | -50.00                       | 225                 | 1.9           | H              | 6.2                           | -43.80                     | -13            | -30.80         |
| 2509.8                            | -49.60                       | 69                  | 1.6           | V              | 5.6                           | -44.00                     | -13            | -31.00         |
| 3346.4                            | -51.30                       | 321                 | 1.5           | H              | 6.6                           | -44.70                     | -13            | -31.70         |
| 3346.4                            | -49.30                       | 351                 | 1.2           | V              | 5.4                           | -43.90                     | -13            | -30.90         |
| High channel                      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.77                       | 267                 | 1.8           | H              | 6.6                           | -68.17                     | -13            | -55.17         |
| 235.82                            | -64.28                       | 53                  | 1.3           | V              | -1.4                          | -65.68                     | -13            | -52.68         |
| 1697.6                            | -51.30                       | 56                  | 1.7           | H              | 4.1                           | -47.20                     | -13            | -34.20         |
| 1697.6                            | -49.40                       | 100                 | 1.8           | V              | 3.1                           | -46.30                     | -13            | -33.30         |
| 2546.4                            | -48.60                       | 251                 | 1.2           | H              | 6.1                           | -42.50                     | -13            | -29.50         |
| 2546.4                            | -47.00                       | 27                  | 1.6           | V              | 5.8                           | -41.20                     | -13            | -28.20         |
| 3395.2                            | -51.50                       | 347                 | 1.5           | H              | 6.2                           | -45.30                     | -13            | -32.30         |
| 3395.2                            | -50.10                       | 294                 | 1.1           | V              | 5.4                           | -44.70                     | -13            | -31.70         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| GSM1900                           |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-20GHz |                              |                     |               |                |                               |                            |                |                |
| Low channel                       |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.12                       | 15                  | 1.4           | H              | 6.6                           | -67.52                     | -13            | -54.52         |
| 235.82                            | -65.20                       | 301                 | 1.3           | V              | -1.4                          | -66.60                     | -13            | -53.60         |
| 3700.4                            | -53.20                       | 97                  | 1.5           | H              | 8.1                           | -45.10                     | -13            | -32.10         |
| 3700.4                            | -52.20                       | 266                 | 1.4           | V              | 7.6                           | -44.60                     | -13            | -31.60         |
| Middle channel                    |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.20                       | 55                  | 1.7           | H              | 6.6                           | -67.60                     | -13            | -54.60         |
| 235.82                            | -65.12                       | 230                 | 1.7           | V              | -1.4                          | -66.52                     | -13            | -53.52         |
| 3760.0                            | -54.10                       | 330                 | 1.5           | H              | 8.8                           | -45.30                     | -13            | -32.30         |
| 3760.0                            | -52.90                       | 185                 | 1.8           | V              | 8.0                           | -44.90                     | -13            | -31.90         |
| High channel                      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.93                       | 313                 | 1.3           | H              | 6.6                           | -67.33                     | -13            | -54.33         |
| 235.82                            | -64.95                       | 227                 | 1.4           | V              | -1.4                          | -66.35                     | -13            | -53.35         |
| 3819.6                            | -53.70                       | 266                 | 1.2           | H              | 8.7                           | -45.00                     | -13            | -32.00         |
| 3819.6                            | -52.20                       | 311                 | 1.0           | V              | 8.0                           | -44.20                     | -13            | -31.20         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| WCDMA Band 2                      |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-20GHz |                              |                     |               |                |                               |                            |                |                |
| Low channel                       |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.76                       | 124                 | 1.4           | H              | 6.6                           | -68.16                     | -13            | -55.16         |
| 235.82                            | -63.89                       | 17                  | 2.2           | V              | -1.4                          | -65.29                     | -13            | -52.29         |
| 3704.8                            | -56.50                       | 223                 | 1.5           | H              | 8.2                           | -48.30                     | -13            | -35.30         |
| 3704.8                            | -54.80                       | 229                 | 1.2           | V              | 7.6                           | -47.20                     | -13            | -34.20         |
| Middle channel                    |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.56                       | 79                  | 1.6           | H              | 6.6                           | -68.96                     | -13            | -55.96         |
| 235.82                            | -63.62                       | 167                 | 2.1           | V              | -1.4                          | -65.02                     | -13            | -52.02         |
| 3760.0                            | -57.00                       | 55                  | 2.1           | H              | 8.8                           | -48.20                     | -13            | -35.20         |
| 3760.0                            | -55.90                       | 44                  | 1.9           | V              | 8.0                           | -47.90                     | -13            | -34.90         |
| High channel                      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.57                       | 298                 | 2.1           | H              | 6.6                           | -67.97                     | -13            | -54.97         |
| 235.82                            | -63.79                       | 92                  | 1.7           | V              | -1.4                          | -65.19                     | -13            | -52.19         |
| 3815.2                            | -57.40                       | 82                  | 1.5           | H              | 8.7                           | -48.70                     | -13            | -35.70         |
| 3815.2                            | -56.00                       | 21                  | 1.9           | V              | 7.9                           | -48.10                     | -13            | -35.10         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| WCDMA Band 5                      |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-10GHz |                              |                     |               |                |                               |                            |                |                |
| Low channel                       |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.71                       | 217                 | 1.3           | H              | 6.6                           | -67.11                     | -13            | -54.11         |
| 235.82                            | -65.55                       | 166                 | 1.6           | V              | -1.4                          | -66.95                     | -13            | -53.95         |
| 1652.8                            | -55.60                       | 51                  | 1.1           | H              | 3.5                           | -52.10                     | -13            | -39.10         |
| 1652.8                            | -54.40                       | 316                 | 1.5           | V              | 3.1                           | -51.30                     | -13            | -38.30         |
| 2479.2                            | -53.60                       | 47                  | 1.8           | H              | 6.5                           | -47.10                     | -13            | -34.10         |
| 2479.2                            | -52.30                       | 55                  | 1.4           | V              | 5.7                           | -46.60                     | -13            | -33.60         |
| 3305.6                            | -51.70                       | 81                  | 1.1           | H              | 6.4                           | -45.30                     | -13            | -32.30         |
| 3305.6                            | -51.20                       | 174                 | 1.1           | V              | 5.7                           | -45.50                     | -13            | -32.50         |
| Middle channel                    |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.99                       | 235                 | 2.1           | H              | 6.6                           | -67.39                     | -13            | -54.39         |
| 235.82                            | -64.30                       | 200                 | 2.1           | V              | -1.4                          | -65.70                     | -13            | -52.70         |
| 1673.2                            | -56.30                       | 181                 | 1.4           | H              | 3.8                           | -52.50                     | -13            | -39.50         |
| 1673.2                            | -54.90                       | 262                 | 2.2           | V              | 3.1                           | -51.80                     | -13            | -38.80         |
| 2509.8                            | -53.90                       | 7                   | 1.7           | H              | 6.2                           | -47.70                     | -13            | -34.70         |
| 2509.8                            | -52.70                       | 303                 | 2.1           | V              | 5.6                           | -47.10                     | -13            | -34.10         |
| 3346.4                            | -52.00                       | 35                  | 1.6           | H              | 6.6                           | -45.40                     | -13            | -32.40         |
| 3346.4                            | -50.60                       | 42                  | 1.2           | V              | 5.4                           | -45.20                     | -13            | -32.20         |
| High channel                      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.87                       | 56                  | 2.0           | H              | 6.6                           | -67.27                     | -13            | -54.27         |
| 235.82                            | -64.03                       | 224                 | 2.1           | V              | -1.4                          | -65.43                     | -13            | -52.43         |
| 1693.2                            | -56.40                       | 27                  | 1.6           | H              | 4.0                           | -52.40                     | -13            | -39.40         |
| 1693.2                            | -55.20                       | 343                 | 1.5           | V              | 3.1                           | -52.10                     | -13            | -39.10         |
| 2539.8                            | -53.10                       | 37                  | 1.5           | H              | 6.1                           | -47.00                     | -13            | -34.00         |
| 2539.8                            | -52.60                       | 138                 | 1.1           | V              | 5.7                           | -46.90                     | -13            | -33.90         |
| 3386.4                            | -51.31                       | 220                 | 1.3           | H              | 6.3                           | -45.01                     | -13            | -32.01         |
| 3386.4                            | -50.40                       | 35                  | 1.2           | V              | 5.4                           | -45.00                     | -13            | -32.00         |

**LTE Bands:** (pre-scan all bandwidths and modulation, the worst case as below)

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| LTE Band 2                        |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-20GHz |                              |                     |               |                |                               |                            |                |                |
| QPSK, 1.4MHz, Low channel         |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.61                       | 121                 | 1.0           | H              | 6.6                           | -67.01                     | -13            | -54.01         |
| 235.82                            | -64.99                       | 196                 | 1.7           | V              | -1.4                          | -66.39                     | -13            | -53.39         |
| 3701.4                            | -53.80                       | 327                 | 2.0           | H              | 8.1                           | -45.70                     | -13            | -32.70         |
| 3701.4                            | -52.80                       | 295                 | 2.2           | V              | 7.6                           | -45.20                     | -13            | -32.20         |
| QPSK, 1.4MHz, Middle channel      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.17                       | 282                 | 1.8           | H              | 6.6                           | -68.57                     | -13            | -55.57         |
| 235.82                            | -64.22                       | 223                 | 1.7           | V              | -1.4                          | -65.62                     | -13            | -52.62         |
| 3760.0                            | -54.90                       | 53                  | 1.4           | H              | 8.8                           | -46.10                     | -13            | -33.10         |
| 3760.0                            | -54.51                       | 148                 | 1.1           | V              | 8.0                           | -46.51                     | -13            | -33.51         |
| QPSK, 1.4MHz, High channel        |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.43                       | 350                 | 1.1           | H              | 6.6                           | -67.83                     | -13            | -54.83         |
| 235.82                            | -64.73                       | 45                  | 1.9           | V              | -1.4                          | -66.13                     | -13            | -53.13         |
| 3818.6                            | -54.70                       | 286                 | 2.0           | H              | 8.7                           | -46.00                     | -13            | -33.00         |
| 3818.6                            | -53.70                       | 94                  | 1.6           | V              | 7.9                           | -45.80                     | -13            | -32.80         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| LTE Band 5                        |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-10GHz |                              |                     |               |                |                               |                            |                |                |
| QPSK, 1.4MHz, Low channel         |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.10                       | 288                 | 2.1           | H              | 6.6                           | -67.50                     | -13            | -54.50         |
| 235.82                            | -64.00                       | 159                 | 1.9           | V              | -1.4                          | -65.40                     | -13            | -52.40         |
| 1649.4                            | -60.20                       | 114                 | 1.2           | H              | 3.5                           | -56.70                     | -13            | -43.70         |
| 1649.4                            | -57.80                       | 43                  | 2.1           | V              | 3.1                           | -54.70                     | -13            | -41.70         |
| 2474.1                            | -40.00                       | 266                 | 1.6           | H              | 6.6                           | -33.40                     | -13            | -20.40         |
| 2474.1                            | -34.20                       | 153                 | 1.5           | V              | 5.8                           | -28.40                     | -13            | -15.40         |
| 3298.8                            | -45.00                       | 298                 | 1.2           | H              | 6.4                           | -38.60                     | -13            | -25.60         |
| 3298.8                            | -43.30                       | 234                 | 1.9           | V              | 5.7                           | -37.60                     | -13            | -24.60         |
| QPSK, 1.4MHz, Middle channel      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.39                       | 23                  | 1.8           | H              | 6.6                           | -67.79                     | -13            | -54.79         |
| 235.82                            | -64.75                       | 198                 | 2.0           | V              | -1.4                          | -66.15                     | -13            | -53.15         |
| 1673.0                            | -50.80                       | 297                 | 1.5           | H              | 3.8                           | -47.00                     | -13            | -34.00         |
| 1673.0                            | -49.60                       | 300                 | 1.1           | V              | 3.1                           | -46.50                     | -13            | -33.50         |
| 2509.5                            | -52.70                       | 76                  | 1.3           | H              | 6.2                           | -46.50                     | -13            | -33.50         |
| 2509.5                            | -48.60                       | 305                 | 2.2           | V              | 5.6                           | -43.00                     | -13            | -30.00         |
| 3346.0                            | -46.70                       | 96                  | 1.1           | H              | 6.6                           | -40.10                     | -13            | -27.10         |
| 3346.0                            | -43.80                       | 56                  | 1.6           | V              | 5.4                           | -38.40                     | -13            | -25.40         |
| QPSK, 1.4MHz, High channel        |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -74.58                       | 77                  | 1.3           | H              | 6.6                           | -67.98                     | -13            | -54.98         |
| 235.82                            | -65.57                       | 185                 | 1.4           | V              | -1.4                          | -66.97                     | -13            | -53.97         |
| 1696.6                            | -59.30                       | 186                 | 1.4           | H              | 4.1                           | -55.20                     | -13            | -42.20         |
| 1696.6                            | -56.10                       | 87                  | 1.3           | V              | 3.1                           | -53.00                     | -13            | -40.00         |
| 2544.9                            | -52.10                       | 108                 | 2.0           | H              | 6.1                           | -46.00                     | -13            | -33.00         |
| 2544.9                            | -51.60                       | 30                  | 1.9           | V              | 5.8                           | -45.80                     | -13            | -32.80         |
| 3393.2                            | -42.10                       | 26                  | 2.1           | H              | 6.3                           | -35.80                     | -13            | -22.80         |
| 3393.2                            | -40.60                       | 309                 | 2.1           | V              | 5.4                           | -35.20                     | -13            | -22.20         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| LTE Band 12                       |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-10GHz |                              |                     |               |                |                               |                            |                |                |
| QPSK, 1.4MHz, Low channel         |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.91                       | 46                  | 1.3           | H              | 6.6                           | -67.31                     | -13            | -54.31         |
| 235.82                            | -64.88                       | 287                 | 1.2           | V              | -1.4                          | -66.28                     | -13            | -53.28         |
| 1399.4                            | -56.40                       | 255                 | 1.9           | H              | 5.9                           | -50.50                     | -13            | -37.50         |
| 1399.4                            | -58.40                       | 27                  | 1.8           | V              | 5.9                           | -52.50                     | -13            | -39.50         |
| 2099.1                            | -52.80                       | 111                 | 1             | H              | 6.3                           | -46.50                     | -13            | -33.50         |
| 2099.1                            | -53.30                       | 168                 | 1.2           | V              | 5.1                           | -48.20                     | -13            | -35.20         |
| 2798.8                            | -53.60                       | 123                 | 1.1           | H              | 6.7                           | -46.90                     | -13            | -33.90         |
| 2798.8                            | -53.57                       | 67                  | 1.5           | V              | 6.7                           | -46.87                     | -13            | -33.87         |
| QPSK, 1.4MHz, Middle channel      |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.15                       | 313                 | 1.7           | H              | 6.6                           | -68.55                     | -13            | -55.55         |
| 235.82                            | -65.27                       | 271                 | 1.8           | V              | -1.4                          | -66.67                     | -13            | -53.67         |
| 1415.0                            | -61.90                       | 202                 | 1.2           | H              | 5.7                           | -56.20                     | -13            | -43.20         |
| 1415.0                            | -60.90                       | 136                 | 1.1           | V              | 5.4                           | -55.50                     | -13            | -42.50         |
| 2122.5                            | -51.70                       | 358                 | 1.4           | H              | 6.7                           | -45.00                     | -13            | -32.00         |
| 2122.5                            | -52.00                       | 240                 | 2.1           | V              | 5.8                           | -46.20                     | -13            | -33.20         |
| 2830.0                            | -53.80                       | 36                  | 1.5           | H              | 7.1                           | -46.70                     | -13            | -33.70         |
| 2830.0                            | -51.70                       | 357                 | 2.1           | V              | 6.5                           | -45.20                     | -13            | -32.20         |
| QPSK, 1.4MHz, High channel        |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.06                       | 139                 | 1.7           | H              | 6.6                           | -68.46                     | -13            | -55.46         |
| 235.82                            | -65.04                       | 291                 | 1.5           | V              | -1.4                          | -66.44                     | -13            | -53.44         |
| 1430.6                            | -59.10                       | 219                 | 2.1           | H              | 5.4                           | -53.70                     | -13            | -40.70         |
| 1430.6                            | -58.90                       | 78                  | 1.8           | V              | 4.8                           | -54.10                     | -13            | -41.10         |
| 2145.9                            | -51.10                       | 104                 | 1.4           | H              | 7.0                           | -44.10                     | -13            | -31.10         |
| 2145.9                            | -52.50                       | 297                 | 2.1           | V              | 6.6                           | -45.90                     | -13            | -32.90         |
| 2861.2                            | -54.10                       | 109                 | 2             | H              | 7.3                           | -46.80                     | -13            | -33.80         |
| 2861.2                            | -49.30                       | 43                  | 1.8           | V              | 6.3                           | -43.00                     | -13            | -30.00         |

| Frequency<br>(MHz)                | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                   |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| LTE Band 13                       |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-10GHz |                              |                     |               |                |                               |                            |                |                |
| QPSK, 5MHz, Low channel           |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -73.85                       | 311                 | 1.4           | H              | 6.6                           | -67.25                     | -13            | -54.25         |
| 235.82                            | -64.66                       | 35                  | 1.5           | V              | -1.4                          | -66.06                     | -13            | -53.06         |
| 1559.0                            | -56.00                       | 189                 | 1.3           | H              | 4.2                           | -51.80                     | -40            | -11.80         |
| 1559.0                            | -57.10                       | 300                 | 1.7           | V              | 3.3                           | -53.80                     | -40            | -13.80         |
| 2338.5                            | -56.60                       | 206                 | 1.4           | H              | 7.3                           | -49.30                     | -13            | -36.30         |
| 2338.5                            | -55.10                       | 189                 | 1.1           | V              | 6.5                           | -48.60                     | -13            | -35.60         |
| 3118.0                            | -53.80                       | 141                 | 2.1           | H              | 7.3                           | -46.50                     | -13            | -33.50         |
| 3118.0                            | -52.50                       | 87                  | 2.1           | V              | 6.5                           | -46.00                     | -13            | -33.00         |
| QPSK, 5MHz, Middle channel        |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.55                       | 179                 | 1.3           | H              | 6.6                           | -68.95                     | -13            | -55.95         |
| 235.82                            | -63.92                       | 27                  | 2             | V              | -1.4                          | -65.32                     | -13            | -52.32         |
| 1564.0                            | -60.20                       | 190                 | 1.2           | H              | 4.2                           | -56.00                     | -40            | -16.00         |
| 1564.0                            | -58.60                       | 33                  | 2             | V              | 3.3                           | -55.30                     | -40            | -15.30         |
| 2346.0                            | -58.10                       | 306                 | 1.3           | H              | 7.3                           | -50.80                     | -13            | -37.80         |
| 2346.0                            | -57.20                       | 323                 | 1             | V              | 6.4                           | -50.80                     | -13            | -37.80         |
| 3128.0                            | -53.90                       | 148                 | 1.2           | H              | 7.3                           | -46.60                     | -13            | -33.60         |
| 3128.0                            | -53.50                       | 79                  | 1.8           | V              | 6.6                           | -46.90                     | -13            | -33.90         |
| QPSK, 5MHz, High channel          |                              |                     |               |                |                               |                            |                |                |
| 235.82                            | -75.27                       | 262                 | 2             | H              | 6.6                           | -68.67                     | -13            | -55.67         |
| 235.82                            | -63.78                       | 101                 | 1.6           | V              | -1.4                          | -65.18                     | -13            | -52.18         |
| 1569.0                            | -60.30                       | 249                 | 1.2           | H              | 4.2                           | -56.10                     | -40            | -16.10         |
| 1569.0                            | -58.80                       | 269                 | 1.7           | V              | 3.3                           | -55.50                     | -40            | -15.50         |
| 2353.5                            | -57.10                       | 190                 | 1.2           | H              | 7.3                           | -49.80                     | -13            | -36.80         |
| 2353.5                            | -56.60                       | 3                   | 1.6           | V              | 6.4                           | -50.20                     | -13            | -37.20         |
| 3138.0                            | -54.50                       | 58                  | 1.3           | H              | 7.4                           | -47.10                     | -13            | -34.10         |
| 3138.0                            | -53.80                       | 9                   | 1.1           | V              | 6.6                           | -47.20                     | -13            | -34.20         |



| Frequency<br>(MHz)                  | Receiver<br>Reading<br>(dBm) | Turntable<br>Degree | Rx Antenna    |                | Substituted<br>Factor<br>(dB) | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-------------------------------------|------------------------------|---------------------|---------------|----------------|-------------------------------|----------------------------|----------------|----------------|
|                                     |                              |                     | Height<br>(m) | Polar<br>(H/V) |                               |                            |                |                |
| LTE Band 41                         |                              |                     |               |                |                               |                            |                |                |
| Test frequency range: 30MHz-26.5GHz |                              |                     |               |                |                               |                            |                |                |
| QPSK, 5MHz, Low channel             |                              |                     |               |                |                               |                            |                |                |
| 235.82                              | -75.33                       | 260                 | 2.0           | H              | 6.6                           | -68.73                     | -25            | -43.73         |
| 235.82                              | -64.19                       | 98                  | 1.8           | V              | -1.4                          | -65.59                     | -25            | -40.59         |
| 5075.0                              | -55.80                       | 79                  | 1.8           | H              | 11.2                          | -44.60                     | -25            | -19.60         |
| 5075.0                              | -55.90                       | 251                 | 1.4           | V              | 10.8                          | -45.10                     | -25            | -20.10         |
| QPSK, 5MHz, Middle channel          |                              |                     |               |                |                               |                            |                |                |
| 235.82                              | -75.00                       | 109                 | 2.1           | H              | 6.6                           | -68.40                     | -25            | -43.40         |
| 235.82                              | -65.60                       | 309                 | 1.4           | V              | -1.4                          | -67.00                     | -25            | -42.00         |
| 5190.0                              | -54.70                       | 169                 | 1.9           | H              | 10.5                          | -44.20                     | -25            | -19.20         |
| 5190.0                              | -54.00                       | 254                 | 2.0           | V              | 10.0                          | -44.00                     | -25            | -19.00         |
| QPSK, 5MHz, High channel            |                              |                     |               |                |                               |                            |                |                |
| 235.82                              | -75.36                       | 188                 | 1.3           | H              | 6.6                           | -68.76                     | -25            | -43.76         |
| 235.82                              | -65.20                       | 230                 | 1.7           | V              | -1.4                          | -66.60                     | -25            | -41.60         |
| 5305.0                              | -48.80                       | 222                 | 1.4           | H              | 9.6                           | -39.20                     | -25            | -14.20         |
| 5305.0                              | -47.60                       | 316                 | 1.7           | V              | 8.8                           | -38.80                     | -25            | -13.80         |

**Note:**

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: SG Level - Cable loss+ Antenna Gain

Margin = Absolute Level - Limit

**FCC§ 22.917 (a);§ 24.238 (a); §27.53 (c)(h)(m) - BAND EDGES****Applicable Standard**

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

According to FCC §27.53 (c), For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

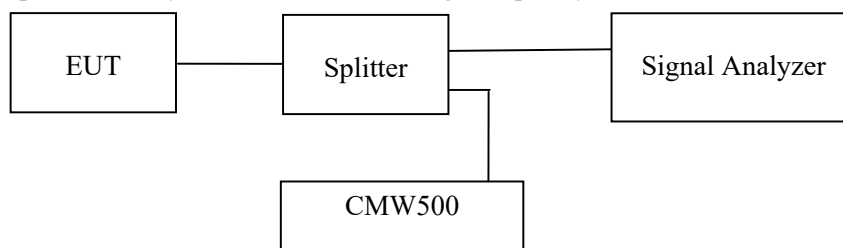
- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $65 + 10 \log(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;

According to FCC §27.53 (h)(m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

**Test Procedure**

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 23~28 °C  |
| <b>Relative Humidity:</b> | 52~57 %   |
| <b>ATM Pressure:</b>      | 101.0 kPa |

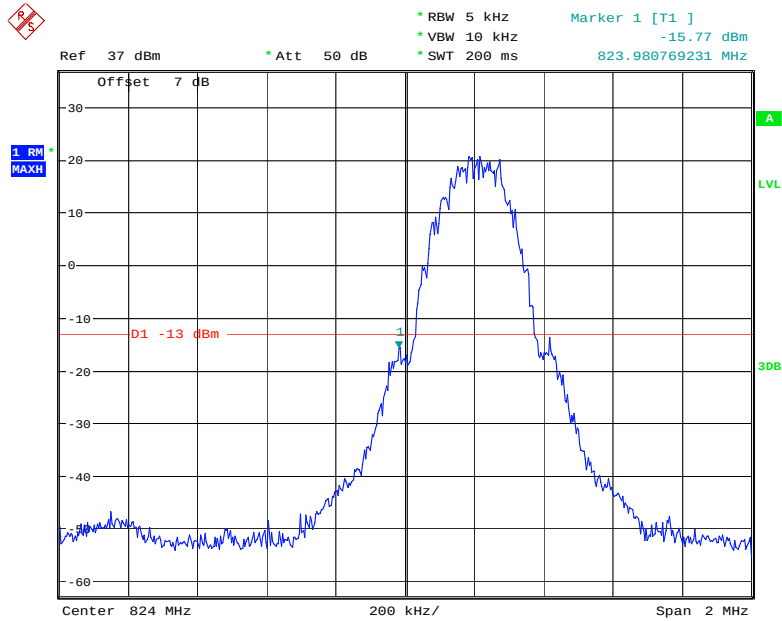
*The testing was performed by Key Pei and Andy Yu from 2022-04-09 to 2022-06-10.*

*EUT operation mode: Transmitting (Worst case)*

**Test Result: Pass**

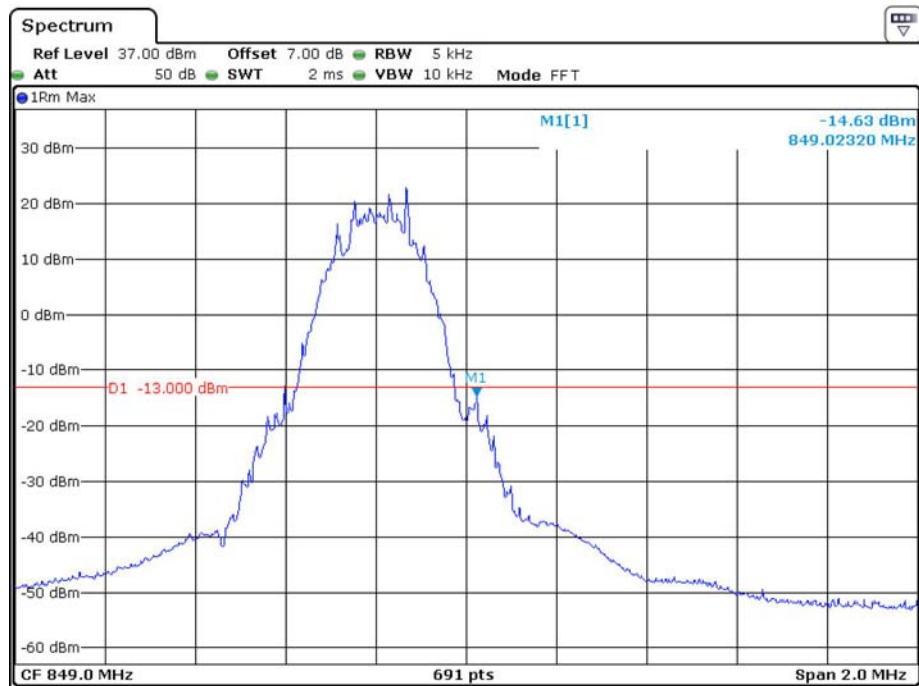
*Please refer to the following plots.*

## Cellular Band, Left Band Edge for GSM (GMSK) Mode



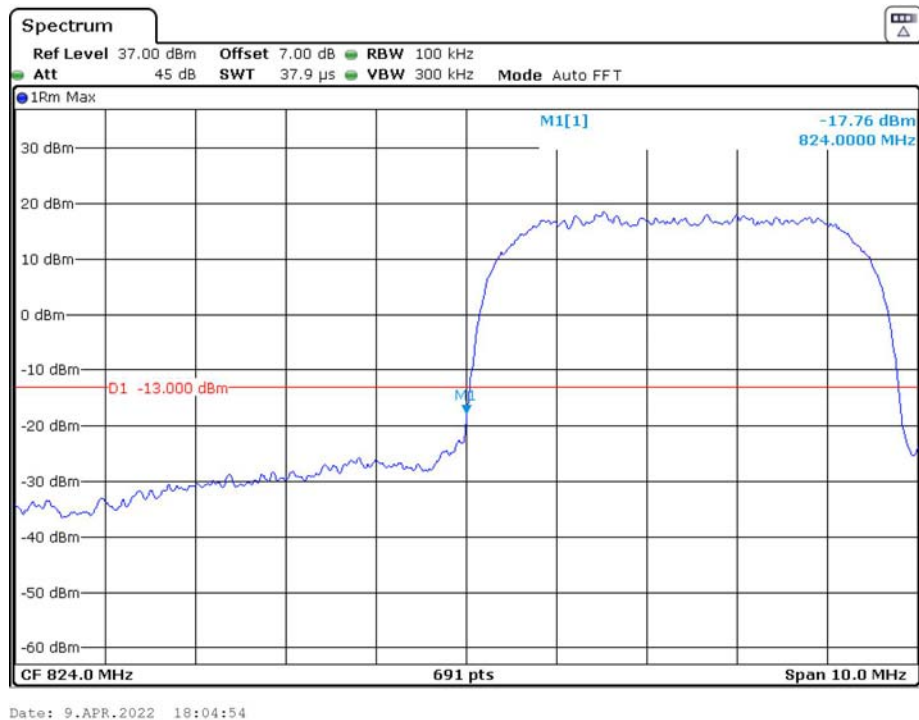
Date: 10.JUN.2022 17:13:34

## Cellular Band, Right Band Edge for GSM (GMSK) Mode



Date: 9.APR.2022 17:12:59

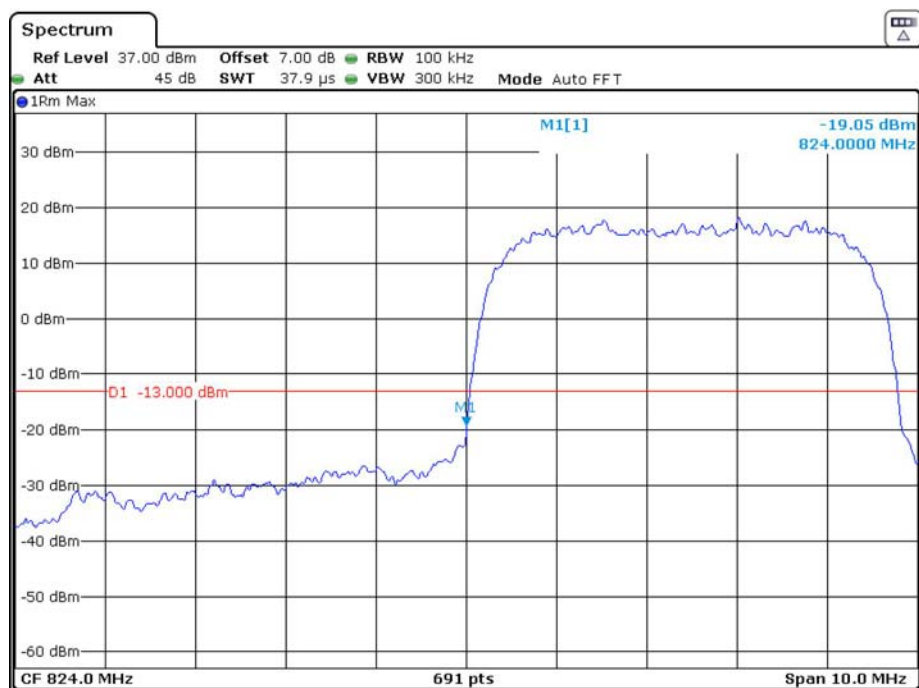
## Cellular Band, Left Band Edge for RMC (BPSK) Mode



## Cellular Band, Right Band Edge for RMC (BPSK) Mode

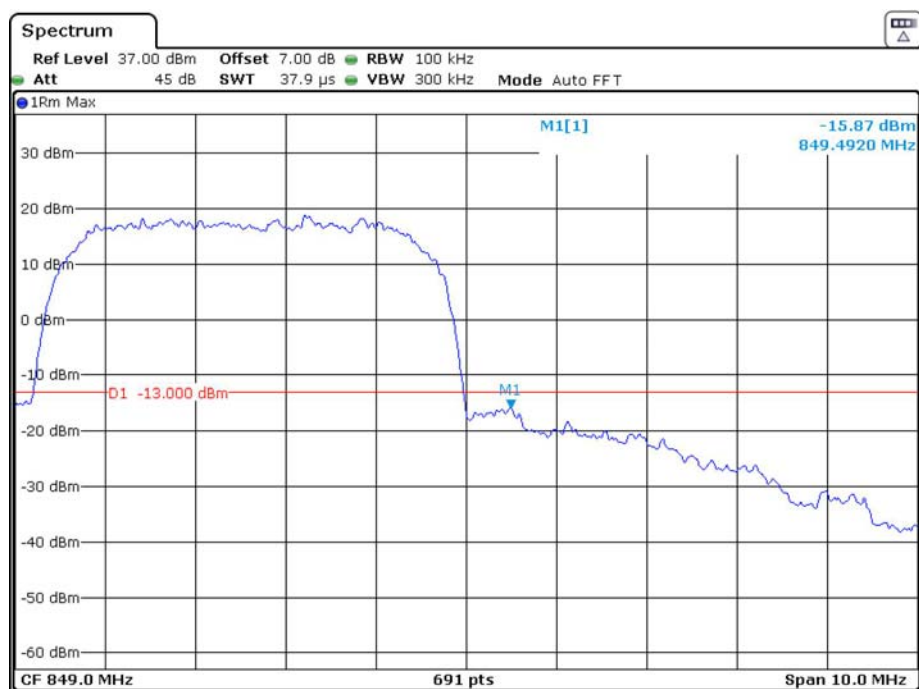


## Cellular Band, Left Band Edge for HSDPA(16QAM) Mode



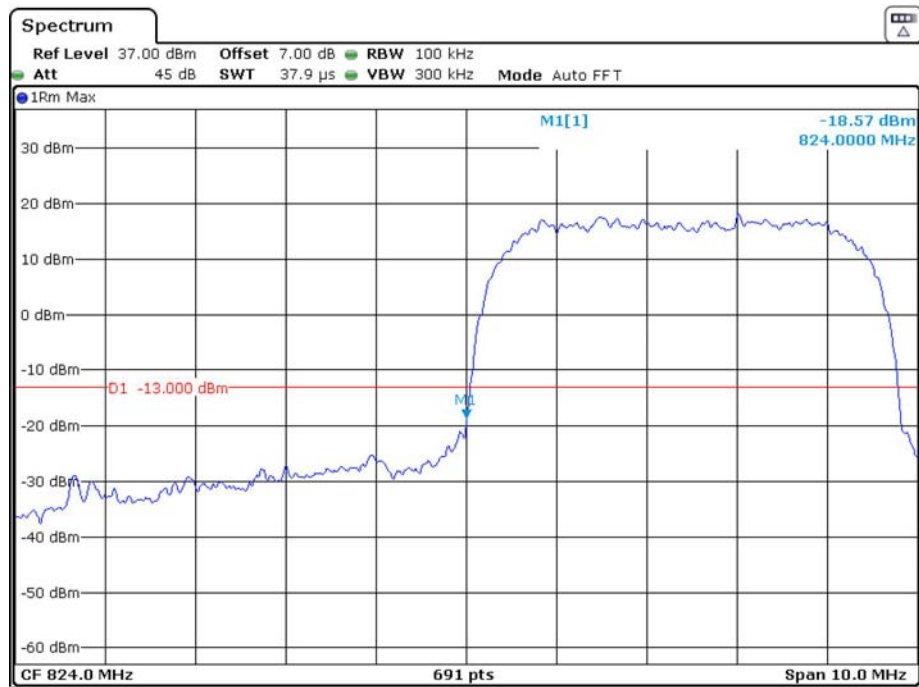
Date: 9.APR.2022 18:13:16

## Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



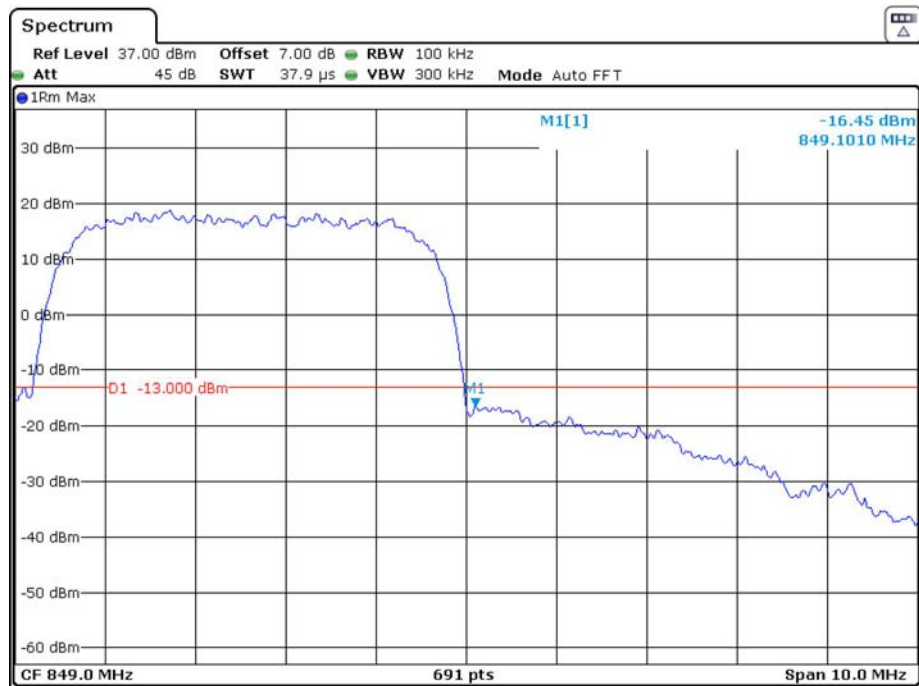
Date: 9.APR.2022 18:13:02

## Cellular Band, Left Band Edge for HSUPA (QPSK) Mode



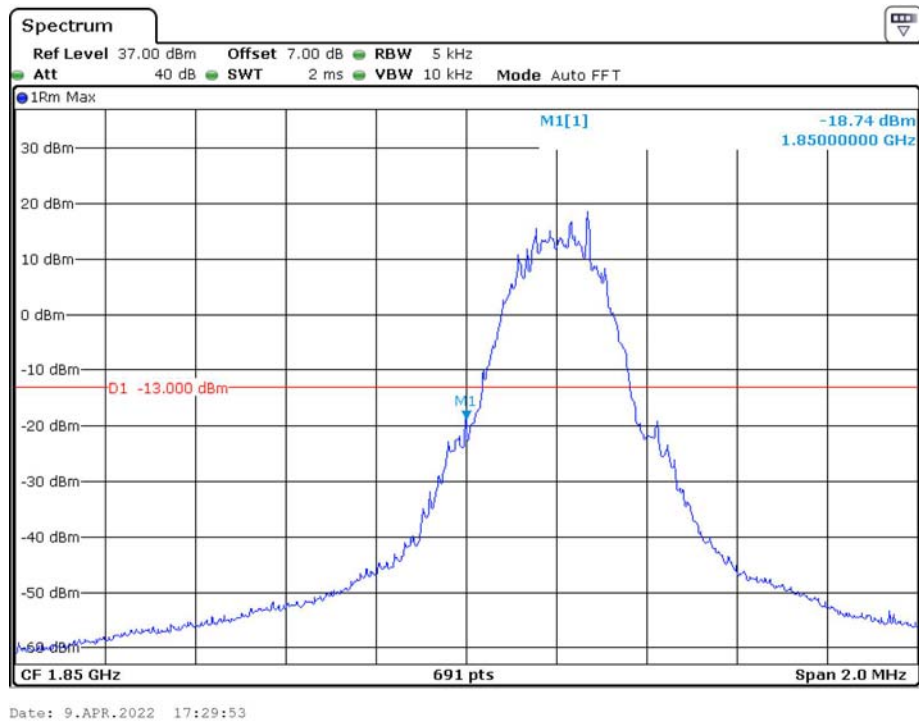
Date: 9.APR.2022 18:15:26

## Cellular Band, Right Band Edge for HSUPA (QPSK) Mode

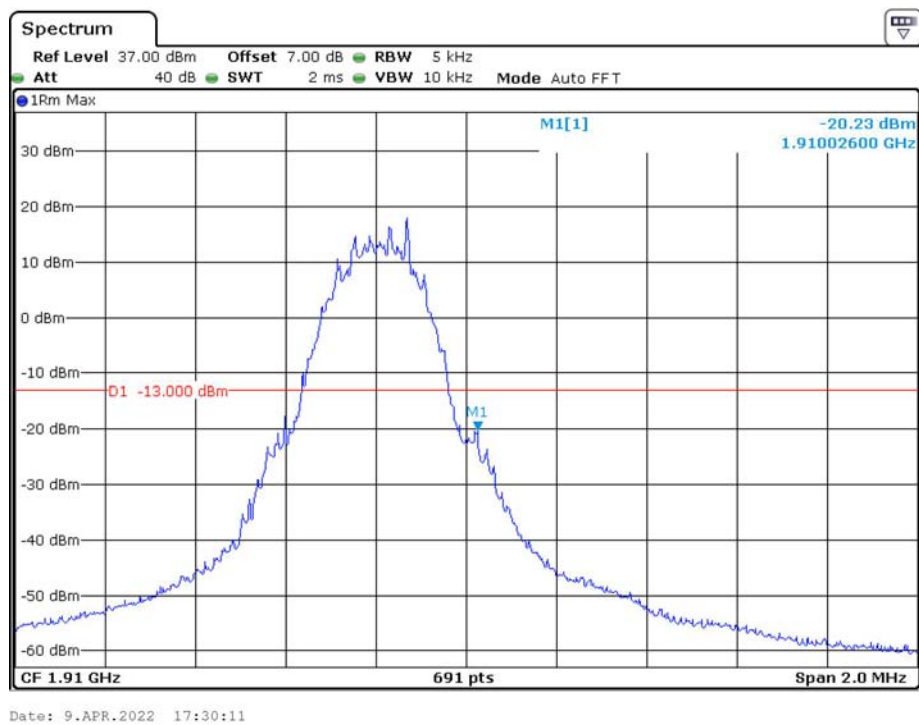


Date: 9.APR.2022 18:15:47

## PCS Band, Left Band Edge for GSM (GMSK) Mode

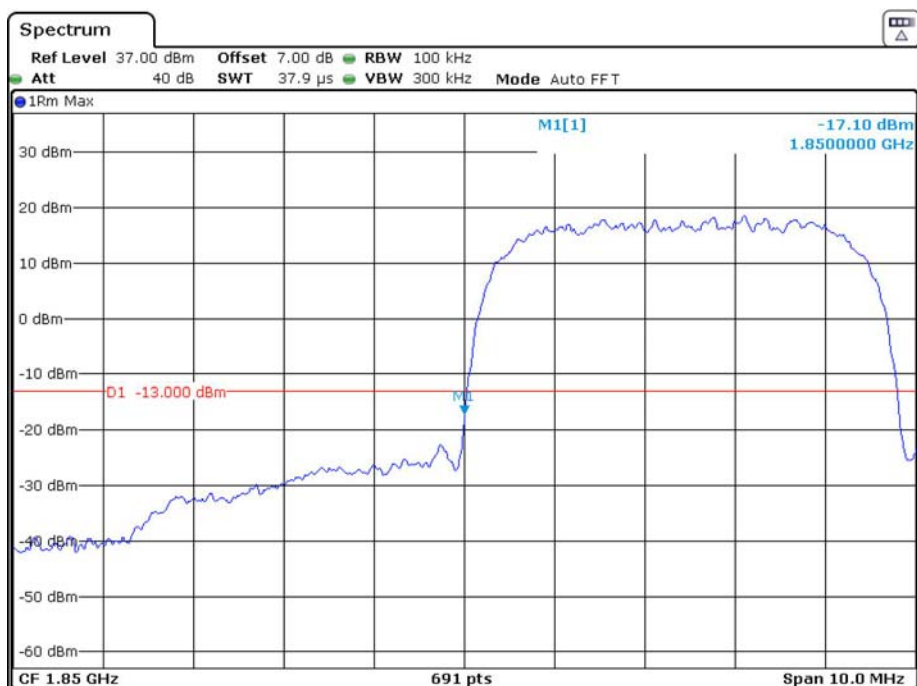


## PCS Band, Right Band Edge for GSM (GMSK) Mode



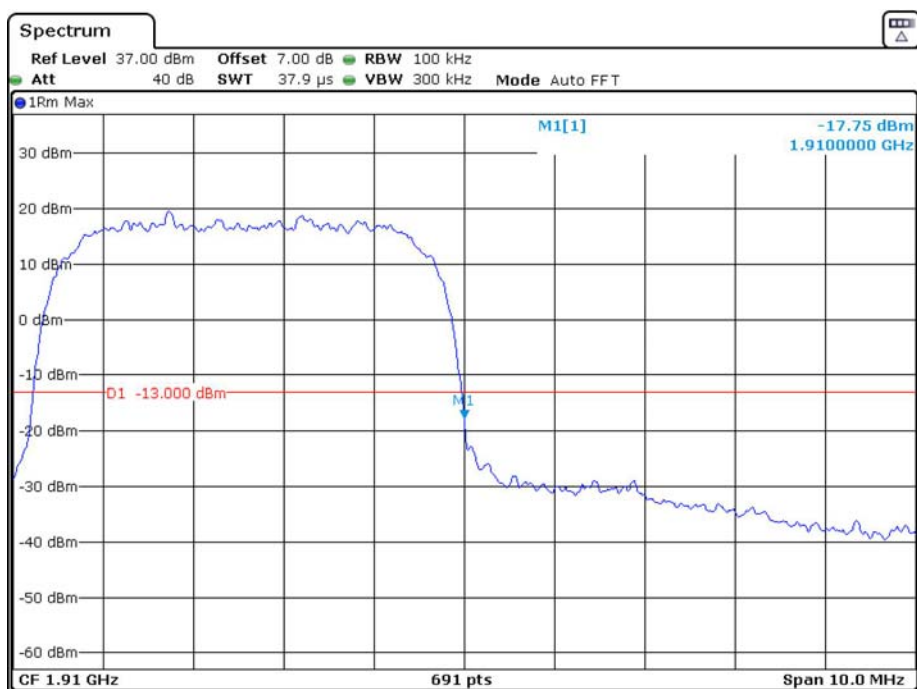


## PCS Band, Left Band Edge for RMC (BPSK) Mode



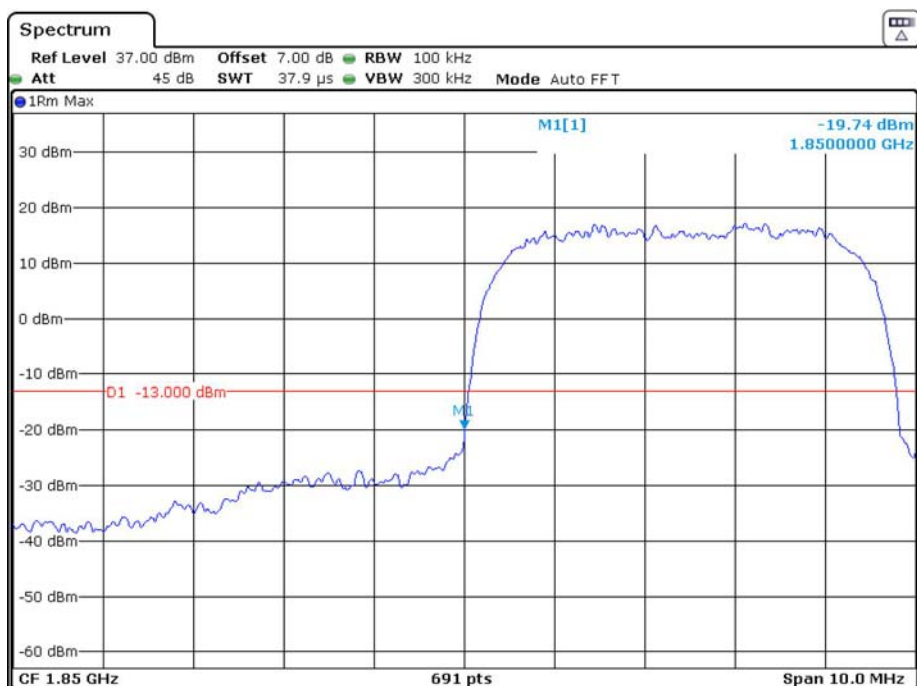
Date: 9.APR.2022 17:43:10

## PCS Band, Right Band Edge for RMC (BPSK) Mode



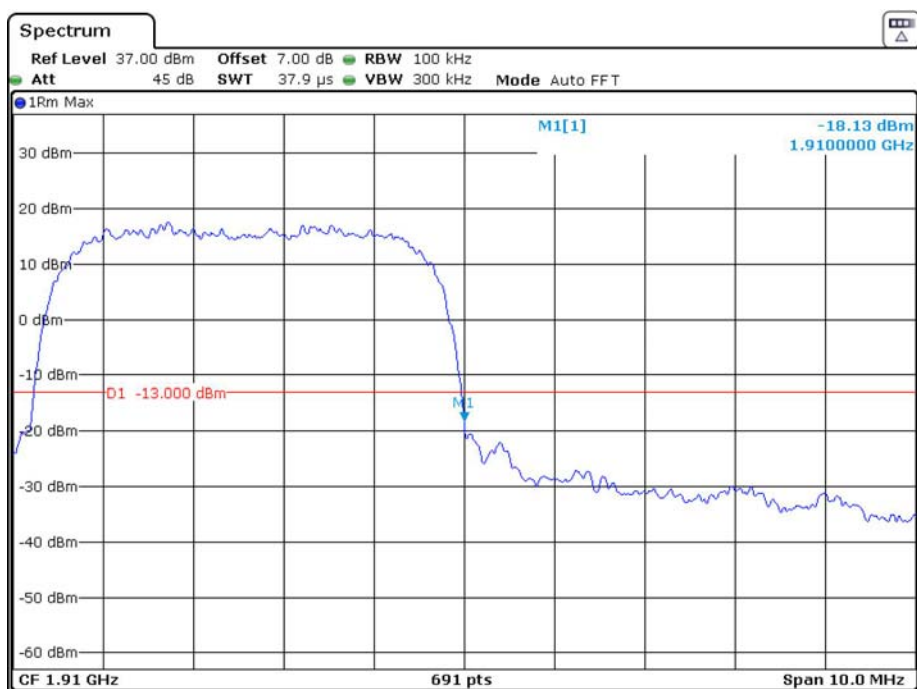
Date: 9.APR.2022 17:42:53

## PCS Band, Left Band Edge for HSDPA(16QAM) Mode

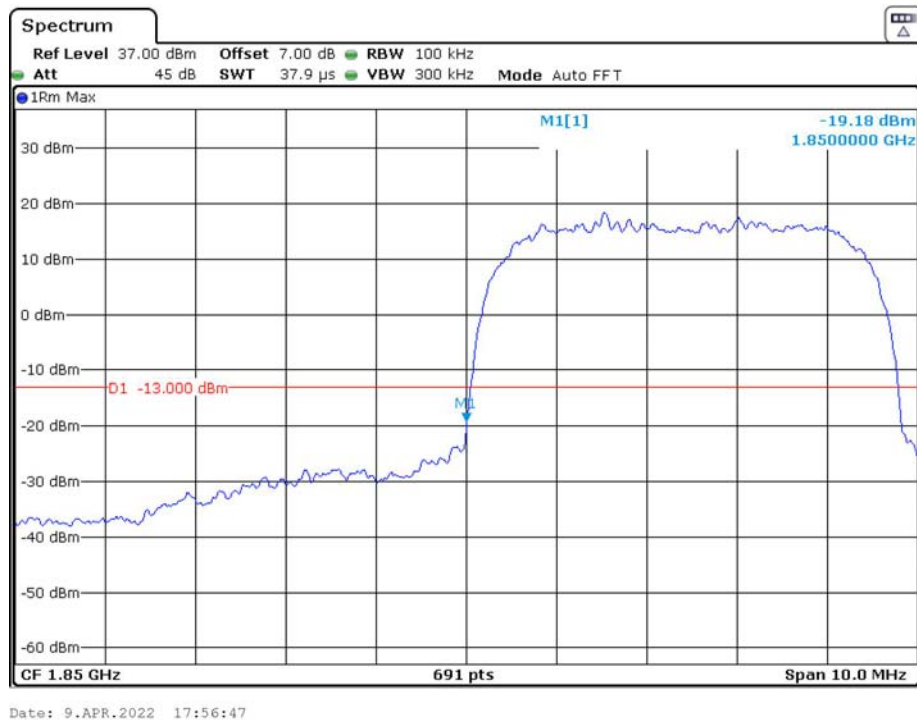
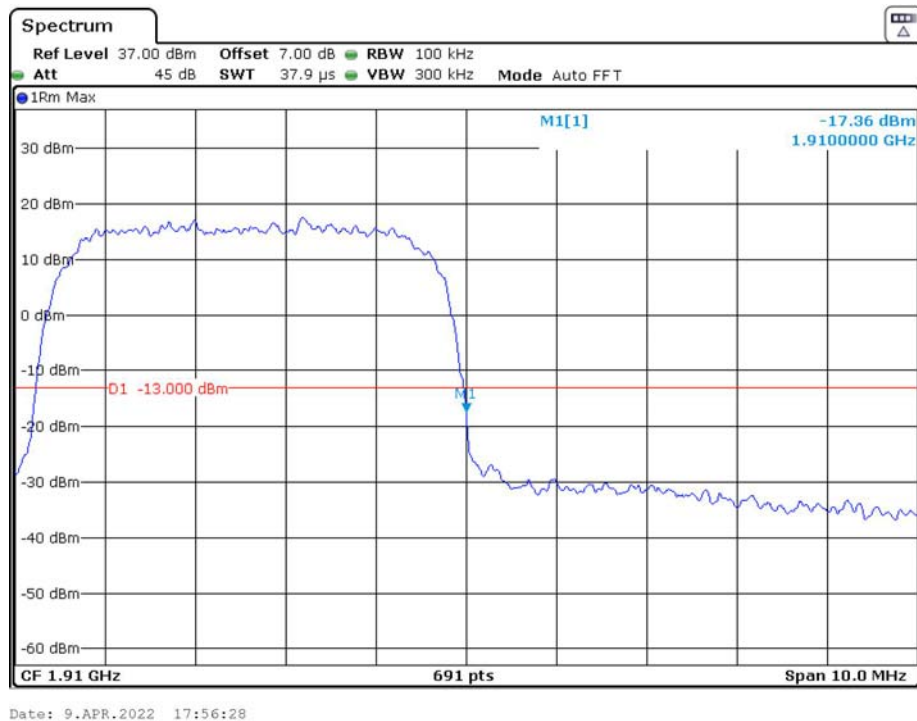


Date: 9.APR.2022 17:57:06

## PCS Band, Right Band Edge for HSDPA (16QAM) Mode



Date: 9.APR.2022 17:57:24

**PCS Band, Left Band Edge for HSUPA (QPSK) Mode****PCS Band, Right Band Edge for HSUPA (QPSK) Mode**

The test plots of LTE bands please refer to the Appendix C.

## **FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY**

### **Applicable Standard**

FCC § 2.1055, §22.355, §24.235&§27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

| Frequency Range (MHz) | Base, fixed (ppm) | Mobile ≤ 3 watts (ppm) | Mobile > 3 watts (ppm) |
|-----------------------|-------------------|------------------------|------------------------|
| 25 to 50              | 20.0              | 20.0                   | 50.0                   |
| 50 to 450             | 5.0               | 5.0                    | 50.0                   |
| 450 to 512            | 2.5               | 5.0                    | 5.0                    |
| 821 to 896            | 1.5               | 2.5                    | 2.5                    |
| 928 to 929.           | 5.0               | N/A                    | N/A                    |
| 929 to 960.           | 1.5               | N/A                    | N/A                    |
| 2110 to 2220          | 10.0              | N/A                    | N/A                    |

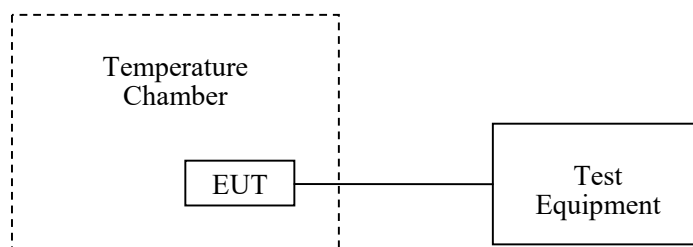
According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

### **Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 23~26 °C  |
| <b>Relative Humidity:</b> | 52~56 %   |
| <b>ATM Pressure:</b>      | 101.0 kPa |

*The testing was performed by Key Pei from 2022-04-09 to 2022-04-14.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to the following tables.*

**Cellular Band (Part 22H)****GSM Mode**

| Middle Channel, $f_0=836.6\text{MHz}$ |                               |                      |                       |             |
|---------------------------------------|-------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                      | Voltage Supplied ( $V_{DC}$ ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -30                                   | N.V.                          | 18.09                | 0.0216                | 2.5         |
| -20                                   |                               | 11.90                | 0.0142                | 2.5         |
| -10                                   |                               | 9.07                 | 0.0108                | 2.5         |
| 0                                     |                               | 13.45                | 0.0161                | 2.5         |
| 10                                    |                               | 7.26                 | 0.0087                | 2.5         |
| 20                                    |                               | 7.26                 | 0.0087                | 2.5         |
| 30                                    |                               | 13.31                | 0.0159                | 2.5         |
| 40                                    |                               | 15.80                | 0.0189                | 2.5         |
| 50                                    |                               | 7.73                 | 0.0092                | 2.5         |
| 20                                    | L.V.                          | 7.82                 | 0.0093                | 2.5         |
|                                       | H.V.                          | 8.07                 | 0.0097                | 2.5         |

**WCDMA Mode**

| Middle Channel, $f_0=836.6\text{MHz}$ |                               |                      |                       |             |
|---------------------------------------|-------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                      | Voltage Supplied ( $V_{DC}$ ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -30                                   | N.V.                          | 1.47                 | 0.0018                | 2.5         |
| -20                                   |                               | 1.56                 | 0.0019                | 2.5         |
| -10                                   |                               | 2.31                 | 0.0028                | 2.5         |
| 0                                     |                               | 1.42                 | 0.0017                | 2.5         |
| 10                                    |                               | 1.32                 | 0.0016                | 2.5         |
| 20                                    |                               | 0.87                 | 0.0010                | 2.5         |
| 30                                    |                               | 0.88                 | 0.0011                | 2.5         |
| 40                                    |                               | 1.23                 | 0.0015                | 2.5         |
| 50                                    |                               | 2.24                 | 0.0027                | 2.5         |
| 20                                    | L.V.                          | 1.56                 | 0.0019                | 2.5         |
|                                       | H.V.                          | 0.92                 | 0.0011                | 2.5         |

**PCS Band (Part 24E)  
GSM Mode**

| Middle Channel, $f_0=1880.0$ MHz |                                     |                      |                       |        |
|----------------------------------|-------------------------------------|----------------------|-----------------------|--------|
| Temperature (°C)                 | Voltage Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Result |
| -30                              | N.V.                                | 20.16                | 0.0107                | pass   |
| -20                              |                                     | 10.64                | 0.0057                | pass   |
| -10                              |                                     | 4.53                 | 0.0024                | pass   |
| 0                                |                                     | 10.09                | 0.0054                | pass   |
| 10                               |                                     | 5.16                 | 0.0027                | pass   |
| 20                               |                                     | 2.18                 | 0.0012                | pass   |
| 30                               |                                     | 7.92                 | 0.0042                | pass   |
| 40                               |                                     | 6.47                 | 0.0034                | pass   |
| 50                               |                                     | 5.35                 | 0.0028                | pass   |
| 20                               | L.V.                                | 6.12                 | 0.0033                | pass   |
|                                  | H.V.                                | 6.74                 | 0.0036                | pass   |

**WCDMA Mode**

| Middle Channel, $f_0=1880.0$ MHz |                                     |                      |                       |        |
|----------------------------------|-------------------------------------|----------------------|-----------------------|--------|
| Temperature (°C)                 | Voltage Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Result |
| -30                              | N.V.                                | 1.33                 | 0.0007                | pass   |
| -20                              |                                     | 1.82                 | 0.0010                | pass   |
| -10                              |                                     | 2.54                 | 0.0014                | pass   |
| 0                                |                                     | 2.73                 | 0.0015                | pass   |
| 10                               |                                     | 2.06                 | 0.0011                | pass   |
| 20                               |                                     | 0.97                 | 0.0005                | pass   |
| 30                               |                                     | 1.11                 | 0.0006                | pass   |
| 40                               |                                     | 1.35                 | 0.0007                | pass   |
| 50                               |                                     | 1.64                 | 0.0009                | pass   |
| 20                               | L.V.                                | 1.28                 | 0.0007                | pass   |
|                                  | H.V.                                | 2.01                 | 0.0011                | pass   |

**LTE:**  
**QPSK:**  
**Band 2:**

| 10.0 MHz Middle Channel, $f_0=1880\text{MHz}$ |                                     |                      |                       |        |
|-----------------------------------------------|-------------------------------------|----------------------|-----------------------|--------|
| Temperature (°C)                              | Voltage Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Result |
| -30                                           | N.V.                                | 9.23                 | 0.0049                | pass   |
| -20                                           |                                     | -9.97                | -0.0053               | pass   |
| -10                                           |                                     | -6.13                | -0.0033               | pass   |
| 0                                             |                                     | 6.17                 | 0.0033                | pass   |
| 10                                            |                                     | 7.92                 | 0.0042                | pass   |
| 20                                            |                                     | 6.46                 | 0.0034                | pass   |
| 30                                            |                                     | -6.52                | -0.0035               | pass   |
| 40                                            |                                     | 7.18                 | 0.0038                | pass   |
| 50                                            |                                     | -9.69                | -0.0052               | pass   |
| 20                                            | L.V.                                | -8.17                | -0.0043               | pass   |
|                                               | H.V.                                | -7.05                | -0.0038               | pass   |

**Band 5:**

| 10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$ |                                     |                      |                       |             |
|------------------------------------------------|-------------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                               | Voltage Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -30                                            | N.V.                                | 5.36                 | 0.0064                | 2.5         |
| -20                                            |                                     | 9.11                 | 0.0109                | 2.5         |
| -10                                            |                                     | 8.51                 | 0.0102                | 2.5         |
| 0                                              |                                     | -7.15                | -0.0085               | 2.5         |
| 10                                             |                                     | -5.29                | -0.0063               | 2.5         |
| 20                                             |                                     | 7.24                 | 0.0087                | 2.5         |
| 30                                             |                                     | -5.81                | -0.0069               | 2.5         |
| 40                                             |                                     | 5.59                 | 0.0067                | 2.5         |
| 50                                             |                                     | 6.87                 | 0.0082                | 2.5         |
| 20                                             | L.V.                                | 9.94                 | 0.0119                | 2.5         |
|                                                | H.V.                                | 9.99                 | 0.0119                | 2.5         |



**Band 12:**

| 10 MHz Bandwidth |                                   |                      |                      |                            |                            |
|------------------|-----------------------------------|----------------------|----------------------|----------------------------|----------------------------|
| Temperature (°C) | Power Supplied (V <sub>DC</sub> ) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | F <sub>L</sub> Limit (MHz) | F <sub>H</sub> Limit (MHz) |
| -30              | N.V.                              | 699.0372             | 715.9636             | 699                        | 716                        |
| -20              |                                   | 699.0355             | 715.9622             | 699                        | 716                        |
| -10              |                                   | 699.0361             | 715.9672             | 699                        | 716                        |
| 0                |                                   | 699.0342             | 715.9664             | 699                        | 716                        |
| 10               |                                   | 699.0343             | 715.9647             | 699                        | 716                        |
| 20               |                                   | 699.0382             | 715.9673             | 699                        | 716                        |
| 30               |                                   | 699.0378             | 715.9662             | 699                        | 716                        |
| 40               |                                   | 699.0364             | 715.9645             | 699                        | 716                        |
| 50               |                                   | 699.0363             | 715.9656             | 699                        | 716                        |
| 20               | L.V.                              | 699.0332             | 715.9673             | 699                        | 716                        |
|                  | H.V.                              | 699.0354             | 715.9642             | 699                        | 716                        |

**Band 13:**

| 10 MHz Bandwidth |                                   |                      |                      |                            |                            |
|------------------|-----------------------------------|----------------------|----------------------|----------------------------|----------------------------|
| Temperature (°C) | Power Supplied (V <sub>DC</sub> ) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | F <sub>L</sub> Limit (MHz) | F <sub>H</sub> Limit (MHz) |
| -30              | N.V.                              | 777.1284             | 786.8462             | 777                        | 787                        |
| -20              |                                   | 777.1237             | 786.8436             | 777                        | 787                        |
| -10              |                                   | 777.1255             | 786.8442             | 777                        | 787                        |
| 0                |                                   | 777.1217             | 786.8467             | 777                        | 787                        |
| 10               |                                   | 777.1243             | 786.8452             | 777                        | 787                        |
| 20               |                                   | 777.1295             | 786.8481             | 777                        | 787                        |
| 30               |                                   | 777.1254             | 786.8464             | 777                        | 787                        |
| 40               |                                   | 777.1292             | 786.8496             | 777                        | 787                        |
| 50               |                                   | 777.1265             | 786.8452             | 777                        | 787                        |
| 20               | L.V.                              | 777.1213             | 786.8462             | 777                        | 787                        |
|                  | H.V.                              | 777.1263             | 786.8454             | 777                        | 787                        |

**Band 41:**

| 10 MHz Bandwidth |                                   |                      |                      |                            |                            |
|------------------|-----------------------------------|----------------------|----------------------|----------------------------|----------------------------|
| Temperature (°C) | Power Supplied (V <sub>DC</sub> ) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | F <sub>L</sub> Limit (MHz) | F <sub>H</sub> Limit (MHz) |
| -30              | N.V.                              | 2535.0563            | 2654.9457            | 2535                       | 2655                       |
| -20              |                                   | 2535.0542            | 2654.9454            | 2535                       | 2655                       |
| -10              |                                   | 2535.0527            | 2654.9414            | 2535                       | 2655                       |
| 0                |                                   | 2535.0536            | 2654.9426            | 2535                       | 2655                       |
| 10               |                                   | 2535.0554            | 2654.9453            | 2535                       | 2655                       |
| 20               |                                   | 2535.0527            | 2654.9473            | 2535                       | 2655                       |
| 30               |                                   | 2535.0532            | 2654.9457            | 2535                       | 2655                       |
| 40               |                                   | 2535.0547            | 2654.9443            | 2535                       | 2655                       |
| 50               |                                   | 2535.0528            | 2654.9375            | 2535                       | 2655                       |
| 20               | L.V.                              | 2535.0496            | 2654.9435            | 2535                       | 2655                       |
|                  | H.V.                              | 2535.0522            | 2654.9441            | 2535                       | 2655                       |

Note: the applicant declared the operating frequency range is 2535-2655MHz for LTE Band 41.

**16QAM:****Band 2:**

| 10.0 MHz Middle Channel, f <sub>0</sub> =1880MHz |                                     |                      |                       |        |
|--------------------------------------------------|-------------------------------------|----------------------|-----------------------|--------|
| Temperature (°C)                                 | Voltage Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Result |
| -30                                              | N.V.                                | -8.27                | -0.0044               | pass   |
| -20                                              |                                     | -6.68                | -0.0036               | pass   |
| -10                                              |                                     | 9.77                 | 0.0052                | pass   |
| 0                                                |                                     | -7.62                | -0.0041               | pass   |
| 10                                               |                                     | -9.91                | -0.0053               | pass   |
| 20                                               |                                     | -9.82                | -0.0052               | pass   |
| 30                                               |                                     | -6.68                | -0.0036               | pass   |
| 40                                               |                                     | -8.85                | -0.0047               | pass   |
| 50                                               |                                     | 5.67                 | 0.0030                | pass   |
| 20                                               | L.V.                                | 6.05                 | 0.0032                | pass   |
|                                                  | H.V.                                | 7.52                 | 0.0040                | pass   |

**Band 5:**

| 10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$ |                               |                      |                       |             |
|------------------------------------------------|-------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                               | Voltage Supplied ( $V_{DC}$ ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -30                                            | N.V.                          | 2.10                 | 0.0025                | 2.5         |
| -20                                            |                               | 6.80                 | 0.0081                | 2.5         |
| -10                                            |                               | -9.52                | -0.0114               | 2.5         |
| 0                                              |                               | -8.15                | -0.0097               | 2.5         |
| 10                                             |                               | -8.88                | -0.0106               | 2.5         |
| 20                                             |                               | -9.82                | -0.0117               | 2.5         |
| 30                                             |                               | 8.38                 | 0.0100                | 2.5         |
| 40                                             |                               | 6.75                 | 0.0081                | 2.5         |
| 50                                             |                               | -5.89                | -0.0070               | 2.5         |
| 20                                             | L.V.                          | 8.98                 | 0.0107                | 2.5         |
|                                                | H.V.                          | -7.83                | -0.0094               | 2.5         |

**Band 12:**

| 10 MHz Bandwidth |                             |             |             |                   |                   |
|------------------|-----------------------------|-------------|-------------|-------------------|-------------------|
| Temperature (°C) | Power Supplied ( $V_{DC}$ ) | $F_L$ (MHz) | $F_H$ (MHz) | $F_L$ Limit (MHz) | $F_H$ Limit (MHz) |
| -30              | N.V.                        | 699.0386    | 715.9687    | 699               | 716               |
| -20              |                             | 699.0354    | 715.9635    | 699               | 716               |
| -10              |                             | 699.0374    | 715.9644    | 699               | 716               |
| 0                |                             | 699.0328    | 715.9672    | 699               | 716               |
| 10               |                             | 699.0341    | 715.9657    | 699               | 716               |
| 20               |                             | 699.0435    | 715.9626    | 699               | 716               |
| 30               |                             | 699.0341    | 715.9612    | 699               | 716               |
| 40               |                             | 699.0347    | 715.9656    | 699               | 716               |
| 50               |                             | 699.0326    | 715.9636    | 699               | 716               |
| 20               | L.V.                        | 699.0345    | 715.9647    | 699               | 716               |
|                  | H.V.                        | 699.0333    | 715.9676    | 699               | 716               |

**Band 13:**

| 10 MHz Bandwidth |                                   |                      |                      |                            |                            |
|------------------|-----------------------------------|----------------------|----------------------|----------------------------|----------------------------|
| Temperature (°C) | Power Supplied (V <sub>DC</sub> ) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | F <sub>L</sub> Limit (MHz) | F <sub>H</sub> Limit (MHz) |
| -30              | N.V.                              | 777.0316             | 786.9216             | 777                        | 787                        |
| -20              |                                   | 777.0343             | 786.9247             | 777                        | 787                        |
| -10              |                                   | 777.0311             | 786.9243             | 777                        | 787                        |
| 0                |                                   | 777.0362             | 786.9242             | 777                        | 787                        |
| 10               |                                   | 777.0335             | 786.9264             | 777                        | 787                        |
| 20               |                                   | 777.0327             | 786.9256             | 777                        | 787                        |
| 30               |                                   | 777.0332             | 786.9228             | 777                        | 787                        |
| 40               |                                   | 777.0322             | 786.9233             | 777                        | 787                        |
| 50               |                                   | 777.0293             | 786.9256             | 777                        | 787                        |
| 20               | L.V.                              | 777.0344             | 786.9274             | 777                        | 787                        |
|                  | H.V.                              | 777.0345             | 786.9245             | 777                        | 787                        |

**Band 41:**

| 10 MHz Bandwidth |                                   |                      |                      |                            |                            |
|------------------|-----------------------------------|----------------------|----------------------|----------------------------|----------------------------|
| Temperature (°C) | Power Supplied (V <sub>DC</sub> ) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | F <sub>L</sub> Limit (MHz) | F <sub>H</sub> Limit (MHz) |
| -30              | N.V.                              | 2535.0515            | 2654.8547            | 2535                       | 2655                       |
| -20              |                                   | 2535.0496            | 2654.8532            | 2535                       | 2655                       |
| -10              |                                   | 2535.0434            | 2654.8556            | 2535                       | 2655                       |
| 0                |                                   | 2535.0459            | 2654.8582            | 2535                       | 2655                       |
| 10               |                                   | 2535.0452            | 2654.8548            | 2535                       | 2655                       |
| 20               |                                   | 2535.0436            | 2654.8555            | 2535                       | 2655                       |
| 30               |                                   | 2535.0444            | 2654.8562            | 2535                       | 2655                       |
| 40               |                                   | 2535.0446            | 2654.8536            | 2535                       | 2655                       |
| 50               |                                   | 2535.0465            | 2654.8597            | 2535                       | 2655                       |
| 20               | L.V.                              | 2535.0427            | 2654.8546            | 2535                       | 2655                       |
|                  | H.V.                              | 2535.0433            | 2654.8545            | 2535                       | 2655                       |

Note: the applicant declared the operating frequency range is 2535-2655MHz for LTE Band 41.

\*\*\*\*\* **END OF REPORT** \*\*\*\*\*