



# TEST REPORT

## No. I22Z61952-WMD03

for

**Honor Device Co., Ltd.**

**Smart Phone**

**Model Name: RMO-NX1**

**FCC ID: 2AYGCRMO-NX1**

with

**Hardware Version: HN2RMOM**

**Software Version: 6.1.0.21(C900E21R1P1)**

**Issued Date: 2022-11-11**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b>      | <b>Issue Date</b> |
|----------------------|-----------------|-------------------------|-------------------|
| I22Z61952-WMD03      | Rev.0           | 1 <sup>st</sup> edition | 2022-11-11        |

Note: the latest revision of the test report supersedes all previous version.

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## **1. Test Laboratory**

### **1.1. Introduction & Accreditation**

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

### **1.2. Testing Location**

Location 1: CTTL (huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,  
P. R. China 100191

Location 2: CTTL (BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology  
Development Area, Beijing, P. R. China 100176

### 1.3. Testing Environment

Normal Temperature: 15-35℃  
Relative Humidity: 20-75%

### 1.4. Project Data

Testing Start Date: 2022-10-08  
Testing End Date: 2022-11-10

### 1.5. Signature



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Dong Yuan  
(Prepared this test report)



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Zhou Yu  
(Reviewed this test report)



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Zhao Hui Lin  
Deputy Director of the laboratory  
(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Honor Device Co., Ltd.  
Address /Post: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China

### **2.2. Manufacturer Information**

Company Name: Honor Device Co., Ltd.  
Address /Post: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China

### **3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**

#### **3.1. About EUT**

|                         |                                                 |
|-------------------------|-------------------------------------------------|
| Description             | Smart Phone                                     |
| Model Name              | RMO-NX1                                         |
| FCC ID                  | 2AYGCRMO-NX1                                    |
| Antenna                 | Integrated                                      |
| Output power            | 24.12dBm maximum EIRP measured for LTE Band 41C |
| Extreme vol. Limits     | 3.6VDC to 4.45VDC (nominal: 3.87VDC)            |
| Extreme temp. Tolerance | 0°C to +35°C                                    |

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL.

#### **3.2. Internal Identification of EUT used during the test**

| EUT ID* | IMEI             | HW Version | SW Version            | Date of receipt |
|---------|------------------|------------|-----------------------|-----------------|
| UT02a   | 008627960493353/ | HN2RMOM    | 6.1.0.21(C900E21R1P1) | 2022-10-14      |
|         | 008627960498022  |            |                       |                 |
| UT04a   | 867370060002200/ | HN2RMOM    | 6.1.0.21(C900E21R1P1) | 2022-10-14      |
|         | 867370060007001  |            |                       |                 |

\*EUT ID: is used to identify the test sample in the lab internally.

### 3.3. Internal Identification of AE used during the test

| AE ID* | Name            | Model               | Manufacturer                     |
|--------|-----------------|---------------------|----------------------------------|
| AE1-1  | Adapter         | HW-100400E01        | Honor Device Co., Ltd.           |
| AE1-2  | Adapter         | HW-100400B01        | Honor Device Co., Ltd.           |
| AE1-3  | Adapter         | HW-100400U01        | Honor Device Co., Ltd.           |
| AE2-1  | USB Cable       | WA0052              | Broad                            |
| AE2-2  | USB Cable       | CUDU01B-HC385-EH    | FOXCONN                          |
| AE2-3  | USB Cable       | L99UC144-CS-H       | LUXSHARE                         |
| AE2-4  | USB Cable       | AU2-CRO009HF        | Freeport                         |
| AE2-5  | USB Cable       | 2120-00062-0        | MING JI                          |
| AE2-6  | USB Cable       | 2120-00060-0        | MING JI                          |
| AE2-7  | USB Cable       | L99UC139-CS-H       | LUXSHARE                         |
| AE3-1  | Headset         | 1293-3283-3.5mm-339 | Quancheng                        |
| AE3-2  | Headset         | EPAB542-2WH05-DH    | FOXCONN                          |
| AE3-3  | Headset         | MEND1532B528C00     | Lianchuang                       |
| AE4-1  | Battery         | HB506492EFW         | Honor Device Co., Ltd. (Sunwoda) |
| AE4-2  | Battery         | HB506492EFW         | Honor Device Co., Ltd. (Desay)   |
| AE4-3  | Battery         | HB506492EFW         | Honor Device Co., Ltd. (CosMX)   |
| AE5-1  | Type-C to 3.5mm | USB042020090AW7     | Lianchuang                       |
| AE5-2  | Type-C to 3.5mm | 6001-7001-TC-348    | Quancheng                        |

\*AE ID: is used to identify the test sample in the lab internally.

## **4. Reference Documents**

### **4.1. Documents supplied by applicant**

EUT parameters are supplied by the customer, which are the bases of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

| <b>Reference</b> | <b>Title</b>                                                                                      | <b>Version</b>     |
|------------------|---------------------------------------------------------------------------------------------------|--------------------|
| FCC Part 24      | PERSONAL COMMUNICATIONS SERVICES                                                                  | 10-1-21<br>Edition |
| FCC Part 22      | PUBLIC MOBILE SERVICES                                                                            | 10-1-21<br>Edition |
| FCC Part 27      | MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES                                                    | 10-1-21<br>Edition |
| ANSI/TIA-603-E   | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards               | 2016               |
| ANSI C63.26      | American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services | 2015               |
| KDB 971168 D01   | MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS                           | v03r01             |

## 5. Laboratory Environment

**Fully-anechoic chamber** did not exceed following limits along the EMC testing:

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| Temperature                                     | Min. = 15 °C, Max. = 35 °C                        |
| Relative humidity                               | Min. = 15 %, Max. = 75 %                          |
| Shielding effectiveness                         | 0.014MHz - 1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation                           | > 2 MΩ                                            |
| Ground system resistance                        | < 4Ω                                              |
| Site voltage standing-wave ratio ( $S_{VSWR}$ ) | Between 0 and 6 dB, from 1GHz to 18GHz            |
| Uniformity of field strength                    | Between 0 and 6 dB, from 80 to 6000 MHz           |

**Shielded room** did not exceed following limits along the EMC testing:

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C                        |
| Relative humidity        | Min. = 20 %, Max. = 75 %                          |
| Shielding effectiveness  | 0.014MHz - 1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation    | > 2 MΩ                                            |
| Ground system resistance | < 4Ω                                              |

## 6. Summary Of Test Result

### LTE Band 2

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 24.232              | P       |
| 2     | Emission Limit              | 2.1051/24.238       | P       |
| 3     | Frequency Stability         | 2.1055              | P       |
| 4     | Occupied Bandwidth          | 2.1049              | P       |
| 5     | Emission Bandwidth          | 24.238              | P       |
| 6     | Band Edge Compliance        | 24.238              | P       |
| 7     | Conducted Spurious Emission | 24.238              | P       |
| 8     | Peak-to-Average Power Ratio | 24.232              | P       |

### LTE Band 4

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 27.50               | P       |
| 2     | Emission Limit              | 2.1051/27.53        | P       |
| 3     | Frequency Stability         | 2.1055              | P       |
| 4     | Occupied Bandwidth          | 2.1049              | P       |
| 5     | Emission Bandwidth          | 27.53               | P       |
| 6     | Band Edge Compliance        | 27.53               | P       |
| 7     | Conducted Spurious Emission | 27.53               | P       |
| 8     | Peak-to-Average Power Ratio | 27.50               | P       |

### LTE Band 5

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 22.913              | P       |
| 2     | Emission Limit              | 2.1051/22.917       | P       |
| 3     | Frequency Stability         | 2.1055              | P       |
| 4     | Occupied Bandwidth          | 2.1049              | P       |
| 5     | Emission Bandwidth          | 22.917              | P       |
| 6     | Band Edge Compliance        | 22.917              | P       |
| 7     | Conducted Spurious Emission | 22.917              | P       |

#### LTE Band 7

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 27.50               | BR      |
| 2     | Emission Limit              | 2.1051/27.53        | BR      |
| 3     | Frequency Stability         | 2.1055              | BR      |
| 4     | Occupied Bandwidth          | 2.1049              | BR      |
| 5     | Emission Bandwidth          | 27.53               | BR      |
| 6     | Band Edge Compliance        | 27.53               | BR      |
| 7     | Conducted Spurious Emission | 27.53               | BR      |
| 8     | Peak-to-Average Power Ratio | 27.50               | BR      |

#### LTE Band 38

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 27.50               | BR      |
| 2     | Emission Limit              | 2.1051/27.53        | BR      |
| 3     | Frequency Stability         | 2.1055              | BR      |
| 4     | Occupied Bandwidth          | 2.1049              | BR      |
| 5     | Emission Bandwidth          | 27.53               | BR      |
| 6     | Band Edge Compliance        | 27.53               | BR      |
| 7     | Conducted Spurious Emission | 27.53               | BR      |
| 8     | Peak-to-Average Power Ratio | 27.50               | BR      |

#### LTE Band 41

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 27.50               | BR      |
| 2     | Emission Limit              | 2.1051/27.53        | BR      |
| 3     | Frequency Stability         | 2.1055              | BR      |
| 4     | Occupied Bandwidth          | 2.1049              | BR      |
| 5     | Emission Bandwidth          | 27.53               | BR      |
| 6     | Band Edge Compliance        | 27.53               | BR      |
| 7     | Conducted Spurious Emission | 27.53               | BR      |
| 8     | Peak-to-Average Power Ratio | 27.50               | BR      |

Terms used in Verdict column

|    |                                                                                |
|----|--------------------------------------------------------------------------------|
| P  | Pass. The EUT complies with the essential requirements in the standard.        |
| NP | Not Performed. The test was not performed by CTTL.                             |
| NA | Not Applicable. The test was not applicable.                                   |
| BR | Re-use test data from basic model report.                                      |
| F  | Fail. The EUT does not comply with the essential requirements in the standard. |

All the test results are based on normal power.

LTE Band 41 is tested by power class 3.

Explanation of worst-case configuration

The worst-case scenario for all measurements is based on the conducted output power measurement investigation results. Output power was measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK was the worst case. All testing was performed using QPSK modulations to represent the worst case unless otherwise stated. The test results shown in the following sections represent the worst case emission.

The Equipment Under Test (EUT) model RMO-NX1 (FCC ID: 2AYGCRMO-NX1) is a variant product of RMO-NX3 (FCC ID: 2AYGCRMO-NX3), according to the declaration of changes provided by the applicant and FCC KDB publication 484596 D01, LTE Band 2, Band 4 and Band 5 are tested, other test results are derived from test report No. I22Z61813-WMD03.

For detail differences between two models please refer the Declaration of Changes document.

## 7. Test Equipment Utilized

| Description                          | Type       | Series Number | Manufacture | Cal Due Date | Calibration Interval |
|--------------------------------------|------------|---------------|-------------|--------------|----------------------|
| Wideband Radio Communication Tester  | CMW500     | 159082        | R&S         | 2023-01-17   | 25 months            |
| Spectrum Analyzer                    | FSU        | 200030        | R&S         | 2023-05-25   | 1 year               |
| Climate Chamber                      | SH-242     | 93008556      | ESPEC       | 2023-12-23   | 3 years              |
| EMI Antenna                          | VULB9163   | 9163-235      | Schwarzbeck | 2023-04-19   | 1 year               |
| EMI Antenna                          | LB-7180-NF | J203001300005 | A-INFO      | 2023-02-23   | 1 year               |
| Test Receiver                        | E4440A     | MY48250642    | Agilent     | 2023-03-10   | 1 year               |
| Universal Radio Communication Tester | CMW500     | 143008        | R&S         | 2022-12-01   | 1 year               |

## **Annex A: Measurement Results**

### **A.1 Output Power**

#### **A.1.1 Summary**

During the process of testing, the EUT was controlled via communication tester to ensure max power transmission and proper modulation.

In all cases, output power is within the specified limits.

#### **A.1.2 Conducted**

##### **A.1.2.1 Method of Measurements**

The EUT was set up for the max output power with pseudo random data modulation.

These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

The results below include a correction factor for cable loss that is provided by the customer.

##### **A.1.2.2 Measurement Result**

#### **LTE band 2**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1909.3          | 22.31       | 21.64 | 21.52 |
|           |                | 1880.0          | 22.39       | 21.61 | 21.63 |
|           |                | 1850.7          | 22.47       | 21.75 | 21.68 |
|           | 1 RB low       | 1909.3          | 22.34       | 21.68 | 21.73 |
|           |                | 1880.0          | 22.41       | 21.72 | 21.71 |
|           |                | 1850.7          | 22.59       | 21.69 | 21.57 |
|           | 50% RB mid     | 1909.3          | 22.46       | 21.56 | 21.46 |
|           |                | 1880.0          | 22.47       | 21.75 | 21.57 |
|           |                | 1850.7          | 22.48       | 21.63 | 21.67 |
|           | 100% RB        | 1909.3          | 21.45       | 20.41 | 20.37 |
|           |                | 1880.0          | 21.46       | 20.45 | 20.53 |
|           |                | 1850.7          | 21.51       | 20.67 | 20.73 |
| 3MHz      | 1 RB high      | 1908.5          | 22.46       | 21.75 | 21.63 |
|           |                | 1880.0          | 22.37       | 21.67 | 21.89 |
|           |                | 1851.5          | 22.56       | 21.75 | 21.80 |
|           | 1 RB low       | 1908.5          | 22.58       | 21.84 | 21.67 |
|           |                | 1880.0          | 22.57       | 21.71 | 21.79 |
|           |                | 1851.5          | 22.66       | 21.86 | 21.91 |
|           | 50% RB mid     | 1908.5          | 21.54       | 20.68 | 20.59 |
|           |                | 1880.0          | 21.64       | 20.62 | 20.60 |
|           |                | 1851.5          | 21.71       | 20.70 | 20.61 |
|           | 100% RB        | 1908.5          | 21.54       | 20.54 | 20.48 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
|       |            | 1880.0 | 21.53 | 20.62 | 20.53 |
|       |            | 1851.5 | 21.61 | 20.69 | 20.58 |
| 5MHz  | 1 RB high  | 1907.5 | 22.50 | 21.66 | 21.67 |
|       |            | 1880.0 | 22.51 | 21.67 | 21.67 |
|       |            | 1852.5 | 22.44 | 21.76 | 21.74 |
|       | 1 RB low   | 1907.5 | 22.50 | 21.77 | 21.73 |
|       |            | 1880.0 | 22.57 | 21.78 | 21.80 |
|       |            | 1852.5 | 22.60 | 21.88 | 21.82 |
|       | 50% RB mid | 1907.5 | 21.53 | 20.60 | 20.52 |
|       |            | 1880.0 | 21.56 | 20.61 | 20.61 |
|       |            | 1852.5 | 21.62 | 20.70 | 20.59 |
|       | 100% RB    | 1907.5 | 21.53 | 20.54 | 20.59 |
|       |            | 1880.0 | 21.51 | 20.56 | 20.50 |
|       |            | 1852.5 | 21.66 | 20.62 | 20.56 |
| 10MHz | 1 RB high  | 1905.0 | 22.40 | 21.86 | 21.64 |
|       |            | 1880.0 | 22.44 | 21.78 | 21.51 |
|       |            | 1855.0 | 22.42 | 21.79 | 21.38 |
|       | 1 RB low   | 1905.0 | 22.54 | 21.91 | 21.60 |
|       |            | 1880.0 | 22.66 | 21.74 | 21.61 |
|       |            | 1855.0 | 22.59 | 22.03 | 21.67 |
|       | 50% RB mid | 1905.0 | 21.57 | 20.53 | 20.56 |
|       |            | 1880.0 | 21.68 | 20.61 | 20.63 |
|       |            | 1855.0 | 21.66 | 20.62 | 20.72 |
|       | 100% RB    | 1905.0 | 21.46 | 20.46 | 20.49 |
|       |            | 1880.0 | 21.56 | 20.60 | 20.64 |
|       |            | 1855.0 | 21.65 | 20.69 | 20.51 |
| 15MHz | 1 RB high  | 1902.5 | 22.38 | 21.58 | 21.52 |
|       |            | 1880.0 | 22.31 | 21.60 | 21.49 |
|       |            | 1857.5 | 22.35 | 21.72 | 21.53 |
|       | 1 RB low   | 1902.5 | 22.31 | 21.70 | 21.47 |
|       |            | 1880.0 | 22.39 | 21.62 | 21.51 |
|       |            | 1857.5 | 22.44 | 21.71 | 21.68 |
|       | 50% RB mid | 1902.5 | 21.47 | 20.41 | 20.44 |
|       |            | 1880.0 | 21.45 | 20.51 | 20.42 |
|       |            | 1857.5 | 21.58 | 20.50 | 20.49 |
|       | 100% RB    | 1902.5 | 21.44 | 20.43 | 20.46 |
|       |            | 1880.0 | 21.44 | 20.48 | 20.49 |
|       |            | 1857.5 | 21.55 | 20.50 | 20.51 |
| 20MHz | 1 RB high  | 1900.0 | 22.35 | 21.65 | 21.55 |
|       |            | 1880.0 | 22.36 | 21.62 | 21.49 |
|       |            | 1860.0 | 22.32 | 21.60 | 21.54 |
|       | 1 RB low   | 1900.0 | 22.36 | 21.71 | 21.45 |
|       |            | 1880.0 | 22.39 | 21.59 | 21.45 |

|  |            |        |       |       |       |
|--|------------|--------|-------|-------|-------|
|  |            | 1860.0 | 22.39 | 21.81 | 21.58 |
|  | 50% RB mid | 1900.0 | 21.40 | 20.43 | 20.46 |
|  |            | 1880.0 | 21.57 | 20.52 | 20.53 |
|  |            | 1860.0 | 21.48 | 20.52 | 20.53 |
|  | 100% RB    | 1900.0 | 21.39 | 20.43 | 20.38 |
|  |            | 1880.0 | 21.39 | 20.42 | 20.49 |
|  |            | 1860.0 | 21.52 | 20.51 | 20.55 |

**LTE band 4**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1754.3          | 22.22       | 21.55 | 21.53 |
|           |                | 1732.5          | 22.27       | 21.60 | 21.66 |
|           |                | 1710.7          | 22.13       | 21.58 | 21.47 |
|           | 1 RB low       | 1754.3          | 22.24       | 21.55 | 21.31 |
|           |                | 1732.5          | 22.22       | 21.67 | 21.52 |
|           |                | 1710.7          | 22.10       | 21.50 | 21.49 |
|           | 50% RB mid     | 1754.3          | 22.35       | 21.07 | 21.39 |
|           |                | 1732.5          | 22.40       | 21.45 | 21.52 |
|           |                | 1710.7          | 22.29       | 21.39 | 21.37 |
|           | 100% RB        | 1754.3          | 21.31       | 20.38 | 20.33 |
|           |                | 1732.5          | 21.39       | 20.47 | 20.42 |
|           |                | 1710.7          | 21.26       | 20.26 | 20.44 |
| 3MHz      | 1 RB high      | 1753.5          | 22.29       | 21.67 | 21.61 |
|           |                | 1732.5          | 22.40       | 21.69 | 21.59 |
|           |                | 1711.5          | 22.35       | 21.85 | 21.61 |
|           | 1 RB low       | 1753.5          | 22.33       | 21.70 | 21.54 |
|           |                | 1732.5          | 22.43       | 21.71 | 21.68 |
|           |                | 1711.5          | 22.21       | 21.67 | 21.46 |
|           | 50% RB mid     | 1753.5          | 21.46       | 20.55 | 20.47 |
|           |                | 1732.5          | 21.42       | 20.69 | 20.56 |
|           |                | 1711.5          | 21.52       | 20.60 | 20.48 |
|           | 100% RB        | 1753.5          | 21.44       | 20.31 | 20.44 |
|           |                | 1732.5          | 21.50       | 20.53 | 20.44 |
|           |                | 1711.5          | 21.50       | 20.44 | 20.42 |
| 5MHz      | 1 RB high      | 1752.5          | 22.37       | 21.72 | 21.69 |
|           |                | 1732.5          | 22.52       | 21.71 | 21.55 |
|           |                | 1712.5          | 22.48       | 21.85 | 21.72 |
|           | 1 RB low       | 1752.5          | 22.38       | 21.77 | 21.72 |
|           |                | 1732.5          | 22.37       | 21.77 | 21.61 |
|           |                | 1712.5          | 22.35       | 21.74 | 21.41 |
|           | 50% RB mid     | 1752.5          | 21.46       | 20.50 | 20.52 |
|           |                | 1732.5          | 21.53       | 20.53 | 20.54 |
|           |                | 1712.5          | 21.53       | 20.55 | 20.57 |
|           | 100% RB        | 1752.5          | 21.47       | 20.53 | 20.49 |
|           |                | 1732.5          | 21.56       | 20.58 | 20.50 |
|           |                | 1712.5          | 21.54       | 20.59 | 20.60 |
| 10MHz     | 1 RB high      | 1750.0          | 22.13       | 21.74 | 21.44 |
|           |                | 1732.5          | 22.26       | 21.77 | 21.64 |
|           |                | 1715.0          | 22.44       | 21.78 | 21.79 |
|           | 1 RB low       | 1750.0          | 22.34       | 21.80 | 21.58 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
|       |            | 1732.5 | 22.27 | 21.73 | 21.54 |
|       |            | 1715.0 | 22.32 | 21.88 | 21.59 |
|       | 50% RB mid | 1750.0 | 21.49 | 20.46 | 20.52 |
|       |            | 1732.5 | 21.53 | 20.57 | 20.60 |
|       |            | 1715.0 | 21.63 | 20.67 | 20.60 |
|       | 100% RB    | 1750.0 | 21.32 | 20.49 | 20.46 |
|       |            | 1732.5 | 21.51 | 20.53 | 20.52 |
|       |            | 1715.0 | 21.58 | 20.62 | 20.46 |
| 15MHz | 1 RB high  | 1747.5 | 22.30 | 21.56 | 21.37 |
|       |            | 1732.5 | 22.21 | 21.60 | 21.47 |
|       |            | 1717.5 | 22.27 | 21.54 | 20.81 |
|       | 1 RB low   | 1747.5 | 22.28 | 21.67 | 21.52 |
|       |            | 1732.5 | 22.28 | 21.59 | 21.51 |
|       |            | 1717.5 | 22.16 | 21.55 | 20.61 |
|       | 50% RB mid | 1747.5 | 21.36 | 20.31 | 20.34 |
|       |            | 1732.5 | 21.45 | 20.45 | 20.45 |
|       |            | 1717.5 | 21.56 | 20.55 | 19.61 |
|       | 100% RB    | 1747.5 | 21.27 | 20.38 | 20.27 |
|       |            | 1732.5 | 21.37 | 20.39 | 19.39 |
|       |            | 1717.5 | 21.37 | 20.43 | 19.39 |
| 20MHz | 1 RB high  | 1745.0 | 22.07 | 21.46 | 21.39 |
|       |            | 1732.5 | 22.28 | 21.55 | 21.49 |
|       |            | 1720.0 | 22.28 | 21.56 | 21.59 |
|       | 1 RB low   | 1745.0 | 22.18 | 21.72 | 21.64 |
|       |            | 1732.5 | 22.30 | 21.59 | 21.58 |
|       |            | 1720.0 | 22.13 | 21.61 | 21.52 |
|       | 50% RB mid | 1745.0 | 21.37 | 20.45 | 20.29 |
|       |            | 1732.5 | 21.35 | 20.44 | 20.38 |
|       |            | 1720.0 | 21.50 | 20.45 | 20.45 |
|       | 100% RB    | 1745.0 | 21.37 | 20.37 | 20.36 |
|       |            | 1732.5 | 21.44 | 20.36 | 20.29 |
|       |            | 1720.0 | 21.46 | 20.43 | 20.48 |

**LTE band 5**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 848.3           | 23.64       | 22.87 | 22.02 |
|           |                | 836.5           | 24.15       | 23.53 | 22.34 |
|           |                | 824.7           | 24.16       | 23.40 | 22.39 |
|           | 1 RB low       | 848.3           | 23.90       | 23.01 | 22.04 |
|           |                | 836.5           | 24.10       | 23.34 | 22.48 |
|           |                | 824.7           | 24.18       | 23.37 | 22.35 |
|           | 50% RB mid     | 848.3           | 23.74       | 22.72 | 22.01 |
|           |                | 836.5           | 24.21       | 23.06 | 22.41 |
|           |                | 824.7           | 24.09       | 23.25 | 22.39 |
|           | 100% RB        | 848.3           | 22.84       | 21.91 | 21.05 |
|           |                | 836.5           | 23.16       | 22.14 | 21.27 |
|           |                | 824.7           | 23.35       | 22.39 | 21.30 |
| 3MHz      | 1 RB high      | 847.5           | 23.87       | 23.07 | 21.98 |
|           |                | 836.5           | 24.38       | 23.81 | 22.50 |
|           |                | 825.5           | 24.19       | 23.53 | 22.31 |
|           | 1 RB low       | 847.5           | 24.28       | 23.61 | 22.47 |
|           |                | 836.5           | 24.23       | 23.64 | 22.51 |
|           |                | 825.5           | 24.44       | 23.63 | 22.33 |
|           | 50% RB mid     | 847.5           | 23.07       | 22.15 | 21.22 |
|           |                | 836.5           | 23.31       | 22.32 | 21.30 |
|           |                | 825.5           | 23.30       | 22.36 | 21.45 |
|           | 100% RB        | 847.5           | 23.08       | 22.11 | 21.11 |
|           |                | 836.5           | 23.27       | 22.35 | 21.27 |
|           |                | 825.5           | 23.25       | 22.38 | 21.49 |
| 5MHz      | 1 RB high      | 846.5           | 23.84       | 23.16 | 21.94 |
|           |                | 836.5           | 24.37       | 23.10 | 22.55 |
|           |                | 826.5           | 24.23       | 23.48 | 22.41 |
|           | 1 RB low       | 846.5           | 24.35       | 23.63 | 22.56 |
|           |                | 836.5           | 24.38       | 23.55 | 22.54 |
|           |                | 826.5           | 24.28       | 23.64 | 22.46 |
|           | 50% RB mid     | 846.5           | 23.27       | 22.29 | 21.37 |
|           |                | 836.5           | 23.34       | 22.33 | 21.48 |
|           |                | 826.5           | 23.32       | 22.36 | 21.32 |
|           | 100% RB        | 846.5           | 23.32       | 22.28 | 21.38 |
|           |                | 836.5           | 23.29       | 22.27 | 21.43 |
|           |                | 826.5           | 23.28       | 22.40 | 21.41 |
| 10MHz     | 1 RB high      | 844.0           | 23.91       | 23.10 | 22.09 |
|           |                | 836.5           | 24.28       | 23.89 | 22.67 |
|           |                | 829.0           | 24.24       | 23.71 | 22.52 |
|           | 1 RB low       | 844.0           | 24.23       | 23.79 | 22.56 |

|  |            |       |       |       |       |
|--|------------|-------|-------|-------|-------|
|  |            | 836.5 | 24.11 | 23.68 | 22.62 |
|  |            | 829.0 | 24.20 | 23.81 | 22.64 |
|  | 50% RB mid | 844.0 | 23.53 | 22.46 | 21.55 |
|  |            | 836.5 | 23.26 | 22.37 | 21.44 |
|  |            | 829.0 | 23.27 | 22.34 | 21.39 |
|  | 100% RB    | 844.0 | 23.41 | 22.40 | 21.48 |
|  |            | 836.5 | 23.27 | 22.35 | 21.47 |
|  |            | 829.0 | 23.24 | 22.29 | 21.34 |

**LTE band 7**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2567.5          | 23.38       | 22.84 | 21.49 |
|           |                | 2535.0          | 23.26       | 22.70 | 21.52 |
|           |                | 2502.5          | 23.17       | 22.55 | 21.27 |
|           | 1 RB low       | 2567.5          | 23.26       | 22.70 | 21.59 |
|           |                | 2535.0          | 23.14       | 22.61 | 21.39 |
|           |                | 2502.5          | 23.09       | 22.43 | 21.26 |
|           | 50% RB mid     | 2567.5          | 22.46       | 21.43 | 20.50 |
|           |                | 2535.0          | 22.40       | 21.39 | 20.34 |
|           |                | 2502.5          | 22.15       | 21.29 | 20.22 |
|           | 100% RB        | 2567.5          | 22.46       | 21.58 | 20.45 |
|           |                | 2535.0          | 22.33       | 21.38 | 20.29 |
|           |                | 2502.5          | 22.19       | 21.18 | 20.16 |
| 10MHz     | 1 RB high      | 2565.0          | 23.44       | 22.56 | 21.64 |
|           |                | 2535.0          | 23.35       | 22.90 | 21.62 |
|           |                | 2505.0          | 23.14       | 22.69 | 21.39 |
|           | 1 RB low       | 2565.0          | 23.46       | 22.54 | 21.89 |
|           |                | 2535.0          | 23.17       | 22.66 | 21.41 |
|           |                | 2505.0          | 23.06       | 22.60 | 21.39 |
|           | 50% RB mid     | 2565.0          | 22.42       | 21.45 | 20.50 |
|           |                | 2535.0          | 22.36       | 21.41 | 20.42 |
|           |                | 2505.0          | 22.16       | 21.26 | 20.34 |
|           | 100% RB        | 2565.0          | 22.45       | 21.45 | 20.37 |
|           |                | 2535.0          | 22.33       | 21.33 | 20.24 |
|           |                | 2505.0          | 22.15       | 21.22 | 20.16 |
| 15MHz     | 1 RB high      | 2562.5          | 23.14       | 22.49 | 21.66 |
|           |                | 2535.0          | 23.08       | 22.50 | 21.50 |
|           |                | 2507.5          | 22.92       | 22.32 | 21.41 |
|           | 1 RB low       | 2562.5          | 23.14       | 22.73 | 21.76 |
|           |                | 2535.0          | 22.98       | 22.45 | 21.38 |
|           |                | 2507.5          | 22.78       | 22.27 | 21.37 |
|           | 50% RB mid     | 2562.5          | 22.33       | 21.27 | 20.28 |
|           |                | 2535.0          | 22.26       | 21.20 | 20.19 |
|           |                | 2507.5          | 22.02       | 21.17 | 20.15 |
|           | 100% RB        | 2562.5          | 22.28       | 21.32 | 20.32 |
|           |                | 2535.0          | 22.22       | 21.27 | 20.26 |
|           |                | 2507.5          | 22.06       | 21.11 | 20.08 |
| 20MHz     | 1 RB high      | 2560.0          | 23.11       | 22.59 | 21.44 |
|           |                | 2535.0          | 22.91       | 22.42 | 21.32 |
|           |                | 2510.0          | 22.95       | 22.33 | 21.40 |
|           | 1 RB low       | 2560.0          | 23.03       | 22.48 | 21.35 |

|  |            |        |       |       |       |
|--|------------|--------|-------|-------|-------|
|  |            | 2535.0 | 22.90 | 22.28 | 21.12 |
|  |            | 2510.0 | 22.86 | 22.46 | 21.04 |
|  | 50% RB mid | 2560.0 | 22.35 | 21.36 | 20.33 |
|  |            | 2535.0 | 22.12 | 21.17 | 20.19 |
|  |            | 2510.0 | 22.19 | 21.13 | 20.19 |
|  | 100% RB    | 2560.0 | 22.18 | 21.26 | 20.24 |
|  |            | 2535.0 | 22.04 | 21.18 | 20.09 |
|  |            | 2510.0 | 22.19 | 21.16 | 20.25 |

**LTE band 38**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2617.5          | 23.35       | 22.43 | 21.35 |
|           |                | 2595.0          | 23.14       | 22.61 | 21.70 |
|           |                | 2572.5          | 23.01       | 22.16 | 21.08 |
|           | 1 RB low       | 2617.5          | 23.34       | 22.43 | 21.34 |
|           |                | 2595.0          | 23.12       | 22.46 | 21.60 |
|           |                | 2572.5          | 22.98       | 22.07 | 20.94 |
|           | 50% RB mid     | 2617.5          | 22.38       | 21.56 | 20.39 |
|           |                | 2595.0          | 22.21       | 21.37 | 20.19 |
|           |                | 2572.5          | 22.02       | 21.18 | 20.03 |
|           | 100% RB        | 2617.5          | 22.38       | 21.43 | 20.32 |
|           |                | 2595.0          | 22.19       | 21.23 | 20.11 |
|           |                | 2572.5          | 22.01       | 21.04 | 19.96 |
| 10MHz     | 1 RB high      | 2615.0          | 23.33       | 22.54 | 21.37 |
|           |                | 2595.0          | 23.13       | 22.36 | 21.18 |
|           |                | 2575.0          | 22.94       | 22.13 | 20.94 |
|           | 1 RB low       | 2615.0          | 23.28       | 22.47 | 21.23 |
|           |                | 2595.0          | 23.10       | 22.29 | 21.05 |
|           |                | 2575.0          | 22.93       | 22.14 | 20.93 |
|           | 50% RB mid     | 2615.0          | 22.39       | 21.34 | 20.41 |
|           |                | 2595.0          | 22.27       | 21.29 | 20.26 |
|           |                | 2575.0          | 22.05       | 21.11 | 20.06 |
|           | 100% RB        | 2615.0          | 22.34       | 21.36 | 20.32 |
|           |                | 2595.0          | 22.26       | 21.33 | 20.25 |
|           |                | 2575.0          | 22.07       | 21.11 | 20.03 |
| 15MHz     | 1 RB high      | 2612.5          | 23.23       | 22.55 | 21.57 |
|           |                | 2595.0          | 23.13       | 22.46 | 21.49 |
|           |                | 2577.5          | 22.93       | 22.26 | 21.27 |
|           | 1 RB low       | 2612.5          | 23.15       | 22.51 | 21.47 |
|           |                | 2595.0          | 23.01       | 22.35 | 21.33 |
|           |                | 2577.5          | 22.85       | 22.21 | 21.17 |
|           | 50% RB mid     | 2612.5          | 22.22       | 21.25 | 20.21 |
|           |                | 2595.0          | 22.09       | 21.16 | 20.10 |
|           |                | 2577.5          | 21.96       | 21.00 | 19.94 |
|           | 100% RB        | 2612.5          | 22.10       | 21.17 | 20.18 |
|           |                | 2595.0          | 22.10       | 21.09 | 20.14 |
|           |                | 2577.5          | 21.92       | 20.94 | 19.99 |
| 20MHz     | 1 RB high      | 2610.0          | 23.35       | 22.62 | 21.66 |
|           |                | 2595.0          | 23.23       | 22.56 | 21.62 |
|           |                | 2580.0          | 23.08       | 22.40 | 21.45 |
|           | 1 RB low       | 2610.0          | 23.16       | 22.45 | 21.47 |

|  |            |        |       |       |       |
|--|------------|--------|-------|-------|-------|
|  |            | 2595.0 | 23.03 | 22.33 | 21.33 |
|  |            | 2580.0 | 22.92 | 22.19 | 21.21 |
|  | 50% RB mid | 2610.0 | 22.20 | 21.30 | 20.30 |
|  |            | 2595.0 | 22.13 | 21.18 | 20.17 |
|  |            | 2580.0 | 22.01 | 21.06 | 20.07 |
|  | 100% RB    | 2610.0 | 22.20 | 21.22 | 20.29 |
|  |            | 2595.0 | 22.10 | 21.14 | 20.19 |
|  |            | 2580.0 | 22.01 | 21.00 | 20.04 |

**LTE band 41**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2687.5          | 23.66       | 22.95 | 22.18 |
|           |                | 2593.0          | 23.68       | 23.08 | 22.31 |
|           |                | 2498.5          | 23.81       | 22.84 | 21.86 |
|           | 1 RB low       | 2687.5          | 23.45       | 22.88 | 22.01 |
|           |                | 2593.0          | 23.61       | 22.88 | 22.07 |
|           |                | 2498.5          | 23.47       | 22.58 | 21.60 |
|           | 50% RB mid     | 2687.5          | 22.64       | 21.80 | 20.62 |
|           |                | 2593.0          | 22.66       | 21.79 | 20.69 |
|           |                | 2498.5          | 22.80       | 21.92 | 20.81 |
|           | 100% RB        | 2687.5          | 22.62       | 21.65 | 20.55 |
|           |                | 2593.0          | 22.64       | 21.64 | 20.57 |
|           |                | 2498.5          | 22.74       | 21.78 | 20.67 |
| 10MHz     | 1 RB high      | 2685.0          | 23.63       | 22.83 | 21.65 |
|           |                | 2593.0          | 23.65       | 22.87 | 21.65 |
|           |                | 2501.0          | 24.08       | 23.30 | 22.03 |
|           | 1 RB low       | 2685.0          | 23.55       | 22.81 | 21.60 |
|           |                | 2593.0          | 23.67       | 22.86 | 21.60 |
|           |                | 2501.0          | 23.54       | 22.76 | 21.56 |
|           | 50% RB mid     | 2685.0          | 22.70       | 21.71 | 20.68 |
|           |                | 2593.0          | 22.74       | 21.76 | 20.79 |
|           |                | 2501.0          | 23.01       | 21.93 | 20.99 |
|           | 100% RB        | 2685.0          | 22.68       | 21.72 | 20.66 |
|           |                | 2593.0          | 22.66       | 21.75 | 20.68 |
|           |                | 2501.0          | 22.91       | 21.98 | 20.90 |
| 15MHz     | 1 RB high      | 2682.5          | 23.53       | 22.85 | 21.77 |
|           |                | 2593.0          | 23.60       | 22.94 | 21.90 |
|           |                | 2503.5          | 23.97       | 23.35 | 22.21 |
|           | 1 RB low       | 2682.5          | 23.57       | 22.83 | 21.86 |
|           |                | 2593.0          | 23.53       | 22.90 | 21.83 |
|           |                | 2503.5          | 23.38       | 22.71 | 21.69 |
|           | 50% RB mid     | 2682.5          | 22.48       | 21.60 | 20.48 |
|           |                | 2593.0          | 22.66       | 21.57 | 20.67 |
|           |                | 2503.5          | 22.98       | 21.91 | 21.00 |
|           | 100% RB        | 2682.5          | 22.56       | 21.56 | 20.64 |
|           |                | 2593.0          | 22.51       | 21.57 | 20.60 |
|           |                | 2503.5          | 22.83       | 21.84 | 20.90 |
| 20MHz     | 1 RB high      | 2680.0          | 23.63       | 22.92 | 21.94 |
|           |                | 2593.0          | 23.71       | 23.04 | 22.06 |
|           |                | 2506.0          | 24.05       | 23.33 | 22.33 |
|           | 1 RB low       | 2680.0          | 23.52       | 22.84 | 21.92 |

|  |            |        |       |       |       |
|--|------------|--------|-------|-------|-------|
|  |            | 2593.0 | 23.62 | 22.90 | 21.89 |
|  |            | 2506.0 | 23.41 | 22.71 | 21.79 |
|  | 50% RB mid | 2680.0 | 22.53 | 21.66 | 20.55 |
|  |            | 2593.0 | 22.65 | 21.62 | 20.73 |
|  |            | 2506.0 | 23.04 | 22.09 | 21.13 |
|  | 100% RB    | 2680.0 | 22.59 | 21.62 | 20.67 |
|  |            | 2593.0 | 22.65 | 21.70 | 20.71 |
|  |            | 2506.0 | 22.93 | 21.96 | 20.98 |

**LTE CA Band 7C**

| Bandwidth    | Frequency (MHz) | Frequency (MHz) | Modulation | PCC RB |        | SCC RB |        | Conducted Power(dBm) |
|--------------|-----------------|-----------------|------------|--------|--------|--------|--------|----------------------|
|              |                 |                 |            | Size   | Offset | Size   | Offset |                      |
| 10MHz/20 MHz | 2525.6          | 2540            | QPSK       | 50     | 0      | 100    | 0      | 22.13                |
|              |                 |                 |            | 1      | 49     | 1      | 0      | 23.86                |
|              |                 |                 | 16QAM      | 50     | 0      | 100    | 0      | 18.09                |
|              |                 |                 |            | 1      | 49     | 1      | 0      | 18.13                |
|              |                 |                 | 64QAM      | 50     | 0      | 100    | 0      | 21.11                |
|              |                 |                 |            | 1      | 49     | 1      | 0      | 21.75                |
| 15MHz/10 MHz | 2530.1          | 2542.1          | QPSK       | 75     | 0      | 50     | 0      | 22.14                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.92                |
|              |                 |                 | 16QAM      | 75     | 0      | 50     | 0      | 21.21                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.13                |
|              |                 |                 | 64QAM      | 75     | 0      | 50     | 0      | 21.21                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 22.04                |
| 15MHz/15 MHz | 2527.5          | 2542.5          | QPSK       | 75     | 0      | 75     | 0      | 22.05                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.92                |
|              |                 |                 | 16QAM      | 75     | 0      | 75     | 0      | 21.18                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.10                |
|              |                 |                 | 64QAM      | 75     | 0      | 75     | 0      | 21.26                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 21.98                |
| 15MHz/20 MHz | 2525.3          | 2542.4          | QPSK       | 75     | 0      | 100    | 0      | 22.11                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.91                |
|              |                 |                 | 16QAM      | 75     | 0      | 100    | 0      | 21.26                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 23.17                |
|              |                 |                 | 64QAM      | 75     | 0      | 100    | 0      | 21.28                |
|              |                 |                 |            | 1      | 74     | 1      | 0      | 21.83                |
| 20MHz/10 MHz | 2530.1          | 2544.5          | QPSK       | 100    | 0      | 50     | 0      | 22.08                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 24.11                |
|              |                 |                 | 16QAM      | 100    | 0      | 50     | 0      | 21.21                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 23.10                |
|              |                 |                 | 64QAM      | 100    | 0      | 50     | 0      | 21.17                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 22.05                |
| 20MHz/15 MHz | 2527.6          | 2544.7          | QPSK       | 100    | 0      | 75     | 0      | 22.11                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 24.06                |
|              |                 |                 | 16QAM      | 100    | 0      | 75     | 0      | 21.19                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 23.01                |
|              |                 |                 | 64QAM      | 100    | 0      | 75     | 0      | 21.19                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 22.12                |
| 20MHz/20 MHz | 2525.1          | 2544.9          | QPSK       | 100    | 0      | 100    | 0      | 22.13                |
|              |                 |                 |            | 1      | 99     | 1      | 0      | 24.03                |
|              |                 |                 | 16QAM      | 100    | 0      | 100    | 0      | 21.24                |



I22Z61952-WMD03

|  |  |  |       |     |    |     |   |       |
|--|--|--|-------|-----|----|-----|---|-------|
|  |  |  |       | 1   | 99 | 1   | 0 | 23.03 |
|  |  |  | 64QAM | 100 | 0  | 100 | 0 | 21.23 |
|  |  |  |       | 1   | 99 | 1   | 0 | 22.05 |

**LTE CA Band 41C**

| Bandwidth       | Frequency (MHz) | Frequency (MHz) | Modulation | PCC RB |        | SCC RB |        | Conducted Power(dBm) |
|-----------------|-----------------|-----------------|------------|--------|--------|--------|--------|----------------------|
|                 |                 |                 |            | Size   | Offset | Size   | Offset |                      |
| 5MHz/<br>20MHz  | 2583.8          | 2595.5          | QPSK       | 25     | 0      | 100    | 0      | 22.60                |
|                 |                 |                 |            | 1      | 24     | 1      | 0      | 24.26                |
|                 |                 |                 | 16QAM      | 25     | 0      | 100    | 0      | 21.57                |
|                 |                 |                 |            | 1      | 24     | 1      | 0      | 23.40                |
|                 |                 |                 | 64QAM      | 25     | 0      | 100    | 0      | 21.48                |
|                 |                 |                 |            | 1      | 24     | 1      | 0      | 22.40                |
| 10MHz/<br>15MHz | 2585.9          | 2597.9          | QPSK       | 50     | 0      | 75     | 0      | 22.54                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 24.19                |
|                 |                 |                 | 16QAM      | 50     | 0      | 75     | 0      | 21.59                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 23.35                |
|                 |                 |                 | 64QAM      | 50     | 0      | 75     | 0      | 21.57                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 22.23                |
| 10MHz/<br>20MHz | 2583.6          | 2598.0          | QPSK       | 50     | 0      | 100    | 0      | 22.65                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 24.27                |
|                 |                 |                 | 16QAM      | 50     | 0      | 100    | 0      | 21.60                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 23.36                |
|                 |                 |                 | 64QAM      | 50     | 0      | 100    | 0      | 21.64                |
|                 |                 |                 |            | 1      | 49     | 1      | 0      | 22.26                |
| 15MHz/<br>10MHz | 2588.1          | 2600.1          | QPSK       | 75     | 0      | 50     | 0      | 22.58                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 24.34                |
|                 |                 |                 | 16QAM      | 75     | 0      | 50     | 0      | 21.66                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 23.51                |
|                 |                 |                 | 64QAM      | 75     | 0      | 50     | 0      | 21.66                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 22.28                |
| 15MHz/<br>15MHz | 2585.5          | 2600.5          | QPSK       | 75     | 0      | 75     | 0      | 22.58                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 24.29                |
|                 |                 |                 | 16QAM      | 75     | 0      | 75     | 0      | 21.62                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 23.63                |
|                 |                 |                 | 64QAM      | 75     | 0      | 75     | 0      | 21.85                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 22.19                |
| 15MHz/<br>20MHz | 2583.3          | 2600.4          | QPSK       | 75     | 0      | 100    | 0      | 22.64                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 24.33                |
|                 |                 |                 | 16QAM      | 75     | 0      | 100    | 0      | 21.60                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 23.50                |
|                 |                 |                 | 64QAM      | 75     | 0      | 100    | 0      | 21.75                |
|                 |                 |                 |            | 1      | 74     | 1      | 0      | 22.51                |
| 20MHz/<br>5MHz  | 2590.5          | 2602.2          | QPSK       | 100    | 0      | 25     | 0      | 22.72                |
|                 |                 |                 |            | 1      | 99     | 1      | 0      | 24.76                |
|                 |                 |                 | 16QAM      | 100    | 0      | 25     | 0      | 21.67                |
|                 |                 |                 |            | 1      | 99     | 1      | 0      | 23.68                |

|                 |        |        |       |     |    |     |   |       |
|-----------------|--------|--------|-------|-----|----|-----|---|-------|
|                 |        |        | 64QAM | 100 | 0  | 25  | 0 | 21.65 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.72 |
| 20MHz/<br>10MHz | 2588.1 | 2602.5 | QPSK  | 100 | 0  | 50  | 0 | 22.66 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.51 |
|                 |        |        | 16QAM | 100 | 0  | 50  | 0 | 21.73 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.53 |
|                 |        |        | 64QAM | 100 | 0  | 50  | 0 | 21.60 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.69 |
| 20MHz/<br>15MHz | 2585.6 | 2602.7 | QPSK  | 100 | 0  | 75  | 0 | 22.65 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.45 |
|                 |        |        | 16QAM | 100 | 0  | 75  | 0 | 21.60 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.28 |
|                 |        |        | 64QAM | 100 | 0  | 75  | 0 | 21.60 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.38 |
| 20MHz/<br>20MHz | 2583.1 | 2602.9 | QPSK  | 100 | 0  | 100 | 0 | 22.68 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.35 |
|                 |        |        | 16QAM | 100 | 0  | 100 | 0 | 21.57 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.31 |
|                 |        |        | 64QAM | 100 | 0  | 100 | 0 | 21.63 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.52 |

### A.1.3 Radiated

#### A.1.3.1 Description

This is the test for the maximum radiated power from the EUT.

**LTE Band 2:** 24.232(c) specifies "Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications."

**LTE Band 4:** Rule Part 27.50(d) specifies "Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP."

**LTE Band 5:** 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts"

**LTE Band 7:** Rule Part 27.50(h)(2) specifies, " Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power."

**FDD Band 38:** 27.50(h)(2) specifies " Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power".

**FDD Band 41:** 27.50(h)(2) specifies " Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power".

#### A.1.3.2 Method of Measurement

ANSI C63.26 chapter 5.2.5.5: when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts).

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Mea}} + G_T$$

Where

|                  |                                                                                                                                                           |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERP or EIRP      | effective radiated power or equivalent isotropically radiated power, respectively<br>(expressed in the same units as $P_{\text{Mea}}$ , e.g., dBm or dBW) |
| $P_{\text{Mea}}$ | measured transmitter output power or PSD, in dBm or dBW                                                                                                   |
| $G_T$            | gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)                                                                                              |

The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

### LTE band 2-EIRP

**Limits:** ≤33dBm (2W)

Max EIRP: 21.56dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | EIRP(dBm)(Gt-Lc =-1.1) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|------------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                   | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1909.3          | 22.31                | 21.64 | 21.52 | 21.21                  | 20.54 | 20.42 |
|           |                | 1880            | 22.39                | 21.61 | 21.63 | 21.29                  | 20.51 | 20.53 |
|           |                | 1850.7          | 22.47                | 21.75 | 21.68 | 21.37                  | 20.65 | 20.58 |
|           | 1 RB low       | 1909.3          | 22.34                | 21.68 | 21.73 | 21.24                  | 20.58 | 20.63 |
|           |                | 1880            | 22.41                | 21.72 | 21.71 | 21.31                  | 20.62 | 20.61 |
|           |                | 1850.7          | 22.59                | 21.69 | 21.57 | 21.49                  | 20.59 | 20.47 |
|           | 50% RB mid     | 1909.3          | 22.46                | 21.56 | 21.46 | 21.36                  | 20.46 | 20.36 |
|           |                | 1880            | 22.47                | 21.75 | 21.57 | 21.37                  | 20.65 | 20.47 |
|           |                | 1850.7          | 22.48                | 21.63 | 21.67 | 21.38                  | 20.53 | 20.57 |
|           | 100% RB        | 1909.3          | 21.45                | 20.41 | 20.37 | 20.35                  | 19.31 | 19.27 |
|           |                | 1880            | 21.46                | 20.45 | 20.53 | 20.36                  | 19.35 | 19.43 |
|           |                | 1850.7          | 21.51                | 20.67 | 20.73 | 20.41                  | 19.57 | 19.63 |
| 3MHz      | 1 RB high      | 1908.5          | 22.46                | 21.75 | 21.63 | 21.36                  | 20.65 | 20.53 |
|           |                | 1880            | 22.37                | 21.67 | 21.89 | 21.27                  | 20.57 | 20.79 |
|           |                | 1851.5          | 22.56                | 21.75 | 21.8  | 21.46                  | 20.65 | 20.70 |
|           | 1 RB low       | 1908.5          | 22.58                | 21.84 | 21.67 | 21.48                  | 20.74 | 20.57 |
|           |                | 1880            | 22.57                | 21.71 | 21.79 | 21.47                  | 20.61 | 20.69 |
|           |                | 1851.5          | 22.66                | 21.86 | 21.91 | 21.56                  | 20.76 | 20.81 |
|           | 50% RB mid     | 1908.5          | 21.54                | 20.68 | 20.59 | 20.44                  | 19.58 | 19.49 |
|           |                | 1880            | 21.64                | 20.62 | 20.6  | 20.54                  | 19.52 | 19.50 |
|           |                | 1851.5          | 21.71                | 20.7  | 20.61 | 20.61                  | 19.60 | 19.51 |
|           | 100% RB        | 1908.5          | 21.54                | 20.54 | 20.48 | 20.44                  | 19.44 | 19.38 |
|           |                | 1880            | 21.53                | 20.62 | 20.53 | 20.43                  | 19.52 | 19.43 |
|           |                | 1851.5          | 21.61                | 20.69 | 20.58 | 20.51                  | 19.59 | 19.48 |
| 5MHz      | 1 RB high      | 1907.5          | 22.5                 | 21.66 | 21.67 | 21.40                  | 20.56 | 20.57 |
|           |                | 1880            | 22.51                | 21.67 | 21.67 | 21.41                  | 20.57 | 20.57 |
|           |                | 1852.5          | 22.44                | 21.76 | 21.74 | 21.34                  | 20.66 | 20.64 |
|           | 1 RB low       | 1907.5          | 22.5                 | 21.77 | 21.73 | 21.40                  | 20.67 | 20.63 |
|           |                | 1880            | 22.57                | 21.78 | 21.8  | 21.47                  | 20.68 | 20.70 |
|           |                | 1852.5          | 22.6                 | 21.88 | 21.82 | 21.50                  | 20.78 | 20.72 |
|           | 50% RB mid     | 1907.5          | 21.53                | 20.6  | 20.52 | 20.43                  | 19.50 | 19.42 |
|           |                | 1880            | 21.56                | 20.61 | 20.61 | 20.46                  | 19.51 | 19.51 |
|           |                | 1852.5          | 21.62                | 20.7  | 20.59 | 20.52                  | 19.60 | 19.49 |
|           | 100% RB        | 1907.5          | 21.53                | 20.54 | 20.59 | 20.43                  | 19.44 | 19.49 |
|           |                | 1880            | 21.51                | 20.56 | 20.5  | 20.41                  | 19.46 | 19.40 |
|           |                | 1852.5          | 21.66                | 20.62 | 20.56 | 20.56                  | 19.52 | 19.46 |
| 10MHz     | 1 RB high      | 1905            | 22.4                 | 21.86 | 21.64 | 21.30                  | 20.76 | 20.54 |

|       |            |        |       |       |       |       |       |       |
|-------|------------|--------|-------|-------|-------|-------|-------|-------|
|       |            | 1880   | 22.44 | 21.78 | 21.51 | 21.34 | 20.68 | 20.41 |
|       |            | 1855   | 22.42 | 21.79 | 21.38 | 21.32 | 20.69 | 20.28 |
|       |            | 1905   | 22.54 | 21.91 | 21.6  | 21.44 | 20.81 | 20.50 |
|       | 1 RB low   | 1880   | 22.66 | 21.74 | 21.61 | 21.56 | 20.64 | 20.51 |
|       |            | 1855   | 22.59 | 22.03 | 21.67 | 21.49 | 20.93 | 20.57 |
|       |            | 1905   | 21.57 | 20.53 | 20.56 | 20.47 | 19.43 | 19.46 |
|       | 50% RB mid | 1880   | 21.68 | 20.61 | 20.63 | 20.58 | 19.51 | 19.53 |
|       |            | 1855   | 21.66 | 20.62 | 20.72 | 20.56 | 19.52 | 19.62 |
|       |            | 1905   | 21.46 | 20.46 | 20.49 | 20.36 | 19.36 | 19.39 |
|       | 100% RB    | 1880   | 21.56 | 20.6  | 20.64 | 20.46 | 19.50 | 19.54 |
|       |            | 1855   | 21.65 | 20.69 | 20.51 | 20.55 | 19.59 | 19.41 |
| 15MHz | 1 RB high  | 1902.5 | 22.38 | 21.58 | 21.52 | 21.28 | 20.48 | 20.42 |
|       |            | 1880   | 22.31 | 21.6  | 21.49 | 21.21 | 20.50 | 20.39 |
|       |            | 1857.5 | 22.35 | 21.72 | 21.53 | 21.25 | 20.62 | 20.43 |
|       | 1 RB low   | 1902.5 | 22.31 | 21.7  | 21.47 | 21.21 | 20.60 | 20.37 |
|       |            | 1880   | 22.39 | 21.62 | 21.51 | 21.29 | 20.52 | 20.41 |
|       |            | 1857.5 | 22.44 | 21.71 | 21.68 | 21.34 | 20.61 | 20.58 |
|       | 50% RB mid | 1902.5 | 21.47 | 20.41 | 20.44 | 20.37 | 19.31 | 19.34 |
|       |            | 1880   | 21.45 | 20.51 | 20.42 | 20.35 | 19.41 | 19.32 |
|       |            | 1857.5 | 21.58 | 20.5  | 20.49 | 20.48 | 19.40 | 19.39 |
|       | 100% RB    | 1902.5 | 21.44 | 20.43 | 20.46 | 20.34 | 19.33 | 19.36 |
|       |            | 1880   | 21.44 | 20.48 | 20.49 | 20.34 | 19.38 | 19.39 |
|       |            | 1857.5 | 21.55 | 20.5  | 20.51 | 20.45 | 19.40 | 19.41 |
| 20MHz | 1 RB high  | 1900   | 22.35 | 21.65 | 21.55 | 21.25 | 20.55 | 20.45 |
|       |            | 1880   | 22.36 | 21.62 | 21.49 | 21.26 | 20.52 | 20.39 |
|       |            | 1860   | 22.32 | 21.6  | 21.54 | 21.22 | 20.50 | 20.44 |
|       | 1 RB low   | 1900   | 22.36 | 21.71 | 21.45 | 21.26 | 20.61 | 20.35 |
|       |            | 1880   | 22.39 | 21.59 | 21.45 | 21.29 | 20.49 | 20.35 |
|       |            | 1860   | 22.39 | 21.81 | 21.58 | 21.29 | 20.71 | 20.48 |
|       | 50% RB mid | 1900   | 21.4  | 20.43 | 20.46 | 20.30 | 19.33 | 19.36 |
|       |            | 1880   | 21.57 | 20.52 | 20.53 | 20.47 | 19.42 | 19.43 |
|       |            | 1860   | 21.48 | 20.52 | 20.53 | 20.38 | 19.42 | 19.43 |
|       | 100% RB    | 1900   | 21.39 | 20.43 | 20.38 | 20.29 | 19.33 | 19.28 |
|       |            | 1880   | 21.39 | 20.42 | 20.49 | 20.29 | 19.32 | 19.39 |
|       |            | 1860   | 21.52 | 20.51 | 20.55 | 20.42 | 19.41 | 19.45 |

### LTE band 4-EIRP

**Limits:** ≤30dBm (1W)

Max EIRP: 21.02dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | EIRP(dBm)(Gt-Lc =-1.5) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|------------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                   | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1754.3          | 22.22                | 21.55 | 21.53 | 20.72                  | 20.05 | 20.03 |
|           |                | 1732.5          | 22.27                | 21.6  | 21.66 | 20.77                  | 20.10 | 20.16 |
|           |                | 1710.7          | 22.13                | 21.58 | 21.47 | 20.63                  | 20.08 | 19.97 |
|           | 1 RB low       | 1754.3          | 22.24                | 21.55 | 21.31 | 20.74                  | 20.05 | 19.81 |
|           |                | 1732.5          | 22.22                | 21.67 | 21.52 | 20.72                  | 20.17 | 20.02 |
|           |                | 1710.7          | 22.1                 | 21.5  | 21.49 | 20.60                  | 20.00 | 19.99 |
|           | 50% RB mid     | 1754.3          | 22.35                | 21.07 | 21.39 | 20.85                  | 19.57 | 19.89 |
|           |                | 1732.5          | 22.4                 | 21.45 | 21.52 | 20.90                  | 19.95 | 20.02 |
|           |                | 1710.7          | 22.29                | 21.39 | 21.37 | 20.79                  | 19.89 | 19.87 |
|           | 100% RB        | 1754.3          | 21.31                | 20.38 | 20.33 | 19.81                  | 18.88 | 18.83 |
|           |                | 1732.5          | 21.39                | 20.47 | 20.42 | 19.89                  | 18.97 | 18.92 |
|           |                | 1710.7          | 21.26                | 20.26 | 20.44 | 19.76                  | 18.76 | 18.94 |
| 3MHz      | 1 RB high      | 1753.5          | 22.29                | 21.67 | 21.61 | 20.79                  | 20.17 | 20.11 |
|           |                | 1732.5          | 22.4                 | 21.69 | 21.59 | 20.90                  | 20.19 | 20.09 |
|           |                | 1711.5          | 22.35                | 21.85 | 21.61 | 20.85                  | 20.35 | 20.11 |
|           | 1 RB low       | 1753.5          | 22.33                | 21.7  | 21.54 | 20.83                  | 20.20 | 20.04 |
|           |                | 1732.5          | 22.43                | 21.71 | 21.68 | 20.93                  | 20.21 | 20.18 |
|           |                | 1711.5          | 22.21                | 21.67 | 21.46 | 20.71                  | 20.17 | 19.96 |
|           | 50% RB mid     | 1753.5          | 21.46                | 20.55 | 20.47 | 19.96                  | 19.05 | 18.97 |
|           |                | 1732.5          | 21.42                | 20.69 | 20.56 | 19.92                  | 19.19 | 19.06 |
|           |                | 1711.5          | 21.52                | 20.6  | 20.48 | 20.02                  | 19.10 | 18.98 |
|           | 100% RB        | 1753.5          | 21.44                | 20.31 | 20.44 | 19.94                  | 18.81 | 18.94 |
|           |                | 1732.5          | 21.5                 | 20.53 | 20.44 | 20.00                  | 19.03 | 18.94 |
|           |                | 1711.5          | 21.5                 | 20.44 | 20.42 | 20.00                  | 18.94 | 18.92 |
| 5MHz      | 1 RB high      | 1752.5          | 22.37                | 21.72 | 21.69 | 20.87                  | 20.22 | 20.19 |
|           |                | 1732.5          | 22.52                | 21.71 | 21.55 | 21.02                  | 20.21 | 20.05 |
|           |                | 1712.5          | 22.48                | 21.85 | 21.72 | 20.98                  | 20.35 | 20.22 |
|           | 1 RB low       | 1752.5          | 22.38                | 21.77 | 21.72 | 20.88                  | 20.27 | 20.22 |
|           |                | 1732.5          | 22.37                | 21.77 | 21.61 | 20.87                  | 20.27 | 20.11 |
|           |                | 1712.5          | 22.35                | 21.74 | 21.41 | 20.85                  | 20.24 | 19.91 |
|           | 50% RB mid     | 1752.5          | 21.46                | 20.5  | 20.52 | 19.96                  | 19.00 | 19.02 |
|           |                | 1732.5          | 21.53                | 20.53 | 20.54 | 20.03                  | 19.03 | 19.04 |
|           |                | 1712.5          | 21.53                | 20.55 | 20.57 | 20.03                  | 19.05 | 19.07 |
|           | 100% RB        | 1752.5          | 21.47                | 20.53 | 20.49 | 19.97                  | 19.03 | 18.99 |
|           |                | 1732.5          | 21.56                | 20.58 | 20.5  | 20.06                  | 19.08 | 19.00 |
|           |                | 1712.5          | 21.54                | 20.59 | 20.6  | 20.04                  | 19.09 | 19.10 |
| 10MHz     | 1 RB high      | 1750            | 22.13                | 21.74 | 21.44 | 20.63                  | 20.24 | 19.94 |

|       |            |        |       |       |       |       |       |       |
|-------|------------|--------|-------|-------|-------|-------|-------|-------|
|       |            | 1732.5 | 22.26 | 21.77 | 21.64 | 20.76 | 20.27 | 20.14 |
|       |            | 1715   | 22.44 | 21.78 | 21.79 | 20.94 | 20.28 | 20.29 |
|       | 1 RB low   | 1750   | 22.34 | 21.8  | 21.58 | 20.84 | 20.30 | 20.08 |
|       |            | 1732.5 | 22.27 | 21.73 | 21.54 | 20.77 | 20.23 | 20.04 |
|       | 50% RB mid | 1715   | 22.32 | 21.88 | 21.59 | 20.82 | 20.38 | 20.09 |
|       |            | 1750   | 21.49 | 20.46 | 20.52 | 19.99 | 18.96 | 19.02 |
|       |            | 1732.5 | 21.53 | 20.57 | 20.6  | 20.03 | 19.07 | 19.10 |
|       | 100% RB    | 1715   | 21.63 | 20.67 | 20.6  | 20.13 | 19.17 | 19.10 |
|       |            | 1750   | 21.32 | 20.49 | 20.46 | 19.82 | 18.99 | 18.96 |
|       |            | 1732.5 | 21.51 | 20.53 | 20.52 | 20.01 | 19.03 | 19.02 |
| 15MHz | 1 RB high  | 1715   | 21.58 | 20.62 | 20.46 | 20.08 | 19.12 | 18.96 |
|       |            | 1747.5 | 22.3  | 21.56 | 21.37 | 20.80 | 20.06 | 19.87 |
|       |            | 1732.5 | 22.21 | 21.6  | 21.47 | 20.71 | 20.10 | 19.97 |
|       | 1 RB low   | 1717.5 | 22.27 | 21.54 | 20.81 | 20.77 | 20.04 | 19.31 |
|       |            | 1747.5 | 22.28 | 21.67 | 21.52 | 20.78 | 20.17 | 20.02 |
|       |            | 1732.5 | 22.28 | 21.59 | 21.51 | 20.78 | 20.09 | 20.01 |
|       | 50% RB mid | 1717.5 | 22.16 | 21.55 | 20.61 | 20.66 | 20.05 | 19.11 |
|       |            | 1747.5 | 21.36 | 20.31 | 20.34 | 19.86 | 18.81 | 18.84 |
|       |            | 1732.5 | 21.45 | 20.45 | 20.45 | 19.95 | 18.95 | 18.95 |
|       | 100% RB    | 1717.5 | 21.56 | 20.55 | 19.61 | 20.06 | 19.05 | 18.11 |
|       |            | 1747.5 | 21.27 | 20.38 | 20.27 | 19.77 | 18.88 | 18.77 |
|       |            | 1732.5 | 21.37 | 20.39 | 19.39 | 19.87 | 18.89 | 17.89 |
| 20MHz | 1 RB high  | 1717.5 | 21.37 | 20.43 | 19.39 | 19.87 | 18.93 | 17.89 |
|       |            | 1745   | 22.07 | 21.46 | 21.39 | 20.57 | 19.96 | 19.89 |
|       |            | 1732.5 | 22.28 | 21.55 | 21.49 | 20.78 | 20.05 | 19.99 |
|       | 1 RB low   | 1720   | 22.28 | 21.56 | 21.59 | 20.78 | 20.06 | 20.09 |
|       |            | 1745   | 22.18 | 21.72 | 21.64 | 20.68 | 20.22 | 20.14 |
|       |            | 1732.5 | 22.3  | 21.59 | 21.58 | 20.80 | 20.09 | 20.08 |
|       | 50% RB mid | 1720   | 22.13 | 21.61 | 21.52 | 20.63 | 20.11 | 20.02 |
|       |            | 1745   | 21.37 | 20.45 | 20.29 | 19.87 | 18.95 | 18.79 |
|       |            | 1732.5 | 21.35 | 20.44 | 20.38 | 19.85 | 18.94 | 18.88 |
|       | 100% RB    | 1720   | 21.5  | 20.45 | 20.45 | 20.00 | 18.95 | 18.95 |
|       |            | 1745   | 21.37 | 20.37 | 20.36 | 19.87 | 18.87 | 18.86 |
|       |            | 1732.5 | 21.44 | 20.36 | 20.29 | 19.94 | 18.86 | 18.79 |
|       |            | 1720   | 21.46 | 20.43 | 20.48 | 19.96 | 18.93 | 18.98 |

### LTE band 5- ERP

**Limits:** ≤38.45dBm (7W)

Max ERP: 20.99dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | ERP(dBm)(Gt-Lc =-1.3) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|-----------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                  | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 848.3           | 23.64                | 22.87 | 22.02 | 20.19                 | 19.42 | 18.57 |
|           |                | 836.5           | 24.15                | 23.53 | 22.34 | 20.70                 | 20.08 | 18.89 |
|           |                | 824.7           | 24.16                | 23.4  | 22.39 | 20.71                 | 19.95 | 18.94 |
|           | 1 RB low       | 848.3           | 23.9                 | 23.01 | 22.04 | 20.45                 | 19.56 | 18.59 |
|           |                | 836.5           | 24.1                 | 23.34 | 22.48 | 20.65                 | 19.89 | 19.03 |
|           |                | 824.7           | 24.18                | 23.37 | 22.35 | 20.73                 | 19.92 | 18.90 |
|           | 50% RB mid     | 848.3           | 23.74                | 22.72 | 22.01 | 20.29                 | 19.27 | 18.56 |
|           |                | 836.5           | 24.21                | 23.06 | 22.41 | 20.76                 | 19.61 | 18.96 |
|           |                | 824.7           | 24.09                | 23.25 | 22.39 | 20.64                 | 19.80 | 18.94 |
|           | 100% RB        | 848.3           | 22.84                | 21.91 | 21.05 | 19.39                 | 18.46 | 17.60 |
|           |                | 836.5           | 23.16                | 22.14 | 21.27 | 19.71                 | 18.69 | 17.82 |
|           |                | 824.7           | 23.35                | 22.39 | 21.3  | 19.90                 | 18.94 | 17.85 |
| 3MHz      | 1 RB high      | 847.5           | 23.87                | 23.07 | 21.98 | 20.42                 | 19.62 | 18.53 |
|           |                | 836.5           | 24.38                | 23.81 | 22.5  | 20.93                 | 20.36 | 19.05 |
|           |                | 825.5           | 24.19                | 23.53 | 22.31 | 20.74                 | 20.08 | 18.86 |
|           | 1 RB low       | 847.5           | 24.28                | 23.61 | 22.47 | 20.83                 | 20.16 | 19.02 |
|           |                | 836.5           | 24.23                | 23.64 | 22.51 | 20.78                 | 20.19 | 19.06 |
|           |                | 825.5           | 24.44                | 23.63 | 22.33 | 20.99                 | 20.18 | 18.88 |
|           | 50% RB mid     | 847.5           | 23.07                | 22.15 | 21.22 | 19.62                 | 18.70 | 17.77 |
|           |                | 836.5           | 23.31                | 22.32 | 21.3  | 19.86                 | 18.87 | 17.85 |
|           |                | 825.5           | 23.3                 | 22.36 | 21.45 | 19.85                 | 18.91 | 18.00 |
|           | 100% RB        | 847.5           | 23.08                | 22.11 | 21.11 | 19.63                 | 18.66 | 17.66 |
|           |                | 836.5           | 23.27                | 22.35 | 21.27 | 19.82                 | 18.90 | 17.82 |
|           |                | 825.5           | 23.25                | 22.38 | 21.49 | 19.80                 | 18.93 | 18.04 |
| 5MHz      | 1 RB high      | 846.5           | 23.84                | 23.16 | 21.94 | 20.39                 | 19.71 | 18.49 |
|           |                | 836.5           | 24.37                | 23.1  | 22.55 | 20.92                 | 19.65 | 19.10 |
|           |                | 826.5           | 24.23                | 23.48 | 22.41 | 20.78                 | 20.03 | 18.96 |
|           | 1 RB low       | 846.5           | 24.35                | 23.63 | 22.56 | 20.90                 | 20.18 | 19.11 |
|           |                | 836.5           | 24.38                | 23.55 | 22.54 | 20.93                 | 20.10 | 19.09 |
|           |                | 826.5           | 24.28                | 23.64 | 22.46 | 20.83                 | 20.19 | 19.01 |
|           | 50% RB mid     | 846.5           | 23.27                | 22.29 | 21.37 | 19.82                 | 18.84 | 17.92 |
|           |                | 836.5           | 23.34                | 22.33 | 21.48 | 19.89                 | 18.88 | 18.03 |
|           |                | 826.5           | 23.32                | 22.36 | 21.32 | 19.87                 | 18.91 | 17.87 |
|           | 100% RB        | 846.5           | 23.32                | 22.28 | 21.38 | 19.87                 | 18.83 | 17.93 |
|           |                | 836.5           | 23.29                | 22.27 | 21.43 | 19.84                 | 18.82 | 17.98 |
|           |                | 826.5           | 23.28                | 22.4  | 21.41 | 19.83                 | 18.95 | 17.96 |
| 10MHz     | 1 RB high      | 844.0           | 23.91                | 23.1  | 22.09 | 20.46                 | 19.65 | 18.64 |

|  |               |       |       |       |       |       |       |       |
|--|---------------|-------|-------|-------|-------|-------|-------|-------|
|  |               | 836.5 | 24.28 | 23.89 | 22.67 | 20.83 | 20.44 | 19.22 |
|  |               | 829.0 | 24.24 | 23.71 | 22.52 | 20.79 | 20.26 | 19.07 |
|  | 1 RB low      | 844.0 | 24.23 | 23.79 | 22.56 | 20.78 | 20.34 | 19.11 |
|  |               | 836.5 | 24.11 | 23.68 | 22.62 | 20.66 | 20.23 | 19.17 |
|  |               | 829.0 | 24.2  | 23.81 | 22.64 | 20.75 | 20.36 | 19.19 |
|  | 50% RB<br>mid | 844.0 | 23.53 | 22.46 | 21.55 | 20.08 | 19.01 | 18.10 |
|  |               | 836.5 | 23.26 | 22.37 | 21.44 | 19.81 | 18.92 | 17.99 |
|  |               | 829.0 | 23.27 | 22.34 | 21.39 | 19.82 | 18.89 | 17.94 |
|  | 100% RB       | 844.0 | 23.41 | 22.4  | 21.48 | 19.96 | 18.95 | 18.03 |
|  |               | 836.5 | 23.27 | 22.35 | 21.47 | 19.82 | 18.90 | 18.02 |
|  |               | 829.0 | 23.24 | 22.29 | 21.34 | 19.79 | 18.84 | 17.89 |

**LTE band 7-EIRP**
**Limits:** ≤33dBm (2W)

Max EIRP: 22.66dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | EIRP(dBm)(Gt-Lc =-0.8) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|------------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                   | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2567.5          | 23.38                | 22.84 | 21.49 | 22.58                  | 22.04 | 20.69 |
|           |                | 2535.0          | 23.26                | 22.70 | 21.52 | 22.46                  | 21.90 | 20.72 |
|           |                | 2502.5          | 23.17                | 22.55 | 21.27 | 22.37                  | 21.75 | 20.47 |
|           | 1 RB low       | 2567.5          | 23.26                | 22.70 | 21.59 | 22.46                  | 21.90 | 20.79 |
|           |                | 2535.0          | 23.14                | 22.61 | 21.39 | 22.34                  | 21.81 | 20.59 |
|           |                | 2502.5          | 23.09                | 22.43 | 21.26 | 22.29                  | 21.63 | 20.46 |
|           | 50% RB mid     | 2567.5          | 22.46                | 21.43 | 20.50 | 21.66                  | 20.63 | 19.70 |
|           |                | 2535.0          | 22.40                | 21.39 | 20.34 | 21.60                  | 20.59 | 19.54 |
|           |                | 2502.5          | 22.15                | 21.29 | 20.22 | 21.35                  | 20.49 | 19.42 |
|           | 100% RB        | 2567.5          | 22.46                | 21.58 | 20.45 | 21.66                  | 20.78 | 19.65 |
|           |                | 2535.0          | 22.33                | 21.38 | 20.29 | 21.53                  | 20.58 | 19.49 |
|           |                | 2502.5          | 22.19                | 21.18 | 20.16 | 21.39                  | 20.38 | 19.36 |
| 10MHz     | 1 RB high      | 2565.0          | 23.44                | 22.56 | 21.64 | 22.64                  | 21.76 | 20.84 |
|           |                | 2535.0          | 23.35                | 22.90 | 21.62 | 22.55                  | 22.10 | 20.82 |
|           |                | 2505.0          | 23.14                | 22.69 | 21.39 | 22.34                  | 21.89 | 20.59 |
|           | 1 RB low       | 2565.0          | 23.46                | 22.54 | 21.89 | 22.66                  | 21.74 | 21.09 |
|           |                | 2535.0          | 23.17                | 22.66 | 21.41 | 22.37                  | 21.86 | 20.61 |
|           |                | 2505.0          | 23.06                | 22.60 | 21.39 | 22.26                  | 21.80 | 20.59 |
|           | 50% RB mid     | 2565.0          | 22.42                | 21.45 | 20.50 | 21.62                  | 20.65 | 19.70 |
|           |                | 2535.0          | 22.36                | 21.41 | 20.42 | 21.56                  | 20.61 | 19.62 |
|           |                | 2505.0          | 22.16                | 21.26 | 20.34 | 21.36                  | 20.46 | 19.54 |
|           | 100% RB        | 2565.0          | 22.45                | 21.45 | 20.37 | 21.65                  | 20.65 | 19.57 |
|           |                | 2535.0          | 22.33                | 21.33 | 20.24 | 21.53                  | 20.53 | 19.44 |
|           |                | 2505.0          | 22.15                | 21.22 | 20.16 | 21.35                  | 20.42 | 19.36 |
| 15MHz     | 1 RB high      | 2562.5          | 23.14                | 22.49 | 21.66 | 22.34                  | 21.69 | 20.86 |
|           |                | 2535.0          | 23.08                | 22.50 | 21.50 | 22.28                  | 21.70 | 20.70 |
|           |                | 2507.5          | 22.92                | 22.32 | 21.41 | 22.12                  | 21.52 | 20.61 |
|           | 1 RB low       | 2562.5          | 23.14                | 22.73 | 21.76 | 22.34                  | 21.93 | 20.96 |
|           |                | 2535.0          | 22.98                | 22.45 | 21.38 | 22.18                  | 21.65 | 20.58 |
|           |                | 2507.5          | 22.78                | 22.27 | 21.37 | 21.98                  | 21.47 | 20.57 |
|           | 50% RB mid     | 2562.5          | 22.33                | 21.27 | 20.28 | 21.53                  | 20.47 | 19.48 |
|           |                | 2535.0          | 22.26                | 21.20 | 20.19 | 21.46                  | 20.40 | 19.39 |
|           |                | 2507.5          | 22.02                | 21.17 | 20.15 | 21.22                  | 20.37 | 19.35 |
|           | 100% RB        | 2562.5          | 22.28                | 21.32 | 20.32 | 21.48                  | 20.52 | 19.52 |
|           |                | 2535.0          | 22.22                | 21.27 | 20.26 | 21.42                  | 20.47 | 19.46 |
|           |                | 2507.5          | 22.06                | 21.11 | 20.08 | 21.26                  | 20.31 | 19.28 |
| 20MHz     | 1 RB high      | 2560.0          | 23.11                | 22.59 | 21.44 | 22.31                  | 21.79 | 20.64 |

|  |               |        |       |       |       |       |       |       |
|--|---------------|--------|-------|-------|-------|-------|-------|-------|
|  |               | 2535.0 | 22.91 | 22.42 | 21.32 | 22.11 | 21.62 | 20.52 |
|  |               | 2510.0 | 22.95 | 22.33 | 21.40 | 22.15 | 21.53 | 20.60 |
|  | 1 RB low      | 2560.0 | 23.03 | 22.48 | 21.35 | 22.23 | 21.68 | 20.55 |
|  |               | 2535.0 | 22.90 | 22.28 | 21.12 | 22.10 | 21.48 | 20.32 |
|  |               | 2510.0 | 22.86 | 22.46 | 21.04 | 22.06 | 21.66 | 20.24 |
|  | 50% RB<br>mid | 2560.0 | 22.35 | 21.36 | 20.33 | 21.55 | 20.56 | 19.53 |
|  |               | 2535.0 | 22.12 | 21.17 | 20.19 | 21.32 | 20.37 | 19.39 |
|  |               | 2510.0 | 22.19 | 21.13 | 20.19 | 21.39 | 20.33 | 19.39 |
|  | 100% RB       | 2560.0 | 22.18 | 21.26 | 20.24 | 21.38 | 20.46 | 19.44 |
|  |               | 2535.0 | 22.04 | 21.18 | 20.09 | 21.24 | 20.38 | 19.29 |
|  |               | 2510.0 | 22.19 | 21.16 | 20.25 | 21.39 | 20.36 | 19.45 |

**LTE band 38- EIRP**
**Limits:** ≤33.00dBm (2W)

Max ERP: 22.55dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | EIRP(dBm)(Gt-Lc =-0.8) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|------------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                   | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2617.5          | 23.35                | 22.43 | 21.35 | 22.55                  | 21.63 | 20.55 |
|           |                | 2595.0          | 23.14                | 22.61 | 21.70 | 22.34                  | 21.81 | 20.90 |
|           |                | 2572.5          | 23.01                | 22.16 | 21.08 | 22.21                  | 21.36 | 20.28 |
|           | 1 RB low       | 2617.5          | 23.34                | 22.43 | 21.34 | 22.54                  | 21.63 | 20.54 |
|           |                | 2595.0          | 23.12                | 22.46 | 21.60 | 22.32                  | 21.66 | 20.80 |
|           |                | 2572.5          | 22.98                | 22.07 | 20.94 | 22.18                  | 21.27 | 20.14 |
|           | 50% RB mid     | 2617.5          | 22.38                | 21.56 | 20.39 | 21.58                  | 20.76 | 19.59 |
|           |                | 2595.0          | 22.21                | 21.37 | 20.19 | 21.41                  | 20.57 | 19.39 |
|           |                | 2572.5          | 22.02                | 21.18 | 20.03 | 21.22                  | 20.38 | 19.23 |
|           | 100% RB        | 2617.5          | 22.38                | 21.43 | 20.32 | 21.58                  | 20.63 | 19.52 |
|           |                | 2595.0          | 22.19                | 21.23 | 20.11 | 21.39                  | 20.43 | 19.31 |
|           |                | 2572.5          | 22.01                | 21.04 | 19.96 | 21.21                  | 20.24 | 19.16 |
| 10MHz     | 1 RB high      | 2615.0          | 23.33                | 22.54 | 21.37 | 22.53                  | 21.74 | 20.57 |
|           |                | 2595.0          | 23.13                | 22.36 | 21.18 | 22.33                  | 21.56 | 20.38 |
|           |                | 2575.0          | 22.94                | 22.13 | 20.94 | 22.14                  | 21.33 | 20.14 |
|           | 1 RB low       | 2615.0          | 23.28                | 22.47 | 21.23 | 22.48                  | 21.67 | 20.43 |
|           |                | 2595.0          | 23.10                | 22.29 | 21.05 | 22.30                  | 21.49 | 20.25 |
|           |                | 2575.0          | 22.93                | 22.14 | 20.93 | 22.13                  | 21.34 | 20.13 |
|           | 50% RB mid     | 2615.0          | 22.39                | 21.34 | 20.41 | 21.59                  | 20.54 | 19.61 |
|           |                | 2595.0          | 22.27                | 21.29 | 20.26 | 21.47                  | 20.49 | 19.46 |
|           |                | 2575.0          | 22.05                | 21.11 | 20.06 | 21.25                  | 20.31 | 19.26 |
|           | 100% RB        | 2615.0          | 22.34                | 21.36 | 20.32 | 21.54                  | 20.56 | 19.52 |
|           |                | 2595.0          | 22.26                | 21.33 | 20.25 | 21.46                  | 20.53 | 19.45 |
|           |                | 2575.0          | 22.07                | 21.11 | 20.03 | 21.27                  | 20.31 | 19.23 |
| 15MHz     | 1 RB high      | 2612.5          | 23.23                | 22.55 | 21.57 | 22.43                  | 21.75 | 20.77 |
|           |                | 2595.0          | 23.13                | 22.46 | 21.49 | 22.33                  | 21.66 | 20.69 |
|           |                | 2577.5          | 22.93                | 22.26 | 21.27 | 22.13                  | 21.46 | 20.47 |
|           | 1 RB low       | 2612.5          | 23.15                | 22.51 | 21.47 | 22.35                  | 21.71 | 20.67 |
|           |                | 2595.0          | 23.01                | 22.35 | 21.33 | 22.21                  | 21.55 | 20.53 |
|           |                | 2577.5          | 22.85                | 22.21 | 21.17 | 22.05                  | 21.41 | 20.37 |
|           | 50% RB mid     | 2612.5          | 22.22                | 21.25 | 20.21 | 21.42                  | 20.45 | 19.41 |
|           |                | 2595.0          | 22.09                | 21.16 | 20.10 | 21.29                  | 20.36 | 19.30 |
|           |                | 2577.5          | 21.96                | 21.00 | 19.94 | 21.16                  | 20.20 | 19.14 |
|           | 100% RB        | 2612.5          | 22.10                | 21.17 | 20.18 | 21.30                  | 20.37 | 19.38 |
|           |                | 2595.0          | 22.10                | 21.09 | 20.14 | 21.30                  | 20.29 | 19.34 |
|           |                | 2577.5          | 21.92                | 20.94 | 19.99 | 21.12                  | 20.14 | 19.19 |
| 20MHz     | 1 RB high      | 2610.0          | 23.35                | 22.62 | 21.66 | 22.55                  | 21.82 | 20.86 |

|  |               |        |       |       |       |       |       |       |
|--|---------------|--------|-------|-------|-------|-------|-------|-------|
|  |               | 2595.0 | 23.23 | 22.56 | 21.62 | 22.43 | 21.76 | 20.82 |
|  |               | 2580.0 | 23.08 | 22.40 | 21.45 | 22.28 | 21.60 | 20.65 |
|  | 1 RB low      | 2610.0 | 23.16 | 22.45 | 21.47 | 22.36 | 21.65 | 20.67 |
|  |               | 2595.0 | 23.03 | 22.33 | 21.33 | 22.23 | 21.53 | 20.53 |
|  |               | 2580.0 | 22.92 | 22.19 | 21.21 | 22.12 | 21.39 | 20.41 |
|  | 50% RB<br>mid | 2610.0 | 22.20 | 21.30 | 20.30 | 21.40 | 20.50 | 19.50 |
|  |               | 2595.0 | 22.13 | 21.18 | 20.17 | 21.33 | 20.38 | 19.37 |
|  |               | 2580.0 | 22.01 | 21.06 | 20.07 | 21.21 | 20.26 | 19.27 |
|  | 100% RB       | 2610.0 | 22.20 | 21.22 | 20.29 | 21.40 | 20.42 | 19.49 |
|  |               | 2595.0 | 22.10 | 21.14 | 20.19 | 21.30 | 20.34 | 19.39 |
|  |               | 2580.0 | 22.01 | 21.00 | 20.04 | 21.21 | 20.20 | 19.24 |

**LTE band 41**
**Limits:** ≤33dBm (2W)

Max ERP: 23.28dBm

| Bandwidth | RB size/offset | Frequency (MHz) | Conducted Power(dBm) |       |       | EIRP(dBm)(Gt-Lc =-0.8) |       |       |
|-----------|----------------|-----------------|----------------------|-------|-------|------------------------|-------|-------|
|           |                |                 | QPSK                 | 16QAM | 64QAM | QPSK                   | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2687.5          | 23.66                | 22.95 | 22.18 | 22.86                  | 22.15 | 21.38 |
|           |                | 2593.0          | 23.68                | 23.08 | 22.31 | 22.88                  | 22.28 | 21.51 |
|           |                | 2498.5          | 23.81                | 22.84 | 21.86 | 23.01                  | 22.04 | 21.06 |
|           | 1 RB low       | 2687.5          | 23.45                | 22.88 | 22.01 | 22.65                  | 22.08 | 21.21 |
|           |                | 2593.0          | 23.61                | 22.88 | 22.07 | 22.81                  | 22.08 | 21.27 |
|           |                | 2498.5          | 23.47                | 22.58 | 21.60 | 22.67                  | 21.78 | 20.80 |
|           | 50% RB mid     | 2687.5          | 22.64                | 21.80 | 20.62 | 21.84                  | 21.00 | 19.82 |
|           |                | 2593.0          | 22.66                | 21.79 | 20.69 | 21.86                  | 20.99 | 19.89 |
|           |                | 2498.5          | 22.80                | 21.92 | 20.81 | 22.00                  | 21.12 | 20.01 |
|           | 100% RB        | 2687.5          | 22.62                | 21.65 | 20.55 | 21.82                  | 20.85 | 19.75 |
|           |                | 2593.0          | 22.64                | 21.64 | 20.57 | 21.84                  | 20.84 | 19.77 |
|           |                | 2498.5          | 22.74                | 21.78 | 20.67 | 21.94                  | 20.98 | 19.87 |
| 10MHz     | 1 RB high      | 2685.0          | 23.63                | 22.83 | 21.65 | 22.83                  | 22.03 | 20.85 |
|           |                | 2593.0          | 23.65                | 22.87 | 21.65 | 22.85                  | 22.07 | 20.85 |
|           |                | 2501.0          | 24.08                | 23.30 | 22.03 | 23.28                  | 22.50 | 21.23 |
|           | 1 RB low       | 2685.0          | 23.55                | 22.81 | 21.60 | 22.75                  | 22.01 | 20.80 |
|           |                | 2593.0          | 23.67                | 22.86 | 21.60 | 22.87                  | 22.06 | 20.80 |
|           |                | 2501.0          | 23.54                | 22.76 | 21.56 | 22.74                  | 21.96 | 20.76 |
|           | 50% RB mid     | 2685.0          | 22.70                | 21.71 | 20.68 | 21.90                  | 20.91 | 19.88 |
|           |                | 2593.0          | 22.74                | 21.76 | 20.79 | 21.94                  | 20.96 | 19.99 |
|           |                | 2501.0          | 23.01                | 21.93 | 20.99 | 22.21                  | 21.13 | 20.19 |
|           | 100% RB        | 2685.0          | 22.68                | 21.72 | 20.66 | 21.88                  | 20.92 | 19.86 |
|           |                | 2593.0          | 22.66                | 21.75 | 20.68 | 21.86                  | 20.95 | 19.88 |
|           |                | 2501.0          | 22.91                | 21.98 | 20.90 | 22.11                  | 21.18 | 20.10 |
| 15MHz     | 1 RB high      | 2682.5          | 23.53                | 22.85 | 21.77 | 22.73                  | 22.05 | 20.97 |
|           |                | 2593.0          | 23.60                | 22.94 | 21.90 | 22.80                  | 22.14 | 21.10 |
|           |                | 2503.5          | 23.97                | 23.35 | 22.21 | 23.17                  | 22.55 | 21.41 |
|           | 1 RB low       | 2682.5          | 23.57                | 22.83 | 21.86 | 22.77                  | 22.03 | 21.06 |
|           |                | 2593.0          | 23.53                | 22.90 | 21.83 | 22.73                  | 22.10 | 21.03 |
|           |                | 2503.5          | 23.38                | 22.71 | 21.69 | 22.58                  | 21.91 | 20.89 |
|           | 50% RB mid     | 2682.5          | 22.48                | 21.60 | 20.48 | 21.68                  | 20.80 | 19.68 |
|           |                | 2593.0          | 22.66                | 21.57 | 20.67 | 21.86                  | 20.77 | 19.87 |
|           |                | 2503.5          | 22.98                | 21.91 | 21.00 | 22.18                  | 21.11 | 20.20 |
|           | 100% RB        | 2682.5          | 22.56                | 21.56 | 20.64 | 21.76                  | 20.76 | 19.84 |
|           |                | 2593.0          | 22.51                | 21.57 | 20.60 | 21.71                  | 20.77 | 19.80 |
|           |                | 2503.5          | 22.83                | 21.84 | 20.90 | 22.03                  | 21.04 | 20.10 |
| 20MHz     | 1 RB high      | 2680.0          | 23.63                | 22.92 | 21.94 | 22.83                  | 22.12 | 21.14 |

|  |               |        |       |       |       |       |       |       |
|--|---------------|--------|-------|-------|-------|-------|-------|-------|
|  |               | 2593.0 | 23.71 | 23.04 | 22.06 | 22.91 | 22.24 | 21.26 |
|  |               | 2506.0 | 24.05 | 23.33 | 22.33 | 23.25 | 22.53 | 21.53 |
|  | 1 RB low      | 2680.0 | 23.52 | 22.84 | 21.92 | 22.72 | 22.04 | 21.12 |
|  |               | 2593.0 | 23.62 | 22.90 | 21.89 | 22.82 | 22.10 | 21.09 |
|  |               | 2506.0 | 23.41 | 22.71 | 21.79 | 22.61 | 21.91 | 20.99 |
|  | 50% RB<br>mid | 2680.0 | 22.53 | 21.66 | 20.55 | 21.73 | 20.86 | 19.75 |
|  |               | 2593.0 | 22.65 | 21.62 | 20.73 | 21.85 | 20.82 | 19.93 |
|  |               | 2506.0 | 23.04 | 22.09 | 21.13 | 22.24 | 21.29 | 20.33 |
|  | 100% RB       | 2680.0 | 22.59 | 21.62 | 20.67 | 21.79 | 20.82 | 19.87 |
|  |               | 2593.0 | 22.65 | 21.70 | 20.71 | 21.85 | 20.90 | 19.91 |
|  |               | 2506.0 | 22.93 | 21.96 | 20.98 | 22.13 | 21.16 | 20.18 |

# LTE CA band 7C-EIRP

**Limits:** ≤33dBm (2W)

Max EIRP: 23.31dBm

| Bandwidth   | Frequency(MHz) | Frequency(MHz) | Modulation | PCC RB |        | SCC RB |        | Conducted Power(dBm) | Radiated Power(dBm)<br>(Gt-Lc = -0.8) |
|-------------|----------------|----------------|------------|--------|--------|--------|--------|----------------------|---------------------------------------|
|             |                |                |            | Size   | Offset | Size   | Offset |                      |                                       |
| 10MHz/20MHz | 2525.6         | 2540           | QPSK       | 50     | 0      | 100    | 0      | 22.13                | 21.33                                 |
|             |                |                |            | 1      | 49     | 1      | 0      | 23.86                | 23.06                                 |
|             |                |                | 16QAM      | 50     | 0      | 100    | 0      | 18.09                | 17.29                                 |
|             |                |                |            | 1      | 49     | 1      | 0      | 18.13                | 17.33                                 |
|             |                |                | 64QAM      | 50     | 0      | 100    | 0      | 21.11                | 20.31                                 |
|             |                |                |            | 1      | 49     | 1      | 0      | 21.75                | 20.95                                 |
| 15MHz/10MHz | 2530.1         | 2542           | QPSK       | 75     | 0      | 50     | 0      | 22.14                | 21.34                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.92                | 23.12                                 |
|             |                |                | 16QAM      | 75     | 0      | 50     | 0      | 21.21                | 20.41                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.13                | 22.33                                 |
|             |                |                | 64QAM      | 75     | 0      | 50     | 0      | 21.21                | 20.41                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 22.04                | 21.24                                 |
| 15MHz/15MHz | 2527.5         | 2543           | QPSK       | 75     | 0      | 75     | 0      | 22.05                | 21.25                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.92                | 23.12                                 |
|             |                |                | 16QAM      | 75     | 0      | 75     | 0      | 21.18                | 20.38                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.10                | 22.30                                 |
|             |                |                | 64QAM      | 75     | 0      | 75     | 0      | 21.26                | 20.46                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 21.98                | 21.18                                 |
| 15MHz/20MHz | 2525.3         | 2542           | QPSK       | 75     | 0      | 100    | 0      | 22.11                | 21.31                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.91                | 23.11                                 |
|             |                |                | 16QAM      | 75     | 0      | 100    | 0      | 21.26                | 20.46                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 23.17                | 22.37                                 |
|             |                |                | 64QAM      | 75     | 0      | 100    | 0      | 21.28                | 20.48                                 |
|             |                |                |            | 1      | 74     | 1      | 0      | 21.83                | 21.03                                 |
| 20MHz/10MHz | 2530.1         | 2545           | QPSK       | 100    | 0      | 50     | 0      | 22.08                | 21.28                                 |
|             |                |                |            | 1      | 99     | 1      | 0      | 24.11                | 23.31                                 |
|             |                |                | 16QAM      | 100    | 0      | 50     | 0      | 21.21                | 20.41                                 |
|             |                |                |            | 1      | 99     | 1      | 0      | 23.10                | 22.30                                 |
|             |                |                | 64QAM      | 100    | 0      | 50     | 0      | 21.17                | 20.37                                 |
|             |                |                |            | 1      | 99     | 1      | 0      | 22.05                | 21.25                                 |
| 20MHz/15MHz | 2527.6         | 2545           | QPSK       | 100    | 0      | 75     | 0      | 22.11                | 21.31                                 |
|             |                |                |            | 1      | 99     | 1      | 0      | 24.06                | 23.26                                 |
|             |                |                | 16QAM      | 100    | 0      | 75     | 0      | 21.19                | 20.39                                 |
|             |                |                |            | 1      | 99     | 1      | 0      | 23.01                | 22.21                                 |

|             |        |      |       |     |    |     |   |       |       |
|-------------|--------|------|-------|-----|----|-----|---|-------|-------|
|             |        |      | 64QAM | 100 | 0  | 75  | 0 | 21.19 | 20.39 |
|             |        |      |       | 1   | 99 | 1   | 0 | 22.12 | 21.32 |
| 20MHz/20MHz | 2525.1 | 2545 | QPSK  | 100 | 0  | 100 | 0 | 22.13 | 21.33 |
|             |        |      |       | 1   | 99 | 1   | 0 | 24.03 | 23.23 |
|             |        |      | 16QAM | 100 | 0  | 100 | 0 | 21.24 | 20.44 |
|             |        |      |       | 1   | 99 | 1   | 0 | 23.03 | 22.23 |
|             |        |      | 64QAM | 100 | 0  | 100 | 0 | 21.23 | 20.43 |
|             |        |      |       | 1   | 99 | 1   | 0 | 22.05 | 21.25 |

**LTE CA band 41C-EIRP**
**Limits:** ≤33dBm (2W)

Max ERP: 24.12dBm

| Bandwidth    | Frequency(MHz) | Frequency(MHz) | Modulation | PCC RB |        | SCC RB |        | Conducted Power(dBm) | Radiated Power (dBm)<br>Gt-Lc = -0.8) |
|--------------|----------------|----------------|------------|--------|--------|--------|--------|----------------------|---------------------------------------|
|              |                |                |            | Size   | Offset | Size   | Offset |                      |                                       |
| 5MHz/20 MHz  | 2583.8         | 2595.5         | QPSK       | 25     | 0      | 100    | 0      | 22.60                | 21.80                                 |
|              |                |                |            | 1      | 24     | 1      | 0      | 24.26                | 23.46                                 |
|              |                |                | 16QAM      | 25     | 0      | 100    | 0      | 21.57                | 20.77                                 |
|              |                |                |            | 1      | 24     | 1      | 0      | 23.40                | 22.60                                 |
|              |                |                | 64QAM      | 25     | 0      | 100    | 0      | 21.48                | 20.68                                 |
|              |                |                |            | 1      | 24     | 1      | 0      | 22.40                | 21.60                                 |
| 10MHz/15 MHz | 2585.9         | 2597.9         | QPSK       | 50     | 0      | 75     | 0      | 22.54                | 21.74                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 24.19                | 23.39                                 |
|              |                |                | 16QAM      | 50     | 0      | 75     | 0      | 21.59                | 20.79                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 23.35                | 22.55                                 |
|              |                |                | 64QAM      | 50     | 0      | 75     | 0      | 21.57                | 20.77                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 22.23                | 21.43                                 |
| 10MHz/20 MHz | 2583.6         | 2598           | QPSK       | 50     | 0      | 100    | 0      | 22.65                | 21.85                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 24.27                | 23.47                                 |
|              |                |                | 16QAM      | 50     | 0      | 100    | 0      | 21.60                | 20.80                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 23.36                | 22.56                                 |
|              |                |                | 64QAM      | 50     | 0      | 100    | 0      | 21.64                | 20.84                                 |
|              |                |                |            | 1      | 49     | 1      | 0      | 22.26                | 21.46                                 |
| 15MHz/10 MHz | 2588.1         | 2600.1         | QPSK       | 75     | 0      | 50     | 0      | 22.58                | 21.78                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 24.34                | 23.54                                 |
|              |                |                | 16QAM      | 75     | 0      | 50     | 0      | 21.66                | 20.86                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 23.51                | 22.71                                 |
|              |                |                | 64QAM      | 75     | 0      | 50     | 0      | 21.66                | 20.86                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 22.28                | 21.48                                 |
| 15MHz/15 MHz | 2585.5         | 2600.5         | QPSK       | 75     | 0      | 75     | 0      | 22.58                | 21.78                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 24.29                | 23.49                                 |
|              |                |                | 16QAM      | 75     | 0      | 75     | 0      | 21.62                | 20.82                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 23.63                | 22.83                                 |
|              |                |                | 64QAM      | 75     | 0      | 75     | 0      | 21.85                | 21.05                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 22.19                | 21.39                                 |
| 15MHz/20 MHz | 2583.3         | 2600.4         | QPSK       | 75     | 0      | 100    | 0      | 22.64                | 21.84                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 24.33                | 23.53                                 |
|              |                |                | 16QAM      | 75     | 0      | 100    | 0      | 21.60                | 20.80                                 |
|              |                |                |            | 1      | 74     | 1      | 0      | 23.50                | 22.70                                 |

|                 |        |        |       |     |    |     |   |       |       |
|-----------------|--------|--------|-------|-----|----|-----|---|-------|-------|
|                 |        |        | 64QAM | 75  | 0  | 100 | 0 | 21.75 | 20.95 |
|                 |        |        |       | 1   | 74 | 1   | 0 | 22.51 | 21.71 |
| 20MHz/5<br>MHz  | 2590.5 | 2602.2 | QPSK  | 100 | 0  | 25  | 0 | 22.72 | 21.92 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.76 | 23.96 |
|                 |        |        | 16QAM | 100 | 0  | 25  | 0 | 21.67 | 20.87 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.68 | 22.88 |
|                 |        |        | 64QAM | 100 | 0  | 25  | 0 | 21.65 | 20.85 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.72 | 21.92 |
| 20MHz/1<br>0MHz | 2588.1 | 2602.5 | QPSK  | 100 | 0  | 50  | 0 | 22.66 | 21.86 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.51 | 23.71 |
|                 |        |        | 16QAM | 100 | 0  | 50  | 0 | 21.73 | 20.93 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.53 | 22.73 |
|                 |        |        | 64QAM | 100 | 0  | 50  | 0 | 21.60 | 20.80 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.69 | 21.89 |
| 20MHz/1<br>5MHz | 2585.6 | 2602.7 | QPSK  | 100 | 0  | 75  | 0 | 22.65 | 21.85 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.45 | 23.65 |
|                 |        |        | 16QAM | 100 | 0  | 75  | 0 | 21.60 | 20.80 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.28 | 22.48 |
|                 |        |        | 64QAM | 100 | 0  | 75  | 0 | 21.60 | 20.80 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.38 | 21.58 |
| 20MHz/2<br>0MHz | 2583.1 | 2602.9 | QPSK  | 100 | 0  | 100 | 0 | 22.68 | 21.88 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 24.35 | 23.55 |
|                 |        |        | 16QAM | 100 | 0  | 100 | 0 | 21.57 | 20.77 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 23.31 | 22.51 |
|                 |        |        | 64QAM | 100 | 0  | 100 | 0 | 21.63 | 20.83 |
|                 |        |        |       | 1   | 99 | 1   | 0 | 22.52 | 21.72 |

Note: Expanded measurement uncertainty is  $U = 0.578 \text{ dB}$ ,  $k = 2$ .

## **A.2 Emission Limit**

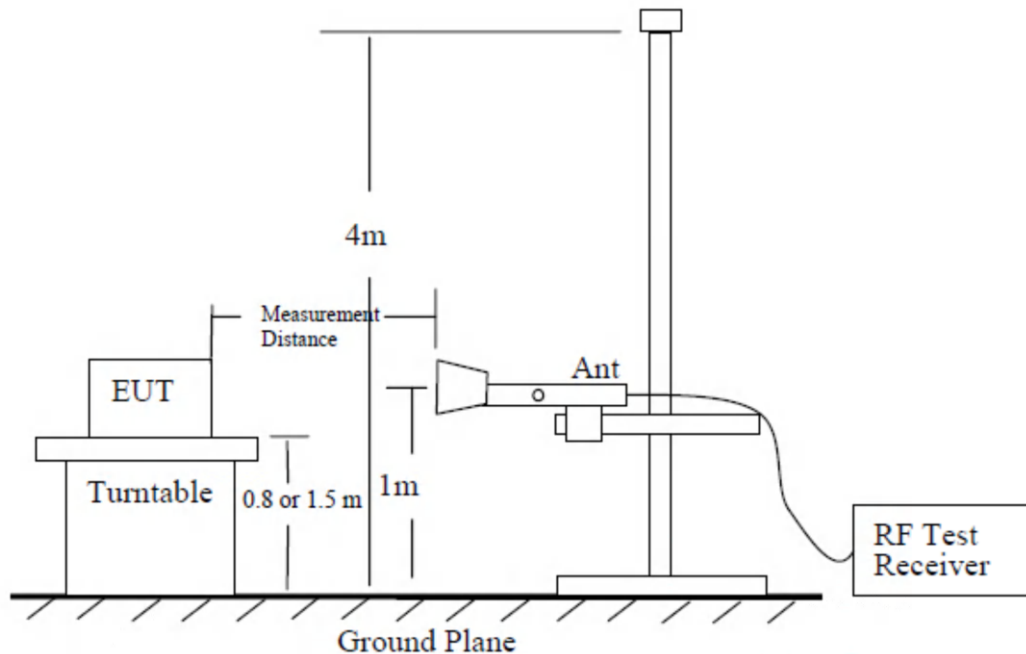
### **A.2.1 Measurement Method**

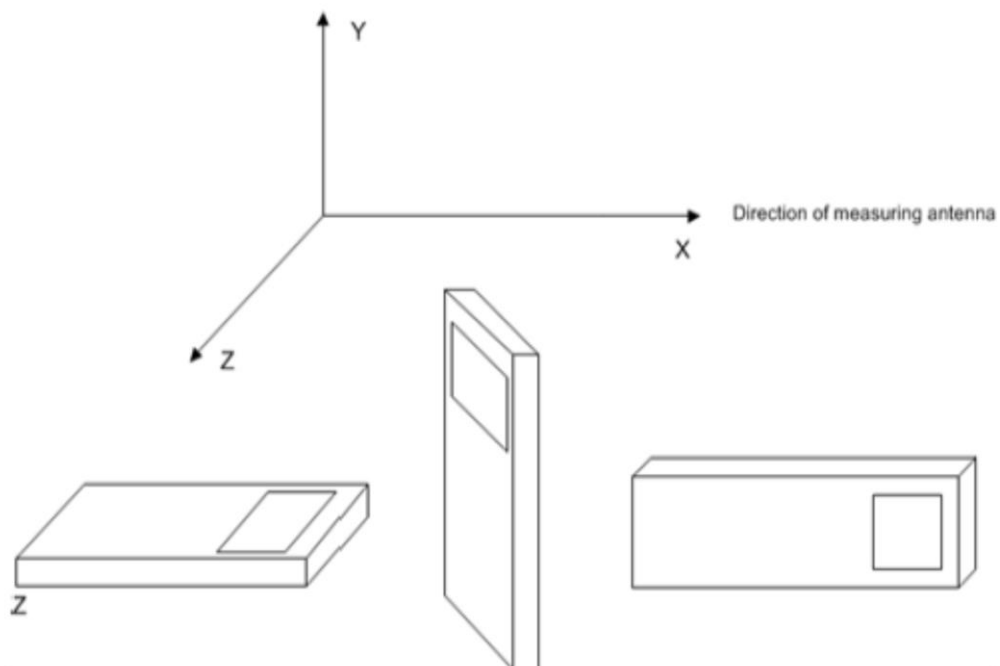
The measurements procedures in C63.26 are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 2/4/5/7/38/41.

#### **The procedure of radiated spurious emissions is as follows:**

Using the test configuration as follow, measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits.





The emission characteristics of the EUT can be identified from the pre-scan measurement information.

Exploratory radiated measurements (pre-scans) may be performed to determine the general EUT radiated emissions characteristics and, when necessary, the EUT-to-measurement antenna orientation that produces the maximum emission amplitude. Pre-scans shall only be used to determine the emission frequencies (i.e., not amplitude levels). The information garnered from a pre-scan can then be used to perform final compliance measurements using either the substitution or direct field strength method.

For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80 cm above the reference ground plane. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e., field strength or received power). When orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25 cm.

The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.

For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table or support at a nominal height of 1.5 m above the ground plane. When maximizing the emissions from the EUT for measurement, the EUT and its transmitting antenna(s) shall be rotated through 360°. For each mode of operation to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. Final measurements shall be performed for the worst case combination(s) of variable technical parameters that result in the maximum measured emission amplitude, record the frequency and amplitude of the highest fundamental emission (if applicable), and the frequency and amplitude data for the six highest-amplitude spurious emissions.

### A.2.2 Measurement Limit

**FDD Band 7/38:** 27.53(m) (4) specifies " For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. "

**FDD Band 2:** 24.238 specify that 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.

**FDD Band 4:** Part 27.53(h) specify" General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB “,

**FDD Band 5** Part 22.917 specifies " Out of band emissions. 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.”

**FDD Band 41:** 27.53(m) specifies " For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

(4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.”

### A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was

seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 2/4/5/7/38/41 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The range of evaluated frequency is from 30MHz to 26GHz.

**Measurement Results:**
**UT04a + AE2-1 + AE1-3**
**LTE Band 2, 1.4MHz, QPSK, Channel 18607, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3701.02         | -59.21                 | 6.42          | 8.48              | -57.15          | -13.00      | 44.15       | V            |
| 5517.02         | -58.93                 | 7.12          | 10.60             | -55.45          | -13.00      | 42.45       | V            |
| 7412.01         | -53.62                 | 8.15          | 12.09             | -49.68          | -13.00      | 36.68       | V            |
| 9293.01         | -52.81                 | 9.14          | 13.28             | -48.67          | -13.00      | 35.67       | V            |
| 11110.01        | -50.15                 | 9.79          | 13.18             | -46.76          | -13.00      | 33.76       | V            |
| 13004.01        | -46.61                 | 10.48         | 13.51             | -43.58          | -13.00      | 30.58       | V            |

**LTE Band 2, 1.4MHz, QPSK, Channel 18900, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3737.02         | -59.77                 | 6.33          | 8.53              | -57.57          | -13.00      | 44.57       | V            |
| 5645.02         | -58.57                 | 7.27          | 10.57             | -55.27          | -13.00      | 42.27       | V            |
| 7477.01         | -53.17                 | 8.33          | 12.17             | -49.33          | -13.00      | 36.33       | V            |
| 9366.01         | -53.50                 | 9.07          | 13.32             | -49.25          | -13.00      | 36.25       | V            |
| 11243.01        | -49.26                 | 9.66          | 13.15             | -45.77          | -13.00      | 32.77       | V            |
| 13142.01        | -44.50                 | 10.75         | 13.70             | -41.55          | -13.00      | 28.55       | V            |

**LTE Band 2, 1.4MHz, QPSK, Channel 19193, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3771.02         | -60.34                 | 6.23          | 8.58              | -57.99          | -13.00      | 44.99       | V            |
| 5686.02         | -58.59                 | 7.29          | 10.56             | -55.32          | -13.00      | 42.32       | V            |
| 7596.01         | -54.35                 | 7.99          | 12.28             | -50.06          | -13.00      | 37.06       | H            |
| 9565.01         | -54.19                 | 9.31          | 13.33             | -50.17          | -13.00      | 37.17       | V            |
| 11492.01        | -48.96                 | 9.83          | 13.10             | -45.69          | -13.00      | 32.69       | V            |
| 13402.01        | -44.25                 | 10.57         | 14.06             | -40.76          | -13.00      | 27.76       | V            |

**UT04a + AE2-1 + AE1-3**
**LTE Band 4, 5MHz, QPSK, Channel 19974, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3421.02         | -68.92                 | 5.38          | 8.01              | -66.29          | -13.00      | 53.29       | H            |
| 5091.02         | -69.64                 | 6.75          | 10.03             | -66.36          | -13.00      | 53.36       | V            |
| 6853.01         | -64.84                 | 7.82          | 11.42             | -61.24          | -13.00      | 48.24       | V            |
| 8590.01         | -64.35                 | 8.51          | 13.02             | -59.84          | -13.00      | 46.84       | V            |
| 10309.01        | -61.73                 | 9.66          | 13.02             | -58.37          | -13.00      | 45.37       | V            |
| 12000.01        | -58.54                 | 10.05         | 13.00             | -55.59          | -13.00      | 42.59       | V            |

**LTE Band 4, 5MHz, QPSK, Channel 120175, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3514.02         | -72.40                 | 5.55          | 8.22              | -69.73          | -13.00      | 56.73       | H            |
| 5148.02         | -70.44                 | 6.88          | 10.11             | -67.21          | -13.00      | 54.21       | H            |
| 6882.01         | -65.30                 | 7.78          | 11.46             | -61.62          | -13.00      | 48.62       | V            |
| 8617.01         | -64.46                 | 8.47          | 13.02             | -59.91          | -13.00      | 46.91       | V            |
| 10444.01        | -61.13                 | 9.74          | 13.08             | -57.79          | -13.00      | 44.79       | V            |
| 12173.01        | -59.25                 | 10.14         | 13.07             | -56.32          | -13.00      | 43.32       | V            |

**LTE Band 4, 5MHz, QPSK, Channel 20375, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3553.02         | -70.73                 | 5.85          | 8.27              | -68.31          | -13.00      | 55.31       | V            |
| 5251.02         | -70.65                 | 7.00          | 10.25             | -67.40          | -13.00      | 54.40       | H            |
| 7000.01         | -64.62                 | 8.30          | 11.60             | -61.32          | -13.00      | 48.32       | V            |
| 8745.01         | -64.03                 | 8.49          | 13.05             | -59.47          | -13.00      | 46.47       | V            |
| 10483.01        | -61.27                 | 9.68          | 13.09             | -57.86          | -13.00      | 44.86       | V            |
| 12252.01        | -58.91                 | 10.03         | 13.10             | -55.84          | -13.00      | 42.84       | V            |

**UT27a + AE2-1 + AE1-3**
**LTE Band 5, 1.4MHz, QPSK, Channel 20407, ANT1**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1639.01         | -54.16                 | 3.56          | 5.25              | 2.15            | -54.62         | -13.00      | 41.62       | H            |
| 2479.00         | -46.90                 | 4.60          | 6.04              | 2.15            | -47.61         | -13.00      | 34.61       | V            |
| 3306.02         | -61.38                 | 5.29          | 7.73              | 2.15            | -61.09         | -13.00      | 48.09       | H            |
| 4133.02         | -57.43                 | 6.05          | 9.03              | 2.15            | -56.60         | -13.00      | 43.60       | V            |
| 4962.01         | -56.82                 | 6.67          | 9.86              | 2.15            | -55.78         | -13.00      | 42.78       | V            |
| 5781.01         | -56.92                 | 7.22          | 10.54             | 2.15            | -55.75         | -13.00      | 42.75       | V            |

**LTE Band 5, 1.4MHz, QPSK, Channel 20525, ANT1**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1672.01         | -55.46                 | 3.58          | 5.19              | 2.15            | -56.00         | -13.00      | 43.00       | H            |
| 2524.00         | -45.07                 | 4.65          | 6.14              | 2.15            | -45.73         | -13.00      | 32.73       | H            |
| 3349.02         | -60.82                 | 5.32          | 7.84              | 2.15            | -60.45         | -13.00      | 47.45       | V            |
| 4168.02         | -57.50                 | 6.13          | 9.07              | 2.15            | -56.71         | -13.00      | 43.71       | H            |
| 5015.01         | -58.35                 | 6.58          | 9.92              | 2.15            | -57.16         | -13.00      | 44.16       | H            |
| 5849.01         | -56.35                 | 7.23          | 10.53             | 2.15            | -55.20         | -13.00      | 42.20       | V            |

**LTE Band 5, 1.4MHz, QPSK, Channel 20643, ANT1**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1697.01         | -55.11                 | 3.60          | 5.15              | 2.15            | -55.71         | -13.00      | 42.71       | V            |
| 2546.00         | -46.58                 | 4.66          | 6.18              | 2.15            | -47.21         | -13.00      | 34.21       | H            |
| 3391.02         | -60.40                 | 5.35          | 7.94              | 2.15            | -59.96         | -13.00      | 46.96       | V            |
| 4246.02         | -57.84                 | 6.24          | 9.15              | 2.15            | -57.08         | -13.00      | 44.08       | H            |
| 5089.01         | -56.79                 | 6.74          | 10.02             | 2.15            | -55.66         | -13.00      | 42.66       | H            |
| 5950.01         | -56.13                 | 7.47          | 10.51             | 2.15            | -55.24         | -13.00      | 42.24       | V            |

**UT27a+ AE2-1 + AE1-3**
**LTE Band 7, 20MHz, QPSK, Channel 20850, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5002.02         | -59.75                 | 6.60          | 9.90              | -56.45          | -25.00      | 31.45       | H            |
| 7522.01         | -54.29                 | 8.30          | 12.22             | -50.37          | -25.00      | 25.37       | V            |
| 10021.01        | -53.24                 | 9.24          | 12.91             | -49.57          | -25.00      | 24.57       | V            |
| 12519.01        | -49.11                 | 10.23         | 13.21             | -46.13          | -25.00      | 21.13       | V            |
| 15001.00        | -43.79                 | 11.22         | 14.00             | -41.01          | -25.00      | 16.01       | H            |
| 17520.00        | -40.88                 | 12.80         | 14.93             | -38.75          | -25.00      | 13.75       | V            |

**LTE Band 7, 20MHz, QPSK, Channel 21100, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5137.02         | -58.84                 | 6.86          | 10.09             | -55.61          | -25.00      | 30.61       | V            |
| 7688.01         | -54.16                 | 8.37          | 12.35             | -50.18          | -25.00      | 25.18       | V            |
| 10283.01        | -51.32                 | 9.58          | 13.01             | -47.89          | -25.00      | 22.89       | V            |
| 12843.01        | -46.77                 | 10.66         | 13.41             | -44.02          | -25.00      | 19.02       | V            |
| 15385.00        | -43.98                 | 11.38         | 13.77             | -41.59          | -25.00      | 16.59       | V            |
| 17955.00        | -40.80                 | 12.89         | 15.54             | -38.15          | -25.00      | 13.15       | H            |

**LTE Band 7, 20MHz, QPSK, Channel 21350, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5077.02         | -59.65                 | 6.71          | 10.01             | -56.35          | -25.00      | 31.35       | V            |
| 7609.01         | -54.65                 | 8.01          | 12.29             | -50.37          | -25.00      | 25.37       | V            |
| 10122.01        | -52.97                 | 9.43          | 12.95             | -49.45          | -25.00      | 24.45       | H            |
| 12661.01        | -48.31                 | 10.36         | 13.30             | -45.37          | -25.00      | 20.37       | H            |
| 15193.00        | -44.75                 | 11.40         | 13.88             | -42.27          | -25.00      | 17.27       | H            |
| 17755.00        | -40.35                 | 12.49         | 15.26             | -37.58          | -25.00      | 12.58       | H            |

**UT27a + AE2-1 + AE1-3**
**LTE Band 38, 5MHz, QPSK, Channel 37775, ANT4**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5134.02         | -58.95                 | 6.86          | 10.09             | -55.72          | -25.00      | 30.72       | H            |
| 7724.01         | -55.27                 | 8.39          | 12.38             | -51.28          | -25.00      | 26.28       | V            |
| 10293.01        | -50.94                 | 9.62          | 13.02             | -47.54          | -25.00      | 22.54       | V            |
| 12828.01        | -47.29                 | 10.69         | 13.40             | -44.58          | -25.00      | 19.58       | V            |
| 15465.00        | -44.24                 | 11.49         | 13.72             | -42.01          | -25.00      | 17.01       | H            |
| 17979.00        | -41.01                 | 12.90         | 15.57             | -38.34          | -25.00      | 13.34       | V            |

**LTE Band 38, 5MHz, QPSK, Channel 38000, ANT4**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 7751.01         | -55.18                 | 8.36          | 12.40             | -51.14          | -25.00      | 26.14       | H            |
| 11647.01        | -49.38                 | 9.71          | 13.07             | -46.02          | -25.00      | 21.02       | V            |
| 13002.01        | -46.48                 | 10.48         | 13.50             | -43.46          | -25.00      | 18.46       | H            |
| 14257.00        | -44.43                 | 10.93         | 14.45             | -40.91          | -25.00      | 15.91       | V            |
| 15602.00        | -44.49                 | 11.49         | 13.70             | -42.28          | -25.00      | 17.28       | H            |
| 16843.00        | -40.03                 | 12.06         | 13.74             | -38.35          | -25.00      | 13.35       | H            |

**LTE Band 38, 5MHz, QPSK, Channel 38225, ANT4**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 7879.01         | -54.97                 | 8.40          | 12.50             | -50.87          | -25.00      | 25.87       | H            |
| 9135.01         | -53.11                 | 8.93          | 13.18             | -48.86          | -25.00      | 23.86       | V            |
| 11753.01        | -48.24                 | 9.88          | 13.05             | -45.07          | -25.00      | 20.07       | V            |
| 14429.00        | -44.64                 | 11.01         | 14.41             | -41.24          | -25.00      | 16.24       | H            |
| 15720.00        | -44.02                 | 11.62         | 13.70             | -41.94          | -25.00      | 16.94       | V            |
| 16993.00        | -40.57                 | 12.35         | 13.80             | -39.12          | -25.00      | 14.12       | H            |

**UT27a + AE2-1 + AE1-3**
**LTE Band 41, 5MHz, QPSK, Channel 37775, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 4993.02         | -60.14                 | 6.62          | 9.89              | -56.87          | -25.00      | 31.87       | H            |
| 7495.01         | -54.40                 | 8.38          | 12.19             | -50.59          | -25.00      | 25.59       | V            |
| 9996.01         | -54.57                 | 9.18          | 12.90             | -50.85          | -25.00      | 25.85       | H            |
| 12492.01        | -48.94                 | 10.19         | 13.20             | -45.93          | -25.00      | 20.93       | V            |
| 14994.00        | -44.24                 | 11.21         | 14.00             | -41.45          | -25.00      | 16.45       | V            |
| 17494.00        | -40.69                 | 12.71         | 14.89             | -38.51          | -25.00      | 13.51       | V            |

**LTE Band 41, 5MHz, QPSK, Channel 38000, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5192.02         | -59.64                 | 6.95          | 10.17             | -56.42          | -25.00      | 31.42       | V            |
| 6459.02         | -57.40                 | 7.54          | 10.96             | -53.98          | -25.00      | 28.98       | V            |
| 7759.01         | -55.73                 | 8.34          | 12.41             | -51.66          | -25.00      | 26.66       | V            |
| 9079.01         | -53.09                 | 8.99          | 13.15             | -48.93          | -25.00      | 23.93       | V            |
| 11682.01        | -49.61                 | 9.64          | 13.06             | -46.19          | -25.00      | 21.19       | H            |
| 16840.00        | -40.36                 | 12.07         | 13.74             | -38.69          | -25.00      | 13.69       | V            |

**LTE Band 41, 5MHz, QPSK, Channel 38225, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5394.02         | -59.57                 | 6.84          | 10.45             | -55.96          | -25.00      | 30.96       | V            |
| 6723.02         | -54.92                 | 7.99          | 11.27             | -51.64          | -25.00      | 26.64       | V            |
| 8072.01         | -54.18                 | 8.32          | 12.66             | -49.84          | -25.00      | 24.84       | V            |
| 13413.01        | -44.63                 | 10.58         | 14.08             | -41.13          | -25.00      | 16.13       | H            |
| 16145.00        | -42.87                 | 11.80         | 13.67             | -41.00          | -25.00      | 16.00       | H            |
| 17455.00        | -39.50                 | 12.62         | 14.80             | -37.32          | -25.00      | 12.32       | H            |

**UT04a+ AE2-1 + AE1-3**
**LTE CA Band 7C, 15MHz+15MHz, QPSK, CH20825+20975, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 4991.02         | -59.77                 | 6.62          | 9.89              | -56.50          | -25.00      | 31.50       | H            |
| 7488.01         | -54.48                 | 8.36          | 12.19             | -50.65          | -25.00      | 25.65       | V            |
| 9994.01         | -53.90                 | 9.18          | 12.91             | -50.17          | -25.00      | 25.17       | V            |
| 12515.01        | -49.35                 | 10.22         | 13.21             | -46.36          | -25.00      | 21.36       | V            |
| 15012.00        | -43.89                 | 11.23         | 13.99             | -41.13          | -25.00      | 16.13       | H            |
| 17515.00        | -39.34                 | 12.78         | 14.92             | -37.20          | -25.00      | 12.20       | V            |

**LTE CA Band 7C, 15MHz+15MHz, QPSK, CH21025+21175, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5071.02         | -59.34                 | 6.69          | 10.00             | -56.03          | -25.00      | 31.03       | V            |
| 7612.01         | -54.32                 | 8.03          | 12.29             | -50.06          | -25.00      | 25.06       | V            |
| 10135.01        | -53.09                 | 9.41          | 12.95             | -49.55          | -25.00      | 24.55       | H            |
| 12685.01        | -48.40                 | 10.32         | 13.31             | -45.41          | -25.00      | 20.41       | V            |
| 15197.00        | -44.34                 | 11.40         | 13.88             | -41.86          | -25.00      | 16.86       | H            |
| 17752.00        | -41.22                 | 12.47         | 15.25             | -38.44          | -25.00      | 13.44       | V            |

**LTE CA Band 7C, 15MHz+15MHz, QPSK, CH21225+21375, ANT 2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5116.02         | -59.86                 | 6.82          | 10.06             | -56.62          | -25.00      | 31.62       | V            |
| 7685.01         | -54.64                 | 8.36          | 12.35             | -50.65          | -25.00      | 25.65       | H            |
| 10260.01        | -52.32                 | 9.51          | 13.00             | -48.83          | -25.00      | 23.83       | V            |
| 12823.01        | -47.80                 | 10.71         | 13.39             | -45.12          | -25.00      | 20.12       | V            |
| 15423.00        | -44.75                 | 11.43         | 13.75             | -42.43          | -25.00      | 17.43       | V            |
| 17972.00        | -41.08                 | 12.89         | 15.56             | -38.41          | -25.00      | 13.41       | H            |

**UT04a + AE2-1 + AE1-3**
**LTE CA Band 41C, 15MHz+15MHz, QPSK, CH39725+39875, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 4992.02         | -60.09                 | 6.62          | 9.89              | -56.82          | -25.00      | 31.82       | H            |
| 7494.01         | -54.47                 | 8.38          | 12.19             | -50.66          | -25.00      | 25.66       | V            |
| 9996.01         | -54.62                 | 9.18          | 12.90             | -50.90          | -25.00      | 25.90       | V            |
| 12488.01        | -49.59                 | 10.21         | 13.20             | -46.60          | -25.00      | 21.60       | V            |
| 14993.00        | -44.32                 | 11.21         | 14.01             | -41.52          | -25.00      | 16.52       | H            |
| 17485.00        | -41.16                 | 12.69         | 14.87             | -38.98          | -25.00      | 13.98       | H            |

**LTE CA Band 41C, 15MHz+15MHz, QPSK, CH40545+40695, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5197.02         | -59.40                 | 6.96          | 10.18             | -56.18          | -25.00      | 31.18       | H            |
| 7755.01         | -55.27                 | 8.35          | 12.40             | -51.22          | -25.00      | 26.22       | H            |
| 10347.01        | -51.33                 | 9.72          | 13.04             | -48.01          | -25.00      | 23.01       | V            |
| 12991.01        | -47.92                 | 10.47         | 13.49             | -44.90          | -25.00      | 19.90       | V            |
| 14241.01        | -44.65                 | 10.92         | 14.45             | -41.12          | -25.00      | 16.12       | V            |
| 16872.00        | -40.05                 | 12.03         | 13.75             | -38.33          | -25.00      | 13.33       | H            |

**LTE CA Band 41C, 15MHz+15MHz, QPSK, CH41365+41515, ANT2**

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5377.02         | -60.43                 | 6.88          | 10.43             | -56.88          | -25.00      | 31.88       | V            |
| 8057.01         | -55.10                 | 8.32          | 12.65             | -50.77          | -25.00      | 25.77       | V            |
| 10736.01        | -50.57                 | 9.39          | 13.15             | -46.81          | -25.00      | 21.81       | V            |
| 13427.01        | -43.46                 | 10.59         | 14.10             | -39.95          | -25.00      | 14.95       | H            |
| 14758.00        | -45.04                 | 11.16         | 14.19             | -42.01          | -25.00      | 17.01       | H            |
| 16145.00        | -42.83                 | 11.80         | 13.67             | -40.96          | -25.00      | 15.96       | H            |

Sample: 5377.02MHz

Power (EIRP) = P<sub>Mea</sub> - P<sub>pl</sub> + G<sub>a</sub>

Power (-56.88dBm) = P<sub>Mea</sub> (-60.43dBm) - P<sub>pl</sub> (6.88dB) + G<sub>a</sub> (10.43dBi)

Note: Expanded measurement uncertainty

| Frequency range | Expanded measurement uncertainty |
|-----------------|----------------------------------|
| 30MHz-1GHz      | 5.76dB, k=2                      |
| 1GHz-18GHz      | 4.69dB, k=2                      |
| 18GHz-40GHz     | 3.37dB, k=2                      |

Note: The measurement results showed here are worst cases

## **A.3 Frequency Stability**

### **A.3.1 Method of Measurement**

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. Two reference points are established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as  $F_L$  and  $F_H$  respectively.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of CMW500.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30°C.
3. With the EUT, powered via nominal voltage, connected to the CMW500, and in a simulated call on middle channel for each LTE band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C decrements from +50°C to -30°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of the lower, higher and nominal voltage. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress.

### A.3.2 Measurement results

#### LTE Band 2, 20MHz bandwidth QPSK (worst case of all bandwidths)

##### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 1850.385             | 1909.583             |            |                      |
| 50              |            |                      |                      | 0.31       | 0.0002               |
| 40              |            |                      |                      | -8.03      | 0.0043               |
| 30              |            |                      |                      | -7.52      | 0.0040               |
| 10              |            |                      |                      | -7.57      | 0.0040               |
| 0               |            |                      |                      | -7.91      | 0.0042               |
| -10             |            |                      |                      | -8.44      | 0.0045               |
| -20             |            |                      |                      | -7.22      | 0.0038               |
| -30             |            |                      |                      | -8.20      | 0.0044               |

##### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 1850.385             | 1909.583             | -0.43      | 0.0002               |
| 4.45       |                 |                      |                      | 0.10       | 0.0001               |

#### LTE Band 4, 20MHz bandwidth QPSK (worst case of all bandwidths)

##### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 1710.385             | 1754.583             |            |                      |
| 50              |            |                      |                      | 0.17       | 0.0001               |
| 40              |            |                      |                      | -1.03      | 0.0006               |
| 30              |            |                      |                      | -0.64      | 0.0004               |
| 10              |            |                      |                      | -1.70      | 0.0010               |
| 0               |            |                      |                      | 0.01       | 0.0000               |
| -10             |            |                      |                      | -0.30      | 0.0002               |
| -20             |            |                      |                      | -1.20      | 0.0007               |
| -30             |            |                      |                      | -0.49      | 0.0003               |

##### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 1710.385             | 1754.583             | -1.23      | 0.0007               |
| 4.45       |                 |                      |                      | -0.10      | 0.0001               |

### LTE Band 5, 10MHz bandwidth QPSK (worst case of all bandwidths)

#### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 824.096              | 848.904              |            |                      |
| 50              |            |                      |                      | -0.19      | 0.0002               |
| 40              |            |                      |                      | 0.53       | 0.0006               |
| 30              |            |                      |                      | -0.07      | 0.0001               |
| 10              |            |                      |                      | 0.03       | 0.0000               |
| 0               |            |                      |                      | 0.37       | 0.0004               |
| -10             |            |                      |                      | -0.10      | 0.0001               |
| -20             |            |                      |                      | -0.56      | 0.0007               |
| -30             |            |                      |                      | -0.37      | 0.0004               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 824.096              | 848.904              | 0.37       | 0.0004               |
| 4.45       |                 |                      |                      | 0.20       | 0.0002               |

### LTE Band 7, 20MHz bandwidth QPSK (worst case of all bandwidths)

#### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 2500.321             | 2569.712             |            |                      |
| 50              |            |                      |                      | 11.16      | 0.0044               |
| 40              |            |                      |                      | 9.54       | 0.0038               |
| 30              |            |                      |                      | 10.49      | 0.0041               |
| 10              |            |                      |                      | 11.32      | 0.0045               |
| 0               |            |                      |                      | -0.39      | 0.0002               |
| -10             |            |                      |                      | 11.87      | 0.0047               |
| -20             |            |                      |                      | 10.76      | 0.0042               |
| -30             |            |                      |                      | 1.02       | 0.0004               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 2500.321             | 2569.712             | 0.79       | 0.0003               |
| 4.45       |                 |                      |                      | 9.06       | 0.0036               |

### LTE Band 38, 20MHz bandwidth QPSK (worst case of all bandwidths)

#### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 2570.545             | 2619.455             |            |                      |
| 50              |            |                      |                      | -2.27      | 0.0009               |
| 40              |            |                      |                      | -1.00      | 0.0004               |
| 30              |            |                      |                      | -0.94      | 0.0004               |
| 10              |            |                      |                      | 0.62       | 0.0002               |
| 0               |            |                      |                      | -0.97      | 0.0004               |
| -10             |            |                      |                      | -1.57      | 0.0006               |
| -20             |            |                      |                      | -0.90      | 0.0003               |
| -30             |            |                      |                      | -0.69      | 0.0003               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 2570.545             | 2619.455             | -3.69      | 0.0014               |
| 4.45       |                 |                      |                      | -0.24      | 0.0001               |

### LTE Band 41, 20MHz bandwidth QPSK (worst case of all bandwidths)

#### Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20              | 3.87       | 2496.417             | 2689.487             |            |                      |
| 50              |            |                      |                      | -0.23      | 0.0001               |
| 40              |            |                      |                      | -0.06      | 0.0000               |
| 30              |            |                      |                      | -0.33      | 0.0001               |
| 10              |            |                      |                      | 0.94       | 0.0004               |
| 0               |            |                      |                      | -0.14      | 0.0001               |
| -10             |            |                      |                      | 0.11       | 0.0000               |
| -20             |            |                      |                      | -1.16      | 0.0004               |
| -30             |            |                      |                      | 0.11       | 0.0000               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6        | 20              | 2496.417             | 2689.487             | 2.47       | 0.0010               |
| 4.45       |                 |                      |                      | -0.03      | 0.0000               |

### LTE CA Band 7C, 20MHz+20MHz bandwidth QPSK(worst case of all bandwidths)

#### Frequency Error vs Voltage

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.87       | 2500.360 | 2569.640 |            |                      |
| 50              |            |          |          | 3.21       | 0.0013               |
| 40              |            |          |          | 2.36       | 0.0009               |
| 30              |            |          |          | 1.92       | 0.0008               |
| 10              |            |          |          | 2.59       | 0.0010               |
| 0               |            |          |          | 2.09       | 0.0008               |
| -10             |            |          |          | 0.69       | 0.0003               |
| -20             |            |          |          | 1.36       | 0.0005               |
| -30             |            |          |          | 1.26       | 0.0005               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.45       | 20              | 2500.360 | 2569.640 | 1.96       | 0.0008               |
| 4.45       |                 |          |          | 1.69       | 0.0007               |

### LTE CA Band 41C, 20MHz+20MHz bandwidth QPSK(worst case of all bandwidths)

#### Frequency Error vs Voltage

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.87       | 2496.920 | 2689.080 |            |                      |
| 50              |            |          |          | -0.23      | 0.0001               |
| 40              |            |          |          | -0.26      | 0.0001               |
| 30              |            |          |          | 0.13       | 0.0000               |
| 10              |            |          |          | 0.53       | 0.0002               |
| 0               |            |          |          | 0.34       | 0.0001               |
| -10             |            |          |          | -0.11      | 0.0000               |
| -20             |            |          |          | -0.14      | 0.0001               |
| -30             |            |          |          | -0.77      | 0.0003               |

#### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.45       | 20              | 2496.920 | 2689.080 | 0.89       | 0.0003               |
| 4.45       |                 |          |          | 0.46       | 0.0002               |

Note: Expanded measurement uncertainty is  $U = 0.01 \text{ PPM}$ ,  $k = 2$ .

#### **A.4 Occupied Bandwidth**

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

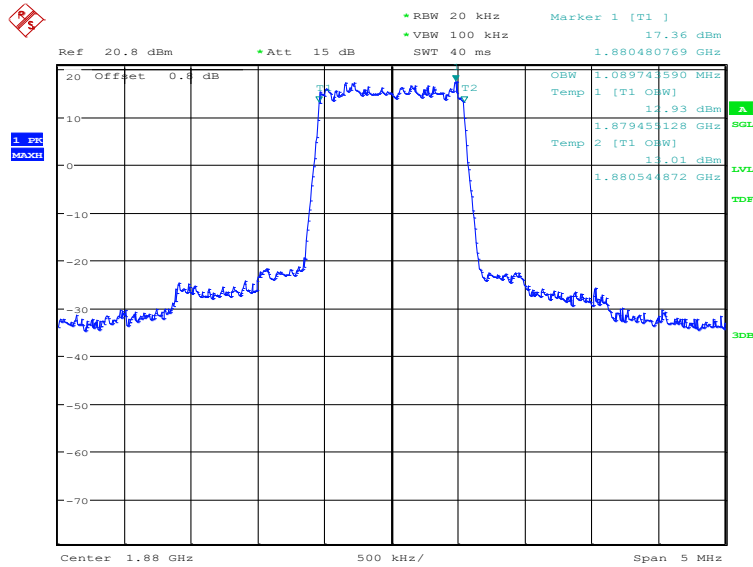
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set  $\geq 3 \times \text{RBW}$ .
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) Set the detection mode to peak, and the trace mode to max-hold.

### LTE band 2, 1.4MHz (99%)

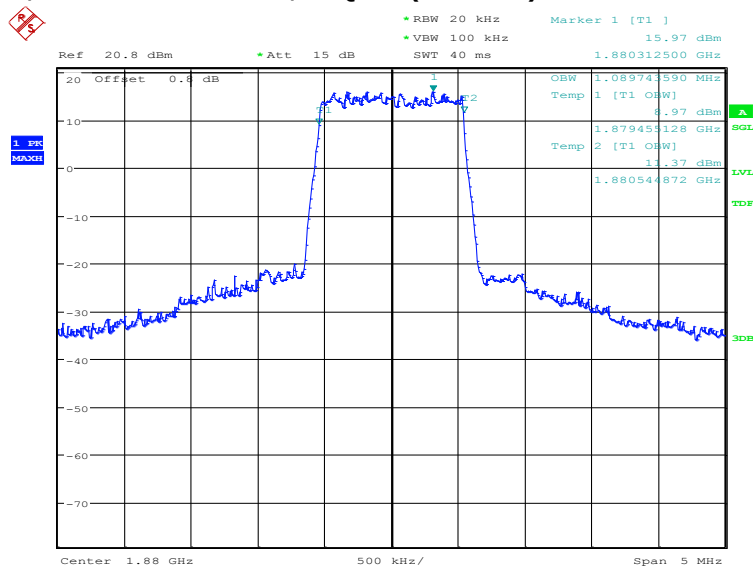
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1880.0         | QPSK                          | 16QAM   |
|                | 1089.74                       | 1089.74 |

### LTE band 2, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:03:24

### LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)

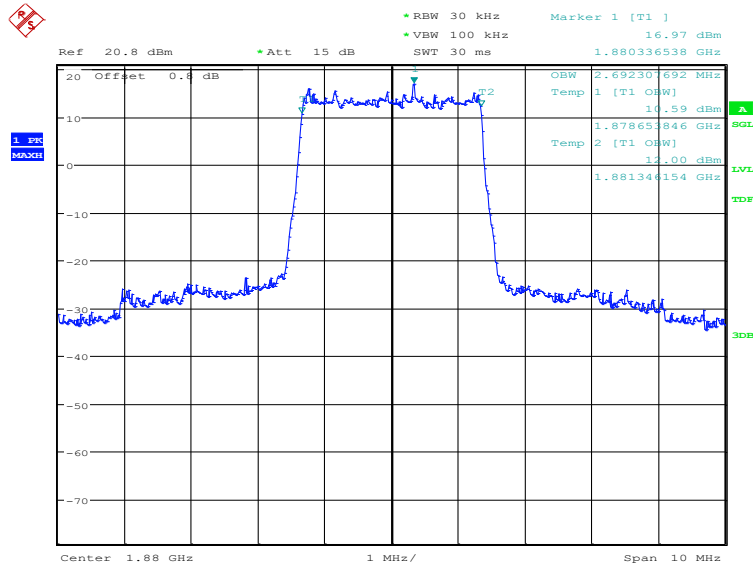


Date: 2.NOV.2022 12:04:03

### LTE band 2, 3MHz (99%)

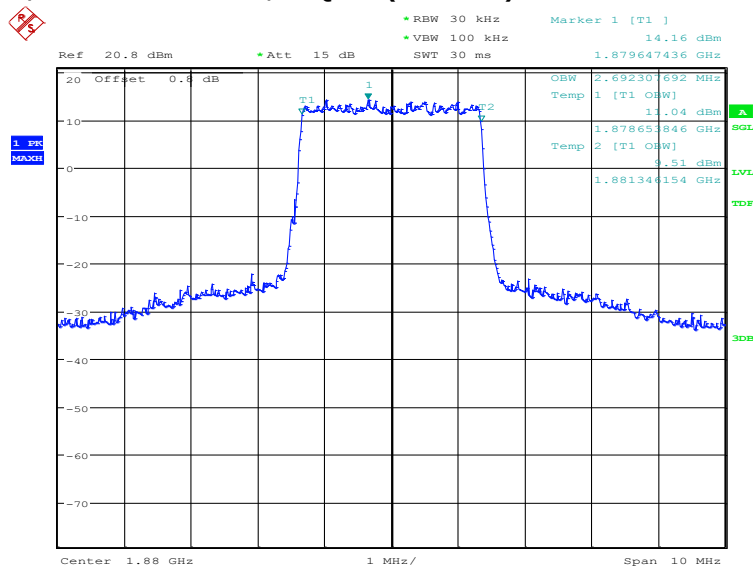
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1880.0         | QPSK                          | 16QAM   |
|                | 2692.31                       | 2692.31 |

### LTE band 2, 3MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:04:45

### LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)

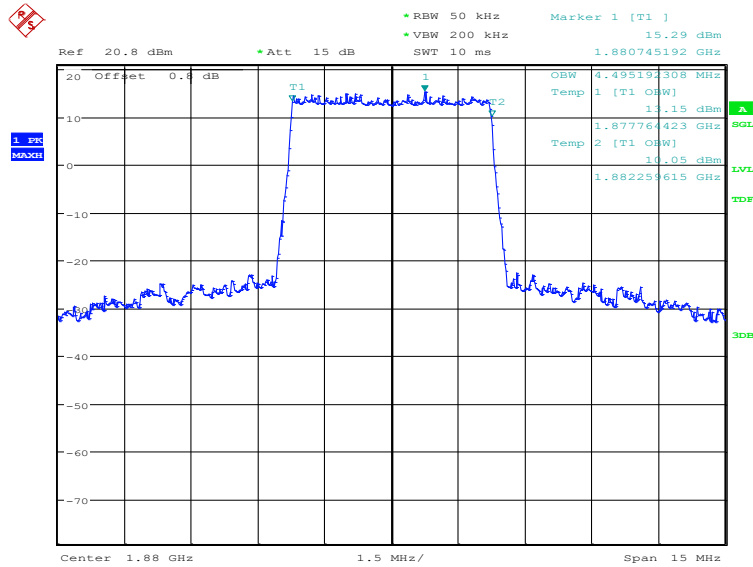


Date: 2.NOV.2022 12:05:25

### LTE band 2, 5MHz (99%)

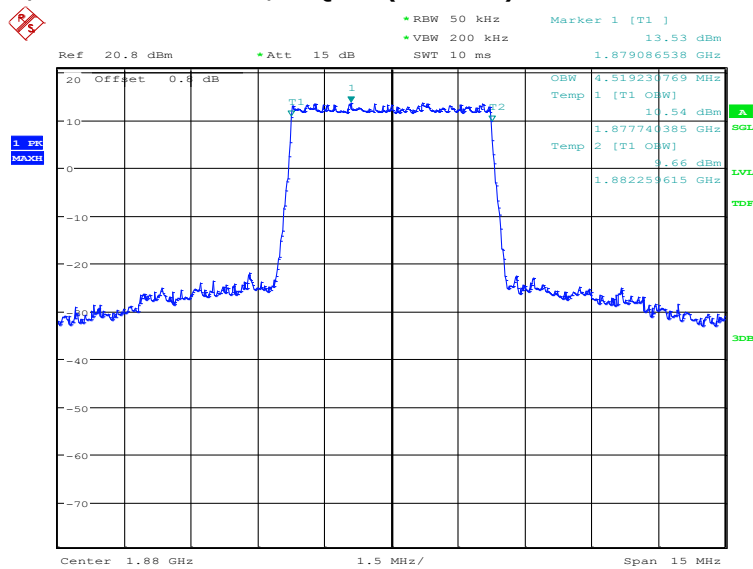
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1880.0         | QPSK                          | 16QAM   |
|                | 4495.19                       | 4519.23 |

### LTE band 2, 5MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:06:06

### LTE band 2, 5MHz Bandwidth, 16QAM (99% BW)

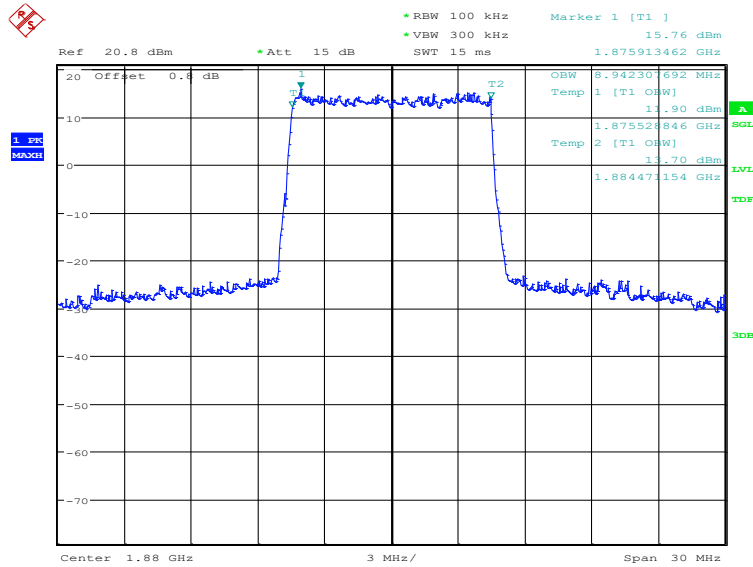


Date: 2.NOV.2022 12:06:46

### LTE band 2, 10MHz (99%)

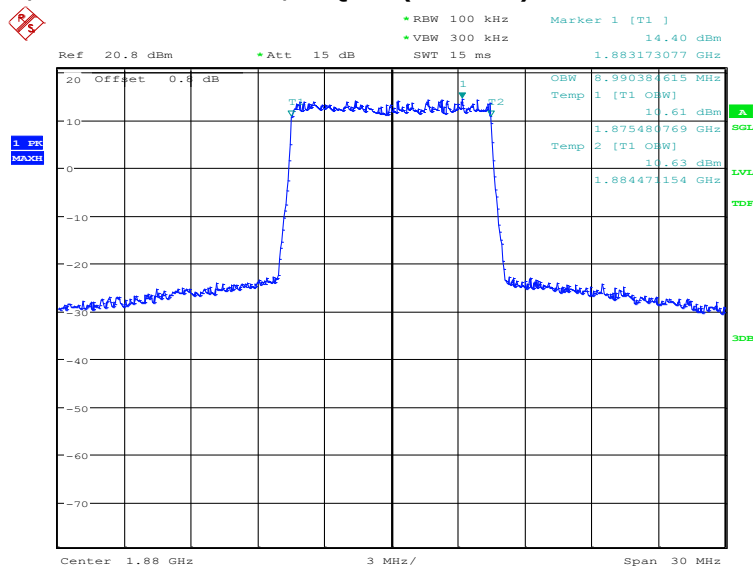
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1880.0         | QPSK                          | 16QAM   |
|                | 8942.31                       | 8990.38 |

### LTE band 2, 10MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:07:27

### LTE band 2, 10MHz Bandwidth, 16QAM (99% BW)

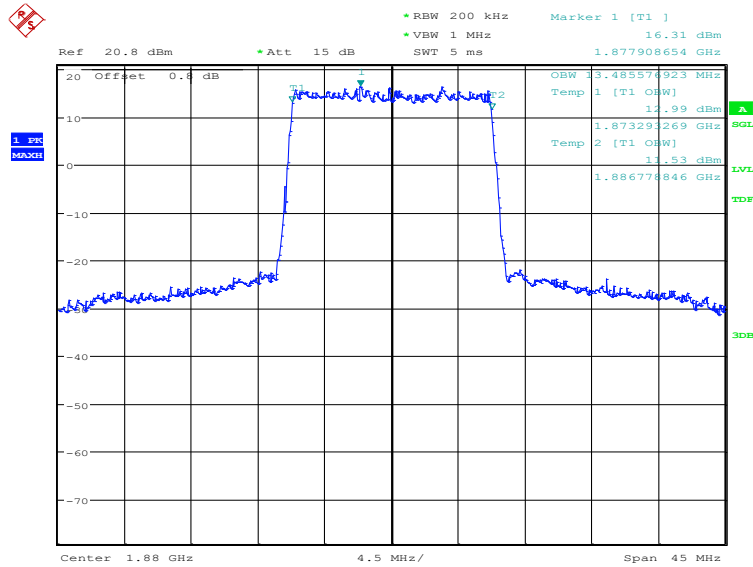


Date: 2.NOV.2022 12:08:07

### LTE band 2, 15MHz (99%)

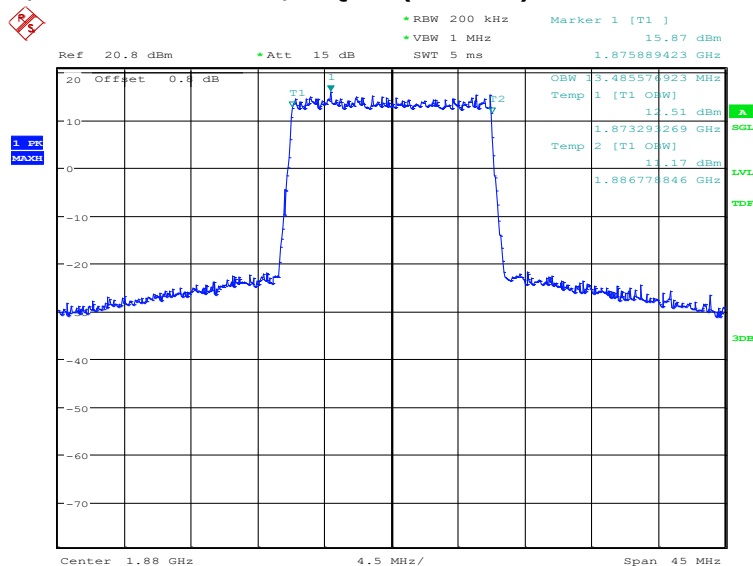
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 1880.0         | QPSK                          | 16QAM    |
|                | 13485.58                      | 13485.58 |

### LTE band 2, 15MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:08:49

### LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)

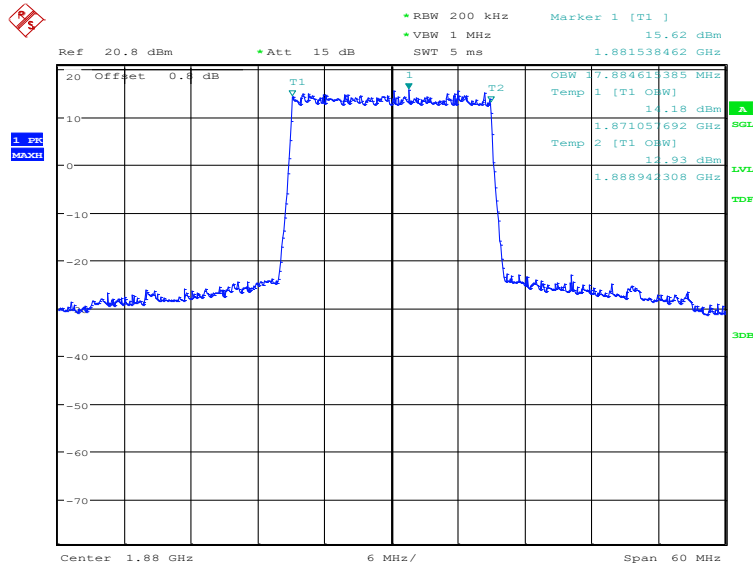


Date: 2.NOV.2022 12:09:29

### LTE band 2, 20MHz (99%)

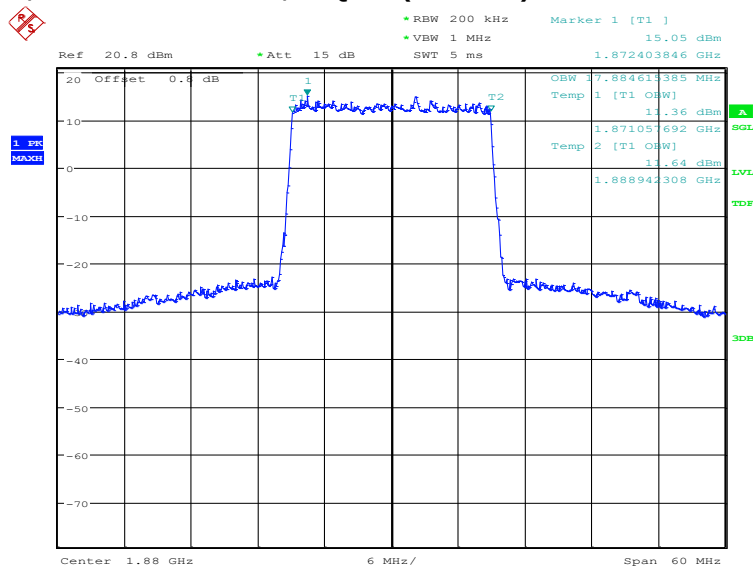
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 1880.0         | QPSK                          | 16QAM    |
|                | 17884.62                      | 17884.62 |

### LTE band 2, 20MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:10:10

### LTE band 2, 20MHz Bandwidth, 16QAM (99% BW)

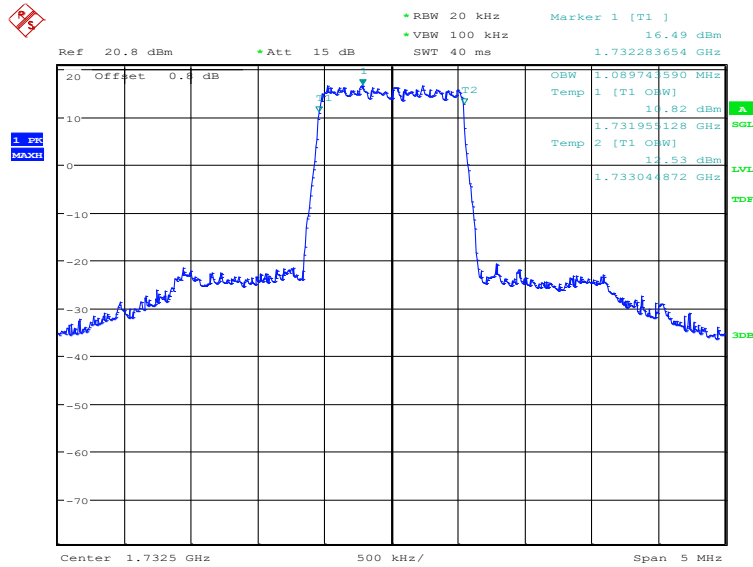


Date: 2.NOV.2022 12:10:50

### LTE band 4, 1.4MHz (99%)

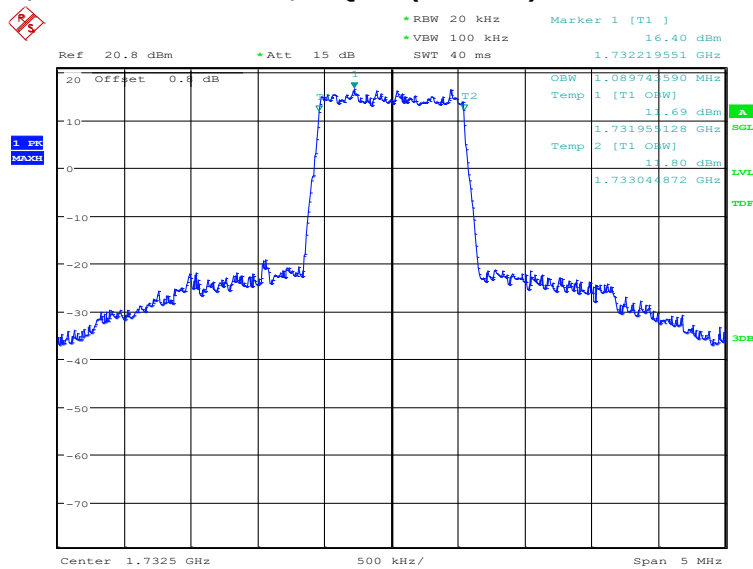
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1732.5         | QPSK                          | 16QAM   |
|                | 1089.74                       | 1089.74 |

### LTE band 4, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:11:33

### LTE band 4, 1.4MHz Bandwidth, 16QAM (99% BW)

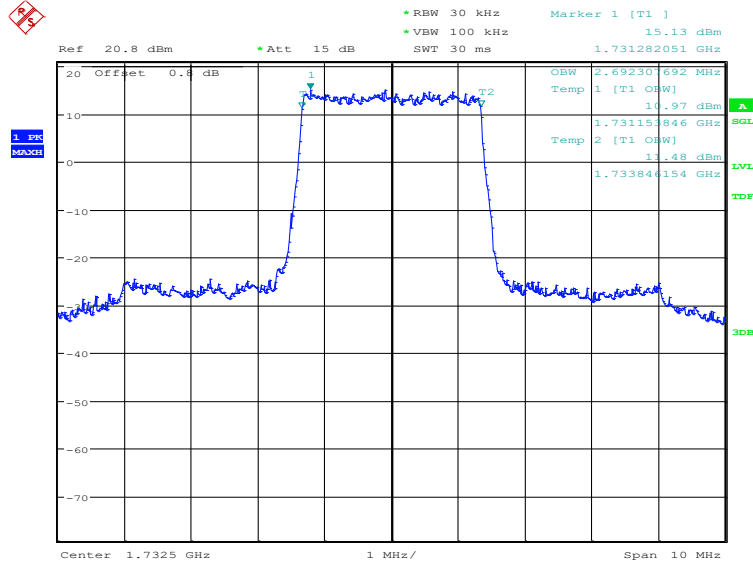


Date: 2.NOV.2022 12:12:13

### LTE band 4, 3MHz (99%)

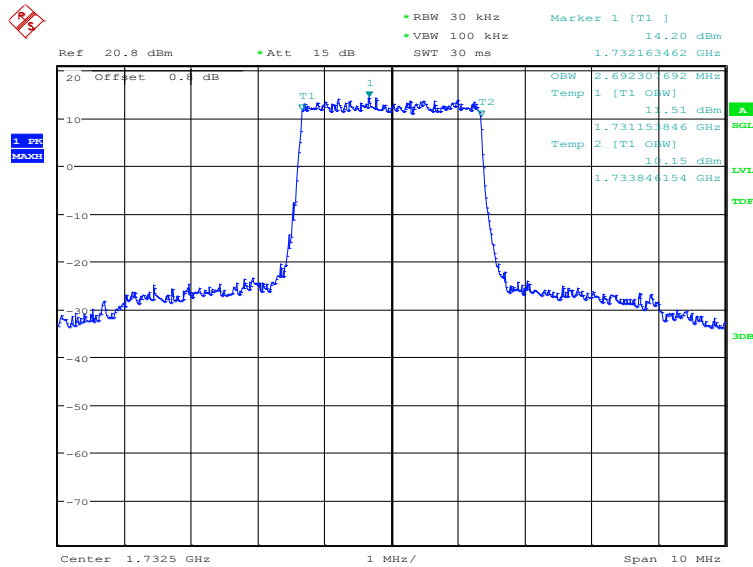
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1732.5         | QPSK                          | 16QAM   |
|                | 2692.31                       | 2692.31 |

### LTE band 4, 3MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:12:54

### LTE band 4, 3MHz Bandwidth, 16QAM (99% BW)

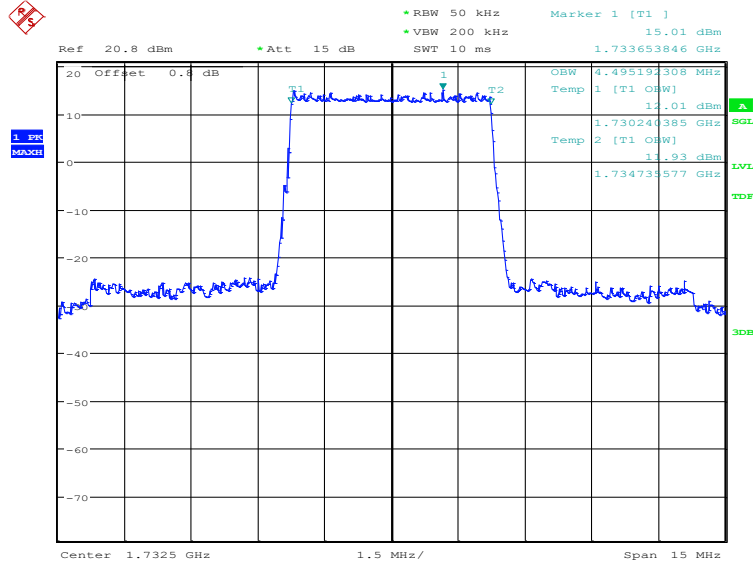


Date: 2.NOV.2022 12:13:34

### LTE band 4, 5MHz (99%)

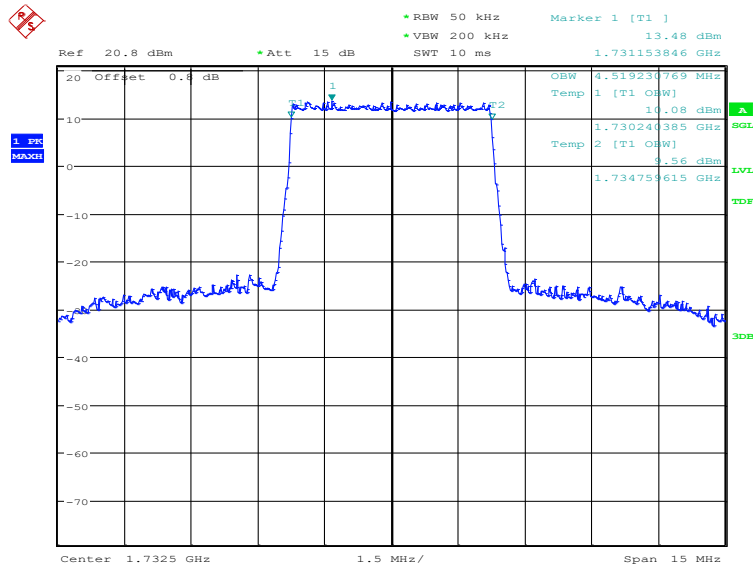
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1732.5         | QPSK                          | 16QAM   |
|                | 4495.19                       | 4519.23 |

### LTE band 4, 5MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:14:16

### LTE band 4, 5MHz Bandwidth, 16QAM (99% BW)

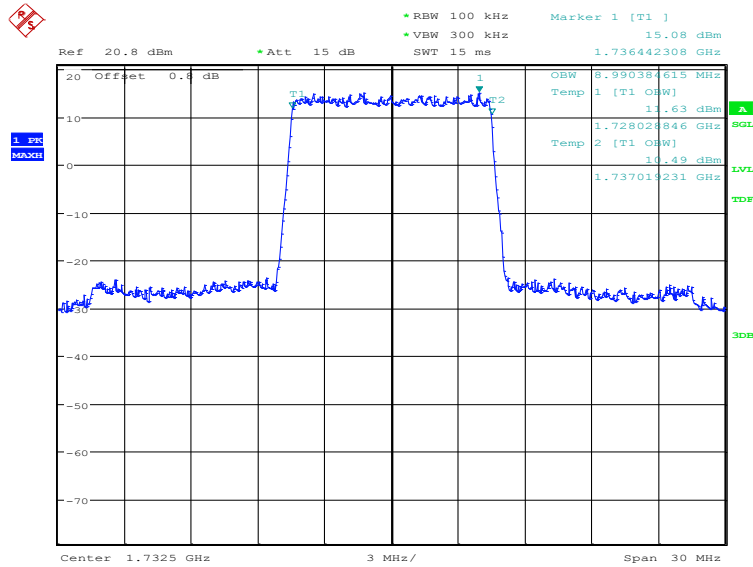


Date: 2.NOV.2022 12:14:56

### LTE band 4, 10MHz (99%)

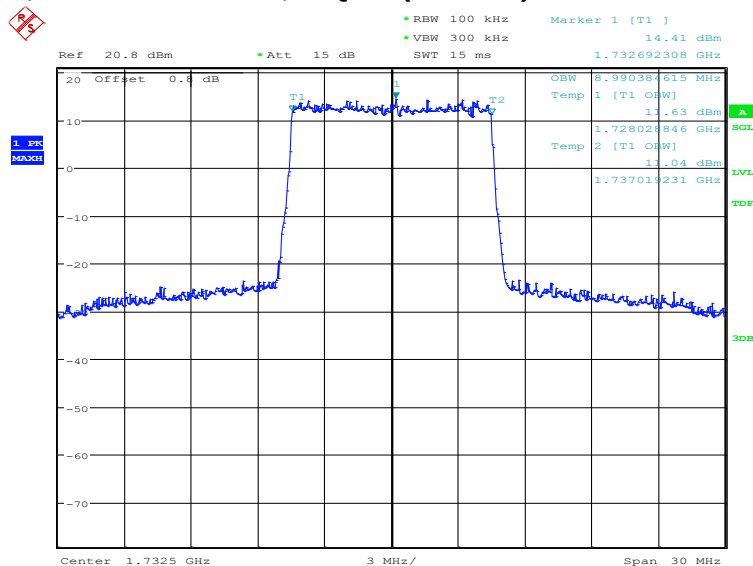
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 1732.5         | QPSK                          | 16QAM   |
|                | 8990.38                       | 8990.38 |

### LTE band 4, 10MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:15:37

### LTE band 4, 10MHz Bandwidth, 16QAM (99% BW)



Date: 2.NOV.2022 12:16:17

|                |                               |          |
|----------------|-------------------------------|----------|
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
| 1732.5         | QPSK                          | 16QAM    |
|                | 13557.69                      | 13485.58 |

1.7325 GHz

Ref 20.8 dBm

\* Att 15 dB

\* RBW 200 kHz

\* VBW 1 MHz

SWT 5 ms

Marker 1 [T1]

16.63 dBm

1.730625000 GHz

Offset 0.4 dB

OBW 13.55769308 MHz

Temp 1 [T1 OBW]

11.70 dBm

1.725721154 GHz

Temp 2 [T1 OBW]

11.25 dBm

1.739278846 GHz

Center 1.7325 GHz

4.5 MHz/

Span 45 MHz

Date: 2.NOV.2022 12:16:59

The screenshot shows a Spectrum Analyzer interface with a blue trace of a signal. The signal has a flat baseline at approximately -25 dBm, with a sharp, narrow peak reaching about +15 dBm at a center frequency of 1.7325 GHz. The peak is labeled with 'T1' and 'T2' markers. The display includes various settings and a data table on the right.

**Settings:**

- Ref: 20.8 dBm
- \* Att: 15 dB
- \* RBW: 200 kHz
- \* VBW: 1 MHz
- SWT: 5 ms
- Marker 1 [T1 ]

**Data Table:**

| OBW | Temp       | Value            |
|-----|------------|------------------|
| 1   | 1 [T1 OBW] | 13.485574923 MHz |
|     |            | 12.23 dBm        |
| 2   | 2 [T1 OBW] | 1.725793269 GHz  |
|     |            | 10.44 dBm        |
|     |            | 1.739278846 GHz  |

**Display Parameters:**

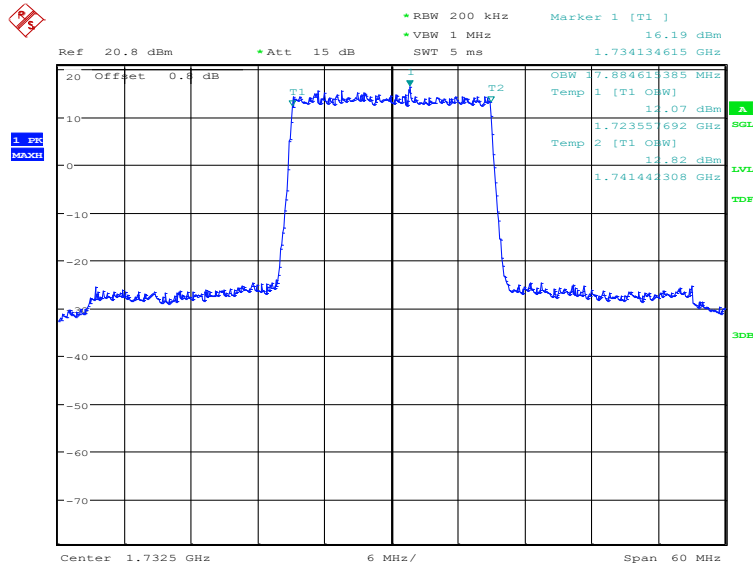
- Center: 1.7325 GHz
- Span: 45 MHz
- Offset: 0.8 dB

Date: 2.NOV.2022 12:17:39

### LTE band 4, 20MHz (99%)

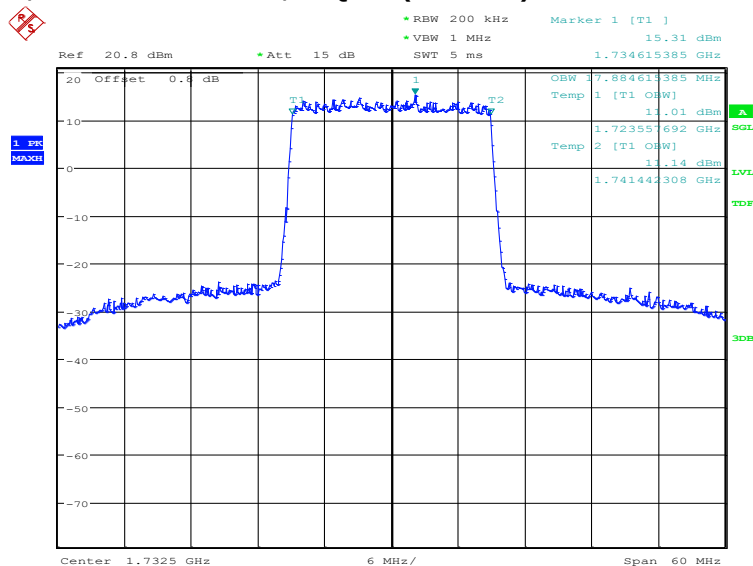
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 1732.5         | QPSK                          | 16QAM    |
|                | 17884.62                      | 17884.62 |

### LTE band 4, 20MHz Bandwidth, QPSK (99% BW)



Date: 2.NOV.2022 12:18:20

### LTE band 4, 20MHz Bandwidth, 16QAM (99% BW)

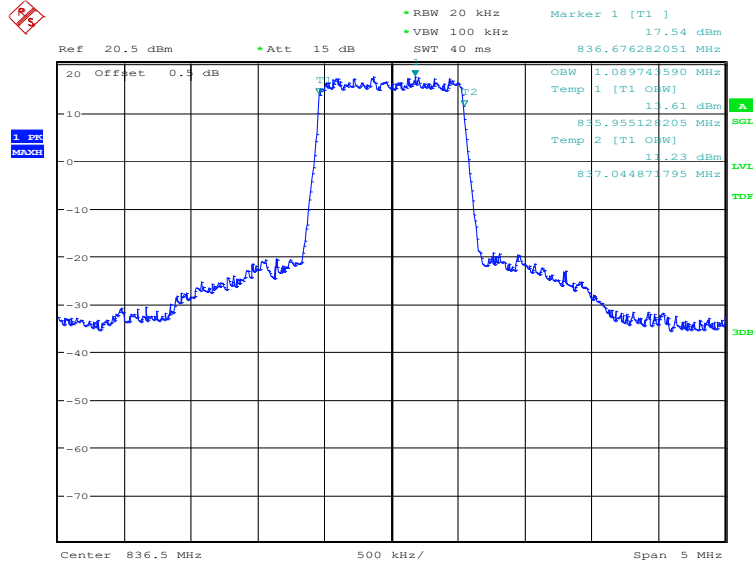


Date: 2.NOV.2022 12:19:00

### LTE band 5, 1.4MHz (99%)

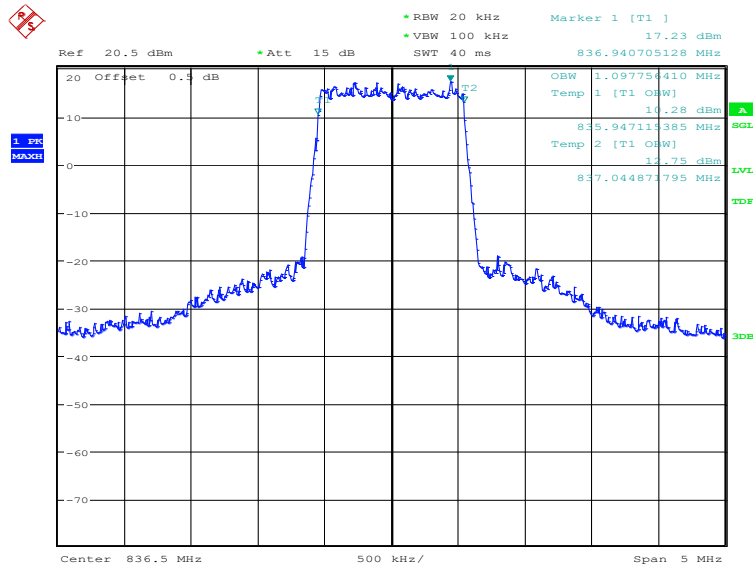
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 836.5          | QPSK                          | 16QAM   |
|                | 1089.74                       | 1097.76 |

### LTE band 5, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 9.NOV.2022 08:13:36

### LTE band 5, 1.4MHz Bandwidth, 16QAM (99% BW)

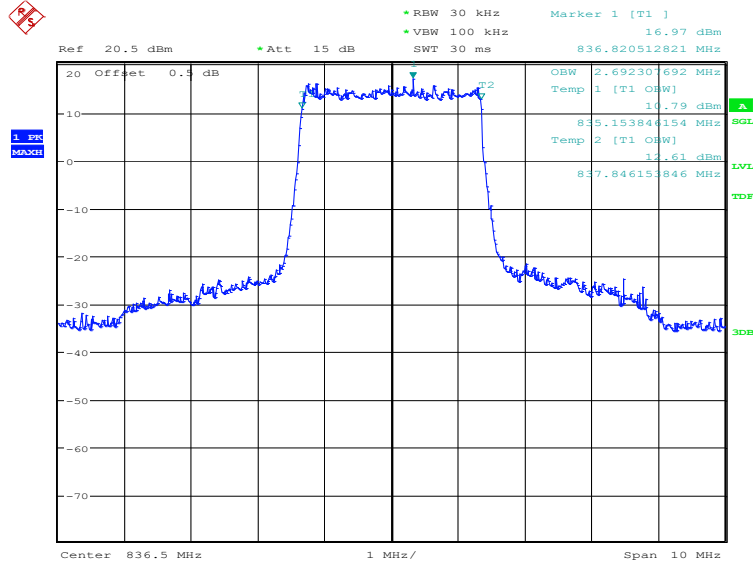


Date: 9.NOV.2022 08:14:16

### LTE band 5, 3MHz (99%)

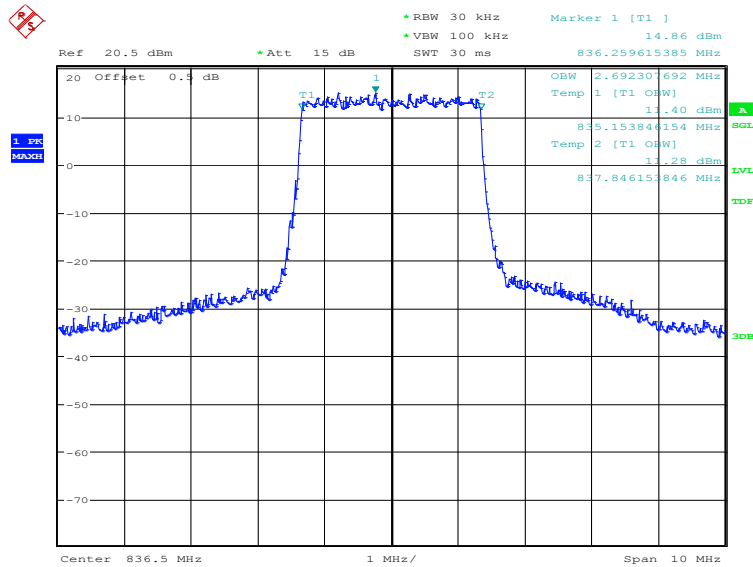
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 836.5          | QPSK                          | 16QAM   |
|                | 2692.31                       | 2692.31 |

### LTE band 5, 3MHz Bandwidth, QPSK (99% BW)



Date: 9.NOV.2022 08:14:58

### LTE band 5, 3MHz Bandwidth, 16QAM (99% BW)

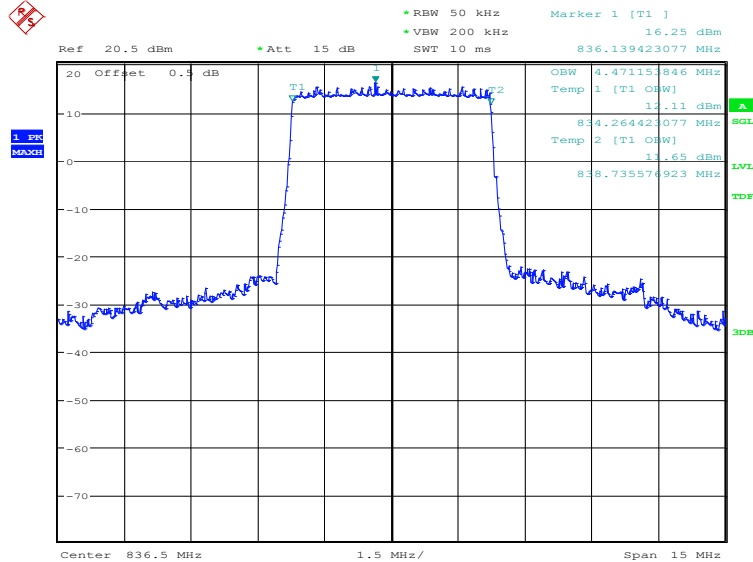


Date: 9.NOV.2022 08:15:38

### LTE band 5, 5MHz (99%)

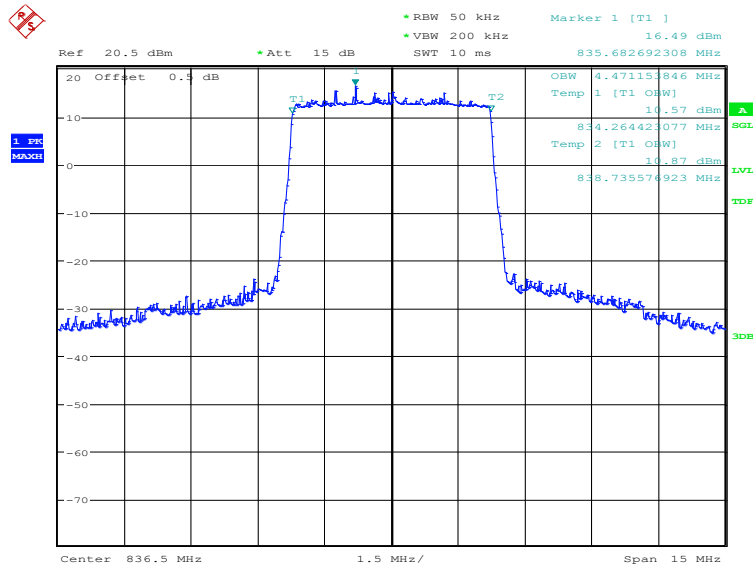
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 836.5          | QPSK                          | 16QAM   |
|                | 4471.15                       | 4471.15 |

### LTE band 5, 5MHz Bandwidth, QPSK (99% BW)



Date: 9.NOV.2022 08:16:19

### LTE band 5, 5MHz Bandwidth, 16QAM (99% BW)

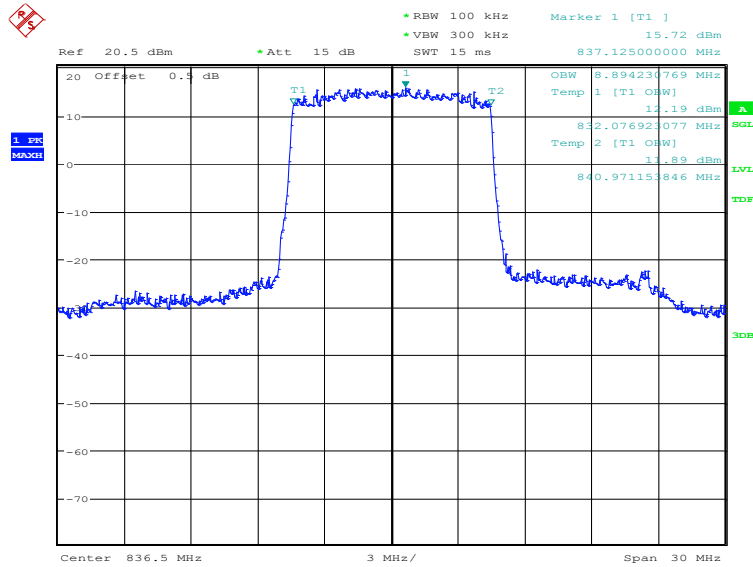


Date: 9.NOV.2022 08:16:59

### LTE band 5, 10MHz (99%)

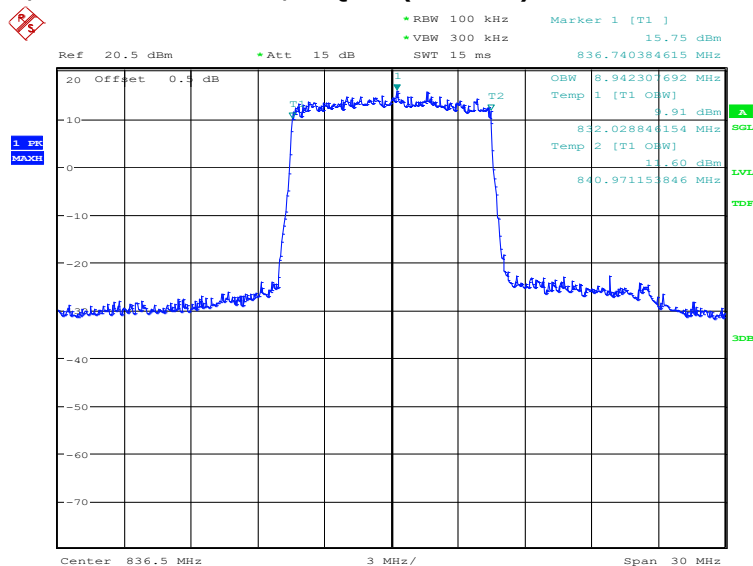
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 836.5          | QPSK                          | 16QAM   |
|                | 8894.23                       | 8942.31 |

### LTE band 5, 10MHz Bandwidth, QPSK (99% BW)



Date: 9.NOV.2022 08:17:41

### LTE band 5, 10MHz Bandwidth, 16QAM (99% BW)

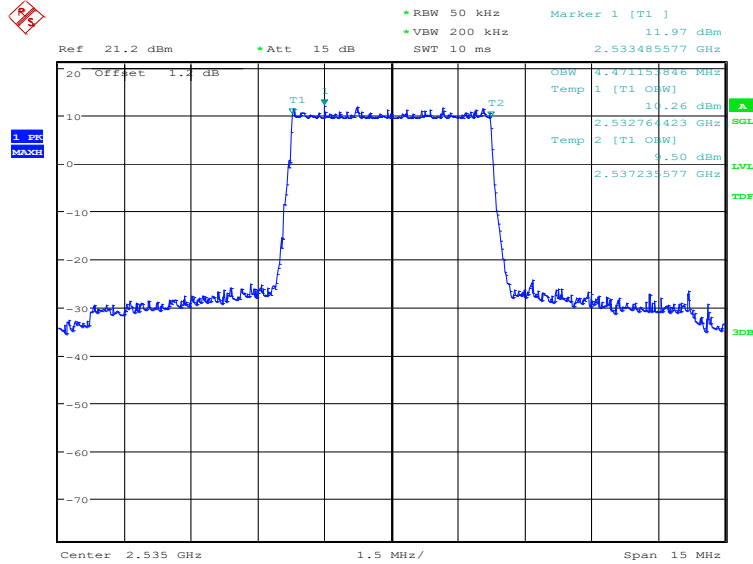


Date: 9.NOV.2022 08:18:21

### LTE band 7, 5MHz (99%)

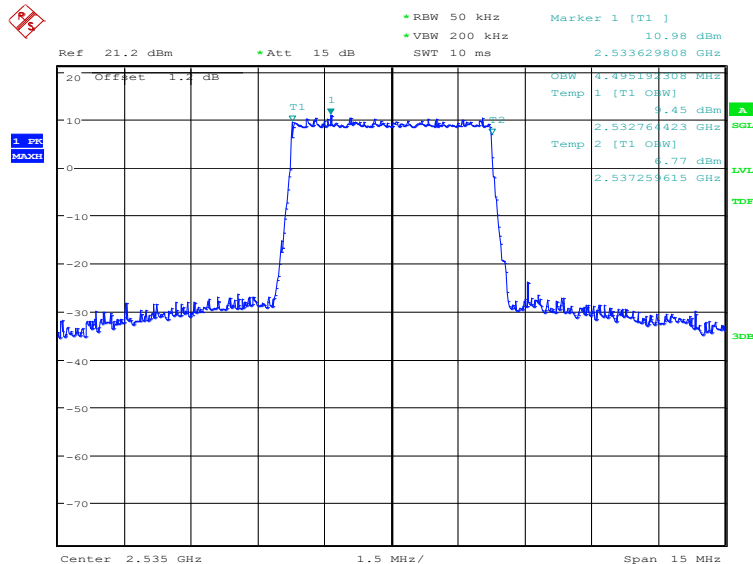
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2535.0         | QPSK                          | 16QAM   |
|                | 4471.15                       | 4495.19 |

### LTE band 7, 5MHz Bandwidth, QPSK (99% BW)



Date: 11.OCT.2022 10:01:51

### LTE band 7, 5MHz Bandwidth, 16QAM (99% BW)

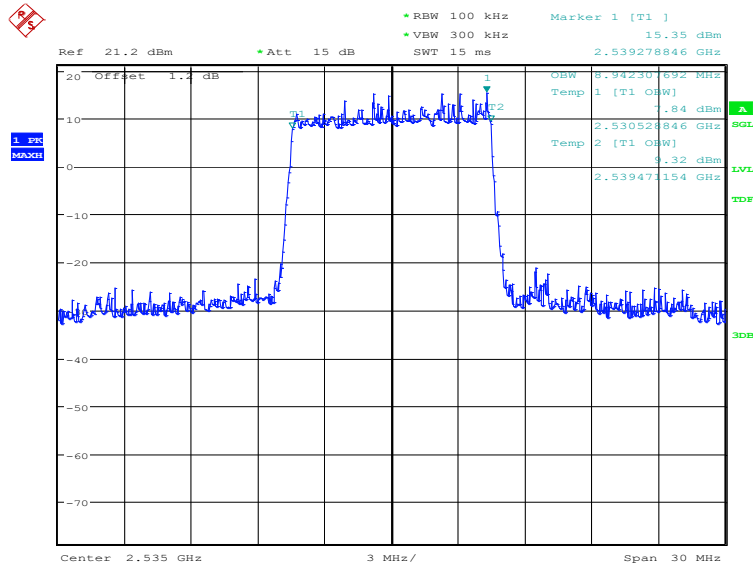


Date: 11.OCT.2022 10:02:30

### LTE band 7, 10MHz (99%)

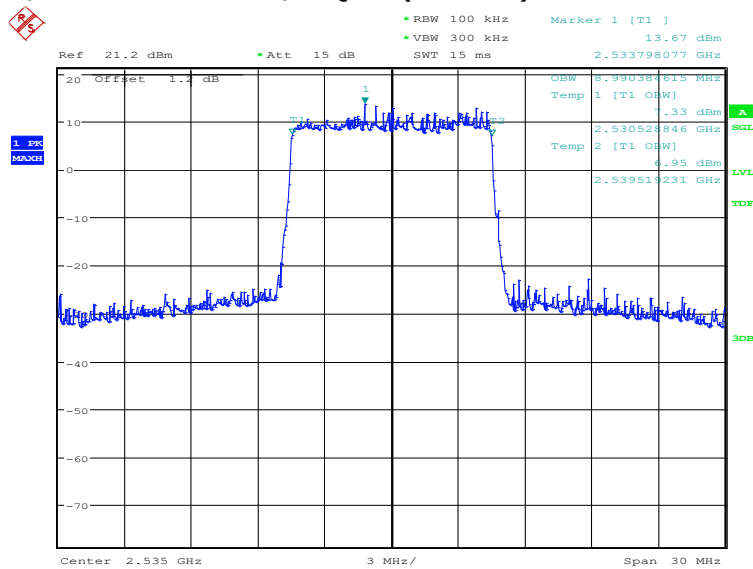
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2535.0         | QPSK                          | 16QAM   |
|                | 8942.31                       | 8990.38 |

### LTE band 7, 10MHz Bandwidth, QPSK (99% BW)



Date: 11.OCT.2022 10:03:12

### LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



Date: 11.OCT.2022 10:03:52

|                |                               |          |
|----------------|-------------------------------|----------|
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
| 2535.0         | QPSK                          | 16QAM    |
|                | 13485.58                      | 13485.58 |

Ref 21.2 dBm Att 1 15 dB

• RBW 200 kHz • VBW 1 MHz SWT 5 ms

Marker 1 [T1 ] 22.83 dBm 2.528942308 GHz

Offset 1.2 dB

Temp 1 [T1 OHW] 13.48557923 MHz 9.39 dBm

Temp 2 [T1 OHW] 2.528293269 GHz 11.95 dBm

2.541778846 GHz

Center 2.535 GHz 4.5 MHz/ Span 45 MHz

Date: 11.OCT.2022 10:04:34

Ref 21.2 dBm Att 15 dB RBW 200 kHz VBW 1 MHz SWT 5 ms Marker 1 [T1 ] 15.34 dBm 2.532187500 GHz

Offset 1.1 dB

1 PR  
MACH

20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70

2.535 GHz

Span 45 MHz

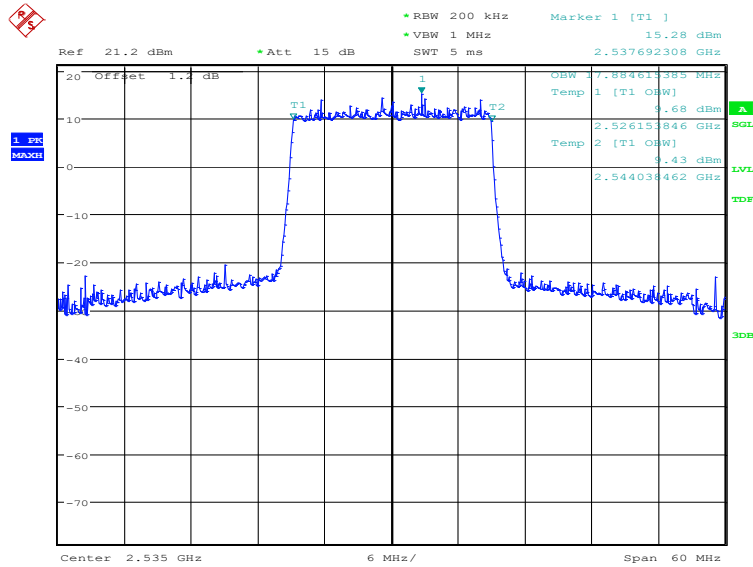
Temp 1 [T1 OHW] 13.485576923 MHz 9.70 dBm  
Temp 2 [T1 OHW] 2.528293269 GHz 8.77 dBm  
2.541778846 GHz

Date: 11.OCT.2022 10:05:14

### LTE band 7, 20MHz (99%)

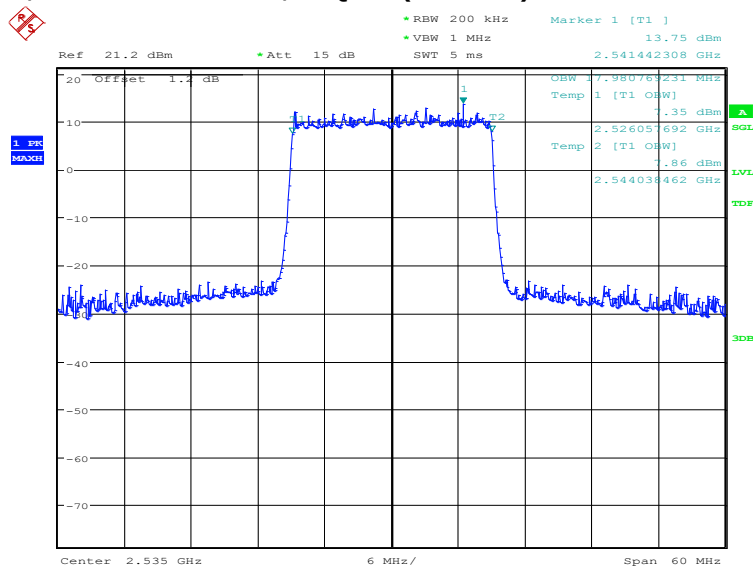
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 2535.0         | QPSK                          | 16QAM    |
|                | 17884.62                      | 17980.77 |

### LTE band 7, 20MHz Bandwidth, QPSK (99% BW)



Date: 11.OCT.2022 10:05:56

### LTE band 7, 20MHz Bandwidth, 16QAM (99% BW)

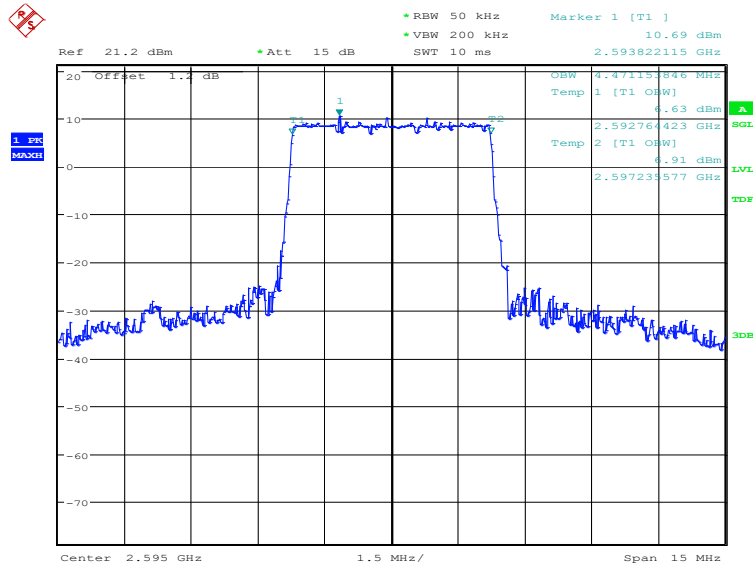


Date: 11.OCT.2022 10:06:35

### LTE band 38, 5MHz (99%)

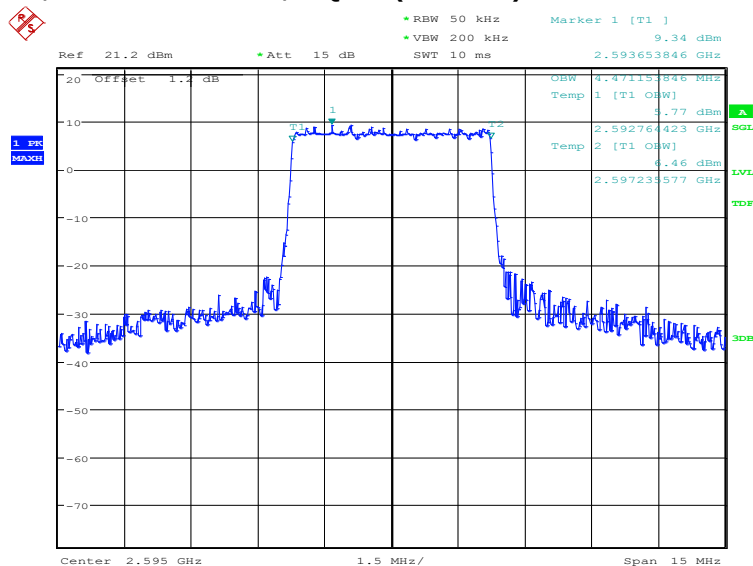
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2595.0         | QPSK                          | 16QAM   |
|                | 4471.15                       | 4471.15 |

### LTE band 38, 5MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:25:06

### LTE band 38, 5MHz Bandwidth,16QAM (99% BW)

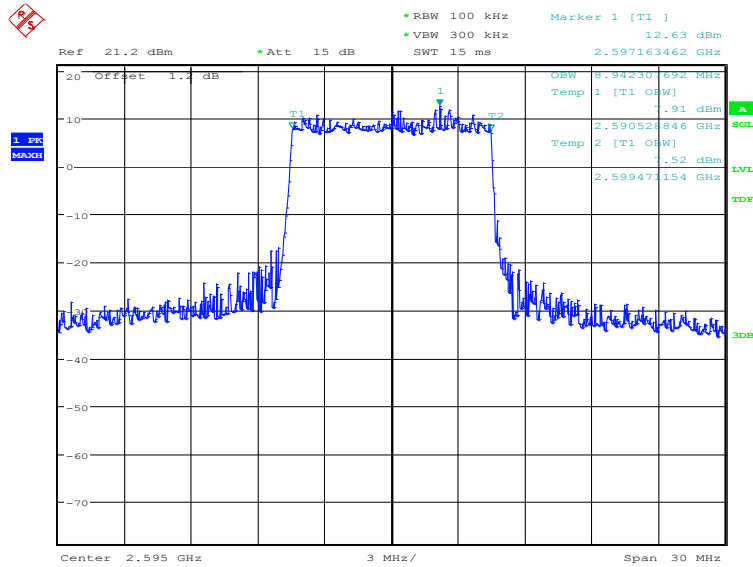


Date: 1.NOV.2022 07:25:46

### LTE band 38, 10MHz (99%)

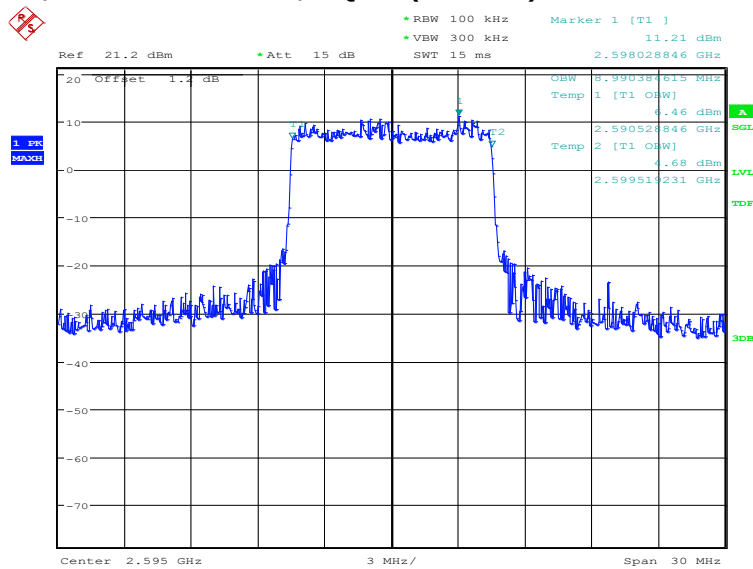
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2595.0         | QPSK                          | 16QAM   |
|                | 8942.31                       | 8990.38 |

### LTE band 38, 10MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:26:27

### LTE band 38, 10MHz Bandwidth,16QAM (99% BW)

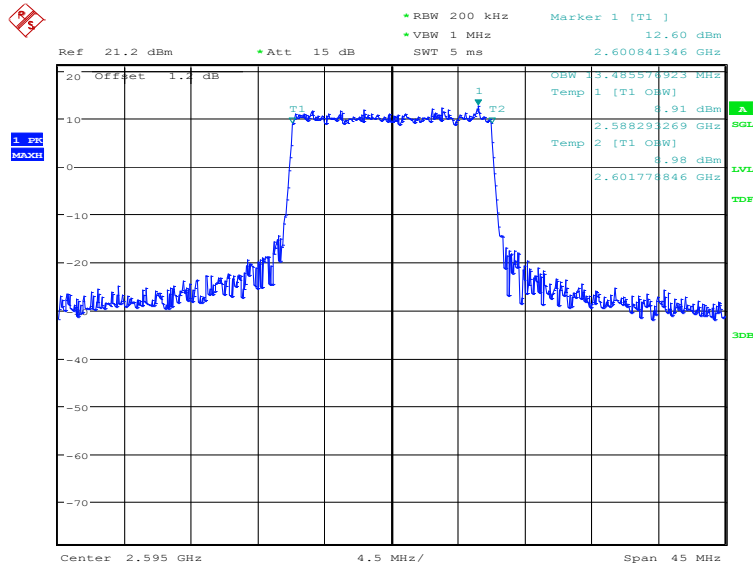


Date: 1.NOV.2022 07:27:07

### LTE band 38,15MHz (99%)

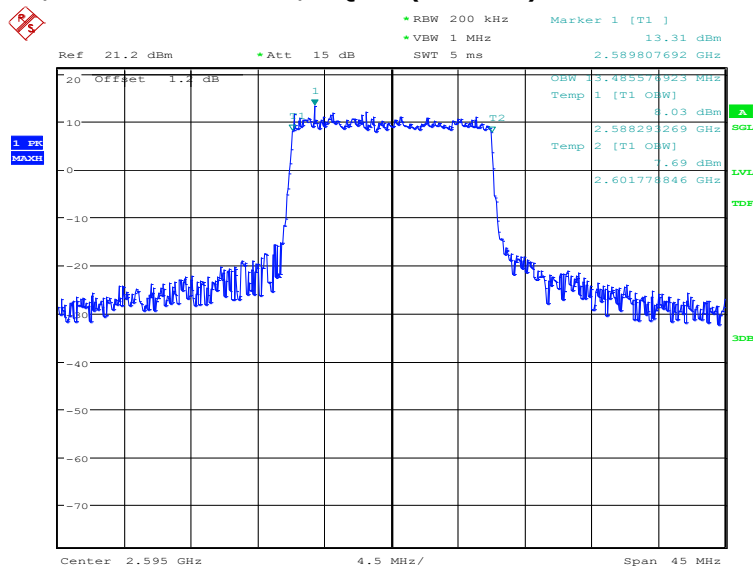
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 2595.0         | QPSK                          | 16QAM    |
|                | 13485.58                      | 13485.58 |

### LTE band 38,15MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:27:49

### LTE band 38, 15MHz Bandwidth,16QAM (99% BW)

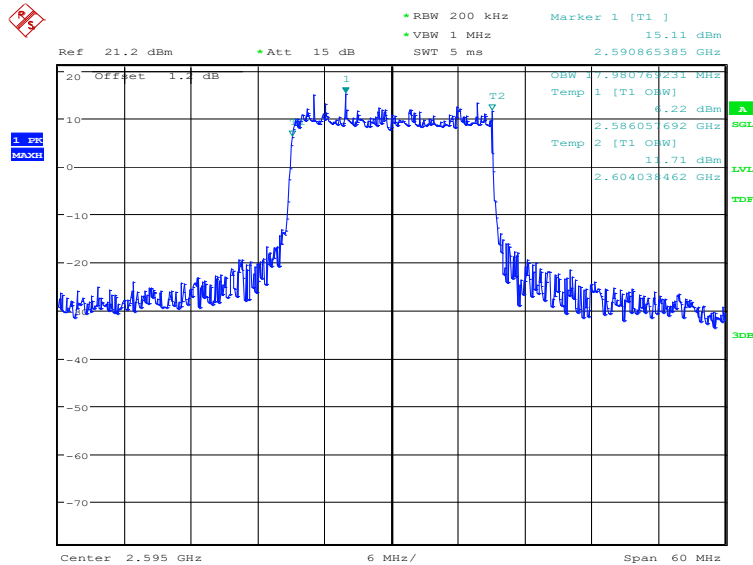


Date: 1.NOV.2022 07:28:28

**LTE band 38, 20MHz (99%)**

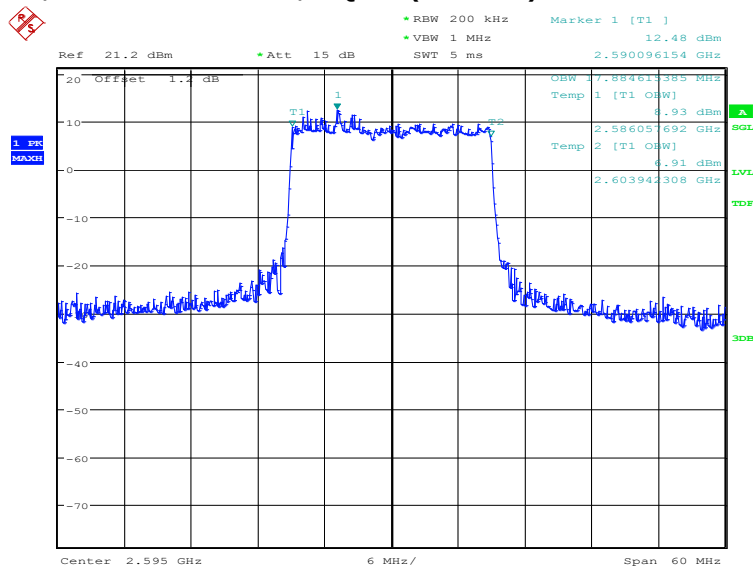
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 2595.0         | QPSK                          | 16QAM    |
|                | 17980.77                      | 17884.62 |

### LTE band 38, 20MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:29:10

**LTE band 38, 20MHz Bandwidth,16QAM (99% BW)**

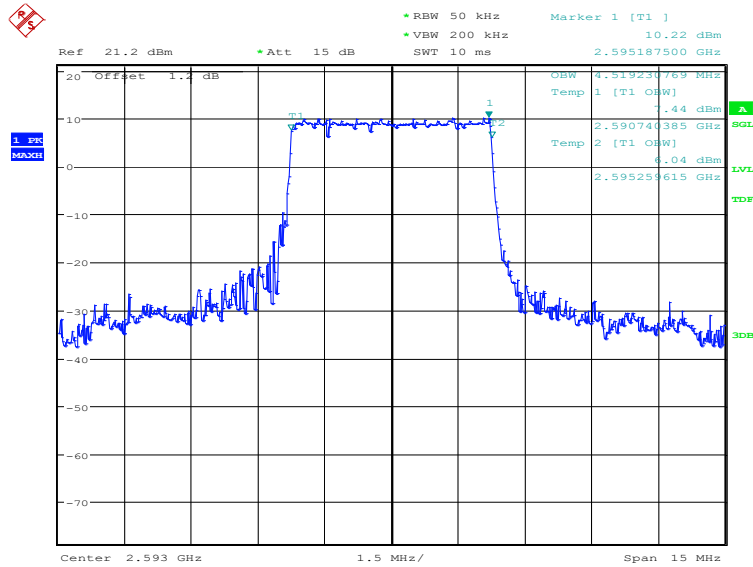


Date: 1.NOV.2022 07:29:49

### LTE band 41, 5MHz (99%)

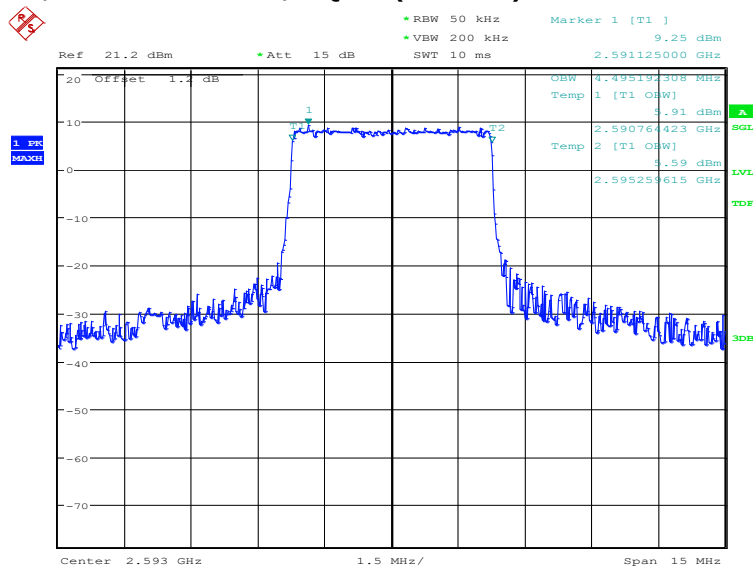
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2593.0         | QPSK                          | 16QAM   |
|                | 4519.23                       | 4495.19 |

### LTE band 41, 5MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:30:32

### LTE band 41, 5MHz Bandwidth,16QAM (99% BW)

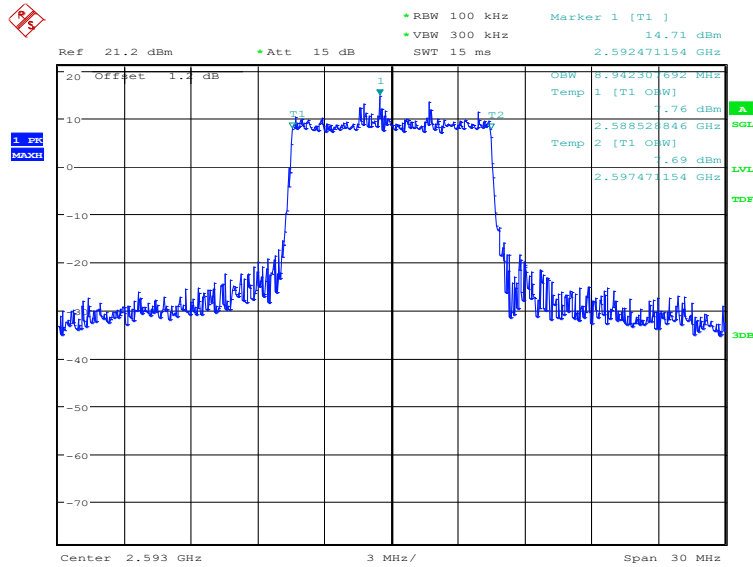


Date: 1.NOV.2022 07:31:12

### LTE band 41, 10MHz (99%)

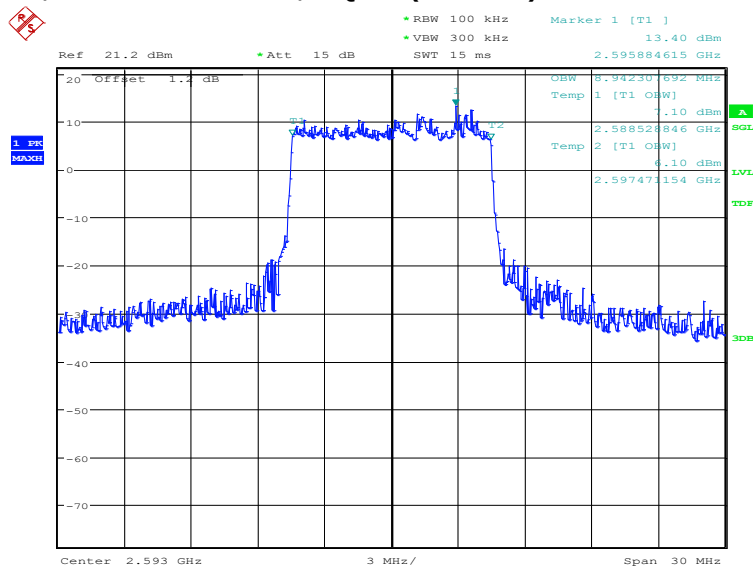
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |         |
|----------------|-------------------------------|---------|
| 2593.0         | QPSK                          | 16QAM   |
|                | 8942.31                       | 8942.31 |

### LTE band 41, 10MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:31:54

### LTE band 41, 10MHz Bandwidth,16QAM (99% BW)

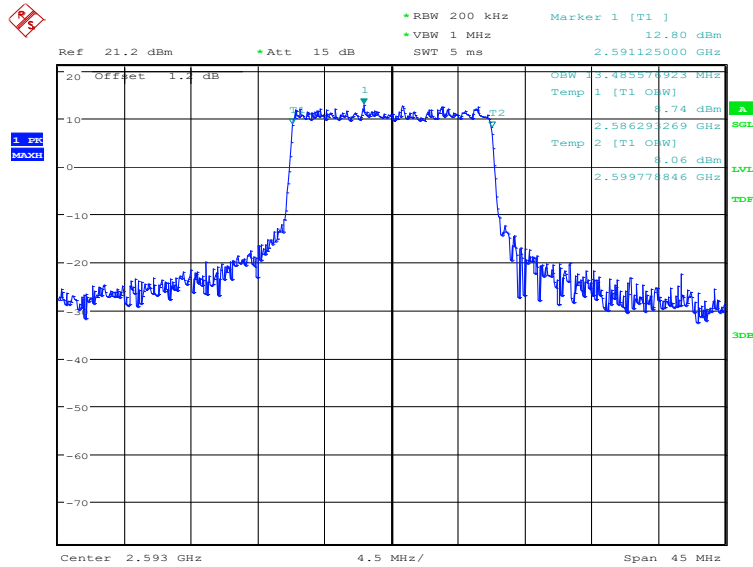


Date: 1.NOV.2022 07:32:33

### LTE band 41, 15MHz (99%)

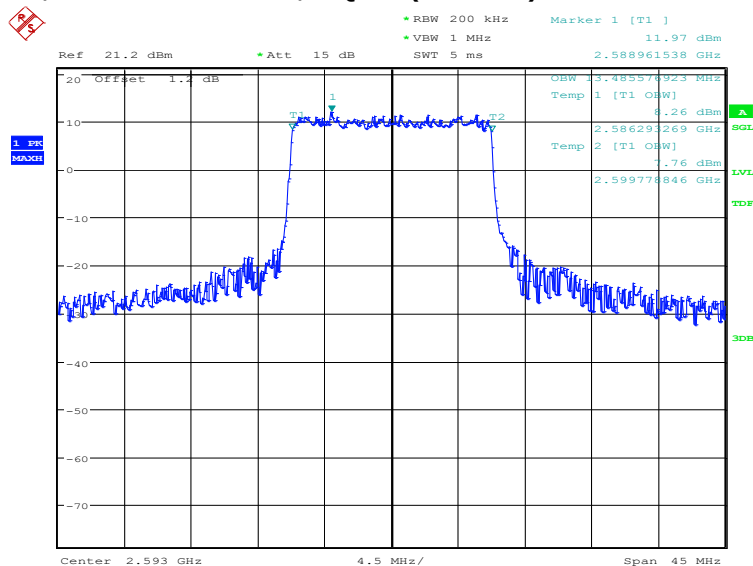
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 2593.0         | QPSK                          | 16QAM    |
|                | 13485.58                      | 13485.58 |

### LTE band 41, 15MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:33:15

### LTE band 41, 15MHz Bandwidth, 16QAM (99% BW)

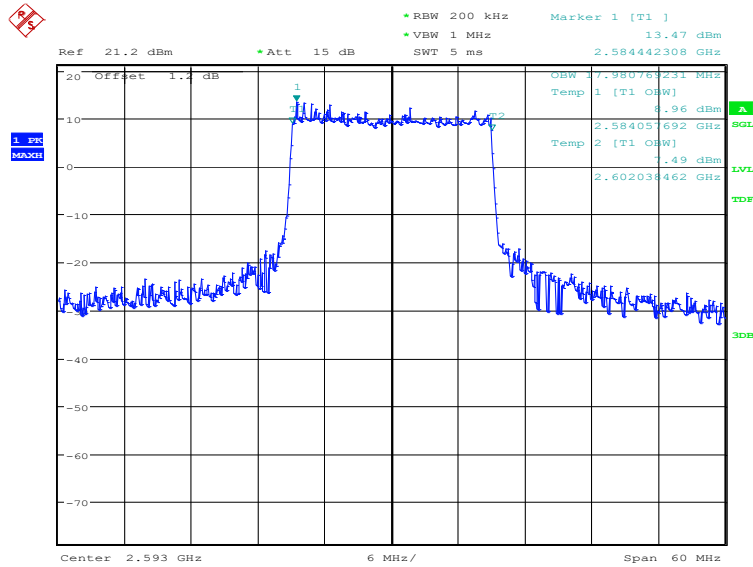


Date: 1.NOV.2022 07:33:55

### LTE band 41, 20MHz (99%)

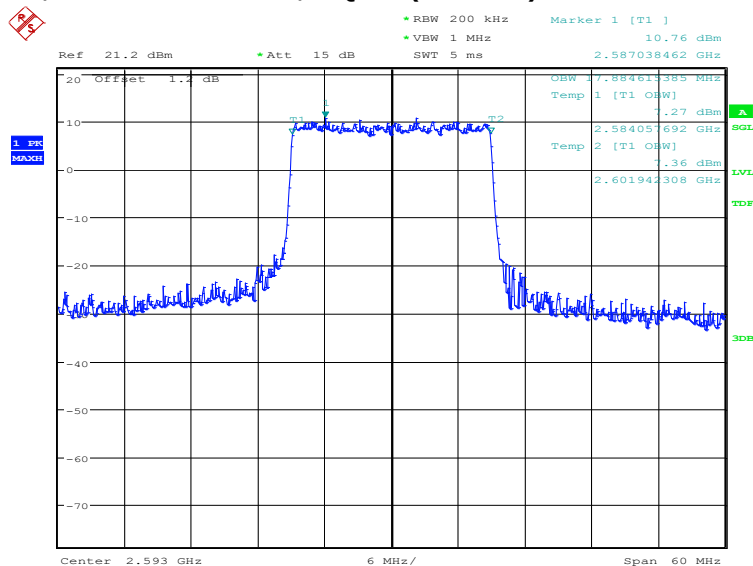
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |          |
|----------------|-------------------------------|----------|
| 2593.0         | QPSK                          | 16QAM    |
|                | 17980.77                      | 17884.62 |

### LTE band 41, 20MHz Bandwidth, QPSK (99% BW)



Date: 1.NOV.2022 07:34:36

### LTE band 41, 20MHz Bandwidth,16QAM (99% BW)

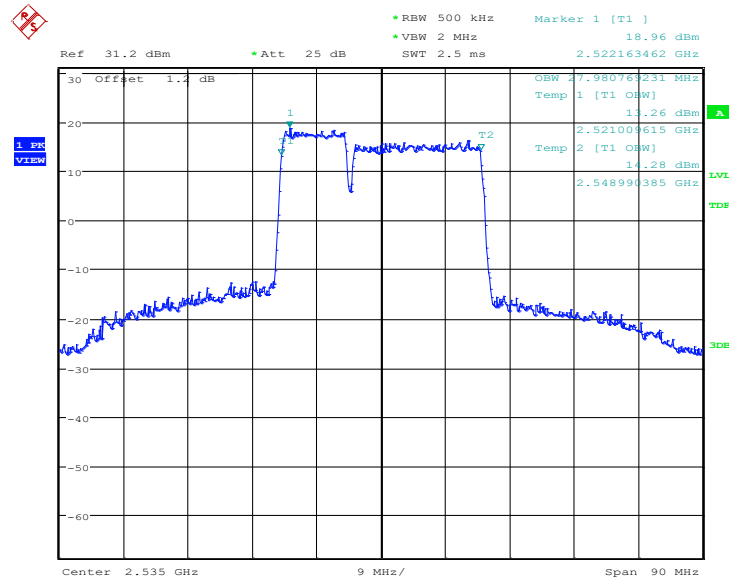


Date: 1.NOV.2022 07:35:16

### LTE CA Band 7C, 10MHz+20MHz(99%)

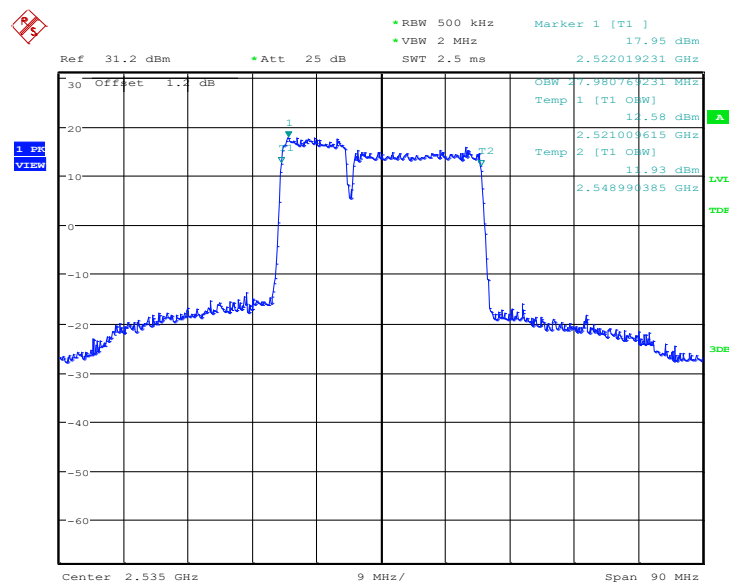
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 27.981                         | 27.981 |

### LTE CA Band 7C, 10MHz+20MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:34:30

### LTE CA Band 7C, 10MHz+20MHz Bandwidth,16QAM (99% BW)

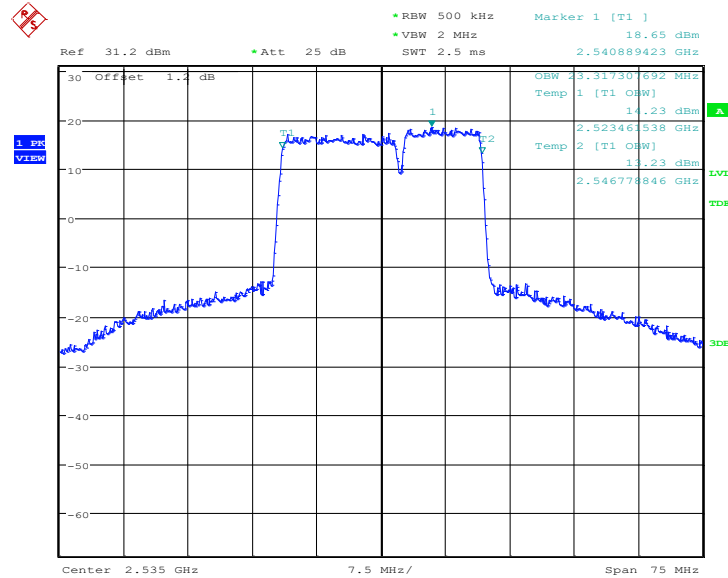


Date: 18.OCT.2022 11:34:53

### LTE CA Band 7C, 15MHz+10MHz(99%)

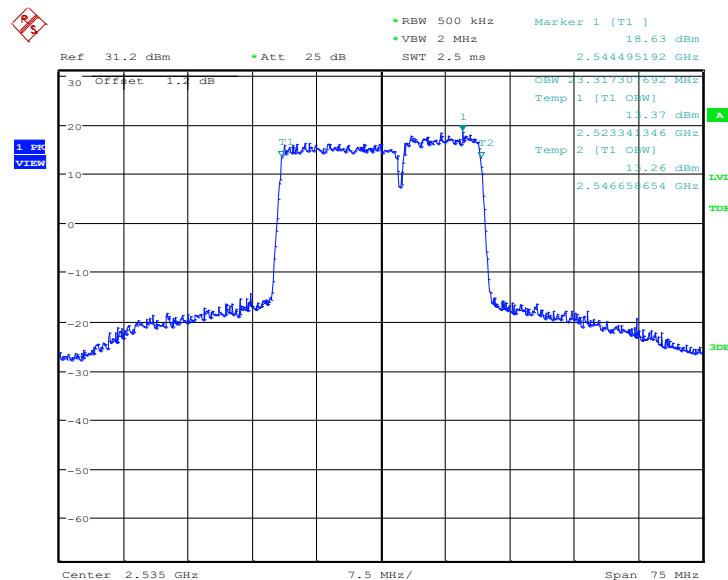
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 23.317                         | 23.317 |

### LTE CA Band 7C, 15MHz+10MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:35:49

### LTE CA Band 7C, 15MHz+10MHz Bandwidth,16QAM (99% BW)

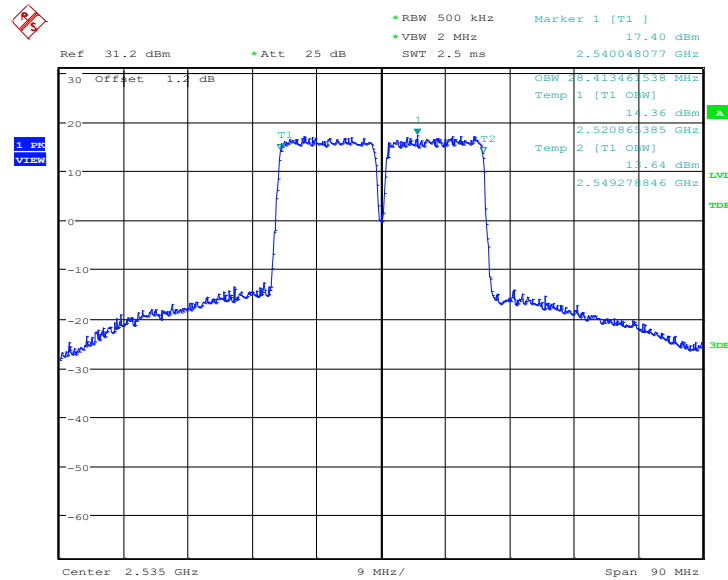


Date: 18.OCT.2022 11:36:12

### LTE CA Band 7C, 15MHz+15MHz(99%)

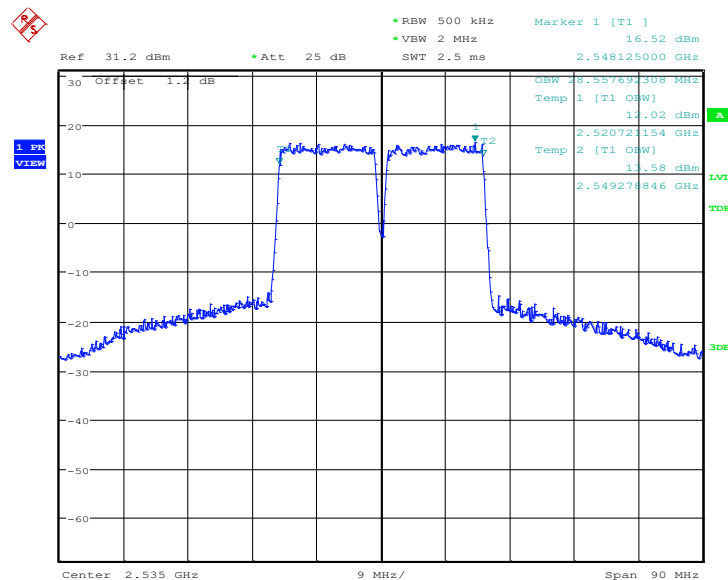
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 28.413                         | 28.558 |

### LTE CA Band 7C, 15MHz+15MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:37:07

### LTE CA Band 7C, 15MHz+15MHz Bandwidth,16QAM (99% BW)

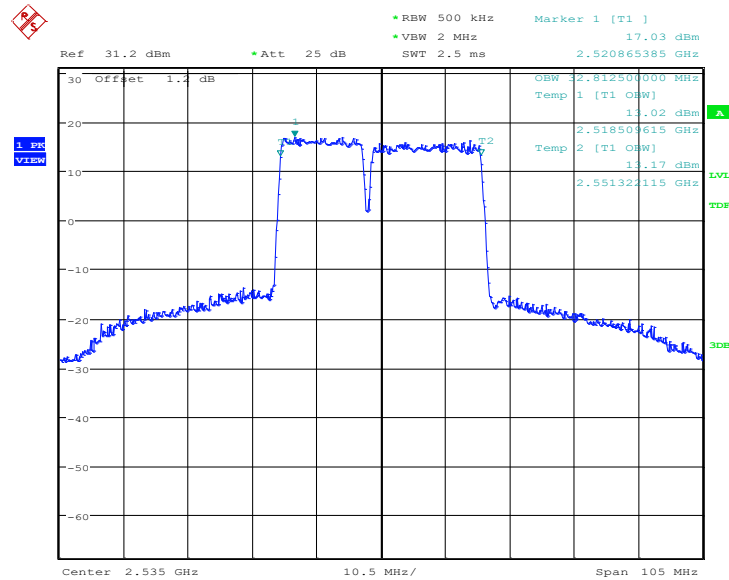


Date: 18.OCT.2022 11:37:29

### LTE CA Band 7C, 15MHz+20MHz(99%)

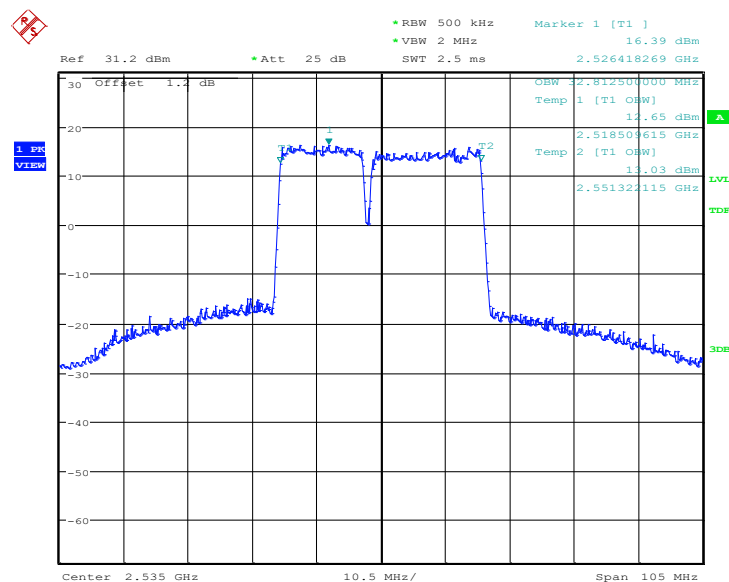
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 32.812                         | 32.812 |

### LTE CA Band 7C, 15MHz+20MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:38:24

### LTE CA Band 7C, 15MHz+20MHz Bandwidth,16QAM (99% BW)

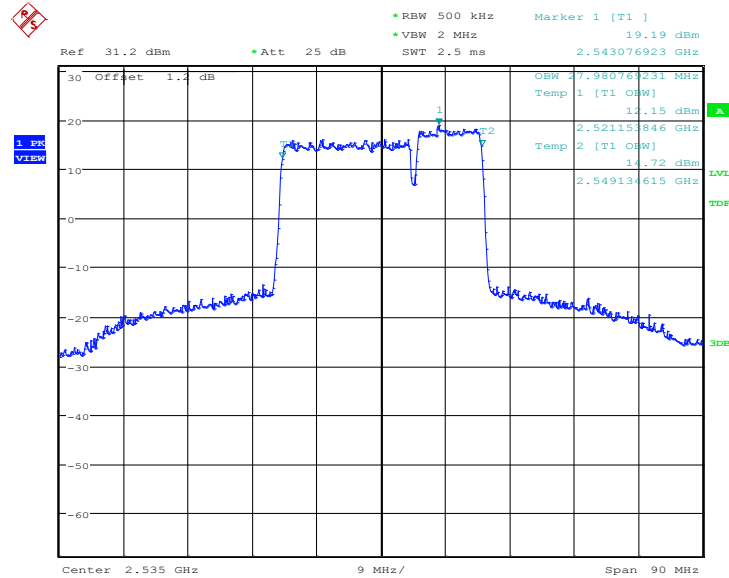


Date: 18.OCT.2022 11:38:47

### LTE CA Band 7C, 20MHz+10MHz(99%)

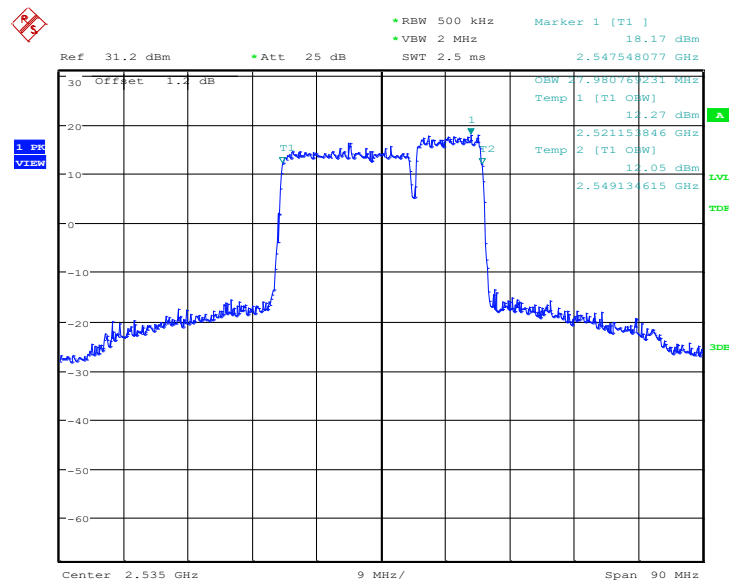
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 27.981                         | 27.981 |

### LTE CA Band 7C, 20MHz+10MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:39:43

### LTE CA Band 7C, 20MHz+10MHz Bandwidth,16QAM (99% BW)

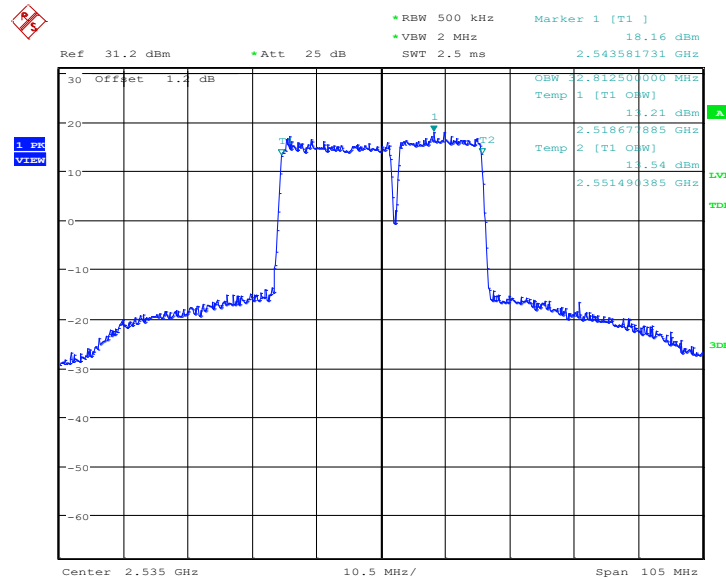


Date: 18.OCT.2022 11:40:06

### LTE CA Band 7C, 20MHz+15MHz(99%)

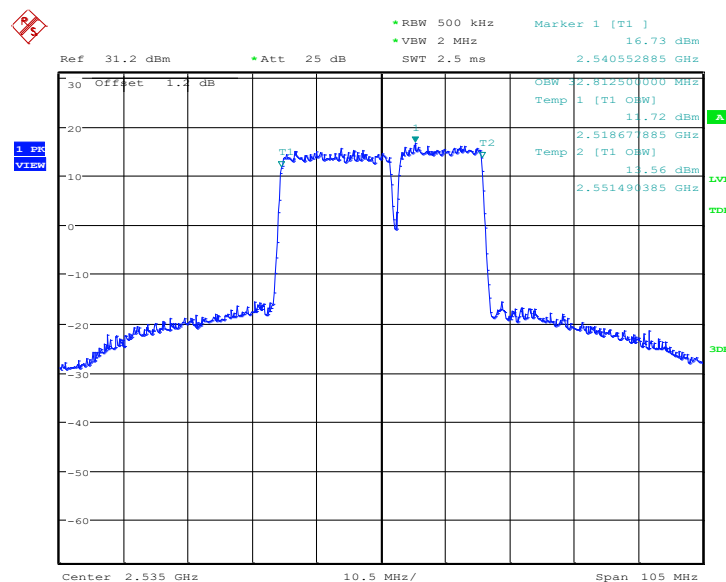
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |        |
|-----------------|--------------------------------|--------|
|                 | QPSK                           | 16QAM  |
| 2535            | 32.812                         | 32.812 |

### LTE CA Band 7C, 20MHz+15MHz Bandwidth,QPSK (99% BW)



Date: 18.OCT.2022 11:41:01

### LTE CA Band 7C, 20MHz+15MHz Bandwidth,16QAM (99% BW)



Date: 18.OCT.2022 11:41:24