



# TEST REPORT

## No. I19Z62374-WMD18

for

**SAMSUNG Electronics Co., Ltd.**

**Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN**

**Model Name: SM-A215U1**

**FCC ID: ZCasma215U**

with

**Hardware Version: REV1.0**

**Software Version: A215U1.001**

**Issued Date: 2020-04-17**

**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> |
|----------------------|-----------------|---------------------------------------------------------|-------------------|
| I19Z62374-WMD18      | Rev.0           | 1 <sup>st</sup> edition                                 | 2020-03-23        |
| I19Z62374-WMD18      | Rev.1           | Changed the Client Information and EUT Software version | 2020-04-17        |

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 17025:2005 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 (Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road,  
Haidian District, Beijing, P. R. China 100191

Location 3: 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°C  
Relative Humidity: 20-75%

### 1.4. Project data

Testing Start Date: 2020-01-10  
Testing End Date: 2020-03-17

### 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: SAMSUNG Electronics Co., Ltd.  
Address /Post: 19 Chapin Road, Building D, Pine Brook New Jersey United States,  
07058  
Contact: Jenni Chun  
Email: j1.chun@samsung.com  
Telephone: 1-973-808-6375  
Fax: NA

### **2.2. Manufacturer Information**

Company Name: SAMSUNG Electronics Co., Ltd.  
Address /Post: 19 Chapin Road, Building D, Pine Brook New Jersey United States,  
07058  
Contact: Jenni Chun  
Email: j1.chun@samsung.com  
Telephone: 1-973-808-6375  
Fax: NA

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

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

|                         |                                                     |
|-------------------------|-----------------------------------------------------|
| Description             | Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN |
| Model Name              | SM-A215U1                                           |
| FCC ID                  | ZCASMA215U                                          |
| Antenna                 | Embedded                                            |
| Output power            | 26.77dBm maximum EIRP measured for LTE Band 66      |
| Extreme vol. Limits     | 3.5VDC to 4.4VDC (nominal: 3.8VDC)                  |
| Extreme temp. Tolerance | -10°C to +55°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 |
|---------|-----------------|------------|------------|-----------------|
| UT07a   | 354230110026502 | REV1.0     | A215U1.001 | 2019-12-27      |
| UT19a   | 354230110009631 | REV1.0     | A215U1.001 | 2020-01-13      |

\*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\*    Description**

AE1      Battery

AE1

|              |                                   |
|--------------|-----------------------------------|
| Model        | NVT-WT-N6                         |
| Manufacturer | Dongguan NVT Technology Co., Ltd. |
| Capacitance  | 3900mAh                           |

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

#### 4. Reference Documents

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

| Reference           | Title                                                                                             | Version            |
|---------------------|---------------------------------------------------------------------------------------------------|--------------------|
| FCC Part 24         | PERSONAL COMMUNICATIONS SERVICES                                                                  | 10-1-19<br>Edition |
| FCC Part 22         | PUBLIC MOBILE SERVICES                                                                            | 10-1-19<br>Edition |
| FCC Part 27         | MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES                                                    | 10-1-19<br>Edition |
| FCC Part 90         | PRIVATE LAND MOBILE RADIO SERVICES                                                                | 10-1-19<br>Edition |
| ANSI/TIA-603-E      | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards               | 2016               |
| ANSI/TIA-102.CAAA-E | DIGITAL C4FMCQPSK TRANSCEIVER MEASUREMENT METHODS                                                 | 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

**Control room / conducted chamber** did not exceed following limits along the EMC testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 20 %, Max. = 80 %   |
| Shielding effectiveness  | > 110 dB                   |
| Electrical insulation    | > 2 MΩ                     |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber 2** (8.6 meters×6.1 meters×3.85 meters) did not exceed following limits along the EMC testing:

|                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| Temperature                                     | Min. = 15 °C, Max. = 30 °C              |
| Relative humidity                               | Min. = 35 %, Max. = 60 %                |
| Shielding effectiveness                         | > 110 dB                                |
| Electrical insulation                           | > 2 MΩ                                  |
| Ground system resistance                        | < 1 Ω                                   |
| 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 4000 MHz |

**Semi-anechoic chamber 2 / Fully-anechoic chamber 3** (10 meters×6.7 meters×6.15 meters) did not exceed following limits along the EMC testing:

|                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| Temperature                                     | Min. = 15 °C, Max. = 30 °C              |
| Relative humidity                               | Min. = 35 %, Max. = 60 %                |
| Shielding effectiveness                         | > 100 dB                                |
| Electrical insulation                           | > 2 MΩ                                  |
| Ground system resistance                        | < 0.5 Ω                                 |
| Normalised site attenuation (NSA)               | < ±3.5 dB, 3 m distance                 |
| 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 3000 MHz |

## 6. SUMMARY OF TEST RESULT

### 6.1. Summary of test results

#### 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 12

| 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 13

| 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 25**

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

**LTE Band 26(814MHz~824MHz)**

| Items | Test Name                   | Clause in FCC rules | Verdict |
|-------|-----------------------------|---------------------|---------|
| 1     | Output Power                | 90.635              | BR      |
| 2     | Emission Limit              | 2.1051/90.691       | BR      |
| 3     | Frequency Stability         | 2.1055              | BR      |
| 4     | Occupied Bandwidth          | 2.1049              | BR      |
| 5     | Emission Bandwidth          | 2.1049              | BR      |
| 6     | Band Edge Compliance        | 90.691              | BR      |
| 7     | Conducted Spurious Emission | 90.691              | BR      |

**LTE Band 26(824MHz~849MHz)**

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

#### LTE Band 66

| 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 71

| 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. |

## 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.

**6.2. Explanation of re-use of test data**

The Equipment Under Test (EUT) model SM-A215U1 (FCC ID: ZCasma215U) is a variant product of SM-A215U (ZCasma215U). According to the declaration of changes provided by the applicant and FCC KDB publication 484596 D01, all the test results are derived from test report No. I19Z62374-WMD03.

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

## 7. Test Equipment Utilized

| NO. | Description                          | Type     | Series Number | Manufacture  | Cal Due Date | Calibration Interval |
|-----|--------------------------------------|----------|---------------|--------------|--------------|----------------------|
| 1   | Universal Radio Communication Tester | CMW500   | 159082        | R&S          | 2020-12-24   | 1 year               |
| 2   | Spectrum Analyzer                    | FSU26    | 200030        | R&S          | 2020-06-03   | 1 year               |
| 3   | Climate chamber                      | SH-242   | 93008556      | ESPEC        | 2020-12-21   | 3 year               |
| 4   | Radio Communication Analyzer         | MT8821C  | 6201763159    | Anritsu      | 2020-07-23   | 1 year               |
| 5   | EMI Antenna                          | VULB9163 | 9163-483      | Schwarzbeck  | 2020-09-16   | 1 year               |
| 6   | EMI Antenna                          | 3117     | 00058889      | ETS-Lindgren | 2020-11-18   | 1 year               |
| 7   | EMI Antenna                          | 3117     | 00139065      | ETS-Lindgren | 2020-10-15   | 1 year               |
| 8   | EMI Antenna                          | 9117     | 167           | Schwarzbeck  | 2020-05-27   | 1 year               |
| 9   | Signal Generator                     | N5183A   | MY49060052    | R&S          | 2020-06-24   | 1 year               |
| 10  | Test Receiver                        | E4440A   | MY48250642    | Agilent      | 2020-03-18   | 1 year               |
| 11  | Universal Radio Communication Tester | CMW500   | 143008        | R&S          | 2020-11-26   | 1 year               |
| 12  | Power Amplifier                      | 5S1G4    | 0341863       | AR           | /            |                      |
| 13  | Universal Radio Communication Tester | MT8821C  | 6201623363    | Anritsu      | 2020-07-11   | 1 year               |

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 OUTPUT POWER**

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

During the process of testing, the EUT was controlled via Rhode & Schwarz Universal Radio Communication Tester (CMW500) or Anritsu Radio Communication Analyzer (MT8821C) 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.

##### **A.1.2.2 Measurement result**

#### **LTE band 7**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2567.5          | 22.68       | 21.51 | 20.82 |
|           |                | 2535.0          | 22.72       | 21.79 | 21.10 |
|           |                | 2502.5          | 22.69       | 22.12 | 21.43 |
|           | 1 RB low       | 2567.5          | 22.65       | 21.61 | 20.92 |
|           |                | 2535.0          | 22.73       | 21.80 | 21.11 |
|           |                | 2502.5          | 22.66       | 22.11 | 21.42 |
|           | 50% RB mid     | 2567.5          | 21.78       | 20.80 | 20.11 |
|           |                | 2535.0          | 21.82       | 20.87 | 20.18 |
|           |                | 2502.5          | 21.86       | 20.95 | 20.26 |
|           | 100% RB        | 2567.5          | 21.72       | 20.70 | 20.01 |
|           |                | 2535.0          | 21.75       | 20.80 | 20.11 |
|           |                | 2502.5          | 21.80       | 20.83 | 20.14 |
| 10MHz     | 1 RB high      | 2565.0          | 22.67       | 21.67 | 20.98 |
|           |                | 2535.0          | 22.70       | 21.67 | 20.98 |
|           |                | 2505.0          | 22.78       | 22.09 | 21.40 |
|           | 1 RB low       | 2565.0          | 22.65       | 21.64 | 20.95 |
|           |                | 2535.0          | 22.71       | 21.61 | 20.92 |
|           |                | 2505.0          | 22.78       | 22.04 | 21.35 |
|           | 50% RB mid     | 2565.0          | 21.80       | 20.89 | 20.20 |
|           |                | 2535.0          | 21.85       | 20.90 | 20.21 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
|       | 100% RB    | 2505.0 | 21.89 | 20.94 | 20.25 |
|       |            | 2565.0 | 21.79 | 20.86 | 20.17 |
|       |            | 2535.0 | 21.84 | 20.86 | 20.17 |
|       |            | 2505.0 | 21.86 | 20.89 | 20.20 |
| 15MHz | 1 RB high  | 2562.5 | 22.69 | 21.90 | 21.21 |
|       |            | 2535.0 | 22.68 | 21.57 | 20.88 |
|       |            | 2507.5 | 22.68 | 22.01 | 21.32 |
|       | 1 RB low   | 2562.5 | 22.67 | 22.01 | 21.32 |
|       |            | 2535.0 | 22.69 | 21.58 | 20.89 |
|       |            | 2507.5 | 22.70 | 21.98 | 21.29 |
|       | 50% RB mid | 2562.5 | 21.84 | 20.78 | 20.09 |
|       |            | 2535.0 | 21.89 | 20.80 | 20.11 |
|       |            | 2507.5 | 21.85 | 20.84 | 20.15 |
|       | 100% RB    | 2562.5 | 21.83 | 20.78 | 20.09 |
|       |            | 2535.0 | 21.87 | 20.81 | 20.12 |
|       |            | 2507.5 | 21.88 | 20.81 | 20.12 |
| 20MHz | 1 RB high  | 2560.0 | 22.75 | 22.07 | 21.38 |
|       |            | 2535.0 | 22.76 | 22.15 | 21.46 |
|       |            | 2510.0 | 22.73 | 22.24 | 21.55 |
|       | 1 RB low   | 2560.0 | 22.75 | 22.18 | 21.49 |
|       |            | 2535.0 | 22.75 | 22.09 | 21.40 |
|       |            | 2510.0 | 22.76 | 22.21 | 21.52 |
|       | 50% RB mid | 2560.0 | 21.93 | 20.96 | 20.27 |
|       |            | 2535.0 | 21.97 | 20.96 | 20.27 |
|       |            | 2510.0 | 21.90 | 20.96 | 20.27 |
|       | 100% RB    | 2560.0 | 21.82 | 20.85 | 20.16 |
|       |            | 2535.0 | 21.90 | 20.93 | 20.24 |
|       |            | 2510.0 | 21.90 | 20.92 | 20.23 |

**LTE band 12**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 715.3           | 22.11       | 21.22 | 20.37 |
|           |                | 707.5           | 22.10       | 21.25 | 20.40 |
|           |                | 699.7           | 22.17       | 21.53 | 20.68 |
|           | 1 RB low       | 715.3           | 22.03       | 21.23 | 20.38 |
|           |                | 707.5           | 22.13       | 21.25 | 20.40 |
|           |                | 699.7           | 22.15       | 21.50 | 20.65 |
|           | 50% RB mid     | 715.3           | 22.32       | 21.51 | 20.66 |
|           |                | 707.5           | 22.30       | 21.34 | 20.49 |
|           |                | 699.7           | 22.38       | 21.46 | 20.61 |
|           | 100% RB        | 715.3           | 21.19       | 20.40 | 19.55 |
|           |                | 707.5           | 21.15       | 20.36 | 19.51 |
|           |                | 699.7           | 21.15       | 20.12 | 19.27 |
| 3MHz      | 1 RB high      | 714.5           | 22.10       | 21.17 | 20.32 |
|           |                | 707.5           | 22.07       | 21.07 | 20.22 |
|           |                | 700.5           | 22.22       | 21.55 | 20.70 |
|           | 1 RB low       | 714.5           | 22.11       | 21.21 | 20.36 |
|           |                | 707.5           | 22.08       | 21.09 | 20.24 |
|           |                | 700.5           | 22.18       | 21.55 | 20.70 |
|           | 50% RB mid     | 714.5           | 21.18       | 20.27 | 19.42 |
|           |                | 707.5           | 21.15       | 20.31 | 19.46 |
|           |                | 700.5           | 21.24       | 20.36 | 19.51 |
|           | 100% RB        | 714.5           | 21.19       | 20.14 | 19.29 |
|           |                | 707.5           | 21.16       | 20.22 | 19.37 |
|           |                | 700.5           | 21.18       | 20.23 | 19.38 |
| 5MHz      | 1 RB high      | 713.5           | 22.62       | 21.24 | 20.39 |
|           |                | 707.5           | 22.07       | 21.58 | 20.73 |
|           |                | 701.5           | 22.08       | 21.20 | 20.35 |
|           | 1 RB low       | 713.5           | 22.06       | 21.25 | 20.40 |
|           |                | 707.5           | 22.04       | 21.61 | 20.76 |
|           |                | 701.5           | 22.11       | 21.19 | 20.34 |
|           | 50% RB mid     | 713.5           | 21.21       | 20.33 | 19.48 |
|           |                | 707.5           | 21.17       | 20.35 | 19.50 |
|           |                | 701.5           | 21.25       | 20.29 | 19.44 |
|           | 100% RB        | 713.5           | 21.14       | 20.19 | 19.34 |
|           |                | 707.5           | 21.17       | 20.27 | 19.42 |
|           |                | 701.5           | 21.18       | 20.14 | 19.29 |
| 10MHz     | 1 RB high      | 711.0           | 22.60       | 21.61 | 20.76 |
|           |                | 707.5           | 22.65       | 21.94 | 21.09 |

|  |            |       |       |       |       |
|--|------------|-------|-------|-------|-------|
|  |            | 704.0 | 22.54 | 21.57 | 20.72 |
|  | 1 RB low   | 711.0 | 22.53 | 21.53 | 20.68 |
|  |            | 707.5 | 22.59 | 21.96 | 21.11 |
|  |            | 704.0 | 22.56 | 21.59 | 20.74 |
|  | 50% RB mid | 711.0 | 21.70 | 20.74 | 19.89 |
|  |            | 707.5 | 21.71 | 20.77 | 19.92 |
|  |            | 704.0 | 21.74 | 20.79 | 19.94 |
|  | 100% RB    | 711.0 | 21.63 | 20.67 | 19.82 |
|  |            | 707.5 | 21.70 | 20.73 | 19.88 |
|  |            | 704.0 | 21.67 | 20.70 | 19.85 |

**LTE band 13**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 784.5           | 22.47       | 21.51 | 21.04 |
|           |                | 782.0           | 21.53       | 20.67 | 20.20 |
|           |                | 779.5           | 21.52       | 20.57 | 20.10 |
|           | 1 RB low       | 784.5           | 21.55       | 20.64 | 20.17 |
|           |                | 782.0           | 21.49       | 20.57 | 20.10 |
|           |                | 779.5           | 21.45       | 20.38 | 20.01 |
|           | 50% RB mid     | 784.5           | 21.52       | 20.55 | 20.08 |
|           |                | 782.0           | 22.47       | 21.51 | 21.04 |
|           |                | 779.5           | 21.53       | 20.67 | 20.20 |
|           | 100% RB        | 784.5           | 21.52       | 20.57 | 20.10 |
|           |                | 782.0           | 21.55       | 20.64 | 20.17 |
|           |                | 779.5           | 21.49       | 20.57 | 20.10 |
| 10MHz     | 1 RB high      | 782.0           | 22.91       | 22.04 | 21.57 |
|           | 1 RB low       | 782.0           | 22.95       | 21.89 | 21.42 |
|           | 50% RB mid     | 782.0           | 22.04       | 21.09 | 20.62 |
|           | 100% RB        | 782.0           | 21.92       | 20.98 | 20.51 |

**LTE band 25**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1914.3          | 22.87       | 21.30 | 20.66 |
|           |                | 1882.5          | 22.80       | 21.73 | 21.09 |
|           |                | 1850.7          | 22.40       | 21.79 | 21.15 |
|           | 1 RB low       | 1914.3          | 22.90       | 21.25 | 20.61 |
|           |                | 1882.5          | 22.38       | 21.54 | 20.90 |
|           |                | 1850.7          | 22.41       | 21.75 | 21.11 |
|           | 50% RB mid     | 1914.3          | 22.92       | 21.53 | 20.89 |
|           |                | 1882.5          | 22.51       | 21.57 | 20.93 |
|           |                | 1850.7          | 22.57       | 21.70 | 21.06 |
|           | 100% RB        | 1914.3          | 22.09       | 20.74 | 20.10 |
|           |                | 1882.5          | 21.35       | 20.63 | 19.99 |
|           |                | 1850.7          | 21.47       | 20.40 | 19.76 |
| 3MHz      | 1 RB high      | 1913.5          | 22.96       | 21.32 | 20.68 |
|           |                | 1882.5          | 22.88       | 21.83 | 21.19 |
|           |                | 1851.5          | 22.63       | 22.12 | 21.48 |
|           | 1 RB low       | 1913.5          | 22.95       | 21.49 | 20.85 |
|           |                | 1882.5          | 22.84       | 21.61 | 20.97 |
|           |                | 1851.5          | 22.49       | 22.02 | 21.38 |
|           | 50% RB mid     | 1913.5          | 21.99       | 21.02 | 20.38 |
|           |                | 1882.5          | 21.61       | 21.05 | 20.41 |
|           |                | 1851.5          | 21.46       | 21.08 | 20.44 |
|           | 100% RB        | 1913.5          | 21.89       | 20.89 | 20.25 |
|           |                | 1882.5          | 21.49       | 20.85 | 20.21 |
|           |                | 1851.5          | 21.48       | 20.90 | 20.26 |
| 5MHz      | 1 RB high      | 1912.5          | 22.87       | 21.49 | 20.85 |
|           |                | 1882.5          | 22.89       | 22.00 | 21.36 |
|           |                | 1852.5          | 22.74       | 22.22 | 21.58 |
|           | 1 RB low       | 1912.5          | 22.84       | 21.74 | 21.10 |
|           |                | 1882.5          | 22.90       | 21.84 | 21.20 |
|           |                | 1852.5          | 22.40       | 22.06 | 21.42 |
|           | 50% RB mid     | 1912.5          | 21.94       | 21.01 | 20.37 |
|           |                | 1882.5          | 21.90       | 21.03 | 20.39 |
|           |                | 1852.5          | 21.67       | 21.14 | 20.50 |
|           | 100% RB        | 1912.5          | 21.82       | 20.84 | 20.20 |
|           |                | 1882.5          | 21.73       | 20.98 | 20.34 |
|           |                | 1852.5          | 21.57       | 20.92 | 20.28 |
| 10MHz     | 1 RB high      | 1910.0          | 22.86       | 21.58 | 20.94 |
|           |                | 1882.5          | 22.81       | 21.80 | 21.16 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
|       | 1 RB low   | 1855.0 | 22.85 | 22.22 | 21.58 |
|       |            | 1910.0 | 22.86 | 21.92 | 21.28 |
|       |            | 1882.5 | 22.81 | 21.84 | 21.20 |
|       |            | 1855.0 | 22.86 | 22.17 | 21.53 |
|       | 50% RB mid | 1910.0 | 21.94 | 21.10 | 20.46 |
|       |            | 1882.5 | 21.98 | 21.10 | 20.46 |
|       |            | 1855.0 | 21.93 | 21.06 | 20.42 |
|       | 100% RB    | 1910.0 | 21.90 | 21.03 | 20.39 |
|       |            | 1882.5 | 22.01 | 21.08 | 20.44 |
|       |            | 1855.0 | 21.94 | 21.03 | 20.39 |
| 15MHz | 1 RB high  | 1907.5 | 22.94 | 22.04 | 21.40 |
|       |            | 1882.5 | 22.79 | 21.77 | 21.13 |
|       |            | 1857.5 | 22.88 | 22.19 | 21.55 |
|       | 1 RB low   | 1907.5 | 22.89 | 22.25 | 21.61 |
|       |            | 1882.5 | 22.78 | 21.82 | 21.18 |
|       |            | 1857.5 | 22.87 | 22.19 | 21.55 |
|       | 50% RB mid | 1907.5 | 22.08 | 21.03 | 20.39 |
|       |            | 1882.5 | 21.98 | 21.00 | 20.36 |
|       |            | 1857.5 | 21.93 | 21.02 | 20.38 |
|       | 100% RB    | 1907.5 | 22.10 | 21.09 | 20.45 |
|       |            | 1882.5 | 21.99 | 21.06 | 20.42 |
|       |            | 1857.5 | 21.92 | 21.04 | 20.40 |
| 20MHz | 1 RB high  | 1905.0 | 22.76 | 21.99 | 21.35 |
|       |            | 1882.5 | 22.69 | 22.13 | 21.49 |
|       |            | 1860.0 | 22.72 | 22.27 | 21.63 |
|       | 1 RB low   | 1905.0 | 22.71 | 22.20 | 21.56 |
|       |            | 1882.5 | 22.70 | 22.14 | 21.50 |
|       |            | 1860.0 | 22.72 | 22.23 | 21.59 |
|       | 50% RB mid | 1905.0 | 21.94 | 21.02 | 20.38 |
|       |            | 1882.5 | 21.93 | 20.98 | 20.34 |
|       |            | 1860.0 | 21.90 | 21.00 | 20.36 |
|       | 100% RB    | 1905.0 | 21.89 | 20.99 | 20.35 |
|       |            | 1882.5 | 21.96 | 21.01 | 20.37 |
|       |            | 1860.0 | 21.84 | 20.98 | 20.34 |

# LTE band 26(814MHz~824MHz)

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 823.3           | 22.88       | 21.95 | 21.29 |
|           |                | 819.0           | 22.94       | 21.97 | 21.34 |
|           |                | 814.7           | 22.91       | 22.01 | 21.27 |
|           | 1 RB low       | 823.3           | 22.90       | 21.92 | 21.28 |
|           |                | 819.0           | 22.92       | 21.95 | 21.23 |
|           |                | 814.7           | 22.96       | 21.99 | 21.21 |
|           | 50% RB mid     | 823.3           | 23.08       | 22.21 | 21.31 |
|           |                | 819.0           | 23.04       | 22.24 | 21.22 |
|           |                | 814.7           | 23.14       | 22.30 | 21.19 |
|           | 100% RB        | 823.3           | 21.96       | 20.92 | 20.09 |
|           |                | 819.0           | 21.99       | 21.17 | 20.03 |
|           |                | 814.7           | 22.02       | 20.96 | 19.97 |
| 3MHz      | 1 RB high      | 822.5           | 22.90       | 21.90 | 21.34 |
|           |                | 819.0           | 22.95       | 22.11 | 21.37 |
|           |                | 815.5           | 23.02       | 21.98 | 21.32 |
|           | 1 RB low       | 822.5           | 22.96       | 22.00 | 21.18 |
|           |                | 819.0           | 22.98       | 22.14 | 21.08 |
|           |                | 815.5           | 23.05       | 22.12 | 21.15 |
|           | 50% RB mid     | 822.5           | 21.99       | 21.11 | 20.29 |
|           |                | 819.0           | 21.99       | 21.12 | 20.27 |
|           |                | 815.5           | 22.03       | 21.18 | 20.23 |
|           | 100% RB        | 822.5           | 21.95       | 21.03 | 20.13 |
|           |                | 819.0           | 21.94       | 21.02 | 20.04 |
|           |                | 815.5           | 22.00       | 21.07 | 20.02 |
| 5MHz      | 1 RB high      | 821.5           | 22.84       | 21.95 | 21.34 |
|           |                | 819.0           | 22.91       | 22.20 | 21.25 |
|           |                | 816.5           | 22.88       | 21.97 | 21.22 |
|           | 1 RB low       | 821.5           | 22.84       | 21.92 | 21.29 |
|           |                | 819.0           | 22.93       | 22.19 | 21.26 |
|           |                | 816.5           | 22.94       | 22.06 | 21.16 |
|           | 50% RB mid     | 821.5           | 22.03       | 21.20 | 20.24 |
|           |                | 819.0           | 22.01       | 21.22 | 20.18 |
|           |                | 816.5           | 22.05       | 21.23 | 20.21 |
|           | 100% RB        | 821.5           | 21.97       | 21.08 | 20.11 |
|           |                | 819.0           | 21.96       | 21.09 | 20.04 |
|           |                | 816.5           | 21.99       | 21.14 | 20.12 |
| 10MHz     | 1 RB high      | 819.0           | 22.95       | 22.10 | 21.38 |
|           | 1 RB low       | 819.0           | 22.96       | 22.18 | 21.27 |



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|  |            |       |       |       |       |
|--|------------|-------|-------|-------|-------|
|  | 50% RB mid | 819.0 | 22.06 | 21.17 | 20.16 |
|  | 100% RB    | 819.0 | 22.02 | 21.07 | 20.11 |

**LTE band 26(824MHz~849MHz)**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 848.3           | 22.97       | 22.00 | 21.19 |
|           |                | 836.5           | 22.97       | 21.98 | 21.13 |
|           |                | 824.7           | 22.94       | 22.00 | 21.11 |
|           | 1 RB low       | 848.3           | 22.96       | 22.02 | 21.10 |
|           |                | 836.5           | 22.98       | 21.96 | 21.04 |
|           |                | 824.7           | 22.91       | 21.94 | 21.29 |
|           | 50% RB mid     | 848.3           | 23.11       | 22.25 | 21.31 |
|           |                | 836.5           | 23.11       | 22.20 | 21.25 |
|           |                | 824.7           | 23.11       | 22.25 | 21.17 |
|           | 100% RB        | 848.3           | 22.05       | 21.24 | 20.16 |
|           |                | 836.5           | 22.05       | 20.96 | 20.09 |
|           |                | 824.7           | 21.98       | 20.99 | 20.05 |
| 3MHz      | 1 RB high      | 847.5           | 23.02       | 21.99 | 21.37 |
|           |                | 836.5           | 23.04       | 22.16 | 21.32 |
|           |                | 825.5           | 23.03       | 22.08 | 21.24 |
|           | 1 RB low       | 847.5           | 23.03       | 22.06 | 21.24 |
|           |                | 836.5           | 23.02       | 22.14 | 21.19 |
|           |                | 825.5           | 23.01       | 22.06 | 21.07 |
|           | 50% RB mid     | 847.5           | 22.04       | 21.20 | 20.24 |
|           |                | 836.5           | 22.09       | 21.14 | 20.16 |
|           |                | 825.5           | 22.03       | 21.20 | 20.14 |
|           | 100% RB        | 847.5           | 22.02       | 21.07 | 20.18 |
|           |                | 836.5           | 22.02       | 21.11 | 20.20 |
|           |                | 825.5           | 21.98       | 21.08 | 20.14 |
| 5MHz      | 1 RB high      | 846.5           | 22.92       | 21.98 | 21.39 |
|           |                | 836.5           | 22.96       | 22.21 | 21.33 |
|           |                | 826.5           | 22.94       | 22.02 | 21.34 |
|           | 1 RB low       | 846.5           | 22.88       | 22.00 | 21.35 |
|           |                | 836.5           | 22.91       | 22.19 | 21.18 |
|           |                | 826.5           | 22.88       | 21.99 | 21.12 |
|           | 50% RB mid     | 846.5           | 22.11       | 21.27 | 20.25 |
|           |                | 836.5           | 22.03       | 21.23 | 20.23 |
|           |                | 826.5           | 22.07       | 21.26 | 20.26 |
|           | 100% RB        | 846.5           | 22.06       | 21.21 | 20.16 |
|           |                | 836.5           | 22.03       | 21.10 | 20.11 |
|           |                | 826.5           | 22.02       | 21.14 | 20.05 |
| 10MHz     | 1 RB high      | 844.0           | 23.03       | 22.14 | 21.38 |
|           |                | 836.5           | 22.97       | 22.11 | 21.32 |

|       |            |       |       |       |       |
|-------|------------|-------|-------|-------|-------|
|       | 1 RB low   | 829.0 | 22.95 | 22.12 | 21.23 |
|       |            | 844.0 | 22.97 | 22.11 | 21.35 |
|       |            | 836.5 | 22.93 | 22.09 | 21.32 |
|       |            | 829.0 | 22.95 | 22.10 | 21.26 |
|       | 50% RB mid | 844.0 | 22.09 | 21.13 | 20.23 |
|       |            | 836.5 | 22.05 | 21.16 | 20.15 |
|       |            | 829.0 | 22.09 | 21.20 | 20.16 |
|       | 100% RB    | 844.0 | 22.01 | 21.07 | 20.21 |
|       |            | 836.5 | 22.05 | 21.10 | 20.16 |
|       |            | 829.0 | 22.11 | 21.15 | 20.12 |
| 15MHz | 1 RB high  | 841.5 | 22.97 | 22.08 | 21.36 |
|       |            | 836.5 | 22.97 | 22.07 | 21.31 |
|       |            | 831.5 | 22.93 | 22.05 | 21.21 |
|       | 1 RB low   | 841.5 | 22.93 | 22.06 | 21.26 |
|       |            | 836.5 | 22.93 | 22.06 | 21.10 |
|       |            | 831.5 | 22.93 | 22.08 | 21.07 |
|       | 50% RB mid | 841.5 | 22.12 | 21.12 | 20.16 |
|       |            | 836.5 | 22.10 | 21.09 | 20.15 |
|       |            | 831.5 | 22.08 | 21.10 | 20.12 |
|       | 100% RB    | 841.5 | 22.07 | 21.05 | 20.05 |
|       |            | 836.5 | 22.09 | 21.08 | 20.01 |
|       |            | 831.5 | 22.05 | 21.02 | 20.03 |

**LTE band 41-HPUE**

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 2687.5          | 25.63       | 24.90 | 23.63 |
|           |                | 2593.0          | 25.76       | 24.88 | 23.61 |
|           |                | 2498.5          | 25.74       | 25.03 | 23.76 |
|           | 1 RB low       | 2687.5          | 25.70       | 24.89 | 23.62 |
|           |                | 2593.0          | 25.80       | 24.92 | 23.65 |
|           |                | 2498.5          | 25.72       | 25.00 | 23.73 |
|           | 50% RB mid     | 2687.5          | 24.81       | 23.76 | 22.49 |
|           |                | 2593.0          | 24.89       | 23.87 | 22.60 |
|           |                | 2498.5          | 24.88       | 23.87 | 22.60 |
|           | 100% RB        | 2687.5          | 24.76       | 23.78 | 22.51 |
|           |                | 2593.0          | 24.85       | 23.80 | 22.53 |
|           |                | 2498.5          | 24.78       | 23.82 | 22.55 |
| 10MHz     | 1 RB high      | 2685.0          | 25.75       | 25.10 | 23.83 |
|           |                | 2593.0          | 25.94       | 25.04 | 23.77 |
|           |                | 2501.0          | 25.79       | 25.12 | 23.85 |
|           | 1 RB low       | 2685.0          | 25.73       | 25.05 | 23.78 |
|           |                | 2593.0          | 25.92       | 25.03 | 23.76 |
|           |                | 2501.0          | 25.73       | 25.08 | 23.81 |
|           | 50% RB mid     | 2685.0          | 24.79       | 23.83 | 22.56 |
|           |                | 2593.0          | 24.86       | 23.85 | 22.58 |
|           |                | 2501.0          | 24.82       | 23.80 | 22.53 |
|           | 100% RB        | 2685.0          | 24.76       | 23.77 | 22.50 |
|           |                | 2593.0          | 24.88       | 23.85 | 22.58 |
|           |                | 2501.0          | 24.79       | 23.84 | 22.57 |
| 15MHz     | 1 RB high      | 2682.5          | 25.69       | 25.04 | 23.77 |
|           |                | 2593.0          | 25.82       | 24.91 | 23.64 |
|           |                | 2503.5          | 25.70       | 25.00 | 23.73 |
|           | 1 RB low       | 2682.5          | 25.72       | 25.02 | 23.75 |
|           |                | 2593.0          | 25.91       | 24.97 | 23.70 |
|           |                | 2503.5          | 25.67       | 24.99 | 23.72 |
|           | 50% RB mid     | 2682.5          | 24.89       | 23.79 | 22.52 |
|           |                | 2593.0          | 24.96       | 23.83 | 22.56 |
|           |                | 2503.5          | 24.93       | 23.87 | 22.60 |
|           | 100% RB        | 2682.5          | 24.87       | 23.80 | 22.53 |
|           |                | 2593.0          | 24.95       | 23.88 | 22.61 |
|           |                | 2503.5          | 24.90       | 23.83 | 22.56 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
| 20MHz | 1 RB high  | 2680.0 | 25.64 | 24.99 | 23.72 |
|       |            | 2593.0 | 25.83 | 24.82 | 23.55 |
|       |            | 2506.0 | 25.80 | 24.94 | 23.67 |
|       | 1 RB low   | 2680.0 | 25.62 | 24.98 | 23.71 |
|       |            | 2593.0 | 25.85 | 24.84 | 23.57 |
|       |            | 2506.0 | 25.72 | 24.89 | 23.62 |
|       | 50% RB mid | 2680.0 | 24.76 | 23.84 | 22.57 |
|       |            | 2593.0 | 24.84 | 23.86 | 22.59 |
|       |            | 2506.0 | 24.84 | 23.79 | 22.52 |
|       | 100% RB    | 2680.0 | 24.71 | 23.74 | 22.47 |
|       |            | 2593.0 | 24.80 | 23.81 | 22.54 |
|       |            | 2506.0 | 24.79 | 23.77 | 22.50 |

# LTE band 66

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 1.4MHz    | 1 RB high      | 1779.3          | 22.83       | 21.55 | 20.84 |
|           |                | 1745.0          | 22.60       | 22.09 | 21.38 |
|           |                | 1710.7          | 22.46       | 21.91 | 21.20 |
|           | 1 RB low       | 1779.3          | 22.82       | 21.59 | 20.88 |
|           |                | 1745.0          | 22.55       | 22.25 | 21.54 |
|           |                | 1710.7          | 22.32       | 21.71 | 21.00 |
|           | 50% RB mid     | 1779.3          | 22.59       | 21.66 | 20.95 |
|           |                | 1745.0          | 22.78       | 22.21 | 21.50 |
|           |                | 1710.7          | 22.48       | 21.96 | 21.25 |
|           | 100% RB        | 1779.3          | 21.58       | 20.98 | 20.27 |
|           |                | 1745.0          | 21.63       | 21.01 | 20.30 |
|           |                | 1710.7          | 21.43       | 20.99 | 20.28 |
| 3MHz      | 1 RB high      | 1778.5          | 22.86       | 21.74 | 21.03 |
|           |                | 1745.0          | 22.74       | 22.19 | 21.48 |
|           |                | 1711.5          | 22.66       | 21.89 | 21.18 |
|           | 1 RB low       | 1778.5          | 22.66       | 21.66 | 20.95 |
|           |                | 1745.0          | 22.53       | 22.29 | 21.58 |
|           |                | 1711.5          | 22.36       | 21.92 | 21.21 |
|           | 50% RB mid     | 1778.5          | 21.90       | 21.11 | 20.40 |
|           |                | 1745.0          | 22.03       | 21.14 | 20.43 |
|           |                | 1711.5          | 21.69       | 21.05 | 20.34 |
|           | 100% RB        | 1778.5          | 21.84       | 21.00 | 20.29 |
|           |                | 1745.0          | 21.91       | 21.03 | 20.32 |
|           |                | 1711.5          | 21.81       | 20.93 | 20.22 |
| 5MHz      | 1 RB high      | 1777.5          | 22.79       | 21.57 | 20.86 |
|           |                | 1745.0          | 22.59       | 22.23 | 21.52 |
|           |                | 1712.5          | 22.60       | 21.94 | 21.23 |
|           | 1 RB low       | 1777.5          | 22.68       | 21.75 | 21.04 |
|           |                | 1745.0          | 22.47       | 22.15 | 21.44 |
|           |                | 1712.5          | 22.38       | 21.89 | 21.18 |
|           | 50% RB mid     | 1777.5          | 21.87       | 20.95 | 20.24 |
|           |                | 1745.0          | 21.79       | 21.14 | 20.43 |
|           |                | 1712.5          | 21.53       | 21.06 | 20.35 |
|           | 100% RB        | 1777.5          | 21.71       | 20.96 | 20.25 |
|           |                | 1745.0          | 21.68       | 21.07 | 20.36 |
|           |                | 1712.5          | 21.55       | 20.94 | 20.23 |
| 10MHz     | 1 RB high      | 1775.0          | 22.78       | 21.30 | 20.59 |
|           |                | 1745.0          | 22.68       | 22.07 | 21.36 |

|       |            |        |       |       |       |
|-------|------------|--------|-------|-------|-------|
|       | 1 RB low   | 1715.0 | 22.36 | 21.92 | 21.21 |
|       |            | 1775.0 | 22.80 | 21.47 | 20.76 |
|       |            | 1745.0 | 22.68 | 22.20 | 21.49 |
|       |            | 1715.0 | 22.31 | 21.80 | 21.09 |
|       | 50% RB mid | 1775.0 | 21.94 | 20.91 | 20.20 |
|       |            | 1745.0 | 21.63 | 21.09 | 20.38 |
|       |            | 1715.0 | 21.66 | 21.14 | 20.43 |
|       | 100% RB    | 1775.0 | 21.86 | 20.94 | 20.23 |
|       |            | 1745.0 | 21.86 | 21.06 | 20.35 |
|       |            | 1715.0 | 21.73 | 21.07 | 20.36 |
| 15MHz | 1 RB high  | 1772.5 | 22.70 | 21.56 | 20.85 |
|       |            | 1745.0 | 22.84 | 22.13 | 21.42 |
|       |            | 1717.5 | 22.79 | 22.22 | 21.51 |
|       | 1 RB low   | 1772.5 | 22.74 | 21.72 | 21.01 |
|       |            | 1745.0 | 22.84 | 22.17 | 21.46 |
|       |            | 1717.5 | 22.74 | 22.17 | 21.46 |
|       | 50% RB mid | 1772.5 | 21.99 | 20.97 | 20.26 |
|       |            | 1745.0 | 21.97 | 21.03 | 20.32 |
|       |            | 1717.5 | 21.97 | 20.97 | 20.26 |
|       | 100% RB    | 1772.5 | 21.97 | 21.00 | 20.29 |
|       |            | 1745.0 | 21.94 | 20.99 | 20.28 |
|       |            | 1717.5 | 21.86 | 21.02 | 20.31 |
| 20MHz | 1 RB high  | 1770.0 | 22.59 | 22.11 | 21.40 |
|       |            | 1745.0 | 22.65 | 22.14 | 21.43 |
|       |            | 1720.0 | 22.72 | 22.27 | 21.56 |
|       | 1 RB low   | 1770.0 | 22.65 | 22.13 | 21.42 |
|       |            | 1745.0 | 22.67 | 22.08 | 21.37 |
|       |            | 1720.0 | 22.63 | 22.21 | 21.50 |
|       | 50% RB mid | 1770.0 | 21.87 | 20.98 | 20.27 |
|       |            | 1745.0 | 21.89 | 20.97 | 20.26 |
|       |            | 1720.0 | 21.93 | 20.98 | 20.27 |
|       | 100% RB    | 1770.0 | 21.83 | 20.92 | 20.21 |
|       |            | 1745.0 | 21.89 | 20.95 | 20.24 |
|       |            | 1720.0 | 21.80 | 20.92 | 20.21 |

# LTE band 71

| Bandwidth | RB size/offset | Frequency (MHz) | Power (dBm) |       |       |
|-----------|----------------|-----------------|-------------|-------|-------|
|           |                |                 | QPSK        | 16QAM | 64QAM |
| 5MHz      | 1 RB high      | 695.5           | 23.01       | 22.11 | 21.50 |
|           |                | 680.5           | 23.10       | 22.19 | 21.58 |
|           |                | 665.5           | 23.03       | 22.52 | 21.91 |
|           | 1 RB low       | 695.5           | 23.00       | 22.12 | 21.51 |
|           |                | 680.5           | 23.12       | 22.24 | 21.63 |
|           |                | 665.5           | 23.04       | 22.53 | 21.92 |
|           | 50% RB mid     | 695.5           | 22.12       | 21.17 | 20.56 |
|           |                | 680.5           | 22.14       | 21.25 | 20.64 |
|           |                | 665.5           | 22.15       | 21.29 | 20.68 |
|           | 100% RB        | 695.5           | 22.10       | 21.07 | 20.46 |
|           |                | 680.5           | 22.12       | 21.14 | 20.53 |
|           |                | 665.5           | 22.11       | 21.22 | 20.61 |
| 10MHz     | 1 RB high      | 693.0           | 22.98       | 22.08 | 21.47 |
|           |                | 680.5           | 23.04       | 21.98 | 21.37 |
|           |                | 668.0           | 23.09       | 22.50 | 21.89 |
|           | 1 RB low       | 693.0           | 22.95       | 22.02 | 21.41 |
|           |                | 680.5           | 22.97       | 22.02 | 21.41 |
|           |                | 668.0           | 23.11       | 22.38 | 21.77 |
|           | 50% RB mid     | 693.0           | 22.14       | 21.28 | 20.67 |
|           |                | 680.5           | 22.21       | 21.21 | 20.60 |
|           |                | 668.0           | 22.17       | 21.20 | 20.59 |
|           | 100% RB        | 693.0           | 22.18       | 21.22 | 20.61 |
|           |                | 680.5           | 22.17       | 21.17 | 20.56 |
|           |                | 668.0           | 22.13       | 21.17 | 20.56 |
| 15MHz     | 1 RB high      | 690.5           | 23.03       | 22.36 | 21.75 |
|           |                | 680.5           | 23.01       | 22.41 | 21.80 |
|           |                | 670.5           | 23.02       | 22.01 | 21.40 |
|           | 1 RB low       | 690.5           | 23.03       | 22.40 | 21.79 |
|           |                | 680.5           | 23.01       | 22.42 | 21.81 |
|           |                | 670.5           | 23.05       | 21.94 | 21.33 |
|           | 50% RB mid     | 690.5           | 22.15       | 21.21 | 20.60 |
|           |                | 680.5           | 22.16       | 21.12 | 20.51 |
|           |                | 670.5           | 22.19       | 21.12 | 20.51 |
|           | 100% RB        | 690.5           | 22.19       | 21.23 | 20.62 |
|           |                | 680.5           | 22.15       | 21.12 | 20.51 |
|           |                | 670.5           | 22.11       | 21.11 | 20.50 |

|       |            |       |       |       |       |
|-------|------------|-------|-------|-------|-------|
| 20MHz | 1 RB high  | 688.0 | 22.61 | 22.18 | 21.57 |
|       |            | 680.5 | 22.60 | 22.14 | 21.53 |
|       |            | 673.0 | 22.66 | 22.08 | 21.47 |
|       | 1 RB low   | 688.0 | 22.61 | 22.22 | 21.61 |
|       |            | 680.5 | 22.56 | 22.11 | 21.50 |
|       |            | 673.0 | 22.65 | 22.01 | 21.40 |
|       | 50% RB mid | 688.0 | 21.78 | 20.85 | 20.24 |
|       |            | 680.5 | 21.83 | 20.86 | 20.25 |
|       |            | 673.0 | 21.84 | 20.84 | 20.23 |
|       | 100% RB    | 688.0 | 21.71 | 20.82 | 20.21 |
|       |            | 680.5 | 21.66 | 20.70 | 20.09 |
|       |            | 673.0 | 21.78 | 20.77 | 20.16 |

### A.1.3 Radiated

#### A.1.3.1 Description

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

Rule Part 22.913(a) specifies "Mobile stations are limited to 2.0 watts EIRP."

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 27.50(d) specifies "Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band and mobile and portable stations operating in the 1695–1710 MHz and 1755–1780 MHz bands are limited to 1 watt EIRP" Rule Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP."

Rule Part 27.50(c) specifies "Portable stations (hand-held de-vices) are limited to 3 watts ERP."

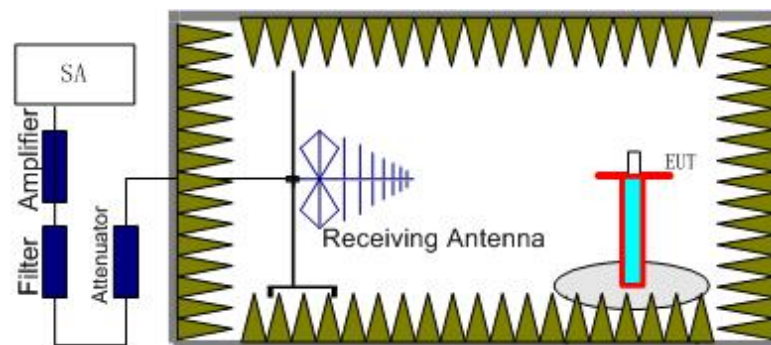
Rule Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP."

Rule Part 90.635(b) specifies "The maximum output power of the transmitter for mobile stations is 100 watts(50dBm)".

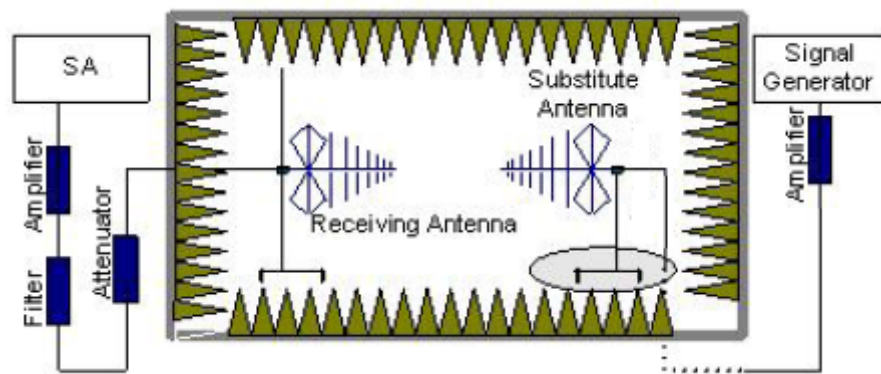
#### A.1.3.2 Method of Measurement

The measurements procedures in TIA-603E-2016 are used.

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360 and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with rms detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. An amplifier should be connected to the Signal Source output port. And the cable should be connected between the amplifier and the substitution antenna. The cable loss ( $P_{cl}$ ), the substitution antenna Gain ( $G_a$ ) and the amplifier Gain ( $P_{Ag}$ ) should be recorded after test.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} + P_{Ag} - P_{cl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15$ .

### A.1.3.3 Measurement result

#### LTE Band 7- EIRP

Limits:  $\leq 33$  dBm (2W)

#### LTE Band 7\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2502.50            | -24.69                    | 3.58                    | 45.68                   | 6.10                    | 23.51         | 33.00          | 9.49           | H            |
| 2535.00            | -24.12                    | 3.63                    | 44.82                   | 6.16                    | 23.23         | 33.00          | 9.77           | H            |
| 2567.50            | -25.26                    | 3.65                    | 44.92                   | 6.22                    | 22.23         | 33.00          | 10.77          | H            |

#### LTE Band 7\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2505.00            | -24.55                    | 3.59                    | 45.64                   | 6.11                    | 23.61         | 33.00          | 9.39           | H            |
| 2535.00            | -24.11                    | 3.63                    | 44.82                   | 6.16                    | 23.24         | 33.00          | 9.76           | H            |
| 2565.00            | -25.24                    | 3.65                    | 44.97                   | 6.22                    | 22.30         | 33.00          | 10.70          | H            |

#### LTE Band 7\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2507.50            | -24.16                    | 3.59                    | 44.92                   | 6.11                    | 23.28         | 33.00          | 9.72           | H            |
| 2535.00            | -24.24                    | 3.63                    | 44.82                   | 6.16                    | 23.11         | 33.00          | 9.89           | H            |
| 2562.50            | -25.76                    | 3.65                    | 45.67                   | 6.21                    | 22.47         | 33.00          | 10.53          | H            |

#### LTE Band 7\_20 MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2510.00            | -24.59                    | 3.58                    | 45.36                   | 6.12                    | 23.31         | 33.00          | 9.69           | H            |
| 2535.00            | -24.19                    | 3.63                    | 44.82                   | 6.16                    | 23.16         | 33.00          | 9.84           | H            |
| 2560.00            | -25.86                    | 3.64                    | 45.98                   | 6.21                    | 22.69         | 33.00          | 10.31          | H            |

**LTE Band 7\_5MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2502.50            | -25.44                    | 3.58                    | 45.68                   | 6.10                    | 22.76         | 33.00          | 10.24          | H            |
| 2535.00            | -24.85                    | 3.63                    | 44.82                   | 6.16                    | 22.50         | 33.00          | 10.50          | H            |
| 2567.50            | -26.01                    | 3.65                    | 44.92                   | 6.22                    | 21.48         | 33.00          | 11.52          | H            |

**LTE Band 7\_10MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2505.00            | -25.26                    | 3.59                    | 45.64                   | 6.11                    | 22.90         | 33.00          | 10.10          | H            |
| 2535.00            | -24.84                    | 3.63                    | 44.82                   | 6.16                    | 22.51         | 33.00          | 10.49          | H            |
| 2565.00            | -26.02                    | 3.65                    | 44.97                   | 6.22                    | 21.52         | 33.00          | 11.48          | H            |

**LTE Band 7\_15MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2507.50            | -24.90                    | 3.59                    | 44.92                   | 6.11                    | 22.54         | 33.00          | 10.46          | H            |
| 2535.00            | -24.98                    | 3.63                    | 44.82                   | 6.16                    | 22.37         | 33.00          | 10.63          | H            |
| 2562.50            | -26.52                    | 3.65                    | 45.67                   | 6.21                    | 21.71         | 33.00          | 11.29          | H            |

**LTE Band 7\_20 MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2510.00            | -25.82                    | 3.58                    | 45.36                   | 6.12                    | 22.08         | 33.00          | 10.92          | H            |
| 2535.00            | -24.93                    | 3.63                    | 44.82                   | 6.16                    | 22.42         | 33.00          | 10.58          | H            |
| 2560.00            | -26.60                    | 3.64                    | 45.98                   | 6.21                    | 21.95         | 33.00          | 11.05          | H            |

### LTE Band 7\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2502.50            | -26.51                    | 3.58                    | 45.68                   | 6.10                    | 21.69         | 33.00          | 11.31          | H            |
| 2535.00            | -25.94                    | 3.63                    | 44.82                   | 6.16                    | 21.41         | 33.00          | 11.59          | H            |
| 2567.50            | -27.04                    | 3.65                    | 44.92                   | 6.22                    | 20.45         | 33.00          | 12.55          | H            |

### LTE Band 7\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2505.00            | -26.34                    | 3.59                    | 45.64                   | 6.11                    | 21.82         | 33.00          | 11.18          | H            |
| 2535.00            | -25.92                    | 3.63                    | 44.82                   | 6.16                    | 21.43         | 33.00          | 11.57          | H            |
| 2565.00            | -27.05                    | 3.65                    | 44.97                   | 6.22                    | 20.49         | 33.00          | 12.51          | H            |

### LTE Band 7\_15MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2507.50            | -25.99                    | 3.59                    | 44.92                   | 6.11                    | 21.45         | 33.00          | 11.55          | H            |
| 2535.00            | -26.07                    | 3.63                    | 44.82                   | 6.16                    | 21.28         | 33.00          | 11.72          | H            |
| 2562.50            | -27.58                    | 3.65                    | 45.67                   | 6.21                    | 20.65         | 33.00          | 12.35          | H            |

### LTE Band 7\_20 MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2510.00            | -26.40                    | 3.58                    | 45.36                   | 6.12                    | 21.50         | 33.00          | 11.50          | H            |
| 2535.00            | -26.01                    | 3.63                    | 44.82                   | 6.16                    | 21.34         | 33.00          | 11.66          | H            |
| 2560.00            | -27.66                    | 3.64                    | 45.98                   | 6.21                    | 20.89         | 33.00          | 12.11          | H            |

## LTE Band 12 - ERP

Limits:  $\leq 34.77\text{dBm}$  (3W)

### LTE Band 12\_1.4MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 699.70             | -20.53                    | 1.90                    | 44.66                   | 0.77                    | 2.15               | 20.85        | 34.77          | 13.92          | H            |
| 707.50             | -20.30                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 21.20        | 34.77          | 13.57          | V            |
| 715.30             | -20.93                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 20.76        | 34.77          | 14.01          | V            |

### LTE Band 12\_3MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 700.50             | -20.22                    | 1.90                    | 44.68                   | 0.76                    | 2.15               | 21.17        | 34.77          | 13.60          | H            |
| 707.50             | -20.29                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 21.21        | 34.77          | 13.56          | H            |
| 714.50             | -20.64                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 21.05        | 34.77          | 13.72          | H            |

### LTE Band 12\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 701.50             | -20.35                    | 1.90                    | 44.81                   | 0.74                    | 2.15               | 21.15        | 34.77          | 13.62          | H            |
| 707.50             | -20.61                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.89        | 34.77          | 13.88          | H            |
| 713.50             | -20.42                    | 1.92                    | 45.22                   | 0.50                    | 2.15               | 21.23        | 34.77          | 13.54          | H            |

### LTE Band 12\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 704.00             | -20.27                    | 1.91                    | 44.93                   | 0.70                    | 2.15               | 21.30        | 34.77          | 13.47          | H            |
| 707.50             | -20.68                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.82        | 34.77          | 13.95          | H            |
| 711.00             | -20.41                    | 1.92                    | 45.19                   | 0.53                    | 2.15               | 21.24        | 34.77          | 13.53          | H            |

### LTE Band 12\_1.4MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 699.70             | -20.94                    | 1.90                    | 44.66                   | 0.77                    | 2.15               | 20.44        | 34.77          | 14.33          | H            |
| 707.50             | -20.84                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.66        | 34.77          | 14.11          | H            |
| 715.30             | -21.21                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 20.48        | 34.77          | 14.29          | H            |

### LTE Band 12\_3MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 700.50             | -20.98                    | 1.90                    | 44.68                   | 0.76                    | 2.15               | 20.41        | 34.77          | 14.36          | H            |
| 707.50             | -20.97                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.53        | 34.77          | 14.24          | H            |
| 714.50             | -21.25                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 20.44        | 34.77          | 14.33          | H            |

### LTE Band 12\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 701.50             | -20.95                    | 1.90                    | 44.81                   | 0.74                    | 2.15               | 20.55        | 34.77          | 14.22          | H            |
| 707.50             | -20.98                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.52        | 34.77          | 14.25          | H            |
| 713.50             | -21.09                    | 1.92                    | 45.22                   | 0.50                    | 2.15               | 20.56        | 34.77          | 14.21          | H            |

### LTE Band 12\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 704.00             | -20.86                    | 1.91                    | 44.93                   | 0.70                    | 2.15               | 20.71        | 34.77          | 14.06          | H            |
| 707.50             | -20.95                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 20.55        | 34.77          | 14.22          | H            |
| 711.00             | -21.09                    | 1.92                    | 45.19                   | 0.53                    | 2.15               | 20.56        | 34.77          | 14.21          | H            |

### LTE Band 12\_1.4MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 699.70             | -21.96                    | 1.90                    | 44.66                   | 0.77                    | 2.15               | 19.42        | 34.77          | 15.35          | H            |
| 707.50             | -21.87                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 19.63        | 34.77          | 15.14          | H            |
| 715.30             | -22.25                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 19.44        | 34.77          | 15.33          | H            |

### LTE Band 12\_3MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 700.50             | -22.00                    | 1.90                    | 44.68                   | 0.76                    | 2.15               | 19.39        | 34.77          | 15.38          | H            |
| 707.50             | -21.98                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 19.52        | 34.77          | 15.25          | H            |
| 714.50             | -22.26                    | 1.92                    | 45.26                   | 0.50                    | 2.15               | 19.43        | 34.77          | 15.34          | H            |

### LTE Band 12\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 701.50             | -21.97                    | 1.90                    | 44.81                   | 0.74                    | 2.15               | 19.53        | 34.77          | 15.24          | H            |
| 707.50             | -22.02                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 19.48        | 34.77          | 15.29          | H            |
| 713.50             | -22.11                    | 1.92                    | 45.22                   | 0.50                    | 2.15               | 19.54        | 34.77          | 15.23          | H            |

### LTE Band 12\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 704.00             | -21.89                    | 1.91                    | 44.93                   | 0.70                    | 2.15               | 19.68        | 34.77          | 15.09          | H            |
| 707.50             | -21.99                    | 1.91                    | 44.94                   | 0.62                    | 2.15               | 19.51        | 34.77          | 15.26          | H            |
| 711.00             | -22.10                    | 1.92                    | 45.19                   | 0.53                    | 2.15               | 19.55        | 34.77          | 15.22          | H            |

## LTE Band 13- ERP

Limits:  $\leq 34.77$  dBm (3W)

### LTE Band 13\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 779.50             | -22.09                    | 2.01                    | 45.64                   | 0.04                    | 2.15               | 19.43        | 34.77          | 15.34          | V            |
| 782.00             | -22.35                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 19.23        | 34.77          | 15.54          | V            |
| 784.50             | -22.51                    | 2.01                    | 45.67                   | 0.16                    | 2.15               | 19.16        | 34.77          | 15.61          | V            |

### LTE Band 13\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 782.00             | -22.30                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 19.28        | 34.77          | 15.49          | V            |

### LTE Band 13\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 779.50             | -22.89                    | 2.01                    | 45.64                   | 0.04                    | 2.15               | 18.63        | 34.77          | 16.14          | V            |
| 782.00             | -23.20                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 18.38        | 34.77          | 16.39          | V            |
| 784.50             | -23.27                    | 2.01                    | 45.67                   | 0.16                    | 2.15               | 18.40        | 34.77          | 16.37          | V            |

### LTE Band 13\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 782.00             | -23.13                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 18.45        | 34.77          | 16.32          | V            |

### LTE Band 13\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 779.50             | -23.89                    | 2.01                    | 45.64                   | 0.04                    | 2.15               | 17.63        | 34.77          | 17.14          | V            |
| 782.00             | -24.21                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 17.37        | 34.77          | 17.40          | V            |
| 784.50             | -24.26                    | 2.01                    | 45.67                   | 0.16                    | 2.15               | 17.41        | 34.77          | 17.36          | V            |

### LTE Band 13\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 782.00             | -24.15                    | 2.01                    | 45.65                   | 0.09                    | 2.15               | 17.43        | 34.77          | 17.34          | V            |

## LTE Band 25- EIRP

Limits:  $\leq 33\text{dBm}$  (2W)

### LTE Band 25\_1.4MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1850.70            | -25.50                    | 2.92                    | 43.75                   | 4.87                    | 20.20         | 33.00          | 12.80          | V            |
| 1882.50            | -25.36                    | 3.13                    | 43.75                   | 4.81                    | 20.07         | 33.00          | 12.93          | V            |
| 1914.30            | -25.73                    | 2.89                    | 43.78                   | 4.75                    | 19.91         | 33.00          | 13.09          | H            |

### LTE Band 25\_3MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1851.50            | -25.79                    | 2.87                    | 43.75                   | 4.87                    | 19.96         | 33.00          | 13.04          | V            |
| 1882.50            | -25.54                    | 3.13                    | 43.75                   | 4.81                    | 19.89         | 33.00          | 13.11          | V            |
| 1913.50            | -25.86                    | 2.88                    | 43.78                   | 4.76                    | 19.80         | 33.00          | 13.20          | H            |

### LTE Band 25\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1852.50            | -25.83                    | 2.87                    | 43.75                   | 4.87                    | 19.92         | 33.00          | 13.08          | V            |
| 1882.50            | -25.51                    | 3.13                    | 43.75                   | 4.81                    | 19.92         | 33.00          | 13.08          | V            |
| 1912.50            | -25.74                    | 2.86                    | 43.77                   | 4.76                    | 19.93         | 33.00          | 13.07          | H            |

### LTE Band 25\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1855.00            | -25.87                    | 2.88                    | 43.74                   | 4.86                    | 19.85         | 33.00          | 13.15          | V            |
| 1882.50            | -25.50                    | 3.13                    | 43.75                   | 4.81                    | 19.93         | 33.00          | 13.07          | V            |
| 1910.00            | -25.65                    | 2.88                    | 43.77                   | 4.76                    | 20.00         | 33.00          | 13.00          | H            |

### LTE Band 25\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1857.50            | -25.96                    | 2.87                    | 43.75                   | 4.86                    | 19.78         | 33.00          | 13.22          | V            |
| 1882.50            | -25.54                    | 3.13                    | 43.75                   | 4.81                    | 19.89         | 33.00          | 13.11          | V            |
| 1907.50            | -25.88                    | 2.84                    | 43.77                   | 4.77                    | 19.82         | 33.00          | 13.18          | H            |

### LTE Band 25\_20 MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1860.00            | -25.81                    | 2.86                    | 43.75                   | 4.85                    | 19.93         | 33.00          | 13.07          | V            |
| 1882.50            | -25.51                    | 3.13                    | 43.75                   | 4.81                    | 19.92         | 33.00          | 13.08          | V            |
| 1905.00            | -26.11                    | 2.87                    | 43.77                   | 4.77                    | 19.56         | 33.00          | 13.44          | H            |

### LTE Band 25\_1.4MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1850.70            | -26.18                    | 2.92                    | 43.75                   | 4.87                    | 19.52         | 33.00          | 13.48          | V            |
| 1882.50            | -25.99                    | 3.13                    | 43.75                   | 4.81                    | 19.44         | 33.00          | 13.56          | V            |
| 1914.30            | -26.55                    | 2.89                    | 43.78                   | 4.75                    | 19.09         | 33.00          | 13.91          | H            |

### LTE Band 25\_3MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1851.50            | -26.45                    | 2.87                    | 43.75                   | 4.87                    | 19.30         | 33.00          | 13.70          | V            |
| 1882.50            | -26.19                    | 3.13                    | 43.75                   | 4.81                    | 19.24         | 33.00          | 13.76          | V            |
| 1913.50            | -26.66                    | 2.88                    | 43.78                   | 4.76                    | 19.00         | 33.00          | 14.00          | H            |

### LTE Band 25\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1852.50            | -26.50                    | 2.87                    | 43.75                   | 4.87                    | 19.25         | 33.00          | 13.75          | V            |
| 1882.50            | -26.17                    | 3.13                    | 43.75                   | 4.81                    | 19.26         | 33.00          | 13.74          | V            |
| 1912.50            | -26.48                    | 2.86                    | 43.77                   | 4.76                    | 19.19         | 33.00          | 13.81          | H            |

### LTE Band 25\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1855.00            | -26.50                    | 2.88                    | 43.74                   | 4.86                    | 19.22         | 33.00          | 13.78          | V            |
| 1882.50            | -26.15                    | 3.13                    | 43.75                   | 4.81                    | 19.28         | 33.00          | 13.72          | V            |
| 1910.00            | -26.34                    | 2.88                    | 43.77                   | 4.76                    | 19.31         | 33.00          | 13.69          | H            |

### LTE Band 25\_15MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1857.50            | -26.61                    | 2.87                    | 43.75                   | 4.86                    | 19.13         | 33.00          | 13.87          | V            |
| 1882.50            | -26.18                    | 3.13                    | 43.75                   | 4.81                    | 19.25         | 33.00          | 13.75          | V            |
| 1907.50            | -26.56                    | 2.84                    | 43.77                   | 4.77                    | 19.14         | 33.00          | 13.86          | H            |

### LTE Band 25\_20 MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1860.00            | -26.45                    | 2.86                    | 43.75                   | 4.85                    | 19.29         | 33.00          | 13.71          | V            |
| 1882.50            | -26.15                    | 3.13                    | 43.75                   | 4.81                    | 19.28         | 33.00          | 13.72          | V            |
| 1905.00            | -26.80                    | 2.87                    | 43.77                   | 4.77                    | 18.87         | 33.00          | 14.13          | H            |

### LTE Band 25\_1.4MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1850.70            | -27.23                    | 2.92                    | 43.75                   | 4.87                    | 18.47         | 33.00          | 14.53          | V            |
| 1882.50            | -27.12                    | 3.13                    | 43.75                   | 4.81                    | 18.31         | 33.00          | 14.69          | V            |
| 1914.30            | -27.60                    | 2.89                    | 43.78                   | 4.75                    | 18.04         | 33.00          | 14.96          | H            |

### LTE Band 25\_3MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1851.50            | -27.49                    | 2.87                    | 43.75                   | 4.87                    | 18.26         | 33.00          | 14.74          | V            |
| 1882.50            | -27.24                    | 3.13                    | 43.75                   | 4.81                    | 18.19         | 33.00          | 14.81          | V            |
| 1913.50            | -27.68                    | 2.88                    | 43.78                   | 4.76                    | 17.98         | 33.00          | 15.02          | H            |

### LTE Band 25\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1852.50            | -27.54                    | 2.87                    | 43.75                   | 4.87                    | 18.21         | 33.00          | 14.79          | V            |
| 1882.50            | -27.26                    | 3.13                    | 43.75                   | 4.81                    | 18.17         | 33.00          | 14.83          | V            |
| 1912.50            | -27.53                    | 2.86                    | 43.77                   | 4.76                    | 18.14         | 33.00          | 14.86          | H            |

### LTE Band 25\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1855.00            | -27.59                    | 2.88                    | 43.74                   | 4.86                    | 18.13         | 33.00          | 14.87          | V            |
| 1882.50            | -27.23                    | 3.13                    | 43.75                   | 4.81                    | 18.20         | 33.00          | 14.80          | V            |
| 1910.00            | -27.38                    | 2.88                    | 43.77                   | 4.76                    | 18.27         | 33.00          | 14.73          | H            |

### LTE Band 25\_15MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1857.50            | -27.68                    | 2.87                    | 43.75                   | 4.86                    | 18.06         | 33.00          | 14.94          | V            |
| 1882.50            | -27.27                    | 3.13                    | 43.75                   | 4.81                    | 18.16         | 33.00          | 14.84          | V            |
| 1907.50            | -27.63                    | 2.84                    | 43.77                   | 4.77                    | 18.07         | 33.00          | 14.93          | H            |

### LTE Band 25\_20 MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1860.00            | -27.52                    | 2.86                    | 43.75                   | 4.85                    | 18.22         | 33.00          | 14.78          | V            |
| 1882.50            | -27.23                    | 3.13                    | 43.75                   | 4.81                    | 18.20         | 33.00          | 14.80          | V            |
| 1905.00            | -27.88                    | 2.87                    | 43.77                   | 4.77                    | 17.79         | 33.00          | 15.21          | H            |

# LTE Band 26(814MHz~824MHz)- ERP

Limits: ≤50dBm (100W)

## LTE Band 26\_1.4MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 814.70             | -21.95                    | 2.13                    | 45.86                   | 0.89                    | 2.15               | 20.52        | 50.00          | 29.48          | H            |
| 819.00             | -21.88                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 20.67        | 50.00          | 29.33          | H            |
| 823.30             | -20.98                    | 2.24                    | 45.79                   | 0.55                    | 2.15               | 20.97        | 50.00          | 29.03          | H            |

## LTE Band 26\_3MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 815.50             | -22.00                    | 2.14                    | 45.87                   | 0.93                    | 2.15               | 20.51        | 50.00          | 29.49          | H            |
| 819.00             | -21.92                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 20.63        | 50.00          | 29.37          | H            |
| 822.50             | -20.89                    | 2.23                    | 45.81                   | 0.33                    | 2.15               | 20.87        | 50.00          | 29.13          | H            |

## LTE Band 26\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 816.50             | -22.06                    | 2.16                    | 45.88                   | 0.98                    | 2.15               | 20.49        | 50.00          | 29.51          | H            |
| 819.00             | -21.93                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 20.62        | 50.00          | 29.38          | H            |
| 821.50             | -21.41                    | 2.22                    | 45.82                   | 0.71                    | 2.15               | 20.75        | 50.00          | 29.25          | H            |

## LTE Band 26\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 819.00             | -21.84                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 20.71        | 50.00          | 29.29          | H            |

### LTE Band 26\_1.4MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 814.70             | -22.73                    | 2.13                    | 45.86                   | 0.89                    | 2.15               | 19.74        | 50.00          | 30.26          | H            |
| 819.00             | -22.64                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 19.91        | 50.00          | 30.09          | H            |
| 823.30             | -21.65                    | 2.24                    | 45.79                   | 0.55                    | 2.15               | 20.30        | 50.00          | 29.70          | H            |

### LTE Band 26\_3MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 815.50             | -22.81                    | 2.14                    | 45.87                   | 0.93                    | 2.15               | 19.70        | 50.00          | 30.30          | H            |
| 819.00             | -22.68                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 19.87        | 50.00          | 30.13          | H            |
| 822.50             | -21.57                    | 2.23                    | 45.81                   | 0.33                    | 2.15               | 20.19        | 50.00          | 29.81          | H            |

### LTE Band 26\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 816.50             | -22.89                    | 2.16                    | 45.88                   | 0.98                    | 2.15               | 19.66        | 50.00          | 30.34          | H            |
| 819.00             | -22.69                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 19.86        | 50.00          | 30.14          | H            |
| 821.50             | -22.10                    | 2.22                    | 45.82                   | 0.71                    | 2.15               | 20.06        | 50.00          | 29.94          | H            |

### LTE Band 26\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 819.00             | -22.62                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 19.93        | 50.00          | 30.07          | H            |

**LTE Band 26\_1.4MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 814.70             | -23.76                    | 2.13                    | 45.86                   | 0.89                    | 2.15               | 18.71        | 50.00          | 31.29          | H            |
| 819.00             | -23.66                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 18.89        | 50.00          | 31.11          | H            |
| 823.30             | -22.71                    | 2.24                    | 45.79                   | 0.55                    | 2.15               | 19.24        | 50.00          | 30.76          | H            |

**LTE Band 26\_3MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 815.50             | -23.81                    | 2.14                    | 45.87                   | 0.93                    | 2.15               | 18.70        | 50.00          | 31.30          | H            |
| 819.00             | -23.69                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 18.86        | 50.00          | 31.14          | H            |
| 822.50             | -22.62                    | 2.23                    | 45.81                   | 0.33                    | 2.15               | 19.14        | 50.00          | 30.86          | H            |

**LTE Band 26\_5MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 816.50             | -23.91                    | 2.16                    | 45.88                   | 0.98                    | 2.15               | 18.64        | 50.00          | 31.36          | H            |
| 819.00             | -23.72                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 18.83        | 50.00          | 31.17          | H            |
| 821.50             | -23.14                    | 2.22                    | 45.82                   | 0.71                    | 2.15               | 19.02        | 50.00          | 30.98          | H            |

**LTE Band 26\_10MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 819.00             | -23.63                    | 2.19                    | 45.84                   | 1.05                    | 2.15               | 18.92        | 50.00          | 31.08          | H            |

## LTE Band 26(824MHz~849MHz)- ERP

Limits:  $\leq 38.45\text{dBm}$  (7W)

### LTE Band 26\_1.4MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 824.70             | -21.32                    | 2.26                    | 45.79                   | 0.95                    | 2.15               | 21.01        | 38.45          | 17.44          | H            |
| 836.50             | -21.71                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 20.36        | 38.45          | 18.09          | H            |
| 848.30             | -22.97                    | 2.27                    | 45.55                   | 0.80                    | 2.15               | 18.96        | 38.45          | 19.49          | H            |

### LTE Band 26\_3MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 825.50             | -21.47                    | 2.26                    | 45.79                   | 0.94                    | 2.15               | 20.85        | 38.45          | 17.60          | H            |
| 836.50             | -21.82                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 20.25        | 38.45          | 18.20          | H            |
| 847.50             | -22.94                    | 2.27                    | 45.56                   | 0.81                    | 2.15               | 19.01        | 38.45          | 19.44          | H            |

### LTE Band 26\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 826.50             | -21.51                    | 2.25                    | 45.77                   | 0.93                    | 2.15               | 20.79        | 38.45          | 17.66          | H            |
| 836.50             | -21.80                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 20.27        | 38.45          | 18.18          | H            |
| 846.50             | -22.90                    | 2.26                    | 45.56                   | 0.82                    | 2.15               | 19.07        | 38.45          | 19.38          | H            |

### LTE Band 26\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 829.00             | -21.69                    | 2.13                    | 45.74                   | 0.90                    | 2.15               | 20.67        | 38.45          | 17.78          | H            |
| 836.50             | -21.77                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 20.30        | 38.45          | 18.15          | H            |
| 844.00             | -22.79                    | 2.26                    | 45.59                   | 0.82                    | 2.15               | 19.21        | 38.45          | 19.24          | H            |

### LTE Band 26\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 831.50             | -21.80                    | 2.12                    | 45.71                   | 0.87                    | 2.15               | 20.51        | 38.45          | 17.94          | H            |
| 836.50             | -21.81                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 20.26        | 38.45          | 18.19          | H            |
| 841.50             | -22.69                    | 2.26                    | 45.61                   | 0.82                    | 2.15               | 19.33        | 38.45          | 19.12          | H            |

### LTE Band 26\_1.4MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 824.70             | -22.02                    | 2.26                    | 45.79                   | 0.95                    | 2.15               | 20.31        | 38.45          | 18.14          | H            |
| 836.50             | -22.49                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 19.58        | 38.45          | 18.87          | H            |
| 848.30             | -23.72                    | 2.27                    | 45.55                   | 0.80                    | 2.15               | 18.21        | 38.45          | 20.24          | H            |

### LTE Band 26\_3MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 825.50             | -22.20                    | 2.26                    | 45.79                   | 0.94                    | 2.15               | 20.12        | 38.45          | 18.33          | H            |
| 836.50             | -22.58                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 19.49        | 38.45          | 18.96          | H            |
| 847.50             | -23.67                    | 2.27                    | 45.56                   | 0.81                    | 2.15               | 18.28        | 38.45          | 20.17          | H            |

### LTE Band 26\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 826.50             | -22.28                    | 2.25                    | 45.77                   | 0.93                    | 2.15               | 20.02        | 38.45          | 18.43          | H            |
| 836.50             | -22.59                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 19.48        | 38.45          | 18.97          | H            |
| 846.50             | -23.68                    | 2.26                    | 45.56                   | 0.82                    | 2.15               | 18.29        | 38.45          | 20.16          | H            |

### LTE Band 26\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 829.00             | -22.57                    | 2.13                    | 45.74                   | 0.90                    | 2.15               | 19.79        | 38.45          | 18.66          | H            |
| 836.50             | -22.58                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 19.49        | 38.45          | 18.96          | H            |
| 844.00             | -23.67                    | 2.26                    | 45.59                   | 0.82                    | 2.15               | 18.33        | 38.45          | 20.12          | H            |

### LTE Band 26\_15MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 831.50             | -22.72                    | 2.12                    | 45.71                   | 0.87                    | 2.15               | 19.59        | 38.45          | 18.86          | H            |
| 836.50             | -22.58                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 19.49        | 38.45          | 18.96          | H            |
| 841.50             | -23.49                    | 2.26                    | 45.61                   | 0.82                    | 2.15               | 18.53        | 38.45          | 19.92          | H            |

### LTE Band 26\_1.4MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 824.70             | -23.07                    | 2.26                    | 45.79                   | 0.95                    | 2.15               | 19.26        | 38.45          | 19.19          | H            |
| 836.50             | -23.52                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 18.55        | 38.45          | 19.90          | H            |
| 848.30             | -24.75                    | 2.27                    | 45.55                   | 0.80                    | 2.15               | 17.18        | 38.45          | 21.27          | H            |

### LTE Band 26\_3MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 825.50             | -23.22                    | 2.26                    | 45.79                   | 0.94                    | 2.15               | 19.10        | 38.45          | 19.35          | H            |
| 836.50             | -23.61                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 18.46        | 38.45          | 19.99          | H            |
| 847.50             | -24.71                    | 2.27                    | 45.56                   | 0.81                    | 2.15               | 17.24        | 38.45          | 21.21          | H            |

### LTE Band 26\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 826.50             | -23.19                    | 2.25                    | 45.77                   | 0.93                    | 2.15               | 19.11        | 38.45          | 19.34          | H            |
| 836.50             | -23.61                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 18.46        | 38.45          | 19.99          | H            |
| 846.50             | -24.71                    | 2.26                    | 45.56                   | 0.82                    | 2.15               | 17.26        | 38.45          | 21.19          | H            |

### LTE Band 26\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 829.00             | -23.58                    | 2.13                    | 45.74                   | 0.90                    | 2.15               | 18.78        | 38.45          | 19.67          | H            |
| 836.50             | -23.60                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 18.47        | 38.45          | 19.98          | H            |
| 844.00             | -24.68                    | 2.26                    | 45.59                   | 0.82                    | 2.15               | 17.32        | 38.45          | 21.13          | H            |

### LTE Band 26\_15MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 831.50             | -23.73                    | 2.12                    | 45.71                   | 0.87                    | 2.15               | 18.58        | 38.45          | 19.87          | H            |
| 836.50             | -23.61                    | 2.26                    | 45.66                   | 0.82                    | 2.15               | 18.46        | 38.45          | 19.99          | H            |
| 841.50             | -24.52                    | 2.26                    | 45.61                   | 0.82                    | 2.15               | 17.50        | 38.45          | 20.95          | H            |

### LTE band 41-HPUE- EIRP

**Limits:** ≤33dBm (2W)

#### LTE Band 41\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -27.40                    | 3.58                    | 45.59                   | 6.10                    | 20.71         | 33.00          | 12.29          | H            |
| 2593.00            | -28.49                    | 3.69                    | 44.93                   | 6.27                    | 19.02         | 33.00          | 13.98          | H            |
| 2687.50            | -28.71                    | 3.73                    | 44.98                   | 6.44                    | 18.98         | 33.00          | 14.02          | H            |

#### LTE Band 41\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -27.28                    | 3.58                    | 45.65                   | 6.10                    | 20.89         | 33.00          | 12.11          | H            |
| 2593.00            | -28.55                    | 3.69                    | 44.93                   | 6.27                    | 18.96         | 33.00          | 14.04          | H            |
| 2685.00            | -28.93                    | 3.73                    | 44.98                   | 6.43                    | 18.75         | 33.00          | 14.25          | H            |

#### LTE Band 41\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -27.13                    | 3.58                    | 45.65                   | 6.11                    | 21.05         | 33.00          | 11.95          | H            |
| 2593.00            | -28.64                    | 3.69                    | 44.93                   | 6.27                    | 18.87         | 33.00          | 14.13          | H            |
| 2682.50            | -28.92                    | 3.73                    | 44.98                   | 6.43                    | 18.76         | 33.00          | 14.24          | H            |

#### LTE Band 41\_20MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -26.60                    | 3.59                    | 45.15                   | 6.11                    | 21.07         | 33.00          | 11.93          | H            |
| 2593.00            | -28.46                    | 3.69                    | 44.93                   | 6.27                    | 19.05         | 33.00          | 13.95          | H            |
| 2680.00            | -28.53                    | 3.73                    | 44.97                   | 6.42                    | 19.13         | 33.00          | 13.87          | H            |

### LTE Band 41\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -28.33                    | 3.58                    | 45.59                   | 6.10                    | 19.78         | 33.00          | 13.22          | H            |
| 2593.00            | -29.42                    | 3.69                    | 44.93                   | 6.27                    | 18.09         | 33.00          | 14.91          | H            |
| 2687.50            | -29.64                    | 3.73                    | 44.98                   | 6.44                    | 18.05         | 33.00          | 14.95          | H            |

### LTE Band 41\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -28.21                    | 3.58                    | 45.65                   | 6.10                    | 19.96         | 33.00          | 13.04          | H            |
| 2593.00            | -29.46                    | 3.69                    | 44.93                   | 6.27                    | 18.05         | 33.00          | 14.95          | H            |
| 2685.00            | -29.86                    | 3.73                    | 44.98                   | 6.43                    | 17.82         | 33.00          | 15.18          | H            |

### LTE Band 41\_15MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -28.05                    | 3.58                    | 45.65                   | 6.11                    | 20.13         | 33.00          | 12.87          | H            |
| 2593.00            | -29.55                    | 3.69                    | 44.93                   | 6.27                    | 17.96         | 33.00          | 15.04          | H            |
| 2682.50            | -29.86                    | 3.73                    | 44.98                   | 6.43                    | 17.82         | 33.00          | 15.18          | H            |

### LTE Band 41\_20MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -27.53                    | 3.59                    | 45.15                   | 6.11                    | 20.14         | 33.00          | 12.86          | H            |
| 2593.00            | -29.38                    | 3.69                    | 44.93                   | 6.27                    | 18.13         | 33.00          | 14.87          | H            |
| 2680.00            | -29.49                    | 3.73                    | 44.97                   | 6.42                    | 18.17         | 33.00          | 14.83          | H            |

**LTE Band 41\_5MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -29.33                    | 3.58                    | 45.59                   | 6.10                    | 18.78         | 33.00          | 14.22          | H            |
| 2593.00            | -30.39                    | 3.69                    | 44.93                   | 6.27                    | 17.12         | 33.00          | 15.88          | H            |
| 2687.50            | -30.62                    | 3.73                    | 44.98                   | 6.44                    | 17.07         | 33.00          | 15.93          | H            |

**LTE Band 41\_10MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -29.22                    | 3.58                    | 45.65                   | 6.10                    | 18.95         | 33.00          | 14.05          | H            |
| 2593.00            | -30.42                    | 3.69                    | 44.93                   | 6.27                    | 17.09         | 33.00          | 15.91          | H            |
| 2685.00            | -30.83                    | 3.73                    | 44.98                   | 6.43                    | 16.85         | 33.00          | 16.15          | H            |

**LTE Band 41\_15MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -29.07                    | 3.58                    | 45.65                   | 6.11                    | 19.11         | 33.00          | 13.89          | H            |
| 2593.00            | -30.52                    | 3.69                    | 44.93                   | 6.27                    | 16.99         | 33.00          | 16.01          | H            |
| 2682.50            | -30.83                    | 3.73                    | 44.98                   | 6.43                    | 16.85         | 33.00          | 16.15          | H            |

**LTE Band 41\_20MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -28.53                    | 3.59                    | 45.15                   | 6.11                    | 19.14         | 33.00          | 13.86          | H            |
| 2593.00            | -30.33                    | 3.69                    | 44.93                   | 6.27                    | 17.18         | 33.00          | 15.82          | H            |
| 2680.00            | -30.42                    | 3.73                    | 44.97                   | 6.42                    | 17.24         | 33.00          | 15.76          | H            |

### LTE band 41-Normal Power- EIRP

**Limits:** ≤33dBm (2W)

#### LTE Band 41\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -30.20                    | 3.58                    | 45.59                   | 6.10                    | 17.91         | 33.00          | 15.09          | H            |
| 2593.00            | -31.44                    | 3.69                    | 44.93                   | 6.27                    | 16.07         | 33.00          | 16.93          | H            |
| 2687.50            | -31.64                    | 3.73                    | 44.98                   | 6.44                    | 16.05         | 33.00          | 16.95          | H            |

#### LTE Band 41\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -29.96                    | 3.58                    | 45.65                   | 6.10                    | 18.21         | 33.00          | 14.79          | H            |
| 2593.00            | -31.41                    | 3.69                    | 44.93                   | 6.27                    | 16.10         | 33.00          | 16.90          | H            |
| 2685.00            | -31.77                    | 3.73                    | 44.98                   | 6.43                    | 15.91         | 33.00          | 17.09          | H            |

#### LTE Band 41\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -29.79                    | 3.58                    | 45.65                   | 6.11                    | 18.39         | 33.00          | 14.61          | H            |
| 2593.00            | -31.53                    | 3.69                    | 44.93                   | 6.27                    | 15.98         | 33.00          | 17.02          | H            |
| 2682.50            | -31.82                    | 3.73                    | 44.98                   | 6.43                    | 15.86         | 33.00          | 17.14          | H            |

#### LTE Band 41\_20MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -29.22                    | 3.59                    | 45.15                   | 6.11                    | 18.45         | 33.00          | 14.55          | H            |
| 2593.00            | -31.38                    | 3.69                    | 44.93                   | 6.27                    | 16.13         | 33.00          | 16.87          | H            |
| 2680.00            | -31.44                    | 3.73                    | 44.97                   | 6.42                    | 16.22         | 33.00          | 16.78          | H            |

**LTE Band 41\_5MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -31.07                    | 3.58                    | 45.59                   | 6.10                    | 17.04         | 33.00          | 15.96          | H            |
| 2593.00            | -32.26                    | 3.69                    | 44.93                   | 6.27                    | 15.25         | 33.00          | 17.75          | H            |
| 2687.50            | -32.48                    | 3.73                    | 44.98                   | 6.44                    | 15.21         | 33.00          | 17.79          | H            |

**LTE Band 41\_10MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -30.83                    | 3.58                    | 45.65                   | 6.10                    | 17.34         | 33.00          | 15.66          | H            |
| 2593.00            | -32.23                    | 3.69                    | 44.93                   | 6.27                    | 15.28         | 33.00          | 17.72          | H            |
| 2685.00            | -32.62                    | 3.73                    | 44.98                   | 6.43                    | 15.06         | 33.00          | 17.94          | H            |

**LTE Band 41\_15MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -30.66                    | 3.58                    | 45.65                   | 6.11                    | 17.52         | 33.00          | 15.48          | H            |
| 2593.00            | -32.35                    | 3.69                    | 44.93                   | 6.27                    | 15.16         | 33.00          | 17.84          | H            |
| 2682.50            | -32.64                    | 3.73                    | 44.98                   | 6.43                    | 15.04         | 33.00          | 17.96          | H            |

**LTE Band 41\_20MHz\_16QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -30.10                    | 3.59                    | 45.15                   | 6.11                    | 17.57         | 33.00          | 15.43          | H            |
| 2593.00            | -32.22                    | 3.69                    | 44.93                   | 6.27                    | 15.29         | 33.00          | 17.71          | H            |
| 2680.00            | -32.29                    | 3.73                    | 44.97                   | 6.42                    | 15.37         | 33.00          | 17.63          | H            |

**LTE Band 41\_5MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2498.50            | -32.08                    | 3.58                    | 45.59                   | 6.10                    | 16.03         | 33.00          | 16.97          | H            |
| 2593.00            | -33.28                    | 3.69                    | 44.93                   | 6.27                    | 14.23         | 33.00          | 18.77          | H            |
| 2687.50            | -33.49                    | 3.73                    | 44.98                   | 6.44                    | 14.20         | 33.00          | 18.80          | H            |

**LTE Band 41\_10MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2501.00            | -31.85                    | 3.58                    | 45.65                   | 6.10                    | 16.32         | 33.00          | 16.68          | H            |
| 2593.00            | -33.25                    | 3.69                    | 44.93                   | 6.27                    | 14.26         | 33.00          | 18.74          | H            |
| 2685.00            | -33.64                    | 3.73                    | 44.98                   | 6.43                    | 14.04         | 33.00          | 18.96          | H            |

**LTE Band 41\_15MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2503.50            | -31.66                    | 3.58                    | 45.65                   | 6.11                    | 16.52         | 33.00          | 16.48          | H            |
| 2593.00            | -33.36                    | 3.69                    | 44.93                   | 6.27                    | 14.15         | 33.00          | 18.85          | H            |
| 2682.50            | -33.63                    | 3.73                    | 44.98                   | 6.43                    | 14.05         | 33.00          | 18.95          | H            |

**LTE Band 41\_20MHz\_64QAM**

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 2506.00            | -31.11                    | 3.59                    | 45.15                   | 6.11                    | 16.56         | 33.00          | 16.44          | H            |
| 2593.00            | -33.23                    | 3.69                    | 44.93                   | 6.27                    | 14.28         | 33.00          | 18.72          | H            |
| 2680.00            | -33.31                    | 3.73                    | 44.97                   | 6.42                    | 14.35         | 33.00          | 18.65          | H            |

## LTE Band 66- EIRP

Limits:  $\leq 30\text{dBm}$  (1W)

### LTE Band 66\_1.4MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1710.70            | -26.88                    | 3.17                    | 44.10                   | 5.12                    | 25.51         | 30.00          | 4.49           | H            |
| 1745.00            | -27.70                    | 3.68                    | 44.16                   | 5.06                    | 25.20         | 30.00          | 4.80           | H            |
| 1779.30            | -25.67                    | 3.04                    | 44.03                   | 5.00                    | 26.40         | 30.00          | 3.60           | H            |

### LTE Band 66\_3MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1711.50            | -27.12                    | 3.40                    | 44.10                   | 5.12                    | 25.50         | 30.00          | 4.50           | H            |
| 1745.00            | -27.71                    | 3.68                    | 44.16                   | 5.06                    | 25.19         | 30.00          | 4.81           | H            |
| 1778.50            | -25.51                    | 3.04                    | 44.03                   | 5.00                    | 26.56         | 30.00          | 3.44           | H            |

### LTE Band 66\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1712.50            | -20.31                    | 3.66                    | 44.10                   | 5.12                    | 25.25         | 30.00          | 4.75           | H            |
| 1745.00            | -20.68                    | 3.68                    | 44.16                   | 5.06                    | 24.86         | 30.00          | 5.14           | H            |
| 1777.50            | -19.60                    | 3.04                    | 44.04                   | 5.00                    | 26.40         | 30.00          | 3.60           | H            |

### LTE Band 66\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1715.00            | -20.82                    | 3.56                    | 44.10                   | 5.11                    | 24.83         | 30.00          | 5.17           | H            |
| 1745.00            | -20.80                    | 3.68                    | 44.16                   | 5.06                    | 24.74         | 30.00          | 5.26           | H            |
| 1775.00            | -19.55                    | 3.05                    | 44.05                   | 5.01                    | 26.45         | 30.00          | 3.55           | H            |

### LTE Band 66\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1717.50            | -21.12                    | 3.47                    | 44.11                   | 5.11                    | 24.63         | 30.00          | 5.37           | H            |
| 1745.00            | -20.90                    | 3.68                    | 44.16                   | 5.06                    | 24.64         | 30.00          | 5.36           | H            |
| 1772.50            | -19.49                    | 3.05                    | 44.06                   | 5.01                    | 26.53         | 30.00          | 3.47           | H            |

### LTE Band 66\_20MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1720.00            | -21.12                    | 3.37                    | 44.11                   | 5.10                    | 24.72         | 30.00          | 5.28           | H            |
| 1745.00            | -20.67                    | 3.68                    | 44.16                   | 5.06                    | 24.87         | 30.00          | 5.13           | H            |
| 1770.00            | -19.27                    | 3.05                    | 44.07                   | 5.01                    | 26.77         | 30.00          | 3.23           | H            |

### LTE Band 66\_1.4MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1710.70            | -28.00                    | 3.17                    | 44.10                   | 5.12                    | 24.39         | 30.00          | 5.61           | H            |
| 1745.00            | -28.50                    | 3.68                    | 44.16                   | 5.06                    | 24.40         | 30.00          | 5.60           | H            |
| 1779.30            | -25.86                    | 3.04                    | 44.03                   | 5.00                    | 26.21         | 30.00          | 3.79           | H            |

### LTE Band 66\_3MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1711.50            | -28.30                    | 3.40                    | 44.10                   | 5.12                    | 24.32         | 30.00          | 5.68           | H            |
| 1745.00            | -28.55                    | 3.68                    | 44.16                   | 5.06                    | 24.35         | 30.00          | 5.65           | H            |
| 1778.50            | -25.88                    | 3.04                    | 44.03                   | 5.00                    | 26.19         | 30.00          | 3.81           | H            |

### LTE Band 66\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1712.50            | -21.22                    | 3.66                    | 44.10                   | 5.12                    | 24.34         | 30.00          | 5.66           | H            |
| 1745.00            | -21.10                    | 3.68                    | 44.16                   | 5.06                    | 24.44         | 30.00          | 5.56           | H            |
| 1777.50            | -19.78                    | 3.04                    | 44.04                   | 5.00                    | 26.22         | 30.00          | 3.78           | H            |

### LTE Band 66\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1715.00            | -21.35                    | 3.56                    | 44.10                   | 5.11                    | 24.30         | 30.00          | 5.70           | H            |
| 1745.00            | -21.12                    | 3.68                    | 44.16                   | 5.06                    | 24.42         | 30.00          | 5.58           | H            |
| 1775.00            | -19.66                    | 3.05                    | 44.05                   | 5.01                    | 26.34         | 30.00          | 3.66           | H            |

### LTE Band 66\_15MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1717.50            | -21.52                    | 3.47                    | 44.11                   | 5.11                    | 24.23         | 30.00          | 5.77           | H            |
| 1745.00            | -21.23                    | 3.68                    | 44.16                   | 5.06                    | 24.31         | 30.00          | 5.69           | H            |
| 1772.50            | -19.94                    | 3.05                    | 44.06                   | 5.01                    | 26.08         | 30.00          | 3.92           | H            |

### LTE Band 66\_20MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1720.00            | -21.37                    | 3.37                    | 44.11                   | 5.10                    | 24.47         | 30.00          | 5.53           | H            |
| 1745.00            | -21.12                    | 3.68                    | 44.16                   | 5.06                    | 24.42         | 30.00          | 5.58           | H            |
| 1770.00            | -19.68                    | 3.05                    | 44.07                   | 5.01                    | 26.36         | 30.00          | 3.64           | H            |

### LTE Band 66\_1.4MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1710.70            | -28.19                    | 3.17                    | 44.10                   | 5.12                    | 24.20         | 30.00          | 5.80           | H            |
| 1745.00            | -28.78                    | 3.68                    | 44.16                   | 5.06                    | 24.12         | 30.00          | 5.88           | H            |
| 1779.30            | -26.38                    | 3.04                    | 44.03                   | 5.00                    | 25.69         | 30.00          | 4.31           | H            |

### LTE Band 66\_3MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1711.50            | -28.17                    | 3.40                    | 44.10                   | 5.12                    | 24.45         | 30.00          | 5.55           | H            |
| 1745.00            | -28.66                    | 3.68                    | 44.16                   | 5.06                    | 24.24         | 30.00          | 5.76           | H            |
| 1778.50            | -26.16                    | 3.04                    | 44.03                   | 5.00                    | 25.91         | 30.00          | 4.09           | H            |

### LTE Band 66\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1712.50            | -21.50                    | 3.66                    | 44.10                   | 5.12                    | 24.06         | 30.00          | 5.94           | H            |
| 1745.00            | -21.58                    | 3.68                    | 44.16                   | 5.06                    | 23.96         | 30.00          | 6.04           | H            |
| 1777.50            | -20.15                    | 3.04                    | 44.04                   | 5.00                    | 25.85         | 30.00          | 4.15           | H            |

### LTE Band 66\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1715.00            | -21.56                    | 3.56                    | 44.10                   | 5.11                    | 24.09         | 30.00          | 5.91           | H            |
| 1745.00            | -21.06                    | 3.68                    | 44.16                   | 5.06                    | 24.48         | 30.00          | 5.52           | H            |
| 1775.00            | -20.09                    | 3.05                    | 44.05                   | 5.01                    | 25.91         | 30.00          | 4.09           | H            |

### LTE Band 66\_15MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1717.50            | -21.73                    | 3.47                    | 44.11                   | 5.11                    | 24.02         | 30.00          | 5.98           | H            |
| 1745.00            | -21.11                    | 3.68                    | 44.16                   | 5.06                    | 24.43         | 30.00          | 5.57           | H            |
| 1772.50            | -19.89                    | 3.05                    | 44.06                   | 5.01                    | 26.13         | 30.00          | 3.87           | H            |

### LTE Band 66\_20MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------------|----------------|----------------|--------------|
| 1720.00            | -21.58                    | 3.37                    | 44.11                   | 5.10                    | 24.26         | 30.00          | 5.74           | H            |
| 1745.00            | -20.97                    | 3.68                    | 44.16                   | 5.06                    | 24.57         | 30.00          | 5.43           | H            |
| 1770.00            | -19.79                    | 3.05                    | 44.07                   | 5.01                    | 26.25         | 30.00          | 3.75           | H            |

## LTE Band 71- ERP

Limits:  $\leq 34.77$  dBm (3W)

### LTE Band 71\_5MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 665.50             | -21.61                    | 1.87                    | 44.73                   | 0.78                    | 2.15               | 19.88        | 34.77          | 14.89          | V            |
| 680.50             | -21.36                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.11        | 34.77          | 14.66          | V            |
| 695.50             | -21.74                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 19.66        | 34.77          | 15.11          | V            |

### LTE Band 71\_10MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 668.00             | -21.88                    | 1.87                    | 44.75                   | 0.78                    | 2.15               | 19.64        | 34.77          | 15.13          | V            |
| 680.50             | -21.33                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.14        | 34.77          | 14.63          | V            |
| 693.00             | -21.12                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 20.28        | 34.77          | 14.49          | V            |

### LTE Band 71\_15MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 670.50             | -21.44                    | 1.88                    | 44.75                   | 0.78                    | 2.15               | 20.06        | 34.77          | 14.71          | V            |
| 680.50             | -21.35                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.12        | 34.77          | 14.65          | V            |
| 690.50             | -20.73                    | 1.89                    | 44.73                   | 0.77                    | 2.15               | 20.74        | 34.77          | 14.03          | V            |

### LTE Band 71\_20MHz\_QPSK

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 673.00             | -21.10                    | 1.88                    | 44.71                   | 0.78                    | 2.15               | 20.36        | 34.77          | 14.41          | V            |
| 680.50             | -21.39                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.08        | 34.77          | 14.69          | V            |
| 688.00             | -20.75                    | 1.89                    | 44.72                   | 0.77                    | 2.15               | 20.71        | 34.77          | 14.06          | V            |

### LTE Band 71\_5MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 665.50             | -21.77                    | 1.87                    | 44.73                   | 0.78                    | 2.15               | 19.72        | 34.77          | 15.05          | V            |
| 680.50             | -21.32                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.15        | 34.77          | 14.62          | V            |
| 695.50             | -22.39                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 19.01        | 34.77          | 15.76          | V            |

### LTE Band 71\_10MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 668.00             | -21.77                    | 1.87                    | 44.75                   | 0.78                    | 2.15               | 19.75        | 34.77          | 15.02          | V            |
| 680.50             | -21.29                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.18        | 34.77          | 14.59          | V            |
| 693.00             | -22.01                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 19.39        | 34.77          | 15.38          | V            |

### LTE Band 71\_15MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 670.50             | -21.31                    | 1.88                    | 44.75                   | 0.78                    | 2.15               | 20.19        | 34.77          | 14.58          | V            |
| 680.50             | -21.33                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.14        | 34.77          | 14.63          | V            |
| 690.50             | -21.68                    | 1.89                    | 44.73                   | 0.77                    | 2.15               | 19.79        | 34.77          | 14.98          | V            |

### LTE Band 71\_20MHz\_16QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 673.00             | -21.41                    | 1.88                    | 44.71                   | 0.78                    | 2.15               | 20.05        | 34.77          | 14.72          | V            |
| 680.50             | -21.28                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 20.19        | 34.77          | 14.58          | V            |
| 688.00             | -21.52                    | 1.89                    | 44.72                   | 0.77                    | 2.15               | 19.94        | 34.77          | 14.83          | V            |

### LTE Band 71\_5MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 665.50             | -22.78                    | 1.87                    | 44.73                   | 0.78                    | 2.15               | 18.71        | 34.77          | 16.06          | V            |
| 680.50             | -22.31                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 19.16        | 34.77          | 15.61          | V            |
| 695.50             | -23.41                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 17.99        | 34.77          | 16.78          | V            |

### LTE Band 71\_10MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 668.00             | -22.55                    | 1.87                    | 44.75                   | 0.78                    | 2.15               | 18.97        | 34.77          | 15.80          | V            |
| 680.50             | -22.33                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 19.13        | 34.77          | 15.64          | V            |
| 693.00             | -23.03                    | 1.89                    | 44.67                   | 0.77                    | 2.15               | 18.37        | 34.77          | 16.40          | V            |

### LTE Band 71\_15MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 670.50             | -22.21                    | 1.88                    | 44.75                   | 0.78                    | 2.15               | 19.29        | 34.77          | 15.48          | V            |
| 680.50             | -22.34                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 19.13        | 34.77          | 15.64          | V            |
| 690.50             | -22.69                    | 1.89                    | 44.73                   | 0.77                    | 2.15               | 18.78        | 34.77          | 15.99          | V            |

### LTE Band 71\_20MHz\_64QAM

| Frequency<br>(MHz) | P <sub>Mea</sub><br>(dBm) | P <sub>cl</sub><br>(dB) | P <sub>Ag</sub><br>(dB) | G <sub>a</sub><br>(dBi) | Correction<br>(dB) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Polarization |
|--------------------|---------------------------|-------------------------|-------------------------|-------------------------|--------------------|--------------|----------------|----------------|--------------|
| 673.00             | -22.42                    | 1.88                    | 44.71                   | 0.78                    | 2.15               | 19.04        | 34.77          | 15.73          | V            |
| 680.50             | -22.29                    | 1.88                    | 44.72                   | 0.78                    | 2.15               | 19.18        | 34.77          | 15.59          | V            |
| 688.00             | -22.54                    | 1.89                    | 44.72                   | 0.77                    | 2.15               | 18.92        | 34.77          | 15.85          | V            |

Peak EIRP (dBm) = P<sub>Mea</sub>(-19.27dBm) + G<sub>a</sub> (5.01dBi) + P<sub>Ag</sub> (44.07dB) - P<sub>cl</sub> (3.05dB) = 26.77dBm

Note: Expanded measurement uncertainty is  $U = 2.84$  dB,  $k = 2$ .

## A.2 EMISSION LIMIT

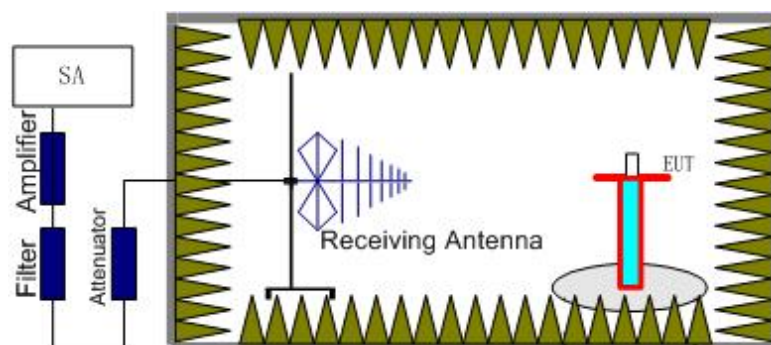
### A.2.1 Measurement Method

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully anechoic chamber.

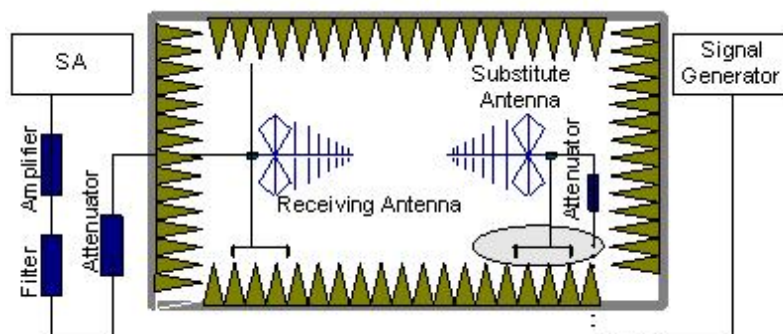
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 7,12,13, 25,26,41,66,71.

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

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360 and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere

with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss ( $P_{pl}$ ) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain ( $G_a$ ) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss ( $P_{pl}$ ) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dB}$ .

### A.2.2 Measurement Limit

Part 22.917, Part 24.238 and Part 27.53(h) 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.

The specification that emissions shall be attenuated below the transmitter power ( $P$ ) by at least  $43 + 10 \log(P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Part 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 than  $43 + 10 \log(P)$  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.

Part 27.53(c) states for operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power ( $P$ ) within the licensed band(s) of operation, measured in watts, in accordance with the following: (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power ( $P$ ) by at least  $43 + 10 \log(P)$  dB; (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power ( $P$ ) by at least  $43 + 10 \log(P)$  dB; (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $65 +$

10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

Part 27.53(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 90.691 states that out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

### **A.2.3 Measurement Results**

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 7, 12, 13, 25, 26, 41, 66, 71. 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 7, 12, 13, 25, 26, 41, 66, 71 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.

### LTE Band 7, 5 MHz, QPSK, Channel 20775

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 4993.02         | -54.48                 | 6.62          | 9.89              | -51.21          | -25.00      | 26.21       | H            |
| 7525.01         | -54.91                 | 8.29          | 12.22             | -50.98          | -25.00      | 25.98       | H            |
| 9997.01         | -53.29                 | 9.18          | 12.90             | -49.57          | -25.00      | 24.57       | V            |
| 12506.01        | -49.36                 | 10.19         | 13.20             | -46.35          | -25.00      | 21.35       | H            |
| 15033.00        | -45.52                 | 11.26         | 13.98             | -42.80          | -25.00      | 17.80       | V            |
| 17528.00        | -41.88                 | 12.83         | 14.94             | -39.77          | -25.00      | 14.77       | H            |

### LTE Band 7, 5 MHz, QPSK, Channel 21100

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5053.02         | -57.58                 | 6.64          | 9.97              | -54.25          | -25.00      | 29.25       | H            |
| 7609.01         | -55.13                 | 8.01          | 12.29             | -50.85          | -25.00      | 25.85       | H            |
| 10134.01        | -52.52                 | 9.41          | 12.95             | -48.98          | -25.00      | 23.98       | V            |
| 12681.01        | -49.11                 | 10.33         | 13.31             | -46.13          | -25.00      | 21.13       | V            |
| 15213.00        | -46.13                 | 11.38         | 13.87             | -43.64          | -25.00      | 18.64       | V            |
| 17727.00        | -43.72                 | 12.33         | 15.22             | -40.83          | -25.00      | 15.83       | H            |

### LTE Band 7, 5 MHz, QPSK, Channel 21425

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5137.02         | -56.93                 | 6.86          | 10.09             | -53.70          | -25.00      | 28.70       | H            |
| 7721.01         | -54.46                 | 8.40          | 12.38             | -50.48          | -25.00      | 25.48       | H            |
| 10259.01        | -52.65                 | 9.50          | 13.00             | -49.15          | -25.00      | 24.15       | V            |
| 12820.01        | -49.07                 | 10.71         | 13.39             | -46.39          | -25.00      | 21.39       | V            |
| 15409.00        | -45.65                 | 11.41         | 13.75             | -43.31          | -25.00      | 18.31       | H            |
| 17961.00        | -43.40                 | 12.89         | 15.55             | -40.74          | -25.00      | 15.74       | H            |

### LTE Band 12, 1.4MHz, QPSK, Channel 23017

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1391.01         | -59.20                 | 3.22          | 4.93              | 2.15            | -59.64         | -13.00      | 46.64       | H            |
| 2099.00         | -53.98                 | 4.19          | 4.90              | 2.15            | -55.42         | -13.00      | 42.42       | V            |
| 2801.00         | -52.38                 | 4.91          | 6.64              | 2.15            | -52.80         | -13.00      | 39.80       | H            |
| 3490.02         | -56.64                 | 5.50          | 8.18              | 2.15            | -56.11         | -13.00      | 43.11       | H            |
| 4189.02         | -55.83                 | 6.18          | 9.09              | 2.15            | -55.07         | -13.00      | 42.07       | V            |
| 4889.01         | -55.86                 | 6.73          | 9.79              | 2.15            | -54.95         | -13.00      | 41.95       | H            |

### LTE Band 12, 1.4MHz, QPSK, Channel 23095

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1416.01         | -59.90                 | 3.26          | 5.06              | 2.15            | -60.25         | -13.00      | 47.25       | H            |
| 2123.00         | -54.01                 | 4.21          | 4.97              | 2.15            | -55.40         | -13.00      | 42.40       | V            |
| 2826.00         | -53.15                 | 4.95          | 6.69              | 2.15            | -53.56         | -13.00      | 40.56       | V            |
| 3532.02         | -56.14                 | 5.64          | 8.24              | 2.15            | -55.69         | -13.00      | 42.69       | V            |
| 4259.02         | -55.63                 | 6.23          | 9.16              | 2.15            | -54.85         | -13.00      | 41.85       | H            |
| 4940.01         | -56.49                 | 6.71          | 9.84              | 2.15            | -55.51         | -13.00      | 42.51       | H            |

### LTE Band 12, 1.4MHz, QPSK, Channel 23173

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1425.01         | -60.45                 | 3.27          | 5.11              | 2.15            | -60.76         | -13.00      | 47.76       | H            |
| 2146.00         | -53.55                 | 4.24          | 5.04              | 2.15            | -54.90         | -13.00      | 41.90       | V            |
| 2869.00         | -51.79                 | 4.97          | 6.76              | 2.15            | -52.15         | -13.00      | 39.15       | H            |
| 3586.02         | -55.43                 | 6.19          | 8.32              | 2.15            | -55.45         | -13.00      | 42.45       | H            |
| 4297.02         | -55.65                 | 6.20          | 9.20              | 2.15            | -54.80         | -13.00      | 41.80       | V            |
| 5017.01         | -56.08                 | 6.57          | 9.92              | 2.15            | -54.88         | -13.00      | 41.88       | H            |

### LTE Band 13, 5MHz, QPSK, Channel 23205

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1551.01         | -60.79                 | 3.46          | 5.41              | 2.15            | -60.99         | -13.00      | 47.99       | H            |
| 2339.00         | -53.84                 | 4.44          | 5.62              | 2.15            | -54.81         | -13.00      | 41.81       | V            |
| 3108.02         | -54.28                 | 5.35          | 7.26              | 2.15            | -54.52         | -13.00      | 41.52       | H            |
| 3904.02         | -55.31                 | 6.11          | 8.77              | 2.15            | -54.80         | -13.00      | 41.80       | V            |
| 4666.02         | -55.27                 | 6.48          | 9.57              | 2.15            | -54.33         | -13.00      | 41.33       | V            |
| 5452.01         | -54.70                 | 6.88          | 10.53             | 2.15            | -53.20         | -13.00      | 40.20       | H            |

### LTE Band 13, 5MHz, QPSK, Channel 23230

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1564.01         | -60.45                 | 3.48          | 5.38              | 2.15            | -60.70         | -13.00      | 47.70       | H            |
| 2346.00         | -53.64                 | 4.45          | 5.64              | 2.15            | -54.60         | -13.00      | 41.60       | V            |
| 3123.02         | -54.81                 | 5.40          | 7.30              | 2.15            | -55.06         | -13.00      | 42.06       | H            |
| 3918.02         | -55.60                 | 6.12          | 8.79              | 2.15            | -55.08         | -13.00      | 42.08       | V            |
| 4688.02         | -54.84                 | 6.50          | 9.59              | 2.15            | -53.90         | -13.00      | 40.90       | H            |
| 5482.01         | -55.41                 | 6.99          | 10.57             | 2.15            | -53.98         | -13.00      | 40.98       | H            |

### LTE Band 13, 5MHz, QPSK, Channel 23255

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1565.01         | -59.85                 | 3.48          | 5.38              | 2.15            | -60.10         | -13.00      | 47.10       | V            |
| 2354.00         | -53.91                 | 4.46          | 5.66              | 2.15            | -54.86         | -13.00      | 41.86       | V            |
| 3151.02         | -55.13                 | 5.37          | 7.36              | 2.15            | -55.29         | -13.00      | 42.29       | H            |
| 3923.02         | -55.92                 | 6.12          | 8.79              | 2.15            | -55.40         | -13.00      | 42.40       | H            |
| 4706.02         | -55.58                 | 6.51          | 9.61              | 2.15            | -54.63         | -13.00      | 41.63       | H            |
| 5490.01         | -55.04                 | 7.02          | 10.59             | 2.15            | -53.62         | -13.00      | 40.62       | H            |

### LTE Band 25, 1.4MHz, QPSK, Channel 26047

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 7595.01         | -53.38                 | 7.99          | 12.28             | -49.09          | -13.00      | 36.09       | H            |
| 9400.01         | -53.75                 | 9.04          | 13.34             | -49.45          | -13.00      | 36.45       | H            |
| 11226.01        | -51.03                 | 9.56          | 13.15             | -47.44          | -13.00      | 34.44       | V            |
| 13444.01        | -48.04                 | 10.60         | 14.12             | -44.52          | -13.00      | 31.52       | H            |
| 15309.00        | -44.91                 | 11.29         | 13.81             | -42.39          | -13.00      | 29.39       | V            |
| 16759.00        | -41.84                 | 11.96         | 13.70             | -40.10          | -13.00      | 27.10       | H            |

### LTE Band 25, 1.4MHz, QPSK, Channel 26365

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 7515.01         | -54.78                 | 8.33          | 12.21             | -50.90          | -13.00      | 37.90       | H            |
| 9370.01         | -55.21                 | 9.07          | 13.32             | -50.96          | -13.00      | 37.96       | H            |
| 11253.01        | -51.38                 | 9.72          | 13.15             | -47.95          | -13.00      | 34.95       | H            |
| 13130.01        | -48.51                 | 10.80         | 13.68             | -45.63          | -13.00      | 32.63       | V            |
| 15022.00        | -46.30                 | 11.24         | 13.99             | -43.55          | -13.00      | 30.55       | V            |
| 16960.00        | -42.09                 | 12.22         | 13.78             | -40.53          | -13.00      | 27.53       | V            |

### LTE Band 25, 1.4MHz, QPSK, Channel 26683

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 7628.01         | -55.34                 | 8.10          | 12.30             | -51.14          | -13.00      | 38.14       | V            |
| 9576.01         | -54.43                 | 9.27          | 13.32             | -50.38          | -13.00      | 37.38       | H            |
| 11535.01        | -51.06                 | 9.81          | 13.09             | -47.78          | -13.00      | 34.78       | V            |
| 13385.01        | -48.35                 | 10.57         | 14.04             | -44.88          | -13.00      | 31.88       | H            |
| 15289.00        | -45.76                 | 11.29         | 13.83             | -43.22          | -13.00      | 30.22       | V            |
| 17278.00        | -43.09                 | 12.37         | 14.41             | -41.05          | -13.00      | 28.05       | H            |

### LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26697

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 5702.01         | -53.80                 | 7.29          | 10.56             | 2.15            | -52.68         | -13.00      | 39.68       | H            |
| 6512.01         | -53.86                 | 7.51          | 11.01             | 2.15            | -52.51         | -13.00      | 39.51       | V            |
| 7340.01         | -52.83                 | 8.11          | 12.01             | 2.15            | -51.08         | -13.00      | 38.08       | V            |
| 8142.01         | -53.33                 | 8.40          | 12.71             | 2.15            | -51.17         | -13.00      | 38.17       | H            |
| 8949.00         | -51.89                 | 9.02          | 13.09             | 2.15            | -49.97         | -13.00      | 36.97       | H            |
| 9773.00         | -51.51                 | 8.97          | 13.13             | 2.15            | -49.50         | -13.00      | 36.50       | H            |

### LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26740

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1657.01         | -60.57                 | 3.57          | 5.22              | 2.15            | -61.07         | -13.00      | 48.07       | H            |
| 2463.00         | -53.26                 | 4.59          | 5.99              | 2.15            | -54.01         | -13.00      | 41.01       | V            |
| 3282.02         | -55.80                 | 5.28          | 7.68              | 2.15            | -55.55         | -13.00      | 42.55       | H            |
| 4114.02         | -55.99                 | 6.04          | 9.01              | 2.15            | -55.17         | -13.00      | 42.17       | H            |
| 4918.01         | -55.67                 | 6.73          | 9.82              | 2.15            | -54.73         | -13.00      | 41.73       | H            |
| 1657.01         | -60.57                 | 3.57          | 5.22              | 2.15            | -61.07         | -13.00      | 48.07       | H            |

### LTE Band 26(814MHz~824MHz), 1.4MHz, QPSK, Channel 26783

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 5864.01         | -53.68                 | 7.28          | 10.53             | 2.15            | -52.58         | -13.00      | 39.58       | H            |
| 6535.01         | -52.48                 | 7.54          | 11.04             | 2.15            | -51.13         | -13.00      | 38.13       | V            |
| 7573.01         | -52.52                 | 8.09          | 12.26             | 2.15            | -50.50         | -13.00      | 37.50       | H            |
| 8264.00         | -52.32                 | 8.61          | 12.81             | 2.15            | -50.27         | -13.00      | 37.27       | H            |
| 8980.00         | -51.35                 | 9.13          | 13.10             | 2.15            | -49.53         | -13.00      | 36.53       | H            |
| 9763.00         | -51.75                 | 8.95          | 13.14             | 2.15            | -49.71         | -13.00      | 36.71       | H            |

### LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 26797

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1649.01         | -59.52                 | 3.56          | 5.23              | 2.15            | -60.00         | -13.00      | 47.00       | H            |
| 2465.00         | -53.26                 | 4.59          | 6.00              | 2.15            | -54.00         | -13.00      | 41.00       | H            |
| 3303.02         | -54.70                 | 5.29          | 7.73              | 2.15            | -54.41         | -13.00      | 41.41       | H            |
| 4128.02         | -55.75                 | 6.04          | 9.03              | 2.15            | -54.91         | -13.00      | 41.91       | V            |
| 4948.01         | -55.68                 | 6.69          | 9.85              | 2.15            | -54.67         | -13.00      | 41.67       | V            |
| 5769.01         | -53.41                 | 7.24          | 10.55             | 2.15            | -52.25         | -13.00      | 39.25       | H            |

### LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 26915

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1674.01         | -59.66                 | 3.58          | 5.19              | 2.15            | -60.20         | -13.00      | 47.20       | H            |
| 2510.00         | -53.41                 | 4.63          | 6.12              | 2.15            | -54.07         | -13.00      | 41.07       | V            |
| 3334.02         | -54.82                 | 5.30          | 7.80              | 2.15            | -54.47         | -13.00      | 41.47       | H            |
| 4176.02         | -55.04                 | 6.15          | 9.08              | 2.15            | -54.26         | -13.00      | 41.26       | V            |
| 5026.01         | -55.01                 | 6.56          | 9.94              | 2.15            | -53.78         | -13.00      | 40.78       | V            |
| 5864.01         | -54.14                 | 7.28          | 10.53             | 2.15            | -53.04         | -13.00      | 40.04       | V            |

### LTE Band 26(824MHz~849MHz), 1.4MHz, QPSK, Channel 27033

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1715.01         | -58.74                 | 3.61          | 5.11              | 2.15            | -59.39         | -13.00      | 46.39       | V            |
| 2547.00         | -52.74                 | 4.67          | 6.18              | 2.15            | -53.38         | -13.00      | 40.38       | H            |
| 3381.02         | -55.64                 | 5.35          | 7.91              | 2.15            | -55.23         | -13.00      | 42.23       | V            |
| 4225.02         | -56.00                 | 6.26          | 9.13              | 2.15            | -55.28         | -13.00      | 42.28       | H            |
| 5083.01         | -55.59                 | 6.72          | 10.02             | 2.15            | -54.44         | -13.00      | 41.44       | H            |
| 5955.01         | -53.50                 | 7.47          | 10.51             | 2.15            | -52.61         | -13.00      | 39.61       | V            |

### LTE band 41-HPUE, 5MHz, QPSK, Channel 39675

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 4992.02         | -57.81                 | 6.62          | 9.89              | -54.54          | -25.00      | 29.54       | H            |
| 7499.01         | -54.67                 | 8.39          | 12.20             | -50.86          | -25.00      | 25.86       | H            |
| 9993.01         | -53.63                 | 9.17          | 12.91             | -49.89          | -25.00      | 24.89       | V            |
| 12488.01        | -50.01                 | 10.21         | 13.20             | -47.02          | -25.00      | 22.02       | V            |
| 14994.00        | -46.62                 | 11.21         | 14.00             | -43.83          | -25.00      | 18.83       | H            |
| 17485.00        | -43.85                 | 12.69         | 14.87             | -41.67          | -25.00      | 16.67       | H            |

### LTE band 41-HPUE, 5MHz, QPSK, Channel 40620

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 6471.02         | -55.79                 | 7.54          | 10.97             | -52.36          | -25.00      | 27.36       | H            |
| 9076.01         | -54.42                 | 9.00          | 13.15             | -50.27          | -25.00      | 25.27       | H            |
| 11667.01        | -51.27                 | 9.67          | 13.07             | -47.87          | -25.00      | 22.87       | V            |
| 14281.00        | -46.32                 | 10.96         | 14.44             | -42.84          | -25.00      | 17.84       | V            |
| 15543.00        | -45.25                 | 11.51         | 13.70             | -43.06          | -25.00      | 18.06       | H            |
| 16844.00        | -42.03                 | 12.06         | 13.74             | -40.35          | -25.00      | 15.35       | V            |

### LTE band 41-HPUE, 5MHz, QPSK, Channel 41565

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 5395.02         | -56.69                 | 6.84          | 10.45             | -53.08          | -25.00      | 28.08       | V            |
| 8077.01         | -55.04                 | 8.32          | 12.66             | -50.70          | -25.00      | 25.70       | H            |
| 10729.01        | -52.08                 | 9.38          | 13.15             | -48.31          | -25.00      | 23.31       | H            |
| 13431.01        | -47.14                 | 10.59         | 14.10             | -43.63          | -25.00      | 18.63       | H            |
| 16141.00        | -45.73                 | 11.80         | 13.67             | -43.86          | -25.00      | 18.86       | V            |
| 17489.00        | -42.37                 | 12.70         | 14.88             | -40.19          | -25.00      | 15.19       | H            |

### LTE Band 66, 1.4MHz QPSK, Channel 131979

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3422.02         | -56.91                 | 5.38          | 8.01              | -54.28          | -13.00      | 41.28       | H            |
| 5136.02         | -56.54                 | 6.86          | 10.09             | -53.31          | -13.00      | 40.31       | H            |
| 6838.01         | -54.98                 | 7.84          | 11.41             | -51.41          | -13.00      | 38.41       | H            |
| 8556.01         | -55.56                 | 8.57          | 13.01             | -51.12          | -13.00      | 38.12       | V            |
| 10261.01        | -53.61                 | 9.51          | 13.00             | -50.12          | -13.00      | 37.12       | H            |
| 11979.01        | -50.71                 | 10.15         | 13.00             | -47.86          | -13.00      | 34.86       | V            |

### LTE Band 66, 1.4MHz, QPSK, Channel 132322

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3491.02         | -57.52                 | 5.50          | 8.18              | -54.84          | -13.00      | 41.84       | H            |
| 5237.02         | -56.38                 | 7.00          | 10.23             | -53.15          | -13.00      | 40.15       | H            |
| 6975.01         | -55.30                 | 8.11          | 11.57             | -51.84          | -13.00      | 38.84       | H            |
| 8727.01         | -56.15                 | 8.44          | 13.05             | -51.54          | -13.00      | 38.54       | H            |
| 10471.01        | -52.91                 | 9.70          | 13.09             | -49.52          | -13.00      | 36.52       | H            |
| 12216.01        | -49.62                 | 10.05         | 13.09             | -46.58          | -13.00      | 33.58       | V            |

### LTE Band 66, 1.4MHz, QPSK, Channel 132665

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Peak EIRP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|-------------|-------------|--------------|
| 3559.02         | -56.20                 | 5.92          | 8.28              | -53.84          | -13.00      | 40.84       | H            |
| 5342.02         | -56.13                 | 6.95          | 10.38             | -52.70          | -13.00      | 39.70       | H            |
| 7122.01         | -55.80                 | 8.16          | 11.75             | -52.21          | -13.00      | 39.21       | V            |
| 8895.01         | -54.71                 | 8.84          | 13.08             | -50.47          | -13.00      | 37.47       | H            |
| 10673.01        | -52.05                 | 9.30          | 13.13             | -48.22          | -13.00      | 35.22       | H            |
| 12452.01        | -50.45                 | 10.30         | 13.18             | -47.57          | -13.00      | 34.57       | V            |

### LTE Band 71, 5MHz, QPSK, Channel 133147

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1306.01         | -58.97                 | 3.12          | 4.49              | 2.15            | -59.75         | -13.00      | 46.75       | H            |
| 1971.01         | -55.89                 | 3.97          | 4.65              | 2.15            | -57.36         | -13.00      | 44.36       | V            |
| 2636.00         | -51.90                 | 4.73          | 6.34              | 2.15            | -52.44         | -13.00      | 39.44       | H            |
| 3331.02         | -54.70                 | 5.30          | 7.79              | 2.15            | -54.36         | -13.00      | 41.36       | H            |
| 4017.02         | -54.54                 | 6.05          | 8.92              | 2.15            | -53.82         | -13.00      | 40.82       | V            |
| 4659.02         | -54.77                 | 6.47          | 9.56              | 2.15            | -53.83         | -13.00      | 40.83       | V            |

### LTE Band 71, 5MHz, QPSK, Channel 133297

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1361.01         | -60.15                 | 3.19          | 4.78              | 2.15            | -60.71         | -13.00      | 47.71       | V            |
| 2042.00         | -54.62                 | 4.14          | 4.73              | 2.15            | -56.18         | -13.00      | 43.18       | H            |
| 2711.00         | -52.29                 | 4.80          | 6.48              | 2.15            | -52.76         | -13.00      | 39.76       | H            |
| 3395.02         | -55.22                 | 5.36          | 7.95              | 2.15            | -54.78         | -13.00      | 41.78       | V            |
| 4077.02         | -55.62                 | 6.04          | 8.98              | 2.15            | -54.83         | -13.00      | 41.83       | H            |
| 4753.01         | -55.05                 | 6.58          | 9.65              | 2.15            | -54.13         | -13.00      | 41.13       | V            |

### LTE Band 71, 5MHz, QPSK, Channel 133447

| Frequency (MHz) | P <sub>Mea</sub> (dBm) | Path Loss(dB) | Antenna Gain(dBi) | Correction (dB) | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|------------------------|---------------|-------------------|-----------------|----------------|-------------|-------------|--------------|
| 1361.01         | -59.12                 | 3.19          | 4.78              | 2.15            | -59.68         | -13.00      | 46.68       | H            |
| 2087.00         | -52.18                 | 4.18          | 4.86              | 2.15            | -53.65         | -13.00      | 40.65       | V            |
| 2799.00         | -52.21                 | 4.91          | 6.64              | 2.15            | -52.63         | -13.00      | 39.63       | H            |
| 3481.02         | -55.95                 | 5.49          | 8.15              | 2.15            | -55.44         | -13.00      | 42.44       | H            |
| 4196.02         | -55.31                 | 6.20          | 9.10              | 2.15            | -54.56         | -13.00      | 41.56       | V            |
| 4844.01         | -55.36                 | 6.72          | 9.74              | 2.15            | -54.49         | -13.00      | 41.49       | V            |

Note: The maximum value of expanded measurement uncertainty for this test item is  $U = 5.16$  dB,  $k = 2$ .

## **A.3 FREQUENCY STABILITY**

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

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 R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

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 LTE band 7,12,13, 25,26,41,66,71, 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 increments from -30°C to +50°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 between 3.5VDC and 4.4VDC, with a nominal voltage of 3.8VDC. 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 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              | 3.8        | 2500.593             | 2569.375             |            |                      |
| 50              |            |                      |                      | 3.04       | 0.0012               |
| 40              |            |                      |                      | 2.34       | 0.0009               |
| 30              |            |                      |                      | -0.65      | 0.0003               |
| 10              |            |                      |                      | -4.32      | 0.0017               |
| 0               |            |                      |                      | -6.26      | 0.0025               |
| -10             |            |                      |                      | 0.87       | 0.0003               |
| -20             |            |                      |                      | 4.43       | 0.0017               |
| -30             |            |                      |                      | 35.20      | 0.0139               |

##### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 2500.593             | 2569.375             | 4.30       | 0.0017               |
| 4.4        |                 |                      |                      | 3.27       | 0.0013               |

#### LTE Band 12, 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              | 3.8        | 699.481              | 715.503              |            |                      |
| 50              |            |                      |                      | 0.04       | 0.0001               |
| 40              |            |                      |                      | 0.83       | 0.0012               |
| 30              |            |                      |                      | 0.24       | 0.0003               |
| 10              |            |                      |                      | -0.50      | 0.0007               |
| 0               |            |                      |                      | -0.85      | 0.0012               |
| -10             |            |                      |                      | -2.03      | 0.0029               |
| -20             |            |                      |                      | -0.07      | 0.0001               |
| -30             |            |                      |                      | -2.83      | 0.0040               |

##### Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 699.481              | 715.503              | -0.27      | 0.0004               |
| 4.4        |                 |                      |                      | -2.75      | 0.0039               |

# **LTE Band 13, 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              | 3.8        | 777.481              | 786.503              |            |                      |
| 50              |            |                      |                      | -1.03      | 0.0013               |
| 40              |            |                      |                      | -1.76      | 0.0023               |
| 30              |            |                      |                      | 23.76      | 0.0304               |
| 10              |            |                      |                      | -0.57      | 0.0007               |
| 0               |            |                      |                      | -1.32      | 0.0017               |
| -10             |            |                      |                      | -1.8       | 0.0023               |
| -20             |            |                      |                      | -9.36      | 0.0120               |
| -30             |            |                      |                      | -0.25      | 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) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 777.481              | 786.503              | -0.10      | 0.0001               |
| 4.4        |                 |                      |                      | 1.21       | 0.0015               |

# **LTE Band 25, 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              | 3.8        | 1850.865             | 1914.151             |            |                      |
| 50              |            |                      |                      | 4.85       | 0.0026               |
| 40              |            |                      |                      | -0.82      | 0.0004               |
| 30              |            |                      |                      | -3.26      | 0.0017               |
| 10              |            |                      |                      | 1.33       | 0.0007               |
| 0               |            |                      |                      | 0.04       | 0.0000               |
| -10             |            |                      |                      | -2.46      | 0.0013               |
| -20             |            |                      |                      | -1.19      | 0.0006               |
| -30             |            |                      |                      | 2.27       | 0.0012               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 1850.865             | 1914.151             | -0.40      | 0.0002               |
| 4.4        |                 |                      |                      | 0.91       | 0.0005               |

# **LTE Band 26(814MHz~824MHz), 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              | 3.8        | 814.433              | 823.567              |            |                      |
| 50              |            |                      |                      | 1.55       | 0.0019               |
| 40              |            |                      |                      | -0.38      | 0.0005               |
| 30              |            |                      |                      | -0.54      | 0.0007               |
| 10              |            |                      |                      | -2.57      | 0.0031               |
| 0               |            |                      |                      | -0.35      | 0.0004               |
| -10             |            |                      |                      | -1.38      | 0.0017               |
| -20             |            |                      |                      | -0.67      | 0.0008               |
| -30             |            |                      |                      | -1.63      | 0.0020               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 814.433              | 823.567              | -2.84      | 0.0035               |
| 4.4        |                 |                      |                      | -2.38      | 0.0029               |

# **LTE Band 26(824MHz~849MHz), 15MHz 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              | 3.8        | 824.577              | 848.407              |            |                      |
| 50              |            |                      |                      | 0.66       | 0.0008               |
| 40              |            |                      |                      | -0.36      | 0.0004               |
| 30              |            |                      |                      | 1.30       | 0.0016               |
| 10              |            |                      |                      | -2.62      | 0.0031               |
| 0               |            |                      |                      | -1.33      | 0.0016               |
| -10             |            |                      |                      | -2.52      | 0.0030               |
| -20             |            |                      |                      | -0.33      | 0.0004               |
| -30             |            |                      |                      | 2.16       | 0.0026               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 824.577              | 848.407              | 0.07       | 0.0001               |
| 4.4        |                 |                      |                      | -1.17      | 0.0014               |

# **LTE band 41-HPUE, 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              | 3.8        | 2496.016             | 2689.679             |            |                      |
| 50              |            |                      |                      | -0.16      | 0.0001               |
| 40              |            |                      |                      | -4.12      | 0.0016               |
| 30              |            |                      |                      | -0.16      | 0.0001               |
| 10              |            |                      |                      | 0.00       | 0.0000               |
| 0               |            |                      |                      | -4.12      | 0.0016               |
| -10             |            |                      |                      | -8.45      | 0.0033               |
| -20             |            |                      |                      | -4.31      | 0.0017               |
| -30             |            |                      |                      | -2.93      | 0.0011               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 2496.016             | 2689.679             | -2.43      | 0.0009               |
| 4.4        |                 |                      |                      | -3.40      | 0.0013               |

# **LTE Band 66, 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              | 3.8        | 1710.849             | 1779.151             |            |                      |
| 50              |            |                      |                      | 3.54       | 0.0020               |
| 40              |            |                      |                      | 1.44       | 0.0008               |
| 30              |            |                      |                      | 3.54       | 0.0020               |
| 10              |            |                      |                      | 0.00       | 0.0000               |
| 0               |            |                      |                      | 1.44       | 0.0008               |
| -10             |            |                      |                      | -1.59      | 0.0009               |
| -20             |            |                      |                      | 1.70       | 0.0010               |
| -30             |            |                      |                      | -1.12      | 0.0006               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 1710.849             | 1779.151             | 0.07       | 0.0000               |
| 4.4        |                 |                      |                      | -3.95      | 0.0023               |

# LTE Band 71, 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              | 3.8        | 663.994              | 697.006              |            |                      |
| 50              |            |                      |                      | -2.33      | 0.0034               |
| 40              |            |                      |                      | 43.09      | 0.0633               |
| 30              |            |                      |                      | -7.74      | 0.0114               |
| 10              |            |                      |                      | -6.95      | 0.0102               |
| 0               |            |                      |                      | -12.06     | 0.0177               |
| -10             |            |                      |                      | -5.35      | 0.0079               |
| -20             |            |                      |                      | -5.09      | 0.0075               |
| -30             |            |                      |                      | -4.61      | 0.0068               |

## Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F <sub>L</sub> (MHz) | F <sub>H</sub> (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.5        | 20              | 663.994              | 697.006              | -5.41      | 0.0080               |
| 4.4        |                 |                      |                      | -7.60      | 0.0112               |

#### **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 extreme and mid frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

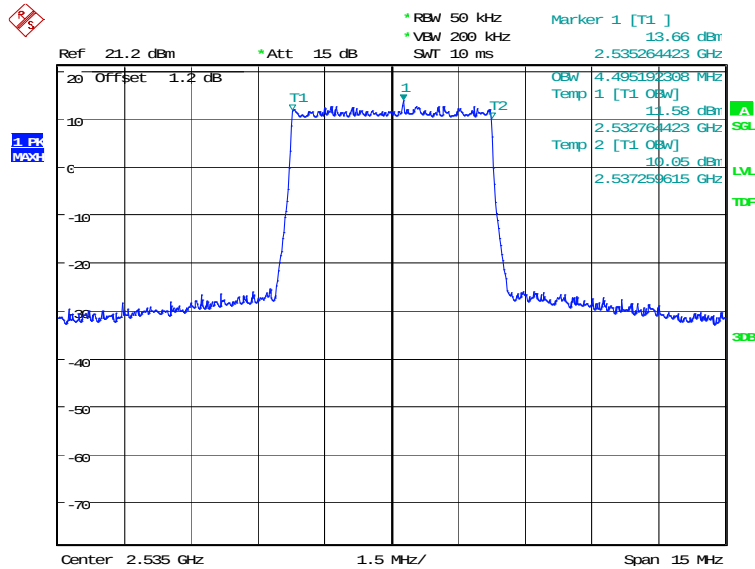
The measurement method is from ANSI C63.26:

- 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 7, 5MHz (99%)

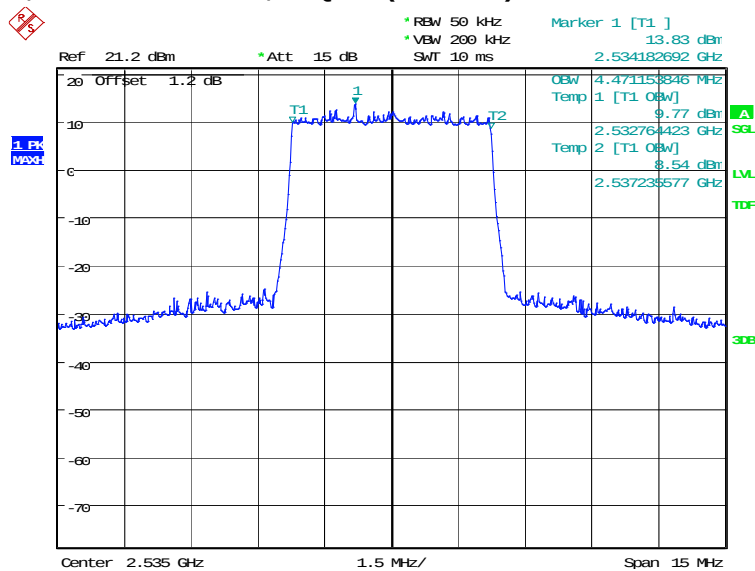
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 2535.0          | QPSK                           | 16QAM   | 64QAM   |
|                 | 4495.19                        | 4471.15 | 4495.19 |

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



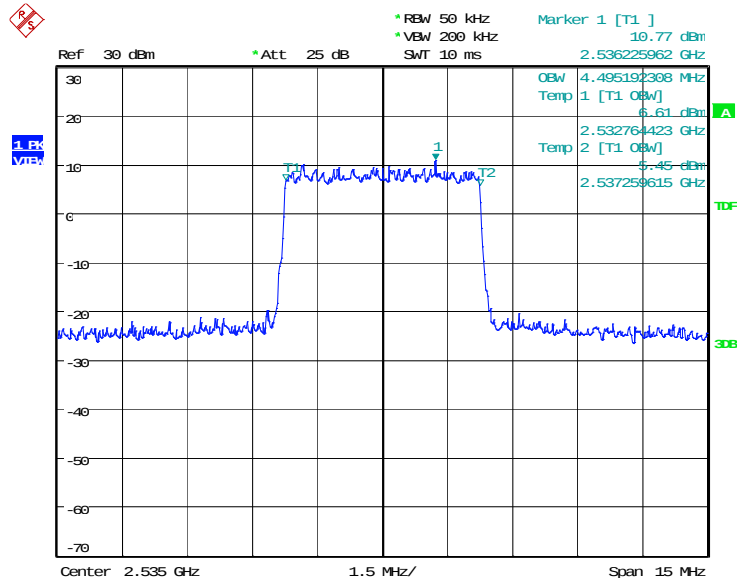
Date: 14.JAN.2020 00:44:15

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



Date: 14.JAN.2020 00:45:40

# LTE band 7, 5MHz Bandwidth,64QAM (99% BW)

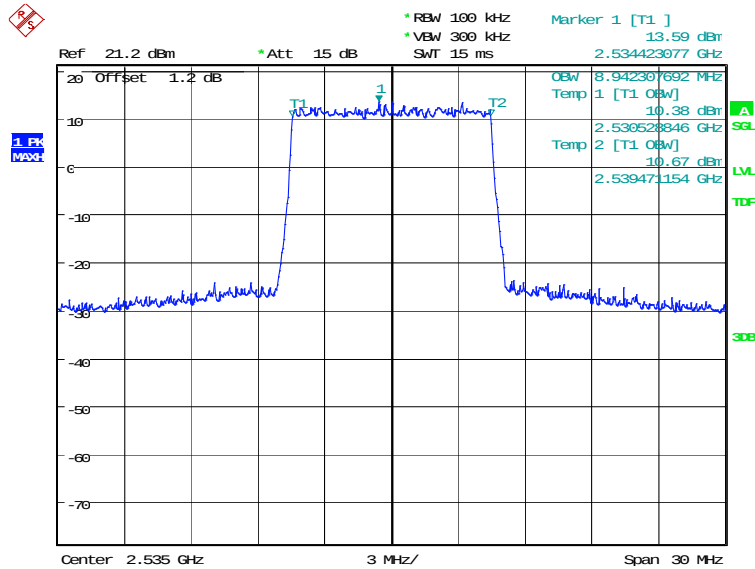


Date: 18.JAN.2020 15:48:47

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

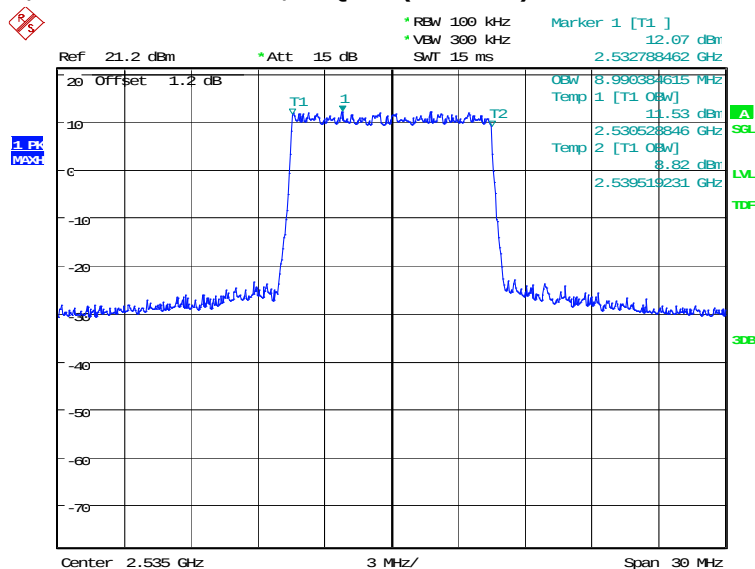
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 2535.0          | QPSK                           | 16QAM   | 64QAM   |
|                 | 8942.31                        | 8990.38 | 8990.38 |

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



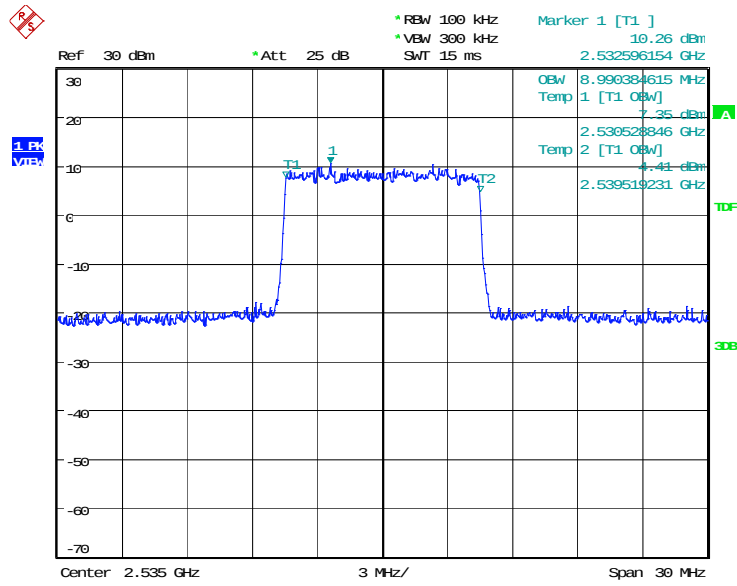
Date: 14.JAN.2020 00:48:14

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



Date: 14.JAN.2020 00:49:38

# LTE band 7, 10MHz Bandwidth, 64QAM (99% BW)

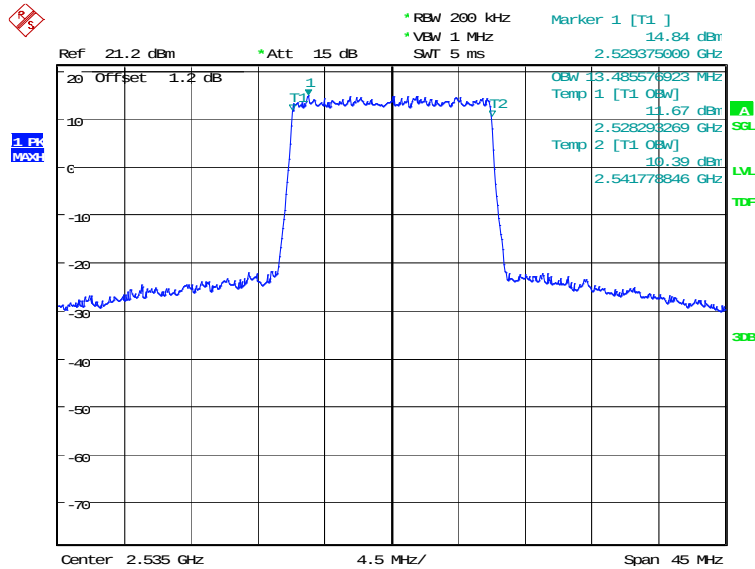


Date: 18.JAN.2020 15:49:57

### LTE band 7, 15MHz (99%)

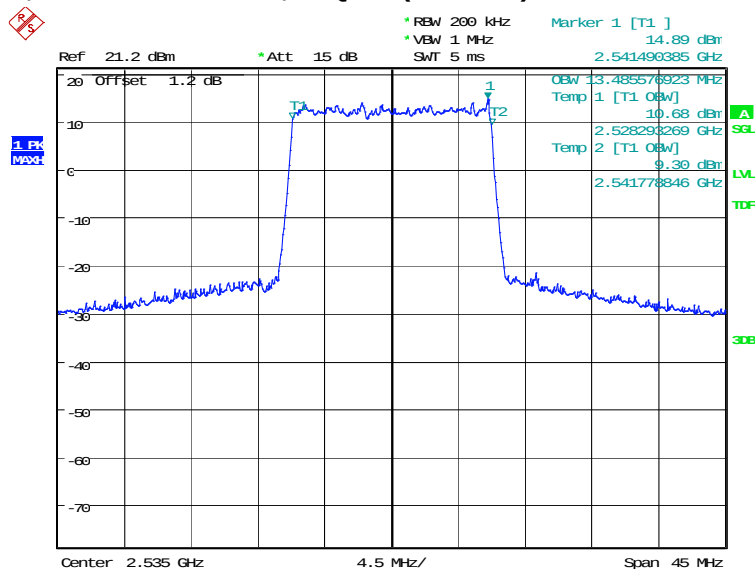
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 2535.0          | QPSK                           | 16QAM    | 64QAM    |
|                 | 13485.58                       | 13485.58 | 13485.58 |

### LTE band 7, 15MHz Bandwidth, QPSK (99% BW)



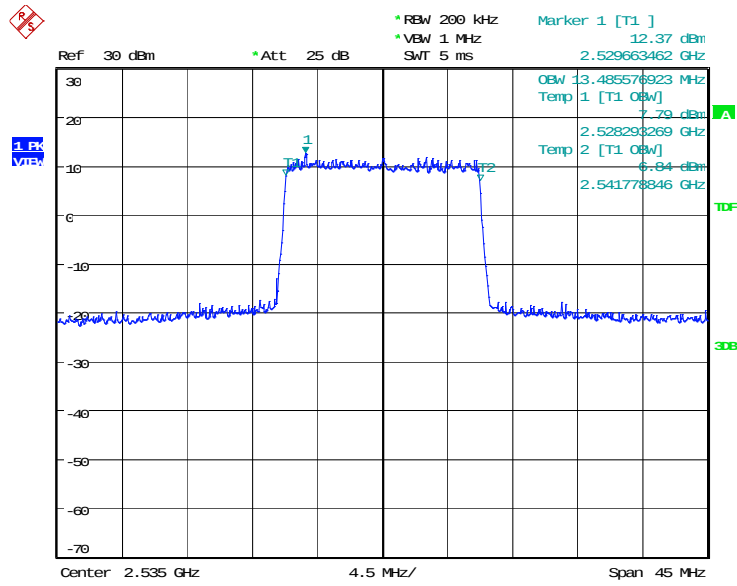
Date: 14. JAN. 2020 00:52:23

### LTE band 7, 15MHz Bandwidth, 16QAM (99% BW)



Date: 14. JAN. 2020 00:53:48

# LTE band 7, 15MHz Bandwidth, 64QAM (99% BW)

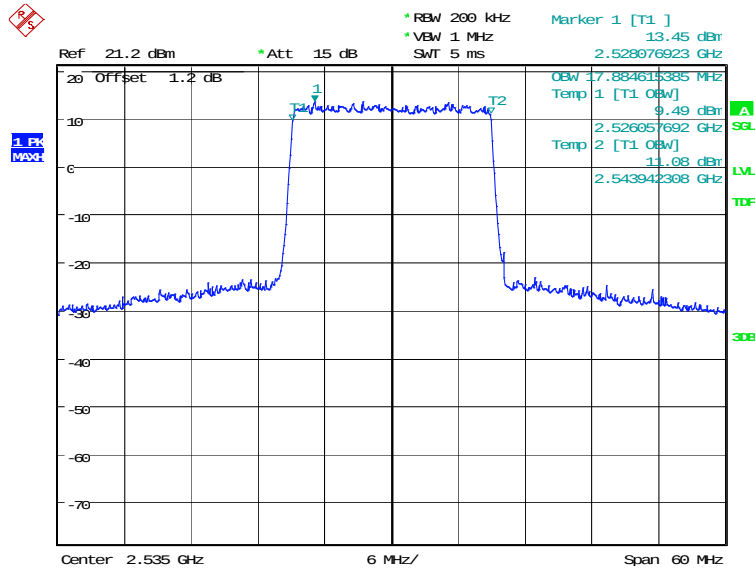


Date: 18.JAN.2020 15:51:06

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

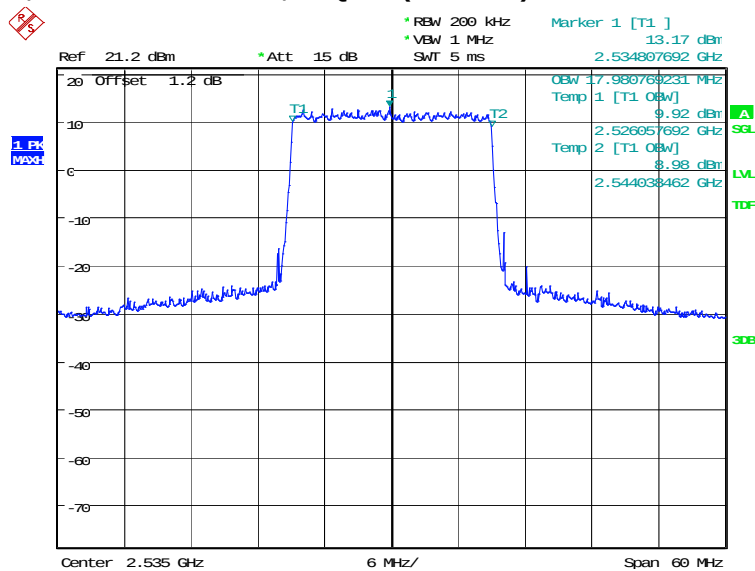
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 2535.0          | QPSK                           | 16QAM    | 64QAM    |
|                 | 17884.62                       | 17980.77 | 17980.77 |

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



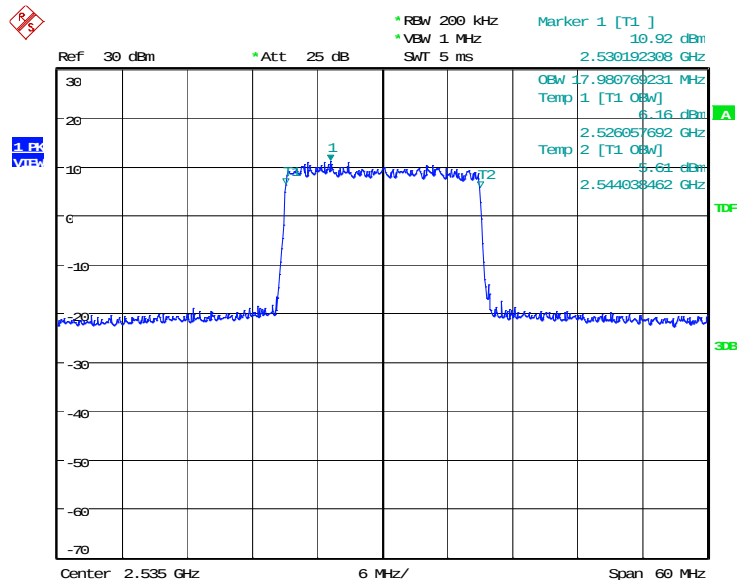
Date: 14.JAN.2020 00:56:41

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



Date: 14.JAN.2020 00:58:06

# LTE band 7, 20MHz Bandwidth, 64QAM (99% BW)

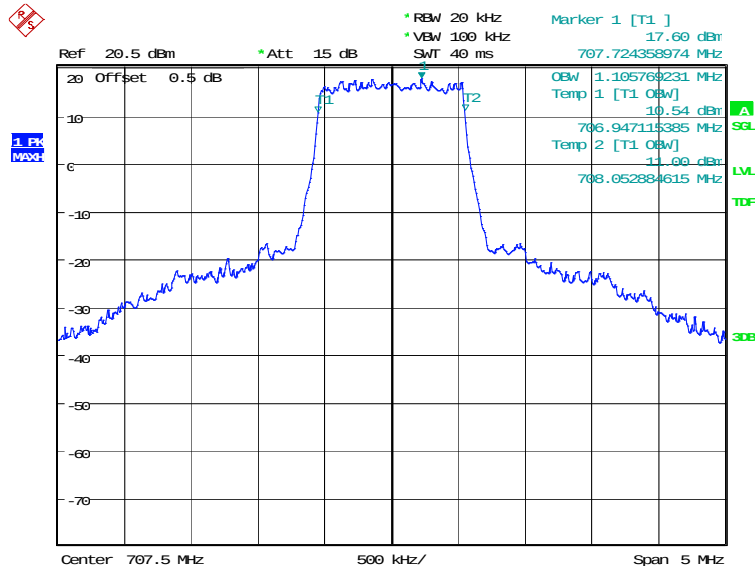


Date: 18.JAN.2020 15:52:20

### LTE band 12, 1.4MHz (99%)

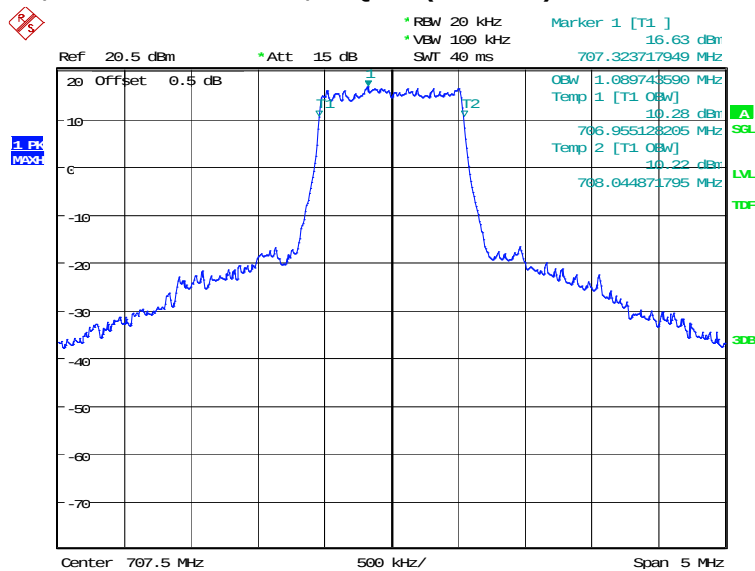
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 707.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 1105.77                        | 1089.74 | 1097.76 |

### LTE band 12, 1.4MHz Bandwidth, QPSK (99% BW)



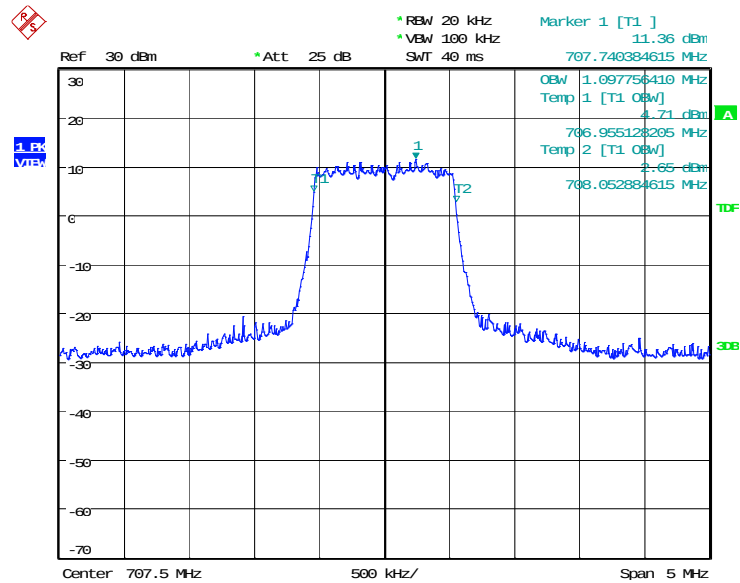
Date: 14.JAN.2020 01:00:21

### LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:01:45

# LTE band 12, 1.4MHz Bandwidth, 64QAM (99% BW)

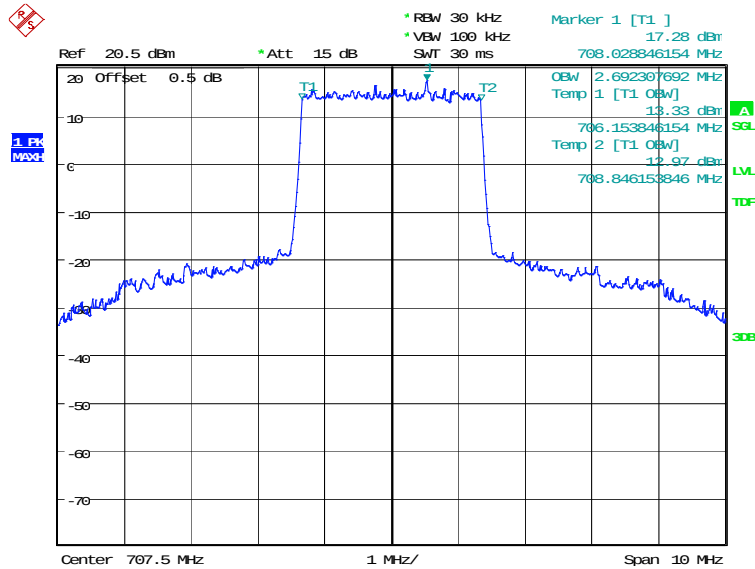


Date: 18.JAN.2020 15:55:46

### LTE band 12, 3MHz (99%)

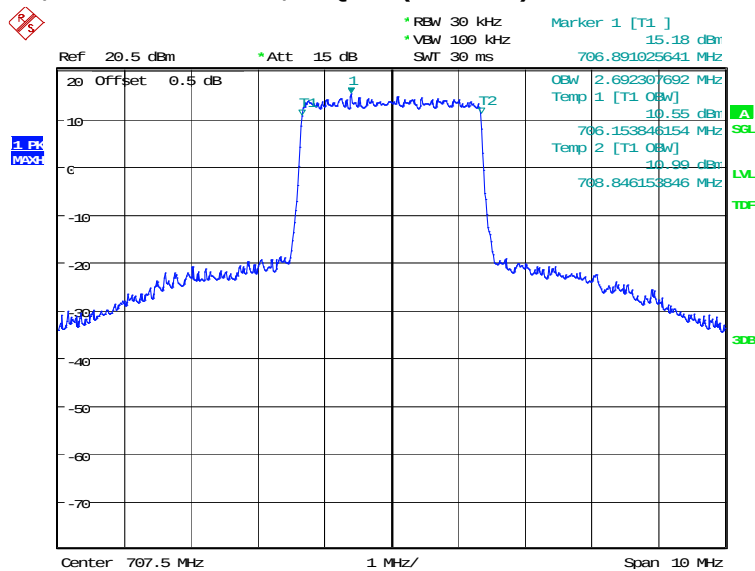
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 707.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 2692.31                        | 2692.31 | 2692.31 |

### LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



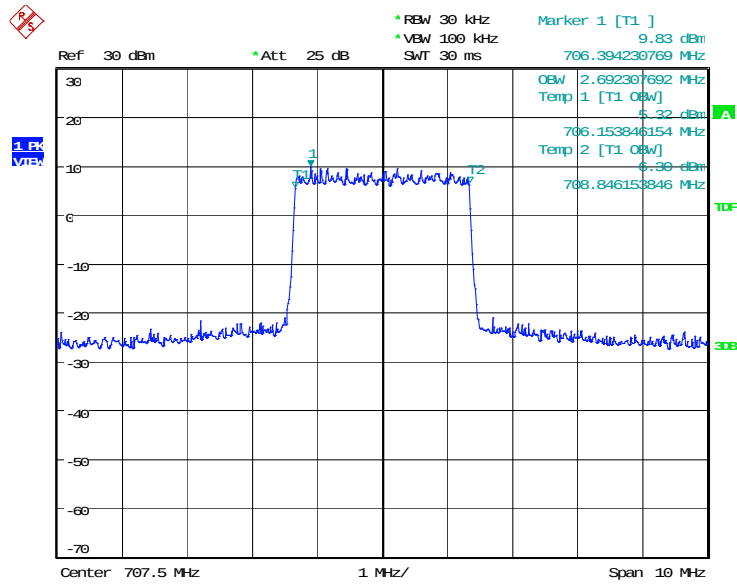
Date: 14.JAN.2020 01:04:06

### LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:05:31

# LTE band 12, 3MHz Bandwidth, 64QAM (99% BW)

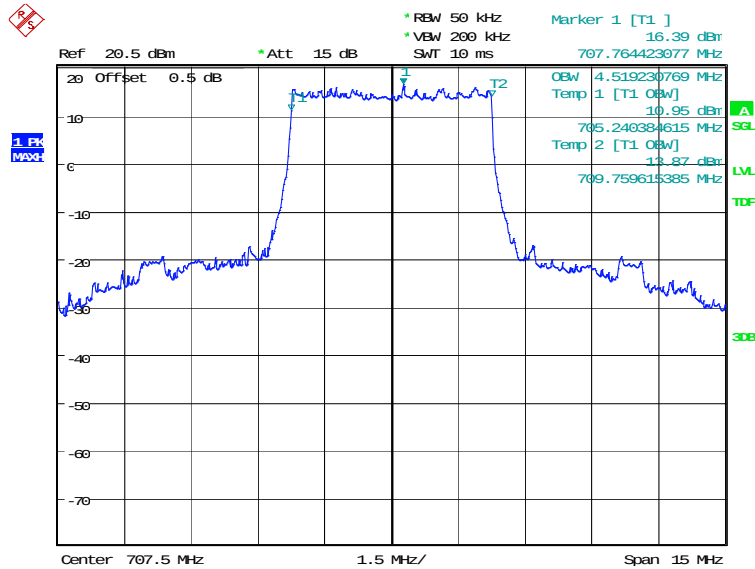


Date: 18.JAN.2020 15:57:07

### LTE band 12, 5MHz (99%)

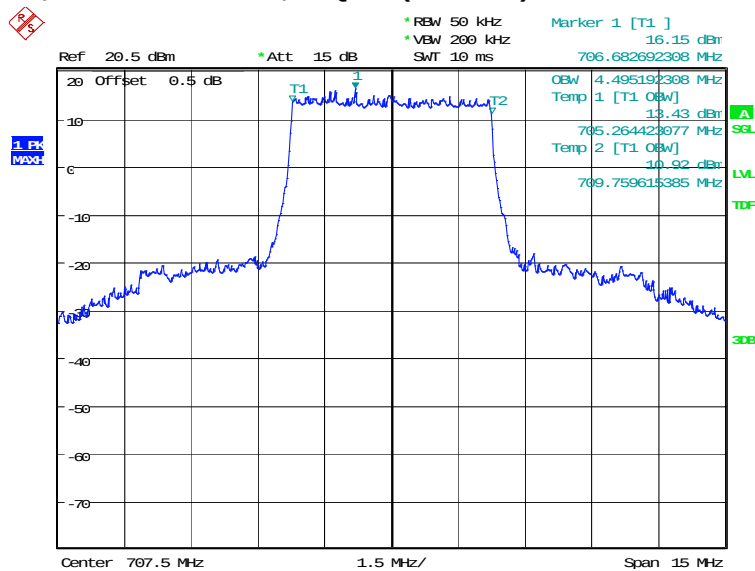
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
|                 | QPSK                           | 16QAM   | 64QAM   |
| 707.5           | 4519.23                        | 4495.19 | 4519.23 |

### LTE band 12, 5MHz Bandwidth, QPSK (99% BW)



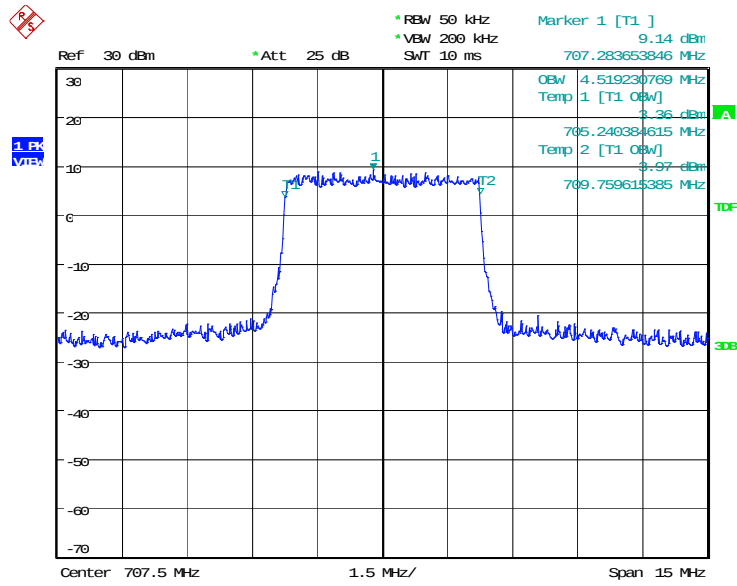
Date: 14.JAN.2020 01:07:53

### LTE band 12, 5MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:09:18

# LTE band 12, 5MHz Bandwidth,64QAM (99% BW)

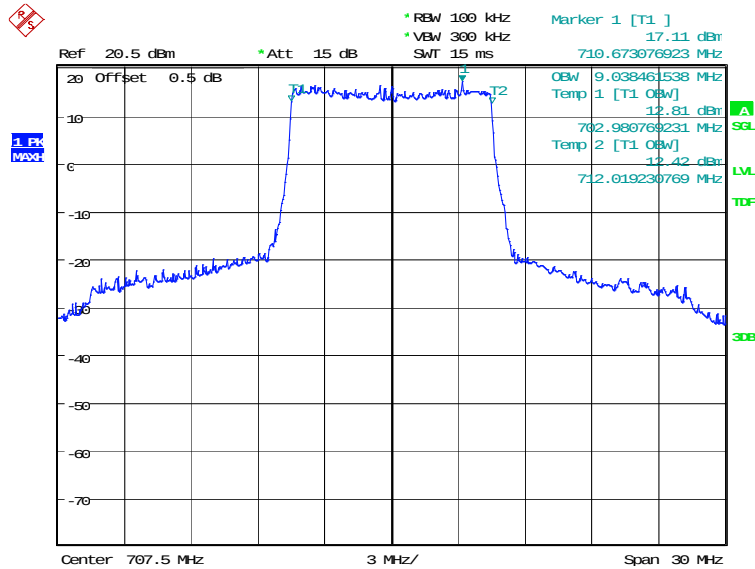


Date: 18.JAN.2020 16:00:11

### LTE band 12, 10MHz (99%)

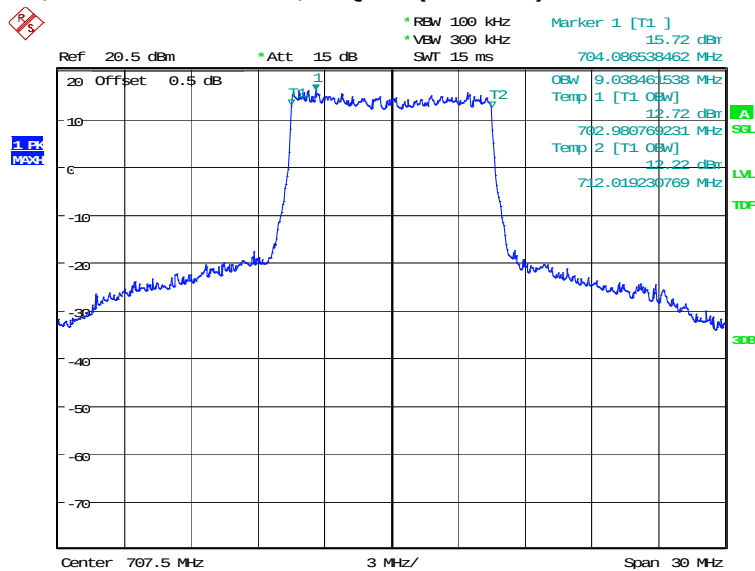
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 707.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 9038.46                        | 9038.46 | 9038.46 |

### LTE band 12, 10MHz Bandwidth, QPSK (99% BW)



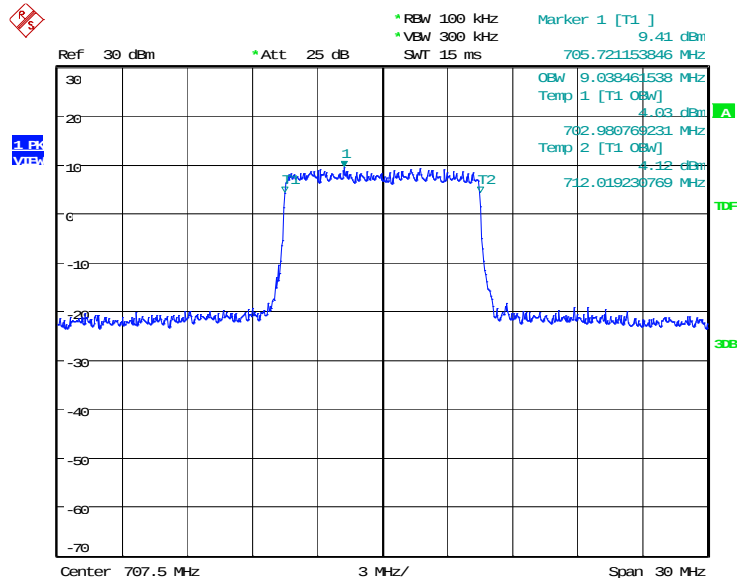
Date: 14.JAN.2020 01:11:39

### LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:13:03

# LTE band 12, 10MHz Bandwidth, 64QAM (99% BW)

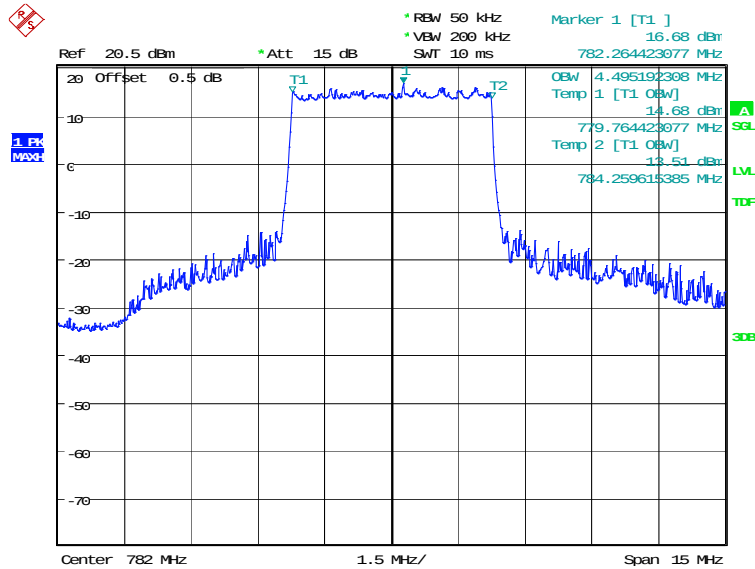


Date: 18.JAN.2020 16:01:24

### LTE band 13, 5MHz (99%)

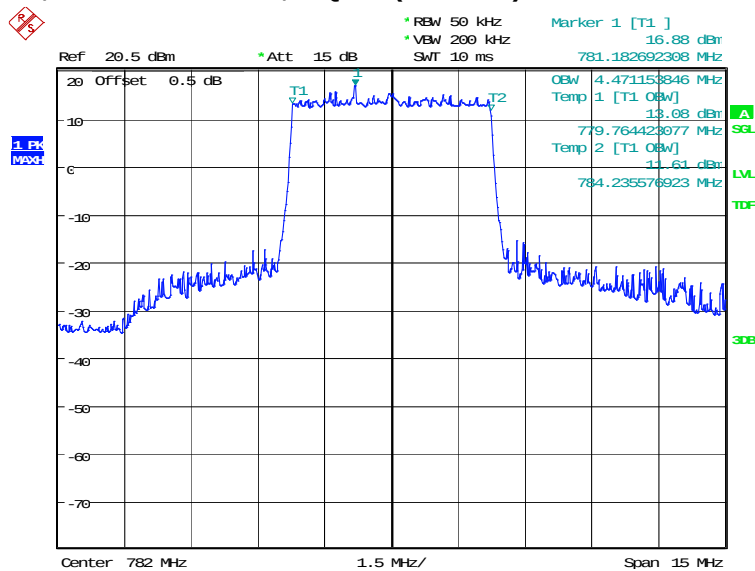
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 782.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 4495.19                        | 4471.15 | 4495.19 |

### LTE band 13, 5MHz Bandwidth, QPSK (99% BW)



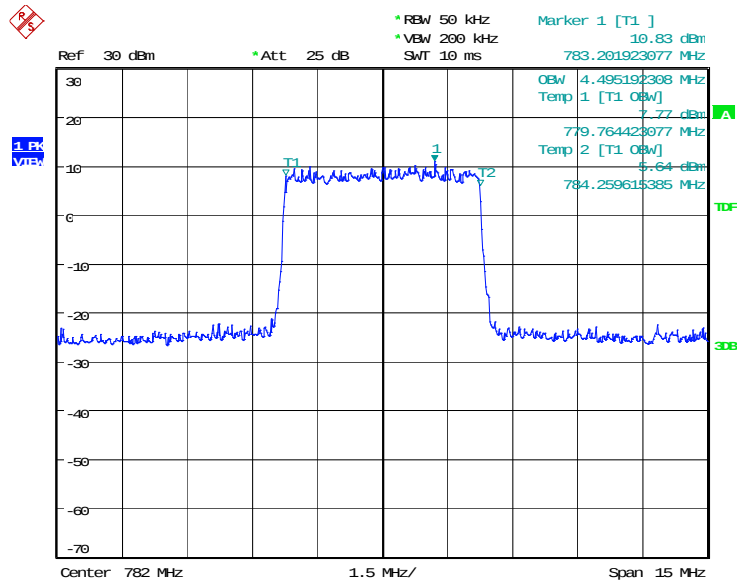
Date: 14.JAN.2020 01:15:25

### LTE band 13, 5MHz Bandwidth,16QAM (99% BW)



Date: 14.JAN.2020 01:16:50

# LTE band 13, 5MHz Bandwidth,64QAM (99% BW)

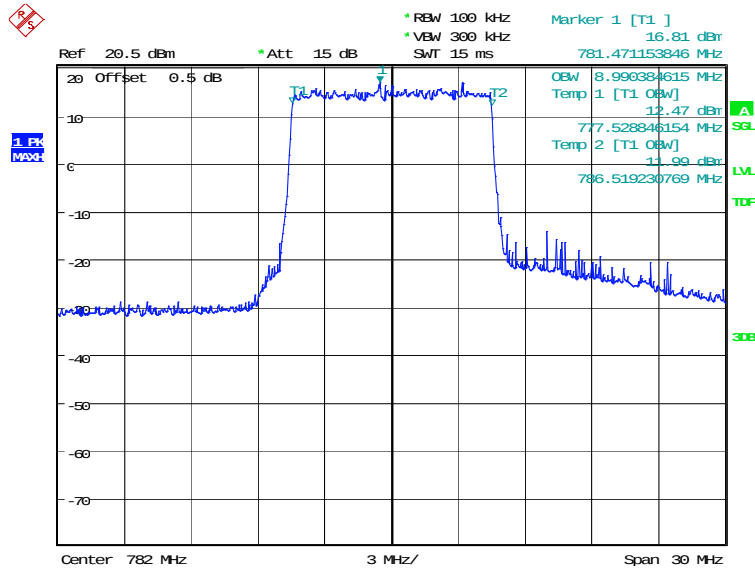


Date: 18.JAN.2020 16:05:04

### LTE band 13, 10MHz (99%)

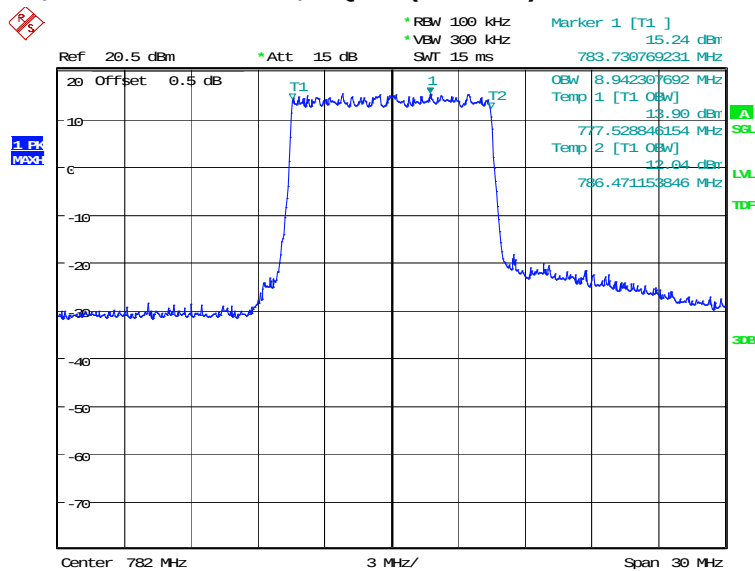
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 782.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 8990.38                        | 8942.31 | 8990.38 |

### LTE band 13, 10MHz Bandwidth, QPSK (99% BW)



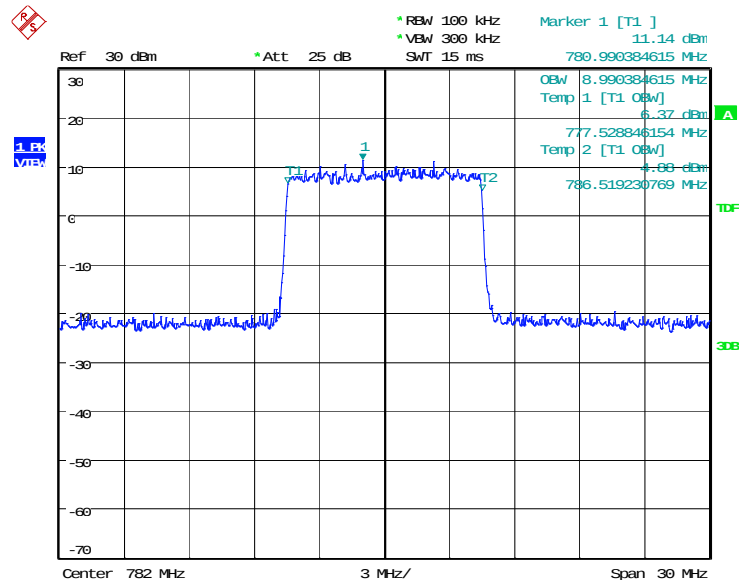
Date: 14.JAN.2020 01:19:13

### LTE band 13, 10MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:20:38

# LTE band 13, 10MHz Bandwidth, 64QAM (99% BW)

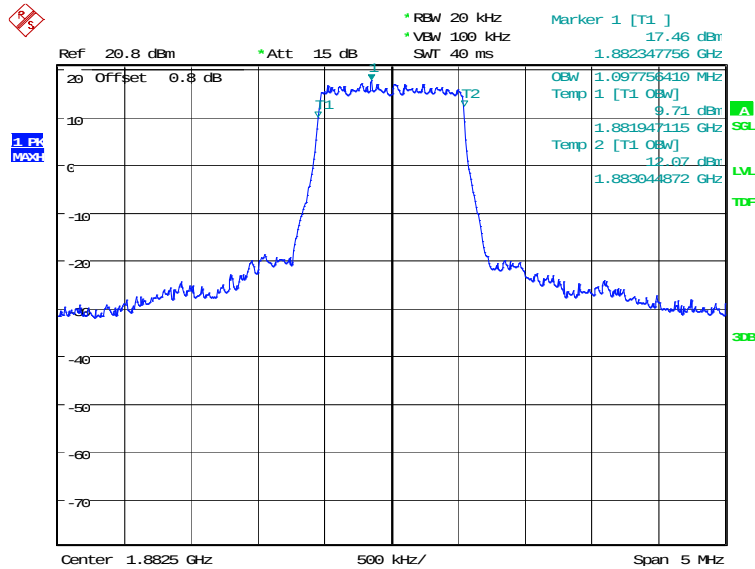


Date: 18.JAN.2020 16:06:16

### LTE band 25, 1.4MHz (99%)

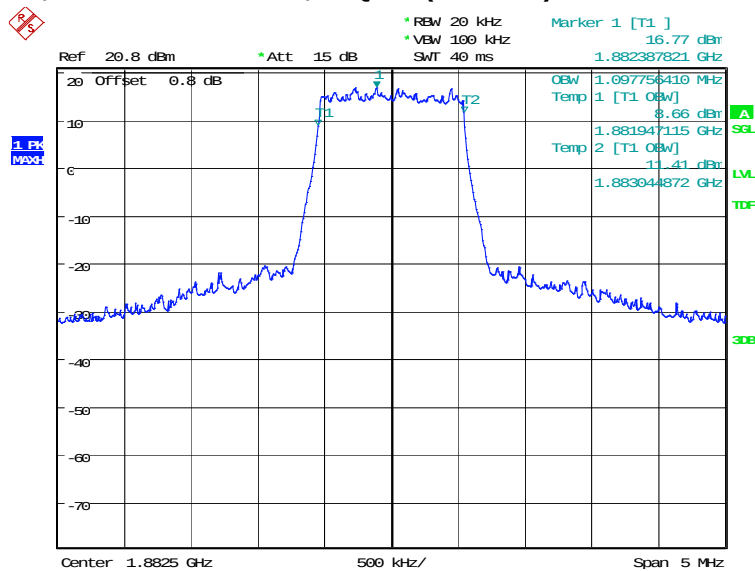
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 1882.5          | QPSK                           | 16QAM   | 64QAM   |
|                 | 1097.76                        | 1097.76 | 1089.74 |

### LTE band 25, 1.4MHz Bandwidth, QPSK (99% BW)



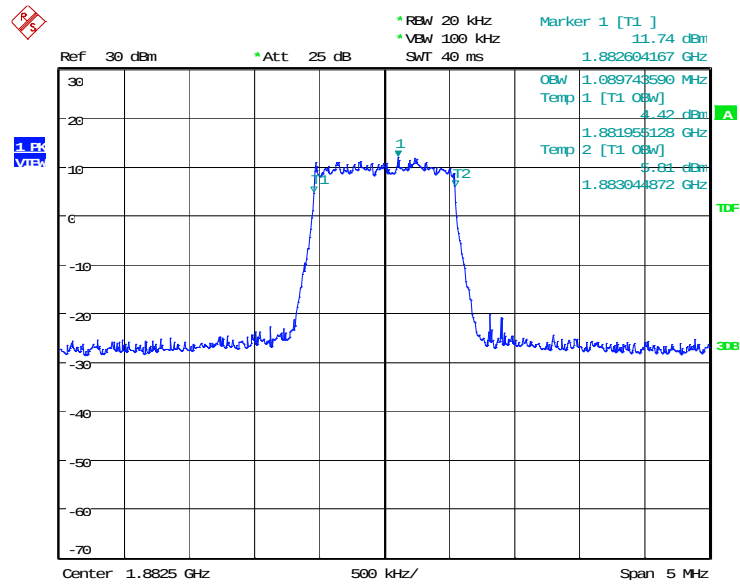
Date: 14.JAN.2020 01:23:10

### LTE band 25, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:24:35

# LTE band 25, 1.4MHz Bandwidth, 64QAM (99% BW)

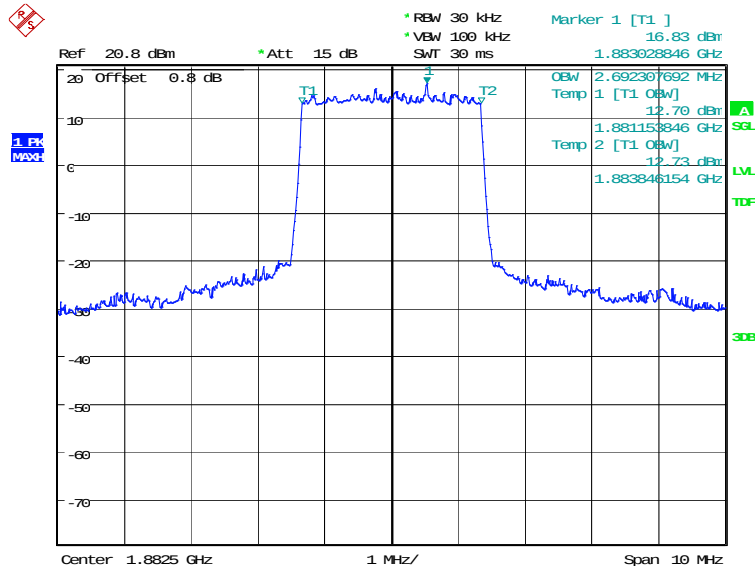


Date: 18.JAN.2020 16:09:19

### LTE band 25, 3MHz (99%)

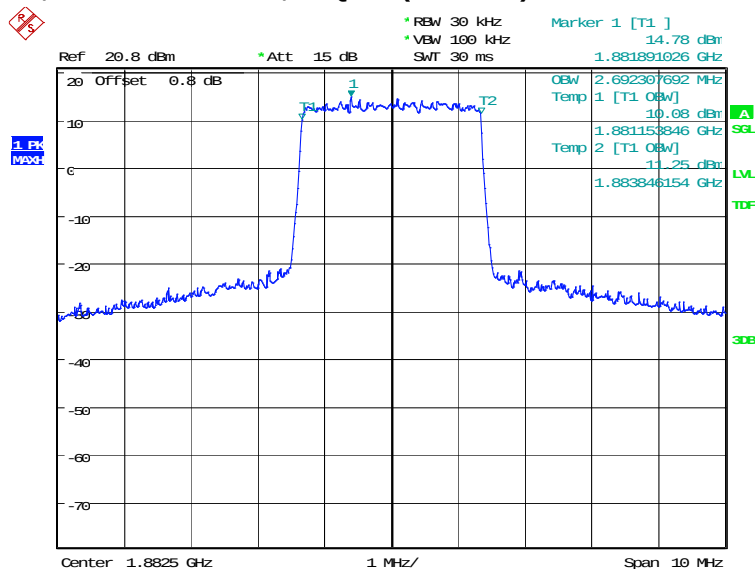
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 1882.5          | QPSK                           | 16QAM   | 64QAM   |
|                 | 2692.31                        | 2692.31 | 2692.31 |

### LTE band 25, 3MHz Bandwidth, QPSK (99% BW)



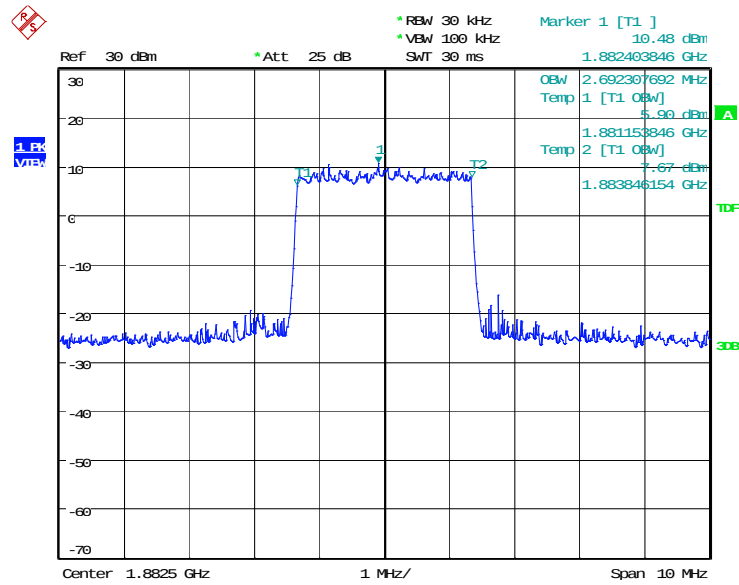
Date: 14.JAN.2020 01:26:56

### LTE band 25, 3MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:28:21

# LTE band 25, 3MHz Bandwidth, 64QAM (99% BW)

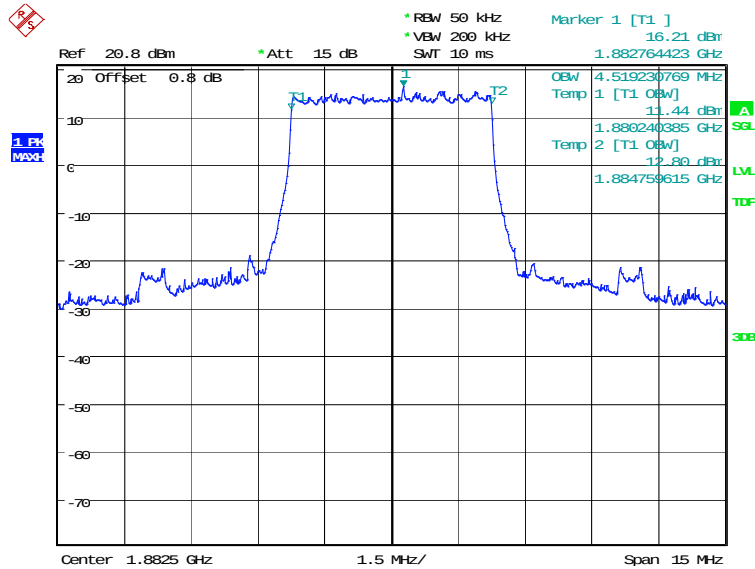


Date: 18.JAN.2020 16:10:46

### LTE band 25, 5MHz (99%)

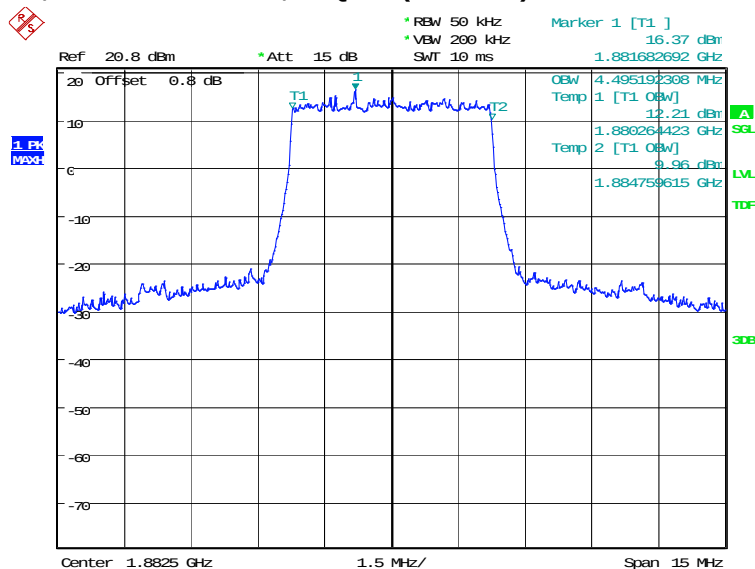
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
|                 | QPSK                           | 16QAM   | 64QAM   |
| 1882.5          | 4519.23                        | 4495.19 | 4519.23 |

### LTE band 25, 5MHz Bandwidth, QPSK (99% BW)



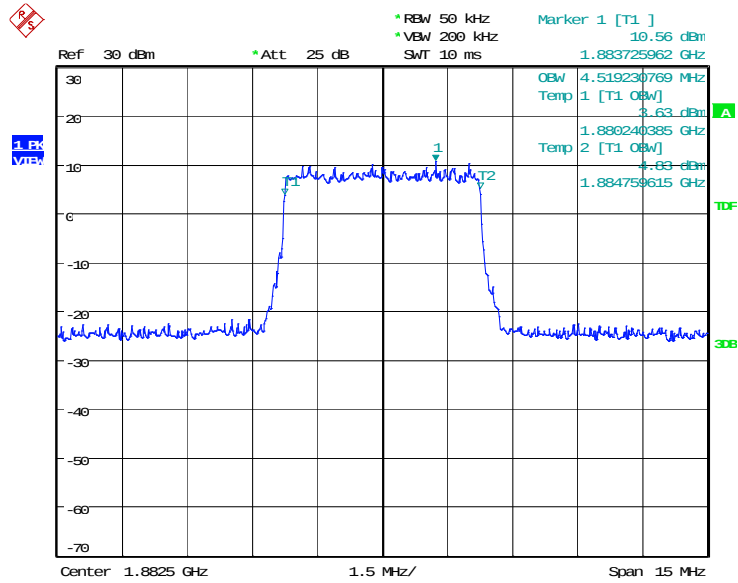
Date: 14.JAN.2020 01:30:41

### LTE band 25, 5MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:32:06

# LTE band 25, 5MHz Bandwidth,64QAM (99% BW)

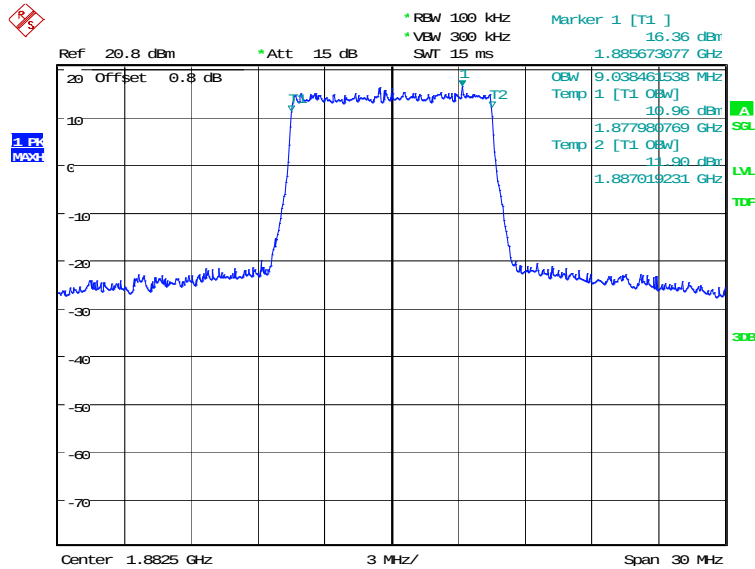


Date: 18.JAN.2020 16:11:55

### LTE band 25, 10MHz (99%)

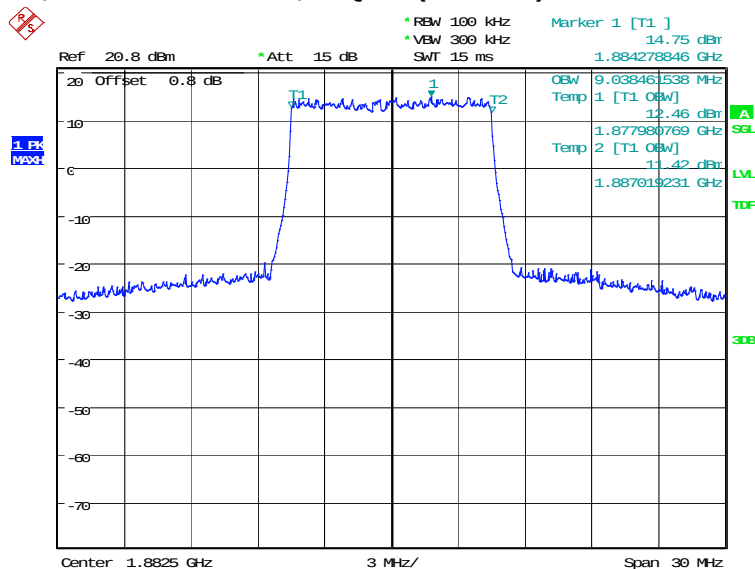
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 1882.5          | QPSK                           | 16QAM   | 64QAM   |
|                 | 9038.46                        | 9038.46 | 9038.46 |

### LTE band 25, 10MHz Bandwidth, QPSK (99% BW)



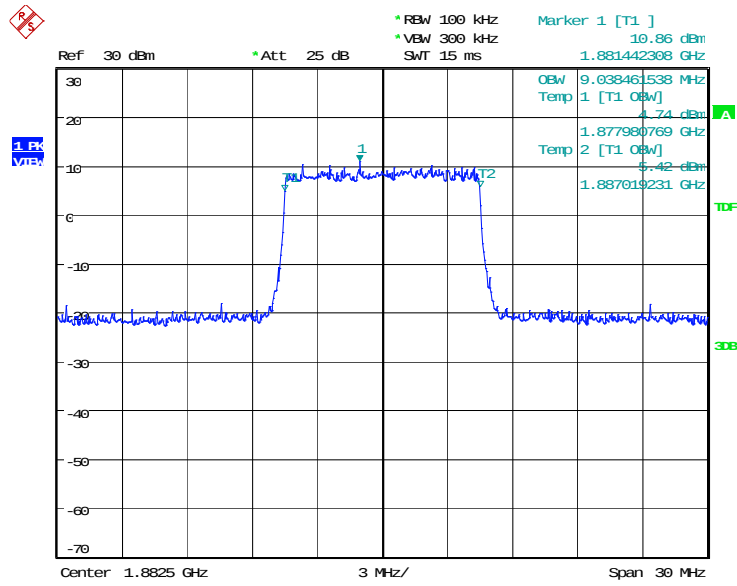
Date: 14.JAN.2020 01:34:29

### LTE band 25, 10MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:35:54

# LTE band 25, 10MHz Bandwidth, 64QAM (99% BW)

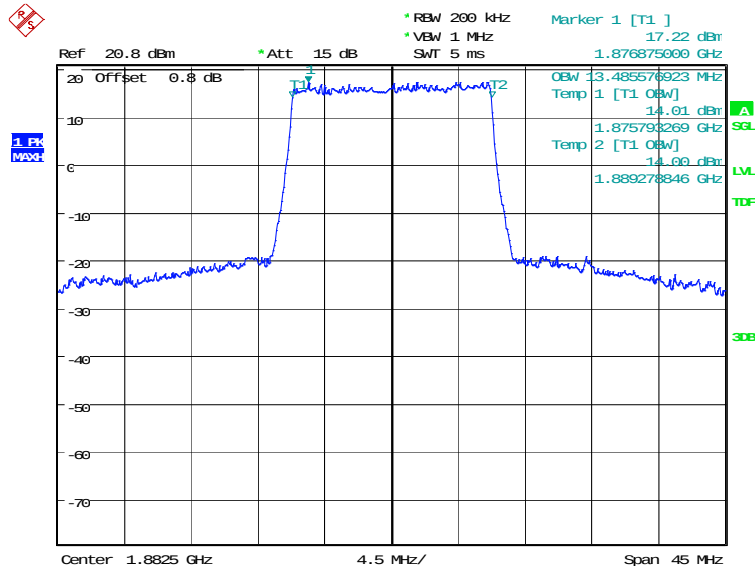


Date: 18.JAN.2020 16:13:03

### LTE band 25, 15MHz (99%)

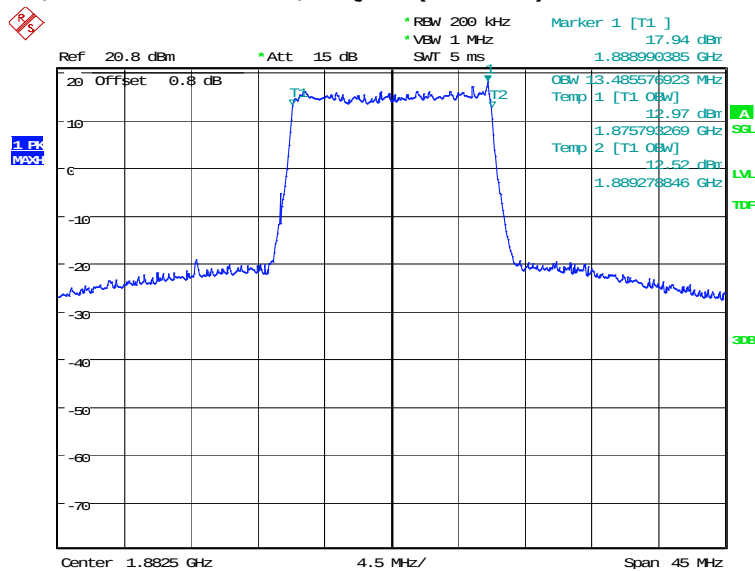
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 1882.5          | QPSK                           | 16QAM    | 64QAM    |
|                 | 13485.58                       | 13485.58 | 13485.58 |

### LTE band 25, 15MHz Bandwidth, QPSK (99% BW)



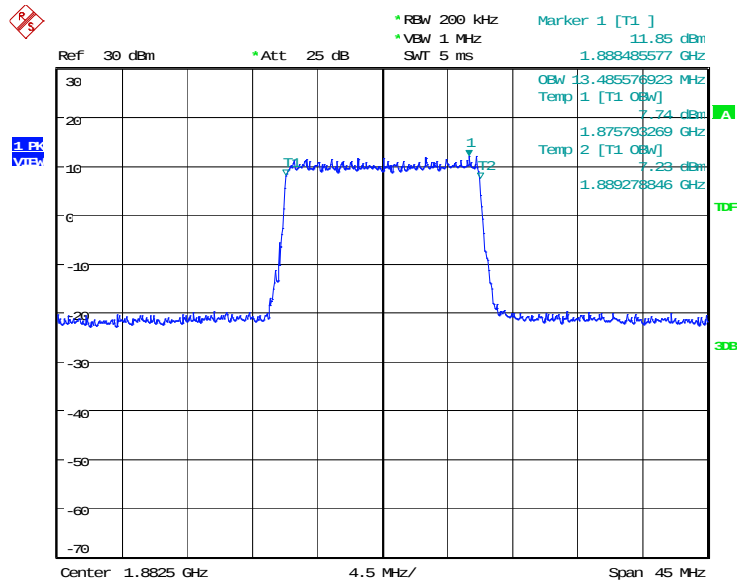
Date: 14.JAN.2020 01:38:19

### LTE band 25, 15MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:39:44

# LTE band 25, 15MHz Bandwidth, 64QAM (99% BW)

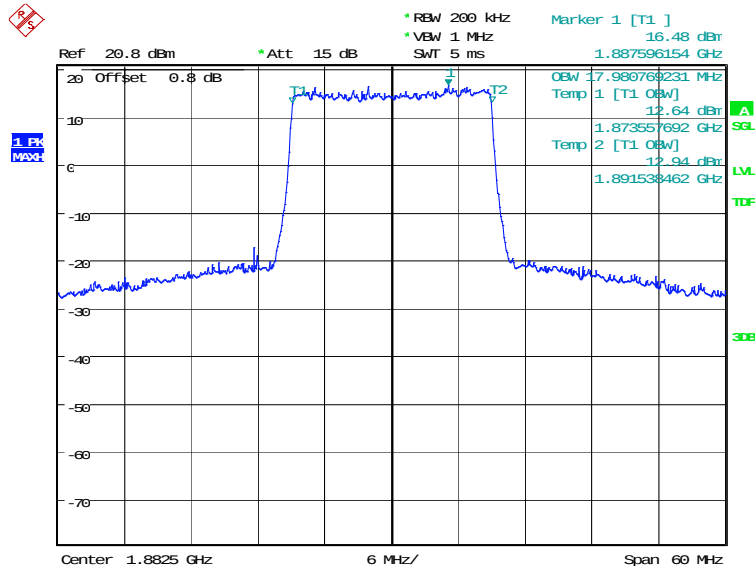


Date: 18.JAN.2020 16:14:12

### LTE band 25, 20MHz (99%)

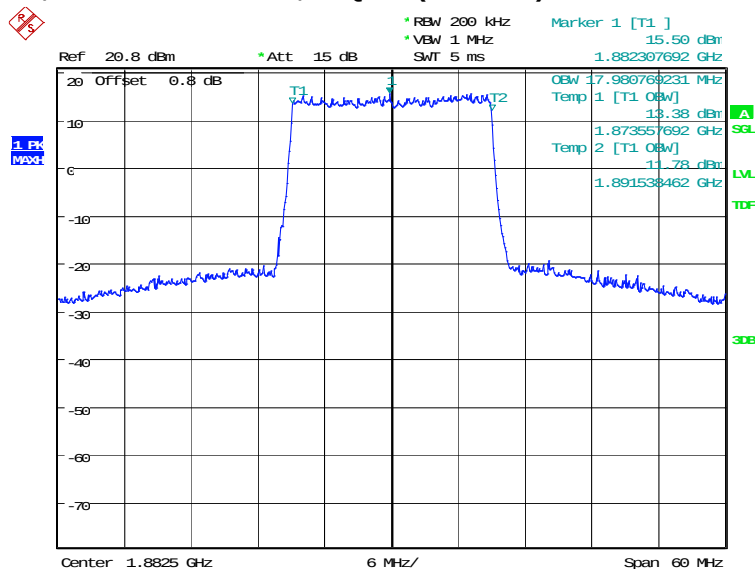
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 1882.5          | QPSK                           | 16QAM    | 64QAM    |
|                 | 17980.77                       | 17980.77 | 17980.77 |

### LTE band 25, 20MHz Bandwidth, QPSK (99% BW)



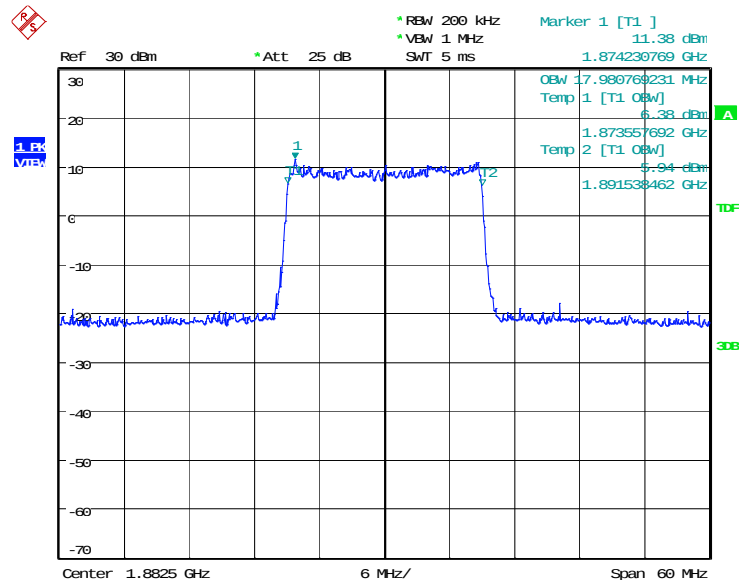
Date: 14.JAN.2020 01:42:11

### LTE band 25, 20MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:43:36

# LTE band 25, 20MHz Bandwidth, 64QAM (99% BW)

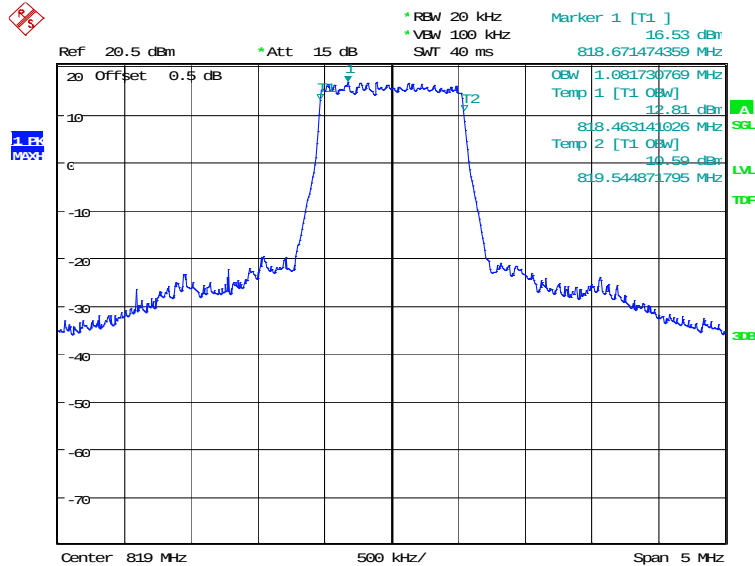


Date: 18.JAN.2020 16:22:50

### LTE band 26(814MHz~824MHz), 1.4MHz (99%)

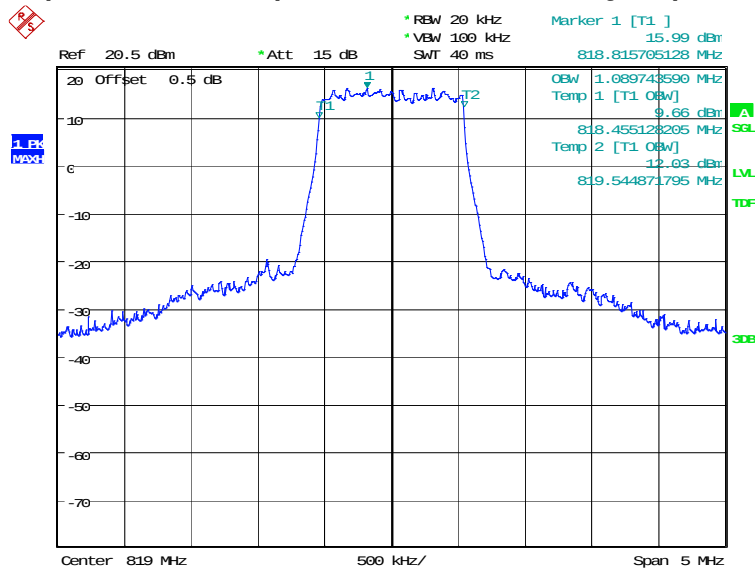
| Frequency (MHz) | Occupied Bandwidth (99%)( kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 819.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 1081.73                        | 1089.74 | 1089.74 |

### LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, QPSK (99% BW)



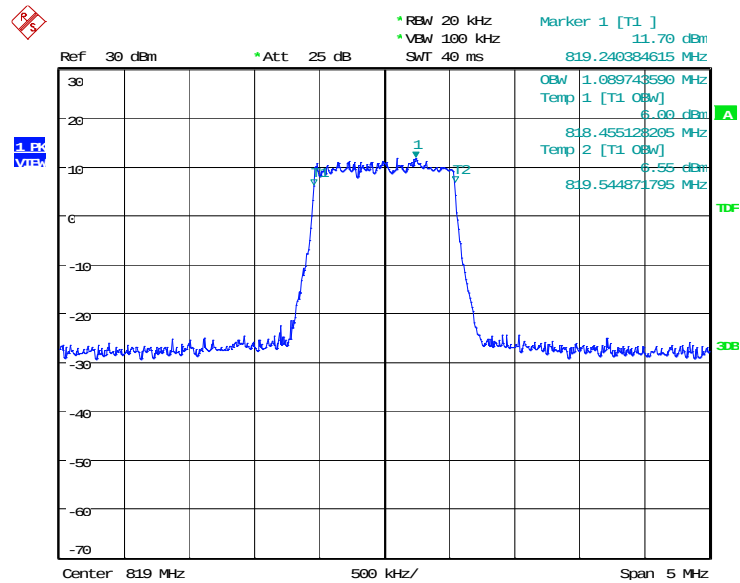
Date: 14.JAN.2020 02:03:53

### LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:05:18

# LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 64QAM (99% BW)

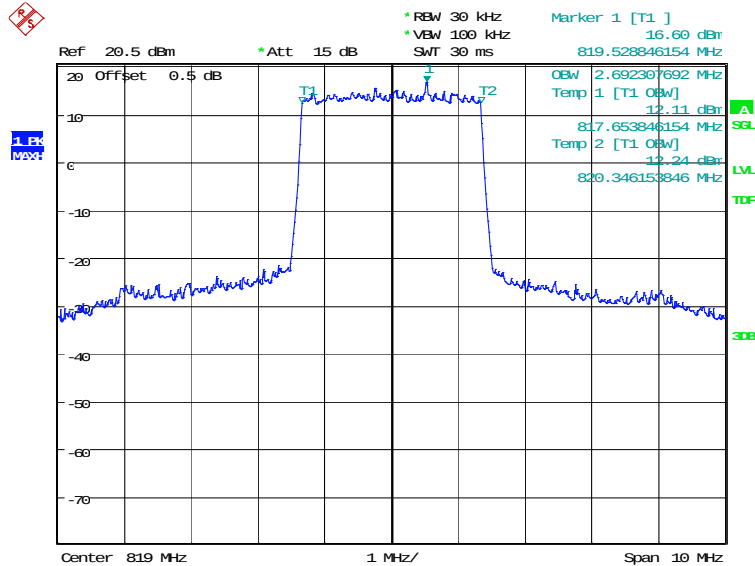


Date: 18.JAN.2020 17:12:25

### LTE band 26(814MHz~824MHz), 3MHz (99%)

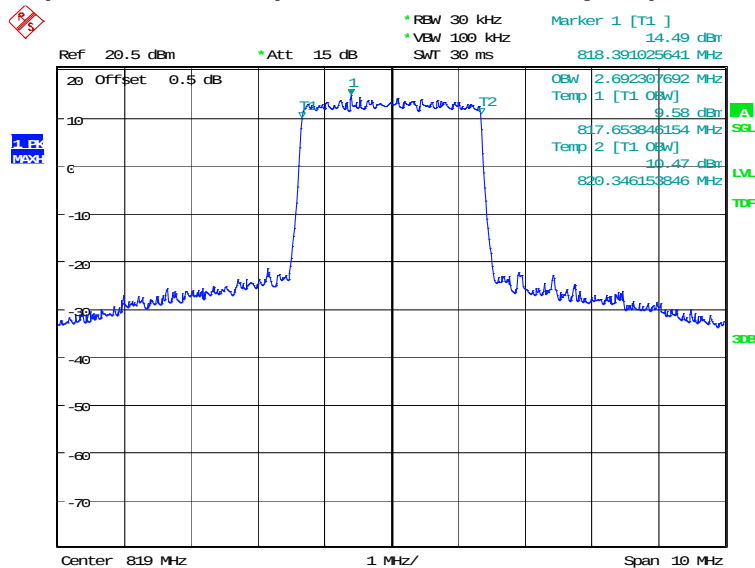
| Frequency (MHz) | Occupied Bandwidth (99%)( kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 819.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 2692.31                        | 2692.31 | 2692.31 |

### LTE band 26(814MHz~824MHz), 3MHz Bandwidth, QPSK (99% BW)



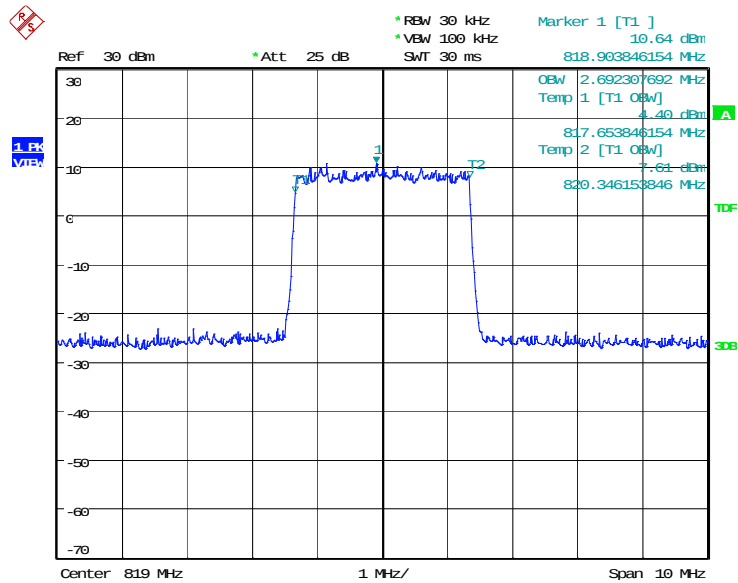
Date: 14.JAN.2020 02:07:39

### LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:09:03

# LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 64QAM (99% BW)

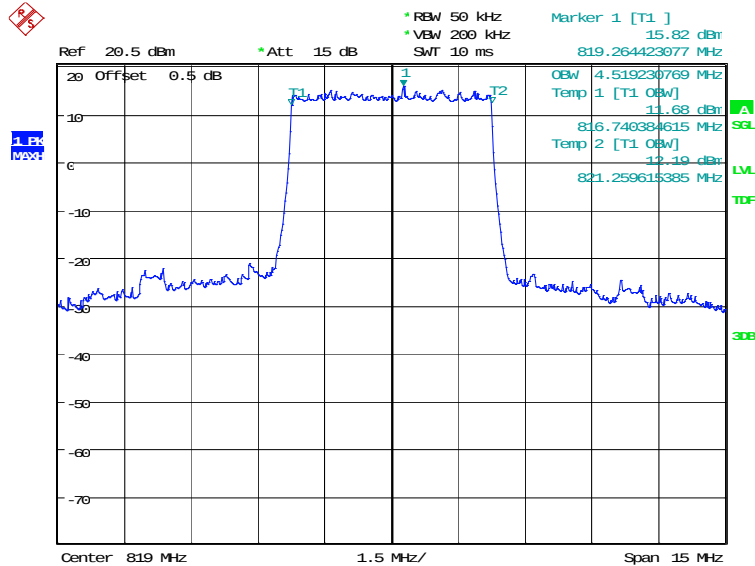


Date: 18.JAN.2020 17:13:40

### LTE band 26(814MHz~824MHz), 5MHz (99%)

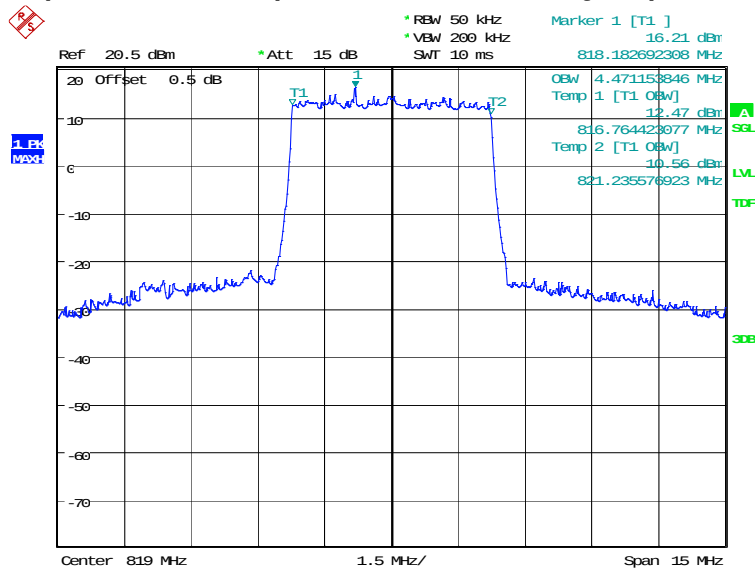
| Frequency (MHz) | Occupied Bandwidth (99%)( kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 819.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 4519.23                        | 4471.15 | 4471.15 |

### LTE band 26(814MHz~824MHz), 5MHz Bandwidth, QPSK (99% BW)



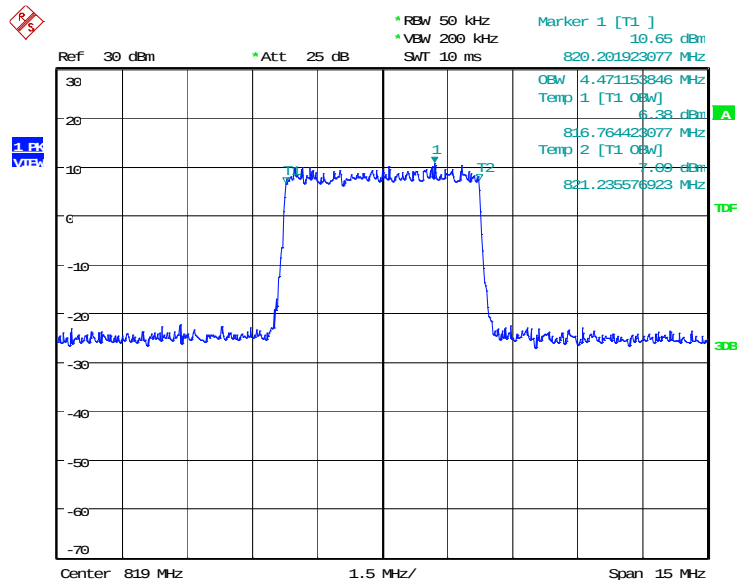
Date: 14.JAN.2020 02:11:24

### LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:12:49

# LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 64QAM (99% BW)

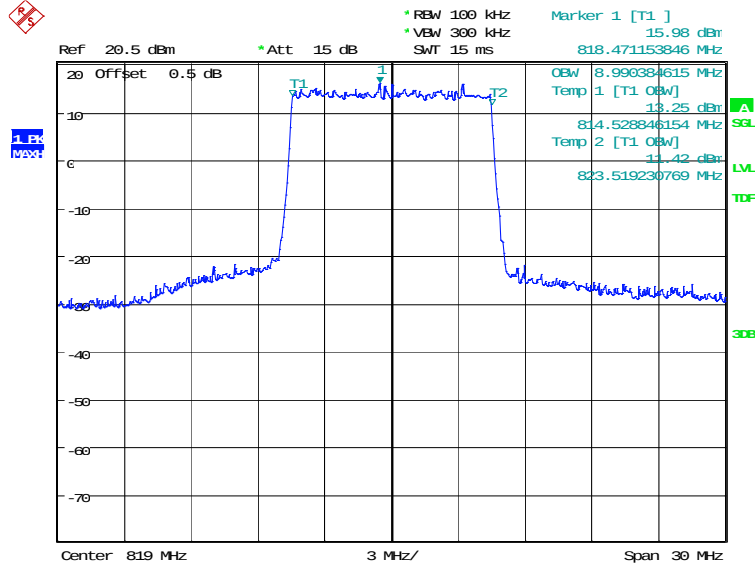


Date: 18.JAN.2020 17:14:53

### LTE band 26(814MHz~824MHz), 10MHz (99%)

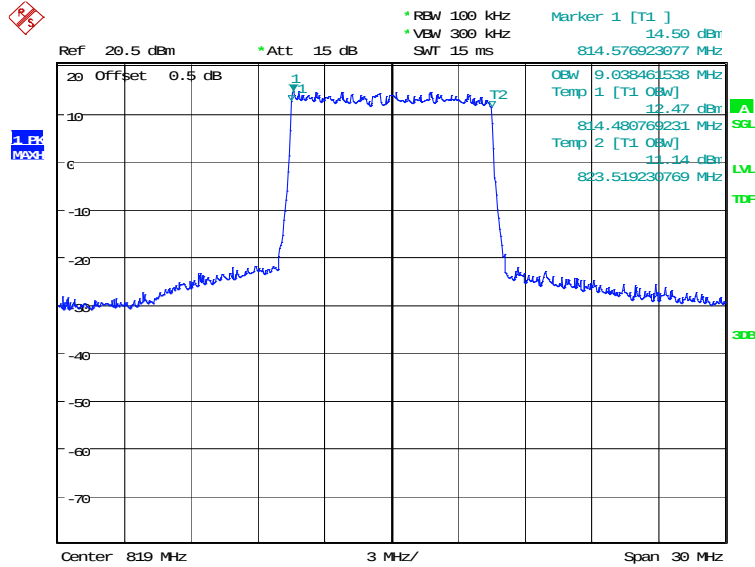
| Frequency (MHz) | Occupied Bandwidth (99%)( kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 819.0           | QPSK                           | 16QAM   | 64QAM   |
|                 | 8990.38                        | 9038.46 | 8990.38 |

### LTE band 26(814MHz~824MHz), 10MHz Bandwidth, QPSK (99% BW)



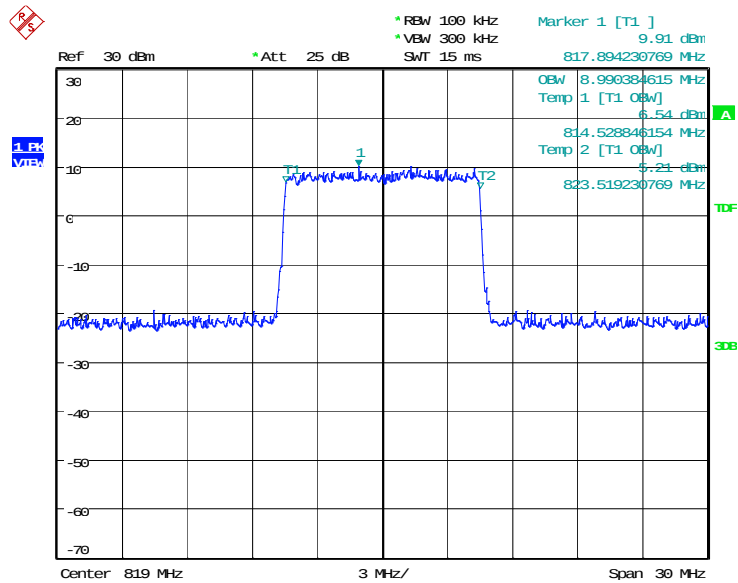
Date: 14.JAN.2020 02:15:08

### LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:16:33

# LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 64QAM (99% BW)

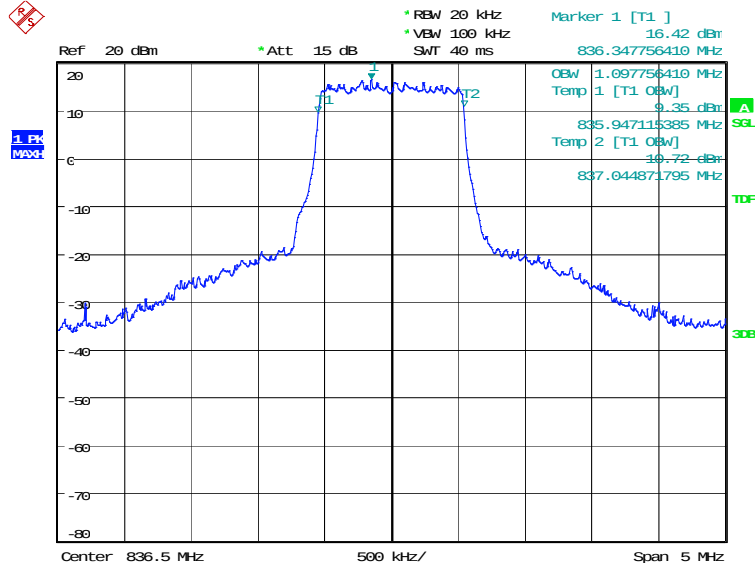


Date: 18.JAN.2020 17:16:04

### LTE band 26(824MHz~849MHz), 1.4MHz (99%)

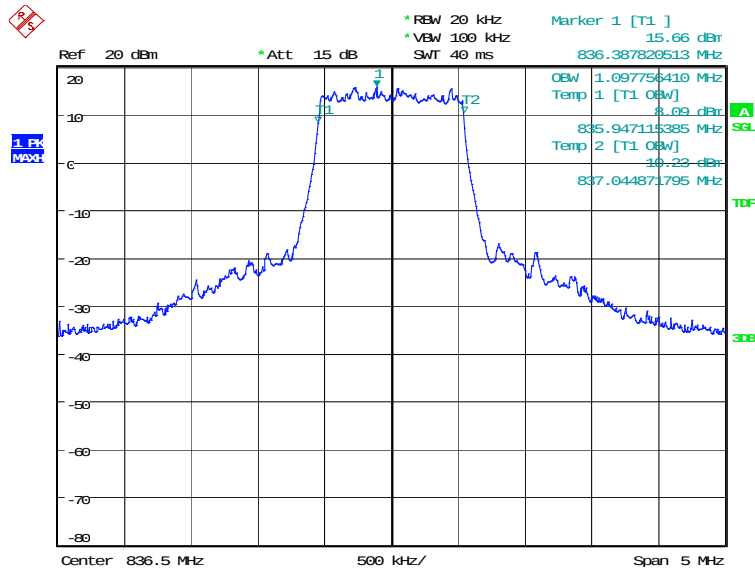
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 836.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 1097.76                        | 1097.76 | 1089.74 |

### LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, QPSK (99% BW)



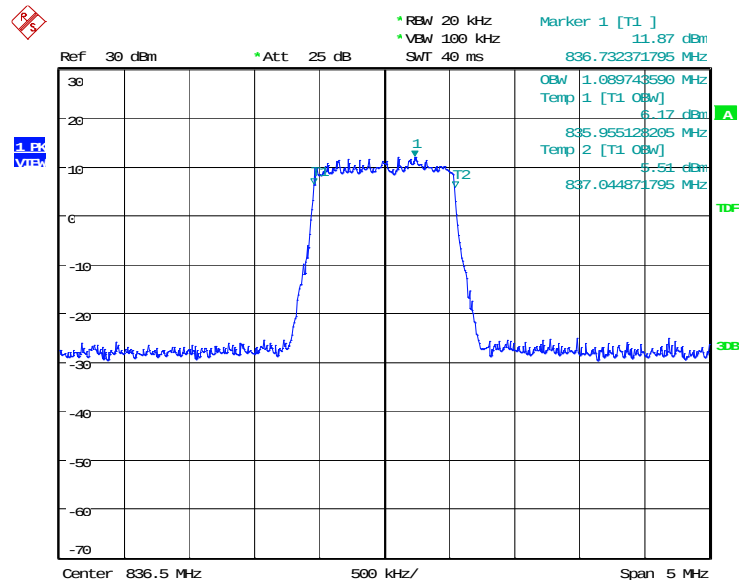
Date: 14.JAN.2020 01:45:13

### LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:46:37

**LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 64QAM (99% BW)**

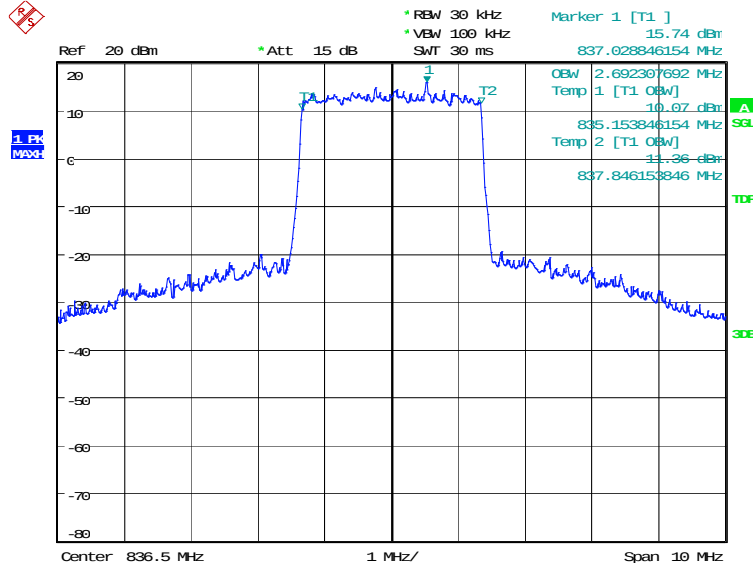


Date: 18.JAN.2020 16:30:38

### LTE band 26(824MHz~849MHz), 3MHz (99%)

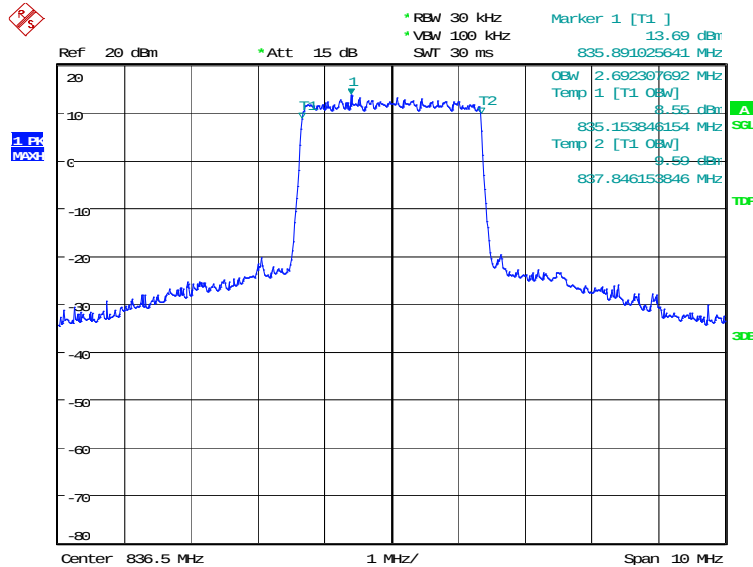
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 836.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 2692.31                        | 2692.31 | 2692.31 |

### LTE band 26(824MHz~849MHz), 3MHz Bandwidth, QPSK (99% BW)



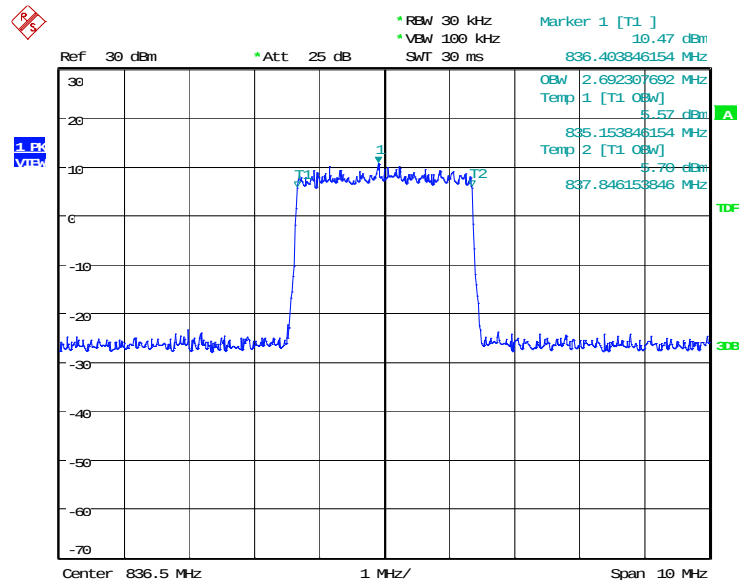
Date: 14.JAN.2020 01:48:56

### LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:50:21

# LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 64QAM (99% BW)

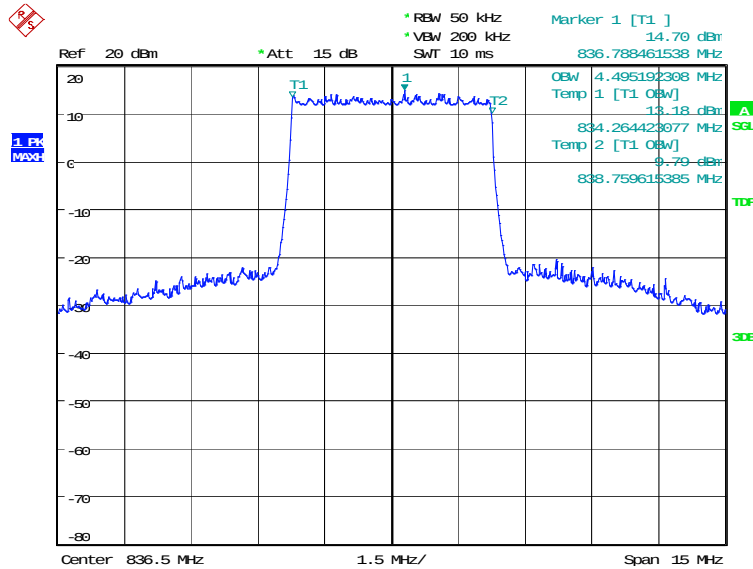


Date: 18.JAN.2020 16:31:45

### LTE band 26(824MHz~849MHz), 5MHz (99%)

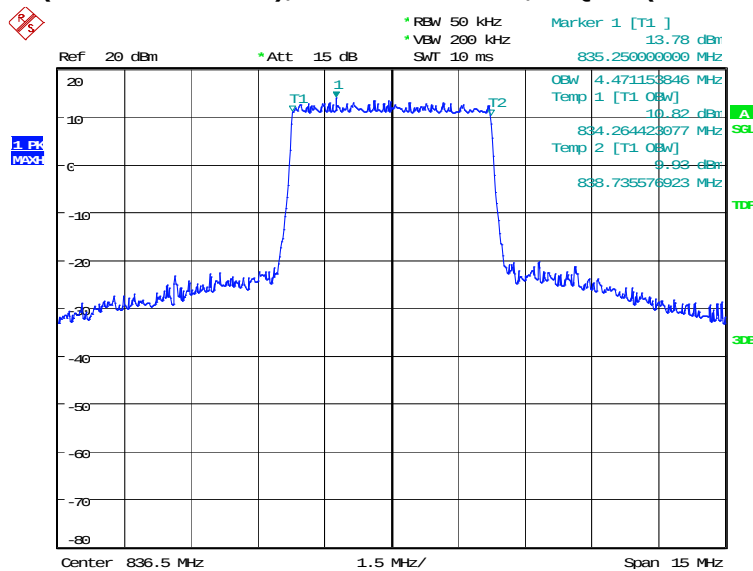
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 836.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 4495.19                        | 4471.15 | 4495.19 |

### LTE band 26(824MHz~849MHz), 5MHz Bandwidth, QPSK (99% BW)



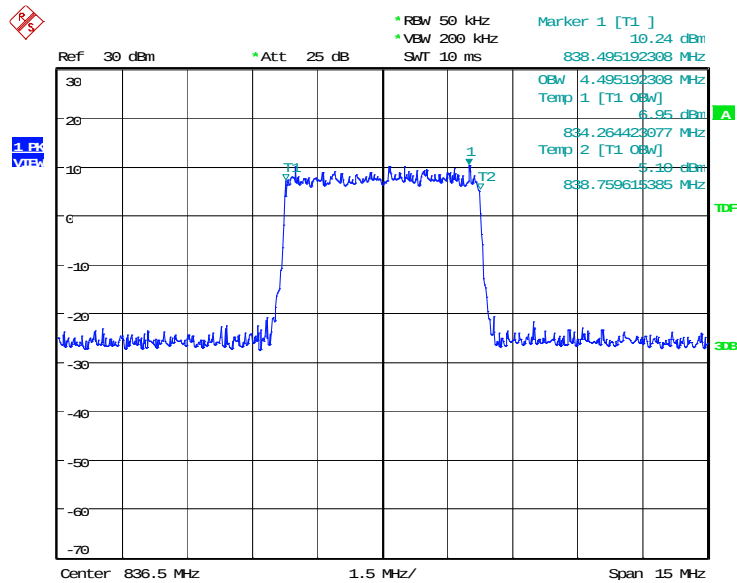
Date: 14.JAN.2020 01:52:39

### LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:54:04

# LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 64QAM (99% BW)

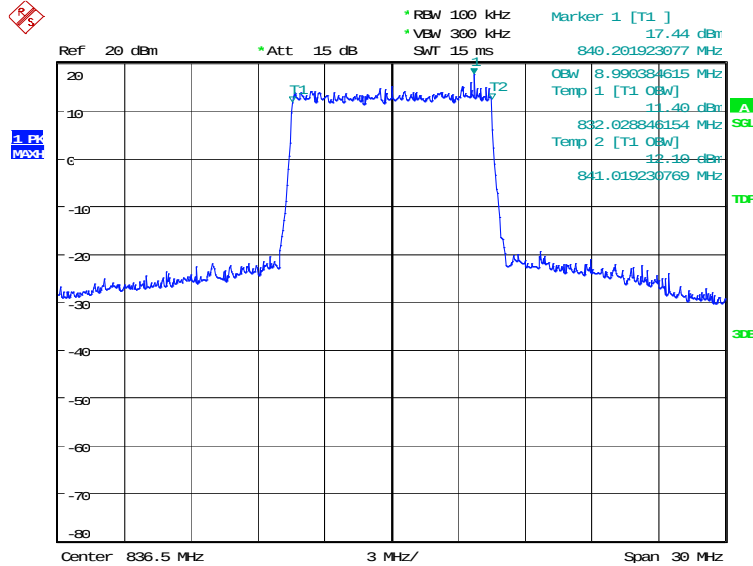


Date: 18.JAN.2020 16:33:09

### LTE band 26(824MHz~849MHz), 10MHz (99%)

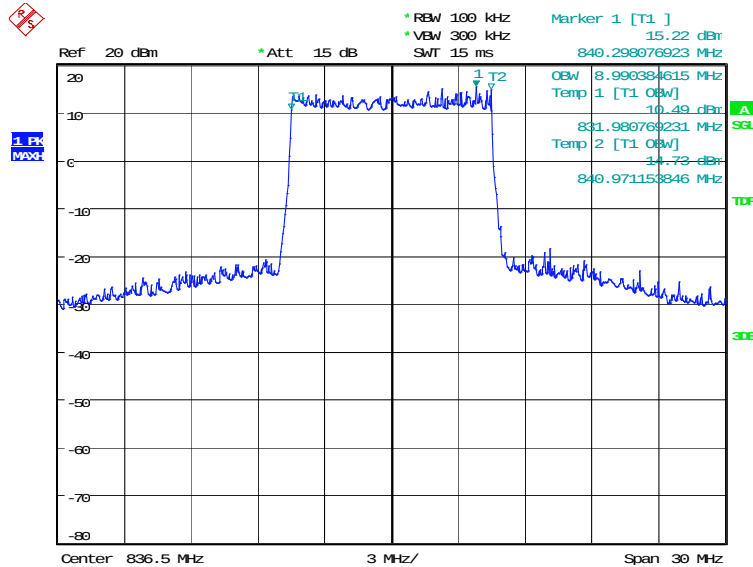
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 836.5           | QPSK                           | 16QAM   | 64QAM   |
|                 | 8990.38                        | 8990.38 | 8990.38 |

### LTE band 26(824MHz~849MHz), 10MHz Bandwidth, QPSK (99% BW)



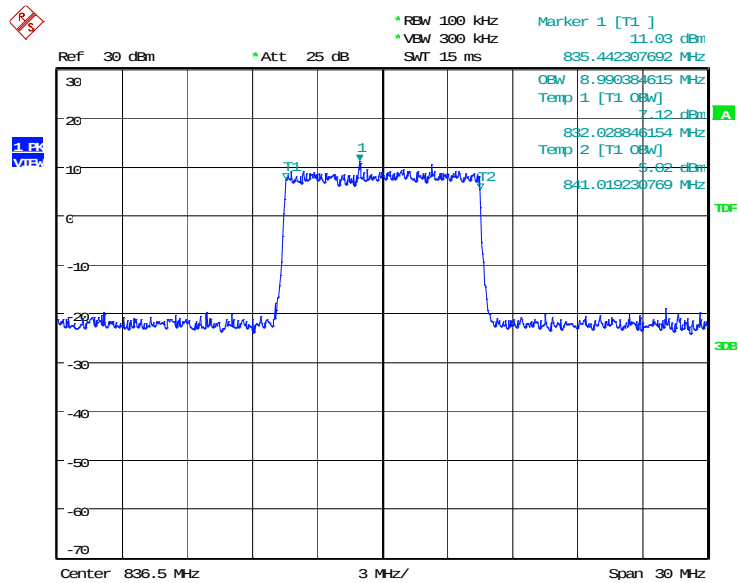
Date: 14.JAN.2020 01:56:25

### LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 01:57:49

# LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 64QAM (99% BW)

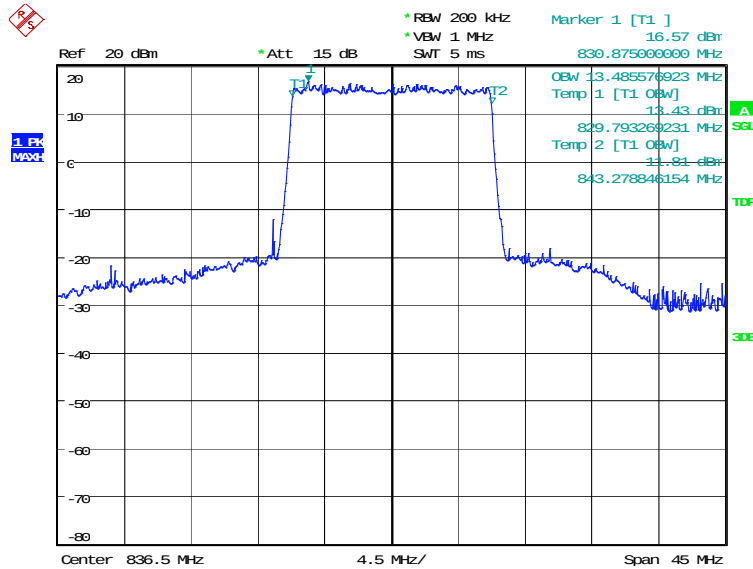


Date: 18.JAN.2020 16:34:56

### LTE band 26(824MHz~849MHz), 15MHz (99%)

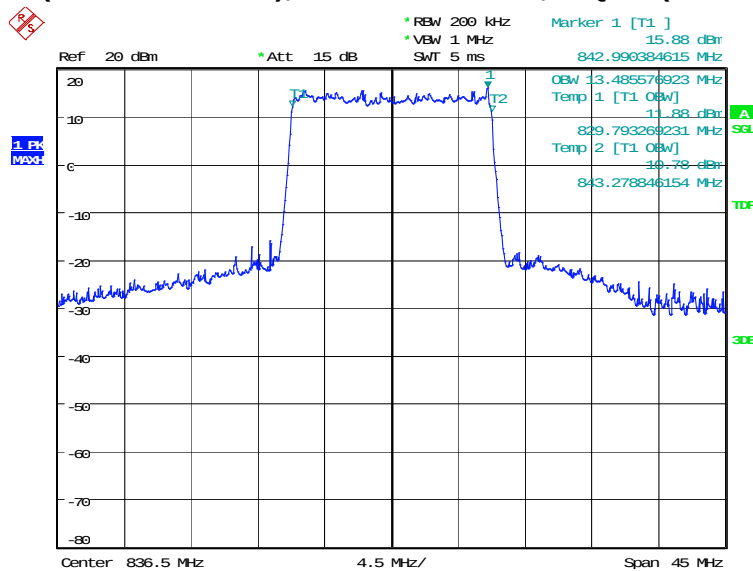
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 836.5           | QPSK                           | 16QAM    | 64QAM    |
|                 | 13485.58                       | 13485.58 | 13485.58 |

### LTE band 26(824MHz~849MHz), 15MHz Bandwidth, QPSK (99% BW)



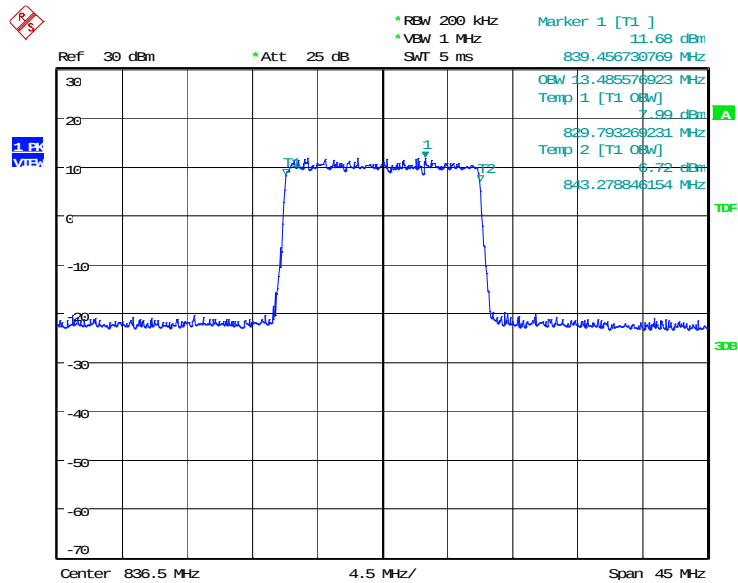
Date: 14.JAN.2020 02:00:10

### LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:01:35

# LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 64QAM (99% BW)

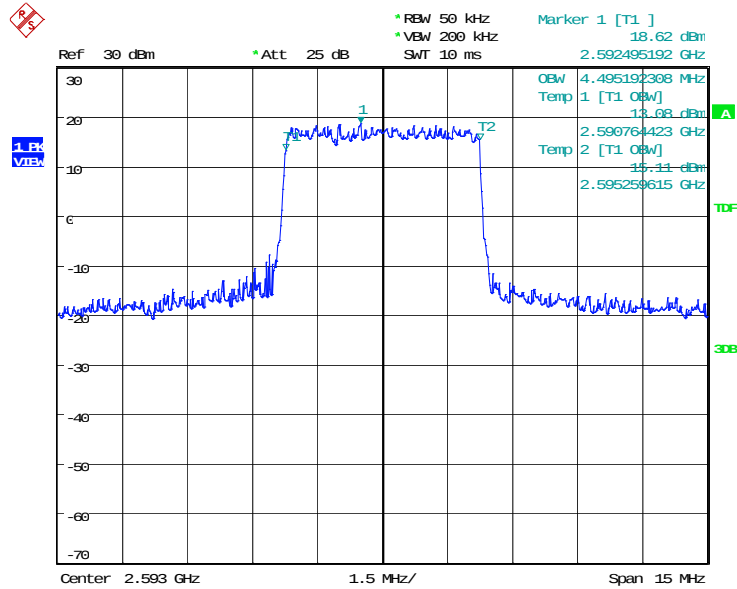


Date: 18.JAN.2020 17:09:07

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

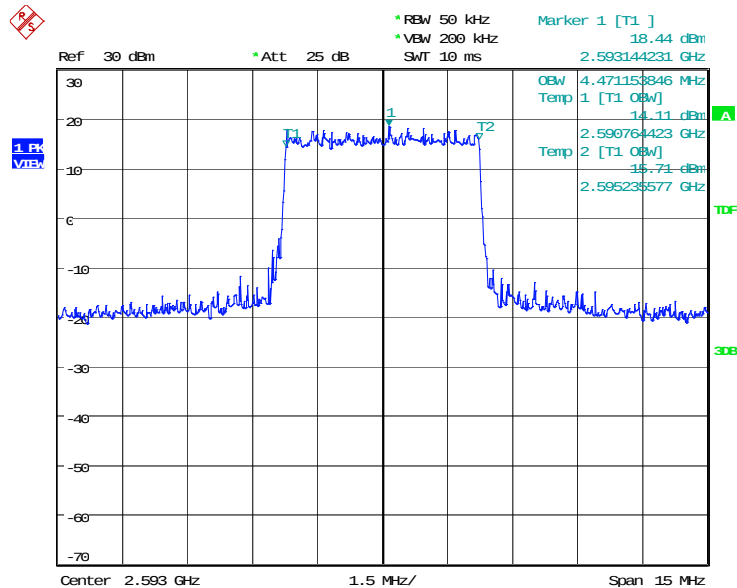
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 2593.0          | QPSK                           | 16QAM   | 64QAM   |
|                 | 4495.19                        | 4471.15 | 4495.19 |

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



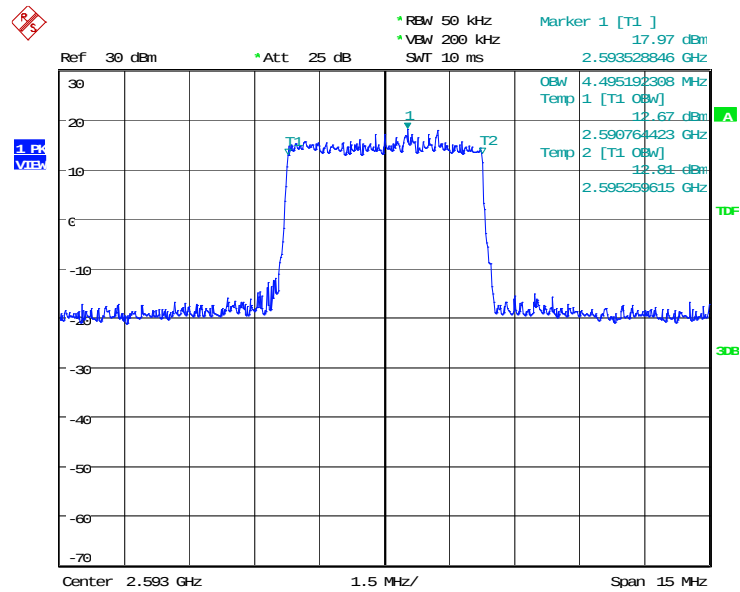
Date: 28.FEB.2020 10:51:52

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



Date: 28.FEB.2020 10:44:42

# LTE band 41, 5MHz Bandwidth,64QAM (99% BW)

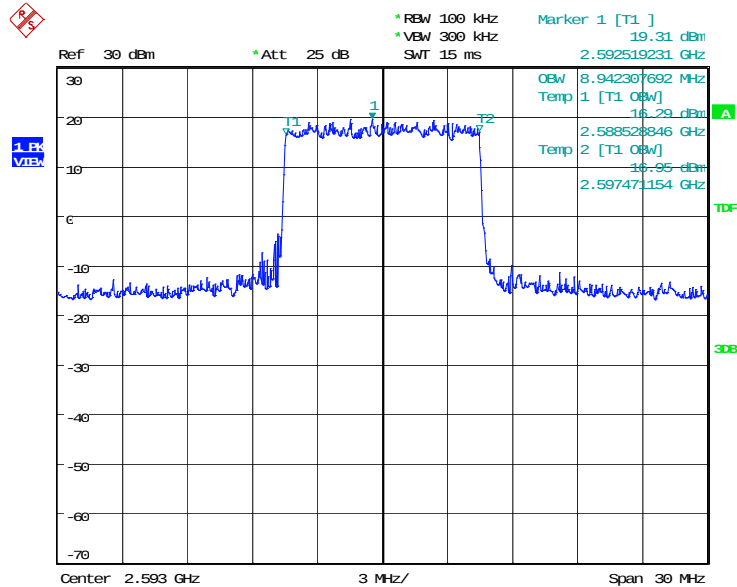


Date: 28.FEB.2020 10:38:54

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

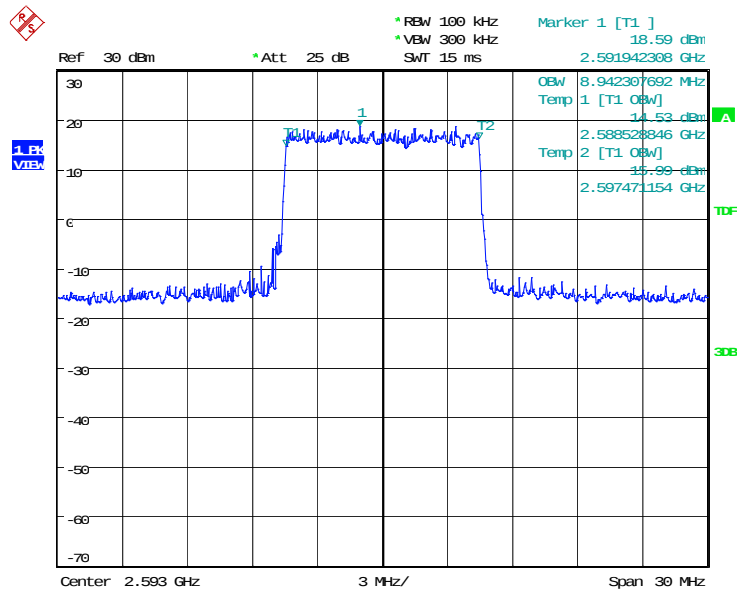
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 2593.0          | QPSK                           | 16QAM   | 64QAM   |
|                 | 8990.38                        | 8990.38 | 8990.38 |

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



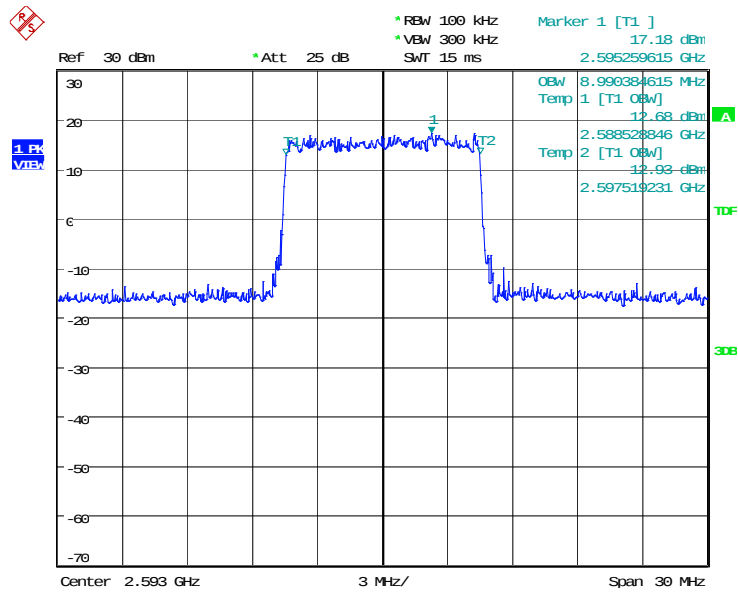
Date: 28.FEB.2020 10:53:00

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



Date: 28.FEB.2020 10:51:08

# LTE band 41, 10MHz Bandwidth, 64QAM (99% BW)

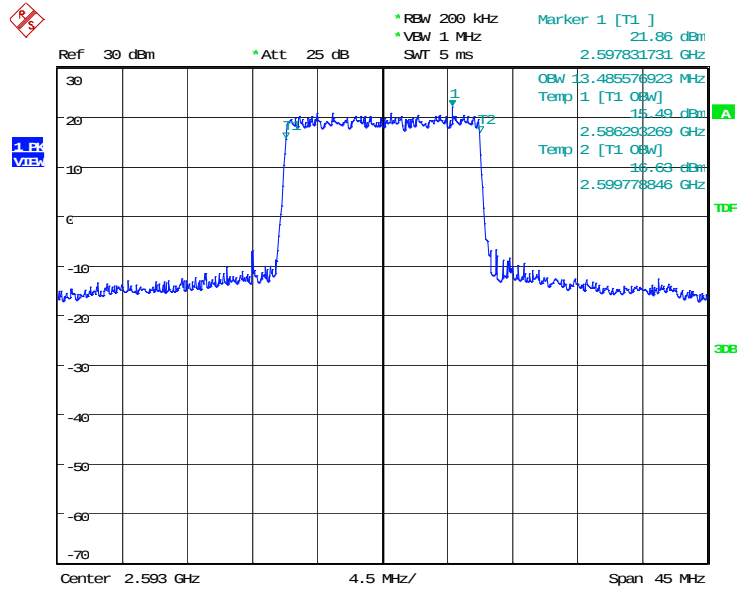


Date: 28.FEB.2020 10:40:53

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

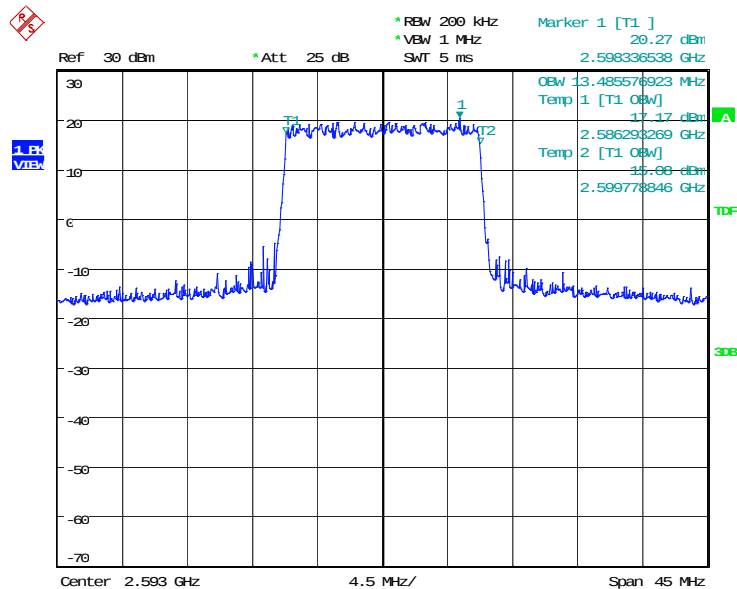
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 2593.0          | QPSK                           | 16QAM    | 64QAM    |
|                 | 13485.58                       | 13485.58 | 13485.58 |

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



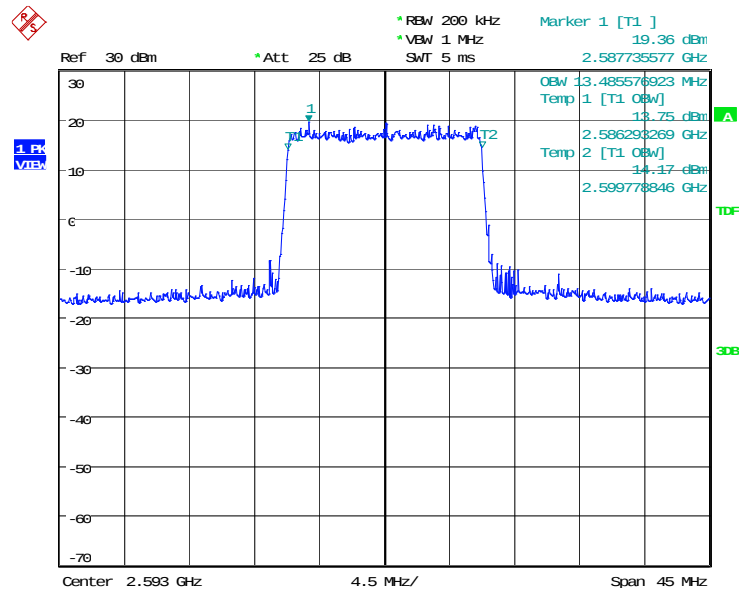
Date: 28.FEB.2020 10:54:25

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



Date: 28.FEB.2020 10:48:07

# LTE band 41, 15MHz Bandwidth, 64QAM (99% BW)

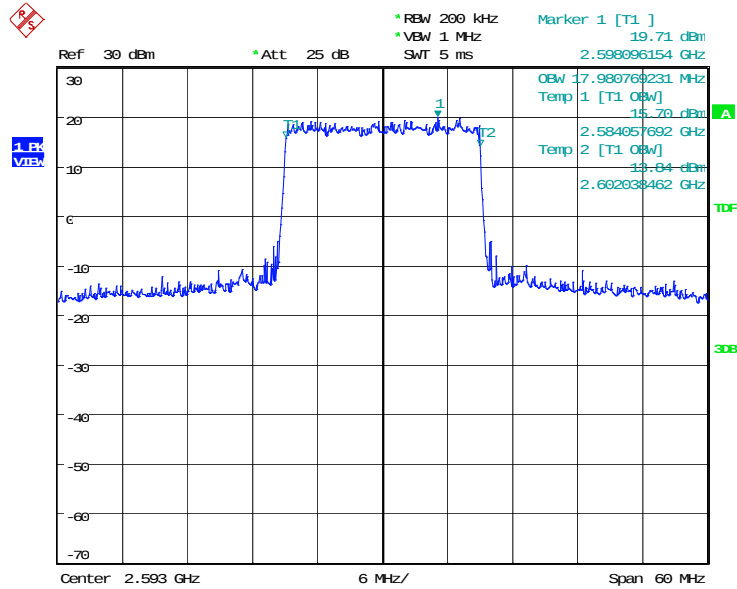


Date: 28.FEB.2020 10:42:02

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

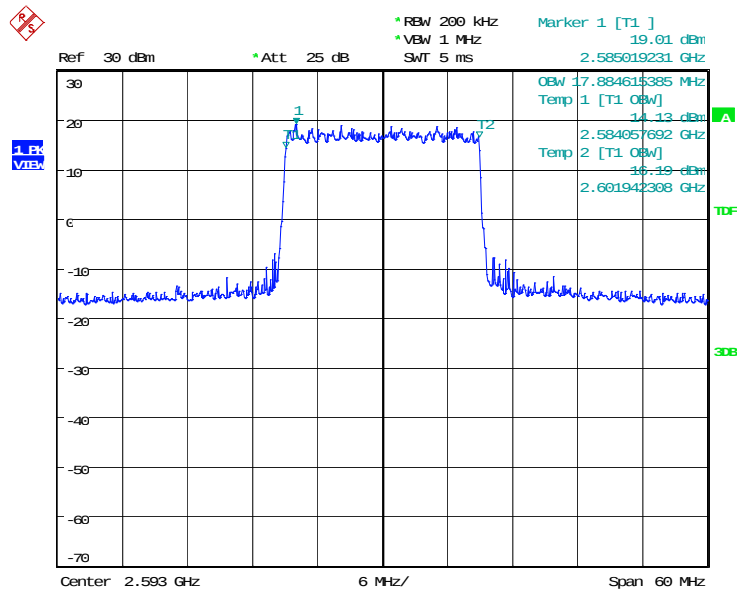
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 2593.0          | QPSK                           | 16QAM    | 64QAM    |
|                 | 17980.77                       | 17884.62 | 17980.77 |

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



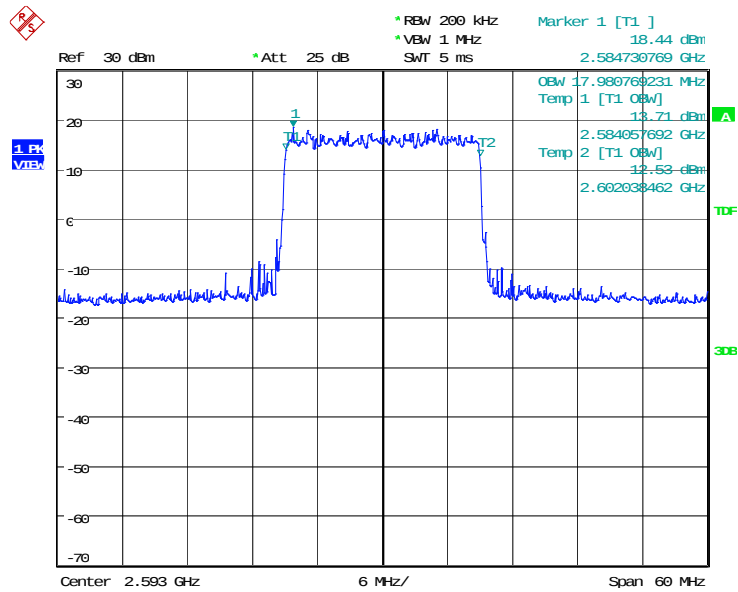
Date: 28.FEB.2020 10:55:35

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



Date: 28.FEB.2020 10:49:05

# LTE band 41, 20MHz Bandwidth, 64QAM (99% BW)

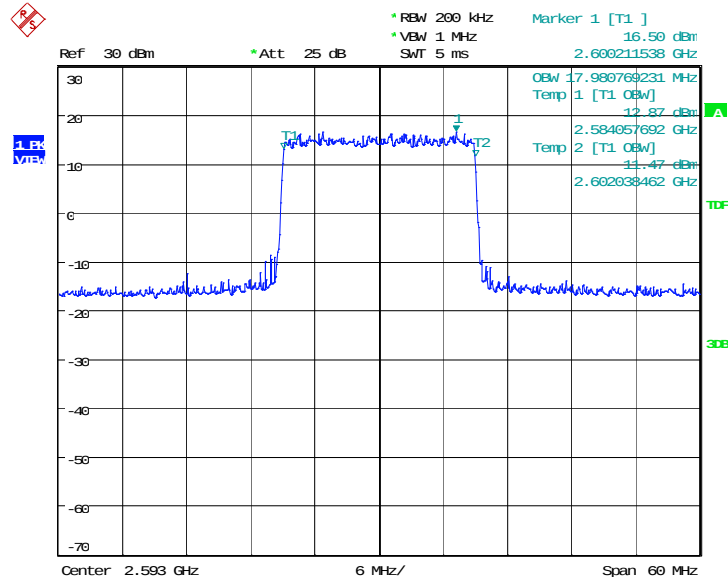


Date: 28.FEB.2020 10:43:04

### LTE band 41-Normal Power, 20MHz (99%)

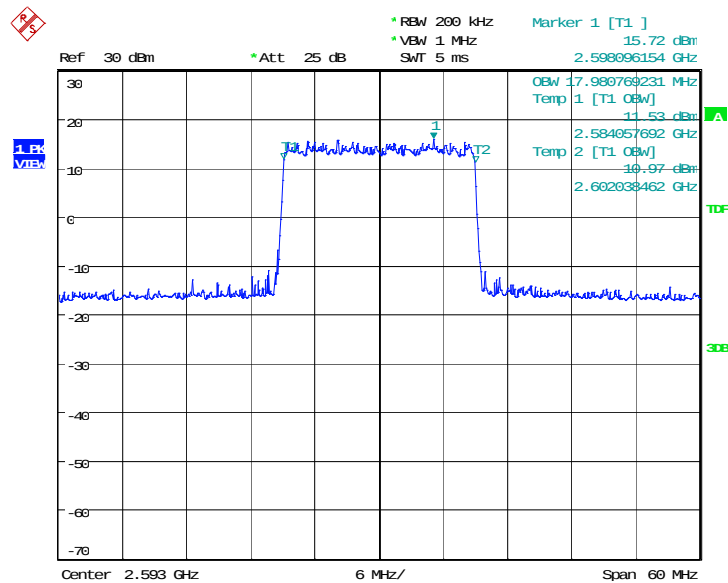
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |          |          |
|-----------------|--------------------------------|----------|----------|
| 2593.0          | QPSK                           | 16QAM    | 64QAM    |
|                 | 17980.77                       | 17980.77 | 17980.77 |

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



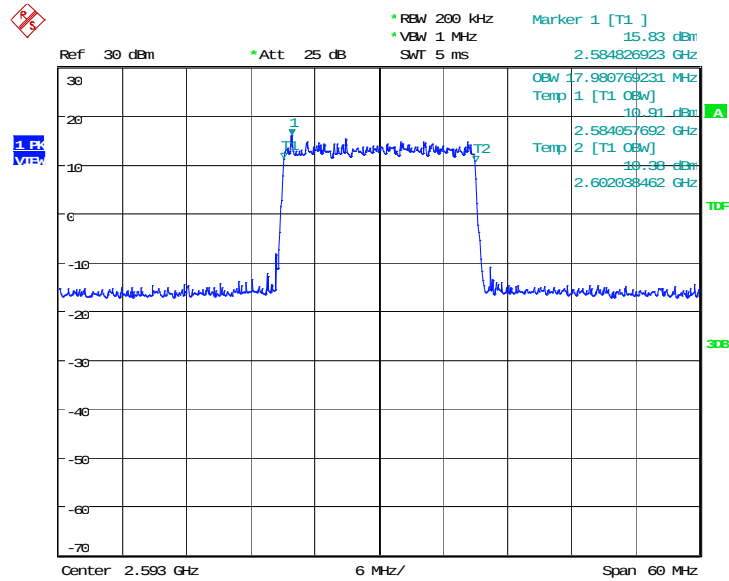
Date: 19.FEB.2020 22:22:21

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



Date: 19.FEB.2020 22:23:06

# LTE band 41, 20MHz Bandwidth, 64QAM (99% BW)

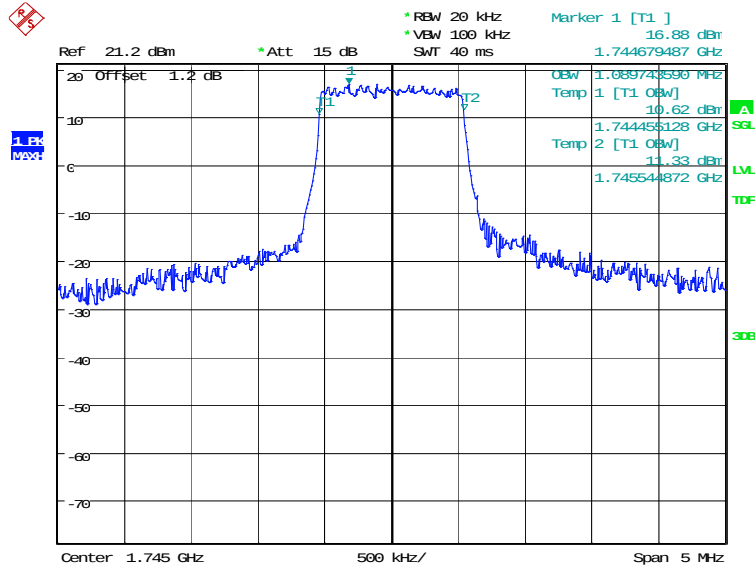


Date: 19.FEB.2020 22:21:18

### LTE band 66, 1.4MHz (99%)

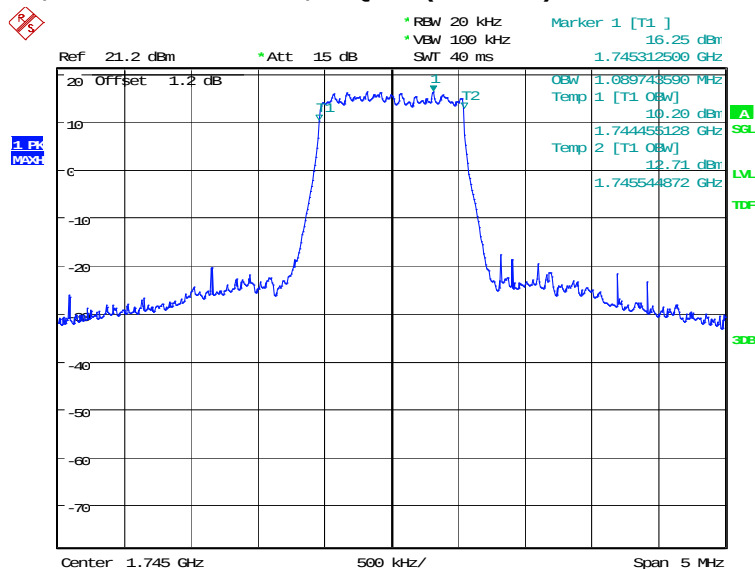
| Frequency (MHz) | Occupied Bandwidth (99%) (kHz) |         |         |
|-----------------|--------------------------------|---------|---------|
| 1745.0          | QPSK                           | 16QAM   | 64QAM   |
|                 | 1089.74                        | 1089.74 | 1089.74 |

### LTE band 66, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 14.JAN.2020 02:18:53

### LTE band 66, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 14.JAN.2020 02:20:18